

RETAINING WALL - DESIGN

61. FINAL DRAWINGS SHALL ALL BE PREPARED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL. ALL MATERIALS WITHIN THE RETAINING WALL VOLUME, METHODS OF CONSTRUCTION, AND THE QUALITY OF MATERIALS SHALL MEET THE REQUIREMENTS OF THE SPECIAL PROVISIONS FOR THIS PROJECT.

62. SEE THE BORING LOGS FOR A DESCRIPTION OF THE IN-SITU SOIL CONDITIONS.

63. ASSUMED SOIL PROPERTIES AND DESIGN PARAMETERS FOR BRIDGE 36 SITE:

FOUNDATION SOIL DESIGN VALUES	17.8 KSF 6 FEET 406.75 FT
NOMINAL BEARING RESISTANCE EMBEDMENT DEPTH * LEVELING PAD ELEVATION	
FOUNDATION SOIL PARAMETERS	110 LBS/FT ³ 31°
UNIT WEIGHT, γ FRICTION ANGLE, φ	
RETAINED SOIL PARAMETERS	110 LBS/FT ³ 30°
UNIT WEIGHT, γ FRICTION ANGLE, φ	
REINFORCED SOIL PARAMETERS	140 LBS/FT ³ 34°
UNIT WEIGHT, γ FRICTION ANGLE, φ	
BEARING RESISTANCE FACTOR	0.65 0.55 0.45
MSEW GRAVITY/SEMI-GRAVITY (PROPRIETARY SYSTEM) NON-GRAVITY CANTILEVERED AND ANCHORED	
SLIDING RESISTANCE FACTOR	1.0 1.0 0.8
MSEW GRAVITY/SEMI-GRAVITY (PROPRIETARY SYSTEM) NON-GRAVITY CANTILEVERED AND ANCHORED	
*DUE TO FUTURE LOWERING OF TRACK, UPON WHICH EMBEDMENT WILL BE 4 FEET	

64. ASSUMED SOIL PROPERTIES AND DESIGN PARAMETERS FOR BRIDGE 38 SITE:

FOUNDATION SOIL DESIGN VALUES	10.6 KSF 4 FEET
NOMINAL BEARING RESISTANCE MINIMUM EMBEDMENT DEPTH	
FOUNDATION SOIL PARAMETERS	120 LBS/FT ³ 32°
UNIT WEIGHT, γ FRICTION ANGLE, φ	
RETAINED SOIL PARAMETERS	120 LBS/FT ³ 33°
UNIT WEIGHT, γ FRICTION ANGLE, φ	
REINFORCED SOIL PARAMETERS	140 LBS/FT ³ 34°
UNIT WEIGHT, γ FRICTION ANGLE, φ	
BEARING RESISTANCE FACTOR	0.65 0.55 0.45
MSEW GRAVITY/SEMI-GRAVITY (PROPRIETARY SYSTEM) NON-GRAVITY CANTILEVERED AND ANCHORED	
SLIDING RESISTANCE FACTOR	1.0 1.0 0.8
MSEW GRAVITY/SEMI-GRAVITY (PROPRIETARY SYSTEM) NON-GRAVITY CANTILEVERED AND ANCHORED	

65. ABUTMENT DESIGN LOADS (UNFACTORED):

VERTICAL	DC	9.6 K/FT
	DW	0.7 K/FT
	LL	6.3 K/FT
HORIZONTAL	BR	1.2 K/FT

66. THE DRAINED STATE OF THE BACKFILL MATERIAL SHALL BE CONSIDERED IN THE DESIGN. IF A FREE DRAINING MATERIAL IS ASSUMED IN THE DESIGN, A DRAINAGE SYSTEM SHALL BE PROVIDED FOR THE WALL SYSTEM CHOSEN. THE COST FOR THE DRAINAGE SYSTEM SHALL BE INCLUDED IN THE CORRESPONDING UNIT RETAINING WALL ITEM.

67. EXPANSION AND CONTRACTION SHALL BE CONSIDERED IN THE DESIGN AND DETAILS. PROPER JOINTS SHALL BE DESIGNED, DETAILED AND INCLUDED IN THE WALL SYSTEM CHOSEN.

68. THE MAXIMUM TOTAL SETTLEMENT HAS BEEN ESTIMATED AS 2.8 INCHES. A DIFFERENTIAL SETTLEMENT OF 0.75 INCHES PER 10 FEET HAS BEEN ASSUMED. THE WALL SHALL BE DESIGNED AND DETAILED TO ACCOMMODATE THE TOTAL AND DIFFERENTIAL SETTLEMENT OR MEANS SHALL BE PROVIDED TO MITIGATE THE SETTLEMENT BEFORE THE WALL SYSTEM IS CONSTRUCTED. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (RETAINING WALL) (BRIDGE NO. 36) AND 900.670 SPECIAL PROVISION (RETAINING WALL) (BRIDGE NO. 38).

69. ALL WALL COMPONENTS SHALL HAVE A MINIMUM DESIGN LIFE OF 75 YEARS.

RETAINING WALL - CONSTRUCTION

70. ANY FOUNDATION MATERIAL BELOW THE RETAINING WALL VOLUME NOT MEETING THE CRITERIA OF THE DESIGN SHALL BE EXCAVATED AND REPLACED WITH GRANULAR BORROW OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER. GRANULAR BORROW IN THIS APPLICATION SHALL BE PAID FOR UNDER ITEM 203.32 GRANULAR BORROW.

71. BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND CONTRACT SPECIFICATIONS.

72. THE CONTRACTOR SHALL ACCOMMODATE ANY PIPES, GEOMEMBRANE LINER, DRAINAGE STRUCTURES, FOUNDATIONS, RAILING POSTS, AND ANY OTHER SUCH APPURTENANCES THAT ARE WITHIN THE RETAINING WALL VOLUME.

73. 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.

74. ANY DAMAGE TO THE WALL SYSTEM DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE. THIS INCLUDES STAINED OR DISCOLORED FACING ELEMENTS.

RETAINING WALL - MATERIAL NOTES

75. THE EXTERIOR FACING FOR ALL WALL ELEMENTS SHALL BE STONE OR CONCRETE. ALL EXPOSED EDGES AND FACES SHALL HAVE A FINISHED APPEARANCE AND ALL EXPOSED CORNERS SHALL BE ROUNDED OR CHAMFERED.

76. THE EXPOSED FACES OF THE BRIDGE 38 AND GARDEN RETAINING WALLS SHALL HAVE A ROCK-LIKE APPEARANCE. THE FOLLOWING COMPANIES PROVIDE 'ASHLAR STONE' DETAILS THAT ARE ACCEPTABLE: THE REINFORCED EARTH COMPANY, DAYTON SUPERIOR AND SPEC FOR LINERS, INC. OTHER STONE DETAILS AND COLORS MAY BE APPROVED BY CONTRACT ADMINISTRATION BEFORE BIDDING OR AFTER CONTRACT AWARD BY THE ENGINEER.

80. BEFORE THE CONTRACTOR VERIFY THE WIDTH OF THE STONE ABUTMENT PAID FOR UNIT.

81. EXAMINATION BEFORE THE CONTRACTOR VERIFY THE WIDTH OF THE STONE ABUTMENT PAID FOR UNIT.

82. NO CHEMICAL TO MATCH THE SHEET PILING. THE STONE IS DRIVEN.

83. IF THE EXTENSION OPERATION, STATE.

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RETAINING

77. NO TIMBER SUPPORTING

78. NO GABIONS

79. IF AN MSE WALL FOR THESE REINFORCED

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