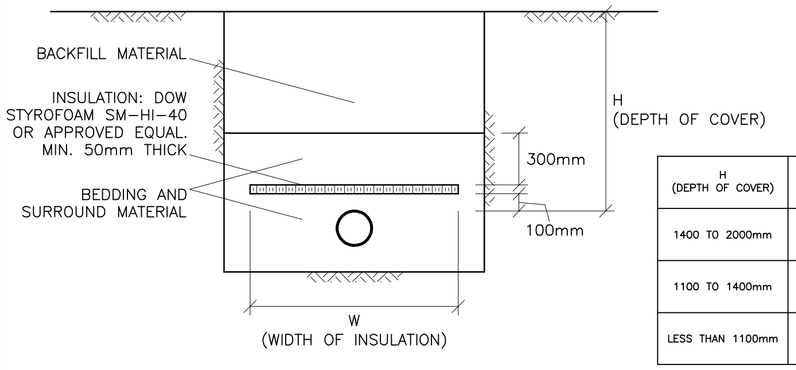
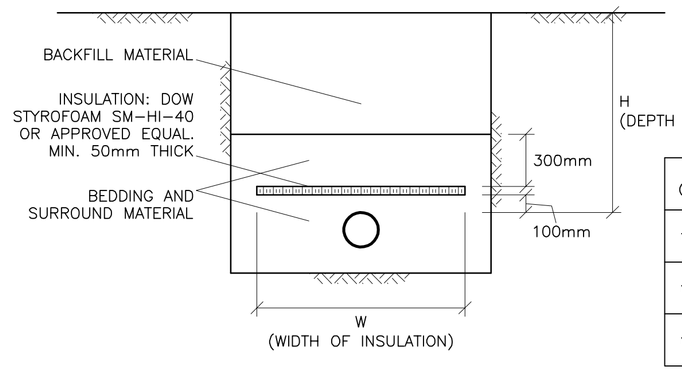


H (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1400 TO 2000mm	50mm	1200mm + DIAMETER OF PIPE
1100 TO 1400mm	75mm	1800mm + DIAMETER OF PIPE
LESS THAN 1100mm	100mm	2400mm + DIAMETER OF PIPE

INSULATE SEWER AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2000mm.
CENTER INSULATION OVER PIPE.
JOINTS BETWEEN SHEETS OF INSULATION SHALL BE STAGGERED.

INSULATION OF SEWERS IN SHALLOW TRENCHES
N.T.S



H (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1800 TO 2400mm	50mm	1200mm
1500 TO 1800mm	75mm	1800mm
1200 TO 1500mm	100mm	2400mm

INSULATE WATERMAIN AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2400mm. PROVIDE A MINIMUM 1200mm COVER CENTER INSULATION OVER PIPE.
JOINTS BETWEEN SHEETS OF INSULATION SHALL BE STAGGERED.

INSULATION OF WATERMAINS & WATER SERVICE CONNECTIONS IN SHALLOW TRENCHES
N.T.S

WATER SERVICE PROFILE TABLE

MATERIAL:
50mm COPPER ASTM B88 TYPE "K" SOFT

STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
0+00.0	TVS CONNECTION TO 150mm MUNICIPAL WATERMAIN AS PER CITY OF OTTAWA DRAWING No. W33	±59.22	±57.42	±1.80	START OF 50mm THICK INSULATION AS PER CITY OF OTTAWA DRAWING No. W22
0+03.0	–	±59.29	57.33	±1.96	CROSSING 225 SAN TOP 56.90 WM U/S 57.27 – 370mm CLEARANCE (MIN. 300mm REQ'D)
0+06.3	–	±59.25	57.23	±2.02	CROSSING 375 ST U/S 57.73 WM TOP 57.23 – 500mm CLEARANCE (MIN. 500mm REQ'D)
0+07.5	–	±59.23	57.20	±2.03	BOTTOM OF CURB
0+09.3	50mm CURB STOP & SERVICE POST TO CITY OF OTTAWA STANDARDS	59.41	57.20	2.21	ON PROPERTY LINE
0+15.5	–	59.60	57.20	2.40	END OF 50mm THICK INSULATION AS PER CITY OF OTTAWA DRAWING No. W22 ENTRY INTO BUILDING

1.0 GENERAL

1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE. EXISTING AND NEW ELEVATIONS ARE GEODETIC IN METERS. PIPE DIMENSIONS ARE NOMINAL IN MILLIMETERS UNLESS OTHERWISE NOTED.
1.2 "ENGINEER" REFERS TO D.B. GRAY ENGINEERING INC. UNLESS OTHERWISE NOTED.
1.3 SITE BOUNDARIES, EXISTING GRADE ELEVATIONS AND OTHER EXISTING FEATURES ARE DERIVED FROM TOPOGRAPHICAL PLAN PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. JOB No. 23256–22. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION INDICATED ON THE DRAWINGS.
1.4 REFER TO ARCHITECTURAL SITE PLAN AND LANDSCAPE PLAN FOR EXACT LOCATION OF PROPOSED BUILDING, WALKWAYS, ETC. LAYOUT SHALL BE COMPLETED BY THE CONTRACTOR AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
1.5 DRAWINGS SHALL BE READ IN CONJUNCTION WITH SITE SERVICING & STORMWATER MANAGEMENT REPORT No. 22092 PREPARED BY D.B. GRAY ENGINEERING INC.
1.6 REFERENCE THE LATEST REVISION OF THE GEOTECHNICAL INVESTIGATION PREPARED BY PATERSON GROUP INC. REPORT: PG6500–1. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
1.7 CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS.
1.8 ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS SHALL APPLY WHERE NO CITY OF OTTAWA STANDARD SPECIFICATIONS OR DRAWINGS ARE AVAILABLE.
1.9 REINSTATE AREAS DISTURBED BY CONSTRUCTION TO PRE–CONSTRUCTION CONDITIONS.

2.0 SITE SERVICING PLAN

2.1 WATER SERVICE, APPURTENANCES AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS. ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS SHALL APPLY WHERE NO CITY OF OTTAWA STANDARD SPECIFICATIONS OR DRAWINGS ARE AVAILABLE.
2.2 DEPTH OF EXISTING MUNICIPAL WATERMAIN IS ESTIMATED TO BE BETWEEN 1.8m AND 2.1m. PRIOR TO COMMENCING CONSTRUCTION DETERMINE ITS EXACT LOCATION, DEPTH AND SIZE BY CAREFUL TEST EXCAVATION AND REPORT ANY DIFFERENCES TO THE ENGINEER. FAILURE TO DO SO WILL BE AT THE CONTRACTOR'S EXPENSE.
2.3 WATER SERVICE MATERIAL SHALL BE COPPER TYPE K SOFT IN ACCORDANCE WITH CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS.
2.4 CONNECTION TO MUNICIPAL WATERMAIN SHALL BE PERFORMED BY CITY OF OTTAWA FORCES. CONTRACTOR SHALL PERFORM EXCAVATION, BACKFILL AND REINSTATEMENT.
2.5 PROVIDE A MINIMUM 2.4m COVER OVER WATER SERVICE. WHERE THE MINIMUM COVER IS NOT POSSIBLE NOTIFY THE ENGINEER AND INSULATE AS PER DETAIL.
2.6 WATER SERVICE INSTALLED PARALLEL TO A SEWER SERVICE SHALL BE INSTALLED IN A SEPARATE TRENCH WITH A MINIMUM 2.5m BARREL TO BARREL HORIZONTAL SEPARATION IN ACCORDANCE WITH MOE PROCEDURE F–6–1.
2.7 WATER SERVICE SHALL CROSS ABOVE SEWERS WITH A MINIMUM 300mm BARREL TO BARREL VERTICAL SEPARATION IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. W38. WHERE IT IS NOT POSSIBLE FOR THE WATER SERVICE TO CROSS ABOVE THE SEWER WITH A MINIMUM 300mm BARREL TO BARREL VERTICAL SEPARATION THE WATER SERVICE SHALL CROSS BELOW THE SEWER WITH A MINIMUM 500mm BARREL TO BARREL VERTICAL SEPARATION IN ACCORDANCE WITH MOE PROCEDURE F–6–1. WATER SERVICE PIPE SEGMENT SHALL BE CENTERED AT POINT OF CROSSING SO JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM SEWERS.
2.8 WATER METER SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. W31.
2.9 THE WATER PRESSURE IS EXPECTED TO BE ABOVE 80psi AT TIMES. A PRESSURE REDUCING VALVE SHALL BE INSTALLED IMMEDIATELY AFTER THE WATER METER.
2.10 SEWER SERVICES, APPURTENANCES AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS. ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS SHALL APPLY WHERE NO CITY OF OTTAWA STANDARD SPECIFICATIONS OR DRAWINGS ARE AVAILABLE.
2.11 SEWER SERVICE MATERIAL SHALL BE PVC DR28.
2.12 CONNECT PROPOSED SANITARY SEWER SERVICE TO EXISTING MUNICIPAL SANITARY SEWER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S11.1.
2.13 CONNECT PROPOSED STORM SEWER SERVICE TO EXISTING MUNICIPAL STORM SEWER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S11.
2.14 PROVIDE A MINIMUM 2m COVER OVER SEWER SERVICES. WHERE THE MINIMUM COVER IS NOT POSSIBLE NOTIFY THE ENGINEER AND INSULATE AS PER DETAIL.
2.15 SEWER SERVICES INSTALLED PARALLEL TO A WATER SERVICE SHALL BE INSTALLED IN A SEPARATE TRENCH WITH A MINIMUM 2.5m BARREL TO BARREL HORIZONTAL SEPARATION IN ACCORDANCE WITH MOE PROCEDURE F–6–1.
2.16 SANITARY BUILDING DRAIN SHALL BE INSTALLED WITH NORMALLY OPEN BACKWATER VALVE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S14.1 OR S14.2.
2.17 STORM BUILDING DRAIN SHALL BE INSTALLED WITH NORMALLY CLOSED BACKWATER VALVE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S14.
2.18 RAINWATER LEADERS INSIDE BUILDING SHALL BE CONSTRUCTED TO WITHSTAND THE PRESSURE FROM A WATER COLUMN THE HEIGHT OF THE RAINWATER LEADER. PERFORM PRESSURE TESTS ON THE SYSTEMS IN ACCORDANCE WITH THE MECHANICAL ENGINEER'S INSTRUCTIONS.

ANDREW MCCREIGHT
MANAGER, DEVELOPMENT REVIEW CENTRAL
PLANNING, DEVELOPMENT & BUILDING SERVICES
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Andrew McCreight at 11:44 am, Nov 01, 2024

3.0 GRADING PLAN

3.1 NEW GRADES SHALL MATCH EXISTING GRADES ON PROPERTY LINES. NO EXCESS DRAINAGE SHALL BE DIRECTED TOWARDS ADJACENT PROPERTIES DURING OR AFTER CONSTRUCTION. THERE SHALL BE NO ALTERATION TO EXISTING GRADES OR DRAINAGE PATTERNS ON PROPERTY LINES.
3.2 ENSURE ADEQUATE DRAINAGE AWAY FROM BUILDING TO RIGHT–OF–WAY AND SWALES. GRADING SHALL BE GRADUAL BETWEEN PROPOSED GRADE ELEVATIONS INDICATED ON THE DRAWINGS.
3.3 RETAINING WALL SHALL BE SETBACK A MINIMUM 150mm FROM PROPERTY LINE.
3.4 RETAINING WALL:
A. RETAINING WALL SHALL BE SETBACK A MINIMUM 150mm FROM THE PROPERTY LINE.
B. RETAINING WALLS GREATER THAN 600mm IN HEIGHT REQUIRE A GUARD. REFER TO ARCHITECTURAL SITE PLAN AND/OR LANDSCAPE PLAN FOR EXACT LOCATIONS AND DETAILS.
3.5 WHETHER A RESULT OF POOR WORKMANSHIP OR DAMAGE DEFECTIVE GRADING SHALL BE CORRECTED.

4.0 EROSION & SEDIMENT CONTROL PLAN

4.1 THE EROSION & SEDIMENT CONTROL PLAN IS A "LIVING DOCUMENT" AND SHALL BE REVISED IN THE EVENT THE SPECIFIED CONTROL MEASURES ARE NOT SUFFICIENT. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION OF THE AREA DRAINAGE SYSTEM DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO LIMITING THE AMOUNT OF EXPOSED SOIL, USING SEDIMENT CAPTURE FILTER SOCK INSERTS IN CATCH–BASINS AND CATCH–BASIN/MANHOLES AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY. AT MINIMUM THE CONTRACTOR SHALL INSTALL, MAINTAIN AND REMOVE THE FOLLOWING CONTROL MEASURES IN ACCORDANCE WITH NOTES 4.2 TO 4.9.
4.2 PRIOR TO COMMENCING CONSTRUCTION INSTALL TERRAFIX GEOSYNTHETICS INC. SILTSACK OR APPROVED EQUIVALENT SEDIMENT CAPTURE FILTER SOCK INSERTS IN ALL EXISTING CATCH–BASINS AND CATCH–BASIN/MANHOLES ADJACENT TO AND WITHIN THE SITE.
4.3 INSPECT SEDIMENT CAPTURE FILTER SOCK INSERTS AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. REPAIR OR REPLACE DAMAGED SEDIMENT CAPTURE FILTER SOCK INSERTS.
4.4 PRIOR TO COMMENCING CONSTRUCTION INSTALL SILT FENCE BARRIERS AS INDICATED ON THE DRAWINGS.
4.5 INSTALL SILT FENCE BARRIERS AROUND STOCKPILED SEDIMENT OR SOIL.
4.6 INSPECT SILT FENCE BARRIERS AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. REPAIR OR REPLACE DAMAGED SILT FENCE BARRIERS.
4.7 REMOVE ANY MATERIAL DEPOSITED ON THE PUBLIC ROAD BY SHOVELING AND SWEEPING OR VACUUMING AND DISPOSING IN A CONTROLLED AREA. DO NOT SHOVEL, SWEEP OR DISPOSE ANY MATERIAL INTO ANY STORMWATER CONVEYANCE SYSTEM.
4.8 REMOVE EROSION AND SEDIMENT CONTROL MEASURES WHEN CONSTRUCTION IS COMPLETE.
4.9 CONSTRUCTION IS CONSIDERED TO BE COMPLETE WHEN THE FOLLOWING CONDITIONS HAVE BEEN MET:
A. ALL STRUCTURES AND HARD SURFACES HAVE BEEN CONSTRUCTED.
B. ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.
C. ALL PROPOSED GRASSED AREAS ARE EITHER SODDED OR HAVE FULL COVERAGE OF WELL ESTABLISHED TURF AND HAVE HAD A MINIMUM OF ONE FULL GROWING SEASON (MAY 15TH TO SEPTEMBER 15TH).
D. THERE ARE NO AREAS OF EXPOSED EARTH.

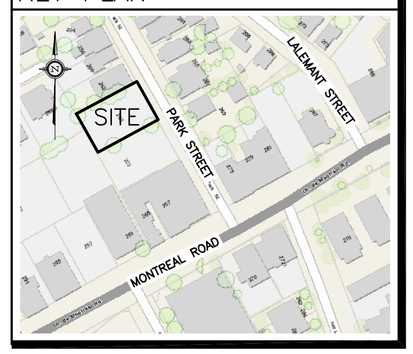
5.0 ROOF DRAINAGE PLAN

5.1 FLOW CONTROL ROOF DRAINS:
A. ROOF DRAINS SHALL BE INSTALLED WITH A SINGLE–PARABOLIC SLOTTED WEIR AND RELEASE 0.01242L/s/mm (5USgpm/in).
B. ROOF DRAINS SHALL BE WATTS WITH AN ACCUTROL WEIR RD–100–A1 OR APPROVED EQUIVALENT.
C. OPENING AT THE TOP OF THE FLOW CONTROL WEIR SHALL BE A MINIMUM 50mm IN DIAMETER.
D. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO THE ENGINEER FOR APPROVAL.
5.2 SCUPPERS:
A. MINIMUM NUMBER AND WIDTH OF SCUPPERS SHALL BE AS INDICATED ON THE DRAWINGS. BOTTOM OF SCUPPERS SHALL BE 150mm ABOVE ROOF DRAINS. REFER TO ARCHITECTURAL FOR EXACT LOCATIONS AND DETAILS.
B. ROOF SHALL BE DESIGNED TO CARRY THE LOAD OF WATER HAVING A 50mm DEPTH AT SCUPPERS (i.e. 200mm DEPTH AT ROOF DRAINS). REFER TO STRUCTURAL.

6.0 CONSTRUCTION

6.1 PRIOR TO COMMENCING CONSTRUCTION:
A. OBTAIN AND BEAR THE COST OF ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
B. LOCATIONS, DEPTHS AND SIZES OF EXISTING INFRASTRUCTURE INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. ALL EXISTING INFRASTRUCTURE IS NOT NECESSARILY INDICATED ON THE DRAWINGS. THOSE SHOWN ARE DERIVED FROM AVAILABLE INFORMATION AND MUST BE CONFIRMED ON SITE.
C. NOTIFY THE AUTHORITIES HAVING JURISDICTION.
D. UNDERGROUND LOCATES INCLUDING BUT NOT LIMITED TO ONTARIO ONE CALL 1–800–400–2255 SHALL BE PERFORMED. CONFIRM LOCATIONS, DEPTHS AND SIZES OF EXISTING INFRASTRUCTURE BY CAREFUL TEST EXCAVATIONS AND REPORT ANY DIFFERENCES TO THE ENGINEER. FAILURE TO DO SO WILL BE AT THE CONTRACTOR'S EXPENSE.
E. COORDINATE AND SCHEDULE CONSTRUCTION TO PROVIDE MINIMUM DISRUPTION TO SERVICES.
6.2 PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
6.3 EXCAVATION AND BACKFILL:
A. PROTECT EXISTING BUILDINGS, INFRASTRUCTURE, ETC. FROM DAMAGE.
B. SAWCUT PAVEMENT, CURBS AND SIDEWALKS NEATLY ALONG LIMITS OF PROPOSED EXCAVATIONS.
C. EXCAVATIONS SHALL NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
D. SUBGRADE, BEDDING, SURROUND MATERIAL AND BACKFILL SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
E. COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS AND COMPACTION TESTS OF SUBGRADE AND EACH LIFT OF BEDDING, SURROUND MATERIAL AND BACKFILL. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO THE ENGINEER.
6.4 PIPES AND FITTINGS:
A. HANDLE, CUT AND ASSEMBLE PIPES AND FITTINGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDE.
B. WHETHER A RESULT OF POOR WORKMANSHIP OR DAMAGE DEFECTIVE PIPES AND FITTINGS SHALL BE REPAIRED OR REPLACED.
6.5 CURBS AND SIDEWALKS:
A. CONCRETE BARRIER CURB SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. SC1.1.
B. MONOLITHIC CONCRETE CURB & SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. SC2.
C. WHETHER A RESULT OF POOR WORKMANSHIP OR DAMAGE DEFECTIVE CURBS AND SIDEWALKS SHALL BE REPAIRED OR REPLACED.
6.6 MAINTAIN AS–BUILT DRAWINGS AND RECORD DEVIATIONS INCLUDING BUT NOT LIMITED TO CHANGES OF LOCATIONS, ELEVATIONS AND SIZES FROM THE ORIGINAL CONTRACT DOCUMENTS. UPDATE DAILY AND MAKE AVAILABLE THROUGHOUT CONSTRUCTION. SUBMIT AS–BUILT DRAWINGS TO THE ENGINEER WHEN CONSTRUCTION IS COMPLETE.

KEY PLAN



No.	DATE	REVISION
2	OCT 24–23	RE–ISSUED FOR APPROVAL
1	MAR 27–23	ISSUED FOR APPROVAL

D. B. GRAY ENGINEERING INC.
Stormwater Management · Grading & Drainage · Storm & Sanitary Sewers · Watermains
700 Long Point Circle 613-425-8044
Ottawa, Ontario d.gray@dbgrayengineering.com

Project
PROPOSED 3–STOREY APARTMENT BUILDING
266 PARK STREET
OTTAWA, ONTARIO

Drawing Title
NOTES, SCHEDULES & DETAILS

Engineer's Seal
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
OCT 24–23
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:100
V. Scale	
Date	MAR 27–23
Job No.	22092

Drawing No.
C–4
of 5

D07–12–23–0038

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