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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE PREPARED: 7/26/2019

ROUTE: MO STATE: MO DISTRICT: BR SHEET NO: \* COUNTY: \* JOB NO: \* CONTRACT ID: \* PROJECT NO: \* BRIDGE NO: MSEW 2

DESCRIPTION: DATE: MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITAL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)

Standard Drawing Guidance (do not show on plans):  
 Revise notes and details per project as necessary.  
 For Modified Type A and Type B Gutter and Fence Post Connection details, see Missouri Standard Plans No. 607.11.  
 For Type A & Type B Gutter information, see Missouri Standard Plans No. 609.00.  
 See EPG 751.24.2.1 for drainage guidance.

① Show the minimum embedment = maximum (2', embedment based on Geotechnical Report and global stability requirements). Minimum embedment shall be provided in accordance with AASHTO 5.8.1; FHWA-NHI-10-024, Table 2; and Geotechnical Report.  
 ② Minimum soil reinforcement length shall be based on the following cases in accordance with EPG 751.6.2.17:  
 Maximum (0.7H, 8 ft, or FIGR) for a non-seismic design.  
 Maximum (0.7H, 8 ft, or FIGR, seismic loading requirement) for a seismic design.  
 Maximum (0.8H, 8 ft, or FIGR) for a sloping backfill surcharge case.  
 Soil reinforcement length shall be greater than or equal to as required for a stable feature wall for strong/stable rock case.

Where,  
 H = Height of the wall as measured from the top of the leveling pad to the top of the wall.  
 FIGR = Foundation Investigation Geotechnical Report

③ Use for MSE wall heights of 10 feet or more in seismic area.  
 ④ District Design Division to verify 6" diameter pipe or increase diameter. Minimum pipe diameter shall be 6".

General notes shown shall be reviewed/revised per project.  
 ⑤ Use for MSE Walls when there may be contact between dissimilar metals.  
 ⑥ Use for MSE Walls when there may be vertical and/or horizontal obstructions in reinforced soil mass.

**General Notes Cont.:**

- Anchorage reinforcement shall be spaced to avoid roadway drop inlet behind wall.
- ③ Upper two layers of soil reinforcement shall be extended 3 feet beyond the lower layers.
- ⑤ All steel soil reinforcements shall be separated from other metallic elements by at least 3 inches.
- The splay angle should be less than 15° and tensile capacity of splayed reinforcement shall be reduced by the cosine of the splay angle.
- No reinforcement shall be left unconnected to the wall face or arbitrarily cut/bent in the field to avoid the obstruction.
- ⑥ Where interference between the vertical obstruction and the soil reinforcement is unavoidable, the design of the wall near the obstruction may be modified using one of the alternatives in FHWA-NHI-10-24, Section 5.4.2. Show detail layout on the drawings. For wall designs with horizontal obstructions in reinforced soil mass, see FHWA-NHI-10-024, Section 5.4.3.
- Excavation:**  
 Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length of ② ft. The soil reinforcement length may vary based upon the wall design selected by the contractor. Plan excavation quantities will be paid regardless of any actual quantities removed based on the soil reinforcement length and design selected.

- \* Inverted U-shape reinforced capstone may be used in lieu of coping. Panel dowels for capstone shall be required and as provided by manufacturer.
- \*\* Topmost layer of reinforcement shall be fully covered with select granular backfill for structural systems, as approved by the wall manufacturer, before placement of the Separation Geotextile.
- \*\*\* Minimum ④ diameter perforated PVC or PE pipe.
- Manufacturer shall show drain details on design plans to be submitted as shown on MoDOT MSE wall plans and/or roadway plans.
- Contractor shall modify the drain details as shown if it will improve flow as may be the case for stepped leveling pad, and for an uneven ground line (approval of the engineer required).
- For  $(45 + \phi_p/3) < \theta \leq 90^\circ$ , properties for retained backfill shall be used for active force computations.
- For  $\theta \leq (45 + \phi_p/3)$ , contractor shall have the option to use select granular backfill,  $\phi_r$ , or better aggregate material,  $\phi_w$  for active force computations in the wedge area backfill. For active force computations, the angle of internal friction for wedge area backfill material,  $\phi_r$  or  $\phi_w$ , shall be limited to 34° unless determined otherwise in accordance with Section 1010. If  $\phi_r$  or  $\phi_w > 34^\circ$  is desired for wedge area backfill then test report shall be submitted with manufacturer's design plans.  $\phi_r$  or  $\phi_w$  shall not be greater than 40° for computations. Final configuration of this option shall be sent to Geotechnical Section for a new overall global stability analysis. Design  $\phi_w$  shall be shown on manufacturer's plans if used.

Material Properties Used in Design					
Reinf. Fill/Select Granular Backfill		Active Force Computations		Foundation	
$\phi$	$\gamma$ (pcf)   C (psf)	$\phi$	$\gamma$ (pcf)   C (psf)	$\phi$	$\gamma$ (pcf)   C (psf)

Note: MSE Wall designer shall include table on shop drawings and provide values used in the design computations.

The slope excavation line shall be benched and separation geotextile shall be placed between the retained backfill and either select granular backfill or better aggregate material, and between the select granular backfill and better aggregate material.  
 Show range of acceptable theta ( $\theta$ ) angle on shop drawings which must be consistent with design computations and proposed construction of wall. Show active force computation properties on shop drawings and in design computations. Coordination between wall designer (manufacturer) and contractor is required before shop drawing submittal.

**DETAILS FOR GENERIC MSE WALL**