CONSTRUCTION REQUIREMENTS FOR PLACEMENT OF TENSAR® GEOFABRICS AND BACKFILL SOILS FOR TENSAR PRECAST CONCRETE WALLS

TENSAR MSE RETAINING WALL SYSTEM

1.0 MATERIALS

1.1 GEOGRID REINFORCEMENT SHALL BE THE TENSAR UNIAXIAL GEOGRID MANUFACTURED BY THE TENSAR CORPORATION, MORROW, GEORGIA.

1.2 GEOGRID BARS SHALL BE 4½" x ¾" x 5¼" HOPE BARS MANUFACTURED BY THE TENSAR CORPORATION, MORROW, GEORGIA.

1.3 GEOTEXTILE SHALL BE COSY NON-WOVEN NEEDLE PUNCHED, POLYPROPYLENE GEOTEXTILE WITH MINIMUM PERMEABILITY OF 0.1m²/s.

1.4 BACKFILL MATERIAl SHALL BE IN ACCORDANCE WITH SECTION ISB-1 OF SPECIFICATIONS.

1.5 TENSAR® EARTH TECHNOLOGIES, INC. SHALL PROVIDE TO THE CONTRACTOR THE FOLLOWING MATERIAls ONLY:
   - PRECAST CONCRETE PANELS
   - ISOLATION BARRIERS, ROLL FORM
   - CONNECTION DEVICES
   - BEARING PLATES
   - CHAIN COVER FABRIC
   - PRECAST PARAPET OR TRAFFIC BARRIERS (OPTIONAL)

2.0 TECHNICAL REQUIREMENTS

2.1 FULLY MATERIALS SHALL FIRST BE PLACED FROM THE BACKFACE OF THE WALL AND THEN TOWARDS THE TAIL OF THE GEOGRID TO ENSURE TENSIONING.

2.2 FULLY MATERIALS SHALL BE COMPACTED AS SPECIFIED IN SECTION ISB-9 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

2.3 AN APPROVED SET OF SHOP DRAWINGS AND CONTRACT SPECIFICATIONS SHALL BE PROVIDED TO THE CONTRACTOR AT ALL TIMES DURING CONSTRUCTION OF THE TENSAR® MSE RETAINING WALL.

3.0 GEOGRID PLACEMENT

3.1 TENSAR® GEOGRID SHALL BE PLACED AT THE LOCATIONS AND ELEVATIONS SHOWN ON THE SHOP DRAWINGS.

3.2 TENSAR® GEOGRID LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. TENSAR® GEOGRID LENGTH IS MAPPED FROM THE FRONT FACE OF THE WALL, EXTENDING TO THE TAIL OF THE GEOGRID.

3.3 TENSAR® GEOGRID REINFORCEMENT SHALL BE CONTINUOUS THROUGHOUT EMBEDMENT LENGTH. THE GEOGRID CONNECTION SHALL NOT BE USED FOR UPLACING GEOGRID UNLESS APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

3.3 IF PRE-APPROVED, TENSAR® UNIAXIAL GEOGRID MAY BE SPliced.

4.0 DESIGN PARAMETERS

4.1 TENSAR® MSE RETAINING WALL SYSTEM INSTALLATION GUIDELINES SHALL BE ON FILE AT ALL TIMES DURING CONSTRUCTION.

5.0 DRAWINGS

5.1 AT THE END OF EACH WORKDAY, THE BACKFILL SURFACE SHALL BE GRADED AWAY FROM THE WALL. AT A MINIMUM PERCENT SLOPE AND A TEMPORARY SOIL BARRIER SHALL BE CONSTRUCTED NEAR THE WALL CREST TO PREVENT SURFACE WATeR RUNOFF FROM OVERFLOWING THE WALL.

5.2 AT THE END OF EACH WORKDAY, BACKFILL WASTE SHALL BE COMPACTED WITH A SMOOTH-WHEEL ROLLER TO MINIMIZE PONDING OF WATER AND SATURATION OF THE WALL.

5.3 TENSAR® MSE RETAINING WALL SYSTEM SHALL BE DESIGNED AND CONSTRUCTED TO MEET THE REQUIREMENTS OF TENSAR® EARTH TECHNOLOGIES, INC. ACCEPTS NO LIABILITY OR RESPONSIBILITY FOR GLOBAL STABILITY.

5.4 THE CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINAGE CONTROL AS NEEDED DURING CONSTRUCTION.

6.0 SOIL PARAMETERS

6.1 SOIL PARAMETERS: SEE WALL CONTROL DRAWINGS FOR SOIL CHARACTERISTICS OF FOUNDATION MATERIAL TO BE USED IN THE DESIGN OF THE WALL SYSTEM.

6.2 SOIL PARAMETERS: SEE WALL CONTROL DRAWINGS FOR SOIL MATERIALS AND CHARACTERISTICS OF FOUNDATION MATERIAL TO BE USED IN THE DESIGN OF THE WALL SYSTEM.

6.3 SURFACE LOADING: +250 psf

6.4 HYDRAULIC DESIGN: = NONE

6.5 SEISMIC DESIGN: = NONE

7.0 SPECIAL PROVISIONS

7.1 WALL ELEVATION VAMS AND LOCATIONS AND GEOMETRY OF EXISTING STRUCTURES MUST BE VERIFYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

7.2 TENSAR® EARTH TECHNOLOGIES, INC. ASSUMES NO LIABILITY FOR INTERPRETATION OR VERIFICATION OF SUBGRADE CONDITIONS, SUITABILITY OF SOIL DESIGN PARAMETERS AND INTERPRETATION OF SUBGRADE WATeR CONDITIONS.

7.3 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND VERIFYING THAT THE ACTUAL SITE CONDITIONS ARE AS DESCRIBED IN SECTION 6 PRIOR TO INSTALLING CONSTRUCTION. THE OWNER OR CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND VERIFYING ALL SUBTRACTION DRAWINGS, GENERAL ENGINEERING DRAWINGS AND METHODS.

7.4 THE SOIL DESIGN PARAMETERS STATED IN SECTION 6.0 SHALL BE VERIFYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

7.5 ANY REVISIONS TO DESIGN PARAMETERS SHALL BE SUBMITTED TO TENSAR® EARTH TECHNOLOGIES, INC. PRIOR TO CONSTRUCTION.

7.6 SEE CONTROL DRAWINGS, FTDC STANDARD SPECIFICATIONS AND PROJECT SPECIFIC DRAWINGS FOR ADDITIONAL, REQUIRED MATERIALS AND METHODS.

7.7 A COPY OF THE TENSAR® EARTH TECHNOLOGIES, INC. RETAINING WALL SYSTEM INSTALLATION GUIDELINES SHALL BE ON FILE AT ALL TIMES DURING CONSTRUCTION.
TYPICAL LEVELING PAD STEP AND FABRIC COVERAGE DETAIL

1'-0" WIDE NON-WOVEN FABRIC COVER ALL JOINTS

1'-3 3/16" MAX STEP

9" (TYP.)

3/4" MAX STEP

3 1/2" FOR MODERATELY & SLIGHTLY AGGRESSIVE ENVIRONMENT

4 7/8" FOR EXTREMELY AGGRESSIVE ENVIRONMENT

4 3/8" FOR EXTREMELY AGGRESSIVE ENVIRONMENT

CONCRETE LEVELING PAD

(SEE LEVELING PAD DETAIL)

EPDM BEARING PAD

3/4" X 2" X 4"

80 DUROMETER

LEVELING PAD DETAIL

NOT TO SCALE

1 1/2"

1/2"

1/2"

1 1/2"

1" WIDE NON-WOVEN GEOTEXTILE AROUND GEOGRID

TENSAR UNIAXIAL STRUCTURAL GEOGRID

GEOGRID LOCATION

CONCRETE LEVELING PAD

(SEE LEVELING PAD DETAIL)

TENSAR STRUCTURAL GEOGRID

EPDM BEARING PAD

3/4" X 2" X 4"

50 DUROMETER

LEVELING PAD DETAIL

NOT TO SCALE

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TYPICAL PANEL DETAILS - STANDARD A PANEL SHOWING BAR REINFORCING

REINFORCING STEEL REQUIREMENTS:

FRONT FACE OF PANEL
3" MIN.

4" - 6#4 BARS @ 1'-6" O.C. (MAX.)
OR
4"x4" - W4.0xW4.0 WELDED WIRE MESH

PANEL DETAIL FOR MODERATELY AND SLIGHTLY AGGRESSIVE ENVIRONMENT

EXTREMELY AGGRESSIVE PANEL SHOWN, MODERATELY AND SLIGHTLY AGRESSIVE PANEL SIMILAR

THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF TENSAR PRODUCTS (GEOGRIDS, DRAINAGE COMPOSITES AND EROSION MEDIA), WHICH ARE PROPRIETARY TO THE TENSAR CORPORATION 1210 CITIZENS PARKWAY, MORROW GA. 30260. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR EARTH TECHNOLOGIES, INC.

C 2003, TENSAR EARTH TECHNOLOGIES, INC.

THIS SYSTEM MAY BE USED IN ALL ENVIRONMENTS

DATE: 01-01-05

FINISHING WALL SYSTEMS TENSAR EARTH TECHNOLOGIES MSE RETAINING WALL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT NO.

FINANCIAL PROJECT ID

MSE RETAINING WALL

BOOKLET PUBLISHED IN ENGLISH UNITS.
To form a panel bodkin connection for connecting to facing panel:

1. Bend the last aperture of reinforcing geogrid as shown.

2. Pass the ribs of the bent apertures through the ribs of the geogrid tab and insert the bodkin bar into the space between the two geogrid layers.

3. Pull reinforcing geogrid taut to tension connection.

Panel bodkin connection

Not to scale

Maximum coverage

Geogrid placement at pavement/obstruction section

Not to scale

GEOGRID SPLICE BODKIN CONNECTION

Not to scale

Panel connection section (A-A)

Not to scale
STANDARD T36 PANEL
STANDARD T42 PANEL
STANDARD T48 PANEL
STANDARD A PANEL
STANDARD B1 PANEL
STANDARD B2 PANEL
STANDARD T54 PANEL
STANDARD T60 PANEL
STANDARD T66 PANEL
STANDARD T24 PANEL
STANDARD T30 PANEL
STANDARD T72 PANEL
STANDARD T78 PANEL

ALL PANELS ARE SHOWN BACK FACE VIEW

REINFORCING STEEL REQUIREMENTS

STANDARD STEEL LAYOUT:

HORIZONTAL: #4 BARS (60 KSI) @ 1' - 6" O.C. (MAX.)

VERTICAL: #3 BARS (60 KSI) @ 10" O.C. (MAX.)

OR

STANDARD WWF LAYOUT:

4X4-W4.0XW4.0 WELDED WIRE MESH

FABRICATION PER ASTM A-185

NOTE: ALL TOP PANELS WILL HAVE 2 #4 DOWELS CAST 6" INTO THE TOP OF EACH PANEL

THIS SYSTEM MAY BE USED IN ALL ENVIRONMENTS

DATE: 01-01-05

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RETAINING WALL SYSTEMS

TENSAR EARTH TECHNOLOGIES

MSE RETAINING WALL

STATE PROJ. NO.
FINANCIAL PROJECT ID

TENSAR EARTH TECHNOLOGIES

APPLICATION TO DESIGN STANDARDS

INTERIM STANDARD

INTERIM STANDARD IN ENGLISH UNITS

APPLICABLE TO DESIGN STANDARDS

BOOKLET PUBLISHED IN ENGLISH UNITS

TENSAR EARTH TECHNOLOGIES INC.

GEOGRID TAB LOCATIONS

Atlanta, Georgia  30328
5883 Glenridge Drive, Ste 200
(404) 250-1290

THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF TENSAR PRODUCTS (GEOGRIDS, DRAINAGE COMPOSITES AND EROSION MEDIA), WHICH ARE PROPRIETARY TO THE TENSAR CORPORATION 1210 CITIZENS PARKWAY, MORROW GA. 30260. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR EARTH TECHNOLOGIES, INC.

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ACUTE CORNER LESS THAN 75° - SKEWED GEOSGRID UNDER PILE CAP
(SEE DETAIL BELOW FOR STEEL REINFORCEMENT)

TYPICAL CORNER ELEMENT DETAIL

EXAMPLE ACUTE CORNER - SKEWED GEOSGRID AT ABUTMENT LEVEL
(SEE DETAIL BELOW FOR STEEL REINFORCEMENT)

DATE: 01-01-05

TENSAR EARTH TECHNOLOGIES

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RETAINING WALL SYSTEMS
TENSAR EARTH TECHNOLOGIES
MSE RETAINING WALL

DATE: 01-01-05

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

PRESTRESSED CONCRETE PILE (TYP.)

FRONT FACE OF WALL

USE STEEL BRACKET TO CONNECT PANELS LOCATED BETWEEN SLIP JOINTS AND CORNER ELEMENT (SEE DETAIL BELOW FOR STEEL REINFORCEMENT)

PRESTRESSED CONCRETE PILE (TYP.)

FRONT FACE OF WALL

USE STEEL BRACKET TO CONNECT PANELS TO PRECAST CORNER (SEE DETAIL BELOW FOR STEEL REINFORCEMENT)

PRESTRESSED CONCRETE PILE (TYP.)

FRONT FACE OF WALL

USE STEEL BRACKET TO CONNECT PANELS TO PRECAST CORNER (SEE DETAIL BELOW FOR STEEL REINFORCEMENT)
UX1700MSE GEOGRID TAB

1 FULL APERTURE SECTION (MIN.) CENTERED IN PANEL (SEE PANEL CONNECTION DETAIL)

TAB TURNED UPWARD AGAINST REINFORCING STEEL.

A TRANSVERSE BAR OF TAB PLACED AGAINST REINFORCING STEEL

CONNECTION DETAIL PLAN VIEW AT 15° GRID POSITION

NOT TO SCALE

VARIES

A PRIMARY GEOGRID REINFORCEMENT (TYPE AND EMBEDMENT LENGTH AS DETERMINED IN DESIGN TABLES)

BODKIN CONNECTION

MSE WALL

#3 REBAR SECURED TO GEOGRID TAB & REBAR MAT

TENSAR STRUCTURAL GEOGRID

NOTE TO SCALE

PRECAST CONCRETE PANEL

REINFORCING STEEL OR WELDED WIRE MESH

FRONT FACE

SINGLE GROOVE

ANGLE: 3" X 4" X 1/4"

NOT TO SCALE

CONNECTION BOX

1" HOLE

1 3/16" X 1/4" SHEAR DOWEL

PANEL TO PANEL ATTACHMENT

ATTACHMENT PLATE

NOT TO SCALE

FABRICATION ATTACHMENT STEEL NOTES:

1. ALL FABRICATED STEEL PARTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION FOR MODERATELY OR SLIGHTLY AGGRESSIVE ENVIRONMENTS.

2. ALL FABRICATED STEEL PARTS SHALL BE FABRICATED FROM 304L GRADE STAINLESS STEEL OR HOT DIP GALVANIZED AND FIELD COAT THE EPOXY COATED FOR USE IN 100 YEAR FLOOD PLAIN - 4.5' SALT WATER ZONE OF INFLUENCE.

3. ALL DIMENSIONS ARE MINIMUM REQUIRED.

DATE: 01-01-05

TENSAR EARTH TECHNOLOGIES

RETAINING WALL SYSTEMS

MSE RETAINING WALL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJ. NO.

FINANCIAL PROJECT ID

REVISION NO.

SHEET NO.

INDEX NO.

05025

TENSAR EARTH TECHNOLOGIES, INC.

2100 CROSSROADS TOWER

ATLANTA, GEORGIA 30328

(404) 250-1290

BOOKLET PUBLISHED IN ENGLISH UNITS.

THIS SYSTEM MAY BE USED IN ALL ENVIRONMENTS.
1. All fabricated steel parts shall be hot-dip galvanized after fabrication for moderately or slightly aggressive environments.
2. All fabricated steel parts shall be fabricated from 316L grade (salt-water zone of influence).
3. Anchor shall be Hilti HSLG RM 10/20 stainless or approved equal.
JUNCTION SLAB
#4 DOWELS (2 PER PANEL) INTO LEVEL UP CONCRETE
1'-3"
SILICONE SEALANT
GUTTER LINE
1'-3"
#9 SHEAR DOWELS
FINISH GRADE
FOR TOP OF LEVELING CONC.
ELEVATION SUBTRACT 9" FROM GUTTER LINE ELEVATIONS
EDGE OF SHOULDER
TOP OF TRAFFIC BARRIER
LEVELING CONCRETE
DEPTH VARIES
POSITION UNIT FOR 6"
FRONT FACE OF MSE WALL
NOTE:
ALL OPEN JOINTS IN THE PRECAST BARRIER SHALL BE FILLED 6" ABOVE FINISHED GRADE WITH 3/4" BACKING ROD AND CAULKED WITH SILICONE SEALANT. MATERIALS BY CONTRACTOR.
BACKING ROD
NOT TO SCALE
SECTION A-A AT PRECAST TRAFFIC BARRIER WITH C.I.P JUNCTION SLAB
NOT TO SCALE
PRECAST TRAFFIC BARRIER PARTIAL ELEVATION VIEW
NOT TO SCALE
DATE: 01-01-05
TENSAR EARTH TECHNOLOGIES
MSE RETAINING WALL
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
RETAINING WALL SYSTEMS
APPLICABLE TO DESIGN STANDARDS
STATE PROJ. NO.
FINANCIAL PROJECT ID
BOOKLET PUBLISHED IN ENGLISH UNITS
SHEET NO.
INDEX NO.
TENSAR EARTH TECHNOLOGIES
1210 CITIZENS PARKWAY, MORROW GA. 30260
THIS SYSTEM MAY BE USED IN ALL ENVIRONMENTS
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PRECAST BARRIER WITH C.I.P. SLAB - VARIGRID BARRIER REINFORCEMENT

#4 DOWELS (2 PER PANEL) INTO LEVEL UP CONCRETE PADD ON PRECAST PANEL.

2" MIN./1'-0" MAX. C.I.P. LEVELING

#5A @ 1'-4" O.C.

EDGE OF SHOULDER

#5R

C.I.P. JUNCTION SLAB CONTINUOUS OVER 30.0' (BY OTHERS)

SEE SHEET 3 OF 16 PANEL THICKNESS

NOT TO SCALE

NOTES:

1. 1/2" CHAMFER ALL AROUND (EXPOSED SURFACES)

2. ALL LONGITUDINAL BARS IN THE MOMENT SLAB SHALL BE #4 WITH MAXIMUM SPACING OF 1'-6" O.C.

2" CONDUIT (IF REQUIRED)

SILICONE SEALANT

R = 2"

WELDO WIRE FABRIC SHALL CONFORM TO ASTM A467.

VARIGRID 4X6

W15.4 x W14.5

MARK

5A

5B

A

B

VARIGRID

VARIGRID

16

8

QUANTITY

REMARKS

3'-6" LONG

2'-4" LONG

W14.5 @ 6" O.C.

W15.4 @ 4" O.C.

#5C @ 8" O.C.

#5B @ 8" O.C.

GUTTER LINE

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C 2003, TENSAR EARTH TECHNOLOGIES, INC.

THIS SYSTEM MAY BE USED IN ALL ENVIRONMENTS

APPLICABLE TO DESIGN STANDARDS

INTERIM STANDARD IN ENGLISH UNITS

STATE PROJ. NO.
05025

FINANCIAL PROJECT ID

TENSAR EARTH TECHNOLOGIES
RETAINING WALL SYSTEMS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

State Structures Design Engineer

DATE: 01-01-05

TENSAR®

TENSAR®

TENSAR®
NOTES:

A. 1 1/2" expansion joint material shall be provided between C.I.P. concrete and precast concrete panel.

B. All longitudinal bars shall be #4 bars with a maximum spacing 1'-6" O.C.

C. 3 #9 shear dowels - 3'-0" long req'd at expansion joints if unit is less than 3 panels long.

D. 2" min. clearance on all bars except where shown.

A. 1/2" expansion joint material shall be provided between C.I.P. concrete and precast concrete panel.

B. All longitudinal bars shall be #4 bars with a maximum spacing 1'-6" O.C.

C. 3 #9 shear dowels - 3'-0" long req'd at expansion joints if unit is less than 3 panels long.

D. 2" min. clearance on all bars except where shown.

COPING LINE

TOP OF PANEL

2" MIN.

1/2" OPEN JOINT

TOP OF TRAFFIC BARRIER

C.I.P. TRAFFIC BARRIER

NOT TO SCALE

C.I.P. CONCRETE TRAFFIC BARRIER

NOT TO SCALE

C.I.P. CONCRETE TRAFFIC BARRIER

NOT TO SCALE

C.I.P. CONCRETE TRAFFIC BARRIER

NOT TO SCALE

C.I.P. CONCRETE TRAFFIC BARRIER

NOT TO SCALE
NOTE: REBAR IN BARRIER AND JUNCTION SLAB NOT SHOWN FOR CLARITY

PRECAST COPING
COPING LINE
BASE PLATE FOR LIGHT SUPPORT POLE
FRONT FACE MSE WALL

CENTER LINE SUPPORT POLE
PRECUT COPING
BAR H
BAR G
BAR F
BAR E
BAR D
BAR C
BAR B
BAR A
COPING LINE
EDGE PLATE FOR LIGHT SUPPORT POLE

PLAN VIEW
NOTE: REBAR IN BARRIER AND JUNCTION SLAB NOT SHOWN FOR CLARITY

PARTIAL ELEVATION
NOTE: REFER TO LIGHT POLE DETAIL FOR DETAILS (ANCHOR BOLTS, CONDUIT, JUNCTION BOXES, ETC.)

BAR BENDING DETAIL
NOT TO SCALE

NOTE:
A. 1/2" EXPANSION JOINT MATERIAL SHALL BE PROVIDED BETWEEN CAST IN PLACE CONCRETE AND PRECAST CONCRETE PANEL.
B. 3 #9 SHEAR DOWELS - 3' LONG REQ'D AT EXPANSION JOINTS IF UNIT IS LESS THAN 3 PANELS LONG.
C. MAINTAIN A 2" MIN. CLEARANCE ON ALL BARS EXCEPT WHERE NOTED OTHERWISE.

EDGE OF SHOULDER
EDGE OF SHOULDER

NOTE: REFER TO LIGHT POLE PILASTER DETAILS IN BRIDGE PLANS FOR NOTES AND ADDITIONAL DETAILS (ANCHOR BOLTS, CONDUIT, JUNCTION BOXES, ETC.)
1. Additional concrete and reinforcing steel required for the construction of the pilaster shall meet the same requirements as those of the parapet wall.

2. Top of pilaster shall be finished to a truly level area.

3. Light pole pilaster is designed to resist working loads in any direction from the light pole applied at the top of the pilaster as follows:

   - Longitudinal moment: 30,000 ft. pounds
   - Longitudinal shear: 1,000 pounds
   - Transverse shear: 6,000 ft. pounds
   - Transverse moment: 200 pounds
   - Axial: 400 pounds
   - Vertical: 3,000 ft. pounds

   If the light pole provided applies loads, any in excess of those shown above, the contractor shall submit the pilaster and submittals design to the Department for review. The code for the pilaster shall be determined, sized and spaced by a professional engineer registered in the state of Florida, and approved, to perform the work.

4. The contractor is responsible for providing anchor bolts that effectively transmit the light pole loads to the pilaster and that meet the reinforcing cage calculation sizes and yield by a professional engineer registered in the state of Florida. All anchor bolts used shall be submitted by the contractor to the Department for review and approval, and shall meet code requirements. The design requirements have been met prior to construction.

5. Steel for junction boxes shall conform with ASTM A36, the boxes shall be hot or galvanized after fabrication. In lieu of steel boxes the contractor may submit for approval molded P.V.C. boxes (Schedule 80).

6. All conduits shall be rigid galvanized steel or Schedule 80 P.V.C. conduit. The limits shown on this sheet shall be included in the contractor's redesign shall be prepared, sized and spaced by the contractor, and the Department for review, and the boxes shown on this sheet, shall be included in the Contractor's bid price for the final walls.

7. The cost of anchor bolts shall be included in the bid price for the light poles.

8. Payment: The cost of all labor, concrete and reinforcing steel required for the construction of the pilasters and all conduits, expansion couplings, junction boxes and miscellaneous hardware required for the construction of the pilasters and walls shall be included in the Contractor's bid price for the final walls.

This system may be used in all environments.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

RETAILING WALL SYSTEMS
TENSAER EARTH TECHNOLOGIES
MSE RETAINING WALL

STATE PROJ. NO.

FINANCIAL PROJECT ID

BOOKLET DATED JANUARY 2004.

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INTERIM STANDARD IN ENGLISH UNITS

APPROVED BY

TENSAER EARTH TECHNOLOGIES, INC.

INTERIM STANDARD W ENGLISH UNITS

APPROVED BY

TENSAER EARTH TECHNOLOGIES, INC.
BAR BENDING DETAIL

PRECAST SADDLE WITH C.I.P. PARAPET AND SIDEWALK DETAIL

NOT TO SCALE

PRECAST COPING

PRECAST CONCRETE PARAPET

ALUMINUM HANDRAIL

CONCRETE BARRIER

LEVEL UP CONCRETE

CONCRETE AND PRECAST PANELS

BACK FACE OF PRECAST PANEL

#4 DOWEL INTO LEVEL UP CONCRETE

#4 BARS (MIN.) (TYP.)

#5 @ 1'-0" O.C.

TOP OF 6" SIDEWALK

JOINT MATERIAL

CONCRETE BARRIER

CAST IN PLACE PARAPET

ALUMINUM HANDRAIL

#4 @ 1'-6" O.C. (TYP.)

1/2" EXPANSION JOINT MATERIAL

CONCRETE AND PRECAST PANELS

BACK FACE OF PRECAST PANEL

#4 DOWEL (2 PER PANEL)

SHALL BE PROVIDED BETWEEN C.I.P.

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