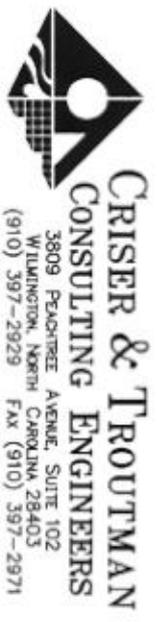


BULKHEAD NOTES

1. BULKHEAD DESIGNED FOR HORIZONTAL EARTH LOADS AND ANTICIPATED HYDROSTATIC LOADS W/ NO PROVISIONS FOR MOORING OR SURCHARGE LOADS
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND ALL VERTICAL AND HORIZONTAL CONTROL, AND SHALL VISIT THE SITE TO FAMILIARIZE HIMSELF WITH FIELD CONSTRUCTION CONDITIONS.
3. EROSION CONTROL: CONSTRUCT EROSION AND SEDIMENTATION CONTROL BARRIERS AS REQUIRED UNTIL GRASS IS ESTABLISHED.
4. EXCAVATE AS REQUIRED TO COMPLETE WORK. KEEP HEAVY EQUIPMENT AND VEHICLES AT LEAST 15' BEHIND BULKHEAD OR FURTHER AS REQUIRED BY ACTUAL HORIZONTAL LOAD EXERTED AND/OR AS REQUIRED BY CONTRACTORS CONSTRUCTION METHODS.
5. BACKFILL WITH #57 STONE COMPACTED IN 10-INCH LAYERS AS INDICATED.
6. TOPSOIL: APPLY 4 INCHES THICK MINIMUM TO ALL DISTURBED AREAS.
7. BEFORE EXCAVATING OR DRIVING, VERIFY EXISTING UTILITY AND IRRIGATION LINES ALONG BACKSIDE OF BULKHEAD.
8. PILING:
 - A. ROUND PILING: LENGTH AS INDICATED CLASS B W/ MIN. BUTT CIRCUMFERENCE AS MEASURED 3'-0" FROM BUTT, INSTALL TIP DOWN; CLEAN-PELLET; FRICTION PILES CONFORMING TO ASTM D25, S.Y. PINE, OR DOUGLAS FIR, PRESSURE TREATED WITH CCA TO 2.5 LB/CF NET RETENTION PER AWP A C3 & C18 & C23.
 - B. SQUARE PILING: ROUGH SOUTHERN YELLOW PINE, GRADE NO. 2, SIZE AS INDICATED, PRESSURE TREATED WITH CCA TO 2.5 LB/CF NET RETENTION.
9. DRIVE, SPUD AND/OR JET PILES TO REACH THE MINIMUM PENETRATION AS INDICATED & AS REQUIRED TO PREVENT DAMAGE TO ADJACENT STRUCTURES (LAST 1'-0" SHALL BE DRIVEN).
10. BULKHEAD LUMBER: PRESSURE TREAT WITH CCA NET RETENTION AS INDICATED PER AWP A C2/C9. SAW PIECES PRIOR TO PRESSURE TREATING. ALL TREATED WOOD MATERIALS SHALL HAVE FIELD CUTS, BORINGS, ETC. PROTECTED BY FIELD TREATMENT WITH COPPER NAPHTHALATE MEETING AWP A STANDARD P-8.
 - A. FRAMING LUMBER AND CAPS: NO. 2 S.Y. PINE, OR NO-1 DOUGLAS FIR, S4S - 0.6 PCF CCA.
 - B. INTERMEDIATE WALERS (ABOVE HWL.): NO.1 OR NO. 2 MIXED SOUTHERN PINE OR SOUTHERN YELLOW PINE, S4S, 2.5 PCF CCA
 - C. LOWER WALER (BELOW HWL.): NO. 1 OR NO. 2 MIXED SOUTHERN PINE OR SOUTHERN YELLOW PINE, S4S 2.5 PCF CCA, (MARINE GRADE).
 - D. SHEET PILES: NO. 2 SOUTHERN YELLOW PINE OR NO. 1 DOUGLAS FIR, S2S, 2.5 CCA; INSTALL TIGHT - ADD SECOND LAYER ACROSS JOINTS WHERE TIGHT FIT IS QUESTIONABLE.
11. ALL HARDWARE, NAILS, AND BOLTS SHALL BE HOT DIP GALVANIZED UNLESS NOTED OTHERWISE. USE CUT WASHERS UNDER ALL BOLT HEADS AND NUTS, UNLESS NOTED OTHERWISE. NAIL SIZES AND NUMBER ARE NOT SHOWN, USE ACCORDING TO GOOD CARPENTRY PRACTICE.
12. DRILL UNDERSIZED HOLES FOR NAILS IN SMALL MEMBERS AS NECESSARY TO PREVENT SPLITTING.
13. FILTER FABRIC SHALL BE WOVEN FABRIC OF POLYPROPYLENE MONO-FILAMENT WITH A MIN. OVERFLOW RATE OF 18 GPM/SF & APPARENT SIEVE OPENING SIZE OF NO. 70. GEOTEXTILE FABRIC SHALL BE AMOCO 1199, CONTECH C70/06, SYNTHETIC INDUSTRIAL EROSION 1 OR APPROVED EQUAL.
14. STEEL BOLTS - ASTM A325 H.D. GALV. PLATE WASHERS: ASTM A36, H.D. GALV.
15. O.G.E.E. WASHERS: H.D. GALV.; 3" Ø W/ BOLTS & 4" Ø W/ ANCHOR RODS.
16. ALTERNATE DEADMAN SYSTEM. SHALL BE A MECHANICAL OR HELICAL ANCHORING SYSTEM INSTALLED AT AND ANGLE INTO THE SOIL & EXTENDED BEYOND THE SOIL LINE. HORIZONTAL COMPONENT OF ANCHOR SHALL A MAXIMUM ANCHOR PULL CAPACITY OF 2.5 KIPS FOR 4' WALLS, 5.0 KIPS FOR 6' WALLS, 9.3 KIPS FOR 8' WALLS AND 13.5 KIPS FOR 10' WALLS WITH APPROXIMATE ANCHOR ROD LENGTHS OF 8', 10', 14', AND 16' RESPECTIVELY WITH A MINIMUM ROD SLOPE OF 12' OFF THE HORIZONTAL. MECHANICAL AND HELICAL ANCHORS SHALL BE PROOF PULLED AND PROOF TORQUED, RESPECTIVELY, TO SATISFY THE ABOVE LOAD CONDITIONS & INCREASED LENGTHS ACCORDINGLY IF REQUIRED.



1 REVISION 9/5/00



CRISER & TROUTMAN
CONSULTING ENGINEERS
 3809 PEACHTREE AVENUE, SUITE 102
 WILMINGTON, NORTH CAROLINA 28403
 (910) 397-2929 FAX (910) 397-2971

TOWN OF OCEAN ISLE BEACH

STANDARD BULKHEAD NOTES

SCALE: 1/4" = 1'-0"

DESIGN:	DATE:
RT	8/29/00
DRAWN:	JOB NO.:
MAG	4947
SHEET:	
S2	