SOUTHWESTERN REGION 03
PRESCOTT NATIONAL FOREST

NFSR 373 AGGREGATE HAULING
NFSR 360 CATTLE GUARD REPLACEMENT

STATEMENT OF WORK

U.S. FOREST SERVICE
05/12/2026_Revision2

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1.0 GENERAL INFORMATION

1.1 WORK SUMMARY

Load and haul MAG ABC aggregate from Prescott National Forest stockpile location at Willow Work Center to National Forest System Road (NFSR) 373, *Thumb Butte Road*.

1.2 PROJECT LOCATION

1.2.1 NFSR 373 MATERIAL HAULING

The existing stockpile is located at LAT 34.594533° / LONG -112.511707° at the Willow Work Center in Yavapai County, Arizona, within Prescott city limits.

From the Bradshaw Office (344 S. Cortez, Prescott, AZ, 86303), drive west on Aubrey Street, then turn right on S. Montezuma Road. Drive 1.5 miles, then the road turns curves to form Whipple Street. Drive 0.7 miles, then continue straight through the intersection, where the road turns into W. Iron Springs Road. Drive 1.4 miles, then turn right onto Williamson Valley Road. Continue 1.5 miles, then turn left onto Burnt Ranch Drive. Take the first right onto Hozoni Road, then turn left onto Katahn Drive. Continue 0.7 miles, then arrive at the aggregate stockpile location on the south side of the road.

The haul location will be NFSR 373, *Thumb Butte Loop*. The beginning of the road is 8.5 miles away from the stockpile location, approximately thirty (30) minute drive time. The northernmost point on the road is located at LAT 34.543362° / LONG -112.548144°. <u>NFSR 373 is a Maintenance Level 2 (ML-2) road, recommended for high-clearance vehicles only.</u>

From the stockpile location, drive 0.7 miles on Katahn Drive, then turn right onto Hozoni Road. Drive 0.1 miles, then turn left onto Burnt Ranch Drive. Turn right into N. Williamson Valley Road and drive 1.5 miles. Turn left onto Iron Springs Road, then continue 0.9 miles. Turn right onto Gail Gardner Way and drive 1.3 miles. Turn right onto Oregon Avenue, drive 0.6 miles, then continue on Idylwild Road. Drive 0.7 miles, then turn right onto Thumb Butte Road. Drive 2.5 miles, then arrive at northern most point of NFSR 373, *Thumb Butte Road*.

1.2.2 NFSR 360 CATTLE GUARD REPLACEMENT

The existing damaged cattle guard is located at LAT 34.660696° / LONG -111.972764° in Yavapai County, Arizona, within Cottonwood town limits.

From the Verde Ranger Station (300 East AZ-260, Camp Verde, AZ, 86322), drive west on AZ-260 for 11.0 miles, passing through numerous traffic circles. At the traffic circle with Thousand Trails Rod to the north and Camina Real to the south, take the 3rd exit onto Camino Real. Drive 0.7 miles, then arrive at the damaged cattle guard location.

1.3 PERFORMANCE PERIOD & WORK RESTRICTIONS

The performance is sixty (60) calendar days from Notice to Proceed.

1.4 POINTS OF CONTACT

Contracting Officer's Representative:
Sergio Montanez, sergio.montanez@usda.gov, 928-765-5502

1.5 CONTRACTOR STAGING & STORAGE AREAS

The Contractor may stage equipment at the stockpile and project location. The stockpile is behind a gate with a key code.

1.6 UTILITIES & SANITATION SERVICES

There are no sanitation or utilities available at the site.

1.7 USE OF PREMISES

Driveways, Walkways, and Entrances: Keep driveways, walkways and entrances serving clear premises and available to emergency vehicles and pedestrians. Do not use these areas for parking or storage of materials, unless approved by the COR.

Smoking is not permitted within any government building, or within 25 feet of any entrance or window.

Provide adequate signage and barricades and take necessary safety measures to protect the public during all construction operations. Minimize disturbance of all undisturbed areas.

Secure equipment and contract work against theft and vandalism. The Government is not responsible for the theft and/or vandalism of any materials or equipment left at the project site.

1.8 GOVERNMENT FURNISHED ITEMS AND MATERIALS

For the NFSR 373 Aggregate Hauling work, the Government will furnish:

- Aggregate Material, approximately 3500 tons (2500 cubic yards)
- Roadbed preparation
- Road grading activities, *unless option item 2.3.1 is awarded*.

For the NFSR 360 Cattle Guard Replacement work, the Government will furnish:

- Cattle guard concrete base, 8' x 8', two (2) each

- Cattle guard steel grid, two (2) each
- Cattle guard wing, two (2) each
- Cattle guard warning sign, 30” x 30”, two (2) each
- Type 3 Object Marker, two (2) each
- Sign installation hardware
- U-channel posts

1.9 PROTECTION OF NATURAL RESOURCES

Confine all operations to work limits of the project. Prevent damage to natural surroundings. Restore damaged areas, and repair or replace damaged trees and plants, at no additional expense to the Government. Provide temporary barriers to protect existing trees and plants and root zones. Do not remove, injure, or destroy trees or other plants without prior approval. Consult with COR and remove agreed-on roots and branches that interfere with construction. Do not fasten ropes, cables, or guys to existing trees.

1.10 COORDINATION OF RESOURCES

The Contracting Officer’s Representative (COR) will coordinate Government-provided resources, including stockpile access and roadbed preparation activities. The COR will determine where aggregate placement will occur along NFSR 373, and aggregate thickness.

1.11 SUBMITTALS

Submit the following items for review and approval, prior to the start of the work:

- M.A.G. ABC Material Specification / Gradation Sheets, or substitute surface course material as described in *Section 2.2.6*.

2.0 PROJECT SCOPE

2.1 SCOPE

The Contractor shall furnish all supervision, materials, equipment and vehicles, tools, parts, labor, transportation, lodging, and miscellaneous items to load and haul approximately 2500 cubic yards of Government-Furnished MAG spec. ABC, and purchase/haul from a commercial source additional MAG spec. ABC, to NFSR 373, with an optional item to replace a cattle guard along NFSR 360, in accordance with the drawings, specifications, and other attachments referenced and contained herein.

No changes to the specifications, terms, or conditions of this statement of work shall be made without the prior approval of the Contracting Officer, in writing.

2.2 BASE BID LINE ITEMS

2.2.1 MOBILIZATION AND DEMOBILIZATION

Mobilize and demobilize to and from the Willow Work Center stockpile location and NFSR 373 *Thumb Butte Loop* with all required loading and hauling equipment, personnel, and all other contractual requirements.

2.2.2 LOADER WITH OPERATOR

Provide a loader with a minimum five (5) cubic yard bucket, with operator, to load haul trucks at the stockpile location. Pay unit is loading operating hour (HR), and shall be reimbursed for actual operating time loading haul vehicles. Down time due to mechanical breakdown and hauling activities will not be reimbursed. Consider having the loader operator also drive a haul vehicle to increase efficiency.

2.2.3 DUMP TRUCK WITH OPERATOR

Provide three (3) dump trucks, ten to twelve (10 – 12) cubic yard capacity, with operator, to haul aggregate material to NFSR 373 *Thumb Butte Loop*. Pay unit is operating hour (HR), and shall be reimbursed for actual operating and hauling time to and from the delivery location. Down time due to mechanical breakdown and hauling activities will not be reimbursed. Provide weight tickets and/or a log of all hauling activities in support of final billing.

2.2.4 VIBRATORY SMOOTH DRUM ROLLER WITH OPERATOR

Provide one (1) vibratory smooth single-drum roller, minimum 50-inch compaction width, with operator, to compact aggregate at NFSR 373 *Thumb Butte Loop*, after the Government spreads, grades, and shapes aggregate material. Pay unit is operating hour (HR), and shall be reimbursed

for actual operating time compacting aggregate. Down time due to mechanical breakdown and hauling activities will not be reimbursed. Compact in accordance with **Attachment K.**

2.2.5 WATER TENDER WITH OPERATOR

Provide one (1) water tender with 2000 – 3000 gallon capacity, with operator, to support aggregate reshaping and compaction activities on NFSR 373 *Thumb Butte Loop*. Pay unit is operating hour (HR), and shall be reimbursed for actual operating time. Down time due to mechanical breakdowns will not be reimbursed. Hourly rate includes the cost of the non-potable construction water and driving to and from the water source. Water source must be within thirty (30) minutes of the project site.

2.2.6 AGGREGATE MATERIAL PURCHASE

Purchase 600 cubic yards, or 1050 ton, of M.A.G. Aggregate Base Course (ABC) spec material from a local commercial source. A substitute material is preferred that meets surface coarse characteristics, such as asphalt millings. The material will be used as a surface course for the road, and surface coarse specifications are preferred due to the increase in plasticity and binder for withstanding road wear. Surface coarse specifications are below:

Table 703-1
Target Value Ranges for Subbase, Base, and Surface Course Gradation

Sieve size	Percent by Mass Passing Designated Sieve (AASHTO T 27 & T 11)							
	Grading Designation[1]							
	Subbase		Base			Surface		
	A	B	C	D	E	F	G	H
2½ in	100	–	–	–	–	–	–	–
2 in	97 to 100	[illegible]	100	–	–	–	–	–
1½ in	–	97 to 100	–	–	–	–	–	–
1 in	65 to 79	–	[illegible] to 100	100	100	–	100	–
¾ in	–	–	64 [illegible]	86 to 100	86 to 100	100	–	100
½ in	45 to 59	–	–	–	–	–	70 to 80	–
⅜ in	–	–	40 to 69	[illegible] to 82	51 to 82	62 to 90	–	–
No. 4	28 to 42	[illegible] to 60	31 to 54	36 to [illegible]	36 to 64	36 to 74	40 to 50	41 to 71
No. 10	–	–	–	–	–	–	25 to 40	–
No. 40	[illegible] 17	–	–	12 to 26	[illegible] 26	12 to 26	15 to 25	12 to 28
No. 200	[illegible].0 to 8.0	4.0 to 12.0	4.0 to 7.0	4.0 to 7.0	10 max	4.0 to 7.0	8.0 to 14.0	9.0 to 16.0

(1) Contractor specified target values. See Table 703-2 for allowable deviations.
(2) Statistical procedures do not apply.

(c) Surface course aggregate. In addition to Subsection 703.05(a), conform to the following:

(1) Gradation	Table 703-1
(2) Liquid limit, AASHTO R 58 and T 89, Method A	35 maximum
(3) Plasticity index, AASHTO T 90	
(a) Grading G	10±3
(b) Grading H	8±4

Table 1, FP-24, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, Section 703.05 Subbase, Base, and Surface Course Aggregate

2.2.7 AGGREGATE MATERIAL HAULING AND DELIVERY

Load, haul, and delivery 600 cubic yards, or 1050 ton of aggregate material (purchased under *Section 2.2.6*) to the road work area. Provide weight tickets and/or a log of all hauling activities in support of final billing.

2.3 OPTION BID LINE ITEMS

2.3.1 ROAD GRADER WITH OPERATOR

Provide a road grader (blade) with operator, for:

- Aggregate spreading
- Aggregate rough and fine grading
- Aggregate shaping

Pay unit is loading operating hour (HR), and shall be reimbursed for actual operating time. Down time due to mechanical breakdown and hauling activities will not be reimbursed.

The COR will determine and provide the standard roadway section, as shown in **Attachment J**, and the final compacted aggregate surface coarse, that may be three (3) inches or more in compacted depth.

2.3.2 NFSR 360 CATTLE GUARD REPLACEMENT

The Contactor is responsible for coordinating and contacting Arizona 811 prior to all excavation activities, http://www.arizona811.com/.

Remove and dispose of the existing cattle guard concrete base and steel grids at the specified NFSR 360 location. The existing location contains a concrete base approximately 8-feet by 21-feet, and three (3) steel grids.

Load, haul, deliver, and install two (2) 8-feet by 8-feet concrete cattle guard bases, two (2) steel grids, and two (2) cattle guard wings at the existing location. Re-wire fence to the cattle guard wings. The new road width at this location will be sixteen (16) feet in lieu of twenty-one (21) feet. Regrade the surrounding area to natural grades, including the voids left from the larger footprint where the old cattle guard base sat. Center the new cattle guard to the center of the road. Final location shall be approved by the Contracting Officer's Representative.

Excavate unsuitable material if encountered at foundation grade. Prepare subgrade for new cattle guard installation. Provide a firm earthen foundation of uniform density throughout its length and width. Place backfill lifts evenly on all sides of the structure. Extend each lift to the limits of the excavation or natural ground. Place backfill in compacted lifts no more than 6 inches in thickness.

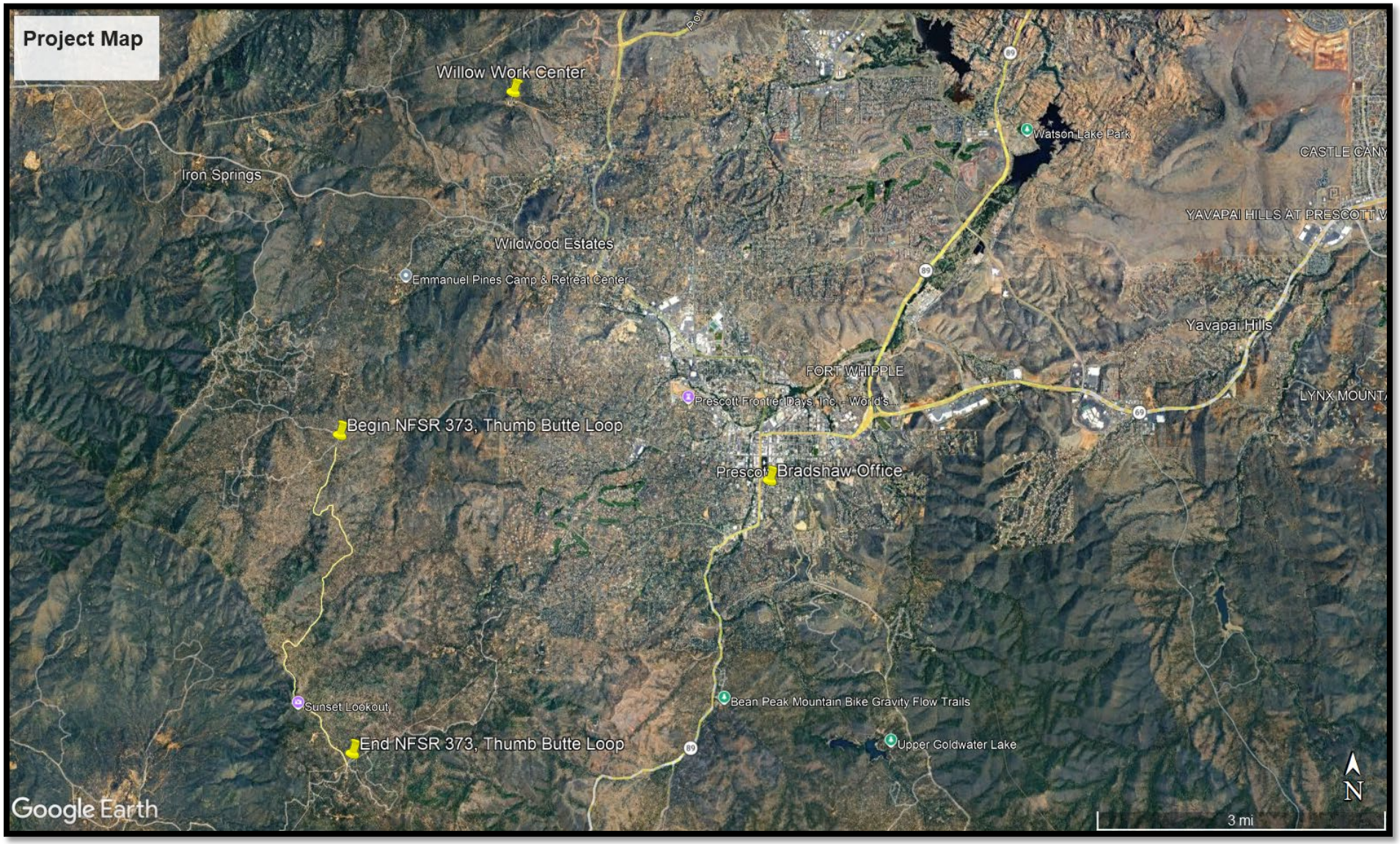
Install new cattle guard warning signs, two (2) each, 30" x 30", and two (2) Type 3 object markers, at the new cattle guard location, per the sign installation guidelines attached herein. U-Channel posts, sign hardware, and signs will be Government-Furnished.

The Contractor is responsible for installing road closure signage where NFSR 360 intersects with NFSR 9604D to the north and NFSR 361 to the south, both locations approximately 1/4-mile away from the cattle guard location.

2.4 SCOPE ATTACHMENTS

ATTACHMENT A – PROJECT MAP, NFSR 373 AND STOCKPILE LOCATION
ATTACHMENT B – PROJECT MAP, STOCKPILE LOCATION, WILLOW WORK CENTER
ATTACHMENT C – AGGREGATE STOCKPILE PICTURES
ATTACHMENT D – PROJECT MAP, NFSR 360 CATTLE GUARD & VERDE RANGER STATION
ATTACHMENT E – PROJECT MAP, NFSR 360 CATTLE GUARD
ATTACHMENT F – EXISTING CATTLE GUARD PICTURES
ATTACHMENT G – GOVERNMENT-FURNISHED CATTLE GUARD SUPPLIES
ATTACHMENT H – WARNING SIGN INSTALLATION GUIDELINES
ATTACHMENT I – TYPE 3 OBJECT MARKER INSTALLATION GUIDELINES
ATTACHMENT J –TYPICAL ROADWAY SECTIONS, AGGREGATE SURFACE

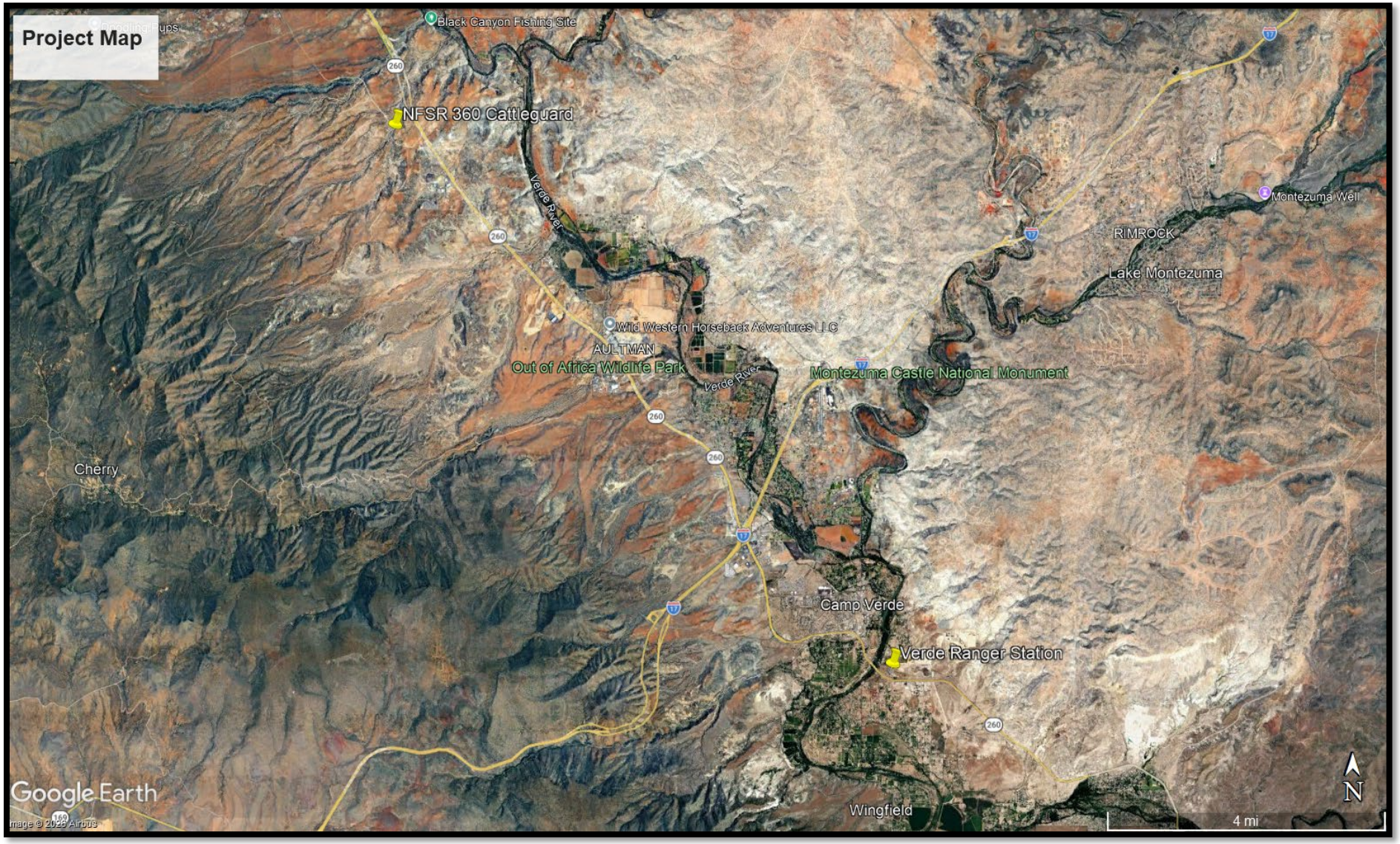
ATTACHMENT A – PROJECT MAP, NFSR 373 AND STOCKPILE LOCATION



ATTACHMENT B – PROJECT MAP, STOCKPILE LOCATION, WILLOW WORK CENTER

ATTACHMENT C – AGGREGATE STOCKPILE PICTURES

ATTACHMENT D – PROJECT MAP, NFSR 360 CATTLE GUARD & VERDE RANGER STATION



ATTACHMENT E – PROJECT MAP, NFSR 360 CATTLE GUARD

ATTACHMENT F – EXISTING CATTLE GUARD PICTURES

CAUTION
US WEST
FIBER
OPTIC
CABLE
CALL
BLUE STAKE
BEFORE
DIGGING
1-800-782-5348

WARNING
NATURAL GAS PIPELINE
HIGH
PRESSURE

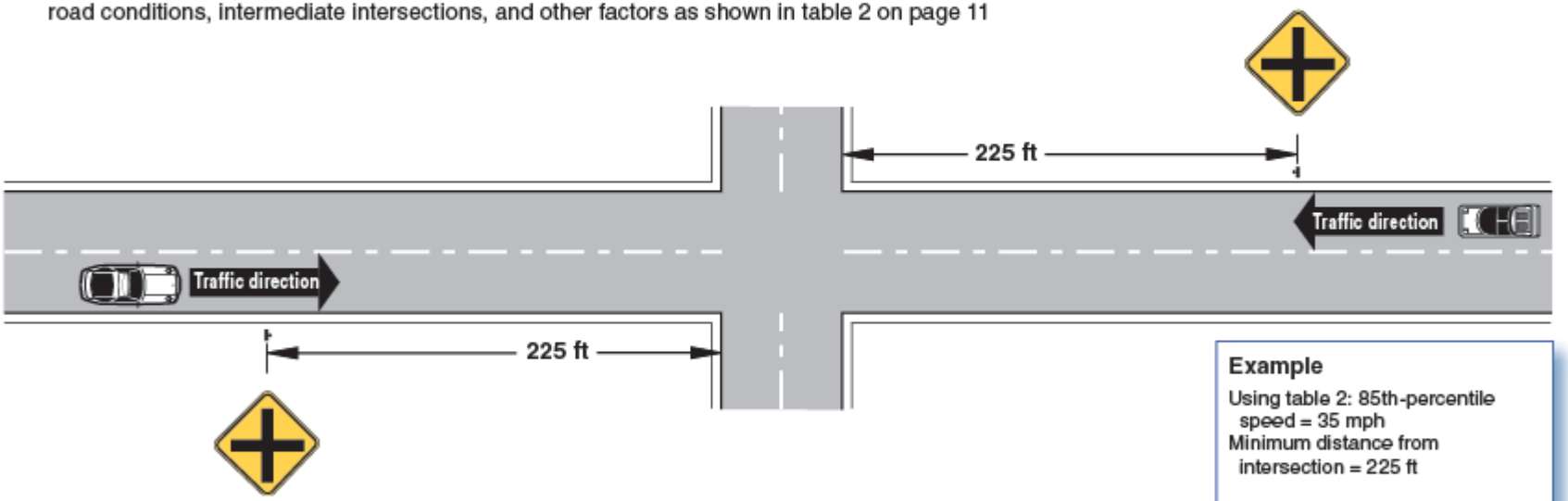
ATTACHMENT G – GOVERNMENT-FURNISHED CATTLE GUARD SUPPLIES

STREET
CLOSED

Warning Sign Installations

Warning signs:

- Warn drivers of unexpected conditions or situations
- Indicate need for caution
- May call for reduced speed or an unexpected vehicle maneuver
- Are placed in advance of the situation to allow adequate time for proper response considering approach speed, road conditions, intermediate intersections, and other factors as shown in table 2 on page 11



Example

Using table 2: 85th-percentile speed = 35 mph
Minimum distance from intersection = 225 ft

Advance Warning Sign Placement Distances

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Warning Sign Installations (cont.)

Minimum Advance Placement Distances

Table 2—Advance warning sign placement distances for **unpaved low-volume roads**.

Posted speed or 85th-percentile speed (mph)	Stopping sight distance (ft)	Distance for deceleration (feet) to advisory speed listed (mph)				Additional distance (feet) on downgrade (percent)			
		10	20	30	40	3	6	9	12
		(ft)				(ft)			
20	115	125	—	—	—	5	10	20	30
25	155	150	—	—	—	8	15	30	45
30	200	200	150	—	—	10	20	45	65
35	250	250	225	—	—	15	35	60	90
40	305	325	300	275	—	20	45	75	120
45	360	400	350	300	—	25	55	95	150
50	425	475	450	375	275	30	70	120	185
55	495	550	525	450	350	35	85	145	225

- These minimum distances may be exceeded when necessary.
- Distance for deceleration is the minimum distance a warning sign should be placed in advance of a condition.
- Sign placement distances are based on sign legibility for 24-inch signs and 4-inch letters.
- If larger signs are used, evaluate the placement distances as part of the engineering study or use engineering judgment to determine whether the placement distances may be reduced. Document calculations and rationale.
- Distances are for level roadways. Increase placement distance on downgrades of 3 percent or steeper.
- Placement distances on upgrades may be reduced by one-half the distances listed for downgrades.
- On conventional roads and paved low-volume roads (fewer than 400 vehicles per day), use the MUTCD.

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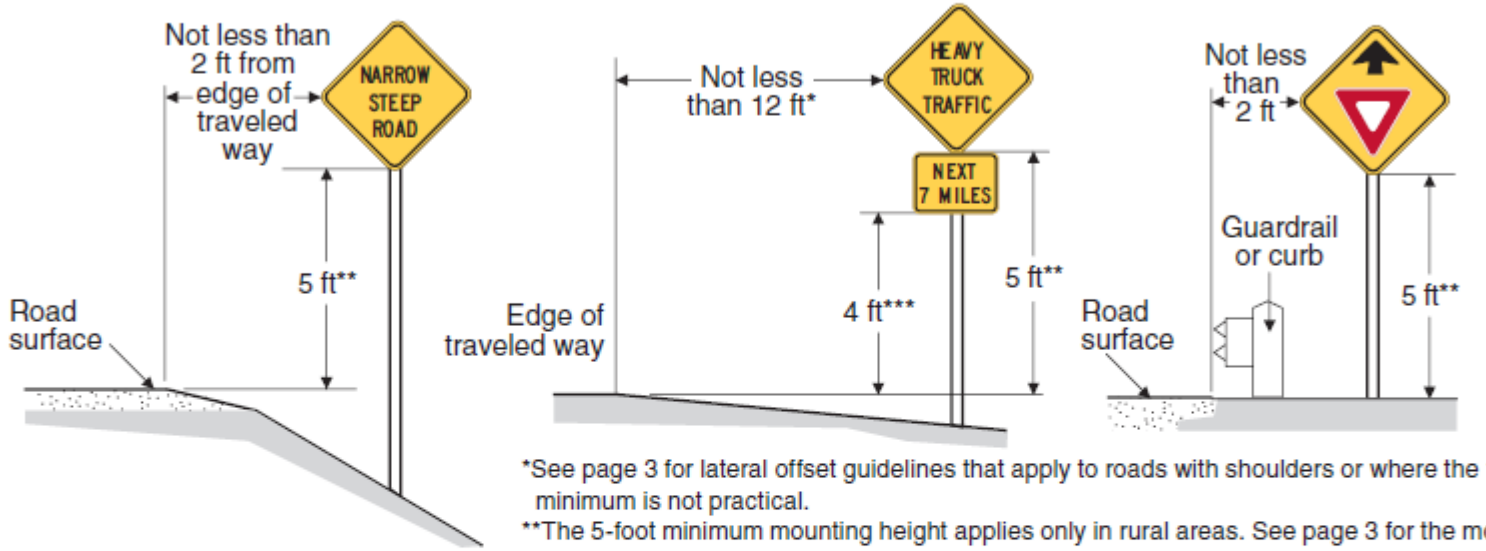
Warning Sign Installations (cont.)



*See page 3 for lateral offset guidelines that apply to roads with shoulders or where the 12-foot minimum is not practical.

**The 5-foot minimum mounting height applies only in rural areas. See page 3 for the mounting height guidelines that apply in other areas.

***See page 3 for the mounting height of supplemental plaques or signs and for the recommended gap between stacked signs.

Low-Volume Rural Roads Where Terrain or Vegetation Limit the Lateral Offset

All Rural Roads—Standard Placement

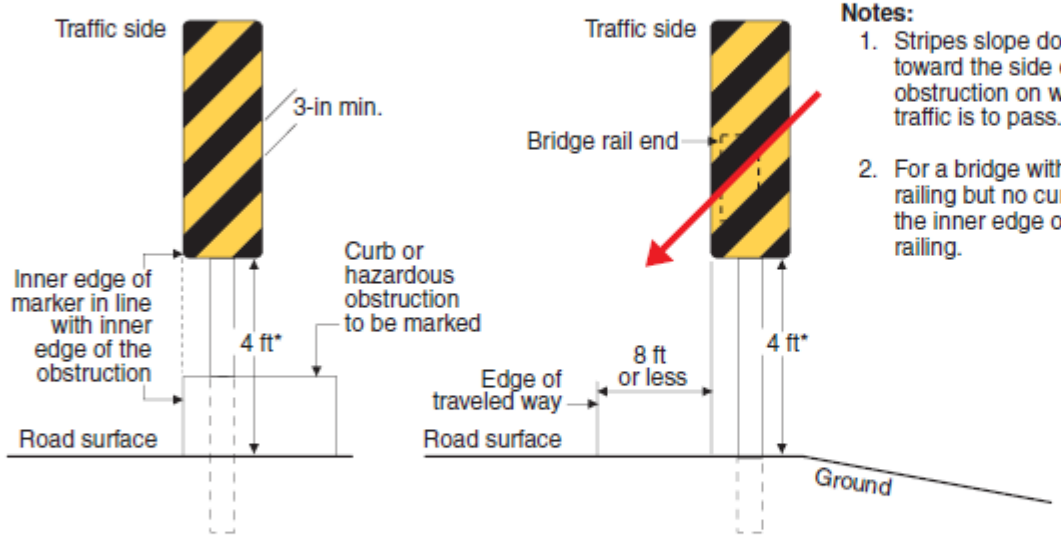
Rural Low-Volume and Conventional Roads

Lateral Offset and Mounting Height for Warning Signs

12

Object and Barricade Marker Installations

Type 3 object markers are used to mark objects that intrude into or constrict the roadway.

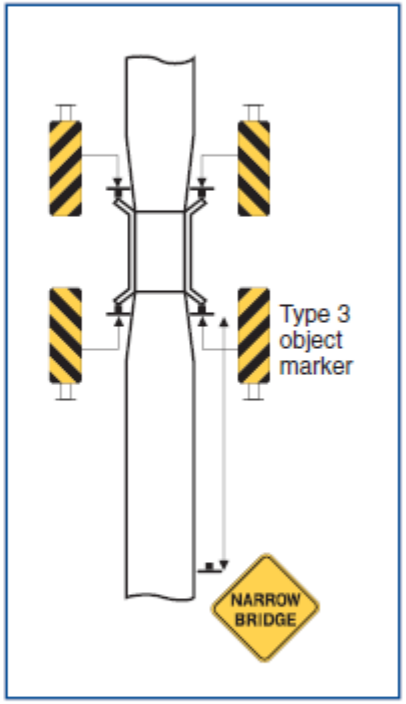


Notes:

1. Stripes slope downward toward the side of the obstruction on which traffic is to pass.
2. For a bridge with a railing but no curb, mark the inner edge of the railing.

*Vertical mounting height may vary according to need. Mounting height is normally 4 feet, but shall be no less than 6 inches.

Placement of Type 3 Object Markers



Single-Lane Road With Narrow Bridge

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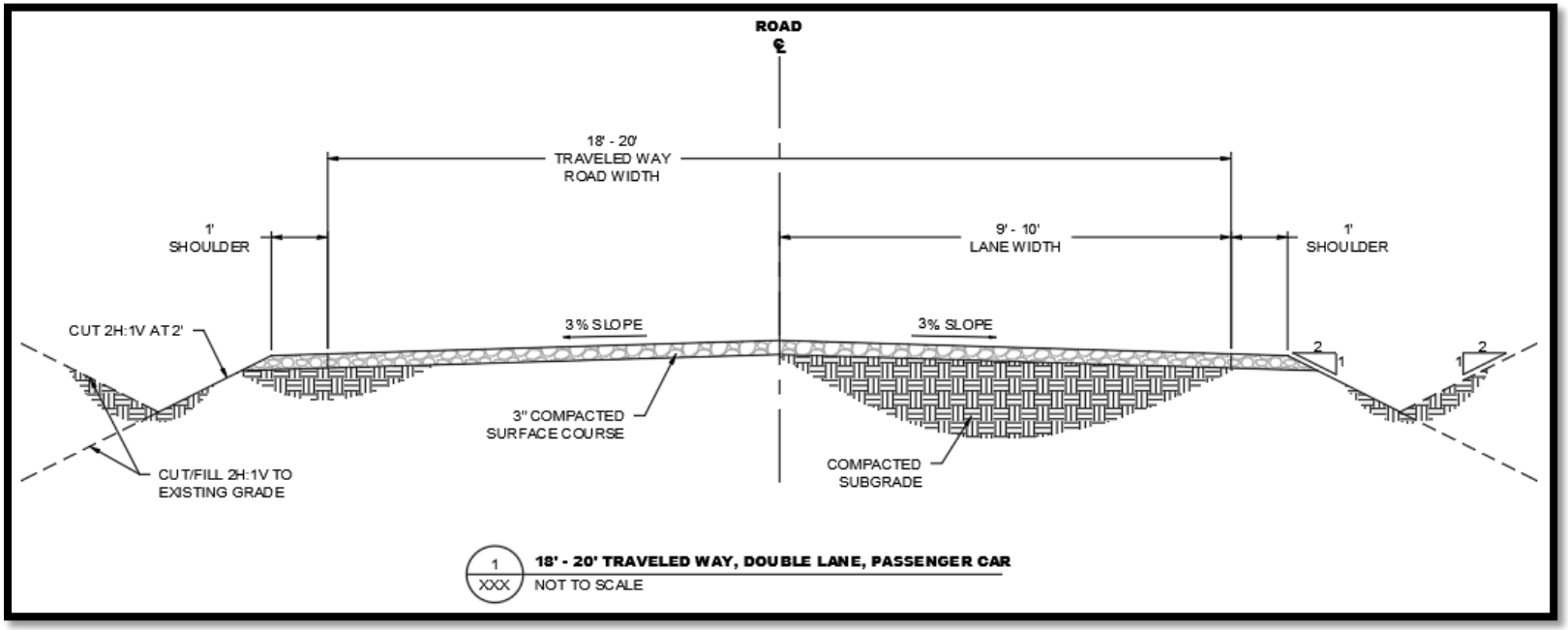
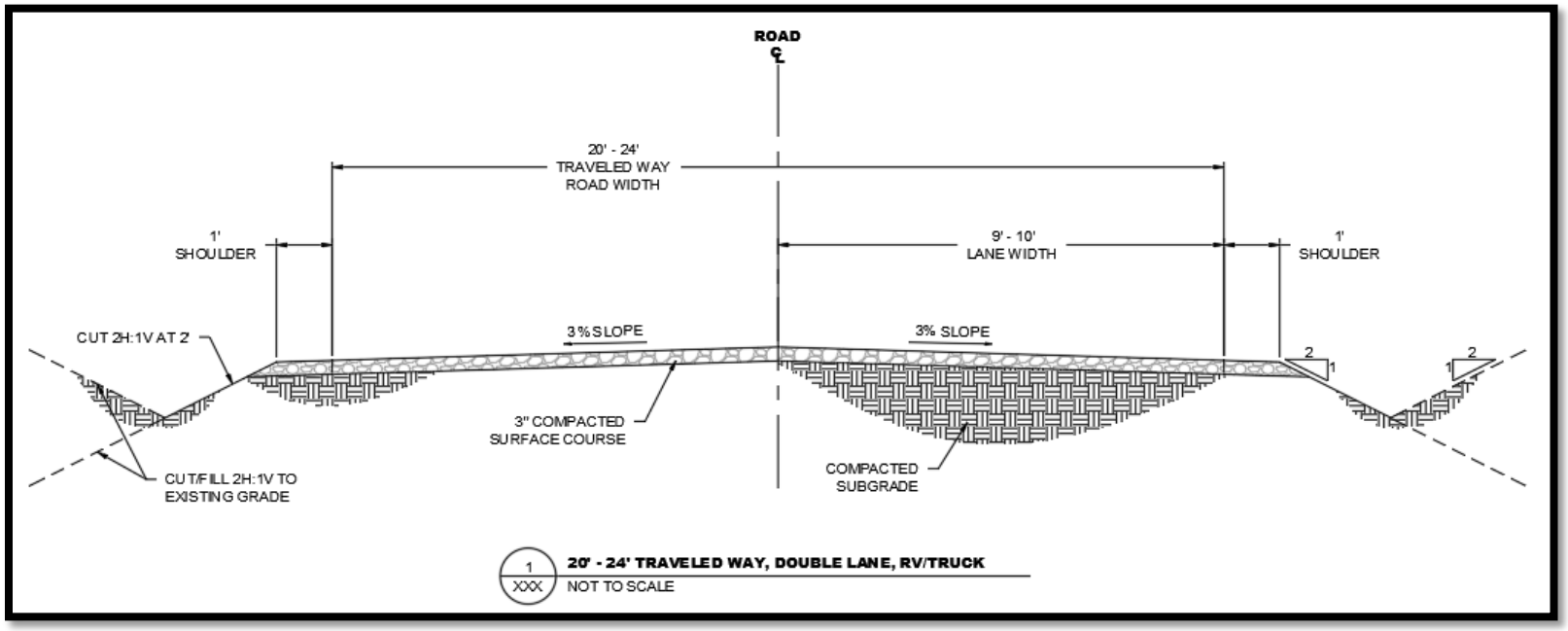
ATTACHMENT J – TYPICAL ROADWAY SECTIONS, AGGREGATE SURFACED





ATTACHMENT K – COMPACTION SPECIFICATIONS, FP-24

204.11 Compaction. For compaction, use AASHTO T 27 to determine the quantity of material retained on a No. 4 sieve. Compact each lift of material to a firm and stable condition and until there is no visible evidence of further consolidation or deflection. Compact as follows:

(a) More than 80 percent retained on a No. 4 sieve. Compact as follows:

(1) Adjust the moisture content to a level suitable for compaction.

(2) Fill the voids around rock with earth or other fine material as practical.

(3) Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second.

(4) Compact each lift of material full width with one of the following:

(a) 4 roller passes of a vibratory roller with a minimum centrifugal force of 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute;

(b) 8 roller passes of a 20-ton compression-type roller; or

(c) 8 roller passes of a vibratory roller with a minimum centrifugal force of 30,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

(5) Increase the compactive effort for lifts deeper than 12 inches as follows:

(a) For each additional 6 inches or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(4)(a), by 4 passes; or

(b) For each additional 6 inches or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(4) *(b)* and *(c)*, by 8 passes.

(b) 50 to 80 percent retained on a No. 4 sieve. Classify the material according to AASHTO M 145. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content. Use AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 sieve. Multiply this number by the percentage of material passing a No. 4 sieve and add 2 percent to determine the optimum moisture content of the material.

Use nonvibratory rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each lift of material full width according to Subsection 204.11(a).

(c) Less than 50 percent retained on a No. 4 sieve. Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 180, Method D. For other material classifications, determine the optimum moisture content and maximum density according to AASHTO T 99, Method C. For material with more than 30 percent retained on the ¾-inch sieve, compact according to Subsection 204.11(a).

Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type or vibratory rollers. Compact each lift of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures.