APPENDIX A

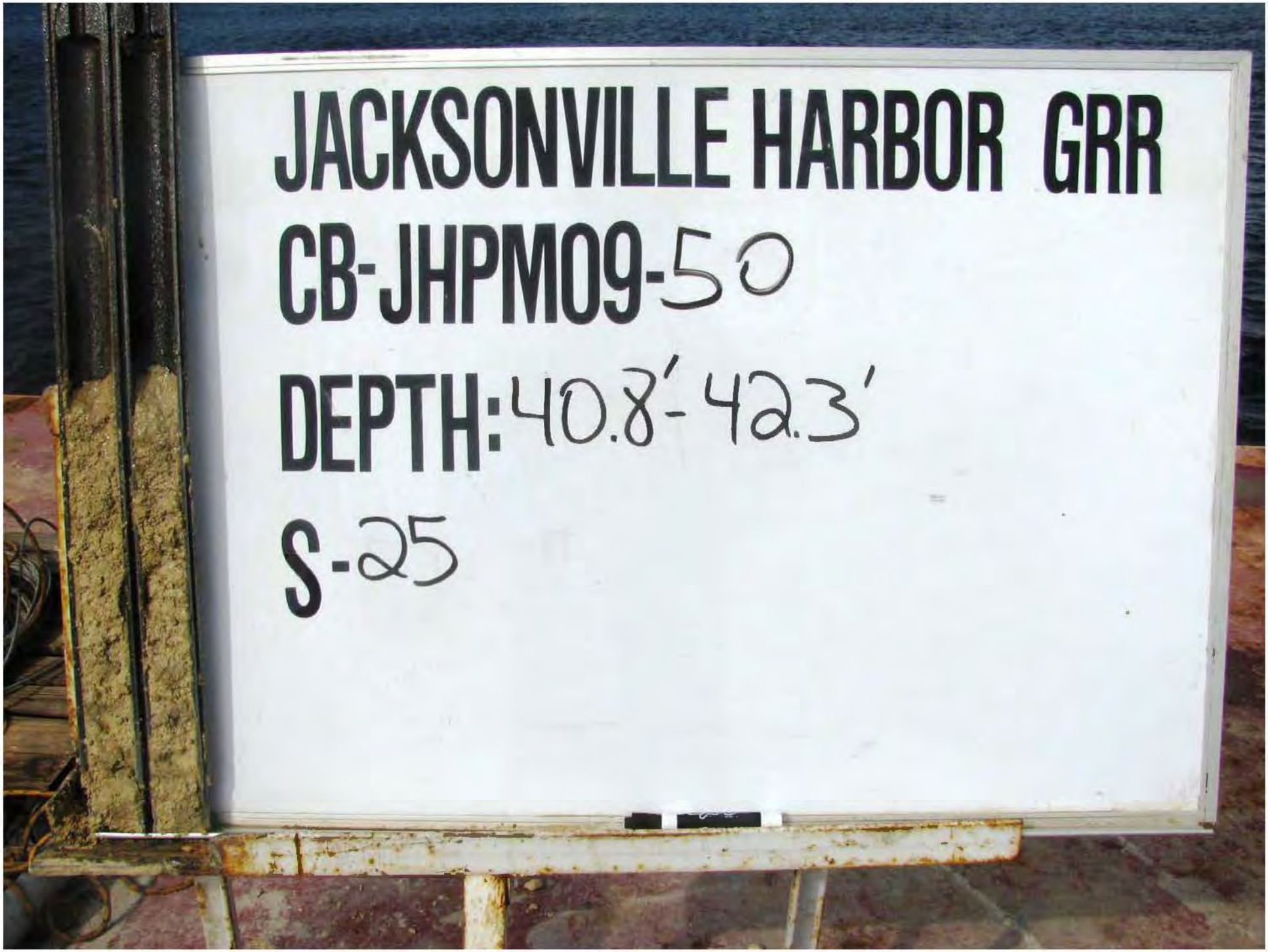
ENGINEERING APPENDIX

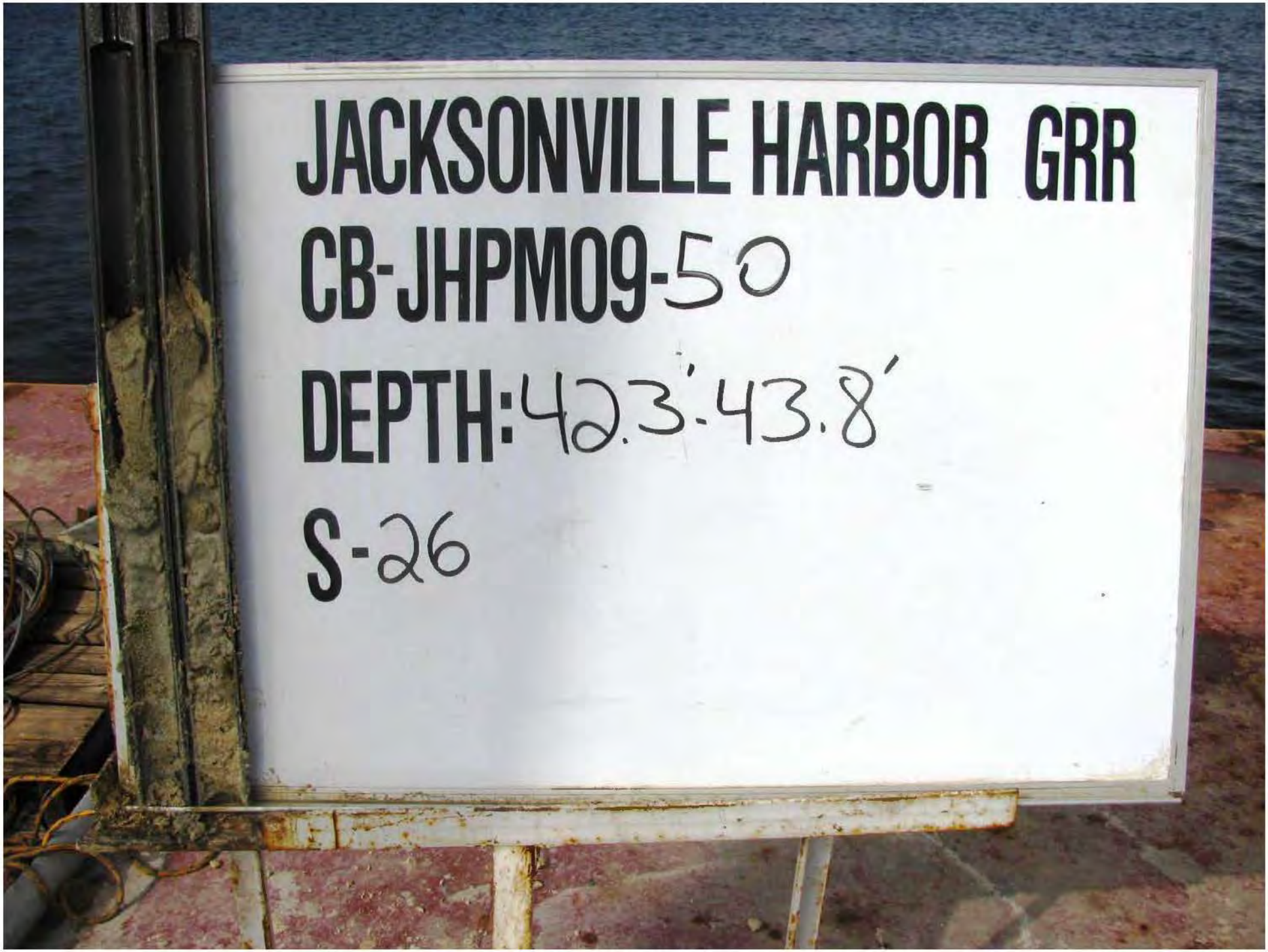
ATTACHMENT C
Resistivity Report

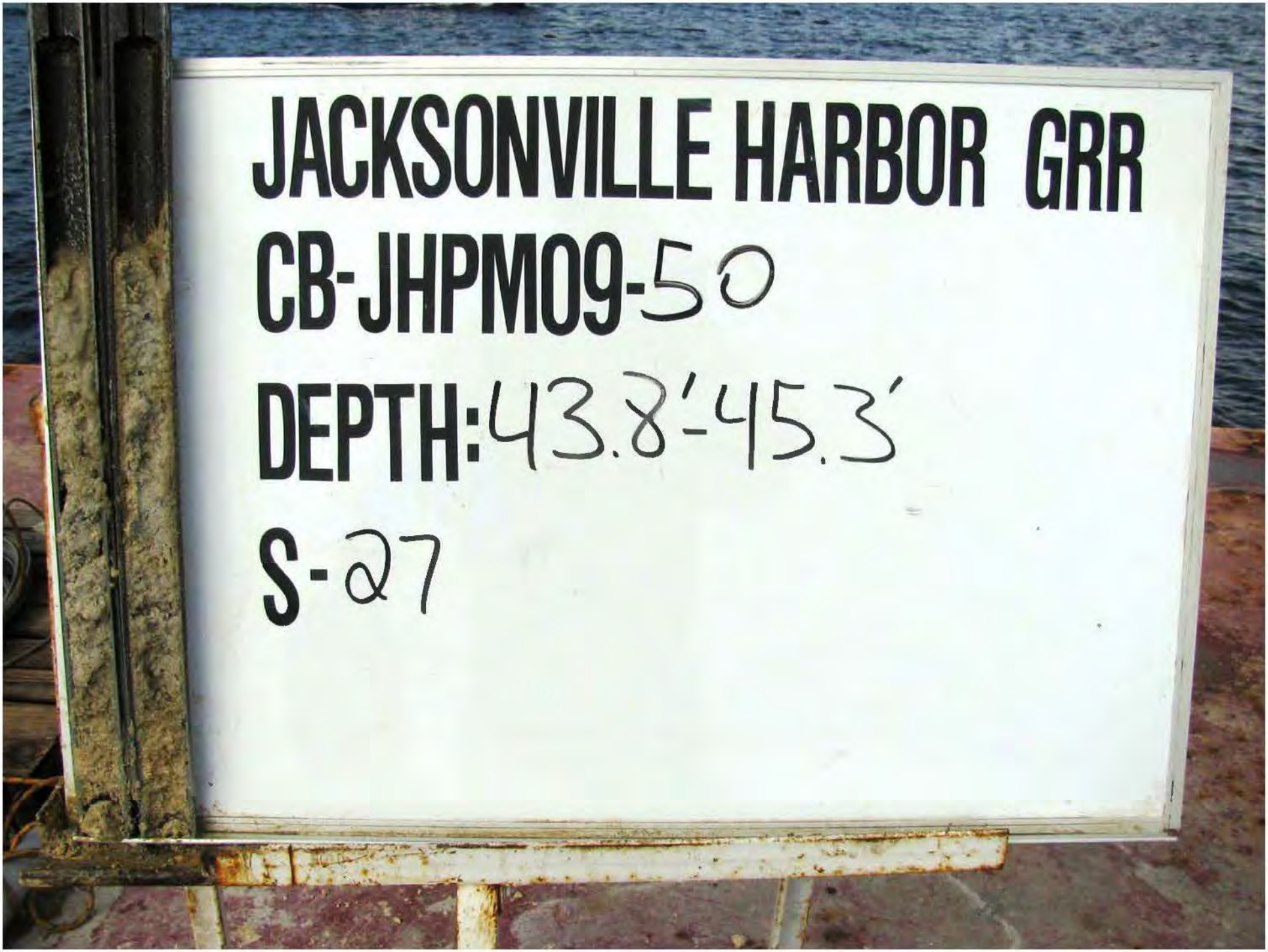
PART 6

Jacksonville Harbor Navigation Study, Duval County, Florida

DRAFT
INTEGRATED GENERAL REEVALUATION REPORT II AND SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT


JACKSONVILLE HARBOR GRR
CB-JHPM09-50
DEPTH: 40.8'-42.3'
S-25


JACKSONVILLE HARBOR GRR
CB-JHPM09-50
DEPTH: 42.3'-43.8'
S-26


JACKSONVILLE HARBOR GRR
CB-JHPM09-50
DEPTH:43.8'-45.3'
S-27

UNCONFINED COMPRESSIVE STRENGTH OF ROCK CORES

ASTM D2938

Summary of Test Results
Photographs of Cores

COMPRESSIVE STRENGTH OF ROCK CORE SAMPLES

ASTM D2938

JACKSONVILLE HARBOR GRR PROJECT

JACKSONVILLE DISTRICT - US ARMY CORPS OF ENGINEERS

CORE BORING NUMBER	DEPTH (FT.)	ELEVATION (MLLW)	RUN #	DIAMETER (INCHES)	LENGTH (INCHES)	LOAD (LBS)	AREA (SQ. INCHES)	UNIT LOAD (PSI)
CB-JHPM09-2	5.2-6.0'	-46.6	1	3.950	8.055	1750	12.57	**140**
CB-JHPM09-2	10.6-11.3'	-52.0	2	3.950	8.025	72000	12.57	**5728**
CB-JHPM09-5	15.8-16.5'	-59.2	1	3.950	8.000	3850	12.57	**306**
CB-JHPM09-6	4.0-4.5'	-49.0	1	3.950	6.565	5000	12.57	**398**
CB-JHPM09-7	3.0-3.8'	-47.8	1	3.950	8.075	30600	12.57	**2435**
CB-JHPM09-7	5.3-6.0'	-50.1	1	3.975	7.925	11750	12.57	**935**
CB-JHPM09-9	15.8-16.5'	-58.8	1	3.957	8.000	4250	12.57	**340**
CB-JHPM09-11	9.5-10.2'	-54.6	1	3.975	8.000	10250	12.57	**815**
CB-JHPM09-16	5.5-6.2'	-48.4	1	3.950	8.175	15100	12.57	**1201**
CB-JHPM09-16	6.8-7.2'	-49.7	1	3.975	4.750	1700	12.57	**135**
CB-JHPM09-17	2.0-2.7'	-46.4	1	3.940	8.125	5200	12.57	**414**
CB-JHPM09-18	1.8-2.5'	-45.9	1	3.950	8.150	5100	12.57	**406**
CB-JHPM09-35	5.0-5.7'	-50.7	2	3.975	7.650	19500	12.57	**1551**
CB-JHPM09-39	7.7-8.2'	-50.1	1	3.975	8.050	8350	12.57	**664**
CB-JHPM09-40	11.8-12.5'	-58.5	1	3.900	7.950	750	12.57	**60**
CB-JHPM09-42	7.2-7.9'	-47.0	1	3.950	8.025	24500	12.57	**1949**
CB-JHPM09-42	15.7-16.3'	-55.5	3	3.980	7.000	6500	12.57	**517**
CB-JNPM09-45	16.7-17.4'	-59.5	2	3.950	8.100	2500	12.57	**199**
CB-JHPM09-45	17.4-17.9'	-60.2	2	3.975	5.850	2000	12.57	**159**

NOTE: 1. TESTS WERE PERFORMED ON EACH DESIGNATED ROCK CORE IN A CALIBRATED RIEHLE UNIVERSAL TEST MACHINE IN THE 0-150,000 RANGE AT A UNIFORM LOAD RATE BETWEEN 2-7 MINUTES PER CORE.

2. PHOTOGRAPHS WERE TAKEN OF EACH CORE PRIOR TO AND FOLLOWING THE APPLICATION OF LOADING WHEN THE ULTIMATE COMPRESSIVE STRENGTH WAS ACHIEVED AND FAILURE OCCURRED.

JACKSONVILLE HARBOR GRR

CB-JHPM09-2

UNCONFINED COMPRESSIVE STRENGTH TESTS

DEPTH: 5.2'-6.0'

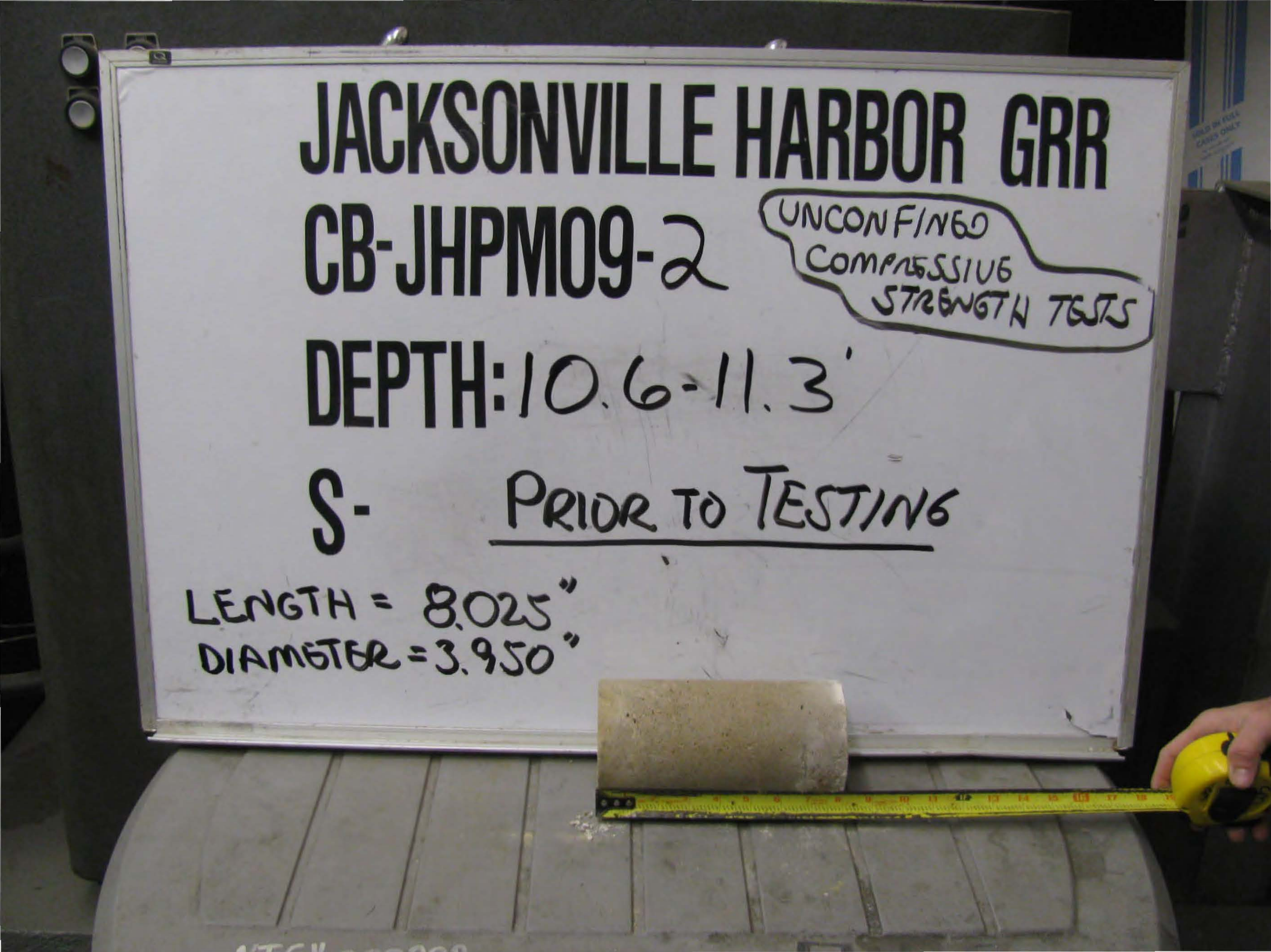
S- PRIOR TO TESTING

LENGTH = 8.055"

WIDTH = 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-2
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.2'-6.0'
S- PRIOR TO TESTING
LENGTH=8.055"
WIDTH=3.950"

TOP
JACKSONVILLE HARBOR GRR
CB-JHPM09-2
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.2'-6.0'
S-
AFTER TESTING
LENGTH=8.055"
WIDTH=3.950"
1750 LBS
140PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-2
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 10.6-11.3'
S- PRIOR TO TESTING
LENGTH = 8.025"
DIAMETER = 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-2
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 10.6-11.3'
S- PRIOR TO TESTING
LENGTH = 8.025"
DIAMETER = 3.950"

FRONT
2
JACKSONVILLE HARBOR GRR
CB-JHPM09-2
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 10.6-11.3'
S-
AFTER TESTING
LENGTH = 8.025"
DIAMETER = 3.950"
LOAD = 72,000 LBS
UNIT LOAD = 5728 PSI

JACKSONVILLE HARBOR GRR

CB-JHPM09-5

UNCONFINED COMPRESSIVE STRENGTH TESTS

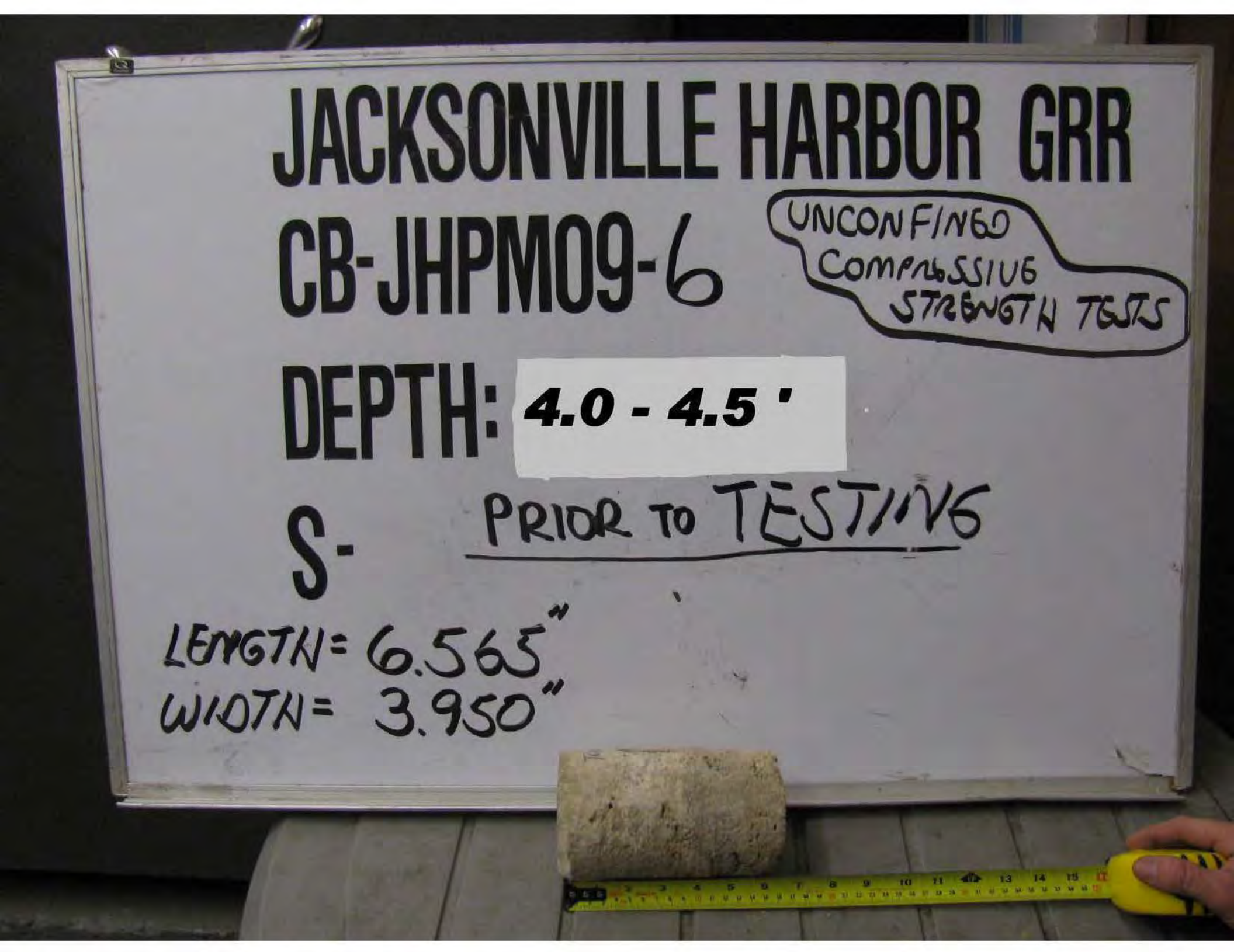
DEPTH: 15.8-16.5'

S- PRIOR TO TESTING

LENGTH = 8.000"
DIAMETER = 3.950"

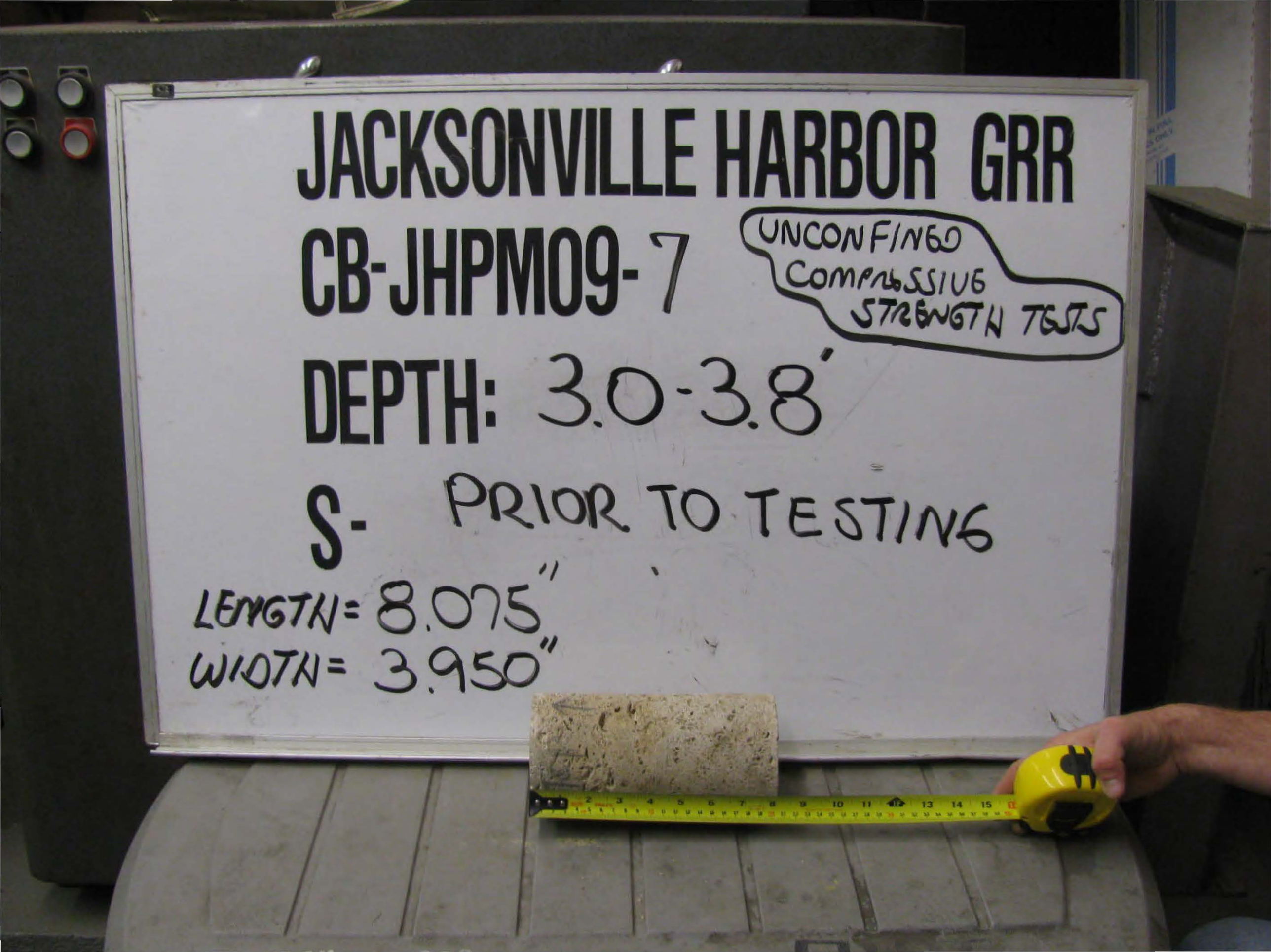
JACKSONVILLE HARBOR GRR
CB-JHPM09-5
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 15.8-16.5'
S- PRIOR TO TESTING
LENGTH = 8.000"
DIAMETER = 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-5
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 15.8-16.5'
S- PRIOR TO TESTING
LENGTH = 8.000"
DIAMETER = 3.950"
LOAD = 3850 LBS
UNIT LOAD = 306 PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-6
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 4.0 - 4.5 '
S-
PRIOR TO TESTING
LENGTH= 6.565"
WIDTH= 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-6
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 4.0 - 4.5'
S- PRIOR TO TESTING
LENGTH= 6.565"
WIDTH= 3.950"

FRONT
JACKSONVILLE HARBOR GRR
CB-JHPM09-6
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 4.0 - 4.5'
S- AFTER TESTING
LENGTH= 6.565"
WIDTH= 3.950"
LOAD= 5000 LBS.
UNIT LOAD= 398 PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-7
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 3.0-3.8'
S- PRIOR TO TESTING
LENGTH= 8.075"
WIDTH= 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-7
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 3.0-3.8'
S- PRIOR TO TESTING
LENGTH= 8.075"
WIDTH= 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-7
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 3.0-3.8'
S- AFTER TESTING
LENGTH= 8.075"
WIDTH= 3.950"
LOAD= 30,600 LBS.
UNIT LOAD= 2435 PSI

JACKSONVILLE HARBOR GRR

CB-JHPM09-7

UNCONFINED COMPRESSIVE STRENGTH TESTS

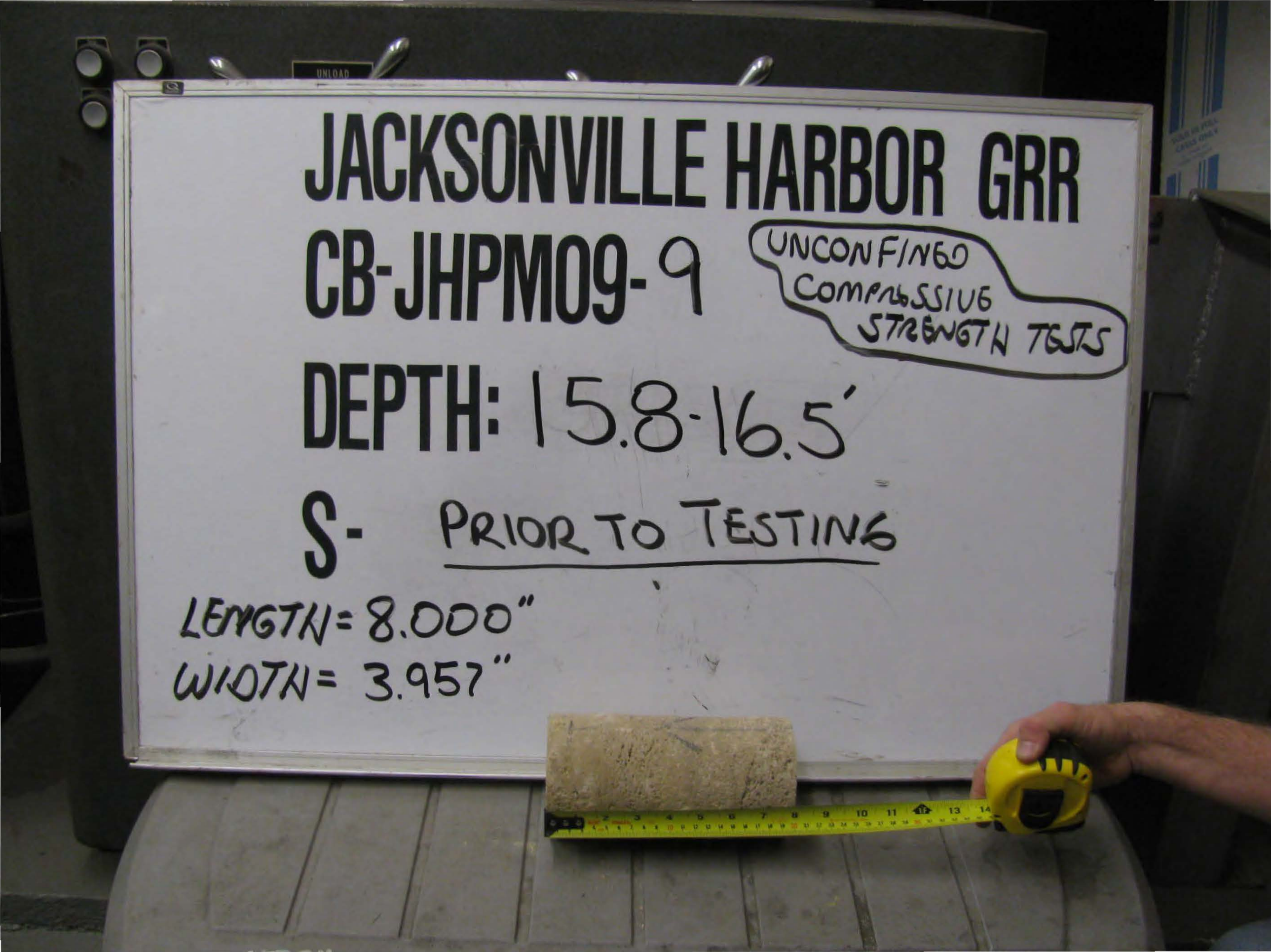
DEPTH: 5.3-6.0'

S- PRIOR TO TESTING

LENGTH= 7.925"
DIAMETER=3.975"

JACKSONVILLE HARBOR GRR
CB-JHPM09-7
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.3-6.0'
S- PRIOR TO TESTING
LENGTH= 7.925"
DIAMETER=3.975"

JACKSONVILLE HARBOR GRR
CB-JHPM09-7
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.3-6.0'
S- AFTER TESTING
LENGTH= 7.925"
DIAMETER=3.975"
LOAD = 11,750 LBS
UNIT LOAD = 935 PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-9
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 15.8-16.5'
S- PRIOR TO TESTING
LENGTH = 8.000"
WIDTH = 3.957"

JACKSONVILLE HARBOR GRR
CB-JHPM09-9
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 15.8-16.5'
S- PRIOR TO TESTING
LENGTH = 8.000"
WIDTH = 3.957"

JACKSONVILLE HARBOR GRR
CB-JHPM09-9
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 15.8-16.5'
S- AFTER TESTING
LENGTH = 8.000"
WIDTH = 3.957"
LOAD = 4250 LBS
UNIT LOAD = 340 PSI

JACKSONVILLE HARBOR GRR

CB-JHPM09-11

UNCONFINED COMPRESSIVE STRENGTH TESTS

DEPTH: 9.5-10.2'

S- PRIOR TO TESTING

LENGTH= 8.000"

DIAMETER= 3.925"

JACKSONVILLE HARBOR GRR
CB-JHPM09-11
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 9.5-10.2'
S- PRIOR TO TESTING
LENGTH= 8.000"
DIAMETER = 3.925"

JACKSONVILLE HARBOR GRR
CB-JHPM09-11
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 9.5-10.2'
S- AFTER TESTING
LENGTH= 8.000"
DIAMETER= 3.925"
LOAD = 10,250 LBS.
UNIT LOAD = 815 PSI

JACKSONVILLE HARBOR GRR

CB-JHPM09-16

UNCONFINED COMPRESSIVE STRENGTH TESTS

DEPTH: 5.5-6.2'

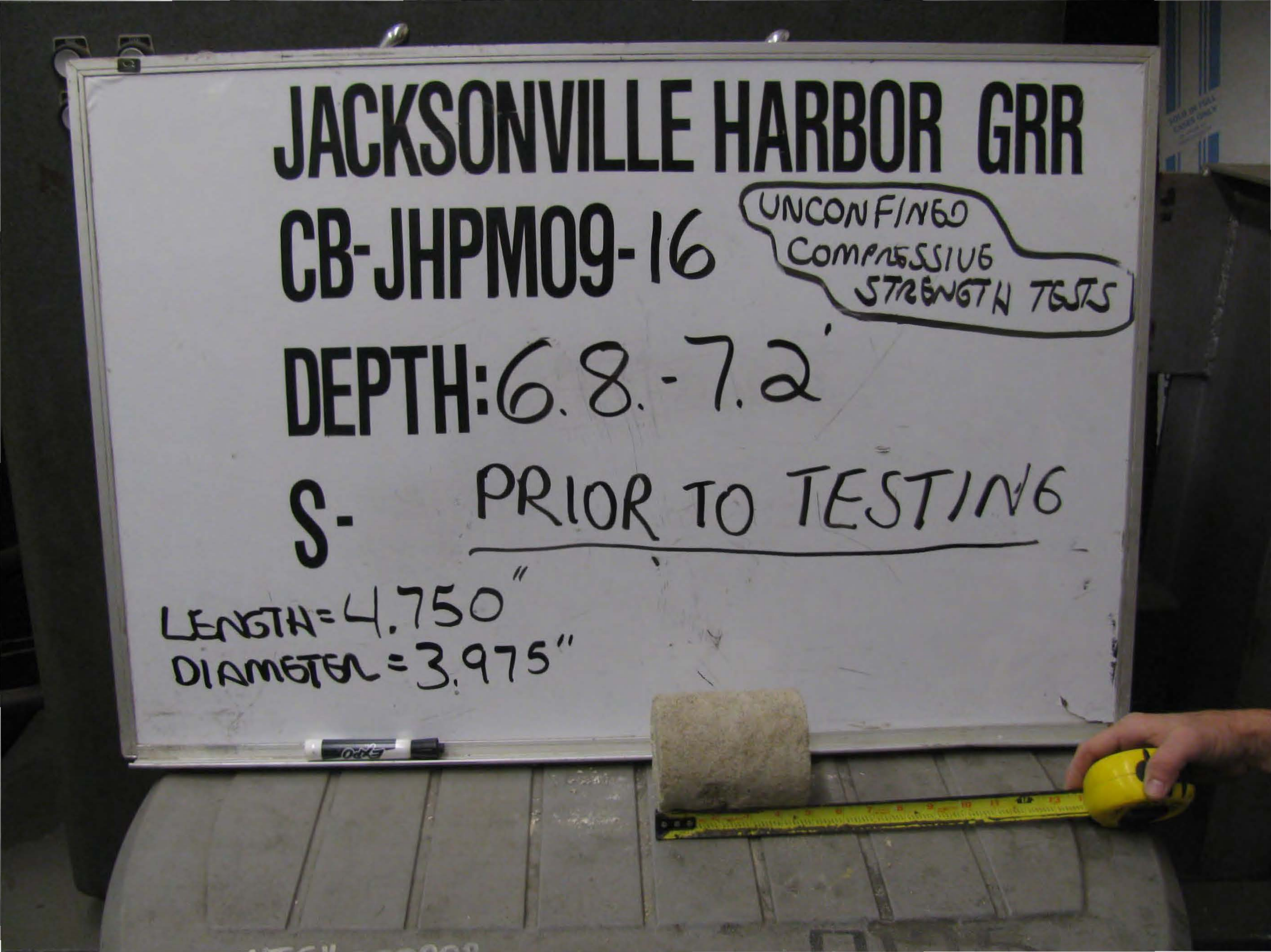
S- PRIOR TO TESTING

LENGTH = 8.175"

WIDTH = 3.950"

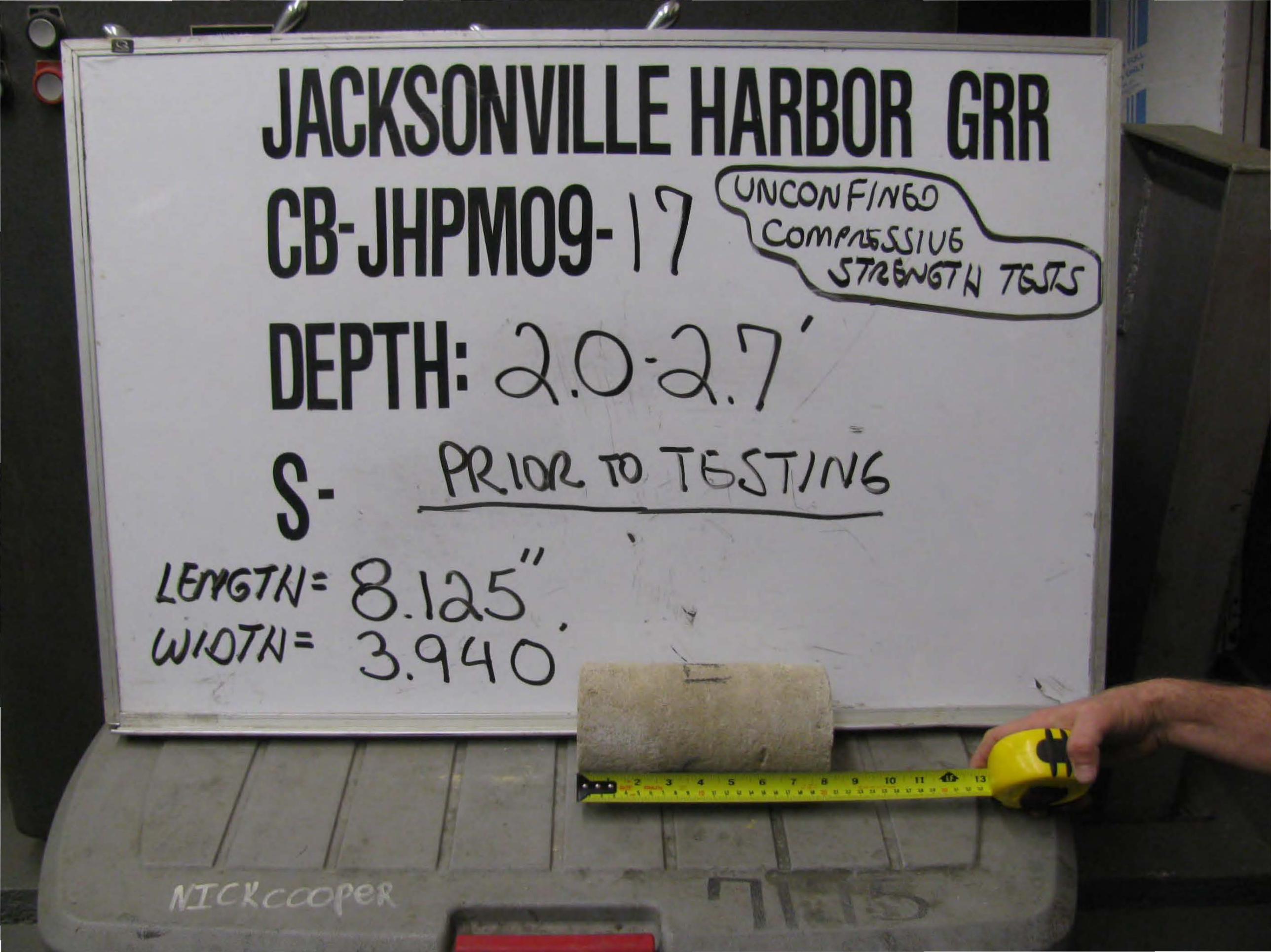
JACKSONVILLE HARBOR GRR
CB-JHPM09-16
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.5-6.2'
S- PRIOR TO TESTING
LENGTH= 8.175"
WIDTH= 3.950"

FRONT
JACKSONVILLE HARBOR GRR
CB-JHPM09-16
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.5-6.2'
S- AFTER TESTING
LENGTH = 8.175"
WIDTH = 3.950"
LOAD = 15,100 LBS.
UNIT LOAD = 1201 PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-16
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 6.8.-7.2'
S- PRIOR TO TESTING
LENGTH = 4.750"
DIAMETER = 3.975"

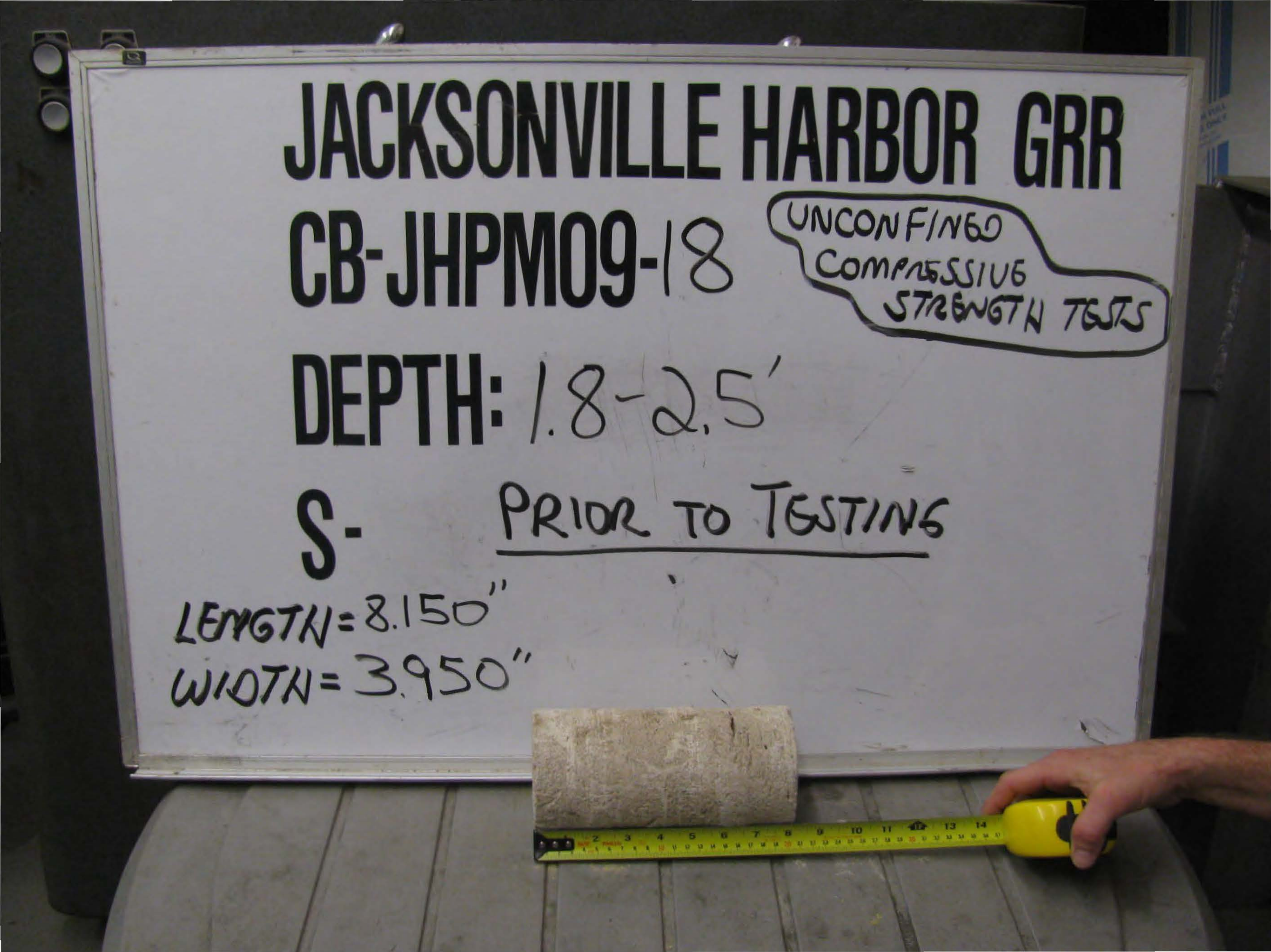
JACKSONVILLE HARBOR GRR
CB-JHPM09-16
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 6.8'-7.2'
S- PRIOR TO TESTING
LENGTH = 4.750"
DIAMETER = 3.975"

JACKSONVILLE HARBOR GRR
CB-JHPM09-16
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 6.8 - 7.2'
S-
AFTER TESTING
LENGTH = 4.750"
DIAMETER = 3.975"
LOAD = 1,700 LBS
UNIT LOAD = 135 PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-17
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 2.0-2.7'
S- PRIOR TO TESTING
LENGTH= 8.125"
WIDTH= 3.940"
NICKcooper

FRONT
JACKSONVILLE HARBOR GRR
CB-JHPM09-17
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 2.0-2.7'
S- PRIOR TO TESTING
LENGTH= 8.125"
WIDTH= 3.940"

FRONT
JACKSONVILLE HARBOR GRR
CB-JHPM09-17
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 2.0-2.7'
S- AFTER TESTING
LENGTH= 8.125"
WIDTH= 3.940"
LOAD= 5200 LBS
UNIT LOAD= 414 PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-18
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 1.8-2.5'
S-
PRIOR TO TESTING
LENGTH = 8.150"
WIDTH = 3.950"

18
JACKSONVILLE HARBOR GRR
CB-JHPM09-18
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 1.8-2.5'
S- PRIOR TO TESTING
LENGTH=8.150"
WIDTH=3.950"

FRONT
JACKSONVILLE HARBOR GRR
CB-JHPM09-18
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 1.8-2.5'
S- AFTER TESTING
LENGTH = 8.150"
WIDTH = 3.950"
LOAD = 5100 LBS
UNIT LOAD = 406 PSI

JACKSONVILLE HARBOR GRR

CB-JHPM09-35

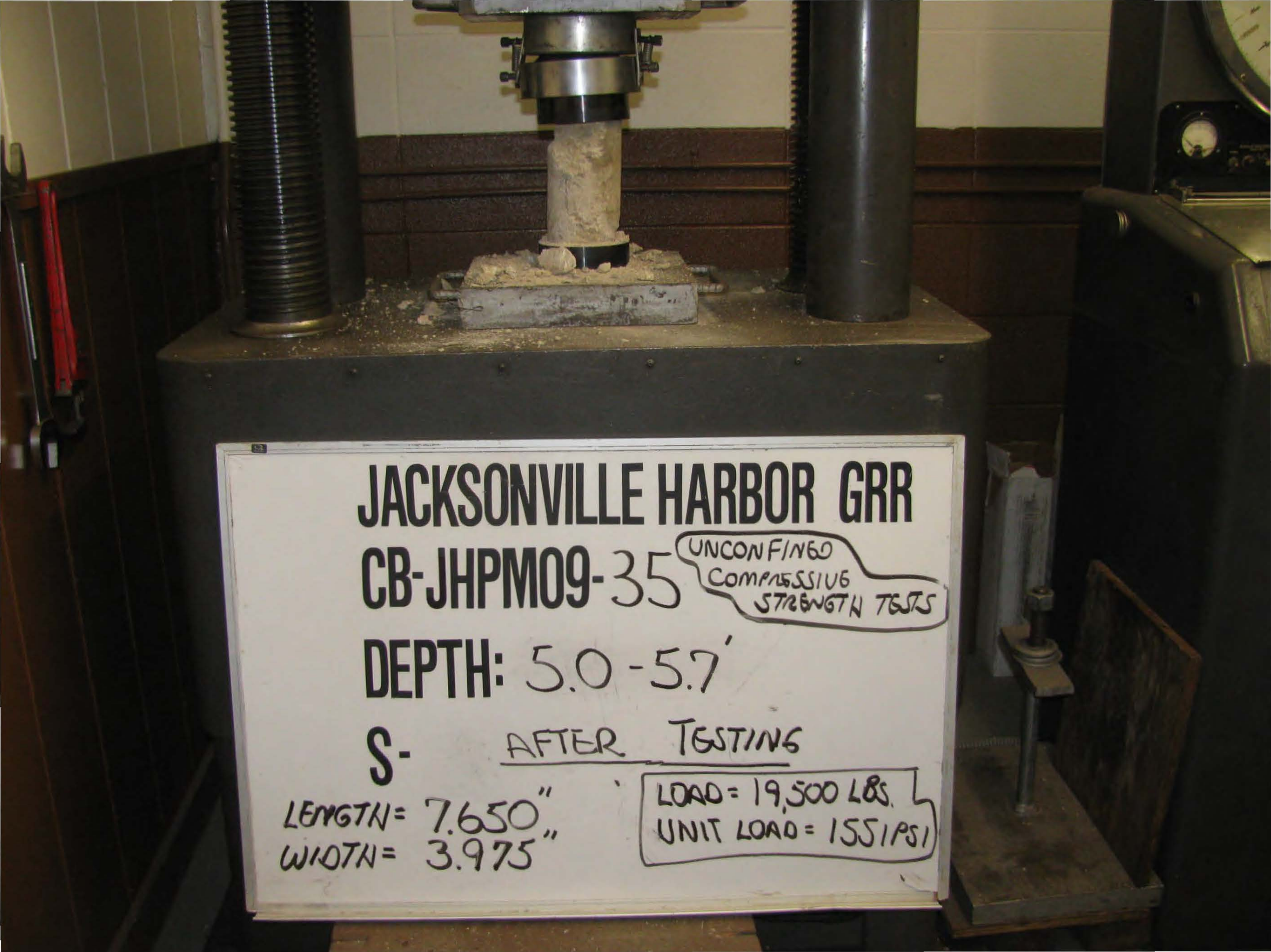
UNCONFINED COMPRESSIVE STRENGTH TESTS

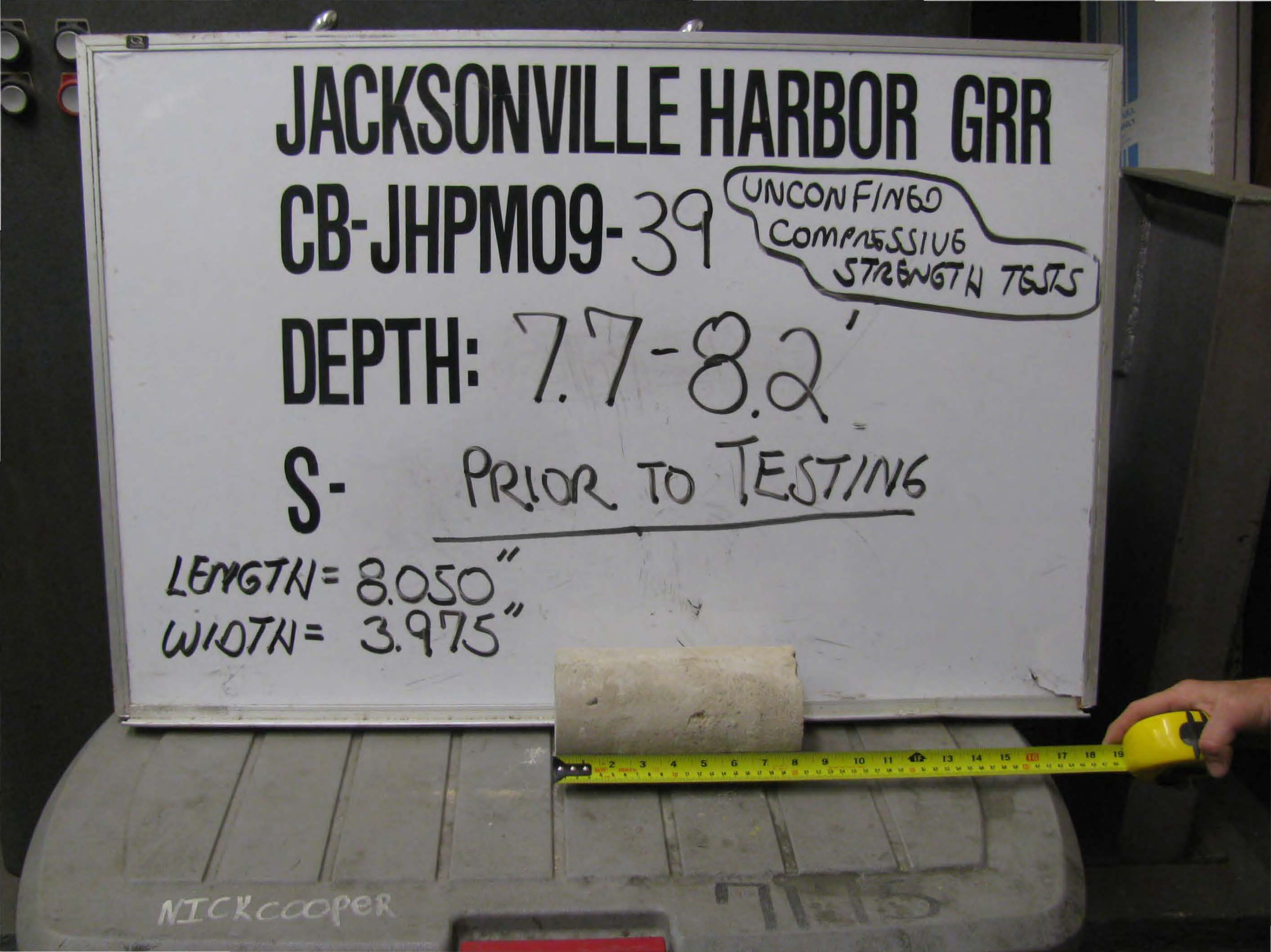
DEPTH: 5.0-5.7'

S- PRIOR TO TESTING

LENGTH= 7.650"
WIDTH= 3.975"

FRONT
JACKSONVILLE HARBOR GRR
CB-JHPM09-35
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.0-5.7'
S- PRIOR TO TESTING
LENGTH= 7.650"
WIDTH= 3.975"


JACKSONVILLE HARBOR GRR
CB-JHPM09-35
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 5.0-5.7'
S- AFTER TESTING
LENGTH= 7.650"
WIDTH= 3.975"
LOAD= 19,500 LBS.
UNIT LOAD= 1551PSI


JACKSONVILLE HARBOR GRR
CB-JHPM09-39
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 7.7-8.2'
S- PRIOR TO TESTING
LENGTH= 8.050"
WIDTH= 3.975"
NICK COOPER

JACKSONVILLE HARBOR GRR
CB-JHPM09-39
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 7.7-8.2'
S- PRIOR TO TESTING
LENGTH= 8.050"
WIDTH= 3.975"

JACKSONVILLE HARBOR GRR
CB-JHPM09-39
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 7.7-8.2'
S- AFTER TESTING
LENGTH= 8.050"
WIDTH= 3.975"
LOAD= 8350 LBS.
UNIT LOAD = 664 PSI

JACKSONVILLE HARBOR GRR

CB-JHPM09-40

UNCONFINED COMPRESSIVE STRENGTH TESTS

DEPTH: 11.8-12.5'

S- PRIOR TO TESTING

LENGTH= 7.950"

WIDTH= 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-40
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 11.8-12.5'
S- PRIOR TO TESTING
LENGTH= 7.950"
WIDTH= 3.950"

JACKSONVILLE HARBOR GRR
CB-JHPM09-40
UNCONFINED COMPRESSIVE STRENGTH TESTS
DEPTH: 11.8-12.5'
S-
AFTER TESTING
LENGTH= 7.950"
WIDTH= 3.950"
LOAD= 750 LBS.
UNIT LOAD= 60 PSI