GENERAL NOTES:

1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF OAKVILLE, THE REGION OF HALTON AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), SPECIFICATIONS (OPSS), AND HALTON REGION'S WATER AND WASTEWATER LINEAR DESIGN MANUAL, AS AMENDED BY THE TOWN OF OAKVILLE AND THE REGION OF HALTON. THESE STANDARDS SHALL CONSTITUTE PART OF THE ENGINEERING DESIGN AND CONSTRUCTION CONTRACT.
2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT", (THE ACT). THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
3. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
4. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER AT THE EXPENSE OF THE DEVELOPER.
5. THE SUPPORT AND PROTECTION OF ALL UTILITIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
6. ALL DIMENSIONS ARE IN METERS EXCEPT FOR PIPES / SEWERS WHICH ARE IN MILLIMETERS.
7. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
8. ALL CONSTRUCTION SIGNING MUST CONFORM TO THE M.T.O., ONTARIO TRAFFIC MANUAL, BOOK 7 (LATEST AMENDMENT).
9. NO BLASTING PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL BY THE MUNICIPAL DIRECTOR OF ENGINEERING, THE REGIONAL COMMISSIONER OF PUBLIC WORKS OR DESIGNATE
10. EXISTING WELLS AND PRIVATE SEWAGE DISPOSAL SYSTEMS SHALL BE DECOMMISSIONED BY THE CONTRACTOR IN ACCORDANCE WITH M.O.E. REQUIREMENTS.
11. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL BY THE MUNICIPAL DIRECTOR OF ENGINEERING, THE REGIONAL COMMISSIONER OF PUBLIC WORKS OR DESIGNATE HAS BEEN OBTAINED. ALL WATERMAIN AND WASTEWATER MAIN APPURTENANCES, MATERIALS, AND COMPONENTS SHALL COMPLY WITH THE REGION'S LATEST APPROVED MANUFACTURER'S PRODUCT LISTS FOR WATER AND WASTEWATER SYSTEMS
12. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH, AS SPECIFIED BY OPSD, IS EXCEEDED.
13. ALL SEWERS, SHALL BE INSTALLED WITH LASER AND CHECKED PRIOR TO BACKFILLING.
14. PRIOR TO THE COMMENCEMENT OF SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL. THE CONTRACTOR SHALL MAINTAIN ALL WORKS UNTIL SERVICING CONSTRUCTION IS COMPLETED TO THE SATISFACTION OF THE ENGINEER.
15. ALL AREAS DISTURBED BY THE CONTRACTOR DURING THE CONSTRUCTION OF THE WORKS SHOWN HEREIN SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTORS EXPENSE. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 150mm OF TOPSOIL AND NO. 1 NURSERY SOD TO ESTABLISH A GRASS COVER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
16. FOR RECOMMENDATION OF SEWER INSTALLATION IN SHALE, REFER TO GEOTECHNICAL INVESTIGATION REPORT FOR DETAIL.
17. FOR TRENCH BACKFILL, THE ON-SITE INORGANIC SOILS ARE GENERALLY SUITABLE FOR TRENCH BACKFILL. IN THE ZONE WITHIN 1.0m BELOW THE ROAD SUBGRADE, THE BACKFILL SHOULD BE COMPACTED TO AT LEAST 98% OF ITS MAXIMUM STANDARD PROCTOR DRY DENSITY, WITH THE MOISTURE CONTENT 2% TO 3% DRIER THAN THE OPTIMUM. IN THE LOWER ZONE, A 95% OR + STANDARD PROCTOR COMPACTION IS CONSIDERED TO BE ADEQUATE; HOWEVER, THE MATERIAL MUST BE COMPACTED ON THE WET SIDE OF THE OPTIMUM.
18. THE EXCAVATED SHALE SHOULD EITHER BE PULVERIZED TO SIZES LESS THAN 15cm AND THOROUGHLY MIXED WITH THE OVERBURDEN SOILS, OR THE TRENCH CAN BE BACKFILLED BY LEVELING THE DEBRIS USING A BULLDOZER WITH LIFTS NO MORE THAN 20cm (LOOSE) IN THICKNESS. COMPACTION SHOULD BE CARRIED OUT BY A VIBRATORY SHEEPSFOOT ROLLER. WATER TO BE ADDED IF BELOW THE OPTIMUM MOISTURE CONTENT AS PER GEOTECHNICAL CONSULTANT'S RECOMMENDATIONS.
19. ALL PIPE/CULVERT/SECTION SIZES REFER TO INSIDE DIMENSIONS.
20. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE SHOULD BE NOTIFIED IMMEDIATELY.
21. ALL BOREHOLES SHOWN ON THE DRAWING ARE FOR INFORMATION ONLY. REFER TO GEOTECHNICAL INVESTIGATION REPORT PREPARED BY DS CONSULTANTS, REPORT NO. 19-294-100 DATED NOVEMBER 22, 2019 FOR DETAIL.
22. PROTECTIVE MEASURES SHALL BE EMPLOYED FOR TREE PROTECTION, AS PER THE LOCAL CITY/TOWN AND REGION STANDARDS.

STORM NOTES:

1. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2 (LATEST AMENDMENT). ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1 (LATEST AMENDMENT). PIPE SHALL BE JOINTED WITH STD. RUBBER GASKETS AS PER CSA A257.3 (LATEST AMENDMENT).
2. ALL PVC STORM SEWER PIPE SHALL BE SDR 35 IN ACCORDANCE WITH OPSS MUNI 1841 (LATEST AMENDMENT), AND ASTM D-3034 (LATEST AMENDMENT), UNLESS OTHERWISE SPECIFIED.
3. STORM MANHOLE FRAME AND COVERS TO BE AS PER OPSD 401.010 TYPE "A" UNLESS OTHERWISE SPECIFIED. WHERE THE 100Yr HYDRAULIC GRADE LINE IS EXPECTED TO BE ABOVE THE ROAD SURFACE, OPSD 401.060 LOCKING COVERS SHALL BE USED. ALL MANHOLE LIDS TO BE CAST WITH THE WORDS "DANGER" AND "STORM". MANHOLE COVER TO BE SET FLUSH WITH BASE COURSE ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT. THE TOTAL DEPTH OF ADJUSTMENT UNITS ARE TO BE A MINIMUM OF 150mm TO A MAXIMUM OF 300mm.
4. STORM SEWER MANHOLES SHALL BE BENCHED IN ACCORDANCE WITH OPSD 701.021.
5. SAFETY GRATINGS SHALL BE PROVIDED IN ALL MANHOLES WHEN THE DEPTH OF THE MANHOLE EXCEEDS FIVE (5) METERS, AS PER OPSD-404.020.
6. SINGLE CATCHBASINS SHALL BE IN ACCORDANCE WITH OPSD 705.010 AND DOUBLE CATCHBASINS AS PER OPSD 705.020.
7. CATCHBASIN LEADS SHALL BE 250mm DIA. FOR SINGLE AND 300mm DIA. FOR DOUBLE CATCHBASINS UNLESS OTHERWISE NOTED, WITH A MINIMUM SLOPE OF 1.0%.
8. CONTRACTOR SHALL ENSURE THAT CATCHBASINS ARE INSTALLED AT THE LOW POINT OF SAG CURB WORKS.
9. ALL CATCHBASINS CONSTRUCTED IN FILL AREAS SHALL BE SUPPORTED WITH 15 MPa CONCRETE TO UNDISTURBED GROUND.
10. BEDDING MATERIAL TO BE PROVIDED AS PER FOLLOWS, UNLESS OTHERWISE NOTED:

i) FOR PVC STORM PIPE, OPSD-802.010, TYPE 1 OR 2 SOILS, GRANULAR "A" OR EQUIVALENT

ii) FOR CONCRETE STORM PIPE, OPSD-802.030, CLASS "B", GRANULAR "A" OR EQUIVALENT, WITH GRANULAR "A" COVER
FOR BEDDING MATERIAL IN SHALE EXCAVATION, REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS. WHERE WATER-BEARING SILTS AND SANDS ARE PRESENT, THE PIPE JOINTS SHOULD BE LEAK-PROOF, OR WRAPPED WITH AN APPROPRIATE WATERPROOF MEMBRANE.

12. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED IN DRAWINGS. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADDITIONAL BEDDING, A DIFFERENT TYPE OF BEDDING OR A HIGHER PIPE STRENGTH AT HIS OWN EXPENSE AND SHALL ALSO BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
13. APPROVED BACKFILL MATERIAL SHALL BE PLACED IN ACCORDANCE WITH OPSS 401, 402 AND 403. COMPACTION SOIL DENSITY TESTING SHALL BE CARRIED OUT TO ENSURE ADEQUATE COMPACTION AND STABILITY OF FILL AND TEST RESULTS SHALL BE SUBMITTED TO THE TOWN OF OAKVILLE.
14. ROOF WATER DOWNSPOUTS MUST SPILL ONTO GROUND VIA SPLASH PADS.
15. ALL SEWERS TO BE INSTALLED BY LASER.
16. STORM PIPES TO BE CONNECTED OBVERT TO OBVERT WHEN DOWNSTREAM PIPE SIZE IS LARGER, OR EQUAL, TO UPSTREAM PIPE.
17. ALL SEWERS ARE TO HAVE AN UNDISTURBED BASE.

SANITARY NOTES:

1. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), SPECIFICATIONS (OPSS), AND HALTON REGION'S WATER AND WASTEWATER LINEAR DESIGN MANUAL, AS AMENDED BY THE REGION OF HALTON.
2. ALL SANITARY MAINLINE SEWERS ARE TO BE PVC DR 35 (IN GREEN COLOUR) CONFORMING TO CSA B182.2, OPSS 1841, OPSD 806.040 AND 806.060 OR LATEST AMENDMENT UNLESS OTHERWISE NOTED
3. SANITARY MANHOLE FRAME AND COVERS TO BE AS PER OPSD 401.010 TYPE "A" AND TO BE CAST WITH THE WORDS "DANGER" AND "SANITARY". MANHOLE COVER TO BE SET FLUSH WITH BASE COURSE ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT. THE TOTAL DEPTH OF ADJUSTMENT UNITS ARE TO BE A MINIMUM OF 150mm TO A MAXIMUM OF 300mm.
4. ALL MANHOLES ARE TO BE WATERPROOFED AND TESTED TO CONFIRM THAT THEY ARE WATER TIGHT. WATERPROOFING SHALL BE INSTALLED ON THE EXTERIOR OF ALL MANHOLES. WATERPROOFING SHALL BE A NON-TOXIC, NON-FLAMMABLE, FAST CURING MATERIAL TO ANSI/NSF STANDARD 61 - BARRIER MATERIALS.
5. DROP STRUCTURES SHALL BE PROVIDED WHERE THE DIFFERENCE IN ELEVATION IS GREATER THAN 1.2m IN ACCORDANCE WITH OPSD 1003.020.
6. SANITARY SEWER MANHOLES SHALL BE BENCHED TO THE PIPE OBVERT, OTHERWISE IN ACCORDANCE WITH OPSD 701.021.
7. BEDDING MATERIAL FOR PVC SANITARY PIPE SHOULD BE IN ACCORDANCE WITH OPSD-802.010, TYPE 1 OR 2 SOILS, GRANULAR "A' OR EQUIVALENT; FOR CONCRETE SANITARY PIPE, OPSD-802.030, CLASS "B", GRANULAR "A" OR EQUIVALENT, WITH GRANULAR "A" COVER. FOR BEDDING MATERIAL IN SHALE EXCAVATION, REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS. WHERE WATER-BEARING SILTS AND SANDS ARE PRESENT, THE PIPE JOINTS SHOULD BE LEAK-PROOF, OR WRAPPED WITH AN APPROPRIATE WATERPROOF MEMBRANE.
8. THE SANITARY SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED. ADDITIONAL BEDDING, A DIFFERENT TYPE OF BEDDING OR A HIGHER PIPE STRENGTH MAY BE REQUIRED (AT THE CONTRACTORS OWN EXPENSE) WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED. ADDITIONALLY THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE AND BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
9. APPROVED BACKFILL MATERIAL SHALL BE PLACED IN ACCORDANCE WITH OPSS 401, 402, AND 403. COMPACTION SOIL DENSITY TESTING SHALL BE CARRIED OUT TO ENSURE ADEQUATE COMPACTION AND STABILITY OF FILL AND TEST RESULTS SHALL BE SUBMITTED TO TOWN OF OAKVILLE AND THE REGION OF HALTON.
10. CONNECTION RISERS ARE REQUIRED WHERE THE SEWER MAIN IS 4.5m DEEP, IN ACCORDANCE WITH OPSD 1006.010

GRADING NOTES:

1. ALL AREAS BEYOND THE LIMIT OF SITE PLAN, WHICH ARE DISTURBED DURING CONSTRUCTION, SHALL BE RESTORED TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.
2. PRIOR TO THE COMMENCEMENT OF SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL. THE CONTRACTOR SHALL MAINTAIN ALL WORKS UNTIL SERVICING CONSTRUCTION IS COMPLETED TO THE SATISFACTION OF THE ENGINEER AND THE TOWN OF OAKVILLE.
3. SILT CONTROL FENCE TO REMAIN IN PLACE UNTIL THE WORKING AREA HAS BEEN STABILIZED AND REVEGETATED.
4. PAVEMENT GRADIENTS SHALL BE A MINIMUM OF 0.50% AND A MAXIMUM OF 5.00% WITHIN ALL PARKING LOTS AND ROADS.
5. GROUND SLOPE ON LANDSCAPED AREAS AND BERM SIDE SLOPE SHALL NOT EXCEED 3:1 (HOR: VERT). DRAINAGE SWALES SHALL HAVE A MINIMUM GROUND SLOPE OF 2.00% AND MAXIMUM GROUND SLOPE OF 5.00%.

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED AND IN PROPER WORKING ORDER PRIOR TO THE REMOVAL OF ANY TOPSOIL, THE EXACT LOCATION TO BE DETERMINED IN THE FIELD AND APPROVED BY THE TOWN.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER AND CLEANED PERIODICALLY BY THE CONTRACTOR, AS REQUIRED.
3. ALL CONSTRUCTION VEHICLES SHALL EXIT THE SITE VIA THE TEMPORARY CONSTRUCTION ACCESS.
4. ALL TOPSOIL STOCKPILES SHALL BE SURROUNDED WITH SEDIMENTATION CONTROL FENCING. IF TOPSOIL STOCKPILE REMAINS UNTOUCHED FOR MORE THAN 30 DAYS, THE STOCKPILE SHALL BE SEEDED.
5. AREAS THAT HAVE BEEN STRIPPED AND SIT BARE FOR MORE THAN 45 DAYS, SHOULD BE RESEEDED.
6. SEDIMENT WHICH COLLECTS IN THE TEMPORARY SEDIMENT CONTROL FACILITIES WILL BE REMOVED WHEN FACILITY IS HALF FULL.
7. SILT CONTROL FENCE TO REMAIN IN PLACE UNTIL THE WORKING AREA HAS BEEN STABILIZED AND REVEGETATED.
8. CONTRACTOR TO INSTALL AND MAINTAIN MUD MAT AT CONSTRUCTION ACCESS IN ORDER TO PREVENT MUD TRACKING ONTO ADJACENT ROADS. MUD MAT TO BE MINIMUM 30.0m LONG AND 10.0m WIDE. THE MUD MATT SHOULD BE A MINIMUM OF 300mm THICK, THE PAD SHOULD BE UNDERLAIN WITH A GEOTEXTILE (OR GRADED AGGREGATE FILTER) AND CONSIST OF 50mm DIAMETER CLEAR STONE FOR THE FIRST 10m (EXTENDING FROM THE STREET) AND THE REMAINDER OF THE LENGTH TO CONSIST OF 150mm DIAMETER CLEAR STONE.
9. ALL REAR LOT CATCHBASINS TO BE EQUIPPED WITH SEDIMENT TRAP.
10. ALL STREET CATCHBASINS TO BE PROVIDED WITH TERRAFIX 270R OR APPROVED EQUIVALENT UNDER GRATE, TO BE KEPT IN PLACE UNTIL SITE IS STABILIZED.
11. CONTRACTOR TO CLEAN ADJACENT ROADS ON A REGULAR BASIS OF THE SATISFACTION OF THE AFFECTED AUTHORITY.
12. SEDIMENT BASIN TO BE CONSTRUCTED UNDER THE SUPERVISION OF THE PROJECT GEOTECHNICAL CONSULTANT.
13. THE LOCATION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR AT THEIR EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION AND/OR REPAIR OF EXISTING UTILITIES DISTURBED DURING CONSTRUCTION.
14. WASH DOWN AREA TO BE PROVIDED DURING CONSTRUCTION AS REQUIRED.ALL CONCRETE WASH WATER STATIONS ARE TO BE LOCATED AT LEAST 50 METERS FROM THE NHS.
15. EQUIPMENT AND MACHINERY SHALL NOT ENTER OR CROSS ANY WATERCOURSES FOR ANY REASON AND CONCRETE WASH WATER STATIONS SHALL BE LOCATED AT LEAST 50 METERS AWAY FROM ALL WATERCOURSES.
16. ALL DITCHES ON REGIONAL ROADWAYS ARE TO HAVE SILT CONTROL MEASURES PROVIDED AND MAINTAINED AS DIRECTED BY THE REGION OF HALTON.
17. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS." THE GENERAL CONTRACTOR SHALL BE DESIGNATED AS THE CONSTRUCTOR AS IN THE ACT.
18. ALL WORKS TO BE IN ACCORDANCE WITH THE TOWN OF OAKVILLE'S BY-LAW #2003-21.
19. CONCRETE WASH WATER STATIONS SHALL BE LOCATED AT LEAST 50m AWAY FROM ALL WATERCOURSES AND PONDS.

WATER NOTES:

1. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), SPECIFICATIONS (OPSS), AND HALTON REGION'S WATER AND WASTEWATER LINEAR DESIGN MANUAL, AS AMENDED BY THE REGION OF HALTON.

2 WATERMAIN MATERIAL AND FITTINGS ARE TO BE PVC DR-18 CL-235 AS PER AWWA C-900, C-905 & C-907.

3. A SOLID 10 GAUGE TWU COPPER WIRE SHALL BE INSTALLED ALONG THE TOP OF THE NON-METALLIC PIPE, STRAPPED TO THE PIPE AT 6 m INTERVALS. THE WIRE SHALL BE INSTALLED BETWEEN EACH VALVE AND/OR THE END OF THE NEW PVC WATERMAIN. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED. AT EACH VALVE, A LOOP OF WIRE IS TO BE BROUGHT UP OUTSIDE THE VALVE BOX TO THE TOP OF THE BOX AS PER HALTON STANDARD DRAWING RH 406.010.
4. ALL WATER SERVICES ARE TO BE 25mm DIA. TYPE K SOFT COPPER FOR RESIDENTIAL DWELLINGS AND 25mm DIA. TYPE K SOFT COPPER FOR INDUSTRIAL AND COMMERCIAL PREMISES AS PER OPSD 1104.010 AND 1104.020 UNLESS OTHERWISE SPECIFIED. WATER SERVICES SHALL BE MARKED WITH A "2x4", EXTENDING FROM THE INVERT TO 1.0 m ABOVE GRADE PAINTED BLUE. ALL WATER SERVICES SHALL BE PROVIDED WITH A MAIN STOP, CURB STOP AND SERVICE BOX AT THE PROPERTY LINE. VALVE BOX STEM EXTENSION RODS ARE TO BE USED ON WATER SERVICES UP TO AND INCLUDING 25 mm.
5. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW-OFFS REQUIRED FOR TESTING THE WATERMAIN.
6. MAXIMUM ALLOWABLE PIPE JOINT DEFLECTION OF THE WATERMAIN SHALL BE 50% OF THE MANUFACTURER'S SPECIFICATIONS. PIPE BARREL DEFLECTION IS STRICTLY PROHIBITED.
7. CORROSION PROTECTION IS REQUIRED FOR ALL METALLIC PIPE, VALVES, FITTINGS, SERVICES AND HYDRANTS. ALL SACRIFICIAL ANODES SHALL CONFORM TO ASTM B-418 TYPE II AND SHALL BE MADE OF HIGH GRADE ELECTROLYTIC ZINC, 99.99% PURE.
8. VALVE CHAMBER FRAMES AND COVERS TO BE AS PER OPSD 401.010 AND TO BE CAST WITH THE WORDS "DANGER" AND "WATER". COVERS ARE TO BE SET FLUSH WITH BASE COURSE ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT
9. WATERMAIN BEDDING SHALL BE IN ACCORDANCE WITH OPSD 802.010, 802.013 OR 802.014 UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER TO THE SATISFACTION OF THE REGION OF HALTON, WITH A MINIMUM REQUIREMENT OF GRANULAR "A" BEDDING CONFORMING TO OPSS MUNI. 401. FOR BEDDING MATERIAL IN SHALE EXCAVATION, REFER TO GEOTECHNICAL RECOMMENDATIONS.
10. APPROVED BACKFILL MATERIAL SHALL BE PLACED IN ACCORDANCE WITH OPSS 401, 402, AND 403. COMPACTION SOIL DENSITY TESTING SHALL BE CARRIED OUT TO ENSURE ADEQUATE COMPACTION AND STABILITY OF FILL AND TEST RESULTS SHALL BE SUBMITTED TO THE TOWN OF OAKVILLE AND REGION OF HALTON.
11. WATERMAIN AND WATER SERVICES INSTALLED WITHIN 2.5 m FROM A CATCHBASIN OR MANHOLE SHALL BE INSULATED TO THE SATISFACTION OF THE REGION OF HALTON.
12. WATERMAINS AND WATER SERVICES SHALL BE INSTALLED WITH A MINIMUM DEPTH OF COVER OF 1.7 METERS.
13. WATERMAINS SHALL BE LAID WITH AT LEAST 2.5m HORIZONTAL SEPARATION FROM ANY SEWERS OR SEWER MANHOLES. UNDER UNUSUAL CONDITIONS, WHERE CONGESTION WITH OTHER UTILITIES WILL PREVENT A CLEAR HORIZONTAL SEPARATION OF 2.5m, A WATERMAIN MAY BE LAID CLOSER TO A SEWER, PROVIDED THAT THE VERTICAL SEPARATION OF THE SEWER IS AT LEAST 0.5m BELOW THE WATERMAIN. ALL DISTANCES SHALL BE MEASURED FROM THE NEAREST EDGES OR OUTSIDE SURFACES, WHERE NEITHER HORIZONTAL OR VERTICAL CLEARANCE CAN BE PHYSICALLY ACHIEVED, WHERE APPLICABLE, THE SEWER MAIN SHALL BE CONSTRUCTED WITH JOINTS THAT ARE EQUIVALENT TO WATERMAIN STANDARDS OF CONSTRUCTION.
14. MINIMUM SEPARATION/CLEARANCE SHALL BE 150mm WHERE WATERMAINS CROSS OVER MAINLINE SEWERS AND LATERALS AND 500mm WHERE THE WATERMAIN CROSSES UNDER (THE DISTANCE SHALL BE MEASURED FROM THE NEAREST EDGES OR OUTSIDE SURFACES). IF THE MINIMUM COVER OF THE WATERMAIN OR WATER SERVICE CONNECTION CANNOT BE OBTAINED AS A RESULT OF THE WATERMAIN OR WATER SERVICE CONNECTION CROSSING ABOVE THE SEWER, THE WATERMAIN OR WATER SERVICE CONNECTION SHALL BE CONSTRUCTED UNDER THE SEWER OR INSULATED FOR ITS ENTIRE LENGTH USING PRE-INSULATED PIPE UNTIL THE MINIMUM DEPTH (1.7m) IS OBTAINED. WHEN CROSSING OVER A STORM SEWER THE STORM SEWER MUST ALSO BE INSULATED WITH MINIMUM 100mm EXTRUDED FOAM (HI 100) INSULATION, REFER TO HALTON REGION STANDARD DRAWING RH 408.020 & 408.030.
15. ALL SERVICES TAPPING TO EXISTING MAINS ARE TO BE DONE BY THE REGIONAL FORCES. CONNECTIONS ARE NOT TO BE MADE TO THE EXISTING MAIN UNTIL THE NEW MAIN IS COMPLETED, TESTED, SWABBED AND DISINFECTED.
16. NO WATERMAIN OR APPURTENANCE SHALL BE PLACED ON PREVIOUSLY EXCAVATED SOIL UNLESS PROPER ENGINEERED SUPPORT IS IN PLACE TO THE SATISFACTION OF THE REGION AND THE PROJECT GEOTECHNICAL ENGINEER.
17. REGIONAL MUNICIPALITY OF HALTON APPROVED MECHANICAL RESTRAINT JOINTS ARE TO BE USED ON ALL BENDS, ALL PIPES AND FITTINGS IN FILL SECTIONS, ALL VALVE CHAMBERS, AND ALL PLUGS, CAPS, HYDRANTS, TEES, BRANCH CONNECTIONS, LINE VALVES AND HORIZONTAL BENDS WHERE DISTURBED SOIL IS ENCOUNTERED.
18. MINIMUM COVER OVER HYDRANT LATERAL SHALL BE 1.7m. IF A HYDRANT MAIN VALVE SEAT EXCEEDS 1.7m, A SUITABLE HYDRANT BOTTOM EXTENSION MUST BE USED AND PLACED BETWEEN BOOT AND HYDRANT BARREL - REFER TO HALTON REGION STANDARD DRAWING RH 407.010
19. ALL HYDRANTS REQUIRE STORZ PUMPER CONNECTIONS
    1) TWO (2) 63.5 mm (2 1/2") WITH CSA STANDARD THREAD, 63.5 mm I.D., 79.4 mm O.D., 5 THREADS PER 25 mm, 31.75 mm SQUARE OPERATING NUT; AND
    2) ONE (1) 100 mm (4") STORZ PUMPER CONNECTION AS PER CAN/ULC #S-520, 31.75 mm SQUARE OPERATING NUT, AND STORZ CAP PAINTED GLOSS BLACK
20. HYDRANTS SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C502 AND SHALL HAVE STEAMER PORTS AS PER REGION STANDARD SPECIFICATIONS. ALL HYDRANTS SHALL BE INSTALLED AS PER OPSD 1105.010, AS AMENDED BY THE REGION OF HALTON STANDARD DRAWING RH 407.010.
21. FIRE HYDRANTS SHALL BE INSTALLED WITH BREAK-OFF FLANGE SET 0mm TO 50mm ABOVE FINISHED GRADE. ALL HYDRANT LATERALS SHALL HAVE A 150mm SECONDARY VALVE, VALVE BOX AND ANCHOR TEE.
22. MINIMUM SEPARATION DISTANCE FROM THE EDGE OF DRIVEWAY TO THE FACE OF THE FIRE HYDRANT SHALL BE 1.0m.
23. VALVE CHAMBER SHALL BE PRECAST CONCRETE CHAMBER AS PER REGION STD. RH.402.020, OR RH.402.080. THREE VALVES ARE REQUIRED AT A TEE INTERSECTION AND FOUR VALVES ARE REQUIRED AT A CROSS INTERSECTION UNLESS OTHERWISE NOTED.
24. LINE VALVES SHALL BE THE SAME SIZE AS WATERMAIN COMPLETED WITH VALVE BOX AND EXTENSION.
25. RESILIENT SEAT GATE VALVES CONFORMING TO AWWA C509 OR C515 (LATEST REVISION) MAY BE USED FOR WATERMAINS 400mm DIA. AND SMALLER. RESILIENT SEAT GATE VALVES CONFORMING TO AWWA C515 (LATEST REVISION) SHALL BE USED FOR WATERMAINS LARGER THAN 400mm.
26. CATCH BASIN LEADS TO BE INSTALLED UNDER WATERMAIN WITH MINIMUM 0.15m CLEARANCE WHERE CROSSING WATERMAIN.
27. ALL WATERMAINS WILL BE SUBJECT TO PRESSURE TESTING AND FIRE FLOW TESTING AS DIRECTED BY HALTON REGION.
28. ALL WATER CUSTOMERS SUPPLIED BY A WATERMAIN TO BE SHUT DOWN SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 48 HOURS IN ADVANCE OF THE SHUT DOWN AS PER REGION OF HALTON SPECIFICATIONS. NOTIFICATION SHALL TAKE PLACE UNDER THE ENGINEER'S DIRECTION.
29. WATER SERVICE CURB BOXES ARE TO HAVE STAINLESS STEEL RODS AND STAINLESS STEEL COTTER PINS.
30. ALL WATERMAINS WITHIN THE BRESSA DUNDAS URBAN CORE BOUNDARY ARE PRIVATELY OWNED.

ROADWORK AND PARKING LOTS NOTES:

1. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
2. ROAD SUBDRAINS SHALL BE IN ACCORDANCE WITH TOWN OF OAKVILLE STD. 6-2.
3. ALL CURB AND GUTTER SHALL BE IN ACCORDANCE WITH TOWN OF OAKVILLE STD. 6-1 (TWO STAGE CURB)
4. MINIMUM CURB GRADE TO BE 0.5% INCLUDING ON CUL-DE-SAC BULBS AND OUTSIDE ROAD ELBOWS.
5. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH OPSD 310.020.
6. PRIOR TO PLACEMENT OF GRANULAR MATERIAL, THE SUBGRADE MATERIAL MUST BE PROOF-ROLLED IN THE PRESENCE OF THE TOWN'S REPRESENTATIVES AND GEOTECHNICAL CONSULTANT.
7. CONCRETE WALKWAY SHALL BE IN ACCORDANCE WITH TOWN OF OAKVILLE STD. 6-4,
8. PAVEMENT DESIGN TYPE:

<u>PAVEMENT OVER UNDERGROUND PARKING GARAGE</u> - LIGHT DUTY AREAS

- 60mm HL3 HS
- 150mm GRANULAR A (MIN. 100mm VARIABLE THICKNESS TO PROVIDE 2% SLOPE FOR DRAINAGE)
- PROTECTION BOARD (TO PREVENT PIERCING OF WATERPROOFING MEMBRANE)
- STRUCTURAL CONCRETE SLAB

<u>PAVEMENT OVER UNDERGROUND PARKING GARAGE</u> - HEAVY DUTY AREAS

- 40mm HL3 HS
- 50mm HDBC
- 200mm CRUSHER RUN LIMESTONE
- PROTECTION BOARD (TO PREVENT PIERCING OF WATERPROOFING MEMBRANE)
- STRUCTURAL CONCRETE SLAB

<u>PAVEMENT FOR MAIN INTERNAL ROAD</u>
- 40mm HL3 ASPHALTIC CONCRETE
- 80mm HL8 ASPHALTIC CONCRETE
- 150mm GRANULAR 'A'
- 300mm GRANULAR 'B'

<u>PAVEMENT STRUCTURE FOR LIGHT DUTY PARKING</u> (CARS)

- 40mm HL3 OR SP12.5 ASPHALTIC CONCRETE
- 40mm HL8 OR SP19.0 ASPHALTIC CONCRETE
- 150mm GRANULAR 'A'(OR 20mm CRUSHER RUN LIMESTONE)
- 200mm GRANULAR 'B'(OR 50mm CRUSHER RUN LIMESTONE)

<u>PAVEMENT STRUCTURE FOR HEAVY DUTY PARKING</u> (DELIVERY TRUCKS)

- 40mm HL3 OR SP12.5 ASPHALTIC CONCRETE
- 80mm HL8 OR SP19.0 ASPHALTIC CONCRETE
- 150mm GRANULAR 'A'(OR 20mm CRUSHER RUN LIMESTONE)
- 300mm GRANULAR 'B'(OR 50mm CRUSHER RUN LIMESTONE)

RETAINING WALL NOTES:

1. RETAINING WALL TYPE TO BE SPECIFIED BY PROJECT STRUCTURAL ENGINEER OR AS SPECIFIED ON THE DRAWING.
2. ALL RETAINING WALLS SHALL BE CONCRETE, CONCRETE PRODUCT WITH TIE-BACK SYSTEM OR HEAVY BLOCK SYSTEM.
3. ALL RETAINING WALLS ARE TO BE DESIGNED, APPROVED AND STAMPED BY A CONSULTING ENGINEER SPECIALIZING IN STRUCTURAL ENGINEERING.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS CERTIFIED BY A STRUCTURAL ENGINEER.
5. THE FOUNDATION SUBGRADE FOR THE RETAINING WALL SHOULD BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.
6. DURING CONSTRUCTION, THE CONTRACTOR SHALL RETAIN A STRUCTURAL ENGINEER TO PROVIDE FULL TIME INSPECTION OF THE RETAINING WALL. DAILY INSPECTION REPORTS SHALL BE FORWARDED TO THE CONSULTANT FOR FURTHER DISTRIBUTION TO THE COMMISSIONER OF WORKS.
7. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A CERTIFICATE FROM A STRUCTURAL ENGINEER CERTIFYING THAT THE WALL HAS BEEN CONSTRUCTED IN CONFORMANCE WITH THE APPROVED ENGINEERING DRAWINGS AND THE CERTIFIED SHOP DRAWINGS.
8. 1.2m HIGH BLACK VINYL CHAIN LINK FENCE ARE REQUIRED FOR WALLS HIGHER THAN 0.6m OR AS INDICATED.
9. ALL EXCAVATION FOR INSTALLATION OF RETAINING WALLS SHOULD OCCUR OUTSIDE OF CH'S REGULATED AREA.

GEOTECHNICAL REPORT/MEMO:

REFER TO:
- GEOTECHNICAL INVESTIGATION REPORT NO. 19-294-100 PREPARED DATED NOVEMBER 22, 2019 BY DS CONSULTANTS LTD IN CONJUNCTION WITH LETTER DATED MARCH 27, 2020.

INFORMATION PRESENTED ON THESE DRAWINGS HAS BEEN INTERPOLATED FROM THE GEOTECHNICAL REPORTS AND ACCURACY IS NOT GUARANTEED. CONTRACTORS ARE ADVISED TO READ THE GEOTECHNICAL REPORTS AND ASSUME THEIR OWN CONCLUSIONS.

ENGINEERED / TRENCH BACK FILL:

ALL ENGINEERED FILL AND TRENCH BACK FILL SHOULD BE PREPARED ACCORDING TO THE RECOMMENDATIONS PROVIDED IN GEOTECHNICAL REPORT.
PLACEMENT OF ENGINEERED FILL, PIPE BEDDING AND BACKFILL OF TRENCHES SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER, INCLUDING FOUNDATION SUBGRADE, SLOPES AND EXCAVATIONS.
- SEE CONSOLIDATED REPORT ON GEOTECHNICAL INVESTIGATION NO. 19-294-100 DATED NOVEMBER 22, 2019 BY DS CONSULTANTS LTD., FOR DETAILS.

SPILLS CONTROL NOTES:

1. ALL REFUELING OF EQUIPMENT OR MACHINERY IS TO TAKE PLACE AT LEAST 50 METERS AWAY FROM ALL WATERCOURSES.
2. AN EMERGENCY SPILLS RESPONSE KIT SHALL BE PRESENT ON SITE WHILE CONSTRUCTION IS UNDERWAY.
3. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
4. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF A POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL,
    A. IMMEDIATELY NOTIFY THE APPROPRIATE FEDERAL, PROVINCIAL AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
    B. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES AS THEY DEEM APPROPRIATE TO MITIGATE AGAINST THE ANY ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
    C. THE CONTRACT SHALL RESTORE THE AFFECTED AREA TO ORIGINAL CONDITION OR BETTER, ALL TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

DRAWING LIST

No.	DRAWINGS
DRAWINGS	
1	GENERAL NOTES
2	GENERAL PLAN
3	GRADING PLAN
4	SANITARY DRAINAGE PLAN
5	STORM DRAINAGE PLAN
6	DETAILS & SECTIONS
SILT	
SILT-1	SILTATION CONTROL PLAN
SILT-2	POST DEVELOPMENT SILTATION CONTROL PLAN

REFERENCE LIST

No.	DRAWINGS
FOR REFERENCE: Electrical Design (DEI CONSULTING ENGINEERING-FILE No.22306)	
E001	ELECTRICAL SITE PLAN
FOR REFERENCE: LANDSCAPE DESIGN (NAK DESIGN STRATEGIES-FILE No. 22-178)	
L1.0	LAYOUT & SURFACING PLAN
L1.1	PLANTING PLAN
L1.2	SOIL VOLUME PLAN
C1	CIRCULATION PLAN
L4.0	SECTIONS
L4.1	SECTIONS
L5.0	PLANTING DETAILS
L5.1	PAVING DETAILS
L5.2	LANDSCAPE DETAILS
L5.3	LANDSCAPE DETAILS
L5.4	LANDSCAPE DETAILS
L5.5	LANDSCAPE DETAILS

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY R-PE SURVEYING LTD., JOB No. 19-019, TOPOGRAPHIC SURVEY DATED NOVEMBER 27, 2021 LIDAR CONTOUR RECEIVED ON MAY 05, 2008.

SITE PLAN INFORMATION

SITE PLAN PROVIDED BY KNYMH INC., JOB No. 22404, DATED FEBRUARY 14, 2025.

BENCHMARK NOTE

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MINISTRY OF TRANSPORTATION ONTARIO FIRST-ORDER VERTICAL BENCH MARK NUMBER 00819818114 HAVING AN ORTHOMETRIC ELEVATION OF 188.594 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928:1978).
STEEL ROD WITH BRASS CAP BENCH MARK ON NORTH SIDE OF BURNHAMTHORPE RD, 138.7 M EAST OF THE JCT OF BURNHAMTHORPE RD AND SIXTH LINE RD IN OAKVILLE, AND 9.2 M NORTH OF CENTRELINE OF BURNHAMTHORPE RD. BENCH MARK IS SET 1.1 M SOUTH OF NORTH RIGHT-OF -WAY FENCE OF BURNHAMTHORPE RD AND IS MARKED BY A STEEL MARKER 46 CM EAST OF BENCH MARK.

No.	DATE	BY		
5.	25-03-25	R.Z.	ISSUED FOR CONSTRUCTION	
4.	24-03-07	R.Z.	REVISED SWALE NORTH OF PARKING GARAGE	
3.	23-12-07	R.Z.	3rd SUBMISSION	
2.	23-08-31	D.A.	2nd SUBMISSION	
1.	23-05-17	R.Z.	1st SUBMISSION	

DESIGNED BY:	R.Z.	CHECKED BY:	R.Z.
DRAWN BY:	T.H.	CHECKED BY:	D.A.

DATE APRIL 2023

SCALE

REFERENCES

APPROVALS

MUNICIPAL APPROVAL

APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS

MANAGER OF DEVELOPMENT SERVICES DATE

FIELD NOTES

BELL	☐	HYDRO	☐
GAS	☐	CABLE	☐
TRAFFIC	☐	WATER	☐

REGIONAL APPROVAL

APPROVED DESIGN OF SANITARY, WATER SERVICES AND REGIONAL ROAD WORKS SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATIONAL APPROVAL FROM AREA MUNICIPALITY

LEGISLATIVE AND PLANNING SERVICES DATE

STAMP

LICENSED PROFESSIONAL ENGINEER
Ruoshi Zhao
R. ZHAO
100231696
25-03-25
PROVINCE OF ONTARIO

DSEL
600 Alden Road, Suite 606
Markham, Ontario, L3R 0E7
Tel. (905) 475-3080
Fax. (905) 475-3081
www.DSEL.ca

MUNICIPALITY
OAKVILLE
DEVELOPMENT SERVICES

REGION
Halton REGION
The Regional Municipality of Halton

DEVELOPER
BRESSA DEVELOPMENTS LTD.

DEVELOPMENT MANAGER
mattamyHOMES

PROJECT
BRESSA DUC PHASE 2
3006 WILLIAM CUTMORE BOULEVARD
& 1415 DUNDAS STREET EAST

TITLE
GENERAL NOTES

MUNICIPAL FILE NO. SP-1305.002/01

REGIONAL FILE NO. DO-XXXX

PROJECT NO. 23-1342

SHEET 1 OF 6