January 25, 2011

TO: Members of the MAG Standard Specifications and Details Committee

FROM: Troy Tobiasson, City of Goodyear, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, February 2, 2011 at 1:30 p.m.
MAG Office, Suite 200 (Second Floor), Cholla Room
302 North 1st 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.

MAG Standard Specifications and Details Committee
TENTATIVE AGENDA
February 2, 2011

	COMMITTEE ACTION REQUESTED
1. Call to Order and Introductions	
2. Call to the Audience An opportunity is provided to the public to address the MAG Specifications and Details Committee on items that are not on the agenda that are within the jurisdiction of MAG, or non-action agenda items that are on the agenda for discussion or information only. Citizens will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the committee requests an exception to this limit. Please note that those wishing to comment on agenda items posted for action will be provided the opportunity at the time the item is heard.	2. Information.
3. Approval of January 5, 2011, Meeting Minutes	3. Review and approve minutes of the January 5, 2011 meeting.
Review of 2010 and 2011 Cases	
4. Case 10-05: Revise FOREWARD to clarify use of the MAG Specifications and Details for Public Works Construction document. See item 4.	4. Information and discussion. Sponsor: Jesse Gonzales, Peoria
5. Case 10-08: Re-write Section 717 ASPHALT-RUBBER. See item 5.	5. Information and discussion. Sponsor: Bob Herz, Maricopa County
6. Case 10-12: New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation. See item 6.	6. Information and discussion. Sponsor: Rod Ramos, Scottsdale
7. Case 11-01: Miscellaneous Corrections A. Correct typographical errors in Table 711-1. B. Correct typographical error in Table 705-1. C. Potential new correction cases. See item 7.	7. Information and discussion. Sponsors: Bob Herz, Maricopa County and Peter Kandaris, SRP

8. Case 11-02: Add an Asphalt Pavement Safety Edge option to Detail 201. See item 8.	8. Information and discussion. Sponsor: Bob Herz, Maricopa County
New 2011 Cases	
9. Proposed New Cases Members can present new cases for information and discussion.	9. Information and discussion.
10. Potential Cases Members can discuss other potential new cases which they are working on, or are planning to present at a future meeting. See item 10.	10. Information and discussion.
General Discussion	
11. Working Group Reports A. Outside Right-of-Way Working Group Report on 1/25/2011 meeting. B. Water/Pipe Working Group	11. Information and discussion. Working Group Chair: Peter Kandaris, SRP Working Group Chair: Jim Badowich, Avondale
12. Staff Reports ASTM project: Usage report, promotion within agencies. See item 12.	12. Information and discussion.
13. Open General Discussion Members can report on any items of interest to the committee.	13. Information and discussion.
14. Request for Future Agenda Items Topics or issues of interest that the Standard Specifications and Details Committee would like to have considered for discussion at a future meeting will be requested. Adjournment	14. Information and discussion.

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

January 5, 2011

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

AGENCY MEMBERS

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

ADVISORY MEMBERS

John Ashley, ACA
Amanda McGennis, AGC (proxy)
Tony Braun, NUCA
Bill Davis, NUCA (proxy)
Brian Gallimore, AGC
Jeff Hearne, ARPA
Peter Kandaris, SRP
Paul R. Nebeker, Independent
Mike Smith, ARPA

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Connie Corder, NUCA
Bob Erdman, Cutler Repaving, Inc.
Dan Hernandez, Quanta Services
Jerre Mills, Sunbelts
Niranjan Vescio, Stronggo

1. Call to Order

Chairman Troy Tobaisson called the meeting to order at 1:28 p.m.

Mr. Tobaisson presented past chair Jesse Gonzales with a certificate of appreciation for his service as chair during 2010.

Future new committee members Dave Emon from El Mirage and Greg Crossman from Gilbert introduced themselves.

2. Approval of Minutes

The members reviewed the October 6, 2010 meeting minutes. Jesse Gonzales introduced a motion to accept the minutes as written. Bob Herz seconded the motion. A voice vote of all ayes and no nays was recorded.

3. 2010 Cases (continuing cases)

a. Case 10-05 – Revise FOREWORD: *Clarify use of the MAG Specifications and Details for Public Works document*. Jesse Gonzales said that no changes were made since the last meeting. He did mention that he received comments and may wish to add text that clarify that the use of the MAG specs, that are designed for Maricopa County, may need to be adjusted for other parts of the state. He gave an example of the research he did on reclaimed water specifications where the PAG and CAAG regions refer to the MAG specifications. John Ashley suggested that we may want the Foreward, and any disclaimers within it, reviewed by an attorney.

b. Case 10-08 – Revise Section 717 Asphalt Rubber. *Revise Section 717 ASPHALT-RUBBER to obtain a uniform specification.* Bob Herz said that no changes were made since the last meeting and asked for comments from the committee.

c. 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.* The case sponsor Rod Ramos was not present to provide an update, so the case was opened for comments from the committee. Bob Herz said the county does not like utilities that close to the surface, but the specification may be suitable for use outside of the public right-of-way. Jesse Gonzales said many agencies had bad experiences with shallow depth “cut and stuff” installation used by cable companies in the past.

Guest Dan Hernandez, who represents a company that provides this type of service, explained the process used on projects in Scottsdale and Paradise Valley. He said that the cable is typically placed 10”-12” below grade and that they are able to install about 24,000 feet per day. He said besides quicker installation, it also produced less noise and

dust, which was appreciated by the neighbors. He explained they typically use sawing wheels to cut to a depth of about 11 inches, then they install the cable conduit and backfill it with a 'super' grout.

Peter Kandaris noted the current case has specifications for a 1-sack sand slurry grout, and that in SRP testing a similar mix was well under the 150 psi compressive strength stated on the handout. Mr. Hernandez said that there were different options for fill, but the 'super' grout they use seals the pavement surface well. He said the same process was being used to repair pavement cracking.

Jim Badowich commented that relocating the utilities due to road reconstruction in the future could add costs, and asked who would pay. Mr. Hernandez said that the utility would be deep enough not to be disturbed during typical milling operations, but that complete reconstruction could require it to be moved. He said in the past, they were able to pull the conduit up and move it out of the way until it could be installed in the reconstructed roadway.

Committee members also questioned him about the location of the cable in the street and of the boxes. Mr. Hernandez said they try to stay at least two feet from the curb (unlike how it is shown in the case detail). Since the process is designed to work in asphalt, they try to avoid installation next to concrete construction such as curbs. He also explained that the distance between boxes was typically 800-1500 feet, and the vaults typically were located out of the roadway and ranged from 24" to 36" in size.

Jesse Gonzales said a typical application of this type of cable installation was to allow telephone cell towers to be closer together and at a shorter height, so they would be less conspicuous in neighborhoods.

2011 Cases (new cases)

d. Case 11-01A – Miscellaneous Corrections: *Correct the formula in Table 711-1*. Bob Herz introduced this case to correct the formula for the dynamic shear parameter for aged binder (PAV method). In Table 711-1, column 1, row 11, the requirement description is to read:

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

e. Case 11-02 – Safety Edge Detail: *Add an Asphalt Pavement Safety Edge option to Detail 201*. Bob Herz introduced this case to provide another option for the construction of roadway edges. This method reduces an over-correction problem people have when trying to get back onto the roadway after driving on the shoulder. Jesse Gonzales said that he reviewed a couple studies on this issue and provided the following links to them as references.

http://www.fhwa.dot.gov/publications/publicroads/07sep/01.cfm
http://safety.fhwa.dot.gov/roadway_dept/pavement/safedge/sses/

Amanda McGinnis said that on the FHWA Everyday Counts website, the safety edge is one of the initiatives they are pushing for, and she commended the sponsor for introducing it as a MAG case.

Brian Gallimore cautioned that this type of construction does not provide a lot of compaction on the edge of the roadway. After the angle is cut with a shoe it typically is compacted with only a small trailer set to the angle. Mr. Herz said the portion below the roadway pavement level would need to be installed and compaction prior to placement of the asphalt roadway pavement. Mr. Herz will review asphalt compaction requirements to determine what may be reasonable compaction requirement for the safety edge. The safety edge will provide the same edge protection that Types A and B of Detail 201 provide. Mr. Gallimore said the title of the detail may need to change because the roadway edge and pavement termination were different. Mr. Herz agreed with modifying the detail title.

Jesse Gonzales said that using this edge could help with risk management. Bob Herz said the county currently has a lawsuit in process on this issue. Peter Kandaris added that maintenance may also be easier.

e. Case 11-01B – Miscellaneous Corrections: *Correct Percentage in Table 705-1*. Peter Kandaris introduced an additional Miscellaneous Corrections case to correct a typographic error in Table 705-1. Based on a previous version of the MAG specifications, the percentage by weight passing screen for No. 200 sieve size should be 0-15 (not 38000 as currently shown).

4. General Discussion:

Possible Future Cases

Paul Nebeker suggested a future case regarding cadmium plated bolts. He said that in Section 610.13 MAG calls for the use of cadmium plated bolts for connecting pipe fittings (flanges, couplings, etc.). He said that this is an outdated specification because cadmium bolts are toxic and require special handling. He also said they are more expensive and would drive up costs. More typically they use zinc plated bolts. He said he spoke to a representative from one of the largest bolt manufacturing companies, and suggests MAG update Section 610.13 to specify zinc plated bolts that meet more current ASTM standards. Committee members agreed to pursue this as a future case.

Guest Niranjan Vescio of Stronggo suggested MAG may want to develop standards for detectable warnings. The company he represents supplies different kinds of detectable warning materials including concrete, tile and plastic. Although MAG specifies the use of detectable warnings it has no material or performance based specifications on what types are allowable. Mr. Vescio said that he was willing to work with Jesse Gonzales to develop some specifications to use as guidance. Mr. Gonzales said that he does not like the plastic types

because the UV rays in Arizona harden them which make them susceptible to damage. Bob Herz said the county evaluates each individually and does allow one plastic version, but primarily use concrete types. It was noted that although detectable warnings are no longer required outside the right-of-way, they still are required within it.

Bob Herz said that MAG details 260-263 (alley entrances) are non-compliant with ADA standards because they currently have a cross-slope greater than 2 percent. He said they all need to be revised, possibly similar to those for driveway entrances or deleted. Also the sidewalks on these details, and others need to be revised to show a minimum 5' width.

Jesse Gonzales said that the directional ramp details that he introduced in prior years have continued to be developed in Peoria and they have begun building and testing them. He said he intends to reintroduce Peoria's new details once they have reached a more finalized state.

Tom Wilhite said the widened Valley Gutter Detail 240 may affect the location and/or rotation of the ramps when the sidewalk is adjacent to the curb. He said Tempe had to make some adjustments in the field. Bob Herz commented that the sliver of concrete in front of detectable warnings at curb returns has a tendency to spall, and Maricopa County is reviewing potential measures to eliminate the spalling and is open to suggestions.

Specifications and Details Outside the Right-of-Way Working Group Update
Peter Kandaris gave a report of the Outside of Right-of-Way Working Group. He said the group finished reviewing the existing MAG specifications and details, and he prepared a draft summary report that outlined the group's findings. It identified if a specification or detail was to be included or omitted, and if included what changes would be needed. For areas that required changes, the outline specified what changes were needed if minor, or identified a group to continue further development for those with major changes. This outline included existing specifications only—not new products or supplements.

He said the working group planned to next meet on Tuesday, January 25, 2011 at 1:30 in the ARPA office. Goals for 2011 are to develop and revise the specifications in the outline and to begin to incorporate other specifications and details for use outside the right-of-way from industry and agency supplements. Scott Zipprich said that many city supplements are for areas outside the right-of-way, and could be easily be incorporated. Mr. Kandaris said he understood there was a lot of work to do, and a large commitment was needed to write and update specifications, but hoped to have a draft document ready in 2012.

Mike Smith of ARPA volunteered to help and would attend the working group meetings. Peter Kandaris said ASU also wants to participate. He also suggested that ARPA, AGC, working groups and industry technical committees could also assist. Warren White of Chandler said he was working on details 321 and 345-1.

In addition to the outline, the group developed a list of current MAG specifications and details that needed to be revised. Some were outdated or archaic, and could likely be deleted; others needed minor modifications, while others required more thorough review. Peter Kandaris presented the committee with a list of MAG specifications and details that needed

revisions with a recommended action for each. These lists along with the outline described previously have been posted on the MAG website.

http://www.azmag.gov/Events/Event.asp?CMSID=3684

Some out-of-date specifications and details mentioned included traffic control specs that are rarely used and details not used in the right-of-way such as the Runway or Taxiway Lighting Detail 170.

Possible Future Cases (continued)

Chairman Tobiasson asked members how they would like to divvy up these cases since there were so many identified. Jim Badowich suggested that some cases may be identified to be worked on by various working groups. Another suggestion was to lump all the deletion type of cases into one large case to knock several out at once. Gordon Tyus mentioned that many of the ASTM references are also out-of-date and need to be reviewed to reference a newer standard or be deleted. Jeff Hearne suggested that committee members take the lists back to their agencies and review which areas they may have already created supplements, or know they want to work on, and come back willing to volunteer to take on cases.

Jesse Gonzales said he forwarded the information on Section 616 Reclaimed Water to the Maricopa County Environmental Division for additional work. He also had questions about the inappropriate use of Detail 420 for connection to a live sewer. Finally he mentioned that he is planning to host a presentation on one-pass pavement rehab.

Guest Bob Erdman introduced himself as a representative of Cutler Repaving, but also said that he was retired from the county, and had participated on the MAG specs and details committee in past years before Bob Herz was appointed. He said he was willing to volunteer to help with the working groups. Members said the meetings are open to the public and posted online, and they welcomed his participation.

MAG Specifications and Details Update Packets

Gordon Tyus passed out the 2011 update packet to members. The 2011 version of the *MAG Uniform Standard Specifications and Details for Public Works Construction*, as well as the updates packets, are now available for sale and posted on the MAG website:

http://www.azmag.gov/communications/Specs_and_Details/default.asp

5. Adjournment:

Chairman Tobiasson first thanked Tom Wilhite for agreeing to serve as vice chair of the committee and then adjourned the meeting at 3:05 p.m.

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 *MAG Specifications and Details for Public Works Construction* 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 11-01: Miscellaneous Corrections. A: Correct typographical errors in Table 711-1. B: Correct typographical error in Table 705-1.	MCDOT SRP	Bob Herz Peter Kandaris	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 t~~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.

2901 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-4760 Fax: 602-506-5969

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 μm)	20 - 100
#50 (300 μm)	0 - 45
#200 (75 μm)	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 I	**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.

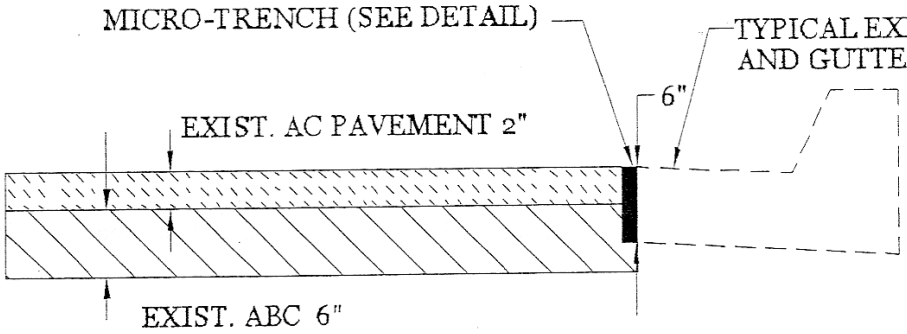
361.2 TRENCHING, BACKFILL AND RESTORATION:
All work shall be done in accordance with Section _____

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:

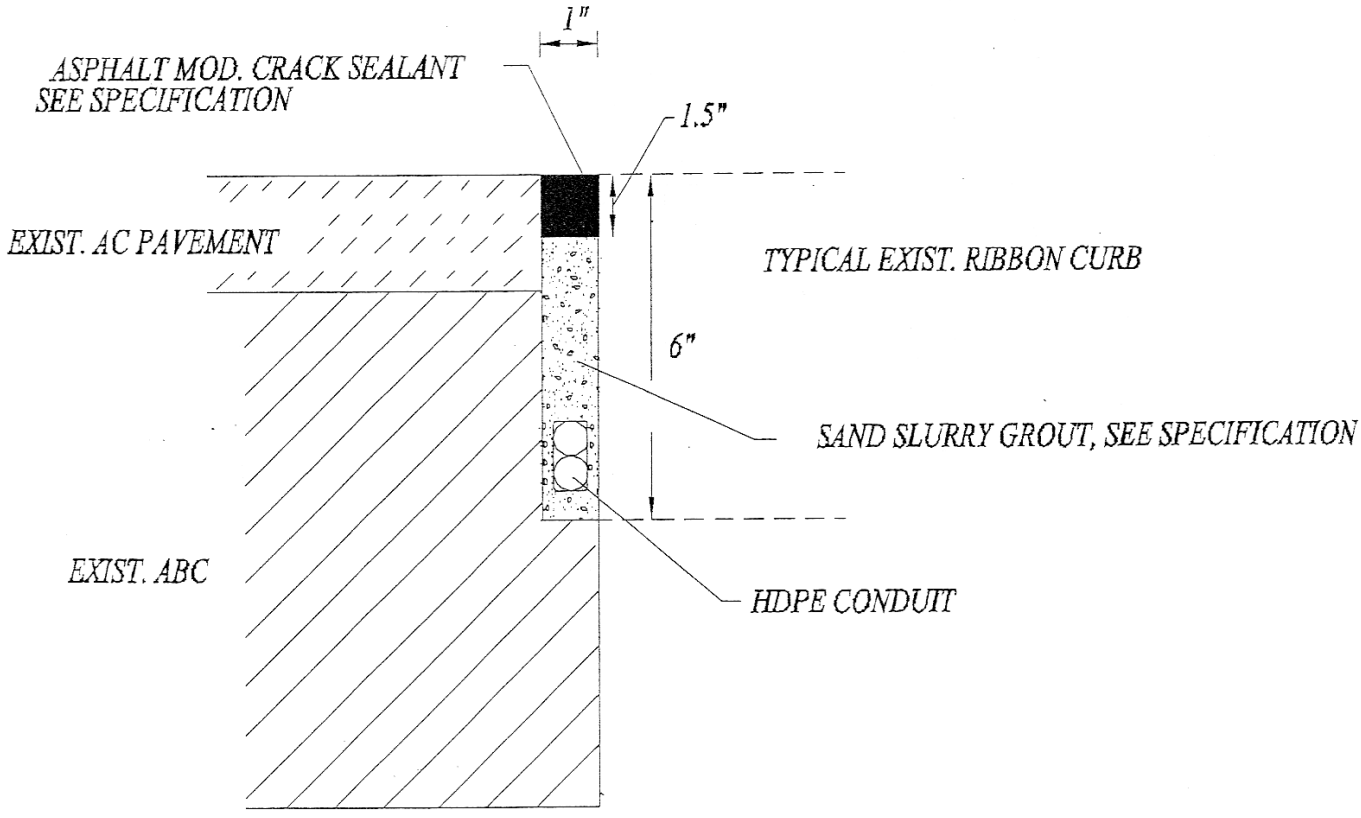
(B) Telecommunications cables other than "trunk lines" shall be installed as described below:

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

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 Crafco 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, of other approved MAG methods. Seal 1-inch wide crack with an approved hot pour asphalt rubber sealant.

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), flowablity 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 flowablility 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

Q-TRENCH SOLUTION™

THE EDGE TO GET AHEAD

The following outlines the technical specifications of the various elements of Quanta Services patent-pending micro-trenching process, the Q-Trench Solution™.

Trench

- Deployment method shall be fast-paced and efficient, ultimately decreasing the cost of the installation.
- The trench shall be no more than one-inch (1”) wide, shall be no more than twelve-inches (12”) deep and shall be accomplished in a single pass. The trench shall be cut with equipment that produces a clean trench with a consistent width and depth throughout.

Micro-Duct

- Micro-duct shall be HDPE tube with low friction performance suitable for fiber blowing that is designed for direct burial.
- HDPE micro-duct shall be supplied in coils or on returnable drums (wood or metal).
- Micro-duct shall be free from cracks, holes, foreign inclusions or other defects that would impair its performance. It shall be smooth walled inside and out.
- Micro-duct shall be placed as soon as possible after opening of the trench.
- Micro-duct shall be capped ensuring the ends are watertight to prevent the ingress of contamination or foreign bodies likely to cause problems when cabling.

Backfill

- All micro-duct placed during the day shall be covered with grout backfill by the end of the day.
- Backfill shall be non-combustible and shall have a low enough viscosity to allow the solution to instantly and completely surround the conduit(s) on the bottom of the trench without any voids.
- The solution shall stiffen within 20 minutes of the application. Moreover, the solution shall harden without any shrinkage (less than 0.58%) for sealer application within a time span of twelve hours (12 hrs). The solution shall be ready for service after the complete asphalt sealer cycle.
- The solution shall have a makeup such that it reaches ultimate strength in or less than 28 days. After this time period, the strength of the material shall average 2000 psi in compression. The solution shall be impermeable, with the hydraulic permeability results that reach <1x10-10 cm/s (centimeters per second) after thirteen (13) days. This ensures the fiber, conduit, and trench stay moisture-free.
- The make-up of the solution shall effectively neutralize any risk of possible acidic soil environments. The solution shall eliminate the threats of erosion and weathering to the fiber in the shallow trenches.

Backfill (continued)

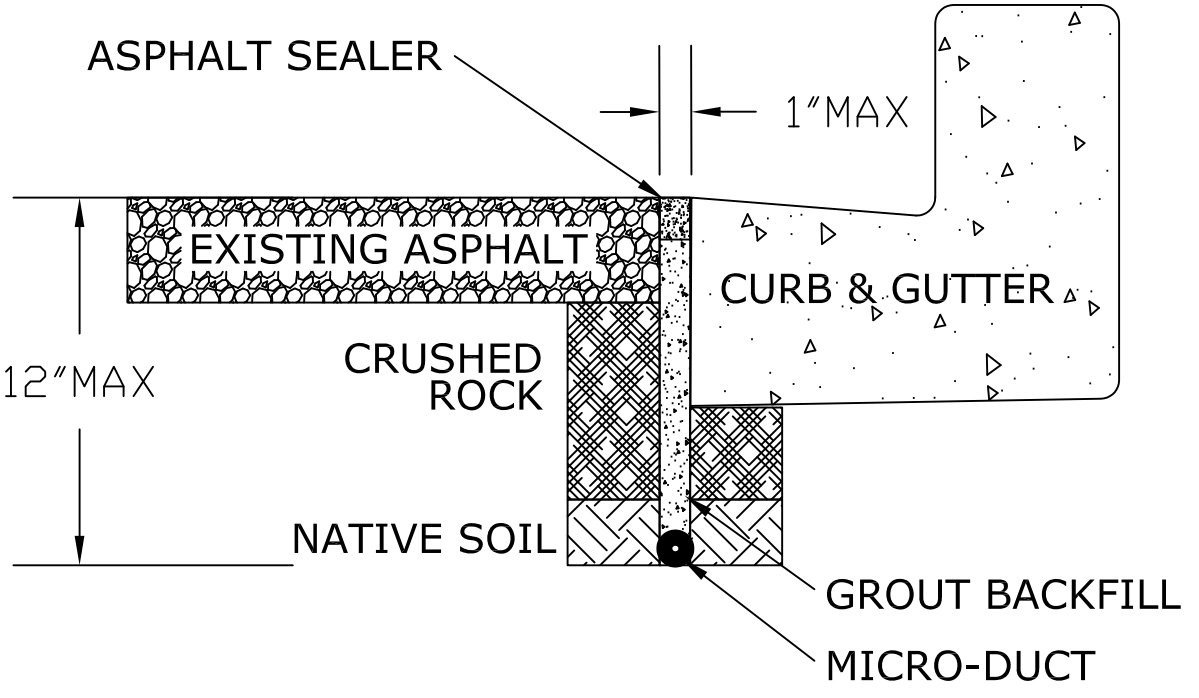
- The preparation of the solution shall be short and uncomplicated, allowing two field installers to quickly make it. The weight-cement ratio shall be 0.595 and the solids by weight of slurry shall be 62.7%.
- The column shall have the capability of being easily milled during road resurfacing techniques.
- Solution used for the filling of the trench shall be environmentally safe and react effectively with the conduit, providing support and never allowing the integrity of the conduit to be at risk. The material shall form a strong bond with the asphalt sealer which will appropriately form a complete closure of the deployment.
- The solution shall be able to be easily removed at a future time and leave a place for re-pouring, being able to successfully restore the previous protection of the conduit(s).

Asphalt Sealer

- The asphalt sealer shall be applied no deeper than the top one-and-one-half inches (1½”) of the trench, further minimizing the cost of the deployment.
- All surfaces must be dry and free from dust, dirt, grease, loose materials and any other matter that will inhibit the bonding of the repair mastic compound.
- The asphalt sealer shall be a hot applied, pre-packaged, ready to melt overband mastic repair material for concrete and asphalt pavements composed of quality-selected asphalt and/or resins, clean, hard, durable particles of wear resistant aggregates, synthetic rubber polymers, anti-oxidants, naturally occurring and man-made reinforcing materials.
- The asphalt sealer shall be waterproof and flexible, while remaining tough and durable. The sealer shall have enough elasticity that it will have the ability to expand and contract with the thermal movements of the asphalt. The asphalt sealer shall be flexible enough to withstand a 90° bend on a 0.25” mandrel for 10 seconds at 32°F without cracking.
- The installation of this asphalt sealer should be quick to form and be ready for trafficking within 30 minutes.
- Asphalt sealer shall be heated in a thermostatically controlled mastic mixer that utilizes oil as a heat transfer medium and has a full sweep horizontal agitator capable of gently lifting the material from the bottom of the reservoir and turning the material over and over. The agitation shall be capable of mixing and suspending materials, filled with aggregates having a specific gravity as high as 3.0.
- The heated sealer shall be dispensed onto the properly prepared repair area, in layers if needed, leveled and smoothed with the surrounding pavement surface to form a durable repair.

Q-TRENCH SOLUTION™

THE EDGE TO GET AHEAD



NOTES:

1. THE TRENCH SHALL BE ACCOMPLISHED IN A SINGLE PASS, AND SHALL BE CUT WITH EQUIPMENT THAT PRODUCES A CLEAN TRENCH WITH A CONSISTENT WIDTH AND DEPTH THROUGHOUT.

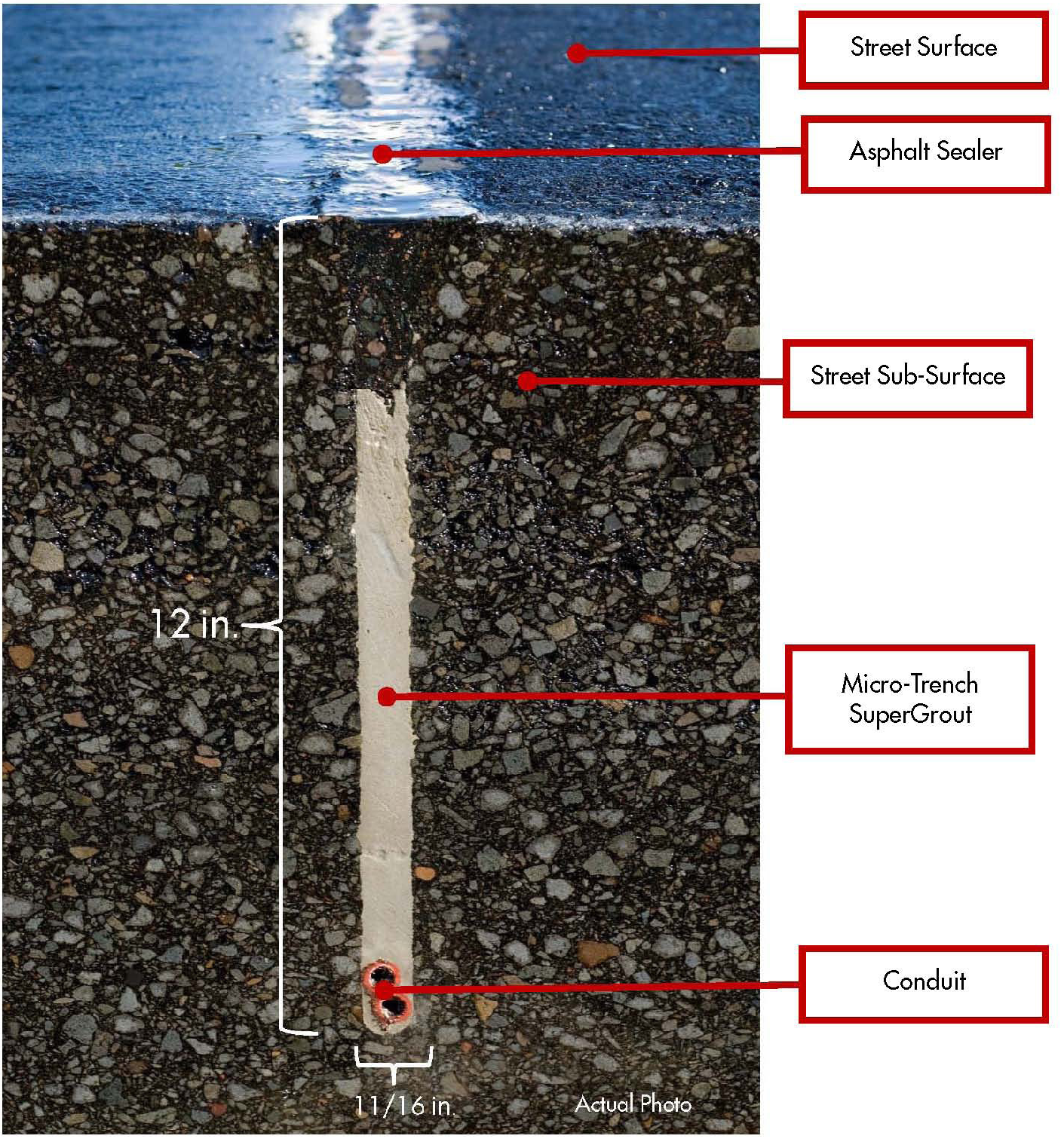
2. MICRO-DUCT SHALL BE PLACED AS SOON AS POSSIBLE AFTER OPENING OF THE TRENCH.

3. MICRO-DUCT SHALL BE CAPPED ENSURING THE ENDS ARE WATERTIGHT TO PREVENT THE INGRESS OF CONTAMINATION OR FOREIGN BODIES LIKELY TO CAUSE PROBLEMS WHEN CABLING.

4. THE GROUT BACKFILL SHALL STIFFEN WITHIN 20 MINUTES OF THE APPLICATION, AND SHALL HARDEN WITHOUT ANY SHRINKAGE (LESS THAN 0.58%) TO ALLOW ASPHALT SEALER APPLICATION WITHIN A TIME SPAN OF TWELVE HOURS (12 HR.).

5. THE HEATED ASPHALT SEALER SHALL BE DISPENSED ONTO THE PROPERLY PREPARED REPAIR AREA, IN LAYERS IF NEEDED, LEVELED AND SMOOTHED WITH THE SURROUNDING PAVEMENT SURFACE TO FORM A DURABLE REPAIR.

6. THE INSTALLATION OF THIS ASPHALT SEALER SHALL BE QUICK TO FORM AND BE READY FOR TRAFFICKING WITHIN 30 MINUTES.



QUANTA SERVICES

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 δ" to read "G*·sin δ" (G* multiplied by "sin δ"). The requirement description is to read:

Dynamic Shear TP5
G*·sin δ, Max., 5000 kPa
Test Temp. @ 10 rad/s, °C

2901 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-4760 Fax: 602-506-5969

SECTION 705

PORTLAND CEMENT TREATED BASE

705.1 GENERAL:

The cement treated base shall consist of furnishing all materials in accordance with these specifications. The estimated cement requirement is 3 ½ percent by weight of the dry aggregate. The cement shall be Type II, low alkali.

705.2 AGGREGATE FOR CEMENT TREATED BASE:

The aggregate for cement treated base shall conform to the requirements of Section 701 except the plasticity of the material passing the No. 40 sieve shall not exceed 5 and the grading shall be per Table 705-1.

TABLE 705-1

CEMENT TREATED BASE GRADATION

Sieve Size	Percentage By Weight Passing Screen
1 ½ inches	100
No. 4	40-70
No. 40	30 Max.
No. 200	~~38000~~ **0 - 15**

705.3 PORTLAND CEMENT AND WATER:

Portland cement and water shall conform to the requirements of Section 725.

705.4 COMPRESSIVE STRENGTH OF CEMENT TREATED BASE:

The minimum compressive strength at 7 days shall not be less than 500 psi when tested in accordance with ASTM D-1633.

705.5 BITUMINOUS MATERIAL FOR CURING SEAL:

Bituminous material for curing seal shall conform to the requirements of Sections 712 or 713 for the type specified.

End of Section

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: Jan 5, 2011

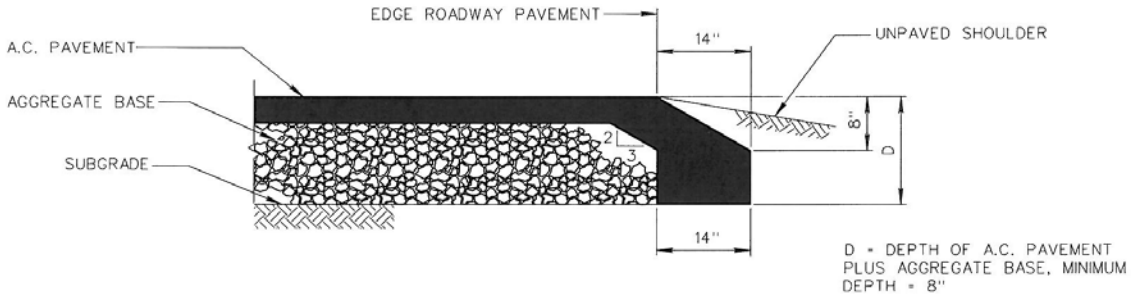
To: MAG Specifications and Details Committee

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.



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REVIEW OF MAG UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

Outside Right-of-Way Working Group

Section	Title	Recommended Action
225	Watering	Delete this section since it provides minimal technical guidance - mostly general conditions. Modify earthwork and dust control specifications if needed and include general conditions in Section 104.
301	Subgrade Preparation	Include a section on geotechnical investigation information; check ASTM references; delete reference to Detail 190 and reference applicable ASTM standard; clarify subgrade stability below pavements.
309	Lime Slurry Stabilization	Re-write this section to be current with modern methods
310	Untreated Base	Change the title to provide clarity; modify Table 310-1 to make correction of deficiencies applicable to present needs and methods.
311	Soil Cement Base Course	Change the title to indicate cement stabilization of native soil (not ABC); spec needs review and revision to make current with modern methods
313	Bituminous Treated Base Course	Remove from MAG as this proceedure is no longer used.
323	Heater Remix Resurfacing	Remove from MAG ; this section probably does not meet ADEQ air quality regulations.
334	Preservative Seal for Asphalt Concrete	Revise specification for modern seal coats presently used and delete reference to rejuvanating agents that probably do not meet ADEQ air quality regulations.
335	Hot Asphalt-rubber Seal	Either delete or make current with modern methods.
337	Pavement Crack Repair	Suggested new MAG specification to meet current agency practices
342	Decorative Pavement Concrete Paving Stone or Brick	Remove material references from this placement specification and place them in their appropriate locations in Part 700.
350	Removal of Exisitng Improvements	Modify to include utility abandonment/removal requirements.
360	Telecommunications Installations	Revise to meet current agency practices and requirements.
401	Traffic Control	Revise to meet current agency practices and requirements.
410	Precast Safety Curbs	Remove from MAG as this is for outside of ROW locations.
430	Landscaping and Planting	Revise to include current practices and innovations (hydroseeding)
440	Sprinkler Irrigation System Installation	Revise to include current practices and innovations (drip systems)
501	Driving Piles	Delete this section as it is outdated, rarely used and partly a design document.
515	Steel Structures	Revise section to delete references to major structures that fall under building code regulations; section should be for minor steel strucutures only.
525	Pneumatically Placed Mortar	Revise to include current practices and correct ACI references/requirements.
520	Steel and Aluminum Handrails	Revise to match existing details and current codes/standards.
530	Painting	Section is outdated and needs to be revised to meet current industry standards.
601	Trench Excavation, Backfilling And Compaction	Include a section on geotechnical investigation information.
605	Subdrainage	Antiquated specification. Update for current practices and material placement methods.
621	Corrugated Metal Pipe And Arches	Revise to remove out-of-date practices.
630	Tapping Sleeves, Valves And Valve Boxes On Water Lines	Revise to remove specified products - make requirements generic.
640	Precast Concrete Arches	Suggested new MAG specification to meet current agency practices
705	Portland Cement Treated Base	Table 705-1 has an error in the specified -#200 range (blooper case).

REVIEW OF MAG UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

Outside Right-of-Way Working Group

Section	Title	Recommended Action
709	Recycled Asphalt Pavement	ARPA suggests minor changes to better meet current materials.
715	Slurry Seal Materials	ARPA suggests minor changes to better meet current materials.
719	Recycled Asphalt Concrete - Hot Mixed	ARPA suggests minor changes to better meet current materials.
729	Expansion Joint Material	Materials and ASTM references may be out of date. To be reviewed by the Concrete Working Group.
736	Non-reinforced Concrete Pipe	MAG committee should review to determine if this material is still desired.
751	Gray Iron Pipe and Fittings	Suggested new MAG specification to meet current agency practices.
754	Copper Pipe, Tubing and Fittings	Revise to include Type M copper.
757	Sprinkler Irrigation Systems	Suggest changing title to "Landscape Irrigation" and update for current materials (drip systems).
770	Structural And Rivet Steel, Rivets, Bolts, Pins, And Anchor Bolts	Antiquated specification. Update for current materials.
772	Chain Link Fence	Review and change ASTM standards that are out of date.
776	Masonry Mortar and Grout	Section is outdated and needs to be revised to meet current industry standards.
778	Lumber	Section is outdated and needs to be revised to meet current industry standards.
779	Wood Preservatives	Section is outdated and needs to be revised to meet current industry standards.
780	Timber Piles	Delete this section as it is outdated, rarely used and provides little guidance.
781	Steel Piles	Delete this section as it is outdated, rarely used and provides little guidance.
782	Concrete Piles	Delete this section as it is outdated, rarely used and provides little guidance.
785	Steel Castings	Remove from MAG as these materials are no longer used.
786	Bronze Casting	Remove from MAG as these materials are no longer used.
787	Gray Iron Castings	Delete this section; place essential information from 787.3 in existing details referencing gray iron castings.
790	Paint	Section is outdated and needs to be revised to meet current industry standards.
795	Landscaping Material	Revise to include current materials used by agencies.

REVIEW OF MAG UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

Outside Right-of-Way Working Group - Details

Detail	Title	Recommended Action
131	Street Sign Base	Update to include materials currently used by agencies for street sign supports.
135	Steel Guard Rail	Include end attenuation details.
150	Precast Safety Curb	Delete from ROW standard as these are used outside ROW.
160	Chain Link Fence and Gate	Include options for higher fencing as allowed in Section 420.
170	Typical Runway or Taxiway Edge Lighting Detail	Delete from ROW standard. Detail is for work outside of the ROW and may not be current.
190	Rock Correction Procedure for Maximum Density Determination	Delete from ROW construction standard. This is a QC testing requirement that can be specified in Section 301 using ASTM D4718.
202	Alley Details	Modify inverted crown alley for access road use; delete unpaved surface or include aggregate or RAP surfacing
204	Equipment Crossing	Review to determine if this is still needed. When would it be used?
210	Residential Speed Hump	Include option for speed table (Tempe design); include a note on drainage impacts.
225	Concrete Pavers	Include colored pavers, textured concrete and formed pavers.
270	Frame & Cover (and Grade Adjustments)	Delete "AND GRADE ADJUSTMENTS" from the Table of Contents title and from the detail subtitle. Prepare a new detail for grade adjustments for overlays.
301	Blocking for Water Gate and Butterfly Valves	Review to determine if a detail is needed for butterfly valves.
302	Joint Restraint with Tie Rods	Change detail to match current methods - use of megalugs or equal.
321	Standard Water Meter Vault	Review to determine if the detail matches current practices.
340	Installing Tapping Sleeves and Valves	Evaluate removing stainless steel option as they are difficult to get water tight.
345-1	3", 4" and 6" Water Meter	Review - may not be in accordance with current agency practices.
346	Fire Line Detector Check Valve	Review and determine if this detail belongs in a ROW specification (move to outside ROW standard?).
360	Fire Hydrant Installation	Revise to include standard collar type, add below grade shear collar, include minimum height above grade.
370	Vertical Realignment of Water Mains	Determine if case from a few years ago is still applicable.
380	Thrust Blocks for Water Lines	Revise to show blocks to scale, inlcude options for soil capacities less than 3000 psi.
389	Curb Stop with Valve Box and Cover	Revise to make consistent with current practices.
390	Curb Stop with Flushing Pipes	Revise to make consistent with current practices.
391-1&2	Valve Box Installation and Grade Adjustment	Revise to include use outside pavements and out of ground. Incorporate numerous city supplement options.
392	Debris Cap Installation	Review to determine if the detail is still used or necessary. This one can probably be deleted.
402	Encased Pipe for Canal Crossing	Recommend deleting the detail since irrigation agency standards supercede MAG on canals.
405	Broken Sewer Line Replacement	Detail appears to apply to only clay pipe. Expand to include more types of sewer pipe.
420-1&2	Precast Concrete Sewer Manhole	Revise to delete reference to propriatary products and include options for overexcavation and recompaction.
424	24" and 30" Manhole Frame and Cover	Revise tolerance to allow fabrication in the US.
425	24" Aluminum Manhole Frame and Cover	Recommend deleting the detail as it is rarely (if ever) used.

REVIEW OF MAG UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

Outside Right-of-Way Working Group - Details

Detail	Title	Recommended Action
426	Drop Sewer Connection	Detail needs clarification and to be expanded for more than just clay pipe.
427	Stub Out and Plugs	Modify to include caps, blocking details and mechanical seal.
441	Sewer Cleanout	Modify to include testing requirements and vertical pipe distance.
502-1&2	Trash Rack	Revise to make consistent with current practices.
504	Concrete Block Junction Box	Review to determine if covers are consistent with current practices.
505	Concrete Pipe Collars	Detail needs to be cleaned up and be consistent with current practices.
507	Encased Concrete Pipe (for Shallow Installation)	Method of pipe protection is vague and needs to be better engineered to determine if it really works. Is it really needed or wanted?
524	Storm Drain Lateral Pipe Connections	Review to determine if this belongs in a ROW standard.
550	Spillway Inlet and Outlet	Modify to include grouted riprap option.

CASE ACTIONS RECOMMENDED DURING REVIEW OF MAG SPECIFICATIONS AND DETAILS

Cases for Removal from MAG Specifications and Details

Section	Title	Recommended Action by Outside ROW Working Group
313	Bituminous Treated Base Course	Delete this section as this proceedure is no longer used.
410	Precast Safety Curbs	Delete this section as this is for outside of ROW locations.
501	Driving Piles	Delete this section as it is outdated, rarely used and partly a design document.
780	Timber Piles	Delete this section as it is outdated, rarely used and provides little guidance.
781	Steel Piles	Delete this section as it is outdated, rarely used and provides little guidance.
782	Concrete Piles	Delete this section as it is outdated, rarely used and provides little guidance.
785	Steel Castings	Delete this detail as these materials are no longer used.
786	Bronze Casting	Delete this detail as these materials are no longer used.
Detail	Title	Recommended Action by Outside ROW Working Group
150	Precast Safety Curb	Delete from ROW standard as these are used outside ROW.
170	Typical Runway or Taxiway Edge Lighting Detail	Delete from ROW standard. Detail is for work outside of the ROW and may not be current.
402	Encased Pipe for Canal Crossing	Delete this detail since irrigation agency standards supercede MAG on canals.
425	24" Aluminum Manhole Frame and Cover	Delete this detail as it is rarely (if ever) used.

Cases for Removal from MAG Specifications and Details - Minor Changes Needed in Other Standards/Details

Section	Title	Recommended Action by Outside ROW Working Group
225	Watering	Delete this section since it provides minimal technical guidance - mostly general conditions. Modify earthwork and dust control specifications if needed and include general conditions in Section 104.
787	Gray Iron Castings	Delete this section; place essential information from 787.3 in existing details referencing gray iron castings.
Detail	Title	Recommended Action by Outside ROW Working Group
190	Rock Correction Procedure for Maximum Density Determination	Delete from ROW construction standard. This is a QC testing requirement that can be specified in Section 301 using ASTM D4718.

Cases for Review by Concrete Working Group (green shading denotes minor revisions)

Section	Title	Recommended Action by Outside ROW Working Group
342	Decorative Pavement Concrete Paving Stone or Brick	Remove material references from this placement specification and place them in their appropriate locations in Part 700.
525	Pneumatically Placed Mortar	Revise to include current practices and correct ACI references/requirements.
640	Precast Concrete Arches	Suggested new MAG specification to meet current agency practices
776	Masonry Mortar and Grout	Section is outdated and needs to be revised to meet current industry standards.
Detail	Title	Recommended Action by Outside ROW Working Group
225	Concrete Pavers	Include colored pavers, textured concrete and formed pavers.
550	Spillway Inlet and Outlet	Modify to include grouted riprap option.
729	Expansion Joint Material	Materials and ASTM references may be out of date.

Cases for Review by Asphalt Working Group (green shading denotes minor revisions)

Section	Title	Recommended Action by Outside ROW Working Group
323	Heater Remix Resurfacing	Revise to make current with new practices and in line with air regulations.
334	Preservative Seal for Asphalt Concrete	Revise specification for modern seal coats presently used and delete reference to rejuvanating agents that probably do not meet ADEQ air quality regulations.
335	Hot Asphalt-rubber Seal	Either delete or make current with modern methods.
337	Pavement Crack Repair	Suggested new MAG specification to meet current agency practices
709	Recycled Asphalt Pavement	Minor changes needed to better meet current materials.
715	Slurry Seal Materials	Minor changes needed to better meet current materials.
719	Recycled Asphalt Concrete - Hot Mixed	Minor changes needed to better meet current materials.

CASE ACTIONS RECOMMENDED DURING REVIEW OF MAG SPECIFICATIONS AND DETAILS

Cases for Review by Sewer & Water Working Group (green shading denotes minor revisions)

Section	Title	Recommended Action by Outside ROW Working Group
630	Tapping Sleeves, Valves And Valve Boxes On Water Lines	Revise to remove specified products - make requirements generic.
640	Precast Concrete Arches	Suggested new MAG specification to meet current agency practices
736	Non-reinforced Concrete Pipe	Review to determine if this material is still desired.
751	Gray Iron Pipe and Fittings	Suggested new MAG specification to meet current agency practices.
754	Copper Pipe, Tubing and Fittings	Revise to include Type M copper.
Detail	Title	Recommended Action by Outside ROW Working Group
301	Blocking for Water Gate and Butterfly Valves	Review to determine if a detail is needed for butterfly valves.
302	Joint Restraint with Tie Rods	Change detail to match current methods - use of megalugs or equal.
321	Standard Water Meter Vault	Review to determine if the detail matches current practices.
340	Installing Tapping Sleeves and Valves	Evaluate removing stainless steel option as they are difficult to get water tight.
346	Fire Line Detector Check Valve	Review and determine if this detail belongs in a ROW specification (move to outside ROW standard?).
360	Fire Hydrant Installation	Revise to include standard collar type, add below grade shear collar, include minimum height above grade.
370	Vertical Realignment of Water Mains	Determine if case from a few years ago is still applicable.
380	Thrust Blocks for Water Lines	Revise to show blocks to scale, inlcude options for soil capacities less than 3000 psi.
389	Curb Stop with Valve Box and Cover	Revise to make consistent with current practices.
390	Curb Stop with Flushing Pipes	Revise to make consistent with current practices.
392	Debris Cap Installation	Review to determine if the detail is still used or necessary. This one can probably be deleted.
405	Broken Sewer Line Replacement	Detail appears to apply to only clay pipe. Expand to include more types of sewer pipe.
424	24" and 30" Manhole Frame and Cover	Revise tolerance to allow fabrication in the US.
426	Drop Sewer Connection	Detail needs clarification and to be expanded for more than just clay pipe.
427	Stub Out and Plugs	Modify to include caps, blocking details and mechanical seal.
441	Sewer Cleanout	Modify to include testing requirements and vertical pipe distance.
504	Concrete Block Junction Box	Review to determine if covers are consistent with current practices.
505	Concrete Pipe Collars	Detail needs to be cleaned up and be consistent with current practices.
507	Encased Concrete Pipe (for Shallow Installation)	Method of pipe protection is vague and needs to be better engineered to determine if it really works. Is it really needed or wanted?
524	Storm Drain Lateral Pipe Connections	Review to determine if this belongs in a ROW standard.
345-1	3", 4" and 6" Water Meter	Review - may not be in accordance with current agency practices.
391-1&2	Valve Box Installation and Grade Adjustment	Revise to include use outside pavements and out of ground. Incorporate numerous city supplement options.
420-1&2	Precast Concrete Sewer Manhole	Revise to delete reference to propriatary products and include options for overexcavation and recompaction.
502-1&2	Trash Rack	Revise to make consistent with current practices.

CASE ACTIONS RECOMMENDED DURING REVIEW OF MAG SPECIFICATIONS AND DETAILS

Cases for Review by Materials Working Group (new) (green shading denotes minor revisions)

Section	Title	Recommended Action by Outside ROW Working Group
301	Subgrade Preparation	Include a section on geotechnical investigation information; check ASTM references; delete reference to Detail 190 and reference ASTM D4718; clarify subgrade stability below pavements.
309	Lime Slurry Stabilization	Re-write this section to be current with modern methods
310	Untreated Base	Change the title to provide clarity; modify Table 310-1 to make correction of deficiencies applicable to present needs and methods.
311	Soil Cement Base Course	Change the title to indicate cement stabilization of native soil (not ABC); spec needs review and revision to make current with modern methods
601	Trench Excavation, Backfilling And Compaction	Include a section on geotechnical investigation information.
605	Subdrainage	Antiquated specification. Update for current practices and material placement methods.
621	Corrugated Metal Pipe And Arches	Revise to remove out-of-date practices.
Detail	Title	Recommended Action by Outside ROW Working Group
270	Frame & Cover (and Grade Adjustments)	Delete "AND GRADE ADJUSTMENTS" from the Table of Contents title and from the detail subtitle. Prepare a new detail for grade adjustments for overlays.

Cases for Review by Various Members & Agency Staff (green shading denotes minor revisions)

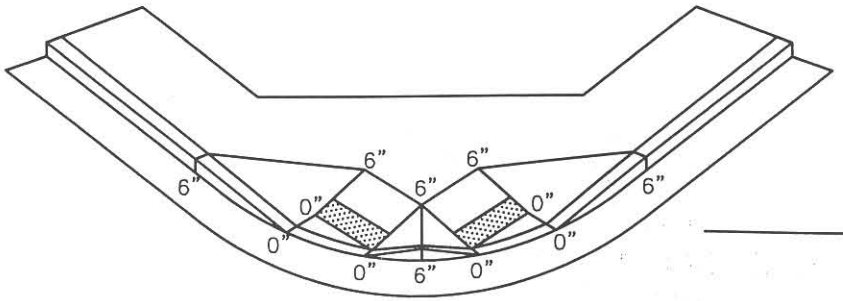
Section	Title	Recommended Action by Outside ROW Working Group
350	Removal of Exisitng Improvements	Modify to include utility abandonment/removal requirements.
360	Telecommunications Installations	Revise to meet current agency practices and requirements.
401	Traffic Control	Revise to meet current agency practices and requirements.
430	Landscaping and Planting	Revise to include current practices and innovations (hydroseeding)
440	Sprinkler Irrigation System Installation	Revise to include current practices and innovations (drip systems)
515	Steel Structures	Revise section to delete references to major structures that fall under building code regulations; section should be for minor steel strucutures only.
520	Steel and Aluminum Handrails	Revise to match existing details and current codes/standards.
530	Painting	Section is outdated and needs to be revised to meet current industry standards.
757	Sprinkler Irrigation Systems	Suggest changing title to "Landscape Irrigation" and update for current materials (drip systems).
770	Structural And Rivet Steel, Rivets, Bolts, Pins, And Anchor Bolts	Antiquated specification. Update for current materials.
772	Chain Link Fence	Review and change ASTM standards that are out of date.
779	Wood Preservatives	Section is outdated and needs to be revised to meet current industry standards.
790	Paint	Section is outdated and needs to be revised to meet current industry standards.
795	Landscaping Material	Revise to include current materials used by agencies.
Detail	Title	Recommended Action by Outside ROW Working Group
131	Street Sign Base	Update to include materials currently used by agencies for street sign supports.
135	Steel Guard Rail	Include end attenuation details.
160	Chain Link Fence and Gate	Include options for higher fencing as allowed in Section 420.
202	Alley Details	Modify inverted crown alley for access road use; delete unpaved surface or include aggregate or RAP surfacing
204	Equipment Crossing	Review to determine if this is still needed. When would it be used?
210	Residential Speed Hump	Include option for speed table (Tempe design); include a note on drainage impacts.

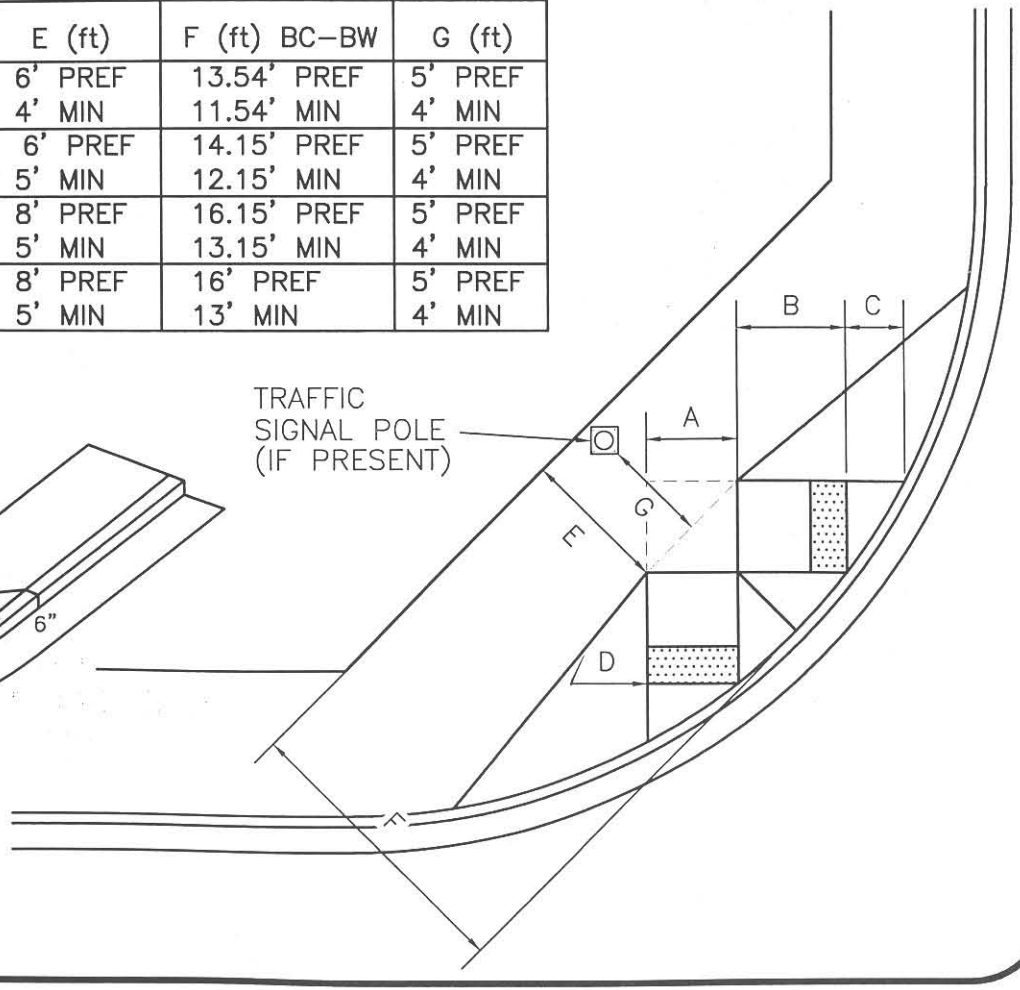
CITY OF PEORIA
STANDARD DETAIL PE–XXX–X
DUAL CURB RAMP DETAIL (DIMENSIONS)
6–INCH CURB WITH ATTACHED SIDEWALKS

APPROVALS:

CITY ENGINEER DATE

DIMENSION TABLE							
Radius(FC)	A (ft)	B (ft)	C (ft)	D (ft)	E (ft)	F (ft) BC–BW	G (ft)
20	4'	6' MIN	0' MIN 5' MAX	B(0.834) MIN	6' PREF 4' MIN	13.54' PREF 11.54' MIN	5' PREF 4' MIN
25	5'	6' MIN	0' MIN 5' MAX	B(0.834) MIN	6' PREF 5' MIN	14.15' PREF 12.15' MIN	5' PREF 4' MIN
30	5'	6' MIN	0' MIN 5' MAX	B(0.834) MIN	8' PREF 5' MIN	16.15' PREF 13.15' MIN	5' PREF 4' MIN
35	5'	6' MIN	0' MIN 5' MAX	B(0.834) MIN	8' PREF 5' MIN	16' PREF 13' MIN	5' PREF 4' MIN





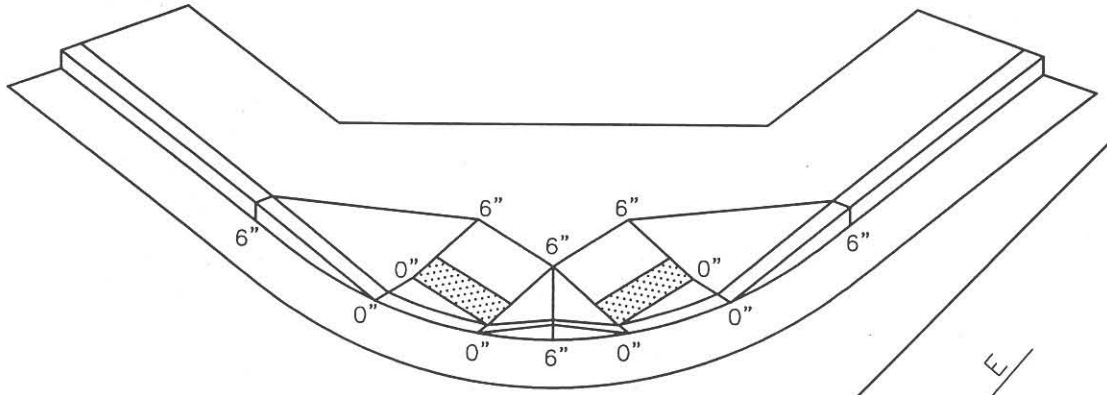
DRAFT

CITY OF PEORIA
STANDARD DETAIL PE-XXX-X
DUAL CURB RAMP DETAIL (SLOPES)
6-INCH CURB WITH ATTACHED SIDEWALKS

APPROVALS:

CITY ENGINEER DATE

ELEMENT	SLOPE		CROSS SLOPE	
	PREF	MAX	PREF	MAX
A	–	8.33%	1.5%	2%
B	1.5%	2%	1.5%	2%
C	–	8.33%	8.33%	10%
D	1.5%	2%	1.5%	2%
E	1.5%	5%	1.5%	2%



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ASTM References in the MAG Specifications (*Specification has been **withdrawn from ASTM and should be updated in MAG)**

*A569/A569M-98 Standard Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial **(Withdrawn 2000) REPLACED BY A1011/A1011M – pg 772-1 (792.2 TYPE B)**

*A570/A570M-98 Standard Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled **(Withdrawn 2000) REPLACED BY A1011/A1011M – pg 770-1 (770.2 Copper Bearing Structural Steel)**

*A607-98 Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Columbium or Vanadium, or Both, Hot-Rolled and Cold-Rolled **(Withdrawn 2000) REPLACED BY A1008/A1008M_and_A1011/A1011M – pg 770-1 (770.2)**

*A611-97 Standard Specification for Structural Steel (SS), Sheet, Carbon, Cold-Rolled **(Withdrawn 2000) Now A1008/A1008M – pg 770-1 (770.2)**

*D234-82(1998) Standard Specification for Raw Linseed Oil **(Withdrawn 2007) – pg 790-1 (790.4 (A))**

*D260-86(1995)e1 Standard Specification for Boiled Linseed Oil – **SUPERSEDED – pg 790-1 (790.4 (A))**

*D604-81(1996)e1 Standard Specification for Diatomaceous Silica Pigment **(Withdrawn 2003) NO REPLACEMENT – pg 790-2 (790.4 C)**

*D1190-97 Standard Specification for Concrete Joint Sealer, Hot-Applied Elastic Type **(Withdrawn 2002) REPLACED BY D6690 – pg 729-1 (729.2)**

*D1559-89 Test Method for Resistance of Plastic Flow of Bituminous Mixtures Using Marshall Apparatus **(Withdrawn 1998) NO REPLACEMENT – pg 325-3 (325.4 – 3rd paragraph)**

*D1788-81 Specification for Rigid Acrylonitrile-Butadiene-Styrene (ABS) Plastics (**Withdrawn 1988) NO REPLACEMENT – pg 744-1 (744.3.2)**

*D1850-74(1979) Specification for Concrete Joint Sealer Cold-Application Type **(Withdrawn 1989) NO REPLACEMENT–pg 729-1 (729.2)**

*D1854-02 Standard Specification for Jet-Fuel-Resistant Concrete Joint Sealer, Hot-Applied Elastic Type **(Withdrawn 2006) NOW D7116 pg 729-1 (729.2)**

*D2922-05 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) **(Withdrawn 2007) REPLACED BY D6938 – pg 211-2 (211.4), pg 301-1 (301.3), pg 309-3 (309.4.6), pg 311-2 (311.4.4) , pg 312-1 (312.3), pg 313-2 (313.8), pg 601-2 (601.2.5), pg 601-5 (601.4.4), pg 620-1 (620.3.1)**

*D2994-98 Standard Test Methods for Rubberized Tar **(Withdrawn 2000) NO REPLACEMENT – pg 335-1 (335.4)**

*D3017-05 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth) **(Witthdrawn 2007) REPLACED BY D6938 – pg 211-2 (211.4), pg 301-1 (301.3), pg 311-2 (311.4.4), pg 312-1 (312.3), pg 313-2 (313.8), Pg 601-2 (601.2.5), pg 601-5 (601.4.4), pg 620-1 (620.3.1)**

*E30 - **Forensic Sciences? – pg 785-1 (785.2)**

*E54 - **Homeland Security Applications? – pg 786-1 (786.1)**

*F1135-99 Standard Specification for Cadmium or Zinc Chromate Organic Corrosion Protective Coating for Fasteners-**SUPERSEDED Pg 505-8 (505.6.3.3) #5**

One Hundred Eleventh Congress of the United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the fifth day of January, two thousand and ten

An Act

To amend the Safe Drinking Water Act to reduce lead in drinking water.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Reduction of Lead in Drinking Water Act".

SEC. 2. REDUCING LEAD IN DRINKING WATER.

(a) IN GENERAL.—Section 1417 of the Safe Drinking Water Act (42 U.S.C. 300g–6) is amended—

(1) by adding at the end of subsection (a) the following:

"(4) EXEMPTIONS.—The prohibitions in paragraphs (1) and (3) shall not apply to—

"(A) pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or

"(B) toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, service saddles, or water distribution main gate valves that are 2 inches in diameter or larger."; and

(2) by amending subsection (d) to read as follows:

"(d) DEFINITION OF LEAD FREE.—

"(1) IN GENERAL.—For the purposes of this section, the term 'lead free' means—

"(A) not containing more than 0.2 percent lead when used with respect to solder and flux; and

"(B) not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

"(2) CALCULATION.—The weighted average lead content of a pipe, pipe fitting, plumbing fitting, or fixture shall be calculated by using the following formula: For each wetted component, the percentage of lead in the component shall be multiplied by the ratio of the wetted surface area of that component to the total wetted surface area of the entire product to arrive at the weighted percentage of lead of the component. The weighted percentage of lead of each wetted component shall be added together, and the sum of these weighted percentages shall constitute the weighted average lead content of the product. The lead content of the material used to produce wetted components shall be used to determine compliance with paragraph (1)(B). For lead content of materials that are provided as a range, the maximum content of the range shall be used.".

(b) EFFECTIVE DATE.—The provisions of subsections (a)(4) and (d) of section 1417 of the Safe Drinking Water Act, as added by this section, apply beginning on the day that is 36 months after the date of the enactment of this Act.

Speaker of the House of Representatives.

Vice President of the United States and President of the Senate.

MICHAEL HENRICK
Territory Manager

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SECTION 631

WATER TAPS AND METER SERVICE CONNECTIONS

631.1 DESCRIPTION:

This specification covers work by Contractors installing water services in new subdivisions by Permit and in projects under Contract. All the materials used shall comply with applicable standard specifications and the work performed in accordance with these specifications and standard details. The service connections shall be complete and all material shall be furnished by the Contractor except for the water meter.

All water service connections shall be constructed of Type K copper tubing or ultra high molecular weight polyethylene pipe of nominal iron pipe outside diameter.

All new subdivision water lines shall be staked for line and grade at 100 foot intervals by the Developer's Engineer prior to construction. All meter locations shall be staked by setting two stakes for line and marking one of the stakes for grade.

631.2 MATERIALS:

Copper pipe, tubing and fittings shall conform with Section 754. Polyethylene pipe shall conform with Section 755.

All fittings, pipe and tubing for polyethylene and copper pipe shall be as noted on standard details.

631.3 INSTALLATIONS:

631.3.1 General: Installation of copper tubing for meter service connections shall be in accordance with Section 754.

Meter service connection with copper tubing shall be in accordance with standard details.

The water service connection shall include the tap on the main, the corporation stop, the saddle if applicable, service pipe, appurtenant fittings, the curb stop, meter box and meter box cover, in accordance with standard details. Water meter boxes shall be installed in accordance with standard details to line and grade set by the Developer's Engineer. Upon acceptance, the Developer shall be responsible for damage to water meter boxes and covers until such time as the meters are installed by the Contracting Agency.

After the installation and acceptance of the water main and meter service pipe connections the water meter will be installed by the Contracting Agency upon proper application and payment of prevailing fees.

631.3.2 Standards: Except as otherwise specified all work shall be done in accordance with Sections 601 and 610.

631.3.3 Excavation and Backfill: The backfilling and compaction may be done as soon as the service line is installed, except backfilling and compaction shall not be completed around the corporation stop at the main water line until after inspection and recording of all tap locations. Trench bottom must be smooth and free of sharp objects. The minimum width of trench for water service pipe shall be 3 inches. The minimum depth of service pipe shall be 30 inches below the finished paving grade.

631.3.4 Polyethylene Pipe: Polyethylene pipe shall not be kinked, gouged or damaged during installation and backfilling operations. The pipe shall be placed in the trench allowing at least 12 inches per 100 feet for thermal contraction and expansion. Polyethylene pipe has a high thermal expansion and should never be confined under tension. The pipe should not be stored in the sun or left in the trench under abnormal high temperature. The pipe shall be carefully snaked in the trench bottom and covered up with uniform slack throughout its length. In trenches less than 8 inches in width, the expansion shall be obtained by making the tap on the opposite side of the main from the water meter and providing a loop of slack service pipe back over the top of the water main. Before installing, inspect pipe to detect any damage that may be caused by shipping, storage or handling. Damage spots can be cut out and pipe recoupled with Ford C-66-33, C-66-44, or approved equal brass compression fitting to form a continuous length. Damaged pipe shall not be used. Polyethylene pipe shall be cut only with a tubing cutter with rollers properly designated for the size of pipe being cut. When polyethylene pipe is used, the meter box setting must be placed parallel to the back of the sidewalk in accordance with standard details. Polyethylene pipe shall be installed with large sweeping bends with radius of not less than 18 inches. Polyethylene pipe has a cold flow characteristic and must not be installed under a stressed condition. Compression fittings only may be used with the plastic being held securely between metal to metal. Stainless steel or brass inserts shall be placed in the proper position in each compression fitting with care taken to assure that the insert remains in place when the fitting is tightened. All meter service lines shall extend at right angles from the main to the curb lines.

SECTION 754

COPPER PIPE, TUBING AND FITTINGS

754.1 PIPE AND TUBING:

All copper pipe and tubing shall be new seamless copper pipes and tubes, designed for underground water services, plumbing purposes, etc. They shall conform to all the requirements of ASTM B-88, Type K.

All pipe or tubing shall be made of copper free from cuprous oxide, as determined by microscopic examination at a magnification of 75 diameters.

Type K tubing, when furnished in coil, shall be annealed after coiling.

754.2 FITTINGS:

All fittings used in connection with copper pipe or tubing, shall be copper or bronze fittings as manufactured by Jones, Mueller, or approved equal, as shown on standard details.

End of Section

SECTION 755

POLYETHYLENE PIPE FOR WATER DISTRIBUTION

755.1 GENERAL:

This specification is intended to describe water service pipe with a hydrostatic design stress of 620 psi for water at 73.4 ˚F. produced from a high density ultrahigh molecular weight polyethylene pipe compound. Polyethylene pipe used for water distribution shall conform to all the requirements of ASTM D-2239 and with the additional provisions listed herein. This specification describes pipe of the nominal I.D. and O.D. size as manufactured by Carlon, Celanese, Orangeburg, Phillips 66 Drisco pipe and Triangle Aycee and shall provide a water pressure tight joint when used with compression type fittings furnished by Hays, Haystite, Ford Meter Box, Ford Pack Joint, or approved equal.

Pipe may be rejected for failure to comply with any requirements of these specifications.

755.2 MATERIAL:

The polyethylene extrusion compound from which the pipe is extruded shall meet the requirements of Type III, Grade 34, Class C, material as described in ASTM D-1248, except that the melt index shall be determined under a higher temperature than ASTM D-1238. The test condition shall be as specified below under tests of pipe.

The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions or other defects. The pipe shall be uniform in color, opacity, density, and other physical properties.

755.3 PIPE DIMENSION AND TOLERANCES:

The average inside diameters, wall thickness, and respective tolerances shall be, for any cross section, as shown in ASTM D-2239, when measured in accordance with ASTM D-2122.

The standard thermoplastic pipe dimension ratio (SDR), the ratio of the pipe diameter to wall thickness, shall not exceed 7 for 160 psi design pressure.

755.4 MINIMUM BURST PRESSURE:

The minimum burst pressure for pipe made from Type III, Grade 34, Class C, polyethylene compound, Designation Code: PE-3406, when determined with at least 5 specimens shall be at least equal to 630 psi for water at 73.4˚F. Pressures shall be determined in accordance with ASTM D-1599.

755.5 SUSTAINED PRESSURE:

In addition to passing the sustained pressures given in ASTM D-2239 for a temperature of 100˚F. and 73.4˚F. the pipe shall withstand, without failing, ballooning, bursting or weeping for a period of at least 300 hours, at 194 ± 2˚F., 113 psi test pressure for 3/4 inch pipe and 112 psi for 1 inch pipe. These test pressures have been calculated on a basis of a 450 psi fiber stress. The test procedure outlined in ASTM D-1598, shall be followed.

755.6 TESTS OF PIPE:

The pipe must be able to meet all tests that are specified in ASTM D-2239, and the following test for melt index, as determined in ASTM D-1238. Pellets of the original resin, placed into the testing device shall have flow rates as follows:

(A) Less than 0.5 grams per 10 minutes at 310˚C with a plunger load of 27.5 pounds for pipe or tubing extruded by the Allied Chemical Process.

(B) Less than 3 grams per 10 minutes at 190˚C with a plunger load of 47.65 pounds for pipe and tubing extruded by the Phillips Extrusion Process.

Maricopa Association of Governments - ASTM Portal Statistics — As Of December 17, 2010

Total Pages	Usage Percentages (excluding menus)		
1172	ASTM:		41.3
	Section 01	11.2	
	Section 02	1.7	
	Section 04	62.2	
	Section 06	2.9	
	Section 08	5.6	
	Section 09	1.7	
	Section 10	1.4	
	Section 11	1.2	
	Section 14	1.2	
	Section 15	1.4	
	Menus	8.3	
	Others	1.2	
	Logoff:		2.2
	Searches:		5.3
	Keyword	100.0	
	Services:		2.0
	Bookmarking	4.3	
	History	13.0	
	Highlighting	30.4	
	Preferences	13.0	
	Toolbar	17.4	
	EMail to Groups	13.0	
	Help	4.3	
	Version Comparis	4.3	
	General Menus:		15.6
	Miscellaneous:		33.5
	Others:		0.1

Total Pages	IP Addresses	Date Range
6	192.168.142.001	07/21/10-09/16/10
476	098.175.213.066	07/21/10-12/15/10
4	067.132.117.228	07/29/10-07/29/10
10	024.248.183.141	07/29/10-08/20/10
45	209.180.142.059	07/29/10-12/09/10
14	208.077.060.100	07/30/10-10/14/10
18	156.042.184.103	07/30/10-12/07/10
32	063.229.097.067	07/30/10-12/09/10
20	067.135.235.058	08/03/10-08/13/10
22	206.169.049.050	08/09/10-08/09/10
8	198.241.002.001	08/09/10-10/07/10
93	148.167.002.010	08/11/10-10/22/10
3	209.078.104.222	08/20/10-08/20/10
38	199.101.034.031	08/24/10-09/01/10
39	148.167.002.015	08/25/10-10/27/10
38	199.101.034.034	08/26/10-08/30/10
60	199.101.035.119	09/08/10-11/09/10
82	199.101.035.120	09/08/10-11/12/10
36	156.042.184.102	09/08/10-12/08/10
5	164.050.244.203	10/07/10-10/07/10
42	065.122.014.162	10/12/10-11/10/10
23	064.245.013.002	10/14/10-10/14/10
4	205.168.030.150	12/06/10-12/06/10
41	156.042.184.101	12/07/10-12/14/10
5	199.101.035.238	12/13/10-12/15/10
8	199.101.035.239	12/16/10-12/16/10