



**TYPICAL SECTION**  
(NO SCALE)

GEOSYNTHETIC REINFORCED SOIL (GRS) IS A RETAINING WALL METHODOLOGY THAT UTILIZES CLOSELY-SPACED REINFORCEMENT IN HIGH-QUALITY BACKFILL TO CREATE INHERENTLY INTERNALLY-STABLE COMPOSITE STRUCTURES. THIS DETAIL DEMONSTRATES THE CONCEPT FOR USE WITH NOVUM WALL BLOCKS, AND IS BASED ON THE GUIDANCE PROVIDED BY THE FHWA'S *DESIGN AND CONSTRUCTION GUIDELINES FOR GEOSYNTHETIC REINFORCED SOIL ABUTMENTS AND INTEGRATED BRIDGE SYSTEMS* (FHWA-HRT-17-080, JUNE 2018).

- Notes:
- 1) USE WELL-GRADED BACKFILL CONTAINING 100% CRUSHED, HARD, DURABLE PARTICLES OF NATURAL STONE OR GRAVEL WITH A MAXIMUM AGGREGATE SIZE OF 1/2 in (13mm) TO 2 in (51 mm) AND LESS THAN 12% PASSING THE No. 200 SIEVE. COEFFICIENT OF UNIFORMITY SHOULD BE BETWEEN 1 AND 3, AND COEFFICIENT OF CURVATURE LESS THAN OR EQUAL TO 6. FRICTION ANGLE SHOULD BE AT LEAST 38°. DENSE-GRADED ROAD BASE MATERIAL OF MANY TRANSPORTATION AGENCIES WILL MEET THESE REQUIREMENTS.
  - 2) OPEN-GRADED BACKFILL SHOULD BE CLEAN, HARD, DURABLE, CRUSHED, ANGULAR PARTICLES OF NATURAL STONE OR GRAVEL WITH A MAXIMUM PARTICLES SIZE OF 2 in (51 mm) AND A MINIMUM PARTICLE SIZE OF 1/2 in (13 mm). NO MORE THAN 5% SHOULD PASS THE No. 50 SIEVE. THE FRICTION ANGLE SHOULD BE AT LEAST 38°. AASHTO No. 89 TO No. 5 AGGREGATES MEET THESE REQUIREMENTS.
  - 3) OPEN-GRADED BACKFILL IS RECOMMENDED WHEN THE WALL IS LOCATED IN A FLOOD ZONE, OR FOR OTHER SITUATIONS IN WHICH WATER IS A CONCERN.
  - 4) GEOSYNTHETIC REINFORCEMENT FOR GRS WALLS HAS TRADITIONALLY BEEN WOVEN POLYPROPYLENE WITH A MINIMUM AVERAGE ROLL VALUE (MARV) STRENGTH OF AT LEAST 4,800 lbs/ft (kN/m). CONFIRM STRENGTH FOLLOWING FHWA-HRT-17-080, CHAPTER 4.
  - 5) REINFORCED SOIL FOUNDATION CAN CONSIST OF WELL-GRADED OR OPEN-GRADED BACKFILL (DEFINED ABOVE), WRAPPED WITH WOVEN GEOTEXTILE. PLACE GEOSYNTHETIC REINFORCING LAYERS WITHIN FOUNDATION AT VERTICAL INTERVALS OF NO MORE THAN 9 in (229 mm).
  - 6) THIS DRAWING IS FOR REFERENCE ONLY. DETERMINATION OF THE SUITABILITY AND/OR MANNER OF USE OF ANY DETAILS CONTAINED IN THIS DOCUMENT IS THE SOLE RESPONSIBILITY OF THE DESIGN ENGINEER OF RECORD. FINAL PROJECT DESIGNS, INCLUDING ALL CONSTRUCTION DETAILS, INTERNAL AND EXTERNAL STABILITY, AND DRAINAGE, SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER USING THE ACTUAL CONDITIONS OF THE PROPOSED SITE.

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