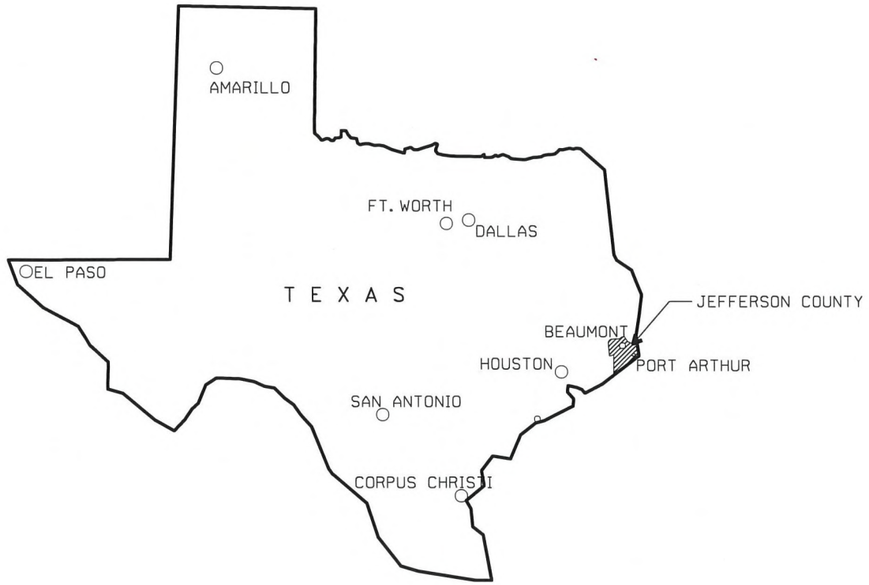
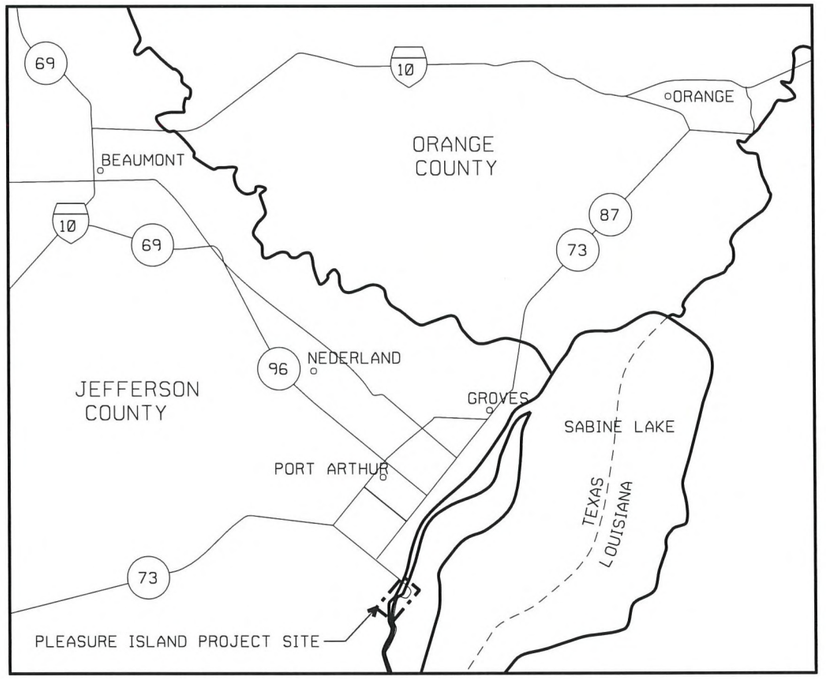
JEFFERSON COUNTY, TEXAS

PLEASURE ISLAND REVISED BREAKWATER SHIP CHANNEL EROSION PROJECT CAJUN CABINS TO MLK BRIDGE PORT ARTHUR, TEXAS

CIAP GRANT No. M11AF00066



01 VICINITY MAP
SCALE: NTS



02 LOCATION MAP
SCALE: NTS

JEFFERSON COUNTY ENGINEERING DEPT.

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FRN - F-1386

STATE OF TEXAS · WILLIAM L. WORSHAM · 83153 · LICENSED PROFESSIONAL ENGINEER

WILLIAM L. WORSHAM, P.E. *83153
2/6/2013

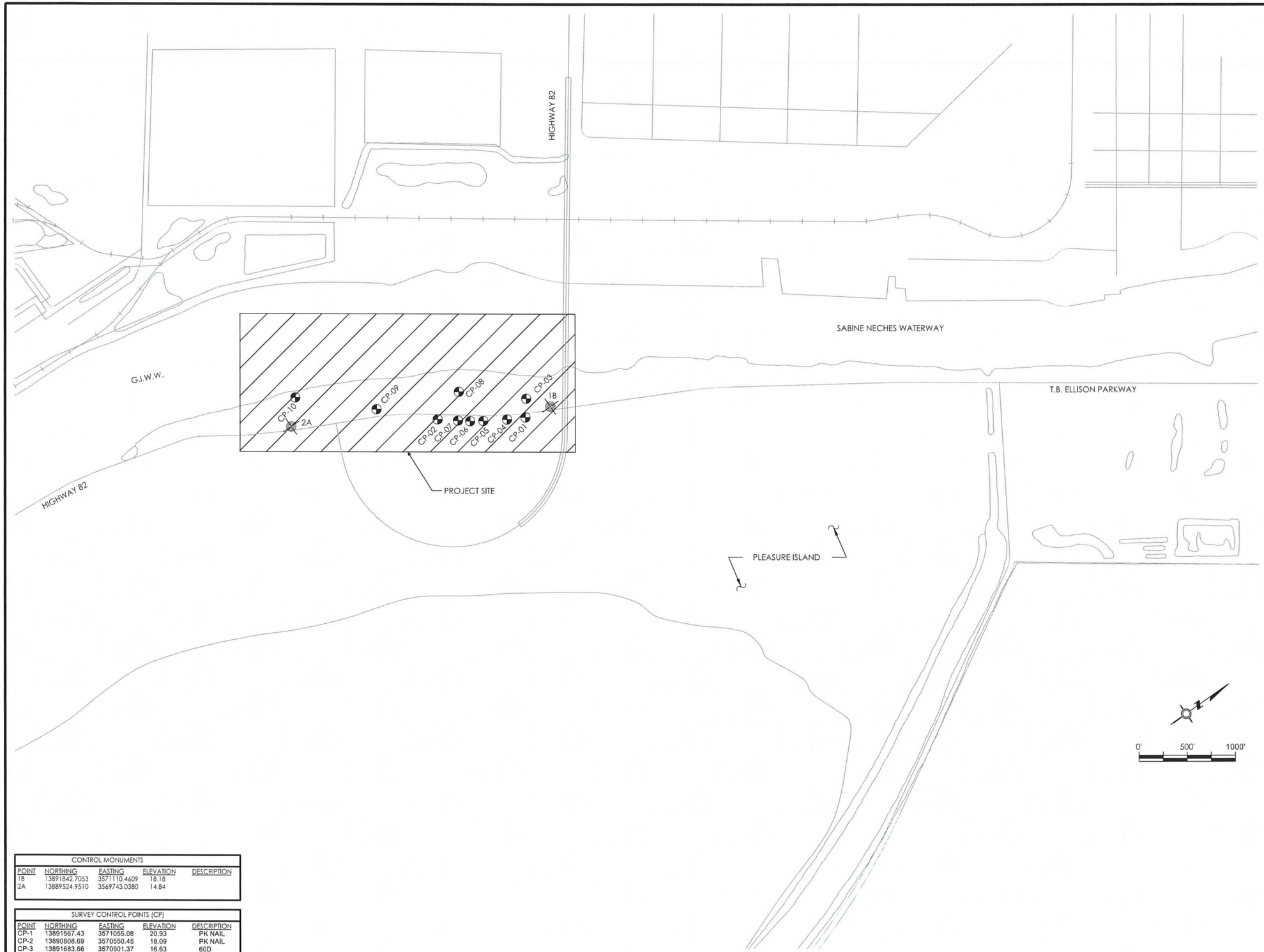
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	2/06/13	JLK	FOR CONSTRUCTION	CKW	WLW

PLEASURE ISLAND REVISED BREAKWATER
SHIP CHANNEL EROSION PROJECT
CAJUN CABINS TO MLK BRIDGE

DRAWING INDEX & VICINITY MAPS

DRAWN BY	DATE	SCALE	CHK'D
JLK	01-10-13	NTS	APP'D

DRAWING NO. 079A-1009-C-1000 ISSUE NO. 0



CONTROL MONUMENTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1B	13891842.7053	3571110.4609	18.18	
2A	13889524.9510	3569743.0380	14.84	

SURVEY CONTROL POINTS (CP)

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-1	13891567.43	3571055.08	20.93	PK NAIL
CP-2	13890808.69	3570550.45	18.09	PK NAIL
CP-3	13891683.66	3570901.37	16.63	60D
CP-4	13891398.47	3570962.82	20.04	PK NAIL
CP-5	13891187.46	3570834.22	20.06	PK NAIL
CP-6	13891074.34	3570758.65	19.86	PK NAIL
CP-7	13890974.56	3570681.06	19.83	PK NAIL
CP-8	13891152.45	3570443.08	18.78	60D
CP-9	13890351.56	3570102.28	15.08	60D
CP-10	13889731.56	3569521.61	16.02	60D

NOTES:

CONTROL POINTS ESTABLISHED IN 2009. FIELD VERIFY CURRENT STATUS.

LEGEND

CONTROL MONUMENTS

CONTROL POINTS

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CAJUN CABINS TO MLK BRIDGE

AREA MAP

DRAWN BY	DATE	SCALE	CHKD
JLK	01-10-13	1" = 1000'	APP'D

DRAWING NO. 079A-1009-C-1001

ISSUE NO. 0

GENERAL NOTES:

1. SURVEY DATA
   HORIZONTAL DATUM: TEXAS STATE PLANE SOUTH CENTRAL NAD1983
   VERTICAL DATUM: NAVD88

2. SURVEY CONTROL POINTS ESTABLISHED BY LEAP ENGINEERING, BEAUMONT, TX ON JANUARY 22 - 30, 2008 FOR CAJUN CABINS

3. BATHYMETRIC SURVEY POINTS ESTABLISHED BY LEAP ENGINEERING, BEAUMONT, TX ON OCTOBER 10, 2007.

4. CONTOUR INTERVAL ONE FOOT.

5. LAYDOWN AREA SHALL BE FIELD VERIFIED BY CONTRACTOR AND APPROVED BY ENGINEER.

SCOPE

THE NOTES ON THIS SHEET CONTAIN GENERAL INFORMATION AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

PRECEDENCE

TECHNICAL SPECIFICATIONS SHALL TAKE PRECEDENCE OVER CONFLICTING DRAWINGS. EXPLANATORY NOTES ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER CONFLICTING DRAWN-OUT INDICATIONS. LARGE-SCALE DETAILS WILL TAKE PRECEDENCE OVER SMALL-SCALE DRAWINGS AND FIGURED DIMENSIONS TO SCALE MEASUREMENTS. WHERE FIGURES ARE LACKING, SCALE MEASUREMENTS MAY BE FOLLOWED, BUT IN ALL CASES THE MEASUREMENTS ARE TO BE CHECKED FROM THE WORK IN PLACE. SHOULD VARIATIONS BE FOUND, THEY MUST BE REFERRED TO THE ENGINEER FOR INSTRUCTIONS PRIOR TO PROCEEDING.

ABREVIATIONS

℄	BASELINE
℄	CENTERLINE
EL	ELEVATION
EOP	EDGE OF PAVEMENT
SB	SOIL BORING LOCATIONS
CP	PREVIOUS CONTROL POINT LOCATIONS

EARTHWORKS

THE CONTRACTOR SHALL LOCATE, IDENTIFY, AND PROTECT EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PRE MARK ALL AREAS WHERE EXCAVATION AND GRADING OPERATIONS ARE TO OCCUR AND SHALL CALL "DIALDIG" (1-800-245-4545) AND THE OWNER 48 HOURS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

EXISTING CHANNEL MARKERS/NAVIGATIONAL AIDS

THE CONTRACTOR SHALL REPLACE ANY EXISTING CHANNEL MARKERS OR NAVIGATIONAL AIDS THAT ARE DAMAGED OR REMOVED AS A RESULT OF CONTRACTORS CONSTRUCTION OPERATIONS.

PROJECT SITE CONDITIONS

THE CONTRACTOR IS RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE HYDRODYNAMIC CONDITIONS PRESENT AT THE PROJECT SITE PRIOR TO BIDDING. SABINE-NECHES SHIP CHANNEL VESSEL TRAFFIC CREATES LARGE WATER LEVEL DRAWDOWNS AND SURGES ALONG THE SHORELINE.

APPLICABLE SPECIFICATIONS AND CODES

CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2006 IBC (PORT ARTHUR) AND CECW-EH-D ENGINEER MANUAL 1110-2-1617.

DIMENSIONS

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS AND NOTIFY THE ENGINEER OF ANY AND ALL DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORK.

TEMPORARY SHORING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ANY REQUIRED TEMPORARY SHORING SYSTEMS DURING THE CONSTRUCTION OF THE BREAKWATER.

STRUCTURAL NOTES:

1) STONE SHALL BE MECHANICALLY PLACED IN SUCH MANNER WHICH WILL PRODUCE A WELL KEYED MASS OF STONE, AND SHALL BE CONSTRUCTED TO THE LINES, GRADES, AND THICKNESS SHOWN. STONE SHALL BE PLACED TO ITS FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH MANNER AS TO AVOID DISPLACING THE UNDERLYING MATERIAL. PLACING STONE THROUGH CHUTES, DROPPING MORE THAN TWO FEET (ABOVE OR BELOW WATER SURFACE), AND OTHER METHODS WHICH MAY SEGREGATE THE VARIOUS SIZES OR DAMAGE THE ARMOR STONE OR UNDERLYING MATERIAL WILL NOT BE PERMITTED. THE LARGE STONES SHALL BE WELL DISTRIBUTED IN THE MASS OF STONES. STONES SHALL BE FIRMLY SET AND WELL SUPPORTED BY UNDERLYING OR ADJACENT STONES TO RESIST DISPLACEMENT BY WAVE ACTION AND PROVIDE A UNIFORM AND COMPACT SECTION.

2) PLACEMENT OF STONE SHALL START AT THE TOE OF THE STRUCTURE AND PROGRESS UP THE SLOPE, DIAGONALLY ACROSS THE FACE OF THE STRUCTURE. PLACING OF STONE BY METHODS THAT WILL LIKELY CAUSE SEGREGATION OF VARIOUS SIZES WILL NOT BE PERMITTED.

3) PLACING OF STONE SHALL BE SUSPENDED WHEN ADVERSE WAVE, WEATHER, AND TIDAL CONDITIONS WILL NOT ALLOW PROPER PLACEMENT.

4) REARRANGING OF INDIVIDUAL STONES BY MECHANICAL EQUIPMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO OBTAIN A REASONABLY WELL-GRADED DISTRIBUTION OF STONE SIZES AS SPECIFIED ABOVE.

5) THE CONTRACTOR SHALL MAINTAIN THE STONE UNTIL ACCEPTED AND ANY MATERIAL DISPLACED PRIOR TO ACCEPTANCE AND DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPLACED AT HIS OWN EXPENSE AND TO THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.

6) SMALLER STONE SHALL BE UTILIZED TO "CHINK" THE VOIDS OF THE STRUCTURE.

FLOAT CHANNEL DREDGING

1) THE CONTRACTOR IS RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE PROJECT SITE CONDITIONS TO DETERMINE THE NEED FOR FLOAT CHANNEL DREDGING BASED ON THEIR PROJECT APPROACH AND EQUIPMENT, SEE TECHNICAL SPECIFICATION 30 23 25—DREDGING.

2) IN CONSTRUCTING THE FLOAT CHANNEL, NO WORK SHALL EXCEED 8 FEET IN DEPTH BELOW 0.0 FEET NAVD88 NOR BE CLOSER TO THE BREAKWATER THAN 50 FEET.
THE CONTRACTOR SHALL MAINTAIN A 50-FOOT MINIMUM CLEARANCE BETWEEN ALL PIPELINES AND ANY FLOTATION CHANNEL EXCAVATION OR EXCAVATED MATERIAL. THE CONTRACTOR MAY ENCOUNTER OBSTRUCTIONS DURING EXCAVATION, SUCH AS SUBMERGED STONE, STUMPS, TIMBER PILES AND DEBRIS. ALL DEBRIS RESULTING FROM THE DREDGING OF THE FLOTATION CHANNEL SHALL BE SEPARATED FROM THE EARTHEN MATERIALS AND REMOVED FROM THE SITE OF WORK AND DISPOSED OF IN ACCORDANCE WITH SECTION 31 11 00. THE DREDGED MATERIALS SHALL BE DISPOSED OF AT THE LOCATIONS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

DEBRIS REMOVAL

1) CONCRETE DEBRIS REMOVED FROM THE BREAKWATER FOOTPRINT MAY REMAIN ON SITE IF SUITABLE FOR USE AS EROSION PROTECTION UPON ENGINEER'S APPROVAL.

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CAJUN CABINS TO MLK BRIDGE

BREAKWATER CONSTRUCTION NOTES

DRAWN BY	DATE	SCALE	CHK'D / APP'D
JLK	01-10-13	N/A	

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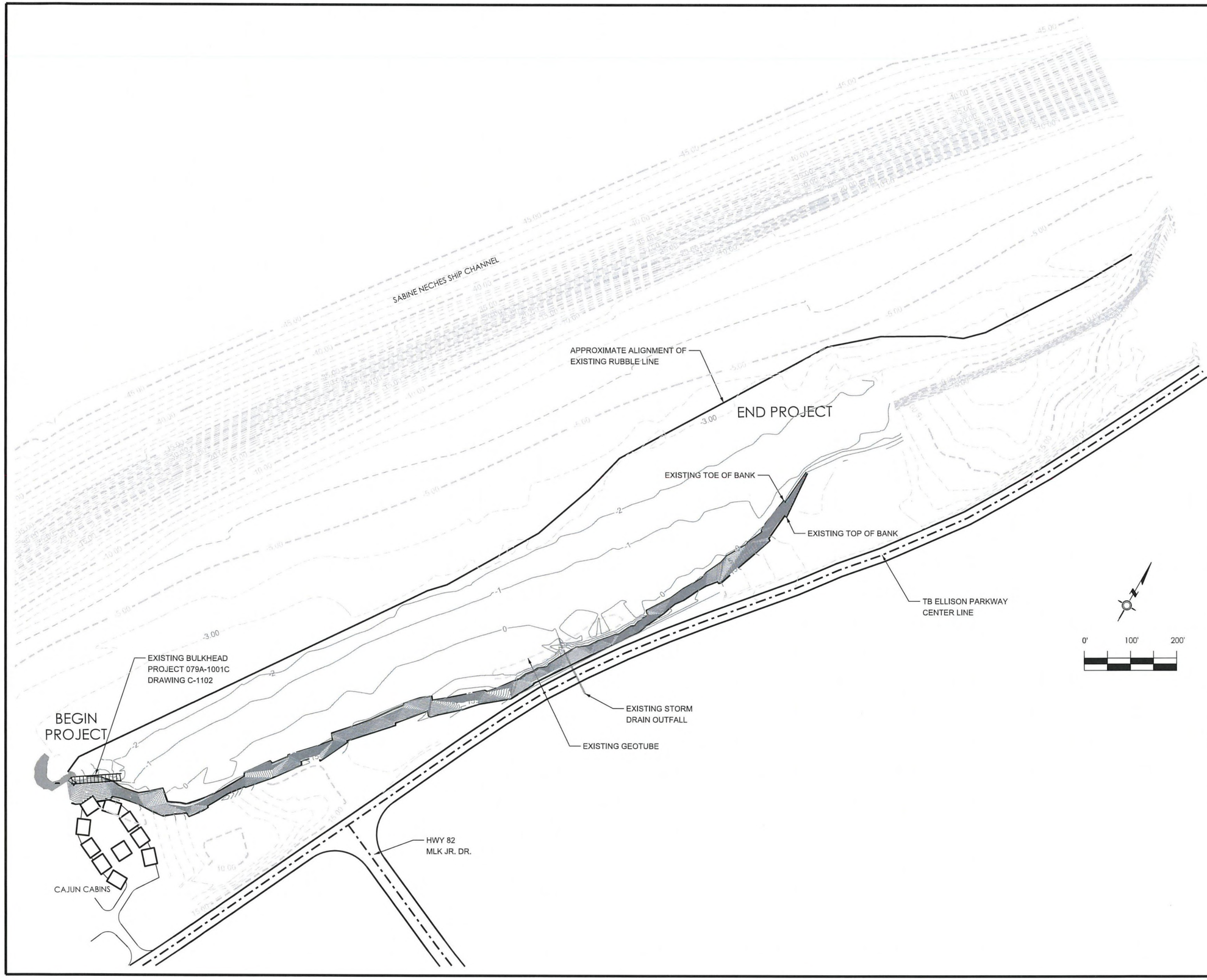
ISSUE NO. 0



SURVEY DATES:
2009, LJA ENGINEERING
7/27/2012, LJA ENGINEERING

NOTE:
SEE SHEET 1001 FOR HORIZONTAL AND VERTICAL CONTROL POINTS.

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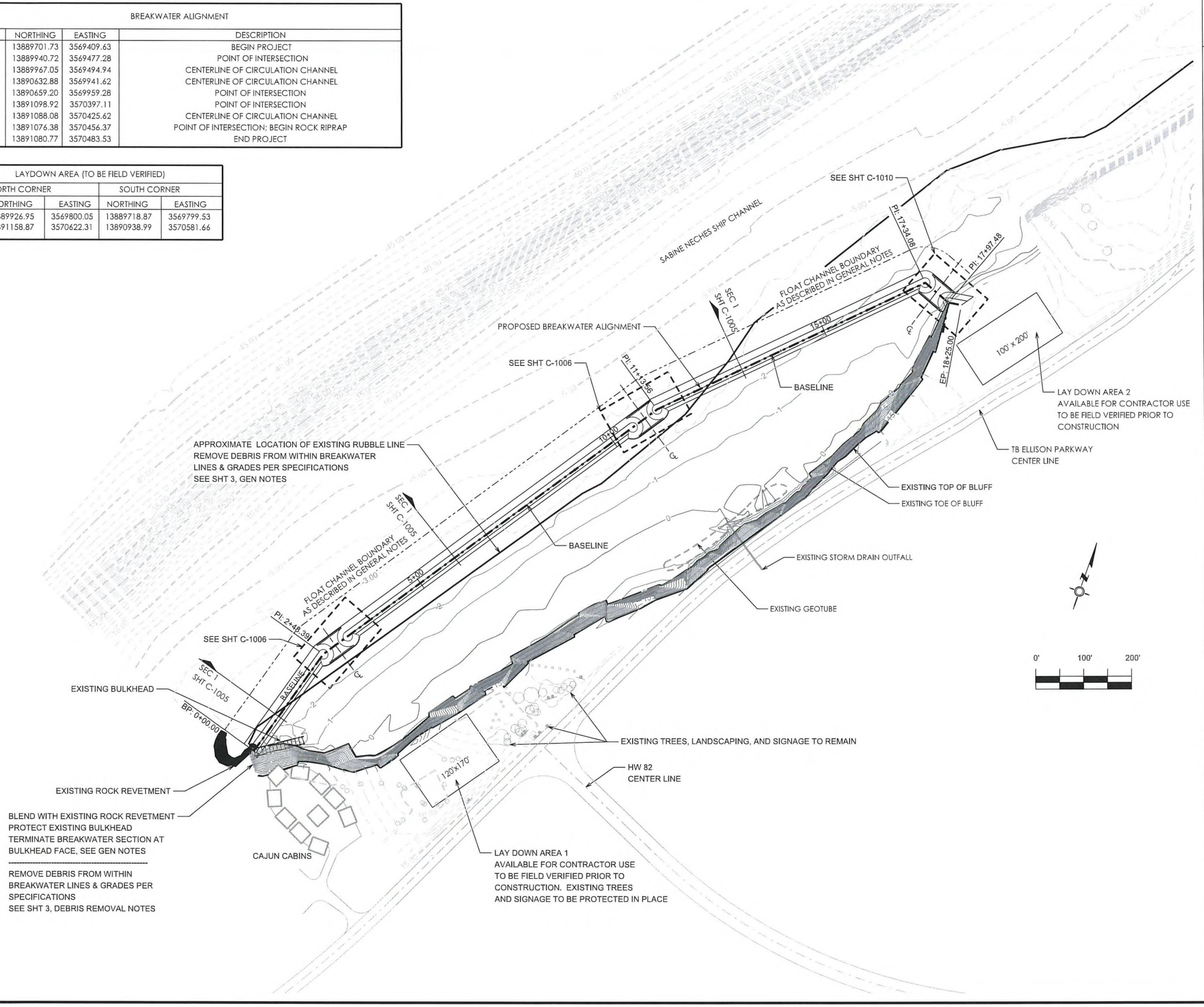
EXISTING SITE PLAN

DRAWN BY	DATE	SCALE	CHK'D / APP'D
JLK	01-10-13	1" = 200'	

DRAWING NO. 079A-1009-C-1003
ISSUE NO. 0

BREAKWATER ALIGNMENT			
STATION	NORTHING	EASTING	DESCRIPTION
0+00	13889701.73	3569409.63	BEGIN PROJECT
2+48.39	13889940.72	3569477.28	POINT OF INTERSECTION
2+80.09	13889967.05	3569494.94	CENTERLINE OF CIRCULATION CHANNEL
10+81.86	13890632.88	3569941.62	CENTERLINE OF CIRCULATION CHANNEL
11+13.56	13890659.20	3569959.28	POINT OF INTERSECTION
17+34.08	13891098.92	3570397.11	POINT OF INTERSECTION
17+65.78	13891088.08	3570425.62	CENTERLINE OF CIRCULATION CHANNEL
17+97.48	13891076.38	3570456.37	POINT OF INTERSECTION; BEGIN ROCK RIPRAP
18+25.00	13891080.77	3570483.53	END PROJECT

LAYDOWN AREA (TO BE FIELD VERIFIED)				
	NORTH CORNER		SOUTH CORNER	
AREA	NORTHING	EASTING	NORTHING	EASTING
1	13889926.95	3569800.05	13889718.87	3569799.53
2	13891158.87	3570622.31	13890938.99	3570581.66



SURVEY DATES:
2009, LJA ENGINEERING
7/27/2012, LJA ENGINEERING

NOTE:
SEE SHEET 1001 FOR HORIZONTAL AND VERTICAL CONTROL POINTS.

LEGEND
BASELINE
FLOAT CHANNEL BOUNDARY

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PLEASURE ISLAND REVISED BREAKWATER
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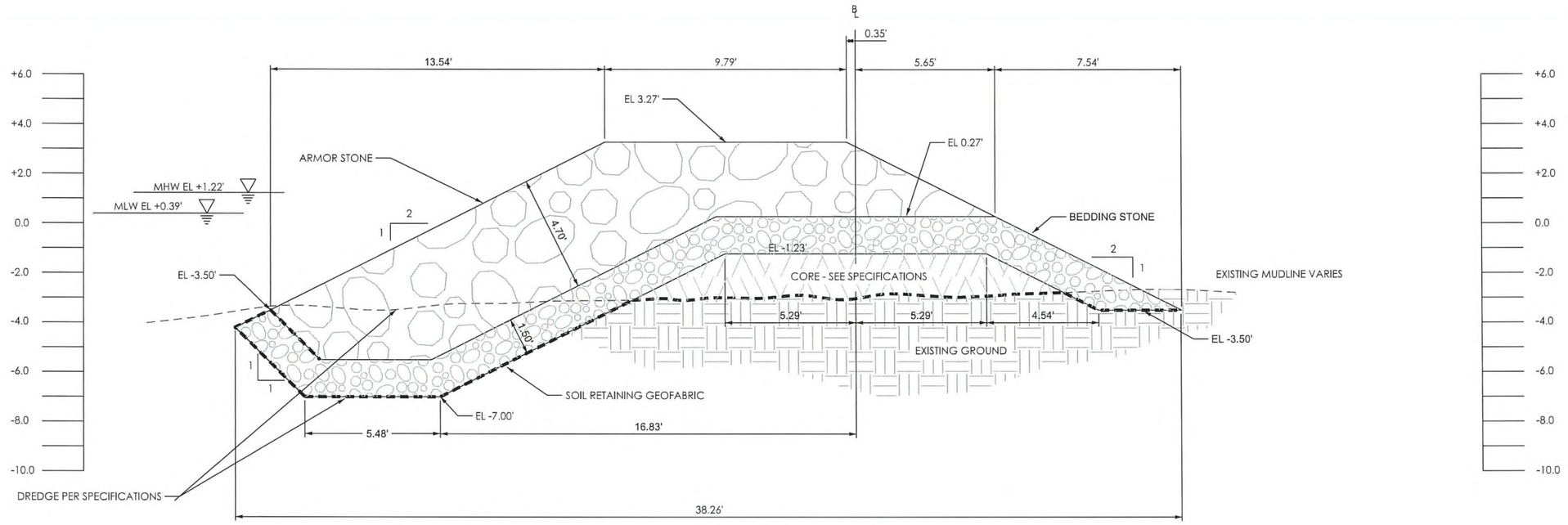
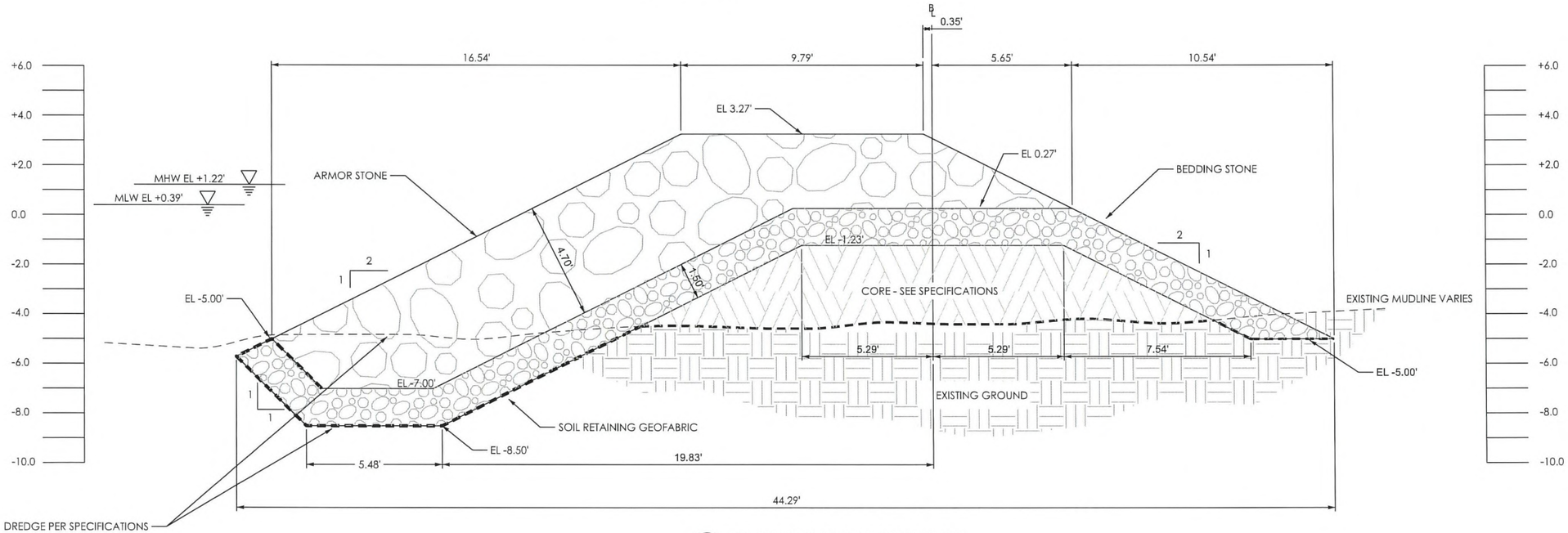
PROPOSED SITE PLAN

DRAWN BY	DATE	SCALE	CHK'D / APP'D
JLK	01-10-13	1" = 200'	

DRAWING NO. 079A-1009-C-1004
ISSUE NO. 0



1 TYPE 1 CROSS SECTION
SCALE: 1" = 5'



2 TYPE 2 CROSS SECTION STA 8+60.00 TO 13+00.00
SCALE: 1" = 5'

NOTE:

SECTION 2 IS PROVIDED FOR INFORMATIONAL PURPOSES AND IS NOT TO BE USED UNLESS DIRECTED BY ENGINEER.

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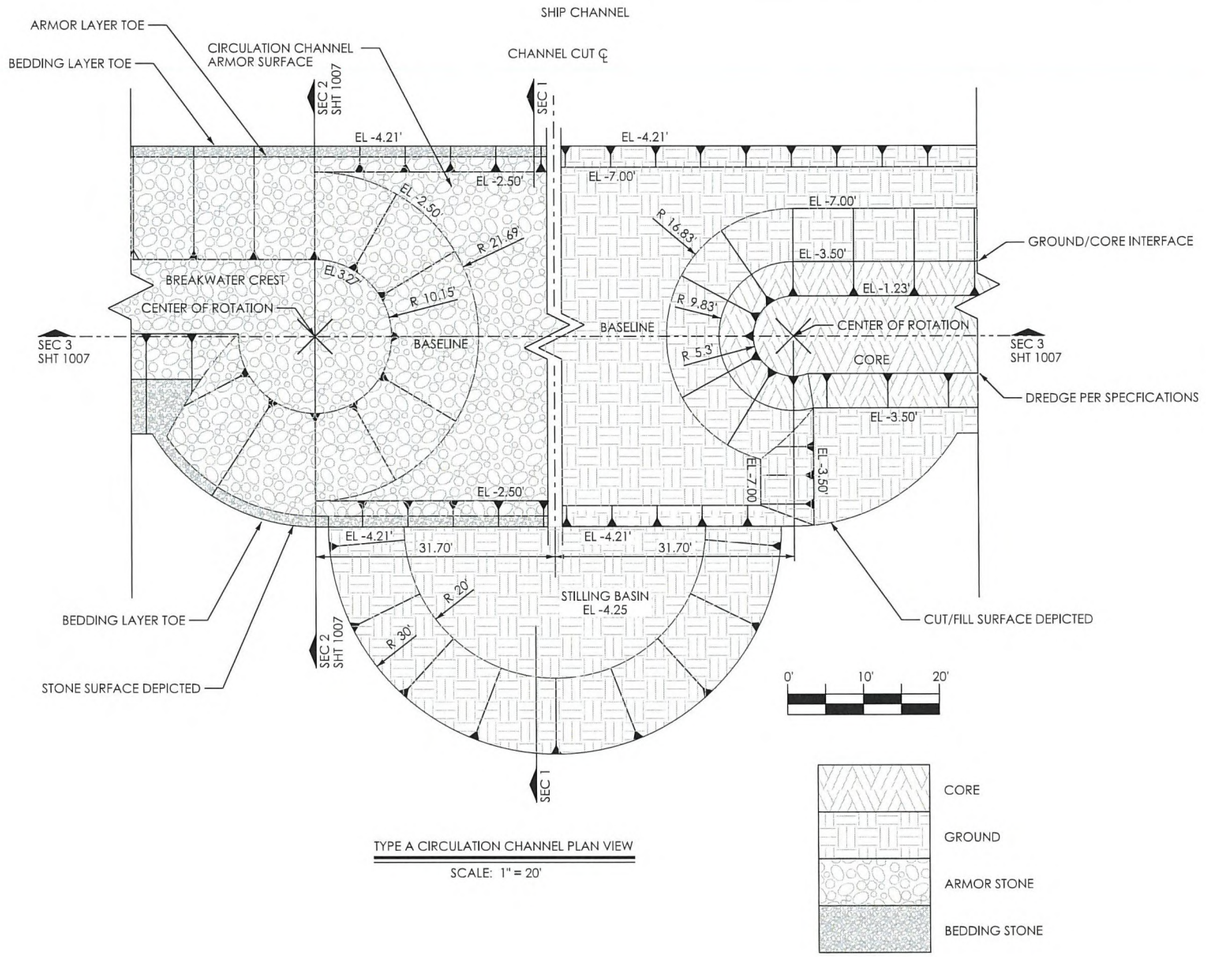
CAJUN CABINS TO MLK BRIDGE

BREAKWATER TYPICAL SECTIONS

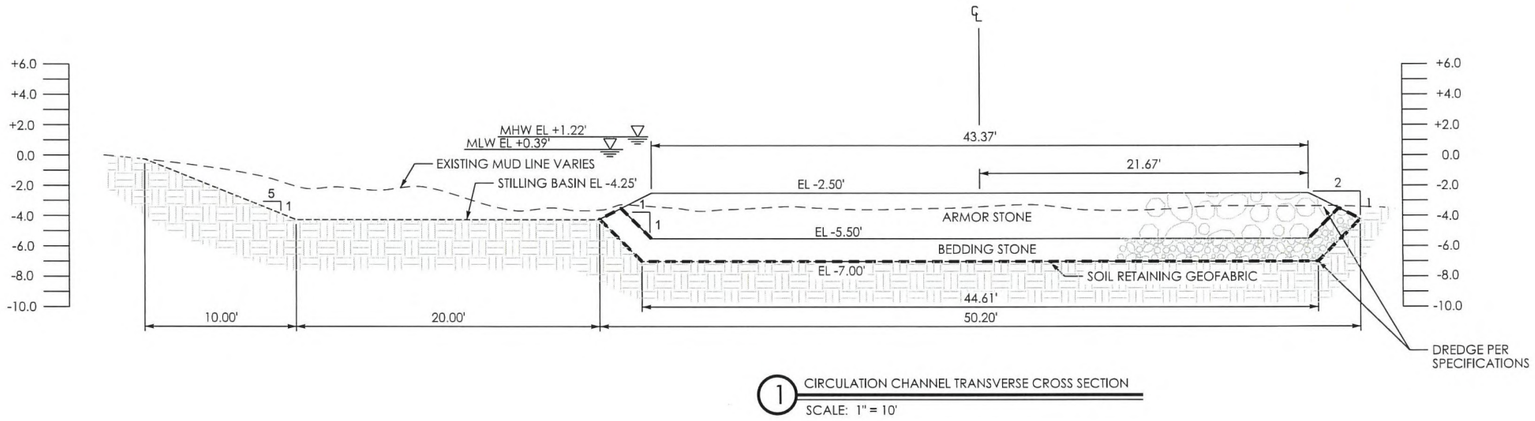
DRAWN BY	DATE	SCALE	CHK'D APP'D
JLK	01-10-13	1" = 5'	

DRAWING NO. 079A-1009-C-1005 ISSUE NO. 0



TYPE A CIRCULATION CHANNEL PLAN VIEW

SCALE: 1" = 20'



1 CIRCULATION CHANNEL TRANSVERSE CROSS SECTION

SCALE: 1" = 10'

NOTE:

TYPE A CIRCULATION CHANNEL SHOWS SPLIT VIEW OF CUT/FILL SURFACE AND STONE LAYERS ON SAME SECTIONS

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TYPE A CIRCULATION CHANNEL DETAILS

DRAWN BY	DATE	SCALE	CHK'D
JLK	01-10-13	AS NOTED	APP'D

DRAWING NO. 079A-1009-C-1006

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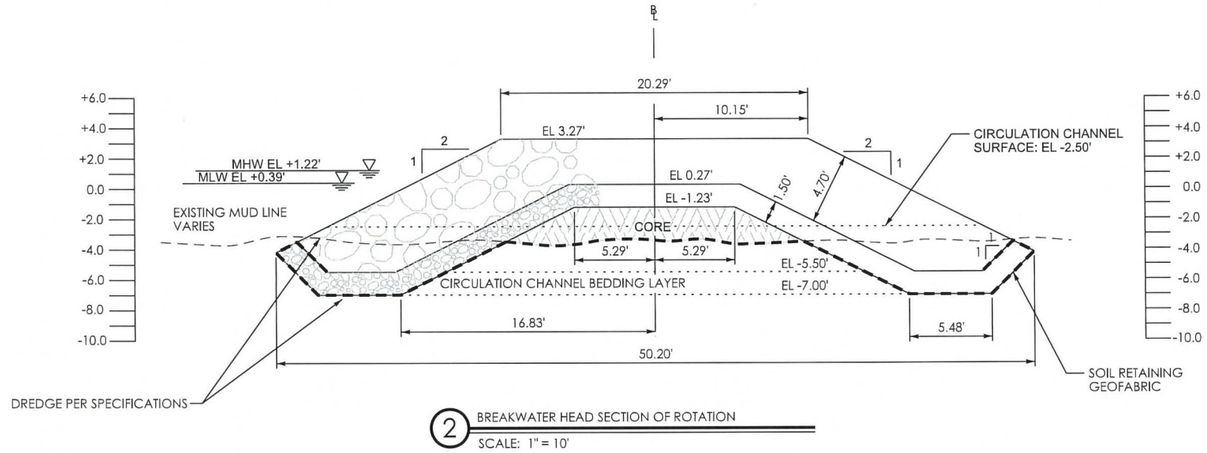
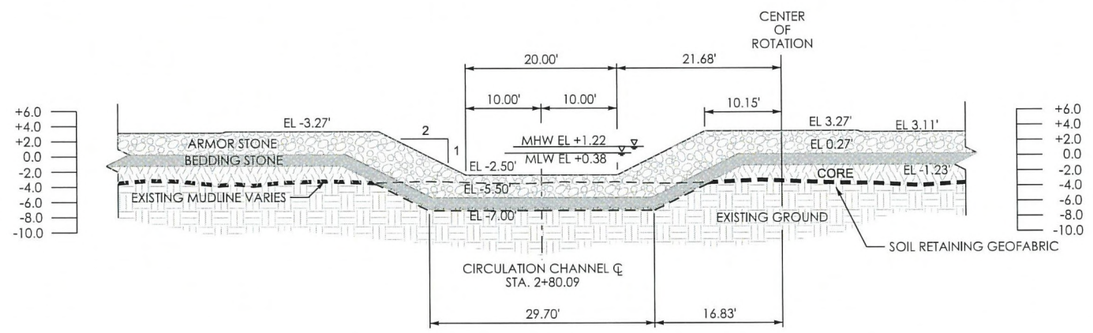


2 BREAKWATER HEAD SECTION OF ROTATION

SCALE: 1" = 10'



3 TYPE A CIRCULATION CHANNEL SECTION ALONG BASELINE (SYMMETRICAL ABOUT THE CENTERLINE)

SCALE: 1" = 20'

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TYPE A CIRCULATION CHANNEL DETAILS

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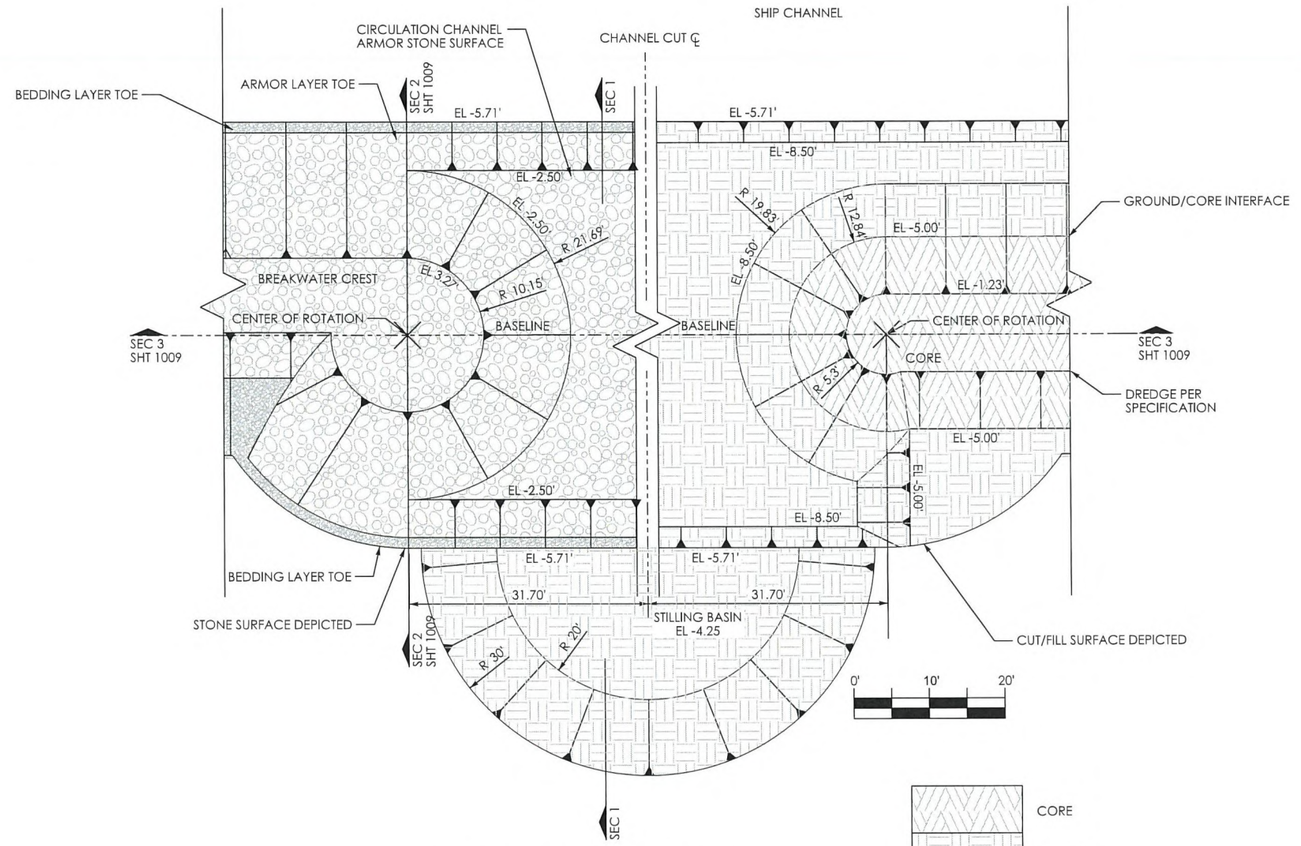
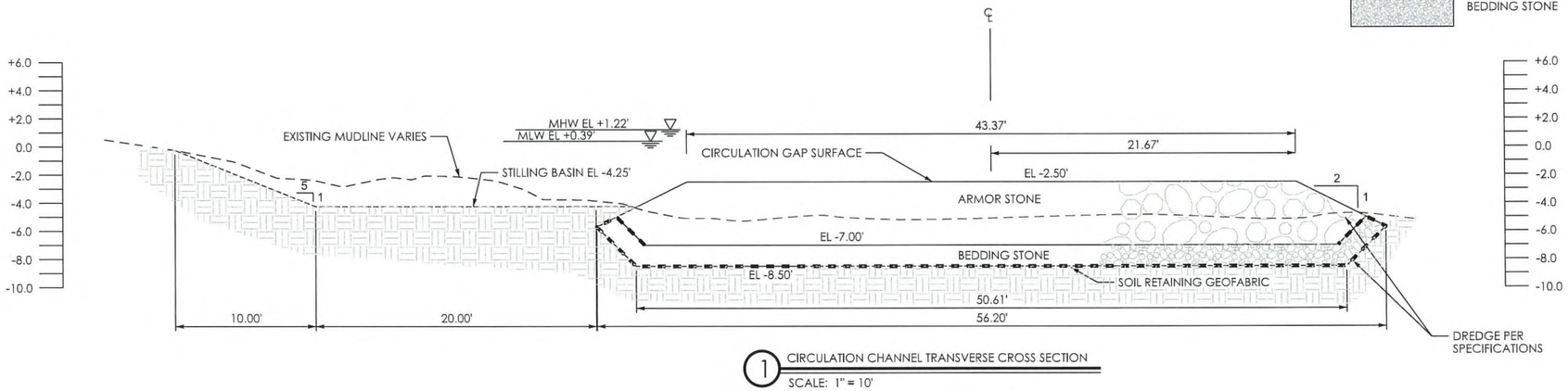
ISSUE NO. 0



TYPE B CIRCULATION CHANNEL PLAN VIEW

SCALE: 1" = 20'



1 CIRCULATION CHANNEL TRANSVERSE CROSS SECTION

SCALE: 1" = 10'

NOTES:

1. TYPE B CIRCULATION CHANNEL SHOWS SPLIT VIEW OF CUT/FILL SURFACE AND STONE LAYERS ON SAME SECTIONS
2. TYPE B CIRCULATION CHANNEL IS PROVIDED FOR INFORMATIONAL PURPOSES AND IS NOT TO BE USED UNLESS DIRECTED BY ENGINEER.

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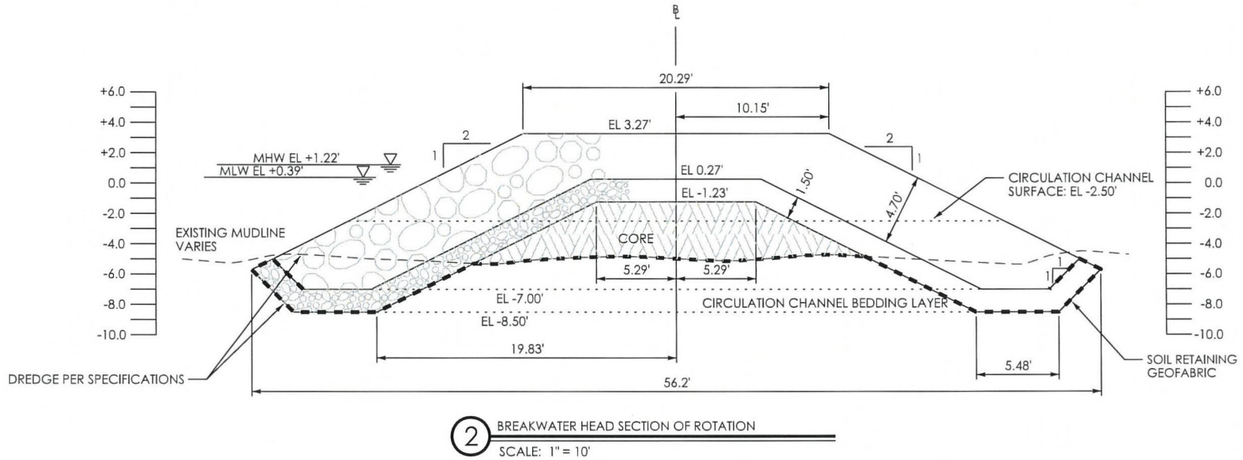
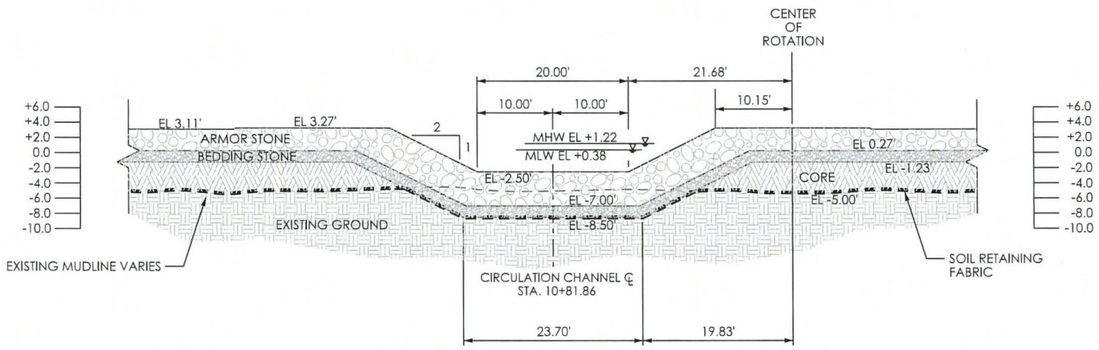
ISSUE NO. 0



2 BREAKWATER HEAD SECTION OF ROTATION

SCALE: 1" = 10'



3 TYPE B CIRCULATION CHANNEL SECTION ALONG BASELINE (SYMMETRICAL ABOUT CENTERLINE)

SCALE: 1" = 20'

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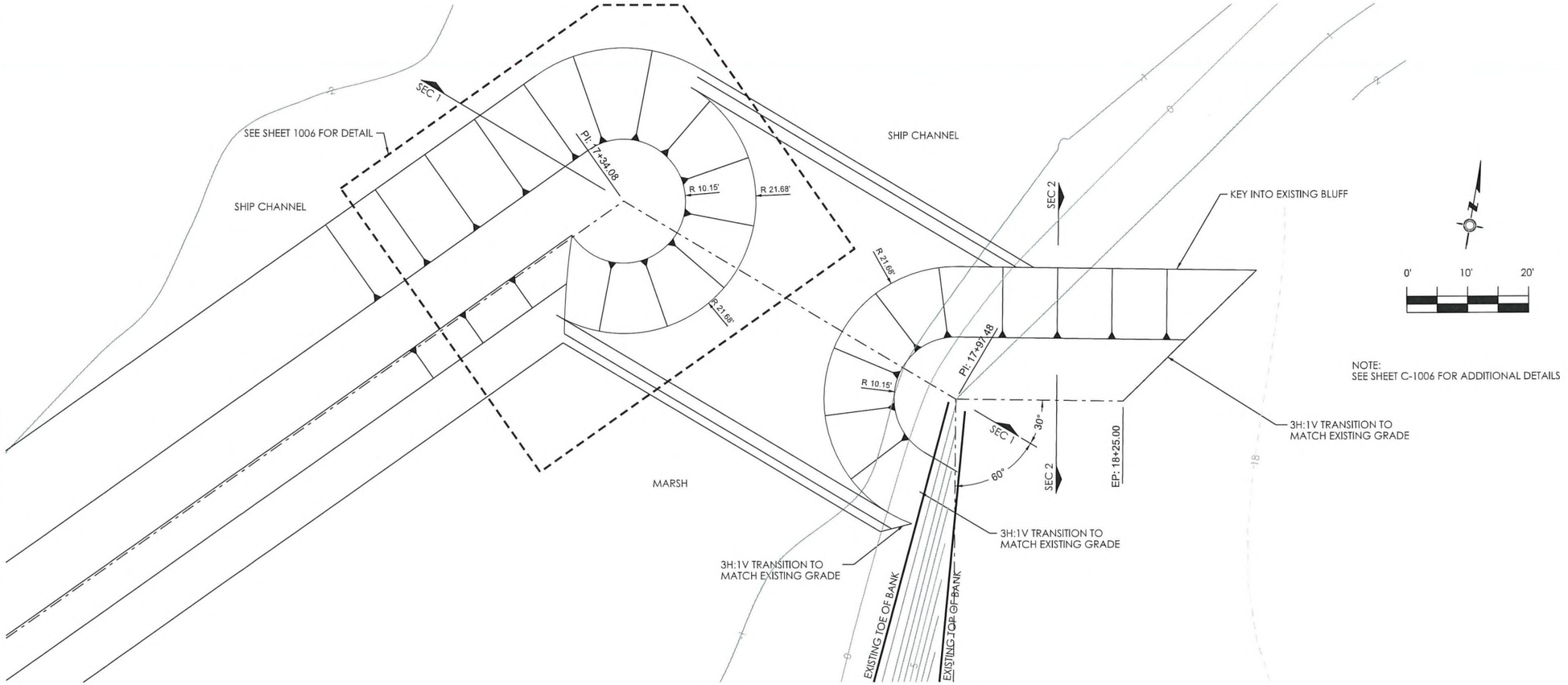
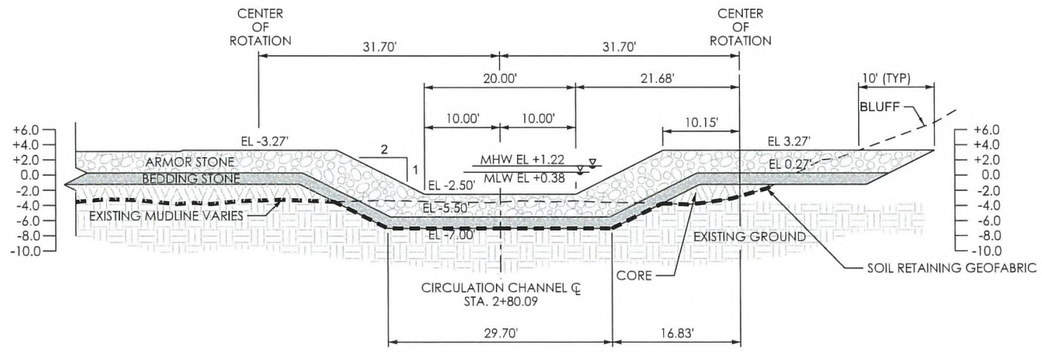
DRAWING NO. 079A-1009-C-1009

ISSUE NO. 0



TYPE C CIRCULATION CHANNEL PLAN VIEW

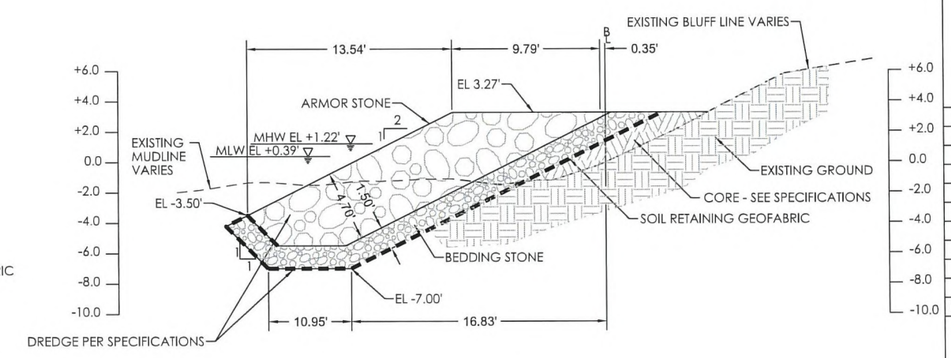
SCALE: 1" = 10'



1 TYPICAL CROSS SECTION

SCALE: 1" = 20'

0' 10' 20'



2 TRANSITION CROSS SECTION (TYP) STA. 17+97.50 TO 18+25.00

SCALE: 1" = 10'

0' 5' 10'

NOTE:
BLUFF STRUCTURE SHALL BE "KEYED" INTO EXISTING BLUFF AS SHOWN.

JEFFERSON COUNTY ENGINEERING DEPT.

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STATE OF TEXAS
WILLIAM L. WORSHAM
83153
LICENSED
PROFESSIONAL ENGINEER

WILLIAM L. WORSHAM, P.E. •83153
2/6/2013

ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	2/06/13	JLK	FOR CONSTRUCTION	CKW	WLW

PLEASURE ISLAND REVISED BREAKWATER
SHIP CHANNEL EROSION PROJECT
CAJUN CABINS TO MLK BRIDGE

BREAKWATER TRANSITION TO BLUFF

DRAWN BY	DATE	SCALE	CHK'D
JLK	01-10-13	AS NOTED	APP'D

DRAWING NO. 079A-1009-C-1010

ISSUE NO. 0

NOTE:
CONSTRUCTION ACCESS RAMP BASE SET AT EXISTING SLOPE TOE

SURVEY CONTROL BENCHMARK (SB)

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SB-1	13889731.56	3569521.61	16.02	

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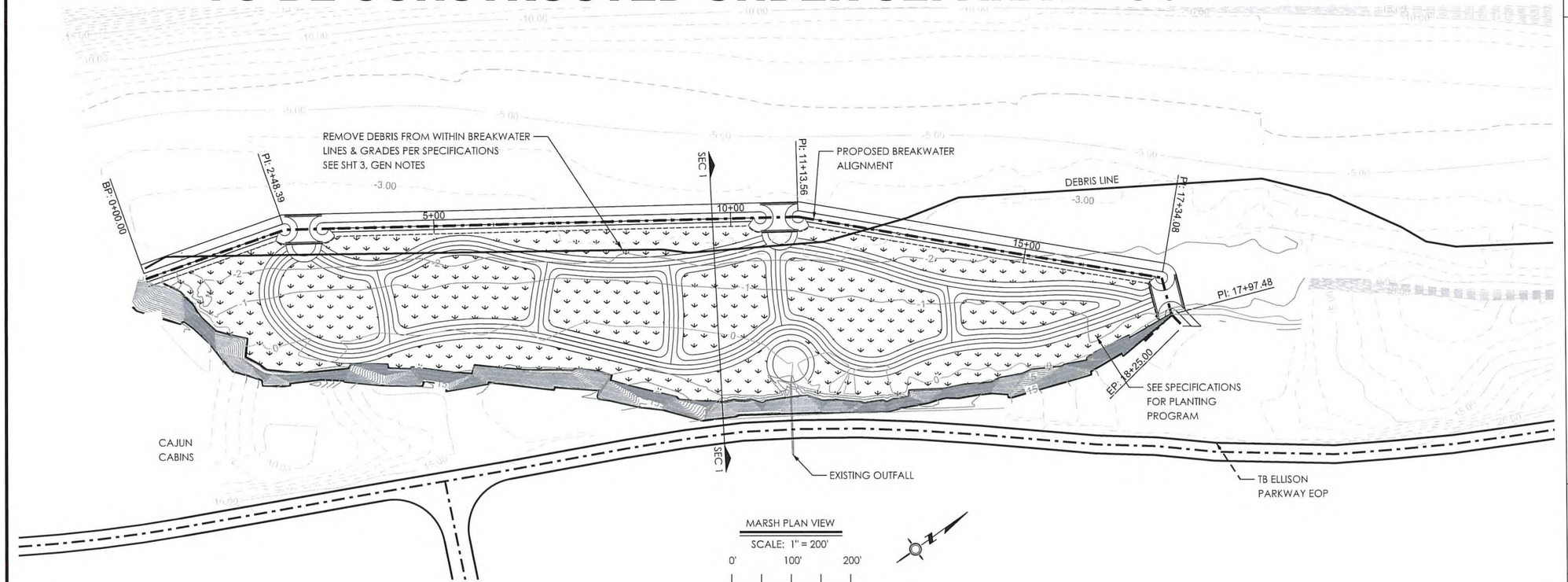
PLEASURE ISLAND REVISED BREAKWATER
SHIP CHANNEL EROSION PROJECT
CAJUN CABINS TO MLK BRIDGE

WORK SITE ACCESS ROUTE

DRAWN BY	DATE	SCALE	CHK'D
JLK	01-10-13	1" = 20'	APP'D

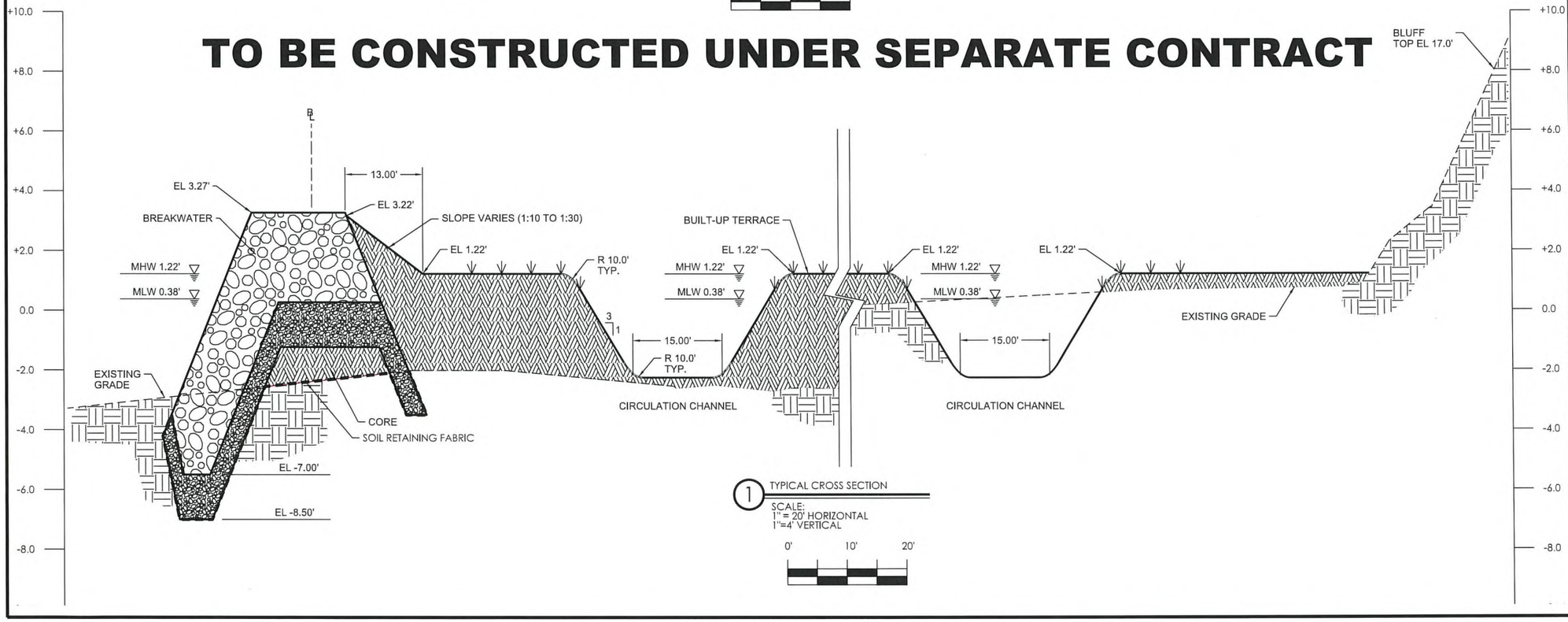
DRAWING NO. 079A-1009-C-1011
ISSUE NO. 0

TO BE CONSTRUCTED UNDER SEPARATE CONTRACT



MARSH PLAN VIEW
SCALE: 1" = 200'
0' 100' 200'

TO BE CONSTRUCTED UNDER SEPARATE CONTRACT



1 TYPICAL CROSS SECTION
SCALE:
1" = 20' HORIZONTAL
1"=4' VERTICAL
0' 10' 20'

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PLEASURE ISLAND REVISED BREAKWATER
SHIP CHANNEL EROSION PROJECT
CAJUN CABINS TO MLK BRIDGE

MARSH PLAN & SECTION

DRAWN BY	DATE	SCALE	CHK'D
JLK	01-10-13	AS NOTED	APP'D

DRAWING NO. 079A-1009-E-1012
ISSUE NO. 0

TO BE CONSTRUCTED UNDER SEPARATE CONTRACT

GENERAL NOTES:

1. SURVEY DATA
HORIZONTAL DATUM: TEXAS STATE PLANE SOUTH CENTRAL NAD1983
VERTICAL DATUM: NAVD88

2. SURVEY CONTROL POINTS ESTABLISHED BY LEAP ENGINEERING, BEAUMONT, TX ON
JANUARY 22 - 30, 2008 FOR CAJUN CABINS PORTION AND MARCH 13 - 20, 2008 FOR
GOLF COURSE PORTION.

3. BATHYMETRIC SURVEY POINTS ESTABLISHED BY LEAP ENGINEERING, BEAUMONT, TX
ON OCTOBER 10, 2007.

4. CONTOUR INTERVAL ONE FOOT.

GENERAL CONSTRUCTION

THE PLEASURE ISLAND MARSH PROJECT WILL CONSTRUCT APPROXIMATELY 12 ACRES OF ESTUARINE MARSH IN GENERAL ACCORDANCE WITH THE SHT 11 WITH THE FOLLOWING CONSTRUCTION CRITERIA:

1) CONSIST OF 50% VEGETATED MOUNDS AND TERRACES.

2) CONSIST OF A MINIMUM OF 50% AND MAXIMUM OF 60% OF OPEN WATER.

3) A CHANNEL WILL BE DREDGED TO A DEPTH OF -2.5 FT NAVD88, FOR HYDROLOGIC CIRCULATION.

4) TERRACES WILL BE BUILT BY REUSING STOCKPILED DREDGE MATERIAL FROM THE PROPOSED CHANNEL WITHIN THE MARSH AND, IF NECESSARY, OTHER SOURCES OF APPROPRIATE SEDIMENT.

5) THE TOP TERRACES AND THE RESULTING PLANTING AREA WILL BE BETWEEN 1.75 FT AND 2.75 FT NAVD88. THESE MINIMUM AND MAXIMUM ELEVATIONS MAY BE ALTERED BASED ON VEGETATION ELEVATION DATA TAKEN AFTER CONSTRUCTION.

6) TERRACES WILL BE RANDOMLY DISTRIBUTED TO ALLOW FOR CONTINUOUS AND UNOBSTRUCTED WATER MOVEMENT IN GENERAL ACCORDANCE WITH THE DESIGN DRAWING SHT 11.

PLANTING TIME

PREFERABLE DATES FOR THE ESTABLISHMENT OF MARSH PLANTS ARE BETWEEN 1 MARCH AND 1 SEPTEMBER. HOWEVER, FALL OR WINTER PLANTING IS ACCEPTABLE IF THE GROUND IS IN A SATISFACTORY CONDITION FOR PLANTING.

INSTALLATION METHODS

THE CONTRACTOR SHALL DEFINE AREAS FOR PLANTING OF EACH SPECIES USING STAKES AND STRING LINES. STAKED AREAS SHALL BE APPROVED BY THE ENGINEER OR HIS REPRESENTATIVE PRIOR TO PLANTING.

MARSH PLANTS SHALL BE PLACED IN THE SOIL AT PREVIOUS GROWING DEPTH, WITH ONE SPRIG PER HOLE. POTTED PLANTS SHALL BE PLANTED TO TOP SURFACE OF POTTING MEDIUM.

THE CONTRATOR SHALL SMOOTH OUT ANY HIGH OR LOW AREAS PRIOR TO PLANTING SO THAT THE AREA TO BE PLANTED MATCHES THE LINES AND GRADES OF THE DRAWINGS.

THE CONTRACTOR MAY USE ANY ONE OF THE FOLLOWING PLANTING METHODS:

METHOD NO. 1:

FIBER MATS SHALL BE PLACED OVER THE AREA TO BE PLANTED AND ANCHORED WITH WOODEN STAKES AT 3-FT SPACING ALONG THE EDGE OF THE MATS AND IN A STAGGERED PATTERN THROUGHOUT THE REMAINDER OF THE MAT AT THE SAME SPACING. THE MATS SHALL BE FURTHER HELD IN PLACE BY HEAVY TWINE TIED BETWEEN STAKES AT MAT LEVEL. EDGES OF THE MAT SHOULD BE KEYED INTO THE SUBSTRATE TO PREVENT SCOUR FROM WAVES BENEATH THE MAT. PLUGS SHALL BE PLACED INTO THE SAND THROUGH 8-IN. SLITS CUT INTO THE MATS 18 IN. APART IN A STAGGERED PATTERN.

METHOD NO. 2:

SIMILAR TO METHOD NO. 1, EXCEPT PLANTS ARE PRE-PLANTED INTO A THICKER FIBER MAT BY THE MAT SUPPLIER PRIOR TO INSTALLATION.

METHOD NO. 3:

PLANT ROLLS ARE CONSTRUCTED BY LAYING A 10-FT LENGTH OF 3-FT WIDE BURLAP ON THE GROUND AND FILLING WITH SANDY SOIL PREVIOUSLY PLACED AT THE SITE. PLANTS ARE PLACED IN THIS SOIL AT 18-IN. SPACING AND THE BURLAP EDGES ARE BROUGHT TOGETHER AND FASTENED WITH METAL RINGS AT 8-IN. SPACING TO FORM A ROLL ABOUT 9 FT LONG AND 8 TO 10 IN. ROUND. ROLLS ARE PLACED END TO END INTO TRENCHES MADE IN THE SANDY SOIL SO THAT THE TOP OF THE ROLL IS APPROXIMATELY LEVEL WITH THE TOP OF THE TRENCH. PLANT ROLL RUNS SHALL BE SPACED AT 18-IN. INTERVALS, PLACED PARALLEL TO THE SHORELINE, AND PROXIMATE TO WAVE ACTION.

FERTILIZATION

SIMULTANEOUS WITH PLANTING, EACH PLANT SHALL BE FERTILIZED AS FOLLOWS:

SPRING AND SUMMERTIME PLANTING

FERTILIZE EACH PLANT WITH 30 GRAMS OF 3 TO 4 MONTH SLOW RELEASE FERTILIZER (18N-6P-12K).

FALL AND WINTER PLANTING

FERTILIZE EACH PLANT WITH 30 GRAMS OF 8 TO 9 MONTH SLOW RELEASE FERTILIZER (18N-6P-12K).

EXCAVATION AND FILL

GENERAL

THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING CONDITIONS AT THE PROJECT SITE ARE VERY DYNAMIC AND THUS SUBJECT TO FREQUENT CHANGE. THE EXISTING VERTICAL BLUFF IS UNSTABLE DUE TO EROSION ALONG THE TOE OF THE SLOPE. THE EXISTING GROUND CONDITIONS ALONG THE PROPOSED CHANNEL BANK MAY CHANGE WITH TIDAL AND WEATHER CONDITIONS. VESSEL DRAWDOWN/SURGE, WAKES, CURRENTS, AND WIND WAVES ARE ALL PRESENT AT THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL IN PLACE MATERIAL AGAINST DISPLACEMENT DUE TO THE AFOREMENTIONED FORCES UNTIL FINAL PLACEMENT. ALL LOST OR DISPLACED MATERIAL SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE.

EXCAVATION AND GRADING

AREAS TO BE EXCAVATED SHALL HAVE ALL DELETERIOUS MATERIAL REMOVED PRIOR TO THE START OF EXCAVATION ACTIVITIES. THE DELETERIOUS MATERIAL SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER BY THE CONTRACTOR, AT NO ADDITIONAL EXPENSE TO THE OWNER.

EXCAVATION SHOULD BE LIMITED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS AND SHALL MINIMIZE THE AMOUNT OF MATERIALS DISTURBED OR REMOVED.

THE CONTRACTOR SHALL LOCATE, IDENTIFY, AND PROTECT EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PRE-MARK ALL AREAS WHERE EXCAVATION AND GRADING OPERATIONS ARE TO OCCUR AND SHALL CALL "DIAL DIG" (1-800-245-4545) AND THE ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND ADEQUACY OF ALL TEMPORARY EXCAVATION SLOPES, INCLUDING OSHA.

GENERAL FILL PLACEMENT

ENSURE THAT AREAS TO BE FILLED ARE FREE FROM DEBRIS.

PLACEMENT OF FILL SHALL BE SUSPENDED WHEN:

1) WEATHER OR TIDAL CONDITIONS WILL NOT ALLOW THE PROPER PLACEMENT OF FILL MATERIAL.

2) CLIMATIC CONDITIONS WILL NOT ALLOW PROPER PLACEMENT AND COMPACTION OF FILL.

THESE "STOPPAGE" CONDITIONS WILL BE AGREED UPON BY CONTRACTOR, ENGINEER, AND OWNER, PRIOR TO COMMENCEMENT OF CONSTRUCTION.

FILL AREAS TO GRADES, CONTOURS, LEVELS, AND ELEVATIONS SHOWN.

PLACE PROPERLY MOISTURE CONDITIONED FILL MATERIAL IN LOOSE HORIZONTAL LAYERS WHICH DO NOT EXCEED 12 INCHES IN THICKNESS. SPREAD EACH LAYER EVENLY AND BLADE MIX THOROUGHLY DURING SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER.

STRUCTURAL FILL SHALL BE BROUGHT TO WITHIN 1/2-IN ABOVE OR BELOW THE LEVEL INDICATED. ALL STRUCTURAL FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557 TEST PROCEDURES.

COMPACT EACH LAYER OF NON-STRUCTURAL FILL TO NOT LESS THAN 75% OF MAXIMUM DRY DENSITY AFTER IT HAS BEEN PLACED, MIXED, AND SPREAD.

BRING SUBSOIL TO REQUIRED LEVELS, PROFILES, AND CONTOURS. MAKE CHANGES IN GRADE GRADUAL. BLEND SLOPES IN TO LEVEL AREAS. IF SETTLEMENT OCCURS WITHIN THE CONTRACTOR SHALL BRING TO CORRECT LEVELS WITH SAME MATERIALS WITH NO ADDITIONAL COST TO THE OWNER.

GRANULAR BACKFILL

INSTALLATION OF GRANULAR BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF "GENERAL FILL AND PLACEMENT" AND AS SPECIFIDIED HEREIN.

GRANULAR BACKFILL SHALL BE INSTALLED ALONG THE LANDWARD SIDE OF THE BREAKWATER, AS NECESSARY, TO THE LINES AND GRADES AS SHOWN ON THE PLANS.

INSTALLATION SEQUENCE

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MARSH CONSTRUCTION NOTES

DRAWN BY	DATE	SCALE	CHK'D APP'D
JLK	01-10-13	N/A	

DRAWING NO. 079A-1009-E-1013 ISSUE NO. 0