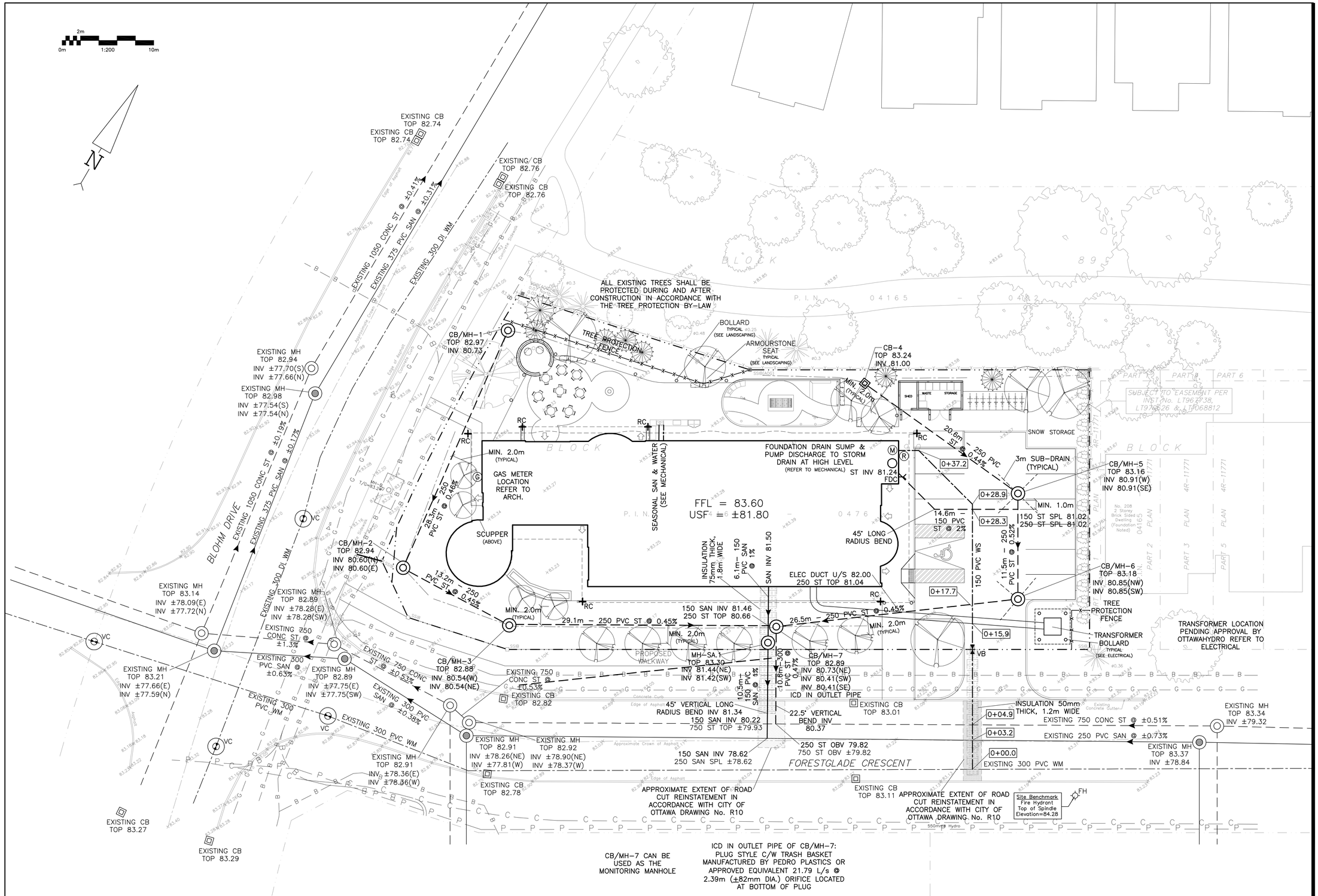


THE UNDERLYING NATIVE SOIL INCLUDES POTENTIAL SENSITIVE LEDA CLAY. REFER TO THE GEOTECHNICAL REPORT. THE CONTRACTOR SHALL USE SUITABLE MEANS AND METHODS OF EXCAVATION SO NOT TO CAUSE DISTURBANCE TO THE POTENTIALLY SENSITIVE LEDA CLAY. AFTER EXCAVATING, THE SUBGRADE (INCLUDING SERVICE AND UTILITY TRENCH SUBGRADES, OR ENGINEERED FILL REPLACEMENT OF UNSUITABLE MATERIALS) SHALL BE INSPECTED AND APPROVED BY A QUALIFIED GEOTECHNICAL CONSULTANT PRIOR TO PLACEMENT OF THE BEDDING LAYER, THE SERVICE PIPE AND/OR UTILITY INSTALLATION, AND THE COVER/SURROUND MATERIAL. THE PREPARED SUBGRADE SHOULD ALSO BE PROTECTED FROM DISTURBANCE BY CONSTRUCTION TRAFFIC, EXCESSIVE WETTING OR DRYING, OR FREEZING. NO MORE THAN 15 m OF TRENCH SHOULD BE OPEN IN ADVANCE OF THE COMPLETED SERVICE/UTILITY INSTALLATION. IF THE EXPOSED NATIVE SENSITIVE CLAY SOIL IS ASSESSED ON SITE BY THE GEOTECHNICAL CONSULTANT AND CONFIRMED THAT IT WILL BE DISTURBED BY BACKFILL COMPACTION, UNSHRINKABLE FILL (U-FILL) AS PER OPSS.MUNI 1359 MAY BE USED IN LIEU THE BEDDING LAYER AND COVER/SURROUND MATERIAL.

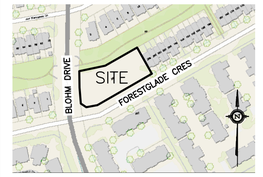
REFER TO THE GEOTECHNICAL REPORT: THE SUB-GRADE AND SURFACE OF STRUCTURES SHALL BE CROWNED OR SLOPED TO PROMOTE DRAINAGE OF WATER AWAY FROM THE STRUCTURE SURFACE, GRANULAR LAYERS, AND SUB-GRADE. PERFORATED SUB-DRAINS SHALL BE PROVIDED ALONG THE SIDES OF STRUCTURE FOR THE ENTIRE LENGTH. SUB-DRAINS SHALL BE INSTALLED AT THE SUB-GRADE LEVEL TO ENSURE EFFECTIVE DRAINAGE OF SUBSURFACE WATER. THE PERFORATED PIPES SHOULD BE ENCLOSED WITH FREE DRAIN GRANULAR MATERIAL (OPSS.MUNI 1004 19 mm CLEAR STONE OR APPROVED EQUIVALENT) AND WRAPPED UP WITH CLASS II NON-WOVEN GEOTEXTILE AS PER OPSS.MUNI 1860 (TERRAFIX 360R OR APPROVED EQUIVALENT). THE SUB-DRAINS SHALL CONNECT TO CATCH BASINS OR STORM MANHOLES. THE SUB-DRAINS SHALL BE INSTALLED IN ACCORDANCE WITH OPSS.MUNI 405.

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

LEGEND

FFL	FIRST FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
— · · —	PROPERTY LINE
CB	CATCH BASIN
MH	STORM MANHOLE
CB/MH	CATCH BASIN/MANHOLE
MH	SANITARY MANHOLE
VC	VALVE CHAMBER
DS	DOWNSPOUT
FH	FIRE HYDRANT
RC	RAINCHAIN
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
OBV	OBVERT OF PIPE
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE

KEY PLAN



No.	DATE	REVISION
4	APR 4-25	ISSUED FOR SITE PLAN CONTROL
3	APR 2-25	ISSUED FOR COORDINATION
2	FEB 21-25	ISSUED FOR CLASS B COSTING
1	FEB 14-25	ISSUED FOR COORDINATION

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

Project

PROPOSED 3-STOREY OAC WOMEN'S SHELTER 250 FORESTGLADE CRESCENT

OTTAWA, ONTARIO

Drawing Title

SITE SERVICING PLAN

Engineer's Seal

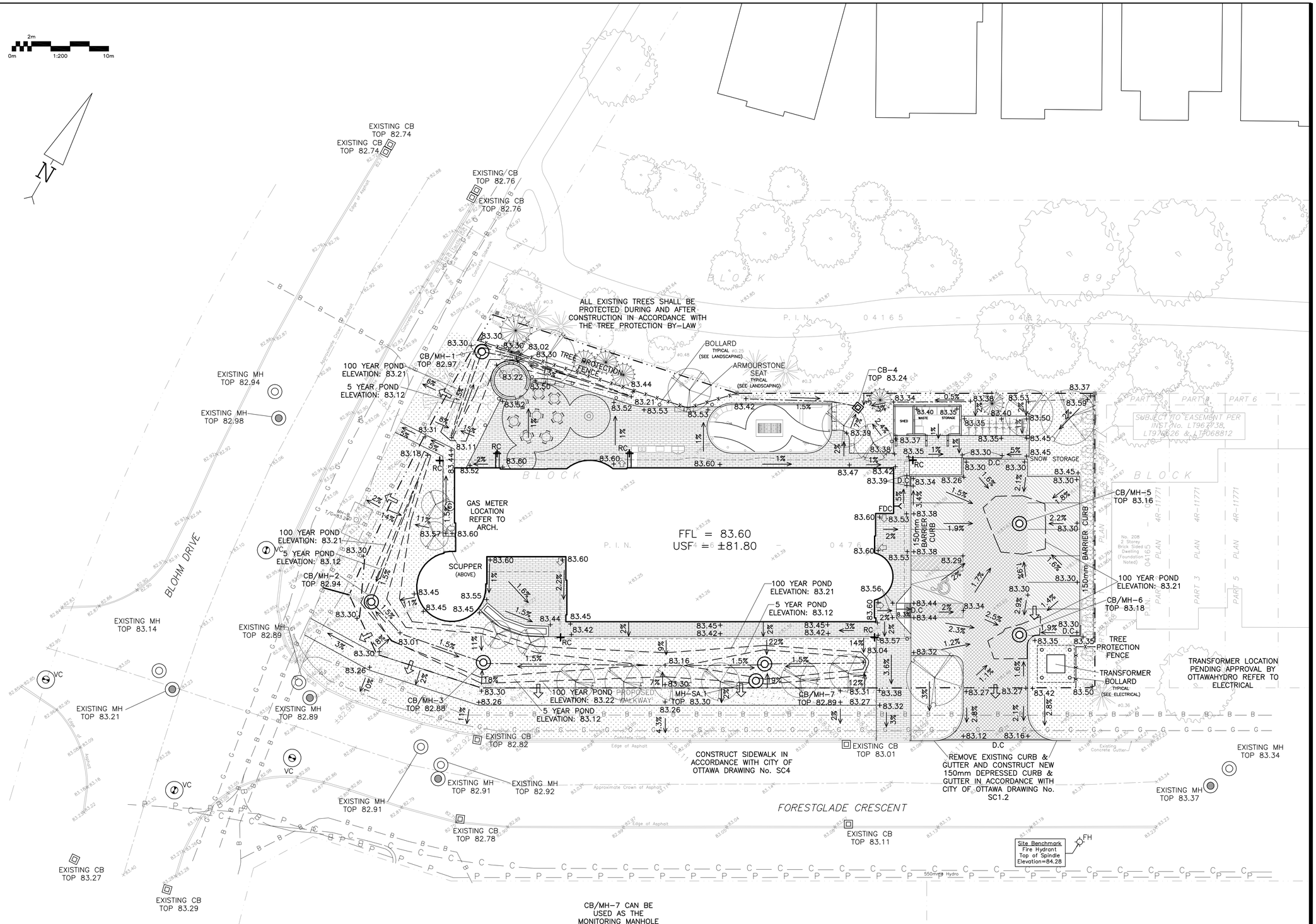
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
APR 4-25
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:200
V. Scale	
Date	FEB 14-25
Job No.	24053

Drawing No.

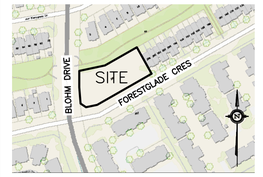
C-1
of 7



LEGEND

FFL	FIRST FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
	PROPERTY LINE
CB	CATCH BASIN
MH	STORM MANHOLE
CB/MH	CATCH BASIN/MANHOLE
MH	SANITARY MANHOLE
VC	VALVE CHAMBER
DS	DOWNSPOUT
RC	RAINCHAIN
FDC	FIRE DEPARTMENT CONNECTION
x99.99	EXISTING GRADE ELEVATION
+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
	CONCRETE
	LANDSCAPE
	INTERLOCK

KEY PLAN



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Project

PROPOSED 3-STOREY OAC WOMEN'S SHELTER 250 FORESTGLADE CRESCENT

OTTAWA, ONTARIO

Drawing Title

GRADING PLAN

Engineer's Seal

LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
APR 4-25
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:200
V. Scale	
Date	FEB 14-25
Job No.	24053

Drawing No.

C-2
of 7

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

2m
0m 1:200 10m

N

EXISTING CB
TOP 82.74
EXISTING CB
TOP 82.74

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB

EXISTING CB
TOP 82.76
EXISTING CB
TOP 82.76

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB/MH
CB/MH-1
TOP 82.97

ALL EXISTING TREES SHALL BE
PROTECTED DURING AND AFTER
CONSTRUCTION IN ACCORDANCE WITH
THE TREE PROTECTION BY-LAW

TREE PROTECTION
FENCE

BOLLARD
TYPICAL ø0.25
(SEE LANDSCAPING)

ARMOURSTONE
SEAT
TYPICAL
(SEE LANDSCAPING)

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB
CB-4
TOP 83.24

EXISTING MH
TOP 82.94

EXISTING MH
TOP 82.98

BLOHM DRIVE

RC
RC
RC
RC
RC

GAS METER
LOCATION
REFER TO
ARCH.

SCUPPER
(ABOVE)

FFL = 83.60
USF = ±81.80

SHED
WASTE
STORAGE

SNOW STORAGE

FDC

CB/MH-5
TOP 83.16

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB/MH

CB/MH-6
TOP 83.18

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB/MH

TREE
PROTECTION
FENCE

TRANSFORMER
BOLLARD
TYPICAL
(SEE ELECTRICAL)

TRANSFORMER LOCATION
PENDING APPROVAL BY
OTTAWAHYDRO REFER TO
ELECTRICAL

SUBJECT TO EASEMENT PER
INST No. LT962738,
LT976526 & LT968812

No. 208
2 Storey
Brick Sided
Dwelling
(Foundation
Noted)

CB/MH-2
TOP 82.94

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB/MH

EXISTING MH
TOP 82.89

EXISTING MH
TOP 83.14

VC

EXISTING MH
TOP 83.21

EXISTING MH
TOP 82.89

CB/MH-3
TOP 82.88

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB/MH

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB/MH

MH-SA.1
TOP 83.30

CB/MH-7
TOP 82.89

PROPOSED
WALKWAY

EXISTING CB
TOP 82.82
INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB

INSTALL SEDIMENT
CAPTURE FILTER SOCK
INSERT IN CB

EXISTING CB
TOP 83.01

EXISTING MH
TOP 83.34

EXISTING MH
TOP 82.91

EXISTING MH
TOP 82.92

EXISTING MH
TOP 82.91

EXISTING MH
TOP 83.37

FORESTGLADE CRESCENT

EXISTING CB
TOP 82.78

EXISTING CB
TOP 83.11

Site Benchmark
Fire Hydrant
Top of Spindle
Elevation=84.28

FH

EXISTING CB
TOP 83.27

EXISTING CB
TOP 83.29

550mm Hydro

CB/MH-7 CAN BE
USED AS THE
MONITORING MANHOLE

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

LEGEND

FFL	FIRST FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
	PROPERTY LINE
CB	CATCH BASIN
MH	STORM MANHOLE
CB/MH	CATCH BASIN/MANHOLE
MH	SANITARY MANHOLE
VC	VALVE CHAMBER
DS	DOWNSPOUT
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
	SILT FENCE BARRIER

KEY PLAN

No.	DATE	REVISION
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Project
PROPOSED 3-STOREY
OAC WOMEN'S SHELTER
250 FORESTGLADE
CRESCENT
OTTAWA, ONTARIO

Drawing Title
EROSION & SEDIMENT
CONTROL PLAN

Engineer's Seal
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
APR 4-25
PROVINCE OF ONTARIO
NOT VALID UNLESS
SIGNED & DATED

Drawn	D.B.G
H. Scale	1:200
V. Scale	
Date	FEB 14-25
Job No.	24053

Drawing No.
C-3
of 7

1. GENERAL

1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE. ALL PIPE DIMENSIONS ARE NOMINAL AND IN MILLIMETERS UNLESS OTHERWISE NOTED.
1.2 UNLESS OTHERWISE STATED "ENGINEER" REFERS TO D. B. GRAY ENGINEERING INC.
1.3 SITE BOUNDARIES AND EXISTING GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. FILE No. 396–24. AS IS STATED ON THE TOPOGRAPHIC SURVEY: BEARINGS REFERRED TO THE NORTHERLY LIMIT OF FORESTGLADE CRESCENT HAVING A BEARING OF N59°46'30"E AS SHOWN ON REGISTERED PLAN 4M–842 AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9 (76°30' WEST LONGITUDE) NAD–83 ORIGINAL. EXISTING AND NEW GRADE ELEVATIONS AND INVERT ELEVATIONS ON THE THE SURVEY PLAN AND THESE DRAWINGS ARE IN METRES AND ARE GEODETIC AND AS IS STATED ON THE TOPOGRPHIC SURVEY ARE REFERRED TO GEODETIC DATUM CGVD–1928:1978 (MONUMENT No. 19680105). 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.
1.4 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 PRIOR TO CONSTRUCTION. AT ALL TIMES THE CONTRACTOR IS RESPONSIBLE FOR THE ACCURACY OF THE LAYOUT INCLUDING LINES AND GRADES.
1.5 REFER TO TREE CONSERVATION REPORT AND/OR LANDSCAPE PLAN AND SPECIFICATIONS FOR TREE PROTECTION REQUIREMENTS.
1.6 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY WSP CANADA INC. FILE: CA0044112.4771. CONSTRUCTION SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER INCLUDING: SUB–GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE; EXCAVATION AND BACKFILLING; SERVICE TRENCH EXCAVATION AND PIPE BEDDING AND BACKFILL; AND THE COMPACTION OF MATERIALS.
1.7 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SITE SERVICING & STORMWATER MANAGEMENT REPORT No. 24053 PREPARED BY D. B. GRAY ENGINEERING INC.
1.8 CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS.
1.9 ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS SHALL APPLY WHERE NO CITY OF OTTAWA STANDARD SPECIFICATIONS OR DRAWINGS ARE AVAILABLE.
1.10 REINSTATE AREAS DISTURBED BY CONSTRUCTION TO PRE–CONSTRUCTION CONDITIONS.
1.11 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.

2. EROSION AND SEDIMENT CONTROL PLAN

2.1 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. DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETE.
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 COMPLETE.
2.3 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 LEVEL OF DEPOSITS REACHES ONE THIRD 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.
2.4 ANY MATERIAL DEPOSITED ON A PUBLIC ROAD SHALL BE REMOVED BY SWEEPING AND SHOVELING OR VACUUMING AND DISPOSING SEDIMENT IN A CONTROLLED AREA. DO NOT SWEEP OR HOSE MATERIAL INTO ANY STORMWATER CONVEYANCE SYSTEM.
2.5 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 HAD A MINIMUM OF ONE FULL GROWING SEASON (MAY 15TH TO SEPTEMBER 15TH).
  D. THERE ARE NO AREAS OF EXPOSED EARTH.
  E. ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.
2.6 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 OR 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.
3.4 CONCRETE CURBS SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.1. CONCRETE CURBS WITH GUTTER SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.2. CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC4. PEDESTRIAN CURB RAMP SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING No. SC2, WITH 150 mm THICK GRANULAR 'A' BASE, 150 mm THICK CONCRETE C/W REINFORCING MESH (150mm x 150mm MW9.1 x MW9.1) AND SHALL BE C/W TACTILE WALKING SURFACE INDICATOR (TWSI) ALL IN ACCORDANCE WITH CITY OF OTTAWA ACCESSIBILITY DESIGN STANDARDS. TWSI SHALL BE INSTALLED AS PER CITY OF OTTAWA DRAWING No. SC7.3. TWO No. 15 REINFORCING BARS SHALL BE ADDED TO THE CURB FOR THE FULL LENGTH OF THE DEPRESS CURB. DEPRESSED CONCRETE CURBS FOR PEDESTRIAN TRAFFIC SHALL BE 0 mm. CONCRETE CURBS SHALL BE TO CITY OTTAWA SPECIFICATION SECTION F–3531. CONCRETE SIDEWALKS SHALL BE TO CITY OF OTTAWA SPECIFICATION SECTION F–3511. CONCRETE SHALL BE CSA 32 MPa, CLASS C–2, THE AIR ENTRAINMENT SHALL BE 5% TO 8% PRIOR TO PLACEMENT AND THE SLUMP SHALL BE LESS THAN 40 mm ±20 mm FOR EXTRUDED CONCRETE CURBS AND LESS THAN 90 mm FOR PLACED CONCRETE CURBS AND SIDEWALK.
3.5 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.

4. SITE SERVICES

4.1 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 DR18 TO AWWA C–900, CSA B137.3 & CITY OF OTTAWA STANDARDS. METALLIC WARNING TAPE SHALL BE INSTALLED OVER ALL WATER SERVICE. 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.
4.4 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 & WINDOW WELLS) PLACE INSULATION AROUND WATER SERVICE CONNECTION AS PER CITY OF OTTAWA DWG. No. W23.
4.6 WATER SERVICE 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 WATER SERVICE CONNECTION SHALL CROSS ABOVE THE SEWER AS PER CITY OF OTTAWA DRAWING No. W25.2: PROVIDE 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 AS PER CITY OF OTTAWA DRAWING No. W25: 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 ALL SEWER MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSD). SEWER MATERIAL SHALL BE PVC OR REINFORCED CONCRETE. PVC SEWERS SHALL BE 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.
4.9 SEWERS SHALL HAVE A MINIMUM 2.0m OF COVER OR SHALL BE INSULATED AS PER DETAIL OR CITY OF OTTAWA STANDARD DRAWING S35.
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 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 478M.
  D. ALUMINUM SURFACES IN CONTACT WITH OR CAST INTO CONCRETE SHALL HAVE POLYETHYLENE ANCHOR INSULATING SLEEVES.
  E. PRECAST CATCH BASIN SECTIONS: TO OPSS 1351.
  F. JOINTS: SHALL BE MADE WATERTIGHT USING BUTYL BASED, FLEXIBLE WATERSTOP/JOINT SEALANT MATERIAL.
  G. SANITARY SEWERS: BENCH TO PROVIDE A SMOOTH U–SHAPED CHANNEL PER OPSD 701.021. SLOPE INVERT TO ESTABLISH SEWER GRADE.
  H. STORM SEWERS: MANHOLES SHALL HAVE A 300mm SUMP AND CATCH BASINS SHALL HAVE A 600mm SUMP.
  I. 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.
  J. GRANULAR BEDDING AND BACKFILL: OPSS GRANULAR A EXCEPT AS DIRECTED BY GEOTECHNICAL CONSULTANT. RE–CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED.
  G. PRIOR TO INSTALLATION SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.
4.12 AS INDICATED ON PLANS: AT ALL CATCH BASINS AND CATCH BASIN MANHOLES PROVIDE MINIMUM 3m LONG, 150mm DIAMETER, PERFORATED SUB–DRAINS AT THE SUB–GRADE LEVEL; HDPE C/W FILTER FABRIC SOCK & END PLUG (BOSS 1000 OR APPROVED EQUAL). PERFORATED SUB–DRAINS SHALL BE ENCLOSED WITH FREE DRAIN GRANULAR MATERIAL (OPSS.MUNI 1004 19 MM CLEAR STONE OR APPROVED EQUIVALENT) AND WRAPPED UP WITH CLASS II NON–WOVEN GEOTEXTILE AS PER OPSS.MUNI 1860 (TERRAFIX 360R OR APPROVED EQUIVALENT).
4.13 THE INLET CONTROL DEVICE SHALL BE PLUG STYLE WITH A TRASH BASKET AND A ROUND ORIFICE 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 REVIEW.

5. CONSTRUCTION:

5.1 PRIOR TO COMMENCING WORK:
  A. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.
  B. SIZE, DEPTH AND LOCATION OF EXISTING INFRASTRUCTURE (SERVICES, UTILITIES, AND STRUCTURES) AND ARE NOT NECESSARILY SHOWN ON DRAWINGS AND THOSE INDICATED ON THE DRAWINGS ARE DERIVED FROM AVAILABLE INFORMATION AND ARE FOR GUIDANCE ONLY AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING ANY WORK. 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 INFRASTRUCTURE ON THE SITE AND ADJACENT TO THE SITE. UNDERGROUND LOCATES (INCLUDING BUT NOT LIMITED TO ONTARIO ONE CALL: 1–800–400–2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION. CONFIRM LOCATIONS OF BURIED INFRASTRUCTURE BY CAREFULLY EXCAVATING TEST PITS AND REPORT ANY DIFFERENCES TO THE ENGINEER. ANY ISSUES ARISING FROM FAILURE OF CONTRACTOR TO DETERMINE THE SIZE, DEPTH AND LOCATION ALL EXISTING INFRASTRUCTURE WILL BE AT THE CONTRACTOR'S EXPENSE.
  C. EXISTING GRADE ELEVATIONS SHOWN ON DRAWINGS ARE DERIVED FROM AVAILABLE INFORMATION AND ARE FOR GUIDANCE ONLY AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING CONSTRUCTION. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. REPORT ANY DIFFERENCES TO ENGINEER.
  D. COORDINATE AND SCHEDULE WORK WITH THE OWNER, 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.
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 AS REQUIRED BY THE AUTHORITIES, INCLUDING ANY NECESSARY PERSONNEL AND THE SUPPLY, INSTALLATION, REMOVAL AND REPLACEMENT OF ALL NECESSARY SIGNAGE AND BARRIERS. IF APPLICABLE, PROVIDE TRAFFIC MANAGEMENT PLAN AS PER CITY OF OTTAWA REQUIREMENTS.
5.5 FENCE OFF ALL OPEN EXCAVATIONS AT THE END OF EACH WORK DAY. FENCES SHALL BE INSTALLED AND MAINTAINED A GOOD AND EFFECTIVE CONDITION.
5.6 REMOVE OBSTRUCTIONS, ICE AND SNOW, FROM SURFACES TO BE EXCAVATED.
5.7 CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.
5.8 COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS (INCLUDING SUB–GRADE) AND COMPACTION TESTS OF; SERVICING TRENCHES (SUB–GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL, AND BACKFILL); AND PAVEMENT STRUCTURES (SUB–GRADE, SUB–BASE, BASE AND ASPHALT); TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT AND ENGINEER. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO ENGINEER FOR REVIEW. A MINIMUM ON ONE SET OF INSPECTIONS AND COMPACTION TESTS SHALL BE COMPLETED ON EACH PIPE SEGMENT GREATER THAN 10 m IN LENGTH. A MINIMUM ONE SET OF INSPECTION AND COMPACTION TESTS SHALL BE COMPLETED FOR EVERY 200 m^2 OF PAVEMENT AREA.
5.9 CUT AND FILL AS NECESSARY TO ACHIEVE THE PROPOSED GRADE ELEVATIONS. DISPOSE OF SURPLUS AND UNSUITABLE EXCAVATED MATERIAL OFF SITE. ANY REQUIRED FILL SHALL BE CLEAN WELL GRADED SAND TO OPSS 1004 UNLESS OTHERWISE DIRECTED BY GEOTECHNICAL ENGINEER. FILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY. FILL MATERIAL AND THE PLACEMENT AND COMPACTION OF THE FILL MATERIAL AS PER THE GEOTECHNICAL REPORT AND TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT. PLACE MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.
5.10 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 MEASURE AND/OR A VEGETATED DISCHARGE AREA. ENSURE THAT THE DISCHARGED WATER DOES NOT CAUSE EROSION OR OTHER DAMAGE TO ADJACENT LANDS.
5.11 EXCAVATION, TRENCHING, & BACKFILL:
  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.
  B. KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN–OFF.
  C. EXCAVATION SHALL 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. PIPE BEDDING AND SURROUND MATERIAL SHALL BE OPSS GRANULAR A. RE–CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED.
  L. DO NOT USE BEDDING, SURROUND OR BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
  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. PLACE FILL AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.
  P. COMPACT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.
  Q. DO NOT BACKFILL AROUND OR OVER CAST–IN–PLACE CONCRETE WITHIN 24 HOURS AFTER PLACING OF CONCRETE.
  R. BACKFILL MATERIALS 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.
5.12 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 ENTRY OF FOREIGN MATERIALS.
  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.
5.13 SEWERS AND SEWER SERVICE CONNECTIONS:
  A. CONSTRUCT TRENCHES AS PER CITY DWG S6 & S7.
  B. RIGID STRUCTURES, INSTALL PIPE JOINTS NOT MORE THAN 1.2 m FROM SIDE OF STRUCTURE.
  C. MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.
  D. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410. REPAIR AND RETEST SEWER LINE AS REQUIRED. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS.
  E. 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.
  F. CONDUCT DYE TEST OF SANITARY SEWERS AND COORDINATE WITH ENGINEER. DYE TEST SHALL BE WITNESSED BY ENGINEER.
5.14 WATERMAINS AND WATER SERVICE CONNECTIONS:
  A. CONSTRUCT TRENCHES AS PER CITY DWG W17.
5.15 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.
5.16 MANHOLES & CATCH BASINS:
  A. JOINTS: SHALL BE MADE WATERTIGHT.
  B. SET PRECAST CONCRETE BASE ON 150mm MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY.
  C. MAKE EACH JOINT WATERTIGHT 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 FINS AND SHARP PROJECTIONS. PREVENT DEBRIS FROM ENTERING SYSTEM.
  G. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 407.
5.17 MAINTAIN RECORD DRAWINGS AND ACCURATELY RECORD 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. 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 RECORD DRAWING OF "AS–BUILT" GRADE ELEVATIONS, PREPARED BY AN OLS SURVEYOR, TO THE ENGINEER AT THE END OF CONSTRUCTION.
5.18 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.
5.19 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.

6. PAVEMENT

6.1 PAVEMENT STRUCTURE (REFER TO GEOTECHNICAAL REPORT):

LIGHT DUTY PAVEMENT:

40mm	SUPERPAVE 12.5 ASPHALTIC CONCRETE
40mm	SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm	OPSS GRANULAR A BASE
300mm	OPSS GRANULAR B TYPE II SUB–BASE

HEAVY DUTY PAVEMENT:

40mm	SUPERPAVE 12.5 ASPHALTIC CONCRETE
60mm	SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm	OPSS GRANULAR A BASE
450mm	OPSS GRANULAR B TYPE II SUB–BASE

RE–CYLCLED 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.

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 95%.
6.4 CONSTRUCT 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.
6.5 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 AND SHOULDER 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 PAVEMENT: SAWCUT EXISTING ASPHALT LAYER TO CREATE A CLEAN STRAIGHT EDGE. 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 THE SURFACE OF 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 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 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 DIVERT UNUSED AND WASTE ASPHALT TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS.
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

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1	FEB 21–25	ISSUED FOR CLASS B COSTING

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

Project
PROPOSED 3–STOREY
OAC WOMEN'S SHELTER
250 FORESTGLADE
CRESCENT
OTTAWA, ONTARIO

Drawing Title
NOTES

Engineer's Seal
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
APR 4–25
PROVINCE OF ONTARIO
NOT VALID UNLESS
SIGNED & DATED

Drawn D.B.G
H. Scale 1:200
V. Scale
Date FEB 14–25
Job No. 24053

Drawing No.
C–4
of 7

WATER SERVICE PROFILE TABLE

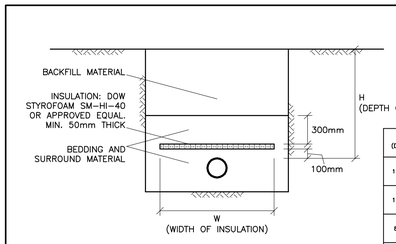
DIAMETER/MATERIAL: 150mm/PVC DR18

STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
0+00.0	300mm x 150mm TEE CONNECTION IN 300mm MUNICIPAL WATERMAIN TO CITY OF OTTAWA STANDARDS	±83.18	±80.86	±2.32	START OF 50mm THICK INSULATION AS PER DETAIL ON C-5
0+03.2	–	±83.26	80.86	±2.40	CROSSING 250 SAN TOP 78.91 WM U/S 80.71 – 1800mm CLEARANCE (MIN. 250mm REQ'D)
0+04.9	–	±83.21	80.86	±2.35	CROSSING 750 ST TOP 80.04 WM U/S 80.71 – 670mm CLEARANCE (MIN. 250mm REQ'D)
0+13.1	150mm VALVE & VALVE BOX TO CITY OF OTTAWA STANDARDS	83.27	80.86	2.41	END OF 50mm THICK INSULATION AS PER DETAIL ON C-5 ON PROPERTY LINE
0+14.1	45° VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	83.26	80.86	2.40	–
0+14.6	45° VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	83.25	80.33	2.92	–
0+15.9	–	83.24	80.33	2.91	START OF CROSSING ELECTRICAL DUCT U/S 82.00 WM TOP 80.33 – 1670mm CLEARANCE
0+16.6	–	83.24	80.33	2.91	END OF CROSSING ELECTRICAL DUCT U/S 82.00 WM TOP 80.33 – 1670mm CLEARANCE
0+17.7	–	83.25	80.33	2.92	CROSSING 250 ST INV 80.83 WM TOP 80.33 – 500mm CLEARANCE (MIN. 500mm REQ'D)
0+28.3	–	83.25	80.33	2.92	CROSSING 150 ST INV 81.05 WM TOP 80.33 – 720mm CLEARANCE (MIN. 500mm REQ'D)
0+28.9	22.5° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS	83.25	80.33	2.92	–
0+37.2	22.5° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS	83.32	80.33	2.99	–
0+37.6	–	83.33	80.33	3.00	BOTTOM OF CURB
0+39.4	–	83.41	80.33	3.08	ENTRY INTO BUILDING

CATCH BASIN & MANHOLE SCHEDULE

(SUBMIT SHOP DRAWINGS OF ALL CATCH BASINS & MANHOLES TO ENGINEER FOR APPROVAL)

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB/MH-1	82.97	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	–	80.73	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-2	82.94	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	80.60(N)	80.60(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-3	82.88	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	80.54(W)	80.54(NE)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB-4	83.24	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	–	81.00	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-5	83.16	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	80.91(W)	80.91(SE)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-6	83.18	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	80.85(NW)	80.85(SW)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB/MH-7	82.89	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	80.73(NE) 80.41(SW)	80.41(SE)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE
SANITARY SEWER						
MH-SA.1	83.30	1200mm	PRECAST CONCRETE MANHOLE	81.44(NE)	81.42(E)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS – FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24 OR OPSD 401.010



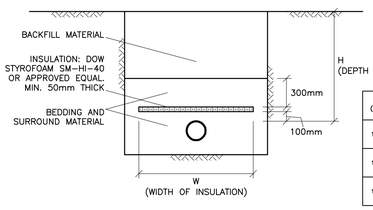
H (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1400 TO 2000mm	50mm	1200mm + DIAMETER OF PIPE
1100 TO 1400mm	75mm	1800mm + DIAMETER OF PIPE
800 TO 1100mm	100mm	2400mm + DIAMETER OF PIPE
LESS THAN 800mm	125mm	3000mm + DIAMETER OF PIPE

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

INSULATION OF SEWERS IN SHALLOW TRENCHES

AS PER CITY OF OTTAWA DRAWING No. S35

N.T.S



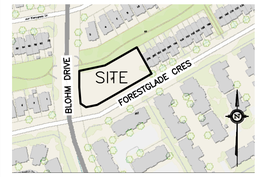
H (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1800 TO 2400mm	50mm	1200mm
1500 TO 1800mm	75mm	1800mm
1200 TO 1500mm	100mm	2400mm

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

INSULATION OF WATERMAINS & WATER SERVICE CONNECTIONS IN SHALLOW TRENCHES

N.T.S

KEY PLAN



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Ottawa, Ontario d.gray@dbgrayengineering.com

Project

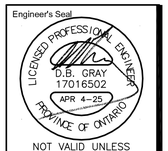
PROPOSED 3-STOREY OAC WOMEN'S SHELTER 250 FORESTGLADE CRESCENT

OTTAWA, ONTARIO

Drawing Title

DETAILS

Engineer's Seal

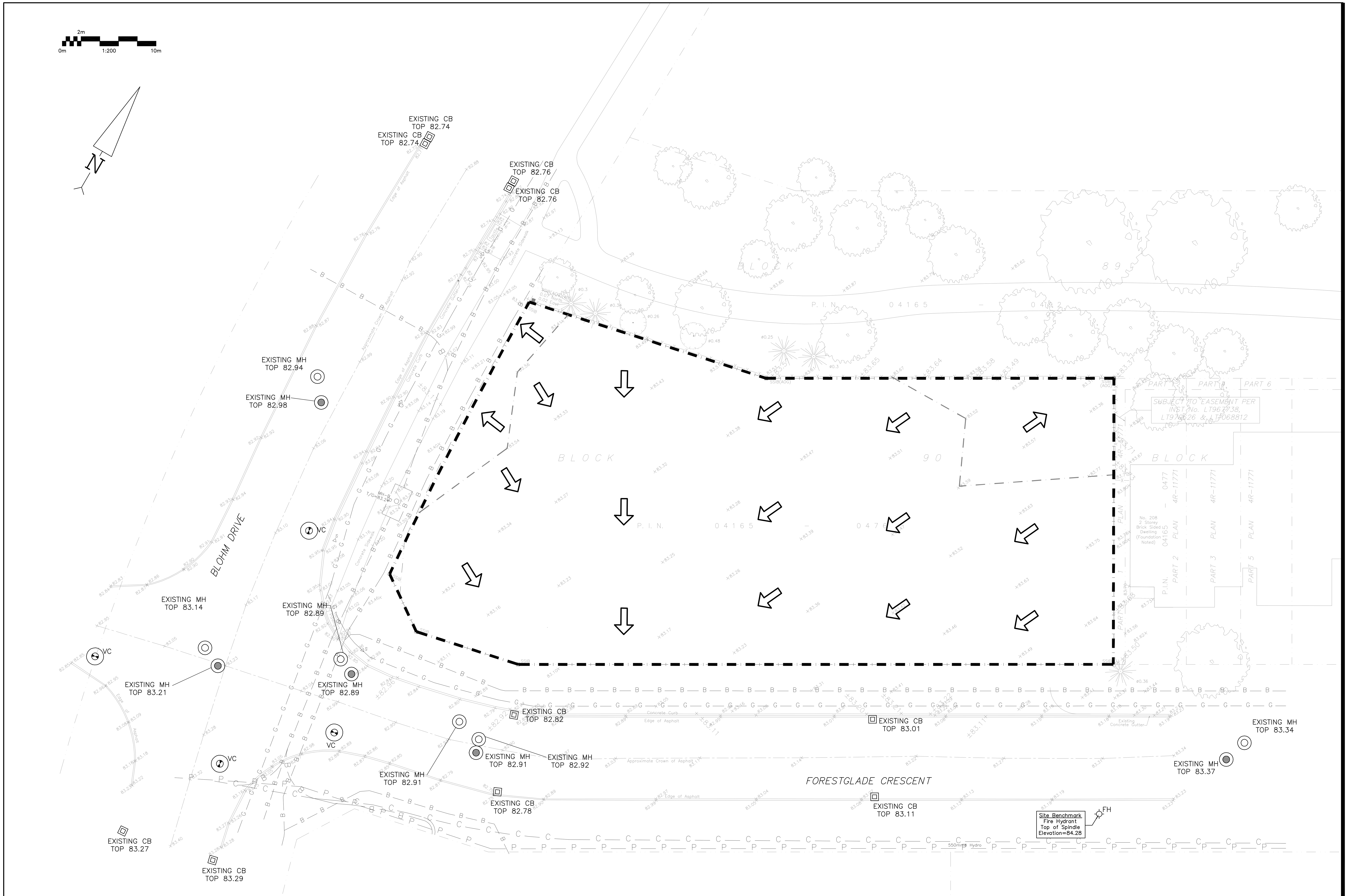


NOT VALID UNLESS SIGNED & DATED

Drawn	D.B.G
H. Scale	1:200
V. Scale	
Date	FEB 14–25
Job No.	24053

Drawing No.

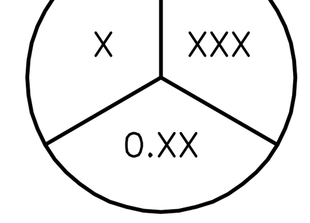
C-5 of 7



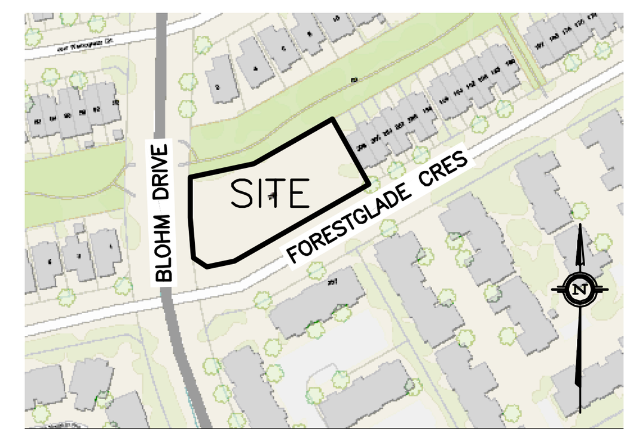
0m 2m 1:200 10m
N
EXISTING CB TOP 82.74
EXISTING CB TOP 82.74
EXISTING CB TOP 82.76
EXISTING CB TOP 82.76
EXISTING MH TOP 82.94
EXISTING MH TOP 82.98
BLOHM DRIVE
VC
EXISTING MH TOP 83.14
EXISTING MH TOP 82.89
EXISTING MH TOP 83.21
EXISTING MH TOP 82.89
EXISTING CB TOP 82.82
EXISTING MH TOP 82.91
EXISTING MH TOP 82.92
EXISTING MH TOP 82.91
EXISTING CB TOP 82.78
EXISTING CB TOP 83.27
EXISTING CB TOP 83.29
EXISTING CB TOP 83.01
EXISTING CB TOP 83.11
FORESTGLADE CRESCENT
EXISTING MH TOP 83.34
EXISTING MH TOP 83.37
Site Benchmark Fire Hydrant Top of Spindle Elevation=84.28
FH
BLOCK 89
BLOCK 90
P.I.N. 04165
SUBJECT TO EASEMENT PER INST. No. LT961838, LT970526 & LT968812
PART 1 PART 4 PART 6
PART 2 PART 3 PART 5
PLAN 4R-11771
Edge of Asphalt
Concrete Curb
Approximate Crown of Asphalt
550mmØ Hydro

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

LEGEND



KEY PLAN



No.	DATE	REVISION
1	APR 4-25	ISSUED FOR SITE PLAN CONTROL

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

Project
PROPOSED 3-STOREY
OAC WOMEN'S SHELTER
250 FORESTGLADE
CRESCENT
OTTAWA, ONTARIO

Drawing Title
PRE-DEVELOPMENT DRAINAGE PLAN

Engineer's Seal
LICENSED PROFESSIONAL ENGINEER
D.B. GRAY
17016502
APR 4-25
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED & DATED

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H. Scale	1:200
V. Scale	
Date	FEB 14-25
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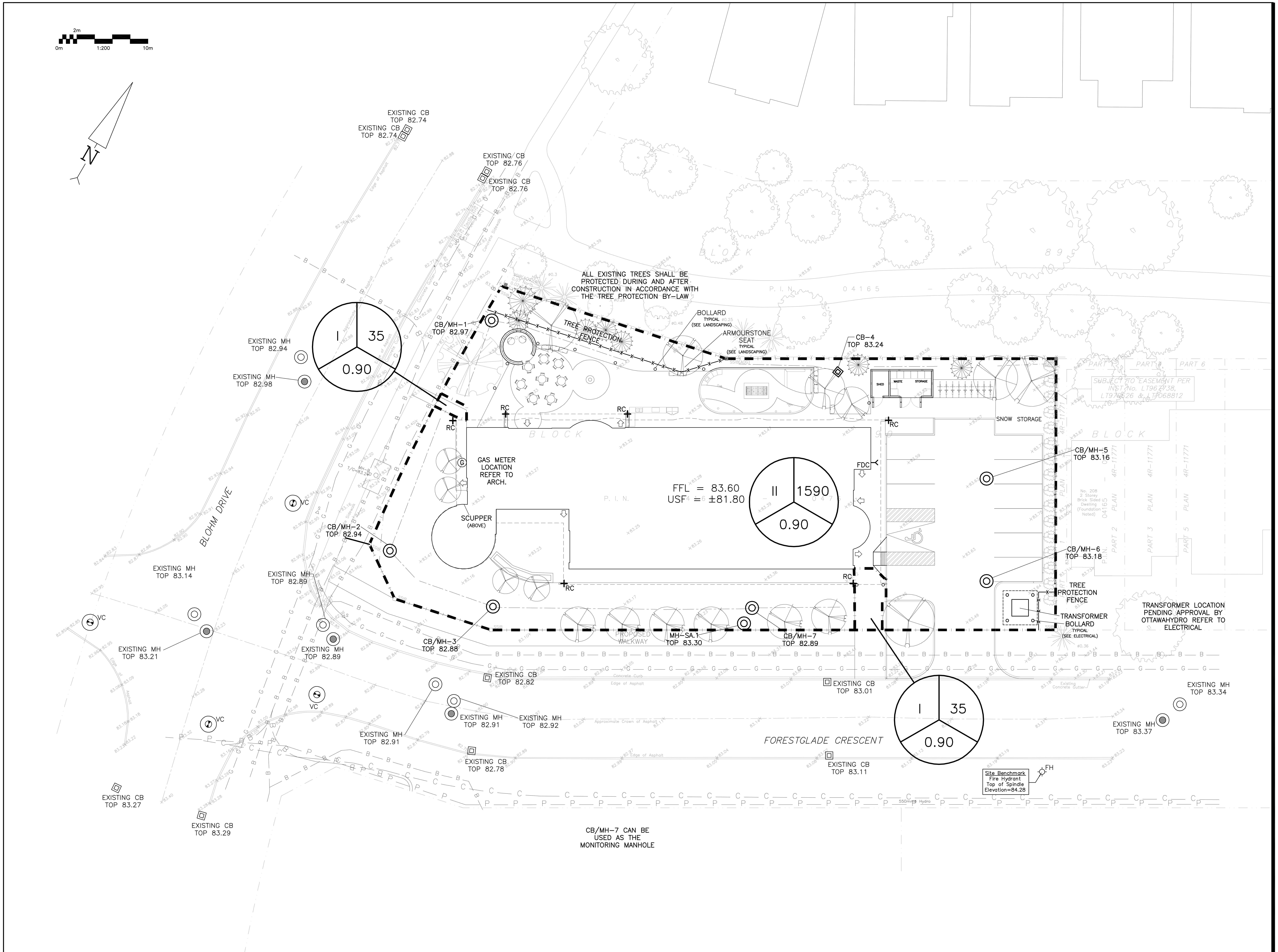
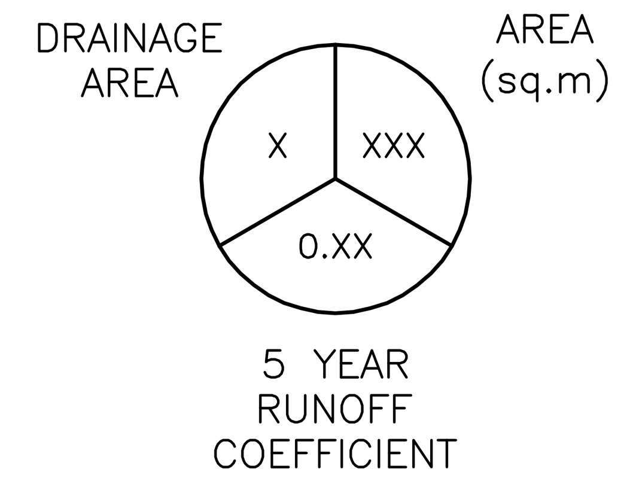
Drawing No.
C-6
of 7



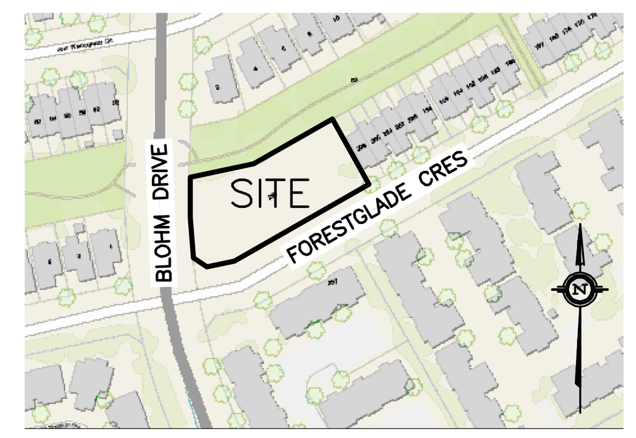
0m
1:200
10m
N
EXISTING CB TOP 82.74
EXISTING CB TOP 82.74
EXISTING CB TOP 82.76
EXISTING CB TOP 82.76
ALL EXISTING TREES SHALL BE PROTECTED DURING AND AFTER CONSTRUCTION IN ACCORDANCE WITH THE TREE PROTECTION BY-LAW
BOLLARD TYPICAL (SEE LANDSCAPING)
ARMOURSTONE SEAT TYPICAL (SEE LANDSCAPING)
TREE PROTECTION FENCE
CB/MH-1 TOP 82.97
CB-4 TOP 83.24
EXISTING MH TOP 82.94
EXISTING MH TOP 82.98
I
35
0.90
SHED
WASTE
STORAGE
SNOW STORAGE
RC
GAS METER LOCATION REFER TO ARCH.
FFL = 83.60
USF = ±81.80
II
1590
0.90
FDC
CB/MH-5 TOP 83.16
CB/MH-6 TOP 83.18
SCUPPER (ABOVE)
BLOHM DRIVE
CB/MH-2 TOP 82.94
EXISTING MH TOP 83.14
EXISTING MH TOP 82.89
VC
TREE PROTECTION FENCE
TRANSFORMER
BOLLARD TYPICAL (SEE ELECTRICAL)
TRANSFORMER LOCATION PENDING APPROVAL BY OTTAWAHYDRO REFER TO ELECTRICAL
EXISTING MH TOP 83.21
EXISTING MH TOP 82.89
CB/MH-3 TOP 82.88
MH-SA.1 TOP 83.30
CB/MH-7 TOP 82.89
PROPOSED WALKWAY
EXISTING CB TOP 82.82
EXISTING CB TOP 83.01
I
35
0.90
EXISTING MH TOP 83.34
EXISTING MH TOP 83.37
EXISTING MH TOP 82.91
EXISTING MH TOP 82.92
EXISTING MH TOP 82.91
FORESTGLADE CRESCENT
EXISTING CB TOP 82.78
EXISTING CB TOP 83.11
Site Benchmark Fire Hydrant Top of Spindle Elevation=84.28
FH
EXISTING CB TOP 83.27
EXISTING CB TOP 83.29
CB/MH-7 CAN BE USED AS THE MONITORING MANHOLE

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

LEGEND



KEY PLAN



No.	DATE	REVISION
4	APR 4–25	ISSUED FOR SITE PLAN CONTROL
3	APR 2–25	ISSUED FOR COORDINATION
2	FEB 21–25	ISSUED FOR CLASS B COSTING
1	FEB 14–25	ISSUED FOR COORDINATION

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Drawing Title
POST DEVELOPMENT DRAINAGE PLAN

Engineer's Seal
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APR 4–25
PROVINCE OF ONTARIO
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Drawing No.
C–7
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