MIRABAY SEAWALL LITIGATION

- April 18, 2012

Litigation Process

- Investigation controlled by the court and the rules of discovery.
- Can often take many years for complex cases.
- All of the evidence must be collected analyzed and organized.
- Information and communications must be controlled.
- Massive Construction project that took place ten years ago and involved many companies.

WHY IS IT TAKING SO LONG?

1. Significant construction project
   - Approximately 7 miles of seawall
   - Major earthwork activities
   - Construction started over 10 years ago
2. Multiple parties (and sub-parties) and claims
3. Complicated legal matter
   - 122,821 pages of documents
   - 62 days of depositions
   - 963 Deposition exhibits (nearly 11,000 pages)
   - 15 experts
4. Multiple causes of defects
5. Potential for multiple solutions

THE PROJECT SCOPE

- ITEM 1 Clearing, stripping and filling of the lands, creation of a lagoon with boatlift structure and the creation of a canal system with adequate measures for water flow.
- ITEM 2 Approximately 40,000 L.F. of seawall construction.

THE PROJECT TIMELINE

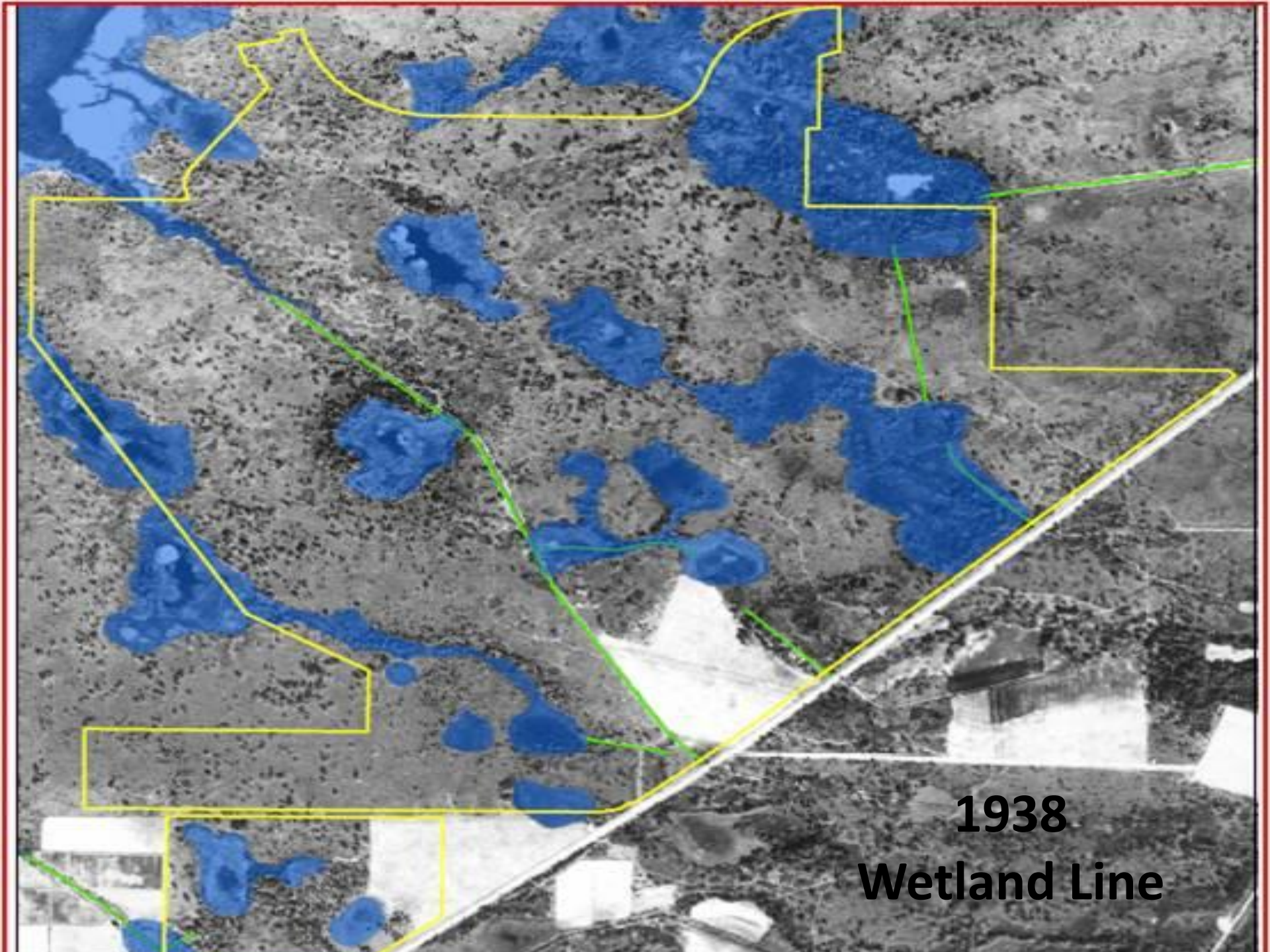
- 1999 – 2000 Sent out public notice for Seawall Design Alternatives
- Early 2001 Sent out public notice to bid earthwork and seawall installation
- May 2001 Woodruff and Sons awarded bid
- June 2001 Construction begins
- Sept. 2003 Substantial Completion
- April 2006 Waler System installation begins
- June 2007 Defendants placed on notice of defects
- Nov. 2007 Lawsuit filed

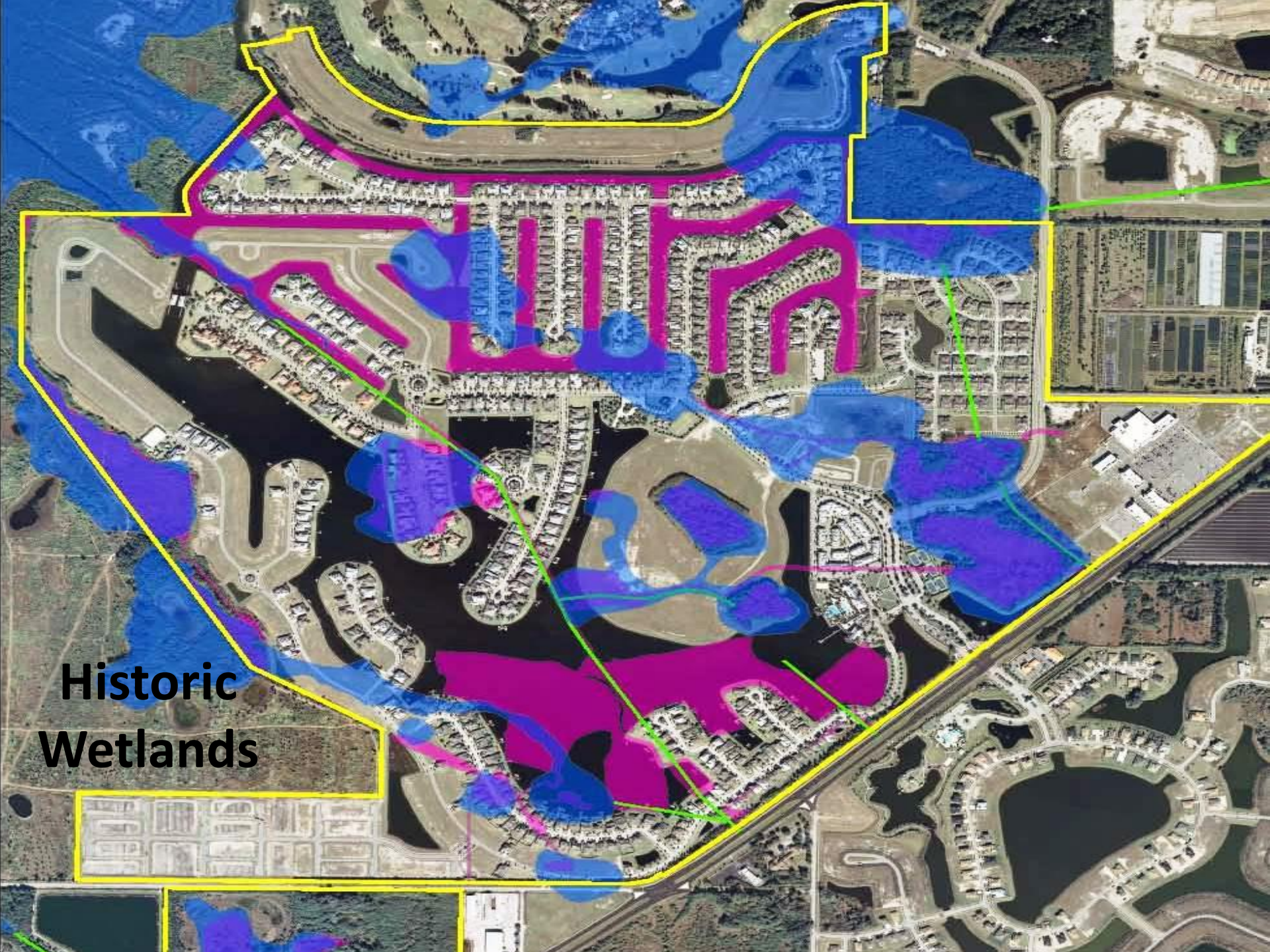
Size of the Community

Total Approximate Acres: 719

Entitled Lots: 1,750

Lots on the Seawall: 428


1938
Wetland Line


Historic
Wetlands

SITE IN 1998

Pre-Bid Geotechnical Information

1. Warning Historic Wetlands. We are about to build a major subdivision in a Coastal Marsh.
2. Become familiar with the soil conditions at this massive site. Dig test pits.
3. Many areas of the project will have unsuitable soils and this is a critical issue on this job.
4. Nothing about this site is homogeneous from a soils perspective.

SITE AT CONSTRUCTION

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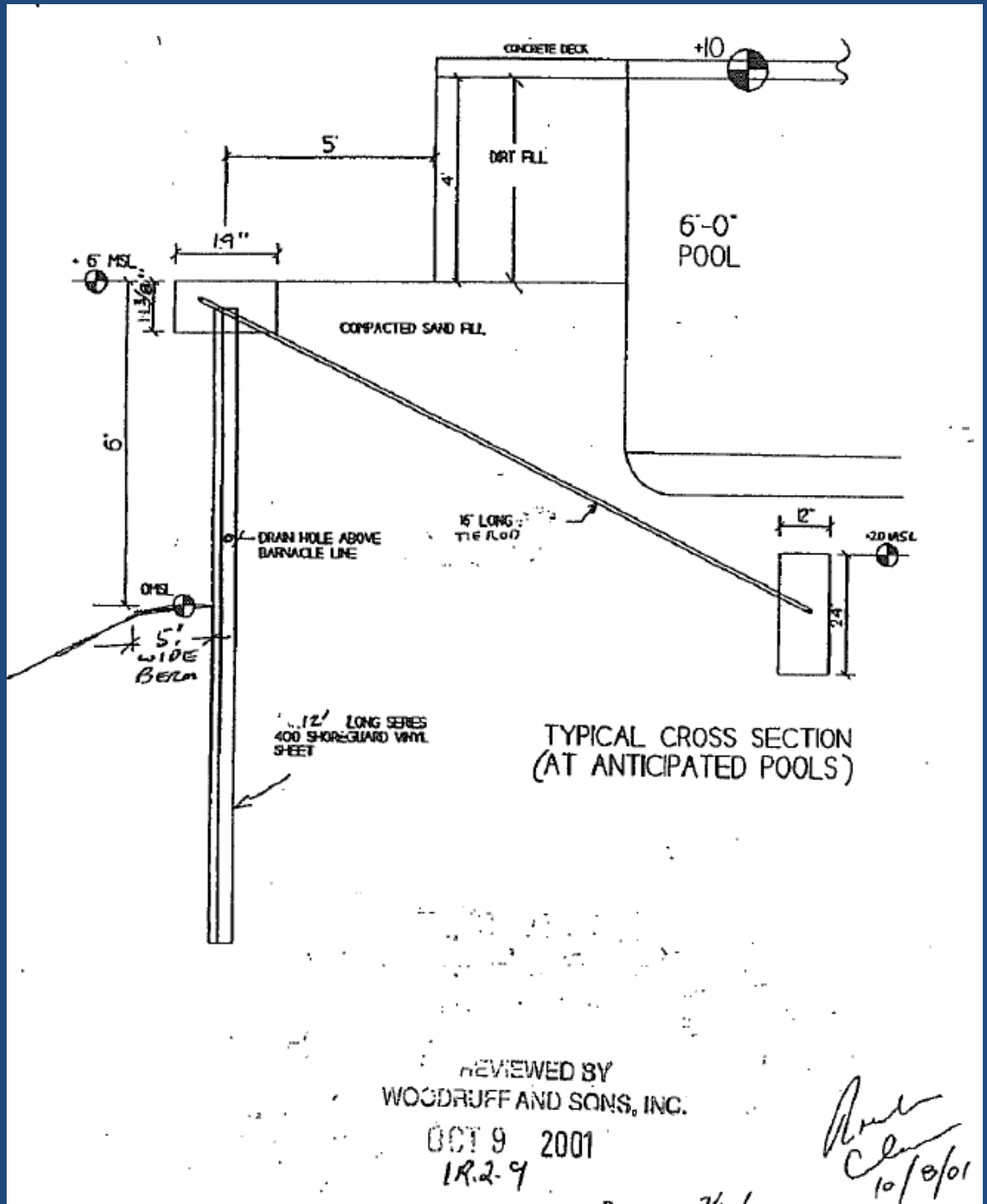
SITE AT CONSTRUCTION

Final Plan Anticipated At Homes With Pools



During Construction

During Construction

Is the Wall Fine?

CDD Experts say no and point to a number of deficiency including:

1. Excessive rotation of the seawall cap.
2. Excessive deflection of the face of the seawall.
3. Excessive settlement of the soil behind and in front of the seawall.
4. Sheet pile material below specifications.

THE SYMPTOMS OF FAILURE

BOWING

BOWING

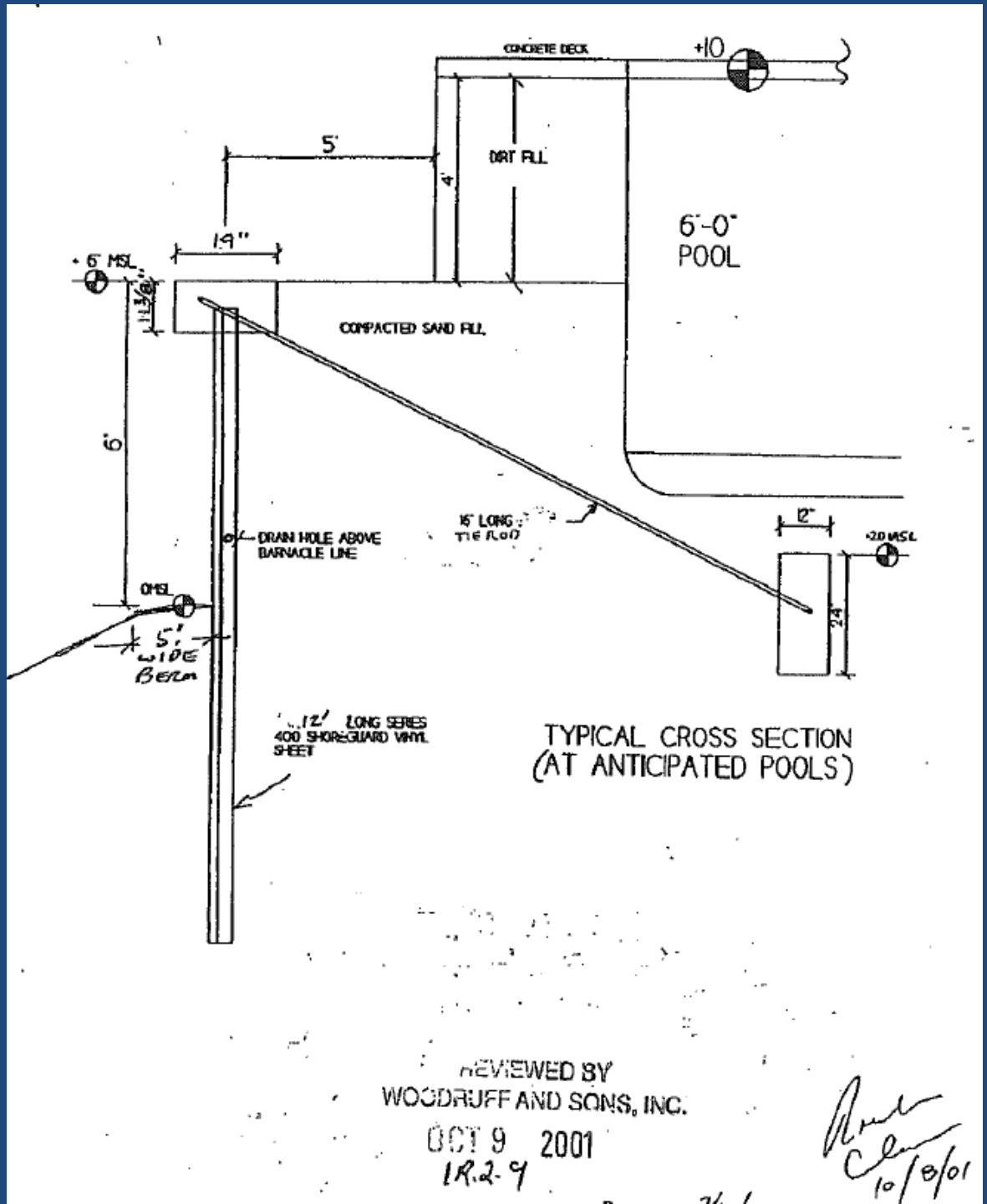
TOE KICK

TOE KICK

Cap Rotation


Cap Rotation
DSCF0012.JPG

Final Plan Anticipated At Homes With Pools



Patio/Yard Settlement Issues

SETTLEMENT

SETTLEMENT

SETTLEMENT OF THE SOILS

WHAT TYPE OF EXPERTS ARE ENGAGED BY THE PARTIES?

1. Marine Structural Engineers
2. Geotechnical Engineers
3. Civil Engineers
4. Vinyl/Chemical Engineers
5. Hydrologist
6. Marine General Contractors
7. Surveyors
8. Statistician

WHAT TESTING HAS BEEN DONE?

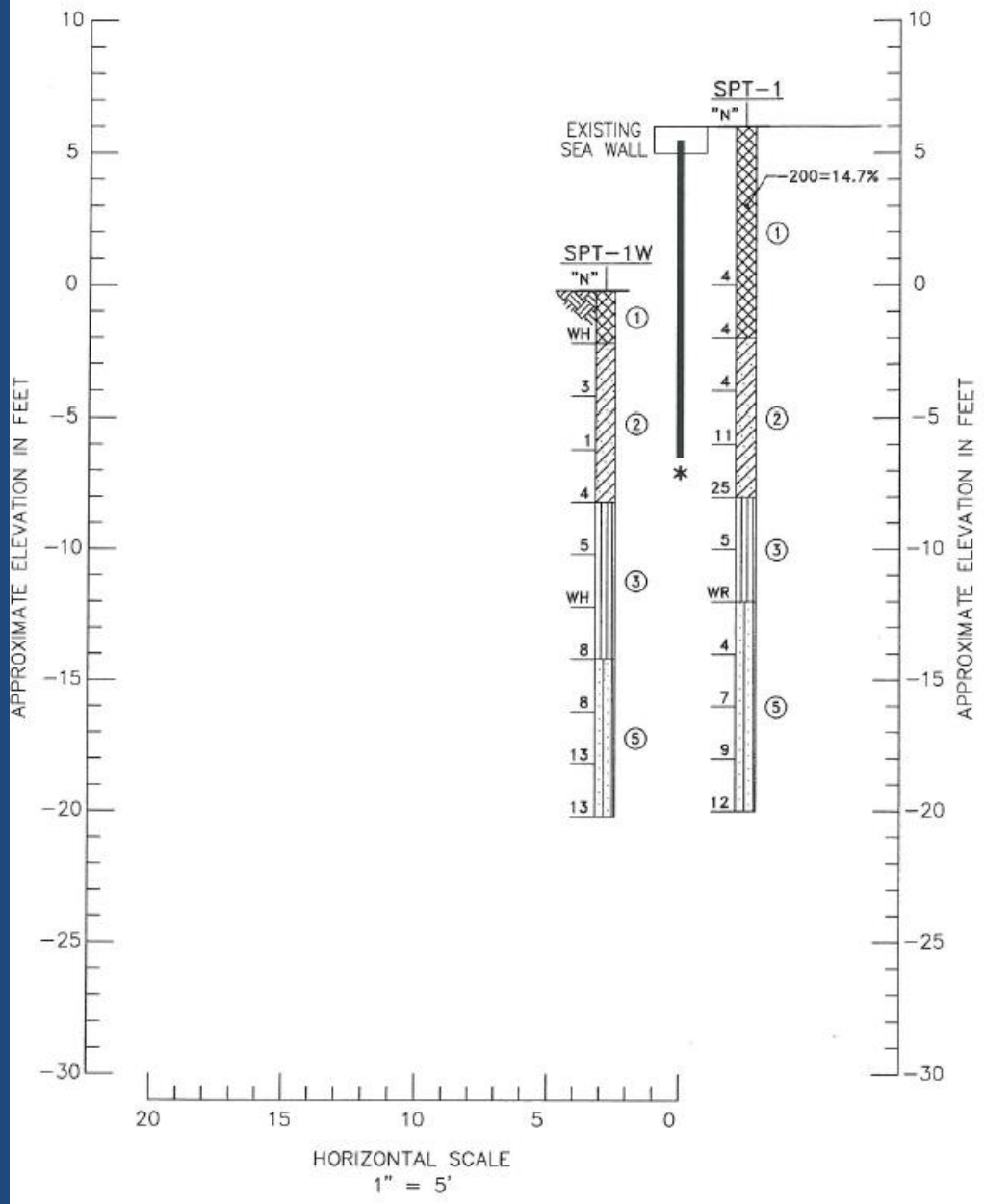
Significant testing has been performed and is ongoing as a result of the litigation including:

1. Soil borings (Standard Penetration Tests)
2. Soil material identification and density testing
3. Cap rotation measurements
4. Sheet deflection measurements
5. Sheet length measurements
6. Sheet tieback measurements
7. Continuous observation and measurements of voids behind the seawall (landward side)
8. Measurements of the berm in front of the seawall

WHAT TESTING HAS BEEN DONE? (Continued)

9. Canal slope and bottom measurements (bathymetric, topographic, mangrove)
10. LIDAR Surveying
11. Vinyl materials testing including:
    a. Dimensional (size, thickness)
    b. Strength (load, flexural, creep)
    c. Composition
    d. Presence of UV stabilizers
12. Problem analysis (computer modeling, statistical analysis, engineered solution)

TYPICAL SOIL BORING RESULT



LEGEND:

①	DARK GRAY (10YR 4/1), LIGHT GRAY (10YR 7/1), BROWNISH YELLOW (10YR 6/6) FINE SAND TO SLIGHTLY CLAYEY TO VERY CLAYEY FINE SAND WITH SHELL AND ROCK FRAGMENTS (SP/SP-SC/SC)(PROBABLE FILL)
②	YELLOWISH BROWN (10YR 5/4), LIGHT BROWNISH GRAY (10YR 6/2) FINE SAND TO SLIGHTLY CLAYEY TO CLAYEY FINE SAND (SP/SP-SC/SC)
③	VERY DARK BROWN (10YR 2/2) SILTY FINE SAND TO SLIGHTLY SANDY, CLAYEY SILT (SM/ML)
④	DARK BROWN (10YR 3/3) CLAYEY TO VERY CLAYEY FINE SAND (SC)
⑤	GRAY (10YR 6/1) SLIGHTLY SILTY FINE SAND WITH SHELL FRAGMENTS (SP-SM)
⑥	GRAY (10YR 6/1) SANDY CLAY (CL/CH)
⑦	LIGHT GRAY (10YR 7/1) LIMESTONE (LS)
(7.5YR 5/1)	MUNSELL SOIL COLOR CHART DESIGNATION
(SP)	UNIFIED SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW
"N" 5	BLOW COUNTS AT SHOWN DEPTH
HA	BORING ADVANCED BY HAND AUGER
WH	WEIGHT OF ROD & HAMMER
WR	WEIGHT OF ROD
100%	LOSS OF DRILLING FLUID CIRCULATION IN PERCENT
MC=37%	MOISTURE CONTENT IN PERCENT
LL=37%	LIQUID LIMIT IN PERCENT
PL=37%	PLASTIC LIMIT IN PERCENT
PI=37	PLASTICITY INDEX
-200=37%	PERCENT OF FINES PASSING THE NO. -200 SIEVE
MP-1	MUCK PROBE DEPTH IS TO BOTTOM OF SOFT CANAL BOTTOM
*	EXISTING SHEET PILE TIP ELEVATION IS UNKNOWN
	CANAL BOTTOM

SOIL TESTS RESULTS

- 56 Grain Size Distribution Sieve Samples
  - 28.6% contained excess fines
- 93 Density Tests
  - 81% did not meet or exceed the density requirements
- 43 Standard Penetration Borings (within 5 feet of the seawall)
  - Average Penetration Resistance N Value: 6.87
  - Indicative of “Loose” soils
- 30 Standard Penetration Borings (from 10 feet from the seawall to center of lots)
  - Average Penetration Resistance N Value: 8.31
  - Indicative of “Loose” soils

THE DEFENDANTS

WOODRUFF & SONS, INC.

- General Contractor
- Responsible for the construction and design of the development (Site Earthwork and Seawall)
- Allegation – Breach of Contract:

  Breached contract of standard care of duty owed to Harbor Bay by failing to properly install and/or supervise the installation of the work.


Seawall as a Critical Component

ST. PAUL FIRE & MARINE INSURANCE COMPANY

- Surety
- Insured Woodruff & Son's work for $19,436,271.00
- Allegation – Action on a Performance Bond:

  Breach of duty owed to Harbor Bay by failing to honor the terms of the Bond and by not timely correcting the defective work.

MATERIALS INTERNATIONAL, INC.

- Supplied the material for the construction of the seawall.
- Allegation – Breach of Express & Implied Warranty:

  Materials International provided inferior products that did not meet the specifications and breached the product warranty.

WOODRUFF IS ULTIMATELY RESPONSIBLE FOR THE VINYL MATERIAL USED

- Shoreguard Vinyl Sheet issues:
  - Substantial likelihood that the materials failed to have the requisite UV protectant
  - Inadequate and inconsistent product sheet thickness
  - Materials contained significant impurities
  - Failed to properly account for “creep”
  - Ambient temperatures not accounted for

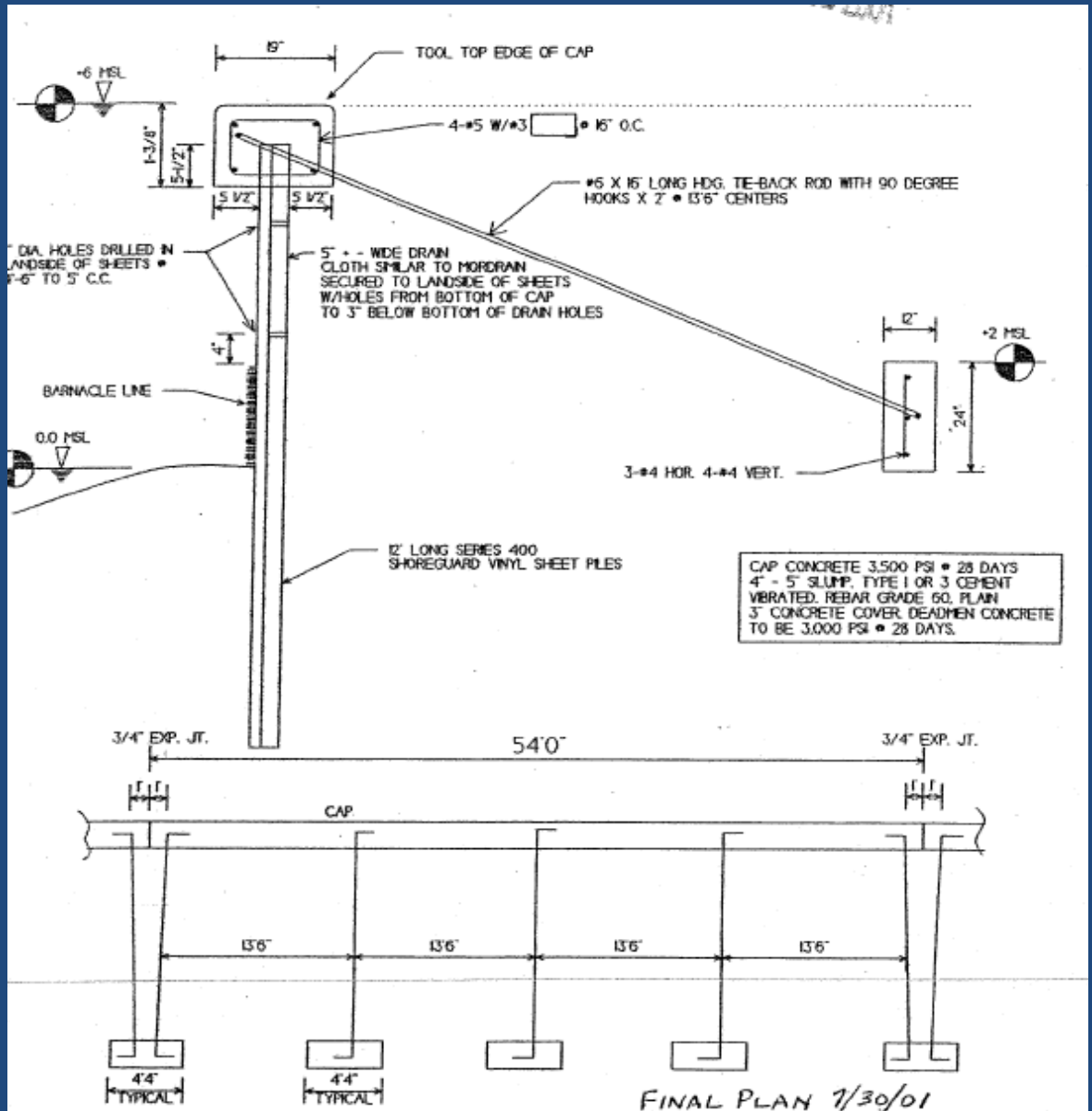
SUMMARY OF THE ISSUES/CLAIMS

CONSTRUCTION ISSUES

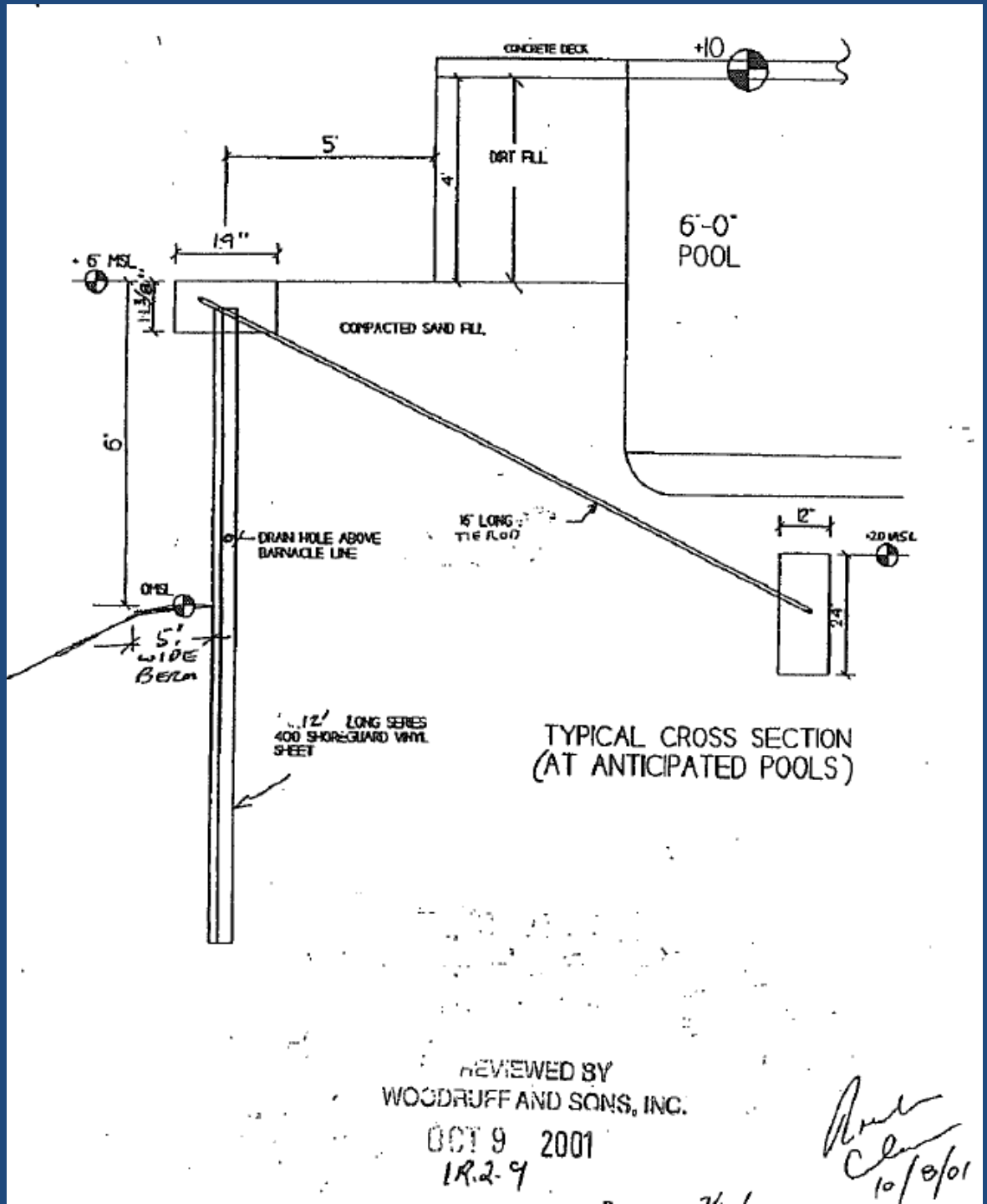
- Construction Issues – Soils Related
  - Improper or inadequate testing of soils at and around the seawalls
  - Improper backfilling on both sides of the seawall
  - Use of unsuitable soil materials
  - Improper compaction of soils
  - Excessive hydrostatic pressures at the time of construction

- Construction Issues – Seawall Related
  - Improper methods of seawall installation
  - Installation of the seawall into unsuitable or loose soil
  - Use of heavy equipment too close to seawall
  - Use of materials that do not meet specifications

Final Plan


TOOL TOP EDGE OF CAP
-6 MSL
4-#5 W/#3 @ 16" O.C.
#6 X 16' LONG HDG. TIE-BACK ROD WITH 90 DEGREE HOOKS X 2" @ 13'6" CENTERS
5" ± WIDE DRAIN CLOTH SIMILAR TO MORDRAIN SECURED TO LANDSIDE OF SHEETS W/HOLES FROM BOTTOM OF CAP TO 3" BELOW BOTTOM OF DRAIN HOLES
BARNACLE LINE
0.0 MSL
+2 MSL
3-#4 HOR. 4-#4 VERT.
12' LONG SERIES 400 SHOREGUARD VINYL SHEET PILES
CAP CONCRETE 3,500 PSI @ 28 DAYS 4" - 5" SLUMP, TYPE I OR 3 CEMENT VIBRATED. REBAR GRADE 60, PLAIN 3" CONCRETE COVER. DEADMEN CONCRETE TO BE 3,000 PSI @ 28 DAYS.
3/4" EXP. JT.
54'0"
3/4" EXP. JT.
CAP
13'6"
13'6"
13'6"
13'6"
4'4" TYPICAL
4'4" TYPICAL
FINAL PLAN 7/30/01
PROJECT: PROPOSED SEAWALL
HARBOR BAY
APOLLO BEACH, FLORIDA
REUBEN CLARSON CONSULTING PE #16313
ST.PETERSBURG, FL
727-895-4717
7/31/01
REVIEWED BY
WOODRUFF AND SONS, INC.
SHEET 1 OF 1

Final Plan Anticipated At Homes With Pools

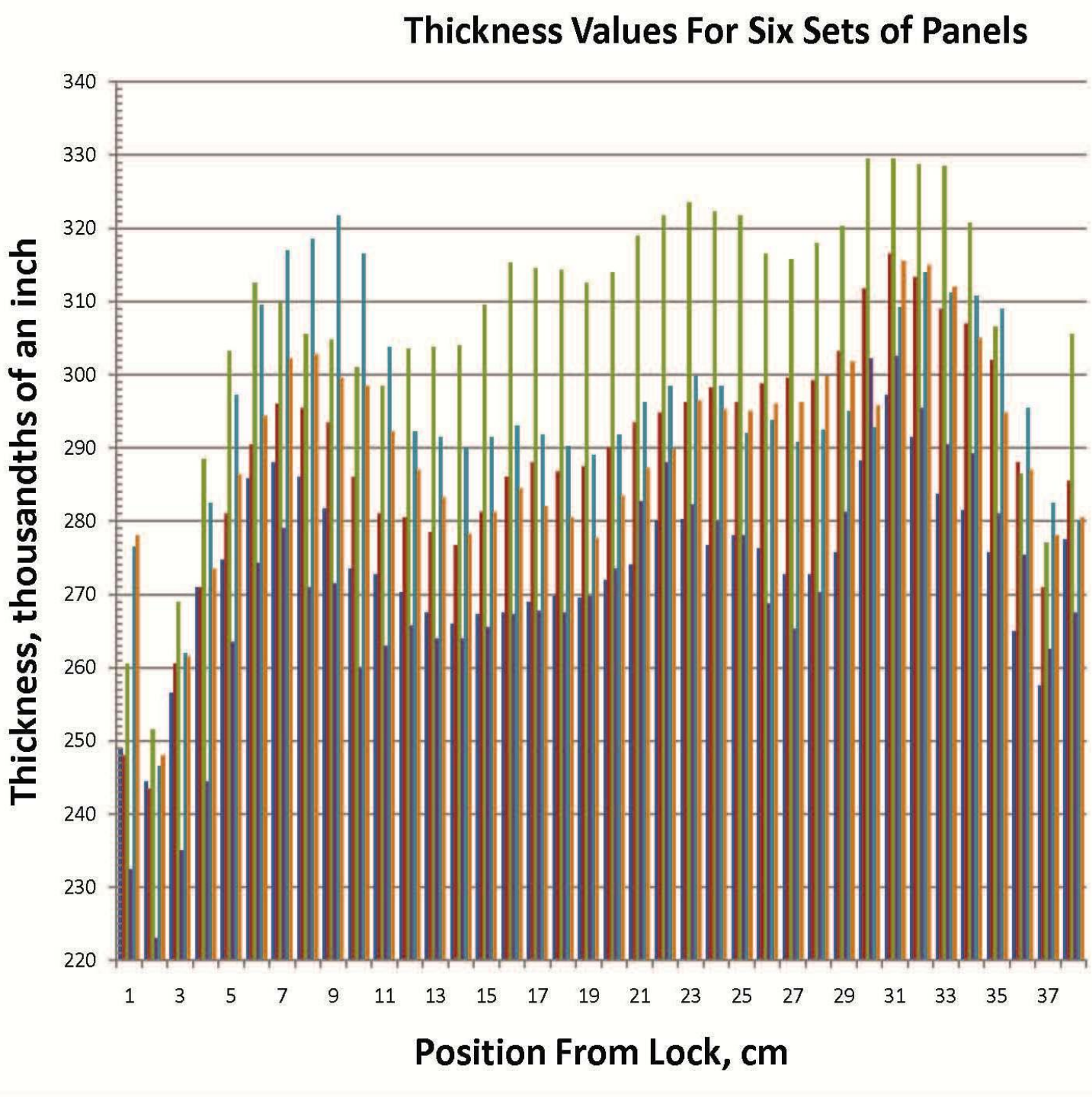


During Construction

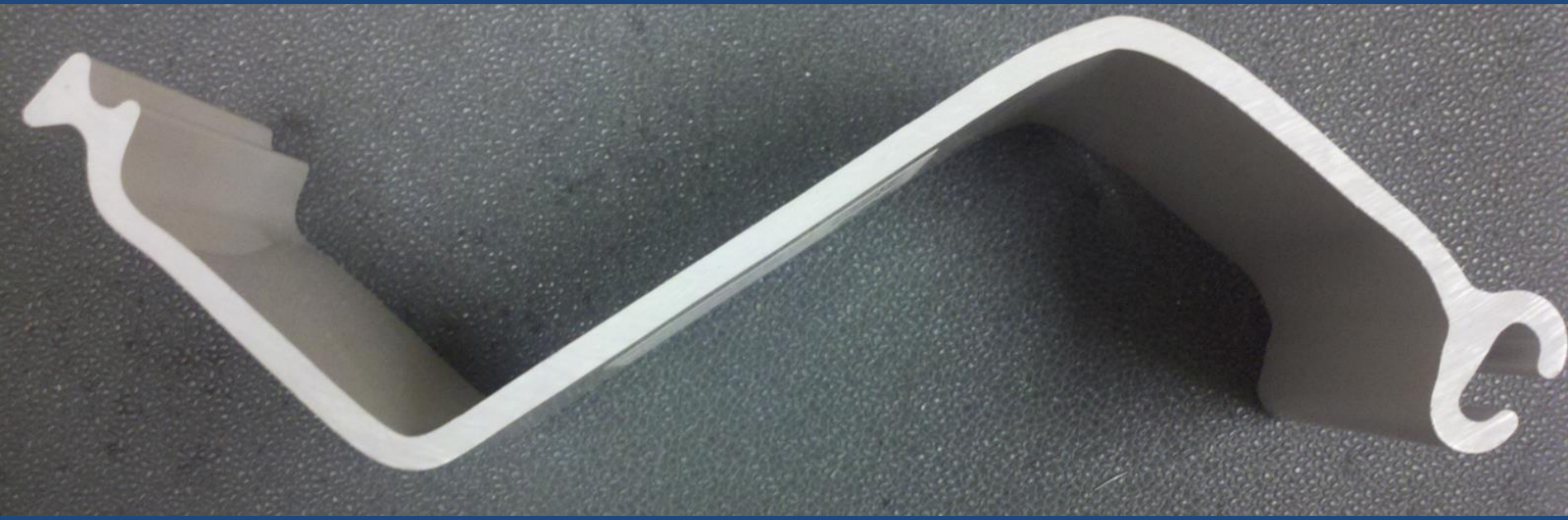
During Construction

Post Construction

VINYL MATERIAL ISSUES


Thickness Values For Six Sets of Panels
Thickness, thousandths of an inch
340
330
320
310
300
290
280
270
260
250
240
230
220
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
Position From Lock, cm

VINYL SHEET GEOMETRY



WHAT ARE WE FINDING?

Exposed height of the seawall is ACCEPTABLE

- 557 measurements taken
  - Average exposed height is 70 inches.

Seawall bending/bowing

- 496 total measurements taken
  - 32.7% Greater than maximum allowable deflection

WHAT ARE WE FINDING?
(CONTINUED)

- Voids/Depressions around the seawall
  - 63.6% of the lots
- Seawall cap rotation of 5/8” or greater
  - In 2007, 13.8% of the lots
  - In 2011, 54.9% of the lots
    - Average: 7/8”
- Patio wall cracks and depressions
  - 57.5% of the homes have some form of cracking

SUMMARY OF FINDINGS

- 28.6% of the soils contain excessive fines material
- 81% of the soils are not dense enough
- Soils are considered “Loose” and, therefore are not properly compacted
- The vinyl materials are not performing as specified
- The exposed height of the seawall is acceptable
- 32.7% of the seawall is deflecting more than it should
- 63.6% of the lots are experiencing voids/depressions around the seawall
- 54.9% of the lots are experiencing a seawall cap rotation of 5/8” or greater
- 57.5% of the patio wall have cracks and depressions

WHAT ARE THE DEFENDANTS CLAIMING?

- The seawall is NOT failing
  - Esthetic issues only
  - Seawall performs according to design
  - Any failures are because of a lack of berm
- The residents are causing the berm to erode
  - Boat prop wash
  - Lack of adherence to the “No Wake Zone”
- The residents are causing voids around the seawall with their irrigation systems
- Not responsible for maintenance

THE DEFENDANTS EXPERTS

- Marine Structural Engineers
- Civil Engineers
- Surveyors
- Marine General Contractor/Inspector
- Vinyl Chemical Engineer
- Geotechnical Engineer

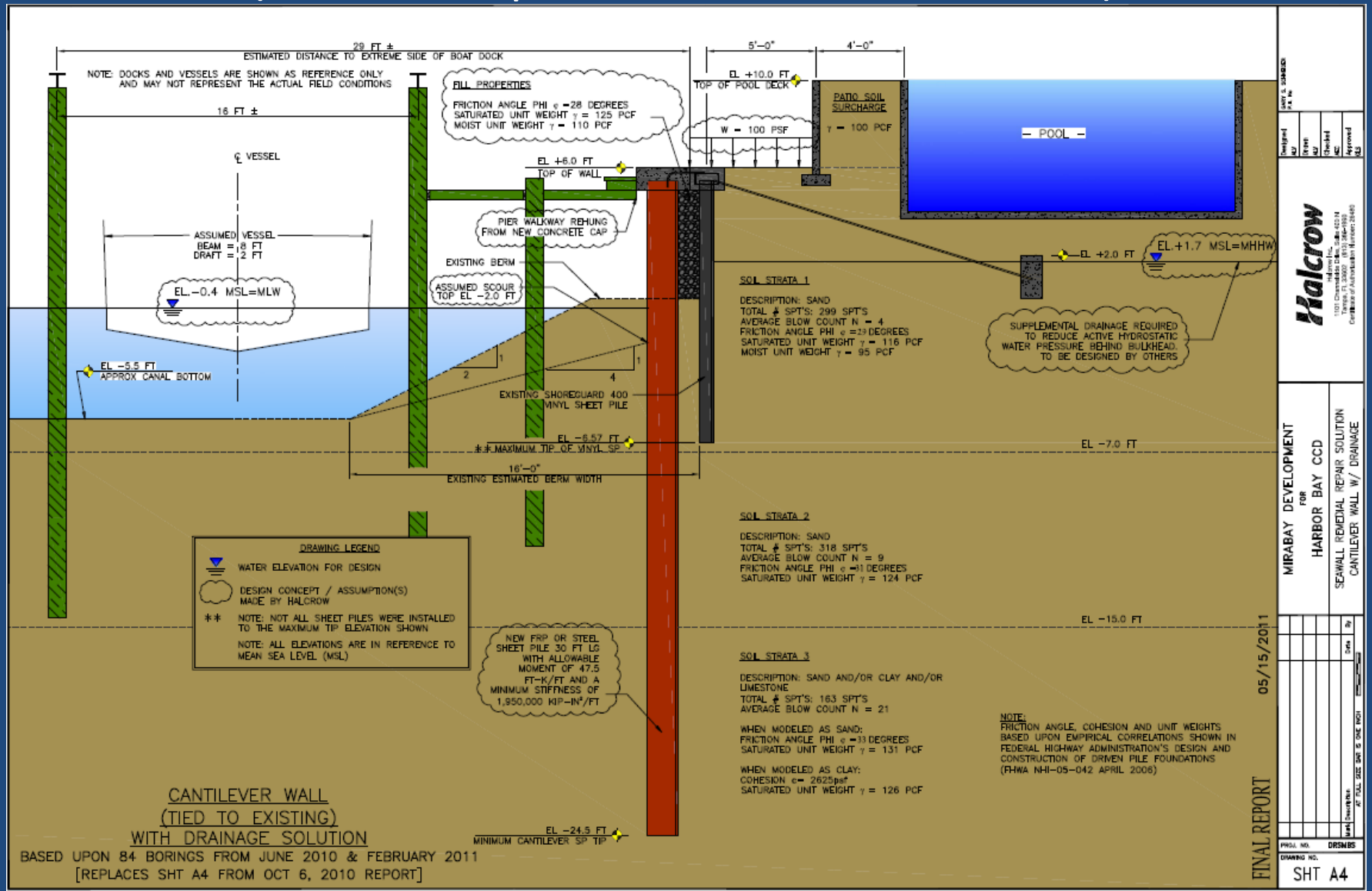
THE DEFENDANTS LIDAR INVESTIGATION

- December 2011, Defendants commissioned the use of LIDAR (Light Detection and Ranging) optical remote sensing technology.
  - Intended Purpose – Accurately depict the seawall exposed heights throughout the community
  - Actual Results – inconclusive
  - Unintended Purpose – CDD's use to further substantiate its claims of seawall bowing, deflection and cap rotation

PROPOSED SOLUTION

CANTILEVER DRAWING

(Halcrow Report dated October 6, 2010)



Budgetary Cost Estimates

(Halcrow Report dated October 6, 2010, Page 5)

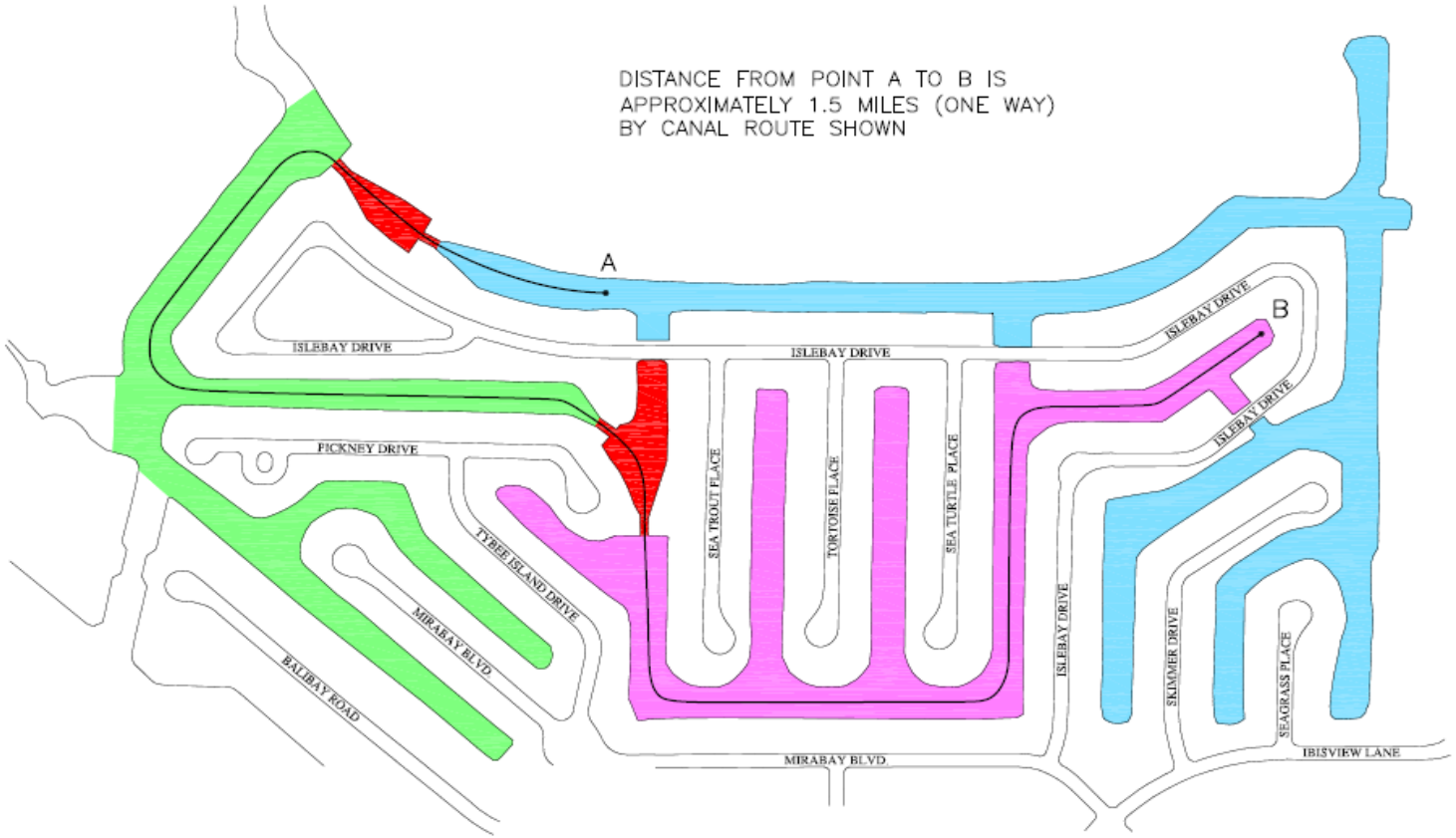
Budgetary Cost Estimate for an RFP Cantilever Wall

The budgetary cost estimate is split into two portions. Since not all items on the cost estimate are equally affected by the wall length involved, these lump sum and each occurrence items have been listed separately from the per linear foot of wall unit prices. Therefore, the total project price can be estimated based upon the linear footage of wall to be installed at the unit price plus the cost of each occurrence within the project plus the mobilization lump sum.

Description	Unit Price	Unit
Mobilization to Site and Set Up of Material Handling on Undeveloped Property North of Canal Area A	$50,000	Lump Sum
Transport and Set-Up of Work Platform Barge and Equipment in Each Canal Area Included in the Project	$42,500	Each Occurrence
Allowance for Partial Removal, Modification and Reinstallation of Each Existing Dock Impacted by the Project	$2,500	Each Occurrence

Description	Unit Price	Unit
RFP Bulkhead Wall Material	$580	Per LF of Wall
Installation of RFP Bulkhead Wall	$300	Per LF of Wall
Material and Installation of Wall Concrete Cap	$150	Per LF of Wall
Allowance for Supplemental Drainage	$100	Per LF of Wall
UNIT PRICE	$1,130	Per LF of Wall

Complications With Repair



EXAMPLE OF MATERIAL BARGE TRANSPORT DISTANCE

PRELIMINARY

09\22\2010

MIRABAY DEVELOPMENT
FOR
HARBOR BAY CCD

SEAWALL REMEDIAL REPAIR
SITE PLAN – MATERIAL TRANSPORT

Halcrow

PROJ. NO. DRSMBS

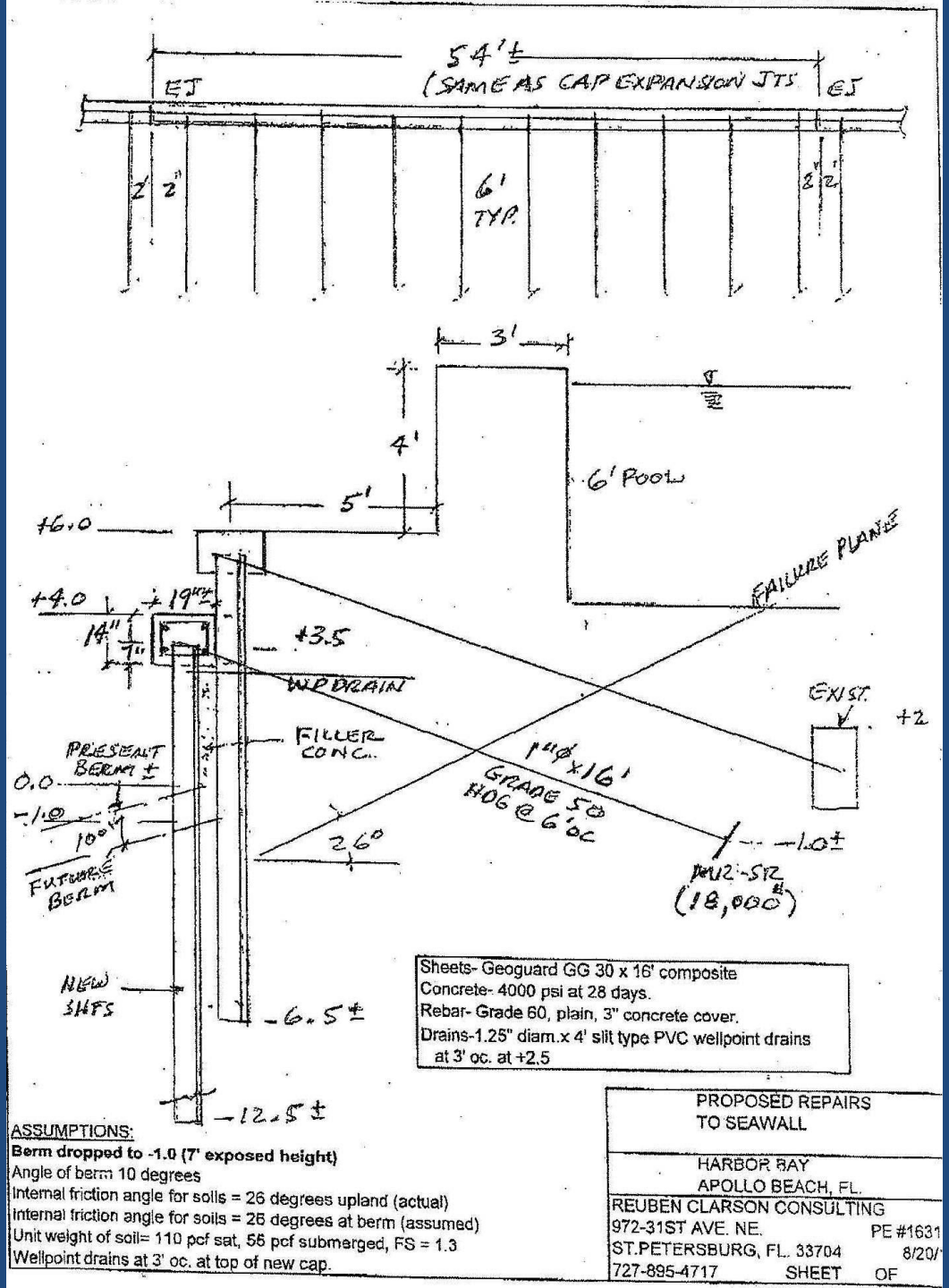
DRAWING NO. SHT A2

Alternative Remedial Measures

- Knee wall design alternative
- Additional Walers
- A combination of solutions

KNEE WALL DESIGN ALTERNATIVE

Estimated cost to construct is **$605.00** per LF of wall



ADDITIONAL WALER SYSTEM

- Estimated cost to construct is **$120.00** per LF of wall.

WHAT ARE OUR CURRENT DAMAGES?

TOTAL REPAIR COSTS TO DATE $1,788,265.73

- Walers Installed
- Filling of Voids/Depressions
- Misc. repiars

WHAT ARE OUR POTENTIAL DAMAGES?

IF ALL of the seawall needed to be repaired:

- Halcrow Solution
  - Approximately $45,000,000
- Knee Wall Solution
  - Approximately $24,200,000.00

WHAT ARE OUR POTENTIAL DAMAGES?

More that likely a combination of solutions will be implemented depending on they type and extent of the seawall failures:

- Halcrow Solution
- Knee Wall Solution
- Waler Solution