

1.0 GENERAL

1.1 DEFINITIONS

- .1 “Common Excavation” means the excavation of on-Site soils required by the Contract Documents, excluding Topsoil and Subsoil Stripping, Borrow Area Excavation, [Structure Excavation], Rock Excavation, and [Stockpile Excavation of Minister Supplied Materials].
- .2 “Topsoil and Subsoil Stripping” means the excavation of Topsoil and Subsoil defined in Section 02234 – Topsoil and Subsoil Stripping.
- .3 “Borrow Area Excavation” means the excavation of soil materials in the specified borrow areas required by the Contract Documents, excluding Topsoil and Subsoil Stripping.
- .4 “Structure Excavation” means the excavation of on-Site soil materials including trenching required by the Contract Documents to demolish and remove an existing structure or to construct a new structure.
- .5 “Rock Excavation” means the excavation of on-Site rock materials required by the Contract Documents that, in an unfrozen state, cannot be ripped into individual detached masses smaller than 1.5 m³ in size with a single tooth ripper mounted on a Caterpillar D8 or equivalent Group 10 Crawler Tractor as outlined in the Alberta Roadbuilders and Heavy Construction Association Equipment Rental Rates Guide or boulders larger than 1.5 m³ in size.
- .6 “Stockpile Excavation of Minister Supplied Materials” means the excavation from stockpiles of materials, supplied by the Minister, for use in areas specified in the Contract Documents.
- .7 The Minister will classify the above excavations. Co-operate with the Minister and conduct the excavation operations in a manner that will permit classifying by the Minister.

1.2 SUBMITTALS

- .1 Provide the following submittals.
- .2 A Borrow Area Excavation Plan for each borrow area at least 10 days prior to commencing Borrow Area Excavation. Indicate the following on the plan:
 - .1 A schedule of the proposed excavation sequence, volumes, and corresponding material utilization locations.
 - .2 The proposed borrow area access/egress locations and ramp configurations.
 - .3 The proposed depths of excavation and side slopes.
 - .4 The anticipated temporary stockpiling requirements.
 - .5 The proposed material working and conditioning procedures in the borrow area, if applicable.

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- .6 The proposed care of water measures providing for drainage of the borrow area and control of sediment transport.
 - .7 The proposed measures to separate materials from the borrow area that are suitable for use as different materials.
 - .8 The proposed measures to provide ongoing safety and stability in the borrow area.
 - .9 The proposed measures to protect suitable fill materials within the borrow area from becoming frozen.
 - .10 The proposed restoration and final grading of the borrow area.
- .3 The revised plan, if changes to the Borrow Area Excavation Plan are proposed, at least 5 days prior to changing Borrow Area Excavation operations.

2.0 PRODUCTS – NOT USED

3.0 EXECUTION

3.1 EXCAVATION - GENERAL

- .1 Sequence, schedule and perform excavation and fill placement operations to make the best use of all excavated material, and to minimize the volume of Borrow Area Excavation.
- .2 Locate and protect utility lines, survey reference points, instrumentation, fencing, and other facilities.
- .3 Remove and dispose of all snow, surface ice, and excess water prior to starting the excavation.

3.2 EXCAVATION LINES

- .1 Excavate to the lines, grades, slopes, and elevations specified in the Contract Documents, unless established otherwise by the Minister.
- .2 The Minister will determine if unsuitable bearing soils are encountered at the specified foundation level. Carry the excavation deeper to remove unsuitable bearing soils and replace excavated soil with materials as directed by the Minister.
- .3 The Minister will determine if suitable bearing conditions are found above the specified lines. Adjust excavation lines as directed by the Minister to accommodate the raised foundation.
- .4 Fill unauthorized over-excavation to the lines, grades, slopes, and elevations specified in the Contract Documents using materials as directed by the Minister.

3.3 PROTECTION

- .1 Protect excavations throughout the Work by temporary shoring, bracing, or other suitable methods, if required, to provide safe working conditions and to prevent cave-ins and loose soil from falling into the excavations.
- .2 Remove boulders, loose rock, soil blocks, and other fragments that may slide or roll into excavated areas, which, in the opinion of the Minister or the Contractor, are unsafe or appear to endanger persons, work, or property.
- .3 In cold weather, protect excavated surfaces against which fill materials will be placed from freezing by sequencing stripping to minimize the exposed area, by using a temporary layer of soil or insulating materials, or other means authorized by the Minister. Remove protection only when the Contractor is ready to place fill.
- .4 In cold weather, protect excavated foundation surfaces against which structures or pipes will be placed from freezing. Use a temporary layer of soil, insulating materials, heating and hoarding, or other means authorized by the Minister. Remove protection only when the Contractor is ready to install the structure or to place fill.
- .5 In cold weather, protect borrow area materials from freezing by sequencing Subsoil stripping to minimize the exposed areas and by placing a temporary layer of soil on exposed areas. Remove protection only when the Contractor is ready to place materials excavated from borrow areas.

3.4 COMMON EXCAVATION

- .1 Provide Common Excavation at the locations, and to the lines, grades, slopes, and elevations specified in the Contract Documents.
- .2 Load, haul, and dump all Common Excavation materials at the appropriate fill placement zones, waste disposal areas or other locations as directed by the Minister.
- .3 Do not place any Common Excavation materials in waste disposal areas that can be worked to meet the specified requirements for [Impervious Fill Zone 1A and Random Fill Zone 2A].
- .4 Sequence and schedule the Common Excavation and fill placement operations so as to maximize the quantity of [Impervious Fill Zone 1A and Random Fill Zone 2A] that is incorporated within the fill zones.
- .5 If necessary, temporarily stockpile materials derived from Common Excavations that are suitable for use in the [Impervious Fill Zone 1A and Random Fill Zone 2A]. Rehandle if required, and incorporate these materials in appropriate fill zones prior to obtaining similar materials from borrow areas.

3.5 BORROW AREA EXCAVATION

- .1 Conduct the Borrow Area Excavation in accordance with the Borrow Area Excavation Plan to provide [Impervious Fill Zone 1A and Random Fill Zone 2A].

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- .2 Excavate materials in a manner that provides for positive drainage and avoids ponding of water from rainfall and snowmelt, run-off, or seepage in the borrow area. When excavation operations are suspended, trim excavation surfaces to a smooth, even condition at a minimum 1% drainage gradient.
- .3 Maintain excavation side slopes in the borrow area in a safe and neat condition at all times. Do not excavate side slopes steeper than [2H:1V].
- .4 Load, haul, and dump borrow area materials at the appropriate fill placement locations in accordance with the authorized Borrow Area Excavation Plan.
- .5 Temporarily stockpile unsuitable fill materials.
- .6 Regrade finished side slopes within the borrow area to [3H:1V].

3.6 STRUCTURE EXCAVATION

- .1 Where the demolition of existing structures is specified in the Contract Documents, provide Structure Excavations of sufficient size and depth to permit the complete removal of the structure, and the subsequent backfill with materials specified in the Contract Documents.
- .2 For new structures, provide Structure Excavations at the locations, and to the lines, grades, slopes, and elevations specified in the Contract Documents, as established by the Minister, or as required by the Contractor to permit subsequent construction and backfill with fill materials specified in the Contract Documents.
- .3 If required, temporarily stockpile materials derived from Structure Excavations that are suitable for use as [Impervious Fill Zone 1A and Random Fill Zone 2A]. Rehandle if required, and incorporate these materials in appropriate fill zones prior to obtaining similar materials from borrow areas.

3.7 ROCK EXCAVATION

- .1 Use methods and techniques that produce excavated surfaces with a minimum of overhang, fracturing, and overbreak.
- .2 Use mechanical techniques, such as tractors with rippers or pneumatic or hydraulic breakers, to excavate rock to the lines, grades, slopes, and elevations specified in the Contract Documents. Rock Excavation will be valued in accordance with Section 00725 – General Conditions, clause 8.3 – Valuation of Changes in the Work.
- .3 Blasting is not permitted.
- .4 Remove shattered layers and any loose or disturbed material to provide a sound base for structure and pipe foundations.
- .5 Load, haul, and dump Rock Excavation materials at the specified waste areas.

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3.8 STOCKPILE EXCAVATION OF MINISTER SUPPLIED MATERIALS

- .1 Sequence and schedule Stockpile Excavation of Minister Supplied [Impervious Fill Zone 1A] so that these materials are completely incorporated into appropriate fill zones prior to obtaining similar materials from borrow areas.
- .2 Sequence and schedule Stockpile Excavation of Minister Supplied [Gravel Armour Zone 5C] so that these materials are completely incorporated into the Work [prior to utilizing Contractor supplied [Gravel Armour Zone 5C]].
- .3 [].

3.9 EXCAVATION TOLERANCES

- .1 Provide finished excavation surfaces that are smooth, regular, and uniform.
- .2 For finished excavation surfaces, a deviation measured normal to the excavated surface of +/-100 mm will be permitted between the finished excavated surface and the lines, grades, slopes, and elevations specified in the Contract Documents or as established by the Minister. Limit the maximum rate of change in deviation from the specified grade of any surface to a ratio of height to length of 1:50. The height and length of the gradual irregularity will be measured normal and parallel, respectively, to the specified grade.

END OF SECTION