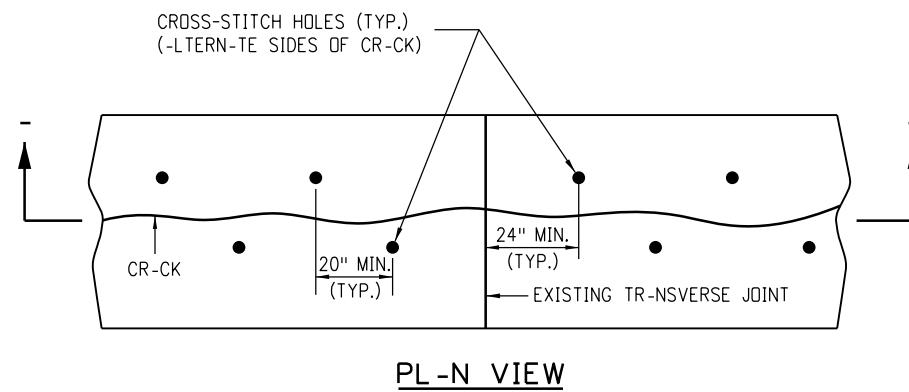


SL-B THICKNESS (T) (IN.)								
ANGLE	8	9	10	11	12	13	14	15≥
DIST-NCE TO HOLE (IN.)								
35	5.75	6.50	7.25	7.75	8.50	-	-	-
40	-	-	-	6.50	7.25	7.75	8.25	-
45	-	-	-	-	6.00	6.50	7.00	7.50
LENGTH OF B-R (L) (IN.)								
35	9.50	11.00	12.50	14.50	16.00	-	-	-
40	-	-	-	12.50	14.00	16.00	18.50	-
45	-	-	-	-	12.00	14.00	16.50	18.00
EPOXY CO-TED B-R NUMBER (#)								
	6	6	6	6	6	8	8	8

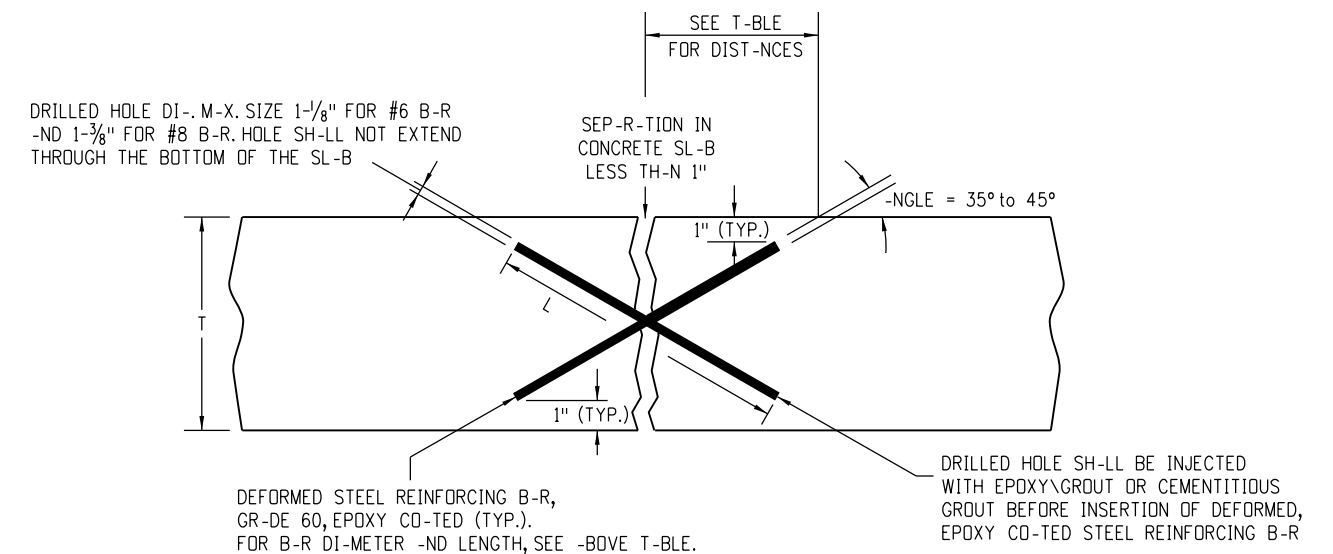
CROSS STITCHING B-R DIMENSIONS AND LOC-TION OF DRILL HOLES



PL-N VIEW

GENER-L NOTES


1. THERE SH-LL BE - MINIMUM 1 INCH G-P FROM THE ENDS OF THE DEFORMED REB-RS TO THE TOP OR BOTTOM OF THE CONCRETE SL-B.
2. DO NOT DRILL HOLE COMPLETELY THROUGH THE SL-B, SO TH-T THE EPOXY/GROUT WILL BE CONT-INED IN THE HOLE WHILE B-CK FILLING.

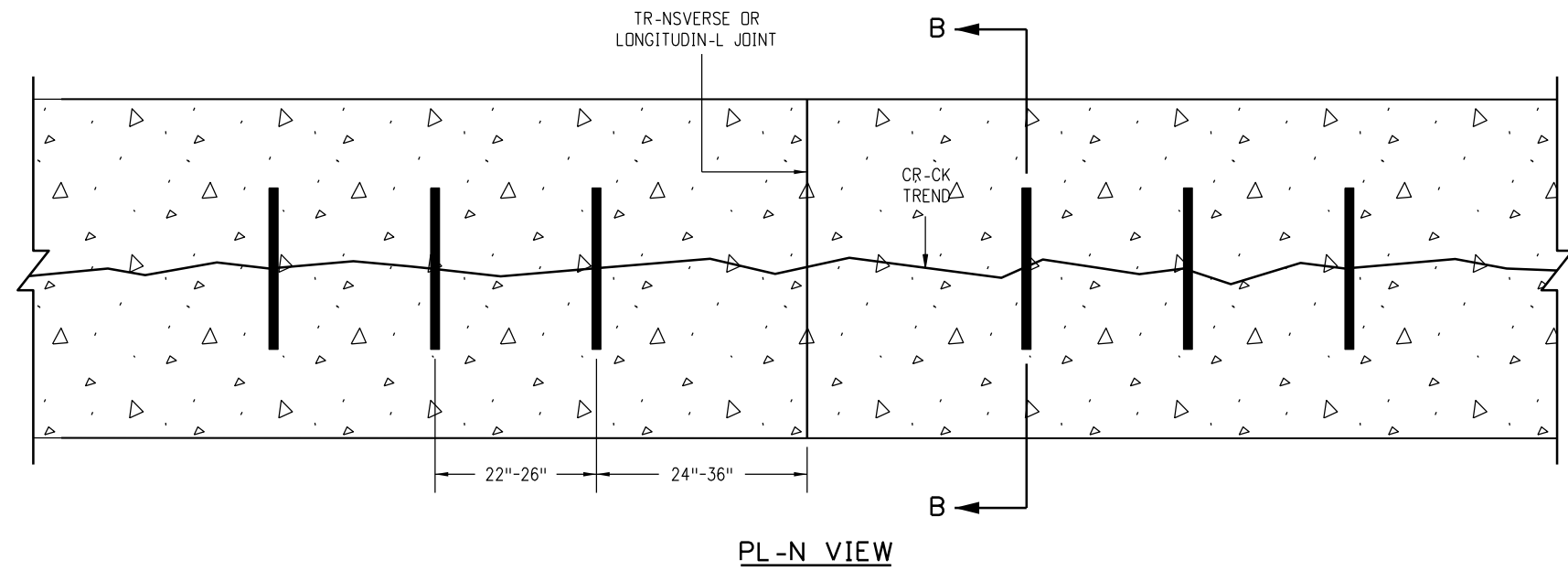


SECTION ---

CROSS STITCHING DETAILS

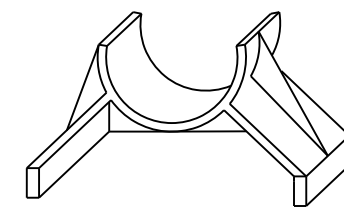
FOR PCCP 8" OR MORE IN THICKNESS

Computer File Information		Sheet Revisions		Colorado Department of Transportation  2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch	CONCRETE PAVEMENT CRACK REPAIR	STANDARD PLAN NO.	
Creation Date: 10/07/19		Date:	Comments			M-412-2	
Designer Initials: JBK		(R-X)				Standard Sheet No. 1 of 6	
Last Modification Date: 09/06/22		(R-X)				Project Sheet Number:	
Detailer Initials: LTA		(R-X)				Issued by the Project Development Branch: July 31, 2019	
C-D Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		JBK			

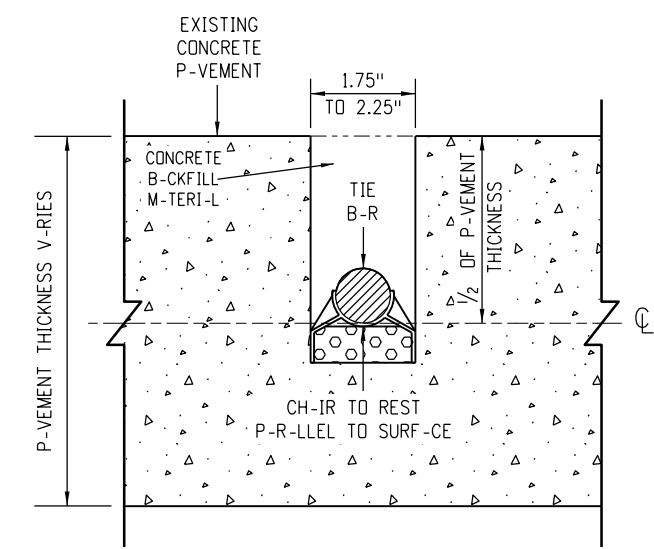
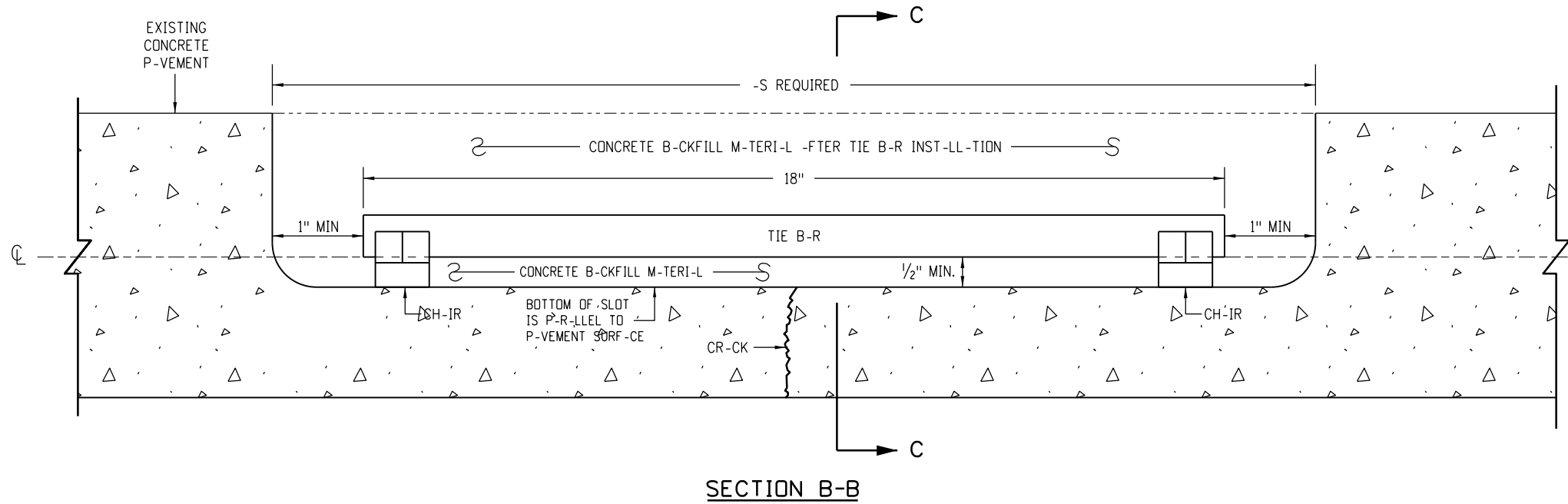


P-VEMENT THICKNESS (T)	TIE B-R SIZE
T ≤ 6 INCHES	#4
6 INCHES < T < 8 INCHES ON UNBOUNDED B-SE	#5
6 INCHES < T < 8 INCHES ON LIME TRE-TED, -SPH-LT OR CEMENT TRE-TED, MILLED -SPH-LT OR RECYCLED -SPH-LT B-SES	#6

TIE B-RS SHOULD BE PL-CED -PPROXIM-TELY PERPENDICUL-R TO THE GENER-L TREND OF THE CR-CK.



ONE REQUIRED UNDER E-CH END OF TIE B-R



SLOT STITCHING DETAILS

FOR PCCP LESS TH-N 8" IN THICKNESS

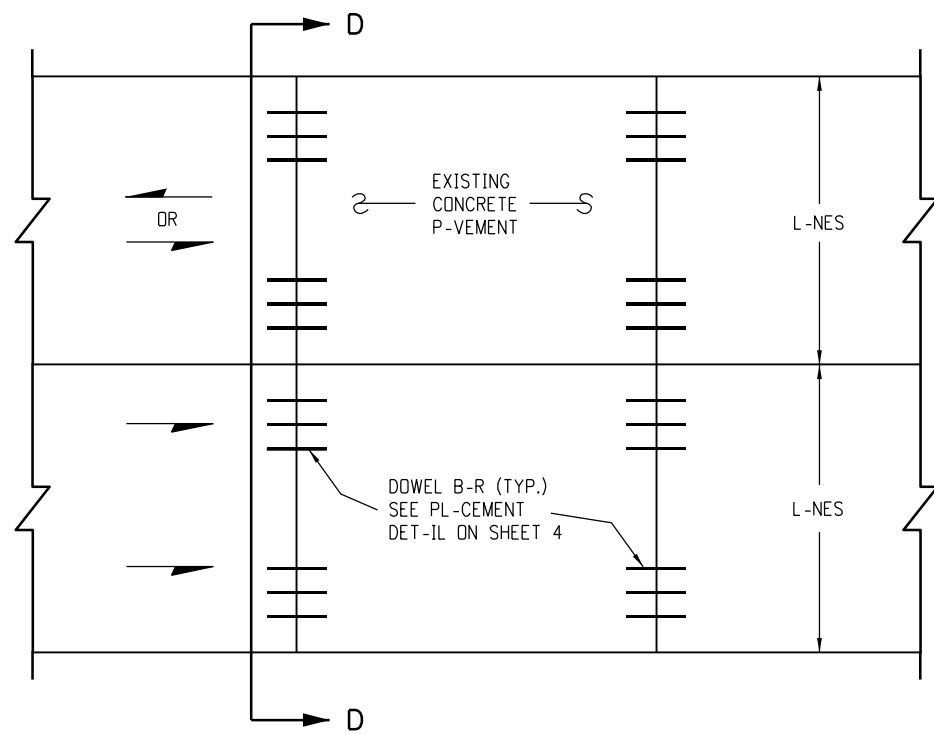
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Creation Date: 10/07/19	
Designer Initials: JBK	(R-X)
Last Modification Date: 09/06/22	(R-X)
Detailer Initials: LTA	(R-X)
C-D Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

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 Project Development Branch JBK

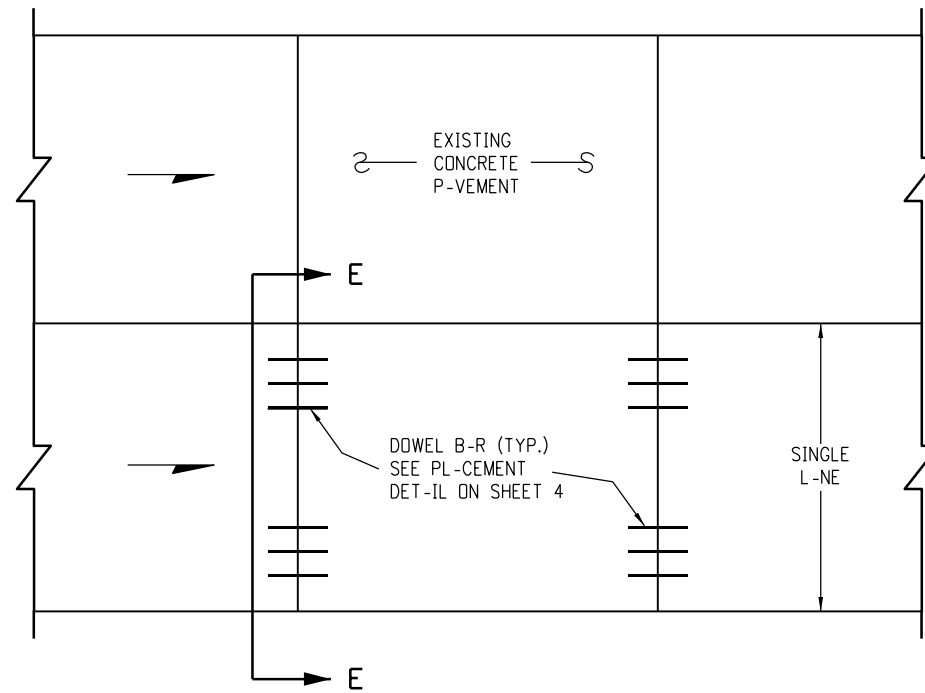
**CONCRETE PAVEMENT
 CRACK REPAIR**
 Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-412-2
 Standard Sheet No. 2 of 6
 Project Sheet Number:



**PL-N VIEW
DOWEL B-R RETROFIT**

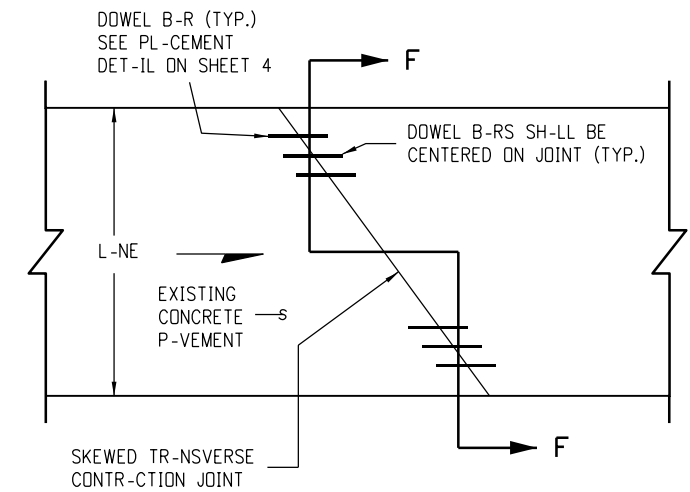
FOR E-CH L-NE IN UNDIVIDED HIGHW-Y (TWO W-Y TR-FFIC)
OR FOR MULTI-L-NE DIVIDED HIGHW-Y (ONE W-Y TR-FFIC)



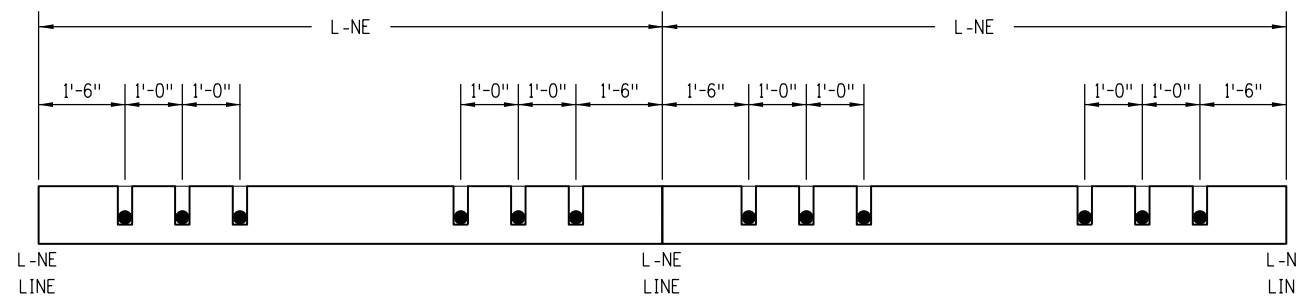
**PL-N VIEW
DOWEL B-R RETROFIT**

FOR SINGLE L-NE RETROFIT

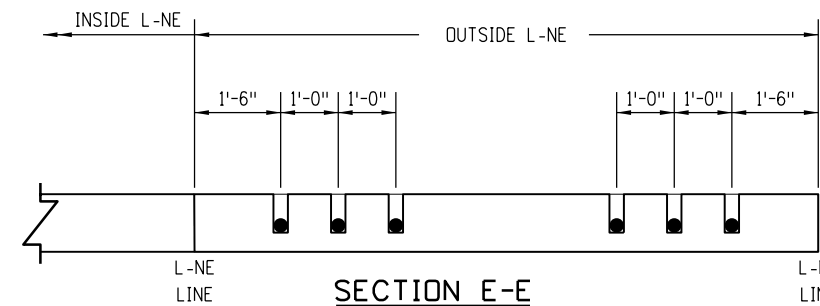
- NOTES**
- IF A LONGITUDINAL JOINT IS PRESENT IN THE WHEEL PATH OR AT THE MIDDLE OF THE SLAB, CONTACT THE ENGINEER.
 - DOWELS SHALL BE A MINIMUM OF 1 FT. - 6 INCHES AWAY FROM ANY LONGITUDINAL JOINT.



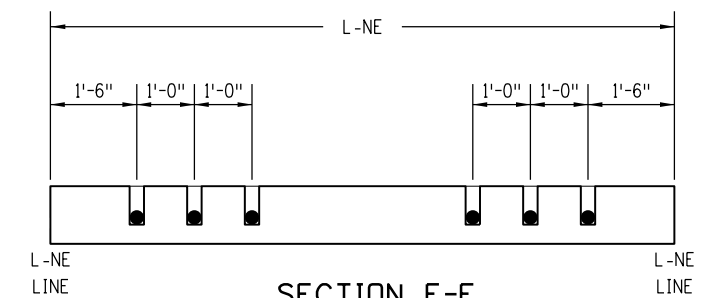
**PL-N VIEW
SKEWED JOINT DET-IL**



SECTION D-D



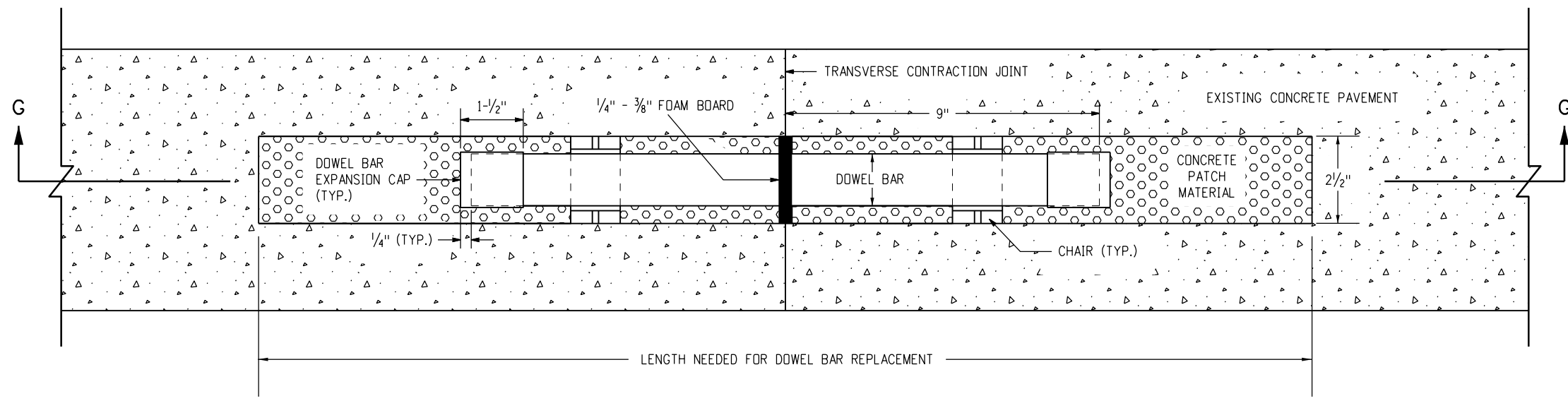
SECTION E-E



SECTION F-F

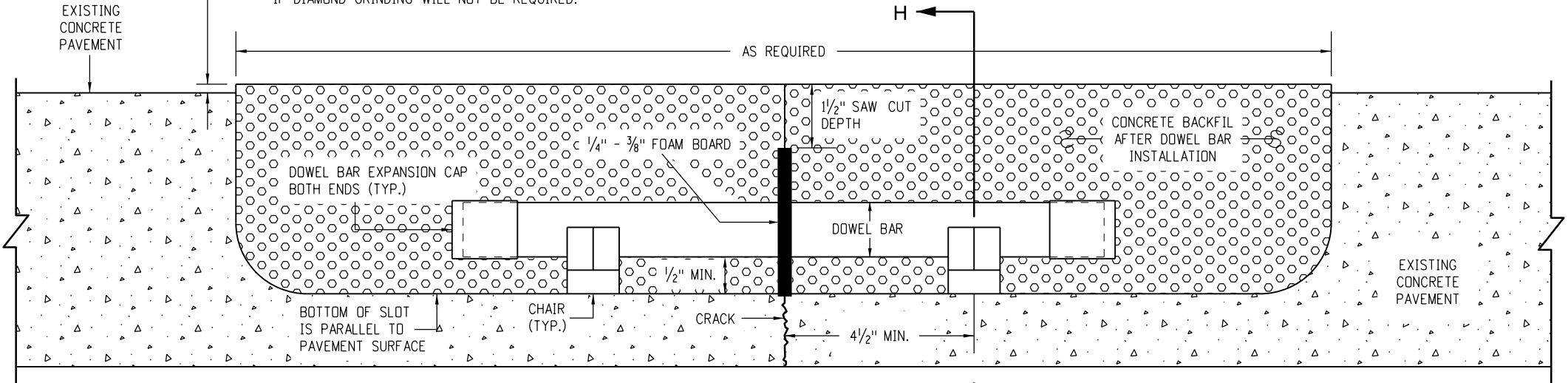
DOWEL BAR RETROFIT DETAILS

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Creation Date: 10/07/19	Designer Initials: JBK	Date:	Comments:			M-412-2	Standard Sheet No. 3 of 6
Last Modification Date: 09/06/22	Detailer Initials: LTA			Project Development Branch	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:	
C-D Ver.: MicroStation V8 Scale: Not to Scale Units: English				JBK			



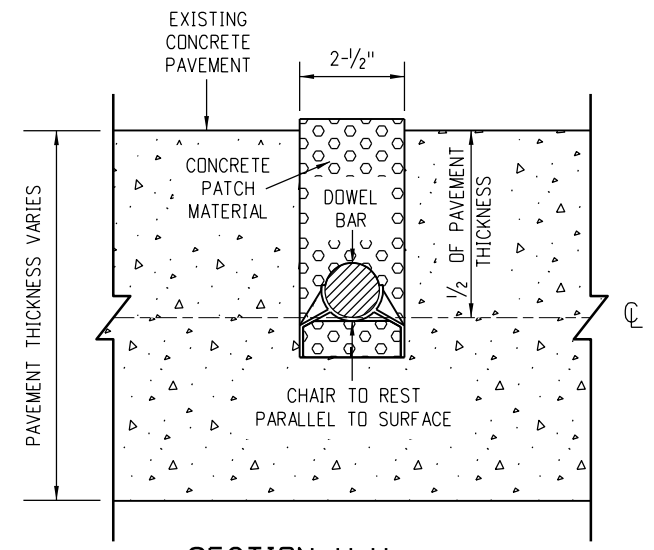
PLAN VIEW

1/8" DEPTH OF CONCRETE PATCH MATERIAL ABOVE EXISTING CONCRETE SURFACE FOR PROJECTS THAT WILL BE DIAMOND GROUND. MAKE FLUSH WITH EXISTING PAVEMENT SURFACE IF DIAMOND GRINDING WILL NOT BE REQUIRED.

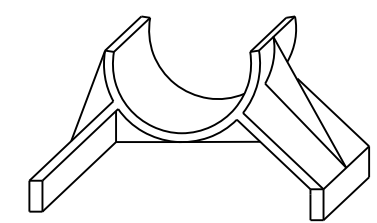


SECTION G-G

PAVEMENT THICKNESS (T)	DOWEL BAR DIAMETER
7 INCHES ≤ T < 8 INCHES	1 INCH
8 INCHES ≤ T ≤ 10 INCHES	1.25 INCH
10 INCHES < T ≤ 15 INCHES	1.50 INCH



SECTION H-H



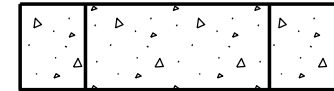
TYPICAL CHAIR DETAIL
ONE REQUIRED UNDER EACH END OF DOWEL BAR

DOWEL BAR RETROFIT DETAILS

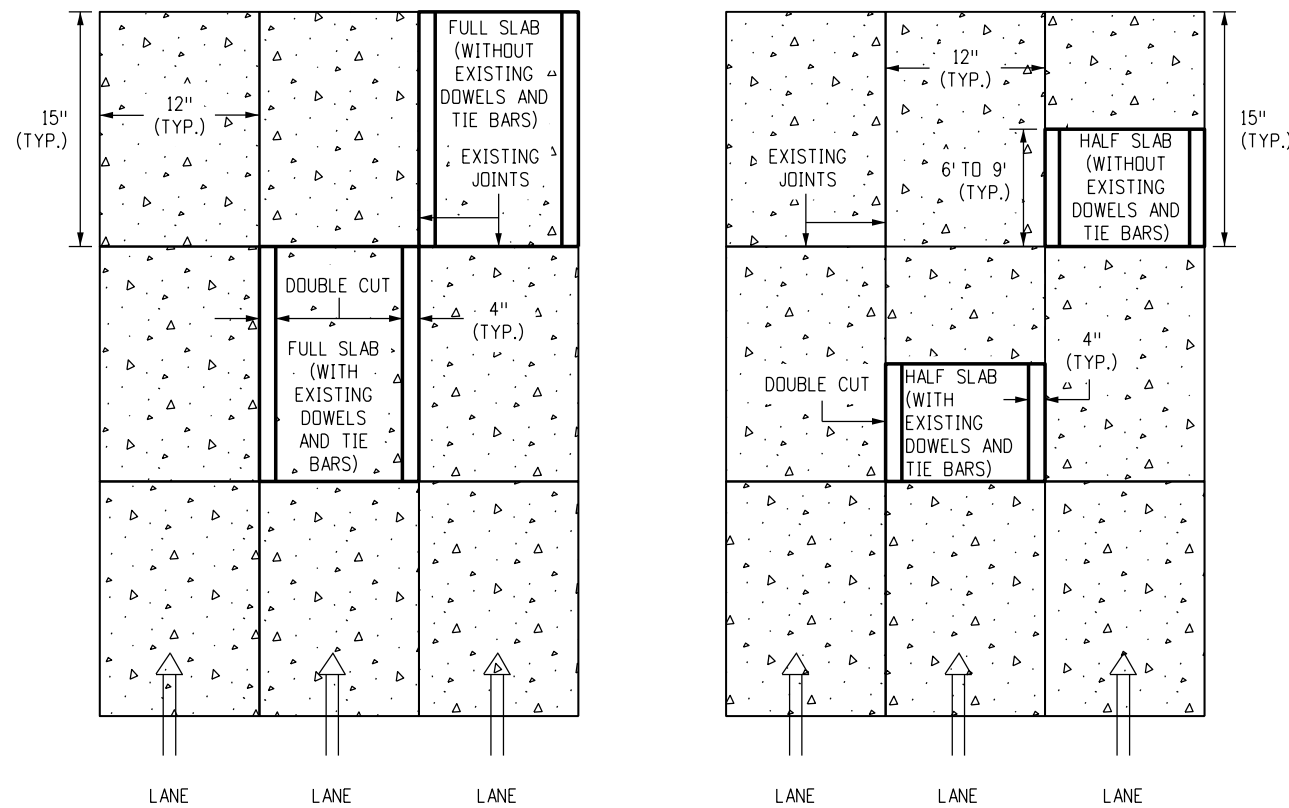
Computer File Information Creation Date: 10/07/19 Designer Initials: JBK Last Modification Date: 09/06/22 Detailer Initials: LTA CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		Sheet Revisions <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>(R-X)</td> <td></td> </tr> <tr> <td>(R-X)</td> <td></td> </tr> <tr> <td>(R-X)</td> <td></td> </tr> <tr> <td>(R-X)</td> <td></td> </tr> </tbody> </table>		Date:	Comments	(R-X)		(R-X)		(R-X)		(R-X)		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch		CONCRETE PAVEMENT CRACK REPAIR Issued by the Project Development Branch: July 31, 2019		STANDARD PLAN NO. M-412-2 Standard Sheet No. 4 of 6 Project Sheet Number:	
Date:	Comments																		
(R-X)																			
(R-X)																			
(R-X)																			
(R-X)																			

NOTES

1. DAMAGE TO THE CONCRETE RESULTING FROM THE CONTRACTOR'S DRILLING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. ALL FULL AND HALF SLABS TO BE REPLACED SHALL BE DOUBLE SAW CUT TO PROTECT THE ADJACENT SLABS FROM DAMAGE.
3. DOUBLE SAW CUTS SHALL BE THE FULL DEPTH OF CONCRETE SLAB.
4. THE INSIDE DOUBLE SAW CUT SHALL BE 4 INCHES MINIMUM IN FROM AREA TO BE REMOVED AS SHOWN IN THE DETAIL.
5. BOTH LONGITUDINAL AND TRANSVERSE DOUBLE SAW CUTS SHALL BE DONE PRIOR TO REMOVING SLAB.
6. ALL SAW CUTTING AND CONCRETE WASTE WATER RESIDUE SHALL BE CONTAINED AND NOT ALLOWED TO ENTER ANY STORM DRAIN OR SURFACE WATER.
7. PANELS SHALL BE REMOVED SO AS TO MINIMIZE DAMAGE TO THE SUBGRADE.
8. NO LARGE EQUIPMENT SHALL BE ALLOWED ON EXPOSED SUBGRADE.
9. ALL PARTIAL SLAB REPLACEMENTS SHALL BE FULL WIDTH WITH A LENGTH OF 6 FEET TO 9 FEET AS SHOWN IN THE DETAIL. SLAB SIZES LESS THAN THAT ARE NOT PERMITTED.
10. REMOVED SLABS MUST BE PLACED IN ONE POUR.
11. ALL TRANSVERSE JOINTS ARE DOWELED.
12. ALL LONGITUDINAL JOINTS ARE TIED.



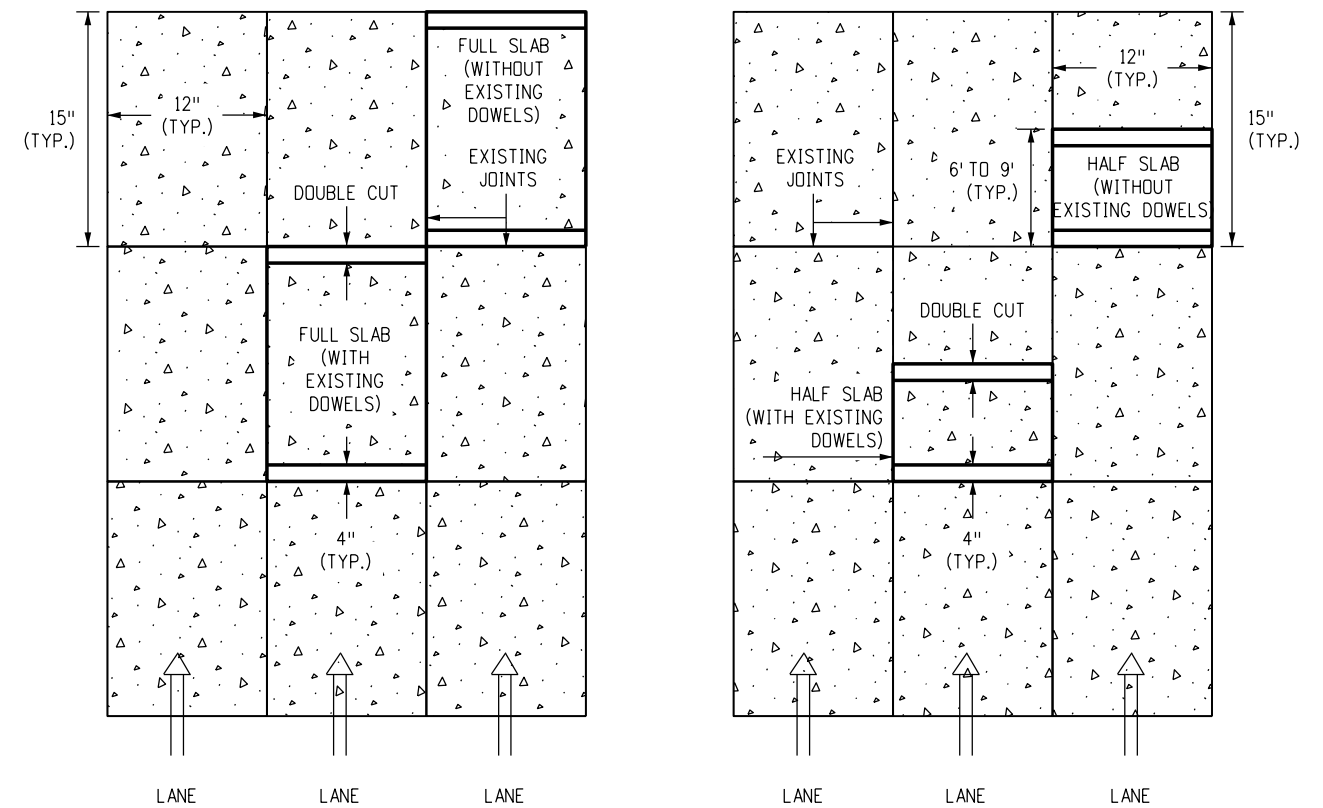
**DOUBLE SAW CUT
CROSS-SECTION VIEW**



FULL SLAB REPLACEMENT

HALF SLAB REPLACEMENT

**PLAN VIEW
LONGITUDINAL CUT DETAIL**



FULL SLAB REPLACEMENT

HALF SLAB REPLACEMENT

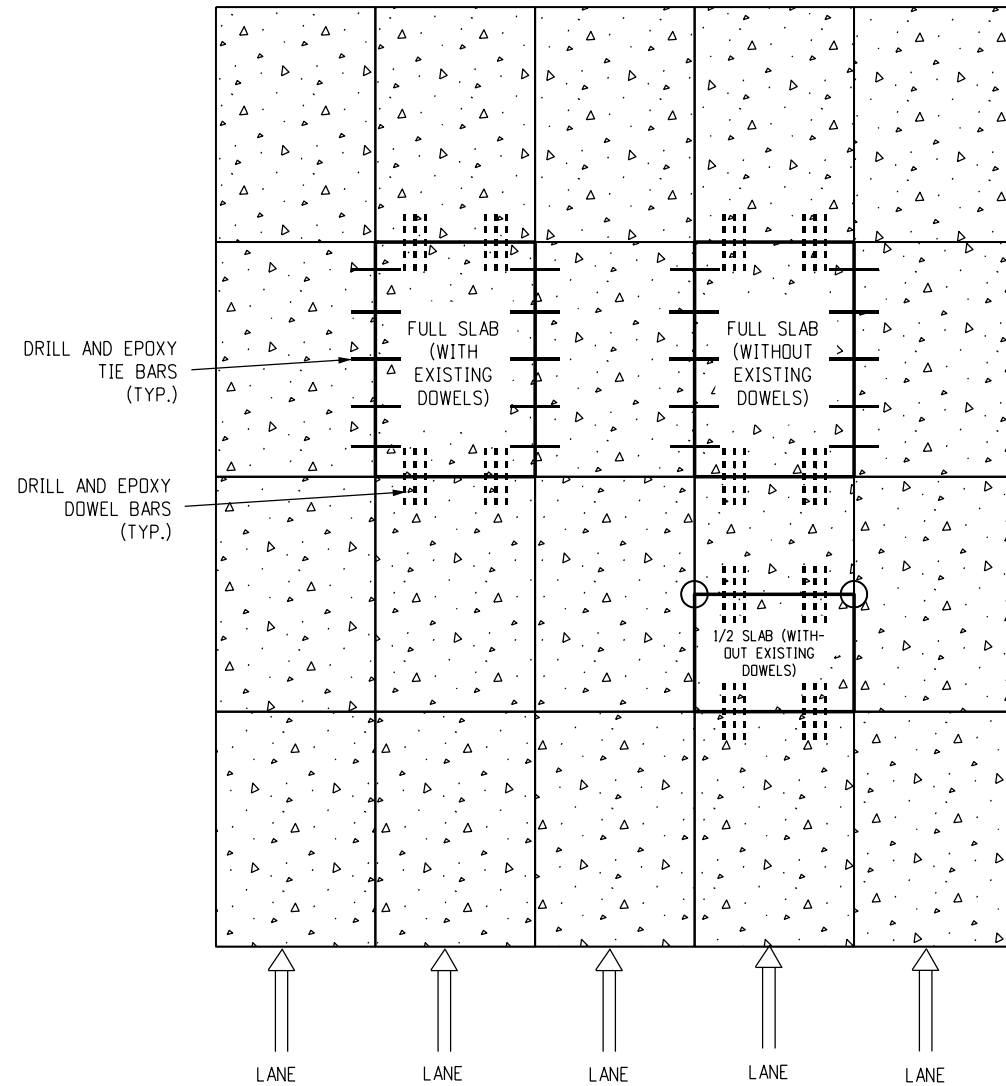
**PLAN VIEW
TRANSVERSE CUT DETAIL**

SLAB REMOVAL DETAILS

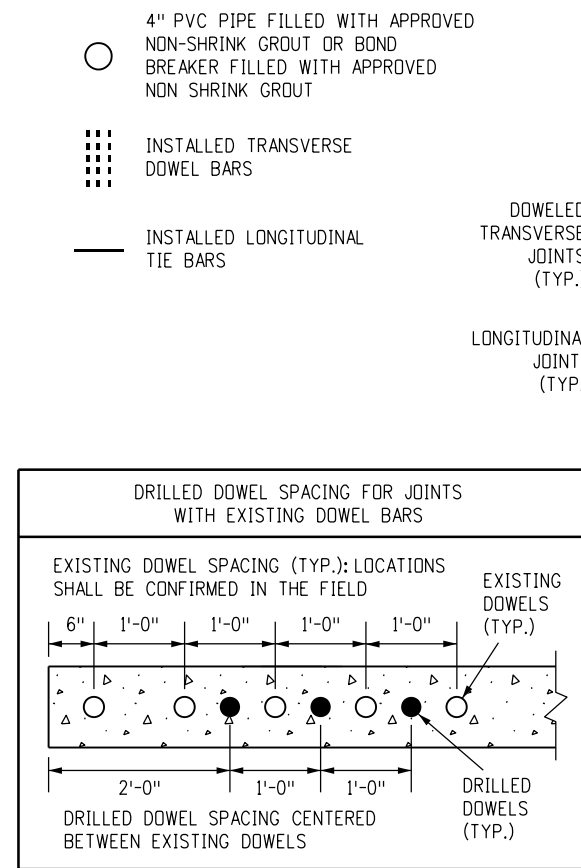
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Creation Date: 10/07/19		Date:	Comments			M-412-2	
Designer Initials: JBK		(R-X) 09/06/22	Added this new sheet.			Standard Sheet No. 5 of 6	
Last Modification Date: 09/06/22		(R-X)					
Detailer Initials: LTA		(R-X)				Project Sheet Number:	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)					
				Project Development Branch	JBK	Issued by the Project Development Branch: July 31, 2019	

NOTES

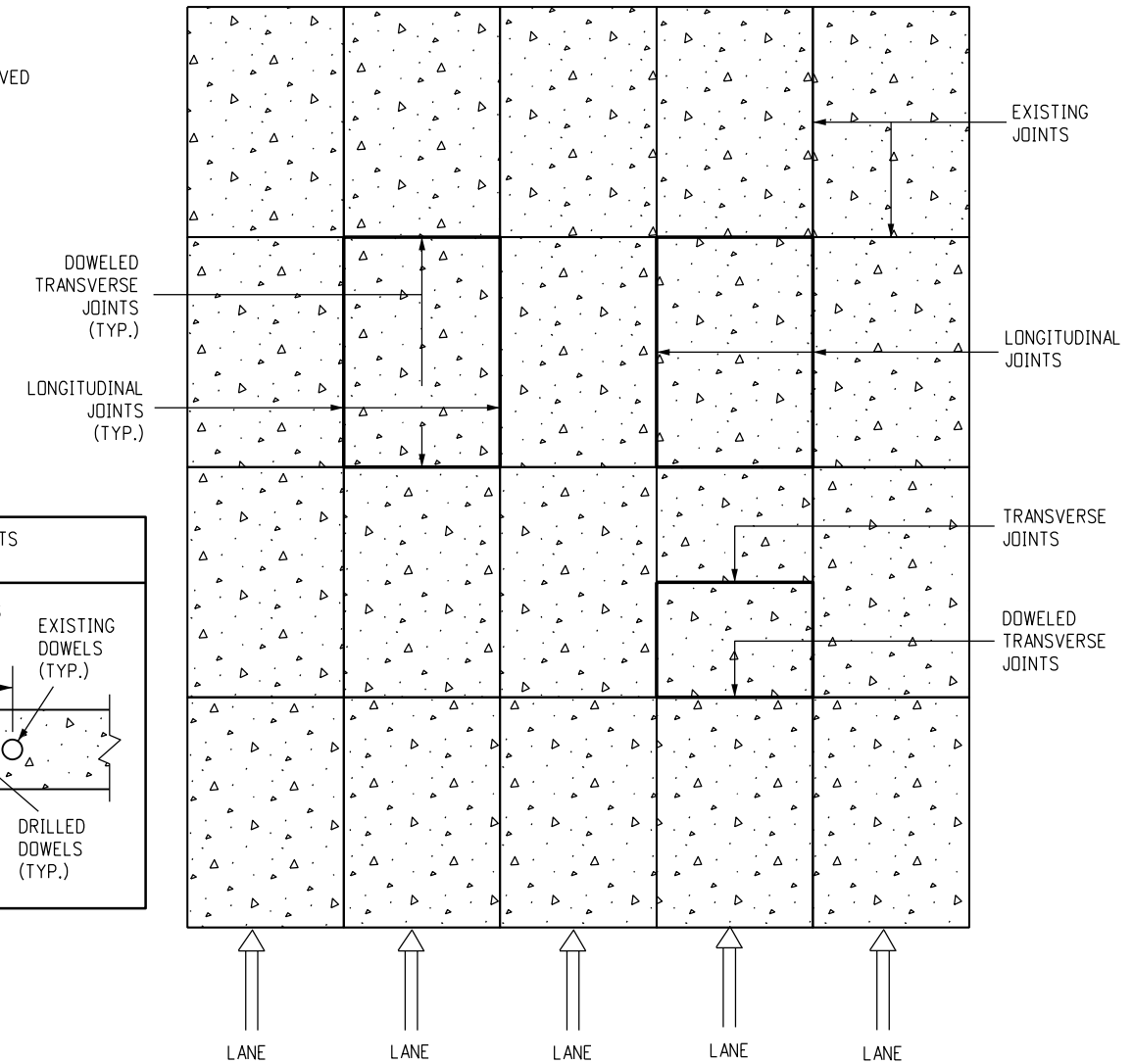
1. DAMAGE TO THE CONCRETE RESULTING FROM THE CONTRACTOR'S DRILLING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. HOLES SHALL NOT BE DRILLED WITHIN 18 INCHES OF AN EXISTING LONGITUDINAL JOINT OR TRANSVERSE JOINT.
3. ALL SAW CUTTING AND CONCRETE WASTE WATER RESIDUE SHALL BE CONTAINED (OR AS DIRECTED BY THE ENGINEER).
4. CONCRETE SHALL BE CLASS P OR PRS AND SHALL ACHIEVE COMPRESSIVE STRENGTH OF 2500 PSI PRIOR TO OPENING TO TRAFFIC.
5. THICKNESS OF NEW CONCRETE PAVEMENT SECTION SHALL MATCH EXISTING CONCRETE PAVEMENT SECTION. THIS SHALL INCLUDE EXISTING CONCRETE DEPTH, EXISTING AGGREGATE BASE COURSE, AND REQUIRED SUBGRADE MATERIAL AS DETERMINED BY THE ENGINEER.
6. NEW DOWEL BARS SHALL BE CENTERED BETWEEN EXISTING DOWELS. NEW BARS SHALL BE A MINIMUM OF 3 INCHES FROM EXISTING BARS. THE ENGINEER MAY APPROVE CHANGES DUE TO MISALIGNED EXISTING DOWEL BARS.



**SLAB REPLACEMENT DETAIL
PLAN VIEW**



SLAB REPLACEMENT DETAILS



**FINAL SAWED JOINT DETAIL
PLAN VIEW**

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