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4.1 ASPHALT CURB, MEDIANS, TRAFFIC ISLANDS AND FLUMES**4.1.1 GENERAL****4.1.1.1 Description**

This work shall consist of the construction of asphalt curbs, medians, traffic islands and flumes, using well graded crushed aggregate, and asphalt cement, combined as hereinafter specified, placed and compacted on a prepared base, in conformity with lines, grade and cross-section as shown on the plans herein, at specified locations or as directed by the Consultant.

4.1.2 MATERIALS**4.1.2.1 General**

All materials necessary for the construction of the works described herein shall be supplied by the Contractor.

4.1.2.2 Aggregate

The Contractor shall produce crushed aggregate in accordance with Specification 3.2, Aggregate Production and Stockpiling. Unless otherwise specified or directed by the Consultant, aggregate shall meet the requirements for Designation 1 Class 12.5 material. The Contractor shall supply aggregate in accordance with Specification 5.2, Supply of Aggregate and haul aggregate in accordance with Specification 4.5, Hauling.

4.1.2.3 Asphalt

The Contractor shall supply asphalt in accordance with Specification 5.7, Supply of Asphalt. The type and grade of asphalt shall be as specified in Section 4.1.2.4, Asphalt Mix Design.

Asphalt used for tack coats shall be of the type and grade designated by the Consultant.

4.1.2.4 Asphalt Mix Design

The asphalt mix design shall be prepared and submitted according to the requirements of Section 3.50.3, Asphalt Mix Design and Job Mix Formula. Unless otherwise specified, a Mix Type 7 shall be designed with the following changes:

- (i) 150-200A or 200-300A asphalt cement grade shall be used in place of 300-400A grade.
- (ii) Design Air Voids shall be 3%.

4.1.3 CONSTRUCTION

4.1.3.1 **Preparation of Surface for Asphalt Curbs**

Before placing asphalt curbs, the existing surface in the curb locations shall be cleaned of all foreign, loose or deleterious material. All broken or defective areas in the locations shall be repaired by removing the broken and defective material and replacing it with asphalt concrete patching material as directed by the Consultant.

An asphalt tack coat shall be uniformly applied at the location, rate, temperature, and to the dimensions as approved by the Consultant. The surface to be tacked shall be dry and free from loose or deleterious material when the tack coat is applied.

Following the curing of the asphalt tack coat, depressions shall be eliminated by placing asphalt concrete levelling patches at the locations and to the dimensions designated by the Consultant.

The asphalt concrete material used for patching and levelling shall conform to, and be placed in accordance with, the requirements of Specification 3.50, Asphalt Concrete Pavement-EPS, using the designation and class of aggregate specified or directed by the Consultant. The patching and levelling shall be performed in such a way as to result in a surface which is tight, neat, uniform, and well bonded to the underlying surface. The patched and levelled areas shall be fully compacted so that the final surface is flush with the surrounding surface, and does not pond water when asphalt curb construction is complete.

An asphalt tack coat shall be applied to levelled and patched areas as directed by the Consultant.

4.1.3.2 **Mixing and Placing Asphalt Curb Material**

The bituminous mixture shall be produced, transported, and placed in accordance with the requirements of Specification 3.50, Asphalt Concrete Pavement-EPS.

Mix temperatures shall be sufficiently high to enable adequate mixing and compaction, but shall not be so high as to cause asphalt damage or curb instability.

The placing, compacting and finishing of asphalt curbs shall be accomplished by use of a mechanical curb machine of a type approved by the Consultant. The bituminous mixture shall be laid only upon a dry, clean surface, on which the tack coat has fully cured and under weather conditions acceptable to the Consultant.

Curb shall be placed in a continuous, one step operation, in one direction, with a minimum number of joints. Where joints are absolutely necessary, they shall be constructed so that they are virtually indistinguishable from the adjacent curb. Cold joints shall be tacked before new material is placed against them.

The finished asphalt curb shall be true to alignment and cross-section, thoroughly compacted, and shall have a smooth, tight, uniform surface texture which is free from segregation, defects, blemishes or other irregularities.

4.1.3.3 Gravel Fill for Asphalt Curb, Medians and Traffic Islands

Median fill gravel shall be placed within the asphalt curbs forming the outside perimeter of medians and traffic islands, and shall be thoroughly compacted in layers not exceeding 150 mm in depth, to a tight, smooth surface within 50 mm of the top of the curbs, or as otherwise specified.

4.1.3.4 Median Surfacing

The compacted gravel fill within medians and traffic islands shall be surfaced with asphalt concrete material in accordance with the requirements of Specification 3.50, Asphalt Concrete Pavement- EPS, using the designation and class of aggregate specified or directed by the Consultant. The finished surface shall be true to cross-section and grade, thoroughly compacted, and shall have a smooth, tight, uniform surface texture.

4.1.3.5 Asphalt Flumes

Where asphalt flume outlet drains are specified, they shall be constructed in accordance with the typical plans and the requirements of Specification 3.50, Asphalt Concrete Pavement - EPS, using the designation and class of aggregate specified or directed by the Consultant. The finished surface shall be true to the lines, grades and cross-sections established by the Consultant, and shall be smooth, tight, and compact over its entire length. The excavated material from the flume trench shall be spread uniformly over the adjacent sideslope as directed by the Consultant.

The flume bedding material shall be select pit-run gravel, or crushed aggregate of the Designation and Class specified, or as otherwise directed by the Consultant. Bedding material shall be placed and thoroughly compacted to the depths and widths specified or as directed by the Consultant.

Hand laid rock forms shall be produced and placed in a neat manner, in accordance with the typical plans.

4.1.3.6 Protection

Care shall be taken to prevent damage to the work during subsequent construction operations forming part of this Contract. All means and materials required to protect the work from damage shall be provided by the Contractor at his expense. Works damaged by traffic, construction operations, weather conditions or any other cause, for the duration of the Contract, shall be repaired, or removed and replaced as directed by the Consultant, at the Contractor's expense.

4.1.3.7 Cleanup

All construction materials and other debris, resulting from the execution of the work covered by these specifications, shall be removed and disposed of to the satisfaction of the Consultant.

4.1.4 MEASUREMENT AND PAYMENT**4.1.4.1 Repair and Levelling Patches**

Measurement and payment for asphalt concrete material for repair and levelling patches will be made in accordance with Specification 3.50, Asphalt Concrete Pavement - EPS.

4.1.4.2 Asphalt Curbs

Measurement of asphalt curbs will be by the length in metres, along the centreline of the curb.

Payment will be made at the unit price bid per metre for "Asphalt Curb". This payment will be full compensation for preparing the original surface; supplying and applying the tack coat; supplying asphalt binder; and processing, hauling and placing the bituminous mixture.

4.1.4.3 Gravel for Median Fill

Measurement of gravel fill material for medians and traffic islands will be in tonnes.

Payment will be made at the unit price bid per tonne for "Median Fill Gravel". This payment will be full compensation for producing, hauling and placing the fill material.

4.1.4.4 Median Surfacing

Measurement of median surfacing will be in tonnes.

Payment will be made at the unit price bid per tonne for "Median Surfacing". This payment will be full compensation for producing, hauling and placing the asphalt concrete material.

4.1.4.5 Asphalt Flume Outlet Drains

Measurement of asphalt flume outlet drains will be by length in metres, along the flow line of the flume.

Payment will be made at the unit price bid per metre for "Asphalt Flume Outlet Drains". This payment will be full compensation for excavating and disposing of earth materials for the flume trench; producing, hauling and placing of hand-laid rock forms, bedding aggregate and asphalt concrete materials.

4.1.4.6 Supply of Aggregate

Aggregate materials incorporated into the Work will be paid for in accordance with Specification 5.2, Supply of Aggregate.