

Staff Summary Report



Council Meeting Date: 10/16/08

Agenda Item Number: 37

SUBJECT: Request award of a construction contract for rehabilitation of neighborhood streets to Sunland Asphalt and approval of a project contingency.

DOCUMENT NAME: 20081016PWDR05 STREET UPGRADING-MAINT-CONSTRUCTION (0809-05) PROJECT NO. 5405001

SUPPORTING DOCS: Yes

COMMENTS: Total cost for the construction contract is \$1,412,415.08 and the project contingency is \$141,000.

PREPARED BY: Donna Rygiel, Engineering Contract Administrator (x8520)

REVIEWED BY: Andy Goh, Deputy PW Manager/City Engineer (x8896)

APPROVED BY: Glenn Kephart, Public Works Manager (x8205)

LEGAL REVIEW BY: Teresa Voss, Assistant City Attorney (x8814)

FISCAL NOTE: Sufficient funds are available in Capital Improvement Fund No. 5405001.

RECOMMENDATION: Award construction contract and approve project contingency.

ADDITIONAL INFO: The scope of work for this project includes milling and overlay, removing and replacing asphalt concrete pavement, adjustment of manholes and valve boxes and replacement of survey monuments. The work location is in the general area bounded by Rural Road on the west, McClintock Drive on the east, Baseline Road on the south, and US60 on the north.

On September 22, 2008, the following bids were received:

<u>Contractor</u>	<u>Total Bid</u>
Sunland Asphalt	\$1,412,415.08
M.R. Tanner Construction	\$1,419,355.50
Nesbitt Contracting Company, Inc.	\$1,422,051.45
J. Banicki Construction	\$1,497,198.45
Construction 70, Inc.	\$1,524,253.55
FNF Construction, Inc.	\$1,666,401.72

Staff reviewed the bid of Sunland Asphalt found it to be in order. Sunland Asphalt was selected based on the bidding process set forth in A.R.S. §34-201, *et seq.*

The project contingency, the purpose of which is to cover possible unforeseen conditions during construction, is approximately 10 percent of the construction services contract amount.



**CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION**

INVITATION FOR BIDS

FOR

NEIGHBORHOOD STREET REHABILITATION

PROJECT NO. 5405001



CITY COUNCIL MEMBERS

Mayor – Hugh Hallman

Mark Mitchell
Corey Woods
Shana Ellis

P. Ben Arredondo
Onnie Shekerjian
Joel Navarro

City Manager – Charles W. Meyer
City Engineer – Andy Goh, P.E.

**CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
DIVISION OF ENGINEERING**

September 12, 2008

NEIGHBORHOOD STREET REHABILITATION

PROJECT NO. 5405001

ADDENDUM NO. 1 TO THE CONTRACT DOCUMENTS:

The original contract documents are modified or interpreted as stated herein. Receipt of this Addendum No. 1 shall be acknowledged by inserting its number and date in the space provided on the Bid Form. Failure to acknowledge may subject bidder to disqualification.

This Addendum No. 1 consists of 16 8.5"x11" page(s) and 1 – 24"x36" Plan Sheet.

CHECK SHEET

Replace the Check Sheet with the attached revised CS-1 page.

COMPETITIVE SEALED BID FORMS

Replace the Competitive Sealed Bid Forms B-2 and B-3 with the attached revised forms.

SPECIAL PROVISIONS

ALTERNATE BIDS

The Owner may accept or reject any alternate bids listed on the Bid Form and shall have the right to determine the low bidder on the basis of the sum of the Base Bid and/or any of the accepted alternate bids. All items included on the Bid Form must be bid, including Alternate bid items.

SURFACE PROTECTION AND TRAFFIC CONTROL

Vehicular access to residences and businesses will not be permitted across the wearing course until dry. It will be the Contractor's responsibility to control traffic and not allow traffic on or across wearing course until it is dry. Contractor is responsible for any damage that occurs due to failure by Contractor to control traffic.

TECHNICAL SPECIFICATIONS

Replace the Technical Specifications in its entirety with the attached pages TS-1 through TS-12.

PLAN SHEET

Replace sheet 2 of 2 with the revised plan sheet attached. The full size plan sheet is available for pick-up today at the City of Tempe Engineering Division, 31 E. Fifth Street, garden level, west wing.



(FOR) 
Andy Goh, P.E.
Deputy PW Manager/City Engineer

8.1. CHECK SHEET

This check sheet contains a listing of items to be included in the sealed bid by the Contractor:

	Included
Competitive Sealed Bid Forms (note receipt of addenda) B-1 to B-4	<input type="checkbox"/>
Competitive Sealed Bid Certification FormBC-1	<input type="checkbox"/>
Bidders Project References PR-1	<input type="checkbox"/>
List of Subcontractors SB-1	<input type="checkbox"/> Separate Envelope
Health Insurance Affidavit.....AFF-2	<input type="checkbox"/> Separate Envelope
Bid Bond (as per Instruction to Bidders)Page 8, Section 2.4	<input type="checkbox"/>
Safety Information (as per Instruction to Bidders)Page 9, Section 2.7	<input type="checkbox"/> Separate Envelope

City of Tempe

BID FORM



Project No. 5405001
Neighborhood Street Rehabilitation

Base Bid

Item No.	Item Name	Quantity	Unit	Unit Cost	Total Cost
1	ADJUST MANHOLE, LID, FRAME	55	EA		
2	WATER VALVE FRAME AND COVER ADJUSTMENT	5	EA		
3	REPLACE SURVEY MONUMENT	108	EA		
4	ASPHALT PATCHING (R-19) 2"	2000	SY		
5	REMOVE AND REPLACE SPEED HUMPS	23	EA		
6	EDGE MILL 1.5" EXISTING AC PAVEMENT	43000	LF		
7	LOCAL STREET CRACK SEALING	122251	SY		
8	CONSTRUCT 1.5" 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)	122251	SY		

Total Base Bid: _____

Alternate No.1

Item No.	Item Name	Quantity	Unit	Unit Cost	Total Cost
1	DEDUCT 1.5" 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)	-122251	SY		
2	CONSTRUCT 1.5" ULTRATHIN BONDED WEARING COURSE	122251	SY		

Total Alternate No.1:

TECHNICAL SPECIFICATIONS

MEASUREMENT AND PAYMENT

Measurement and payment for all items in the proposal shall be as specified in the applicable section of the Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction (MAG Specifications) latest edition, and supplements and any applicable City of Tempe Specifications or Standards as specified in these Technical Specifications. In the event of a conflict between these Technical Specifications and the MAG Specifications, these Technical Specifications shall prevail.

Payment of the Contract items shall be compensation in full for furnishing all overhead, labor, material, tools, equipment and appurtenances necessary to complete the work in a good, neat and satisfactory manner as indicated on the plans, or as specified, with all necessary connections and appurtenances for satisfactory use of and/or operation of said item. No additional payment will be made for work related to any item unless specifically noted or specified. Measurement will be for the completed work, in place, with no allowance for waste.

No payment shall be made for any item in CLEAN-UP. The cost of this work shall be included in other items for which payment is provided.

No payment shall be made for SAWCUTTING. The cost of this work shall be included in other items of work for which payment is provided.

ITEM NO. 1 – ADJUST MANHOLE, LID, FRAME

ITEM NO. 2 - ADJUST VALVE BOX

ITEM NO. 3 - REPLACE SURVEY MONUMENT

Items shall conform to the provisions of Section 345 of the MAG Specifications and Section 345.3 of the Tempe Supplement to the MAG Specifications.

Adjustment of survey monuments shall be in accordance with MAG Standard Detail 270. Monuments removed or disturbed during construction plus any additional monumentation required by the plans will be replaced in accordance with Section 409 of the MAG Specifications and MAG Standard Detail 270-1 Type B. The Contractor will be responsible for tying out the location of existing survey monuments prior to construction. The ties shall be performed under the direction of a Land Surveyor registered in the State of Arizona. Swing ties must be made in four directions to areas that will not be disturbed during construction. Field notes will be kept and copies submitted to the Engineer prior to construction.

Adjustment of manholes will be in accordance with MAG Standard detail 422 and Detail T-446 of the City of Tempe Supplement to the MAG Details.

Adjustment of valve boxes shall be in accordance with MAG Standard Detail 391-1 Type C and Detail T-445 of the City of Tempe Supplement to the MAG Details.

The Contractor will be responsible for tying out the location of all valve boxes, manholes, and sanitary sewer cleanouts. Field notes will be kept and copies given to the Engineer prior to lowering these items for street reconstruction.

Measurement for each item shall be as shown on the plans and as listed for payment below.

Payment shall be made at the contract unit price bid for each survey monument, manhole, sanitary sewer cleanout, or valve box complete and adjusted to finished grade as shown on the plans and referenced details. Payment shall be full compensation for the work.

ITEM NO. 4 – ASPHALT PATCHING (R-19 2”)

Areas identified by the engineer shall have the asphalt removed to the base conforming to MAG 336. The existing base material shall be compacted according to MAG section 310. Two inches of R-19 will be used as a base course. Asphalt Concrete shall conform to Section 710 of the MAG Specifications with the following exceptions and modifications:

Table 710-7 - The Asphalt Content (%) for gradations below the Restricted Zone shall be 5.0 to 6.0 for 12.5 mm mix designations and 4.5 to 5.5 for 19 mm mix designations.

An approved mix design shall be submitted prior to construction.

The Contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and exposure of partially completed work to damage and weather. The Contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. The Contractor may, if he so chooses, haul excess RAP to the City of Tempe property at Priest Drive and Rio Salado Parkway. The Contractor will be responsible for leveling or stockpiling the material and no payment shall be made for this work.

Only necessary construction traffic will be allowed on prepared areas prior to paving.

Measurement shall be by the square yard of existing AC pavement removed and replaced.

Payment will be made at the contract unit price bid per square yard. Payment shall be full compensation for all work associated with this item.

ITEM NO. 5 – REMOVE AND REPLACE SPEED HUMPS

Speed humps shall conform to Detail 210 of the MAG Standard Details. The center line of the existing speed humps will be marked on the curb by the Contractor prior to removal.

Speed humps will be measured per each unit removed and replaced in accordance with the MAG Standard Details and Specifications.

Payment shall be made at the unit price per each speed hump removed and replaced and shall be full compensation for all labor, tools, materials, and equipment, including traffic control and milling necessary to complete the item.

City of Tempe crews will install the striping. Contractor will coordinate the installation of speed humps with the City of Tempe Traffic Operations Division to have the striping completed.

Bump signs will be placed in both direction until the City of Tempe stripes the Speed Humps.

ITEM NO. 6 – EDGE MILL 1.5" EXISTING AC PAVEMENT

CONSTRUCTION REQUIREMENTS

These items shall consist of roto-milling and removing the existing AC pavement at the gutter line to remove excess AC and micro-surfacing from the pavement and the lip of the concrete gutter to a depth of 1.5 inches below the gutter line and tapered to 0" over a span of 8' as seen in Detail D-2. Edges perpendicular to traffic shall be chamfered. Milling equipment shall be capable of automatic leveling control. Any base material disturbed during the milling/removal operation shall be recompacted prior to paving. There will be no compensation for patching. All loose material generated by the milling operation will be swept, removed, and disposed of on the same day of the milling operation. Milled material on arterial and collector streets will be moved before the area is opened to traffic.

Centerline pavement striping that has been removed by the milling operation shall be replaced with centerline vertical panels before sunset, as required, in order to provide proper delineation of traffic lanes.

Existing asphalt concrete pavement shall be removed in accordance with these special provisions, using equipment specifically designed to remove such material by means of grinding or chipping, to a controlled line and grade. The equipment shall be capable of removing the existing pavement within one-eighth inch (1/8") of the specified removal depth. The removal shall be accomplished in a manner which does not destroy the integrity of the remaining pavement and which does not result in a contamination of the milled asphalt concrete with the underlying base material. Only equipment capable of removing material in the above stated manner shall be used.

Asphalt concrete pavement adjacent to manholes, valve boxes, small radius curbs and other fixed objects that produce confined areas shall be removed with milling equipment specifically designed to operate in restricted areas. The equipment must be capable of removing asphalt concrete of the specified thickness without damage to or displacement of the adjacent object(s). Roadway without intersecting roads, curb and gutter, etc. will not require asphalt milling unless requested by the Engineer.

The Contractor shall sweep the roadway to the satisfaction of the Engineer, prior to the application of the tack coat. The Contractor shall have a power pick-up broom available on the job site at all times during the overlay operation to assure clean joints and to maintain a clean street prior to overlay operations, or other work. Regular power brooms (non pick-up) may be used in non-residential areas, and are approved for use on this project.

The Contractor may mill and place the UTBWC in separate operations, provided the milled area (trench) is filled with UTBWC within 24 hours. Any damage done to the remaining (trench) surface by traffic or other circumstances, prior to the placement of asphalt-rubber concrete, shall be repaired by Contractor as specified by the Engineer at no additional cost to the City.

The Contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and

exposure of partially completed work to damage and weather. The Contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. The Contractor may, if he so chooses, haul excess RAP to the City of Tempe property at Priest Drive and Rio Salado Parkway. Dust control measures will be provided by the Contractor. The Contractor will be responsible for leveling or stockpiling the material and no payment shall be made for this work.

Measurement shall be by the lineal foot of existing AC pavement milled.

Payment will be made at the contract unit price bid per lineal foot. Payment shall be full compensation for all work associated with this item including milling/pulverizing, re-grading, compaction and removal of excess material.

ITEM NO. 7 – LOCAL STREET CRACK SEALING

Shall conform to Detail D-1. This item consists of cleaning and filling cracks in AC pavement.

All cracks larger than ¼ inch will be cleaned using a rotary impact crack router. All cracks will be clean and dry when sealed. Crack cleaning shall be done using high-pressure air, vacuum recovery, equipment. This cleaning must be performed immediately ahead of the sealing operation.

Sealant will be applied at a minimum temperature of 350 degrees to clean, dry pavement. Sealant will be applied, level with a V-shaped rubber squeegee, in a simple band-aid or standard recessed band-aid configuration (per detail) with a maximum overband thickness of 1/8 inch. Sealant must be applied, under pressure, in continuous motion with the applicator opening over the crack channel so that the channel is filled from the bottom up to prevent air being trapped beneath the sealant. Under-filled cracks will be resealed. It may be necessary to sand or apply detacking spray to sealed areas prior to opening the area to traffic.

All areas routed and/or sealed will be swept by means of a self propelled pick up sweeper prior to opening any area to traffic. The contractor is also responsible for cleaning adjacent sidewalks and driveways of any dust or debris generated by the routing and sealing operation.

Crack sealing shall be measured by the square yards of asphalt concrete surface area sealed.

Payment for this item will be made at the contract unit price bid per square yard of road area sealed and accepted with crack sealant material. Payment will be full compensation for all labor, materials, traffic control, and equipment necessary for the item complete and in place.

ITEM NO.8- CONSTRUCT 1.5" 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)

ASPHALT- RUBBER

Description: The work under this section shall consist of furnishing, proportioning and mixing all the ingredients necessary to produce an asphalt-rubber material.

Materials:

Asphalt-Rubber:

Asphalt Cement: Asphalt cement shall conform to the requirements of MAG Section 711.

Rubber: Rubber shall meet the following gradation requirements when tested in accordance with Arizona Test Method 714. Type B shall be used unless otherwise specified.

Sieve Size	Percent Passing	
	Type A	Type B
2.36 mm (#8)	100	
2.00 mm (#10)	95-100	100
1.18 mm (#16)	0-10	65-100
600 µm (#30)		20-100
300 µm (#50)		0-45
75 µm (#200)		0-5

The rubber shall have a specific gravity of 1.15 ± 0.05 and shall be free of wire or other contaminating materials, except that Type A rubber shall contain not more than 0.1 percent fabric and Type B shall contain not more than 0.5 percent fabric. Calcium carbonate, up to four percent by weight of the granulated rubber, may be added to prevent the particles from sticking together.

Certificates of Compliance conforming to Arizona State Department of Transportation Standard Specifications for Road and Bridge Construction Section 106.05 shall be submitted. In addition, the Certificates shall confirm that the rubber is a crumb rubber, derived from processing whole scrap tires or shredded tire materials; and the tires from which the crumb rubber is produced is taken from automobiles, trucks, or other 283 equipment owned and operated in the United States. The Certificates shall also verify that the processing does not produce, as a waste product, casings or other round tire material that can hold water when stored or disposed of above the ground.

Asphalt-Rubber Proportions: The asphalt-rubber shall contain a minimum of 20 percent ground rubber by the weight of the asphalt cement.

Asphalt-Rubber Properties: Asphalt-rubber shall be Type 1 unless otherwise specified and conform to the following:

Requirement

Property	Requirement		
	Type 1	Type 2	Type 3
Grade of base asphalt cement	PG 64-16	PG 58-22	PG 52-28
Rotational Viscosity*; 177°C (351°F); Pascal seconds (cps)	1.5-4.0 (1500-4000)	1.5-4.0 (1500-4000)	1.5-4.0 (1500-4000)
Penetration; 4°C (39°F), 200g, 60 sec. (ASTM D 5); dmm (in), min	10 (0.04)	15 (0.06)	25 (0.10)
Ductility; 4°C (39°F), 1 cpm (ASTM D 113); cm (in), min.	5 (2)	5 (2)	5 (2)
Softening Point; (ASTM D 36); °C (°F), min.	57 (135)	54 (129)	52 (126)
Resilience; 25°C (77°F) (ASTM D 3407); %, min	25	20	15
* The Viscometer used must be a Haake Viscometer, Model VT – 04, Rotor No. 1, or viscometer correlated.			

Asphalt-Rubber Design: At least two weeks prior to the use of asphalt-rubber, the Contractor shall submit an asphalt-rubber design prepared by an approved laboratory. Such design shall meet the requirements specified herein. The design shall show the values obtained from the required tests, along with the following information: percent, grade and source of the asphalt cement used; and percent, gradation and source(s) of rubber used.

Construction Requirements:

Mixing of Asphalt-Rubber: The temperature of the asphalt-cement shall be between 191°C (375°F) and 218°C (425°F) prior to the addition of rubber. No agglomerations of rubber particles in excess of 2" in the least dimension shall be allowed in the mixing chamber. The ground rubber and asphalt-cement shall be accurately proportioned in accordance with the design and thoroughly mixed prior to the beginning of the one-hour reaction period. Reaction time may be decreased to 45-minutes if documentation is provided that the physical properties of the mix design requirements are consistently met using a 45-minute reaction period. The Contractor shall document that the proportions are accurate and that the rubber has been uniformly incorporated into the mixture. Additionally, the Contractor shall demonstrate that the 284 rubber particles have been thoroughly mixed such that they have been "wetted." The occurrence of rubber floating on the surface or agglomerations of rubber particles shall be evidence of insufficient mixing. The temperature of the asphalt-rubber immediately after mixing shall be between 177°C (350°F) and 204°C (400°F). Reaction time shall start after all of the material for the batch has been mixed and the minimum reaction temperature of 177°C (350°F) has been achieved.

Prior to use, the viscosity of the asphalt-rubber shall be tested by the use of a rotational viscometer, which is to be furnished by the Contractor or supplier. The Contractor shall provide a qualified person to perform the testing.

Handling of Asphalt-Rubber: Once the asphalt-rubber has been mixed, it shall be kept thoroughly agitated during periods of use to prevent settling of the rubber particles. During the production of asphaltic concrete the temperature of the asphalt-rubber shall be maintained between 163°C (325°F) and 191°C (375°F). However, in no case shall the asphalt-rubber be held

for more than 10 hours at these temperatures. It shall be allowed to cool to a temperature of 121°C (250°F) or less and held at that temperature for not more than four days. The process of cooling and reheating shall not be allowed more than one time for a batch of asphalt rubber binder. For each load or batch of asphalt-rubber, the Contractor shall provide the Engineer with the following documentation:

- (A) The source, grade, amount and temperature of the asphalt cement prior to the addition of rubber.
- (B) The source and amount of rubber and the rubber content expressed as percent by the weight of the asphalt cement.
- (C) Times and dates of the rubber additions and resultant viscosity test.
- (D) A record of the temperature, with time and date reference for each load or batch. The record shall begin at the time of the addition of rubber and continue until the load or batch is completely used. Readings and recordings shall be made at every temperature change in excess of 11°C (52°F), and as needed to document other events which are significant to batch use and quality

AC pavement shall be constructed in accordance with Section 321 of the MAG Specifications.

Measurement and Payment

Measurement and Payment shall be made at the contract unit price bid per square yard for this item complete and in place to the thickness of 1.5 inches. Payment shall be full compensation for the work completed.

ALTERNATE NO. 1 – PAVEMENT ALTERNATE

ITEM NO. 1 – DEDUCT 1.5” 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)

This item is a complete deduction of Base Bid Item No. 8.

Measurement and Payment shall be made at the contract unit price bid per square yard of AC Pavement.

ITEM NO. 2 – CONSTRUCT 1.5” ULTRA THIN BONDED WEARING COURSE

Description

This specification covers the requirements for the placement of an Ultra-thin Bonded Wearing Course and shall consist of application of a warm Polymer Modified Emulsion Membrane followed immediately with an ultra-thin overlay of hot asphalt concrete. The Polymer Modified Emulsion Membrane shall be spray applied immediately prior to the application of the hot asphalt concrete overlay so as to produce a homogeneous wearing surface that can be opened to traffic immediately upon sufficient cooling. The finished wearing course shall have a minimum thickness of 1 ½ inches.

Materials

Course Aggregate

The coarse aggregates selected should be those typically used for high performance surfaces. Coarse aggregate should meet the skid resistance criteria as set forth by the specifying agency or have a history of successful use in surface mixes. Coarse aggregates, material retained above the #4 sieve, shall be from approved sources and shall meet the requirements listed in Table 1.

Coarse aggregates, such as crushed gravel, limestone, dolomite, sandstone, granite, chert, taprock, ore tailings, slag, or other similar materials, or blends of two or more of the above may be acceptable. When coarse aggregates for these mixes are from more than one source or of more than one type of material, they shall be proportioned and blended to provide a uniform mixture if approved by Engineer.

Tests	Method	Limit
Los Angeles abrasion value ¹ , % loss	AASHTO T 96-94	35 max
Soundness ¹ , % loss	Magnesium Sulfate or Sodium Sulfate	18max 12 max
Flat & Elongated Ratio, % @ 3:1	ASTM D 4791	25 max
% Crushed, single face	ASTM D 5821	95 min
% Crushed, Two or more Mechanically crushed faces	ASTM D 5821	85 min
Micro-Deval, % loss	AASHTO TP58-99	18 max

*All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.

¹Note: Values shown for these tests are targets for aggregate selection purposes. The results of these tests should not be the sole basis for rejection.

Fine Aggregate

The fine aggregates will be part of the asphalt mastic. The fine aggregate, passing the #4 sieve, shall be from approved sources and shall meet the requirements of Table 2. Crushed gravel shall not be allowed for use as a fine aggregate.

Tests	Method	Limit
Sand Equivalent ²	AASHTO T 176-86	45 min
Methylene Blue ¹ (on materials passing 200)	AASHTO TP 57-99	10 max
Uncompacted Void Content	AASHTO T 304-96	40 min

*All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.

²Note: Values shown for these tests are targets for aggregate selection purposes. The results of these tests should not be the sole basis for rejection. If the finished bituminous mixture passes the AASHTO T-283 requirement in the Mix Design section, the sand equivalent and methylene blue requirements may be waived.

Mineral Filler

Mineral filler may be used as an option to aid in meeting the gradation requirements. Hydrated Lime, certain classes of fly ash, bag house fines and Type 1 Portland cement are acceptable as mineral filler. Mineral fillers shall meet the requirements in Table 3.

Table 3 - Mineral Filler Requirement*
Typical acceptable gradation:
100% passing #30 sieve
75-100% passing #200 sieve

*All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.

Asphalt Binder

The asphalt binder shall meet the following requirements:

Bituminous Material

Bituminous material shall be SHRP Graded PG 76-22 TR+ conforming to the requirements of MAG Section 335 and 717 of the Standard Specifications, except for the following:

The SHRP Graded PG 76-22 TR+ shall conform to the following:

Binder composition:

- 10 ± 1 % ground rubber
- 90 ± 3 % asphalt cement
- 2% (Minimum) Polymer

SHRP Grade PG 76-22 TR+ SPECIFICATIONS

<u>PROPERTIES</u>	<u>SPECIFICATION</u>
Original	
Ground tire rubber	9% Minimum
COC Flash Point, F (ASTM D92)	450 Minimum
Softening Point, F (ASTM D36)	140 Minimum
Elastic Recovery @ 10C (ASTM D6084)	55% Minimum
Specific Gravity @ 60F	Report
Weight per Gallon @ 60F	Report

<u>PROPERTIES</u>	<u>SPECIFICATION</u>
Original	
Dynamic shear of G* / sin δ @ 76°C @ 10 rad/sec, kPa	1.00 kPa Minimum

RFTO Aging

Dynamic shear of

 $G^* / \sin \delta @ 76^\circ\text{C} @ 10 \text{ rad/sec, kPa}$

2.20 kPa Minimum

PAV Aging

Dynamic shear of

 $G^* \times \sin \delta @ 31^\circ\text{C} @ 10 \text{ rad/sec, kPa}$

5,000 kPa Maximum

Creep stiffness, S, @ -12C @ 60 sec

300 mPa Maximum

Creep rate, m-value, @ -12°C @ 60 sec

0.300 Minimum

Polymer Modified Emulsion Membrane**The emulsion shall be polymer modified and shall be in accordance with Table 5:**

Table 5 – Polymer Modified Emulsion Membrane Requirements				
Tests on Emulsion		Method	Min.	Max.
Viscosity, Saybolt Furol @ 77°F, s		AASHTO T59	20	100
Storage Stability Test ³ , 24 h, %		AASHTO T59		1
Sieve Test ⁴		AASHTO T59		0.05
Residue by Distillation ⁵ , %		AASHTO T59	63	
Oil Distillate by Distillation, %		AASHTO T59		2
Demulsibility, %	35 ml, 0.02 N CaCl ₂ or	AASHTO T59	20	
	35 ml, 0.8% dioctyl sodium sulfosuccinate	AASHTO T59		
Tests on Residue From Distillation				
Penetration		AASHTO T49	60	150
Solubility in Organic Solvent ⁶ , %		AASHTO T44	97.5	
Elastic Recovery, %		AASHTO T301	60	
³ Note: After standing undisturbed for 24 hours, the surface shall show no white, milky colored substance, but shall be a smooth homogeneous color throughout. ⁴ Note: The sieve test is waived if successful application of the material has been achieved in the field. ⁵ Note: AASHTO T59 with modifications to include a 400°F ± 10°F maximum temperature to be held for a period of 15 minutes. ⁶ Note: The organic solvent shall be approved by the Street Dept. representative as suitable. The test may be waived by the Street Dept. representative.				

Mix Design

The contractor shall formulate and submit a job mix formula (JMF) that satisfies the design general limits listed in Table 6 - Mixture Requirements. The job mix formula with the tolerances listed in Table 7 may exceed the Design General Limits. Mix design and proportioning will be approved by the Streets Division representative prior to the start of the project.

Table 6 - Mixture Requirements*			
Composition by weight percentages			
Sieves	#4 - Type A	3/8 in - Type B	½ in - Type C
ASTM	Design General Limits % Passing	Design General Limits % Passing	Design General Limits % Passing
¾ in ⁷			100
½ in		100	85 - 100
3/8 in	100	85 - 100	60 - 80
#4	40 - 55	25 - 38	25 - 38
#8	22 - 32	22 - 32	22 - 32
#16	15 - 25	15 - 23	15 - 23
#30	10 - 18	10 - 18	10 - 18
#50	8 - 13	8 - 13	8 - 13
#100	6 - 10	6 - 10	6 - 10
#200	4 - 7	4 - 7	4 - 7
Asphalt Content, %	5.0 - 5.8	4.8 - 5.6	4.6 - 5.6
All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.			
⁷ Note: A target of 100% passing the 5/8" sieve is recommended. Mixtures containing 5/8" aggregate size will require greater paving thickness.			

The limits of the target application rate of the asphalt emulsion shall be 0.20 ± 0.07 gal./sq. yd. The mix design shall determine the target application rate.

Drain down from the loose mixture shall not exceed 0.10% when tested in accordance with AASHTO T305.

The tensile strength shall meet or exceed 80% when tested in accordance with AASHTO T-283. Specimens for AASHTO T-283 shall be 4 in diameter and compacted in accordance with AASHTO TP-4 to 100 gyrations. The mixing and compaction temperatures shall be those recommended by the PG binder supplier.

The mixture shall not contain reclaimed materials.

Construction

Weather

The Ultra-Thin Bonded Wearing Course shall not be placed on a wet pavement. The pavement surface temperature and the ambient air temperature shall be not less than 50°F at the time of placement.

Equipment

The paver shall be self-priming, designed and built for applying the Ultra-Thin Bonded Wearing Course and be approved by the Engineer. The paver shall have a receiving hopper, dual feed augers, asphalt emulsion storage tank, a system for measuring the Polymer Modified Asphalt

Emulsion Membrane volume applied, spray bar and a heated, variable width, combination vibratory-tamping bar screed. The paver shall be capable of spraying the Polymer Modified Asphalt Emulsion Membrane, applying the hot mix asphalt overlay and leveling the surface of the mat in one pass. The paver shall be capable of placing the hot mix asphalt within three (3) feet after the application of the Polymer Modified Asphalt Emulsion Membrane. The paver shall be capable of paving at a controlled speed from 30 - 90 ft./minute. No wheel or other part of the paving machine shall come in contact with the Polymer Modified Emulsion Membrane before the hot mix asphalt concrete wearing course is applied. The screed shall have the ability to crown the pavement at the center and have vertically adjusted extensions to accommodate the desired pavement profile.

Surface Preparation

Immediately prior to applying the polymer modified asphalt, the surface shall be cleaned by sweeping, flushing, or other means necessary to remove all loose particles of paving, all dirt, and all other extraneous material. The surfaces shall be cleaned with a self-propelled pick-up broom. When necessary, cleaning shall be supplemented by hand brooms. This also includes the removal of grass or weeds that are growing in the joint between the street and the concrete gutter. Pavements impregnated with grease, oil, or fuel shall be thoroughly cleaned.

The bituminous material shall not be applied until an inspection of the surface has been made by the Engineer representative and he has determined that it is suitable.

Joints

No excessive buildup or unsightly appearance shall be permitted on longitudinal or transverse joints. A maximum of 4.0" overlap will be permitted on longitudinal joints. The contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the work. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they cannot be the last pass of any paved area. Care shall be taken to ensure straight lines along curb and shoulders. No runoff on these areas will be permitted.

Handwork

Approved hand lutes shall be used to spread the mixture in areas inaccessible to the spreader box and other areas where hand spreading may be required.

Measurement and Payment

Measurement and Payment shall be made at the contract unit price bid per square yard for this item complete and in place to the thickness of 1.5 inches. Payment shall be full compensation for the work completed.

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CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
DIVISION OF ENGINEERING

NOTICE TO CONTRACTORS

**NEIGHBORHOOD STREET REHABILITATION
PROJECT NO. 5405001**

1. **INTRODUCTION**

1.1. **EXAMINATION OF PREMISES**

The Contractor shall visit the site of the project and shall fully acquaint themselves with the conditions as they exist, so that they may fully understand the facility, difficulties and restrictions attending the execution of the work.

Bidders shall also thoroughly examine and be familiar with the specifications and the Contract. Failure of the Contractor to obtain, receive or examine any Addenda to the proposed Contract or to visit the site and acquaint themselves with the existing conditions shall in no way relieve them from any obligation with respect to the submitted bid. By submitting a bid, the Contractor agrees that they have examined the site, specifications and Contract and accepts, without recourse, all site conditions and the proposed Contract.

1.2. **START OF WORK/TERM OF CONTRACT**

Work shall start as soon as practicable, but not later than seven (7) calendar days after the City issues the Notice to Proceed and shall be completed within one hundred twenty (120) calendar days thereafter.

2. **INSTRUCTION TO BIDDERS**

- 2.1. **SEALED BIDS** will be received and the time of delivery recorded by the City of Tempe, Arizona, Public Works Department, Engineering Office, City Hall West Garden Level, 31 East Fifth Street, Tempe, Arizona 85281, until 10:30 a.m. September 22, 2008. At that time and place, bids will be opened and the amount of each bid and the name of each bidder publicly read in the Public Works Conference Room. Bids received after the time specified will be returned unopened. All bids shall be submitted in a sealed envelope. The outside lower right-hand corner shall be marked:

BID OF _____, CONTRACTOR

**FOR: NEIGHBORHOOD STREET REHABILITATION
PROJECT NO. 5405001**

If a bid is mailed or delivered via overnight mail service, the outside envelope should be marked with the date and time of the bid opening, as well as the words "PUBLIC WORKS ENGINEERING BID OPENING." Please allow sufficient time for delivery.

A bid guarantee by certified check, cashier's check or surety bond in the amount of 10% of the bid shall be submitted with the bid. Personal or individual surety bonds are not acceptable. The City requires all bonding companies and liability and excess insurance carriers to have a rating of "A-VII" or better as listed in the most recent "Best's Key Rating Guide (Property/Casualty)" published by A.M. Best Company. The certified check, cashier's check or surety bond shall be returned to the Contractors whose bids are not accepted and to the successful Contractor upon the execution of a satisfactory bond and Contract.

All Contractors are required to submit from their insurance carriers, a three (3) year history of both their Experience Modification Factor (EMOD) and their loss ratio, among other things. In addition, all Contractors are required to submit an affidavit certifying that their company and all of its subcontractors, defined as doing work in excess of \$30,000 as determined at the start of each project, will have and will continue to have during the course of the Contract, health insurance in force for all project employees. The employer must also offer insurance to project employees for their eligible dependents.

A set of plans and specifications are available from the City of Tempe Engineering Division (480-350-8200), 31 E. Fifth Street, Garden Level, Tempe, Arizona. The return of such plans and specifications shall be guaranteed by a deposit of fifteen dollars (\$15.00) which shall be refunded upon return of the plans and specifications in good order within seven (7) calendar days from the date of purchase. Specification books must be returned with original binding intact.

The City of Tempe may reject any and all bids and waive any informality in the bids received.

Award will be made or bids rejected within sixty (60) days after bid opening.

Please direct any questions to the City of Tempe Engineering Division at (480) 350-8200. The City Project Construction Manager for this project is Mauricio Jara.

Anyone wishing to receive future notices through automatic notification by email can register their company name and email address at www.tempe.gov/engineering (choose Contractors, E-mail Notification).

2.2. **SECURING DOCUMENTS**

Copies of specifications, special provisions, and other proposed Contract related documents are on file in the office of the City Engineer, City Hall, 31 East Fifth Street, Tempe, Arizona, and are open for public inspection. A set of plans and specifications may be obtained from the City Engineer. **The return of such plans and specifications shall be guaranteed by a deposit of fifteen dollars (\$15.00) which shall be refunded upon return of the plans and specifications in good order within seven (7) calendar days from the date of purchase. Specification books must be returned with original binding intact.**

2.3. **ADDENDA**

Addenda issued prior to the deadline for bidding shall be attached to and made a part of the Contract.

2.4. **BID SECURITY**

Each bid shall be accompanied by a certified check, cashier's check, or surety bond in an amount equal to at least ten percent (10%) of the bid, payable without condition to the City as a guarantee that the bidder, if awarded the Contract, will promptly execute the Contract in accordance with the bid and in the manner and form required by the Contract. Each surety bond shall be executed by a surety company or companies duly authorized to do business in the State of Arizona and all bond documents shall be executed pursuant to the requirements of A.R.S. §34-206.

2.5. **BIDS**

Bids shall be properly executed upon the Competitive Sealed Bid form attached and made a part of this Contract. The signature of all persons signing shall be in longhand. The completed forms shall be without interlineations, alterations, or erasures. Unit prices should be rounded to the nearest whole cent (two spaces behind the decimal point). In case of an error in the extension of unit prices and the totals, the unit price shall govern.

Bids shall not contain any recapitulations of the work to be done. Alternative bids will not be considered except as called for. No oral, telegraphic, or telephonic bids or modifications will be considered.

2.6. **IRREGULAR BIDS**

Bids may be considered irregular and may be rejected if any of the unit prices quoted in the bidding schedule are unbalanced, either above or below the amount of a reasonable bid price, to the potential detriment of the City.

2.7. **BIDDING PHASE REQUIREMENTS**

Bidders shall submit current loss history information from all their insurance carriers in a separate envelope with their bid. The information specific to workers' compensation insurance carriers must include a three (3) year history of both their Experience Modification Factor (EMOD) and their loss ratio. This information must be provided with the bidder's proposal.

2.8. **PRE-CONTRACT AWARD REQUIREMENTS**

The Contractor shall provide a copy of their written health and safety program and any required employee training records or certificates.

2.9. **POST CONTRACT AWARD REQUIREMENTS**

The Contractor shall provide certificates of insurance and meet indemnification criteria. The Contractor shall also provide performance and payment bonds as required in Section 4.1.

2.10. **BID QUANTITIES**

The quantities listed in the specifications are for bid purposes. The actual quantities provided to the Contractor may be adjusted to accommodate field requirements.

3. **SCOPE OF WORK**

The proposed work will consist of the construction of **NEIGHBORHOOD STREET REHABILITATION TO INCLUDE MILL AND OVERLAY, REMOVING AND REPLACING ASPHALT CONCRETE PAVEMENT OF VARIOUS STREETS, AND ADJUSTEMENT OF MANHOLES, VALVEBOXES AND REPLACEMENT OF SURVEY MONUMENTS AND ASSOCIATED DETAILS** together with associated work and shall be accomplished in accordance with the Maricopa Association of Governments 2008 Uniform Standard Specifications for Public Works Construction ("MAG Specifications"), Maricopa Association of Governments 2008 Uniform Standard Details for Public Works Construction ("MAG Details") and the City of Tempe Supplement to the MAG Specifications and MAG Details (2007) ("City of Tempe Supplement") except as modified in the Contract.

3.1. **CONTRACTOR'S CONSTRUCTION SCHEDULE**

Prior to the start of work, a construction progress schedule shall be required for all projects and shall comply with the requirements of MAG Specifications 108.4. In addition, a schedule update comparing actual progress with scheduled progress will be required with the submission of each monthly pay request.

3.2. **UNIFORM STANDARD SPECIFICATIONS**

All work done under this Contract shall be accomplished in accordance with the MAG Specifications, MAG Details and the City of Tempe Supplement except as modified in this Contract. City of Tempe shall be referred to as "City."

In the case of a discrepancy or conflict, the order in which the Contract sections govern is as follows from the highest to lowest: special terms and conditions, technical specifications, plans, general terms and conditions, City of Tempe Supplement, MAG Specifications, and MAG Details.

All bids shall be made in accordance with the General Conditions of the MAG Specifications.

3.3. **CONTRACTOR'S REPRESENTATIVE**

The Contractor shall at all times be present at the worksite or represented by a foreman or other properly designated agent. Instructions and information given by the City Construction Manager to the Contractor's foreman or agent on the work shall be considered as having been given to the Contractor.

3.4. **SUPERVISION BY CONTRACTOR**

The Contractor will supervise and direct the work. They will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

3.5. **AUTHORITY OF THE CITY ENGINEER'S APPOINTED REPRESENTATIVE**

The City Construction Project Manager shall act as the City Engineer's designated representative during the construction period. He shall advise on questions concerning coordination with the City, public safety, and quality and acceptability of materials and work performed. The City Engineer through the City Construction Project Manager shall interpret the intent of the Contract plans, specifications, and technical provisions in an unbiased manner.

The City Construction Project Manager, or his assigned inspector shall be present on the site at times during construction to monitor the work and to maintain records for Contract management. The City Construction Project Manager shall promptly make decisions relative to the interpretation of the Contract so as to

minimize delays in construction. The City Construction Project Manager will not be responsible for directing construction, control, techniques, sequence, or procedures, or for directing job safety.

3.6. **BENEFICIAL OCCUPANCY**

Beneficial occupancy is use of a facility or project, in whole or in part, by the City for its intended purpose. This may occur even though some work of the Contract remains undone. Prior to such use or occupancy, the City will prepare a written agreement with the Contractor and accomplish a partial acceptance inspection. Beneficial use will apply to general right of way projects only.

3.7. **SUBSTANTIAL COMPLETION**

Substantial completion is work which is ready for occupancy and use for its intended purpose as certified by a Certificate of Occupancy. This term will be applied to building construction projects only.

3.8. **PROJECT COMPLETION**

Project completion is full completion of all construction associated with the Contract, including, but not limited to punch list items, close out documentation, O & M manuals, warranties, and record drawings as certified by the architect or engineer of record. The Contractor may be found in default of this Contract in accordance with MAG Specifications 108.10 should project completion fall behind substantial completion by more than forty-five (45) days.

3.9. **CONTRACT COMPLETION DATE**

The completion date established by reference to the Notice to Proceed is for completion of all or specified portions of the work. This includes items of work to be completed under an owner allowance or as part of a contingency item. The stated Contract completion date will include weather conditions that are not unusually severe for the area and time of year. This date may be expressed as a calendar date or a number of calendar days after issuance of the Notice to Proceed.

If time extensions are issued by the City, this revised Contract completion date will be referred to as the adjusted contract completion date.

3.10. **INSPECTION**

The Contractor is responsible for complying with the specifications and is hereby forewarned that final approval of any work will not be given until the entire project is completed and accepted by the City. Prior to final inspection on any City facilities requiring a City permit, the Contractor must call for inspections from City Development Services Department and City Public Works Department.

The final inspection must be completed prior to final acceptance and payment.

3.11. **FINAL ACCEPTANCE & GUARANTEE**

Final acceptance shall mean a written final acceptance of the work. The City Engineer shall make the final acceptance promptly after the work has been completed in accordance with the Contract and after inspection is made. The work performed under this Contract shall be guaranteed for a period of one year from the date of final acceptance.

3.12. **AS-BUILT DRAWINGS**

The Contractor shall provide and maintain accurate field data on a red-lined set of Contract drawings, which are to be kept current and submitted as complete at the conclusion of the construction. These record drawings will be used as documentation for progress payments, and upon project completion, for the preparation of as-built file drawings by the architect/engineer. All as-built information shall be on 3 ml double matte black line Mylar and shall be 24" x 36" in size. Final payment will not be issued until all record drawings and as built information are submitted by the Contractor, and certified to be complete by the architect/engineer of record.

3.13. **SHOP DRAWINGS, SCHEDULES & SAMPLES**

In time for each to serve its proper purpose and function, the Contractor shall submit to the City Engineer schedules, reports, drawings, lists, literature samples, instruction, directions, and guarantees as are specified or reasonably required for construction, operation, and maintenance of the facilities to be built and/or furnished under this Contract.

Shop drawings and data shall be submitted to the City Engineer in such number of copies as will allow them to retain four (4) copies of each submittal. The submittal shall clearly indicate the specific area of the Contract for which the submittal is made. The additional copies received by them will be returned to the Contractor's representative at the job site. The City Engineer's notations of the action which he has taken will be noted on one (1) of these returned copies.

The above drawings, lists, prints, samples, and other data shall become a part of the Contract and a copy of the same shall be kept with the jobsite Contract, and the fabrications furnished shall be in conformance with the same. However, the City Engineer's review of the above drawings, lists, prints, specifications, samples, or other data shall in no way release the Contractor from their responsibility for the proper fulfillment of the requirements of this Contract nor for fulfilling the purpose of the installation nor from their liability to replace the same, should it prove defective or fail to meet the specified requirements.

3.14. **QUALITY CONTROL**

All material shall be new and of the specified quality and equal to the accepted samples, if samples have been submitted. All work shall be done and completed in a thorough, workmanlike manner. It shall be the duty of the Contractor to call the City Engineer's attention to apparent errors or omissions and request instruction before proceeding with the work.

The Engineer may, by appropriate instruction, correct errors and supply omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract.

At the option of the City Engineer, materials to be supplied under this Contract will be tested and/or inspected either at their place of origin or at the site of the work. The Contractor shall give the City Engineer written notification well in advance of actual readiness of materials to be tested and/or inspected at point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the material nor shall it preclude retesting or reinspection at the site of the work.

3.15. **EXCESS MATERIALS**

Excess or unsuitable material, broken asphaltic concrete and broken portland cement concrete shall be disposed of by the Contractor. The Contractor shall, prior to commencement of the work, submit a letter to the City Engineer stating the location of disposal site(s) for all excess material and certifying that they have obtained the property owner's permission for the disposal of all surplus material.

3.16. **PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK**

The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same until that phase is completed and accepted by the City Engineer. Estimate or partial payment of work so completed shall not release the Contractor from such responsibility but they shall turn over the entire work in full accordance with these specifications before final payment can be made.

3.17. **SURVEY CONTROL POINTS**

Existing survey monuments shall be protected by the Contractor or removed and replaced under the direct supervision of the City Surveyor or their authorized representatives. Prior to construction, it is the responsibility of the Contractor to notify the City Surveyor of any survey monuments which need to be referenced off. Any monuments which are lost and have not been referenced off due to the Contractor's negligence and lack of notification to the City Surveyor shall be replaced at the Contractor's expense. Lot corners shall not be disturbed without knowledge and consent of the property owner and only after such corner has been

properly referenced for replacement.

3.18. HINDRANCES AND DELAYS

3.18.1. Except as provided in the following Section 2.20.2, no charge shall be made by the Contractor for hindrances or delays from any cause during the progress of any portion of the work embraced in this Contract; but such delays, if due to no fault or neglect of the Contractor, may entitle the Contractor to a time extension sufficient to compensate for the delays at the City's discretion. The amount of the delay shall be determined by the City Engineer provided the Contractor gives the City Engineer immediate notice in writing of the cause of such delay.

3.18.2. The parties agree to negotiate for the recovery of damages related to expenses incurred by the Contractor for a delay under the following circumstances:

- a. If the City is solely responsible for the delay which is unreasonable under the circumstances; and
- b. Which delay was not within the contemplation of the parties to the Contract at the time the Contract was entered into; and
- c. The Contractor can show the impact of the delay on the critical path of the construction activity as indicated in an approved Critical Path Method (CPM) schedule.

Unless specifically provided for in the special terms and conditions, the City shall have discretion to determine such damages. Maximum compensation for an unreasonable or unforeseen delay shall not exceed the daily amount specified for liquidated damages in MAG Specifications 108.9 based on the original Contract amount.

This section shall not be construed to void any provisions of this Contract which require notice of delays, provides for arbitration or other procedure for settlement or provides for liquidated damages.

3.19. SUBSIDIARY WORK

All work called for in the specifications and/or shown on the drawings shall be performed by the Contractor and unless a specific bid item is provided for the work, then such portion of the work will be considered subsidiary to other work for which payment is provided.

3.20. **MISCELLANEOUS WORK AND ALLOWANCES**

3.20.1. The following items will be included in the work with no direct payment allowed. Payment shall be included in the payment for other items for which direct payment is made.

- a. Contractor's expenses for but not limited to mobilization, job site office, storage facilities, traffic control and public safety devices, sanitary facilities, utilities and telephone.
- b. Cleanup including day to day cleanup.
- c. Notification to residents adjacent to this project prior to start of construction which would affect them.
- d. Water required for compaction or dust control.
- e. Miscellaneous removals and relocations not otherwise specified in the Technical Provisions.
- f. Power pole bracing.
- g. Removal of trees twelve inches (12) or less in diameter.
- h. Removal, relocation and/or modification of existing walls and fences.
- i. Trimming of trees and bushes.
- j. Replacement of plant material and repair of irrigation equipment to meet or exceed conditions existing prior to Contractor beginning work.

3.21. **CHANGE ORDERS**

In the event that significant changes in the scope of the work, and/or changes in the quantities due to contingencies of construction become necessary, such changes shall be made in accordance with MAG Specifications 104.

The costs associated with any extra work must be approved at the City's discretion prior to the start of the extra work. Extra work performed on an actual cost basis shall be submitted for approval within twenty-one (21) days after the completion of such work. The final costs for additional work shall also include all charges associated with extended General Conditions or Contract acceleration.

3.22. **ADDITIONAL SERVICES**

Additional services which are outside the scope of basic services contained in this Contract shall not be performed by the Contractor without prior written

authorization from the City Engineer. Additional services, when authorized by an executed Contract or an amendment to this Contract shall be compensated in an amount mutually agreed upon between the City and the Contractor.

4. **GENERAL TERMS AND CONDITIONS**

4.1. **PERFORMANCE SECURITY**

Bonds in the following amounts will be required of the Contractor immediately after Notice of Contract is awarded and must meet the requirements of A.R.S. § 34-222 including:

1. Performance bond in an amount equal to the full Contract price.
2. Payment bond in an amount equal to the full Contract price.

4.2. **PAYMENT**

4.2.1. Method of Payment. Payment shall be made as directed in MAG Specifications 109.

4.2.2. Measurement of Payment.

- a. Quantities of materials for this work shall be paid under the appropriate schedule at the applicable contract price per unit of measurement with no allowances for waste. Payment will be made after completion upon acceptance by the City, and upon the City's receipt of approved invoices.
- b. Payment for various items in the Bid shall be compensation in full for furnishing all materials, labor, tools, equipment and appurtenances necessary to complete the work in a satisfactory manner as specified. No additional payment will be made for work related to any item unless specifically called for in the Bid.
- c. Materials placed without approval of the inspector or materials rejected due to improper placing, improper proportions of materials, or materials found to be defective will not be paid for.

4.3. **PRE-CONSTRUCTION MEETING**

4.3.1. The Contractor will be required to attend a City safety briefing. The safety briefing session shall address the following issues:

- a. City Safety Rules and Expectations.

- b. Contractor Tailgates. Contractors shall conduct tailgate safety meetings regularly to ensure that safety on the job is given priority.
- c. Accident/Injury/Illness Procedures. The City's Construction Project Manager and the City's Risk Management Division shall be contacted any time an accident, injury or illness occurs on the project.
- d. Unsafe Acts. Contractor employees shall be empowered to stop an unsafe act or condition at City facilities.
- e. Safety Audits. The City reserves the right to conduct safety audits at the job site at any time. In addition, Contractor shall notify the City should an OSHA inspection occurs at a City job site.
- f. Job and Site Specific Requirements. Site specific requirements such as lockout/tagout rules and evacuation plans shall be covered during the safety briefing as indicated by the project exposures.

4.3.2. The Contractor may have the following additional safety requirements based on the exposures of the project:

- a. The Contractor shall implement a permit-required confined space program as required under federal and state statutes and/or regulations, and amendments thereto, for all work that encompasses a space that a) is large enough and so configured that an employee can bodily enter and perform assigned work; b) has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and c) is not designed for continuous employee occupancy.

As a part of the Contractor implementing a confined space program, it is the responsibility of the Contractor to provide trained attendant(s) and all intrinsically safe confined space entry related equipment (for example, ladders, gas detectors, safety harnesses, safety tripods, and electrical devices) as needed for safe entry of a confined space.

4.3.3. When any City employee is required to enter a confined space during the construction phase of a project, such as for the purpose of inspection, it is the responsibility of the Contractor to provide a trained attendant and all necessary equipment required for safe entry of the City employee.

4.3.4. Safety will be a part of the agenda for the weekly construction meetings. Items of discussion will be outstanding safety and health issues, current safety meeting topics, environmental issues and any accidents or injuries on the job. The City reserves the right to request the agendas and minutes of the meetings and documentation of any safety tailgate meetings held on the job site.

4.4. LICENSES

The Contractor must carry the appropriate State of Arizona contractor's license for the proposed work at the time of bid. If the low bidder does not have the appropriate license, the City reserves the right to reject their bid and award the project to the lowest responsible bidder who has the appropriate license.

Prior to execution of the Contract, the low bidder must possess a valid City Transaction Privilege License and shall provide the Permit Number of such for validation.

4.5. HAUL PERMIT

In any operation where more than one-tenth of an acre of surface area is disturbed and/or when unpaved onsite haul roads are used, the Contractor will obtain a Maricopa County Earth Moving Permit as required under Rule 200 of the Maricopa County Division of Air Pollution Control Requirements. This permit will require that a Control Plan to mitigate dust and tracking problems be submitted to the County for approval prior to issuance of the Earth Moving Permit. The Control Plan should be submitted to the City for review prior to County submittal to ensure that all elements of the planned operation are covered. Please contact the Maricopa County Division of Air Pollution Control at 602-506-6700 for additional details.

In addition, all Contractors hauling fill or excavation materials where the haul exceeds 5,000 cubic yards or when the duration of the haul is more than ten (10) working days are required to obtain a City haul permit before the hauling operation begins. Prior to receiving a hauling permit, the Contractor must submit the required certificate of insurance, a plan showing the proposed haul routes and a complete schedule of their hauling operation to the City Transportation Division. Prior to submittal, the Contractor should contact Engineering Services for complete details for issuance of the City haul permit.

4.6. MISCELLANEOUS REMOVAL AND RELOCATIONS

Miscellaneous removals and relocations shall be construed to mean the removal of all unsuitable materials whether designated or implied by the plans and specifications, and shall include but not be limited to the removal of such items as pipes, concrete, asphalt, block, brick, rock, metal, etc. of every nature and description, unless such items are specifically designated in a separate bid item. Also, certain items require temporary removal and reinstallation such as mail box stands, sign posts, survey monument frames and covers, etc., and are included in this category.

4.7. **ENVIRONMENTAL REQUIREMENTS**

The Contractor shall comply with all federal, state, and municipal regulations, laws, and policies relating to air, ground water quality, and water conservation. In addition, the following requirements are applicable for City construction projects.

- 4.7.1. Non-pick up sweepers will not be allowed except as required to make joints during chip sealing operations.
- 4.7.2. Water flooding of trenches with potable water will not be permitted.
- 4.7.3. All paints applied by sprayers shall be of a water-based type.
- 4.7.4. Provisions shall be made to prevent the discharge of construction silt, mud, and debris into City storm drains or streets.
- 4.7.5. Spills of oil, gas, chemical, or any other hazardous materials must be reported and removed by approved procedures. Mitigation measures shall be taken to prevent contamination of construction storage sites.
- 4.7.6. Concrete waste must be disposed of in an approved location and at least 25 feet from established landscaping.
- 4.7.7. City refuse roll-off containers shall be used on City projects. If you should have any questions concerning any of the requirements or charges, please contact the Sanitation Supervisor, at 480-350-8268.
- 4.7.8. Hazardous wastes shall not be discharged into the City's sanitary sewers or storm drainage system. All waste products shall be disposed of in accordance with applicable regulations.
- 4.7.9. The discovery of archeological ruins or artifacts must be reported immediately, and excavation shall not resume in the identified area until approved by the Engineer.
- 4.7.10. The Contractor shall take whatever steps, procedures, or means to prevent abnormal, material spillage, or tracking conditions due to their construction operations in connection with the Contract. The dust control measures shall be maintained at all times during construction of the project, to the satisfaction of the City Engineer, in accordance with Rule 200 of the Maricopa County Health Department Air Pollution Control Regulations, which require that an Earth Moving Permit be issued and a Control Plan be approved prior to commencement of work. Contact Maricopa County at 602-506-6700 for details.
- 4.7.11. The Contractor shall comply with all applicable federal regulations concerning NPDES permits for storm discharges from construction sites.

4.7.12. All materials supplied by the contractor shall be 100% asbestos free unless otherwise approved by the City.

No additional payment will be made for compliance with the above items.

In addition to the above, the use of new products made with reclaimed material and that meet project specifications, is encouraged.

4.8. **SAFETY REQUIREMENTS**

The Contractor shall comply with all applicable federal, state, local, health and safety regulations, ordinances, and requirements. In addition, the following requirements are applicable for City construction projects.

4.9. **CLEAN-UP**

The Contractor shall, upon completion of the work, remove all temporary construction facilities, debris, and unused materials provided for in the work, and put the site of the work and public right-of-way in a neat and clean condition. No special payment will be made for this item.

4.10. **APPROXIMATE QUANTITIES**

It is expressly understood and agreed by the parties that the quantities of the various classes of work to be done and material to be furnished under this Contract, which have been estimated, as stated in the Invitation for Bids, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the bids offered for the work under this Contract. The Contractor further agrees that the City will not be held responsible for any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done.

If any error, omission, or misstatement is found to occur in the estimated quantities, the same shall not invalidate this Contract or release the Contractor from the execution and completion of the whole or any part of the work in accordance with the plans and specifications and for the prices agreed upon and fixed therefore, or excuse them from any of the Contract obligations or liabilities, or entitle them to any damages or compensation except as may be provided for in this Contract.

4.11. **BLUE STAKE**

The Contractor is required to notify Blue Stake (602-263-1100) prior to the excavation of any material in accordance with A.R.S § 40-360.22. The Contractor shall directly contact the City for marking of electrical for traffic signals, sprinkler and irrigation facilities.

4.12. **SALT RIVER PROJECT CONSTRUCTION CLEARANCE AGREEMENT**

Salt River Project requires all contractors who will be working on their facilities to sign a standard form "Construction Clearance Agreement" prior to issuance of a license. This Contract sets forth the requirements to complete the proposed work in an allotted time frame or to pay full costs for others to complete. It also obligates the Contractor to comply with all applicable federal, state, and local laws, rules, regulations, and ordinances including, but not limited to, the current OSHA Permit Required Confined Space rules. The Contractor is responsible for executing a "Construction Clearance Agreement" with Salt River Project, if required, and furnishing a copy to the City prior to proceeding with any construction on Salt River Project facilities.

4.13. **NOTIFICATION OF PROPERTY OWNERS**

All property owners that may be affected by the proposed construction activities shall be notified of scope and duration of the construction activities by the Contractor prior to start of construction.

4.14. **ACCESS**

Access shall be maintained to adjacent businesses at all times during construction. Where property has more than one point of access, no more than one access shall be restricted or closed at any one time. Access to adjacent private driveways shall be maintained during all non-working hours.

4.15. **PROTECTION OF EXISTING FACILITIES**

The Contractor is to protect all existing facilities during construction. Utility poles that may be affected by the construction activities shall be protected and/or braced by the Contractor. The Contractor shall notify the appropriate utility company or agency of any construction that may affect their facilities and state the course of action which will be taken to protect same.

4.16. **UNDERGROUND UTILITIES**

Underground utilities indicated on the plans are in accordance with maps furnished by the City and by each utility company. The locations are approximate only and require that the Contractor separately verify utility location prior to construction in compliance with City requirements for underground street crossings and potholing.

4.17. **RELOCATION OF UTILITIES**

Except as otherwise provided in the plans or specifications, all utilities in conflict with the new work will be relocated by the utility company.

4.18. **AMENDMENT OF CONTRACT**

No supplement, modification or amendment of any term of this Contract will be deemed binding or effective unless in writing and signed by the parties hereto and in conformation with provisions of this Contract except as expressly provided herein to the contrary.

4.19. **DUST PREVENTION**

The Contractor shall take whatever steps, procedures, or means to prevent dust conditions due to their construction operations in connection with this Contract. The dust control measures shall be maintained at all times during construction of the project, to the satisfaction of the Engineer, in accordance with requirements of the "Maricopa County Health Department Air Pollution Control Regulations."

Prior to the pre-construction meeting, the Contractor shall have an approved dust control plan approved by the Maricopa County Division of Air Pollution Control. For information and requirements for dust control plan submittal, please contact the following:

Maricopa County Division of Air Pollution
2406 S. 24th Street, Suite E-214
Phoenix, AZ 85034
602-506-6727

All costs associated with submittal, approval, and implementation of the dust control plan as approved by the County and shall be considered incidental to the project.

4.20. **INSURANCE AND BOND RATING REQUIREMENTS**

Personal or individual bonds are not acceptable.

Except where specifically exempted by statute, before the Contract is executed with the City, the Contractor shall furnish to the City payment and performance bonds required by and set forth in A.R.S. § 34-222. Bonding companies and liability and excess insurance carriers shall be "Best Rated A-VII" or better as currently listed in the most recent Best's Key Rating Guide (Property/Casualty) published by the A.M. Best Company. This requirement does not apply to the Workmen's Compensation/Employers Liability portion on the Certificate of Insurance.

Each such bond shall be executed by a surety company or companies duly licensed to do business in the State of Arizona. The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in this State and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official.

4.21. **MINIMUM LIMITS OF INSURANCE.**

4.21.1. Contractor shall maintain limits no less than:

- a. Commercial General Liability: \$2,000,000 combined single limit per occurrence for bodily injury and property damage, including coverage for contractual liability (including defense expense coverage for additional insureds), premises/operations, underground explosion and collapse hazard, personal injury, broad form property damage, products and completed operations, independent contractors and product liability. The general aggregate limit shall apply separately to this project/location or the general aggregate shall be twice the required occurrence limit.
- b. Automobile Liability: \$1,000,000 combined single limit per accident for bodily injury and property damage, including coverage for owned, hired, and non-owned vehicles as applicable.
- c. Excess Liability (umbrella form): As required.
- d. Workers' Compensation and Employers Liability: Workers' Compensation and Employers Liability statutory limits as required by the State of Arizona.
- e. Health Insurance: As required by the City.

The City shall have no responsibility or liability for such insurance coverage.

4.21.2. **Deductibles and Self-Insured Retentions**

Any deductibles or self-insured retentions must be declared and approved by the City. At the option of the City, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officials, employees, and volunteers, or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

4.21.3. **Other Insurance Provisions**

The policies or self-insurance certifications are to contain, or be endorsed to contain, the following provisions:

- a. Commercial General Liability and Automobile Liability Coverage:

The City, its officers, officials, employees, agents and volunteers are to be covered as additional insureds as respect to: liability arising out of

activities performed by or on behalf of the Contractor including the insured's general supervision of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor, or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officers, officials, employees, agents or volunteers, for work related to the Contractors, employees, agents, subcontractors, or sub-subcontractors activities.

The Contractor's insurance coverage shall be primary as respect to the City, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the City, its officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute to it.

Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its officers, officials, employees, agents, or volunteers.

Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

b. Workers' Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, employees, agents and volunteers for losses arising from work performed by the Contractor for the City.

c. Health Insurance Requirements

All Contractors who enter into a contract in excess of \$30,000 with the City must certify that they have, and all of their subcontractors will have, health insurance for all project employees. Health insurance must be offered to eligible dependents of all such employees. An affidavit must be signed in the form included herein (Page AFF-2). Major subcontractors are defined as entities doing work in excess of \$30,000 as determined at the start of each project. All required health insurance must be maintained during the entire time of the Contract with the City.

Health insurance is required for all Contractor and major subcontractor employees who work more than one hundred and twenty (120) days in any calendar year. A "work day" consists of any time within a twenty-four hour period, regardless of number of hours that the individual is paid. At this time, health insurance is not required for temporary employees or students working part-time who are enrolled in a recognized educational institution.

The health insurance requirements shall apply to all employees directly involved with this City project including support and administrative personnel.

All complaints concerning violations of the health insurance requirements shall be filed, in writing, with the Public Works Department, within thirty (30) days from discovery of the violation. An administrative hearing will be held before the Public Works Manager, and a written decision of findings will be provided to the parties to the hearing within ten (10) days thereafter. Appeal from the decision of the Public Works Manager may be made within ten (10) days of the date of the decision by filing a notice of appeal in writing with the Public Works Department. If an appeal is timely filed, an administrative hearing will be held before an administrative hearing officer appointed by the City Manager. The decision of the administrative hearing officer shall be final.

In the event of a finding of violation of the insurance provisions, the company in violation of the provision shall be barred from bidding on, or entering into, any Public Works contract with the City for a period of three (3) years from the execution of the Contract.

All Contractors subject to the health insurance requirements shall post, in English and Spanish, notice of the health insurance requirements at its office and at the job site.

d. All Coverages

Each insurance policy required by this Contract shall be endorsed to state the coverage shall not be suspended, voided, and/or canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

4.21.4. Other Insurance Requirements

Contractor shall:

Prior to commencement of services, furnish the City with certificates of insurance, in form and with insurers acceptable to the City which shall clearly evidence all insurance required in this Contract and provide that such insurance shall not be canceled, allowed to expire or be materially reduced in coverage except on 30 days prior written notice by certified mail to the City, and in accord with stated insurance requirements of this bid solicitation. MAG Specification 103.6 is fully incorporated into this Contract, except to the extent it conflicts with the limits set forth in this Contract. Prior to execution of the Contract, the Contractor shall furnish

the City with a Certificate of Insurance as evidence that policies providing the required coverages, conditions, and limits are in full force and effect. Such certificates shall identify the Project and shall provide for not less than thirty (30) days advance written notice to the City by certified mail of cancellation or termination. Any cancellation clause shall not include the phrases "endeavor to" or "but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives." City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed waiver of City's right to insist on, strict fulfillment of Contractor's obligations under this Contract.

Provide certified copies of endorsements and policies if requested by the City in addition to certificates of insurance.

Replace certificates, policies, and endorsements for any such insurance expiring prior to completion of services.

Maintain such insurance from the time services commence until services are completed. Should any required insurance lapse during the Contract term, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this Contract, effective as of the lapse date. If insurance is not reinstated, City may at its sole option, terminate this Contract effective on the date of such lapse of insurance.

Place such insurance with insurers and agents licensed and authorized to do business in Arizona and having a "Best's" rating of no less than A-VII.

4.21.5. Subcontractors and Sub-Subcontractors

Contractor shall include all subcontractors and sub-subcontractors as insureds under its policies. All coverage for subcontractors and sub-subcontractors shall be subject to all of the requirements stated herein for the Contractor.

4.22. INDEMNIFICATION

To the fullest extent permitted by law, the Contractor, its successors, assigns and guarantors, shall defend, indemnify and hold harmless the City, its officers, officials, employees, agents and volunteers from and against all demands, actions, claims, damages, losses, expenses, judgments (including but not limited to, attorney fees, court costs, and the cost of appellate proceedings), arising out of, or alleged to have resulted from any acts, errors, mistakes, omissions, work or services of the Contractor, its agents, employees, or any tier of Contractor's subcontractors in the performance of this Contract.

Contractor's duty to defend, indemnify and hold harmless the City, its officers, officials, employees, agents and volunteers shall arise in connection with any claim for damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of any person or property, including loss of use resulting therefrom, caused by any negligent acts, errors, mistakes, omissions, work or services in the performance of this Contract by the Contractor, any agent or employee of the Contractor, any tier of Contractor's subcontractors or any other person for whose acts, errors, mistakes, omissions, work or services for which the Contractor may be legally liable.

The amount and type of insurance requirements set forth in this Contract will in no way be construed as limiting the scope of the indemnity provisions of this Contract.

4.23. TRAFFIC CONTROL

4.23.1. All traffic shall be regulated in accordance with the MAG Specifications; the City of Phoenix Traffic Barricade Manual, latest edition, City of Tempe Traffic Barricade Manual, latest edition (available through the City Transportation Division at 480-350-8219); the Manual on Uniform Traffic Control Devices (MUTCD); and any special provisions included herein.

At the time of the pre-construction conference, the Contractor shall designate an American Traffic Safety Services Association (ATSSA) certified individual who is well qualified and experienced in construction traffic control and safety, to be responsible for implementing, monitoring, and altering traffic control measures as necessary to insure that traffic is carried through the work area in an effective manner and that motorists, pedestrians, bicyclists, and workers are protected from hazard and accidents. At the same time, the City shall designate a representative who will be responsible to see that all traffic control and traffic control alternations are implemented per these traffic control specifications.

The Contractor shall have the full responsibility and liability for traffic control for this project. The Contractor shall submit a traffic control plan to the City Transportation Department for approval one week prior to beginning work under this Contract. It shall be noted that traffic under this Contract shall include all motor vehicles, bicyclists, and pedestrians.

During construction it may be necessary to alter traffic control as approved by the City Transportation Department. Alterations to traffic control shall be in accordance with the latest edition of Part VI of the Manual on Uniform Traffic Control Devices, Traffic Control for Streets and Highway Construction and Maintenance Operations, the latest edition of the ADOT Traffic Control Manual, City of Tempe Traffic Barricade Manual, latest edition or the City of Phoenix Traffic Barricade Manual,

latest edition. If the applicable provisions in these manuals conflict, the most restrictive provision shall apply here.

No measurement will be made for traffic control. No payment will be made for traffic control. The cost thereof shall be included in the price Bid for the construction or installation of the items to which such traffic control is incidental or appurtenant. Any revisions to the traffic control plan shall be submitted to the Transportation Division for review and approval.

In the event the Contractor damages any traffic signal equipment, traffic signal conduit, and/or circuits, they shall have them repaired immediately at their expense by an electrical contractor that has had traffic signal experience and has been pre-approved by the City. Any damage repaired by the City will be billed to the Contractor at twice the City's cost.

The Contractor shall notify all adjacent or affected residents or businesses at least 48 hours in advance of any street, alley, sidewalk, and driveway closures and make suitable arrangements to have all vehicles moved to a satisfactory location outside the closed area.

Pedestrian access shall be maintained along the length of the project at all times per the requirements of the ADA and as approved by the City Transportation Division.

Speed limits shall be strictly enforced.

For more information, please contact the City Transportation Division at (480) 350-8219.

4.23.2. Temporary Barricades

Temporary barricades shall be regulated in accordance with the City of Tempe Traffic Barricade Manual, latest edition (available through the City Transportation Division at (480) 350-8219) and the City of Phoenix Traffic Barricade Manual, latest edition.

No additional payment will be made for temporary barricades but will be considered a subsidiary item to those items for which payment is made.

4.24. NON-DISCRIMINATION

During the performance of this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, age, color, religion, sex or national origin. The Contractor will take affirmative action to insure that applicants are employed and that employees are treated during

employment without regard to their race, age, color, religion, sex or national origin. Such action shall include but not be limited to the following:

Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

The Contractor agrees to insert this Non-Discrimination clause in all work-related subcontracts except subcontracts for standard commercial supplies or raw materials. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this Non-Discrimination clause.

4.25. **LIQUIDATED DAMAGES**

Unless otherwise specified, liquidated damages will be applied in accordance with the MAG Specifications 108.9 and A.R.S. . . Completion of the work as stated in this Contract is the same as completion of the work as stated in MAG Specifications 108.9. Damages will be applied at the amounts specified in Table 108-1.

4.26. **TERMINATION**

In addition to MAG Specifications 108.11 and A.R.S. §38-511, the City, at its sole discretion, may terminate this Contract for convenience or abandon any portion of the project for which services have not been performed by the Contractor.

In the event of such termination or abandonment, the Contractor shall deliver to the City all drawings, special provisions, field survey notes, reports, estimates and any and all other documents or work product generated by the Contractor under the Contract, entirely or partially completed, together with all unused materials supplied by the City.

If the City terminates or abandons the Contract, the City shall make final payment within sixty (60) days after the Contractor has delivered the last of the completed items and the City has approved and determined the final fee.

4.27. **DEFAULT PROVISIONS**

4.27.1. The Contractor shall be deemed in default under this Contract upon the occurrence of any of the following events:

- a. The Contractor fails to begin work under this contract within a reasonable time;

- b. The Contractor fails to perform the work with sufficient workmen and equipment or with sufficient materials to assure the prompt completion of work;
- c. The Contractor performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable;
- d. The Contractor discontinues the prosecution of the work;
- e. The Contractor fails to resume work which has be discontinued within a reasonable time after notice to do so;
- f. The Contractor at any time colluded with any party or parties;
- g. The Contractor allows any final judgment to stand against him unsatisfied for a period of fourteen (14) calendar days; or
- h. The Contractor for any cause whatsoever, fails to carry on the work in an acceptable manner.

In case of default, the City Engineer will give notice in writing to the Contractor and his surety of such delay, neglect, or default, and advise them that the work must be resumed immediately.

If the Contractor or surety, within a period of fourteen (14) calendar days after such notice, has not proceeded in the accordance therewith, then the City will, upon written notification from the City Engineer of the fact of such delay, neglect or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The City may appropriate or use any or all materials and equipment o the ground as may be suitable and acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the City Engineer will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the City, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due to the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the City the amount of such excess.

4.28. **JURISDICTION**

This Contract will be deemed to be made under and will be construed in accordance with and governed by the laws of the State of Arizona without regard

to the conflicts or choice of law provisions. An action to enforce any provision of this Contract or to obtain any remedy with respect hereto will be brought in the Superior Court of Arizona in and for Maricopa County and for this purpose, each party hereby expressly and irrevocably consents to the jurisdiction and venue of such court.

4.29. **DISPUTE RESOLUTION**

In the event of a dispute concerning questions of fact that arise during the course of the Contract, the parties will meet in good faith to attempt to resolve such questions. MAG Specifications 110 is fully incorporated into this Contract.

4.30. **SUCCESSORS AND ASSIGNS**

This Contract shall not be assignable except at the written consent of the parties hereto and it shall extend to and be binding upon the heirs, executors, administrators, successors, and assigns of the parties hereto.

4.31. **NON-WAIVER**

The failure of either party to enforce any of the provisions of this Contract or to require performance by the other party of any of the provisions of this Contract will not be construed as a waiver of such provisions nor will it affect the validity of this Contract or any part thereof or the right of either party to thereafter enforce each provision.

4.32. **SURVIVAL**

All warranties, representations and indemnifications by the Contractor will survive the completion or termination of this Contract.

4.33. **SEVERABILITY**

If any provision of this Contract or the application thereof to any person or circumstance is held invalid, illegal or unenforceable to any extent, the remainder of this Contract and the application thereof will not be affected and will be enforceable to the fullest extent permitted by law.

4.34. **INTEGRATION**

This Contract contains the full agreement of the parties hereto. Any prior or contemporaneous written or oral agreement between the parties regarding the subject matter hereof is merged and superseded hereby.

4.35. **TIME IS OF THE ESSENCE**

Time of each of the terms, covenants and conditions of this Contract is hereby expressly made of the essence.

4.36. **THIRD PARTY BENEFICIARY**

This Contract will not be construed to give any rights or benefits in the Contract to anyone other than the City and the Contractor. All duties and responsibilities undertaken pursuant to this Contract will be for the sole and exclusive benefit of the City and the Contractor and not for the benefit of any other party.

4.37. **CONFLICT OF INTEREST**

The Contractor agrees to disclose any financial or economic interest with the project property, or any property affected by the project, existing prior to the execution of this Contract. Further, the Contractor agrees to disclose any financial or economic interest with the project property, or any property affected by the project, if the Contractor gains such interest during the course of this Contract.

If the Contractor gains financial or economic interest in the project during the course of this Contract, this may be grounds for terminating this Contract. Any decision to terminate the Contract shall be at the sole discretion of the City.

The Contractor shall not engage the services on this Contract of any present or former City employee who was involved as a decision maker in the selection or approval processes, or who negotiated or approved billings or Contract modifications for this Contract.

4.38. **COOPERATION AND FURTHER DOCUMENTATION**

The Contractor agrees to provide the City such other duly executed documents as may be reasonably requested by the City to implement the intent of this Contract.

This Contract shall be in full force and effect only when it has been approved by the City Council of the City of Tempe, Arizona, and when executed by the duly authorized City officials and the duly authorized agent of the Contractor.

4.39. **NOTICES/CONTRACT ADMINISTRATOR**

All notices relating to this Contract should be sent to the following individual, who is also the administrator of this Contract.

City of Tempe
Andy Goh, P.E.
Deputy PW Manager/City Engineer
31 E. Fifth Street, garden level
Tempe, Arizona 85281

This Contract shall be in full force and effect only when it has been approved by the City Council of the City of Tempe, Arizona, and when executed by the duly authorized City officials and the duly authorized agent of the Contractor.

5. **SPECIAL TERMS AND CONDITIONS**

5.1. **PERMITS**

The Contractor shall be required to obtain all permits and licenses for this project and pay all applicable fees, unless otherwise noted on the plans and specifications. The Contractor shall be paid for actual costs of the permit and license fees upon submitting a receipt showing the fee he has paid. Excluded from the above allowance are items such as all costs incurred by the Contractor in securing the permit except for the actual permit fee established by the agency, costs for all shutdowns or outages, cost for pole bracing, cost for any additional insurance requirements, and other similar type costs. There will be no charge to the Contractor for any of the necessary City of Tempe permits and inspections. The Contractor shall abide by all stipulations of all licenses and permits issued for this project.

5.2. **PHONE NUMBERS**

City of Tempe Streets PM	Toby Crooks	480-350-8565
City of Tempe Streets Superintendant	Denise Brewer	480-350-8409
City of Tempe Engineering	Mauricio Jara	480-350-8523
City of Tempe Engineering/Inspector	Larry Fosholt	480-350-2922
City of Tempe Transportations	R.C. Noderer	480-350-8893
City of Tempe Traffic Operations	Hotline	480-350-8284
City of Tempe Streets	Hotline	480-350-8229
Blue Stake Center		602-263-1100

5.3. **TRAFFIC**

5.3.1. **Loop Detectors.**

Traffic signal loop wires may be damaged during the course of this project. Twenty-four hours prior to cutting any loops, the Contractor shall call Traffic Operations at 480-350-8284 so that arrangements can be made to modify signal timing. Loop replacement will be coordinated with Traffic Operations and their contractor so that loop wiring can be placed on the base or recycled base course prior to final surface paving. Should

the Contractor damage any traffic signal equipment, traffic signal conduit and/or circuits through negligence, an electrical contractor with traffic signal experience, pre-approved by the City of Tempe, shall replace them immediately, at the Contractor's expense. Any such damage repaired by the City will be billed to the Contractor at twice the City's cost.

5.3.2. Special.

The Contractor shall submit a traffic control plan for approval one week prior to beginning work under this contract. It shall be noted that TRAFFIC under this contract shall include all vehicles, bicycles, and pedestrians. The traffic control plan shall include barricade plans for traffic control for the period between the milling (including protection along the exposed gutter lip) and final paving and the period between final paving and striping. During construction, it may be necessary to alter traffic control. Alterations shall be in accordance with the Traffic Barricade Manual and shall be submitted to the City of Tempe Traffic Engineer for approval at least five (5) working days prior to implementation.

The Contractor shall provide City of Tempe law enforcement officers (when determined by the Engineer) to assist with traffic control whenever the number of lanes open to traffic is reduced and when (at signalized intersections) the existing through lanes plus a left turn lane. Seventy-two (72) hour notice is required. Law enforcement officers will be paid directly by the City.

Access will be provided for all businesses. At least one driveway shall remain open. If only one driveway exists, then only one-half of the driveway shall be closed at a time or that portion of the work will be done during non-business hours after proper notification and approval.

5.4. **SOURCE OF MATERIALS AND QUALITY**

The Contractor is responsible for providing quality control measures/testing necessary to provide acceptable quality in the production, handling, and placement of all materials. The City of Tempe's testing is for assurance and acceptance. The cost of control measures/testing shall be incidental to the project.

5.5. **COMMUNITY RELATIONS**

5.5.1. General.

The Contractor shall provide assistance for this project's community relations program. The program assistance shall include, but not necessarily be limited to:

- (A). Participate in public meetings as required by the Engineer.
- (B). Provide informational signage.
- (C). Distribution of community relations program notices and fliers as required by the Engineer.

The Contractor shall assist the City's public information program by providing information needed to inform the local residents and businesses of necessary operations which create high noise levels, street closures, detour locations, haul routes and material delivery routes, hours of construction, and disruption of bus routes and other delivery/pick-up routes.

The Contractor shall assist the Engineer in responding to questions or complaints concerning construction operations or procedures.

The Contractor shall notify all residents by handbill a maximum of 48 hours and minimum of 24 hours in advance of any street restriction that will affect access to their property. The notification shall include the statement that street parking will not be permitted weekdays during construction hours.

The Contractor shall submit the handbill to the Engineer for approval, prior to it's distribution. If the work does not occur on the specified day, the Contractor shall distribute a new notification. Costs associated with re-notifications due to the Contractors delays shall not be subject to reimbursement.

5.5.2. Meetings.

The Contractor shall attend and participate in public meetings deemed necessary by the Engineer. Meeting times, locations, and agenda will be determined by the Engineer with the assistance of the City's community relations' staff. The Contractor may be required to attend a public pre-construction meeting at a location convenient to residents and business operators affected by the project. This meeting may be conducted after execution of contract documents and prior to the start of construction.

5.5.3. Informational Signage.

The Contractor shall provide and install information signs. Signing shall be installed at least (14) days before beginning construction to inform the public of the forthcoming project, construction dates, and suggested alternate routes. Sign layout examples are available from the Engineer. Signs shall not be constructed or installed prior to approval by the Engineer of the designs, sizes and proposed locations. The Contractor shall maintain the signs as necessary and update the information as requested by the Engineer. Project information signs but their location

shall be shown in the Traffic Control Plan. Advanced Project Notification signing shall be installed by the Contractor on each road segment at each end of the project limits. For subdivision roads, the signs shall be installed at major entrances. These signs shall be installed at least (7) days prior to the start of construction activities.

5.6. **VALVE BOXES, MANHOLE FRAMES AND COVERS AND SURVEY MONUMENTS**

The Contractor is solely responsible for the protection, tying out, adjustment and replacement of the above mentioned items during construction. All adjustments or replacements shall be accomplished in accordance with Section 245 or 405 of the MAG Specifications and Details T-445, T-446 of the Tempe Supplement to the MAG Details.

The City of Tempe will provide survey control points only. A twenty-four (24) hour notice will be required for all requests. The Contractor will provide all other staking.

5.7. **MAINTENANC OF DRAINAGE SYSTEM**

During the construction period, the Contractor shall maintain access of nuisance and storm water runoff to the existing drainage system. Pumping or channeling of water at the construction site is the responsibility of the Contractor and must be to an approved location.

5.8. **SCHEDULING OF WORK**

The Contractor will at any one time be required to confine his operations to a limited area so as not to create an unreasonable inconvenience for area property owners or expose large subgrade areas to potential moisture or traffic problems. No paving operation will begin if there is a reasonable expectation on rain. Concrete improvements will be removed and replaced in a manner that minimized exposure of exposed areas to moisture and provisions will be made to accommodate or divert drainage or nuisance water.

The Contractor shall submit a scheduling plan prior to the pre-construction conference for approval of the City Engineer. Construction will not begin until the schedule is approved.

6. **TECHNICAL SPECIFICATIONS**

The Technical Specifications are attached hereto as Exhibit "A" and incorporated herein by this reference.

7. **EVALUATION AND AWARD**

7.1. **AWARD OF CONTRACT**

A Contract will be awarded or bids rejected within sixty (60) days after bid opening.

7.2. **EXECUTION OF CONTRACT AND BONDS**

The form of the Contract, which the successful bidder will be required to execute and the form of bonds which they will be required to furnish, should be carefully examined by the bidder. The successful bidder will be required to execute the bonds and the Contract in one (1) original counterpart within ten (10) days after formal Notice of Award of Contract. Failure to execute the Contract and file with the City satisfactory payment and performance bonds within ten (10) calendar days after the date of Notice of Award shall be just cause for the cancellation of the Award and the forfeiture of the bid security which shall become the property of the City, not as penalty, but in liquidation of damages sustained. Award may then be made to the next lower responsible bidder or the proposed work may be re-advertised.

7.3. **PLANS TO THE SUCCESSFUL BIDDER**

The successful bidder may obtain (7) sets of plans and specifications for this project from the office of the City Engineer, at no cost.

If they desire more than seven (7) sets, the successful bidder shall be required to pay the reproduction cost of fifteen dollars (\$15.00) each.

8. **EXHIBITS**

The parties agree that all references to this Contract include all Exhibits designated in and attached to this Contract, such Exhibits being incorporated into and made an integral part of this Contract for all purposes.

- 8.1. Check Sheet
- 8.2. Competitive Sealed Bid
- 8.3. Contract
- 8.4. Bidders Project References
- 8.5. List of Subcontractors
- 8.6. Competitive Sealed Bid Certification Form
- 8.7. Statutory Performance Bond Pursuant to A.R.S. §34-222
- 8.8. Statutory Payment Bond Pursuant to A.R.S. §34-222
- 8.9. Contractor's Affidavit Regarding Settlement of Claims
- 8.10. Affidavit of General Contractor / Prime Consultant Regarding Health Insurance
- 8.11. City of Tempe Guidelines for Implementation of Health Insurance

8.1. CHECK SHEET

This check sheet contains a listing of items to be included in the sealed bid by the Contractor:

	Included
Competitive Sealed Bid Forms (note receipt of addenda) B-1 to B-4	<input type="checkbox"/>
Competitive Sealed Bid Certification Form BC-1	<input type="checkbox"/>
Bidders Project References PR-1	<input type="checkbox"/>
List of Subcontractors SB-1	<input type="checkbox"/> Separate Envelope
Bid Bond (as per General Provisions) G-2	<input type="checkbox"/>
Safety Information (as per General Provisions)..... G-9	<input type="checkbox"/> Separate Envelope
Health Insurance Affidavit.....AFF-2	<input type="checkbox"/> Separate Envelope

8.2. COMPETITIVE SEALED BID

Place: Tempe, Arizona

Date: 9/19/08

Mayor and City Council
City of Tempe
Tempe, Arizona 85281

In compliance with your invitation for bids and all conditions of the Contract, the Sunland Asphalt, a corporation or limited liability corporation organized under the laws of the State of Arizona, a partnership consisting of _____ or individual trading as _____, of the City of Phoenix, and the County of Maricopa, hereby proposes and agrees to furnish any and all plant, materials, labor, construction equipment, service and transportation (all applicable taxes included) of the **NEIGHBORHOOD STREET REHABILITATION (PROJECT NO. 5405001)** and to install the material therein for the City in a good and workmanlike and substantial manner and to the satisfaction of the City, or their properly authorized agents and strictly pursuant to and in conformity with the Contract and other documents that may be made by the City or their properly authorized agents, as provided herein, at the following prices:

The undersigned hereby declares that they have visited the site and has carefully examined the Contract related to the work covered by the above bid.



City of Tempe

Project No. 5405001

Neighborhood Street Rehabilitation

SUNLAND ASPHALT

Base Bid

Item No.	Item Name	Quantity	Unit	Unit Cost	Total Cost
1	ADJUST MANHOLE, LID, FRAME	55	EA	\$433.00	\$23,815.00
2	WATER VALVE FRAME AND COVER ADJUSTMENT	5	EA	\$273.00	\$1,365.00
3	REPLACE SURVEY MONUMENT	108	EA	\$215.00	\$23,220.00
4	ASPHALT PATCHING (R-19) 2"	2000	SY	\$17.50	\$35,000.00
5	REMOVE AND REPLACE SPEED HUMPS	23	EA	\$1,775.00	\$40,825.00
6	EDGE MILL 1.5" EXISTING AC PAVEMENT	43000	LF	\$1.30	\$55,900.00
7	LOCAL STREET CRACK SEALING	122251	SY	\$0.30	\$36,675.30
8	CONSTRUCT 1.5" 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)	122251	SY	\$9.78	\$1,195,614.78

Total Base Bid: \$1,412,415.08

Alternate No.1

Item No.	Item Name	Quantity	Unit	Unit Cost	Total Cost
1	DEDUCT 1.5" 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)	-122251	SY	\$9.78	(\$1,195,614.78)
2	CONSTRUCT 1.5" ULTRATHIN BONDED WEARING COURSE	122251	SY	\$11.64	\$1,423,001.64
				Total Alternate No.1:	\$227,386.86

The Undersigned understands that the City of Tempe reserves the right to award a Contract to the lowest and/or best responsible bidder, to reject all bids, and to waive any informalities in any bid deemed to be in the best interests of the City.

Performance shall not start until after receiving the Notice to Proceed, and the work will be completed within one hundred twenty (120) consecutive calendar days after receiving the Notice to Proceed.

The Undersigned hereby acknowledges receipt of the following Addenda:

Addendum No. 1 (issued 9/12/08) and their bid has been adjusted to reflect any changes.

Respectfully submitted,

By: _____
(Name) (Signature)

(Title)

ROC 111 922 A
Contractor's License No.

86-0455988
Federal I.D. No./Social Security No.

(Corporate Seal)

For: Sunland Asphalt
(Company Name)

Certified to be a true and exact copy

Address: 3002 S. Priest Drive

Karen M. Fillmore, Records Specialist

Tempe, AZ 85282

Phone: 602-323-2800

Fax: 602-323-2828

8.3. CONTRACT

THIS CONTRACT, made and entered into this 16th day of October, 2008, by and between the City of Tempe, a Municipal Corporation, organized and existing under and by virtue of the laws of the State of Arizona, hereinafter designated the **OWNER**, and Sunland Asphalt, of the City of Phoenix, County of Maricopa, and State of Arizona, hereinafter designated as the **CONTRACTOR**:

WITNESSETH: That said Contractor, for and in consideration of the sum to be paid him or her by said Owner, in the manner, amount and at the time hereinafter provided in the "Bid" and of the other covenants and agreements herein contained, and under the penalties expressed in the bonds hereto attached, hereby agrees, for himself, his heirs, administrators, successors, and assigns as follows:

ARTICLE I - SCOPE OF THE WORK: The Contractor shall furnish any and all plant, materials, labor, construction equipment, services and transportation (all applicable taxes included) required for performing all work for the installation of the

NEIGHBORHOOD STREET REHABILITATION PROJECT NO. 5405001

for the sum of One Million Four Hundred Twelve Thousand Four Hundred Fifteen and 08/100 Dollars (\$1,412,415.08) (Base Bid), and to construct the same and install the material therein for the Owner, in a good and workmanlike and substantial manner and to the satisfaction of the Owner or his properly authorized agents and strictly pursuant to and in conformity with the Specifications and Plans for the above referenced project(s) and other documents that may be made by the Owner through the Engineer or his properly authorized agents, as provided herein.

ARTICLE II - CONTRACT DOCUMENTS: The Notice to Contractor, General Provisions, Special Provisions, Technical Specifications, Maricopa Association of Governments 2008 Uniform Standard Specifications for Public Works Construction and Maricopa Association of Governments 2008 Uniform Standards Details for Public Works Construction as amended by the City of Tempe, Bid, Plans, together with Bid Security, Performance Bonds, Payment Bond, and Addenda thereto, if any.

ARTICLE III - TIME OF COMPLETION: The Contractor further covenants and agrees at his own proper cost and expense, to do all work and furnish all plant, materials, labor, construction equipment, services and transportation for performing all of the work for the construction of said improvements and to construct the same and install the material therein, as called for by this Contract free and clear in all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time stated in this proposal.

Contract - Continued

IN WITNESS WHEREOF, this Contract has been duly executed by the parties hereinabove named, on the date and year first herein written.

CITY OF TEMPE,
a municipal corporation

By: _____
Name

Its: _____
Title

ATTEST:

Authorized Officer

Official Title

APPROVED AS TO FORM:

City Attorney

Recommended by:

Deputy PW Manager/City Engineer

(Corporate Seal)

The Contractor warrants that the person who is signing this Contract on behalf of the Contractor is authorized to do so and to execute all other documents necessary to carry out the terms of this Contract.

CONTRACTOR:

Company Name

By: _____
Name

Its: _____
Title

City of Tempe Transaction Privilege
License (Sales Tax) Permit No.

Certified to be a true and exact copy

Karen M. Fillmore, Records Specialist

(Corporate Seal)

Witness: If Contractor is an Individual

8.6.

CITY OF TEMPE
TEMPE, ARIZONA
DEPARTMENT OF PUBLIC WORKS

COMPETTITIVE SEALED BID CERTIFICATION FORM

Proposer certifies that it is a: proprietorship ____; partnership ____; corporation X.

Arizona Sales Tax No. 07-274948-C

Use Tax No. for Out-of-State Supplier _____

City of Tempe Sales Tax No. _____

Taxpayer's Federal Identification No. 86-0455988

Proposer certifies that he has read, understands, and will fully and faithfully comply with this Competitive Sealed Bid its attachments and any referenced documents. Proposer also certifies that the prices offered were independently developed without consultation with any of the other Proposers or potential Proposers.

Company's Legal Name Sunland, Asphalt & Sealing

Address 3002 S. Priest Drive

City, State and Zip Code Tempe, Arizona 85282

Telephone Number 602-323-2800

Company's Fax Number 602-323-2828

Company's Toll Free Number 1-800-540-4413

E-Mail Address www.sunlandasphalt.com

Signature *Robert Matz*

Printed Name and Title ROBERT MATZ JR. DIR. PROJ. MGT

MAILING ADDRESSES

Purchase Order Address: (If different from above)

Name _____

Address _____

City, State and Zip Code _____

Payment Address: (If different from above)

Name _____

Address _____

City, State and Zip Code _____

8.7.

STATUTORY PERFORMANCE BOND PURSUANT TO TITLE 34,
CHAPTER 2, ARTICLE 2, OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____ (hereinafter called the Principal), as Principal and
_____, a corporation organized and existing under the laws of the
State of _____, with its principal office in the City of _____, (hereinafter
called the Surety), are held and firmly bound unto _____ (hereinafter
called the Obligee) in the amount of _____ Dollars (\$_____),
for the payment whereof, the said Principal and Surety bind themselves, and their heirs,
administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee,
dated the 16th day of October, 2008, to complete Project No.5405001 which
contract is hereby referred to and made a part hereof as fully and to the same extent as if copied
at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the
said Principal shall faithfully perform and fulfill all the undertakings, covenants, terms,
conditions and agreements of said contract during the original term of said contract and any
extension thereof, with or without notice to the Surety, and during the life of any guaranty
required under the contract, and shall also perform and fulfill all the undertakings, covenants,
terms, conditions, and agreements of any and all duly authorized modifications of said contract
that may hereafter be made, notice of which modifications to the Surety being hereby waived;
then the above obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of said Title, Chapter and Article, to the extent as if it were copied at length herein.

The prevailing party or any party which recovers judgment on this bond shall be entitled to such reasonable attorney's fees as may be fixed by the Court or a judge thereof.

Witness our hands this ____ day of _____, 2008.

PRINCIPAL SEAL

BY: _____

**

SURETY SEAL

BY: _____

AGENCY ADDRESS

Surety hereby acknowledges they are licensed to do business in the State of Arizona

8.8.
STATUTORY PAYMENT BOND PURSUANT TO TITLE 34,
CHAPTER 2, ARTICLE 2, OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____ (hereinafter called the Principal), as
Principal and _____, a corporation organized and existing under the
laws of the State of
_____, with its principal office in the City of _____, (hereinafter called the
Surety), as held and firmly bound unto _____ (hereinafter called the
Obligee) in the amount of _____ Dollars (\$ _____), for
the payment whereof, the said Principal and Surety bind themselves, and their heirs,
administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee,
dated the 16th day of October, 2008, to complete Project No.5405001 which contract
is hereby referred to and made a part hereof as fully and to the same extent as if copied at length
herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the
said Principal shall promptly pay all moneys due to all persons supplying labor of materials to
him or his subcontractors in the prosecution of the work provided for in said contract, then this
obligation shall be void, otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this bond having been required of the said Principal in
order to comply with the provision of Title 34, Chapter 2, Article 2, of the Arizona Revised
Statutes, all rights and remedies on this bond shall inure solely to such persons and shall be
determined in accordance with the provisions, conditions and limitations of said Title, Chapter
and Article, to the same extent as if it were copied at length herein.

The prevailing party or any party which recovers judgment on this bond shall be entitled to such reasonable attorney's fees as may be fixed by the Court or a judge thereof.

Witness our hands this _____ day of _____, 2008.

PRINCIPAL SEAL

BY: _____

**

SURETY SEAL

BY: _____

AGENCY ADDRESS

****Surety hereby acknowledges they are licensed to do business in the State of Arizona****

8.9.
CITY OF TEMPE
TEMPE, ARIZONA
DEPARTMENT OF PUBLIC WORKS

CONTRACTOR'S AFFIDAVIT
REGARDING
SETTLEMENT OF CLAIMS

_____, Arizona

Date _____

NEIGHBORHOOD STREET REHABILITATION
PROJECT NO. 5405001

To the City of Tempe, Arizona

To Whom It May Concern:

This is to certify that all lawful claims for materials, rental of equipment and labor used in connection with the construction of the above project, whether by subcontractor or claimant in person, have been duly discharged or will be discharged after receipt of the final payment from the City of Tempe ("City") for the above project.

The undersigned, for the consideration of \$_____, as set out in the final pay estimate, as full and complete payment under the terms of the Contract, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of the above described project against the City. The undersigned further agrees to defend, indemnify and save harmless the City against any and all liens, claims of liens, suits, actions, damages, charges and expenses whatsoever, which said City may suffer arising out of the failure of the undersigned to pay for all labor performances, materials, and/or equipment furnished for the performance of said installation.

Signed and dated at _____, this _____ day of _____, 2008.

Contractor

By: _____

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

The foregoing instrument was subscribed and sworn to me before this _____ day of _____, 2008.

Notary Public

My Commission Expires

8.11
City of Tempe
Guidelines for Implementation of Health Insurance

These Guidelines are provided for purposes of implementing Resolution No. 2000.73, which requires all employees of prime consultants, general contractors and major subconsultants and subcontractors to have health insurance and to offer health insurance to their eligible dependants, as determined at the start of each project. Questions regarding these guidelines should be directed to the City of Tempe Engineering Division at (480) 350-8200.

1. All Prime Consultants who enter into a Public Works contract or General Contractors who bid on Public Works projects that are advertised for bid and enter into a contract in excess of \$30,000 with the City of Tempe ("City") after January 1, 2001, are required to sign an affidavit in the form attached hereto. The prime consultant or general contractor shall require that all major subconsultants or subcontractors, defined as entities doing work in excess of \$30,000, comply with the health insurance requirements. In signing the affidavit, prime consultants and general contractors may refer to and rely upon these Guidelines for interpretation.
2. Health insurance is required for permanent employees who work for the consultant/contractor more than one hundred and twenty (120) days in any calendar year. A "work day" consists of any time within a twenty-four hour period, regardless of number of hours, that the individual is paid. This requirement excludes students working part-time who are enrolled in a recognized educational institution. Many companies have a grace period or a qualifying period prior to commencement of insurance coverage, which is acceptable so long as the employee coverage begins by the 120th day of Contract signing. Temporary employees will be covered to the same extent as the City covers temporary employees as determined at the start of each project.
3. If a contractor is a "Union" shop and withholds union dues from employees for health insurance coverage that is also offered to their eligible dependents and meets all City requirements, the Contractor may so note on the required affidavit.
4. The health insurance requirements herein apply to all employees that are directly involved with the City project including support and administrative personnel.
5. Health insurance coverage must be maintained during the entire time of the Contract, including any warranty periods, with the City.
6. All complaints concerning violations of the health insurance requirements shall be filed by an employee, in writing, with the Public Works Department, within thirty (30) days from discovery of the violation. An administrative hearing will be held before the Public Works Manager, and a written decision of findings will be provided to the parties to the hearing within ten (10) days thereafter. Appeal from the decision of the Public Works Manager may be made within ten (10) days of the date of the decision by filing a notice

of appeal in writing with the Public Works Department. If an appeal is timely filed, an administrative hearing will be held before an administrative hearing officer appointed by the City Manager. The decision of the administrative hearing officer shall be final.

7. In the event of a finding by the City of a violation of the insurance provisions, the company in violation of the provision shall be barred from bidding on, or entering into, any public works Contract with the City for a minimum period of three (3) years.
8. All consultants and contractors subject to the health insurance requirements shall post, in English and Spanish, notice of the health insurance requirements at their office and at the job site. Signs for posting will be provided by the City.

These "Guidelines for Implementation of Health Insurance", issued and dated this 21st day of August, 2002, hereby amend all guidelines previously issued.



Glenn Kephart, R.E.
Public Works Manager

EXHIBIT A

TECHNICAL SPECIFICATIONS

MEASUREMENT AND PAYMENT

Measurement and payment for all items in the proposal shall be as specified in the applicable section of the Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction (MAG Specifications) latest edition, and supplements and any applicable City of Tempe Specifications or Standards as specified in these Technical Specifications. In the event of a conflict between these Technical Specifications and the MAG Specifications, these Technical Specifications shall prevail.

Payment of the Contract items shall be compensation in full for furnishing all overhead, labor, material, tools, equipment and appurtenances necessary to complete the work in a good, neat and satisfactory manner as indicated on the plans, or as specified, with all necessary connections and appurtenances for satisfactory use of and/or operation of said item. No additional payment will be made for work related to any item unless specifically noted or specified. Measurement will be for the completed work, in place, with no allowance for waste.

No payment shall be made for any item in CLEAN-UP. The cost of this work shall be included in other items for which payment is provided.

No payment shall be made for SAWCUTTING. The cost of this work shall be included in other items of work for which payment is provided.

ITEM NO. 1 – ADJUST MANHOLE, LID, FRAME

ITEM NO. 2 - ADJUST VALVE BOX

ITEM NO. 3 - REPLACE SURVEY MONUMENT

Items shall conform to the provisions of Section 345 of the MAG Specifications and Section 345.3 of the Tempe Supplement to the MAG Specifications.

Adjustment of survey monuments shall be in accordance with MAG Standard Detail 270. Monuments removed or disturbed during construction plus any additional monumentation required by the plans will be replaced in accordance with Section 409 of the MAG Specifications and MAG Standard Detail 270-1 Type B. The Contractor will be responsible for tying out the location of existing survey monuments prior to construction. The ties shall be performed under the direction of a Land Surveyor registered in the State of Arizona. Swing ties must be made in four directions to areas that will not be disturbed during construction. Field notes will be kept and copies submitted to the Engineer prior to construction.

Adjustment of manholes will be in accordance with MAG Standard detail 422 and Detail T-446 of the City of Tempe Supplement to the MAG Details.

Adjustment of valve boxes shall be in accordance with MAG Standard Detail 391-1 Type C and Detail T-445 of the City of Tempe Supplement to the MAG Details.

The Contractor will be responsible for tying out the location of all valve boxes, manholes, and sanitary sewer cleanouts. Field notes will be kept and copies given to the Engineer prior to lowering these items for street reconstruction.

Measurement for each item shall be as shown on the plans and as listed for payment below.

Payment shall be made at the contract unit price bid for each survey monument, manhole, sanitary sewer cleanout, or valve box complete and adjusted to finished grade as shown on the plans and referenced details. Payment shall be full compensation for the work.

ITEM NO. 4 – ASPHALT PATCHING (R-19 2”)

Areas identified by the engineer shall have the asphalt removed to the base conforming to MAG 336. The existing base material shall be compacted according to MAG section 310. Two inches of R-19 will be used as a base course. Asphalt Concrete shall conform to Section 710 of the MAG Specifications with the following exceptions and modifications:

Table 710-7 - The Asphalt Content (%) for gradations below the Restricted Zone shall be 5.0 to 6.0 for 12.5 mm mix designations and 4.5 to 5.5 for 19 mm mix designations.

An approved mix design shall be submitted prior to construction.

The Contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and exposure of partially completed work to damage and weather. The Contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. The Contractor may, if he so chooses, haul excess RAP to the City of Tempe property at Priest Drive and Rio Salado Parkway. The Contractor will be responsible for leveling or stockpiling the material and no payment shall be made for this work.

Only necessary construction traffic will be allowed on prepared areas prior to paving.

Measurement shall be by the square yard of existing AC pavement removed and replaced.

Payment will be made at the contract unit price bid per square yard. Payment shall be full compensation for all work associated with this item.

ITEM NO. 5 – SPEED HUMPS

Speed humps shall conform to Detail 210 of the MAG Standard Details. The center line of the existing speed humps will be marked on the curb by the Contractor prior to removal.

Speed humps will be measured per unit installed in accordance with the MAG Standard Details and Specifications.

Payment shall be made at the unit price per each speed hump completed and shall be full compensation for all labor, tools, materials, and equipment, including traffic control and milling necessary to complete the item.

City of Tempe crews will install the striping. Contractor will coordinate the installation of speed humps with the City of Tempe Traffic Operations Division to have the striping completed.

Bump signs will be placed in both direction until the City of Tempe stripes the Speed Humps..

PAVING ALTERNATE NO. 1 PROFILE MILL ROADWAY 1.5" AND REPLACE WITH 1.5" ULTRATHIN BONDED WEARING COURSE OVERLAY

ITEM NO. 1 – EDGE MILL 1.5" EXISTING AC PAVEMENT

CONSTRUCTION REQUIREMENTS

These items shall consist of roto-milling and removing the existing AC pavement at the gutter line to remove excess AC and micro-surfacing from the pavement and the lip of the concrete gutter to a depth of 1.5 inches below the gutter line and tapered to 0" over a span of 8' as seen in Detail D-2. Edges perpendicular to traffic shall be chamfered. Milling equipment shall be capable of automatic leveling control. Any base material disturbed during the milling/removal operation shall be recompacted prior to paving. There will be no compensation for patching. All loose material generated by the milling operation will be swept, removed, and disposed of on the same day of the milling operation. Milled material on arterial and collector streets will be moved before the area is opened to traffic.

Centerline pavement striping that has been removed by the milling operation shall be replaced with centerline vertical panels before sunset, as required, in order to provide proper delineation of traffic lanes.

Existing asphalt concrete pavement shall be removed in accordance with these special provisions, using equipment specifically designed to remove such material by means of grinding or chipping, to a controlled line and grade. The equipment shall be capable of removing the existing pavement within one-eighth inch (1/8") of the specified removal

depth. The removal shall be accomplished in a manner which does not destroy the integrity of the remaining pavement and which does not result in a contamination of the milled asphalt concrete with the underlying base material. Only equipment capable of removing material in the above stated manner shall be used.

Asphalt concrete pavement adjacent to manholes, valve boxes, small radius curbs and other fixed objects that produce confined areas shall be removed with milling equipment specifically designed to operate in restricted areas. The equipment must be capable of removing asphalt concrete of the specified thickness without damage to or displacement of the adjacent object(s). Roadway without intersecting roads, curb and gutter, etc. will not require asphalt milling unless requested by the Engineer.

The Contractor shall sweep the roadway to the satisfaction of the Engineer, prior to the application of the tack coat. The Contractor shall have a power pick-up broom available on the job site at all times during the overlay operation to assure clean joints and to maintain a clean street prior to overlay operations, or other work. Regular power brooms (non pick-up) may be used in non-residential areas, and are approved for use on this project.

The Contractor may mill and place the UTBWC in separate operations, provided the milled area (trench) is filled with UTBWC within 24 hours. Any damage done to the remaining (trench) surface by traffic or other circumstances, prior to the placement of asphalt-rubber concrete, shall be repaired by Contractor as specified by the Engineer at no additional cost to the City.

The Contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and exposure of partially completed work to damage and weather. The Contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. The Contractor may, if he so chooses, haul excess RAP to the City of Tempe property at Priest Drive and Rio Salado Parkway. Dust control measures will be provided by the Contractor. The Contractor will be responsible for leveling or stockpiling the material and no payment shall be made for this work.

Measurement shall be by the lineal foot of existing AC pavement milled.

Payment will be made at the contract unit price bid per lineal foot. Payment shall be full compensation for all work associated with this item including milling/pulverizing, re-grading, compaction and removal of excess material.

ITEM NO. 2 – LOCAL STREET CRACK SEALING

Shall conform to the drawing on page D-1. This item consists of cleaning and filling cracks in AC pavement.

All cracks larger than ¼ inch will be cleaned using a rotary impact crack router. All cracks will be clean and dry when sealed. Crack cleaning shall be done using high-pressure air, vacuum recovery, equipment. This cleaning must be performed immediately ahead of the sealing operation.

Sealant will be applied at a minimum temperature of 350 degrees to clean, dry pavement. Sealant will be applied, level with a V-shaped rubber squeegee, in a simple band-aid or standard recessed band-aid configuration (per detail) with a maximum overband thickness of 1/8 inch. Sealant must be applied, under pressure, in continuous motion with the applicator opening over the crack channel so that the channel is filled from the bottom up to prevent air being trapped beneath the sealant. Under-filled cracks will be resealed. It may be necessary to sand or apply detacking spray to sealed areas prior to opening the area to traffic.

All areas routed and/or sealed will be swept by means of a self propelled pick up sweeper prior to opening any area to traffic. The contractor is also responsible for cleaning adjacent sidewalks and driveways of any dust or debris generated by the routing and sealing operation.

Crack sealing shall be measured by the square yards of asphalt concrete surface area sealed.

Payment for this item will be made at the contract unit price bid per square yard of road area sealed and accepted with crack sealant material. Payment will be full compensation for all labor, materials, traffic control, and equipment necessary for the item complete and in place.

ITEM NO. 3 – CONSTRUCT 1.5” ULTRA THIN BONDED WEARING COURSE

Description

This specification covers the requirements for the placement of an Ultra-thin Bonded Wearing Course and shall consist of application of a warm Polymer Modified Emulsion Membrane followed immediately with an ultra-thin overlay of hot asphalt concrete. The Polymer Modified Emulsion Membrane shall be spray applied immediately prior to the application of the hot asphalt concrete overlay so as to produce a homogeneous wearing surface that can be opened to traffic immediately upon sufficient cooling. The finished wearing course shall have a minimum thickness of 1 ½ inches.

Materials

Course Aggregate

The coarse aggregates selected should be those typically used for high performance surfaces. Coarse aggregate should meet the skid resistance criteria as set forth by the specifying agency or have a history of successful use in surface mixes. Coarse

aggregates, material retained above the #4 sieve, shall be from approved sources and shall meet the requirements listed in Table 1.

Coarse aggregates, such as crushed gravel, limestone, dolomite, sandstone, granite, chert, taprock, ore tailings, slag, or other similar materials, or blends of two or more of the above may be acceptable. When coarse aggregates for these mixes are from more than one source or of more than one type of material, they shall be proportioned and blended to provide a uniform mixture if approved by Engineer.

Table 1 - Coarse Aggregate - Properties*		
Tests	Method	Limit
Los Angeles abrasion value ¹ , % loss	AASHTO T 96-94	35 max
Soundness ¹ , % loss	Magnesium Sulfate or Sodium Sulfate	18max 12 max
Flat & Elongated Ratio, % @ 3:1	ASTM D 4791	25 max
% Crushed, single face	ASTM D 5821	95 min
% Crushed, Two or more Mechanically crushed faces	ASTM D 5821	85 min
Micro-Deval, % loss	AASHTO TP58-99	18 max

*All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.

¹Note: Values shown for these tests are targets for aggregate selection purposes. The results of these tests should not be the sole basis for rejection.

Fine Aggregate

The fine aggregates will be part of the asphalt mastic. The fine aggregate, passing the #4 sieve, shall be from approved sources and shall meet the requirements of Table 2. Crushed gravel shall not be allowed for use as a fine aggregate.

Table 2 - Fine Aggregate - Properties*		
Tests	Method	Limit
Sand Equivalent ²	AASHTO T 176-86	45 min
Methylene Blue ¹ (on materials passing 200)	AASHTO TP 57-99	10 max
Uncompacted Void Content	AASHTO T 304-96	40 min

*All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.

²Note: Values shown for these tests are targets for aggregate selection purposes. The results of these tests should not be the sole basis for rejection. If the finished bituminous mixture passes the AASHTO T-283 requirement in the Mix Design section, the sand equivalent and methylene blue requirements may be waived.

Mineral Filler

Mineral filler may be used as an option to aid in meeting the gradation requirements. Hydrated Lime, certain classes of fly ash, bag house fines and Type 1 Portland cement are acceptable as mineral filler. Mineral fillers shall meet the requirements in Table 3.

Table 3 - Mineral Filler Requirement*
Typical acceptable gradation:
100% passing #30 sieve
75-100% passing #200 sieve

*All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.

Asphalt Binder

The asphalt binder shall meet the following requirements:

Bituminous Material

Bituminous material shall be SHRP Graded PG 76-22 TR+ conforming to the requirements of MAG Section 335 and 717 of the Standard Specifications, except for the following:

The SHRP Graded PG 76-22 TR+ shall conform to the following:

Binder composition:

- 10 ± 1 % ground rubber
- 90 ± 3 % asphalt cement
- 2% (Minimum) Polymer

SHRP Grade PG 76-22 TR+ SPECIFICATIONS

PROPERTIES

SPECIFICATION

Original

Ground tire rubber
COC Flash Point, F (ASTM D92)

9% Minimum
450 Minimum

Softening Point, F (ASTM D36)
Elastic Recovery @ 10C (ASTM D6084)
Specific Gravity @ 60F
Weight per Gallon @ 60F

140 Minimum
55% Minimum
Report
Report

PROPERTIES

SPECIFICATION

Original

Dynamic shear of

$G^* / \sin \delta @ 76^\circ\text{C} @ 10 \text{ rad/sec, kPa}$

1.00 kPa Minimum

RFTO Aging

Dynamic shear of

$G^* / \sin \delta @ 76^\circ\text{C} @ 10 \text{ rad/sec, kPa}$

2.20 kPa Minimum

PAV Aging

Dynamic shear of

$G^* \times \sin \delta @ 31^\circ\text{C} @ 10 \text{ rad/sec, kPa}$

5,000 kPa Maximum

Creep stiffness, S, @ -12C @ 60 sec

300 mPa Maximum

Creep rate, m-value, @ -12°C @ 60 sec

0.300 Minimum

Polymer Modified Emulsion Membrane

The emulsion shall be polymer modified and shall be in accordance with Table 5:

Table 5 – Polymer Modified Emulsion Membrane Requirements				
Tests on Emulsion		Method	Min.	Max.
Viscosity, Saybolt Furol @ 77°F, s		AASHTO T59	20	100
Storage Stability Test ³ , 24 h, %		AASHTO T59		1
Sieve Test ⁴		AASHTO T59		0.05
Residue by Distillation ⁵ , %		AASHTO T59	63	
Oil Distillate by Distillation, %		AASHTO T59		2
Demulsibility, %	35 ml, 0.02 N CaCl ₂ or	AASHTO T59	20	
	35 ml, 0.8% dioctyl sodium sulfosuccinate	AASHTO T59		
Tests on Residue From Distillation				
Penetration		AASHTO T49	60	150
Solubility in Organic Solvent ⁶ , %		AASHTO T44	97.5	
Elastic Recovery, %		AASHTO T301	60	
³ Note: After standing undisturbed for 24 hours, the surface shall show no white, milky colored substance, but shall be a smooth homogeneous color throughout. ⁴ Note: The sieve test is waived if successful application of the material has been achieved in the field. ⁵ Note: AASHTO T59 with modifications to include a 400°F ± 10°F maximum temperature to be held for a period of 15 minutes. ⁶ Note: The organic solvent shall be approved by the Street Dept. representative as suitable. The test may be waived by the Street Dept. representative.				

Mix Design

The contractor shall formulate and submit a job mix formula (JMF) that satisfies the design general limits listed in Table 6 - Mixture Requirements. The job mix formula with the tolerances listed in Table 7 may exceed the Design General Limits. Mix design and proportioning will be approved by the Street Dept. representative prior to the start of the project.

Table 6 - Mixture Requirements*						
Composition by weight percentages						
Sieves	#4 - Type A		3/8 in - Type B		1/2 in - Type C	
ASTM	Design Limits % Passing	General	Design Limits % Passing	General	Design Limits % Passing	General
3/4 in ⁷					100	
1/2 in			100		85 - 100	
3/8 in	100		85 - 100		60 - 80	
#4	40 - 55		25 - 38		25 - 38	
#8	22 - 32		22 - 32		22 - 32	
#16	15 - 25		15 - 23		15 - 23	
#30	10 - 18		10 - 18		10 - 18	
#50	8 - 13		8 - 13		8 - 13	
#100	6 - 10		6 - 10		6 - 10	
#200	4 - 7		4 - 7		4 - 7	
Asphalt Content, %	5.0 - 5.8		4.8 - 5.6		4.6 - 5.6	
All testing must be performed by an AMRL inspected laboratory or be an agency certified laboratory.						
⁷ Note: A target of 100% passing the 5/8" sieve is recommended. Mixtures containing 5/8" aggregate size will require greater paving thickness.						

The limits of the target application rate of the asphalt emulsion shall be 0.20 ± 0.07 gal./sq. yd. The mix design shall determine the target application rate.

Drain down from the loose mixture shall not exceed 0.10% when tested in accordance with AASHTO T305.

The tensile strength shall meet or exceed 80% when tested in accordance with AASHTO T-283. Specimens for AASHTO T-283 shall be 4 in diameter and compacted in accordance with AASHTO TP-4 to 100 gyrations. The mixing and compaction temperatures shall be those recommended by the PG binder supplier.

The mixture shall not contain reclaimed materials.

Construction

Weather

The Ultra-Thin Bonded Wearing Course shall not be placed on a wet pavement. The pavement surface temperature and the ambient air temperature shall be not less than 50°F at the time of placement.

Equipment

The paver shall be self-priming, designed and built for applying the Ultra-Thin Bonded Wearing Course and be approved by the Engineer. The paver shall have a receiving hopper, dual feed augers, asphalt emulsion storage tank, a system for measuring the Polymer Modified Asphalt Emulsion Membrane volume applied, spray bar and a heated, variable width, combination vibratory-tamping bar screed. The paver shall be capable of spraying the Polymer Modified Asphalt Emulsion Membrane, applying the hot mix asphalt overlay and leveling the surface of the mat in one pass. The paver shall be capable of placing the hot mix asphalt within three (3) feet after the application of the Polymer Modified Asphalt Emulsion Membrane. The paver shall be capable of paving at a controlled speed from 30 - 90 ft./minute. No wheel or other part of the paving machine shall come in contact with the Polymer Modified Emulsion Membrane before the hot mix asphalt concrete wearing course is applied. The screed shall have the ability to crown the pavement at the center and have vertically adjusted extensions to accommodate the desired pavement profile.

Surface Preparation

Immediately prior to applying the polymer modified asphalt, the surface shall be cleaned by sweeping, flushing, or other means necessary to remove all loose particles of paving, all dirt, and all other extraneous material. The surfaces shall be cleaned with a self-propelled pick-up broom. When necessary, cleaning shall be supplemented by hand brooms. This also includes the removal of grass or weeds that are growing in the joint between the street and the concrete gutter.

Pavements impregnated with grease, oil, or fuel shall be thoroughly cleaned.

The bituminous material shall not be applied until an inspection of the surface has been made by the Engineer representative and he has determined that it is suitable.

Joints

No excessive buildup or unsightly appearance shall be permitted on longitudinal or transverse joints. A maximum of 4.0" overlap will be permitted on longitudinal joints.

The contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the work. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they cannot be the last pass of any paved area. Care shall be taken to ensure straight lines along curb and shoulders. No runoff on these areas will be permitted.

Handwork

Approved hand lutes shall be used to spread the mixture in areas inaccessible to the spreader box and other areas where hand spreading may be required.

Surface Protection and Traffic Control

Vehicular access to residences and businesses will not be permitted across the wearing course until dry. It will be the Contractor's responsibility to control traffic and not allow traffic on or across wearing course until it is dry. Contractor is responsible for any damage that occurs due to failure by Contractor to control traffic.

Traffic control shall be provided by the Contractor in accordance with the Phoenix Barricade Manual or Manual on Uniform Traffic Control Devices, as directed by the Street Dept. representative. Permit applications and traffic control plans shall be submitted to Transportation Studies and Design at (480) 350-2924.

Construction shall not commence without an approved Traffic Control Plan.

During construction it may be necessary to alter traffic control. Alterations shall be in accordance with the aforementioned specifications and approved by Traffic Engineering Division. If cones are to be used for traffic delineation, they shall be twenty-eight inch (28") cones with heavy bases.

The Contractor will be responsible for centerline barricades until centerline stripes are placed by City of Tempe Traffic Striping Crew. Contact person for this will be Mike Fillmore (480-350-8284).

The Contractor will place advanced warning signs at major intersections on streets to be sealed for both directions of travel. Signs will be placed at least seven (7) days prior to sealing of the signed sections.

Measurement shall be by the square yard of Ultra Thin Bonded Wearing Course pavement constructed.

Payment will be made at the contract unit price bid per square yard. Payment shall be full compensation for all work associated with this item.

PAVING ALTERNATE NO. 2 PROFILE MILL PAVEMENT 1.5" AND REPLACE WITH 1.5" ASPHALT RUBBER HOT MIX OVERLAY (WET PROCESS)

ITEM NO. 1 – EDGE MILL 1.5" EXISTING AC PAVEMENT

CONSTRUCTION REQUIREMENTS

These items shall consist of roto-milling and removing the existing AC pavement at the gutter line to remove excess AC and micro-surfacing from the pavement and the lip of the concrete gutter to a depth of 1.5 inches below the gutter line and tapered to 0" over a width of 8' as seen in Detail D-2. Edges perpendicular to traffic shall be chamfered. Milling equipment shall be capable of automatic leveling control. Any base material disturbed during the milling/removal operation shall be recompact prior to paving. There will be no compensation for patching. All loose material generated by the milling operation will be swept, removed, and disposed of on the same day of the milling operation. Milled material on arterial and collector streets will be moved before the area is opened to traffic

Centerline pavement striping that has been removed by the milling operation shall be replaced with centerline vertical panels before sunset, as required, in order to provide proper delineation of traffic lanes.

Existing asphalt concrete pavement shall be removed in accordance with these special provisions, using equipment specifically designed to remove such material by means of grinding or chipping, to a controlled line and grade. The equipment shall be capable of removing the existing pavement within one-eighth inch (1/8") of the specified removal depth. The removal shall be accomplished in a manner which does not destroy the integrity of the remaining pavement and which does not result in a contamination of the milled asphalt concrete with the underlying base material. Only equipment capable of removing material in the above stated manner shall be used.

Asphalt concrete pavement adjacent to manholes, valve boxes, small radius curbs and other fixed objects that produce confined areas shall be removed with milling equipment specifically designed to operate in restricted areas. The equipment must be capable of removing asphalt concrete of the specified thickness without damage to or displacement of the adjacent object(s). Roadway without intersecting roads, curb and gutter, etc. will not require asphalt milling unless requested by the Engineer.

The Contractor shall sweep the roadway to the satisfaction of the Engineer, prior to the application of the tack coat. The Contractor shall have a power pick-up broom available on the job site at all times during the overlay operation to assure clean joints and to maintain a clean street prior to overlay operations, or other work. Regular power brooms (non pick-up) may be used in non-residential areas, and are approved for use on this project.

The Contractor may mill and place the ARHM in separate operations, provided the milled area (trench) is filled with ARHM within 24 hours. Any damage done to the remaining (trench) surface by traffic or other circumstances, prior to the placement of asphalt-rubber concrete, shall be repaired by Contractor as specified by the Engineer at no additional cost to the City.

The Contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and exposure of partially completed work to damage and weather. The Contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. The Contractor may, if he so chooses, haul excess RAP to the City of Tempe property at Priest Drive and Rio Salado Parkway. Dust control measures will be provided by the Contractor. The Contractor will be responsible for leveling or stockpiling the material and no payment shall be made for this work.

Measurement shall be by the square yard of existing AC pavement milled.

Payment will be made at the contract unit price bid per square yard. Payment shall be full compensation for all work associated with this item including milling/pulverizing, re-grading, compaction and removal of excess material.

ITEM NO. 2 – LOCAL STREET CRACK SEALING

The item shall conform to the drawing on page D-1. This item consists of cleaning and filling cracks in AC pavement.

All cracks larger than ¼ inch will be cleaned using a rotary impact crack router. All cracks will be clean and dry when sealed. Crack cleaning shall be done using high-pressure air, vacuum recovery equipment. This cleaning must be performed immediately ahead of the sealing operation.

Sealant will be applied at a minimum temperature of 350 degrees to clean, dry pavement. Sealant will be applied, level with a V-shaped rubber squeegee, in a simple band-aid or standard recessed band-aid configuration (per detail) with a maximum overband thickness of 1/8 inch. Sealant must be applied, under pressure, in continuous motion with the applicator opening over the crack channel so that the channel is filled from the bottom up to prevent air being trapped beneath the sealant. Under-filled cracks will be resealed. It may be necessary to sand or apply detacking spray to sealed areas prior to opening the area to traffic.

All areas routed and/or sealed will be swept by means of a self propelled pick up sweeper prior to opening any area to traffic. The contractor is also responsible for cleaning adjacent sidewalks and driveways of any dust or debris generated by the routing and sealing operation.

Crack sealing shall be measured by the square yards of asphalt concrete surface area sealed.

Payment for this item will be made at the contract unit price bid per square yard of road area sealed and accepted with crack sealant material. Payment will be full compensation for all labor, materials, traffic control, and equipment necessary for the item complete and in place.

ITEM NO.3- CONSTRUCT 1.5" 12.5MM ASPHALT RUBBER HOT MIX (WET PROCESS)

ASPHALT- RUBBER

Description: The work under this section shall consist of furnishing, proportioning and mixing all the ingredients necessary to produce an asphalt-rubber material.

Materials:

Asphalt-Rubber:

Asphalt Cement: Asphalt cement shall conform to the requirements of MAG Section 711.

Rubber: Rubber shall meet the following gradation requirements when tested in accordance with Arizona Test Method 714. Type B shall be used unless otherwise specified.

Sieve Size	Percent Passing	
	Type A	Type B
2.36 mm (#8)	100	
2.00 mm (#10)	95-100	100
1.18 mm (#16)	0-10	65-100
600 µm (#30)		20-100
300 µm (#50)		0-45
75 µm (#200)		0-5

The rubber shall have a specific gravity of 1.15 ± 0.05 and shall be free of wire or other contaminating materials, except that Type A rubber shall contain not more than 0.1 percent fabric and Type B shall contain not more than 0.5 percent fabric. Calcium carbonate, up to four percent by weight of the granulated rubber, may be added to prevent the particles from sticking together.

Certificates of Compliance conforming to Arizona State Department of Transportation Standard Specifications for Road and Bridge Construction Section 106.05 shall be submitted. In addition, the Certificates shall confirm that the rubber is a crumb rubber,

derived from processing whole scrap tires or shredded tire materials; and the tires from which the crumb rubber is produced is taken from automobiles, trucks, or other 283 equipment owned and operated in the United States. The Certificates shall also verify that the processing does not produce, as a waste product, casings or other round tire material that can hold water when stored or disposed of above the ground.

Asphalt-Rubber Proportions: The asphalt-rubber shall contain a minimum of 20 percent ground rubber by the weight of the asphalt cement.

Asphalt-Rubber Properties: Asphalt-rubber shall be Type 1 unless otherwise specified and conform to the following:

Requirement

Property	Requirement		
	Type 1	Type 2	Type 3
Grade of base asphalt cement	PG 64-16	PG 58-22	PG 52-28
Rotational Viscosity*; 177°C (351°F); Pascal seconds (cps)	1.5-4.0 (1500-4000)	1.5-4.0 (1500-4000)	1.5-4.0 (1500-4000)
Penetration; 4°C (39°F), 200g, 60 sec. (ASTM D 5); dmm (in), min	10 (0.04)	15 (0.06)	25 (0.10)
Ductility; 4°C (39°F), 1 cpm (ASTM D 113); cm (in), min.	5 (2)	5 (2)	5 (2)
Softening Point; (ASTM D 36); °C (°F), min.	57 (135)	54 (129)	52 (126)
Resilience; 25°C (77°F) (ASTM D 3407); %, min	25	20	15
* The Viscometer used must be a Haake Viscometer, Model VT - 04, Rotor No. 1, or viscometer correlated.			

Asphalt-Rubber Design: At least two weeks prior to the use of asphalt-rubber, the Contractor shall submit an asphalt-rubber design prepared by an approved laboratory. Such design shall meet the requirements specified herein. The design shall show the values obtained from the required tests, along with the following information: percent, grade and source of the asphalt cement used; and percent, gradation and source(s) of rubber used.

Construction Requirements:

Mixing of Asphalt-Rubber: The temperature of the asphalt-cement shall be between 191°C (375°F) and 218°C (425°F) prior to the addition of rubber. No agglomerations of rubber particles in excess of 2" in the least dimension shall be allowed in the mixing chamber. The ground rubber and asphalt-cement shall be accurately proportioned in accordance with the design and thoroughly mixed prior to the beginning of the one-hour reaction period. Reaction time may be decreased to 45-minutes if documentation is provided that the physical properties of the mix design requirements are consistently met

using a 45-minute reaction period. The Contractor shall document that the proportions are accurate and that the rubber has been uniformly incorporated into the mixture. Additionally, the Contractor shall demonstrate that the 284 rubber particles have been thoroughly mixed such that they have been "wetted." The occurrence of rubber floating on the surface or agglomerations of rubber particles shall be evidence of insufficient mixing. The temperature of the asphalt-rubber immediately after mixing shall be between 177°C (350°F) and 204°C (400°F). Reaction time shall start after all of the material for the batch has been mixed and the minimum reaction temperature of 177°C (350°F) has been achieved.

Prior to use, the viscosity of the asphalt-rubber shall be tested by the use of a rotational viscometer, which is to be furnished by the Contractor or supplier. The Contractor shall provide a qualified person to perform the testing.

Handling of Asphalt-Rubber: Once the asphalt-rubber has been mixed, it shall be kept thoroughly agitated during periods of use to prevent settling of the rubber particles. During the production of asphaltic concrete the temperature of the asphalt-rubber shall be maintained between 163°C (325°F) and 191°C (375°F). However, in no case shall the asphalt-rubber be held for more than 10 hours at these temperatures. It shall be allowed to cool to a temperature of 121°C (250°F) or less and held at that temperature for not more than four days. The process of cooling and reheating shall not be allowed more than one time for a batch of asphalt rubber binder. For each load or batch of asphalt-rubber, the Contractor shall provide the Engineer with the following documentation:

- (A) The source, grade, amount and temperature of the asphalt cement prior to the addition of rubber.
- (B) The source and amount of rubber and the rubber content expressed as percent by the weight of the asphalt cement.
- (C) Times and dates of the rubber additions and resultant viscosity test.
- (D) A record of the temperature, with time and date reference for each load or batch. The record shall begin at the time of the addition of rubber and continue until the load or batch is completely used. Readings and recordings shall be made at every temperature change in excess of 11°C (52°F), and as needed to document other events which are significant to batch use and quality

AC pavement shall be constructed in accordance with Section 321 of the MAG Specifications with the following exceptions and modifications:

Measurement

Measurement shall be by the square yard of AC pavement constructed.

Payment

Payment shall be made at the contract unit price bid per square yard for these items complete and in place to the thickness of 1.5 inches. Payment shall be full compensation for the work completed.