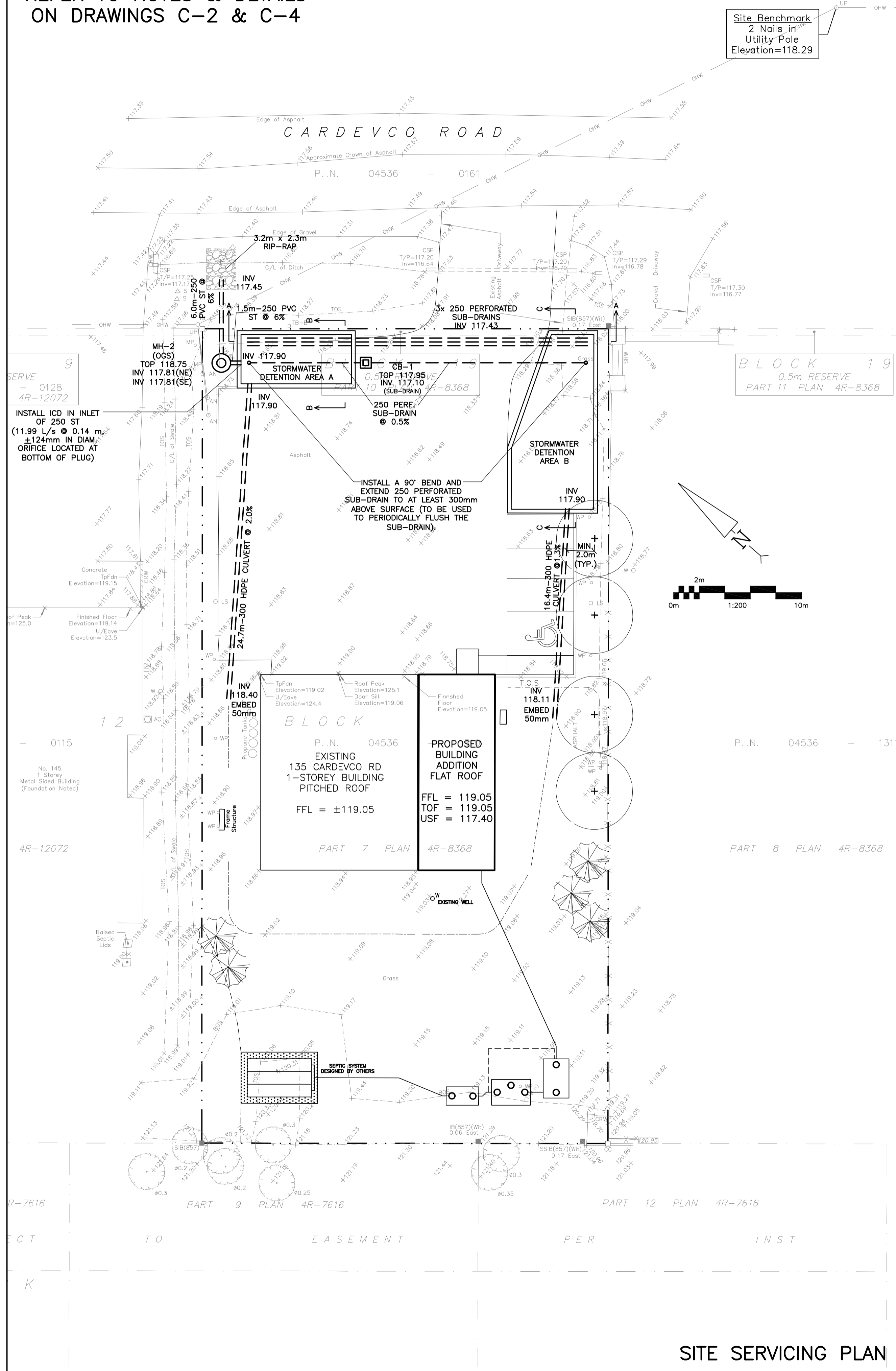
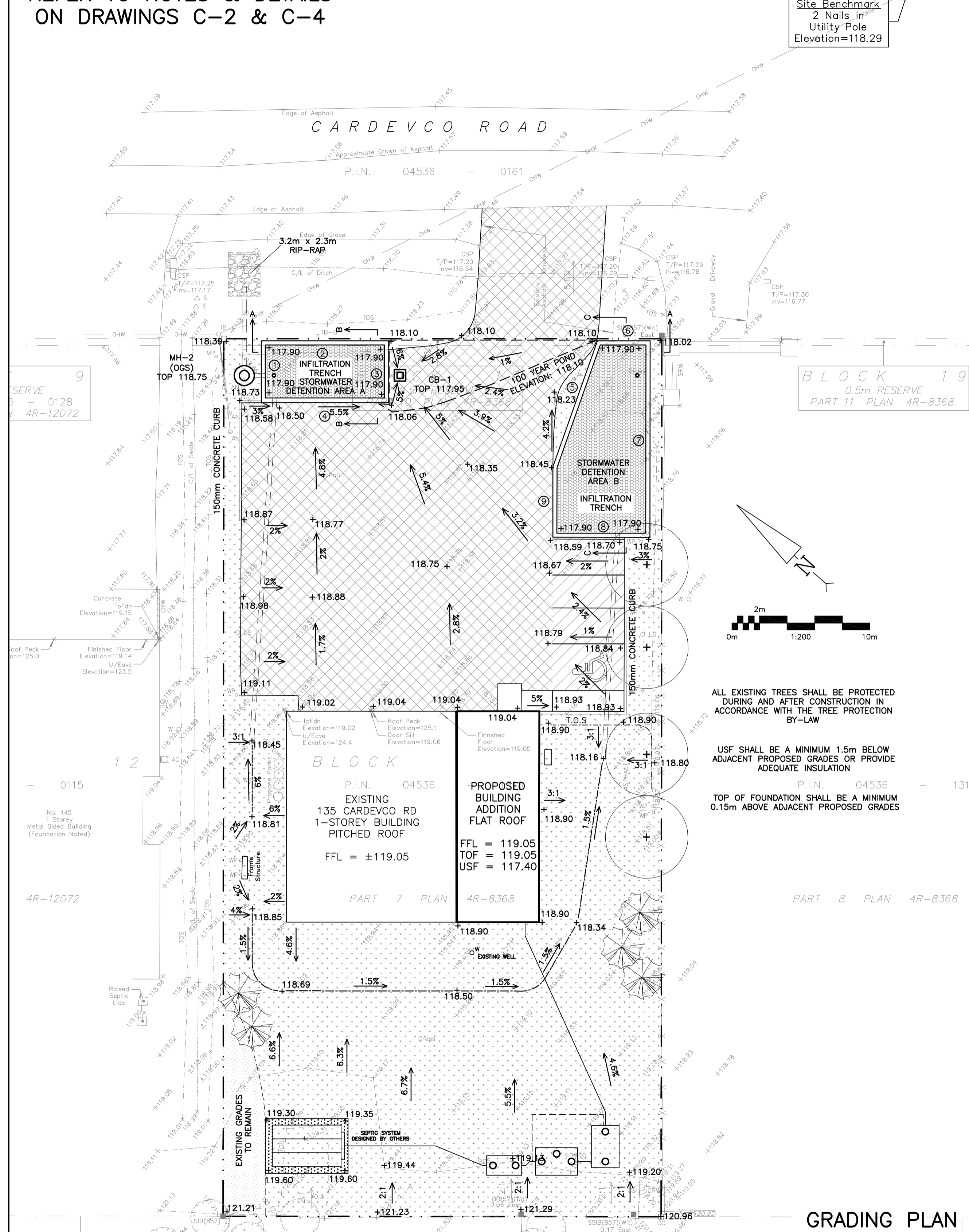


REFER TO NOTES & DETAILS
ON DRAWINGS C-2 & C-4



SITE SERVICING PLAN

REFER TO NOTES & DETAILS
ON DRAWINGS C-2 & C-4



GRADING PLAN

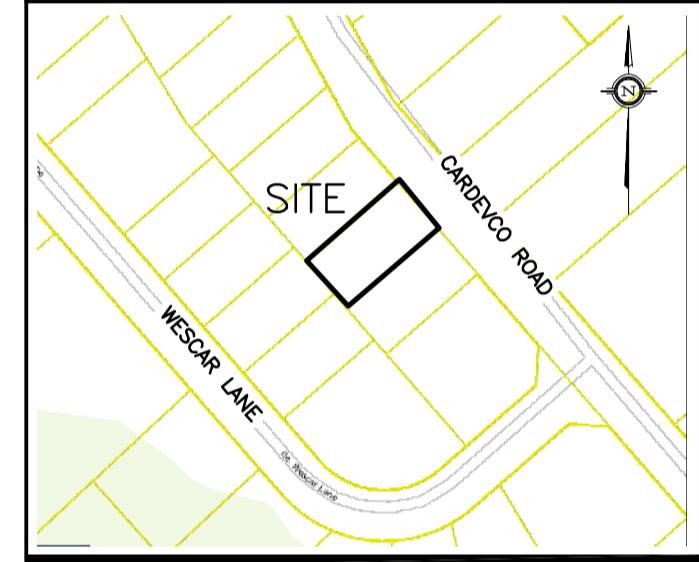
RETAINING WALL SCHEDULE

REF	TOP OF WALL	BOTTOM OF WALL	HEIGHT	NOTES	REF	TOP OF WALL	BOTTOM OF WALL	HEIGHT	NOTES
①	118.88 TO 118.25	117.90	0.98m TO 0.35m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL	⑤	118.60 TO 118.25	117.90	0.70m TO 0.35m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL
②	118.10	117.90	0.20m	TOP OF WALL TO BE USED AS OVERFLOW OUTLET DESIGNED BY STRUCTURAL	⑥	118.25 TO 118.17	117.90	0.35m TO 0.27m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL
③	118.25 TO 118.21	117.90	0.35m TO 0.31m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL	⑦	118.17 TO 118.90	117.90	0.27m TO 1.00m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL
④	118.21 TO 118.88	117.90	0.31m TO 0.98m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL	⑧	118.90 TO 118.74	117.90	1.00m TO 0.84m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL
					⑨	118.74 TO 118.60	117.90	0.84m TO 0.70m	TOP OF WALL TO BE 0.15m ABOVE PROPOSED GRADE DESIGNED BY STRUCTURAL

LEGEND

- FFL FINISHED FLOOR ELEVATION
- TOF TOP OF FOUNDATION
- USF UNDERSIDE OF FOOTING
- PROPERTY LINE
- CB CATCH-BASIN
- MH STORM MANHOLE
- ST STORM SEWER
- INV INVERT OF PIPE
- +99.99 EXISTING GRADE ELEVATION
- +99.99 PROPOSED GRADE ELEVATION
- 2% EXISTING SLOPE OF GRADE
- 2% PROPOSED SLOPE OF GRADE
- ⇨ EMERGENCY OVERLAND FLOW
- T.O.S. TOP OF SLOPE
- B.O.S. BOTTOM OF SLOPE
- CENTERLINE OF SWALE
- SILT FENCE BARRIER
- ROOF DRAIN
- ▨ LIGHT-DUTY PAVEMENT
- ▩ HEAVY-DUTY PAVEMENT
- ▨ LANDSCAPE

KEY PLAN



No.	DATE	REVISION
4	JUN 9-23	RE-ISSUED FOR APPROVAL
3	NOV 24-22	ISSUED FOR APPROVAL
2	NOV 15-22	ISSUED FOR COORDINATION
1	SEP 12-22	PRELIMINARY

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 ADDITION
135 CARDEVCO ROAD
OTTAWA, ONTARIO**

Drawing Title
**SITE SERVICING PLAN
& GRADING PLAN**

Engineer's Seal

NOT VALID UNLESS
SIGNED & DATED

Drawn D.B.G.
H. Scale 1:200
V. Scale
Date SEP 12-22
Job No. 21081
Drawing No.
**C-1
of 4**

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 GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY FARLEY, SMITH & DENNIS SURVEYING LTD FILE NO. 233-22 AS PER ELEVATION NOTE 1 ON THE TOPOGRAPHIC SURVEY. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERENCED TO THE GEODETIC DATUM CVD-1928/1978. (MONUMENT NO. 0011870425)
- 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 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY PATERSON GROUP, REPORT NUMBER P60818-1. SITE PREPARATION INCLUDING 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.
- 1.8 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE HYDROGEOLOGY AND TERRAIN ANALYSIS BY PATERSON GROUP, REPORT NUMBER PH4400-LET01
- 1.9 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SERVING BRID & STORM WATER MANAGEMENT REPORT NO. 18094 PREPARED BY D. B. GRAY ENGINEERING INC.
- 1.10 RENESTATE ADJACENT PROPERTIES TO PRE-CONSTRUCTION CONDITIONS.
- 1.11 RENESTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.
- 1.12 ALL RELEVANT WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT CITY STANDARDS AND SPECIFICATIONS.
- 1.13 ALL PROPOSED RETAINING WALLS SHALL BE SETBACK A MINIMUM 0.15 m FROM PROPERTY LINE. ALL PROPOSED RETAINING WALLS GREATER THAN 1.0 m IN HEIGHT SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO. ALL RETAINING WALLS OVER 0.6 m REQUIRE A GUARD RAIL (SEE ARCHITECTURAL).

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 SOCKS, INSERTS IN CATCH BASINS AND MANHOLES AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR SHALL ACKNOWLEDGE THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY. NOTWITHSTANDING, THE CONTRACTOR SHALL INSTALL THE FOLLOWING CONTROL MEASURES AND INSPECT, MAINTAIN AND REMOVE THE CONTROL MEASURES.
 - 2.1.1 INSTALL A SILT FENCE BARRIER AROUND STOCKPILED SEDIMENT OR SOIL. PRIOR TO COMMENCEMENT OF CONSTRUCTION INSTALL A SILT FENCE BARRIER AS SHOWN ON PLANS. INSPECT ALL SILT FENCES AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT DEPOSITS WHEN THE HEIGHT OF SEDIMENT DEPOSITS EXCEEDS THE HEIGHT OF THE FENCE. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED SECTIONS OF FENCE. DO NOT REMOVE ANY SILT FENCES IN ANY PHASE UNTIL CONSTRUCTION IS COMPLETE.
 - 2.1.2 INSTALL SEDIMENT CAPTURE FILTER SOCKS (TERRA-FIX GEOSYNTHETICS INC SILT-SACK OR APPROVED EQUAL) AT ALL NEW CATCH BASINS AS THEY ARE INSTALLED. 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 SOCKS. DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETE.
 - 2.1.3 ANY MATERIAL ON A PUBLIC ROAD SHALL BE REMOVED IMMEDIATELY AND SHOWN TO THE PUBLIC ROAD AGENCY OR VACUUMING AND DISPOSING SEDIMENT IN A CONTROLLED AREA. DO NOT SWEEP OR HOSE MATERIAL INTO ANY STORMWATER CONVEYANCE SYSTEM.
 - 2.1.4 CONSTRUCTION IS CONSIDERED COMPLETE WHEN THE FOLLOWING CONDITIONS HAVE BEEN MET:
 - 2.1.4.1 ALL STRUCTURES HAVE BEEN BUILT.
 - 2.1.4.2 ALL HARD SURFACES HAVE BEEN CONSTRUCTED.
 - 2.1.4.3 ALL PROPOSED GRASSED AREAS ARE EITHER SOGGED OR HAVE A FULL COVERAGE OF WELL ESTABLISHED TURF AND HAVE HAD A MINIMUM OF ONE FULL GROWING SEASON (MAY 15TH TO SEPTEMBER 15TH).
 - 2.1.4.4 THERE ARE NO AREAS OF EXPOSED EARTH.
 - 2.1.4.5 ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.
 - 2.1.5 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 AREAS. GRADING SHALL BE GRADUAL IN ORDER TO PREVENT 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.
- 3.4 CURBVERTS SHALL BE HDPE TO CITY OF OTTAWA STANDARDS AND SPECIFICATIONS AND TO OPSS 1840 AND CSA B182.8 OR 182.6. MINIMUM 320 MPa STIFFNESS AT 5% DEFLECTION. JOINTS SHALL BE SOIL-TIGHT OR BETTER. BOSS 2000 OR APPROVED EQUAL.
- 3.5 RIP RAP: PLACE RIP-RAP 300mm THICK AS INDICATED ON PLANS AS PER OPSS 211 AND OPSS 810.010 AND/OR 810.020. USE QUARRIED STONE 200mm TO 300mm IN DIAMETER. AREA TO BE RIP RAPPED SHALL BE EXCAVATED AND FINE GRADED TO A UNIFORM AND EVEN SURFACE TO PROVIDE ADEQUATE FOUNDATION. FILL AND TIGHTLY COMPACT DEPRESSIONS. WHERE RIP RAP IS TO BE PLACED ON SLOPES, EXCAVATE TRENCH AT TOE OF SLOPE. PLACE GEOTEXTILE FABRIC ON PREPARED SURFACE. GEOTEXTILE FABRIC SHALL EXTEND A MINIMUM 300mm BEYOND THE EXTENT OF THE RIP RAP IN ALL DIRECTIONS. PLACE RIP RAP ON FABRIC CAREFULLY, TO AVOID PUNCTURING FABRIC. PLACE RIP RAP IN A SET AND STABLE MANNER. ROCK SHALL BE PLACED, STARTING AT THE LOWER END OF THE SLOPE. THE LARGEST ROCKS OBTAINABLE SHALL BE USED AND PLACED IN THE BOTTOM COURSES AND FOR USE AS HEADERS THROUGH SUBSEQUENT COURSES. THEY SHALL BE LAID CLOSELY AND SUCH THAT THEY WILL PROVIDE A REASONABLE SIMILARITY OF COURSES. FILL VOIDS WITH SMALLER SIZES OR CORNERS. FINISH SURFACE EVEN, FREE OF LARGE OPENINGS AND NEAT IN APPEARANCE.
- 3.6 GEOTEXTILE FABRIC: OPSS 1880. WOVEN SYNTHETIC FIBRE FABRIC SHALL BE USED IN SILT FENCE BARRIERS. NON-WOVEN SYNTHETIC FIBRE FABRIC, 175mm THICK, 200g/sq.m. SHALL BE USED FOR MATERIAL SEPARATION. GEOTEXTILE (FILTER) FABRIC SHALL BE FREE OF TEARS AND RESISTANT TO DETRIORATION BY ULTRA VIOLET AND HEAT EXPOSURE. PLACE GEOTEXTILE MATERIAL BY UNROLLING ONTO GRADED SURFACE, SMOOTH AND FREE OF TENSION STRESS, FOLDS, WRINKLES AND CREASES. PLACE GEOTEXTILE MATERIAL ON SLOPING SURFACES IN ONE CONTINUOUS LENGTH FROM TOE OF SLOPE TO UPPER EXTENT OF GEOTEXTILE. OVERLAP EACH SUCCESSIVE STRIP OF GEOTEXTILE 600mm OVER PREVIOUSLY LAID STRIP IN DIRECTION OF FLOW. ALTERNATIVELY THE FABRIC MAY BE LAPPED A MINIMUM OF 300mm AND PINNED TOGETHER. PROTECT INSTALLED GEOTEXTILE MATERIAL FROM DISPLACEMENT, DAMAGE OR DETRIORATION BEFORE, DURING AND AFTER PLACEMENT OF MATERIAL LAYERS AFTER INSTALLATION. COVER WITH OVERLYING LAYER WITHIN 4 HOURS OF PLACEMENT. DURING DELIVERY AND STORAGE, PROTECT GEOTEXTILES FROM DIRECT SUNLIGHT, ULTRAVIOLET RAYS, EXCESSIVE HEAT, MUD, DIRT, DUST, DEBRIS AND RODENTS. VEHICULAR TRAFFIC NOT PERMITTED DIRECTLY ON GEOTEXTILE. AVOID PUNCTURING GEOTEXTILE. REPLACE DAMAGED OR DETRIORATED GEOTEXTILE.

4. SITE SERVICES

- 4.1 SEWER MATERIAL SHALL BE PVC SDR-28 FOR AND SHALL CONFORM TO CSA B182.2 AND SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS. PROVIDE A MINIMUM 1.8m COVER OVER SEWERS, WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS INDICATED AND AS PER DETAIL. INSULATE FOREMAN AS INDICATED AND AS PER DETAIL.
- 4.2 PERFORATED SUB-DRAINS SHALL BE HDPE, INTERIOR SMOOTH WALLED WITH FILTER SOCK, BOSS 2000 OR EQUAL.
- 4.3 THE INLET CONTROL DEVICE SHALL BE PLUG STYLE WITH A ROUND ORIFICE (WITH THE ORIFICE LOCATED AT THE BOTTOM OF THE PLUG) MANUFACTURED BY PEDRO PLASTICS (OR APPROVED EQUAL) 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:
 - 5.1.1 OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.
 - 5.1.2 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 LOCATE AND 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.
 - 5.1.3 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.
 - 5.1.4 COORDINATE AND SCHEDULE WORK WITH THE AUTHORITIES AND OTHER TRADES.
 - 5.1.5 SCHEDULE WORK TO PROVIDE THE MINIMUM DISRUPTION TO SERVICES.
- 5.2 MAINTAIN AND PROTECT FROM DAMAGE, SERVICES, UTILITIES AND STRUCTURES ENCOUNTERED.
- 5.3 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.
- 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 REMOVE OBSTRUCTIONS, ICE AND SNOW, FROM SURFACES TO BE EXCAVATED.
- 5.6 CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.

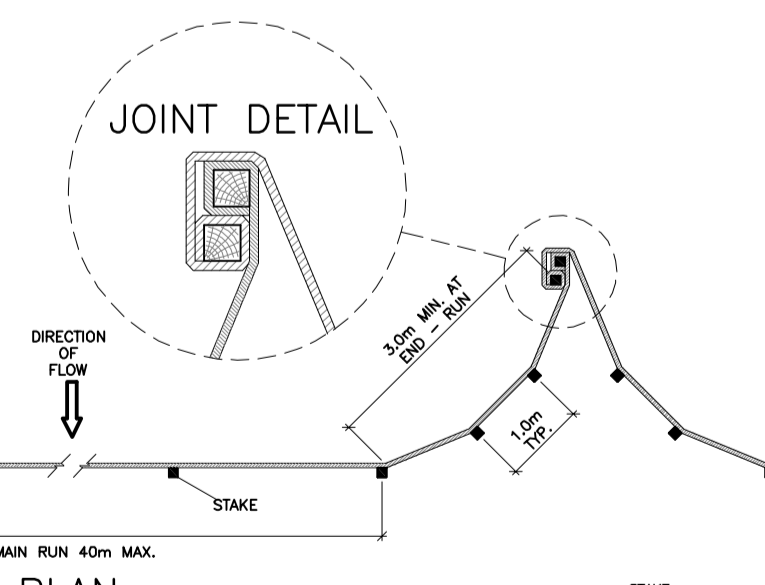
- 5.7 COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS AND COMPACTION TESTS OF SUB-GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL. BACKFILL, SUB-BASE, BASE AND ASPHALT TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT AND ENGINEER. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO ENGINEER.
- 5.8 CUT 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 SEGRIGATION AND PROTECT FROM CONTAMINATION.
- 5.9 EXCAVATION, ENGINEERED FILL, COMPACTION & BACKFILL SHALL BE AS PER THE GEOTECHNICAL INVESTIGATION.
 - 5.9.1 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 TO AUTHORITIES HAVING JURISDICTION.
 - 5.9.2 KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF.
 - 5.9.3 EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
 - 5.9.4 DO NOT OPERATE EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 98% OF CORRECTED MAXIMUM DRY DENSITY.
 - 5.9.5 EXCAVATE TO LINES, GRADES, ELEVATIONS AND DIMENSIONS AS INDICATED.
 - 5.9.6 FATH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL, LEVEL FREE FROM LOOSE, SOFT OR ORGANIC MATTER.
 - 5.9.7 ALL STRUCTURES WITHIN PAVED AREAS SHALL HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE.
 - 5.9.8 CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 98% OF CORRECTED MAXIMUM DRY DENSITY.
 - 5.9.9 SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.
 - 5.9.10 DO NOT USE BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
 - 5.9.11 PIPE BEDDING AND SURROUND MATERIAL SHALL BE OPSS GRANULAR A. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
 - 5.9.12 DO NOT OPERATE EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 98% OF CORRECTED MAXIMUM DRY DENSITY.
 - 5.9.13 PIPE BEDDING SHALL BE 150mm THICK. SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE.
 - 5.9.14 PLACE SURROUND MATERIAL AROUND PIPES TO FULL WIDTH OF TRENCH AND TO 300mm ABOVE PIPES.
 - 5.9.15 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.
 - 5.9.16 COMPACT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.
 - 5.9.17 DO NOT BACKFILL AROUND OR OVER CAST-IN-PLACE CONCRETE WITHIN 24 HOURS AFTER PLACING OF CONCRETE.
 - 5.9.18 BACKFILL MATERIALS WITHIN 1.8m OF PROPOSED GRADE SHALL MATCH THE MATERIALS EXPOSED ON THE TRENCH WALLS. BACKFILL BELOW 1.8m OF THE PROPOSED GRADE SHALL BE 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 150mm 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.

- 5.10 HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.
- 5.11 LAY, CUT AND JOIN PIPES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 5.12 USE ONLY FITTINGS AS RECOMMENDED BY PIPE MANUFACTURER.
- 5.13 LAY PIPES ON PREPARED BED, TRENCH 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.
- 5.14 DO NOT EXCEED MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER.
- 5.15 WHENEVER WORK IS SUSPENDED, INSTALL REMOVABLE WATERPROOF BULKHEAD AT OPEN END OF LAST PIPE LAID TO PREVENT ENTRY OF FOREIGN MATERIAL.
- 5.16 WHEN STOPPAGE OF WORK OCCURS, BLOCK PIPES TO PREVENT CREEP DURING DOWN TIME. MAKE WATERPROOF CONNECTIONS TO MANHOLES. JOINTS SHALL BE STRUCTURALLY SOUND AND WATERPROOF.
- 5.17 REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE.

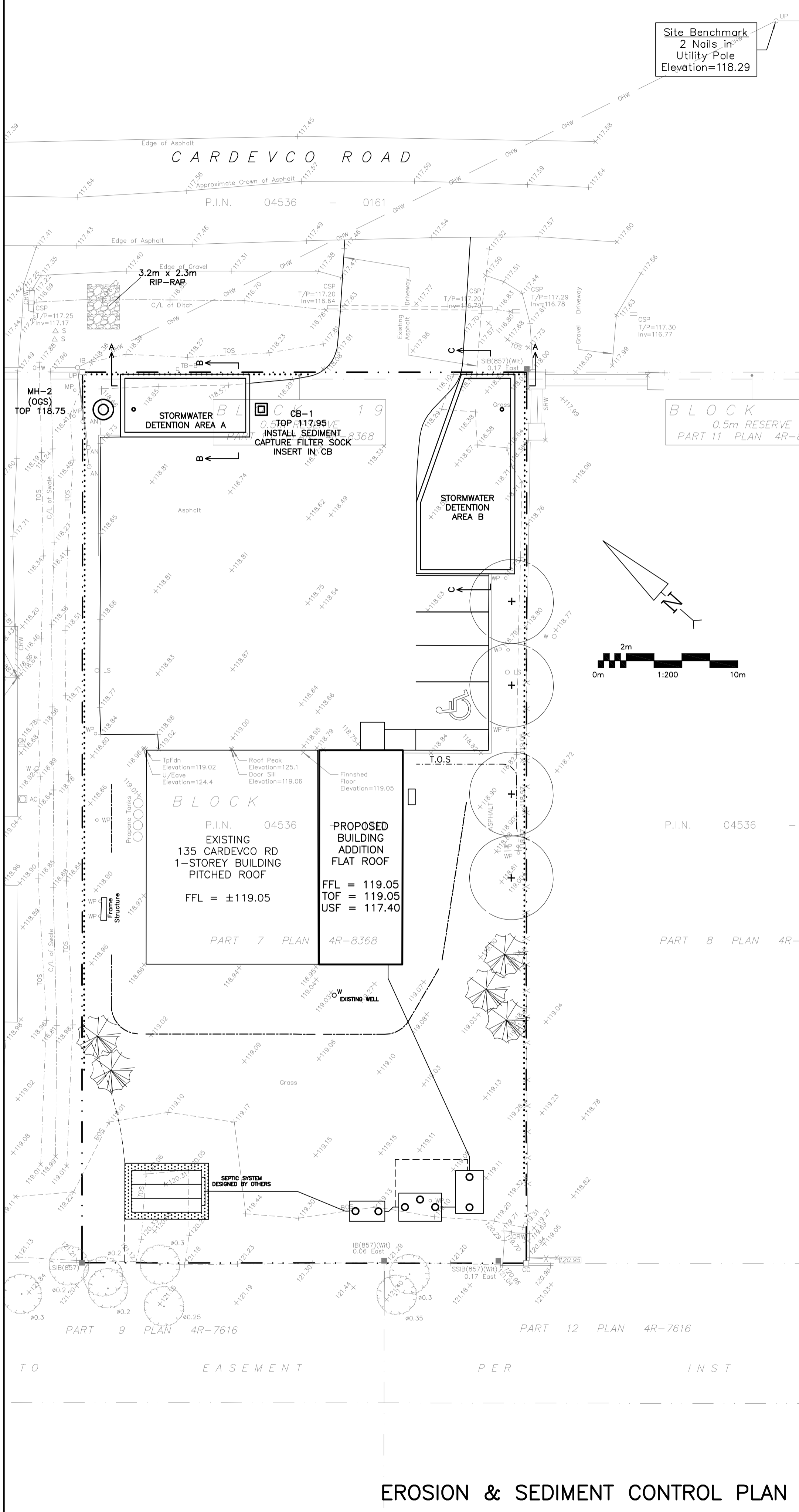
- 5.12 SEWERS AND SEWER SERVICES
 - 5.12.1 CONSTRUCT SEWER TRENCHES AS PER CITY DWG 56 & 57.
 - 5.12.2 RIGID STRUCTURES, INSTALL PIPE JOINTS NOT MORE THAN 1.2m FROM SIDE OF STRUCTURE.
 - 5.12.3 MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.
- 5.11 MAINTAIN RECORD DRAWINGS AND RECORD ACCURATELY DEVIATIONS 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 BE 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 RECORD DRAWING OF "AS-BUILT" GRADE ELEVATIONS, PREPARED BY A SURVEYOR, TO THE ENGINEER AT THE END OF CONSTRUCTION.
- 5.12 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.
- 5.13 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.
- 5.14 REINSTATE ALL AREAS DISTURBED BY CONSTRUCTION. REINSTATE PAVEMENTS, CURBS AND SIDEWALKS, TO THICKNESS, STRUCTURE AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION. REINSTATE LANDSCAPED AREAS TO THE CONDITION AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION.
- 5.13 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.

6. PAVEMENT

- 6.1 PAVEMENT STRUCTURE:
 - 6.1.1 LIGHT DUTY ASPHALT PAVEMENT:
 - 40 mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
 - 150 mm OPSS GRANULAR A BASE
 - 300 mm OPSS GRANULAR B TYPE II SUB-BASE
 - 6.1.2 HEAVY DUTY ASPHALT PAVEMENT:
 - 40 mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
 - 50 mm HL-8 OR SUPERPAVE 19 ASPHALTIC CONCRETE
 - 150 mm OPSS GRANULAR A BASE
 - 400 mm OPSS GRANULAR B TYPE II SUB-BASE
- 6.2 RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED. ASPHALTIC CONCRETE SHALL BE PERFORMANCE GRADE PG58-34. HOT MIX ASPHALT MATERIALS SHALL BE ACCORDING TO OPSS 1150 OR 1151.
- 6.2 PAVEMENT SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
- 6.3 REMOVE ALL MATERIALS TO THE SUB-GRADE LEVEL. REMOVE ORGANIC OR UNSUITABLE MATERIAL FROM SUB-GRADE WHERE ENCOUNTERED TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT. SUB-GRADE TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND. COMPACT SUB-GRADE TO 98%.
- 6.4 CONSTRUCT GRANULAR BASE AND SUB-BASE TO DEPTH AND GRADE IN AREAS INDICATED. CONSTRUCT A 5:1 V FROST TAPER IN SUB-GRADE SURFACE AS A TRANSITION BETWEEN PAVEMENT STRUCTURE AND CURBS AND SIDEWALKS.
- 6.5 ENSURE NO FROZEN MATERIAL IS PLACED. PLACE MATERIAL ONLY ON CLEAN UNFROZEN SURFACE, FREE FROM SNOW OR ICE.
- 6.6 PLACE MATERIAL TO FULL WIDTH IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS. SHAPE EACH LAYER TO SMOOTH CONTOUR AND COMPACT TO SPECIFIED DENSITY BEFORE SUCCEEDING LAYER IS PLACED.
- 6.7 COMPACT SUB-BASE MATERIAL TO DENSITY OF NOT LESS THAN 98% CORRECTED MAXIMUM DRY DENSITY. FILL OVER-EXCAVATED SUB-GRADE WITH SUB-BASE MATERIAL. COMPACT TO 98%. COMPACT BASE MATERIAL TO DENSITY NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY.
- 6.8 IN AREAS NOT ACCESSIBLE TO ROLLING EQUIPMENT, COMPACT TO SPECIFIED DENSITY WITH MECHANICAL TAMPERS.
- 6.9 REPLACE PAVEMENT DISTURBED BY CONSTRUCTION AND REPLACE WITH PAVEMENT STRUCTURE ABOVE.
- 6.10 WHERE NEW ASPHALT COMES IN CONTACT WITH EXISTING ASPHALT LAYER TO CREATE A CLEAN STRAIGHT EDGE AND CONSTRUCT AS PER DETAIL. TACK COAT SHALL BE APPLIED TO ASPHALT SURFACES AT WHICH JOINTS ARE TO BE MADE INCLUDING EXISTING PAVEMENT SURFACES THAT HAVE BEEN CUT, GROUND OR MILLED. TACK COAT SHALL BE APPLIED TO ALL BINDER COURSES AND BUTTING CONCRETE SURFACES. 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 OTHER 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 UNDILUTED MATERIAL SHALL BE ACCORDING TO OPSS 1103.
- 6.11 SHAPE BASE TO SMOOTH CONTOUR AND COMPACT TO NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY BEFORE BEGINNING PAVING OPERATIONS.
- 6.12 APPLY ASPHALTIC CONCRETE ONLY WHEN BASE OR PREVIOUS COURSE IS DRY AND AIR TEMPERATURE IS ABOVE 5 DEG.C
- 6.13 ROLL UNTIL ROLLER MARKS ARE ELIMINATED AND COMPACTED TO NOT LESS THAN 95% OF DENSITY. COMPACT WITH HOT TAMPERS IN AREAS INACCESSIBLE TO A ROLLER. BEVEL EDGES ADJACENT TO GRANULAR SURFACES.
- 6.14 FINISH SURFACE SMOOTH, TRUE TO GRADE.
- 6.15 KEEP VEHICULAR TRAFFIC AND OTHER LOADS OFF NEWLY PAVED AREAS UNTIL 24 HOURS AFTER PAVING.
- 6.16 INVERT UNUSED AND WASTE ASPHALT TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS.
- 6.17 APPLY TRAFFIC PAINT AS IDENTIFIED ON PLAN. TRAFFIC PAINT: NON-DISSOLVING, 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.



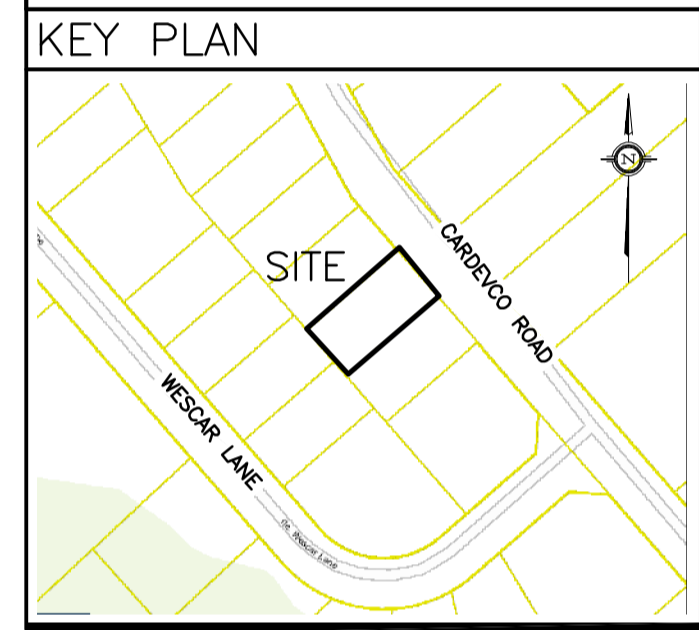
SILT FENCE BARRIER
AS PER OPSP 219.110
(MODIFIED FOR FROZEN GROUND)
N.T.S.



EROSION & SEDIMENT CONTROL PLAN

LEGEND

- FFL FINISHED FLOOR ELEVATION
- TOF TOP OF FOUNDATION
- USF UNDERSIDE OF FOOTING
- PROPERTY LINE
- CB CATCH-BASIN
- MH STORM MANHOLE
- ST STORM SEWER
- INV INVERT OF PIPE
- EXISTING GRADE ELEVATION
- +99.99 PROPOSED GRADE ELEVATION
- 2% EXISTING SLOPE OF GRADE
- 2% PROPOSED SLOPE OF GRADE
- EMERGENCY OVERLAND FLOW
- T.O.S TOP OF SLOPE
- B.O.S BOTTOM OF SLOPE
- CENTERLINE OF SWALE
- SILT FENCE BARRIER
- ROOF DRAIN
- LIGHT-DUTY PAVEMENT
- HEAVY-DUTY PAVEMENT
- LANDSCAPE



No.	DATE	REVISION
4	JUN 9-23	RE-ISSUED FOR APPROVAL
3	NOV 24-22	ISSUED FOR APPROVAL
2	NOV 15-22	ISSUED FOR COORDINATION
1	SEP 12-22	PRELIMINARY

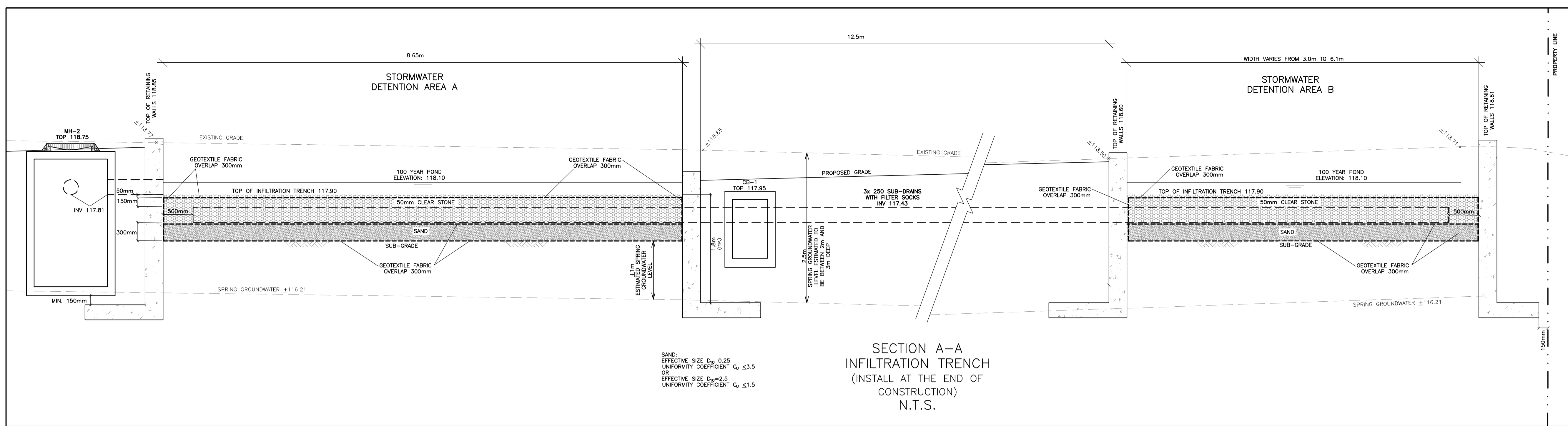
D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Wetlands
700 Long Point Circle
Ottawa, Ontario
613-425-8044
d.gray@dbgrayengineering.com

Project
PROPOSED ADDITION
135 CARDEVCO ROAD
OTTAWA, ONTARIO

EROSION & SEDIMENT CONTROL PLAN & NOTES

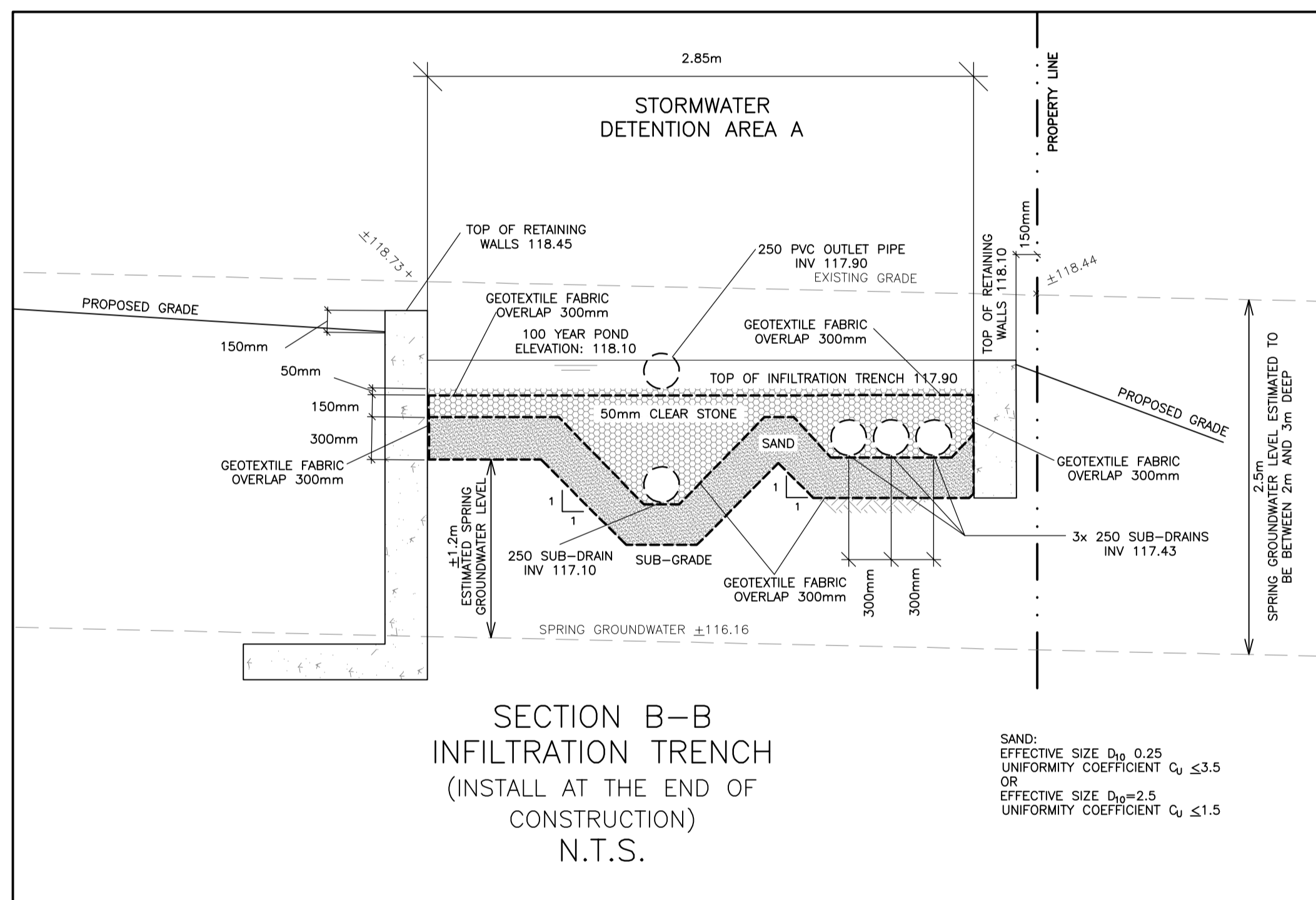
Engineer's Seal

 Drawn D.B.G.
 H. Scale 1:200
 V. Scale
 Date SEP 12-22
 Job No. 21081
 Drawing No. C-2 of 4
 NOT VALID UNLESS SIGNED & DATED



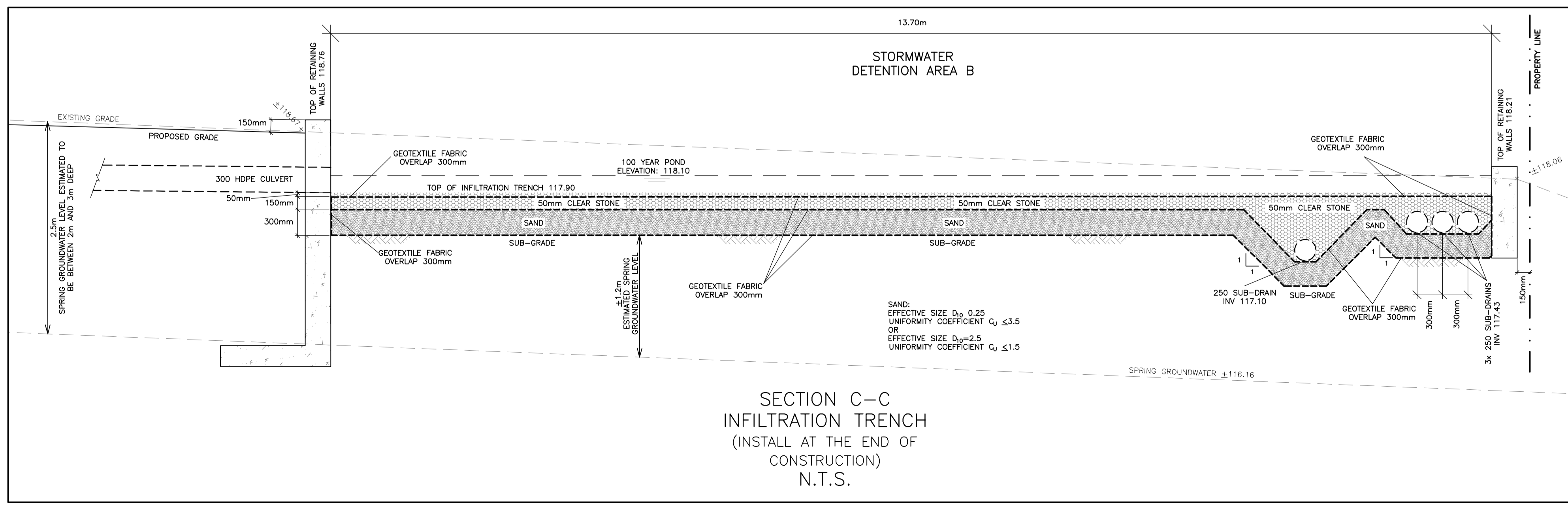
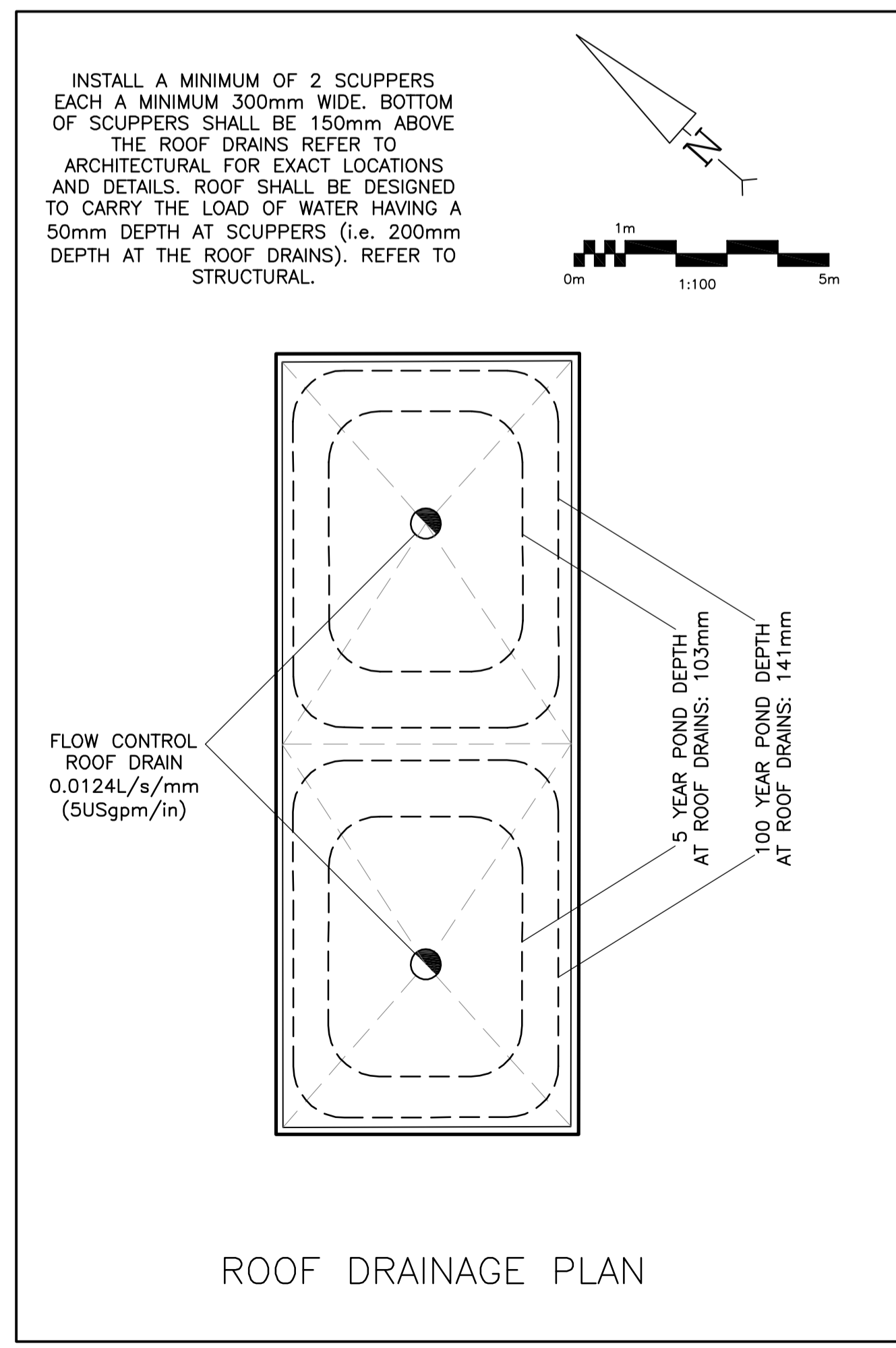
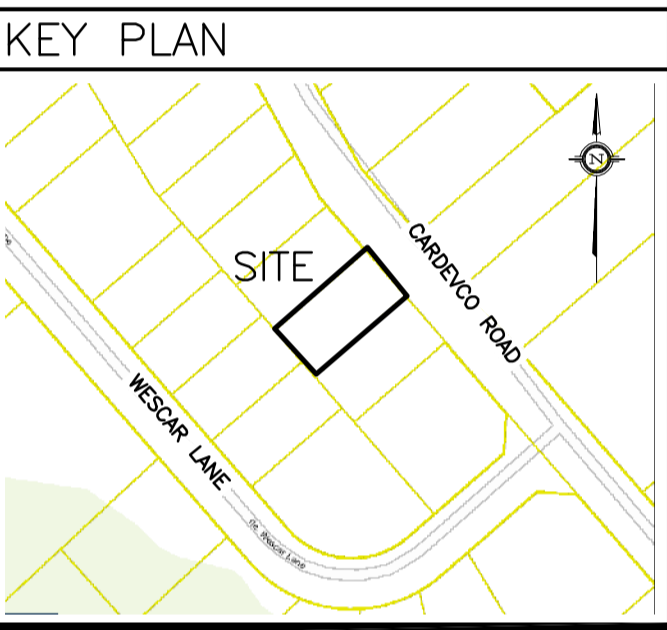
LEGEND

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- [] LIGHT-DUTY PAVEMENT
- [] HEAVY-DUTY PAVEMENT
- [] LANDSCAPE



CATCH-BASIN & MANHOLE SCHEDULE

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB-1	117.95	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	117.10 (SUB-DRAIN)	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
MH-2	118.75	CDS PMSU2015-4	PRECAST CONCRETE MANHOLE	117.81(SE)	117.81(NE)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS EXCEPT WITH A DEEP SUMP AS REQUIRED BY CDS



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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 ADDITION
135 CARDEVCO ROAD
 OTTAWA, ONTARIO

Drawing Title
DETAILS

Engineer's Seal

 NOT VALID UNLESS SIGNED & DATED

Drawn D.B.G.
 H. Scale 1:100
 V. Scale
 Date SEP 12-22
 Job No. 21081

Drawing No.
C-3
 of 4

