

Permit Guidelines for Seawall

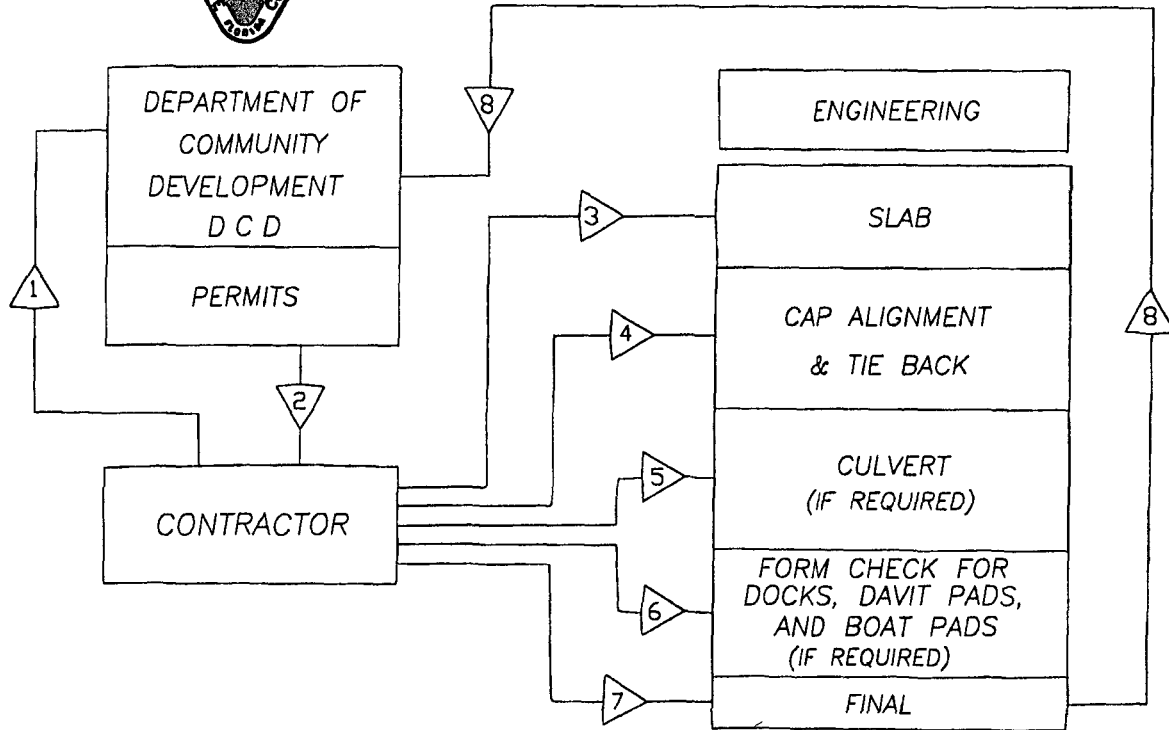
The following process is required to make your application to the City of Cape Coral for your project complete and successful:

1. Submittal Forms (Contractor):
 - a. Marine Improvements Application
 - b. Burrowing Owl/Gopher Tortoise Affidavit
 - c. Notice of Commencement (project value: \$2,500.00 or more)
2. Submittal Forms (Owner/Builder):
 - a. Marine Improvements Application
 - b. Burrowing Owl/Gopher Tortoise Affidavit
 - c. Notice of Commencement (project value: \$2,500.00 or more)
 - d. Owner Builder Affidavit
3. Information Required (2 copies of each):
 - a. Description of Proposed Seawall:
 - i. Site Plan
 - 1) Show existing buildings or structures including sidewalks, patios, driveways, etc. as/if applicable
 - 2) Locate Seawall at Property Line
 - ii. Plan View and Elevation
 - iii. Slab Section and Details
 - iv. Cap, Slab Joint, Expansion Details
 - v. General Notes (Attachment "H9")
4. Attachments:
 - a. Attachment "H-1" – Seawall Permitting Procedure
 - b. Attachment "H-2" – Seawalls – Freshwater Canals
 - c. Attachment "H-3" – Seawalls – Freshwater Canal Alternate
 - d. Attachment "H-3A" – Seawalls – Freshwater Canal Alternate 2
 - e. Attachment "H-4" – Seawalls – Salt Water Canals
 - f. Attachment "H-5" – Minimum Seawall Specifications
 - g. Attachment "H-6" – Seawall Tie-Back for Special Conditions
 - h. Attachment "H-7" – Minimum Seawall Specifications
 - i. Attachment "H-8" – Minimum Seawall specifications

This guideline is to be used as a minimum requirement and is subject to change without notice

PROCEDURE FOR THE CONSTRUCTION OF A SEAWALL

CITY of CAPE CORAL PUBLIC WORKS DEPARTMENT



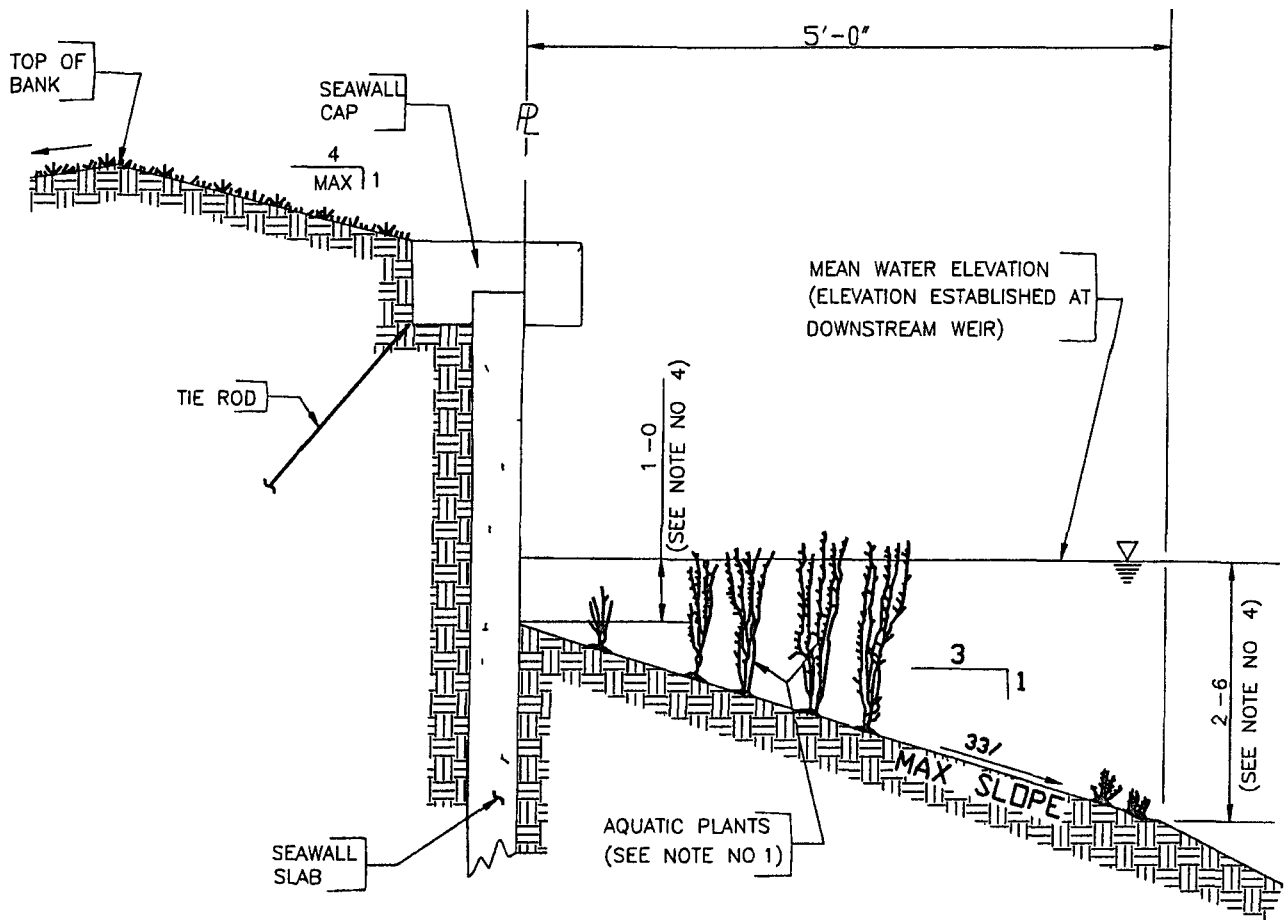
NOTES

- 1 CONTRACTOR SUBMITS APPLICATION, SURVEY PLAT AND ENGINEERING INFORMATION TO D C D
- 2 CONTRACTOR RECEIVES SEAWALL PERMIT THIS PERMIT SHALL BE POSTED AT JOB SITE
- 3 CONTRACTOR CALLS (PWD) FOR A SLAB INSPECTION
- 4 CONTRACTOR CALLS (PWD) FOR A CAP ALIGNMENT AND TIE BACK INSPECTION
- 5 CONTRACTOR CALLS PWD/STORMWATER FOR A CULVERT INSPECTION IF NEEDED
- 6 CONTRACTOR CALLS (PWD) FOR FORM CHECK FOR CONCRETE DOCKS DAVIT PADS AND BOAT PADS IF NEEDED
- 7 CONTRACTOR CALLS (PWD) FOR FINAL INSPECTION
- 8 (PWD) NOTIFIES D C D THAT THE JOB HAS BEEN COMPLETELY INSPECTED BY PWD



CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED	TITLE SEAWALL PERMITTING PROCEDURE	REVISIONS	SHEET NO
PUBLIC WORKS DIRECTOR	DATE <u>03-28-2002</u>		H-1



FRESH WATER CANAL SYSTEMS BULKHEAD

NOTES

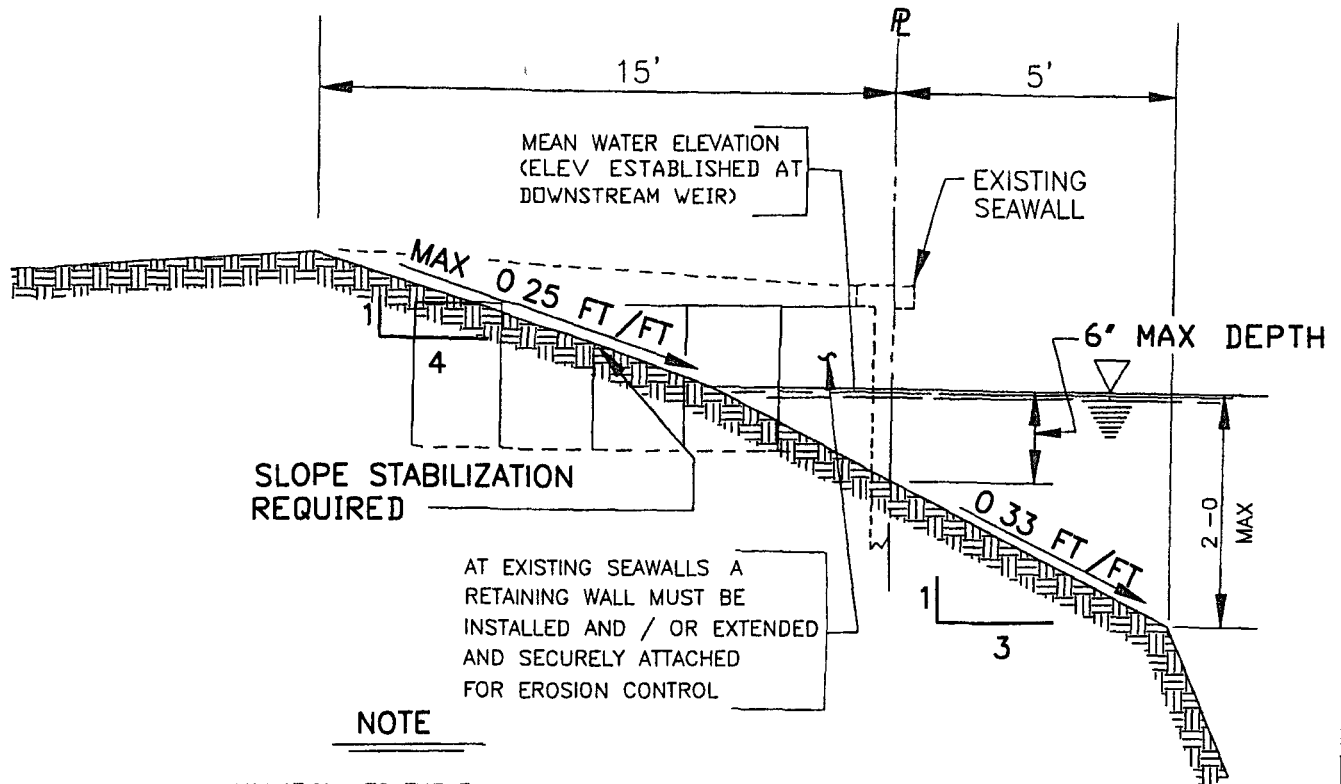
- 1 THE PLANTING OF EMERGENT AQUATIC PLANTS FOR LANDSCAPING IS OPTIONAL (ONLY APPROVED VEGETATION WILL BE PERMITTED)
- 2 VARIATIONS TO THIS STANDARD MUST BE APPROVED BY THE CITY PUBLIC WORKS DEPARTMENT
- 3 CAP ELEVATION TO MATCH EXISTING SEAWALL CAPS OR MATCH EXISTING DOWNSTREAM WEIR WINGWALL CAP ELEVATION
- 4 TOLERANCE FOR WATER DEPTH AT SEAWALL AND AT 5-0 OUT SHALL BE +/- 6
- 5 IN CASES WHERE ELEVATIONS OF EXISTING SEAWALL CAP DIFFERS WITH THE NEW SEAWALL CAP ELEVATION THE NEW CAP SLOPE SHOULD NOT EXCEED 4 1
- 6 IN FRESHWATER CANAL SYSTEM CONCRETE RAMPS MAY BE CONSTRUCTED AT A MAXIMUM WIDTH OF 20 FEET FOR A DISTANCE NOT EXCEEDING 15 FEET INTO THE WATER FROM THE PROPERTY LINE ALL PLANS MUST BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN FLORIDA



CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED	TITLE SEAWALLS - FRESHWATER CANALS	REVISIONS	SHEET NO
PUBLIC WORKS DIRECTOR	DATE 03-28-2002		H-2

MINIMUM STANDARDS FOR ALTERNATIVES TO VERTICAL BULKHEADS (FRESHWATER SYSTEMS ONLY)



NOTE

VARIATIONS TO THE ESTABLISHED SEAWALL STANDARDS FOR FRESH WATER SYSTEMS WILL BE CONSIDERED BY THE CITY OF CAPE CORAL PUBLIC WORKS DEPARTMENT

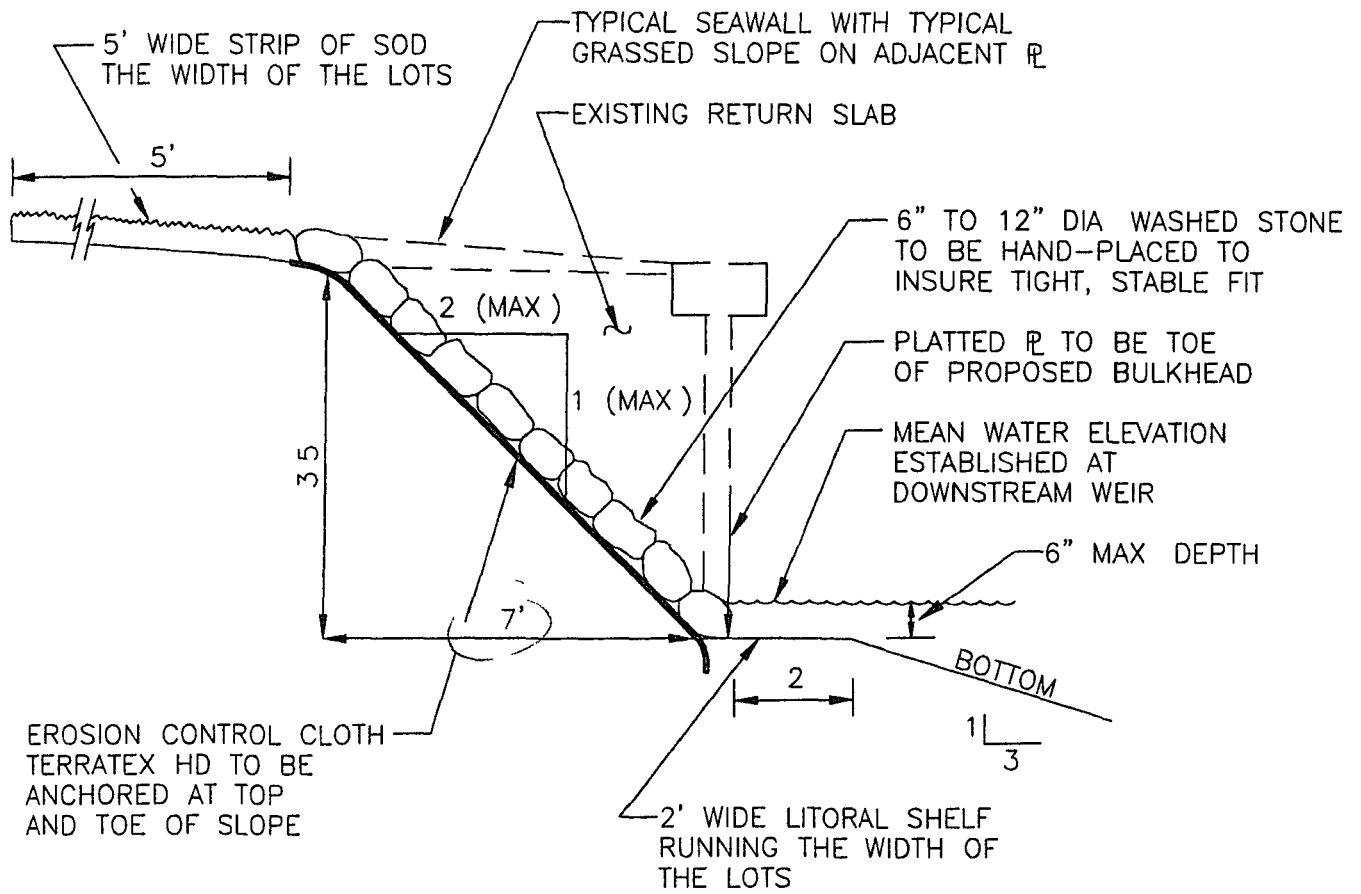
THE FOLLOWING MINIMAL DESIGN CRITERIA MUST BE INCORPORATED INTO THE PROPOSED DESIGN

- A MAXIMUM ALLOWABLE SLOPE TO WATERLINE IS 4 HORIZONTAL TO 1 VERTICAL (4:1)
- B SLOPE TO BE STABILIZED WITH APPROVED MATERIALS / METHODS FOR EROSION CONTROL
- C MAXIMUM WATER DEPTH AT PROPERTY LINE IS TO BE 6 INCHES
- D TERRACING MAY BE USED TO ESTABLISH PROPER SLOPES
- E IN FRESHWATER CANAL SYSTEMS CONCRETE RAMPS MAY BE CONSTRUCTED AT A MAXIMUM WIDTH OF 20 FEET FOR A DISTANCE NOT EXCEEDING 15 FEET INTO THE WATER FROM THE PROPERTY LINE
- F ALL PLANS MUST BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN FLORIDA



CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED	TITLE SEAWALLS - FRESHWATER CANAL ALTERNATE	REVISIONS	SHEET NO H-3
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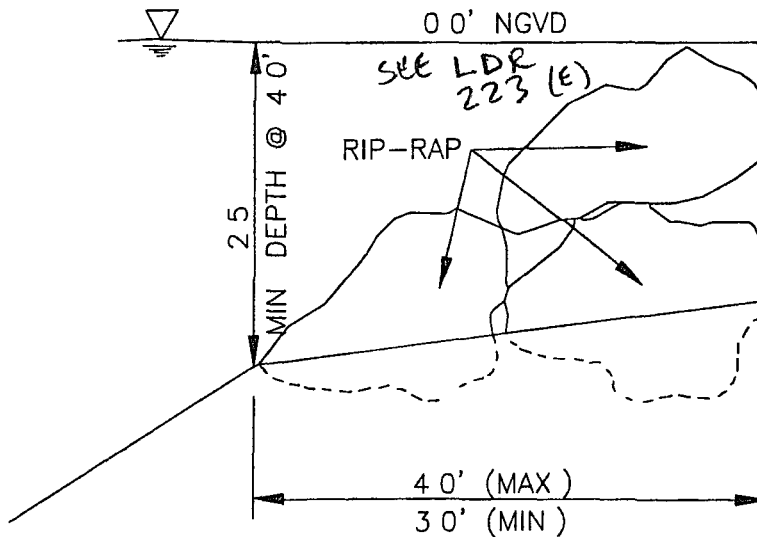
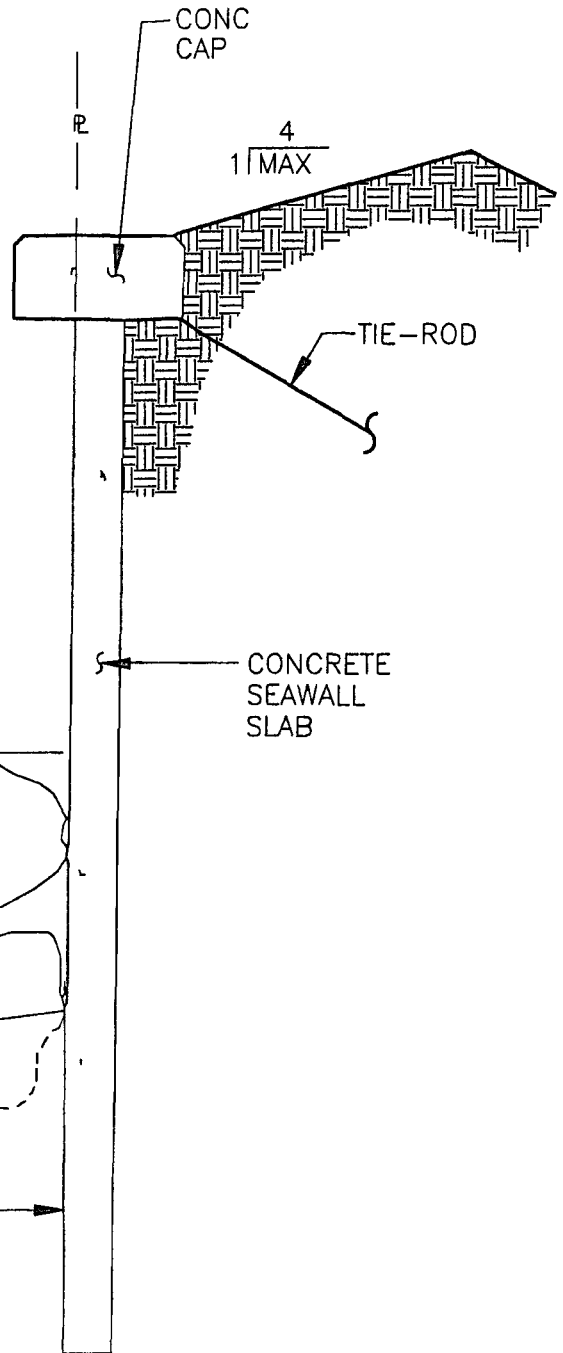


CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED	TITLE SEAWALLS - FRESHWATER CANAL ALTERNATE 2	REVISIONS	SHEET NO H-3A
PUBLIC WORKS DIRECTOR	DATE <u>03-28-2002</u>		

NOTES

- 1 MIN 50% OF SEAWALL LENGTH MUST HAVE RIP-RAP INSTALLED ON-SITE MATERIAL MAY BE USED IF IT MEETS THE SIZE AND TYPE OF MATERIAL REQUIREMENTS
- 2 RIP-RAP MAY BE PLACED UNDER DOCKS
- 3 NO RIP-RAP SHALL BE PLACED WITHOUT A PERMIT
- 4 ALL RIP-RAP SHALL BE CAREFULLY PLACED
- 5 RIP-RAP SHALL BE CLEAN STONE OR ROCK 6" TO 36" IN SIZE FREE OF FOREIGN MATERIAL (SUCH AS SAND, WOOD OR STEEL) CLEAN CONCRETE RUBBLE WILL BE ALLOWED
- 6 TOLERANCE FOR RIP-RAP ELEVATION SHALL BE 0" TO -6'
- 7 RIP-RAP SHALL BE IRREGULAR SIZES WITH NOMINAL DIMENSIONS FROM 6 MIN TO 36 MAX OR AS REQUIRED BY THE APPROPRIATE REGULATORY AGENCY
- 8 CAP ELEVATIONS THAT ARE GREATER THAN 4.0 NGVD RIP-RAP ELEVATION SHALL BE 4.0 BELOW PROPOSED CAP ELEVATION TO A MAXIMUM OF 1.0 NGVD
- 9 NO RIP-RAP SHALL BE ALLOWED TO OBSTRUCT THE CENTRAL NAVIGABLE SECTION OF THE CANAL
- 10 CAP ELEVATIONS TO MATCH EXISTING SEAWALL CAP IN CASES WHERE ELEVATIONS OR EXISTING CAP DIFFERS NEW CAP SLOPE SHOULD NOT EXCEED 10%
- 11 CONCRETE RAMPS MAY BE CONSTRUCTED AT A MAXIMUM WIDTH OF 20 FEET FOR A DISTANCE NOT EXCEEDING 15 FEET INTO THE WATER FROM THE PROPERTY LINE ALL PLANS MUST BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN FLORIDA



SALT WATER CANAL SYSTEMS BULKHEADS

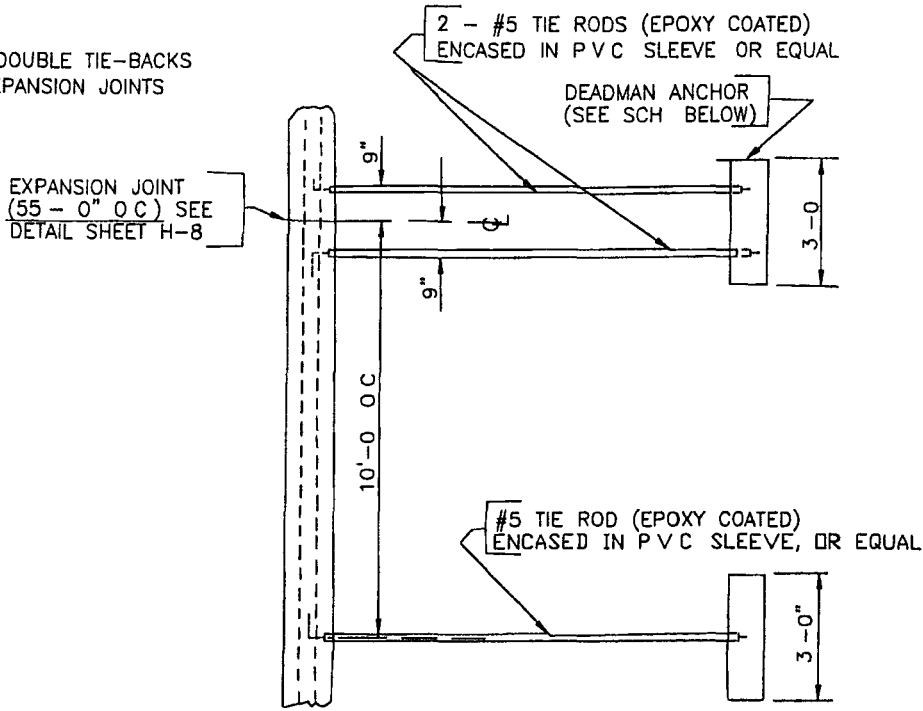


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ENGINEERING DESIGN STANDARD**

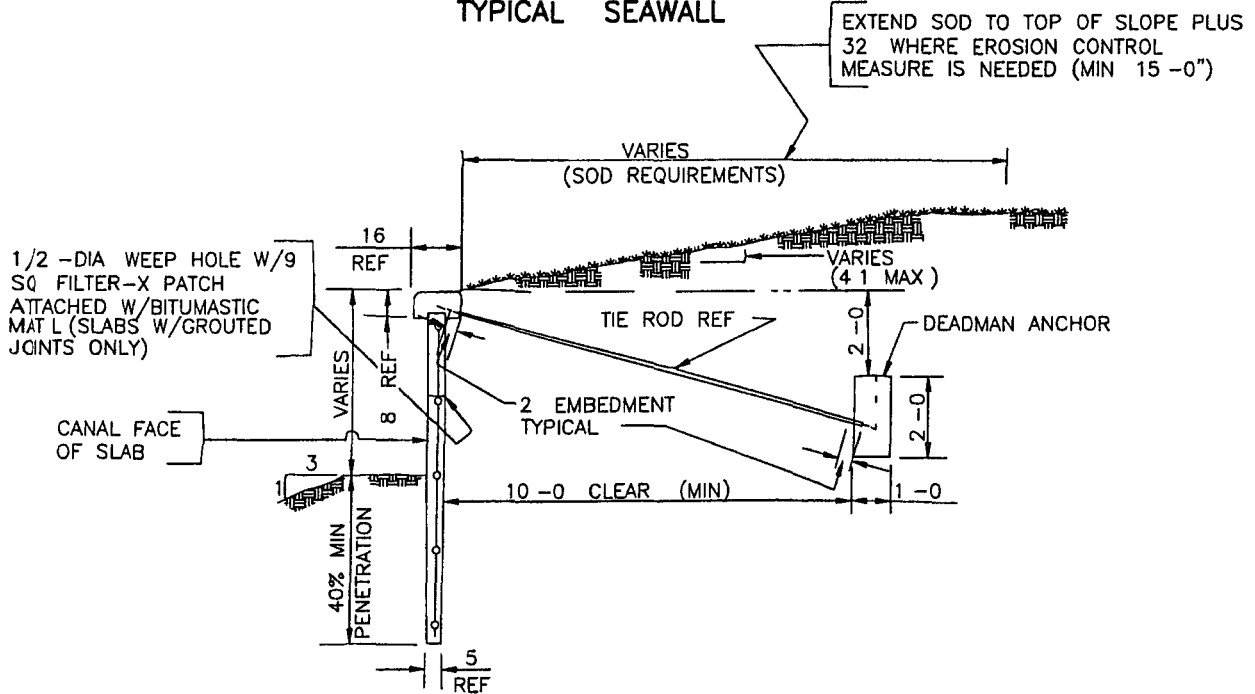
APPROVED	TITLE	REVISIONS	SHEET NO
PUBLIC WORKS DIRECTOR	SEAWALLS - SALT WATER CANALS		H-4
	DATE		
	03-28-2002		

NOTE

USE DOUBLE TIE-BACKS
AT EXPANSION JOINTS



PLAN VIEW
TYPICAL SEAWALL



ELEVATION
TYPICAL SEAWALL

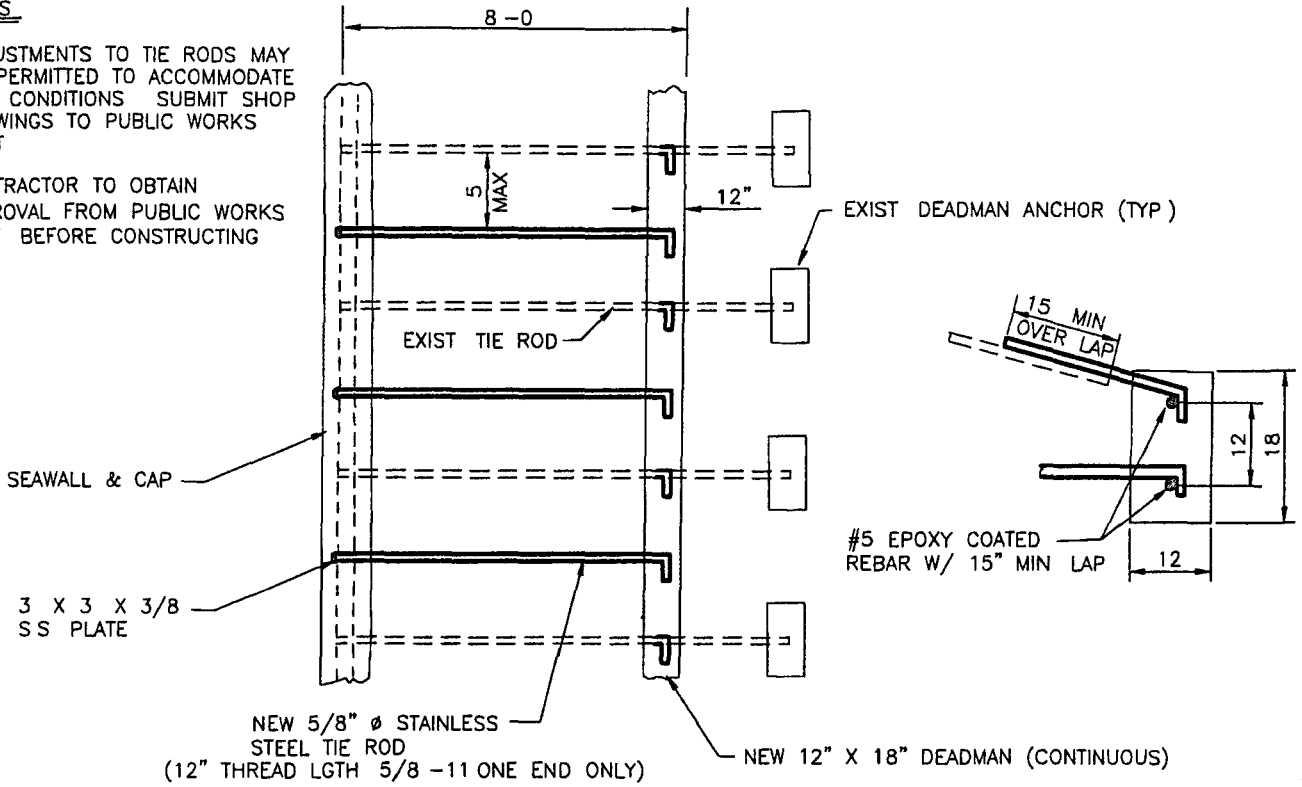


CITY OF CAPE CORAL
ENGINEERING DESIGN STANDARD

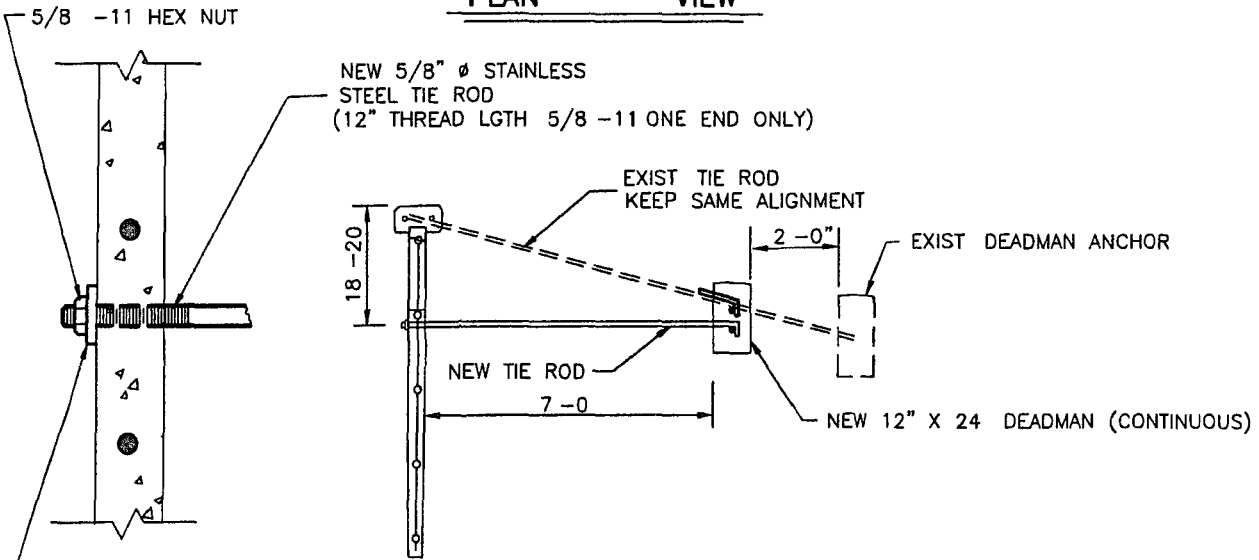
APPROVED	TITLE MINIMUM SEAWALL SPECIFICATIONS	REVISIONS	SHEET NO H-5
PUBLIC WORKS DIRECTOR	DATE 03-28-2002		

NOTES

- 1 ADJUSTMENTS TO TIE RODS MAY BE PERMITTED TO ACCOMMODATE SITE CONDITIONS SUBMIT SHOP DRAWINGS TO PUBLIC WORKS DEPT
- 2 CONTRACTOR TO OBTAIN APPROVAL FROM PUBLIC WORKS DEPT BEFORE CONSTRUCTING



PLAN VIEW

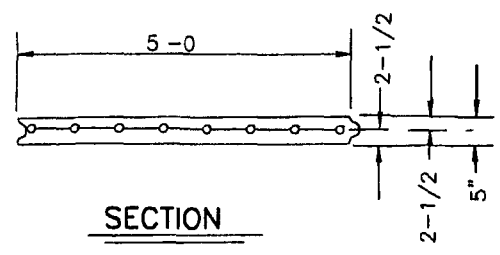
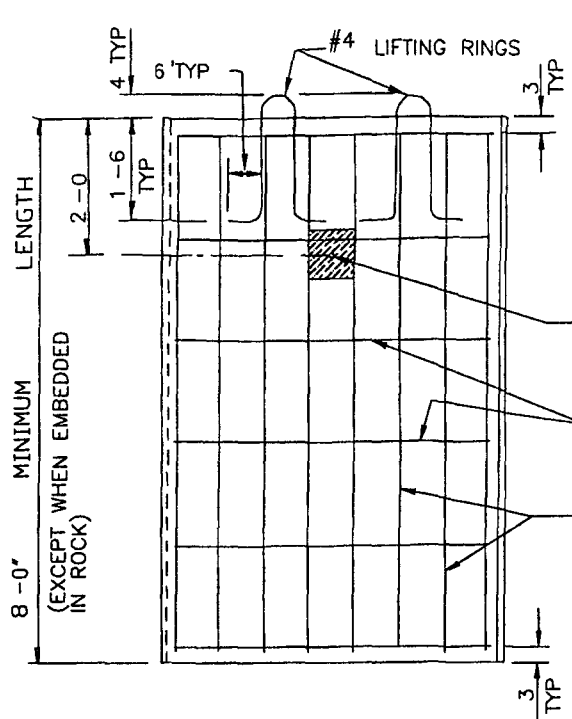


SECTION VIEW



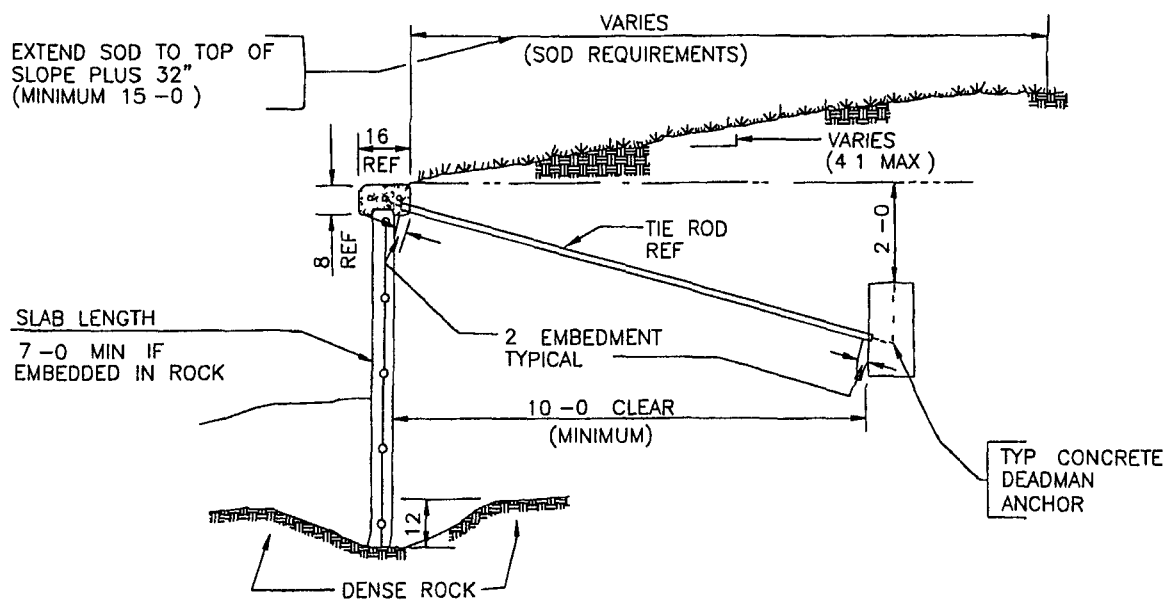
CITY OF CAPE CORAL
ENGINEERING DESIGN STANDARD

APPROVED	TITLE	REVISIONS	SHEET NO
PUBLIC WORKS DIRECTOR	SEAWALL TIE-BACK FOR SPECIAL CONDITIONS		H-6
	DATE		
	03-28-2002		



- 1/2 DIA WEEP HOLE W/9 SQ FILTER-X PATCH ATTACHED W/BITUMASTIC MAT L (SLABS W/GROUTED JOINTS ONLY)
- 8 SLABS #3 AT 24 O C (4-REQ D)
- 9 SLABS #3 AT 24 O C (5-REQ D)
- 10 SLABS #3 AT 24 O C (6-REQ D)
- 8 SLABS #3 AT 6" O C (10 REQ D)
- 9 SLABS #3 AT 4-1/2 O C (12 REQ D)
- 10 SLABS #4 AT 6 O C (10 REQ D)

SLAB DETAIL

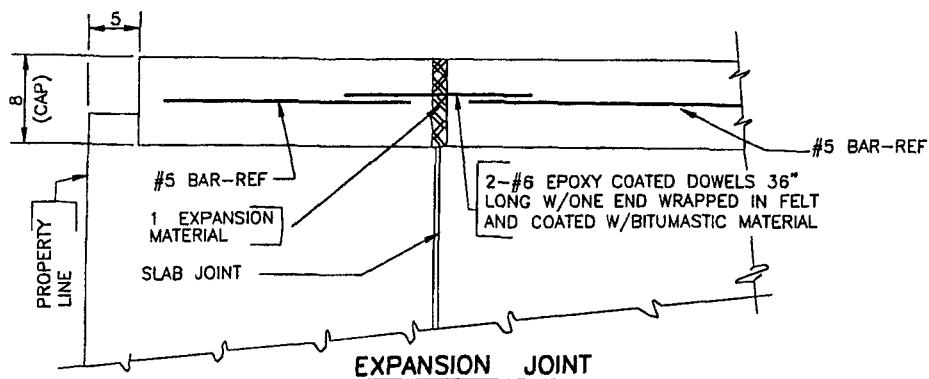
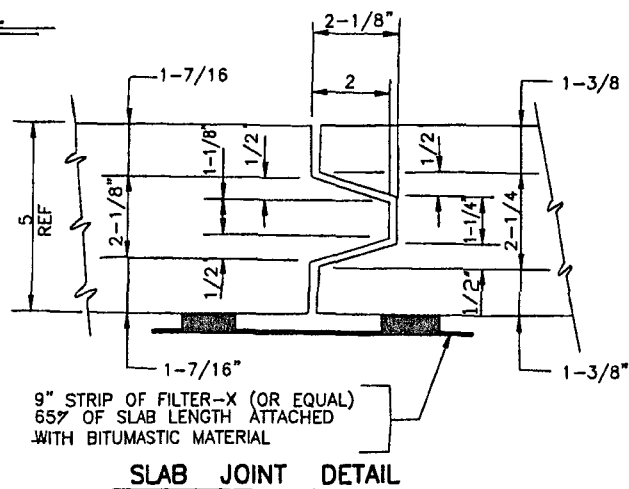
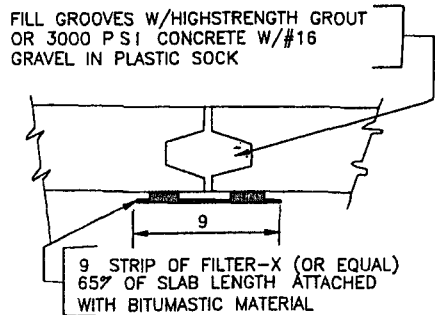
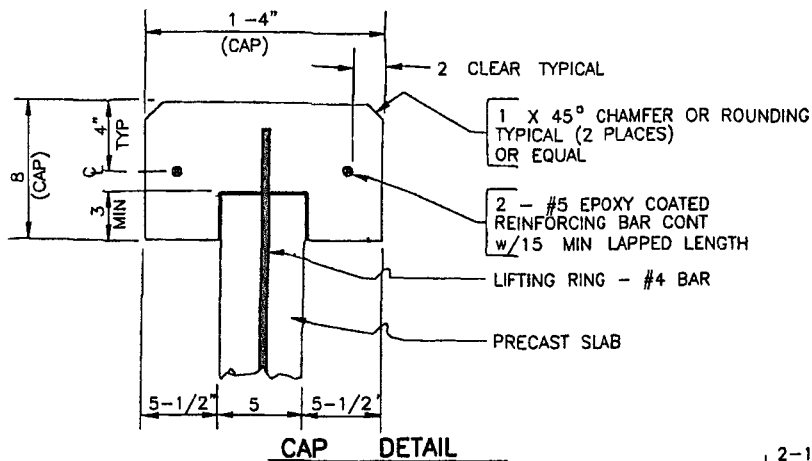


ELEVATION
SEAWALL EMBEDDED IN ROCK



CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED	TITLE	REVISIONS	SHEET NO
PUBLIC WORKS DIRECTOR	MINIMUM SEAWALL SPECIFICATIONS		H-7
	DATE		
	03-28-2002		



CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED

TITLE

MINIMUM SEAWALL SPECIFICATIONS

REVISIONS

SHEET NO

PUBLIC WORKS DIRECTOR

DATE

03-28-2002

H-8

GENERAL

NOTES:

- 1 THESE SPECIFICATIONS SHOW MINIMUM REQUIREMENTS FOR SEAWALLS WHICH ARE TO BE CONSTRUCTED IN THE CITY OF CAPE CORAL. INDIVIDUAL SEAWALL DESIGN IS THE RESPONSIBILITY OF THE PERMITEE BASED ON SPECIFIC SITE CONDITIONS. TYPE OF SEAWALL, METHOD OF CONSTRUCTION AND ALL OTHER FACTORS AFFECTING THE FUTURE STABILITY OF THE WALL. THESE SPECIFICATIONS ARE MINIMUM REQUIREMENTS ONLY AND ARE NOT INTENDED TO BE A FINAL SEAWALL DESIGN RELATING TO A SPECIFIC SITE ON ANY OTHER AFFECTING CONDITIONS.
- 2 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL CONSTRUCTION STAKES UNTIL THE SEAWALL IS INSTALLED AND APPROVED.
- 3 CONSTRUCTION IS TO CONFORM TO CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. FDOT SPECS APPLY WHERE REFERENCE IS MADE TO A SPECIFIC SECTION.
- 4 CONCRETE IS TO HAVE A MINIMUM CYLINDER STRENGTH OF 3000 PSI AT 28 DAYS AND COMPLY WITH SECTION 345 FDOT SPECS.
- 5 REINFORCING STEEL SHALL BE GRADE 40 AND SHALL BE PLACED IN ACCORDANCE WITH FDOT SPECS SECTION 415.
- 6 ALL EXPOSED SURFACES SHALL HAVE A CLASS 3 FINISH IN ACCORDANCE WITH FDOT SPECS SECTION 400-15. ALL UNEXPOSED SURFACES ARE TO BE FREE OF HONEYCOMBING AND MAJOR IMPERFECTIONS.
- 7 BACK FILL IS TO BE COMPACTED TO A STABLE DENSITY SUCH THAT NO APPRECIABLE SETTLEMENT OCCURS AFTER COMPLETION OF WALLS.
- 8 THE DEAD MAN ANCHORS ARE TO BE CONSTRUCTED BY PLACING CONCRETE INTO THE SPECIFIED SIZE HOLE EXCAVATED IN UNDISTURBED GROUND. IF THE SPECIFIED LENGTH TIE-ROD WILL NOT REACH SUITABLE UNDISTURBED GROUND THEN A LONGER ROD MUST BE USED TO MEET CONDITIONS OR A 3 X 3 X 1 (THICK) HEADER STYLE DEAD MAN MAY BE USED IN DISTURBED SOILS.
- 9 THE CANAL FACE OF THE SEAWALL SLABS IS TO BE PLACED ON THE PROPERTY LINE (± 6) UNLESS INSTRUCTED OTHERWISE BY PERMIT.
- 10 ROCK 6 IN NOMINAL DIAMETER AND LESS MAY BE LEFT IN BACKFILL. ALL OTHER ROCK IS TO BE REMOVED AND/OR USED AS RIP RAP ON SITE.
- 11 THE CONTRACTOR WILL BE RESPONSIBLE TO COMPLETE THE CONSTRUCTION OF THE SEAWALL WITHIN 180 DAYS AFTER COMMENCING WORK.
- 12 THE CONTRACTOR WILL BE RESPONSIBLE TO PEG THE TOP ROW OF THE SOD IN ACCORDANCE WITH FDOT SPECS SECTION 575-3.3 STANDARD SURVEY STAKES AT LEAST 12' LONG SPACED 24' APART.
- 13 CONTRACTOR TO SEED ALL DISTURBED AREAS UNLESS A BUILDING PERMIT IS POSTED ON SITE.
- 14 ALL JOB SITES SHALL HAVE SEAWALL PERMITS POSTED ON AN APPROVED PERMIT BOARD WITH RAIN SHIELD PRIOR TO BEGINNING ANY CONSTRUCTION.
- 15 THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE APPROVED TURBIDITY SCREENS IN PLACE DURING ANY AND ALL CLEARING, EXCAVATING, JETTING AND BACK FILLING OPERATIONS WHICH TOTALLY ENCLOSES THE CONSTRUCTION SITE. SCREENS ARE TO REMAIN IN PLACE 24 HOURS MINIMUM AFTER CONSTRUCTION CEASES OR UNTIL TURBIDITY LEVEL IS 20 OR LESS NTU ABOVE THE PRE-CONSTRUCTION TURBIDITY LEVEL. SCREENS MUST EXTEND FROM THE WATER SURFACES TO THE BOTTOM AND BE ADEQUATELY WEIGHTED TO KEEP THEM IN PLACE DURING ALL OPERATIONS. THERE SHALL BE ADEQUATE FLOATATION AT THE SURFACE TO PREVENT OVERFLOW. THIS FLOATATION MUST BE BRIGHTLY COLORED TO MAXIMIZE VISIBILITY.
- 16 ANY LOOSE DIRT OR STOCK PILES SHALL BE SURROUNDED BY SILT SCREENS (AT THE EDGE OF THE TOE OF THE SLOPE) TO PREVENT RUNOFF INTO CANAL.
- 17 CULVERT PIPE SHALL NOT PROJECT MORE THAN 4' FROM THE WATER-FACE OF THE SEAWALL.
- 18 ANY SEAWALL DESIGN OF NEW OR EXISTING SEAWALLS THAT DOES NOT MEET THIS MINIMUM STANDARD MUST BE DESIGNED AND SEALED BY A FLORIDA REGISTERED P.E.
- 19 REFER TO THE SECTION ON EROSION CONTROL FOR PROTECTION OF SLOPES.



CITY OF CAPE CORAL ENGINEERING DESIGN STANDARD

APPROVED	TITLE	REVISIONS	SHEET NO
PUBLIC WORKS DIRECTOR	MINIMUM SEAWALL SPECIFICATIONS GENERAL NOTES		H-9
	DATE	03-28-2002	