1. GENERAL

1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE. ELEVATIONS ARE IN METRES AND ARE GEODETIC. 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 J. D. BARNES LIMITED REF No. 22-10-102-00. AS IS STATED ON THE SURVEY PLAN: "BEARINGS ARE MTM GRID, AND DERIVED FROM GLOBAL NAVIGATION SATELLITE SYSYTEMS (GNSS) BY REAL TIME NETWORK (RTN) OBSERVATIONS. MTM ZONE 9, NAD 83, (CSRS) (2010.0). ELEVATIONS ARE GEODETIC AND REFERRED TO PUBLISHED CONTROL POINT 01019791716 HAVING A PUBLISHED ELEVATION OF 91.214 METRES (CGVD28-78 DATUM)." 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 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY PATERSON GROUP INC. REPORT PG6832-1. 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.
1.6 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SERVICING STUDY & STORM WATER MANAGEMENT REPORT No. 20029 PREPARED BY D. B. GRAY ENGINEERING INC.
1.7 CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS.
1.8 ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS SHALL APPLY WHERE NO CITY OF OTTAWA STANDARD SPECIFICATIONS OR DRAWINGS ARE AVAILABLE.
1.9 REINSTATE AREAS DISTURBED BY CONSTRUCTION TO PRE-CONSTRUCTION CONDITIONS.
1.10 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 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 CONTROL AND LIMIT VEHICLE ACCESS TO AND AROUND THE CONSTRUCTION SITE TO MINIMIZE THE DISTURBANCE OF SOIL AND VEGETATION. PRIOR TO COMMENCEMENT OF CONSTRUCTION INSTALL AT ALL POINTS OF EGRESS TO PUBLIC ROADS GEOTEXTILE FABRIC MUD MATS (TERRAFIX GEOSYNTHETICS INC. OR APPROVED EQUAL OR OTHER APPROVED METHOD. MUD MATS SHALL BE THE FULL WIDTH OF THE EGRESS POINT AND AT LEAST 18m IN LENGTH. MUD MATS SHALL BE WASHED AS REQUIRED TO PREVENT MATERIAL FROM BEING TRACKED ONTO THE PUBLIC ROAD. DO NOT REMOVE MUD MATS UNTIL CONSTRUCTION IS COMPLETE. IN ADDITION, IF REQUIRED TO PREVENT MATERIAL FROM BEING TRACKED ONTO THE PUBLIC ROAD, WASH VEHICLE TIRES AT THE EGRESS POINT..
2.5 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.
2.6 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.
2.7 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 SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.4. MONOLITHIC CONCRETE CURB AND SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC2. TWO No. 15 REINFORCING BARS SHALL BE ADDED TO THE CURB FOR THE FULL LENGTH OF THE DEPRESS CURB. THE HEIGHT OF ALL DEPRESSED CONCRETE CURBS 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.
3.6 ALL PROPOSED RETAINING WALLS SHALL BE SETBACK A MINIMUM 0.15m FROM PROPERTY LINE INCLUDING THE WALL FOUNDATION AND FOOTINGS. ALL PROPOSED RETAINING WALLS GREATER THAN 1.0m IN HEIGHT SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO. RETAINING WALLS OVER 0.6 m IN HEIGHT MAY REQUIRE A GUARD RAIL (SEE ARCHITECTURAL).
3.7 CULVERTS SHALL BE HDPE TO CITY OF OTTAWA STANDARDS AND SPECIFICATIONS AND TO OPSS 1840 AND CSA B182.8 OR 182.6. MINIMUM 320 kPa STIFFNESS AT 5% DEFLECTION. JOINTS SHALL BE SOIL-TIGHT OR BETTER. ALL CULVERTS WITHIN PAVED AREAS SHALL HAVE 5:1 FROST TAPERS FROM THE INVERT OF THE CULVERT TO THE PAVEMENT SUB-GRADE. PROVIDE A INLET TYPE GRATE (VERTICAL BARS) AT THE INLET AND AN OUTLET TYPE GRATE(HORIZONATAL BARS) AT THE OUTLET OF ALL CULVERTS.
3.8 GEOTEXTILE FABRIC: TO OPSS 1860. WOVEN SYNTHETIC FIBRE FABRIC SHALL BE USED IN SILT FENCE BARRIER (GEOSYNTHETIC HD105 OR APPROVED EQUAL). NON-WOVEN SYNTHETIC FIBRE FABRIC 1.75mm THICK, 200g/sq.m. SHALL BE USED FOR MATERIAL SEPARATION. SUBDRAIN / DRY WELL / INFILTRATION TRENCH APPLICATIONS: GEOSYNTHETIC TERRAFIX 360R OR APPROVED EQUAL. RIP RAP APPLICATIONS: GEOSYNTHETIC TERRAFIX 420R OR APPROVED EQUAL. BIAXIAL GEOGRID FABRIC: GEOSYNTHETIC TERRAFIX TBX2500 OR APPROVED EQUAL. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO ENGINEER FOR APPROVAL. GEOTEXTILE FABRIC SHALL BE FREE OF TEARS AND RESISTANT TO DETERIORATION 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 DETERIORATION 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 DETERIORATED GEOTEXTILE.

4. SITE SERVICES

4.1 WATER LINE BETWEEN TEMPLE AND PRIEST RESIDENCE SHALL BE PEX TUBING SDR 9 CTS TO AWWA C-904 & CITY OF OTTAWA STANDARDS. PROVIDE A MINIMUM 2.4 m COVER OVER ALL WATER LINES. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER DETAIL. THE WATER LINE SHALL CROSS BELOW THE SEWER: PROVIDE A MINIMUM 500 mm 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 (MINIMUM 2.5m).
4.2 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. REINFORCED CONCRETE SEWERS SHALL CONFORM TO CSA 257.2 CL 50-D WITH RUBBER GASKETS TO CSA A-257.3.
4.3 SEWERS SHALL HAVE A MINIMUM 2.0m OF COVER OR SHALL BE INSULATED AS PER DETAIL.
4.4 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 AND DITCH INLETS 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. RE-CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED.
K. PRIOR TO INSTALLATION SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.
4.5 ROOF DRAINS SHALL BE FLOW CONTROL TYPE EACH INSTALLED WITH A WEIR WITH A PARABOLIC SLOT, EACH SLOT SHALL RELEASE 5 USgpm/inch. OPENING AT TOP OF FLOW CONTROL WEIR SHALL BE A MINIMUM 50mm IN DIAMETER: WATTS ROOF DRAIN WITH WATTS ACCUTROL WEIR RD-100-A1 OR APPROVED EQUAL. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO ENGINEER FOR REVIEW.
4.6 RAINWATER LEADERS (RWL) INSIDE BUILDING SHALL BE CONSTRUCTED TO WITHSTAND THE PRESSURE FROM A WATER COLUMN THE HEIGHT OF THE BUILDING. CONDUCT A PRESSURE TEST ON THE SYSTEM AS PER THE MECHANICAL ENGINEER'S INSTRUCTIONS (SEE MECHANICAL).
4.7 THE INLET CONTROL DEVICE (ICD) LOCATED IN THE OUTLET PIPE OF CATCH BASIN MANHOLE CB/MH-13 SHALL BE PLUG STYLE WITH A TRASH BASKET AND 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.
4.8 THE EXISTING WELL SHALL BE ABANDONED AND DECOMMISSIONED BY A LICENSED WELL CONTRACTOR IN ACCORDANCE WITH ONTARIO REGULATION 903. UPON COMPLETION PREPARE A WELL RECORD FOR THE ABANDONED WELL. A COPY OF THE WELL RECORD SHALL BE DELIVERED TO THE OWNER OF THE LAND.
4.9 WATER FILL STATION / WATER SUPPLY FOR FIRE FIGHTING STORAGE TANKS, CHUTE WITH FIRE FITTINGS AND DRAW PIPES AS PER LOCAL FIRE DEPARTMENT STANDARDS. SUPPLY AND INSTALL A LOW WATER LEVEL FLOAT ALARM (AUDIBLE AND VISUAL) THAT IS ACTIVATED WHEN THE WATER LEVEL DROPS MORE THAN 300 mm BELOW THE TOP OF THE TANK. CONNECT CONCRETE TANKS WITH 250 mm DIAMETER PVC DR25 PIPE (IPEX BLUE BRUTE OR APPROVED EQUAL). CORE DRILL OPENINGS IN TANKS AND MAKE JOINTS WATERTIGHT BETWEEN TANK AND PIPE. AS INDICATED ON PLANS: TANKS SHALL EITHER HAVE A CHUTE AND A DRAW PIPE OR SHALL HAVE AN ACCESS OPENING WITH A 150 mm GALVANIZED STEEL "CANDY CANE" VENT C/W WITH RODENT SCREEN. ANCHOR TANKS TO PREVENT UPLIFT FROM HYDROSTATIC PRESSURES USING A METHOD APPROVED BY TANK MANUFACTURER. HANDLE AND INSTALL FIRE STORAGE TANKS USING METHODS APPROVED BY THE TANK MANUFACTURER AND AS FOLLOWS (IN THE EVENT OF A CONFLICT, THE METHOD APPROVED BY THE MANUFACTURER SHALL BE USED):
A. PLACE TANK PLUMB AND TRUE TO ALIGNMENT AND GRADE.
B. SET TANK ON MINIMUM 300 mm OF OPSS GRANULAR A COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY OR AS DIRECTED BY MANUFACTURER. RE-CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED.
C. PLACE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150 mm, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY.
D. PLACE LAYERS SIMULTANEOUSLY ON BOTH SIDES OF INSTALLED WORK TO EQUALIZE LOADING.
D. MAKE ALL JOINTS WATERTIGHT.
E. PERFORM FIELD LEAKAGE TESTS ON ALL TANKS AND CONNECTING PIPES COMPLETED IN ACCORDANCE WITH OPSS 407 (MAINTENANCE HOLES & VALVE CHAMBERS) & OPSS 410 (SEWERS). REPAIR AND RETEST AS REQUIRED. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS.
4.10 THE EXISTING SEPTIC SYSTEM SHALL BE DE-COMMISSIONED TO THE SATISFACTION OF THE DIRECTOR OF THE OTTAWA SEPTIC SYSTEM OFFICE (OSSO). SUBMIT THE SEPTIC SYSTEM DE-COMMISSIONING FORM TO THE OSSO. THE SEPTIC TANK SHALL BE PUMPED OUT AND EMPTIED BY A REGISTERED SEWAGE HAULER PRIOR TO DECOMMISSIONING. THE SEPTIC TANKS, LEACHING BED, PIPES AND ALL OTHER COMPONENTS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A LICENSED FACILITY. ELECTRICAL DEVICES CONTAINING MERCURY SHALL BE REMOVED AND DISPOSED OF IN A LICENSED HAZARDOUS WASTE DISPOSAL FACILITY. EXCAVATED CONTAMINATED SOIL SHALL BE SPREAD OR STOCKPILED ON SITE TO THE SATISFACTION OF THE OSSO OR DISPOSED OF IN A LICENSED WASTE DISPOSAL SITE. REQUEST AN INSPECTION BY THE OSSO. AFTER THE DECOMMISSIONING HAS BEEN APPROVED BY OSSO, BACKFILL THE AROUND THE SEPTIC TANK TO A LEVEL SLIGHTLY ABOVE THE ADJACENT GRADE (TO ALLOW FOR SETTLING). DELIVER THE APPROVED SEPTIC SYSTEM DECOMMISSIONING FORM TO THE OWNER OF THE LAND.
4.11 CLASS 4 SEWAGE SYSTEM:
THE PROPOSED CLASS 4 SEWAGE SYSTEM SHALL CONSIST OF A SEPTIC TANK, DOSING PUMP FOUR ECOFLO BIOFILTERS; TWO PRESSURIZED FLOW SPLITTER AND TYPE "A" DISPERSAL BED AND SHALL CONFORM TO THE REQUIREMENTS OF THE ONTARIO BUILDING CODE (OBC). THE SEWAGE SYSTEM SHALL BE CONSTRUCTED BY A REGISTERED SEWAGE SYSTEM INSTALLER. THE ECOFLO BIOFILTER SYSTEM SHALL BE INSTALLED, MAINTAINED AND SERVICED BY MANUFACTURER TRAINED AND AUTHORIZED AGENTS OR EMPLOYEES. THE SEPTIC TANK SHALL CONFORM TO THE REQUIREMENTS OF CSA B66 AND THE OBC AND SHALL BE FITTED WITH AN EFFLUENT FILTER THAT SCREENS OUT PARTICLES LARGER THAN 3.2 mm AND AS RECOMMENDED BY THE MANUFACTURER. HANDLE AND INSTALL SEPTIC TANK USING METHODS APPROVED BY THE TANK MANUFACTURER AND AS FOLLOWS (IN THE EVENT OF A CONFLICT, THE METHOD APPROVED BY THE MANUFACTURER SHALL BE USED):
A. PLACE TANK PLUMB AND TRUE TO ALIGNMENT AND GRADE.
B. TOP OF TANK SHALL BE A MINIMUM 600 mm AND A MAXIMUM 1200 mm BELOW FINISHED GRADE OR AS PER MANUFACTURER'S RECOMMENDATIONS. INSTALL MANUFACTURER SUPPLIED PRmmCAST CONCRETE ACCESS RISERS TO EXTEND ACCESS AS PER MANUFACTURER'S RECOMMENDATIONS.
C. SET TANK ON MINIMUM 150 mm OF GRANULAR A COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY OR AS DIRECTED BY MANUFACTURER.
D. PLACE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150 mm, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY. BUILD A 3H:1V FROST TAPER WITHIN THE UPPER 1.2 m.
E. PLACE LAYERS SIMULTANEOUSLY ON BOTH SIDES OF INSTALLED WORK TO EQUALIZE LOADING.
F. ANCHOR TANK TO PREVENT UPLIFT FROM HYDROSTATIC PRESSURES USING A METHOD APPROVED BY TANK MANUFACTURER. MAKE JOINTS WATERTIGHT BETWEEN TANK AND PIPE.

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 CAREFUL TEST EXCAVATIONS 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 AND COMPACTION TESTS OF SUB-GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL, BACKFILL, SUB-BASE, BASE AND ASPHALT TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT AND ENGINEER. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO ENGINEER FOR REVIEW. A MINIMUM ON ONE SET OF INSPECTIONS AND COMPACTION TESTS SHALL BE COMPLETED ON EACH PIPE SEGMENT GREATER THAN 15m IN LENGTH. A MINIMUM ONE SET OF INSPECTION AND COMPACTION TESTS SHALL BE COMPLETED FOR EVERY 500m^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. 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. SURROUND MATERIAL FOR CONCRETE PIPE MAY BE CLEAN WELL GRADED SAND. 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 B