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ISSUED FOR SITE PLAN CONTROL REV. 2	JUNE 7, 2022
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**PRELIMINARY 33%**  
NOT FOR CONSTRUCTION

PROFESSIONAL STAMP: PROFESSIONAL STAMP:



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CONSULTANT LOGO:

PROJECT TITLE:  
FASTFRATE OTTAWA WAREHOUSE AND DISTRIBUTION FACILITY

SCALE: NONE  
SOMME ST.  
OTTAWA, ON

DRAWING TITLE:

**NOTES PLAN**

DRAWN BY: D.CANN DRAWING NUMBER:  
DATE: REVISION NUMBER:  
REVIEWED BY: J.SAUVE **C005A**  
APPROVED BY:  
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CLIENT PROJECT #: PROJECT #:

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## GRADING 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 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 verify 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 their associated costs.
- 1.6. The Contractor is responsible for the coordination of his activities with others on site.
- 1.7. The location of existing underground municipal services, wells, 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, wells and/or existing utilities during construction, whether or not shown on the drawings must be repaired by the Contractor at his own expense.
- 1.8. 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.
- 1.9. All material must be compacted as per the requirements of the governing authority and be approved by the Consultant prior to delivery to the site.
- 1.10. Compaction must conform to the following requirements:
  - Exposed subgrade & building pad preparation: 95% Standard Proctor maximum dry density (SPMDD)
  - Granular subbase foundations: 100% Standard Proctor maximum dry density (SPMDD)
  - Granular base foundations: 100% Standard Proctor maximum dry density (SPMDD)
  - Asphalt pavement: As per OPSS MUNI 310
  - Roller compacted concrete pavement: 98% Mix Design Density
  - Subgrade fill (pavement areas - OPSS Select Subgrade Material): 98% Standard Proctor Maximum Dry Density (SPMDD)
  - Structural fill (building footprints, foundation slabs, OPSS Granular 'A' or Granular 'B' Type II Material): 100% Standard Proctor Maximum Dry Density (SPMDD)
- 1.11. 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.
- 1.12. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements and as follows:
  - 1.12.1. 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.
  - 1.12.2. 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. 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.
- 1.14. 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.
  - A sufficient number of barriers, posters, guards and others to ensure safety;
  - Necessary conveniences for the completion of the work such as heating, lighting, ventilation, etc.
- 1.15. 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 start 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 Type 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.

The Contractor must pace deliveries and removals in order to minimize and control stockpiles.
- 1.16. Stockpile material must be stored away from excavations at a distance at least equal to the depth of the excavation. Construction traffic should be limited near open excavation.
- 1.17. Cleanliness on the site:
  - The Contractor must clean roadways at their 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.
- 1.19. 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 flaggers, as required by the Owner, the Consultant, the Municipality, the MTO, and other governing authorities.
- 1.20. The Contractor must control surface runoff from precipitation during construction.
- 1.21. Where trees and other vegetation are proposed within close proximity to hard surface (i.e. sidewalks or pavement structures) it is recommended that the vegetation be planted in CU-Structural Soils or approved equivalent. Under the areas of hard surfaces, the CU soil should be compacted to 100% SPMDD using suitable compaction equipment. The CU-structural soil must extend at least 1.0 m below grade and extend to a 3.0 m radius around the trees/vegetation.
- 1.22. Protection of existing trees and shrubs:
  - The contractor must ensure that the existing trees and shrubs that are to remain on site will be protected throughout the construction phase in order to minimize the risk of damaging the trunks and branches and to avoid the compaction of the roots.
  - As required, the Contractor must coordinate his work with other professionals to ensure that the existing tree and shrub protection measures are in place prior to any other work and that these measures are maintained until the work is complete.
  - The Contractor must protect the existing trees in accordance with OPSS MUNI 801 and OPSD 220.010.
  - The Contractor must define paths for heavy machinery before construction to avoid compaction of the roots of existing trees and shrubs.
  - The Contractor cannot store material at the base of trees and shrubs; The Contractor cannot backfill the trunk of existing trees and shrubs; Prune tree branches, shrubs and roots as needed to complete the work.
  - The Contractor must perform any tree cutting prior to April 15 (i.e. outside of the core Migratory Birds' nesting period, which is April 15 to August 15).
  - The contractor must not do any in-water work between March 15 to July and Oct 1 to May 31.

- 1.23. 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 inspection 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.

- 1.24. 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 necessary 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. The existing Wall will be abandoned in accordance with O.Reg. 903.

### 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 200 mm thick loose lifts and compacted using suitable methods as per the requirements.
- 3.4. All soft, wet or disturbed areas revealed under surface compaction must be removed to a minimum depth of 500 mm and replaced with compacted suitable subgrade fill (i.e. OPSS Granular 'B' Type II material) and an approved non-woven geotextile per OPSS 1860 as directed by the Geotechnical Engineer. Transition around sub-excavations where backfill and native material are not of similar nature, shall be sloped at 5 horizontal to 1 vertical, within 1.8 m of finished surface.
- 3.5. If contaminated material is encountered during the work, the Contractor must retain a Qualified Person (QP, as per the definition under O.Reg. 153/04), characterize the soil and dispose off-site all materials from the contaminated area in accordance with the requirements of the MECP O.Reg. 406/09 and OPSS MUNI 180. Prior to the start of work the Contractor must provide the name and location of the intended Receiving Site (S) where the contaminated material will be disposed to the Consultant. The Contractor must obtain from the Receiving Sites QP documents confirming that the site has the right to accept the contaminated material. During the work, the Contractor must provide the Consultant copies of all reports signed by the Receiving Site's QP.

- 3.6. The Contractor is responsible for providing a confirmation that the imported material used as subgrade fill is free of any contaminants, as per O.Reg. 153/04, such as Petroleum Hydrocarbons (C10-C50), Polycyclic Aromatic Hydrocarbons (PAH), 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 and any excess soils with O.Reg. 406/19.
- 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. Non-specified existing fill along with on-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 98% of their respective SPMDD.
- 4.5. Structural fill used for grading beneath the footings of buildings, building floor slabs, sidewalks, pavements and slab on grade/slabs and light standards must consist of OPSS Granular 'A' or Granular 'B' Type II Material.
- 4.6. 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.
 

The following construction operations could cause vibrations: piling equipment, hoem, 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.

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.

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.
- 5.2. Granular materials used on site must conform to the requirements of OPSS MUNI 1010.
- 5.3. Road cut reinstatement as per City of Ottawa Detail R10 with surface course key.
- 5.4. Where the proposed pavement structure abuts the existing pavement, the pavement structure should match the existing pavement layers.

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

- 5.5.1. Paving must not be carried out if the roadbed is frozen or wet.
- 5.5.2. 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 hot mix asphalt course. Additionally, the temperature of the previous course must be 50 °C or less.
- 5.5.3. As per OPSS.310.07.06.02, the asphalt base course must not be placed unless the air temperature at the surface of the road is a minimum of 2°C and rising.
- 5.5.4. As per OPSS.310.07.06.02, the asphalt surface course must not be placed unless the air temperature at the surface of the road is a minimum of 7°C and rising.

- 5.6. 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.
- 5.7. Asphalt mix design must be reviewed and approved by a Geotechnical Engineer before paving.
- 5.8. Concrete curbs must conform to OPSS 353 MUNI.
- 5.9. Concrete Toe-wall to be per OPSD 3120.100 Type I
- 5.10. Elevation at top of concrete curbs to be 150 mm above the asphalt, unless otherwise indicated on the drawings.
- 5.11. Concrete sidewalks must conform to OPSS MUNI 351.
- 5.12. For all concrete placement during cold weather Contractor must place material in accordance to OPSS 904 MUNI.
  - 5.12.1. 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.
  - 5.12.2. When the ambient air temperature is below 0°C at the time of placing, components must be cured with moisture vapour barrier.
- 5.12.3. Contractor must conform to OPSS MUNI 904.07.11 for Control of Temperature when subjected to cold weather.

- 5.13. Construction of Roller-Compacted Concrete Pavement as follows:
  - Subgrade to be prepared as specified, and contoured for efficient drainage
  - Construction of Roller-Compacted Concrete Pavement as follows:
    - Subgrade to be prepared as specified, and contoured for efficient drainage
    - Concrete should be transported in dump trucks and placed using asphalt pavers.
    - If placed in more than one lift, subsequent lift should be placed within 60 minutes of placing the bottom lift.
    - Roller compacted concrete must be compacted using 10 ton dual drum vibratory roller until 15 to 45 minutes of placement with 4 to 6 passes, until lift defects uniformly under roller, and no pumping, shiny or pasty surface is observed.
    - The desired density is 98% of the mix design density.
    - Transverse saw joints must be placed at 5 m on centres.
    - Longitudinal saw joints must be placed at 0.2 m from the edges, and every 8m subsequently.

6. BUILDING PAD PREPARATION
  - 6.1. The Building Pad shall be prepared prior to Dynamic Compaction (DC) to a level that will allow the finished grade to be 450mm below the Finish Floor Elevation (FFE). The Contractor shall assume that the total settlement after DC will be 300mm. Therefore, the Building Pad finished grade Prior DC shall be 91.850m.
  - 6.2. The Building Pad footprint shall extend 2m past the perimeter of the proposed building footprint.
  - 6.3. The final layer of the building pad (Working Pad) shall consist of compacted 600 mm of Granular B type II.
  - 6.4. The Building Pad shall be excavated to 91.850m minus (-) 600mm = 91.250m in Cut areas and or raised to 91.250m plus (+) 600mm = 91.850m in Fill areas.
  - 6.5. In addition to the 600mm Granular pad specified above, in fill areas, the Building Pad shall be raised using excavated surplus materials from the site as per the Excavated Materials Management specifications.

- 6.6. Fill must be place in lifts no greater than 200mm thick and compacted to the specified density using suitable compaction equipments.
- 6.7. The building pad preparation must include a 20 m wide temporary access road (up to the property line) around the building and, between the building and the access street. The contractor must be responsible for maintaining the temporary access roads in good and tidy condition at all times to the satisfaction of the Owner and / or Consultant.
 

All temporary access roads constructed within future pavement areas must consist of compacted granular materials as per pavement infrastructure details.

All temporary access roads constructed within future landscaped areas must consist of compacted OPSS Select Subgrade Material to allow heavy equipment traffic.
- 6.8. If the building is constructed during the winter period, the Contractor must be responsible for the snow removal and spreading of abrasive throughout the construction work by the building contractor and his sub-contractors.

### 7. MANAGEMENT OF EXCAVATED MATERIAL BS EXCESS SOIL

- 7.1. During site preparation excavation work, the Contractor shall ensure that the excavated existing fill material remains on-site as much as possible and is incorporated within its work. All surplus excavation of existing fill material shall be managed as per the following priorities
  - 7.1.1. Surplus excavated materials may come from excavation required to construct the proposed ponds and parking areas at specified finished elevations.
  - 7.1.2. First, surplus excavated materials shall be incorporated within the Building Pad Preparation to raise the Pad to the required elevation and allowing for the Working Pad layer mentioned at 6.3
  - 7.1.3. Second, surplus materials shall be used to backfill the Vegetated Retaining wall.
  - 7.1.4. As it relates to the Contract, excess soils generated must be managed in accordance with the Ontario Regulation (O.Reg.) 406/19 (On-Site and Excess Soil Management) made under the Environmental Protection Act, R.S.O. 1990, c.E19 (EPA) and the adopted by reference "Rules for Soil Management and Excess Soil Quality Standards" (the "Soil Rules") as well as other regulatory amendments related to the management of excess soil. Excess soil is defined by O.Reg. 406/19 as non-hazardous soil, or soil mixed with rock, that has been excavated as part of a project and removed from the project area for the project.
 

Where excess soils are anticipated to be generated, a notice is to be filed to the Excess Soils Registry prior to the removal of excess soil from the project area unless exempt in accordance with the Regulation. The Contractor is to provide confirmation of registration to the Project Leader.

If a notice to the Registry is determined to be required, the Contractor is responsible for retaining a Qualified Person (QP<sub>ESS</sub>, as per the definition under O.Reg. 153/04) to evaluate and provide all the necessary services required in accordance with O.Reg. 406/19. The services may include but not be limited to an Assessment of Past Uses, Sampling and Analysis Plan, Soil Characterization Report, and Excess Soil Destination Assessment Report as described as the Planning Documents within the Soil Rules. The Contractor may rely on existing Planning Documents and/or site characterization reports were provided within the Contract Documents. The contractor is responsible to finalize any preliminary Planning Document reports required, identify proposed soil destination site(s) for Project Leader approval, and satisfy all associated requirements specified by the selected destination site.

The contractor is responsible to notify the Project Leader in the event that actual construction activities and/or site conditions encountered are not consistent, or appear not to be consistent, with the information presented within the Planning Documents.

The contractor is responsible to develop and implement a tracking system in accordance with O.Reg. 406/19, to track each load of excess soil during its transportation and deposit at the approved destination site (i.e. reuse site, Class 1 soil management site, local waste transfer facility, landfilling site or dump, and any transportation to and from a Class 2 soil management site).