NOTE TO CONSULTANTS*: This specification section shall be used for asphalt paving of pathways only, not service roads or parking lots. Geo-textile fabric shall be specified where existing site soil conditions warrant its use (based on soil testing) and/or as directed by the Engineer. Edit with Track Changes turned on, any text in this section that appears in bold and italics then turn off the bold and italics for the final approved version. (Remove this Note)

PART 1 - GENERAL

1.01 Description: Furnish all material, labor, services and related items required to complete work indicated on Drawings and specified herein. The items of work to be performed shall include but may not be limited to the following; asphalt patching, installation of tack coat and fabric, and the import, placement, and compaction of Hot Mix Asphalt (HMA) Paving.

1.02 Related Sections:

Section 01 56 39 - Temporary Tree & Plant Protection
Section 01 57 13 – Construction Stormwater Control
Section 02 41 13 - Selective Site Demolition
Section 31 00 00 - Earthwork
Section 32 11 23 - Mineral Aggregates
Section 32 11 26 -Sub-grade Preparation for Asphalt Paving
Section 32 23 13.16 - Grade Adjustment for Utility Structures

1.03 References: This section references the latest revisions of the following documents. They are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail. Testing shall be done under the supervision of the Contractor and in accordance with the Contract. Tests must be performed by a certified testing agency or licensed laboratory. The Engineer may require execution of tests described below, at the Contractors expense.

A.

Reference	Title
AASHTO M17	Mineral Filler for Bituminous Paving Mixtures

B. The City of Seattle Standard Specifications for Road, Bridge and Municipal Construction (most recent edition).

1.04 Quality Assurance: The Contractor must have a minimum of three (3) years experience in work of this nature and have the equipment and personnel required for the work specified. The Contractor must acquaint themselves with all work related to site improvements and other work. Payment for testing under this section shall be as follows:

A. Payment for testing under this section shall be as follows:

1. The first run of any test of a given sample of workmanship will be paid for by the Owner. Where possible, the Engineer will perform the initial test. In the event that the Engineer's capabilities are insufficient to perform the test in a timely manner, the test will be performed by the Contractor at a

reasonable cost to the Owner.

2. In the event the sample of workmanship is found to be deficient in some way as a result of the initial test, the contractor shall remove from the project site(s) that work or material, and provide work or material as specified and with satisfactory test results at no additional cost to the Owner.

B. Test Reports shall be done under the supervision of the Contractor and in accordance with the Contract. Tests must be performed by a certified testing agency or licensed laboratory. The Engineer may require execution of tests described below, at the Contractor's expense. Two copies of the results of each test shall be submitted to the Engineer for approval prior to continuation of the work to be tested, unless otherwise directed. Testing shall be performed according to the City of Seattle Standard Specifications (most recent edition), Section 5-04.3(7)B.

1. ASTM C131 Test Method for Resistance to Degradation of Small Size Course Aggregate.
2. ASTM D1557 Test Method for Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) Rammer and 18-in (457 mm) Drop.
3. WSDOT Test Method of test for Determination of Method 705 Degradation Value.
4. WSDOT Test Maximum Specific Gravity of Bituminous Paving Mixtures Method 113.
5. Other tests as may be referenced elsewhere in this Section.

1.05 Submittals:

A. The Contractor shall submit to the Engineer written materials containing the following information: Materials to be used and the proposed method of application and procedures to be followed.

B. Fabrics (for paving repairs only): Submit manufacturer's product specifications and recommended installation procedures to the Engineer for approval prior to delivery to the project site.

C. Fine Aggregate for Class B Asphalt Paving: The Contractor shall submit to the Engineer, for approval prior to delivery to the project site(s), a single 1/2 cubic foot sample in a secure container. Attach to the container the supplier name, address, and telephone number, batch number (if applicable), date, and sieve analysis.

PART 2 - PRODUCTS

2.01 Base Aggregate: The base aggregate shall be Type 1 mineral aggregate (5/8" minus crushed rock) per City of Seattle Standard Specification (most recent edition). Graduation of the base aggregate shall be:

Sieve Size	Percent Passing
5/8" square sieve	100

1/4" square sieve	50 - 75
No. 40 sieve	8 - 24
No. 200 sieve	10.0 maximum

2.02 Fabric: Fabric installed as a protective membrane over existing asphalt paving shall be a needle-punched non-woven polypropylene fabric having the following minimum properties in the weakest principal direction:

Property	***Minimum Value***	***Test Method***
Weight	***3.6 oz./sq. yd.***	***ASTM D3776***
Tensile Strength	***90 lbs.***	***ASTM D4632-91***
Tensile Elongation	***50%***	***ASTM D4632-90***
Asphalt Retention	***0.20 gal./sq.yd.***	***Phillips Procedure, Task Force 25, Method 8, TX DOT 3099 (or equivalent)***
Melting Point	***300 degrees F***	***ASTM D 276-87***

The fabric used shall be "Petromat" by Amoco Fabrics and Fibers Company distributed by Charles R. Watts Company (4121 - 6th Ave. NW, Seattle, WA, phone 206-783-8400) or approved equal.

2.03 Hot Mix Asphalt Wearing Course:

A. Class B Asphalt, hot plant mix.

B. Aggregate: Mineral aggregate shall meet the requirements of the Seattle Standard Specifications (most recent edition, and Aggregates for HMA. Meet the following requirements for particle gradation:

Sieve Size	% Passing
5/8" Square	100
1/2" Square	90-100
3/8" Square	75 - 90
1/4" Square	55 - 75
U.S. #10	32-48
U.S. #40	11 - 24
U.S. #80	6 - 15
U.S. #200	3 - 7

C. Bituminous Materials:

1. Asphalt furnished under these specifications shall not have been distilled at a temperature high enough to injure by burning or to produce flecks of carbonaceous matter, and upon arrival at the work, shall show no signs of separation into lighter and heavier components.
2. Asphalt shall be Medium Curing Liquid Asphalt, meeting or exceeding the characteristics defined in the Seattle Standard Specification (most recent edition), Section 9-02.1(2), and the following additional requirements:

Characteristic	Value Range
Mineral Filler	3.0 - 7.0%

Asphalt	4.0 - 7.5% of total mixture
Sand - Silt Ratio	5.5 - 10.5

PART 3- EXECUTION

3.01 Barriers: The Contractor shall erect and maintain barricades, canopies, guards, and warning signs to the extent required by law and as is prudent for the protection of the public and protection of the work.

3.02 New Hot Mix Asphalt Paving (including patching):

A. In areas of new paving, or where existing paving has been removed during the demolition phase of work, new asphalt paving shall be placed over compacted base aggregate. Recycled asphalt or other recycled paving materials shall not be used as sub-base materials.

B. Place base aggregate as required to attain a total depth of 6 inches and compact to 95 percent density.

1. Patching: If existing base material does not meet requirements for density, Contractor shall remove the existing base material in the areas to be patched and install new base aggregate to a depth of 6 inches and compact to 95 percent density.
2. New HMA Paving: Place 6 inches of base aggregate and compact to 95% density.

C. Install new Class B HMA per paragraph 3.06. Minimum asphalt thickness shall be 2 inches, maximum thickness - 3 inches.

1. New HMA Patching shall meet the grade of adjacent existing asphalt paving (to remain). Edges of new and existing pavement shall be flush without ridges or gaps; tack sealed as required.
2. New pathway pavement edges shall be tapered to meet existing or proposed grades and shall be tamped at a 45 degree angle.

3.03 Existing Asphalt Paving Preparation (used only for repairs or overlays as required): Existing Asphalt Paving to receive the new wearing course of asphalt paving shall be thoroughly cleaned of all dirt, water and oil to the satisfaction of the Engineer. Cracks 1/8 inch wide or greater shall be cleaned and filled with bituminous material or by a method approved by the Engineer. Large cracks, faults or potholes shall be repaired as specified above for New Asphalt Paving (patching).

3.04 Tack Coat (used only for repairs or overlays as required):

A. All new HMA paving patching shall be allowed sufficient time to cure before applying the tack coat. All pavement areas shall be cleaned prior to beginning tack coat application.

B. The asphalt tack coat shall be installed uniformly in controlled amounts throughout area to receive paving fabric. Apply tack coat at the rate of 0.20 - 0.30 gallons per square yard (optimum application rate is 0.25 gallons per square yard) using a mechanical distributor meeting the requirements of the City of Seattle Standard Specifications Section 5-02.3(1). Tack coat application rates may be monitored by the Engineer to verify compliance with this paragraph.

C. The allowable temperature range for tack coat material is 290 - 325 degrees Fahrenheit.

D. Where the new HMA paving abuts a curb or gutter, cold pavement joint, trimmed meet line, or any metal surface, a thin tack coat of asphalt shall be applied on the vertical face of the abutting surface by hand painting prior to paving. The application on the contact surfaces shall be thin and uniform in order to avoid an accumulation of excess asphalt in puddles. The Contractor shall not apply the tack coat on vertical contact surfaces above the finished height of the HMA being placed. Tack coat to extend three inches beyond the edge of fabric area.

3.05 Fabric (used only for repairs or overlays as required): Install paving fabric throughout the entire area to be paved with asphalt pavement. Install all paving fabrics to the manufacturer's specifications as submitted to, and approved by, the Engineer. Equipment used for placement of paving fabric shall be designed and constructed specifically for fabric placement.

3.06 Hot Mix Asphalt:

A. Placement: A course of asphalt shall be installed to the lines and grades as indicated on the drawings. The hot plant mix shall have an installation temperature of 275-300 degrees. Compaction thickness shall be as shown on Drawings but in no case shall the compacted thickness not less than 2 inches in areas that are to be used as pedestrian pathways or not less than 3 inches in areas that are to be used as service roads and other load bearing surfaces. Compaction shall be accomplished by rolling with a powered steel wheel tandem roller weighing not less than 3 tons, and not more than 5 tons; the finish roller weighing not less than 1 ton. The hot plant mix shall be spread by methods and in a manner to produce a uniform density and thickness to meet a tolerance of 1/4 inch in 10 feet, measured in any direction.

B. In locations where more than one lift of HMA is specified on the Drawings, the base lift shall not exceed 3 inches in depth.

C. Curing and Cleaning: New HMA pavement must be completely cured (minimum of seven days of warm, dry weather, longer if cold or damp), prior to application of any materials. Pavement needs to be clean and free of all foreign matter. A high-pressure washer, air broom or hand sweeper shall be used as required. Removal of grease and oil may require the use of a strong detergent only as approved by the Engineer. After using detergents the surface must be thoroughly flushed with water

and removed from the site while not allowing the detergent to enter the storm sewer system.

END OF SECTION