



CITY OF HOUSTON
HOUSTON AIRPORT SYSTEM
INVITATION TO BID (ITB)
SOLICITATION NO.: H73-OCLPR-2023-005
ON-CALL LANDSIDE PAVEMENT REPAIR SERVICES

Date Issued: August 26, 2022

Pre-Bid Conference: September 7, 2022, 10:00 A.M., CST
Supply Chain Management Bldg.
18600 Lee Road, Humble Texas 77338

Questions Deadline: September 15, 2022 @ 2:00 P.M., CST

Solicitation Due Date: October 13, 2022 @ 10:30 A.M., CST
City Secretary Office, City of Houston
City Hall Annex, Public Level, Room P101 900 Bagby Street,
Houston TX 77002

Solicitation Contact Person: Gabriel Carey
Sr. Procurement Specialist, Supply Chain Management
gabriel.carey@houstontx.gov

Project Summary: This service is for the minor repairs, rehabilitation, construction or alteration of HAS Landside Roadways. The services are of a recurring nature where the delivery times and quantities are indefinite.

NIGP Code: 918-73

M/WBE Goal: 0%

DS
CH

DocuSigned by:
A blue ink signature of Jeddiah Greenfield.

Jeddiah Greenfield
Interim Chief Procurement Officer

8/16/2022 | 11:41 CDT

Date



CITY OF HOUSTON



INVITATION TO BID

Issued: August 26, 2022

BID OPENING

Sealed bids (labelled with the company name, address and bid number), in duplicate will be received by the City Secretary of the City of Houston, in the City Hall Annex, Public Level, 900 Bagby Street, Houston, Texas 77002, until **10:30 a.m., Thursday, October 13, 2022**, and all bids will be opened and publicly read in the City Council Chamber, City Hall Annex, Public Level, 900 Bagby Street at 11:00 AM on that date for the purchase of:

**ON-CALL LANDSIDE PAVEMENT REPAIR SERVICES
FOR THE HOUSTON AIRPORT SYSTEM
BID INVITATION NO.: H73-OCLPR-2023-005
NIGP CODE: 918-73 MWBE GOAL 0%**

BUYER

Questions regarding this solicitation document should be addressed to **Gabriel Carey**, or e-mailed to Gabriel.Carey@houstontx.gov.

PRE-BID CONFERENCE

A Pre-Bid Conference will be held for all Prospective Bidders at Supply Chain Management (SCM) Bldg., 18600 Lee Road, Humble, Texas, 77338, Conference Room #113 at **10:00 a.m. on Thursday, September 8, 2022**. Site visit will begin after the pre-bid conference for George Bush International Airport (IAH) 18600 Lee Road, Humble, Texas 77338. Transportation will be provided by the City. Contractors shall be responsible for the transportation to William P. Hobby Airport (HOU) and Ellington Airport (EFD). Listed below is the contact information for both locations.

Ellington Airport	William P. Hobby Airport
Address: 11602 Aerospace Houston, TX 77034 Contact: Pete Fress @ Office: 713-847-4210 or Cell: 281-433-5446 Time of Visit: 12:30 p.m. to 2:00 p.m.	Address: 8800 Paul B. Koonce, Houston TX 77061 Contact: Rajish Ramoutar @ office: 713-641-7734 Time of Visit: 2:30 p.m. to 4:00 p.m.

All Prospective Bidders are urged to be present. It is the Bidder's responsibility to ensure that they have secured and thoroughly reviewed the solicitation documents prior to the Pre-Bid Conference. Any revisions to be incorporated into this solicitation document arising from discussions before, during and subsequent to the Pre-Bid Conference will be confirmed in writing by Letter(s) of Clarification prior to the bid due date. Verbal responses will not otherwise alter the specifications, and terms and conditions as stated herein.

Bidding forms, specifications, and all necessary information should be downloaded from the Internet at <https://www.fly2houston.com/biz/opportunities/solicitations/>. By registering and downloading this solicitation document, all updates to this solicitation document will be automatically forwarded via e-mail to all registered Bidders.

The place of the bid opening may be transferred in accordance with Paragraph (b), (5) of Section 15-45 of The Code of Ordinances, Houston, Texas. The bid opening meeting may be rescheduled in accordance with Paragraph 15-45(c).

The City reserves the right to reject any or all bids or to accept any bid or combination of bids deemed advantageous to it.

City Employees are prohibited from bidding on this solicitation in accordance with the Code of Ordinances, Section 15-1.

***CONTENTS:**

SECTION A: OFFER

SECTION B: SCOPE OF WORK/SPECIFICATIONS

SECTION C: GENERAL TERMS & CONDITIONS

***NOTE 1: Actual page numbers for each Section may change when the solicitation document is downloaded from the Internet or because of Letters of Clarification. Therefore, Bidders must read the bid document in its entirety and comply with all the requirements set forth therein.**

***NOTE 2: To be considered for award, please complete and submit bid form and the forms listed in Section A, including the Official Signature Page, which must be signed by a company official authorized to bind the company.**

SECTION A



**On-Call Landside Pavement Repair Services
FOR THE HOUSTON AIRPORT SYSTEM
BID INVITATION NO.: H73-OCLPR-2023-005
NIGP CODE: 918-73**

To The Honorable Mayor
and Members of the City Council
of the City of Houston (the "City"), Texas:

The undersigned Bidder hereby offers to contract with the City upon the terms and conditions stated in that certain "**Contract for On-Call Landside Pavement Repair Services for a three-year period with two (2) one-year option periods to extend for the Houston Airport System**," which was distributed by the City together with the "Notice to Bidders" and is hereby incorporated herein by this reference (the "contract"). This offer is made at the prices stated on the electronic bid form. When issued by the City of Houston, Letters of Clarification shall automatically become part of this bid document and shall supersede any previous specifications or provisions in conflict with the Letters of Clarification. It is the responsibility of the Bidder to ensure that it has obtained all such letters. By submitting a bid on this project, Bidder shall be deemed to have received all Letters of Clarification and to have incorporated them into its bid.

The City may accept this bid offer by issuance of a contract covering award of said bid to this Bidder at any time on or before the 180th day following the day this Official Bid Form is opened by the City. This offer shall be irrevocable for 180 days but shall expire on the 181st day unless the parties mutually agree to an extension of time

in writing.

The City of Houston reserves the option, after bids are opened, to increase or decrease the quantities listed, subject to the availability of funds, and/or make award by line item.

If the City accepts the foregoing offer, this Bidder promises to deliver to the City Chief Procurement Officer of the City, five (5) original counterparts of said contract duly executed by this Bidder (as "Contractor") in accordance with this paragraph, proof of insurance as outlined in Article II of the contract, all on or before the tenth (10th) day following the day this Bidder receives from the City the unsigned counterparts shall be executed so as to make it binding upon the Bidder, and all of the applicable requirements stated in the document entitled "Instructions for Execution of Contract Documents," (which was distributed by the City) shall be complied with.

The City reserves the right to cancel this ITB, accept or reject, in whole or in part, any or all bids received and to make award on the basis of individual items or combination of items, as it is deemed in the best interest of the City.

If the City accepts the foregoing offer, this Bidder shall furnish all labor, supervision, materials, supplies, equipment and tools necessary to provide On-Call Landside Pavement Repair Services for the City in accordance with attached specifications.

Documents/forms must be downloaded from the City's Website at <http://purchasing.houstontx.gov/forms.shtml>

Additional Required Forms to be included with this Bid:

In addition to the Bid Form and the Official Signature Page, the Forms listed in Table 1 **must be completed and submitted to the Office of the City Secretary on or before the date and time the bid is due.** When submitting bids via UPS/FedEx, etc. please label it with the name: Office of the City Secretary, City Hall Annex, Public Level, 900 Bagby, Houston, Texas 77002, along with the bid/proposal number:

TABLE 1 - REQUIRED FORMS
Affidavit of Ownership.doc
Fair Campaign Ordinance.doc (Form-A)
Statement of Residency.doc
Conflict of Interest Questionnaire.doc
Pay or Play-1A, Program Acknowledgement Form
Pay or Play-2, Certification of Agreement Form
Contractor's Questionnaire
Hire Houston First Application and Affidavit
Form 1295 – Certificate of Interested Parties

Table 2 lists other documents and forms that should be viewed/downloaded from the City's website but are not required to be submitted with the bid. The City will request these forms, as applicable, to be completed and submitted to the City by the recommended/successful bidder:

TABLE 2 - DOCUMENTS & FORMS
Drug Forms.doc
EEOC.doc
Formal Instructions for Bid Terms.doc
Sample Insurance Over \$50,000.pdf
Insurance Endorsements
Pay or Play Office of Business Opportunity &

Contract Compliance Q & A
Pay or Play Office of Business Opportunity & Contract Compliance Requirements
Pay or Play Contractor/Subcontractor Payment Reporting Form
Pay or Play Contractor/Subcontractor Waiver Request
Pay or Play List of Participating Subcontractors

Questions concerning the bid should be submitted in writing via email to: **Gabriel Carey** no later than **2:00 p.m. DST., September 15, 2022**, at gabriel.carey@houstontx.gov.

SITE INSPECTION

The City of Houston reserves the right to inspect the Bidder's current place of business to evaluate equipment condition and capabilities, staff experience, training and capabilities, and storage capabilities as they relate to the performance of this contract.

QUALITY AND WORKMANSHIP

The Bidder must be able to demonstrate upon request that it has satisfactorily performed services similar to the services specified herein. The Bidder will provide records of warranty and repair services upon request by City. The City of Houston shall be the sole judge as to whether the services performed are similar to the scope of services contained herein and whether the Bidder is capable of performing such services.

PROTEST

An interested party may file a protest on the basis that the City has failed to comply with applicable federal or state law or with City ordinances as set forth in City of Houston Administrative Policy 5-12. <http://www.houstontx.gov/policies>.

CERTIFICATE OF INTERESTED PARTIES

In accordance with Texas Gov't Code §2252.908, the successful Respondent must complete Form 1295, Certificate of Interested Parties.

The successful Respondent must use the application to enter the required information on Form 1295 and print a copy of the completed form, which will include a certification of filing that will contain a unique certification number

No later than 30 days after the contract's effective date, the City will upload the successful Respondent's completed Form 1295. The Texas Ethics Commission will post the Contractor's completed Form 1295 within seven business days of receipt.

COMPLIANCE WITH CERTAIN STATE LAW REQUIREMENTS

Anti-Boycott of Israel. Contractor certifies that Contractor is not currently engaged in and agrees for the duration of this agreement not to engage in the boycott of Israel as defined by Section 808.001 of the Texas Government Code.

Anti-Boycott of Energy Companies. Contractor certifies that Contractor is not currently engaged in and agrees for the duration of this agreement not to engage in the boycott of energy companies as defined by Section 809.001 of the Texas Government Code.

Anti-Boycott of Firearm Entities of Firearm Trade Associations. Contractor certifies that Contractor does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association or will not discriminate against a firearm entity or firearm trade association for the duration of this agreement, as

defined by Section 2274.001 of the Texas Government Code.

Certification of No Business with Foreign Terrorist Organizations. For purposes of Section 2252.152 of the Code, Contractor certifies that, at the time of this agreement neither Contractor nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of Contractor, is a company listed by the Texas Comptroller of Public Accounts under Sections 2252-153 or 2270-0201 of the Code as a company known to have contracts with or provide supplies or to a foreign terrorist organization.

Executive Order 1-56 Zero Tolerance for Human Trafficking in City Service Contracts and Purchasing. The City has a zero tolerance for human trafficking, and, per Executive Order 1-56, city funds shall not be used to promote human trafficking. City vendors are expected to comply with this Executive Order and notify the City's Chief Procurement Officer of any information regarding possible violation by the vendor or its contractors providing services or good to the City. The Executive Order is available on the City's website: <http://www.houstontx.gov/execorders/1-56.pdf>.

SB 943 – Public Information and Disclosure of Certain Contracting Information. “The requirements of Subchapter J, Chapter 552, Government Code (<http://statutes.capitol.texas.gov/Docs/GV/htm/GV.552.htm#552>), may apply to this (include “bid” or “contract” as applicable) and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.”

NO CONTACT PERIOD:

Neither bidder(s) nor any person acting on bidder(s)'s behalf shall attempt to influence the outcome of the award by the offer, presentation or promise gratuities, favors, or anything of value to any appointed or elected official or employee of the City of Houston, their families or staff members. All inquiries regarding the solicitation are to be directed to the designated City Representative identified on the first page of the solicitation. Upon issuance of the solicitation through the pre-award phase and up to the award, aside from bidder's formal response to the solicitation, communications publicly made during the official pre-bid conference, written requests for clarification during the period officially designated for such purpose by the City Representative, neither bidder(s) nor persons acting on their behalf shall communicate with any appointed or elected official or employee of the City of Houston, their families or staff through written or oral means in an attempt to persuade or influence the outcome of the award or to obtain or deliver information intended to or which could reasonably result in an advantage to any bidder. However, nothing in this paragraph shall prevent a bidder from making public statements to the City Council convened for a regularly scheduled session after the official selection has been made and placed on the City Council agenda for action, or to a City Council committee convened to discuss a recommendation regarding the solicitation.

MINORITY AND WOMEN BUSINESS ENTERPRISES

It is the City of Houston's policy to ensure that Minority and Women Business Enterprises (MWBE) have full opportunity to compete for and participate in City Contracts. Contractor shall comply with the City's MWBE Program as set forth in Chapter 15, Article V of the City of Houston Code of Ordinances. Contractor shall make good faith efforts to award subcontracts and supply agreements in at least **0%** of the value of the Agreement to certified MWBEs. Contractor acknowledges that they have reviewed the requirements for good faith efforts on file with the Office of Business Opportunity (OBO), available at <http://www.houstontx.gov/obo/docsandforms/goodfaithefforts.pdf>, and will comply with the set forth requirements.

Contractor shall maintain records of subcontracts and supply agreements with certified MWBEs, containing language required herein. In addition, Contractor shall submit all disputes that may arise with MWBE subcontractors/supplies to mediation provided by the City, if directed to do so by OBO.

HIRE HOUSTON FIRST

Designation as a City Business or Local Business

To be designated as a City or Local Business for the purposes of the Hire Houston First Program, as set out in Article XI of Chapter 15 of the Houston City Code, a bidder or proposer must submit the **Hire Houston First**

Application and Affidavit (“HHF Affidavit”) to the Director of the Mayor’s Office of Business Opportunities and receive notice that the submission has been approved prior to award of a contract. Bidders are encouraged to secure a designation prior to submission of a bid or proposal if at all possible.

Download the HHF Affidavit from the Office of Business Opportunities Webpage at the City of Houston e-Government Website at the following location:

<http://www.houstontx.gov/hbsc/hirehoustonfirstaffidavit.pdf>

Award of a Procurement of \$100,000 or More for Purchase of Goods:

THE CITY WILL AWARD THIS PROCUREMENT TO A “CITY BUSINESS,” AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES (“THE CODE”)

- IF THE BID OF THE CITY BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A CITY BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER.

Award of Procurement under \$100,000 for Purchase of Goods:

THE CITY WILL AWARD THIS PROCUREMENT TO A” CITY BUSINESS,” AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES (“THE CODE”)

- IF THE BID OF THE CITY BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A CITY BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

Award of Procurement that may be More or Less than \$100,000 for Purchase of Goods:

THE CITY WILL AWARD THIS PROCUREMENT TO A ” CITY BUSINESS,” AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES (“THE CODE”)

- IF THE BID OF THE CITY BUSINESS IS LESS THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, OR
- IF THE BID OF THE CITY BUSINESS IS MORE THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A CITY BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER.

Award of Procurement of \$100,000 or More for Purchase of Non-Professional Services , Including Construction Services:

THE CITY WILL AWARD THIS PROCUREMENT TO A ” CITY BUSINESS,” AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES (“THE CODE”)

- IF THE BID OF THE LOCAL BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND

- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

Award of Procurement under \$100,000 Purchase of Non-Professional Services Including Construction Services:

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES

- IF THE BID OF THE CITY BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

Award of Procurement that may be More or Less than \$100,000 for Purchase of Non-Professional Services, Including Construction Services:

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE")

- IF THE BID OF THE LOCAL BUSINESS IS LESS THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, OR
- IF THE BID OF THE LOCAL BUSINESS IS MORE THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER.

THIS CONTRACT MAY BE AWARDED TO MORE THAN ONE VENDOR AT THE DISCRETION OF THE CITY.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

SECTION B SCOPE OF WORK/SPECIFICATIONS

PART II – SCOPE OF SERVICES

1.0 PROJECT GENERAL

- 1.1 The Contractor shall be required to provide all labor, materials, equipment, safety, insurance, transportation, and permits necessary for concrete panel replacement for airport streets and shall be required to comply with all the City of Houston Building Codes, City of Houston Construction Standard Specifications and Construction Standard Details or their latest revision.
- 1.2 The project shall include driveways, wheelchair ramps, sidewalks, and street paving.
- 1.2.1 The Contractor shall provide all Detectable Warning Devices during the construction of wheelchair ramps.
- 1.3 The project shall be constructed in accordance with the Technical Specification and the referenced Sections of the City of Houston Construction Standard Specifications and/or the referenced Details of the City of Houston Construction Standard Construction Details.
- 1.4 Contractor shall be required to perform single panel replacement at selected locations.
- 1.5 The User Department Representative will provide drawings and approximate measurements to the Contractor.
- 1.6 Add a space. The Contractor shall be responsible for the following:
 - 1.6.1 Reviewing assigned proposed plans.
 - 1.6.2 Verifying all measurements and quantities.
 - 1.6.3 Notifying department of any discrepancy.
 - 1.6.4 Providing a written proposal utilizing all applicable bid items for the required work.
 - 1.6.5 Providing a street surveyor, which would ensure locations are repaired adequately, allowing water to properly flow to the existing inlet.
 - 1.6.6 Field notes of each location should be made available to the User Department Representative.
- 1.7 If there is a conflict or discrepancy between the proposed field measurements and the other data, it is the Contractor's responsibility to notify the User Department Representative of such conflict or discrepancy with supporting calculation prior to commencing work on an assigned project. Any additional cost incurred after work commenced shall be at the expense of the Contractor.
- 1.8 There will be no mobilization item for this project, which is incidental to each work order to be issued at different site(s) upon the needs of the City maintenance requirement.
- 1.9 Projects undertaken under the scope of this contract will NOT require an Engineer's seal.

- 1.10 HAS to provide personnel for water on/off services within a reasonable time frame from receipt of request from contractor.
- 1.11 Houston Airport System (HAS) will ***NOT*** provide inlets, manholes, and water valves as required by Contractor to complete adjustments/repairs.

2.0 WORKSHOP

- 2.1 All work shall be performed and completed in a thorough, workmanlike manner and in accordance with the latest proven practices of the trade by thoroughly skilled and experienced workmen.
- 2.2 All work shall be performed and completed using the latest standard industrial practices, notwithstanding any omissions from these specifications or drawings.
- 2.3 The concrete work shall conform to latest edition of ACI, ASTM Building Codes, City Ordinances, and all other applicable construction codes, specifications and details.
- 2.4 All materials furnished, and all work performed under this contract must be satisfactory to the User Department Representative.
- 2.5 The Contractor shall be required to remove all materials from the work site that do not conform to the applicable codes and shall replace them with materials that conform to the applicable codes.
- 2.6 The Contractor shall immediately correct any deficiencies discovered during work or after completion.
- 2.7 The contractor will dispose of removed concrete to a designated location or place chosen by the airport.

3.0 WORK SCHEDULE, SAFETY, FACILITY SECURITY AND TRAFFIC CONTROL

- 3.1 All work shall be performed between the hours of 7:01 a.m. and 4:00 p.m., Monday through Friday, unless otherwise authorized. (Holidays as prescribed by City Council not included.)
- 3.2 The Contractor shall be responsible for ensuring a safe work environment in accordance with rules and regulations of O.S.H.A., T.C.E.Q. and other governmental agencies for all persons entering the work area, i.e., traffic cones or traffic signs for street construction and others applicable.
- 3.3 If it is necessary, for whatever reason, to stop work and leave an open excavation, adequate safety signs, barricades and/or steel plates shall be placed to establish a secure area at no expense to the City.
- 3.4 All safety equipment used for the Project will be incidental to the unit price of the specified work.
- 3.5 Personnel utilized and paid by the Contractor as Flaggers must be certified through a local or state agency.

4.0 COMPLETION OF WORK ORDERS

- 4.1 The Contractor shall be required to notify the User Department Representative before the initiation of the project.
 - 4.1.1 City personnel shall be authorized to observe all materials and work performed.
 - 4.1.2 Such observation will not relieve the Contractor from any obligation to perform the work in

accordance with the requirements of these specifications.

- 4.2 All concrete work shall be completed within the time and procedure schedule as specified in the work order (generally twenty-one (21) days from issuance of the work order).
- 4.3 Any extension of the original completion date must be with the prior approval of the User Department Representative.
- 4.4 Any deficiency listed by the City representative shall be corrected before final acceptance of the work for each work order is granted and invoicing is approved for payment.

5.0 LIABILITY

- 5.1 All work shall be accomplished in such a manner as to prevent damage to the City of Houston facilities, equipment, roads, grounds, utilities, processes, etc., or to any other existing utilities.
- 5.2 The Contractor shall be liable for any damage to electrical, water, gas, etc. which occurs during the performance of work under this contract.
- 5.3 When such damage is due to the failure of the Contractor to take precautionary actions, or to exercise sound judgment, or fail to utilize proven construction practices, the Contractor shall restore, repair, or replace equipment.
 - 5.3.1 The restoration, repair or replacement shall be to a state that it had been before the damage occurred without additional charge to the City of Houston.
- 5.4 No additional compensation for repairs will be allowed.
- 5.5 If necessary, actual costs of repairs, or replacement, may be withheld from contract payment by the City of Houston or the Contractor may issue a credit payment to the city.

6.0 SITE CLEAN UP/REFUSE DISPOSAL

- 6.1 All rubbish and debris of every type, kind and nature resulting from the Contractor's activities shall be cleaned during the duration of the project/repair. Debris removed from the project/worksites shall be delivered to a dumping location designated by the User Department Representative.
 - 6.1.1 All ruts and depressions resulting from the Contractor's operations shall be filled in and leveled off to facilitate mowing the site.
 - 6.1.2 Upon completion of the Contractor's work, including site cleanup, the area shall be returned to the same or better condition.
 - 6.1.3 No separate payment will be made for cleanup and debris removal as described above.

7.0 WARRANTY

- 7.1 A warranty of one (1) year minimum shall be provided for both materials and workmanship.
- 7.2 The warranty period shall commence on the date the City of Houston officially accepts the completed work at each site.
- 7.3 Any warranty work is to be completed without cost to the City within ten (10) calendar days after written notification of a service problem.

8.0 GENERAL CONDITIONS

- 8.1 The Project's specifications listed in the Technical Specification contains modifying criteria related to working conditions, paid/unpaid items, etc. which supersede and/or represent an addendum to the respective City of Houston Standard Construction Specifications / Details. The most restrictive/critical rule between the two specifications of Technical Specification and Standard Construction Specifications will prevail for the construction requirement(s) of this project.
- 8.2 In addition to the Technical Specifications, the City of Houston Standard Construction Specifications is attached, as well as the Construction Detail(s) is attached. It is the Contractor's responsibility to verify the correct dimensions, materials, construction methods and other items referred in said Construction Specifications/Details for the specified bid items prior to bidding on this Project regardless of whether the documents are attached or not.
- 8.3 All wheelchair ramps must comply with current American with Disabilities Act (ADA) requirements, Standards for Accessible Design, Title III regulations 28 CFR Part 36, revised September 15, 2010, located at the following website. www.usdoj.gov/crtlststdspdf.htm.

9.0 SEQUENCE OF WORK ORDER EXECUTION

- 9.1 The User Department Representative will issue a drawing sketch and total cost estimation to the Contractor for their estimation of the complete scope of work required for completion of the project.
- 9.2 The Contractor must respond with their construction cost quotation within three (3) working days after receiving the drawing sketch and cost estimation from the department. The quotation must include a breakdown by fee schedule line item of each service to be provided, the quantity, and the total cost for that line.
- 9.2.1 The Contractor shall be required to submit a completed Hazard Communication Program/Contractor Compliance Form with each cost quotation. (ADDENDUM A)
- 9.3 If the Contractor's construction cost quotation is acceptable, the User Department Representative will issue a Work Order authorizing the Contractor to perform work at the site.
- 9.3.1 The schedule of project will be coordinated with the HAS Representative so as not to interfere with the operations at the airport.
- 9.3.2 The Contractor will not commence work on the project until the User Department Representative has approved the submitted schedule of work. Issuance of the Work Order is not sufficient to begin work. The Contractor must also obtain approval of the schedule of work prior to mobilization to the site.
- 9.4 The Contractor shall be required to start the construction within thirty (30) working days after the Work Order is issued. The specified response time includes the time required for building inspection, underground utility lines staking and material requisition. However, the Contractor agrees to start a specified construction work within five (5) working days or less if an emergency condition exists.

10.0 EXISTING UTILITIES

- 10.1 It is the responsibility of the Contractor to contact all utility companies to field mark their underground lines in the area of the proposed concrete work prior to construction.
- 10.2 If a utility in an existing building is to be interrupted due to alteration work, the scheduled interruption must be coordinated with and be approved by the City of Houston User Department Representative at least three (3) working days before the proposed construction.

11.0 PRICE ADJUSTMENT

11.1 The contract prices shall not be adjusted during the entire term of the contract. Therefore, bidders, when preparing its bid, should take into account inflation and other market factors when pricing each contract year.

12.0 POST AWARD MEETING

12.1 Once the contract has been approved by City Council, HAS will schedule a Post Award Meeting with the successful Contractor and HAS end users. The meeting will include procurement, HAS contacts, vendor invoicing, vendor payment, and all other matters related to contract administration.

13.0 INVOICING:

13.1 The Contractor shall submit all invoices electronically in accordance with the specifications and shall invoice for work accepted by an HAS representative.

13.2 The City of Houston's standard payment terms is to pay thirty (30) days after receipt of invoice or receipt of goods or services, whichever is later, according to the requirements of the Texas Prompt Payment Act (TX. Gov't Code, Ch. 2251). However, the City shall pay in less than 30 days in return for an early payment discount from the vendor according to Table 12.2.

Table 12.2: Payment Discount Schedule	
Payment time	Discount
Ten (10) Days	2 %
Twenty (20) Days	1 %

13.3 A vendor may elect not to offer a discount for early payment and the City will make payment net thirty (30) days. Discounts shall not be considered in the award evaluation.

13.4 If the City fails to make a payment according to the early payment schedule above but does make the payment within the time-specific by the Prompt Payment Act, the City shall not receive the discount, but shall pay no other penalty. When the payment date falls on a Saturday, Sunday, or official holiday when City offices are closed, and City business is not expected to be conducted, payment may be made on the following business day.

13.5 The City shall certify the correctness of each invoice and arrange for payment. The invoice must be identified by the Agreement name and Agreement number. Certification and/or payment does not preclude the City from indicating that a certification or payment was incorrect. In addition, it does not preclude the City from recovering excess payments.

13.6 All work shall be scheduled with HAS representatives and shall be accomplished during the hours scheduled. HAS shall have the right to request work to be performed during regular and non-regular hours.

13.7 No payment for services shall be payable by HAS for any services for which the Contractor fails to complete all the scheduled work as specified or fails to obtain an approved work schedule prior to beginning work.

- 13.8 Contractor shall be compensated at the agreed price, per the contract "Fee Schedule" (Exhibit F).
- 13.9 Invoices submitted for services performed as the result of Work Orders shall require copies of the applicable Work Order and related Service Release Order (SRO) attached to the original Invoice.
- 13.10 Invoices submitted for services performed as the result of Change Orders shall require copies of the applicable Change Order attached to the original invoice.
- 13.11 The Contractor shall provide separate monthly invoices for any completed work at each Airport and each Work Order covered under this Agreement.
- 13.12 Cost Verification.
 - 13.12.1 For each invoice, the Contractor shall provide with their invoice a photocopy of the paid supplier's invoice for parts, materials, or equipment purchased or rented.
 - 13.12.2 All invoices shall be original invoices or certified original invoices on the Contractor's company stationery, with the original signed by an authorized agent of the company.
 - 13.12.3 The invoice number shall not be duplicated during the term of the Agreement.
 - 13.12.4 Each invoice shall detail the following information.
 - 13.12.4.1 City Contract number and Ordinance Number.
 - 13.12.4.2 Copy of Work Order and Purchase Order (when applicable).
 - 13.12.4.3 Facility address(s) where services were rendered.
 - 13.12.4.4 A detailed description of services rendered.
 - 13.12.4.5 Copy of Contractor's signed service ticket (if separate from invoice.)
 - 13.12.4.6 Date(s) and time(s) when services were performed.
 - 13.12.4.7 Parts or components repaired or replaced. Provide a Part Numbers Listing before and after discount. If parts are reconditioned, the costs to recondition parts must be listed.
 - 13.12.4.8 Manufacturer model and part numbers installed detailing net unit pricing, percentage markup, and total cost per line item.
 - 13.12.4.9 Labor minutes/hour(s) and rates factored out to include extended cost.
 - 13.12.4.10 Subtotal costs for parts and labor separately.
 - 13.12.4.11 Total invoice cost.
 - 13.12.4.12 All unit prices for labor, parts, and equipment rental shall be listed and easily identified against the quoted Contract pricing.

13.13 Invoice Requirements.

- 13.13.1 The Houston Airport System shall only accept invoices submitted electronically along with required support information. Each invoice shall be in the "PDF" format. Multiple invoices can be submitted in a single email with one invoice per file. Requirements are as follows:
 - 13.14.2.1 Submit invoices in "PDF" format

13.14.2.1 Submit to has.accountspayable@houstontx.gov

13.14 Charges.

13.14.1 Charges for services provided under this Agreement shall be in accordance with the prices/rates shown in the Contract Fees and Cost Schedule (Exhibit "F") and in such form as may be requested or specified by the Director.

13.14.2 Contractor shall accept the following types of payments:

13.14.2.1 Purchase Order

13.14.2.1 Service Release Order (SRO)

13.14.2.1 Emergency Purchase Orders (EPO)

13.14.2.1 P-Card

14.0 **CONTRACT COMPLIANCE**

14.1 The City of Houston reserves the right to monitor this contract for compliance to ensure legal obligations are fulfilled and that acceptable level of service are provided.

14.2 Monitoring may take the form of, but not necessarily limited to:

14.2.1 Site visits

14.2.2 Review of deliveries received for accuracy and timeliness

14.2.3 Review of contractor's invoices for accuracy

14.3 The responsibility for monitoring compliance rests with the department Contract Compliance Section.

15.0 **ESTIMATED QUANTITIES NOT GUARANTEED**

15.1 The estimated quantities specified herein are not a guarantee of actual quantities, as the City does not guarantee any particular quantity of services during the term of this Contract. The quantities may vary depending upon the actual needs of the Department. The quantities specified herein are good faith estimates of usage during the term of this Contract. Therefore, the City shall not be liable for any contractual agreements/obligations the Contractor enters into based on the City purchasing all the quantities specified herein.

16.0 **WARRANTY OF SERVICES**

16.1 Definitions: "Acceptance" as used in this clause, means the act of an authorized representative of the Transportation and Drainage Division (TOO) Representative and/or CTR by which the City assumes for itself, approval of specific services, as partial or complete performance of the Contract must be in writing.

16.2 "Correction" as used in this clause, means the elimination of a defect.

16.3 Notwithstanding inspection and acceptance by the City or any provision concerning the conclusiveness thereof, the Contractor warrants that all services performed under this Contract will, at the time of acceptance, be free from defects in workmanship and conform to the requirements of this Contract. 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.

- 16.4 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 Contract price.
- 16.5 If the City does not require correction or re-performance, the City shall make an equitable adjustment in the contract price.

17.0 INTERLOCAL AGREEMENT

- 17.1 Under the same terms and conditions hereunder, the Contract may be expanded to other government entities through inter-local agreements between the City of Houston and the respective government entity that encompass all or part of the products/services provided under this contract. Separate contracts will be drawn to reflect the needs of each participating entity.

18.0 WAGE SCALE FOR ENGINEERING CONSTRUCTION

- 18.1 In accordance with the Prevailing Wage Law on Public Works (Article 5159-a of the Revised Civil Statutes of Texas), the public body awarding the contract does hereby specify the following to be the general prevailing rates in the locality in which the work is being performed.
- 18.2 This prevailing wage rate does not prohibit the payment of more than the rates stated.
- 18.3 The wage scale for engineering construction is to be applied to all site work greater than five (5) feet from an exterior wall of new building under construction or from an exterior wall of an existing building.
- 18.4 2020 Labor Classifications and Prevailing Wage Rates for Engineering Construction refer to Exhibit "J".

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

Fee Schedule

Year 1 - Group 1

Item #	Description	Unit of Measure	Unit Price	Weights*
1	Remove and replace slab, 8-10", 5,000 psi, 7-day. Includes backfill, expansion joints and adjustment / repair of inlets, manholes and water valves as needed.	FT3	\$	15%
2	Additional cost to Item No. 1 for High Early Concrete	FT3	\$	4%
3	6" concrete driveway and pavement with curbs per drawing 17201-1.	FT2	\$	4%
4	Concrete curb and gutter, all types, to include rein-in-place.	LF	\$	4%
5	Remove and replace asphalt surfaces, to include sub-grade.	FT2	\$	4%
6	Remove and replace base material.	FT3	\$	4%
7	Remove and replace curbs ONLY	LF	\$	5%
8	4-1/2" concrete sidewalks, to include rein-in-place.	FT2	\$	1%
9	Saw cut concrete.	LF	\$	5%
10	Wheelchair access ramp per drawing 02775-02.	FT2	\$	1%
11	Mud jacking, to include drilling holes and inserts.	FT2	\$	5%
12	High Density Polyurethane Foam (HDPF)	FT2	\$	10%
13	Retaining wall 18" - 24".	LF	\$	1%
14	Retaining wall 12" - 18".	LF	\$	1%
15	Remove and Replace Base Material - Flowable Base.	FT3	\$	5%
16	Restoration/Sodding	FT2	\$	5%
17	Removal of Sidewalk	FT2	\$	5%
18	Allowance for Certified Flagman only. Amount not to exceed, per contract year.	LS	\$	5%
19	Allowance for Uniformed Peace Officer only. Amount not to exceed, per work order.	LS	\$	1%
20	Cost of Performance, Payment and Maintenance bonds per contract year. (should be invoiced with first work order)	LS	\$	1%
21	Raised reflective pavement marker	EA	\$	1%
22	Thermoplastic pavement marking (4-inch-wide) white or yellow	LF	\$	1%
23	Thermoplastic pavement marking (8-inch-wide) white or yellow	LF	\$	1%

24	Thermoplastic pavement marking (12-inch-wide) white or yellow	LF	\$	1%
25	Thermoplastic pavement marking (24-inch-wide) white or yellow	LF	\$	1%
26	Thermoplastic pavement marking, elongated word	EA	\$	1%
27	Thermoplastic pavement marking, turning arrows	EA	\$	1%
28	Thermoplastic pavement marking symbol per Shared Lane Marking, incl. Shared the Road Assembly (W11-1 / W16-1)	EA	\$	1%
29	Thermoplastic pavement markings, yellow nose	LF	\$	1%
			\$	

Year 1 - Group 2 Time & Materials - Percentage Mark-Up/Discount

Item #	Description	% Discount/Markup	Weights*
1	Time and Material for Items not provided for above. Invoices from Material Supplier verifying cost must accompany invoice before any work is performed. A written firm job price estimate must be submitted to the City for approval. Cost Plus Mark-up %.		5%

Year 2 - Group 1

Item #	Description	Unit of Measure	Unit Price	Weights*
1	Remove and replace slab, 8-10", 5,000 psi, 7-day. Includes backfill, expansion joints and adjustment / repair of inlets, manholes and water valves as needed.	FT3	\$	15%
2	Additional cost to Item No. 1 for High Early Concrete	FT3	\$	4%
3	6" concrete driveway and pavement with curbs per drawing 17201-1.	FT2	\$	4%
4	Concrete curb and gutter, all types, to include rein-in-place.	LF	\$	4%
5	Remove and replace asphalt surfaces, to include sub-grade.	FT2	\$	4%
6	Remove and replace base material.	FT3	\$	4%
7	Remove and replace curbs ONLY	LF	\$	5%
8	4-1/2" concrete sidewalks, to include rein-in-place.	FT2	\$	1%
9	Saw cut concrete.	LF	\$	5%
10	Wheelchair access ramp per drawing 02775-02.	FT2	\$	1%
11	Mud jacking, to include drilling holes and inserts.	FT2	\$	5%

12	High Density Polyurethane Foam (HDPF)	FT2	\$	10%
13	Retaining wall 18" - 24".	LF	\$	1%
14	Retaining wall 12" - 18".	LF	\$	1%
15	Remove and Replace Base Material - Flowable Base.	FT3	\$	5%
16	Restoration/Sodding	FT2	\$	5%
17	Removal of Sidewalk	FT2	\$	5%
18	Allowance for Certified Flagman only. Amount not to exceed, per contract year.	LS	\$	5%
19	Allowance for Uniformed Peace Officer only. Amount not to exceed, per work order.	LS	\$	1%
20	Cost of Performance, Payment and Maintenance bonds per contract year. (should be invoiced with first work order)	LS	\$	1%
21	Raised reflective pavement marker	EA	\$	1%
22	Thermoplastic pavement marking (4-inch-wide) white or yellow	LF	\$	1%
23	Thermoplastic pavement marking (8-inch-wide) white or yellow	LF	\$	1%
24	Thermoplastic pavement marking (12-inch-wide) white or yellow	LF	\$	1%
25	Thermoplastic pavement marking (24-inch-wide) white or yellow	LF	\$	1%
26	Thermoplastic pavement marking, elongated word	EA	\$	1%
27	Thermoplastic pavement marking, turning arrows	EA	\$	1%
28	Thermoplastic pavement marking symbol per Shared Lane Marking, incl. Shared the Road Assembly (W11-1 / W16-1)	EA	\$	1%
29	Thermoplastic pavement markings, yellow nose	LF	\$	1%
			\$	

Year 2 - Group 2 Time & Materials - Percentage Mark-Up/Discount

Item #	Description	% Discount/Markup	Weights*
1	Time and Material for Items not provided for above. Invoices from Material Supplier verifying cost must accompany invoice before any work is performed. A written firm job price estimate must be submitted to the City for approval. Cost Plus Mark-up %.		5%

Year 3 - Group 1

Item #	Description	Unit of Measure	Unit Price	Weights*
1	Remove and replace slab, 8-10", 5,000 psi, 7-day. Includes backfill, expansion joints and adjustment / repair of inlets, manholes and water valves as needed.	FT3	\$	15%
2	Additional cost to Item No. 1 for High Early Concrete	FT3	\$	4%
3	6" concrete driveway and pavement with curbs per drawing 17201-1.	FT2	\$	4%
4	Concrete curb and gutter, all types, to include rein-in-place.	LF	\$	4%
5	Remove and replace asphalt surfaces, to include sub-grade.	FT2	\$	4%
6	Remove and replace base material.	FT3	\$	4%
7	Remove and replace curbs ONLY	LF	\$	5%
8	4-1/2" concrete sidewalks, to include rein-in-place.	FT2	\$	1%
9	Saw cut concrete.	LF	\$	5%
10	Wheelchair access ramp per drawing 02775-02.	FT2	\$	1%
11	Mud jacking, to include drilling holes and inserts.	FT2	\$	5%
12	High Density Polyurethane Foam (HDPF)	FT2	\$	10%
13	Retaining wall 18" - 24".	LF	\$	1%
14	Retaining wall 12" - 18".	LF	\$	1%
15	Remove and Replace Base Material - Flowable Base.	FT3	\$	5%
16	Restoration/Sodding	FT2	\$	5%
17	Removal of Sidewalk	FT2	\$	5%
18	Allowance for Certified Flagman only. Amount not to exceed, per contract year.	LS	\$	5%
19	Allowance for Uniformed Peace Officer only. Amount not to exceed, per work order.	LS	\$	1%
20	Cost of Performance, Payment and Maintenance bonds per contract year. (should be invoiced with first work order)	LS	\$	1%
21	Raised reflective pavement marker	EA	\$	1%
22	Thermoplastic pavement marking (4-inch-wide) white or yellow	LF	\$	1%
23	Thermoplastic pavement marking (8-inch-wide) white or yellow	LF	\$	1%
24	Thermoplastic pavement marking (12-inch-wide) white or yellow	LF	\$	1%
25	Thermoplastic pavement marking (24-inch-wide) white or yellow	LF	\$	1%
26	Thermoplastic pavement marking, elongated word	EA	\$	1%
27	Thermoplastic pavement marking, turning arrows	EA	\$	1%
28	Thermoplastic pavement marking symbol per Shared Lane Marking, incl. Shared the Road Assembly (W11-1 / W16-1)	EA	\$	1%

29	Thermoplastic pavement markings, yellow nose	LF	\$	1%
			\$	

Year 3 - Group 2 Time & Materials - Percentage Mark-Up/Discount

Item #	Description	% Discount/Markup	Weights*
1	Time and Material for Items not provided for above. Invoices from Material Supplier verifying cost must accompany invoice before any work is performed. A written firm job price estimate must be submitted to the City for approval. Cost Plus Mark-up %.		5%

Year 4 - Group 1

Item #	Description	Unit of Measure	Unit Price	Weights*
1	Remove and replace slab, 8-10", 5,000 psi, 7-day. Includes backfill, expansion joints and adjustment / repair of inlets, manholes and water valves as needed.	FT3	\$	15%
2	Additional cost to Item No. 1 for High Early Concrete	FT3	\$	4%
3	6" concrete driveway and pavement with curbs per drawing 17201-1.	FT2	\$	4%
4	Concrete curb and gutter, all types, to include rein-in-place.	LF	\$	4%
5	Remove and replace asphalt surfaces, to include sub-grade.	FT2	\$	4%
6	Remove and replace base material.	FT3	\$	4%
7	Remove and replace curbs ONLY	LF	\$	5%
8	4-1/2" concrete sidewalks, to include rein-in-place.	FT2	\$	1%
9	Saw cut concrete.	LF	\$	5%
10	Wheelchair access ramp per drawing 02775-02.	FT2	\$	1%
11	Mud jacking, to include drilling holes and inserts.	FT2	\$	5%
12	High Density Polyurethane Foam (HDPF)	FT2	\$	10%
13	Retaining wall 18" - 24".	LF	\$	1%
14	Retaining wall 12" - 18".	LF	\$	1%
15	Remove and Replace Base Material - Flowable Base.	FT3	\$	5%
16	Restoration/Sodding	FT2	\$	5%
17	Removal of Sidewalk	FT2	\$	5%

18	Allowance for Certified Flagman only. Amount not to exceed, per contract year.	LS	\$	5%
19	Allowance for Uniformed Peace Officer only. Amount not to exceed, per work order.	LS	\$	1%
20	Cost of Performance, Payment and Maintenance bonds per contract year. (should be invoiced with first work order)	LS	\$	1%
21	Raised reflective pavement marker	EA	\$	1%
22	Thermoplastic pavement marking (4-inch-wide) white or yellow	LF	\$	1%
23	Thermoplastic pavement marking (8-inch-wide) white or yellow	LF	\$	1%
24	Thermoplastic pavement marking (12-inch-wide) white or yellow	LF	\$	1%
25	Thermoplastic pavement marking (24-inch-wide) white or yellow	LF	\$	1%
26	Thermoplastic pavement marking, elongated word	EA	\$	1%
27	Thermoplastic pavement marking, turning arrows	EA	\$	1%
28	Thermoplastic pavement marking symbol per Shared Lane Marking, incl. Shared the Road Assembly (W11-1 / W16-1)	EA	\$	1%
29	Thermoplastic pavement markings, yellow nose	LF	\$	1%
			\$	-

Year 4 - Group 2 Time & Materials - Percentage Mark-Up/Discount

Item #	Description	% Discount/Markup	Weights*
1	Time and Material for Items not provided for above. Invoices from Material Supplier verifying cost must accompany invoice before any work is performed. A written firm job price estimate must be submitted to the City for approval. Cost Plus Mark-up %.		5%

Year 5 - Group 1

Item #	Description	Unit of Measure	Unit Price	Weights*
1	Remove and replace slab, 8-10", 5,000 psi, 7-day. Includes backfill, expansion joints and adjustment / repair of inlets, manholes and water valves as needed.	FT3	\$	15%
2	Additional cost to Item No. 1 for High Early Concrete	FT3	\$	4%
3	6" concrete driveway and pavement with curbs per drawing 17201-1.	FT2	\$	4%

4	Concrete curb and gutter, all types, to include rein-in-place.	LF	\$	4%
5	Remove and replace asphalt surfaces, to include sub-grade.	FT2	\$	4%
6	Remove and replace base material.	FT3	\$	4%
7	Remove and replace curbs ONLY	LF	\$	5%
8	4-1/2" concrete sidewalks, to include rein-in-place.	FT2	\$	1%
9	Saw cut concrete.	LF	\$	5%
10	Wheelchair access ramp per drawing 02775-02.	FT2	\$	1%
11	Mud jacking, to include drilling holes and inserts.	FT2	\$	5%
12	High Density Polyurethane Foam (HDPF)	FT2	\$	10%
13	Retaining wall 18" - 24".	LF	\$	1%
14	Retaining wall 12" - 18".	LF	\$	1%
15	Remove and Replace Base Material - Flowable Base.	FT3	\$	5%
16	Restoration/Sodding	FT2	\$	5%
17	Removal of Sidewalk	FT2	\$	5%
18	Allowance for Certified Flagman only. Amount not to exceed, per contract year.	LS	\$	5%
19	Allowance for Uniformed Peace Officer only. Amount not to exceed, per work order.	LS	\$	1%
20	Cost of Performance, Payment and Maintenance bonds per contract year. (should be invoiced with first work order)	LS	\$	1%
21	Raised reflective pavement marker	EA	\$	1%
22	Thermoplastic pavement marking (4-inch-wide) white or yellow	LF	\$	1%
23	Thermoplastic pavement marking (8-inch-wide) white or yellow	LF	\$	1%
24	Thermoplastic pavement marking (12-inch-wide) white or yellow	LF	\$	1%
25	Thermoplastic pavement marking (24-inch-wide) white or yellow	LF	\$	1%
26	Thermoplastic pavement marking, elongated word	EA	\$	1%
27	Thermoplastic pavement marking, turning arrows	EA	\$	1%
28	Thermoplastic pavement marking symbol per Shared Lane Marking, incl. Shared the Road Assembly (W11-1 / W16-1)	EA	\$	1%
29	Thermoplastic pavement markings, yellow nose	LF	\$	1%
			\$	

Year 5 - Group 2 Time & Materials - Percentage Mark-Up/Discount

Item #	Description	% Discount/Markup	Weights*
1	Time and Material for Items not provided for above. Invoices from Material Supplier verifying cost must accompany invoice before any work is performed. A written firm job price estimate must be submitted to the City for approval. Cost Plus Mark-up %.		5%

* The weighted sections of this bid form are for HAS consideration for which HAS assigned a higher priority.

SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: _____
 (Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

* By: _____
 Signature Date

Name: _____
 (Print or type name) Title

Address: _____
 (Mailing)

 (Street, if different)

Telephone and Fax Number: _____
 (Print or type numbers)

* Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

All Documents and Sections that are not visible in the Technical Specifications can be viewed from the following Houston Public Work web link:

<https://www.houstonpermittingcenter.org/office-city-engineer/design-and-construction-standards>

City of Houston Standard Specifications For
WORK ORDER CONTRACT FOR CONCRETE PANEL REPLACEMENT FOR ?? HAS

Table of Contents

Document Title: The following standard specifications are included in the bid package:

DIVISION 1 - GENERAL REQUIREMENTS

- 01110 Summary of Work
- 01145 Use of Premises
 - 01255 Change Order Procedures
 - 01270 Measurement and Payment
 - 01312 Coordination and Meetings
 - 01325 Construction Photographs
 - 01330 Construction Schedule
 - 01422 Submittal Procedures
 - 01450 Reference Standards
 - 01452 Inspection Services
 - 01454 Testing Laboratory Services
 - 01555 Traffic Control and Regulation
 - 01576 Waste Material Disposal: See Part Three- Execution, below.**
 - 01610 Basic Product Requirement
 - 01725 Field Surveying
 - 01770 Closeout Procedures
 - 01785 Project Record Documents

DIVISION 2 - SITE WORK

- 02086 Adjusting Manholes, Inlets, and Valve Boxes to Grade
- 02221 Removing Existing Pavements and Structures
- 02317 Backfill for Pavement Repair
- 02320 Backfill
- 02632 Cast-in-place Headwalls
- 02711 Hot-mix Asphalt Base Course
- 02712 Cement Stabilized Base Course
- 02741 Hot-mix Asphalt Concrete Pavement
- 02743 Tack Coat
- 02751 Concrete Paving
- 02752 Concrete Pavement Joints
- 02753 Concrete Pavement Curing
- 02754 Concrete Driveways
- 02771 Curb, Curb and Gutter, and Headers
- 02775 Concrete Sidewalks
- 02911 Topsoil
- 2922 Sodding
- 2923 02952 Mud jacking (Slab jacking) Rigid Pavement
- 2924 02954 Sawed Joints

Section 01576 Waste Material Disposal

Part Three - Execution:

3.1 Salvageable Material

- 3.1.1 Excavated Material: All load, haul and deposited excavated material at any location should be taken to a disposal location designated by the Contract Technical Representative.
- 3.1.2 Base, Surface, and Bedding Material: Load shell, gravel, bituminous, or other base and surfacing material designated for salvage should be loaded into Dump trucks able to haul a minimum capacity of 12-14 Tons.
- 3.1.3 Pipe Culvert: Culverts designated for salvage should be loaded into Dump trucks able to haul a minimum capacity of 12-14 Tons.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

STANDARD DRAWINGS FOR CONCRETE PANEL REPLACEMENT FOR STREETS

Table of Contents

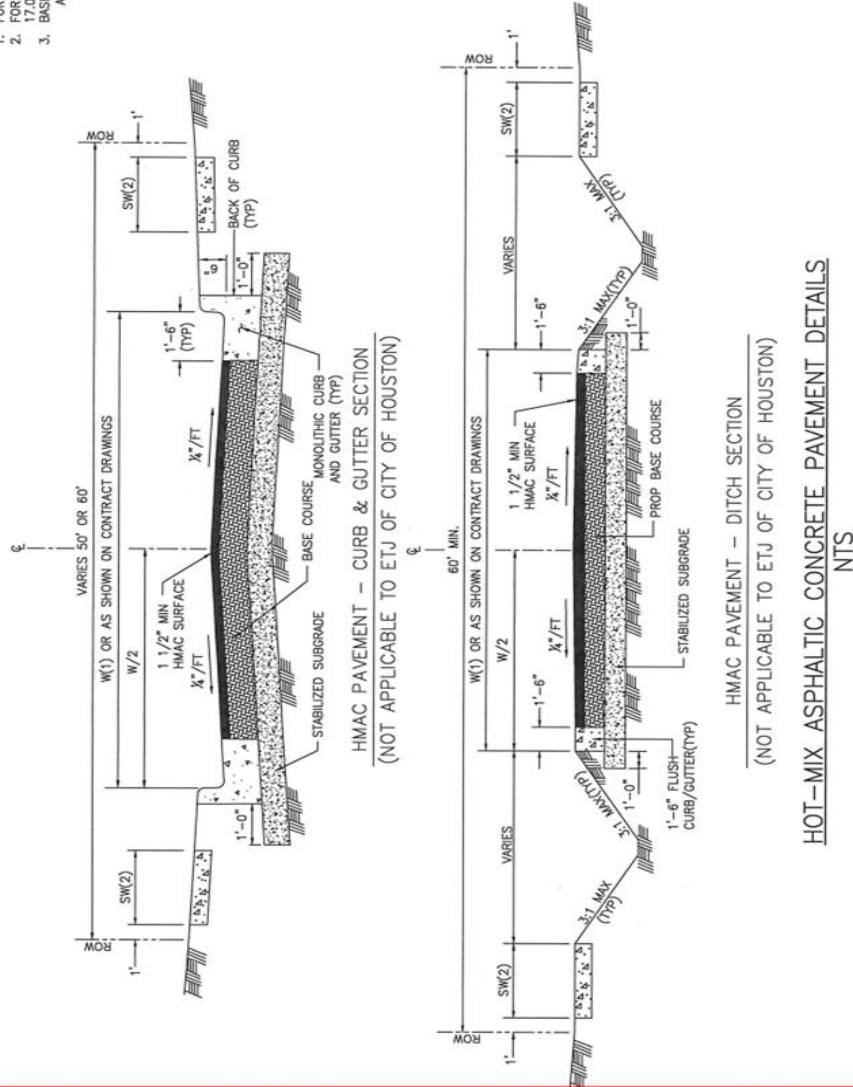
This is a Work Order contract. Additional drawings may be provided to the Contractor with each Work Order, and at that time will become part of the Contract Documents.

Sheet Number	Drawing Title
547-S	Concrete Headwalls Details (Attachment A)
02751-01	Concrete Pavement Details
02754-01	Driveway Details (Streets with Curbs)
02754-02	Driveway Details (Open Ditches)
02775-02	Wheelchair Ramp Details
02902-01	
	Pavement Repair Detail
TXDOT PED-05	
(1)CurbRamps	
TXDOT PED-05	
(2)Detectable Warnings	
TXDOTPED-05 (3)	
Sidewalks	
TXDOT PED-05 (4)	Intersection Layouts

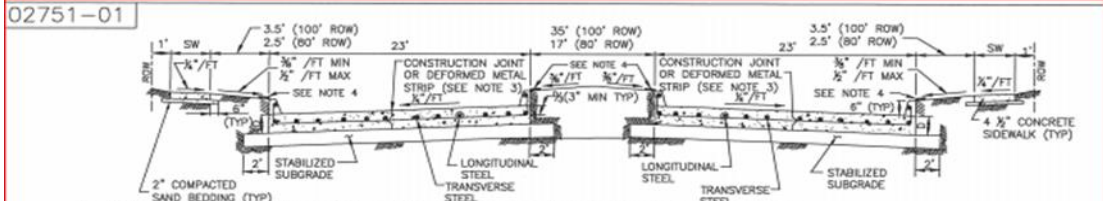
REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

02741 -01 Hot Mix Asphaltic Concrete Pavement Details

- NOTES:
1. FOR TRAVEL WAY WIDTH (W) REFER TO IDN SECTION 10.3.03.A
 2. FOR SIDEWALK (SW) DESIGN GUIDANCE REFER TO IDN SECTION 17.06: PEDESTRIAN DESIGN REQUIREMENTS.
 3. BASE COURSE SHALL BE:
ALTERNATES: A) 6" (MIN) HOT MIX ASPHALTIC CONCRETE.
B) 8" (MIN) CRUSHED CONCRETE.

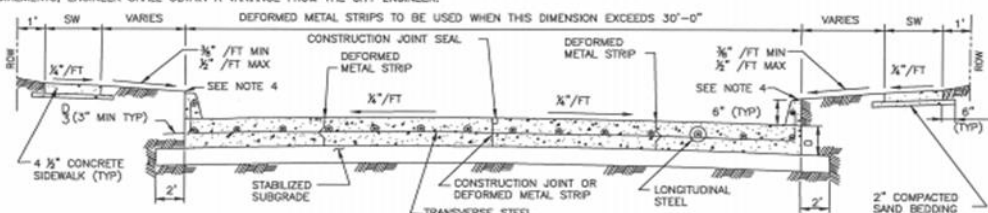


02751-01 CONCRETE PAVEMENT DETAILS – Page 1



TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS NOTES:

1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
4. USE STRIP OF SOO GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.
5. AN EQUAL OR LARGER AREA OF WELDED REINFORCEMENT BAR CONFORMING TO ASTM A497, MAY BE SUBSTITUTED FOR REBARS LISTED IN TABLE 1.
6. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE SIDEWALK WIDTH (SW) ACCORDING TO IDM REQUIREMENTS, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER.



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

TABLE 1
REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH:
MAXIMUM TRANSVERSE CONTROL JOINT SPACING = 20'-0"
MAXIMUM EXPANSION JOINT SPACING = 80'-0"
f_c = 4,000 PSI/28 DAYS AND F_y = 60,000 PSI

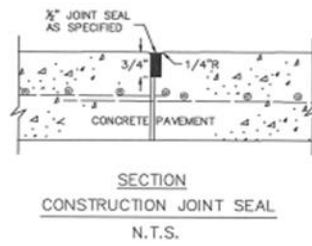
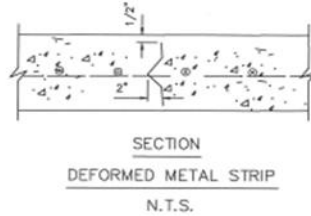
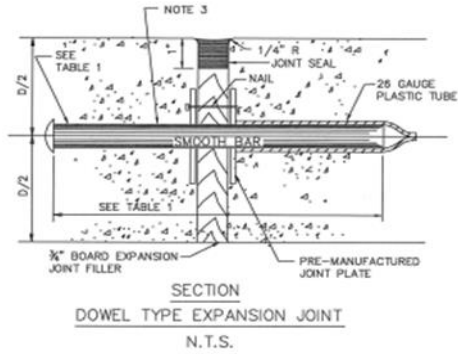
PAVEMENT THICKNESS D (IN)	PAVEMENT WIDTH (FT)	LONGITUDINAL STEEL						TRANSVERSE STEEL			
		# 4 BARS		# 5 BARS		# 6 BARS		# 4 BARS	# 5 BARS	# 6 BARS	
		NUMBER OF BARS	SPACING (IN)	NUMBER OF BARS	SPACING (IN)	NUMBER OF BARS	SPACING (IN)	NUMBER OF BARS	SPACING (IN)	NUMBER OF BARS	SPACING (IN)
8	28	17	20.50	4	--	--	--	--	36	--	--
7	25	17	18.25	4	--	--	--	--	36	--	--
7	35	24	18.00	3	--	--	--	--	36	--	--
7	36	25	17.75	3	--	--	--	--	36	--	--
7	37	25	18.25	3	--	--	--	--	36	--	--
7	41	28	18.00	3	--	--	--	--	36	--	--
7	45	31	17.75	3.75	--	--	--	--	36	--	--
8	25	20	15.50	2.75	13	24.50	3	--	36	36	--
8	34	27	15.50	2.50	17	25.00	4	--	36	36	--
8	35	27	16.00	2	18	24.25	4	--	36	36	--
8	36	28	15.75	3.25	18	25.00	3	--	30	36	--
8	44	24	15.75	4	22	24.75	4	--	30	36	--
8	45	35	15.75	2.25	23	24.25	3	--	30	36	--
9	25	22	14.00	3	14	22.50	4	--	36	36	--
9	34	31	13.50	2	19	22.25	3.50	--	30	36	--
9	35	31	13.75	3.75	20	21.75	3.50	--	30	36	--
9	36	32	13.75	3	21	21.25	3.50	--	30	36	--
9	44	39	13.75	2.75	25	21.75	3	--	24	36	--
9	45	39	14.00	4	26	21.25	4.50	--	24	36	--
10	25	24	12.75	3.5	17	18.25	4	--	36	36	36
10	34	33	12.50	4	21	20.00	4	--	30	36	36
10	35	34	12.50	3.75	23	18.75	4	--	30	36	36
10	36	35	12.50	3.5	24	18.50	3	--	30	36	36
10	44	44	12.00	4	29	18.50	4.50	--	24	36	36
10	45	44	12.50	3	29	19.00	3	--	24	36	36
11	25	27	11.25	3	17	18.25	4	12	26.75	3	36
11	34	36	11.50	2.75	24	17.50	2.5	17	25.00	4	24
11	35	37	11.50	3	24	18.00	3	17	25.75	4	24
11	36	40	11.00	2	25	17.75	3	17	26.50	4	24
11	44	48	11.125	2.5	30	18.00	3	21	26.00	4	24
11	45	49	11.125	3	31	17.75	4	22	25.50	3	24
12	25	--	--	--	19	16.25	4	13	24.50	3	36
12	34	--	--	--	26	16.00	4	18	23.50	4	24
12	35	--	--	--	26	16.50	4	19	23.00	3	24
12	36	--	--	--	27	16.25	4.5	20	22.25	4.5	24
12	44	--	--	--	33	16.25	4	24	22.50	5	24
12	45	--	--	--	35	15.75	3	25	22.25	3	24

MINIMUM LAP LENGTH (L):
 A. # 4 BARS : L = 22 INCHES
 B. # 5 BARS : L = 27 INCHES
 C. # 6 BARS : L = 32 INCHES

CONCRETE PAVEMENT DETAILS
NTS

02751-01 CONCRETE PAVEMENT DETAILS – Page 2

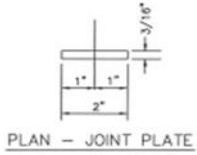
02752-01



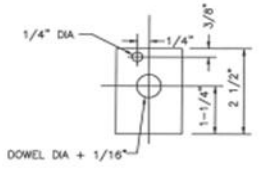
SECTION
DOWEL TYPE EXPANSION JOINT
N.T.S.

SECTION
DEFORMED METAL STRIP
N.T.S.

SECTION
CONSTRUCTION JOINT SEAL
N.T.S.



PLAN - JOINT PLATE



ELEVATION - JOINT PLATE
N.T.S.

- NOTES:
1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED ON 12" CENTERS.
 2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS.
 3. CENTER DOWEL HORIZONTALLY ON JOINT.
 4. CENTER DOWEL VERTICALLY IN CONCRETE BASE. EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN COVER.
 5. CITY OF HOUSTON APPROVED PRODUCTS MAY BE USED AS JOINT PLATE ALTERNATIVE.

TABLE 1

PAVEMENT THICKNESS (N)	DOWEL SIZES AND SPACINGS		
	DIAMETER (N)	LENGTH (N)	SPACING (N)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
NTS

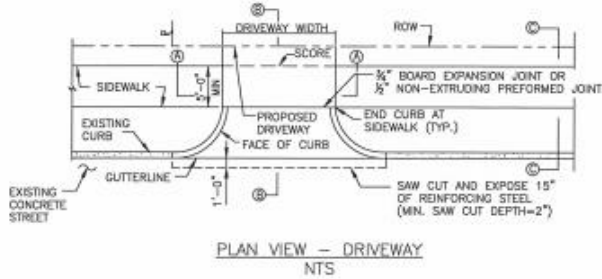
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STREET PAVING AND SIDEWALK
02751-01 THROUGH 02752-01

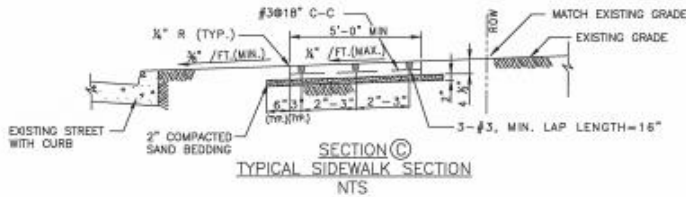
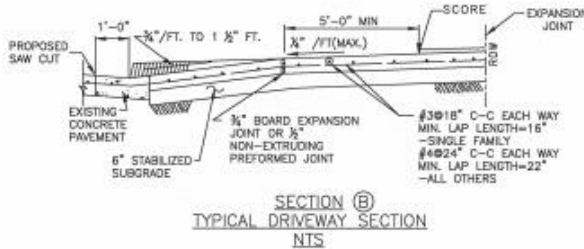
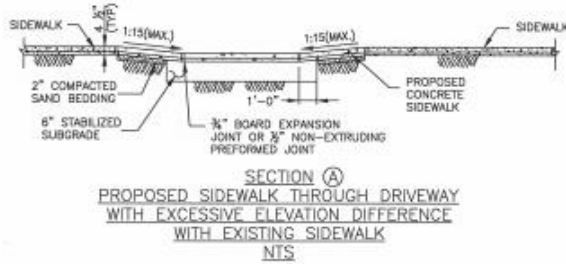
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DEPUTY DIRECTOR
APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFFECTIVE DATE: JUL-01-2020 FOR CITY OF HOUSTON USE ONLY	
SHEET NO.	

02754-01B STREET PAVING & SIDWALK - Page 1 (DRIVEWAY DETAILS)

02754-01B



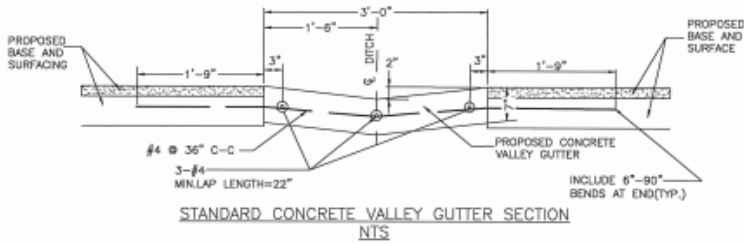
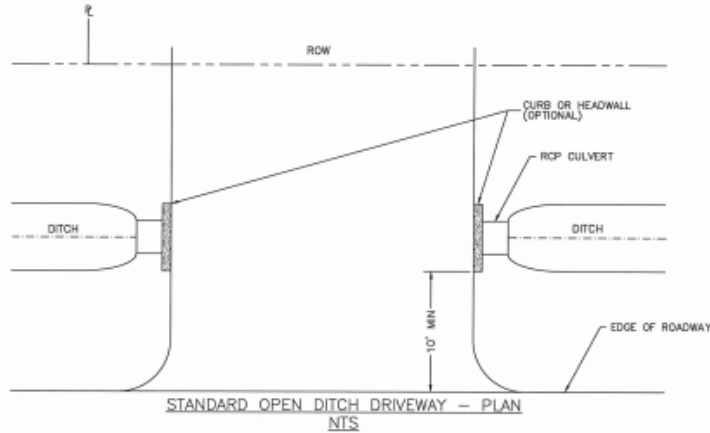
- NOTES**
1. ALL JOINTS SHALL CONFORM TO CITY OF HOUSTON 02752 STANDARD SPECIFICATION.
 2. DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY USE AND MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
 3. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5-1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
 4. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AGENCY STANDARD DETAILS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
 5. CURB RAMPS THAT ARE STEEPER THAN A 1:15 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.



DRIVEWAY DETAIL WITH 6" CURBED STREETS
NTS

02754-02 STREET PAVING & SIDWALK – Page 2 (DRIVEWAYS WITH CULVERTS, GUTTERS, DITCHES)

02754-02



NOTES:


1. REINFORCED CONCRETE PIPE (RCP) CULVERTS AND CONCRETE VALLEY GUTTER GRADES SHALL BE SET BY CITY ENGINEER. PROFILE SHOWING THE PROPOSED AND EXISTING DITCH FLOWLINE WILL BE REQUIRED WHERE CONCRETE VALLEY GUTTERS ARE TO BE CONSTRUCTED IN LIEU OF CULVERTS.
2. CULVERT SIZE WILL BE APPROVED BY CITY ENGINEER WITH 24" DIAMETER MINIMUM.
3. SPACING OF TYPE "D" OR "D-1" INLETS SHALL BE DETERMINED BY CITY ENGINEER. SEE DRAWING NO. 02632-07 FOR TYPE "D" OR DRAWING NO. 02632-08 FOR TYPE "D-1".
4. DRIVEWAY MAY BE CONCRETE, ASPHALT OR ANY OTHER MATERIAL WHICH WILL NOT PERMIT WIND OR WATERBORNE EROSION.
5. A 3-FOOT CONCRETE VALLEY GUTTER SECTION SHALL BE CONSTRUCTED THROUGH THE PROPOSED DRIVEWAY WHERE THE CITY ENGINEER DETERMINES THE INSTALLATION OF DITCH CULVERTS TO BE IMPRACTICAL DUE TO INSUFFICIENT DEPTH. THE VALLEY GUTTER SECTION WILL BE CONSTRUCTED OF 5-1/2 SACK CEMENT PER CUBIC YARD OF CONCRETE.

**DRIVEWAYS WITH CULVERTS OR VALLEY GUTTERS
ON OPEN DITCH TYPE STREETS
NTS**

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STREET PAVING AND SIDEWALK
02754-01B THROUGH 02754-02

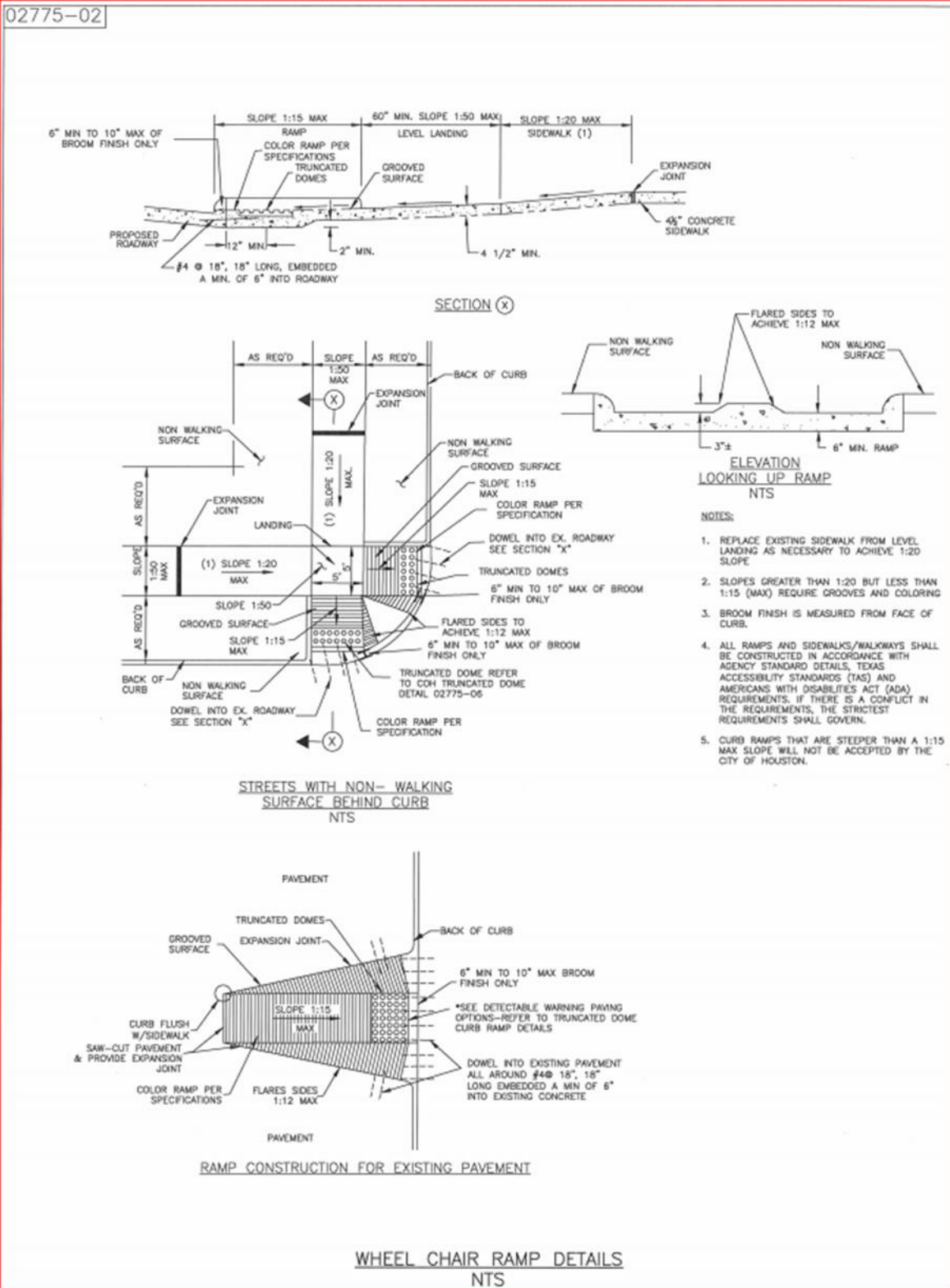
APPROVED BY: 	APPROVED BY: 
CITY ENGINEER	DEPUTY DIRECTOR

APPROVED BY:

DIRECTOR OF HOUSTON PUBLIC WORKS

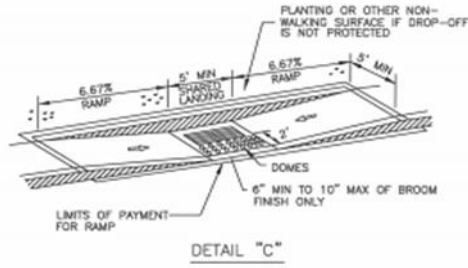
EFFECTIVE DATE: JUL-01-2020
FOR CITY OF HOUSTON USE ONLY

SHEET NO.

02775-02 WHEELCHAIR RAMP DETAILS – Page 1

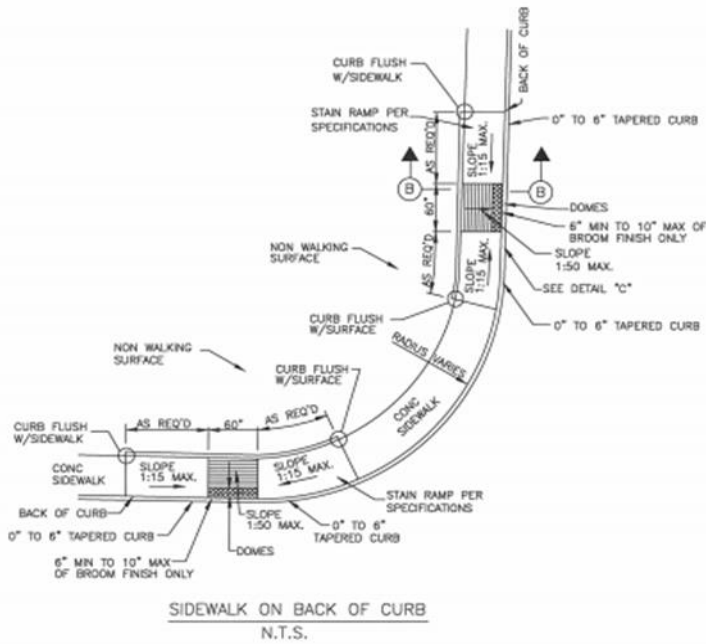
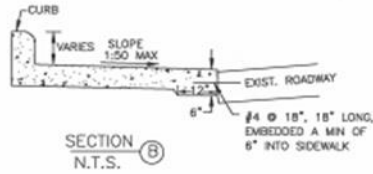


02775-03



NOTES:

1. ALL RAMP AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AGENCY STANDARD DETAILS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
2. CURB RAMP THAT ARE STEEPER THAN A 1:15 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.



PARALLEL CURB RAMP
N.T.S.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STREET PAVING AND SIDEWALK
02775-02 THROUGH 02775-03

APPROVED BY: *[Signature]*
CITY ENGINEER

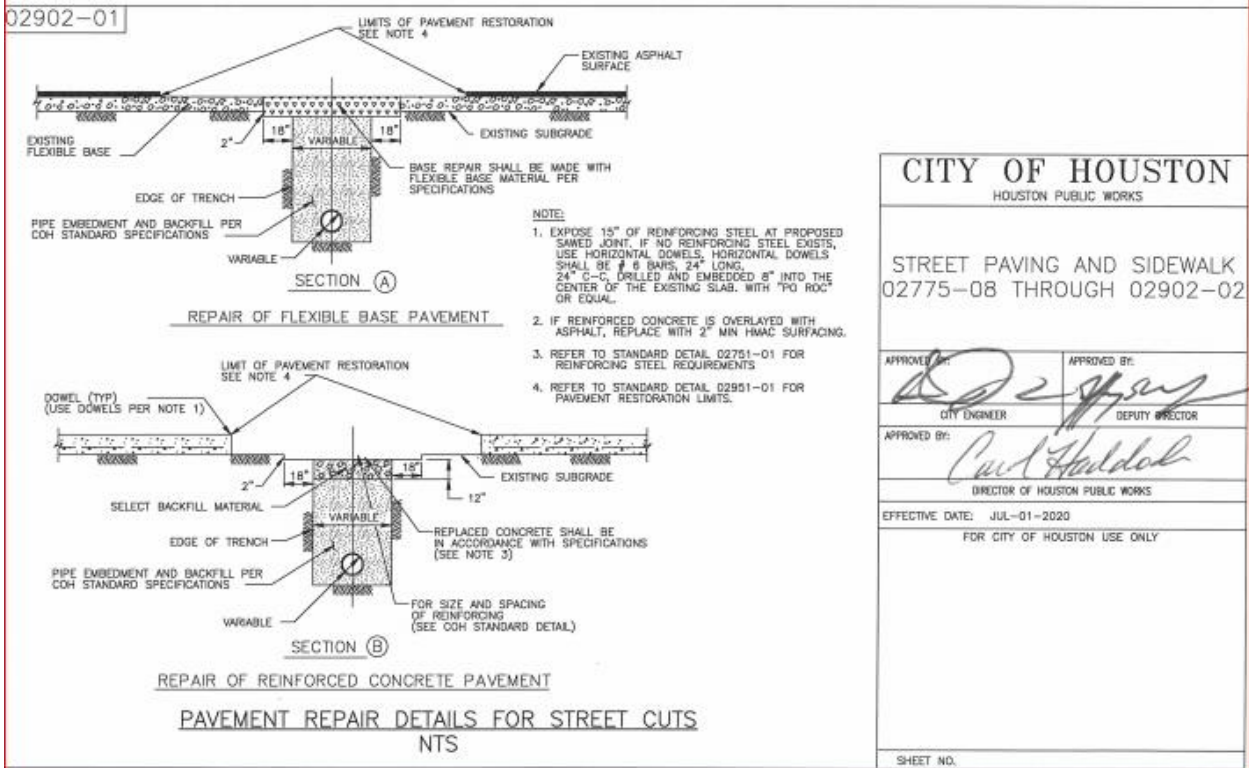
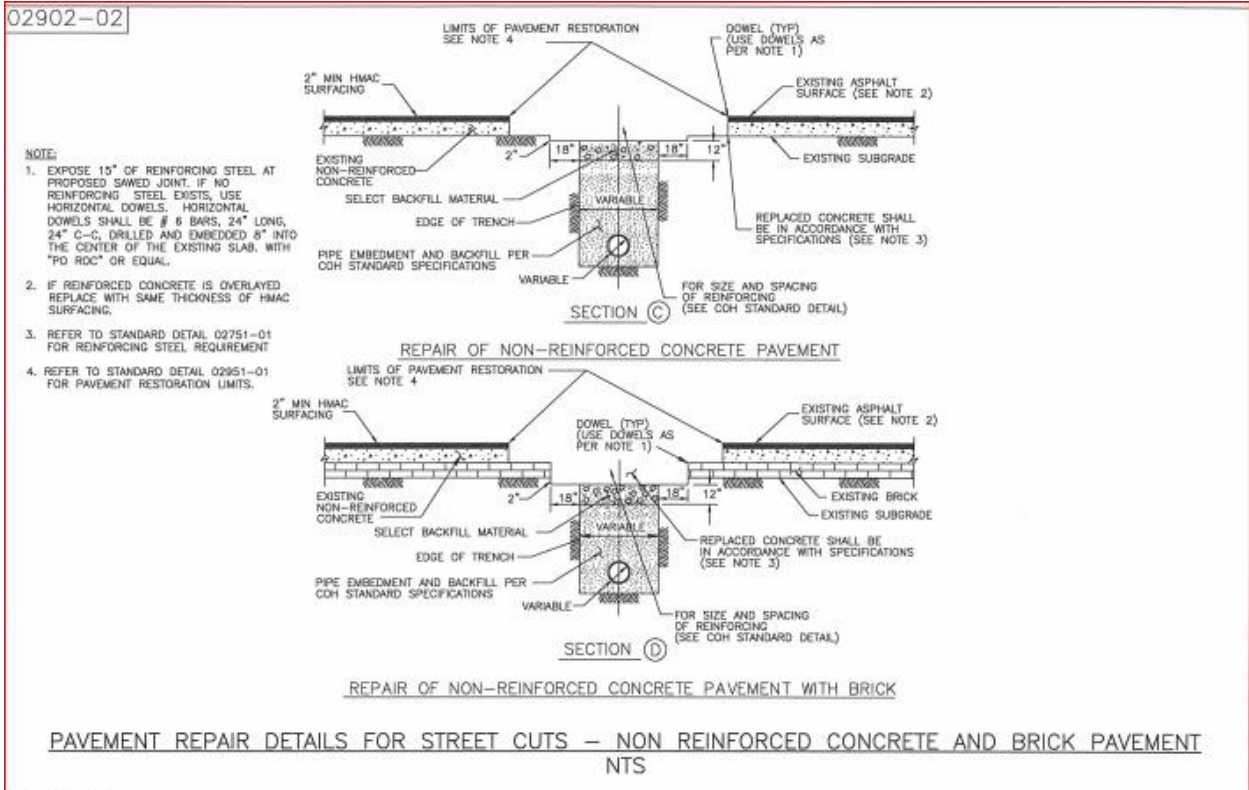
APPROVED BY: *[Signature]*
DEPUTY DIRECTOR

APPROVED BY: *[Signature]*
DIRECTOR OF HOUSTON PUBLIC WORKS

EFFECTIVE DATE: JUL-01-2020
FOR CITY OF HOUSTON USE ONLY

SHEET NO.

02902-01 PAVEMENT REPAIR DETAILS – Page 1



CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STREET PAVING AND SIDEWALK
02775-08 THROUGH 02902-02

APPROVED: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DEPUTY DIRECTOR
APPROVED BY: <i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFFECTIVE DATE: JUL-01-2020	
FOR CITY OF HOUSTON USE ONLY	
SHEET NO.	

TX DOT PED-18 DETECTABLE WARNING SURFACE DETAILS

GENERAL NOTES

1. Curbs shall be a minimum of 4" high and 4" wide at the top.
2. All slopes shall be maximum 4:1. Cross slopes of 1:20 and lesser turning ramps may be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalks and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6" x 6" sidewalk width is desirable. Where 0.5" sidewalk cannot be provided due to site conditions, sidewalk width may be reduced to 4' for curb ramps.
5. A 2' x 5' landing area of finished grade shall be provided for each curb ramp.
6. Turning slopes shall be 3:5 minimum. Cross slope shall be maximum 2%.
7. Clear width at the bottom of curb ramps shall be a minimum of 4' x 4' width contained within the crosswalk and entirely within the parallel vehicular travel path.
8. Provide flared sidewalks where the pedestrian circulation path crosses the curb ramp. Flared sidewalks shall be a minimum of 2' wide and shall be constructed with the same materials as the adjacent sidewalk. Flared sidewalks shall not be narrower than the adjacent sidewalk. Flared sidewalks shall be constructed with the same materials as the adjacent sidewalk.
9. Additional information on curb ramp location, design, light reflective value and materials shall be provided to the Texas Department of Transportation by the Texas Department of Transportation. The Texas Department of Transportation shall be notified of any changes to the sidewalk design or materials.
10. To serve as a pedestrian refuge area, the median should be a minimum of 8' wide. Median width shall be a minimum of 8' wide. Medians should be designed to provide accessible passage over or around them.
11. Street crossings shall be designed to provide a minimum of 5' x 5' landing at the top of curb ramps. The curb ramp shall be a minimum of 5' x 5' landing at the top of curb ramps. The curb ramp shall be a minimum of 5' x 5' landing at the top of curb ramps.
12. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalk unless otherwise directed.
13. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Landings are not required on curb ramps.
14. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
15. Provide concrete of a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
16. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
17. Curbs shown on sheet 1 within the limits of segment are considered part of the curb ramp for segment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that conflict with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIALS

19. Curb ramps shall contain a detectable warning surface that consists of either truncated domes or truncated cones. The surface shall be constructed with a material that meets the requirements of the Texas Department of Transportation. The surface shall be constructed with a material that meets the requirements of the Texas Department of Transportation. The surface shall be constructed with a material that meets the requirements of the Texas Department of Transportation.
20. Detectable warning materials shall meet Federal Specification for Detectable Warning Surfaces, Type III, and shall be installed in accordance with manufacturer's specifications.
21. Detectable warning surfaces shall be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at least 2 inches from the curb line and the edge furthest from the curb line is at least 2 inches from the back of curb. Detectable warning surfaces may be cut during the corner radius.
24. Sloped edges on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVED (IF USED)

25. Furnish detectable warning paved units meeting all requirements of ASTM C-1361, C-531, 104 in 6 by 6 by 1/2 inch thick with bottom of 6 inches.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Use detectable warning paved units using a lower lay.

SIDEWALKS

27. Provide clear ground space of approach parts, including pedestrian push buttons, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maximize accessibility. The existing slope of sidewalks and crosswalks within the public right of way may define the grade of the curbside roadway. Where a continuous grade greater than 1:20 is required, it must be provided. Where a continuous grade greater than 1:20 is required, it must be provided. Where a continuous grade greater than 1:20 is required, it must be provided.
31. General extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and setbacks shall be constructed and paid for in accordance with Item 531 "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.

DETECTABLE WARNING SURFACE DETAILS

SECTION VIEW DETAIL

TEXAS DEPARTMENT OF TRANSPORTATION
 PEDESTRIAN FACILITIES
 CURB RAMP
 PED-18
 SHEET 2 OF 4

DATE	BY	CHECKED	DATE
01/15/2018	MM	01/15/2018	MM
01/15/2018	MM	01/15/2018	MM
01/15/2018	MM	01/15/2018	MM

Special Specification 3086

Soil Densification and Raising Concrete Slabs with High Density Polyurethane Foam (HDPF)



1. DESCRIPTION

Soil densification to strengthen base and sub-base soils under concrete pavement by furnishing and injecting a two-part 1:1 by volume, water resistant High Density Polyurethane Foam (HDPF) into the foundation soils beneath the pavement through holes or injection tubes at locations shown on the plans or as directed, while monitoring for movement at the surface.

2. MATERIAL

Furnish a two-part 1:1 by volume High Density Polyurethane Foam (HDPF). The material must reach 90% compressive strength within 30 min of injection and have a water insoluble diluent, which permits the formation of polyurethanes in excess water.

Furnish materials in accordance with the following:

■ ASTM D-1622	Density	3.8 to 4.2 pounds / cubic foot
■ ASTM D-1621	Compressive Strength	60 psi (minimum)
■ ASTM D-1623	Tensile Strength	90 psi (minimum)
■ ASTM C-273	Shear Strength	45 psi (minimum)
■ ASTM D-790	Flexural Strength	90 psi (minimum)
■ ASTM D-1940	Closed Cell Content	+85%

Furnish non-shrink grout to patch drill holes. The grout must meet the requirements of DMS 4675 and used within the shelf life and temperature limitations set by the manufacturer.

3. EQUIPMENT

Provide machinery, tools, and equipment necessary for proper execution of the work. At a minimum, provide the following:

- 3.1. **Dynamic Cone Penetrometer (DCP).** Provide a portable DCP for on-site soils investigation to assist in location and depth of weak foundation soils and determination of correct injection pattern and injection elevations through tubes to densify weak soils. The DCP must be capable of taking readings as approved by the Engineer. Extension rods are required to perform this investigation.
- 3.2. **Drill.** Use a pneumatic or electric drill capable of efficiently drilling 5/8 in. to 2-in. diameter (if needed for multiple injection tubes) injection holes through the pavement without damaging the structural integrity of the existing pavement. Drill host holes for the placement of injection tubing cut to proper length(s) as per the plans, or as indicated on the field QC plan and DCP testing.
- 3.3. **Pumps.** Furnish as a minimum 2 trucks each with 2 mounted pumping units capable of injecting the polyurethane material at a controlled rate into the foundation soils to the require depths. Ensure:
 - the pumping units are equipped with certified flow meters to precisely measure the amount of each component injected, so that the 1:1 ratio by volume is maintained for quality control and a certified volume of injected polymer material is obtained and;
 - the pumping units are equipped with pressure and temperature control devices capable of maintaining proper temperature.

- 3.4. **Level.** Provide satisfactory equipment such as rotating laser levels and receivers to monitor movement of the pavement to within 1 mm, to verify that the injected foundation soils have been properly densified and to ensure the proper lift of pavement to grade is achieved.

4. CONSTRUCTION

- 4.1. **Preparation.** Prepare a profile of each area to determine the extent of the concrete slab that requires adjustment or raising. Ensure that the finished concrete slabs will conform to the grades and cross-section of the slabs as shown in the plans or as directed. Determine the exact locations of the injection holes for each treated area. Obtain approval for the injection hole locations.
- 4.2. **Drilling.** Use drilling operations that do not damage the surrounding concrete. Drill injection holes through the concrete, with diameters from 5/8 in. to 2-in. diameter holes, vertical and round, and to a depth indicated on the approved field QC plan. Install injection tubes to the prescribed injection depth or depths.
- 4.3. **Mixing.** Use the flow meters, to perform a quality check on the ratio of the two-part chemical system. The part A (Resin) to the part B (ISO) ratio by volume should be 1:1. Each day, reset the flow meters on the pumping units to zero. Perform a test shot of material from 1 injection gun at a time with a minimum of 0.5 gal. of each material, comparing the digital output in gallons of resin to the gallons of ISO to determine the injected ratio. The ratio range must be between 0.95 to 1.05 for all the injection guns to be used on the project. Be prepared to show the most recent calibration documents for the flow meters prior to using on the project.
- 4.4. **Injection and patching.** Inject high-density polyurethane formulation through holes, via injection tubes into the foundation soils beneath the pavement to the prescribed depth or depths. Control the stabilization of the foundation soils by regulating the rate of injection of the material. Continuously monitor for movement of the pavement. Foundation soils are sufficiently stabilized when movement of the pavement is not detected. Continue injection into the soils as needed to lift the pavement to grade. If no vertical movement has occurred, TxDOT may direct the Contractor to cease injecting. Take precautions to prevent the intrusion of injected material into any drainage facility and other structures. Remove any excessive polyurethane material after the nozzle is removed from the hole. Push down or drill out injection tubing 2 in. below the pavement surface and install a rapid set, non-shrink patching material into the drilled-out holes. Strike patches flush with the surface of the surrounding pavement.
- 4.5. **Set Time.** Open pavement to construction traffic within 30 min. of final injection of the polyurethane material since material is at a minimum 90% strength within 30 min. Pavement must be free of debris and swept clean prior to opening to traffic.
- 4.6. **Repairs.** As directed, repair any pavement slab or bridge approach/departure slab that has cracked or did not achieve required grades as a result of the Contractor's operation at no additional cost to the Department.
- 4.7. **Ride Quality.** Use Surface Test Type B, Schedule 3 to evaluate ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces," unless otherwise shown on the plans.

5. MEASUREMENT

This Item will be measured by the pound of high-density polyurethane foam injected and accepted. Measure the two chemical components and total to calculate the total weight of the material.

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Soil Densification and Raising Concrete Slabs with HDPF." This price is full compensation for drilling, furnishing and injecting polyurethane material, concrete repairs, labor, materials, tools, and incidentals.

BUSH INTERCONTINENTAL AIRPORT (IAH)

Legend: Red – Airport Boundaries

Black – Roadways

Blue – Parking Lots



ELLINGTON AIRPORT (EFD)

Legend: Red – Airport Boundaries Black – Roadways Blue – Parking Lots

