

THE STATE OF TEXAS

COUNTY OF HARRIS

BID # L22778

ORDINANCE # 2008-523

CONTRACT # 4600008797

## I. PARTIES

### 1.0 ADDRESS

THIS AGREEMENT for RUNWAY RUBBER REMOVAL, FRICTION TESTING AND MISCELLANEOUS AIRFIELD PAINT REMOVAL SERVICES ("Agreement") is made on the Countersignature Date between the CITY OF HOUSTON, TEXAS ("City"), a municipal corporation and CKS HYDRO SERVICES, INC. ("Contractor or Vendor"), a corporation doing business in Texas.

The initial addresses of the parties, which one party may change by giving written notice to the other party, are as follows:

#### City

City Purchasing Agent for Director  
of Houston Airport System  
City of Houston  
P.O. Box 1562  
Houston, Texas 77251

#### Contractor

CKS Hydro Services, Inc.  
P.O. Box 916  
Ocean Springs, MS 39566  
Phone: (228) 872-2446  
Fax: (228) 875-4747

The Parties agree as follows:

### 2.0 TABLE OF CONTENTS

2.1 This Agreement consists of the following sections:

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- A. DEFINITIONS
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APPENDIX

- 1 ADVISORY CIRCULAR

**3.0 PARTS INCORPORATED**

3.1 The above described sections and exhibits are incorporated into this Agreement.

**4.0 CONTROLLING PARTS**

4.1 If a conflict among the sections or exhibits arises, the Exhibits control over the Sections.

**5.0 DEFINITIONS**

5.1 Certain terms used in this Agreement are defined in Exhibit "A".

6.0 SIGNATURES

6.1 The Parties have executed this Agreement in multiple copies, each of which is an original.

ATTEST/SEAL: (if a corporation)  
WITNESS: (if not corporation)

CKS Hydro Services, Inc.

By: Melissa Stanfield  
Name: Melissa Stanfield  
Title: President

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Federal Tax ID Number: 74-2593385

ATTEST/SEAL:

[Signature]  
City Secretary

CITY OF HOUSTON, TEXAS

Signed by: Bill White

Mayor

Anapla Webster

APPROVED:

[Signature]  
City Purchasing Agent

COUNTERSIGNED BY:

[Signature]  
City Controller Madeline D. Appel

DATE COUNTERSIGNED:

6-23-08

This Contract has been reviewed as to form by the undersigned legal assistant and has been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

6/13/08  
Date

[Signature]  
Legal Assistant

## II. DUTIES OF CONTRACTOR

### 1.0 SCOPE OF SERVICES

- 1.1 In consideration of the payments specified in this Agreement, Contractor shall provide all supervision, labor, tools, equipment, permits, parts, expendable items, material, and supplies necessary to perform the services described in Exhibit "B".

### 2.0 RELEASE

- 2.1 PRIME CONTRACTOR/SUPPLIER AGREES TO AND SHALL RELEASE THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE CITY) FROM ALL LIABILITY FOR INJURY, DEATH, DAMAGE, OR LOSS TO PERSONS OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO PERFORMANCE UNDER THIS AGREEMENT, EVEN IF THE INJURY, DEATH, DAMAGE, OR LOSS IS CAUSED BY THE CITY'S SOLE OR CONCURRENT NEGLIGENCE AND/OR THE CITY'S STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY.

### 3.0 INDEMNIFICATION

- 3.1 PRIME CONTRACTOR/SUPPLIER AGREES TO AND SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY "THE CITY") HARMLESS FOR ALL CLAIMS, CAUSES OF ACTION, LIABILITIES, FINES, AND EXPENSES (INCLUDING, WITHOUT LIMITATION, ATTORNEY'S FEES, COURT COSTS, AND ALL OTHER DEFENSE COSTS AND INTEREST) FOR INJURY, DEATH, DAMAGE, OR LOSS TO PERSONS OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO PERFORMANCE UNDER THIS AGREEMENT INCLUDING, WITHOUT LIMITATION, THOSE CAUSED BY:
- 3.1.1 PRIME CONTRACTOR/SUPPLIER AND/OR ITS AGENTS', EMPLOYEES', OFFICERS', DIRECTORS', CONTRACTORS', OR SUBCONTRACTORS' (COLLECTIVELY IN NUMBERED PARAGRAPHS 2.1-3.2, "CONTRACTOR") ACTUAL OR ALLEGED NEGLIGENCE OR INTENTIONAL ACTS OR OMISSIONS;
  - 3.1.2 THE CITY'S AND PRIME CONTRACTOR/SUPPLIER ACTUAL OR ALLEGED CONCURRENT NEGLIGENCE, WHETHER CONTRACTOR IS IMMUNE FROM LIABILITY OR NOT; AND
  - 3.1.3 THE CITY'S AND PRIME CONTRACTOR/SUPPLIER ACTUAL OR ALLEGED STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY, WHETHER CONTRACTOR IS IMMUNE FROM LIABILITY OR NOT.
  - 3.1.4 PRIME CONTRACTOR/SUPPLIER SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY HARMLESS DURING THE TERM OF THIS CONTRACT AND FOR FOUR YEARS AFTER THE CONTRACT TERMINATES. CONTRACTOR'S INDEMNIFICATION IS LIMITED TO \$500,000.00 PER OCCURRENCE. CONTRACTOR SHALL NOT INDEMNIFY THE CITY FOR THE CITY'S SOLE NEGLIGENCE.
- 3.2 CONTRACTOR SHALL REQUIRE ALL OF ITS SUBCONTRACTORS (AND THEIR SUBCONTRACTORS) TO RELEASE AND INDEMNIFY THE CITY TO THE SAME EXTENT AND IN SUBSTANTIALLY THE SAME FORM AS ITS RELEASE AND INDEMNITY TO THE CITY.

#### 4.0 INDEMNIFICATION PROCEDURES

- 4.1 Notice of Claims. If the City or Prime Contractor/Supplier receives notice of any claim or circumstances, which could give rise to an indemnified loss, the receiving party shall give written notice to the other party within 10 days. The notice must include the following:
- 4.1.1 a description of the indemnification event in reasonable detail, and
  - 4.1.2 the basis on which indemnification may be due and
  - 4.1.3 the anticipated amount of the indemnified loss.
- 4.2 This notice does not stop or prevent the City from later asserting a different basis for indemnification or a different amount of indemnified loss than that indicated in the initial notice. If the City does not provide this notice within the 10 day period, it does not waive any right to indemnification except to the extent that Prime Contractor/Supplier is prejudiced, suffers loss, or incurs expense because of the delay.
- 4.3 Defense of Claims
- 4.3.1 Assumption of Defense. Prime Contractor/Supplier may assume the defense of the claim at its own expense with counsel chosen by it that is reasonably satisfactory to the City. Prime Contractor/Supplier shall then control the defense and any negotiations to settle the claim. Within 10 days after receiving written notice of the indemnification request, Prime Contractor/Supplier must advise the City as to whether or not it will defend the claim. If Prime Contractor/Supplier does not assume the defense, the City shall assume and control the defense, and all defense expenses constitute an indemnification loss.
  - 4.3.2 Continued Participation. If Prime Contractor/Supplier elects to defend the claim, the City may retain separate counsel to participate in (but not control) the defense and to participate in (but not control) any settlement negotiations. Prime Contractor/Supplier may settle the claim without the consent or agreement of the City, unless it (i) would result in injunctive relief or other equitable remedies or otherwise require the City to comply with restrictions or limitations that adversely affect the City, (ii) would require the City to pay amounts that Prime Contractor/Supplier does not fund in full, (iii) would not result in the City's full and complete release from all liability to the plaintiffs or claimants who are parties to or otherwise bound by the settlement.

#### 5.0 INSURANCE

- 5.1 Contractor shall maintain in effect certain insurance coverage and shall furnish certificates of insurance, in duplicate form, before beginning its performance under this Agreement. All policies except Professional Liability and Workers' Compensation must name the City as an additional insured. The issuer of any policy (1) shall have a Certificate of Authority to transact insurance business in Texas or (2) shall be an eligible non-admitted insurer in the State of Texas and have a Best's rating of at least B+ and a Best's Financial Size Category of Class VI or better, according to the most current edition Best's Key Rating Guide. Contractor shall maintain the following insurance coverage in the following amounts:
- 5.1.1 Commercial General Liability insurance including Contractual Liability insurance:  
\$500,000 per occurrence; \$1,000,000 aggregate
  - 5.1.2 Workers' Compensation including Broad Form All States endorsement:  
Statutory amount
  - 5.1.3 Automobile Liability insurance  
\$1,000,000 combined single limit per occurrence

Defense costs are excluded from the face amount of the policy  
Aggregate Limits are per 12-month policy period unless otherwise indicated

5.1.4 Employer's Liability

Bodily injury by accident \$100,000 (each accident)  
Bodily injury by disease \$100,000 (policy limit)  
Bodily injury by disease \$100,000 (each employee)

5.2 All insurance policies must require on their face, or by endorsement, that the insurance carrier waives any rights of subrogation against the City, and that it shall give 30 days written notice to the City before they may be canceled. Within the 30 day period, Contractor shall provide other suitable policies in lieu of those about to be canceled, materially changed, or non-renewed so as to maintain in effect the required coverage. If Contractor does not comply with this requirement, the Director, at his or sole discretion, may:

5.2.1 immediately suspend Contractor from any further performance under this Agreement and begin procedures to terminate for default, or

5.2.2 purchase the required insurance with City funds and deduct the cost of the premiums from amounts due to Contractor under this Agreement.

**6.0 WARRANTIES**

6.1 Contractor represents and warrants that it shall perform all work in a good and workmanlike manner, meeting the standards of quality prevailing in Harris County, Texas for work of this kind. Contractor shall perform all work using trained and skilled persons having substantial experience performing the work required under this Agreement.

6.2 With respect to any parts and goods furnished by it, Contractor warrants:

6.2.1 that all items are free of defects in title, material, and workmanship,

6.2.2 that each item meets or exceeds the manufacturer's specifications and requirements for the equipment, structure, or other improvement in which the item is installed,

6.2.3 that each replacement item is new in accordance with original equipment manufacturer's specifications, and of a quality at least as good as the quality of the item which it replaces (when the replaced item was new), and

6.2.4 that no item or its use infringes any patent, copyright, or proprietary right.

**7.0 LICENSES AND PERMITS**

7.1 Contractor shall obtain and pay for all licenses, permits, and certificates required by any statute, ordinance, rule, or regulation.

**8.0 COMPLIANCE WITH EQUAL OPPORTUNITY ORDINANCE**

8.1 Contractor shall comply with the City's Equal Employment Opportunity Ordinance as set out in Exhibit "C".

**9.0 MWBE COMPLIANCE**

9.1 Contractor shall comply with the City's Minority and Women Business Enterprise ("MWBE") programs as set out in Chapter 15, Article V of the City of Houston Code of Ordinances.

Contractor shall make good faith efforts to award subcontracts or supply agreements in at least **11%** of the value of this Agreement to MWBEs. Contractor acknowledges that it has reviewed the requirements for good faith efforts on file with the City's Affirmative Action Division and will comply with them.

- 9.2 Contractor shall require written subcontracts with all MWBE subcontractors and shall submit all disputes with MWBEs to binding arbitration in Houston, Texas if directed to do so by the Affirmative Action Division Director. MWBE subcontracts must contain the terms set out in Exhibit "D". If Contractor is an individual person (as distinguished from a corporation, partnership, or other legal entity), and the amount of the subcontract is \$50,000 or less, the subcontract must also be signed by the attorneys of the respective parties.

## **10.0 DRUG ABUSE DETECTION AND DETERRENCE**

- 10.1 It is the policy of the City to achieve a drug-free workforce and workplace. The manufacture, distribution, dispensation, possession, sale, or use of illegal drugs or alcohol by contractors while on City Premises is prohibited. Contractor shall comply with all the requirements and procedures set forth in the Mayor's Drug Abuse Detection and Deterrence Procedures for Contractors, Executive Order No. 1-31 ("Executive Order"), which is incorporated into this Agreement and is on file in the City Secretary's Office.
- 10.2 Before the City signs this Agreement, Contractor shall file with the Contract Compliance Officer for Drug Testing ("CCODT"):
- 10.2.1 a copy of its drug-free workplace policy,
  - 10.2.2 the Drug Policy Compliance Agreement substantially in the form set forth in Exhibit "E", together with a written designation of all safety impact positions, and
  - 10.2.3 if applicable (e.g. no safety impact positions), the Certification of No Safety Impact Positions, substantially in the form set forth in Exhibit "F".
- 10.3 If Contractor files a written designation of safety impact positions with its Drug Policy Compliance Agreement, it also shall file every 6 months during the performance of this Agreement or on completion of this Agreement if performance is less than 6 months, a Drug Policy Compliance Declaration in a form substantially similar to Exhibit "G". Contractor shall submit the Drug Policy Compliance Declaration to the CCODT within 30 days of the expiration of each 6-month period of performance and within 30 days of completion of this Agreement. The first 6-month period begins to run on the date the City issues its Notice to Proceed or if no Notice to Proceed is issued, on the first day Contractor begins work under this Agreement.
- 10.4 Contractor also shall file updated designations of safety impact positions with the CCODT if additional safety impact positions are added to Contractor's employee work force.
- 10.5 Contractor shall require that its subcontractors comply with the Executive Order, and Contractor shall secure and maintain the required documents for City inspection.

## **11.0 ENVIRONMENTAL LAWS**

- 11.1 Contractor shall comply with all rules, regulations, statutes, or orders of the Environmental Protection Agency ("EPA"), the Texas Commission on Environmental Quality ("TCEQ"), and any other governmental agency with the authority to promulgate environmental rules and regulations ("Environmental Laws"). Contractor shall promptly reimburse the City for any fines or penalties levied against the City because of Contractor's failure to comply.
- 11.2 Contractor shall not possess, use, generate, release, discharge, store, dispose of, or

transport any Hazardous Materials on, under, in, above, to, or from the site except in strict compliance with the Environmental Regulations. "Hazardous Materials" means any substances, materials, or wastes that are or become regulated as hazardous or toxic substances under any applicable federal, state, or local laws, regulations, ordinances, or orders. Contractor shall not deposit oil, gasoline, grease, lubricants or any ignitable or hazardous liquids, materials, or substances in the City's storm sewer system or sanitary sewer system or elsewhere on City Property in violation of the Environmental Laws.

#### **12.0 CITY'S CONTRACTOR PAY OR PLAY PROGRAM**

12.1 The requirement and terms of the City of Houston Pay or Play Policy, as set out in Executive Order 1-7, are incorporated into this Agreement for all purposes. Contractor has reviewed Executive Order 1-7 and shall comply with its terms and conditions as they are set out at the time of City Council approval of this Agreement.

#### **13.0 CONTRACTOR'S PERFORMANCE**

13.1 Contractor shall make citizen satisfaction a priority in providing services under this Agreement. Contractor shall train its employees to be customer service-oriented and to positively and politely interact with citizens when performing contract services. Contractor's employees shall be clean, courteous, efficient, and neat in appearance and committed to offering the highest quality of service to the public. If, in the Director's opinion, Contractor is not interacting in a positive and polite manner with citizens, he or she shall direct Contractor to take all remedial steps to conform to these standards.

#### **14.0 PAYMENT OF EMPLOYEES AND SUBCONTRACTORS**

14.1 Contractor shall make timely payments in accordance with applicable state and federal law to all persons and entities supplying labor, materials or equipment for the performance of this Agreement including Contractor's employees.

14.2 Failure of Contractor to pay its employees as required by law shall constitute a default under this contract for which the Contractor and its surety shall be liable on Contractor's performance bond if Contractor fails to cure the default as provided under this Agreement.

14.3 Contractor shall defend and indemnify the City from any claims or liability arising out of Contractor's failure to pay its subcontractors as required by law. Contractor shall submit disputes relating to payment of M/WBE subcontractors to arbitration in the same manner as any other disputes under the M/WBE subcontract.

### **III. DUTIES OF CITY**

#### **1.0 PAYMENT TERMS**

1.1 The City shall pay and Contractor shall accept fees provided in Exhibit "H" for all services rendered and the Deliverables furnished by Contractor. The fees must only be paid from Allocated Funds, as provided below.

#### **2.0 TAXES**

2.1 The City is exempt from payment of Federal Excise and Transportation Tax and Texas Limited Sales and Use Tax. Contractor's invoices to the City must not contain assessments of any of these taxes. The Director will furnish the City's exemption certificate and federal

tax identification number to Contractor if requested.

### **3.0 METHOD OF PAYMENT**

- 3.1 The City shall pay Contractor on the basis of invoices submitted by Contractor and approved by the Director, showing the specific tasks completed in the preceding month and the corresponding prices. The City shall make payments to Contractor at its address for notices within 30 days of receipt of an approved invoice.

### **4.0 METHOD OF PAYMENT - DISPUTED PAYMENTS**

- 4.1 If the City disputes any items in an invoice Contractor submits for any reason, including lack of supporting documentation, the Director shall temporarily delete the disputed item and pay the remainder of the invoice. The Director shall promptly notify Contractor of the dispute and request remedial action. After the dispute is settled, Contractor shall include the disputed amount on a subsequent regularly scheduled invoice or on a special invoice for the disputed item only.

### **5.0 LIMIT OF APPROPRIATION**

- 5.1 The City's duty to pay money to Contractor under this Agreement is limited in its entirety by the provisions of this Section.
- 5.2 In order to comply with Article II, Sections 19 and 19a of the City's Charter and Article XI, Section 5 of the Texas Constitution, the City has appropriated and allocated the sum of \$91,000.00 to pay money due under this Agreement (the "Original Allocation"). The executive and legislative officers of the City, in their discretion, may allocate supplemental funds for this Agreement, but they are not obligated to do so. Therefore, the parties have agreed to the following procedures and remedies:
- 5.3 The City makes a Supplemental Allocation by issuing to Contractor a Service Release Order, or similar form approved by the City Controller, containing the language set out below. When necessary, the Supplemental Allocation shall be approved by motion or ordinance of City Council.

#### **"NOTICE OF SUPPLEMENTAL ALLOCATION OF FUNDS"**

"By the signature below, the City Controller certifies that, upon the request of the responsible director, the supplemental sum set out below has been allocated for the purposes of the Agreement out of funds appropriated for this purpose by the City Council of the City of Houston. This supplemental allocation has been charged to such appropriation."

- 5.4 The Original Allocation plus all supplemental allocations are the Allocated Funds. The City shall never be obligated to pay any money under this Agreement in excess of the Allocated Funds. Contractor must assure itself that sufficient allocations have been made to pay for services it provides. If Allocated Funds are exhausted, Contractor's only remedy is suspension or termination of its performance under this Agreement and it has no other remedy in law or in equity against the City and no right to damages of any kind.

### **6.0 CHANGES**

- 6.1 At any time during the Agreement Term, the City Purchasing Agent or Director may issue a Change Order to increase or decrease the scope of services or change plans and specifications, as he or she may find necessary to accomplish the general purposes of this

Agreement. Contractor shall furnish the services or deliverables in the Change Order in accordance with the requirements of this Agreement plus any special provisions, specifications, or special instructions issued to execute the extra work.

- 6.2 The City Purchasing Agent or Director will issue the Change Order in substantially the following form:

**CHANGE ORDER**

TO: [Name of Contractor]  
FROM: City of Houston, Texas (the "City")  
DATE: [Date of Notice]  
SUBJECT: Change Order under the Agreement between the City and [Name of Contractor] countersigned by the City Controller on [Date of countersignature of the Agreement]

Subject to all terms and conditions of the Agreement, the City requests that Contractor provide the following:

[Here describe the additions to or changes to the equipment or services and the Change Order Charges applicable to each.]

Signed:  
[Signature of City Purchasing Agent or Director]

- 6.3 The City Purchasing Agent or Director may issue more than one Change Order, subject to the following limitations:
- 6.3.1 Council expressly authorizes the City Purchasing Agent or Director to approve a Change Order of up to \$25,000. A Change Order of more than \$25,000 over the approved contract amount must be approved by the City Council.
  - 6.3.2 If a Change Order describes items that Contractor is otherwise required to provide under this Agreement, the City is not obligated to pay any additional money to Contractor.
  - 6.3.3 The total of all Change Orders issued under this section may not increase the Original Agreement amount by more than 25%.
- 6.4 Whenever Contractor receives a Change Order, Contractor shall furnish all material, equipment, and personnel necessary to perform the work described in the Change Order. Contractor shall complete the work within the time prescribed. If no time for completion is prescribed, Contractor shall complete the work within a reasonable time. If the work described in any Change Order causes an unavoidable delay in any other work Contractor is required to perform under this Agreement, Contractor may request a time extension for the completion of the work. The City Purchasing Agent's or Director's decision regarding a time extension is final.
- 6.5 A product or service provided under a Change Order is subject to inspection, acceptance, or rejection in the same manner as the work described in the Original Agreement, and is subject to the terms and conditions of the Original Agreement as if it had originally been a part of the Agreement.
- 6.6 Change Orders are subject to the Allocated Funds provisions of this Agreement.

## IV. TERM AND TERMINATION

### 1.0 CONTRACT TERM

- 1.1 This Agreement is effective on the Countersignature Date and expires three (3) years after the starting date specified in the Notice to Proceed unless sooner terminated according to the terms of this Agreement.

### 2.0 NOTICE TO PROCEED

- 2.1 Contractor shall begin performance under this Agreement on the date specified in a Notice to Proceed from the City Purchasing Agent.

### 3.0 RENEWALS

- 3.1 Upon expiration of the Initial Term, and so long as the City makes sufficient supplemental allocations, this Agreement will be automatically renewed for two successive one-year terms on the same terms and conditions. If the Director/Chief of the City Department elects not to renew this Agreement, the City Purchasing Agent shall notify Contractor in written of non-renewal at least 30 days before the expiration of the then current term.

### 4.0 TIME EXTENSIONS

- 4.1 If Department requests an extension of time to complete its performance, then the City Purchasing Agent may, in his or her sole discretion, extend the time so long as the extension does not exceed 90 days. The extension must be in writing but does not require amendment of this Agreement. Contractor is not entitled to damages for delay(s) regardless of the cause of the delay(s).

### 5.0 TERMINATION FOR CONVENIENCE BY THE CITY

- 5.1 The City Purchasing Agent or Director may terminate this Agreement at any time by giving 30 days written notice to Contractor. The City's right to terminate this Agreement for convenience is cumulative of all rights and remedies, which exist now or in the future.
- 5.2 On receiving the notice, Contractor shall, unless the notice directs otherwise, immediately discontinue all services under this Agreement and cancel all existing orders and subcontracts that are chargeable to this Agreement. As soon as practicable after receiving the termination notice, Contractor shall submit an invoice showing in detail the services performed under this Agreement up to the termination date. The City shall then pay the fees to Contractor for services actually performed, but not already paid for, in the same manner as prescribed in Section III unless the fees exceed the allocated funds remaining under this Agreement.
- 5.3 TERMINATION OF THIS AGREEMENT AND RECEIPT OF PAYMENT FOR SERVICES RENDERED ARE CONTRACTOR'S ONLY REMEDIES FOR THE CITY'S TERMINATION FOR CONVENIENCE, WHICH DOES NOT CONSTITUTE A DEFAULT OR BREACH OF THIS AGREEMENT. CONTRACTOR WAIVES ANY CLAIM (OTHER THAN ITS CLAIM FOR PAYMENT AS SPECIFIED IN THIS SECTION), IT MAY HAVE NOW OR IN THE FUTURE FOR FINANCIAL LOSSES OR OTHER DAMAGES RESULTING FROM THE CITY'S TERMINATION FOR CONVENIENCE.

### 6.0 TERMINATION FOR CAUSE BY CITY

- 6.1 If Contractor defaults under this Agreement, the City Purchasing Agent or Director may either terminate this Agreement or allow Contractor to cure the default as provided below. The City's right to terminate this Agreement for Contractor's default is cumulative of all rights and remedies, which exist now or in the future. Default by Contractor occurs if:
- 6.1.1 Contractor fails to perform any of its duties under this Agreement;
  - 6.1.2 Contractor becomes insolvent;
  - 6.1.3 all or a substantial part of Contractor's assets are assigned for the benefit of its creditors; or
  - 6.1.4 a receiver or trustee is appointed for Contractor.
- 6.2 If a default occurs, the City Purchasing Agent or Director may, but is not obligated to, deliver a written notice to Contractor describing the default and the termination date. The City Purchasing Agent or Director, at his or her sole option, may extend the termination date to a later date. If the City Purchasing Agent or Director allows Contractor to cure the default and Contractor does so to the City Purchasing Agent's or Director's satisfaction before the termination date, then the termination is ineffective. If Contractor does not cure the default before the termination date, then the City Purchasing Agent or Director may terminate this Agreement on the termination date, at no further obligation of the City.
- 6.3 To effect final termination, the City Purchasing Agent or Director must notify Contractor in writing. After receiving the notice, Contractor shall, unless the notice directs otherwise, immediately discontinue all services under this Agreement, and promptly cancel all orders or subcontracts chargeable to this Agreement.

#### **7.0 TERMINATION FOR CAUSE BY CONTRACTOR**

- 7.1 Contractor may terminate its performance under this Agreement only if the City defaults and fails to cure the default after receiving written notice of it. Default by the City occurs if the City fails to perform one or more of its material duties under this Agreement. If a default occurs and Contractor wishes to terminate the Agreement, then Contractor must deliver a written notice to the Director describing the default and the proposed termination date.
- 7.2 The date must be at least 30 days after the Director receives notice. Contractor, at its sole option, may extend the proposed termination date to a later date. If the City cures the default before the proposed termination date, then the proposed termination is ineffective. If the City does not cure the default before the proposed termination date, then Contractor may terminate its performance under this Agreement on the termination date.

#### **8.0 REMOVAL OF CONTRACTOR OWNED EQUIPMENT AND MATERIALS**

- 8.1 Upon expiration, or termination of this Agreement, Contractor is permitted ten (10) days within which to remove contractor-owned material and equipment from the City's premises. The City shall make such material and equipment readily available to Contractor. The time period may be extended upon approval by the Director. The City reserves the right to deny any extension of time.

### **V. MISCELLANEOUS**

#### **1.0 INDEPENDENT CONTRACTOR**

- 1.1 Contractor shall perform its obligations under this Agreement as an independent contractor

and not as an employee of the City.

## **2.0 FORCE MAJEURE**

- 2.1 Timely performance by both parties is essential to this Agreement. However, neither party is liable for delays or other failures to perform its obligations under this Agreement to the extent the delay or failure is caused by Force Majeure. Force Majeure means fires, floods, explosions, and other acts of God, war, terrorist acts, riots, court orders, and the acts of superior governmental or military authority.
- 2.2 This relief is not applicable unless the affected party does the following:
  - 2.2.1 uses due diligence to remove the Force Majeure as quickly as possible, and
  - 2.2.2 provides the other party with prompt written notice of the cause and its anticipated effect.
- 2.3 The City may perform contract functions itself or contract them out during periods of Force Majeure. Such performance does not constitute a default or breach of this Agreement by the City.
- 2.4 If the Force Majeure continues for more than 30 days, the City Purchasing Agent or Director may terminate this Agreement by giving 30 days written notice to Contractor. This termination is not a default or breach of this Agreement. CONTRACTOR WAIVES ANY CLAIM IT MAY HAVE FOR FINANCIAL LOSSES OR OTHER DAMAGES RESULTING FROM THE TERMINATION EXCEPT FOR AMOUNTS DUE UNDER THE AGREEMENT AT THE TIME OF THE TERMINATION.

## **3.0 SEVERABILITY**

- 3.1 If any part of this Agreement is for any reason found to be unenforceable, all other parts remain enforceable unless the result materially prejudices either party.

## **4.0 ENTIRE AGREEMENT**

- 4.1 This Agreement merges the prior negotiations and understandings of the Parties and embodies the entire agreement of the Parties. No other agreements, assurances, conditions, covenants (express or implied), or other terms of any kind exist between the Parties regarding this Agreement.

## **5.0 WRITTEN AMENDMENT**

- 5.1 Unless otherwise specified elsewhere in this Agreement, this Agreement may be amended only by written instrument executed on behalf of the City (by authority of an ordinance duly adopted by the City Council) and Contractor. The Director is only authorized to perform the functions specifically delegated to him or her in this Agreement.

## **6.0 APPLICABLE LAWS**

- 6.1 This Agreement is subject to the laws of the State of Texas, the City Charter and Ordinances, the laws of the federal government of the United States, and all rules and regulations of any regulatory body or officer having jurisdiction.
- 6.2 Venue for any litigation relating to this Agreement is Harris County, Texas.

**7.0 NOTICES**

7.1 All notices required or permitted by this Agreement must be in writing and are deemed delivered on the earlier of the date actually received or the third day following: (1) deposit in a United States Postal Service post office or receptacle; (2) with proper postage (certified mail, return receipt requested); and (3) addressed to the other party at the address set out in the preamble of this Agreement or at such other address as the receiving party designates by proper notice to the sending party.

**8.0 NON-WAIVER**

8.1 If either party fails to require the other to perform a term of this Agreement, that failure does not prevent the party from later enforcing that term and all other terms. If either party waives the other's breach of a term, that waiver does not waive a later breach of this Agreement.

8.2 An approval by the Director, or by any other employee or agent of the City, of any part of Contractor's performance does not waive compliance with this Agreement or establish a standard of performance other than that required by this Agreement and by law. The Director is not authorized to vary the terms of this Agreement.

**9.0 INSPECTIONS AND AUDITS**

9.1 City representatives may perform, or have performed, (1) audits of Contractor's books and records, and (2) inspections of all places where work is undertaken in connection with this Agreement. Contractor shall keep its books and records available for this purpose for at least 3 years after this Agreement terminates. This provision does not affect the applicable statute of limitations.

**10.0 ENFORCEMENT**

10.1 The City Attorney or his or her designee may enforce all legal rights and obligations under this Agreement without further authorization. Contractor shall provide to the City Attorney all documents and records that the City Attorney requests to assist in determining Contractor's compliance with this Agreement, with the exception of those documents made confidential by federal or State law or regulation.

**11.0 AMBIGUITIES**

11.1 If any term of this Agreement is ambiguous, it shall not be construed for or against any party on the basis that the party did or did not write it.

**12.0 SURVIVAL**

12.1 Contractor shall remain obligated to the City under all clauses of this Agreement that expressly or by their nature extend beyond the expiration or termination of this Agreement, including but not limited to, the indemnity provisions.

**13.0 PARTIES IN INTEREST**

13.1 This Agreement does not bestow any rights upon any third party, but binds and benefits the City and Contractor only.

**14.0 SUCCESSORS AND ASSIGNS**

- 14.1 This Agreement binds and benefits the Parties and their legal successors and permitted assigns; however, this provision does not alter the restrictions on assignment and disposal of assets set out in the following paragraph. This Agreement does not create any personal liability on the part of any officer or agent of the City.

**15.0 BUSINESS STRUCTURE AND ASSIGNMENTS**

- 15.1 Contractor shall not assign this Agreement at law or otherwise or dispose of all or substantially all of its assets without the City Purchasing Agent's or Director's prior written consent. Nothing in this clause, however, prevents the assignment of accounts receivable or the creation of a security interest under Section 9.406(c) of the Texas Business & Commerce Code. In the case of such an assignment, Contractor shall immediately furnish the City with proof of the assignment and the name, telephone number, and address of the Assignee and a clear identification of the fees to be paid to the Assignee.
- 15.2 Contractor shall not delegate any portion of its performance under this Agreement without the City Purchasing Agent's or Director's prior written consent.

**16.0 REMEDIES CUMULATIVE**

- 16.1 Unless otherwise specified elsewhere in this Agreement, the rights and remedies contained in this Agreement are not exclusive, but are cumulative of all rights and remedies which exist now or in the future. Neither party may terminate its duties under this Agreement except in accordance with its provisions.

**17.0 CONTRACTOR DEBT**

- 17.1 If Contractor, at any time during the term of this agreement, incurs a debt, as the word is defined in Section 15-122 of the Houston City Code of Ordinances, it shall immediately notify the City Controller in writing. If the City Controller becomes aware that Contractor has incurred a debt, she shall immediately notify contractor in writing. If Contractor does not pay the debt within 30 days of either such notification, the City Controller may deduct funds in an amount equal to the debt from any payments owed to Contractor under this agreement, and Contractor waives any recourse therefore.

## EXHIBIT A DEFINITIONS

As used in this Agreement, the following terms have the meanings set out below:

**“Acceptable”** means that services, equipment and performance meet or exceed the requirements of this Agreement.

**“Acceptance”** shall be determined by the Director and will be established when the Director determines that the unit of work specified under this Agreement is complete and acceptable.

**“Acceptable Equivalent”** means any equipment, part or product that complies with existing industry standards governing its manufacture or use, and that is a functional equivalent of any equipment, part, product or specification described herein, or, which functionally satisfies an approved, negotiated or specified use made a part hereof.

**“Agreement”** means this contract between the parties including all exhibits and any written amendments authorized by City Council and Contractor.

**“Air Operations Area (AOA)”** means any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operations area shall include such paved and unpaved areas that are used or intended to be used for unobstructed movement of aircraft in addition to its associated runway, taxi-way or apron.

**“Airport(s)”** means George Bush Intercontinental Airport/Houston (IAH), William P. Hobby Airport (HOU) and Ellington Field (EFD).

**“Basic Services”** means those services described in Section B – Performance/Work Statement.

**“City”** means the City of Houston, Texas, and includes its successors and assigns.

**“Company or Contractor”** means the entity to whom the City awards this Contract.

**“Contract or Agreement”** means the Agreement and all amendments or change orders thereto made and entered into by and between the City and the Contractor whereby the Contractor shall provide all specified Work in connection with the Agreement, in the manner and form as provided by the Agreement.

**“Director”** means the Director of the Houston Airport System, or his designee. The Agreement designates certain functions to be performed by the Director. For the purposes of the Agreement those functions are assigned to the Assistant Director of Aviation, Technical Services Division. The Assistant Director of Aviation, Technical Service Division may delegate certain functions to other HAS employees, with the approval of the Director.

**“EFD”** means Ellington Field.

**“Emergency Service Request”** means a request from the director to Contractor to perform remedial maintenance or other work services due to a Major Failure or services deemed necessary by the Director. Contractor must respond to in accordance with the Response Times set forth in Section B (Scope of Work).

**“Equipment”** means all machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper and acceptable completion of the specified Work.

**“First Class Condition”** refers to the quality of systems, parts, equipment and related

components and appurtenances including replacements ("elements"). It also refers to the condition of the wear and operation of the elements. When referring to the quality of the elements, First Class Condition means of a quality equal to or better than the elements as originally installed. When referring to the wear and operation of the elements, First Class Condition means a standard that is within the manufacture's published tolerances for safe, reliable operation, or if no published tolerances, within generally accepted (tolerances) within the equipment maintenance industry.

**"Furnish"** means supply and deliver to Project Site, ready for uploading, unpacking, assembly, installation, use, etc., as applicable in each instance, except as otherwise defined in greater detail.

**"HOU"** means William P. Hobby Airport.

**"Houston Airport System (HAS)"** means the property and facilities of the City of Houston Department of Aviation which include, but are not limited to, George Bush Intercontinental Airport/Houston (IAH), William P. Hobby Airport (HOU), Ellington Field (EFD), and the Houston Airport System Administration Buildings.

**"IAH"** means George Bush Intercontinental Airport/Houston.

**"Lighting"** means a system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting included all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

**"Maintenance Service"** means both Preventive Maintenance and Remedial Maintenance.

**"Manufacturer"** means the original manufacturer or producer of a part or component.

**"Materials"** means any substance specified for use in the accomplishment of the Work.

**"Notice to Proceed"** means a written communication from the Director to Contractor instructing Contractor to begin performance.

**"OEM"** means the Original Equipment Manufacturer.

**"Other Service Request (OSR)"** is the form used to request Other Work/Services within the scope of this Agreement.

**"Other Work/Services"** means those services described in Section B – Scope of Work as Other Work/Services and other services related to operations and maintenance services, other than Basic Services. Such services are only provided upon the Director's written request.

**"Preventive Maintenance (PM)"** means scheduled maintenance activities recommended by the manufacturer and by industry best practice standards. They include, but are not limited to, proper, inspections, installation, testing, and operation procedures, determined by regularly scheduled work, etc.

**"Remedial Maintenance (RM)"** means repair of equipment and systems with parts, materials, and labor to restore performance to the designed function in the event of any breakdown or stoppage of equipment or system where the equipment or system is unable to perform its designed function. RM includes repairs and replacement of related components, parts and appurtenances that have failed, no longer perform reliably, or have worn beyond safe tolerances.

**"Repair"** means to restore to good or sound working condition.

**"Runway"** means the area of the airport prepared for the landing and takeoff of aircraft.

**“Schedule”** is the planned periods of time the Contractor shall be allowed to perform Work on the pavement as determined by the Director and local airfield requirements.

**“Service”** means to provide the labor, tools, equipment, and all items required to minimize maintenance requirements and ensure proper equipment performance based on manufacturer’s recommended procedures.

**“Taxiway”** means the portion of the Air Operations Area of an Airport that has been designated by HAS for movement of aircraft to and from the airport’s runways and aircraft parking areas.

**“Work”** means all services to be provided by the Contractor as defined by the specifications herein.

**EXHIBIT B  
SCOPE OF SERVICES**

**1.0 BACKGROUND**

- 1.1 This Agreement is for RUNWAY RUBBER REMOVAL, FRICTION TESTING, AND MISCELLANEOUS AIRFIELD PAINT REMOVAL SERVICES for the Houston Airport System (hereinafter referred to as "HAS"). These services serve a vital role in the efficient operation of the Houston Airport System.
- 1.2 The Houston Airport System (HAS) operates the City of Houston's three (3) major airports: George Bush Intercontinental Airport/Houston (IAH), William P. Hobby Airport (HOU), and Ellington Field (EFD). Management of the airports includes coordination with FAA, air carriers, and other Federal and State agencies to maintain the highest standards of service and safety to Airport patrons.

**2.0 PERFORMANCE WORK STATEMENT**

**2.1 GENERAL**

- 2.1.1 For and in consideration of the payment specified in the Agreement, Contractor shall provide Runway Rubber Removal, Friction Testing, and Miscellaneous Airfield Paint Removal Services for the Houston Airport System (HAS).
- 2.1.2 The work detailed in the Agreement is the testing of airfield pavement for coefficient of friction, removal of rubber deposits from airfield pavements, and miscellaneous airfield paint removal.
- 2.1.3 Contractor shall provide all services, management, supervision, labor, parts, equipment, materials, tools, instruments, supplies, expendable items, incidentals, insurance, transportation, and training required for responsive runway rubber removal, friction testing, and miscellaneous airfield paint removal services on an "as-needed" basis.
- 2.1.4 All Work shall be in accordance with the highest standards prevailing in the industry, as well as applicable codes, rules, regulations, laws, and practices governing the Work. These standards will be achieved by continuous improvement through open communications with HAS, regular management reviews and industry guidelines.
- 2.1.5 Contractor shall respond immediately to a request from the Director for emergency services and perform all steps reasonably necessary to protect persons and property from risk of harm due to a problem with the runway rubber removal, friction testing, and miscellaneous airfield paint removal. Contractor shall give first priority to HAS requests for emergency service.
- 2.1.6 The unit price per square foot of rubber removal is inclusive of pre- and post- friction testing.
- 2.1.7 The Contractor shall conduct its operation without damage to pavement surface and grooving, runway lights, joints, sealer, and kerf sealants. The integrity of the pavement grooving shall not be changed. The Contractor shall be responsible for and shall repair any damage caused by its operation and at its own expense to the satisfaction of HAS. Should the equipment or procedures used to remove the runway rubber or paint appear to cause pavement surface damage or cause it to become polished or deteriorated, HAS may at its discretion engage an independent

agency to test and evaluate the resulting runway friction coefficient (RFC) or damage after rubber or paint removal is complete. If the test indicates significant damage or that the RFC of a newly cleaned area is less than 90% of that measured along the runway edge or on a surface that has not been exposed to aircraft tire rubber, or the removal process, the area cleaned will be rejected for payment. Furthermore, the Contractor will be liable for all costs incurred by HAS for the evaluation, testing, and surface restoration.

- 2.1.8 If performance becomes unsatisfactory to HAS, the Contractor shall be directed to provide adequate personnel, supplies, equipment, or otherwise to immediately correct the unsatisfactory conditions. Failure to comply may result in service credits or the cancellation of the Agreement. Some examples of unsatisfactory performance include, but are not limited to, failure to provide adequate or proper equipment, personnel, and supervision to properly complete the work in a timely manner; improper use of tools, equipment or supplies; cutting, removing, or marring of the pavement surface or joints; or the failure to immediately clean and remove dislodged residue from adjacent pavement surfaces.
- 2.1.9 The Work provided by Contractor under the Agreement includes Basic Services and Other Work/Services.
- 2.1.10 Contractor shall perform Work at HOU and EFD on an on-call basis.
- 2.1.11 HAS will provide Contractor with a stage area (ARFF Station 54, 19006 Aldine Westfield) at IAH for equipment while service is being conducted. HAS will not provide a stage area at HOU or EFD.

### **3.0 APPLICABLE SPECIFICATIONS**

- 3.1 Contractor's services shall be performed in accordance with Federal Aviation Administration (FAA) Advisory Circular No. 150/5320-12C entitled Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces, or most current revision.
- 3.2 Advisory Circular No. 150/5320-12C is incorporated into this specification as Appendix 1.
- 3.3 The Methods for Removing Contaminants as described in Chapter 4, Section 2 of the Advisory Circular shall not be used.
  - 3.3.1 Removal by High Pressure Water  
This method shall not be used.
  - 3.3.2 Removal by Chemicals  
Chemicals with a base of cresylic acid and a blend of benzene shall not be used.
  - 3.3.3 High Velocity Impact Removal  
This method shall not be used.
  - 3.3.4 Mechanical Removal  
This method shall not be used.
- 3.4 The Contractor shall provide all barriers, lights, signs, flags, and flagging personnel necessary to establish an adequate work zone and control traffic in and around the work zone. The Contractor shall establish and maintain work zones as necessary throughout the period of the contract, prominently identifying potential hazards and dangers to personnel and traffic in or near the work area. As a minimum, the Contractor shall comply with FAA AC No. 150/5370-2E for temporary pavement closures on airfields.

- 3.5 In case of any discrepancy between the referenced FAA Advisory Circular and this specification, the provisions of this specification shall govern.

#### **4.0 SCOPE OF BASIC SERVICES**

##### **4.1 PERFORMANCE REQUIREMENTS FRICTION TESTING**

- 4.1.1 Pre- and post-friction testing is included in the unit price per square foot of rubber removal.
- 4.1.2 Contractor shall perform friction tests on up to three runways per callout.
- 4.1.3 Information recorded for each friction measurement shall include, at a minimum, the following data:
- 4.1.3.1 Airport name and runway number
  - 4.1.3.2 Distance from runway centerline
  - 4.1.3.3 Friction measurement time and date
  - 4.1.3.4 Type of measurement (calibration, dry, wet)
  - 4.1.3.5 Weather conditions
  - 4.1.3.6 MU values or equivalent
- 4.1.4 Contractor will provide a copy of the recorded information to Airport Operations with summary report of conditions of each runway friction levels noting areas of concern.

##### **4.2 PERFORMANCE REQUIREMENTS FOR DERUBBERIZING**

###### **4.2.1 SPECIFIC METHOD: REMOVAL BY CHEMICALS**

- 4.2.1.1 The removal of rubber deposits from Portland cement, asphalt, and polymer asphalt concrete pavements shall be accomplished exclusively with a derubberizer compound (biodegradable emulsifier/surfactant). The "Removal by Chemicals" method requires areas of pavement to be cleaned to be saturated by derubberizer compound, allowed to soak, agitated, vacuumed free of compound and particulate, and water-rinsed with a maximum water pressure of 400 PSI for asphalt pavement and 800 PSI for concrete pavement.
- 4.2.1.2 Chemicals utilized should be listed in EPA's Environmentally Preferable Purchasing Database ([www.epa.gov/opptintr/epp/index.htm](http://www.epa.gov/opptintr/epp/index.htm).) Contractors can propose alternative products; however, they are required to submit the name of the proposed product as part of this submittal along with evidence that the product is an environmentally friendly and preferred product.
- 4.2.1.3 Performance shall be in compliance with FAA AC No. 150/5320-12C
- 4.2.1 It shall be the responsibility of the Contractor to thoroughly clean and flush the pavement area and remove all residues.
- 4.2.2 The work area shall be cleaned at the end of each work period, with a complete clean up of the entire job site at the end of each performance cycle. This clean up

includes, but not limited to, removal of all rubber or paint residue that has been dislodged from the pavement surfaces during the cleaning. All clean-up activities are part of the contract and shall be accomplished by the Contractor at no additional cost to HAS.

4.2.3 Contractor shall remove any mechanical debris resulting from the derubberizing operation from all pavements serviced. To ensure that the pavements are completely free of metallic debris, Contractor shall include a final sweep of pavements with a magnetic sweeper to remove all metal objects. Pavements will be inspected by Airport Operations for Federal Aviation Regulations Part 139 violations prior to returning such pavement to operational use.

#### 4.3 PAINT REMOVAL TECHNICAL REQUIREMENTS

4.3.1 Paint may be removed by sandblasting, shot blasting, or grinding. The use of water blasting is specifically excluded.

4.3.2 Painted markings equal to or greater than three feet wide must be removed at a minimum rate of 1000 square feet per hour.

4.3.3 Contractor's paint removal process shall expose a minimum of 85% of the pavement surface texture.

4.3.4 The determination of the 85% pavement surface texture exposure must be accomplished by the procedure described in the "COMPLIANCE TESTING" section.

4.3.5 The HAS representative and the Contractor shall jointly inspect the work area before work commences. Any existing damage to the pavement systems must be documented at that time.

#### 4.4 EQUIPMENT

4.4.1 The Contractor's equipment used in the removal process must remove paint without causing damage to pavement surfaces, joints or joint and crack seal material.

4.4.2 The Contractor shall furnish all necessary lighting. The Contractor shall direct or shade the lighting to prevent interference with aircraft, the Air Traffic Control tower and other airport operations.

#### 4.5 METHOD OF OPERATION

4.5.1 The Contractor shall ensure that any paint removal process is conducted in strict compliance with all local, state and Federal environmental statutes and regulations.

#### 4.6 COMPLIANCE TESTING

4.6.1 Compliance with the exposure of 85% of the pavement surface texture 100 percent of the cleaned area will be determined by testing within the designated work area.

4.6.2 A one square foot section of transparent material inscribed with a grid of 100 equal squares will be used as a tool for quantitative measure of the 85% exposure of surface texture requirement. Place the grid pattern on the pavement surface at random locations. Then count the squares which contain paint deposits. The number of squares containing paint deposits must not exceed 15 in each of the randomly selected locations.

- 4.6.3 Each work area designated for paint removal will be divided into at least four equal zones for the purpose of compliance testing. Within each zone, a minimum of seven random locations will be evaluated. At least 85% of the randomly selected areas within each zone must meet the requirements described in this specification.
- 4.6.4 HAS will evaluate the zones and provide the Contractor with written acceptance or rejection of the work. The Contractor shall re-clean any zone not meeting the 85% exposure of surface texture requirement at the contractor's expense.
- 4.6.5 Deposits of paint are defined as any surface deposit that can be removed by scratching the deposit with a flat sharp object (such as a pocket knife) without damaging the pavement surface. Stains are defined as materials in the pavement surface micro texture that cannot be removed without damaging the pavement surface. A stain is generally embedded in the surface of the pavement below the horizontal plane of the surface texture. The Contractor is not responsible for stain removal.

#### 4.7 DERUBBERIZER COMPOUND

- 4.7.1 Contractor shall furnish all derubberizer compounds required to accomplish the work and shall ensure the compound meets the following minimum performance requirements:
  - 4.7.1.1 Compound shall be nonflammable, noncombustible, biodegradable, corrosion inhibiting, rapid emulsifying, rapid rinsing, hard water stable, free from objectionable odor and non-injurious to personnel involved when using good industrial hygiene practices. Compound shall also meet Federal, State of Texas and City of Houston laws, statues or ordinances pertaining to environmental protection.
  - 4.7.1.2 Compound shall not alter, harm or erode concrete or asphalt surfaces or sawed grooves, compression seals, runway lighting, expansion joints, gaskets, electrical wiring, electrical fixtures, runway paint markings, galvanized steel, grass, shrubbery or plantings. The compound shall not erode Portland cement or alter the proportions of Portland cement to aggregate in concrete runways. There shall be no degradation of the coefficient of friction beyond that of the original clean pavement.
  - 4.7.1.3 Product reference for derubberizer compound is AeroKleen or equal.

#### 4.8 MATERIAL SAFETY DATA SHEET (MSDS)

- 4.8.1. MSDS for specific derubberizer compound and for any other specific chemical products, which are used in performing the work, must be submitted with the bid. Contractor shall provide updated MSDS sheets to each Facility Superintendent during the Agreement term.

#### 4.9 EQUIPMENT

- 4.9.1 Equipment shall be as outlined in FAA AC No. 150/5320-12. Contractor's friction measuring equipment shall be maintained and calibrated in accordance with OEM procedures.

#### 4.10 WATER

- 4.10.1 HAS shall furnish sufficient water to complete the required cleaning operations from

a HAS designated source, at no cost to the Contractor. The Contractor shall keep accurate records of the amount of water used with each fill-up of the equipment. Contractor shall furnish all hoses, tanks, water trucks, tools, equipment, labor, and incidentals required to receive and transport water from sources to job sites.

#### 4.11 LIGHTING

4.11.1 Contractor shall be responsible for providing all required lighting for performance of work.

### 5.0 COORDINATION OF WORK

#### 5.1 CALLOUT

5.1.1 Callout notice to Contractor shall allow a minimum of ten (10) calendar days from date work is to commence.

5.1.2 For derubberizing, the approximate square footage to be performed per callout by Airport is as follows:

5.1.2.1 IAH: 400,000 square feet

5.1.2.2 HOU: 400,000 square feet

5.1.2.3 EFD: 100,000 square feet

5.1.3 Contractor shall coordinate its rubber removal activities with HAS. HAS shall have access to and the right to inspect all work performed by the Contractor during the course of the Agreement.

#### 5.2 SITE AVAILABILITY

5.2.1 IAH and HOU – Generally, airfield pavements will be made available to Contractor between the hours of 11:00 p.m. (2300 hours) and 6:00 a.m. (0600 hours) seven (7) days per week. However, specific work times will be directed by HAS.

5.2.2 EFD – Specific work times will be directed by HAS.

#### 5.3 ASSIGNMENT OF STAGING/LAY DOWN AREAS

5.3.1 Upon receipt of notice to start work, Contractor will be assigned a staging or lay-down area at each airport for Contractor's equipment and materials. While in use, those areas shall be maintained in a clean and orderly condition, and upon completion of services shall be restored to their original condition.

#### 5.4 WEATHER LIMITATIONS FOR DEREUBBERIZING

5.4.1 No work shall be performed when the temperature is below 40 degrees Fahrenheit or during conditions of high winds and/or severe weather. When notified by HAS that a severe weather warning has been issued, Contractor shall take immediate action to tie down or otherwise secure all of Contractor's equipment and materials. Contractor shall be prepared to take such action at all times when performing services under the Agreement.

#### 5.5 PRE-PERFORMANCE CONFERENCE

5.5.1 Prior to commencing performance under the Agreement, Contractor shall attend a pre-performance conference with HAS. HAS will specify the time and place of such meeting in a written notice to Contractor. Representatives of Contractor attending the pre-performance conference shall include key personnel whom Contractor has assigned to the Agreement and who shall be authorized to bind Contractor in matters relating to the following pre-performance conference items. However, the Director will have the right to further designate other representatives of Contractor who must attend the pre-performance conference and such designated representatives shall attend. Items to be addressed at the pre-performance conference include the following:

5.5.1.1 Contract Administration

5.5.1.2 Channels of communication

5.5.1.3 Review of key personnel and certifications

5.5.1.4 Organization and function charts reflecting the line of management authority

5.5.1.5 Procedures to be used to ensure Agreement requirements are met

## 5.6 REPORTS

5.6.1 Contractor shall provide documentation of services as they are performed at each airport. At a minimum, documentation shall indicate the following:

5.6.1.1 Airport name and runway number

5.6.1.2 Assessment of surface conditions before and after derubberizer operations

5.6.1.3 Assessment of any other contaminants observed on runway.

## 6.0 SPECIAL REQUIREMENTS

### 6.1 SECURITY AND BADGING

6.1.1 Contractor shall comply with all applicable Federal rules governing security at the Airport, as may be amended from time to time.

6.1.2 All on-site personnel of Contractor, including subcontractors are required to undergo a fingerprint-based criminal history records check.

6.1.3 Contractor shall provide at its sole cost any special clearances that may be required by the FAA. Contractor shall conform to all HAS and FAA security directives, rules, and regulations.

6.1.4 The cost of badges, which is subject to change, is currently \$45.00 each at IAH and HOU. The cost of badges at EFD is currently \$6.00. Costs for the fingerprint-based criminal history records check are reflected in the cost of the badges. Contractor is responsible for the cost of badges, including replacements thereof. Contractor personnel will be charged the current rate for replacement badges.

6.1.5 Contractor shall reimburse the City for any fines or penalties incurred by the City as a result of Contractor's non-compliance with security regulations.

## 6.2 AIR OPERATIONS AREA (AOA) POLICY

6.2.1 The AOA includes areas within secured perimeters in which aircraft operate. This area includes all runways, ramps, taxiways, and aprons. Contractor's personnel and equipment shall not be allowed within the AOA unless authorized by HAS and escorted by authorized City personnel. Contractor shall not move any equipment into or within the AOA (i.e. from lay-down area to runway each night or from runway to lay-down area at the end of work activity period) without City escort. In the event that Contractor personnel cross runways without Air Traffic Control Tower approval, the employee(s) shall be immediately removed from the job site and shall not be allowed to return to work at any City airport.

## 6.3 HAZARDOUS SUBSTANCES AND OSHA COMPLIANCE

6.3.1 No explosive or hazardous goods, merchandise or material shall be kept or stored by Contractor at the Airport. Nothing shall be done in the performance of the Agreement that will increase the rate of or suspend any insurance policy or coverage of authority.

6.3.2 Contractor certifies that all work practices, procedures, materials, equipment, etc., used in the performance of the Agreement complies with all provisions of the Occupational Safety and Health Administration (OSHA).

## 7.0 OTHER WORK/SERVICES

### 7.1 General

7.1.1 Within the general scope of the Agreement, Other Work/Services may be required to meet desired conditions and/or services not covered in the Basic Services of the Agreement. Contractor shall perform Other Work/Services in accordance with all provisions of the Agreement. All requests for Other Work/Services will be in writing in the form of an Other Service Request (OSR) provided by the Director and signed by the Director or his/her designated representative. Contractor shall perform Other Work/Services to the same standards identified for Basic Services.

### 7.2 Performing Other Work/Services

7.2.1 Other Work/Services shall be performed in accordance with all provisions of the Agreement and any special provisions issued with the Other Service/Request (OSR).

7.2.1.1 Before issuing an OSR, the Director will first issue a written notice to Contractor detailing the specific Other Work/Services to be performed by Contractor.

7.2.1.2 In response to any such written notice, Contractor shall provide Director with a written proposal within 3 business days of receipt of OSR. The proposal must include a description of the services to be performed, applicable labor rates, estimated labor hours, performance schedule, total estimated cost, and any other requirements set forth in the written notice to Contractor.

7.2.1.3 Contractor shall furnish all materials, labor, tools, equipment, transportation, and incidentals for accomplishing the described services or as otherwise specified by Director consistent with the Agreement. Director will not approve an OSR without a specified completion date. Contractor

shall complete all such Other Work/Services within the time specified in the OSR. Contractor can request in writing an extension to the completion date. However, Director may or may not allow the extension. Director's decision is final.

- 7.2.1.4 Upon receipt of Contractor's proposal, Director has the option to reject Contractor's proposal, require resubmission with revised or additional information, or issue an OSR. If Director reject Contractor's proposal and require resubmission, Contractor shall resubmit a modified proposal within 3 business days of the rejection.
- 7.2.1.5 Upon approval by Director of the modified proposal, an OSR will be issued. Contractor shall commence Work as stated in the OSR. Contractor shall diligently work to completion in accordance with the terms and conditions of the Agreement and the approved OSR.
- 7.2.1.6 Square footage costs must not exceed the rate stated in the Agreement.
- 7.2.1.7 Prices for equipment, parts, supplies, and sub-contracted requirements which may be required for authorized Other/Work Services shall be the Contractor's actual cost plus mark-up (mark-up can not exceed 5%). Copies of invoices from Contractor's suppliers for these items must be submitted with Contractor's invoices at the time of submittal to HAS for payment. The mark-up percentages stated shall not increase during the term of this Proposal. The quantity of equipment, parts, and supplies will depend on the needs of HAS.
- 7.2.1.8 Contractor shall obtain 3 itemized bids/estimates within 3 business days from separate /different vendors/ suppliers, not affiliated with Contractor, for the required equipment, parts, supplies, and sub-contracted items. Contractor shall submit the bids/estimates to Director and obtain written approval from Director before proceeding with the Work. Contractor shall be compensated at cost plus mark-up (mark-up can not exceed 5%).
- 7.2.1.9 When Other Work/Services have been completed, a copy of the approved OSR must accompany the monthly invoice.
- 7.2.1.10 While performing Work on any OSR, if hidden damage or additional cost is discovered, Contractor shall notify Director immediately. After determining the extent of hidden damage, a supplemental OSR must be submitted.
- 7.2.1.11 Contractor shall submit to Director, copies of original purchase orders and invoices evidencing Contractor's acquisition costs.
- 7.2.1.12 In the case of emergency services, Contractor may perform Other Work/Services upon the verbal approval of Director. However, during the next business day, Director will submit a written Emergency Service Request to the Contractor.
- 7.2.1.13 If it is determined the scope of Work should be covered under Basic Services, any amount paid to the Contractor under Other/Services Request will be reimbursed to the City by the Contractor. The City does not waive any of its rights and remedies whether by statute, at law, in equity, or under the Agreement.
- 7.2.1.14 If Other Work/Services are performed by the on-site crew in conjunction

with their regular duties, Contractor shall not receive additional compensation for labor.

7.3 Examples of OSR candidate items include, but are not limited to:

7.3.1 Hydraulic oil/stain removal

7.3.2 Friction testing without rubber removal

**8.0 LIQUIDATED DAMAGES**

8.1 It is agreed that time is of the essence in the Agreement and each runway serviced shall be completed within 2 workdays after start of Work. If Contractor fails to complete the runway within the specified time, the Contractor agrees that the City may deduct from the Contractor's invoice for said Work the sum of Five Hundred Dollars (\$500.00) per day as liquidated damages for each calendar day elapsing beyond said specified time. The amount of this deduction is to cover additional expenses due to the failure of the Contractor to complete the Work within the time specified and such expenses are not to be considered as penalties. HAS reserves the right to proceed with all other remedies allowed by law and this Paragraph in no way restricts HAS' right of choice of actions under the Agreement.

**9.0 INVOICING**

9.1 Contractor shall submit its invoices in accordance with specifications and shall invoice for Work acceptably complete. Acceptability of work shall be determined solely by HAS.

9.2 The Contractor shall submit each invoice in duplicate for any services performed by the Contractor under the Agreement within 30 calendar days after the completion of the cleaning and friction testing performance. HAS shall, thereafter, certify the correctness of such invoice and after such certification HAS shall pay the amount so certified. No certification or payment shall, at any time, preclude HAS from showing that such certification or payment was incorrect or from recovering any money paid in excess of that due hereunder. The invoice must be identified by the Agreement name and Agreement number. All invoices are to be delivered or mailed to the following location:

City of Houston  
Houston Airport System  
Finance Division/Accounts Payable  
Post Office Box 60106  
Houston, Texas 77205-0106

9.3 All work shall be scheduled with HAS representatives and shall be accomplished during the hours scheduled. HAS has the right to order Work to be performed during both regular and non-regular hours in accordance with the Agreement. No payment for services shall be payable by HAS for any performance for which the Contractor fails to complete all the scheduled Agreement Work as specified, or fails to obtain an approved Work Schedule prior to beginning Work on a visit. However, HAS may agree to Contractor's failure to provide the services as specified was beyond the Contractor's reasonable control or was otherwise approved by and/or in the best of HAS.

9.4 The Contractor shall be compensated, after each performance, at the Agreement unit price per square foot for the total square feet of runway pavement from which the rubber has been properly removed and pre-a and port-friction testing has been completed and cleaned as specified herein, less any applicable liquidated damages.

9.5 Invoice shall be based on actual measurement of the area properly cleaned. No payment

will be made for areas where excess rubber remains on the pavement or the area was not properly cleaned as determined by HAS. Furthermore, if more than 10% of a single runway touchdown area fails to achieve the proper degree of removal or is not cleaned as specified, no payment will be made for any part of that runway touchdown area. HAS will not be required to provide the Contractor additional runway access time to redo failed areas.

- 9.6 Invoices submitted for services performed as the result of Other Work/Services require a copy of the Director's written request.

#### **10.0 ADDITIONS & DELETIONS:**

- 10.1 The City, by written notice from the Director or City Purchasing Agent to the Contractor, at any time during the term of the Agreement, may add or delete like or similar equipment, locations and/or services to the list of equipment, locations and/or services to be performed. Any such written notice shall take effect on the date stated in the notice from the City. Equipment, locations and/or services added will be subject to the Agreement services and charges or rates as an item already specified in the Agreement. In the event the additional equipment, locations and/or service is not identical to any item already under Agreement, the charges therefore will then be the Contractor's normal and customary charges or rates for the equipment, locations and/or services classified in the Agreement.

#### **11.0 ESTIMATED QUANTITIES NOT GUARANTEED**

- 11.1 The estimated quantities specified herein are not a guarantee of actual quantities, as the City does not guarantee any particular quantity of runway rubber removal, friction testing, and miscellaneous airfield paint removal services during the term of the Agreement. The quantities may vary depending upon the actual needs of the user Department. The quantities specified herein are good faith estimates of usage during the term of the Agreement. Therefore, the City shall not be liable for any contractual agreements/obligations the Contractor enters into based on the City purchasing/requiring all of the quantities specified herein.

#### **12.0 WARRANTY OF SERVICE**

- 12.1 *Definitions:* "Acceptance" as used in this clause, means the act of an authorized representative of the City by which the City assumes for itself, approval of specific services as partial or complete performance of the contract.
- 12.2 "Correction" as used in this clause, means the elimination of a defect.
- 12.3 Notwithstanding inspection and acceptance by the City or any provision concerning the conclusiveness thereof, the Contractor warrants that all services performed under the Agreement will, at the time of acceptance, be free from defects in workmanship and conform to the requirements of the Agreement. The City shall give written notice of any defect or nonconformance to the Contractor within a one-year period from the date of acceptance by the City. This notice shall state either (1) that the Contractor shall correct or re-perform any defective or non-conforming services at no additional cost to the City, or (2) that the City does not require correction or re-performance.
- 12.4 If the Contractor is required to correct or re-perform, it shall be at no cost to the City, and any services corrected or re-performed by the Contractor shall be subject to this clause to the same extent as work initially performed. If the Contractor fails or refuses to correct or re-perform, the City may, by contract or otherwise, correct or replace with similar services and charge to the Contractor the cost occasioned to the City thereby, or make an equitable adjustment in the Agreement price.

- 12.5 If the City does not require correction or re-performance, the City shall make an equitable adjustment in the Agreement price.

### **13.0 SAFETY GENERAL**

- 13.1 Contractor shall be responsible for the enforcement of all safety requirements for any Work performed under the Agreement. If Contractor fails or refuses to promptly comply with safety requirements, the Director may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. No part of the time lost due to any such order will be made the subject of a claim for extension of time or for excess costs or damages to Contractor.

### **14.0 COORDINATION OF MEETINGS**

- 14.1 Throughout the term of the Agreement and any extensions thereto, Contractor shall meet with HAS, on a frequency determined by the Director, to identify and resolve performance issues. Notice of any such performance meeting may be given by the Director to Contractor either orally or in writing, and will designate the time, date, location, Contractor attendees, and general purpose. Contractor's designated attendees shall be present at any such performance meeting for its duration and shall prepare minutes. The meeting minutes must be transcribed by Contractor in typewritten form and must be submitted to the Director for approval within 5 days of any such meeting. The Director will have the right to dispute the accuracy of the minutes and will note any discrepancies in the minutes prior to approval. Once approved, the original will be retained by HAS and a copy thereof submitted to Contractor.

### **15.0 PHASE-IN/PHASE-OUT SERVICES**

- 15.1 Contractor shall provide phase-in and phase-out services as follows:
- 15.1.1 CONTRACTOR'S PHASE-IN - Contractor may have up to a 10-day Phase-in period to accomplish a smooth and successful transition of operations and services. Contractor's Phase-in period begins upon receipt of a Start Phase-in Notice from the Director and continues for approximately 10 days preceding the receipt of the Notice to Proceed. The 10-day Phase-in Notice shall not be construed as an official Notice to Proceed.
- 15.1.1.1 The incumbent Contractor will be responsible for performing the duties and services listed in its contract during Contractor's Phase-in period, and will be available for a maximum of 10 days to answer questions and resolve issues or any misunderstandings. During the Phase-in period, Contractor shall arrange to have necessary supervisory, technical, and other personnel on site to observe the HAS Runway Rubber Removal, Friction Testing and Miscellaneous Airfield Paint Removal Services. Contractor may use this Phase-in period to recruit and transfer personnel, train personnel, arrange for security badges, establish management procedures, set up records, and otherwise prepare for the assumption of technical control without disruption of operations. During the Phase-in Period, Contractor shall develop and implement a full project schedule detailing the responsibilities of assigned personnel and submit it to the Director for approval. Contractor shall have no responsibilities for Runway Rubber Removal, Friction Testing and Miscellaneous Airfield Paint Removal Services during the Phase-in period. The Phase-in period will end at issuance of the official Notice to Proceed, at which time Contractor shall assume full responsibility for the Runway Rubber Removal, Friction Testing

and Miscellaneous Airfield Paint Removal Services.

15.2.1 CONTRACTOR'S PHASE-OUT - Contractor recognizes that the services provided under the Agreement are vital to HAS' overall efforts to provide safe and efficient Runway Rubber Removal, Friction Testing and Miscellaneous Airfield Paint Removal Services; that continuity thereof must be maintained at a consistently high level without interruption; that upon expiration or termination of the Agreement a successor may continue these services; that its successor Contractor will need Phase-in training; and that Contractor must cooperate in order to effect an orderly and efficient transition.

15.2.1.1 Accordingly, Contractor will be required to provide Phase-out services for up to 30 days prior to the expiration or termination of the Agreement to its successor Contractor at no extra charge to HAS. Contractor shall provide the services called for by the Agreement during its Phase-out period. Contractor shall cooperate with its successor Contractor in allowing as many personnel as practical to remain on the job in order to enhance the continuity and consistency of the services under the Agreement. Contractor agrees to disclose necessary personnel records and allow its successor to conduct on-site interviews with its employees, provided Contractor obtains the consent of said employees to disclose their records and to conduct such interviews and provided such disclosure and interviews are conducted in accordance with all applicable laws, statutes, rules, regulations, and ordinances which have been passed, enacted or promulgated by any governmental body having jurisdiction over such matters.

## **16.0 DISPUTES**

16.1 In all cases of misunderstanding and disputes, the terms of the Agreement governs.

## **17.0 DAMAGE TO CITY PROPERTY**

17.1 The Contractor shall pay for the repair of all damaged City property caused by carelessness or neglect on the part of the Contractor, its agents or employees.

## **18.0 CONTRACTOR'S FINANCIAL OBLIGATION**

18.1 Contractor shall make timely payments to all persons supplying labor and materials or furnishing it with any equipment in the execution of the Agreement.

## **19.0 DRIVER'S LICENSE**

19.1 Contractor's employees performing Work for the City must possess a valid United States driver's license for the type of vehicle or equipment operated. Contractor shall ensure its employees meet this requirement.

**EXHIBIT C**  
**EQUAL EMPLOYMENT OPPORTUNITY**

1. The contractor, subcontractor, vendor, supplier, or lessee will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age. The contractor, subcontractor, vendor, supplier, or lessee will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex, national origin, or age. Such action will include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation and selection for training, including apprenticeship. The contractor, subcontractor, vendor, supplier or lessee agrees to post in conspicuous places available to employees, and applicants for employment, notices to be provided by the City setting forth the provisions of this Equal Employment Opportunity Clause.
2. The contractor, subcontractor, vendor, supplier, or lessee states that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age.
3. The contractor, subcontractor, vendor, supplier, or lessee will send to each labor union or representatives of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer advising the said labor union or worker's representative of the contractor's and subcontractor's commitments under Section 202 of Executive Order No. 11246, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The contractor, subcontractor, vendor, supplier, or lessee will comply with all provisions of Executive Order No. 11246 and the rules, regulations, and relevant orders of the Secretary of Labor or other Federal Agency responsible for enforcement of the equal employment opportunity and affirmative action provisions applicable and will likewise furnish all information and reports required by the Mayor and/or Contractor Compliance Officer(s) for purposes of investigation to ascertain and effect compliance with this program.
5. The contractor, subcontractor, vendor, supplier, or lessee will furnish all information and reports required by Executive Order No. 11246, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to all books, records, and accounts by the appropriate City and Federal Officials for purposes of investigations to ascertain compliance with such rules, regulations, and orders. Compliance reports filed at such times as directed shall contain information as to the employment practice policies, program, and work force statistics of the contractor, subcontractor, vendor, supplier, or lessee.
6. In the event of the contractor's, subcontractor's, vendor's, supplier's, or lessee's non-compliance with the non-discrimination clause of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part, and the contractor, subcontractor, vendor, supplier, or lessee may be declared ineligible for further City contracts in accordance with procedures provided in Executive Order No. 11246, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order, or by rule, regulation, or order of the Secretary of Labor, or as may otherwise be provided by law.
7. The contractor shall include the provisions of paragraphs 1-8 of this Equal Employment Opportunity Clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontractor or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.
8. The contractor shall file and shall cause his or her subcontractors, if any, to file compliance reports with the City in the form and to the extent as may be prescribed by the Mayor. Compliance reports filed at such times as directed shall contain information as to the practices, policies, programs, and employment policies and employment statistics of the contractor and each subcontractor.

**EXHIBIT D  
MWBE SUBCONTRACT TERMS**

**ATTACHMENT C  
CITY OF HOUSTON CERTIFIED M/WBE SUBCONTRACT TERMS**

Contractor shall insure that all subcontracts with M/WBE subcontractors and suppliers are clearly labeled "THIS CONTRACT IS SUBJECT TO BINDING ARBITRATION ACCORDING TO THE TEXAS GENERAL ARBITRATION ACT" and contain the following terms:

1. \_\_\_\_\_ (M/WBE subcontractor) shall not delegate or subcontract more than 50% of the work under this subcontract to any other subcontractor or supplier without the express written consent of the City of Houston's Affirmative Action Director ("the Director")
2. \_\_\_\_\_ (M/WBE subcontractor) shall permit representatives of the City of Houston, at all reasonable times, to perform 1) audits of the books and records of the subcontractor, and 2) inspections of all places where work is to be undertaken in connection with this subcontract. Subcontractor shall keep such books and records available for such purpose for at least four (4) years after the end of its performance under this subcontract. Nothing in this provision shall affect the time for bringing a cause of action nor the applicable statute of limitations.
3. Within five (5) business days of execution of this subcontract, Contractor (prime contractor) and Subcontractor shall designate in writing to the Director an agent for receiving any notice required or permitted to be given pursuant to Chapter 15 of the Houston City Code of Ordinances, along with the street and mailing address and phone number of such agent.
4. As conclude by the parties to this subcontract, and as evidenced by their signatures hereto, any controversy between the parties involving the construction or application of any of the terms, covenants or conditions of this subcontract shall, on the written request of one party served upon the other or upon notice by Director served on both parties, be submitted to binding arbitration, under the Texas General Arbitration Act (Tex. Civ. Prac. & Rem. Code Ann., Ch. 171 – "the Act"). Arbitration shall be conducted according to the following procedures:
  - a. Upon the decision of the Director or upon written notice to the Director from either party that a dispute has arisen, the Director shall notify all parties that they must resolve the dispute within thirty (30) days or the matter may be referred to arbitration.
  - b. If the dispute is not resolved within the time specified, any party or the Director may submit the matter to arbitration conducted by the American Arbitration Association under the rules of the American Arbitration Association, except as otherwise required by the City's contract with American Arbitration Association on file in the Office of the City's Affirmative Action Division.
  - c. Each party shall pay all fees required by the American Arbitration Association and sign a form releasing the American Arbitration Association and its arbitrators from liability for decisions reached in the arbitration.
  - d. In the event the American Arbitration Association no longer administers Affirmative Action arbitration for the City, the Director shall prescribe alternate procedures as necessary to provide arbitration by neutrals in accordance with the requirements of Chapter 15 of the Houston City Code of Ordinances.

These provisions apply to goal-oriented contracts. A goal oriented contract means any contract for the supply of goods or non-personal or non-professional services in excess of \$100,000.00 for which competitive bids are required by law; not within the scope of the MBE/WBE program of the United States Environmental Protection Agency on the United States Department of Transportation; and ;, which the City Purchasing Agent has determined to have significant M/WBE subcontracting potential in fields which there are an adequate number on known MBEs and/or WBE's to compete for City contract.

The M/WBE policy of the City of Houston will be discussed during the pre-bid. For information assistance, and/or to receive a copy of the City's Affirmative action policy and/or ordinance contact the Affirmative Action Division at (713) 837-9000, 611 Walker, 20<sup>th</sup> Floor, Houston, Texas.



**EXHIBIT E  
DRUG POLICY COMPLIANCE AGREEMENT**

I, Melissa Stanfield President as an owner or officer of  
(Name) (Print/Type) (Title)  
CKS Hydro Services, Inc. (Contractor)  
(Name of Company)

have authority to bind Contractor with respect to its bid, offer or performance of any and all contracts it may enter into with the City of Houston; and that by making this Agreement, I affirm that the Contractor is aware of and by the time the contract is awarded will be bound by and agree to designate appropriate safety impact positions for company employee positions, and to comply with the following requirements before the City issues a notice to proceed:

1. Develop and implement a written Drug Free Workplace Policy and related drug testing procedures for the Contractor that meet the criteria and requirements established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Drug Policy) and the Mayor's Drug Detection and Deterrence Procedures for Contractors (Executive Order No. 1-31).
2. Obtain a facility to collect urine samples consistent with Health and Human Services (HHS) guidelines and a HHS certified drug testing laboratory to perform the drug tests.
3. Monitor and keep records of drug tests given and the results; and upon request from the City of Houston, provide confirmation of such testing and results.
4. Submit semi-annual Drug Policy Compliance Declarations.

I affirm on behalf of the Contractor that full compliance with the Mayor's Drug Policy and Executive Order No. 1-31 is a material condition of the contract with the City of Houston.

I further acknowledge that falsification, failure to comply with or failure to timely submit declarations and/or documentation in compliance with the Mayor's Drug Policy and/or Executive Order No. 1-31 will be considered a breach of the contract with the City and may result in non-award or termination of the contract by the City of Houston.

Date 4/16/2008

Contractor Name CKS Hydro Services, Inc.

Signature



Title President

**EXHIBIT F  
CONTRACTOR'S CERTIFICATION OF NO SAFETY IMPACT POSITIONS  
IN PERFORMANCE OF A CITY CONTRACT**

I, Melissa Stanfield President  
**(Name - Print/Type)** **(Title)**

as an owner or officer of CKS Hydro Services, Inc. (Contractor) have authority to bind the Contractor with respect to its bid, and I hereby certify that Contractor has no employee safety impact positions as defined in §5.18 of Executive Order No. 1-31 that will be involved in performing this City Contract. Contractor agrees and covenants that it shall immediately notify the City's Director of Personnel if any safety impact positions are established to provide services in performing this City Contract.

4/16/2008  
Date

CKS Hydro Services, Inc.  
Contractor Name

  
Signature

President  
Title

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**CONTRACTOR'S CERTIFICATION OF NON-APPLICATION OF  
CITY OF HOUSTON DRUG DETECTION AND DETERRENCE PROCEDURES  
FOR CONTRACTORS**

I, Melissa Stanfield President  
**(Name - Print/Type)** **(Title)**

as an owner or officer of CKS Hydro Services, Inc. (Contractor) have authority to bind the Contractor with respect to its bid, and I hereby certify that Contractor has fewer than fifteen (15) employees during any 20-week period during a calendar year and also certify that Contractor has no employee safety impact positions as defined in §5.18 of Executive Order No. 1-31 that will be involved in performing this City Contract. Safety impact position means a Contractor's employment position involving job duties that if performed with inattentiveness, errors in judgment, or diminished coordination, dexterity, or composure may result in mistakes that could present a real and/or imminent threat to the personal health or safety of the employee, co-workers, and/or the public.

4/16/2008  
Date

CKS Hydro Services, Inc.  
Contractor Name

  
Signature

President  
Title

**EXHIBIT G  
DRUG POLICY COMPLIANCE DECLARATION**

I, Melissa Stanfield President as an owner or officer of  
 (Name) (Print/Type) (Title)  
CKS Hydro Services, Inc. (Contractor or Vendor)  
 (Name of Company)

have personal knowledge and full authority to make the following declarations:

This reporting period covers the preceding 6 months from 10/18/2007 to 4/18, 2008.

MS  
Initials

A written Drug Free Workplace Policy has been implemented and employees notified. The policy meets the criteria established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Policy).

MS  
Initials

Written drug testing procedures have been implemented in conformity with the Mayor's Drug Detection and Deterrence Procedures for Contractors, Executive Order No. 1-31. Employees have been notified of such procedures.

N/A  
Initials

Collection/testing has been conducted in compliance with federal Health and Human Services (HHS) guidelines.

MS  
Initials

Appropriate safety impact positions have been designated for employee positions performing on the City of Houston contract. The number of employees in safety impact positions during this reporting period is - 0 -.

MS  
Initials

From 10/18/2007 to 4/18/2008 the following test has occurred  
 (Start date) (End date)

	Random	Reasonable Suspicion	Post Accident	Total
Number Employees Tested	- 0 -	. 0 .	. 0 .	. 0 .
Number Employees Positive	- 0 -	. 0 .	. 0 .	. 0 .
Percent Employees Positive	- 0 -	. 0 .	. 0 .	. 0 .

N/A  
Initials

Any employee who tested positive was immediately removed from the City worksite consistent with the Mayor's Policy and Executive Order No. 1-31.

MS  
Initials

I affirm that falsification or failure to submit this declaration timely in accordance with established guidelines will be considered a breach of contract.

I declare under penalty of perjury that the affirmations made herein and all information contained in this declaration are within my personal knowledge and are true and correct.

4/18/2008  
(Date)

Melissa Stanfield  
(Typed or Printed Name)  
Melissa Stanfield  
(Signature)  
 President  
 (Title)

**EXHIBIT H  
FEES AND COSTS**

**Year One (1)**

<b>Item #</b>	<b>Description</b>	<b>Unit Price</b>
1	Runway Rubber Removal and Pre- and Post-Friction Testing	\$0.0397 per Square Feet
2	Miscellaneous Airfield Paint Removal	\$0.15 per Square Feet
3	Other Work/Services, including Labor (If Other Work/Services are performed by the on-site crew in conjunction with their regular duties, Contractor shall not receive additional compensation for their labor)	\$0.0397 per Square Feet
4	Other Work/Services - Materials & Supplies	Cost plus 4% Markup

**Year Two (2)**

<b>Item #</b>	<b>Description</b>	<b>Unit Price</b>
1	Runway Rubber Removal and Pre- and Post-Friction Testing	\$0.0397 per Square Feet
2	Miscellaneous Airfield Paint Removal	\$0.15 per Square Feet
3	Other Work/Services, including Labor (If Other Work/Services are performed by the on-site crew in conjunction with their regular duties, Contractor shall not receive additional compensation for their labor)	\$0.0397 per Square Feet
4	Other Work/Services - Materials & Supplies	Cost plus 4% Markup

**Year Three (3)**

<b>Item #</b>	<b>Description</b>	<b>Unit Price</b>
1	Runway Rubber Removal and Pre- and Post-Friction Testing	\$0.0397 per Square Feet
2	Miscellaneous Airfield Paint Removal	\$0.15 per Square Feet
3	Other Work/Services, including Labor (If Other Work/Services are performed by the on-site crew in conjunction with their regular duties, Contractor shall not receive additional compensation for their labor)	\$0.0397 per Square Feet
4	Other Work/Services - Materials & Supplies	Cost plus 4% Markup

**Year Four (4), Option Year One (1)**

<b>Item #</b>	<b>Description</b>	<b>Unit Price</b>
1	Runway Rubber Removal and Pre- and Post-Friction Testing	\$0.0397 per Square Feet
2	Miscellaneous Airfield Paint Removal	\$0.15 per Square Feet
3	Other Work/Services, including Labor (If Other Work/Services are performed by the on-site crew in conjunction with their regular duties, Contractor shall not receive additional compensation for their labor)	\$0.0397 per Square Feet
4	Other Work/Services - Materials & Supplies	Cost plus 4% Markup

**Year Five (5), Option Year Two (2)**

<b>Item #</b>	<b>Description</b>	<b>Unit Price</b>
1	Runway Rubber Removal and Pre- and Post-Friction Testing	\$0.0397 per Square Feet
2	Miscellaneous Airfield Paint Removal	\$0.15 per Square Feet
3	Other Work/Services, including Labor (If Other Work/Services are performed by the on-site crew in conjunction with their regular duties, Contractor shall not receive additional compensation for their labor)	\$0.0397 per Square Feet
4	Other Work/Services - Materials & Supplies	Cost plus 4% Markup

**EXHIBIT I  
PAY OR PLAY**



ATTACHMENT A

CERTIFICATION OF AGREEMENT TO COMPLY WITH PAY OR PLAY PROGRAM

Contractor Name: CKS Hydro Services, Inc. \$2,321,100.00
(Contractor/Subcontractor) (Amount of Contract)

Contractor Address: P.O. Box 916 Ocean Springs, MS 39566

Project No.: [GFS/CIP/AIP/File No.]

Project Name: [Legal Project Name] Runway Rubber Removal, Friction Testint and Miscellaneous Airfield Paint Removal Services

In accordance with the City of Houston Pay or Play Program authorized by Ordinance 2007-534, Contractor agrees to abide by the terms of this Program. This certification is required of all contractors for contracts subject to the program. You must agree EITHER to PAY or to PLAY for each covered employee, including those of subcontractors subject to the program.

- [ ] Yes [ ] No Contractor agrees to Pay \$1.00 per hour for work performed by covered employees, including covered subcontractors' employees, under the contract with the City.
[ ] Yes [ ] No Contractor agrees to offer health benefits to each covered employee, including covered subcontractors' employees that meet or exceed the following criteria:
(1) the employer will contribute no less than \$150 per employee per month toward the total premium cost; and
(2) the employee contribution, if any amount, will be no greater than 50% of the total premium cost.
[ ] Yes [ ] No Contractor agrees to pay of behalf of some covered employees and play on behalf of other covered employees, in accordance with program requirements, including subcontractors' employees, if applicable.
[x] Yes [ ] No Contractor will comply with all provisions of the Pay or Play Program and will furnish all information and reports requested to determine compliance with program provisions.
[ ] Yes [ ] No For Prime Contractors Only: Contractor will file compliance reports with the City, which will include activity for subcontractors subject to the program, in the form and to the extent requested by the administering department or the Affirmative Action and Contract Compliance Office. Compliance reports shall contain information including, but not limited to, documentation showing employee health coverage and employee work records.

I hereby certify that the above information is true and correct.

[Signature]
CONTRACTOR (Signature)

4/16/2008
DATE

Melissa Stanfield President
NAME AND TITLE (Print or type)





ATTACHMENT C

Pay or Play Program
Contractor/Subcontractor Waiver Request

If a waiver of the Pay or Play Program requirements is requested, the City of Houston contracting department shall submit this Waiver Request form to the City of Houston Affirmative Action and Contract Compliance Division along with any supporting documentation. A waiver, if granted, shall be effective for the duration of the contract. In the event of renewal or renegotiation of the contract, subsequent waivers may be requested and either granted or denied.

Department: \_\_\_\_\_ Date Submitted: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Contractor/Subcontractor Name: \_\_\_\_\_ Vendor No.: \_\_\_\_\_

Contract No./Description: \_\_\_\_\_

Contract/Subcontract Amount: \$ \_\_\_\_\_

This contract or subcontract is appropriate for a waiver based on the following: (Check the appropriate box.)

- Checkboxes for Sole Source, Emergency, Essential, Adverse Impact, Bulk Purchasing, and Intergovernmental/Interlocal Agreement/Purchasing Cooperative.

Department Signature:

Request submitted by department head or authorized representative:

Signature \_\_\_\_\_

Print Name \_\_\_\_\_

City of Houston Affirmative Action and Contract Compliance Use Only

Action: [ ] Approved [ ] Disapproved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_



**APPENDIX 1  
ADVISORY CIRCULAR**



U.S. Department of Transportation

Federal Aviation Administration

# Advisory Circular

**Subject:** MEASUREMENT, CONSTRUCTION, AND MAINTENANCE OF SKID-RESISTANT AIRPORT PAVEMENT SURFACES

**Date:** 3/18/97

**AC No:** 150/5320-12C

**Initiated by:** AAS-100

**Change:**

**1. PURPOSE.** This advisory circular (AC) contains guidelines and procedures for the design and construction of skid-resistant pavement, pavement evaluation with friction measuring equipment, and maintenance of high skid-resistant pavements.

**2. CANCELLATION.** AC 150/5320-12B, *Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces*, dated November 12, 1991, is canceled.

**3. RELATED READING MATERIAL.** Appendix 2 contains a listing of documents containing supplemental material relating to the subject. Information on ordering these documents is also provided.

**4. APPLICATION.** The guidelines and standards contained herein are recommended by the Federal Aviation Administration (FAA) for applications involving runway friction measurement, construction, and maintenance. For airport projects funded under Federal grant assistance programs, the standards identified by **BOLDFACE CAPITALS** in chapter 2, section 4, paragraphs 2-21 and 2-22 and those in appendix 3 are mandatory.

**5. BACKGROUND.** With the introduction of turbojet aircraft, braking performance on pavement surfaces has become more critical. Under certain conditions, hydroplaning or unacceptable loss of traction can occur, resulting in poor braking performance and possible loss of directional control. To address this concern, a number of research projects were conducted by the National Aeronautics and Space Administration (NASA), FAA, United States Air Force (USAF), and various foreign governments. These efforts concentrated in two major areas: (a) high skid-resistant pavement surface design and evaluation and (b) application of proper maintenance techniques and procedures. In this circular, guidelines are provided to airport operators on how to locate and restore areas on the pavement surface where friction has deteriorated below acceptable levels for aircraft braking performance. The material contained in this circular summarizes the findings of these research efforts.

**6. METRIC UNITS.** To promote an orderly transition to metric (SI) units, this circular contains both English and metric dimensions. The metric conversions may not be exact equivalents and, until there is an official changeover to the metric system, the English dimensions will govern.

DAVID L. BENNETT  
Director, Office of Airport Safety and Standards

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## CHAPTER 1. OVERVIEW

**1-1. PURPOSE.** This AC provides guidelines for designing, constructing, and maintaining skid-resistant airport pavement surfaces and for conducting evaluations and surveys of runway friction for pavement maintenance purposes. It also contains performance specifications for friction measuring equipment. Guidance on pavement friction measurement for aircraft operational purposes during winter weather and performance standards for decelerometers are found in AC 150/5200-30, *Airport Winter Safety and Operations*.

**1-2. BACKGROUND.** Since the advent of turbojet aircraft with their greater weight and high landing speeds, braking performance on runway surfaces, particularly when wet, has become a significant safety consideration. A number of research programs by FAA, NASA, and USAF, as well as those performed by foreign governments, have been directed in two major areas: original pavement surface design to maximize skid-resistance with proper materials and construction techniques and effective evaluation and maintenance techniques to detect deterioration of skid-resistance and to restore it to acceptable levels.

**1-3. PAVEMENT DESIGN RESEARCH.** Pavement grooving was the first major step in achieving safer pavement surfaces for aircraft operations in wet weather conditions. These studies were completed by NASA at the Langley Research Center, Langley, Virginia, in 1968. The FAA, through its Technical Center in Atlantic City, New Jersey, directed a test program on pavement surface treatments at the Naval Air Engineering Center, Lakehurst, New Jersey. The study was completed in 1983. Both the NASA Langley and the FAA Technical Center studies showed that a high level of friction could be achieved on wet pavement by forming or cutting closely spaced transverse grooves on the runway surface, which would allow rain water to escape from beneath tires of landing aircraft. Other research conducted both in the United Kingdom and the United States determined that an open graded, thin hot-mix asphalt (HMA) surface course called "porous friction course" (PFC) also could achieve good results. This permits rain water to permeate through the course and drain off transversely to the side of the runway, preventing water buildup on the surface and creating a relatively dry pavement

condition during rainfall. The FAA Technical Center study demonstrated that a high level of friction was maintained on PFC overlays for the entire runway length.

In addition, a number of studies were carried out, and are continuing, on basic skid-resistant behaviors of pavement surfaces, both HMA and Portland cement concrete (PCC). These have led to other noteworthy surface treatments that improve pavement surface texture such as asphaltic chip and aggregate slurry seals. For concrete pavements, wire combing the surface, while the concrete is still in the plastic condition, notably improves pavement surface texture.

**1-4. PAVEMENT MAINTENANCE AND EVALUATION RESEARCH.** Regardless of pavement type or surface treatment, runway friction characteristics will change over time depending on type and frequency of aircraft activity, weather, environmental issues, and other factors. In addition to ordinary mechanical wear and tear from aircraft tires, contaminants can collect on runway pavement surfaces to decrease their friction properties. Contaminants such as rubber deposits, dust particles, jet fuel, oil spillage, water, snow, ice, and slush all cause friction loss on runway pavement surfaces. Rubber deposits occur in the touchdown areas on runways and can be quite extensive. Heavy rubber deposits can completely cover the pavement surface texture thereby causing loss of aircraft braking capability and directional control when runways are wet.

In October 1978, the FAA embarked on a 2-year program to conduct friction and pavement evaluation surveys at 268 airports (491 runways) within the contiguous United States. The information obtained represented a very broad collection of data on the friction characteristics of runways at airports that have turbojet aircraft operations. Field observations of the runway pavement surface conditions and analysis of the friction test data identified those areas on the runway pavement which were below the minimum acceptable friction level. Test data and surface condition information obtained during this program were given to airport owners so that they could take proper corrective measures to eliminate runway pavement deficiencies.

**1-5. FRICTION MEASURING EQUIPMENT RESEARCH.** Beginning in the early 1970's, NASA, FAA, and USAF conducted runway traction studies to determine the correlation between various types of aircraft and friction measuring equipment. These studies showed a fair correlation between some of the friction measuring devices, but the tests on correlation between the friction devices and aircraft were inconclusive. The tests did show, however, that friction measuring devices were effective when used to evaluate pavement surface friction properties for engineering and maintenance purposes.

In March of 1990, FAA concluded a test program to evaluate the performance of different tires on approved friction measuring devices and to develop correlation data in order to ensure that devices of different manufacture and design would give comparable results in field use. Appendix 1 summarizes research on qualification and correlation of friction measuring equipment.

**1-6. ADDITIONAL BACKGROUND AND INFORMATION.** Appendix 2 contains a list of pertinent reading material on design and evaluation of skid-resistant pavements.

## CHAPTER 2. DESIGN AND CONSTRUCTION OF SKID-RESISTANT PAVEMENT

### Section 1. Basic Design Considerations

**2-1. GENERAL.** In building new runways, major reconstruction, or adding overlays, the design engineer must choose either HMA or PCC as the basic paving component. The selection is usually based on economics, local preference, and other design factors. These considerations, as well as basic pavement structural design, are covered in AC 150/5320-6, *Airport Pavement Design and Evaluation*. This chapter is limited to discussion only of the surface of the airport pavement, literally "where the rubber meets the runway." All of the techniques discussed in this chapter may be applied during original construction (or reconstruction), and some may be applied to existing pavement to restore or create good friction characteristics.

**2-2. SURFACE TEXTURE AND DRAINAGE.** In discussing the effects of pavement texture on friction and hydroplaning, two terms commonly used to describe the pavement surface are microtexture and macrotexture. Microtexture refers to the fine scale roughness contributed by small individual aggregate particles on pavement surfaces which are not readily discernible to the eye but are apparent to the touch, i.e., the feel of fine sandpaper. Macrotexture refers to visible roughness of the pavement surface as a whole. Microtexture provides frictional properties for aircraft operating at low speeds and macrotexture provides frictional properties for aircraft operating at high speeds. Together they provide adequate frictional properties for aircraft throughout their landing/takeoff speed range.

The primary function of macrotexture is to provide paths for water to escape from beneath the aircraft tires. This drainage property becomes more important as the aircraft speed increases, tire tread depth

decreases, and water depth increases. All three of these factors contribute to hydroplaning. Good microtexture provides a degree of "sharpness" necessary for the tire to break through the residual water film that remains after the bulk water has run off. Both properties are essential in providing skid-resistant pavement surfaces.

Textural appearances, however, can be deceiving. A rough looking surface could provide adequate drainage channels for the water to escape, but the fine aggregate in the pavement may consist of rounded or uncrushed mineral grains that are subject to polishing by traffic, thereby causing the pavement surface to become slippery when wet. Likewise, a less rough looking surface, that may even have a shiny appearance when wet, will not necessarily be slippery if it has good microtextural properties.

All paving should, of course, be constructed with appropriate transverse slope for basic drainage and must have adequate provision for prompt removal of storm runoff. AC 150/5300-13, *Airport Design*, provides guidance in this area.

**2-3. PAINTED AREAS ON PAVEMENT SURFACES.** Painted areas of wet runway pavement surfaces can be very slippery. In addition, an aircraft with one main gear on a painted surface, and the other on an unpainted surface, may experience differential braking. It is important to keep the skid-resistance properties of painted surfaces as close to that of unpainted surfaces as possible. Usually this means adding a small amount of silica sand to the paint mix to increase the friction properties of the painted surface. Glass beads, while used primarily to increase conspicuity of markings, have been shown to increase friction levels, also.

### Section 2. Hot-Mix Asphalt (HMA) Pavement

**2-4. CONSTRUCTION TECHNIQUES FOR HMA PAVEMENT.** The surface texture of newly constructed HMA pavements is usually quite smooth. This is due to the rolling done during construction to achieve the required compaction and density. Nevertheless, several methods are available to improve surface texture and friction in HMA pavements. These include proper mix design and the use of PFCs, chip seals, and aggregate slurry seals. Saw cut grooves

made after final compaction are highly effective. This chapter gives guidance for providing these surface treatments. The construction specification for HMA pavement is contained in AC 150/5370-10, *Standards for Specifying Construction of Airports*.

**2-5. HMA PAVEMENT MIXTURES.** Several factors concern the pavement designer in selecting the appropriate design mix. These factors include the

blending of aggregate sources, aggregate size and gradation, the relationship between aggregates and binder, and the construction methods to obtain the required surface properties which meet all other requirements.

**a. Blending Aggregates.** When superior quality aggregates are in limited supply or processing costs are prohibitive, natural aggregates can be combined with synthetic aggregates.

**b. Aggregate Size and Gradation.** The maximum size aggregate, as well as the mix gradation, may be varied by the pavement designer to produce the desired surface texture and strength. For HMA pavement, the size and properties of the coarse aggregate are critical for good macrotexture. Generally, the larger size aggregates in HMA pavement mixtures provide greater skid-resistance than the smaller ones.

**c. Aggregate Characteristics.** After size and gradation, the most frequently considered characteristics for skid-resistant aggregates are resistance to polish and wear, texture, and shape of particles.

**(1) Resistance to Polish and Wear.** The ability of an aggregate to resist the polish and wear action of aircraft traffic has long been recognized as the most important characteristic. Certain aggregates in pavements are more susceptible to wear and polish effects than others, becoming extremely slippery when wet. The presence of coarse grain sizes and gross differences in grain hardness appear to combine and lead to differential wear and breaking off of grains resulting in a constantly renewed abrasive surface. Rocks high in silica content are the most satisfactory performers. Generally, high carbonate rocks are poor performers. Rocks that are generally acceptable are unweathered crushed quartzite, quartz diorite, granodiorite, and granite.

**(2) Texture.** The surface textures of individual aggregates are governed by the size of the individual mineral grains and the matrix in which they are cemented. For an aggregate to exhibit satisfactory skid-resistant properties, it should contain at least two mineral constituents of different hardness cemented in a matrix that will wear differentially, thus continually exposing new surfaces.

**(3) Shape.** The shape of an aggregate particle, which is determined by crushing, significantly affects its skid-resistant properties. Aggregate shape depends on many of the same factors that influence texture. The angularity of an aggregate contributes to its skid-resistant quality. Flat, elongated particles are poor performers.

**d. Asphalt Cement.** The characteristics and percentages of the asphalt cement used should be in accordance with standard HMA pavement design practice.

**2-6. PFC.** One method used to improve runway pavement skid-resistance and mitigate hydroplaning is a thin HMA surface course overlay that ranges from 3/4 inch to 1-1/2 inches (25 mm to 40 mm) thick, characterized by its open graded matrix.

**a. Pavement Suitability for PFC.** Prior to constructing this type of surface course, the existing pavement surface should be evaluated to determine its structural integrity. Strengthening of the existing pavement, if needed, should be accomplished before laying the PFC. Also, the pavement should be in good condition; that is, it should have proper longitudinal and transverse grades and a watertight surface that is free of major cracks, significant depressions, or any other surface irregularities. For minor cracks, normal maintenance procedures should be followed as given in AC 150/5380-6, *Guidelines and Procedures for Maintenance of Airport Pavements*. If there are rubber deposits on the runway pavement surface, these areas should be cleaned prior to constructing the PFC overlay. The PFC should be constructed only on HMA pavements. It has been shown that a longer life, as well as better adhesion and bond, can be achieved by adding rubber particles during the preparation of the mix. The specification for the PFC is given in AC 150/5370-10. Figure 2-1 shows an edge view of a typical PFC overlay.

**b. Restrictions to PFC Construction.** On PFC constructed runway surfaces that have high aircraft traffic operations, rubber accumulation can become a serious problem if not closely monitored. If the rubber deposits are not removed before they completely cover the pavement surface and plug up the void spaces in the matrix of the overlay, water can no longer drain internally through the structure of the overlay. When this condition occurs, it is impossible to remove the rubber deposits without causing serious damage to the structural integrity of the overlay. Therefore, the FAA

recommends that PFC overlays not be constructed on airport runways that have high aircraft traffic operations (over 91 turbojet arrivals per day per runway end).

**2-7. CHIP SEAL.** Temporary improvement of surface friction can be achieved by constructing a chip seal. Latex added to the chip seal extends its life and provides better bond and adhesion to the existing pavement surface. A fog seal added on top of the chip seal will help minimize loose chips and prevent aircraft damage.

**2-8. AGGREGATE SLURRY SEAL.** Temporary improvement of skid-resistance for pavement surfaces can be gained by constructing an aggregate slurry seal, either gradation type II or type III, as given in the specification in AC 150/5370-10. Aggregate slurry seals are recommended only as an interim measure until an overlay is constructed. This type of construction is usually adequate for 2 to 5 years. Figure 2-2 shows a typical type II aggregate slurry seal. Experience has shown that slurry seals do not hold up well in cold climates where snow removal occurs. A life cycle cost analysis should be conducted to determine the long term benefits.

### Section 3. Portland Cement Concrete (PCC) Pavement

**2-9. CONSTRUCTION TECHNIQUES FOR PCC PAVEMENT.** Several methods are available to the paving contractor for constructing skid-resistant PCC pavement surfaces. When PCC pavement is still in the plastic condition, it is strongly recommended that some type of textural finish be constructed in the pavement surface prior to grooving. Such texturing can be accomplished by using either a brush or broom finish or a heavy burlap drag finish. Wire combed or wire tined construction provides an excellent textural finish to the surface. Also, plastic grooves can be constructed in the pavement before it has hardened. For PCC pavements that have hardened, grooves can be saw cut in the pavement. The textural and grooving construction techniques are briefly described in the following paragraphs. The basic construction specifications for PCC pavement are given in AC 150/5370-10. Quality concrete is a prerequisite to the retention of pavement skid-resistance. The physical properties of the fine aggregates and effectiveness of curing are important factors in improving wear resistance.

**2-10. TIMING AND CURING.** Timing in applying the curing compound is as important as timing the final finishing operations to assure long lasting, nonskid pavement surface texture. The timing of the texturing operation is critical because PCC pavements rarely lose surface moisture evenly or set at a uniform rate, especially during warm weather paving operations. The best time to texture a PCC pavement during construction is when the water spots have dried enough to reasonably hold the texture but before the drier spots have dried too much to texture at all. This is one of the toughest decisions for the paving contractor. After texturing of the pavement surface has been completed, immediate application of the curing

compound assures that the pavement surface will not lose water and cure too rapidly. If the pavement cures too quickly, the ridges of mortar left by the finishing technique will not set properly and their durability will be greatly reduced, resulting in a faster rate of diminishing skid-resistance. Therefore, extreme care must be taken in this process to assure an effective cure.

**2-11. BRUSH OR BROOM FINISH.** If the pavement surface texture is to be a type of brush or broom finish, it should be applied when the water sheen has practically disappeared. The equipment should operate transversely across the pavement surface, providing corrugations that are uniform in appearance and approximately 1/16 inch (1-1/2 mm) deep. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation should be corrected immediately after application before the concrete becomes too stiff to work. Figure 2-3 shows the texture formed by the broom finish.

**2-12. BURLAP DRAG FINISH.** Burlap used to texture the pavement surface should be at least 15 ounces/square yard (355 gm/square m). To produce a rough textured surface, the transverse threads of the burlap should be removed from approximately 1 foot (0.3 m) of the trailing edge and grout should be allowed to accumulate and harden on the trailing burlap threads. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface. The aggregate particles form the corrugations which should be uniform in appearance and approximately 1/16 inch