

**ITEM 404LVT (Low Volume Traffic) ASPHALT CONCRETE**  
**Revised March, 2023**

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**404LVT.01 Description.**

This work consists of constructing a 1-inch-thick surface course or variable depth intermediate course of aggregate and asphalt binder for use in low-volume traffic applications.

Mix aggregate and asphalt binder in a central plant and spread and compact on a prepared surface according to these specifications and in reasonably close conformity with the lines, grades and typical sections shown on the plans or established by the Engineer.

All specification references herein are to the Ohio Department of Transportation, 2023 Construction & Materials Specifications.

The requirements of specification 401, 402, and 403 do not apply except where noted.

Asphalt concrete mix pavement thickness shown on the plans or stated in the proposal is for exclusive use in calculating the weight required to be placed per unit of surface area.

Section .19 includes a pay adjustment mechanism for mix that deviates from the job mix formula. Mixes having binder content below the job mix formula, but within specification tolerances, will receive an adjustment commensurate with the reduction in the amount of binder. No payment is made for binder content in excess of the job mix formula.

**404LVT.02 Composition.**

Establish a Job Mix Formula (JMF) by combining coarse aggregate, fine aggregate, reclaimed asphalt pavement (RAP) and asphalt binder in proportions that result in an asphalt mixture meeting the blend limits in Table 1.

**Table 1**

<b>Mixture Proportions</b>		
<b>Sieve</b>	<b>Total Percent Passing</b>	
1/2 inch	100	
3/8 inch	90 to 100	
No. 4	72	
No. 8	47 to 60	
No. 16	32 to 45	
No. 50	8 to 22	
No. 200	0 to 8	
Total binder content <sup>1,2,3</sup> (% by weight of mix):	Gravel coarse aggregate: 6.6% Limestone coarse aggregate: 6.8% Gravel/Limestone coarse aggregate blends: 6.7% Slag coarse aggregate: 7.0%	
Minimum virgin binder content (% by weight of mix):	Gravel coarse aggregate: 5.4% Limestone coarse aggregate: 5.6% Gravel/Limestone coarse aggregate blends: 5.5% Slag coarse aggregate: 5.8%	
Traffic volume	Average daily traffic (ADT): Maximum 2,500 vehicles per day Average daily truck traffic (ADTT): Maximum 100 trucks per day	
Binder Grade	PG 58-28	
Limits for RAP (% by weight of mix):	Method 1 20% max.	Method 2 25% max.

**Note 1:** A minimum of 50% of the virgin fine aggregate must be natural sand, 703.05. It is also recommended to use limestone sand or slag sand at a percentage of at least 30% of the virgin fine aggregate or 20% of the total blend.

**Note 2:** Do not use any aggregate that has an absorption greater than 3.5%.

**Note 3:** The engineer may adjust binder content. Compensation will be made according to 404LVT.19.

**404LVT.021 Quality Control**

Ensure quality control personnel, testing devices, and facilities meet the requirements of Supplement 1041. Meet the requirements of Item 403 except 403.06.

Calibrate asphalt content nuclear gauges according to Supplement 1043. Perform quality control testing according to the frequency provided in Table 2.

Obtain mix samples at the mixing plant.

**Table 2**

<b>Quality Control Testing Schedule</b>		
<b>Daily Frequency</b>	<b>Tests</b>	<b>Sample Type</b>
Within first 100 tons	binder content, gradation	completed mix
Each 400 tons thereafter	binder content, gradation	completed mix

During production investigate and correct variation from the JMF, as shown by the quality control analysis, of plus or minus 4 percent passing the No. 4 sieve or plus or minus 0.3 percent binder.

If variation exceeds the limits in Table 3 immediately cease production until the cause for variation is determined and corrections made. Notify the Engineer.

**Table 3**

<b>Deviation from the Design</b>		
<b>Mix Characteristic</b>	<b>From the Design</b>	<b>Range</b>
Binder Content	$\pm 0.5$ percent	1.0
No. 4 Sieve	$\pm 6$ percent	12

**404LVT.03 Materials.** Furnish materials conforming to Table 4.

**Table 4**

<b>Material</b>	<b>Specification</b>
Asphalt binder	702.01
Aggregate	703.05 <sup>4</sup>
Mineral filler	703.07
Polymer	702.14

**Note 4:** Do not apply the gradation requirements for fine aggregate.

**404LVT.04 Equipment.** Apply the requirements of 401.03

**404LVT.05 Notification.** Apply the requirements of 401.04

**404LVT.06 Weather Limitations.** Apply the requirements of 401.05

**404LVT.07 Conditioning Existing Surface.** Apply the requirements of 401.06

**404LVT.08 Hauling.** Apply the requirements of 401.07

**404LVT.09 Placement Operation.**

Ensure spreading operations result in a mat texture that is uniform and free of deficiencies such as tears, drags or other blemishes. Remove and replace areas of deficient mat texture.

Apply the requirements of 401.08

**404LVT.10 Asphalt Binder Compatibility.** Apply the requirements of 401.09

**404LVT.11 Surface Tolerances.** Apply the requirements of 401.10

**404LVT.12 Opening to Traffic.** Apply the requirements of 401.11

**404LVT.13 Method of Measurement.** Apply the requirements of 401.12

**404LVT.14 Mixing Plants.** Apply the requirements of 402.02

**404LVT.15 Plant Calibration.** Apply the requirements of 402.03

**404LVT.16 Use of Reclaimed Asphalt Pavement**

Process recycled asphalt pavement such that it passes a 9/16-inch sieve and when incorporated ensures a one-half inch maximum aggregate size.

**404LVT.17 Mixing and Production**

Apply the requirements of 402.07. Asphalt mixtures may be produced using the warm mix asphalt method according to 402.05.

**404LVT.18 Asphalt Binder Price Adjustment.**

Apply the requirements of ODOT proposal note 534

**404LVT.19 Acceptance and Basis of Payment.**

Acceptance for gradation and binder content will be based upon the mean of the results of all required quality control tests performed during a day's production.

The pavement owner is responsible for verification testing according to 403.10.

Production will be considered acceptable if the tolerances shown in Table 3 are not exceeded.

In the event material does not meet these requirements but that reasonably acceptable material has been produced, the Engineer will make a determination if the deficient work will be accepted and remain in place. If accepted, payment will equal 90 percent of the bid item cost for deviations related to aggregate gradation and 70 percent for binder deviations.

Payment for accepted quantities, complete in place, will be based on the following formula:  $CY \times [Unit\ Price + 2BI(B_{ADJUST} - BC)]$

Where CY = cubic yards of asphalt concrete

Unit Price = unit price bid for the item

BC = Binder Correction factor.

$$BC = B_{JMF} - B_{ACTUAL} \text{ if } B_{JMF} > B_{ACTUAL}$$

$$BC = 0 \text{ if } B_{JMF} < B_{ACTUAL}$$

$B_{ACTUAL}$  = Mean binder content of material placed, excluding deficient material removed or accepted at reduced pay

$B_{ADJUST}$  = (%) binder adjustment (Table 1, Note 3)

$B_{BID}$  = specified binder content (%)

$$B_{JMF} = B_{BID} + B_{ADJUST}$$

BI = Bidding Index

**Pay Items**

404LVT

**Unit**

Cubic Yard

**Description**

404LVT, Asphalt Concrete, PG 58-28