March 31, 2015

TO: Members of the MAG Standard Specifications and Details Committee

FROM: Tom Wilhite, City of Tempe, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, April 8, 2015 at 1:30 p.m.
MAG Office, Suite 200 (Second Floor), Ironwood 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 Tom Wilhite at 480-350-2921 or Gordon Tyus, MAG staff at 602-254-6300.

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. 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 8, 2015

		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 March 4, 2015, Meeting Minutes	3. **Review and approve minutes of the March 4, 2015 meeting.**
Carry Forward Cases from 2015		
4.	Case 14-03: Updates to Guardrail Details Revisions to Section 415 and/or inclusion of MCDOT guardrail details.	4. Information and discussion. Sponsor: Bob Herz, MCDOT
5.	Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete Update specifications for current preservative seal products.	5. Information and discussion. Sponsor: Jeff Benedict, Asphalt Working Group *Updated*
6	Case 14-12: Proposed Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1 Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path.	6. Information and discussion. Sponsor: Bob Herz, MCDOT *Updated*
7.	Case 14-17: Create New Section 322 Provide specifications for Asphalt Stamping - materials and methods.	7. Information and discussion. Sponsor: Brian Gallimore, Materials WG *Updated*

New Cases for 2015

8.	Case 15-01: Misc. Corrections A. Add omitted text to Section 735.1. Text was approved by Case 14-07 and merged into Case 13-15. B. Revise "OA" to Quality Assurance and "OC" to Quality Control in Section 710. C. Update notes in Detail 225.	8. Information and discussion. Sponsor: Bob Herz, MCDOT
9.	Case 15-03: Revise Section 601.4.5 Trench Final Backfill Placement Revise Section 601.4.5 trench final backfill placement requirements..	9. Information and discussion. Sponsor: Bob Herz, MCDOT *Updated*
10.	Case 15-04: Revise Section 602 Trenchless Installation of Steel Casing Update ASTM references for casing material and add minimum casing wall thickness.	10. **Information, discussion and possible action.** Sponsor: Arvid Veidmark, Water/Sewer WG
11.	Case 15-05: Proposed Revisions to Section 616 Update reclaimed water line construction specifications and create NEW Reclaimed Valve Box detail.	11. Information and discussion. Sponsor: Warren White, Chandler
12.	Case 15-06: Section 744 ABS TRUSS PIPE AND FITTINGS. Delete or update this section as appropriate.	12. Information and discussion. Sponsor: Bob Herz, MCDOT
13.	Case 15-07: Revisions to Section 342 Decorative Pavement Concrete Paving Stone or Brick and New Detail. Revisions to Concrete Paver Standards for Non-Traveled Surfaces.	13. Information and discussion. Sponsor: Warren White, Chandler
14.	Case 15-08: Revisions to Table 710-4 Clarify Table 710-4 to eliminate misinterpretation of Criteria 8.	14. Information and discussion. Sponsor: Bob Herz, MCDOT *New*
15.	Other New or Proposed Cases	15. Information and discussion.

General Discussion

16. Working Group Reports

    16. Information and discussion.
    Water/Sewer Chair: Jim Badowich
    03/19/2015 Meeting

    Asphalt Chair: Jeff Benedict
    Materials Chair: Brian Gallimore
    Concrete Chair: Jeff Hearne
    03/26/2015 Meeting

17. General Discussion

    17. Information and discussion.

18. Request for Future Agenda Items

    18. Information and discussion.

Adjournment

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

March 4, 2015

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

AGENCY MEMBERS

Jim Badowich, Avondale, Vice Chair
Craig Sharp, Buckeye
Warren White, Chandler
Bryce Christo, El Mirage (proxy)
Morris Taylor, Florence (proxy) (audio)
Tom Condit, Gilbert
Mark Ivanich, Glendale
* Tom Vassallo, Goodyear
Bob Herz, MCDOT
Julie Christoph, Mesa
Dan Nissen, Peoria
* Syd Anderson, Phoenix (St. Trans.)
Jami Erickson, Phoenix (Water)
Rod Ramos, Scottsdale
Kristin Tytler, Surprise
Tom Wilhite, Tempe, Chair
Harvey Estrada, Valley Metro
Gregory Arrington, Youngtown

ADVISORY MEMBERS

Jeff Benedict, ARPA
Arvid Veidmark, AZUCA
* Mike Sanders, AZUCA
* Brian Gallimore, AGC
Greg Groneberg, AGC
Jeff Hearne, ARPA
Peter Kandaris, Independent
* Paul R. Nebeker, Independent
* Jacob Rodriguez, SRP

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

David Beckel, Southwest Rock Products

1. Call to Order

   Chair Tom Wilhite called the meeting to order at 1:30 p.m.

2. Call to the Audience

   Mr. Wilhite said a new member from Phoenix, Melody Moss, is planning to replace Syd Anderson. David Beckel of Southwest Rock Products asked to speak.

   Mr. Beckel said there are technical issues on gradation and PI testing of lime-treated base materials. He provided an example of a test that he and another testing company ran on a split sample that got very different results. He believes that the reason for the difference is that if the tests are performed until the water is "clear" it removes the lime treatment from the base materials. He said he has discussed the issue with testing labs, including the one in Mesa. He also asked for contacts with AASHTO. Chair Wilhite said the committee could return to discuss this issue during the general discussion portion of the meeting.

3. Approval of Minutes

   The members reviewed the February 4, 2015 meeting minutes. Dan Nissen moved to accept the minutes as written. Warren White seconded the motion. A voice vote of all ayes and no nays was recorded.

Carry Forward 2014 Cases

4. Case 14-03: Updates to Guardrail Details.

   Make revisions to Section 415 and/or include guardrail details in MAG. Mr. Herz reminded the committee that he plans to work on the case in April or May.

5. Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete.

   Update the specifications preservative seals. Jeff Benedict provided a new handout at the meeting of the revised Section 718. He said all the information in red was new or revised. He noted that many of the tests were switched to AASHTO, but he thinks they can be switched back to ASTM. The case will be discussed further at the next Asphalt Working Group meeting. There were no comments from the committee.

6. Case 14-12: Proposed Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1.

Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips. Bob Herz handed out a revision to Section 336. He said several of the comments related to modifications that would need to be done to Detail 200. Peter Kandaris asked what changes were made since the 2/20/15 revision that was provided in the packet. Mr. Herz responded that in Section 336.2.1 he changed the reference to painting with a light coat of asphalt cement to tack coat. He also clarified that the third paragraph of this subsection was referring to widening and extensions of the streets.

Mr. Kandaris asked how changes to Section 336.2.2 affected Detail 200. Mr. Herz said a detail is needed to show an option for milling. Jim Badowich commented that Avondale had problems trying to save the remnant piece when trying a similar method. He said the milling operation tore it out. He suggested that anything less than 4' should be taken out. Greg Groneberg agreed with Mr. Badowich, although they thought 6' wide replacements should work.

Mr. Herz said Section 336.2.4.1 paragraph (G) now refers to Detail 201. Mr. Kandaris asked to clarify which detail it should refer to, and Mr. Herz said it normally would be Type B but the type of edge replacement would depend on agency requirements. Mr. Kandaris also had questions about Section 336.2.4 Adjustments, and Section 336.4 Measurements. He said that 336.2 previously addressed adjustments for slurry and chip seal. Mr. Herz suggested such adjustments be dealt with in the chip seal section. He also clarified that the green text is used to show moved items, but that in the current handout all strikethroughs were hidden to make it easier to read.

Jim Badowich commented on the reference to paving length on page 336-3, saying he thought a maximum of 600 foot lengths were too small. Avondale commonly allows twice that amount or even 1/3 mile at a time. Several other agencies commented that they have supplements allowing longer distances. Rod Ramos said the distance is often that between intersections. Jami Erickson said Phoenix often uses temporary patches of cold mix if it is to be paved soon. Mr. Badowich said he did not consider it an empty trench if it has been backfilled but not yet paved. Julie Christoph said Mesa did enforce the 600 foot standard for work done in downtown Mesa where many small businesses needed access and political issues required streets to be opened quickly. Bob Herz asked if instead of a set distance it would make more sense to require a time limit. Peter Kandaris also wondered if time was more critical than distance, and suggested the length could be determined by the project, but have a default time in the spec.

7. Case 14-17: Create New Section 322 - Asphalt Stamping.

Provide specifications for materials and methods of Asphalt Stamping. Jeff Benedict said he got support and information from asphalt stamping suppliers. He said contractors have been adding a second acrylic seal coat after the paint, which doubles the warranty to two years. He asked members if they thought this should be added as a default in the spec. Mark Ivanich

asked how you could tell if it fails. Mr. Benedict said he thought if the paint flaked off, it would be considered a failure. Rod Ramos said a more common problem is tracking, and sealing helps reduce this problem. Gregory Arrington said Youngtown has used the sealer and it helps keep the paint from wearing due to traffic. Mr. Benedict said the case would be on the agenda for discussion at the next Asphalt Working Group meeting.

New Cases for 2015

8. Case 15-01: Miscellaneous Corrections.

   One new miscellaneous correction was introduced at the meeting – to update the notes in Detail 225.

   Bob Herz said the current Detail 225 had the parenthesis messed up in the notes. After investigating further he said the concrete working stress should be noted as (f_t) and the terminal serviceability index should be (P_t).

9. Case 15-02: Proposed Revisions to Section 772, Table 771-1 and Detail 145.

   Adjust fence requirements to reference ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework. Bob Herz said he had not received any comments since the last meeting, and asked for comments from the committee. Seeing none he said he requested that it be on the agenda for a vote during the last meeting. Chair Wilhite said he would entertain a motion. Bob Herz moved and Gregory Arrington seconded a motion to accept Case 15-02 as presented. A roll call vote was taken. The motion passed: 15 yes, 0 no, 1 abstained, and 1 not present.

10. Case 15-03: Revise Section 601.4.5 Trench Final Backfill.

    Change backfill placement requirement from 2 feet maximum lifts to layers not exceeding eight inches in depth. Bob Herz said the revised version that was distributed in the packet highlighted the changes. He said the 8" lift now applied to mechanically tamped compaction – the two foot lifts would still be allowed for compaction wheels, since the equipment manufacturer specifies lifts 2'-5'. He said this case incorporated comments from the Water/Sewer Working Group. Peter Kandaris said it still had to meet compaction requirements. Tom Wilhite suggested language to clarify the two foot limit was for compaction wheels only.

    There was discussion among the members on how the language regarding compaction wheels could be more specific so other types of "compaction wheels" are not used. Mr. Kandaris said they have sheepsfoot compaction wheels. Arvid Veidmark said he didn't want people to confuse it with a self-propelled unit. The final language agreed upon was "excavator or backhoe mounted sheepsfoot compaction wheels."

11. Case 15-04: Revise Section 602 Trenchless Installation of Steel Casing.

Update ASTM references for casing material and add minimum casing wall thickness. Arvid Veidmark said the updated version of Section 602 provided in the agenda packet has the latest updates from the Water/Sewer Working Group. The ASTM and API references have been updated, as well as the wall thickness. Some rewriting was done in Section 602.3 paragraphs 1, 2 and 5. Bob Herz asked if it was standard practice to stencile on the outside of the casing. Mr. Veidmark said that this was an addition to the spec to allow verification of materials on site. He discussed this with suppliers who previously did not apply stencils to rolled casing. He said this helped tighten up the specifications and allow inspectors to see the materials meet spec. He also confirmed that the stencils are painted on. Jim Badowich asked if he thought the case was ready for a vote. Mr. Veidmark said he thought so, if there were no further comments. Chair Wilhite said he would schedule it for possible action at the next meeting.

12. Case 15-05: Revise Section 616 Reclaimed Water Line Construction and Add New Reclaimed Valve Box Detail.

Revise Section 616.2 Materials to reference appropriate sections and create new detail. Warren White introduced a new case to add a reclaimed water valve box detail to MAG. The draft case has language from Chandler's supplement as well as the installation detail and square valve box cover. He asked what the committee thought may be the appropriate place and number for the detail. Several suggestions were provided including the 400s and 500s sections as well adding a sheet to the existing 391-X valve box details. Mark Ivanich said that Glendale uses round valve box covers for reclaimed as well. Bob Herz said MAG's current spec requires that it is a different shape. Mr. Ivanich asked Warren White if he knew what the County health department required. Mr. White said he would check this as well as what is required by state law. Jim Badowich said they use square boxes in Avondale. Warren White said in Chandler they require the concrete collars regardless of where it is installed. He said the case would be discussed at the next Water/Sewer working group.

13. Case 15-06: Delete or Update Section 744 ABS TRUSS PIPE AND FITTINGS..

Determine if material is still used and if the specification needs revision or should be deleted. Bob Herz introduced a new case to delete or update Section 744. He said the current ASTM referenced has been obsolete since 1988. He asked if anyone was still using ABS Truss Pipe. If not, then he suggested the deleting it entirely from MAG. If agencies are still using it, the spec would need to remove all references to ASTM D1788 and be made consistent with ASTM D2680 for ABS and PVC composite sewer piping. He asked members to check with their organization to see if it is still in use. Jim Badowich said if it is still used but not in the right-of-way it could go in the Outside ROW document.

14. Case 15-07: Revisions to Concrete Paver Standards for Non-Traveled Surfaces.

Make revisions to Detail 225 and Section 342. Warren White discussed a potential new case that would provide options for pavers that are in non-travel areas such as raised medians. The handout he provided included Chandler's detail as well as one from Glendale and language from the City of Phoenix supplement. He suggested modifying Section 342 and Detail 225. Tom Wilhite said it would be good to show the header where the pavers transition from paved to non-paved areas. Jim Badowich said they also have a supplement and saw no reason to have a concrete base under pavers in the median. Mr. White asked for thoughts on what to use instead. Half-sack slurry was a preferred material. Rod Ramos said Scottsdale has used a layer of asphalt that worked well. There was also discussion on the different sizes of bricks – 60mm and 80mm. The larger size typically is used for traffic areas. Mr. Ramos said private contractors often use silica sand.

Kristin Tytler asked what others cities have for bull nose requirements. Options discussed included stamped asphalt and monolithic bull noses. Seeing interest in the case, Mr. White decided to make it an official submission (Case 15-07).

15. Working Group Reports

Chair Wilhite asked for reports from the working group chairs.

a. **Water/Sewer Issues Working Group**
Jim Badowich said the group met Thursday, February 19, 2015 at 1:30 p.m. They looked at 600 series cases from last year and asked for feedback on them. The group also began looking at changes to Detail 200 suggested by Case 14-12. There was also discussion on lift requirements in Case 15-03 as previously discussed. The working group reviewed Section 602 as well as a proposed new Section 608 for Horizontal Directional Drilling (HDD). Mr. Wilhite asked if utility companies had been involved or reviewed the proposed HDD specification. Mr. Badowich said they had a representative from AZUCA attend, but that he also wanted to get feedback from utilities. Arvid Veidmark said he planned to present the draft supplement to the utility companies as soon as it was ready to be submitted as a case. Mr. Wilhite suggested getting their feedback prior to submitting it to the committee.

Mr. Badowich continued his report. He said they are reviewing Section 611 Testing and hope to update the flushing requirements. Jami Erickson said Phoenix is concerned about contractors using laundry bleach that may have additives or brands from the dollar stores that may be inappropriate for proper flushing. Jim Badowich agreed and said they also need to deal with dechlorination. He said there was also some discussion on reclaimed water issues. The next meeting is planned for March 19, 2015 at 1:30 p.m. at the MAG office.

b. **Asphalt/Materials Working Groups**
Jeff Benedict said the group met on Thursday, February 26, 2015 at noon at the ARPA office. He said due to having the meeting on the fourth Thursday, the report was provided during the meeting rather than in the packet. He said they are getting traction on Section 718 and will be taking comments and making revisions. The group worked with Bob Herz on the pavement removal revisions (Case 14-12), and support it. He said an update to the asphalt stamping case is also coming.

Jeff Benedict said the next meeting is planned for March 26, 2015 at noon at the ARPA office, and they do serve lunch.

c. **Concrete Working Group**
Jeff Hearne said the group continued discussing pervious concrete and had a couple representatives in attendance that had experience with it. He said the current plan is to use revised specifications from the California Greenbook as a guide to help develop basic installation (600) and material (700) specs for review at the next meeting. He mentioned some applications such as on-street parking and tree bases. The group also discussed concrete mix submittal requirements. Currently suppliers prepare yearly submittals to Phoenix of standard mixes. A sample report was shown at the meeting. Mr. Hearne said they are planning to create a list of what should be in the submittal, similar for what is shown for asphalt mixes. He also said he is looking for an expert in pervious concrete to give a presentation at a future committee meeting.

Tom Wilhite asked about drainage requirements of pervious concrete and how it affects the sub-base. Mr. Hearne responded that the design can be quite involved depending on its use and water drainage and/or underground reservoir. He added that maintenance should also be considered as part of the project. Peter Kandaris said this should be part of the design of the system. Mr. Wilhite asked if there were any details in the Greenbook. Jeff Hearne said no, but that he was willing to review potential details. He added that Scottsdale and Glendale have had experience with pervious concrete. Mark Ivanich said their park and ride lot has performed well. Mr. Hearne said their current thought was to create a more basic specification to get it started and then it could be further refined down the road. He said they would next meet after the other working groups on March 26.

16. General Discussion

Chair Wilhite reopened discussion on the issue brought up by Mr. Beckel regarding testing procedures for lime-treated AB. Jeff Benedict said the asphalt working group did not get any direction from the committee to focus on this issue. Rod Ramos said although the committee has been presented with a problem, typically they also would be looking for a solution. He asked if there was a proposed specification to present to the working group. Mr. Beckel said he wants to help get something together. He said other states such as Wisconsin have modified the

test procedure AASHTO requires by changing the acceptable water color. Greg Groneberg said there is no modified procedure in AASHTO. Rod Ramos asked how you can determine the "opaqueness" of the water using an objective method. Mark Ivanich asked if ADOT had a spec. They do not. Peter Kandaris said that testing labs need to be part of the discussion, and often they have representatives at the working group meetings.

Gordon Tyus said that John Gallagher from ASTM was going to be at the MAG offices March 12, 2015 at 11:30 a.m. Mr. Gallagher will provide more information on the ASTM Compass website, especially some of the new training options available. If anyone is interested in attending the meeting please contact Mr. Tyus.

Peter Kandaris announced that he is an officer for the GEO-Institute in Arizona. He said the group available to review geotech related issues. He also announced an upcoming meeting of the Geo-Institute, Arizona Chapter. The cost is only $15 for government employees and includes dinner. The guest speaker is Matthew Silveston. P.E., with Terracon's Charleston South Carolina office. He will be giving a presentation on drilled shaft foundation integrity testing using Thermal Integrity Test methods. The meeting is March 11, 2025 at 6:15 at Macayo's Restaurant, 300 S. Ash Avenue, Tempe. Please contact Mr. Kandaris for more information.

17. Future Agenda Items:

None were suggested.

18. Adjournment:

Seeing no further business the meeting was adjourned at 3:21 p.m.

2015 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=7154)

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
	CARRY FORWARD CASES FROM 2014						
14-03	Case 14-03: Updates to Guardrail Details. Revisions to Section 415 and/or inclusion of MCDOT guardrail details.	MCDOT	Bob Herz	01/08/2014		0 0 0	Yes No Abstain
14-06	Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete.	Asphalt WG	Jeff Benedict	02/05/2014		0 0 0	Yes No Abstain
14-12	Case 14-12: Proposed revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200. Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.	MCDOT	Bob Herz	06/04/2014 03/04/2015		0 0 0	Yes No Abstain
14-17	Case 14-17: Create New Section 322 Asphalt Stamping. Provide specifications for materials and methods.	Materials WG	Brian Gallimore	07/09/2014		0 0 0	Yes No Abstain
	NEW CASES FOR 2015						
15-01	**Case 15-01: Miscellaneous Corrections:** A. Add omitted text to Section 735.1. Text was approved by Case 14-07 and merged into Case 13-15. Both cases were approved in 2014. B. Revise "OA" to Quality Assurance and "OC" to Quality Control in Section 710. C. Update notes in Detail 225.	MCDOT	Bob Herz	02/05/2014 03/04/2015		0 0 0	Yes No Abstain
15-02	Case 15-02: Adjust Fence Requirements to Reference ASTM F1043. Revise Section 772, Table 771-1 and Detail 145.	MCDOT	Bob Herz	01/07/2015	03/04/2015	15 0 1	Yes No Abstain
15-03	Case 15-03: Revise Section 601.4.5 trench final backfill placement requirements.	MCDOT	Bob Herz	02/04/2015 03/26/2015		0 0 0	Yes No Abstain

2015 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

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CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
15-04	Case 15-04: Revise Section 602 Trenchless Installation of Steel Casing. Update ASTM references for casing material and add minimum casing wall thickness.	Water/Sewer WG	Arvid Veidmark	02/04/2015 02/24/2015	04/08/2015	0 0 0	Yes No Abstain
15-05	Case 15-05: Proposed Revisions to Section 616 Reclaimed Water Line Construction and NEW Reclaimed Valve Box detail.	Chandler	Warren White	03/04/2015		0 0 0	Yes No Abstain
15-06	Case 15-06: Delete or Update Section 744 ABS TRUSS PIPE AND FITTINGS.	MCDOT	Bob Herz	03/04/2015		0 0 0	Yes No Abstain
15-07	Case 15-07: Revisions to Concrete Paver Standards for Non-Traveled Surfaces.	Chandler	Warren White	03/04/2015		0 0 0	Yes No Abstain
15-08	Case 15-08: Revisions to clarify Table 710-4 to eliminate misinterpretation of Criteria 8.	MCDOT	Bob Herz	04/08/2015		0 0 0	Yes No Abstain

PRESERVATIVE SEAL ~~and~~AND SEALCOATING FOR ASPHALT CONCRETE

718.1 GENERAL

Asphalt Concrete preservative seal shall be one of the following types or equal, with typical application rates. Sealcoating material shall meet the requirements of section 718.3

TYPE A - Asphalt rejuvenating agent shall be an emulsion composed of a petroleum resin oil base uniformly emulsified with water. Each supplier must submit a certified statement from the asphalt rejuvenator manufacturer showing that the asphalt rejuvenating emulsion conforms to the required physical and chemical requirements. They also must provide documentation of tests that determine the acceptable range of application of the product. Typical application rates are0 .07 to-0.18 gallons per square yard.

TYPE B - Petroleum Hydrocarbon emulsion. Applied at .05 to .20 gallons per square yard, diluted.

TYPE C - Tire modified surface sealer (TRMSS) or equal not diluted, and applied at a rate of .10 to .20 gallons per square yard.

TYPE D - Acrylic polymer modified emulsion. Diluted to the manufacture's recommendation and applied at a rate of .08 to .20 gallons per square yard.

TYPE E - Polymer, modified rejuvenating emulsion. (PMRE) Diluted to the manufacture's recommendation and applied at a rate of .08 to .20 gallons per square yard.

718.2 TEST METHODS AND REQUIREMENTS PRESERVATIVE SEAL

Preservative seal for asphalt concrete material, shall meet type A, B, C, D or E on Table 718-1 by certification from the manufacturer.

Tests shall be performed by AMRL accredited laboratory, accredited in the specified test being performed.

TABLE 718-1

PRESERVATIVE SEAL SPECIFICATIONS

Properties * (note 2)	Method	Type-A	Type-B	Type-C	Type-D	Type-E
Saybolt Viscosity @77°F (sfs)	ASTM D7496-08	15-40	25-150	45-75 (KU)[1]	15-40	50-150
Sieve test %	ASTM D6933-08	0.1 max	0.1 max	0.1 max	0.1 max	0.1 max
Storage Stability, 24 hours, %	ASTM 6930-10					1.0 max
Settlement test, 5 days, %	ASTM D6930-10		2.0 max		5.0 max	
Test on residue by:		**ASTM D92 Evaporation To** 138°C	**ASTM D92 Evaporation To** 138°C	**ASTM D92 Evaporation To** 138°C	**ASTM D92 Evaporation To** 138°C	**AASHTO T59 Distillation To** 350°F
Residue Content, %	AASHTO T59	60 min	62 min	30 min	53 min	65 min
Oil Distillate, % by volume	AASHTO T59					0.5 max
Flash point [2] °F	ASTM T48	400°F	450°F	450°F	450°F	

Softening point, °F	ASTM D36M-09			140 min.	130 min	
Viscosity [3], 60C, Poise	ASTM D445					5000 max
Elastic Recovery [4], 10C, %	ASTM D6084					50 min
Ductility, 25C, 5 cm/min, cm	ASTM D113-07			.	20 min	
Penetration, 25C, 100g/5 sec, dmm	ASTM D5				20-80	
Penetration, 4C, 200g/60 sec, dmm	ASTM D5					20-70
Kinematic Viscosity, 140°F, cSt	ASTM D445	100-200	1,000-9,500			
Accelerated Weathering test [5]	ASTM D4799				Plant certification within 12 months	
Test on		Evaporative Residue	Evaporative Residue			Rejuvenating Agent Base
Asphaltenes, % w	ASTM D2006	1.0 max	10.0 Max.			1.0 max
Maltene Dist. Ratio $(PC+A_1)/(A_2+S)$	ASTM D2006	0.3-0.6	0.2-1.4			
PC/S Ratio[45] (Note 4)	ASTM D2006	0.5 min	0.5 min.			
Saturated Hydrocarbons,S[5(note 4)]	ASTM D2006	28 max	28 max.			30 max
Kinematic Viscosity, 140°F, cSt	ASTM D445					50-175
Flash point °F	ASTM D92					375 min
Test on residue from RTFO:	ASTM D2872					Rejuvenating Agent Base
Mass Change, %,	AASHTO T240					6.5 max
Kinematic Viscosity, 140°F, cSt	ASTM D445					Report
Kinematic Viscosity, Ratio [6]						3.0 max

Notes:
1. Kreb units (ASTM D562)
2. Flash point on residue may be waived by the engineer during production sampling and testing provided manufacturer submits results performed in the previous 12 months in compliance.

3. Viscosity in poise may be determined using AASHTO T315 by converting the Complex Dynamic Shear Viscosity to Viscosity in poise.
4. Elastic Recovery molds shall have straight sides as shown in Fig. 1 of AASHTO T301
5. Other Accelerated Weathering test procedures may be presented for acceptance by the engineer prior to project start. These results shall be provided at no additional cost to the agency.
6. Kinematic Viscosity Ratio will be determined by dividing the viscosity of the material after RTFO aging by the original viscosity.
A full set of tests shall be performed by as specified by the special provisions in the undiluted condition. These tests and any other specified will be performed at the contractor's expense.
Only residue by evaporation shall be run on diluted samples. Specification limits should be diluted rate times minimum residual value of concentrate.

718.3 TEST METHODS AND REQUIREMENTS SEALCOATING

Sealcoating material for asphalt concrete pavement, shall be a concentrate product "ready to use" from the manufacturer. No product dilution will be allowed at the project site during application. Sealcoating shall consist of two applications across full width of pavement surface. Edge application treatment shall also be two separate coats. Each applied coat shall be at the following application rates. First coat shall be applied at a minimum application rate of 0.20 gallons per square yard, followed by a second coat applied at a minimum rate of 0.16 gallons per square yard.
Material, applied as sealcoating, shall meet the requirements on table 718-2 by certification from the manufacturer.

Tests shall be performed by AMRL accredited laboratory, accredited in the specified test being performed.

TABLE 718-2

SEALCOATING SPECIFICATIONS

Properties * (note 2)	Method	Specification
Weight per Gallon, 25C, lbs/gal	ASTM D~~2939.07~~6937	10.5 min
Residue Content by Evaporation, %	ASTM D2939.08	50 min
Asphalt Content by Weight, %	ASTM D2939.21	17 min
Wet Track Abrasion Test [1], 1 hour, grams/sq. ft.	ASTM 3910	15 max
Wet Track Abrasion Test [1], 6 day, grams/sq. ft.	ASTM D3910	15 max

Notes
1. Wet track abrasion patties shall be produced by two applications of sealcoat material dried to constant weight between each coat.

- End of Section -

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: June 4, 2014 Revised 2015-03-04

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1 **Case 14-12**

PURPOSE: Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.

REVISIONS:

1. Identified location restrictions for full depth longitudinal joints for asphalt pavement widening and for asphalt pavement trench repairs.

2. Defined vertically staggered joint as an alternative for full depth sawed joint.

3. Added pavement removal requirements when replacing existing curb or gutter.

4. Added requirement for asphalt pavement edge replacement to have a safety edge or thickened edge constructed per Detail 201 except when the asphalt edge abuts a concrete curb or gutter.

5. Trenching into portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels. Type C Trench Repair in Detail 200-1 is to be deleted.

6. Adjusted the default pay width for surface replacement to be the maximum trench width at top of pipe greater than O.D. of the pipe barrel as shown in Table 601-1.

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SECTION 336

PAVEMENT MATCHING AND SURFACING REPLACEMENT

336.1 DESCRIPTION:

This specification identifies requirements for removing and replacing or widening ~~Street and alley~~ pavement and replacing other surfacings within ~~the Contracting Agency's~~ public rights-of-way~~, removed by construction activities or to be widened or matched in connection with the improvement of Public Works, shall be placed as shown on the plans and applicable standard details, in accordance with this specification and/or the special provisions.~~

Asphalt concrete roadway ~~pavement replacement~~ trench repairs shall be constructed in accordance with Type A, B, or T-Top Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Trench repairs for unpaved alleys, roadways, and designated future roadway prism shall be constructed in accordance with Type E Trench Repair of Standard Detail 200-1.

Trenching into ~~P~~portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels unless an alternative repair is required by contract documents or is authorized in writing by the Engineer. ~~replacement shall be in accordance with Type C of the Standard Detail 200-1 and as required by Section 324.~~

~~All other s~~Surface replacement in the right-of-way ~~but~~ not in paved roadways shall be constructed in accordance with Type D Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Temporary pavement replacement shall be constructed as required herein.

Asphalt p~~P~~avements to be matched by construction of new pavements adjacent to or at the ends of a project shall be milled or saw cut in accordance with these specifications and where shown on the plans.

Pavement and surfacing replacement within ADOT rights-of-way shall be constructed in accordance with their permits and/or specification requirements.

336.2 MATERIALS AND CONSTRUCTION METHODS:

Materials and construction methods used in the replacement of pavement and surfacing shall conform to the requirements of all applicable standard details and specifications, latest revisions.

336.2.1 Pavement Widening or Extensions: Existing pavements which are to be matched by pavement widening or pavement extension shall be trimmed to a neat true line with straight vertical edges free from irregularities with a device specifically designed for this purpose. ~~The minimum depth of cut shall be 1 ½ inches or D/4, whichever is greater.~~

~~The e~~Existing asphalt pavement shall be cut and trimmed after placement of required ABC and just prior to placement of asphalt concrete for pavement widening or extension, and the trimmed edges shall ~~be~~ have ~~painted with a light coating of asphalt cement or emulsified asphalt~~ tack coat applied to the vertical edges immediately prior to constructing the new abutting asphalt concrete pavement~~s~~. No extra payment shall be provided for these items and all costs incurred in performing this work shall be incidental to the pavement widening or ~~pavement~~ extension.

The location of longitudinal match points shall depend on the type of asphalt joint being constructed (full depth or staggered) and the location of the pavement lane striping to be in place at completion of construction. Full depth longitudinal joints shall be located within one foot of a post construction lane line stripe or within the center two feet of a post construction travel lane. The location restriction for full depth longitudinal joints does not apply to multi-layer pavements when a vertically staggered joint with the existing pavement is constructed. An acceptable vertically staggered joint must have a minimum six-inch horizontal offset with the nearest joint in the underlying asphalt layer. A vertically staggered joint may be obtained by edge milling to a depth that meets the minimum lift thickness identified in section 710 for the asphalt surface course to be placed.

The exact point of matching, termination, and overlay may be adjusted in the field~~, if necessary,~~ by the Engineer or designated representative.

Comment [RTH1]: This change impacts Detail 200-1 Type C Trench Repair – Modification / Required.

Comment [RTH2]: The asphalt match point shown in Detail 200-1 Type A Trench Repair needs to be revised to comply with this paragraph. See Scottsdale Detail 2200 for a suggested staggered joint modification.

336.2.2 Pavement to be Removed: Existing asphalt pavement to be removed for trenches or for other underground construction or repairs shall be cut by a device capable of making a neat, straight and smooth cut without damaging adjacent pavement that is not to be removed. The Engineer's decision as to the acceptability of the cutting device and manner of operation shall be final.

Comment [RTH3]: This section will need to be modified to require staged removal of asphalt pavement for trenches similar to Scottsdale Detail 2200. Detail 2200 provides for re-compaction of the non-confined base course adjacent to the open trench.

In lieu of cutting trenches across driveways, curbs and gutters, sidewalks, alley entrances, and other types of pavement and then backfilling with CLSM~~s~~, the Contractor may, when approved by the Engineer, elect to tunnel or bore under such structures and pavements.

When installations are within the street pavement and essentially parallel to the center line of the street, the Contractor, with approval of the Engineer, may elect to bore or tunnel all or a portion of the installation. In such installations, the seal coat requirements, as discussed in Section 336.2.4, will be modified as follows:

(A) If the pavement cuts (bore pits, recovery pits, etc.) are 300 feet or more apart, the bore or tunneled distance will not be considered as part of the open trench and the seal coat ~~may~~ will not be required.

(B) If the pavement cuts (bore pits, recovery pits, etc.) are less than 300 feet apart, the distance between the cuts will be considered the same as a trench cut and the distance will be added to any trench cut distances.

Pavement removal limits when replacing existing curb or gutter shall be as follows. For curb or gutter replacement adjacent to a designated bike lane or paved shoulder area wider than three feet, the asphalt pavement removal and replacement shall extend to within 6 inches of the travel lane edge stripe. For curb or gutter replacement when no travel lane edge stripe exists, the asphalt pavement match point shall extend two feet or less from the pavement edge into the vehicle travel lane.

Asphalt pavement damaged by the Contractor during trenching or other activities shall be removed after adjacent aggregate base has been placed and compacted and prior to placement of the adjacent permanent pavement. The replacement of the damage asphalt pavement shall occur at the same time as the permanent pavement replacement is constructed.

336.2.3 Temporary Pavement Replacement: Temporary pavement replacement, as required in Section 601, may be with cold-mix asphalt concrete, with a minimum thickness of 2 inches, using aggregate grading in accordance with Marshall mix design of Section 710. Permanent pavement replacement shall replace temporary repairs within 5 working days after completion of temporary work.

Temporary pavement replacement shall be used in lieu of immediate placement of single course permanent replacement or the first course of two course pavement replacement only on transverse lines such as spur connections to inlets, driveways, road crossings, etc., when required by the Engineer, by utilities or others who subcontract their permanent pavement replacement, under special prior arrangement; or for emergency conditions where it may be required by the Engineer. Temporary pavement replacement shall be placed during the same shift in which the backfill to be covered is completed.

Rolling of the temporary pavement replacement shall conform to the following:

(A) Initial or breakdown rolling shall be followed by rolling with a pneumatic-tired roller. Final compaction and finish rolling shall be done by means of a tandem power roller.

(B) On small areas or where equipment specified above is not available or is impractical, the Engineer will approve the use of small vibrating rollers or vibrating plate type compactors provided comparable compaction is obtained.

The surface of the temporary pavement shall be finished ~~off~~ flush with the adjacent pavement.

336.2.4 Permanent Pavement Replacement and Adjustments:

336.2.4.1 Permanent Asphalt Pavement Replacement: All asphalt pavement replacement shall match gradation and thickness of the existing pavement. Immediately preceding the placement of permanent pavement the density of the base material shall comply with requirements of Table 601-2. Asphalt concrete p~~P~~avement ~~replacement~~ shall be compacted to the same density specified ~~for asphalt concrete pavements~~ in Section 321. The compacted thickness of all courses shall conform to the recommended thicknesses ~~requirements~~ of Table 710-1.

Unless otherwise noted, asphalt concrete pavement replacement shall comply with the following:

(A) Single course pavement replacement shall consist of a 1/2" or 3/4" mix in accordance with Section 710.

(B) The base course(s) of a multi-course pavement replacement shall consist of a 3/4" mix in accordance with Section 710.

(C) The surface course of a multi-course pavement replacement shall consist of a 3/8" or 1/2" mix in accordance with Section 710 to match the existing surface.

(D) Where the base course is to be placed with non-compactive equipment, it shall be immediately rolled with a pneumatic-tired roller.

(E) Pavement replacement over trenches w~~W~~here the pavement replacement width ~~trench~~ is 6 feet or more ~~in width~~, all courses shall be placed with self-propelled spreading and compacting equipment. When the pavement replacement width ~~trench~~ is from 6 to 8 feet ~~in width~~, self-propelled spreading and compacting equipment shall not be wider than 8 feet.

(F) Placement of the surface course is to be by means which will result in a surface flush with the existing pavement. The pavement replacement surface shall not vary more than 1/4 inch from the lower edge of a straightedge placed across the replacement pavement surface between edges of the existing matched surfaces. When the pavement replacement includes replacement of the roadway crown, the surface smoothness shall comply with requirements of Section 321.

(G) Pavement replacement extending to the edge of asphalt pavement not abutting a concrete curb or gutter shall have a safety edge or thickened edge constructed per Detail 201 as deemed appropriate by the local jurisdiction.

~~The t~~Trench backfill ~~must be compacted to its required density, and required ABC must~~ shall be in place and compacted to the density required in Table 601-2 prior to the placement of the asphalt concrete structural section or other surfacing.

Laying a single course or the base course~~(s)~~ of the asphalt concrete pavement replacement for trenches shall never be more than 600 feet behind the ABC placement for the pavement replacement.

For trench cuts, pavement widening, or other partial pavement installations greater than 300 feet in length the entire area shall ~~then~~ be slurry seal coated in accordance with Section 332 or as otherwise specified. The~~is~~ seal coat shall extend from the edge of pavement or lip of gutter to the street centerline except that on residential streets less than 36 feet face to face of curb ~~or~~ and where the pavement patch straddles the centerline, the entire width of street shall be seal coated.

In lieu of placing the seal coat as required previously, and with approval of the ~~Contracting Agency~~local jurisdiction, the Contractor may deposit with the Street Maintenance Department ~~Contracting Agency~~ for credit ~~to the Street Maintenance Department~~, a negotiated agreed upon amount. The Street Maintenance Department will incorporate this work into their street maintenance program.

336.2.4.2 Adjustments: When new or existing manholes, valves, survey monuments, clean outs, etc. fall within the limits of the permanent pavement replacement as discussed in this Section, the Contractor shall be responsible for adjusting the various items to the new pavement surface or as directed by the Engineer. ~~This will include but not be limited to slurry and chip seals.~~

The Contractor will coordinate with the Engineer and with representatives of the various utilities regarding the adjustment and inspection of the work. The Contractor shall be responsible for obtaining and complying with all specifications, special requirements, details, etc. of the Utility Company regarding the adjustments. When adjusting the Agency's utilities, survey monuments, etc., the adjustment will comply with these Specifications and Details.

The work will be done in compliance with OSHA standards and regulations regarding confined space entry. The Contractor shall remove all material attached to the lids and/or covers including that of prior work. The method of removal shall be approved by the Engineer and/or the Utility Representative.

336.3 TYPES AND LOCATIONS OF ~~PAVEMENT AND~~TRENCH SURFAC~~E~~ING REPLACEMENT:

Comment [RTH4]: MCDOT requires a the Safety Edge be installed on all roads having a design speed of 40 mph or greater and a Type B thickened edge at other locations.

Longitudinal edge replacement shall construct a Safety Edge per Detail 201 for all roadways with a posted speed of 35 mph or greater. Longitudinal edge replacement for roads with a posted speed below 35 mph and for narrow transverse trench repairs the edge replacement construction shall be Type B per Detail 201.

Comment [RTH5]: This paragraph needs to be coordinated with Section 601.2.10. The 600' distance conflicts with the 1320' of open trench allowed in Section 601.2.10. Section 601.2.10 does not address when pavement replacement needs to occur.

SECTION 336

~~Normally, the t~~Type of ~~pavement~~ surface replacement ~~and backfill~~ required for trenches shall ~~will~~ be as noted on the plans or special provisions ~~specified in other portions of the contract documents~~ and construction ~~will~~ shall be in accordance with Detail 200-1 and 200-2. The surface replacement limits for asphalt concrete pavement may vary from Detail 200-1 for full depth longitudinal pavement cuts. If a trench repair type is not noted on the plans or specified in the special provisions, the following criteria will govern:

Type A trench repair will be used for ~~utilized on~~ all asphalt concrete paved streets where the excavation is essentially longitudinal or parallel to traffic. The pavement match point location will depend on the type of asphalt joint being constructed. Full depth longitudinal joints shall not be located within forty-eight inches (48") of an asphalt pavement edge or within a lane wheel path. The lane wheel path for a traffic lane is the entire lane width except the area within one foot of a traffic lane line stripe and except the center two feet of the lane. The lane wheel path for a designated bike lane is the entire lane width except the area within six inches (6") of a bike lane edge stripe. When the surface match point for a full depth joint is located within 48" of an asphalt pavement edge, all asphalt surfacing shall be removed to the asphalt edge, the replacement surfacing shall extend to the asphalt edge. When concrete curb and gutter exist adjacent to asphalt pavement, the lip of gutter shall be considered an edge of the asphalt pavement. The location restrictions for full depth longitudinal joints will not apply for two course asphalt concrete pavement replacement when surface milling is used to create at least a six-inch horizontal offset between the matching joint of the surface course and the joint in the underlying asphalt layer. The depth of the asphalt surface course shall be equal to or greater than the minimum thickness recommended in Table 710-1.

T-Top trench repair will be utilized on all streets where the excavation is essentially transverse or not parallel to traffic, including trenches that go through an intersection.

Type B trench repair ~~may~~ shall only be used ~~to repair transverse trenches if~~ when specified by the local jurisdiction~~Agency~~.

~~Type C trench repair will be used to repair existing Portland cement concrete pavement.~~

Type D trench repair will be utilized to repair surfaces other than asphalt concrete or ~~P~~portland cement concrete pavement. ~~When a trench cut is in aggregate surfaced area, t~~The surface~~ing~~ replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601. Type D trench repair~~It~~ may ~~also~~ be used when the condition of the existing pavement does not justify construction of Type A, Type B or T-Top trench repair~~.~~ with ~~P~~prior written approval of the Engineer ~~is required for this condition.~~

Where a longitudinal trench is partly in pavement, the pavement ~~-~~shall be replaced to a neat straight line located at the outside limits ~~edge~~ of the existing pavement~~, on a straight line~~

~~Where asphalt pavement replacement extends to an uncurbed asphalt edge, the agency designated edge treatment, as indicated on the plans~~ shown in Detail 201~~.~~ (Type A, Type B, or Safety Edge) shall be installed.~~Measurements for payment shall be from the inner limit of pay width allowed below, to the outside edge of the existing pavement as defined herein.~~

Where ~~no part of~~ a trench is in a landscaped or graded area outside of pavement, no special surface~~ing~~ treatment is required except ~~replacement will only be~~ as indicated by plans or specifications~~specified where existing surfacing materials have been removed~~.

~~When a trench cut is in aggregate surfaced area, the surfacing replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601.~~

336.4 MEASUREMENT:

Measurement for payment and surface~~ing~~ replacement shall be by the square yard, based ~~up~~on actual field measurement ~~-~~of the area covered except as noted below.

(A) In computing pay quantities for surface replacement of Types B and E trench repair, the default pay widths will be based on the ~~actual field measured width; however the boundaries of the measurement will not extend further than ½ the distance, either side, from the centerline of the pipe as depicted on~~dimension calculated from Table 601-1~~,~~ for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". The pay width for Type B longitudinal trench repair will be adjusted to the field width required

Comment [RTH6]: The asphalt match point shown in Detail 200-1 Type A Trench Repair needs to be revised to comply with this paragraph.

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Comment [RTH7]: Review revised wording.

Comment [RTH8]: Add uncurbed edge treatment requirement – per the edge requirement designated by the permitting agency shown on Detail 200.

Comment [RTH9]: Delete or modify Type C Trench Repair from Detail 200-1. The Joint system in PCCP should be maintained and not arbitrarily changed as indicated in Sections 324.3.5 and 324.3.9. Section 340.3.10 requires replacement from joint to joint.

Comment [RTH10]: Suggest this sentence be deleted. Type D trench repair is not for asphalt pavement.

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when the default surface match point is relocated to the edge of the asphalt pavement or is adjusted to be outside of a wheel path.

(B) In computing pay quantities for a single lift asphalt replacement of a ~~Types~~ T-Top or~~,~~ Type A ~~, C and D~~ trench repair, ~~pay~~ the default width~~s~~ will be based on the dimension calculated from ~~actual field measured width, however the boundaries of the measurement will not extend further than ½ the distance plus 12 inches, either side, from the centerline of the pipe as depicted on~~ Table 601-1~~,~~ for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel" plus 24 inches. The pay width for Type A trench repair will be adjusted to the field width required when the surface match point is relocated to the edge of the asphalt pavement or is adjusted to be outside of a wheel path. In all cases, the minimum pay width for a single lift ~~replacement Types~~ T-Top~~,~~ or Type A ~~and D~~ surface replacement shall be 48 inches.

In computing pay quantities for a multiple lift surface replacement for T-Top and Type A trench repair, the pay widths will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel" plus an additional 30 inches. In all cases, the minimum pay width for a multiple lift T-Top or Type A surface replacement shall be 48 inches.

(C) In computing pay quantities of surface replacement for Type D trench repair, pay widths will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". In all cases, the minimum pay width for Type D surface replacement shall be 48 inches.

(~~C~~D) Where a longitudinal trench is partly in asphalt pavement, ~~computations of~~ pay quantities shall ~~be based on~~not exceed ~~the~~actual pavement replacement quantities. The measurement shall be the area as allowed for the respective Type A or Type B trench repair limited to that portion located within the existing pavement. ~~limitations specified above.~~The minimum 48 inch pay width for the Type A pavement replacement does not apply when the trench is partially in pavement.

(~~D~~E) The length of pavement and surfacing replacement shall be measured through any manhole, valve box, or other structure constructed in the pipe line, and any pavement or surface replacement and/or seal treatment in excess of the above pay widths shall be considered and included in the bid item for such structure.

(~~E~~F) Any pavement replacement in excess of the specified pay widths necessitated by the installation of valves, tapping sleeves and valves, valve by-passes, and concrete thrust blocks shall be included in the bid price for these items.

(~~F~~G) ~~When special provisions allow deviations from the trench widths specified in Section 601, the above allowed pay widths for pavement replacement may be altered where so specified.~~

~~(G)~~ Measurement of pavement and surfacing replacement shall be made along the finished surface excluding any extra pavement replacement required due to Contractor damage. ~~of the ground to the nearest foot, and~~ The measured quantity shall be computed to the nearest square yard.

336.5 PAYMENT:

Direct payment for pavement or other surface~~ing~~ replacement will be made for replacement over all pipe trench cuts except as otherwise ~~allowed~~ noted in the special provisions. Payment for surface replacement~~s~~ over other work shall be included in the cost of constructing that work~~, in accordance with the applicable standard details and specifications~~.

Payment for temporary pavement replacement shall be included in the cost of the pipe.

Payment for pavement replacement shall include the replacement cost of any existing pavement markings that have been degraded, obscured, obliterated or removed ~~by underground trench construction or repairs~~.

When a Contractor has the option of jacking and/or boring or open cut construction, and elects to construct a pipeline by the jacking and/or boring method, ~~he~~ the Contractor will be paid for the replacement of such items of work as pavement, curb and gutter, sidewalk, driveway, and alley entrances, as allowed for open cut construction.

- End of Section -

Section 601.2.7 Last Revised 2/19/2015

601.2.7 Pavement and Concrete Cutting and Removal: Where trenchless methods are not used and trenches or other excavations lie within the portland cement concrete section of streets, alleys, driveways, or sidewalks, etc., such concrete shall be completely removed between the closest adjacent joints. ~~sawcut to~~ Removal methods shall produce neat, straight~~vertical,~~ ~~true~~ lines in such a manner that the remaining adjoining ~~surface~~ concrete will not be damaged. ~~The minimum depth of cut shall be 1 ½ inches or 1/4 of the thickness, whichever is greater.~~

Sidewalk, curb, gutter, and other concrete flatwork shall have complete joint to joint replacement of all damaged sections. The construction replacing damaged concrete sections and joints shall be compliant with Section 340.

The existing joint system in portland cement concrete pavement (PCCP) shall be maintained. Reconstruction of PCCP panels and joints shall be in accordance with Section 324.

Asphalt pavement shall be clean-cut, with approved equipment and by approved methods in accordance with the requirements of Section 336.

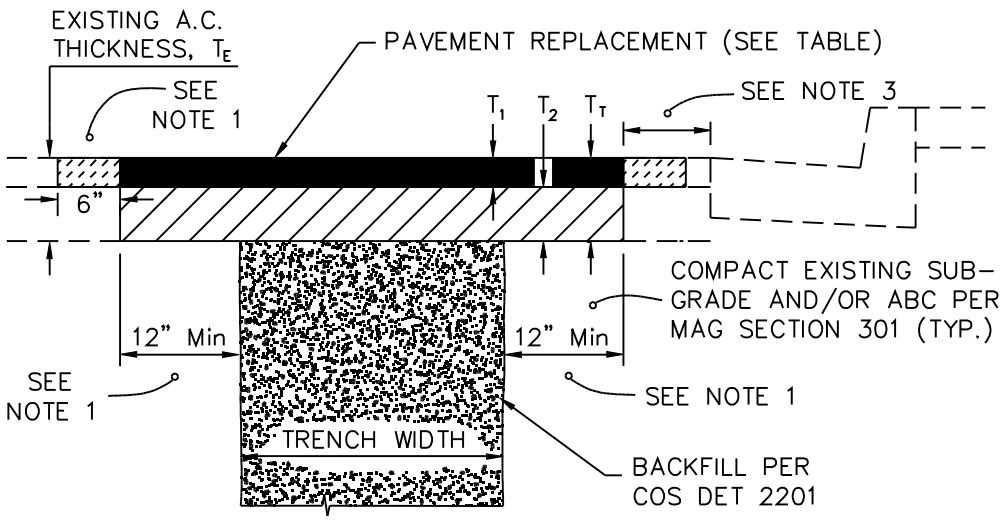
No ripping or rooting will be permitted outside limits of cuts. Surfacing materials removed shall be hauled from the job site immediately, and will not be permitted in the backfill.

Section 601.2.10 Last Revised 3/19/2015

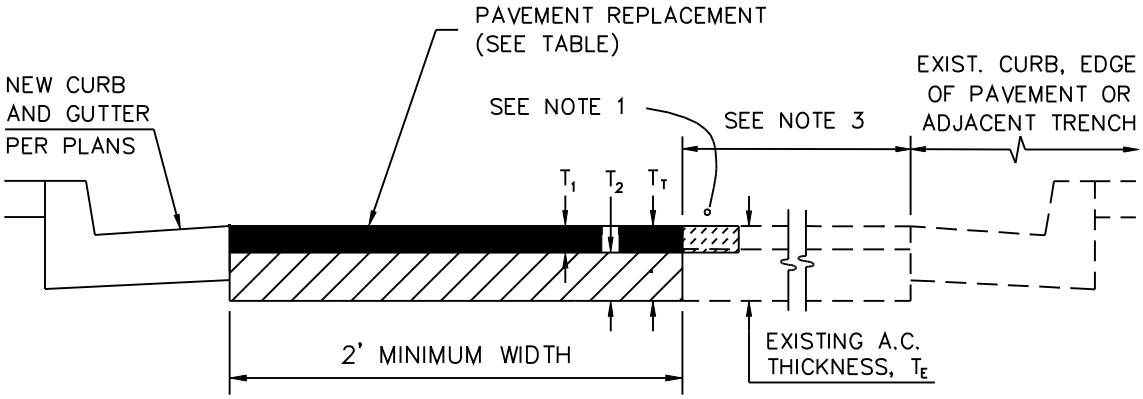
601.2.10 Open Trench: Except where otherwise noted in the special provisions, or approved in writing by the Engineer, the maximum length of open trench, where the construction is in any stage of completion (excavation, pipe laying or backfilling), shall not exceed 1320 feet in the aggregate at any one location.

Any excavated area shall be considered open trench until all ABC for pavement replacement has been placed and compacted. With the approval of the Engineer, pipe laying may be carried on at more than one location, the restrictions on open trench applying to each location. Trenches across streets shall be completely backfilled as soon as possible after pipe laying.

Substantial steel plates with adequate trench bracing shall be used to bridge across trenches at street crossings where trench backfill and temporary patches have not been completed during regular work hours. Steel plates shall be installed in accordance with Detail 211. Safe and convenient passage for pedestrians shall be provided. The Engineer may designate a passage to be provided at any point he deems necessary. Access to hospitals, fire stations and fire hydrants ~~must~~ shall be maintained at all times. Steel plates with adequate trench bracing shall be used to bridge across trenches as needed to provide driveway access to adjacent properties where trench backfill and temporary patches have not been completed during regular work hours.



PAVEMENT REPLACEMENT FOR TRENCHES (T-TOP)



PAVEMENT REPLACEMENT

EXISTING PAVEMENT THICKNESS, T_E	AC PAVEMENT REPLACEMENT TABLE		
	AC SINGLE COURSE OR SURFACE COURSE, T_1	AC BASE COURSE, T_2	TOTAL THICKNESS, T_T
$T_E \leq 3"$	3" MINIMUM	NONE	3" MINIMUM
$T_E > 3"$	2" MINIMUM	2" MINIMUM	T_E (MATCH EXIST)

PAVEMENT REPLACEMENT NOTES

1. "T"-TOP REQUIRED FOR ALL TRENCHES. A.C. SURFACE COURSE REPLACEMENT TO BE MILLED DOUBLE "T" CONFIGURATION AS SPECIFIED BELOW FOR PAVEMENTS 4" AND THICKER.
   a. FOR PAVEMENT 4 YEARS AND OLDER: INITIAL A.C. REMOVAL TO BE THE MINIMUM WIDTH REQUIRED FOR PROPER TRENCH COMPACTION. SAWCUT & REMOVE 12" OF A.C. MINIMUM ON EACH SIDE OF THE TRENCH FOR THE "T"-TOP AFTER THE BACKFILL MATERIAL IS PLACED. PAVEMENTS 4" AND THICKER, MILL AND REMOVE THE TOP 2" OF THE SURFACE COURSE A MINIMUM OF 6" ON EACH SIDE OF THE T-TOP PRIOR TO PLACEMENT OF THE FINAL SURFACE COURSE LIFT.
   b. FOR NEW AND OVERLAYED PAVEMENT LESS THAN 4 YEARS OLD AND WHEN ALLOWED UNDER THE PROVISIONS OF SCOTTSDALE REVISED CODE SECTIONS 47-79 AND ALL PAVEMENTS WITH RUBBERIZED SURFACE COURSES: INITIAL A.C. REMOVAL TO BE THE MINIMUM WIDTH REQUIRED FOR PROPER TRENCH COMPACTION. SAWCUT & REMOVE 12" OF A.C. MINIMUM ON EACH SIDE OF THE TRENCH FOR THE "T"-TOP AFTER THE BACKFILL MATERIAL IS PLACED. PAVEMENTS 4" AND THICKER, MILL AND REMOVE THE TOP 2" OF THE SURFACE COURSE EQUALLY ON BOTH SIDES OF THE TRENCH TO A MINIMUM TOTAL WIDTH OF 10 FEET. FOR PAVEMENTS LESS THAN 4" THICK SAWCUT, REMOVE AND REPLACE THE ENTIRE PAVEMENT SURFACE TO A MINIMUM TOTAL WIDTH OF 10 FEET, AS DIRECTED BY THE ENGINEER.
   c. FOR DEEP PAVEMENT STRUCTURES REQUIRING TWO OR MORE PAVEMENT BASE LIFTS: INITIAL A.C. REMOVAL TO BE THE MINIMUM WIDTH REQUIRED FOR PROPER TRENCH COMPACTION. SAWCUT, REMOVE AND REPLACE A.C. ON BOTH SIDES OF THE TRENCH AS NECESSARY TO ACCOMODATE A RIDE ON TYPE VIBRATORY ROLLER COMPACTOR FOR PLACEMENT OF THE A.C. BASE COURSE LIFTS, MATCH EXISTING A.C. DEPTH. MILL AND REMOVE THE TOP 2" OF THE SURFACE COURSE EQUALLY ON BOTH SIDES OF THE TRENCH TO A MINIMUM TOTAL WIDTH OF 10 FEET.
2. ASPHALT CONCRETE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF MAG SECTION 321.
3. IF PAVEMENT REMNANT IS LESS THAN 36", REMOVE AND REPLACE PAVEMENT AS PER THIS DETAIL.
4. AGGREGATE BASE COURSE PER MAG SECTION 702 SHALL BE PROVIDED TO MATCH EXISTING ABC THICKNESS IN ADJACENT ROADWAY.
5. REFER TO COS SUPPLEMENTAL SPECIFICATIONS, SECTION 336.2.4 FOR PAVEMENT SMOOTHNESS REQUIREMENTS.

REVISED 7/15/03

DETAIL NO. 2200	City of Scottsdale Standard Details	APPROVED BY: Scottsdale Standards & Specifications Committee	PAVEMENT REPLACEMENT	DETAIL NO. 2200

SECTION 322
ASPHALT STAMPING

322.1 DESCRIPTION:

The work under this item will provide stamped asphalt which shall include surface patterning and/or asphalt surfacing (painting) as described herein in accordance with Owners Standard Details and/or as shown on the plans and called out in the special provisions.

322.2 GENERAL REQUIREMENTS:

A Contractor shall meet the following qualifications in order to perform asphalt stamping:

The Contractor shall have completed a minimum of three (3) asphalt stamping projects in the past year (from the date of bid) in the State of Arizona and totaling at least 50,000 S.F. The Contractor shall furnish evidence of meeting these experience requirements to the Engineer. Mock ups may be required at the owner's discretion to ensure Contractor familiarity with product and installation procedures. Acceptance of colors and application procedures should be accepted in writing from the agency/owner prior to commencement of work.

The Contractor shall submit for review and approval all manufacturer product and technical data for materials proposed to be installed in the right-of-way. The Contractor shall also submit for review and approval a sample of the stamped asphalt material prior to installation. These submittals shall be submitted to the Engineer.

Prior to acceptance of the project, the Contractor shall repair all damaged or unsuitable areas, as determined by the Engineer, at no expense to the Owner.

322.3 MATERIALS:

322.3.1 Asphalt Concrete: All roadway construction materials and asphalt thicknesses shall conform to the applicable requirements of MAG Section 321 and the project plans and specifications. Aggregate base course (ABC) shall be clean, well-graded sand and gravel compacted and placed per MAG Section 321.5.1 and the project plans and specifications.

For raised medians and other areas not subject to vehicular traffic, the surface course shall be at least 2-1/2" of MAG 1/2" or MAG 3/8" asphalt concrete mix in accordance with MAG 710.

322.3.2 Surface Patterning: The patterning equipment shall be metal templates that shall correspond to the patterns shown in Owner's standard details or as shown on the plans and called out in special provisions. Refer to the project plans and specifications for the pattern type to be used.

322.3.3 Surfacing System (Painted Asphalt): All products used in the surfacing system shall meet the minimum physical and performance properties in Tables 322-1 and 322-2. The Contractor shall submit a Certificate of Compliance to the Engineer indicating that the materials to be included in the work meet these specification requirements. The color used for painted asphalt shall be terracotta or as approved by the Engineer.

TABLE 322-1		
ASPHALT STAMPING SURFACING SYSTEM PHYSICAL PROPERTIES		
Characteristic	**Test Specification**	**Base – Colorant**
Solids by Volume (%)	ASTM D2697	6855%
Solids by Weight (%)	ASTM D2369	7868%
Density	ASTM D1475	13.70 lbslbs./gal

TABLE 322-2		
ASPHALT STAMPING SURFACING SYSTEM PHYSICAL PROPERTIES		
Characteristic	**Test Specification**	**Test Result – Base**
Dry-Time (To Recoat)	ASTM D5895	2035 Min
Taber Wear Abrasion Dry H-10 Wheel	ASTM D4060 1 day cure	0.1698 g/1000 cycles
Taber Wear Abrasion Wet H-10 Wheel	ASTM D4060 7 7 days cure	23.34 g/1000 cycles
QUV E Accel.	ASTM G154 Delta	0.53
HydrophobicityWaterHydrophobicity Water Absorption	ASTM D-570	78.63 % (9 Day Immersion)
Shore Hardness	ASTM D2240	673 Type D
Mandrel Blend	ASTM D522-93A	1/4" @ 21 Degree C Pass
Permeance	ASTM D1653	3.77 g/m2 /hr (52 mils)
VOC	Per MSDS	253 g/l
Adhesion to Asphalt	ASTM D4541	Substrate Failure
Friction Wet	ASTM E303 British Pendulum Tester	WP * Coated- 62 WP* Uncoated - 597 AC ** Coated - 70 AC ** Uncoated - 610
Cure Time	Measured @ 77 Degrees Fahrenheit	Dry to touch – 20 Min Light Foot/Vehicle Traffic – 2-4 Hrs. Full Cure – 5 to 7 days

322.4 INSTALLATIONNSTALLATION:

The Contractor shall furnish all the necessary labor, material, tools, and equipment to complete the proper installation of the asphalt print paving used in decorative pavement, crosswalks, and intersection medallions or as otherwise noted in the Contract Documents. This includes furnishing a 10-foot straight edge to accomplish the level test specified for the finished decorative pavement. Pattern and color of finished surface shall be as shown in the project plans and details.

322.4.1 Asphalt Concrete:
The hot-mix asphaltic concrete shall be placed per the project plans and specifications. The Contractor shall contact the Engineer for roadway compaction approval prior to beginning asphalt stamping. Asphalt shall be fully compacted prior to positioning the patterning template.

322.4.2 Surface Patterning: After application and compaction of the asphaltic concrete, while it is still hot, templates shall be positioned on the surface in the required orientation. Templates shall be set in place using a plate compactor and fully embedded using the same compaction equipment used in placing the asphalt (minimum static weight shall be 700 ~~lbs~~lbs.).

The template print depth shall be 3/8" over 99% of the patterned area. All hand tooling shall be complete, full depth, straight in manner, and to the edge of the asphalt pavement, common edge, concrete curb, gutter, or other border. There shall be no overprint of patterns and no remnants of excess print on surrounding unintended areas.

322.4.3 Surfacing System (Painted Asphalt & Clear Coat Sealant): The air temperature shall be at least 50^{o} F and rising before the application of surface system products begins. There shall also be no precipitation expected within 24 hours of the anticipated surfacing completion in order for the application to be authorized by the agency~~Town~~. The surface should be free from laitance, grease, or any other foreign matter prior to placing any pavement coating.

The surfacing system products shall be spray-applied. Where required to cover small areas, the surfacing system may be painted on using brooms or brushes. When complete, the entire asphalt surface shall be covered with the surfacing product with no exposed asphalt present.

The Contractor shall use sufficient masking to ensure that the surface system products are applied only where specified. Masking shall be complete and no overspray onto surfaces not designated as coated surfaces shall be allowed.

The Contractor shall apply the surface system products with a minimum of four complete passes on a roadway surface. Three complete passes shall be allowed on medians, walkways, pathways, and bike paths where traffic is primarily pedestrian with minimal or no automobile traffic. Thickness of the surfacing product shall be 20 mils or greater.

After the colorant has had sufficient time to set, a minimum of two coats (or as specified in the bid documents) of a clear coat sealant (DP-100 or equal equivalent as approved by the agency/engineer) must be applied to provide ease of long-term maintenance and to reduce tire markings on colored asphalt.

After the surfacing system products have been applied, the treated asphalt shall not be exposed to vehicular traffic for eight (8) hours, overnight, or as approved by the Engineer.

322.5 MEASUREMENT:

Asphalt stamping shall be measured by the square foot, which shall include surface patterning and/or asphalt surfacing (painting), unless specifically outlined in the bid documents. For example, medallions may be measured on the basis of "each".~~.~~

322.6 PAYMENT:

Asphalt stamping shall be measured as provided above shall be paid for at the contract price per square foot, or as specified in the bid documents, which price shall be full compensation for the item complete as described and specified herein.

322.7 WARRANTY:

Asphalt stamping shall have a two year warranty when the colorant and sealer have been applied using the application requirements set forth in this section, or the manufacturers requirements, whichever is greater.

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: January 28, 2015 Revised 3/26/2015

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Proposed Revision to Section 601.4.5 Final Backfill **Case 15-03**

PURPOSE: Revise trench final backfill placement requirement from 2 feet to layers not exceeding ~~eight~~ twelve inches in depth except compaction wheels may continue to use the 2' non-compacted layer depth. ~~for pneumatic or mechanical tamping devices.~~

REVISIONS:

601.4.5 Final Backfill: Material placed above the initial backfill to the top of the trench or to the bottom of the road base material. Except when using an excavator or backhoe mounted footed compaction wheel the ~~F~~final backfill shall be placed in horizontal layers not more than twelve inches in depth before compaction. When using an excavator or backhoe mounted footed compaction wheel the loose non-compacted lift depth ~~lifts that~~ shall not exceed 2 feet. ~~and t~~The non-compacted lift height shall not be more than can be compacted to the required density with the equipment and methods being used.

Final backfill shall be ABC per Section 702 or sound earthen material with no piece larger than 4 inches and be free from broken concrete, broken pavement, wood or other deleterious material.

Backfill under street pavement shall be constructed per Detail 200-1 with the type of trench and surface replacement as noted on the plans or in the special provisions. Unless otherwise noted, backfill under single curb, curb and gutter, attached sidewalk, driveways, valley gutters, etc. shall be the same as the adjacent street pavement.

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

SECTION 602

TRENCHLESS INSTALLATION OF STEEL CASING

602.1 DESCRIPTION:

The Contractor shall furnish all labor, material and equipment as required for the trenchless operation to install steel casing using horizontal earth auger boring, hand tunneling or pipe ramming.

602.2 MATERIALS:

602.2.1 Steel Casing Fabrication: ~~The steel casing shall consist of steel plates rolled and welded into a cylinder. Plate material shall meet the minimum requirements of ASTM A283. Shop and field joints shall be butt welded in accordance with the minimum requirements of AWS D1.1/D1.1M. Welding shall be performed by AWS D1.1 certified personnel.~~
Steel casing shall conform to ASTM A36, ASTM A53, ASTM A139, or American Petroleum Institute "API" Specification API 5L Gr B, API 5L X42 or API 5L X52. Welding shall use matching filler metal requirements as listed in AWS D1.1 Table 3.1. Shop and field joints shall be welded in accordance with AWS D1.1/D1.1M. Welding shall be performed by AWS D1.1 qualified personnel.

602.2.2 Steel Casing Wall Thickness: The minimum wall thickness for steel casings shall be in accordance with Table 602-1.

Table 602-1	
Minimum Wall Thickness	
6"-36"	3/8"
37"-48"	1/2"
49"-60"	5/8"
61"-78"	3/4"
79" and up	1"

602.2.2.3 Steel Casing Diameter: The steel casing for pressurized carrier pipes shall be a minimum of 12-inches larger than the largest ~~OD~~ outside dimension of the carrier line, (including pipe bells and flanges) or the size indicated on the plans, whichever is greater.

The steel casing for gravity carrier pipes shall be a minimum of 18-inches larger than the largest ~~OD~~ outside dimension of the carrier line, (including pipe bells and flanges) or the size indicated on the plans, whichever is greater.

602.3 TRENCHLESS OPERATION:

Before starting operations, the Contractor shall submit in accordance with Section 105.2, detailed shop drawing of the bore pit and receiving pit shoring, ~~the casing~~, bulkheads, carrier pipe installation method, and welder certifications. The contractor shall submit a letter of certification for the casing listing the specification that conforms with section to 602.2.1 and the ASTM or API specification shall be stenciled on the outside of the casing matching the certification letter. The contractor shall submit a procedure detailing the trenchless installation method selected from 602.1 to be used for the project, if a geotechnical report is not available in the contract documents, the contractor shall define the soil limitation for the method selected.

The bore and reception pits for the trenchless operation shall be shored to safeguard existing sub-structures and surface improvements and to protect against ground movement. Survey of the bore alignment shall be taken prior to the installation of steel casing and taken after the installation of steel casing and shall be presented to the engineer.

On steel casing 37-inches (I.D.) or larger grout connections shall be provided at a maximum spacing of every 20-feet located at 12 o'clock in the steel casing. Upon completion of the boring operation, the contractor shall inspect each grout hole to determine if grouting is required. When a 2-inch or greater void occurs at a grout hole, the void shall be filled with a flowable grout. After grouting the grout holes shall be closed with a threaded plug.

Steel casing smaller than 36-inches (O.D.) installed by horizontal earth auger boring, hand tunneling or pipe ramming will not require outside grouting unless caving or earth movement occurs.

Unexpected loose soil conditions that do not accommodate the method submitted by the contractor, (horizontal earth auger boring, hand tunneling or pipe ramming), shall be brought to the agency attention to determine further course of action. Contractor shall stop boring until an alternative method is mutually agreed on.

602.4 DEWATERING:

All water encountered during the trenchless operation shall be disposed of by the Contractor in a manner that will not damage public or private property or create a nuisance or health problem. The cost of furnishing pumps, pipes and equipment for dewatering shall be considered incidental to the work and no additional payment shall be made.

602.5 CARRIER PIPE PLACEMENT:

The tolerances allowed for the alignment and grade of carrier pipe shall comply with requirements of Section 610, 615 or 618 as applicable. The Contractor shall be responsible to obtain the required line and grade for the carrier pipe, the carrier pipe shall not contact or rest on the casing.

Pressurized carrier pipes, (i.e. water, gas, force main) shall be placed using casing spacers, wood skids or steel pipes for rails. Casing spacers shall be installed 3 per joint minimum with 8-foot maximum spacing. The annular space between the casing and carrier line shall be left empty unless otherwise directed. When the annular space is to be filled, 3/8-inch pea gravel shall be used.

Gravity carrier pipes, (i.e. sewer, storm drain, irrigation) shall be placed using wood skids or steel pipes for rails. The annular space between the casing and carrier line shall be left empty unless otherwise directed. When the annular space is to be filled, 3/8-inch pea gravel shall be used.

Bulkheads consisting of brick and mortar or concrete shall be constructed on the ends of the casing; bulkheads shall be a minimum of 8-inches thick. Alternative casing end closures may be substituted for brick and mortar or concrete bulkheads if approved by the engineer.

PVC conduits for dry utilities, (i.e. communications, fiber, electric) shall be placed using non-metallic PVC casing spacers. The annular space between the casing and carrier line shall be filled as indicated in the contract documents.

After completing the carrier pipe installation, the Contractor shall remove all loose and disturbed material in the bore pits and backfill the pits in accordance with Sections 601 and 336.

602.6 MEASUREMENT AND PAYMENT:

Measurement for steel casing shall be the number of horizontal linear feet from the end of casing in the bore pit to the end of casing in the reception pit. Payment for steel casing shall be full compensation for furnishing all labor, material, tools, and equipment required for the trenchless installation of steel casing, complete in place including but not limited to placement of carrier pipe, annular space fill material (when required), bulkheads ~~placement~~ and the excavation and backfilling of pits. Payment for steel casing does not include payment for the carrier pipe, a separate payment will be made for the carrier pipe and any required testing of the carrier pipe.

- End of Section -

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MEMORANDUM **Case # 15-05**

DATE: March 4th, 2015

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed Revisions to Section 616 Reclaimed Water Line Construction and NEW Reclaimed Valve Box detail

Revisions:

1. Revision to Section 616 Reclaimed Water Line Construction

Section 616.2 MATERIALS:

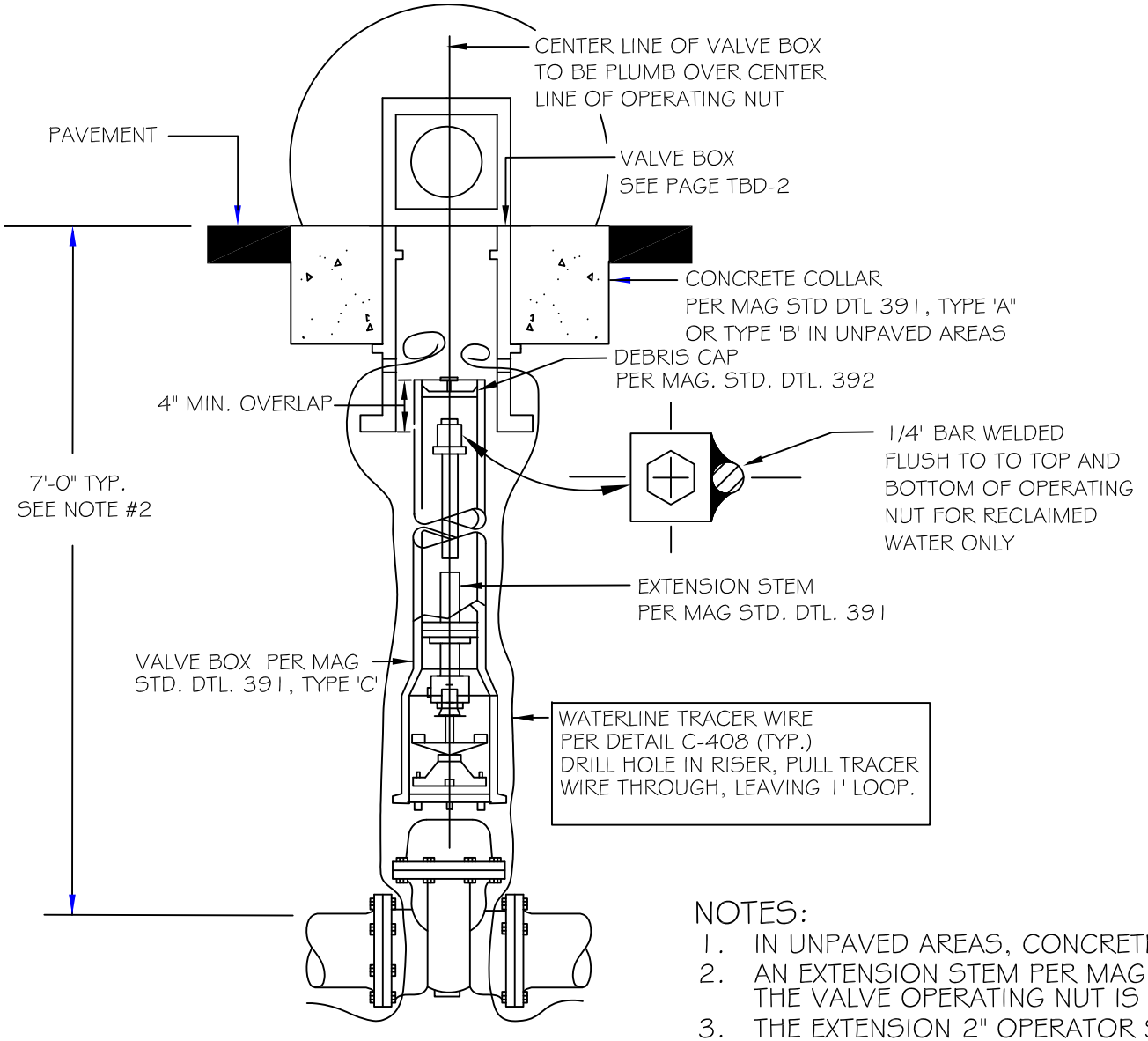
Pipe materials shall be in accordance with Section 610.

Valves shall be in accordance with Sections 610 and 630.

Valve boxes shall be in accordance with Section 345, this Section and Detail 391-1, ~~and~~ 391-2 and TBD.
Manholes shall be in accordance with Section 625, 787 and this Section, and applicable Details.

2. New Reclaimed Valve Box Detail No. TBD

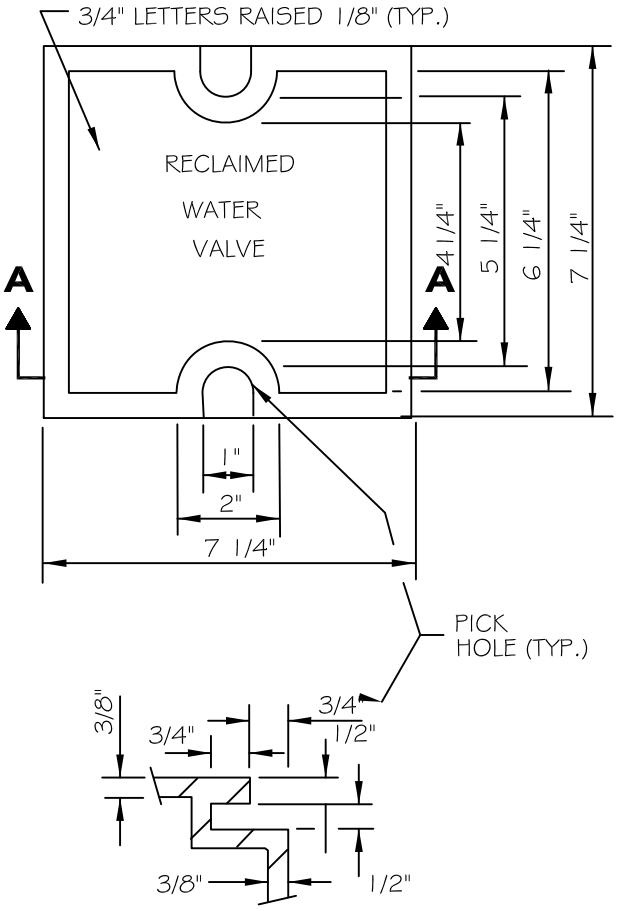
See attached initial DRAFT for further development.



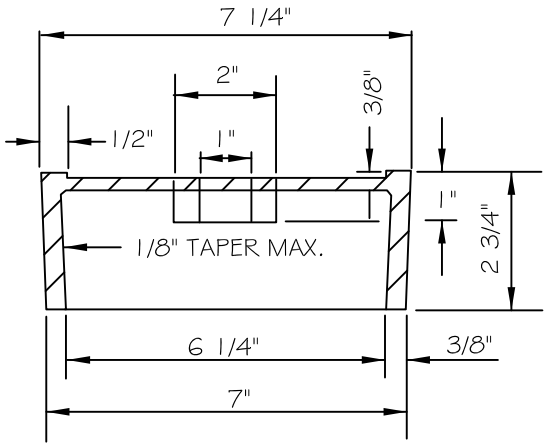
NOTES:

1. IN UNPAVED AREAS, CONCRETE COLLAR SHALL CONFORM TO DETAIL C-317.
2. AN EXTENSION STEM PER MAG. STD. DTL. 391 SHALL BE PROVIDED WHERE THE VALVE OPERATING NUT IS MORE THAN 4'-0" BELOW FINISH GRADE.
3. THE EXTENSION 2" OPERATOR SHALL BE FIRMLY TIGHTENED TO THE VALVE NUT.
4. BACKFILL SHALL BE 1/2 SACK CLSM. PER MAG. SPECIFICATION 718.
5. VALVE BOXES SHALL NOT BE INSTALLED WITHIN CONCRETE GUTTER, SIDEWALK, RAMPS OR VALLEY GUTTER.

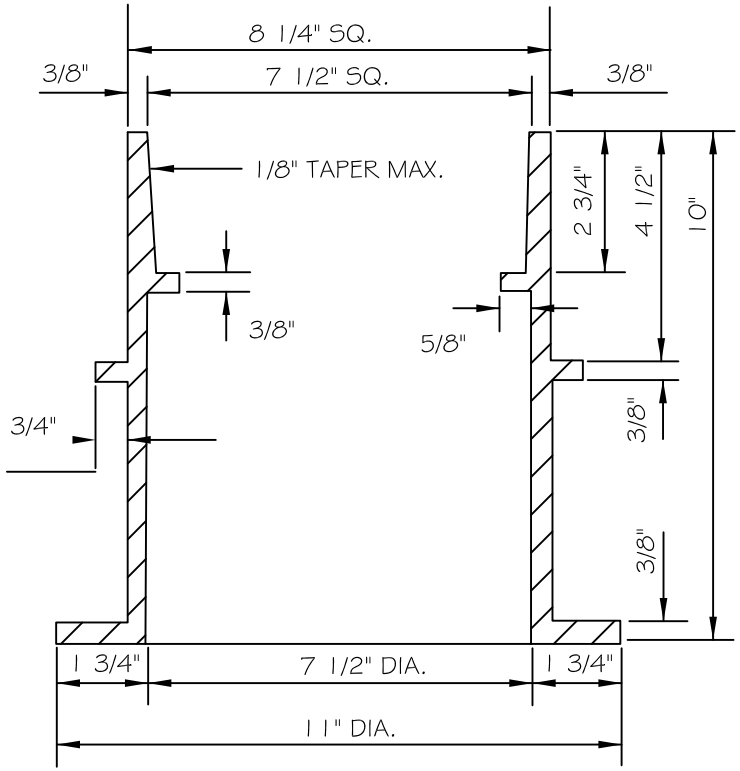
DETAIL NO.				REVISED	DETAIL NO.
TBD-1	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	RECLAIMED WATER VALVE BOX INSTALLATION	3/4/15 Draft	TBD-1



SECTION



SECTION A - A
COVER



SECTION
VALVE BOX

NOTES:

1. ALL MATERIAL SHALL BE CAST IRON PER ASTM. A-48, CLASS 30 B.
2. THE SURFACES OF THE COVER AND BOX WHICH COME IN CONTACT WITH EACH OTHER MUST BE SMOOTH AND FREE OF ALL CASTING RIDGES AND BURRS TO PROVIDE A SNUG FIT.
3. THE VALVE BOX SHALL HAVE A ROUND BOTTOM TO ACCOMMODATE RISER PIPE. THE TOP OF THE VALVE BOX SHALL BE SQUARE.
4. THE LID AND INSIDE AND OUTSIDE OF THE RISER PIPE SHALL BE COLORED PURPLE. COLOR MAY BE INCORPORATED INTO PIPE DURING MANUFACTURE OR PAINTED ONTO PIPE SURFACE. WHEN PAINTED THE PAINT SHALL BE SEYMOUR SAFETY PURPLE.
5. LETTERING SHALL BE RESTRICTED TO THAT SHOWN ON THE VALVE BOX COVER.

DETAIL NO.				REVISED	DETAIL NO.
TBD- 2	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	RECLAIMED WATER VALVE BOX INSTALLATION	3/4/15 Draft	TBD- 2

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

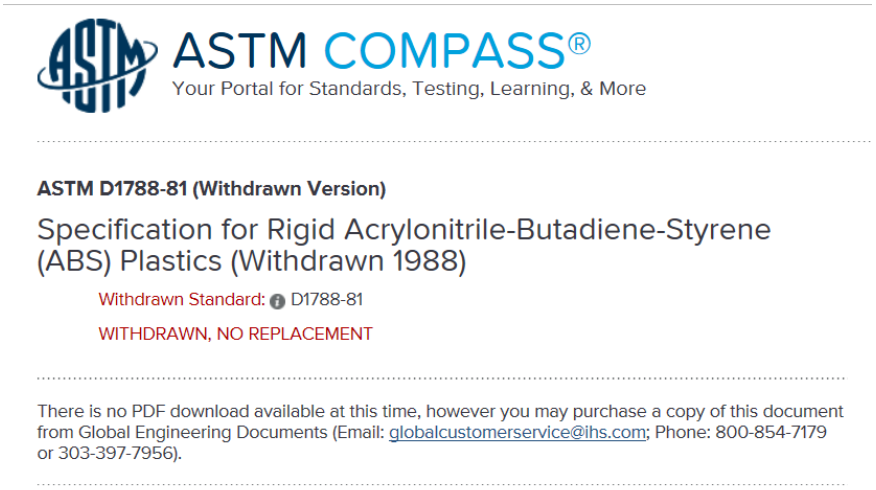
Date: March 4, 2015

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Delete or Update Section 744 ABS TRUSS PIPE AND FITTINGS **Case 15-06**

PURPOSE: Remove as an obsolete specification if MAG agencies no longer use or allow this type of pipe. Section 744.3.2 Material references ASTM D1788 which was withdrawn in 1988.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ASTM D1788-81 (Withdrawn Version)

Specification for Rigid Acrylonitrile-Butadiene-Styrene (ABS) Plastics (Withdrawn 1988)

Withdrawn Standard: D1788-81

WITHDRAWN, NO REPLACEMENT

There is no PDF download available at this time, however you may purchase a copy of this document from Global Engineering Documents (Email: globalcustomerservice@ihs.com; Phone: 800-854-7179 or 303-397-7956).

REVISIONS:

Option 1: Delete Section 744 in its entirety. Section 744 is only referenced in the Index. Since the specification has not be valid since 1988, I assume it has not be used in recent years and is no longer needed.

Option 2: Update the specification to delete references ASTM D1788 and be consistent with ASTM D2680 Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping. The current version of ASTM D2680 includes material requirements for both ABS and PVC used for Truss Pipe and Fittings.

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MEMORANDUM **Case 15-07**

DATE: March 4th, 2015

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Potential Case - Revisions to Concrete Paver Stds for Non-Traveled Surface

Potential Revisions for Discussion:

1. Revision to C-225 Concrete Paver Detail to depict pavers/decorative concrete on ABC for raised medians or other non-traveled areas?

2. Revision to MAG Section 342 Decorative Pavement Concrete Paving Stone or Brick, Section 342.3 Construction Standards?

   342.3.2 Aggregate Base Course: When aggregate base course is specified, the aggregate base course shall be constructed true to grades and lines shown on the plans and compacted to a minimum dry density of 100% per Section 301 with the surface of the aggregate base course not varying by more than +1/8-inch in 10-feet.

3. See attached COP Section 342 supplement and City of Glendale Paving Block for Medians Dtl.

SECTION 342

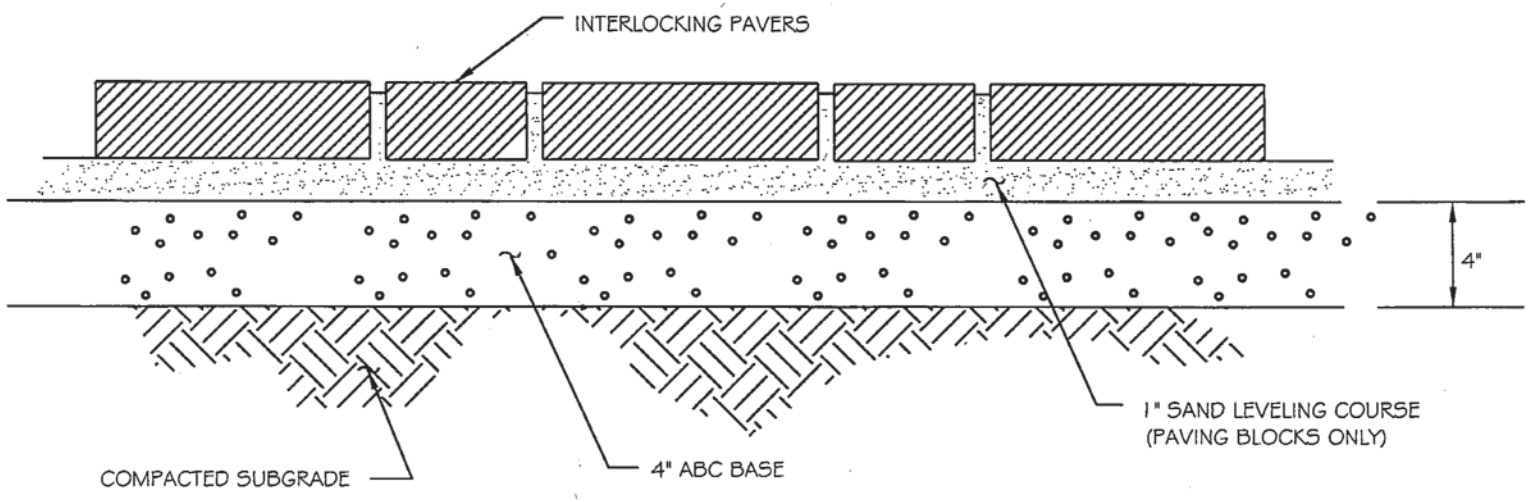
DECORATIVE PAVEMENT
CONCRETE PAVING STONE OR BRICK

Subsection 342.3.2 Aggregate Base Course: Delete this subsection in its entirety and replace with the following:

The base course for decorative pavement shall consist of CLSM of a thickness specified in the plans or special provisions. 1-Sack CLSM shall be installed over subgrade soil compacted to a minimum of 95% density. The surface elevation of the CLSM shall be set to bring the 1-inch sand laying course, plus the thickness of the paving stones or bricks to the desired finished elevation of decorative pavement. The surface of the 1-Sack CLSM shall not vary more than +1/8 inch in 10 feet.

Subsection 342.4 MEASUREMENT AND PAYMENT: Delete this subsection in its entirety and replace with the following:

Measurement for deco pavement shall be by the square foot. Payment for deco pavement shall be made at the unit bid price per square foot including subgrade preparation, 1-Sack CLSM, and sand base. This payment shall be full compensation for all labor, materials, tools and equipment required to complete the work.



NOTES:

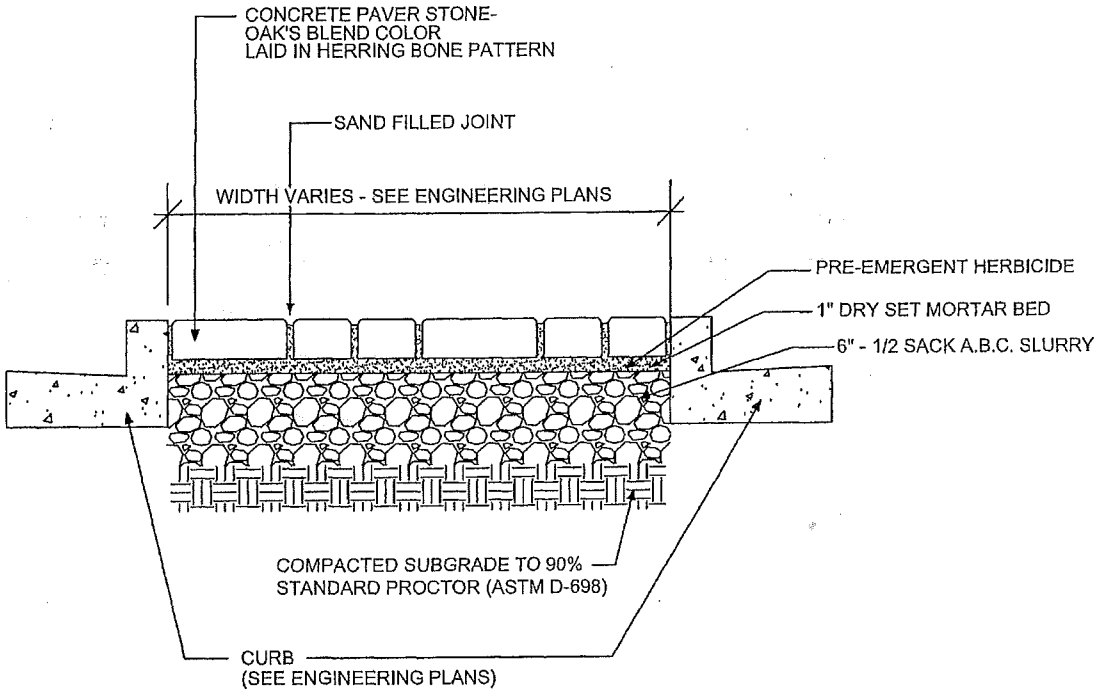
1. 12" MINIMUM CONCRETE RIBBON TO BE PLACED ON THE SIDES AND AT THE BEGINNING AND END OF PAVERS.
2. PROVIDE CITY STONE II, OLD TOWN BLEND PAVER AND PATTERN.
3. DEVELOPER SHALL SUPPLY CITY WITH 100 EACH REPLACEMENT PAVERS.

C-237 **REPLACES** **14B**	CITY OF CHANDLER STANDARD DETAIL	**INTERLOCKING PAVING BLOCKS AND DECORATIVE CONCRETE NON-TRAVELED SURFACE**	APPROVED: _____ CITY ENGINEER DATE: 2/26/07	DETAIL NO. **C-237** NTS

STANDARD DETAIL G-328

CITY OF GLENDALE
ENGINEERING

PAVING BLOCKS FOR MEDIANS

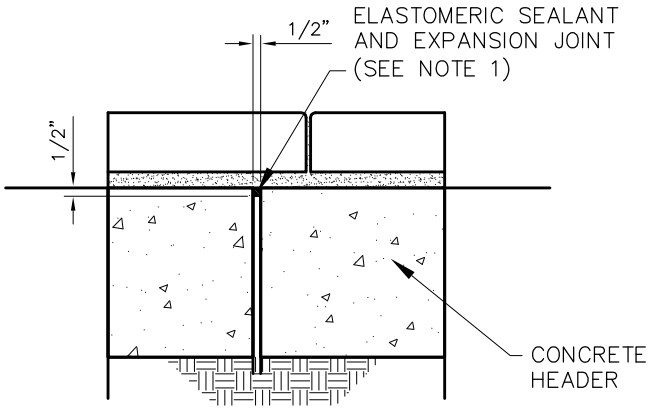


NOT TO SCALE

APPROVED BY: Harry J Broyles 10/28/02
CITY ENGINEER DATE

REVISED : JUNE 2002

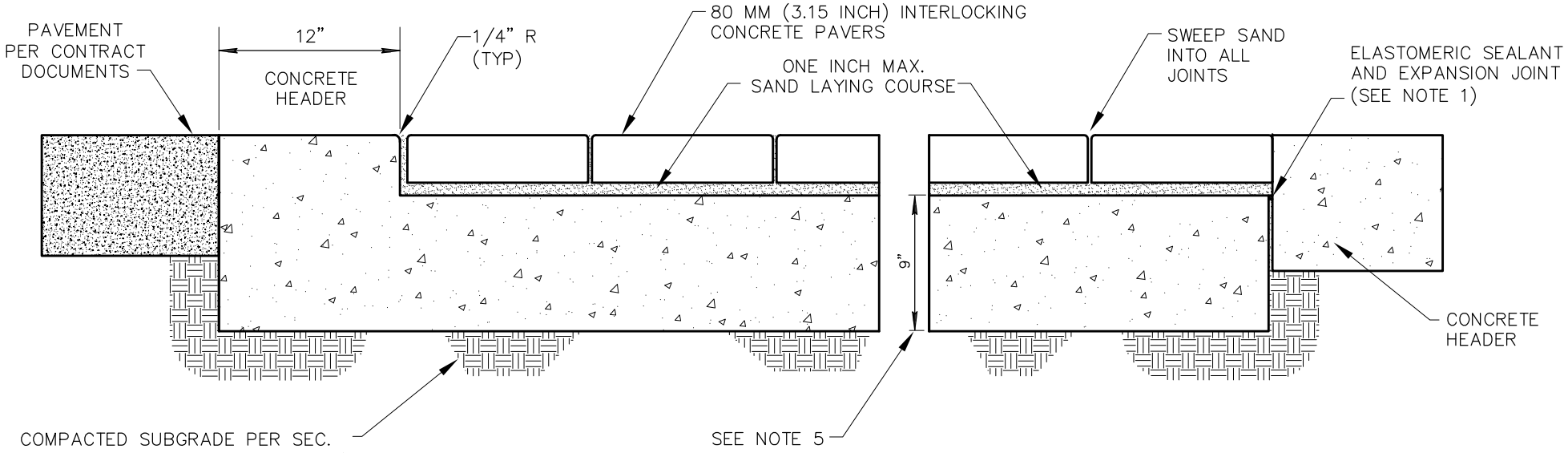
PREVIOUS :



EXPANSION JOINT DETAIL

NOTES:

1. 1/2 INCH EXPANSION JOINT, ASTM D-1751 PER SEC. 729 AND ELASTOMERIC SEALANT PER SEC. 342
2. CONTRACTION JOINTS PER SEC. 342
3. MATERIALS AND CONSTRUCTION PER SEC. 342
4. PORTLAND CEMENT CONCRETE SHALL BE CLASS A
5. DESIGN PARAMETERS FOR THE THICKNESS IS BASED ON:
   ASSUMES MODULUS OF SUBGRADE REACTION (K) = 100 pci
   CONCRETE WORKING STRESS (f_t) = 300 psi
   TERMINAL SERVICABILITY INDEX (P_t) OF 2.5 OVER 20 YEARS AND 1 MILLION TOTAL EQUIVALENT 18-KIP SINGLE-AXLE LOAD APPLICATIONS



TYPICAL HALF SECTION
(AGAINST PAVEMENT)

TYPICAL SECTION AT END OR ALTERNATE
HALF SECTION (AGAINST CONCRETE)

DETAIL NO.				REVISED	DETAIL NO.
225	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CONCRETE PAVERS		01-01-2016	225

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: March 26, 2015

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Revision to clarify Table 710-4 **Case 15-08**

PURPOSE: Eliminate misinterpretation of Criteria 8 in table 710-4. Some readers believe that 3/8 inch mix and 1/2 inch mix are required to be designed for Low Traffic only and that 3/4 inch mix is required to be designed for High Traffic only.

REVISIONS: Relocate item 8 (Number of Gyrations) as a new table in Section 710.3.2.2 prior to the existing Table 710-4. This requires renumbering Table 710-4.

710.3.2.2 Gyratory Mix Design: Gyratory Mix Designs shall be performed in accordance with the requirements of latest edition of the Asphalt Institute's SP-2 manual. Mix design laboratory compacted specimens shall be prepared using a gyratory compactor in accordance with AASHTO T-312.

The mix design shall be formulated in a manner described for volumetric mix designs in the current edition of the Asphalt Institute Manual SP-2, except the number of trial blend gradations necessary will be determined by the mix design laboratory. Duplicate gyratory samples shall be prepared at a minimum of four (4) binder contents to select the recommended binder content. The gyratory specimens shall be compacted to 160 gyrations. Volumetric data for the design number of gyrations, N_{des}, and the initial number of gyrations, N_{ini}, are then back calculated based on the bulk specific gravity, G_{mb}, of the N_{max} specimens and the height data generated during the compaction process of those same specimens.

TABLE 710-4		
Number of Gyrations		
	Low Traffic	High Traffic
N_{ini}	7	8
N_{des}	75	100
N_{max}	115	160

For Low traffic designs, volumetric data for 115 gyrations, N_{max} for Low Traffic designs, is also back calculated from the specimens compacted to 160 gyrations.

The corrected density of the specimens shall be less than 89.0 percent of maximum theoretical density at N_{ini}. The corrected density of the specimens shall be less than 98.0 percent of maximum theoretical density at N_{max}. The Gyratory mix shall comply with the criteria in Table 710-45.

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TABLE 710-~~4~~5				
GYRATORY MIX DESIGN CRITERIA				
Criteria	Requirements			Designated Test
	3/8" Mix	1/2" Mix	3/4" Mix	Method
1. Voids in Mineral Aggregate: %, Min.	15.0	14.0	13.0	AI SP-2
2. Effective Voids: %, Range	4.0 ± 0.2	4.0 ± 0.2	4.0 ± 0.2	AI SP-2
3. Absorbed Asphalt: %, Range *	0 - 1.0	0 - 1.0	0 - 1.0	AI SP-2
4. Dust to Eff. Asphalt Ratio, Range **	0.6 – 1.4	0.6 – 1.4	0.6 – 1.4	AI SP-2
5. Tensile Strength Ratio: %, Min.	75	75	75	ASTM D 4867
6. Dry Tensile Strength: psi, Min.	75	75	75	ASTM D 4867
7. Mineral Aggregate Grading Limits				AASHTO T-27
	Percent Passing with Admix			
Sieve Size	3/8 inch Mix	1/2 inch Mix	3/4 inch Mix	
1 inch			100	
3/4 inch		100	90-100	
1/2 inch	100	90-100	43-89	
3/8 inch	90-100	53-89	-	
No. 8	32-47	29-40	24-36	
No. 40	2-24	3-20	3-18	
No. 200	2.0-8.0	2.0-7.5	2.0-6.5	
~~8. Number of Gyrations~~	~~Low Traffic~~		~~High Traffic~~	
~~N_{ini}~~	~~7~~		~~8~~	
~~N_{des}~~	~~75~~		~~100~~	
~~N_{max}~~	~~115~~		~~160~~	

* Unless otherwise approved by the Engineer.
** The ratio of the mix design composite gradation target for the No. 200 sieve, including admixture, to the effective asphalt content shall be within the indicated range.

Report to MAG Technical Committee
Meeting March 26, 2015
Asphalt and Materials Working Group meetings
By Chairmen, Jeff Benedict, Brian Galimore

The meeting was held on noon on March 26, 2015 at the ARPA offices. Present at the meeting: Gordon Tyus (MAG), Greg Groneberg (S.W. Asphalt), Robert Herz (MCDOT), Scott Thompson, Bob Kostelny (Cardno ATC), Scott Clark (Peoria), Don Cornelison (Speedie), Brian Gallimore (WSP), David Beckel (Southwest Rock products).

Cases for submittal:
Case 14-06 revision to Section 718: Sam Huddleston's version that was handed out to the entire MAG committee was reviewed with many AASHTO tests replaced with ASTM versions. The tests need to be reviewed to assure that they are current, and applicable for the test.

Case 14-12: MCDOT version 3-5-15 submitted. This case is for "Pavement removal" and to prevent joints along pavement wheel paths. The case was discussed. The working group agrees in principal with the case as is. The case includes, changes to detail 200 that needs to be revised, and does include the line inserted in Section 321.10.3, and Section 601.2.7. It should have the full committee's support.

Case 14-17 Stamped (decorative) asphalt: The new section was reviewed. It now includes revised wording that included the new technology of sealers. It also now has an extended warranty of two years. This case can go the full MAG committee in April.

Case 15-03 modifications to Section 601: The case would limit horizontal lifts of ABC to 8" rather than the 2 feet limit in the specification now. It was acknowledged that it would tend to ensure better compaction for the owner. There was discussion on the definition of "pad foot rollers" and equipment that needs clarity in the language.

Section 321 compaction and temperature (possible case): The working group has decided that it will work on making the section much clearer on the hot mix temperature before placement. The goal is to describe where and how the temperature is taken.

Case 15-08 710 table revision: The case was reviewed to improve the understanding of high volume and low volume mix designs. There will not be any changes but a formatting change to make it easier to understand.

David Beckel's potential case on "Lime Treated ABC" was discussed. It was decided that he will work on a possible case at the working group. He has a list of experts that have agreed to help him create and work on a possible this issue.

Next meeting is scheduled for April 23rd 2015 at the ARPA offices.

The meeting was adjourned at 1:35 p.m.

Water/Sewer Working Group Meeting

Meeting Notes
March 19, 2015

Opening:
A meeting of the Specifications and Details Water/Sewer Working Group was called to order by Jim Badowich on March 19, 2015, at 1:35 p.m. in the MAG Chaparral Room.

1. Introductions/Attendance
Tony Ayala (Avondale), Jim Badowich (Avondale), Julie Christoph (Mesa), Jami Erickson (Phoenix), Bob Herz (MCDOT), Gordon Tyus (MAG), Arvid Veidmark (SSC Boring).

1. Horizontal Drilling Directional Drilling (New Section 608)
Sponsor Arvid Veidmark provided a new version #15 of Section 608. Bob Herz also provided written comments on Section 608 to Mr. Veidmark. Many of these were deletions. Mr. Herz thought the contractor should know the technical details of how to do the job. He was also concerned about placing liability on the agency, which may not have experts with knowledge of this type of operation. Mr. Veidmark explained that the draft spec was initially conceived as a way to help educate industry and inspectors on the correct processes and requirements. He said received assistance from an ASU professor, and also has provided copies to AZUCA for review, which includes utility companies as members. Attendees agreed some portions such as the second paragraph and first sentence of 608.2 were not necessary. The group discussed and tried to clarify language for the separation of the bore and reamed holes from existing utilities. Jami Erickson asked who would be approving the projects, and if the specs were designed for utility companies to review or for what agency inspectors could review during installation. Most agency members were more concerned about not interfering with or damaging existing utilities, structures and roadways, than the technical requirements of the operation.

Bob Herz began discussing his comments on the revised version he provided Mr. Veidmark. Mr. Veidmark explained the rationale for having certain subsections as initially presented. The group discussed the classification of bore sizes into small, medium and large. Julie Christoph asked if a large diameter pipe installed over a short distance still could be classified as a small job. Mr. Veidmark explained that for larger diameter HDD, they typically would go deeper, which also would require more distance before and after the “flat” section where the final pipe would be placed. He thought this added bore length would move it into the medium or large project classification, although he said they could set a limit on the maximum bore size for small projects.

Julie Christoph described some projects in Mesa, including a project that required joint fusing. She felt a more complete description of the fusing specifications may need to be included in Section 608.4. Mr. Badowich discussed agencies such as Avondale using HDD for ITS projects, and said he would like to have a spec to ensure that the utility is installed correctly since the inspectors can’t see what happens underground. Mr. Tyus asked since large HDD projects were rare and would need to be designed by an engineer anyway, if it made sense to limit the spec to the small and medium sized boring and remove the more technical specifications needed for large projects. Mr. Veidmark thought that may be a good idea and proposed creating a modified version of 608 that focused on the small and medium sized projects. He also asked members to

review the draft and provide feedback to him. Mr. Badowich said they would review the revised version again at the next working group meeting.

2. Case 14-12
Bob Herz provided an update to Section 336. The main item of discussion on this case was on the distance allowable for open trenches and unpaved sections of pavement repairs. He noted that Section 601 allows 1320 ft. (1/4 mile) of open trench whereas Section 336 currently has 600 ft. maximum for laying the asphalt course. Mr. Badowich suggested making them both 1320 ft. because it normally is more economical for the contractor to do more than 600 ft. at a time. Jami Erickson said Phoenix would likely change it based on the specific project. Julie Christoph said they did enforce the 600 ft. requirement when working in Mesa's downtown district, but that they may be able to make it a supplement. Mr. Badowich said he felt the language was pretty clear that once the base material was placed and compacted, it was not considered an open trench. Mr. Veidmark said the open trench distance was probably not relevant because in practice contractors rarely leave much of the trench open due to safety and liability concerns. Mr. Herz asked members to take it back to their agencies and provide comments.

5. Section 611 Testing
Mr. Badowich asked Tony Ayala about a potential flushing spec. Mr. Ayala said he doesn't have anything yet, but that he was willing to work on this item. Ms. Erickson said Phoenix is concerned about correct chorine use and disinfecting and wants that added to Section 611.

7. Other Items
Tony Ayala said he talked to a manufacturer who would like to see the details for large valves updated. Mr. Badowich said he thought the group should look into the different types of composite valve boxes and covers that are being used.

8. Next Meeting Date/Adjournment
The next Water/Sewer working group meeting is scheduled for Thursday, April 16, 2015.

The meeting was adjourned at 3:40 p.m.