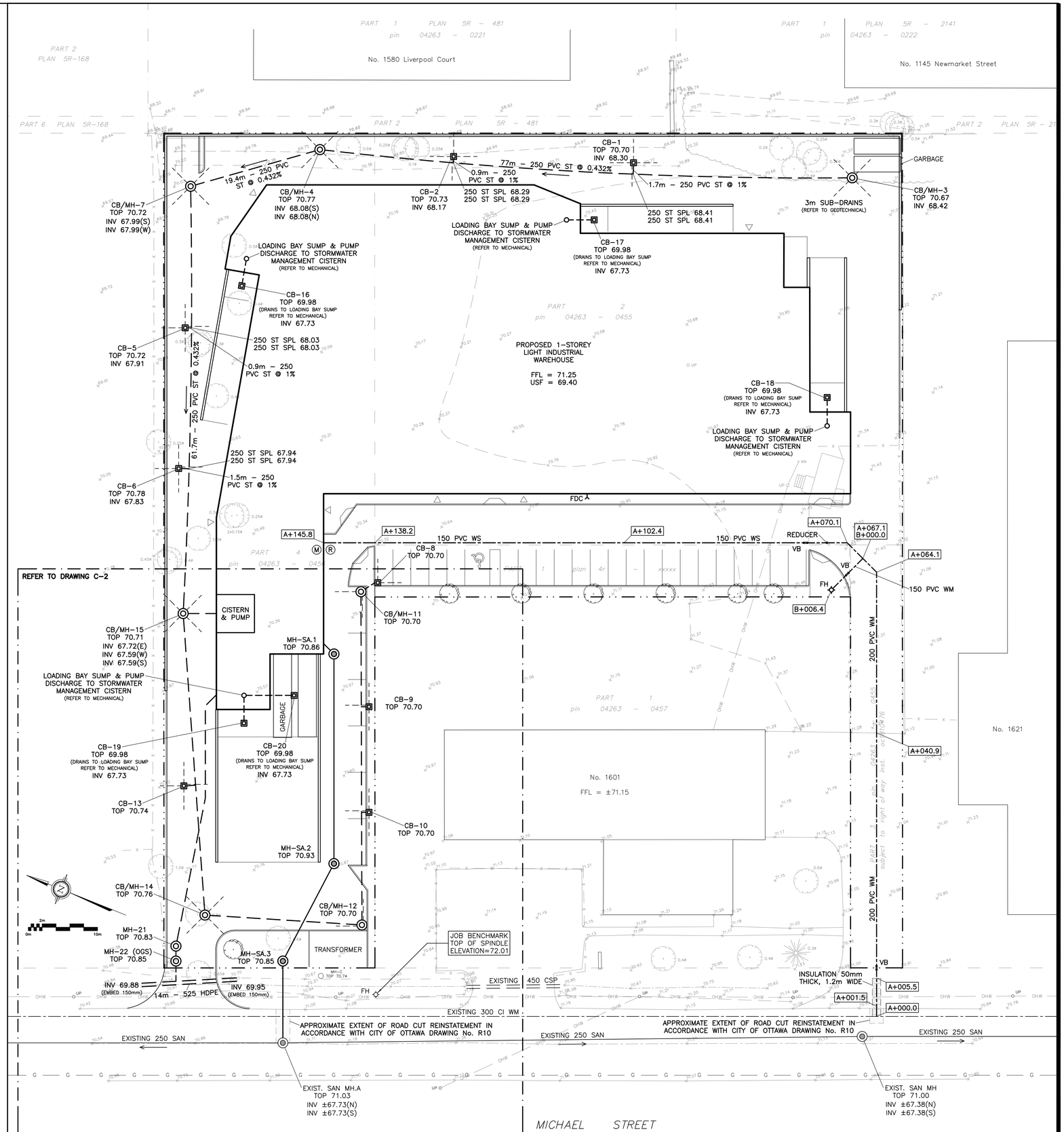


LEGEND

FFL	FINISHED FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
	PROPERTY LINE
CB	CATCH–BASIN
MH	STORM MANHOLE
CB/MH	CATCH–BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
VB	VALVE & VALVE BOX
M	WATER METER
R	REMOTE WATER METER
SAN	SANITARY SEWER
ST	STORM SEWER
WS/WM	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE
	150mm BARRIER CURB

KEY PLAN

No.	DATE	REVISION
3	FEB 8–23	ISSUED FOR APPROVAL
2	JAN 25–23	ISSUED FOR COORDINATION
1	JAN 9–23	PRELIMINARY

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 1–STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

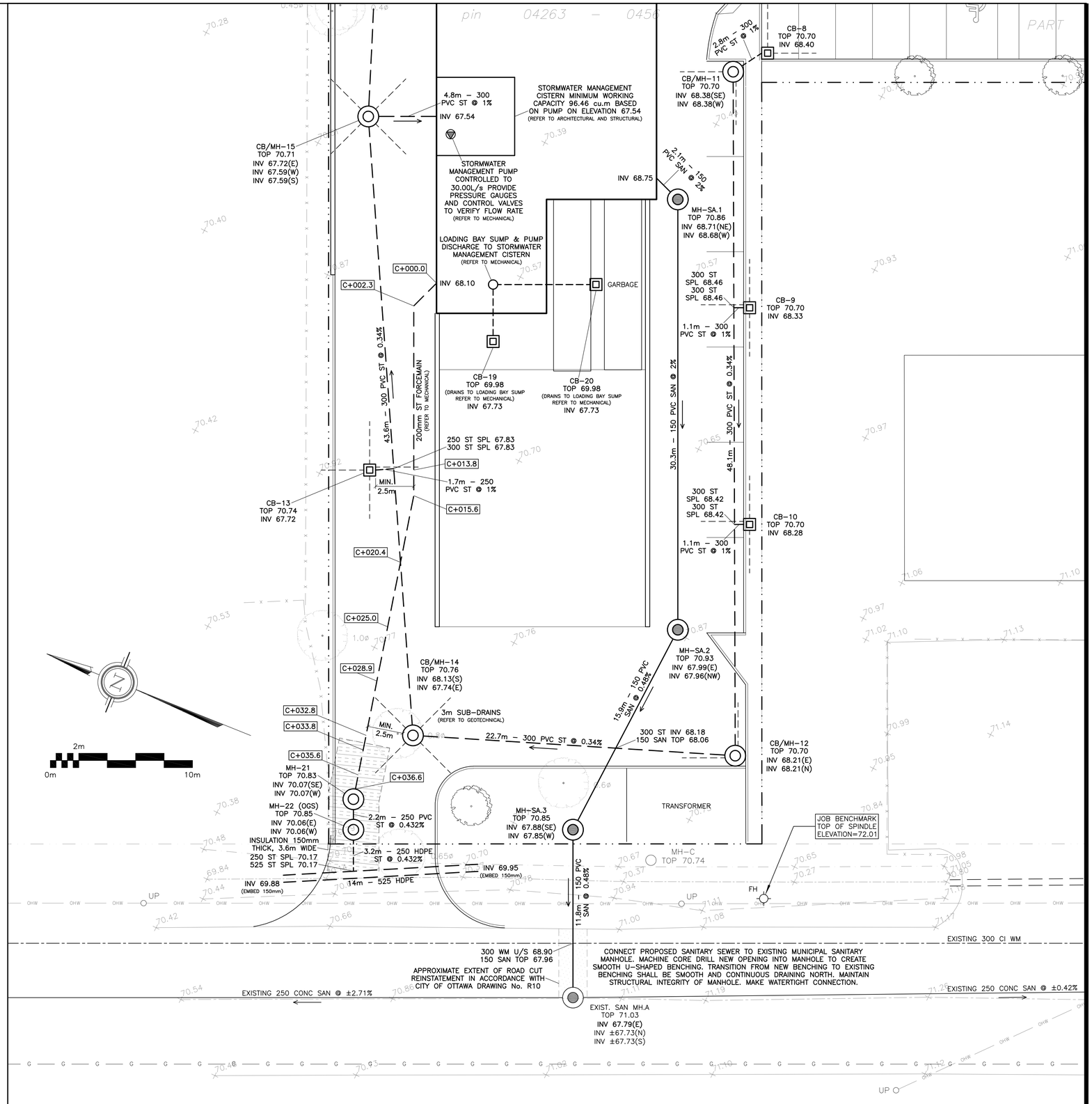
OVERALL SITE SERVICING PLAN

Engineer's Seal

LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8–23
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:300
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.
C–1
of 8



REFER TO NOTES, DETAILS & SCHEDULES ON DRAWINGS C–5 & C–6

LEGEND

FFL	FINISHED FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
	PROPERTY LINE
CB	CATCH–BASIN
MH	STORM MANHOLE
CB/MH	CATCH–BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
VB	VALVE & VALVE BOX
M	WATER METER
R	REMOTE WATER METER
SAN	SANITARY SEWER
ST	STORM SEWER
WS/WM	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE
	150mm BARRIER CURB

KEY PLAN

No.	DATE	REVISION
2	FEB 8–23	ISSUED FOR APPROVAL
1	JAN 25–23	ISSUED FOR COORDINATION

D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains
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Ottawa, Ontario d.gray@dbgrayengineering.com

Project

PROPOSED 1–STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

NW CORNER SITE SERVICING PLAN

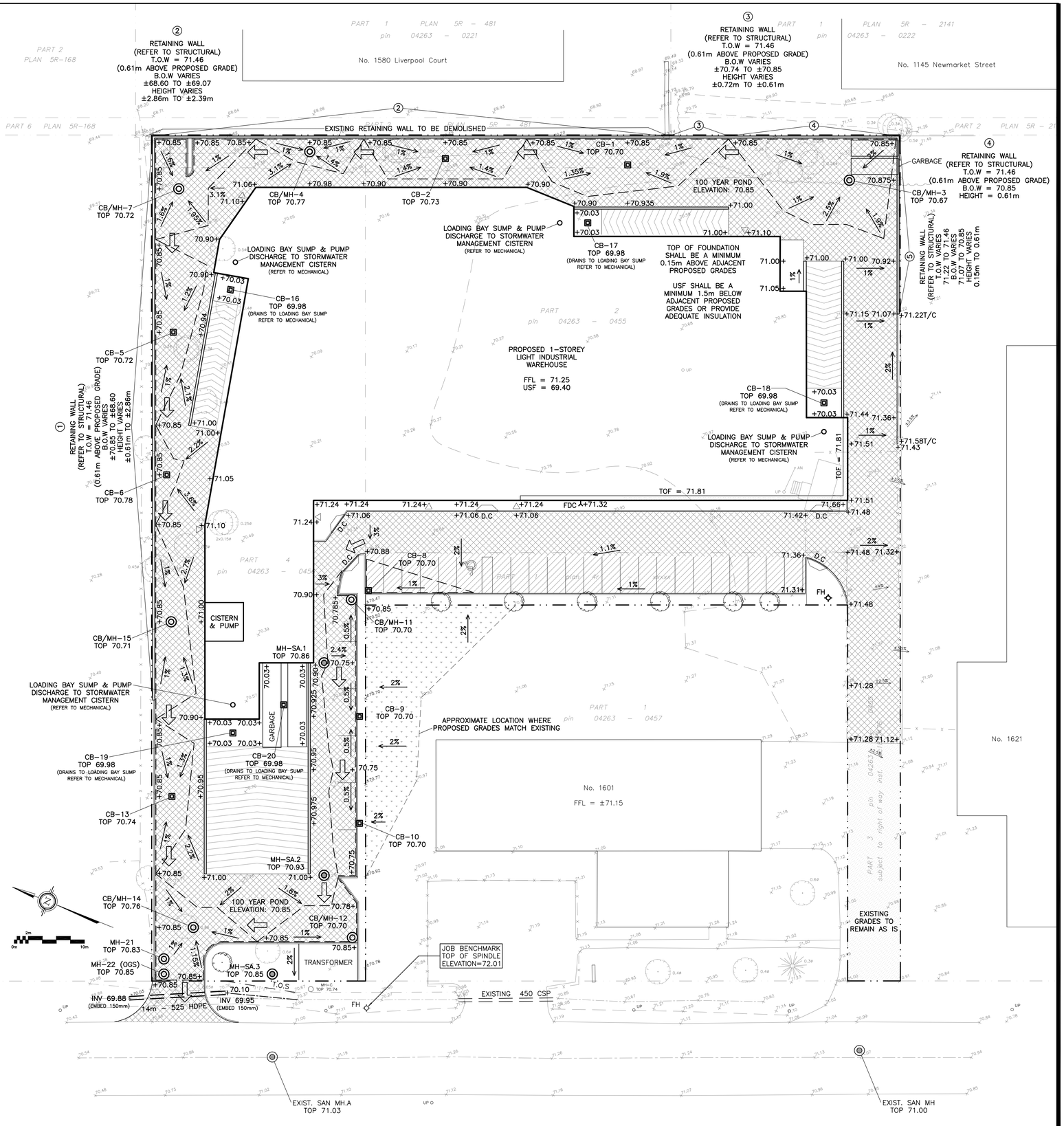
Engineer's Seal

LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8–23
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:150
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.

C–2
of 8



REFER TO NOTES, DETAILS & SCHEDULES ON DRAWINGS C–5 & C–6

LEGEND

FFL	FINISHED FLOOR ELEVATION
TOF	TOP OF FOUNDATION
USF	UNDERSIDE OF FOOTING
	PROPERTY LINE
CB	CATCH–BASIN
MH	STORM MANHOLE
CB/MH	CATCH–BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
+99.99	PROPOSED GRADE ELEVATION
2%	PROPOSED SLOPE OF GRADE
	EMERGENCY OVERLAND FLOW
T.O.S	TOP OF SLOPE
	CENTERLINE OF SWALE
	150mm BARRIER CURB
D.C	DEPRESSED CURB
	LIGHT–DUTY PAVEMENT
	HEAVY–DUTY PAVEMENT

KEY PLAN

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Project

PROPOSED 1–STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

GRADING PLAN

Engineer's Seal

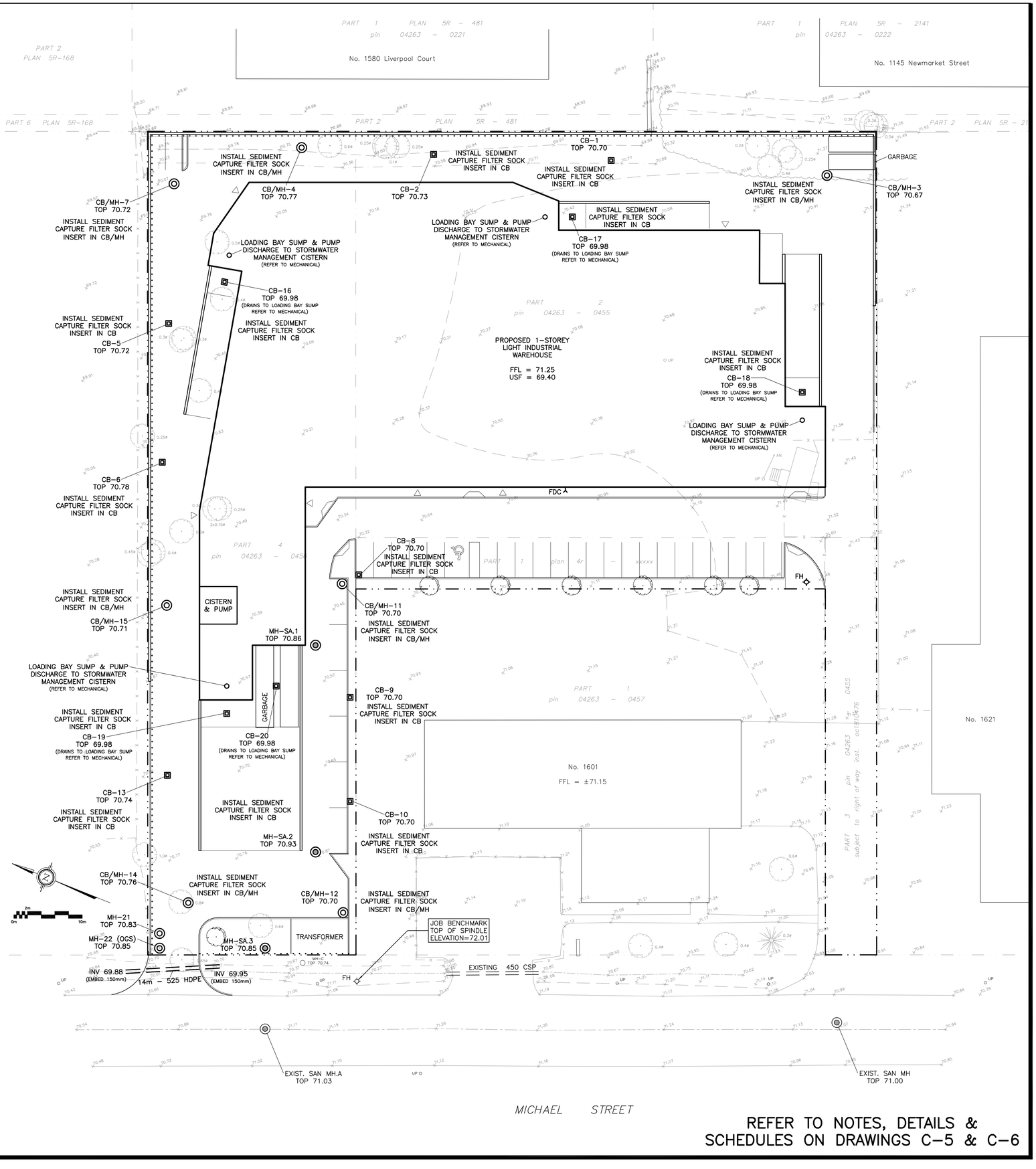
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8–23
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:300
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.

C–3
of 8



LEGEND

FFL	FINISHED FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
	PROPERTY LINE
CB	CATCH–BASIN
MH	STORM MANHOLE
CB/MH	CATCH–BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
	150mm BARRIER CURB
	SILT FENCE BARRIER

KEY PLAN

No.	DATE	REVISION
1	FEB 8–23	ISSUED FOR APPROVAL

D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains
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Ottawa, Ontario d.gray@dbgrayengineering.com

Project

PROPOSED 1–STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

EROSION & SEDIMENT CONTROL PLAN

Engineer's Seal

LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8–23
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:300
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.

C–4
of 8

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. 22977-22. 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, DRIVEWAY, PARKING AREAS, CURBS, SIDEWALKS, 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. 22034 PREPARED BY D.B. GRAY ENGINEERING INC.
1.6 REFERENCE THE LATEST REVISION OF THE GEOTECHNICAL INVESTIGATION PREPARED BY TERRAPEX ENVIRONMENTAL LTD. PROJECT # C0892.00. 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 WATERMAINS, 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 WATERMAIN AND WATER SERVICE MATERIAL SHALL BE PVC PRESSURE CLASS 235 DR18 IN ACCORDANCE WITH CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO THE ENGINEER FOR APPROVAL.
2.3 CONNECTION TO MUNICIPAL WATERMAIN SHALL BE PERFORMED BY CITY OF OTTAWA FORCES. CONTRACTOR SHALL PERFORM EXCAVATION, BACKFILL AND REINSTATEMENT.
2.4 PROVIDE A MINIMUM 2.4m COVER OVER WATERMAINS AND WATER SERVICE. WHERE THE MINIMUM COVER IS NOT POSSIBLE NOTIFY THE ENGINEER AND INSULATE AS PER DETAIL.
2.5 WATER METER SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. W32.
2.6 FIRE DEPARTMENT CONNECTION SHALL BE IN ACCORDANCE WITH OBC 3.2.5.16.
2.7 SEWERS, 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.
2.8 SEWER AND SEWER SERVICE MATERIALS SHALL BE PVC DR35 FOR DIAMETERS >150mm AND DR28 FOR DIAMETERS ≤150mm. FORCEMAIN MATERIAL SHALL BE PVC PRESSURE CLASS 160 DR26. PRIOR TO INSTALLATION SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
2.9 CONNECT PROPOSED SANITARY SEWER TO EXISTING MUNICIPAL SANITARY MANHOLE. MACHINE CORE DRILL NEW OPENING INTO MANHOLE TO CREATE SMOOTH U-SHAPED BENCHING. TRANSITION FROM NEW BENCHING TO EXISTING BENCHING SHALL BE SMOOTH AND CONTINUOUS. MAINTAIN STRUCTURAL INTEGRITY OF MANHOLE. MAKE WATERTIGHT CONNECTION.
2.10 PROVIDE A MINIMUM 2.4m COVER OVER SEWERS AND SEWER SERVICES. WHERE THE MINIMUM COVER IS NOT POSSIBLE NOTIFY THE ENGINEER AND INSULATE AS PER DETAIL.
2.11 SEWER SHALL CROSS BELOW THE WATERMAIN WITH A MINIMUM 250mm BARREL TO BARREL VERTICAL SEPARATION IN ACCORDANCE WITH MOE PROCEDURE F-6-1. WHERE IT IS NOT POSSIBLE FOR THE SEWER TO CROSS BELOW THE WATERMAIN WITH A MINIMUM 250mm BARREL TO BARREL VERTICAL SEPARATION THE SEWER SHALL CROSS ABOVE THE WATERMAIN WITH A MINIMUM 500mm BARREL TO BARREL VERTICAL SEPARATION IN ACCORDANCE WITH MOE PROCEDURE F-6-1. SEWER PIPE SEGMENT SHALL BE CENTERED AT POINT OF CROSSING SO JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATERMAIN.
2.12 STORM BUILDING DRAIN SHALL BE INSTALLED WITH NORMALLY CLOSED BACKWATER VALVE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S14.
2.13 CATCH-BASINS AND MANHOLES:
A. PRECAST CONCRETE CATCH-BASINS SHALL BE IN ACCORDANCE WITH OPSD 705.010.
B. PRECAST CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.010.
C. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH OPSD 405.010.
D. PRECAST CONCRETE ADJUSTMENT UNITS SHALL BE IN ACCORDANCE WITH OPSD 704.010.
E. ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE POLYETHYLENE ANCHOR INSULATING SLEEVES.
F. FRAMES AND COVERS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA DRAWINGS OR ONTARIO PROVINCIAL STANDARD DRAWINGS. REFER TO CATCH-BASIN & MANHOLE SCHEDULE. FRAMES AND COVERS SHALL BE PAINTED WITH ONE SHOP COAT OF ASPHALT OR TAR BASE BLACK. ALL JOINTS AND CREVICES SHALL BE THOROUGHLY COATED.
G. PRIOR TO INSTALLATION SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

3.0 GRADING PLAN

3.1 NO EXCESS DRAINAGE SHALL BE DIRECTED TOWARDS ADJACENT PROPERTIES DURING OR AFTER CONSTRUCTION. THERE SHALL BE NO ALTERATION TO EXISTING DRAINAGE PATTERNS ON PROPERTY LINES.
3.2 ENSURE ADEQUATE DRAINAGE AWAY FROM BUILDINGS TO CATCH-BASINS. GRADING SHALL BE GRADUAL BETWEEN PROPOSED GRADE ELEVATIONS INDICATED ON THE DRAWINGS.
3.3 CULVERT SHALL BE HDPE IN ACCORDANCE WITH CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS. PIPES SHALL HAVE A MINIMUM STIFFNESS OF 320kPa AT 5% DEFLECTION. JOINTS SHALL BE SOIL TIGHT OR BETTER. CULVERT SHALL BE ARMTEC BOSS 2000 OR APPROVED EQUIVALENT. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO THE ENGINEER FOR APPROVAL. CULVERT SHALL BE INSTALLED WITH 5:1 FROST TAPERS FROM PIPE BEDDING TO SUBGRADE.
3.4 RETAINING WALLS SHALL BE SETBACK A MINIMUM 150mm FROM PROPERTY LINES. RETAINING WALLS GREATER THAN 600mm IN HEIGHT REQUIRE A GUARD. REFER TO ARCHITECTURAL SITE PLAN AND/OR LANDSCAPE PLAN FOR EXACT LOCATIONS AND DETAILS. RETAINING WALLS GREATER THAN 1,000mm IN HEIGHT SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.
3.5 WHETHER A RESULT OF POOR WORKMANSHIP OR DAMAGE DEFECTIVE GRADING SHALL BE CORRECTED.

4.0 EROSION & SEDIMENT CONTROL PLAN

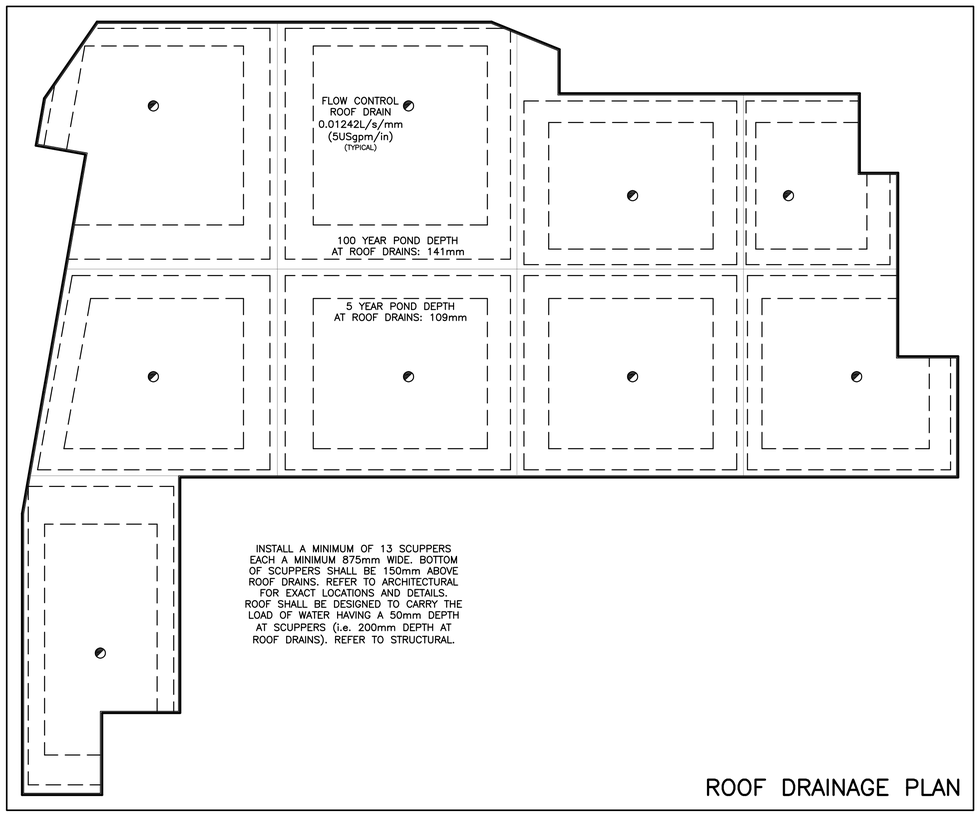
4.1 THE EROSION & SEDIMENT CONTROL PLAN IS A "LIVING DOCUMENT" AND SHALL BE REVISED IN THE EVENT THE SPECIFIED CONTROL MEASURES ARE NOT SUFFICIENT. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION OF THE AREA DRAINAGE SYSTEM DURING CONSTRUCTION INCLUDING BUT NOT LIMITED 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 SILT FENCE BARRIERS AS INDICATED ON THE DRAWINGS.
4.3 INSTALL SILT FENCE BARRIERS AROUND STOCKPILED SEDIMENT OR SOIL.
4.4 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.
4.5 INSTALL TERRAFIX GEOSYNTHETICS INC. SILTSACK OR APPROVED EQUIVALENT SEDIMENT CAPTURE FILTER SOCK INSERTS IN ALL NEW CATCH-BASINS AND CATCH-BASIN/MANHOLES AS THEY ARE INSTALLED.
4.6 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.
4.7 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 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 COORDINATE AND PERFORM LEAKAGE TESTS ON SANITARY MANHOLES, SEWERS AND SEWER SERVICE IN ACCORDANCE WITH OPSS 407 AND OPSS 410 WITH THE PRESENCE OF THE ENGINEER.
6.6 COORDINATE AND PERFORM DYE TEST ON SANITARY SEWERS AND SEWER SERVICE WITH THE PRESENCE OF THE ENGINEER.
6.7 PERFORM TWO CCTV INSPECTIONS ON SEWERS AND SEWER SERVICES. FIRST INSPECTION SHALL BE WHEN CONSTRUCTION IS COMPLETE. SECOND INSPECTION SHALL BE IMMEDIATELY PRIOR TO THE END OF THE WARRANTY PERIOD. SUBMIT REPORTS AND VIDEOS TO THE ENGINEER FOR APPROVAL. REPAIR OR REPLACE DEFECTIVE SEWERS AND SEWER SERVICES.
6.8 CURBS AND SIDEWALKS:
A. CONCRETE BARRIER CURBS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. SC1.1.
B. CONCRETE SIDEWALKS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. SC1.4
C. WHETHER A RESULT OF POOR WORKMANSHIP OR DAMAGE DEFECTIVE CURBS AND SIDEWALKS SHALL BE REPAIRED OR REPLACED.
6.9 PAVEMENT STRUCTURE:
A. LIGHT DUTY PAVEMENT
40mm HL3 ASPHALTIC CONCRETE
50mm HL8 ASPHALTIC CONCRETE
150mm OPSS GRANULAR A BASE
200mm OPSS GRANULAR B SUBBASE
B. HEAVY DUTY PAVEMENT
50mm HL3 ASPHALTIC CONCRETE
70mm HL8 ASPHALTIC CONCRETE
150mm OPSS GRANULAR A BASE
300mm OPSS GRANULAR B SUBBASE
C. COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS AND COMPACTION TESTS OF EACH LIFT OF SUBBASE, BASE AND ASPHALTIC CONCRETE. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO THE ENGINEER.
D. WHETHER A RESULT OF POOR WORKMANSHIP OR DAMAGE DEFECTIVE PAVEMENT SHALL BE REPAIRED OR REPLACED.
6.10 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 PREPARED BY AN ONTARIO LAND SURVEYOR TO THE ENGINEER WHEN CONSTRUCTION IS COMPLETE.



ROOF DRAINAGE PLAN

KEY PLAN

No.	DATE	REVISION
1	FEB 8-23	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 1-STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title
NOTES AND ROOF DRAINAGE PLAN

Engineer's Seal
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8-23
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	
V. Scale	
Date	JAN 5-23
Job No.	22034

Drawing No.
C-5
of 8

CATCH–BASIN & MANHOLE SCHEDULE

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB–1	70.70	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	68.30	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–2	70.73	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	68.17	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB/MH–3	70.67	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	–	68.42	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB/MH–4	70.77	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	68.08(S)	68.08(N)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB–5	70.72	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.91	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–6	70.78	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.83	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB/MH–7	70.72	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	67.99(S)	67.99(W)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB–8	70.70	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	68.40	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–9	70.70	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	68.33	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S22 & S23
CB–10	70.70	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	68.28	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S22 & S23
CB/MH–11	70.70	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	68.38(SE)	68.38(W)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB/MH–12	70.70	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	68.21(E)	68.21(N)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB–13	70.74	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.72	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB/MH–14	70.76	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	68.13(S)	67.74(E)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB/MH–15	70.71	1,200mm	PRECAST CONCRETE CATCH–BASIN/MANHOLE	67.72(E) 67.59(W)	67.59(S)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S28.1
CB–16	69.98	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.73	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–17	69.98	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.73	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–18	69.98	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.73	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–19	69.98	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.73	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
CB–20	69.98	600mm x 600mm	PRECAST CONCRETE CATCH–BASIN	–	67.73	IN ACCORDANCE WITH OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S19
MH–21	70.83	1,200mm	PRECAST CONCRETE MANHOLE	70.07(SE)	70.07(W)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S24.1
MH–22	70.85	CDS PMSU2015–4	PRECAST CONCRETE MANHOLE	70.06(E)	70.06(W)	–
SANITARY SEWER						
MH–SA.1	70.86	1,200mm	PRECAST CONCRETE MANHOLE	68.71(NE)	68.68(W)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S24
MH–SA.2	70.93	1,200mm	PRECAST CONCRETE MANHOLE	67.99(E)	67.96(NW)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S24
MH–SA.3	70.85	1,200mm	PRECAST CONCRETE MANHOLE	67.88(SE)	67.85(W)	IN ACCORDANCE WITH OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. S25 & S24

WATER SERVICE PROFILE TABLE

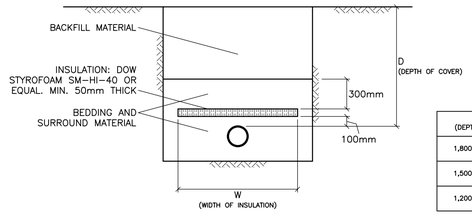
200mm & 150mm PVC PRESSURE CLASS 235 DR18

STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
A+000.0	200mm x 300mm TEE CONNECTION IN 300mm MUNICIPAL WATERMAIN	±71.00	±68.90	±2.10	CONNECTION BY CITY. EXCAVATION, BACKFILL & REINSTATEMENT BY CONTRACTOR. START OF INSULATION 50mm THICK, 1.2m WIDE
A+001.5	5° VERTICAL BEND DOWN	±70.95	68.90	±2.05	–
A+005.5	5° VERTICAL BEND UP	±70.95	68.55	±2.40	END OF INSULATION 50mm THICK, 1.2m WIDE
A+007.0	200mm VALVE BOX	±70.95	68.55	±2.40	ON PROPERTY LINE
A+040.9	–	71.20	68.80	2.40	–
A+064.1	45° HORIZONTAL BEND	71.42	69.02	2.40	–
A+067.1	150mm x 200mm TEE	71.45	69.02	2.43	–
A+070.1	45° HORIZONTAL BEND	71.48	69.02	2.46	–
A+073.1	150mm x 200mm REDUCER	71.42	69.02	2.40	–
A+076.1	150mm VALVE BOX	71.36	68.96	2.40	–
A+102.4	–	71.05	68.65	2.40	–
A+138.2	–	70.88	68.48	2.40	–
A+145.8	–	71.00	68.60	2.40	ENTRY TO BUILDING
B+000.0	150mm x 200mm TEE	71.45	69.02	2.43	–
B+003.2	150mm VALVE BOX	71.48	69.02	2.46	–
B+006.4	FIRE HYDRANT	71.48	69.02	2.46	–

STORM FORCEMAIN PROFILE TABLE

200mm PVC PRESSURE CLASS 160 DR26

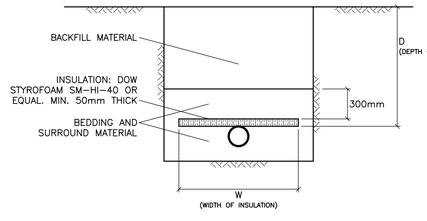
STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
C+000.0	–	70.90	68.25	2.65	EXIT FROM BUILDING
C+002.3	45° HORIZONTAL BEND	70.88	68.26	2.62	–
C+008.0	–	70.85	68.29	2.56	–
C+013.8	–	70.88	68.32	2.56	–
C+015.6	11.25° HORIZONTAL BEND	70.89	68.33	2.56	–
C+020.4	–	70.88	68.35	2.53	200 ST INV 68.15 300 ST TOP 68.00
C+025.0	–	70.93	68.37	2.56	–
C+028.9	–	70.80	68.39	2.41	–
C+032.8	–	70.81	68.41	2.40	–
C+033.3	–	70.82	68.42	2.40	START OF INSULATION 150mm THICK, 3.6m WIDE
C+033.8	45° VERTICAL BEND UP	70.82	68.42	2.40	–
C+035.6	45° VERTICAL BEND DOWN	70.82	70.25	0.61	–
C+036.6	–	70.83	70.26	0.61	ENTRY TO MH–21 END OF INSULATION 150mm THICK, 3.6m WIDE



D (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1,800 TO 2,400mm	50mm	1,200mm
1,500 TO 1,800mm	75mm	1,800mm
1,200 TO 1,500mm	100mm	2,400mm

INSULATE WATERMAINS AND WATER SERVICES AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2,400mm.
CENTER INSULATION OVER PIPE.
STAGGER JOINTS BETWEEN SHEETS OF INSULATION.

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



D (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1,800 TO 2,400mm	50mm	1,200mm
1,500 TO 1,800mm	75mm	1,800mm
1,200 TO 1,500mm	100mm	2,400mm
900 TO 1,200mm	125mm	3,000mm
600 TO 900mm	150mm	3,600mm

INSULATE SEWERS AND SEWER SERVICES AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2,400mm.
CENTER INSULATION OVER PIPE.
STAGGER JOINTS BETWEEN SHEETS OF INSULATION.

INSULATION OF SEWERS & FORCEMAINS IN SHALLOW TRENCHES
N.T.S

KEY PLAN

No.	DATE	REVISION
1	FEB 8–23	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 1–STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

DETAILS & SCHEDULES

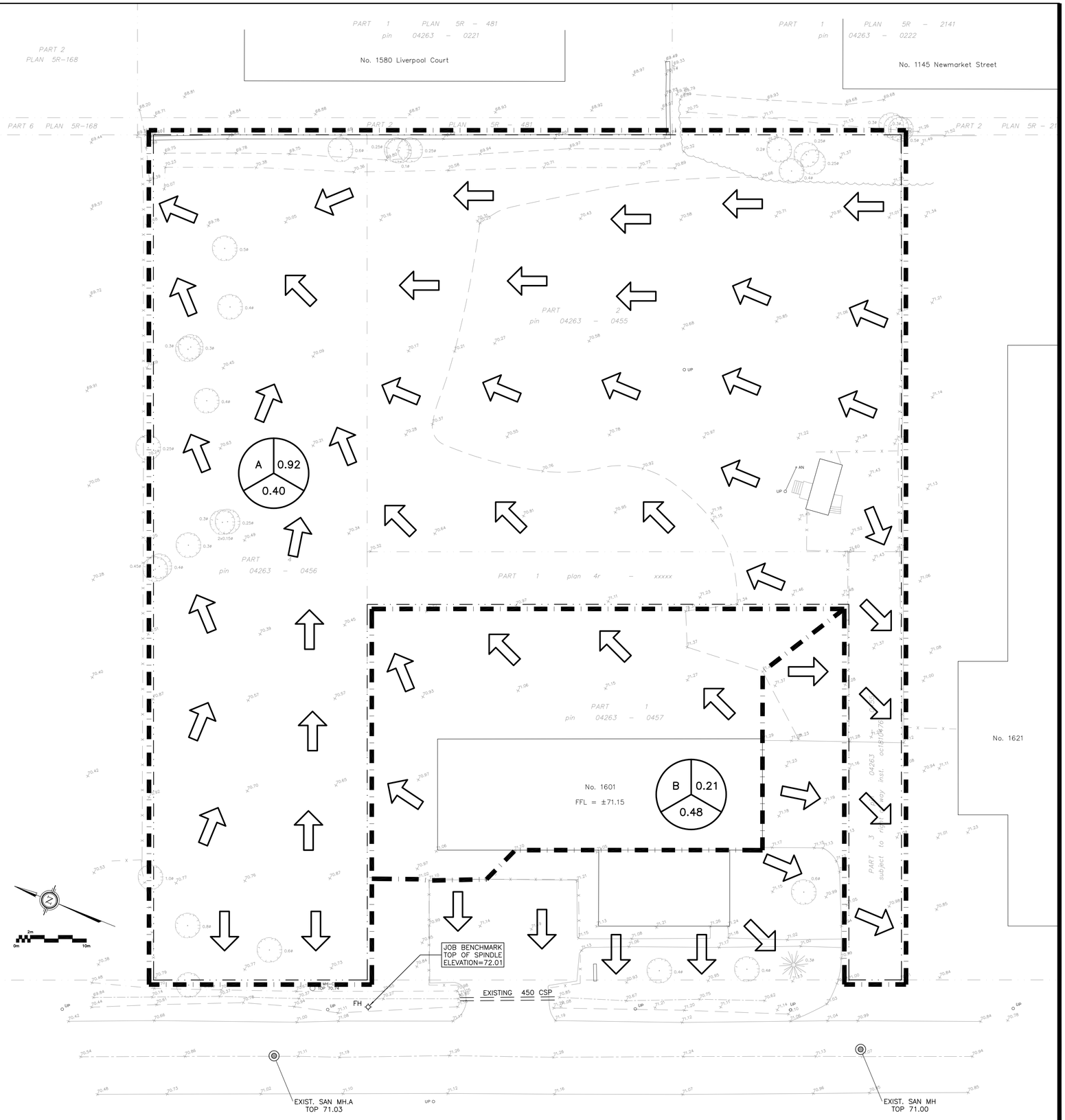
Engineer's Seal

NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.

C–6
of 8



LEGEND

DRAINAGE AREA — AREA (ha)

X — 0.XX

0.XX

5–YEAR RUNOFF COEFFICIENT

KEY PLAN

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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 1–STOREY LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

PRE–DEVELOPMENT DRAINAGE PLAN

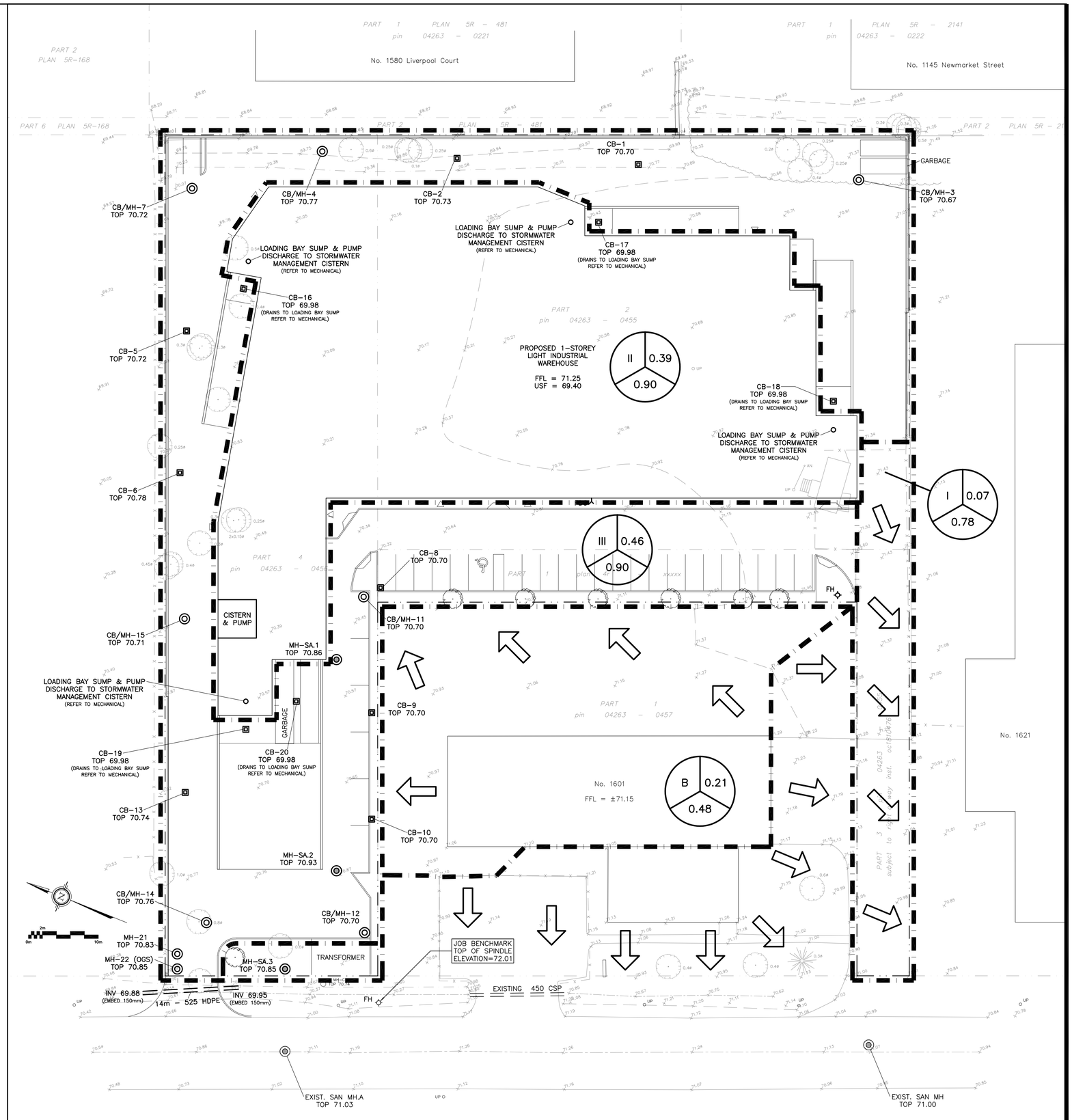
Engineer's Seal

LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8–23
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:300
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.
C–7
of 8



LEGEND

DRAINAGE AREA — AREA (ha)

X — 0.XX

0.XX

5–YEAR RUNOFF COEFFICIENT

KEY PLAN

No.	DATE	REVISION
1	FEB 8–23	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 1–STOREY
LIGHT INDUSTRIAL WAREHOUSE
1591 & 1611 MICHAEL STREET
OTTAWA, ONTARIO

Drawing Title

POST–DEVELOPMENT DRAINAGE PLAN

Engineer's Seal

LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
FEB 8–23
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:300
V. Scale	
Date	JAN 5–23
Job No.	22034

Drawing No.

C–8
of 8