

December 22, 2010

Members of the MAG Specifications and Details Committee

Troy Tobiasson, City of Goodyear, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF AGENDA

Wednesday, January 5, 2011 at 1:30 p.m.
MAG Office, Second Floor, Cholla Room
302 North First Avenue, Phoenix

A meeting of the MAG Specifications and Details Committee has been scheduled for the time and place noted above. Members of the MAG Specifications and Details Committee may attend the meeting either in person, by videoconference or by telephone conference call. If you have any questions regarding the meeting, please contact Committee Chair Troy Tobiasson at 623-882-7979 or Gordon Tyus, MAG staff at 602-254-6300.

Please park in the garage under the building, bring your ticket, parking will be validated. For those using transit, Valley Metro/RPTA will provide transit tickets for your trip. For those using bicycles, please lock your bicycle in the bike rack in the garage.

In 1996, the Regional Council approved a simple majority quorum for all MAG advisory committees. If the MAG Specifications and Details Committee does not meet the quorum requirement, no action can be taken. Your attendance at the meeting is strongly encouraged.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Gordon Tyus at the MAG office. Requests should be made as early as possible to allow time to arrange the accommodation.

It is requested (not required) that written comments on active cases be prepared in advance for distribution at the meeting.

AGENDA

<u>ITEM</u>	<u>COMMITTEE ACTION REQUESTED</u>
1. <u>Call to Order</u>	1. No action required.
2. <u>Approval of October 6, 2010 Meeting Minutes</u>	2. Corrections and approval of October 6, 2010 minutes.
3. <u>2010 and 2011 Cases</u>	3. Review of 2010 carry-over cases. New cases.
4. <u>General Discussion</u>	4. Open general discussion.
5. <u>Request for Agenda Items</u>	5. Request desired new agenda items
6. <u>Adjournment</u>	6. No action required.

MEETING MINUTES FROM THE
MARICOPA ASSOCIATION OF GOVERNMENTS
STANDARD SPECIFICATIONS AND DETAILS COMMITTEE

October 6, 2010

Maricopa Association of Governments Office, Cholla Room
302 North First Avenue
Phoenix, Arizona

AGENCY MEMBERS

Jim Badowich, Avondale	Mike Samer, Mesa
Scott Zipprich, Buckeye	Jesse Gonzales, Peoria, Chairman
Warren White, Chandler	Syd Anderson, Phoenix (St. Trans.)
Dennis Teller, El Mirage	* Jami Erickson, Phoenix (Water)
* Edgar Medina, Gilbert	* Mark Palichuk, Queen Creek
Tom Kaczmarowski, Glendale	* Rodney Ramos, Scottsdale
Troy Tobiasson, Goodyear, Vice Chairman	Jason Mahkovtz, Surprise
* Shimin Li, Maricopa County (Envir. Div.)	Tom Wilhite, Tempe
Bob Herz, MCDOT	

ADVISORY MEMBERS

* John Ashley, ACA	Jeff Hearne, ARPA
Jeff Benedict, AGC	Peter Kandaris, SRP
Tony Braun, NUCA	Paul R. Nebeker, Independent
Patrick Holmes, NUCA (proxy)	* Mike Smith, ARPA
Brian Gallimore, AGC	

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Al Field, Field & Associates
Amanda McGennis, AGC

1. Call to Order

Chairman Jesse Gonzales called the meeting to order at 1:35 p.m.

2. Approval of Minutes

The members reviewed the September 1, 2010 meeting minutes. Warren White introduced a motion to accept the minutes as written. Tom Wilhite seconded the motion. A voice vote of all ayes and no nays was recorded.

3. 2010 Cases (new cases)

a. Case 10-03 – Modify Section 336 Pavement Matching and Surfacing Replacement: *Revise Section 336 to be in conformance with changes made last year to Detail 200-1 and Detail 200-2.* Peter Kandaris went over the changes to Section 336 based on comments received from Maricopa County and the City of Chandler. Specifically, the first sentence of 336.2.4.1 was recommended to be deleted by the county because it had conflicts with other sections, and was covered by Table 710-1. Committee members agreed to this deletion and other changes in this section dealing with the thickness of the surface courses which were also covered in Table 710-1. Maricopa County also recommended deleting the last sentence of part (C) under this same section regarding the timing of surface course replacement. Members also concurred on this change. Mr. Kandaris said that Chandler recommended reducing the length from 600 feet to 300 feet in the sentence “For cuts greater than 600 feet in length the entire area shall be slurry seal coated in accordance with Section 332 or as otherwise specified.” There were no objections to this change. In Section 336.4 (B) it was recommended to revise the last sentence to match the 48” size of the T-Top repair as shown on Detail 200-1. Also under Payment (Section 336.5) it was recommended to add a sentence noting that payment should include the cost of replacing pavement markings. Tom Wilhite asked if payment for valve adjustments should also be added, but the consensus of the committee was to make that a separate pay item. Other changes to Section 336 were recommended to be postponed and taken up in a new case next year. These included clarifying wording and intent throughout, addressing temporary pavement replacement requirements, and to review the use of ‘portland cement concrete pavement (PCCP)’ terminology in section 336, 324, and Detail 200-1. Mr. Kandaris moved to approve Case 10-03 with the changes discussed and agreed upon. The motion was seconded by Bob Herz. A roll call vote was taken. The motion passed: 12 yes, 0 no, 0 abstaining, 3 not present.

b. Case 10-05 – Revise FOREWORD: *Clarify use of the MAG Specifications and Details for Public Works document.* No comments or updates were submitted. Case to be continued in 2011.

c. Case 10-08 – Revise Section 717 Asphalt Rubber. *Revise Section 717 ASPHALT-RUBBER to obtain a uniform specification.* No comments or updates were submitted. Case to be continued in 2011.

d. Case 10-11 – Revise Detail 110 – Plan Symbols. *Update and expand graphic standards to have plans be more uniform among MAG agencies.* Bob Herz said Details

110-1 and 110-2 had been updated. To address concerns of members requesting labels on the symbols, Mr. Herz said he added Note 2 to Detail 110-1, stating, "ADD LABELS TO PLAN SYMBOLS AS NEEDED FOR CLARITY." He also said that on Detail 110-2, the JURISDICTIONAL BOUNDARY (OPTION 2) line should be shown as a grey line, and that it may need to be adjusted slightly lighter to ensure that copiers and faxes do not fill in the line. Mr. Tyus said he would make sure the line appeared properly in printed versions of the book. Mr. Herz moved to accept Case 10-11. The motion was seconded by Mr. Gonzales. Seeing no further discussion a roll call vote was taken. The motion passed: 12 yes, 0 no, 0 abstaining, 3 not present.

e. Case 10-12 – New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation. *Provide specifications for the installation of underground fiber optic micro-conduit telecommunications facilities within the public right-of-way.* No comments or updates were submitted. Case to be continued in 2011.

4. General Discussion:

Nominations for 2011 Chair and Vice Chair

According to MAG policy, the Vice Chair is promoted to Chair and any other member can submit a letter of interest to the MAG Executive Committee to serve as the new Vice Chair. In this case, Troy Tobiasson has agreed to serve as Chair beginning January 2011. Mr. Gonzales asked if any member would like to volunteer to serve as Vice Chair. Mr. Tyus said he had not received any letters of interest to date. Letters of application are due to the MAG Executive Committee by November 1st. East-side representatives are encouraged to apply to help achieve a geographic balance. The final appointments are made by the MAG Executive Committee during their November meeting, and if no one volunteers, a member will be appointed by the Executive Committee.

Specifications and Details Outside the Right-of-Way Working Group Update

Mr. Kandaris gave a report of the *MAG Uniform Specifications Outside of Right-of-Way Working Group*. It included updates discussed during the September 28 meeting, and a preview of work to be done. He explained that the group had gone through most of the MAG Specifications and Details determining their applicability outside the right of way. He said during the next meeting of the group (scheduled for 1:30 p.m. on October 28 at the ARPA offices) they should finish the remaining sections, including concrete and masonry structures and other miscellaneous specs and details that should go pretty quickly. He said he intended to have a report ready in January summarizing the findings of the working group during the past year. Mr. Kandaris said the plan for next year's meetings will be to actually update the specifications that need changes, and write new specifications as needed, with a goal of having a document ready for the committee to discuss during the 2012 session. He also explained that as the working group went through the specifications, they made notes on areas of the MAG book that may require updates, or sections and details that may be obsolete and possibly removed. He plans to provide a list of possible case work for the committee to review next year.

Scott Zipprich said the on-site specifications manual would also be a great place for city supplements that may not have been in the right-of-way. An example given was the underground storage details developed by Chandler. He said the supplements could help provide much of the content for the new manual.

Mr. Kandarlis also asked members who have been contacted by vendors to let them know about the working group meetings and offer vendors the opportunity to write specifications for products used on site. Members agreed that any specifications from vendors must be general in nature. Jeff Hearne suggested the working groups continue the previous practice of having technicians from the agencies participating in their areas of expertise. He said this helped the working groups get early input from the agencies, and also helped agencies communicate the changes with their committee representative and provide feedback throughout development of the specifications.

Next Year's Cases

Troy Tobiasson asked members to be prepared to set aside time not just to come to the meetings, but to work on cases and/or be involved in working groups. He stressed the importance of everyone contributing, since it is anticipated that a large workload of cases will be coming in the next session – based on continuing cases and feedback from the working group. Several members have discussed creating a new revision of the specifications book for 2012. Mr. Tyus said that a new version would also help clean the decks of 12 years of update packets, and help ensure everyone has the latest specifications.

Jesse Gonzales mentioned the Blue Ribbon Panel Infrastructure Working Group was still recommending the state develop specifications for reclaimed water. He said he would provide his work on Section 616 for MAG to continue to work on. He said that PAG and CAAG only supplement and refer to the MAG specifications.

MAG Website and ASTM Portal

Gordon Tyus announced that MAG has a new website at www.azmag.gov. He said future meetings, agendas and cases will be posted on the new site, but the old site will be available for about a year. He also said the ASTM portal was working and provided members with an instruction sheet that included the web address, user name and password to log on.

ARRA Project Submissions

Amanda McGinnis of AGC was asked by Chairman Gonzales to present information on ARRA project submissions and working with the ADOT review process. She said there was a large backup at the West Valley lab due in part to bid packages using mismatching specifications. She said there was a need for more universal standards. For example projects may specify MAG specs with a City of Phoenix Mix specs and gradation using ADOT standards, but the testing methods are not the same for each, making it very difficult for the lab. It requires administrators call and ask engineers at the cities to try and marry them together, often requiring a change order. She also noted that ARRA projects are reviewed by FHWA, who require a paper trail for any change order they receive. Peter Kandarlis said engineers typically deal with the material not always considering that different specifications

require different tests. Ms. McGinnis urged members to be more consistent in how the projects are specified in the future.

Production Ranges and Mix Designs

Troy Tobiasson noted that production ranges do not necessarily fall within mix designs. He described a mix design he had to reject because its range was outside the target range based on Sections 710 and 321. Scott Zipprich described an example of a project that couldn't get compaction even though it was an approved mix design. Tom Wilhite said maybe MAG should provide an order of acceptance to help clarify how to manage these kinds of problems. Jeff Benedict said people reviewing and creating mix designs need experience. Members noted that often mix designs are slightly changed which can affect other properties. Brian Gallimore described the difficulty faced by contractors who are held at fault for not meeting compaction requirements even though they are told what mix to use and how to apply it. Members thought it would be good to have historical data on mixes.

5. Adjournment:

The meeting was adjourned at 3:00 p.m.

**2011 MEETING SCHEDULE
MARICOPA ASSOCIATION OF GOVERNMENTS
STANDARD SPECIFICATIONS AND DETAILS COMMITTEE**

MAG CHOLLA ROOM – 1:30 P.M.

DATE	ACTIVITY
January 5, 2011	Committee Meeting
February 2, 2011	Committee Meeting
March 2, 2011	Committee Meeting
April 6, 2011	Committee Meeting
May 4, 2011	Committee Meeting
June 1, 2011	Committee Meeting
July 6, 2011	Committee Meeting Last meeting to submit new cases for this year.
August 3, 2011	Committee Meeting
September 7, 2011	Committee Meeting Last regular meeting
October 5, 2011	Optional Committee Meeting

2011 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

(Updated information can be found on the website: <http://www.azmag.gov/Projects/Project.asp?CMSID=1055&CMSID2=1136>)

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
10-05	Case 10-05 : Revise FOREWARD to clarify use of the <i>MAG Specifications and Details for Public Works Construction</i> document.	Peoria	Jesse Gonzales	03/03/2010 05/05/2010		0 0 0	Yes No Abstain
10-08	Case 10-08 : Re-write Section 717 ASPHALT-RUBBER.	MCDOT	Bob Herz	05/05/2010		0 0 0	Yes No Abstain
10-12	Case 10-12 : New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation.	Scottsdale	Rod Ramos	05/05/2010 08/04/2010		0 0 0	Yes No Abstain
11-01	Case 11-01A: Miscellaneous Corrections. Correct typographical errors in Table 711-1.	MCDOT	Bob Herz	01/05/2011		0 0 0	Yes No Abstain
11-02	Case 11-02: Add an Asphalt Pavement Safety Edge option to Detail 201.	MCDOT	Bob Herz	01/05/2011		0 0 0	Yes No Abstain
11-03						0 0 0	Yes No Abstain
11-04						0 0 0	Yes No Abstain
11-05						0 0 0	Yes No Abstain
11-06						0 0 0	Yes No Abstain

FOREWORD

Publication of these Uniform Standard Specifications and Details for Public Works Construction [Within Public Rights of Way](#) fulfills the goal of a group of agencies who joined forces in 1966 to produce such a set of documents. Subsequently, in the interest of promoting county-wide acceptance and use of these standards and details, the Maricopa Association of Governments accepted their sponsorship and the responsibility of keeping them current and viable.

These specifications and details, representing the best professional thinking of representatives of several Public Works Departments, reviewed and refined by members of the construction industry, were written to fulfill the need for uniform rules governing public works construction performed for Maricopa County and the various cities and public agencies in the county. It further fulfills the need for adequate standards by the smaller communities and agencies [within Maricopa County](#) who could not afford to promulgate such standards for themselves. [Agencies in other regions or climes within the state of Arizona wishing to apply these specifications may need to make adjustments for local conditions.](#)

[These uniform specifications and details are intended to aid the private construction industry in providing modern materials and construction techniques, eliminate conflicts and confusion, lower construction costs and encourage more competitive bidding by private contractors for the benefit of public works construction in the right-of-way. Use of these standards for projects outside of the right-of-way should be reviewed by professional engineers and architects and applied with care to insure relevance to the planned work.](#)

[Specifications and details contained herein should be incorporated into project plans and specifications after careful review by the design engineer or architect of specific project needs. Not all specifications will apply to all projects as these standards are developed to meet a variety of public works needs. Prepared plans and specifications should clearly call out specific uniform specifications and details required for the project.](#)

[Uniform specifications and details are not a substitute for good engineering judgment. Unique conditions will arise that are outside the scope of these standards. When this happens, professional engineers and architects are required to use their judgment to amend these standards to best meet site-specific project needs in accordance with rules set forth by the State of Arizona and policy statements made by the Arizona State Board of Technical Registration.](#)

The Uniform Standard Specifications and Details for Public Works Construction will be revised periodically and reprinted to reflect advanced thinking and the changing technology of the construction industry. To this end a Specifications and Details Committee has been established as a permanent organization to continually study and recommend changes to the Specifications and Details. Interested parties may address suggested changes and questions to:

Standard Specifications & Details Committee
c/o Maricopa Association of Governments
302 North First Avenue, Suite 300
Phoenix, Arizona, 85003.

These suggestions will be reviewed by the committee and appropriate segments of the industry and cumulative annual revisions will be published the first of each year. A copy of this publication is available for review on the internet at the website listed below.

Please follow the links to the publications page and look for *Uniform Standard Specifications for Public Works Construction and/or Uniform Standard Details for Public Works Construction Within Public Rights of Way*:

www.mag.maricopa.gov

While in the interest of regional uniformity, it is hoped that all using agencies will adopt these standards with as few changes as possible, it is recognized that because of charter requirements and for other reasons, some agencies will find it necessary to modify or supplement certain requirements. In the interest of reducing a proliferation of agency specific modifications it is strongly recommended that the agency representatives to MAG bring their modifications for consideration by the committee for inclusion into these standards.

FOREWARD

Public Works Construction ~~Not in~~ Outside the Right of Way

This document has been prepared as a supplement to the Uniform Standard Specifications for Public Works Construction as adopted by the Maricopa Association of Governments (MAG) and is to be used for onsite development that is not associated with public right of way construction. ~~While~~ ~~†The standards within this supplement~~ ~~hese standards~~ are intended to apply to all agency public works development projects within Maricopa County, ~~they are intended to be utilized in applicable agency developments~~ such as libraries, equipment yards, service centers, recreational facilities or other public agency building sites. They may also serve as a guide for non-agency private development should the design professional find they are useful.

~~We~~ ~~With this supplement, the MAG Specifications and Details Committee~~ attempts to achieve maximum uniformity of planning, engineering, and construction practices for agency work outside the public right of way ~~and as applicable as outlined above~~. These are minimum standards and are intended to assist, but not to substitute for competent work by engineering and design professionals. Special conditions or environmental constraints may require a more stringent design than would normally be required under ~~these Standards~~ this supplement. It is not the intent to ~~unreasonably~~ limit any innovative effort which could result in a superior project design or meet specific design objectives. A proposed design which ~~is different than~~ varies from these ~~Development Guidelines~~ standards will be evaluated on the basis that the proposed design will produce a comparable or superior result, ~~and that is~~ in every way adequate for the user, and the public.



MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: April 29, 2010

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Section 717 ASPHALT-RUBBER

Case 10-08

PURPOSE: Revise Specification Section 717 ASPHALT-RUBBER to obtain a uniform specification.

REVISION: The attached sheets represent a re-write of the current specification to match MCDOT's current requirements. Other agencies are requested to indicate how their requirements may differ so that the specification can be modified to accommodate the needs of all agencies.

SECTION 717

ASPHALT- RUBBER

717.1 DESCRIPTION:

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

717.2 MATERIALS:

717.2.1 Asphalt-Rubber:

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

Rubber: Rubber shall meet the following gradation requirements when tested in accordance with Arizona Test Method 714.

Sieve Size	Percent Passing
#10 (2.00 mm)	100
#16 (1.18 mm)	65 - 100
#30 (600 μ m)	20 - 100
#50 (300 μ m)	0 - 45
#200 (75 μ m)	0 - 5

The rubber shall have a specific gravity of 1.15 ± 0.05 , shall contain not more than 0.5 percent fabric and shall be free of wire or other contaminating materials. 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 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.

717.2.2 Asphalt-Rubber Proportions and Properties: Ground rubber in asphalt-rubber shall be a minimum of 20 percent and a maximum of 22 percent by weight of the asphalt cement.

Asphalt shall be Type 1 unless otherwise specified and conform to the following:

Property	Requirement		
	Type 1	Type 2	Type 3
Grade of base asphalt cement	PG 64-16	PG 58-22	PG 52-28
Rotational Viscosity*; 351°F (177°C); Pascal seconds (cps)	1.5-4.0 (1500-4000)	1.5-4.0 (1500-4000)	1.5-4.0 (1500-4000)
Penetration; 39°F (4°C), 200g, 60 sec. (ASTM D 5); in (dmm), min	0.04 (10)	0.06 (15)	0.10 (25)
Softening Point; (ASTM D 36); °F (°C), min.	135 (57)	129 (54)	126 (52)
Resilience; 77°F (25°C) (ASTM D 3407);%,min	25	20	15
* The Viscometer used must be a hand held rotational viscometer, such as a Rion (formerly Haake) Model VT – 04, or an equivalent, using Rotor No. 1. The rotor, while in the off position, shall be completely immersed in the binder at a temperature from 350°F to 355°F for a minimum heat equilibrium period of 60 seconds, and an average viscosity determined from three separate constant readings (± 0.5 pascal-seconds) taken within a 30 second time frame with the viscotester level during testing and turned off between readings. Continuous rotation of the rotor may cause thinning of the material immediately in contact with the rotor, resulting in erroneous results.			

717.2.3 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 ADOT 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.

717.3 CONSTRUCTION REQUIREMENTS:

717.3.1 Mixing of Asphalt-Rubber: The temperature of the asphalt-cement shall be between 375°F (191°C) and 425°F (218°C) 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 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 350°F (177°C) and 400°F (204°C). Reaction time shall start after all of the material for the batch has been mixed and the minimum reaction temperature of 350°F (177°C) 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.

717.3.2 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 325°F (163°C) and 400°F (204°C). 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 250°F (121°C) 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 52°F (11°C), and as needed to document other events which are significant to batch use and quality.

– End of Section –

SECTION 361
SHALLOW DEPTH FIBER OPTIC MICRO-CONDUIT INSTALLATION

361.1 DESCRIPTION:

This work shall consist of the installation of underground fiber optic micro-conduit telecommunications facilities within the public right-of-way.

361.2 TRENCHING, BACKFILL AND RESTORATION:

All work shall be done in accordance with Section _____

361.3 MICRO-CONDUIT INSTALLATION:

(A) "Trunk Lines" Cable providing telecommunications service by connecting regions or states or by connecting central offices within a metropolitan area. Such cable shall be installed as described below:

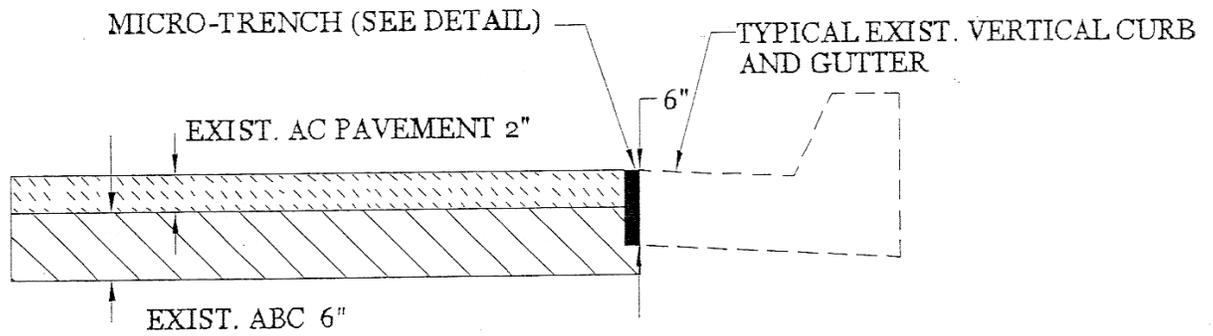
(B) Telecommunications cables other than "trunk lines" shall be installed as described below:

361.4 CABLE LOCATING (FIBER OPTIC):

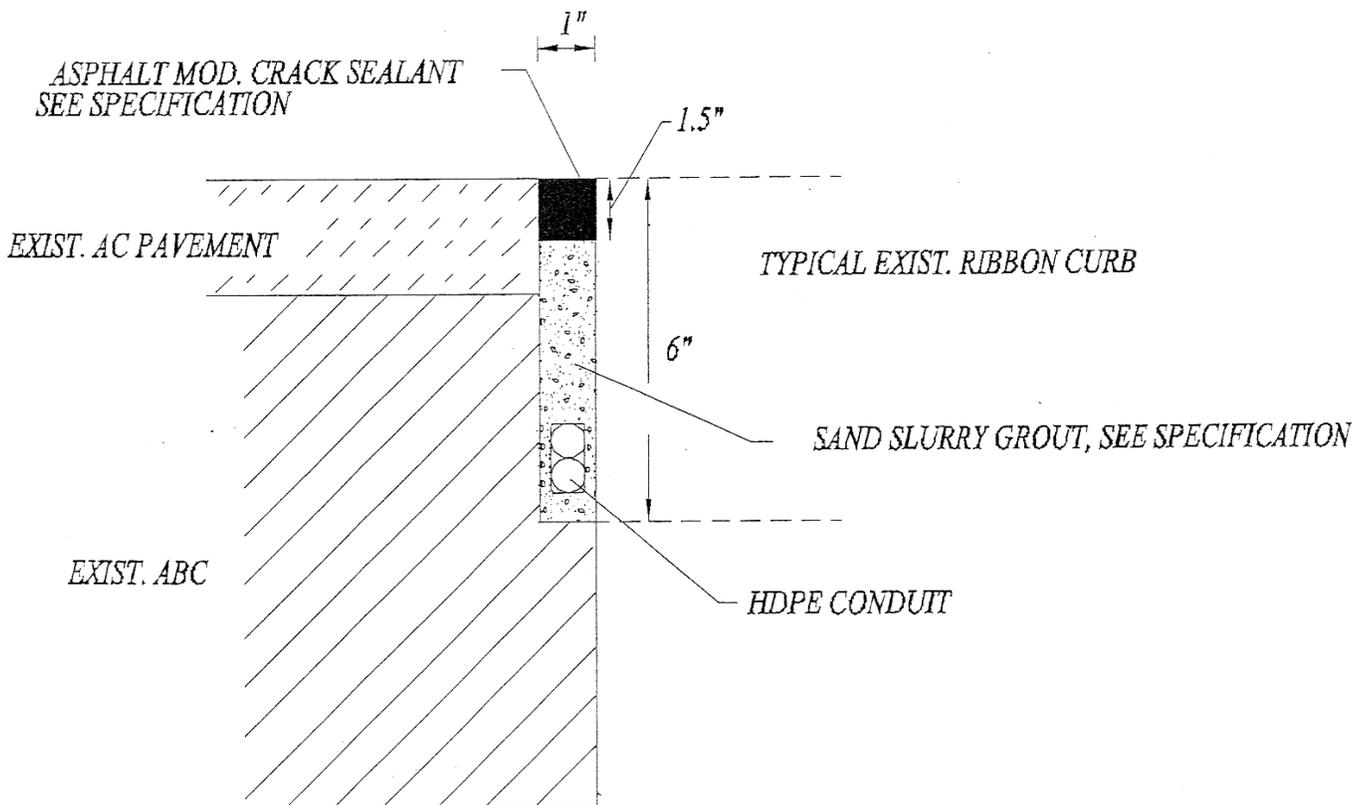
Tracing or locating wire shall be installed with the cable.

361.5 PAYMENT:

Payment will be made at the contract unit price bid per lineal foot.



TYPICAL SECTION AND TRENCH ALIGNMENT



MICRO-TRENCH DETAIL

Cano & Associates, Inc.

**ASPHALT PAVEMENT CRACK AND JOINT SEALING
For MICRO-TRENCH**

200.01 Description

All one inch wide trenches shall be cleaned out and filled with an approved asphalt-rubber or other asphalt modified sealer.

200.02 Material

The crack sealant shall be an asphalt-rubber or a polymer modified product, such as equal to Crafcro Polyflex Type 3 Sealant.

200.03 Material Specifications

TEST	RECOMMENDED SPEC.
Cone Penetration (ASTM D5329)	20-40
Resilience (ASTM D5329),	40% min.
Softening Point (ASTM D36),	210 F (99C) min.
Ductility, 77F (25C) (ASTM D113)	30 cm min.
Flexibility (ASTM D3111 Mod.)	Pass at 30F (-1C)
Flow 140F(60C) (ASTM D2669)	3 mm max.
Brookfield Viscosity, 400F(204C) (ASTM D2669)	100 Poise max.
Asphalt Compatibility (ASTM D5329)	Pass
Bitumen Content (ASTM D4)	60% min.
Tensile Adhesion (ASTM D5329)	400% min.
Safe Heating Temperature	400 F (204C)
Recommended Pour Temperature	380F (193C)

200.04 Crack Cleaning and Sealing

Clean the existing pavement surface of all loose material, dirt, or other deleterious substances by brooming, or other approved MAG methods. Seal 1-inch wide crack with an approved hot pour asphalt rubber sealant.

Cano & Associates, Inc.

**SAND SLURRY GROUT
FOR MICRO-TRENCH**

300.01 Description

This slurry grout is a controlled low strength material specification MAG Section 728 modified. The material is a mixture of portland cement, fined aggregate (mortar sand), flowability additives, and water. The slurry grout is a self compacting, flowable, cementitious material used to backfill or structural fill a 1-inch wide, 5 to 8 inches deep micro-trench.

300.02 Material

Portland Cement, shall conform to MAG Section 725.2
Fine aggregate (mortar sand), shall conform to MAG Section 701
Cement additives to meet flowability rate
Water, shall conform to Section 725.5

300.03 Material Specifications

A mix design shall be submitted with test data for the Engineer's approval prior to excavation.

Slurry Grout Material Requirements (Per 1 Sack)

CEMENT CONTENT, LBS/CU YD	SLUMP, INCHES	COMPRESSIVE STRENGTH AT 28 DAYS, PSI
94 +/- 5%	8 +/-1	150

300.04 Notes

1. The values specified in the table are for both mix design requirements and field production. The deviations are for production, testing, and sampling tolerances.
2. Slump shall be tested in accordance with ASTM C-143 and D-6103.
3. Compressive strength shall be tested in accordance with ASTM D-4832.
4. Sampling shall be in accordance with ASTM D-4832.
5. Unit weight shall be obtained by ASTM D-6023.
6. Temperature shall be taken in accordance with ASTM C-1064.
7. Cement content shall be tested in accordance with ASTM D-5982.

300.05 Mixing

Mixing shall conform to MAG Section 728.4



MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: January 5, 2011

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Miscellaneous Corrections

Case 11-01 A

PURPOSE: Correct typographical errors.

REVISION: In Table 711-1, Column 1, Row 11, The Dynamic Shear parameter for aged binder (PAV method) revise " $G^*/\sin \delta$ " to read " $G^* \cdot \sin \delta$ " (G^* multiplied by " $\sin \delta$ "). The requirement description is to read:

Dynamic Shear TP5
 $G^* \cdot \sin \delta$, Max., 5000 kPa
Test Temp. @ 10 rad/s, °C



MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: Jan 5, 2011

To: MAG Specifications and Details Committee

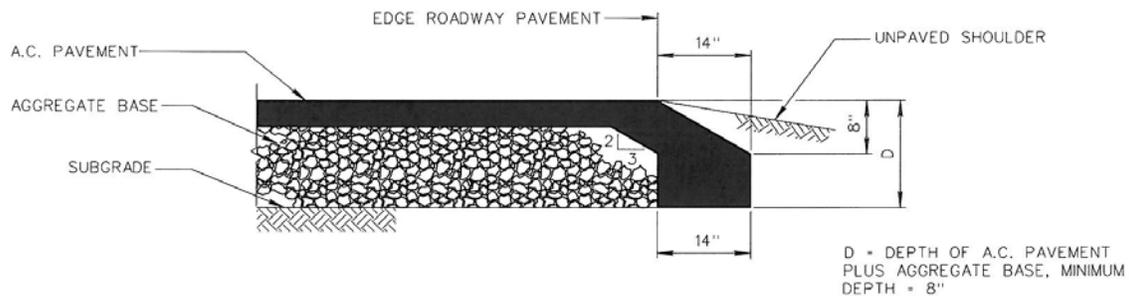
From: Robert Herz, MCDOT Representative

Subject: Proposed addition to Standard Detail 201 – Pavement
Section at Termination

Case 11-02

PURPOSE: Add an Asphalt Pavement Safety Edge option to Detail 201

REVISION: Add Asphalt Pavement Safety Edge Detail.



LIST OF MEMBERS
For
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Page 1 of 4
January 2011

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May 2010

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