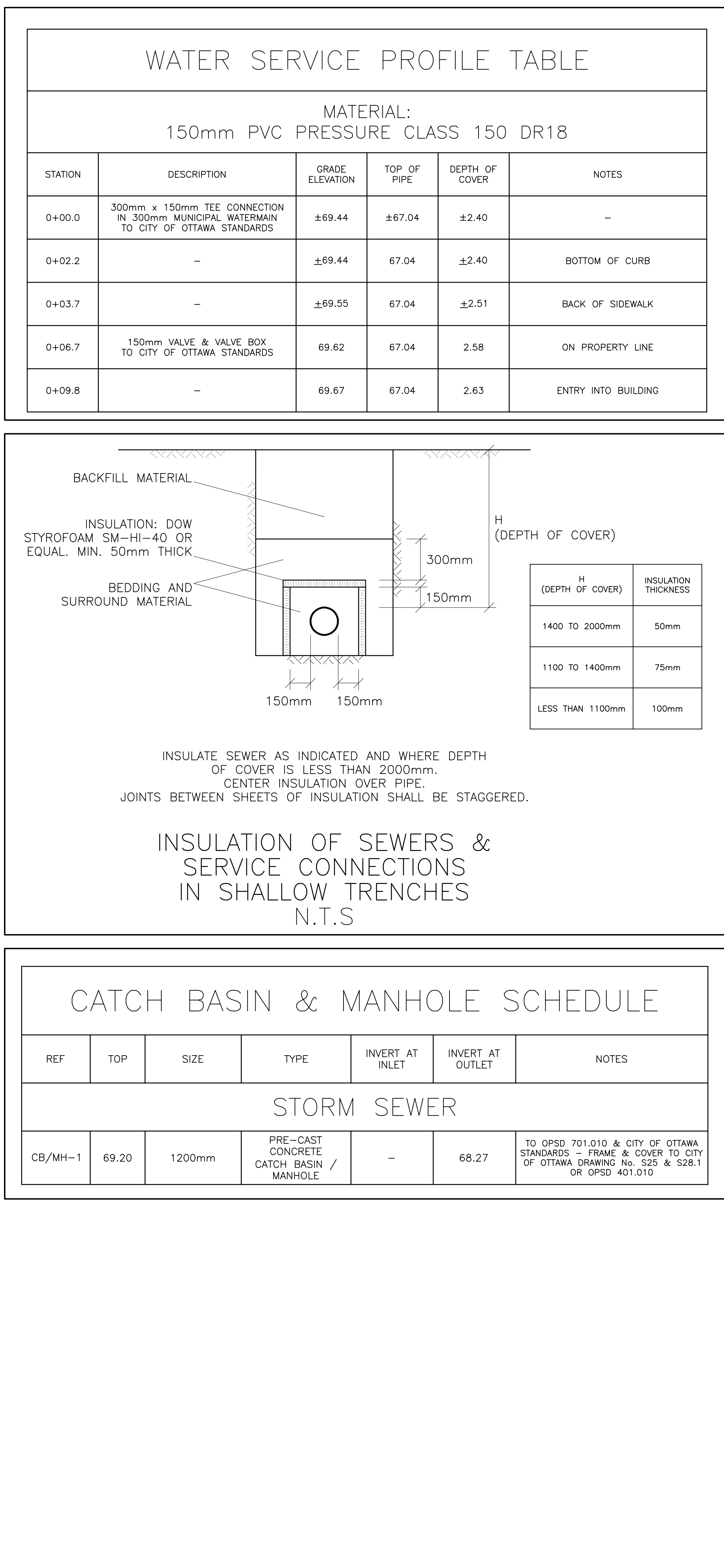




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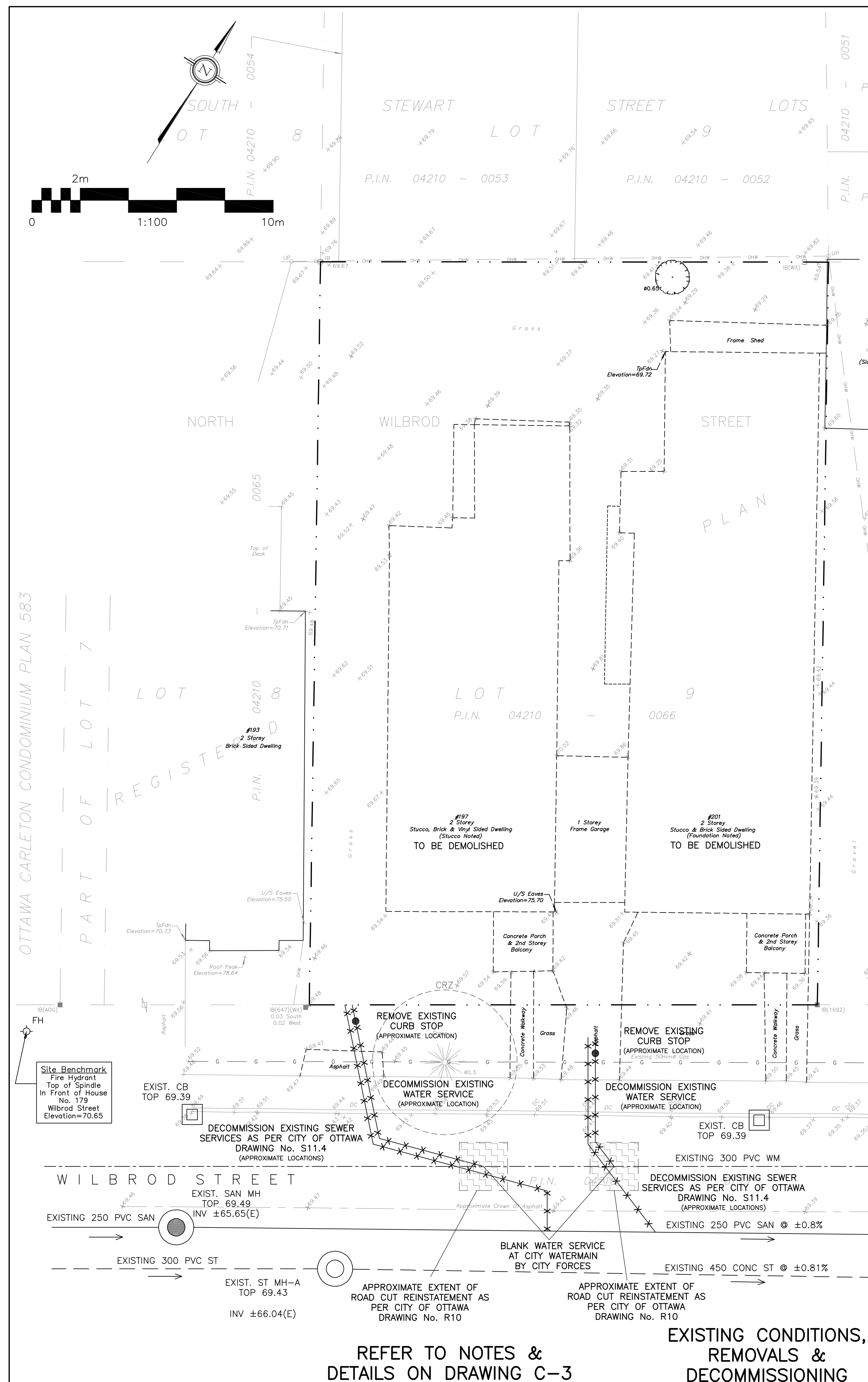
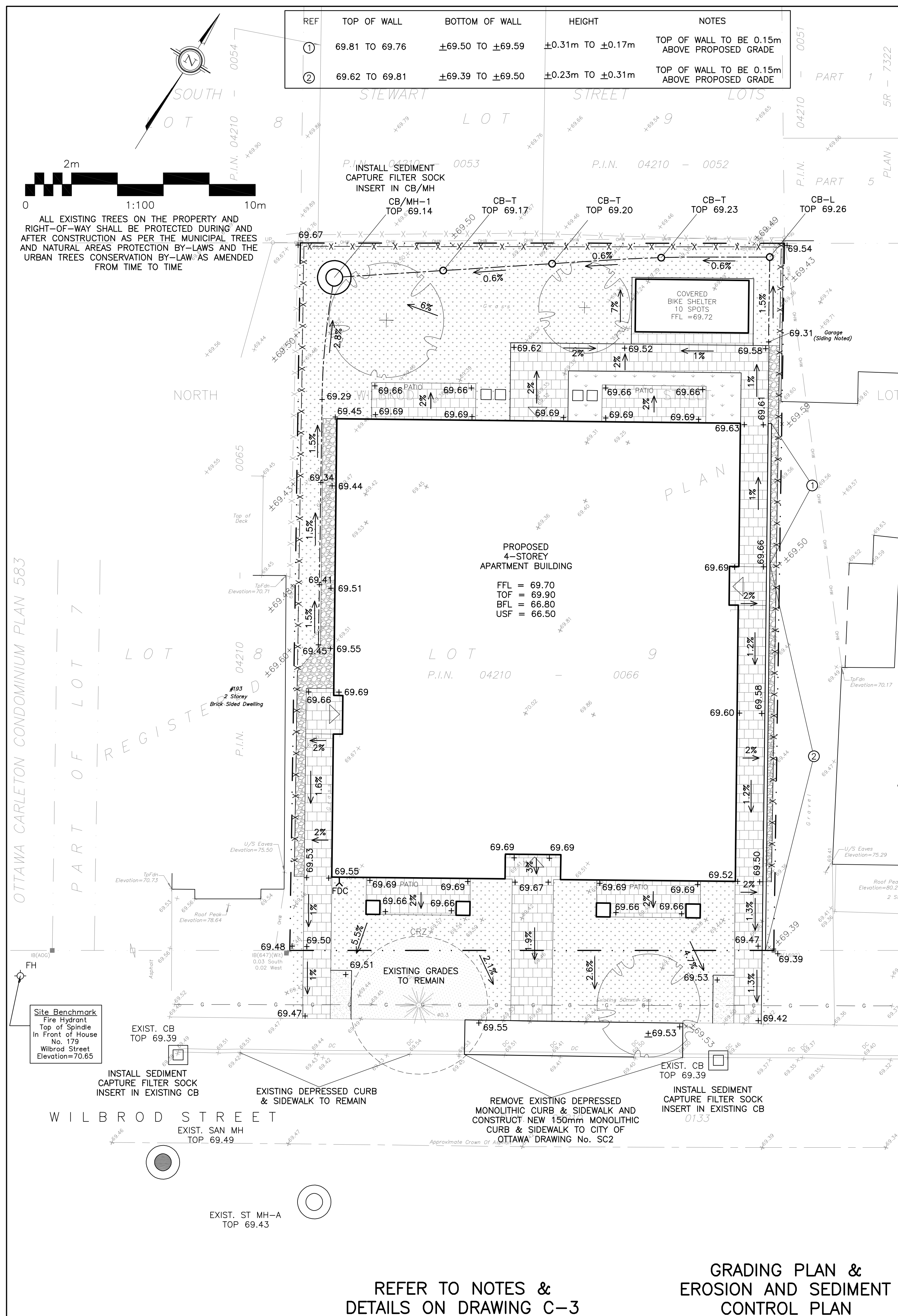
700 Long Point Circle
Ottawa, Ontario d.gray@dbgrayengineering.com

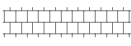
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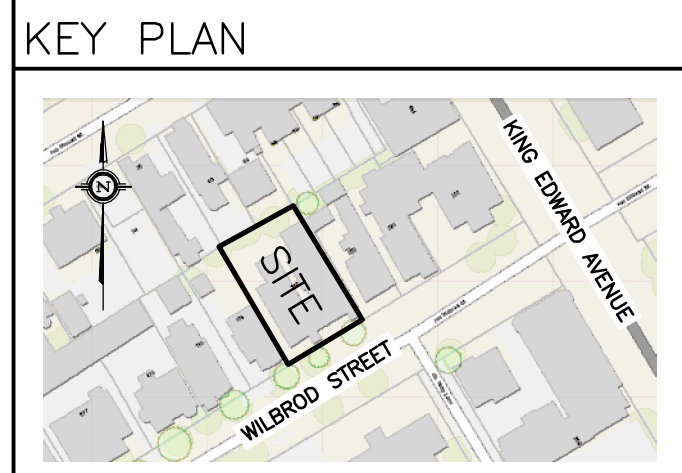
SITE SERVICING PLAN

Engineer's Seal	Drawn D.B.G
	H. Scale 1:100
	V. Scale
	Date DEC 17-21
	Job No. 21057

Drawing No. C-1 of 5



LEGEND	
CB 	CATCH-BASIN
MH 	STORM MANHOLE
CB/MH 	CATCH-BASIN/MANHOLE
MH 	SANITARY MANHOLE
FH 	FIRE HYDRANT
FDC 	FIRE DEPARTMENT CONNECTION
<u>SAN</u>	SANITARY SEWER
<u>ST</u>	STORM SEWER
<u>WS/WM</u>	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE
FFL	FINISHED FLOOR ELEVATION
TOF	TOP OF FOUNDATION
BFL	BASEMENT FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
— · · · —	PROPERTY LINE
+ 99.99	EXISTING GRADE ELEVATION
+ 99.99	PROPOSED GRADE ELEVATION
<u>2%</u>	PROPOSED SLOPE OF GRADE
— · · · —	CENTERLINE OF SWALE
<u>C.R.Z</u>	CRITICAL ROOT ZONE
	CONCRETE
	INTERLOCK
	LANDSCAPE
	RIVER ROCK



	JUN 21-22	
2	DEC 21-21	ISSUED FOR APPROVAL
1	DEC 17-21	ISSUED FOR COORDINATION
No.	DATE	REVISION

D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain

700 Long Point Circle 613-425-8044
 Ottawa, Ontario d.gray@dbgrayengineering.com

Project

PROPOSED 4-STOREY
APARTMENT BUILDING
197-201 WILBROD STREET
OTTAWA, ONTARIO

Drawing Title

GRADING PLAN, EROSION &
SEDIMENT CONTROL PLAN
AND EXISTING CONDITIONS

Engineer's Seal	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Drawn</td> <td style="width: 50%;">D.B.G</td> </tr> <tr> <td>H. Scale</td> <td>1:100</td> </tr> <tr> <td>V. Scale</td> <td></td> </tr> <tr> <td>Date</td> <td>DEC 17-21</td> </tr> <tr> <td>Job No.</td> <td>21057</td> </tr> </table>	Drawn	D.B.G	H. Scale	1:100	V. Scale		Date	DEC 17-21	Job No.	21057
Drawn	D.B.G										
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Drawing No.	C-2 of 5										

1.1. USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE. EXISTING AND NEW ELEVATIONS AND INVERTS SHOWN ARE GEODETIC AND ARE IN METERS. ALL PIPE DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

1.2. UNLESS OTHERWISE STATED "ENGINEER" REFERS TO D. B. GRAY ENGINEERING INC.

1.3. EXISTING ELEVATIONS AND LOCATIONS, INVERTS AND SIZES OF EXISTING SERVICES & UTILITIES ARE NOT NECESSARILY SHOWN ON PLAN AND THOSE SHOWN ARE DERIVED FROM AVAILABLE INFORMATION AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING CONSTRUCTION. REPORT ANY DIFFERENCES TO ENGINEER. UNDERGROUND LOCATES (INCLUDING UTILITY ONE CALL: 1-800-400-2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION.

1.4. SITE BOUNDARIES AND EXISTING GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. JOB NO. 578-17. IT IS THE RESPONSIBILITY OF THE USER OF THE SURVEY PLAN AND THESE DRAWINGS TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON SURVEY PLAN AND THESE DRAWINGS.

1.5. REFER TO ARCHITECTURAL AND LANDSCAPE SITE PLANS FOR EXACT LOCATIONS OF BUILDINGS, PAVED AREAS, SIDEWALKS, PLANTERS ETC.

LAYOUT SHALL BE COMPLETED BY THE CONTRACTOR AND SHALL BE REVIEWED BY THE OWNER'S REPRESENTATIVE / ENGINEER PRIOR TO CONSTRUCTION. AT ALL TIMES THE CONTRACTOR IS RESPONSIBLE FOR THE ACCURACY OF THE LAYOUT INCLUDING ELEVATIONS AND GRADES.

1.6. REFERENCE TO THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY PATERSON GROUP INC. FILE: PG0595-1. SITE PREPARATION INCLUDING BUILDING SUB-GRADE PREPARATION AND PAVEMENT SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE AND EXCAVATION AND BACKFILLING, INCLUDING COMPACTION OF MATERIALS, SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

1.7. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SERVICING BRIEF & STORM WATER MANAGEMENT REPORT No. 21057 PREPARED BY D. B. GRAY ENGINEERING INC.

1.8. REINSTATE RENT PROPERTIES TO PRE-CONSTRUCTION CONDITIONS.

1.9. REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.

1.10. ALL RELEVANT WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT CITY STANDARDS AND SPECIFICATIONS.

1.11. ONTARIO PROVINCIAL STANDARDS & SPECIFICATIONS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.

1.12. ALL PROPOSED RETAINING WALLS SHALL BE SETBACK A MINIMUM 0.15m FROM PROPERTY LINE. ALL PROPOSED RETAINING WALLS GREATER THAN 1.0m IN HEIGHT SHALL BE DESIGN BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO.

2.1. THE EROSION AND 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 AND THE RECEIVING WATER COURSE DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING SEDIMENT CAPTURE FILTER SOCK INSERTS IN CATCH BASINS AND MANHOLES AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR ACKNOWLEDGES AND AGREES TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES. HE MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY. SPECIFICALLY THE CONTRACTOR SHALL INSTALL THE FOLLOWING CONTROL MEASURES AND INSPECT, MAINTAIN AND REMOVE THE CONTROL MEASURES.

2.2 PRIOR TO COMMENCEMENT OF CONSTRUCTION AT ALL MUNICIPAL CATCH BASINS ADJACENT TO THE SITE AND AT ANY MANHOLES OR CATCH BASINS THAT WILL RECEIVE DISCHARGE FROM DE-WATERING OPERATIONS AND ALL NEW CATCH BASINS AS THEY ARE INSTALLED: INSTALL SEDIMENT CAPTURE FILTER SOCK INSERTS (TERRAFIX GEOSYNTHETICS INC SILTSACK OR APPROVED EQUAL). INSPECT AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT AS RECOMMENDED BY THE MANUFACTURER. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED FILTER SOCK INSERTS. DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETED.

2.3 ANY MATERIAL DEPOSITED ON A PUBLIC ROAD SHALL BE REMOVED AT THE END OF EACH DAY BY SWEEPING AND SHOVELING OR VACUUMING AND DISPOSING SEDIMENT IN A CONTROLLED AREA. DO NOT SWEEP OR HOSE MATERIAL INTO ANY STORMWATER CONVEYANCE SYSTEM.

2.4 CONSTRUCTION IS CONSIDERED COMPLETE WHEN THE FOLLOWING CONDITIONS HAVE BEEN MET:

- a. ALL STRUCTURES HAVE BEEN BUILT.
- b. ALL HARD SURFACES HAVE BEEN CONSTRUCTED.
- c. ALL PROPOSED GRASSED AREAS ARE EITHER SODDED OR HAVE A FULL COVERAGE OF WELL ESTABLISHED TURF AND HAVE A MINIMUM OF ONE FULL GROWN SEASON (MAY 15TH TO SEPTEMBER 15TH).
- d. THERE ARE NO AREAS OF EXPOSED EARTH.
- e. ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.

2.5 REMOVE EROSION AND SEDIMENT CONTROL MEASURES WHEN CONSTRUCTION IS COMPLETE.

3.1. NEW GRADES TO MATCH EXISTING AT PROPERTY LINE. NO EXCESS DRAINAGE WILL BE DIRECTED TOWARDS THE ADJACENT PROPERTIES DURING AND AFTER CONSTRUCTION. THERE WILL BE NO ALTERATION TO EXISTING GRADE AND DRAINAGE PATTERNS ON PROPERTY LINE.

3.2. ALL AREAS SHALL BE GRADED TO ENSURE ADEQUATE DRAINAGE AWAY FROM BUILDINGS TO CATCH BASINS, SWALES, DITCHES AND OTHER APPROVED DISPOSAL AREAS. GRADING SHALL BE GRADUAL BETWEEN FINISHED SPOT ELEVATIONS SHOWN ON DRAWINGS TO PREVENT PONDING (OTHER THAN PONDING REQUIRED FOR STORMWATER MANAGEMENT).

3.3. WHETHER RESULT OF POOR WORKMANSHIP OR DAMAGE: DEFECTIVE GRADING SHALL BE CORRECTED. PROMPTLY MAKE GOOD OTHER CONTRACTOR'S WORK DAMAGED BY SUCH CORRECTIONS.

4.0 EXISTING WATER SERVICE CONNECTIONS TO BE DECOMMISSIONED SHALL BE BLANKED AT CITY WATERMAIN BY CITY FOREMAN. CONTRACTOR SHALL PROVIDED EXCAVATION, BEDDING AND REINSTATEMENT. EXISTING SEWER SERVICE CONNECTIONS SHALL BE DECOMMISSIONED AS PER CITY OF OTTAWA STANDARDS AND CITY DRAWING S11.4. CONNECTION TO WATERMAIN BY CITY OF OTTAWA FORCES, CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.

4.1 WATER METER SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. NO. W31.

4.2 ALL WATER SERVICE MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSD). WATER SERVICE MATERIALS SHALL BE PVC PRESSURE, CLASS 150 DR18. PROVIDE THRUST BLOCKS AS PER CITY OF OTTAWA DWG. NO. W25.3 & W25.4 AT ALL VALVES, TEES, CAPS, BENDS, REDUCERS AND HYDRANTS OR OTHER FITTINGS WHERE CHANGES OCCUR IN PIPE DIAMETER OR DIRECTION. RESTRAINING AS PER AS PER CITY OF OTTAWA DWG. NO. W25.5 & W25.6 ALL CONNECTIONS, RESTRAINT RODS AND VALVE BOLTS TO BE STAINLESS STEEL. CATHODIC PROTECTION & ANODE INSTALLATION AS PER CITY OF OTTAWA DWG. NO. W40, W42, W44 & W47.

4.3 PROVIDE A MINIMUM 2.4 m COVER OVER WATER SERVICE CONNECTION. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER CITY OF OTTAWA DWG. NO. W22.

4.5 WHERE LESS THAN 2.4 m CLEARANCE FROM EXISTING OPEN STRUCTURE (EG. MANHOLES & CATCH BASINS) PLACE INSULATION AROUND WATER SERVICE CONNECTIONS AS PER CITY OF OTTAWA DWG. NO. W23.

4.6 WATERMAIN INSTALLED PARALLEL TO A SEWER SHALL BE LAID WITH A MINIMUM 2.5m BARREL TO BARREL HORIZONTAL SEPARATION FROM SEWERS AND SEWER MANHOLES.

4.7 THE SANITARY BUILDING DRAIN SHALL BE INSTALLED WITH A FULL-PORT BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.1 OR S14.2. THE BACKWATER VALVE SHALL BE INSTALLED SO THAT ALL PLUMBING FIXTURES ABOVE THE EXTERIOR GRADE ELEVATION DRAINS TO THE DOWNSTREAM SIDE OF THE VALVE AND ALL FIXTURES BELOW THE EXTERIOR GRADE ELEVATION DRAINS TO THE UPSTREAM SIDE OF THE VALVE.

4.8 SEWER SERVICE LATERALS SHALL HAVE A MINIMUM 0.20m OF COVER OR SHALL BE INSULATED AS PER DETAIL.

4.9 INSTALL CLEANKOUTS ON THE STORM BUILDING DRAIN AND SANITARY BUILDING DRAIN AS CLOSE AS PRACTICAL TO THE WHERE THE SANITARY AND STORM DRAINS LEAVE THE BUILDING.

4.10 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER AS PER CITY OF OTTAWA DWG. NO. S11.1 (FLEXIBLE MAIN SEWER).

4.11 CONNECT PROPOSED STORM SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL STORM SEWER AS PER CITY OF OTTAWA DWG. NO. S11 (RIGID MAIN SEWER).

4.12 ALL SEWER MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSD). SEWER MATERIAL SHALL BE PVC SDR-35 (SDR-28 FOR DIAMETERS 150mm OR LESS) AND SHALL CONFORM TO CSA B182.2 AND SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS.

4.13 PERFORATED 250mm SUB-DRAINS SHALL BE HDPE, INTERIOR SMOOTH WALLED WITH FILTER SOCK; BOSS 2000 OR EQUIV.

4.14 LANDSCAPE CATCH BASINS (CB-Ts & CB-Ls) SHALL BE HDPE, INTERIOR SMOOTH WALLED PIPE "T" SECTION, 375mm IN DIAMETER, AND SHALL HAVE A CAST IRON FRAME AND COVER WITH THE COVER BOLTED TO THE FRAME AS PER CITY DRAWING S30 & S31.

4.15 MANHOLES & CATCH BASINS:

A. PRECAST MANHOLE UNITS: TO OPSS 1351 AND OPSD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LADDER INSTALLATION.

B. MANHOLE STEPS: TO OPSD 405.01

C. ADJUSTING RINGS: TO ASTM C 475M

D. ALUMINUM LINER CONCRETE OR CAST INTO CONCRETE SHALL HAVE POLYETHYLENE ANCHOR INSULATING SLEEVES.

D. PRECAST CATCH BASIN SECTIONS: TO OPSS 1351.

E. JOINTS: SHALL BE MADE WATERTIGHT USING BUTYL BASED, FLEXIBLE WATERSTOP/JOINT SEALANT MATERIAL.

F. STORM SEWERS: MANHOLES SHALL HAVE A 300mm SUMP AND CATCH BASINS AND DITCH INLETS SHALL HAVE A 600mm SUMP.

1. PRIOR TO COMMENCING WORK:

A. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.

B. SIZE, DEPTH AND LOCATION OF EXISTING SERVICES, UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. ALL EXISTING SERVICES, UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. NOTIFY ALL APPLICABLE OWNERS, UTILITY COMPANIES AND AUTHORITIES HAVING JURISDICTION OF PROPOSED WORK AND LOCATION. CLEARLY IDENTIFY ALL EXISTING SERVICES, UTILITIES AND STRUCTURES ON AND ADJACENT TO THE SITE. UNDERGROUND LOCATES (INCLUDING ONTARIO ONE CALL: 1-800-400-2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION. CONFIRM LOCATIONS OF BURIED SERVICES AND UTILITIES BY CAREFUL TEST EXCAVATIONS AND REPORT ANY DIFFERENCES TO THE ENGINEER.

C. EXISTING GRADE ELEVATIONS INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. CONFIRM EXISTING GRADE ELEVATIONS AND REPORT ANY DIFFERENCES TO THE ENGINEER.

D. COORDINATE AND SCHEDULE WORK WITH THE AUTHORITIES AND OTHER TRADES.

E. SCHEDULE WORK TO PROVIDE THE MINIMUM DISRUPTION TO SERVICES.

F. INSTALL CONSTRUCTION FENCING AROUND THE AREA OF WORK. DO NOT REMOVE FENCING UNTIL WORK IS COMPLETE.

2. MAINTAIN AND PROTECT FROM DAMAGE, SERVICES, UTILITIES AND STRUCTURES ENCOUNTERED.

3. PROTECT EXISTING BUILDINGS, TREES AND OTHER PLANTS, LAWNS, FENCING, SERVICE POLES, WIRES, PAVEMENT, SURVEY BENCH MARKS AND MONUMENTS AND OTHER SURFACE FEATURES FROM DAMAGE WHILE WORK IS IN PROGRESS. DO NOT DISTURB SOIL WITHIN BRANCH SPREAD OF TREES OR SHRUBS THAT ARE TO REMAIN.

4. PROVIDE TRAFFIC CONTROL AND SAFETY MEASURES INCLUDING ANY NECESSARY PERSONNEL AND THE SUPPLY, INSTALLATION, REMOVAL AND REPLACEMENT OF ALL NECESSARY SIGNAGE AND BARRIERS, AS REQUIRED BY THE AUTHORITIES. IF APPLICABLE, PROVIDE TRAFFIC MANAGEMENT PLAN AS PER CITY OF OTTAWA REQUIREMENTS.

5. FENCE OFF ALL OPEN EXCAVATIONS AT THE END OF EACH WORK DAY. FENCES SHALL BE INSTALLED AND MAINTAINED IN A GOOD AND WORKMAN LIKE MANNER.

6. REMOVE OBSTRUCTIONS, ICE AND SNOW, FROM SURFACES TO BE EXCAVATED.

7. CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.

8. COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS AND COMPACTION TESTS OF SUB-GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL, BACKFILL, SUB-BASE, BASE AND ASPHALT TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT AND ENGINEER. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO ENGINEER FOR REVIEW.

9. UNLOAD AND FILL AS NECESSARY TO ACHIEVE THE REQUIRED SUB-GRADE ELEVATION. DISPOSE OF SURPLUS AND UNSUITABLE EXCAVATED MATERIAL OFF SITE. FILL MATERIAL AND THE PLACEMENT AND COMPACTION OF THE FILL MATERIAL AS PER THE GEOTECHNICAL REPORT AND TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT. STOCKPILE GRANULAR AND FILL MATERIALS IN MANNER TO PREVENT SEGREGATION AND PROTECT FROM CONTAMINATION. PLACE MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.

A. SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH ONTARIO REGULATION 213/91 UNDER THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND OTHER AUTHORITIES HAVING JURISDICTION. EXCAVATE USING A HYDRO-VAC TRUCK AND TRIM ROOTS TO MINIMIZE ROOT DAMAGE WHERE ANY EXCAVATION IS WITHIN THE CRITICAL ROOT ZONE (10 x the TRUNK DIAMETER) OF ANY TREE TO REMAIN.

B. KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF. PROTECT WORK AREA AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF. DEWATER AS REQUIRED TO KEEP WORK AREA FREE OF WATER. DISCHARGE FROM DEWATERING OPERATIONS SHALL BE DIRECTED TO A SEDIMENT CONTROL BASIN AND/OR A VEGETATED DISCHARGE AREA. ENSURE THAT THE DISCHARGED WATER DOES NOT CAUSE EROSION OR OTHER DAMAGE TO ADJACENT LANDS.

C. EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.

D. DO NOT OBSTRUCT FLOW OF SURFACE DRAINAGE OR NATURAL WATERCOURSES.

E. EXCAVATE TO LINES, GRADES, ELEVATIONS AND DIMENSIONS AS INDICATED.

F. EARTH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC MATTER.

G. ALL STRUCTURES WITHIN PAVED AREAS SHALL HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE.

H. CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY.

I. SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.

J. DO NOT USE BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.

K. BEDDING AND SURROUND MATERIAL FOR SEWERS SHALL BE OPSS GRANULAR A. BEDDING AND SURROUND MATERIAL FOR WATERMAIN AND WATER SERVICE CONNECTIONS SHALL BE OPSS GRANULAR A OR OPSS GRANULAR M.

L. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.

M. PIPE BEDDING SHALL BE 150mm THICK. SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE.

N. PLACE SURROUND MATERIAL AROUND PIPES TO FULL WIDTH OF TRENCH AND TO 300mm ABOVE PIPES.

O. PLACE BEDDING AND SURROUND MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.

P. PLACE FILL AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.

Q. COMPACT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.

R. DO NOT BACKFILL AROUND OR OVER CAST-IN-PLACE CONCRETE WITHIN 24 HOURS AFTER PLACING OF CONCRETE.

S. BACKFILL MATERIAL WITHIN 1.8m OF PROPOSED GRADE SHALL MATCH THE MATERIALS EXPOSED ON THE TRENCH WALLS. BACKFILL BELOW 1.8m OF THE PROPOSED CAN CONSIST OF EITHER ACCEPTABLE NATIVE MATERIAL; ROCK; OR IMPORTED GRANULAR MATERIAL CONFORMING TO OPSS GRANULAR B TYPE I OR II. ANY ORGANIC SOILS OR TOPSOIL, IF ENCOUNTERED, SHALL BE REMOVED FROM THE EXCAVATION. IF ROCK IS USED AS BACKFILL IT SHALL BE WELL SHATTERED AND GRADED AND 200mm OR SMALLER IN DIAMETER. TO PREVENT INGRESS OF FINE MATERIAL INTO VOIDS IN THE ROCK FILL, THE UPPER SURFACE OF THE ROCK FILL SHALL BE COVERED WITH 150mm LAYER OF COMPACTED, WELL GRADED CRUSHED STONE PLACED ON GEOTEXTILE FABRIC.

5.11 PIPES

A. HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.

B. LAY, CUT AND JOIN PIPES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. USE ONLY FITTINGS AS RECOMMENDED BY PIPE MANUFACTURER.

D. LAY PIPES ON PREPARED BED, TRUE TO LINE AND GRADE AND ENSURE BARREL OF EACH PIPE IS IN CONTACT WITH SHAPED BED THROUGHOUT ITS FULL LENGTH, FREE OF SAGS OR HIGH POINTS.

E. DO NOT EXCEED MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER.

F. WHENEVER WORK IS SUSPENDED, INSTALL REMOVABLE WATERTIGHT BULKHEAD AT OPEN END OF LAST PIPE LAID TO PREVENT FLOOD WATER INTRUSION.

G. WHEN STOPPAGE OF WORK OCCURS, BLOCK PIPES TO PREVENT CREEP DURING DOWN TIME. MAKE WATERTIGHT CONNECTIONS TO MANHOLES.

H. JOINTS SHALL BE STRUCTURALLY SOUND AND WATERTIGHT.

I. REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE.

5.1.2 SEWERS AND SEWER SERVICES:

- A. CONSTRUCT SEWER TRENCHES AS PER CITY DWG S6 & S7.
- B. RIGID STRUCTURES, INSTALL PIPE JOINTS NOT MORE THAN 1.2M FROM SIDE OF STRUCTURE.
- C. MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.
- D. CONDUCT TWO CITY INSPECTIONS OF SEWERS. FIRST INSPECTION AFTER COMPLETION OF CONSTRUCTION. SECOND INSPECTION IMMEDIATELY PRIOR TO END OF WARRANTY PERIOD. A PAN AND TILT CAMERA SHALL BE USED. REPAIR SEWER LINE AS REQUIRED. SUBMIT REPORTS AND VIDEO TO ENGINEER.
- F. CONDUCT DYE TEST OF SANITARY SEWERS AND COORDINATE WITH ENGINEER. DYE TEST SHALL BE WITNESSED BY ENGINEER.

5.1.3 WATER SERVICE:

- A. INSTALL AND TEST TRACER WIRE ON THE WATER SERVICE CONNECTION AS PER 4.3.12 OF THE CITY OF OTTAWA WATER DISTRIBUTION DESIGN GUIDELINES AND DRAWING W36.
- B. PRESSURE TESTING AS PER AWWA C-605-5 AND CITY OF OTTAWA DESIGN GUIDELINES – WATER DISTRIBUTION

SECTION 4.6.13.

C. CHLORINATION AS PER AWWA C-651-05 AND CITY OF OTTAWA DESIGN GUIDELINES - WATER DISTRIBUTION SECTION 4.6.13 & CITY DWG. W46.

5.14 MANHOLES & CATCH BASINS:

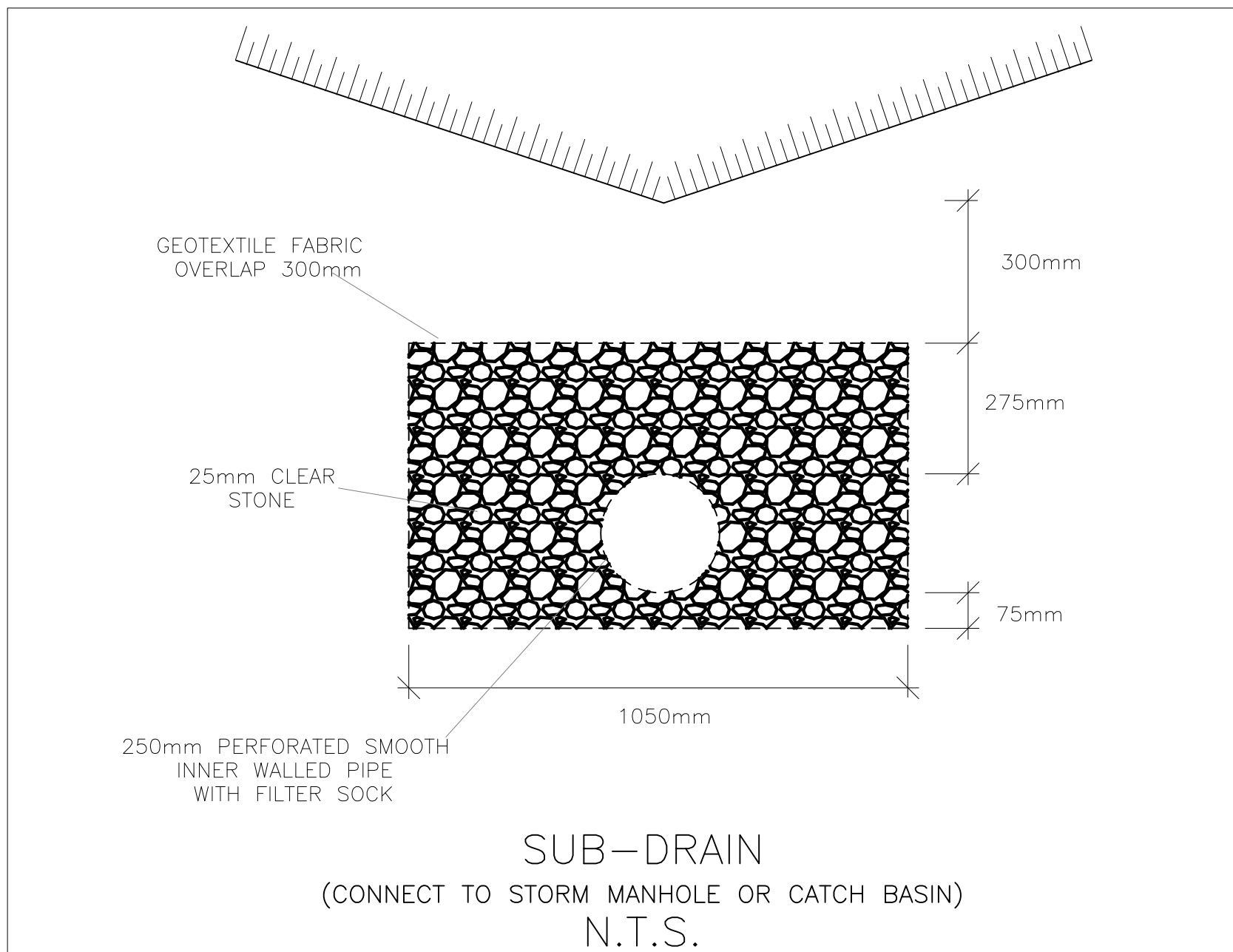
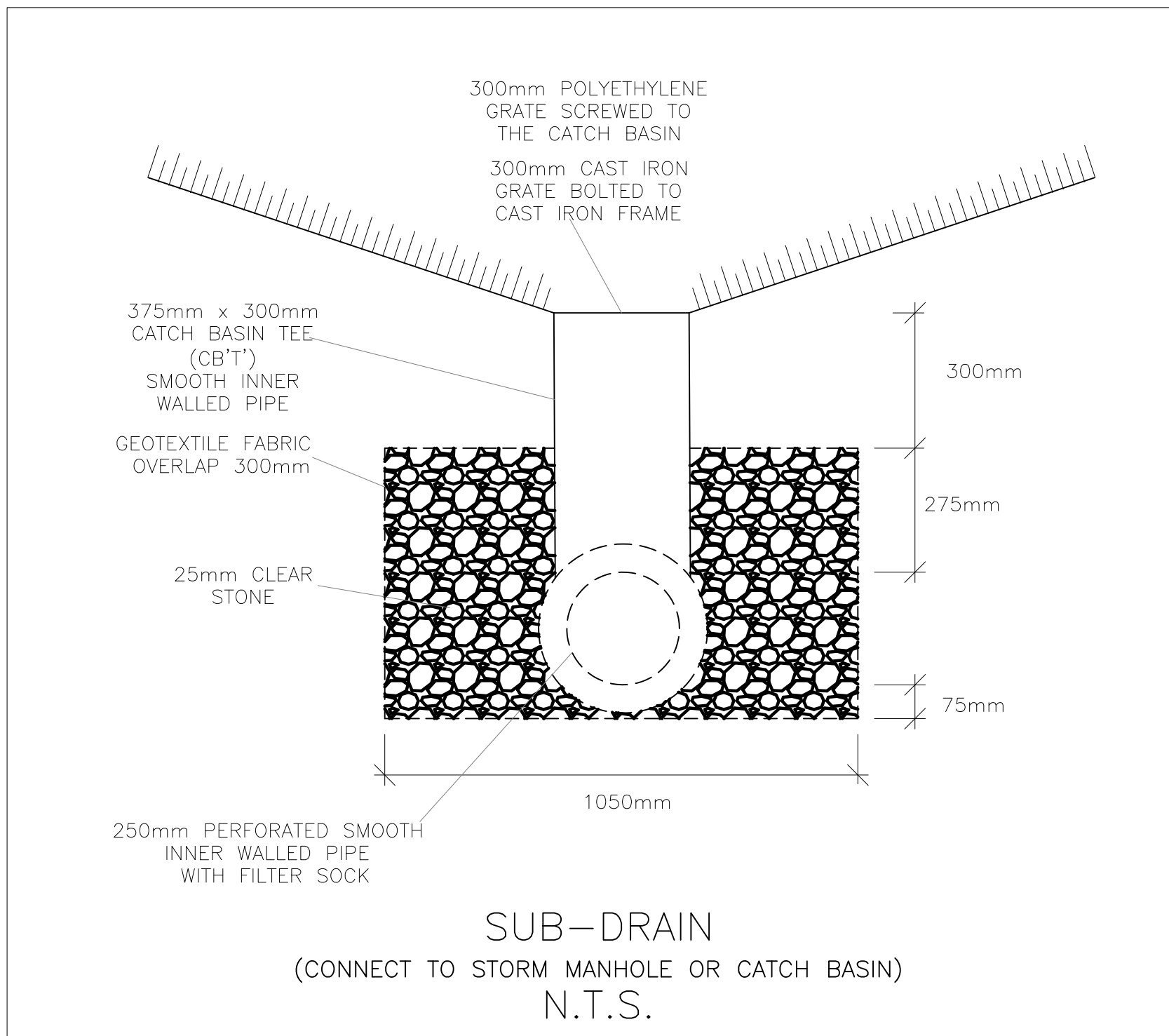
- A. JOINTS: SHALL BE WATER TIGHT.
- B. SET PRECAST CONCRETE BASE ON 150mm MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY.
- C. MAKE EACH JOINT WATER TIGHT WITH RUBBER RING GASKETS.
- D. PLACE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150mm, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY.
- E. PLACE FRAME AND COVER ON TOP SECTION TO ELEVATION AS INDICATED. IF ADJUSTMENT REQUIRED USE CONCRETE RINGS TO A MAXIMUM OF 300mm.
- F. CLEAN UNITS OF DEBRIS, FOREIGN AND SURPLUS MATERIALS. REMOVE FINIS AND SHARP PROJECTIONS. PREVENT DEBRIS FROM ENTERING SYSTEM.

5.15 MAINTAIN RECORD DRAWINGS AND RECORD ACCURATELY DEVIATIONS FROM THE ORIGINAL CONTRACT DOCUMENTS CAUSED BY SITE CONDITIONS AND CHANGES MADE BY CHANGE ORDER OR ADDITIONAL INSTRUCTIONS. UPDATE DAILY AND MAKE AVAILABLE ON-SITE FOR REVIEW THROUGHOUT THE CONSTRUCTION PERIOD. MARK CHANGES IN RED INK. RECORD DRAWINGS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO CHANGES OF DIMENSION AND DETAIL; CHANGES TO GRADE ELEVATIONS; AND HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND APPURTENANCES REFERENCED TO A PERMANENT SURFACE STRUCTURE. SUBMIT DRAWINGS TO ENGINEER AT THE END OF CONSTRUCTION. SUBMIT A FINAL DRAWING OF "AS-BUILT" GRADE ELEVATIONS, PREPARED BY AN SURVEYOR, TO THE ENGINEER AT THE END OF CONSTRUCTION.

5.16 WHEREVER RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE PRODUCTS OR DAMAGE: DEFECTIVE PORTIONS OF CURBS, SIDEWALK AND ASPHALT SHALL BE CORRECTED OR REMOVED AND REPLACED. PROMPTLY MAKE GOOD OTHER CONTRACTOR'S WORK DAMAGED BY SUCH REMOVALS OR REPLACEMENTS.

5.17 REINSTATE ALL AREAS DISTURBED BY CONSTRUCTION. REINSTATE PAVEMENTS, CURBS AND SIDEWALKS, TO THICKNESS, SURFURFACE AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION. REINSTATE LANDSCAPED AREAS TO THE CONDITION AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION.

5.18 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.



2	DEC 21-21	ISSUED FOR APPROVAL
1	DEC 17-21	ISSUED FOR COORDINATION
No.	DATE	REVISION

Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains

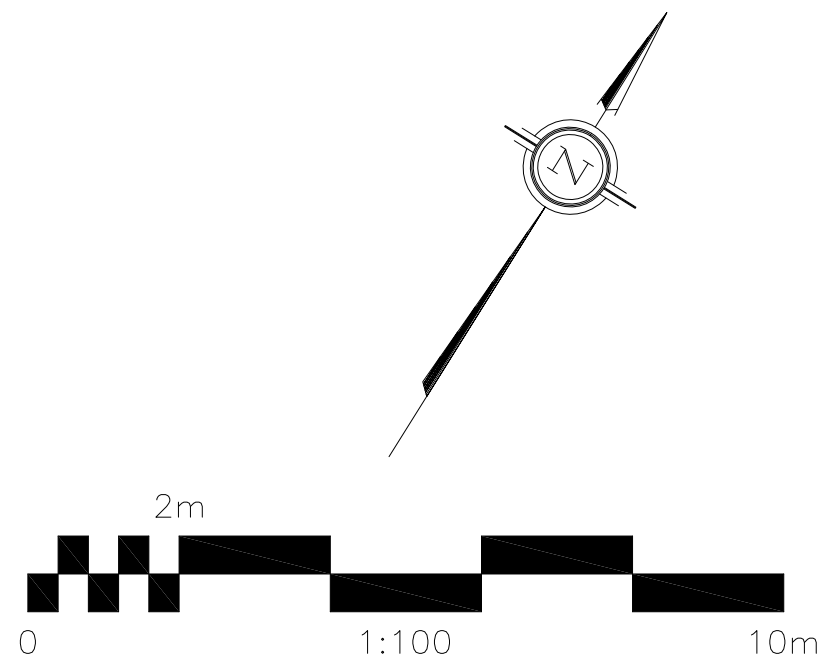
700 Long Point Circle 613-425-8044
Ottawa, Ontario d.gray@dbgrayengineering.com

Drawing Title

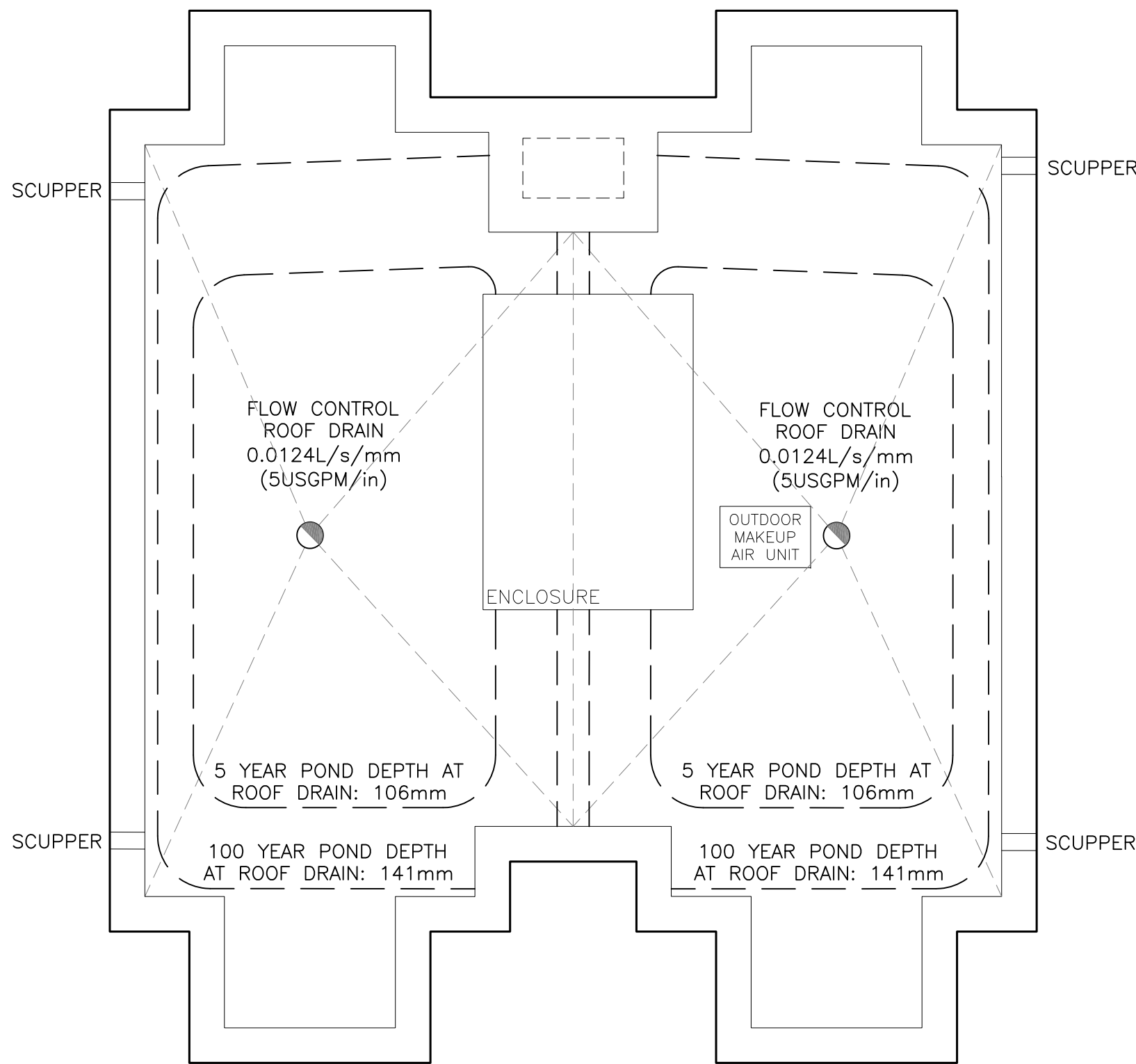
NOTES & DETAILS

Engineer's Seal	Drawn	D.B.
	H. Scale	1:10
	V. Scale	
	Date	DEC 17-
	Job No.	2105

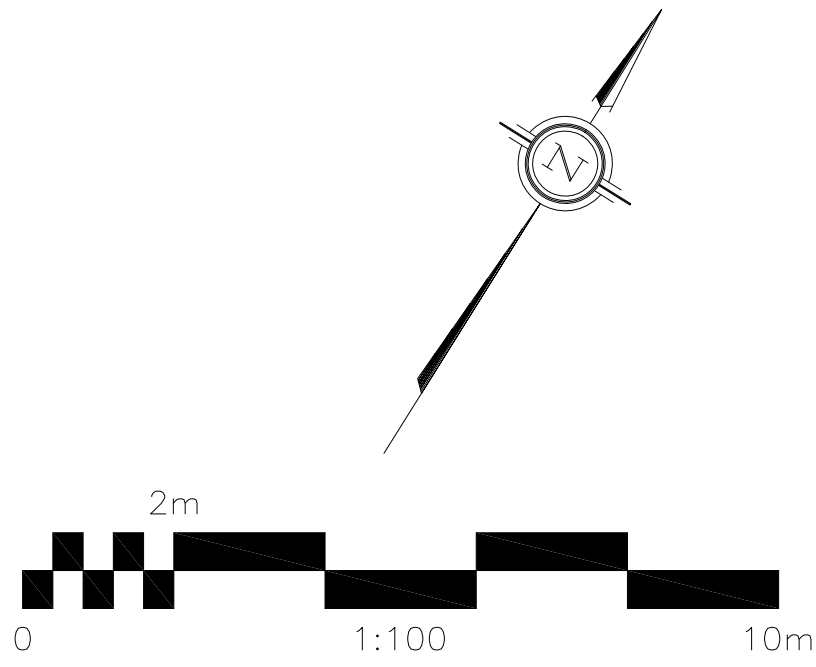
Drawing No.
C-3
of 5



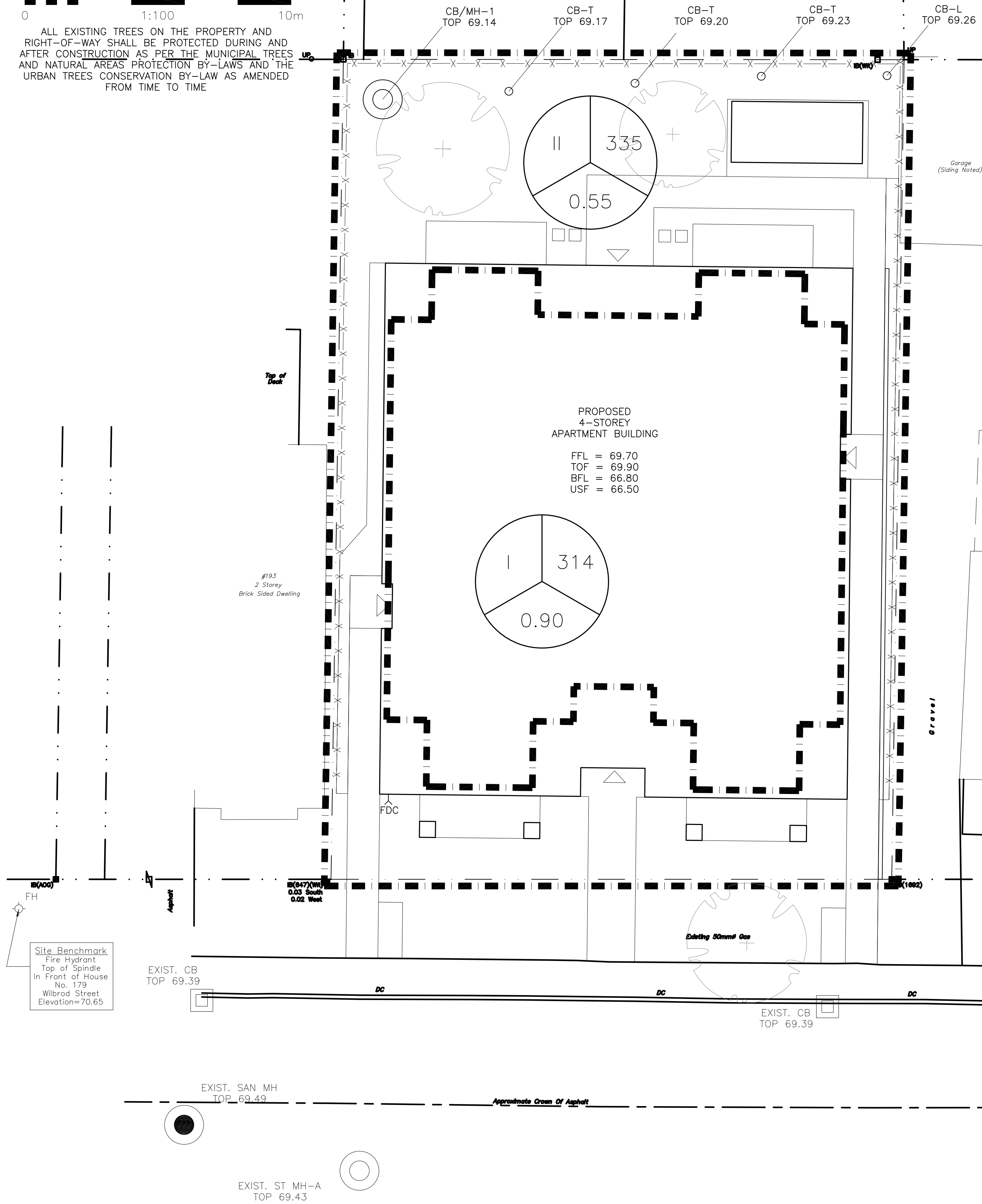
INSTALL A MINIMUM OF 4 SCUPPERS, EACH A MINIMUM 230mm WIDE. BOTTOM OF SCUPPERS SHALL BE 150mm ABOVE ROOF DRAINS (REFER TO ARCHITECTURAL FOR EXACT LOCATIONS AND DETAILS). ROOF SHALL BE DESIGNED TO CARRY THE LOAD OF WATER HAVING A 50mm DEPTH AT SCUPPER OR 200mm DEPTH AT ROOF DRAIN (REFER TO STRUCTURAL).



ROOF PLAN

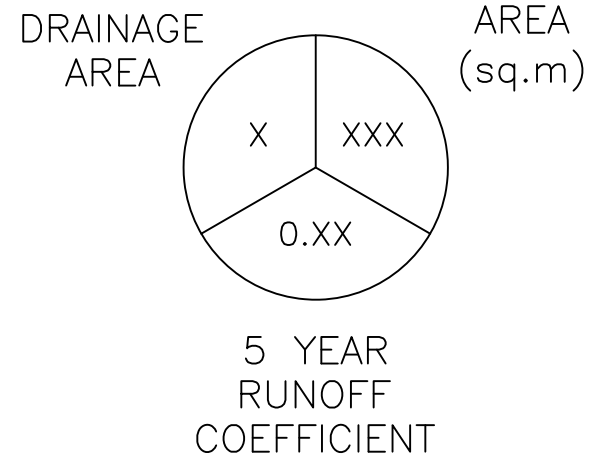


ALL EXISTING TREES ON THE PROPERTY AND RIGHT-OF-WAY SHALL BE PROTECTED DURING AND AFTER CONSTRUCTION AS PER THE MUNICIPAL TREES AND NATURAL AREAS PROTECTION BY-LAWS AND THE URBAN TREES CONSERVATION BY-LAW AS AMENDED FROM TIME TO TIME



DRAINAGE PLAN

LEGEND



KEY PLAN



No.	DATE	REVISION
2	DEC 21-21	ISSUED FOR APPROVAL
1	DEC 17-21	ISSUED FOR COORDINATION

D. B. GRAY ENGINEERING INC.

Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain

700 Long Point Circle 613-425-8044
Ottawa, Ontario d.gray@dbgrayengineering.com

Project
PROPOSED 4-STOREY
APARTMENT BUILDING
197-201 WILBROD STREET
OTTAWA, ONTARIO

Drawing Title
ROOF PLAN AND
DRAINAGE PLAN

Engineer's Seal
Drawn D.B.G.
H. Scale 1:100
V. Scale
Date DEC 17-21
Job No. 21057

Drawing No.
C-4
of 5

