TITLEBLOCK 24x36 VERT ENG 3.0

GENERAL NOTES

1. GRADE CONTROL AND DRAINAGE - GENERAL

1.1. The Contractor must conform to all laws, codes, ordinances, and regulations adopted by federal, provincial or municipal government councils and government agencies, applying to work to be carried out.

1.2. Unless otherwise indicated, all materials and construction methods to be in accordance with the requirements of the latest edition of the City of Ottawa Design Guidelines, Ontario Provincial Standard Specifications and Drawings (OPSS and OPSD), the Ontario Ministry of Environment, Conservation and Parks (MECP), applicable Conservation Authorities, the municipal standard specifications and drawings, and all other governing authorities as they apply.

1.3. Wherever standards, laws and/or regulations are mentioned they refer to their current versions, modifications included.

1.4. The boreholes and test pits shown on the plan are for information purposes only. Their location on the plan is approximate. The Contractor must refer to the boreholes and test pit records to obtain information about observed stratigraphy on site.

1.5. The Contractor is responsible for obtaining all permits required to complete all works and bear cost of same, including road cut permit and water permit and their associated costs.

1.6. The Contractor is responsible for the coordination of his activities with others on site.

1.7. Submit copies of inspection and test reports to Owner's representative.

1.8. The location of existing underground municipal services and public utilities as shown on the plans are approximate. The Contractor must determine the exact location, size, material and elevation of all existing utilities (on-site and off-site) prior to any excavation work. Damage to any existing services and/or existing utilities during construction, whether or not shown on the drawings must be repaired by the Contractor at his own expense.

1.9. Site preparation includes clearing, grubbing, stripping of topsoil, demolition, removal of unsuitable materials, cut, fill and rough grading of all areas to receive finished surfaces.

1.10. N/A

1.11. Compaction must conform to the following requirements:

Exposed subgrade:
95% Standard Proctor maximum dry density (SPMDD)
Granular Subbase foundations:
99% Standard Proctor maximum dry density (SPMDD)
Granular Base foundations:
99% Standard Proctor maximum dry density (SPMDD)
Asphalt pavement:
As per OPSS.MUNI 310 / City of Ottawa Special Provisions
Subgrade fill (pavement areas - OPSS Select Subgrade Material):
95% Standard Proctor Maximum Dry Density (SPMDD)
Structural fill (building footprints OPSS Granular 'A' or Granular 'B' Type II Material):
98% Standard Proctor Maximum Dry Density (SPMDD)

1.12. If groundwater is encountered during construction, dewatering of excavations could be required as per OPSS.MUNI 518. It is assumed that groundwater may be controlled by sump and pumping methods. As required under the "Ontario Water Resources Act (OWRA)", the Contractor must register all water taking activities on Ontario's "Environmental Activity and Sector Registry (EASR)" if water taking exceeds 50,000 l/day, and obtain a "Permit to Take Water (PTTW)" if water taking exceeds 400,000 l/day. Furthermore, Contractor must provide all necessary measures required to ensure dewatering operations does not affect in any way the integrity of the existing surrounding buildings and must plan his work accordingly. Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16.

1.13. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements and as follows:

1.13.1. Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials to within the required parameters of the receiving body before discharging to storm sewers, watercourses or drainage areas.

1.13.2. Before discharging to storm sewers, watercourses or drainage areas, discharge water must be sampled and tested to ensure quality requirements in accordance with City of Ottawa Sewer Use By-Law No. 2003-514 and the MECP are adhered to. The Contractor is to perform all additional sampling and testing as required by City of Ottawa. All associated fees to be paid by the Contractor.

1.13.3. Where water is not suitable for discharge into the adjacent storm sewers, watercourses or drainage areas it must be discharged into the on-site sanitary sewer collection system, or disposed off-site at an approved disposal facility.

1.13.4. Sanitary Sewer Discharge:

1.13.4.1. When discharging to the sanitary sewer, the Contractor must obtain a Sanitary Sewer Agreement for Dewatering from the City of Ottawa in accordance with City of Ottawa Sewer Use By-Law No. 2003-514 and pay all associated fees.

1.13.4.2. A copy of the signed Sanitary Sewer Agreement for Dewatering must be provided to the Owner's Representative in advance of dewatering and discharge.

1.13.4.3. The Contractor must ensure all requirements of the Discharge Agreement are adhered to and all prerequisite requirements of the Agreement are in place prior to commencing dewatering.

1.13.4.4. Provide flow meter and record discharge rate in accordance with City of Ottawa requirements.

1.13.4.5. Dewatering discharge rate to sanitary sewer not to exceed rate specified by City.

1.13.4.6. For off-site disposal of dewatering effluent, Contractor to provide Departmental Representative proof of receipt that dewatering effluent was received at a licensed landfill facility and pay all associated disposal fees.

1.13.4.7. Contractor must provide name of proposed licensed disposal facility to Owner's Representative in advance of any dewatering waste leaving the site.

1.13.4.8. Contractor is responsible for paying all costs associated with any water quality sampling and testing required.

1.14. The Contractor must maintain benchmarks and landmark references as is. Otherwise these references will be repositioned by a certified land surveyor at the Contractor's expense.

1.15. The Contractor is the only person in charge of safety on the building site. The Contractor is responsible for providing adequate protection of the workers, other personnel and the general public, protection of materials, as well as maintaining in good condition the completed works and works to be completed. The Contractor must supply, install and maintain an appropriate safety fence along the work perimeter until the work is complete.

The Contractor must provide at any time:
- A sufficient number barriers, posters, guards and others to ensure safety;
- Necessary conveniences for the completion of the work such as heating, lighting, ventilation, etc.

1.16. Temporary excavations in the overburden must be completed as per the requirements of the Occupational Health and Safety Act (OHSA), O. Reg. 213/91, Part III - Excavations.

The side slopes of excavations in the soil and fill overburden materials should either be cut back at acceptable slopes or should be retained by shoring systems from the star of the excavation until the structure is backfilled.

The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level. The subsurface soil is considered to be mainly a Type 2 and 3 soil according to the Occupational Health and Safety Act and Regulations for Construction Projects. Slopes in excess of 3 m in height should be periodically inspected by the geotechnical consultant in order to detect if the slopes are exhibiting signs of distress.

1.17. The Contractor must pace deliveries and removals in order to minimize and control stockpiles.

1.18. Excavated soil must not be stockpiled directly at the top of excavations and heavy equipment kept away from the excavation sides.

1.19. Cleanliness on the site:
- The Contractor must clean roadways at his own cost as directed by the Owner's representative;
- All site roads and walkways to and from the construction zone must be kept clean at all times, from mud, dirt, granular material, debris, etc.;
- The Contractor must leave the work area clean at the end of each day;
- Materials and equipment must be laid out in an organized and safe manner;
- All material, equipment and temporary structures which are no longer necessary for the execution of the Contract must be removed from the site;
- If required the Contractor must use screens, bulkheads, or any other recognized means in order to reduce noise, dust, interference, obstruction, etc., in conformity with the requirements of the provincial and municipal authorities having jurisdiction.

1.20. During the construction period the Contractor is responsible for installing and maintaining temporary traffic signage, including traffic signs, traffic markings and temporary traffic lights, and flagmen, as required by the Owner, the Consultant, the Municipality, and other governing authorities.

1.21. The Contractor must control surface runoff from precipitation during construction.

1.22. The Contractor must ensure the following mitigation measures are implemented in order to reduce the risk of ground contamination from petroleum products:

- The list of persons and agencies to contact in the event of an emergency must be posted in plain sight on the work site for the duration of the construction period;
- Machinery must be clean and kept clean to limit any grease or oil deposits inside the work area;
- Frequent inspections must be performed to detect any oil, fuel, grease or other leaks. If a leak is detected, the necessary corrective action must be taken immediately;
- An emergency kit for the recovery of petroleum products must be kept on site at all times.
- The kit must include at least 30 m of absorbent booms, a box of absorbent pads and solid absorbent material (powder or granules). The kit must be stored near the location of work and machinery, and kept within easy reach at all times to ensure a rapid response;
- In the event of a spill the Contractor must immediately report to the Spills Action Centre of the MECP at 1-800-268-6060. Hydrocarbons and contaminated soils will be recovered by a specialized firm.

1.23. The Contractor must ensure the following measures are implemented regarding the handling of concrete:

- Concrete should either be mixed away from the site or should be prepared on paved surfaces if only small quantities are required (i.e. minor repairs);
- Excess concrete must be disposed off-site at a location that meets all regulatory requirements;
- The washing of concrete trucks and other equipment used for mixing concrete should not be carried out within 30 m of a watercourse or wetland and should take place outside of the work site;
- All concrete trucks should collect their wash water and recycle it back into their trucks for disposal off-site at a location meeting all regulatory requirements.

2. DEMOLITION AND REMOVALS

2.1. The Contractor must visit the premises in order to be fully aware of existing conditions on site, including all elements to be removed and demolished. No claim will be accepted due to a poor evaluation of the work to be completed.

2.2. The Contractor must protect and maintain in service the existing works which must remain in place. If they are damaged, the Contractor must immediately make the replacements and necessary repairs to the satisfaction of the Owner's representative and without additional expense to the Owner.

2.3. The Contractor must perform the nessessary clearing and grubbing in accordance with OPSS.MUNI 201.

2.4. The Contractor must carry out necessary saw cuts even if they are not shown on the drawings.

2.5. The Contractor must entirely remove the demolition wreckage from the construction site in accordance with the requirements of the MECP and in accordance with OPSS.MUNI 180 and OPSS.MUNI 510.

- The Contractor must discard recyclable demolition materials in collaboration with a regional recycling company. The Contractor must be able to provide proof, upon request, that the materials were properly recycled and that the chosen recycling company is recognized in the recycling field.
- All other demolition materials must be disposed off-site at authorized licensed landfills and in conformity with the applicable laws and regulations. The Contractor must be able to provide, upon request, copies of the disposal tickets.

2.6. The Contractor is responsible for locating existing public utilities and (if required) submit a request for the interruption of public utility services, such as gas, telephone, power, cable, sewers, watermain, etc.

2.7. The Contractor must conduct all removals required to make the work complete.

2.8. Unless otherwise specified, all materials, products and others coming from the demolition belong to the Contractor.

2.9. Surfaces and works located outside of the construction work limit must be reinstated as they were before beginning of work.

3. GENERAL SUBGRADE PREPARATION

3.1. Earth removal must be inspected by an experienced Geotechnical Engineer to ensure that all unsuitable materials are removed prior to the placement of fill, including concrete and/or others, and to confirm the compaction degree and condition of the founding soils. All unsuitable materials must be hauled off site and disposed as per provincial and municipal regulations.

3.2. Subgrade must be approved by experienced geotechnical personnel before proceeding with placement of fill.

3.3. All granular fill must be placed in maximum 300 mm thick loose lifts and compacted using suitable methods as per the requirements.

3.4. If soft spots develop in the subgrade during compaction or due to construction traffic, the affected areas should be excavated and replaced with OPSS Granular B Type II material.

3.5. If contaminated material is encountered during the work, the Contractor must dispose off-site all materials from the contaminated area in accordance with the requirements of the MECP and OPSS.MUNI 180. Prior to the start of work the Contractor must provide the name and location of landfill(s) where the contaminated materials will be disposed to the Consultant. The Contractor must obtain from the landfill Owner documents confirming that he has the right to accept the contaminated material. During the work, the contractor must provide the Consultant copies of all check-in receipts issued by the landfill Owner.

3.6. The Contractor is responsible for providing a confirmation that the imported material used as subgrade fill is free of any contaminants such as Petroleum Hydrocarbons (C_{10}-C_{50}), PAH (Polycyclic Aromatic Hydrocarbons), MAH (Monocyclic Aromatic Hydrocarbons) and metals like mercury, silver, arsenic, cadmium, cobalt, chromium, copper, tin, manganese, molybdenum, nickel, lead and zinc.

4. EXCAVATION AND BACKFILL

4.1. Subgrade preparation must be completed as per Section "3.0 General Subgrade Preparation".

4.2. The management of excess materials to comply with OPSS.MUNI 180.

4.3. Topsoil and deleterious fill, such as those containing organic materials, must be stripped from under any buildings, paved areas, pipe bedding, and other settlement sensitive structures.

4.4. Due to the relatively shallow depth of the bedrock surface and the anticipated founding level for the proposed building, all existing overburden material must be excavated from within the proposed building footprint.

4.5. Existing foundation walls and other construction debris must be entirely removed from within the building perimeter. Under paved areas, existing construction remnants, such as foundation walls, must be excavated to a minimum of 1 m below final grade.

4.6. Fill used for grading beneath the building areas must consist, unless otherwise specified, of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A or Granular B Type II. This material must be tested and approved prior to delivery to the site. The fill must be placed in lifts no greater than 300 mm thick and compacted using suitable compaction equipment for the lift thickness. Fill placed beneath the building must be compacted to at least 98% of its standard Proctor maximum dry density (SPMDD).

4.7. Non-specified existing fill along with site-excavated soil can be used as general landscaping fill where settlement of the ground surface is of minor concern. These materials should be spread in thin lifts and at least compacted by the tracks of the spreading equipment to minimize voids. If these materials are to be used to build up the subgrade level for areas to be paved, they should be compacted in thin lifts to a minimum density of 95% of their respective SPMDD.

4.8. Non-specified existing fill and site-excavated soils are not suitable for use as backfill against foundation walls unless a composite drainage blanket connected to a perimeter drainage system is provided.

4.9. Based on the bedrock encountered in the area, it is expected that line-drilling in conjunction with hoe-ramming or controlled blasting may be required to remove the bedrock. In areas of weathered bedrock and where only a small quantity of bedrock is to be removed, bedrock removal may be possible by hoe-ramming.

4.10. Rock excavation must conform to OPSS 403.MUNI / City of Ottawa Special Provision F-4031 and to all laws, codes, ordinances and regulations adopted by federal, provincial and municipal government councils and government agencies, applying to the work to be carried out.

4.11. Prior to considering blasting operations, the effects on the existing services, buildings and other structures must be addressed. A pre-blast or construction survey located in proximity of the blasting operations must be conducted prior to commencing construction. The extent of the survey must be determined by the blasting consultant and sufficient to respond to any inquiries/claims related to the blasting operations. As a general guideline, peak particle velocity (measured at the structures) must not exceed 25 mm/s during the blasting program to reduce the risks of damage to the existing structures. The blasting operations should be planned and conducted under the supervision of a licensed professional engineer who is an experienced blasting consultant.

4.12. Excavation side slopes in sound bedrock may be completed with almost vertical side walls. As required, obtain confirmation from a geotechnical engineer for safety.

4.13. Construction operations could cause vibrations, and possibly, sources of nuisance to the community. Therefore, means to reduce the vibration levels as much as possible must be incorporated in the construction operations to maintain a cooperative environment with the residents.

4.14. The following construction equipments could cause vibrations: piling equipment, hoe ram, compactor, dozer, crane, truck traffic, etc. Vibrations, caused by blasting or construction operations could cause detrimental vibrations on the adjoining buildings and structures. Therefore, it is recommended that all vibrations be limited.

4.15. Two parameters determine the recommended vibration limit, the maximum peak particle velocity and the frequency. For low frequency vibrations, the maximum allowable peak particle velocity is less than that for high frequency vibrations. As a guideline, the peak particle velocity should be less than 15 mm/s between frequencies of 4 to 12 Hz, and 50 mm/s above a frequency of 40 Hz (interpolate between 12 and 40 Hz). These guidelines are for current construction standards.

4.16. Considering there are several sensitive buildings in close proximity to the subject site, consideration to lowering these guidelines is recommended. These guidelines are above perceptible human level and, in some cases, could be very disturbing to some people. A pre-construction survey is therefore required to minimize the risks of claims during or following the construction of the proposed building.

5. PAVEMENT STRUCTURES, CURBS, AND SIDEWALKS

5.1. Construction of granular foundation must conform to OPSS.MUNI 314 / City of Ottawa Special Provisions.

5.2. Granular materials used on site must conform to the requirements of OPSS.MUNI 1010.

5.3. Light duty and heavy duty asphalt pavements to be constructed as per Cross Sections on plan C007.

5.4. Road cut reinstatement as per City of Ottawa Detail R10 with surface course key.

5.5. Where the proposed pavement structure abuts the existing pavement, the pavement structure should match the existing pavement layers.

5.6. Construction of asphalt must conform to OPSS.MUNI 310 and OPSS.MUNI 313.

5.6.1. Paving must not be carried out if the roadbed is frozen or wet.

5.6.2. The granular grade must be free of standing water at the time of hot mix asphalt placement. The surface of a pavement upon which hot mix asphalt is to be placed must be dry at the time of hot mix asphalt placement. Following the final compaction of a hot mix asphalt course, a 4 hour minimum time laps must be respected before placing a new new hot mix asphalt course. Additionally, the temperature of the previous course must be 50 °C or less.

5.6.3. As per OPSS.310.07.06.02, the asphalt base coarse must not be placed unless the air temperature at the surface of the road is a minimum of 2°C and rising.

5.6.4. As per OPSS.310.07.06.02, the asphalt surface coarse must not be placed unless the air temperature at the surface of the road is a minimum of 7°C.

5.7. Asphalt concrete material must conform to OPSS.MUNI 1150 for Hot Mix Asphalt and OPSS.MUNI 1151 for Superpave and Stone Mastic Asphalt Mixtures. Minimum Performance Graded (PG) 58-34 asphalt cement must be used for this project.

5.8. Asphalt mix design must be reviewed and approved by a Geotechnical Engineer before paving.

5.9. For all concrete placement during cold weather Contractor must place material in accordance to OPSS.904.MUNI.

5.9.1. When ambient air temperature is 5°C or less, forms for concrete work must be left in place for the duration of the curing period.

5.9.2. When the ambient air temperature is below 0°C at the time of placing, components must be cured with moisture vapour barrier.

5.9.3. Contractor must conform to OPSS.MUNI 904.07.11 for Control of Temperature when subjected to cold weather.

ANDREW MCCREIGHT
MANAGER (A), DEVELOPMENT REVIEW CENTRAL
PLANNING, REAL ESTATE & ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Andrew McCreight at 9:30 am, May 23, 2023

SERVICING NOTES

1. MUNICIPAL SERVICES - GENERAL

1.1. Unless otherwise indicated, all materials and construction methods to be in accordance with the requirements of the latest edition of the Ontario Provincial Standard Specifications and Drawings (OPSS and OPSD), the Ontario Ministry of Environment, Conservation and Parks (MECP), applicable Conservation Authorities, the municipal standard specifications and drawings, and all other governing authorities as they apply.

1.2. Wherever standards, laws and/or regulations are mentioned they refer to their current versions, modifications included.

1.3. The boreholes and test pits shown on the plan are for information purposes only. Their location on the plan is approximate. The Contractor must refer to the boreholes and test pit records to obtain information about observed stratigraphy on site.

1.4. The location of existing underground municipal services and public utilities as shown on the plans are approximate. The Contractor must determine the exact location, size, material and elevation of all existing utilities (on-site and off-site) prior to any excavation work. Damage to any existing services and/or existing utilities during construction, whether or not shown on the drawings must be repaired by the Contractor at his own expense.

1.5. The Contractor is responsible for obtaining all permits required to complete all works and bear cost of same, including water permit and associated costs.

1.6. The Contractor is responsible for the coordination of his activities with others on-site.

1.7. Terminate and plug all service connections at 1.0 meter from edge of the building.

1.8. The Contractor must complete compaction as per OPSS.MUNI 501 and note the following requirements for service trenching:

MATERIALS	COMPACTION
Pipe bedding	95% Standard Proctor Maximum Dry Density
Trench backfill and pipe cover	95% Standard Proctor Maximum Dry Density

1.9. The Contractor is responsible for making or arranging all connections to the existing sewers as per municipal requirements. Prior to connection, the Contractor must provide, to the Engineer and the City for approval, all test results performed on the internal services. Test results must include C.C.T.V. inspection of sewers, infiltration/exfiltration tests for sewers and manholes, deformation tests of sewers, watermain hydrostatic leakage test, flushing and disinfecting operations, and bacteriological water analysis.

1.10. Advise the City Public Works at least 72 hours in advance before any connection to the City services. Coordinate with City as required.

1.11. The Contractor must determine the exact invert (geodetic elevation), diameter and construction material of the existing conduits at the proposed connections. He must also carry out, if necessary, exploratory excavations in order to determine the exact location and inverts of existing duct banks. This information must immediately be provided to the Engineer prior to start undertaking any municipal services work and a 48 hour period must be allocated to the Engineer for design review.

1.12. The Contractor is responsible for all excavation, backfill and reinstatement of all areas disturbed during construction to existing conditions or better and all associated works to the satisfaction of the Engineer and municipal authorities.

- Asphalt reinstatement must be in accordance with OPSS.MUNI 310.
- Landscape areas to be reinstated with 150 mm of topsoil and sod in accordance with OPSS.MUNI 802 and OPSS.MUNI 803.

1.13. It is recommended that a trench box be used at all times to protect personnel working in trenches with steep or vertical sides. Services are expected to be installed by "cut and cover" methods and excavations should not remain open for extended periods of time.

1.14. The pipe bedding for sewer and water pipes must consist of at least 150 mm of OPSS Granular A material The material must be placed in maximum 300 mm thick lifts and compacted to a minimum of 95% of its SPMDD. The bedding material should extend at least to the spring line of the pipe.

1.15. The cover material, which must consist of OPSS Granular A, will extend from the spring line of the pipe to at least 300 mm above the obvert of the pipe. The material must be placed in maximum 300 mm thick loose lifts and compacted to a minimum of 95% of its SPMDD.

1.16. Where hard surface areas are considered above the trench backfill, the trench backfill material within the frost zone (about 1.8 m below finished grade) must match the soils exposed at the trench walls to minimize differential frost heaving. The trench backfill must be placed in maximum 300 mm thick loose lifts and compacted to a minimum of 95% of the material's SPMDD..

1.17. Dewatering of pipeline, utility and associated structure in rock excavations to be completed as per OPSS.MUNI 403.

1.18. Trenching, backfilling and compacting must conform to OPSS.MUNI 401.

2. WATERMAIN

2.1. Watermain, water service connections and associated appurtenances must be constructed in accordance with the Ontario Provincial Standard Specifications / City of Ottawa Standards Specifications / Ministry of Environment and Climate Change Requirements. Specifically watermains must conform to OPSS.MUNI 441.

2.2. Watermain must be constructed as per OPSS.MUNI 441 and specifically OPSD 802.010 for earth excavations and 802.013 for rock excavation. Bedding and cover material to be OPSS Granular 'A' compacted to 95% Standard Proctor Maximum Dry Density.

2.3. Watermain pipe materials must be class 150 PVC DR 18 or approved equivalent, unless otherwise shown on the Drawings. Materials must conform to OPSS 441.

2.4. All watermain must be installed with a minimum of 2.40 meters cover from finished grade. Where a minimum of 2.40 meters cover is not reached, thermal insulation is required as per City of Ottawa Details W22 and W23.

2.5. Watermain service connections must be installed a minimum of 2.40 meters from any catchbasin, manhole or object that may contribute to freezing. Thermal insulation must be installed as per City of Ottawa Details W22 and W23 where 2.40 meters of separation cannot be achieved.

2.6. Cathodic protection (if required) must be installed as per City of Ottawa Details W40 and W42.

2.7. Thrust block and restraints must be as per City of Ottawa Details W25.3, W25.4, W25.5 and W25.6.

2.8. Valves to be installed as per OPSS 441 and conform to the following:

- All valves must open in a counter clockwise direction;
- Designed for cold water working pressure of 1035 kPa;
- Types must be one of the following:
- Valves less than 75 mm to be brass or bronze gate valves;
- Valves greater than or equal to 75 mm, and less than or equal to 300 mm, to be cast or ductile iron gate valves;
- Valves greater than 300 mm up to and including 500 mm to be gate or butterfly valves;
- Valves greater than 500 mm to be butterfly valves.

2.9. A continuous 12 gauge copper tracer wire must be installed over all watermains. Tracer wire must be tied to all fire hydrants.

2.10. Valve box assembly to be as per City of Ottawa Detail W24.

2.11. When a watermain pipe crosses a sewer pipe, installation must be as per City of Ottawa Detail W25.2.

2.12. Watermains must be thoroughly flushed and cleaned to remove all dirt and debris prior to the disinfection process.

2.13. All watermains must be hydrostatically and bacteriologically tested as per provincial and municipal regulations. It is the Contractor's responsibility to ensure that all requirements are followed.

2.14. The Contractor must make arrangements with and give a minimum of 24 hours' notice to the City for the closing off of necessary valves in the water distribution system. The DREAM representative will operate valves at the time of tie-ins, etc. at no expense to the Contractor under normal conditions; however the Contractor will be responsible for all costs associated with emergency shutdowns if they occur outside of the normal working hours of the DREAM representative (Monday to Friday, 7:00 a.m. to 5:00 p.m.)

2.15. Hydrostatic testing to be completed as per OPSS 441.07.24. Testing must be completed under the supervision of the Contract Administrator. The test section will be either a section between valves or the completed watermain. Test pressure to be 1035 kPa.

2.16. Flushing and Disinfecting to be completed as per OPSS 441.07.25 under the supervision of the Contract Administrator.

2.17. The Contractor must obtain a permit from the City before using an existing fire hydrant located within the City's territory.

2.18. The Contractor must coordinate and pay the cost of connection, inspection and disinfection by municipal personnel.

2.19. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

2.20. All phases of Zibi Ontario serviced and billed by meter chamber per city standard W32. Individual sub-metering provided based on future condominium requirements.

3. STORM SEWER

3.1. Storm sewers, laterals and storm service connections must be constructed in accordance with the Ontario Provincial Standard Specifications / City of Ottawa Standards Specifications / Ministry of Environment and Climate Change Requirements. Specifically storm sewers must conform to OPSS.MUNI 410.

3.2. PVC storm sewer material to conform to OPSS.MUNI 1841. PVC storm sewers to be installed as per OPSD 802.010 for earth excavation and 802.013 for rock excavation. Bedding and cover material to be OPSS Granular 'A'.

3.3. The allowable deflected pipe diameter when using flexible pipe is as follows:
- Pipes 100 to 750 mm: 7.5% of the base inside diameter of the pipe
- Greater than 750 mm: 5.0% of the base inside diameter of the pipe

3.4. Final backfill material for storm sewers must be approved native material or select subgrade material in conformance with OPSS.MUNI 212.

3.5. Storm sewer pipes must be type PVC SDR-35, unless noted otherwise on the drawings.

3.6. All storm sewers to be C.C.T.V. inspected by the Contractor as per OPSS.MUNI 409. Report must be provided to the Engineer in two (2) copies and the C.C.T.V. inspection in DVD format only.

3.7. Storm manholes, manhole/catchbasins, catchbasins, ditch inlets and valve chambers to be installed as per OPSS 407.

3.8. Adjustment or rebuilding of manholes, manhole/catchbasins, catchbasins, ditch inlets and valve chambers to be completed as per OPSS 408 / City of Ottawa Special Provisions F-4080 and F-4081.

3.9. Excavating, backfilling, and compacting for manholes, manhole/catchbasins, catchbasins, ditch inlets and valve chambers to be completed as per OPSS 402.

3.10. Storm manhole, manhole/catchbasin and catchbasin excavations to be backfilled with OPSS Granular 'B' compacted to 99% Standard Proctor Maximum Dry Density (SPMDD). Joints between sections must be wrapped in a non-woven geotextile.

3.11. Storm manholes and manhole/catchbasins to be as per OPSD 701.010 and must be equipped with safety platform as per OPSD 404.020 when exceeding 5.0 m to the lowest invert.

3.12. Storm manhole frame and cover to be as per OPSD 401.010 Type "A" closed cover.

3.13. A maintenance hole drop structure tee is to be used as per OPSD 1003.010 when the drop from the inlet invert to the outlet invert is greater than 600 mm and less than 1200 mm. A drop structure wye is to be used as per OPSD 1003.020 when the drop exceeds 1200 mm.

3.14. Storm service connections to rigid main sewer pipe to be as per City of Ottawa Detail S11. Connections to flexible main sewer pipe to be as per City of Ottawa Detail S11.1.

3.15. When a minimum cover of 1.5 meters is not reached, frost protection is required.

3.16. For building roof drain sizes and location refer to architectural and mechanical drawings.

3.17. For insulation of storm sewer, refer to city of Ottawa detail W22 and use a value of 1.5m instead of 2.4m to figure out thickness of board insulation

4. SANITARY SEWER

4.1. Sanitary sewers, laterals and service connections must be constructed in accordance with the Ontario Provincial Standard Specifications / City of Ottawa Standards Specifications / Ministry of Environment and Climate Change Requirements. Specifically sanitary sewers must conform to OPSS.MUNI 410.

4.2. PVC sanitary sewer pipe material to type PVC SDR-35, conforming to OPSS.MUNI 1841. PVC sanitary sewers to be installed as per OPSD 802.010 for earth excavation and 802.013 for rock excavation. Bedding and cover material to be OPSS Granular 'A'.

4.3. The allowable deflected pipe diameter when using flexible pipe is as follows:

- Pipes 100 to 750 mm: 7.5% of the base inside diameter of the pipe
- Greater than 750 mm: 5.0% of the base inside diameter of the pipe

4.4. Final backfill material for sanitary sewers must be approved native material or select subgrade material in conformance with OPSS.MUNI 212.

4.5. All sanitary sewers to be C.C.T.V. inspected by the Contractor as per OPSS.MUNI 409. Report must be provided to the Engineer in two (2) copies and the C.C.T.V. inspection in DVD format only.

4.6. Sanitary manholes to be installed as per OPSS 407.

4.7. Adjustment or rebuilding of sanitary manholes to be completed as per OPSS 408.

4.8. Excavating, backfilling, and compacting for sanitary manholes to be completed as per OPSS.MUNI 402.

4.9. Sanitary manholes to be backfilled with OPSS Granular 'B' compacted to 99% Standard Proctor Maximum Dry Density (SPMDD). Joints between sections must be wrapped in a non-woven geotextile.

4.10. Sanitary manholes to be as per OPSD 701.010 and must be equipped with safety platform as per OPSD 404.020 when exceeding 5.0 m to the lowest invert.

4.11. Sanitary manhole frame and cover to be as per OPSD 401.010 Type "A" closed cover.

4.12. A maintenance hole drop structure tee is to be used as per OPSD 1003.010 when the drop from the inlet invert to the outlet invert is greater than 600 mm and less than 1200 mm. A drop structure wye is to be used as per OPSD 1003.020 when the drop exceeds 1200 mm.

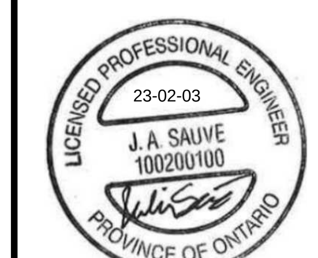
4.13. Sanitary service connections to rigid main sewer pipe to be as per City of Ottawa Detail S11. Connections to flexible main sewer pipe to be as per City of Ottawa Detail S11.1.

4.14. When a minimum cover of 1.8 meters is not reached, frost protection is required.

4.15. Benching is required inside the concrete bottom of sanitary manholes as per OPSD 701.021.

No.	Date	Description	By
4	FEB 03, 2023	ISSUED FOR ECA	A.C.
3	NOV 21, 2022	ISSUED FOR SITE PLAN APPLICATION	A.C
2	AUG. 31, 2022	ISSUED FOR SITE PLAN APPLICATION	A.C.
1	APR. 18, 2022	ISSUED FOR SITE PLAN APPLICATION	A.C.

STAMPS:



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SHEET TITLE:
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DISCIPLINE:
CIVIL

DRAFTER: S.C.POGGIOLI	SCALE:
DESIGNER: J.SAUVÉ	DATE: 2022/03/14
APPROVER: A.CHAUMONT	APPROVER: A.CHAUMONT
PROJECT No: A000931	DRAWING No: C002
SHEET No: 2 of 11	

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