CITY OF CHANDLER
PUBLIC WORKS DEPARTMENT
POLICY/PROCEDURE
PRIVATE DEVELOPMENT TESTING PROCEDURES

PURPOSE: The purpose of this policy is to outline the City's requirements for private testing laboratories and testing frequency and standards in addition to those defined in the current version of the Maricopa Association of Governments "Uniform Standard Specifications and Details for Public Works Construction". This policy will apply to all projects with permits issued on or after November 1, 2004. In accordance with Chapter 47 of the City Code, complete inspection and testing of all offsite improvements is required regardless of whether they are publicly or privately owned. Parking lots and their associated access ways are also to be inspected and tested for drainage plan conformance, and conformance to asphalt and base thickness requirements.

RESPONSIBILITY: The Assistant Public Works Director/City Engineer shall ensure that all provisions of this Policy are followed.

POLICIES:

1. Required materials sampling and testing shall be performed by a lab hired by the developer or the contractor. The lab must be selected from the City of Phoenix Contract Lab and Approved Lab List. The lab must be certified by the Concrete & Cement Reference Laboratory (CCRL) for concrete testing and the American Material Reference Laboratory (AMRL) for all other types of testing.

2. The attached schedule of tests represents the minimum level of testing that the City will accept for the items of work that are normally performed under permit. The laboratory or City inspector may require additional testing to verify that the materials and installations satisfy the specifications for the work. Failure to follow the minimum testing schedule may result in removal from Chandler projects.

3. The lab personnel who collect the samples and perform the tests shall be under the supervision of a Registered Professional Civil Engineer in the State of Arizona. Each technician shall be certified by the Arizona Technical Institute (ATI) as an ATI Field Technician and certified by the American Concrete Institute (ACI) as an ACI Concrete Field Testing Technician. Field personnel shall be ATI and ACI certified to perform actual sampling or testing no later than July 1, 2005 with the exception of technician trainees. Technician trainees may perform sampling and/or testing under the direct observation of a technician who is an ATI and ACI Field Technician. All lab technicians are required to carry a copy of the City of

Chandler schedule of minimum level of testing requirements in the field and are also required to carry a copy of their City of Phoenix certification card on or before July 1, 2005. Lab technicians who fail to present their City of Phoenix certification card to the inspector will be asked to leave the project until such time as they can present their card to the inspector.

PROCEDURES:

1. Prior to starting any construction, the developer, contractor or lab shall supply the City inspector with a schedule of the proposed testing and the name of the approved laboratory that will perform the work. If the proposed schedule or laboratory is deficient, the City Inspector will notify the developer, contractor or lab and work may not proceed until the deficiency is corrected.

2. During the course of the project, the developer, contractor, or lab shall be in regular communication with the City Inspector. At the Inspector's option, written test reports and/or verbal communication on the suitability of the testing results may be required daily or at an interval established by the Inspector. Should the testing lab determine that the materials being tested are not in conformance with applicable standards, the lab shall notify the developer, contractor, and City Inspector. The developer or contractor shall take corrective action and the materials shall be retested.

3. At a minimum, testing results shall be bound and sealed by a Civil Engineer registered in the State of Arizona. Bound test result packets shall be submitted at the following intervals at a minimum:

    a. Just prior to placing any concrete.
    b. Prior to request for Final Inspection.

    Construction will not proceed to the next step until the packets have been received and verified by the City Inspector. Should the City Inspector have reason to require the testing or the data, additional testing shall be performed to ensure that the work meets applicable specifications. Work that does not meet applicable specifications will be corrected and retested before proceeding to the next step of construction.

    The following information shall be provided in the bound packets:

    a. A cover letter including a statement indicating that it is the registrant's opinion that the material testing has been performed in accordance with the City's latest minimum schedule of testing, that the materials were found to be in conformance with the applicable specifications, and that tests were performed in accordance with ASTM and AASHTO test procedures.

b. A copy of the schedule of proposed testing modified to show the testing completed to date shall be included directly behind the letter.
c. All pages in the bound packet shall be sequentially numbered and a table of contents provided.
d. Test locations should be identified by street name, lot number, and/or tract number. When there are no lot or tract numbers, locate test by street name, station, and direction in the drive lane, i.e. north bound, south bound, etc. or right or left of the monument line using the stationing on the approved plan.
e. Infrastructure test locations should be identified using street name and the approved plan stationing, indicating right or left of monument.
f. All testing data shall be provided and the location of the sample indicated. Test results shall be organized by type of activity such as sewer trenches, water trenches, dry utility trench, site backfill, subgrade, aggregate base, asphalt, curb & gutter, driveways, sidewalks, etc.
g. For compaction, water consolidation testing needs to correspond with MAG trench depths of testing based on trench width. Mechanical compaction tests must be every foot lift. A minimum of 10% of the water and sewer service line trenches must be tested. Location of these tests will be random as identified by the City Inspector.

4. In addition to the bound submittals discussed in Item 3, ABC quality and density test results shall be provided to the City Inspector for verification following completion of the concrete and ABC placement and before placement of asphaltic concrete.

C: attachments

11-16-04
Date

Public Works Director

CITY OF CHANDLER
SCHEDULE OF TESTS
REPRESENTS THE MINIMUM LEVEL OF TESTING

TABLE 1 – ACCEPTANCE SAMPLING GUIDE FOR ABC AND ASPHALT

STANDARD MAG SPEC SECTION	MATERIAL	TYPE OF TEST (S) REQUIRED	SAMPLING POINT	MINIMUM SAMPLING FREQUENCY
701, 702	Aggregate Base* (ABC)	Proctor Density	Roadway and Pipe Bedding	At start of production, then as material changes
		Compaction	Roadway and Pipe Bedding	One per 650' increment per lift or one per lane pass (800 SQ YD)
		Gradation, PI	Roadway and Pipe Bedding	One per project, or one per 1000 Tons or fraction thereof
321, 322, 323, 710	Hot In-Place Ashpaltic Concrete	Oil Content**	Sample in-place	One per day or one per 1000 Tons or fraction thereof
321,322	Hot In-Place Asphaltic Concrete	Mix Design Properties		One sample per days production
		Density/Thickness & Core	Roadway	One per 650' increment per lift per lane pass (800 SQ YD)

Remarks:

**At the direction of the City Inspector, asphalt deficient in oil content will be cored 50' on both sides of failed section. The results of these 2 cores will be averaged with the original test result.

CITY OF CHANDLER
SCHEDULE OF TESTS
REPRESENTS THE MINIMUM LEVEL OF TESTING

TABLE 2 – ACCEPTANCE SAMPLING GUIDE FOR CONCRETE

STANDARD MAG SPEC SECTION	MATERIAL	TYPE OF TEST (S) REQUIRED	SAMPLING POINT	MINIMUM SAMPLING FREQUENCY
505, 701, 702, 725	Concrete Flat Work, CIP, Structural	Compressive Strength	At Discharge	One set of four cylinders per 50 C.Y. or one per shift
		Slump, Time & Temperature	At Discharge	One per set of cylinders
	Structural Pre-Cast & Re-Bar	Certification	Project	1 per 100 LF of Item. Re-bar size and heat number.
701, 702, 725, 728	Lean Mix Concrete (Slurry)	Compressive Strength	At Discharge	One set of four cylinders per shift

Remarks:
*Concrete spec. for time is 90 minutes and temperature is 90 degrees.

The City Inspector on an as needed basis may require additional tests.

CITY OF CHANDLER
SCHEDULE OF TESTS
REPRESENTS THE MINIMUM LEVEL OF TESTING

TABLE 3 – ACCEPTANCE SAMPLING GUIDE FOR SOIL

STANDARD MAG SPEC SECTION	MATERIAL	TYPE OF TEST (S) REQUIRED	MINIMUM SAMPLING FREQUENCY
206, 601, 603, 205, 301	Soil Backfill or Trench Backfill	Proctor Density	One per soil type
		Compaction	One per 650' increment per lift
	Subgrade	Compaction	One per 650' increment per lane pass (800 SQ YD)
		Gradation, PI	One per soil type
	Manholes and laterals	Compaction	One per structure, pipe and lateral trench at various lifts*
	Minimum of 10% water & sewer services	Compaction	Service line trench at various lifts
205, 601	Roadway Excavation, Embankments	Proctor Density	One per soil type
		Compaction	One per 1000 C.Y.
		Gradation, PI	One per soil type
211	Fill Construction	Compaction	One per 650' increment per lane pass, per 8" lift (800 SQ YD)

Remarks:

All tests are to be taken in place.

All Compaction failures will be re-tested using a Sandcone. Any resulting failure will be re-worked before any re-tests are performed.

The Nuclear Gauge shall be calibrated against the Sandcone at least every ten tests. Rock correction shall be used for any + #4 material to obtain Max Proctor Density.

The City Inspector on as needed basis may require additional tests.

* In addition, minimum of one test every 5 feet of trench depth per structure or fraction thereof.