

SIDEWALK, DRIVE APPROACH AND CONCRETE CURB REQUIREMENTS

Rev. 03/16

GENERAL:

1. Removal

- Concrete must be saw-cut full depth at the limits of removal.

2. Concrete Requirements:

- Air Content 5%-8%
- Slump No Greater than 4"
- Compressive Strength 3500 psi @ 28 days
- Mix (6 sack minimum) P1 or S2 (As defined in the MDOT 2012 Standard Specifications for Construction)

Note: All concrete items and materials shall be constructed/provided in accordance with Section 601 & 602 of the MDOT 2012 Standard Specifications for Construction.

3. Finish:

- Concrete surfaces shall have a broomed finish.
- After finishing, the concrete surface must have clear or a white membrane cure applied at a rate of 1 gallon per 25 square yards.
- The contractor must stamp the concrete with the contractor name and current year at the limits of the pour, using a professionally manufactured/fabricated stamp ONLY. No other methods will be allowed.

4. Weather & Protection:

- The air temperature must be at least 25°F and rising prior to any concrete pour. The subgrade and forms shall not be frozen or have frost present.
- The concrete shall be protected against damage from rain with plastic or burlap.
- The concrete shall be protected against damage from freezing with blankets or straw.

5. Inspection:

- The city of East Lansing Engineering Department must be contacted for a grade and form work inspection at least 48 hours in advance of any concrete pour.

SIDEWALK AND DRIVE APPROACHES:

1. Joints & Expansion:

- Sidewalk shall have troweled joints with spacing equal to the width of the sidewalk.
- Sidewalk shall have expansion joints using 1/2" thick fiber matrix every 150 feet. See attached Concrete Construction/Control Joints Standard Details.
- Where new sidewalk meets existing sidewalk, 18" long epoxy-coated deformed bars shall be drilled and inserted at 24" on-center and centered vertically. See attached Concrete Construction/Control Joints Standard Details.

2. Subgrade Fill:

- Subgrade fill for sidewalk and drive approaches shall be MDOT 21AA aggregate material compacted to 98% maximum unit weight.

3. Barricading:

- Lighted, type II barricades shall be placed on both ends of each continuous sidewalk section removed, with a maximum barricade spacing of fifty feet. For sidewalk sections not within a driveway, the barricades shall remain in place from the time of removal until 24 hours after the concrete has been poured and cured. For sidewalk sections within a driveway and drive approaches, the barricades shall remain in place from the time of removal until 7 days after the concrete has been poured unless the strength has been verified. Pedestrian detour may be required, at which time the contractor shall submit a detour route in accordance with current MMUTCD standards.

CURB AND GUTTER:

1. New Drive Openings:

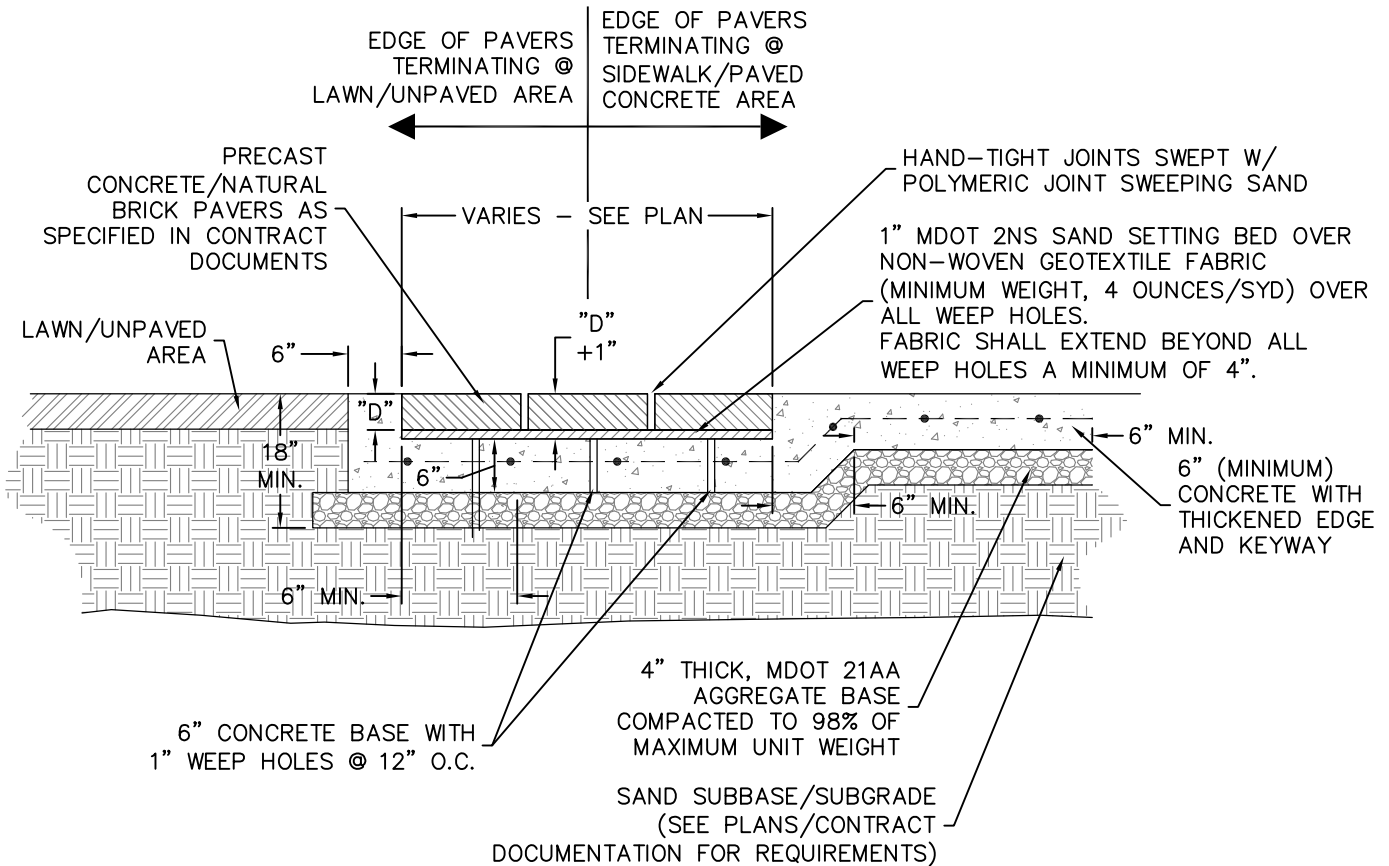
- The curb maybe removed and replaced or horizontally cut to create drive openings (see the City's Standards for the specifications on this procedure)

2. Joints & Expansion:

- Curb and gutter shall have troweled joints paced every 10 feet
- Curb and gutter shall have expansion joints 1" thick fiber matrix every 400 feet.


3. Subgrade Fill:

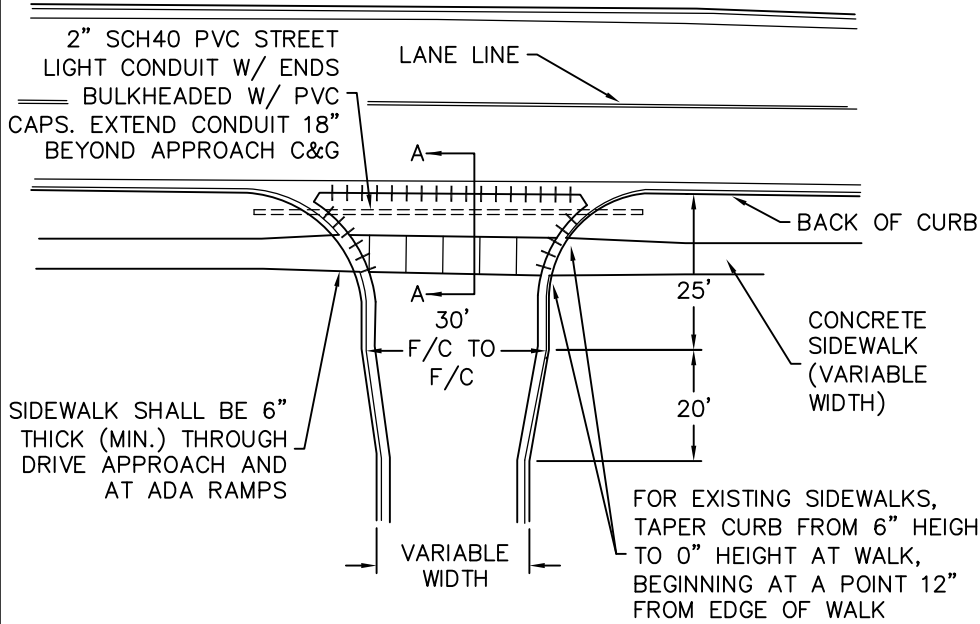
- Subgrade fill for curb and gutter shall be MDOT 21AA aggregate material compacted to 98% maximum unit weight.



PRECAST CONCRETE/NATURAL CLAY PAVERS OVER CONCRETE BASE COURSE

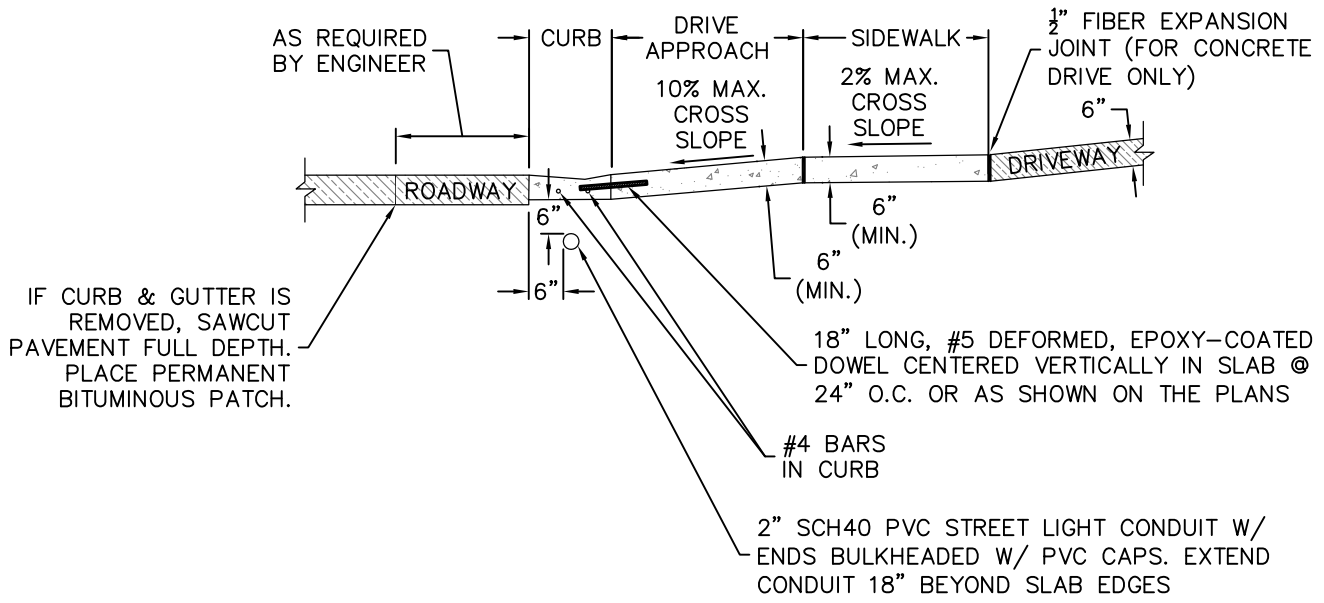
- SEE EAST LANSING ENGINEERING DEPARTMENT STANDARD DETAILS AND SPECIFICATIONS FOR INSTALLATION OF CONCRETE SIDEWALK, AGGREGATE BASE, AND SLOPE RESTORATION.
- AREAS WITH VEHICULAR TRAFFIC SHALL HAVE WWM REINFORCEMENT PLACED PER MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION. WWM REINFORCEMENT SHALL BE 6x6 - W2.9xW2.9, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS AND PLANS, OR AS DIRECTED BY THE ENGINEER.

© 2014 CITY OF EAST LANSING	CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943		PROJECT STANDARD DETAILS	REVISION ENG. REVIEW	
	SHEET NAME PRECAST CONC/NATURAL BRICK PAVER INST.			DATE 03/01/16	
	DRAWN CJM	CHECKED RFS	APPROVED RFS	SCALE NONE	
	DATE 02/20/14	DATE 03/14/14	DATE 03/14/14	SHEET NO. 1 OF 1	



- NOTES**
1. DRIVE RADII MAY VARY DEPENDING ON THROAT WIDTH
 2. VEHICLE TURNING RADIUS BASED ON A.A.S.H.T.O. GUIDELINES. ON STREETS WHERE THE POSTED SPEED LIMIT IS 25 M.P.H. THIS WIDTH MAY BE REDUCED TO 26 FT.
 3. ON STREETS WHERE THE SPEED LIMIT IS 35 M.P.H OR GREATER AN ENTERING RADIUS OF 25-30 FT MAY BE REQUIRED.
 4. CONTACT CITY ENGINEERING DEPARTMENT FOR DETAILS REGARDING ONE-WAY DRIVES
 5. DRIVE APPROACH SHALL BE CONCRETE FROM CURB & GUTTER TO RIGHT-OF-WAY LIMITS
 6. ALL RAMP SHALL BE ADA COMPLIANT (SEE ADA RAMP STANDARD)

TWO-WAY COMMERCIAL DRIVE
WITH PREDOMINATELY PASSENGER CAR TRAFFIC



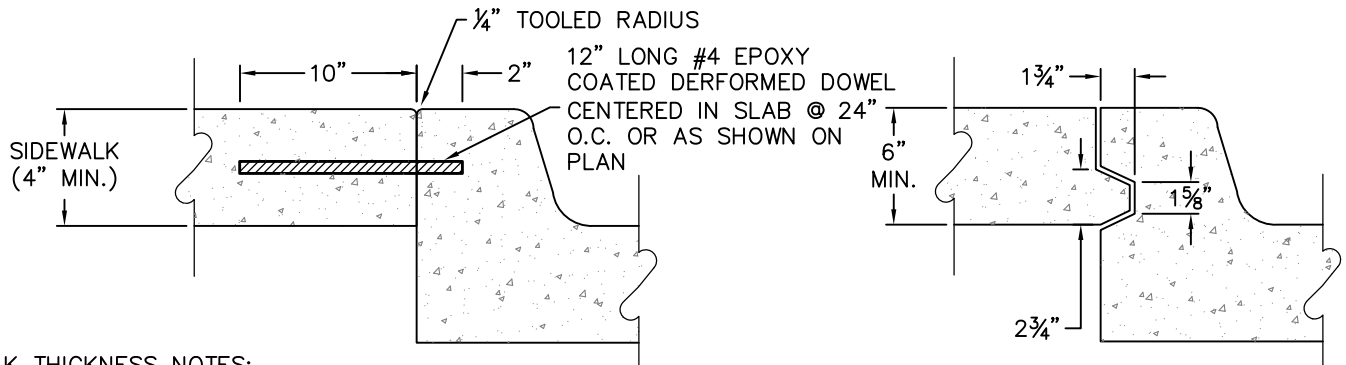
TWO-WAY COMMERCIAL DRIVE
SECTION A-A

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PROJECT		STANDARD DETAILS		REVISION
SHEET NAME		COMMERCIAL DRIVEWAY		ENG. REVIEW
DATE	DATE	DATE	DATE	DATE
02/20/14	03/14/14	03/14/14	03/14/14	03/01/16
DRAWN	CHECKED	APPROVED	SCALE	
CJM	RFS	RFS	NONE	
DATE	DATE	DATE	SHEET NO.	
02/20/14	03/14/14	03/14/14	1 OF 1	

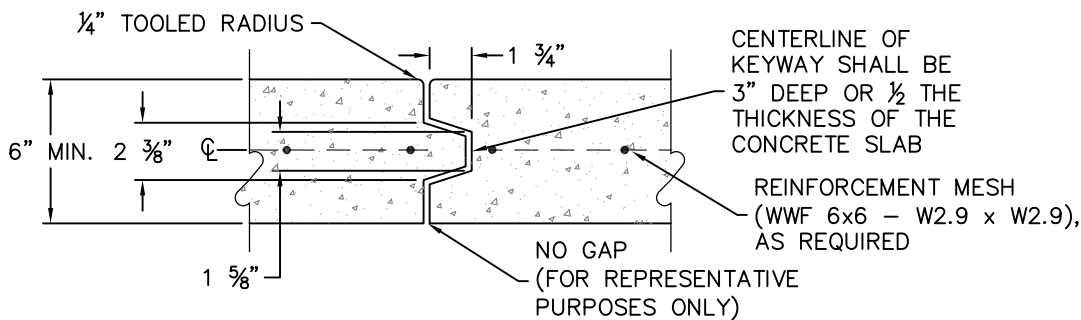
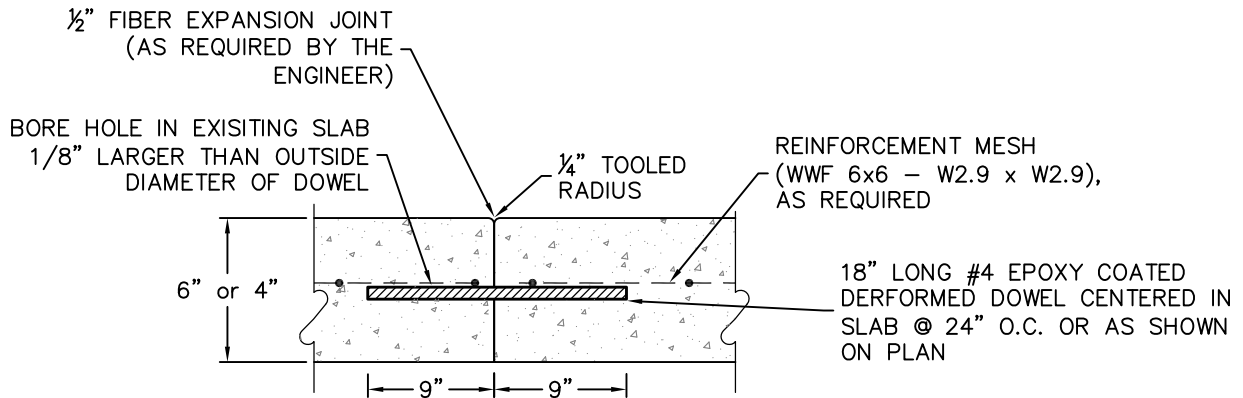


WALK THICKNESS NOTES:

- STANDARD WALK, THICKNESS = 4"
- WALK CROSSING DRIVES/ADA RAMPS THICKNESS = 6" (MIN.)
- WALKS GREATER THAN 5' IN WIDTH - THICKNESS = 6" (MIN.)
- NEW SIDEWALK SHALL BE A MINIMUM OF 5' WIDE. SEE EAST LANSING ENGINEERING DEPARTMENT STANDARD DETAILS AND SPECIFICATIONS FOR INSTALLATION OF CONCRETE CURB & GUTTER AND SIDEWALK

CONCRETE CONSTRUCTION JOINT AT BACK OF CURB

PROVIDE KEYWAY OR DOWEL CONNECTION



CONCRETE CONSTRUCTION JOINT

PROVIDE KEYWAY OR DOWEL CONNECTION

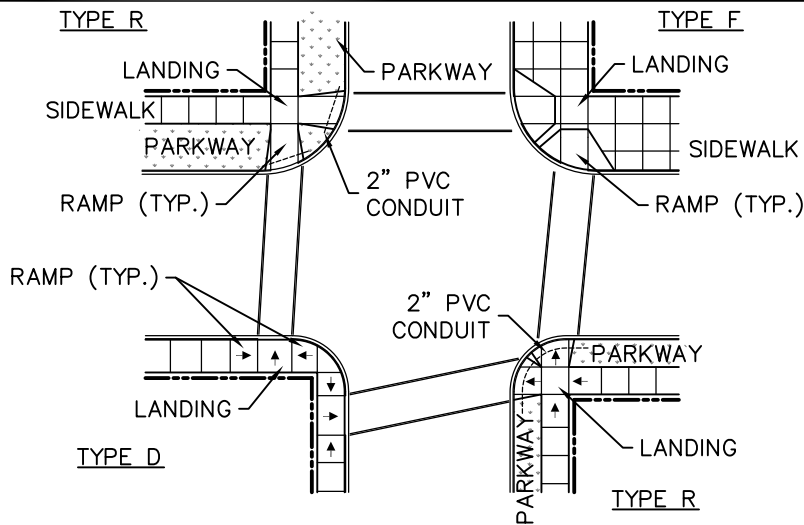
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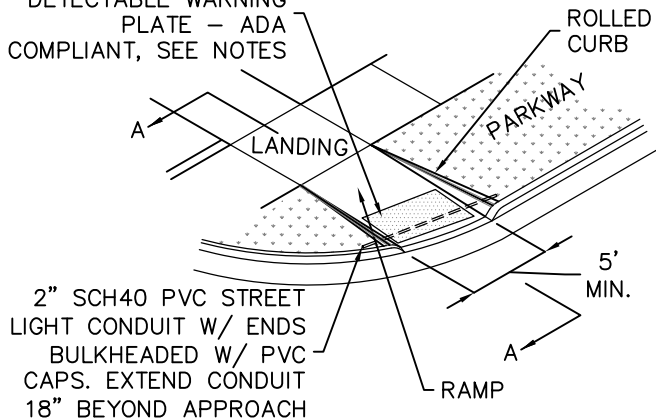
PROJECT STANDARD DETAILS			REVISION ENG. REVIEW
SHEET NAME CONCRETE CONSTRUCTION/CONTROL JOINTS			DATE 03/01/16
DRAWN CJM	CHECKED RFS	APPROVED RFS	SCALE NONE
DATE 02/20/14	DATE 03/14/14	DATE 03/14/14	SHEET NO. 1 OF 1



CONCRETE SIDEWALKS & ADA RAMPS

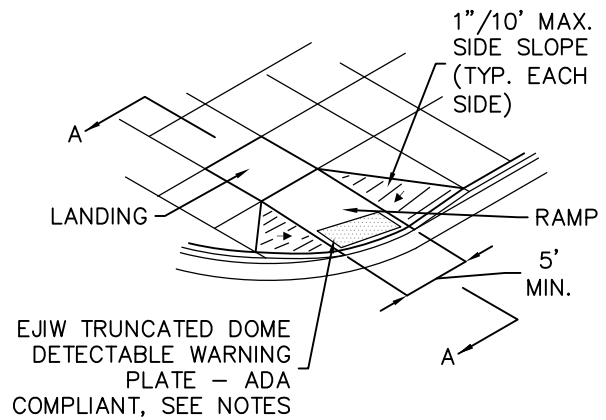
CORNER SIDEWALK RAMPS

EJIW TRUNCATED DOME
DETECTABLE WARNING
PLATE - ADA
COMPLIANT, SEE NOTES



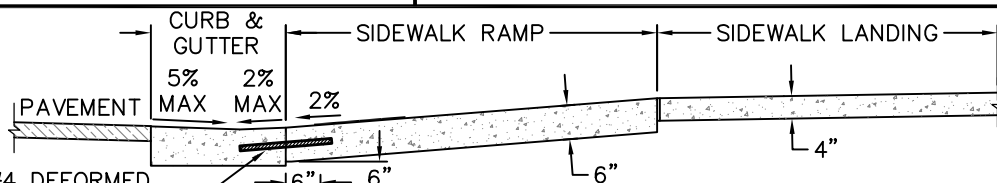
CONCRETE SIDEWALKS & ADA RAMPS

TYPE R RAMP



CONCRETE SIDEWALKS & ADA RAMPS

TYPE F RAMP



12" LONG, #4 DEFORMED,
EPOXY-COATED DOWEL CENTERED
VERTICALLY IN SLAB @ 24" O.C.
OR AS SHOWN ON THE PLANS

2" SCH40 PVC STREET LIGHT CONDUIT W/
ENDS BULKHEADED W/ PVC CAPS. TAPED
ENDS WILL NOT BE ALLOWED. EXTEND
CONDUIT 18" BEYOND SLAB EDGES

CONCRETE SIDEWALKS & ADA RAMPS

SECTION A-A

LANDINGS: MAXIMUM LANDING
SLOPE IN ANY DIRECTION IS 2%.
MINIMUM LANDING DIMENSIONS
5' X 5'. SEE NOTES

RAMPS: MAXIMUM CROSS SLOPE
ON RAMP IS THE SAME AS
THAT FOR SIDEWALK (2%).
RUNNING SLOPE 5%-7% (8.3%
MAXIMUM). SEE NOTES

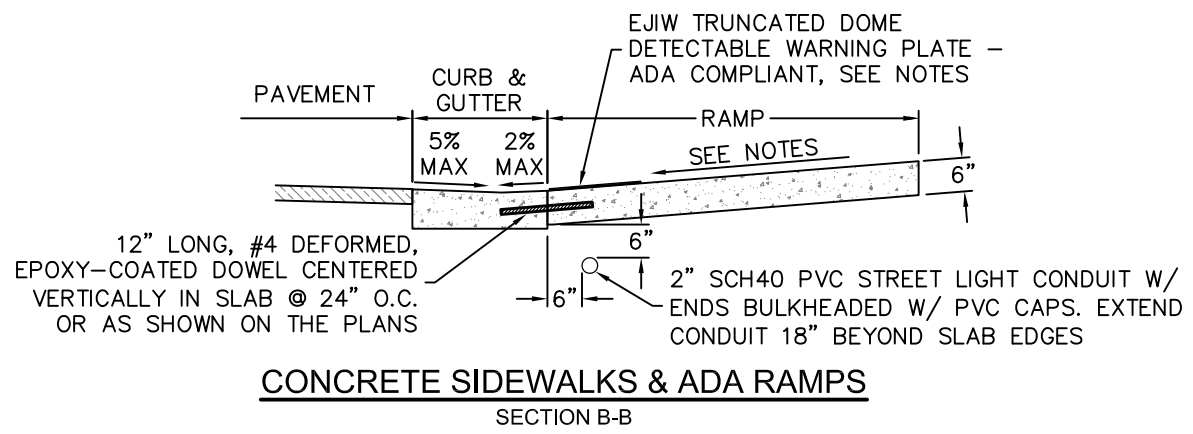
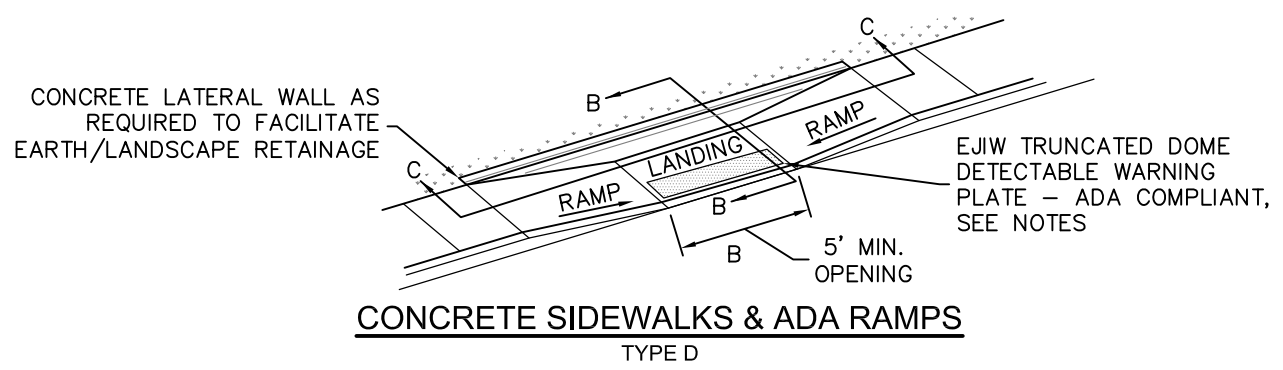
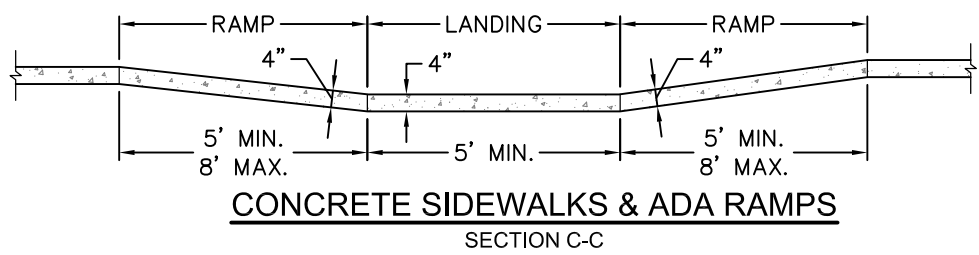
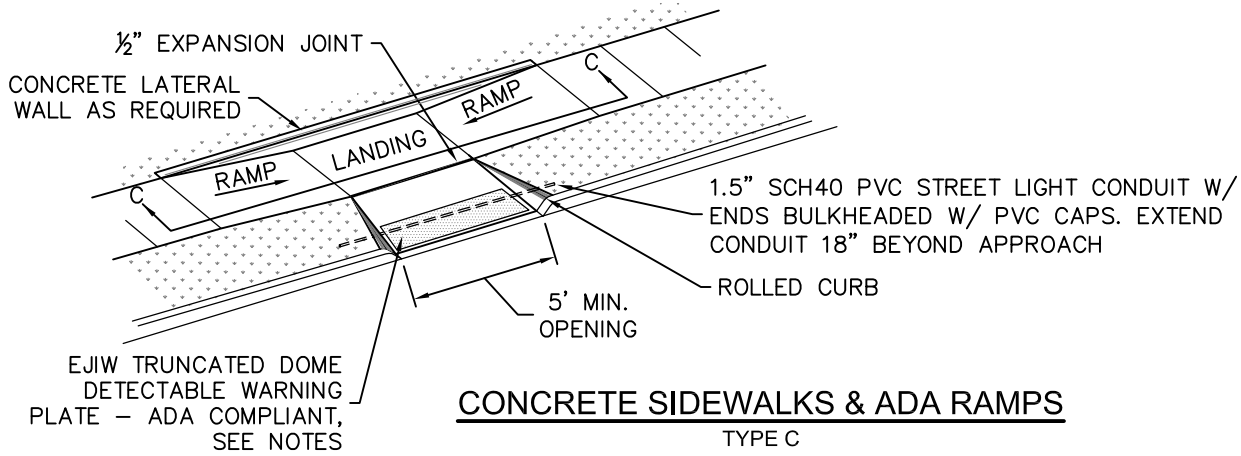
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PROJECT		STANDARD DETAILS		REVISION	
SHEET NAME		CONCRETE SIDEWALK & ADA RAMPS		ENG. REVIEW	
DRAWN		CHECKED		DATE	
CJM		RFS		03/01/16	
DATE		DATE		SCALE	
02/20/14		03/14/14		NONE	
APPROVED		APPROVED		SHEET NO.	
RFS		RFS		1 OF 3	

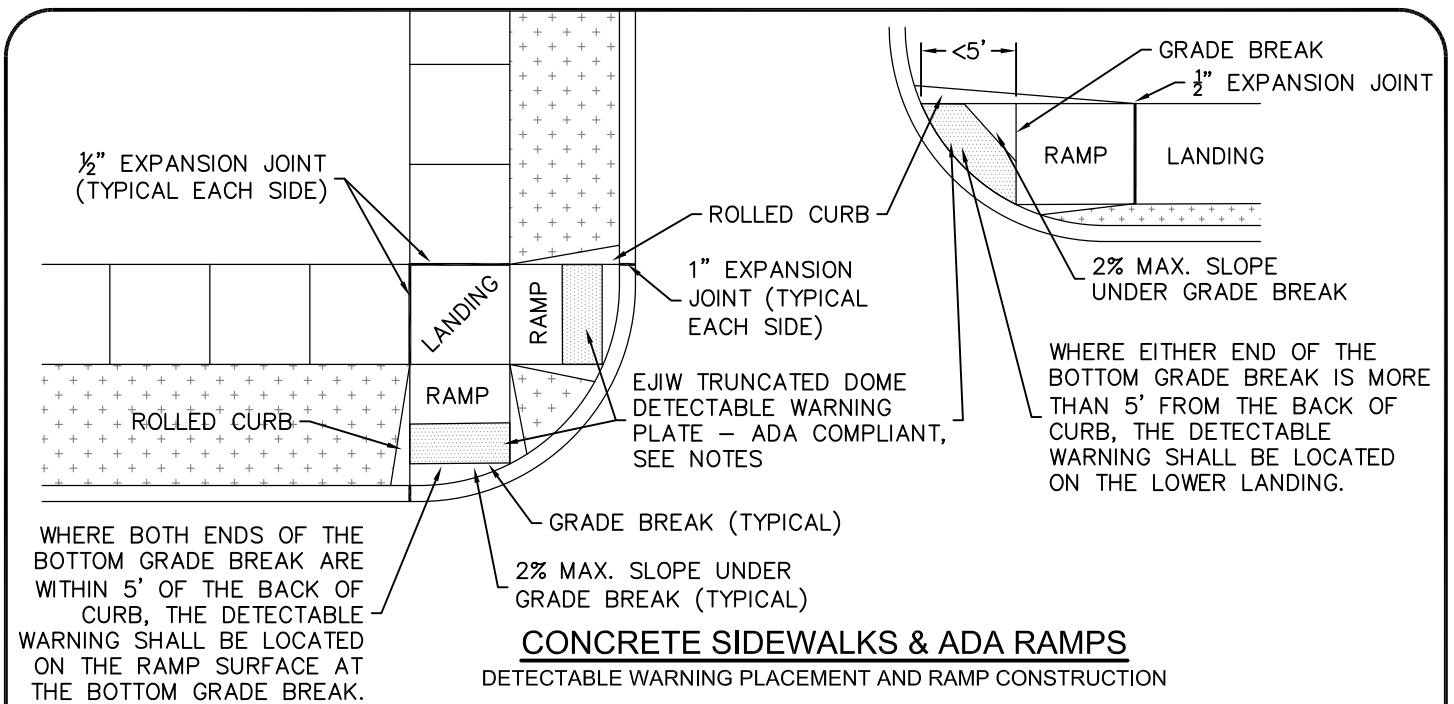


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PROJECT			REVISION
STANDARD DETAILS			ENG. REVIEW
SHEET NAME			DATE
CONCRETE SIDEWALK & ADA RAMPS			03/01/16
DRAWN	CHECKED	APPROVED	SCALE
CJM	RFS	RFS	NONE
DATE	DATE	DATE	SHEET NO.
02/20/14	03/14/14	03/14/14	2 OF 3



CONCRETE SIDEWALKS & ADA RAMPS

GENERAL NOTES AND SPECIFICATIONS

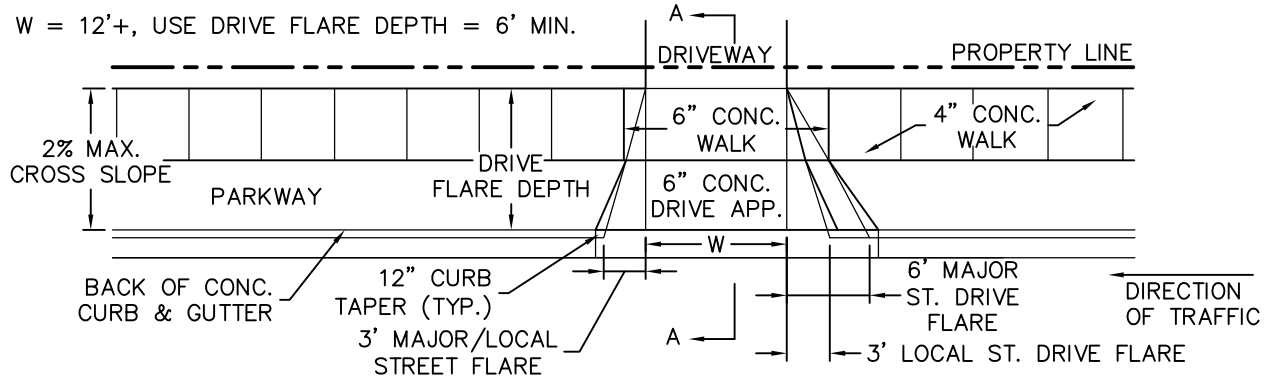
NOTES:

1. GRADE BREAKS AT THE TOP AND BOTTOM OF THE CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. AT LEAST ONE END OF THE BOTTOM GRADE BREAK SHALL BE AT THE BACK OF CURB.
2. INSTALL A 24" DEEP DETECTABLE WARNING, EXTENDING THE WIDTH OF THE RAMP. (NEAREST EDGE OF THE GRADE BREAK AT THE BACK OF CURB.) ALIGN DETECTABLE WARNING IN THE DIRECTION OF TRAVEL AND PERPENDICULAR (OR RADIAL) TO THE GRADE BREAK.
3. SIDEWALK RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
4. SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING. TRANSVERSE TO THE SLOPE OF RAMP.
5. SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.
6. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND SHORT GRADE CHANGES. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION. PARALLEL TO THE DIRECTION OF TRAVEL.
7. PROVIDE LANDINGS WHERE PEDESTRIAN TURNING MOVEMENTS ARE REQUIRED.
8. WHEN 5' MINIMUM DIMENSIONS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDING DIMENSION TO NOT LESS THAN 4' X 4', UNLESS APPROVED BY THE ENGINEER.
9. FOR NEW ROADWAY CONSTRUCTION THE RAMP CROSS SLOPE MAY NOT EXCEED 2%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.
10. THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH.
11. DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OR TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN 1/2" INCH. ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.
12. TRANSITION THE GUTTER PAN CROSS SECTION SUCH THAT THE COUNTER SLOPE IN THE DIRECTION OF RAMP TRAVEL IS NOT GREATER THAN 5%. MAINTAIN THE NORMAL GUTTER PAN CROSS SECTION ACROSS DRAINAGE STRUCTURES.
13. THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE RECESSED 1/2" BELOW WITH THE ADJACENT CONCRETE.
14. CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES."
15. FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE CURB LINE, SHALL BE PROVIDED WHERE A CIRCULATION PATH CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE EDGES OF A SIDEWALK RAMP ARE PROTECTED BY LANDSCAPING OR OTHER BARRIERS TO TRAVEL BY WHEELCHAIR USERS OR PEDESTRIANS ACROSS THE EDGE OF THE SIDEWALK RAMP.

	CITY OF EAST LANSING	PROJECT	STANDARD DETAILS		REVISION
	DEPARTMENT OF ENGINEERING	SHEET NAME	CONCRETE SIDEWALK & ADA RAMPS		ENG. REVIEW
	410 ABBOT ROAD	DRAWN	CHECKED	APPROVED	DATE
	EAST LANSING, MI 48823	CJM	RFS	RFS	03/01/16
	(517) 337-9459 FAX: (517) 337-3943	DATE	DATE	DATE	SCALE
	02/20/14	03/14/14	03/14/14	NONE	
		DATE		SHEET NO.	
				3 OF 3	

FOR W = 8' - 12', USE DRIVE FLARE DEPTH = 10' MIN.

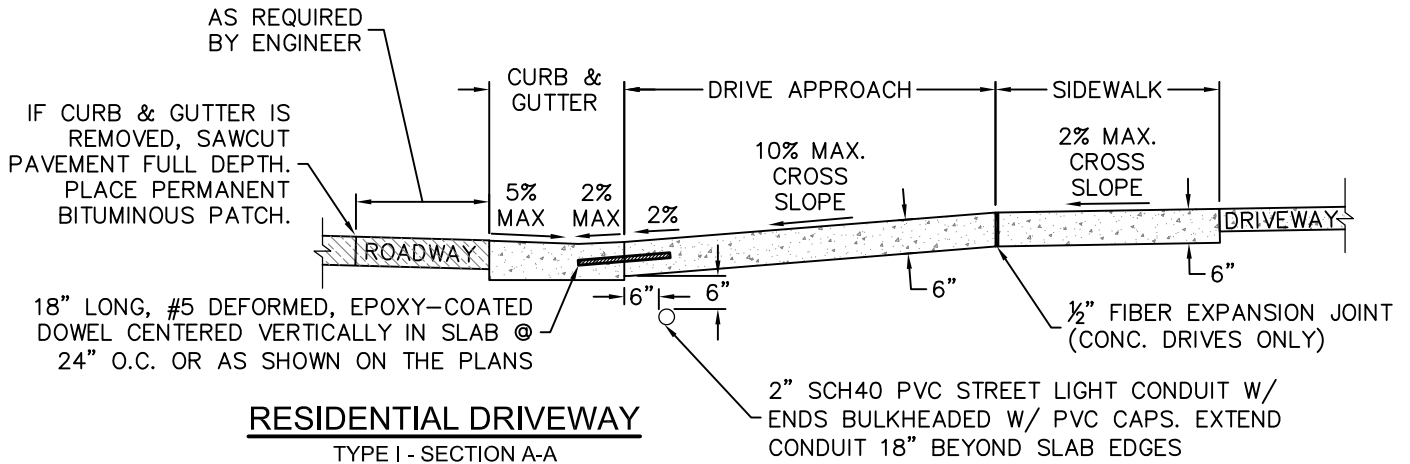
FOR W = 12'+, USE DRIVE FLARE DEPTH = 6' MIN.



RESIDENTIAL DRIVEWAY

TYPE I

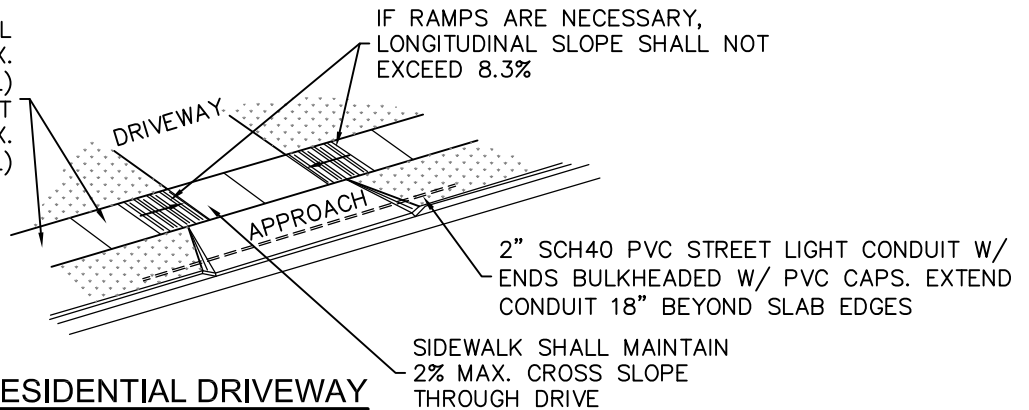
NOTE: MAJOR STREET FLARE SHALL BE 3 FEET WHERE THE PARKWAY IS UNDER 4 FEET



RESIDENTIAL DRIVEWAY

TYPE I - SECTION A-A

- LONGITUDINAL SLOPE SHALL NOT EXCEED 8.3% MAX. (TYPICAL)
- CROSS SLOPE SHALL NOT EXCEED 2% MAX. (TYPICAL)



RESIDENTIAL DRIVEWAY

TYPE I

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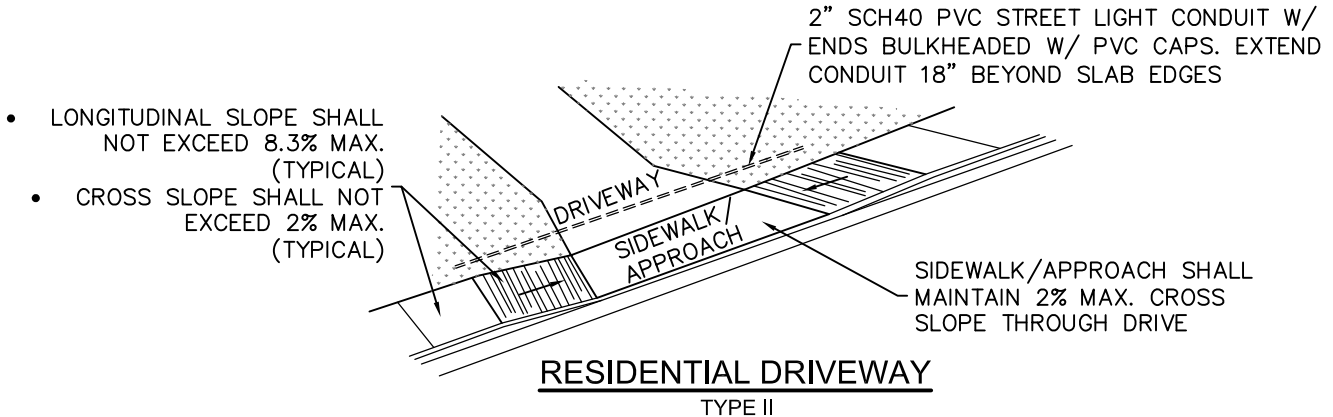
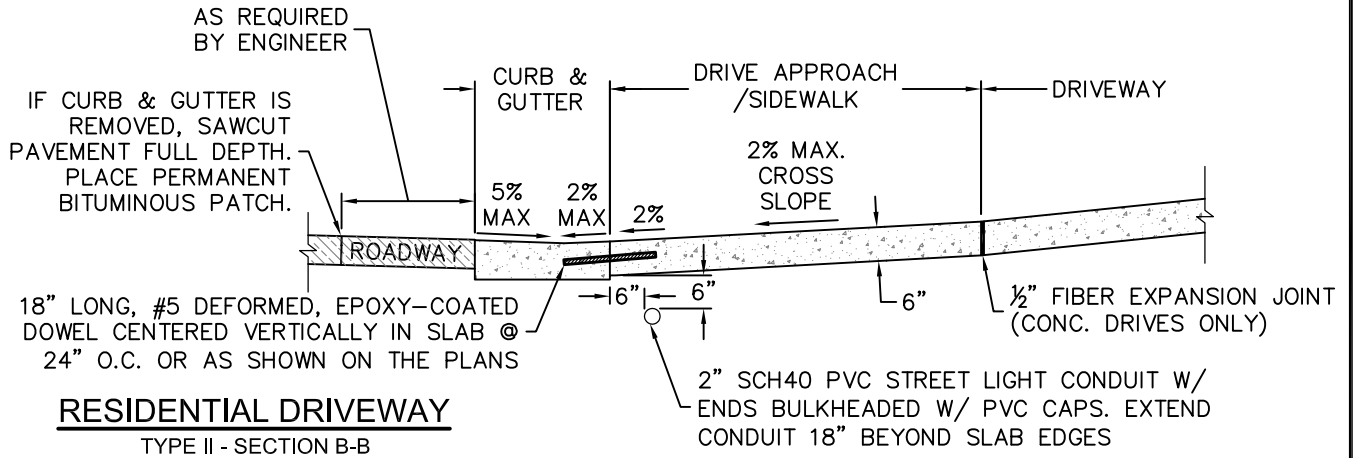
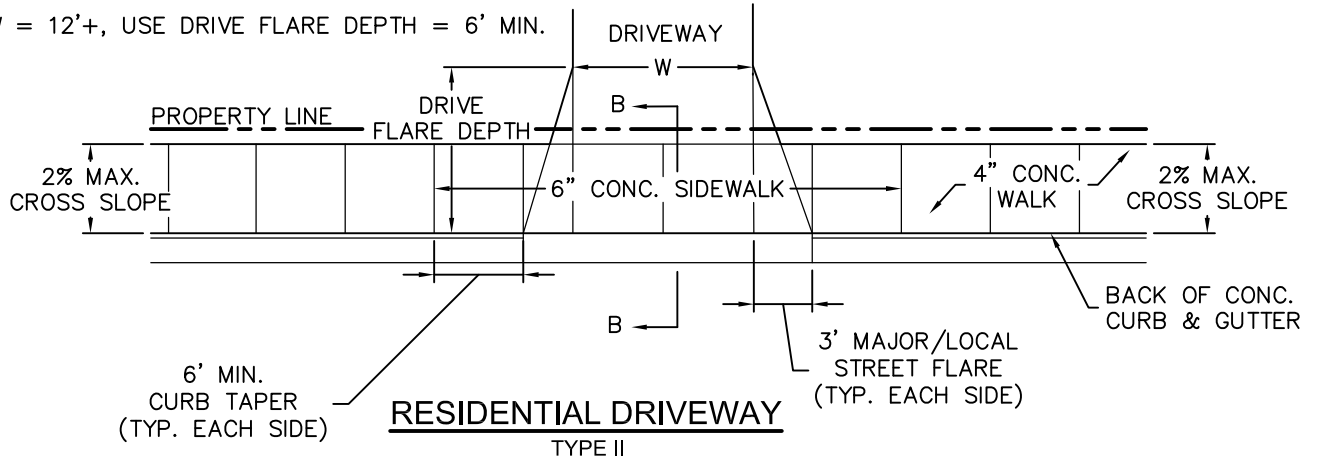
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PROJECT			REVISION
STANDARD DETAILS			ENG. REVIEW
SHEET NAME			DATE
RESIDENTIAL DRIVE CONSTRUCTION - TYPE I			03/01/16
DRAWN	CHECKED	APPROVED	SCALE
CJM	RFS	RFS	NONE
DATE	DATE	DATE	SHEET NO.
02/20/14	03/14/14	03/14/14	1 OF 2

FOR W = 8' - 12', USE DRIVE FLARE DEPTH = 10' MIN.

FOR W = 12'+, USE DRIVE FLARE DEPTH = 6' MIN.



- LONGITUDINAL SLOPE SHALL NOT EXCEED 8.3% MAX. (TYPICAL)
- CROSS SLOPE SHALL NOT EXCEED 2% MAX. (TYPICAL)

SIDEWALK/APPROACH SHALL MAINTAIN 2% MAX. CROSS SLOPE THROUGH DRIVE

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	SHEET NAME				RESIDENTIAL DRIVE CONSTRUCTION - TYPE II		DATE	03/01/16	
	DRAWN	CJM	CHECKED		RFS	APPROVED	RFS	SCALE	NONE
	DATE	02/20/14	DATE		03/14/14	DATE	03/14/14	SHEET NO.	2 OF 2