HILFIKER RETAINING WALLS

HILFIKER MSE WELDED WIRE WALL SYSTEM

GENERAL NOTES

DESIGN CRITERIA

1. THE ATTACHED DETAILS ARE BASED ON THE ASSUMPTIONS THAT THE MATERIAL WITHIN THE REINFORCED SOIL VOLUME, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED COMPONENTS MEET THE GOVERNING AGENCIES SPECIFICATION FOR MECHANICALLY STABILIZED EARTH STRUCTURES.

2. MINIMUM DESIGN PARAMETERS

   REFERENCE WALL CONTROL DRAWINGS FOR SOIL CHARACTERISTICS OF FOUNDATION MATERIAL TO BE USED IN THE DESIGN OF THE WALL SYSTEM, THE CONTRACTOR SHALL PROVIDE SOIL DESIGN PARAMETERS FOR BACKFILL MATERIAL BASED ON ACTUAL SOIL CHARACTERISTICS UTILIZED AT THE SITE, THE VALUES OF THE INTERNAL FRICTION ANGLE, PHI, THE COHESION, C, AND THE UNIT WEIGHT, GAMMA, SHALL BE PROVIDED IN THE SHOP DRAWINGS.

   EXTERNAL STABILITY

OVERTURNING	= 2.0
SLIDING	= 1.5
BEARING PRESSURE	= 2.5
OVERALL STABILITY	= 1.5

   INTERNAL STABILITY

PULLOUT	= 1.5
STEEL YIELD STRESS	= 0.48Fy
LIVE LOAD SURCHARGE	= 250 PSF

3. THE MAXIMUM APPLIED BEARING PRESSURE AT THE INTERFACE OF THE FOUNDATION AND SELECT BACKFILL MATERIAL IS SHOWN ON THE PLANS. THE BEARING PRESSURE SHOWN IS THE MAXIMUM FOR THE GIVEN BASE MAT LENGTH. IT IS THE RESPONSIBILITY OF OTHERS TO DETERMINE THAT THE BEARING PRESSURE IS ALLOWABLE FOR THAT LOCATION.

4. ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE REINFORCED VOLUME AS DETERMINED BY THE ENGINEER SHALL BE EXCAVATED AND REPLACED WITH SUITABLE MATERIAL AS DIRECTED BY THE ENGINEER.

5. THE DESIGN CONTAINED ON THESE DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS. ON THE BASIS OF THIS INFORMATION, HILFIKER RETAINING WALLS IS RESPONSIBLE FOR THE INTERNAL STABILITY OF THE STRUCTURE ONLY. EXTERNAL STABILITY, INCLUDING FOUNDATION AND SLOPE STABILITY, IS THE THE RESPONSIBILITY OF OTHERS.

WALL CONSTRUCTION

1. WALLS FOUNDED ON CURVES SHALL HAVE THIER PANELS DIMENSIONED AS A SERIES OF SHORT CORDS (AS DIMENSIONED) IN ORDER TO MATCH THE REQUIRED WALL RADIUS.

2. FOR LOCATION AND ALIGNMENT OF THE MSE STRUCTURES REFERENCE THE RETAINING WALL CONTROL PLANS.

3. IF MANHOLE AND DROP INLETS ARE REQUIRED, THEY SHALL BE LOCATED AS SHOWN ON THE RETAINING WALL ELEVATION DRAWINGS.

4. IF PILES ARE LOCATED WITHIN THE REINFORCED VOLUME THEY SHALL BE DRIVEN PRIOR TO CONSTRUCTION OF THE WALL UNLESS AN ALTERNATE METHOD IS USED TO ISOLATE THE COLUMNS FROM THE REINFORCED VOLUME AS APPROVED BY THE ENGINEER.

5. BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 548 TO A LEVEL 2"± ABOVE THE ELEVATION OF THE SOIL REINFORCING ELEMENT. NO SOIL REINFORCING SHALL BE ATTACHED TO ANY PANEL BEFORE THE BACKFILL IS PLACED AT THE REQUIRED ELEVATION AND IS COMPACTED.

6. STRUCTURES GREATER THAN 20 FEET TALL SHALL HAVE THE FINISHED GRADE PLACED AND COMPACTED AT THE FRONT FACE OF THE STRUCTURE BEFORE THE STRUCTURE HEIGHT EXCEEDS 20 FEET. THE FINISH GRADE SHALL BE COMPACTED TO 95% OF AASHTO T-180 UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY GUARDRAIL POSTS PRIOR TO PLACING THE TOP ROW OF SOIL REINFORCEMENT. THE POST SPACING SHALL BE ADJUSTED TO AVOID CONFLICTS WITH THE LONGITUDINAL SOIL REINFORCING WIRE. CUTTING OF THE LONGITUDINAL WIRE SHALL BE ALLOWED ONLY AS DIRECTED BY THE ENGINEER.

8. IF EXISTING OR FUTURE STRUCTURES ARE TO BE PLACED IN THE REINFORCED VOLUME THAT INTERFERE WITH THE PROPER PLACEMENT OF THE SOIL REINFORCEMENT THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR A COURSE OF ACTION.

9. THE CAP MAT SHALL BE PLACED AS CLOSE TO THE TOP OF WALL LOCATION AS POSSIBLE. THE REMAINING FACE PANEL ABOVE THE CAP MAT MAY BE CUT FREE.

10. FOR OTHER INFORMATION PERTAINING TO THE CONSTRUCTION OF THE HILFIKER RETAINING WALL, PLEASE REFER TO THE HILFIKER WELDED WIRE WALL CONSTRUCTION GUIDE.

11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DEFLECT THE TOP CAP MAT OF THE SOIL REINFORCEMENT DOWNWARD SO AS TO NOT CONFLICT WITH ROADWAY MIXING OPERATIONS AND/OR ROADWAY CONSTRUCTION OPERATIONS. ANY SOIL REINFORCING MATERIAL THAT IS DAMAGED SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.

CONSTRUCTION NOTES

1. NOMINAL SOIL REINFORCING MAT LENGTH

   THE WELDED WIRE MESH IS MANUFACTURED IN LENGTHS CORRESPONDING TO THE DIMENSION "B" AS GIVEN IN THE RETAINING WALL ELEVATIONS. THE FOUNDATION SHALL BE EXCAVATED TO AN EXTEND OF "B" PLUS 6" MINIMUM.

2. THE FOLLOWING MATERIALS ARE SUPPLIED BY HILFIKER RETAINING WALLS
   - WELDED WIRE FACING PANELS
   - SOIL REINFORCEMENT MATS
   - CAP MATS
   - CONNECTION PINS
   - FILTER FABRIC OR HARDWARE CLOTH AS REQUIRED

   ANY OTHER MATERIAL REQUIRED TO BUILD THE MSE STRUCTURES ACCORDING TO THE GOVERNING SPECIFICATIONS SHALL BE SUPPLIED BY THE CONTRACTOR.

3. HILFIKER RETAINING WALL SUPPLIES THE WELDED WIRE WALL FOR THE STRUCTURES DETAILED HEREIN. THE HILFIKER WELDED WIRE WALL CONSTRUCTION GUIDE IS A GENERAL GUIDELINE FOR CONSTRUCTION OF THE HILFIKER WELDED WIRE WALL. ALL QUALITY CONTROL PROCEDURES, STAGING PROCEDURES, MATERIAL HANDLING, AND SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE OBLIGATION TO CONSTRUCT THE RETAINING WALL ACCORDING TO THE PROJECT PLANS AND SPECIFICATIONS AND ALL LAWS OF THE GOVERNING STATE.

HILFIKER RETAINING WALLS
3900 BROADWAY
EUREKA, CA 95503-5707
800-762-8962

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1902-2002 100 YEARS HILFIKER COMPANY

DATE : 07-01-05

INTERIM STANDARD IN ENGLISH UNITS APPLICABLE TO DESIGN STANDARDS BOOKLET PUBLISHED IN ENGLISH UNITS.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RETAINING WALL SYSTEMS
HILFIKER TEMPORARY WIRE WALL

INTERIM STANDARD

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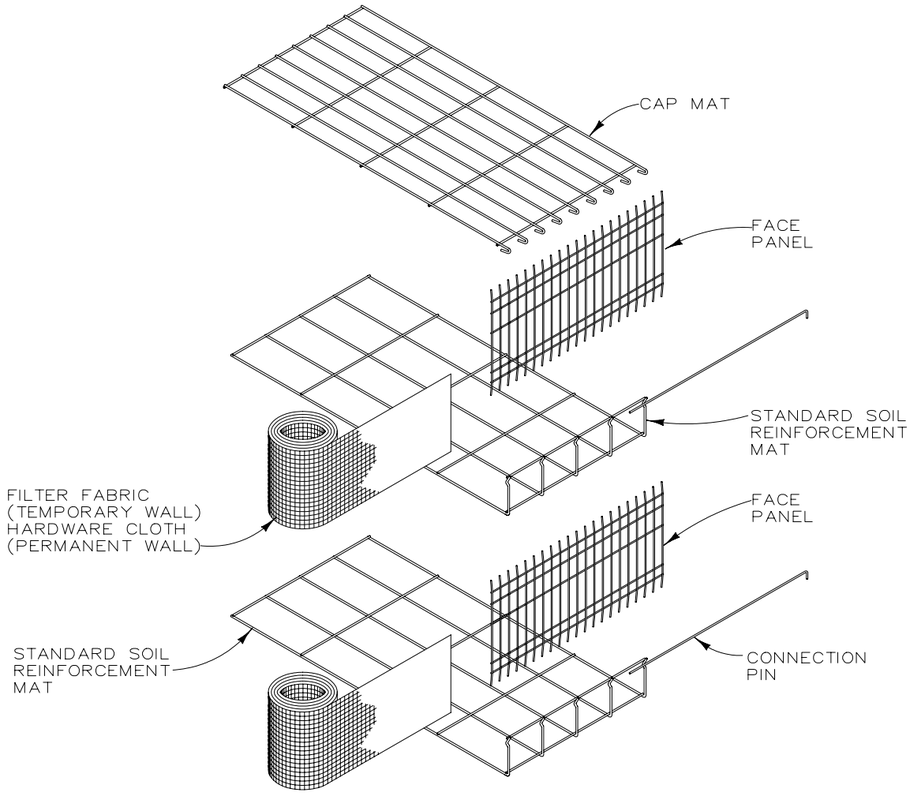
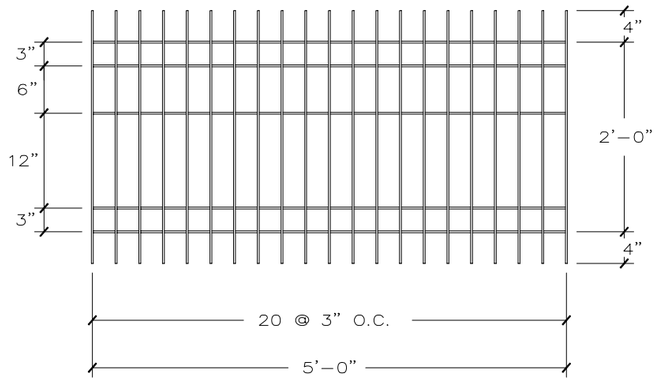
APPROVED BY
William N. Nickas, P.E.
State Structures Design Engineer

REVISION NO.	SHEET NO.	INDEX NO.
04	1 of 5	5140



WELDED WIRE WALL COMPONENT ISOMETRIC
NOT TO SCALE



FACE PANEL DETAIL
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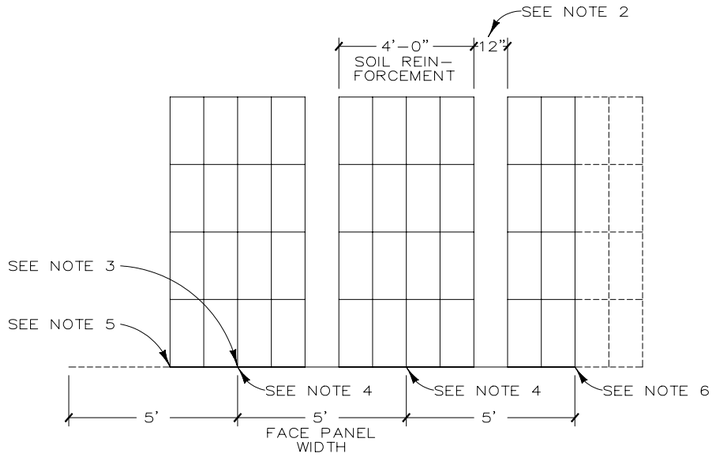

NOTES:

1. SOIL REINFORCING MATS TO BE PLACED ON PREPARED SURFACE
2. 12" SPACE BETWEEN SOIL REINFORCING MATS
3. PLACE FACE PANEL AT MIDPOINT OF SOIL REINFORCING MAT
4. BUTT FACE PANELS TOGETHER AND SECURE WITH HOG RINGS
5. AT START OF WALL PLACE SOIL REINFORCMENT MAT AND TRIM EXCESS FACE PANEL AS REQUIRED
6. AT END OF WALL PLACE SOIL REINFORCMENT MAT AND FACE PANEL AND TRIM EXCESS AS REQUIRED

SOIL REINFORCEMENT LAYOUT PLAN
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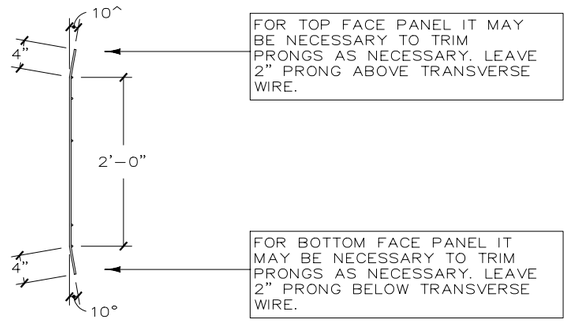

NOTES:

1. TOP OR BOTTOM FACE PANEL MAY NEED TO HAVE PRONGS REMOVED IN THE FIELD
2. GALVANIZED FACE PANELS REQUIRE EXPOSED BLACK STEEL TO BE COATED WITH RICH ZINC PAINT.
3. SECURE VERTICAL WIRES OF ADJACENT FACE PANELS TOGETHER WITH HOG RINGS

FACE PANEL SECTION
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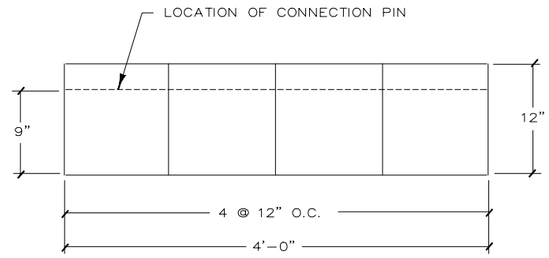

SOIL REINFORCEMENT FRONT ELEVATION
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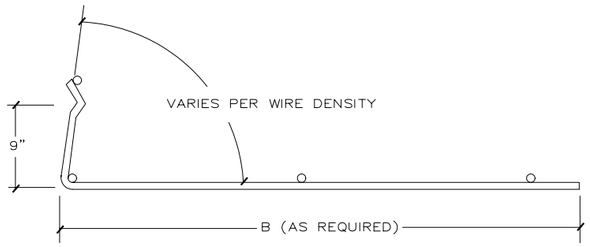

SOIL REINFORCEMENT SIDE ELEVATION
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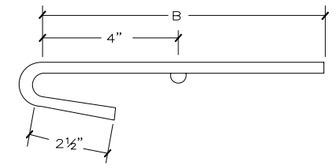

CAP MAT DETAIL
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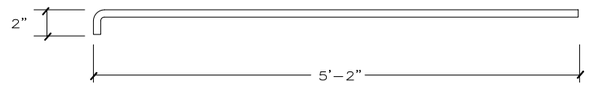

MINIMUM WIRE SIZE IS W4.5

CONNECTION PIN DETAIL
NOT TO SCALE

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RETAINING WALL SYSTEMS
HILFIKER TEMPORARY WIRE WALL

INTERIM STANDARD

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State Structures Design Engineer

REVISION NO.	SHEET NO.	INDEX NO.
04	2 of 5	5140

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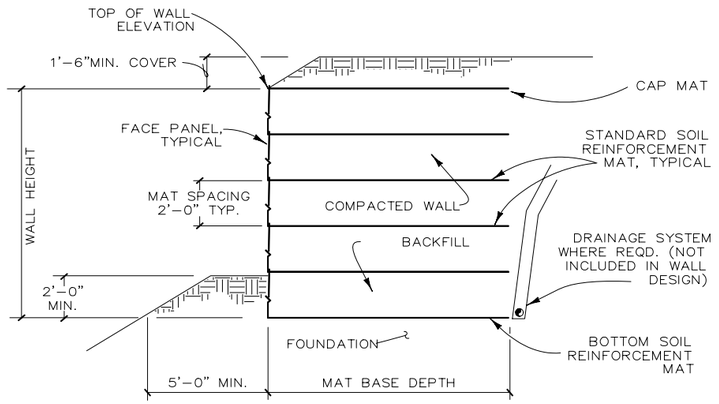

TYPICAL SECTION WELDED WIRE WALL
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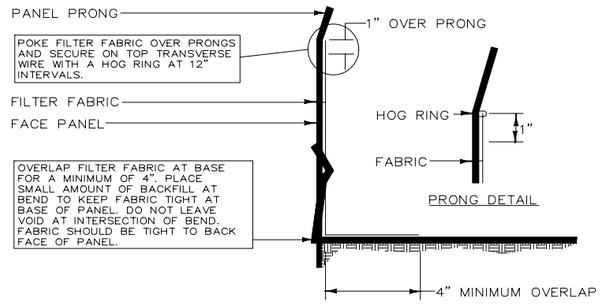

FILTER FABRIC PLACEMENT
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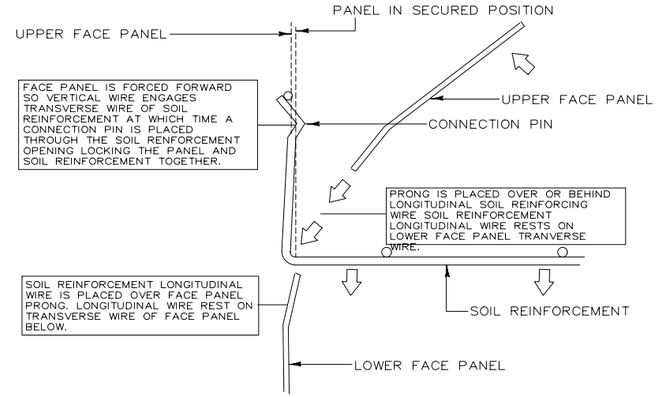

SOIL REINFORCEMENT CONNECTION SEQUENCE
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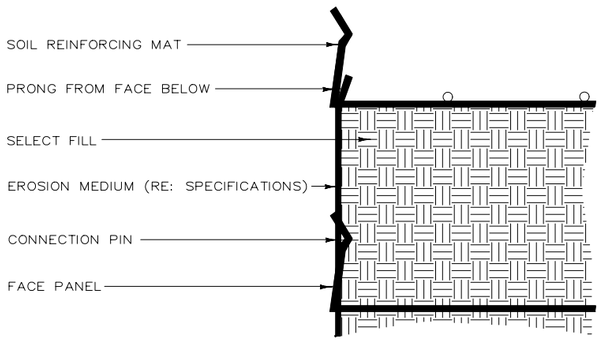

WELDED WIRE WALL LIFT SECTION
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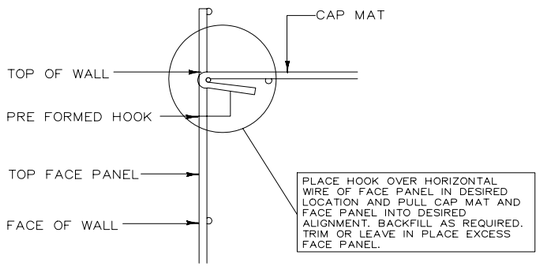

CAP MAT CONNECTION DETAIL
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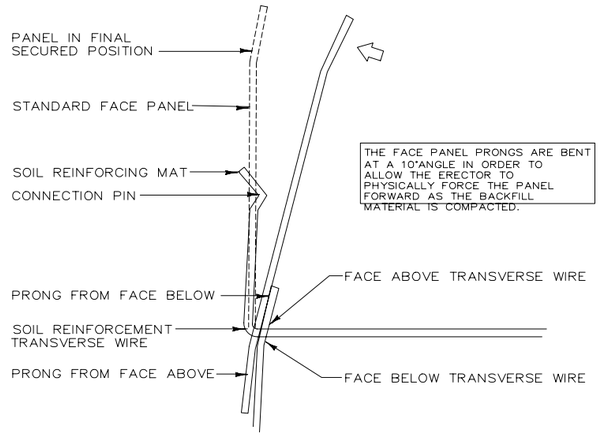

SOIL REINFORCEMENT CONNECTION SEQUENCE
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REVISION NO.	SHEET NO.	INDEX NO.
04	3 of 5	5140

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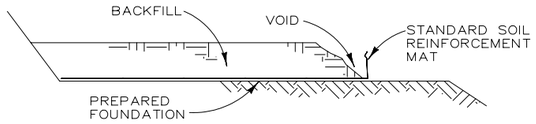
STEP 1

a) PLACE THE FIRST COURSE OF STANDARD SOIL REINFORCEMENT MATS ON PREPARED FOUNDATION

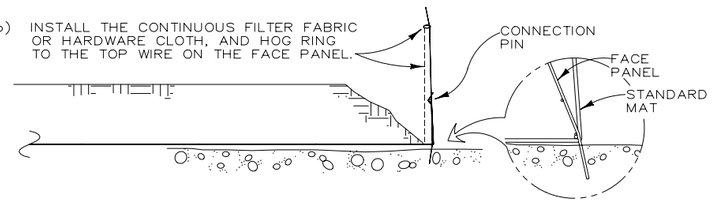
b) PLACE THE BACKFILL AND COMPACT IN SPECIFIED LIFTS, LEAVING A VOID AT THE FACE OF THE WALL, AS SHOWN.



STEP 2

a) INSERT THE FACE PANEL WITH THE LOWER PRONG IN FRONT OF THE LOWER TRANSVERSE WIRE IN THE FACE OF THE STANDARD MAT. ROTATE THE FACE PANEL TO VERTICAL. INSERT THE CONNECTION PIN BETWEEN THE DEFORMITY AT THE TOP OF THE STANDARD PANEL AND THE FACE MAT, LOCKING THEM TOGETHER.

b) INSTALL THE CONTINUOUS FILTER FABRIC OR HARDWARE CLOTH, AND HOG RING TO THE TOP WIRE ON THE FACE PANEL.

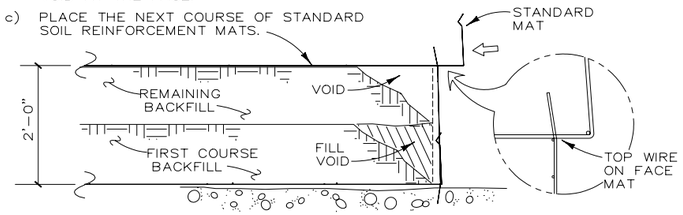


STEP 3

a) PLACE AND COMPACT BACKFILL INTO THE VOID AT THE FACE OF THE STANDARD MAT. CONTROL THE FACE PANEL ALIGNMENT AND BATTER CAREFULLY.

b) CONTINUE THE COMPACTED BACKFILL TO THE ELEVATION OF THE BASE OF THE NEXT STANDARD MAT, LEAVING A VOID AT THE FACE.

c) PLACE THE NEXT COURSE OF STANDARD SOIL REINFORCEMENT MATS.

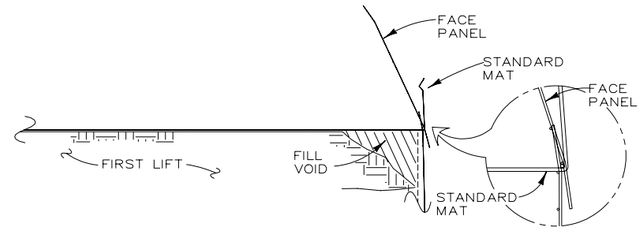


STEP 4

a) FILL THE VOID AT THE FACE OF THE WALL IN THE LIFT BELOW. CONTROL THE FACE PANEL ALIGNMENT AND BATTER CAREFULLY.

b) INSERT THE PRONGS ON THE FACE PANEL IN FRONT OF THE LONGITUDINAL WIRE ON THE STANDARD MAT, WHILE ENGAGING THE PRONGS FROM THE FACE PANEL IN THE LOWER LIFT WITH THE BOTTOM LONGITUDINAL WIRE ON THE UPPER FACE PANEL AS SHOWN. ROTATE THE FACE PANEL TO VERTICAL AND INSERT THE CONNECTION PIN BETWEEN THE DEFORMITY AT THE TOP OF THE STANDARD MAT AND THE FACE PANEL.

c) REPEAT STEPS 3 & 4 TO THE TOP LIFT.

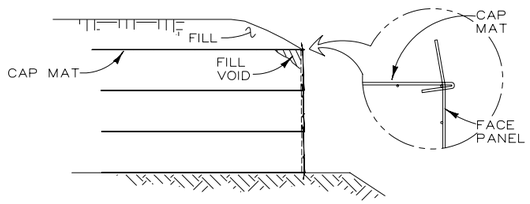


STEP 5: TOP LIFT

a) FILL THE VOID AT THE FACE OF THE TOP LIFT AS SHOWN IN STEP 4a.

b) INSTALL THE CAP MAT. CATCH THE TRANSVERSE WIRE ON THE TOP OF THE FACE MAT WITH THE HOOK ON THE CAP MAT. PULL THE CAP MAT AND FACE MAT TO THE REQUIRED BATTER.

c) PLACE AND COMPACT THE REQUIRED FILL OVER THE CAP MAT.



CONSTRUCTION SEQUENCE

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REVISION NO.	SHEET NO.	INDEX NO.
04	4 of 5	5140

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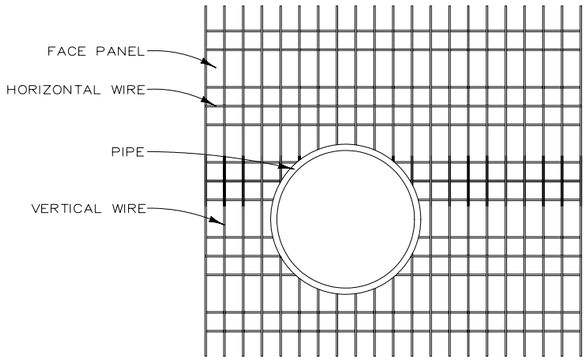
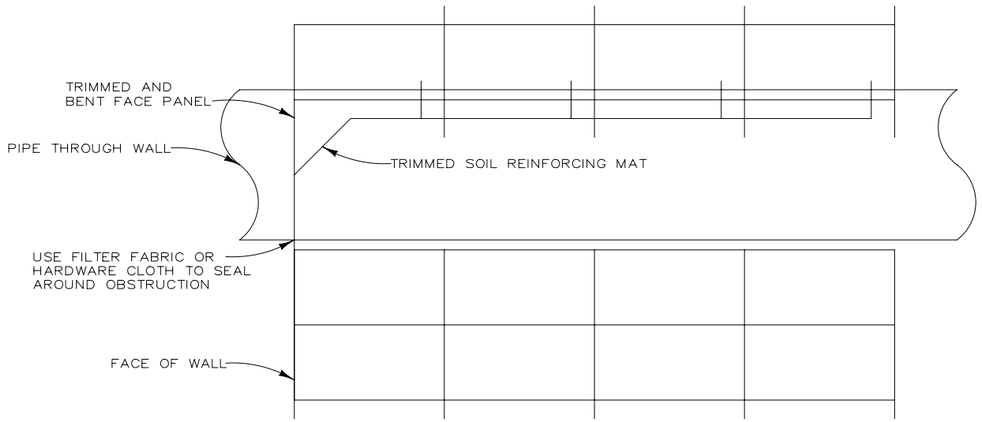
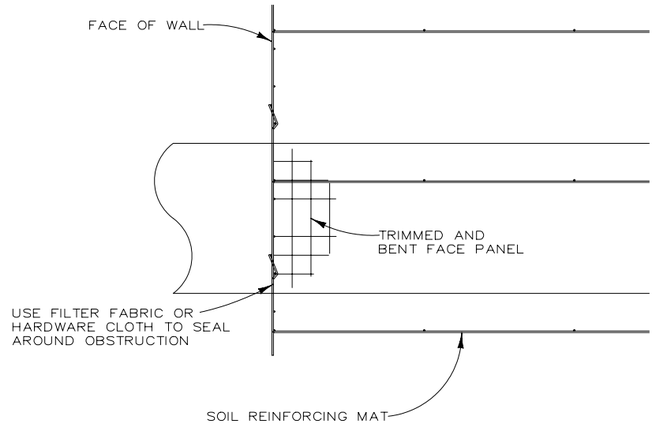




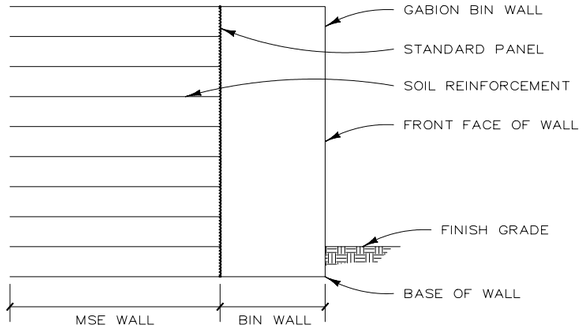


NOTE:
TRIM PROTRUSION AREA FROM FACE PANEL BY CUTTING HORIZONTAL WIRE BETWEEN EACH VERTICAL WIRE. BEND WIRES BACK INTO MSE MASS AND AS CLOSE TO PROTRUSION AS POSSIBLE. APPLY FILTER FABRIC OVER AND AROUND PROTRUSION, MAKING SURE FACE PANEL IS COVERED. MAKE SURE THAT ALL GAPS BETWEEN FACE AND PROTRUSION ARE COVERED WITH FILTER FABRIC. IF PROTRUSION INTERFERES WITH SOIL REINFORCING MAT CUT TRANSVERSE WIRES OF MAT AND BEND LONGITUDINAL WIRE TO PASS PROTRUSION AND CONFORM TO THE PROTRUSION'S SHAPE.

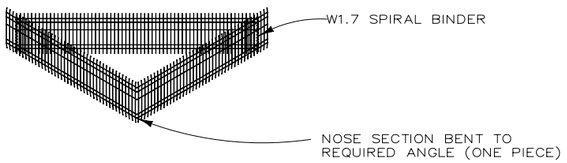
TYPICAL ELEVATION THROUGH PENETRATION
NOT TO SCALE

TYPICAL PLAN VIEW THROUGH PENETRATION
NOT TO SCALE

TYPICAL SECTION THROUGH PENETRATION
NOT TO SCALE

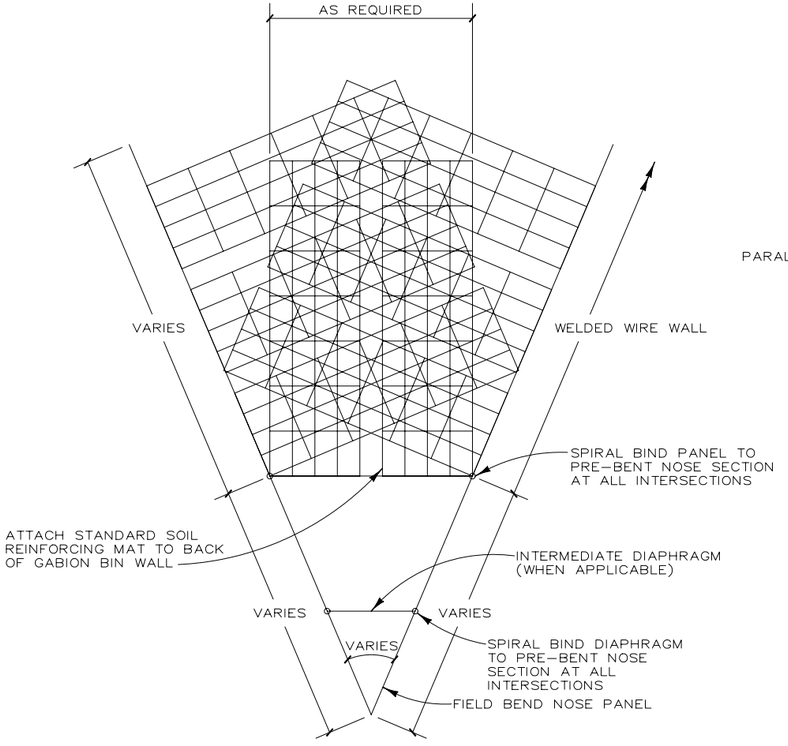


TYPICAL SECTION THROUGH BIN
NOT TO SCALE

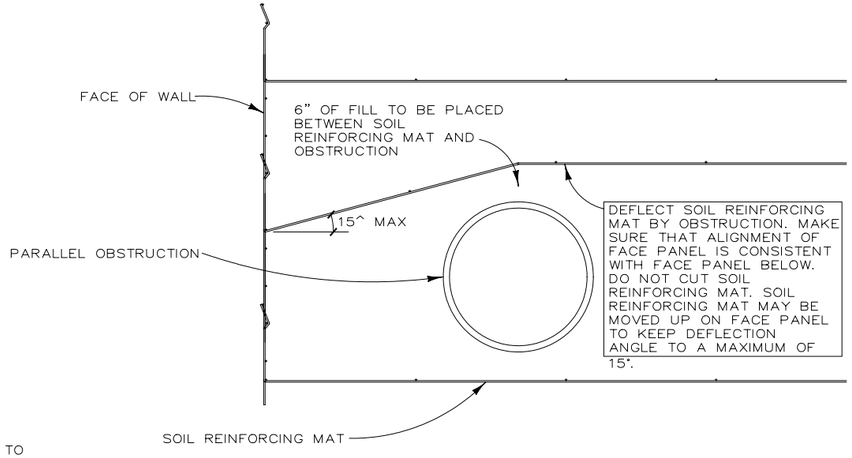


NOTE: 12 GAUGE GALVANIZED STEEL HOG RING MAY BE SUBSTITUTED FOR SPIRAL BINDER. HOG RINGS TO BE ATTACHED AT 3" CENTERS TOP TO BOTTOM.

ISOMETRIC OF BIN GABION NOSE SECTION



TYPICAL PLAN VIEW AT BIN
NOT TO SCALE



SECTION AT PARALLEL OBSTRUCTION
NOT TO SCALE

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DATE : 07-01-05

INTERIM STANDARD IN ENGLISH UNITS APPLICABLE TO DESIGN STANDARDS BOOKLET PUBLISHED IN ENGLISH UNITS.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RETAINING WALL SYSTEMS
HILFIKER TEMPORARY WIRE WALL

INTERIM STANDARD

INDEX NO. 5140 (SHEETS 1 - 5 OF 5) IS A SUPPLEMENT TO THE ENGLISH DESIGN STANDARDS BOOKLET, DATED JANUARY 2004.

APPROVED BY
William N. Nickas, P.E.
State Structures Design Engineer

REVISION NO.	SHEET NO.	INDEX NO.
04	5 of 5	5140