

**Ohio Department of Transportation
Office of Traffic Engineering
July 18, 2008**

To Holders of the OTE Standard Construction Drawings (SCDs) and Plan Insert Sheets (PISs):

As of July 18, 2008, four SCDs are rescinded. Two new PIS are issued and two PIS have been revised.

The updated publications and the separate revision packages are available from the links below, the ODOT Design Reference Resource Center (<http://www.dot.state.oh.us/drrc/>), or from the Office of Traffic Engineering's Home Page (<http://www.dot.state.oh.us/traffic/>), using the Publications/Documents link. The revision packages include a detailed Revision Log.

Per ODOT policy, paper copies of the publications are no longer distributed to all holders. Revisions will only be available via the web pages noted above.

For questions, comments, or concerns please contact either:

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OTE SCDs	What's New Page	Traffic Home Page
July 18, 2008 SCD and PIS Revision Package, includes Revision Log		

OTE Standard Drawings Revision Log July 18, 2008 Revision

The following is a detailed list of the changes made to the OTE Standard Construction Drawings (SCDs) and Plan Insert Sheets (PISs) as of July 18, 2008. For your convenience in using the electronic version of this list, links (blue, bold and underlined) have been provided in the following menu.

DRRC Web Page	"What's New" Page	Traffic Home Page
HL Drawings	MT Drawings	TC Drawings
Plan Insert Sheets (PISs)		

Revision Involves:		Revision Type *	Revision Description
Drawing Number	Title		
<p>*Change - adding new information or revising existing information, more than an editorial change; New - adding a new drawing; Deletion - deleting a drawing; Editorial - revising text to provide clarification, updating references, correcting a typing or drawing mistake, simple editorial changes such as rephrasing a statement or making a format change.</p>			
<p>Standard Construction Drawing [top of page] .</p>			
Index			Revised to reflect changes.
MT-95.80	Two-Lane, Two-Way Operation For Use On Four Lane Divided Roadways (Asphalt Curb Divider)	Rescind	We no longer use asphalt curb with median crossovers.
MT-95.81	Two-Lane, Two-Way Operations For Use On Four Lane Divided Roadways (Asphalt Curb Divider With Delineation)	Rescind	We no longer use asphalt curb with median crossovers.
MT-101.80	Short-Duration Closure of Multi-Divided Highway	Rescind	This information is in CMS as 614.115.
TC-21.41	Barrier Wall Assembly for Sign Supports	Rescind	Standard Construction Drawing TC-21.40 provides a superior method for incorporating an overhead sign support foundation into a concrete median barrier, and should be used instead.
<p>Plan Insert Sheets [top of page] .</p>			
208350	Diamond Interchange 3 Phase Operation	New	
208351	Diamond Interchange 4 Phase Operation	New	
209940	Traffic Control For Post Chip Seal Operations	Change	Revised first sign shown in Detail A from ROAD WORK AHEAD (W20-1) to FRESH TAR (W21-2). Made minor editorial corrections.
209960	Short-Duration Closure of Multi-Divided Highway	Change	Revised the distance indicated on the drawing between the two PCMS units to round off the quarter mile distance. Also made editorial corrections in the notes.

OFFICE OF TRAFFIC ENGINEERING STANDARD CONSTRUCTION DRAWINGS

HIGHWAY LIGHTING			TRAFFIC CONTROL			TRAFFIC CONTROL					
NUMBER	TITLE	DATE	REMARKS	NUMBER	TITLE	DATE	REMARKS	NUMBER	TITLE	DATE	REMARKS
HL-10.11	LIGHT POLE STYLES	01/16/04		OVERHEAD SIGN SUPPORTS			GROUND MOUNTED SIGN SUPPORTS AND SIGNS				
HL-10.12	LIGHT POLE DETAILS	01/19/07		TC-7.65	ALUMINUM TRUSS OVERHEAD SIGN SUPPORT	01/19/07		TC-41.10	STRUCTURAL BEAM SIGN SUPPORTS	10/19/07	
HL-10.13	POLE BASE DETAILS	01/17/03		TC-9.10	SEMI-OVERHEAD SIGN SUPPORT	01/19/07		TC-41.20	YIELDING POST	01/19/01	
HL-10.31	LIGHT TOWER DETAILS	07/20/01		TC-9.30	CENTER MOUNT OVERHEAD SIGN SUPPORT	01/19/07		TC-41.30	SIGN POST REFLECTORS	01/19/07	
HL-20.11	FOUNDATION AND TRENCH DETAILS	01/19/07		TC-12.30	CANTILEVER OVERHEAD SIGN SUPPORT	01/19/07		TC-41.40	SPECIAL SIGN ATTACHMENTS AND SUPPORTS	07/16/04	
HL-20.13	FOUNDATION AND JUNCTION BOX DETAILS MEDIAN MOUNTED LIGHT POLES TYPE 3	01/19/07		TC-15.115	STEEL TRUSS OVERHEAD SIGN SUPPORT	01/19/07		TC-41.41	SPECIAL SIGN ATTACHMENTS	01/19/01	
HL-20.14	STRUCTURE LIGHTING I	01/21/05		TC-16.20	SINGLE ARM OVERHEAD SIGN SUPPORT	01/19/07		TC-41.50	ONE WAY SIGN SUPPORT DETAILS	01/19/07	
HL-20.21	LIGHT TOWER FOUNDATIONS	01/19/07		TC-17.10	SPAN WIRE OVERHEAD SIGN SUPPORT	01/19/07		TC-42.10	TYPICAL SIGN PLACEMENT GUIDE SIGNS	01/19/07	
HL-30.11	PULL BOX DETAILS I	01/21/05		TC-18.24	FLUSH STRUCTURE MOUNTED SIGN SUPPORT	01/18/02		TC-42.20	TYPICAL FLAT SHEET SIGN PLACEMENT	07/16/04	
HL-30.21	ROADWAY CONDUIT DETAILS I	01/19/07		TC-18.26	SKewed STRUCTURE MOUNTED SIGN SUPPORT	01/18/02		TC-51.11	ALUMINUM BOLTED-EXTRUSHEET PANEL SIGN	04/20/01	
HL-30.22	ROADWAY CONDUIT DETAILS II	01/21/05		OVERHEAD SIGN SUPPORTS ASSOCIATED DETAILS			TC-51.12	ALUMINUM BOLTED-EXTRUSION PANEL SIGN	04/20/01		
HL-30.31	STRUCTURE CONDUIT DETAILS I	01/21/05		TC-21.10	SIGN SUPPORT FOUNDATIONS	01/19/07		TC-52.10	SIGN BLANK DETAILS I	01/19/07	
HL-30.32	STRUCTURE CONDUIT DETAILS II	04/19/02		TC-21.20	FOUNDATIONS	01/19/07		TC-52.20	SIGN BLANK DETAILS II	01/19/07	
HL-30.33	STRUCTURE CONDUIT DETAILS III	01/21/05		TC-21.40	CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATIONS	01/19/07		DELINEATION AND PAVEMENT MARKING			
HL-40.10	POWER SERVICE POLE MOUNTED	01/19/07		TC-22.10	MISCELLANEOUS OVERHEAD SIGN SUPPORT DETAILS	01/19/01		TC-61.10	DELINEATOR DETAILS	01/19/01	
HL-40.20	POWER SERVICE GROUND MOUNTED	01/19/07		TC-22.20	SIGN ATTACHMENT ASSEMBLIES	01/19/01		TC-65.10	RAISED PAVEMENT MARKER PLACEMENT DETAILS	01/21/05	
HL-50.11	GROUNDING DETAILS	01/19/07		SIGNING ELECTRICAL DETAILS			TC-65.11	RAISED PAVEMENT MARKER SPACING DETAILS	01/21/05		
HL-50.21	STRUCTURE GROUNDING	01/19/07		TC-31.21	MERCURY VAPOR SIGN LIGHTING DETAILS	04/20/01		TC-71.10	WORD AND SYMBOL PAVEMENT MARKINGS	01/19/07	
HL-60.11	POLE WIRING I	01/19/07		TC-32.10	SIGN SERVICE DETAILS I	01/19/07		TC-72.20	FREEWAY ENTRANCE AND EXIT MARKINGS	01/21/05	
HL-60.12	POLE WIRING II	10/19/07		TC-32.11	SIGN SERVICE DETAILS II	01/19/07		TC-73.10	PAVEMENT MARKING DETAILS	01/19/01	
HL-60.21	TOWER WIRING DETAILS	01/19/07									
HL-60.31	CONTROL CENTER WIRING	01/19/07									

REFERENCING METRIC STANDARD DRAWINGS FOR ENGLISH PROJECTS

The Office of Traffic Engineering is currently updating all Traffic Standard Construction Drawings (SCDs) to show dual units; however, in the interim, designers should use one of the following options to apply the metric Traffic SCDs to English projects.

- Convert the metric drawings to English units, remove the standard title blocks and use the new drawings as plan insert sheets. The district/consultant is responsible for the accuracy of all converted drawings. For convenience, the metric cadd files are available internally in the std: directory as well as on the web site in dgn format. Add the following note to the plans:

Plan Insert Sheets

The following metric standard construction drawings have been converted to English units and are included in this plan as insert sheets: < List the drawing number, name and date.> (Do not list the metric drawings on the Title Sheet.)

Specify the metric standard drawings in the plan and add the following plan note (The contractor and the project engineer are responsible for the accuracy of the conversions):

- Conversion of Metric Standard Drawings

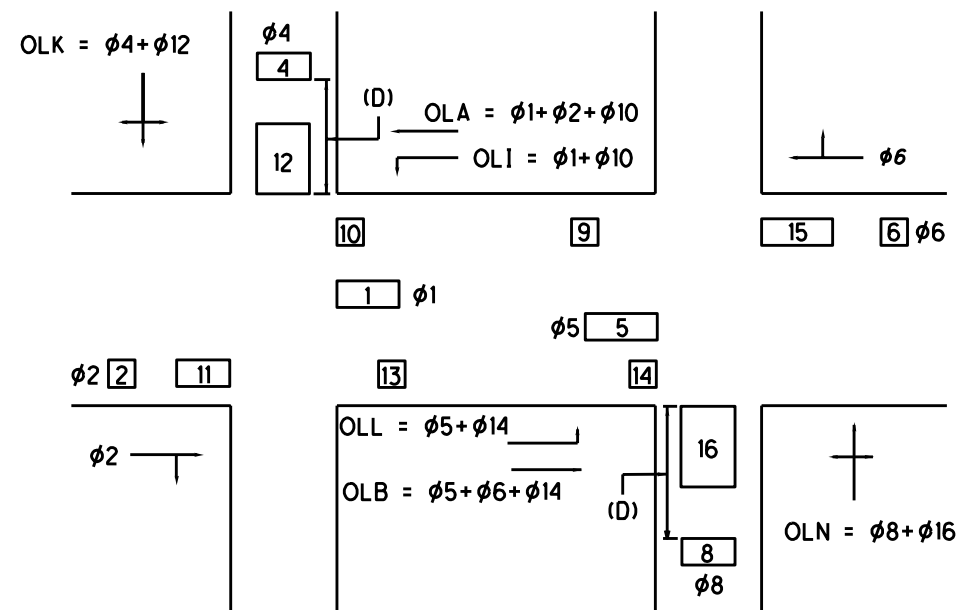
The metric standard drawings referenced in this plan shall be converted to English units using the SI (Metric) to English Conversion Factors provided in section 109.02 of the 2005 Construction and Materials Specifications. IEEE/ASTM SI 10 shall be utilized for any additional conversion factors required. Conversions shall be appropriately precise and shall reflect standard industry English values where suitable.

TRAFFIC SIGNALS		
NUMBER	TITLE	DATE
TC-81.10	STRAIN POLE DETAILS	05/01/00
TC-81.20	SINGLE ARM OVERHEAD SIGNAL SUPPORT	01/16/04
TC-82.10	VEHICLE DETECTOR INSTALLATION DETAILS	04/19/02
TC-83.10	POLE MOUNTINGS FOR CONTROLLERS AND POWER SERVICE	01/19/07
TC-83.20	CONTROLLER FOUNDATION AND PEDESTALS	01/19/07
TC-84.20	MESSENGER WIRE DETAILS	01/19/07
TC-84.21	MESSENGER WIRE DETAILS II	01/19/07
TC-85.10	POLE MOUNTINGS FOR SIGNAL HEADS	04/19/02
TC-85.20	OVERHEAD SIGNAL ATTACHMENTS	05/01/00

OFFICE OF TRAFFIC ENGINEERING STANDARD CONSTRUCTION DRAWINGS

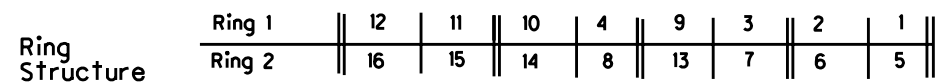
MAINTENANCE OF TRAFFIC				MAINTENANCE OF TRAFFIC				MAINTENANCE OF TRAFFIC			
NUMBER	TITLE	DATE	REMARKS	NUMBER	TITLE	DATE	REMARKS	NUMBER	TITLE	DATE	REMARKS
MT-35.10	FLASHING ARROW PANEL	04/20/01		MT-96.20	DETAILS FOR SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY - SIDE MOUNTED	04/19/02					
MT-95.30	CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS	09/05/06		MT-96.21	DETAILS FOR SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY - OVERHEAD MOUNTED	04/19/02					
MT-95.31	CLOSING RIGHT LANE OF A MULTI-LANE UNDIVIDED HIGHWAY WITH DRUMS	09/05/06		MT-96.25	PRE-TIMED-WIRING DIAGRAM FOR SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY	04/20/01		MT-100.00	TEMPORARY CROSSOVER LIGHTING SYSTEM	04/19/02	
MT-95.32	CLOSING LEFT LANE OF A MULTI-LANE UNDIVIDED HIGHWAY WITH DRUMS	09/05/06		MT-96.26	ACTUATED-WIRING DIAGRAM FOR SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY	04/20/01		MT-101.20	TEMPORARY RAISED PAVEMENT MARKERS	10/18/02	
MT-95.40	CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH PORTABLE CONCRETE BARRIER	10/20/06		MT-97.10	FLAGGERS CLOSING 1 LANE OF A 2-LANE HIGHWAY-STATIONARY OPERATION	09/05/06		MT-101.60	ROAD CLOSURE USING TYPE III BARRICADES	09/05/06	
MT-95.41	CLOSING RIGHT LANE OF A MULTI-LANE UNDIVIDED HIGHWAY WITH PORTABLE CONCRETE BARRIER	10/20/06		MT-97.11	FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY FOR PAVING OPERATIONS	09/05/06		MT-101.70	PORTABLE CONCRETE BARRIER DELINEATION	10/18/02	
MT-95.50	SUPPLEMENTAL ADVANCED SIGNS USED WITH LANE CLOSURES	09/05/06		MT-97.12	FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY FOR PAVING OPERATIONS (FED)	09/05/06		MT-102.10	LANE SHIFT ON A MULTI-LANE HIGHWAY USING PORTABLE CONCRETE BARRIER	10/20/06	
MT-95.60	CLOSURE OF TWO-WAY LEFT TURN LANE	04/19/02		MT-98.10	LANE CLOSURE AT ENTRANCE RAMP	10/19/07		MT-102.20	LANE SHIFT ON A MULTI-LANE HIGHWAY USING DRUMS	09/05/06	
MT-95.61	CLOSURE OF RIGHT LANE OF THREE LANE SECTION WITH TWO-WAY LEFT TURN LANE	04/19/02		MT-98.11	LANE CLOSURE AT ENTRANCE RAMP ACCELERATION LANE	10/19/07		MT-102.30	SPEED LIMIT AND PENALTIES SIGNING USED WITH LANE SHIFTS	09/05/06	
MT-95.70	MEDIAN CROSSOVER - SINGLE LANE	01/18/08		MT-98.20	LANE CLOSURE AT EXIT RAMP USING DRUMS	10/19/07		MT-105.10	TEMPORARY SIGN SUPPORT	10/18/02	
MT-95.71	MEDIAN CROSSOVER - MULTI-LANE	01/18/08		MT-98.21	LANE CLOSURE AT EXIT RAMP USING PCB	10/19/07		MT-105.11	TEMPORARY SIGN SUPPORT	10/18/02	
MT-95.82	ADJUSTMENTS FOR TWO-LANE, TWO-WAY OPERATION ON FOUR-LANE DIVIDED ROADWAYS	09/05/06		MT-98.22	LANE CLOSURE IN DECELERATION LANE	10/19/07		MT-110.10	DETOUR OF PEDESTRIANS TO TEMPORARY WALKWAY ON ROADWAY	10/18/02	
MT-96.10	SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY WITH DRUMS	04/19/02		MT-98.28	LANE CLOSURE WITHIN EXIT RAMP	10/19/07		MT-110.20	DETOUR OF PEDESTRIANS TO OTHER SIDE OF STREET	10/18/02	
MT-96.11	SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY WITH PCB	04/19/02		MT-98.29	EXIT RAMP CLOSED	10/19/07		MT-110.30	DETOUR OF PEDESTRIANS TO ANOTHER FACILITY	10/18/02	
				MT-99.20M	TRAFFIC CONTROL FOR LONG LINE PAVEMENT MARKING OPERATIONS	01/30/95		MT-120.00	NEW SIGNAL ACTIVATION	03/01/00	
				MT-99.50	FREEWAY/EXPRESSWAY CLOSURE USING DRUMS	10/18/02					
				MT-99.51	FREEWAY/EXPRESSWAY CLOSURE USING TEMPORARY CONCRETE MEDIAN BARRIER	10/18/02					

PHASING AND DETECTOR LAYOUTS



D = Distance is based on dilemma zone protection for assumed ramp approach speed. Detector numbers are controller input channels.

CONTROLLER INFORMATION



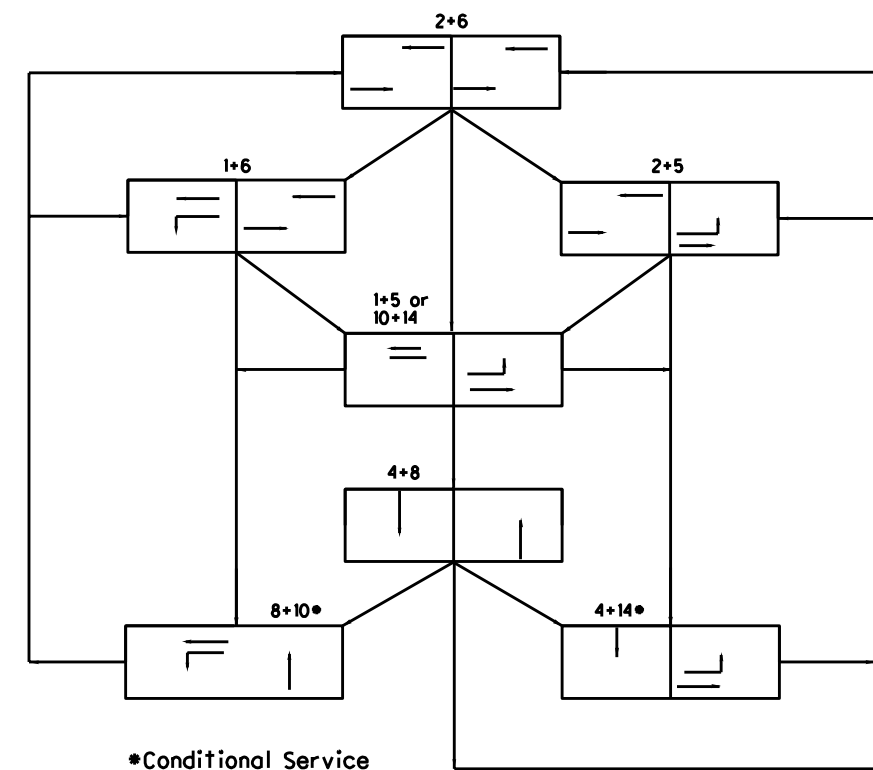
Phase No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
See controller note legend	P	P	NA	P	P	P	NA	P	NA	1	O	O	NA	5	O	O

- Controller notes:
- O Omit phases 11, 12, 15 & 16
 - NA Phases 3, 7, 9 and 13 are not typically used, set min. and max. green times equal to 0
 - P Use phase time from Passer III output
 - 1 Set phase 10 timing equal to phase 1 timing
 - 5 Set phase 14 timing equal to phase 5 timing

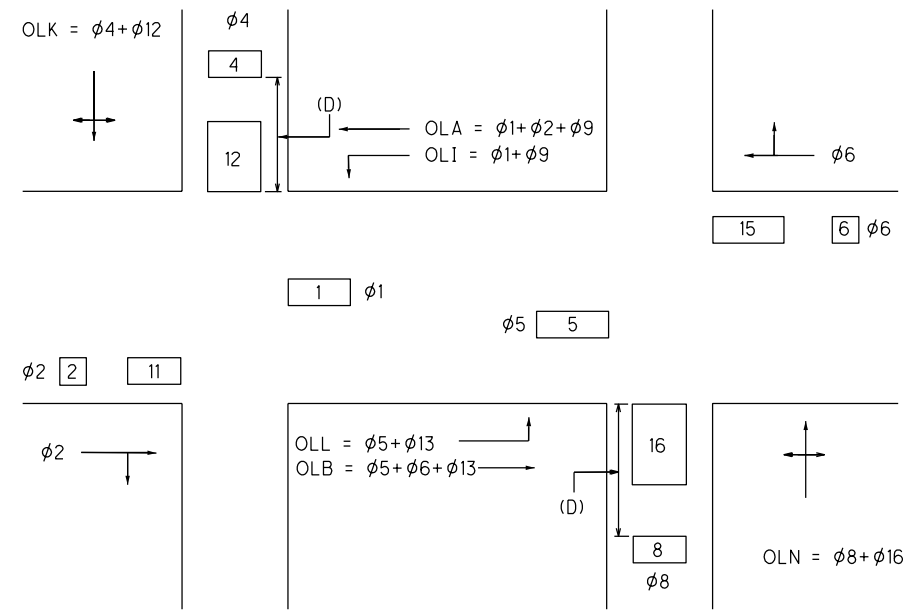
NOTES

- The 3-phase diamond operation is best suited for wide interchanges (>400 feet (120 m)) with adequate left-turn storage and heavy through movements that are usually associated with rural/suburban type interchanges. If within a system, the 3-phase diamond operation will provide better arterial progression than the 4-phase operation. One 16-phase controller is used to operate both intersections.
- Information on this drawing is based on the controller operation (phasing logic and detector switching) of a 3-phase Texas diamond interchange, as developed by the Texas Department of Transportation. The manufacturer of the controller unit shall be listed on the TxDOT "Material Producer List for Traffic Signal Controller Assembly." The phase logic and detector switching for the 3-phase diamond operation shall be automatically implemented by selection of the 3-phase diamond mode option in the controller menu system.
- The advance detectors on the exit ramps should be placed for dilemma zone protection for an assumed ramp approach speed.
- The advance detectors for phases 2 and 6 are placed for dilemma zone protection.

PHASING DIAGRAM



PHASING AND DETECTOR LAYOUTS



D = Approximate distance between interchange intersections.
Detector numbers are controller input channels.

NOTES

1. The 4-phase operation is best suited for intersections that are less than 400 feet (120 m) apart and have heavy turning movements that are usually associated with suburban/urban type interchanges. One 16-phase controller is used to operate both intersections.
2. Information on this drawing is based on the controller operation (phasing logic and detector switching) of a 4-phase Texas diamond interchange as developed by the Texas Department of Transportation. The manufacturer of the controller unit shall be listed on the TxDot "Material Producer List for Traffic Signal Controller Assembly". The phase logic and detector switching for the 4-phase diamond operation shall be automatically implemented by selection of the 4-phase diamond mode option in the controller menu system.
3. The advance detectors on the exit ramps need to be placed approximately the same distance back as the distance between the intersections of the interchange. This will allow the actuated phase (4 or 8) of the ramp to terminate and allow the ramp vehicles to clear the stop line during the fixed travel time phase (12 or 16).
4. The advance detectors for phases 2 and 6 are placed for dilemma zone protection.

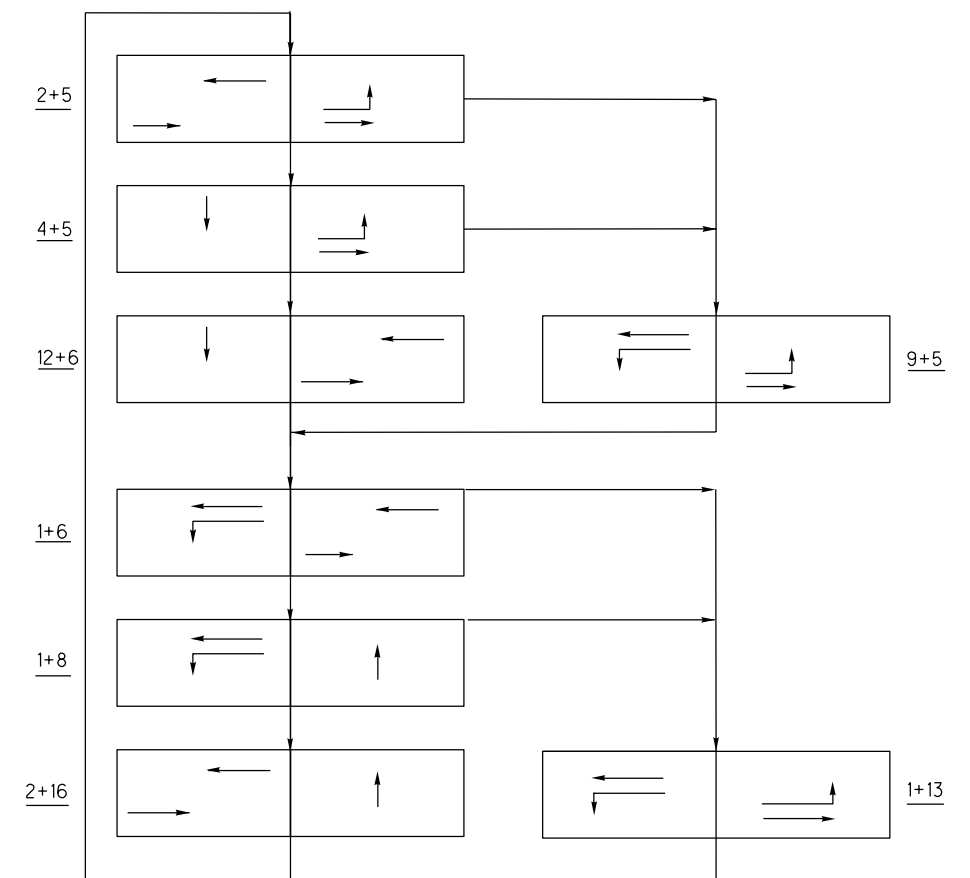
CONTROLLER INFORMATION

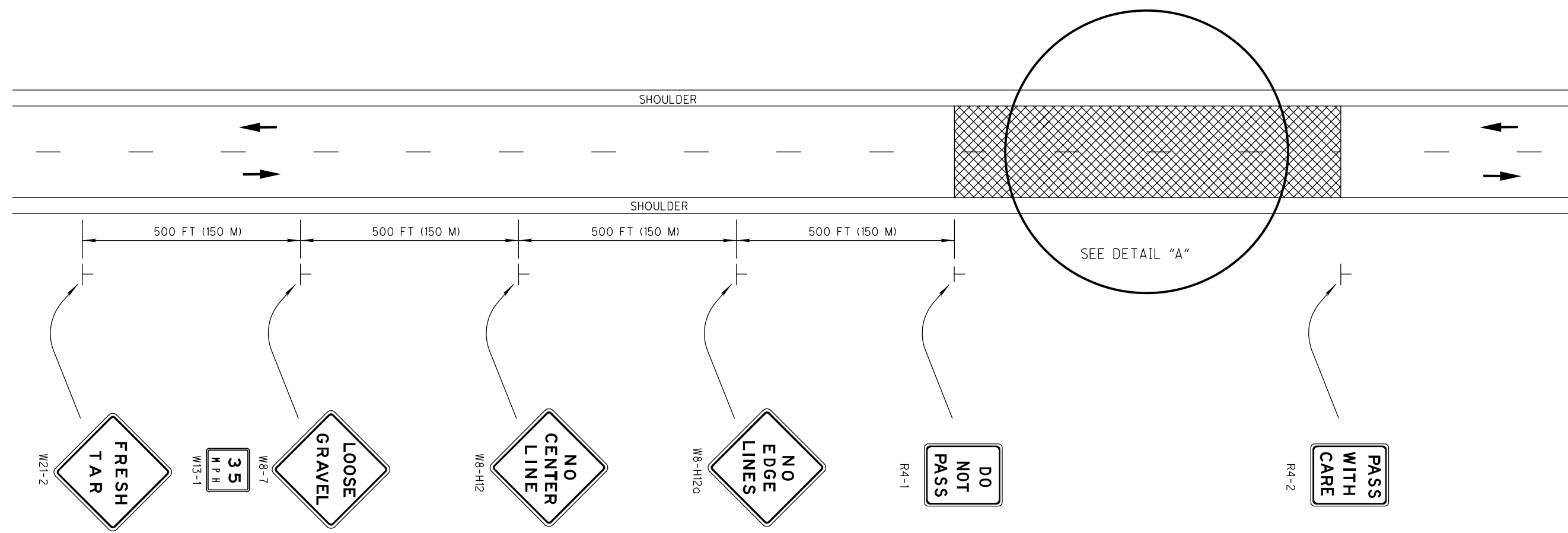
Ring Structure	Ring 1	2	3	4	9	10	11	12	1
	Ring 2	15	16	5	6	7	8	13	14

Phase No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
See controller note legend	P	P	NA	4-T6	P	P	NA	8-T2	T6	O	NA	T2	T2	O	NA	T6

- Controller notes:
- O Omit phases 10 and 14
 - NA Phases 3,7,11 and 15 are not typically used, set min. and max. green times equal to 0
 - P Use phase time from Passer III output
 - T2 Passer III travel time for phase 2, minimum and maximum greens are equal
 - T6 Passer III travel time for phase 6, minimum and maximum greens are equal
 - 4-T6 Phase 4 phase time from Passer III minus the phase 6 travel time
 - 8-T2 Phase 8 phase time from Passer III minus the phase 2 travel time

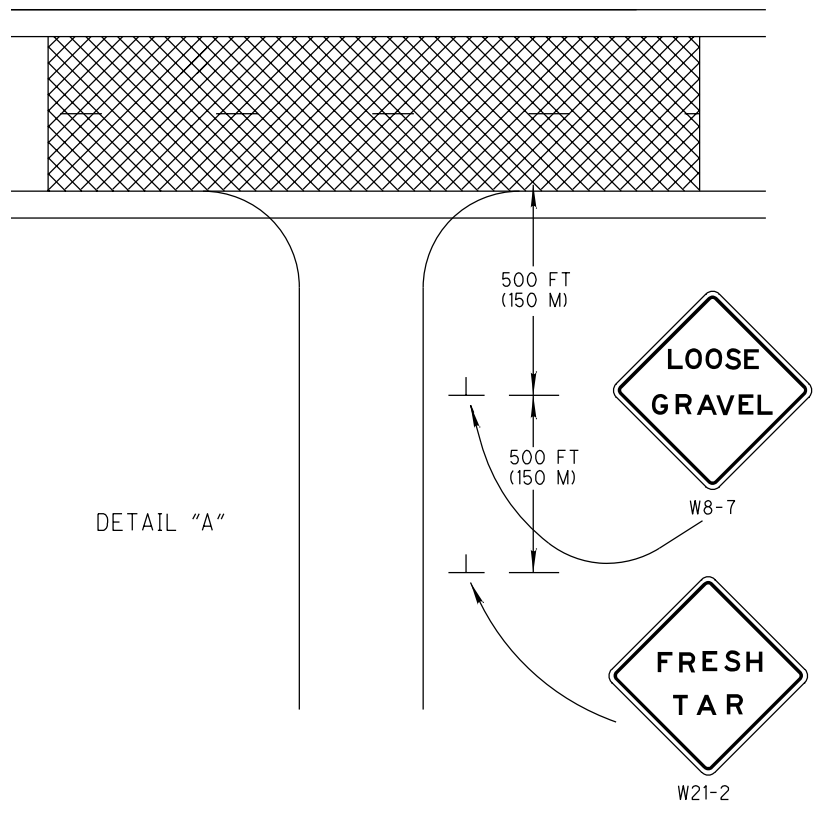
PHASING DIAGRAM





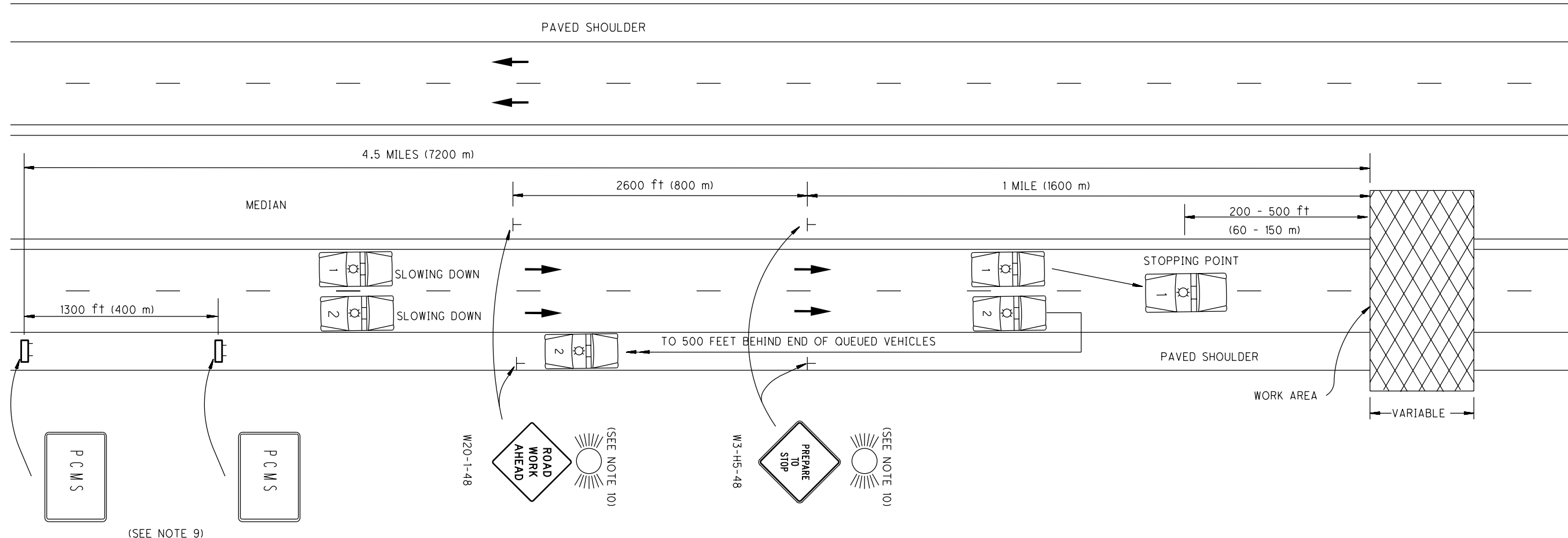
GENERAL NOTES:

1. The suggested minimum sign spacing is 200 feet (60 m), with 500 feet (150 m) spacing desirable.
2. The NO CENTER LINE (W8-H12), NO EDGE LINE (W8-H12a), and DO NOT PASS (R4-1) signs should be repeated every 2 miles per CMS 614.04.
3. The PASS WITH CARE (R4-2) sign, shown at the termination point of the chip seal activity, shall not be installed if this point is located in a No Passing zone or within 500 feet (150 m) of the next No Passing zone.
4. Repeat the LOOSE GRAVEL (W8-7) with an Advisory Speed Plaque (W13-1) every 1/2 mile per CMS 422.09.
5. Remove the NO CENTER LINE (W8-H12) and NO EDGE LINES (W8-H12a) signs after placing final markings.
6. Repeat sign layout in opposite direction.
7. Temporary traffic control for chip seal operations is not shown.
8. For signing of side roads intersecting the work area, see Detail "A".



LEGEND

AREA OF CHIP SEAL OPERATION	
DIRECTION OF TRAVEL	



(SEE NOTE 9)

1. This type of highway closure shall be used for all construction, maintenance and utility operations when the duration of closure will not exceed 15 minutes.
2. A minimum of two Law Enforcement Officers (LEO) with patrol cars per direction shall be provided to block traffic and pace motorists to a stop. The number of patrol cars shall equal the number of lanes closed on the highway.
3. Patrol cars, with lights flashing, should enter the stream of traffic at approximately 3 miles before the point of closure. At approximately 2 miles before the point of closure, they should begin the gradual slow down. Traffic shall be brought to a complete stop a safe distance, between 200 and 500 feet (60 and 150 m), from the work area. This slowing operation shall take no more than 10 minutes. After traffic has been stopped, one patrol car shall travel along the roadway shoulder 500 feet (150 m) behind the end of the queued vehicles.
4. The Contractor shall not begin work until traffic has been brought to a complete stop.
5. All entrance ramps located between the stopped traffic and the work area shall be closed.
6. After the highway has been closed and reopened via this procedure, both of the following requirements shall have been met before implementation of another short duration closure, except with the approval of the Engineer:
 - A. A minimum period of 15 minutes shall have elapsed
 - B. The queued traffic shall have dissipated
7. The time frame for stopping traffic shall be specified in the plans or by the District District Deputy Director.
8. The public shall be given advance notice of the upcoming closure by providing Portable Changeable Message signs at the site at least one week in advance of the scheduled closing. Closure information should also be provided through the news media.
9. Two ODOT approved Portable Changeable Message Signs, Class 1, shall be provided. The first message sign shall be placed at approximately 4.5 miles in advance of the closure or as directed by the Engineer. The second message sign shall be placed at approximately one-quarter mile beyond the first message sign. The first message sign shall read ROAD CLOSED AHEAD (0.8 sec.), PREPARE TO STOP (0.8 sec.), (Black screen for 0.3 sec.) The second message sign shall read ROAD CLOSED AHEAD (0.8 sec.), "EXPECT 30 MIN. DELAY" (0.8 sec.), (Black screen for 0.3 sec.)
10. The Contractor shall erect and maintain 48 inch "ROAD WORK AHEAD" and "PREPARE TO STOP" signs on each side of the highway. During night operations, each sign shall be illuminated with one Type A flashing warning light or two flares. The flares shall be replaced if they burn out.