APPENDICES

DESIGN AND CONSTRUCTION MANUAL

Vertical Municipal Infrastructure Standards

THE CORPORATION OF THE CITY OF BRANTFORD

V2- December 2020

REVISION TRACKING

Appendices

Date	New (N); Revised (Rev); Cancelled (C); Reissued (R)	Title/Sub-header of Section Change
March 2019	N: V1- Original Final Submission	
December 2020	V2	

APPENDICES

STANDARD DEVIATION FORM

TO BE COMPLETED BY APPLICANT

TO:	
FROM: (Applicant Name & Company)	
PHONE:	
EMAIL:	
DATE:	
RE:	

Summary of Proposed Deviations from
City of Brantford Design and Construction Manual
Vertical Municipal Infrastructure Standards

Ref #	Type of Infrastructure	Related Brantford Standard Reference	Summary of Deviation Request / Brief Rationale	D.C.R.C.
1				
2				
3				

Revision Request Process:

1. All deviation requests are to be submitted to the City. The City will initiate review of the deviation request by relevant departments and inform the applicant of the tentative period of approval. Three (3) weeks will be provided to the City departments for review. Depending on the nature of the deviation request, the City's response may require additional review time.
2. Incomplete submissions (e.g. forms and drawings) of deviation request with insufficient supporting documentation will be returned to the applicant without review. The onus is on the applicant to provide a complete submission, which fully supports the deviation request.
3. The City will review the deviation request and advise the director for approval or refusal.
4. If the deviation request is accepted, the applicant will be provided with further instructions on how the change may be applied to the subject or pending works.
5. If the deviation request is rejected, the City will provide the applicant with reasons for the rejection. The applicant may elect to resubmit the deviation request, provided the City's reasons for initial rejection are fully addressed in the subsequent submission.

TO BE COMPLETED BY APPLICANT

1. General Information			
Description of Work Undertaken			
Location of Work Completed		Project ID (if applicable)	
Location of Deviation in Design Submission		Contact Phone No.	

2. Reason / Justification for Deviation
2.1 Background Information / Rationale for Deviation
2.2 Potential Benefits of Deviation
2.3 Potential Disadvantages of Deviation
2.4 Information Gathered During the Deviation Review Process

FOR INTERNAL USE ONLY

3. Reviewers	
☐ Engineering Services ☐ Environmental Services ☐ Facilities & Asset Management	☐ Operational Services ☐ Fleet & Transit Services ☐ Development ☐ Other _____
3.1 Comments	
3.2 Rationale for the Accept/Reject Decision	
3.3 Should the Existing Standard(s) Be Updated? Why?	

The changes above have been reviewed and accepted by the relevant stakeholders.

5. ACCEPTANCE			
Title	Name (Print)	Signature	Date (MM/DD/YYYY)
Manager			
Director			

APPENDICES

PROPOSED DESIGN STANDARD CHANGE FORM

FOR INTERNAL USE ONLY

PROPOSED DESIGN STANDARD CHANGE FORM
CITY OF BRANTFORD

Mail to: Environmental Services
Attention: Design Review Advisory Panel
Corporation of the City of Brantford
338 Grand River Ave., Brantford, Ontario

Name:_____ Phone: ( )_____

Address:_____

_____

Company or Organization:_____

E-Mail Address:_____

PROPOSED CHANGE:
(including proposed new or revised wording, or identification of wording to be deleted)

_____

_____

_____

_____

_____

_____

_____

_____

_____

REASON FOR CHANGE:

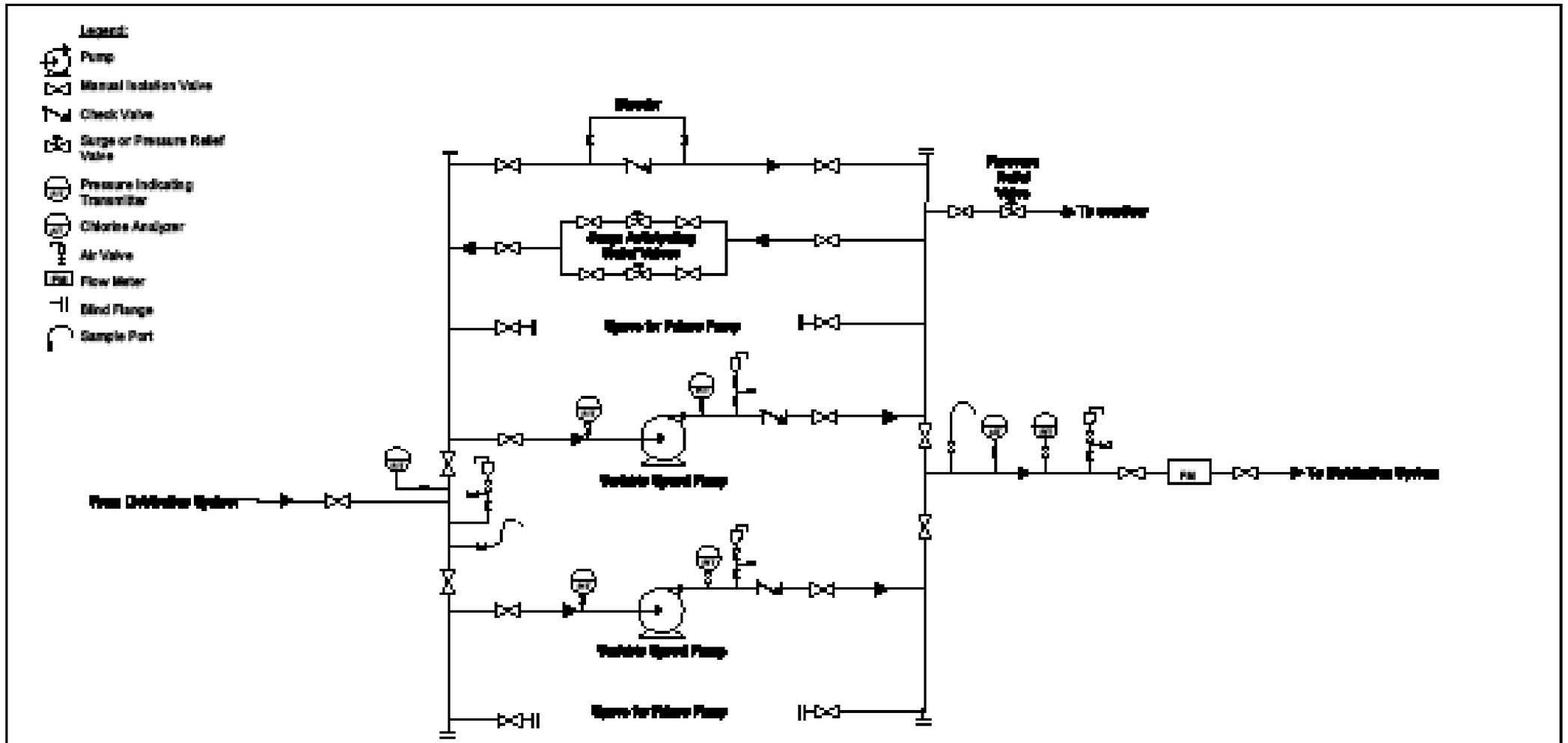
_____

_____

(attach additional information if required)

APPENDICES

STANDARD SCHEMATICS FOR PUMPING STATIONS



Notes:

1. [illegible] to be read in conjunction with the Design and Construction Manual: Vertical Municipal Infrastructure Standards.
2. [illegible] is intended to depict the general layout of the facility. It is not intended to depict a specific facility.
3. [illegible] to be read in conjunction with guidelines for the Ministry of Environment, Conservation and Parks, and the recommendations of a professional engineer in order to design a facility.
4. A sample tap/valve and blowoff valve/outlet are included in each pipe section between all isolation valves.

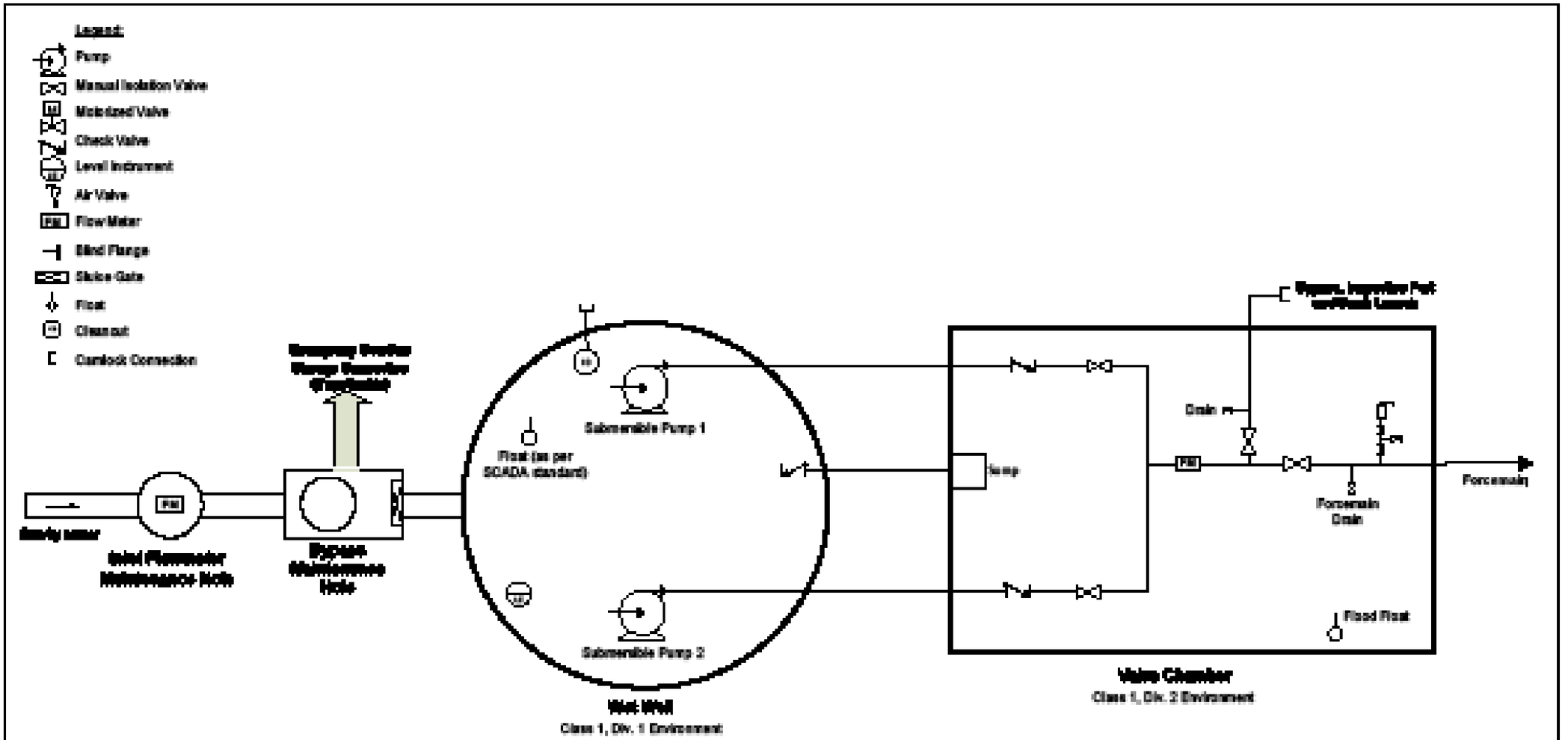
BRANTFORD
Public Works Commission

Design and Construction Manual
Vertical Municipal Infrastructure Standards

Water Booster Station

WBS-1

Not to Scale



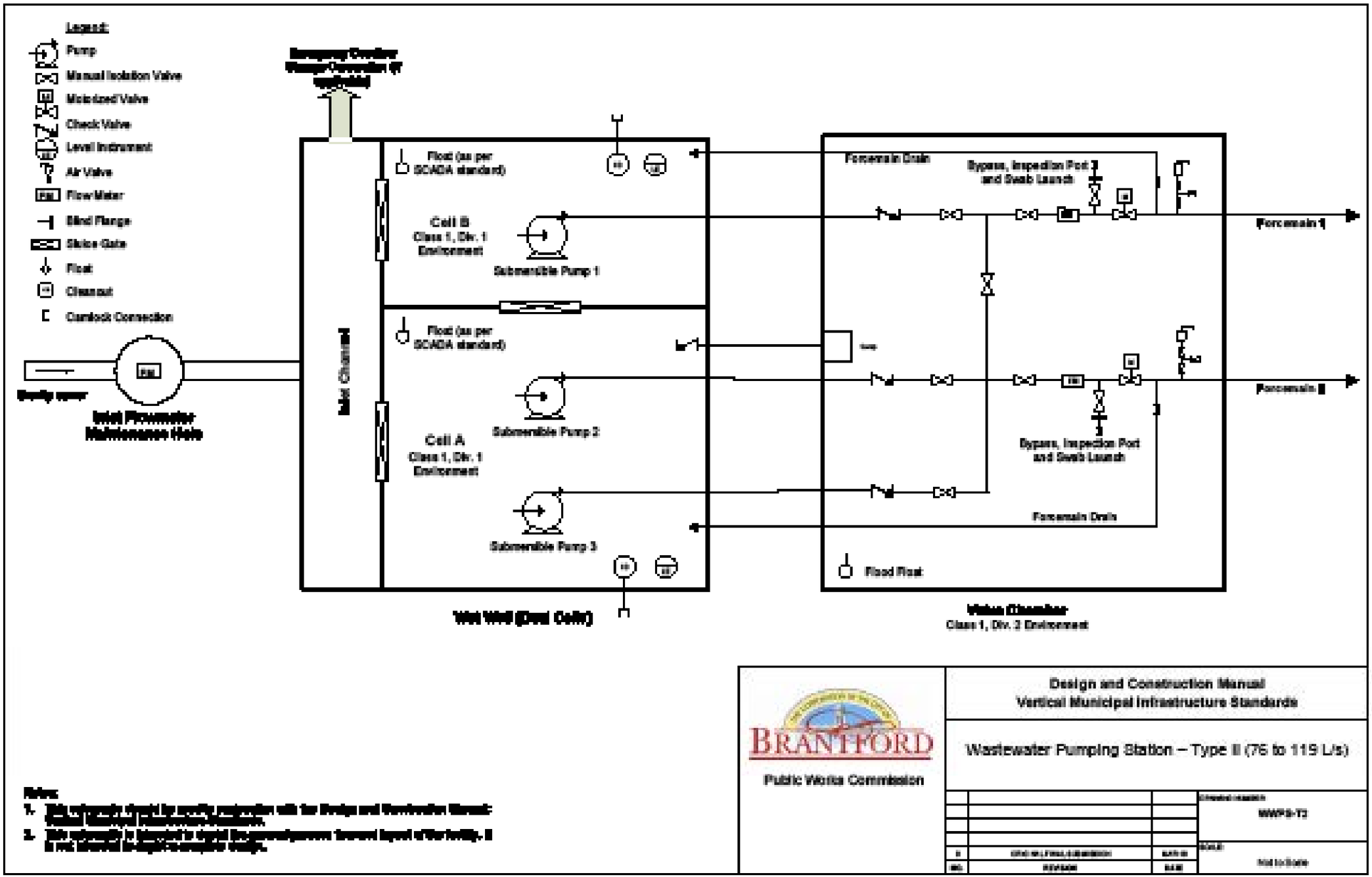
Notes:
1. [illegible]
2. [illegible]

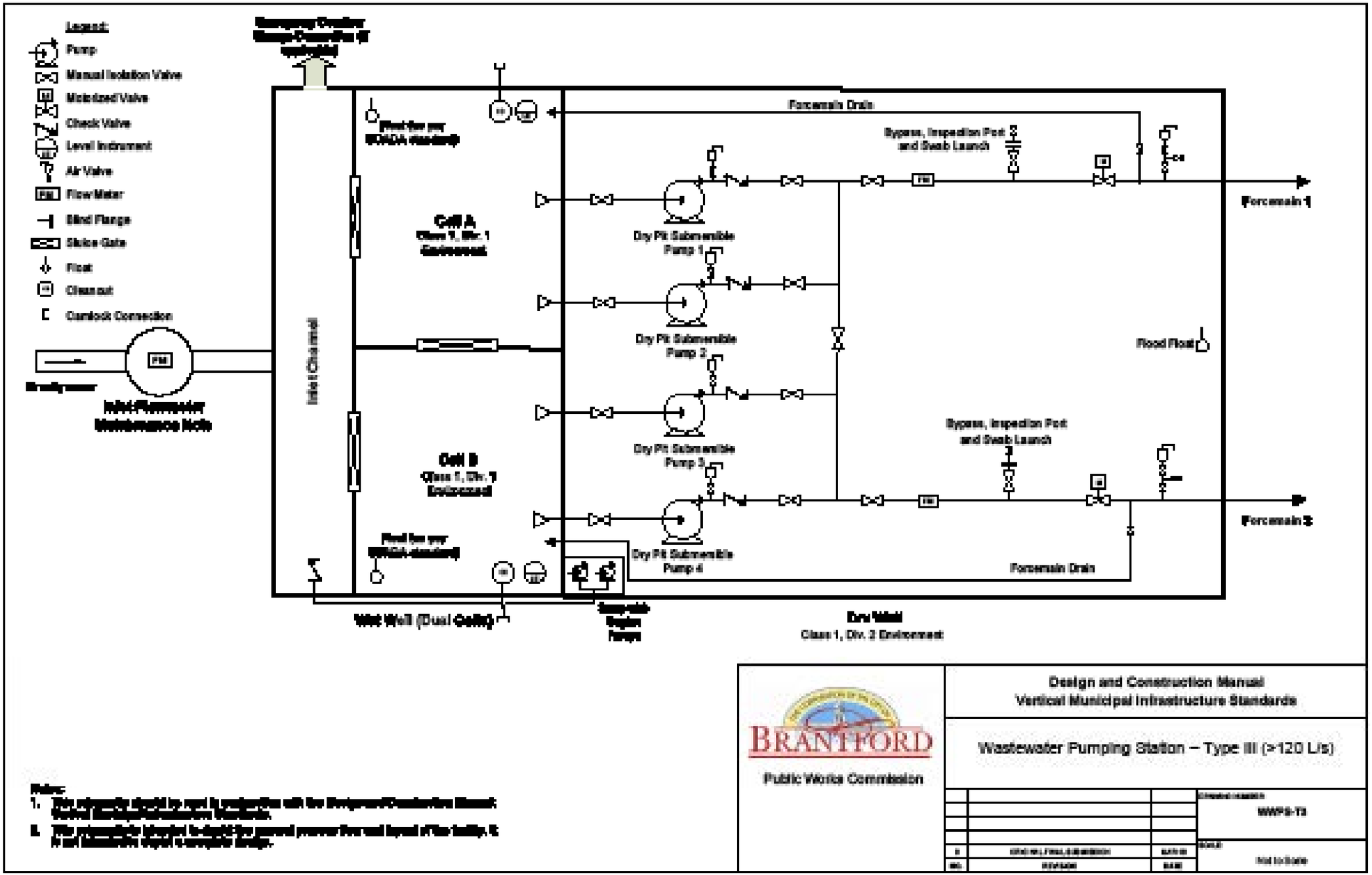
BRANTFORD
Public Works Commission

Design and Construction Manual
Vertical Municipal Infrastructure Standards

Wastewater Pumping Station – Type I (<76 L/s)

			WWPS-T1
0	[illegible]	[illegible]	Not to Scale
No.	REVISION	DATE	


Legend:
Pump
Manual Isolation Valve
Motorized Valve
Check Valve
Level Instrument
Air Valve
Flow Meter
Blind Flange
Sluice Gate
Float
Cleanout
Camlock Connection
Inlet Flowmeter Maintenance Hole
Float (as per SCADA standard)
Cell B
Class 1, Div. 1 Environment
Submersible Pump 1
Float (as per SCADA standard)
Submersible Pump 2
Cell A
Class 1, Div. 1 Environment
Submersible Pump 3
Wet Well (Dual Cells)
Forcemain Drain
Bypass, Inspection Port and Swab Launch
Forcemain 1
Forcemain 2
Bypass, Inspection Port and Swab Launch
Forcemain Drain
Flood Float
Valve Chamber
Class 1, Div. 2 Environment
BRANTFORD
Public Works Commission
Design and Construction Manual
Vertical Municipal Infrastructure Standards
Wastewater Pumping Station – Type II (76 to 119 L/s)
WWPS-T2
Not to Scale



Notes:
1. This schematic should be read in conjunction with the Design and Construction Manual: Vertical Municipal Infrastructure Standards.
2. This schematic should be used for general process flow and layout of the facility. It is not intended to depict a complete design.

BRANTFORD
Public Works Commission

Design and Construction Manual
Vertical Municipal Infrastructure Standards

Wastewater Pumping Station – Type III (>120 L/s)

			WWPS-T3
1	ISSUED FOR SUBMISSION	AUG 08	Not to Scale
NO.	REVISION	DATE	

APPENDICES

APPROVED PRODUCTS LIST FOR WATER FACILITIES

APPROVED PRODUCTS LIST - WATER FACILITY

Equipment Type	Brand Name	Comments
1. VALVES		
Elastomeric Check Valve (Duckbill)	Cla Val	
	Tideflex	
Flexible Disc Check Valve	Cla Val	c/w backflow actuator
	Henry Pratt	
	Val-Matic	
Tilted Disc Check Valve	Cla Val	opening and closing dash pot with speed control
	Henry Pratt	
	Val-Matic	
Globe Style Valve (Control, PRV, SRV, PSV)	Singer	SS accessories
	Cla Val	
Gate Valve (Resilient Seat)	Mueller	
	Henry Pratt	
	Val-Matic	
	Clow	
	AVK	
Sluice Gate	Dynamic	
	Fontaine-Aquanox	
	BNW	
	Orbinox	
Butterfly Valve	Henry Pratt	adjustable external limit stops
	Val-Matic	
	Cla Val	
	Clow	
	Mueller	
	DeZURIK	
Air Release / Vacuum	A.R.I.	
	Val-Matic	
	Cla Val	
Ball Valve and Electric Actuators (Chemical Application Only)	Chemline Plastics	
	Hayward	
Ball Valve, SS (≤ 50 mm)	Pinnacle	
	Watts	
	Apollo	
Solenoid Valve	ASCO / Emerson	
	Burkert	
Valve Actuator - Electric	Auma	
	Limitorque	
	Rotork	
Eye Wash Station	Haws	c/w tempered water system
	Bradley	
Backflow Preventer	Watts	reduced pressure zone assembly

Equipment Type	Brand Name	Comments
2. PUMPS		
Centrifugal Pump - Horizontal Split Case	ITT Goulds / Xylem	
	Pentair / Aurora	
	Fairbanks Morse	
Centrifugal Pump - Vertical Inline	ITT Goulds	
	Grundfos	
	Rotech	
Centrifugal Pump - End Suction (Rubber Lined)	Flowserve	
	ITT Goulds	
	KSB	
Centrifugal Pump - End Suction	ITT Goulds	
	Gorman Rupp	
	Grundfos	
	Aurora / Pentair	
Vertical Turbine Pump	RuhrPumpen	
	National PC	
	ITT Goulds / Xylem	
	Grundfos / Peerless	
3. CHEMICAL METERING PUMPS		
Peristaltic Pump	Cole-Parmer	
	Blue-White	
	ProMinent	
	Pulsafeeder	
Progressive Cavity Pump	Moyno	
	SEEPEX	
Diaphragm Pump	Pulsafeeder	
	ProMinent	
	Encore / USGI Chemical Feed	
	Grundfos / Peerless	

Equipment Type	Brand Name	Comments
4. INSTRUMENTATION EQUIPMENT		
Analytical Instruments		
Chlorine Residual Analyzer	Prominent	
	Rosemount / Emerson	
	Wallace & Tiernan	
Fluoride Analyzers	HACH	
	Siemens	
Chlorine Gas Monitoring (Fixed)	MSA	
	Siemens	
	ATI	
Ozone Gas Monitoring	Teledyne	
	Hach	
	BMT	
Turbidity Analyzer	Great Lakes Instruments / HACH	
Flow Instruments		
Flow Meters-Magnetic	Krohne	
	Endress + Hauser	
	ABB	
Level Instruments		
Liquid Level Transmitter	Rosemount	
	Miltronics	
Pressure Instruments		
Pressure Transmitter	Rosemount	
	WIKA	
	ABB	
Pressure Gauges	Ashcroft	dual scale, kPa/psi
	WIKA	
	Rosemount	
Temperature Instruments		
Temperature Transmitter	Rosemount	
	Ashcroft	
	Honeywell	
	ABB	

The above equipment shall meet the following applicable standards:
- All valves shall meet applicable AWWA standards
- All equipment shall be certified by ANSI/NSF Standard 61
- All valves shall be equipped with internal and external fusion bonded epoxy coating (except SS body)
- All equipment to be supplied with stainless steel hardware (nuts, bolts, washers)

Equipment Type	Brand Name	Comments
5. MISCELLANEOUS MECHANICAL		
Access Hatches	BILCO	c/w lift assist, hold open arm, pad lockable and secondary fall protection grating
	Halliday	
	MSU Mississauga	
Crane Systems	Konecranes	
	Richard-Wilcox	
Gearboxes	Nord	
	SPX Flow / Lightning	
	SEW Eurodrive	
Submersible Pump	Goulds / Xylem	
	Gorman Rupp	
	Grundfos	
	Flygt	
6. RESIDUAL MANAGEMENT FACILITY		
Progressive Cavity - Rotor	Moyno	
	Seepex	
Knife Gate Valve	Trueline	bi-directional
	DeZURIK	
	Orbinox	
	Stafsjo	
Plug Valve	Val-Matic	
	Dezurik	
	Golden Anderson	
7. STANDBY POWER SYSTEMS		
Packaged Standby Power Generators	Toromont CAT	
	Cummins	
	Kohler	
8. BLOWERS		
Lobe Blowers	Robuschi	
	SutorBilt	
	Gardner Denver	

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APPROVED PRODUCTS LIST FOR WASTEWATER FACILITIES

APPROVED PRODUCTS LIST - WASTEWATER FACILITY

Equipment Type	Brand Name	Comments
1. VALVES		
Knife Gate Valve	Trueline	Stainless Steel
	DeZURIK	
	Orbinox	
	Stafsjo	
Plug Valve	Val-Matic	
	Dezurik	
	Golden Anderson	
Elastomeric Check Valve (Duckbill)	Cla Val	
	Tideflex	
Flexible Disc Check Valve	Cla Val	c/w backflow actuator
	Henry Pratt	
	Val-Matic	
Tilted Disc Check Valve	Cla Val	opening and closing dash pot with speed control
	Henry Pratt	
	Val-Matic	
Globe Style Valve (Control, PRV, SRV, PSV)	Singer	SS accessories
	Cla Val	
Gate Valve (Resilient Seat)	Mueller	
	Henry Pratt	
	Val-Matic	
	Clow	
	AVK	
Sluice Gate	Dynamic	
	Fontaine-Aquanox	
	BNW	
	Orbinox	
Butterfly Valve	Henry Pratt	adjustable external limit stops
	Val-Matic	
	Cla Val	
	Clow	
	Mueller	
	DeZURIK	
Air Release / Vacuum	A.R.I.	
	Val-Matic	
	Cla Val	

Equipment Type	Brand Name	Comments
1. VALVES - CONT'D		
Ball Valve and Electric Actuators (Chemical Application Only)	Chemline Plastics	
	Hayward	
Ball Valve, SS (≤ 50 mm)	Pinnacle	
	Watts	
	Apollo	
Solenoid Valve	ASCO / Emerson	
	Burkert	
Valve Actuator - Electric	Auma	
	Limitorque	
	Rotork	
Eye Wash Station	Haws	c/w tempered water system
	Bradley	
Backflow Preventer	Watts	reduced pressure zone assembly
2. PUMPS		
Sewage Lift- Centrifugal Pump	Xylem/ Flygt	
	KSB	
	Sulzer	
Solids Handling- Centrifugal Pump	Hidrostal	
	Xylem/ Flygt	
	KSB	
Rotary Lobe- Positive Displacement Pump	Vogelsang	
Screw Pump- Positive Displacement Pump	Spanns Babcock	
	Lakeside Equipment	
3. CHEMICAL METERING PUMPS		
Diaphragm- Positive Displacement Pump	Pulsafeeder	
	ProMinent	
	Encore / USGI Chemical Feed	
	Grundfos / Peerless	

Equipment Type	Brand Name	Comments
4. INSTRUMENTATION EQUIPMENT		
Analytical Instruments		
Chlorine Analyzer/ Probe	Prominent	
	Rosemount / Emerson	
	HACH	
Sodium Bispluite Analyzer/ Probe	ProMinent	
	Rosemount/ Emerson	
	HACH	
Atmospheric Monitoring (Hazardous Areas- Fixed)	MSA	
	Siemens	
	ATI	
Disolved Oxygen Probes/ Analyzer	HACH	
Flow Instruments		
Flow Meters-Magnetic/ Open Channel	Krohne	
	Endress + Hauser	
	Siemens/ Milltronics	
	ABB	
Level Instruments		
Liquid Level Transmitter	Rosemount	
	Miltronics	
Pressure Instruments		
Pressure Transmitter	Rosemount	
	E&H	
	ABB	
Pressure Gauges	Ashcroft	dual scale, kPa/psi
	WIKA	
	Rosemount	
Temperature Instruments		
Temperature Transmitter	Rosemount	
	Ashcroft	
	Honeywell	
	ABB	

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	MSU Mississauga	
Crane Systems	Konecranes	
	Richard-Wilcox	
Gearboxes	Nord	
	SPX Flow / Lightning	
	SEW Eurodrive	
Submersible Pump	Goulds / Xylem	
	Gorman Rupp	
	Grundfos	
	Flygt	
6. STANDBY POWER SYSTEMS		
Packaged Standby Power Generators	Toromont CAT	
	Cummins	
	Kohler	
7. BLOWERS		
Lobe Blowers	Hibbon	
	SutorBilt	
	Gardner Denver	
8. ELECTRICAL		
VFD/ Soft Starters	Allen Bradley	
	Eaton	
	ABB	
Automatic Transfer Switches	ASCO / Emerson	
	Eaton/ Cutler Hammer	
9. MECHANICAL		
Clarifiers	Ovivo	
	Fujiwara	
Mixers	Xylem/ Flygt	
	Sulzer	
	Ovivo	
Pre Treatment- Bar Screens, Compactors, Grit Seperation	WTP	
	Maberex	
	Ovivo	