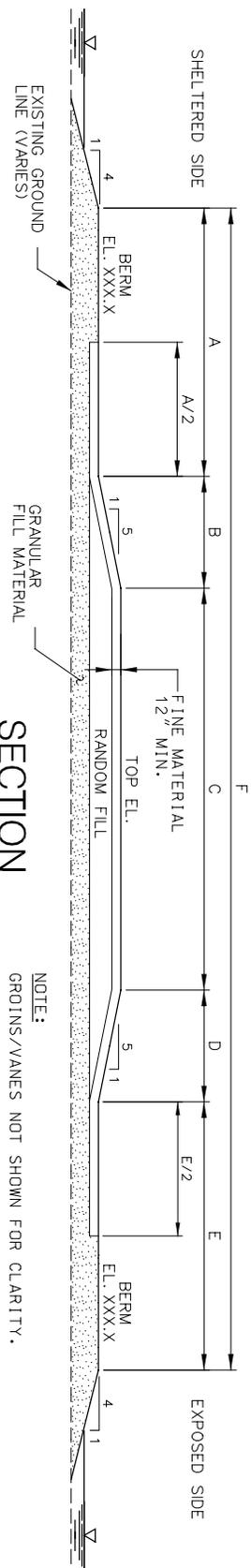


**UPPER MISSISSIPPI RIVER SYSTEM
ENVIRONMENTAL MANAGEMENT PROGRAM
DESIGN HANDBOOK**

CHAPTER 9

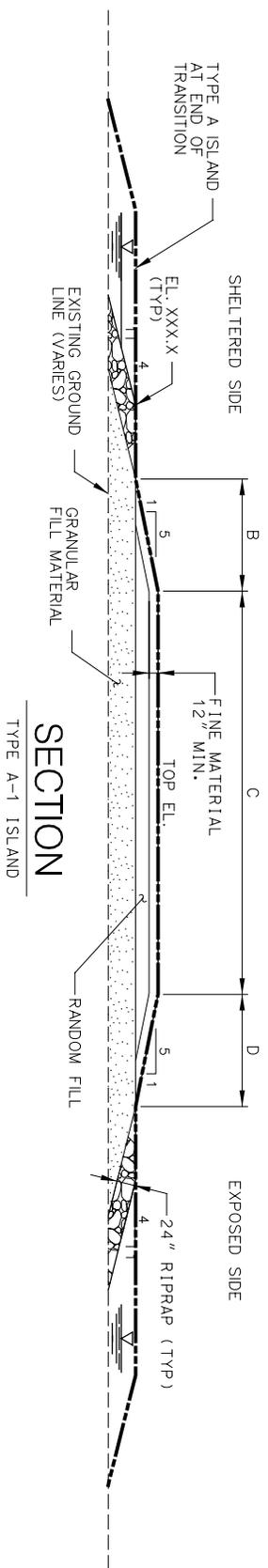
ISLANDS

**APPENDIX E
STANDARD DETAILS**

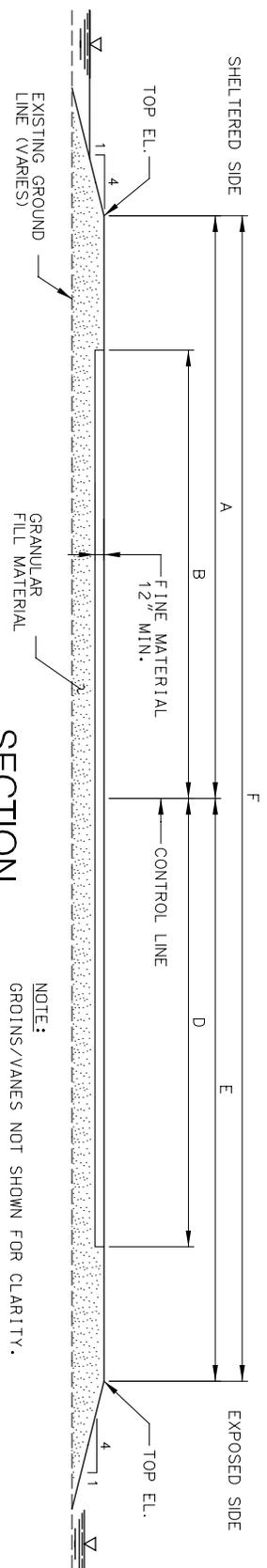


SECTION
TYPE A ISLAND

NOTE:
GROINS/VANES NOT SHOWN FOR CLARITY.

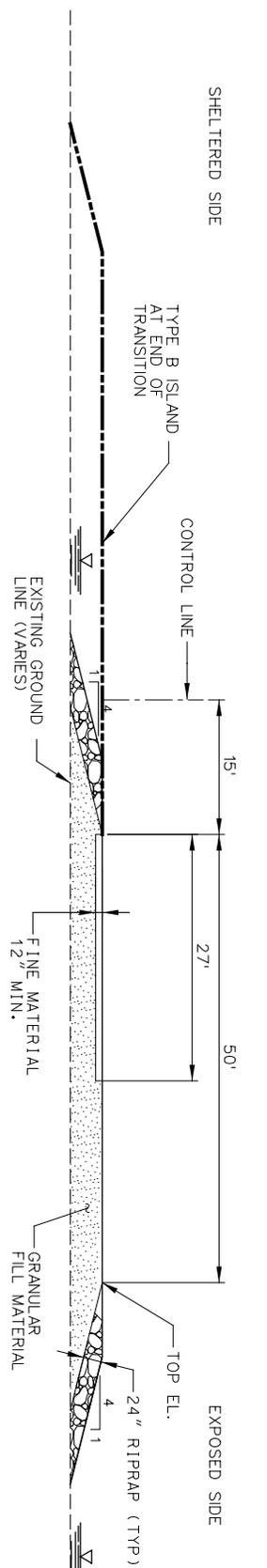


SECTION
TYPE A-1 ISLAND



SECTION
TYPE B ISLAND

NOTE:
GROINS/VANES NOT SHOWN FOR CLARITY.



SECTION
TYPE B-1 ISLAND

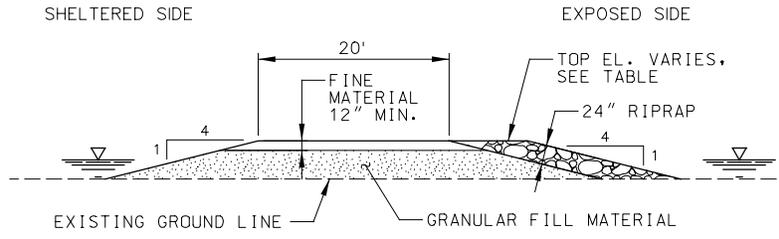
(SECTION AT END OF ISLAND)

NOTE:
GROINS/VANES NOT SHOWN FOR CLARITY.

HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS
ISLAND TYPES A & B

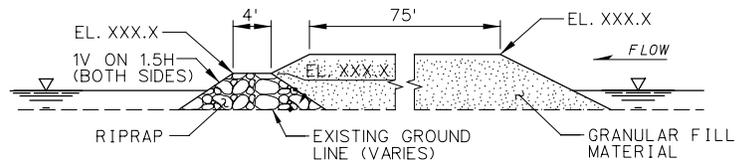
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DESIGNED BY: JSH/KAL	
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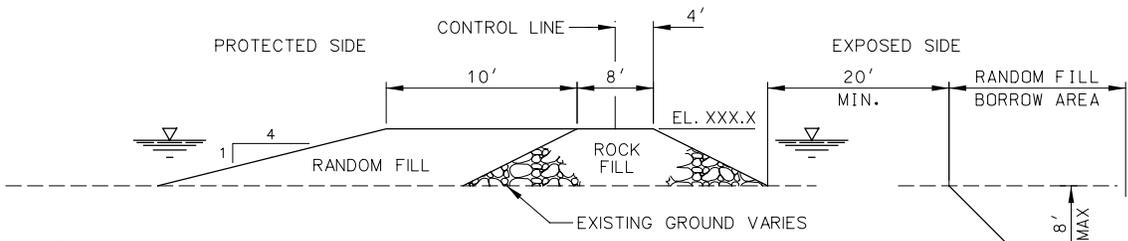
SECTION

TYPE C ISLAND



SECTION

TYPE D - SEED ISLAND

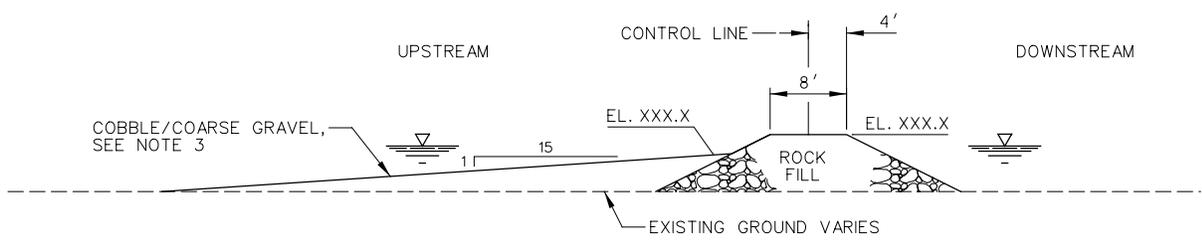


SECTION

TYPE E



NOTE:
ALL ROCK FILL SLOPES
SHALL BE 1V:2H.



SECTION

TYPE F
FISH SPAWNING HABITAT



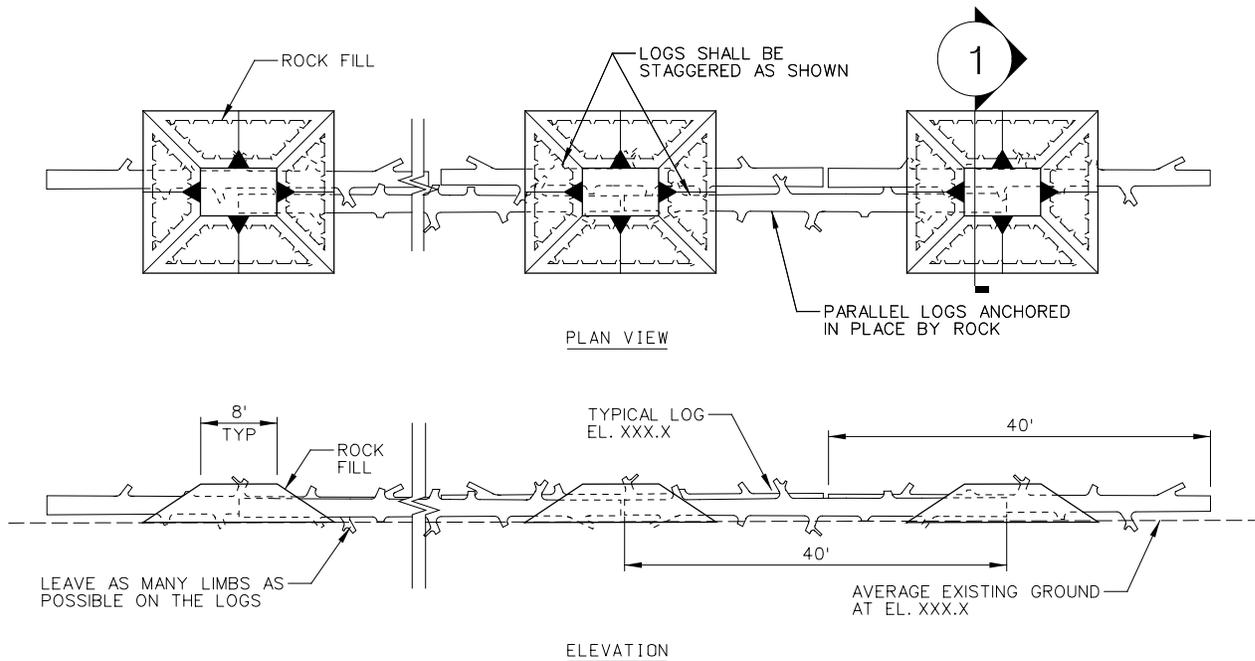
NOTE:
ALL ROCK FILL SLOPES
SHALL BE 1V:2H.



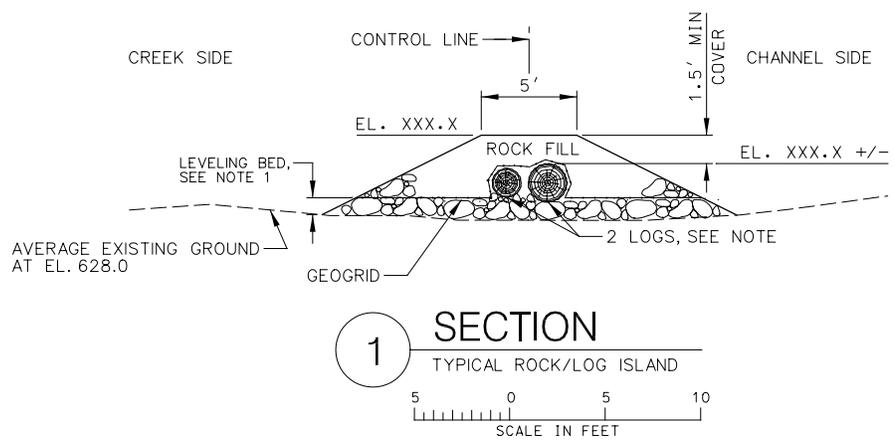
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HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS
ISLAND TYPES C, D, E & F

PLATE 1
SHEET XX OF XX



TYPICAL DETAIL
 ROCK/LOG ISLAND
 10 0 10 20
 SCALE IN FEET



SECTION
 1
 TYPICAL ROCK/LOG ISLAND
 5 0 5 10
 SCALE IN FEET

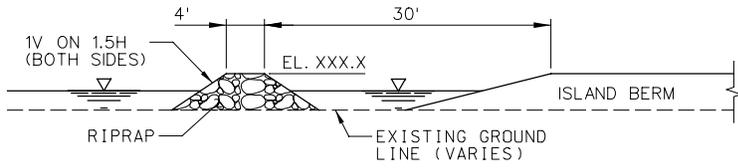
NOTE :
 LOGS SHALL BE 40' LONG AND 2' MIN. DIAMETER AT BASE. TRIM LIMBS AS NECESSARY TO ALLOW LOG PLACEMENT TO THE CORRECT ELEVATION. A ROCK FILL LEVELING BED SHALL BE USED TO BRING LOGS TO THE DESIGN ELEVATION. ROCK THICKNESSES WILL VARY.



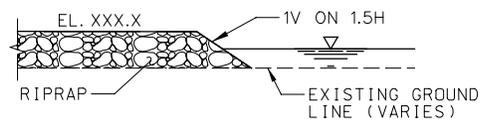
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HABITAT REHABILITATION & ENHANCEMENT PROGRAM
 ISLAND DESIGN MANUAL
 STANDARD DETAILS
ROCK/LOG ISLAND

PLATE 1
 SHEET XX OF XX

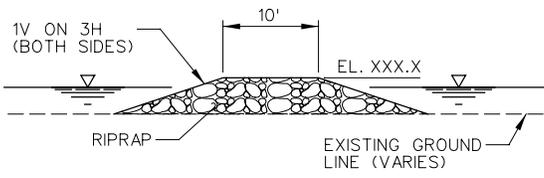


SECTION

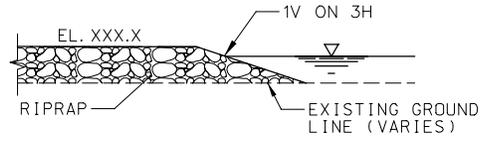
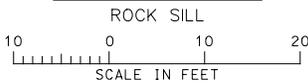


LONGITUDINAL SECTION

THRU ROCK MOUND AT END (TYP)



SECTION



LONGITUDINAL SECTION

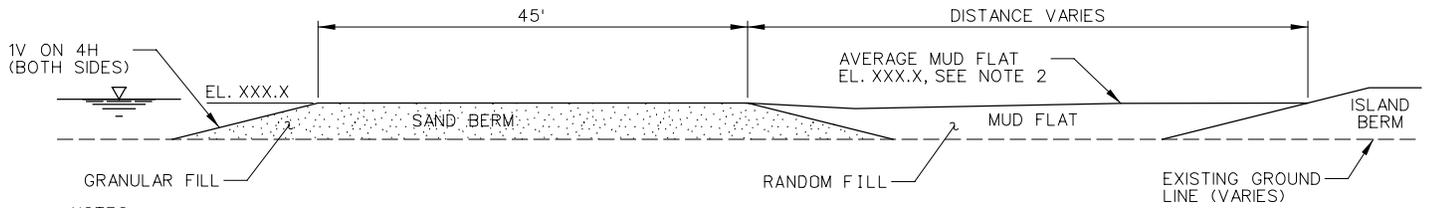
THRU ROCK SILL AT END (TYP)



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	CHECKED BY: JSH	
ED-H	DESIGNED BY: JSH/KAL	CADD FILE NAME:
	CHECKED BY: JSH	EMP_StandardDetails

HABITAT REHABILITATION & ENHANCEMENT PROGRAM
 ISLAND DESIGN MANUAL
 STANDARD DETAILS
ROCK MOUND AND SILL

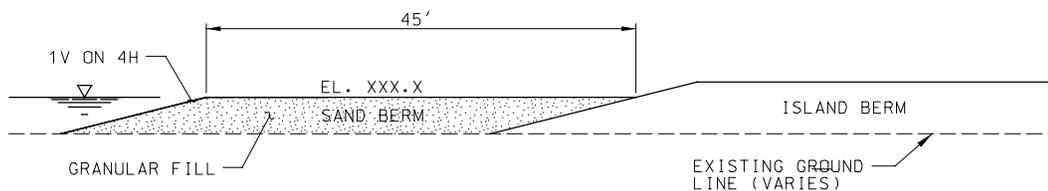
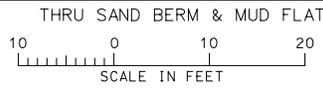
PLATE 1
 SHEET XX OF XX



NOTES:

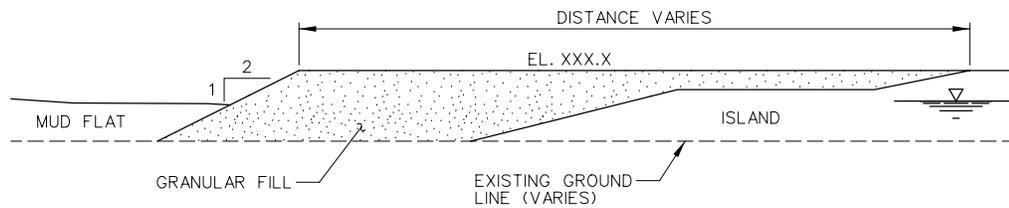
1. THIS SECTION DENOTES FINISHED DIMENSIONS AND ELEVATIONS. DIMENSIONS AND ELEVATIONS NECESSARY DURING CONSTRUCTION TO MEET SEDIMENT RETENTION NEEDS SHALL BE DETERMINED BY THE CONTRACTOR.
2. MUDFLAT MAY VARY BETWEEN EL. XXX.X AND EL. XXX.X. MUDFLATS SHALL SLOPE TOWARD SAND BERMS AND AWAY FROM ISLAND AND TURTLE NESTING STRUCTURES.

TYPICAL SECTION



SECTION

TYPICAL SAND FLAT



TYPICAL SECTION



US Army Corps of Engineers
St. Paul District

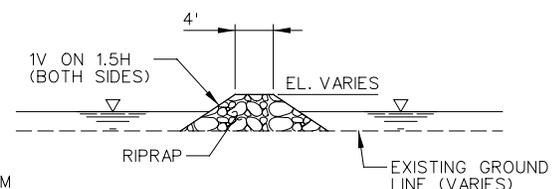
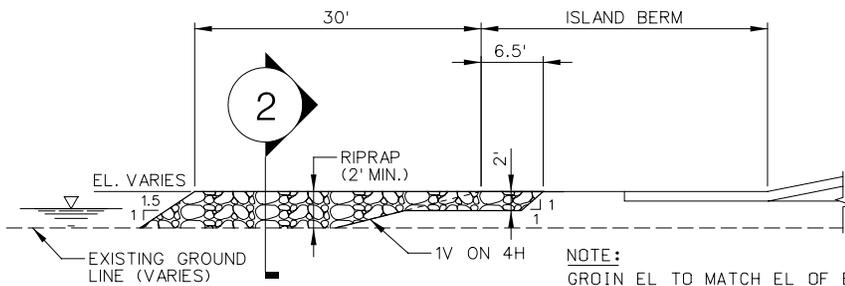
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HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL

STANDARD DETAILS
**MUD/SAND FLATS AND
TURTLE NESTING MOUND**

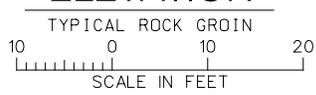
PLATE 1

SHEET XX OF XX

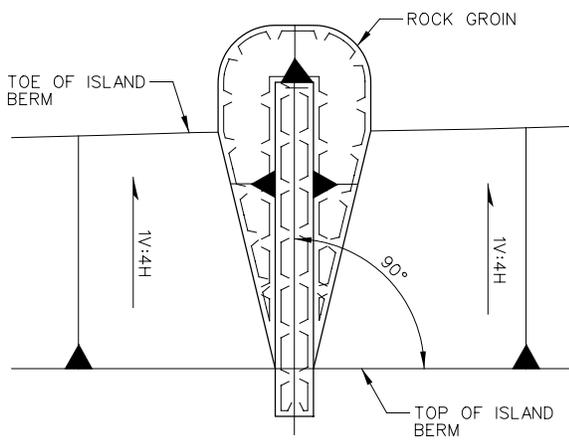
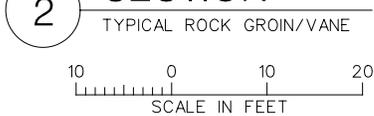


NOTE:
GROIN EL TO MATCH EL OF BERM
TO WHICH IT'S ATTACHED.

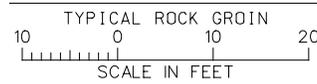
ELEVATION



SECTION



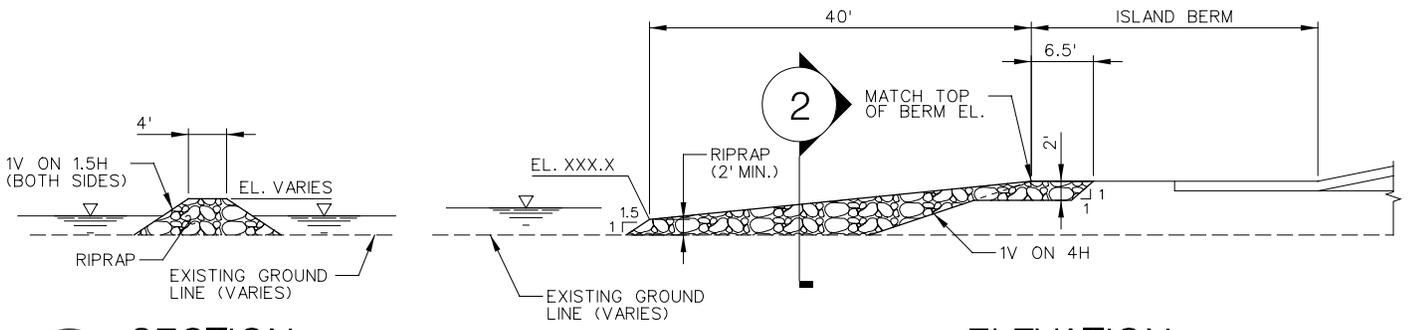
PLAN



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	CHECKED BY: JSH	

HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS
ROCK GROIN

PLATE 1
SHEET XX OF XX

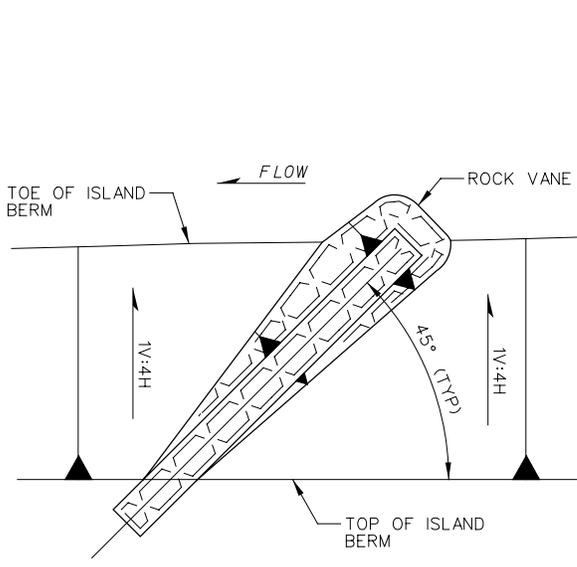


SECTION
TYPICAL ROCK GROIN/VANE

10 0 10 20
SCALE IN FEET

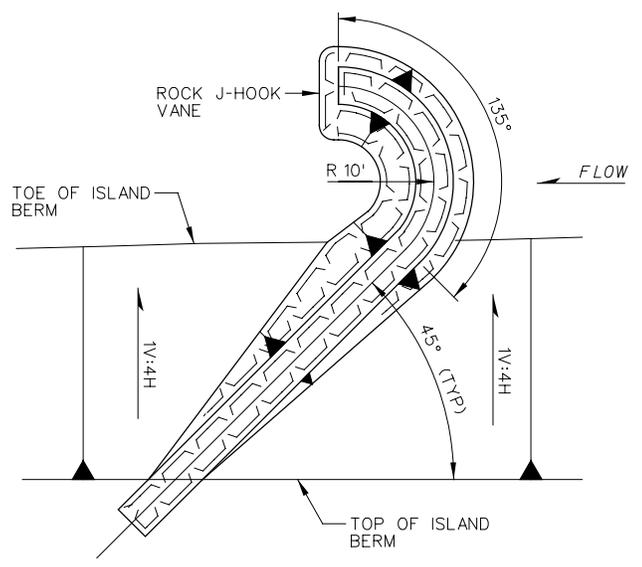
ELEVATION
TYPICAL ROCK VANE

10 0 10 20
SCALE IN FEET



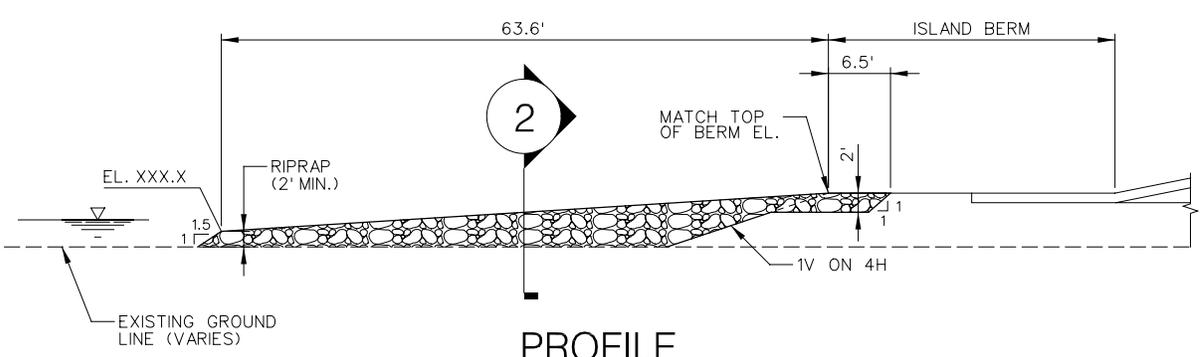
PLAN
TYPICAL ROCK VANE

10 0 10 20
SCALE IN FEET



PLAN
TYPICAL ROCK J-HOOK VANE

10 0 10 20
SCALE IN FEET



PROFILE
TYPICAL J-HOOK ROCK VANE

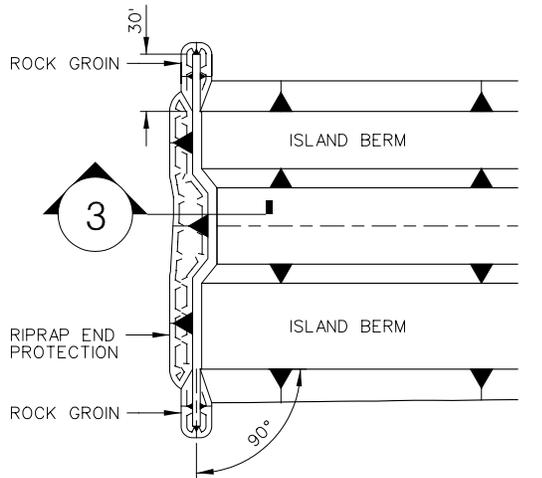
10 0 10 20
SCALE IN FEET



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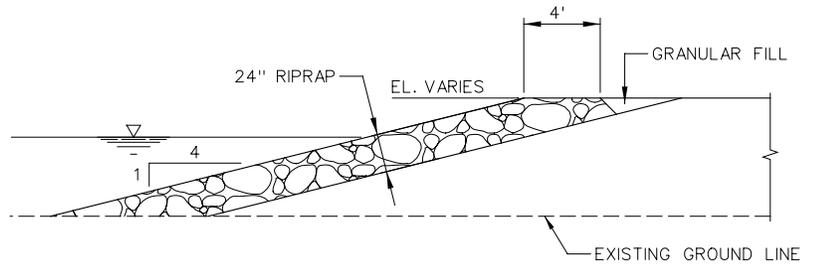
HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS
ROCK VANES
J-HOOK AND STANDARD

PLATE 1
SHEET XX OF XX



PLAN

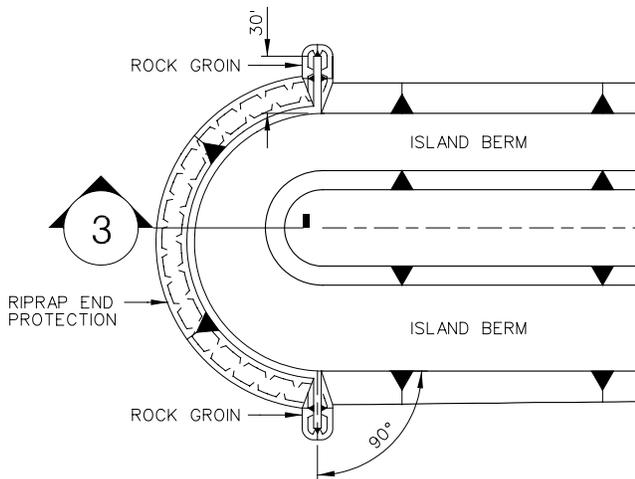
RIPRAP END PROTECTION - FLAT



3

SECTION

ISLAND RIPRAP END PROTECTION/
BANK STABILIZATION



PLAN

RIPRAP END PROTECTION - ROUND



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St. Paul District

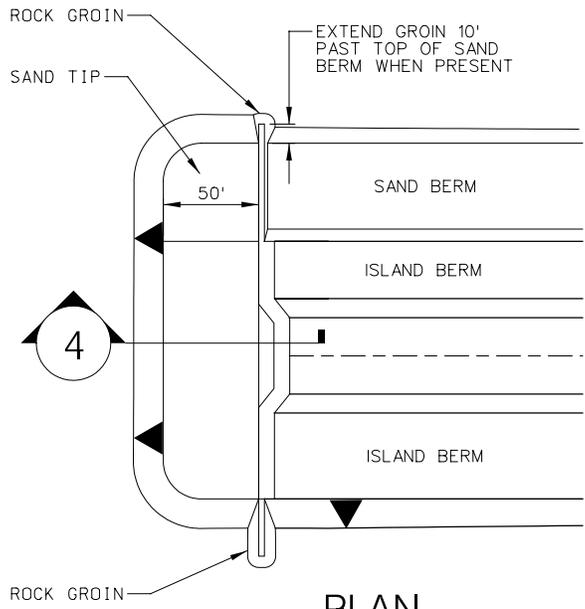
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HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS

ISLAND END PROTECTION PLAN AND SECTION

PLATE 1

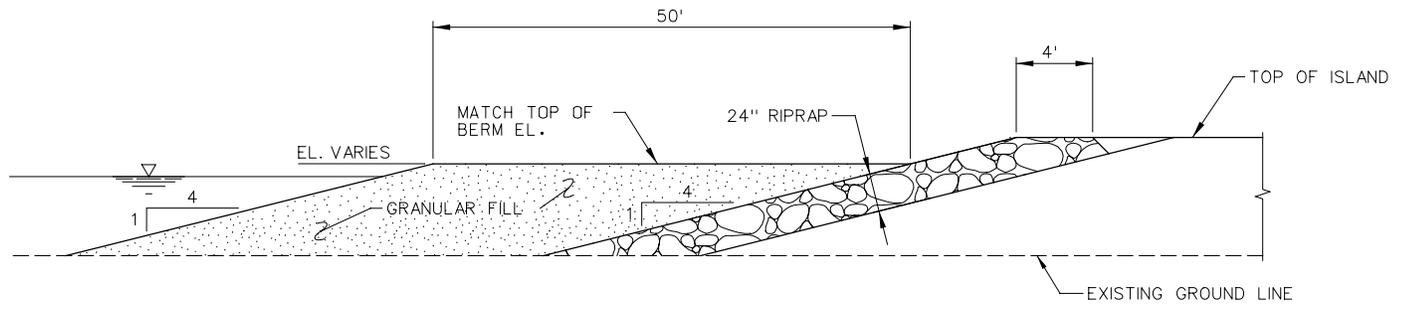
SHEET XX OF XX



PLAN

RIPRAP END PROTECTION WITH SAND TIP

SCALE IN FEET



SECTION

ISLAND RIPRAP END PROTECTION/BANK STABILIZATION AND SAND TIP

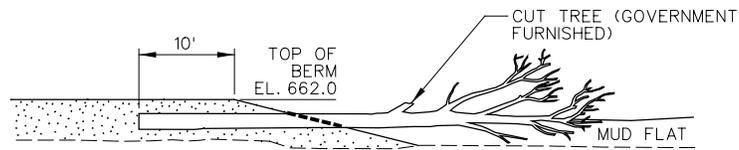
SCALE IN FEET



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	LKT/JJF	SEPTEMBER 2004
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	DESIGNED BY:	
JSH/KAL		
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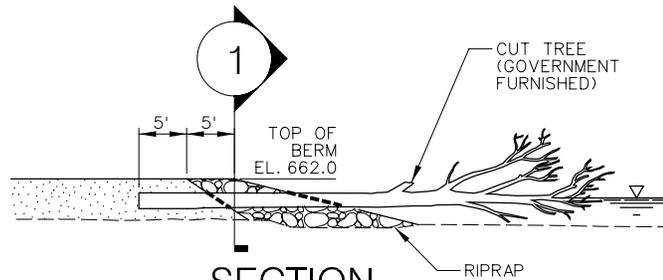
HABITAT REHABILITATION & ENHANCEMENT PROGRAM
 ISLAND DESIGN MANUAL
 STANDARD DETAILS
ISLAND SAND TIP

PLATE 1
 SHEET XX OF XX



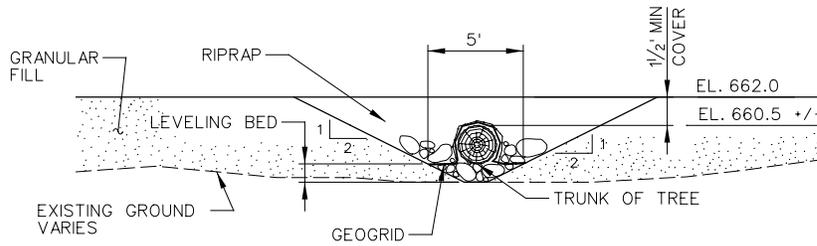
SECTION

TYPE 1
WILDLIFE LOAFING STRUCTURE
10 0 10 20
SCALE IN FEET



SECTION

TYPE 2
WILDLIFE LOAFING STRUCTURE
10 0 10 20
SCALE IN FEET



1

SECTION

WILDLIFE LOAFING STRUCTURE ANCHORAGE

5 0 5 10
SCALE IN FEET



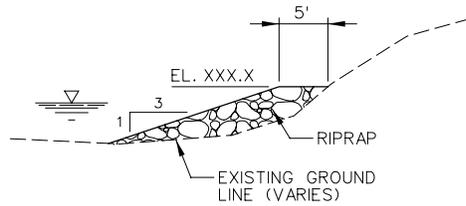
**US Army Corps
of Engineers**
St. Paul District

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HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS
WILDLIFE LOAFING STRUCTURES

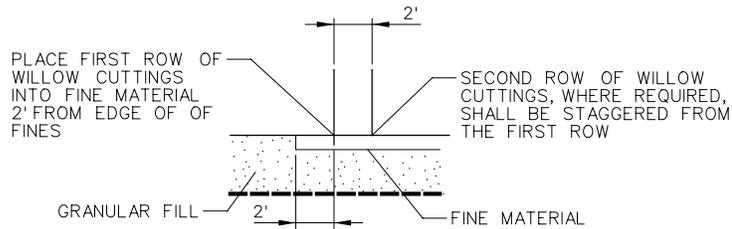
PLATE 1

SHEET XX OF XX



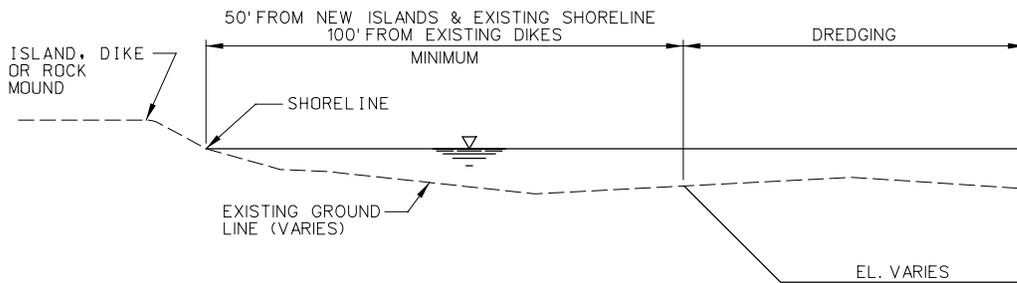
TYPICAL SECTION

RIPRAP BANK PROTECTION



SECTION

WILLOW PLANTING



SECTION

DREDGING



US Army Corps of Engineers
St. Paul District

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HABITAT REHABILITATION & ENHANCEMENT PROGRAM
ISLAND DESIGN MANUAL
STANDARD DETAILS

MISCELLANEOUS DETAILS

PLATE 1

SHEET XX OF XX