Following is a general description of the soil nailing process. (Begin at the top of the wall and work down.)

1. Excavate a bench 4–6 feet high. Because soil can collapse after excavating the bench, excavate only as much as you can complete within the same work shift.

2. Drill holes (the number of holes and their distance apart depend on the site) measuring 6–8 inches in diameter in soil or 3–4 inches in rock, angled 15 degrees below the horizon.

3. Fill holes with ready-mixed grout soon after drilling.

4. Insert nails immediately after grouting. Nails should be equipped with centralizers and long enough to penetrate the excavation failure plane.

5. Install horizontal and vertical drain strips on the facing to control seepage and eliminate hydrostatic pressure buildup.

6. Cover face with reinforced steel.

7. Apply shotcrete (concrete applied with a hydraulic hose) to the face.

8. Fit steel plate and anchor nut on protruding nails before the shotcrete sets.

9. Repeat steps 1–8 through the height and length of wall.

10. Apply final facing.

For more detailed information, contact Curtis Monk, division bridge engineer with FHWA, Iowa Division, 515-233-7320, curtis.monk@fhwa.dot.gov.

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