

CITY OF KEY WEST

KINGFISH PIER REPLACEMENT - HURRICANE IRMA DAMAGE

CITY MARINA AT GARRISON BIGHT

ITB #20-006
 MONROE COUNTY, FLORIDA
 STANTEC PROJECT NO. 215615197

SECTION: 31
 TOWNSHIP: 68 S
 RANGE: 25 E
 LATITUDE: (DMS)24° 33' 36.48" N , (DD)24.560108°
 LONGITUDE: (DMS)81° 46' 59.95" W , (DD)-81.783372°
 PARCEL ID: 00072070-000000

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
C01	COVER
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C03	EXISTING CONDITIONS PLAN
C04	DEMOLITION PLAN
C05	GEOMETRY PLAN
C06-C07	DOCK DETAIL
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E01-E08	ELECTRICAL PLANS
FP01-FP06	FIRE PROTECTION PLANS
P01-P06	PLUMBING PLANS
S01	STRUCTURAL PLANS
-	SURVEY



MAYOR & COMMISSION:

Teri Johnston, Mayor
 Jimmy Weekley, Commissioner
 Samuel Kaufman, Commissioner
 Billy Wardlow, Commissioner
 Gregory Davila, Commissioner
 Mary Lou Hoover, Commissioner
 Clayton Lopez, Commissioner

City Manager: Gregory Veliz

LOCATION MAP

Scale: 1"=300'

Directions to Site: Take US 1 south to Key West, take North Roosevelt Blvd to Palm Avenue, turn right on palm and project is to your immediate right at City Marina at Garrison Bight. Kingfish Pier is the most southern pier and is identified by a sign.

BID SET

JANUARY 10, 2020

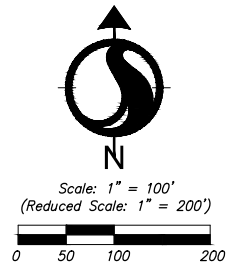
APPROVED BY

.....APPROVALS.....			
AGENCY	SUBMITTAL DATE	APPROVAL DATE	PERMIT NUMBER



901 Ponce de Leon Blvd. Suite 900
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 Tel. 305-445-2900
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CARLOS M. HERDOCIA
 REGISTERED ENGINEER NO. 47660
 STATE OF FLORIDA



NOTE: WATER ELEVATION DATA WAS OBTAINED FROM THE LAND BOUNDARY INFORMATION SYSTEM WEBSITE (LABINS.ORG) AND IS REFERENCED TO TIED INTERPOLATION POINT #3262.

MEAN HIGH WATER EL. = 0.94' NGVD29
 MEAN LOW WATER EL. = -0.09' NGVD29.

V:\215615197\civil\working\15197_OVERALL_AERIAL_PLAN.dwg
 2020/07/07 5:30 PM By: Fohrenbach, Robert

Revision	By	Appd.	YY.MM.DD	Issued	By	Appd.	YY.MM.DD

Seal

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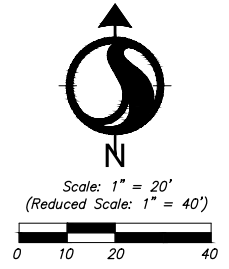
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CITY OF KEY WEST
 KINGFISH PIER REPLACEMENT
 KEY WEST, FLORIDA

File Name: RHF CMH CMH 20.01.07
 Dwn. Chkd. Dsgn. YY.MM.DD

OVERALL AERIAL PLAN

Project No. 215615197 Scale SEE PLANS
 Drawing No. C02 Sheet of 25 Revision

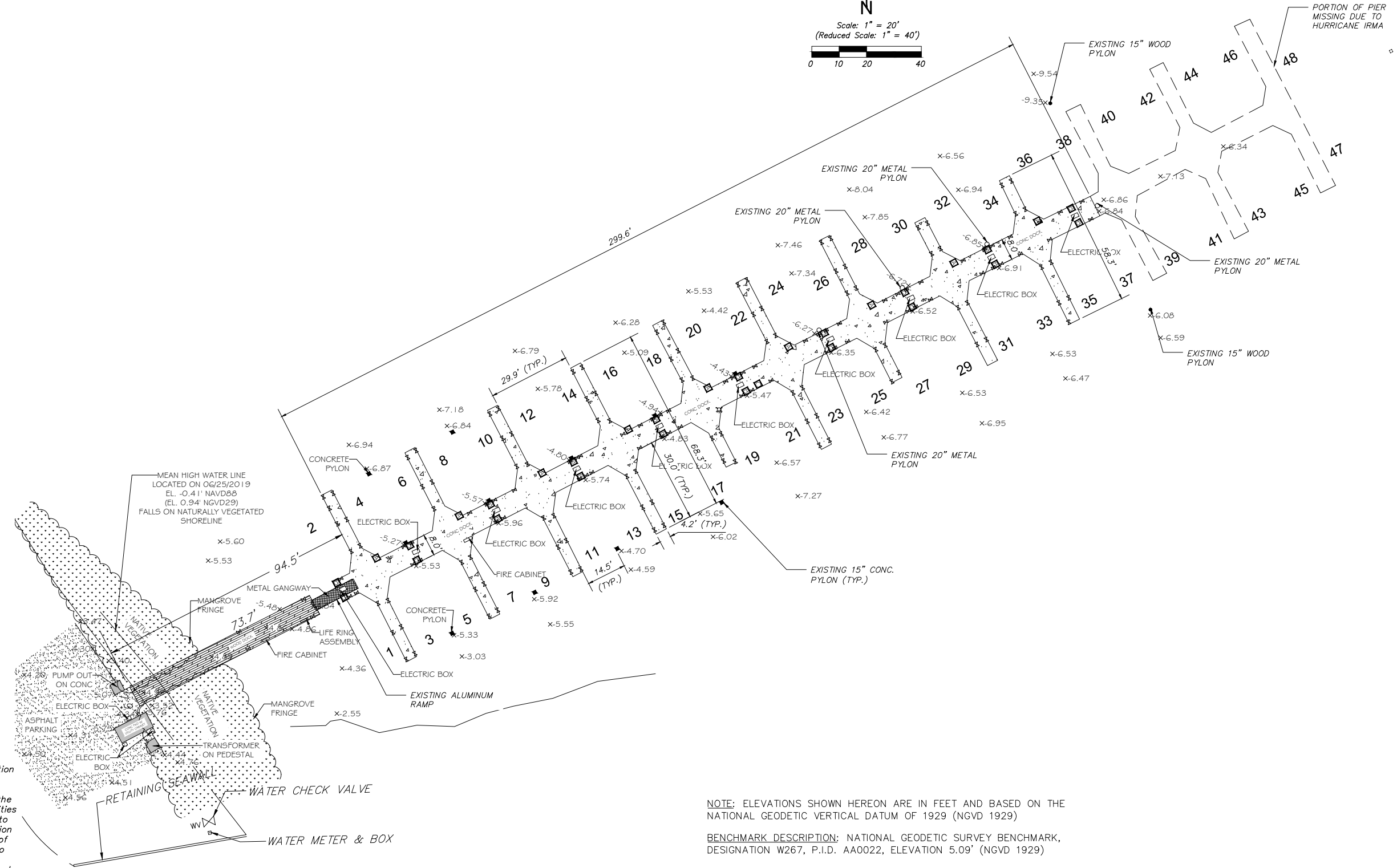


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SITE SURVEY INFORMATION FROM:
FLORIDA KEYS LAND SURVEYING
1996 OVERSEAS HIGHWAY
SUGARLOAF KEY, FL 33042
FIELD WORK DATE: 6/25/19 THRU 7/12/19
SIGNED AND SEALED BY:
ERIC A. ISAACS LB# 7847
AUGUST 7, 2019

CONSTRUCTION NOTE:
Location of existing facilities as shown on construction drawings are from available records. The Engineer assumes no responsibility for the accuracy of the facilities shown or for any facility not shown. Verify the elevation, type of pipes and location of existing facilities prior to construction. If an existing facility is found to conflict with the proposed construction upon excavation the contractor shall immediately notify the engineer of record so that appropriate measures can be taken to resolve the problem. Contractor to notify Owner and Sunshine State One Call of Florida, Inc. @ 811 at Least Forty Eight (48) Hours Prior to Excavating. Evidence of such notice shall be furnished to Stantec prior to excavating.



NOTE: ELEVATIONS SHOWN HEREON ARE IN FEET AND BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929)
BENCHMARK DESCRIPTION: NATIONAL GEODETIC SURVEY BENCHMARK, DESIGNATION W267, P.I.D. AA0022, ELEVATION 5.09' (NGVD 1929)
MEAN LOW WATER ELEVATION AT TIME OF SURVEY = -0.09 NGVD 1929
MEAN HIGH WATER ELEVATION AT TIME OF SURVEY = 0.94 NGVD 1929

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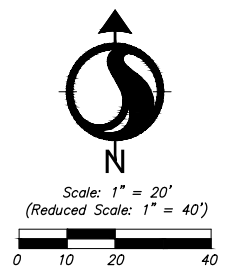
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KINGFISH PIER REPLACEMENT
KEY WEST, FLORIDA
File Name: RHF CMH CMH 20.01.07
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EXISTING CONDITIONS
Project No. 215615197
Scale SEE PLANS
Drawing No. C03
Sheet of 25
Revision

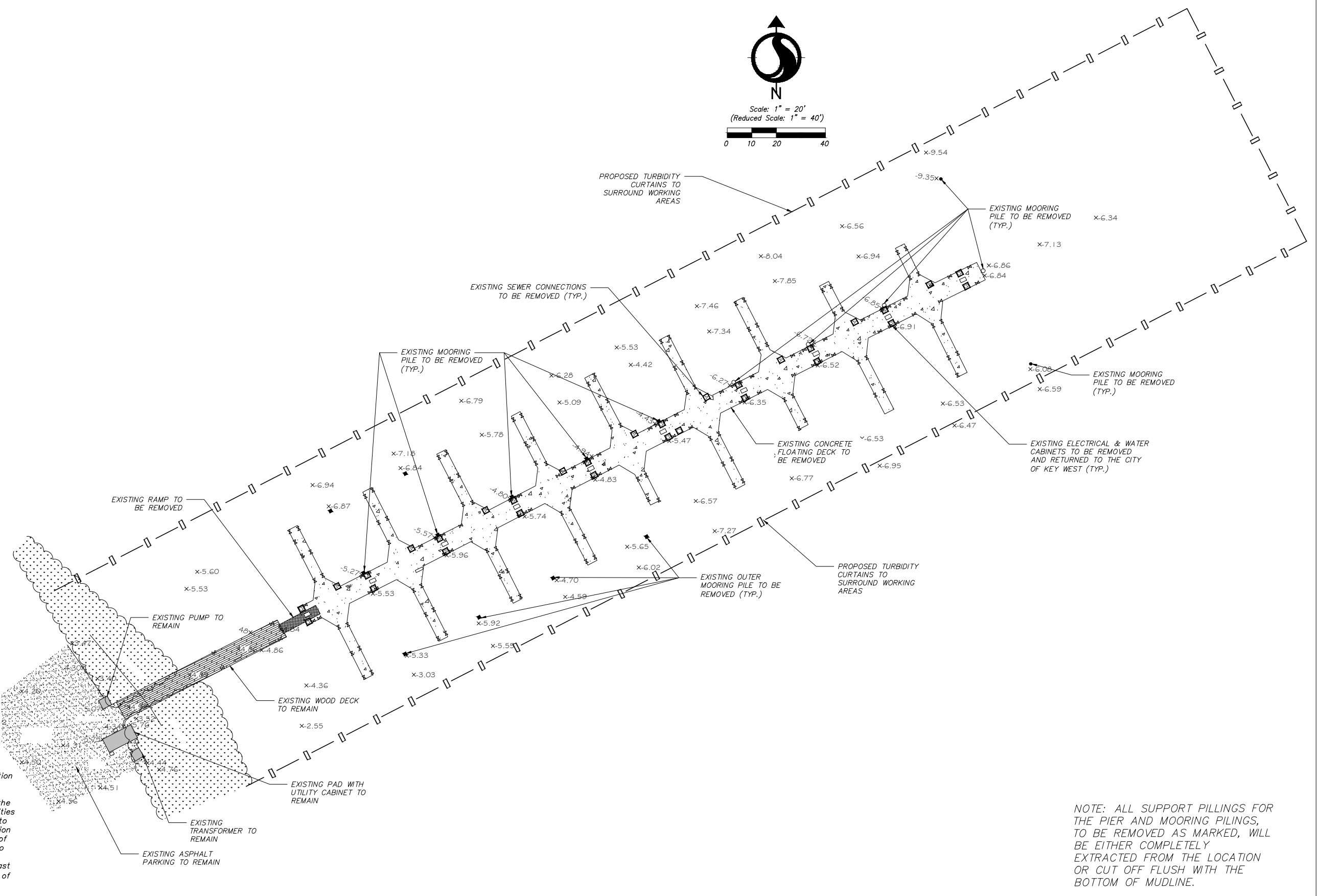


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NOTE: ALL SUPPORT PILLINGS FOR THE PIER AND MOORING PILING, TO BE REMOVED AS MARKED, WILL BE EITHER COMPLETELY EXTRACTED FROM THE LOCATION OR CUT OFF FLUSH WITH THE BOTTOM OF MUDLINE.

V:\215615197\civil\drawing\15197_DEMOLITION.dwg 2020/07/07 5:30 PM By: Robert

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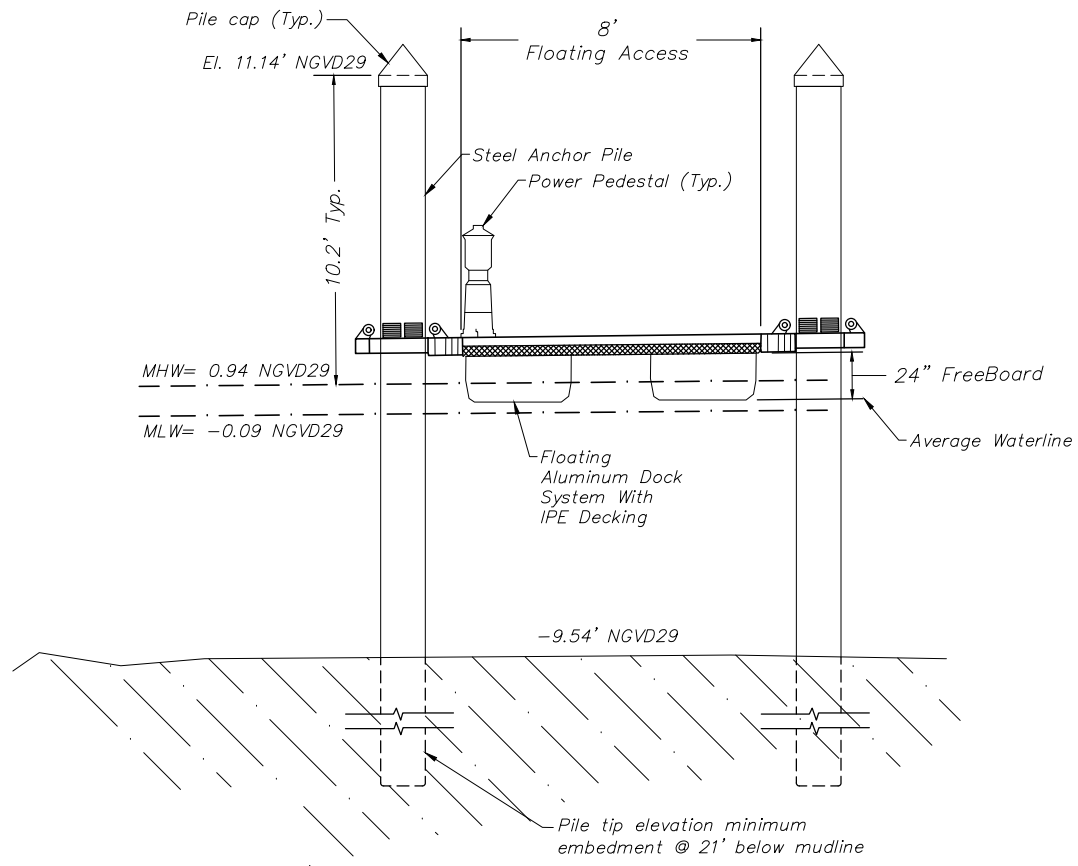
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KINGFISH PIER REPLACEMENT
KEY WEST, FLORIDA

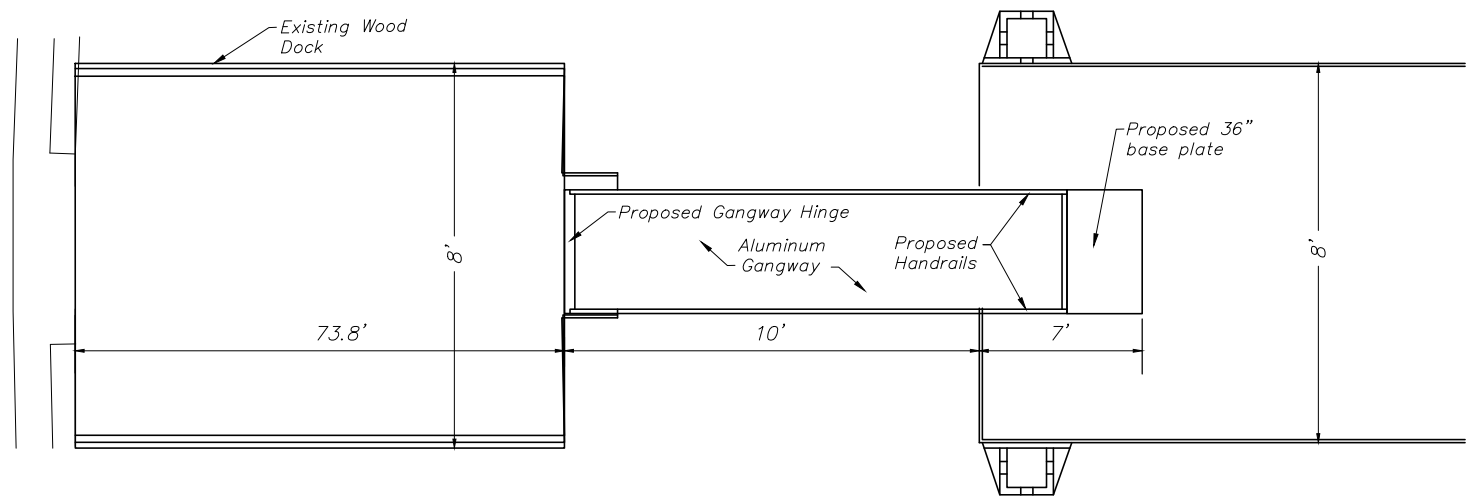
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DEMOLITION PLAN	
Project No. 215615197	Scale SEE PLANS
Drawing No. C04	Sheet of 25
	Revision

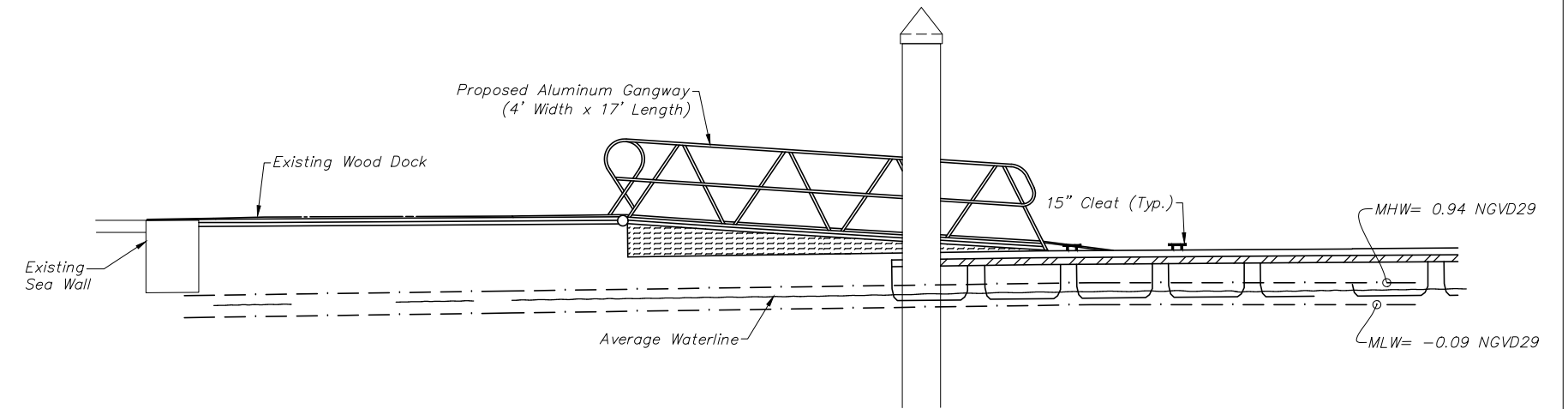


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CROSS SECTION C-C / C06
 N.T.S.



PLAN VIEW
 N.T.S.



CROSS SECTION D-D / C06
 N.T.S.

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CROSS SECTIONS	
Project No. 215615197	Scale SEE PLANS
Drawing No. C08	Sheet of 25
Revision	

Save Sea Turtles and Dolphins

While Fishing, Following These Tips:

- Report injured, entangled, hooked, or stranded dolphins and sea turtles to the 24-hour hotline:

1-877-942-5343

- Never cast towards dolphins or sea turtles.
- Change location or reel in your line if a dolphin or sea turtle shows interest in your bait or catch.
- Release catch away from dolphins when and where possible without violating any state or federal fishing regulations.
- Do not feed or attempt to feed wild dolphins or sea turtles - it's harmful and illegal.
- Do not dispose of leftover bait or cleaned fish remains in water.
- Use circle or corrodible (non-stainless steel) hooks to reduce injury.
- Use recycling bins for fishing line and do not throw trash or unwanted line in the water.
- If you hook a **SEA TURTLE**, immediately call the 24-hour hotline at 1-877-942-5343 and follow response team instructions. If you cannot reach a response team, follow these guidelines to reduce injuries:
 - If possible, use a net or lift by the shell to bring the turtle on pier or land. Do NOT lift by hook or line.
 - Cut the line close to the hook, removing as much line as possible.
 - Release turtle.

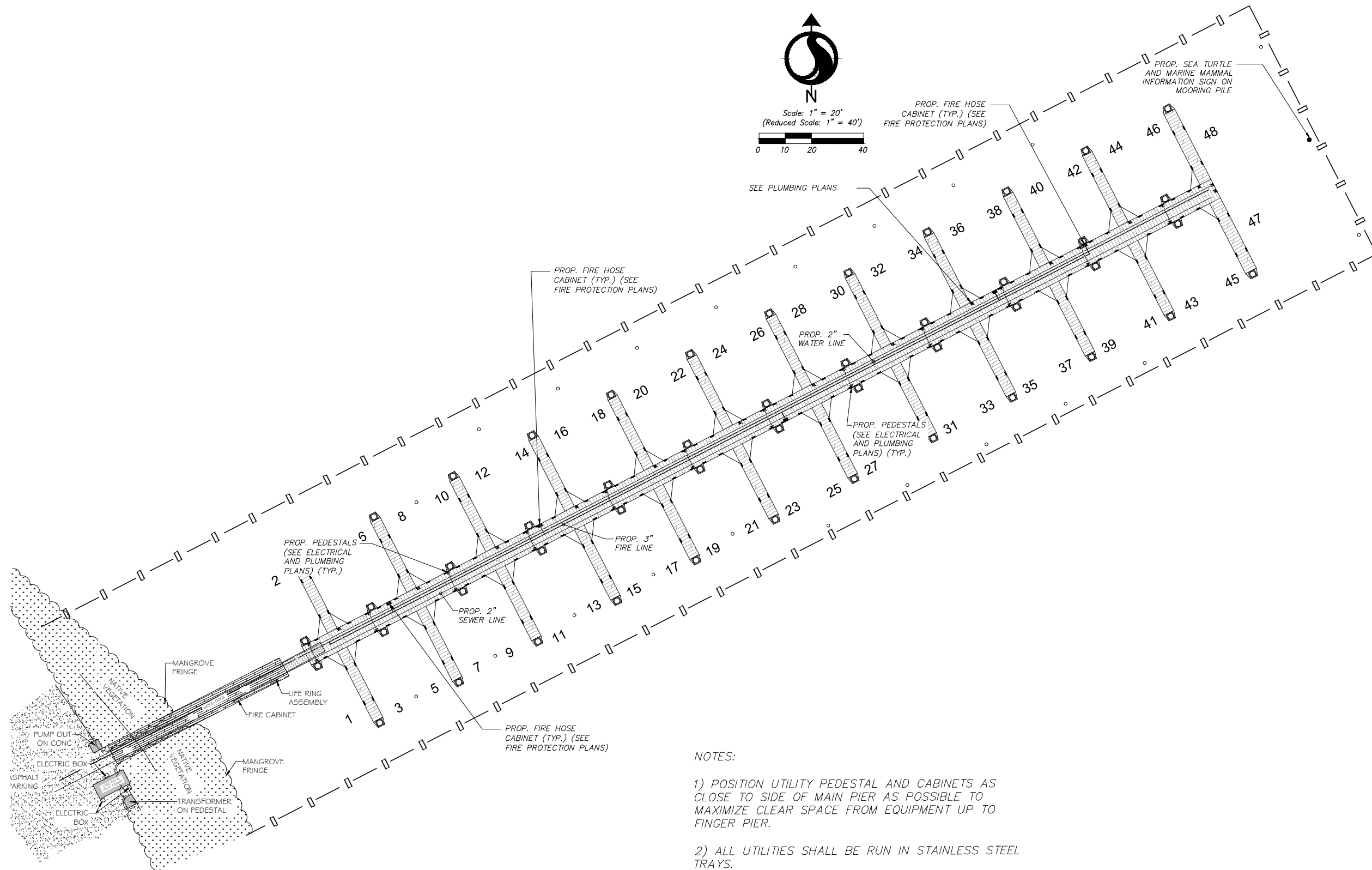


PROP. SEA TURTLE AND MARINE MAMMAL INFORMATION SIGN



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NOTES:

- POSITION UTILITY PEDESTAL AND CABINETS AS CLOSE TO SIDE OF MAIN PIER AS POSSIBLE TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT UP TO FINGER PIER.
- ALL UTILITIES SHALL BE RUN IN STAINLESS STEEL TRAYS.
- SEWER LINE, WATER LINE, FIRE LINE, POWER LINE SHOWN FOR COORDINATION ONLY. SEE CONSTRUCTION PLANS OF OTHER TRADES FOR ADDITIONAL INFORMATION.

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UTILITY PLAN	
Project No. 215615197	Scale SEE PLANS
Drawing No. C09	Sheet of 25
Revision	

PLAN SYMBOLS

	LUMINAIRE TYPE DESIGNATION
	CIRCUIT NUMBER
	SWITCH REFERENCE
	1x4 FLUORESCENT TROFFER, SURFACE MTD
	2x4 FLUORESCENT TROFFER, SURFACE MTD
	2x2 FLUORESCENT TROFFER, SURFACE MTD
	1x4 FLUORESCENT TROFFER, RECESSED
	2x4 FLUORESCENT TROFFER, RECESSED
	2x2 FLUORESCENT TROFFER, RECESSED
	GENERAL PURPOSE INDUSTRIAL FLUORESCENT, SIZE PER PLANS
	LUMINAIRE w/ EMERGENCY BATTERY PACK
	UNSWITCHED LUMINAIRE
	HID, POLE MTD w/ SINGLE SQUARE HEAD
	HID, POLE MTD w/ DOUBLE SQUARE HEAD
	HID, POLE MTD w/ SINGLE ROUND HEAD
	HID, POLE MTD w/ DOUBLE ROUND HEAD
	SURFACE MTD
	RECESSED
	WALL MTD
	EXIT, SURFACE MTD
	EXIT, WALL MTD
	EMERGENCY, WALL MTD
	EMERGENCY w/ EXIT AND EMERGENCY BATTERY PACK, WALL MTD
	SINGLE POLE, MTD 48" AFF UNO
	2-GANG, MTD 48" AFF UNO
	3-GANG, MTD 48" AFF UNO
	4-GANG, MTD 48" AFF UNO
	TWO POLE, MTD 48" AFF UNO
	THREE WAY, MTD 48" AFF UNO, (LOWER CASE LETTER INDICATES SWITCH CONTROL LEG)

	KEY OPERATED, MTD 48" AFF UNO
	PILOT LIGHT, MTD 48" AFF UNO
	RECEPTACLE 20A SINGLE, MTD 18" AFF UNO
	RECEPTACLE 20A DUPLEX, MTD 18" AFF UNO
	RECEPTACLE 20A SPLIT FEED, MTD 18" AFF UNO
	RECEPTACLE 20A FOURPLEX, MTD 18" AFF UNO
	RECEPTACLE 20A DUPLEX, CLG MTD
	RECEPTACLE 20A FOURPLEX, CLG MTD
	RECEPTACLE 20A DUPLEX, FLR MTD
	RECEPTACLE 20A FOURPLEX, FLR MTD
	RECEPTACLE 20A DUPLEX, MTD 18" AFF UNO - GFCI: GROUND FAULT CIRCUIT INTERRUPTER
	RECEPTACLE 20A DUPLEX, MTD 18" AFF UNO - IG: ISOLATED GROUND
	RECEPTACLE 20A DUPLEX, MTD 18" AFF UNO - SH: SHUTTER SAFETY
	RECEPTACLE 20A DUPLEX, MTD 18" AFF UNO - SP: SURGE PROTECTION
	RECEPTACLE 20A DUPLEX, MTD 18" AFF UNO - WP: WEATHERPROOF
	RECEPTACLE DECONTACTOR, MTD 18" AFF UNO
	RECEPTACLE, SPECIAL USE, RATING NOTED
	RECEPTACLE 208V, MTD 18" AFF UNO
	RECEPTACLE REEL CORD
	JUNCTION BOX, SURFACE MTD
	JUNCTION BOX, WALL MTD
	JUNCTION BOX, FLR MTD
	PANELBOARD, NORMAL POWER
	PANELBOARD, EMERGENCY POWER
	MOTOR, HORSEPOWER NOTED
	DAMPER MOTOR
	DISCONNECT SWITCH NON-FUSED, BUSS RATING NOTED
	DISCONNECT SWITCH FUSED, BUSS (AF) AND FUSE (AT) RATING NOTED
	CONTACTOR, NEMA SIZE NOTED
	STARTER, NEMA SIZE NOTED
	COMBINATION MOTOR STARTER, NEMA SIZE NOTED
	TRANSFORMER
	PUSHBUTTON
	HAND HOLE
	- AHH: ANALOG HAND HOLE
	- CHH: 4-20mA SIGNAL, ETHERNET FIBER/UART, TEL CONTROL HAND HOLE
	- PHH: IZO/DIGITAL/DISCRETE SIGNAL, 120V POWER POWER HAND HOLE 480V/277V/208V
	CONDUIT UP
	CONDUIT DOWN
	CONDUIT STUB
	CONDUIT HOMERUN, EXPOSED
	CONDUIT HOMERUN, UNDERGROUND OR CONCEALED
	TELEPHONE, MTD 18" AFF UNO
<1D data symbol"/>	DATA, MTD 18" AFF UNO
	TEL/DATA, MTD 18" AFF UNO
	TELEPHONE, CLG MTD
	DATA, CLG MTD
	TELEPHONE, FLR MTD
	DATA, FLR MTD

NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED

	SC CONNECTORS, 19" RACK MTD
	CAT6 PATCH PANEL, 110 PUNCH BLOCKS, 19" RACK MTD
	FIRE ALARM ANNUNCIATOR
	FIRE ALARM CONTROL PANEL
	FIRE ALARM EVACUATION COMBINATION AUDIBLE AND VISIBLE APPLIANCE (HORN/STROBE), WALL MTD w/ LENS 80" MIN & 96" MAX AFF
	FIRE ALARM EVACUATION VISIBLE APPLIANCE (STROBE), CLG MTD
	FIRE ALARM EVACUATION VISIBLE APPLIANCE (STROBE), WALL MTD w/ LENS 80" MIN & 96" MAX AFF
	FIRE ALARM HEAT DETECTOR
	FIRE ALARM MANUAL PULL STATION, WALL MTD w/ OPERABLE PART 42" MIN & 48" MAX AFF
	FIRE ALARM SMOKE DETECTOR, DUCT MTD w/ SAMPLE TUBES
	FIRE ALARM SMOKE DETECTOR, CLG MTD
	FIRE SPRINKLER RISER FLOW SWITCH, COORDINATE EXACT REQUIREMENTS PRIOR TO ROUGH-IN
	FIRE SPRINKLER RISER VALVE TAMPER SWITCH, COORDINATE EXACT REQUIREMENTS PRIOR TO ROUGH-IN
	OCCUPANCY SENSOR, SURFACE MTD
	OCCUPANCY SENSOR, WALL MTD
	125kHz RFID PROXIMITY READER
	DOOR CONTACT
	SECURITY KEYPAD
	EGRESS PIR FOR DOOR SHUNT
	360° PIR/GLASS BREAK DETECTOR
	REQUEST TO EXIT PUSHBUTTON
	PANIC/DURESS PUSHBUTTON
	INTRUSION ALARM CONTACT
	ELECTRIC DOOR STRIKE
	ELECTRIC LOCK w/ INTERNAL RELAY
	SPEAKER, CONE TYPE (PUBLIC ADDRESS)
	SPEAKER, HORN TYPE WATTAGE NOTED
	CCTV CAMERA, PTZ: PAN/TILT/ZOOM

DIAGRAM SYMBOLS

	MOLDED-CASE CIRCUIT BREAKER IN
	MOTOR CIRCUIT PROTECTOR IN
	MOTOR STARTER CONTACTOR
	VACUUM CONTACTOR
	MOTOR STARTER OVERLOAD RELAY - OL = THERMAL - EOL = ELECTRONIC
	MOTOR PROTECTION RELAY
	SOLID STATE REDUCED VOLTAGE STARTER
	FUSE, RATING NOTED
	TRANSFORMER, DELTA/WYE
	GROUND
	AUTOMATIC TRANSFER SWITCH
	DISCONNECT SWITCH
	POTENTIAL TRANSFORMER
	3 PHASE, 3 WIRE, DELTA
	3 PHASE, 4 WIRE, WYE, GND
	CURRENT TRANSFORMER, RATIO AND NUMBER OF CT'S AS NOTED
	CURRENT TRANSFORMER, ZERO SEQUENCE TYPE
	BUSHING TYPE CURRENT TRANSFORMER
	ISOLATING FUSE SWITCH, HIGH VOLTAGE PRIMARY FUSE CUT OUT, DRY
	ISOLATING FUSE SWITCH FOR ON-LOAD SWITCHING
	LIGHTNING ARRESTER
	CAPACITOR
	DRAWOUT CIRCUIT BREAKER
	POWER CIRCUIT BREAKER, FIXED TYPE, LOW OR MEDIUM VOLTAGE
	POWER CIRCUIT BREAKER, DRAWOUT TYPE, LOW OR MEDIUM VOLTAGE
	LOADBREAK ELBOW
	DISCONNECT SWITCH, GROUP OPERATED
	DISCONNECT SWITCH, STICK OPERATED
	DISCONNECT SWITCH, SELECTOR OR DOUBLE THROW
	DISCONNECT SWITCH WITH ARCING HORNS, MANUALLY OPERATED
	POTHEAD

	FIRE EXTINGUISHER CABINET, SEE FIRE PROTECTION PLANS.
	FIRE HOSE CABINET, SEE FIRE PROTECTION PLANS.
	GROUND FAULT MONITORING SYSTEM WAUDIBLE AND VISIBLE ALARM.
	EXISTING POWER PEDESTAL POWER PEDESTALS ARE TO BE REPLACED. CONTRACTOR SHALL INSTALL AND MAKE ALL CONNECTIONS.
	WATER BOX, SEE PLUMBING PLANS.
	ELECTRICAL PANELBOARD WITH NEMA 3R/SS WITH POWDERCOAT FINISH. SEE PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
	PAD MOUNTED UTILITY TRANSFORMER COORDINATE WITH LOCAL UTILITY COMPANY.
	SURGE PROTECTION DEVICE - SEE SPECIFICATIONS.

ABBREVIATIONS

A	AMPERE
ABV	ABOVE
AC	ALTERNATING CURRENT
ADD	ADDENDUM
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	ASYMMETRICAL INTERRUPTING CAPACITY
ARCH	ARCHITECT/ARCHITECTURAL
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO/VISUAL
BFE	BASE FLOOD ELEVATION
CHG	BATTERY CHARGER
C	CONDUIT
CAB	CABINET
CAT6	CATEGORY 6
CB	CIRCUIT BREAKER, COMBINER BOX
CC	CHARGE CONTROLLER
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
COMB	COMBINATION
CONN	CONNECTION, OR CONNECT
CONTR	CONTRACTOR
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT, CONVERTER
DET	DETAIL
DIST	DISTRIBUTION
DIV	DIVISION
DN	DOWN
DS	DISCONNECT SWITCH
DWG	DRAWING
EA	EACH
ELECTRICAL	ELECTRICAL
EMCS	ENERGY MANAGEMENT AND CONTROL SYSTEMS
EQUIP	EQUIPMENT
EXPL	EXPLOSION PROOF
EWC	ELECTRIC WATER COOLER
F	FUSED
FA	FIRE ALARM
FD	FUSIBLE DISCONNECT
FIN	FINISHED FL FLOOR
FUT	FUTURE
FIXT	FIXTURE LTG
FVNR	FULL VOLTAGE NON-REVERSING GENERATOR
G	GROUND
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
HOA	HAND - OFF - AUTO
HP	HORSEPOWER
HTG	HEATING
HTR	HEATER
Hz	HERTZ
IC	INTERRUPTING CAPACITY
I/C	INTERCOM
INV	INVERTER
JB	JUNCTION BOX
kw	KILOWATTS
kVA	KILOVOLT AMPERE
LP	LIGHTING PANEL
LTG	LIGHTING, LIGHT OR LIGHTS
LTFC	LIQUIDTIGHT FLEXIBLE CONDUIT
MAX	MAXIMUM
MCB	MOLDED CASE BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION

ABBREVIATIONS

MECH	MECHANICAL
MIN	MINIMUM
MFR	MANUFACTURER
MTR	MOTOR
MSS	MOTOR STARTER SWITCH
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
N.C.	NORMALLY CLOSED
NF	NON FUSED
NO	NORMALLY OPEN
Ø	PHASE
PB	PUSH BUTTON
PNL	PANEL
PP	POWER PEDESTAL
PR	PAIR
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
RECEPT	RECEPTACLE
RM	ROOM
RMC	RIGID METAL CONDUIT
SA	SUB ARRAY
SHT	SHEET
SPEC	SPECIFICATION
SPD	SURGE PROTECTION DEVICE
SPP	SUB PLANT PANEL
SPR	SUB PLANT RACK
STR	STARTER
ST	SHUNT TRIP
STP	SHIELDED TWISTED PAIR
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME CLOCK
TDR	TIME DELAY RELAY
TEL	TELEPHONE
TERM	TERMINAL
UTP	UNSHIELDED TWISTED PAIR
XFMR	TRANSFORMER
TV	TELEVISION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UG	UNDERGROUND
V	VOLTS
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WP	WEATHERPROOF

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Seal

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KEY WEST, FLORIDA

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SECTION 16410
SPECIAL REQUIREMENTS

MANUFACTURER'S AUTHORIZED MAINTENANCE COMPANY ADDRESSES FOR EQUIPMENT ON THIS PROJECT.

A. SUBMIT FOR APPROVAL MAINTENANCE INFORMATION CONSISTING OF MANUFACTURER'S PRINTED INSTRUCTIONS AND PARTS LISTS FOR EACH MAJOR ITEM OR EQUIPMENT. AFTER APPROVAL, INSERT INFORMATION IN EACH TECHNICAL INFORMATION BROCHURE.

1.01 DESCRIPTION

1.02 SUBMITTALS

A. SUBMIT MANUFACTURER'S DATA SHEETS ON ALL MAJOR TYPES OF WIRES AND CABLES INCLUDING SPLICING TAPE, AND TERMINATING/SPLICING LUGS OR CONNECTORS AND CABLE SLEEVES.

END OF SECTION

PART 1 - GENERAL

1.01 AUXILIARIES AND ACCESSORIES

A. INCLUDE ALL AUXILIARIES AND ACCESSORIES FOR COMPLETE AND PROPERLY OPERATING SYSTEMS.

B. PROVIDE AND INSTALL ALL ELECTRICAL SYSTEMS AND ANY NECESSARY ACCESSORIES AS PER THE NATIONAL ELECTRICAL CODE (NEC) EDITION AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION AND LOCAL CODES WHETHER OR NOT SPECIFIED HEREIN OR SHOWN ON DRAWINGS. THE CONTENT OF THESE SPECIFICATIONS (DIVISION 16) AND CONTRACT DOCUMENTS IN GENERAL ONLY REFERS TO WORK REQUIRED ABOVE AND BEYOND THE REQUIREMENTS OF THE NEC AND APPLICABLE LOCAL CODES.

1.02 LAYOUT OF WORK

A. DRAWINGS ARE DIAGRAMMATIC, CORRELATE FINAL EQUIPMENT LOCATIONS WITH GOVERNING ARCHITECTURAL AND STRUCTURAL DRAWINGS. LAY OUT BEFORE INSTALLATION SO THAT ALL TRADES MAY INSTALL EQUIPMENT IN SPACES AVAILABLE. PROVIDE COORDINATION AS REQUIRED FOR INSTALLATION IN A NEAT AND WORKMANLIKE MANNER.

1.03 INVESTIGATION OF SITE

A. CHECK SITE AND EXISTING CONDITIONS THOROUGHLY BEFORE BIDDING. ADVISE ENGINEER OF DISCREPANCIES OR QUESTIONS NOTED.

1.04 SUPERVISION OF THE WORK

A. PROVIDE FIELD SUPERINTENDENT WHO HAS HAD A MINIMUM OF FOUR (4) YEARS PREVIOUS SUCCESSFUL EXPERIENCE ON PROJECTS OF COMPARABLE SIZE AND COMPLEXITY. SUPERINTENDENT SHALL BE PRESENT AT ALL TIMES THAT WORK UNDER THIS DIVISION IS BEING INSTALLED OR AFFECTED. SUPERINTENDENT SHALL HAVE PASSED A PROCTORED H.H. BLOCK JOURNEYMAN EXAM AND SHALL BE A LICENSED JOURNEYMAN. AT LEAST ONE MEMBER OF THE ELECTRICAL CONTRACTING FIRM SHALL HOLD A STATE MASTER CERTIFICATE OF COMPETENCY.

1.05 COORDINATION

A. PROVIDE ALL REQUIRED COORDINATION AND SUPERVISION WHERE WORK CONNECTS TO OR IS AFFECTED BY WORK OF OTHERS, AND COMPLY WITH ALL REQUIREMENTS AFFECTING THIS DIVISION. WORK REQUIRED UNDER OTHER DIVISIONS, SPECIFICATIONS OR DRAWINGS TO BE PERFORMED BY THIS DIVISION SHALL BE COORDINATED WITH THE CONTRACTOR AND SUCH WORK PERFORMED AT NO ADDITIONAL COST TO OWNER.

1.06 BASIS FOR WIRING DESIGN

A. THE DRAWINGS AND SPECIFICATIONS DESCRIBE SPECIFIC SIZES OF SWITCHES, BREAKERS, CONDUITS, CONDUCTORS, AND OTHER ITEMS OF WIRING EQUIPMENT. THESE SIZES ARE BASED ON SPECIFIC ITEMS OF POWER CONSUMING EQUIPMENT. WHEREVER THE CONTRACTOR PROVIDES POWER CONSUMING EQUIPMENT WHICH DIFFERS FROM DRAWINGS AND SPECIFICATIONS, THE WIRING AND ASSOCIATED CIRCUIT COMPONENTS FOR SUCH EQUIPMENT SHALL BE CHANGED TO MATCH AT NO ADDITIONAL EXPENSE TO THE OWNER.

1.07 PROTECTION AND CLEAN UP

A. SUITABLY PROTECT ALL EQUIPMENT FURNISHED UNDER THIS DIVISION DURING CONSTRUCTION. RESTORE ALL DAMAGED SURFACES AND ITEMS TO "LIKE NEW" CONDITION BEFORE A REQUEST FOR SUBSTANTIAL COMPLETION INSPECTION.

1.08 MATERIALS

A. REFERENCE: "GENERAL CONDITIONS OF THE CONTRACT".

B. WHERE A MANUFACTURER'S MODEL NUMBER IS LISTED, THIS MODEL SHALL SET THE STANDARD OF QUALITY AND PERFORMANCE REQUIRED. WHERE NO BRAND NAME IS SPECIFIED, THE SOURCE AND QUALITY SHALL BE SUBJECT TO ENGINEER'S REVIEW AND ACCEPTANCE.

1.09 SUBSTITUTIONS

A. EACH BIDDER REPRESENTS THAT HIS BID IS BASED UPON THE EQUIPMENT AND MATERIALS DESCRIBED IN DIVISION 16 OF THE SPECIFICATIONS.

B. SUBSTITUTION SUBMITTALS SHALL INCLUDE THE NAME OF THE MATERIAL OR EQUIPMENT FOR WHICH IT IS TO BE SUBSTITUTED, DRAWINGS, CUTS, PERFORMANCE AND TEST DATA AND ANY OTHER INFORMATION NECESSARY FOR THE ENGINEER TO DETERMINE THAT THE EQUIPMENT MEETS ALL SPECIFICATIONS AND REQUIREMENTS. PRE-APPROVAL OF PROPOSED SUBSTITUTION IS REQUIRED FOR EQUIPMENT SUPPLIED UNDER THIS DIVISION AND MUST BE SUBMITTED 10 DAYS PRIOR TO BID OPENING.

C. SUBSTITUTED EQUIPMENT OR OPTIONAL EQUIPMENT WHERE PERMITTED AND APPROVED, MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY MODIFICATIONS OF RELATED SYSTEMS AS A RESULT OF SUBSTITUTIONS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

1.10 TECHNICAL INFORMATION BROCHURES AND SUBMITTALS

A. SUBMIT TECHNICAL INFORMATION BROCHURES AT START OF CONSTRUCTION OR WITHIN 30 DAYS AFTER AWARD OF THE CONTRACT. EACH BROCHURE SHALL CONSIST OF AN ADEQUATELY SIZED, HARD-COVER, 3-RING BINDER FOR 8-1/2" X 11" SHEETS. PROVIDE CORRECT DESIGNATION ON OUTSIDE COVER AND ON END OF BROCHURE. WHEN, IN THE JUDGMENT OF THE ENGINEER, ONE BINDER IS NOT ENOUGH TO ADEQUATELY CATALOG ALL DATA, AN ADDITIONAL BINDER WILL BE REQUIRED AND DATA SPLIT AS DIRECTED BY THE ENGINEER.

B. THE FIRST SHEET IN THE BROCHURE SHALL BE AN INDEX PAGE LISTING ALL EQUIPMENT CONTAINED IN THE BROCHURE WHICH PERTAINS TO THE PROJECT. THE SECOND SHEET SHALL BE PREPARED BY THE CONTRACTOR, AND SHALL LIST MANUFACTURER'S AUTHORIZED REPRESENTATIVE FOR THIS PROJECT. THE THIRD SHEET SHALL LIST

C. PROVIDE REINFORCED SEPARATION SHEETS TABBED WITH THE APPROPRIATE SPECIFICATION REFERENCE NUMBER AND TYPED INDEX FOR EACH SECTION.

D. TECHNICAL INFORMATION CONSISTING OF MARKED CATALOG SHEETS OR SHOP DRAWINGS SHALL BE INSERTED IN THE BROCHURE IN PROPER ORDER ON ALL ITEMS HEREIN SPECIFIED OR SHOWN ON DRAWINGS.

E. THE GENERAL CONTRACTOR SHALL REVIEW THE BROCHURES BEFORE SUBMITTING TO THE ENGINEER. NO REQUEST FOR PAYMENT WILL BE CONSIDERED UNTIL THE BROCHURE HAS BEEN REVIEWED AND SUBMITTED FOR CHECKING.

F. SHOP DRAWINGS

1. DRAWINGS SHALL INCLUDE IDENTIFICATION OF PROJECT AND NAMES OF ARCHITECT, ENGINEER, GENERAL CONTRACTOR, SUBCONTRACTOR AND/OR SUPPLIER AS APPLICABLE. DATA SHALL BE NUMBERED SEQUENTIALLY AND INDICATE IN GENERAL.

a. FABRICATION AND ERECTION DIMENSIONS.

b. ARRANGEMENTS AND SECTIONAL VIEWS.

c. NECESSARY DETAILS, INCLUDING COMPLETE INFORMATION FOR MAKING CONNECTIONS WITH OTHER WORK.

d. KINDS OF MATERIAL AND FINISHES.

e. DESCRIPTIVE NAMES OF EQUIPMENT.

f. MODIFICATIONS AND OPTIONS TO STANDARD EQUIPMENT REQUIRED BY THE CONTRACT.

g. LEAVE BLANK AREA, SIZE APPROXIMATELY 4 BY 2-1/2 INCHES, NEAR TITLE BLOCK (FOR ENGINEER'S STAMP IMPRINT).

h. IN ORDER TO FACILITATE REVIEW OF DRAWINGS, INSOFAR AS PRACTICABLE, THEY SHALL BE NOTED, INDICATING BY CROSS REFERENCE THE CONTRACT DRAWINGS, NOTE, AND/OR SPECIFICATION PARAGRAPH NUMBERS WHERE ITEM(S) OCCUR IN THE CONTRACT DOCUMENTS.

i. SEE SPECIFIC SECTIONS OF SPECIFICATIONS FOR FURTHER REQUIREMENTS.

j. PRODUCT DATA

2. SUBMIT TECHNICAL DATA VERIFYING THAT THE ITEM SUBMITTED COMPLIES WITH THE REQUIREMENTS OF THE SPECIFICATIONS. TECHNICAL DATA SHALL INCLUDE MANUFACTURER'S NAME AND MODEL NUMBER, DIMENSIONS, WEIGHTS, ELECTRICAL CHARACTERISTICS, AND CLEARANCES REQUIRED. INDICATE ALL OPTIONAL EQUIPMENT AND CHANGES FROM THE STANDARD ITEM AS CALLED FOR IN THE SPECIFICATIONS. FURNISH DRAWINGS, OR DIAGRAMS, DIMENSIONED AND IN CORRECT SCALE, COVERING EQUIPMENT, SHOWING ARRANGEMENT OF COMPONENTS AND OVERALL COORDINATION.

3. IN ORDER TO FACILITATE REVIEW OF PRODUCT DATA, INSOFAR AS PRACTICABLE, THEY SHALL BE NOTED, INDICATING BY CROSS REFERENCE THE CONTRACT DRAWINGS, NOTE, AND/OR SPECIFICATION PARAGRAPH NUMBERS WHERE ITEM(S) OCCUR IN THE CONTRACT DOCUMENTS.

4. SEE SPECIFIC SECTIONS OF SPECIFICATIONS FOR FURTHER REQUIREMENTS.

G. PROCESSING SUBMITTALS

1. PRODUCT DATA: FOR STANDARD MANUFACTURED MATERIAL, PRODUCTS AND ITEMS SUBMIT COPIES AS REQUIRED UNDER DIVISION 1 SPECIFICATIONS. IF SUBMITTAL IS REJECTED, RESUBMIT COPIES OF NEW DATA.

2. REFERENCE: "GENERAL CONDITIONS OF THE CONTRACT".

3. NOTE THAT THE REVIEW OF SHOP DRAWINGS, OR OTHER INFORMATION SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS HEREINBEFORE SPECIFIED, DOES NOT ASSURE THAT THE ENGINEER, ARCHITECT, OR ANY OTHER OWNERS REPRESENTATIVE, ATTESTS TO THE DIMENSIONAL ACCURACY OR DIMENSIONAL SUITABILITY OF THE MATERIAL OR EQUIPMENT INVOLVED, THE ABILITY TO THE MATERIAL OR EQUIPMENT INVOLVED OF THE MECHANICAL/ELECTRICAL PERFORMANCE OF EQUIPMENT. REVIEW OF SHOP DRAWINGS DOES NOT INVALIDATE THE PLANS AND SPECIFICATIONS IF IN CONFLICT, UNLESS A LETTER REQUESTING SUCH CHANGE IS SUBMITTED AND APPROVED ON THE ENGINEER'S LETTERHEAD.

H. DELAYS

1. CONTRACTOR IS RESPONSIBLE FOR ANY DELAYS IN JOB PROGRESS ACCRUING DIRECTLY OR INDIRECTLY FROM LATE SUBMISSIONS OR RESUBMISSIONS OF SHOP DRAWINGS, PRODUCT DATA, OR SAMPLES.

1.11 PROGRESS AND RECORD DRAWINGS

A. KEEP TWO SETS OF BLACK OR BLUE ON WHITE PRINTS AT THE JOB SITE. NEATLY MARKUP DESIGN DRAWINGS EACH DAY AS COMPONENTS ARE INSTALLED TAKING CARE TO REFLECT ANY VARIATIONS. DIFFERENT COLORED PENCILS SHALL BE USED FOR DIFFERENT SYSTEMS. ALL ITEMS ON PROGRESS DRAWING SHALL BE SHOWN IN ACTUAL LOCATION INSTALLED. CHANGE ANY EQUIPMENT SCHEDULES TO AGREE WITH ITEMS ACTUALLY FURNISHED.

B. PRIOR TO REQUEST FOR FINAL PAYMENT FURNISH A SET OF "AS-BUILT" REPRODUCIBLES AND TWO SETS OF PRINTS TO THE ENGINEER, UNLESS OTHERWISE SPECIFIED.

1.12 OPERATING INSTRUCTIONS

A. SUBMIT FOR CHECKING A SPECIFIC SET OF WRITTEN OPERATING INSTRUCTIONS ON EACH ITEM WHICH REQUIRE INSTRUCTIONS TO OPERATE. AFTER APPROVAL, PROVIDE ONE COPY FOR INSERTION IN EACH TECHNICAL INFORMATION BROCHURE.

1.13 MAINTENANCE INSTRUCTIONS

1.14 SYSTEMS GUARANTEE

A. THE WORK REQUIRED UNDER THIS DIVISION SHALL INCLUDE A ONE-YEAR GUARANTEE. THIS GUARANTEE SHALL BE BY THE CONTRACTOR TO THE OWNER FOR ANY DEFECTIVE WORKMANSHIP OR MATERIAL WHICH HAS BEEN FURNISHED UNDER THIS CONTRACT AT NO COST TO THE OWNER FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM. THIS GUARANTEE SHALL NOT INCLUDE LIGHT BULBS IN SERVICE AFTER ONE MONTH FROM DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM. EXPLAIN THE PROVISIONS OF GUARANTEE TO THE OWNER AT THE DEMONSTRATION OF COMPLETED SYSTEM. SUBMIT FOR CHECKING A SPECIFIC SET OF WRITTEN OPERATING INSTRUCTIONS ON EACH ITEM WHICH REQUIRE INSTRUCTIONS TO OPERATE. AFTER APPROVAL, PROVIDE ONE COPY FOR INSERTION IN EACH TECHNICAL INFORMATION BROCHURE.

1.15 FINAL INSPECTION

A. ALL WORK ON THE PROJECT SHALL BE COMPLETED, AND ALL FORMS AND OTHER INFORMATION SHALL BE SUBMITTED FOR APPROVAL ONE WEEK BEFORE THE REQUEST FOR FINAL INSPECTION.

1.16 EQUIPMENT TO BE OF SINGLE MANUFACTURER

A. IN GENERAL, ALL LIKE EQUIPMENT SHALL BE SUPPLIED AND MANUFACTURED BY SAME MANUFACTURER.

1.17 GENERAL

A. WHERE THE REQUIREMENTS OF ANOTHER DIVISION, SECTION OR PART OF THESE SPECIFICATIONS EXCEED THE REQUIREMENTS OF THIS DIVISION, THOSE REQUIREMENTS SHALL GOVERN.

END OF SECTION

SECTION 16020

WORK INCLUDED

PART 1 - GENERAL

1.01 DESCRIPTION OF SYSTEM

A. THE WORK REQUIRED UNDER THIS DIVISION SHALL INCLUDE ALL MATERIALS, LABOR AND AUXILIARIES REQUIRED TO INSTALL A COMPLETE AND PROPERLY OPERATING ELECTRICAL SYSTEM. THE ELECTRICAL SYSTEM REQUIRED UNDER THIS DIVISION CONSISTS BASICALLY OF, BUT IS NOT LIMITED TO THE FOLLOWING:

1. COMPLETE DISTRIBUTION SYSTEM FOR MARINE SHORE POWER INCLUDING FEEDERS FROM THE MAIN DISTRIBUTION PANELS TO THE POWER PEDESTALS.

2. MODIFICATIONS TO POWER DISTRIBUTION PANELBOARDS.

3. REFURBISHMENT OF EXISTING POWER PEDESTALS.

4. GROUND FAULT PROTECTION SYSTEMS.

END OF SECTION

SECTION 16025

CODES, FEES, AND STANDARDS

PART 1 - GENERAL

1.01 CODES AND FEES

A. INSTALL IN ACCORDANCE WITH LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND THE REGULATIONS OF GOVERNING LOCAL, AND OTHER APPLICABLE CODES, INCLUDING THE UTILITY COMPANY, PAY FOR ALL REQUIRED LICENSES, FEES AND INSPECTIONS.

B. ALL WORK AND EQUIPMENT UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE WITH THE APPLICABLE PROVISIONS OF THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS IN FORCE AT THE TIME OF CONSTRUCTION.

1. FLORIDA BUILDING CODE

2. NATIONAL ELECTRICAL CODE (NEC)

3. REQUIREMENTS OF LOCAL POWER COMPANY

1.02 STANDARDS

A. ALL MATERIALS SHALL BE NEW AND FREE OF DEFECTS, AND SHALL BE UL LISTED, GEAR THE UL LABEL OR BE LABELED OR LISTED WITH AN APPROVED, NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY. WHERE NO LABELING OR LISTING SERVICE IS AVAILABLE FOR CERTAIN TYPES OF EQUIPMENT, TEST DATA SHALL BE SUBMITTED TO PROVE TO THE ENGINEER THAT EQUIPMENT MEETS OR EXCEEDS AVAILABLE STANDARDS.

1.03 UTILITY COMPANY FEES, CHARGES, COSTS

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE REQUIRED UTILITY COMPANY TO DETERMINE IF ANY FEES, CHARGES OR COSTS WILL BE DUE THE UTILITY COMPANY. FEES FOR TEMPORARY POWER SHALL BE INCLUDED IN THIS CONTRACTOR'S BID PRICE. FEES FOR PERMANENT POWER WILL BE PAID BY THE OWNER.

END OF SECTION

SECTION 16110

RACEWAYS AND CONDUITS

PART 1 - GENERAL

A. DESCRIPTION OF SYSTEM

1. THE ENTIRE INSTALLATION SHALL BE IN PVC PLASTIC CONDUIT, UNLESS SPECIFICALLY NOTED OTHERWISE. ONLY SCHEDULE 40 PVC SHALL BE USED FOR ALL RACEWAYS TRAPPED UNDERGROUND OR UNDER DOCK STRUCTURE. EXPOSED CONDUIT SHALL BE SCHEDULE 80 PVC AND BE INSTALLED IN LOCATIONS NOT SUBJECT TO DAMAGE. MINIMUM CONDUIT SIZE SHALL BE ¾" UNLESS NOTED OTHERWISE ON DRAWINGS. ALL CONDUITS SHALL BE UL LISTED AND LABELED. CONDUIT SIZES SHOWN ON THE DRAWINGS ARE TO AID THE CONTRACTOR IN BIDDING ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CONDUIT SIZES AS REQUIRED BY NEC FILL TABLES.

1.02 SUBMITTALS

A. PRODUCT DATA

1. PRODUCT DATA SHALL BE SUBMITTED ON CONDUIT AND CONDUIT FITTINGS. PRODUCT DATA SHALL SHOW COMPLIANCE WITH THIS SECTION OF THE SPECIFICATIONS, INCLUDING UL LABEL, MANUFACTURER, AND MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

PART 2 - PRODUCTS

2.01 PVC CONDUIT

A. PVC CONDUIT SHALL BE COMPOSED OF HIGH IMPACT PVC (POLYVINYL CHLORIDE C-200 COMPOUND) AND SHALL CONFORM TO INDUSTRY STANDARDS, AND BE UL LISTED IN ACCORDANCE WITH ARTICLE 352 OF NATIONAL ELECTRICAL CODE FOR UNDERGROUND AND EXPOSED USE. MATERIALS MUST HAVE TENSILE STRENGTH OF 55 PSI, AT 70°F, FLEXURAL STRENGTH OF 11,000 PSI, COMPRESSION STRENGTH OF 8600 PSI. MANUFACTURER SHALL HAVE FIVE YEARS' EXTRUDING PVC EXPERIENCE.

2.02 EXPANSION FITTINGS

A. CONDUIT EXPANSION FITTINGS SHALL BE PVC AND SHALL HAVE AN EXPANSION CHAMBER TO ALLOW APPROXIMATELY TWO-INCH MOVEMENT PARALLEL TO CONDUIT RUN IN EITHER DIRECTION FROM NORMAL. THEY SHALL HAVE FACTORY-INSTALLED PACKING. EXPANSION FITTINGS SHALL BE SPACED AS RECOMMENDED BY THE MANUFACTURER.

PART 3 - EXECUTION

3.01 INSTALLATION

A. ALL RACEWAYS SHALL BE RUN IN NEAT AND WORKMAN LIKE MANNER AND SHALL BE PROPERLY SUPPORTED IN ACCORDANCE WITH LATEST EDITION OF NEC WITH APPROVED STAINLESS STEEL CONDUIT CLAMPS, HANGER RODS AND STRUCTURAL FASTENERS.

B. ALL RACEWAY RUNS, WHETHER TERMINATED IN BOXES OR NOT, SHALL BE CAPPED DURING THE COURSE OF CONSTRUCTION AND UNTIL WIRES ARE PULLED IN, AND COVERS ARE IN PLACE. NO CONDUCTORS SHALL BE PULLED INTO RACEWAYS UNTIL CONSTRUCTION WORK WHICH MIGHT DAMAGE THE RACEWAYS HAS BEEN COMPLETED.

C. ALL RACEWAYS SHALL HAVE AN INSULATED COPPER SYSTEM GROUND CONDUCTOR THROUGHOUT THE ENTIRE LENGTH OF CIRCUIT INSTALLED WITHIN CONDUIT IN STRICT ACCORDANCE WITH NEC. GROUNDING CONDUCTOR SHALL BE INCLUDED IN TOTAL CONDUIT FILL DETERMINING CONDUIT SIZES, EVEN THOUGH NOT INCLUDED OR SHOWN ON DRAWINGS. GROUNDING CONDUCTORS RUN WITH FEEDERS SHALL BE BONDED TO PORTIONS OF CONDUIT THAT ARE METAL BY APPROVED GROUND BUSHINGS.

D. RACEWAYS WHICH DO NOT HAVE CONDUCTORS FURNISHED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE LEFT WITH AN APPROVED NYLON PULL CORD IN RACEWAY.

END OF SECTION

SECTION 16120

WIRES AND CABLES

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

A. CONDUCTORS

1. ALL CONDUCTORS SHALL BE COPPER TYPE THHN/THWN, TYPE "G", TYPE "W" OR TYPE "DLO" AS INDICATED ON DRAWINGS. NO ALUMINUM WIRING SHALL BE PERMITTED. ALL WIRE SHALL BE SIZED AS SHOWN ON THE DRAWINGS.

2. WIRING FROM THE DISTRIBUTION PANEL TO THE POWER PEDESTAL SHALL BE TYPE "G" MULTI-CONDUCTOR CABLE.

3. WIRING FROM THE DISTRIBUTION PANEL TO THE LIGHTING IN THE POWER PEDESTALS SHALL BE TYPE "SOOW" MULTI-CONDUCTOR CABLE.

4. ALL PORTABLE POWER CABLES SHALL BE RATED FOR EXTRA-HARD USAGE NOT LESS THAN 75C, 600V, LISTED FOR BOTH WET LOCATIONS AND SUNLIGHT RESISTANCE, AND HAVING AN OUTER JACKET RATED TO BE RESISTANT TO TEMPERATURE EXTREMES, OIL, GASOLINE, OZONE, ABRASION, ACIDS, AND CHEMICALS IN ACCORDANCE WITH NEC 555.13 (2).

B. TAPS AND SPLICES

1. ALL TAPS AND SPLICES IN MANHOLES OR IN GROUND PULL BOXES SHALL BE SUBMERSIBLE TYPE CONNECTORS. BASIS OF DESIGN: CMC TYPE SSBC-S RUBBER INSULATED SECONDARY CONNECTIONS. INSTALL SLEEVE KITS AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

C. COLOR CODING

1. ALL POWER FEEDERS SHALL BE WIRED WITH INDUSTRY STANDARD COLOR-CODED WIRE OR SHALL HAVE BLACK INSULATION AND BE SIMILARLY COLOR-CODED WITH TAPE OR PAINT IN ALL JUNCTION BOXES AND PANELS. TAPE OR PAINT SHALL COMPLETELY COVER THE FULL LENGTH OF CONDUCTOR INSULATION WITHIN THE BOX OR PANEL.

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Seal

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CITY OF KEY WEST
KINGFISH PIER REPLACEMENT
KEY WEST, FLORIDA

File Name: _____ DLS JN BCB 19.11.22
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SECTION 16450
SECONDARY GROUNDING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. POWER SYSTEM GROUNDING.
- B. ELECTRICAL EQUIPMENT AND RACEWAY GROUNDING AND BONDING.

1.02 SYSTEM DESCRIPTION

A. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING SYSTEMS.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. PROVIDE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR WITH EACH FEEDER AND BRANCH CIRCUIT. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
- B. CONNECT GROUNDING ELECTRODE CONDUCTORS TO METAL WATER PIPE USING AN APPROVED GROUND CLAMP. MAKE CONNECTIONS TO FLANGED PIPING AT STREET SIDE OF FLANGE. PROVIDE BONDING JUMPER AROUND WATER METER.
- C. ALL GROUND CONNECTIONS AT GROUND RODS, BUILDING STEEL, AND CONCRETE REINFORCING STEEL SHALL BE EXOTHERMIC WELD TYPE.

3.02 FIELD QUALITY CONTROL

A. INSPECT GROUNDING AND BONDING SYSTEM CONDUCTORS AND CONNECTIONS FOR RIGHTNESS AND PROPER INSTALLATION.

END OF SECTION

SECTION 16470
PANELBOARD

PART 1 - GENERAL

1.01 WORK INCLUDED

A. MODIFICATIONS TO EXISTING POWER DISTRIBUTION PANELS AS SHOWN ON DRAWINGS.

1.02 SUBMITTALS

- A. SUBMIT SHOP DRAWINGS FOR EQUIPMENT AND COMPONENT DEVICES.
- B. INCLUDE OUTLINE AND SUPPORT POINT DIMENSIONS, VOLTAGE, MAIN BUS AMPACITY, INTEGRATED SHORT CIRCUIT AMPERE RATING, CIRCUIT BREAKER AND FUSIBLE SWITCH ARRANGEMENT AND SIZES.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. SIEMENS
- B. OR EQUAL

2.02 PANELBOARDS

- A. ALL BREAKERS AND ACCESSORIES SHALL BE FULLY RATED WITH MINIMUM INTEGRATED SHORT CIRCUIT RATING EQUAL TO THE SHORT CIRCUIT RATINGS OF THE THE EXISTING PANEL.
- B. MOLDED CASE CIRCUIT BREAKERS SHALL MATCH EXISTING THERMAL/MAGNETIC TRIP CIRCUIT BREAKERS, WITH COMMON TRIP HANDLE FOR ALL POLES. PROVIDE CIRCUIT BREAKERS UL LISTED. BREAKERS SHALL HAVE SHUNT TRIP OPTION FOR CONNECTION TO THE GROUND FAULT MONITOR.

PART 3 - EXECUTION

3.01 INSTALLATION

- C. MAXIMUM HEIGHT: 6 FT. TO TOP.
- D. PROVIDE FILLER PLATES FOR UNUSED SPACES IN PANELBOARDS.
- E. PROVIDE TYPED CIRCUIT DIRECTORY FOR EACH BRANCH CIRCUIT PANELBOARD. REVISE DIRECTORY TO REFLECT CIRCUITING CHANGES REQUIRED TO BALANCE PHASE LOADS.
- F. PROVIDE ENGRAVED LABELS AS SHOWN ON DRAWINGS. LABELS SHALL BE SECURELY FASTENED TO THE PANEL.

3.02 FIELD QUALITY CONTROL

A. VISUAL AND MECHANICAL INSPECTION: INSPECT FOR PHYSICAL DAMAGE, PROPER ALIGNMENT, ANCHORAGE, AND GROUNDING. CHECK PROPER INSTALLATION AND TIGHTNESS OF CONNECTIONS FOR CIRCUIT BREAKERS

END OF SECTION

SECTION 16620
GROUND MONITORING SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

A. THIS SECTION DESCRIBES THE MATERIALS AND INSTALLATION REQUIREMENTS FOR GROUND MONITORING EQUIPMENT TO MEASURE "LEAKAGE" CURRENT TO GROUND.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. GENERAL ELECTRICAL REQUIREMENTS
- B. RACEWAYS, BOXES, AND FITTINGS.
- C. WIRE AND CABLE
- D. GROUNDING

1.03 SUBMITTALS

- A. SUBMIT SHOP DRAWINGS, PRODUCT DATA AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- B. THE GROUND MONITOR SUBMITTALS SHALL ALSO INCLUDE:
 - 1. DIMENSIONAL DRAWINGS OF EACH MONITOR TYPE.
 - 2. PANELBOARD MOUNTING DETAIL.

1.04 MANUFACTURERS

A. ALL MONITORS FOR AC DISTRIBUTION AND BRANCH CIRCUIT PROTECTION WITHIN A SINGLE FACILITY SHALL BE PROVIDED BY A SINGLE MANUFACTURER.

PART 2 - PRODUCTS

2.01 MAIN SERVICE MONITORS AT DISTRIBUTION PANELS

- A. MONITORS SHALL BE LISTED IN ACCORDANCE WITH U.L. FILE #E173157.
- B. THE GROUND FAULT MONITORS SHALL MATCH EXISTING MARINE SYNC REMOTE UTILITY MONITORING AND CONTROL (RUM) OR APPROVED EQUAL. THESE DEVICES SHALL MONITOR THE INSULATION LEVEL OF GROUNDED SINGLE PHASE MARINA POWER SYSTEM BY MEASURING THE GROUND FAULT LEAKAGE CURRENT.
- C. MONITORS SHALL BE SUITABLE FOR INSTALLATION INTO STANDARD DISTRIBUTION PANELS.
- D. THE MONITORS SHALL INDIVIDUALLY MONITOR EACH FEEDER CIRCUIT LEAVING THE PANEL. THE ALARM RELAY SHALL BE CONNECTED TO SHUNT TRIP OF THE ASSOCIATED CIRCUIT BREAKER.

PART 3 - EXECUTION

3.01 DISTRIBUTION PANEL

A. CONDUCTORS BETWEEN THE MONITOR AND POINT OF ATTACHMENT SHALL BE KEPT SHORT AND STRAIGHT.

END OF SECTION

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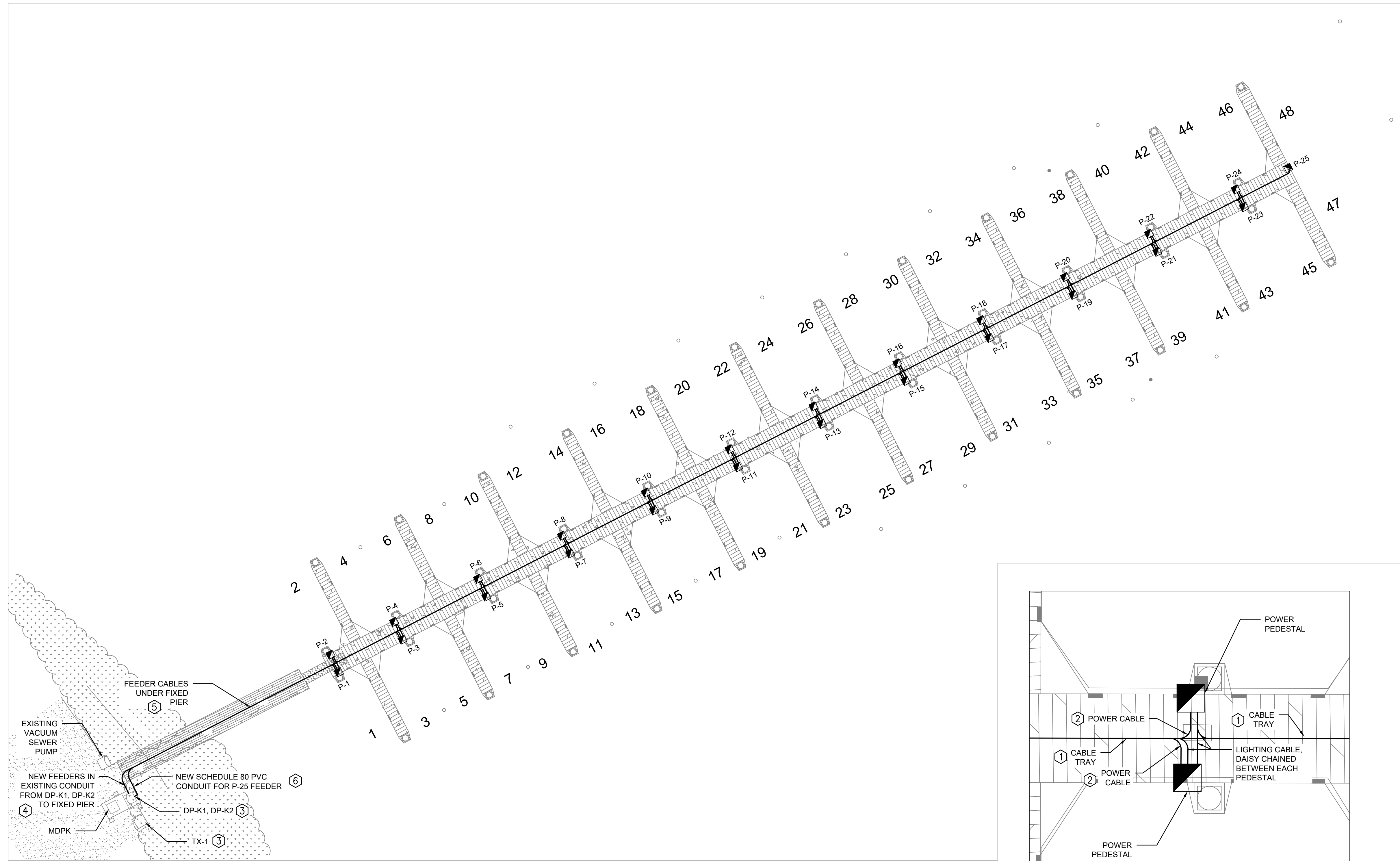
ELECTRICAL SPECIFICATIONS		
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GENERAL NOTES

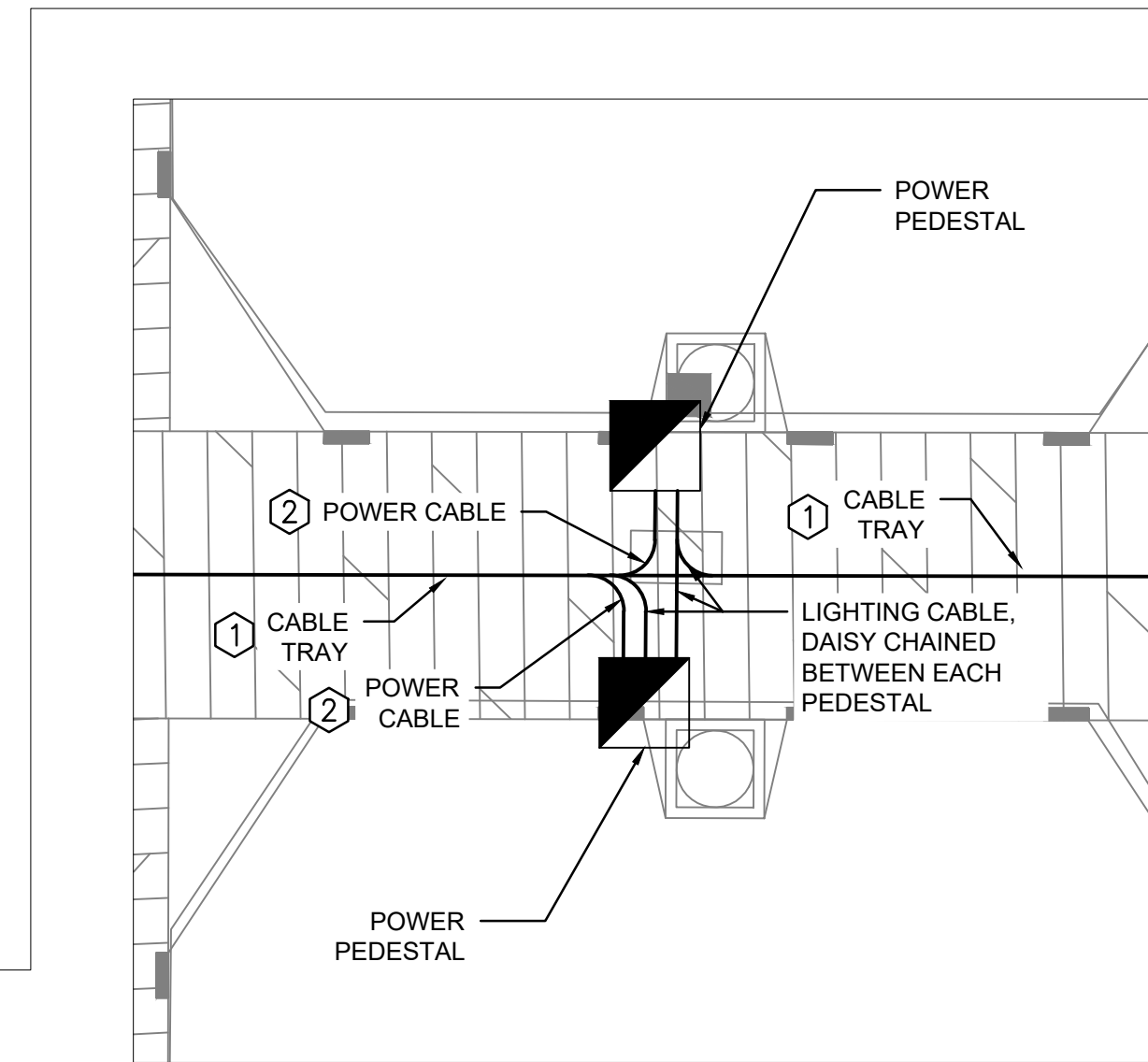
- A. CONTRACTOR SHALL REPLACE EXISTING CONDUCTORS. NO SPLICING SHALL BE PERMITTED.
- B. CONTRACTOR SHALL VERIFY THE CONDITION AND SUITABILITY OF DISTRIBUTION EQUIPMENT INTENDED FOR RE-USE.
- C. 120/240V DP-K1, DP-K2 PANEL AS SHOWN ON ONE-LINE TO SUPPORT POWER PEDESTAL CONFIGURATION SEWER PUMP. THE PANEL SHALL HAVE GFCI PROTECTION FOR ALL BRANCH CIRCUITS PER NEC.
- D. CABLE SHALL BE IN CONDUIT IN GROUND AND IN CABLE TRAY AT FLOATING DOCK. ROUTING OF CONDUIT, TRAY AND CONDUCTORS ON THIS DRAWING IS FOR INFORMATION ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE BEST ROUTING TO SUIT LOCAL CONDITIONS.
- E. THE POWER DISTRIBUTION LAYOUT IS DIAGRAMMATIC ONLY AND DOES NOT SHOW EVERY FITTING THAT MAY BE REQUIRED.
- F. COORDINATE THIS LAYOUT WITH OTHER EQUIPMENT AND STRUCTURES BEFORE ROUGHING IN.
- G. GROUNDING CONTINUITY SHALL BE MAINTAINED THROUGH THE ENTIRE RACEWAY SYSTEM.
- H. SEE PEDESTAL AND MDP SCHEDULES ON DRAWINGS E07 AND E08.
- I. PROVIDE PULL AND/OR JUNCTION BOXES WHERE REQUIRED BY NEC AND LOCAL CODES WHETHER OR NOT SHOWN ON DRAWINGS.
- J. A SEPARATE CIRCUIT FED FROM DP-K1 WILL SUPPORT LIGHTING. PROVIDE CABLE TYPE "SOOW" FOR THIS PURPOSE.
- K. FURNISH AND INSTALL/REPLACE EXISTING PEDESTAL NUMBER LABELS WHERE REQUIRED TO MATCH ORDER SHOWN ON PLAN.
- L. ALL POWER CABLES HOMERUN FROM DP TO PEDESTAL. NO SPLICES.
- M. LIGHTING CABLES HOMERUN DP TO PEDESTAL OR PEDESTAL - PEDESTAL NO SPLICES IN HANDHOLES.

KEY NOTES Ⓢ

- 1. PROVIDE POWER CABLE TRAY UNDERSIDE OF DECK.
- 2. PROVIDE TYPE G-GC CABLE (3 CONDUCTOR PLUS GROUND) IN CABLE TRAY FOR PEDESTAL ELECTRICAL POWER.
- 3. EXISTING ELECTRICAL DISTRIBUTION EQUIPMENT.
- 4. RUN NEW FEEDER CABLES IN EXISTING CONDUIT TO FIXED PIER.
- 5. FURNISH AND INSTALL NEW FIBERGLASS CABLE LADDER SUPPORT UNDERNEATH FIXED PIER FOR POWER CABLES. USE STAINLESS STEEL HARDWARE TO SECURE TO PIER. CABLES SHALL BE SECURELY FASTENED USING NONMETALLIC CLIPS.
- 6. SPARE CONDUIT MAY BE USED WHERE AVAILABLE AND IN SUITABLE CONDITION.



ELECTRICAL PLAN
SCALE: 1"=20'



TYPICAL PEDESTAL CONNECTION
SCALE: N.T.S.

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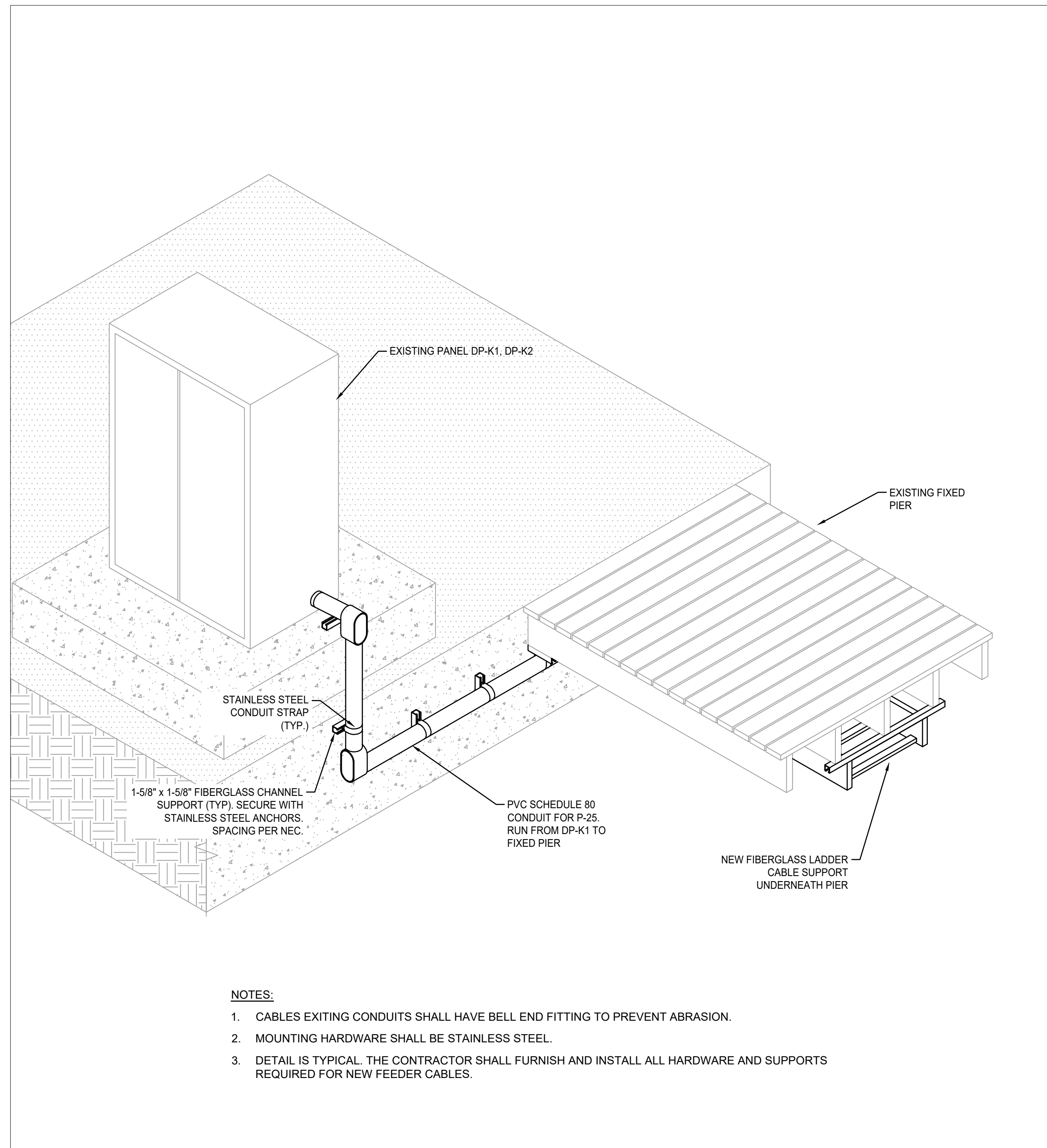
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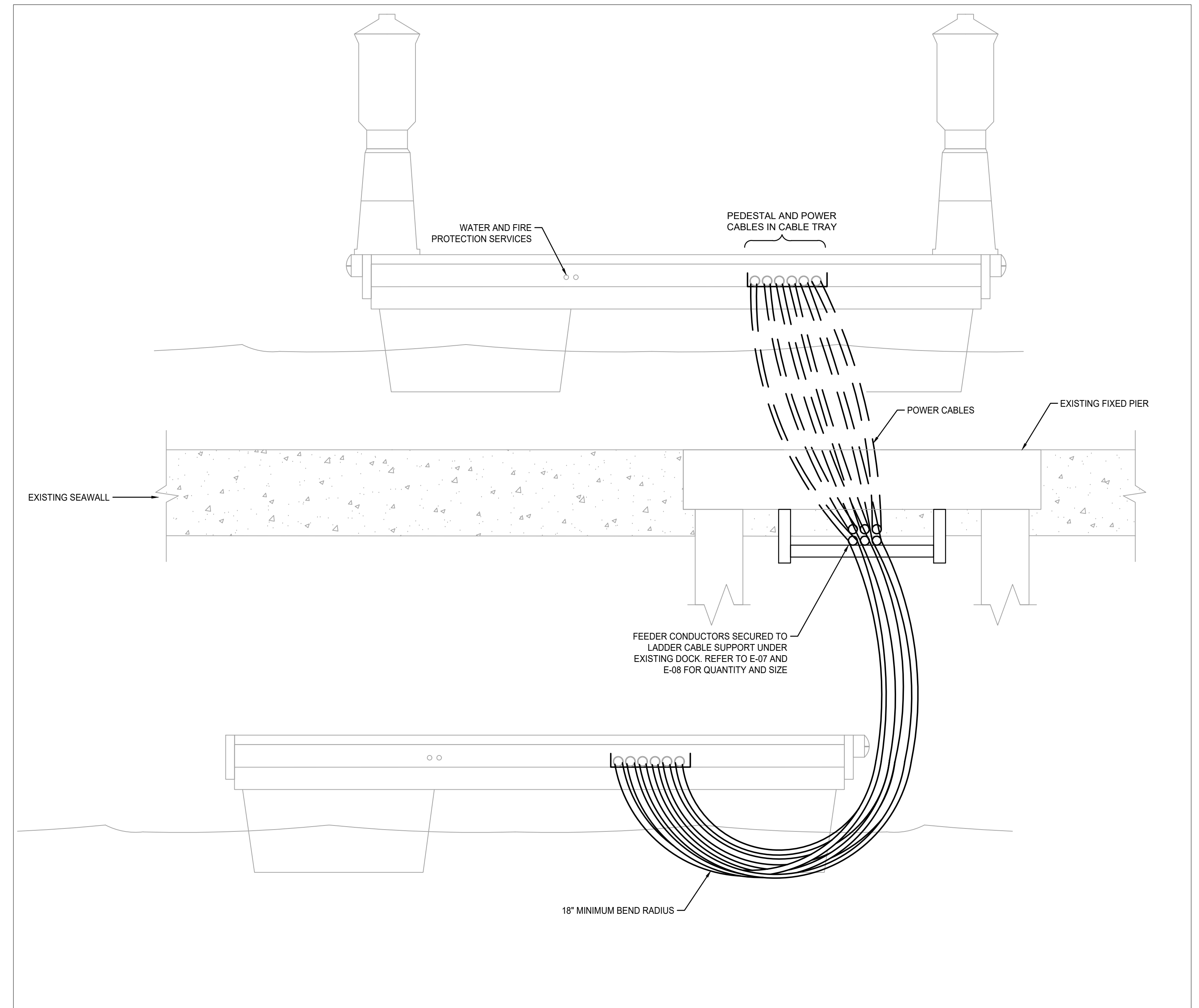
ELECTRICAL SITE PLAN-POWER

Project No. 215615197
Scale 1"=20'

Drawing No. E-04
Sheet of 25
Revision



NEW FEEDER DETAIL
NO SCALE



FLEXIBLE ELECTRICAL SERVICE CONNECTION DETAIL
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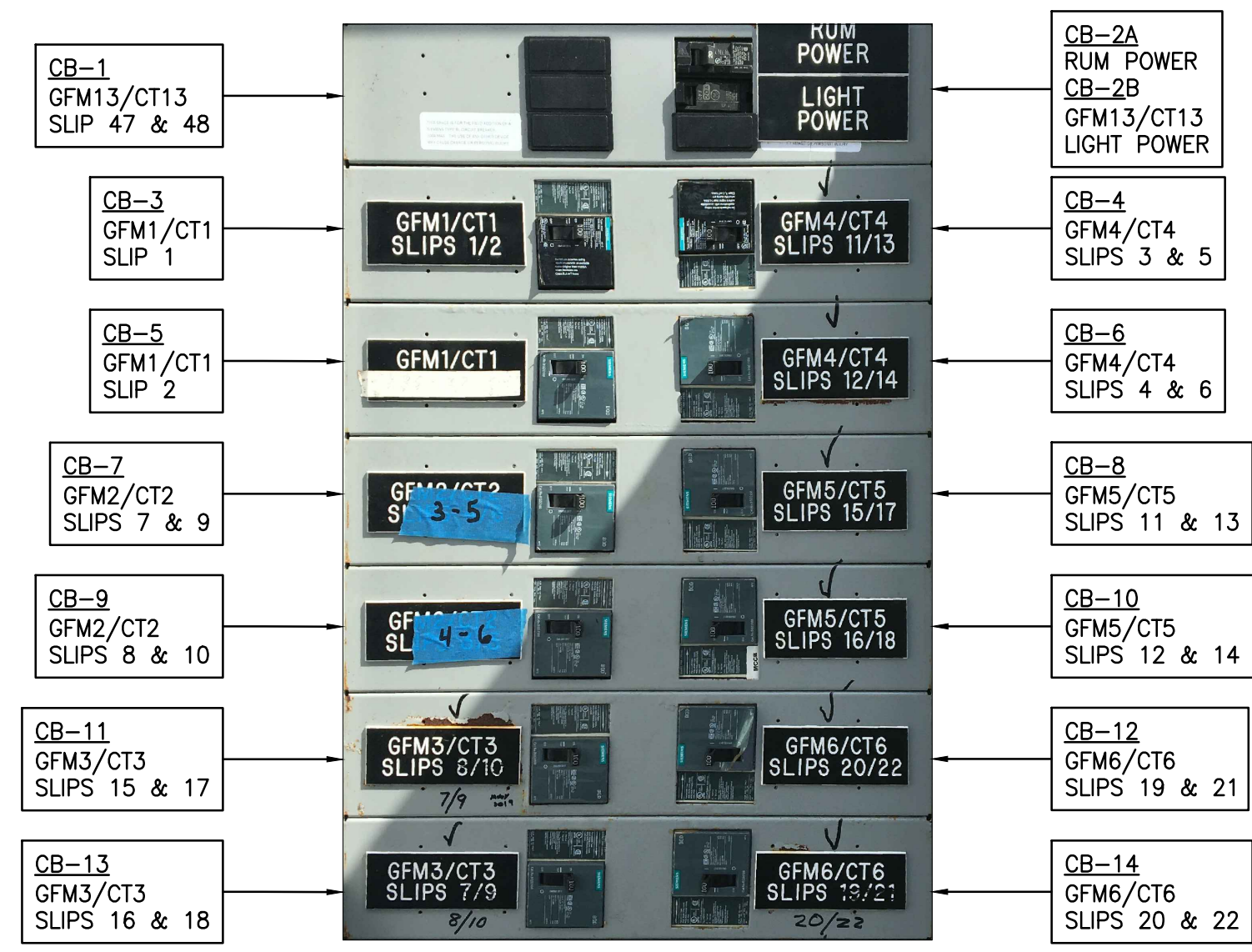
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ELECTRICAL DETAILS

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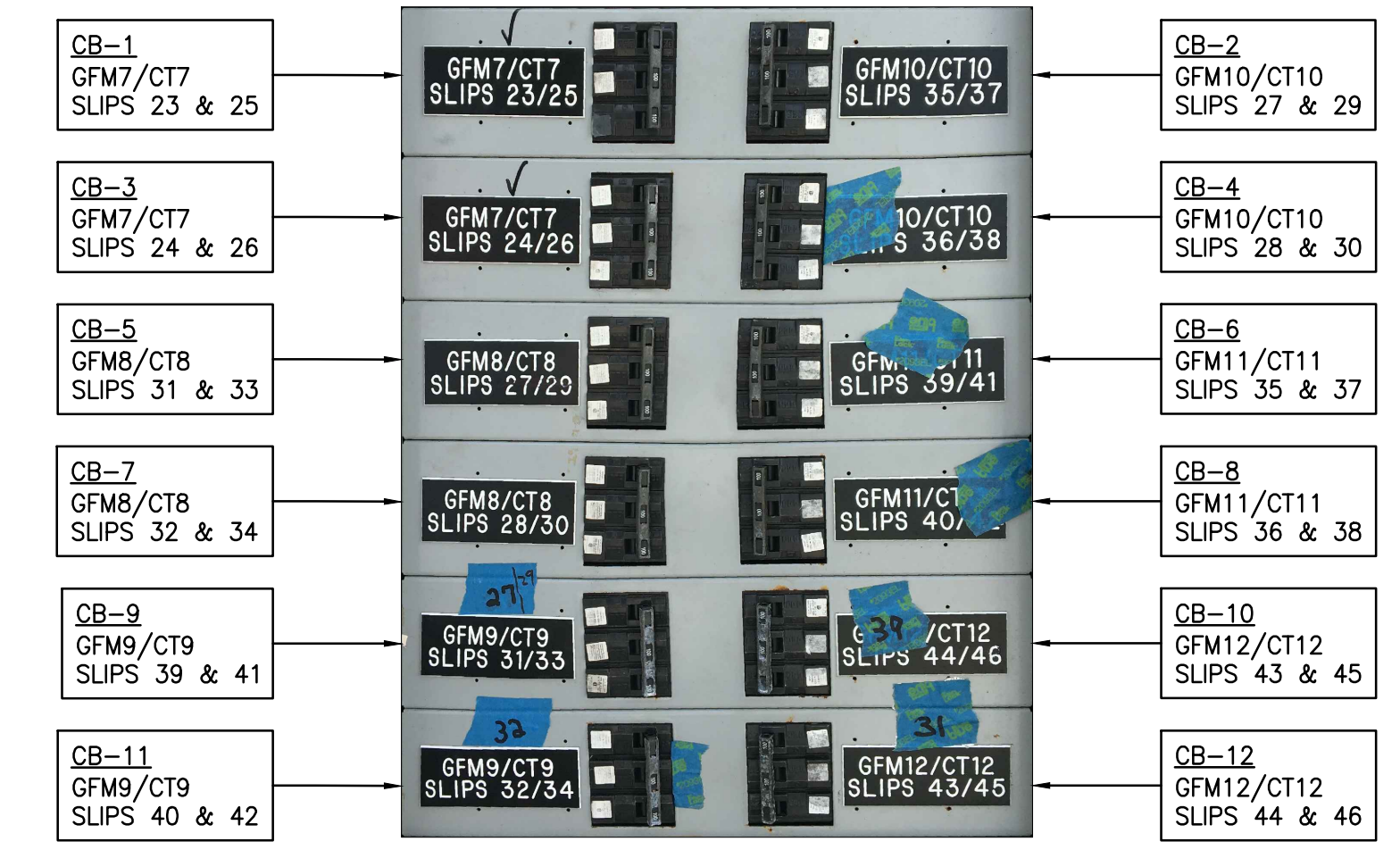
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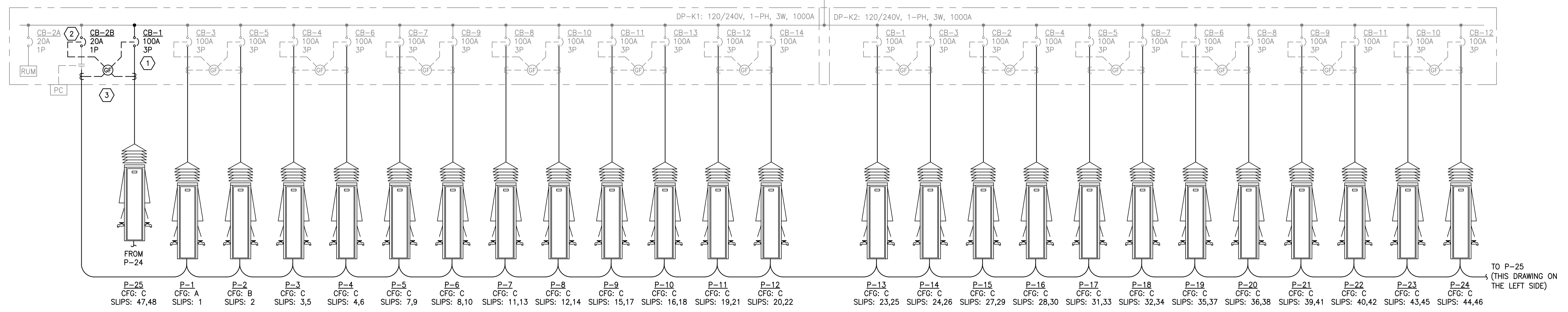
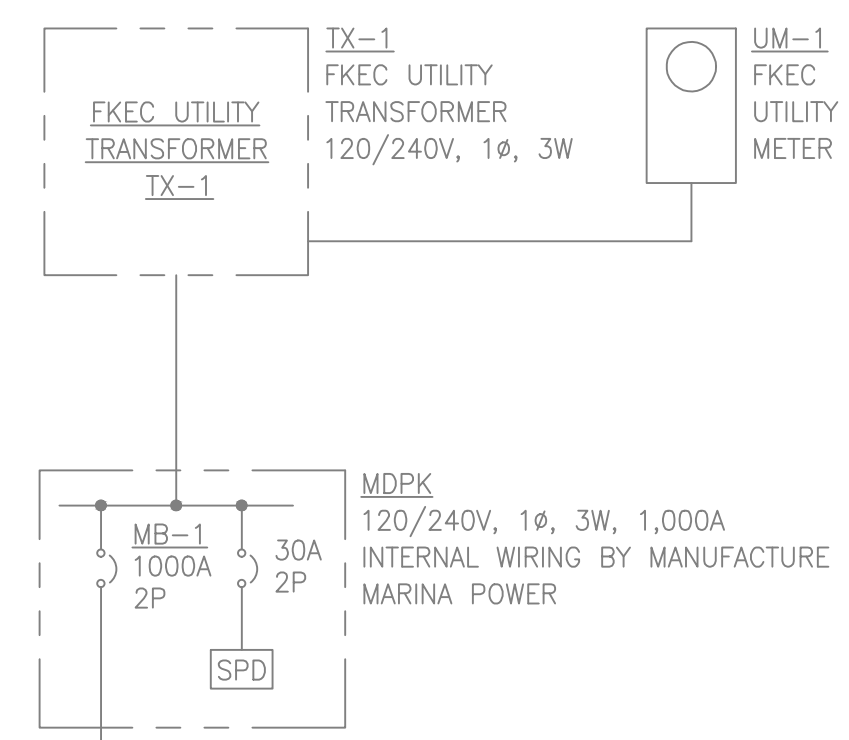
PANEL DP-K1 LABELS

- NOTES**
- A. REFER TO DRAWING E-08 FOR NEW PEDESTAL CONFIGURATION (CFG) AND DETAIL.
 - B. REMOVE AND REPLACE EXISTING CIRCUIT BREAKER LABELS WITH NEW AS SHOWN. THE NEW LABELS SHALL BE ENGRAVED AND ATTACH VIA SCREWS USING EXISTING PRE-DRILLED HOLES.
 - C. REFER TO THE POWER DISTRIBUTION VOLT DROP SCHEDULE ON E-08 FOR CONDUCTOR QUANTITIES AND SIZES.

- KEYED NOTES**
1. FURNISH AND INSTALL NEW SIEMENS TYPE BL BREAKER WITH SHUNT TRIP.
 2. REPLACE EXISTING 1PH 20A BREAKER WITH NEW OF SAME TYPE. THE NEW BREAKER SHALL HAVE SHUNT TRIP OPTION.
 3. FURNISH AND INSTALL NEW GROUND FAULT PROTECTION RELAY. THE RELAY SHALL SET FOR 30mA TRIP FOR PROTECTION OF THE NEW POWER PEDESTAL AND THE LIGHTING CIRCUIT.



PANEL DP-K2 LABELS



KINGFISH PIER CIRCUIT BREAKER COORDINATION ONE-LINE DIAGRAM

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ONE-LINE DIAGRAM		
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Drawing No.	Sheet	Revision
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POWER DISTRIBUTION VOLT DROP SCHEDULE

CIRC. No. OR PANEL	SERVICING	VOLTAGE	PH	POWER FACTOR	STATION DEMAND (VA)	AMBIENT TEMP(°C)	WIRE OP TEMP(°C)				SECTION VOLT DROP	TOTAL VOLT DROP IN %
								SIZE	*LENGTH IN FT.	QTY. PER PH.		
TX-1	MDPK	120 / 240	1	0.9	230740	30	75	3[3#500]	30	3	0.79	0.33%
MDPK	DP-K1/K2	120 / 240	1	0.9	230740	30	75	3[3#500 + 1#2/0G]	20	3	0.53	0.55%
DP-K1-1	P-25	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	505	1	8.84	4.23%
DP-K1-2B	PEDESTAL LIGHTING	120	1	0.9	500	30	75	2#6 + 1#6G	721	1	2.78	2.87%
DP-K1-3	P-1	120 / 240	1	0.9	12000	30	75	3#1/0 + 1#4G	120	1	1.52	1.18%
DP-K1-4	P-3	120 / 240	1	0.9	24000	30	75	3#1/0 + 1#4G	150	1	3.81	2.13%
DP-K1-5	P-2	120	1	0.9	10800	30	75	3#1/0 + 1#4G	120	1	2.74	2.83%
DP-K1-6	P-4	120 / 240	1	0.9	24000	30	75	3#1/0 + 1#4G	150	1	3.81	2.13%
DP-K1-7	P-5	120 / 240	1	0.9	24000	30	75	3#1/0 + 1#4G	180	1	4.57	2.45%
DP-K1-8	P-7	120 / 240	1	0.9	24000	30	75	3#1/0 + 1#4G	215	1	5.46	2.82%
DP-K1-9	P-6	120 / 240	1	0.9	24000	30	75	3#1/0 + 1#4G	180	1	4.57	2.45%
DP-K1-10	P-8	120 / 240	1	0.9	24000	30	75	3#1/0 + 1#4G	215	1	5.46	2.82%
DP-K1-11	P-9	120 / 240	1	0.9	24000	30	75	3#2/0 + 1#3G	250	1	5.43	2.81%
DP-K1-12	P-11	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	285	1	4.99	2.63%
DP-K1-13	P-10	120 / 240	1	0.9	24000	30	75	3#2/0 + 1#3G	250	1	5.43	2.81%
DP-K1-14	P-12	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	285	1	4.99	2.63%
DP-K2-1	P-13	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	320	1	5.60	2.88%
DP-K2-2	P-15	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	350	1	6.13	3.10%
DP-K2-3	P-14	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	320	1	5.60	2.88%
DP-K2-4	P-16	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	350	1	6.13	3.10%
DP-K2-5	P-17	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	385	1	6.74	3.35%
DP-K2-6	P-19	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	420	1	7.35	3.61%
DP-K2-7	P-18	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	385	1	6.74	3.35%
DP-K2-8	P-20	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	420	1	7.35	3.61%
DP-K2-9	P-21	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	455	1	7.96	3.87%
DP-K2-10	P-23	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	490	1	8.58	4.12%
DP-K2-11	P-22	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	455	1	7.96	3.87%
DP-K2-12	P-24	120 / 240	1	0.9	24000	30	75	3#3/0 + 1#2G	490	1	8.58	4.12%

- NOTES:
 1. FEEDER LENGTHS HERE IN ARE FOR VOLTAGE DROP CALCULATION ONLY. THE REAL LENGTH SHALL BE MEASURED ON FIELD.
 2. THE CONDUCTOR AND GROUND WIRES LISTED HEREIN REPRESENT MINIMUM SIZE REQUIREMENTS.

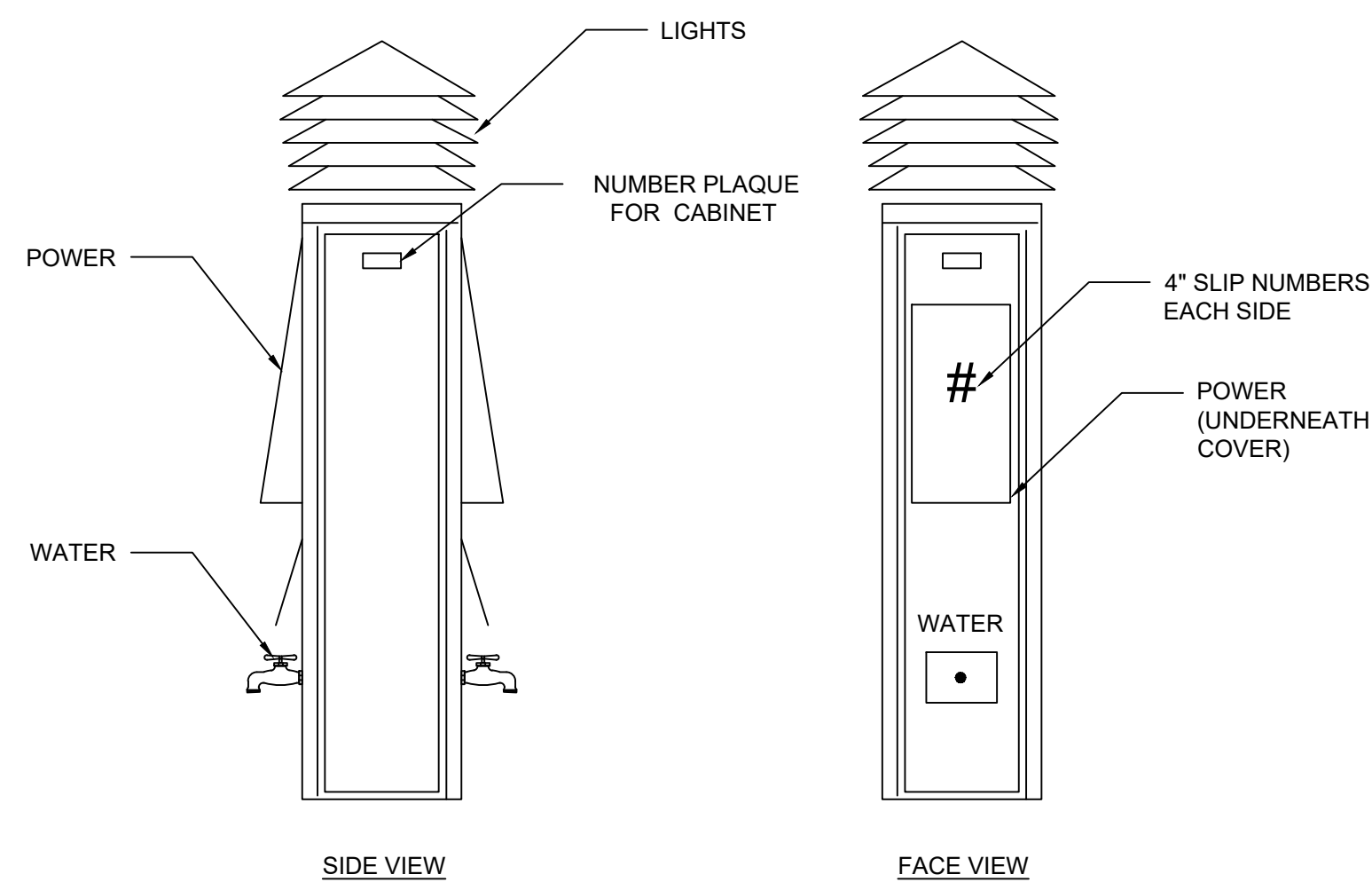
PEDESTAL CONFIGURATIONS

CONFIGURATION A:
 SIDE 1: 50A, 30A
 SIDE 2: N/A
 MODEL: PCMF5 12-DB-BLANK-PCL-RLF-W-TPL(LED)
 TOTAL QUANTITY: 1

CONFIGURATION B:
 SIDE 1: 30A, 30A 30A
 SIDE 2: N/A
 MODEL: PCMF5 12-DDD-BLANK-PCL-RLF-W-TPL(LED)
 TOTAL QUANTITY: 1

CONFIGURATION C:
 SIDE 1: 50A, 30A
 SIDE 2: 50A, 30A
 MODEL: PCMF5 12-DB-DB-PCL-RLF-2W-TPL(LED)
 TOTAL QUANTITY: 23

- NOTE:
 1. ALL PEDESTALS SHALL INCLUDE A PHOTOCELL, LED LIGHT, AND A WATER FAUCET FOR EACH SLIP.



PEDESTAL DETAIL TYPICAL

PEDESTAL LOAD CALCULATION

CONFIGURATION A:
 (1x) 50A, 120/240V RECEPTACLES PER NEC 555.12 12,000VA
 @240V = 50A

CONFIGURATION B:
 (3x) 30A, 120/240V RECEPTACLES PER NEC 555.12 10,800VA
 120/240V SUPPLY W/ MAX 2 PER 120V LEG = 60A MAX

CONFIGURATION C:
 (2x) 50A, 120/240V RECEPTACLES PER NEC 555.12 24,000VA
 @240V = 100A

LOAD CALCULATION FOR DP-K1

SERVICE VOLTAGE 120/240V-1PH-3W+G

CONNECTED LOAD	PED QTY	REC QTY	KVA
CONFIGURATION A	1	1	12,000
CONFIGURATION B	1	3	10,800
CONFIGURATION C	11	22	264,000
TOTAL	13	26	286,800

26 RECEPTACLES TOTAL
 70% DEMAND PER NEC TABLE 555.12 200,760VA
 500VA
 LIGHTING 25 PEDESTALS @ 18W 0.9PF 201,260VA
 TOTAL @240VAC = 839A

LOAD CALCULATION FOR DP-K2

SERVICE VOLTAGE 120/240V-1PH-3W+G

CONNECTED LOAD	PED QTY	REC QTY	KVA
CONFIGURATION C	12	24	288,000
TOTAL	13	26	288,800

26 RECEPTACLES TOTAL
 70% DEMAND PER NEC TABLE 555.12 200,760VA
 @240VAC = 837A

LOAD CALCULATION FOR MDPK

SERVICE VOLTAGE 120/240V-1PH-3W+G

RECEPTACLES TOTAL DP-K1, DP-K2 575,600VA
 40% DEMAND PER NEC TABLE 555.12 230,240VA
 LIGHTING 52 PEDESTALS @ 18W 0.9PF 500VA
 TOTAL 230,740VA
 @240VAC = 961A

TYPE: MARINA POWER CABINET		EXISTING POWER DISTRIBUTION PANEL DP			ENCLOSURE: FREE STANDING	
VOLTAGE: 120/240V-1PH-3W		LOCATION: SHORE			FED FROM: MDPK	
A.I.C.S.: 65K		DP-K1 (PANEL DP SIDE 1)				
CIRC. No.	SERVICING	CIRCUIT BREAKER			SLIP NUMBER	
		POLE	TRP	TYPE		
1	PEDESTAL P-25	3	100	BL	47, 48	
2A	RUM	1	20			
2B	PEDESTAL LGTS	1	20	BL		
3	PEDESTAL P-1	3	100	BQD	1	
4	PEDESTAL P-3	3	100	BQD	3, 5	
5	PEDESTAL P-2	3	100	BQD	2	
6	PEDESTAL P-4	3	100	BQD	4, 6	
7	PEDESTAL P-5	3	100	BQD	7, 9	
8	PEDESTAL P-7	3	100	BQD	11, 13	
9	PEDESTAL P-6	3	100	BQD	8, 10	
10	PEDESTAL P-8	3	100	BQD	12, 14	
11	PEDESTAL P-9	3	100	BQD	15, 17	
12	PEDESTAL P-11	3	100	BQD	19, 21	
13	PEDESTAL P-10	3	100	BQD	16, 18	
14	PEDESTAL P-12	3	100	BQD	20, 22	
		DP-K2 (PANEL DP SIDE 2)				
CIRC. No.	SERVICING	CIRCUIT BREAKER			SLIP NUMBER	
		POLE	TRP	TYPE		
1	PEDESTAL P-13	3	100		23, 25	
2	PEDESTAL P-15	3	100		27, 29	
3	PEDESTAL P-14	3	100		24, 26	
4	PEDESTAL P-16	3	100		28, 30	
5	PEDESTAL P-17	3	100		31, 33	
6	PEDESTAL P-19	3	100		35, 37	
7	PEDESTAL P-18	3	100		32, 34	
8	PEDESTAL P-20	3	100		36, 38	
9	PEDESTAL P-21	3	100		39, 41	
10	PEDESTAL P-23	3	100		43, 45	
11	PEDESTAL P-22	3	100		40, 42	
12	PEDESTAL P-24	3	100		44, 46	

NOTES:
 1. SEE LOAD CALCULATION ON THIS SHEET
 2. FOR FEEDER SIZE SEE VOLTAGE DROP SCHEDULE ON THIS SHEET
 3. 3P BREAKERS ARE EXISTING, WIRED FOR SINGLE PHASE 120/240V OPERATION

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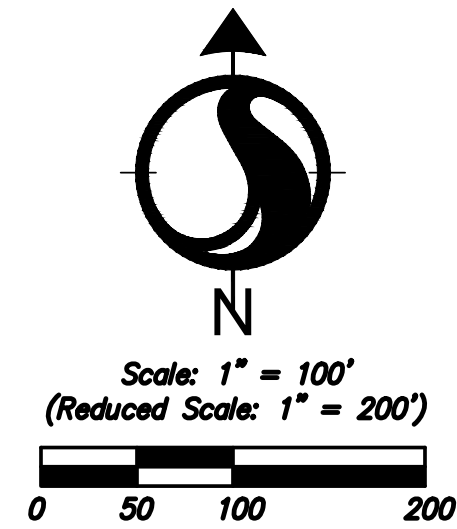
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ELECTRICAL SCHEDULES

Project No. 215615197 Scale NO SCALE
 Drawing No. E-08 Sheet of 25 Revision



NOTE: EXISTING FIRE PUMP HOUSE INCLUDES ONE PATTERSON PUMP CO. VERTICAL IN-LINE PUMP MODEL 5X3 500GPM @162 FT. TOH (TOPSI) WITH 30 HP MOTOR 3000RPM.

NOTE: WATER ELEVATION DATA WAS OBTAINED FROM THE LAND BOUNDARY INFORMATION SYSTEM WEBSITE (LABINS.ORG) AND IS REFERENCED TO TIED INTERPOLATION POINT #3262.

MEAN HIGH WATER EL. = 0.94' NGVD29
MEAN LOW WATER EL. = -0.09' NGVD29.

PROP. STAGING AREA CONTRACTOR TO PROVIDE SECURITY FENCE & LIGHTING AROUND PARKING AND STAGE AREA.

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OVERALL AERIAL SITE LOCATION PLAN

Project No. 215615197 Scale SEE PLANS

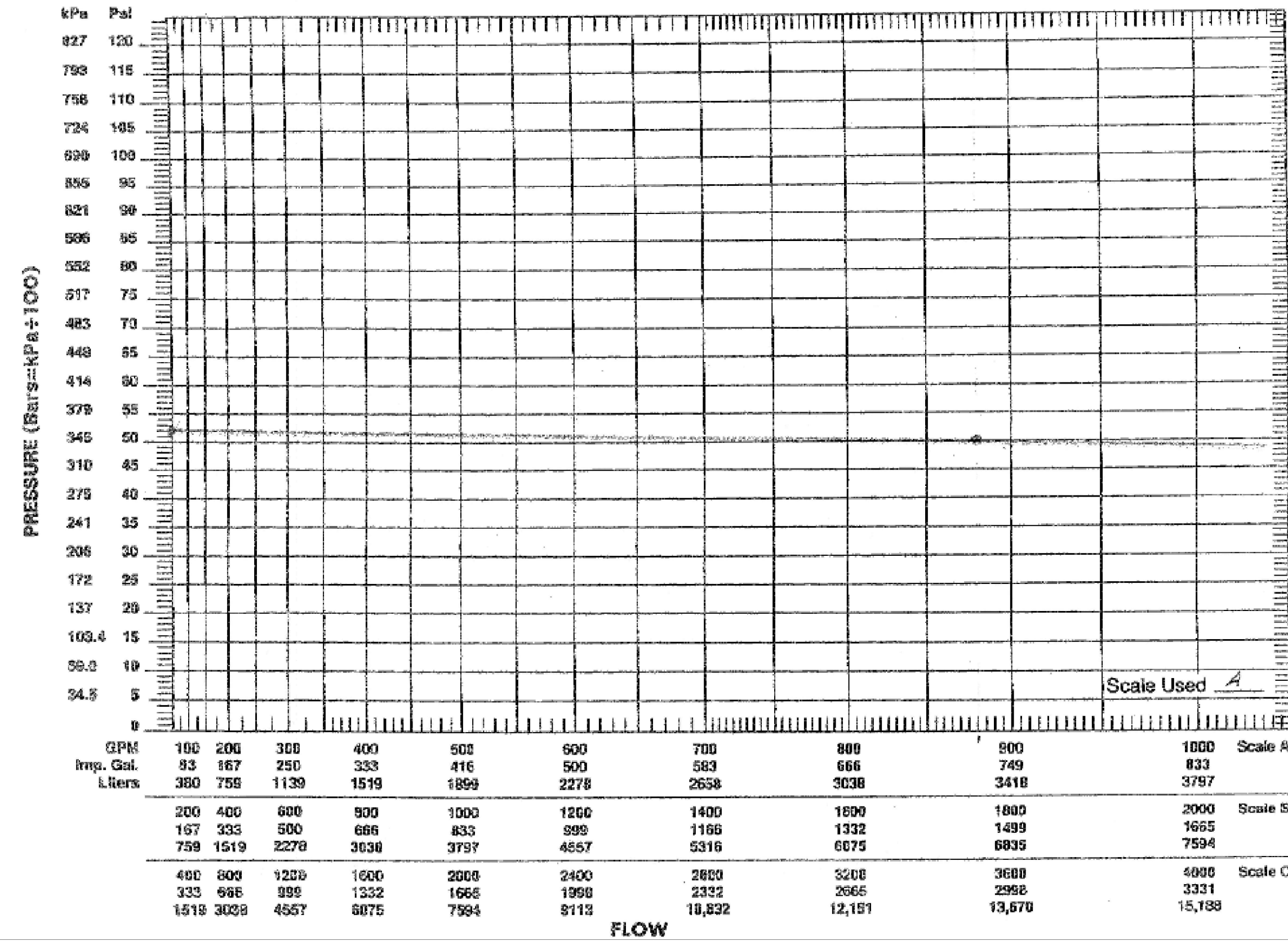
Drawing No. FP01 Sheet of 25 Revision

FIRE HYDRANT FLOW TEST SUMMARY



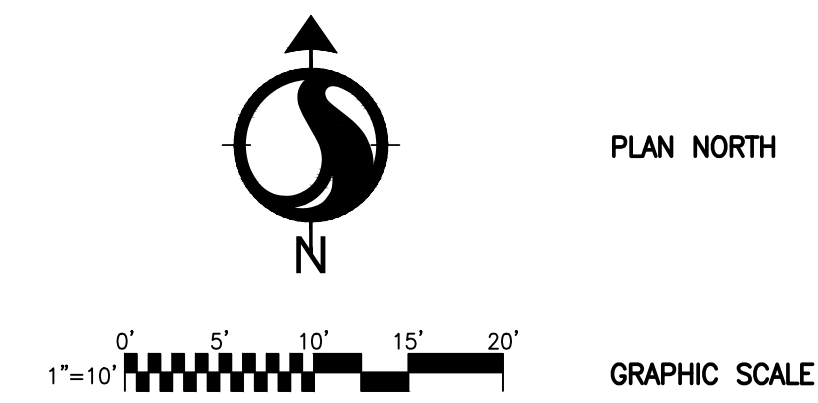
Fire Protection Publications
Oklahoma State University
Stillwater, OK 74078

Universal Water Flow Test Summary Sheet
Conducted by Matthew Donolli Location North Cassville (UL)
Hydrant coefficient 1.5 Elevation 320 Static Residual 50psi @ Flow 880



DRAWING SYMBOLS

- PLAN OR DIAGRAM DESIGNATION
DRAWING NUMBER WHERE DRAWN
- SECTION DESIGNATION
DRAWING NUMBER WHERE DRAWN
- FIRE WATER PIPE
- POTABLE WATER PIPE
- POTABLE WATER PIPE
- SANITARY VACUUM PIPE
- PIPE TURN UP
- PIPE TURN DOWN
- RISE OR DROP IN PIPE
- SIDE CONNECTION
- BOTTOM CONNECTION
- TOP CONNECTION
- CROSS BOTTOM CONNECTION
- CHECK VALVE
- BALL VALVE
- SEWER CLEANOUT
- SEWER HYDRANT



- KEYED NOTE
- REVISION NUMBER
- CONNECT TO EXISTING
- POTABLE WATER AND ELECTRICAL POWER DOCK PEDESTAL
- FIRE EXTINGUISHER CABINET
- FIRE HOSE CABINET
- ELECTRICAL DISTRIBUTION PANEL
- EXISTING
- HOSE BIBB
- YARD VALVE BOX (CAST IRON)

FIRE PROTECTION DESIGN

KINGFISH PIER, GARRISON BIGHT MARINA KEY WEST, FL

A. GIVEN: CITY WATER PRESSURE IS 53 psig

B. FIRE PUMP DELIVERS = 100 gpm @ 81 psig TH [booster PS]
ADD PRESSURES 53+81= 134 psig AVAILABLE

C. SYSTEM HEAD LOSSES:

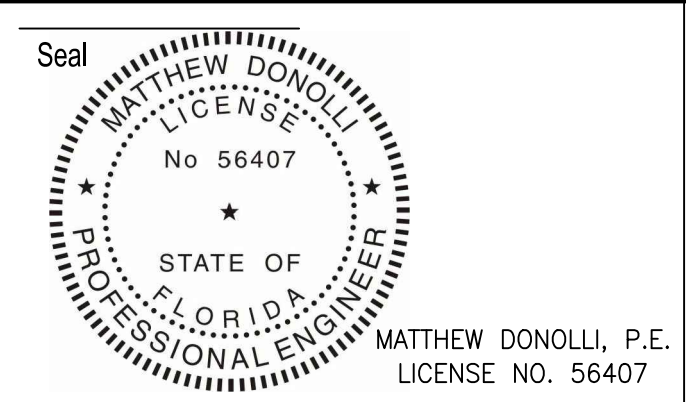
- 1. 150 FT 4" PIPE = 0.32 psi
[$h_f = 0.21 \text{ psi}/100 \text{ ft}$]
- 2. 475 FT 3" PIPE* = 3.47 psi
[$h_f = 0.73 \text{ psi}/100 \text{ ft}$]
- 3. 75 FT 1.5" HOSE = 18.75 psi
- 4. BRASS NOZZLE = 2.0 psi
- 5. ACCESSORIES = 2.0 psi

TOTAL HEAD LOSS = 27 psi

D. SUMMATION
134psi - 27 psig = 107psig > 100psig OKAY

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CITY OF KEY WEST
KINGFISH PIER REPLACEMENT
KEY WEST, FLORIDA

File Name: _____ ML/RA JF/MD EB 20.01.10
Dwn. Chkd. Dsgn. YY.MM.DD

FIRE PROTECTION SYMBOLS
LEGEND & FLOW TEST SUMMARY

Project No. _____ Scale _____
215615197 SEE PLANS

Drawing No. _____ Sheet _____ Revision _____
FP02 of 25

FIRE EXTINGUISHMENT SYSTEMS SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

1.1 SYSTEM DESCRIPTION

A. KINGFISH PIER FIRE EXTINGUISHMENT SYSTEMS SHALL CONSIST OF A FIXED-IN-PLACE, AUTOMATIC, CLASS I WET STANDPIPE RELYING UPON AN EXISTING FIRE PUMP TO SUPPLY THE WATER DEMAND AND SHALL INCLUDE CLASS II HOSE STATIONS AND PORTABLE TYPE ABC FIRE EXTINGUISHERS.

B. SYSTEM DESIGN SHALL BE BASED UPON A FLOW RATE FOR THE HYDRAULICALLY MOST REMOTE HOSE NOZZLE OF 100 GPM AND A MINIMUM DESIGN PRESSURE OF 100 PSI. FIRE WATER SOURCE IS FROM A PUBLIC WATERWORKS SYSTEM. FLOW AND PRESSURE TEST DATA ARE AS FOLLOWS:

DATE OF TEST: 16 FEB. 2012
PERFORMED BY: FIRE DEPT
STATIC PRESSURE: 52 PSI
RESIDUAL PRESSURE: 50 PSI
FLOW: 880 GPM

1.2 SUMMARY OF WORK

A. NEW CONSTRUCTION WORK SHALL INCLUDE BUT IS NOT LIMITED TO PROVIDING COMPLETE NEW FIRE EXTINGUISHMENT PIPING SYSTEMS AND PORTABLE FIRE EXTINGUISHERS WITH CABINETS AS DESCRIBED IN THESE SPECIFICATIONS AND DRAWINGS FOR THE PROPOSED PIER. WORK SHALL INCLUDE PREPARING MINOR MODIFICATIONS TO THE EXISTING FIRE WATER SUPPLY MAIN AT THE PROPOSED PIER AND SEAWALL INTERFACE.

B. BIDS SHALL INCLUDE AS A MINIMUM ALL LABOR, TOOLS, MATERIALS, PLANT, TRANSPORTATION, TAXES, RELATED ITEMS, ETC., ESSENTIAL FOR DEMOLISHING EXISTING WORK AND FURNISHING, INSTALLING, OPERATING, AND TESTING OF THE PROPOSED NEW WORK.

1.3 EXAMINATION OF DOCUMENTS

A. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO ESTABLISH TYPE AND QUALITY OF MATERIALS AND A GENERAL LAYOUT AND LOCATION OF THE MAJOR COMPONENTS THAT COMPRISE THE FIRE EXTINGUISHMENT SYSTEMS. THEY ARE NOT INTENDED TO SHOW IN MINUTE DETAIL EVERY OR ALL ACCESSORIES INTENDED FOR THE PURPOSES OF EXECUTING THE WORK, BUT IT IS UNDERSTOOD THAT SUCH DETAILS ARE PART OF THE PROJECT SCOPE.

B. WHERE CONFLICTS EXIST BETWEEN DRAWINGS AND SPECIFICATIONS THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

1.4 CODES AND STANDARDS

A. FURNISH AND INSTALL FIRE EXTINGUISHMENT SYSTEMS TO MEET ALL CURRENT REQUIREMENTS OF NATIONAL, STATE AND MUNICIPAL CODES, RULES, REGULATIONS, LAWS, AND STANDARDS AS THEY ARE ADOPTED BY THE GOVERNING AGENCY AND AS THEY MAY APPLY.

- NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS 2007 EDITION
- NFPA 14 STANDARDS FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS 2013 EDITION
- NFPA 303 FIRE PROTECTION STANDARDS FOR MARINAS AND BOATYARDS 2016 EDITION
- FLORIDA FIRE PREVENTION CODE 2014 EDITION
- FLORIDA BUILDING CODE 2014 EDITION
- FACTORY MUTUAL UNDERWRITERS LABORATORIES

1.5 PERMITS AND INSPECTIONS

A. SECURE AND PAY FOR ALL PERMITS AND LICENSES BEFORE ACTUAL WORK IS STARTED AND OBSERVE ALL REQUIREMENTS STIPULATED THEREON.

B. COORDINATE WITH AND GIVE ALL NECESSARY NOTICES TO THE AUTHORITY HAVING JURISDICTION FOR INSPECTION AND TESTING OF THE FIRE EXTINGUISHMENT SYSTEMS REQUIRED TO BE WITNESSED BY THEIR AGENT.

1.6 SHOP DRAWING SUBMITTALS AND PRE-INSTALLATION COORDINATION

A. PRIOR TO ORDERING MATERIALS SUBMIT SHOP DRAWINGS INCLUDING MANUFACTURER'S CATALOG CUTS, BROCHURES AND PERFORMANCE DATA OF PIPE AND FITTING MATERIALS, HOSES, VALVES, SUPPORTS, PIPE MARKERS, FIRE EXTINGUISHERS, CABINETS, AND OTHER APPURTENANCES AS MAY BE REQUIRED. UNLESS SPECIFIED ELSEWHERE, PROVIDE A MINIMUM OF SIX COPIES FOR ENGINEER AND OWNER REVIEW.

B. AFTER OWNER ACCEPTANCE OF SHOP DRAWINGS, SUBMIT THE APPROVED DOCUMENTS TO THE AUTHORITY HAVING JURISDICTION FOR THEIR APPROVAL. SUBMIT IN QUANTITIES AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.

C. COORDINATE WITH ALL TRADES IN SUBMITTAL OF SHOP DRAWINGS AND FOR SPACE REQUIREMENTS. IF WORK IS INSTALLED PRIOR TO COORDINATION WITH OTHER TRADES WHICH INTERFERES WITH RELATED WORK, MAKE ALL NECESSARY CHANGES TO CORRECT THE CONDITION AT NO ADDITIONAL COST TO THE OWNER.

D. COORDINATE WITH FLOATING DOCK SUPPLIER FOR PIPE SUPPORT SPACING REQUIREMENTS INTEGRAL WITH STRUCTURAL FRAMING.

1.7 PRODUCTS AND WORKMANSHIP

A. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND UNUSED AS MANUFACTURED BY COMPANIES REGULARLY ENGAGED IN THE FABRICATION OF THE TYPE SPECIFIED EXCEPT AS OTHERWISE NOTED HEREIN. USE PRODUCTS OF A SINGLE MANUFACTURER FOR SIMILAR TYPE EQUIPMENT. MODIFIED OR RE-BUILT EQUIPMENT OR MATERIALS ARE NOT ACCEPTABLE.

B. PROVIDE STANDPIPE COMPONENTS AND PIPING SYSTEM INSTALLATION CAPABLE OF SUSTAINING 175 PSIG MINIMUM WORKING PRESSURE RATING.

C. INSTALL FIRE EXTINGUISHMENT SYSTEMS IN A NEAT AND WORKMANLIKE MANNER UTILIZING PERSONNEL LICENSED AND SKILLED IN THE TRADES.

1.8 WARRANTY

A. PROVIDE AN UNCONDITIONAL WARRANTY FROM FAILURE AND/OR DEFECTS ON ALL PRODUCTS AND WORKMANSHIP PROVIDED FOR THIS PROJECT FOR A MINIMUM OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION EXCEPT AS NOTED HEREIN.

B. PROVIDE SIX (6) YEAR PRODUCT WARRANTY FOR FIRE EXTINGUISHERS.

C. WARRANTY FOR PRODUCTS REMOVED AND REINSTALLED AS INDICATED ON THE PLANS SHALL BE PROVIDED FOR INSTALLATION WORKMANSHIP AND NEW COMPONENTS AS MAY BE PROVIDED.

1.9 DELIVERY AND STORAGE

A. HANDLE, STORE AND PROTECT EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. REPLACE DAMAGED OR DEFECTIVE ITEMS WITH NEW ITEMS.

1.10 DEMOLITION, CUTTING AND PATCHING

A. PROTECT ALL EXISTING ACTIVE SERVICES AGAINST DAMAGE INCLUDING WATER, ELECTRIC, SEWER, ETC., IN AREAS OF PROPOSED CONSTRUCTION. IF ACTIVE SERVICES ARE ENCOUNTERED THAT REQUIRE RELOCATION, MAKE REQUEST TO OWNER FOR DETERMINATION OF PROCEDURES.

B. REMOVE AND DISPOSE OF PROPERLY OFF-SITE, ALL ABANDONED FIRE EXTINGUISHMENT PIPING, VALVES, PIPE SUPPORTS, EQUIPMENT, ETC., RENDERED OBSOLETE BY WORK OF THIS PROJECT.

C. PROVIDE ALL NECESSARY CUTTING AND PATCHING REQUIRED IN CONNECTION WITH FIRE EXTINGUISHMENT WORK. COORDINATE WITH AND OBTAIN WRITTEN APPROVAL FROM THE MARINE CONTRACTOR FOR ALL PROPOSED CUTTING AND PATCHING PRIOR TO COMMENCEMENT OF WORK.

1.11 CLEANING

A. CLEAR AWAY ALL DEBRIS, SURPLUS MATERIALS, ETC., RESULTING FROM FIRE EXTINGUISHMENT SYSTEM INSTALLATION WORK AND OPERATIONS. LEAVE THE JOB AND EQUIPMENT PROVIDED UNDER CONTRACT IN A CLEAN AND FIRST-CLASS CONDITION.

1.12 TEST AND DEMONSTRATIONS

A. PERFORM TESTS OF THE FIRE EXTINGUISHMENT SYSTEMS AS SPECIFIED HEREIN. REPEAT AS REQUIRED UNTIL PROVEN ACCEPTABLE TO THE ENGINEER, OWNER AND AUTHORITY HAVING JURISDICTION. PROVIDE ALL GAUGES, TOOLS, PUMPS, GAS, AIR OR OTHER REQUIRED EQUIPMENT OR MATERIALS.

B. UPON COMPLETION OF TESTING, DEMONSTRATE MAINTENANCE, OPERATION AND ADJUSTMENT PROCEDURES TO OWNER FOR ALL INSTALLED SYSTEMS AND EQUIPMENT.

1.13 RECORD DOCUMENTS

A. MAINTAIN AT THE JOB SITE ONE SET OF PRINTS ON WHICH ARE RECORDED ALL FIELD CHANGES AND OTHER PORTIONS OF THE FIRE EXTINGUISHMENT SYSTEM WORK THAT VARY FROM THE CONTRACT DOCUMENTS. INDICATE ACTUAL PIPE SYSTEM ROUTING AND INSTALLED ACCESSORIES AND DEVICES.

B. PROVIDE AS-BUILT RECORD DRAWINGS TO THE OWNER AT THE COMPLETION OF THE PROJECT.

PART 2 - PRODUCT REQUIREMENTS

2.1 PIPING, FITTINGS, AND JOINING MATERIAL

A. HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL BE ASTM D 3350, SDR 11, CELL CLASSIFICATION OF PE 3454344C WITH BUTT-USED JOINTS. ALL FITTINGS SHALL BE OF COMPATIBLE HDPE MATERIAL AND SHALL BE BUTT-FUSED. PROVIDE IPF, DRISCOPIPE OR EQUIVALENT.

B. NON SANITARY PRESSURE HOSE SHALL BE #2710 RATED FOR MINIMUM 150 PSIG WORKING PRESSURE. HOSE SHALL BE AS SUPPLIED BY THE FOLLOWING:

CROUCH SUPPLY CO, INC.; 305 S. MAIN STREET; FORT WORTH, TEXAS 76104
ATTN.: MARVIN CARR 1-800-825-1110

AN EQUIVALENT HOSE PRODUCT BY ALTERNATIVE MANUFACTURERS SHALL BE ACCEPTABLE

C. ELBOWS, FLANGES AND ACCESSORIES SHALL BE 316 STAINLESS STEEL CONSTRUCTION INCLUDING PLATES, BOLTS, WASHERS, NUTS AND OTHER COMPONENTS AS MAY BE REQUIRED.

D. PIPING IDENTIFICATION SHALL BE SETON SNAP-AROUND PIPE MARKERS OR EQUIVALENT TYPE OF LABELS. PROVIDE RED COLOR BAND WITH GREEN LEGEND BAND. WHITE LETTERING ON THE LEGEND BAND SHALL READ "FIRE WATER".

2.2 FIRE HOSE CABINETS AND ACCESSORIES

A. NEW FIRE SUPPRESSION CABINET TO BE INSTALLED BY CONTRACTOR.

2.3 FIRE EXTINGUISHERS AND ACCESSORIES

A. FIRE EXTINGUISHERS SHALL BE FIVE POUND CAPACITY, 2A:10B:C MULTI-PURPOSE AGENT (MONO-AMMONIUM PHOSPHATE) TYPE UNITS. CYLINDERS SHALL BE ALUMINUM CONSTRUCTION WITH EPOXY POWDER OR BAKED ENAMEL FINISH. VALVES SHALL BE CHROME PLATED BRASS. HANDLES AND LEVERS SHALL BE STAINLESS STEEL. EXTINGUISHER SHALL BE US COAST GUARD APPROVED. INCLUDE STAINLESS STEEL MOUNTING BRACKET.

B. FIRE EXTINGUISHER CABINETS SHALL BE POWDER-COATED ALUMINUM CONSTRUCTION, DECK MOUNTED TYPE OF A SIZE TO ACCOMMODATE THE FIRE EXTINGUISHER SPECIFIED ABOVE. PROVIDE CABINET COMPLETE WITH BREAKAWAY GLASS, STAINLESS STEEL LOCKABLE HANDLE, STAINLESS STEEL HINGES AND FINISH COLOR TO MATCH EXISTING FIRE HOSE CABINETS. PROVIDE SIGNAGE ON BOTH SIDES OF THE CABINET INDICATING IN LARGE RED LETTERS, "FIRE EXTINGUISHER". CONTRACTOR TO INSTALL NEW EXTINGUISHER PEDESTALS.

2.4 PIPE SUPPORTS

A. FIRE EXTINGUISHMENT SYSTEM SUPPORTS SHALL BE IN ACCORDANCE WITH NFPA 14 AND SHALL BE AS PROVIDED BY THE FRAME AND STRUCTURE OF THE FLOATING DOCK. NO PIPE HANGERS ARE PERMITTED. SECUREMENT DEVICES SHALL BE STRAP ANCHORS OR RELATED PRODUCTS BY GRINNELL, MODERN HANGER OR BLINE. ALL ANCHORS AND ACCESSORIES SUCH AS MECHANICAL FASTENERS, WASHERS, ETC. SHALL BE 316 STAINLESS STEEL CONSTRUCTION.

PART 3 - EXECUTION REQUIREMENTS

3.1 EXAMINATION

A. EXAMINE ROUGH-INS FOR PIPING, EQUIPMENT AND SUPPORTS AND VERIFY ACTUAL LOCATIONS, SIZES AND OTHER CONDITIONS AFFECTING SYSTEM PERFORMANCE, MAINTENANCE, AND OPERATIONS PRIOR TO EQUIPMENT INSTALLATION.

B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 INSTALLATION OF PIPING

A. SELECT HDPE PIPE WITH BUTT FUSED JOINTS AND FITTINGS FOR ALL FIRE WATER PIPING EXCEPT AS NOTED OTHERWISE.

B. SELECT NON-SANITARY PRESSURE HOSE #2612 FOR FLEXIBLE CONNECTION BETWEEN LANDSIDE PIPE AND PIER SIDE PIPE.

C. INSTALL PIPING AT RIGHT ANGLES OR PARALLEL TO SEAWALLS AND JOISTS.

D. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH

CONNECTIONS.

E. INSTALL PIPING AND HOSES IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.

3.3 INSTALLATION OF PIPE SUPPORTS

A. INSTALL SUPPORTS, ANCHORS AND FASTENERS FOR FIRE EXTINGUISHMENT SYSTEMS IN ACCORDANCE WITH THE NFPA 14 AND PIPE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS. MINIMUM SUPPORT REQUIREMENTS SHALL BE AS INDICATED IN THE FOLLOWING SCHEDULE:

PIPE SIZE	SUPPORT SPACING
2-1/2 INCH DIAMETER AND LARGER	48 INCHES MAXIMUM

B. PIPE SUPPORT SPACING SHALL BE AS LISTED ABOVE EXCEPT THAT HORIZONTAL RUNS OF PIPING SHALL BE SUPPORTED AT LEAST ONCE FOR EACH PIPE SECTION AND AT EACH JOINT. PROVIDE MINIMUM OF ONE SUPPORT FOR EACH ELBOW.

3.4 INSTALLATION OF FIRE HOSE CABINETS AND ACCESSORIES

A. INSTALL FIRE HOSE CABINETS AND ACCESSORIES AT LOCATIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.

B. MOUNT EQUIPMENT SECURELY TO DECKING WITH MECHANICAL FASTENERS. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.

3.5 INSTALLATION OF FIRE EXTINGUISHERS AND CABINETS

A. INSTALL FIRE EXTINGUISHERS AND CABINETS AT LOCATIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.

B. MOUNT CABINET SECURELY TO DECKING WITH MECHANICAL FASTENERS. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.

3.6 INSTALLATION OF IDENTIFICATION SIGNAGE

A. ATTACH PIPE MARKERS ON FIRE EXTINGUISHMENT SYSTEM PIPING. SPACE MARKERS AT NO GREATER THAN 25 FEET ON CENTER.

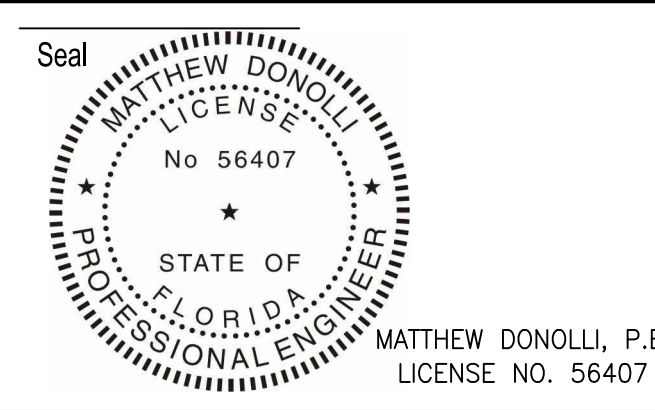
3.7 FIRE EXTINGUISHMENT SYSTEM ACCEPTANCE TESTING

A. FLUSH, TEST AND INSPECT STANDPIPE SYSTEMS ACCORDING TO NFPA 14. PROVIDE COMPLETED CONTRACTOR'S MATERIAL AND TEST CERTIFICATE, FIGURE 11.13 (A), FOR STANDPIPE SYSTEMS TO THE ENGINEER AND TO THE OWNER.

B. PREPARE AND INSTALL INSPECTION TAGS FOR EACH EXTINGUISHER IN ACCORDANCE WITH NFPA 10. INSPECT ALL EXTINGUISHERS AND REPLACE DEFECTIVE OR DISCHARGED UNITS DISCOVERED AT FINAL ACCEPTANCE INSPECTION.

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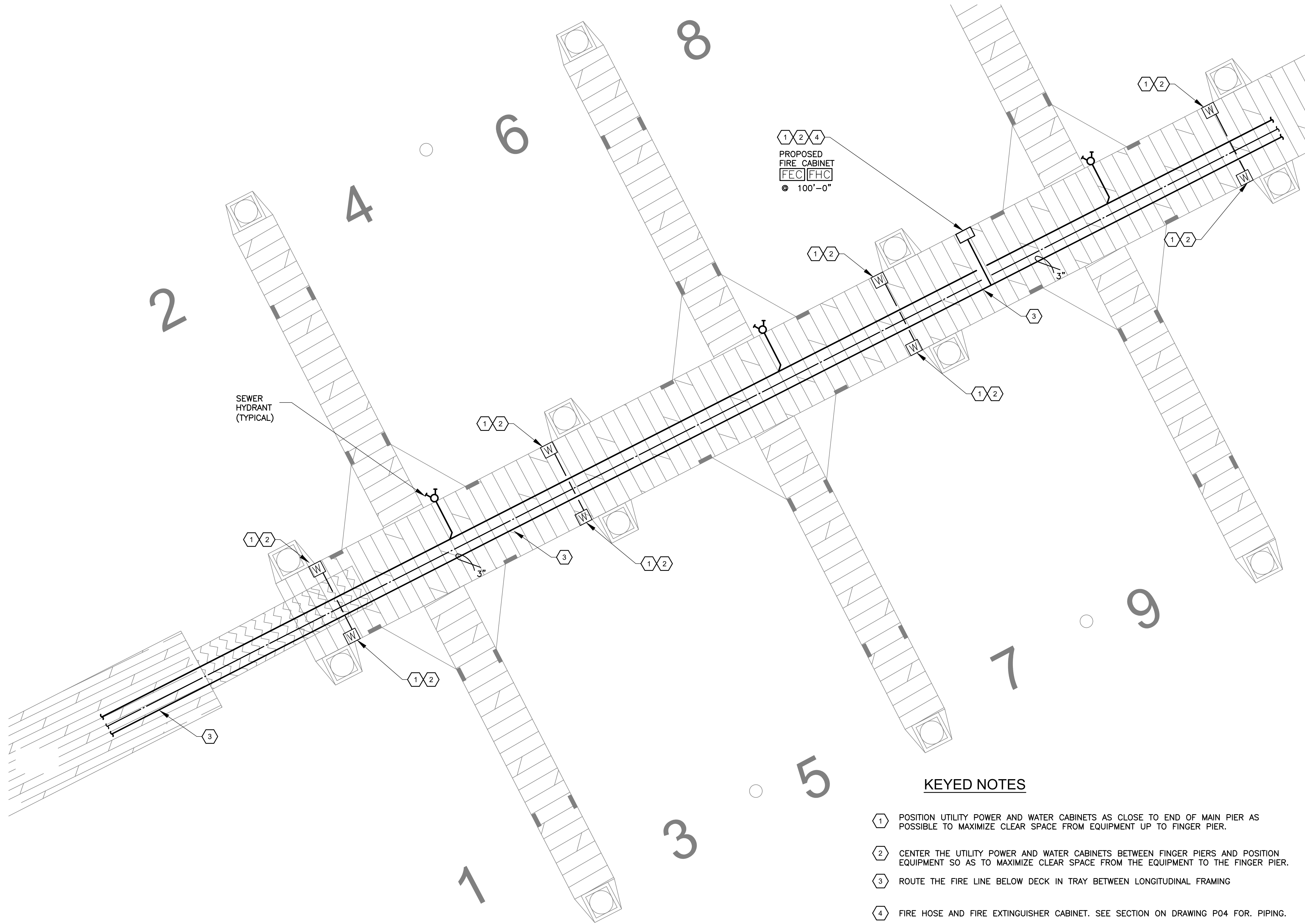
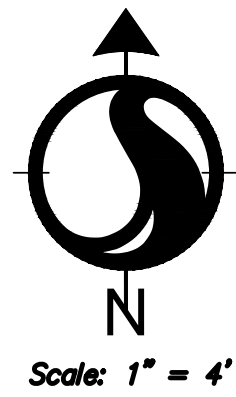
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KINGFISH PIER REPLACEMENT
KEY WEST, FLORIDA

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FIRE PROTECTION SPECIFICATIONS

Project No. 215615197 Scale SEE PLANS

Drawing No. FP03 Sheet of 25 Revision



PROPOSED
FIRE CABINET
FEC FHC
100'-0"

SEWER
HYDRANT
(TYPICAL)

KEYED NOTES

- ① POSITION UTILITY POWER AND WATER CABINETS AS CLOSE TO END OF MAIN PIER AS POSSIBLE TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT UP TO FINGER PIER.
- ② CENTER THE UTILITY POWER AND WATER CABINETS BETWEEN FINGER PIERS AND POSITION EQUIPMENT SO AS TO MAXIMIZE CLEAR SPACE FROM THE EQUIPMENT TO THE FINGER PIER.
- ③ ROUTE THE FIRE LINE BELOW DECK IN TRAY BETWEEN LONGITUDINAL FRAMING
- ④ FIRE HOSE AND FIRE EXTINGUISHER CABINET. SEE SECTION ON DRAWING P04 FOR PIPING.

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Seal

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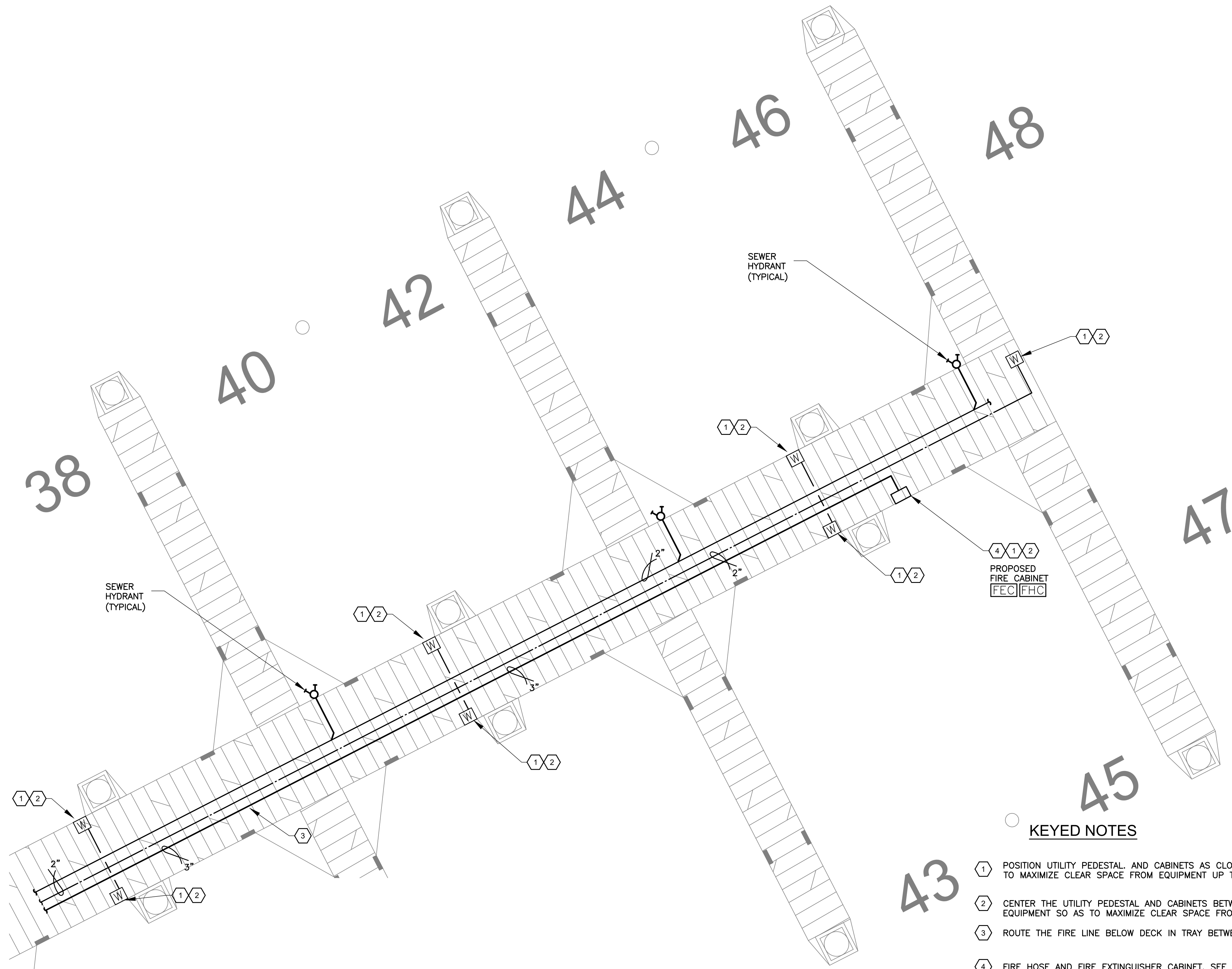
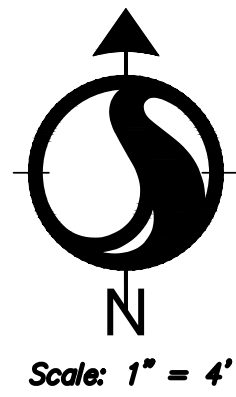
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FIRE PROTECTION DOCK DETAIL

Project No. 215615197 Scale SEE PLANS

Drawing No. FP05 Sheet of 25 Revision



KEYED NOTES

- 1 POSITION UTILITY PEDESTAL AND CABINETS AS CLOSE TO END OF MAIN PIER AS POSSIBLE TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT UP TO FINGER PIER.
- 2 CENTER THE UTILITY PEDESTAL AND CABINETS BETWEEN FINGER PIERS AND POSITION EQUIPMENT SO AS TO MAXIMIZE CLEAR SPACE FROM THE EQUIPMENT TO THE FINGER PIER.
- 3 ROUTE THE FIRE LINE BELOW DECK IN TRAY BETWEEN LONGITUDINAL FRAMING
- 4 FIRE HOSE AND FIRE EXTINGUISHER CABINET. SEE SECTION ON DRAWING P04 FOR PIPING.

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FIRE PROTECTION DOCK DETAIL - 2

Project No. 215615197 Scale SEE PLANS
 Drawing No. FP06 Sheet of 25 Revision

PLUMBING SYSTEM SPECIFICATIONS

PART 1 - GENERAL REQUIREMENTS

- 1.1 SYSTEM DESCRIPTION
- A. KINGFISH PIER PLUMBING SYSTEMS SHALL CONSIST OF POTABLE WATER DISTRIBUTION AND SANITARY VACUUM EXTENDED FROM EXISTING LANDSIDE UTILITIES AND SHALL INCLUDE POTABLE WATER AND SANITARY SEWER DOCK CABINETS.
- 1.2 SUMMARY OF WORK
- A. NEW CONSTRUCTION WORK SHALL INCLUDE BUT IS NOT LIMITED TO PROVIDING COMPLETE NEW POTABLE WATER DISTRIBUTION SYSTEMS AND SANITARY VACUUM SYSTEMS AS DESCRIBED IN THESE SPECIFICATIONS AND DRAWINGS FOR THE PROPOSED PIER.
- B. BIDS SHALL INCLUDE AS A MINIMUM ALL LABOR, TOOLS, MATERIALS, PLANT, TRANSPORTATION, TAXES, RELATED ITEMS, ETC., ESSENTIAL FOR DEMOLISHING EXISTING WORK AND FURNISHING, INSTALLING, OPERATING AND TESTING OF THE PROPOSED NEW WORK.
- 1.3 EXAMINATION OF DOCUMENTS
- A. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO ESTABLISH TYPE AND QUALITY OF MATERIALS AND A GENERAL LAYOUT AND LOCATION OF COMPONENTS THAT COMPRISE THE PLUMBING SYSTEMS. THEY ARE NOT INTENDED TO SHOW IN MINUTE DETAIL EVERY OR ALL ACCESSORIES INTENDED FOR THE PURPOSES OF EXECUTING THE WORK, BUT IT IS UNDERSTOOD THAT SUCH DETAILS ARE PART OF THE PROJECT SCOPE.
- B. WHERE CONFLICTS EXIST BETWEEN DRAWINGS AND SPECIFICATIONS THE MOST STRINGENT REQUIREMENTS SHALL APPLY.
- 1.4 CODES AND STANDARDS
- A. FURNISH AND INSTALL PLUMBING SYSTEMS TO MEET ALL CURRENT REQUIREMENTS OF NATIONAL, STATE AND MUNICIPAL CODES, RULES, REGULATIONS, LAWS, AND STANDARDS AS THEY ARE ADOPTED BY THE GOVERNING AGENCY AND AS THEY MAY APPLY.
- FLORIDA BUILDING CODE, BUILDING 2017 EDITION
FLORIDA BUILDING CODE, PLUMBING 2017 EDITION
UNDERWRITERS LABORATORIES
- 1.5 PERMITS AND INSPECTIONS
- A. SECURE AND PAY FOR ALL PERMITS AND LICENSES BEFORE ACTUAL WORK IS STARTED AND OBSERVE ALL REQUIREMENTS STIPULATED THEREON.
- B. COORDINATE WITH AND GIVE ALL NECESSARY NOTICES TO THE AUTHORITY HAVING JURISDICTION FOR INSPECTION AND TESTING OF THE PLUMBING SYSTEMS REQUIRED TO BE WITNESSED BY THEIR AGENT.
- 1.6 SHOP DRAWING SUBMITTALS AND PRE-INSTALLATION COORDINATION
- A. PRIOR TO ORDERING MATERIALS SUBMIT SHOP DRAWINGS INCLUDING MANUFACTURER'S CATALOG CUTS, BROCHURES AND PERFORMANCE DATA OF PIPE AND FITTING MATERIALS, HOSES, VALVES, SUPPORTS, PIPE MARKERS, DOCK BOXES, AND OTHER APPURTENANCES AS MAY BE REQUIRED. UNLESS SPECIFIED ELSEWHERE, PROVIDE A MINIMUM OF SIX COPIES FOR REVIEW BY ENGINEER AND OWNER.
- B. COORDINATE WITH ALL TRADES IN SUBMITTAL OF SHOP DRAWINGS AND FOR SPACE REQUIREMENTS. IF WORK IS INSTALLED PRIOR TO COORDINATION WITH OTHER TRADES WHICH INTERFERES WITH RELATED WORK, MAKE ALL NECESSARY CHANGES TO CORRECT THE CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- C. COORDINATE WITH FLOATING DOCK SUPPLIER FOR PIPE SUPPORT SPACING REQUIREMENTS INTEGRAL WITH STRUCTURAL FRAMING.
- 1.7 PRODUCTS AND WORKMANSHIP
- A. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND UNUSED AS MANUFACTURED BY COMPANIES REGULARLY ENGAGED IN THE FABRICATION OF THE TYPE SPECIFIED EXCEPT AS OTHERWISE NOTED HEREIN. USE PRODUCTS OF A SINGLE MANUFACTURER FOR SIMILAR TYPE EQUIPMENT. MODIFIED OR RE-BUILT EQUIPMENT OR MATERIALS ARE NOT ACCEPTABLE.
- B. PROVIDE PLUMBING COMPONENTS AND SYSTEM INSTALLATION CAPABLE OF SUSTAINING THE FOLLOWING MINIMUM WORKING

- PRESSURE RATINGS:
- WATER DISTRIBUTION SYSTEMS: 125 PSIG.
SANITARY SYSTEMS: 29 INCHES OF HG VACUUM.
- C. INSTALL PLUMBING SYSTEMS IN A NEAT AND WORKMANLIKE MANNER UTILIZING PERSONNEL LICENSED AND SKILLED IN THE TRADES.
- 1.8 WARRANTY
- A. PROVIDE AN UNCONDITIONAL WARRANTY FROM FAILURE AND/OR DEFECTS ON ALL PRODUCTS AND WORKMANSHIP PROVIDED FOR THIS PROJECT FOR A MINIMUM OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
- 1.9 DELIVERY AND STORAGE
- A. HANDLE, STORE AND PROTECT EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. REPLACE DAMAGED OR DEFECTIVE ITEMS WITH NEW ITEMS.
- 1.10 DEMOLITION, CUTTING AND PATCHING
- A. PROTECT ALL EXISTING ACTIVE SERVICES AGAINST DAMAGE INCLUDING WATER, ELECTRIC, SEWER, ETC., IN AREAS OF PROPOSED CONSTRUCTION. IF ACTIVE SERVICES ARE ENCOUNTERED THAT REQUIRE RELOCATION, MAKE REQUEST TO OWNER FOR DETERMINATION OF PROCEDURES.
- B. REMOVE AND DISPOSE OF PROPERLY OFF-SITE, ALL ABANDONED PLUMBING PIPING, VALVES, PIPE SUPPORTS, EQUIPMENT, ETC., RENDERED OBSOLETE BY WORK OF THIS PROJECT.
- C. PROVIDE ALL NECESSARY CUTTING AND PATCHING REQUIRED IN CONNECTION WITH PLUMBING WORK. COORDINATE WITH AND OBTAIN WRITTEN APPROVAL FROM THE MARINE CONTRACTOR FOR ALL PROPOSED CUTTING AND PATCHING PRIOR TO COMMENCEMENT OF WORK. SAWCUT EXISTING PAVEMENT OR CONCRETE AND EXCAVATE AS REQUIRED FOR INSTALLATION OF UNDERGROUND PIPING. BACKFILL AND COMPACT SOIL AND PROVIDE FINISHED SURFACES TO MATCH ADJACENT MATERIALS AND CONSTRUCTION.
- 1.11 CLEANING
- A. CLEAR AWAY ALL DEBRIS, SURPLUS MATERIALS, ETC., RESULTING FROM PLUMBING SYSTEM INSTALLATION WORK AND OPERATIONS. LEAVE THE JOB AND EQUIPMENT PROVIDED UNDER CONTRACT IN A CLEAN AND FIRST-CLASS CONDITION.
- 1.12 TEST AND DEMONSTRATIONS
- A. PERFORM TESTS OF THE PLUMBING SYSTEMS AS SPECIFIED HEREIN. REPEAT AS REQUIRED UNTIL PROVEN ACCEPTABLE TO THE ENGINEER, OWNER AND AUTHORITY HAVING JURISDICTION. PROVIDE ALL GAUGES, TOOLS, PUMPS, GAS, AIR OR OTHER REQUIRED EQUIPMENT OR MATERIALS.
- 1.13 RECORD DOCUMENTS
- A. MAINTAIN AT THE JOB SITE ONE SET OF PRINTS ON WHICH ARE RECORDED ALL FIELD CHANGES AND OTHER PORTIONS OF THE PLUMBING SYSTEM WORK THAT VARY FROM THE CONTRACT DOCUMENTS. INDICATE ACTUAL PIPE SYSTEM ROUTING AND INSTALLED ACCESSORIES AND DEVICES.
- B. PROVIDE AS-BUILT RECORD DRAWINGS TO THE OWNER AT THE COMPLETION OF THE PROJECT.
- PART 2 - PRODUCT REQUIREMENTS
- 2.1 PIPING, FITTINGS, AND JOINING MATERIAL
- A. DOCK PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE). HDPE PIPE SHALL BE ASTM D 3350, SDR 11, CELL CLASSIFICATION OF PE 3454344C WITH BUTT-USED JOINTS. ALL FITTINGS SHALL BE OF COMPATIBLE HDPE MATERIAL AND SHALL BE BUTT-FUSED. PROVIDE PIPE AND FITTINGS AS MANUFACTURED BY IPF, DRISCOPIPE OR EQUIVALENT.
- B. POLY (VINYL CHLORIDE) (PVC) PLASTIC PIPE: ASTM D 2665, SCHEDULE 40, PLAIN ENDS, SOCKET TYPE FITTINGS AND ASTM D 2564 SOLVENT CEMENT.
- C. POLY (VINYL CHLORIDE) (PVC) PLASTIC, PRESSURE PIPE: ASTM D 1785, SDR 21, PLAIN ENDS, ASTM D 2467 SOCKET TYPE FITTINGS. SOLVENT CEMENT SHALL BE ASTM D 2564 WITH ASTM F 656 PRIMER. PLASTIC PIPE-FLANGES AND GASKETS SHALL BE OF TYPE AND MATERIAL RECOMMENDED BY THE PIPING SYSTEM MANUFACTURER. BOLTS, WASHERS AND NUTS SHALL BE TYPE 316 STAINLESS STEEL.
- 2.2 HOSES
- A. SANITARY HOSE SHALL BE #2710 AS SUPPLIED BY THE FOLLOWING:
CROUCH SUPPLY CO., INC.; 305 S. MAIN STREET; FORT WORTH, TEXAS 76104
ATTN.: MARVIN CARR 1-800-825-1110

- AN EQUIVALENT HOSE PRODUCT BY ALTERNATIVE MANUFACTURERS SHALL BE ACCEPTABLE.
- B. ELBOWS, FLANGES AND ACCESSORIES SHALL BE 316 STAINLESS STEEL CONSTRUCTION INCLUDING PLATES, BOLTS, WASHERS, NUTS AND OTHER COMPONENTS AS MAY BE REQUIRED.
- 2.3 PLUMBING VALVES AND ACCESSORIES
- A. MANUAL BALL VALVES SHALL BE CPVC BODY WITH STAINLESS STEEL BALL, TFE SEATS AND SEALS, THREADED UNION OR FLANGED ENDS, LEVER HANDLE, CONVENTIONAL PORT 400 PSIG W.O.G. PRESSURE AT MAXIMUM WORKING TEMPERATURE OF 150 DEGREES F.
- B. POTABLE WATER CHECK VALVES SHALL BE MARINE GRADE, BRONZE BODY DUAL CHECK TYPE, COMPLYING WITH ASSE 1024, AND COMPLETE WITH TWO COMPACT REPLACEABLE CHECK MODULES.
- C. HOSE BIBBS SHALL BE MARINE GRADE, BRONZE BODY WITH INTEGRAL VACUUM BREAKER, COMPLYING WITH ASSE 1011, AND PLASTIC HANDLE.
- D. SANITARY VACUUM CABINET SHALL BE SIMILAR TO AND COMPATIBLE WITH EXISTING ASSEMBLIES OF THE MARINA INLET CONNECTION SHALL MATE WITH EXISTING SLIP TO HOUSEBOAT HOSES. ASSEMBLY SHALL INCLUDE CAMLOCK AND CLOSER CAP, MARINE GRADE BRONZE LIFT CHECK VALVE AND MANUAL BALL VALVE.
- 2.4 POTABLE WATER AND SANITARY SEWER CABINET
- A. DOCK BOX SHALL BE DESIGNED AND CONSTRUCTED SPECIFICALLY FOR MARINE APPLICATIONS. CABINET SHALL BE AS MINIMUM TYPE 5052, 090 GAUGE, MARINE GRADE ALUMINUM CONSTRUCTION WITH WELDED JOINTS AND POWDER COATED GLOSS WHITE FINISH INSIDE AND OUTSIDE. CABINET SIZE SHALL BE DESIGNED TO ACCOMMODATE TWO WATER SUPPLY ASSEMBLIES AND TWO SANITARY VACUUM ASSEMBLIES EXCEPT WHERE SERVING A SINGLE SLIP AS INDICATED ON THE PLANS. PRODUCT SHALL BE SIMILAR TO EXISTING CABINETS ON THE KINGFISH PIER AND TARPON PIER AND SHALL BE AS MANUFACTURED BY MARINA POWER COMPANY, MIAMI, FLORIDA OR EQUIVALENT OWNER APPROVED PRODUCT.
- B. CABINETS SHALL BE COMPLETE WITH A TAPERED ALUMINUM TOP AND SHALL INCLUDE TYPE 316 STAINLESS STEEL HINGES AND LATCH. THE TWO SIDE FACES OF THE CABINET SHALL EACH HAVE ALUMINUM HOSE HANGERS. ALUMINUM COMPONENTS SHALL BE CONSTRUCTED AND FINISHED AS DESCRIBED ABOVE. CABINET SHALL HAVE FLANGES OR MOUNTING PLATES AS SUITABLE FOR MECHANICALLY FASTENING THE UNIT TO THE SURFACE OF THE DECK.
- C. POTABLE WATER SUPPLY ASSEMBLIES LOCATED INSIDE THE CABINET SHALL INCLUDE RF TRANSMITTER AND WATER METER, 1/2" BRASS CHECK VALVE, 1/2" MANUAL BALL VALVE AND INTERCONNECTING PIPING. THE RF TRANSMITTER AND WATER METER SHALL BE FURNISHED BY THE KEY WEST UTILITY DEPARTMENT AND INSTALLED WITHIN THE CABINET BY THE PLUMBING CONTRACTOR. THE RF TRANSMITTERS SHALL BE MOUNTED ON THE INBOARD (DECK SIDE) FACE OF THE CABINET. DOCK BOX MANUFACTURER SHALL COORDINATE WITH THE UTILITY FOR SPACE AND MOUNTING REQUIREMENTS. EACH ASSEMBLY SHALL BE CONNECTED TO AN EXTERNALLY MOUNTED BRASS HOSE BIBB WITH VACUUM BREAKER MOUNTED ON THE OUTBOARD (SLIP SIDE) FACE OF THE CABINET. A 1" WATER SUPPLY PIPE SHALL FEED THROUGH THE BOTTOM OF THE CABINET. WITHIN THE CABINET THE 1" LINE SHALL TEE OFF TO SUPPLY TWO 1/2" LINES AND EXTEND TO THE WATER METERS.
- D. SANITARY SEWER VACUUM ASSEMBLIES LOCATED INSIDE THE CABINET SHALL INCLUDE 1-1/2" BRASS CHECK VALVE, 1-1/2" MANUAL BALL VALVE AND INTERCONNECTING PIPING. EACH ASSEMBLY SHALL BE CONNECTED TO AN EXTERNALLY MOUNTED 1-1/2" VACUUM SEWER 90 DEGREES CAMLOCK AND CLOSER CAP LOCATED ON THE OUTBOARD (SLIP SIDE) FACE OF THE CABINET BELOW THE POTABLE WATER HOSE BIBBS. A 1-1/2" SANITARY VACUUM PIPE SHALL FEED THROUGH THE BOTTOM OF THE CABINET. WITHIN THE CABINET THE PIPE SHALL BRANCH OFF WITH A Y OR LATERAL FITTING TO CONNECT TO THE TWO 1-1/2" VACUUM INLETS.
- 2.5 PIPE SUPPORTS
- A. PLUMBING SYSTEM SUPPORTS SHALL BE AS PROVIDED BY THE FRAME AND STRUCTURE OF THE FLOATING DOCK. NO PIPE HANGERS ARE PERMITTED. SECUREMENT DEVICES SHALL BE STRAP ANCHORS OR RELATED PRODUCTS BY GRINNELL, MODERN HANGER OR B-LINE. ALL ANCHORS AND ACCESSORIES SUCH AS MECHANICAL FASTENERS, WASHERS, ETC., SHALL BE 316 STAINLESS STEEL CONSTRUCTION.
- 2.6 PIPE IDENTIFICATION
- A. PIPING IDENTIFICATION SHALL BE SETON SNAP-AROUND PIPE MARKERS OR EQUIVALENT TYPE OF LABELS. FOR POTABLE WATER PIPING PROVIDE BLUE COLOR BAND WITH GREEN LEGEND BAND. WHITE LETTERING ON THE LEGEND BAND SHALL READ "POTABLE WATER". FOR SANITARY VACUUM PIPING PROVIDE YELLOW COLOR BAND WITH BLACK LEGEND BAND. WHITE LETTERING ON THE LEGEND BAND SHALL READ "SANITARY SEWER".
- PART 3 - EXECUTION
- 3.1 EXAMINATION
- A. EXAMINE ROUGH-INS FOR PIPING, EQUIPMENT AND SUPPORTS AND VERIFY ACTUAL LOCATIONS, SIZES AND OTHER CONDITIONS AFFECTING SYSTEM PERFORMANCE, MAINTENANCE,

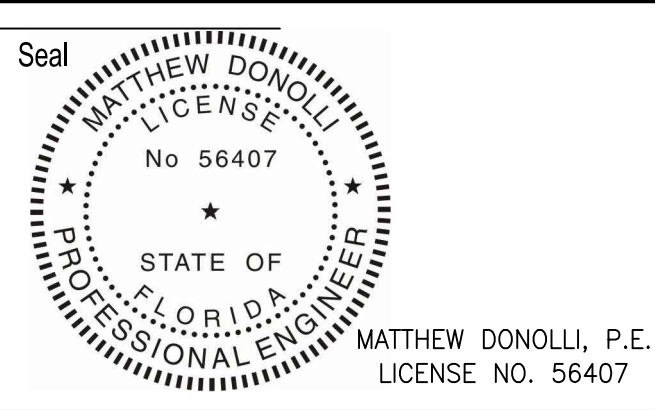
- AND OPERATIONS PRIOR TO EQUIPMENT INSTALLATION.
- B. IDENTIFY EXACT LOCATIONS OF EXISTING SERVICES TO BE REUSED.
- 3.2 EXCAVATION, BACKFILL, COMPACTION AND SURFACE FINISHING
- 3.3 INSTALLATION OF PIPING
- A. USE PIPE, FITTINGS AND JOINING METHODS FOR PIPING SYSTEMS ACCORDING TO THE FOLLOWING APPLICATIONS:
WATER DISTRIBUTION MAINS LARGER THAN 1 INCH DIAMETER SHALL BE HDPE
WATER DISTRIBUTION LANDSIDE TO PIER SIDE FLEXIBLE CONNECTIONS SHALL BE SANITARY HOSE #2710
WATER DISTRIBUTION BRANCHES LESS THAN OR EQUAL TO 1 INCH DIAMETER SHALL BE PVC SDR 21
SANITARY VACUUM MAINS SHALL BE HDPE
SANITARY VACUUM LANDSIDE TO PIER SIDE FLEXIBLE CONNECTIONS SHALL BE SANITARY HOSE #2710
SANITARY VACUUM BRANCH LINES TO HYDRANTS SHALL BE PVC SCHEDULE 40
- B. INSTALL PIPING AT RIGHT ANGLES OR PARALLEL TO SEAWALLS AND FRAMING MEMBERS.
- C. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. USE LONG SWEEP FITTINGS FOR SANITARY VACUUM PIPING.
- D. INSTALL PIPING AND HOSES IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.
- 3.4 INSTALLATION OF PIPE SUPPORTS
- A. INSTALL SUPPORTS, ANCHORS AND FASTENERS FOR PLUMBING SYSTEMS IN ACCORDANCE WITH THE FLORIDA PLUMBING CODE AND PIPE MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS. SEE PLANS FOR ADDITIONAL REQUIREMENTS. MINIMUM SUPPORT REQUIREMENTS SHALL BE AS INDICATED IN THE FOLLOWING SCHEDULE:
- | | |
|----------------------------|-----------------|
| PIPE SIZE | SUPPORT SPACING |
| 2" DIAMETER AND SMALLER | 36" MAXIMUM |
| 2 1/2" DIAMETER AND LARGER | 48" MAXIMUM |
- B. PIPE SUPPORT SPACING SHALL BE AS LISTED ABOVE EXCEPT THAT HORIZONTAL RUNS OF PIPING SHALL BE SUPPORTED AT LEAST ONCE FOR EACH PIPE SECTION AND AT EACH JOINT. PROVIDE MINIMUM OF ONE SUPPORT FOR EACH ELBOW.
- 3.5 INSTALLATION OF CABINETS AND ACCESSORIES
- A. INSTALL CABINETS AT LOCATIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER AND THE OWNER.
- B. MOUNT EQUIPMENT SECURELY TO FRAMING AND/OR DECKING WITH MECHANICAL FASTENERS. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.
- C. INSTALL POTABLE WATER RF METERS THAT ARE FURNISHED BY THE WATER UTILITY COMPANY. COORDINATE SPACE REQUIREMENTS. SEE NOTE AND DETAILS ON SHEET P03.
- 3.6 INSTALLATION OF IDENTIFICATION LABELS
- A. ATTACH PIPE MARKERS ON PLUMBING SYSTEM PIPING MAINS. SPACE MARKERS AT NO GREATER THAN 25 FEET ON CENTER.
- 3.7 TESTING OF POTABLE WATER DISTRIBUTION SYSTEMS
- A. PERFORM A HYDRO-STATIC PRESSURE TEST FOR LEAKS AND DEFECTS IN NEW WATER DISTRIBUTION PIPING SYSTEMS. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF SYSTEM TESTED.
- B. CAP AND SUBJECT THE PIPING SYSTEM TO A STATIC WATER PRESSURE OF 125 PSIG OR 50 PSIG ABOVE THE OPERATING PRESSURE WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR 4 HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
- C. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
- D. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.
- 3.8 TESTING OF SANITARY PIPING SYSTEMS
- A. PERFORM A STATIC VACUUM TEST FOR LEAKS AND DEFECTS IN SANITARY PIPING SYSTEMS. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT A SEPARATE REPORT FOR EACH TEST, COMPLETE WITH A DIAGRAM OF THE PORTION OF THE SYSTEM TESTED.
- B. CAP AND SUBJECT THE PIPING SYSTEM TO A STATIC VACUUM PRESSURE OF 12 INCHES OF HG. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR 4 HOURS. LEAKS AND LOSS OF TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
- C. REPAIR LEAKS AND DEFECTS USING NEW MATERIALS AND

- RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED
- D. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.
- 3.9 CLEANING
- A. PURGE NEW POTABLE WATER DISTRIBUTION PIPING SYSTEMS PRIOR TO USE.
- B. USE PURGING AND DISINFECTING PROCEDURE PRESCRIBED BY AUTHORITY HAVING JURISDICTION OR, IF A METHOD IS NOT PRESCRIBED BY THAT AUTHORITY, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR AS DESCRIBED BELOW:
FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE. ISOLATE (VALVE OFF) AND ALLOW TO STAND FOR 24 HOURS. PROVIDE PROPER SIGNAGE TO PREVENT ACCIDENTAL USE DURING DISINFECTION. DRAIN SYSTEM OR PART THEREOF OF PREVIOUS SOLUTION AND REFILL WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR 3 HOURS. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL CHLORINE DOES NOT REMAIN IN WATER COMING FROM SYSTEM FOLLOWING ALLOWED STANDING TIME.
- C. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITY HAVING JURISDICTION. REPEAT PROCEDURE IF BIOLOGICAL EXAMINATION MADE BY THE AUTHORITY SHOWS EVIDENCE OF CONTAMINATION. PROVIDE 2 CONSECUTIVE DAYS OF APPROVED BACTERIOLOGICAL TEST.
- D. PREPARE AND SUBMIT REPORTS FOR PURGING AND DISINFECTING ACTIVITIES.

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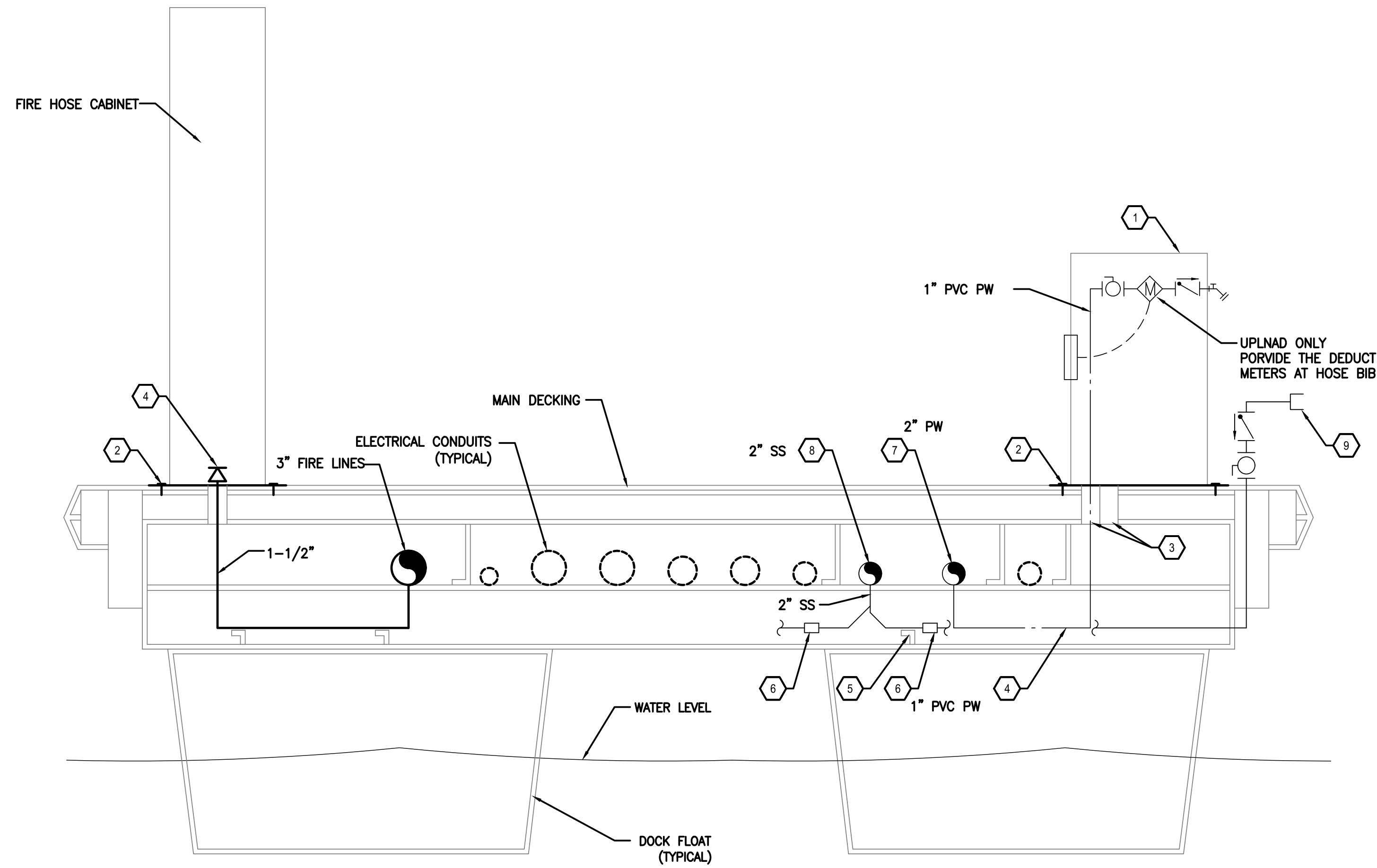
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CITY OF KEY WEST			
KINGFISH PIER REPLACEMENT			
KEY WEST, FLORIDA			
File Name:	ML/RA	JF/MD	EB
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PLUMBING SECTION THRU MAIN PIER PLAN
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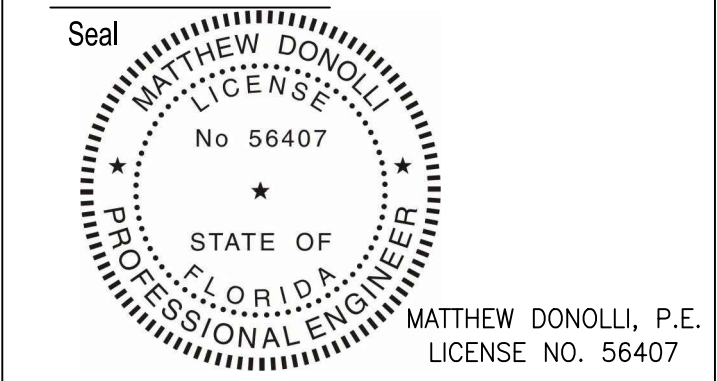
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1. SINGLE SLIP POTABLE WATER & POWER CABINET. INSTALL DOCK BOX NEAR OUTBOARD EDGE OF PIER SO AS TO OPTIMIZE AVAILABLE SPACE FOR PEDESTRIAN TRAFFIC IN THE CENTER OF THE PIER. ORIENT CABINET WITH HOSE BIBBS TO THE OUTBOARD SIDE AND RF METER READER DEVICES TO THE INBOARD SIDE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND WORK ITEMS.
2. SECURE CABINET TO DECK WITH MINIMUM OF FOUR STAINLESS STEEL FASTENERS OR AS RECOMMENDED BY CABINET MANUFACTURER.
3. CORE DRILL DECK FOR POTABLE WATER AND SANITARY SEWER PIPE INSTALLATION. MAKE THE OPENING A MINIMUM OF 1 INCH LARGER THAN OUTSIDE DIAMETER OF PIPE. PROVIDE SHRINK WRAP ON THE PIPE AT THE DECK PENETRATION TO PROTECT AGAINST ABRASION.
4. EXTEND PVC PRESSURE PIPE FOR POTABLE WATER SUPPLY TO DOCK CABINET AND TIE INTO SINGLE POINT CONNECTION FOR PW SUPPLY.
5. TYPICAL PIPE SUPPORT STRUT BETWEEN CROSS MEMBERS AT 3-FOOT O.C. SECURE PIPE TO STRUCTURE WITH CLAMP OR EQUIVALENT STRAPPING METHOD.
6. PROVIDE FERNCO OR EQUIVALENT RUBBER BOOT CONNECTOR WITH 316 STAINLESS STEEL HARDWARE TO CONNECT HDPE BRANCH TEE TO PVC-DWV SANITARY HYDRANT BRANCH PIPE. NORTH SIDE ONLY.
7. ROUTE HDPE POTABLE WATER SUPPLY MAIN IN TRAY BETWEEN PIER FRAMING MEMBERS. PROVIDE HDPE TEE FITTING AT EACH PAIR OF PROPOSED POTABLE WATER CABINETS. TRANSITION TO PVC PRESSURE PIPE AFTER BRANCH TEE.
8. ROUTE HDPE SANITARY VACUUM PIPE MAIN IN TRAY BETWEEN PIER FRAMING MEMBERS. PROVIDE HDPE TEE FITTING AT EACH PIER OF PROPOSED CABINETS. USE LONG SWEEP FITTINGS.
9. SEWER HYDRANT CONNECTION

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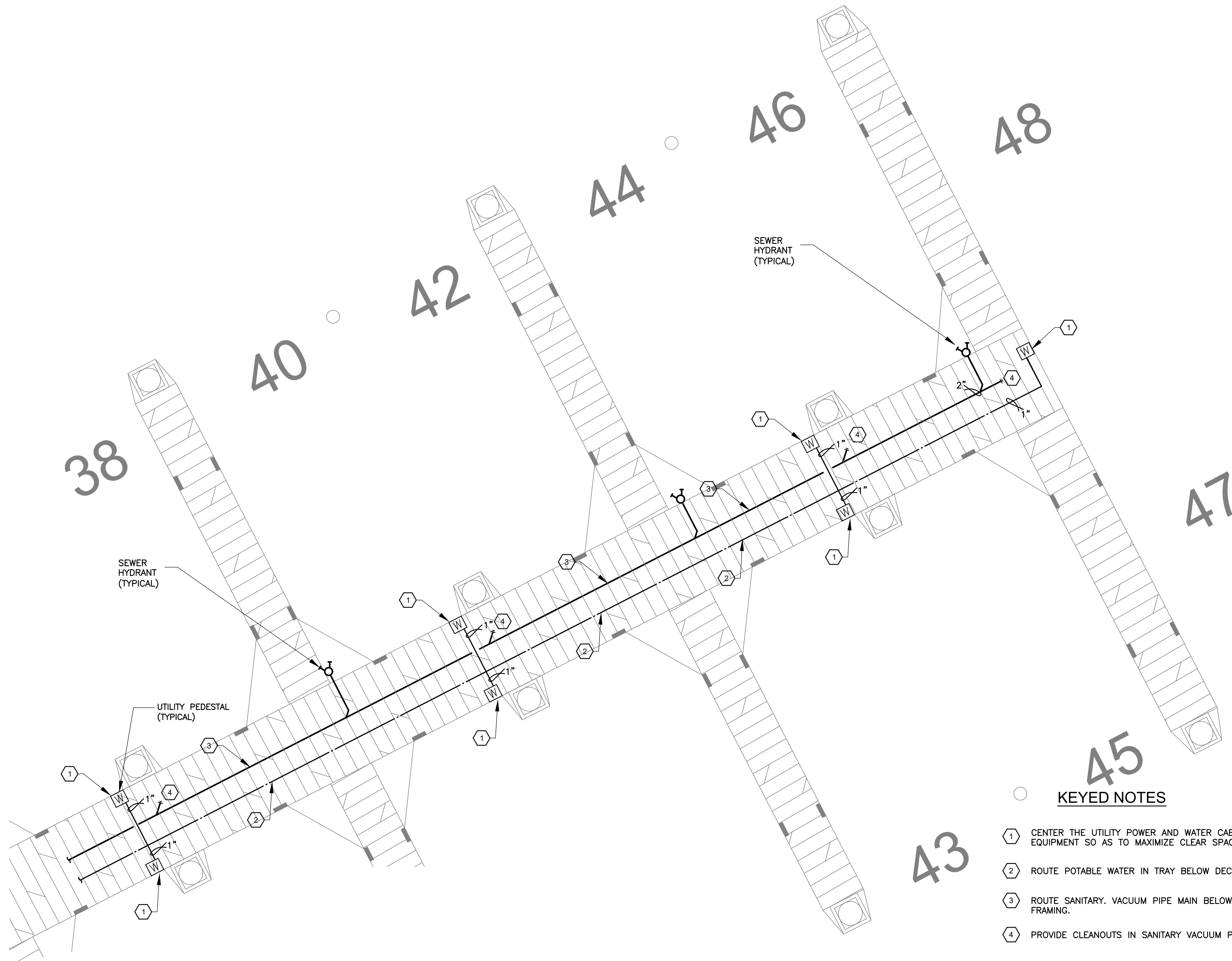
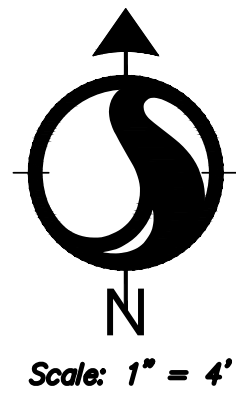
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CITY OF KEY WEST
 KINGFISH PIER REPLACEMENT
 KEY WEST, FLORIDA

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- KEYED NOTES**
- 1 CENTER THE UTILITY POWER AND WATER CABINETS BETWEEN FINGER PIERS AND POSITION EQUIPMENT SO AS TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT TO FINGER PIER.
 - 2 ROUTE POTABLE WATER IN TRAY BELOW DECK BETWEEN LONGITUDINAL FRAMING.
 - 3 ROUTE SANITARY VACUUM PIPE MAIN BELOW DECK IN TRAY BETWEEN LONGITUDINAL FRAMING.
 - 4 PROVIDE CLEANOUTS IN SANITARY VACUUM PIPING AT MAXIMUM 50 FEET ON CENTER.

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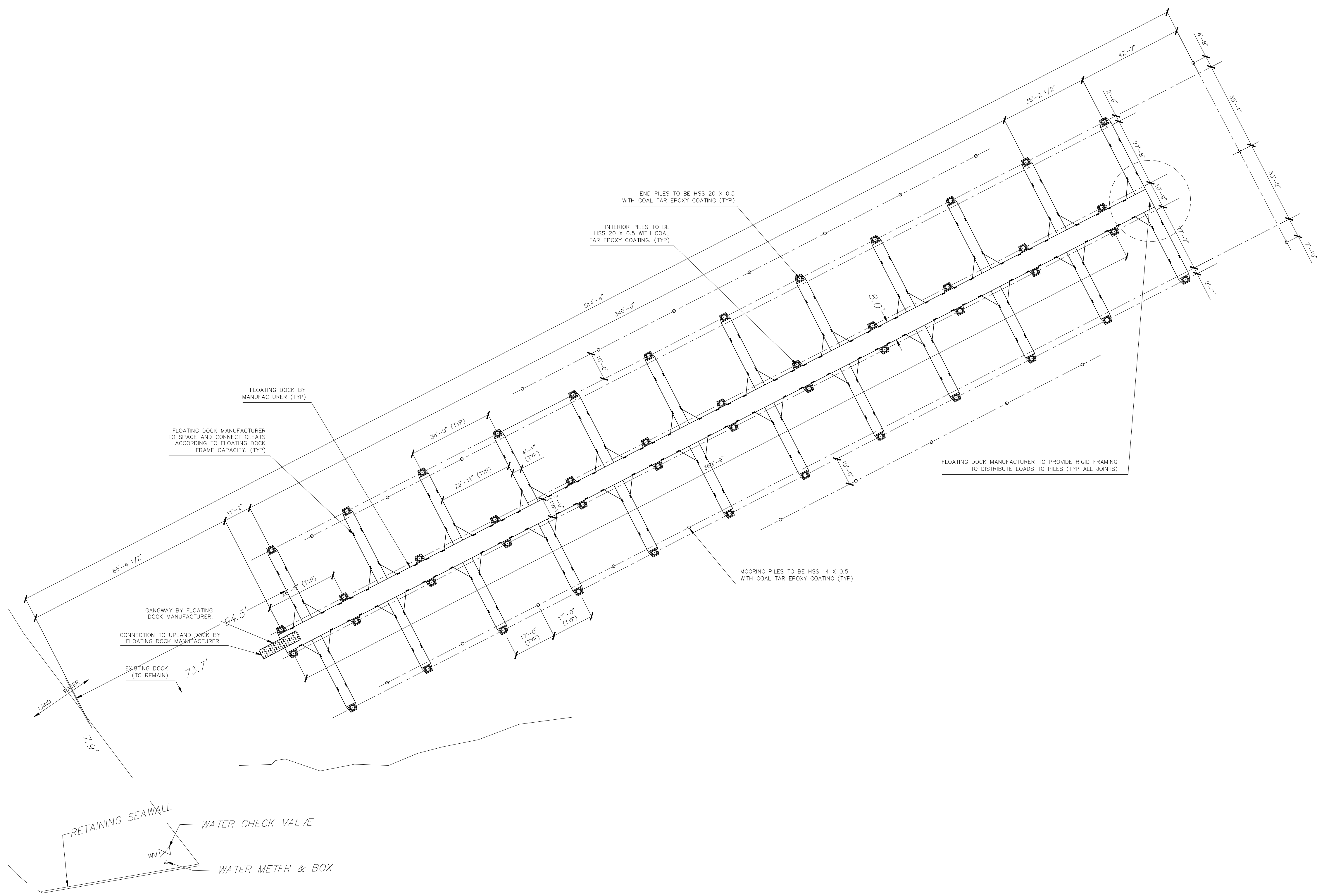
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GENERAL NOTES

- CONTRACTOR TO FOLLOW ALL DETAILS, SECTIONS, AND PLANS SHOWN IN THE FOLLOWING SHEETS. IF ANY CONFLICTS ARISE OR ALTERNATIVES ARE DESIRED, THE CONTRACTOR MUST NOTIFY THE EOR AND SUPPLY SHOP DRAWINGS PRIOR TO PURCHASING OR INSTALLING MATERIALS.
- ELEVATIONS SHOWN REFER TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1929.
- ALL DIMENSIONS ON PLANS ARE SUBJECT TO VERIFICATION IN THE FIELD.
- IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH WORK.
- IT IS THE INTENT OF THESE PLANS AND THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH LOCAL, STATE, AND FEDERAL ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT. DESIGN COMPLIES WITH FLORIDA BUILDING CODE 2014.
- OWNER TO NOTIFY THE ENGINEER IF THERE IS A SUBSTANTIAL MODIFICATION TO THE BOTTOM ELEVATION OF THE HARBOR IN THE FUTURE. THIS DESIGN ACCOUNTS FOR A 14' MAX DISTANCE FROM THE MUDLINE TO THE TOP OF DECK.
- CONTRACTOR TO TAKE PRECAUTIONS TO PREVENT DEBRIS FROM FALLING INTO WATER DURING DEMOLITION.

DESIGN:

- PILES DESIGNED FOR FOLLOWING ASD LOADS, RESULTANT FROM DESIGN CRITERIA IN NOTE 2.
 - END & INTERIOR PILE: 16.8K LOAD AT TIP OF 12.5' CANTILEVER. [ASD]
 - MOORING PILE: 11.2K LOAD AT TIP OF 12.5' CANTILEVER [ASD]
- PILES HAVE BEEN DESIGNED FOR THE FOLLOWING LOAD CRITERIA AS A TRANSIENT DOCK. FLOATING DOCK MANUFACTURER TO DESIGN DOCKS TO ADHERE TO THE FOLLOWING CRITERIA AS WELL. THE DOCK HAS NOT BEEN DESIGNED TO SUPPORT VESSELS DURING STORM EVENTS.
 - 120 MPH FASTEST MILE WIND - FULLY OCCUPIED.
 - 150 MPH FASTEST MILE - NO MORE THAN ONE BOAT BETWEEN EACH FINGER PIER ON EACH SIDE (30% OCCUPIED).
 - FLOATING DOCK MANUFACTURER TO NOTIFY EOR IMMEDIATELY IF THE PILE LOADS IN NOTE 1 ABOVE ARE EXCEEDED IN ANY WAY.
 - DOCK LIVE LOAD = 100PSF
 - DOCK MISC DEAD LOAD = 20 PSF
- NO CLEATS TO BE INSTALLED ON PILES.
- THE OWNER HAS BEEN MADE AWARE THAT VESSELS CANNOT BE MOORED AT THE PIER DURING STORM EVENTS. THE FOLLOWING PILE LATERAL DEFLECTIONS ARE TO BE EXPECTED DURING LOADS IN NOTE 1 ABOVE, PER GEOTECH REPORT.

A. END PILE & INTERIOR PILES: HSS 20 X 0.5 [48 TOTAL]	5.4"
B. MOORING PILE: HSS 14 X 0.5 [23 TOTAL]	12.4"

PILES:

- PILES MUST BE DRIVEN TO HAVE A MINIMUM OF 21'-0" OF EMBEDMENT DEPTH IN ACCORDANCE WITH GEOTECH REPORT.
- PILES USED AS GUIDES FOR THE FLOATING DOCK TO BE ATTACHED TO THE DOCKS USING SIDE PILE GUIDE.
 - CONNECTION OF GUIDES TO DOCKS TO CONFORM TO REQUIREMENTS OF MANUFACTURER.
- ALL PILES TO BE COATED WITH COAL TAR EPOXY PER MANUFACTURERS SPECIFICATIONS. COATING SHOULD BE APPLIED ON INTERIOR AND EXTERIOR OF HSS PILE, AND MUST EXTEND A MINIMUM OF 2' INTO THE SOIL GRADE WITH 16 MIL THICKNESS.
- HSS PILES TO BE ASTM A500 - Gr. B (Fy = 42ksi)

FLOATING DOCK:

- FLOATING DOCK TO BE DESIGNED TO RIGIDLY DISTRIBUTE LATERAL FORCES TO PILES AS A GROUP.
- SUBMIT SHOP DRAWINGS TO EOR FOR APPROVAL FOR DESIGN LOADS.
- FLOATING DOCK SHOP DRAWINGS MUST BE APPROVED BY EOR AND MEET ALL REQUIREMENTS OF THESE PLANS. REPORT DISCREPANCIES IN DIMENSIONS TO EOR IMMEDIATELY.
- PILE GUIDE CONNECTION TO RESIST ASD LOADS SHOWN IN DESIGN NOTE #1 AND DEFLECTIONS IN DESIGN NOTE #4.

GEOTECH NOTES:

- SEE GEOTECH REPORT NUMBER 1661.57 ADDENDUM 1, SIGNED AND SEALED BY NUTTING ENGINEERS DATED JUNE 2019 AND UPDATED NOVEMBER 2019.

DELEGATED DESIGNS:

- CONTRACTOR IS REQUIRED TO SUBMIT ALL DELEGATED DESIGNS TO ENGINEER OF RECORD FOR REVIEW AND APPROVAL THE SIGNED AND SEALED DRAWINGS AND CALCULATIONS BY A LICENSED FLORIDA PROFESSIONAL ENGINEER.
- ITEMS TO BE DELEGATED
 - FLOATING DOCKS AND CONNECTIONS.
 - ALL ITEMS NOT SHOWN ON PLANS.
 - ANY ITEM MODIFIED FROM EOR PLANS.

1 PILE PLAN
SCALE: NOT TO SCALE

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Revision	By	Appd.	YY.MM.DD	Issued	By	Appd.	YY.MM.DD

Seal

HEATHER R. ANESTA, P.E.
FLORIDA ENGINEER NO. 74733
ANESTA CONSULTING, INC.

Consultants
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CITY OF KEY WEST
KINGFISH PIER REPLACEMENT
KEY WEST, FLORIDA

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STRUCTURAL PILE LAYOUT		
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Drawing No.	Sheet	Revision
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