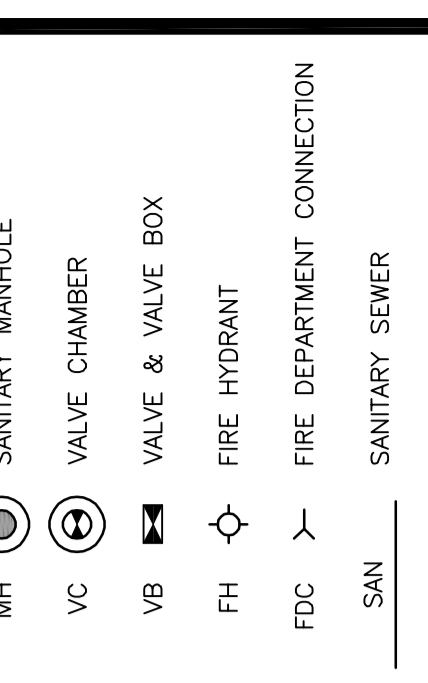


LEGEND

CB	CATCH-BASIN
MH	STORM MANHOLE
CB/MH	CATCH-BASIN/MANHOLE
MH	SANITARY MANHOLE
VC	VALVE CHAMBER
VB	VALVE & VALVE BOX
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
SAN	SANITARY SEWER
ST	STORM SEWER
WS/WM	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE
M	WATER METER
R	REMOTE WATER METER
FFL	FINISHED FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
---	PROPERTY LINE
---	EXISTING GRADE ELEVATION
---	CRITICAL ROOT ZONE



No.	DATE	REVISION
4	JUL 28-22	RE-ISSUED FOR APPROVAL
3	JAN 12-22	ISSUED FOR APPROVAL
2	JAN 11-22	ISSUED FOR COORDINATION
1	NOV 2-21	PRELIMINARY

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**PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

SITE SERVICING PLAN

Drawn	D.B.G.
H. Scale	1:200
V. Scale	1:200
Date	NOV 2-21
Job No.	21014

Engineer's Seal
 D.B. GRAY
 17016502
 (O.C. 28-22)
 BOARD OF ENGINEERS
 NOT VALID UNLESS
 SIGNED & DATED

Project: **PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

Drawing Title: **SITE SERVICING PLAN**

Scale: 5m, 25m

Project: **PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

Drawing No.: **C-1
 of 6**

Project: **PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

Project: **PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

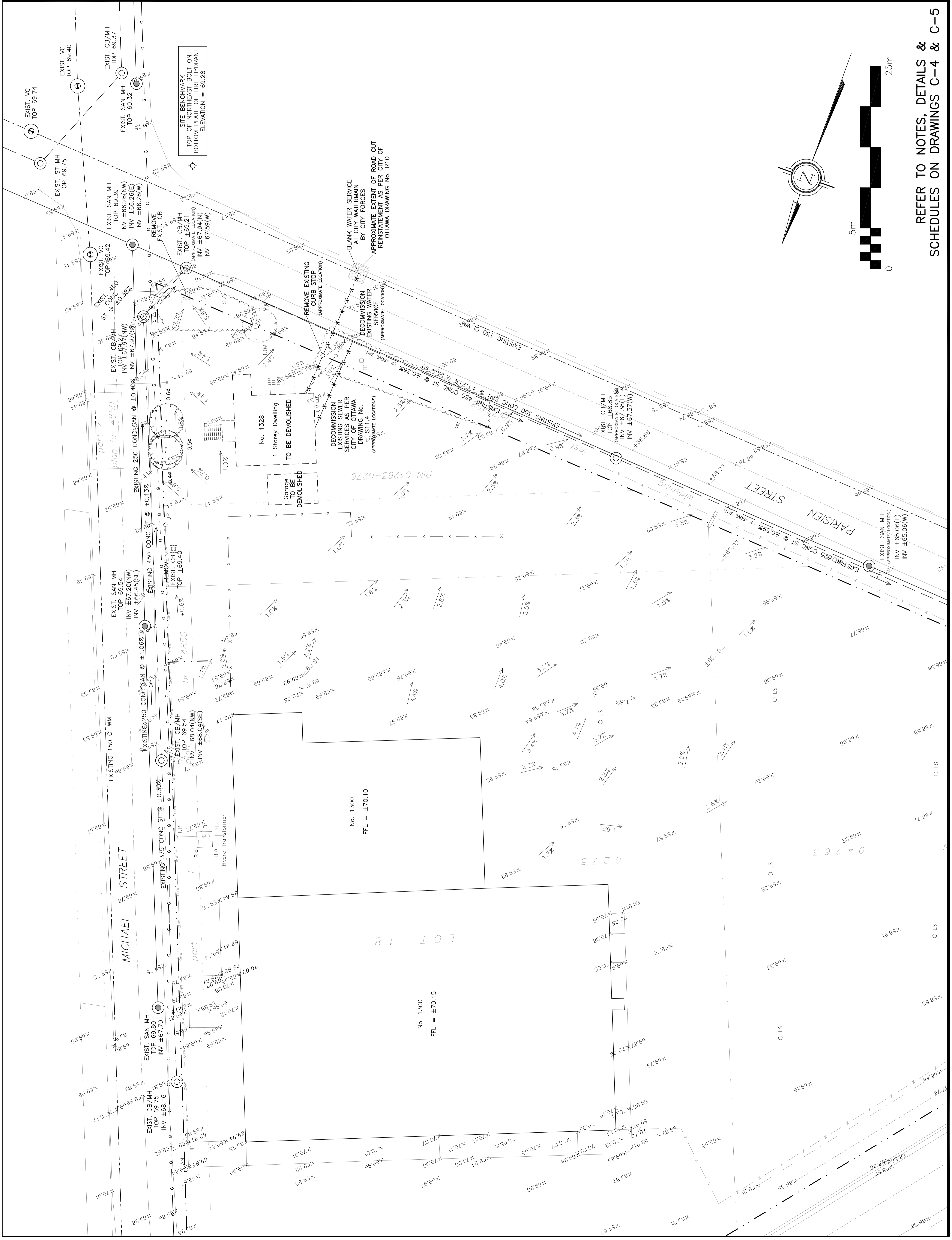
Project: **PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

Project: **PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

REFER TO NOTES, DETAILS &
 SCHEDULES ON DRAWINGS C-4 & C-5

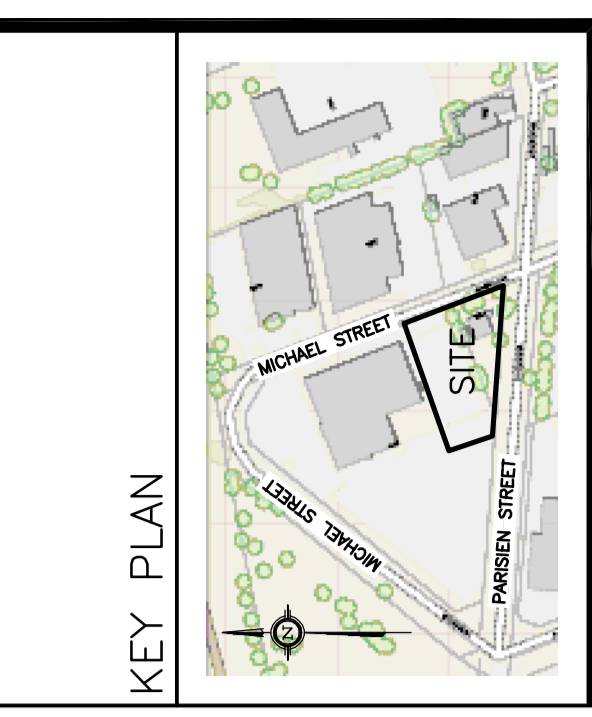
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07-12-22-0012



LEGEND

CB	CATCH-BASIN
MH	STORM MANHOLE
CB/MH	CATCH-BASIN/MANHOLE
MH	SANITARY MANHOLE
VC	VALVE CHAMBER
VB	VALVE & VALVE BOX
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
SAN	SANITARY SEWER
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M	WATER METER
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FFL	FINISHED FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
- - -	PROPERTY LINE
- - - - -	EXISTING GRADE ELEVATION
- - - - -	CRITICAL ROOT ZONE



No.	DATE	REVISION
3	JUL 28-22	RE-ISSUED FOR APPROVAL
2	JAN 12-22	ISSUED FOR APPROVAL
1	JAN 11-22	ISSUED FOR COORDINATION

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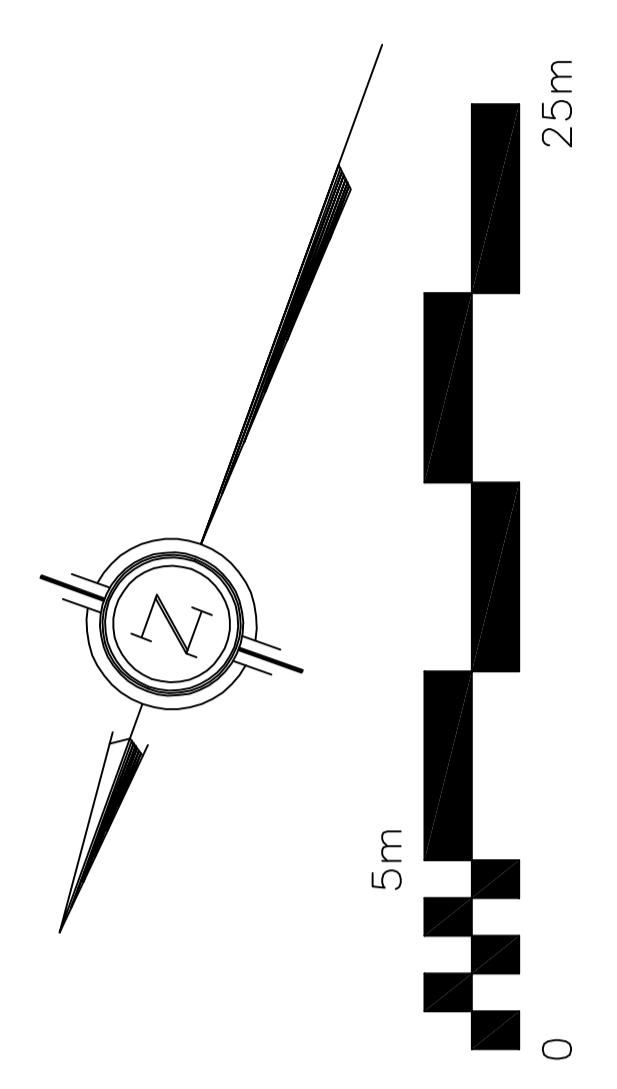
PROPOSED 2 STOREY VOLVO DEALERSHIP
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 OTTAWA, ONTARIO

EXISTING DRAINAGE PLAN AND EXISTING CONDITIONS, REMOVALS & DECOMMISSIONING

Engineer's Seal
 D.B. GRAY
 17016502
 JUL 28-22
 License of Professional Engineer
 Province of Ontario

Drawn: D.B.G.
 H. Scale: 1:200
 V. Scale: NOV 2-21
 Date: NOV 2-21
 Job No.: 21014

Drawing No. **C-2** of **6**
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 #18651



REFER TO NOTES, DETAILS & SCHEDULES ON DRAWINGS C-4 & C-5

LEGEND

- CB CATCH-BASIN
- MH STORM MANHOLE
- CB/MH CATCH-BASIN/MANHOLE
- MH SANITARY MANHOLE
- VC VALVE CHAMBER
- FH FIRE HYDRANT
- FDC FIRE DEPARTMENT CONNECTION
- FFL FINISHED FLOOR ELEVATION
- USF UNDERSIDE OF FOOTING
- PROPERTY LINE
- EXISTING GRADE ELEVATION
- PROPOSED GRADE ELEVATION
- OVERLAND FLOW
- PROPOSED SLOPE OF GRADE
- 150mm BARRIER CURB
- DEPRESSED CURB
- CR.Z CRITICAL ROOT ZONE
- ASPHALT PAVEMENT
- CONCRETE
- PERMEABLE PAVERS

KEY PLAN



No.	DATE	REVISION
1	NOV 2-21	PRELIMINARY
2	JAN 11-22	ISSUED FOR COORDINATION
3	JUN 12-22	ISSUED FOR APPROVAL
4	JUL 28-22	RE-ISSUED FOR APPROVAL

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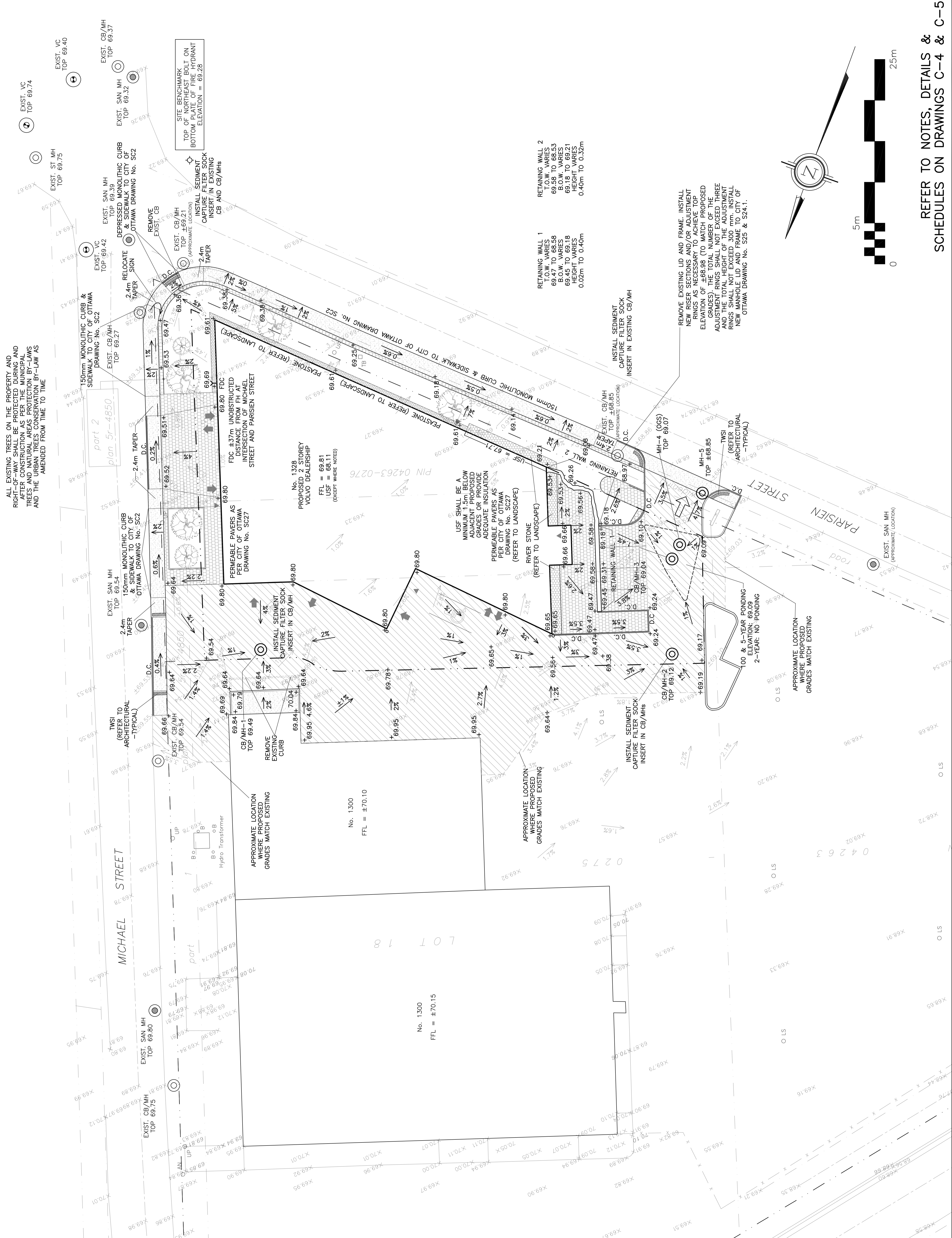
**PROPOSED 2 STOREY
 VOLVO DEALERSHIP
 1328 MICHAEL STREET
 OTTAWA, ONTARIO**

**GRADING PLAN AND
 EROSION & SEDIMENT
 CONTROL PLAN**

Engineer's Seal

 Drawing No. **C-3**
 of **6**
 NOT VALID UNLESS
 SIGNED & DATED

D07-12-22-0012 #18651



**REFER TO NOTES, DETAILS &
 SCHEDULES ON DRAWINGS C-4 & C-5**

1. GENERAL

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 ONTARIO ONE CALL: 1-800-400-2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION.

1.4 SITE BOUNDARIES AND EXISTING GRABES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY ANNIS O'SULLIVAN, VOLLEBERGK LTD JOB # 6814-16 DATED AUGUST 7, 2002.

1.5 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.

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

1.7 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 LINES AND GRABES.

1.8 PREPARATION INCLUDING BUILDING SUB-GRADE PREPARATION AND PAVEMENT 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.

1.9 ENGINEERING INC. COME IN CONJUNCTION WITH SERVICING STUDY & STORM WATER MANAGEMENT REPORT No. 21014 PREPARED BY D. B. GRAY ENGINEERING INC. TO PRE-COMMENCE CONSTRUCTION.

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

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

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

2. EROSION AND SEDIMENT CONTROL PLAN

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 THE OBLIGATION TO IMPLEMENT BEST MANAGEMENT PRACTICES IN ACCORDANCE WITH THE FOLLOWING CONTROL MEASURES AND TO MAINTAIN AND REMOVE THE CONTROL MEASURES. 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 ALL 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 FROM CATCH BASINS, PANS, PENS, REDUCERS OR HYDRANTS. REPORT ANY CHANGES OCCUR IN PIPE DIAMETER OR SIZES OF EXISTING SERVICES TO THE ENGINEER.

2.3 ANY MATERIAL DEPOSITED ON A PUBLIC ROAD SHALL BE REMOVED 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:

- ALL SURFACES HAVE BEEN CONSTRUCTED.
- ALL PROPOSED CONSTRUCTION ARE EITHER SLOPED OR HAVE A FULL COVERAGE OF WELL ESTABLISHED TURF AND HAVE HAD A MINIMUM OF ONE FULL GROWING SEASON (MAY 15TH TO SEPTEMBER 15TH).
- THERE ARE NO AREAS OF EXPOSED EARTH.
- ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.

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

3. GRADING & DRAINAGE

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 DRAINAGE FEATURES. GRADING SHALL BE GRADUAL BETWEEN FINISHED SPOT ELEVATIONS SHOWN ON DRAWINGS TO PREVENT PONDING (OTHER THAN PONDING CAUSED BY STORMWATER). PROMPTLY MAKE GOOD OTHER CONTRACTOR'S WORK DAMAGED BY SUCH CORRECTIONS.

4. SITE SERVICES

4.1 EXISTING WATER SERVICE CONNECTIONS TO BE DECOMMISSIONED SHALL BE BLANKED AT CITY WATERMAIN BY CITY FORCES. 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.

4.2 WATER METER SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. No. W31

4.3 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 THRU-ROD BLOCKS AS PER CITY OF OTTAWA DWG. No. W26.3 & W26.4 AT ALL VALVES, TEES, CAPS, BENDS, REDUCERS AND HYDRANTS. OR OTHER FITTINGS WHERE CHANGES OCCUR IN PIPE DIAMETER OR SIZES OF EXISTING SERVICES TO THE ENGINEER. CONFORMANCE WITH CITY OF OTTAWA DWG. No. W40, W42, W43 & W47.

4.4 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 AN OPEN STRUCTURE (EG. MANHOLES & CATCH BASINS) PLACE INSULATION AROUND WATER SERVICE CONNECTIONS AS PER CITY OF OTTAWA DWG. No. W23.

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

4.7 THE WATER SERVICE CONNECTION SHALL CROSS ABOVE THE SEWER A MINIMUM 250mm BARRELL TO BARRELL VERTICAL SEPARATION. IF IT IS NOT POSSIBLE FOR THE WATERMAIN TO CROSS ABOVE A SEWER THE WATERMAIN SHALL CROSS BELOW THE SEWER; PROVIDE A MINIMUM 500m BARREL TO BARREL VERTICAL SEPARATION AND ENSURE THAT THE WATER PIPE IS CENTERED AT THE POINT OF CROSSING SO JOINTS ARE AS FAR AS POSSIBLE FROM THE SEWER.

4.8 SEWERS SHALL HAVE A MINIMUM 2.0m OF COVER OR SHALL BE INSULATED AS PER DETAILS

4.9 SEWERS SHALL BE PROTECTED FROM DAMAGE BY THE BUILDING

4.10 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER AS PER CITY OF OTTAWA DWG No. S11 (RIGID 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 MANHOLES & CATCH BASINS:

- A. TOP SURFACE SHALL BE 150mm ABOVE FINISHED GRADE.
- B. MANHOLE STEPS; TO OPSD 405.01
- C. ADJUSTING RINGS; TO ASTM C 478M.
- D. PRECAST CATCH BASIN SECTIONS; TO OPSD 1351.
- E. CURBS; TO OPSD 405.02
- F. SANITARY SEWERS; BENCH TO PROVIDE A SMOOTH U-SHAPED CHANNEL PER OPSD 701.021. SLOPE INVERT TO ESTABLISH SEWER GRADE.
- G. STORM SEWERS; MANHOLES SHALL HAVE A 300mm SLUMP AND DITCH INLETS SHALL HAVE A 600mm SLUMP.
- H. FRAMES, GRATES AND COVERS TO CITY OF OTTAWA DRAWINGS OR OPSD (AS PER CATCH BASIN & MANHOLE SCHEDULE). GRATES AND COVERS TO BEAR EVENLY ON FRAMES. PAINTED WITH ONE SHOP COAT OF ASPHALT OR TAR BASE BLACK, ALL JOINTS AND GREEVES SHALL BE THOROUGHLY COATED.
- I. GRANULAR BEDDING AND BACKFILL: OPSD GRANULAR A. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.

4.14 ROOF DRAINS SHALL BE FLOW CONTROL TYPE EACH INSTALLED WITH A WER WITH A PARABOLIC SLOT, EACH SLOT SHALL RELEASE 5 Usgpm/inch OF DRAINAGE AREA. PROVIDE RAINWATER DIVERTER WITH W/50mm CURB.

4.15 THE INLET CONTROL DEVICE (LOCATED IN THE OUTLET PIPE OF CATCH BASIN MANHOLE CB/WH-3) SHALL BE FLOW STYLE WITH A ROUND ORIFICE (WITH THE ORIFICE LOCATED AT THE BOTTOM OF THE PLUG) AND A TRASH BASKET MANUFACTURED BY PEDRO PLASTICS (OR APPROVED EQUAL BY IPEX) AND SIZED BY THE MANUFACTURER FOR A DISCHARGE RATE AS INDICATED ON PLAN. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO ENGINEER FOR APPROVAL.

5. CONSTRUCTION:

5.1 PRIOR TO COMMENCING WORK:

- OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.
- 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 TO BE PROTECTED AND LOCATED TO BE PROTECTED SHALL BE IDENTIFIED BY THE ENGINEER.
- NOTIFY ALL APPLICABLE OWNERS, UTILITY COMPANIES AND AUTHORITIES HAVING JURISDICTION OVER PROPOSED WORK AND OBTAIN CLEAR IDENTIFICATION OF 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.
- 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.
- CONFORM TO ALL APPLICABLE TRADES.
- SCHEDULE WORK TO PROVIDE THE MINIMUM DISRUPTION TO SERVICES.
- INSTALL CONSTRUCTION FENCING AROUND THE AREA OF WORK. DO NOT REMOVE FENCING UNTIL WORK IS COMPLETE.
- 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.

5.4 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.

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

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

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

5.8 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 INSPECTION AND COMPACTION REPORTS TO ENGINEER. DISPOSE OF SURPLUS AND UNSUITABLE EXCAVATED MATERIAL OFF SITE.

5.9 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. PROTECT WORK AREA AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF. DEMATER AS REQUIRED TO KEEP WORK AREA FREE OF WATER. DISCHARGE FROM DEMATERING OPERATIONS SHALL BE DIRECTED TO A SEDIMENT CONTROL MEASURE AND/OR A VEGETATED DISCHARGE AREA. ENSURE THAT THE DISCHARGED WATER DOES NOT CAUSE EROSION OR OTHER DAMAGE TO SURROUNDING AREAS.

5.10 EXCAVATION, TRENCHING & BACKFILL:

- SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH ONTARIO REGULATION 377 UNDER THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND OTHER AUTHORITIES HAVING JURISDICTION.
- KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF.

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

- EXCAVATE TO LINES, GRADES, ELEVATIONS AND DIMENSIONS AS INDICATED.
- EARTH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL. LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC MATTER.
- ALL STRUCTURES WITHIN PAVED AREAS HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE.
- CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY.
- SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.
- BEDDING AND SURROUND MATERIAL FOR SEWERS SHALL BE OPSD GRANULAR A. SURROUND MATERIAL FOR CONCRETE PIPE MAY BE CLEAN WELL GRADED SAND. BEDDING AND SURROUND MATERIAL FOR WATERMAIN AND WATER SERVICE CONNECTIONS SHALL BE OPSD GRANULAR A OR OPSD GRANULAR M.
- DO NOT USE BEDDING, SURROUND OR BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
- PIPE BEDDING SHALL BE 150mm THICK, SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE.
- PLACE BEDDING AND SURROUND MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS. PLACE FILL AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.

5.12 CONSTRUCT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.

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

5.14 BACKFILL WITHIN 1.8m OF PROPOSED GRADE SHALL MATCH THE MATERIALS EXPOSED ON THE TRENCH WALLS. BACKFILL BELOW 1.8m TYPE 1 OR II. ANY ORGANIC SOILS OR TOPSOIL IF ENCOUNTERED, SHALL BE REMOVED FROM THE EXCAVATION IF ROCK IS USED AS BACKFILL IT SHALL BE 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.

5.15 HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.

- DO NOT OVERLAP JOINTS WITH OVERLAP OF 300mm.
- USE ONLY FITTINGS AS RECOMMENDED BY PIPE MANUFACTURER.
- 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.

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

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

5.18 SEWERS AND SEWER SERVICES:

- CONSTRUCT SEWER TRENCHES AS PER CITY DWG S6 & S7.
- PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
- MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.

5.19 PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS, SPECIFICALLY THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSD 410. REPAIR AND RETEST SEWER LINE AS REQUIRED. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS.

5.20 CONDUCT TWO CCTV 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 DVDS TO ENGINEER.

5.21 WATER SERVICE:

- DO NOT EXCEED MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER.
- 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.
- PRESSURE TESTING AS PER AWWA C-609-5 AND CITY OF OTTAWA DESIGN GUIDELINES - WATER DISTRIBUTION SECTION 4.6.13. & CITY DWG. W46.
- CHLORINATION AS PER AWWA C-851-05 AND CITY OF OTTAWA DESIGN GUIDELINES - WATER DISTRIBUTION SECTION 4.6.13 & CITY DWG. W46.

5.22 MANHOLES SHALL BE MADE WATERTIGHT.

- SET PRECAST CONCRETE BASE ON 150mm MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY.
- PLACE EACH JOINT WATERTIGHT WITH RUBBER RING GASKETS.
- MAKE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150mm, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY.
- PLACE FRAME AND COVER ON TOP SECTION TO ELEVATION AS INDICATED. IF ADJUSTMENT REQUIRED USE CONCRETE RINGS TO A MAXIMUM OF 300mm.

5.23 CLEAN UNITS OF DEBRIS, FOREIGN AND SURPLUS MATERIALS, REMOVE FINES AND SHARP PROJECTIONS, PREVENT DEBRIS FROM ENTERING SYSTEM. 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 MATERIALS. PREPARE A PERMANENT SURFACE STRUCTURE. SUBMIT DRAWINGS TO ENGINEER AT THE END OF CONSTRUCTION. SUBMIT A RECORD DRAWING OF "AS-BUILT" GRADE ELEVATIONS, PREPARED BY A SURVEYOR, TO THE ENGINEER AT THE END OF CONSTRUCTION.

5.24 CONCRETE CURBS SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING No. SC1.1. CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING No. SC4. MONOLITHIC CONCRETE CURB AND SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING No. SC2.

5.25 WHETHER 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. EXISTED BEFORE CONSTRUCTION, REINSTATE HANDSACD AREAS TO THE CONDITION AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION.

5.26 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.

6. PAVEMENT:

6.1 PAVEMENT STRUCTURE:

40mm	HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm	HL-8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm	OPSS GRANULAR A BASE
400mm	OPSS GRANULAR B TYPE II SUB-BASE

RE-CYCLED GRANULAR A SHALL BE PERFORMANCE GRADE PG58-34 ASPHALTIC CONCRETE SHALL BE PERFORMANCE GRADE PG58-34

6.2 HOT MIX ASPHALT MATERIALS SHALL BE ACCORDING TO OPSD 1150 OR 1151.

6.3 PAVEMENT SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

6.4 ALL EXISTING ASPHALT TO BE REMOVED SHALL BE HAULED TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS. REMOVE ALL MATERIALS TO THE ENGINEER'S SATISFACTION. REMOVE ALL EXISTING ASPHALT TO BE REMOVED FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND, COMPACT SUB-GRADE TO 95%.

6.5 ENGINEER, SUB-GRADE TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND, COMPACT SUB-GRADE TO 95%.

6.6 CONSTRUCTION GRANULAR BASE AND SUB-BASE TO DEPTH AND GRADE IN AREAS INDICATED, CONSTRUCT A 5H:1V FROST TAPER IN SUB-GRADE SURFACE AS A TRANSITION BETWEEN DIFFERING PAVEMENT STRUCTURES AND BETWEEN PAVEMENT AND CURBS AND SIDEWALKS.

6.7 ENSURE NO FROZEN MATERIAL IS PLACED. PLACE MATERIAL ONLY ON CLEAN UNFROZEN SURFACE, FREE FROM SNOW OR ICE.

6.8 PLACE MATERIAL TO FULL WIDTH IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS. SHAPE EACH LAYER TO SMOOTH CONTOUR AND SLOPE AS SHOWN ON DRAWINGS. BACKFILL WITH UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS. CORRECTED MAXIMUM DRY DENSITY WITH SUB-BASE MATERIAL, COMPACT TO 98%. COMPACT BASE AND SHOULDER MATERIAL TO DENSITY NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY.

6.9 IN AREAS NOT ACCESSIBLE TO ROLLING EQUIPMENT, COMPACT TO SPECIFIED DENSITY WITH MECHANICAL TAMPERS.

6.10 REPLACE PAVEMENT DISTURBED BY CONSTRUCTION AND BACKFILL WITH PAVEMENT STRUCTURE ABOVE.

6.11 WHERE NEW ASPHALT JOINS IN CONTACT WITH EXISTING PAVEMENT: SAWCUT EXISTING ASPHALT AFTER TO CREATE A CLEAN STRAIGHT EDGE. TACK COAT WITH ASPHALT EMULSION. GRADE AND FINISH EXISTING PAVEMENT TO MATCH EXISTING PAVEMENT. TACK COAT NEW ASPHALT WITH ASPHALT EMULSION.

6.12 TACK COAT THE SURFACE OF ALL BINDER COURSES AND BUTTING CONCRETE SURFACES TO BE TACK COATED SHALL BE FREE OF STANDING WATER AND CONTAMINATION, SUCH AS MUD, LOOSE AGGREGATE OR DEBRIS AND SHALL BE DRY AND CLEAN WHEN THE TACK COAT IS APPLIED. TACK COAT SHALL BE PLACED SUFFICIENTLY AHEAD OF THE PAVING OPERATION TO ALLOW FOR CURING. PAVING AND CONSTRUCTION EQUIPMENT SHALL NOT BE PERMITTED onto the TACK COAT UNTIL IT HAS SET. TACK COAT MATERIAL SHALL CONSIST OF SS-1 EMULSIFIED ASPHALT DILUTED WITH AN EQUAL VOLUME OF WATER. THE DILUTED MATERIAL SHALL BE ACCORDING TO OPSD 1103.

6.13 APPLY ASPHALTIC CONCRETE ONLY WHEN BASE OR PREVIOUS COURSE IS DRY AND AIR TEMPERATURE IS ABOVE 5 DEGC.

6.14 FINISH SURFACE TO A ROLLER. BEVEL EDGES ADJACENT TO GRANULAR SURFACES.

6.15 FINISH SURFACE SMOOTH, TRUE TO GRADE.

6.16 KEEP VEHICULAR TRAFFIC AND OTHER LOADS OFF NEWLY PAVED AREAS UNTIL 24 HOURS AFTER PAVING.

6.17 APPLY TRAFFIC PAINT AS IDENTIFIED ON PLAN. TRAFFIC PAINT: NON-DARKENING, HOMOGENEOUS, UNIFORM AND SMOOTH, FREE FROM SKIN, DIRT AND OTHER FOREIGN PARTICLES. APPLY TO DRY PAVEMENT SURFACE FREE FROM FROST, ICE, DUST, OIL, GREASE AND OTHER FOREIGN MATERIALS. PROTECT PAVEMENT MARKINGS UNTIL DRY.

KEY PLAN



No.	DATE	REVISION
3	JUL 28-22	RE-ISSUED FOR APPROVAL
2	JAN 12-22	ISSUED FOR APPROVAL
1	JAN 11-22	ISSUED FOR COORDINATION

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NOTES

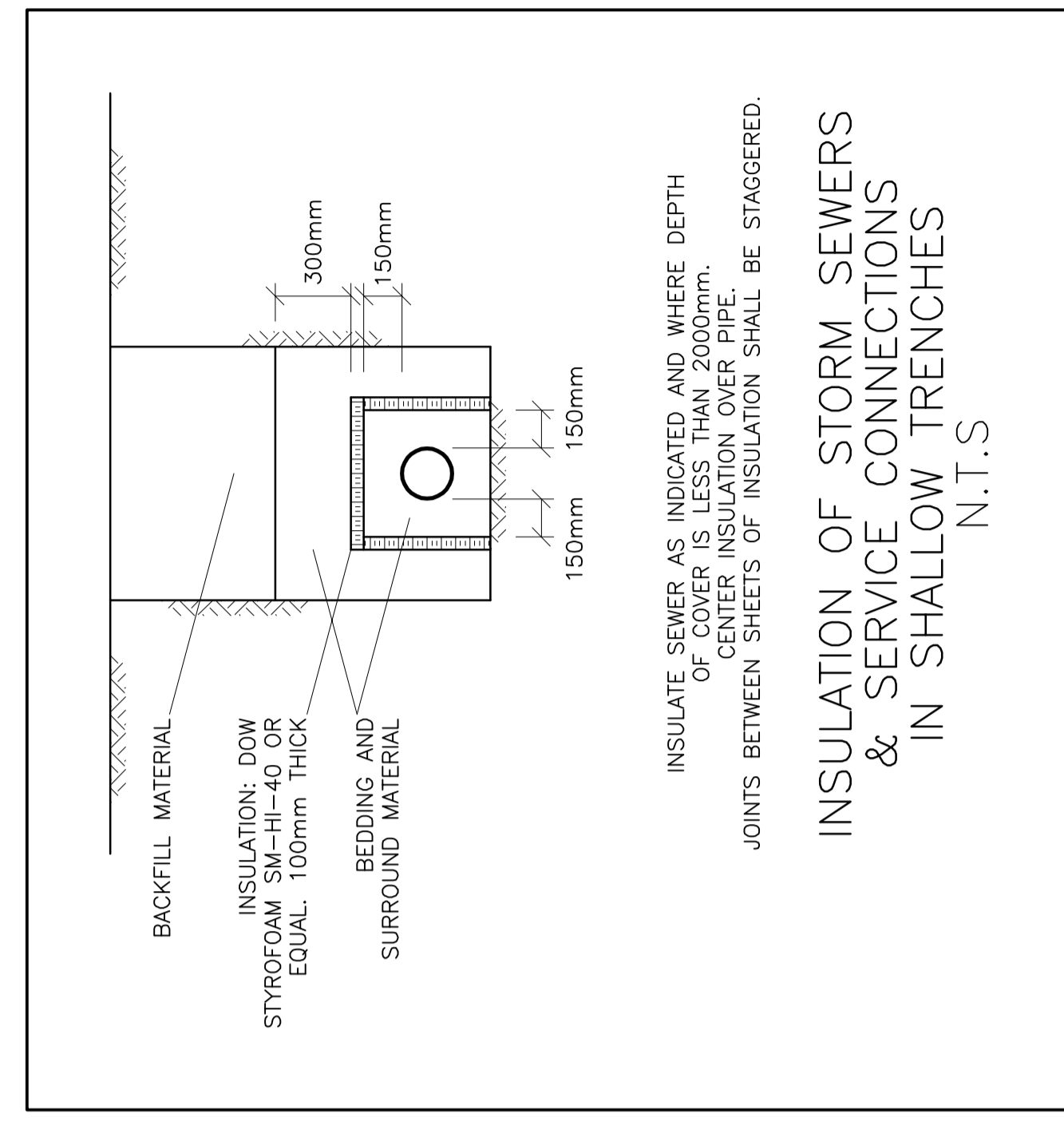
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Engineer's Seal
 PROFESSIONAL ENGINEER
 O.T. GRAY
 17016502
 Reg. No. 28-22

D.B.G.
 H. Scale
 V. Scale
 Date NOV. 2-21
 Job No. 21014

Drawing No. **C-4** of **6**
 NOT VALID UNLESS SIGNED & DATED

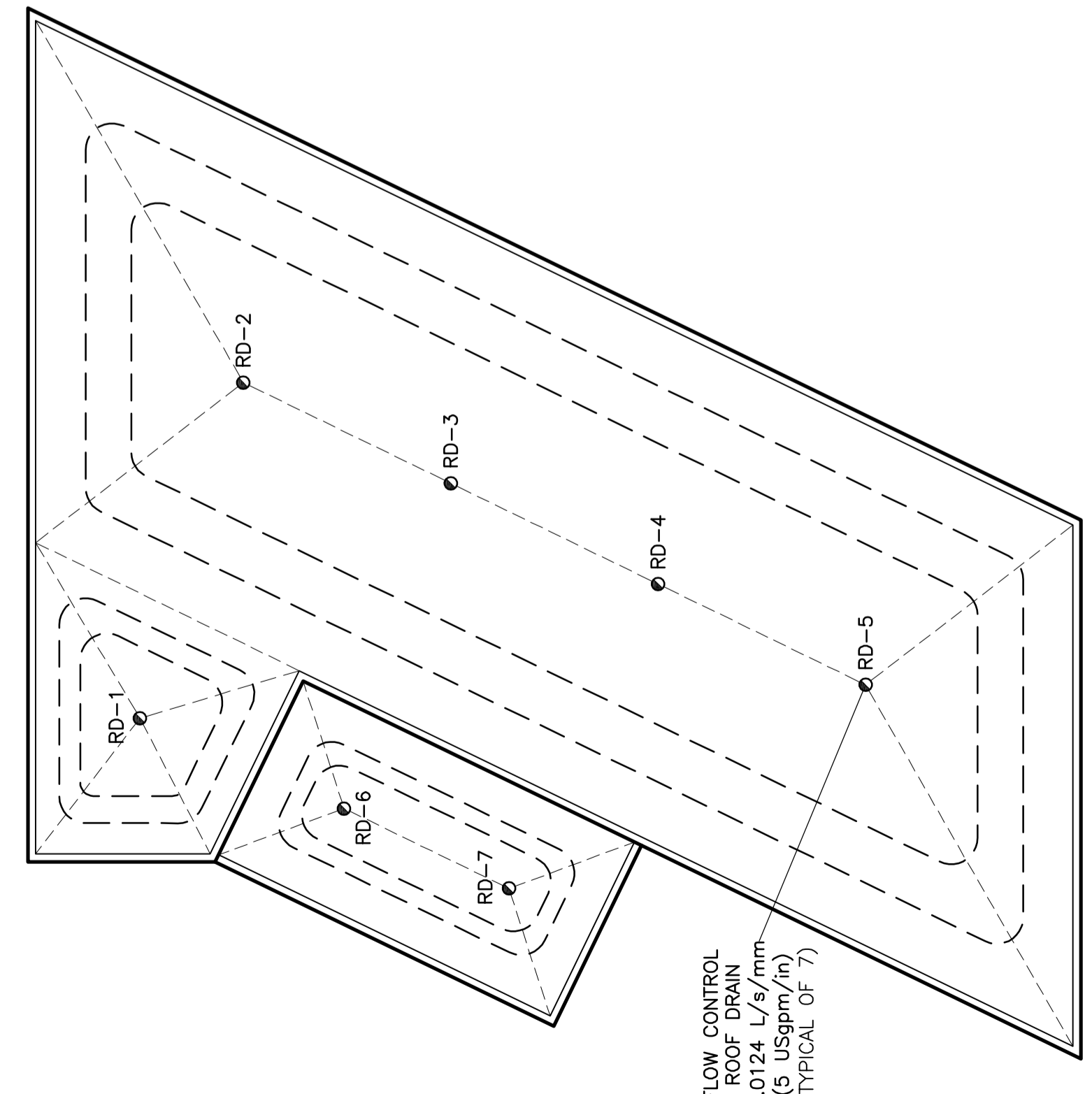
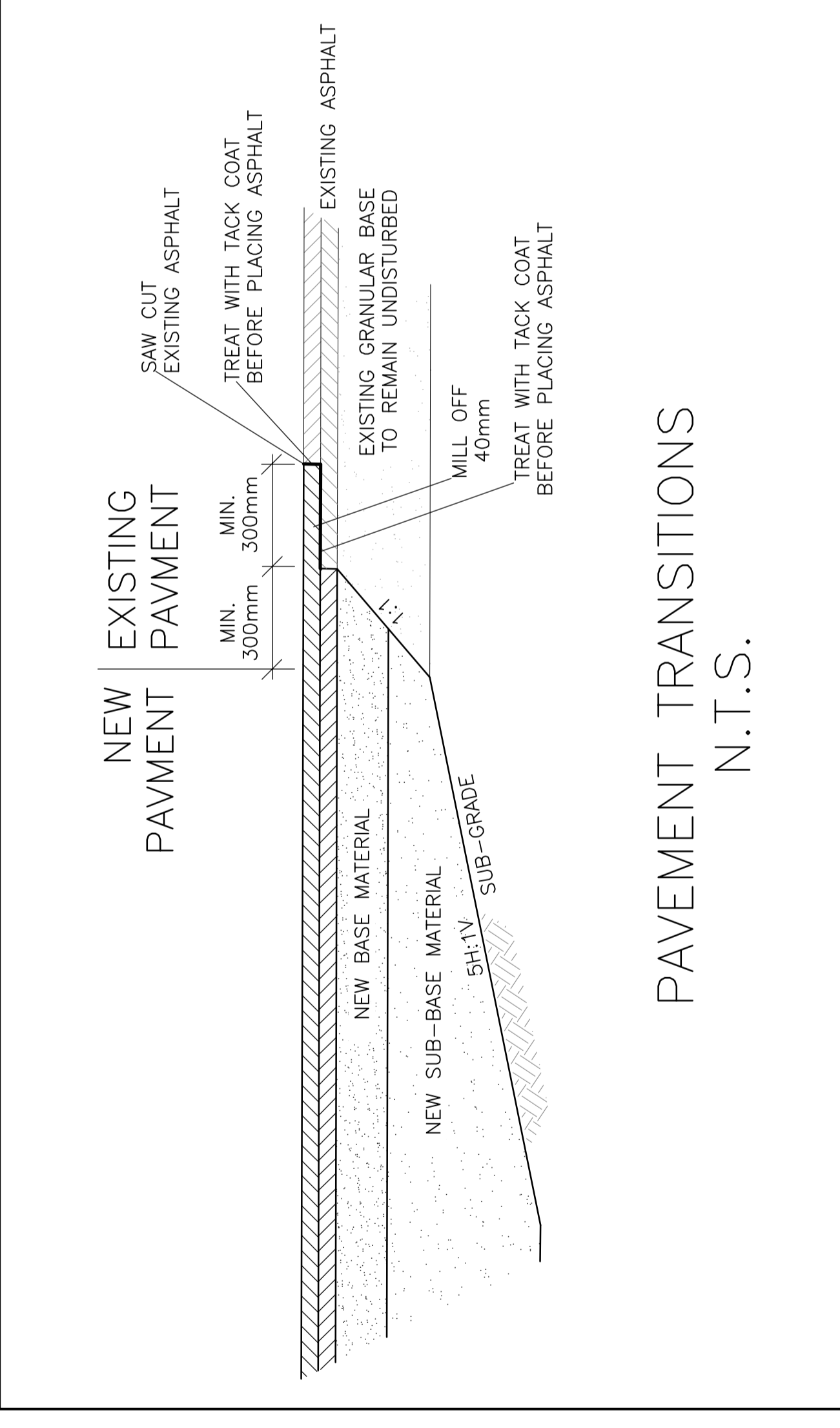
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WATER SERVICE PROFILE TABLE

MATERIAL: 150mm PVC PRESSURE CLASS 150 DR18

STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
0+00.0	150mm x 150mm TEE CONNECTION IN 150mm MANHOLE TO CITY OF OTTAWA STANDARDS	±69.10	±66.45	±2.65	-
0+05.4	11.25' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	±69.20	66.45	±2.75	-
0+06.9	11.25' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	69.35	66.75	2.60	-
0+07.9	-	69.38	66.75	2.63	CROSSING 300 SAN TOP ±66.35 WM U/S 66.60 - 250mm CLEARANCE (MIN. 250mm REQ'D)
0+08.0	-	69.38	66.75	2.63	CROSSING 450 ST INV ±67.55 WM TOP 66.75 - 800mm CLEARANCE (MIN. 500mm REQ'D)
0+08.4	-	69.39	66.75	2.64	BACK OF SIDEWALK
0+11.7	150mm VALVE & VALVE BOX TO CITY OF OTTAWA STANDARDS	69.56	66.75	2.81	-
0+12.7	-	69.61	66.75	2.86	ENTRY INTO BUILDING



PONDING DEPTHS AT ROOF DRAINS	100-YEAR	5-YEAR
RD-1	116mm	86mm
RD-2,3,4,5	114mm	81mm
RD-6,7	89mm	61mm

UPPER ROOF: INSTALL A MINIMUM OF 9 SCUPPERS, EACH A MINIMUM 300mm 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).

LOWER ROOF: INSTALL A MINIMUM OF 2 SCUPPERS, EACH A MINIMUM 300mm 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 DRAINAGE PLAN

CATCH-BASIN & MANHOLE SCHEDULE

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB/MH-1	69.49	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	-	67.52	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO DRAWING NO. S25 & S28.1
CB/MH-2	69.12	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	67.42(E)	67.42(S)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO DRAWING NO. S25 & S28.1
CB/MH-3	69.04	1200mm	PRE-CAST CONCRETE CATCH-BASIN/MANHOLE	67.40(N)	67.40(S)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO DRAWING NO. S25 & S28.1 INSTALL GD IN OUTLET PIPE
MH-4	69.07	CDS PMSU2015-4	PRE-CAST CONCRETE MANHOLE	67.39(N)	67.38(S)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS EXCEPT WITH A DEEP SUMP AS REQUIRED BY CDS INSTALL WATERTIGHT COVER
MH-5	±68.85	1200mm	PRE-CAST CONCRETE MANHOLE	±67.36(N) ±67.31(E)	±67.30(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO DRAWING NO. S25 & S24.1

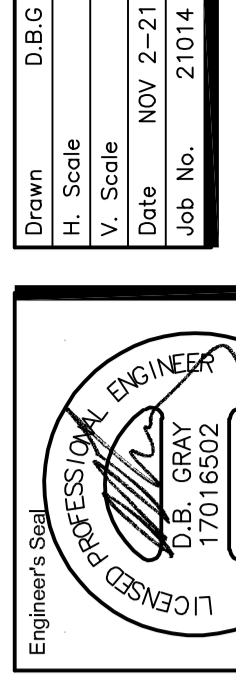


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Drawing Title
DETAILS & SCHEDULES



Engineer's Seal
 D.B. GRAY
 17016502
 JUL 28-22
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Drawing No.
C-5
 of **6**
 #18651

#18651

Drawing No.
C-6
of **6**

Engineer's Seal
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P.E. (ON)
JUL 28-22

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Engineer's Seal
D.B. GRAY
17016502
P.E. (ON)
JUL 28-22

Job No. 21014
Date NOV 2-21
V. Scale
H. Scale 1:200
D.B.C.

D07-12-22-0012

DRAINAGE PLAN

Drawing Title

Project
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VOLVO DEALERSHIP
1328 MICHAEL STREET
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