



**CITY OF
SWIFT CURRENT**
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**SECTION 02015
SUB-GRADE PREPARATION**

DECEMBER 2015



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1 GENERAL

1.1 DESCRIPTION

- 1.1.1 The work described in this section pertains to the preparation and construction of the sub-grade.

1.2 DEFINITIONS

- 1.2.1 **Sub-grade:** Sub-grade is that material immediately beneath the compacted granular course as detailed on the drawings.
- 1.2.2 **Common Excavation:** Common excavation shall consist of all materials such as earth, topsoil, organic material, muskeg, clay, hardpan, shale, silt, sand, gravel, fractured bedrock, cobbles, and frozen material removed from the roadway and placed in fill or embankment areas, or otherwise disposed as approved by the City. Excavation shall be to the lines and grades indicated on the plans, within limits of the work contracted, or as directed by the City. Borrow materials will be authorized only after excavated materials have been utilized.

1.3 RELATED SECTIONS

- 10000 Flexible Guide Posts and Delineators
- 12000 Regulatory Roadway Signs
- 02010 Site Preparation and Grading
- 03001 Aggregates General
- 03005 Granular Base Course
- 03010 Granular Sub – Base
- 03060 Geotextile and Rolled Erosion Control Devices
- 03070 Rip – Rap
- 04000 Asphalt Pavement Crack Routing and Sealing
- 04001 Asphalt Pavement Crack Sealing
- 04015 Asphalt Concrete
- 04025 Prime, Tack and Fog Coats
- 04070 Asphalt Concrete Pavement Milling
- 06010 Concrete Side walk, Curb and Gutter Construction
- 07000 Pavement Markings

1.4 INSPECTION AND TESTING

- 1.4.1 Field density and moisture content tests shall be carried out by a representative approved by the City in accordance with the following ASTM standards:

Standard Proctor Compaction Test ASTM D698, Methods (A) and (B)
ASTM D1556

And;

In Place Density Test ASTM D2167 or ASTM D2922 and D3017.

1.4.2 The frequency of field density and moisture content tests shall be at minimum 1 test per 100 lineal metres of constructed roadway and at various locations left and right of centre line, or as directed by the City.

1.4.3 Before approval by the City, the sub-grade shall conform to the compaction requirements specified and shall show no visible subsidence or deflection under the wheels of a loaded gravel truck. Such trucks shall be provided by the Contractor, as the City requires, for proof rolling of the sub-grade. The City may waive or vary the requirement for compaction tests and in place densities tests and accept only proof rolling of the subgrade.

2 EXECUTION

2.1 SCARIFY AND COMPACT

2.1.1 In excavation areas, the top 150mm of the sub-grade shall be scarified and compacted to 98% Standard Proctor Density at optimum moisture content.

2.1.2 No stones or boulders larger than 100mm in diameter shall be left within the top 200mm of the sub-grade unless otherwise directed by the City.

2.2 OVEREXCAVATION

2.2.1 Notify the City whenever unsuitable materials are encountered.

2.2.2 Materials which cannot be compacted to the specified density due to high or low moisture content shall be dried or watered by the Contractor to their optimum moisture content in order to achieve the specified compaction.

2.2.3 All common excavation materials below sub-grade elevation which, in the opinion of the City, are considered unsuitable shall be removed and disposed in a site located by the Contractor, and approved by the City.

2.3 STOCKPILING OF MATERIAL

2.3.1 To facilitate the Work, the Contractor may stockpile embankment material. Such material shall be piled at a location determined by the Contractor, approved by the City, and in such a manner that it will not endanger persons, the Work, or adjacent properties, and ensure proper drainage is maintained. If the construction site does not facilitate stockpiling, the Contractor shall haul material to an approved location.

2.4 EXCAVATION WASTE

2.4.1 All common and rock excavation deemed unsuitable for use in embankments, or in excess of that required for embankment, shall be disposed at locations determined by the Contractor and approved by the City.

- 2.4.2 All disposal areas shall be left in a neat and tidy condition satisfactory to the City. Excavation materials shall be deposited and graded smooth to promote surface drainage and not to impede existing surface drainage by the Contractor to the approval of the City.

2.5 COMMON EMBANKMENT

- 2.5.1 Embankment placed within the road right of way, shall be uniformly constructed to the typical cross-section and grades shown on the plans or as set out by the City, and shall include the formation, compaction and shaping of the embankment.
- 2.5.2 The full depth of fills shall be constructed of suitable material in layers not exceeding two hundred millimetres (200mm) compactive depth. Each layer shall be compacted to a minimum of ninety eight percent (98%) Standard Proctor Density (SPD) within plus or minus 2 percent ($\pm 2\%$) optimum moisture content.
- 2.5.3 Do not place material in free standing water. Drain all areas before placing materials.
- 2.5.4 Materials which cannot be compacted to the specified density due to high or low moisture content shall be dried or watered by the Contractor to their optimum moisture content as necessary to achieve the specified compaction.

2.6 SHAPING AND FINISHING

- 2.6.1 The finished compacted sub-grade shall be constructed to within 30mm of the design section. Localized soft spots that develop in the finished sub-grade due to poor work shall be corrected by excavating the material to a depth approved by the City, and replacing it with suitable sub-grade material compacted in place. The sub-grade shall be true to the design cross-section.
- 2.6.2 Maintain and keep ditches open and free from debris to permit ready flow of surface water, and until final acceptance of the Work. All sub-grade prepared prior to rain shall be dried and re-compacted before construction commences. The Contractor shall be responsible for pumping out or draining all water from the sub-grade in order to expedite construction.

3 MEASUREMENT AND PAYMENT

3.1 MEASUREMENT

- 3.1.1 Measurement shall be based on actual field measurement of surface area prepared.

3.2 PAYMENT

- 3.2.1 Payment will be made at the contract unit price per square meter. Price shall include all labour, equipment, and materials necessary for subgrade preparation, scarifying, moisture conditioning, compacting, and disposal of oversize materials.

END OF SECTION