



January 25, 2024

Meeting Agenda – Concrete Technical Committee

Location: State Patrol Conference Room, Truax Office, Madison
Date: January 25, 2024
Time: 9:00 AM to 12:00 PM

Attendance

Committee Members:

WisDOT Members –

Bureau of Technical Services (BTS):

- Barry Paye – Director
- Erik Lyngdal – Chief Materials and Pavements Engineer
- Tirupan Mandal – Concrete Materials Unit Supervisor
- Peter Kemp – Pavement Unit Supervisor
- Aleksandra Graff – Concrete Engineer
- Adam Albers – Concrete Materials Lab Engineer
- Vacant* – Pavement Policy and Research Engineer
- Adam Johnson – Independent Assurance Program Coordinator
- Mark Finnell – Concrete Engineer Consultant (Behnke Materials)

Bureau of Project Development (BPD):

- Mark Zander – Construction Standards Engineer
- Craig Pringle – Construction Oversight Engineer

Bureau of Structures (BOS):

- Aaron Bonk – Chief Structures Design Engineer

Bureau of Aeronautics (BOA):

- Lucas Ward – Chief Airport Construction Standards

Regional Representatives:

- Alan Rommel – NE Region TSS Chief – Management Liaison
- Travis Mikshowsky – SW TSS Supervisor – TSS Liaison
- Matt Smith – SW Region Independent Assurance
- Bryton Meyer – SW Region Soils and Materials Engineer
- Nicole Roberts – SE Region Materials Engineer
- Eric D Hanson – SE Freeways Project Manager
- Brent Ferguson – NC Region Independent Assurance
- Devin Harings – NW Region Pavement Engineer
- Matt Bertucci – NE Region Pavement Engineer

FHWA Members –

- James Pforr – Pavement & Materials/Asset Management Engineer



Industry Members –

- Sara Shoenmann – American Council of Engineering Companies Liaison
- Ed Anastas – A.W. Oakes
- Brian Luchene – BARD Materials
- Signe Reichelt – Behnke Materials
- Paul Mathe – Carew Concrete
- Barry Bohman – Chippewa Concrete Services
- David Meyer – Continental Cement Company
- Dave Stanke – Kraemer North America
- Brian Borowski – Lafarge/Holcim
- Mark LaLonde – LaLonde Contractors
- Brad Diener – Lunda Construction
- John McConahy – Mapei
- Scott Grams – Michels Road & Stone
- Tom Ptaschinski – Ptaschinski Construction Company
- James Palmer – St. Mary's Cement Company
- Benny Walker – Todds Redi-Mix Concrete
- Matt Trierweiler – Trierweiler Construction Company
- Heath Schopf – Vinton Construction Company
- Jackie Spoor – Wisconsin Concrete Pavement Association
- Kevin McMullen – Wisconsin Concrete Pavement Association
- Leslie Ashauer – Wisconsin Concrete Pavement Association
- Cherish Schwenn – Wisconsin Ready Mixed Concrete Association
- Matt Grove – Wisconsin Transportation Builders Association
- David Burt – Zenith Tech
- Andrea Breen – Zignego Ready Mix
- Tony Zignego – Zignego Company

Resource Members (as needed) –

- Tyler Rongstad – BPD Engineering Chief
- Laura Shadewald – BOS Structures Development Chief
- Myungook (MK) Kang – BTS Quality Assurance Supervisor
- Linette Rizos – BTS Quality Assurance and Sustainability Engineer
- Chad Hayes – BPD Construction Oversight Engineer
- Sean LePlavy – Michels Road & Stone (*in place of Zach Dittberner*)
- Tom Sand – Vinton Concrete Construction

Guests –

- Keena Spencer-Dobson – NWR Materials Engineer

Agenda Items

1. Welcome and Introductions – T. Mandal (5 min)
 - Tyler Rongstad – BPD Engineering Chief
 - Bryton Meyer – SW Region Soils and Materials Engineer
2. Review of Action Items – T. Mandal (10 min)



3. MOTP – A. Albers (10 min)

- Spring MOTP Update
 - Current locations of MOTP:
 - WisDOT’s Quality Management Program (QMP) page
<https://wisconsin.gov/Documents/doing-bus/eng-consultants/cnslt-rsrcs/tools/qmp/motp.pdf>
 - A quick link to the QMP page on the bid letting page
<https://wisconsin.gov/Pages/doing-bus/contractors/hcci/ctrct-info.aspx>
 - Roadway Standards page
<https://wisconsin.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/rdwy/default.aspx>
 - Structure and road resources page
<https://wisconsin.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/default.aspx>
 - An update on the process and timeline for the spring update was provided.
 - The standard schedule of the MOTP updates follows the Standard Specifications:
 - Target dates for edits through tech teams: February 15
 - FHWA final review: April 24 – May 15

4. WHRP Research Updates – P. Kemp/ M. Finnell/ T. Mandal (20 min)

- Field Investigation of Dowel and Tie Bar Placement
 - Data collection for the project is complete. Data evaluation is still in progress and the results will be presented to the Project Oversight Committee (POC) at a later meeting.
- Timely and Uniform Application of Curing Materials
 - The research team is looking for an early 2024 paving project (May timeline) to verify the data gathered in this study.
- Chemistry and Performance of SCMs for Wisconsin Concrete Pavement
 - A presentation of the study to update the POC will be provided next week (January 29th).
- Alternative Conditioning Method to Calculate Formation Factor for Wisconsin Concrete Pavement
 - The project started in October 2023. Five cementitious materials were selected by the POC. The selection of aggregates is still in progress.
- Proactive Prevention of Pavement Buckling
 - The project started in October 2023. A literature review was completed by the researchers last month.



5. Task Force (TF) Updates – M. Finnell/ A. Graff (20 min)

- Spec Re-Org
 - The task force is ongoing with meetings making progress.
 - Once the task force concludes, the CTC will be able to review the reorganized chapters. The earliest projection for the CTC members' review is the end of February or early March. Any comments, questions, or concerns from the CTC may be addressed at the second quarterly CTC meeting or a separate meeting.
 - BTS QA Unit is drafting spec re-org chapters for non-concrete materials that impact the industry. The CTC will be given a chance to review the documents related to concrete.
- AASHTO Product Evaluation and Audit Solutions
 - WisDOT does not plan on participating in the cement audit process through AASHTO Product Evaluation and Audit Solutions in 2024. This task force is still on hold until AASHTO committees confirm a direction.
- New Task Force:
 - Testing Locations (CY)
 - The intent of the TF will be to see how WisDOT can use the CY unit for testing and reporting results for concrete pavements. This will not change or affect the current payment unit.
 - TF members: Leslie Ashauer, Jackie Spoor, Adam Johnson, Heath Schopf, Nicole Roberts, Sara Schoenmann, Jason Lauters, Aleksandra Graff, and Tirupan Mandal
 - Aggregate Testing
 - The intent of the TF will be to determine the frequency of aggregate testing for all new concrete categories.
 - TF members: Adam Johnson, Tom Sand, Leslie Ashauer, James Pforr, Jeff Bruesewitz, Nicole Roberts, Julia Slota, Aleksandra Graff, and Tirupan Mandal
- Task Forces to resume in 2024:
 - Fast Track
 - No updates. TF is to resume approximately in a few months.
 - **Action Item**: Add Heath Schopf and Devin Harings to the TF.
 - Concrete Strength
 - The task force will be addressing two items related to concrete strength: 1) Discuss issues related to concrete strength for acceptance, and 2) Discuss the use of smaller specimen sizes (4"x8" cylinders and 4"x4" beams) for acceptance.



- WCPA would like to communicate with its members before they decide who will join the task force.
 - TF members: Scott Grams, Devin Harings, James Pforr, Andrea Breen, Heath Schopf, Jackie Spoor, Mark Finnell, Aleksandra Graff, and Tirupan Mandal
- Task Forces on Hold:
 - Curb Shear
 - Buckling Research
 - PEM Research
6. WCPA Conference – WCPA (15 min)
- The WCPA conference is on February 15-16 in Madison this year.
 - An overview of the agenda was provided.
7. Regional Meetings with WCPA – WCPA (15 min)
- Regional meetings will be in person only.
 - Dates/Locations:
 - NC Region (WI Rapids): February 22, 1:30 PM to 3:00 PM
 - NW Region (Eau Claire): March 13, 10:00 AM to 12:00 PM
 - SW Region (Madison): March 14, 10:00 AM to 11:30 AM
 - SE Region (Waukesha): March 19, 9:00 AM to 11:00 AM
 - NE Region (Green Bay): April 16, 10:30 AM to 12:00 PM
8. Concrete Inspection Training – WCPA/ A. Graff (15 min)
- The training will take place in person at SE, SW, and NW regions but will be open to attendees from any region.
 - Dates/Locations:
 - Southwest – Madison: April 1, 2024
 - Northwest – Eau Claire: April 3, 2024
 - Southeast – Waukesha, April 30, 2024
 - Times: 8:00 am – 5:00 pm
 - More details will be shared shortly on the learning center for both WisDOT and external staff.
9. Ride – WCPA/ M. Kang/ L. Rizos (15 min)
- Updates from the recent ride committee were presented including MRI v IRI discussion.
 - L. Rizos is looking for project IDs for key areas to inspect design details.
 - If there is no posted speed limit, the committee is discussing the collection of IRI data with regard to urban and rural specifications, and how design speed compares to posted speed.



10. Longitudinal Joint Repair Detail – P. Kemp (10 min)

- There is currently no standard detail drawing for repairing longitudinal joints.
- The BTS Pavement Unit is working to standardize a 24-inch width for joint repair so that a tie bar can be properly installed. The tie bar drill typically needs around 20 inches of clearance. The number, diameter, and length of the tie bar are yet to be determined.
- Concerns were raised by committee members regarding reestablishing the centerline joint as unnecessary and it could impact the repair's performance, leading to premature deterioration. This topic will be included in the fast-track TF.
- The presentation is attached at the end of the meeting minutes.

11. ASP 6: Base Patching

- The changes in the base patching spec in ASP 6 were discussed.
- Payment is done by measuring every hole. Industry members have concerns regarding how to measure the depth of the patch to the adjacent pavement or the bottom of the hole. The exact depth of the adjacent pavement is difficult to determine since the bottom of the slab isn't always clearly defined. A standard method of measuring these holes could resolve the issue.
- These changes were from CCAW and were not a result of the CTC meetings.
- **Action Item:** BTS will let BPD know of this discussion (**completed**).

Review of Action Items

1. BTS to follow-up on sawcut depth standard drawing (d/3)
 - The specification for saw cut depth at transverse joints differs from the SDD, and the latter takes precedence. There is a risk of the saw hitting the dowel bar if the depth tolerance is one inch. Therefore, it is proposed to have a shallow tolerance for blade wear, but not a deeper one.
 - **Action Item:** WCPA will reach out to its members to gather more feedback on the WisDOT proposal.
 - Item will remain on the agenda for the next meeting, and the presentation is attached at the end of the meeting minutes.
2. MOTP - M. Zander will check if the MOTP document/link can be placed on the Roadway Standards page (<https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/default.aspx>)
 - Complete. The MOTP document was added to the Roadway Standards page.
3. Regional Meetings with WCPA - WisDOT to send WCPA regional contact person information
 - Complete. More details are in agenda item 7.



4. Concrete Inspection Training - WisDOT to discuss and let WCPA know who from WisDOT will be instructing this training
 - [Complete. More details are in agenda item 8.](#)
5. Adjustment to Pay for Crack Repair - WCPA to send proposed revisions to WisDOT. WisDOT will review the proposed revisions and respond to WCPA.
 - [WisDOT is still reviewing this agenda item.](#)

Upcoming Meetings

2024		
January 25, 2024	9:00 am to 12:00 pm – In Person	CTC
February 15-16, 2024		WCPA Annual Meeting
May 16, 2024	9:00 am to 12:00 pm	CTC
April 9-11, 2024		National Concrete Consortium
August 15, 2024	9:00 am to 12:00 pm – In Person?	CTC
November 14, 2024	9:00 am to 12:00 pm	CTC



Saw Cut Tolerance

Peter Kemp

Pavement Unit Supervisor

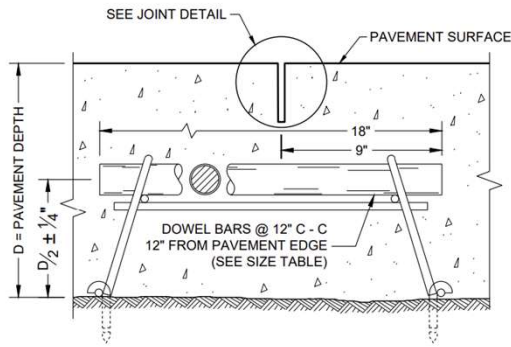
CTC
Truax Center Madison, WI

January 24th, 2024

1

WIDOT CPTC Saw Cut Depth

SDD 13C11 - 14b



DOWELED CONTRACTION JOINT

2

WIDOT CPTC Saw Cut Depth

more than 1/2 inch in 18 feet from the required limit.

415.3.7.3 Transverse Joints

- (1) Extend transverse joints across the entire width of paving and through curb or median placed integrally with pavement. When the pavement abuts existing pavement, curb and gutter, or median, construct transverse joints in locations matching existing joints or cracks.
- (2) Install dowel bars as follows:
 - Within one inch of the planned transverse location and depth.
 - Within 2 inches of the planned longitudinal location.
 - Parallel to the pavement surface and centerline within a tolerance of 1/2 inch in 18 inches.

<https://wisconsin.gov/rdwy/stnds/spec/ss-04-15.pdf>



3

WIDOT CPTC Saw Cut Depth

SDD Saw Cut Elevation vs Dowel Bar Elevation								
D	SDD Saw Cut Elevation (in)	Dowel Bar Elevation (in)						
		Standard Spec. Tolerance Limit (±1")	ACPA Tolerance Limit (±0.5")	SDD Tolerance Limit (±0.25")	Ideal Condition			
	D-(D/3)	(D/2)+(d/2)+1"	(D/2)-(d/2)-1"	(D/2)+(d/2)+0.5"	(D/2)-(d/2)-0.5"	(D/2)+(d/2)+0.25"	(D/2)-(d/2)-0.25"	(D/2)+(d/2)
12	8.00	OK	OK	OK	OK	OK	OK	OK
11.5	7.67	OK	OK	OK	OK	OK	OK	OK
11	7.33	OK	OK	OK	OK	OK	OK	OK
10.5	7.00	OK	OK	OK	OK	OK	OK	OK
10	6.67	OK	OK	OK	OK	OK	OK	OK
9.5	6.33	NOT OK	OK	OK	OK	OK	OK	OK
9	6.00	NOT OK	OK	OK	OK	OK	OK	OK
8.5	5.67	NOT OK	OK	OK	OK	OK	OK	OK
8	5.33	NOT OK	OK	OK	OK	OK	OK	OK
7.5	5.00	NOT OK	OK	OK	OK	OK	OK	OK
7	4.67	NOT OK	OK	OK	OK	OK	OK	OK

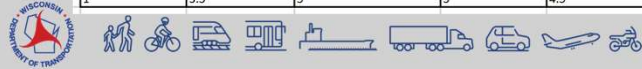
Proposed Saw Cut Elevation vs Dowel Bar Elevation									
D	Proposed Saw Cut Elevation (in)		Dowel Bar Elevation (in)						
	D-(D/3-0.25")	D-(D/3+0.25")	Standard Spec. Tolerance Limit (±1")	ACPA Tolerance Limit (±0.5")	SDD Tolerance Limit (±0.25")	Ideal Condition			
			(D/2)+(d/2)+1"	(D/2)-(d/2)-1"	(D/2)+(d/2)+0.5"	(D/2)-(d/2)-0.5"	(D/2)+(d/2)+0.25"	(D/2)-(d/2)-0.25"	(D/2)+(d/2)
12	8.25	7.75	OK	OK	OK	OK	OK	OK	OK
11.5	7.92	7.42	OK	OK	OK	OK	OK	OK	OK
11	7.58	7.08	NOT OK	OK	OK	OK	OK	OK	OK
10.5	7.25	6.75	NOT OK	OK	OK	OK	OK	OK	OK
10	6.92	6.42	NOT OK	OK	OK	OK	OK	OK	OK
9.5	6.58	6.08	NOT OK	OK	OK	OK	OK	OK	OK
9	6.25	5.75	NOT OK	OK	OK	OK	OK	OK	OK
8.5	5.92	5.42	NOT OK	OK	OK	OK	OK	OK	OK
8	5.58	5.08	NOT OK	OK	NOT OK	OK	OK	OK	OK
7.5	5.25	4.75	NOT OK	OK	NOT OK	OK	OK	OK	OK
7	4.92	4.42	NOT OK	OK	NOT OK	OK	OK	OK	OK

4

WIDOT CPTC Saw Cut Depth

SDD			Proposed	
Pavement Thickness (in)	Saw Cut Depth (in)	Saw Cut Elevation	Saw Cut Elevation (in)	
D	D/3	D-(D/3)	D-(D/3+0.25")	D-(D/3+0.25")
12	4.00	8.00	8.25	7.75
11.5	3.83	7.67	7.92	7.42
11	3.67	7.33	7.58	7.08
10.5	3.50	7.00	7.25	6.75
10	3.33	6.67	6.92	6.42
9.5	3.17	6.33	6.58	6.08
9	3.00	6.00	6.25	5.75
8.5	2.83	5.67	5.92	5.42
8	2.67	5.33	5.58	5.08
7.5	2.50	5.00	5.25	4.75
7	2.33	4.67	4.92	4.42

Dowel Bar Diameter	Dowel Bar Depth (d)	Dowel Bar Elevation (in)						
		Standard Spec. Tolerance Limit (±1")		ACPA Tolerance Limit (±0.5")		SDD Tolerance Limit (±0.25")		Ideal Condition
d	D/2	$(D/2)+(d/2)+1"$	$(D/2)+(d/2)-1"$	$(D/2)+(d/2)+0.5"$	$(D/2)+(d/2)-0.5"$	$(D/2)+(d/2)+0.25"$	$(D/2)+(d/2)-0.25"$	$(D/2)+(d/2)$
1.25	6	7.625	5.625	7.125	6.125	6.875	6.375	6.625
1.25	5.75	7.375	5.375	6.875	5.875	6.625	6.125	6.375
1.25	5.5	7.125	5.125	6.625	5.625	6.375	5.875	6.125
1.25	5.25	6.875	4.875	6.375	5.375	6.125	5.625	5.875
1.25	5	6.625	4.625	6.125	5.125	5.875	5.375	5.625
1.25	4.75	6.375	4.375	5.875	4.875	5.625	5.125	5.375
1.25	4.5	6.125	4.125	5.625	4.625	5.375	4.875	5.125
1.25	4.25	5.875	3.875	5.375	4.375	5.125	4.625	4.875
1.25	4	5.625	3.625	5.125	4.125	4.875	4.375	4.625
1	3.75	5.25	3.25	4.75	3.75	4.500	4	4.25
1	3.5	5	3	4.5	3.5	4.250	3.75	4



5

WIDOT CPTC Saw Cut Depth

Steps Forward

Select allowable tolerance for dowel placement

1", 1/2", 1/4"

Select tolerance for saw cut


- 1/4", +/- 1/4"



6

WIDOT CPTC
Saw Cut Depth

Questions?





Longitudinal Joint Repair

Mark Finnell / Peter Kemp

WIDOT Staff

CTC
Truax Center Madison, WI

January 24th, 2024

1

WIDOT CPTC Longitudinal Joint Repair



Source: SER

2

WIDOT CPTC Longitudinal Joint Repair

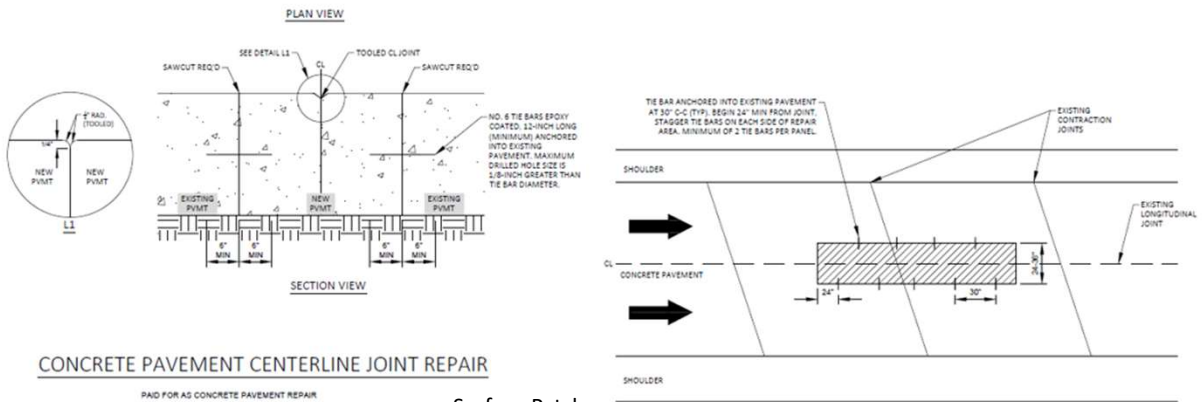


Source:SER



3

WIDOT CPTC Longitudinal Joint Repair



CONCRETE PAVEMENT CENTERLINE JOINT REPAIR

PAID FOR AS CONCRETE PAVEMENT REPAIR

Surface Patch

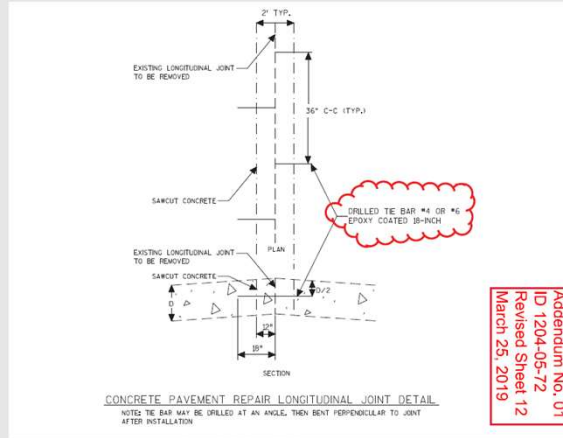
Source: NWR USH2 Douglass County

1198-03-78



4

WIDOT CPTC Longitudinal Joint Repair



Surface Patch

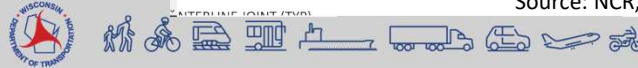
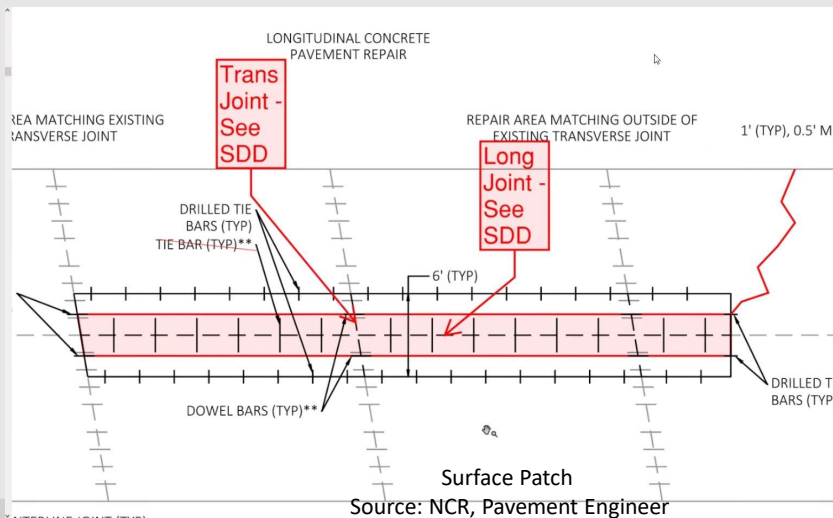
Source: SWR Iowa County

1204-05-72



5

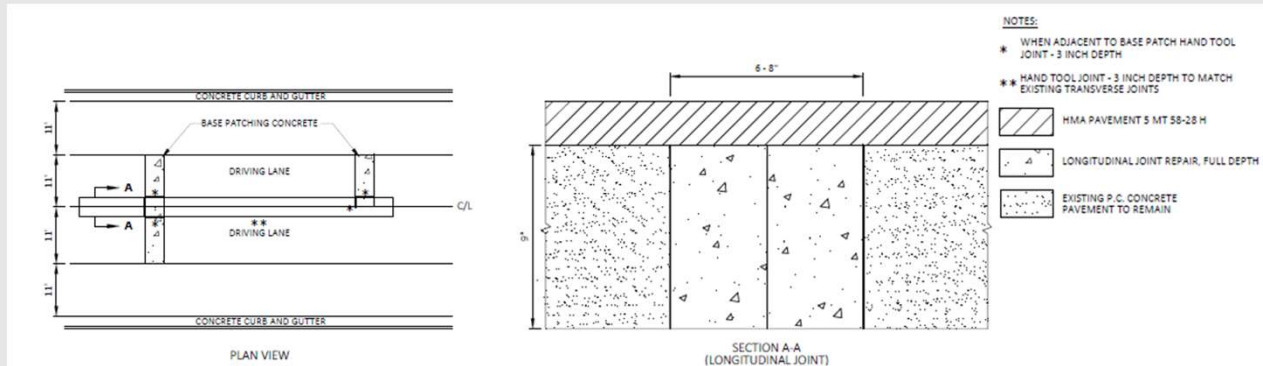
WIDOT CPTC Longitudinal Joint Repair



6

WIDOT CPTC

Longitudinal Joint Repair



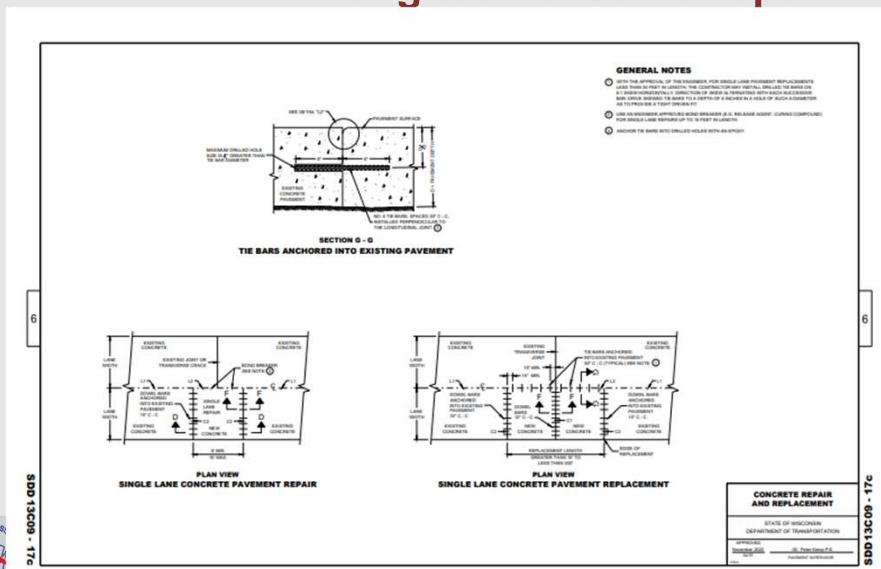
Base patch (overlaid)
Source: SWR STH 33 LAX County
5120-03-72



7

WIDOT CPTC

Longitudinal Joint Repair



<https://wisconsin.gov/rdwy/sdd/sd-13c09.pdf#page=1>

Example of use of a No. 6 bar for tie steel

8

WIDOT CPTC Longitudinal Joint Repair

GENERAL NOTES

- ALL CONCRETE BARS SHALL BE TO THE TOLERANCES GIVEN AND FABRICATED TO SPEC.
- CONCRETE REINFORCEMENT SHALL BE EPOXY-ANCHORED CONCRETE FABRICATED TO MEET THE REQUIREMENTS OF THE CONTRACT.
- ANCHORING BARS AND TIE BARS SHALL BE PLACED WITH AN EPXY FOR HEALY-LANE CONCRETE REPAIRS. PROVIDE A MINIMUM SPACING OF 18 INCHES FROM ALL TRANSVERSE JOINTS TO CENTER OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.
- APPLY A FRESH LAYER COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT CORROSION.

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
4" TO 6"	NO. 4	36"	36"
6" TO 8"	NO. 5	36"	36"
8" TO 12"	NO. 5*	36"	36"***

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DOWEL BAR SPACING	CONTRACTION JOINT SPACING
4" TO 6"	NO. 4	12"	12"
6" TO 8"	NO. 5	12"	12"
8" TO 12"	NO. 5	12"	12"

CONCRETE PAVEMENT REPAIR AND REPLACEMENT
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
SDD 13C09 - 17b

<https://wisconsin.gov/rdw/sdd/sd-13c09.pdf#page=1>

Additional example of use of tie steel per table

