

MECHANICALLY STABILIZED EARTH WALL NOTES :

DESIGN CRITERIA

1. FINAL DESIGN DRAWINGS SHOWING PROPOSED PANEL SIZE, THE REQUIRED NUMBER OF METALLIC REINFORCEMENT PER PANEL, THE METALLIC REINFORCEMENT LENGTHS, METALLIC REINFORCEMENT LAYOUT, CONCRETE PANEL METALLIC REINFORCEMENT DETAILS AND PANEL TIE-IN DETAILS WITH WALL COPING AND LEVELING PAD SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO DALE GOZALKOWSKI, CLOUGH HARBOUR & ASSOCIATES, 111 WINNERS CIRCLE, ALBANY, NY 12205 FOR APPROVAL. FINAL DESIGN SHALL BE BASED ON CONFORMANCE OF THE MATERIAL WITHIN THE MECHANICALLY STABILIZED EARTH (MSE) VOLUME, METHODS OF CONSTRUCTION AND THE QUALITY OF PREFABRICATED MATERIALS MEETING THE VERMONT AGENCY OF TRANSPORTATION TECHNICAL SPECIFICATIONS FOR MSE WALLS.

2. SOILS CHARACTERISTICS FOR USE IN DESIGN:

SELECT GRANULAR BACKFILL

- Ø = 34 degrees, c = 0 a = 22 kg/m³
EARTH BORROW
- Ø = 30 degrees, c = 0 a = 22 kg/m³
EXISTING SUBGRADE SOIL
- Ø = 33 degrees, c = 0

3. THE MAXIMUM APPLIED BEARING PRESSURE AT THE FOUNDATION LEVEL IS 200 kPa.

4. ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE MSE VOLUME, AS DETERMINED BY THE RESIDENT ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SELECT GRANULAR BACKFILL OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER.

5. METALLIC REINFORCEMENT FOR MECHANICALLY STABILIZED EARTH WALLS SHALL BE 50mm WIDE AND 4mm THICK, AND SHALL CONFORM TO THE PHYSICAL AND MECHANICAL PROPERTIES OF ASTM A-572 GRADE 65. GALVANIZATION SHALL BE APPLIED IN ACCORDANCE WITH AASHTO M111. ALTERNATE METALLIC REINFORCEMENT MAY BE USED WITH APPROVAL FROM THE VAOT AND THE RESIDENT ENGINEER.

6. DESIGN LOADS FOR SPREAD FOOTING ABUTMENTS:

- VERTICAL DEAD LOAD = 286.2 kN/m
- VERTICAL LIVE LOAD = 76.5 kN/m
- HORIZONTAL LOAD = 3.8 kN/m

WALL CONSTRUCTION

1. STATIONS SHOWN ARE ALONG CENTERLINE OF ROADWAY. FOR STATIONS SEE SHEET BR500. LOCATION OF FACE OF WALL IS CRITICAL TO ALLOW CONSTRUCTION OF ABUTMENT FOOTING AND MAY NOT BE MOVED CLOSER TO THE ABUTMENT. SEE SPECIAL PROVISIONS.

2. BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR MSE WALLS TO A LEVEL OF 50 mm (2") ABOVE THE TIE STRIPS EMBEDDED IN THE PANELS. INSTALLATION OF METALLIC REINFORCEMENT SHALL BE PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.

3. COMPACTION AND OPERATION EQUIPMENT SHALL BE KEPT A MINIMUM DISTANCE OF 900 mm FROM THE BACK FACE OF THE MSE PANELS. COMPACTION WITHIN 900 mm OF THE PANELS SHALL BE ACHIEVED WITH AT LEAST THREE (3) PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM.

4. AT A HEIGHT OF 7.0 m THE FINISHED GRADE IN FRONT OF THE WALL SHALL BE PLACED AND COMPACTED BEFORE WALL CONSTRUCTION EXCEEDS A HEIGHT OF 7.0 m. FINISHED GRADE BACKFILL SHALL BE COMPACTED TO 95% OF AASHTO T-99, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ANY GUARDRAIL POSTS BEHIND THE MSE PANELS. PRIOR TO PLACEMENT OF THE TOP LAYER OF METALLIC REINFORCEMENT, INDIVIDUAL METALLIC REINFORCEMENT MAY BE SKEWED TO AVOID THE POST LOCATIONS. ANY DAMAGE DONE TO THE METALLIC REINFORCEMENT DUE TO THE INSTALLATION OF THE GUARDRAIL SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

6. THE CONTRACTOR SHALL ACCOMMODATE EXISTING OR FUTURE STRUCTURES, PIPES, GEOMEMBRANE LINER, SETTLEMENT INSTRUMENTATION, DRAINAGE STRUCTURES, FOUNDATIONS OR GUARDRAIL POSTS WHICH ARE WITHIN THE MSE VOLUME.

7. TOP PANELS BENEATH COPING SHALL HAVE A MINIMUM OF 3 DOWELS PROTRUDING FROM THEIR TOP EDGE.

8. FOR OTHER INFORMATION PERTAINING TO WALL CONSTRUCTION PLEASE REFER TO THE MANUFACTURER'S MSE CONSTRUCTION MANUAL.

9. THE CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER METALLIC REINFORCEMENT DOWNWARD TO AVOID CONFLICTS WITH PAVING AND SUBGRADE PREPARATION.

10. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE STORM WATER DRAINAGE IN THE VICINITY OF THE WALL DURING CONSTRUCTION. STORM WATER RUNOFF IS TO BE COLLECTED AND DISCHARGED AWAY FROM THE WALL AND REINFORCED BACKFILL.

MATERIAL NOTES:

1. NOMINAL METALLIC REINFORCEMENT LENGTH

THE DESIGN OF THE METALLIC REINFORCEMENT LENGTHS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND MSE WALL MANUFACTURER AND SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW AND APPROVAL. THE REQUIRED HORIZONTAL LIMIT OF GRANULAR BACKFILL SHALL EXCEED THE NOMINAL METALLIC REINFORCEMENT LENGTH.

2. PANEL FINISH

THE PRECAST PANELS FOR THIS PROJECT SHALL HAVE AN ASHLAR STONE FINISH APPROVED BY THE VAOT, UNLESS OTHERWISE SPECIFIED. THE CONCRETE SHALL BE COLORED. THE FEDERAL SPECIFICATION COLOR FOR PRECAST CONCRETE IS AS FOLLOWS: FEDERAL SPECIFICATION COLOR 7690-01-162-2210; FEDERAL STANDARD 595B COLORS (JULY 1994); PRECAST PLANT COLOR 24670. THE PIGMENT COLOR SHALL BE "BAYFERROX" 3950 (3 1/2%) (HEAT STABLE). THE CONTRACTOR SHALL SUBMIT A TEST PANEL FOR APPROVAL PRIOR TO COMMENCING PRECASTING OPERATIONS. THE APPROVED TEST PANEL SHALL BE USED AS A BENCHMARK FOR THE CURRENT COLOR SHADE THROUGHOUT THE PRECASTING OPERATIONS.

3. CAST-IN-PLACE CONCRETE COPING

CONCRETE FOR THE CAST-IN-PLACE COPING SHALL BE PAID FOR UNDER ITEM 501.25 CLASS B CONCRETE. REINFORCING IN THE COPING SHALL BE PAID FOR UNDER ITEM 507.17 EPOXY COATED REINFORCING STEEL.

4. NOTE TO CONTRACTORS

THE FOLLOWING MATERIALS SHALL BE SUPPLIED BY THE VAOT APPROVED MSE MANUFACTURER UNDER ITEM 526.30 - MECHANICALLY STABILIZED EARTH (MSE) WALL WITH ASHLAR STONE WALL PANEL FACING (MOD.2).

- PRECAST CONCRETE FACING PANELS
- METALLIC REINFORCEMENT
- BOLT SETS (FOR ATTACHING PANELS TO THE METALLIC REINFORCEMENT)
- BEARING BLOCKS
- RUBBER SHIMS
- FILTER CLOTH AND ADHESIVE (FOR PANEL JOINTS ONLY)

OTHER MSE WALL MATERIALS CALLED FOR IN THE CONTRACT PLANS OR SPECIFICATIONS SHALL BE SUPPLIED BY THE CONTRACTOR. THIS MAY INCLUDE ANY JOINT MATERIALS SHOWN AT THE INTERFACE OF PRECAST PANELS AND CAST-IN-PLACE CONCRETE STRUCTURES, SANDBLASTING, PAINTING, SEALERS OR OTHER SPECIAL APPLIED COATINGS.

5. CONSTRUCTION SEQUENCE

FOR THE PURPOSE OF REVIEWING CONSTRUCTION METHODS THE MSE WALLS SHALL BE CONSTRUCTED AT ONE ABUTMENT AT A TIME. THE WALL SHALL BE CONSTRUCTED AND BACKFILLED TO THE BOTTOM OF THE ABUTMENT FOOTING ELEVATION. A WAITING PERIOD NOT TO EXCEED 30 DAYS WILL FOLLOW TO PERMIT VERIFICATION THROUGH INSTRUMENTATION OR SURVEY THAT MOVEMENT IN THE MSE WALL SYSTEM RESULTING FROM SETTLEMENT IS NEGLIGIBLE. CONSTRUCTION AT THAT ABUTMENT WILL PROCEED UPON THE RESIDENT ENGINEER'S VERIFICATION OF STABLE MSE WALL CONSTRUCTION. IF NECESSARY CONTRACTOR SHALL MODIFY THE CONSTRUCTION METHODS FOR THE OTHER MSE WALL. THE WAITING PERIOD FOR INSTRUMENTATION APPLIES TO BOTH MSE WALLS. SEE SPECIAL PROVISIONS FOR DETAILS.

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	BENNINGTON	Bridge No.	BR500
		Log Sta.	
Highway No.	VT. RTE. 9	Surv. Sta.	14+140
VT. RTE. 9 OVER AIRPORT BROOK EAST			
MSE WALL - NOTES			
Designed By	W. HARRIS	Drawn by	M. CUEVAS/B. WEATHERBY
Checked By	Date M. QUINN 11/01	Bridge Design Supervisor	Date 11/01 M. OLSTAD
PROJECT	BENNINGTON-HOOSICK	PROJECT NO.	D.P.1. 0146(1)
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