

BID DOCUMENTS

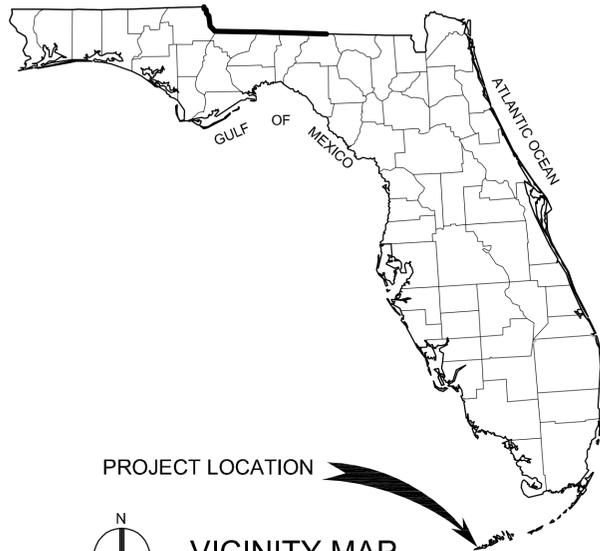
FOR THE CONSTRUCTION OF THE

SEAWALL REPAIRS AT

ZERO DUVAL

PREPARED FOR

CITY OF KEY WEST



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GENERAL

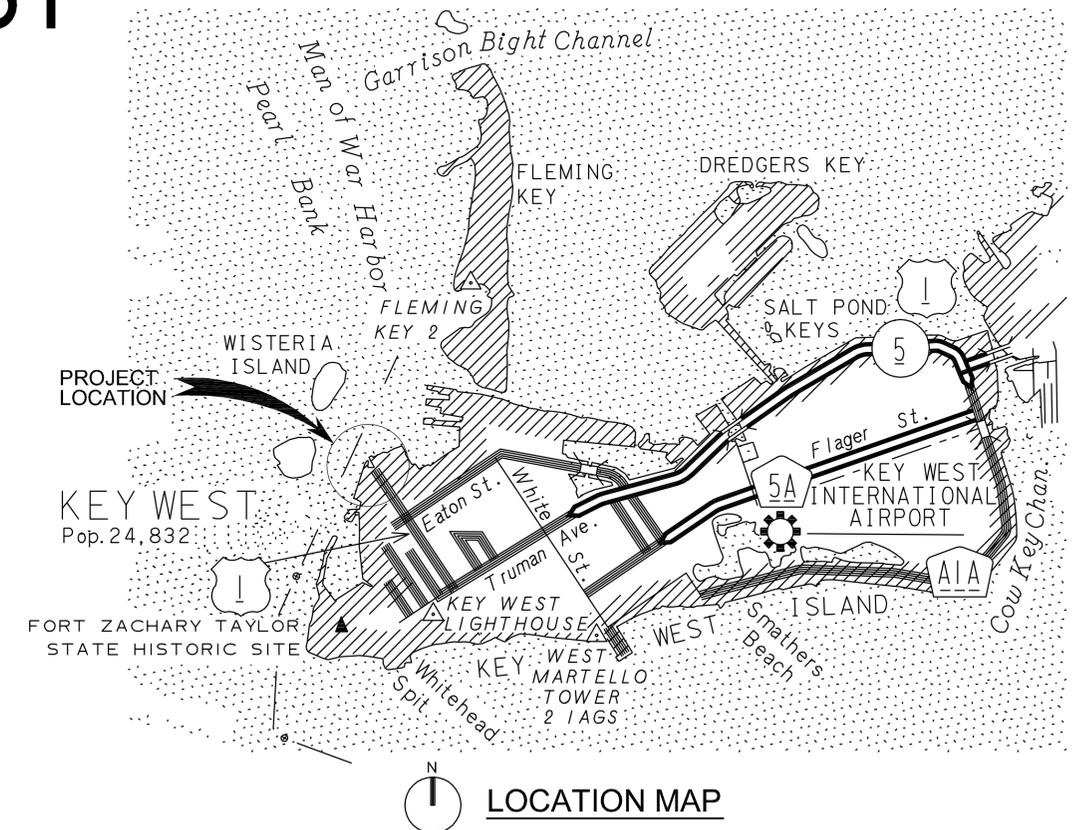
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Volume 2 of 2



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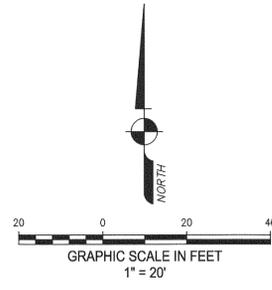
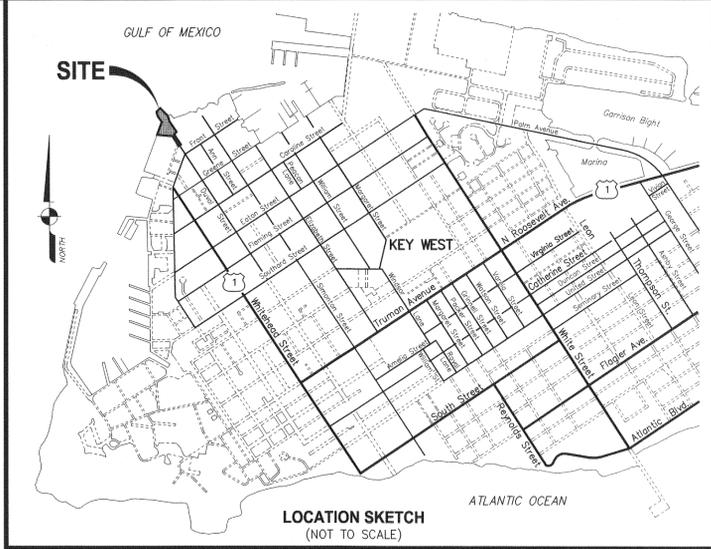
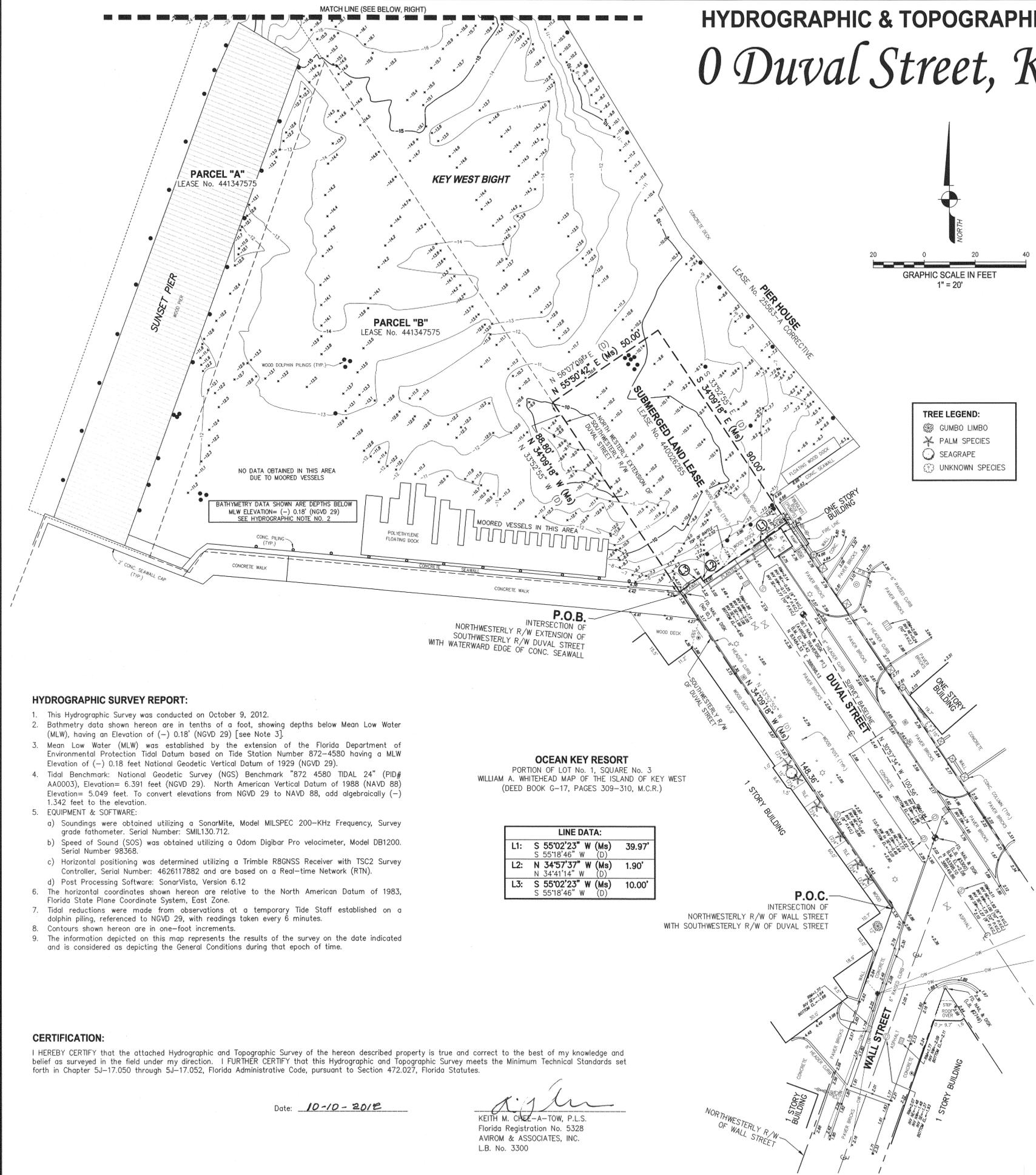
ANDREW SMYTH P.E.
 6410 5th Street, Suite 2-A
 Key West, FL 33040
 305-294-1645

CH2MHILL

CH2M Hill Project No. 439197
 Key West Project No. EN-1002

BID DOCUMENTS
 MAY 16, 2014

HYDROGRAPHIC & TOPOGRAPHIC SURVEY OF: 0 Duval Street, Key West



TREE LEGEND:

- GUMBO LIMBO
- PALM SPECIES
- SEAGRAPE
- UNKNOWN SPECIES

SYMBOL LEGEND:

- BACKFLOW PREVENTOR
- BENCHMARK
- CATCH BASIN
- DOUBLE DETECTOR VALVE
- DRAINAGE MANHOLE
- ELECTRIC SERVICE BOX
- EXISTING ELEVATION
- GUY ANCHOR
- LAMP POST
- OVERHEAD WIRES
- SANITARY CLEANOUT
- SANITARY MANHOLE
- SIAMESE FIRE CONNECTION
- SIGN
- TELEPHONE SERVICE BOX
- VALVE
- WATER METER
- WOOD UTILITY POLE

TOPOGRAPHIC SURVEY REPORT:

- Reproductions of this Sketch are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.
- No Title Opinion or Abstract to the subject property has been provided. It is possible that there are Deeds, Easements, or other instruments (recorded or unrecorded) which may affect the subject property. No search of the Public Records has been made by the surveyor.
- No underground improvements were located.
- Bearings and coordinates shown hereon are relative to the North American Datum of 1983, Florida State Plane Coordinate System, East Zone.
- Bearings and coordinates were established by a Real-time Kinematic (RTK) GPS Control Survey which is certified to a 2 centimeter local accuracy, relative to the nearest control point within the National Geodetic Survey (NGS) Geodetic Control Network.
 - Method: Wide Area Continuously Operating GPS Reference Station Network.
 - Equipment Used: Trimble R8GNSS Receiver with TSC2 Survey Controller, Serial Number: 4626117882
 - Processing Software: Trimble Geomatics Office, Version 1.63.
 - Ties were made to National Geodetic Control Point "BAYOU" (P.I.D. AD0028).
- Elevations shown hereon are in feet and based on the National Geodetic Vertical Datum of 1929 (NGVD 1929).
- Benchmark Description: National Geodetic Survey (NGS) Benchmark "872 4580 TIDAL 24" (PID# AA0003), Elevation= 6.391 feet (NGVD 29). North American Vertical Datum of 1988 (NAVD 88) Elevation= 5.049 feet. To convert elevations from NGVD 29 to NAVD 88, add algebraically (-) 1.342 feet to the elevation.
- Symbols shown hereon and in the legend may have been enlarged for clarity. These symbols have been plotted at the center of the field location and may not represent the actual shape or size of the feature.
- This map is intended to be displayed at a scale of 1:240 (1"=20') or smaller.
- Units of measurement are in U.S. Survey Feet and decimal parts thereof. Well identified features in this survey were field measured to a horizontal positional accuracy of 0.10'. The elevations on impervious surfaces were field measured to 0.03' and on ground surfaces to 0.1'.
- Abbreviation Legend: B.M. = Benchmark; CONC. = Concrete; EL. = Elevation; F.B. = Field Book; L.B. = Licensed Business; MLW = Mean Low Water; NAD = North American Datum; NAVD = North American Vertical Datum; NGVD = National Geodetic Vertical Datum; NGS = National Geodetic Survey; PG. = Page; P.I.D. = Point Identifier; P.L.S. = Professional Land Surveyor.

HYDROGRAPHIC SURVEY REPORT:

- This Hydrographic Survey was conducted on October 9, 2012.
- Bathymetry data shown hereon are in tenths of a foot, showing depths below Mean Low Water (MLW), having an Elevation of (-) 0.18' (NGVD 29) [see Note 3].
- Mean Low Water (MLW) was established by the extension of the Florida Department of Environmental Protection Tidal Datum based on Tide Station Number 872-4580 having a MLW Elevation of (-) 0.18 feet National Geodetic Vertical Datum of 1929 (NGVD 29).
- Tidal Benchmark: National Geodetic Survey (NGS) Benchmark "872 4580 TIDAL 24" (PID# AA0003), Elevation= 6.391 feet (NGVD 29). North American Vertical Datum of 1988 (NAVD 88) Elevation= 5.049 feet. To convert elevations from NGVD 29 to NAVD 88, add algebraically (-) 1.342 feet to the elevation.
- EQUIPMENT & SOFTWARE:
 - Soundings were obtained utilizing a SonarMite, Model MILSPEC 200-KHz Frequency, Survey grade fathometer. Serial Number: SML130.712.
 - Speed of Sound (SOS) was obtained utilizing a Odom Digibar Pro velocimeter, Model DB1200. Serial Number 98368.
 - Horizontal positioning was determined utilizing a Trimble R8GNSS Receiver with TSC2 Survey Controller, Serial Number: 4626117882 and are based on a Real-time Network (RTN).
 - Post Processing Software: SonarVista, Version 6.12
- The horizontal coordinates shown hereon are relative to the North American Datum of 1983, Florida State Plane Coordinate System, East Zone.
- Tidal reductions were made from observations at a temporary Tide Staff established on a dolphin piling, referenced to NGVD 29, with readings taken every 6 minutes.
- Contours shown hereon are in one-foot increments.
- The information depicted on this map represents the results of the survey on the date indicated and is considered as depicting the General Conditions during that epoch of time.

OCEAN KEY RESORT
 PORTION OF LOT No. 1, SQUARE No. 3
 WILLIAM A. WHITEHEAD MAP OF THE ISLAND OF KEY WEST
 (DEED BOOK G-17, PAGES 309-310, M.C.R.)

LINE DATA:

L1:	S 55°02'23" W (Ms)	39.97'
	S 55°18'46" W (D)	
L2:	N 34°57'37" W (Ms)	1.90'
	N 34°41'14" W (D)	
L3:	S 55°02'23" W (Ms)	10.00'
	S 55°18'46" W (D)	

CERTIFICATION:

I HEREBY CERTIFY that the attached Hydrographic and Topographic Survey of the hereon described property is true and correct to the best of my knowledge and belief as surveyed in the field under my direction. I FURTHER CERTIFY that this Hydrographic and Topographic Survey meets the Minimum Technical Standards set forth in Chapter 5J-17.050 through 5J-17.052, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

Date: 10-10-2012

Keith M. Chee
 KEITH M. CHEE-A-TOW, P.L.S.
 Florida Registration No. 5328
 AVIROM & ASSOCIATES, INC.
 L.B. No. 3300

AVIROM & ASSOCIATES, INC.
 SURVEYING & MAPPING
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 KEY WEST, FLORIDA 33045
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AVIROM & ASSOCIATES
 ESTABLISHED 1983

SCALE:	1" = 20'
DATE:	10/10/2012
BY:	S.A.M.
CHECKED:	K.M.C.
F.B. #:	1613
PG. #:	1-9, 12-18
SHEET #:	1 OF 1
JOB #:	9145

HYDROGRAPHIC AND TOPOGRAPHIC SURVEY
0 DUVAL STREET
 AND SUBMERGED LAND LEASE No. 440026265
 CITY OF KEY WEST
 MONROE COUNTY, FLORIDA

DESIGN SPECIFICATIONS AND REFERENCES:

- FLORIDA BUILDING CODE, 2010 EDITION.
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN," 13th EDITION, 2005.
- AMERICAN WELDING SOCIETY (AWS), "STRUCTURAL WELDING CODE - STEEL", ANSI/AWS D1.1/D1.1M, 2006.
- AMERICAN CONCRETE INSTITUTE (ACI) PUBLICATION ACI 318-08 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND ACI 301-08, "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- FLORIDA DEPT OF TRANSPORTATION (FDOT), "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 2010.
- AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO) "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES," 17th EDITION, 2002.
- UNIFIED FACILITIES CRITERIA (UFC):
 - "DESIGN OF PIERS AND WHARVES": UFC-4-152-01, 2005
 - "MOORING DESIGN" UFC-4-159-3, 2005
 - "GENERAL CRITERIA FOR WATERFRONT CONSTRUCTION"; UFC-4-151-10, 2001.
- WIND LOADS ARE BASED ON THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) /AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) PUBLICATION 7-2010 "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES" AND THE "FLORIDA BUILDING CODE".

PERMITS:

- COMPLY WITH ALL REQUIREMENTS AND CONDITIONS OF THE OWNER OBTAINED ENVIRONMENTAL PERMITS, AND PERMIT MODIFICATIONS FAILURE TO DO SO MAY RESULT IN AGENCY ENFORCEMENT ACTION AGAINST THE CONTRACTOR.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETINGS, WHERE ALL SUBCONTRACTORS SHALL PARTICIPATE ALONG WITH THE PERMITTING AGENCIES INVOLVED. ALL SHALL BE NOTIFIED IN ADVANCE OF THE MEETING AND GIVEN THE OPPORTUNITY TO ATTEND.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING (AT A MINIMUM) CITY OF KEY WEST BUILDING PERMIT, SFWMD DEWATERING AND WATER USE PERMIT, AND STORM WATER POLLUTION PREVENTION PERMIT.

PROJECT INFORMATION:

- THE FOLLOWING REPORTS WERE UTILIZED IN PREPARING THE DESIGN FOR THE BULKHEAD. COPIES OF THESE REPORTS ARE AVAILABLE FROM THE CITY OF KEY WEST.
 - REPORT OF GEOTECHNICAL EXPLORATION - NUTTING ENGINEERS, MIAMI, FL, DATED FEBRUARY 2012, REPORT NO. 126-21.2.
 - HYDROGRAPHIC AND TOPOGRAPHIC SURVEY - BY KEITH M. CHEE-A-TOW, P.L.S. FROM AVIROM & ASSOCIATES, INC OF KEY WEST, FL, DATED 10/10/2012.
 - DUVAL STREET SEAWALL INSPECTION REPORT BY G.M. SELBY, WC OF MIAMI, FL, DATED OCTOBER 2008.
- VERTICAL AND HORIZONTAL PROJECT CONTROLS:
 - HORIZONTAL CONTROL BASED ON THE FLORIDA STATE PLAN COORDINATE SYSTEM (NAD83/FL EAST).
 - BATHYMETRIC DATA IS REFERENCED TO MEAN LOW WATER (MLW) HAVING AN ELEVATION OF (-)0.18 FEET NGVD29.
 - UPLAND ELEVATIONS ARE REFERENCED TO NGVD29 AND REFERENCED TO BENCHMARK "872 4580 TIDAL 24" (PID #AA0003) WITH ELEVATION 6.391 FEET NGVD29 AND 5.049 FEET NAVD88.
 - REFERENCE SURVEY LISTED UNDER SECTION 1B ABOVE FOR ALL TOPOGRAPHIC INFORMATION NEEDED.
- CONTRACTOR IS RESPONSIBLE FOR LOCATION OF EXISTING UTILITIES.

MATERIALS:

- ALL CONCRETE (EXCEPT DRILLED SHAFT) SHALL CONTAIN:
 - PORTLAND CEMENT -ASTM C150- TYPE II.
 - HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER) AND WATER REDUCING ADMIXTURE.
 - LOW WATER-TO-CEMENTITIOUS-MATERIALS RATIO - W/CM < 0.40.
 - LIMIT ON SIZE OF LARGE AGGREGATE - 3/4 INCH MAXIMUM.
 - ALL CONCRETE SHALL COMPLY WITH ACI 318 - EXPOSURE CLASS C2, FOR SEVERE CORROSION PROTECTION OF REINFORCEMENT.
- CAST IN PLACE CONCRETE - 28 DAY STRENGTHS @ SSP BULKHEAD CAP - 5,000 psi.

MATERIALS (CONT.):

- REINFORCEMENT:
 - NEW BILLET REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
 - STEEL FOR TIGHT RADIUS BENDS AND WELDABILITY SHALL CONFORM TO ASTM A706, GRADE 60.
 - PRESTRESSING STRANDS SHALL BE ASTM A416, 270 KSI LOW RELAXATION TYPE, 1/2" SPECIAL.
- STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A992 OR ASTM A572, WITH A MINIMUM YIELD STRENGTH OF 50 KSI.
- STEEL SHEET PILES SHALL CONFORM TO ASTM A572, GRADE 50. COAT FRONT AND BACK FACES THROUGHOUT OF BULKHEAD SHEETS, WITH MINIMUM 20 MILS DFT (TWO COATS MINIMUM) OF COAL TAR EPOXY-POLYAMIDE COATING SYSTEM (SSPC PS 11.01 AND PAINT 16) DOWN TO EL -27.0 FT.
- FENDER MOUNTING HARDWARE, (INCLUDING NUTS, BOLTS, WASHERS, BENT PLATES, ETC.), AND ADHESIVE ANCHOR THREADED RODS EXPOSED TO SALTWATER ENVIRONMENT SHALL BE AISI TYPE 316L STAINLESS STEEL, AS APPLICABLE.
- FLOWABLE FILL PER CONCRETE SPECIFICATION IN PROJECT MANUAL.

CONCRETE REQUIREMENTS:

- PROVIDE 4 INCHES OF CONCRETE COVER OVER ALL REINFORCING STEEL.
- CHAMFER EXPOSED CONCRETE EDGES 1 INCH BY 1 INCH.
- FOLLOW ACI 301, ACI 305 AND ACI 306 FOR HOT AND COLD WEATHER CONCRETE WORK.
- EMBEDDED ITEMS SHALL BE SECURELY MAINTAINED IN POSITION DURING CONCRETE PLACEMENT.
- NOT MORE THAN ONE- HALF OF THE REINFORCING BARS SHALL BE SPLICED AT ANY ONE LOCATION WITH ADJACENT SPLICES STAGGERED NOT LESS THAN TWO CLASS "B" LAP SPLICE LENGTHS BETWEEN SPLICES.
- HOOKS AT THE ENDS OF REINFORCING BARS SHALL BE STANDARD ACI 90, 135 AND 180 DEGREE HOOKS CONFORMING TO ACI 318-08.
- DO NOT CUT, BEND OR OTHERWISE MODIFY REINFORCING STEEL IN THE FIELD. REINFORCING BARS SHALL NOT BE DISPLACED TO ACCOMMODATE ANCHORS, EMBEDS, OR OTHER ITEMS.
- ALL REINFORCEMENT SHALL BE 60 KSI CONFORMING TO ASTM A615 OR ASTM A706.
- SPLICE REINFORCING BARS AS INDICATED. SPLICES NOT SPECIFICALLY DIMENSIONED SHALL BE IN ACCORDANCE WITH ACI 318, SECTION 12.15, CLASS "B", CASE "1" TENSION LAP SPLICES, AS TABULATED BELOW. TOP BARS ARE HORIZONTAL BARS WITH 12 INCHES OR MORE OF FRESH CONCRETE CAST BELOW THE BARS. LAP SPLICE LENGTHS ARE TABULATED FOR UNCOATED REINFORCING BARS. INCREASE TABULATED UNCOATED BAR LAP SPLICE LENGTHS BY 20-PERCENT FOR EPOXY COATED BARS.
- INTENTIONALLY ROUGHEN ALL EXISTING AND HARDENED CONCRETE SURFACES TO RECEIVE FRESH CONCRETE PLACEMENT TO AT LEAST A 1/4 INCH AMPLITUDE, AND APPLY AN APPROVED EPOXY BONDING COMPOUND.
- ALL TIES SHALL BE "CLOSED TIES", FABRICATED WITH 135-DEGREE HOOKS OR TWO PIECE HAIRPIN CLOSED TIES WITH SUFFICIENT TENSION LAP SPLICE LENGTH TO FULLY DEVELOP TO TIE BAR REINFORCEMENT.

CLASS "B" TENSION LAP SPLICES FOR UNCOATED BARS						
BAR SIZE	TOP BARS 4,000 PSI	OTHER BARS 4,000 PSI	TOP BARS 5,000 PSI	OTHER BARS 5,000 PSI	TOP BARS 6,000 PSI	OTHER BARS 6,000 PSI
#3	25"	19"	23"	17"	21"	16"
#4	33"	25"	30"	23"	28"	21"
#5	41"	31"	37"	28"	34"	26"
#6	49"	37"	45"	34"	41"	32"
#7	71"	54"	64"	49"	59"	45"
#8	81"	62"	73"	56"	67"	51"
#9	91"	70"	82"	63"	75"	57"
#10	103"	79"	93"	71"	84"	64"
#11	114"	87"	102"	78"	93"	72"

WELDING REQUIREMENTS:

- WELDING SHALL CONFORM TO (AWS) "STRUCTURAL WELDING CODE- STEEL", D1.1 -06.
- SHOP AND FIELD WELDING SHALL BE PERFORMED BY CERTIFIED AND APPROVED WELDERS, WITH VALID AWS CERTIFICATES OBTAINED WITHIN 12 MONTHS OF REQUIRED WELDING WORK.
- WELDED CONNECTIONS SHALL BE PRE-QUALIFIED IN ACCORDANCE WITH AWS D1.1.
- WELDED STEEL CONNECTIONS SHALL BE MADE USING SHIELDED METAL ARC PROCESS, OR APPROVED EQUAL, WITH ELECTRODES CONFORMING TO E70XX.
- WELDS (SHOP AND FIELD) SHALL BE VISUALLY INSPECTED BY AWS CERTIFIED WELDING INSPECTORS (CWI), AND TESTED AS SPECIFIED IN THE SECTION "WELDING".

STEEL SHEET PILE REQUIREMENTS:

- DRIVING TEMPLATE SHALL BE USED TO LOCATE AND GUIDE THE INSTALLATION OF AZ-SHEET PILES.
- DRIVE AZ-SHEET PILES TO THE TOE ELEVATIONS SHOWN. JETTING IS NOT ALLOWED.
- BE PREPARED TO PREDRILL OR PREPUNCH BULKHEAD ALIGNMENT TO FACILITATE INSTALLATION OF SHEET PILES TO MINIMUM REQUIRED PENETRATION DEPTH (IF NEEDED).
- EXTRACT AND RE-DRIVE PILES IF REQUIRED, TO OBTAIN THE PROPER ALIGNMENT, PLUMBNESS, AND PENETRATION.
- TAKE CARE TO PREVENT SAG IN TIE RODS. SUPPORT TIE RODS PRIOR TO BACKFILLING, TO MINIMIZE SAG.
- PRETENSION TIE RODS TO MAINTAIN BULKHEAD PLUMB AND WITHIN 1-1/2-INCHES, PLUS-OR-MINUS, OF THAT SHOWN.
- FLOWABLE FILL MUST BE INSTALLED AND ALLOWED TO HARDEN PRIOR TO STRESSING THE TIE BACK RODS.
- CONTRACTOR'S OPTION TO USE HELICAL PILES OF EQUAL OR GREATER CAPACITY THAN THE SPECIFIED LOADS OF THE SOIL ANCHORS SHOWN. CONTRACTOR TO SUBMIT PROPOSED DESIGN FOR REVIEW AND APPROVAL.
- DURING SSP VIBRATORY AND IMPACT HAMMER INSTALL, CONTRACTOR SHALL MONITOR THE EXISTING SITE AND ADJACENT STRUCTURES, UTILITIES AND PAVEMENT TO ENSURE DAMAGE TO EXISTING AND NEW FACILITIES DOES NOT TAKE PLACE. CONTRACTOR SHALL STOP WORK AND DISCUSS WITH CITY SHOULD VIBRATIONS APPEAR TO BE CREATING ADVERSE AND DETRIMENTAL IMPACTS TO THE SITE.



3001 PGA BLVD, SUITE 300
PALM BEACH GARDENS, FL 33410
EB0000072 AAC001992

SEAWALL REPAIR AT
ZERO DUVAL
FOR
CITY OF KEY WEST, FLORIDA

SITE
ZERO DUVAL
GENERAL NOTES

CH2MHILL®

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE MAY 16, 2014
PROJ 439197
DWG **DS-001**

100% REVIEW SET - REVISED - AUGUST 6, 2013
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NTS



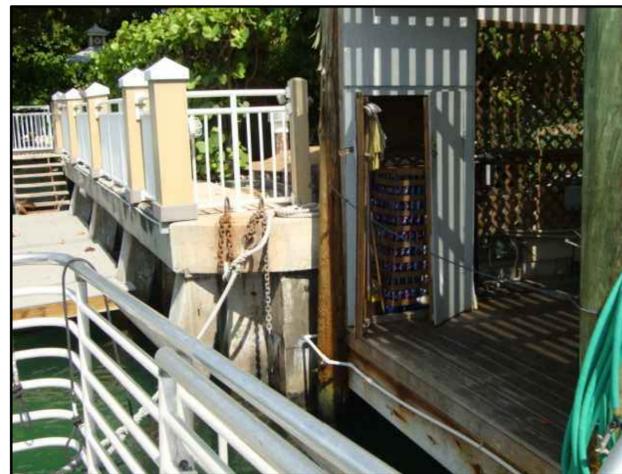
2 PHOTO
NTS



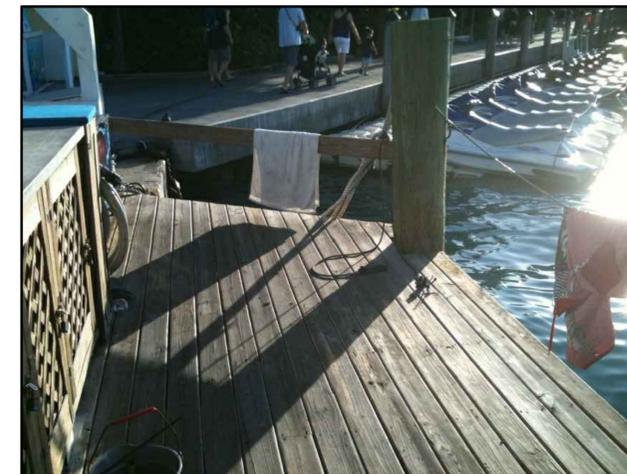
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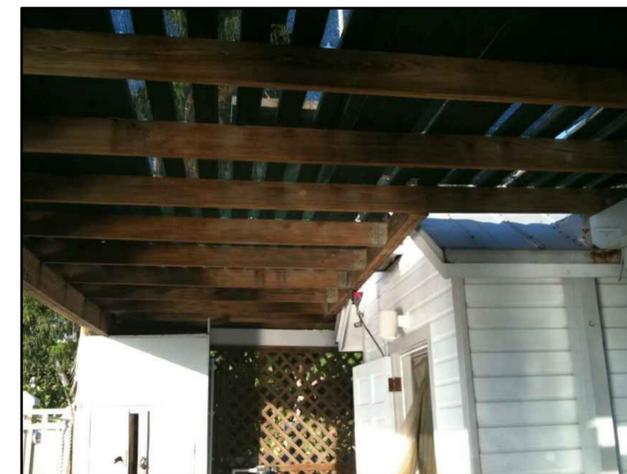
6 PHOTO
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7 PHOTO
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8 PHOTO
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9 PHOTO
NTS

3001 PGA BLVD, SUITE 300
PALM BEACH GARDENS, FL 33410
EB0000072 AAC001992

SEAWALL REPAIR AT
ZERO DUVAL
FOR
CITY OF KEY WEST, FLORIDA

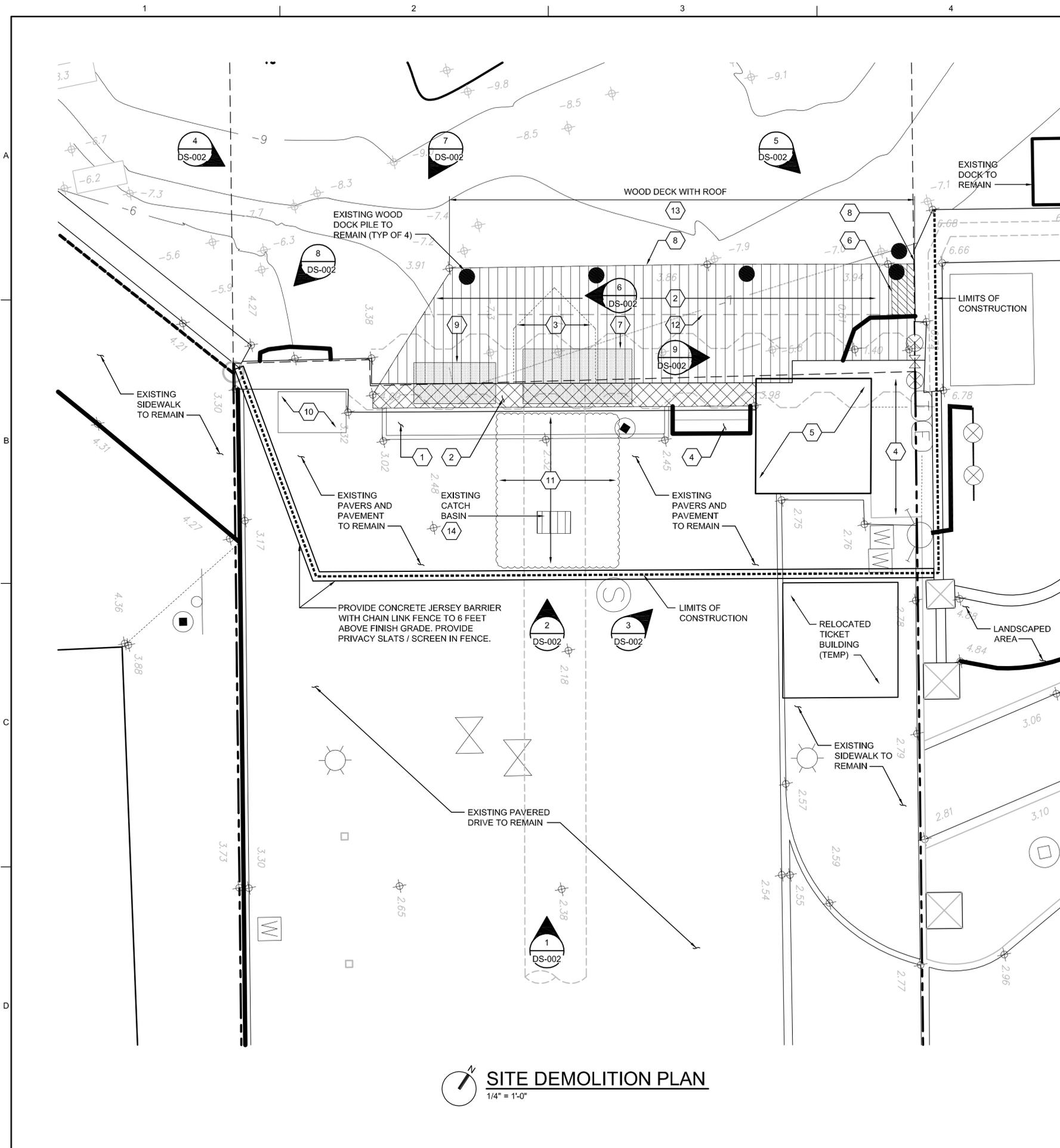
CH2MHILL

SITE
ZERO DUVAL
EXISTING SITE PHOTOS

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
DATE MAY 16, 2014
PROJ 439197
DWG DS-002

NO.	DATE	DR	REVISION	BY	APVD
			CHK	J.C. LONG	J.C. LONG
				A. VANHOOSER	
				A. ARTHAY	

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SITE DEMOLITION PLAN
1/4" = 1'-0"

GENERAL NOTES:

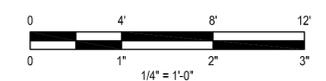
- EXISTING SITE SHALL BE BARRICADED AS INDICATED WITH A CONCRETE PRECAST BARRIER WALL SYSTEM WITH CHAIN LINK FENCE AND PRIVACY SLATS SCREEN. BARRIER WALL SYSTEM SHALL BE COORDINATED WITH THE OWNER FOR THE NECESSARY LOCATION DURING CONSTRUCTION. ALL ITEMS IDENTIFIED TO BE ADDRESSED IN THE KEY NOTES BELOW SHALL BE ADDRESSED. ALL ELEMENTS WITHIN LIMITS OF CONSTRUCTION, NOT IDENTIFIED TO BE REPAIRED, DEMOLISHED OR ADDRESSED BY THE CONTRACTOR SHALL REMAIN UNTOUCHED BUT WILL BE REPAIRED IF DAMAGED DURING CONSTRUCTION. EXISTING PAVERS, CONCRETE CURBS AND OTHER AESTHETIC FEATURES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF CONSTRUCTION, IF DAMAGED DURING THE CONSTRUCTION PROCESS.
- UPON RECONSTRUCTION OF THE EXISTING WOOD DOCK, THE CONTRACTOR SHALL RETURN ALL FURNITURE, FURNISHINGS, EQUIPMENT, OTHER ELEMENTS, TO THEIR ORIGINAL LOCATIONS AND CONDITION, INCLUDING ALL UTILITIES AND OTHER CONNECTIONS REMOVED AS A RESULT OF CONSTRUCTION. CONTRACTOR SHALL THOROUGHLY PHOTOGRAPH THE SITE AND AS-BUILT THE AREA PRIOR TO DISMANTLING AND DEMOLITION TO PROVIDE A RECORD OF ELEMENTS TO BE REINSTALLED.

KEYED NOTES:

- MAINTAIN EXISTING PLANTER IN CURRENT LOCATION DURING CONSTRUCTION UNLESS REQUIRED TO BE RELOCATED FOR THE PURPOSES OF CONSTRUCTION. IF PLANTER IS RELOCATED, IT SHALL BE MOVED BY CONTRACTOR TO A SECURE LOCATION OFF-SITE AND RETURNED AND RESTORED TO ITS ORIGINAL CONDITION BY CONTRACTOR PRIOR TO COMPLETION OF PROJECT.
- MAINTAIN EXISTING OVERHEAD SIGN FOR THE PROJECT IN ITS CURRENT LOCATION DURING CONSTRUCTION UNLESS REQUIRED BY CONTRACTOR TO BE REMOVED TO IMPLEMENT CONSTRUCTION PROJECT. SHOULD REMOVAL OF SIGN BE REQUIRED, CONTRACTOR SHALL DISASSEMBLE THE SIGN IN ITS ENTIRETY AND STORE IT OFF-SITE. CONTRACTOR SHALL REASSEMBLE SIGN TO ITS ORIGINAL CONDITION UPON COMPLETION OF CONSTRUCTION. CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED ENGINEER IN THE STATE OF FLORIDA FOR REVISED ENGINEERING ON SIGN TO MEET CURRENT CODES AND BUILDING DEPARTMENT APPROVAL.
- REMOVE IN ITS ENTIRETY AND LEGALLY DISPOSE OF OFF-SITE THE EXISTING UNDERWATER RUBBER BAFFLE AT OUTFALL TO STORM WATER SYSTEM. MAINTAIN OUTFALL DURING CONSTRUCTION. DO NOT PLUG.
- MAINTAIN EXISTING CONCRETE STEPS AND RAMP IN THEIR ENTIRETY DURING CONSTRUCTION. PATCH AND REPAIR STEPS UPON COMPLETION OF CONSTRUCTION. CONTRACTOR SHALL WIDEN STEPS AND RAMP TO COMPLY WITH ADA INCLUDING RAILINGS.
- REMOVE EXISTING TICKET BUILDING AND RELOCATE TO A LOCATION AS INDICATED ON DRAWING. EXISTING BOOTH SHALL BE MAINTAINED IN FULL OPERATION AT TEMPORARY LOCATION INCLUDING WATER AND POWER DURING THE CONSTRUCTION OF BULKHEAD. CONTRACTOR SHALL COORDINATE TEMPORARY WATER AND POWER CONNECTIONS FOR BUILDING AS WELL AS PROVIDE HURRICANE TIE-DOWNS AND FOUNDATION SUPPORTS FOR BUILDING DURING BULKHEAD CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION, BUILDING SHALL BE RETURNED TO ITS ORIGINAL LOCATION AND TIED DOWN TO GROUND AS REQUIRED UNDER CURRENT BUILDING CODE. ALL FOUNDATIONS, ELECTRICAL AND WATER SHALL BE RESTORED TO ITS ORIGINAL CONDITION. CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED ENGINEER IN THE STATE OF FLORIDA FOR REVISED ENGINEERING ON BUILDING AND FOUNDATION TO MEET CURRENT CODES AND BUILDING DEPARTMENT APPROVAL.
- CONTRACTOR SHALL REMOVE EXISTING WOOD STORAGE BOX FROM TOP OF WOOD DECK, INCLUDING ALL ITEMS STORED WITHIN. BOX SHALL BE TRANSPORTED AND STORED OFF-SITE BY CONTRACTOR FOR REINSTALLATION UPON COMPLETION OF CONSTRUCTION. COORDINATE WITH TENANT AND OWNER WITH RESPECT TO THE CONTENTS OF BOX AND THE FINAL LOCATION UPON COMPLETION OF WOOD DECK CONSTRUCTION. BOX SHALL BE FASTENED TO FINISHED WOOD DECK.
- CONTRACTOR SHALL COORDINATE WITH TENANT FOR REMOVAL OF EXISTING WOOD STORAGE LOCKER FROM TOP OF WOOD DECK, INCLUDING ALL ITEMS STORED WITHIN. BOX SHALL BE TRANSPORTED AND STORED OFF-SITE BY CONTRACTOR FOR REINSTALLATION UPON COMPLETION OF CONSTRUCTION. COORDINATE WITH TENANT AND OWNER WITH RESPECT TO THE CONTENTS AND THE FINAL LOCATION UPON COMPLETION OF WOOD DECK CONSTRUCTION. BOX SHALL BE FASTENED TO FINISHED WOOD DECK.
- CONTRACTOR SHALL REMOVE EXISTING WATER MAIN, CAP AND PLUG AT POINT OF CONNECTION, AND PROVIDE A NEW VALVE AT REMOVAL POINT. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL RE-INSTALL WATER LINE FROM VALVE TO ORIGINAL ALIGNMENT AND TERMINATION POINT. WATER SHALL BE RESTORED TO ORIGINAL / NORMAL OPERATION.
- CONTRACTOR SHALL COORDINATE WITH TENANT FOR REMOVAL OF EXISTING REFRIGERATOR FROM TOP OF WOOD DECK, INCLUDING ALL ITEMS STORED WITHIN. REFRIGERATOR SHALL BE TRANSPORTED AND STORED OFF-SITE BY CONTRACTOR FOR REINSTALLATION UPON COMPLETION OF CONSTRUCTION. COORDINATE WITH TENANT AND OWNER WITH RESPECT TO THE CONTENTS AND THE FINAL LOCATION UPON COMPLETION. RE-INSTALL ALL ELECTRICAL POWER SOURCE FOR REFRIGERATOR UPON COMPLETION OF CONSTRUCTION OF WOOD DECK AND RETURN REFRIGERATOR TO FULL OPERATION. REFRIGERATOR SHALL BE FASTENED TO FINISHED WOOD DECK.
- CONTRACTOR SHALL REMOVE EXISTING STORAGE BOX / LOCKER FROM TOP OF EXISTING PAVEMENT, INCLUDING ALL ITEMS STORED WITHIN. BOX / LOCKER SHALL BE TRANSPORTED AND STORED OFF-SITE BY CONTRACTOR FOR REINSTALLATION UPON COMPLETION OF CONSTRUCTION OF PROJECT. COORDINATE WITH TENANT AND OWNER WITH RESPECT TO THE CONTENTS AND THE FINAL LOCATION UPON COMPLETION. BOX SHALL BE FASTENED TO FINISHED PAVEMENT.
- CONTRACTOR SHALL REMOVE EXISTING PAVERS IN THEIR ENTIRETY WITHIN THE AREA SHOWN AND EXPOSE OUTFALL PIPE TO BOTTOM OF PIPE. EXAMINE CONDITION OF PIPE WITH OWNER AND ENGINEER OPEN JOINT WITH FILTER CLOTH WRAP AND A CONCRETE COLLAR (6" x 12" x CONTINUOUS) AND CRACKS IN PIPE WITH GROUT AND EPOXY INJECTION, BACKFILL AND COMPACT SITE TO A MAXIMUM OF 2% SLOPE, BACKFILL HOLE WITH FLOWABLEFILL. BACKFILL AND COMPACT OTHER AREAS WITH NEW SUBGRADE MATERIAL (98% MODIFIED PROCTOR) AS REQUIRED TO REMOVE POTHOLES AND BUMPS. RE-INSTALL EXISTING PAVERS AS NECESSARY TO PROVIDE A COMPLETE SLOPED GRADE TO DRAIN. PROVIDE A MINIMUM OF 12" OF FLOWABLE FILL BELOW ALL REINSTALLED PAVERS.
- CONTRACTOR SHALL CUT AND TRIM EXISTING EXPOSED AND UNDERWATER STEEL SHEET PILE BULKHEAD (AS REQUIRED) TO CONSTRUCT NEW STEEL PILE BULKHEAD AND OUTFALL STRUCTURES. ITEMS SHALL BE LEGALLY DISPOSED OF OFF-SITE.
- CONTRACTOR SHALL REMOVE EXISTING WOOD DECKING STRUCTURE BOTH FLOOR AND ROOF IN ITS ENTIRETY AND SALVAGE FOR RE-INSTALLATION MEETING CURRENT DESIGN CODES UPON COMPLETION OF CONSTRUCTION OF NEW BULKHEAD. EXISTING WOOD PILING SHALL REMAIN IN PLACE. EXISTING WOOD PLANKING, JOISTS, PURLINS, GIRTS, AND ROOF FRAMING SHALL BE MAINTAINED AS PART OF THE DEMOLITION PROJECT. DAMAGED ELEMENTS SHALL BE REPLACED BY CONTRACTOR AS PART OF THE BASE BID. CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED ENGINEER IN THE STATE OF FLORIDA FOR REVISED ENGINEERING ON SIGN TO MEET CURRENT CODES AND BUILDING DEPARTMENT APPROVAL.
- PROVIDE FILTER CLOTH AND HAY BALES ON EXISTING CATCH BASIN DURING CONSTRUCTION.

LEGEND:

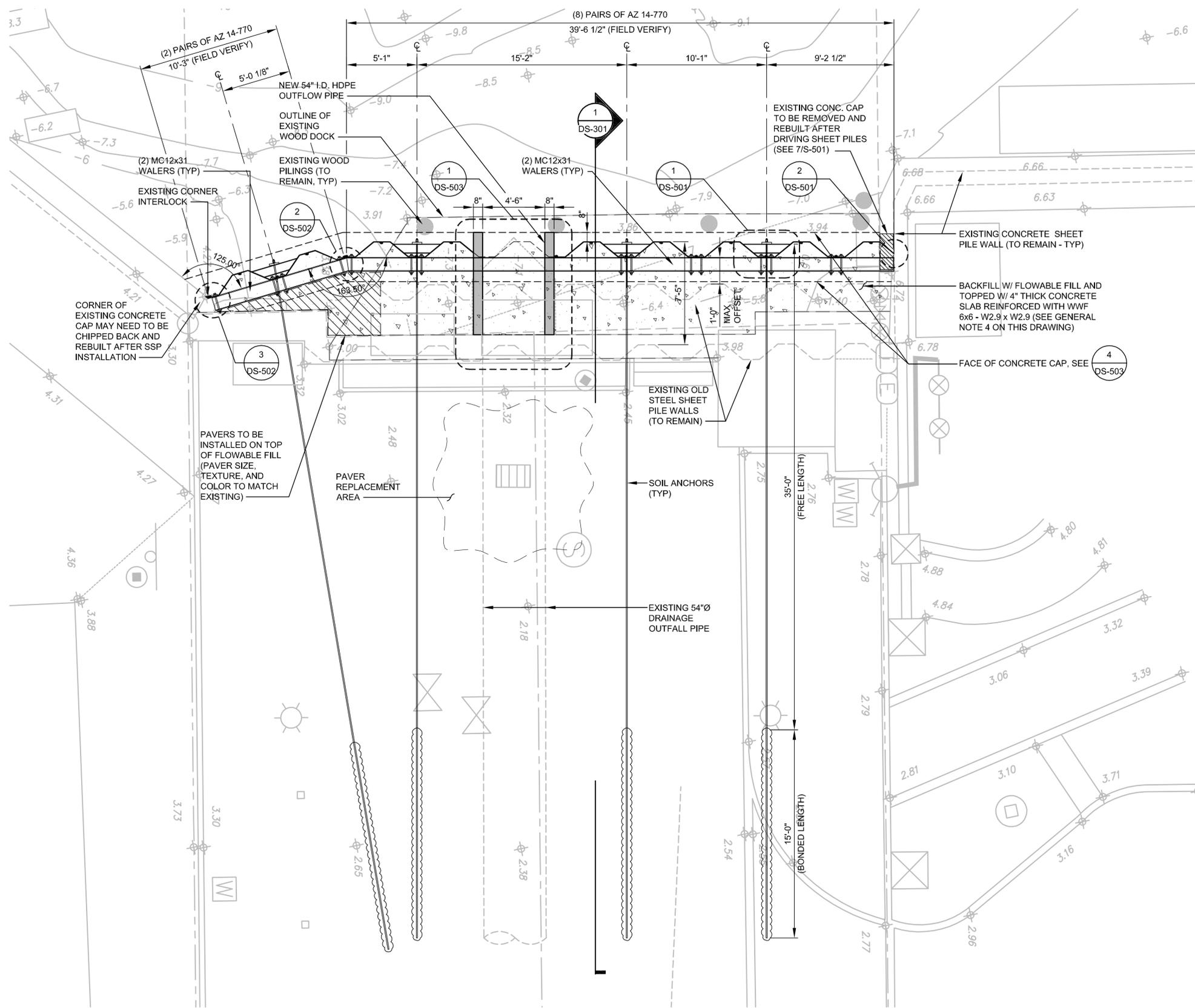
- REFERENCE PHOTO INDICATOR. ARROW INDICATES DIRECTION OF PHOTO. SEE DRAWING DS-001.



CH2MHILL SITE ZERO DUVAL SITE DEMOLITION PLAN		NO.	DATE	DR	REVISION	CHK	APVD
		DSGN					
3001 PGA BLVD, SUITE 300 PALM BEACH GARDENS, FL 33410 EB0000072 AAC001992		SEAWALL REPAIR AT ZERO DUVAL FOR CITY OF KEY WEST, FLORIDA		A. VANHOOSER J.C. LONG J.C. LONG			
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE MAY 16, 2014 PROJ 439197 DWG DS-100		100% REVIEW SET - REVISED - AUGUST 6, 2013			

1 2 3 4 5 6

A
B
C
D



NOTE: MAINTAIN OUTFALL FLOW DURING CONSTRUCTION. DO NOT PLUG.

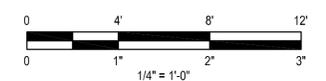
GENERAL NOTES:

- BATHYMETRY DATA SHOWN REFER TO MEAN LOW WATER. MLW ELEVATION = (-) 0.18 FEET (NGVD 29).
- TOPOGRAPHIC ELEVATIONS SHOWN IN FEET BASED ON BENCHMARK ELEVATION = 6.391 FEET (NGVD 29).
- ANY MUCK THAT IS EXCAVATED TO ACCOMMODATE THE PIPE MUST BE DISPOSED OF AT AN APPROVED LOCATION OFFSITE.
- FLOWABLE FILL MUST BE VIBRATED IN AND MIXED WITH EXISTING MUCK DOWN FOR 5 FEET TO ELEVATION -12.0 FEET. ALL MUCK THAT COMES TO TOP MUST BE DISPOSED OF AT AN APPROVED LOCATION OFFSITE. CONCRETE SLAB SHALL ONLY BEAR ON CLEAN FLOWABLE FILL.
- ALL SHEET PILES AND INTERLOCKS SHALL BE EPOXY COATED AS SPECIFIED DOWN TO ELEVATION -27.0 FEET.
- ALL SHEET PILES AND INTERLOCKS SHALL BE ASTM A572, GRADE 50 (U.N.O.).
- ALL STRUCTURAL SHAPES, CHANNELS, PLATES, AND MISCELLANEOUS STEEL SHALL BE ASTM A572, GRADE 50 (U.N.O.).
- ALL BOLTS AND RELATED HARDWARE SHALL BE ASTM A325.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO ORDERING OR FABRICATING ANY MATERIALS.
- CONTRACTOR IS RESPONSIBLE FOR LOCATION OF EXISTING UTILITIES.

LEGEND:

- EXISTING CONSTRUCTION (TO REMAIN)
- NEW CONSTRUCTION

BULKHEAD PLAN
1/4" = 1'-0"



NO.	DATE	DR	REVISION	BY	APVD
		A. ARTHAY	CHK	J.C. LONG	J.C. LONG
			DR	A. VANHOOSER	

3001 PGA BLVD, SUITE 300
PALM BEACH GARDENS, FL 33410
EB0000072 AAC001992

SEAWALL REPAIR AT
ZERO DUVAL
FOR
CITY OF KEY WEST, FLORIDA

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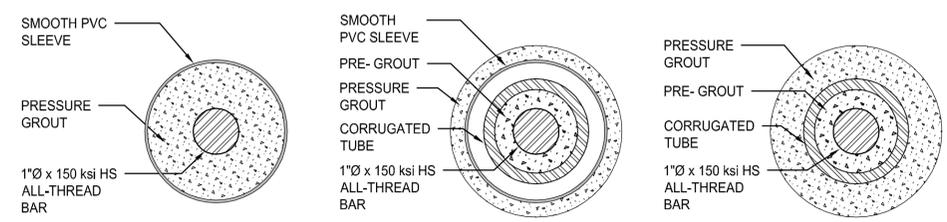
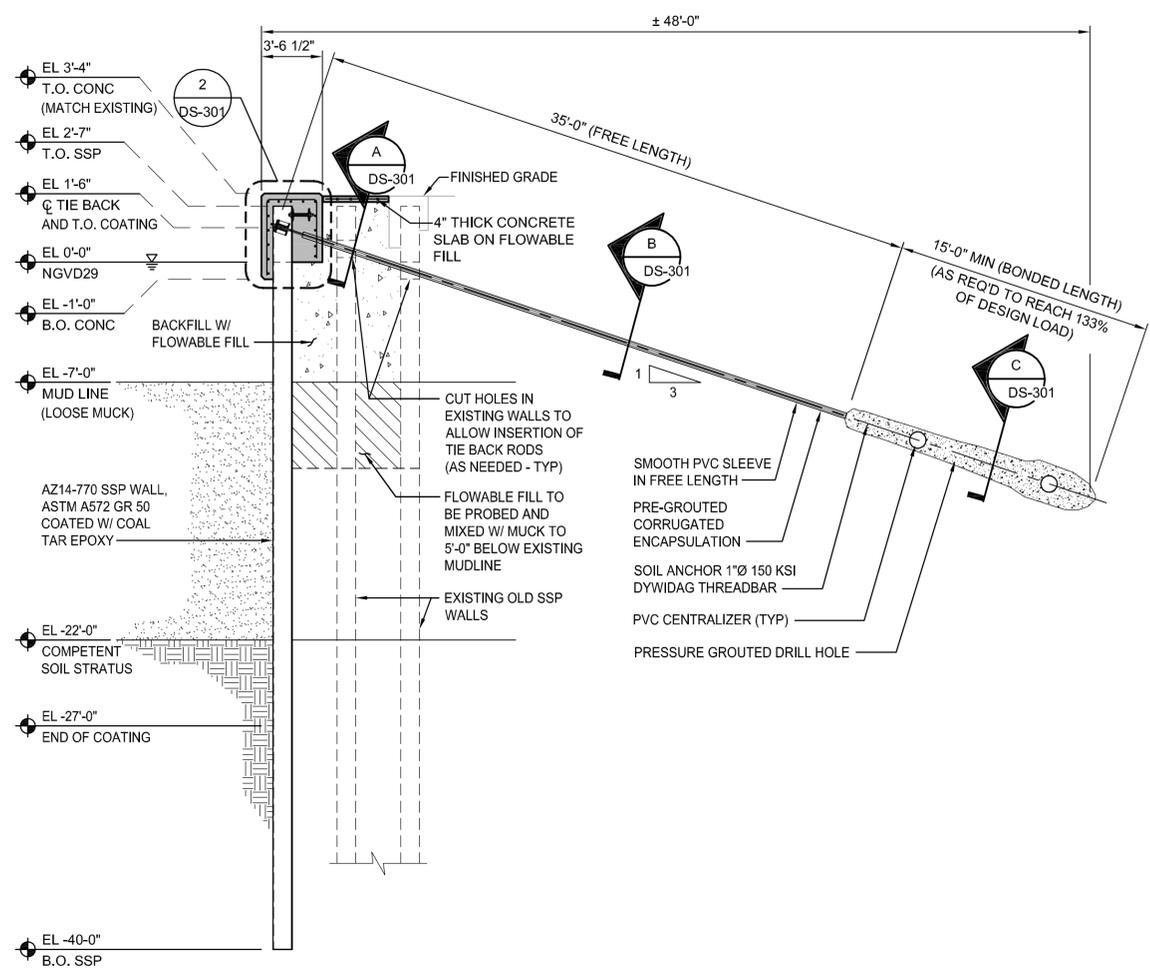
SITE
**ZERO DUVAL
BULKHEAD LAYOUT PLAN**

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

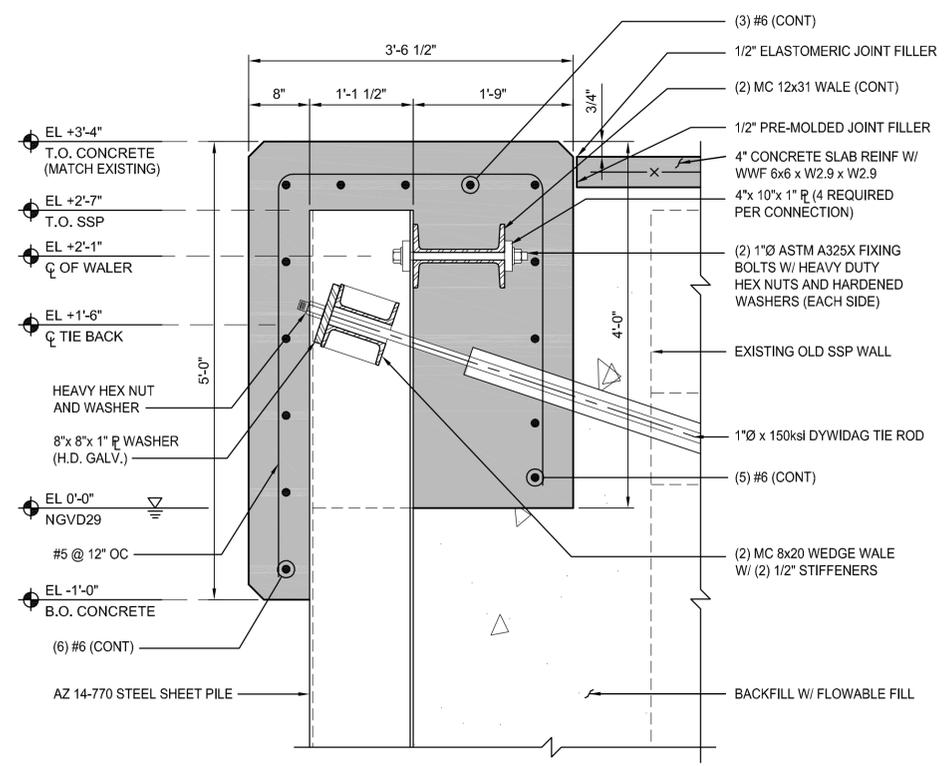
DATE MAY 16, 2014
PROJ 439197
DWG **DS-101**

100% REVIEW SET - REVISED - AUGUST 6, 2013 REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2012. ALL RIGHTS RESERVED.

1 BULKHEAD WALL SECTION
3/16" = 1'-0"



A DETAIL 6" = 1'-0"
B DETAIL 6" = 1'-0"
C DETAIL 6" = 1'-0"

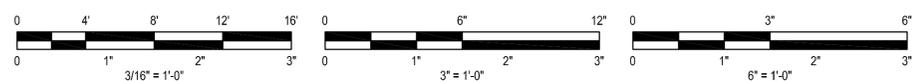


2 BULKHEAD CAP DETAIL
1" = 1'-0"

NOTE: TOP OF NEW CONCRETE CAP TO MATCH TOP OF EXISTING CONCRETE CAP TO ALLOW THE RE-USE OF EXISTING WOOD DOCK OVER BOTH OF THEM.

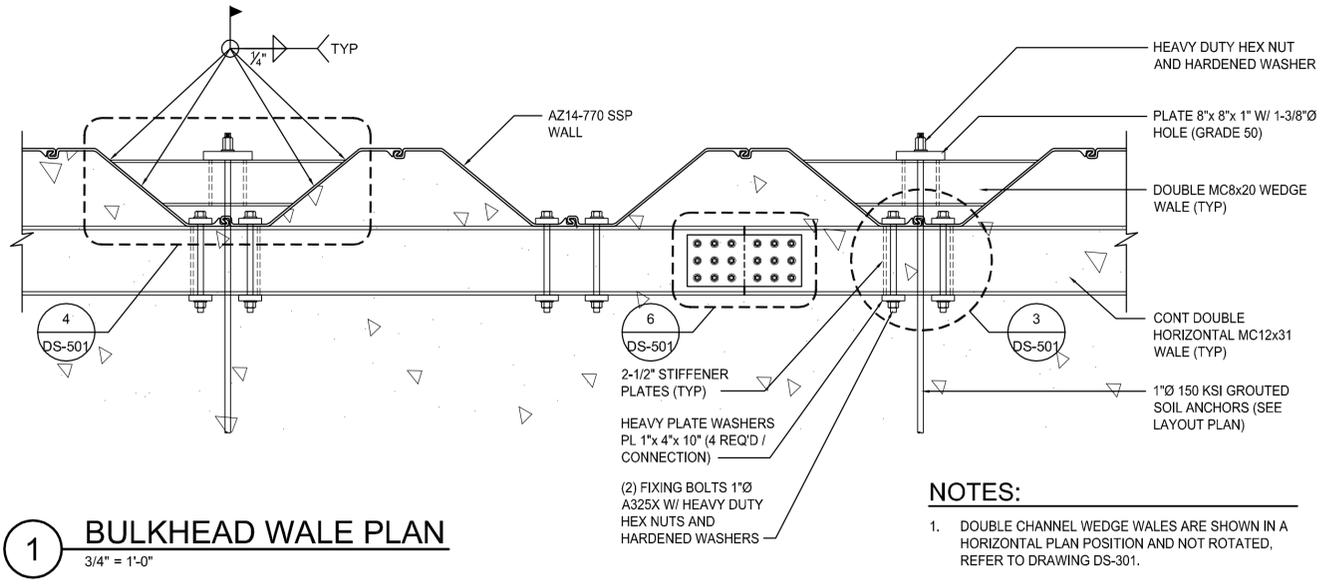
NOTES FOR GROUDED SOIL ANCHORS:

- SEE SPECIFICATIONS FOR SOIL ANCHORS INSTALLATION AND TESTING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING AND PROVIDING GROUDED SOIL ANCHOR SYSTEM ACCORDING TO THE SPECIFICATIONS.
- GROUDED SOIL ANCHOR SYSTEM SHALL BE CAPABLE OF PROVIDING THE FOLLOWING ALLOWABLE HORIZONTAL LOAD CAPABILITIES:
 - A. SOIL ANCHOR ALLOWABLE DESIGN LOAD = 82,000 LB / ANCHOR.
 - B. SOIL ANCHOR MINIMUM LOCK-OFF LOAD = 61,500 LB / ANCHOR.
 - C. EACH SOIL ANCHOR SHALL BE PROOF TESTED TO 133% OF THE ALLOWABLE DESIGN CAPACITY LOAD TO 109,000 LB.
 - D. SOIL ANCHOR DETAILS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING WALL VERTICALLY PLUMB DURING CONSTRUCTION AND BACKFILLING, BY ADJUSTING SOIL ANCHOR NUTS AT WALE.
- TO AVOID EXCESSIVE DEFLECTION OF THE NEW BULKHEAD WALL, PRODUCTION SOIL ANCHORS SHALL NOT BE TESTED UNTIL ADEQUATE FLOWABLE FILL HAS BEEN PLACED AND HARDENED BEHIND THE WALL.
- AFTER GROUTING THE SOIL ANCHOR BOND LENGTH, THE ANCHOR SHALL BE ATTACHED TO THE BULKHEAD WITH ONLY A NOMINAL TENSION TO RESIST WALL DEFLECTION DURING BACKFILLING OPERATIONS.
- CONTRACTOR SHALL TAKE PRECAUTIONS DURING CONSTRUCTION AND BACKFILLING TO MINIMIZE TRANSVERSE LOADING OF THE SOIL ANCHORS.
- SOIL ANCHORS SHALL FOLLOW AS A MINIMUM CLASS I PROTECTION, MULTIPLE CORROSION PROTECTION III PER PTI MANUAL.
- HELICAL PILES CAN BE USED IN LIEU OF SOIL ANCHORS AT CONTRACTOR'S CHOICE. PROVIDE DOCUMENTATION OF PROPOSED HELICAL PILE AND DETAILS OF SYSTEM WHICH SHALL PROVIDE A MINIMUM STRENGTH TO MATCH DESIGN LOADS SHOWN, AND SHALL NEED TO BE PROOF TESTED INDIVIDUALLY.



<p>CH2MHILL®</p> <p>STRUCTURAL ZERO DUVAL BULKHEAD WALL SECTION</p>		<p>SEAWALL REPAIR AT ZERO DUVAL FOR CITY OF KEY WEST, FLORIDA</p>	<p>NO. DATE DR A. ARTHAY REVISION CHK A. VANHOOSER BY APVD J.C. LONG APVD J.C. LONG</p>
<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1 2 3 4 5 6</p>		<p>DATE MAY 16, 2014 PROJ 439197 DWG DS-301</p>	

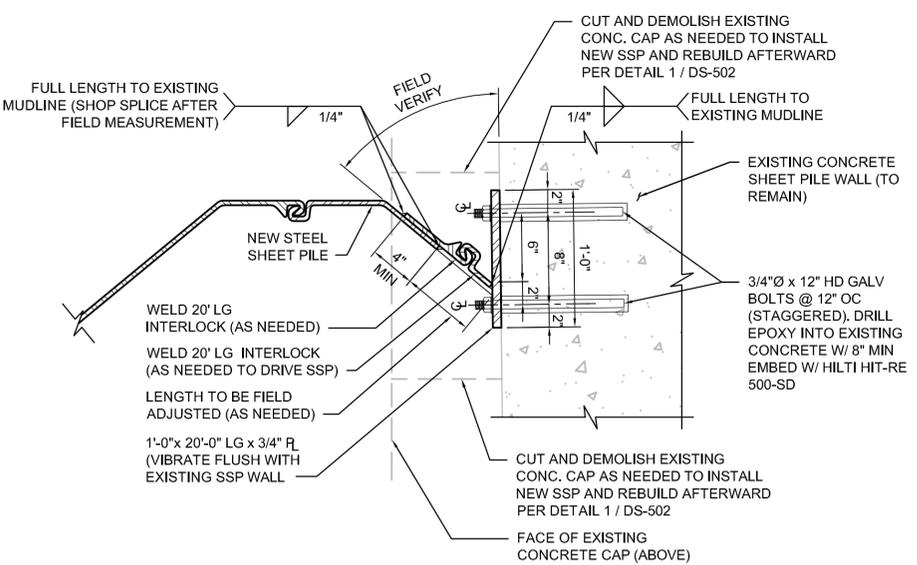
3001 PGA BLVD, SUITE 300
 PALM BEACH GARDENS, FL 33410
 EB0000072 AAC001992
 100% REVIEW SET - REVISED - AUGUST 6, 2013
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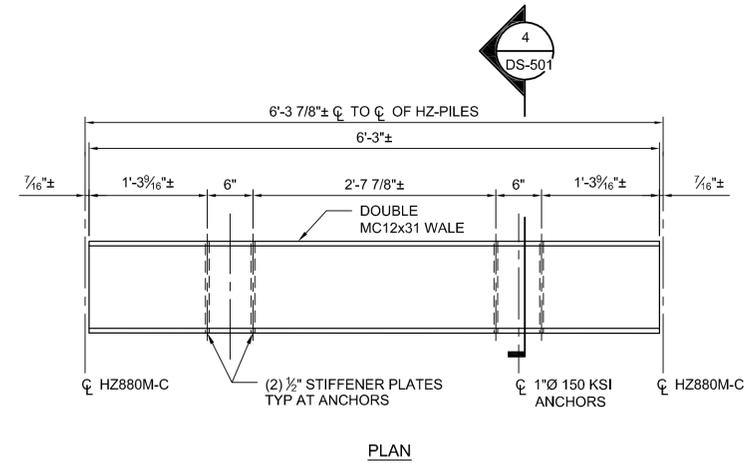
1 BULKHEAD WALE PLAN
3/4" = 1'-0"

NOTES:

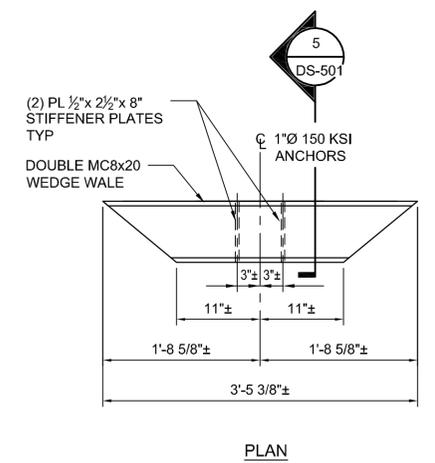
- DOUBLE CHANNEL WEDGE WALES ARE SHOWN IN A HORIZONTAL PLAN POSITION AND NOT ROTATED, REFER TO DRAWING DS-501.
- CAP REINFORCEMENT NOT SHOWN FOR CLARITY.



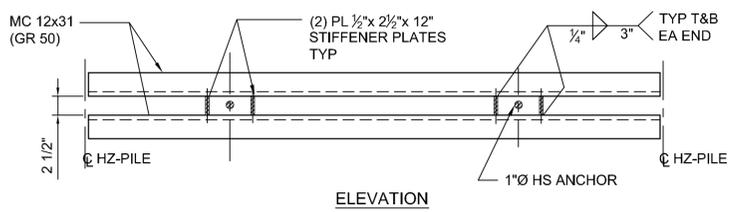
2 DETAIL
1-1/2" = 1'-0"



PLAN

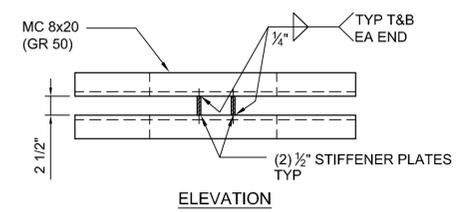


PLAN



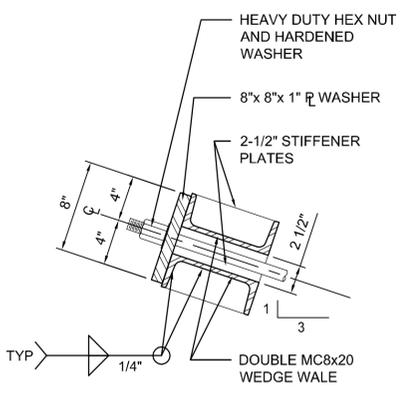
ELEVATION

3 DETAIL
1" = 1'-0"



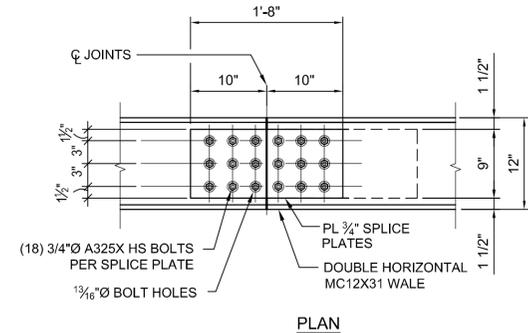
ELEVATION

4 DETAIL
1" = 1'-0"

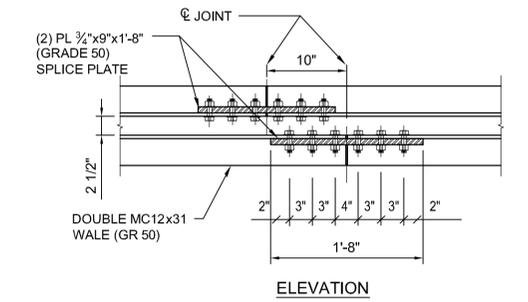


NOTE: FABRICATOR TO VERIFY DIMENSIONS OF WEDGE-WALE TO ENSURE COMPATABILITY WITH INSIDE DIMENSIONS OF AZ14-770 PAIR

5 WEDGE WALE DETAIL
1-1/2" = 1'-0"

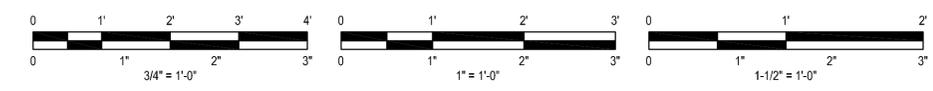


PLAN



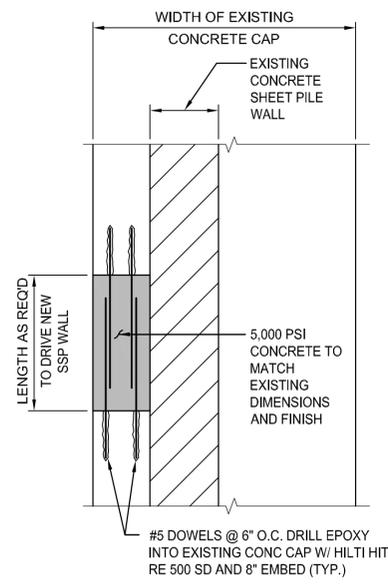
ELEVATION

6 WALE SPLICE TYP DETAIL
1" = 1'-0"

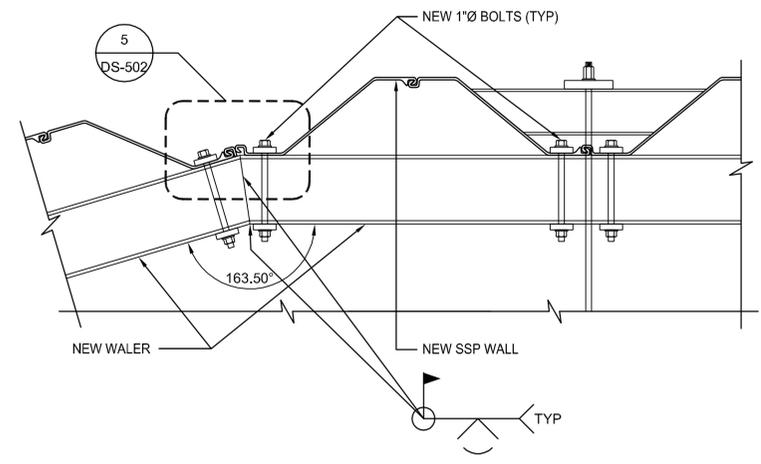


3001 PGA BLVD, SUITE 300 PALM BEACH GARDENS, FL 33410 EB0000072 AAC001992		SEAWALL REPAIR AT ZERO DUVAL FOR CITY OF KEY WEST, FLORIDA		STRUCTURAL ZERO DUVAL BULKHEAD WALL DETAILS	
NO.	DATE	DR	REVISION	BY	APVD
		A. ARTHAY	CHK	J.C. LONG	J.C. LONG
100% REVIEW SET - REVISED - AUGUST 6, 2013					
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING					
DATE	MAY 16, 2014				
PROJ	439197				
DWG	DS-501				

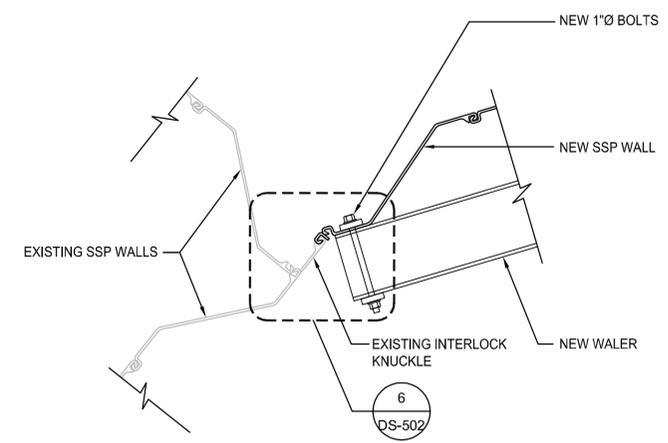
FILENAME: D15-DS-501_439197.DWG PLOT DATE: 05/13/2014 PLOT TIME: 10:50 AM



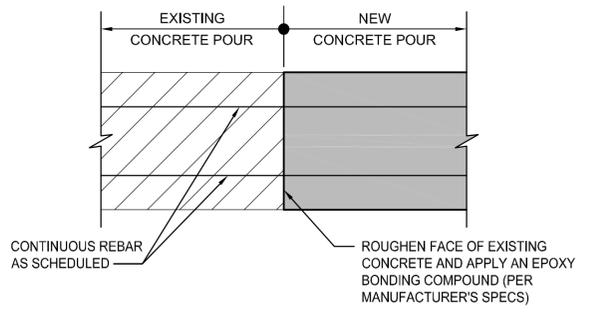
1 REPAIR DETAIL
3/4" = 1'-0"



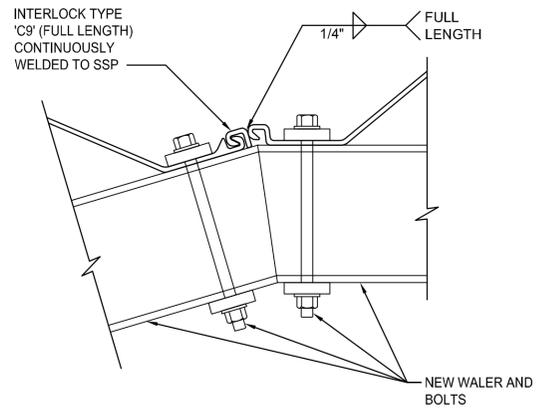
2 BULKHEAD DETAIL
3/4" = 1'-0"



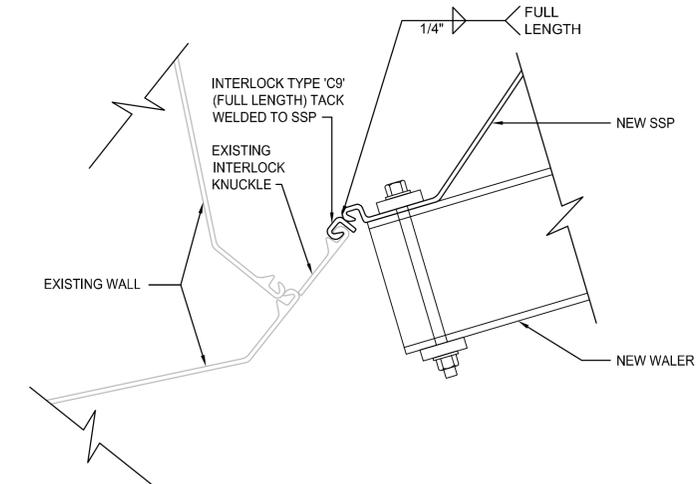
3 BULKHEAD DETAIL
3/4" = 1'-0"



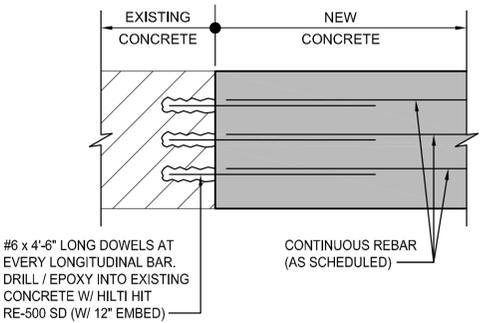
4 TYP CONSTRUCTION JOINT
N.T.S.



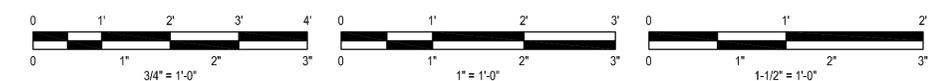
5 DETAIL
1-1/2" = 1'-0"



6 DETAIL
1-1/2" = 1'-0"



7 TYP CAP DOWELING DETAIL
N.T.S.



CH2MHILL[®]

STRUCTURAL

ZERO DUVAL BULKHEAD WALL DETAILS

3001 PGA BLVD, SUITE 300
PALM BEACH GARDENS, FL 33410
EB0000072 AAC001992

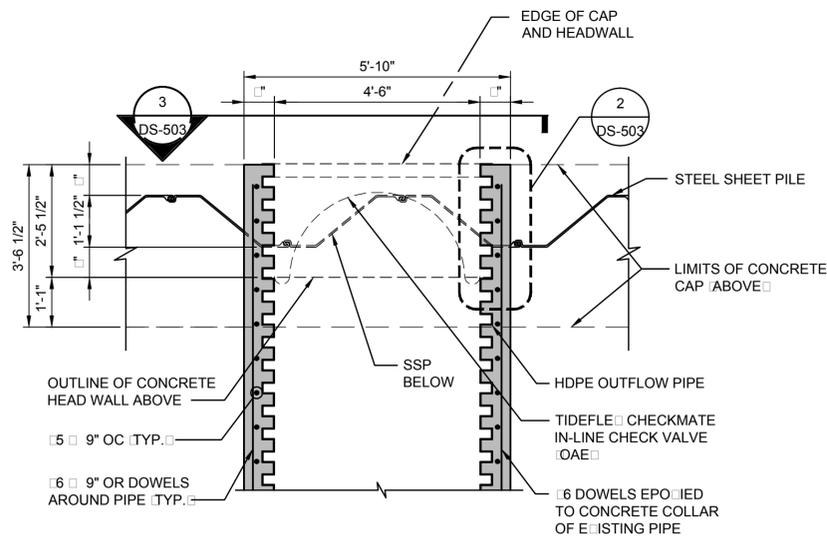
SEAWALL REPAIR AT
ZERO DUVAL
FOR
CITY OF KEY WEST, FLORIDA

NO.	DATE	DR	REVISION	BY	APVD
		A. ARTHAY	CHK	J.C. LONG	J.C. LONG
DSGN			APVD		

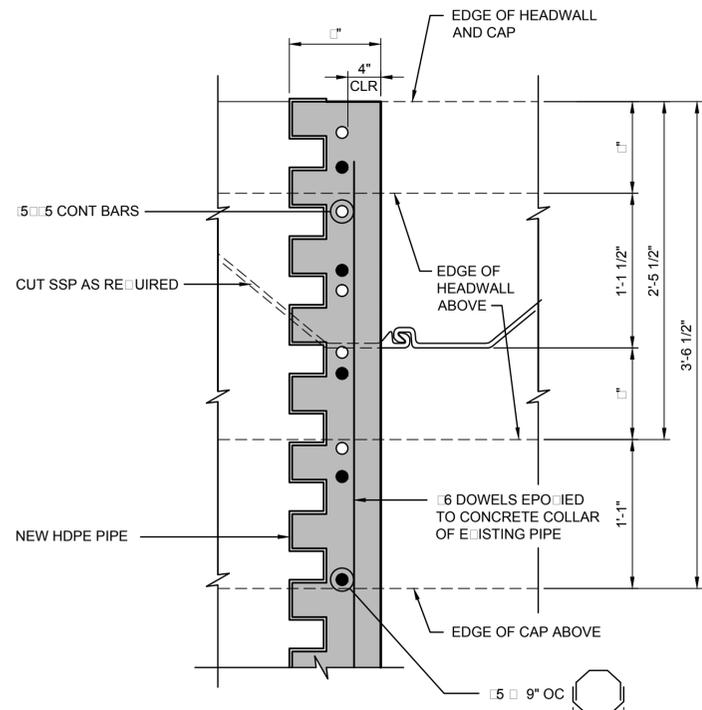
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	MAY 16, 2014
PROJ	439197
DWG	DS-502

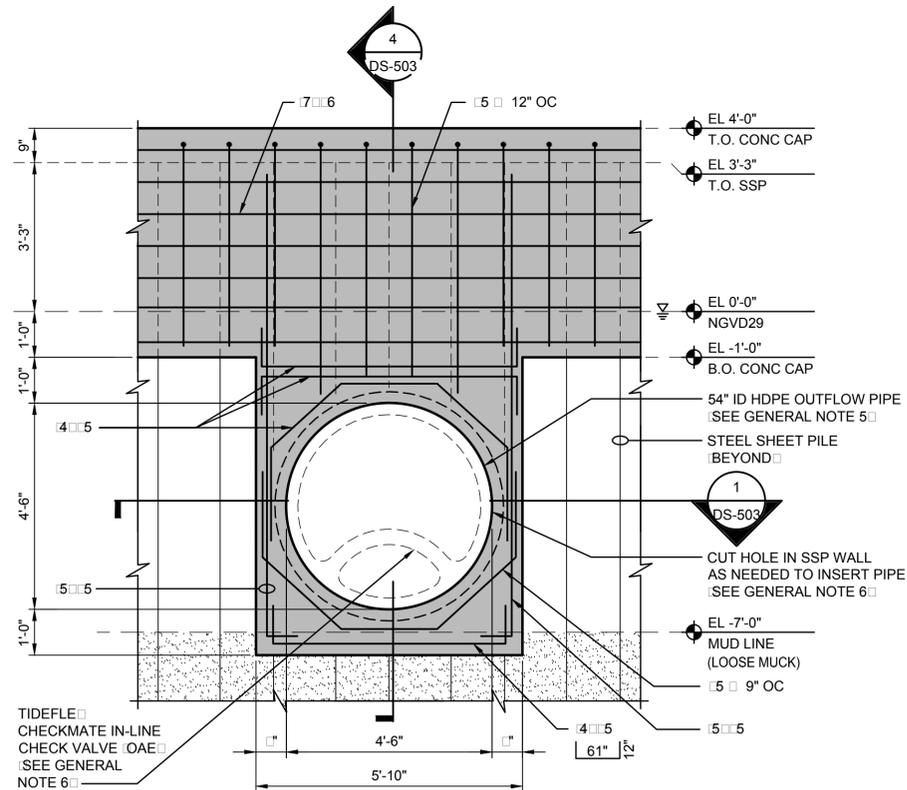
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1 OUTFLOW PIPE PLAN
1/2" = 1'-0"

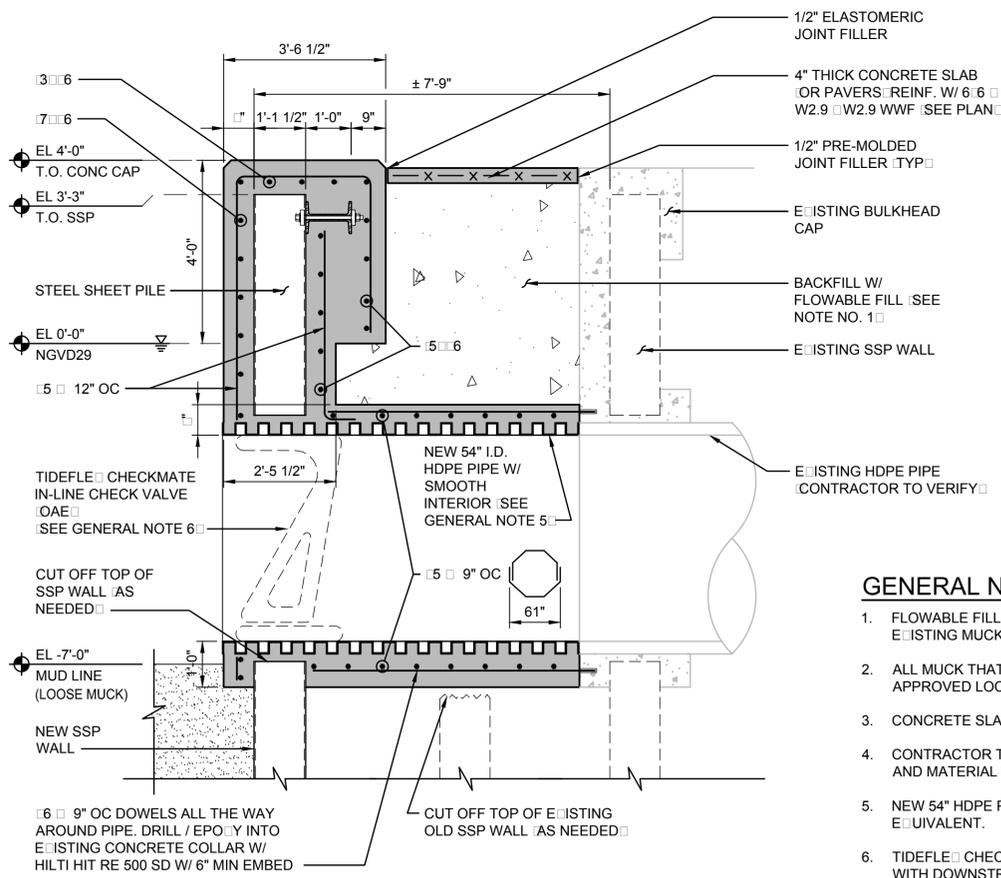


3 DETAIL
1-1/2" = 1'-0"



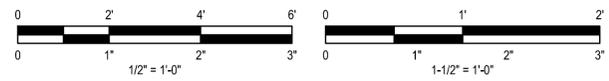
2 OUTFLOW PIPE ELEVATION
1/2" = 1'-0"

- NOTES:**
- CONTRACTOR SHALL INSTALL AN ANCHORING SYSTEM TO COUNTERACT BUOYANCY IN CONCRETE PRIOR TO POURING CONCRETE ENCASEMENT AROUND NEW HDPE PIPE.
 - CONTRACTOR TO VERIFY PIPE I.D. PRIOR TO ORDERING TIDEFLEX VALVE.



4 OUTFLOW PIPE SECTION
1/2" = 1'-0"

- GENERAL NOTES:**
- FLOWABLE FILL MUST BE VIBRATED IN AND MIXED WITH EXISTING MUCK DOWN FOR 5 FEET TO ELEVATION -12.0 FEET.
 - ALL MUCK THAT COMES TO TOP MUST BE DISPOSED OF AT AN APPROVED LOCATION OFFSITE.
 - CONCRETE SLAB SHALL ONLY BEAR ON CLEAN FLOWABLE FILL.
 - CONTRACTOR TO VERIFY EXISTING 54" STORM PIPE FOR SIZE AND MATERIAL PRIOR TO ORDERING NEW PIPE.
 - NEW 54" HDPE PIPE SHALL BE EAGLE CORR PE (DUAL WALL) OR EQUIVALENT.
 - TIDEFLEX CHECKMATE IN-LINE VALVE SHALL BE 54" MOUNTED WITH DOWNSTREAM CLAMP, MANUFACTURED BY TIDEFLEX TECHNOLOGIES, CARNEGIE, PA. 412-279-0044.
 - CONTRACTOR SHALL COORDINATE CHECK VALVE WITH HDPE PIPE FOR SIZE AND FIT UP.



CH2MHILL STRUCTURAL ZERO DUVAL OUTFLOW PIPE DETAILS		NO.	DATE	DR	REVISION	BY	APVD
		DSGN		A. ARTHAY	CHK	J.C. LONG	J.C. LONG
3001 PGA BLVD. SUITE 300 PALM BEACH GARDENS, FL 33410 EB0000072 AAC001982		SEAWALL REPAIR AT ZERO DUVAL FOR CITY OF KEY WEST, FLORIDA					
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE MAY 16, 2014					
DWG DS-503		PROJ 439197					

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