

Retaining Wall Construction Plans For

# QUIKTRIP NO. 0643S

## 8601 MEXICO ROAD

### O'Fallon, Missouri

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#### GENERAL NOTES

- THESE DRAWINGS DESCRIBE REQUIREMENTS FOR THE CONSTRUCTION OF REDI-ROCK RETAINING WALLS WITHOUT GEOSYNTHETIC SOIL REINFORCEMENT. THE DESIGN OF THE REDI-ROCK RETAINING WALLS HAS BEEN PREPARED IN ACCORDANCE WITH ALLOWABLE STRESS DESIGN (ASD) NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA) SEGMENTAL RETAINING WALL DESIGN MANUAL 3RD EDITION (2010).
- THE SCOPE OF WORK COVERED BY THESE DRAWINGS INCLUDES REQUIREMENTS FOR THE FURNISHING OF MATERIAL, LABOR, EQUIPMENT AND SUPERVISION FOR THE CONSTRUCTION OF THE REDI-ROCK RETAINING WALL(S) IN ACCEPTABLE CONFORMITY WITH THE CONTRACT DOCUMENTS AND THE LINES, GRADES AND DIMENSIONS SHOWN ON THESE CONSTRUCTION DRAWINGS AS APPROVED BY THE OWNER.
- IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AN INSPECTION ENGINEER SHALL BE DESIGNATED TO INSPECT AND DOCUMENT THE RETAINING WALL CONSTRUCTION AS REQUIRED BY THIS SPECIFICATION. THE INSPECTION ENGINEER SHALL BE A LICENSED PROFESSIONAL ENGINEER AND BE EMPLOYED BY A GEOTECHNICAL ENGINEERING FIRM DULY LICENSED AND AUTHORIZED TO PRACTICE WITHIN THE STATE OF MISSOURI. ANY INDIVIDUAL(S) DESIGNATED AS THE ON-SITE INSPECTOR SHALL BE AN EMPLOYEE OF THE SAME GEOTECHNICAL ENGINEERING FIRM AS THE INSPECTION ENGINEER. THE ON-SITE INSPECTOR SHALL HAVE ADEQUATE KNOWLEDGE OF THE PROJECT, GENERAL KNOWLEDGE OF THE LOCAL GEOLOGY AND BE FAMILIAR WITH THE PROJECT CONSTRUCTION DOCUMENTS AND THE APPROVED RETAINING WALL CONSTRUCTION PLANS AS WELL AS THE ACCEPTED MEANS AND METHODS OF PRECAST MODULAR BLOCK RETAINING WALL CONSTRUCTION. THE INSPECTION ENGINEER SHALL SUPERVISE AND DIRECT THE ACTIVITIES OF THE ON-SITE INSPECTOR.
- A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE AVAILABLE ON-SITE TO THE OWNER'S PROJECT ENGINEER AND THE CONTRACTOR AS NEEDED. THE TECHNICAL REPRESENTATIVE SHALL CONDUCT PRE-CONSTRUCTION ORIENTATION INSTRUCTION REGARDING THE PROPER METHODS OF CONSTRUCTION FOR THE RETAINING WALL SYSTEM. ADDITIONALLY, THE MANUFACTURER'S TECHNICAL REPRESENTATIVE SHALL BE AVAILABLE TO ANSWER QUESTIONS AND PROVIDE INFORMATION RELATED TO THE MANUFACTURER'S RECOMMENDED INSTALLATION PRACTICES ON AN AS NEEDED BASIS THROUGHOUT THE RETAINING WALL CONSTRUCTION PROCESS.
- THROUGHOUT THE CONSTRUCTION PROCESS, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR EFFECTING THE PROTECTION OF THE RETAINING WALL(S) AGAINST SCOUR OR EROSION BY SURFACE WATER AT ALL TIMES THROUGH THE USE OF BERMS, DIVERSION DITCHES, TEMPORARY DRAINS AND ANY OTHER MEANS OR METHODS REQUIRED. AT NO TIME SHALL SURFACE WATER BE PERMITTED TO DRAIN, UNCHECKED TOWARD THE CREST OR BASE OF THE REDI-ROCK RETAINING WALL(S) BEFORE FINAL GRADING AND/OR EROSION CONTROL MEASURES ARE IN PLACE.
- THESE CONSTRUCTION DRAWINGS ARE BASED UPON THE PROJECT CONTRACT DRAWINGS AND SPECIFICATIONS PREPARED BY MICHAEL JAMES VELLOFF, P.E. CHANGES MADE TO THE PROJECT CONTRACT DRAWINGS AFTER 07-24-15 INVOLVING GRADING, DRAINAGE, UTILITIES, OR SURCHARGE LOADING IN THE VICINITY OF THE PROPOSED RETAINING WALLS, MAY AFFECT THE REQUIREMENTS OF THE DESIGN. JOHN CLINTON HINES, P.E. SHALL BE NOTIFIED OF ANY SUCH CHANGES SO THAT ADJUSTMENTS CAN BE MADE IN THE WALL DESIGN AS NECESSARY.

#### REFERENCE STANDARDS

##### DESIGN

- AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, 2002.
- NATIONAL CONCRETE MASONRY ASSOCIATION SEGMENTAL RETAINING WALL DESIGN MANUAL, 3RD EDITION, 2009.
- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES - ASCE/SEI 7-10.
- INTERNATIONAL BUILDING CODE, 2006 EDITION.
- MISSOURI BUILDING CODE, 2012.
- FHWA-NHI-00-043 DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES.

##### PRECAST MODULAR BLOCK UNITS

- AASHTO M 194 - STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE.
- ASTM C94 - STANDARD SPECIFICATION FOR READY-MIXED CONCRETE.
- ASTM C136 - STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES.
- ASTM C140 - STANDARD TEST METHOD OF SAMPLING AND TESTING CONCRETE MASONRY UNITS.
- ASTM C143 - STANDARD TEST METHOD FOR SLUMP OF HYDRAULIC-CEMENT CONCRETE.
- ASTM C260 - STANDARD SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE.
- ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS
- ASTM C1116 - STANDARD SPECIFICATION FOR FIBER-REINFORCED CONCRETE.
- ASTM C1262 - STANDARD TEST METHOD FOR EVALUATING FREEZE-THAW DURABILITY OF DRY-CAST SEGMENTAL RETAINING WALL UNITS AND RELATED CONCRETE UNITS.
- ASTM C1372 - STANDARD SPECIFICATION FOR DRY-CAST SEGMENTAL RETAINING WALL UNITS.
- ASTM C1611 - STANDARD TEST METHOD FOR SLUMP FLOW OF SELF-CONSOLIDATING CONCRETE.
- ASTM D6638 - STANDARD TEST METHOD FOR DETERMINING CONNECTION STRENGTH BETWEEN GEOSYNTHETIC REINFORCEMENT AND SEGMENTAL CONCRETE UNITS (MODULAR CONCRETE BLOCKS).
- ASTM D6916 - STANDARD TEST METHOD FOR DETERMINING SHEAR STRENGTH BETWEEN SEGMENTAL CONCRETE UNITS (MODULAR CONCRETE BLOCKS).

##### GEOSYNTHETICS

- AASHTO M 288 - GEOTEXTILE SPECIFICATION FOR HIGHWAY APPLICATIONS.
- ASTM D3786 - STANDARD TEST METHOD FOR BURSTING STRENGTH OF TEXTILE FABRICS DIAPHRAGM BURSTING STRENGTH TESTER METHOD.
- ASTM D4354 - STANDARD PRACTICE FOR SAMPLING OF GEOSYNTHETICS FOR TESTING.
- ASTM D4355 - STANDARD TEST METHOD FOR DETERIORATION OF GEOTEXTILES
- ASTM D4491 - STANDARD TEST METHODS FOR WATER PERMEABILITY OF GEOTEXTILES BY PERMITTIVITY.
- ASTM D4533 - STANDARD TEST METHOD FOR TRAPEZOID TEARING STRENGTH OF GEOTEXTILES.
- ASTM D4595 - STANDARD TEST METHOD FOR TENSILE PROPERTIES OF GEOTEXTILES BY THE WIDE-WIDTH STRIP METHOD.
- ASTM D4632 - STANDARD TEST METHOD FOR GRAB BREAKING LOAD AND ELONGATION OF GEOTEXTILES.
- ASTM D4751 - STANDARD TEST METHOD FOR DETERMINING APPARENT OPENING SIZE OF A GEOTEXTILE.
- ASTM D4759 - STANDARD PRACTICE FOR DETERMINING SPECIFICATION CONFORMANCE OF GEOSYNTHETICS.
- ASTM D4833 - STANDARD TEST METHOD FOR INDEX PUNCTURE RESISTANCE OF GEOMEMBRANES AND RELATED PRODUCTS.
- ASTM D4873 - STANDARD GUIDE FOR IDENTIFICATION, STORAGE, AND HANDLING OF GEOSYNTHETIC ROLLS AND SAMPLES.

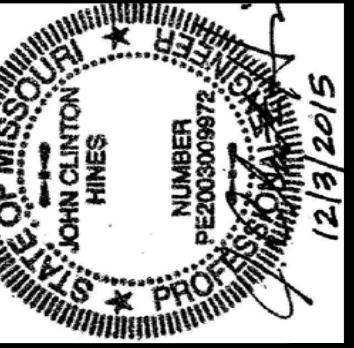
##### SOILS

- AASHTO M 145 - AASHTO SOIL CLASSIFICATION SYSTEM.
- AASHTO T 104 - STANDARD METHOD OF TEST FOR SOUNDNESS OF AGGREGATE BY USE OF SODIUM SULFATE OR MAGNESIUM SULFATE.
- AASHTO T 267 - STANDARD METHOD OF TEST FOR DETERMINATION OF ORGANIC CONTENT IN SOILS BY LOSS OF IGNITION.
- ASTM C33 - STANDARD SPECIFICATION FOR CONCRETE AGGREGATES.
- ASTM D422 - STANDARD TEST METHOD FOR PARTICLE-SIZE ANALYSIS OF SOILS.
- ASTM D448 - STANDARD CLASSIFICATION FOR SIZES OF AGGREGATES FOR ROAD AND BRIDGE CONSTRUCTION.
- ASTM D698 - STANDARD TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT. (12,400 FT-LBF/FT (2,700 KN-M/M)).
- ASTM D1241 - STANDARD SPECIFICATION FOR MATERIALS FOR SOIL-AGGREGATE SUBBASE, BASE AND SURFACE COURSES.
- ASTM D1556 - STANDARD TEST METHOD FOR DENSITY AND UNIT WEIGHT OF SOIL IN PLACE BY SAND-CONE METHOD.
- ASTM D1557 - STANDARD TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT. (56,000 FT-LBF/FT (2,700 KN-M/M)).
- ASTM D2487 - STANDARD PRACTICE FOR CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOIL CLASSIFICATION SYSTEM).
- ASTM D2488 - STANDARD PRACTICE FOR DESCRIPTION AND IDENTIFICATION OF SOILS (VISUAL-MANUAL PROCEDURE).
- ASTM D3080 - STANDARD TEST METHOD FOR DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS.
- ASTM D4254 - STANDARD TEST METHOD FOR MINIMUM INDEX DENSITY AND UNIT WEIGHT OF SOILS AND CALCULATION OF RELATIVE DENSITY.
- ASTM D4318 - STANDARD TEST METHOD FOR LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS.
- ASTM D4767 - TEST METHOD FOR CONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST FOR COHESIVE SOILS.
- ASTM D4972 - STANDARD TEST METHOD FOR PH OF SOILS.
- ASTM D6938 - STANDARD TEST METHOD FOR IN-PLACE DENSITY AND WATER CONTENT OF SOIL AND AGGREGATE BY NUCLEAR METHODS (SHALLOW DEPTH).
- ASTM G51 - STANDARD TEST METHOD FOR MEASURING PH OF SOIL FOR USE IN CORROSION TESTING.
- ASTM G57 - STANDARD TEST METHOD FOR FIELD MEASUREMENT OF SOIL RESISTIVITY USING THE WENNER FOUR-ELECTRODE METHOD.

##### DRAINAGE PIPE

- ASTM D3034 - STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHLORIDE) (PVC) SEWER PIPE AND FITTINGS.
- ASTM F2648 - STANDARD SPECIFICATION FOR 2 TO 60 INCH [50 TO 1500 MM] ANNUAL CORRUGATED PROFILE WALL POLYETHYLENE (PE) PIPE AND FITTINGS FOR LAND DRAINAGE APPLICATIONS.
- ASTM D2412 - STANDARD TEST METHOD FOR DETERMINATION OF EXTERNAL LOADING CHARACTERISTICS OF PLASTIC PIPE BY PARALLEL-PLATE LOADING

DATE REVISION



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COVER SHEET  
Retaining Wall Construction Plans For

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O'FALLON, MISSOURI

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Scale: **As Shown**

**RW 1.01**