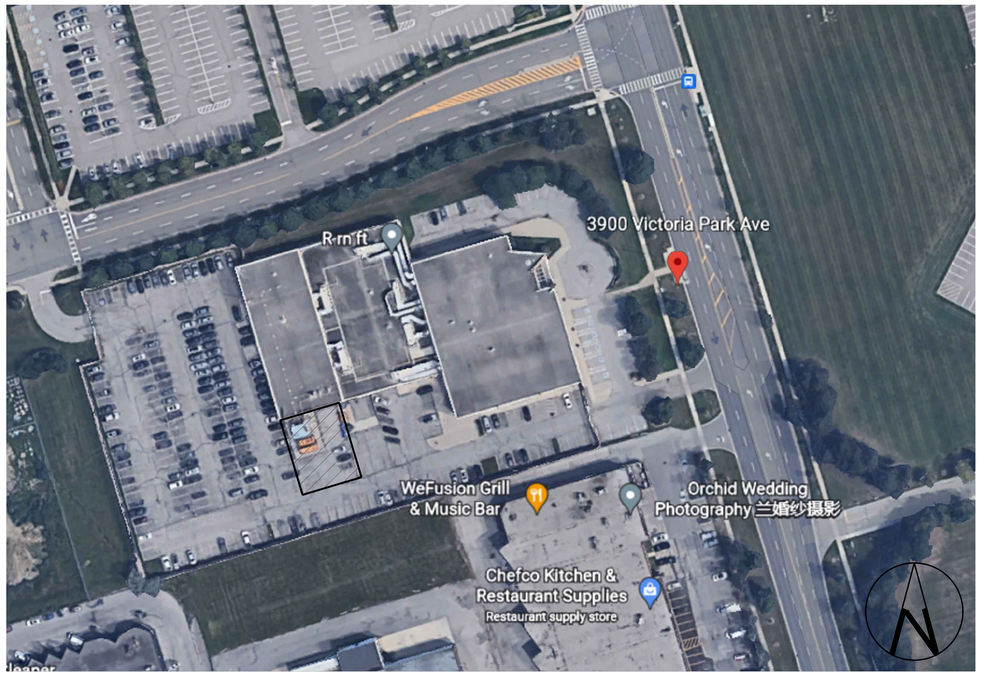
COLLIERS INTERNATIONAL

GENERATOR SUB-TANKS REPLACEMENT

CLIENT PROJECT #: 1096701-273485
M4S PROJECT #: 23106

3900 VICTORIA PARK AVE,
NORTH YORK, ON M2H 3H7



KEY PLAN

AREA IN CONTRACT

CONTENT	ISSUED FOR	DATE	FILE No.
MECHANICAL DRAWINGS	TENDER	MARCH 31, 2023	23106-M

DRAWING LIST

DWG No.	DESCRIPTION
CP-000	COVER PAGE AND DRAWING LIST
M-100	GENERAL NOTES, LEGENDS, SCHEDULES
M-300	PLAN VIEW - FUEL - DEMOLITION & MODIFICATION
M-800	SCHEMATICS OF NEW SYSTEM
M-1000	DETAILS
M-1001	DETAILS

Colliers INTERNATIONAL — Colliers Project Leaders

No	Revisions	Date
2	ISSUED FOR TENDER	03/31/2023
1	ISSUED FOR 99% REVIEW	03/16/2023

Orientation

Seal: LICENSED PROFESSIONAL ENGINEER — Mar. 31, 2023 — A. L. COLIN — 100179821 — PROVINCE OF ONTARIO

The Contractor shall check and verify all dimensions and report all errors and omissions to the IO–Owner's/MBS Designee (as applicable) for his/her written direction before proceeding with the Work.

A — Detail No
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MAT 4SITE ENGINEERS LTD.
620 WILSON AVE., SUITE 320, TORONTO, ON. M3K 1Z3
PHONE: 416-229-6574 FAX: 416-229-4105

Ontario — Infrastructure Ontario

AMIS N – B 91121

Project: GENERATOR SUB–TANKS REPLACEMENT

Location: 3900 VICTORIA PARK AVE, NORTH YORK, ON M2H 3H7

ID Project No: 1096701–273485 | Site No: – | Building No: B91121

Client: INFRASTRUCTURE ONTARIO

Drawing Title: COVER PAGE AND DRAWING LIST

Scale: N.T.S.	Date: DECEMBER, 2022
Drawn by: V.Z.	Substantial Performance Date: TBD
Designed by: K.P.	Drawing No: CP–000 of
Approved by: E.O.C.	

CADD File NAME 23106–M

594x841mm

GENERAL NOTES:

1. THESE GENERAL NOTES APPLY TO ALL DRAWINGS.

2. GENERAL SCOPE OF WORK
   - 2.1. FURNISH ALL LABOUR, MATERIALS, EQUIPMENT, TOOLS AND SUPPORTS AS WELL AS SUPERVISION TO PROVIDE A COMPLETE INSTALLATION, TESTED AND IN WORKING ORDER, AS SHOWN ON THE DRAWINGS.
   - 2.2. THE CONTRACTOR SHALL PERFORM THE WORK STIPULATED IN THE CONTRACT AND ANY OR ALL CONTRACT CHANGES AND CHANGE DIRECTIVES, AND SHALL FURNISH, UNLESS OTHERWISE PROVIDED IN THE CONTRACT, EVERYTHING NECESSARY FOR THE PROPER PERFORMANCE AND COMPLETION OF THE WORK.
   - 2.3. ALL WORK SHALL BE FULLY TESTED, COMMISSIONED AND IN GOOD WORKING ORDER AT TIME OF HAND-OVER TO OWNER.
   - 2.4. MAKE GOOD ANY DAMAGES TO EXISTING EQUIPMENT AND/OR SYSTEM(S). COORDINATE WORK AND WORKING HOURS WITH THE OWNER AND OTHER TRADES TO MINIMIZE DISRUPTION.
   - 2.5. ALL WORK SHALL BE COMPLETED ONCE ADEQUATE PROTECTION OF ADJACENT SPACES HAS BEEN INSTALLED. CONTRACTOR TO ENSURE MINIMAL DUST CREATION DURING WORK.
   - 2.6. PROVIDE CAULKING AND FIRESTOPPING FOR ALL MECHANICAL SERVICES PASSING THROUGH FIRE SEPARATIONS AS INDICATED ON THE ARCHITECTURAL LAYOUT.
   - 2.7. FOR EQUIPMENT PERFORMANCE AND CONSTRUCTION. REFER TO SCHEDULES AND SPECIFICATIONS.
   - 2.8. FOR EQUIPMENT INSTALLATION. REFER TO DETAILS, SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR MORE INFORMATION.

3. DRAWINGS
   - 3.1. DRAWINGS SHOW GENERAL INTENT OF THE WORK AND PROPOSED ROUTING ONLY.
   - 3.2. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS BY FIELD MEASURE BEFORE PROCEEDING WITH THE WORK.
   - 3.3. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING POSSIBLE INTERFERENCES AND INFORMING THE ENGINEER PRIOR TO STARTING ANY WORK.
   - 3.4. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS AND/OR EXISTING CONDITIONS ARE TO BE REFERRED TO CONSULTANT FOR INSTRUCTIONS BEFORE ANY WORK BEGINS AND BEFORE ANY MATERIAL/EQUIPMENT IS ORDERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASSOCIATED COSTS RESULTING FROM ANY REWORK CAUSED BY NOT FOLLOWING THIS PROCESS.

4. SITE CONDITIONS
   - 4.1. EXAMINE SITE CONDITIONS TO ENSURE THAT WORK CAN BE SATISFACTORILY CARRIED OUT AS SHOWN. IF SITE EXAMINATION REVEALS ANY DIFFICULTIES THAT WILL PREVENT THE WORK FROM BEING CARRIED OUT AS DESIGNED THESE MUST BE INDICATED IN THE TENDER PRICE, AND BROUGHT TO THE ATTENTION OF THE ENGINEER.
   - 4.2. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY ADDITIONAL DIFFICULTIES, INTERFERENCES AND SITE CONSTRAINTS THAT MAY BE IDENTIFIED DURING THE CONSTRUCTION PERIOD.
   - 4.3. ALL NOISY WORK SHALL BE PERFORMED AFTER NORMAL BUSINESS HOURS: BETWEEN 6PM AND 7AM, MONDAY THROUGH FRIDAY; AND ON WEEKENDS, FRIDAY 6PM THROUGH MONDAY 7AM.
   - 4.4. COORDINATE SITE ACCESS AND DELIVERIES WITH LANDLORD AND/OR GENERAL CONTRACTOR.
   - 4.5. ALL EXISTING SERVICES THAT ARE NOT SHOWN ON THE DRAWINGS AND ARE EXPOSED DURING DEMOLITION/CONSTRUCTION SHALL BE VERIFIED BY THE CONTRACTOR AS TO THE SOURCE AND ROUTING AND SHALL BE REPORTED TO THE CONSULTANT WITH PROPOSED RESOLUTIONS.

5. CLEANING
   - 5.1. CLEAN PREMISES DAILY AT THE END OF EACH WORK DAY.
   - 5.2. DO NOT ACCUMULATE EQUIPMENT, TOOLS, DEBRIS AND WASTE MATERIALS ON SITE. REMOVE FROM SITE DAILY.
   - 5.3. COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE ONCE WORK IS COMPLETE.
   - 5.4. ALL MATERIALS TO BE DISPOSED OF CONSTRUCTION SITE IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

6. EXISTING EQUIPMENT AND SYSTEMS
   - 6.1. DISCONNECT, RECONNECT OR RELOCATE EXISTING EQUIPMENT OR SERVICES WHERE SHOWN OR AS REQUIRED TO PERMIT NEW WORK TO BE INSTALLED WITHOUT INTERFERENCES. ENSURE THAT REQUIRED SERVICES ARE MAINTAINED.
   - 6.2. COORDINATE WITH THE OWNER BEFORE INTERRUPTING ANY ESSENTIAL SERVICES.
   - 6.3. ROUTING OF NEW SERVICES MAY BE ADJUSTED TO ACCOMMODATE EXISTING SERVICES AND CONDITIONS PROVIDED THAT THE INTENT OF THE DRAWINGS IS MET AND THE ORIGINAL STANDARDS ARE MAINTAINED.
   - 6.4. PROVIDE DRAWINGS OF PROPOSED REVISIONS TO ENGINEER FOR APPROVAL BEFORE BEGINNING ANY WORK. INCORPORATE ALL CHANGES IN **AS-BUILT** DRAWINGS.
   - 6.5. COORDINATE ALL ROUTING CHANGES WITH OTHER TRADES THAT MAY BE AFFECTED.
   - 6.6. ENGINEER TO BE ADVISED PRIOR TO CHANGES WHERE CHANGES COULD BE SIGNIFICANT.
   - 6.7. THE CONTRACTOR IS TO TAKE EXTRA CARE DURING THIS INSTALLATION NOT TO DISTURB THE OPERATIONS OF THE COMPLEX. IT IS CRITICAL THAT THERE WILL BE NO UNSCHEDULED SHUTDOWNS OR INTERRUPTIONS OF ANY OPERATIONS.
   - 6.8. ALL ASSOCIATED COSTS OF THESE ITEMS LISTED ABOVE WILL **BE** THE RESPONSIBILITY OF THE CONTRACTOR.

7. OPEN FLAMES AND WELDING
   - 7.1. NO OPEN FLAMES OR WELDING IS PERMITTED WITHIN THE BUILDING WITHOUT WRITTEN PERMISSION BY THE OWNER AND/OR THE ENGINEER.
   - 7.2. HOT WORK PERMIT MUST BE VISIBLE AT ALL TIMES.
   - 7.3. ADEQUATE NUMBER OF FIRE EXTINGUISHERS MUST BE PROVIDED DURING THE OPEN FLAME PROCESS.

SCOPE OF WORK & PROJECT DESCRIPTION:

1. PROVIDE ALL WORK AS INDICATED IN CONTRACT DOCUMENTS.
2. INCLUDE ALL MECHANICAL, ELECTRICAL AND CONTROL WORK REQUIRED TO COMPLETE THE PROJECT.
3. CONTRACTOR SHALL RETAIN TSSA FOR ALL REQUIRED CERTIFICATIONS, VARIANCE APPROVALS AND INSPECTIONS.
4. DECOMMISSION TWO SUB-TANKS AND DISCONNECT FROM SERVICE. DISCONNECT TWO SUB-TANKS FROM GENERATOR C/W ALL ACCESSORIES AND AS SHOWN ON THE DRAWINGS.
   - 4.1. REMOVE ALL FUEL AND FUEL VAPOURS AND CONFIRM THAT FUEL VAPOUR CONCENTRATION IS LESS THAN 10% OF THE LOWER EXPLOSIVE LIMIT FOR TYPE-2 DIESEL FUEL USING A CALIBRATED GAS VAPOUR METER.
   - 4.2. DEMOLISH AND REMOVE CONNECTED FUEL OIL SUPPLY PIPING AS SHOWN, APPLICABLE PIPING SUPPORTS, VALVES, FITTINGS, CONTROL DEVICES, AND TANK FUEL POLISHER.
   - 4.3. POWER AND CONTROL CONDUIT, CONDUIT SUPPORTS, AND WIRING RELATED TO SUB-TANKS ITEMS TO BE DEMOLISHED ENTIRE LENGTH.
   - 4.4. ALL DEMOLISHED EQUIPMENT SHALL BE REMOVED FROM SITE AND DISPOSED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
   - 4.5. CONTRACTOR TO PROVIDE A TANK DECOMMISSIONING REPORT FOR REVIEW AND SUBMISSION TO TSSA. COMPLETE TSSA VARIANCE APPLICATION FOR TANKS TO BE ABANDONED IN PLACE.
5. ABANDONED SUB-TANK IN THE SAME LOCATION. CAP THE SUPPLY AND RETURN FUEL PIPING. FILL THE SUB-TANKS WITH CONCRETE AFTER COMPLETING THE INSTALLATION OF THE NEW TANKS. SUB-TANK VENT TO REMAIN.
6. CONTRACTOR IS RESPONSIBLE TO REVIEW PROJECT SPECIFIC DSS REPORT INCLUDED IN SPECIFICATIONS PACKAGE. COORDINATE WITH FACILITY FOR ALL OPERATIONS.
7. PROVIDE NEW ULC LISTED FIRE SAFETY FUSIBLE LINK VALVES CONNECTED TO RIGID SUPPLY PIPING FOR EACH EXISTING GENERATOR AS SHOWN.
8. PROVIDE AND INSTALL FUEL TANK AS PER EQUIPMENT SCHEDULE. COMPLETE WITH SENSORS, VENT AND RELATED ACCESSORIES AS PER DRAWINGS.
9. PROVIDE AND INSTALL FILL STATION AND ALL PIPING AS PER DRAWINGS.
10. COORDINATE WITH ALL TRADES PRIOR TO CONSTRUCTION.
11. CONTRACTOR SHALL PREPARE SHOP DRAWINGS FOR ALL WORK. CONTRACTOR SHALL FORWARD ALL SHOP DRAWINGS TO THE ENGINEER AND OWNER FOR APPROVALS PRIOR TO STARTING ANY WORK.
12. CONTRACTOR TO ENSURE NEW FUEL TANK FULL AT COMPLETION OF PROJECT.
13. TEST AND COMMISSION ALL AFFECTED EQUIPMENT AND SYSTEMS.
14. ALONG WITH TESTING AND COMMISSIONING REPORTS, PROVIDE FUEL OIL SYSTEM COMPREHENSIVE INSPECTION FORM COMPLETED BY A LICENSED OIL BURNER TECHNICIAN.
15. CONTRACTOR TO PROVIDE AS-BUILT DRAWINGS FOR THE PROJECT IN CAD FORMAT TO INFRASTRUCTURE ONTARIO STANDARDS. CONSULTANT TO PROVIDE CAD DRAWINGS TO CONTRACTOR.

ABOVE-GROUND FUEL TANK SCHEDULE

TAG	MANUFACTURER	MODEL	LOCATION	CAPACITY (L)	QTY	REMARKS
T-1	WALECO	6000LDW	PARKING	6000	1	• TANK SHALL NEW DOUBLE WALL OVAL FUEL OIL TANK, ULC-S601-14 LISTED AND LEAK TESTED. • PROVIDE ALL REQUIRED OPENINGS AS INDICATED ON SCHEMATIC ON DRAWING 1/M-800, INSTALL AS PER MANUFACTURER RECOMMENDATION/INSTRUCTIONS AND AS PER AUTHORITIES HAVING JURISDICTION. • TANK SHALL BE BLAST CLEANED WITH ONE COAT WHITE EPOXY AND FINISHED WITH ONE COAT WHITE URETHANE ENAMEL PAINT. • PROVIDE VACUUM MONITORED INTERSTITIAL SPACE COMPLETE WITH VACUUM SWITCH FOR ALARM SIGNAL. • PROVIDE ACCESS STAIRS FOR FUEL FILLING.

LEGEND

SYMBOL	DESCRIPTION
	NEW WORK
	EXISTING TO REMAIN
	EXISTING TO BE DEMOLISHED
	CONTROL WIRE
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
FOV	FUEL OIL VENT
G	GAS LINE
	VENT
	PIPE RISE
	PIPE DROP
	TEE DROP
	PIPE BREAK
	CAP
	UNION
	FLOW ARROW
	ISOLATION VALVE
P	PRESSURE GAUGE
ASV	ANTI SYPHON VALVE
	FUSIBLE LINK FIRE VALVE
	AIR FLOW ARROW
	FLEXIBLE STEEL TUBING
XX-Y	EQUIPMENT TAG

ABBREVIATIONS

ABB.	DESCRIPTION
ABV	AUTOMATIC BALANCING VALVE
AFF	ABOVE FINISHED FLOOR
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTOR
CBV	CIRCUIT BALANCING VALVE
CTE	CONNECT TO EXISTING
CO	CLEANOUT
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FFD	FUNNEL FLOOR DRAIN
HUM	HUMIDIFIER
NO / NC	NORMALLY OPEN / NORMALLY CLOSED
SD	SCUPPER DRAIN
SFI	SIGHT FLOW INDICATOR
TDV	TRIPLE DUTY VALVE
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE

VALVES & ACCESSORIES LEGEND

SYMBOL	DESCRIPTION
	BACKWATER VALVE
	PLUG VALVE COCK
	CHECK VALVE
	Y-STRAINER
	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	2-WAY CONTROL VALVE - DDC

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GENERAL NOTES, LEGENDS, SCHEDULES

Scale: N.T.S.
Date: DECEMBER, 2022
Drawn by: V.Z.
Substantial Performance Date: TBD
Designed by: K.P.
Drawing No: M–100 of
Approved by: E.O.C.
CADD File NAME: 23106–M

594x841mm

DEMOLITION GENERAL NOTES:

1. THESE GENERAL NOTES APPLY TO ALL DEMOLITION DRAWINGS.
2. DISCONNECT EXISTING UNUSED EQUIPMENT FROM POWER SUPPLY AND MAKE SAFE.
3. PRIOR TO COMMENCING THE DEMOLITION WORK, EXAMINE SITE CAREFULLY INCLUDING ALL THE ELEMENTS THAT NEED TO BE REMOVED.
4. REMOVE ALL ABANDONED PIPES, HANGERS, INSERTS, CONDUITS, DUCTS, AND SERVICES.
5. SEAL AND FIRESTOP (IF NECESSARY) ALL AFFECTED AREAS TO MATCH EXISTING.
6. CONTRACTOR TO CLEAN ALL DEBRIS AND RUBBISH GENERATED FROM THIS WORK.
7. CONTRACTOR TO REPAIR ANY DAMAGE CAUSED BY THIS WORK AND MAKE GOOD TO MATCH EXISTING.
8. CONTRACTOR SHALL REPAIR UNUSED FLOOR AND WALL OPENINGS AT ALL PENETRATIONS OF DEMOLISHED WORK. REPAIRS SHALL MATCH EXISTING CONDITION AND FINISHES.
9. DRAIN ALL AFFECTED SYSTEMS AS REQUIRED AND REFILL AFTER WORK IS COMPLETE. REFER TO SPECIFICATIONS FOR SPECIFIC PIPE FLUSHING MATERIALS AND PROCEDURES.
10. ALL EXISTING SYSTEM ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO SITE VERIFY EXACT LOCATION OF EQUIPMENT AND POINT OF CONNECTION TO EXISTING AS REQUIRED.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR DISASSEMBLY AND CUTTING OF ALL EQUIPMENT/MATERIAL TO ALLOW FOR REMOVAL FROM SITE.

REFERENCE NOTES:

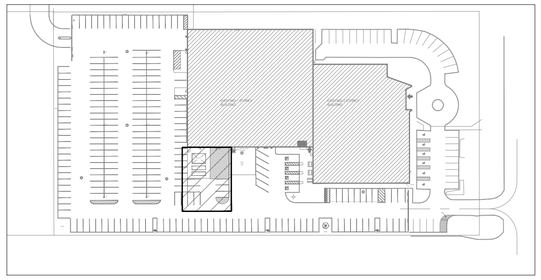
1. EXISTING GENERATOR-1,2 TO REMAIN.
2. DECOMMISSION TWO SUB-TANKS AND DISCONNECT FROM SERVICE. DISCONNECT TWO SUB-TANKS FROM GENERATORS COMPLETE WITH ALL ACCESSORIES AND AS SHOWN ON THE DRAWINGS. REMOVE ALL FUEL AND FUEL VAPOURS AND CONFIRM THAT FUEL VAPOUR CONCENTRATION IS LESS THAN 10% OF THE LOWER EXPLOSIVE LIMIT FOR TYPE-2 DIESEL FUEL USING A CALIBRATED GAS VAPOUR METER. DEMOLISH AND REMOVE CONNECTED FUEL OIL SUPPLY PIPING, APPLICABLE PIPING SUPPORTS, VALVES, FITTINGS, CONTROL DEVICES, AND CONTROL CONDUIT, CONDUIT SUPPORTS, AND WIRING RELATED TO SUB-TANKS ITEMS TO BE DEMOLISHED ENTIRE LENGTH. ABANDONED SUB-TANK IN THE SAME LOCATION. CAP THE SUPPLY AND RETURN FUEL PIPING. FILL THE SUB-TANKS WITH LOW DENSITY CONCRETE AFTER COMPLETING THE INSTALLATION OF THE NEW TANKS. SUB-TANK VENT TO REMAIN.
3. DEMOLISH AND REMOVE THE EXISTING FENCE SECTION AS SHOWN, FILL THE REMOVED FENCE SUPPORT HOLES WITH CONCRETE AND LEVEL IT TO MATCH EXISTING.
4. CONTRACTOR TO DISCONNECT AND REMOVE THE EXISTING FUEL SUPPLY AND RETURN PIPING OF THE SUB-TANKS TO THE GENERATOR.

FUEL GENERAL NOTES:

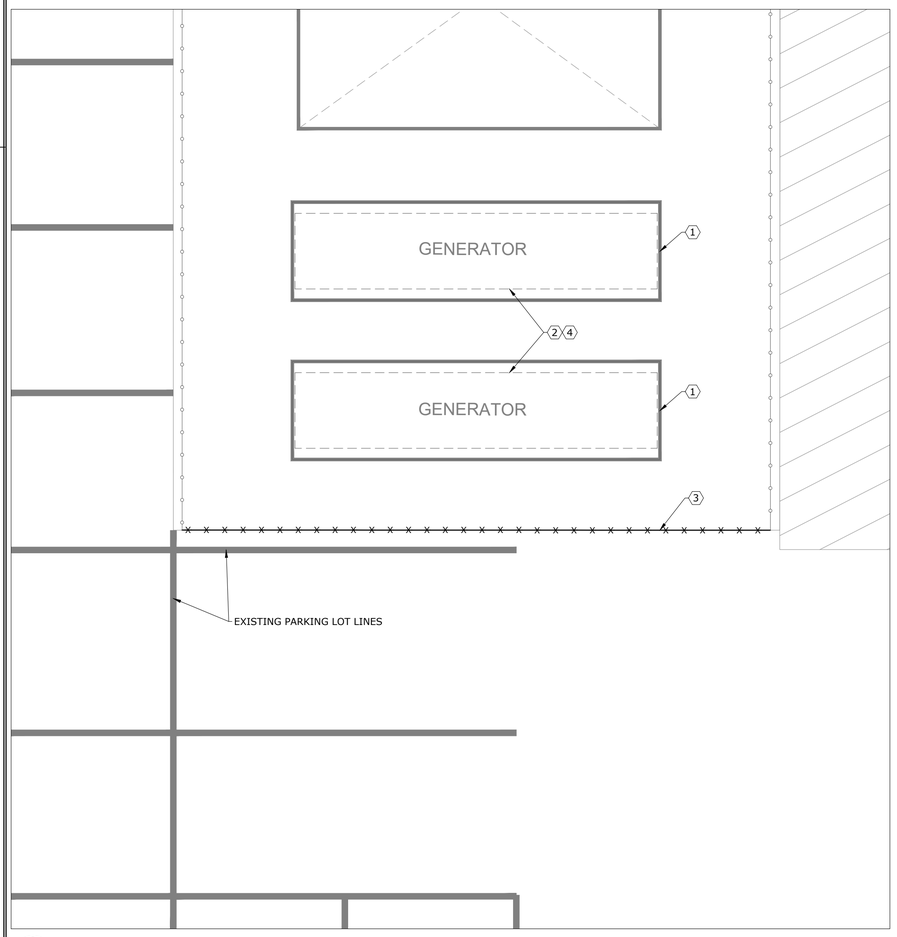
1. CONTRACTOR TO EXAMINE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. COORDINATE ALL EQUIPMENT/SERVICE SHUT DOWN WITH FACILITY MANAGEMENT.
3. ALL CONTROLS WORK TO BE COMPLETED BY CONTROLS CONTRACTOR.
4. PROVIDE NEW EQUIPMENT AND ALL ASSOCIATED ACCESSORIES AS REQUIRED TO
5. COMPLETE A FULLY FUNCTIONING SYSTEM.
6. COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH FACILITY MANAGEMENT.
7. COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE DAILY.
8. CONTRACTOR TO MAINTAIN FIRE SEPARATIONS.
9. DISPOSE OF ALL DEBRIS AND USED FUEL OIL AS PER AUTHORITY HAVING JURISDICTION.
10. PROVIDE CAULKING AND FIRESTOPPING FOR ALL SERVICES PASSING THROUGH FIRE SEPARATIONS.
11. ANY UNUSED OPENINGS IN A TANK SHALL BE SEALED VAPOR- AND LIQUID-TIGHT.

REFERENCE NOTES:

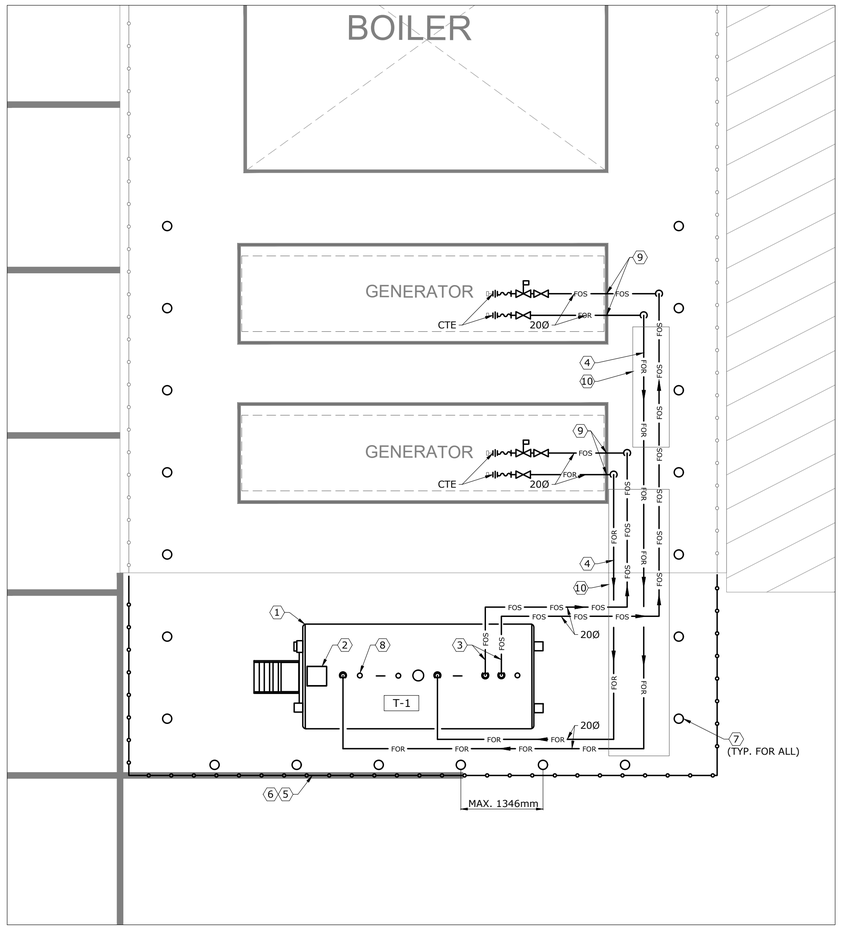
1. PROVIDE AND INSTALL NEW ULC LISTED DOUBLE WALL TANK (T-1) AS PER EQUIPMENT SCHEDULES.
2. PROVIDE AND INSTALL ULC CERTIFIED SPILL CONTAINMENT BOX EQUAL TO MORRISON BROS FIGURE 517.
3. 20Ø FUEL OIL SUPPLY PIPING FROM FUEL TANK.
4. 20Ø FUEL OIL RETURN PIPING BACK TO FUEL TANK.
5. EXTEND CONCRETE PAD MATCH HEIGHT OF EXISTING, IN ACCORDANCE WITH CSA B-139-19 FOR T-1 INSTALLATION CLEARANCE.
6. EXTEND THE EXISTING FENCE AROUND THE NEW TANK, CONTRACTOR SUPPLY NEW GROUNDED FENCE AS PER DETAIL DRAWING 1/M-1000.
7. PROVIDE AND INSTALL NEW 200Ø CONCRETE FILLED BOLLARD BURIED 1.2M DEEP FOR VEHICLE PROTECTION OF THE GENERATORS AND NEW TANK FILLING STATION IN COMPLETE WITH CSA-B139-19. REFERENCE BOLLARD DETAIL ON DRAWING 1/M-1001.
8. NEW TANK VENT TERMINATE WITH A ULC APPROVED WEATHERPROOF CAP APPROXIMATELY 450MM ABOVE FILL POINT.
9. NEW PENETRATION TO BE MADE IN ENCLOSURE WALL FOR NEW FUEL PIPING ON BOTH GENERATORS. NEW PENETRATION TO BE SEALED WEATHER TIGHT UPON COMPLETION OF WORK.
10. PROVIDE PIPING WALK OVER COVER TO PREVENT PIPING FROM FOOD TRAFFIC. REFERENCE PIPING WALK COVER DETAIL ON DRAWING 3/M-1001.



3 / M-300 KEY PLAN
SCALE: N.T.S.



1 / M-300 PLAN VIEW - FUEL - DEMOLITION
SCALE: 1:50



2 / M-300 PLAN VIEW - FUEL - MODIFICATION
SCALE: 1:50

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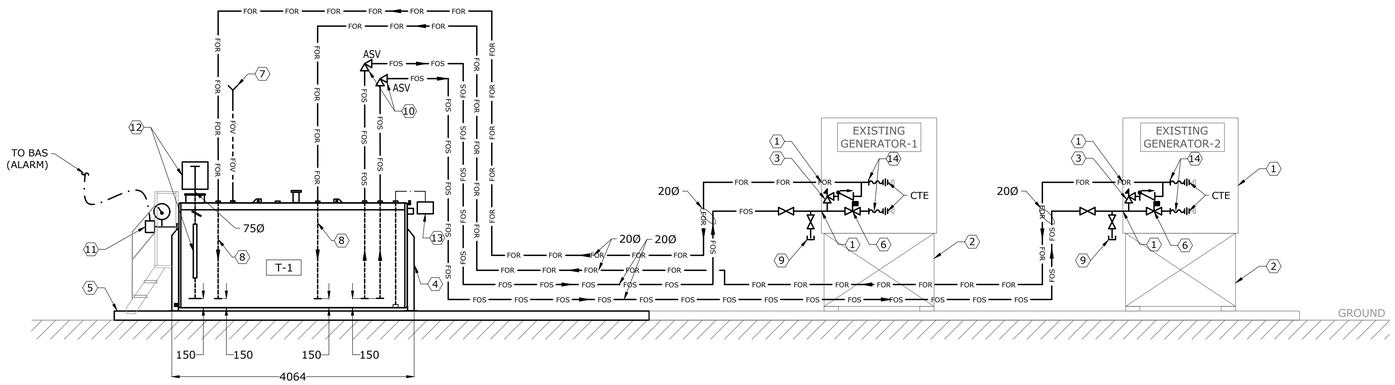

1
M-800

NEW PLAN SCHEMATIC

SCALE: N.T.S.

FUEL GENERAL NOTES:

1. CONTRACTOR TO EXAMINE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. COORDINATE ALL EQUIPMENT/SERVICE SHUT DOWN WITH FACILITY MANAGEMENT.
3. ALL CONTROLS WORK TO BE COMPLETED BY CONTROLS CONTRACTOR.
4. PROVIDE NEW EQUIPMENT AND ALL ASSOCIATED ACCESSORIES AS REQUIRED TO COMPLETE A FULLY FUNCTIONING SYSTEM.
5. COORDINATE DELIVERY OF MATERIALS AND SITE ACCESS WITH FACILITY MANAGEMENT.
6. COMPLETELY REMOVE ALL DEBRIS AND RUBBISH FROM SPACE DAILY.
7. CONTRACTOR TO MAINTAIN FIRE SEPARATIONS.
8. DISPOSE OF ALL DEBRIS AND USED FUEL OIL AS PER AUTHORITY HAVING JURISDICTION.
9. PROVIDE CAULKING AND FIRESTOPPING FOR ALL SERVICES PASSING THROUGH FIRE SEPARATIONS.
10. ALL THE NEW FUEL PIPE TO BE RATED FOR HIGH PRESSURE OPERATION.

REFERENCE NOTES:

(1) EXISTING EMERGENCY GENERATOR TO REMAIN. NEW PENETRATION TO BE MADE IN ENCLOSURE WALLS FOR NEW PIPING. ENSURE ALL PENETRATIONS ARE SEALED WATER TIGHT UPON COMPLETION OF WORK.

(2) EXISTING SUB-TANKS TO BE ABANDONED IN PLACE. SEE DRAWING 1/M-300 FOR SUB-TANK DEMOLITION AND REPORTING REQUIREMENTS.

(3) PROVIDE AND INSTALL ULC LISTED THERMAL PRESSURE RELIEF VALVE AND ASSOCIATED PIPING AS PER CSA B139 SECTIONS 5.4.3.3 AND 8.4.2. PRESSURE RELIEF TO BE SET FOR 80 PSI. SUBMIT RELIEF VALVE SHOP DRAWINGS TO CONSULTANT FOR REVIEW AND ACCEPTANCE.

(4) NEW PROVIDE AND INSTALL NEW ULC LISTED DOUBLE WALL TANKS AS PER EQUIPMENT SCHEDULES. NEW TANK TO BE INSTALLED ON EXTENDED CONCRETE PAD.

(5) EXTEND CONCRETE PAD FOR FUEL TANK. PROVIDE SAME HEIGHT AS EXISTING CONCRETE PAD.

(6) PROVIDE AND INSTALL NEW ULC LISTED FUSIBLE LINK FIRE SAFETY VALVE EQUAL. PROVIDE REDUCERS FOR 20Ø PIPING.

(7) NEW TANK VENT TERMINATE WITH A ULC APPROVED WEATHERPROOF CAP APPROXIMATELY 450MM ABOVE FILL POINT.

(8) DRILL 10Ø HOLE, 25Ø DOWN FROM THE TOP OF FUEL OIL RETURN DROP TUBE IN ORDER TO PREVENT SYPHONING.

(9) PROVIDE MECHANCIAL PIPE "T" AT THE LOWEST POINT FUEL OIL SUPPLY PIPING COMPLETE WITH CAP AND ISOLATION VALVE AS SHOWN TO ALLOW FOR TESTING OF ANTI-SPYHON VALVE.

(10) PROVIDE AND INSTALL NEW ANTI-SYPHON VALVE EQUAL TO 'EBW' MODEL '606-300-01'. PROVIDE REDUCERS FOR 20Ø PIPING.

(11) NEW DOUBLE WALL TANK TO BE COMPLETE WITH VACUUM MONITORED INTERSTITIAL SPACE AND VACUUM SWITCH FOR MONITORING. WIRE VACUUM SWITCH TO BAS. LEAK DETECTION ALARM TO NEW BAS ALARM POINT.

(12) NEW TANK TO BE PROVIDED WITH A STEEL LOCKABLE ULC CERTIFIED 10L SPILL CONTAINMENT BOX COMPLETE WITH BOTTOM DRAIN VALVE. PROVIDE AND INSTALL NEW POSITIVE DISPLACEMENT OVERFILL PROTECTION VALVE EQUIVALENT TO MORRISON BROS MODEL 9095SA COMPLETE WITH DROP TUBE. CONTRACTOR TO CONFIRM SIZE PRIOR TO ORDERING. TIGHT FILL CONNECTION IN FILL BOX TO BE PROVIDED WITH ADAPTOR FOR 50Ø CONNECTION IF REQUIRED.

(13) PROVIDE AND INSTALL OPW 200TG-ENG MECHANICAL TANK INVENTORY GAUGE. INSTALL AND CALIBRATE GAUGES AS PER MANUFACTURER RECOMMENDATIONS.

(14) PROVIDED NEW FLEXIBLE STAINLESS STEEL METAL HOSE CONNECTIONS TO ENGINE EQUIVALENT TO HOSEMASTER MODEL FS. 450MM MAXIMUM LENGTH AND ULC CERTIFIED. CONTRACTOR TO VERIFY SIZE PRIOR TO ORDERING.

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No	Revisions	Date
2	ISSUED FOR TENDER	03/31/2023
1	ISSUED FOR 99% REVIEW	03/16/2023

Orientation

Seal

LICENSED PROFESSIONAL ENGINEER
Mar.31,2023
A. L. COLIN
100179821
PROVINCE OF ONTARIO

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B — B Sheet No where detailed

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Ontario
Infrastructure Ontario

AMIS N – B 91121

Project
GENERATOR SUB–TANKS REPLACEMENT

Location
3900 VICTORIA PARK AVE,
NORTH YORK, ON M2H 3H7

IO Project No: 1096701–273485
Site No: –
Building No: B91121

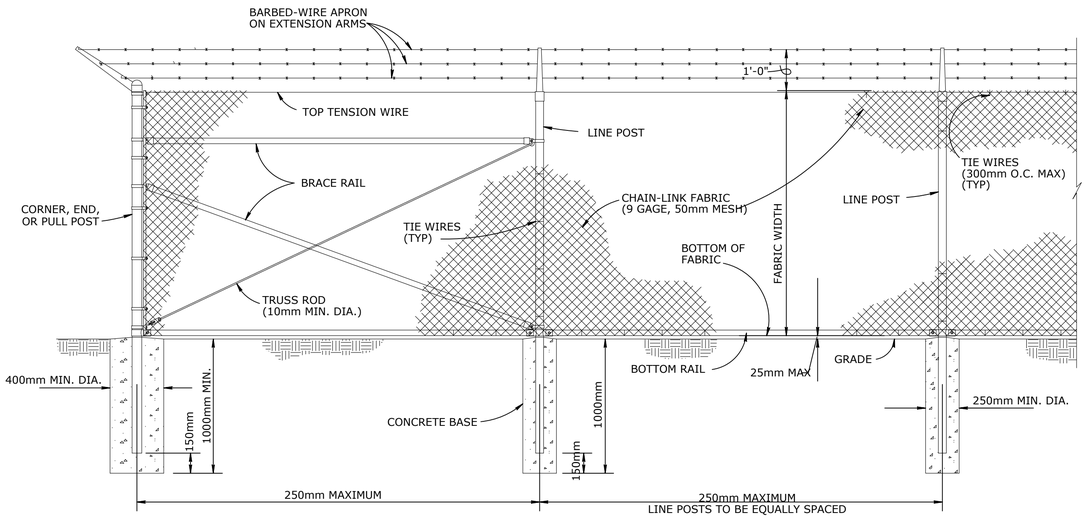
Client
INFRASTRUCTURE ONTARIO

Drawing Title
SCHEMATICS OF NEW SYSTEM

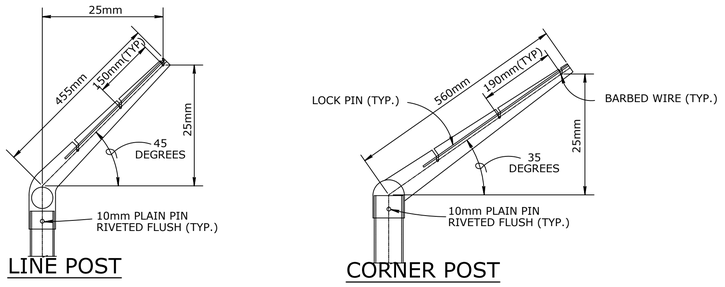
Scale: N.T.S.	Date: DECEMBER, 2022
Drawn by: V.Z.	Substantial Performance Date: TBD
Designed by: K.P.	Drawing No: M–800 of
Approved by: E.O.C.	

CADD File NAME 23106–M

594x841mm



CHAIN-LINK SECURITY FENCE DETAIL
NO SCALE



LINE POST

CORNER POST

EXTENSION ARM DETAILS
NO SCALE

STEEL POST SCHEDULE			
USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FABRIC WIDTH 1828mm OR LESS	FABRIC WIDTH 2134mm TO 2438mm	FABRIC WIDTH 2743mm AND OVER
CORNER, END & PULL POSTS			
TUBULAR - ROUND	60mm O.D.	73mm O.D.	100mm O.D.
LINE POSTS			
TUBULAR - ROUND	48mm O.D.	60mm O.D.	73mm O.D.
BOTTOM & BRACE RAILS			
TUBULAR - ROUND	42mm O.D.		
TUBULAR - SQUARE	38mm SQ.		
H-SECTION	42mm X 38mm		
C-SECTION (ROLL-FORMED)	42mm X 32mm		

NOTES:

1. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE SIDE OPPOSITE THE SECURE AREA.

2. ONLY 9-GAGE GALVANIZED STEEL TIE WIRES SHALL BE USED FOR FASTENING THE FENCE FABRIC TO FENCE POSTS AND RAILS. 16-GAGE, STAINLESS STEEL TIE WIRES SHALL BE USED FOR FASTENING FENCE FABRIC TO TENSION WIRES. HOG RINGS SHALL NOT BE ALLOWED ON SENSORED FENCES.

3. BOTTOM RAIL SHALL BE ATTACHED TO DOUBLE RAIL ENDS USING 10mm CARRIAGE BOLTS AS SHOWN. ADDITIONAL HOLES SHALL BE DRILLED THROUGH THE BOTTOM RAIL ENDS TO INSURE THAT CARRIAGE BOLTS PASS THROUGH THE BOTTOM RAIL AS SHOWN.

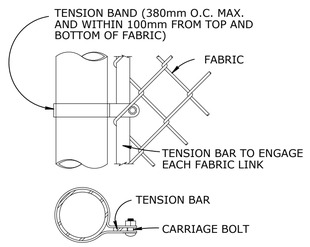
FENCE LEGEND:

TYPE FE5 - CHAIN-LINK FENCE WITHOUT BARBED-WIRE APRON
TYPE FE6 - CHAIN-LINK FENCE W/BARBED-WIRE ON SINGLE OUTRIGGER
TYPE FE7 - CHAIN-LINK FENCE W/BARBED-WIRE ON DOUBLE OUTRIGGER
TYPE FE8 - CHAIN-LINK FENCE W/BARBED-WIRE AND BARBED-TAPE ON DOUBLE OUTRIGGER
TR - FENCE WITH TOP RAIL AND TENSION WIRE AT BOTTOM
TBR - FENCE WITH TOP AND BOTTOM RAILS
TWB - TENSION WIRE TOP AND BOTTOM
TWBR - FENCE WITH TOP TENSION WIRE AND BOTTOM RAIL
FINAL NUMBER IS FABRIC WIDTH IN INCHES.

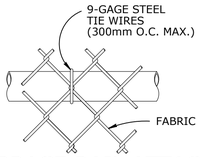
EXAMPLES:

FE6-TR-72 - CHAIN-LINK SECURITY FENCE WITH BARBED-WIRE ON SINGLE OUTRIGGER, TOP RAIL, AND 1828mm FABRIC WIDTH.

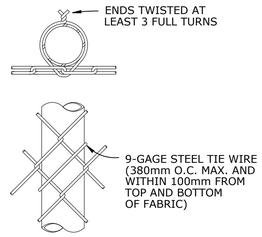
FE5-TWB-84 - CHAIN-LINK SECURITY FENCE WITH NO APRON, TOP AND BOTTOM TENSION WIRE, AND 2134mm FABRIC WIDTH.



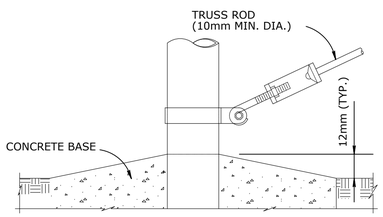
END OR GATE POST DETAIL



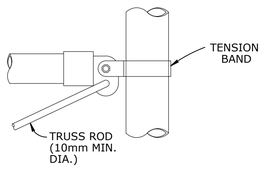
BRACE RAIL ATTACHMENT



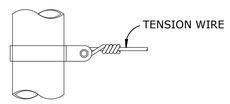
LINE POST ATTACHMENTS



TRUSS ROD AND BAND

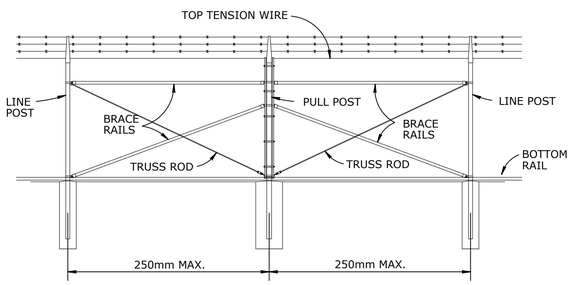


BRACE RAIL CLAMP DETAIL



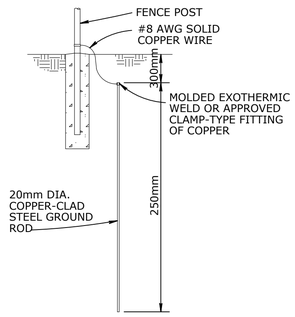
TENSION BAND DETAIL

FASTENING DETAILS
NO SCALE

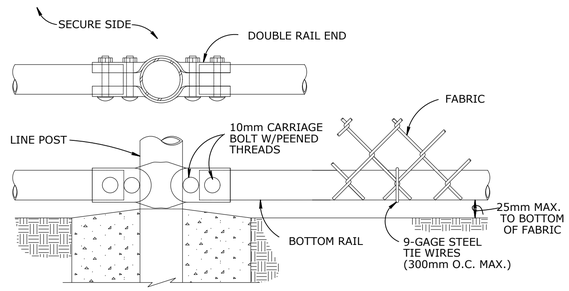


NOTE:
PROVIDE BRACE PANEL WHENEVER STRAIGHT RUNS EXCEED 150 M.

BRACE PANEL DETAIL
NO SCALE



GROUNDING DETAIL
NO SCALE



BOTTOM RAIL DETAILS
NO SCALE

1 M-1000 TYPICAL CHAIN-LINK SECURITY FENCE DETAIL
SCALE: N.T.S.

594x841mm

Colliers INTERNATIONAL

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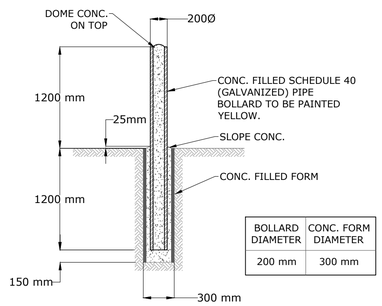
DETAILS

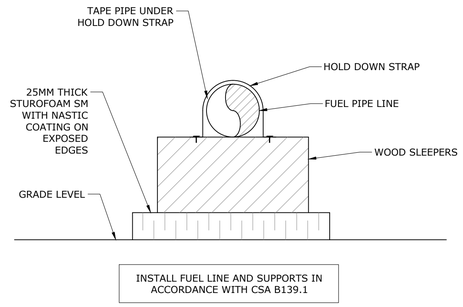
Scale: N.T.S.	Date: DECEMBER, 2022
Drawn by: V.Z.	Substantial Performance Date: TBD
Designed by: K.P.	Drawing No: M–1000 of
Approved by: E.O.C.	

CADD File NAME 23106–M



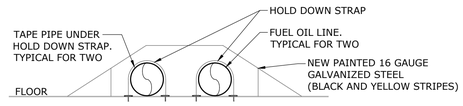
BOLLARD DIAMETER	CONC. FORM DIAMETER
200 mm	300 mm

1 / M-1001 BOLLARD DETAIL
SCALE: N.T.S.

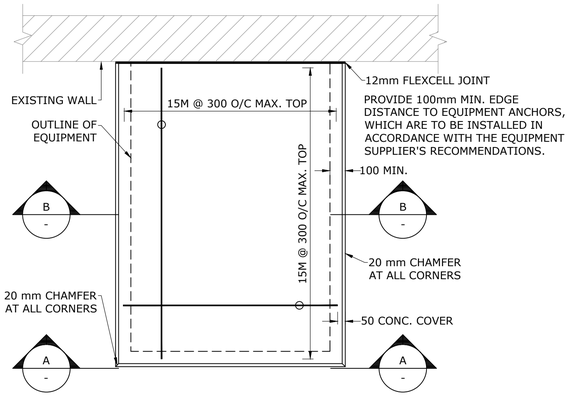


INSTALL FUEL LINE AND SUPPORTS IN ACCORDANCE WITH CSA B139.1

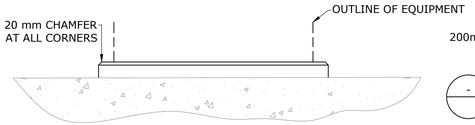
2 / M-1001 FUEL PIPE SUPPORT DETAIL
SCALE: N.T.S.



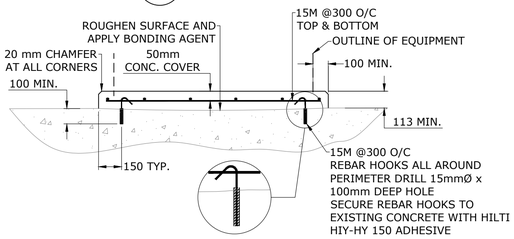
3 / M-1001 FUEL OIL SUPPLY AND RETURN PIPE COVER
SCALE: N.T.S.



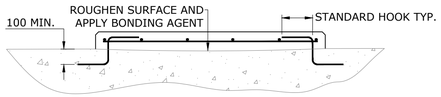
- HOUSKEEPING PAD PLAN
SCALE: N.T.S.



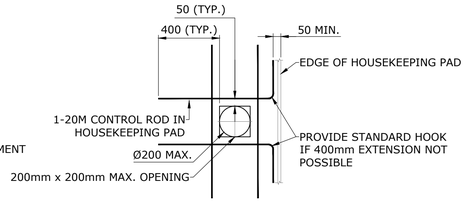
A SECTION
SCALE: N.T.S.



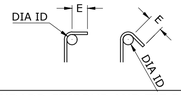
B SECTION - EXISTING CONCRETE
SCALE: N.T.S.



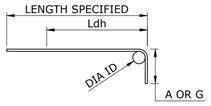
B SECTION - NEW CONCRETE
SCALE: N.T.S.



- TYPICAL OPENING IN HOUSEKEEPING PAD
SCALE: N.T.S.



STANDARD STIRRUP AND TIE BENDING			
BAR SIZE	BAR DIA (mm)	DIA ID (mm)	E (mm)
10M	11.3	45.0	100
15M	16.0	65.0	140
20M	19.5	120.0	220



STANDARD 90° HOOKS (MM)				
BAR SIZE	BAR DIA	DIA ID	A OR G	Ldh (30 MPa)
10M	11.3	70	150	180
15M	16.0	100	220	270
20M	19.5	120	260	370

GENERAL NOTES:

DESIGN LOAD INFORMATION:

1. THE HOUSEKEEPING PAD SHOWN IS NOT STRUCTURAL. THE SUPPORTING STRUCTURE UPON WHICH THE HOUSEKEEPING PAD IS INSTALLED SHALL BE CAPABLE OF SUPPORTING ALL LOADS AND DYNAMIC EFFECTS.

2. THE HOUSEKEEPING PAD HAS NOT BEEN DESIGNED FOR CORROSIVE ENVIRONMENTS AND MODIFICATION TO SUIT THE INSTALLED ENVIRONMENT IS BY OTHERS.

CONCRETE:

1. WORK, MATERIALS AND TESTING SHALL BE IN CONFORMANCE WITH CSA A23.1, AND A23.2.

2. CONCRETE SHALL BE READY MIXED, CONFORMING TO CSA A23.1 (ALTERNATIVE 1), AND AS NOTED HEREIN:

   CEMENT TYPE: GU
   CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS: 30MPA
   MAXIMUM AGGREGATE SIZE: 20 MM
   MAXIMUM SLUMP: 100 MM
   AIR CONTENT: 0% TO 3%
   W/C RATIO: 0.45 MAXIMUM
   CLASS OF SULPHATE AND CHLORIDE EXPOSURE: S-3 AND C-3

3. LIMESTONE CEMENT SHALL NOT BE USED UNLESS AUTHORIZED IN WRITING BY THE CONTRACT ADMINISTRATOR.

4. GUB CEMENT MAY BE USED IN LIEU OF GU CEMENT WHEN AUTHORIZED IN WRITING BY THE CONTRACT ADMINISTRATOR. MAXIMUM SUBSTITUTION OF FLYASH FOR PORTLAND CEMENT TO BE 25% BY WEIGHT.

5. FLYASH SHALL NOT HAVE A HIGH ALKALI, SULPHATE OR REACTIVE MATERIAL CONTENT AND SHALL BE TYPE "F" AND FLYASH SHALL HAVE A PROVEN HISTORY OF SATISFACTORY USE FOR PERIOD OF NOT LESS THAN 10 YEARS.

6. REINFORCING STEEL SHALL BE NEW BULLET GRADE STEEL MEETING THE REQUIREMENT OF CSA G30.18, GRADE 400.

7. SUPPORT REINFORCING STEEL ON SUFFICIENT SUPPORT CHAIRS TO MAINTAIN CONCRETE COVER AS SPECIFIED.

8. REMOVE ALL LOOSE AND DELETERIOUS MATERIAL FROM REINFORCING STEEL.

9. TOLERANCES SHALL BE AS STIPULATED IN ACI 315.

10. NOTIFY CONTRACT ADMINISTRATOR FOR REVIEW OF REINFORCING STEEL PRIOR TO POUR.

11. SATURATE THE CONCRETE SURFACE FOR ONE HOUR PRIOR TO APPLYING THE BONDED CONCRETE TOPPING. PROVIDE A SATURATED SURFACE DRY CONDITION.

12. APPLY LATEX BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS, BONDING AGENT TO BE DARAWELD "C".

13. PROVIDE A WET "BURLAP" CURE FOR 7DAYS MIN.

14. EXPOSED CONCRETE SHALL BE SEALED WITH MEADOWS SEALTIGHT CS-309.

15. ALL WORK TO BE EXECUTED IN A NEAT WORKMANLIKE MANNER.

4 / M-1001 TYPICAL HOUSEKEEPING PAD DETAIL
SCALE: N.T.S.

594x841mm

Colliers INTERNATIONAL
Colliers Project Leaders

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