ITEM P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

DESCRIPTION

101-1.1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

101-1.2 Limits of pavement removal, pavement repair, joint and crack repair, paint and rubber removal, and cold milling are estimated in the plans. Actual limits of these items shall be coordinated with the Engineer prior to construction.

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Owner Authorized Representative (OAR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.0 General.

The Contractor must furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified herein. All work will be subject to the inspection and approval of the OAR. All machinery and equipment owned or controlled by the Contractor must be of sufficient size to meet the requirements of the work and must be such as to produce work to the requirements listed herein and in the drawings.

Where only a portion of the existing pavement is to be demolished, special care must be exercised to avoid damage to that portion of the pavement to remain in place. The existing pavement must be cut to the neat lines shown on the drawings with double full-depth saw cuts or as established by the OAR, and any existing pavement beyond the neat lines so established which is damaged or destroyed by these operations must be replaced at the Contractor's expense with no additional compensation from the Owner. The face of any sawcut must be sawed or otherwise trimmed so that there is no abrupt offset in any direction greater than 1/4 inch and no gradual offset greater than one (1) inch when tested in a horizontal direction with a 16-foot straightedge. Sawcutting depth may vary nominally and no extra payment will be allotted for varying depths or double saw cuts.

The equipment used by the Contractor to demolish and / or remove existing pavement must be operated in a manner that will avoid damaging underlying base and / or subbase layers, underlying structures, cables, utilities and utility ducts, pipelines, drainage structures and facilities, bridge approach slabs, bridge decks and other facilities not also designated for removal. Accordingly, heavy pavement breaking equipment that would cause a seismic disturbance of the soil, must not be used for breaking pavement within: 50 feet of any existing water lines, fuel lines, storm sewers, sanitary sewers, or any other underlying utility or structure not also designated for removal; or within 50 feet of any edge of pavement designated to remain. Falling weight demolition equipment is not permitted on this project. If any damage occurs, the Contractor must cease operations immediately, notify the OAR, and repair the damage at the direction of the OAR. Repairs must be made timely, without change in the construction schedule, and at the sole expense of the Contractor. Any damage must be repaired at the Contractor’s expense.

For concrete pavement removal, removal of damaged areas must be to existing joint lines, unless otherwise shown in the drawings or authorized by the OAR. Partial concrete slab replacement to repair damage

caused by the Contractor will not be allowed. The Contractor will be responsible for all costs associated with removal and replacement of damaged slabs that are scheduled to remain.

The method of removal of existing pavements is at the Contractor's discretion, unless otherwise noted in the drawings or project manual. The method of removal chosen by the Contractor will not impact the unit prices bid by the Contractor for the various pavement removal items.

The Contractor must comply with all current federal, state and local rules and regulations governing the safety of men and materials during construction operations. Specifically, the Contractor must observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching, and shoring are strictly adhered to.

All existing pavement section materials (asphalt, concrete, aggregate base) removed must be stockpiled onsite as shown on the drawings or at an alternate location to be determined by the OAR. This is subsidiary to the various bid items of the project. The OAR reserves the right to modify the stockpile location, as appropriate during the project, without penalty or modification to contract unit price.

Excess earthen materials must be stockpiled or disposed of in accordance with FAA Item P-152, Excavation, Subgrade, and Embankment.

All other materials not suitable for reuse must be disposed of off the Airport property in accordance with local laws and regulations, unless otherwise noted. No material may be wasted on the Airport site unless approved by the OAR. This is subsidiary to the various bid items of the project.

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

The OAR and the Contractor must mutually agree upon the pavement demolition and removal procedure based upon compliance with the criteria set forth in the drawings and in this specification.

Existing pavement thicknesses to be removed, denoted in the project demolition drawings, are approximate and may not accurately reflect actual existing pavement thicknesses. Removal of existing pavements includes sawcutting, removal, and disposal of all material layers of the pavement section as required to meet the removal depth requirements listed therein. Removal of any underlying material layers of the pavement section not specifically listed as a pay item must be removed as necessary to meet the appropriate proposed excavation depths and will be considered as unclassified excavation in accordance with FAA Item P-152, Excavation, Subgrade, and Embankment. Removal of pavements also includes all reinforcement at no direct cost. It is the Contractor's responsibility, as part of the bidding process, to determine the level of effort required to remove the pavement areas shown.

Where removed materials are designated for reuse in the project or to be stockpiled on Airport property, the Contractor must pulverize the materials as necessary such that 100% of the removed materials pass a 2-inch sieve.

a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the OAR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying

material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

Where keyed joints are encountered, the Contractor must remove the "male" portion of the keyway, if it is a part of the pavement to remain in order to create a smooth vertical face. The male keyway must be removed by saw cutting if there are no dowels or tie bars which are scheduled to be saved. If the pavement that is to remain has the "female" portion of the keyway, the Contractor must remove the "female" portion of the keyway that is a part of the pavement scheduled to remain by sawcutting full depth six (6) inches away from that joint. The additional six (6) inches required for removal will be incidental to this item. No additional payment will be made for sawing required to remove keyways.

The edge of existing concrete pavement against which new pavement abuts must be protected from damage at all times. Where the perimeter of the removal limits is adjacent to existing pavement to designated to remain, the Contractor must saw through the existing dowels and install new dowels. The pavement must be removed so the joint for each layer of pavement replacement is offset two (2) feet from the joint in the preceding layer. Spall and underbreak repair must be in accordance with the drawings. Any underlaying material that is to remain in place, must be recompacted and/or replaced as shown on the drawings. Adjacent areas damaged during repair must be repaired or replaced at the Contractor's expense.

All waste concrete slabs generated by concrete pavement demolition must be hauled and stockpiled in the EMMS (East Material Management Site) or as directed by the OAR.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed, as shown in the drawings. The pavement must be removed so the joint for each layer of pavement replacement is offset one (1) foot from the joint in the preceding layer. If the material is to be wasted at the EMMS or incorporated into the work, it must be broken to a maximum size of two (2) inches.

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the OAR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

d. Disposal. All existing pavement removed shall be disposed of off-site to EMMS or Owner approved location or in areas designated on the plans. All hauling will be considered a necessary and incidental part of the work. Its costs shall be considered by the Contractor and included in the contract unit price for the pay items of work involved. No payment will be made separately or directly for hauling on any part of the work.

101-3.2 Preparation of joints and cracks prior to overlay/surface treatment. Remove all vegetation and debris from cracks to a minimum depth of 1 inch. If extensive vegetation exists, treat the specific area with a concentrated solution of a water-based herbicide approved by the OAR. Fill all cracks greater than 1/4 inch wide with a crack sealant per ASTM D6690. The crack sealant, preparation, and application shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch, not to exceed ¼ inch. Any excess joint or crack sealer shall be removed from the pavement surface.

Wider cracks (over 1-1/2 inch wide), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or replaced as stated below.

Cracks and joints may be filled with a mixture of emulsified asphalt and aggregate. The aggregate shall consist of limestone, volcanic ash, sand, or other material that will cure to form a hard substance. The combined gradation shall be as shown in the following table.

Gradation

Sieve Size	Percent Passing
No. 4 (4.75 mm)	100
No. 8 (2.36 mm)	90-100
No. 16 (1.18 mm)	65-90
No. 30 (600 µm)	40-60
No. 50 (300 µm)	25-42
No. 100 (150 µm)	15-30
No. 200 (75 µm)	10-20

Up to 3% cement can be added to accelerate the set time. The mixture shall not contain more than 20% natural sand without approval in writing from the OAR.

The proportions of asphalt emulsion and aggregate shall be determined in the field and may be varied to facilitate construction requirements. Normally, these proportions will be approximately one part asphalt emulsion to five parts aggregate by volume. The material shall be poured or placed into the joints or cracks and compacted to form a voidless mass. The joint or crack shall be filled to within +0 to -1/8 inches of the surface. Any material spilled outside the width of the joint shall be removed from the pavement surface prior to constructing the overlay. Where concrete overlays are to be constructed, only the excess joint material on the pavement surface and vegetation in the joints need to be removed.

a. Soil Sterilants. Soil sterilants shall contain Bromacil or Prometone and shall be approved by the Engineer. Application rates shall be in accordance with the manufacturer's recommendations.

b. Crack Preparation. A high temperature compressed air lance shall be used at all times to blast out any vegetation, dirt, dampness and loose materials from the cracks. Existing crack sealant which is deteriorated shall be removed as directed by the Engineer. The high velocity hot air shall be not less than 2,000 °F in temperature. The air lance shall operate in a no flame impingement condition and shall have a directional controlled velocity of 330-fps minimum and a combustion temperature at ignition of no less than 2,000 °F. After cleaning of crack, tack coat shall be applied prior to the application of emulsified asphalt and aggregate. Tack coat shall conform to Item P-603 of these specifications.

c. Filler Application. After cracks have been cleaned, received soil sterilant and tack coat, and have been approved by the Engineer, the cracks shall be filled with the emulsified asphalt and aggregate described within this specification. The mix shall be raked in the crack by hand in order to completely fill the entire crack. Once the crack is filled, excess asphalt mix shall be rounded up along the length of the crack, and pinched into the crack using a small asphalt roller. The application and compaction method shall be approved by the Engineer prior to beginning crack cleaning operations.

101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal-coat, or remarking. Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the OAR in the field during construction.

Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, rotary grinding, or sandblasting may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the OAR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the OAR.

Removal of foreign substances shall not proceed until approved by the OAR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be

deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

a. Repair of concrete spalls in areas to be overlaid with asphalt. The Contractor shall repair all spalled concrete as shown on the plans or as directed by the OAR. The perimeter of the repair shall be saw cut a minimum of 2 inches outside the affected area and 2 inches deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the OAR until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches in depth. This method of repair applies only to pavement to be overlaid.

b. Asphalt pavement repair. The Contractor shall repair all spalled concrete as shown on the plans or as directed by the OAR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed of in areas designated on the plans. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The Contractor shall layout the area to be milled with a straightedge in increments of 1-foot widths. The Contractor's layout shall be approved by the OAR prior to beginning milling operations. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of 7 feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to windrow the millings or cuttings or remove the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of in areas designated on the plans.

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed of off Airport property or in areas designated on the plans.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:

a. Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement in accordance with paragraph 101-3.4b.

b. Repair joints and cracks in accordance with paragraph 101-3.2.

c. Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.

d. Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the OAR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the OAR, that the method used cleans the joint and does not damage the joint.

101-3.8.1 Removal of Existing Joint Sealant. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry.

101-3.8.2 Cleaning prior to sealing. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Allow sufficient time to dry out joints prior to sealing. Joint surfaces will be surface-dry prior to installation of sealant.

101-3.8.3 Joint sealant. Joint material and installation will be in accordance with Item P-605.

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the OAR, the method used cleans the cracks and does not damage the pavement.

101-3.9.1 Preparation of Crack. Widen crack with router or random crack saw by removing a minimum of 1/16 inch from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water-free compressed air.

101-3.9.2 Removal of Existing Crack Sealant. Existing sealants will be removed by routing or random crack saw. Following routing or sawing any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.

101-3.9.3 Crack Sealant. Crack sealant material and installation will be in accordance with Item P-605.

101-3.10 Removal of Pipe and other Buried Structures.

a. Removal of Existing Pipe Material. Remove the types of pipe as indicated on the plans. The pipe material shall be legally disposed of off-site in a timely manner following removal. Trenches shall be backfilled with material equal to or better in quality than adjacent embankment. Trenches under paved areas must be compacted to 95% of ASTM D1557.

b. Removal of Inlets/Manholes. Where indicated on the plans or as directed by the OAR, inlets and/or manholes shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. When under paved areas must be compacted to 95% of ASTM D1557, when outside of paved areas must be compacted to 95% of ASTM D698.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

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