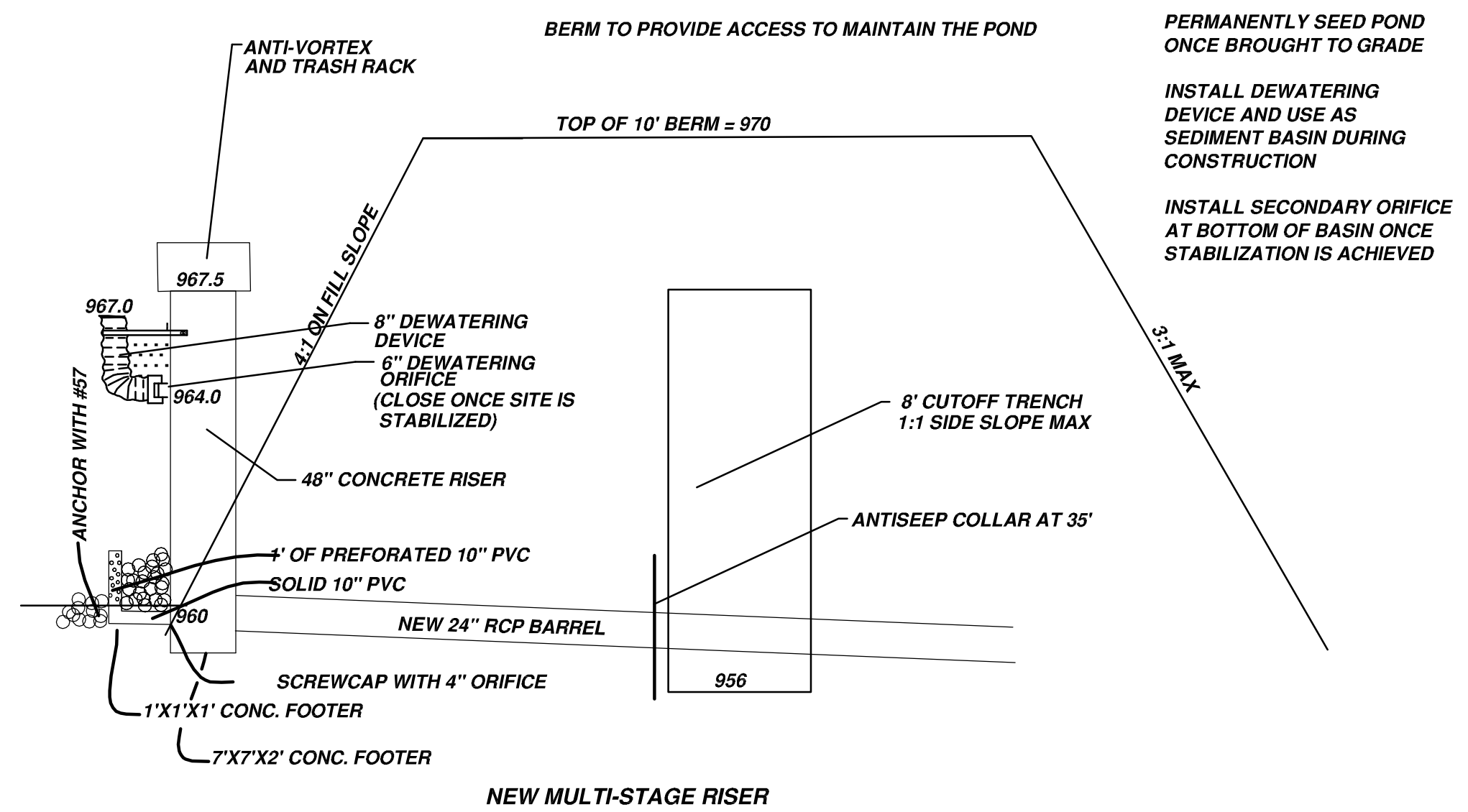
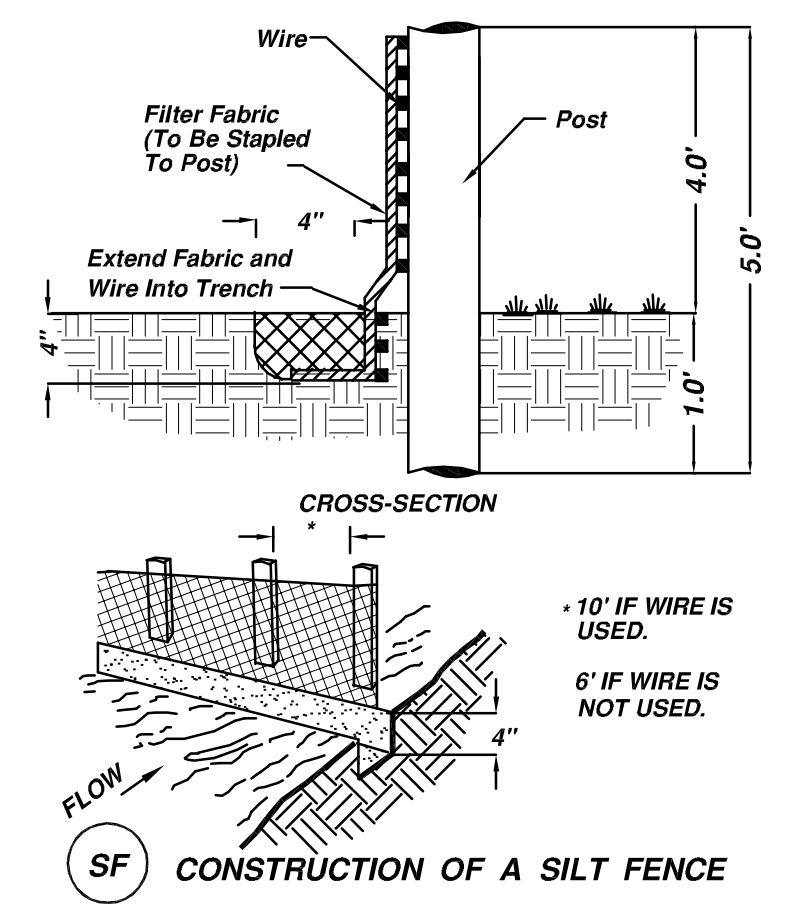
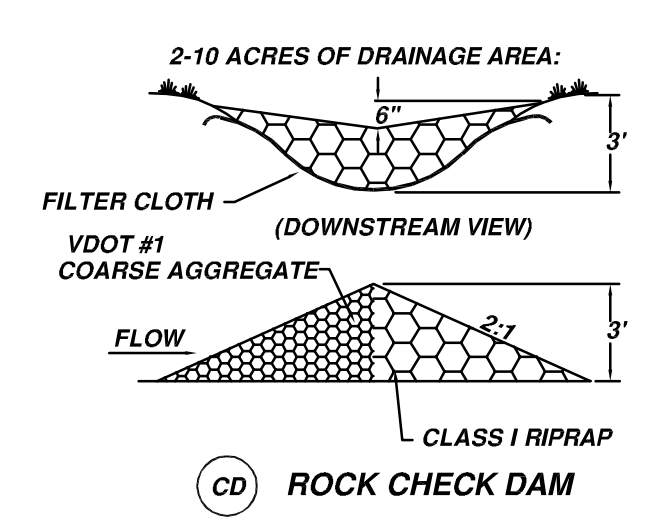
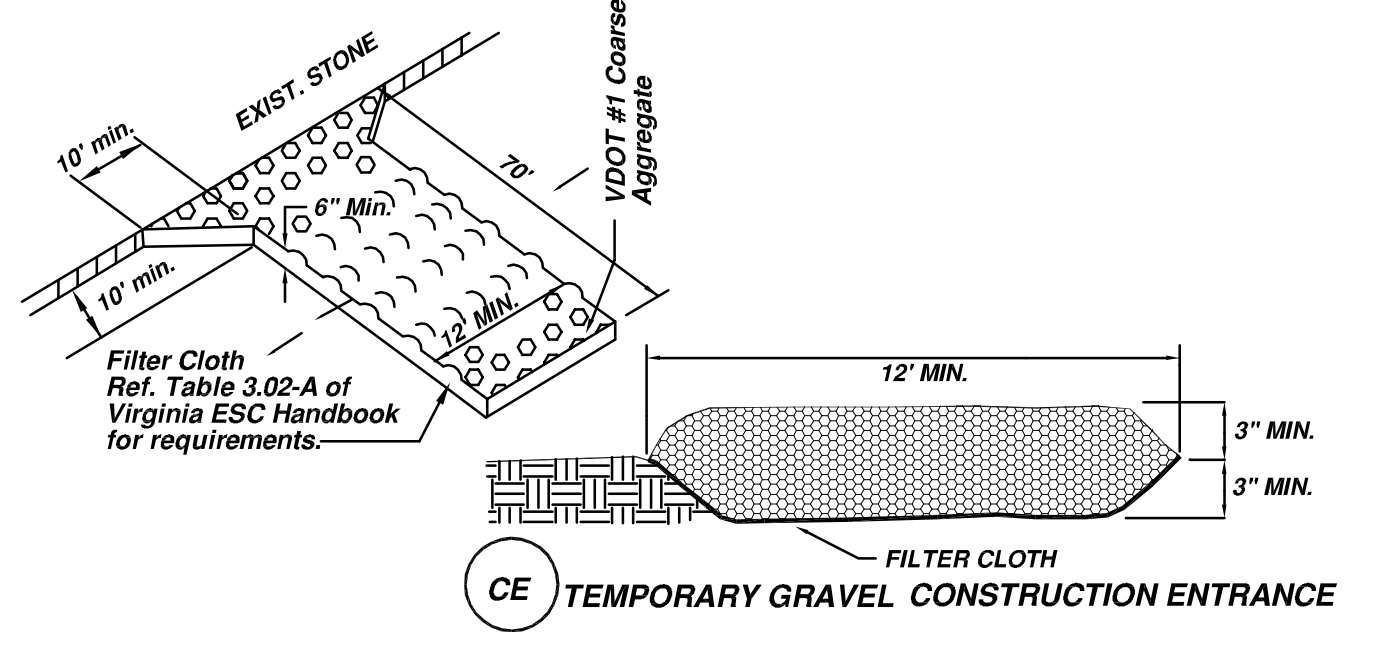
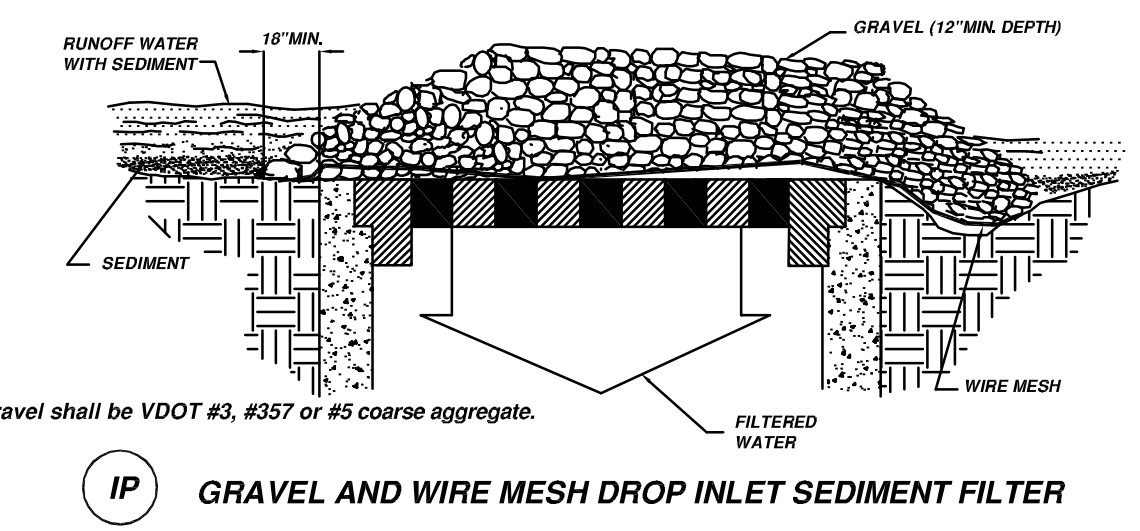
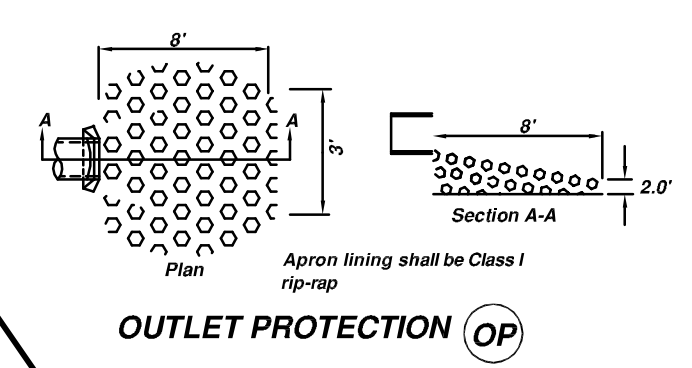
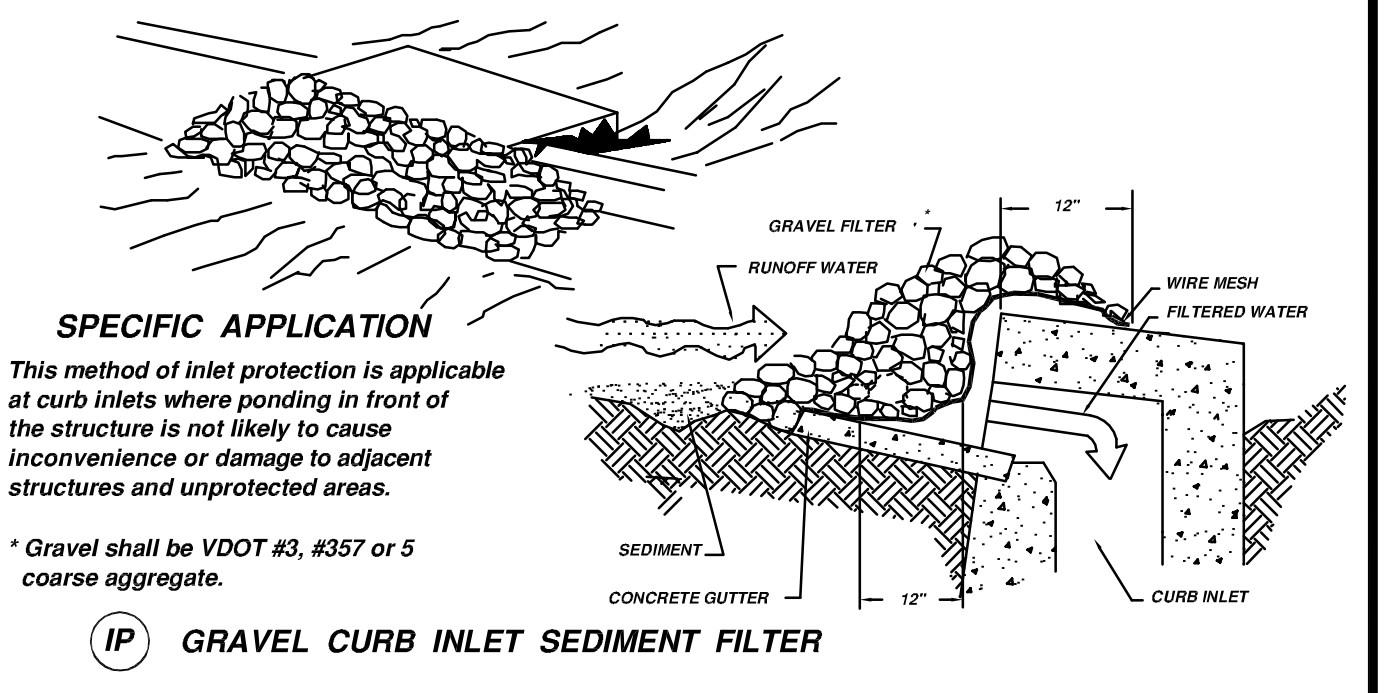
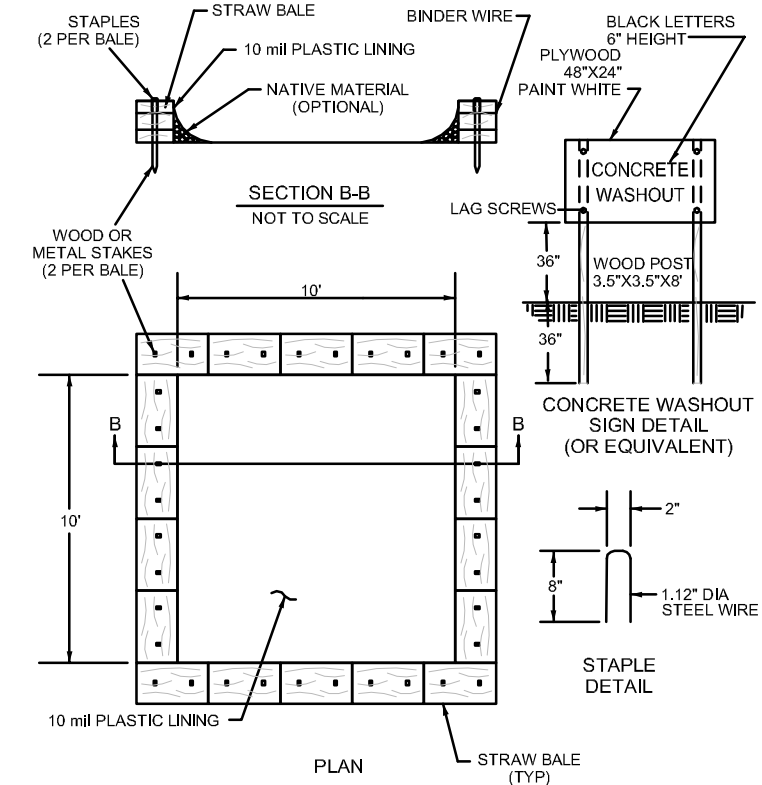


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SMITH MOUNTAIN LAKE
HEALTH AND REHAB
SABER HEALTHCARE
FRANKLIN COUNTY, VIRGINIA

FINAL GRADING PLAN

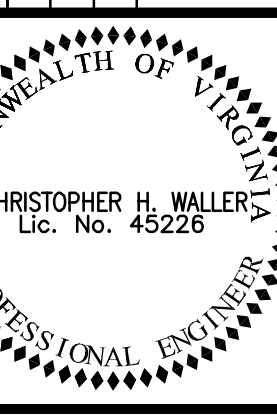
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SCALE: AS NOTED
DRAWN BY: CHW
CHECKED BY: TAW
APPROVED BY: CHW
COMMISSION NO.: 1836
SHEET NO.: 3 OF 7



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SMITH MOUNTAIN LAKE
HEALTH AND REHAB
SABER HEALTHCARE
FRANKLIN COUNTY, VIRGINIA

BY	
REVISION	
DATE	
EROSION CONTROL PLAN	



DATE:	February 26, 2024
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DRAWN BY:	CHW
CHECKED BY:	TAW
APPROVED BY:	CHW
COMMISSION NO.:	1836
SHEET NO.:	

**Typical Traffic Control
Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.2)**

NOTES

Guidance:

1. Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.
2. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.
3. To maintain efficient traffic flow in a flagging operation on a two-lane roadway, the maximum time motorists should be stopped at a flagger station is 8 minutes for high volume roadways (average daily traffic of 500 or more vehicles per day) to a maximum of 12 minutes for low volume roadways (less than 500 vehicles per day). For additional information see Section 6E.07.2

Standard:

4. Portable Temporary Rumble Strips (PTRS) shall be used as noted in Section 6F.99.
5. Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).
6. All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).
7. Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.1
8. A shadow vehicle with at least one high intensity amber rotating, flashing, or¹ oscillating light shall be parked 80'-120' in advance of the first work crew.

Option:

8. A SLOW (W21-V10) sign² may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

Guidance:

9. If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the PTRS¹ should be readjusted at greater distances.
10. When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-56 for additional information on highway-rail crossings).

Standard:

11. At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).

Option:

12. Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
13. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

Standard:

14. When used², three portable temporary rumble (PTRS) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-V26) sign shall also be utilized.

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

**Typical Traffic Control
Work Beyond the Shoulder Operation
(Figure TTC-1.1)**

NOTES

Guidance:

1. The minimum distance between the sign and work vehicle should be 1300'-1500' on Limited Access highways, and on all other roadways 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.

Option:

2. The ROAD WORK AHEAD (W20-1) sign may be replaced with other appropriate signs such as the SHOULDER WORK (W21-5) sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.
3. The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 4 feet behind vertical curb (Standard CG-2 and CG-6) on urban roadways, or outside of the clear zone for all other roadways. For clear zone values see Page A-4 of Appendix A.
4. For short-term, short duration or mobile operations¹, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or¹ oscillating lights is used.

Standard:

5. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or¹ oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.
6. If the work space is in the median of a divided highway, an advance warning sign shall also be placed on the left side of the directional roadway.

1: Revision 1 – 4/1/2015

**Typical Traffic Control
Shoulder Operation with Minor Encroachment
(Figure TTC-5.2)**

NOTES

Standard:

1. For required sign assemblies for multi-lane roadways see Note 1, TTC-4.1

Guidance:

2. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.
3. When work takes up part of a lane on a high volume roadway; vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.

Option:

4. The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

Standard:

5. A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, or¹ oscillating light shall be parked 80' - 120' in advance of the first work crew.
6. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or¹ oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or¹ oscillating lights.
7. Taper length (L) and channelizing device spacing shall be at the following:

Taper Length L												
Speed Limit (mph)	Lane Width (Feet)					Remarks	Speed Limit (mph)	Lane Width (Feet)				
	9	10	11	12	12			9	10	11	12	12
25	95	105	115	125	125	L=S*W/60	50	450	500	550	600	600
30	135	150	165	180	180	L=S*W/60	55	495	550	605	660	660
35	185	205	225	245	245	L=S*W/60	60	540	600	660	720	720
40	240	270	295	320	320	L=S*W/60	65	585	650	715	780	780
45	405	450	495	540	540	L=SW	70	630	700	770	840	840

Limited Access highways shall use a 1000' merging taper regardless of the posted speed, a 750' shifting taper for posted speeds < 65 mph and a 1000' shifting taper for posted speeds > 65 mph.²

Shoulder Taper = 1/2 L Minimum

Channelizing device spacing shall be at the following:

Channelizing Device Spacing			
Location Spacing	Speed Limit (mph)	Location Spacing	Speed Limit (mph)
Transition	0-35 36+	Travelway	0-35 36+
	20' 40'		40' 80'

*Construction access spacing may be increased to this distance, but shall not exceed one access per 1/4 mile.

9. On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.²
10. The buffer space length The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
11. A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.
12. When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

**Typical Traffic Control
Stationary Operation on a Shoulder
(Figure TTC-4.2)**

NOTES

Standard:

1. For long-term stationary work (more than 3 days) on divided highways having a median wider than 8', sign assemblies on both sides of the roadway shall be required as shown (ROAD WORK AHEAD (W20-1), RIGHT SHOULDER CLOSED AHEAD (W21-5bR), RIGHT SHOULDER CLOSED (W21-5aR)), even though only one shoulder is being closed. For operations less than 3 days in duration, sign assemblies will only be required on the side where the shoulder is being closed.

Guidance:

2. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.

Option:

3. The SHOULDER WORK (W21-5) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
4. For short duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or¹ oscillating lights is used.

Standard:

5. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or¹ oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or¹ oscillating lights.
6. Taper length (L) shall be at the following:

Taper Length L												
Speed Limit (mph)	Lane Width (Feet)					Remarks	Speed Limit (mph)	Lane Width (Feet)				
	9	10	11	12	12			9	10	11	12	12
25	95	105	115	125	125	L=S*W/60	50	450	500	550	600	600
30	135	150	165	180	180	L=S*W/60	55	495	550	605	660	660
35	185	205	225	245	245	L=S*W/60	60	540	600	660	720	720
40	240	270	295	320	320	L=S*W/60	65	585	650	715	780	780
45	405	450	495	540	540	L=SW	70	630	700	770	840	840

Limited Access highways shall use a 1000' merging taper regardless of the posted speed, for shifting taper see Table 6H.2²

Shoulder Taper = 1/2 L Minimum

Channelizing device spacing shall be at the following:

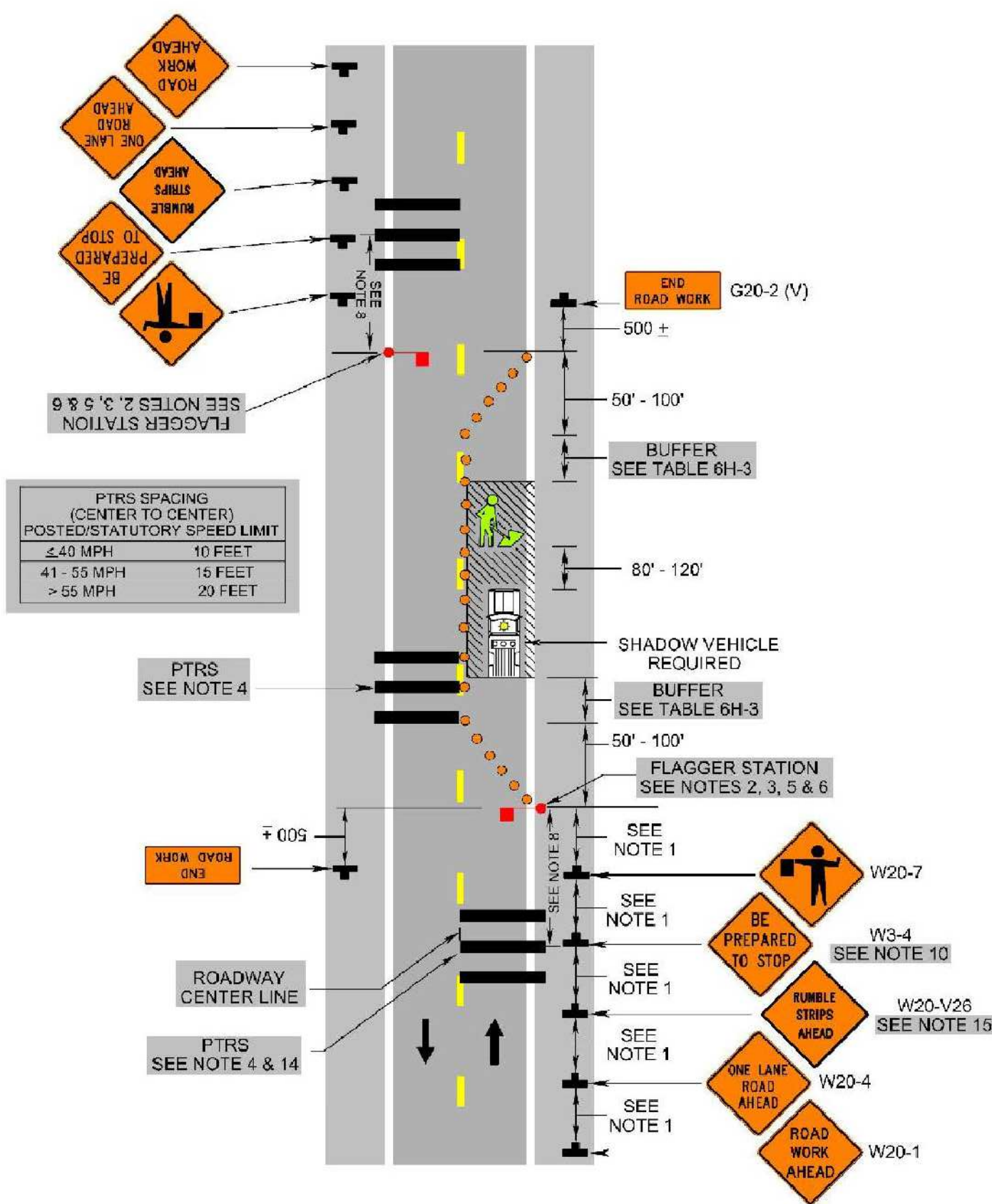
Channelizing Device Spacing			
Location Spacing	Speed Limit (mph)	Location Spacing	Speed Limit (mph)
Transition	0-35 36+	Travelway	0-35 36+
	20' 40'		40' 80'

*Construction access spacing may be increased to this distance, but shall not exceed one access per 1/4 mile.

8. On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.
9. The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
10. A truck-mounted attenuator (TMA) shall be used on the shadow vehicle on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph for operations with a duration greater than 60 minutes.
11. When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

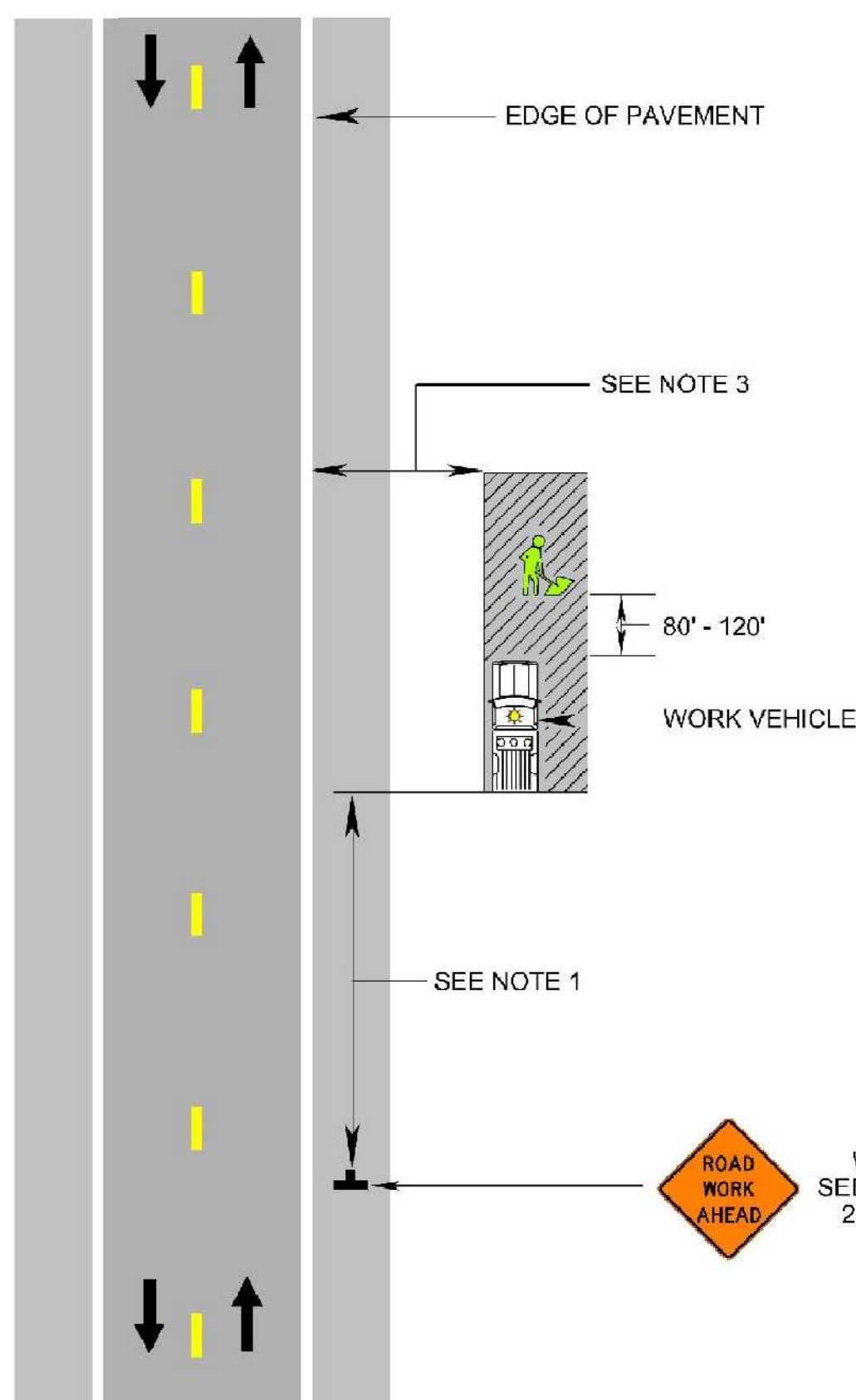
**Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.2)**



1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

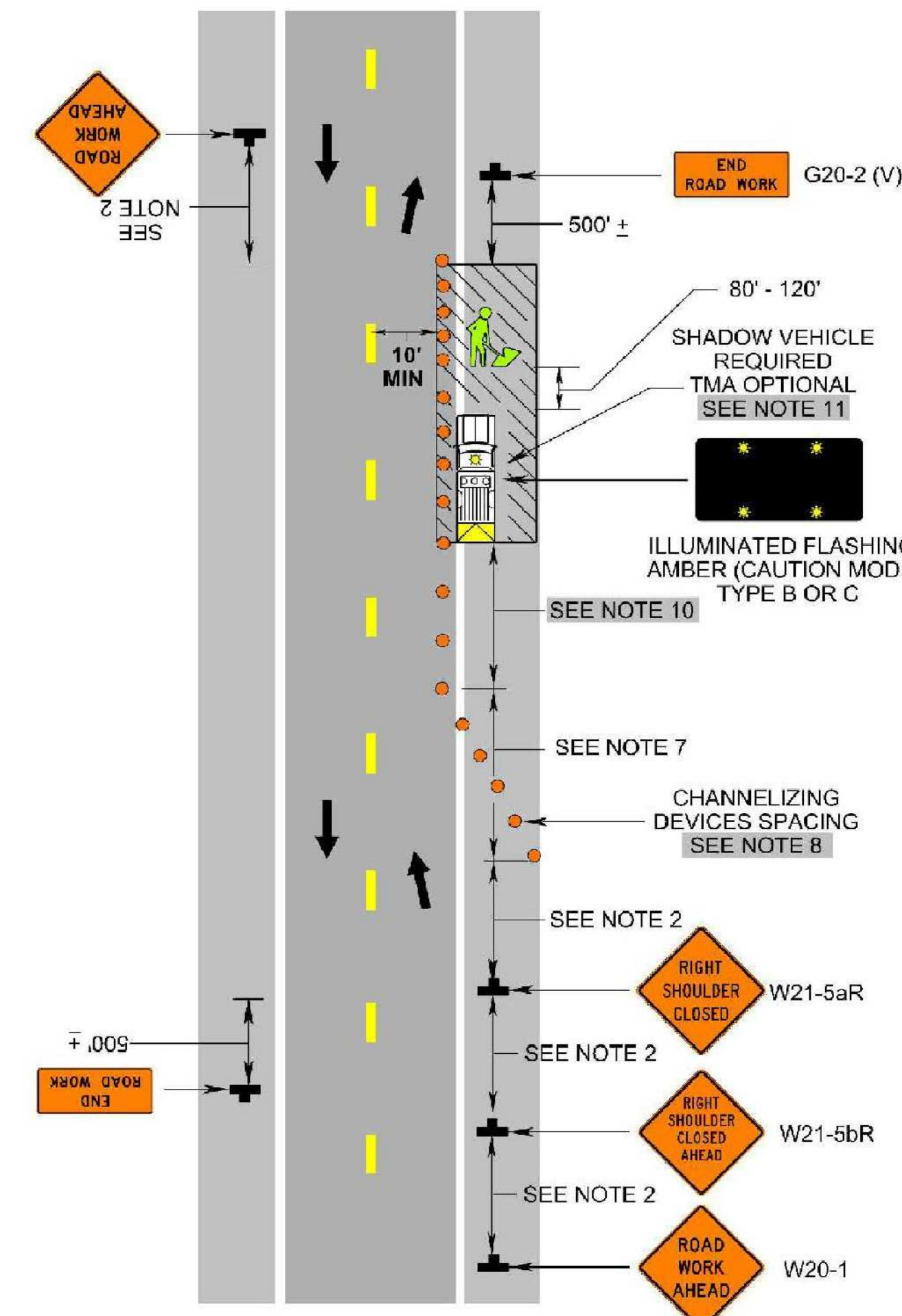
1: Revision 1 – 4/1/2015

**Work Beyond the Shoulder Operation
(Figure TTC-1.1)**

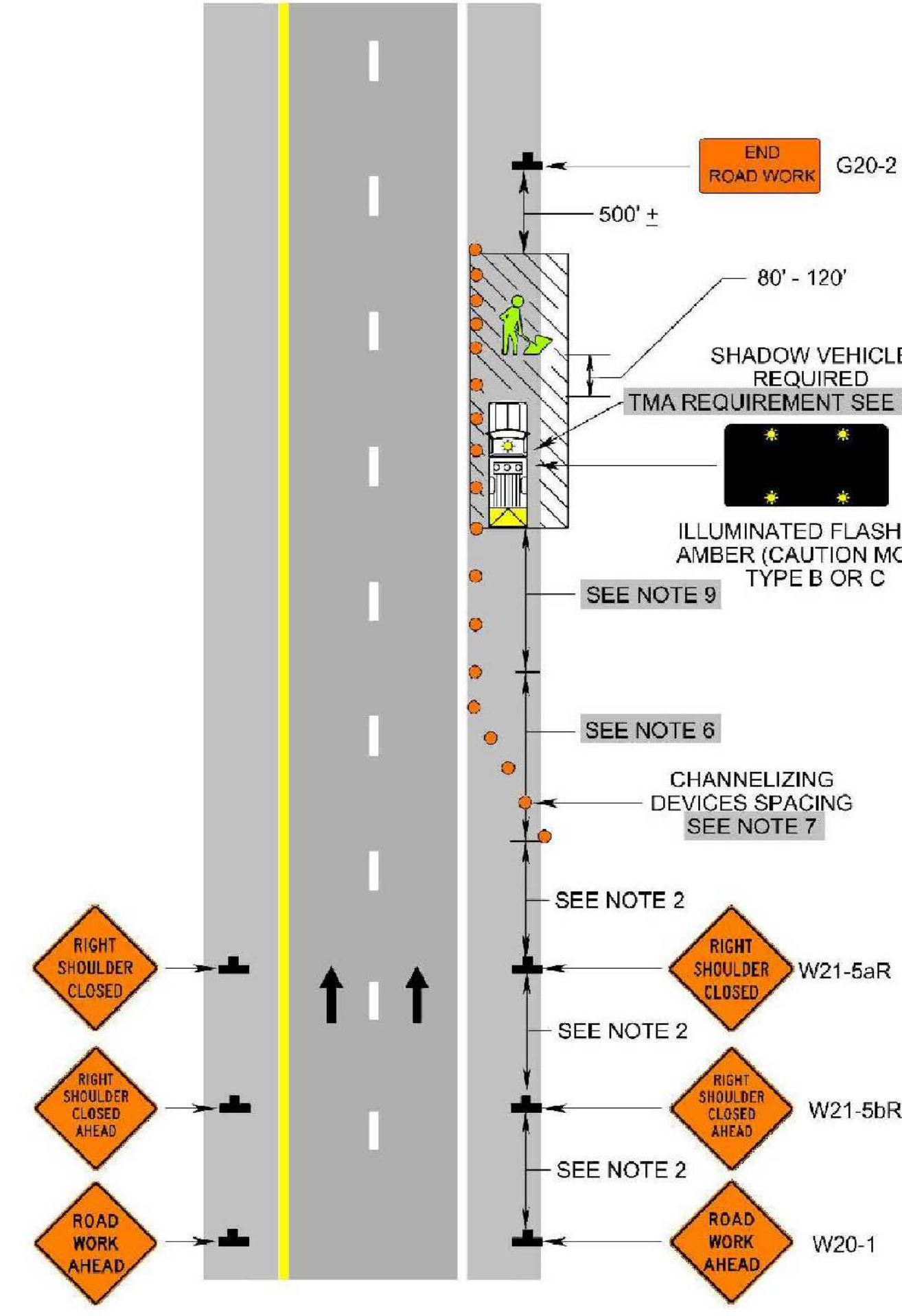


1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

**Shoulder Operation with Minor Encroachment
(Figure TTC-5.2)**



**Stationary Operation on a Shoulder
(Figure TTC-4.2)**



1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019