

March 30, 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, April 6, 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
April 6, 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.

3. Approval of March 2, 2011, Meeting Minutes

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.

5. Case 10-08:

Re-write Section 717 ASPHALT-RUBBER.

6. Case 10-12:

New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation.

7. Case 11-01: Miscellaneous Corrections

- A. Correct typographical errors in Table 711-1.
- B. Correct typographical error in Table 705-1.
- C. Correct errors in Detail 212. See item 7.
- D. Other potential corrections cases.

2. Information.

3. Review and approve minutes of the March 2, 2011 meeting.

4. Information and discussion.

Sponsor: Jesse Gonzales, Peoria

5. Information and discussion.

Sponsor: Bob Herz, Maricopa County

6. Information and discussion.

Sponsor: Rod Ramos, Scottsdale

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.
- 9. Case 11-03:
Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633.
- 10. Case 11-04:
Replace reference to MAG Detail 190 in MAG Section 301 with ASTM D4718. Delete MAG 190. See item 10.
- 11. Case 11-05:
Move MAG Section 225 Water Requirements into MAG Section 104.1.3.
- 12. Case 11-06:
Remove sections and details of the MAG specifications that are no longer used or refer to outdated technologies. Additions and changes were made to the list.

New 2011 Cases

- 13. Proposed New Cases
Members can present new cases for information and discussion.
- 14. Potential Cases
Members can discuss other potential new cases which they are working on, or are planning to present at a future meeting.

- 8. Information and discussion.
Sponsor: Bob Herz, Maricopa County
- 9. Information and discussion.
Sponsor: Jesse Gonzales, Peoria
- 10. Information and discussion.
Sponsor: Peter Kandaris, SRP
- 11. Information and discussion.
Sponsor: Peter Kandaris, SRP
- 12. Information and discussion.
Sponsor: Scott Zipprich, Buckeye

- 13. Information and discussion.
- 14. Information and discussion.

General Discussion

- | | |
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| 15. <u>Working Group Reports</u>

A. Outside Right-of-Way Working Group Report on 3/22/2011 meeting.

B. Asphalt Working Group Report on 3/22/2011 meeting.

C. Materials Working Group Report on 3/22/2011 meeting.

D. Water/Sewer Working Group Report on 3/16/2011 meeting.

E. Concrete Working Group | 15. Information and discussion.

Outside ROW Chair: Peter Kandarlis, SRP

Asphalt Chair: Jeff Benedict, AGC

Materials Chair: Brian Gallamore, AGC

Water/Sewer Chair: Jim Badowich, Avondale

Concrete Chair: Jeff Hearne, ARPA |
| 16. <u>Staff Reports</u>

Update from staff as needed. | 16. Information and discussion. |
| 17. <u>Open General Discussion</u>

Members can report on any items of interest to the committee. | 17. Information and discussion. |
| 18. <u>Request for Future Agenda Items</u>

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. | 18. Information and discussion. |

Adjournment

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

March 2, 2011

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
Warren White, Chandler	Syd Anderson, Phoenix (St. Trans.)
* Dave Emon, El Mirage	Jami Erickson, Phoenix (Water)
Greg Crossman, Gilbert	* Marc Palichuk, Queen Creek
Tom Kaczmarowski, Glendale	Rodney Ramos, Scottsdale
Troy Tobiasson, Goodyear, Chair	Jason Mahkovtz, Surprise
Chuck Christiansen, MCDOT (proxy)	Tom Wilhite, Tempe, Vice Chair

ADVISORY MEMBERS

* John Ashley, ACA	Jeff Hearne, ARPA
Jeff Benedict, AGC	Peter Kandararis, SRP
Tony Braun, NUCA	Paul R. Nebeker, Independent
* Kwigs Bowen, NUCA	Mike Smith, ARPA
Brian Gallimore, AGC	

MAG ADMINISTRATIVE STAFF

* Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Jacob Foster, Terway
Michael Hook, American Concrete Pipe Association
Jerre Mills, Sunbelts Asphalt
Charles Moses, Jensen Precast
John Paul Reis, Sunbelts Asphalt
Greg West, Tetra Tech

1. Call to Order

Chairman Troy Tobiasson called the meeting to order at 1:30 p.m.

2. Call to the Audience

Jerre Mills with Sunbelts stated that his company has developed an infrared pavement repair method and would provide more detailed information to the committee in the future.

3. Approval of Minutes

The members reviewed the February 2, 2011 meeting minutes. Jesse Gonzales introduced a motion to accept the minutes as written. Greg Crossman seconded the motion. A voice vote of all ayes and no nays was recorded.

Review of 2010 and 2011 Cases

4. Case 10-05 – Revise FOREWORD

Clarify use of the MAG Specifications and Details for Public Works document. Jason Mahkovtz provided comments from Surprise, and Paul Nebeker also suggested a change. Jesse Gonzalez noted that he had received feedback from committee members and will provide modifications to the case at the next meeting.

5. Case 10-08 – Revise Section 717 Asphalt Rubber

Revise Section 717 ASPHALT-RUBBER to obtain a uniform specification. Chuck Christiansen responded to a previous inquiry on proposed changes to rubber content, noting that the method of calculation had changed and resulted in the revision showing a different percentage of rubber. Jeff Benedict recommended that a tolerance be provided to allow manufacturers the ability to meet viscosity requirements. There was a discussion on eliminating the maximum rubber content and just specifying viscosity.

6. 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. Rod Ramos stated that Scottsdale will be field testing the installation method in the near future. Jesse Gonzalez asked if Scottsdale had discussed franchise agreements on the installation of conduit with the vendor. Rod mentioned that their efforts are oriented toward technical feasibility only.

7. Case 11-01: Miscellaneous Corrections

- a. **Case 11-01A – Correct the formula in Table 711-1.** No new comments provided.
- b. **Case 11-01B –Correct Percentage in Table 705-1.** No new comments provided.
- c. No new correction cases were introduced.

8. Case 11-02 – Safety Edge Detail

Add an Asphalt Pavement Safety Edge option to Detail 201. MCDOT is reviewing previous concerns. Chuck Christiansen said it will be retitled, and there was concern on compaction and testing acceptance criteria. Brian Gallimore initiated a discussion on the challenges with edge compaction, with the group agreeing that there probably is a need for different details when performing maintenance and overlay work versus new construction. Comments will be taken back to Bob Herz at MCDOT about the discussion on forming and compacting the 30 degree angle of the asphalt edge.

9. Case 11-03 – Replace Cadmium Plated Bolts.

Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633. Jesse Gonzales is waiting for more feedback and working on changes to the language.

New 2011 Cases

10. Case 11-04 – Deletion of Detail 190, Rock Correction Procedure

Replace reference to MAG Detail 190 in MAG Section 301 with ASTM D4718. Delete MAG Detail 190. Peter Kandarlis presented a new case for deleting MAG Detail 190. The standard is not a construction detail, but a design guide for use by quality control technicians. The procedure does not belong in a construction specification. MAG 190 is referenced only in MAG Section 301 and can be replaced by standard industry rock correction methods such as ASTM D4718. Mike Smith noted that he would provide Peter with an equivalent ADOT test method that is more commonly used than the ASTM method.

11. Case 11-05 – Deletion of MAG Section 225, Watering

Move MAG Section 225, Water Requirements into MAG Section 104.1.3. Peter Kandarlis presented a new case for deleting MAG Section 225. The section gives contractor performance requirements, but no technical guidance and belongs with similar language in

Part 100, General Conditions (specifically, MAG Section 104). A vote was proposed at the next meeting.

12. Case 11-06 – Deletion of Out of Date MAG Standards

Remove sections of the MAG Specifications that are no longer used or refer to outdated technologies. Scott Zipprich presented a new case for deleting MAG Sections 313, 410, 501, 780, 782, 785 and 786 and MAG Details 150, 170, 402, and 425. The referenced standards are either not used in present practice, reference processes that should be designed uniquely to individual projects, or are for work outside the right-of-way. Members are requested to review and provide feedback on whether they agree on deleting specific standards. Some may be kept if agencies are using one or more. Jim Badowich recommended keeping the safety curb detail. Peter Kandarlis responded that this detail and others may need to be kept and then moved to the Outside Right-of-Way manual later. The case can be used to delete other standards if after members review these, more out of date standards are found.

13. Proposed New Cases

No additional new cases were proposed.

14. Potential Cases

Warren White initiated a group discussion on the need for ADA compliant dual ramp details. Chandler desires a joint MAG detail in lieu of a city supplement. Jesse noted that he is continuing to work on submitting details. Members discussed ramp issues such as the need for both retrofit and new construction requirements, right-of-way required, and DOJ approval needs.

15. Working Group Reports

a. **Specifications and Details Outside the Right-of-Way Working Group**

Peter Kandarlis gave an update on the Outside Right-of-Way Working Group. The group last met on February 22nd and has begun working on revising existing MAG sections for outside of ROW application. The next meeting will be on March 22nd from 1:30 to 3:30 at the ARPA offices.

b. **Asphalt Working Group**

Jeff Benedict gave an update on the Asphalt Working Group. The group has started reviewing the list provided by the OROW Working Group and plan to meet on the third Monday or Tuesday of March at the Speedie and Associates office to continue the discussions.

c. **Concrete Working Group**

Jeff Hearne gave an update on the Concrete Working Group which met on March 1st. The group is developing a plan to begin rewrites of concrete-related items on list provided by the OROW Working Group. The next meeting date has not yet been determined.

d. **Water/Sewer Issues Working Group**

Jim Badowich is organizing the Water and Sewer Working Group and plans to meet on March 16th at 1:30 p.m. at the MAG offices.

e. **Materials Working Group**

Brian Gallimore has formed the Materials Working Group to focus on cases such as lime and cement stabilization requirements. The group plans to meet on the second Tuesday of the month at the ARPA offices at 7:30 am.

16. Staff Reports

No staff report was provided.

17. Open General Discussion

Rod Ramos suggested that the list of MAG standards to be modified also be provided to the local consulting community for their input. After discussion the members agreed that a draft letter be sent to consultant organizations such as the American Council of Engineering Companies of Arizona (ACEC) or that a presentation be given at one of their monthly meetings. Rod volunteered to draft a cover letter.

Greg Crossman stated that the Town of Gilbert is updating their design standards and supplements. He anticipates the process will take between 9 months to 1 year. He would appreciate any comments from the committee members on their standards.

Troy Tobiasson requested input from the group on a problem recently seen in Goodyear with rapidly raveling new pavement. The members discussed possible causes and past experience with this issue.

18. Adjournment:

Chairman Tobiasson adjourned the meeting at 3:00 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 <i>MAG Specifications and Details for Public Works Construction</i> document.	Peoria	Jesse Gonzales	03/03/2010 03/02/2011		0 0 0	Yes No Abstain
10-08	Case 10-08: Re-write Section 717 ASPHALT-RUBBER.	MCDOT	Bob Herz	05/05/2010 02/18/2011		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 02/02/2011		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. C: Correct errors in Detail 212.	MCDOT SRP	Bob Herz Peter Kandarlis	01/05/2011 04/06/2011		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	Case 11-03: Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633.	Peoria	Jesse Gonzales	02/02/2011		0 0 0	Yes No Abstain
11-04	Case 11-04: Replace reference to MAG Detail 190 in MAG Section 301 with ASTM D4718. Delete MAG Detail 190.	OROW WG/ SRP	Peter Kandarlis	03/02/2011 04/06/2011		0 0 0	Yes No Abstain
11-05	Case 11-05: Move MAG Section 225 Water Requirements into MAG Section 104.1.3.	OROW WG/ SRP	Peter Kandarlis	03/02/2011		0 0 0	Yes No Abstain
11-06	Case 11-06: Remove sections and details of the MAG specifications that are no longer used or refer to outdated technologies.	OROW WG/ Buckeye	Scott Zipprich	03/02/2011 04/06/2011		0 0 0	Yes No Abstain



MARICOPA COUNTY
Department of Transportation

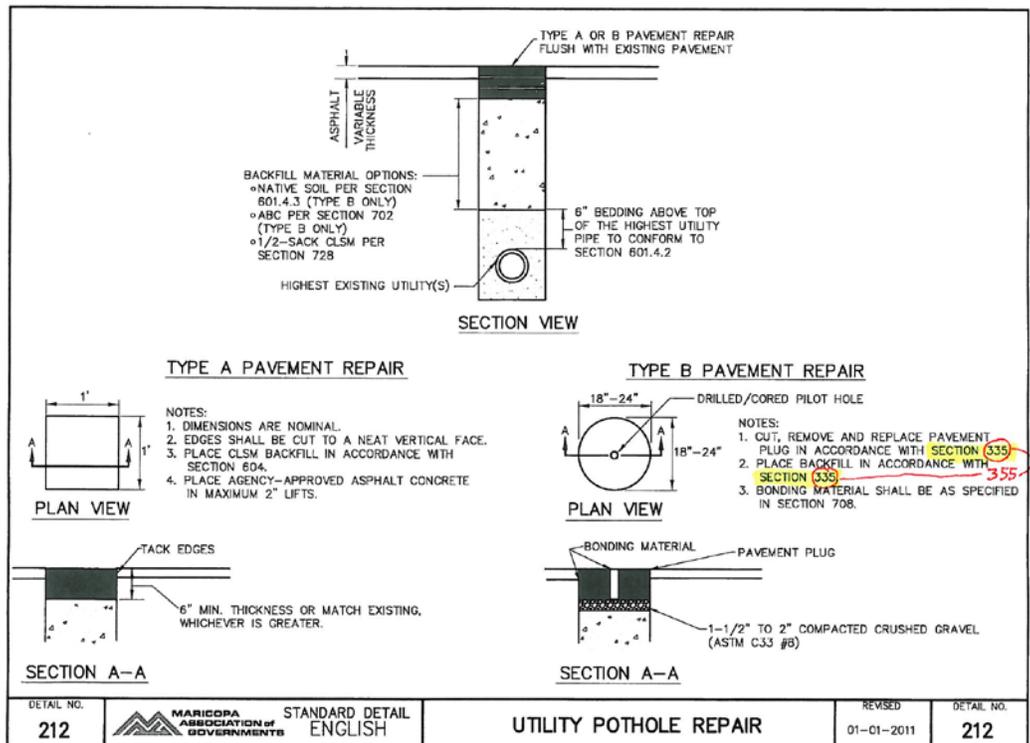
MEMORANDUM

Date: April 6, 2011
To: MAG Specifications and Details Committee
From: Robert Herz, MCDOT Representative
Subject: Miscellaneous Corrections

Case 11-01 C

PURPOSE: Correct Detail 212 errors.

REVISION: In Detail 212 under 'TYPE B PAVEMENT' REPAIR change 'section 335' to 'section 355' in Notes 1 and 2.





P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-5900

DATE: March 30, 2011

TO: MAG Specifications and Details Committee Members

FROM: Peter Kandaris, SRP Representative
Outside of Right-of-Way Working Group

RE: **Rock Correction Procedure – Revised for Comments**

Purpose: MAG Detail 190, “Rock Correction Procedure for Maximum Density Determination,” is not a construction detail, but a design guide for use by quality control technicians. The procedure does not belong in a construction specification. MAG 190 is referenced only in MAG Section 301 and can be replaced by the standard Arizona rock correction method, ARIZ 227c.

Revisions: Replace reference to MAG Detail 190 in MAG Section 301 with ARIZ 227c.

Delete MAG 190.

SECTION 301

SUBGRADE PREPARATION

301.1 DESCRIPTION:

This section shall govern the preparation of natural, or excavated areas prior to the placement of sub-base material, pavement, curbs and gutters, driveways, sidewalks or other structures. It shall include stripping and disposal of all unsuitable material including existing pavement and obstructions such as stumps, roots, rocks, etc., from the area to be paved.

301.2 PREPARATION OF SUBGRADE:

With the exception of areas where compacted fills have been constructed as specified in Section 211, in the areas where new construction is required, the moisture content shall be brought to that required for compaction by the addition of water, by the addition and blending of dry, suitable material or by the drying of existing material. The material shall then be compacted to the specified relative density. If pumping subgrade should become evident at any time prior to paving, the Engineer may require proof rolling with a pneumatic-tire roller or other approved equipment in order to identify the limits of the unacceptable area. The proof rolling will be performed at no additional cost to the Contracting Agency.

Subgrade preparation shall also include preparing the subgrade to the required line and grade for paved or unpaved shoulders, tapers, turnouts, and driveways, and at all other project locations where aggregate base and/or select material courses are used in accordance with the Project Plans.

301.2.1 The Contractor may use removed existing asphalt concrete and other existing bituminous roadway surfacing materials originating on the project site, as embankment fill. All materials used shall be thoroughly crushed to sizes not exceeding four inches, or as approved by the Engineer. These asphalt/bituminous materials shall be placed not less than two feet below finished subgrade elevation.

Project earthwork quantities when included as separate contract pay items will include removed asphalt/bituminous material volumes, unless otherwise specified in the Special Provisions.

All unsuitable material and all excess material shall be disposed of in accordance with the requirements of Sections 205.2 and 205.6, respectively. When additional material is required for fill, it shall conform to Section 210.

301.3 RELATIVE COMPACTION:

The subgrade shall be scarified and loosened to a depth of 6 inches. Rock 6-inches or greater in size that becomes exposed due to scarification shall be removed from the scarified subgrade. When fill material is required, a layer of approximately 3 inches may be spread and compacted with the subgrade material to provide a better bond. The subgrade cut and fill areas shall be constructed to achieve a uniform soil structure having the following minimum compaction, measured as a percentage of maximum dry density when tested in accordance with AASHTO T-99, Method A, and T-191 or ASTM D-2922 and D-3017 with the percent of density adjusted in accordance with the rock correction procedures for maximum density determination, ~~Standard Detail 190~~ [ARIZ 227c](#), to compensate for the rock content larger than that which will pass a No. 4 sieve. Unless otherwise noted in the project plans or project specifications, compaction shall be performed within 2 percentage points of the optimum moisture content.

(A) Below pavement, curb & gutter, attached sidewalk, roadway shoulders,

and other areas within right-of-way subject to vehicular traffic	95 percent
(B) Below detached sidewalk not subject to vehicular traffic	85 percent

301.4 SUBGRADE TOLERANCES:

Subgrade upon which pavement, sidewalk, curb and gutter, driveways, or other structures are to be directly placed shall not vary more than 1/4 inch from the specified grade and cross-section. Subgrade upon which sub-base or base material is to be placed shall not vary more than 3/4 inch from the specified grade and cross-section. Variations within the above specified tolerances shall be compensating so that the average grade and cross-section specified are met.

301.5 GRADING OF AREAS NOT TO BE PAVED:

Areas where grade only is called for on the plan shall be graded to meet the tolerances for the subgrade where subbase or base material is to be placed. The surface shall be constructed to a straight grade from the finished pavement elevations shown on the plans to the elevation of the existing ground at the extremities of the area to be graded.

301.6 PROTECTION OF EXISTING FACILITIES:

The Contractor shall exercise extreme caution to prevent debris from falling into manholes or other structures. In the event that debris should fall into a structure it shall immediately be removed.

301.7 MEASUREMENT:

Measurement for Subgrade Preparation will be by the square yard. The area to be measured will be the total accepted area of new asphalt or Portland cement pavement, including paved shoulders, tapers, and turnouts, and unpaved roadway shoulders. Measurement will also include driveways that are paved or are surfaced with aggregate base or select materials. The area under concrete curb and gutter, sidewalk, concrete driveway entrances, and concrete alley entrances will not be included in this pay item.

Project earthwork quantities for Roadway Excavation, Borrow Excavation, and Fill Construction shall not be separately measured when they are not listed as separate line items on the fee proposal form. In such case, unless otherwise specified, payment for said earthwork items shall be included in the unit price for Subgrade Preparation.

301.8 PAYMENT:

Payment for Subgrade Preparation will be made only when it is performed for street or roadway paving projects.

Payment shall be compensation in full for stripping, scarifying, grading, excavating, hauling, filling, compacting, and disposing of excess or unsuitable materials, together with all costs incidental thereto.

**ROCK CORRECTION PROCEDURE
FOR MAXIMUM DRY DENSITY AND
OPTIMUM MOISTURE
CONTENT DETERMINATION**

(A Modification of AASHTO Designation T 224)

SCOPE

1. This procedure is used to determine the corrected maximum dry density and optimum moisture content for a sample of material when coarse aggregate or rock particles are retained on the No. 4 sieve (for Method A proctor) or 3/4 inch sieve (for Alternate Method D proctor).

(a) The rock correction procedure shall not be used when the material consists of volcanic cinders or light weight porous material on which the specific gravity cannot be determined with consistency or when the moisture absorption for the coarse aggregate is greater than 4.0%.

(b) The rock correction procedure shall not be used when the percent rock retained on the No. 4 for Method A is less than 10% or greater than 50% (greater than 60% in the case of an aggregate base material); or when the percent rock retained on the 3/4 inch sieve for Alternate Method D is less than 10% or greater than 50%.

NECESSARY INFORMATION

2. (a) Refer to, or determine the maximum dry density and optimum moisture content of the material by Method A (Arizona Test Method 225 or 232); or Alternate Method D (Arizona Test Method 245 or 246).

(b) For Method A, the percentage of rock particles in the sample which are coarser than the No. 4 sieve is recorded as "PR4". For Alternate Method D, the percentage of rock particles in the sample which are coarser than the 3/4 inch sieve is recorded as "PR3/4".

(c) If not known, determine the bulk oven-dry specific gravity of the coarse aggregate in accordance with AASHTO T 85.

NOTE: Once determined for a source, the specific gravity may usually be used for all rock corrections on material from that source. Any slight change in specific gravity

should not change the maximum dry density to a large extent. (A change of ± 0.02 could result in a change of ± 0.6 lb. per cubic foot.) Similarly, the maximum dry density of the passing No. 4 or passing 3/4 inch material, having been determined by Method A or Alternate Method D for a source, may usually be used for that source providing the sieve analysis of the passing No. 4 or passing 3/4 inch material and the Plasticity Index remain reasonably uniform.

ROCK CORRECTED MAXIMUM DRY DENSITY

3. The corrected maximum dry density of the total sample for the amount of rock (plus No. 4 for Method A proctor or plus 3/4 inch for Alternate Method D proctor) shall be determined by the following equation:

$$\text{CMD} = \frac{\left[(100 - \text{PR}) \times (\text{MD}) \right] + \left[(56.2) \times (\text{PR}) \times (\text{SG}) \right]}{100}$$

Where: CMD = Corrected maximum dry density of the total sample containing "PR" percent coarse rock particles, lbs./cu. ft.
PR = "PR4", percent rock retained on the No. 4 sieve for Method A; or "PR3/4" percent rock retained on the 3/4 inch sieve for Alternate Method D.
MD = Maximum dry density (Method A for plus No. 4; or Alternate Method D for plus 3/4 inch), lbs./cu. ft.
SG = Bulk O.D. Specific Gravity of the coarse aggregate.

Example (For Method A):

PR = PR4 = 29% rock retained on the No. 4 sieve.
MD = 114.0 lbs./cu. ft.
SG = 2.499

$$\text{CMD} = \frac{\left[(100 - 29) \times (114.0) \right] + \left[(56.2) \times (29) \times (2.499) \right]}{100}$$

$$\text{CMD} = \frac{[(71) \times (114.0)] + [4072.9]}{100} = \frac{[8094.0] + [4072.9]}{100}$$

CMD = 121.7 lbs./cu. ft. [Corrected maximum dry density of the total sample containing 29% rock retained on the No. 4 sieve.]

Example (For Alternate Method D):

PR = PR_{3/4} = 32% rock retained on the 3/4 inch sieve.

MD = 112.6 lbs./cu. ft.

SG = 2.526

$$\text{CMD} = \frac{[(100 - 32) \times (112.6)] + [(56.2) \times (32) \times (2.526)]}{100}$$

$$\text{CMD} = \frac{[(68) \times (112.6)] + [4542.8]}{100} = \frac{[7656.8] + [4542.8]}{100}$$

CMD = 122.0 lbs./cu. ft. [Corrected maximum dry density of the total sample containing 32% rock retained on the 3/4 inch sieve.]

ROCK CORRECTED OPTIMUM MOISTURE CONTENT

4. The rock corrected optimum moisture content of the total sample shall be determined by the following equation:

$$\text{COM} = \frac{[(\text{OM}) \times (100 - \text{PR})] + \text{PR}}{100}$$

Where: COM = Corrected optimum moisture content for the total sample.

OM = optimum moisture content for Pass No. 4 (Method A) or pass 3/4 inch material (Alternate Method D).
 PR = "PR4", % rock retained on the No. 4 sieve for Method A; or "PR3/4", % rock retained on the 3/4 inch sieve for Alternate Method D.

Example (For Method A):

OM = 14.3%
 PR = PR4 = 29% rock retained on the No. 4 sieve.

$$\text{COM} = \frac{[(14.3) \times [100 - (29)]] + (29)}{100}$$

$$\text{COM} = \frac{[(14.3) \times (71)] + (29)}{100} = \frac{[1015.3] + (29)}{100}$$

COM = 10.4% [Corrected optimum moisture content of the total sample containing 29% rock retained on the No. 4 sieve.]

Example (For Alternate Method D):

OM = 15.2%
 PR = PR3/4 = 32% rock retained on the 3/4 inch sieve.

$$\text{COM} = \frac{[(15.2) \times [100 - (32)]] + (32)}{100}$$

$$\text{COM} = \frac{[(15.2) \times (68)] + (32)}{100} = \frac{[1033.6] + (32)}{100}$$

COM = 10.7% [Corrected optimum moisture content of the total sample containing 32% rock retained on the 3/4 inch sieve.]

USE OF RESULTS

5. (a) The corrected maximum dry density obtained by this method is used, in comparison with the field density of the material, to determine the percentage of compaction.

(b) The corrected optimum moisture content is used to determine the amount of moisture which should be added to the material to achieve maximum dry density.

REPORT

6. (a) Report the corrected maximum dry density to the nearest 0.1 lb./cu. ft.

(b) Report the corrected optimum moisture content to the nearest 0.1 percent.

Specifications & Details Outside Right-of-Way Working Group

March 22, 2011 Meeting (1:30 pm to 3:00 pm)

at

Arizona Rock Product Association

9th Avenue and Adams Street

Phoenix, AZ

Meeting Agenda

INTRODUCTION

- Welcome participants – Introductions

DISCUSSION ITEMS

- Review standards revisions to be done by working group.
- Review draft revisions to Section 201 & 205
- Review additional revisions to be done by WG
- Discuss new standards to be developed for outside ROW document from existing agency supplements.
- Next meeting date

Cases for Removal from MAG Specifications and Details

Section	Title	Recommended Action by Outside ROW Working Group	Status
313	Bituminous Treated Base Course	Delete this section as this procedure is no longer used.	case submitted
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	Status
150	Precast Safety Curb	Delete from ROW standard as these are used outside ROW.	case submitted
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	Status
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.	case submitted
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	Status
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.	case submitted

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

Section	Title	Recommended Action by Outside ROW Working Group	Status
350	Removal of Existing 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 structures 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	Status
131	Street Sign Base	Update to include materials currently used by agencies for street sign supports.	
135	Steel Guard Rail	Include end attenuation details.	
145	Safety Rail	Modify to accommodate OSHA onsite needs	
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.	

Sections to be made part of Outside ROW Standards - Changes complete						
Section	Title	Keep	Modify	Minor Change	Action	
101	Abbreviations and Definitions	Yes	Yes	Yes	Done	
104	Scope of Work	Yes	Yes	Yes	Done	
105	Control of Work	Yes	Yes	Yes	Done	
107	Legal Regulations and Responsibility to Public	Yes	Yes	Yes	Done	
108	Commencement, Prosecution and Progress	Yes	Yes	Yes	Done	

Sections to be reviewed & modified by Outside ROW Working Group						
Section	Title	Keep	Modify	Minor Change	Action	
201	Clearing and Grubbing	Yes	Yes	Yes	Draft in Review	
336	Pavement Matching and Surfacing Replacement	Yes	Yes	Yes	Scope to be determined	
205	Roadway Excavation	Yes	Yes	No	Draft in Review	
211	Fill Construction	Yes	Yes	No	Modify for on-site methods	
350	Removal of Existing Improvements	Yes	Yes	No	Modify for on-site methods	

Details to be reviewed & modified by Outside ROW Working Group						
Section	Title	Keep	Modify	Minor Change	Action	
145	Safety Rail	Yes	Yes	Yes	Modify to accommodate OSHA onsite needs	
510	Corrugated Metal Pipe Installation	Yes	Yes	No	Incorporate underground storage tanks	

MAG Outside Right-of-Way Asphalt Working Group Meeting

Meeting Minutes
March 28, 2011

Opening:

The first meeting of the Asphalt Working Group was called to order at 7:30 AM on March 22, 2011 at Speedie & Associates, Inc. by Jeff Benedict.

Present:

J. Benedict, D. Laquey, S. Thompson, P. Feliz, B. Gallimore, D. Cornelison

A. Approval of Agenda

The agenda was unanimously approved as distributed.

B. Approval of Minutes

Since this was the first formal meeting of the working group, there were no minutes of previous meetings.

C. Open Issues & Discussion

The purpose of the working group was discussed. This includes the reviewing and/or re-writing of assigned asphalt-related MAG Specification sections to ensure they are appropriate and applicable to work performed outside agency right-of-way. In addition, these sections will be reviewed for accuracy, completeness, and applicability for the current MAG Specifications.

Discussion occurred as to the best way to expedite review of assigned MAG sections. The group decided to assign specific MAG sections to individuals or small groups depending on complexity and effort required.

D. Decisions & Action Items

The specific MAG sections were assigned as follows:

Action items	Person responsible	Deadline
✓ MAG 321	D. Laquey	04/06/11
✓ MAG 323	J. Benedict/B. Erdman? (Cutler)	04/06/11
✓ MAG 325	A. Green/D. Cornelison	04/06/11
✓ MAG 334/718	J. Benedict/J. Gonzales? (Peoria)	04/06/11
✓ MAG 335	S. Thompson	04/06/11

✓ MAG 337	P. Feliz	04/06/11
✓ MAG 709/719	P. Feliz/A. Green	04/06/11
✓ MAG 710 (Including RAP)	Green/Feliz/Laquey	04/06/11
✓ MAG 715	S. Thompson	04/06/11

* Note: Individuals identified with question mark (?) are to be contacted by responsible individual and asked to participate.

The indicated individuals are to transmit at least a cursory outline of proposed changes or areas of concern to the Chairman by April 6, 2011 as shown in the table above. The Chairman or his designee will transmit the information to members of the working group. Working group members were asked to review the information and be prepared to discuss it at the next meeting.

E. New Business

No additional business was presented.

F. Agenda for Next Meeting

The items discussed and specific assignments from this working group meeting will be presented to the main MAG Standard Specifications & Details Committee at its next meeting on April 6, 2011. A request for participation from interested member agencies will also be made by Jeff Benedict. At the next working group meeting, work will begin on detailed review of the assigned specification sections.

Adjournment:

Meeting was adjourned at 9:00 AM by Jeff Benedict. The next general meeting will be at 7:30 AM on April 13, 2011 at Speedie & Associates, Inc. located at 3331 E. Wood Street, Phoenix, AZ.

Minutes submitted by:

Donald L. Cornelison, P.E.

MAG Outside Right-of-Way Materials Working Group Meeting

Meeting Minutes
March 28, 2011

Opening:

The first meeting of the Materials Working Group was called to order at 9:00 AM on March 22, 2011 at Speedie & Associates, Inc. by Brian Gallimore (Chairman).

Present:

B. Gallimore, J. Benedict, D. Laquey, S. Thompson, P. Feliz, D. Selby, M. Smith, D. Cornelison

A. Approval of Agenda

The agenda was unanimously approved as distributed.

B. Approval of Minutes

Since this was the first formal meeting of the working group, there were no minutes of previous meetings.

C. Open Issues & Discussion

The purpose of the working group was discussed. This includes the reviewing and/or re-writing of assigned materials-related MAG Specification sections to ensure they are appropriate and applicable to work performed outside agency right-of-way. In addition, these sections will be reviewed for accuracy, completeness, and applicability for the current MAG Specifications.

Discussion occurred as to the best way to expedite review of assigned MAG sections. The group decided to assign specific MAG sections to individuals or small groups depending on complexity and effort required.

D. Decisions & Action Items

The specific MAG sections were assigned as follows:

Action items	Person responsible	Deadline
✓ MAG 301	M. Smith/D. Selby	04/06/11
✓ MAG 309/311	M. Smith/D. Selby/B. Gallimore	04/06/11
✓ MAG 310/312/701/702/705	D. Laquey/D. Rath?/M. Wittman?/J. Jerman?	04/06/11
✓ MAG 601	B. Gallimore *	04/06/11

✓ MAG 605	B. Gallimore *	04/06/11
✓ MAG 621	B. Gallimore *	04/06/11
✓ MAG 270	B. Gallimore *	04/06/11

- Note 1: Individuals identified with question mark (?) are to be contacted by responsible individual and asked to participate.
- Note 2: Individuals identified with asterisk (*) are to identify additional responsible individuals and asked them to participate.

The indicated individuals are to transmit at least a cursory outline of proposed changes or areas of concern to the Chairman by April 6, 2011 as shown in the table above. The Chairman or his designee will transmit the information to members of the working group. Working group members were asked to review the information and be prepared to discuss it at the next meeting.

E. New Business

No additional business was presented.

F. Agenda for Next Meeting

The items discussed and specific assignments from this working group meeting will be presented to the main MAG Standard Specifications & Details Committee at its next meeting on April 6, 2011. A request for participation from interested member agencies will also be made by Jeff Benedict. At the next working group meeting, work will begin on detailed review of the assigned specification sections.

Adjournment:

Meeting was adjourned at 10:30 AM by Donald Cornelison. The next working group meeting will be at 9:00 AM on April 13, 2011 at Speedie & Associates, Inc. located at 3331 E. Wood Street, Phoenix, AZ.

Minutes submitted by:

Donald L. Cornelison, P.E.

Water/Sewer Working Group Meeting

Meeting Notes
March 16, 2011

Opening:

A meeting of the Specifications and Details Water/Sewer Working Group was called to order by Chair Jim Badowich on March 16, 2011 at 1:30 p.m. in the MAG Cholla Room.

Present:

Jim Badowich, Tony Braun, Rita Chihanik, Chad Dixon, Charles Moses, Paul Nebeker, Larry Smith, Gordon Tyus, Scott Zipprich.

A. Open Issues & Discussion

The overall purpose of the working group was discussed. The immediate focus of the group was to review the list provided by the Outside ROW Group, for review by the Water/Sewer group.

For each MAG Section or Detail, the following was discussed: 1) Should the spec remain in the ROW (current) standards, 2) Should the spec be placed in the Outside ROW (future) standards, and 3) does the Spec/Detail need updating.

The W&S Working Group then briefly went through each case and asked the three above questions for each one.

The majority of cases should remain in the current ROW Standards and should also exist in the future Outside Standards. All cases need some form of review for accuracy, completeness, and applicability for the current MAG Specifications revision or update.

Next the specifications and details were prioritized to determine which to work on first.

B. Decisions & Action Items

Some comments on specific MAG sections are shown below. Those with * were deemed high priority:

Sec. Comments/Recommendation

- 630* Taping Sleeves, Valves, Boxes. Include in both. Update.
- 640 Precast Concrete Arches. Unsure if section is applicable to this working group.
- 736 Non-reinforced Concrete Pipe (CIPP). Phoenix and SRP use. Include in both. Update.
- 750 Ductile Iron. Include in both. Check if revision needed.
- 751 Gray iron pipe. Remove.
- 754 Copper Pipe. Discussion about Type K and Type M copper pipe. Include in both. Update.

Detail Comment/Recommendation

- 301 Blocking in detail needs to be revised to show in a more realistic scale. Include in both. Update.
- 302 Joint restraints w/rods. Phoenix has supplements. Discussed removing from MAG. Typically these are designed job specific. Notes reference cadmium bolts.
- 321 Water Meter Vault. Agencies have their own details. In ROW only. Create a more standard detail to reduce supplements.
- 340* Installing Tapping Sleeves. Discussion about stainless steel, size on size for mechanical joints in Phoenix. Include in both. Update.
- 346 Fire line detector check valve. Outside ROW. Revise?
- 360* Fire Hydrants. Add wet barrel hydrants (Avondale and Peoria use). Revise to meet current International Fire Code. Discussed color and national standards for threads. Include in both. Update.
- 370 Vert. Realignment. Phoenix has P370 supplement with boltless restraint. Include in both. Update.
- 380* Thrust Blocks. Include in both. Update.
- 389 Curb stop w/VBC. Needs to be updated because of low lead brass requirement, and avoid brand names. Include in both. Update.
- 390 Curb stop w/flushing. Same as above.
- 391* Valve box installation and adjustment. Discussion about creating separate installation and adjustment details. Include in both. Update and possibly split.
- 392 Debris Caps. Discussion about deleting it, adding it to deletion case. Remove.
- 405 Broken Sewer Line. Remove references to only "clay" pipe. Include in both. Update.
- 420 Precast manholes. Discussion of using precast bases and including compaction requirements. Charles Moses of Jensen Precast said he would provide info next meeting. Include in both. Update.
- 424* Manhole frame and cover. Rita Chihanik of Deter & Neenah Foundry agreed to provide updated details and information at next meeting. Include in both. Update.
- 425 Aluminum manhole covers. Outside ROW only; special use. Update?
- 426 Drop Sewer Connection. Remove 'brick' references/illustrations. Include in both. Update.
- 427 Stub out and plugs. Remove 'brick' references/illustrations. Include in both. Update.
- 441 Sewer Clean-out. Include in both. Update.
- 345 Water Meters. ROW only. Update.

Adjournment

The meeting was adjourned at 3:00 p.m. by Jim Badowich. The next Water/Sewer Working Group meeting is tentatively scheduled for 1:30 p.m. on Tuesday April 19, 2011 at the MAG office. Room location TBD.