

### THE CORPORATION OF THE TOWNSHIP OF WAINFLEET

### SPECIAL MEETING OF COUNCIL AGENDA

### SEPTEMBER 2, 2021 – 7:00 P.M.

### **COUNCIL CHAMBERS**

C18/21

- 1. Call to Order
- 2. Land Acknowledgement Statement
- 3. Disclosure of Pecuniary Interest and the General Nature Thereof
- 4. Staff Reports & Recommendations
  - a) Drainage Staff Reports
    - i. <u>DSR-014/2021</u> Re: Petition for Drainage Works, Chambers Corner Drain Extension
  - b) Fire Staff Reports
    - i. <u>FSR-011/2021</u> Re: Central Fire Station Pre-Tender Design/Financials
  - c) Public Works Staff Reports
    - i. <u>PWSR-020/2021</u> Re: Award of Tender Marshville Drive

### 5. Closed Meeting

- a) Item under Section 239 (2) (e) of the Municipal Act, 2001, litigation or potential litigation, including matters before administrative tribunals, affecting the municipality or local board – 1 item (A potential litigation matter)
- b) Item under Section 239(2)(d) of the Municipal Act, 2001, Labour relations or employee negotiations 1 item (A labour relations matter)
- 6. Rise & Report
- 7. Adjournment of Meeting

### DRAINAGE STAFF REPORT

TO:Mayor Gibson & Members of CouncilFROM:Mark Jemison, Drainage SuperintendentDATE OF MEETING:September 2, 2021SUBJECT:Petition for Drainage Works, Chambers Corner Drain Extension

### **RECOMMENDATION(S):**

**THAT** Drainage Staff Report DSR-014/2021 Petition for Drainage Works, Chambers Corner Drain Extension, be received as information;

**AND THAT** Council accept the Petition for Drainage Works and authorize staff to prepare and distribute the necessary notices in accordance with Section 5(1) *Drainage Act;* 

**AND FURTHER THAT** Council appoint Spriet Associates Engineering under the *Drainage Act* to create a drainage outlet for the Central Fire Station "Chambers Corner Drain Extension" and if required improve the Chambers Corner Drain

### **EXECUTIVE SUMMARY:**

Drainage improvements are required to facilitate the construction of the Central Fire Station. Section 4 of the *Drainage Act* would allow for a new municipal drain to connect the facility to the existing Chambers Corner Municipal Drain. If improvements are required to the Chambers Corner Drain a Section 78 improvement project can be undertaken concurrently.

### BACKGROUND:

Through the engineering and design of the Central Fire Station the need for an improved drainage outlet was identified. Existing drainage at the Central Fire Station property utilizes a 250m long ditch, which flows across a neighbouring property and into the Chambers Corner Municipal Drain.

The petition submitted under Section 4 of the *Drainage Act* would formalize and improve the existing ditch to facilitate drainage of the Central Fire Station and any associated future works on the site. The new municipal drain would also provide a schedule for future maintenance to assess costs equitably across the watershed. If the existing Chambers Corner Drain requires improvements to accommodate the increased flows, Section 78 of the *Drainage Act* can be utilized.

Staff have discussed the project with the neighbouring property owner, who has verbally expressed their support for the creation of the municipal drain.

### OPTIONS/DISCUSSION:

- 1) Council accept the Petition for Drainage Works and authorize staff to prepare the necessary notices in accordance with the *Drainage Act* (recommended).
- 2) Do not support the Petition for Drainage Works (Not recommended).

### **FINANCIAL CONSIDERATIONS:**

If approved by Council the Township will be required to carry the costs of the project until the report is completed and the costs are allocated to the appropriate property owners in accordance with the Drainage Act.

Final actual costs to the Township will only be those assessed to the roads and lands of the Township identified in the report for any maintenance or improvements completed on the drain as outlined in the Section 4 report. A Section 4 engineering report is 100% billable and eligible for grant from OMAFRA. Final costs to the Township would only be those assessed to the roads and lands of the Township which are identified in the report, as per the Drainage Act R.S.O. 1990.

### **OTHERS CONSULTED:**

1) Strategic Leadership Team

### ATTACHMENTS:

- 1) Petition for Drainage Works
- 2) Mapping

Respectfully submitted by,

Approved by,

Mark Jemison Drainage Superintendent William J. Kolasa Chief Administrative Officer



Ministry of Agriculture, Food and Rural Affairs Petition for Drainage Works by Owners Form 1

Drainage Act, R.S.O. 1990, c. D.17, clause 4(1)(a) or (b)

This form is to be used to petition municipal council for a new drainage works under the *Drainage Act*. It is not to be used to request the improvement or modification of an existing drainage works under the *Drainage Act*.

To: The Council of the Corporation of the Township	of Wainfleet	
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The area of land described below requires drainage (provide a description of the properties or the portions of properties that require drainage improvements)

42143 Highway 3 (2714000008140) and 27140000081390 require a drainage outlet to reach the Chambers Corner Municipal Drain to accommodate increased stormwater flows due to the construction of the Central Fire Station.

In accordance with section 9(2) of the *Drainage Act*, the description of the area requiring drainage will be confirmed or modified by an engineer at the on-site meeting.

As owners of land within the above described area requiring drainage, we hereby petition council under subsection 4(1) of the *Drainage Act* for a drainage works. In accordance with sections 10(4), 43 and 59(1) of the *Drainage Act*, if names are withdrawn from the petition to the point that it is no longer a valid petition, we acknowledge responsibility for costs.

Purpose of the Petition (To be completed by one of the petitioners. Please type/print)

Contact Person (Last Name) Jemison		(First Name)	Telephone Number	Telephone Number	
		Mark	905 899-3463	ext. 228	
Address					
Road/Street Number	Road/Street Name				
	The wanter study with the second of the second seco				

Lot	Concession	Municipality	Former Municipality (if applicable)				
20	Wainfleet						
What work do you require? (Check all appropriate boxes)							
Construction of new open channel							
Construction of new	Construction of new tile drain						
Deepening or wider	ing of existing watercour	rse (not currently a municipal drain)					
Enclosure of existin	g watercourse (not curre	ntly a municipal drain)					
Other (provide desc	ription <b>V</b> )						
Name of watercourse (i	f known)						
Chambers Corner Dra	in Extension						
Estimated length of pro	ject						
225m							
General description of soils in the area							
loam/clay							
What is the purpose of the proposed work? (Check appropriate box)							
□ Tile drainage only □ Surface water drainage only ☑ Both							

Property Owners Signing The Petition			Page of
<ul> <li>Your municipal property tax bill will provide the property</li> </ul>	y description and par	cel roll number.	
In rural areas, the property description should be in the	form of (part) lot and	concession and civic	address.
<ul> <li>In urban areas, the property description should be in the</li> </ul>	e form of street addr	ess and lot and plan n	umber if available.
<ul> <li>If you have more than two properties, please take copy</li> </ul>	(ies) of this page and	continue to list them	all.
Number Property Description			
Ward or Geographic Township	Parcel Roll Nu	mber	
I hereby petition for drainage for the land described and ac	knowledge my financ	ial obligations.	
Ownership			
Sole Ownership	. 2		
Owner Name (Last, First Name) (Type/Print)	Signature		Date (yyyy/mm/dd)
Partnership (Each partner in the ownership of the prope	erty must sign the pet	ition form)	
Owner Name (Last, First Name) (Type/Print)	Signature		Date (yyyy/mm/dd)
2 <del></del>			
Corporation (The individual with authority to bind the co	prporation must sign t	he petition)	
Name of Signing Officer (Last, First Name) (Type/Print)	)	Signature	
Kolasa, William		_	
Name of Corporation The Corporation of the Township of Wainfleet			
Position Title		I have the authority	to bind the Corporation.
CAO/Clerk			
Number Property Description			
Ward or Geographic Township	Parcel Roll Nu	Imber	
		int abligations	
I hereby petition for drainage for the land described and ac	cknowledge my financ	cial obligations.	
Owner Name (Last. First Name) (Type/Print)	Signature		Date (yyyy/mm/dd)
Partnership (Each partner in the ownership of the properties of th	erty must sign the per	tition form)	
Owner Name (Last, First Name) (Type/Print)	Signature		Date (yyyy/mm/dd)
Corporation (The individual with authority to bind the co	orporation must sign t	the petition)	
Name of Signing Officer (Last, First Name) (Type/Print	)	Signature	
Kolasa, William		_	
Name of Corporation			to hind the Correction
Position Title		Date (www/mm/dd)	to bind the Corporation.
CAO/Clerk			
Check here if additional sheets are attached			Clerk initial
Petitioners become financially responsible as soon as they s	sign a petition.		
Once the petition is accepted by council, an engineer is apport	pinted to respond to the	petition. Drainage Act, R	.S.O. 1990, c. D. 17 subs. 8(1)
<ul> <li>After the meeting to consider the preliminary report, if the petitivity of the period o</li></ul>	tition does not comply w	vith section 4, the project	is terminated and the original

<sup>petitioners are responsible in equal shares for the costs. Drainage Act, R.S.O. 1990, c. D. 17 subs. 10(4).
After the meeting to consider the final report, if the petition does not comply with section 4, the project is terminated and the original</sup> 

### Appendix "B" to DSR-014/2021

DSR 14/2021 – Attachment 2, Mapping for Chambers Corner Extension Drain (Proposed)



All Mapping Approximate

WAINFLE

### FIRE STAFF REPORT

TO:	Mayor Gibson & Members of Council		
FROM:	M. Alcock, Fire Chief/CEMC		
DATE OF MEETING:	September 2, 2021		
SUBJECT:	Central Station Fire Station Pre-Tender Design & Updated Cost Consultant Report		

### **RECOMMENDATION(S):**

**THAT** Fire Staff Report FSR-011/2021 respecting the Central Station Fire Station Pre-Tender Design and Updated Cost Report, be received;

**AND THAT** Council direct staff to proceed with the preparation and issuance of a Construction Tender for the Fire Station based on the Construction Drawings as attached to this report;

**AND THAT** staff be directed to return to Council for upon completion of the Tender process, to award the Tender to the successful bidder.

### EXECUTIVE SUMMARY:

This report includes a summary of progress that has been made on the Central Fire Station project. In accordance with Council's direction provided May 11, 2021, Staff have been working with the Project Design Team on the development of final Construction Drawings, Engineering, Contractor Pre-Qualification, Cost Estimations and Tender preparation.

### BACKGROUND:

On December 1, 2020, a Special Council meeting was held to discuss the project. Council directed staff, through Resolution No. C-2020-233, to proceed with a request for proposal for architectural design, engineer and contract administration services for Option 9, which included the following project scope:

Detail	Option 9	
Building Size	+/- 12,000 sq. ft.	
Structure Type	Load bearing concrete block	
Roof Construction	Engineered Steel Truss Roof	
Interior Walls	Concrete block	
Insulation	Closed Cell Foam Sprayed on block / attic insulated	
Exterior Cladding	Metal Siding / Brick lower 36"	
Roofing	Metal roof	
Estimated Life Span	75+ Years	

Staff prepared an RFP for Architectural Design, Engineering and Contract Administration services, and published it on the Township's Website on December 18, 2020 until January 19, 2021.

On January 26, 2021, Council awarded the contract to Raimondo & Associates Architects Inc. and directed staff to work with the firm in the development of the project.

On May 11, 2021, staff presented Council with FSR007/2021 which provided the updated schematic design and basic cost estimates prepared by the Consultant. Council directed staff to proceed with the preparation of full Construction Drawings and all required Engineering for the Fire Station based on the Concept Design, undertake a Contractor Prequalification to predetermine eligible contractors prior to the issuance of the Tender, and to return to Council with the final Construction Drawings, Engineering and an updated Cost Estimate prior to the issuance of the Construction Tender.

On August 3, 2021, Planning Staff presented Council with the Site Plan Application report (PSR010/2021), Council approved the site plan application SP02/2021W for the Central Fire Station and authorized staff to make minor modifications to the approved drawings should any modifications be required as a result of pending Ministry of Transportation (MTO) comments.

### **DISCUSSION:**

### **Construction Drawings & Engineering**

In working with the Architect and Engineers with the development of the Final Construction Drawings (Appendix A), the Team has worked through a number of scenarios to ensure costs are minimized while balancing safety, quality and longevity as prioritized by Council. Items include, alternative finishes, reduced concrete and asphalt, elimination of the lined and secured pond, etc. In working to meet the MTO's requirements for Storm Water Management (SWM), the entrance width had to be reduced, additional curbs included and the overall lot grading plan adjusted to flow all water to the south boundary. Due to soil conditions, an extremely large yet shallow SWM pond would have to be employed. In discussion with the Drainage Superintendent, it was determined that a Drainage Act Section 4 Petition could be undertaken to re-engineer pre-existing ditch to handle the increased post development storm water flows. A separate report has been prepared by the Drainage Superintendent to address this matter.

### Updated Cost Report

Building on these revisions, and following the direction of the engineering firm, a Cost Consultant prepared an up to date estimate using current market values and developed a Costing Report (Appendix "B")

Staff and the Design Team reviewed the Cost Report and identified additional areas that could be changed, removed or reduced to further control project costs.

An "Allowances" line was provided in the updated report to include items not directly related to the General Contractors responsibilities. These items include; Alarm system, Furniture, Permits & Fees, Utility Services, etc. These costs will be directly managed by the project team to ensure costs are controlled.

It should be noted that the Contingency Allowance accounts for change orders and escalation. These risks can be mitigated through diligent planning and timely approvals to reduce further delays.

Lastly, the project team has been working with the Architect, Engineers and Cost Consultant on the Barn Alterations and have provided an estimated contained within the Cost Report (pages 12-15) as a Separate Price.

The following table summarizes the various areas contained within the Cost Report and the various changes that have occurred since May 11, 2021.

Cost Consultant Cost Report				
Area Description	May 11, 2021 Cost Report	August 25, 2021 Cost Report		
Excavation & Site works	\$ 1,009,754.00	\$ 809,918.00		
Concrete	\$ 234,592.00	\$ 272,300.00		
Masonry	\$ 502,225.00	\$ 453,945.00		
Metals	\$ 226,120.00	\$ 182,157.00		
Wood & Plastics	\$ 256,254.00	\$ 281,723.00		
Thermal & Moisture Protection	\$ 301,516.00	\$ 360,871.00		
Doors & Windows	\$ 150,230.00	\$ 139,830.00		
Finishes	\$ 222,129.00	\$ 205,744.00		
Specialties	\$ 69,946.00	\$ 64,946.00		
Equipment	\$ 0.00	\$ 52,700.00		
Furnishings	\$ 0.00	\$ 13,200.00		
Mechanical	\$ 397,080.00	\$ 446,455.00		
Electrical	\$ 301,609.00	\$ 315,584.00		
Estimated Construction Costs	\$ 3,671,455.00	\$ 3,599,373.00		
Allowances - Permits, Fees, FFE, Alarm, etc.	\$ 0.00	\$ 457,000.00		
General Contractor Conditions & Fees (12.5%)	\$ 458,932.00	\$ 507,047.00		
Subtotal	\$ 4,130,387.00	\$ 4,563,420.00		
Contingency Allowance (7.5%)	\$ 516,298.00	\$ 342,257.00		
Estimated Fire Station Costs (+HST)	\$ 4,646,685.00	\$ 4,905,677.00		
Barn Base Costs	\$ 0.00	\$ 187,153.00		
General Contractor Conditions & Fees (10%)	\$ 0.00	\$ 18,753.00		
Subtotal	\$ 0.00	\$ 205,868.00		
Contingency Allowance (7.5%)	\$ 0.00	\$ 15,440.00		
Estimated Barn Alteration Costs (+HST) \$221,308.0				
TOTAL ESTIMATED PROJECT COSTS (+HST) \$5,126,984.00				

### **Contractor Pre-Qualification**

Following Council's direction, the project team conducted a Contractor Pre-Qualification. The Request for Pre-Qualification was Issued on June 29, 2021 and posted to the Township's Website. On July 9, 2021, Addendum #1 was issued and also posted. The RPFQ closed on July 13, 2021 with nine (9) submissions received.

A review committee was established consisting of the Principal Architect, Project Architect, Chief Administrative Officer, Manager of Corporate Services (Finance), Manager of Operations (Facilities) and the Fire Chief. Each committee member was provided a score sheet to individually evaluate all submissions. Submissions were graded on various areas including:

- Financial Capacity and Surety,
- Work History and Relevant Experience,
- Licensing and Qualifications,
- Management Standards,
- Regulatory, Quality, Safety, and Environmental Performance Data.

On August 10, 2021 the committee met to review all submissions, combine scores and establish a "short list" of pre-qualified contractors. Of the nine proponents, seven (7) met the established 75% threshold and all proponents were notified of the results.

The prequalified contractors are:

- Bromac Construction Inc. (Fonthill)
- G.S. Wark Construction (Hamilton)
- Matheson Constructors (Aurora)
- MJ Dixon Construction Ltd. (Mississauga)
- Niacon Ltd. (Niagara Falls)
- TR Hinan Contractors Inc. (Fonthill)
- TRP Construction (Burlington)

### **Tender Development**

Contract Administration was included as part of the RFP for Architect, Engineering, and as such the project team has begun the development of the Tender Documents and final specifications. The "front end specifications" and Contract terms (Appendix D) have been submitted to the Township's Solicitor for review. Should Council direct staff to proceed with the issuance of Construction Tender, the Solicitor and Project Team will work diligently to ensure accuracy and detail to avoid change orders and cost overruns.

### FINANCIAL CONSIDERATIONS:

In April 2019, Council approved Phase 1: Land Acquisition, Preconstruction studies and Design/Engineering budget of \$850,000.00. In March 2020, Council approved Phase 2: Construction budget of \$4,500,000.00. For a combined estimated project total of \$5,350,00.00.

Staff would note that these original budget estimates were developed and considered by Council prior to the start of the COVID-19 Pandemic and subsequent global supply chain shortages and material costs increases. While the pandemic has significantly impacted the economies of nations around the world; through diligent oversight and project rationalization efforts with the assistance, support and guidance of Raimondo & Associates Architects Inc., staff believe that the revised design and costing estimates warrant support and endorsement to permit the project to proceed.

Annual Construction Costs escalates an estimated 5% per year before COVID-19. Given that the construction budget of \$4,500,000.00 was developed and originally set in 2019, it would be reasonable to accept that the current construction costs should be adjusted accordingly.

2019 - Budget	2020 5% Escalation	2021 5% Escalation
\$ 4,500,000.00	\$ 4,725,000.00	\$ 4,961,250.00

The Project Team continues to work diligently to minimize the impacts of COVID-19 and annual escalations, however some increases are inevitable and caution that any further delays will only continue to drive the cost of the project higher.

Description	Estimate	Expenses to Date	Unspent Balance	Notes
Purchase property	\$ 450,000.00	\$ 450,000.00	\$ 0.00	
Survey	\$ 2,000.00	¢ 2 122 00	¢ 1 267 00	
Topographical	\$ 2,500.00	φ 3,133.00	\$ 1,307.00	
Geotechnical Survey	\$ 10,000.00	\$ 1,091.00	-\$ 1,091.00	
Traffic Impact Study	\$ 10,000.00	\$ 2,485.00	\$ 7,515.00	
Hydrological Study for well/Potable Water engineering	\$ 20,000.00	\$-	\$ 20,000.00	Included in Architect & Engineering
Storm Water/Floor Drain Water Management	\$ 20,000.00	\$-	\$ 20,000.00	Included in Architect & Engineering
Drainage Engineering	\$ 10,000.00	\$-	\$ 10,000.00	Included in Architect & Engineering
Tree Removal	\$ 3,000.00	\$ 4,089.00	-\$ 1,089.00	
Fire Pond - Water Source	\$ 7,000.00	\$-	\$ 7,000.00	Included in Construction Project
Barn Renovation	\$ 30,000.00	\$ 600.00	\$ 29,400.00	
Demolition of House	\$ 10,000.00	\$-	\$ 10,000.00	Included in Construction Project
Temporary Electrical work	\$ 3,000.00	\$-	\$ 3,000.00	Included in Construction Project
Signage	\$ 2,000.00	\$-	\$ 2,000.00	To be completed
RFP for Design Architect & Engineer (Estimated 8% of project costs)	\$ 270,500.00	\$ 68,855.00	\$ 201,645.00	To date – ongoing
Total Estimated Phase 1 Project Costs	\$ 850,000.00	\$ 540,253.00	\$ 309,747.00	BALANCE

A financial overview and financing strategy was prepared and presented to Council in ASR-016/2020 Central Fire Station Project Financial Overview. The financing strategies listed in this report included both Phase 1 & Phase 2 of the project, and provided repayment options that provided minimal impact or increases to the tax levy.

In March 2021, Council approved the 2021 Capital & Operating Budgets, which included \$100,000.00 towards the debt servicing for the project. This is the first year of the three year strategy.

### **OPTIONS:**

- 1) Council direct staff to proceed with the preparation and issuance of the Construction Tender to the pre-qualified contractors. *(Recommended)*
- 2) Council may defer the project to a later date
- 3) Council may cancel the project

### OTHERS CONSULTED:

- 1) Raimondo & Associates Architects Inc.
- 2) Fire Services Leadership Team
- 3) Strategic Leadership Team

### ATTACHMENTS:

- 1) Appendix "A" Construction Drawings
- 2) Appendix "B" Cost Report
- 3) Appendix "C" Tender and Project Manual

Respectfully submitted by,

Approved by,

Morgan Alcock Fire Chief/CEMC William Kolasa Chief Administrative Officer

### APPENDIX "A"

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# **Township of Wainfleet**

42143 Highway #3 Wainfleet, ON





4687 Queen Street, Studio 2 Niagara Falls, Ontario L2E 2L9

Tel: 905-357-4441 Fax: 905-357-9203 Email: mail@raimondoarchitects.com



00-Civil- Mante	econ Partners Inc	01- Architectu	ral - Raimondo + Associates Architects Inc. (Barn)	04 - Electrical	- Mantecon Partners Inc.
C0.000	General Notes & Typical Details	BA0-000	Title Page	E0-000	TITLE PAGE
C1.000	Site Servicing Plan	BA0-200	OBC Matrix & OBC Plans	E0-001	GENERAL NOTES
C2.000	Site Grading Plan	BA2-000	Foundation Plans	E1-000	ELECTRICAL SITE PLAN
C3.000	Sediment & Erosion Control Plan	BA2-100	Floor Plans - First Floor Level	E2-100	GROUND FLOOR POWER PLAN
C4.000	Post Development Storm Drainage Area Plan	BA2-101	Floor Plan - Mezzanine Level	E2-110	GROUND FLOOR LIGHTING PLAN
C5.000	Electrical Site Servicing Plan	BA2-200	Roof Plans	E2-120	GROUND FLOOR FIRE ALARM PLAN
		BA3-000	Building Elevations	E2-130	PA, MOBILE PHONE REPEATER, WIFI REPEATER
01- Architectu	al - Raimondo + Associates Architects Inc.	BA4-000	Building Sections & Stair Plan	E3-000	POWER RISER DIAGRAM
A0-100	Assemblies + Legends			E3-100	FIRE ALARM RISER DIAGRAM
A0-200	Occupant Loads, Exits + FRR Plans	02 – Structura	I – Mantecon Partners Inc.	E4-000	PANEL SCHEDULES
A1-000	Overall Site Plan + Zoning Info	S0-000	TITLE PAGE	E5-000	ELECTRICAL DETAILS
A1-100	Site Plan Details	S0-001	GENERAL NOTES	E5-100	ELECTRICAL DETAILS
A2-000	Foundation Plans	S2-000	FOUNDATIONS PLAN	E5-110	ELECTRICAL DETAILS - COMMUNICATIONS
A2-100	Floor Plans	S2-100	SLAB ON GRADE PLAN	E5-120	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-110	Mezzanine Floor Pan	S2-110	MEZZANINE FLOOR FRAMING PLAN	E5-130	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-200	Roof Plans	S2-200	ROOF FRAMING PLAN	E5-140	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-303	Floor Plan - Administration Area	S3-000	FIRE SUPPRESSION STORAGE TANK PLANS AND DETAILS	E5-150	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-304	Floor Plan - Apparatus Bays	S3-001	STORAGE FACILITY PLANS	E5-160	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-330	Enlarged Floor Plans	S4-000	BUILDING SECTIONS (LARGE SCALE)	E5-170	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-400	Reflected Ceiling Plans	S4-100	SECTION DETAILS	E5-180	ELECTRICAL DETAILS - LIGHTING CONTROLS
A2-410	Reflected Ceiling Plans	S4-102	SECTION DETAILS		
A2-600	Misc. Equipment location Plan	S4-103	SECTION DETAILS	05 Septic De	sign - Niagara Septic Inspection and Design
A3-000	Building Elevations	S5-100	TYPICAL DETAILS	SP	Septic System design
A4-000	Building Sections	S5-101	TYPICAL DETAILS		
A4-100	Wall Sections	S5-102	TYPICAL DETAILS		
A4-110	Wall Sections				
A5-100	Enlarged Section Details	3-Mechanical-	Manteconpartners INC		
A6-000	Stair Plans + Sections	M0-000	TITLE PAGE		
A7-000	Room Finish Schedules	M0-001	LEAD SHEET (DRAWING LIST, LEGEND & NOTES)		
A7-100	Door + Frame Schedules	M1-100	MECHANICAL SITE PLAN		
A7-300	Window Schedule	M2-100	1ST/2ND FLOOR PROPOSED DRAINAGE PLAN		
A9-000	Barrier Free Details	M2-101	ROOF LEVEL PROPOSED DRAINAGE PLAN		
A9-001	Barrier Free Details	M2-110	1ST/2ND FLOOR PROPOSED PLUMBING PLAN		
A9-200	Typical Roof Details	M2-200	1ST/2ND FLOOR PROPOSED FIRE PROTECTION PLAN		
A9-210	Typical Metal Roof Details	M2-300	1ST/2ND FLOOR PROPOSED HVAC PLAN		
ID3-010	Interior Elevations	M2-310	1ST FLOOR PROPOSED RADIANT FLOOR HEATING PLAN		
ID3-020	Interior Elevations	M2-320	1ST/2ND FLOOR PROPOSED HYDRONIC PLAN		
ID3-030	Interior Elevations	M2-400	HVAC SECTIONS		
ID3-040	Interior Elevations	M3-500	MECHANICAL DETAILS		
ID3-050	Interior Elevations	M3-501	MECHANICAL DETAILS		
ID3-060	Interior Elevations	M3-502	MECHANICAL DETAILS		
L1-000	Landscape Plan	M3-503	MECHANICAL DETAILS		
		M3-600	CONTROLS		

CONTROLS

MECHANICAL EQUIPMENT SCHEDULE

MECHANICAL EQUIPMENT SCHEDULE

M3-601

M3-700





# ARCHITECTSINC.



# **Township of Wainfleet** Fire and Emergency Services Central Station

42143 Highway #3 Wainfleet, ON







15 FOUNDRY STREET, DUNDAS, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com

### **CIVIL DRAWING LIST**

- C0-000 GENERAL NOTES & TYPICAL DETAILS
- C1-000 SITE SERVICING PLAN C2-000 SITE GRADING PLAN
- C3-000 SEDIMENT & EROSION CONTROL PLAN
- C4-000 PRE DEVELOPMENT STORM DRAINAGE AREA PLAN
- C5-000 POST DEVELOPMENT STORM DRAINAGE AREA PLAN

STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS

## GENERAL NOTES

- 1. EXISTING UNDERGROUND SERVICE INFORMATION IS DERIVED FROM EXISTING DRAWINGS AND HAVE NOT BEEN LOCATED BY THE UTILITY COMPANIES. MP ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY, CORRECTNESS AND COMPLETENESS OF THE UNDERGROUND SERVICE INFORMATION SHOWN ON THIS PLAN.
- 2. CONSTRUCTION OF SEWERS, AND RELATED APPURTENANCES SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE TOWN OF FORT ERIE AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- 3. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- 4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION.
- 5. ALL EXCAVATIONS THAT ARE TO BE BACKFILLED WITH SELECT NATIVE MATERIAL, APPROVED BY THE ENGINEER, SHALL BE COMPACTED TO 95% SPD.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING SILT CONTROL DEVICES AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.
   CONTRACTOR SHALL CHECK EXISTING SERVICES, EXACT LOCATION AND
- INVERTS BEFORE PROCEEDING WITH WORK. THE CONTRACTOR SHALL SATISFY THEMSELVES AS TO THE ACTUAL LOCATION AND DEPTH OF ANY UTILITIES AND SHALL BE LIABLE FOR ALL OR ANY DAMAGE. FOR ANY DISCREPANCY, CONTACT THE ENGINEER.
- 8. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ALL DAMAGED AND/OR DISTURBED PROPERTY WITHIN THE LIMIT OF MUNICIPAL RIGHT-OF-WAY TO TOWN OF FORT ERIE STANDARDS.
- 9. ALL WORK AND MATERIALS SHALL BE IN COMPLIANCE WITH ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS, CURRENT PROVINCIAL BUILDING CODE, AS WELL AS ALL APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
- 10. EXISTING ELEVATIONS AND LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES MINIMUM 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK. ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES FOR UTILITY STAKEOUT. IF REQUESTED BY THE TOWN, MINISTRY OF TRANSPORTATION AND/OR ENGINEER, THE CONTRACTOR TO EXPOSE EXISTING SERVICES TO VERIFY EXACT LOCATION, PRIOR TO STARTING CONSTRUCTION.
- 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES DURING CONSTRUCTION, OR DUE TO IT'S CONSTRUCTION ACTIVITIES.
- 12. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL WORK ON SITE WITH OTHER CONTRACTORS TO PREVENT CONFLICTS.
- 13. ALL AREAS ON PLAN INCLUDING THE EXISTING CONCRETE SIDEWALK WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER. GRASSED AREAS SHALL BE RESTORED WITH SOD ON MINIMUM 100mm OF TOPSOIL.
- 14. POSITIVE DRAINAGE SHALL BE PROVIDED THROUGHOUT THE SITE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.
- 15. THE CONTRACTOR IS RESPONSIBLE FOR ALL REMOVALS AND SHALL ENSURE THEIR OFFSITE DISPOSAL.
- 16. THE GENERAL NOTES MUST BE READ IN CONJUNCTION WITH THE DESIGN DRAWINGS AND SPECIFICATIONS OF ENGINEERING. THIS INCLUDES DRAWING SPECIFICATIONS AND SKETCHES. SHOULD THERE BE CONTRADICTORY INFORMATION BETWEEN DRAWINGS, SKETCHES AND SPECIFICATIONS, THE ONE WHICH IS MOST STRINGENT TAKES PRESIDENCE.
- 17. THE CONTRACTOR IS TO FAMILIARIZE THEMSELVES WITH THE TOWN OF FORT ERIE STANDARD DETAILS. TYPICAL STANDARD DETAILS SHALL BE USED WHERE SPECIFIC DRAWING DETAILS ARE NOT CALLED OUT.
- 18. ALL WORK REQUIRED, INCLUDING ANY DEMOLITION, SHALL BE CARRIED OUT IN A MANNER THAT WILL PREVENT OR MINIMIZE DAMAGE TO THE EXISTING SITE OR STRUCTURES TO THE BEST OF THE CONTRACTOR'S ABILITIES. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 19. THE GENERAL CONTRACTOR MUST REVIEW ALL DIMENSIONS PRIOR TO THE COMMENCEMENT OF ALL WORK AND MUST REPORT ALL DISCREPANCIES TO THE ENGINEER/LANDSCAPE ARCHITECT.
- 20. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMIT FOUR COPIES UNLESS NOTED OTHERWISE.

ITEMS	REQUIRED SUBMITTAL?	ENGINEER'S STAMP REQUIRED?	NOTES
CONCRETE MIX DESIGNS	YES		
ASPHALT MIX DESIGNS	YES		
AGGREGATE GRADATION	YES		

- 21. FOR ANY DEMOLITION AND/OR RENOVATION WORK, IT IS THE GENERAL CONTRACTORS RESPONSIBILITY TO REVIEW SCOPE WITH THE OWNER. EXISTING DIMENSIONS AND CONSTRUCTION CONDITIONS ARE TO BE VERIFIED. SHOULD ANY DISCREPANCIES BE FOUND, REPORT FINDINGS TO THE ENGINEER.
- 22. ALL DETAILS SHOWN ARE SPECIFIC TO THE PROJECT. WHERE A LOCATION IS NOT SPECIFIED FOR A DETAIL, DETAILS IN THE DRAWINGS INCLUDING TYPICAL DETAILS WHICH CLOSELY RESEMBLES THE WORK, WILL APPLY.
- 23. ALL CODES AND REGULATIONS QUOTED ARE TO BE THE LATEST EDITION.

### PERMITS REQUIRED

### 1. GENERAL

- A. SERVICE CONNECTION PERMITS REQUIRED FOR DITCH INLET AND LEADS AND APPROVAL REQUIRED FROM THE TOWN.
- B. SERVICE CONNECTION PERMITS REQUIRED FOR CONNECTION TO THE EXISTING MANHOLE/CATCHBASIN MANHOLE AND APPROVAL FROM THE TOWN.
- C. SERVICE CONNECTION PERMIT REQUIRED FOR SANITARY LATERAL AND MANHOLE
- AND APPROVAL FROM THE TOWN. D. SERVICE CONNECTION PERMIT REQUIRED FOR WATER SERVICE CONNECTION AND
- APPROVAL FROM TOWN.
- E. ENTRANCE PERMITS REQUIRED FOR ALL ENTRANCES AND APPROVAL FROM TOWN.

### CONCRETE AND REINFORCING

- . CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION, TESTING AND STANDARD PRACTICES FOR CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD A23.1/A23.2 (LATEST EDITION).
- 2. CONCRETE DESIGN SHALL BE IN THE DESIGN OF CONCRETE STRUCTURES CSA STANDARD A23.3 (LATEST EDITION).
- S. SUPPLY AND PLACE CONCRETE IN ACCORDANCE TO TABLE 1:

### TABLE 1 MIN. COMPRESSIVE LOCATION SLUMP EXPOSURE STRENGTH (f'c CLASS AT 28 DAYS mm (in) MPa (PSI) SIDEWALK/CURBS 40 ± 20 35 (5000) C-2 PAVING SLABS, EXTERIOR $1-1/2 \pm 3/4$ CONCRETE

### 4. PAVEMENT SHALL BE:

PAVEMENT COMPONENT	THICKNESS (mm)
CONCRETE PAVERS	-
CONCRETE SLAB	200
GRANULAR "A" BASE	150
GRANULAR "B" SUBBASE (OPSD-TYPE II)	300

5. GRANULAR BASE LAYERS SHALL BE COMPACTED TO MIN. 98% STANDARD PROCTOR DENSITY.

- 6. THE COMPRESSIVE STRENGTH OF THE CONCRETE IS BASED ON THE FOLLOWING CONDITIONS:
- a. TYPE GU NORMAL PORTLAND CEMENT UNLESS OTHERWISE NOTED OR
- APPROVED.
  b. MAXIMUM SIZE OF AGGREGATE 20mm (3/4") WASHED IRREGULAR CUT CLEAR STONE, EXCEPT FOR CONCRETE TOPPING WHICH SHALL HAVE MAXIMUM SIZE
- OF AGGREGATE 10mm (3/8") WASHED IRREGULAR CUT CLEAR STONE. c. SLUMP SHOWN ON THE TABLE IS SLUMP WITHOUT SLUMP AID ADMIXTURE. WHERE THE USE OF AN ADMIXTURE IS REFERRED TO INCREASE THE SLUMP, THE SUPERPLASTICIZED CONCRETE SLUMP MUST REMAIN BELOW THE POINT AT WHICH SEGREGATION WILL OCCUR.

### CONCRETE CURBS AND SIDEWALKS

- REFER TO TABLE 1 FOR CONCRETE PROPERTIES FOR CURBS AND SIDEWALK.
   ALL BARRIER CURB WITHIN SITE TO BE OPSD 600.110, ALL CURB DEPRESSIONS
- ALL BARRIER CURB WITHIN SITE TO BE OPSD 600.110, ALL CURB DEPRESSIONS ACROSS ENTRANCE DRIVEWAYS (IF REQUIRED) TO BE AS PER TOWN STANDARD DRAWING OR MUNICIPAL STANDARDS.

# SITE GRADING

- NATIVE BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY. GRANULAR BACKFILL MATERIAL SHALL BE PLACED IN LAYERS 150mm IN DEPTH AND COMPACTED TO 98% STANDARD PROCTOR DENSITY.
- 2. REFER TO ARCHITECTURAL SITE PLAN FOR LAYOUT DIMENSIONS AND DETAILS.
- PAVEMENT SHALL BE AS NOTED BELOW PER GPD GEOTECHNICAL PROJECT REPORT No. 11199225 RECOMMENDATIONS:

PAVEMENT COMPONENT	THICKNESS (mm)		
HEAVY DUTY ASPHALT			
ASPHALT SURFACE COURSE - HL-3	40		
ASPHALT BASE COURSE - HL-8	80		
GRANULAR "A" BASE	150		
GRANULAR "B" SUB-BASE (OPSD-TYPE II)	450		
REINFORCED CONCRETE PAVEMENT SECTION			
REINFORCED CONCRETE	200		
GRANULAR "A" BASE	150		
GRANULAR "B" BASE (OPSD-TYPE II)	300		

4. SUBMIT ASPHALT MIX DESIGN AND TRIAL MIX TEST RESULTS TO CONSULTANT FOR APPROVAL.

- 5. PROOF ROLLING OF SUBGRADE SHALL BE INSPECTED BY THE GEOTECHNICAL CONSULTANT.
- 6. PLACE GRANULAR BASE TO COMPACTED THICKNESS AS INDICATED. DO NOT PLACE FROZEN MATERIAL.
- 7. PROOF ROLLING OF AGGREGATE BASE PRIOR TO PLACEMENT OF ASPHALT SHALL BE INSPECTED BY THE GEOTECHNICAL CONSULTANT.
- 8. ASPHALT MATERIALS SHALL BE ROLLED AND COMPACTED TO A MINIMUM OF 97% MRD.
- 9. NO PAVING WILL BE ALLOWED DURING RAIN OR ON WET SUBGRADE AFTER RAIN.
- 10. PROPERTY LINE GRADES MUST BE MATCHED.
- 11. ALL GRADING WORKS SHALL NOT ADVERSELY IMPACT ADJACENT PROPERTIES.
- 12. MAINTAIN EXISTING GRADES WHERE NEW GRADES ARE NOT PROPOSED

### TESTING AND INSPECTION

### THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY PAID BY OWNER. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

ITEMS	REQUIRED?	COMMENTS
SOIL BEARING CAPACITY	YES	BY SOILS ENGINEER
SOIL COMPACTION	YES	BY SOILS ENGINEER
CONC. COMPRESSIVE TESTS	YES	MIN. 2 SETS PER 50m <sup>3</sup>
CONC. SLUMP	YES	



# COMPACTION REQUIREMENTS

- A. ALL BEDDING AND BACKFILL MATERIAL, ROAD SUB-GRADES AND GENERALLY ALL MATERIAL USED FOR LOT GRADING AND FILL SECTIONS, ETC., SHALL BE COMPACTED TO MIN. 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS.
- B. ALL GRANULAR ROAD BASE MATERIALS SHALL BE COMPACTED TO 98% SPD.
  C. FOR ALL SEWERS AND WATERMAINS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.

## SEWER SERVICING

- 1. SANITARY AND STORM SEWERS
- A. CONSTRUCTION OF SANITARY AND STORM SEWERS AND PRIVATE DRAINS SHALL BE IN ACCORDANCE WITH TOWN STANDARDS & SPECIFICATIONS (LATEST EDITION) AND MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP) GUIDELINES (LATEST EDITION).
- B. COVER AND BEDDING MATERIAL FOR CONCRETE PIPE SHALL BE GRANULAR 'A' MATERIAL AS PER OPSD 802.030 OR 802.033, CLASS 'B' BEDDING.
- C. COVER AND BEDDING MATERIAL FOR PVC PIPE SHALL BE GRANULAR 'A' MATERIAL
- AS PER OPSD 802.010 OR 802.013. D. ALL SEWERS TO BE FLUSHED PRIOR TO VIDEO INSPECTION.
- E. MANHOLE FRAMES AND COVERS SHALL BE AS PER OPSD 401.010 (STORM-OPEN, SANITARY-CLOSED).
- F. SANITARY SEWER (200mm TO 375mm DIA.) SHALL BE PVC PIPE, CSA B182.2. SDR-35.
- G. STORM SEWER (200mm TO 375mm DIA.) SHALL BE PVC PIPE, CSA B182.2, SDR-35.
- H. STORM SEWER > 375mm DIA. SHALL BE REINFORCED CONCRETE PIPE, CSA A257.2, CLASS 65-D (AS SPECIFIED).
- I. PVC (SANITARY AND STORM) SEWERS ARE TO BE TESTED FOR DEFLECTION (MANDREL PASSAGE) AFTER INSTALLATION. SANITARY SEWERS SHALL ALSO BE TESTED FOR LEAKAGE (LOW AIR PRESSURE). PRIOR TO ASSUMPTION BY THE TOWN, PIPE DEFLECTION TESTING SHALL BE REPEATED.
- J. ALTERNATE MATERIALS MAY BE ACCEPTABLE PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE TOWN/ENGINEER.
- 2. PRIVATE DRAINS
- A. TO BE LOCATED AS NOTED ON PLANS.
- B. COVER AND BEDDING MATERIAL FOR PRIVATE DRAINS SHALL BE GRANULAR 'A' INSTALLED AS PER OPSD 802.010 OR 802.013.
- C. MINIMUM FALL FOR PRIVATE DRAINS TO BE 1.00%.
- D. TOP OF SANITARY AS NOTED ON PLANS.
- E. TOP OF STORM AS NOTED ON PLANS.

### WATER SERVICING

- 1. WATERMAINS
- A. CONSTRUCTION OF WATERMAINS AND PRIVATE SERVICES SHALL BE IN ACCORDANCE WITH TOWN STANDARDS & SPECIFICATIONS (LATEST EDITION) AND MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP) GUIDELINES (LATEST EDITION).
   B. TO BE INSTALLED TO A MINIMUM DEPTH OF 1.70m BELOW PROPOSED CENTERLINE
- ROAD GRADE ON ALL ROADS.
- C. PVC PIPE IN SIZES 100mm THROUGH 300mm SHALL BE CLASS 235, DR-18 CONFORMING TO AWWA C900.
- D. TRACER WIRE SHALL BE INSTALLED WITH PVC PIPE. IT SHALL BE 12 GAUGE TW75, TWU75 OR RW90XLPE COATED COPPER AND SHALL BE POSITIONED ALONG THE TOP OF THE PIPE AND FASTENED AT 6 METRE INTERVALS. THE WIRE IS TO BE INSTALLED BETWEEN EACH VALVE AND/OR THE END OF THE NEW PVC WATERMAIN. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED. AT EACH GATE VALVE A LOOP WIRE IS TO BE BROUGHT UP INSIDE THE VALVE BOX TO THE CAP. THE TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT THE SECONDARY VALVE ON ALL FIRE HYDRANTS. THE TRACER WIRE SHALL ALSO BE CONNECTED TO THE CATHODIC PROTECTION SYSTEM AS REQUIRED.
- E. MOLDED PVC FITTINGS FOR PIPE SIZES 100mm TO 300mm SHALL CONFORM TO AWWA C900 AND CERTIFIED TO CSA B-137.2.
  F. FABRICATED FITTINGS 250mm AND 300mm SHALL BE MANUFACTURED FROM
- SEGMENTS OF AWWA C900, CLASS 235 (DR-18) PVC PIPE, BONDED TOGETHER AND OVER-WRAPPED WITH FIBREGLASS-REINFORCED POLYESTER TO MEET THE REQUIREMENTS OF CSA B-137.3. G. WHERE METAL FITTINGS ARE TO BE USED ON PVC MAINS SUFFICIENT CATHODIC
- PROTECTION MUST BE PROVIDED AS PER THE FOLLOWING REQUIREMENTS:
- MINIMUM OF ONE 11kg ZINC ANODE SHALL BE INSTALLED FOR EVERY 1000m OF TRACER WIRE;
  ONE 11kg ZINC ANODE SHALL BE INSTALLED FOR EACH COPPER WATER SERVICE
- CONNECTION; • ONE 11kg ZINC ANODE SHALL BE INSTALLED ON EVERY VALVE, HYDRANT, BEND, TEE, SLEEVE, REDUCER, PLUG, CAP, JOINT RESTRAINT, COUPLING, ETC., CONNECTED TO THE PVC PIPE.
- H. BEDDING AND BACKFILL SHALL BE GRANULAR 'A' MATERIAL FOR MAINS AND SERVICES GREATER THAN 50mm.
- I. WATERMAIN DEFLECTION FOR PVC PIPE:
- MAXIMUM ALLOWABLE DEFLECTION OF 1.5 DEGREES PER JOINT UP TO 250mm DIAMETER (160mm PER 6.1m PIPE LENGTH) AND 1.2 DEGREES FOR 300mm DIAMETER (128mm PER 6.1m PIPE LENGTH) SHALL NOT BE EXCEEDED.
   ALL JOINTS SHALL BE DEFLECTED AN EQUAL AMOUNT.
- 2. FLUSHING, SWABBING AND TESTING
- A. ALL NEW WATERMAINS ARE TO BE SWABBED IN ACCORDANCE WITH TOWN
- SPECIFICATIONS. B. A REDUCED PRESSURE ZONE BACKFLOW PREVENTER (WATTS SERIES 909 OR
- APPROVED EQUAL) IS REQUIRED ON THE TEMPORARY SUPPLY LINES USED FOR FILLING AND FLUSHING OR SWABBING OF WATERMAINS. C. UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL PERFORM A
- PRESSURE TEST ON THE WATERMAINS. WATERMAIN IS TO BE TESTED PRIOR TO CONNECTION TO EXISTING WATERMAINS USING TEMPORARY CAPS OR PLUGS. PIPE CLOSURES, WHERE REQUIRED, ARE TO BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR WILL ALSO SUPPLY AND INSTALL ALL ADAPTOR PIECES IN ORDER TO CONNECT TO EXISTING WATERMAINS.

3. WATER SERVICES

- A. TO BE LOCATED AS NOTED ON PLANS.
- B. GRANULAR BEDDING SHALL BE GRANULAR 'A'.
- 4. VALVES & VALVE BOXES
- A. ALL VALVE BOXES TO BE SET TO PROPOSED ELEVATION.B. 100mm TO 300mm GATE VALVE & VALVE BOXES AS PER TOWN REQUIREMENTS.
- 5. ANCHOR BLOCKS & RESTRAINED JOINTS
- A. FOR 100mm TO 300mm WATERMAINS STANDARD CONCRETE ANCHOR BLOCKS AS PER OPSD 1103.010.
- B. MECHANICAL RESTRAINERS FOR PVC PIPE SHALL MEET ASTM F1674-05 SPECIFICATIONS OR AS PER AUTHORITY HAVING JURISDICTION.
- 6. FIRE HYDRANT
- A. ALL HYDRANTS SHALL BE CANADA VALVE CENTURY, MCAVITY M-67 OR AMERICAN AVK AND TO BE SUPPLIED WITH TWO (2) 65mm HOSE NOZZLES AND ONE (1) PUMPER NOZZLE INCLUDING STORTZ CONNECTION.
- B. ALL HYDRANTS INSTALLED ON WATER MAINS SHALL HAVE A 150mm ANCHOR TEE WITH 150mm VALVE. HYDRANT INSTALLATION SHALL BE AS PER OPSD 1105.010.

### PAVEMENT WORKS

### 1. GENERAL

- A. CONSTRUCTION OF ROADWAYS & RELATED WORKS SHALL BE IN ACCORDANCE WITH TOWN STANDARDS AND SPECIFICATIONS (LATEST EDITION).
- . FOLLOWING THE INSTALLATION OF SEWERS, ALL ROADWAYS SHALL BE ROUGH GRADED TO SUBGRADE FOR THE INSTALLATION OF WATERMAINS & UTILITIES.

### 2. CATCH BASINS

- A. CATCH BASIN CONNECTIONS TO BE 200mm DIA. PVC PIPE CSA B182.2, SDR-35 UNLESS OTHERWISE NOTED.
- B. SINGLE/DOUBLE STREET CATCH BASINS AS PER OPSD 705.010/705.020 RESPECTIVELY.C. PRIVATE REAR YARD CATCH BASINS AS PER OPSD 705.010.
- D. STREET CB GRATES AS PER OPSD 400.020 (FLAT) AND REAR YARD CB GRATES TO BE
- BEEHIVE TYPE GRATE AND COVER. 3. FINAL PAVEMENT WORKS
- A. CROSS-FALL TO BE 2.0%.

AGGREGATE.

- 3. SITE HEAVY DUTY PAVEMENT SECTION SHALL BE 40mm HL-3, 80mm HL-8 ON 150mm GRANULAR 'A' AND 450mm GRANULAR 'B', TYPE II 100% CRUSHED AGGREGATE.
- . SITE STANDARD DUTY PAVEMENT SECTION SHALL BE 40mm HL-3, 50mm HL-8 ON 150mm GRANULAR 'A' AND 300mm GRANULAR 'B' TYPE II 100% CRUSHED
- D. SITE REINFORCED CONCRETE PAVEMENT SECTION SHALL BE 200mm CONCRETE SLAB C/W 5-8% AIR, C2 EXPOSURE, 32 MPa, 15M EPOXY COATED REINFORCING T&B E.W
   @ 400mm O.C., ON 150mm GRANULAR 'A' AND 300mm GRANULAR 'B' TYPE II 100% CRUSHED AGGREGATE.
- E. MANHOLES AND CATCH BASINS SHALL BE INSTALLED FLUSH WITH THE SURFACE COURSE ASPHALT.
- F. MANHOLES TO BE ADJUSTED TO MATCH FINAL LIFT OF ASPHALT.
- 4. SIDEWALKS AND CURBS
- A. CONCRETE CURB AS PER OPSD 600.110 (BARRIER TYPE), MINIMUM 30 MPa STRENGTH. A 50mm KEY IS REQUIRED FOR ALL LOCATIONS WITH ADJACENT SIDEWALK.
- B. CURB DEPRESSIONS PER OPSD 600.110 AND OPSD 310.050.
- C. 1.5m WIDE CONCRETE SIDEWALK OR AS DETAILED AS PER OPSD 310.010 (125mm THICKNESS, MINIMUM) 30 MPA STRENGTH WITH MINIMUM 50mm GRANULAR `A' BASE AS REQUIRED TO PROVIDE A LEVELING COURSE FOR THE CONCRETE. AT DRIVEWAYS, CONCRETE DEPTH TO BE MINIMUM 200mm.
- D. WHEELCHAIR RAMPS REQUIRED AT ALL INTERSECTIONS AS PER OPSD 310.030.
  E. ASPHALT RAMPING SHALL BE PLACED TO SUIT THE WHEELCHAIR RAMPS IF SURFACE COURSE ASPHALT IS NOT INSTALLED AT THE SAME TIME. THESE RAMPS ARE TO BE REMOVED JUST PRIOR TO PLACEMENT OF SURFACE COURSE ASPHALT.



























DWE #4







#	Pound OR Number
& @	And At
ACT AD	Acoustic Ceiling Tile Area Drain
AFF	Above Finished Floor
ALUM ANOD	Aluminum Anodized
BSMT BYND	Basement Beyond
BOT	Bottom
CIP CHNL	Cast In Place Channel
CJ	Control Joint
CLG	Clear
CMU COL	Concrete Masonry Unit Column
COMPR	Compressible
CONT	Continuous
CPT CT	Carpet Ceramic Tile
CTYD	Courtyard
DEMO	Demolish or Demolition
DIA DIM	Diameter Dimension
DIMS	Dimensions
DN DR	Door
DWG FA	Drawing Fach
EJ	Expansion Joint
ELEC	Electrical
ELEV FPDM	Elevator or Elevation Ethylene Propylene Diene M-Class (Roofing)
EQ	Equal
EXIST EXP JT	Existing Expansion Joint
EXT	Exterior Floor Drain or Fire Department
FEC	Fire Extinguisher Cabinet
FIXT FLR	Fixture Floor
FM	Filled Metal
FND	Foundation
GA GALV	Gauge Galvanized
GWB HC	Gypsum Wall Board
HI	High
HM HP	Hollow Metal High Point
HR HVAC	Hour Heating Ventilating And Air Conditioning
IRGWB	Impact Resistant Gypsum Wall Board
ILO INSUL	In Lieu Of Insulated or Insulation
INT	Interior
MAX	Maximum
MO MECH	Masonry Opening Mechanical
MEMBR MIN	Membrane Minimum
MRGWB	Moisture-Resistant Gypsum Wall Board
NIC	Not In Contract
NO NOM	Number Nominal
OC	On Center
OZ	Ounce
PCC PLUMB	Pre-Cast Concrete Plumbing
PLYD PT	Plywood Pressure Treated
PNT	Paint or Painted
PVC RBR	Polyvinyl Chloride Rubber
RCP	Reflected Ceiling Plan
REQD	Required
SIM	Similar
SPEC SPK	Specified OR Specification
SSTL	Stainless Steel
STL	Sound Transmission Coefficient
STRUCT T&G	Structure or Structural Tongue And Groove
TELE	Telephone
TO	Top Of
TOC TOS	Top Of Concrete Top Of Steel
TPD	Toilet Paper Dispenser
TYP	Typical
UNO U/S	Unless Noted Otherwise Underside
VIF	Verify In Field
W/	With
WD	Wood

**OVERALL PROJECT GENERAL NOTES:** ALL DRAWINGS ARE TO BE READ AS A COMPLETE PACKAGE, INCLUDING COORDINATION WITH THE SPECIFICATIONS. FOR ALL MECHANICAL SERVICES REFER TO MECHANICAL PLANS FOR ALL STRUCTURAL SERVICES REFER TO STRUCTURAL PLANS FOR ALL ELECTRICAL SERVICES REFER TO ELECTRICAL PLANS. EXTERIOR WALL DIMENSIONS SHOWN ARE TAKEN TO THE EXPOSED FACE OF MASONRY VENEER, INSIDE FACE OF CONCRETE BLOCK AND THE CENTERLINE OF OPENING UNLESS NOTED OTHERWISE. INTERIOR DIMENSIONS SHOWN ARE TAKEN TO THE FACE OF WOOD STUD, CONCRETE BLOCK AND THE CENTERLINE OF PLUMBING FIXTURES UNLESS NOTED OTHERWISE. ALL EXPOSED INTERIOR GWB FINISHES SHALL BE TAPED, FILLED, SANDED AND MADE GOOD FOR FINISH UNLESS NOTED OTHERWISE. REFER TO DRAWINGS A0-100 & A0-101 FOR REQUIRED FIRE SEPARATIONS AND FIRE RESISTANCE RATINGS OF FLOORS AND SUPPORTING ASSEMBLIES REFER TO FLOOR PLANS FOR ALL DOOR AND SCREEN NUMBERS & LOCATIONS. REFER TO DRAWING & SPECS FOR INTERIOR FINISH SCHEDULE AND 10 CEILING HEIGHTS. ALL DIMENSIONS TO BE SITE VERIFIED. 11. FINISH ALL SIDES ON 1/2 HEIGHT WALLS. 12. UNDERSIDE OF ALL STAIRWELLS TO BE FINISHED WITH 5/8" GYPSUM BOARD 13. ON 7/8" FURRING CHANNELS @ 24" ON CENTRE **GENERAL CEILING NOTES:** FURTHER INFORMATION ON CEILINGS AND FINISHES REFER TO ROOM FINISH SCHEDULE IN SPECS. REFER TO SPECIFICATIONS FOR DESCRIPTION OF CEILING TILE TYPES. REFER TO ELECTRICAL DRAWINGS FOR LIGHTING TYPE DESCRIPTIONS REFER TO MECHANICAL DRAWINGS FOR AIR DIFFUSER AND VENT

REFER TO DRAWING A0.1 & A0.2 FOR REQUIRED FIRE SEPARATIONS AND

REFER TO DRAWINGS A2.0 - A2.5 FOR ALL DOOR AND SCREEN NUMBERS &

REFER TO SPECS FOR INTERIOR FINISH SCHEDULE AND CEILING HEIGHTS.

ALL WALLS EXTEND TO U/S OF ROOF DECK OR FLOOR STRUCTURE ABOVE

ALL GWB MATERIALS TO RECIEVE 1 COAT PRIME + 2 COATS OF PAINT -

FIRE RESISTANCE RATINGS OF FLOORS AND SUPPORTING ASSEMBLIES. REFER TO DRAWING A2.0 FOR EXTERIOR AND INTERIOR WALL TYPES

REFER TO ELEVATIONS DRAWING A3.0 & A3.1 FOR WINDOW TAGS AND

LEGEND, RELATED NOTES AND ABBREVIATIONS.

REFER TO STRUCTURAL DWGS FOR REINFORCEMENT. SEE SPECIFICATIONS FOR TRANSITION MEMBRANES. REFER TO FINISH SCHEDULE FOR ALL FINISHES.

DESCRIPTIONS

LOCATIONS.

WALL TYPE ASSEMBLY NOTES

EXTERIOR FINISH SCHEDULE.

UNLESS NOTED OTHERWISE.

UNLESS NOTED OTHERWISE.



TYPICAL CMU WALL DETAILS



	FW1         Reinforced poured concrete wall (see structural for thickness)           exterior waterproofing:	
	blueskin wp (or comparable) delta ms foundation protection membrane min. (see plan for locations)	Image: style
	R-VALUE FIRE RATING STC RATING	Image: Second
) ı o/c	M20a       190mm Concrete Masonry Units (see structural reinforcing)	
	R-VALUE FIRE RATING STC RATING	21-07-26
) o/c	ULC LISTING	
	R-VALUE FIRE RATING	
)	ULC LISTING       E20a       90mm manufactured stone veneer	
o/c	25mm air space 100mm 2lb spray foam insulation 190mm Concrete Masonry Units (see structural reinforcing)	/ IŞI
	paint finish	
	R-VALUE FIRE RATING	
	STC RATING       ULC LISTING       E25a       90mm manufactured stone veneer	
	25mm air space 100mm 2lb spray foam insulation 240mm Concrete Masonry Units	
	(see structural reinforcing) paint finish	CIAT CIAT
		SSO SSO SSO
		Niagara Do5-35
	Summ prefinished metal siding     Summ air space     100mm 2lb spray foam insulation     190mm Concrete Masonry Units	et Suite 2 mondoarcl mondoarcl
nd hips	(see structural reinforcing) paint finish	Leen Stree www.rain mail@rai
ips at	R-VALUE	
	FIRE RATING STC RATING ULC LISTING	
	E25b       32mm prefinished metal siding         25mm air space       100mm 2lb spray foam insulation	
	240mm Concrete Masonry Units (see structural reinforcing) paint finish	
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### Project Name Ontario Building Code Reference Item Ontario Building Code Data Matrix Parts 3 & 9 Project Description New □ Part 11 ■ Part 3 🗆 Part 9 Addition 11.1 to 11.4 1.1.2 [A] 1.1.2 [A] $\Box$ Change of Use $\Box$ Alteration 9.10.1.3 9.10.2 Major Occupancy(s) D & F3 3.1.2.1.(1) 1.4.1.2 [A] Building Area (m<sup>2</sup>) Existing: New: 1130 Total: 1130 1.4.1.2 [A] New: 1239 Total: 1239 1.4.1.2 [A] 1.4.1.2 [A] Gross Area (m<sup>2</sup>) Existing: 1.4.1.2 [A] & 3.2.1.1 1.4.1.2 [A] & 9.10.4 Number of Storeys Above Grade: 1 Below Grade: Number of Streets / Fire Fighter Access: 3 3.2.2.10 & 3.2.5 3.2.2.20.-.83 Building Classification: 3.2.2.55 Group D up to 2 Stories 9.10.2 Sprinkler System Proposed: □Entire Building (For Insurance Purposes) 3.2.2.20-.83 9.10.8.2 □Basement Only 3.2.1.5 □ In Lieu of Roof Rating 3.2.2.17 INDEX ■Not Required INDEX Standpipe Required: ⊡Yes ∎No 3.2.9 N/A □Yes ■No not required but is being 3.2.4 9.10.18 10 Fire Alarm Required: included Water Service/Supply is Adequate: □Yes ■No 3.2.5.7 N/A 111 12. High Building: ⊡Yes ∎No 3.2.6 N/A Permitted Construction: □Combustible □Non-Combustible ■Both 3.2.2.20-83 9.10.6 13. Actual Construction: Combustible Non-Combustible Both 14. Importance Category: □Low □Normal □High ■Post-disaster 9.4.1.1, 4.1.2.1.(3) 4.1.2.1.(3) 5.2.2.1.(2) 5.2.5.1.(2) Site Class (A,B,C,D,E from Geotechnical Report) 4.1.8.4. 4.1.8.4. 1.5 T.4.1.8.5. Earthquake Importance Factor (I<sub>E</sub>) T.4.1.8.5. 1.3 Acceleration Based Coefficient (F<sub>a</sub>) T.4.1.8.4.B T.4.1.8.4.B 0.308 5% Spectral Response Acceleration S<sub>a</sub> (0.2) 4.1.8.4.(1) & SB-1, 4.1.8.4.(1) & SB-1, T.1.2 T.1.2 IE Fa Sa (0.2) = 0.606 4.1.8.18.(1) 4.1.8.18.(1) Seismic Hazard Index Design for Seismic Required for Categories 6 to 21. \_\_yes\_\_ 4.1.8.18.(2) 4.1.8.18.(2), 9.20.1.2. Table 4.1.1.18. (Equal or Above 0.35?) (Yes or No) 9.31.6.2.(3) □m²/person ■Design of Building 3.1.17.1 9.9.1.3 Occupant Load Based on: 15 Occupancy: F3 Load: 0 persons Mezzanine TOTAL First Floor Occupancy: D Load: 200 persons Barrier-Free Design: ■Yes □No (Not Required) 3.8 ⊡Yes ∎No 3.3.1.2 & 3.3.1.19 Hazardous Substances: 9.5.2 3.2.2.20 - 83 Required Horizontal Assemblies Listed Design No. 18 or Description (SG-2) Fire FRR (Hours) & 3.2.1.4 9.10.1.3 (4) Resistance 9.10.8 Floors 3/4HR or N.C. Const. N.A. - Slab on Grade Rating 9.10.9 (FRR) Roof 0 HRS 0 HRS Mezzanine FRR of Supporting Listed Design No. Members or Description (SG-2) Floors 3/4HR or N.C. Const. N.A. - Slab on Grade Roof 0 HRS Mezzanine 0 HRS Spatial Separation – Construction of Exterior Walls 3.2.3 9.10.14 19. Wall Area L.D. L/H Permitted Proposed FRR Listed Comb Non-comb. Non-comb. of (m) or Max. % of % of (Hours) Design or Const Constr. Cladding EBF H/L Openings Openings Description (m²) N 230 40 8.07 100% 43% 0 ves yes 230 23.8 8.07 100% 27.5% S 0 - yes yes E 157 69.7 4.26 100% 6.1% 0 - yes yes W 67.1 81.4 5.7 100% 0% 0 -yes

yes



Other – Describe

20.



New Fire Station Fownship of Wainfleet Corporation of the Tow 42143 HWY No3, W Concession 4, Part of nstitutional and Agric Required (Metric) NA NA 7.5 m	t - New Central Sta wnship of Wainfleet ainfleet Lot 20, Township o cultural Area <b>Required</b> (Imperial)	tion t of Wainfleet		Highway 3		+Perry Road
Corporation of the Tov 42143 HWY No3, W Concession 4, Part of nstitutional and Agric Required (Metric) NA NA 7.5 m	A rivew Central Sta winship of Wainfleet ainfleet Lot 20, Township of cultural Area Required (Imperial)	of Wainfleet		Highway 3	2	Perry Road
42143 HWY No3, W Concession 4, Part of nstitutional and Agric Required (Metric) NA NA 7.5 m	ainfleet Lot 20, Township o cultural Area Required (Imperial)	of Wainfleet		Highway 3	75	Road
Concession 4, Part of nstitutional and Agric Required (Metric) NA NA 7.5 m	Lot 20, Township o cultural Area Required (Imperial)	of Wainfleet		Highway 3	TT	a
Concession 4, Part of Institutional and Agric Required (Metric) NA NA 7.5 m	Lot 20, Township o cultural Area Required (Imperial)	or vvaintleet		Highway 3	1	1
Required (Metric) NA NA 7.5 m	Required (Imperial)	_			1 2	
NA (Metric) NA NA 7.5 m	(Imperial)	Drovided	Drovided		7	Pe
NA NA 7.5 m		(Metric)	(Imperial)	anadar	0	fills Ro thit Roa
NA 7.5 m	NA	+/- 200.4 m	+/- 657.5 ft	Road	ase Ro	ad
7.5 m	NA 10.4.#	+/- 20,182.5 m <sup>2</sup> .	+/- 4.99 acres	-3-	ad	
(.5 m	16.4 ft	+/- 69.95 m +/- 81.48 m	+/- 229.5 ft +/- 267.32 ft		5	
15 m	24.61 ft	+/- 21.2 m	+/- 69.6 ft	t		Jord
5 m	24.61 ft	+/- 53.54 m	+/- 175.66 ft	ap 1500	Case	Wills F
NA	NA	+/- 10.28m	+/- 33.73 ft		12	15 20
50 NA	~%o 	+/- 0.5 +/- 76.1	8 %  % %			
Existing (	barn)	New	Station			
260 m2	2798.6 ft <sup>2</sup>	1239.48 m <sup>2</sup>	13,341.65 ft <sup>2</sup>			
260 m2	2798.6 ft <sup>2</sup>	1130m <sup>2</sup>	12,163 ft <sup>2</sup>			
Requir GFA around 1130m2	ea 2/28 = 40.35 or 41	44 spaces	vided			
spaces GFA Mezzanines 109 or 2 spaces	.48m2 / 70= 1.56					
41+2 = 43 spaces						
D-9 parking spaces R Handicapped Space 10-100 Parking space nandicapped spaces	kequires 1 es -requires 2	∠ Handicapped sp	aces			
				Conte	xt Map (N.T.	. <b>S.)</b> ှ
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	NA Existing ( 260 m2 260 m2 Requir 3FA ground 1130m2 paces 3FA Mezzanines 109 r 2 spaces ()-100 Parking spaces	NA Existing (barn) 260 m2 2798.6 ft <sup>2</sup> 260 m2 2798.6 ft <sup>2</sup> Required FA ground 1130m2 /28 = 40.35 or 41 paces FA Mezzanines 109.48m2 / 70= 1.56 r 2 spaces 1+2 = 43 spaces P9 parking spaces - requires 1 tandicapped Space 0-100 Parking spaces - requires 2 andicapped spaces	NA         +/-76.1           Existing (barn)         New           260 m2         2798.6 ft²         1239.48 m²           260 m2         2798.6 ft²         1130m²           Required         Pro           FA ground 1130m2/28 = 40.35 or 41 proces         #4 spaces           FA Mezzanines 109.48m2 / 70= 1.56 r 2 spaces         14 spaces           -19 parking spaces. Requires 1 landicapped Space         2 Handicapped sp -100 Parking spaces -requires 2 requires 2	NA         +/-76.1% %           Existing (barn)         New Station           280 m2         2798.6 ft²         1239.48 m²         13,341.65 ft²           280 m2         2798.6 ft²         1130m²         12.103.ft²           FA ground 1130m2 (28 = 40.35 or 41 paces         Provided         Ft²           SFA MEZZININES 109.43m2 / 70 = 1.56         '* spaces         '*         **           -142 = 4.3 spaces         -142 = 4.3 spaces         '*         **           -142 = 4.3 spaces         -142 = 4.3 spaces         '*         **           -142 = 4.3 spaces         -142 = 4.3 spaces         '*         **	NA         +-70,1% %           Existing (barn)         New Station           200 m2         2798 6 ft         1234 4 5 m²           FA ground 110,241 6 5 ft         Provided           FA Alexanines 103.46m (2) 7 ft = 1.58         Provided           FA Alexanines 103.46m (2) 7 ft = 1.58         Provided           140 paces         Provided           141 2 = 4.3 paces         Provided           142 and spaces         Provided           142 and spaces         Provided           140 paces         Provided           140 paces         Provided           140 paces         Provided           140 paces         Provided           150 parking spaces         Provided           150 p	NA         -+ / 70 1% %           Execting (barn)         120.44 / 120.45 / 120.

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Roof Plan Notes
Keynote Text
/L connected storm line by roofing contractor, refer to spec's and civil/mechanical drawings
guards, refer to spec's.
haust gooseneck c/w bug screen and ensure water tight, refer to mechanical drawings.
shed eavestroughs engineered & installed by roofing contractor.
r of ice and water shield 2500mm up roof slope, Typ. refer to spec's.
r of ice and water shield 1000mm vertical & horizontal at wall and roof junctions, Typ., refer to spec's.
oping within attic space. Compartmentalize attic space by providing and installing 1 layer of 13mm gypsum board tire exposed surface area of of wood roof truss (one side only) nearest to this location. fully seal around any rough gypsum board membrane using firestop material. If location does not align with Trusses frame with 38x89 bod framing @ 610 oc for support of gypsum membrane.
icates exterior wall construction below.
nmx900mm (minimum) Access door constructed using 1(one) layer of 13mm gypsum board on 38mmx64mm wood ete with hinges and eye hooks ( to allow for door to be held in closed position)
cation of Plumbing Vent Stack, refer to mechanical drawings.
I Roofing
typ)
(see Typical Metal Roof Details)
Folded Edge Typ. (see Typical Metal Roof Details)













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TAG #	Location	Item Description			Bower
	Room #	Name	Manufacturer	Model Number	Fower
EQ1	RM 14	Microwave oven	Panasonic	NE-1064	120v- 1ph 13.4 amps
EQ2	RM 14	Refrigerator	Frigidaire	FPRU19F8WF	120v 15amp
EQ3	RM 14	Freezer	Frigidaire	FPFU19F8WF	120v 15amp
EQ4	RM 14	Dishwasher	Bosch Series 100	SHEM3AY55N	120v/12amp/ 1ph
EQ5	RM 14	Electric Range	Frigidaire	CFEF3054US	240v /40amp
EQ6	RM 4,13,15,18,24,20	Televisions and Large Monitors			
EQ7	RM 2,3,4,5,6,7,13,15	Office Furniture			
EQ8	RM 1, 2, 3, 4, 5, 6, 13, 20, 22	Office Equipment- phones , copier printers, etc.			
EQ9	RM 15	Training room projector			
EQ10	Station Wide	Whole Building PA & Radio interface			
EQ11	Rm 2, 20	Communication Radios			
EQ12	RM 20	Easy Clean Pressure washing system	EASY-KLEEN PRESSURE SYSTEMS LTD	FD3035E-GP	220v-1ph
EQ13	RM 27	Tool Compressor	DV Systems	IS5-4060	
EQ14	RM 23	SCBA compressor	Jordair Compressors	AIR-KAT6-1214-3EUS	10hp, 3PH, 230v
EQ15	RM 22	SCBA Filler, Cascade system	Jordair Compressors	Fill Station- J-FFS-DF3-4 4 bank manual cascade system	
EQ16	RM 22	Laundry Dryer	Huebsch	YDE3TRGS171CW01	240/1-30amp
EQ17	RM 22	Laundry Washer	Huebsch	YWN432SP115CW01	120/60/1
EQ 18	RM 22	Equipment Washer	Meiko TopClean M		
EQ19	RM 20	PPE Extractors	UniMAC	UY40	240/60/3
EQ20	Station wide	IT wiring/cabling			
EQ21	RM 28	IT Servers and racking			
EQ22	Station Wide	Security Cameras			

Miscellaneous Equipment Schedule

Contractor Supplied & Contractor Installed seen for \$616 (commercial microwave)     Contractor Supplied & Contractor Installed SEEN FOR \$2699     Contractor Supplied & Contractor Installed SEEN FOR \$2699	
Contractor Supplied & Contractor Installed SEEN FOR \$2699 Contractor Supplied & Contractor Installed SEEN FOR \$2699	
Contractor Supplied & Contractor Installed SEEN FOR \$2699	
Contractor Supplied & Contractor Installed SEEN FOR \$745	
Contractor Supplied & Contractor Installed Seen for \$899	
Owner Supplied & Contractor Installed Contractor to supply and install required cablin Details required from client, Client will supply racks	ng, mounting
Contractor Supplied & Contractor Installed FFE Cash allowance of 150,000	
Owner Supplied & Installed Contractor to supply and install required cablin	ng
Owner Supplied & Contractor Installed Contractor to supply and install required cablir	ng
Contractor Supplied & Installed	
Owner Supplied & Installed Contractor to permit radio specialist to install a cabling during construction 1- Apparatus Bay i desk 2- Admin. area "radio room"	antenna & radio
Contractor Supplied & Contractor Installed Firehosue and Car Detailing series	
Contractor Supplied & Contractor Installed See Mechanical for Piping and hose accessor	ies
Owner Supplied & Installed Will need conduit and sleeve between mainter room & SCBA room	nance
Owner Supplied & Installed Details required from client	
Contractor Supplied & Contractor Installed	
Contractor Supplied & Contractor Installed	
Plumbing and electrical rough-ins to be provid	ed
Owner Supplied & Contractor Installed Details required from client	
Contractor Supplied & Installed Details required from client	
Owner Supplied & Installed	
Owner Supplied & Contractor Installed Details required from client	


















								Roc	om Finish Sch	edule						
			Floor		Nor	th Wall	Eas	st Wall	Sou	ith Wall	We	est Wall		Ceiling		
Number	Nama	Bass	Floor Motorial	Electr Einie	North Wall	North Wall Fision	East Wall	Fastwall Finish	South Wall	South Wall Finish	West Wall	Maat Mall Finish	Coiling Material	Cailing Finish	Cailing Usight	
	Vestibule	Bubbor	Polished Constate	FIOUL FILLS		Doint		East wall Finish		Doint		Doint				Remarks
2		Rubber	Polished Concrete	Sealer		Paint		Paint	CMU	Paint	CMU	Paint	SAT		3,040	
2		Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3,040	
4	Meeting	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3,048	
5	Admin	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3 048	
6	Office - Deputy Chief	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3 048	
7	Clean Inventory	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3.048	
8	Corridor	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3.048	East end of Corridor - Ceiling Height 2848
9	Female Washroom	Rubber	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Gvp Bd	Paint	3.048	
10	Female Lockers	Rubber	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Gvp Bd	Paint	3.048	
11	Universal Washroom	Rubber	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Gyp Bd	Paint	3,048	
12	Jan.	None	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	СМИ	Epoxy Paint	Gyp Bd	Paint	3,048	
13	Lunch / Association	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3,048	
14	Kitchen	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	Gyp Bd	Paint	3,048	
15	Training Room/ E.O.C.	Rubber	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3,048	
16	Male washroom	Rubber	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Gyp Bd	Paint	3,048	
17	Male Lockers	Rubber	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Gyp Bd	Paint	3,048	
18	Physical Wellness	Rubber	Rubber Tiles		CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	SAT		3,048	
20	Apparatus Bays	None	Polished Concrete	Sealer	CMU	Epoxy Paint / Paint	CMU	Epoxy Paint / Paint	CMU	Epoxy Paint / Paint	CMU	Epoxy Paint / Paint	Structure	Paint		Epoxy Paint up to 3000 AFF
21	Maintenance	None	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Structure	Paint		
22	S.C.B.A.	None	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Structure	Paint		
23	Storage	None	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint / Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Structure	Paint		
24	Bunker Gear	None	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Structure	Paint		
25	W.R.	Rubber	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	SAT		2,740	
26	Mezz Storage	None	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	Structure	Paint		
27	Mech / Elec	None	Polished Concrete	Sealer	CMU	None	CMU	None	CMU	None	CMU	None	Structure	Paint		
28	IT Room	None	Polished Concrete	Sealer	CMU	Paint	CMU	Paint	CMU	Paint	CMU	Paint	Structure	Paint		
33	Extractors	None	Polished Concrete	Sealer	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	CMU	Epoxy Paint	Structure	Paint		





						s	Unit Size				
	Frame Finish	Frame Material	Glass	Door Finish	Door Material	Thickness	Height	Width	Fire Rating	Door Type	Mark
B.F.Operato	Anodized	Alum.	Yes	Anodized	Alum.	44	2,421	1,086		FG2	D1-01
B.F operator	Anodized	Alum.	Yes	Anodized	Alum.	44	2,421	1,086		FG2	D1-02
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D3-01
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D4-01
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D4-02
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D6-01
Storeroom L	Paint	H.M		Paint	H.M.	45	2,150	914		F	D7-01
Masonry ope							0	0			D8-01
Electric Strik	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		GP	D8-02
1hr FRR/ Ele	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D8-03
Push Pull/ D	Paint	H.M		Paint	H.M.	45	2,150	914		F	D9-01
Push Pull/ D	Paint	H.M		Paint	H.M.	45	2,150	914		F	D9-02
Push Pull/ D	Paint	H.M		Paint	H.M.	45	2,150	914		F	D10-01
B.F. operato	Paint	H.M		Paint	H.M.	45	2,032	914		F	D11-01
Storeroom L	Paint	H.M		Paint	H.M.	45	2,150	914		F	D12-01
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D13-01
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	1,072		VP	D14-01
Slide Lock	Anodized	Alum.		Anodized	Alum.		1,159	1,500		CRU	D14-02
Slide Lock	Anodized	Alum.		Anodized	Alum.		1,159	1,500		CRU	D14-03
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	1,072		VP	D15-01
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2,150	1,072		VP	D15-02
Push Pull/ D	Paint	H.M		Paint	H.M.	45	2,150	914		F	D16-01
Push Pull/ D	Paint	H.M		Paint	H.M.	45	2,150	914		F	D16-02
Push Pull/ D	Paint	H.M		Paint	H.M.	45	2,150	914		F	D17-01
Office Lock S	Paint	H.M	Yes	Paint	H.M.	45	2,150	1,072		VP	D18-01
overhead ch	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D20-01
Overhead Pa			Yes	Factory	Insul'd Steel	38	4,200	4,267		OHP 1	D20-02
Overhead Pa			Yes	Factory	Insul'd Steel	38	4,200	4,267		OHP 1	D20-03
Overhead Pa			Yes	Factory	Insul'd Steel	38	4,200	4,267		OHP 1	D20-04
Overhead Pa			Yes	Factory	Insul'd Steel	38	4,200	4,267		OHP 1	D20-05
Electric Strik	Paint	H.M	Yes	Paint	H.M.	44	2,150	1,830		DGP	D20-06
Overhead Pa			Yes	Factory	Insul'd Steel	38	4,200	4,267		OHP 1	D20-07
Overhead Pa			Yes	Factory	Insul'd Steel	38	4,200	4,267		OHP 1	D20-08
Electric Strik	Paint	H.M	Yes	Paint	H.M.	45	2,150	914		VP	D20-09
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2.150	914		VP	D22-01
Office Locks	Paint	H.M	Yes	Paint	H.M.	45	2.150	914		VP	D23-01
Overhead Pa						38	2.200	1.524		OHP 2	D23-02
passage set	Paint	H.M	Yes	Paint	H.M.	45	2.159	914		GP	D24-01
Electric Strik	Paint	H.M	Yes	Paint	H.M.	45	2.150	914		VP	D24-02
Privacy locks	Paint	H.M		Paint	H.M.	45	2.150	914		F	D25-01
Office Locks	Paint	H.M		Paint	H.M.	45	2.150	1.072		F	D27-01
Throw bolts	Paint	H.M		Paint	H.M.	45	2.150	1.888		DF	D27-02
	Paint	нм		Paint	нм	15	2 150	1,000		F.	 D28_01











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Exterior Elevations Notes # Keynote Text







Image: Second For Client Review /Costing           K         2021-07-26         Issued for Client Review /Costing			
		Raimondo + Basociates       Associates         4687 Queen Street Suite 2, Niagara Falls, Ontario, L2E 2L9       ARCHITECTS         ABS Queen Street Suite 2, Niagara Falls, Ontario, L2E 2L9       ARCHITECTS         ABS Queen Street Suite 2, Niagara Falls, Ontario, L2E 2L9       ARCHITECTS         MEB.       www.raimondoarchitects.com         EMAIL.       mail@raimondoarchitects.com	
Fire and Emergency Services Central Station	Township of Wainfleet 42143 Highway #3 Wainfleet, ON	Interior Elevations	
DRAWN BY:         Author           DATE:         26/08/2021 12:35:06 PM           SCALE:         1 : 20	PROJECT NO.: 20-163 CHECKED: Checker	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ARCHITECT. DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS REMAIN THE PROPERTY OF THE ARCHITECT, AND ARE PROTECTED UNDER COPYRIGHT. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PRICT AND THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.	
		ID3-040	

Exterior Elevations Notes Keynote Text #













anical Name	Native	Common Name	Number	Size	Condition
OUS TREES					
PINUS CAROLINIANA	YES	BLUE BEECH		60mm CAL	WB
SA SYLVATICA	YES	SOURGUM		45mm CAL	WB
OUS TREES					
EBALSAMEA	YES	BALSAM FIR		150cm	WB
OUS SHRUBS					
US MEDIA "DENSIFORMIS"		DENSE YEW		60cm	3 GAL CONTAINER
IPERUS SABINA		CALGARY CARPET JUNIPER		50cm	3 GAL CONTAINER
OUS SHRUBS					
RAEA JAPONICA "CRISPA"		CRISP LEAF SPIREA		50cm	3 GAL CONTAINER
ELANCHIER CANADENSIS	YES	SERVICEBERRY		150cm	WB (SHRUB FORM)



				WAINFLEET FIRE DEPT. STORAGE GARAGE / BARN			
·····				Item Ontario Building Code Data Matrix Parts 3 & 9	Ontario Building Code Reference		
· · · · · · · · · · · · · · · · · · ·				□ Addition 11.1 to 11.4 □ Change of Use ■ Alteration	Image: second		
				2.       Major Occupancy(s)       F2 - STORAGE GARAGE         3.       Building Area (m²)       Existing: 342.20       New: -144.27       Total: 197.93         4.       Gross Area (m²)       Existing: 024.40       New: -127.57       Total: 027.57	3.1.2.1.(1)     9.10.2       1.4.1.2 [A]     1.4.1.2 [A]		
				4.       Gross Area (m <sup>2</sup> )       Existing: 684.40       New: -407.57       Total: 276.83         5.       Number of Storeys       Above Grade: 1       Below Grade: 0         6.       Number of Streets / Fire Fighter Access: 1	1.4.1.2 [A]       1.4.1.2 [A]         1.4.1.2 [A] & 3.2.1.1       1.4.1.2 [A] & 9.10.4         3.2.2.10 & 3.2.5		
				7. Building Classification: F3 - STORAGE GARAGE (PART 9)	3.2.2.2083 9.10.2		
				8. Sprinkler System Proposed: □Entire Building (For Insurance Purpose □Basement Only □In Lieu of Roof Rating	s) 3.2.2.2083 3.2.1.5 3.2.2.17 9.10.8.2		
				<ul> <li>■Not Required</li> <li>9. Standpipe Required: □Yes ■No</li> </ul>	INDEX         INDEX           3.2.9         N/A	<b>24</b> <b>24</b>	
				10.       Fire Alarm Required:       ⊥Yes ■ No         11.       Water Service/Supply is Adequate:       ¥Yes □ No         12.       High Building:       □Yes ■ No	3.2.4 9.10.18 3.2.5.7 N/A 3.2.6 N/A	<b>AUG 18</b>	
				13.    Permitted Construction:    ■Combustible    □Non-Combustible    □Both      Actual Construction:    ■Combustible    □Non-Combustible    □Both	3.2.2.20-83 9.10.6		
				14. Importance Category: □Low □Normal □High □Post-disaster	4.1.2.1.(3)         9.4.1.1, 4.1.2.1.(3)           5.2.2.1.(2)         5.2.5.1.(2)		
				Site Class (A,B,C,D,E from Geotechnical Report)	4.1.8.4.     4.1.8.4.       T.4.1.8.5.     T.4.1.8.5.       T.4.1.8.4.     T.4.1.8.4.		
				5% Spectral Response Acceleration $S_a(0.2)$ $I_E F_a S_a(0.2) = 0.41$	4.1.8.4.(1) & SB-1,     4.1.8.4.(1) & SB-1,       T.1.2     T.1.2		
				Seismic Hazard Index Design for Seismic Required for Categories 6 to 21.	4.1.8.18.(1)       4.1.8.18.(1)         4.1.8.18.(2)       4.1.8.18.(2), 9.20.1.2.		
				1able 4.1.1.18. (Equal or Above 0.35?) (Yes or No)         15.       Occupant Load Based on:         ■m²/person       □Design of Building	9.31.6.2.(3) 3.1.17.1 9.9.1.3		
				TOTAL: 276.83 SQ. M. / 46 SQ. M. = 6 PERSONS 16. Barrier-Free Design: □Yes ■No (Not Required)	3.8		
			a tamén ang kanananan ang kananan ang k Ang kanang kan	17.     Hazardous Substances:     □ Yes     ■ No       18.     Required     Horizontal Assemblies     Listed Design No.	3.3.1.2 & 3.3.1.19           3.2.2.20 - 83		
				Fire     FRR (Hours)     or Description (SG-2)       Resistance     Rating     Floors     3/4       (FRR)     Floors     3/4	& 3.2.1.4 9.10.1.3 (4) 9.10.8 9.10.9		
				Roof 0 Hours N/A Mezzanine 0 Hours N/A			ATES L2E 2L6
				Floors     3/4     Hours     N/A			SOC I
				Roof     0     Hours     N/A       Mezzanine     0     Hours     N/A			ASC 15-357-92 15.com 15.com
				19.Spatial Separation – Construction of Exterior WallsWallAreaL.D.L/HPermittedProposedFRRListedof(m)orMax. % of% of(Hours)Design or	3.2.39.10.14CombNon-comb.ConstConstr.Cladding		FAX. 9( FAX. 9( doarchitec doarchitec
			<pre>// the second seco</pre>	EBF     H/L     Openings     Openings       (m²)     0     EXISTING			IOND IST-4441 w.raimond I@raimon
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				W         -         -         0         -           20.         Other – Describe         -         -         0			
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				ζει 71'-11" (21919 mm).		se suite stati	
				EXISTING BARN AREA TO REMAIN		S Gen	OB
)			43'-3" (13181 mm)	28'-8" (8738 mm)			<b>∞</b> <u>×</u> []
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CONSTRUCTION LEGEND	
EXISTING TO BE REMOVED	
EXISTING TO BE REMAIN	
NEW CONSTRUCTION	
DEMOLITION NOTES: 1. "TO BE REMOVED" DENOTES EXISTING CONSTRUCTION TO BE REMOVED AN LEGALLY DISPOSED OF OFF-SITE	
2. "TO REMAIN" DENOTES EXISTING CONSTRUCTION TO REMAIN / BE SALVAGE DURING NEW PROPOSED CONSTRUCTION	
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6. CONTRACTOR TO COORDINATE CONSTRUCTION WITH EXISTING GRADES AND NOTIFY ARCHITECT OR OWNER OF ANY DISCREPANCIES	
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 <ul> <li>9. CONTRACTOR TO ENSURE ALL EXISTING ELECTRICAL, MECHANICAL, AND PLUMBING (IF APPLIC.) CONNECTIONS ARE REMOVED A N EXISTING STRUCTURE TO REMAIN PATCHED AND MADE GOOD</li> <li>9. CONTRACTOR TO COORDINATE ON SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND WITH LOCAL AUTHORITIES THE STRUCTURE TO REMAIN PATCHED AND SITE AND</li></ul>	
 RELOCATION AND CONNECTIONS OF EXISTING SITE SERVICES (I.E., HYDRO) A TIME OF CONSTRUCTION.	
10. ALL EXISTING OPENINGS TO BE INFILLED SHALL BE INFILLED WITH CONSTRUCTION MATERIALS TO MATCH ADJACENT WALL CONSTRUCTIONS	
11. ALL AREAS WITH SUFFICIENT DAMAGE OR ROTTEN WOOD SHALL BE REPLACED WITH NEW. CONTRACTOR TO REPORT TO OWNER OR ARCHITECT ANY AREAS WITH DAMAGE UNCOVERED DURING CONSTRUCTION PRIOR TO COMMENCING REPAIRS.	SSOCI/
CONSTRUCTION NOTES: 1. ALL FOOTINGS TO EXTEND MIN. 48" (1220mm) BELOW GRADE FOR FROST HEAVE PROTECTION	→ → → → → → → → → → → → → → → → → → →
<ul> <li>2. STEP FOOTINGS IF APPLIC. ARE TO HAVE VERTICAL RISES BETWEEN HORIZONTAL PORTIONS NOT EXCEEDING 24" (610mm) AND HORIZONTAL RUNS BETWEEN VERTICAL PORTIONS NOT LESS THAN 24" (610mm)</li> <li>3. CONTRACTOR TO COORDINATE ALL FOUNDATION WALL DOOR BUCKS WITH</li> </ul>	<b>MOND</b> mail@raimondo
FIRST FLOOR PLAN DOOR LOCATIONS - DOOR BUCKS TO BE RECESSED THE THICKNESS OF THE CONCRETE FLOOR SLAB	AL 4687 Qui WEB. WEB. EMAIL
4. STAIRS AS PER O.B.C. 9.8 MAX. RISE = 7 7/8" (200mm) MIN. RUN = 8 3/8" (210mm) MIN. TREAD = 9 1/4" (235mm) MIN. NOSING = 1" (25mm) MIN. HEADROOM = 6'-5" (1950mm) MIN. GUARDS HEIGHT = 3'-6" (915mm) MIN. GUARDS HEIGHT = 3'-6" (915mm) MIN. HANDRAILS HEIGHT = 2'-10" (865mm) MIN. STAIR WIDTH = 2'-10" (860mm) MAX. RAILING PICKETS SPACEING = 4" (100mm)	
5. AREAS OF EXISTING WALLS WHERE THE EXISTING SECOND FLOOR HAS BEEN REMOVED SHALL HAVE NEW 2 X 4 WOOD STUDS SISTERED ADJACENT TO EXISTING STUDS CONT. FROM BTM. PLT. AT FOUNDATION TO DBL. TOP PLT AT ROOF TRUSSES - PROVIDE BLOCKING AT 48" (1220mm) O/C BETWEEN STUDS	tion
6. EXISTING EXTERIOR WALLS TO REMAIN SHALL HAVE EXISTING EXTERIOR FINISHES REPLACED WITH NEW (SEE ASSEMBLY SCHEDULE)	Sta Sta
<ul><li>7. PROVIDE NEW PRE-FINISHED METAL FACIA, SOFFIT, EAVES &amp; DOWNSPOUT</li><li>8. SOFFITS TO BE VENTED AND COMPLETE WITH INSECT SCREEN</li></ul>	lans tral
9. EXISTING STANDING SEAM ROOF FINISH TO BE REMOVED AND REPLACED WITH NEW	n P Cen
10. REFER TO ELECTRICAL DRAWIGNS FOR ELECTRICAL SERVICING OF STORAGE BARN	es es es es es es es es es
11. CONTRACTOR TO COORDINATE NEW ELECTRICAL & FIXTURE REQUIRMENTS ON SITE	
12. ALL KNEE WALLS TO BE MIN. 3'-6" (1066mm) HIGH	
ASSEMBLY SCHEDULE         FW-1       - Reinforced poured Concrete wall (see Structurals for	
thickness and renforcing details on Conrete footing (see structural for details)	ALED TO THE ALED ALED ALED
BW1	T 1:28:04
- Concrete Masonry Units 8" X 8" 16" (200mm x 200mm x 400mm)	JV 6/08/2021 5 indicat 8 indicat 0-163 0-163 0-163 R / ER Drawing ECT, AND ECT, AND ECT, AND BY THE D HOM THE D A CONTI
	RE PREP.
- Standing seam metal siding - cont. Tyvek building wrap - 13 mm (1/2") exterior grade osb sheathing	VALID FO ARCHITEC ARCHITEC //NGS. RE PROCEECE PROCEECE PROCEECE PROCECECE PROCECECE PROCECECE PROCECECE PROCECECE PROCECECE PROCECECE PROCECECE
between studs at 48" (1220mm) o/c w/ blocking - 13 mm (1/2") osb sheathing	Y: NO.: BY THE. J BY THE. J UNDER ( MAL TO AL MAS I NAL TO AL MAS I NAL HAS I
W2         - 13 mm (1/2") osb sheathing           - 2x4 wood studs @ 406 mm (16") o/c           - 13 mm (1/2") osb sheathing	DATE: DATE: DATE: DATE: SCALE: PROJECT PROJECT AND SIGNEE AND SIGNEE AND SIGNEE PROTECTEE PROTECTEE PROTECTEE PROFESSION
EX1 - Replace existing standing seam metal siding w/ new	
standing seam metal siding	
- New cont. Tyvek building wrap - Existing osb plywood sheathing	
 <ul> <li>New cont. Tyvek building wrap</li> <li>Existing osb plywood sheathing</li> <li>Existing 2 x 4 wood studs (see floor plans for areas with additional existing wall reinforcing / wood studs)</li> <li>Existing 13 mm (1/2") osb sheathing (contractor to</li> </ul>	BA2-000



	CONSTRUCTION LEGEND						
	EXISTING TO BE REMAIN						
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	DEMOLITION NOTES:		inder uncil /				
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	5. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE STRUCTURAL STABILITY OF THE EXISTING BUILDING AND FOR PROTECTING THE EXISTING BUILDING FROM DAMAGE DURING THE COURSE OF THE WORK. THIS SHALL INCLUDE SUPPLYING AND INSTALLING SHORING AND ANY OTHER ITEMS REQUIRED TO MAINTAIN THE STRUCTURAL STABILITY OF THE EXISTING BUILDING.						
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	ANY AREAS WITH DAMAGE UNCOVERED DURING CONSTRUCTION PRIOR TO COMMENCING REPAIRS.		I		30CI	, Ontario 03	
	CONSTRUCTION NOTES: 1. ALL FOOTINGS TO EXTEND MIN. 48" (1220mm) BELOW GRADE FOR FROST HEAVE PROTECTION		<b>—</b>		+ ASS	Niagara Falls 905-357-92 tects.com nitects.com	
	2. STEP FOOTINGS IF APPLIC. ARE TO HAVE VERTICAL RISES BETWEEN HORIZONTAL PORTIONS NOT EXCEEDING 24" (610mm) AND HORIZONTAL RUNS BETWEEN VERTICAL PORTIONS NOT LESS THAN 24" (610mm)	s				et Suite 2, 41 FAX. nondoarchi mondoarch	
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	4. STAIRS AS PER O.B.C. 9.8 MAX. RISE = 7 7/8" (200mm) MIN. RUN = 8 3/8" (210mm)				2	468 VEI EM/	_
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	MAX. RAILING PICKETS SPACEING = 4" (100mm)					1	
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)	6. EXISTING EXTERIOR WALLS TO REMAIN SHALL HAVE EXISTING EXTERIOR FINISHES REPLACED WITH NEW (SEE ASSEMBLY SCHEDULE)		y tatic			) •	
	7. PROVIDE NEW PRE-FINISHED METAL FACIA, SOFFIT, EAVES & DOWNSPOUT	s 🗭	ency al St	7	St F	1 ) )	+
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	thickness and renforcing details on Conrete footing (see structural for details)		Σ		LED O THE SIGNS	HE L HAS	
			:28:04 P		UTIL SEAL NCIES TO AND DE	KE -Y FOR T ESSIONA SIGN SIGN	CT.
	BW1         - Concrete Masonry Units           8" X 8" 16" (200mm x 200mm x 400mm)		8/2021 1 ndicated	63 ER		ED SOLEL SN PROFI SN PROFI THE DES M THE DES	CONTRA
			26/0 As i	20-1 DR /	ONSTRUC RT ALL D	PREPARE HE DESIG MADE BY TH WHON	D INTO A
	W1     - Standing seam metal siding       - cont. Tyvek building wrap	115			D FOR CO HITECT. S. REPO CEEDING	ARTY WI	ENTERE
	- 13 mm (1/2") exterior grade osb sheathing - 2x6 wood studs @ 406 mm (16") o/c w/ blocking between studs at 48" (1220mm) o/c				INDT VALI THE ARCI RAWING DRE PRO	DER COP OCUMEN TY WITH CONTR/ NS OF AI	HAS NOT
	- 13 mm (1/2") osb sheathing           W2         - 13 mm (1/2") osb sheathing		N BY:	CT NO.: (ED:	IGS ARE ISS ARE SCALE D ECT BEFO	DESIGN D DESIGN D THE PAR THE PAR SENTATIC SSIONAL	SIONALI
	- 2x4 wood studs @ 406 mm (16") o/c - 13 mm (1/2") osb sheathing		DRAWN DATE: SCALE:	PROJE	DRAWIN AND SIG DO NOT ARCHITE	PROTEC THESE I USE BY USE BY REPRES	PROFES
		[					
	<b>LX1</b> - Replace existing standing seam metal siding w/ new standing seam metal siding         - New cont. Tyvek building wrap		$\square$				
	<ul> <li>Existing osb plywood sheathing</li> <li>Existing 2 x 4 wood studs (see floor plans for areas with additional existing wall reinforcing / wood studs)</li> </ul>				В	A2-1	00
	- Existing 13 mm (1/2 <sup>-</sup> ) osb sheathing (contractor to replace all areas with damaged osb and provide new osb in all areas affected by new construction)		Ť			_	◀
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	CONSTRUCTION LEGEND	H     AUG 18, 2021     Issued For Tender       K     2021-08-24     Issued For Council Approval	
	<ul> <li>5. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE STRUCTURAL STABILITY OF THE EXISTING BUILDING AND FOR PROTECTING THE EXISTING BUILDING FROM DAMAGE DURING THE COURSE OF THE WORK. THIS SHALL INCLUDE SUPPLYING AND INSTALLING SHORING AND ANY OTHER ITEMS REQUIRED TO MAINTAIN THE STRUCTURAL STABILITY OF THE EXISTING BUILDING.</li> <li>6. CONTRACTOR TO COORDINATE CONSTRUCTION WITH EXISTING GRADES AND NOTIFY ARCHITECT OR OWNER OF ANY DISCREPANCIES</li> <li>7. EXISTING FOUNDATION DEPTH BELOW GRADE TO BE CONFIRMED AT THE TIME OF EXCANATION. CONTRACTOR TO REPORT ANY DEVIATION FROM THE CONSTRUCTION DOCUMENTS TO THE ARCHITECT OR OWNER</li> <li>8. CONTRACTOR TO COORDINATE WITH ELECTRICAL &amp; MECHANICAL CONTRACTOR TO COORDINATE WITH ELECTRICAL &amp; MECHANICAL CONTRACTOR REGARDING THEIR SELECTIVE DEMOLITION OF THE EXISTING ELECTRICAL / MECHANICAL EQUIPMENT &amp; COMPONENTS</li> <li>9. CONTRACTOR TO ENSURE ALL EXISTING ELECTRICAL, MECHANICAL, AND PLUMBING (IF APPLIC.) CONNECTIONS ARE REMOVED A N EXISTING STRUCTURE TO REMAIN PATCHED AND MADE GOOD</li> <li>9. CONTRACTOR TO COORDINATE ON SITE AND WITH LOCAL AUTHORITIES THE RELOCATION AND CONRECTIONS OF EXISTING SITE SERVICES (I.E., HYDRO) AT TIME OF CONSTRUCTION.</li> <li>10. ALL EXISTING OPENINGS TO BE INFILLED SHALL BE INFILLED WITH CONSTRUCTION MATERIALS TO MATCH ADJACENT WALL CONSTRUCTIONS 11. ALL AREAS WITH SUFFICIENT DAMAGE OR ROTTEN WOOD SHALL BE REPLACED WITH NEW. CONTRACTOR TO REPORT TO OWNER OR ARCHITECT ANY AREAS WITH DAMAGE UNCOVERED DURING CONSTRUCTION PRIOR TO COMMENCING REPAIRS.</li> <li>CONSTRUCTION NOTES:         <ul> <li>1. ALL FOOTINGS TO EXTEND MIN. 48" (1220mm) BELOW GRADE FOR FROST HEAVE PROTECTION</li></ul></li></ul>		RAIMOND + ASSOCIATES Rear Street Suite 2, Nagara Falls, Ontario, L2E 2L9 TEL. 905-357-4441 FAX. 905-357-9203 WEB. www.raimondoarchitects.com EMAIL. mail@raimondoarchitects.com
AIN ISTING HES H NEW	<ul> <li>AT ROOF TRUSSES - PROVIDE BLOCKING AT 48" (1220mm) O/C BETWEEN STUDS</li> <li>6. EXISTING EXTERIOR WALLS TO REMAIN SHALL HAVE EXISTING EXTERIOR FINISHES REPLACED WITH NEW (SEE ASSEMBLY SCHEDULE)</li> <li>7. PROVIDE NEW PRE-FINISHED METAL FACIA, SOFFIT, EAVES &amp; DOWNSPOUTS</li> <li>8. SOFFITS TO BE VENTED AND COMPLETE WITH INSECT SCREEN</li> <li>9. EXISTING STANDING SEAM ROOF FINISH TO BE REMOVED AND REPLACED WITH NEW</li> <li>10. REFER TO ELECTRICAL DRAWIGNS FOR ELECTRICAL SERVICING OF STORAGE BARN</li> <li>11. CONTRACTOR TO COORDINATE NEW ELECTRICAL &amp; FIXTURE REQUIRMENTS ON SITE</li> <li>12. ALL KNEE WALLS TO BE MIN. 3'-6" (1066mm) HIGH</li> </ul>	Fire and Emergency Services Central Station Township of Wainfleet, ON 42143 HIGHWAY #3, Wainfleet, ON	Floor Plan - Mezzanine Le
	ASSEMBLY SCHEDULE         FW-1         - Reinforced poured Concrete wall (see Structurals for thickness and renforcing details on Conrete footing (see structural for details)         BW1         - Concrete Masonry Units 8" X 8" 16" (200mm x 200mm x 400mm)         W1         - Standing seam metal siding - cont. Tyvek building wrap - 13 mm (1/2") exterior grade osb sheathing - 2x6 wood studs @ 406 mm (16") o/c w/ blocking between studs at 48" (1220mm) o/c - 13 mm (1/2") osb sheathing         W2       - 13 mm (1/2") osb sheathing - 2x4 wood studs @ 406 mm (16") o/c - 13 mm (1/2") osb sheathing	DRAWN BY:     JJV       DATE:     JJV       DATE:     Z6/08/2021 1:28:04 PM       SCALE:     Z6/08/2021 1:28:04 PM       SCALE:     As indicated       PROJECT NO::     20-163       CHECKED:     DR / ER	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ARCHITECT. DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS REMAIN THE PROPERTY OF THE ARCHITECT, AND ARE PROTECTED UNDER COPYRIGHT. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO SOF ANY KIND MADE BY THE DESIGN REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.
	EX1       - Replace existing standing seam metal siding w/ new standing seam metal siding         - New cont. Tyvek building wrap         - Existing osb plywood sheathing         - Existing 2 x 4 wood studs (see floor plans for areas with additional existing wall reinforcing / wood studs)         - Existing 13 mm (1/2") osb sheathing (contractor to replace all areas with damaged osb and provide new osb in all areas affected by new construction)		BA2-101



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	2 [ ] 3	"TO REMAIN" DENOTES EXISTING CONSTRUCTION TO REMAIN / BE SALVAGED DURING NEW PROPOSED CONSTRUCTION THE CONTRACTOR SHALL NOT CONSIDER DEMOLITION NOTES TO BE ALL-		enssi Issue				 
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Image: State of the concentration of the	2	2. STEP FOOTINGS IF APPLIC. ARE TO HAVE VERTICAL RISES BETWEEN HORIZONTAL PORTIONS NOT EXCEEDING 24" (610mm) AND HORIZONTAL RUNS BETWEEN VERTICAL PORTIONS NOT LESS THAN 24" (610mm)				ODN	rreet Suite -4441 F <i>P</i> aimondoar raimondoar	
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Normal Control Co		4. STAIRS AS PER O.B.C. 9.8 MAX. RISE = 7 7/8" (200mm) MIN. RUN = 8 3/8" (210mm) MIN. TREAD = 9 1/4" (235mm)					4 - 2 -	
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# **Township of Wainfleet** Fire and Emergency Services Central Station

42143 Highway #3 Wainfleet, ON





15 FOUNDRY STREET, DUNDAS, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com

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#### Structural – Mantecon Partners Inc

SO-000	TITLE PAGE
SO-001	GENERAL NOTES
S2-000	Foundations plan
S2-100	SLAB ON GRADE PLAN
S2-110	MEZZANINE FLOOR FRAMING PLAN
S2-200	ROOF FRAMING PLAN
\$3-000	FIRE SUPPRESSION STORAGE TANK PLANS AND DETAILS
\$3-001	STORAGE FACILITY PLANS
S4-000	BUILDING SECTIONS (LARGE SCALE)
S4-100	SECTION DETAILS
S4-102	SECTION DETAILS
S4-103	Section details
S5-100	TYPICAL DETAILS
\$5-101	TYPICAL DETAILS
\$5-102	TYPICAL DETAILS

STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS

	ERAL NOTES		
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revie Shof	EW OF SHOP DRAWINGS BY STRUCTURAL CONSULTAN 9 DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL	t is only to design.	ASSESS THAT SUBMITTE
REVIE RESPO THE S	EW BY THE STRUCTURAL CONSULTANT SHALL NOT RELIE ONSIBILITY FORSEEN THAT THE WORK IS COMPLETE, AC STRUCTURAL DRAWINGS AND SPECIFICATIONS.	EVE THE CON CCURATE ANI	TRACTOR OF THE D IN CONFORMITY WI
TYPIC	CAL DETAILS SHALL BE USED WHERE SPECIFIC DETAILS A	ARE NOT SHO	WN ON THE DRAWING
ALL V THAT AT TH	VORK REQUIRED, INCLUDING ANY DEMOLITION, SHAL WILL NOT DAMAGE THE EXISTING SITE OR STRUCTURE. IE CONTRACTOR'S EXPENSE.	L BE CARRIEI ANY DAMA	d out in a manner Ge shall be repairee
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	LE WORK AND MUST REPORT ALL DISCREPANCIES TO		
2. STRUG MEC	HANICAL AND ELECTRICAL DRAWINGS.	N WITH THE AP	CHITECTURAL, CIVIL,
). PROV	vide stamped structural shop drawings as not	ED IN THE FO	LLOWING TABLE.
	ITEMS	REQ'D SUBMITTAL?	ENGINEER'S STAMP REQ'D?
	REBAR SHOP DWGS.	YES	NO
	CONC. MIX DESIGNS	YES	NO
	STRUCT. STEEL SHOP DWGS.	YES	YES
	STEEL DECK SHOP DWGS.	YES	NO
	PRE-ENGINEERED TRUSS SHOP DWGS.	YES	YES
I. PRO. CON SHOI	JECTS WHICH INCLUDE ANY DEMOLITION AND OR REI ITRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENS JLD A DISCREPANCY ON EITHER BE FOUND, REPORT FI	novation w Sions and e Indings to e	I ORK, THE GENERAL XISTING CONSTRUCTIO ENGINEER/ARCHITECT
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<sup>.</sup> ALL EXCAVATIONS MUST BE CARRIED OUT IN CONFORMANCE TO THE GEOTECHNICAL REPORT AND OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS, LATEST EDITION GUIDELINES.

- DO NOT EXCEED A MAXIMUM RISE TO RUN OF 7 TO 10 SLOPE BETWEEN ADJACENT FOOTINGS UNLESS DIRECTED IN WRITING BY THE GEOTECHNICAL ENGINEER. ). BACKFILL MATERIAL AND COMPACTION SHOULD BE IN CONFORMANCE WITH GEOTECHNICAL
- . PRIOR TO BACKFILLING, CONCRETE FLOOR OR STRUCTURAL STEEL FLOOR AND SLAB ON GRADE MUST BE IN PLACE TO PREVENT WALLS FROM COLLAPSE. THE CONCRETE MUST HAVE ACHIEVED A STRENGTH OF MINIMUM 75% OF ITS DESIGN STRENGTH.
- 2. IN WALLS WHERE THE CONTRACT DOCUMENTS CALL FOR WATER STOPS AT THE INTERFACE OF THE TOP OF FOOTING AND THE UNDERSIDE OF THE WALL, THE GENERAL CONTRACTOR MUST PROVIDE THE STRUCTURAL ENGINEER SKETCHES OF THE PROPOSED INSTALLATION FOR REVIEW. SIMILAR DIRECTION MUST BE FOLLOWED FOR WALL CONSTRUCTION JOINTS.

## **TESTING AND INSPECTION**

RFPORT

THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY UNLESS NOTED OTHERWISE. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

	ITEMS	REQ'D?	COMMENTS
	SOIL BEARING CAPACITY	YES	BY SOILS ENGINEER
	SOIL COMPACTION	YES	BY SOILS ENGINEER
	REINF. STEEL PLACEMENT	YES	INSPECT FINAL PLACEMENT
	CONC. COMPRESSIVE TESTS	YES	MIN. 2 SETS PER X m <sup>3</sup>
	CONC. SLUMP	YES	
	STRUCTURAL STEEL	YES	
	MORTAR CUBES	NO	
	GROUT CUBES	NO	
* C	ONCRETE POURS IN WINTER MONTH	s to have <i>n</i>	NIN. 2 SETS LAB CURED AND 2 SETS FIELD CUR

#### **CONCRETE AND REINFORCING**

- 1. CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION, TE STANDARD PRACTICES FOR CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD A23.1/A23.2 (LATEST EDITION).
- CSA STANDARD A23.3 (LATEST EDITION). 3. SUPPLY AND PLACE CONCRETE IN ACCORDANCE TO TABLE 1

	TABLE 1				
	LOCATION	MIN. COMPRESSIVE STRENGTH (f'c) AT 28 DAYS MPa (PSI)	SLUMP mm (in)	EXPOSUR E CLASS	AIR CONTENT (%)
FIGS	FND. WALL FOOTINGS	25 (3500)	80 ± 30 (3 ± 1)	Ν	0
WALLS	FND. WALLS, ABOVE GRADE WALLS, RETAINING WALLS	32 (4650)	80 ± 30 (3 ± 1)	C-1	5-8
SLABS	INTERIOR SLAB ON GRADE, AND CONC. SLAB ON DECK	25 (3500)	80 ± 30 (3 ± 1)	Ν	0
OTHER	SIDEWALK/CURBS PAVING SLABS, EXTERIOR CONC. AND TOPPING	32 (4650)	40 ±20 (11±3) 2 4	C-2	5-8
	HOUSEKEEPING PADS	25 (3500)	80 ± 30 (3 ± 1)	Ν	0
	NON-SHRINKABLE GROUT	30	AS PER MANUF. RECOMEN.	Ν	0
	LEAN MIX CONCRETE	8 (1000)	80 ± 30 (3 ± 1)	Ν	0

- 4. THE COMPRESSIVE STRENGTH OF THE CONCRETE IS BASED ON THE FOLLOWING CONDITIONS: a. TYPE GU NORMAL PORTLAND CEMENT UNLESS OTHERWISE NOTED OR APPROVED
- b. MAXIMUM SIZE OF AGGREGATE 20mm (3/4") WASHED IRREGULAR CUT CLEAR STONE c. SLUMP SHOWN ON THE TABLE IS SLUMP WITHOUT SLUMP AID ADMIXTURE. WHERE THE USE OF AN ADMIXTURE IS PREFERRED TO INCREASE THE SLUMP, THE SUPERPLASTICIZED CONCRETE SLUMP MUST REMAIN BELOW THE POINT AT WHICH SEGREGATION WILL OCCUR.
- 5. REINFORCEMENT SHALL CONFORM TO CSA G30.3, G30.5 AND G30.18 (LATEST EDITION) YIELD STRENGTH FOR CONCRETE AND MASONRY REINFORCEMENT, fy=400MPa YIELD STRENGTH FOR WELDED WIRE FABRIC fy=360MPa
- 6. WHEN COLUMNS AND WALLS ARE POURED INTEGRALLY USE THE HIGHER STRENGTH CONCRETE OF THE ELEMENT WHICH SPECIFIED IN TABLE 1.
- 7. MINIMUM CONCRETE COVER FOR REINFORCING, WHERE NOT SHOWN ON DESIGN DRAWINGS SHALL BE AS FOLLOWS:
- a. ALL STEEL NOT CAST IN FORMS PERMANENTLY AGAINST EARTH OR ROCK AND IN A NON-CORROSIVE ENVIRONMENT, COVER SHALL BE 75mm (3"). b. ALL STEEL CAST IN FORMS SHALL FOLLOW TABLE 2 OR AS NOTED ON DRAWINGS.

	TABLE 2				
	STRUCTURAL ELEMENT	COVER mm (in)	STRUCTURAL ELEMENT		
	CONCRETE POURED IN FORMS BUT EXPOSED TO WEATHER OR EARTH-BARS LARGER THAN 15M50 (2")-BARS 15M AND SMALLER38 (11/2")		CONCRETE NOT EXPC		
			-SLABS AND WALLS		
			-BEAMS AND GIRDERS		
			-COLUMNS MAIN STEE		
	FTGS. & OTHER ELEMENTS	75 (3'')			

- 8. THE GENERAL CONTRACTOR MUST COORDINATE THE INSTALLATION OF MECHANICAL AND ELECTRICAL OPENINGS AND SLEEVES. THEY MUST FOLLOW THE GUIDE LINES BELOW:
- a. NO SLEEVES SHALL BE PLACED VERTICALLY OR HORIZONTALLY THROUGH BEAMS UNLESS

....

- APPROVED BY THE STRUCTURAL ENGINEER. b. NO OPENINGS SHALL BE MADE IN FLAT SLABS OR TWO WAY SLAB COLUMN STRIPS EXCEPT AS SHOWN ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
- c. WHERE A CORE DRILL OR AN OPENING IS REQUIRED IN HARDENED CONCRETE THE
- GENERAL CONTRACTOR MUST SEEK THE APPROVAL OF THE STRUCTURAL ENGINEER. d. Electrical conduits shall not pass through columns and are not to run
- HORIZONTALLY IN WALLS. e. CONDUITS WITHIN SLABS MUST NOT HAVE A (OUTER) DIAMETER GREATER THAN ONE-QUARTER OF THE SLAB THICKNESS. SPACING BETWEEN CONDUITS MUST BE AT LEAST 3 TIMES THE OUTER DIAMETER (CLEAR SPACING). CONDUITS MUST BE PLACED WITHIN MIDDLE THIRD OF SLAB. CONDUITS SHALL BE LAID SUCH THAT ONLY SINGLE CROSS OVERS OCCUR WITHIN MAXIMUM 500mm OF ONE ANOTHER. ALL CONDUITS WITHIN SLAB ARE SUBJECT TO
- 9. REFER TO DESIGN DRAWINGS FOR TYPICAL DETAILS OF CONTROL JOINTS, EXPANSION JOINTS AND CONSTRUCTION JOINTS. UNLESS OTHERWISE NOTED ON THE DESIGN DRAWINGS, THE FOLLOWING MAXIMUM DISTANCE BETWEEN JOINTS MUST BE FOLLOWED:

APPROVAL BY STRUCTURAL CONSULTANT.

- a. CONTROL JOINTS IN WALLS 6m (20') MAXIMUM b. MAXIMUM POUR LENGTH FOR SLAB ON GRADE IS 30m (100'). c. ALL SAWCUTS MUST BE MADE WITHIN 24 HRS. FROM PLACING OF CONCRETE. THE DEPTH OF
- THE SAWCUT MUST BE 1/3 THE DEPTH OF THE SLAB. TOPPING
- 10. THE CONTRACTOR SHALL PROVIDE A SUITABLE TOP FINISH TO ACCEPT DIRECT APPLICATION OF FINISHED FLOORING/ROOFING AS PER ROOM FINISH SCHEDULE.

## STRUCTURAL STEEL

- . STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF: C.S.A. \$16.1: LIMIT STATES DESIGN OF STEEL STRUCTURES, C.S.A. G40-20: GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEELS C.S.A. G40-21: STRUCTURAL QUALITY STEELS C.S.A. W59: WELDED STEEL CONSTRUCTION
- C.S.A. \$136: COLD FORMED STEEL STRUCTURAL MEMBERS
- STRUCTURAL STEEL SHALL CONFORM TO G40.21 GRADE 350W FOR W SHAPES AND GRADE 300W FOR PLATES, ANGLES AND CHANNELS. SQUARE/RECTANGULAR HSS (HOLLOW STRUCT. SECTIONS) SHALL BE GRADE 350W, CLASS C. ROUND HSS SHALL BE ASTM A500 GRADE C.
- . UNLESS NOTED ON DRAWINGS, ALL BOLTS SHALL CONFORM TO A325 HIGH STRENGTH BOLTS IN BEARING M20 DIAMETER MINIMUM.
- . THE DESIGN OF BEAM SHEAR CONNECTIONS SHALL BE THE GREATER OF 50% OF THE BEAM SHEAR OR THE BEAM REACTION CALCULATED USING THE DESIGN LOADS SHOWN ON THE DRAWINGS, OR THE DESIGN SHEAR SHOWN. USE A MINIMUM OF TWO BOLTS.
- WELDED CONNECTIONS SHALL BE UNDERTAKEN ONLY BY CERTIFIED WELDERS APPROVED BY C.W.B. TO THE REQUIREMENTS OF W47.1 DIVISION 1 AND 2. WELDING SHOULD BE DONE IN ACCORDANCE WITH W59. USE WELDING ELECTRODES WITH LOW HYDROGEN E480XX (E70XX) OR APPROVED EQUAL.
- . SHOULD THE FABRICATOR ELECT TO USE AN ALTERNATE ELECTRODE, THE ALTERNATE ELECTRODE SHALL MEET THE INTENT OF THE CONNECTION DESIGN AND MUST BE CERTIFIED BY A LICENSED WELDING ENGINEER IN THE PROVINCE OF ONTARIO. THE COST OF THE CERTIFICATION MUST BE BOURN BY THE CONTRACTOR.
- WHEN WELDING TO EXISTING STEEL OR FIELD WELDING NEW STEEL, THE LOCATION OF THE WELD MUST BE FREE OF PAINT AND PRIMER.
- 8. CONNECTIONS FOR BRACING MEMBERS MUST BE DESIGNED FOR THE FULL TENSILE STRENGTH OF THE MEMBER, UNLESS LOADS ARE OTHERWISE INDICATED ON THE DRAWINGS.
- . ALL EXTERIOR EXPOSED STEEL INCLUDING MISCELLANEOUS EMBEDDED PLATES SUPPORTING SHELF ANGLES AND SHELF ANGLES SHALL BE HOT DIPPED GALVANIZED.

esting and	

2. CONCRETE DESIGN SHALL BE IN ACCORDANCE WITH THE DESIGN OF CONCRETE STRUCTURES

	COVER mm (in
ED	
	25 (1")
	38 ( 1 1/
	50 (2")

**UNIT MASONRY** 

MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO C.S.A. \$304.1: MASONRY DESIGN FOR BUILDINGS C.S.A. A371: MASONRY CONSTRUCTION FOR BUILDINGS C.S.A. A165: CSA STANDARDS FOR CONCRETE MASONRY UNITS

C.S.A. A179: MORTAR AND GROUT FOR UNIT MASONRY (LATEST EDITION)

- 2. ALL CONCRETE BLOCK SHALL HAVE A NET COMPRESSIVE STRENGTH OF 15 MPa (2200 PSI).
- 3. MASONRY WALLS SHALL HAVE TYPE S MORTAR.
- 4. GROUT SHALL BE IN ACCORDANCE WITH THE ABOVE NOTED STANDARDS.
- PROVIDE THREE COURSES OF FULLY GROUTED MASONRY UNDER BEARING PLATES FOR STEEL BEAMS, UNLESS OTHERWISE NOTED.
- PROVIDE LATERAL RESTRAINT AT THE TOP OF ALL NON-LOAD BEARING PARTITIONS. REFER TO TYPICAL DETAILS.
- PROVIDE CONTROL JOINTS EVERY 7m AND AT ALL DISCONTINUITIES AND OPENINGS AND AS SHOWN ON THE ARCHITECTURAL DRAWINGS.
- PROVIDE AND INSTALL HORIZONTAL REINFORCING IN ALL MASONRY WALLS. UNLESS INDICATED OTHERWISE ON DRAWINGS, PROVIDE 4.8mm GALVANIZED LADDER TYPE HORIZONTAL REINFORCING AT EVERY SECOND MORTAR JOINT IN MASONRY WALLS.
- PROVIDE AND CONSTRUCT A SINGLE COURSE BOND BEAM AT THE TOP OF ALL NON BEARING WALLS. REINFORCE BOND BEAM WITH 2-10M CONTINUOUS. AT LOAD BEARING WALLS BOND BEAMS ARE 400mm DEEP WITH 2-15M CONTINUOUS.
- ). PROVIDE 1-15M EVERY FOURTH CELL, VERTICAL REINFORCEMENT, IN ALL LOAD BEARING AND NON-LOAD BEARING WALLS AND SHEAR WALLS UNLESS GREATER REINFORCEMENT IS INDICATED ON THE DRAWINGS.
- 1. PROVIDE ADDITIONAL REINFORCING TO MATCH WALL REINFORCING AT ALL CORNERS, OPENINGS AND BENEATH ALL BEARING PLATES AND LINTELS.
- 2. PROVIDE AND INSTALL LINTELS OVER ALL OPENINGS IN ACCORDANCE WITH THE TYPICAL LINTEL SCHEDULE OR AS SHOWN ON THE DRAWING.

# WOOD AND WOOD JOISTS

- ALL WOOD SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH CSA STANDARD CAN/CSA 086-01 ENGINEERING DESIGN IN WOOD AND THE WOOD DESIGN MANUAL, PUBLISHED BY THE CANADIAN WOOD COUNCIL.
- ALL TRUSSES ARE TO BE PRE-ENGINEERED IN ACCORDANCE WITH CSA STANDARD CAN/CSA 086-01 ENGINEERING DESIGN IN WOOD. DESIGN SHALL CONSIDER DEAD LOADS AND LIVE LOADS INCLUDING, BUT NOT LIMITED TO, SNOW PILE-UP AND EQUIPMENT LOADS AS SHOWN ON DRAWINGS. CONTRACTOR SHALL SUBMIT FOR REVIEW FABRICATION DRAWINGS AND CALCULATIONS SHOWING DESIGN LOADS, MEMBER SIZES, BRACING AND CONNECTION DETAILS STAMPED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO.
- JOISTS HANGERS SHALL BE MINIMUM 20 GAUGE GALVANIZED STEEL AND SHALL CONFORM TO THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS "ACCEPTANCE CRITERIA FOR JOIST HANGERS AND SIMILAR DEVICES"
- TRUSS PLATES SHALL CONFORM TO THE CSA STANDARD S347-M80 "METHOD OF TEST FOR EVALUATION OF TRUSS PLATES USED IN LUMBER JOINTS"
- . NAILS AND SPIKES SHALL CONFORM TO THE CSA STANDARD B111-1974 "WIRE NAILS, SPIKES AND STAPLES
- SAWN TIMBER PRODUCTS SHALL CONFORM TO THE CSA STANDARD CAN/CSA-041-91 "SOFTWOOD LUMBER" AND GRADING OF TIMERS IN ACCORDANCE WITH THE NATIONAL LUMBER GRADES AUTHORITY "STANDARD GRADING RULES FOR CANADIAN LUMBER"
- GLUED-LAMINATED TIMBER PRODUCTS SHALL CONFORM TO CSA STANDARD CAN/CSA-0122-M89 "STRUCTURAL GLUED-LAMINATED TIMBER"
- STRUCTURAL COMPOSITE LUMBER (SCL) INCLUDING LAMINATED VENEER LUMBER (LVL) AND PARALLEL STRAND LUMBER (PSL) SHALL, BE FABRICATED AND ERECTED IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
- PLYWOOD SHEATHING SHALL CONFORM TO THE CSA STANDARD 0121-M1978 "DOUGLAS FIR PLYWOOD" AND 0151-M1978 "CANADIAN SOFTWOOD PLYWOOD" 0. WAFERBOARD AND ORIENTED STRAND BOARD SHALL CONFORM TO THE CSA STANDARD
- CAN3-0437.0/0437.1-M85 "WAFERBOARD AND STRANDBOARD' . ALL STEEL BEARING AND CONNECTOR PLATES SHALL CONFORM TO THE CSA STANDARD
- CAN/CSA-G40.21-M92 "WELDED STRUCTURAL QUALITY STEEL/STRUCTURAL QUALITY STEELS HAVING A YIELD STRENGTH OF 300 MPa
- 2. ALL BOLTS AND THREADED ROD CONNECTING WOOD MEMBERS SHALL CONFORM TO ASTM
- 13. ALL WOOD STUDS SHALL BE SPRUCE-PINE-FIR NO. 1 AND 2 GRADE OR BETTER
- 14. ALL WOOD JOISTS, NAILERS AND BLOCKING SHALL BE SPRUCE-PINE-FIR NO. 1 AND 2 GRADE OR BETTER
- 5. ALL BUILT-UP WOOD BEAMS AND COLUMNS SHALL BE SPRUCE-PINE-FIR NO. 1 AND 2 GRADE OR BETTER 6. FOR ALL WOOD CONSTRUCTION NOT DETAILED, FOLLOW THE ONTARIO BUILDING CODE 2012,
- SECTION 9.23 "WOOD FRAME CONSTRUCTION" WOODEN NAILERS AND BLOCKING
- 7. ALL WOODEN NAILERS AND BLOCKING SHALL BE SAWN LUMBER SPF N01/NO2 TO CAN/CSA-086.1 SIZE SHALL BE AS SHOWN ON DRAWINGS
- 8. WOODEN BLOCKING SHALL BE LOCATED OVER THE NAILER IN BETWEEN JOISTS. THE SIZE OF BLOCKING SHALL BE AS SHOWN ON DRAWINGS. THE LENGTH OF BLOCKING SHALL BE AS LONG AS POSSIBLE BETWEEN JOIST (FINAL LENGTH TO BE COORDINATED WITH JOIST SUPPLIER). THE BLOCKING SHALL BE CONNECTED TO WOODEN NAILER WITH 65MM COMMON WIRE NAILS, 2 NAILS PER ROW, ROWS SPACED AT 250 CENTRES UNLESS OTHERWISE MENTIONED IN DRAWINGS.

# **STEEL DECK**

- STEEL DECK SHALL CONFORM TO \$136 GRADE 230 WITH DEPTHS AND THICKNESSES AS INDICATED ON DRAWINGS.
- 2. DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS WHERE POSSIBLE.
- 3. STEEL DECK FOR COMPOSITE SLABS SHALL BE COMPOSITE TYPE DECK
- 4. UNLESS INDICATED OTHERWISE ON THE DRAWINGS FASTEN DECK TO SUPPORTS AS FOLLOWS a) 20mm DIA WELDS EVERY 2ND FLUTE AND EVERY 600mm (24") ALONG SIDES, OR, b) HILTI ENP2K OR ENKK NAILS EVERY FLUTE AND EVERY 600mm (24") ALONG THE SIDES. c) WHEN USING SHEAR STUDS WELD EVERY THIRD FLUTE.
- UNLESS INDICATED OTHERWISE ON THE DRAWINGS BUTTON PUNCH SIDE LAPS EVERY 600mm (24'').
- ALL EDGES OF DECK SHALL BE SUPPORTED WITH PERIMETER ANGLES WITH VERTICAL AND HORIZONTAL LEGS EQUAL TO THE DECK DEPTH, UNLESS OTHERWISE NOTED.

7. REIN ORCE OF ENHAGY ACCORDING TO THE FOLLOWING TABLE.			
OPENING SIZE (MAX. DIMENSION)	REINFORCING		
LESS THAN 150mm (6")	NO REINFORCING REQUIRED		
150-300 mm (6"-12")	L51x51x6 (L2x2x1/4) WELDED TO U/S DECK (PERPENDICULAR TO SPAN) EXTENDING 450mr BEYOND OPENING ON EACH SIDE		
300-450mm (12"-18")	L75x75x6 (L3x3x1/4) WELDED TO U/S DECK ALL OPENING AND EXTENDING 450mm (18") BEYC		
OPENING			

ON EACH SIDE (PERPENDICULAR TO SPAN) OPENINGS LARGER THAN 450mm (18") OR OPENINGS CARRYING LOADS GREATER THAN 1.0 kN

- SHALL BE REINFORCED ACCORDING TO THE TYPICAL ROOF TOP SUPPORT DETAIL
- 8. DECK SHALL OVERLAP A MINIMUM OF 50mm (2") AT ALL END JOISTS AND HAVE A MINIMUM BEARING LENGTH OF 50mm (2") ON ALL STRUCTURAL STEEL.
- P. DECK WELDS SHALL BE TOUCHED UP WITH APPROVED PAINT BY THE DECK ERECTOR.
- 0. METAL DECK SHALL BE GALVANIZED STRUCTURAL STEEL SHEET FABRICATED AND ERECTED IN ACCORDANCE WITH CSSBI 10M-96 AND CAN3-S136.
- . PROTECT ROOF AND FLOOR DECK FROM DAMAGE DURING SHIPPING STORAGE AND ERECTION. CONTRACTOR SHALL REPLACE ANY PUNCTURED, DENTED OR WELD PERFORATED DECK.
- 12. STEEL DECK WORK SHALL INCLUDE THE SUPPLY AND INSTALLATION OF ALL SHEET STEEL ANGLE COVER PLATES, CLOSURES, STIFFENERS AND ANY OTHER ACCESSORIES REQUIRED.

## LINTELS FOR NON-LOAD BEARING MASONRY WA CONCRETE BLOCK LINTELS

MASONRY TYPE	MAXIMUN OPENING WIDTH	LINTEL DEPTH	REINFORCEMENT	DETAIL
140 (5 1/2") BLOCK 190 (7 1/2") BLOCK 240 (9 1/2") BLOCK	UP TO 1220 (48")	200 (8'')	2-15M	
140 (5 1/2") BLOCK 190 (7 1/2") BLOCK 240 (9 1/2") BLOCK	1220 (48") TO 2740 (108")	400 (16")	2-15M	
140 (5 1/2") BLOCK 190 (7 1/2") BLOCK 240 (9 1/2") BLOCK	2740 (108") TO 3660 (144")	610 (24")	2-15M	

NOTES

1. READ THIS SCHEDULE IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS

2. PROVIDE A SUITABLE LINTEL FOR ALL OPENINGS IN MASONRY WALLS (MECH./ELECT.)

3. CONTROL JOINTS NOT TO BE LOCATED THROUGH LINTELS

4. DO NOT PASS DUCTS THROUGH REINFORCED MASONRY LINTELS

5. PROVIDE 300mm MIN. BEARING LENGTH EACH SIDE OF OPENING UNLESS NOTED OTHERWISE 6. CONCRETE STRENGTH fc' = 20 MPa WITH 10mm MAX. AGGREGATE AND 3"±1" SLUMP

7. REINFORCING STEEL GRADE fy = 400 MPa

#### DESIGN LOADS <u>GRAVITY LOADS</u> I dead loads Mezzanine SELF WEIGHT = 2.0 kPa CEILINGS = 0.15 kPa FLOORING = 0.10 kPa <u>M&E = 0.25 kPa</u> TOTAL = 2.5 kPa SUPERIMPOSED LOADS ONTO WOOD TRUSSES (IN ADDITION TO SELF WEIGHT) METAL ROOF = 0.15 kPa PLYWOOD = 0.10 kPa CEILINGS = 0.15 kPa <u> M&E = 0.25 kPa</u> TOTAL = 0.65kPa

4.8 kPa

2. LIVE LOADS

MEZZANINE

3. SNOW LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE O.B.C. USING THE FOLLOWING CRITERIA:

 $S_s = 2.0 \text{ kPa} S_r = 0.4 \text{ kPa} I_s = 1.25$ 

REFER TO PLANS FOR SNOW PILE UP CONDITIONS.

## LATERAL LOADS

- WIND LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE 0.B.C USING THE FOLLOWING CRITERIA:
- q10 =0.33 kPa q50 = 0.43 kPa I<sub>w</sub> =1.25 . SEISMIC LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE O.B.C. USING THE
- FOLLOWING CRITERIA:  $S_{\alpha}(0.2) = 0.308 S_{\alpha}(0.5) = 0.15 S_{\alpha}(1.0) = 0.069$  $S_{\alpha}(2.0) = 0.031 S_{\alpha}(5.0) = 0.0074 S_{\alpha}(10.0) = 0.0028 PGA = 0.199 PGV = 0.115$

SITE CLASS 'E'  $I_{E} = 1.5$ 

JCTURA	L ABBREVIAT	IONS		
ANCHOR	BOLT	L.L.H.	LONG	LEG HORIZONTAL
ALIERNAI	E M	L.L.V. LP.	LONG	OINT
ANCHOR		LG.	LONG	
	MATELY	L.S.H.	LONG	SIDE HORIZONTAL
BOTTOM	IUKAL	L.S.V.	LONG	IFG BACK TO BACK
BOTTOM	ACE	M.C.	MOME	INT CONNECTION
BOTTOM	OF FOOTING	MAX.	MAXIM	IUM
BASE PLAT	E	MECH.	MECHA	ANICAL
BEAM		MIN.	MINIM	UM
BOTTOM		MISC.	MISCEI	LLANEOUS
BEARING	_	m	METER	
BOTTOM I		mm MPa	MILLIM	
BOTTOM	JPPER LEVEL	N.I.C.	NOT IN	CONTRACT
COMPLET	E WITH	N.T.S.	NOT TO	) scale
CENTRE TO		No.	NUMBE	
	. JOINI NE			DIDE/FAR SIDE
CEILING		0.A.L. 0.C.	ON CE	NTRE
COLUMN		O.C.B.	ON CE	NTRE BOTTOM
CONCRE	E	O.D.	OUTSID	DE DIAMETER
CONNEC		O.H.		HEAD
CONTINU	SUC	OPG		NG
DEMOLIT	ON	O.S.F.V.	OUTSID	E FACE VERTICAL
DETAIL		PART'N.	PARTITI	ON
		PL.	PLATE	
DIMENSIC	IN	R.C. R.D		DRCED CONCRETE
DEEP		R.O.	ROUG	H OPENING
DRAWING	;	REF.	REFERE	NCE
DOWEL	~ -	REINF.	REINFC	RCED
		REQ'D	REQUI	RED
EXPANSIC	N JOINT	S.D.F.	STEP D	OWN FOOTING
ELECTRIC	AL	S.L.H.	SHORT	LEG HORIZONTAL
EACH SID	E	S.L.V.	SORT LI	EG VERTICAL
EACH WA	Y	S.L.B.B.	SHORT	LEG BACK TO BACK
EACH. FI EVATIOI	4	S.O.G	SLAB O	ARD PROCTOR DRY
EQUAL	•	5.1.0.0.	517 (140)	DENSITY
existing		S.S.	Stainli	ESS STEEL
FACE TO I	ACE	STL.	STEEL	
		STRUCT	STRUCT	IER FLIPAI
FOUNDAT	ION	T	TOP	IUKAL
FOOTING		T/C	TOP OF	- CONCRETE
GAUGE		T/F	TOP OF	FOOTING
GALVANIZ	ED	1/O T/S		
HORIZON	TAL	1/3 T/WALI	TOP OF	= WALL
HEAVY D	JTY	T.L.L.	TOP LC	WER LEVEL
HOT DIPP	ED GALVANIZED	TYP.	TYPICA	
HORIZON	TAL EACH FACE	U/G	UNDER	
	INI STRUCT SECTION	U.N.O.		SIDE
HEIGHT		VERT.	VERTIC	AL
INSIDE DI	AMETER	V.E.F	VERTIC	AL EACH FACE
V. INVERT EL	EVATION	V.I.F.	VERTIC	AL INSIDE FACE
	CE VERTICAL	V.O.F.	VERTIC	AL OUTSIDE FACE
KILONEW	TON METERS	v.s.C.	VERIIC	
KILOPASC	AL	W.P.	WORKI	NG POINT
ANGLE		W.W.M.	WELDE	D WIRE MESH
	ANCHOR ALTERNATI ALUMINU/ ANCHORS ALTERNATI ANCHORS ARCHITEC BOTTOM B BOTTOM C CONTRE LI CENTRE IC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTRUC CONTINUC DEMOLITI DETAIL DIAMETER DIMENSIC DIDO DEEP DRAWING DOWEL EACH FAC EACH FAC EACH FAC EACH SIDI EACH WA EACH. ELECTRIC/ EACH SIDI EACH SID	ANCHOR BOLT ALTERNATE ALUMINUM ANCHORS BOTTOM OF FOOTING BASE PLATE BOTTOM OF FOOTING BASE PLATE BOTTOM OF FOOTING BASE PLATE BOTTOM UOWER LEVEL BOTTOM UOWER LEVEL BOTTOM UOWER LEVEL BOTTOM UPPER LEVEL CONTROL JOINT CENTRE TO CENTRE CONTROL JOINT CENTRE LINE CEILING COLUMN CONCRETE CONNECTION CONSTRUCTION CONSTRUCTION CONTINUOUS DEMOLITION DETAIL DIAMETER DIMENSION DIDO DEEP DRAWING DOWEL EACH FACE EACH FACE EACH FACE EACH FACE EACH FACE EACH FACE EACH SIDE EACH WAY EACH. ELEVATION EQUAL EXISTING FACE TO FACE FINISHED FLOOR FOUNDATION FOOTING GAUGE GALVANIZED GRADE HORIZONTAL HEAVY DUTY HOT DIPPED GALVANIZED HORIZONTAL EACH FACE HIGH POINT HOLLOW STRUCT. SECTION HEIGHT INSIDE DIAMETER V. INVERT ELEVATION INSIDE DIAMETER V. INVERT ELEVATION INSIDE DIAMETER V. INVERT ELEVATION HEIGHT INSIDE DIAMETER V. INVERT ELEVATION HEIGHT INSIDE DIAMETER V. INVERT ELEVATION HIGONEWTON METERS	ANCHOR BOLT ALTERNATE LL.V. ALUMINUM LL.B. ANCHORS LG. APPROXIMATELY ARCHITECTURAL BOTTOM BOTTOM BOTTOM BOTTOM BASE PLATE BLOCK BOTTOM OF FOOTING BASE PLATE BLOCK BOTTOM OF FOOTING BASE PLATE BLOCK BASE PLATE BLOCK BEARING BEARING BEARING BEARING BOTTOM LOWER LEVEL MPG BOTTOM LOWER LEVEL MPG BOTTOM LOWER LEVEL MPG BOTTOM LOWER LEVEL MPG BOTTOM LOWER LEVEL MPG BOTTOM LOWER LEVEL N.I.C. COMPLETE WITH N.I.S. CONTROL JOINT CENTRE TO CENTRE O.A.E. CONTROL JOINT CENTRE LINE CONCRETE CONCRETE CONCRETE CONCRETE CONNECTION CONSTRUCTION CONSTRUCTION CONSTRUCTION DIDO DEMOLITION DIDO DEAD DEEP DIMENSION DEC DAMETER PL. DIMETER	ANCHOR BOLT ANCHOR BOLT ALLERNATE ANCHOR BOLT ALLERNATE ALLATE ALLATE ANCHORS CLAPPROXIMATELY ANCHORS CLAPPROXIMATELY LS.H. LONG ARCHITECTURAL LS.V. LONG BOTTOM BOTTOM BOTTOM OF FOOTING BOTTOM UP FOOTING BOTTOM UP FOOTING BEARING BEARING BEARING BOTTOM UPPER LEVEL BEARING BOTTOM UPPER LEVEL BOTTOM UPPER LEVEL BOTTOM UPPER LEVEL BOTTOM UPPER LEVEL BOTTOM UPPER LEVEL CONTROL JOINT CENTRE TO CENTRE CONTROL JOINT CONTINUE CONTROL JOINT CONTRUCTION CONTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONTRUCION CONTRUCION CONTRUCTON CONTRUCTON

STEEL LINTELS FOR NON-LOAD BEARING MASONI	RY
WALLS AND BRICK VENEER	

MASONRY TYPE	MAXIMUM MASONRY OPENING	MATERIAL	DETAIL
4" BRICK/ 4" BLOCK	UP TO 5'-0"	1-L3-1/2"x3-1/2"x1/4"	L
	5'-0'' TO 6'-0''	1-L4"x3-1/2"x5/16"	L
	6'-0'' TO 7'-0''	1-L5"x3-1/2"x5/16"	L
	7'-0" TO 8'-0"	1-L6"x3-1/2"x3/8"	L
6" BLOCK	UP TO 6'-0''	2-L's 3-1/2"x2-1/2"x5/16"	2-1/2" LEGS HORZ.
	6'-0" TO 7'-0"	2-L's 3-1/2''x2-1/2''x3/8''	2-1/2" LEGS HORZ.
	7'-0" TO 10'-0"	W8x15	I
8" BLOCK	UP TO 6'-0''	2-L's 3-1/2"x3-1/2"x5/16"	
	6'-0" TO 8'-0"	2-L's 5"x3-1/2"x5/16"	3-1/2" LEGS HORZ.
	8'-0" TO 10'-0"	W8x15 + 7"x1/4" PLATE	<u> </u>
10" BLOCK	UP TO 5'-0"	2-L's 4''x4''x1/4''	
	5'-0" TO 8'-0"	2-L's 6"x4"x5/16"	
	8'-0" TO 10'-0"	W8x15 + 9"x1/4" PLATE	Ī
12" BLOCK	UP TO 8'-0"	W8x15 + 11"x1/4" PLATE	<u> </u>
	8'-0" TO 10'-0"	W8x18 + 11"x1/4" PLATE	Ī

## noies:

1.	READ THIS SCHEDULE IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL AND
	ELECTRICAL DRAWINGS.

- PROVIDE A SUITABLE LINTEL FOR ALL OPENINGS IN MASONRY WALLS (MECH./ELECT.). PROVIDE 8" MIN. BEARING EACH END ON 2 COURSES OF FILLED OR SOLID MASONRY
- UNLESS NOTED OTHERWISE. PROVIDE STEEL PACKING PLATES TO ENSURE EVEN BEARING.
- CONNECT ALL LINTELS TO STEEL WHERE LESS THAN 12" OF MASONRY REMAINS BETWEEN ROUGH OPENING AND FACE OF STEEL.
- ALL DOUBLE ANGLE LINTELS TO BE WELDED BACK TO BACK, TOP AND BOTTOM WITH
- 1/4"x2" LONG WELD @ 18" O.C. ALL EXTERIOR ANGLES SHALL BE HOT-DIPPED GALVANIZED, INCLUDING ANY
- CONNECTION MATERIAL TO BACK-UP STRUCTURAL STEEL. LINTELS IN CURVED WALLS TO BE ROLLED TO REQUIRED RADIUS.
- ALL STEEEL TO BE CSA G40.21-300W OR BETTER, SHOP PRIMED AND TOUCHED UP IN THE FIELD AFTER ERECTION.
- CONCRETE BLOCK UNITS ARE TO BE HOLLOW AND UNFILLED EXCEPT FOR FIRST COURSE 10. ABOVE LINTEL WHICH SHALL BE FILLED SOLID UNLESS NOTED OTHERWISE

1     2021-07-26       2     2021-07-26       1     2021-08-24       1     2021-08-24	
IF Foundry Street, Dundes, ON, 19H 2V6 If Foundry Street, Dundes, ON, 19H 2V6 Phone: (905)648:0373 www.mantecorpartnets.com	
Fire and Emergency         Services Central Station         Township of Wainfleet         Township of Wainfleet         42143 Highway #3 Wainfleet, ON         GENERAL NOTES	
DRAWN BY:       S.A.         DATE:       S.A.         DATE:       S.A.         DATE:       S.A.         SCALE:       2021-08-24 4:32:20 PM         SCALE:       2021-08-24 4:32:20 PM         PROJECT NO::       2021-08-24 4:32:20 PM         PROJECT NO::       21-020         DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED         DRAWINGS ARE NOT CONSTRUCTION UNTIL SEALED         DRAWINGS ARE NOT CONSTRUCTION UNTIL SEALED         DRAWINGS ARE NOT ENTREPORTALL DISCREPANCIES TO THE         SEMIN THE ENGINEER.         DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE         END SIGNEER BEFORE PROVINGS AND DESIGNS         REMAIN THE PROPERTY OF THE ENGINEER. AND ARE PROTECTED         UNDER COPYRIGHT.         THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE         DISE BY THE PARTY WITH WHOM THE DESIGN         REPRESENTAL TO ANY PARTY WITH WHOM THE DESIGN         REPRESENTAL TO ANY	











LINTEL SCHEDULE				
MARK	SIZE	DETAIL	REMARK	
LI	4-COURSE BOND BEAM C/W CONT. 1 - 20M BAR		PROVIDE 300mm MIN. BEARING LENGTH EACH SIDE OF OPENING UNLESS NOTED OTHERWISE	
L2	3-COURSE BOND BEAM C/W CONT. 1-15M BAR		PROVIDE 300mm MIN. BEARING LENGTH EACH SIDE OF OPENING UNLESS NOTED OTHERWISE	
L3	W200x27 C/W 6mm TOP PLATE		C/W BP1 AT EA. END	







LINTEL SCHEDULE					
MARK	SIZE	DETAIL	REMARK		
L1	4-course bond beam c/w cont. 1 - 20m bar		PROVIDE 300mm MIN. BEARING LENGTH EACH SIDE OF OPENING UNLESS NOTED OTHERWISE		
L2	3-COURSE BOND BEAM C/W CONT. 1-15M BAR		PROVIDE 300mm MIN. BEARING LENGTH EACH SIDE OF OPENING UNLESS NOTED OTHERWISE		
L3	W200x27 C/W 6mm TOP PLATE	<sup>230</sup> <b>T</b>	C/W BP1 AT EA. END		









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2 SECTION DETAIL 8 S4-103 1 : 25

S4-103

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# **Township of Wainfleet** Fire and Emergency Services Central Station

42143 Highway #3 Wainfleet, ON





STRUCTRARA IMPECIANNICAL EUECTRATEIACIVILVIL

15 FOUNDRY STREET, DUNDAS, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com



### **MECHANICAL DRAWING LIST**

- M0-001 LEAD SHEET (DRAWING LIST, LEGEND & NOTES)
- M1-100 MECHANICAL SITE PLAN M2-100 1ST/2ND FLOOR PROPOSED DRAINAGE PLAN
- M2-101 ROOF LEVEL PROPOSED DRAINAGE PLAN
- M2-110 1ST/2ND FLOOR PROPOSED PLUMBING PLAN M2-200 1ST/2ND FLOOR PROPOSED FIRE PROTECTION PLAN
- M2-300 1ST/2ND FLOOR PROPOSED HVAC PLAN
- M2-310 1ST FLOOR PROPOSED RADIANT FLOOR HEATING PLAN M2-320 1ST/2ND FLOOR PROPOSED HYDRONIC PLAN
- M2-400 HVAC SECTIONS
- M3-500 MECHANICAL DETAILS
- M3-501 MECHANICAL DETAILS
- M3-502 MECHANICAL DETAILS M3-503 MECHANICAL DETAILS
- M3-600 CONTROLS
- M3-601 CONTROLS
- M3-700 MECHANICAL EQUIPMENT SCHEDULE M3-701 MECHANICAL EQUIPMENT SCHEDULE

ENGINEERS

### **GENERAL NOTES**

- REFER TO SITE AND OWNER INSTRUCTIONS FOR PHASING AND STAGING. THE CONTRACTOR SHALL CO-ORDINATE WITH THE STRUCTURAL TO PROVIDE
- OPENINGS AND SLEEVES THROUGH STRUCTURAL ELEMENTS WHERE REQUIRED.
- PENETRATIONS OF CONCRETE SHALL BE SAW-CUT OR CORE BORED-IMPACT HAMMERS ARE NOT ALLOWED, SEAL ALL DUCTWORK & SLEEVES TO PREVENT LEAKAGE THRU FLOOR.
- DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. OBTAIN ALL DIMENSIONS FROM ARCHITECTURAL PLANS, MANUFACTURER'S SHOP DRAWINGS, AND ON SITE INSPECTIONS.
- MECHANICAL, DIV. 2-14 AND ELECTRICAL TRADES SHALL WORK IN CONJUNCTION WITH ONE ANOTHER SO AS TO AVOID INTERFERENCE'S BETWEEN PIPING, DUCTWORK, CONDUIT, LIGHTING FIXTURES, ETC.
- WORK SHALL BE CO-ORDINATED THROUGH THE GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY EQUIPMENT, DUCTWORK AND CONTROLS. CO-ORDINATE WITH ARCHITECTURAL ELEVATIONS FOR ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SPACE ALLOCATIONS.
- PROPERLY SUPPORT CEILING MOUNTED EQUIPMENT AND ANY OTHER EQUIPMENT INDEPENDENT OF CEILING SUPPORT SYSTEM. REFER TO ARCHITECTURAL DETAILS AND CO-ORDINATE WITH STRUCTURAL TRADE.
- REFER TO ARCHITECTURAL FOR OWNER SUPPLIED EQUIPMENT. CONFIRM ALL MECHANICAL REQUIREMENTS AND PROVIDE TO SUIT.
- REVIEW ARCHITECTURAL, ELECTRICAL, AND STRUCTURAL DRAWINGS AND PROVIDE ON SITE INSPECTIONS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
- D. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL MECHANICAL SERVICES TO THE OCCUPIED AREA THROUGHOUT THE PHASING OF THE WORK. PROVIDE CONSTRUCTION VALVES, TEMPORARY DUCTWORK AND PIPING AS REQUIRED TO LIMIT THE SHUT DOWN OF SERVICES TO ONE TIME.
- . EXISTING MECHANICAL SERVICES SHOWN ON THESE DRAWINGS WERE TAKEN FROM THE ORIGINAL CONTRACT DRAWINGS AS LISTED BELOW. THE CONTRACTOR SHALL VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING SERVICES ON SITE AND SHALL REMOVE ALL REDUNDANT SERVICES IN THE AREAS OF CONSTRUCTION.
- 2. ALL DRAWINGS ARE INTEGRATED WITH THE SPECIFICATIONS WHICH ACCOMPANY THEM. NEITHER IS TO BE USED ALONE. ANY ITEM OR SUBJECT OMITTED FROM ONE BUT IMPLIED IN THE OTHER IS FULLY AND PROPERLY REQUIRED. WHEREVER DIFFERENCE OCCURS, THE MOST ONEROUS CONDITION GOVERNS.
- 3. PENETRATIONS OF EITHER FIRE OR SMOKE BARRIER RESISTANT WALLS SHALL BE SLEEVED & SEALED AGAINST THE PASSAGE OF FLAME OR SMOKE W/SUITABLE NON-COMBUSTIBLE MATERIALS EQUAL TO THE CONSTRUCTION TO BE PENETRATED.
- 4. AVOID ANY DIRECT CONTACT BETWEEN ANY PIPING, DUCTING AND ELECTRICAL CONDUIT SYSTEMS. TO PREVENT SOUND TRANSMISSION.
- 5. IF ANY AREAS ARE AFFECTED BY THE NEW SCOPE OF WORK, CONTRACTOR TO CARRY COSTS FOR THE REMOVAL AND INSTALLATION OF THE EXISTING CEILING TILES. REFER TO ARCHITECTURAL NEW REFLECTED CEILING PLAN FOR SCOPE OF NEW CEILING.
- 6. INSTALLATION SHALL BE COMPLETE AND FULLY FUNCTIONAL. PROVIDE ALL LABOR, MATERIALS, TOOLS, SERVICES, EQUIPMENT, ETC. AS REQUIRED.
- 7. PROVIDE ACCESS FOR SERVICING EQUIPMENT AS INDICATED, AS REQUIRED BY CODE AND AS RECOMMENDED BY THE MANUFACTURER.
- 8. PROVIDE ACCESS DOORS AS NECESSARY FOR ACCESS TO VALVES, DAMPERS, AND OTHER COMPONENTS REQUIRING MONITORING, INSPECTION, AND MAINTENANCE.
- P. INSTALL EQUIPMENT, DUCTS, AND PIPES PARALLEL TO OR PERPENDICULAR TO BUILDING LINES. PROVIDE SPACE, UNIONS AND FLANGES FOR DISASSEMBLY, SERVICING AND REMOVAL OF EQUIPMENT.
- 0. THE CONTRACTOR SHALL, WITH APPROVAL OF THE OWNER AND AT NO ADDITIONAL CONTRACT COST, REMOVE, REARRANGE AND/OR RELOCATE ANY OBSTRUCTIONS WHICH INTERFERE WITH INSTALLATION OF NEW WORK.
- . ALL SHUTDOWN OF ANY PORTION OF EXISTING BUILDING SYSTEMS SHALL BE PERFORMED WITH THE OWNER'S CONSENT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR TIME AND DURATION OF SERVICE INTERRUPTIONS. INCLUDE COST OF PREMIUM TIME IN THE CONTRACT PRICE FOR WORK PERFORMED DURING NIGHTS, WEEK-ENDS OR OTHER TIME OUTSIDE NORMAL WORKING HOURS AS NECESSARY TO MAINTAIN MECHANICAL SERVICES IN OPERATION.
- 2. WHEN A CONFLICT OCCURS BETWEEN INSTALLATION DETAILS, DIAGRAMS, ETC. INDICATED IN THE CONTRACT DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE MANUFACTURER'S INSTRUCTIONS SHALL GOVERN AND SHALL BE FOLLOWED.
- 23. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CODES, APPLICABLE STANDARDS, BULLETINS ETC., AND REQUIREMENTS OF ALL INSPECTION AUTHORITIES FOR THE <u>TOWN OF WAINFLEET</u>.
- 24. DUE TO INCONSISTENT RECORD OF EXISTING SERVICES NOT ALL SERVICES MAY BE SHOWN, OR IF SHOWN MAY NOT BE ACCURATE. IT IS CONTRACTORS RESPONSIBILITY TO FIELD CONFIRM ALL SERVICES.
- 25. CHECK AND VERIFY LOCATION OF ALL PIPES, DUCTS AND EQUIPMENT WITH ALL OTHER TRADES TO PREVENT INTERFERENCE. REMOVAL OR RELOCATION OF ANY SUCH WORK INTERFERING WITH WORK OF OTHER TRADES IS THE RESPONSIBILITY OF THE MECHANICAL TRADE CONCERNED UNLESS OTHERWISE APPROVED IN WRITING.
- 26. PROVIDE ACCESS DOOR FOR ALL VALVES LOCATED ABOVE DRY WALL CEILING. 7. IN ALL INSTANCES THE NEED FOR ACCESS DOOR IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBLE. WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE
- ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT. 28. BEFORE CUTTING ANY HOLES THROUGH THE EXISTING SLAB REFER TO STRUCTURAL
- DRAWINGS FOR GENERAL REQUIREMENTS. 29. PROVIDE SIGN IDENTIFYING LOCATION OF ALL VALVES INSTALLED IN CEILING SPACE.

### **HVAC NOTES**

- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CO-ORDINATION OF GRILLES, DIFFUSERS AND OTHER ELEMENTS.
- CONTRACTORS SHALL COORDINATE ALL CEILING FINISHES WITH OWNER AND MATCH EXISTING. CONTRACTOR SHALL REVIEW MECHANICAL DRAWINGS, ARCHITECTURAL REFLECTED CEILING PLANS AND ARCHITECTURAL ROOM FINISH SCHEDULES AS SOON AS CONTRACT DOCUMENTS ARE SIGNED. ADVISE CONSULTANT OF ANY CONFLICTS BETWEEN CEILING TYPE AND DIFFUSER/GRILLE TYPE.
- THE CONTRACTOR SHALL VERIFY ALL CEILING FINISHES WITH ARCHITECTURAL DRAWINGS. CONTRACTOR AND DIFFUSER/GRILLE SUPPLIER ARE RESPONSIBLE TO PROVIDE ALL PLASTER AND FINISHING FRAMES, MOUNTING HARDWARE, AND ACCESSORIES TO SUIT ARCHITECTURAL CEILING TYPES. MECHANICAL CONTRACTOR SHALL CO-ORDINATE AND PROVIDE DETAILS OF MOUNTING REQUIREMENTS OF DIFFUSERS AND GRILLES IN DRYWALL CEILINGS TO DRYWALL TRADE AND ENSURE EDGES OF OPENINGS ARE FRAMED BY DRYWALL TRADE TO SUPPORT DIFFUSERS AND GRILLES PROPERLY. DIFFUSERS AND GRILLES MUST NOT BE SUPPORTED SOLELY BY HANGER WIRES.
- . CONTRACTOR TO CARRY FOR ADDITIONAL DUCTS AND DUCT FITTING REQUIRED TO CLEAR THE INTERFERENCES IN THE CEILING SPACE.
- ALL NEW DUCTWORK TO BE CLEANED.
- . ALL DUCTWORK FITTINGS SHALL BE RIGID GALVANIZED IRON.

### PLUMBING NOTES

- CONTRACTOR IS TO COORDINATE NEW DUCTWORK WHEN INSTALLING NEW PIPING. CLEARANCES TO BE VERIFIED ON SITE.
- PROVIDE A CLEANOUT AT THE BOTTOM OF EVERY SOIL AND WASTE STACK THAT CONNECTS TO A HORIZONTAL DRAINAGE PIPE.
- PROVIDE A CLEANOUT FROM EACH PLUMBING FIXTURE WHERE REQUIRED BY ONTARIO BUILDING CODE, PART 7 - PLUMBING. ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS (HUB, FUNNEL FLOOR DRAINS) T
- BE TRAPPED AND VENTED AS REQUIRED BY ONTARIO BUILDING CODE, PART 7 -PLUMBING.
- FOR MOUNTING HEIGHT OF ALL PLUMBING FIXTURES REFER TO ARCHITECTURAL DRAWINGS. PROVIDE ACCESS DOOR FOR ALL CLEANOUTS LOCATED ABOVE DRY WALL CEILING.
- WHENEVER COLD AND HOT WATER DISTRIBUTION TO LAVATORIES IS TO RUN UNDER COUNTER, PIPING DISTRIBUTION IS TO BE INSTALLED AS TIGHT TO UNDER SIDE OF THE COUNTER AS POSSIBLE.
- ALL WATER, SANITARY, SEWER AND VENT COPPER PIPING WITH SOLDER JOINTS SHALL BE LEAD FREE. DO NOT INSTALL WATER LINES IN OUTSIDE WALL WHERE THEY MAY FREEZE, UNLESS BOTH THE WALL AND THE PIPES ARE PROPERLY INSULATED.
- INSTALL SHUT-OFF VALVES AT EACH PLUMBING FIXTURE.
- 0. DEMOLITION AND REMOVAL OF PLUMBING AND DRAINAGE PIPING SHALL BE TAKEN BACK TO THE NEAREST WORKING MAIN AND BE CAPPED AS CLOSE TO THE WORKING MAIN AS POSSIBLE TO AVOID DEAD LEG LENGTHS OF PIPING. REFER TO CSA CODE Z317. SPECIAL REQUIREMENTS FOR PLUMBING INSTALLATIONS IN HEALTH CARE FACILITIES 6.4.1.3
- . PROVIDE AN ACCESS DOOR & CLEANOUT AT THE BOTTOM OF EVERY DRAINAGE stack.

LEGEND	) - PIPING
	THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.
REFER	DESCRIPTION
DCW	Domestic cold water piping
U/G DCW	Domestic cold water piping below grade or floor
DHW	DOMESTIC HOT WATER PIPING
U/G DHW	Domestic hot water Piping Below grade or Floor
DHWR	DOMESTIC HOT WATER RECIRC. PIPING
HHWS	HYDRONIC HOT WATER SUPPLY PIPING
— — -HHWR- — -	HYDRONIC HOT WATER RETURN PIPING
— — – VENT — — -	VENT PIPING
	Sanitary Piping Above Floor
	SANITARY PIPING BELOW GRADE OR FLOOR
STM	STORM PIPING ABOVE FLOOR
	STORM PIPING BELOW GRADE OR FLOOR
G	GAS PIPING
CA	COMPRESSED AIR PIPING
	PIPING TO BE REMOVED
CTE	
	CAPPED PIPE
 ↓ FD	
FFD	FUNNEL FLOOR DRAIN
co	CLEANOUT IN FLOOR
co	CLEANQUT IN LINE OR STACK
	ISOLATION VALVE (BALL OR GLOBE VALVE)
	CHECK VALVE
	STRAINER
	GAS VALVE
R R RPBP	
	DRAIN/TEST VALVE
	FLOW SWITCH
⊢ ─	PIPE DOWN
~	

LEGEND - H	VAC					
THIS ALL SYMI	LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND BOLS MAY NOT APPEAR ON DRAWINGS					
REFER	DESCRIPTION					
UP	SUPPLY DUCT UP					
DN	SUPPLY DUCT DN					
UP	RETURN DUCT UP					
DN	RETURN DUCT DN					
UP	EXHAUST DUCT UP					
DN	EXHAUST DUCT DN					
	SUPPLY DIFFUSER					
	RETURN DIFFUSER					
	EXHAUST DIFFUSER					
BD	BALANCING DAMPER					
BDD	BACK DRAFT DAMPER					
FD	FIRE DAMPER					
SD	SMOKE DAMPER					
- CFSD	Combination fire smoke damper					
	THERMOSTAT					
T RAT	REVERSE ACTING THERMOSTAT					
DIFFUSER TAG						
	TYPE FLOW (L/S) NECK SIZE (mm)					



LEGENI	<b>D - FIRE PROTECTION</b>
	THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.
FER	DESCRIPTION
	FIRE EXTINGUISHER - SURFACE MOUNTED







		ISSUED FOR CLIENT REVIEW / COSTING	ISSUED FOR COUNCIL APPROVAL						
	1 05/19/21	2 07/26/21	3 24/08/21						-
				PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL	15 Foundry Street, Dundas, ON, 19H 2V6	Phone: (905)648-0373 www.manteconpartners.com		
	Fire and Emergency	Services Central Station	Township of Wainfleet	42143 Highway #3 Wainfleet, ON		MECHANICAL SITE PLAN			
C.S.	8/24/2021 4:54:08 PM	1:250	21-020	W.D.	) FOR CONSTRUCTION UNTIL SEALED JEER.	5. REPORT ALL DISCREPANCIES TO THE EEDING. ALL DRAWINGS AND DESIGNS - THE ENGINEER, AND ARE PROTECTED	TS ARE PREPARED SOLELY FOR THE	2 TAND THERE ARE NO 2 TAND THERE ARE NO 2 KIND MADE BY THE DESIGN	ENTERED INTO A CONTRACT.
N BY:		LE:	OJECT NO.:	HECKED:	DRAWINGS ARE NOT VALID AND SIGNED BY THE ENGINE	JO NOI SCALE DRAWINGS. ENGINEER BEFORE PROCE REMAIN THE PROPERTY OF JNDER COPYRIGHT.	HESE DESIGN DOCUMENT:	TERED INTO A CONTRAC EPRESENTATIONS OF ANY	COFESSIONAL HAS NOT EI

\_\_\_\_\_ LOCATION OF SAN MH01 AWP SP-03.

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ISSUED FOR 60% REVIEW	ISSUED FOR CLIENT REVIEW / COSTING ISSUED FOR COUNCIL APPROVAL		
<ul> <li>○</li> <li>1</li> <li>O5/19/21</li> </ul>	2 07/26/21 3. 24/08/21		
	MANTECON PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com	
Fire and Emergency	Township of Wainfleet 42143 Highway #3 Wainfleet, ON	1ST/2ND FLOOR PROPOSED DRAINAGE PLAN	
DRAWN BY: C.S. C.S. DATE: 8/24/2021 4:54:12 PM	SCALE:         1:100           PROJECT NO.:         21-020           CHECKED:         W.D.	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ENGINEER. DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE BNGINEER BEFORE PROCEEDING. ALL DISCREPANCIES TO THE REMAIN THE PROPERTY OF THE ENGINEER, AND ARE PROTECTED UNDER COPYRIGHT. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.	
		M2-100	



1 ROOF LEVEL PROPOSED DRAINAGE & PLUMBING PLAN

# DRAWING NOTES:

PLUMBING VENT SHALL TERMINATE MIN. 300mm ABOVE FINISHED ROOF.















- LOCATION OF NEW CENTRAL CONTROL STATION FOR INDOOR VRF COOLING UNITS. MOUNTING HEIGHT SHALL BE 1,200mm A.F.F.

## DRAWING NOTES:

7 PROVIDE NEW 100mm DIA. VENT TO SERVE NEW DRYER C/W ACCESSIBLE LINT TRAP.

1     05/19/21     ISSUED FOR 60% REVIEW       2     07/26/21     ISSUED FOR CLIENT REVIEW / COSTING       3     24/08/21     ISSUED FOR CLIENT REVIEW / COSTING	
PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648.0373 www.manteconpartners.com
Fire and Emergency Services Central Station Township of Wainfleet 42143 Highway #3 Wainfleet, ON	1ST/2ND FLOOR PROPOSED HVAC PLAN
DRAWN BY:       C.S.         DATE:       8/24/2021 4:54:26 PM         SCALE:       8/24/2021 4:54:26 PM         PROJECT NO.:       1 : 100         PROJECT NO.:       21-020         CHECKED:       W.D.	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ENGINEER. DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS REMAIN THE PROPERTY OF THE ENGINEER, AND ARE PROTECTED UNDER COPYRIGHT. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.
	M2-300

![](_page_87_Figure_0.jpeg)

![](_page_87_Figure_2.jpeg)

![](_page_88_Figure_0.jpeg)

![](_page_88_Figure_2.jpeg)

![](_page_89_Figure_0.jpeg)

1 HVAC SECTION A 1 : 50

![](_page_89_Figure_2.jpeg)

![](_page_90_Figure_0.jpeg)

![](_page_91_Figure_0.jpeg)

![](_page_92_Figure_0.jpeg)

![](_page_92_Figure_1.jpeg)

![](_page_93_Figure_0.jpeg)

ISSUED FOR 60% REVIEW ISSUED FOR CLIENT REVIEW					
1 05/19/21 2 07/26/21	3 24/08/21				
	PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS	15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com		
Fire and Emergency Services Central Station	Township of Wainfleet 42143 Highway #3 Wainfleet, ON				
C.S. 8/24/2021 4:54:37 PM 1 : 1	21-020 W.D.	ALID FOR CONSTRUCTION UNTIL SEALED IGINEER. IGS. REPORT ALL DISCREPANCIES TO THE IGS. AND DESIGNS	Y OF THE ENGINEER, AND ARE PROTECTED ENTS ARE PREPARED SOLELY FOR THE	RACT AND THERE ARE NO ANY KIND MADE BY THE DESIGN ' PARTY WITH WHOM THE DESIGN IT ENTERED INTO A CONTRACT.	
WN BY: E: LE:	ECT NO.: KED:	VINGS ARE NOT VA SIGNED BY THE EN IOT SCALE DRAWIN	N THE PROPERTY R COPYRIGHT. E DESIGN DOCUME	ESSIONAL HAS NO	

TO PLUMBING FIXTURE

![](_page_94_Figure_0.jpeg)

1       05/19/21       1       05/19/21         2       07/26/21       ISSUED FOR CLIENT REVIEW / COSTING         3       24/08/21       ISSUED FOR COUNCIL APPROVAL         ISSUED FOR COUNCIL APPROVAL       ISSUED FOR COUNCIL APPROVAL	
Structural Electrication         Structural Electrication         Structural Electrication         Brone: (905)6480373         Www.manteconpartners.com	
Fire and Emergency Services Central Station Township of Wainfleet 42143 Highway #3 Wainfleet, on CONTROLS	
DRAWN BY:       C.S.         DATE:       S.S.         DATE:       S.S.         DATE:       S.C.S.         SCALE:       S.242021 4:54:37 PM         SCALE:       3/24/2021 4:54:37 PM         PROJECT NO.:       21-020         CHECKED:       21-020         DRAWINGS ARE NOT VALD FOR CONSTRUCTION UNTIL SEALED         ND SIGNED BY THE ENGINEER.         DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER.         ND NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER. AND ARE PROTECTED UNDER COPYRIGHT.         THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE ENGINEER. AND ARE PROTECTED INTO A CONTRACT AND THE RE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT AND THERE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT AND THERE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT AND THERE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT AND THERE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT AND THERE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT AND THERE ENTERD INTO A CONTRACT AND THERE ARE NO RESIGNAL HAS NOT ENTERED INTO A CONTRACT.	

![](_page_95_Figure_0.jpeg)

### SEQUENCE OF OPERATION:

- THE BOILER SHALL BE ENABLED TO RUN WHENEVER:
   A CALL FOR HEATING IN THE BUILDING
- AND OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- . THE IN-FLOOR HEATING LOOP SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES: OCCUPIED MODE: THE IN-FLOOR HEATING LOOP SHALL MAINTAIN A HEATING SETPOINT OF 74°F (ADJ.).
   UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 65°F (ADJ.).
- . TO PREVENT SHORT CYCLING, THE BOILER SHALL RUN FOR 10 MINS (ADJ.) AND BE OFF FOR MINIMUM 15 MINS
- (ADJ.), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.
- 4. THE BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

5. THE BOILER SYSTEM SHALL ALSO RUN FOR FREEZE PROTECTION WHENEVER OUTSIDE AIR TEMPERATURE IS LESS THAN 38°F (ADJ.).

### SOURCE SIDE (WATER) OPERATION: . THE BOILER CIRCULATION PUMP SHALL RUN ANYTIME THE BOILER IS CALLED TO RUN AND SHALL HAVE A USER

- DEFINABLE (ADJ.) DELAY ON STOP. THE BOILER SHALL BE ENABLED WHEN THE BOILER SYSTEM IS COMMANDED ON. THE BOILER SHALL BE ENABLED AFTER THE BOILER CIRCULATING PUMP STATUS IS PROVEN ON AND SHALL RUN SUBJECT TO ITS OWN
- INTERNAL SAFETIES AND CONTROLS.
- THE FOLLOWING SAFETIES SHALL BE MONITORED:
  BOILER ALARM. LOW WATER LEVEL.

4. THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET BASED ON OUTSIDE AIR TEMPERATURE. 5. AS OUTSIDE AIR TEMPERATURE RISES FROM 0°F (ADJ.) TO 70°F (ADJ.) THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET DOWNWARDS BY SUBTRACTING FROM 0°F (ADJ.) UP TO 20°F (ADJ.) FROM THE CURRENT BOILER

6. THE FOLLOWING TEMPERATURES SHALL BE MONITORED:

HOT WATER SUPPLY.
HOT WATER RETURN.

### LOAD SIDE (GLYCOL) OPERATION:

SETPOINT.

- THE GLYCOL CIRCULATION PUMP SHALL RUN WHENEVER THE BOILER SYSTEM IS COMMANDED ON, & THE OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F AND SHALL HAVE A USER DEFINABLE (ADJ.) DELAY ON STOP.
- AS OUTSIDE AIR TEMPERATURE RISES FROM 0 °F (ADJ) TO 70 °F (ADJ). THE GLYCOL SUPPLY TEMPERATURE SETPOINT SHALL RESET DOWNWARDS BY SUBTRACTING FROM 0 °F (ADJ) UP TO 20 °F (ADJ) FROM THE CURRENT LOOP SETPOINT.
- . THE CONTROLLER SHALL MONITOR THE GLYCOL SUPPLY TEMPERATURE. THE CONTROLLER SHALL MODULATE THE 3-WAY HEATING VALVE TO MAINTAIN THE GLYCOL SUPPLY TEMPERATURE AT SETPOINT.
- 4. THE FOLLOWING IN-FLOOR RADIANT LOOP TEMPERATURES SHALL BE MONITORED:
  GLYCOL HOT WATER SUPPLY.
- GLYCOL HOT WATER RETURN.

### ALARMS:

- ALARMS SHALL BE PROVIDED AS FOLLIOWS:
- BOILER ALARM. LOW WATER LEVEL ALARM.
- BOILER CIRCULATION PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF. BOILER CIRCULATION PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON. BOILER CIRCULATION PUMP RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
- GLYCOL CIRCULATION PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- GLYCOL CIRCULATION PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
  GLYCOL CIRCULATION PUMP RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
  BOILER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- BOILER RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON. BOILER RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
- HIGH PRIMARY HOT WATER SUPPLY TEMP: IF GREATER THAN 140°F (ADJ.). LOW PRIMARY HOT WATER SUPPLY TEMP: IF LESS THAN 80°F (ADJ.).
- 3-WAY MODULATING HEATING VALVE FAILURE: COMMANDED ON, BUT STATUS IS OFF. IN-FLOOR GLYCOL SUPPLY TEMP: IF GREATER THAN 110°F (ADJ.).
- IN-FLOOR GLYCOL SUPPLY TEMP: IF LESS THAN 70°F (ADJ.).

HARDWARE POINTS	SOFTWARE POINTS	TREN D	ALARM	SHOW ON GRAPHIC
AI	-	Y	N	Y
AI	-	Y	N	Y
AO	-	Y	N	Y
DI	-	Y	Y	Y
DI		Y	N	Y
DI	( <b>H</b> )	Y	Y	Y
DO	-	N	N	Y
DI	-	Y	N	Y
DO	-	Y	N	Y
AI	-	N	N	Y
-	1400 1400	N	Y	N
-	-	N	Y	N
<del>.</del>	-	N	Y	N
-	-	N	Y	N
-	-	N	Y	N
AO	-	Y	N	Y
AI	-	Y	N	Y
-	AV	Y	N	Y
AI	-	Y	N	Y
AI		Y	N	Y
DO	-	Y	N	Y
DI	-	Y	N	Y
-	(=)	N	Y	N
-	-	N	Y	N
-	-	Ν	Y	N
-	<b>.</b>	N	Y	N
		N	Y	N
-	-	Ν	Y	N
-	-	N	Y	N
-	-	N	Y	N
	-	N	Y	N
	HARDWARE POINTS         AI         AI         AI         AO         DI         DI         DI         DI         DO         DI         DO         AI         AO         DI         DO         DI         DO         AI         AO         AI         DO         DI         AI         AI	HARDWARE POINTS       SOFTWARE POINTS         AI       -         AI       -         AI       -         AO       -         DI       -         DI       -         DI       -         DI       -         DI       -         DI       -         DO       -         DO       -         AI       -         DO       -         AI       -         AI       -         AO       -         AI       -         AI       -         AI       -         AO       -         AO       -         AO       -         AO       -         AI       -         AI       -         AI       -         DO       -         AI       -         DO       -         AI       -         AI       -         DO       -         AI       -         DI       -         -       -	HARDWARE POINTS         SOFTWARE POINTS         TREN D           AI         -         Y           AI         -         Y           AI         -         Y           AI         -         Y           AO         -         Y           DI         -         Y           DI         -         Y           DI         -         Y           DO         -         N           DI         -         Y           DO         -         N           T         -         N           AI         -         N           AO         -         Y           AI         -         Y           AI         -         Y           AI         -         Y           AI         -         Y           DO         -         Y           DO         -         N	HARDWARE POINTSSOFTWARE DTREN DALARMAI-YNAI-YNAI-YNAO-YNDI-YYDI-YNDI-YNDI-YNDD-YNDO-YNDO-YNDO-YNDO-YNAI-NYAI-NYAI-NYAI-NYAI-NYAI-NYAO-YNAI-YNAI-YNAI-YNAI-YNAI-YNAI-YNAI-YNAI-YNAI-YNDO-YNAI-YNAI-YNAI-NYAI-NYAI-NYAI-NYAI-NYAI-NYAI-NY

![](_page_95_Figure_42.jpeg)

![](_page_95_Figure_43.jpeg)

STRUCTURAL MECHANICAL ELECTRICAL CIVIL STRUCTURAL MECHANICAL ELECTRICAL CIVIL BUGINERS 15 Foundry Street, Dundas, ON, 19H 2V6 Phone: (905)648:0373 www.mantecorpartners.com	Fire and Emergency         Services Central Station         Township of Wainfleet         Township of Wainfleet         2433 Highway #3 Wainfleet, ON         CONTROLS         Services Central Station         CONTROLS         Is frandy Steet, Dunds, ON, 19H 2VG         Prome: (903)6480331         Wanneecondenters.com
-	

(V (V	RESSURE (DBA)	NNECTIO N RATIO	R C	RE	OUTDOOR AIR (°C)	REFRIGERANT TYPE	l heating (KW)	ING (KW)		SUPPLY AIR FLC (L/S)	LOCATION	TAG #
2	61.5 44	117.5% 100%	9	9	35 35	R410A R410A	37.8	3	33.	3658 750	OUTSIDE	CU-1 CU-2
SOUN	XT SP (Pa)	UPPLY AIR (L/S)		HEATING	ſ (DB/WB) °C		SENSIBLE		at (DB/WB) °C		LOC	TAG.
3	60-70-100-150	467-567-666	7	12	23.9	.4		11.2	26/19		TRAININ	FC-01
2	i0-70-100-150 i0-70-100-150	100-125-142 100-125-142	, ,	1.	23.9 23.9	.4 .7		1.4 1.8	26/19 26/19	CHEN H ROOM	KIT LUNC	FC-02 FC-03
2	60-70-100-150 60-70-100-150	100-125-142 100-125-142	,	2. 1.	23.9 23.9	.7		1.8 1.4	26/19 26/19	G ROOM 04	MEETINC FIRE CH	FC-04 FC-05
28	0-70-100-150 0-70-100-150	125-150-175 100-125-142	<u> </u>	3.:	23.9 23.9	.2		2.8	26/19 26/19	ADMIN. IEF OFFICE	GEN DEP CH	FC-06 FC-07
3 2 3	50-70-100-150 50-70-100-150 -	100-125-142 151-175-201	+	6 2.	23.9 23.9 23.9	.1 .7 .3		5.6 1.8 5.1	26/19 26/19 26/19	ANCE ROOM	MAINTEN/	FC-08 FC-09 FC-10
											CENE	
W	P. (Pa) K	AIR V FLOW	a) K	E.S.P. (P	AIR FLOW	an 1) KW	V E.S.P. (P	ED AIR FL	AREA SERV	DCATION		TAG #
	125 -	(L/S)		125	500		125	A 83:	ALL ROOM	H ROOM 27	MEC	ERV-1
				120								
HE	ATER SC	WATER H	GAS									
		/ WEIGHT (KG	RECOVER @56°C, LP	Y HEA RAT	EFFICIENCY	GAS TYPE	PUT (KW)	HEATING	STORAGE (Litre	L DESCRIPTION	GENERA	TAG #
DEL: M	ao smith moe	251	890		97%	NATURAL			379	H ROOM 27	MEC	GHWH-1
E	CHEDULI	PUMP		ELECT						DESCRIPTION	GENERA	
	HT (LBS)	HZ	PH		VOLTAGE		HEAD (Po	FLOW (L/	SYSTEM	IION	LOCA	TAG #
INDFO: INDFO:	0 GRU 36 GRU	60 60	1		115 115	0.8	89.7 63.1	2.74 T 0.845	HEATING DL RADIANT HEA	00M 27 00M 27 GLYC	MECH RC	P-1 P-2
EDI	ER SCH	ATING BO	HE									
0.01								CAPAC			General desc	
CON	ER FLUE GAS	OMBUSTION AIR	P.D. C				ING OUTPUT	С ІМРНТ 🕴 Н	HEATIN			
	DIA.	SUPPLY DIA.	(KPa)	(L/S)	w.i. (°C)   FLUI   (	E.W.T. (°C)	(KW)	W)	/ED (K	AREA SE	LOCATION	AG #
	100	100	(KPa) 14.9	2.3	w.i. (°C)   FLUI ( 57.7	E.W.T. (°C) 46.1	(KW)	17	/ED (K	AREA SE	LOCATION	AG # B-1 N
			(KPa) 14.9	2.3	57.7 FLUIC	E.W.T. (°C)	(KW) 112	17	/ED (K	AREA SE	LOCATION IECH ROOM 2	AG #
DUI	100 D SCHE	100	(KPa) 14.9 <b>R</b>	2.3	w.i. (°C)   FLUIC 57.7   ELECT	E.W.T. (°C) 46.1 SONE	(KW) 112 FAN RPM	ESP (Pa)	VED (K	AREA SE	LOCATION MECH ROOM 2	AG #
	DIA. 100 <b>D SCHE</b> QSEN 130SS; EN	100 ANGE HC	(KPa) 14.9 R BROAN M	2.3 TRICAL 50 0.65 A	W.I. (°C) FLUI 57.7 ( ELECT	E.W.T. (°C) 46.1 SONE	(KW) 112 FAN RPM 1100	ESP (Pa)	/ED (K	AREA SE           7         -           7         -           7         -           6         -           7         -	LOCATION AECH ROOM 2 LOCA	AG #
		100 ANGE HC	(KPa) 14.9 R BROAN M DR RA	1.2.3 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	W.I. (°C)   FLUI 57.7   ELECT 120/1/6	E.W.T. (°C) 46.1 SONE	(KW) 112 FAN RPM 1100	ESP (Pa)	/ED (K	AREA SE	LOCATION AECH ROOM 2 LOCA	AG # B-1 N TAG. RH-01
		100 ANGE HC DEL:STAINLESS STR DIANT HI EWT (°C)	(KPa) 14.9 R BROAN M DR RA (L/S)	IRICAL           300 0.65 A           FLOW	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN OSS (KPa)	E.W.T. (°C) 46.1 SONE 1.5 HEAD	(KW) 112 FAN RPM 1100 HEATING (KW	ESP (Pa) 75 JID TYPE	/ED (K /ED (K /K /K /K /K /K /K /K /K /K /K /K /K /K	AREA SE	LOCATION AECH ROOM 2 LOCA KITCH	AG #
ERGY S	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI	ANGE HC	(KPa) 14.9 R BROAN M DR RA (L/S) 2	Image: Picow         2.3         Image: Picow         50 0.65 A         Image: Picow         FLOW         0.4         0.4         0.4	W.I. (°C) FLUI 57.7   ELECT 120/1/6 IN OSS (KPa) 8.8 17	E.W.T. (°C) 46.1 SONE 1.5 HEAD	(KW) 112 FAN RPM 1100 HEATING (KW 17.6 17.6	INFORM         IT           W)         IT           IT         IT           ESP (Pa)         IT           75         IT           JID TYPE         IT           GLYCOL         GLYCOL	/ED     (K       /ED     (K       //ED     (K       /////     (K       ////     (K       ///     (K       ///     (K       ///     (K       //     (K       //     (K       //     (K       //     (K       //     (K       //     (K	AREA SE	LOCATION 2 MECH ROOM 2 LOCA LOCA KITCH # OF CIRCUIT 8 9	AG #
DU IERGY S ME DEL: T-J DEL: T-J DEL: T-J DEL: T-J	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7 57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 4 4 5 2 4 5 2 4 5 2 4 5 2 5 4 5 5 4 5 5 5 5 5	IRICAL 2.3 IRICAL 50 0.65 A I FLOW FLOW 0.4 0.4 0.1 0.1	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN 0SS (KPa) 8.8 17 23.3 4.6 	E.W.T. (°C)	(KW) 112 FAN RPM 1100 HEATING (KW 17.6 17.6 2.63 2.63 2.63	IT W) IT ESP (Pa) 75 JID TYPE GLYCOL GLYCOL NG WATER NG WATER	/ED     (K       /ED     (K       1     1       N (L/S)     52       52     52       75     309       75     4EAT       75     HEAT       75     HEAT       75     HEAT	AREA SE	LOCATION AECH ROOM 2 LOCA KITCH # OF CIRCUIT 8 9 2 2 2	AG #
ERGY ME DEL: T-2 DEL: T-2 DEL: T-2 DEL: T-2 DEL: T-2 DEL: T-2 DEL: T-2 DEL: T-2 DEL: T-2	IOO IOSCHE IOO ISSENI30SS; EN IEQUIP	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7 57.7 57.7 57.7 57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 0 7 7 7 7 7 7 7 7 7	IRICAL 2.3 IRICAL 30 0.65 A I FLOU FLOW 0.4 0.4 0.1 0.1 0.1 0.1 0.2 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN OSS (KPa) 8.8 17 23.3 4.6 7.76 23.6 (1)	E.W.T. (°C)	(KW) 112 FAN RPM 1100 HEATING (KW 17.6 17.6 2.63 2.63 3.51 1.76 2.42	IT W) IT ESP (Pa) T5 JID TYPE GLYCOL GLYCOL NG WATER NG WATER NG WATER NG WATER NG WATER NG WATER	/ED         III. (III.)           /ED         (K           1         1           // (L/S)         52           52         52           52         52           75         309           75         HEAI	AREA SE	LOCATION AECH ROOM 2 AECH ROOM 2 LOCA KITCH # OF CIRCUIT 8 9 2 2 2 2 4 1	AG # B-1 N TAG. RH-01 SZ-01 SZ-02 IZ-01 IZ-02 IZ-03 IZ-04 IZ-04
DUI HERGY S ME DEL: T-2 DEL: T	TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7 57.7 57.7 57.7 57.7 57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 0 9 5 4 5 4 5	IRICAL 2.3 IRICAL 50 0.65 A I FLOW FLOW 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.1 0.0	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN OSS (KPa) 8.8 17 23.3 4.6 7.76 23.6 6.1 9.1 3.35	E.W.T. (°C)	III2         FAN RPM         1100         HEATING (KW         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.51         1.76         2.63         4.39         2.23	IT W) IT ESP (Pa) T5 JID TYPE GLYCOL GLYCOL NG WATER NG WATER NG WATER NG WATER NG WATER NG WATER NG WATER NG WATER	/ED     (K       /ED     (K       1     1       // (L/S)     1       52     1       52     1       75     309       75     409       75     409       75     409       75     409       75     409       75     409       75     409       75     409       75     409       75     409       75     409       75     409       75     400       75     400       75     400       75     400       75     400       75     400	AREA SE 7 - 7 - 11ON FLC 11ON FLC 11ON FLC 11ON FLC 11ON FLC 11ON 110 110 110 110 110 110 110 110 110 110	LOCATION ///	AG #
ERGY S ME DEL: 1-2 DEL:	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7 57.7 57.7 57.7 57.7 57.7	(KPa) 14.9 R BROAN M BROAN M CL/S) D CL/S) D CL/S) D CL/S) D CL/S C	IRICAL 2.3 IRICAL 50 0.65 A I FLOW FLOW 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	<ul> <li>W.I. (°C) FLUIC</li> <li>57.7</li> <li>ELECT</li> <li>120/1/6</li> <li>IN</li> <li>OSS (KPa)</li> <li>8.8</li> <li>17</li> <li>23.3</li> <li>4.6</li> <li>7.76</li> <li>23.6</li> <li>6.1</li> <li>9.1</li> <li>3.35</li> <li>6.1</li> <li>7.3</li> </ul>	E.W.T. (°C)	Image: Kinetic State           III2           FAN RPM           1100           HEATING (KW           17.6           17.6           2.63           3.51           1.76           2.63           4.39           2.23           2.63           3.04	IT W) ESP (Pa) 75 JID TYPE GLYCOL GLYCOL GLYCOL NG WATER NG WATER	/ED     (K       /ED     (K       1     1       // (L/S)     1       52     1       52     1       75     309       75     4EAI       75     HEAI	AREA SE 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -	LOCATION ///	AG # B-1 N B-1 N TAG. RH-01 AG # SZ-01 SZ-02 IZ-02 IZ-02 IZ-03 IZ-04 IZ-04 IZ-05 IZ-06 IZ-07 IZ-08 IZ-09
DEL: T-2 DEL: T-2 DEL	TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7 57.7 57.7 57.7 57.7 57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 2 2 2 2 2 2 2 2 2 2 2 2	IRICAL 2.3 IRICAL 30 0.65 A I FLOU FLOW 0.4 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	w.i. (°C)       FLUI(         57.7          57.7          ELECT       120/1/6         IN          OSS (KPa)          8.8          17          23.3          4.6          7.76          23.3          4.6          7.76          23.3          4.6          7.76          23.3          4.1          9.1          3.35          6.1          7.3          5.5          24.2	E.W.T. (°C)	III2         FAN RPM         1100         HEATING (KW         17.6         2.63         3.51         1.76         2.63         4.39         2.23         2.63         3.04         2.63         6.14	ITT ITT ITT ITT ITT ITT ITT ITT	/ED     (K       /ED     (K       /ED     (K       //ED     (K       ////////////////////////////////////	AREA SE 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -	LOCATION ///	AG # B-1 N TAG. RH-01 AG # SZ-01 SZ-02 HZ-01 HZ-02 HZ-03 HZ-04 HZ-05 HZ-05 HZ-06 HZ-07 HZ-08 HZ-09 HZ-10 HZ-10 HZ-11
ERGY S ERGY S ME DEL: 1-2 DEL: 1	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 35.5 57.7 57.7 57.7 57.7 57.7	(KPa)  14.9  R  BROAN M  C  C  C  C  C  C  C  C  C  C  C  C  C	IRICAL 2.3 IRICAL 30 0.65 A I FLOW FLOW 0.4 0.4 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	w.i. (°C)       FLUI(         57.7          57.7          ELECT       120/1/6         IN          0SS (KPa)          8.8          17          23.3          4.6          7.76          23.3          4.6          7.76          3.35          6.1          9.1          3.35          6.1          7.3          5.5          24.2          SFC CIRCULATI	E.W.T. (°C)	(KW)         112         FAN RPM         1100         HEATING (KW         17.6         17.6         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU	IT IT IT IT IT IT IT IT IT IT	/ED     (K       /ED     (K       /ED     (K       1     1       //ED     (K       ////////////////////////////////////	AREA SE 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -	LOCATION AECH ROOM 2 AECH ROOM 2 LOCA KITCH # OF CIRCUIT 8 9 2 2 2 2 4 1 2 2 4 1 1 1 1 1 5 E: 32mm DIA.	AG # B-1 N B-1 N TAG. RH-01 AG # SZ-01 SZ-02 4Z-03 4Z-03 4Z-03 4Z-03 4Z-04 4Z-05 4Z-05 4Z-04 4Z-05 4Z-05 4Z-06 4Z-07 4Z-08 4Z-07 4Z-08 4Z-09 4Z-10 4Z-10 4Z-11 TES: PROVIE
ERGY ERGY ME DEL: T-2 DEL: T-2 CHE	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STR DIANT HI EWT (°C) 35.5 35.5 35.5 57.7 57.7 57.7 57.7 57.7	(KPa) 14.9 R BROAN M BROAN M DR RA (L/S) D 2 5 2 2 5 2 2 5 4 5 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 7 6 7 7 6 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	IRICAL 2.3 IRICAL 30 0.65 A I FLOW FLOW 0.4 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN OSS (KPa) 8.8 17 23.3 4.6 7.7 23.3 4.6 7.7 23.5 6.1 9.1 3.35 6.1 7.3 5.5 24.2 SFC CIRCULATI	E.W.T. (°C)	(KW)         112         FAN RPM         1100         HEATING (KW         17.6         17.6         2.63         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU	IT IT IT IT IT IT IT IT IT IT	/ED     (K       /ED     (K       1     1       // (L/S)     1       52     1       52     1       52     1       75     309       75     4EA1       75     HEA1	AREA SE 7 - 7 - 10N FLC 10N FLC 10N FLC 15 15 15 15 15 15 15 15 15 15	LOCATION AECH ROOM 2 AECH ROOM 2 LOCA KITCH # OF CIRCUIT 8 9 2 2 2 2 4 1 2 1 1 1 1 5 DE: 32mm DIA.	AG # B-1 N TAG. RH-01 AG # SZ-01 SZ-02 4Z-03 4Z-02 4Z-03 4Z-03 4Z-04 4Z-05 4Z-04 4Z-05 4Z-04 4Z-05 4Z-07 4Z-08 4Z-07 4Z-08 4Z-09 4Z-10 4Z-11 DES: PROVIE
DEL: T-2 DEL: T-2 DEL	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI	100 ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7 5	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5	IRICAL 2.3 IRICAL 50 0.65 A I FLOW FLOW 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI ELECT 120/1/6 IN OSS (KPa) 8.8 17 23.3 4.6 7.7 23.6 6.1 7.3 5.5 24.2 SFC CIRCULATI DW (L/S) ED	E.W.T. (°C)	III2         FAN RPM         1112         FAN RPM         1100         HEATING (KW         17.6         2.63         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU	ESP (Pa) 75 JID TYPE GLYCOL GLYCOL GLYCOL GLYCOL GLYCOL GLYCOL NG WATER NG W	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       52         52       1         75       309         75       464         400       50         400       50         400	AREA SE       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       10     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       15     15       16     15       17     15       18     15       19     15       10     15       10	LOCATION AECH ROOM 2 AECH ROOM 2 LOCA KITCH # OF CIRCUIT 8 9 2 2 2 2 4 1 1 1 1 1 5 DE: 32mm DIA.	AG # B-1 N TAG. RH-01 AG # SZ-01 SZ-02 4Z-01 SZ-02 4Z-03 4Z-04 4Z-05 4Z-04 4Z-05 4Z-06 4Z-07 4Z-08 4Z-09 4Z-09 4Z-10 HZ-09 4Z-10 HZ-09 HZ-10 HZ-10 HZ-09 HZ-10
E BLAD VHITE P	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI	100 ANGE HC ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 35.5 57.7	(KPa) 14.9 R BROAN M BROAN M DR RA (L/S) D 2 5 2 5 2 5 4 5 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	IRICAL 2.3 IRICAL 30 0.65 A I FLOU FLOW 0.4 0.4 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	w.i. (°C)       FLUI(         57.7          57.7          120/1/6          IN          0SS (KPa)          8.8          17          23.3          4.6          7.76          23.3          4.6          7.76          3.35          6.1          9.1          3.35          6.1          9.1          3.35          6.1          9.1          3.35          6.1          7.3          5.5          24.2          SFC CIRCULATI         DW (L/S)          ED          ED	E.W.T. (°C) 46.1 46.1 1.5 HEAD HEAD HEAD AIR F	(KW)         112         FAN RPM         1100         HEATING (KW)         17.6         17.6         17.6         2.63         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         //ED       (K         ////////////////////////////////////	AREA SE       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       100     15       15 <td>LOCATION AECH ROOM 2 AECH ROO</td> <td>AG # B-1 N B-1 I I AG. TAG. RH-01 AG # AG #</td>	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 N B-1 I I AG. TAG. RH-01 AG #
E BLAD VHITE P N, 3 C STABLE N, 4 CO	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	100 ANGE HC ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 5 4 5 5 6 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	IRICAL 2.3 IRICAL 30 0.65 A I FLOU FLOW 60 0.65 A I FLOU FLOW 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	w.i. (°C)       FLUIG         57.7          57.7          57.7          120/1/6       IN         0SS (KPa)          8.8          17          23.3          4.6          7.76          23.6          6.1          9.1          3.35          6.1          7.3          5.5          24.2          SFC CIRCULATI         DW (L/S)          ED	E.W.T. (°C) 46.1 46.1 1.5 HEAD HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA	(KW)         1112         FAN RPM         1100         HEATING (KW)         1100         HEATING (KW)         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED         DICATED         DICATED         DICATED         DICATED         DICATED	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         1       1         52       1         52       52         52       52         52       1         75       309         75       4641         401FOLD. FLOV       4641         401FOLD. FLON       4641         401FOLD. AIR S       4641         CEI	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100       FLO         10       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15 <td>LOCATION AECH ROOM 2 AECH ROO</td> <td>AG # B-1 N D B-1 N B-1 N B-1 N B-1 N B-1 N B-2 N</td>	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 N D B-1 N B-1 N B-1 N B-1 N B-1 N B-2 N
DEL: T-3 DEL: T-3 DEL	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	100 ANGE HC ANGE HC DEL:STAINLESS STI DIANT HI EWT (°C) 35.5 35.5 35.5 57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 2 2 2 2 2 2 2 2 2 2 2 2	IRICAL 2.3 IRICAL 30 0.65 A I FLOU FLOW 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0	W.I. (°C)       FLUI(         57.7          57.7          ELECT       120/1/6         IN          OSS (KPa)          8.8       17         23.3       4.6         7.76       23.6         6.1       9.1         3.35       6.1         7.3       5.5         24.2          SFC CIRCULATI         DW (L/S)         ED          ED          ED          ED	E.W.T. (°C) 46.1 46.1 SONE 1.5 HEAD HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA	III2         FAN RPM         1112         FAN RPM         1100         HEATING (KW         17.6         17.6         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         0.04         2.63         0.04         2.63         0.04         2.63         0.04         0.05         0.04         0.05         0.04         0.05         0.05         0.05         0.05         0.05         0.05         0.05         0.05         0.05         0.05         0.05         0.05         0.05	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       52         52       1         75       309         75       HEAI	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100       FLO         10       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15 <td>LOCATION AECH ROOM 2 AECH ROO</td> <td>AG # B-1 N B-1 S-1 S-2 S-3 N B-1 N B-1 S-1 S-2 S-3 N B-1 S-1 S-1 S-2 S-3 N B-1 S-1 S-1 S-1 S-1 S-1 S-1 S-1 S-1 S-1 S</td>	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 N B-1 S-1 S-2 S-3 N B-1 N B-1 S-1 S-2 S-3 N B-1 S-1 S-1 S-2 S-3 N B-1 S-1 S-1 S-1 S-1 S-1 S-1 S-1 S-1 S-1 S
DEL: T DEL: T DEL	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	100         100         ANGE HC         DEL:STAINLESS STR         DIANT HI         EWT (°C)         35.5         35.5         35.5         57.7      57.7	(KPa) 14.9 R BROAN M DR RA (L/S) D C C C C C C C C C C C C C	IRICAL         2.3         IRICAL         30 0.65 A         FLOW         60 0.65 A         IFLOW         0.4         0.1         0.4         0.1         0.2         0.1         0.1         0.2         0.1         0.2         0.3         ING PUMP         EH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN CSS (KPa) 8.8 17 23.3 4.6 7.76 23.3 4.6 7.76 23.3 4.6 7.76 23.3 4.6 7.76 23.3 4.6 7.7 5.5 24.2 SFC CIRCULATI D D D D D D D D D	E.W.T. (°C) 46.1 46.1 1.5 HEAD HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA	(KW)         112         FAN RPM         1100         HEATING (KW         17.6         17.6         2.63         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED         DICATED         DICATED         DICATED         DICATED         DICATED	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       52         52       1         75       309         75       HEAT	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100       FLO         10       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15 <td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH KITCH 8 9 2 2 2 4 1 1 1 1 1 1 5 XE: 32mm DIA. AS INI AS INI AS INI AS INI</td> <td>AG # B-1 N B-1 N TAG. RH-01 AG # SZ-01 SZ-02 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-04 4Z-03 4Z-03 4Z-04 4Z-03 4Z-03 4Z-04 4Z-03 4Z-04 4Z-05 4Z-07 4Z-08 5Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4 4 4 4 4 4 4 4 4 4 4 4 4</td>	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH KITCH 8 9 2 2 2 4 1 1 1 1 1 1 5 XE: 32mm DIA. AS INI AS INI AS INI AS INI	AG # B-1 N B-1 N TAG. RH-01 AG # SZ-01 SZ-02 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-03 4Z-04 4Z-03 4Z-03 4Z-04 4Z-03 4Z-03 4Z-04 4Z-03 4Z-04 4Z-05 4Z-07 4Z-08 5Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4Z-07 4Z-08 4 4 4 4 4 4 4 4 4 4 4 4 4
DEL: T DEL: T DEL	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.7         57.	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 0 7 5 6 7 7 6 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.4         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.4         0.1         0.2         0.1         0.2         0.3         ING PUMP         EH. PRICE         EH	w.i. (°C)       FLUIC         57.7          57.7          120/1/6       IN         0SS (KPa)          8.8       17         123.3       4.6         7.76       23.6         6.1       9.1         3.35       6.1         6.1       7.7         23.6       6         6.1       9.1         3.35       24.2         SFC CIRCULATI         DW (L/S)         ED          ED         ED         ED         ED         ED         ED         ED         ED         ED         ED         ED         ED         ED	E.W.T. (°C)         46.1         46.1         SONE         1.5         HEAD         HEAD         HEAD         AS INDICA	III2         FAN RPM         III00         HEATING (KW         II00         II00     <	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       1         52       1         75       309         75       HEAI         75       HEAI     <	AREA SE       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       7     -       100     -       10     -  <	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 N B-1 S-1 S-2 S-3 C GENERA TAG # C GENERA
DEL: T- DEL: T	JIOI         100         D SCHE         QSEN130SS; EN         T EQUIP         IAMAS MOR         TAMAS MOR         TA	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         57.7         57.	(KPa) 14.9 R BROAN M DR RA (L/S) D 2 5 2 5 2 5 2 5 2 5 2 5 4 5 5 5 2 5 5 2 5 5 2 5 5 2 5 5 2 5 5 5 5 5 5 5 5 5 5 7 5 5 5 5 5 5 5 5 5 7 5 5 5 5 5 7 7 5 5 5 5 7 7 5 5 5 5 5 5 7 7 5 5 5 5 5 5 5 5 5 5 5 5 5	IRICAL         2.3         IRICAL         30 0.65 A         FLOW         60 0.65 A         FLOW         0.4         0.4         0.4         0.1         0.2         0.1         0.1         0.2         0.1         0.2         0.1         0.2         0.4         0.5         0.6         0.7         0.8         0.9         0.1         0.1	w.i. (°C)       FLUIC         57.7          57.7          120/1/6       IN         0SS (KPa)          8.8       17         23.3       4         4.6          7.76          23.3       4         4.6          7.76          23.3       4         6.1          7.3          5.5          24.2          SFC CIRCULATI         DW (L/S)         ED	E.W.T. (°C) 46.1 46.1 SONE 1.5 HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA	III2         FAN RPM         1112         FAN RPM         1100         HEATING (KW         17.6         17.6         17.6         2.63         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       52         52       52         52       52         52       1         75       309         75       HEAT         75       HEAT     <	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         100N       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15 <td< td=""><td>LOCATION AECH ROOM 2 AECH ROO</td><td>AG # B-1 B-1 AG. AG. B-1 AG. AG. AG. AG. AG. AG. AG. AG. AG. AG.</td></td<>	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 B-1 AG. AG. B-1 AG.
DEL: T- DEL: T	JIOI         100         D SCHE         QSEN130SS; EN         T EQUIP         TAMAS MOR         TA	100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.7         57.	(KPa) 14.9 R BROAN M DR RA (L/S) D C C C C C C C C C C C C C	IRICAL 2.3 IRICAL 30 0.65 A I FLOU FLOW 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI ELECT 120/1/6 IN 0SS (KPa) 8.8 17 23.3 4.6 7.7 23.6 6.1 7.3 5.5 24.2 SFC CIRCULATI 0 SFC CIRCULATI D D D D D D D D D D ED ED	E.W.T. (°C) 46.1 46.1 SONE 1.5 HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA	III2         FAN RPM         1112         III00	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       III (K)         /ED       (K)         III       III         // (L/S)       IIII         52       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         100       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15         115       15	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 N D B-1 N B-1 N B-1 N B-1 N B-2 N B-1 N B-2 N
DEL: T-: DEL: T-: DEL	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         57.7         57.	(KPa) 14.9 R BROAN M DR RA (L/S) D C C C C C C C C C C C C C	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.0         0.1         0.1         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.3         ING PUMP         EH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         IM         IM         IM	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN SSS (KPa) 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 5.5 6.1 7.3 5.5 6.1 7.3 5.5 6.1 7.3 5.5 24.2 SFC CIRCULATI DW (L/S) ED ED ED ED ED ED ED E	E.W.T. (°C) 46.1 46.1 SONE 1.5 HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA	III2         FAN RPM         1112         FAN RPM         1100         III00	INITOT       IT         IT       IT     <	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       52         52       1         75       309         75       46A1         6       418         CEILING AIR S       CEILING AIR S         CEILING AIR S       AIR I         .       AIR I         .       AIR I         .<	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100       FLO         10       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15 <td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH RO AECH RO AECH RO AECH RO AECH RO</td> <td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # AG #</td>	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH RO AECH RO AECH RO AECH RO AECH RO	AG # B-1 B-1 AG # B-1 AG # B-1 AG #
DEL: T DEL: T DEL	JIOO         IOO         D SCHE         QSEN130SS; EN         T EQUIP         IAMAS MOR         TAMAS MOR         TA	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         57.7	(KPa) 14.9 R BROAN M BROAN M DR RA (L/S) D C C C C C C C C C C C C C	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.1         0.4         0.1 <td>W.I. (°C)       FLUIC         57.7       ELECT         120/1/6       IN         0SS (KPa)       8.8         17       23.3         4.6       7.76         23.3       4.6         7.76       23.6         6.1       9.1         3.35       6.1         6.1       7.3         5.5       5.4.2         SFC CIRCULATI         DW (L/S)         ED       ED         ED&lt;</td> <td>E.W.T. (°C) 46.1 46.1 1.5 </td> <td>III2         FAN RPM         1112         FAN RPM         1100         HEATING (KW         17.6         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AI</td> <td>ITT ITT ITT ITT ITT ITT ITT ITT</td> <td>/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       1         52       1         75       309         75       46A1         6       418         CEILING AIR S       3         CEILING AIR S       418         CEILING AIR S       418         CEILING AIR S       418         &lt;</td> <td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         100       15         115       15         &lt;</td> <td>LOCATION AECH ROOM 2 AECH ROO</td> <td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # AG #</td>	W.I. (°C)       FLUIC         57.7       ELECT         120/1/6       IN         0SS (KPa)       8.8         17       23.3         4.6       7.76         23.3       4.6         7.76       23.6         6.1       9.1         3.35       6.1         6.1       7.3         5.5       5.4.2         SFC CIRCULATI         DW (L/S)         ED       ED         ED<	E.W.T. (°C) 46.1 46.1 1.5 	III2         FAN RPM         1112         FAN RPM         1100         HEATING (KW         17.6         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AI	ITT ITT ITT ITT ITT ITT ITT ITT	/ED       (K         /ED       (K         1       1         // (L/S)       1         52       1         52       1         52       1         75       309         75       46A1         6       418         CEILING AIR S       3         CEILING AIR S       418         CEILING AIR S       418         CEILING AIR S       418         <	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         100       15         115       15         <	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 B-1 AG # B-1 AG # B-1 AG #
DEL: T- DEL: T	JIOO         IOO         D SCHE         QSEN130SS; EN         T EQUIP         IAMAS MOI         TAMAS MOI         SERS SC         VG, 45 DEGREE         TURN GRILLE, W         CONSTRUCTIO         OSITION ADJUS         CONSTRUCTIO         CONSTRUCTIO         CONSTRUCTIO         CONSTRUCTIO         CONSTRUCTIO         CONSTRUCTIO </td <td>100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         35.5         57.7         57.</td> <td>(KPa)         14.9         IA.9         BROAN M         DR RA         (L/S)         D         2         5         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         7         6         7         6         7         6         7         6         7         6         7</td> <td>IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.0         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.3         ING PUMP         IH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         IK         IN</td> <td>W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI ELECT 120/1/6 IN 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 10 8.8 17 23.3 4.6 7.7 10 10 10 10 10 10 10 10 10 10</td> <td>E.W.T. (°C) 46.1 46.1 1.5 SONE 1.5 HEAD HEAD AS INDICA AS INDICA</td> <td>FAN RPM         112         FAN RPM         1100         HEATING (KW         17.6         17.6         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         A.17         OICATED         DICATED         DICATED         DICATED         DICATED         DICATED         DICATED         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE         AIR SIDE</td> <td>INTOT       IT         IT       IT     <!--</td--><td>/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////</td><td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15</td><td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH KITCH 8 9 2 2 2 2 4 1 2 2 2 4 1 1 1 1 1 1 1 1 1 5 VE: 32mm DIA. AS INI AS INI</td><td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # AG #</td></td>	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         35.5         57.7         57.	(KPa)         14.9         IA.9         BROAN M         DR RA         (L/S)         D         2         5         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         7         6         7         6         7         6         7         6         7         6         7	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.0         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.3         ING PUMP         IH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         IK         IN	W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI ELECT 120/1/6 IN 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 10 8.8 17 23.3 4.6 7.7 10 10 10 10 10 10 10 10 10 10	E.W.T. (°C) 46.1 46.1 1.5 SONE 1.5 HEAD HEAD AS INDICA AS INDICA	FAN RPM         112         FAN RPM         1100         HEATING (KW         17.6         17.6         17.6         2.63         3.51         1.76         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         A.17         OICATED         DICATED         DICATED         DICATED         DICATED         DICATED         DICATED         AIR SIDE	INTOT       IT         IT       IT </td <td>/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////</td> <td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15</td> <td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH KITCH 8 9 2 2 2 2 4 1 2 2 2 4 1 1 1 1 1 1 1 1 1 5 VE: 32mm DIA. AS INI AS INI</td> <td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # AG #</td>	/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH KITCH 8 9 2 2 2 2 4 1 2 2 2 4 1 1 1 1 1 1 1 1 1 5 VE: 32mm DIA. AS INI AS INI	AG # B-1 B-1 AG # B-1 AG # B-1 AG #
DEL: T- DEL: T	JIOI         100         D SCHE         QSEN130SS; EN         T EQUIP         IAMAS MOR         TAMAS MOR         SERS SC         NG, 45 DEGREE         TURN GRILLE, W         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         57.7	(KPa) 14.9 14.9 R BROAN M DR RA (L/S) D CR RA (L/S) D CR RA C CR RA C CR C CR C C C C C C C C C C C C C	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         60 0.65 A         IFLOW         0.4         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.1         0.2         0.1         0.1         0.2         0.3         ING PUMP         ING PRICE         EH. PRICE         EH. PRICE         EH. PRICE         ING         ING         ING         ING	W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI ELECT 120/1/6 IN SSS (KPa) 8.8 17 23.3 4.6 7.7 23.3 4.6 7.7 23.3 4.6 7.7 23.3 4.6 7.7 23.3 4.6 7.7 23.3 4.6 7.3 5.5 24.2 SFC CIRCULATI D D D D D D D D D D D D D	E.W.T. (°C) 46.1 46.1 1.5 	FAN RPM         1112         FAN RPM         11100         HEATING (KW         17.6         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED         DICATED         DICATED         DICATED         DICATED         AIR SIDE	INTOT       IT         W)       IT         IT       IT </td <td>/ED       III (K)         //ED       (K)         //ED       (K)         //ED       III         //ED       IIII         //ED       (K)         //ED       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td> <td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         11       -         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15</td> <td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH B B B P 2 2 2 2 2 2 4 1 1 1 1 1 1 1 1 1 5 DE: 32mm DIA. AS INI AS I</td> <td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # B-1 AG # AG #</td>	/ED       III (K)         //ED       (K)         //ED       (K)         //ED       III         //ED       IIII         //ED       (K)         //ED       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         11       -         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         15       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15         5       15	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH B B B P 2 2 2 2 2 2 4 1 1 1 1 1 1 1 1 1 5 DE: 32mm DIA. AS INI AS I	AG # B-1 B-1 AG # B-1 AG # B-1 AG # B-1 AG #
DEL: T- DEL: T	DIA. 100 D SCHE QSEN130SS; EN T EQUIP T EQUIP TAMAS MOI TAMAS MOI TAM	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.7         57.	(KPa) 14.9 14.9 R BROAN M DR RA (L/S) D CR RA (L/S) D CR (L/S) D CR (L/S) D CR (L/S) (	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.4         0.4         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.1         0.2         0.1         0.2         0.3         ING PUMP         ING PRICE         EH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         IN         IN         IN         IN      <	W.I. (°C) FLUI 57.7 ELECT 120/1/6 IN 8.8 17 23.3 4.6 7.7 8.8 17 23.3 4.6 7.7 8.3 6.1 7.3 5.5 24.2 SFC CIRCULATI D D D D D D D D D	E.W.T. (°C)         46.1         46.1         SONE         1.5         HEAD         HEAD         AS INDICA         AS INDICA         AS INDICA         AS INDICA         AS INDICA         YUDFOS UPS26-5	FAN RPM         1112         FAN RPM         11100         HEATING (KW         1100         HEATING (KW         11000	INITOT       IT         IT       IT     <	/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15	LOCATION AECH ROOM 2 AECH ROO	AG # B-1 B-1 AG # B-1 AG # B-1 AG #
DEL: T- DEL: T	JIA.         100         D SCHE         QSEN130SS; EN         T EQUIP         IAMAS MODE         TAMAS	ANGE HC ANGE HC State State Sta	(KPa) 14.9 14.9 R BROAN M DR RA (L/S) D D C C C C C C C C C C C C C	IRICAL  2.3  IRICAL  30 0.65 A  IFLOW  40.4  50 0.65 A  IFLOW  0.4  0.4  0.4  0.1  0.1  0.1  0.2  0.0  0.0  0.0  0.0	W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI ELECT 120/1/6 IN 8.8 17 23.3 4.6 7.7 5.5 4.6 6.1 9.1 3.35 6.1 7.3 5.5 4.6 7.3 5.5 4.2 SFC CIRCULATI 5.5 24.2 SFC CIRCULATI DU ED ED ED ED ED ED ED ED ED ED	E.W.T. (°C) 46.1 46.1 SONE 1.5 HEAD HEAD AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA CAS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA AS INDICA CAS INDICA	FAN RPM         112         FAN RPM         1100         HEATING (KW         1100         117.6         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04	INITOT       IT         IT       IT     <	/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH KITCH 8 9 2 2 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1	AG #         B-1       N         B-1       N         TAG.       N         RH-01       N         SZ-01       N         SZ-02       N         IZ-03       N         IZ-04       N         IZ-05       N         IZ-06       N         IZ-07       N         IZ-08       N         IZ-09       N         IZ-10       N         IZ-11       N         ITAG       N         E-1       R-1         S-1       S-2         S-3       S-3         GENERA       N         HX-1       N         HX-1       N         IAG       N         IAG       N         IAG       N         IAG       N         IAG       N <t< td=""></t<>
DEL: T- DEL: T	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	SUPPLY DIA. 100 ANGE HC ANGE HC ANGE HC ANGE HC ANGE HC ANGE HC ANGE HC ANGE HC ANGE HC ANGE HC STATALLESS STATALL STATALLESS STATALL SCIENCE ALUMIN COL FILL S AC ATER HI GLYCOL) SIDE (L/S) EAT (% AC ATER HI COL FILL S AC ATER HI AC ATE	(KPa) 14.9 14.9 R BROAN M BROAN M DR RA (L/S) D C R RA (L/S) (L/S	IRICAL         2.3         IRICAL         30 0.65 A         IFLOW         60 0.65 A         IFLOW         0.4         0.4         0.4         0.4         0.1         0.1         0.1         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.1         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.1         0.2         0.3         ING PUMP         ING PRICE         EH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         IN         IN         IN	w.i. (°C)       FLUI(         57.7          57.7          57.7          120/1/6       IN         0SS (KPa)          8.8       17         23.3       4.6         7.76       23.6         6.1       9.1         3.35       6.1         6.1       7.3         5.5       24.2         SFC CIRCULATI         DW (L/S)         ED       ED         DD       ED         DD       ED         ED       ED         DD       16.8         GLYCOL       16.8         INLET/OUTLI       TEMP (°C)         24/35	E.W.T. (°C) 46.1 46.1 	FAN RPM         1112         FAN RPM         11100         HEATING (KW         1100         HEATING (KW         1100         117.6         2.63         3.04         2.63         3.04         2.63         3.04         2.63         6.14         VALVE. GRU         DICATED         DICATED         DICATED         DICATED         DICATED         AIR SIDE         MG FLUID 1         % PE         AXIOM MOE	INITOT       IT         IT       IT     <	/ED       I         (K)       I         I       I         <	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH AECH AECH AECH AECH RO AECH RO AECH RO AECH RO AECH AECH RO AECH AECH RO AECH	AG # B-1 B-1 AG # B-1 AG # B-1 AG #
DEL: T- DEL: T	JIOI         100         D SCHE         QSEN130SS; EN         T EQUIP         IAMAS MOR         TAMAS MOR         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         CONSTRUCTION         TATON SOR	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.5         57.7	(KPa) 14.9 14.9 R BROAN M BROAN M DR RA (L/S) D 2 5 2 5 2 5 4 5 5 4 5 5 4 5 6 7 6 7 6 7 6 7 6 7 6 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	D FLOW         2.3         IRICAL         30 0.65 A         I FLOW         60 0.65 A         I FLOW         0.4         0.4         0.4         0.4         0.4         0.1         0.1         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.1         0.2         1.1         0.2         1.1         0.2         1.1         0.2         1.1         1.1         1.2 </td <td>W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 120/1/6 IN STOREST SEC SEC SEC SEC SEC SEC</td> <td>E.W.T. (°C) 46.1 46.1 50NE 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5</td> <td>FAN RPM         1112         FAN RPM         11100         HEATING (KW         17.6         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         A.17         CK SIZE (MM         DICATED         DICATED         DICATED         DICATED         DICATED         DICATED         AIR SIDE         IT (°C)       L/         4.4         AXIOM MOE</td> <td>INTOT       IT         IT       IT     <!--</td--><td>/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////</td><td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         11       -         12       -         15       -</td><td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH 8 9 2 2 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # AG #</td></td>	W.I. (°C) FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 57.7 FLUI 120/1/6 IN STOREST SEC SEC SEC SEC SEC SEC	E.W.T. (°C) 46.1 46.1 50NE 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	FAN RPM         1112         FAN RPM         11100         HEATING (KW         17.6         2.63         3.51         1.76         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         3.04         2.63         A.17         CK SIZE (MM         DICATED         DICATED         DICATED         DICATED         DICATED         DICATED         AIR SIDE         IT (°C)       L/         4.4         AXIOM MOE	INTOT       IT         IT       IT </td <td>/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////</td> <td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         11       -         12       -         15       -</td> <td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH 8 9 2 2 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>AG # B-1 B-1 AG # B-1 AG # B-1 AG # AG #</td>	/ED       I         //ED       (K         //ED       (K         //ED       I         ////////////////////////////////////	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         11       -         12       -         15       -	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH 8 9 2 2 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1	AG # B-1 B-1 AG # B-1 AG # B-1 AG #
DEL: T- DEL: T	DIA. 100 D SCHE QSEN130SS; EN T EQUIP TAMAS MOI TAMAS MOI T	100         100         ANGE HC         DEL:STAINLESS STI         DIANT HI         EWT (°C)         35.5         35.7         57.	(KPa)         14.9         IA.9         BROAN MI         DR RA         (L/S)         DR RA         (L/S)         D         2         2         2         2         3         4         5         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         7         6         6         7         7<	D FLOW         2.3         IRICAL         30 0.65 A         I FLOU         50 0.65 A         I FLOW         0.0         0.1         0.4         0.4         0.4         0.1         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.0         0.1         0.2         0.1         0.2         0.1         0.2         0.3         ING PUMP         ING PRICE         EH. PRICE         EH. PRICE         EH. PRICE         EH. PRICE         IN         0.1	W.I. (°C)       FLUIC         57.7          57.7          57.7       IN         120/1/6       IN         0SS (KPa)          8.8       17         23.3       4         4.6       7         7.7       3.3         4.6       7         7.7       3.3         4.6       7         7.7       3.3         4.6       7         7.7       3.3         6.1       7         7.3       5.5         24.2       SFC CIRCULATI         DW (L/S)       I         ED       I         ED       I         ED       I         ED       I         ID       I <t< td=""><td>E.W.T. (°C) 46.1 46.1 46.1 1.5 1.5 1.5 HEAD 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5</td><td>III2         FAN RPM         III00         III00</td><td>INTOT       IT         IT       IT     <!--</td--><td>/ED       I         //ED       (K         I       I         //ED       I         ///ED       I         ////////////////////////////////////</td><td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15</td><td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH B 8 9 2 2 2 4 1 2 2 4 1 1 1 1 1 1 1 1 1 1 5 VE: 32mm DIA. AS INI AS INI</td><td>AG # B-1 B-1 AG  B-1 AG  B-1 AG  B-1 AG  B-1 AG  AG  B-1 AG  AG  AG  AG  AG  AG  AG  AG  AG  AG</td></td></t<>	E.W.T. (°C) 46.1 46.1 46.1 1.5 1.5 1.5 HEAD 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 1.5 46.1 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5	III2         FAN RPM         III00	INTOT       IT         IT       IT </td <td>/ED       I         //ED       (K         I       I         //ED       I         ///ED       I         ////////////////////////////////////</td> <td>AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15</td> <td>LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH B 8 9 2 2 2 4 1 2 2 4 1 1 1 1 1 1 1 1 1 1 5 VE: 32mm DIA. AS INI AS INI</td> <td>AG # B-1 B-1 AG  B-1 AG  B-1 AG  B-1 AG  B-1 AG  AG  B-1 AG  AG  AG  AG  AG  AG  AG  AG  AG  AG</td>	/ED       I         //ED       (K         I       I         //ED       I         ///ED       I         ////////////////////////////////////	AREA SE         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         7       -         100N       FLO         15       15         15	LOCATION AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 AECH ROOM 2 KITCH B 8 9 2 2 2 4 1 2 2 4 1 1 1 1 1 1 1 1 1 1 5 VE: 32mm DIA. AS INI AS INI	AG # B-1 B-1 AG  B-1 AG  B-1 AG  B-1 AG  B-1 AG  AG  B-1 AG

		NIT SCHEDULE	ONDENSING U	C			
MANUFACTURER & MODEL		RATED POWER INPUT HEATING (KW)	RATED POWER INPUT COOLING (KW)	CONDENSING UNIT WEIGHT (LBS)	MCA (A)	MOCP (A)	tage Z/PH)
					•		
20TNU-A	MITSUBISHI MODEL: PUHY-HP120TNU-A	9.63	8.53	655	47	70	/60/3
IKA7-BS	MITSUBISHI MODEL: PUZ-A18NKA7-BS			100	11	28	/60/1

## FAN COIL UNIT SCHEDULE

'RESSURE 'EL	RETURN AIR SIZE	SUPPLY AIR SIZE	LBS	MCA	RATED POWER INPUT COOLING KW	RATED POWER INPUT HEATING KW	BASIS OF DESIGN: MITSUBISHI AIR
0-44	210X1360	178X1360	86	3.41 (208/230V)	0.34	0.32	MITSUBISHI AIR MODEL: PEFY-P48NMAU-E3
8-29	210X658	178X660	49	1.05 (208/230V)	0.06	0.04	MITSUBISHI AIR MODEL: PEFY-P06NMAU-E3HEATING
8-29	210X658	178X660	49	1.05 (208/230V)	0.06	0.04	MITSUBISHI AIR MODEL: PEFY-P08NMAU-E3
8-29	210X658	178X660	49	1.05 (208/230V)	0.06	0.04	MITSUBISHI AIR MODEL: PEFY-P08NMAU-E3
8-29	210X658	178X660	49	1.05 (208/230V)	0.06	0.04	MITSUBISHI AIR MODEL: PEFY-P06NMAU-E3
0-34	210X658	178X660	49	1.02 (208/230V)	0.09	0.07	MITSUBISHI AIR MODEL: PEFY-P12NMAU-E3
8-29	210X658	178X660	49	1.05 (208/230V)	0.06	0.04	MITSUBISHI AIR MODEL: PEFY-P06NMAU-E3
4-39	210X1060	178X1060	67	2.73 (208/230V)	0.17	0.15	MITSUBISHI AIR MODEL: PEFY-P24NMAU-E3
8-29	210X658	178X660	49	1.05 (208/230V)	0.06	0.04	MITSUBISHI AIR MODEL: PEFY-P08NMAU-E3
0-43	_	-	29	1.05 (208/230V)	-	_	MITSUBISHI AIR MODEL: PKA-A18HA7

## ENERGY RECOVERY VENTILATOR UNIT SCHEDULE

		ELECTRICAL					RECOVERY	ENERGY F			
					WINTER SUMMER						
/ MANUT			V/PH/HZ	URN	RET	SUPPLY		RETURN		SUPPLY	
		(73)		OUTLET °C	INLET °C	OUTLET °C	INLET °C	OUTLET °C	INLET °C	OUTLET °C	INLET °C
SYSTEMAIR: TOPVEX TR1800L-208-3-CAV ERV. FLOOR MOUNTED, HORIZONTAL HEAT RECOVER CYCLE, TWO FILTERS ON INCOMING AIR STREAM TO PROTECT THE HRV CORE, FAN SPEED CO	25	18.1	208/60/3	30	23.9	26.1	32.2	-9.4	22.2	12.7	-20

### ULE

		MAN	NUFACTURER &	MODEL (BASIS OF DESIGN: AO SMITH)
199				
			MANUFACTUR	er & model (basis of design: grundfos)
MODEL: UP MODEL: UPS	43-110 5 32-80			
LE				
as ection	ELEC	CTRICAL		MANUFACTURER & MODEL (BASIS OF DESIGN : GRUNDEOS)
A.	AMP	VOLTAGE		
0	5	120/1/60	262	GRUNDFOS MODEL: CONDENSATE KIT. 96% EFFICIENCY, FIRE-TUBE DESIGN. 10:1 TURNDOWN.
E				
	MAM	NUFACTURER & I	MODEL (BASIS	OF DESIGN: BROAN)
AR LED LIGI	HTING; HO	RIZONTAL DUCT	ORIENTATION;	SIZE: 762mm X 559mm X 127mm
	ווישו	<b>E</b>		
		MANUFACI		
A TV ( 0001				
1-TV-0081 1-TV-00101				
1-TV-0021 1-TV-0021				
1-TV-0021				
1-TV-0041 1-TV-0021				
1-TV-0021				
1-TV-0021 1-TV-0021				
1-TV-0021				
1-TV-0021				
1-10-0031				
OULE				
Ν	ANUFACTI	JRER AND MOD	el (basis of d	ESIGN : EH. PRICE)
ANGLE, BLA	DES PARR	ALLEL TO LONG	DIMENSION	
NCENTRIC	t finish Cones an	D WHITE POWDI	er coat finisi	1.
vhite powe nes, 3 posi	der Finish. Tion adju	STABLE WHITE PO	OWDER FINISH.	
DULE				
			MANUF	ACTURER & MODEL (BASIS OF DESIGN: TRANE)
NE MODEL:	DWPB180	28G0DA099CA	AAOAB, 4 ROW	S, HOT WATER WP
R SCH	IEDUL	E		
			MANUFAG	CTURER & MODEL (BASIS OF DESIGN: GRUNDFOS)
UNDFOS M	ODEL: 4A4	A - IG16 - 12 - TL	-	
DULE				
CTURER & M	odel (bas	is of design: A	AXIOM)	
RGED TANK	WITH EPDI	M DIAPHRAGM,	PRESSURE GAL	IGE, RIA10-1-SAA ALARM PANEL C/W AUDIBLE ALARM. PROVIDE DISCONNECT SWITCH

# EDULE

MANUFACTURER & MODEL (BASIS OF DESIGN: ENGINEERED AIR)

R MODEL FW51/CR C/W MERV 8 SUPPLY FILTER, SPRING VBRATION ISOLATORS

el (basis of design:mitsubishi)

TURER & MODEL (BASIS OF DESIGN: SYSTEM AIR)

YERY VENTILATOR C/W COUNTER FLOW HEAT EXCHANGER, POLYPROPYLENE HEAT EXCHANGER CORE, ENERGY DEFROST CONTROL.

![](_page_96_Picture_14.jpeg)

	SUMP PUMP SCHEDULE											
(	GENERAL DESCRIPTION						ELECTRICAL					
TAG #	LOCATION	SYSTEM	FLOW (L/S)	HEAD (KPO)	MOTOR HP	VOLTAGE	PH	HZ	WEIGHT (LBS)	MANUFACTURER & MODEL (BASIS OF DESIGN: GRUNDFOS)		
SP-01	DOM WATER CISTERN	DOM. WATER	3.78	576	5	575	3	60	23.4	GRUNDFOS MODEL: 62S 50-9 MULTI-STAGE SUBMERSIBLE PUMP. MS4000 MOTOR. PROVIDE VFD MODEL: CUE 3X525-600 IP 55.5, 5KW DC, PROVIDE PRESSURE TRANSDUCER MODEL: 15170-AI-3-2		
SP-02	FIRE CISTERN	FIRE WATER	70	329	40	575	3	60	333	GRUNDFOS MODEL: 1100S400-1. MULTI-STAGE SUBMERSIBLE PUMP.		

							EXHAUST F	ANS SCHEDULE					
TAG	MODEL	MANUFACTURER	APPLICATION	UNIT WEIGHT (LBS)	VOLUME (L/S)	ESP (Pa)	MOTOR SIZE (HP)	FLA (AMPS) (APPROXIMATE)	VOLTAGE (V) PHASE NUME	ER   FAN RPM		NOTE	
EF-1	SQ-100-A       Greenheck       EXHAUST       73       355       142.0 Pa       0.25       4.72       115       1       1373       C/W FACTORY SUPPLIED DISCONNECT SWITCH, PROVIDE VIBRATION ISOLATORS, DISCONNECT SWITCH AND BD-330 VERTICAL MOUNT EXHAUST DAMPER								i isolators, per				
EF-2	SQ-160-B       Greenheck       EXHAUST       174.7       1066       50.0 Pa       0.50       6.2       115       1       898       C/W FACTORY SUPPLIED DISCONNECT SWITCH, PROVIDE VIBRATION ISOLATORS, DISCONNECT SWITCH AND BD-330 VERTICAL MOUNT EXHAUST DAMPER							i Isolators, per					
				LOU	VRE SCHI	DULE						GAS SCHEDULE	
TAG	WxH (mm)	FLOW RATE (CFA	Л) FREE AREA (SQ	.M) FREE AREA VELOCITY (M/S)	PRESSURE DRO (Pa)		MANUFACTURER	& MODEL (BASIS OF DESIGN: PR	RICE)		ITEM	DESCRIPTION	GAS LOAD (CFH)
LV-01	AS INDICATED	AS INDICATED	0.36	2.3	11	PRICE MODEL: [	DE445M. 100MM DEEP	45° BLADE EXTRUED DRAINABLE	LOUVRE.		GWHT-1	GAS DOMESTIC WATER HEATER	199
LV-02/03	AS INDICATED	AS INDICATED	-	-	-	PRICE MODEL: [	DE445M. 100MM DEEP	45° BLADE EXTRUED DRAINABLE	LOUVRE.		B-1	GAS BOILER	398
											-	BUILDING GENERATOR	3180
											BBQ		200
												TOTAL GAS LOAD:	3977
				ELECTRIC	HEATER	SCHEDULE						PRESSURE:	7-14" WC.
TAG #	WATTS	ELECTRICAL			MANU	ACTURER & MODE	l (basis of design: o	UELLET)					
EH-1,2,3	2000	208/1/60	OUELLET MODE FACTORY SUPPL	L# OAC02008-T FAN H Y DISCONNECT SWITC	EATER C/W SURFA H.	CE MOUNTING BO)	, standard white Co	OLOUR, BUILT-IN THERMOSTAT V	VITH KNOB CONTROL,				
		B		WELL TANK	& EXPAN	SION TAN	K SCHEDUL	E					

							EXHAUST F	ANS SCHEDULE							
TAG	MODEL	MANUFACTURER	APPLICATION	UNIT WEIGHT (LBS)	VOLUME (L/S)	ESP (Pa)	MOTOR SIZE (HP)	FLA (AMPS) (APPROXIMATE)	VOLTAGE (V)	PHASE NUMBER	FAN RPM		NOTE		
EF-1 EF-2	SQ-100-A SQ-160-B	Greenheck	EXHAUST EXHAUST	73	355	142.0 Pa 50.0 Pa	0.25	4.72 6.2	115	1	1     1373     C/W FACTORY SUPPLIED DISCONNECT SWITCH, PROVIDE VIBRATION ISOLATORS DISCONNECT SWITCH AND BD-330 VERTICAL MOUNT EXHAUST DAMPER       1     898     C/W FACTORY SUPPLIED DISCONNECT SWITCH, PROVIDE VIBRATION ISOLATORS DISCONNECT SWITCH AND BD-330 VERTICAL MOUNT EXHAUST DAMPER				
				LOU	VRE SCHE	DULE		1					GAS SCHEDULE		
TAG	WxH (mm)	FLOW RATE (CFM	FREE AREA (SQ.M	A) FREE AREA VELOCITY (M/S)	PRESSURE DROF (Pa)		MANUFACTURER &	& model (basis of design: pr	ICE)			ITEM	DESCRIPTION	GAS LOAD (CFH)	
													1	· · ·	
LV-01	AS INDICATED	AS INDICATED	0.36	2.3	11	PRICE MODEL: D	E445M. 100MM DEEP 4	45° BLADE EXTRUED DRAINABLE	LOUVRE.			GWHT-1	GAS DOMESTIC WATER HEATER	199	
LV-02/03	AS INDICATED	AS INDICATED	-	-	-	PRICE MODEL: D	E445M. 100MM DEEP 4	45° BLADE EXTRUED DRAINABLE	LOUVRE.			B-1	GAS BOILER	398	
												_	BUILDING GENERATOR	3180	
												BBQ		200	
													TOTAL GAS LOAD:	3977	
				ELECTRIC	HEATER S	CHEDULE							PRESSURE:	7-14" WC.	
TAG #	WATTS	ELECTRICAL			MANUF	ACTURER & MODEL	. (BASIS OF DESIGN: OL	JELLET)							
EH-1,2,3	2000	208/1/60	OUELLET MODEL# FACTORY SUPPLY	# OAC02008-T FAN H DISCONNECT SWITC	EATER C/W SURFAC H.	CE MOUNTING BOX	, STANDARD WHITE CC	DLOUR, BUILT-IN THERMOSTAT W	/ITH KNOB CON	ITROL,					
		D			9 EYDAN			<b>F</b>							
		D						L							

							EXHAUST F	ANS SCHEDULE						
TAG	MODEL	MANUFACTURER	APPLICATION	UNIT WEIGHT (LBS)	VOLUME (L/S)	ESP (Pa)	MOTOR SIZE (HP)	FLA (AMPS) (APPROXIMATE)	VOLTAGE (V)	PHASE NUMBER	FAN RPM		NOTE	
EF-1	SQ-100-A	Greenheck	EXHAUST	73	355	142.0 Pa	0.25	4.72	115	1	1373	C/W FACTORY SUPPLIED DIS DISCONNECT SWITCH AND I	Connect switch, provide vibration 3d-330 vertical mount exhaust dami	ISOLATORS, PER
EF-2	SQ-160-B	Greenheck	EXHAUST	174.7	1066	50.0 Pa	0.50	6.2	115	1	898	C/W FACTORY SUPPLIED DIS DISCONNECT SWITCH AND I	CONNECT SWITCH, PROVIDE VIBRATION 3D-330 VERTICAL MOUNT EXHAUST DAMI	ISOLATORS, PER
				LOUY	VRE SCHE	DULE							GAS SCHEDULE	
TAG	WxH (mm)	FLOW RATE (CFM)	FREE AREA (SQ.N	A) FREE AREA VELOCITY (M/S)	PRESSURE DROP (Pa)		MANUFACTURER	& model (basis of design: pr	ICE)			ITEM	DESCRIPTION	GAS LOAD (CFH)
I.V-01			0.36	23	11			15° BLADE EXTRUED DRAINABLE	OUVRE			GWHT-1		199
LV-02/03	AS INDICATED	AS INDICATED	-	-	-	PRICE MODEL:	ICE MODEL: DE445M, 100MM DEEP 45° BLADE EXTRUED DRAINABLE LOUVRE.					B-1	GAS BOILER	398
- ,												-	BUILDING GENERATOR	3180
												BBQ		200
													TOTAL GAS LOAD:	3977
							_						PRESSURE:	7-14" WC.
				ELECTRIC	HEATER S	CHEDULE								
TAG #	WATTS	ELECTRICAL			MANUFA	CTURER & MODE	el (Basis of Design: Ol	JELLET)						
EH-1,2,3	2000	208/1/60	OUELLET MODEL# FACTORY SUPPLY	OAC02008-T FAN HE DISCONNECT SWITCI	ATER C/W SURFAC	e mounting box	X, STANDARD WHITE CC	DLOUR, BUILT-IN THERMOSTAT W	'ITH KNOB CON'	TROL,				
		BI	LADDER W	ELL TANK	& EXPANS		IK SCHEDUL	E						

TAG	LOCATION	SERVICE TYPE	TANK VOLUME (L)	ACCEPTANCE VOLUME (L)	WEIGHT (KG)	MIN PRESSUE (KPa)	MAX PRESSURE (KPa)	MANUFACTURER (BASIS OF DESIGN: AMTROL / WELL-X-TROL )
ET-1	MECH ROOM 27	DHW EXPANSION TANK	2000	2000	680	207	414	WELL-X-TROL MODEL:WX-457C
ET-2	MECH ROOM 27	HYDRONIC GLYCOL	24	12	-	34	1034	AMTROL AX-10DD
ET-3	MECH ROOM 27	HYDRONIC HOT WATER	24	12	-	34	414	AMTROL AX-10DD

# AIR SEPERATOR SCHEDULE

TAG	LOCATION	RATED FLOW RATE (L/S)	STRAINER SCREEN FREE AREA (SQ. CM)	WEIGHT (KG)	MANUFACTURER (BASIS OF DESIGN: ARMSTRONG )
AS-1/2	AS INDICATED	4.0	258	32	ARMSTRONG MODEL: VAS-2 AIR SEPARATOR, 1104 KPA MAX WORKING PRESSURE, CAST IRON SHELL, STAINLESS STEEL MESH STRAINER, NON ASBESTOS GASKET

REFER	DESCRIPTION
(VC-) (VC-2)	BARRIER FREE/NON BARRIER FREE FLOOR MOUNTED, FLUSH VALVE WATERCLO
(L-1) (L-2)	BARRIER FREE/NON BARRIER FREE WALL HUNG LAVATORY
(U-1)	WALL-HUNG, FLUSH VALVE URINAL
(SH-1)	SHOWER
MV	MIXING VALVE
(S-1)	DOUBLE COMPARTMENT SINK
(S-2)	HANDWASH BASIN
(S-3)	LAUNDRY SINK
(5-3A)	LAUNDRY SINK
(JS-1)	JANITOR'S SINK
FD, FFD, HD, TD	FLOOR DRAIN, FUNNEL FLOOR DRAIN, HUB DRAIN & TRENCH DRAIN
TSP	TRAP SEAL PRIMER
NFHB	NON FREEZE HOSE BIBB
Н/С НВ	HOT & COLD WATER HOSE BIBB
-	WASHING MACHINE/COMMERCIAL DISHWASHER
-	DECONTAMINATION WASHING MACHINE
NOTES: 1 - TO MIX 2 - ONE PE	ING VALVE. 19Ø (3/4''Ø) TEMPERED WATER TO FIXTURE ER FLOOR DRAIN, FUNNEL FLOOR DRAIN AND HUB DRAIN

PLUMBING FIXTURE CONNECTION SCHEDULE

	SANITARY	SANITARY VENT	DHWS	DCWS	TEMPERED
OSET	75Ø (3''Ø)	38Ø (1-1/2"Ø)	-	25Ø (1"Ø)	
	32Ø (1-1/4"Ø)	32Ø (1-1/4"Ø)	13Ø <sup>1</sup> (1/2"Ø)	13Ø <sup>1</sup> (1/2"Ø)	19Ø (3/4"Ø)
	50Ø (2"Ø)	38Ø (1-1/2"Ø)	-	19Ø (3/4"Ø)	
	-	38Ø (1-1/2"Ø)	13Ø (1/2"Ø)	13Ø (1/2"Ø)	_
	-	-	13ø (1/2"ø)	13Ø (1/2"Ø)	19Ø (3/4''Ø)
	38Ø (1-1/2"Ø)	32Ø (1-1/4"Ø)	13Ø (1/2"Ø)	13Ø (1/2"Ø)	
	32Ø (1-1/4"Ø)	32Ø (1-1/4"Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	
	38Ø (1-1/2"Ø)	32Ø (1-1/4"Ø)	13ø (1/2"ø)	13Ø (1/2"Ø)	
	38Ø (1-1/2"Ø)	32Ø (1-1/4"Ø)	13ø (1/2"ø)	13Ø (1/2"Ø)	
	75Ø (3"Ø)	38Ø (1-1/2"Ø)	13Ø (1/2"Ø)	13Ø (1/2"Ø)	
	75Ø (3"Ø)	38Ø (1-1/2"Ø)	-	9Ø (3/8"Ø)	
	-	-	-	9Ø 2 (3/8"Ø)	
	-	-	-	19Ø (3/4"Ø)	
	-	-	19Ø (3/4"Ø)	19Ø (3/4"Ø)	
	75Ø (3"Ø)	38Ø (1-1/2"Ø)	13Ø (1/2"Ø)	13Ø (1/2"Ø)	
	75Ø (3"Ø)	38Ø (1-1/2"Ø)	25Ø (1"Ø)	25Ø (1"Ø)	

![](_page_97_Figure_11.jpeg)

![](_page_98_Picture_0.jpeg)

# **Township of Wainfleet** Fire and Emergency Services Central Station

42143 Highway #3, Wainfleet ON

![](_page_98_Picture_3.jpeg)

![](_page_98_Picture_4.jpeg)

15 FOUNDRY STREET, DUNDAS, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com

![](_page_98_Picture_8.jpeg)

### Electrical - Mantecon Partners Inc

E0-000	TITLE PAGE
E0-001	GENERAL NOTES
E1-000	ELECTRICAL SITE PLAN
E2-100	GROUND FLOOR POWER PLAN
E2-110	GROUND FLOOR LIGHTING PLAN
E2-120	GROUND FLOOR FIRE ALARM PLAN
E2-130	PA, MOBILE PHONE REPEATER, WIFI REPEATER
E3-000	POWER RISER DIAGRAM
E3-100	FIRE ALARM RISER DIAGRAM
E4-000	PANEL SCHEDULES
E5-000	ELECTRICAL DETAILS
E5-100	ELECTRICAL DETAILS
E5-110	ELECTRICAL DETAILS - COMMUNICATIONS
E5-120	ELECTRICAL DETAILS - LIGHTING CONTROLS
E5-130	ELECTRICAL DETAILS - LIGHTING CONTROLS
E5-140	ELECTRICAL DETAILS - LIGHTING CONTROLS
E5-150	ELECTRICAL DETAILS - LIGHTING CONTROLS
E5-160	ELECTRICAL DETAILS - LIGHTING CONTROLS
E5-170	ELECTRICAL DETAILS - LIGHTING CONTROLS
E5-180	ELECTRICAL DETAILS - LIGHTING CONTROLS

STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS

GENERAL NOTES	
1. DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. <b>OBTAIN ALL DIMENSIONS FROM</b> <b>ARCHITECTURAL PLANS</b> , MANUFACTURER'S SHOP DRAWINGS, AND ON SITE INSPECTIONS.	

- 2. PRIOR TO INSTALLATION OF BOXES IN WALLS, VERIFY THAT NO INTERFERENCES EXIST. CHECK ARCHITECTURAL PLANS AND ELEVATIONS.
- 3. MECHANICAL AND ELECTRICAL TRADES SHALL WORK IN CONJUNCTION WITH ONE ANOTHER SO AS TO AVOID INTERFERENCES BETWEEN PIPING, DUCTWORK, CONDUIT, LIGHTING FIXTURES, ETC.
- 4. WORK IN CONJUNCTION WITH ARCHITECTURAL REFLECTED CEILING PLAN WHEN LOCATING LIGHT FIXTURES.
- 5. REVIEW ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS AND PROVIDE ON SITE INSPECTIONS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
- 7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ONTARIO BUILDING CODE, ONTARIO ELECTRICAL SAFETY CODE AND THE LOCAL AUTHORITIES REQUIREMENTS.
- 8. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION WITH THE WORK OF OTHER TRADES. PROVIDE HORIZONTAL AND/OR VERTICAL OFFSETS AS REQUIRED TO SUIT THIS COORDINATION.
- 9. REFER TO THE ARCHTECTURAL DRAWINGS FOR ALL WIRING DEVICE FINAL HEIGHT AND LOCATION.
- 10. ELECTRICAL SWITCHES, OUTLETS, PUSH-BUTTONS ETC. SHALL COMPLY WITH ACCESSIBILITY FOR ONTARIANS WITH DISABILITES ACT (AODA) FOR MOUNTING HEIGHTS AND LOCATION WHERE APPLICABLE.
- 11. ALL COMMUNICATION CABLING SHALL BE PROVIDED BY ELECTRICAL C/W CONDUIT, DATA JACKS, AND FACE PLATES FOR A COMPLETE INSTALLATION.
- 12. ALL DOOR CARD ACCESS HARDWARE DEVICES ONLY SHALL BE SUPPLIED "BY OTHERS". ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRING, CONDUIT ROUGH-IN, AND INSTALLATION.
- 13. ALL WASHROOM HARDWARE DEVICES, CONDUIT AND WIRING SHALL BE SUPPLY AND INSTALLED TO BY THE ELECTRICAL CONTRACTOR. ENSURE A COMPLETE FUNCTIONING SYSTEM.
- EXIT SIGNS SHALL BE GREEN, EDGE-LIT, "RUNNING-MAN" PICTOGRAM C/W LED LIGHT SOURCE, ALUMINUM HOUSING, AND UNIVERSAL MOUNTING. WHERE HIGH CEILING EXIST PROVIDE A PENDANT MOUNT SUSPENDED FROM A THREADED ROD OR EMT CONDUIT AT THE HEIGHT SPECIFIED.
- 14. ALL INTERIOR RECEPTACLE OUTLETS, LIGHT SWITCH BACKBOX, INCLUDING CONDUITS SHALL BE "CONCEALED" WITIN THE WALL STRUCTURE. FOR FIRE RATED WALLS/CEILING PROVIDE HILTI - FIRE BLOK PRODUCT TO MAINTAIN THE WALL FIRE RATING.
- 16. ALL EXTERIOR OUTLET BOXES TO BE "CONCEALED" AND SHALL COME WITH VAPOUR BARRIER CHAMBER TO PREVENT AIR LEAKAGE.
- 17. ELECTRICAL CONTRACTOR SHALL PROVIDE BALANCED PHASING (A,B,C) FOR ALL EQUIPMENT PANEL LOADS, ADJUST BREAKER SCHEDULES AS REQUIRED. 18. ALL AUDIO/VISUAL EQUIPMENT AND WIRING SHALL BE DONE BY THE A/V CONSULTANT (MOUNTAIN
- AUDIO). 19. ALL COAXIAL CABLE T.V. WIRING, CONDUIT, BOX ROUGH-IN, FACEPLATE AND COAXIAL JACK TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- 20. PROVIDE ALL IP CAMERAS WITH CAT6E WIRING AND CONDUIT. CABLE RUN SHALL NOT EXCEED 300FT WITHOUT PROVIDING A SIGNAL REPEATER. COORDINATE WITH THE SECURITY CONTRACTOR BEFORE INSTALLATION.
- 21. ALL WIRING SHALL BE A MINIMUM #12 AWG IN CONDUIT SUITABLE FOR THE APPLICATION. AC90 (BX) IS ALLOWED HOWEVER LIMITED TO 5 FEET MAXIMUM.
- 22. PROVIDE FIRE-STOP MATERIAL AS REQUIRED.

NOTE: READ IN CONJUNCTION WITH ALL SPECIFICATIONS.

OWNERS/CONTRACTOR EQUIPMENT SCHEDULE		
READ IN CONJUNCTION AND COO	DRDINATE WITH ARCHITECTURAL CONTRACT DOCUMENTS.	
EQUIPMENT/ MATERIALS	SCOPE	
TELEVISION/MONITORS	OWNER SUPPLIED, CONTRACTOR INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
OFFICE EQUIPMENT TELEPHONES, COMPUTERS, PRINTERS, ETC.	OWNER SUPPLIED, CONTRACTOR INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
TRAINING ROOM PROJECTOR	OWNER SUPPLIED, CONTRACTOR INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
TRAINING ROOM SOUND SYSTEM	OWNER SUPPLIED, CONTRACTOR INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
BUILDING PUBLIC ADDRESS SYSTEM AND RADIO INTERFACE	CONTRACTOR SUPPLIED & INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
COMMUNICATION RADIOS	OWNER SUPPLIED & INSTALLED. CONTRACTOR TO ALLOW OWNERS COMMUNICATIONS DESIGNATED CONTRACTOR TO INSTALL COMMUNICATIONS ANTENA AND CABLING DURING CONSTRUCTION, 1 APPARATUS BAY RADIO DESK 2 ADMIN AREA RADIO ROOM.	
IT WIRING AND CABLING	CONTRACTOR SUPPLIED & INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
IT SERVERS AND RACK	OWNER SUPPLIED & INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
SURVEILLANCE SYSTEM CAMERAS	OWNER SUPPLIED, CONTRACTOR INSTALLED INCLUDING MATERIALS AND DATA AND POWER CABLING.	
DOOR ACCESS CONTROL SYSTEM	CONTRACTOR TO SUPPLY AND INSTALL DOOR ACCESS CONTROL SYSTEM INSTALL KT400 DOOR ACCESS CONTROL MODULE, ELECTRIC STRIKES, CARD READERS ALL WIRING AND ANCILLARY SUPPORTS TO THE SYSTEM. ELECTRIC STRIKE AND CARD READERS ON DOORS: D1-02, D8-02, D24-02, D20-06, D20-09, D6-01, D3-01, D28-01 & D8-03.	
ALARM SYSTEM	CONTRACTOR TO SUPPLY AND INSTALL ALARM SYSTEM INSTALL DSC NEO CONTROL PANEL, KEY PADS AND ALL WIRING AND ANCILLARY SUPPORTS TO THE SYSTEM. KEY PAD ON DOORS D1-02, D8-02, D24-02, D20-06	

LEGEND - LIGHTING SYSTEM		
THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
SYMBOL	DESCRIPTION	
	2'x2' FIXTURE	
	2'x4' FIXTURE	
	1'x4' FIXTURE	
	2' STRIP FIXTURE	
	4' STRIP FIXTURE	
	8' STRIP FIXTURE	
<u> </u>	2' STRIP FIXTURE - WALL	
	4' STRIP FIXTURE - WALL	
	8' STRIP FIXTURE - WALL	
0	POTLIGHT	
¢	PENDANT	
Ŷ	WALL SCONCE	
	TRACK LIGHT	
X	BOLLARD LIGHT	
\$	1-GANG SWITCH	
\$	2-GANG SWITCH	
\$ <sub>D</sub>	DIMMER SWITCH	
\$ <sub>D</sub>	2-GANG DIMMER SWITCH	
\$3	3-WAY SWITCH	
\$3	3-WAY DIMMER SWITCH	
\$ \$	LOW VOLTAGE SWITCH	
\$	SWITCH WITH MOTION SENSOR	
V.	TIME CLOCK	
PC	PHOTOCELL	
	2'x2' EMERGENCY FIXTURE	
	2'x4' EMERGENCY FIXTURE	
	1'x4' EMERGENCY FIXTURE	
	EMERGENCY POT LIGHT	
Å	POLE MOUNTED LIGHT	
¢OS	MOTION SENSOR (PIR) - LINE VOLTAGE, 20MIN DELAY, DUAL RELAY	
¢OS	MOTION SENSOR (PIR) - BI-LEVEL DIMMING, 20MIN DELAY, DAYLIGHT	
\$OS	MOTION SENSOR (DUAL PIR/ULTRASONIC), 20MIN DELAY, DUAL RELAY	

# LEGEND - EMERGENCY SYSTEM

STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
REFER	DESCRIPTION	
$\overline{\mathbf{\otimes}}$	EXIT SIGN - SINGLE FACE - CEILING	
$\overline{\mathbf{A}}$	EXIT SIGN - SINGLE FACE - WALL	
<u></u>	EXIT SIGN - SINGLE FACE DIRECTIONAL - CEILING	
<b>E</b>	EXIT SIGN - DOUBLE FACE DIRECTIONAL - CEILING	
Š. Š.	EXIT SIGN SELF-POWERED W/ REMOTE HEADS -	
•~	SINGLE REMOTE HEAD - CEILING	
••	DOUBLE REMOTE HEADS - CEILING	
_ <b>P</b>	SINGLE REMOTE HEAD - WALL	
••	DOUBLE REMOTE HEADS - WALL	
	BATTERY PACK W/ DOUBLE REMOTE HEADS -	
	BATTERY PACK - WALL	
•=•	BATTERY PACK W/ DOUBLE REMOTE HEADS -	
	CEILING	

## LEGEND - A/V SYSTEM

THIS LEGEND OF SYMBOLS REPRESENTS MANTECO STANDARD LEGEND. ALL SYMBOLS MAY NOT APPE		
REFER	DESCRIPTION	
	Sound system speaker	
Μ	Sound system microphone ou	
AV	A/V JUNCTION BOX	

# THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC.

![](_page_99_Picture_33.jpeg)

LEGEND - FIRE ALARM SYSTEM		
THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS		
REFER	DESCRIPTION	
$\oplus$	HORN - CEILING	
	HORN AND STROBE - CEILING	
	Horn and Strobe - Wall	
-(‡)-	STROBE - CEILING	
	PULLSTATION	
$\mathbf{T}$	SMOKE DETECTOR - CEILING	
	DUCT SMOKE DETECTOR	
	HEAT DETECTOR - CEILING	
0	CARBON MONOXIDE - CEILING	
	FIRE ALARM/ANNUNCIATOR PANEL	
□ <sub>PS</sub>	PRESSURE SWITCH	
□ <sub>FS</sub>	FLOW SWITCH	
	SUPERVISORY VALVE	

# LEGEND - POWER SYSTEM

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
REFER	DESCRIPTION	
$\oplus$	DUPLEX RECEPTACLE	
¢	SPLIT RECEPTACLE	
$\ominus$	SINGLE RECEPTACLE	
∉	QUAD RECEPTACLE	
$\bigcirc$	DUPLEX RECEPTACLE - FLOOR MOUNTED	
$\bigoplus$	QUAD RECEPTACLE - FLOOR MOUNTED	
Ф	DUPLEX RECEPTACLE - CEILING MOUNTED	
۲	DIRECT CONNECTION	
Ц	NON FUSED DISCONNECT SWITCH	
	FUSED DISCONNECT SWITCH	
	NON-FUSED DIRECT CONNECTION	
Ę	MOTOR NON FUSED DISCONNECT	
$\langle \rangle$	MOTOR	
	POWER JUNCTION BOX	
D PP	POWER PACK	
\$	SPEED SWITCH	
R	RELAY	
	ELECTRICAL PANEL	
ТТ	GROUND BAR	
DMM	DIGITAL MULTI METER	
	GROUND ROD	

# LEGEND - COMMUNICATIONS

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON

REFER	DESCRIPTION
$\bigtriangledown$	DATA OUTLET
▼	TELEPHONE OUTLET
$\forall \uparrow$	DATA OUTLET - CEILING
$\mathbf{\nabla}$	TELEPHONE AND DATA OUTLET
$\downarrow$	COAXIAL OUTLET
WF	WIFI REPEATER
PA	PUBLIC ADDRESS HEAD END
PA	CEILING MOUNTED SPEAKER
PA	WALL MOUNTED SPEAKER

# LEGEND - INTERCOM SYSTEM

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS		
REFER	DESCRIPTION	
$\mathbf{\nabla}$	INTERCOM SYSTEM SPEAKER C/W WALL SWITCH	
VC	INTERCOM SYSTEM SPEAKER C/W REMOTE WALL SWITCH	
<b>V</b> E	INTERCOM SYSTEM SPEAKER EMERGENCY CALL STATION	
<b>V</b> H	INTERCOM SYSTEM HANDSET	
VT	INTERCOM SYSTEM SPEAKER MASTER TELEPHONE STATION	
$\bigcirc$	INTERCOM SYSTEM SPEAKER	
H	INTERCOM SYSTEM SPEAKER	
	INTERCOM SYSTEM HORN SPEAKER	
HE	INTERCOM SYSTEM HORN SPEAKER EMERGENCY STATION	

# LEGEND - ABBREVIATION

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
REFER	DESCRIPTION	
R	REMOVE	
ER	EXISTING TO BE RELOCATED	
EX	EXISTING TO REMAIN	
NL	NIGHT LIGHT	
WP	WATER-PROOF	
ADO	AUTOMATIC DOOR OPENER	
HD	HAND DRYER	
С	COUNTER MOUNTED DEVICE	
MW	MICROWAVE	

### LEGEND-SINGLE LINE DIAGRAM

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
REFER	DESCRIPTION	
$\sim$	BREAKER	
	FUSED DISCONNECT SWITCH	
0	SWITCH	
	FUSE	
*	DRAWOUT BREAKER	
X	METER SOCKET	
$\square$	TRANSFORMER	
⊥ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	TRANSFORMER	

# LEGEND - SECURITY SYSTEM

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS	
REFER	DESCRIPTION
DL	ELECTRIC STRIKE/ ELECTRIC LOCK
CR	CARD READER
	DOOR CONTACT
	MAGLOCK
	PUSH BUTTON
⇒ <sup>MS</sup>	MOTION SENSOR - CEILING
JB	SECURITY JUNCTION BOX
	SECURITY PANEL
$\bigtriangledown$	SECURITY INTERCOM
	SECURITY CAMERA
KP	SECURITY KEY PAD

### LOCAL CONTROL RESTRICTED TO MA ROOM TYPE APPARATUS BAY KITCHEN JTILITY & MAINTENANCE ROOM TRAINING • BREAK ROOM • STORAGE ROOM CORRIDOR (SERVICE ROOM) • OFFICE/MEETING ROOM • WASHROOMS STAIRWELL

NOTE: 1. COMPLY WITH OBC AND ASHRAE 90.1 TABLE 9.6.1 LATEST EDITIONS. 2. BASIS OF DESIGN LIGHTING CONTROL SYSTEM IS LUTRON VIVE WIRELESS.

LIGI	HT FIXTURE SCHEDULE		
NOTES: 1. CONT	RACTOR AND FIXTURE SUPPLIER ARE RESPONSIBLE TO PROVIDE ALL PLASTER AN	d finishing fr.	AMES,
		LE.	
TYPE	DESCRIPTION	LAMPS	MTG
COMMON AREA	2'X2' RECESSED LED FROSTED LENSED CENTRE BASKET TROFFER, C/W 3500K, 0-10V DRIVER, UNV VOLTAGE, WHITE FINISH. METALUX: CAT No: 22CZ2-44-UNV-S-L935-CD1-U DAY BRITE CAT No. 2FG-G-38L-835-2-DS-UNV-DIM COLUMBIA CAT No. 1CAT22-35-VL-G-ED1-U BJ TAKE CAT No. BLRT-2X2-4L-8-35-UNV	LED 3800-4400LM 40W	APPROX. 2450mm AFF REFER TO ARCH DETAIL
A1	2'X4' RECESSED LED FROSTED LENSED CENTRE BASKET TROFFER, C/W 3500K, 0-10V DRIVER, UNV VOLTAGE, WHITE FINISH.	LED	APPROX. 2450mm AFF
COMMON AREA	METALUX: CAT No: 22CZ2-55-UNV-S-L935-CD1-U DAY BRITE CAT No. 2FG-G-54L-835-4-DS-UNV-DIM COLUMBIA CAT No. LCAT24-35-ML-G-ED1-U BJ TAKE CAT No. BLRT-2X4-5L-8-35-UNV	40W	ARCH DETAIL
D	4-INCH ROUND LED DOWNLIGHT, C/W 3500K, MEDIUM DISTRIBUTION, 0-10V DRIVER, UNV VOLTAGE, SPECULAR REFLECTOR, WHITE TRIM RING	LED 2000LM	APPROX. 2450mm AFF REFER TO
COMMON ARE/	PORTFOLIO CAT No: LD4B-20-D010-EU4B-1020-80-35-4LB-M-0-LI CALCULITE CAT No. 4R-N-C4L-20-8-35-M-Z10-U-C4-R-DL-CL PRESCOLITE CAT No. LTR-4RD-H-ML-20L-DM1-LTR-4RD-T-ML-35K-8-MD-S-WT LUM-TECH CAT No. LEDH-CFK4-23-8-35-UZTD-LEDT-R44-WH	20₩	ARCH DETAIL
D1	2-INCH ROUND LED DOWNLIGHT, C/W 3500K, MEDIUM DISTRIBUTION, 0-10V DRIVER, UNV VOLTAGE, SPECULAR REFLECTOR, WHITE TRIM RING	LED 1000LM	APPROX. 2450mm AFF REFER TO
COMMON ARE/	PORTFOLIO CAT No: LD2B-5-D010-EU2B-0510WFL55-80-35-2LB-D-1-LI CALCULITE CAT No. C2R-DL-09-9-35-FL-UPZU-C2R-DL-CD PRESCOLITE CAT No. D2LED-DM01-2D9LED-9L-35K-8-WFL45-SS-WT LUM-TECH CAT No. DLED-9521-TML-112R-ST-10-8-35-UZTD-SI-WH-W	10₩	ARCH DETAIL
D2 NOODINO	<ul> <li>4-INCH ROUND LED DOWNLIGHT, C/W 3500K, MEDIUM DISTRIBUTION,</li> <li>0-10V DRIVER, UNV VOLTAGE, SPECULAR REFLECTOR, WHITE TRIM RING, WET RATED.</li> <li>PORTFOLIO CAT No: LD4B-10-D010-EU4B-1020-80-35-4LB-M-0-LI</li> <li>CALCULITE CAT No. 4R-N-C4L-10-8-35-M-Z10-U-C4-R-DL-CL</li> <li>PRESCOLITE CAT No. LTR-4RD-H-ML-10L-DM1-LTR-4RD-T-ML-35K-8-MD-S-WT</li> <li>LUM-TECH CAT No. LEDH-CFK4-14-8-35-UZTD-LEDT-R44-WH</li> </ul>	LED 1000LM 10W	REFER TO ARCH DETAIL
Η	ROUND LED HIGH BAY, C/W 4000K,0-10V DRIVER, UNV VOLTAGE, CLEAR REFLECTOR METALUX CAT No: UHB-18-UNV-L840-CD-U-CLR	LED 20.0001M	REFER TO ARCH DETAIL
HIGH BAY	DAY BRITE CAT No. HCY-21L8CST-UN3-DIM-HCY-PRSM GE CURRENT CAT No. LPS-0-22-06-8-40-V-R1-WHITE-93099795 PREMISE CAT No. HBX2-150-4-1-HBX2-REF-PC	150W	
Service/storage	4-FOOT LED STRIP LIGHT, C/W 4000K, 0-10V DRIVER, UNV VOLTAGE, FROSTED LENS AND WIRE GUARD. METALUX CAT No: 4SNLED-LD5-44SL-UNV-L840-CD-1-U DAY BRITE CAT No. FSS-4-840-UNV-DIM-FSSWG4 COLUMBIA CAT No. MPS-4-40-LW-F-W-ED1-U-MPSG4 BJ TAKE No. BLSP-S-4-4.5-8-40-UNV-L18-G1	LED 4500LM 30W	REFER TO ARCH DETAIL
V	4-FOOT LED VAPOUR TIGHT STRIP LIGHT, C/W 4000K, 0-10V DRIVER, UNV VOLTAGE, FROSTED LENS AND WET LISTED.	LED	APPROX.
HAZARD	DAY BRITE CAT No. V3W-4-840-UNV-DIM-SSL BJ TAKE No. BLV-S-4-4.5-8-40-UNV-L64	4000LM 32W	REFER TO ARCH DETAIL
Х	LED WALL PACK, C/W 4000K, 0-10V DRIVER, UNV VOLTAGE, TYPE IV DISTRIBUTION	LED	PHOTOMETRIC
OUTDOOR	Gallon Wall CAI No: GWC-SA2C-740-U-T4FT GARDCO CAT No. 121-32L-530-NW-G4-4-UNV-DD RATIO CAT No. RFL3-90L-50-4K7-M-UNV-K LUMECON CAT No. LDS-LFC-60-*-T4-1-WM	7200LM 60W	study required Pending Approval

### LIGHTING ZONES CONTROL

ANUAL 'ON'	<b>BI-LEVEL DIMMING</b>	DAYLIGHT SENSOR	SCHEDULE SHUTOFF	AUTOMATIC FULL OFF
	•	•		•
	•			•
				•
	•	•		•
				•
				•
	•			•
	•	•		•
				•
	•			•

![](_page_99_Figure_53.jpeg)

![](_page_100_Figure_0.jpeg)

	BUG Rating	Arrangement	Lum. Lumens	Lum. Watts	Arr. Watts	Pro-rate	LLD	LDD	Total LLF*	Filename
)	B2-U0-G3	SINGLE	14850	113	113	1.000	0.960	0.950	0.912	GWC-SA2C-740-U-T4FT.ies
	B2-U0-G3	SINGLE	14763	113	113	1.000	0.960	0.950	0.912	GWC-SA2C-740-U-SL3.ies
)	B2-U0-G3	SINGLE	14850	113	113	1.000	0.960	0.950	0.912	GWC-SA2C-740-U-T4FT.ies
)		SINGLE	5800	51.6			0.960	0.950	0.912	

5	# Pts	Avg	Max	Min	Avg/Min	Max/Min
	361	14.67	77	1	14.67	77.00

![](_page_100_Figure_3.jpeg)

[MANUFA	.C ]			
COOPER	LIGHTING	SOLUTIONS	-	McGRAW-EDISO
COOPER	LIGHTING	SOLUTIONS	-	McGRAW-EDISO
COOPER	LIGHTING	SOLUTIONS	-	McGRAW-EDISO
COOPER	LIGHTING	SOLUTIONS	-	HALO OUTDOOR

![](_page_101_Figure_0.jpeg)

![](_page_101_Figure_1.jpeg)

1 TERMINATE COMMUNICATIONS AND SPEAKERS CABLING IN IT ROOM.

	_	SSLIED FOR 60% REVIEW	SSUED FOR PROGRESS	SSUED FOR COUNCIL APPROVAL											
	•	1 19/05/21	2 18/08/21	3 24/08/21											
													I		
					TNFRS		CAL ELECTRICAL CIVIL	EERS		des ON 19H 2V6	/w.manteconpartners.com				
					PAR		structural mechanic	ENGINE		15 Foundary Stread Due	rnone: (703)040-03/3 ww				
				LE XO X L	MUNITEEL				PI AN				F		-
			Services Central Station	Township of Wainfleet	42143 Highway #3, Wainfleet ON				GROUND FLOOR POWER						
		:37:20 PM	ATED	50			DNSTRUCTION UNTIL SEALED		ALL DRAWINGS AND DESIGNS	SINEER, AND ARE PROTECTED		UESIGN PROFESSIONAL HAS ERE ARE NO	E BY THE DESIGN	D A CONTRACT.	
L	C.S.	2021-08-24 4	AS INDIC/	21-02	A.Z	-	FOR CO			THE ENG	S ARE PRE		KIND MADE	ITERED INT	
	DRAWN BY: C.S.	DATE: 2021-08-24 4	SCALE: AS INDICA	PROJECT NO.: 21-02	CHECKED:	-	DRAWINGS ARE NOT VALID FOR CC		DO NOT SCALE DRAWINGS. REPOR ENGINEER BEFORE PROCEEDING.	REMAIN THE PROPERTY OF THE ENC UNDER COPYRIGHT.	THESE DESIGN DOCUMENTS ARE PRE	USE BY THE FAKTY WITH WHUM THE ENTERED INTO A CONTRACT AND TH	REPRESENTATIONS OF ANY KIND MADE	PROFESSIONAL HO ANT PAK IT WILL W PROFESSIONAL HAS NOT ENTERED INT	

![](_page_102_Figure_0.jpeg)

	EMERGENCY LIGHITNG 'HATCHED LUMINAIRE' = LUMINAIRE WITH INTERNAL BATTERY.
2	PROVIDE EMERGENCY BATTERY UNITS WITH 30 MINUTES RUN TIME CAT: STANPRO SLA 12-2L OR APPROVED EQUAL. REFER TO SPECIFICATION SECTION 26 08 16 FOR DETAILS.
3	EMERGENCY LIGHTING IS SUPPORTED BY THE CSA-282 COMPLIANT GENERATOR SET ON SITE.
4	PROVIDE PICTOGRAM GREEN RUNNING MAN TYPE EXIT SIGNS, LED LIGHT SOURCE SELF POWERED WITH INTERNAL BATTERY WITH 90 MINUTE EMERGENCY DURATION MINIMUM. NUMBER OF FACES AND ARROWS AS SHOWN IN DRAWINGS. REVIEW IN CONJUCTION WITH ARCHITECTURAL PATH OF EGRESS. ENSURE ALL EXIT SIGNS ARE IN BUILDING OCCUPANTS

PLAN Is Foundry Street, Dundas, ON, 19H 2V6 Is Foundry Street, Dundas, ON, 19H 2V6 Is Foundry Street, Dundas, ON, 19H 2V6 PLAN	Fire and Emergency Services Central Station Township of Wainfleet 2:13 Highway #3, wainfleet on 2:13 Highway #3, wainfleet on BRUCIDEAL MECHANICAL IELETERCAL ON IS Founds, ON, 19H 2V6 Phone: (905)6460373 Www.mannee.opminet.com	MNEX:       C4.         IE:       20:40:54:43:72 MM         IE:       20:40:54:43:72 MM         IE:       20:40:54:43:72 MM         MLE       20:40:54:43:72 MM         MLE       20:40:54:43:72 MM         MLE       20:40:54:72 MM         MLE       20:40:54:74:74:74:74:74:74:74:74:74:74:74:74:74	1         19/05/21         ISSUED FOR 60% REVIE	3 24/08/21 ISSUED FOR COUNCIL APPROVAL		
PLAN IS Foundry Street, Dunde Phone: (905)648.0373 www	Fire and Emergency Services Central Station Township of Wainfleet 243 Highway #3, Wainfleet ON A Manufleet ON A	MM BY:       Cs.       Cs.         IT:       It:       It:       It:         MM BY:       Cs.       It:       It:         IT:       It:       It:       It:       It:         MICE       It:       It:       It:       It:       It:         MICE       It:       It:       It:       It:       It:       It:         MICE       It:       It:       It:       It:       It:       It:       It:         MICE       It:		INERS	L ELECTRICAL CIVIL RS us, ON, 19H 2V6 .manteconpartners.com	-
	Fire and Emergency Services Central Station Township of Wainfleet 42143 Highway #3, Wainfleet ON GROUND FLOOR LIGHTING	AVN BY:       C.S.         TE:       C.S.         TE:       2021-08-24.4372.4 PM         Sentities and the sentities of the senties of the sentities of the senties of the sentities of t		PARI	PLAN ENGINEE 15 Foundry Street, Dunde Phone: (905)648-0373 www	_

![](_page_103_Figure_0.jpeg)

![](_page_103_Figure_1.jpeg)

1 INSTALL SMOKE DETECTORS AND Co DETECTORS AS PER CAN/ULC-S524 \$10 POL CEILING PEAK TYPE.

			3 24/08/21 ISSUED FOR COUNCIL APPROVAL	ARTNERS		ENGINEERS		eet. Dundas. ON. 19H 2V6	73 www.manteconpartners.com				
		Services Central Station	Township of Wainfleet	42143 Highway #3, Wainfleet ON	STRUCTURAL		GROUND FLOOR FIRE ALARM		PLAN (905)646				
DRAWN BY: C.S.	DATE: 2021-08-24 4:37:26 PM	SCALE: AS INDICATED	PROJECT NO.: 21-020	CHECKED: A.Z.	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ENGINEER		DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS	REMAIN THE PROPERTY OF THE ENGINEER, AND ARE PROTECTED UNDER COPYRIGHT.	THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE	USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO	REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN	PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.	
								2		12	20	)	

![](_page_104_Figure_0.jpeg)

1 REFER TO DRAWING E5-110 FOR PUBLIC ADDRESS, COMMUNICATIONS AND WIFI DIAGRAMS AND NOTES.

	19/05/21 ISSUED FOR 60% REVIEW 18/08/21 ISSUED FOR PROGRESS	24/08/21 ISSUED FOR COUNCIL APPROVAL						
	~ [~		[[ 				[[	
			]		-			
		NEDO		ELECTRICAL CIVIL	0N 19H 2V6	anteconpartners.com		
		AAM		structural mechanical engineers	15 Foundry Street Dundas	one: (905)648-0373 www.m		
	4					Pho		
			MINITER		EATER,		I	
	Fire and Emergency Services Central Station	Township of Wainfleet			PA, MOBILE PHONE REPE			
AZ.	2021-08-24 4:37:27 PM As INDICATED	21-020	W.C.	OR CONSTRUCTION UNTIL SEALED ER.	REPORT ALL DISCREPANCIES TO THE DING. ALL DRAWINGS AND DESIGNS THE ENGINEER, AND ARE PROTECTED	ARE PREPARED SOLELY FOR THE IOM THE DESIGN PROFESSIONAL HAS AND THERE ARE NO	KIND MADE BY THE DESIGN TY WITH WHOM THE DESIGN TERED INTO A CONTRACT.	
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			1		E2	-13	30	

OESC 8-002 and 8-210 (a) Basic Load	Table 14
Basic building load (kW)	43.59
OESC 8-210 (b) Special Loads	5
Mechanical Equipment	
Mechanical Equipment Electrical Load (kW)	75
Specialty Lighting - Site Area Exterior	Lighting
Site Lighting (kW)	20
IT Loads	
IT Electrical load (kW)	20
Fire Department Equipment	
Fire Department Equipment (kW)	75
Kitchen Loads	
Kitchen Appliances electrical loads (kW)	45
Total Building Load (kW)	278.59

![](_page_105_Figure_1.jpeg)

![](_page_105_Figure_2.jpeg)

MEZZ. LEVEL

GROUND FLOOR

## DRAWING NOTES:

1	<u>CSA-282 NOTE</u> : EMERGENCY LIGHTING, FIRE ALARM HEADEND, EMERGENCY LIGHTING AND EXIT SIGNAGE ARE ALSO CONNECTED TO BATTERY SYSTEMS. GENERATOR SET TO SUPORT LIFE SAFETY SYSTEMS AS NOTED.
2	LIFE SAFETY ATS NOTES: SUPPORTS EMERGENCY LIGHTING, FIRE ALARM HEADEND, EMERGENCY LIGHTING AND EXIT SIGNAGE ARE ALSO CONNECTED TO BATTERY SYSTEMS. GENERATOR ALSO SUPPORTS ALL ESSENTIAL LIFE SAFETY SYSTEMS AS NOTED. CARBON MONOXIDE AND EXTRACTION SYSTEM IN APPARATUS BAY. GAS GENERATOR IS MONITORED BY THE FIRE ALARM SYSTEM. INCOMING GAS SUPPLY TO MEET THE REQUIREMENTS OF CSA 282.
3	PROVIDE 6X4" CONCRETE ENCASED DUCTBANK (CEDB) FOR ELECTRIC UTILITY 'HYDRO' TRANSFORMER (XFMR).
4	PROVIDE HYRO XFMR PAD AND GROUNDING.
5	PROVIDE SECONDARY DUCT BANK FROM HYDRO XMFR TO SERVICE ENTRANCE CEDB 6X4".
6	PROVIDE CEDB FROM GENERATOR TO BUILDING 6X4".
7	PROVIDE 2X2" DIRECT BURIED CONDUITS FROM ELECTRICAL ROOM TO GENERATOR (POWER + CONTROLS/ FA MONITORING).
8	PROVIDE POWER CIRCUIT FOR GENERATOR BLOCK HEATER.
9	PROVIDE FIRE ALARM MONITORING CONNECTION FROM FIRE ALARM PANEL TO GENERATOR.
10	CONTRACTOR TO ALLOW FOR ALL BUILDING PENETRATION SLEEVES .

CONDUIT RUN SCHEDULE

WIRE SIZE	FEEDER DESCRIPTION	CONDUIT DESCRIPTION
15	3 COND. #12 COPPER + G	IN 3/4" CONDUIT
20	3 COND. #12 COPPER + G	IN 3/4" CONDUIT
20N	4 COND. #12 COPPER + G	IN 3/4" CONDUIT
1-20	2 COND. #12 COPPER + G	IN 3/4" CONDUIT
30	3 COND. #10 COPPER + G	IN 3/4" CONDUIT
30N	4 COND. #10 COPPER + G	IN 3/4" CONDUIT
1-30	2 COND. #10 COPPER + G	IN 3/4" CONDUIT
40	3 COND. #8 COPPER + G	IN 1" CONDUIT
40N	4 COND. #8 COPPER + G	IN 1" CONDUIT
1-40	2 COND. #8 COPPER + G	IN 1" CONDUIT
50	3 COND. #8 COPPER + G	IN 1" CONDUIT
50N	4 COND. #8 COPPER + G	IN 1" CONDUIT
1-50	2 COND. #8 COPPER + G	IN 1" CONDUIT
60	3 COND. #6 COPPER + G	IN 1" CONDUIT
60N	4 COND. #6 COPPER + G	IN 1" CONDUIT
1-60	2 COND. #6 COPPER +G	IN 1" CONDUIT
80	3 COND. #4 COPPER + G	IN 1-1/4" CONDUIT
80N	4 COND. #4 COPPER + G	IN 1-1/4" CONDUIT
1-80	2 COND. #4 COPPER + G	IN 1-1/4" CONDUIT
100	3 COND. #3 COPPER + G	IN 1-1/4" CONDUIT
100N	4 COND. #3 COPPER + G	IN 1-1/4" CONDUIT
1-100	2 COND. #3 COPPER + G	IN 1-1/4" CONDUIT
125	3 COND. #1 COPPER + G	IN 1-1/2" CONDUIT
125N	4 COND. #1 COPPER + G	IN 1-1/2" CONDUIT
150	3 COND. 1/0 COPPER + G	IN 2" CONDUIT
150N	4 COND. 1/0 COPPER + G	IN 2" CONDUIT
175	3 COND. 2/0 COPPER + G	IN 2" CONDUIT
175N	4 COND. 2/0 COPPER + G	IN 2" CONDUIT
200	3 COND. 3/0 COPPER + G	IN 2" CONDUIT
200N	4 COND. 3/0 COPPER + G	IN 2" CONDUIT
230	3 COND. 4/0MCM COPPER + G	IN 2" CONDUIT
230N	4 COND. 4/0MCM COPPER + G	IN 2-1/2" CONDUIT
250	3 COND. 250MCM COPPER + G	IN 2-1/2" CONDUIT
250N	4 COND. 250MCM COPPER + G	IN 2-1/2" CONDUIT
300	3 COND. 300MCM COPPER + G	IN 2-1/2" CONDUIT
300N	4 COND. 300MCM COPPER +G	IN 2-1/2" CONDUIT
350	3 COND. 350MCM COPPER + G	IN 4" CONDUIT
350N	4 COND. 350MCM COPPER + G	IN 4" CONDUIT
500	3 COND. 500MCM COPPER + G	IN 4" CONDUIT
500N	4 COND. 500MCM COPPER + G	IN 4" CONDUIT

	M-E SCHEDULE								
	LOCATION	PANELBOARD	DISCONNECT /STARTER	NOTES					
	MECH RM#27	RMP2	30A,3P	-					
	EXTERIOR	RMP2	70A,3P	-					
	EXTERIOR	RMP2	30A,2P	-					
	TRAINING ROOM	RMP1	15A,2P	-					
	KITCHEN	RMP1	15A,2P	-					
	LUNCH ROOM	RMP1	15A,2P	-					
	MEETING ROOM 4	RMP1	15A,2P	-					
	FIRE CHIEF OFFICE	RMP1	15A,2P	-					
	ADMINISTRATION	RMP1	15A,2P	-					
	DEPUTY CHIEF OFFICE	RMP1	15A,2P	-					
	PHYSICAL WELLNESS	RMP1	15A,2P	-					
	MAINTENANCE ROOM	RMP1	15A,2P	-					
	IT ROOM	RMP1	15A,2P	-					
	MECH RM#27	RMP2	15A,2P	-					
	MECH RM#27	RMP2	15A,1P	-					
	MECH RM#27	RMP2	15A,1P	-					
	TBC	TBC	TBD	PROVIDE VFD.					
	BARN STORAGE	TBC	TBC	NEMA 3R DISCONNECT REQUIRED.					
CTS	ARE PART OF MECHANIC	AL EQUIPMENT PA	CKAGE, DISCONNECTS 1	TO COMPLY WITH OESC.					
TART	ers as indicated by ma	NUFACTURER, CC	ORDINATE WITH MECHA	NICAL TRADE AND DRAWINGS (NEEDS TBC)					
ОИЛ	JNCTION WITH MECHAN	ICAL M-E SCHEDU	le and drawings						
DRA	DNJUNCTION WITH MECHANICAL M-E SCHEDULE AND DRAWINGS DRAWINGS AND SCHEDULES AND COORDINATE POWER REQUIREMENTS AND LOCATION OF EQUIPMENT.								
ANE	l schedules sheet and	COORDINATE ME	CHANICAL EQUIPMENT (	CIRCUIT INFORMATION.					
VIRE	and cable sizes in acc	CORDANCE WITH (	DESC. ALL CONDUCTORS	S TO BE COPPER.					

![](_page_105_Figure_10.jpeg)

![](_page_106_Figure_0.jpeg)

	FIRE ALARM ZONE SCHEDULE		
ZONE	DESCRIPTION	ALARM	TROUBLE
Z1	ZONE 1 - APPARATOR BAYS	۲	
Z2	ZONE 2 - OFFICE SPACE	۲	
Z3	ZONE 3 - BUNKER - SCBA - MAINTENANCE	۲	

 1
 LIFE SAFETY NOTES: FIRE ALARM SYSTEM HEADEND HAS INTEGRAL 3HRS BATERRY BACKUP.

 GENERATOR IS MONITORED BY THE FIRE ALARM SYSTEM.

 CARBON MONOXIDE AND EXTRACTION SYSTEM IN APPARATUS BAY.

 GAS GENERATOR MONITORED BY THE FIRE ALARM SYSTEM.

	_				
				ENTERED INTO A CONTRACT.	PROFESSIONAL HAS NOT
				NY KIND MADE BY THE DESIGN 24RTY WITH WHOM THE DESIGN	
				WHOM THE DESIGN PROFESSIONAL HAS ACT AND THERE ARE NO	
		Phone: (905)648-0373 www.manteconpartners.com		VITS ARE PREPARED SOLELY FOR THE	THESE DESIGN DOCUME
		15 Foundry Street, Dundas, ON, L9H 2V6			
				OF THE ENGINEER, AND ARE PROTECTED	
				CEEDING. ALL DRAWINGS AND DESIGNS	ENGINEER BEFORE PRO
				S. REPORT ALL DISCREPANCIES TO THE	DO NOT SCALE DRAWING
		ENGINEERS		INEER.	
				ID FOR CONSTRUCTION UNTIL SEALED	DRAWINGS ARE NOT VAL
		PARINFRS	42143 Highway #3, Wainfleet ON	ſſ	CHECKED:
3 24/08/21 ISSUED FOR COUNCIL APPROVAL			Township of Wainfleet	21-020	PROJECT NO .:
2 18/08/21 ISSUED FOR PROGRESS			Services Central Station	AS INDICATED	SCALE:
4 49/05/21 ISSUED ECD 60% DEVIEW			Fire and Emergency	2021-08-24 4:37:28 PM	DATE:
-				ſ	DRAWN BY:

Branch Panel: RP-1							<b>Branch Panel: RP-2</b>	2				
Location: Space 19 Supply From: Mounting: Surface Enclosure: Type 2		Volts: 120/20 Phases: 3 Wires: 4	8 Wye	A.I.C. Rating: 10 Mains Type: Mains Rating: 225 A MCB Rating:			Location: Mezz Sto Supply From: Mounting: Surface Enclosure: Type 2	orage 26	Volts: 120/20 Phases: 3 Wires: 4	3 Wye	A.I.C. Rating: Mains Type: Mains Rating: 100 A MCB Rating:	
lotes:						Notes:						
CKT Circuit Description	Trip Poles	АВ	C Poles	Trip Circuit Description	СКТ	СКТ	Circuit Description	Trip Poles	A B	C Poles	Trip Circuit De	scription
1 Storage Rm 23	20 A 1 1500	900 VA	1	20 A Apparatus Bay 20 - Pull Down Cord 1, 4,8	2	1 Ap	paratus Bay 20 - High Bay	20 A 1 1200	1200	1	20 A Apparatus Bay - High Bay	
3 Apparatus Bay 20 - Pull Down Cord 2, 3	20 A 1	600 VA 600 VA	A 1	20 A Apparatus Bay 20 - Pull Down Cord 5, 6	4	3 Lię	Jhting	20 A 1	480 VA			
5 Apparatus Bay 20 - Pull Down Cord, 9, 7	20 A 1	800 \/A	600 VA 1900 1	20 A Apparatus Bay 20 - GFI Recept.	6	5						
Apparatus Bay 20 - GFT Recept.	20 A 1 900 VA	1000 VA		20 A Apparatus Bay 20 - GFT Recept.	0	7 0						
11 SCBA 22 - Becent	15 A 1	1000 1500	. 2		12	9 11						
13 SCBA 22 - Count. Recept.	20 A 1 1200	1200	1000	20 A SCBA 22 - Count Recept.	14	13						
15 SCBA 22 - Washer	20 A 1	1200 1000	. 2	20 A SCBA 22 - Dryer	16	15						
17 Maintenance 21 - Recept.	20 A 1		1200 1000		18	17						
19 Maintenance 21 - Recept.	20 A 1 1200	1200	1	20 A Maintenance 21 - Recept.	20	19						
21 Maintenance 21 - Recept.	20 A 1	1200 1500	. 1	20 A Physical Wellness 18 - Recept	22	21						
23 Physical Wellness 18 - Recept	20 A 1		1500 1500 1	20 A Physical Wellness 18 - Recept	24	23						
25 Physical Wellness 18 - Recept	20 A 1 1500	1500	1	20 A Physical Wellness 18 - Recept	26	25						
27 Clean Recept	20 A 1	1500 180 V/	A 1	15 A Male Washroom - GFI Recept	28	27						
29 Washroom - Clean Recept	20 A 1	4500	2000 360 VA 1	15 A Female Washroom - GFI Recept	30	29						
31 Admin 5 - Recept	15 A 1 1000	1500	1	20 A Deputy Chief - Recept	32	31						
33 Clean Recept	20 A 1	2000 1000	. 1	20 A General Admin 2 - Recept	34	33						
37 General Admin 2 - Printer	20 A 1 1000	1500	1200 1200 1	15 A Fire Chief 3 - Recent	38	37						
30 Meeting Room Floor box 1	20 A 1 1000	1500	1	15 A Meeting Room Eloor Box 2	40	30						
41 Universal Washroom 11 - GEL Recent	15 A 1	1300 1300	300 \/A 1500 1	15 A Lunch rm 13 - Recent	40	41						
43 Kitchen 14 - Fridge	15 A 1 800 VA	800 \/A	300 VA 1300 1	20 A Kitchen 14 - Fridge	42	41						
45 Kitchen 14 - Microwave	20 A 1	1200 1380	. 1	20 A Kitchen 14 - Count Recept	46	45						
47 Kitchen 14 - Count Recept	15 A 1		2400 1380 1	20 A Kitchen 14 - Count Recept	48	47						
49 Training rm 15 - Floor Box	15 A 1 1000	1000	1	15 A Training rm 15 - Floor Box	50	49						
51 Training rm 15 - TV's	20 A 1	1000 2900	. 1	20 A Training rm 15 - Recept	52	51						
53 Bunker Gear 24, SBCA 22, Storage 23 - Lights	15 A 1		444 VA 1170 1	15 A M/F & Universal Washroom Lights	54	53						
55 Corridor	15 A 1 1080	817 VA	1	15 A Meeting Rm, Fire Chief - Lights	56	55						
57 Training Rm - Lights	20 A 1	1360			58	57						
59					60	59						
61					62	61						
63					64	63						
65					66	65						
67 60					68	60						
71					70	09 71						
	Total Load: 2239	4 \/A 24120 \/A	22652 \/A		12	11		Total Load: 240		0.VA		
	Total Amps: 18	7 A 201 A	189 A					Total Amps: 2	1 A 5 A	0 A		
Legend:						Legend:						
•												
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals		Load Clas	sification	Connected Load	Demand Factor	Estimated Demand	Panel	otals
Receptacle	61300 VA	58.16%	35650 VA			Other		2400 VA	100.00%	2400 VA		
Power	3000 VA	100.00%	3000 VA	Total Conn. Load: 69166 VA		Lighting		480 VA	100.00%	480 VA	Total Conn. Load:	2880 VA
lighting	4868 VA	100.00%	4868 VA	Total Est. Demand: 43516 VA							Total Est. Demand:	2880 VA
				I otal Conn.: 192 A							Total Conn.:	5 A 2 A
											iotal Est. Demand:	
Notes:						Notes:						
10105.						10163.						
						L						

ISUED FOR 60% REVIEW ISSUED FOR PROGRESS ISSUED FOR COUNCIL APPROVAL		
1         19/05/21           2         18/08/21           3         24/08/21		
PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com	
Fire and Emergency Services Central Station Township of Wainfleet 42143 Highway #3, Wainfleet	PANEL SCHEDULES	
JJ 2021-08-24 4:37:29 PM AS INDICATED 21-020 JJ	VALID FOR CONSTRUCTION UNTIL SEALED ENGINEER. WINGS. REPORT ALL DISCREPANCIES TO THE PROCEEDING. ALL DRAWINGS AND DESIGNS RTY OF THE ENGINEER, AND ARE PROTECTED UMENTS ARE PREPARED SOLELY FOR THE UMENTS ARE PREPARED SOLELY FOR THE WITH WHOM THE DESIGN PROFESSIONAL HAS NTRACT AND THERE ARE NO OF ANY KIND MADE BY THE DESIGN ANY PARTY WITH WHOM THE DESIGN NOT ENTERED INTO A CONTRACT.	
DRAWN BY: DATE: SCALE: PROJECT NO: CHECKED:	DRAWINGS ARE NOT AND SIGNED BY THE DO NOT SCALE DRAM ENGINEER BEFORE I ENGINEER BEFORE I REMAIN THE PROPEI UNDER COPYRIGHT. THESE DESIGN DOCI USE BY THE PARTY ENTERED INTO A CO REPRESENTATIONS PROFESSIONAL HAS	
	E4-000	




E5-000 N.T.S.

## 2 UNIVERSAL WASHROOM TYPICAL DETAIL E5-000 / N.T.S.





### NOTES:

1. MEBS ARE TO BE LOCATED AT EACH 600V AND 480V SWITCHBOARD. LEBS ARE TO BE LOCATED THROUGHOUT THE FACILITY AS NEEDED.







9. PROVIDE 1/4" (6mm) PULL ROPES IN EACH EMPTY DUCT.

128AYS.

- 10. CONCRETE ENVELOPE TO CONTAIN MAXIMUM 1/2" (12mm) DIA. AGGREGATE WITH A MINIMUM 3000PSI COMPRESSION RATING AFTER
- 11. ALL DUCT JOINTS ARE TO BE WATER TIGHT AND STAGGERED BY AT LEAST 8" (200mm).

## 3 DETAIL OF REINFORCED CONCRETE ENCASED DUCT BANK E5-100 N.T.S.



NOTES:

- 1. FOUNDATION TO BE PRECAST CONCRETE PAD. MANUFACTURER WILL DELIVER THE UNIT TO THE SITE.
- 2. COMPLETE THE EXCAVATION AND PROVIDE BEDDING CONSISTING OF MINIMUM 6" (150mm) LAYER OF THOROUGHLY COMPACTED CLEAR CRUSHED STONE.
- 3. PLACE BACKFILL CONSISTING OF CLEAN EARTH, SAND, OR PEA GRAVEL IN THOROUGHLY COMPACTED LAYERS.
- 4. PAD LOCATION TO BE KEPT CLEAR OF OBSTRUCTIONS FOR ACCESS BY HYDRO PERSONNEL OR EQUIPMENT.
- 5. TIE CABLE DUCTS INTO WALL OF FOUNDATION AT KNOCKOUTS AS SPECIFIED BY HYDRO PERSONNEL. INSTALL BELL ENDS ON PVC DUCTS.
- 6. REMOVE KNOCKOUT IN FLOOR TO ALLOW FOR DRAINAGE.
- 7. INSTALL 4-3/4" X 10'-0" (20mm X 3.0m) GROUND RODS AND MIN. 2/0 STRANDED COPPER GROUND WIRE.
- 8. REFER TO GROUNDING DETAIL,
- 9. CONTRACTOR WILL BE RESPONSIBLE FOR SEALING DUCT ENDS.
- 10. CORDINATE SCOPE WITH OWNER AND HYTRO.

2 DETAIL OF INSTALLATION OF PRECAST TRANSFORMER PAD E5-100 N.T.S.



1 DETAIL OF TRANSFORMER E5-100 N.T.S.



3 - 8" X 8'-0" (203mm X 2440mm) CHANNEL IRONS.

COPPER AMPACT OR EQUIVALENT.

4/0 CU. GROUND WIRE, 305mm BELOW GRADE.

1-1/2" (38mm) DIA. HOLES FOR GROUNDING.

TRANSFORMER PAD OUTLINE.

1 - 8" X 8'-0" (203mm X 2440mm) REMOVABLE CHANNEL RION.

10'-0" X 3/4" (3048mm X 19mm) STEEL GROUND RODS C/W AMPACT GROUND ROD CONNECTORS (TYPICAL FOR 4).

1. CONCRETE: 30MPa WITH 5-7% AIRE ENTRAINMENT 3-1/4" + 3/4" (80mm + 20mm) SLUMP & MAXIMUM WATER CEMENT RATIO TO BE

CS       CS         CS       ZX3:06.44.57.30 FM         ZX3:06.44.57.30 FM       CS         ZX3:06.44.57.30 FM       Erice and Emergency         ZX3:06.41.57.30 FM       Senotres         ZX3:06.41.57.30 FM       Senotres         ZX3:06.41.57.30 FM       Senotres         ZX3:06.41.57.57 FM       Senotres         ZX3:06       Senotres         Senotres       Senotres <th></th> <th>1         19/05/21         ISSUED FOR 60% REVIEW           2         18/08/21         ISSUED FOR PROGRESS</th> <th>3 24/08/21 ISSUED FOR COUNCIL APPROVAL</th> <th></th> <th></th> <th></th> <th></th>		1         19/05/21         ISSUED FOR 60% REVIEW           2         18/08/21         ISSUED FOR PROGRESS	3 24/08/21 ISSUED FOR COUNCIL APPROVAL				
C.S.       C.S.         C.S.       C.S.         C.S.       SC1-06-24 4:37:30 PM         Z01-06-24 4:37:30 PM       Z01-06-24 4:37:30 PM         Z1-020       Z1-020         Z1-020       Z1-030         Z1-020       Z1-030         Z1-020       Z1-030         Z1-020       Z1-030         Z1-020       Z1-030         Z1-030       Z1-040         Z1-040       Z1-040         Z1-050       Z1-040         Z1-050       Z1-050         Z1-050       Z			PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS	15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com		
C.S. C.S. 2021-08-24 4:37:30 PM AS INDICATED AS INDICATED AS INDICATED ALDI FOR CONSTRUCTION UNTIL SEALED ALDI A		Fire and Emergency Services Central Station	Township of Wainfleet 42143 Highway #3, Wainfleet ON				
DATE: DATE: DATE: SCALE: SCALE: PROJECT NO.: CHECKED: CHECKED: CHECKED: DO NOT SCALE DRAW ENGINEER BEFORE PF NUDER COPYRIGHT. THESE DESIGN DOCUN UNDER COPYRIGHT. THESE DESIGN DOCUN UNDER COPYRIGHT. THESE DESIGN DOCUN UNDER COPYRIGHT.	3 <sup>.</sup> . C.S.	2021-08-24 4:37:30 PM AS INDICATED	CT NO.: 21-020 (ED: A.Z.	INGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED IGNED BY THE ENGINEER. TT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE	ER BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS THE PROPERTY OF THE ENGINEER, AND ARE PROTECTED SOPYRIGHT. ESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE	THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ED INTO A CONTRACT AND THERE ARE NO SENTATIONS OF ANY KIND MADE BY THE DESIGN SSIONAL TO ANY PARTY WITH WHOM THE DESIGN SSIONAL HAS NOT ENTERED INTO A CONTRACT.	

## PUBLIC ADDRESS SYSTEM NOTES

- 1. PROVIDE FULLY OPERATIONAL SYSTEM INCLUDING HEADEND, WIRING, RACEWAYS, MICROPHONE CEILING AND WALLMOUNTED SPEAKERS AND ANCILLARY SUPPORTING MATERIAL AND EQUIPMENT. TOA OR APPROVE EQUAL SYSTEM
- 2. 9000 M2 MIXER AMPLIFIER.
- 3. PC 580 RU CEILING MOUNT SPEAKER COMPLETE WITH BACK CAN. ALLOW FOR CEILING CUT OUTS AND MOUNTING HARDWARE.
- 4. TH-600 REFLEX HORN AND MOUNTING BRACKET FOR AREAS OUTSIDE OFFICES.
- 5. Q-RM9012 REMOTE MICROPHONE
- 6. SYSTEM SPEAKER TO BE TWO TAP FOR VOLUME ADJUSTMENT.
- 7. COMMISION AND BALANCE SYSTEM.
- 8. SIZE AMPLIFIER ON NUMBER OF SPEAKERS SHOWN ON DRAWINGS. ENSURE IMPEDANCE MATCH SPEAKERS.
- 9. PROVIDE DC SUPPLY REQUIRED.
- 10. PROVIDE POWER SUPPLY FOR PUBLIC ADDRESS HEADEND.
- 11. PROVIDE 1" CONDUIT FOR THROUGH CONNECTION TO IT ROOM.
- 12. PROVIDE PUBLIC ADDRESS HEADEND ACCORDING TO ARCHITECTURAL DRAWINGS.
- 13. PUBLIC ADRESS TO INTERFACE WITH FIRE ALARM SYSTEM. PROVIDE PROOF OF VERIFICATION.
- 14. ALL CABLING TO BE PROVIDED.
- 15. TEST AND COMMISION AND PROVIDE PROOF OF VERIFICATION.

## WIFI SYSTEM NOTES

- 1. PROVIDE HEADEND IN IT ROOM AND FULLY OPERATION SYSTEM. PROVIDE POWER SUPPLY.
- 2. PROVIDE CAT 6 CABLING FT4 RATED.
- 3. USE VELCRO TYE WRAPS FOR SUPPORT
- 4. USE CONDUITS TO RUN CABLING IN ALL EXPOSED CEILINGS.
- 5. PROVIDE REPEATERS ARUBA AP22 BUNLDE (CEILING MOUNTED) ON CEILINGS AND SUSPENDED ON BRACKETS WHERE NECESSARY AT EXPOSED CELINGS.
- 6. DELIVER A FULLY TESTED AND COMMISIONED SYSTEM AND PROVIDE DOCUMENTATION.







2 MOBILE PHONE REPEATER SYSTEM RISER E5-110 N.T.S.

SIGNAL BOOSTER (IT ROOM) WILSON ELECTRICS/ LINKSYS/ OR APPROVED

1       19/05/21       ISSUED FOR 60% REVIEW         2       18/08/21       ISSUED FOR PROGRESS         3       24/08/21       ISSUED FOR COUNCIL APPROVAL	
MANTECON	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, 19H 2V6 Phone: (905)648-0373 www.manteconpartners.com
Fire and Emergency Services Central Station Township of Wainfleet 42143 Highway #3, Wainfleet ON	ELECTRICAL DETAILS - COMMUNICATIONS
DRAWN BY:A.Z.DATE:A.Z.DATE:2021-08-24 4:37:30 PMDATE:2021-08-24 4:37:30 PMSCALE:2021-08-24 4:37:30 PMSCALE:2021-08-24 4:37:30 PMPROJECT NO:21-020CHECKED:M.C.	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ENGINEER. DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS REMAIN THE PROPERTY OF THE ENGINEER, AND ARE PROTECTED UNDER COPYRIGHT. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE UNDER COPYRIGHT.
	E5-110

TRON	SERVICES	
QTY	SERVICE TITLE (MODEL NUMBER)	SERVICE DESCRIPTION
1922/11/1	THE QUANTITY OF SERVI DOCUMENTS	CES BELOW ARE TO BE INCLUDED AS PART OF THIS PROJECT'S SCOPE OF WORK AND SPECI
QTY     I       QTY     I       I     O		PRE-STARTUP SERVICES
	ONSITE PRE-WIRE VISIT (LSC-PREWIRE)	AN ONSITE VISIT WITH THE ELECTRICAL CONTRACTOR TO DISCUSS LOGISTICAL CONSTRUCT WIRING AND MOUNTING OF SYSTEM DEVICES, THE CONSTRUCTION SCHEDULE, AND LUTRO THE NUMBER OF VISITS PURCHASED.
	SYSTEM & NETWORK INTEGRATION CONSULTATION (LSC-INT-VISIT)	A CONSULTATIVE VISIT WITH THIRD PARTY INTEGRATORS TO CONFIRM THE SPECIFIED SEQ INTEGRATION PROCEDURES NEEDED IN ORDER TO INTEGRATE WITH THE LUTRON EQUIPME FOLLOWING THIRD PARTY SYSTEMS: BMS, BAS, IT, NON-LUTRON SHADES, BACNET, AV, OR E
		STARTUP SUPPORT SERVICES (THESE SERVICES ARE ADDITIONAL TO YOUR SPECIFIED STARTUP BASED ON YOUR REQUIREMENTS)
	ONSITE SYSTEM PROGRAMMING (8-HOUR) (LSC-OS-PROG8-SP)	UP TO 8 CONTIGUOUS HOURS OF SYSTEM PROGRAMMING DELIVERED BY A LUTRON SERVIC BE PROGRAMMED PER AN APPROVED SEQUENCE OF OPERATION. QUANTITY DICTATES THE PURCHASED.
	ONSITE SYSTEM PROGRAMMING (4-HOUR) (LSC-OS-PROG4-SP)	UP TO 4 CONTIGUOUS HOURS OF SYSTEM PROGRAMMING DELIVERED BY A LUTRON SERVIC BE PROGRAMMED PER AN APPROVED SEQUENCE OF OPERATION. QUANTITY DICTATES THE PURCHASED.
	REMOTE SYSTEM PROGRAMMING (4-HOUR) (LSC-RMT-PROG4-SP)	UP TO 4 CONTIGUOUS HOURS OF SYSTEM PROGRAMMING DELIVERED BY A DEDICATED FAC EITHER VIA A REMOTE NETWORK CONNECTION OR WITH THE ASSISTANCE OF AN ELECTRIC SYSTEM WILL BE PROGRAMMED PER AN APPROVED SEQUENCE OF OPERATION. QUANTITY BLOCKS PURCHASED.
	ONSITE SCENE & LEVEL TUNING (LSC-AF-VISIT)	AN ONSITE VISIT WITH THE SPECIFIER OR CUSTOMER REPRESENTATIVE TO REVIEW THE DE LEVEL PROGRAMMING, AND MAKE ADJUSTMENTS TO TIMECLOCKS.
	ONSITE PERFORMANCE-VERIFIC ATION WALKTHROUGH (LSC-WALK)	AN ONSITE WALKTHROUGH WITH FACILITY REPRESENTATIVES OR PROJECT COMMISSIONIN SYSTEM FUNCTIONALITY MEETS THE DESIGN INTENT. THIS MAY INCLUDE ANY OF THE FOLL CONSULTATION/TRAINING DEMOS, FUNCTIONAL TESTING ASSISTANCE, OR INVENTORY OF L
		POST-STARTUP SERVICES
	CUSTOMER-SITE SOLUTION TRAINING (LSC-TRAINING-SP)	A VISIT TO TEACH SYSTEM USERS HOW TO OPERATE AND MAINTAIN THE LIGHTING CONTRO
	SYSTEM OPTIMIZATION (LSC-SYSOPT-SP)	AN ONSITE CONSULTATIVE VISIT TO IDENTIFY AND IMPLEMENT LIGHTING CONTROL ADJUST AND CREATE A MORE PRODUCTIVE WORK ENVIRONMENT.
		MAINTENANCE & SUPPORT SERVICES
	SOFTWARE MAINTENANCE AGREEMENT (LSC-SMA-SP)	PROVIDES COMPATIBILITY TESTING RESULTS OF QUANTUM WITH OPERATING SYSTEM PATO INCLUDES AN ELECTIVE FREE SOFTWARE UPGRADE LICENSE.
	COMMERCIAL SYSTEMS 2-YEAR LIMITED WARRANTY (LSC-B2)	A 2-YEAR SYSTEM WARRANTY PROVIDING 100% REPLACEMENT PARTS AND 100% LUTRON D FIRST-AVAILABLE RESPONSE TIME.
	ENHANCED SILVER (LSC-E8S)	YEARS 1-2 - 100% REPLACEMENT PARTS AND 100% LUTRON DIAGNOSTIC LABOR COVERAGE TIME; YEARS 3-5 - 50% PARTS ONLY COVERAGE; YEARS 6-8 - 25% PARTS ONLY COVERAGE.
	ENHANCED GOLD (LSC-E8G)	YEARS 1-2 - 100% REPLACEMENT PARTS AND 100% LUTRON DIAGNOSTIC LABOR COVERAGE AN ANNUAL (1-DAY) SCHEDULED PREVENTIVE MAINTENANCE VISIT; YEARS 3-5 - 50% PARTS ONLY COVERAGE.
	ENHANCED PLATINUM (LSC-E8P)	YEARS 1-2 - 100% REPLACEMENT PARTS AND 100% LUTRON DIAGNOSTIC LABOR COVERAGE AN ANNUAL (1-DAY) SCHEDULED PREVENTIVE MAINTENANCE VISIT; YEARS 3-5 - 50% PARTS ONLY COVERAGE.
	SILVER TECHNOLOGY SUPPORT PLAN (LSC-SILV-IW)	AN ANNUAL SERVICE PLAN THAT COVERS 100% REPLACEMENT PARTS AND 100% LUTRON D FIRST-AVAILABLE ONSITE OR REMOTE RESPONSE TIME.
	GOLD TECHNOLOGY SUPPORT PLAN (LSC-GOLD-IW)	AN ANNUAL SERVICE PLAN THAT COVERS 100% REPLACEMENT PARTS AND 100% LUTRON L REMOTE RESPONSE TIME. ALSO INCLUDES AN ANNUAL (1-DAY) SCHEDULED PREVENTIVE M
	PLATINUM TECHNOLOGY SUPPORT PLAN (LSC-PLAT-IW)	AN ANNUAL SERVICE PLAN THAT COVERS 100% REPLACEMENT PARTS AND 100% LUTRON D ONSITE OR REMOTE RESPONSE TIME. ALSO INCLUDES AN ANNUAL (1-DAY) SCHEDULED PRE YEAR.
	PREVENTIVE MAINTENANCE VISIT(S)	SCHEDULED MAINTENANCE VISIT TO PERFORM PREVENTIVE MAINTENANCE, MINOR PROGR TRAININGS, QUANTITY IS IN ADDITION TO ANY YEARLY VISITS SPECIFIED WITH AN ENHANCE

5 24V Power Supply To Network

HJS-1-FM Floor 1\E2-300\Apparatus Bay Corridor Hub 1 Vive Hub, flush-mount adapter, and power supply SPECIFIED INTO THE WRITTEN SPEC

NSTRUCTION CONSIDERATIONS INCLUDING THE D LUTRON DOCUMENTATION. QUANTITY DICTATES FIED SEQUENCE OF OPERATION AND DISCUSS EQUIPMENT. THIS MAY INCLUDE ANY OF THE , AV, OR ENERGY DASHBOARDS.

SERVICES REPRESENTATIVE. THE SYSTEM WILL TES THE NUMBER OF 8-HOUR BLOCKS

N SERVICES REPRESENTATIVE. THE SYSTEM WILL ATES THE NUMBER OF 4-HOUR BLOCKS

ATED FACTORY CERTIFIED REMOTE TECHNICIAN LECTRICAL CONTRACTOR OVER THE PHONE. THE UANTITY DICTATES THE NUMBER OF 4-HOUR

THE DESIGN INTENT, FINE-TUNE THE SCENE

SSIONING AGENTS TO DEMONSTRATE THAT THE TE FOLLOWING ONSITE ACTIVITIES -RY OF LUTRON EQUIPMENT.

ONTROL SYSTEM.

ADJUSTMENTS TO SAVE ADDITIONAL ENERGY

EM PATCHES AND WEB BROWSER UPDATES.

TRON DIAGNOSTIC LABOR COVERAGE WITH A

RAGE WITH A FIRST-AVAILABLE RESPONSE

VERAGE WITH A 72-HOUR RESPONSE TIME AND PARTS ONLY COVERAGE; YEARS 6-8 - 25% PARTS

VERAGE WITH A 24-HOUR RESPONSE TIME AND PARTS ONLY COVERAGE; YEARS 6-8 - 25% PARTS TRON DIAGNOSTIC LABOR WITH A

TRON LABOR WITH A 72-HOUR ONSITE OR NTIVE MAINTENANCE VISIT EACH YEAR.

JTRON DIAGNOSTIC LABOR WITH A 24-HOUR JEED PREVENTIVE MAINTENANCE VISIT EACH

PROGRAMMING, AND CONDUCT SYSTEM NHANCED WARRANTY OR TECHNOLOGY SUPPORT

MATION.

CLUTRON.

Lutron Electronics Co., Inc. 7200 Suter Road Coopersburg, PA 18036, USA +1.610.282.3800 | Fax: +1.610.282.1146

A SUMMARY OF FUNCTION:

APPAR	ATUS BAY:
10000	4 ZONES OF 0-10V DIMMING, RUNNING PARALLEL TO THE BAY DOORS.
	DAYLIGHT HARVESTING SENSORS ON EACH END OF THE BAY. THIS WILL ALLOW F WHEN DAYLIGHT IS AVAILABLE.
	MANUAL CONTROL WALL STATIONS WITH ON, OFF, RAISE, LOWER, AND A PROGRA ENTRANCES TO THE BAY. KEYPADS ARE WIRELESS, SO EASY TO ADD IN ADDITION
CORRI	DORS:
	1 ZONE OF 0-10V DIMMING PROVIDED PER CORRIDOR
	OCCUPANCY SENSORS PROVIDED FOR OCCUPANCY OPERATION
	DIMMING PROVIDED AS WE CAN CONTROL HOW THE OCCUPANCY SENSORS OPER DURING THE DAY WE CAN HAVE THE OCCUPANCY SENSORS TRIGGER THE LIGHTS DURING EVENING OR OVERNIGHT HOURS, WE CAN THEN HAVE THE OCCUPANCY S WHEN OCCUPIED TO OFF OR A LOW LEVEL WHEN THE SPACE IS UNOCCUPIED.
CHIEF	DEPUTY CHIEF OFFICE
	1 ZONE OF 0-10V DIMMING
	OCCUPANCY SENSOR PROVIDE FOR AUTOMATIC OFF CONTROL
	3 BUTTON WITH RAISE/LOWER KEYPAD PROVIDED FOR MANUAL CONTROL.
	20A RECEPTACLE POWER PACK PROVIDED FOR RECEPTACLE CONTROL (RISERS )
	INCLUDED HERE)
	DAYLIGHT SENSOR PROVIDED FOR DAYLIGHT HARVESTING DURING THE DAY
MEETI	NG ROOM
	2 ZONES OF 0-10V DIMMING PROVIDED, ASSUMED POT LIGHTS AROUND THE PERIN
	CENTRE OF THE ROOM AS SEPARATE ZONES.
	OCCUPANCY SENSOR PROVIDE FOR AUTOMATIC OFF CONTROL
	3 BUTTON WITH RAISE/LOWER KEYPAD PROVIDED FOR MANUAL CONTROL. 1 KEYP
•	DAYLIGHT SENSOR PROVIDED FOR DAYLIGHT HARVESTING DURING THE DAY
TRAIN	NG ROOM
	3 ZONES OF 0-10V DIMMING PROVIDED, ASSUMED THAT BASED ON THIS BEING A T
	OCCUPANCY SENSOR PROVIDE FOR AUTOMATIC OFF CONTROL
	3 BUTTON WITH RAISE/LOWER KEYPAD PROVIDED FOR MANUAL CONTROL. 1 KEYP
.*	DAYLIGHT SENSOR PROVIDED FOR DAYLIGHT HARVESTING DURING THE DAY
LARGE	WASHROOMS/CHANGE ROOMS/WORKSHOP/BUNKER GEAR/FITNESS/KITCHEN
	1 ZONE OF 0-10V DIMMING
	OCCUPANCY SENSOR PROVIDE FOR AUTOMATIC OFF CONTROL
•	3 BUTTON WITH RAISE/LOWER KEYPAD PROVIDED FOR MANUAL CONTROL.
EXTER	IOR
	PROVIDED A 0-10V DIMMING ZONE FOR BOTH EXTERIOR CANOPY LIGHTS AND EXT

PROVIDED A 0-10V DIMMING ZONE FOR BOTH EXTERIOR CANOPY LIGHTS AND EXTERIOR SITE LIGHTING. I PRESUMED THAT EACH OF THESE ZONES WOULD BE TURNED ON VIA THE ASTRONOMIC TIMECLOCK AT SUNSET, MOST MUNICIPALITIES REQUIRE EXTERIOR LIGHTING TO BE SET BACK AT SOME POINT OVERNIGHT, SO THE 0-10V DIMMING ALLOWS US TO DO THAT ON A TIME SCHEDULE.

SMALL ROOMS
PROVIDED INWALL ON/OFF DUAL TECH OCCUPANCY SENSOR

### DRAWING NOTES:

1 LIGHTING CONTROLS BASIS OF DESIGN SYSTEM IS LUTRON VIVE WIRELESS. 2 CONTRACTOR TO COMPLY WITH LIGHTING CONTROL LAYOUTS IN DRAWINGS, SUBMIT TO LIGHTING CONTROLS MANUFACTURER AND PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL.

FOR DIMMING OF THE ROW OF LIGHTS CLOSEST TO EACH ROW OF BAY DOORS RAMMABLE FAVORITE BUTTON FOR EACH ZONE INCLUDED AT BOTH NAL LOCATIONS IF DESIRED.

ERATE THROUGHOUT THE DAY. DEPENDING ON THE USE OF THE STATION, TS FROM 100% WHEN OCCUPIED, TO A LOW LEVEL WHEN UNOCCUPIED. Y SENSORS TOGGLE THE LIGHTS BETWEEN A REDUCED OUTPUT, SAY 50%,

S YOU PROVIDED MENTIONED RECEPTACLE CONTROL IN OFFICES, SO I VE

RIMETER AND EITHER A SUSPENDED LINEAR OR RECESSED TROFFERS IN THE YPAD PER ZONE

TRAINING ROOM, SOME ZONING FLEXIBILITY WOULD BE DESIRED. YPAD PER ZONE

1     19/05/21     ISSUED FOR 60% REVIEW	2     18/08/21     ISSUED FOR PROGRESS       3     24/08/21     ISSUED FOR COUNCIL APPROVAL		
	PARTNERS	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, 19H 2V6 Phone: (905)648-0373 www.manteconpartners.com	
Fire and Emergency	Township of Wainfleet 42143 Highway #3, Wainfleet ON	ELECTRICAL DETAILS - LIGHTING CONTROLS	
DRAWN BY: Author DATE: 2021-08-24 4:37:30 PM	SCALE: AS INDICATED PROJECT NO.: 21-020 CHECKED: Checker	DRAWINGS ARE NOT VALID FOR CONSTRUCTION UNTIL SEALED AND SIGNED BY THE ENGINEER. DO NOT SCALE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING. ALL DRAWINGS AND DESIGNS REMAIN THE PROPERTY OF THE ENGINEER, AND ARE PROTECTED UNDER COPYRIGHT. THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO S OF ANY KIND MADE BY THE DESIGN REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.	
		E5-120	







# ONE-LINE

3 AND 4)\*

#### WIRE LEGEND ΔP QS CONTROL LINK (CONNECT WIRES 1, 2

- O QS CONTROL LINK (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE 2)\*
- PANEL CONTROL LINK (CONNECT WIRES 1. 2, 3, 4 AND 5)\*
- PANEL CONTROL LINK (CONNECT WIRES 1, 2, 3 AND 4. DO NOT CONNECT WIRE #5)"
- PANEL CONTROL LINK (CONNECT WIRES 1, 3, 4 AND 5. DO NOT CONNECT WIRE #2)\*
- QS SIVOIA SHADE CONTROL LINK\*
- T BELDEN CABLE 1387LA(OR EQUIVALENT)
- NORMAL INPUT POWER 2 #12 AWG (4 SQ MM) + GROUND
- NORMAL-EMERGENCY INPUT POWER 2 #12 AWG (4 SQ MM) + GROUND
- 3 PHASE 4 WIRE INPUT POWER, 4 #12 AWG (4 SQ MM) + GROUND
- 2 #12 AWG (4 SQ MM) + GROUND
- O 3 #12 AWG (4 SQ MM) + GROUND
- 0-10 V SIGNAL: 2#18AWG (1.0 SQ MM)
- 2#18 AWG (1.0 SQ MM)
   3#18 AWG (1.0 SQ MM)
- ECOSYSTEM BUS/LOOP\*
- DALILOOP
- T-SERIES TUNABLE-WHITE LOOP
- LUTRON SENSOR CABLE C-CBL-522S OR USE 4#22 AWG (1.0 SQ MM)
- LUTRON SENSOR CABLE C-CBL-522S OR USE 3#22 AWG (1.0 SQ MM)
- MX CABLE USE LUTRON GRX-CBL-DMX-250/GRX-CBL-DMX-500 OR BELDEN #9729 (NON-PLENUM) OR BELDEN
- #89729 (PLENUM) OR DURA FLEX 22/4 WA CABLE. ETHERNET CABLE. CATSE OR BETTER
- CABLE. CATSE OR BETTER CABLE FOR LUTRON NETWORK TERMINATED WITH RJ45 CONNECTORS (NOT PROVIDED BY LUTRON). 328 FT (100 M) MAXIMUM RUN. FIBER OPTIC CABLE FOR LUTRON
- NETWORK TERMINATED WITH APPROPRIATE FIBER OPTIC CONNECTORS (NOT PROVIDED BY LUTRON). REQUIRES DEDICATED FIBER OPTIC LINK (SINGLE-MODE OR MULTI-MODE)
- ---- RF CONNECTION WIRED CONNECTION

\*PLEASE REFER TO NOTES ON WIRING FOR MORE WIRING GUIDELINES. \*\*REFER TO LOAD SCHEDULE FOR FEED AND LOAD INFORMATION

PROJECT NAME: WAINFLEET FIRE STATION

LOCATION: WELLAND, ONTARIO

CREATED BY: DAVID WOOD

PROJECT NUMBER:

FILE NAME:

DOCUMENT REVISION:

AUGUST 24, 2021 | Sheet 4

FOR DETAILED DEFINITION OF PRODUCT CAPABILITIES REFER TO PRODUCT SPECIFICATION SUBMITTAL SHEETS.

▲ NOT FOR CONSTRUCTION

## **LUTRON**

7200 SUTER ROAD COOPERSBURG, PA 18036, USA +1.610.282.3800 | FAX: +1.610.282.1146







- MIRE LEGEND Δ° QS CONTROL LINK (CONNECT WIRES 1, 2,
- 3 AND 4)\* O QS CONTROL LINK (CONNECT WIRES 1, 3
- AND 4. DO NOT CONNECT WIRE 2)\*
- 2, 3, 4 AND 5)\* PANEL CONTROL LINK (CONNECT WIRES 1
- 2, 3 AND 4. DO NOT CONNECT WIRE #5)\* PRANEL CONTROL LINK (CONNECT WIRES \*
- 3, 4 AND 5. DO NOT CONNECT WIRE #2)\*
- T BELDEN CABLE 1387LA(OR EQUIVALENT)
- NORMAL INPUT POWER 2 #12 AWG (4 SQ
- MM) + GROUND NORMAL-EMERGENCY INPUT POWER 2 #12 AWG (4 SQ MM) + GROUND
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- oc 3#18 AWG (1.0 SQ MM)
- ECOSYSTEM BUS/LOOP\*
- DALILOOP
- T-SERIES TUNABLE-WHITE LOOP
- LUTRON SENSOR CABLE C-CBL-522S OR USE 4#22 AWG (1.0 SQ MM)
- USE 3#22 AWG (1:0 SQ MM) DMX CABLE, USE LUTRON
- GRX-CBL-DMX-250/GRX-CBL-DMX-500 OR BELDEN #9729 (NON-PLENUM) OR BELDEN #89729 (PLENUM) OR DURA FLEX 22/4 WA CABLE.
- ETHERNET CABLE, CATSE OR BETTER CABLE FOR LUTRON NETWORK TERMINATED WITH RJ45 CONNECTORS (NOT PROVIDED BY LUTRON), 328 FT (100 M) MAXIMUM RUN.
- FIBER OPTIC CABLE FOR LUTRON NETWORK TERMINATED WITH APPROPRIATE FIBER OPTIC CONNECTORS (NOT PROVIDED BY LUTRON). REQUIRES DEDICATED FIBER OPTIC LINK (SINGLE-MODE OR MULTI-MODE)
- ---- RF CONNECTION WIRED CONNECTION

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PROJECT NAME: WAINFLEET FIRE STATION

LOCATION: WELLAND, ONTARIO

PROJECT NUMBER:

- CREATED BY: DAVID WOOD
- FILE NAME:

DOCUMENT REVISION:

AUGUST 24, 2021 | Sheet 5

FOR DETAILED DEFINITION OF PRODUCT CAPABILITIES REFER TO PRODUCT SPECIFICATION SUBMITTAL SHEETS.

▲ NOT FOR CONSTRUCTION

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## ONE-LINE

WIRE LEGEND AP QS CONTROL LINK (CONNECT WIRES 1, 2

- 3 AND 4)\* ▲ QS CONTROL LINK (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE 2)\*
- PANEL CONTROL LINK (CONNECT WIRES 1. 2, 3, 4 AND 5)\*
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- PANEL CONTROL LINK (CONNECT WIRES ' 3, 4 AND 5. DO NOT CONNECT WIRE #2)\* QS SIVOIA SHADE CONTROL LINK\*
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- DMX CABLE. USE LUTRON GRX-CBL-DMX-250/GRX-CBL-DMX-500 OR BELDEN #9729 (NON-PLENUM) OR BELDEN
- #89729 (PLENUM) OR DURA FLEX 22/4 WA CABLE. E ETHERNET CABLE. CATSE OR BETTER CABLE FOR LUTRON NETWORK
- TERMINATED WITH RJ45 CONNECTORS (NOT PROVIDED BY LUTRON). 328 FT (100 M) MAXIMUM RUN. FIBER OPTIC CABLE FOR LUTRON NETWORK TERMINATED WITH APPROPRIATE FIBER OPTIC CONNECTOR (NOT PROVIDED BY LUTRON). REQUIRES
- DEDICATED FIBER OPTIC LINK (SINGLE-MODE OR MULTI-MODE) - -- RF CONNECTION WIRED CONNECTION

\*PLEASE REFER TO NOTES ON WIRING FOR MORE WIRING GUIDELINES. \*\*REFER TO LOAD SCHEDULE FOR FEED AND LOAD INFORMATION

PROJECT NAME: WAINFLEET FIRE STATION LOCATION: WELLAND, ONTARIO

PROJECT NUMBER:

CREATED BY: DAVID WOOD FILE NAME:

DOCUMENT REVISION:

AUGUST 24, 2021 | Sheet 6

FOR DETAILED DEFINITION OF PRODUCT CAPABILITIES REFER TO PRODUCT SPECIFICATION SUBMITTAL SHEETS.

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# **LUTRON**

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3 Button with Raise/Lower and Light Icon - Pico Keypad

ONE-LINE

### WIRE LEGEND

- P QS CONTROL LINK (CONNECT WIRES 1, 2 3 AND 4)\* QS CONTROL LINK (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE 2)\*
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- . 2#18 AWG (1.0 SQ MM)
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- LUTRON SENSOR CABLE C-CBL-522S OR USE 3#22 AWG (1.0 SQ MM)
- DMX CABLE. USE LUTRON GRX-CBL-DMX-250/GRX-CBL-DMX-500 OR
- BELDEN #9729 (NON-PLENUM) OR BELDEN #89729 (PLENUM) OR DURA FLEX 22/4 WA CABLE. ETHERNET CABLE. CATSE OR BETTER CABLE FOR LUTRON NETWORK
- TERMINATED WITH RJ45 CONNECTORS (NOT PROVIDED BY LUTRON). 328 FT (100 M) MAXIMUM RUN, FIBER OPTIC CABLE FOR LUTRON NETWORK TERMINATED WITH APPROPRIATE FIBER OPTIC CONNECTORS
- (NOT PROVIDED BY LUTRON). REQUIRES DEDICATED FIBER OPTIC LINK (SINGLE-MODE OR MULTI-MODE) --- RF CONNECTION
- ----- WIRED CONNECTION

\*PLEASE REFER TO NOTES ON WIRING FOR MORE WIRING GUIDELINES. \*\*REFER TO LOAD SCHEDULE FOR FEED AND LOAD INFORMATION

PROJECT NAME: WAINFLEET FIRE STATION

LOCATION: WELLAND, ONTARIO

PROJECT NUMBER:

CREATED BY: DAVID WOOD

FILE NAME:

DOCUMENT REVISION:

AUGUST 24, 2021 | Sheet 8

FOR DETAILED DEFINITION OF PRODUCT CAPABILITIES REFER TO PRODUCT SPECIFICATION SUBMITTAL SHEETS.

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20-163~Town of Wainfleet - New Fire Station/20-163 Wainfleet- New Central S

### **APPENDIX "B"**

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Wainfleet Fire Station		August 25th, 2021.		
Wainfleet, ON		-		
Project Summary:		Estimate Total	\$/SF	
Trade Summary - Fire Station		\$4,056,373.00	\$304.51	
Contractor General Conditions & Fee	12.50%	\$507,047.00	\$38.06	
Subtotal		\$4,563,420.00	\$342.57	
General Contingency	7.50%	\$342,257.00	\$25.69	
BUDGET TOTAL		\$4,905,677.00	\$368.27	/sf
		+HST		
<u>SEPARATE PRICE</u>		¢224,200,00		
1) Modifications to Barn		\$221,308.00		
NOT INCLODED:				
-HSI design face				
-design nees				
-all items noted NIC				
-diliterils noted Nic				
-additional solid bornings				
-special foundations (piles, caissons)				
-modifications to the barn				



Wainfleet	Fire Station	August 25th, 2021.	
Wainfleet,	, ON		
Division	Description	Total	\$/SF
02000	Excavation & Siteworks	\$809,918.00	\$60.80
03000	Concrete	\$272,300.00	\$20.44
04000	Masonry	\$453,945.00	\$34.08
05000	Metals	\$182,157.00	\$13.67
06000	Wood & Plastics	\$281,723.00	\$21.15
07000	Thermal & Moisture Protection	\$360,871.00	\$27.09
08000	Doors & Windows	\$139,830.00	\$10.50
09000	Finishes	\$205,744.00	\$15.45
10000	Specialties	\$64,946.00	\$4.88
11000	Equipment	\$52,700.00	\$3.96
12000	Furnishings	\$13,200.00	\$0.99
13000	Special Construction	\$0.00	\$0.00
14000	Conveying Systems	\$0.00	\$0.00
15000	Mechanical	\$446,455.00	\$33.52
16000	Electrical	\$315,584.00	\$23.69
1/000	Allowances	\$457,000.00	\$34.31
		<i></i>	4004.54
	Division Total:	\$4,056,373.00	\$304.51



Wainfleet H	ire Station					August 25th, 2021.		
Wainfleet,	ON							
Continu	14	Quantita		ć /Unit		Tatala	Domentus.	Continu Total
Section		Quantity		\$/Onit		Totais	Remarks	Section Total
02020	SITE DEMOLITION:							
	farm fencing	404.00	m	\$5.00	m	\$2,020.00		
	metal tank (no info)	1.00	ea	\$2,500.00	ea	\$2,500.00		
	miscellaneous removals	1.00	sum	\$1,500.00	sum	\$1,500.00		\$6,020.00
02025								
02025	demolish existing house	1.00	ea	\$5,000,00	ea	\$5,000,00		
	demolish existing house	0.00	m2	\$3,000.00	m2	\$3,000.00		
	demolish existing grain silo	1.00	ea	\$2,500.00	ea	\$2,500.00		
	disposal bins	10.00	ea	\$700.00	ea	\$7,000.00		\$14,500.00
02210	SITE EXCAVATION							
	strip topsoil (stockpile)	1,650.00	m3	\$12.50	m3	\$20,625.00		
	cut site to new contours	0.00	m3	\$0.00	m3	\$0.00		
	new storm/water storage pond (3m deep)	0.00	m3 m2	\$0.00	m3 m2	\$0.00	n/a	
		20.00	hrs	\$200.00	hrs	\$0.00	ii/a	
	storm water control	1.00	sum	\$2,500.00	sum	\$2,500.00		
	site silt fencing	532.00	m	\$10.00	m	\$5,320.00		
	regrade site	10,830.00	m2	\$2.00	m2	\$21,660.00		\$54,105.00
02215	SITE BACKFILL							
	fill existing pond w/ excavated mat'l from bldg	1,720.00	mton	\$4.00	mton	\$6,880.00		
	fill existing pond w/ imported sand	730.00	mton	\$8.00	mton	\$5,840.00		
	Till site to new contours at landscape areas	0.00	m3 mt	\$0.00	m3 mt	\$0.00	n/a	\$12 720 00
	Taise grade at d/s paved surfaces	0.00	m	\$0.00	inc	\$0.00	ii/a	\$12,720.00
02230	CLEAR & GRUB							
	clear & grub site	0.00	m2	\$0.00	m2	\$0.00	n/a	
	trees (already cut down, stumps left)	0.00	ea	\$0.00	ea	\$0.00	n/a	
	tree stumps	21.00	ea	\$200.00	ea	\$4,200.00		\$4,200.00
02250	SHORING & UNDERPINNING		-		-			
	shoring	0.00	m2	\$0.00	m2	\$0.00	n/a	¢0.00
	underpinning	0.00	m3	\$0.00	m3	\$0.00	n/a	\$0.00
02315	BUILDING EXCAVATION							
01010	column footings, stockpile on site	30.00	m3	\$15.00	m3	\$450.00		
	foundation walls, stockpile on site	752.00	m3	\$15.00	m3	\$11,280.00		
	loading dock pits	0.00	m3	\$0.00	m3	\$0.00	n/a	
	pits	0.00	m3	\$0.00	m3	\$0.00	n/a	
	hand excavation	10.00	hrs	\$75.00	hrs	\$750.00		
	fence protection at excavations	1.00	sum	\$500.00	sum	\$500.00	- 1-	¢42.000.00
	disposal off site	0.00	m3	\$0.00	m3	\$0.00	n/a	\$12,980.00
02320								
02320	column footings	66.00	mt	\$28.00	mt	\$1.848.00		
	foundation walls -granular 'B'	1,654.00	mt	\$28.00	mt	\$46,312.00		
	foundation walls -site material	0.00	mt	\$0.00	mt	\$0.00	n/a	
	elevator pits	0.00	mt	\$0.00	mt	\$0.00	n/a	
	pits	0.00	mt	\$0.00	mt	\$0.00	n/a	
	raise grade to u/s slab on grade	0.00	mt	\$0.00	mt	\$0.00	n/a	
	A' to u/s slab on grade	260.00	mt	\$32.00	mt	\$8,320.00		\$56,480.00
02475	CAISSONS							
02475	caissons	0.00	m	\$0.00	m	\$0.00	n/a	
	mobilization	0.00	sum	\$0.00	sum	\$0.00	n/a	\$0.00
02580	ELECTRICAL SITE SERVICES							
	bring sufficient power to location - nic by Hydro	0.00	sum	\$0.00	sum	\$0.00	See Div. 17	
	bring power onto site incl transformer - by Hydro	0.00	sum	\$0.00	sum	\$0.00	See Div. 17	
	transformer pad / vault	1.00	sum	\$7,500.00	sum	\$7,500.00	Can Div 17	
	primary service (pole to tranformer) - by Hydro	27.00	m	\$0.00	m	\$0.00	See Div. 17	
	secondary service (transformer to generator to bldg)	27.00	m	\$U.UU \$75.00	m	\$0.00 \$8.025.00	SEE DIV. 17	
	secondary service - u/g ductbank	107.00	m	\$250.00	m	\$26 750 00		
	communications ductbank	54.00	m	\$50.00	m	\$2,700.00		
	light standards	0.00	ea	\$7,500.00	ea	\$0.00	n/a	
	u/g conduit & wiring for light standards	0.00	m	\$45.00	m	\$0.00	n/a	\$44,975.00
			-					
			<u> </u>					



Wainfleet I	Fire Station					August 25th, 2021.		
Wainfleet,	ON							
Castian	10	0		A // 1		<b>T</b> . 4 . 4	S	C
Section	nem	Quantity		\$/Unit		Totais	Remarks	Section Total
02600	MECHANICAL SITE SERVICES							
	fire main	0.00	m	\$0.00	m	\$0.00	n/a	
	fire hydrants to above	0.00	ea	\$0.00	ea	\$0.00	n/a	
	domestic water 100mm to bldg	2.00	m	\$150.00	m	\$300.00		
-	domestic water 75mm to barn	0.00	m	\$0.00	m	\$0.00	nic	
	storm sewers 100mm	54.00	m	\$150.00	m	\$0.00	n/a	
	storm sewers 200mm	25.00	m	\$173.00	m	\$5,000.00		
-	storm sewers 300mm	0.00	m	\$300.00	m	\$0.00	n/a	
	catch basins	0.00	ea	\$3,500.00	ea	\$0.00	n/a	
	storm MH's	0.00	ea	\$7,500.00	ea	\$0.00	n/a	
	storm sceptors	0.00	ea	\$0.00	ea	\$0.00	nic	
-	culvert 1200mm	30.00	m	\$100.00	m	\$3,000.00		
-	cistern tank (precast) for domestic water 5.5m x 3.5m x 2m dp	1.00	ea	\$20,000.00	ea	\$20,000.00		
	dry hydrant at cistern above	1.00	ea	\$120,000.00	ea	\$120,000.00		
	sanitary line 150mm from bldg to septic	24.00	m	\$175.00	m	\$4,200.00		
	sanitary manholes	1.00	ea	\$7,500.00	ea	\$7,500.00		
	septic system / bed	1.00	ea	\$60,000.00	ea	\$60,000.00		
	gas line to bldg	91.00	m	\$0.00	m	\$0.00	See Div. 17	
	gas line to generator	27.00	m	\$75.00	m	\$2,025.00		
	street connections from property line	3.00	ea	\$5,000.00	ea	\$15,000.00		\$251,475.00
02620	FOUNDATION DRAINAGE							
02020	underslah weeping tile system	0.00	m	\$0.00	m	\$0.00	nic	
-	perimeter foundation drainage	156.00	m	\$30.00	m	\$4.680.00	ine	\$4.680.00
-						. ,		. ,
02740	ASPHALT PAVING							
	light duty asphalt pavement	885.00	m2	\$50.00	m2	\$44,250.00		
	medium duty asphalt pavement	0.00	m2	\$0.00	m2	\$0.00		
	heavy duty asphalt pavement	2,050.00	m2	\$65.00	m2	\$133,250.00		
-	heavy duty asphalt pavement (aprons)	273.00	m2	\$65.00	m2	\$17,745.00		¢227.005.00
	excavation to pavement	1,632.00	m3	\$20.00	m3	\$32,640.00		\$227,885.00
02750	CONCRETE PAVEMENT							
	concrete aprons - see asphalt above	0.00	m2	\$0.00	m2	\$0.00	see 02740	
	generator pad	16.00	m2	\$120.00	m2	\$1,920.00		
	granular 'A' to u/s concrete pavement	11.00	mt	\$28.00	mt	\$308.00		\$2,228.00
02770		22.00		¢250.00		ć7 700 00		
	precast wheel stops	22.00	m	\$350.00	m	\$7,700.00		\$26 275 00
		245.00		\$75.00		\$18,075.00		\$20,375.00
02775	CONCRETE SIDEWALKS							
	concrete sidewalks	268.00	m2	\$75.00	m2	\$20,100.00		\$20,100.00
02820	FENCING & GATES							
	chain link fencing & gates	0.00	m	\$0.00	m	\$0.00	n/a	\$0.00
02040								
02810	IRRIGATION SYSTEMS	0.00	c	ć0.00		¢0.00	nic	¢0.00
	underground lawny landscaping in igation	0.00	sum	S11101	sum	30.00	THE	Ş0.00
				\$0.00				
02830	RETAINING WALLS			\$0.00				
02830	RETAINING WALLS retaining walls	0.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
02830	RETAINING WALLS retaining walls	0.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
02830 02870	RETAINING WALLS retaining walls SITE FURNISHINGS	0.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
02830	RETAINING WALLS retaining walls SITE FURNISHINGS site furniture	0.00	m2 ea	\$0.00	m2 ea	\$0.00	n/a nic	\$0.00
02830	RETAINING WALLS retaining walls SITE FURNISHINGS site furniture	0.00	m2 ea	\$0.00	m2 ea	\$0.00	n/a nic	\$0.00 \$0.00
02830 02870 02920	RETAINING WALLS       retaining walls       SITE FURNISHINGS       site furniture       SEEDING / SODDING       respread topsoil (rause existing)	0.00	m2 ea	\$0.00	m2 ea	\$0.00	n/a nic	\$0.00 \$0.00
02830 02870 02920	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas	0.00	m2 ea m3 m2	\$0.00	m2 ea m3 m2	\$0.00 \$0.00 \$26,640.00 \$27,075.00	n/a nic	\$0.00 \$0.00
02830 02870 02920	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building	0.00 0.00 1,332.00 10,830.00 935.00	m2 ea m3 m2 m2	\$0.00 \$0.00 \$0.00 \$220.00 \$2.50 \$8.00	m2 ea m3 m2 m2	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00	n/a nic	\$0.00
02830 02870 02920	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs	0.00 0.00 1,332.00 10,830.00 935.00 0.00	m2 ea m3 m2 m2 sum	\$0.00 \$0.00 \$0.00 \$220.00 \$22.50 \$8.00 \$0.00	m2 ea m3 m2 m2 sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$0.00	n/a nic nic	\$0.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 m2 sum sum	\$0.00 \$0.00 \$0.00 \$220.00 \$22.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$0.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 m2 sum sum	\$0.00 \$0.00 \$0.00 \$220.00 \$2.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 sum sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$0.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 m2 sum sum	\$0.00 \$0.00 \$0.00 \$220.00 \$2.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$0.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$0.00 \$220.00 \$2.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$0.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$0.00 \$20.00 \$2.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$0.00 \$2.00 \$2.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 sum sum sum	\$0.00 \$0.00 \$0.00 \$22.00 \$2.50 \$8.00 \$10,000.00 \$10,000.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00
02830	RETAINING WALLS         retaining walls         SITE FURNISHINGS         site furniture         SEEDING / SODDING         respread topsoil (reuse existing)         fine grade & seed disturbed areas         fine grade & sod around building         trees & shrubs         landscaping - allowance	0.00 0.00 1,332.00 10,830.00 935.00 0.00 1.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$0.00 \$220.00 \$2.50 \$8.00 \$0.00 \$10,000.00	m2 ea m3 m2 sum sum	\$0.00 \$0.00 \$26,640.00 \$27,075.00 \$7,480.00 \$0.00 \$10,000.00	n/a nic nic	\$0.00 \$0.00 \$71,195.00



Wainfleet I	ire Station					August 25th, 2021.		
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Section	Item	Quantity		Ş/Unit		lotals	Remarks	Section Total
03110	BUILDING CONCRETE FORMWORK							
	column footings	6.00	m2	\$130.00	m2	\$780.00		
-	piers	2.00	m2	\$130.00	m2	\$260.00		
	foundation wall footings	116.00	m2	\$130.00	m2	\$15,080.00		
	foundation walls	465.00	m2	\$130.00	m2	\$60,450.00		
	slab on grade 125	40.00	m2	\$90.00	m2	\$3,600.00		
	slab on grade 250	30.00	m2	\$90.00	m2	\$2,700.00		
	slab on metal deck	6.00	m2	\$90.00	m2	\$540.00		
-	loading docks	0.00	m2	\$0.00	m2	\$0.00	n/a	
	stairs & miscellaneous bases	0.00	m2	¢250.00	m2	\$0.00	n/a	
-	formwork oguipmont	665.00	ea m2	\$250.00	ea m2	\$3,000.00	2	¢02 060 00
-	Ionwork equipment	005.00	1112	\$10.00	1112	\$0,050.00	a	\$55,000.00
03140	SET EMBEDDED ITEMS							
	anchor bolts	4.00	ea	\$15.00	ea	\$60.00		
-	loading dock pit frames	0.00	ea	\$0.00	ea	\$0.00	n/a	
	pit edge angle	0.00	m	\$0.00	m	\$0.00	n/a	
	set pre-fabricated trench drains - see Div 5500	0.00	m	\$0.00	m	\$0.00		
	miscellaneous items	1.00	sum	\$500.00	sum	\$500.00		\$560.00
03150	CONCRETE SUNDRIES	0		±=		40		
	AIFB at slab edge	380.00	m	\$8.50	m	\$3,230.00		
	uriii & grout anchors in siab edges	0.00	ea	\$15.00	ea	\$U.00	n/a	
	grout tourill base plates	1.00	ea	00.coç 00.02	ea	\$85.00 \$0.00	SEE 0/1210	
	water stop	0.00	ea m	\$0.00	ea m	\$0.00	n/a	
-	miscellaneous concrete items	1.00	sum	\$1,000,00	sum	\$1,000,00	174	\$4 315 00
		100	Juin	<i>\</i> 2)000100	Sum	<i>\</i> 2,000100		\$ 1,625100
03210	REINFORCING STEEL							
-	foundations	17.00	mt	\$2,100.00	mt	\$35,700.00		
	structural slabs	0.00	mt	\$0.00	mt	\$0.00	n/a	
	slab on grade - 250	11.00	mt	\$2,100.00	mt	\$23,100.00		
	loading dock pit slabs	0.00	mt	\$0.00	mt	\$0.00	n/a	
-	mesh to slab on grade	681.00	m2	\$5.50	m2	\$3,746.00		
-	mesh to slab on metal deck	128.00	m2	\$5.50	m2	\$704.00		\$63,250.00
02210								
05510		3.00	m3	\$70.00	m3	\$210.00		
-	niers	1.00	m3	\$70.00	m3	\$210.00		
	foundation wall footings	52.00	m3	\$70.00	m3	\$3.640.00		
-	foundation walls	94.00	m3	\$70.00	m3	\$6.580.00		
-	slab on grade 125	74.00	m3	\$70.00	m3	\$5,180.00		
	slab on grade 250	60.00	m3	\$70.00	m3	\$4,200.00		
	slab on grade thickening for masonr walls	21.00	m3	\$70.00	m3	\$1,470.00		
	structural slabs	0.00	m3	\$0.00	m3	\$0.00	n/a	
	slab on metal deck	8.00	m3	\$70.00	m3	\$560.00		
	loading dock pits	0.00	m3	\$0.00	m3	\$0.00	n/a	
	stairs & miscellaneous bases	2.00	m3	\$150.00	m3	\$300.00		
-	bollard footings 400 dia. x 1200	2.00	m3	\$150.00	m3	\$300.00		¢21.000.00
		515.00	1113	\$30.00	1113	əə,450.00		221,900.00
03360	CONCRETE FLOOR FINISHING							
	slab on grade 125	592.00	m2	\$15.00	m2	\$8,880.00		
-	slab on grade - 250	480.00	m2	\$15.00	m2	\$7,200.00		
	slab on metal deck	111.00	m2	\$15.00	m2	\$1,665.00		
	elevator pit slabs	0.00	m2	\$0.00	m2	\$0.00	n/a	
	structural slabs	0.00	m2	\$0.00	m2	\$0.00	n/a	
	loading dock pits	0.00	m2	\$0.00	m2	\$0.00	n/a	
	pit slabs	0.00	m2	\$0.00	m2	\$0.00	n/a	
	stairs & miscellaneous bases	4.00	m2	\$300.00	m2	\$1,200.00		
-	cure & seal	1,183.00	m2	\$1.70	m2	\$2,011.00		624 440 00
	sawcut & filler to slab on grade	536.00	m	\$6.50	m	\$3,484.00		\$24,440.00
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Wainfleet I	Fire Station					August 25th, 2021.		
Wainfleet,								
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
00000								
03330	foundations	150.00	m3	\$140.00	m3	\$21,000,00		
	slabs on grade - 125	95.00	m3	\$140.00	m3	\$13,300.00		
	slabs on grade - 250	60.00	m3	\$150.00	m3	\$9,000.00		
	slabs on deck	8.00	m3	\$140.00	m3	\$1,120.00		
	structural slabs	0.00	m3	\$0.00 \$0.00	m3 m3	\$0.00 \$0.00	n/a n/a	
	bollard footings	2.00	m3	\$150.00	m3	\$300.00	174	
	environmental charge	317.00	m3	\$5.00	m3	\$1,585.00		
	winter heat	255.00	m3	\$17.00	m3	\$4,335.00		
	superplastisizer	155.00	m3	\$15.00	m3	\$2,325.00		ĆE 4 74 E 00
	waste	10.00	m3	\$175.00	m3	\$1,750.00		\$54,715.00
04220	MASONRY							
	190mm reinforced LB block walls - perimeter	342.00	m2	\$215.00	m2	\$73,530.00		
	240mm reinforced LB block walls - perimeter	589.00	m2	\$250.00	m2	\$147,250.00		
	190mm block walls - interior	702.00	m2	\$180.00	m2	\$126,360.00		
	190mm reinforced LB block Walls - Interior	142.00	m2 m2	\$215.00	m2 m2	\$30,530.00	n/a	
	brick veneer	0.00	m2	\$0.00	m2	\$0.00	n/a	
	architectural block	138.00	m2	\$375.00	m2	\$51,750.00		
	trim lintel	5.00	m	\$375.00	m	\$1,875.00		
	precast sills	119.00	m	\$150.00	m	\$17,850.00		
	grout hm door frames	32.00	ea m2	\$150.00	ea m2	\$4,800.00	See 7210	
	cavity wall air vapour barrier	0.00	m2	\$0.00	m2	\$0.00	See 7210	\$453.945.00
05120	STRUCTURAL STEEL							
	columns	2.00	mt	\$7,500.00	mt	\$15,000.00		
	mezzanine framing	3.00	mt	\$7,500.00	mt	\$22,500.00		
	overhead door frames - apparatus bay	6.00	ea	\$3.500.00	ea	\$1,600.00		
	overhead door frames - others	3.00	ea	\$1,500.00	ea	\$4,500.00		
	design development	5.00	mt	\$500.00	mt	\$2,500.00		\$67,100.00
05310	STEEL DECKING	111.00	m2	\$65.00	m2	\$7 215 00		
	roof deck	0.00	m2	\$0.00	m2	\$0.00	n/a	
	roof upstands	0.00	m	\$0.00	m	\$0.00	n/a	\$7,215.00
05580	MISCELLANEOUS METALS	12.00		¢550.00		¢c c00 00		
	bollards at 0/h doors - apparatus bay	2.00	ea	\$550.00	ea	\$6,600.00		
	bollards at o/h doors - maintenance room	0.00	ea	\$550.00	ea	\$0.00	nic	
	bollards at generator	3.00	ea	\$550.00	ea	\$1,650.00		
	bollards at transformer	8.00	ea	\$550.00	ea	\$4,400.00		
	bollards at cistern	4.00	ea	\$550.00	ea m2	\$2,200.00	07460	
	bd trench drains 300mm wide - apparatus bays	61.00	m	\$0.00	m	\$0.00	see 07460	
	hd trench drain 600x600 CB's - apparatus bays	4.00	ea	\$1,500.00	ea	\$6,000.00		
	galvanized stairs w/ grating treads and railings	18.00	trds	\$600.00	trds	\$10,800.00		
	metal plate at top of perimeter wall	150.00	m	\$50.00	m	\$7,500.00		
	o/h door frame - see 05120	0.00	kg	\$0.00	kg	\$0.00	see 05120	
	lintel W200x27 - supply (10 each)	459.00	kg kg	\$4.50	kg kg	\$1,755.00		
	miscellaneous items	1,238.00	m2	\$10.00	m2	\$12,380.00		\$107,842.00
06110	ROOF WOOD BLOCKING							
	2 x 6 root blocking	0.00	m	\$0.00	m	\$0.00	n/a	
	2 x 6 soffit framing	457.00	m	\$12.38	m	\$5.655.00		
	3/4" plywood to roof	0.00	sht	\$0.00	sht	\$0.00	n/a	
	1/2" plywood to roof - supply	572.00	sht	\$60.00	sht	\$34,320.00		
	1/2" plywood to roof - install	572.00	sht	\$25.00	sht	\$14,300.00		
	structural roof trusses 27m span	69.00	ea	\$675.00	ea	\$46,575.00		
1	structural roof trusses 11m span	30.00	ea	\$575.00	ea	\$20,700.00		
	structural roof trusses 1m to 11m avg. span	115.00	ea	\$150.00	ea	\$17,250.00		
	structural roof trusses 1m to 5m avg. span	23.00	ea	\$75.00	ea	\$1,725.00		
	structural roof trusses installation	254.00	ea	\$185.00	ea	\$46,990.00		
	girder trussess 22m to 26m span - supply	4.00	ea	\$1,500.00	ea	\$6,000.00		\$200 F24 00
	Burder (19322) IIISTallation	4.00	ea	3500.00	ca	\$1,200.00		<i>⊋</i> ∠00,324.00
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Wainfleet F	ire Station					August 25th, 2021.	-	
Wainfleet,	ON							
				4.6.1				
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
00120								
06120	Wood blocking	1 228 00	m)	¢2.00	m)	¢2 714 00		¢2 714 00
-		1,238.00	mz	\$3.00	mz	\$3,714.00		\$3,714.00
06150								
00130	cite security fencing - set un / dismantle	532.00	m	\$5.00	m	\$2,660,00		
-	site security fencing - sec up / dismance	10.00	mths	\$1.300.00	mths	\$2,000.00		
	weather tight enclosures	50.00	m2	\$90.00	m2	\$4 500.00		
-	temporary partitions	50.00	m2	\$60.00	m2	\$3.000.00		
-	temporary stair to roof -initial setup & dismantle	0.00	sum	\$3.500.00	sum	\$0.00	n/a	
	temporary stair -monthly rental	0.00	mth	\$1,000.00	mth	\$0.00	n/a	
-	safety rails	1.00	sum	\$1,500.00	sum	\$1,500.00		\$24,660.00
06220	MILLWORK / FINISH CARPENTRY							
	upper / lower cabinets - kitchen	12.00	m	\$1,500.00	m	\$18,000.00		
	upper / lower cabinets - dispatch	2.00	m	\$1,500.00	m	\$3,000.00		
	upper / lower cabinets - maintenance	6.00	m	\$1,500.00	m	\$9,000.00		
	upper / lower cabinets - scba	4.00	m	\$1,500.00	m	\$6,000.00		
	lower counter / cabinets - training	8.00	m	\$750.00	m	\$6,000.00		
	lower counter / cabinets - maintenance	3.00	m	\$750.00	m	\$2,250.00		
	washroom vanities	4.00	m	\$600.00	m	\$2,400.00		
L	locker room benches (3 each)	4.00	m	\$450.00	m	\$1,800.00		
	plastic laminated window sills	25.00	m	\$175.00	m	\$4,375.00		\$52,825.00
0-1								
07110	DAMPPROOFING			40		Ao	- 1-	** **
-	dampproofing	0.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
07240								
07210	BUILDING INSULATION	105.00		ć 40.00		ć7 400 00		
-	rigid insulation 50mm at perimeter foundations	185.00	m2	\$40.00	m2	\$7,400.00		
	rigid insulation 50mm to u/s of 350 dat perimeter of full wall	551.00	m2	\$40.00	m2	\$5,500.00		
	vanour barrier to u/s truss	1 165 00	m2	\$100.00	m2	\$35,100.00		
-	blown-in insulation to attic	1,105.00	m2	\$20.00	m2	\$2,035.00		
	sprayed insulation 4" behind cladding	621.00	m2	\$50.00	m2	\$31,050,00		\$121 529 00
		022100		\$50.00		<i>\\</i>		\$121,525100
07410	METAL ROOFING							
	sloped metal roofing w/ membranes - supply	1.360.00	m2	\$30.00	m2	\$40.800.00		
-	sloped metal roofing w/ membranes - installation	1.360.00	m2	\$25.00	m2	\$34.000.00		
	metal soffit	214.00	m2	\$30.00	m2	\$6,420.00		
-	metal fascia	225.00	m	\$50.00	m	\$11,250.00		
-	eavestroughs	119.00	m	\$20.00	m	\$2,380.00		
	ridge vent	55.00	m	\$50.00	m	\$2,750.00		
	snow guards	167.00	m	\$20.00	m	\$3,340.00		\$100,940.00
07460	METAL SIDING							
	metal siding (above o/h doors)	81.00	m2	\$175.00	m2	\$14,175.00		
	metal siding	483.00	m2	\$175.00	m2	\$84,525.00		
-	galvanized metal liner ceiling - apparatus bays	564.00	m2	\$50.00	m2	\$28,200.00		
-	miscellaneous flashings	1.00	sum	\$1,000.00	sum	\$1,000.00		\$127,900.00
07810	SPRAYED FIREPROOFING		-	4	-	1		
	sprayed fireproofing to u/s of mezzanine	111.00	m2	\$50.00	m2	\$5,550.00		\$5,550.00
07840	FIRESTOPPING / SMOKE SEAL	4 220 00		ć2.00		¢2.476.00		¢2.476.00
	The stop	1,238.00	m2	\$2.00	m2	\$2,476.00		\$2,476.00
07020	CEALANTS							
07920	SEALANIS	1 228 00	m)	\$2.00	m)	\$2,476,00		\$2,476,00
	56010115	1,238.00	1112	\$2.00	1112	\$2,470.00		\$2,470.00
08110	HOLLOW METAL DOORS & FRAMES							
00110	single door frames	32.00	ea	\$150.00	ea	\$4 800 00		
	single door names	0.00	ea	\$0.00	ea	\$0.00	n/a	
	double door frames	0.00	ea	\$0.00	ea	\$0.00	n/a	
	doors	32.00	ea	\$180.00	ea	\$5,760.00	/-	
	windows or screens	0.00	ea	\$0.00	ea	\$0.00	n/a	\$10,560.00
08114	INSTALL METAL DOORS & FRAMES							
	single door frames	32.00	ea	\$50.00	ea	\$1,600.00		
	double door frames	0.00	ea	\$0.00	ea	\$0.00	n/a	
	doors	32.00	ea	\$150.00	ea	\$4,800.00		
	windows or screens	0.00	ea	\$0.00	ea	\$0.00	n/a	
	handle doors, frames & screens	64.00	ea	\$30.00	ea	\$1,920.00		\$8,320.00
1			1		1	1		



Wainfleet I	ainfleet Fire Station				August 25th, 2021.			
Wainfleet,	ON		[		[	T		
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
00420								
08120	ALUMINUM WINDOWS & DOORS	5.00	m2	\$850.00	m2	\$4 250 00		
	aluminum entrances & scorenonts	2.00	ea	\$2.800.00	ea	\$5,600.00		
	aluminum windows (11 each w/ operable opngs)	43.00	m2	\$750.00	m2	\$32,250.00		\$42,100.00
08220								
08330	coiling shutters at kitchen - 1500 x 1159	2.00	ea	\$1,500.00	ea	\$3.000.00		\$3.000.00
		2.00	cu	<i><i></i></i>	cu	\$5,000100		\$3,000100
08360	OVERHEAD DOORS							
	apparatus bay doors - 4267 x 4200 (electrically operated)	6.00	ea	\$11,000.00	ea	\$66,000.00		
	storage doors - 1524 x 2200 (manually operated)	1.00	ea	\$3,500.00	ea	\$3,500.00	nic	¢60 500 00
	maintenance - 2000 x 2400 (manually operated)	0.00	ea	\$0.00	ea	\$0.00	nic	\$69,500.00
08710	FINISH HARDWARE							
	hollow metal doors	32.00	ea	\$0.00	ea	\$0.00	See Div 17	<u> </u>
	door operator c/w controls for universal washroom	1.00	ea	\$4,500.00	ea	\$4,500.00		\$4,500.00
08800	MISCELLANEOUS GLASS & GLAZING							
	glazing at transom at hm frame	1.00	m2	\$350.00	m2	\$350.00		
	sliding glass windows at admin	1.00	ea	\$1,500.00	ea	\$1,500.00		\$1,850.00
00250								
09230	drywall to perimeter walls	0.00	m2	\$0.00	m2	\$0.00	n/a	
	drywall partitions	0.00	m2	\$0.00	m2	\$0.00	n/a	
	drywall furred to masonry	0.00	m2	\$0.00	m2	\$0.00	n/a	
	drywall ceilings to u/s of truss (5/8" FR) - apparatus bay	0.00	m2	\$0.00	m2	\$0.00	n/a	
	drywall ceilings to u/s of truss (5/8" FR) - remainder of bldg	447.00	m2	\$75.00	m2	\$33,525.00		¢48.265.00
	drywaii ceilings - suspended	134.00	mz	\$110.00	mz	\$14,740.00		\$48,265.00
09310	CERAMIC TILE							
	ceramic tile flooring	74.00	m2	\$180.00	m2	\$13,320.00		
	ceramic tile flooring - showers (#4)	4.00	m2	\$300.00	m2	\$1,200.00	,	
	ceramic tile to walls - showers (#4)	0.00	m2 m	\$0.00	m2 m	\$0.00 \$2.210.00	n/a	\$17 720 00
		107.00		\$30.00		\$5,210.00		\$17,750.00
09510	ACOUSTIC CEILINGS							
	acoustic tile ceilings	318.00	m2	\$65.00	m2	\$20,670.00		\$20,670.00
00650								
09030	sheet flooring	415.00	m2	\$80.00	m2	\$33,200.00		
	intergral cove base	354.00	m	\$40.00	m	\$14,160.00		\$47,360.00
09670	FLUID APPLIED FLOORING	0.00	m2	¢0.00	m2	¢0.00	n/2	
	intergral cove bases	0.00	m	\$0.00	m	\$0.00	n/a n/a	
	clear sealer	624.00	m2	\$15.00	m2	\$9,360.00	.,, a	
	rubber base	233.00	m	\$9.50	m	\$2,214.00		\$11,574.00
09910	PAINTING	021.00	m2	¢10.00		ć0 210 00		
	masonry partitions - two sided	1.404.00	m2	\$10.00	m2	\$9,510.00		
	masonry partitions - e/o epoxy paint	934.00	m2	\$25.00	m2	\$23,350.00		
	drywall partitions	0.00	m2	\$0.00	m2	\$0.00	n/a	
	drywall ceilings	134.00	m2	\$10.00	m2	\$1,340.00		
	exposed structure ceilings	93.00	m2	\$10.00	m2	\$930.00		
	bollards	29.00	ea	\$75.00	ea	\$2,175.00		
	miscellaneous items	1.00	sum	\$1,000.00	sum	\$1,000.00		\$60,145.00
10160	TOILET COMPARTMENTS			Å4 750 00		440 500 00		
	toilet partitions (metal)	6.00	ea	\$1,750.00	ea	\$10,500.00		\$11 /00 00
		2.00	ca	Ş450.00	ca	\$500.00		Ş11,400.00
10430	EXTERIOR SIGNAGE							
	exterior signage - main sign over o/h doors	1.00	sum	\$10,000.00	sum	\$10,000.00		\$10,000.00
10440								
10440	interior signage	1 238 00	m2	\$2.00	m2	\$2 476 00		\$2 476 00
		1,233.00		<i>\$</i> 2.00		<i>\$2,</i> 470.00		<i>42,470.00</i>
10500	LOCKERS							
	lockers (double)	26.00	ea	\$250.00	ea	\$6,500.00		\$6,500.00



Wainfleet F	ire Station					August 25th, 2021.		
Wainfleet,	ON							
Castion	Itom	Quantity		¢/IImit		Totals	Bomarka	Faction Total
Section	item	Quantity		\$/Unit		Totals	Remarks	Section Total
10670	STORAGE SHELVING							
	bunker room storage lockers	32.00	ea	\$650.00	ea	\$20,800.00		
	misc. shelving / work benches	1.00	ea	\$10,000.00	ea	\$10,000.00		\$30,800.00
10810	WASHROOM ACCESSORIES							
	toilet paper dispseners (OSCI)	8.00	ea	\$0.00	ea	\$0.00	nic	
	grab bars	10.00	ea	\$75.00	ea	\$750.00	nic	
	naner towel dispenser / disposal (OSCI)	6.00	ea	\$0.00	ea	\$0.00	nic	
	mirrors	6.00	ea	\$50.00	ea	\$300.00		
	coat hooks	8.00	ea	\$15.00	ea	\$120.00		
	shower curtain & rod	4.00	ea	\$50.00	ea	\$200.00		
	hand dryers	0.00	ea	\$0.00	ea	\$0.00	nic	
	install washroom accessories	48.00	ea	\$50.00	ea	\$2,400.00		\$3,770.00
11450								
11450		1.00	ea	\$2,800,00	ea	\$2,800,00		
	freezer	1.00	ea	\$2,800.00	ea	\$2,800.00		
	range	1.00	ea	\$950.00	ea	\$950.00		
	dishwasher	1.00	ea	\$750.00	ea	\$750.00		
	televisions	4.00	ea	\$750.00	ea	\$3,000.00	nic	
	office furniture - see 12400	0.00	ea	\$0.00	ea	\$0.00	see Div 12400	
	office equipment / phones - see 12400	0.00	ea	\$0.00	ea	\$0.00	see Div 12400	
L	training room projector	1.00	ea	\$1,000.00	ea	\$1,000.00		
	whole building PA and Kadlo Interference	1.00	ea	\$1,000.00	ea	\$1,000.00	by Owner	
-		1.00	ed op	\$0.00	ed op	\$2,500,00	by Owner	
	tool compressor	1.00	ea	\$2,500.00	ea	\$2,500.00		
	scba compressor	0.00	ea	\$0.00	ea	\$0.00	by Owner	
	scba filter, cascade system	0.00	ea	\$0.00	ea	\$0.00	by Owner	
	laundry washer / dryer	2.00	ea	\$1,500.00	ea	\$3,000.00		
	equipment washer	0.00	ea	\$0.00	ea	\$0.00	by Owner	
-	ppe extractors	2.00	ea	\$15,000.00	ea	\$30,000.00		
	IT wiring / cablining	0.00	ea	\$0.00	ea	\$0.00	See Div 16	
	IT servers / racking	0.00	ea	\$0.00	ea	\$0.00 \$0.00	See Div 16	
-	unload uncrate set in place & book-up	16.00	ea	\$0.00	ea	\$0.00	See Div 16	\$52 700 00
-	unioad, uncrate, set in place & nook-up	10.00	ca	\$150.00	ca	\$2,400.00		\$52,700.00
12400	FURNITURE, FIXTURES & EQUIPMENT							
	furniture, fixtures & equipment - supply - See Division 17	0.00	sum	\$0.00	sum	\$0.00	See Div 17	
	furniture, fixtures & equipment - installation	40.00	hrs	\$330.00	hrs	\$13,200.00		\$13,200.00
12400								
12490	window treatment	0.00	m)	\$0.00	m2	\$0.00	nic	\$0.00
		0.00	1112	Ş0.00	1112	Ş0.00	IIIC	\$0.00
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Wainfleet I	ire Station				August 25th, 2021.			
Wainfleet,	ON							
Continu	lterer	Quantitu		¢/µ=it		Tatala	Domenutes	Continu Total
Section	Item	Quantity		Ş/Unit		lotals	Remarks	Section Total
15100	MECHANICAL							
	underground plumbing:							
	15mm hot / cold water to drains	74.00	m	\$35.00	m	\$2,590.00		
	20mm hot / cold water to drains	14.00	m	\$45.00	m	\$630.00		
	80mm hot / cold water to tanks	5.00	m	\$75.00	m	\$375.00		
	80mm sanitary	60.00	m	\$80.00	m	\$4,800.00		
	100mm sanitary	186.00	m	\$100.00	m	\$18,600.00	,	
	150mm sanitary	0.00	m	\$130.00	m	\$0.00 ¢15.000.00	n/a	
	floor drains	11.00	ed op	\$15,000.00	ed a	\$15,000.00		
		11.00	cu	\$550.00	cu	\$3,030.00		
	aboveground plumbing							
	domestic hot water heater	1.00	ea	\$3,500.00	ea	\$3,500.00		
	water softener	1.00	ea	\$2,500.00	ea	\$2,500.00		
	100mm storm line (roof drainage)	0.00	m	\$0.00	m	\$0.00	n/a	
	50mm vent piping	129.00	m	\$50.00	m	\$6,450.00		
	vent stack penetration at roof	5.00	ea	\$250.00	ea	\$1,250.00		
	100mm sanitary	43.00	m	\$150.00	m	\$6,450.00		
		2.00	ed	\$2,500.00	ed and	\$20,000.00		
	sinks w/ touchless facets	6.00	ea	\$1,500.00	ea	\$9,000.00		
	stainless work sink (s1), double compartment	1.00	ea	\$2,700.00	ea	\$2,700.00		
	stainless work sink (s2), hand wash basin	1.00	ea	\$2,700.00	ea	\$2,700.00		
	stainless work sink (s3), laundry sink	1.00	ea	\$2,500.00	ea	\$2,500.00		
	stainless work sink (s3a), laundry sink	1.00	ea	\$2,500.00	ea	\$2,500.00		
	eye wash station	1.00	ea	\$4,500.00	ea	\$4,500.00		
-	shower head w/ controls	4.00	ea	\$1,250.00	ea	\$5,000.00		
	janitor sink	2.00	ea	\$1,750.00	ea	\$3,500.00		
	hot / cold water 15mm	41.00	m	\$15.00	m	\$615.00		
	hot / cold water 25mm	257.00	m	\$40.00	m	\$1,240.00		
-	hot / cold water 32mm	5.00	m	\$55.00	m	\$12,850.00		
	hot / cold water 40mm	25.00	m	\$60.00	m	\$1,500.00		
	hot / cold water 80mm	31.00	m	\$70.00	m	\$2,170.00		
	shut off valves	47.00	ea	\$150.00	ea	\$7,050.00		
	hose bibs	4.00	ea	\$250.00	ea	\$1,000.00		
	hose bibs (barn)	0.00	ea	\$0.00	ea	\$0.00	nic	
	water meter	1.00	ea	\$3,500.00	ea	\$3,500.00		
	convice nining							
	gas meter	1.00	00	\$5,000,00	63	\$5,000,00		
	gas piping 75mm	69.00	m	\$125.00	m	\$8.625.00		
-	gas piping 50mm	27.00	m	\$95.00	m	\$2,565.00		
	compress air system in apparatus bay	468.00	m2	\$30.00	m2	\$14,040.00		
	truck fill / empty station at barn	1.00	ea	\$5,000.00	ea	\$5,000.00		
	hvac							
	erv unit	1.00	ea	\$25,000.00	ea	\$25,000.00		
	ductwork	2,090.00	kg	\$26.00	kg	\$54,340.00		
<u> </u>	vrf condensing units	2.00	ea	\$3,500.00 \$5,000.00	ea	\$3,500.00 \$10.000.00		
	vrf wall / ceiling units	10.00	ea	\$3,000.00	ea	\$10,000.00		
	dehumification unit for bunker area	1.00	ea	\$7,500.00	ea	\$7,500.00		
	exhaust fans	6.00	ea	\$450.00	ea	\$2,700.00		
	exhaust fans (kitchen)	2.00	ea	\$500.00	ea	\$1,000.00		
	radiant heater at apparatus bays	64.00	m	\$375.00	m	\$24,000.00		
	radiant heater at barn	0.00	m	\$0.00	m	\$0.00	n/a	
	fans at apparatus bays	3.00	ea	\$1,500.00	ea	\$4,500.00		
	co2 detection system at apparatus bay	468.00	m2	\$30.00	m2	\$14,040.00		
	hydronic in floor heating							
	boiler plant w/ associated piping. exhaust	1.00	ea	\$15,000.00	ea	\$15.000.00		
-	piping distribution (above grade)	452.00	m2	\$20.00	m2	\$9,040.00		
	piping distribution (in slab)	452.00	m2	\$30.00	m2	\$13,560.00		
	controls per room	11.00	ea	\$400.00	ea	\$4,400.00		
L	glycol in floor heating (apparatus bay)							
		1.00	ea	\$15,000.00	ea	\$15,000.00		
	piping distribution (above grade)	566.00	m2 m2	\$20.00	m2	\$11,320.00		
	controls per room	00.000 1 00	ea	\$30.00 \$400.00	ea	00.00¢,01¢ ۵۵۵,000		\$ <i>444</i> 705 00
		1.00		Ç <del>4</del> 00.00		<i>↓</i> -100.00		÷+++,705.00



Wainfleet F	ire Station					August 25th, 2021.		
Wainfleet,	ON							
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
15300	FIRE PROTECTION							
	fire protection - not required	1,238.00	m2	\$0.00	m2	\$0.00	nic	
	fire extinguishers	7.00	ea	\$250.00	ea	\$1,750.00		\$1,750.00
16100	ELECTRICAL							
	power & distribution							
	h.v. equipment at electrical room	1.00	sum	\$50,000.00	sum	\$50,000.00		
	distribution conduit / wiring	1,238.00	m2	\$40.00	m2	\$49,520.00		
	mechanical equipment feeds	15.00	ea	\$1.500.00	ea	\$22,500.00		
	grounding	1.00	sum	\$2,500.00	sum	\$2,500.00		
	generator (size thd)	1.00	sum	\$15,000,00	sum	\$15,000,00		
		1.00	54	\$15,000.00	Juin	\$15,000,00		
	data & communications							
	empty conduit	1 238 00	m2	\$5.00	m2	\$6 190 00		
	empty conduit	1,238.00	cum	\$5.00	cum	\$500.00		
	wire & terminations _ nic by Owner	1 229 00	m2	00.00	m2	\$300.00 \$0.00	by Owner	
	wife & terminations - file by Owner	1,238.00	1112	\$0.00	1112	Ş0.00	by Owner	
	lichting 8 vocastalas							
	Inditional Contractions	407.00		64E0.00		604 450 00		
	eu lightling	187.00	ea	\$450.00	ea	\$84,150.00		
L	eu nign bay lighting	12.00	ea	\$850.00	ea	\$10,200.00		
	light switch	11.00	ea	\$125.00	ea	\$1,375.00		
L	occupancy sensor (light switch)	26.00	ea	\$200.00	ea	\$5,200.00		
L	occupancy sensor (ceiling mounted)	8.00	ea	\$200.00	ea	\$1,600.00		
	receptacles 20amp	0.00	ea	\$200.00	ea	\$0.00		
	receptacles 15amp GFI's	9.00	ea	\$200.00	ea	\$1,800.00		
	receptacles 15amp	33.00	ea	\$125.00	ea	\$4,125.00		
	receptacles 15amp (floor mtd)	6.00	ea	\$250.00	ea	\$1,500.00		
	fire alarm	1,238.00	m2	\$35.00	m2	\$43,330.00		
	security system							
	empty conduit	1.238.00	m2	\$5.00	m2	\$6.190.00		
	wire & equipment - nic by Owner	1.238.00	m2	\$0.00	m2	\$0.00	by Owner	
		_,				70.00	-,	
	nublic address system	1 238 00	m2	\$8.00	m2	\$9 904 00		\$315 584 00
-		1,230.00	1112	\$0.00	1112	\$5,504.00		\$515,504.00
17000	ALLOWANCES:							
17000	hardware	1.00	cum	\$60,000,00	cum	\$60,000,00		
	increation & testing	1.00	sum	\$00,000.00	sum	\$00,000.00		
		1.00	sum	\$35,000.00	sum	\$55,000.00		
	nyuro / gas services	1.00	sum	\$90,000.00	sum	\$90,000.00		
	surveying	1.00	sum	\$22,000.00	sum	\$22,000.00		
	ffe	1.00	sum	\$150,000.00	sum	\$150,000.00		
	security / access control	1.00	sum	\$40,000.00	sum	\$40,000.00		
	permits	1.00	sum	\$40,000.00	sum	\$40,000.00		\$457,000.00
	Total Base Cost					\$4,056,373.00		\$4,056,373.00
L								
	Total Projected Construction Costs			\$304.51	/sf	\$4,056,373.00	+HST	
	Building Areas:							
	-ground floor	12,170.00	sf	1,131.00	m2			
	-2nd floor (mezzanine)	1,151.00	sf	107.00	m2			
[		-					-	
	Total Building Area	13,321.00	sf	1,238.00	m2			
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Wainfleet H	ire Station	BARN				August 25th, 2021.		
Wainfleet,	ON							
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
				<i>,, , , , , , , , , ,</i>				
02025	BUILDING DEMOLITION							
	removals applicable to entire barn							
	rmv loose furnishing / tools / equipment	24.00	) hrs	\$220.00	hrs	\$5,280.00		
	disconnect / make safe M&E	4.00	) hrs	\$95.00	hrs	\$380.00		
	rmv m&e	16.00	) hrs	\$220.00	hrs	\$3,520.00		-
	portion of barn to be fully removed							
	rmv metal siding (179m2)	0.00	) hrs	\$220.00	hrs	\$0.00		
	rmv metal roofing (164m2)	0.00	hrs	\$220.00	hrs	\$0.00		
	rmv plywood off trussess (164m2)	0.00	) hrs	\$220.00	hrs	\$0.00		
	rmv contaminated attic insul (164m2)	6.00	) hrs	\$375.00	hrs	\$2,250.00		
	rmy wood trusses, cut up (34 each)	0.00	hrs	\$220.00	hrs	\$0.00		
-	rmv perimeter wall (framing & insul) - upper level (94m2)	0.00	hrs	\$220.00	hrs	\$0.00		
	rmv plywood (interior) on mezzanine floor (137m2)	0.00	) hrs	\$220.00	hrs	\$0.00		
-	rmv 2x6 joists (interior) on mezzanine floor (68 ea)	0.00	) hrs	\$220.00	hrs	\$0.00		
-	rmv 2x12 laminated beam (interior) on mezzanine (16m)	0.00	hrs	\$220.00	nrs	\$0.00		
-	rmy perimeter wall (framing & insul) - lower level (81m2)	0.00	hrs	\$220.00	hrs	\$0.00		
	rmv hollow metal door & frame (2ea)	0.00	) hrs	\$220.00	hrs	\$0.00		-
	rmv large sliding barn door (1 ea)	0.00	) hrs	\$220.00	hrs	\$0.00		
	rmv wood stairs (1ea)	0.00	) hrs	\$220.00	hrs	\$0.00		
	rmv vents / tans in wall (Sea)	0.00	hrs	\$220.00	nrs hrs	\$0.00		
	remove portion of barn	164.00	) m2	\$50.00	m2	\$8,200.00		-
	rmv existing slab on grade	137.00	) m2	\$30.00	m2	\$4,110.00		
	rmv existing masonry foundation wall	73.00	) m2	\$30.00	m2	\$2,190.00		
	rmv existing concrete wall footing	40.00	) m	\$30.00	m	\$1,200.00		
	core hole in existing slab for new pier 12"	1.00	) ea	\$150.00	ea ea	\$1,500.00		
	equipment / materials	0.00	) sum	\$3,000.00	sum	\$0.00		-
	disposal bins	10.00	) ea	\$700.00	ea	\$7,000.00		
	portion of barn to remain							-
	labour rmy metal siding (229m2)	12.00	hrs	\$220.00	hrc	\$2,640,00		
	rmv metal roofing (240m2)	12.00	hrs	\$220.00	hrs	\$3,520.00		
	rmv plywood to perimeter walls (229m2) - exterior - optional	0.00	) hrs	\$0.00	hrs	\$0.00	nic	-
	rmv plywood (cut holes for access) off trussess (37m2)	4.00	) hrs	\$220.00	hrs	\$880.00		
	rmv contaminated attic insul (234m2)	12.00	) hrs	\$375.00	hrs	\$4,500.00		
	rmv plywood to u/s of truss (234m2) - optional	16.00	hrs	\$0.00	nrs hrs	\$0.00	nic n/a	
	rmv perimeter wall (plywood & insul only) - upper level (121m2)	8.00	) hrs	\$220.00	hrs	\$1,760.00	ių d	-
	rmv plywood (interior) on mezzanine floor (117m2)	8.00	) hrs	\$220.00	hrs	\$1,760.00		
	rmv plywood (interior) on mezzanine floor (2a-3) - (77m2) - optional	0.00	) hrs	\$220.00	hrs	\$0.00	nic	
	rmv 2x6 joists (interior) on mezzanine floor (56 ea)	8.00	hrs	\$220.00	hrs	\$1,760.00		
	rmv 2x12 laminated beam (interior) on mezzanine (13m)	2.00	hrs	\$220.00	hrs	\$880.00		
	rmv perimeter wall (plywood & insul only) - lower level (104m2)	8.00	hrs	\$220.00	hrs	\$1,760.00		-
	rmv hollow metal door & frame (1ea)	0.25	5 hrs	\$220.00	hrs	\$55.00		
	rmv large sliding barn door (1 ea)	0.00	) hrs	\$220.00	hrs	\$0.00		
	rmv wood stairs (1ea)	0.00	hrs	\$220.00	hrs	\$0.00	n/a	
	rmy existing slab on grade	19.00	) m2	\$110.00	ea m2	\$350.00		
	rmv existing masonry foundation wall	0.00	) m2	\$30.00	m2	\$0.00	n/a	-
	rmv existing concrete wall footing	0.00	) m	\$30.00	m	\$0.00	n/a	
	rmv existing pier footings	0.00	) ea	\$150.00	ea	\$0.00	n/a	
	core hole in existing slab for new pier 12"	0.00	) ea	\$500.00	ea m2	\$0.00	n/a	
	equipment / materials	1.00	) sum	\$10.00	sum	\$3,000.00		
	disposal bins	5.00	) ea	\$700.00	ea	\$3,500.00		\$66,910.00
02230	CLEAR & GRUB	8.00	ha	¢220.00	h.u	¢1 700 00		¢1 700 00
	clear & grub site around building	8.00	nr	\$220.00	nr	\$1,760.00		\$1,760.00
02250	SHORING & UNDERPINNING							+
	temporary shoring for building removals	1.00	) sum	\$5,000.00	sum	\$5,000.00		\$5,000.00
								<u> </u>
02315	BUILDING EXCAVATION	22.00		60F 00	m2	ć1 130 00		+
	hand excavation	32.00	hrs	\$35.00 \$75.00	hrs	\$1,120.00		+
-	fence protection at excavations	1.00	) sum	\$50.00	sum	\$50.00		1
	disposal on site	32.00	) m3	\$10.00	m3	\$320.00	n/a	\$1,790.00
1			1					1



Wainfleet F Wainfleet	ire Station	tion BARN August 25th, 2021.						
wanijieet,								
Section	Item	Quantity		Ş/Unit		Totals	Remarks	Section Total
02320	BUILDING BACKFILL							
	wall footing	70.00	mt	\$40.00	mt	\$2,800.00		
	A' to u/s slab on grade	8.00	mt	\$45.00	mt	\$360.00		\$3,160.00
02580	LECTRICAL STIE SERVICES	20.00	m	\$150.00	m	\$3,000,00		\$3,000,00
		20.00		\$150.00		\$3,000.00		\$3,000.00
02600	MECHANICAL SITE SERVICES							
	services to building	0.00	m	\$0.00	m	\$0.00	nic	\$0.00
								<u> </u>
02620	FOUNDATION DRAINAGE	0.00	m	\$0.00	m	\$0.00	n/2	\$0.00
		0.00	111	\$0.00		\$0.00	ii/a	Ş0.00
02740	ASPHALT PAVING							
	light duty asphalt pavement	0.00	m2	\$0.00	m2	\$0.00	n/a	
	excavation to pavement	0.00	m3	\$0.00	m3	\$0.00	n/a	\$0.00
03750								H
02750		0.00	m2	\$0.00	m2	\$0.00	n/a	
	granular 'A' to u/s concrete pavement	0.00	mt	\$0.00	mt	\$0.00	n/a	\$0.00
	<b>8</b>						.,	
02770	CONCRETE CURBS							
	precast wheel stops	0.00	m	\$350.00	m	\$0.00	n/a	
	concrete curbs	0.00	m	\$75.00	m	\$0.00	n/a	\$0.00
02820	EENCING & GATES							
02820	fencing / gates	0.00	m	\$0.00	m	\$0.00	n/a	\$0.00
							1-	
02920	SEEDING / SODDING							
	fine grade & seed disturbed areas	130.00	m2	\$2.50	m2	\$325.00		
	landscaping	0.00	sum	\$0.00	sum	\$0.00	n/a	\$325.00
03110	BUILDING CONCRETE FORMWORK							
	foundation wall footings	3.00	m2	\$200.00	m2	\$600.00		
	concrete footing 12" dia. x 4' deep	1.00	ea	\$150.00	ea	\$150.00		-
	slab on grade	7.00	m2	\$90.00	m2	\$630.00		-
	formwork equipment	11.00	m2	\$10.00	m2	\$110.00		\$1,490.00
03140	SET EMBEDDED ITEMS							
03140	anchor bolts	0.00	ea	\$15.00	ea	\$0.00		
	miscellaneous items	1.00	sum	\$500.00	sum	\$500.00		\$500.00
03150				4				<u> </u>
	drill & grout anchors in slab edges	30.00	ea	\$15.00	ea	\$450.00		\$600.00
		1.00	sum	\$150.00	Sum	\$150.00		\$600.00
03210	REINFORCING STEEL							
	foundations	110.00	kg	\$5.00	kg	\$550.00		
	mesh to slab on grade	22.00	m2	\$7.50	m2	\$165.00		\$715.00
02210								ŀ
03310	foundation wall footings	1.00	m3	\$70.00	m3	\$70.00		[
	concrete footing 12" dia. x 4' deep	1.00	ea	\$70.00	ea	\$70.00		
	slab on grade	3.00	m3	\$70.00	m3	\$210.00		
	placement equipment	5.00	m3	\$30.00	m3	\$150.00		\$500.00
02245								ŀ
03315	clab on grade	19.00	m2	\$30.00	m2	\$570.00		
	cure & seal	19.00	m2	\$1.70	m2	\$32.00		 
	sawcut & filler to slab on grade	10.00	m	\$6.50	m	\$65.00		\$667.00
03320	CONCRETE RESTORATION			1		1		+=
	repair existing slab on grade - optional	165.00	m2	\$0.00	m2	\$0.00	nic	\$0.00
03330	CONCRETE SUPPLY							
	foundations	1.00	m3	\$150.00	m3	\$150.00		 
	slabs on grade	3.00	m3	\$150.00	m3	\$450.00		
	environmental charge	4.00	m3	\$5.00	m3	\$20.00		
	winter heat	0.00	m3	\$0.00	m3	\$0.00	n/a	ŀ
	superplastisizer	0.00	m3	\$0.00 ¢175.00	m3	\$0.00 ¢175.00	n/a	¢705.00
	waste	1.00		\$173.00		\$175.00		00.557ډ



Wainfleet F	ire Station	BARN				August 25th, 2021.		
Wainfleet,	ON							
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
04220	MASONRY			4500.00		44.500.00		
	masonry foundation wall	9.00	m2	\$500.00	m2	\$4,500.00		<u> </u>
	repair existing masonry walls - optional	23.00	m2	\$0.00	m2	\$0.00	nic	\$4,500.00
05580	MISCELLANEOUS METALS							
	bollards at o/h doors	0.00	ea	\$0.00	ea	\$0.00	nic	4
	miscellaneous items	1.00	sum	\$1,000.00	sum	\$1,000.00		\$1,000.00
06110	ROUGH CARPENIRY							
	material							
	new 2x4 wall at grid line 1 (38m)							
	new 2x4 wall at grid line 3, fill opng) (3m)							
	new 2x4 studs laminated to extg studs (150 ea)							
	modifications to existing barn other than noted above			44.6.00		40.056.00	nic	
	2x4 top / bottom plates	141.00	m	\$16.00	m	\$2,256.00		
	2x4x16 studs	290.00	ea	\$17.00	ea	\$4,930.00		
	1/2 plywood	17.00	sht	\$60.00	sht	\$1,020.00		
	2x12x16 for stairs	5.00	ea	\$56.50	ea	\$283.00		
	2x4 pine railing	96.00	m	\$7.00	m	\$672.00		
	labour							
	trame new wall on grid line 1	16.00	hrs	\$300.00	hrs	\$4,800.00		
L	frame (fill opng) on grid line 3	8.00	hrs	\$300.00	hrs	\$2,400.00		
L	build / install stairs	8.00	hrs	\$300.00	hrs	\$2,400.00		
L	build / install railing	16.00	hrs	\$300.00	hrs	\$4,800.00		
	cut opng in floor & thread studs through (150 each)	16.00	hrs	\$300.00	hrs	\$4,800.00		
	equipment	1.00	sum	\$1,500.00	sum	\$1,500.00		
	hardware	1.00	sum	\$300.00	sum	\$300.00		\$30,161.00
07110	DAMPPROOFING							
	dampproofing	0.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
07210	BUILDING INSULATION							
	rigid insulation 50mm at perimeter foundations	0.00	m2	\$0.00	m2	\$0.00	nic	
	batt insulation to walls - optional	288.00	m2	\$0.00	m2	\$0.00	nic	
	batt insulation to attic - optional	222.00	m2	\$0.00	m2	\$0.00	nic	
	air vapour barrier to walls - optional	288.00	m2	\$0.00	m2	\$0.00	nic	
	tyvek to perimeter walls	288.00	m2	\$5.00	m2	\$1,440.00		\$1,440.00
07410	METAL ROOFING / SIDING							
	metal roofing (havelock) - supply	240.00	m2	\$30.00	m2	\$7,200.00		
	metal siding (havelock) - supply	288.00	m2	\$30.00	m2	\$8,640.00		
	installation	528.00	m2	\$25.00	m2	\$13,200.00		
	metal soffit	27.00	m2	\$40.00	m2	\$1,080.00		
	metal fascia	67.00	m	\$50.00	m	\$3,350.00		
	eavestroughs	45.00	m	\$80.00	m	\$3,600.00		
	roof vents	10.00	ea	\$125.00	ea	\$1,250.00		
	snow guards	44.00	m	\$20.00	m	\$880.00		\$39,200.00
07840	FIRESTOPPING / SMOKE SEAL							
	fire stop	271.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
07920	SEALANTS							
	sealants	271.00	m2	\$2.00	m2	\$542.00		\$542.00
								i
08110	HOLLOW METAL DOORS & FRAMES							
	single door frames	2.00	ea	\$150.00	ea	\$300.00		
	double door frames	0.00	ea	\$0.00	ea	\$0.00	n/a	
	doors	2.00	ea	\$180.00	ea	\$360.00	.,	
	windows or screens	0.00	ea	\$0.00	ea	\$0.00	n/a	\$660.00
-		0.00		çoloo		çoioo	.i/u	\$000.00
08114	INSTALL METAL DOORS & FRAMES							
	single door frames	2.00	ea	\$50.00	ea	\$100.00		
	double door frames	0.00	63	\$0.00	60	\$0.00	n/a	
-	doors	2 00	ea	\$150.00	ea	00.00 ¢300.00	170	
	windows or screens	0.00	63	\$150.00	00	00.00¢	n/a	
	handle doors frames & screens	4.00	63	\$0.00 ¢20.00	ea	\$0.00 \$120.00	11/ a	¢500.00
		4.00	cu	ş50.00	ca	\$120.00		φ320.00
08350	OVERHEAD DOORS		+		1			
00500		1.00	02	63 F00 00	02	63 F00 00		63 F00 00
	inanuai 0/11 0001 14 X10	1.00	ea	\$3,500.00	ed	\$3,500.00		ş3,500.00
00740								
08/10	FINISH HARDWARE	2.00		6500.00		ć1 000 00		ć4 000 00
	nonow metal doors	2.00	ea	\$500.00	ea	\$1,000.00		\$1,000.00
F			l		<u> </u>			



Wainfleet F	ire Station	BARN				August 25th, 2021.		
Wainfleet,	ON							
				<i>.</i>				
Section	Item	Quantity		\$/Unit		Totals	Remarks	Section Total
00010	PAINTING							
09910	anovy point to ovta concrete floor _ optional	101.00	m)	\$0.00	m2	\$0.00	nic	
	epoxy paint to exig concrete hoor - optional	191.00	m2	\$0.00	m2	\$0.00	nic	
	point to walls / coilings	0.00	m2	\$0.00	m2	\$0.00 \$0.00	nic	
	ballow motal doors frames & screens	0.00	02	\$0.00	02	\$0.00	The	
		4.00	cum	\$123.00	cum	\$300.00		\$750.00
		1.00	Sum	\$250.00	Sum	\$250.00		\$750.00
15100	ΜΕCΗΔΝΙζΔΙ							
15100	exhaust fan / intake lounvre	1.00	63	\$2 500 00	02	\$2 500 00		\$2 500 00
	mechanical	271.00	m2	\$2,500.00	m2	\$2,500.00	n/a	\$2,500.00
	inecianical	271.00	1112	Ş0.00	1112	\$0.00	nya	\$0.00
15300	FIRE PROTECTION							
13500	sprinklers	271.00	m2	\$0.00	m2	\$0.00	n/a	\$0.00
		272100		çoloo		çoloo	, a	çoioo
16100	FIFCTRICAL							
10100	electrical service	1.00	sum	\$1,500,00	sum	\$1 500 00		
	led lights	30.00	ea	\$300.00	ea	\$9,000.00		
	receptacles	10.00	ea	\$150.00	ea	\$1,500.00		
	fire alarm	271 00	m2	¢2 00	m2	\$1,500.00		\$1 <u>4</u> 168 00
		271.00	1112	ېo.00		<i>γ</i> 2,100.00		÷14,100.00
-	Total Base Cost					\$107 153 00		\$107 153 00
	Contractor Conard Conditions 9 Foo	10.000/			10.00%	¢107,153.00		\$107,153.00
	Contractor General Conditions & Fee	10.00%			10.00%	\$18,/15.00		
						6205 000 00		
	Subtotal					\$205,868.00		
-								
	General Contingency	7.50%			7.50%	\$15,440.00		
							-	
	Total Projected Construction Costs					\$221,308.00	+HST	
						\$75.89	/sft	
-	Building Areas:							
	-ground floor	2,055.00	sf	191.00	m2			
	-2nd floor (mezzanine)	861.00	sf	80.00	m2			
	Total Building Area	2,916.00	sf	271.00	m2			
1								
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L			1					



### APPENDIX "C"

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## Tender

For Township of Wainfleet

# Fire and Emergency Services Central Station Wainfleet, Ontario

Issue Date: September XX, 2021

Closing Date and Time: September XX, 2021 @ 2:00 P.M. Local

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Not Used.

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Not used.

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#### Division 40 - PROCESS INTEGRATION Not used.

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#### Division 41 - MATERIAL PROCESSING AND HANDLING EQUIPMENT Not used.

#### Division 42 - PROCESS HEATING, COOLING, AND DRYING EQUIPMENT Not used.

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Not used.

- Division 44 POLLUTION CONTROL EQUIPMENT Not used.
- Division 45 INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT Not Used
- Division 48 ELECTRICAL POWER GENERATION Not used.

APPENDIX -

#### **DRAWING LIST**

#### ARCHITECTURAL - RAIMONDO + ASSOCIATES ARCHITECTS INC.

STRUCTURAL -

**MECHANICAL** -

ELECTRICAL -

CIVIL -

END OF TABLE
1. Contract
 .1
 The Agreement and General Conditions of Document CCDC

 2-2008 shall form the Articles and General Conditions of this
 Contract as modified by Division B, Supplementary General

 Conditions.
 Conditions.

The Standard Construction Document for Stipulated Price Contract, 2008 English version, for <u>Township</u> <u>of Wainfleet Fire and Emergency Services Central Station</u> consisting of the Agreement Between *Owner* and *Contractor*, Definitions, and General Conditions of the Stipulated Price Contract, Parts 1 to 12 inclusive, governing same is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications:

# 1.0 RECEIPT AND ADDRESSES FOR NOTICES IN WRITING

#### Article A-5

1. 5.3 interest, payable at "0" (zero) percent.

# Article A-6

1. <u>Delete</u> Article A-6.1 and substitute new article 6.1:

Notices in Writing between the parties or between them and the Consultant shall be considered to have been received by the addressee on the date of receipt if delivered by hand or by commercial courier or if sent during normal business hours by fax and addressed as set out below. Such Notices in Writing will be deemed to be received by the addressee on the next business day if sent by fax after normal business hours or if sent by overnight commercial courier. Such Notices in Writing will be deemed to be received by the addressee on the fifth Working Day following the date of mailing, if sent by prepaid registered post, when addressed as set out below. An address for a party may be changed by Notice in Writing to the other party setting out the new address in accordance with this Article.

# 2.0 DEFINITIONS

- 1. <u>Add</u> the following definition:
  - 19a Submittals

Submittals are documents or items required by the *Contract Documents* to be provided by the *Contractor*, such as:

- *Shop Drawings*, samples, models, mock-ups to indicate details or characteristics, before the portion of the *Work* that they represent can be incorporated into the *Work*; and
- As-built drawings and manuals to provide instructions to the operation and maintenance of the *Work*.

# 3.0 PART 1 - GENERAL

1. Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract is deleted by these Supplementary Conditions, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained, unused.

# 4.0 CONTRACT DOCUMENTS

# Article GC 1.1

1. <u>Add to the end of subparagraph 1.1.2.2</u>

Except where the *Consultant* shall be indemnified as a third party beneficiary as provided in subparagraphs 9.2.7.4, 9.5.3.4 and in 12.1.3.

- 2. <u>Add new subparagraph 1.1.7.5</u>:
  - 1.1.7.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the *Contract Documents*.
- 3. Delete paragraph 1.1.8 and replace with the following:
  - 1.1.8 The Contractor shall be provided with 5 sets of Contract Documents via the Consultant without charge. Additional sets can be provided to the Contractor at a cost of \$2,000 per set plus applicable taxes; this includes both drawings and specifications. Alternatively, one set of reproducible "issued for construction" can be provided to the Contractor at a cost of \$2,000.00 plus applicable taxes available in either a hard paper copy or electronically in PDF format. The Contractor is to request in writing his preference to the Consultant upon award of the contract.

# 5.0 ROLE OF THE CONSULTANT

# Article GC 2.2

- 1. <u>Add at the end of paragraph 2.2.9.</u> "The *Owner* and the *Contractor* shall waive any claims against the *Consultant* arising out of the making of such interpretations and findings in accordance with paragraphs 2.2.7., 2.2.8. and 2.2.9".
- 2. Delete <u>the comma</u> after the word "submittals" and <u>add</u> the words "which are provided" before the words "in accordance" in paragraph 2.2.14.

# 6.0 DEFECTIVE WORK

# Article GC 2.4

- 1. <u>Add new subparagraphs 2.4.1.1 and 2.4.1.2</u>:
  - 2.4.1.1 The *Contractor* shall rectify, in a manner acceptable to the *Owner* and the *Consultant*, all defective work and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Consultant*.
  - 2.4.1.2 The *Contractor* shall prioritize the correction of any defective work which, in the sole discretion of the *Owner*, adversely affects the day to day operation of the *Owner*.

# 7.0 <u>CONTROL OF THE WORK</u>

# Article GC 3.1

- 1. <u>Add new paragraph 3.1.3</u>:
  - 3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the *Contractor* shall verify, at the *Place of the Work*, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the *Work* and shall further carefully compare such field measurements and conditions with the requirements of the *Contract Documents*. Where dimensions are not included or exact locations are not apparent, the *Contractor* shall immediately notify the *Consultant* in writing and obtain written instructions from the *Consultant* before proceeding with any part of the affected work.

# 8.0 DOCUMENT REVIEW

# Article GC 3.4

- 1. <u>Delete paragraph 3.4.1 in its entirety and substitute new paragraph 3.4.1</u>:
  - 3.4.1 The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Consultant* any error, inconsistency or omission the *Contractor* may discover. Such review by the *Contractor* shall comply with the standard of care described in paragraph 3.14.1 of the *Contractor* codes not assume any responsibility to the *Owner* or to the *Consultant* for the accuracy of the *Contract Documents*. The *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the *Contract Documents*, which the *Contractor* could not reasonably have discovered. If the *Contractor* does discover any error, inconsistency or omission in the *Contract Documents*, the *Contractor* shall not proceed with the work affected until the *Contractor* has received corrected or missing information from the *Consultant*.

# 9.0 LABOUR AND PRODUCTS

# Article GC 3.8

- 1. <u>Add new paragraph 3.8.4</u>:
  - 3.8.4 The *Contractor* is responsible for the safe on-site storage of *Products* and their protection (including *Products* supplied by the *Owner* and other contractors to be installed under the *Contract*) in such ways as to avoid dangerous conditions or contamination to the *Products* or other persons or property and in locations at the *Place of the Work* to the satisfaction of the *Owner* and the *Consultant*. The *Owner* shall provide all relevant information on the *Products* to be supplied by the *Owner*.

# 10.0 SHOP DRAWINGS

# Article GC 3.10

- 1. <u>Add the words "AND OTHER SUBMITTALS</u>" to the Title after SHOP DRAWINGS.
- 2. <u>Add</u> "and *Submittals*" after the words "*Shop Drawings*" in paragraphs 3.10.1, 3.10.2, 3.10.4, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11, and 3.10.12.
- 3. <u>Delete 3.10.3 in its entirety and substitute new paragraph 3.10.3</u>
  - Prior to the first application for payment, the *Contractor* and the *Consultant* shall jointly prepare a schedule of the dates for submission and return of *Shop Drawings* and any *Submittals*.
- 4. Delete the words "with reasonable promptness so as to cause no delay in the performance of the Work" and replace with "within 10 working days or such longer period as may be reasonably required" in paragraph 3.10.12.

# 11.0 PERFORMANCE BY CONTRACTOR

# Article GC 3.14

- 1. <u>Add new General Condition 3.14.1</u>
  - 3.14.1 In performing its services and obligations under the *Contract*, the *Contractor* shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The *Contractor* acknowledges and agrees that throughout the *Contract*, the *Contractor*'s obligations, duties and responsibilities shall be interpreted in accordance with this standard. The *Contractor* shall exercise the same standard of due care and diligence in respect of any *Products*, personnel, or procedures which it may recommend to the *Owner*.
- 2. <u>Add new General Condition 3.14.2</u>
  - 3.14.2 The *Contractor* further represents, covenants and warrants to the *Owner* that:
    - .1 The personnel it assigns to the *Project* are appropriately experienced;
    - .2 It has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject to the *Owner's* approval, in the event of death, incapacity, removal or resignation.

# 12.0 CASH ALLOWANCE

# Article GC 4.1

- 1. <u>Delete paragraph 4.1.4 in its entirety and substitute new paragraph 4.1.4:</u>
  - 4.1.4 Where costs under a cash allowance exceed the amount of the allowance, unexpended amounts from other cash allowances shall be reallocated at the *Consultant's* direction to cover the shortfall.

- 2. <u>Delete paragraph 4.1.5 in its entirety and substitute new paragraph 4.1.5</u>:
  - 4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the *Contract Price* by *Change Order*.
- 3. <u>Delete paragraph 4.1.7 in its entirety and substitute new paragraph 4.1.7</u>.
  - 4.1.7 At the commencement of the work, the *Contractor* shall prepare for the review and acceptance of the *Owner* and the *Consultant,* a schedule indicating the times, within the construction schedule referred to in GC 3.5, that items called for under cash allowances and items that are specified to be *Owner* purchased and *Contractor* installed or hooked up are required at the site to avoid delaying the progress of the Work.
- 4. <u>Add new paragraph 4.1.8</u>:
  - 4.1.8 The *Owner* reserves the right to call, or to have the *Contractor* call, for competitive bids for portions of the *Work*, to be paid for from cash allowances.

# 13.0 PROGRESS PAYMENT

# Article GC 5.3

- 1. <u>Delete</u> subparagraph 5.3.1.1 in its entirety.
- In item 5.3.1.3 <u>extend the Owner's time to make payment from 20 to 28 days</u> after the Consultant has appropriately reviewed the Contractor's submission the Consultant has 5 *working days* in which to review the Contractors payment application and notify him of any changes.
- 3. <u>Add new paragraph 5.3.2</u>:
  - 5.3.2 With each progress draw submitted to the Owner, submit a Statutory Declaration on the standard form indicating payment of all materials suppliers, workmen, subcontractors and all levies for Unemployment Insurance and Worker's Compensation to the amount at the previous draw.
- 4. <u>Add new paragraph 5.3.3</u>:
  - 5.3.3 With application for the release of Construction Lien holdbacks, the contractor is to submit a Statutory Declaration indicating that a legal search has been made of title to the properties, and that no liens have been filed relative to this Contract on the 45th day after Substantial Performance.

# Article GC 5.7 – Final Payment

- 1. <u>Add</u> new Article GC 50.7.5 of "final payment" the following:
  - 5.7.5 Upon acceptance of the project by the Owner's representative, the final payment shall be made and shall constitute a waiver of all claims by the Corporation

except those arising from unsettled claims previously made in writing and also except for general conditions of work in the contract the Contractor has made to the Corporation which falls within the PART 12 (Indemnification, Waiver, Warranty) of the General Conditions.

Not withstanding the final payment, a deficiency holdback in the amount of 2.5% of the contract amount is to be withheld pending completion of "<u>all"</u> outstanding deficiencies. There will be no partial release. If any item remains uncompleted and/or not remedied after a one year period, the funds will be used to have another contractor complete the remaining work to the satisfaction of the Owner and the Architect. In this circumstance, any remaining funds will be released to the General Contractor after repairs are completed. Any reasonable expenses incurred by the Owner will be charged against the amount owing including supervision and administrative costs.

# 14.0 OWNERS RIGHT TO MAKE CHANGES

#### Article GC 6.1

- 1. Insert a new paragraph, numbered 6.1.3, to read as follows: "Where a change on the Work involves additions, deletions, or other revisions to the *Work*, the *Contract Price* shall be increased only by the actual net value of the change in the *Work*, including taxes, but excluding *Value Added Taxes*, plus the following:".
- 2. Insert a new paragraph, numbers 6.1.3.1, to read as follows, "*Contractor's* percentage fee shall be calculated as follows, subject to paragraph 6.1.3.5.".

Cost of Extra Work, not	Contractor's Mark-Up on	Contractor's Mark-Up on
including Value Added Tax	cluding Value Added Tax Work of Own Forces (%)	
\$0 to \$5,000	10	7
>\$5,000 to \$10,000	10	7
>\$10,000 to \$50,000	7	5
>\$50,000	5	4

3. Insert a new paragraph, numbered 6.1.3.2, to read as follows: "*Subcontractor's* percentage fee shall be calculated as follows, subject to paragraph 6.1.3.5.".

Cost of Extra Work, not	Subcontractor's Mark-Up on	Subcontractor's Mark-Up on
including Value Added Tax	Work of Own Forces (%)	Subcontracted Work (%)
\$0 to \$5,000	10	7
>\$5,000 to \$10,000	10	7
>\$10,000 to \$50,000	7	5
>\$50,000	5	4

- 4. Insert a new paragraph, numbered 6.1.3.4, to read as follows: "Percentage fee may not be charged on changes in the *Work* where there is a net decrease to the *Contract Price*.".
- 5. Insert a new paragraph, numbered 6.1.4, to read as follows: "Costs for the following items shall be considered to be included in the *Contractor's* and *Subcontractor's* percentage fees.".

- 6. Insert a new paragraph, numbered 6.1.4.1, to read as follows: "*Contractor's* site and head office expenses, except as permitted under paragraph 6.3.7 as related to *Change Directives*.".
- 7. Insert a new paragraph, numbered 6.1.4.2, to read as follows: "Wages of project managers, superintendents, assistants, watchpersons and administrative personnel, except as permitted under paragraph 6.3.7 as related *to Change Directives."*.
- 8. Insert a new paragraph, numbered 6.1.4.3, to read as follows: "Temporary site office, including costs for telephone and facsimile machine, except as permitted under paragraph 6.3.7 as related *to Change Directives.*".
- 9. Insert a new paragraph, numbered 6.1.4.4, to read as follows: "Small tools (valued less than \$2000).".
- 10. Insert a new paragraph, numbered 6.1.4.5, to read as follows: "As -built documents.".
- 11. Insert a new paragraph, numbered 6.1.4.6, to read as follows: "Clean-up and disposal of waste materials.".
- 12. Insert a new paragraph, numbered 6.1.4.7, to read as follows: "Insurance and bonding premiums subject to paragraph 6.1.4.7(1).".
- 13. Insert a new paragraph, numbered 6.1.4.7(1), to read as follows: "Additional bonding and insurance costs will not be accepted as forming part of the cost of change orders unless the change can be demonstrated as materially affecting risk. Flow through charges from the Surety and or/or insurer to the *Contractor* must be substantiated by the Surety and/or insurer as "materially affecting risk" in accordance with CCDC-21 Guide to Construction Insurances, paragraph 5.8 "Material" Changes in Risk. Material risk must be defined by the Surety and/or insurer and the definition made available to all named parties of the bonds and insurance policies. If a material risk can be demonstrated and is acceptable to all parties, then the obligee and/or named insured is entitled to receive a new bond and/or insurance policy reflecting the change in the *Contract Price*, and the premium for the increase to the bonds and/or insurance policy may then be separated from the overhead mark-up and included as a separate line item in the cost to the change of *Work*."
- 14. Insert a new paragraph, numbered 6.1.6, to read as follows: "Labour costs shall be the actual, prevailing rates at the *Place of Work* paid to the workers, plus statutory charges on labour including statutory workers' insurance, employment insurance, Canada Pension, vacation pay, medical and health benefits.".
- 15. Insert a new paragraph, numbered 6.1.7, to read as follows: "When additions, deletions or other revisions to the *Work* covering related work or substitutions are involved in a change to the *Work*, payment, including overhead and profit on net increases to the Contract Price only, shall be calculated on the basis of the net difference to the Contract Price, if any, with respect to the change in the *Work*."
- 16. Insert a new paragraph, numbered 6.1.8, to read as follows: " If any change or deviation in, or omission from the *Work* is made by which the amount of *Work* to be performed is

decreased, or if the whole or a portion of the *Work* is dispensed with, no compensation is claimable by the *Contractor* for any loss of anticipated profit in respect thereof.".

17. Insert a new paragraph, numbered 6.1.9, to read as follows: "The *Contractor* shall submit sufficiently details information with each *Change Order* or *Change Directive*, showing effect of changes in the *Work* on *Contract Time*, via critical path methodology.".

# 15.0 CONCEALED OR UNKNOWN CONDITIONS

#### Article GC 6.4

- 1. <u>Add new subparagraph 6.4.5</u>:
  - 2.4.5 The *Contractor* confirms that, prior to bidding the *Project*, it carefully investigated the *Place of the Work* and applied to that investigation the degree of care and skill described in paragraph 3.14.1, given the amount of time provided between the issue of the bid documents and the actual closing of bids, the degree of access provided to the *Contractor* prior to submission of bid, and the sufficiency and completeness of the information provided by the *Owner*. The *Contractor* is not entitled to compensation or to an extension of the *Contractor* by such careful investigation undertaken prior to the submission of the bid.

# 16.0 DELAYS

# Article GC 6.5

1. <u>Delete</u> the period at the end of paragraph 6.5.1, and <u>substitute</u> the following words:

", but excluding any consequential, indirect or special damages."

- 2. <u>Add new subparagraph 6.5.6</u>.
  - 6.5.6 If the *Contractor* is delayed in the performance of the *Work* by an act or omission of the *Contractor* or anyone employed or engaged by the *Contractor* directly or indirectly, or by any cause within the *Contractor*'s control, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may decide in consultation with the *Contractor*. The *Owner* shall be reimbursed by the *Contractor* for all reasonable costs incurred by the *Owner* as the result of such delay, including all services required by the *Owner* from the *Consultant* as a result of such delay by the *Contractor* and, in particular, the cost of the *Consultant*'s services during the period between the date of *Substantial Performance of the Work* stated in Article A-1 herein as the same may be extended through the provisions of these General Conditions and any later, actual date of *Substantial Performance of the Work* achieved by the *Contractor*

# 17.0 CLAIMS FOR A CHANGE IN CONTRACT PRICE

# Article GC 6.6

<u>Add</u> the words "as noted in paragraph 6.6.3" after the words "of the claim" in paragraph 6.6.5 and <u>add</u> the words "and the consultant", at the end of paragraph 6.6.5.

# 18.0 NEGOTIATION, MEDIATION AND ARBITRATION

# Article GC 8.2

Add the following new paragraphs 8.2.9, 8.2.10, 8.2.11, 8.2.12, 8.2.13, and 8.2.14.

- 8.2.9 Within five days of receipt of the notice of arbitration by the responding party under paragraph 8.2.6, the Owner and the Contractor shall give the Consultant a written notice containing:
  - a) a copy of the notice of arbitration
  - b) a copy of supplementary conditions 8.2.9 to 8.2.14 of this Contract, and;
  - c) any claims or issues which the Contractor or the Owner, as the case may be, wishes to raise in relation to the Consultant arising out of the issues in dispute in the arbitration
- 8.2.10 The Owner and the Contractor agree that the Consultant may elect, within ten days of receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the Consultant:
  - a) has a vested or contingent financial interest in the outcome of the arbitration;
  - b) gives the notice of election to the Owner and the Contractor before the arbitrator is appointed;
  - c) agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and,
  - d) agrees to be bound by the arbitral award made in the arbitration.
- 8.2.11 If an election is made under paragraph 8.2.10, the Consultant may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the notice of arbitration.
- 8.2.12 The arbitrator in the arbitration in which the Consultant has elected under paragraph 8.2.10 to become a full party may:
  - a) on application of the Owner or the Contractor, determine whether the Consultant has satisfied the requirements of paragraph 8.2.10, and; b) make any procedural order considered necessary to facilitate the addition of the Consultant as a party to the arbitration.
- 8.2.13 The provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the Consultant to any sub-consultant;
- 8.2.14 In the event of notice of arbitration given by the Consultant to a sub-consultant, the sub-consultant is not entitled to any election with respect to the proceeding as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding.

# 19.0 PROTECTION OF WORK AND PROPERTY

# Article GC 9.1

- 1. <u>Delete</u> subparagraph 9.1.1.1 in its entirety and <u>substitute</u> new subparagraph 9.1.1.1:
  - 9.1.1.1 errors in the *Contract Documents* which the *Contractor* could not have discovered applying the standard of care described in paragraph 3.14.1;
- 2. <u>Delete paragraph 9.1.2 in its entirety and substitute the following new paragraph 9.1.2:</u>
  - 9.1.2 Before commencing any *Work*, the *Contractor* shall determine the locations of all underground utilities and structures indicated in or reasonably determinable from the *Contract Documents*, or that are reasonably determinable from an inspection of the *Place of the Work* exercising the degree of care and skill described in paragraph 3.14.1.

# 20.0 TOXIC HAZARDOUS SUBSTANCES

# Article GC 9.2

1. <u>Add to paragraph 9.2.6 after the word "responsible"</u>, the following new words:

or whether any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner or others,

- 2. <u>Add</u> "and the *Consultant*" after the word "*Contractor*" in subparagraph 9.2.7.4.
- 3. <u>Add to paragraph 9.2.8 after the word "responsible"</u>, the following new words:

or that any toxic or hazardous substances or materials already at the *Place of the Work* (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the *Contractor* or anyone for whom the *Contractor* is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damage to the property of the Owner or others

# 21.0 <u>MOULD</u>

# Article GC 9.5

1. <u>Add</u> "and the *Consultant*" after "*Contractor*" in subparagraph 9.5.3.4.

# 22.0 LAWS, NOTICES, PERMITS, AND FEES

Article GC 10.2

1. <u>Delete</u> from the first line of paragraph 10.2.5 the word, "The" and <u>substitute</u> the words: "Subject to paragraph 3.14.1, the".

# 23.0 WORKERS' COMPENSATION

#### Article GC 10.4

- 1. Evidence required with <u>each</u> application for payment, as well as at Substantial Performance and Final Payment.
- 2. The evidence shall be a W.S.I.B. Certificate of Good Standing, **dated** and **valid** as of payment application date.

# 24.0 INSURANCE

# Article GC 11.1

- 1. Extend the Owners limits of General Liabilities and Automobile Liability Policy Insurance to **\$5,000,000.00** per occurrence as per GC11.1.1.
- 2. Contractor also to include Builder's Risk Insurance value of construction on top of the limits of General Liability insurance of **\$5,000,000.00** per occurrence as per GC 11.1.
- 3. Endorsement to the liability and property damage policy is to include the Owner, Consultants, and sub-contractors as additional insured.
- 4. Where cranes or hoists are used, contractor to provide hook insurance acceptable to the Owner.

# 25.0 <u>CONTRACT SECURITY</u>

# Article GC 11.2

1. General Contractors must be bondable and shall provide a 50% 'Performance Bond' <u>and</u> a 50% 'Labour and Material Payment Bond'. Labour and Material bond shall be in effect until one year after substantial completion.

In the event that a products performance and material installation becomes questionable a maintenance Bond in the amount 5% of the contract amount for a period of 3 years "may" be required of the contractor by the Owner, if the Consultant identifies faulty project components that may require additional insurance. This will not be required as part of the Bid Documents.

# 26.0 INDEMNIFICATION

# Article GC 12.1

- 1. <u>Add</u> " new clause 12.1.3.
  - 12.1.3 The Contractor shall indemnify and hold harmless the Consultant, its agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to, the Contractor's performance of the Contract, provided such claims are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, and caused by negligent acts or omissions of the Contractor or anyone for whose acts the Contractor may be liable, and made in writing within a period of 6 years from the date of Substantial Performance of the Work as set out in the Certificate of Substantial Performance of the Work, or within such shorter period as may be prescribed by any limitation statute of the province or territory of the Place of Work.

# 27.0 <u>WARRANTY</u>

# Article GC 12.3

1. <u>Delete from the first line of paragraph 12.3.2 the word, "The" and substitute the words:</u>

"Subject to paragraph 3.14.1, the..."

2. <u>Add</u> new paragraph 12.3.7

The Contractor guarantees the work to be free of defects and faulty workmanship. The Contractor agrees to make good any defects in the work which may appear within one (1) year after date of the Consultant's certificate of the final acceptance of the work and the Contractor shall not be relieved from this liability by reason of the issue of any Certificate of Acceptance nor any payment under the Contract. This condition shall not supercede, replace or reduce longer periods or more stringent requirements of any specific warranty requirement for any listed equipment, roofing, or systems etc. that may be part of the contract documentation.

- 3. <u>Add</u> new paragraph 12.3.8
  - 12.3.8 Materials, equipment or fixtures requiring excessive servicing during the guarantee period shall be considered <u>defective and must be replaced</u>. **Excessive** defined as servicing more than <u>twice</u>.
- 4. <u>Add</u> new paragraph 12.3.9
  - 12.3.9 All materials used in the scope of work shall be new and without flaws or defects of any type and shall be the best of their class and kind. All materials shall have a minimum guarantee of one year against material defects or defective workmanship. All materials and equipment shall be stored and installed in a neat and workmanlike manner following the recommendations of the manufacturers of the materials. Subject to the conditions of warranty met and upon notice, the Contractor agrees to correct promptly, but in no case later than within 15 calendar

days of being notified, at his own expense, defects or deficiencies in the Work.

5. <u>Add</u> new paragraph 12.3.10

12.3.10 The following extended warranties apply to the following products and work as supplied by the warrantor of each product;

- 1.1 Joint Sealing Section 07 92 10 2 Years
- 1.2 Glass & Glazing Section 08 80 50 2 Years, for leaks and seal failure
- 1.3 Mechanical Equipment Divisions 22 & 23 2 Years, unless otherwise noted by Division 22 + 23
- 1.4 Roofing Section 07 51 00 15 Years, material + labour and leaking
- 1.5 Window Curtain Wall and Aluminum Windows –Section 08 44 13 & Section 08 80 50 – 10 years for workmanship, leaking and seal failure of thermal units, 10 years on frames and hinge mechanisms.
- 1.6 Other -TBC

# 28.0 OWNER/ CONTRACTOR CONTRACT

- 1. That any representations in these bid documents were furnished merely for the general information of bidders and were not in any way warranted or guaranteed by or on behalf of the Owner of the Owner's consultants and its sub-consultants, or the consultants' or sub-consultants' employees, and neither the owner nor its consultants or its employees shall be liable for any representations negligent or otherwise contained in the Documents.
- 2. Notwithstanding the foregoing, the obligations and liabilities of the Architect are limited to only the professional liability insurance provided by Pro-Demnity Insurance Company and any specific or excess professional liability insurance coverage in force.

# END OF SECTION

# 1. BIDDERS

.1 Contractors submitting a bid for the work shall be recognized firms, and if requested, shall furnish references of similar work satisfactorily completed. The Subcontractors he proposes to use also shall be recognized firms skilled in their particular trades.

GENERAL CONTRACTORS				
COMPANY	CONTACT	TELEPHONE	FAX	EMAIL
Bromac Construction	Carrie Groff	905-892-8888	905-892-6853	carrie@bromacconstruction.com
GS Wark Limited	Craig Hambly	905-529-4717		<u>craig@wark.net</u>
Matheson	Virginia	905-669-7999	905-669-0268	vgutierrez@mathesonconstructors.
Constructors Limited.	Gutierrez			<u>com</u>
MJ Dixon Construction	Estimating	905-270-7770	905-270-4244	estimating@mjdixon.ca
Limited	Department			
Niacon Ltd.	Charlie Li	905-262-5492 ext	905-262-5734	cli@niacon.ca
Construction		227		
T.R. Hinan Contractors	Sean Racher	905-892-2299	905-892-5599	mail@trhinan.com
TRP Construction	Matt Postma	905-336-1041	905-336-9564	info@trpconstruction.ca

# 2. BID DEPOSITORY – HAMILTON AND NIAGARA DRAWING EXCHANGE/ EPR

.1 A voluntary Bid Depository by Mechanical and Electrical Contractors will <u>not</u> be entertained on this project.

# 3. MANDATORY EXAMINATION AND PRE-BID SITE MEETING

- .1 Before submitting their bid, each bidder shall examine the Contract Documents, visit the site, take note of all conditions that exist and difficulties that may arise, and shall include in their Tender a fixed price to cover the cost of all Work required to complete this contract. No provision will be made during the Work for failure to comply with this requirement.
- .2 During .1 above, if there are noted apparent errors or items requiring clarification, report these to the Architect who will issue an Addendum to all tenderers.
- .3 The Architect and the owner will conduct a <u>mandatory</u> Pre-Bid Submission Meeting for prequalified general contractors on **Date and Time.** Meet at **42143 Highway #3 Wainfleet Ontario**. All other sub-trades are welcome. Failure to attend will result in General Contractor disqualification from bidding.

# 4. CONTRACT DOCUMENTS

- .1 The following Contract Documents shall form the basis of the Contract:
  - (a) Stipulated Price Contract, Standard Construction Document CCDC No.2-2008, as amended by Division B of this Specification;
  - (b) Project Manual--see Index bound herein including Division C-Instructions to Tenderers;
  - (c) Drawings (see list in Table of Contents);
  - (d) Addenda issued during tendering period;
  - (e) Stipulated Price Bid Form- bound here within

- .2 All drawings of all disciplines shall be read together with the Project Manual as one. It is the responsibility of <u>all</u> bidders to review <u>all</u> documents prior to submitting tenders, and to include a fixed price to cover the cost of all work, wherever indicated in these documents.
- .3 It is the responsibility of All bidders for All trades to thoroughly examine <u>all</u> tender documents, and to report any discrepancies to the Architect <u>before</u> bidding.
- .4 No adjustments will be made to increase the Contract Cost for failure to have done .2 and .3 above.

# 5. PROCEDURES

- .1 Identify the **clock** which will be used to determine the time of submittal, giving bidders the opportunity to synchronize their clocks/ watches with the specified clock. **NOTE: Clock used will be clock located at Township of Wainfleet reception desk clock.**
- .2 Only bids received **before** the appointed hour will be accepted, and if the clock already shows the appointed hour at the time of submittal the bid will be regarded as having been received **after** the appointed hour, since an unknown number of seconds will have elapsed. For example, if the specified time is **before** 2:00 p.m., bids stamped 2:00 p.m. will be **late** and bids stamped 1:59 p.m. or earlier will be accepted as on time.
- .3 Bids will be received at **Wainfleet Town Hall Clerks office**

# 6. BID FORM/ SUBMISSION - SEPARATE ENVELOPE

- .1 Submit Bids on the Bid Form Provided. Submit Bids in a sealed envelope marked: Fire and Emergency Services Central Station Township of Wainfleet 3194 Highway 3. P.O.Box 40 Wainfleet, ON L0S 1V0
- .2 Tender prices by prequalified General Contractors shall be addressed to:

Township of Wainfleet Before 2:00:00 pm local time on Attention: Morgan Alcock

.3 All tenders shall be completed fully. Failure to complete will result in a declaration of informality and will be rejected.

# 7. ALTERNATES

.1 A bidder may submit Alternate materials to those indicated or specified for the Owner's consideration. These shall be itemized on the Tender Form, along with price reduction to the stated Stipulated Sum.

- .2 Unless the bidder has received prior approval, all tenders shall be Base Bid. To receive consideration, any proposed Alternates must be presented with the Tender Form.
- .3 Note any <u>requirement</u> on Tender Form for Alternate Price.

# 8. FACSIMILE BIDS

- .1 All Bids must be **signed and sealed originals, Faxed** Bids will not be accepted.
- .2 However, tenders submitted in accordance with the Tender Documents <u>may</u> be modified, prior to closing of tender period, by FAX.
- .3 Bidders relying on FAX do so entirely at their own risk.

# 9. APPENDICES TO TENDER FORM

- .1 **Appendix "A"** <u>List of Bid Documents</u>: Include a complete listing of all documents and information issued by which the Tender price was derived.
- .2 **Appendix** "**B**" <u>List of Subcontractors</u>: A complete listing of all subcontractors named for this project and upon whom the Tender is based.
- .3 **Appendix "C"** Itemized Prices: Completely fill out all blanks, provide unit prices requested and sign and seal documents.
- .4 **Appendix "D"** <u>Separate Prices</u>: Completely fill out if proposing alternate products or systems and provide additional supportive documentation as required. Submit blank form with bid if not proposing alternate products or systems
- .5 **Appendix "E"** <u>List of Unit Prices:</u> Completely fill out all blanks, provide unit prices requested and sign and seal documents.
- .6 **Appendix "F"** Provide three lowest sub-contractor quotations quoted to your company.
- .7 A bidder may submit voluntary alternate materials to those indicated or specified for the Owner's consideration. These shall be itemized on the Bid Form Appendix "D" along with price deduction to the stated Stipulated Price Bid.
- .8 Unless the bidder has received prior notification, all tenders shall be Base Bid (using the specified items.) To receive consideration, any proposed Alternates must be presented with the Bid Form. The Architect must be given 7 (seven) days notice by the Contractor prior to bid closing to receive any consideration for proposed alternates; approval will then be given via addenda.

# 10. ACCEPTANCE OF BIDS

.1 The Owner reserves the right to accept any bid or reject any or all bids without explanation. Tenders must be valid for <u>30 days</u> after the tender due date.

# 11. ITEMIZED PRICES – APPENDIX C

.1 A set of itemized prices has been requested as part of Appendix C. Itemized prices are to be submitted and appropriately identified after base bid tender closing, refer to Instructions to Bidders, "**Tender Closing**".

# 12. SEPARATE PRICES – APPENDIX D

.1 The following list of separate prices have been requested by the client as part of appendix "D". Separate Prices are to be appropriately identified and submitted as such after the base bid closing of the tender, Refer to instruction to Bidders, **"Tender Closing"** 

# 13. LIST OF SUB-CONTRACTORS APPENDIX B

- .1 The Bidder shall Fully Complete the sub-contractor list on the Bid Form Appendix B. Failure to complete the bid form fully may result in the declaration of an informal Bid.
- .2 Do not deviate from this list without the expressed written approval of the owner and architect. The general contractor should make written application to the architect, including a letter of release from the subcontractor indicating his agreement to not being involved with the project, (stating reasons). A letter of release from the general contractor is required stating that they will "hold harmless" the Owner from any legal action that may result from the change. Any agreed change in sub trade should be at "NO COST" to the Owner.
- .3 The Owner may request a subtrade change without explanation, with any cost differential reflected in an amendment to the Contract.

# 14. SCOPE

- .1 Include all labour, permits, equipment and materials to complete the entire project to the full intent of the Contract Documents, unless clearly and specifically directed otherwise.
- .2 Work not included in this Contract has been indicated in the Documents, and any information herein on such Work not included is for your use in co-ordination.

# 15. ADDENDA / QUERIES

- .1 Addenda will only be issued to prequalified General Contractors registered with the Architect, The Niagara Construction Association and Hamilton Construction Association.
- .2 Direct questions regarding the drawings and specifications to David Robbins via fax 905-357-9203 or email <u>david@raimondoarchitects.com</u>.
- .3 Verbal answers, to queries will only be binding when confirmed by written addenda.

.4 Clarifications requested by bidders must be in writing not less than three (7) days before date set for receipt of bids in order to be properly addressed prior to the tender close. The reply will be made in the form of addendum, a copy of which will be made available to known bidders and above named Construction Associations. Bidders will be responsible to arrange for picking up these addenda if requested by the Architect and if less than three (7) days remains in the tender period.

# 16. DOCUMENTS

- .1 General Contractors may obtain tender documents from the Architect's FTP site.
- .2 Upon award of contract the general contractor shall be given <u>5 sets</u> of documents at no charge, sets beyond this quantity shall bear a cost, refer to supplementary general conditions Article GC 1.1 paragraph 3,
- .3 Bid Documents are made available only for purpose of obtaining offers for this project. Their use does not confer license or grant for other purposes.

# 17. BID SECURITY (SEPARATE ENVELOPE)

- .1 Submit a Bid Security in the amount of **10%** of the submitted bid amount in the form of a Bid Bond from a recognized Surety in the name of the **Corporation of the Township of Wainfleet.**
- .2 Attach the Bid Security and Agreements in a single <u>separate envelope</u> marked "Bid Bond", Township of Wainfleet Fire and Emergency Services Central Station and showing the Bidder's name, to the <u>exterior</u> of the envelope enclosing the tender.
- .3 Failure to provide Bid Security shall result in a declaration of an informal bid at the Owner's discretion.
- .4 Enclose Agreement to provide specified **50% Performance Bond and a separate 50% Labour and Material Payment bond**, in **same** envelope as Bid Security from the same Surety.
- .5 Use Bid Bond Form similar to CCDC No. 220-1979.
- .6 The security deposit shall be valid for up to **30 days**.
- .7 The security deposit will be returned after delivery to Owner of required Performance and Labour and Materials Bonds by the accepted bidder.
- .8 If no contract is awarded all security deposits will be returned to each respective bidder.

# 18. CONSENT OF SURETY

.1 Submit with the Bid and Bid Bond, a "Consent of Surety" stating that the Surety providing the Bid Bond is willing to supply the Performance and Labour and Material Payment Bond

required.

.2 Include the cost of bonds in the Bid price.

# **19. PERFORMANCE ASSURANCE**

.1 The accepted bidder shall provide Performance and Labour and Materials Payment bonds stated in the Supplementary Conditions.

# 20. BID FORM REQUIREMENTS

- .1 State in the Tender Form the time required to complete the work. The completion date in the agreement shall be this completion time added to the date of execution of the Agreement.
- .2 The Owner requires that the Work under this Contract be completed as quickly as possible and consideration will be given to time of completion when reviewing the submitted tenders.

#### 21. BID SIGNING

- .1 The Tender shall be signed under seal by the bidder.
- .2 Sole Proprietorship: Signature of Sole Proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under signature. Affix seal.
- .3 Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the work "Partner" against each signature. Affix seal.
- .4 Limited Company: Signature of a least two duly authorized signing offers in their normal signatures. Insert the officer's capacity in which the signing officer acts against each signature. Affix the corporate seal. If the tender is signed by officials other than the President and Secretary of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so must be submitted with tender envelope.

### 22. NEGOTIATIONS

- .1 The Owner reserves the right to negotiate a Contract with the lowest Tenderer.
- .2 No liability clause

# 23. ACCEPTANCE OF OFFER

- .1 The Owner reserves the right to accept or reject any or all offers.
- .2 Where all the offers submitted exceed the estimated budget cost of the work, the Owner reserves the right to negotiate with the lowest bidder or three lowest bidders or to retender to a number of the lowest bidders at its discretion.

.3 After acceptance by the Owner of a tender, all rejected Tenders will be returned to the respective bidders with the submitted tender securities.

# 24. CONTRACT AWARD – BASE BID

- .1 The contract may be awarded on the basis of the "base bid" submitted, in conjunction with the alternate prices submitted. The best price for the Owner will be that lowest price combination of Base Bid with Alternate Prices showing areas of cost reduction. The Owner and the Consultant shall exclusively decide which alternate prices will be accepted, if any. Lowest or any Bid may not necessarily be accepted.
- .2 Should alternate prices be considered, a revised Appendix B-list of Sub-contractors shall be submitted no later than 15 days after tender close for review.

### 25. INSURANCE

- .1 General Liability Insurance shall be as per Canadian Construction Document Committee, CCDC 2008, GC-11-1 Insurance and as amended by Supplementary General Conditions. This Insurance will be maintained by and paid for by the General Contractor.
- .2 The General Contractor will provide the Builder's Risk Insurance.

# 26. BUILDING PERMITS

- .1 Permits pertaining to particular trades shall be paid for by that particular sub-trade concerned. Comply with all regulations of all public authorities having jurisdiction, including Regional Niagara and the Township of Wainfleet.
  - .1 The cost of the Municipal Building Permit will be applied and paid for by the Owner.

# END OF SECTION



# **STIPULATED PRICE BID**

PROJECT:	FIRE AND EMERGENCY SERVICES CENTRAL STATION 42143 Highway #3 Wainfleet Ontario
PROJECT NUMBER:	20-163
DATE:	September XX, 2021
CLOSING DATE:	September XX, 2021
	(2:00pm Bid Form - Appendix A-B, 4:00pm Appendix C-F)

RAIMONDO + ASSOCIATES

ARCHITECTS INC.

# STIPULATED PRICE BID FORM

Project Number: 20-163

Project:	FIRE AND EMERGENCY SERVICES CENTRAL STATION
Located At:	42143 Highway #3 Wainfleet Ontario
Submitted To:	CORPORATION OF THE TOWNSHIP OF WAINFLEET

Bidder

Legal Name:	
Address:	
	City: Province: Postal Code

# **Bid Price**

Having examined the Bid Documents as listed in Appendix "A" to this Stipulated Price Bid, and Addenda
No. to No. inclusive, all as issued by
and having visited the Place of the Work; we hereby offer to enter into a Contract to perform the Work required by
the Bid Documents for the stipulated price of
Dollars (\$) in Canadian funds, which price <u>excludes</u> applicable Taxes.
Interest
Should either party fail to make payments as they become due under the terms of the Contract or in an award by
arbitration or court, interest at ZERO
percent per annum above the bank rate on such unpaid amounts shall also become due and payable until
payment. Such interest shall be compounded on a monthly basis. The bank rate shall be the rate established by the
Bank of Canada as the minimum rate at which the Bank of Canada makes short term advances to the chartered

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banks.

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We the undersigned declare that:

- (a) We agree to perform the Work in compliance with the required completion schedule stated in the Bid Documents, or if no schedule is stated, to attain Substantial Performance of the Work within <u>XX</u> weeks from commencement of the Work & receive *final occupancy* <u>XX</u> weeks form commencement of the Work.
- (b) no person, firm, or corporation other than the undersigned has any interest in this Bid or in the proposed
   Contract for which this Bid is made;
- (c) this Bid is open to acceptance for a period of <u>**30**</u> days from the date of bid closing.
- (d) all bid form supplements called for by the Bid Documents form an integral part of this bid.

#### Signatures

# SIGNED AND SUBMITTED for and on behalf of:

Name of Bidder	
Signature	
Name and title of person signing	Witness
Signature	Signature
Name and title of person signing	Name and title of person signing
Date	

N.B. Where legal jurisdiction or Owner requirement calls for:

(a) proof of authority to execute this Bid; attach such proof of authority in the form of a certified
 copy of a resolution naming the representative(s) authorized to sign this Bid for and on behalf of
 the Corporation or Partnership; or

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(b) the affixing of a corporate seal, this Bid should be properly sealed

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# Appendix "A" to Stipulated Price Bid

Project Number: 20-163

#### LIST OF BID DOCUMENTS

Project:	FIRE AND EMERGENCY SERVICES CENTRAL STATION CORPORATION OF THE TOWNSHIP OF WAINFLEET 42143 Highway #3 Wainfleet Ontario
Bidder:	Name of the Bidder

The following is the list or description of the Bid Documents referred to in the Bid for the above named Project:

- Agreement Form Between Owner and Contractor
- Definitions
- The General Conditions of the Stipulated Price Contract

SEE ATTACHED LIST OF DOCUMENTS

• (Insert here, attaching additional pages if required, a list identifying all other Bid Documents e.g. Supplementary Conditions; Specifications, giving a list of contents with section numbers and titles, number of pages, and date: Drawings, giving drawing number, title, date, revision date or mark; Addenda, giving title, number, date)



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# Appendix "B" to Stipulated Price Bid

Project Number: 20-163

#### LIST OF SUB CONTRACTORS

Project:	FIRE AND EMERGENCY SERVICES CENTRAL STATION 20-163 42143 Highway #3 Wainfleet Ontario
Bidder:	Name of the Bidder

We, the above named bidder, propose to use for the above named project/ contract, the sub-contractors named below.

Division or Section of Work	Name of Subcontractor
EXCAVATION/ BACKFILL	
CONCRETE/ REBAR	
STRUCTURAL STEEL/ DECK	
SPRAY FIRE PROTECTION	
MASONRY	
SPRAY INSULATION	
ROOFING/ FLASHINGS	
ROUGH CARPENTRY	
DOORS/ FRAMES	
ALUMINUM WINDOWS	
HARDWARE – (ALLOWANCE)	

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DRYWALL/ ACOUSTICS	
METAL SIDING	
PAINTING	
MILLWORK	
FLOORING	
MECHANICAL	
ELECTRICAL	
LANDSCAPING	
WHITEBOARDS/ TACKBOARDS	

(If Appendix "B" is not used, put "Not Applicable" and initial the bottom of the page)

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# Appendix "C" to Stipulated Price Bid

Project Number: 20-163

#### **BREAKOUT & SEPARATE PRICES**

Project:	FIRE AND EMERGENCY SERVICES CENTRAL STATION 20-163 42143 Highway #3 Wainfleet Ontario
Bidder:	Name of the Bidder

We, the above-named bidder, provide below the requested breakdown of items making up the total bid as entered in the Stipulated Price Bid Form and separate prices. These itemized prices are provided for the client's cost and value engineering and may be used to modify the scope of the Work and adjust our base bid price.

	<u>Item of Work</u>	Itemized Price
0	LESS BREAKOUT PRICING	\$
<b>3ASE BI</b>	BREAKOUT PRICE '1' – NEW SANITARY LATERAL	\$
	TOTAL BASE BID	\$
EPARATE PRICES	SEPARATE PRICE 'A' – Renovations to Storage barn	\$
	SEPARATE PRICE 'B' – Not used	\$
	SEPARATE PRICE C' – Not Used	\$
U)	TOTAL INCLUDING SEPARATE PRICES	\$

<sup>(</sup>If Appendix "C" is not used, put "Not Applicable" and initial the bottom of the page)

# Appendix "D" to Stipulated Price Bid

Project Number: 20-163

#### **ALTERNATE PRICES**

Project:	FIRE AND EMERGENCY SERVICES CENTRAL STATION 20-163 42143 Highway #3 Wainfleet Ontario
Bidder:	Name of the Bidder

We, the above-named bidder, offer below alternate prices. The amount to be added or subtracted to our base bid price (as entered in the Bid Form) is entered for each alternate. All alternate prices exclude Value Added Taxes. If there is no change to the base bid price for an alternate price item, we have so indicated. It is understood that:

 (a) the Owner may accept any of the corresponding alternate prices in any order or combination, including all or none,

the lowest bidder will be determined solely from the base bid, without considering any alternate prices

- (b) alternate prices are open for acceptance by the Owner for the same period of time as the base bid price,
- the Work of the Contract and the Contract Price will reflect the separate prices, if any, accepted by the
   Owner at the time of contract award, and
- (d) acceptance of any alternate prices will not affect the base bid contract completion time, unless we have specifically indicated an increase or decrease in time, in number of days, on account of a particular alternative.

	Effect on Base Bid	
Description of Alternative	Addition marked by a (+) Deletion by a (-)	
Alternate Price No. 1	\$	
Alternative Price No. 2	\$	

(If Appendix "D" is not used, put "Not Applicable" and initial the bottom of the page)

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# Appendix "E" to Stipulated Price Bid

Project Number: 20-163

#### **UNIT PRICES**

Project:		
	IRE AND EMERGENCY SERVICES CENTRAL STATION	
	20-163	
	42143 Highway #3 Wainfleet Ontario	
Bidder:	Name of the Bidder	

The following are our Unit Prices for the units of work listed hereunder. The Unit prices listed apply to performing the units of work only during the time scheduled for such work in the project schedule. These prices do **NOT** include Value Added Taxes.

#### (a) Current Wage Rates:

**Gross hourly wage rates** which your company will charge for labour and trades on this project for all extras and credits:

abourers	
arpenters	
lasons	
ainters	
lectricians	
lumbers	

(b) We are prepared to increase or deduct from the total contract in accordance with the unit prices below:

		Unit Pr	ice (\$)
	<u>Unit of Work</u>	Addition	Deletion
<u>1.0</u>	Excavation and Fill		
	a) Excavation, by hand, per cu. yd.		
	b) Excavation, by machine, per cu. yd.		
	c) Compacted Granular Fill, as specified cu. yd.		
<u>2.0</u>	2.0 Concrete		
	a) Concrete, plain 3,000 lb. psi per ( )		
	b) Concrete, reinforced, 3,000 lb. psi, formed two sides		
	In place per ( )		
	c) Formwork (per sq. ft)		

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<u>3.0</u>	Structural Steel	
	a) Framing in place per lb.	
	b) Loose lintels in place per lb.	

		Unit Pi	rice (\$)
	<u>Unit of Work cont'd</u>	Addition	Deletion
4.0 Masonry			•
a) Manufactured S	Stone veneer sq. ft.		
b) Masonry block	(8")sq. ft.		
b) Masonry block	(10")sq. ft.		
5.0 Asphalt Paving			
a) Asphalt pavinį soil repor 1) (light)	g, including stone base as specified in t, in place sq. yd.		
2) (heavy	) sq. yd		
6.0 Acoustics			
a) Ceiling tiles c/w	suspension system sq. ft.		
7.0 Painting			
a) Prime and 2 coa	ats paint, new gwb sq. ft.		
a) Block filler, Prin	ne and 2 coats paint, new masonry sq. ft.		
a) Block filler, Prin	ne and 2 coats paint, high build glaze new masonry		
sq. ft.			

\* Note: Unit prices that do not apply to this job mark N/A (Not applicable)

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# Appendix "F" to Stipulated Price Bid

Project Number: 20-163

# SUB-CONTRACTORS QUOTATIONS

Project:	FIRE AND EMERGENCY SERVICES CENTRAL STATION 20-163 42143 Highway #3 Wainfleet Ontario
Bidder:	Name of the Bidder

Please provide the name and quotation of the three lowest subtrades:

	SUB-CONTRACTORS		
COMPANY NAME		QUOTATION	
1.	EXCAVATION/ BACKFILL		
1.		\$	
2.		\$	
3.		\$	
2.	STRUCTURAL STEEL/ DECK		
1.		\$	
2.		\$	
3.		\$	
3.	CONCRETE/ REBAR		
1.		\$	
2.		\$	
3.		\$	
4.	4. SPRAY FIRE PROTECTION		
1.		\$	

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2.		\$	
3.		\$	
5.	MASONRY		
1.		\$	
2.		\$	
3.		\$	
6.	SPRAY INSULATION		
1.		\$	
2.		\$	
3.		\$	
7.	ROOFING/ FLASHINGS		
1.		\$	
2.		\$	
3.		\$	
8.	ROUGH CARPENTRY		
1.		\$	
2.		\$	
3.		\$	
9.	DOORS/ FRAMES		
1.		\$	
2.		\$	
3.		\$	
10.	ALUMINUM WINDOWS		
1.		\$	
2.		\$	
3.		\$	
11.	DRYWALL/ ACOUSTICS		
1.		\$	
2.		\$	
3.		\$	
12.	12. METAL SIDING		
1.		\$	
2.		\$	

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ARCHITECTS INC.

3.		\$
13. HARDWARE – (ALLOWANCE)		
1.		\$
2.		\$
3.		\$
14. PAINTING		
1.		\$
2.		\$
3.		\$
15. MILLWORK		
1.		\$
2.		\$
3.		\$
16. FLOORING		
1.		\$
2.		\$
3.		\$
17. MECHANICAL		
1.		\$
2.		\$
3.		\$
18. ELECTRICAL		
1.		\$
2.		\$
3.		\$
19. WHITEBOARDS/ TACKBOARDS		
1.		\$
2.		\$
3.		\$

RAIMONDO + ASSOCIATES

ARCHITECTS INC.

# 1. DESCRIPTION OF WORK

- .1 Work under this Contract covers the construction of a new volunteer fire station, storage barn renovations associated site works at 42143 Highway #3, Wainfleet, Ontario.
- .2 Work not included in Contract comprises those items indicated "N.I.C.", "by Owner", or "supplied by Owner" and is generally of mechanical and electrical.
- **.3** The work generally includes: +/- 1239m2 concrete block with masonry veneer/steel siding, 4 bay +2 Fire station and renovations to existing storage barn.
- .4 Refer to Section 01 11 00 Summary of Work for milestone dates.

# 2. GENERAL CONDITIONS

- .1 Conform with Divisions A, B, and Section 00 21 13 of this Project Manual.
- .2 The Contractor <u>MUST</u> provide to the Consultant, <u>before commencing the Work</u>, copies of Material Safety Data Sheets (MSDS) for all products covered under the Ontario Health and Safety Act and Regulations, and WHMIS regulations which are to be used on or in conjunction with the Work, together with information as to how and where they are to be used.
- .3 The Work for which these General Conditions are issued is governed by the Occupational Health and Safety Act and regulations for Construction Projects, Revised Statutes of Ontario, 1980 Chapter 321 as amended (Ontario reg. 213/91). The successful tenderer, upon award of a purchase order number for the work outlined, shall assume full responsibility under this legislation as the "Constructor" as defined therein.
- .4 The Contractor shall ensure that the staff for which they are responsible are adequately trained and kept up to date on relevant health and safety legislation as per the Occupational Health and Safety Act and Regulations for Construction Projects. This could include but is not limited to the following: Personal Protective Equipment, Fall Protection, Travel restraint, Fall Restricting and Arrest, Overhead Protection, Fire Safety, Confined Space Entry, Ladders, Scaffolding, Elevated Work Platforms, Cranes, Hoists, Rigging, Cables, Slings, Explosive Fastening Tools, Electrical Hazards, Lock Out & Tag Out, Roofing and Excavations.

# 3. DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each of the following:
  - .1 Contract drawings/plans
  - .2 Project Manual/Specifications
  - .3 Addenda
  - .4 Change Orders
  - .5 Other modifications to Contract
  - .6 Copy of approved work schedule
  - .7 Manufacturer's installation and application instructions
  - .8 All materials required for Posting by Authorities
  - .9 Shop Drawings and Submittals

# 4. CONTRACTOR'S USE

- .1 Repair grounds once work is complete, if damaged.
- .2 Do not unreasonable encumber site with materials or equipment.
- .3 Refer to site plan for further information.

# 5. CODES AND STANDARDS

- .1 Perform work in accordance with Ontario Building Code and any other Codes of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .2 Meet or exceed requirements of Contract documents, specified standards, codes and referenced documents.

# 6. **PROJECT MEETINGS**

- .1 Hold project meetings at times and locations approved by Architect and Owner, **bi-weekly**, during construction.
- .2 General Contractor will take and distribute minutes to all parties.

# 7. EXISTING SERVICES

- .1 Before commencing Work, establish location and extent of service lines in area of Work and notify Engineer of findings.
- .2 Where unknown services are encountered, immediately advise Engineer and Owner and confirm findings in writing.
- .3 Protect and record locations of maintained, re-routed and abandoned service lines.
- .4 Remove abandoned service lines within 2m of structure. Cap or otherwise seal lines at cut off points directed by Engineer.

# 8. ADDITIONAL DRAWINGS

.1 Architect may furnish additional drawings to assist proper execution of work. These drawings will be issued for clarification only. Such drawings shall have same meaning and intent as if they were included with plans referred to in Contract documents.

# 9. INSTALLATION

.1 Install all materials true and plumb in accordance with drawings. Avoid interference with other trades.
## 10. PRODUCTS

.1 Provide as specified except with prior approval of Owner and Architect. <u>Reject</u> products not meeting the Specification. Store as shipped, providing <u>adequate protection</u>.

## 11. EXAMINATION AND ACCEPTANCE

#### .1 Tender Documents are on display at the offices of the Niagara Construction Association and Hamilton Halton Construction Association.

- .2 In submitting bid, bidders affirmed that they did examine site for all conditions before submitting tender, and did examine the drawings of all disciplines (see Division C) and all tender documents thoroughly and accept them as clearly representing the Scope of Work.
- .3 Examine Work of others upon which your Work depends. Application of your Work constitutes acceptance of the other trade. Failure to report deficiencies prior to application will result in making good of rejected work at your expense.
- .4 Examine work upon which your work depends. Report in writing defects in such work. Application of your work shall be deemed acceptance of work upon which your work depends.
- .5 Drawings are, in part, diagrammatic and are intended to convey scope of Work and indicate general and approximate location, arrangement and sizes of fixtures, equipment, ducts, piping, conduits and outlets and similar items. Obtain more accurate information about locations, arrangement and sizes from study and co-ordination of drawings, including shop drawings and manufacturer's literature and become familiar with conditions and spaces affecting these matters before proceeding with Work.
- .6 Where job conditions require reasonable changes in indicated locations and arrangements, make such changes with approval of Architect at no additional cost to Owner. Similarly, where existing conditions interfere with new installation and require relocation, such relocation is included in Work.
- .7 Install and arrange fixtures, equipment, ducts, piping and conduit to conserve as much headroom and space as possible, and avoid interference and obstruction of access. Observe good installation practice for safety, access, maintenance and follow manufacturer's recommendations. Make changes requested to comply with these requirements at no additional cost to Owner.
- .8 If requested by Architect, and before installation, relocate equipment, services, doors, openings, furring and other work at no additional cost to Owner; providing such relocation involves only reasonable minor adjustments and reasonable advance notice is given in writing.

#### 12. DISCREPANCIES

.1 Report discrepancies, etc. noted in the drawings to the Architect during tender period and prior to the tender close.

#### 13. CLEANING

- .1 Remove all material which may damage or be difficult to remove from your Work or adjacent surfaces. Clean your finished Work.
- .2 Maintain workplace in clean and orderly condition while working.

#### 14. MAINTENANCE MANUAL

.1 Provide all material regarding characteristics and maintenance of the work to the Contractor in triplicate for preparation of the Maintenance Manual under 01 00 10.

#### 15. SAFETY

.1 Comply with the Ontario Occupational Health and Safety Act, as amended by Bill 208 and all other applicable safety regulations.

#### 16. SAMPLES

.1 Where samples are specified, provide 2 to the Contractor for review by the Architect, clearly labelled with Project Name and sample description.

#### 17. TEMPORARY SERVICES

- .1 Provide office and storage space.
- .2 Provide your own hoses, extension cords, etc.

#### 18. CO-ORDINATE

- .1 The Contractor will co-ordinate the work of all sub-contractors, including mechanical and electrical trades.
- .2 Co-ordinate work of each Section as required for satisfactory and expeditious completion of Work. Take field dimensions required. Take into account existing installations to assure best arrangements of components in available space. Consult before commencing Work in critical locations. Fabricate and erect work to suit field dimensions and field conditions.
- .3 Pay cost of extra work caused by, and make up time lost as result of failure to comply with these requirements at proper time.

## 19. SEQUENCING AND AREA AVAILABILITY

- .1 Erect hoarding and safety fencing as necessary to protect the public. Refer to contract documents for areas of hoarding including Arborist report.
- .2 Control access to site after hours by gating off at street access.
- .3 Refer to 01 11 00 for detailed breakdown.

## 20. COLD WEATHER WORK

.1 Continue work including winter months, if applicable, until Work is completed and accepted.

### 21. MATERIALS, PLANT AND EQUIPMENT

- .1 Materials, plant and equipment specified shall form basis of Bid and Contract. Where more than 1 brand or manufacturer is named in Specifications, or on Drawings, choice is Bidders/Contractors provided requirements of Drawings and Specifications are met.
- .2 Unless explicit statement is made in Bid/Contract Documents to say no substitutions will be permitted; then works "or approved alternate" are hereby deemed to apply to material, plant and equipment specified by brand or manufacturer, subject to following conditions:
  - a) Request for substitution is made after Contract award and in accordance with provisions for substitutions set out in the General Conditions of the Contract.
  - b) Proposed substitution satisfies all other indicated or specified requirements and conditions.
- .3 Materials, plant and equipment shall not be damaged or defective and shall be of quality compatible with Specifications for purpose intended. If requested provide evidence as to type, source and quality. Remove and replace defective products, at own expense, regardless of previous inspections, and be responsible for delays and expenses caused thereby.
- .4 Replace factory finished equipment, or parts thereof, whose paint finish is damaged and cannot be reasonably remedies by paint touch-up.

## 22. MATERIAL STORAGE AND HANDLING

.1 Store packaged materials in original, undamaged containers with manufacturer's labels and seals intact. Handle and store materials in accordance with manufacturer's and suppliers' recommendations and in manner to prevent damage to materials during storage and handling.

### 23. CONCEALMENT OF WORK

- .1 Conceal pipes, ducts, conduits, tubing, wiring and other items requiring concealment in floor, wall and ceiling construction of finished areas except where indicated or specified otherwise. If in doubt as to method of concealment, or intention of Contract Documents in this connection, request clarification from Architect before proceeding with work in question.
- .2 Lay out mechanical and electrical work in advance of concrete placement and furring installation to allow for its proper concealment.

#### 24. GENERAL WORKMANSHIP

.1 Do Work in accordance with industry practice for type of work unless Contract Documents stipulate more precise requirements.

- .2 Do Work in neat and careful manner to retain Work plumb, square and straight.
- .3 Ensure Work is properly related to form close joints and appropriately aligned junctions, edges and surfaces and is free or warp, twist, wind, wave, or other irregularities.
- .4 When required by Specifications or by manufacturer's recommendations, have manufacturer, supplier or accredited agent, inspect work, which incorporates their products.
- .5 Do not permit materials to come in contact with other materials whether in presence of moisture or otherwise if conditions will result in corrosion, stain or discoloration or deterioration of completed Work. Provide compatible, durable separators where such contact is unavoidable.

## 25. FASTENERS

- .1 Supply appropriate fasteners, anchors, accessories, and adhesives required for fabrication and erection of Work.
- .2 Unless specified otherwise use exposed metal fasteners and accessories of same texture, colour and finish as product being fastened.
- .3 Use metal fasteners of same material as metal component being fastened, or of metal which will not generate electrolytic action and cause damage to fastener or metal component under moist conditions. In general use non-corrosive or hot dip galvanized steel anchors occurring on or in exterior wall, slab or other exterior locations, unless higher standard is indicated or specified.
- .4 Fastening devices or adhesives shall be of appropriate type, used in sufficient quantity and in such manner to provide positive, permanent fastening, which will not shift, work loose or fail during occupancy of building due to vibration or other causes resulting from normal use of building. Install anchors at spacing to provide required load/stress carrying capacity. Do not use wood plugs.
- .5 Lay out fasteners neatly, evenly spaced and aligned. Keep exposed fasteners to minimum.
- .6 Supply adequate instructions and templates and, if necessary supervise installation, where fasteners or accessories for your Section are required to be built into work of other Sections.
- .7 Do not use fasteners which will cause spalling, cracking, or deformation or deterioration of material being fastened by or to.
- .8 Do not use powder actuated fastening devices, which are used in tension, without approval. Take stringent safety precautions when using powder actuated fasteners. Use only low velocity plunger-type devices.
- .9 Use adhesives specified, or if not specified, those recommended by manufacturer of materials involved, compatible with materials to be joined, and effective in forming permanent joint of adequate strength.

- .10 Use screws, nails, staples, and other similar, driven fasteners suitable to materials to be joined and to conditions under which they are installed and used. Ensure that in finished work, fasteners are sized to take durable hold under stress to be encountered without damage to finished work.
- .11 Do brazing or soldering to form durable connections of strength adequate to resist stresses to be encountered without deformation of elements joined. Prepare base metals and use methods and materials to ensure clean joint, and to prevent staining, corrosion, discolouration, deformation or other damage to finished Work.
- .12 Do welding to CSA W59-M89 (for steel) or CSA W59.2-M91 (for aluminum) for material and methods, unless specified otherwise. Have welding performed by industry certified operatives to CSA W47.1-83 or CSA W47.2-M87.

## 26. ACCESSORIES

.1 Provide accessory items or materials required, such as brackets, cleats, connectors, sealants, lubricants, cleaners, protection, and similar items, whether specified or not, so that Work is complete and will perform as required.

## 27. DESIGN AND SAFETY REQUIREMENTS FOR TEMPORARY WORK

.1 Be responsible for design, erection, maintenance and removal of temporary structural and other temporary facilities. Engage and pay for registered Professional Engineering personnel skilled in appropriate disciplines to perform these functions where required by law or by the Contract Documents; and in cases where such temporary facilities and their method of construction are of such nature that Professional Engineering skill is required to produce safe and satisfactory results.

#### 28. PROTECTION AND SAFETY

- .1 Comply with requirements of Acts and Regulations with respect to health and safety including Occupational Health and Safety Act, as amended, and Workplace Hazardous Materials Information System (WHMIS) Regulation, including following:
  - a) Before commencement of Work, and throughout Contract, maintain on Site, and readily accessible to all those who may be exposed to hazardous materials, list of hazardous materials proposed for use on Site or Workplace together with current Materials Safety Data Sheet (MSDS).
  - b) Ensure hazardous materials used and/or supplied on Site are labelled in accordance with WHMIS requirements.
  - c) Know and be aware of the procedures for safe handling, storage and use of such hazardous materials including special precautions, safe clean-up and disposal procedures. Conform to Environmental Protection Act for disposal requirements.
  - d) Ensure that those who handle, and/or are exposed to, or are likely to handle or be exposed to, hazardous materials are fully instructed and trained in accordance with

WHMIS requirements.

- .2 Protect excavation, trenches and building from damage from rainwater, ground water, backing up of drains or sewers and other water, frost and other weather conditions. Provide sheeting, piling, shoring, pumps, equipment, temporary drainage, protective covering and enclosures. Provide necessary pumps including spare pump for keeping project free of water throughout construction period.
- .3 Protect, relocate and maintain existing, active services wherever they are encountered. Wherever inactive services are encountered, cap them off and remove unwanted portion, with approval of authorities having jurisdiction or public utility concerned in manner approved by them.
- .4 Load no part of structure during construction with load greater than its calculated to bear safely when completed. Make every temporary support as strong as permanent support. Place no load on concrete structure until it has sufficient strength to safely carry such load.
- .5 Adequately protect floors and roofs from drainage. Take special measures when moving heavy loads or equipment on them.
- .6 Keep floors free of oils, grease or other materials likely to discolour them or affect bond applied surfaces including fumes generated by temporary heating devices. Take care not to spill or allow oil, grease, gasoline, diesel and fuel oil, chemicals and other substances to contaminate soil water on or adjacent to site. Should such contamination accidentally occur report it immediately and clean up to satisfaction of Architect.
- .7 Protect work of other Sections from damage resulting from your work.
- .8 Damaged work shall be made good wherever possible by Section whose work is damaged but at expense of those causing damage.
- .9 Protect glass and other finishes against heat, slag and weld splatter using suitable protective shields or covers.
- .10 Conform to Construction Safety Association of Ontario's manual on Propane in construction. Watch work area for minimum of 30 minutes after hot work is competed. Provide site fire security when required by local building department and/ or municipal fire department. Ensure that water supply is adequate for fire fighting
- .11 Provide and maintain in working order, suitable Underwriters' labelled fire extinguishers and locate in suitable positions, to approval of authorities having jurisdiction.
- .12 Provide minimum of 3 safety helmets for Architect and any other authorized visitors to Site if required.
- .13 Protect public and those employed on Work from injury. Equipment (mobile) when not in use shall have keys removed and locked up in secure location.

#### 29. SCAFFOLDING

.1 Erect scaffolding independent of walls. Use it in a manner as to interfere as little as possible with other Sections. When not in use, move it as necessary to permit installation

of other work. Construct and maintain scaffolding in rigid, secure and safe manner. Remove it promptly when no longer required.

#### 30. TEMPORARY CLEANING

.1 Keep site and building, including concealed spaces, free from accumulation of dirt, debris, garbage and excess material. Remove oily rags and waste from premises at close of each day, or more often if required.

## 31. MANUFACTURERS DIRECTIONS

.1 Except where specified otherwise, use each product in accordance with manufacturer's published or written instructions, specifications or recommendations regarding handling, storage, preparation, site conditions, ancillary products or accessories, methods of installation, protection and cleaning. Submit copy of such instructions, and indicate if and where there is discrepancy between them and requirements of specifications and obtain direction.

## 32. SPARE PRODUCTS

- .1 Where specified in other Sections, provide spare materials and products for future repair and replacement.
- .2 Ensure such materials are of same production run as those incorporated in Work.
- .3 Deliver quantities required, in separate labelled containers, and store where directed.
- .4 Labels shall state material description, colour, pattern and location of installation.

#### 33. ENVIRONMENTAL PRACTICES

- 1. .Take active role in implementing environmentally sound business practices and producing goods and services that lessen burden on environment in production, use and final disposition. Support implementation of reduction, reuse and recycling strategies and use of environmentally sound products. Reduce or eliminate excessive packaging and promote use of environmentally responsible packaging practices.
  - a) Environmentally Sound Products: Product that is made, used and disposed of in a manner that significantly reduces harm it would otherwise cause environment. Product may be certified as environmentally sound because it is made in a way that improves energy efficiency, reduces hazardous by-products, uses recycled material, or because the product itself can be recycled or reuses, or in some way is environmentally benign.
  - b) Packaging requirements: Implement waste reduction by reducing or eliminating excessive packaging practices.
  - c) Use, where appropriate, combination of packaging materials such as reusable containers, blanket wrap or cushioning material provided that all reasonable requirements of materials handling, transportation and storage are observed.

d) Packaging materials such as kraft paper and corrugated cartons shall be made from reclaimed products to facilitate recycling of secondary materials.

- e) Packaging material shall be clearly labelled to display their recycled content and recyclability.
- f) Ensure that packaging materials are removed from Site and disposed of in environmentally responsible manner.

## 34. WASTE DISPOSAL

- .1 Do not burn rubbish on Site. Obtain approval and use following off-site disposal alternatives, depending upon materials involved; burying, composting, Municipal collection or local dump or sanitary landfill site.
- .2 Refer to Section 01 81 00 Sustainable Design Requirements.

## 1. CO-ORDINATE

- .1 Conform to General Instructions.
- .2 Co-ordinate all Sections of the Work.
- .3 Co-ordinate with the Owner for timely inclusion of other trades, and the Work of Other Contractors.

## 2. TEMPORARY UTILITIES

- .1 Provide temporary power by arrangement with the local utility company as defined in Section 01 51 00 Temporary Utilities. If required.
- .2 Provide temporary water by arrangement with the Owner as defined in Section 01 51 00 Temporary Utilities.
- .3 Provide temporary heating and protection measures as defined in Section 01 51 00 Temporary Utilities.

## 3. TEMPORARY FACILITIES

- .1 Locate construction office trailer and trade support trailers, including storage as defined in Section 01 52 00 Construction Facilities.
- .2 Provide telephone and related support equipment within construction office trailer as defined in Section 01 52 00 Construction Facilities.
- .3 Provide temporary sanitary facilities as defined in Section 01 52 00 Construction Facilities.
- .4 Arrange and pay for all costs for temporary power (110V) by arrangement with the local utility company. Do not interfere with ongoing operation of the existing Building functions.
- .5 Arrange for Temporary water Site is not serviced with municipal water . Provide hoses and assume all associated costs, rental and installation and water costs.
- .6 **Provide and pay for costs of all temporary heating** and protection measures for all sections and to industry standards. Do not use installed systems without owner approval. If approval is received, clean all systems and replace all filters prior to acceptance by Owner. Contractor to make own arrangements and pay for temporary natural gas for purposes of heating building once it is enclosed.

#### 4. TEMPORARY HEATING REQUIREMENT THROUGH WINTER CONSTRUCTION

- .1 Provide any temporary heating required during construction period, including attendance, maintenance and fuel
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders not permitted.
- .3 Maintain temperatures of minimum 10 degrees Celsius in areas where construction is in progress.

- .4 Ventilate heated areas and keep building free of exhaust or combustion gases.
- .5 Permanent heating system of building, or portions thereof, may be used when available. Be responsible for damage hereto. Change filters. Contractor must make a formal request to do so in writing. An extended warranty of 1 year will be required.
- .6 Allow for all costs associated with heating during winter months. No additional costs will be entertained.

## 5. WINTER CONSTRUCTION REQUIREMENTS

- .1 When the Work proceeds under winter conditions, the following apply:
  - .1 Provide all equipment, material and enclosures and all necessary power and fuel to offer complete "winter protection" and "temporary heat" as defined in Section 01 51 00 and section 01 52 00.
  - .2 Masonry and related work to CAN-A371-M94, noting that mortar must be maintained at a temperature of  $5^{\circ}$ C to  $50^{\circ}$ C until used.
  - .3 Concrete and related work to CAN3-A23.1-M77.
  - .4 Ensure that products or systems are not damaged by cold weather.
  - .5 Do not proceed with drywall work in unheated, damp building.

#### 6. HOARDING, FENCING, PROTECTION, SECURITY, TEMPORARY ACCESS, PARKING

- .1 Provide site access, roads, parking and security as defined in Section 01 52 00 for Construction Facilities.
- .2 Provide hoarding, fencing and related protection as defined in Section 01 56 00 for Temporary Barriers and Enclosures.

#### 7. CLEAN-UP

- .1 Maintain clean and orderly site.
- .2 Provide refuse receptacles and dumping service in a location approved by the Owner.
- .3 Perform final clean-up of all Sections before turning over to the Owner. Refer to Section 01 74 11 Cleaning.

#### 8. MAINTENANCE MANUALS

.1 Provide at the completion of the Work, 4 copies of a Maintenance Manual to the Owner. Include manufacturer's data and instructions for maintenance, adjustment, re-finishing, etc. of all materials and equipment. Include special warranty documentation and information; 3ring binder format, indexed. **Supply all information to architect for incorporation into**  Final Record Drawings, for computer update of Tendered Documents, to be paid for by <u>Contractor</u>:

.2 Consultant will withhold a sum of \$10,000.00 from final payment, noted on Certificate for Payment prorated over construction time period, until such time as manuals and as-builts have been submitted and approved and training, commissioning, and demonstration are completed.

## 9. SETTING OUT

- .1 Confirm all dimensions with the Owner, and on site.
- .2 Provide dimensions, levels, etc. to all subcontractors and to the Owner as required.
- .3 Employ the services of an Ontario Land Surveyor to set out the building and to establish benchmark levels and to verify all grading before final payment. Obtain and pay for Foundation Location Plan and final as built site plan drawing with all grades, etc., by Ontario Land Surveyor.

.1 Provide control points to facilitate the accurate layout of the building on site, prepare stakeout diagrams for field layout.

- .2 Establish bench marks on the perimeter of the construction area.
- .3 Verify elevations of floor levels as construction proceeds.
- .4 Verify accuracy of site dimensions on drawings.
- .5 Provide as constructed survey to verify location of structure and elevations to update owner's existing database.
- .6 Merge documented underground services information.

## 10. RECORD DRAWINGS

- .1 **Maintain continuously a complete set of record prints,** clearly indicating all significant changes from the Contract Documents which will not be visible at the conclusion of Work.
- .2 Record information concurrently with construction progress. Do not conceal work until required information is recorded, and until Architect has reviewed As-built drawings.
- .3 Contract Drawings and shop drawings: legibly mark each item to record actual construction including:
  - .1 Measure depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by Change Orders.

- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.
- .4 Specifications: legibly mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each project actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and Change Orders.
- .5 Other Documents: maintain manufacturer's certification, inspection certifications, required by individual specifications sections.
- .6 Supply Final as built marked up prints to Consultant for incorporation on Computer Drawings as Final record set for Owner.

## 11. SUPERINTENDANTS

- .1 Maintain competent superintendants on site full-time at all times that Work is being carried out, to the satisfaction of the Owner.
- .2 The general contractor to provide one individual, suitably trained and experienced, specifically identified as the project superintendant, who will be on site at all times during construction, right through to the hand-over and completion of deficiencies. If the general contractor decides to change superintendants part-way through the project, it is to be with the agreement of the Consultant and Owner. Any replacement would have to meet the above requirements and be accepted by the Consultant and Owner.

#### 12. SHOP DRAWINGS

- .1 Thoroughly examine submitted shop drawings and indicate the contractor's approval on them <u>prior</u> to submitting to the Consultants. Check all dimensions and conformance with Project Manual.
- .2 Before commencing Work, prepare to the Consultant's satisfaction a schedule for submission of all required Shop Drawings.
- .3 Reproduction of Consultant's drawings will not be permitted.
- .4 Provide specified shop drawings in PDF file format to Consultant for approval.
- .5 Contractor must submit all shop drawings within <u>8 weeks</u> of award of contract.

#### 13. COST BREAKDOWN

- .1 Before submitting first progress claim, submit breakdown of Contract Price in detail as directed by Consultant and aggregating Contract Price. After approval by consultant, cost breakdown will be used as basis for progress payment.
- .2 Include a detailed mechanical and electrical breakdown. A lump sum will not be permitted.

## 14. MAKING GOOD

.1 Make good any existing surfaces disturbed by any cause during construction, to a condition at least equivalent to that in place before your work was commenced.

#### 15. CONSTRUCTION SCHEDULE (REFERENCE DECLARATION STATEMENT- TENDER FORM)

.1 Provide within 14 working days after Contract award, a schedule showing progress stages and final completion of work, all to the satisfaction of the Consultant. Completion dates for construction is to be as defined in Supplementary Conditions.

#### 16. EXISTING UTILITIES

- .1 Arrange for location of all existing utilities prior to commencing any Work on site.
- .2 Verify with Owner.

## 17. OTHER CONTRACTORS

- .1 There may be 'Other Contractors' engaged under separate contracts completing Work. The Contractor will be provided with information on that Work By Others during construction. The Contractor <u>must</u> co-ordinate with the Other Contractors for the completion of the project.
- .2 This Contractor must examine the work of the Other Contractors upon which your work depends, advising the Consultant of any evident deficiency. Any trade applying their Work over that deficient work, shall be required to replace it at no expense to the Owner. Any trade that has a concern with the quality if any preceding work, should report their concerns immediately to the general contractor so that it can be replaces/ repaired as soon as possible so as to not delay the project schedule.

#### 18. INSPECTION AND TESTING

- .1 Arrange for all required testing and pay costs from Cash Allowance, Section 01 21 00.
- .2 Testing requirements include concrete, compaction, mortar, welding of structural steel, asphalt pavement, roofing, and other items to be established by the Consultant.
- .3 The cost of retesting any work found to be substandard will be paid for by the trade responsible.
- .4 All test results to be forwarded electronically to applicable consultant team and Owner.

#### **19. GEOTECHNICAL CONSULTANT**

.1 Retain for Tender the services of a Geotechnical Consultant, to review excavation before placing of footings and test for compaction at Owner's approval.

.2 Pay for these services from Cash Allowance Section 01 21 00 at Owner's approval.

## 20. PERMITS

- .1 Permits pertaining to particular trades shall be paid for by the particular sub-trade concerned. Comply with all regulations of all public authorities having jurisdiction.
  - .1 The cost of the Municipal Building Permit will be applied and paid for by the Owner.

## 21. PROJECT SIGN

- .1 Project identification signboard to be supplied and installed under Project identification Signboard Allowance, Section 012100. Included is the Project Name, Contractor, logo and Name of Project and names of Architect and Consulting Engineers. Sign to be erected by General Contractor. Confirm location with Consultant.
  - 1. Only project identification and approved job sign, and notices for safety or instruction are permitted on site.
  - 2. Maintain sign and notices for duration of project. Remove sign and deliver to Owner off site on completion of project.

Part 1 General	Part 1 Ge	neral
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1.1	Section Includes

- .1 Title and description of Work.
- .2 Contract Method.
- .3 Work by others.
- .4 Future work.
- .5 Work sequence.
- .6 Contractor use of premises.
- .7 Owner occupancy.
- .8 Partial Owner occupancy.
- .9 Owner furnished items.

## 1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

## 1.3 Scheduling of Work

- .1 The general contractor shall perform their work in full co-operation with other trades and co-ordinate the schedule and sequence of all work with other trades.
- .2 The station shall be substantial and ready for occupancy 14 months from commencement of construction.

## 1.4 Work Covered By Contract Documents

.1 Work of this Contract comprises construction of new Fire Station, renovation of existing barn and site works at 42143 Highway #3, Wainfleet , Ontario

#### 1.5 Contract Method

- .1 Construct Work under stipulated price contract.
- .2 Employ suppliers assigned by Owner for:
  - .1 Refer to Division 16 & Section 01 21 00 Cash Allowances Security Access
    - .1 Contact: Dean Lloyd, Password

40 Wellington St. N. Unit 106,

Hamilton, Ontario L8R 1M8

T:1-800-561-3099/ M:905-512-4413

dlloyd@pasword.com

- .3 Relations and responsibilities between Contractor and subcontractors and suppliers assigned by Owner are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:
  - .1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Owner Consultant.
  - .2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Owner.

## 1.6 Work Sequence

- .1 Coordinate Progress Schedule and coordinate with Owner Occupancy and access during construction.
- .2 Maintain fire access/control.

## 1.7 Contractor Use Of Premises

- .1 Contractor has unrestricted use of site until Substantial Performance.
- .2 Contractor shall limit use of premises for Work, for storage, and for access, to allow;
  - .1 Fire Department Access.
- .3 Coordinate use of premises under direction of Owner.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

#### 1.8 Pre-ordered Products Pre-bid Work

- .1 Not Used
- 1.9 Pre-purchased Equipment
  - .1 Not Used

## 1.10 Owner Furnished Items

- .1 Refer to Miscellaneous equipment schedule on Drawing Sheet A2-600
- Part 2 Products
- 2.1 Not Used
  - .1 Not used.

# Part 3 Execution

## 3.1 Not Used

.1 Not used.

#### Part 1 General

#### 1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

#### 1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with the Owner to facilitate work as stated.
- .2 Where security is reduced by work provide temporary means to maintain security.
- .3 Contractor to provide own sanitary facilities.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

#### 1.3 EXISTING SERVICES

- .1 Notify Owner and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, provide Owner a minimum of 48 hours notice for necessary interruption to mechanical or electrical service throughout course of work.
- .3 Provide for pedestrian and vehicular traffic.
- .4 Construct barriers in accordance with Section 01 56 00 Temporary Barriers and Enclosures.

#### 1.4 SPECIAL REQUIREMENTS

- .1 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .2 Keep within limits of work and avenues of ingress and egress.

#### 1.5 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not allowed within the building or within 7.5 metres (25 feet) of all entrances, outdoor air intakes and operable windows.

#### 1.6 FIRE PROTECTION

.1 General Contractor to provide and maintain temporary fire protection equipment during construction.

- .2 A fire safety plan is to be posted on Site prepared in conjunction with the local Fire Department, attention to the current Fire Chief or Fire prevention officer.
- .3 General Contractor and all sub-trades to regularly remove waste that may constitute a fire hazard.
- .4 An adequate water supply for fire fighting is to be maintained throughout construction.
- Part 2 Products
- 2.1 NOT USED
  - .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

#### Part 1 General

### 1.1 SECTION INCLUDES

- .1 Cash allowances.
- .2 Contingency allowance.

#### 1.2 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.
- .2 Project Supplementary Conditions

## 1.3 CASH ALLOWANCE

- .1 Refer to CCDC 2, GC 4.1.
- .2 Include in the Contract Price, Cash Allowances stated herein.
- .3 Cash allowances, unless otherwise specified, cover **<u>net cost</u>** to the Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage, and other authorized expenses incurred in performing the Work stipulated under the cash allowances but do not include any Value Added Taxes payable by the Owner.
- .4 The <u>Contract Price</u>, and not cash allowances "<u>includes</u>" the Contractor's overhead and profit in connection with such cash allowances.
- .5 The Contract Price will be adjusted by written order to provide for an excess or deficit to each cash allowance.
- .6 Where costs under the Cash Allowance exceed the amount of the allowance, the Contractor will be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in the Contract Documents.
- .7 Progress payments on accounts of work authorized under the cash allowance shall be included in the Consultant's monthly Certificate for Payment, by using an Allowance Disbursal.
- .8 The Owner reserves the right to transfer or rebalance funds between cash allowances at their own discretion, without incurring any additional markups.
- .9 A schedule shall be prepared by the Contractor to show when items called for under the cash allowances must be authorized by the Consultant for ordering purposes so that the progress of the Work will not be delayed.
- .10 Carry a total Cash Allowance of **<u>\$310,000</u>** for work specified below:
  - Include a cash allowance for the supply and installation of new window coverings. 9 (nine) exterior shades, solar reflective 5000 Series 3% transparency Colour by Architect. Net of Applicable taxes. (To be tendered to minimum 3 suppliers)

- (2) Include a cash allowance of for the supply only of finish door hardware, net of applicable taxes. (To be tendered to minimum 3 suppliers).
- (3) Include a cash allowance for the design, supply and installation and commissioning of Electronic Security FOB door hardware system that is approved by the client as supplied by: Pasword Protect Security, Contact : Dean Lloyd, Sales Manager; Email <u>dlloyd@pasword.com</u>
- (4) Include a cash allowance to employ a Legal Surveyor to set out building and provide a final legal survey for Owner's records of building and all related services new and existing in as built format, including all final grades and site features. Area to be confirmed with Consultant before proceeding with survey
- (5) Include a cash allowance of for interior room identification signage.
- (6) Include a cash allowance of for Inspection and testing. This shall include testing of concrete, Asphalt, compaction of granular base, roof, building envelope inspections and pressure testing of the Hydronic in floor heating system.
- (7) Include a cash allowance of service charges pertaining to the installation of Natural Gas, Telephone, Electrical and meter deposits.
- (8) Include a cash allowance for Demolition, Septic, and Building permit.
- .11 Do not include in Contract Price, additional contingency allowances for products, installation, overhead or profit.
- .12 Expenditures under contingency allowance will be authorized in accordance with procedures provided in CCDC 2, GC 6.1 Owner's Right to Make Changes CCDC 2, 6.2 Change Order and CCDC 2, 6.3 Change Directive.
- .13 Contractor and subcontractor's profit and overhead are to be carried in the base bid and <u>**not**</u> under the cash allowance.
- .14 Overhead and profit on cash allowances only applies when the cash allowance expenditure exceeds the sum stated in the particular allowance. Then the overhead and profit on the excess amount will be allowed for the allowance in question.
- .15 All cash allowances include HST where applicable.
- .16 The *Owner* reserves the right to call, or to have the *Contractor* call, for competitive bids for portions of the *work*, to be paid for from cash allowances

## 1.4 CONTINGENCY ALLOWANCE

.1 A Stipulated Sum of \$347,500.00 for contingency allowance shall be carried by the *Contractor* and disbursed only by the *Owner*'s Authorization by means of an allowance disbursal.

### 1. SECTION INCLUDES

- .1 Schedule, form, content.
- .2 Scheduled revisions
- .3 Critical path scheduling

## 2. RELATED SECTION

- 1. General Work Section 01 00 10
- 2. Submittal Schedule Section 01 33 00

## 3. SCHEDULES REQUIRED

- .1 Submit the following schedules:
  - .1 Construction Progress Schedule
  - .2 Submittal Schedule for Shop Drawings and Product Data
  - .3 Product Delivery Schedule

## 4. FORMAT

- .1 Prepare schedule in the form of a horizontal bar chart.
- .2 Provide a separate bar for each trade or operation.
- .3 Provide horizontal time scale identifying the first work day of each week.
- .4 Format for listings: The Table of Contents of this specification.
- .5 Identification of listings: By Specification Subjects.

#### 5. SUBMISSION

- .1 Submit initial schedules within **14 days** after award of Contract.
- .2 Submit one opaque reproduction, plus two copies to be retained by the Consultant.
- .3 Consultant will review schedule and return review copy within 5 days after receipt.
- .4 Resubmit finalized schedule within **7 days** after return of review copy.
- .5 Submit revised progress schedule with each application for payment.
- .6 Distribute copies of the revised schedule to:
  - .1 Job site office.
  - .2 Subcontractors.
  - .3 Other concerned parties

.7 Instruct recipients to report to the Contractor within 10 days, any problems anticipated by the timetable shown in the schedule.

## 6. CONSTRUCTION PROGRESS SCHEDULE

- .1 Include the complete sequence of construction activities.
  - .1 Project must be complete within 14 months from commencement (assuming October 20<sup>th</sup> 2021 Start).
- .2 Include the dates for the commencement and completion of each major elements of construction:
  - a) Site Servicing
  - b) Foundations
  - c) Masonry
  - d) Mechanical Rough-In
  - e) Electrical Rough-In
  - f) Mechanical Finishes
  - g) Electrical Finishes
  - h) Millwork
  - i) Doors and Frames
  - j) Ceilings
  - k) Flooring
  - I) Painting
  - m) Structural Steel
  - n) Roofing
  - o) Windows
  - p) Asphalt
  - q) Site Work
  - r) Site Services
- .3 Show projected percentage of completion of each item as of the first day of the month.
- .4 Indicate progress of each activity to date of submission schedule.
- .5 Show changes occurring since previous submission of schedule:
  - .1 Major changes in scope.
  - .2 Activities modified since previous submission.
  - .3 Revised projections of progress and completion.
  - .4 Other identifiable changes.
- .6 Provide a narrative report to define:
  - .1 Problem areas, anticipated delays, and the impact on the schedule.
  - .2 Corrective action recommended and its effect
  - .3 The effect of changes on schedules of other prime contractors.

## 1.1 Section Includes

- .1 Shop drawings and product data.
- .2 Samples.
- .3 Certificates and transcripts.

## 1.2 Related Sections

- .1 Section 01 33 00 Submittal Procedures.
- .2 Section 01 45 00 Quality Control.
- .3 Section 01 78 00 Closeout Submittals
- .4 Section 01 79 00 Demonstration and Training.
- .5 Section 01 81 00 Sustanable Design Requirements.
- .6 Section 23 05 54 Mechanical Identification.

#### 1.3 References

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.

## 1.4 Administrative

- .1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Work affected by submittal shall not proceed until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Consultants review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
- .10 Keep one reviewed copy of each submission on site.

#### 1.5 Shop Drawings And Product Data

- .1 Refer to CCDC 2 GC 3.11.
- .2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Consultants AutoCAD files will be made available to contractors for use in creation of shop drawings at a cost of \$250.00 per file.
- .5 Allow 15 working days for Consultant's review of each submission.
- .6 Adjustments made on shop drawings by Engineer and Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .7 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of any revisions other than those requested.
- .8 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .9 Submissions shall include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.

- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.
- .10 After Consultant's review, distribute copies.
- .11 Submit shop drawings in PDF file format for each requirement requested in specification Sections and as consultant may reasonably request.
- .12 Submit in PDF file format product data sheets or brochures for requirements requested in specification Sections and as requested by [Consultant] where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Delete information not applicable to project.
- .14 Supplement standard information to provide details applicable to project.
- .15 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

#### 1.6 Samples

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultant's business address.
- .3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

- .6 Make changes in samples which Consultant may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

#### 1.7 Mock-ups

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

#### 1.8 Progress Photographs

.1 Submit progress photographs in accordance with Section 01 33 00 - Submittal Procedures.

## 1.9 Certificates and Transcripts

- .1 Immediately after award of Contract, submit WSIB status.
- .2 Transcription of insurance, bonding, and proposed schedule.

- 2.1 Not Used
  - .1 Not Used.
- Part 3 Execution
- 3.1 Not Used
  - .1 Not Used.

### Part 1 General

### 1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal procedures.

#### 1.2 REFERENCES

- .1 Canada Labour Code (December 2010), Part 2, Canada Occupational Safety and Health Regulations.
- .2 Province of Ontario
  - 1. Occupational Health and Safety Act and Regulations for Construction Projects, Ontario regulation 213/91; December 2016.

## 1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit Material Safety Data Sheets (MSDS) to Consultant.
- .6 Consultant may review Contractor's site-specific Health and Safety Plan and provide comments to Contractor. Revise plan as appropriate and resubmit plan to Consultant within 5 days after receipt of comments from Consultant.
- .7 Consultant's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 Medical Surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Consultant.
- .9 On-site Contingency and Emergency Response Plan: Address standard operating procedures to be implemented during emergency situations.

#### 1.4 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to commencement of Work.

## 1.5 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

## 1.6 MEETINGS

.1 Schedule and administer Health and Safety meeting with the Owners' representative prior to commencement of Work.

#### 1.7 HAZARDOUS MATERIAL AND ASBESTOS ABATEMENT

.1 All related Work will be by the Owner.

## 1.8 SITE CONDITIONS

- .1 Refer to site condition and assessment reports for any hazardous or contaminated materials or substances present at project site. List relevant hazardous or contaminated materials or substances required by the authority having jurisdiction which needs to be included in the contractor's Health and Safety Plan.
- .2 Develop written site-specific Health and Safety Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .3 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

#### 1.9 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### 1.10 UNFORSEEN HAZARDS

.1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, and follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction. Advise Consultant verbally and in writing.

#### 1.11 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have minimum 2 years' site-related working experience specific to activities associated with construction.
  - .2 Have a working knowledge of occupational safety and health regulations.

- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of Work.

## 1.12 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction.

## 1.13 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction.
- .2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Consultant may stop Work if non-compliance of health and safety regulations is not corrected.

## 1.14 BLASTING

.1 Blasting or other use of explosives is not permitted.

## 1.15 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from Consultant.

#### 1.16 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

#### Part 2 Products

## 2.1 NOT USED

.1 Not used.

## Part 3 Execution

## 3.1 NOT USED

.1 Not used.

## Part 1 General

## 1.1 Section Includes

- .1 Inspection and testing, administrative and enforcement requirements.
- .2 Tests and mix designs.
- .3 Mock-ups.
- .4 Mill tests.
- .5 Equipment and system adjust and balance.

## 1.2 Related Sections

- .1 Section 01 21 00 Allowances.
- .2 Section 01 33 00 Submittal Procedures.
- .3 Section 01 42 00 References.
- .4 Section 01 78 00 Closeout Submittals.

#### 1.3 References

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.

## 1.4 Inspection

- .1 Refer to CCDC 2, GC 2.3.
- .2 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work.
- .4 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .5 Consultant may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Consultant shall pay cost of examination and replacement.

## 1.5 Independent Inspection Agencies

- .1 Independent Inspection/Testing Agencies will be engaged by Contractor for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Contractor.
- .2 Allocated costs: to Section 01 21 00 Allowances.
- .3 Provide equipment required for executing inspection and testing by appointed agencies.
- .4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Consultant. Pay costs for retesting and reinspection.

## 1.6 Access To Work

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

#### 1.7 Procedures

- .1 Notify appropriate agency Consultant in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

#### 1.8 Rejected Work

- .1 Refer to CCDC, GC 2.4.
- .2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Consultant.

## 1.9 Reports

- .1 Submit 4 copies of inspection and test reports to Consultant.
- .2 Provide copies to Subcontractor of work being inspected or tested and/or manufacturer or fabricator of material being inspected or tested.

## 1.10 Tests And Mix Designs

.1 Furnish test results and mix designs as may be requested.

#### 1.11 Mock-ups

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.
- .2 Construct in all locations acceptable to Consultant, as specified in specific Section.
- .3 Prepare mock-ups for Consultant's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Consultant will assist in preparing a schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to Consultant.
- .7 Mock-ups may remain as part of Work.
- .8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

## 1.12 Mill Tests

.1 Submit mill test certificates as required of specification Sections.

## 1.13 Equipment And Systems

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
- Part 2 Products
- 2.1 Not Used
  - .1 Not Used.

# Part 3 Execution

## 3.1 Not Used

.1 Not Used.
## Part 1 General

# 1.1 SECTION INCLUDES

.1 Temporary utilities.

# 1.2 RELATED SECTIONS

- .1 Section 01 52 00 Construction Facilities.
- .2 Section 01 56 00 Temporary Barriers and Enclosures.

# 1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

# 1.4 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

#### 1.5 WATER SUPPLY

- .1 Contractor will provide continuous supply of potable water for construction use including all associated fees / deposits temporary meters, equipment and provisions.
- .2 Contractor will pay for utility charges at prevailing rates.

### 1.6 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
  - .1 Facilitate progress of Work.
  - .2 Protect Work and products against dampness and cold.
  - .3 Prevent moisture condensation on surfaces.
  - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.

- .5 Ventilating:
  - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
  - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
  - .4 Ventilate storage spaces containing hazardous or volatile materials.
  - .5 Ventilate temporary sanitary facilities.
  - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .6 Permanent heating system of building, may be used when available. Be responsible for damage to heating system if use is permitted.
- .7 On completion of Work for which permanent heating system is used, replace filters and clean as required.
- .8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Engineer.
- .9 Pay costs for maintaining temporary heat. When using permanent heating system Contractor will pay utility charges when temporary heat source is existing building equipment.
- .10 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform with applicable codes and standards.
  - .2 Enforce safe practices.
  - .3 Prevent abuse of services.
  - .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
- .11 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

### 1.7 TEMPORARY POWER AND LIGHT

- .1 Contractor will pay for temporary power metering, equipment and provisions during construction for temporary lighting and operating of power tools etc.
- .2 Arrange for connection with appropriate utility company. Pay all costs for installation, maintenance and removal.
- .3 Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of Contractor.
- .4 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.

.5 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Engineer provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

# 1.8 CONSTRUCTION OFFICE SUPPORT EQUIPMENT

.1 Provide office support equipment according to Section 01 52 00 for Construction Facilities.

# 1.9 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

# 1.10 SANITARY FACILITIES

- .1 Provide sanitary facilities according to Section 01 52 00 for Construction Facilities.
- Part 2 Products

# 2.1 NOT USED

- .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

## Part 1 General

# 1.1 SECTION INCLUDES

- .1 Construction aids.
- .2 Office and sheds.
- .3 Parking.
- .4 Project identification.

# 1.2 RELATED SECTIONS

- .1 Section 01 51 00 Temporary Utilities.
- .2 Section 01 56 00 Temporary Barriers and Enclosures.

# 1.3 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.
- .2 Canadian General Standards Board (CGSB)
  - .1 CGSB 1-GP-189M-84, Primer, Alkyd, Wood, Exterior.
  - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .3 Canadian Standards Association (CSA International)
  - .1 CAN3-A23.1-/A23.2-94, Concrete Materials and Methods for Concrete Construction/Method of Test for Concrete.
  - .2 CSA-0121-M1978, Douglas Fir Plywood.
  - .3 CAN/CSA-Z321-96, Signs and Symbols for the Occupational Environment.

# 1.4 INSTALLATION AND REMOVAL

- .1 It shall be at contractor's discretion to provide construction facilities in order to execute work expeditiously.
- .2 Remove from site all such work after use.

### 1.5 SCAFFOLDING

.1 Provide and maintain scaffolding, ramps, ladders, swing, staging, platforms, and temporary stairs.

### 1.6 HOISTING

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.
- .2 Hoists shall be operated by qualified operator.

# 1.7 SITE STORAGE/LOADING

- .1 Refer to CCDC 2, GC 3.12.
- .2 Due to the high profile location of this site, make sure to keep the site as clean as possible.
- .3 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .4 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

# 1.8 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

## 1.9 SECURITY

.1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays, only if existing security system is damaged and not able to function due to contractors work.

### 1.10 OFFICES

- .1 Provide office heated to 21 °C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide a clearly marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors may provide their own offices as necessary. Provide proposed location for Owner's approval.

### 1.11 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

## 1.12 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

- .3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of Owner.
- Part 2 Products

# 2.1 NOT USED

- .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

# Part 1 General

# 1.1 SECTION INCLUDES

- .1 Barriers.
- .2 Environmental Controls.
- .3 Traffic Controls.
- .4 Fire Routes.

# 1.2 RELATED SECTIONS

- .1 Section 01 51 00 Temporary Utilities.
- .2 Section 01 52 00 Construction Facilities.

# 1.3 REFERENCES

- .1 Canadian General Standards Board (CGSB)
  - .1 CGSB 1.189M-84, Primer, Alkyd, Wood, Exterior.
  - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
  - .1 CSA-O121-M1978, Douglas Fir Plywood.

# 1.4 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

## 1.5 HOARDING

- .1 Erect temporary site enclosure using wire mesh "Modu-Lock" style 6ft or 8ft high. Provide one lockable truck gate. Maintain fence in good repair.
- .2 Provide barriers around trees and plants designated to remain. As per Arborist Report and drawings, protect from damage by equipment and construction procedures.

# 1.6 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

## 1.7 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

# 1.8 DUST TIGHT SCREENS

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

### 1.9 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

#### 1.10 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.

# 1.11 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

#### 1.12 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

## 1.13 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Owner locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

Part 2 Products

2.1	NOT USED

.1 Not Used.

Part 3 Execution

- 3.1 NOT USED
  - .1 Not Used.

# Part 1 General

## 1.1 Section Includes

- .1 Product quality, availability, storage, handling, protection, and transportation.
- .2 Manufacturer's instructions.
- .3 Quality of Work, coordination and fastenings.
- .4 Existing facilities.

### 1.2 Reference Standards

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, Consultant reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .5 Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date or issue is specifically noted.

### 1.3 Quality

- .1 Refer to CCDC 2.
- .2 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should any dispute arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

## 1.4 Availability

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

# 1.5 Storage, Handling And Protection

- .1 Refer to Section 01 81 00 Sustanable Design Requirements (IEQ)
- .2 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .3 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .4 Store products subject to damage from weather in weatherproof enclosures.
- .5 Store cementitious products clear of earth or concrete floors, and away from walls.
- .6 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .7 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .8 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .9 Remove and replace damaged products at own expense and to satisfaction of Consultant.
- .10 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

# 1.6 Transportation

.1 Pay costs of transportation of products required in performance of Work.

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- .2 Transportation cost of products supplied by Owner will be paid for by Owner. Unload, handle and store such products.

# 1.7 Manufacturer's Instructions

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

# 1.8 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Consultant reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.

# 1.9 Co-ordination

- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

# 1.10 Concealment

- .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation, inform Consultant if there is interference. Install as directed by Consultant.

## 1.11 Remedial Work

- .1 Refer to CCDC 2.
- .2 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .3 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

# 1.12 Location Of Fixtures

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Consultant of conflicting installation. Install as directed.

# 1.13 Fastenings

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

### 1.14 Fastenings - Equipment

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

### 1.15 Protection Of Work In Progress

.1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Consultant.

### 1.16 Existing Utilities

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants and pedestrian and vehicular traffic.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part	2	Products
	-	

2.1	Not	Used

- .1 Not Used.
- Part 3 Execution
- 3.1 Not Used
  - .1 Not Used.

## Part 1 General

## 1.1 SECTION INCLUDES

- .1 Field engineering survey services to measure and stake site.
- .2 Survey services to establish and confirm inverts for Work.
- .3 Recording of subsurface conditions found.

### 1.2 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.
- .2 Owner's identification of existing survey control points and property limits.

#### 1.3 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practise in Place of Work, acceptable to Consultant and Owner.

#### 1.4 SURVEY REFERENCE POINTS

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Consultant.
- .4 Report to Consultant when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

# 1.5 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading, fill and topsoil placement and landscaping features.
- .4 Stake slopes and berms.
- .5 Establish pipe invert elevations.
- .6 Stake batter boards for foundations.

- .7 Establish foundation column locations and floor elevations.
- .8 Establish lines and levels for mechanical and electrical work.

# 1.6 EXISTING SERVICES

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Consultant of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Consultant.

# 1.7 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Consultant of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Consultant.

### 1.8 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

# 1.9 SUBMITTALS

- .1 Submit name and address of Surveyor to Consultant.
- .2 On request of Consultant, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

#### 1.10 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

- .2 After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.
- Part 2 Products
- 2.1 NOT USED
  - .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

# Part 1 General

# 1.1 SECTION INCLUDES

- .1 Progressive cleaning.
- .2 Final cleaning.

# 1.2 RELATED SECTION

- .1 Section 01 77 00 Closeout Procedures.
- .2 Section 01 81 00 Sustainable Design Requirements

### 1.3 **REFERENCE STANDARDS**

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.

# 1.4 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Allow for road area in front of site to be cleaned as required, particularly during more disruptive times such as excavation and foundation work.
- .3 Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site.
- .4 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Provide on-site containers for collection of waste materials and debris.
- .7 Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 19 -Construction/Demolition Waste Management
- .8 Remove waste material and debris from site and deposit in waste container at end of each working day.
- .9 Dispose of waste materials and debris off site.
- .10 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .11 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

- .12 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .13 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .14 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

# 1.5 FINAL CLEANING

- .1 Refer to CCDC 2, GC 3.14.
- .2 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .4 Prior to final review, remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste products and debris including that caused by Owner or other Contractors.
- .6 Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .10 Clean lighting reflectors, lenses, and other lighting surfaces.
- .11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .15 Remove dirt and other disfiguration from exterior surfaces.
- .16 Clean and sweep roofs, gutters, areaways, and sunken wells.

- .17 Sweep and wash clean paved areas.
- .18 Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.
- .19 Clean roofs, downspouts, and drainage systems.
- .20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .21 Remove snow and ice from access to building.

# Part 2 Products

### 2.1 NOT USED

- .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

### Part 1 General

# 1.1 SECTION INCLUDES

- .1 Text, schedules and procedures for systematic Waste Management Program for construction, deconstruction, and renovation projects, including:
  - .1 Diversion of Materials.
  - .2 Waste Audit (WA) Schedule A.
  - .3 Waste Reduction Workplan (WRW) Schedule B.
  - .4 Demolition Waste Audit (DWA) Schedule C.
  - .5 Cost/Revenue Analysis Workplan (CRAW) Schedule D.
  - .6 Materials Source Separation Program (MSSP).
  - .7 Canadian Government Responsibility for Environment Resources Schedule E.

# 1.2 RELATED SECTIONS

- .1 Section 01 35 30 Health and Safety Requirements
- .2 Section 01 35 43 Environmental Procedures.
- .3 Section 01 35 73 Procedures for Deconstruction of Structures

## 1.3 DEFINITIONS

- .1 Cost/Revenue Analysis Work plan (CRAW): Based on information from Waste Reduction Work plan (WRW), and intended as financial tracking tool for determining economic status of waste management practices.
- .2 Demolition Waste Audit (DWA): Relates to actual waste created from project.
- .3 Materials Source Separation Program (MSSP): Consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .4 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
- .5 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .6 Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .7 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  - .2 Returning reusable items including pallets or unused products to vendors.

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- .8 Salvage: Removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .9 Separate Condition: Refers to waste sorted into individual types.
- .10 Source Separation: Acts of keeping different types of waste materials separate beginning from first time they became waste.
- .11 Waste Audit (WA): Detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction or renovation project. Indicates quantities of reuse, recycling and landfill.
- .12 Waste Management Coordinator (WMC): Contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .13 Waste Reduction Workplan (WRW): Written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

# 1.4 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
  - .1 Material Source Separation Plan, (MSSP).
  - .2 Waste Reduction Workplan, (WRW).
  - .3 Waste Audit, (WA).
  - .4 Schedules A, B, C, D and E completed for the project.

# 1.5 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 Submittal Procedures and
- .2 Prepare and submit the following prior to construction start-up:
  - .1 Submit 3 copies of completed Waste Audit (WA): Schedule A.
  - .2 Submit 3 copies of completed Waste reduction Workplan (WRW): Schedule B.
  - .3 Submit 3 copies of completed Demolition Waste Audit (DWA): Schedule C.
  - .4 Submit 3 completed copies of Cost/Revenue Analysis Workplan (CRAW): Schedule D.
  - .5 Submit 3 copies of Material Source Separation Program (MSSP) description.
- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
  - .1 Failure to submit could result in hold back of final payment.
  - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, co-mingled and separated off-site or disposed of.

- .3 For each material reused, sold or recycled from project, include amount [in tonnes] [quantities by number, type and size of items] and the destination.
- .4 For each material land filled or incinerated from project, include amount [in tonnes] of material and identity of landfill, incinerator or transfer station.

# 1.6 QUALITY ASSURANCE - SITE VISIT

- .1 Pre-bid site visit:
  - .1 Walk-through of project site prior to completion of bid submittal is mandatory.
  - .2 Date, time and location to be arranged by Consultant.
  - .3 Protection.
  - .4 Clear labelling of storage areas.
  - .5 Details on materials handling and removal procedures.
  - .6 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

# 1.7 WASTE AUDIT (WA)

- .1 Conduct WA prior to project start-up.
- .2 Prepare WA: Schedule A.
- .3 Record, on WA Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

## 1.8 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare WRW prior to project start-up.
- .2 WRW should include but not limited to:
  - .1 Destination of materials listed.
  - .2 Deconstruction/disassembly techniques and sequencing.
  - .3 Schedule for deconstruction/disassembly.
  - .4 Location.
  - .5 Security.
  - .6 Protection.
  - .7 Clear labelling of storage areas.
  - .8 Details on materials handling and removal procedures.
  - .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.

- .5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.
- .6 Post WRW or summary where workers at site are able to review content.
- .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
- .8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

#### 1.9 DEMOLITION WASTE AUDIT (DWA)

- .1 Prepare DWA prior to project start-up.
- .2 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

#### 1.10 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Prepare CRAW: Schedule D.

#### 1.11 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Consultant.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in area which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
  - .1 Transport to approved and authorized recycling facility or to users of material for recycling.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.
  - .1 Ship material to site operating under Certificate of Approval.
  - .2 Materials must be immediately separated into required categories for reuse or recycling.

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#### 1.12 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Consultant.
- .2 Unless specified otherwise, materials for removal do not become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Consultant.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
  - .1 On-site source separation is recommended.
  - .2 Remove co-mingled materials to off-site processing facility for separation.
  - .3 Provide waybills for separated materials.

## 1.13 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins.
  - .2 Waste type of each bin.
  - .3 Total tonnage generated.
  - .4 Tonnage reused or recycled.
  - .5 Reused or recycled waste destination indicating end use.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

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#### 1.14 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Provide temporary security measures approved by Consultant.

#### 1.15 SCHEDULING

- .1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.
- Part 2 Products

#### 2.1 NOT USED

.1 Not Used.

## Part 3 Execution

#### 3.1 APPLICATION

.1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

#### 3.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused / recycled into specified sort areas.

# 3.3 DIVERSION OF MATERIALS

- .1 From Schedules A to D, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Consultant, and consistent with applicable fire regulations.
  - .1 Mark containers or stockpile areas.
  - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged, recovered, reusable, recyclable, material is not permitted.

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# 3.4

# CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule E - Government Chief Responsibility for the Environment

Ontario Ministry of Environment (416) 323-4321 (416) 323-4682 and Energy, 135 St. (800) 565-4923 Clair Avenue West, Toronto, ON M4V 1P5 Environment Canada (416) 734-4494 Toronto, ON

# Part 1 General

# 1.1 SECTION INCLUDES

.1 Administrative procedures preceding preliminary and final inspections of Work.

# 1.2 RELATED SECTIONS

- .1 Section 01 78 00 Closeout Submittals.
- .2 Section 01 91 00 Commissioning.
- .3 Section 01 78 00 Closeout Submittals.

# 1.3 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008, Stipulated Price Contract.

# 1.4 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .2 Request Consultant's Inspection.
- .2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
  - .1 Work has been completed and inspected for compliance with Contract Documents.
  - .2 Defects have been corrected and deficiencies have been completed.
  - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
  - .4 Certificates required by Boiler Inspection Branch, Fire Commissioner, Utility companies have been submitted.
  - .5 Operation of systems have been demonstrated to Owner's personnel.
  - .6 Work is complete and ready for Final Inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Consultant, and Contractor. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request reinspection.
- .5 Declaration of Substantial Performance: when Owner and Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance. Refer to CCDC 2, General Conditions Article for specifics to application.

- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment: When Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. Refer to CCDC 2. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request reinspection.
- .8 Payment of Holdback: After issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount in accordance with CCDC 2.
- Part 2 Products
- 2.1 NOT USED
  - .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

Part 1		General
1.1		SECTION INCLUDES
	.1	As-built, samples, and specifications.
	.2	Equipment and systems.
	.3	Product data, materials and finishes, and related information.
	.4	Operation and maintenance data.
	.5	Spare parts, special tools and maintenance materials.
	.6	Warranties and bonds.
	.7	Final site survey.
1.2		RELATED SECTIONS
	.1	Section 01 00 10 – General Work
	.2	Section 01 45 00 - Quality Control.
	.3	Section 01 71 00 - Preparation.
	.4	Section 01 77 00 - Closeout Procedures.
	.5	Section 01 79 00 - Demonstration and Training.
	.6	Section 01 91 00 - Commissioning.
1.3		SUBMISSION
	.1	Prepare instructions and data using personnel experienced in maintenance and operation of described products.
	.2	Copy will be returned after final inspection, with Consultant's comments.
	.3	Revise content of documents as required prior to final submittal.
	.4	Two weeks prior to Substantial Performance of the Work, submit to the Consultant, four final copies of operating and maintenance manuals in English.
	.5	Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
	.6	If requested, furnish evidence as to type, source and quality of products provided.

- .7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .8 Pay costs of transportation.

# 1.4 FORMAT

- .1 Organize data in the form of an instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: Manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide scaled CAD files in dwg format on CD.

# 1.5 CONTENTS - EACH VOLUME

- .1 Table of Contents: provide title of project;
  - .1 date of submission; names,
  - .2 addresses, and telephone numbers of Consultant and Contractor with name of responsible parties;
  - .3 schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 Quality Control.
- .6 Training: Refer to Section 01 79 00 Demonstration and Training.

## 1.6 AS-BUILTS AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Consultant one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to the Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Consultant.

# 1.7 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Consultant.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.
- .5 Specifications: legibly mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

# 1.8 FINAL SURVEY

.1 Submit final site survey certificate in accordance with Section 01 71 00 - Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

### 1.9 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.

- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 Quality Control and 01 91 00 Commissioning.
- .15 Additional requirements: As specified in individual specification sections.

### 1.10 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

## 1.11 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site location as directed; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

## 1.12 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

# 1.13 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

#### 1.14 TRAINING SESSIONS

- .1 Provide and record training sessions for all mechanical and electrical systems. The training video is to be shot with HD cameras and audio and turned over to the Owner on 2 flash drives.
- .2 All maintenance manuals and as built drawings are to be submitted to the Owner prior to any training sessions taking place.
- .3 Contractor to operate the building until training has been completed for all mechanical and electrical systems.

## 1.15 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

#### 1.16 WARRANTIES AND BONDS

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.
- .6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

# 1.17 COMPLETE SUBMISSION

- .1 All items noted above shall be submitted together as a complete package, not as individual packages.
- .2 Final payments will not be made until the Owner receives the complete package.
- Part 2 Products
- 2.1 NOT USED
  - .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED .1 Not Used.
Page 1

#### Part 1 General

### 1.1 SECTION INCLUDES

.1 Procedures for demonstration and instruction of equipment and systems to Owner's personnel.

## 1.2 RELATED SECTIONS

- .1 Section 01 45 00 Quality Control..
- .2 Section 01 78 00 Closeout Submittals.
- .3 Section 01 91 00 Commissioning.

### 1.3 DESCRIPTION

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of substantial performance.
- .2 Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

#### 1.4 QUALITY CONTROL

.1 When specified in individual Sections, require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.

#### 1.5 SUBMITTALS

- .1 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Consultant's approval.
- .2 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .3 Give time and date of each demonstration, with list of persons present.

#### 1.6 CONDITIONS FOR DEMONSTRATIONS

- .1 Equipment has been inspected and put into operation in accordance with Section 01 45 00 Quality Control.
- .2 Testing, adjusting, and balancing has been performed in accordance with Section 01 91 00 Commissioning and equipment and systems are fully operational.
- .3 Provide one (1) copy of completed operation and maintenance manuals for use in demonstrations and instructions.

## 1.7 PREPARATION

- .1 Verify that conditions for demonstration and instructions comply with requirements.
- .2 Verify that designated personnel are present.

### 1.8 DEMONSTRATION AND INSTRUCTIONS

- .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting servicing, and maintenance of each item of equipment at agreed upon times, at the designated location.
- .2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.
- .3 Review contents of manual in detail to explain all aspects of operation and maintenance.
- .4 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.
- .5 Instructional period is to be in as many sessions as required to properly disseminate information to the Owner's technical staff.

Part 2		Products
2.1		NOT USED
	.1	Not Used.
Part 3		Execution

- 3.1 NOT USED
  - .1 Not Used.

## END OF SECTION

#### Part 1 General

#### 1.1 SECTION INCLUDES

.1 Includes general requirements for commissioning facilities and facility systems.

#### 1.2 RELATED SECTIONS

- .1 Section 01 21 00 Allowances.
- .2 Section 01 45 00 Quality Control.
- .3 Section 03 54 16 Fuel-Fired Furnaces.
- .4 Section 23 33 14 Dampers-Balancing.

### 1.3 QUALITY ASSURANCE

- .1 Provide testing organization services under provisions specified in Section 01 45 00 Quality Control.
- .2 Testing organization: current member in good standing, certified to perform specified services.
- .3 Comply with applicable procedures and standards of the certification sponsoring association.
- .4 Perform services under direction of supervisor qualified under certification requirements of sponsoring association.

#### 1.4 REFERENCES

.1 Associated Air Balance Council (AABC): National Standards For Field Measurements and Instrumentation, Total Systems Balance, Air Distribution-Hydronics Systems.

#### 1.5 SUBMITTALS

- .1 Prior to start of Work, submit name of organization proposed to perform services. Designate who has managerial responsibilities for coordination of entire testing, adjusting and balancing.
- .2 Submit documentation to confirm organization compliance with quality assurance provision.
- .3 Submit 3 preliminary specimen copies of each of report forms proposed for use.
- .4 Fifteen days prior to Substantial Performance, submit 3 copies of final reports on applicable forms.
- .5 Submit reports of testing, adjusting, and balancing postponed due to seasonal, climatic, occupancy, or other reasons beyond Contractor's control, promptly after execution of those services.

#### 1.6 PROCEDURES - GENERAL

- .1 Comply with procedural standards of certifying association under whose standard services will be performed.
- .2 Notify Consultant 3 days prior to beginning of operations.
- .3 Accurately record data for each step.
- .4 Report to Consultant any deficiencies or defects noted during performance of services.
- .5 Controls contractor and equipment contractor to meet prior to start-up to ensure there are no controls–communication issues (ie. the metric versus imperial issue)
- .6 A pre-start up meeting be held between mechanical contractor, controls contractor, equipment contractor and engineer to walk through the process and ensure that any checks that can be performed ahead of time are indeed performed
- .7 Ensure start-up is scheduled and performed for both heating and cooling seasons.

#### 1.7 FINAL REPORTS

- .1 Organization having managerial responsibility shall make reports.
- .2 Ensure each form bears signature of recorder, and that of supervisor of reporting organization.
- .3 Identify each instrument used, and latest date of calibration of each.

#### 1.8 CONTRACTOR RESPONSIBILITIES

- .1 Prepare each system for testing and balancing.
- .2 Cooperate with testing organization and provide access to equipment and systems.
- .3 Provide personnel and operate systems at designated times, and under conditions required for proper testing, adjusting, and balancing.
- .4 Notify testing organization 7 days prior to time project will be ready for testing, adjusting, and balancing.

#### 1.9 PREPARATION

- .1 Provide instruments required for testing, adjusting, and balancing operations.
- .2 Make instruments available to Consultant to facilitate spot checks during testing.
- .3 Retain possession of instruments and remove at completion of services.
- .4 Verify systems installation is complete and in continuous operation.
- .5 Verify lighting is turned on when lighting is included in cooling load.

.6 Verify equipment such as computers, laboratory and electronic equipment are in full operation.

#### 1.10 EXECUTION

- .1 Test equipment, balance distribution systems, and adjust devices for HVAC systems.
- .2 Test hydronic systems, adjust and record liquid flow at each piece of equipment.
- Part 2 Products
- 2.1 NOT USED
  - .1 Not Used.
- Part 3 Execution
- 3.1 NOT USED
  - .1 Not Used.

## **END OF SECTION**

Mayor Gibson & Members of Council	
Richard Nan, Manager of Operations	
September 2, 2021	
Award of Tender for Reconstruction of Marshville Drive	

## **RECOMMENDATION(S):**

**THAT** Public Works Staff Report PWSR-020/2021 respecting Award of Tender for the reconstruction of Marshville Drive be received; and

**THAT** Council direct the Manager of Operations to engage the services of D&D Trucking and Construction Services Inc. to complete the reconstruction of Marshville Drive

## **EXECUTIVE SUMMARY:**

Staff presented a report for the reconstruction of Marshville Drive in staff report PWSR-012/2021. Council resolution "Council Direct staff to prepare a tender for the reconstruction of Marshville Drive." Staff prepared an RFP for engineering services and presented the results to council in staff report PWSR-015/2021. Council direct the Manager of Operations to engage the services of Associated Engineering Ltd. to perform engineering services for the design for Marshville Drive Reconstruction."

Staff have been working with Associated Engineering to prepare the design and contract documents for the reconstruction of Marshville drive as requested and prepared a tender for the Reconstruction of Marshville Drive according to the Township procurement policy. Various contractors and local associations were notified of the advertisement on the township website.

The Township received 2 bids, as shown below, and staff recommend the award of tender to the lowest bidder, D&D Trucking and Construction Services Inc.

# **BACKGROUND:**

Staff have been monitoring the condition of Marshville Drive during the construction of the new Saw Development and advised council of its deteriorating condition. The new development is scheduled for occupancy in their first home in early September and staff have been working with the developer to ensure that the primary services are approved prior to issuance of the primary certificate approval.

During construction of the new development staff identified that the existing road condition warranted reconstruction and staff initially submitted to council to have Saw Development reconstruct the existing portion at the same time as they were

constructing their new subdivision. Council directed staff to follow the normal procurement procedure and staff prepared an RFP for engineering services to prepare the design and contract documents for the reconstruction of Marshville Drive.

Council approved the design and engineering for its reconstruction in PWSR 15/2021. Awarding to Associated engineering. They have prepared the contract documents and staff issued a tender for the reconstruction as per the township procurement policy.

The tender for the reconstruction of Marshville Drive was prepared using standardized Niagara Peninsula Contract documents. Upon the tender closing on August 30, 2021, staff received 2 bids (all meeting the stipulated tender requirements).

The tender bids listed below were received:

Company	Tender Price
Rankin Construction	\$ 310,495.00
D&D Trucking and Construction Services Inc.	\$289,801.50

This project originally was not included in the 2021 budget deliberations and as a result will be funded through the reserves.

## **OPTIONS/DISCUSSION:**

- Council direct the Manager of Operations to engage the services of D&D Trucking and Construction Services Inc. to complete the reconstruction of Marshville Drive. (recommended).
- 2) Award the tender to an alternate bidder.

## FINANCIAL CONSIDERATIONS:

As mentioned earlier this project is in addition to the approved budgeted amount for Capital expenditure and will be required to be funded through the reserves.

## **OTHERS CONSULTED:**

- 1) Manager of Corporate Services/Treasurer
- 2) Strategic Leadership Team

# ATTACHMENTS:

None.

Respectfully submitted by,

Approved by,

Richard Nan Manager of Operations William J. Kolasa Chief Administrative Officer