

# CITY OF KEY WEST

## DOLPHIN PIER DOCK REPLACEMENT

MONROE COUNTY, FLORIDA  
STANTEC PROJECT NO. 215613443

SECTION : 32  
TOWNSHIP: 67S  
RANGE: 25E  
LATITUDE: 24°33'83"  
LONGITUDE: 81°47'04"

### INDEX OF SHEETS

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C01	COVER
C02	OVERALL AERIAL PLAN
C03	EXISTING CONDITIONS PLAN
C04	EXISTING CONDITIONS PLAN
C05	DEMOLITION / RELOCATION PLAN
C06	GEOMETRY PLAN
C07	DOCK DETAIL
C08	DOCK / RAMP CROSS SECTIONS
C09	UTILITY PLANS
E01-E08	ELECTRICAL PLANS
FP01-FP05	FIRE PROTECTION SPECIFICATIONS
P01-P04	PLUMBING PLANS
S01	STRUCTURAL PLANS (NOT A PART OF SUBMITTAL)



LOCATION MAP  
Scale: N.T.S.



**MAYOR & COUNCIL:**

Craig Cates, Mayor  
Jimmy Weekley, Commissioner  
Samuel Kaufman, Commissioner  
Billy Wardlow, Commissioner  
Richard Payne, Commissioner  
Margaret Romero, Commissioner  
Clayton Lopez, Commissioner

City Manager: James Scholl

**PRELIMINARY SET**  
**NOVEMBER , 2016**

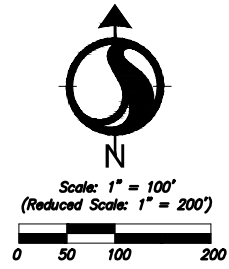
.....APPROVALS.....			
AGENCY	SUBMITTAL DATE	APPROVAL DATE	PERMIT NUMBER



901 Ponce de Leon Blvd. Suite 900  
Coral Gables, Florida, 33134  
Tel. 305-445-2900  
Fax. 305-445-3344  
www.stantec.com

APPROVED BY

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.

SITE SURVEY INFORMATION FROM:  
 FLORIDA KEYS LAND SURVEYORS  
 19960 OVERSEAS HIGHWAY  
 SUGARLOAF KEY, FL 33042  
 FIELD WORK DATE: 8/16/16 THRU 9/14/16  
 SIGNED AND SEALED BY:  
 ERIC ISAACS LS 7847  
 OCTOBER 15, 2016

V:\215613443\215613443.dwg 2016/10/15 3:38 PM By: Norelle Reid

Revision	By	Appd.	YY.MM.DD

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 STATE OF FLORIDA

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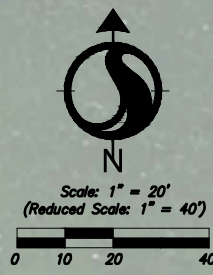
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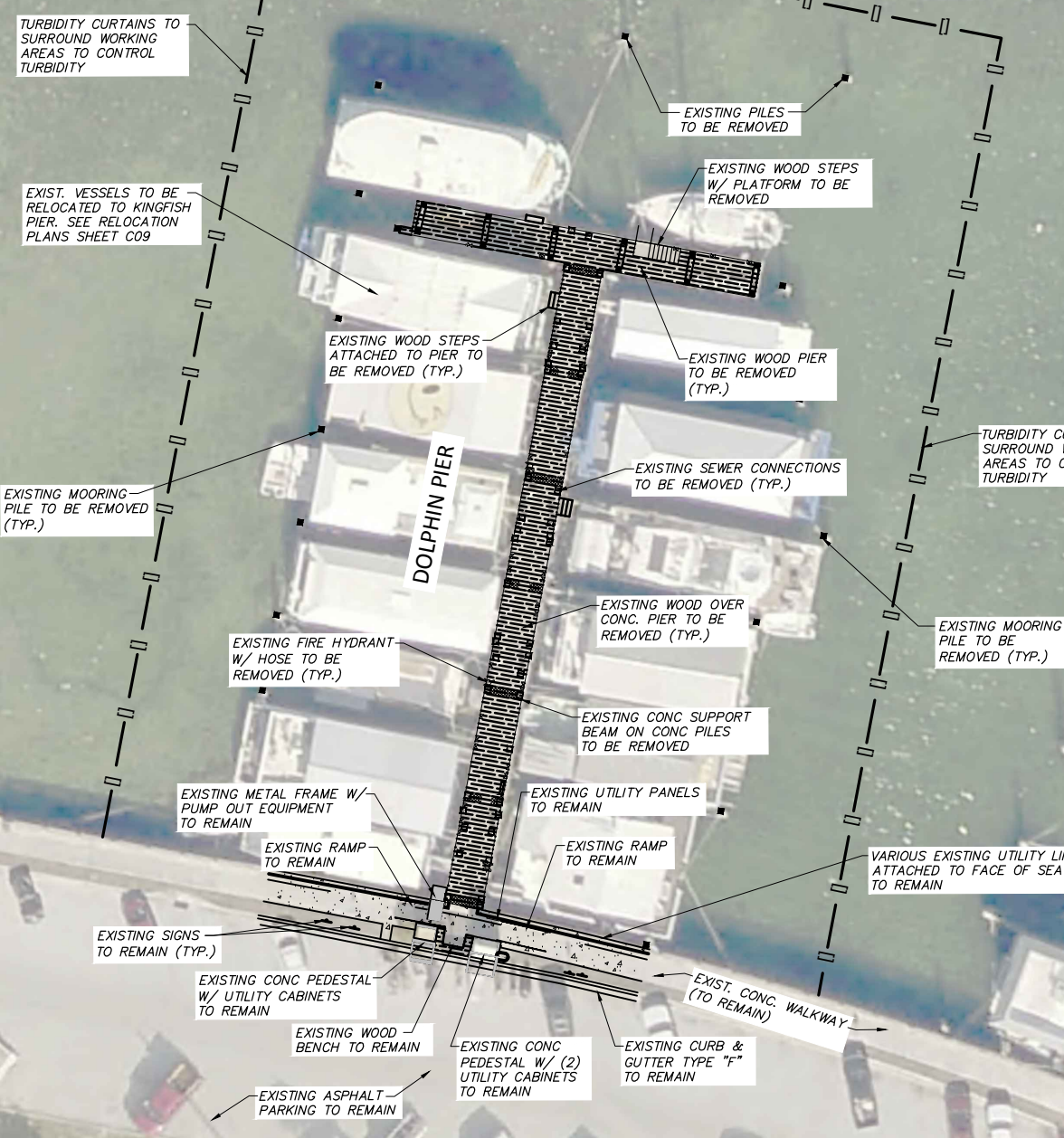
CITY OF KEY WEST  
 DOLPHIN PIER DOCK REPLACEMENT  
 Key West, Florida

File Name: \_\_\_\_\_  
 RM Dwn. CMH Chkd. CMH Dsgn. 16.10.08 YY.MM.DD

<b>OVERALL PLAN</b>		
Project No. 215613443	Scale SEE PLANS	Revision
Drawing No. C02	Sheet of	



**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.**



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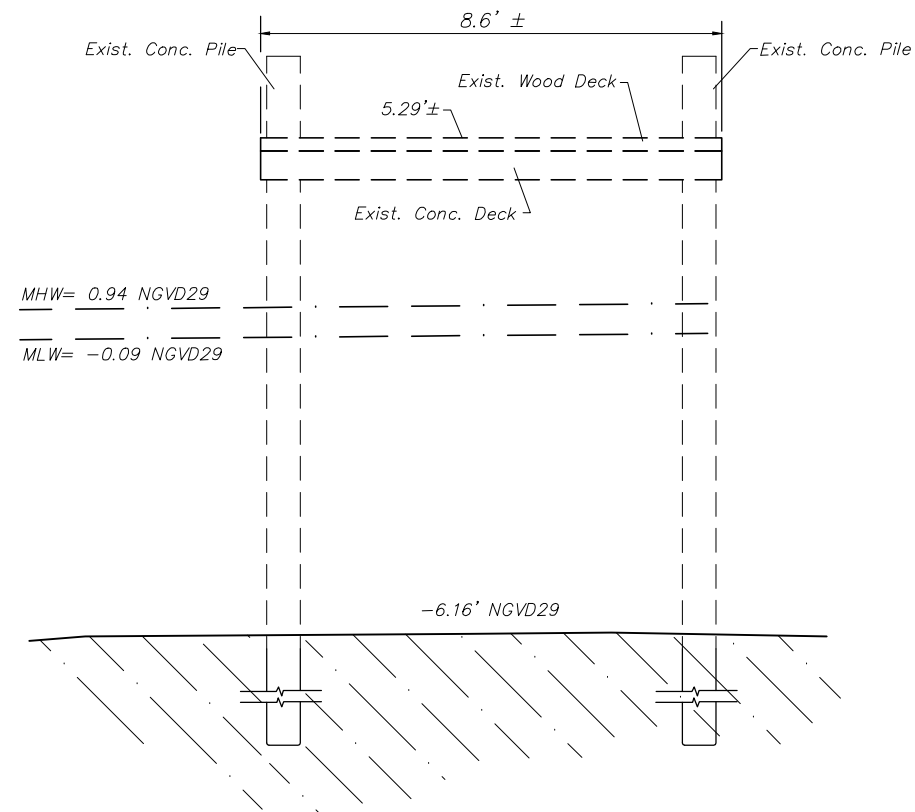
CITY OF KEY WEST  
 DOLPHIN PIER DOCK REPLACEMENT  
 Key West, Florida

File Name: RM CMH CMH 16.10.08  
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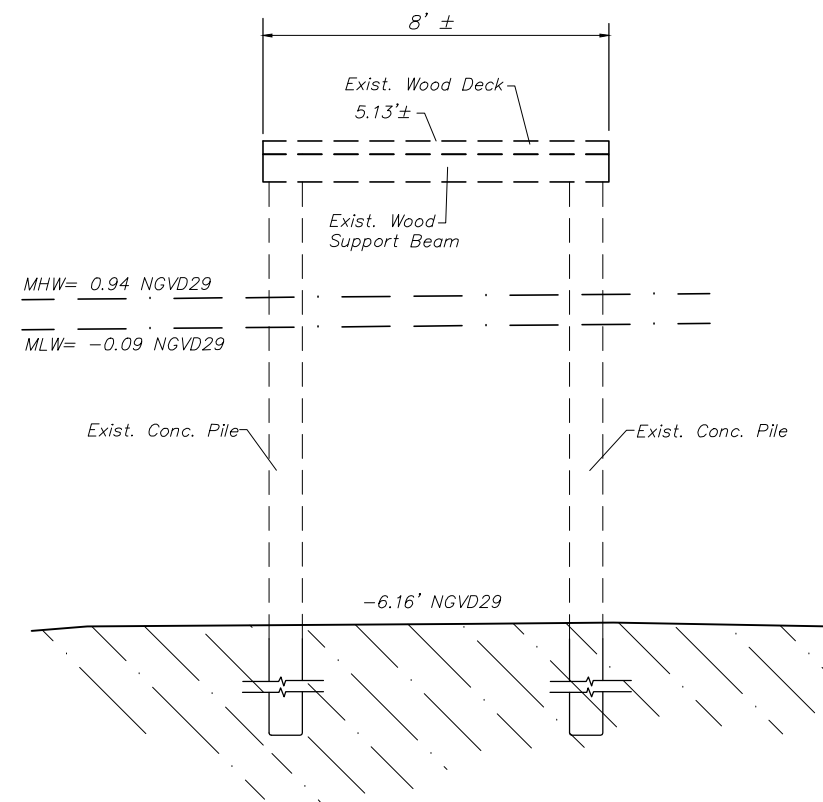
EXISTING CONDITIONS

Project No. 215613443  
 Drawing No. C03

Scale SEE PLANS  
 Sheet of  
 Revision



SECTION E-E  
N.T.S.



SECTION F-F  
N.T.S.

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 2016/12/01 3:38 PM By: Morales, Rcd

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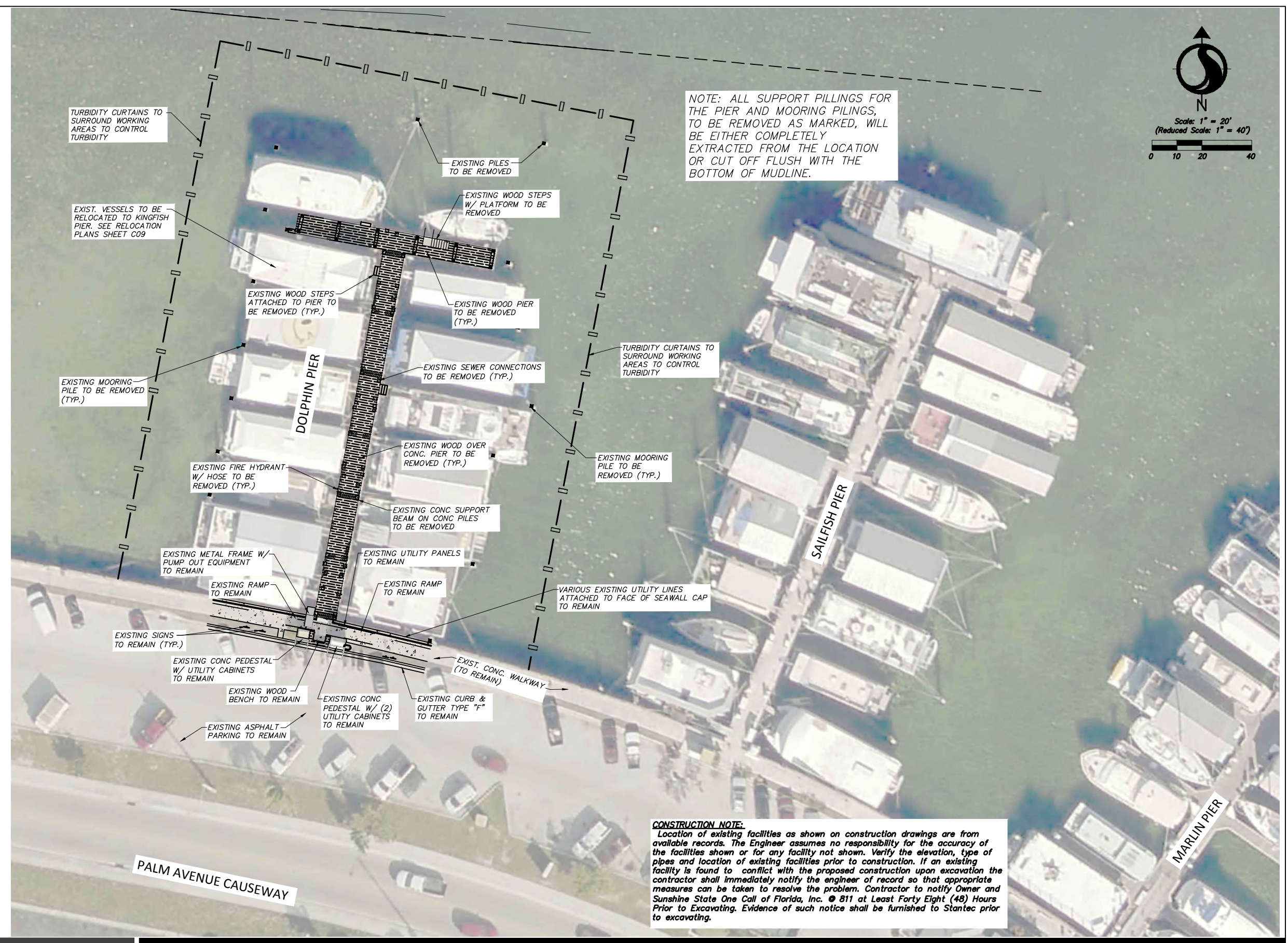
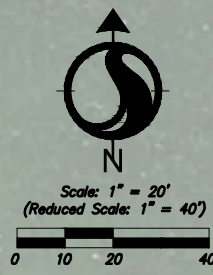
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 RM CMH CMH 16.10.08  
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EXISTING CROSS SECTIONS

Project No. 215613443 Scale SEE PLANS  
 Drawing No. C04 Sheet \_\_\_\_\_ of \_\_\_\_\_ Revision \_\_\_\_\_



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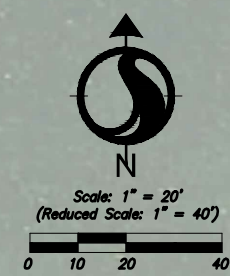
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File Name: RM CMH CMH 16.10.08  
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DEMOLITION PLANS	
Project No. 215613443	Scale SEE PLANS
Drawing No. C05	Sheet of
Revision	



TOTAL AREA OF DECKING OVER MEAN HIGH WATER= 2,800 sf  
 TOTAL NUMBER OF PILES= 16  
 ALL INTERIOR AND END PILES TO BE HSS 20x0.5 WITH COAL TAR EPOXY COATING = 2.18 sf x (16)  
 TOTAL PILE AREA= 34.88 sf  
 TOTAL NUMBER OF MOORING PILES= 14  
 ALL MOORING PILES TO BE HSS 14x0.5 WITH COAL TAR EPOXY COATING = 1.07 sf x (14)  
 MOORING PILES TOTAL AREA= 14.98 sf

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TURBIDITY CURTAINS TO SURROUND WORKING AREAS TO CONTROL TURBIDITY

TURBIDITY CURTAINS TO SURROUND WORKING AREAS TO CONTROL TURBIDITY

PALM AVENUE CAUSEWAY

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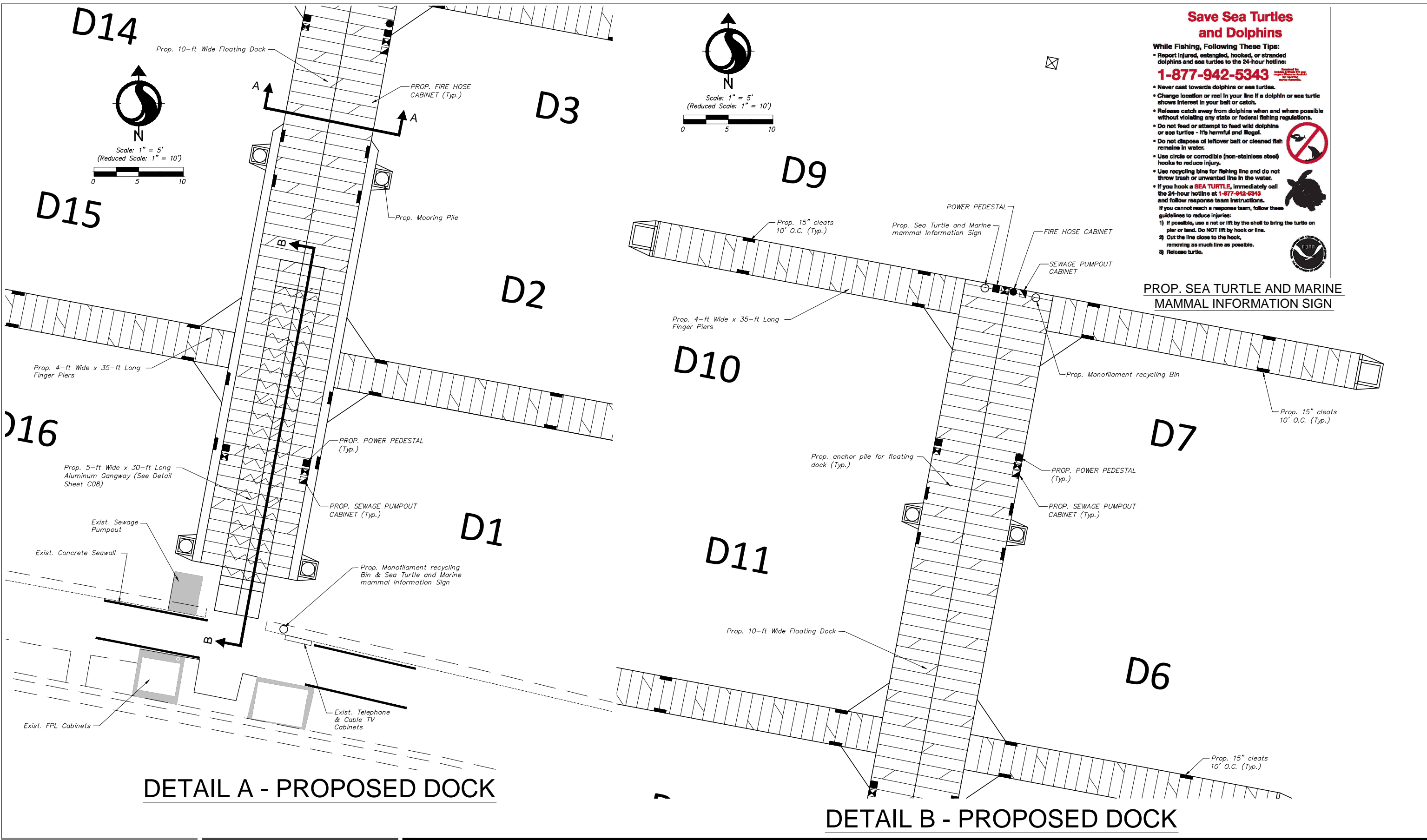
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PROPOSED CONSTRUCTION PLANS

Project No. 215613443 Scale SEE PLANS  
 Drawing No. C06 Sheet of 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 oatch.
- 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 IIR 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.



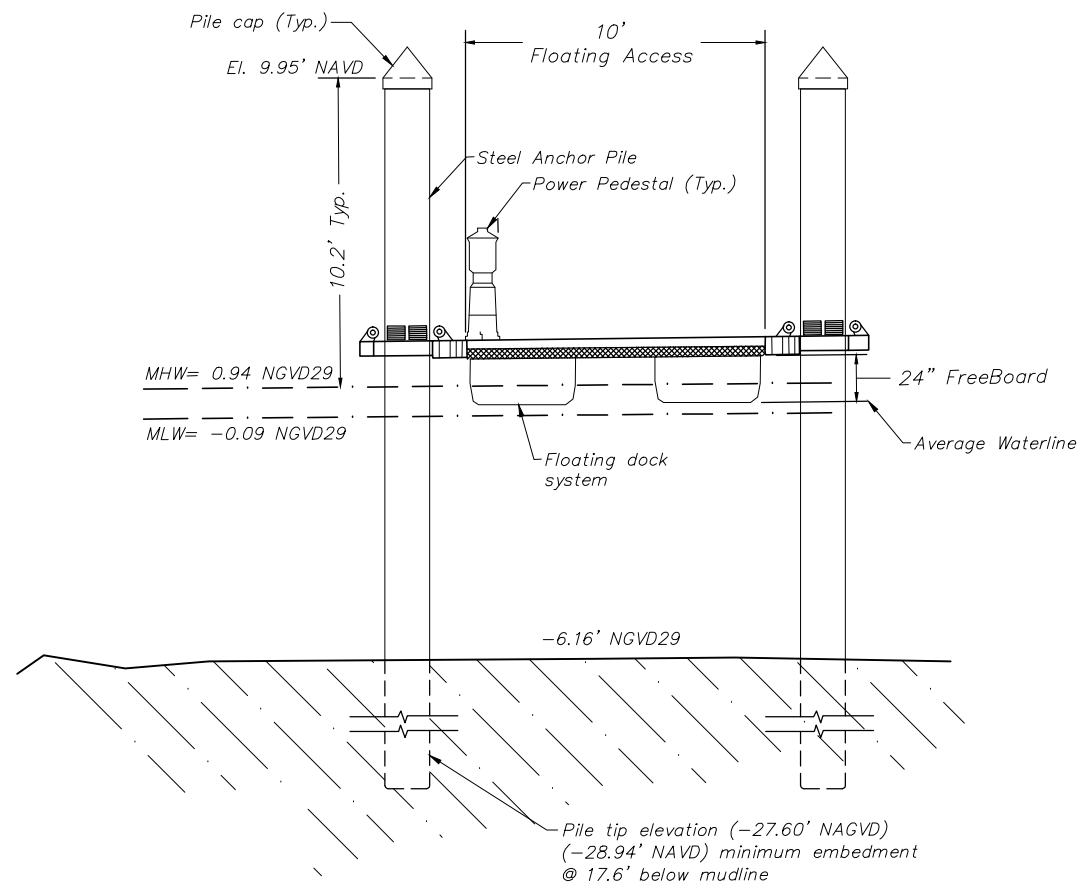
**PROP. SEA TURTLE AND MARINE MAMMAL INFORMATION SIGN**

**DETAIL A - PROPOSED DOCK**

**DETAIL B - PROPOSED DOCK**

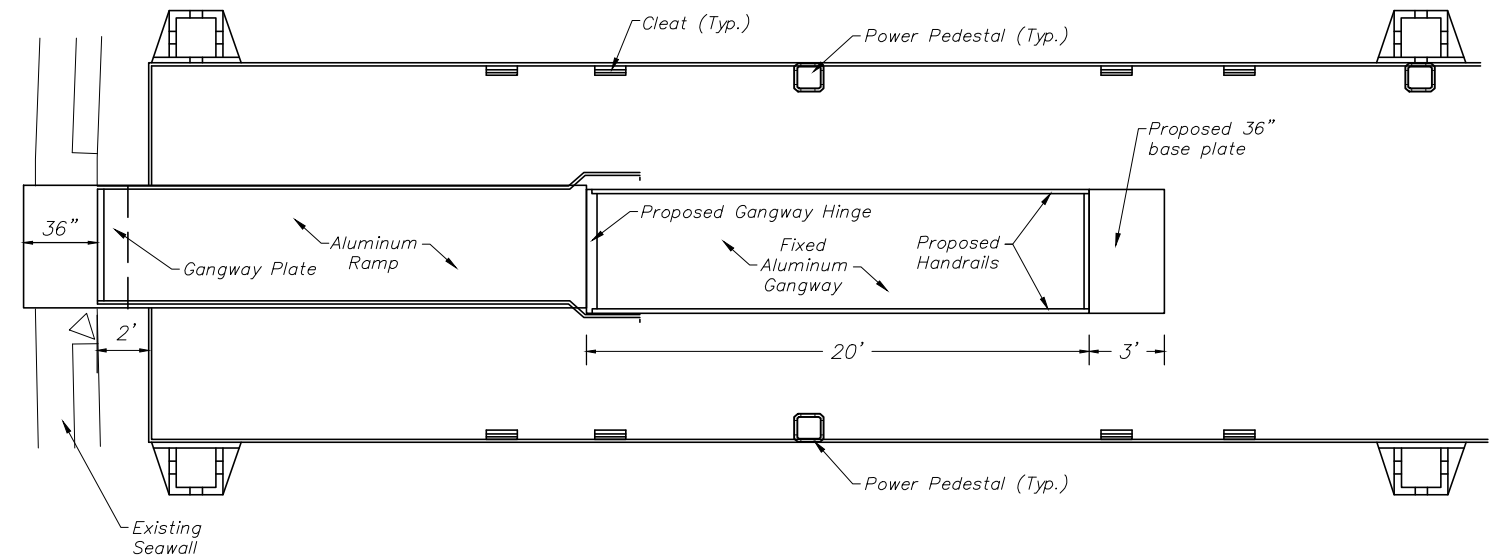
Revision By Appd. YY.MM.DD	By Appd. YY.MM.DD	Seal  CARLOS M. HERDOCIA, P.E. REGISTERED ENGINEER NO. 47660 STATE OF FLORIDA	Consultants	 <b>Stantec</b> 901 Ponce de Leon Blvd, Suite 900 Coral Gables, Florida 33134 www.stantec.com	CITY OF KEY WEST DOLPHIN PIER DOCK REPLACEMENT Key West, Florida	<b>PROPOSED DOCK DETAIL</b>	
						Project No. 215613443	Scale <b>SEE PLANS</b>
						Drawing No. C07	Sheet of

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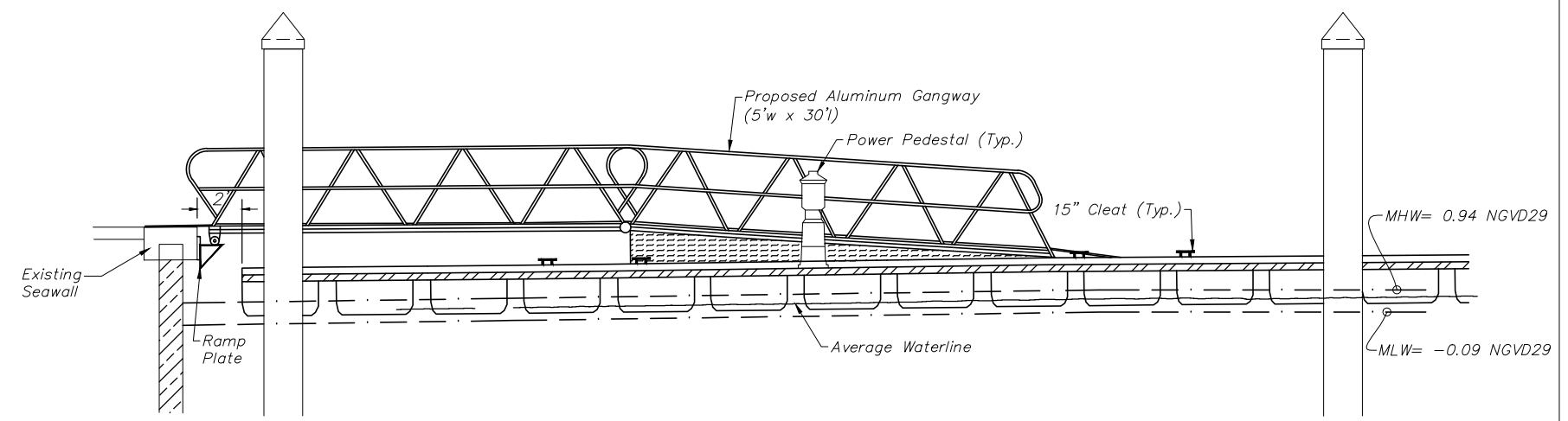


NOTE: ALL DEPTHS REFERENCE MEAN LOW WATER PER DEP TIDE STATION 872-4542.  
 MEAN HIGH WATER EL. -0.23' NAVD88;  
 MEAN LOW @ -1.24' NAVD88.

**CROSS SECTION A-A**  
 N.T.S.



**PLAN VIEW**  
 N.T.S.



**CROSS SECTION B-B**  
 N.T.S.

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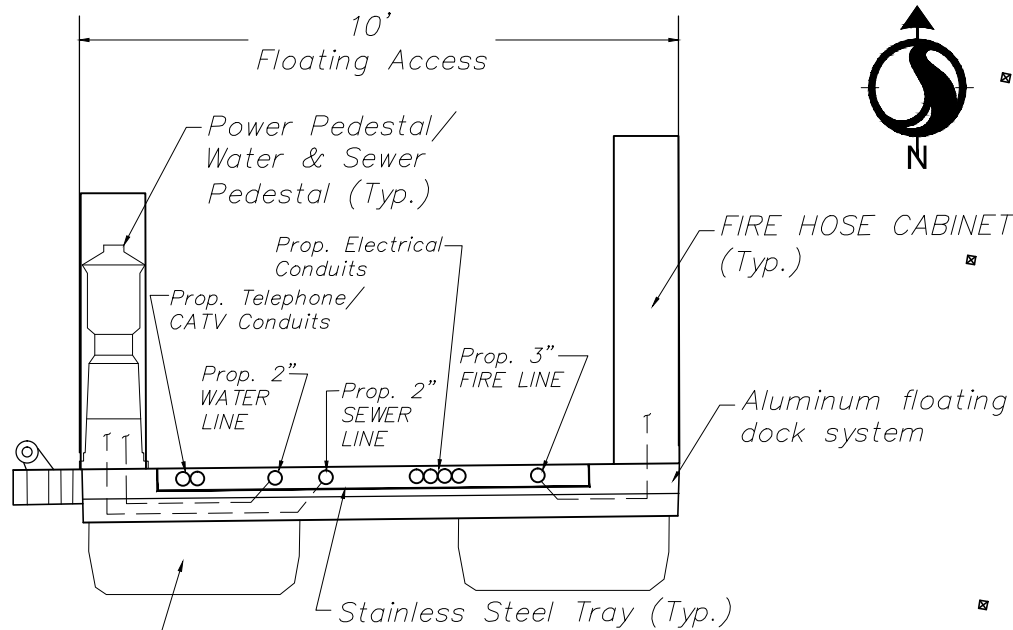
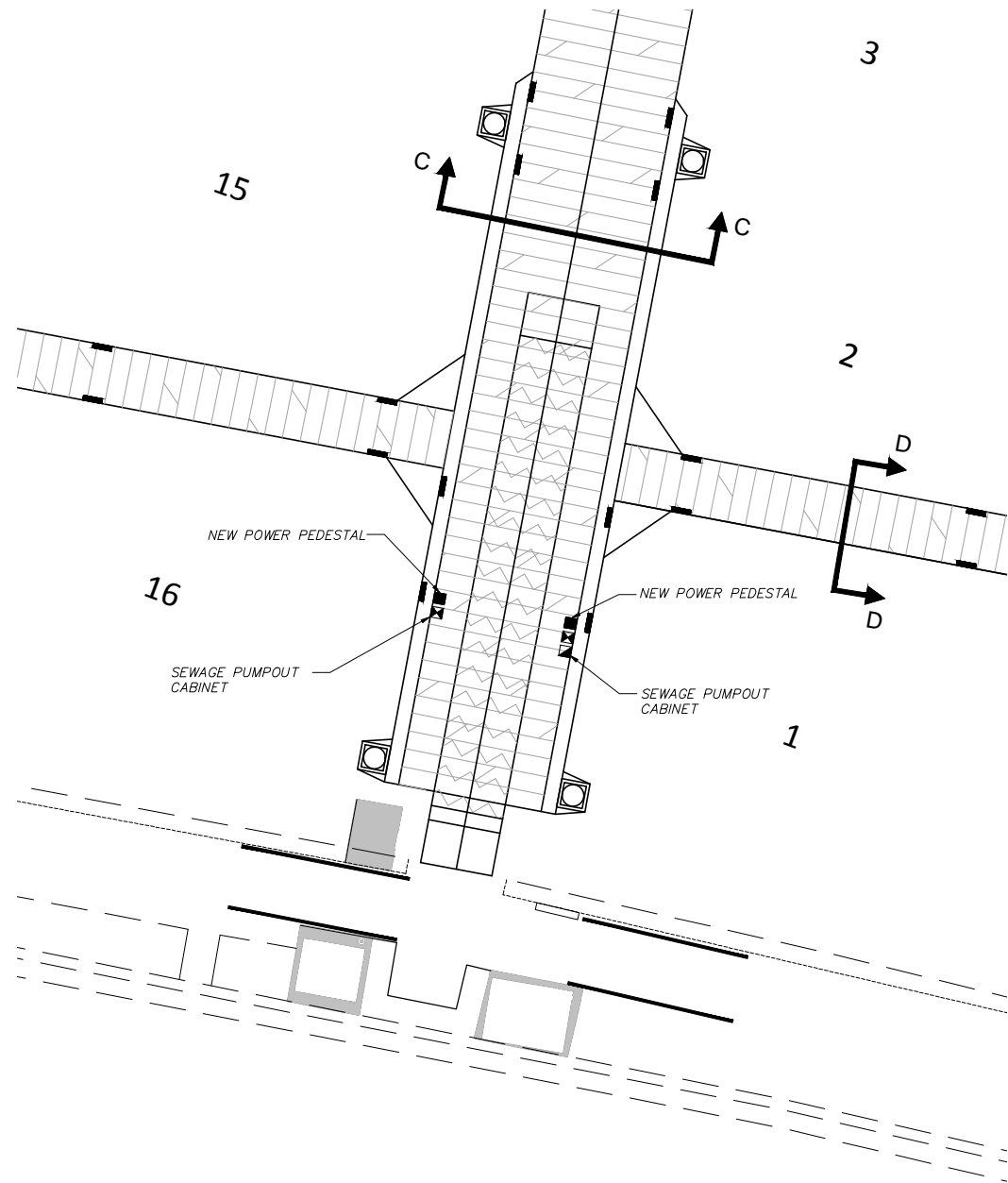
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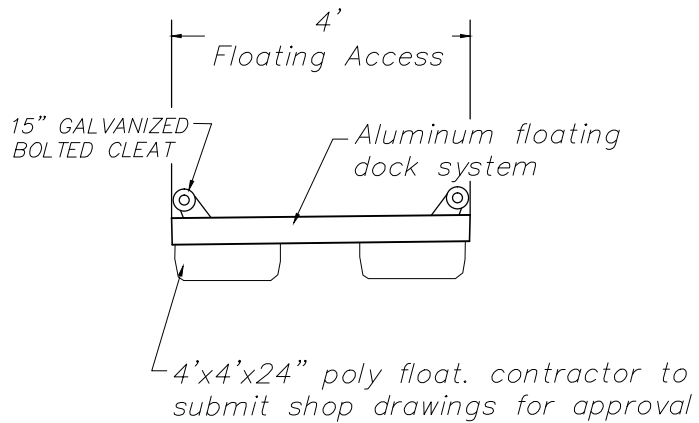
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PROPOSED CROSS SECTIONS			
Project No.	Scale	Revision	
215613443	SEE PLANS		
Drawing No.	Sheet	Revision	
C08	of		

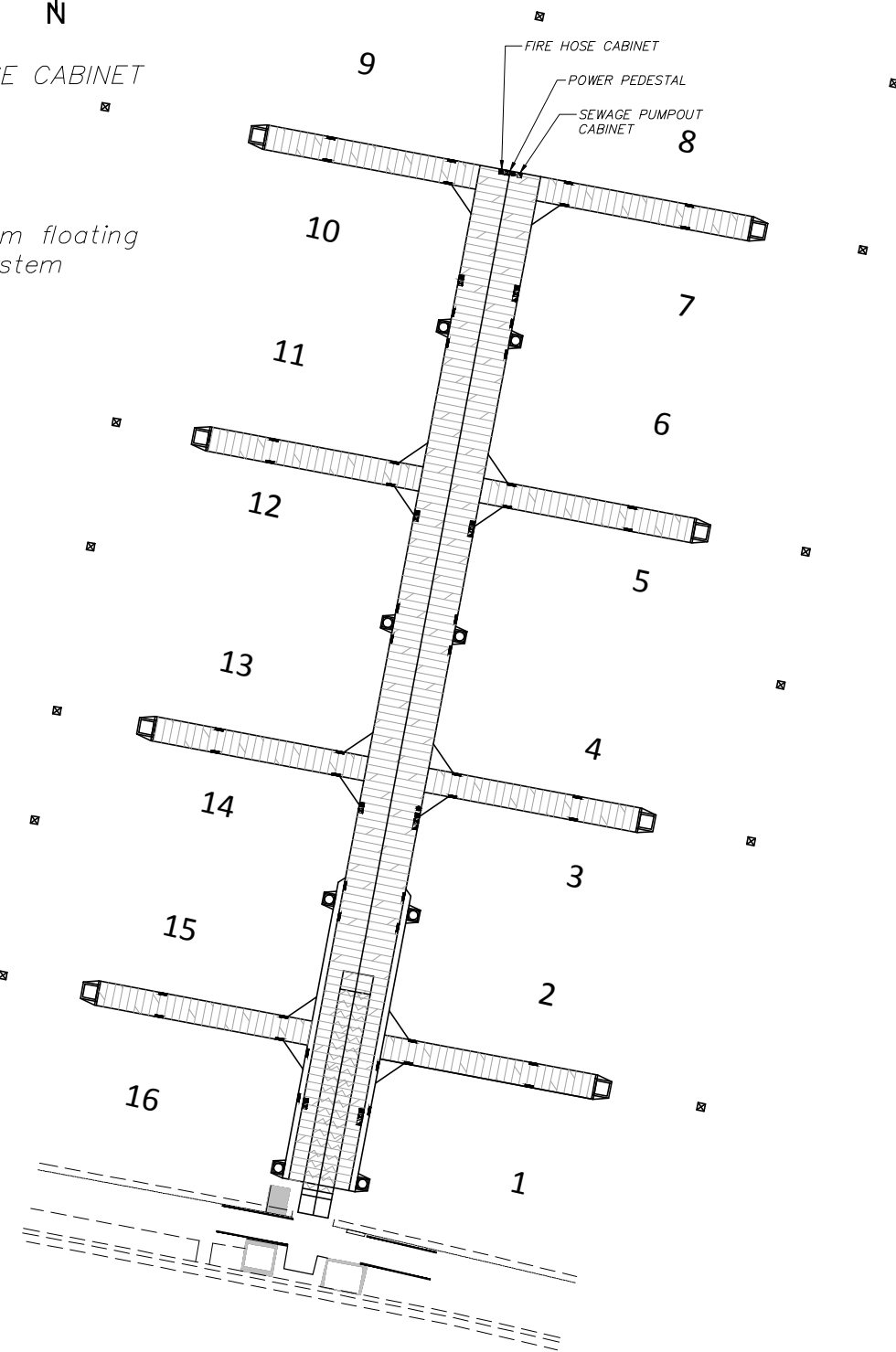
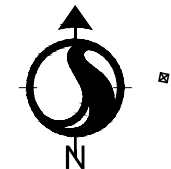




SECTION C-C



SECTION D-D



OVERALL PEDESTAL CABINET LOCATION

NOTES:

1) POSITION UTILITY PEDESTAL AND CABINETS AS CLOSE TO SIDE OF MAIN PIER AS POSSIBLE TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT UP TO FINGER PIER.

2) ALL UTILITIES SHALL BE RUN IN STAINLESS STEEL TRAYS.

3) SEWER LINE, WATER LINE, FIRE LINE, POWER LINE SHOWN FOR COORDINATION ONLY. SEE CONSTRUCTION PLANS OF OTHER TRADES FOR ADDITIONAL INFORMATION.

TYPICAL PEDESTAL /CABINET LOCATION



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UTILITY PLAN

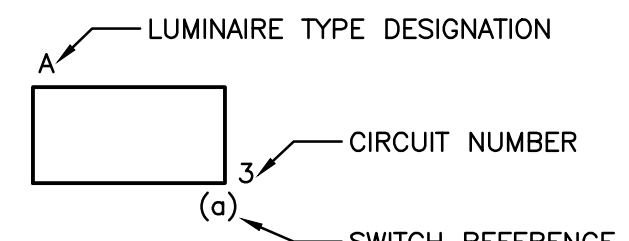
Project No. 215613443 Scale SEE PLANS

Drawing No. C09 Sheet of Revision

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 2016/12/01 3:38 PM By: Morales, Rcd

PLAN SYMBOLS



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
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
CONDUIT UP
CONDUIT DOWN
CONDUIT STUB
CONDUIT HOMERUN, EXPOSED
CONDUIT HOMERUN, UNDERGROUND OR CONCEALED
TELEPHONE, MTD 18" AFF UNO
TEL/DATA, MTD 18" AFF UNO
TELEPHONE, CLG MTD
DATA, CLG MTD
TELEPHONE, FLR MTD
DATA, FLR MTD

- 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

NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED

DIAGRAM SYMBOLS

- MOLDED-CASE CIRCUIT BREAKER IN
MOTOR CIRCUIT PROTECTOR IN
MOTOR STARTER CONTACTOR
VACUUM CONTACTOR
MOTOR STARTER OVERLOAD RELAY
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 w/AUDIBLE AND VISIBLE ALARM.
EXISTING POWER PEDESTAL POWER PEDESTALS ARE EXISTING TO BE REUSED. PEDESTALS WILL BE STORED BY OWNER. CONTRACTOR SHALL INSTALL NO 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

- AMPERE
ALTERNATING CURRENT
ADDENDUM
AMPERE FRAME
ABOVE FINISHED FLOOR
ABOVE FINISHED GRADE
ASYMMETRICAL INTERRUPTING CAPACITY
ARCHITECT/ARCHITECTURAL
AMPERE TRIP
AUTOMATIC TRANSFER SWITCH
AUTOMATIC
AUDIO/VISUAL
BATTERY CHARGER
CONDUIT
CABINET
CATEGORY 6
CIRCUIT BREAKER, COMBINER BOX
CHARGE CONTROLLER
CLOSED CIRCUIT TELEVISION
CEILING
COMBINATION
CONNECTION, OR CONNECT
CONTRACTOR
COORDINATE
CONTROL POWER TRANSFORMER
CURRENT TRANSFORMER
DIRECT CURRENT, CONVERTER
DETAIL
DISTRIBUTION
DIVISION
DOWN
DISCONNECT SWITCH
DRAWING
EACH
ELECTRICAL
ENERGY MANAGEMENT AND CONTROL SYSTEMS EQUIP
EXPLOSION PROOF
ELECTRIC WATER COOLER
FUSED
FIRE ALARM
FUSIBLE DISCONNECT
FINISHED FL FLOOR
FUTURE
FITURE LTG
FULL VOLTAGE NON-REVERSING GENERATOR
GROUND
GROUND FAULT INTERRUPTER
HAND - OFF - AUTO
HORSEPOWER
HEATING
HEATER
HERTZ
INTER interrupting CAPACITY
INTERCOM
INVERTER
JUNCTION BOX
KILOWATTS
KILOVOLT AMPERE
LIGHTING PANEL
LIQUIDTIGHT FLEXIBLE CONDUIT
MAXIMUM
MOLDED CASE BREAKER
MOTOR CONTROL CENTER
MOTOR CIRCUIT PROTECTION
MECHANICAL
MINIMUM
MANUFACTURER
MOTOR
MOTOR STARTER SWITCH
MOUNTED
MANUAL TRANSFER SWITCH
NORMALLY CLOSED
NON FUSED
NORMALLY OPEN
PUSH BUTTON
PANEL
POWER PEDESTAL
PAIR
POTENTIAL TRANSFORMER
POLYVINYL CHLORIDE
POWER
RECEPTACLE
ROOM
RIGID METAL CONDUIT
SUB ARRAY
SHEET
SPECIFICATION
SURGE PROTECTION DEVICE
SUB PLANT PANEL
SUB PLANT RACK
STARTER
SHUNT TRIP
SHIELDED TWISTED PAIR SWITCH
SWITCHBOARD
SWITCHGEAR
TIME CLOCK
TIME DELAY RELAY
TELEPHONE
TERMINAL
UNSHIELDED TWISTED PAIR
TRANSFORMER
TELEVISION
TYPICAL
UNLESS NOTED OTHERWISE
UNDERGROUND
VOLTS
VOLT AMPERE
VARIABLE FREQUENCY DRIVE
WATTS
WEATHERPROOF

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Table with columns for Revision, By, Appd., and YY.MM.DD.

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CITY OF KEY WEST DOLPHIN PIER DOCK REPLACEMENT Key West, Florida

ELECTRICAL LEGEND table with Project No., Scale (NO SCALE), Drawing No., Sheet, Revision, and File Name.

SECTION 16410  
SPECIAL REQUIREMENTS

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

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

- 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.
  - FABRICATION AND ERECTION DIMENSIONS.
  - ARRANGEMENTS AND SECTIONAL VIEWS.
  - NECESSARY DETAILS, INCLUDING COMPLETE INFORMATION FOR MAKING CONNECTIONS WITH OTHER WORK.
  - KINDS OF MATERIAL AND FINISHES.
  - DESCRIPTIVE NAMES OF EQUIPMENT.
  - MODIFICATIONS AND OPTIONS TO STANDARD EQUIPMENT REQUIRED BY THE CONTRACT.
  - LEAVE BLANK AREA, SIZE APPROXIMATELY 4 BY 2-1/2 INCHES, NEAR TITLE BLOCK (FOR ENGINEER'S STAMP IMPRINT).
  - IN ORDER TO FACILITATE REVIEW OF DRAWINGS, INSOFAR AS PRACTICABLE, THEY SHALL BE NOTED, INDICATING BY CROSS REFERENCE THE CONTRACT DRAWINGS, NOTE, AND/OR SPECIFICATIONS PARAGRAPH NUMBERS WHERE ITEM(S) OCCUR IN THE CONTRACT DOCUMENTS.
  - SEE SPECIFIC SECTIONS OF SPECIFICATIONS FOR FURTHER REQUIREMENTS.
  - PRODUCT DATA
- 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.
- 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.
- SEE SPECIFIC SECTIONS OF SPECIFICATIONS FOR FURTHER REQUIREMENTS.

G. PROCESSING SUBMITTALS

- 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.
- REFERENCE: "GENERAL CONDITIONS OF THE CONTRACT".
- NOTE THAT THE REVIEW OF SHOP DRAWINGS, OR OTHER INFORMATION SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS HEREBEFORE SPECIFIED, DOES NOT ASSURE THAT THE ENGINEER, ARCHITECT, OR ANY OTHER OWNER'S 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

- 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

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.

1.14 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.

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:

- COMPLETE DISTRIBUTION SYSTEM FOR MARINE SHORE POWER INCLUDING FEEDERS FROM UTILITY COMPANY TRANSFORMER TO MAIN SWITCHGEAR AND CONNECTIONS TO POWER PEDESTALS.
- A SECONDARY GROUNDING SYSTEM AS INDICATED AND SPECIFIED.
- POWER DISTRIBUTION PANELBOARDS.
- MAIN POWER/SURGE 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.

- FLORIDA BUILDING CODE
- NATIONAL ELECTRICAL CODE (NEC)
- 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

1.01 DESCRIPTION

A. DESCRIPTION OF SYSTEM

- 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. MINIMUM CONDUIT SIZE SHALL BE 3/4" 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

- 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 SCHEDULE 40 PVC 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

- ALL CONDUCTORS SHALL BE COPPER TYPE THHN/THWN, TYPE "6", 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.
- WIRING AT THE TRANSITION TO THE FLOATING DOCK(S) AND WITHIN FLOATING DOCK(S) SHALL BE TYPE "DLO" OR "W" CABLE SINGLE CONDUCTOR OR "O" CABLE MULTI-CONDUCTOR CABLE.

3. WIRING FROM THE DISTRIBUTION PANEL TO THE POWER PEDESTAL SHALL BE TYPE "6" CABLE MULTI-CONDUCTOR CABLE.

B. TAPS AND SPLICES

- 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

- 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.

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

SECTION 16410  
ELECTRIC SERVICE

PART 1 - GENERAL

1.01 DESCRIPTION

A. DESCRIPTION OF SYSTEM

- THE ELECTRICAL UTILITY COMPANY WILL PROVIDE THE ELECTRICAL SERVICE OF THE CHARACTERISTICS AS SHOWN ON THE DRAWINGS. THE CONTRACTOR'S WORK WILL BEGIN WHERE THE UTILITY COMPANY'S WORK ENDS.
- THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, ETC., NECESSARY FOR A COMPLETE APPROVED ELECTRICAL SERVICE AS REQUIRED FOR THIS PROJECT, INCLUDING INSPECTION AND APPROVAL BY THE UTILITY AND LOCAL INSPECTION DEPARTMENTS.
- THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANY IN WRITING, WITH TWO COPIES TO THE ENGINEER, NO LATER THAN TEN (10) DAYS AFTER SIGNING CONTRACTS AS TO WHEN THIS CONTRACTOR ANTICIPATES THE BUILDING POWER SERVICE WILL BE REQUIRED.

B. CONSTRUCTION FACILITIES

- THE FACILITIES AND EQUIPMENT REQUIRED TO PROVIDE ALL ELECTRICAL POWER CONSUMED FOR CONSTRUCTION, LIGHTING AND BALANCING AND TESTING PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE PROVIDED UNDER THIS SECTION OF THE SPECIFICATIONS. ALL WIRING, OUTLETS AND OTHER WORK REQUIRED TO PROVIDE THIS POWER AT THE SITE AND WITHIN THE BUILDING FOR ALL TRADES SHALL BE ARRANGED FOR, FURNISHED AND INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS INCLUDING ANY FEE, CHARGE OR COST DUE THE UTILITY COMPANY FOR TEMPORARY POWER INSTALLATION OR HOOK-UPS.
- FACILITIES SHALL BE FURNISHED IN A NEAT AND SAFE MANNER IN COMPLIANCE WITH GOVERNING CODES, GOOD WORKING PRACTICES AND OSHA REGULATIONS.

C. ELECTRICAL SERVICE

- FURNISH AND INSTALL SECONDARY 120/240V, 1PH, 3W SERVICE FROM UTILITY XFMR AS INDICATED. TERMINATION AT THE UTILITY TRANSFORMER WILL BE BY UTILITY COMPANY.
- FURNISH AND INSTALL ALL MISCELLANEOUS ELECTRICAL CONNECTIONS, DEVICES, SUPPORTING DEVICES, CONDUIT, ETC., AS REQUIRED BY UTILITY COMPANY FOR A COMPLETE ELECTRICAL SERVICE.

D. SURGE PROTECTION

- PROVIDE AND INSTALL SURGE SUPPRESSORS AS SPECIFIED IN SECTION 16610.

END OF SECTION

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ELECTRICAL SPECIFICATIONS					
Project No.		Scale			
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Drawing No.		Sheet		Revision	
E02		of XX		C/O	

SECTION 16450  
SECONDARY GROUNDING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. POWER SYSTEM GROUNDING.

B. COMMUNICATION SYSTEM GROUNDING

C. ELECTRICAL EQUIPMENT AND RACEWAY GROUNDING AND BONDING.

1.02 SYSTEM DESCRIPTION

A. GROUND THE ELECTRICAL SERVICE SYSTEM NEUTRAL AT SERVICE ENTRANCE EQUIPMENT TO METALLIC WATER SERVICE, BUILDING STEEL, CONCRETE REINFORCING STEEL, AND TO SUPPLEMENTARY GROUNDING ELECTRODES.

B. PROVIDE COMMUNICATIONS SYSTEM GROUNDING CONDUCTOR AT POINT OF SERVICE ENTRANCE AND CONNECT TO NEAREST EFFECTIVELY GROUNDED METALLIC WATER PIPE AND NEAREST EFFECTIVELY GROUNDED BUILDING STRUCTURAL STEEL MEMBER.

C. 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 2 - PRODUCTS

2.01 MATERIALS

A. GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.

PART 3 - EXECUTION

3.01 INSTALLATION

A. PROVIDE A SEPARATE, 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. USE MINIMUM 6 AWG COPPER CONDUCTORS FOR COMMUNICATIONS SERVICE GROUNDING CONDUCTOR, LEAVE 10 FEET SLACK CONDUCTOR TERMINAL BOARD.

D. ALL GROUND CONNECTIONS AT GROUND RODS, BUILDING STEEL, AND CONCRETE REINFORCING STEEL SHALL BE THERMOFUSION 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. MAIN SERVICE, LIGHTING, AND APPLIANCE BRANCH CIRCUIT PANELBOARD WITH RATINGS AS INDICATED.

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 - PANELBOARDS

A. EATON

B. SQUARE D

C. G.E.

D. SIEMENS

E. OR EQUAL

2.02 PANELBOARDS

A. PANELBOARDS SHALL BE CIRCUIT BREAKER TYPE.

B. ENCLOSURE SHALL BE NEMA 3R STAINLESS STEEL W/WHITE POWDER COATED PAINT FINISH, RAINPROOF.

C. PROVIDE PANELBOARDS WITH BUS RATINGS AS SCHEDULED.

D. ALL PANELBOARDS SHALL BE FULLY RATED WITH MINIMUM INTEGRATED SHORT CIRCUIT RATING AS INDICATED ON DRAWINGS.

E. MOLDED CASE CIRCUIT BREAKERS: BOLT-ON TYPE THERMAL/MAGNETIC TRIP

CIRCUIT BREAKERS, WITH COMMON TRIP HANDLE FOR ALL POLES. PROVIDE CIRCUIT BREAKERS UL LISTED AS TYPE SWD FOR LIGHTING CIRCUITS.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL PANELBOARDS PLUMB AND FLUSH WITH SUPPORTING STRUCTURE.

B. HEIGHT: 6 FT. TO TOP.

C. PROVIDE FILLER PLATES FOR UNUSED SPACES IN PANELBOARDS.

D. PROVIDE TYPED CIRCUIT DIRECTORY FOR EACH BRANCH CIRCUIT PANELBOARD. REVISE DIRECTORY TO REFLECT CIRCUITING CHANGES REQUIRED TO BALANCE PHASE LOADS.

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, FUSIBLE SWITCHES, AND FUSES.

END OF SECTION

SECTION 16610  
SURGE PROTECTIVE DEVICE (SPD)

PART 1 - GENERAL

1.01 DESCRIPTION

A. THIS SECTION DESCRIBES THE MATERIALS AND INSTALLATION REQUIREMENTS FOR SURGE PROTECTIVE DEVICES (SPD) FOR THE PROTECTION OF ALL AC ELECTRICAL CIRCUITS FROM THE EFFECTS OF LIGHTING INDUCED CURRENTS, SUBSTATION SWITCHING TRANSIENTS AND INTERNALLY GENERATED TRANSIENTS RESULTING FROM INDUCTIVE AND/OR CAPACITIVE LOAD SWITCHING.

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 SURGE SUPPRESSION SUBMITTALS SHALL ALSO INCLUDE:

1. DIMENSIONAL DRAWING OF EACH SUPPRESSOR TYPE INDICATING THE FOLLOWING:

a. SERVICE ENTRANCE SUPPRESSORS

- COOPER BUS BARS FOR INTERNAL CONNECTIONS.
- REPLACEABLE MODULES ON EACH PHASE
- REPLACEABLE 200,000 AIC FUSES ON EACH MODULE.

b. DOWNSTREAM SUPPRESSORS

- LINE TO NEUTRAL, LINE TO GROUND, AND NEUTRAL TO GROUND SUPPRESSION PATHS.

2. IEEE C62.41-1991 CATEGORY C3 (20 KV, 10 KA, 8/20 MS WAVEFORM) CLAMP VOLTAGE TEST RESULTS FROM AN INDEPENDENT TEST LAB.

1.04 MANUFACTURERS

A. ALL SUPPRESSORS FOR AC DISTRIBUTION AND BRANCH CIRCUIT PROTECTION WITHIN A SINGLE FACILITY SHALL BE PROVIDED BY A SINGLE MANUFACTURER. THE SAME MANUFACTURER WHO PROVIDES MAIN PANEL SUPPRESSORS SHALL PROVIDE SUPPRESSORS FOR DISTRIBUTION AND BRANCH PANELS.

PART 2 - PRODUCTS

2.01 MAIN SERVICE SUPPRESSORS AT DISTRIBUTION PANEL

A. SUPPRESSORS SHALL BE LISTED IN ACCORDANCE WITH UL 1449, STANDARD FOR SAFETY, TRANSIENT VOLTAGE SURGE SUPPRESSORS, AND UL 1283 ELECTROMAGNETIC INTERFERENCE FILTERS.

B. THE UNIT SHALL PROVIDE THE FOLLOWING SUPPRESSION PATHS: LINE TO GROUND, LINE TO NEUTRAL, AND NEUTRAL TO GROUND.

C. SUPPRESSORS SHALL MEET OR EXCEED THE FOLLOWING CRITERIA SET FORTH IN C.U.L.

D. SUPPRESSORS SHALL BE MADE OF SOLID-STATE COMPONENTS AND OPERATE BIDIRECTIONALLY.

E. THE SUPPRESSOR SHALL HAVE A RESPONSE TIME NO GREATER THAN FIVE NANoseconds FOR ANY OF THE INDIVIDUAL PROTECTION MODES.

F. SUPPRESSORS SHALL BE DESIGNED TO WITHSTAND A MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV) OF NOT LESS THAN 115% OF NOMINAL RMS VOLTAGE.

G. VISIBLE INDICATION OF PROPER SUPPRESSOR CONNECTION AND OPERATION SHALL BE PROVIDED.

H. THE SUPPRESSOR MANUFACTURER SHALL PROVIDE CERTIFIED TEST DATA CONFIRMING A 'FAIL-SHORT' FAILURE MODE.

I. SUPPRESSORS SHALL BE MANUFACTURED IN THE UNITED STATES. ALL MAJOR COMPONENTS SHALL ALSO BE OF AMERICAN MANUFACTURE.

J. SUPPRESSOR SHALL HAVE A FIVE-YEAR WARRANTY, INCORPORATING UNLIMITED REPLACEMENTS OF SUPPRESSORS IF THEY ARE DESTROYED BY TRANSIENTS WITHIN THE WARRANTY PERIOD.

K. SUPPRESSOR SHALL BE AN INTEGRAL PART OF THE MAIN POWER DISTRIBUTION PANEL AND SHALL BE AS MANUFACTURED BY ADVANCED PROTECTION TECHNOLOGIES, INC. XTE/XHP SERIES, OR APPROVED EQUAL BY SQUARE D, SIEMENS, OR G.E.

PART 3 - EXECUTION

3.01 MAIN DISTRIBUTION PANEL

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

B. NEUTRAL AND GROUND SHALL NOT BE BONDED TOGETHER AT SECONDARY PANELBOARD LOCATION.

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. MOTOR CONTROLS

E. 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 BE BENDER MODEL RCM470LY-13-MA/RCMS460-D 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. THE MONITORS SHALL PROVIDE ADVANCED WARNING OF DEVELOPING FAULTS WITHOUT THE PROBLEMS ASSOCIATED WITH HIGH SENSITIVITY NUISANCE TRIPPING. THE MONITORS SHALL BE AN IEC755 TYPE A GROUND FAULT MONITOR THAT CAN DETECT SINUSOIDAL AC GROUND FAULT CURRENTS AND PULSATING DC GROUND FAULT CURRENTS.

D. THE RESPONSE VALUE CURRENT SHALL BE STEPLESSLY ADJUSTABLE BETWEEN 10MA AND 10 A AND THE DELAY TIME SHALL BE ADJUSTABLE BETWEEN 0 AND 10 S. THE RELAY SHALL BE EQUIPPED WITH AN LED BAR GRAPH INDICATOR. AN EXTERNAL ANALOG METER SHALL BE CAPABLE OF BEING CONNECTED AND BY USING AND OPTIONAL EXTERNAL TRANSDUCER, A 4 TO 20MA SIGNAL SHALL BE AVAILABLE. METER INDICATION SHALL BE FROM 10 TO 100% WHERE 100% IS EQUAL TO THE ALARM SET-POINT VALUE.

E. THE RCM470LY-13-MA SHALL BE DESIGNED FOR USE WITH EXTERNAL SPECIAL U.L. LISTED CURRENT TRANSFORMERS DESIGNED TO PREVENT NUISANCE TRIPPING.

F. MONITORS SHALL BE SUITABLE FOR INSTALLATION INTO STANDARD DISTRIBUTION PANELS.

G. GROUND FAULT CURRENT SHALL BE EVALUATED BY SPECIAL CURRENT TRANSFORMERS AND CONVERTED INTO MEASURING SIGNAL.

H. WHEN A GROUND FAULT CURRENT EXCEEDS THE ALARM SETUP POINT VALUE, THE ALARM LED ILLUMINATES AND THE ALARM RELAY SWITCHES AFTER THE ADJUSTED TIME DELAY. THE ALARM RELAY SHALL BE SELECTABLE TO BE IN THE NORMALLY ENERGIZED OR NORMALLY DE-ENERGIZED MODE AND WITH OR WITHOUT LATCHING.

I. THE FAULT MEMORY SHALL BE RESET BY PUSHING A TEST/RESET BUTTON LOCATED AT THE FRONT PLATE, PROVIDED THAT THE GROUND LEAKAGE CURRENT IS 25% BELOW THE ALARM SET-POINT VALUE.

J. GROUND LEAKAGE CURRENT SHALL BE INDICATED ON THE LED BAR GRAPH INDICATOR AND THE EXTERNAL METER IN PERCENT RELATED TO THE ALARM SET-POINT VALUE.

K. CONNECTION TO THE EXTERNAL CURRENT TRANSFORMER SHALL BE CONTINUOUSLY MONITORED. AN OPEN CIRCUIT WITHIN THE CURRENT TRANSFORMER SHALL BE INDICATED BY FLASHING ALARM LED AND ALARM RELAY. THE FUNCTION OF THE CURRENT TRANSFORMER AND MEASURING CIRCUIT AS WELL AS THE ALARM LED AND THE ALARM RELAY SHALL BE CHECKED BY PUSHING THE TEST BUTTON.

L. MONITOR SHALL INDIVIDUALLY MONITOR EACH FEEDER CIRCUIT LEAVING THE PANEL IN LIEU OF THE INCOMING MAIN. ALARM RELAY SHALL BE CONNECTED TO SHUNT TRIP OF ASSOCIATED CIRCUIT BREAKER.

PART 3 - EXECUTION

3.01 MAIN DISTRIBUTION PANEL

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

END OF SECTION

SECTION 16750  
ENCLOSED CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING INDIVIDUALLY MOUNTED CIRCUIT BREAKERS:

1. MOLDED-CASE CIRCUIT BREAKERS.

2. ENCLOSURES

1.02 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF ENCLOSED CIRCUIT BREAKER, ACCESSORY, AND COMPONENT INDICATED.

B. SHOP DRAWINGS: DIAGRAM POWER, SIGNAL, AND CONTROL WIRING.

C. FIELD QUALITY-CONTROL TEST REPORTS

D. OPERATION AND MAINTENANCE DATA.

1.03 QUALITY ASSURANCE

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES LISTED AND LABELED AS DEFINED BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:

1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, MANUFACTURERS SPECIFIED.

2. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE MANUFACTURERS SPECIFIED.

2.02 MOLDED-CASE CIRCUIT BREAKERS AND SWITCHES

A. MANUFACTURERS

1. EATON CORPORATION; CUTLER-HAMMER PRODUCTS.

2. GENERAL ELECTRIC CO.; ELECTRICAL DISTRIBUTION & CONTROL DIVISION

3. MOELLER ELECTRIC CORPORATION

4. SIEMENS ENERGY & AUTOMATION, INC.

5. SQUARE D/GROUP SCHNEIDER

B. MOLDED-CASE CIRCUIT BREAKER: 65 KAIC INTERRUPTING CAPACITY.

1. THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER.

2. ADJUSTABLE INSTANTANEOUS-TRIP CIRCUIT BREAKERS: MAGNETIC TRIP ELEMENT WITH FRONT-MOUNTED, FIELD-ADJUSTABLE TRIP SETTING.

3. CURRENT-LIMITING CIRCUIT BREAKERS: FRAME SIZES 400 A AND SMALLER AND LET-THROUGH RATINGS LESS THAN NEMA FU 1, RK-5.

C. MOLDED-CASE CIRCUIT-BREAKERS FEATURES AND ACCESSORIES:

1. STANDARD FRAME SIZES, TRIP RATINGS, AND NUMBER OF POLES.

2. LUGS: MECHANICAL STYLE WITH COMPRESSION LUG KITS SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND CONDUCTOR MATERIAL.

2.03 ENCLOSURES

1. ENCLOSURE SHALL BE WEATHER RESISTANT, NEMA 3R.

PART 3 - EXECUTION

3.01 INSTALLATION

A. MOUNT INDIVIDUAL CIRCUIT BREAKERS WITH TOPS AT UNIFORM HEIGHT, UNLESS OTHERWISE INDICATED.

B. COMPLY WITH MOUNTING AND ANCHORING REQUIREMENTS SPECIFIED BY MANUFACTURER.

C. TEMPORARY LIFTING PROVISIONS: REMOVE TEMPORARY LIFTING EYES, CHANNELS, AND BRACKETS AND TEMPORARY BLOCKING OF MOVING PARTS FROM ENCLOSURES AND COMPONENTS.

D. IDENTIFY FIELD-INSTALLED CONDUCTORS, INTERCONNECTING WIRING, AND COMPONENTS; PROVIDE WARNING SIGNS AS REQUIRED.

3.02 FIELD QUALITY CONTROL

A. INSPECT MECHANICAL AND ELECTRICAL CONNECTIONS.

END OF SECTION

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B FOR 60% REVIEW	JAC	MSA	14.05.16
A FOR 30% REVIEW	JAC	MSA	14.04.24
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Seal

CARLOS M. HERDOCIA, P.E.  
REGISTERED ENGINEER NO. 47660  
STATE OF FLORIDA

Consultants



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DOLPHIN PIER DOCK REPLACEMENT  
Key West, Florida

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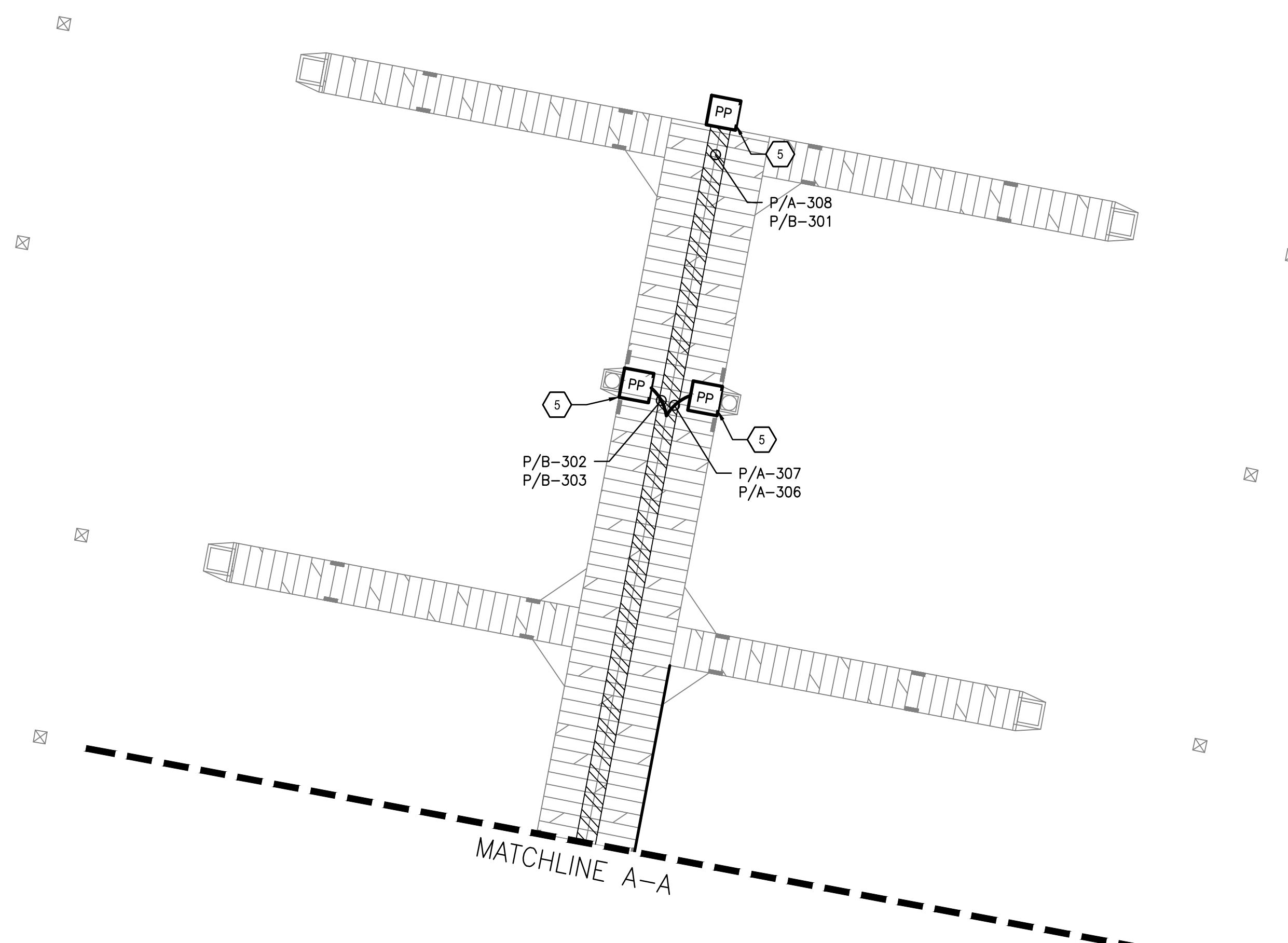
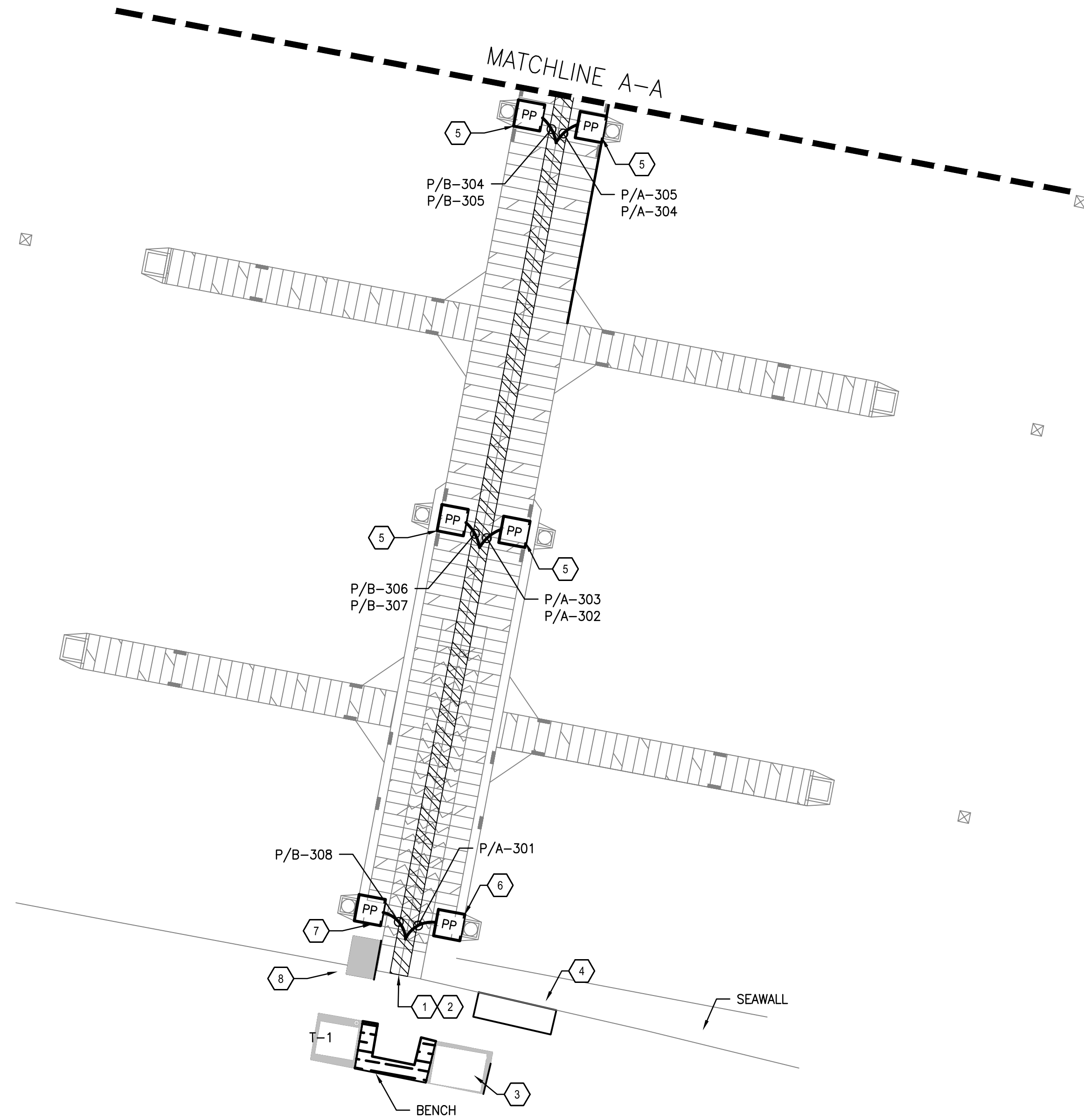
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**KEY NOTES**

1. PROVIDE POWER CABLE TRAY UNDERSIDE OF DECK.
2. PROVIDE TYPE G-GC CABLE (3 CONDUCTOR PLUS GROUND) IN CABLE TRAY.
3. EXISTING ELECTRICAL PANELS TO REMAIN. (MDP-A; MDP-B + H)
4. NEW COMBINATION TEL/CATV CABINET FOR EXISTING TEL/CATV EQUIPMENT RECONNECT EXISTING AND ESTABLISH NEW CONNECTIONS AS NEEDED.
5. CONFIG. A POWER PEDESTAL (EXISTING TO BE REUSED)
6. CONFIG. B POWER PEDESTAL (EXISTING TO BE REUSED)
7. CONFIG. C POWER PEDESTAL (EXISTING TO BE RECONFIGURED AND REUSED. SEE DETAIL ON DRAWING E-07.)
8. EXISTING VACUUM SEWER PUMP TO BE REUSED.

**GENERAL NOTES**

- A. CONTRACTOR SHALL REUSE EXISTING CONDUCTORS WHERE POSSIBLE - NO SPLICING SHALL BE PERMITTED. CONTRACTOR SHALL VERIFY THE CONDITION AND SUITABILITY OF CABLES INTENDED FOR RE-USE.
- B. REPLACE EXISTING 120/240V HOUSE PANEL (LOAD CENTER) TO SUPPORT PEDESTAL LIGHTING, TEL/CATV CABINET AND VACUUM SEWER PUMP. NEW HOUSE PANEL PB-H SHALL HAVE GFCI PROTECTION FOR ALL BRANCH CIRCUITS PER NEC.
- C. 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.
- D. THE POWER DISTRIBUTION LAYOUT IS DIAGRAMMATIC ONLY AND DOES NOT SHOW EVERY FITTING THAT MAY BE REQUIRED.
- E. COORDINATE THIS LAYOUT WITH OTHER EQUIPMENT AND STRUCTURES BEFORE ROUGHING IN!
- F. GROUNDING CONTINUITY SHALL BE MAINTAINED THROUGH THE ENTIRE RACEWAY SYSTEM.
- G. SEE PEDESTAL AND MDP SCHEDULES ON DRAWINGS E07 AND E08.
- H. PROVIDE PULL AND/OR JUNCTION BOXES WHERE REQUIRED BY NEC AND LOCAL CODES WHETHER OR NOT SHOWN ON DRAWINGS.
- I. TWO SEPARATE CIRCUITS FED FROM PB-H WILL SUPPORT LIGHTING. PROVIDE CABLE TYPE "SOOW" FOR THIS PURPOSE.



**ELECTRICAL CATV PLAN VIEW**

SCALE: 1"=10'  
(REDUCED SCALE: 1" = 20')

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Seal

CARLOS M. HERDOCIA, P.E.  
REGISTERED ENGINEER NO. 47660  
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Key West, Florida

File Name: \_\_\_\_\_ DLS BCB BCB 16.11.16  
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**ELECTRICAL SITE PLAN-POWER**

Project No. 215613443  
Drawing No. E04

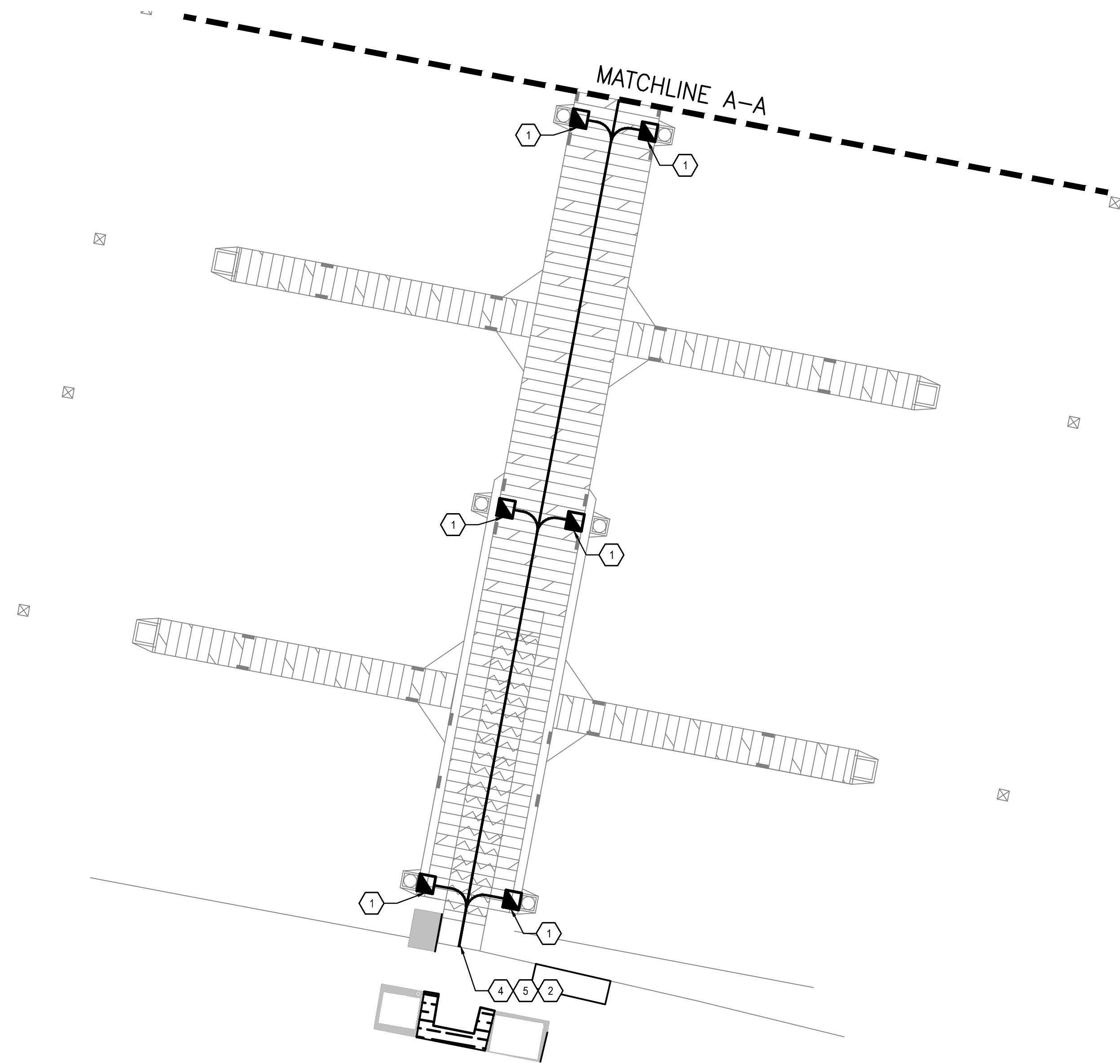
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**GENERAL NOTES**

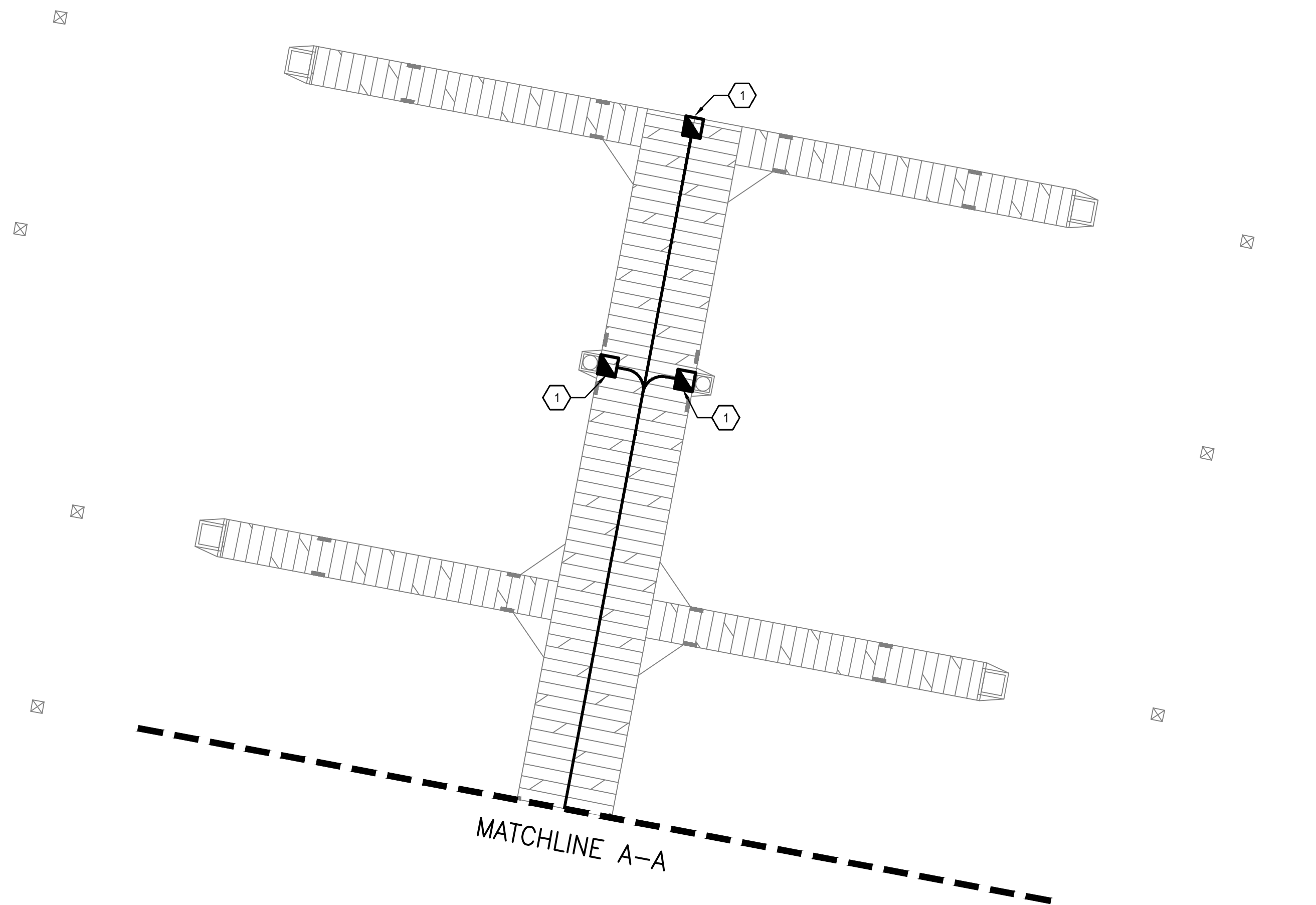
- A. CONTRACTOR SHALL REUSE EXISTING CABLES WHERE POSSIBLE- NO SPLICING SHALL BE PERMITTED. CONTRACTOR SHALL VERIFY THE CONDITION AND SUITABILITY OF CABLES INTENDED FOR REUSE.
- B. THIS TEL/CATV DISTRIBUTION LAYOUT IS DIAGRAMMATIC ONLY. DOES NOT SHOW EVERY FITTING THAT MAY BE REQUIRED.
- C. COORDINATE THIS LAYOUT WITH OTHER EQUIPMENT AND STRUCTURES PRIOR TO CONSTRUCTION.
- D. GROUNDING CONTINUITY SHALL BE MAINTAINED THROUGH THE ENTIRE RACEWAY SYSTEM.
- E. ALL PVC JOINTS SHALL BE STAGGERED AT LEAST 6 INCHES PROVIDE EXPANSION FITTINGS AS NEEDED.

**KEY NOTES**

- 1. TEL/CATV IS INTEGRAL TO POWER PEDESTAL
- 2. (2) 2" CONDUITS FOR CATV AND TELEPHONE WIRING. SEE SHEET E06 FOR DETAILS.
- 3. NEW COMBINATION TEL/CATV CABINET FOR EXISTING TEL/CATV EQUIPMENT. RECONNECT EXISTING AND ESTABLISH NEW CONNECTIONS AS NEEDED.
- 4. 4-PAIRS 20 GAUGE JELL FILLED CABLES RUNNING IN SCH 40 CONDUIT. THIS CABLE SHALL BE APPROVED FOR WET LOCATION AND MARINE AMBIENT.
- 5. VIDEO RG-11 JEL FILLED CABLE RUNNING IN SCH 40 CONDUIT APPROVED FOR WET LOCATION AND SUITABLE FOR MARINE AMBIENT SHALL BE USED AS BACKBONE CABLE. VIDEO RG-6U OF SIMILAR SPEC SHALL BE USED FOR EACH T-OFF.



**ELECTRICAL PLAN VIEW**  
 SCALE: 1"=10'  
 (REDUCED SCALE: 1" = 20')



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Seal

CARLOS M. HERDOCIA, P.E.  
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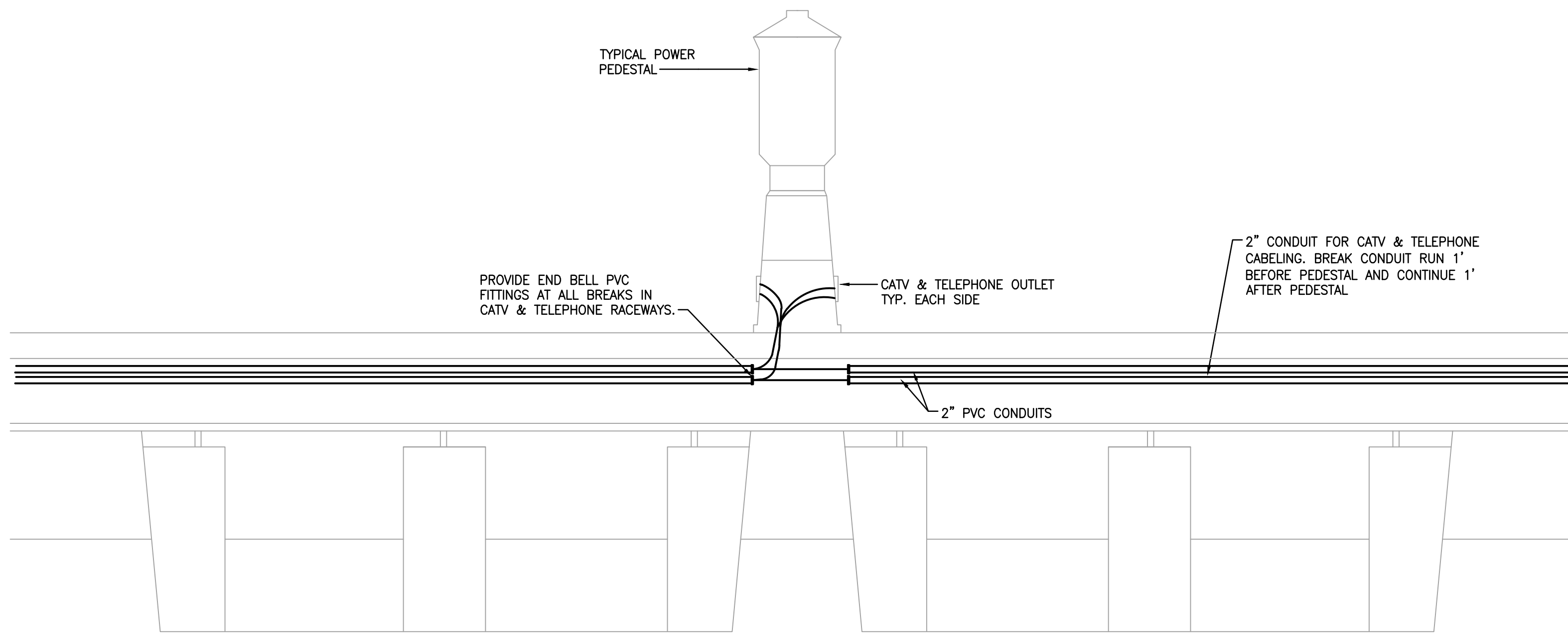
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**ELECTRICAL SITE PLAN - CATV**

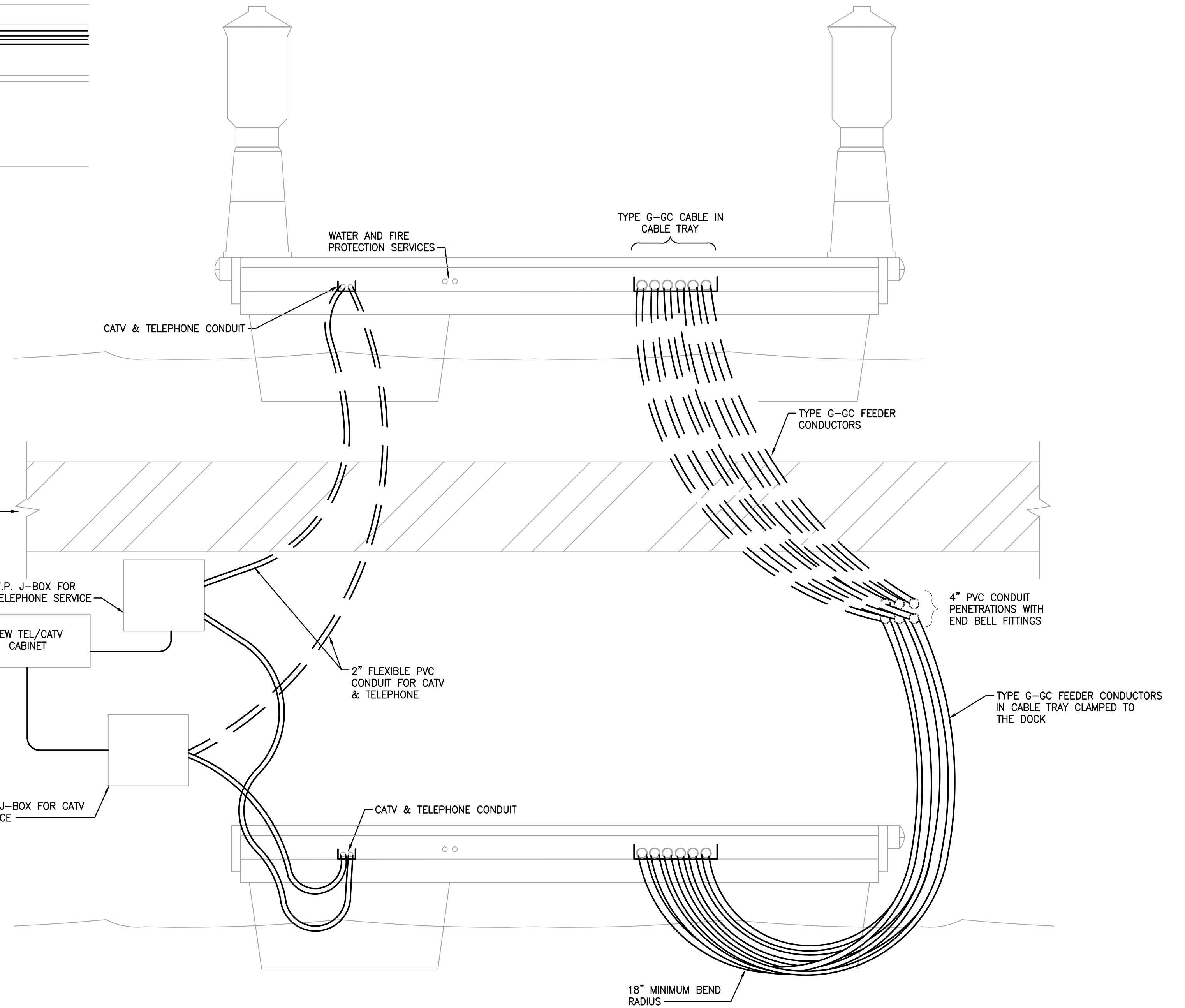
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**CATV & TELEPHONE SERVICE DETAIL**  
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**FLEXIBLE ELECTRICAL SERVICE CONNECTION DETAIL**  
NO SCALE



**TELE/CATV CABINET DETAIL**  
NO SCALE

FURNISH AND INSTALL NEW TEL/CATV CABINET AS SHOWN OR APPROVED EQUAL

1-5/8" S.S. STRUT CHANNEL & MOUNTING HARDWARE

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REGISTERED ENGINEER NO. 47660  
STATE OF FLORIDA

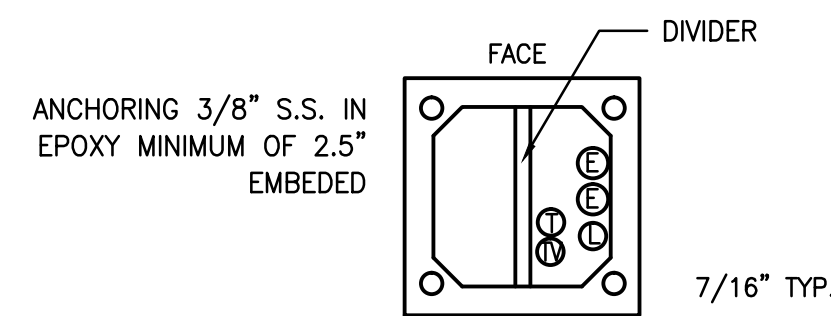
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CITY OF KEY WEST  
DOLPHIN PIER DOCK REPLACEMENT  
Key West, Florida

File Name: \_\_\_\_\_  
DLS Dwn. BCB Chkd. BCB Dsgn. 16.11.16 YY.MM.DD

ELECTRICAL DETAILS		
Project No. 215613443	Scale NO SCALE	
Drawing No. E06	Sheet of XX	Revision C/0



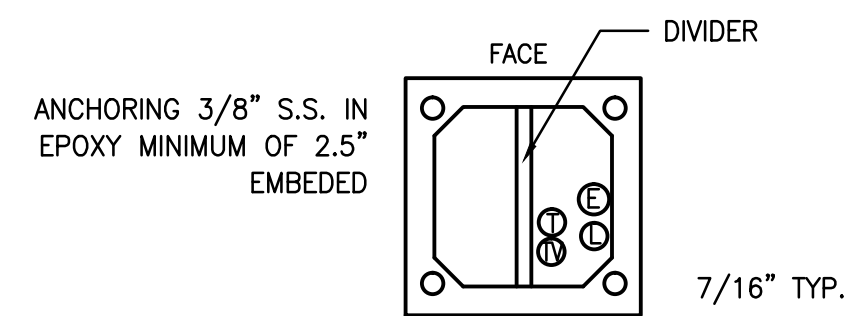
- LEGEND**
- ⓐ POWER: 3C#1/0 CABLE TYPE "G"
  - ⓑ LIGHTING: 3C#10 CABLE TYPE "SOOW"
  - ⓓ TELEPHONE
  - ⓔ CATV

**NOTES:**  
FRONT OF PEDESTAL FACES MIDDLE OF PIER.  
ALL ELECTRIC TO BE TURNED UP IN THE 2.5x6" OPENING FORWARD OF THE HI/LO DIVIDER. TELE/CATV TO BE TURNED UP IN THE BACK SIDE OF THE HI/LO DIVIDER.

**NOTE:**  
PEDESTAL A1 SUPPLIED BY TWO SOURCES. PROVIDE NAMEPLATE INDICATING THIS PEDESTAL SUPPLIED BY TWO SOURCES: MDPA + MDPB

**PEDESTAL BASE DETAIL  
(CONFIGURATION "A")**

N.T.S.

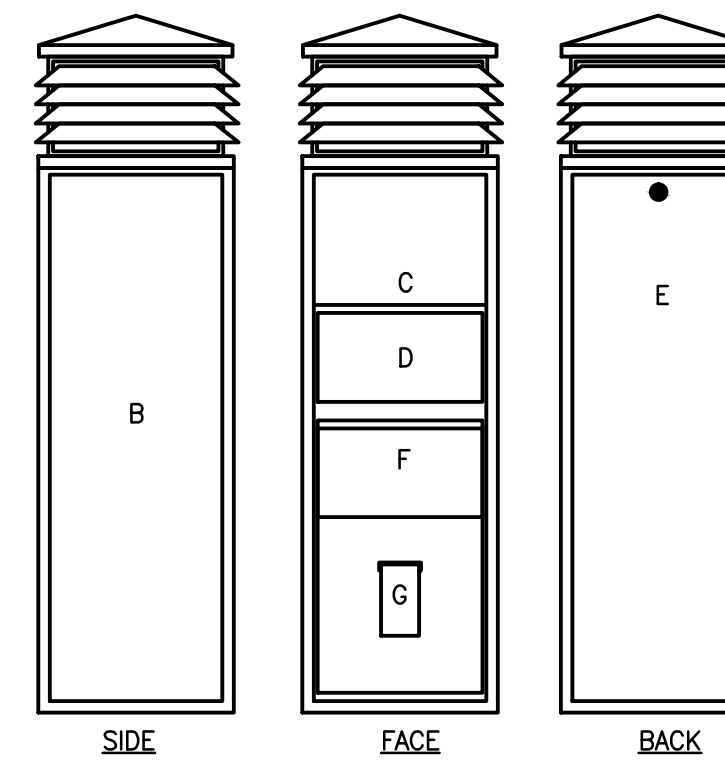


- LEGEND**
- ⓐ POWER: 3C#1/0 CABLE TYPE "G"
  - ⓑ LIGHTING: 3C#10 CABLE TYPE "SOOW"
  - ⓓ TELEPHONE
  - ⓔ CATV

**NOTES:**  
FRONT OF PEDESTAL FACES MIDDLE OF PIER.  
ALL ELECTRIC TO BE TURNED UP IN THE 2.5x6" OPENING FORWARD OF THE HI/LO DIVIDER. TELE/CATV TO BE TURNED UP IN THE BACK SIDE OF THE HI/LO DIVIDER.

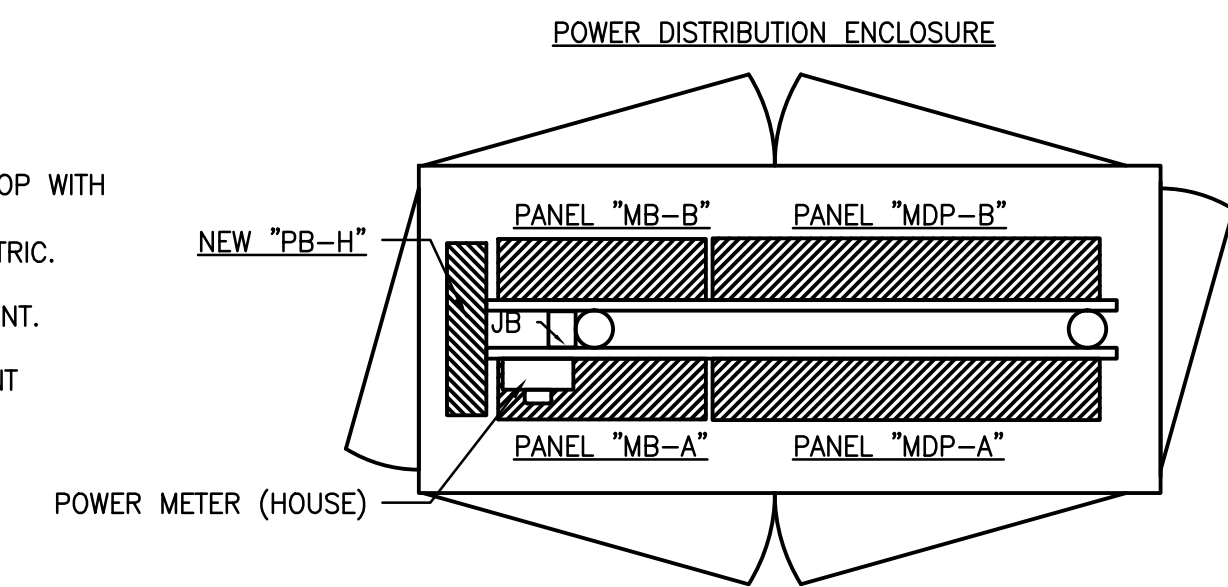
**PEDESTAL BASE DETAIL  
(CONFIGURATION "B" AND "C")**

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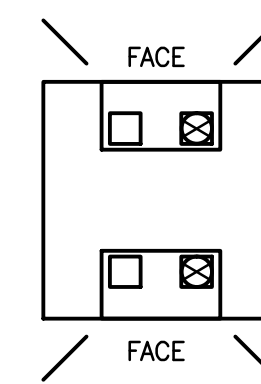
**PEDESTAL DETAIL**

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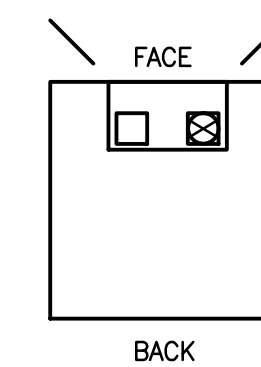
**POWER SERVICE ENTRANCE  
CABINET DETAIL**

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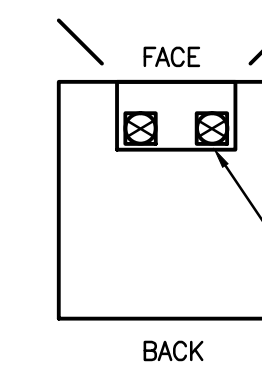
**PEDESTAL BASE DETAIL  
(CONFIGURATION "A")**

NO SCALE



**PEDESTAL BASE DETAIL  
(CONFIGURATION "B")**

NO SCALE

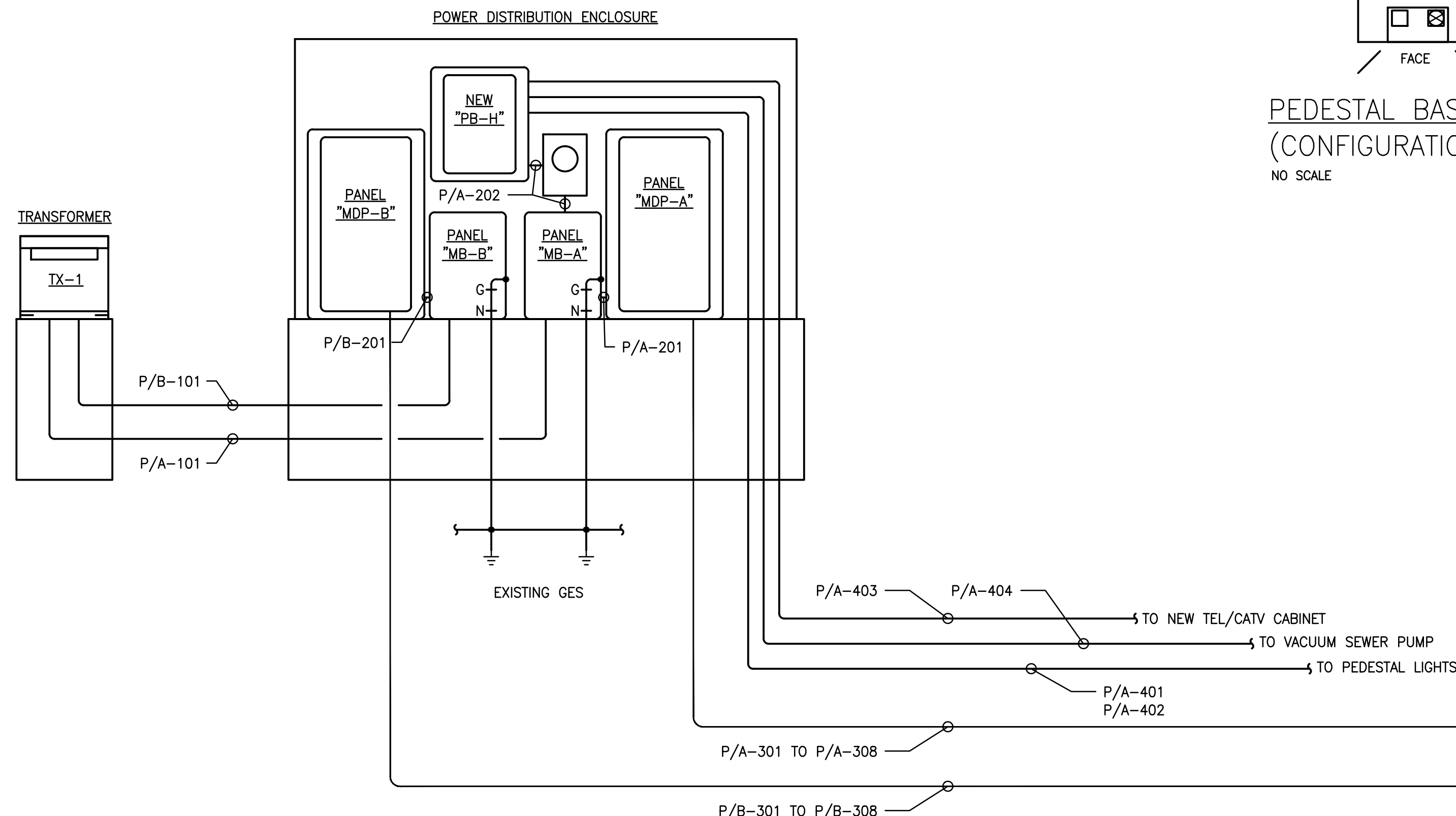


**PEDESTAL BASE DETAIL  
(CONFIGURATION "C")**

NO SCALE

- LEGEND**
- ⊠ SYMBOL DESIGNATES LOCATION OF 100 AMP RECEPTACLE

REMOVE (1) 100A RECEPTACLE, COVER OPENING WITH OEM PLATE. BREAKER TO BE REPLACED WITH 150A GFCI BREAKER



**ELECTRICAL RISER DIAGRAM**

NO SCALE

**NOTES:**

- A. THE CONTRACTOR SHALL SEND THE EXISTING PEDESTALS TO THE MANUFACTURER FOR REFURBISHMENT. THE PEDESTAL MATCHING CONFIGURATION "C" SHALL BE MODIFIED AS SHOWN IN THE DETAIL ON THIS SHEET. PEDESTALS SHALL BE RE-PAINTED AS NEEDED. ALL ELECTRICAL WIRING AND RECEPTACLES IN THE PEDESTALS SHALL BE EVALUATED FOR CONDITION AND COMPLIANCE WITH NEC. REPLACE COMPONENTS AND WIRING AS REQUIRED. REPLACE BREAKERS IN ALL PEDESTALS WITH NEW GFCI BREAKERS.

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DOLPHIN PIER DOCK REPLACEMENT  
Key West, Florida

File Name: \_\_\_\_\_ DLS BCB BCB 16.11.16  
Dwn. Chkd. Dsgn. YY.MM.DD

<b>ELECTRICAL DETAILS</b>			
Project No.	Scale		
215613443	NO SCALE		
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POWER DISTRIBUTION VOLT DROP SCHEDULE												
CIRC. No. OR PANEL	SERVICING	VOLTAGE	PH	POWER FACTOR	LOAD IN AMPS.	AMBIENT TEMP(°C)	WIRE OP TEMP(°C)	FEEDER				TOTAL VOLT DROP IN %
								NUMBER	SIZE	*LENGTH IN FT.	QTY. PER PH.	
TX-1	MB-A	120/240	1	.085	752	30	75	P/A-101	2[3#500 KCMIL]	35	2	0.5%
MB-A	MDP-A	120/240	1	0.85	720	30	75	P/A-201	2[3#500 KCMIL]	3	2	0.5%
MB-A	PB-H	120/240	1	0.85	29	30	75	P/A-202	3#3 + 1#8G	3	1	0.6%
MDP-A-1	P-1	120/240	1	0.85	100	30	75	P/A-301	3#1/0 + 1#6G	44	1	1.0%
MDP-A-2	P-2	120/240	1	0.85	100	30	75	P/A-302	3#1/0 + 1#6G	88	1	1.4%
MDP-A-3	P-2	120/240	1	0.85	100	30	75	P/A-303	3#1/0 + 1#6G	88	1	1.4%
MDP-A-4	P-3	120/240	1	0.85	100	30	75	P/A-304	3#1/0 + 1#6G	134	1	1.9%
MDP-A-5	P-3	120/240	1	0.85	100	30	75	P/A-305	3#1/0 + 1#6G	134	1	1.9%
MDP-A-6	P-4	120/240	1	0.85	100	30	75	P/A-306	3#1/0 + 1#6G	183	1	2.4%
MDP-A-7	P-4	120/240	1	0.85	100	30	75	P/A-307	3#1/0 + 1#6G	183	1	2.4%
MDP-A-8	P-5	120/240	1	0.85	100	30	75	P/A-308	3#1/0 + 1#6G	210	1	2.7%
TX-1	MB-B	120/240	1	0.85	720	30	75	P/B-101	2[3#500 KCMIL]	35	2	0.5%
MB-B	MDP-B	120/240	1	0.85	720	30	75	P/B-201	2[3#500 KCMIL]	3	2	0.5%
MDP-B-1	P-5	120/240	1	0.85	100	30	75	P/B-301	3#1/0 + 1#6G	210	1	2.6%
MDP-B-2	P-6	120/240	1	0.85	100	30	75	P/B-302	3#1/0 + 1#6G	183	1	2.4%
MDP-B-3	P-6	120/240	1	0.85	100	30	75	P/B-303	3#1/0 + 1#6G	183	1	2.4%
MDP-B-4	P-7	120/240	1	0.85	100	30	75	P/B-304	3#1/0 + 1#6G	134	1	1.9%
MDP-B-5	P-7	120/240	1	0.85	100	30	75	P/B-305	3#1/0 + 1#6G	134	1	1.9%
MDP-B-6	P-8	120/240	1	0.85	100	30	75	P/B-306	3#1/0 + 1#6G	88	1	1.4%
MDP-B-7	P-8	120/240	1	0.85	100	30	75	P/B-307	3#1/0 + 1#6G	88	1	1.4%
MDP-B-8	P-9	120/240	1	0.85	100	30	75	P/B-308	3#1/0 + 1#6G	44	1	1.0%
PB-H-1	P-1 - P-5	120	1	0.85	1	30	75	P/A-401	2#12 + 1#12G	210	1	1.7%
PB-H-2	P-6 - P-9	120	1	0.85	1	30	75	P/A-402	2#12 + 1#12G	210	1	1.7%
PB-H-3	TEL/CATV	120	1	0.85	125	30	75	P/A-403	2#12 + 1#12G	30	1	2.1%
PB-H-4	SWR. PUMP	120/240	1	0.85	16	30	75	P/A-404	2#10 + 1#10G	30	1	0.9%

NOTES:  
ALL WIRING BASED ON COPPER CONDUCTOR WITH THHN/THWN INSULATION AT 90°C, WITH 75°C TERMINATION RATTING ON SINGLE OF THREE PHASE CIRCUIT. (\*) FEEDER LENGTH HERE IN ARE FOR VOLTAGE DROP CALCULATION ONLY. THE REAL LENGTH SHALL BE MEASURED ON FIELD.

### LOAD CALCULATION FOR MB-A

SERVICE VOLTAGE 120/240V-1PH-3W+G  
QUANTITY OF RECEPTACLES 8  
DEMAND FACTOR PER NEC TABLE 555.12 IS 90%

CONNECTED LOAD  
8 RECEPTACLES @ 24,000VA EACH  
WITH 90% DEMAND FACTOR = 172,800VA  
PANEL "H" LOADS = 7,606VA  
180,406VA

TOTAL MDP-A LOAD  
172,800VA @ 240V = 720A

TOTAL SERVICE ENTRANCE LOAD  
180,406VA @ 240V = 752A

### LOAD CALCULATION FOR MB-B

SERVICE VOLTAGE 120/240V-1PH-3W+G  
QUANTITY OF RECEPTACLES 8  
DEMAND FACTOR PER NEC TABLE 555.12 IS 90%

CONNECTED LOAD  
8 RECEPTACLES @ 24,000VA EACH WITH 90% DEMAND FACTOR= 172,800VA

TOTAL SERVICE ENTRANCE LOAD  
172,800VA @ 240V = 720A

TYPE: SIEMENS POWER MOD		EXISTING METER STACK "MDP-A"			ENCLOSURE: SURFACE-NEMA 3R	
VOLTAGE: 120/240V-1PH-3W					LOCATION: MARINA POWER CABINET	
A.I.C.S.: 22K					FED FROM: MB-A	
CIRC. No.	SERVICING	CIRCUIT BREAKER			SLIP NUMBER	
		POLE	TRP	TYPE		
1	PEDESTAL P-1	2	150	QPPH	1	
2	PEDESTAL P-2	2	150	QPPH	2	
3	PEDESTAL P-2	2	150	QPPH	3	
4	PEDESTAL P-3	2	150	QPPH	4	
5	PEDESTAL P-3	2	150	QPPH	5	
6	PEDESTAL P-4	2	150	QPPH	6	
7	PEDESTAL P-4	2	150	QPPH	7	
8	PEDESTAL P-5	2	150	QPPH	8	

NOTES:  
1. SEE LOAD CALCULATION ON THIS SHEET  
2. FOR FEEDER SIZE SEE VOLTAGE DROP SCHEDULE ON THIS SHEET

TYPE: SIEMENS POWER MOD		EXISTING METER STACK "MDP-B"			ENCLOSURE: SURFACE-NEMA 3R	
VOLTAGE: 120/240V-1PH-3W					LOCATION: MARINA POWER CABINET	
A.I.C.S.: 22K					FED FROM: MB-B	
CIRC. No.	SERVICING	CIRCUIT BREAKER			SLIP NUMBER	
		POLE	TRP	TYPE		
1	PEDESTAL P-5	2	150	QPPH	9	
2	PEDESTAL P-6	2	150	QPPH	10	
3	PEDESTAL P-6	2	150	QPPH	11	
4	PEDESTAL P-7	2	150	QPPH	12	
5	PEDESTAL P-7	2	150	QPPH	13	
6	PEDESTAL P-8	2	150	QPPH	14	
7	PEDESTAL P-8	2	150	QPPH	15	
8	PEDESTAL P-9	2	150	QPPH	16	

NOTES:  
1. SEE LOAD CALCULATION ON THIS SHEET  
2. FOR FEEDER SIZE SEE VOLTAGE DROP SCHEDULE ON THIS SHEET

TYPE: SIEMENS TYPE LOAD CENTER		NEW PANEL "PB-H"				MODIFICATION: GROUND BUS	
VOLTAGE: 120/240V-1PH-3W						ENCLOSURE: SURFACE-NEMA 1	
MAINS: 100A. M.B. TYPE "QJ2H"						LOCATION: MARINA POWER Co. CABINET	
A.I.C.S.: 25K						FED FROM: PAD TRANSFORMER	
CIRC. No.	SERVICING	CIRCUIT BREAKER			LOAD IN VA		
		POLE	TRP	TYPE	Ø A	Ø B	
1	PEDESTAL LTG.	1	20	QP	45	-	
2	PEDESTAL LTG.	1	20	QP	-	36	
3	TEL/CATV SYSTEM	1	20	QP	1500	-	
4	VACUUM SEWER PUMP	2	20	QP	1920	1920	
5	SPACE ONLY	1	20	QP	-	-	
6	SPACE ONLY	1	-	-	-	-	
7	SPACE ONLY	1	-	-	-	-	
8	SPACE ONLY	1	-	-	-	-	
TOTAL VA :					3465	1956	
TOTAL PHASE AMPS:					28.9	16.3	

NOTES:  
THIS PANEL IS SUITABLE FOR SERVICE ENTRANCE AND EQUIPPED WITH INTEGRAL MAIN CIRCUIT BREAKER. THIS MAIN C/B AND BRANCH C/B ARE IN SERIES SHORT CIRCUIT CURRENT RATING.

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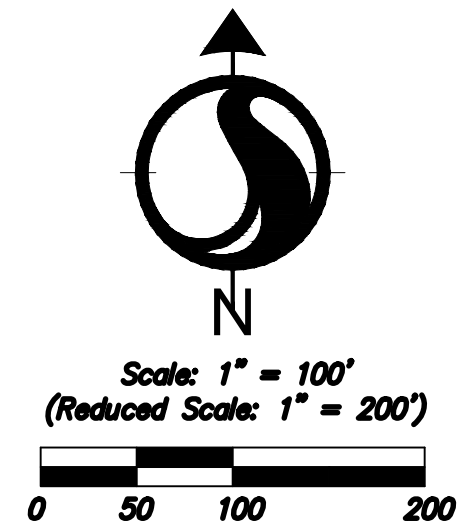
CITY OF KEY WEST  
DOLPHIN PIER DOCK REPLACEMENT  
Key West, Florida

File Name: \_\_\_\_\_ DLS BCB BCB 16.11.16  
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ELECTRICAL SCHEDULES

Project No. 215613443 Scale NO SCALE

Drawing No. E08 Sheet of XX Revision C/O



**GENERAL NOTES:**

1. EXISTING FIRE PUMP HOUSE INCLUDES ONE PATTERSON PUMP CO. VERTICAL IN-LINE PUMP MODEL 5x3 500 gpm @ 162 Ft.TH (70 psi) WITH 30 hp MOTOR rpm.
2. DEPTHS REFERENCE MEAN LOW WATER PER DEP TIDE STATION 872-4542. MEAN HIGH WATER EL. -0.23' NAVD88; MEAN LOW @ -1.24' NAVD88.



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**FIRE PROTECTION SITE PLAN**

Project No. 215613443  
 Scale \_\_\_\_\_

Drawing No. FP01  
 Sheet \_\_\_\_\_ of XX  
 Revision \_\_\_\_\_

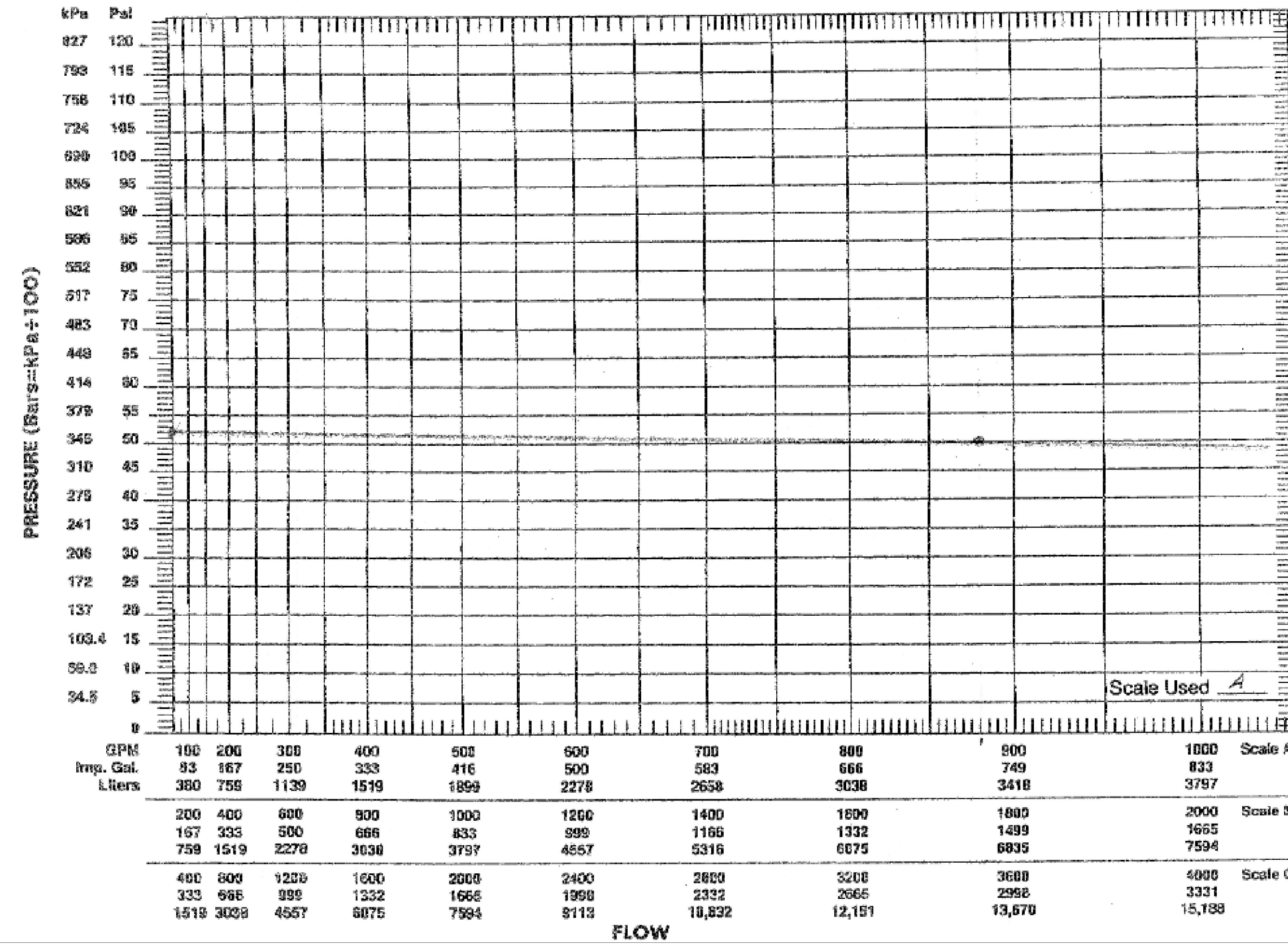
FIRE HYDRANT FLOW TEST SUMMARY



Fire Protection Publications  
Oklahoma State University  
Stillwater, OK 74078

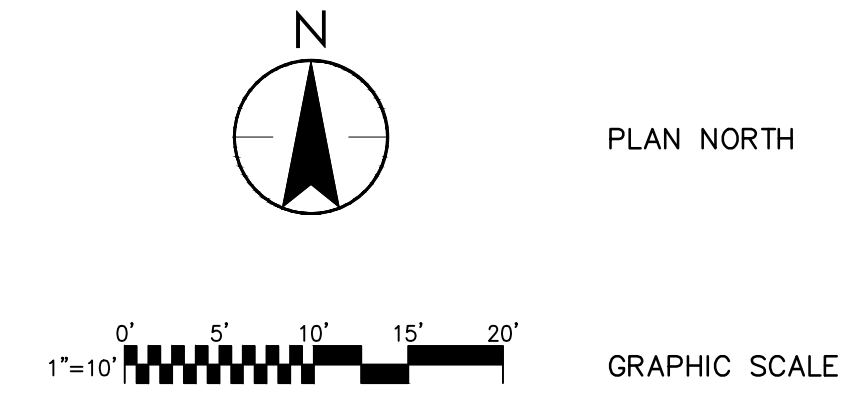
Universal Water Flow Test Summary Sheet

Conducted by Hastings/Taylor Location North Beach (UL)  
Hydrant coefficient 1.0 Elevation 10 Static 80 Residual 80 @ 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



- KEYED NOTE
- REVISION NUMBER
- CONNECT TO EXISTING
- POTABLE WATER AND SANITARY SEWER DOCK BOX
- FIRE EXTINGUISHER CABINET
- FIRE HOSE CABINET
- ELECTRICAL POWER PEDESTAL
- ELECTRICAL DISTRIBUTION PANEL
- EXISTING
- HOSE BIBB

FIRE PROTECTION DESIGN

SAILFISH PIER, GARRISON BIGHT MARINA KEY WEST, FL

- A. GIVEN: CITY WATER PRESSURE IS 53 psi
- B. FIRE PUMP DELIVERS - 100 gpm @ 81 psi TH [booster PS]  
ADD PRESSURES 53+81= 134 psi AVAILABLE
- C. SYSTEM HEAD LOSSES:
  - 1. 500 FT 4" PIPE = 1.05 psi  
[ $h_f = 0.21$  psi/100 ft]
  - 2. 210 FT (PIER) DUAL 3" PIPE = 1.58 psi  
[ $h_f = 0.73$  psi/100 ft]
  - 3. 100 FT 1.5" HOSE = 25 psi
  - 4. BRASS NOZZLE = 2 psi
  - 5. ACCESSORIES = 2 psi
  - TOTAL HEADLOSS = 31.6 psi
- D. SUMMATION  
134psi - 32 psi = 102psi > 100psi

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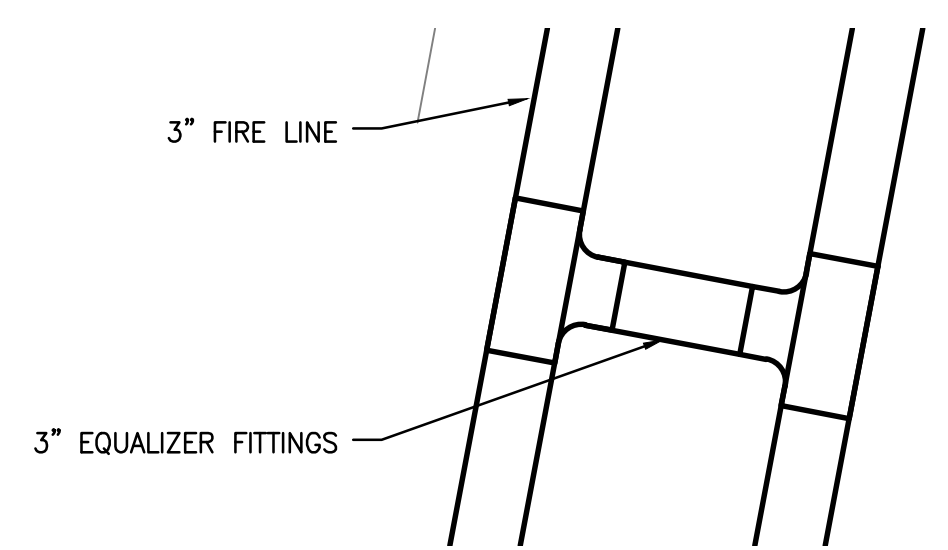
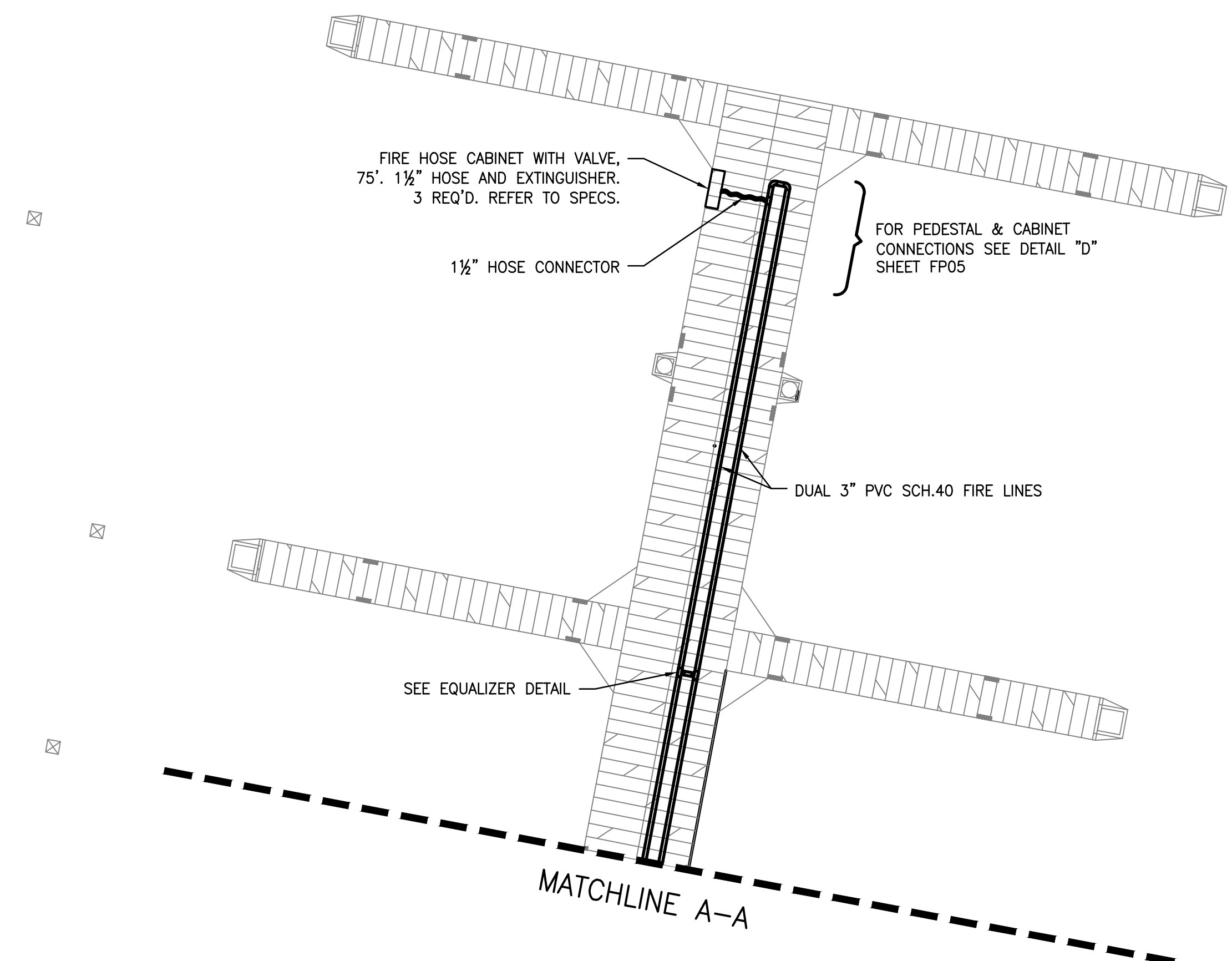
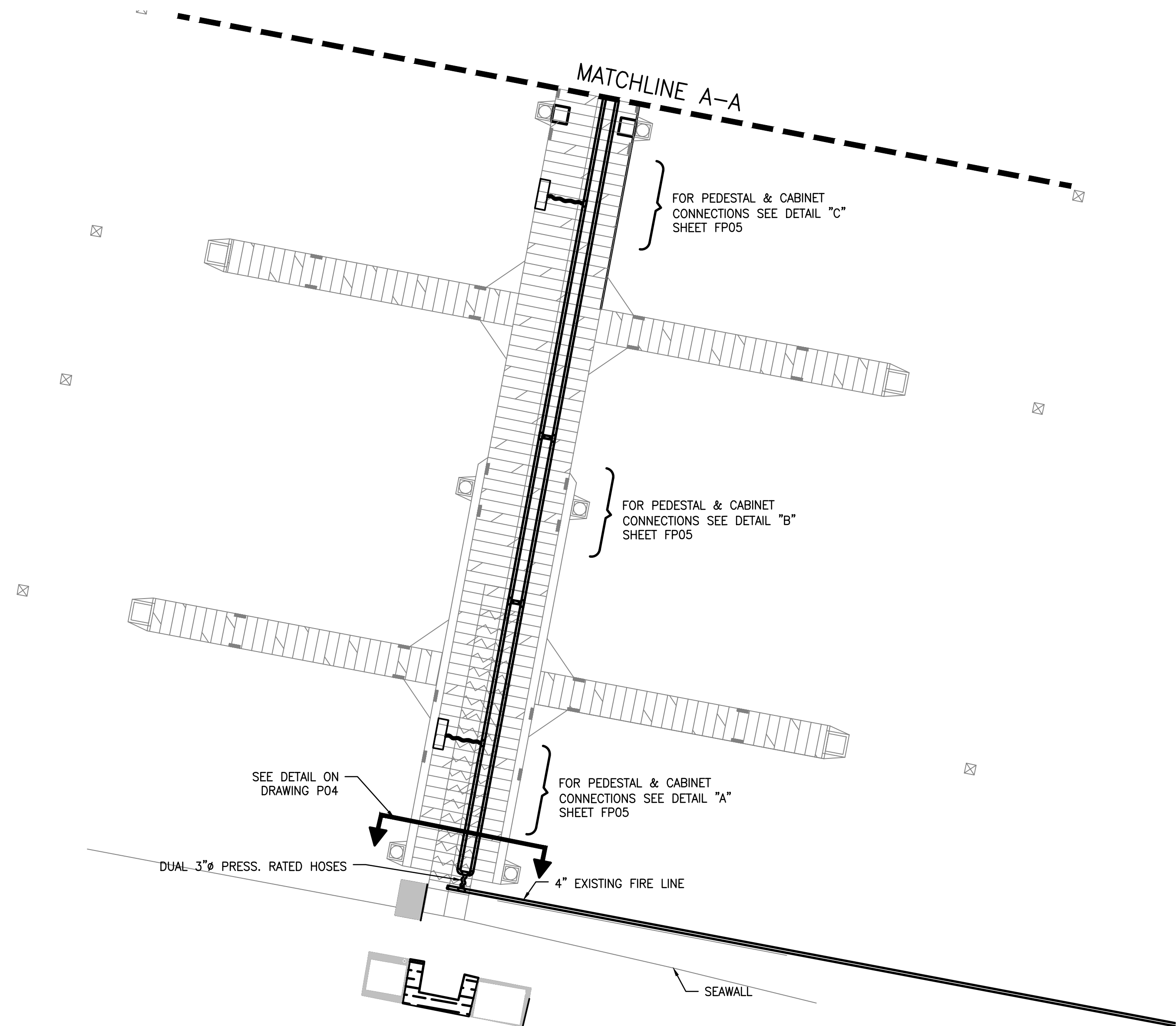
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FIRE PROTECTION LEGEND			
Project No.	Scale	NTS	
Drawing No.	Sheet	Revision	
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**GENERAL NOTES:**

- A. ALL DEPTHS REFERENCE MEAN LOW WATER PER DEP TIDE STATION 872-4542. MEAN HIGH WATER EL. -0.23' NAVD88; MEAN LOW @ -1.24' NAVD88.



**3" FL EQUALIZER DETAIL**  
SCALE: N.T.S.

**FIRE PROTECTION PLAN**  
SCALE: 1" = 10'  
(REDUCED SCALE: 1" = 20")

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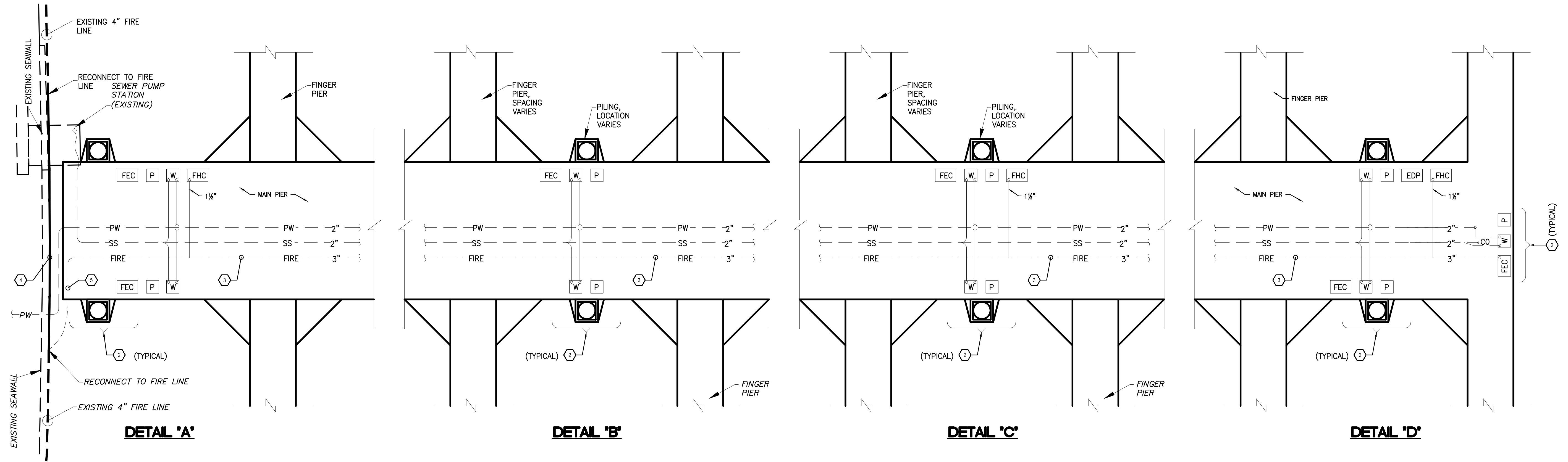
CITY OF KEY WEST  
DOLPHIN PIER DOCK REPLACEMENT  
Key West, Florida

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**FIRE PROTECTION SITE PLAN**

Project No. 215613443  
Drawing No. FP04

Scale: 1" = 10'  
Sheet of XX  
Revision C/0



**PEDESTAL COORDINATION DIAGRAM**  
SCALE: N.T.S.

**GENERAL NOTES:**

- A. SS, PW AND ELECTRICAL SYSTEMS SHOWN FOR COORDINATION PURPOSE. SEE CONSTRUCTION PLANS OF OTHER TRADES FOR ADDITIONAL INFORMATION.
- B. COORDINATE FRAMING REQUIREMENTS FOR PIPING SYSTEM WITH FLOATING DOCK SYSTEM SUPPLIER.

**KEY NOTES:** 2

- 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 EQUIPMENT TO FINGER PIER.
- 3. ROUTE FIRE LINE BELOW DECK IN TRAY BETWEEN LONGITUDINAL FRAMING.
- 4. EXISTING FIRE LINE IS ROUTED EXPOSED ALONG SEAWALL PROVIDE NEW PIPING AS REQUIRED TO OFFSET BELOW PROPOSED SEAWALL PENETRATIONS FOR POTABLE WATER, ELECTRICAL POWER CONDUCTORS AND COMMUNICATIONS CABLING, COORDINATE WITH OTHER TRADES FOR REQUIREMENTS. PROVIDE TRANSITION COUPLINGS TO CONNECT EXISTING CPVC PIPING TO SPECIFIC PIPE.
- 5. PROVIDE FIRE LINE HOSE TO CONNECT PIPING TO PIER. HOSE TERMINATIONS SHALL BE ASTM 316 STAINLESS STEEL ELBOWS. SELECT LENGTH OF HOSE AS REQUIRED TO ACCOMMODATE TIDE DIFFERENTIAL.

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CITY OF KEY WEST  
DOLPHIN PIER DOCK REPLACEMENT  
Key West, Florida

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**PEDESTAL COORDINATION DIAGRAM**

Project No. 215613443 Scale NO SCALE  
Drawing No. FP05 Sheet of XX Revision

# PLUMBING DESIGN

SAILFISH PIER, GARRISON BIGHT MARINA KEY WEST, FL

- A. GIVEN: 16 SLIPS, ASSUME 8@ 2-2 AND 8@ 2-1
- B. USE HUNTER'S METHOD = CURVE [PLUMBING DESIGN]

HOUSE BOAT 2 BED 2 BATH	FU
K. SINK 1	2
LAV. 2	2
WATER CLOSET (TANK) 2	6
SHOWER 2	4
	14

HOUSE BOAT 2 BED 1 BATH	FU
K. SINK 1	2
LAV. 1	1
WATER CLOSET (TANK) 1	3
SHOWER 1	2
	8

- C. TOTAL FU: 8 SLIPS X 14= 112 FU  
8 SLIPS X 8= 64 FU  
176 FU

PER HUNTER CURVE= 64 gpm TOTAL

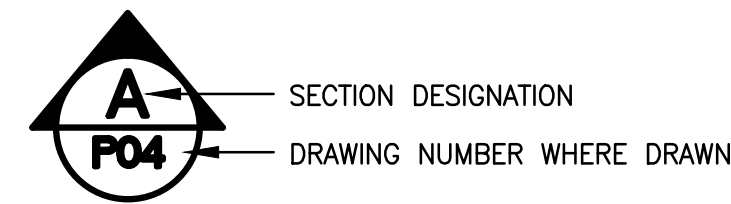
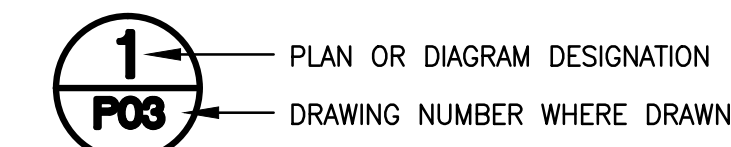
- D. PER HYDRAULIC TABLES

FOR 64 gpm USE 2" PE PIPE VELOCITY= 6.2< 8fps

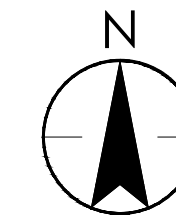
- E. SERVICE SIZING=  
DUAL= 28 FU 20 gpm  
PROVIDE 1" DIA. SERVICE PIPE

SINGLE= 14 FU= 11 gpm  
PROVIDE 3/4" DIA. SERVICE PIPE

## DRAWING SYMBOLS



- FW— FIRE WATER PIPE
- PW— POTABLE WATER PIPE
- — — POTABLE WATER PIPE
- SW— 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
- |CO SEWER CLEANOUT



PLAN NORTH



GRAPHIC SCALE



KEYED NOTE



REVISION NUMBER



CONNECT TO EXISTING



POTABLE WATER AND  
SANITARY SEWER DOCK BOX



FIRE EXTINGUISHER CABINET



FIRE HOSE CABINET



ELECTRICAL POWER PEDESTAL



ELECTRICAL DISTRIBUTION PANEL



EXISTING



HOSE BIBB

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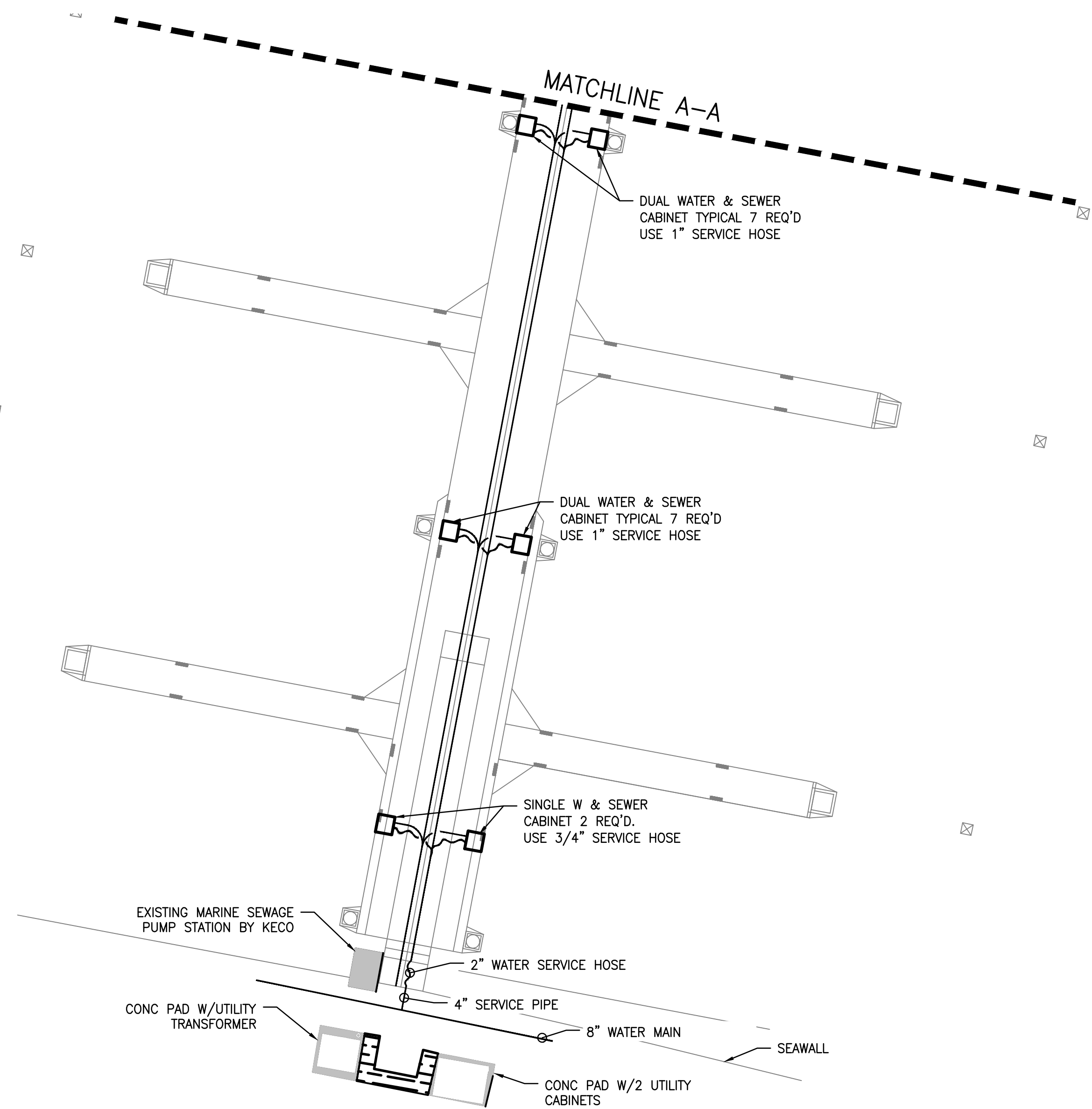
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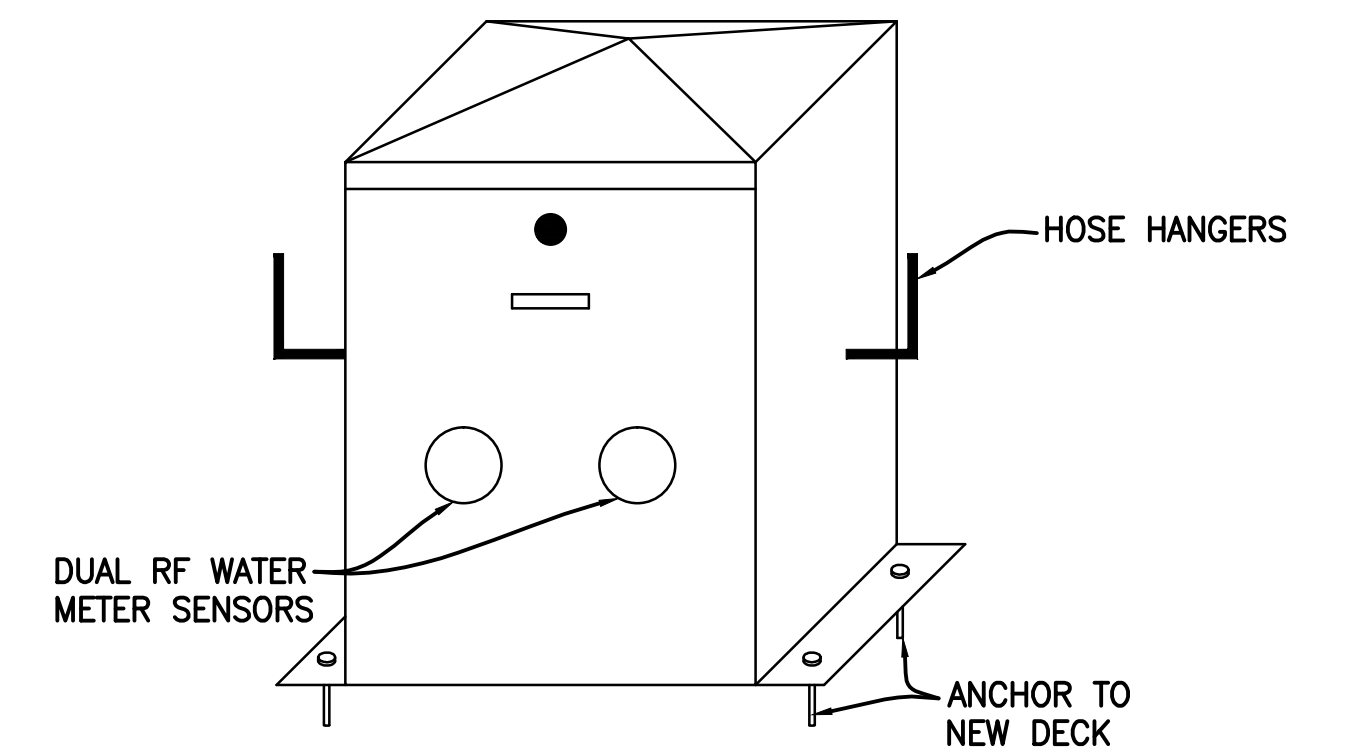
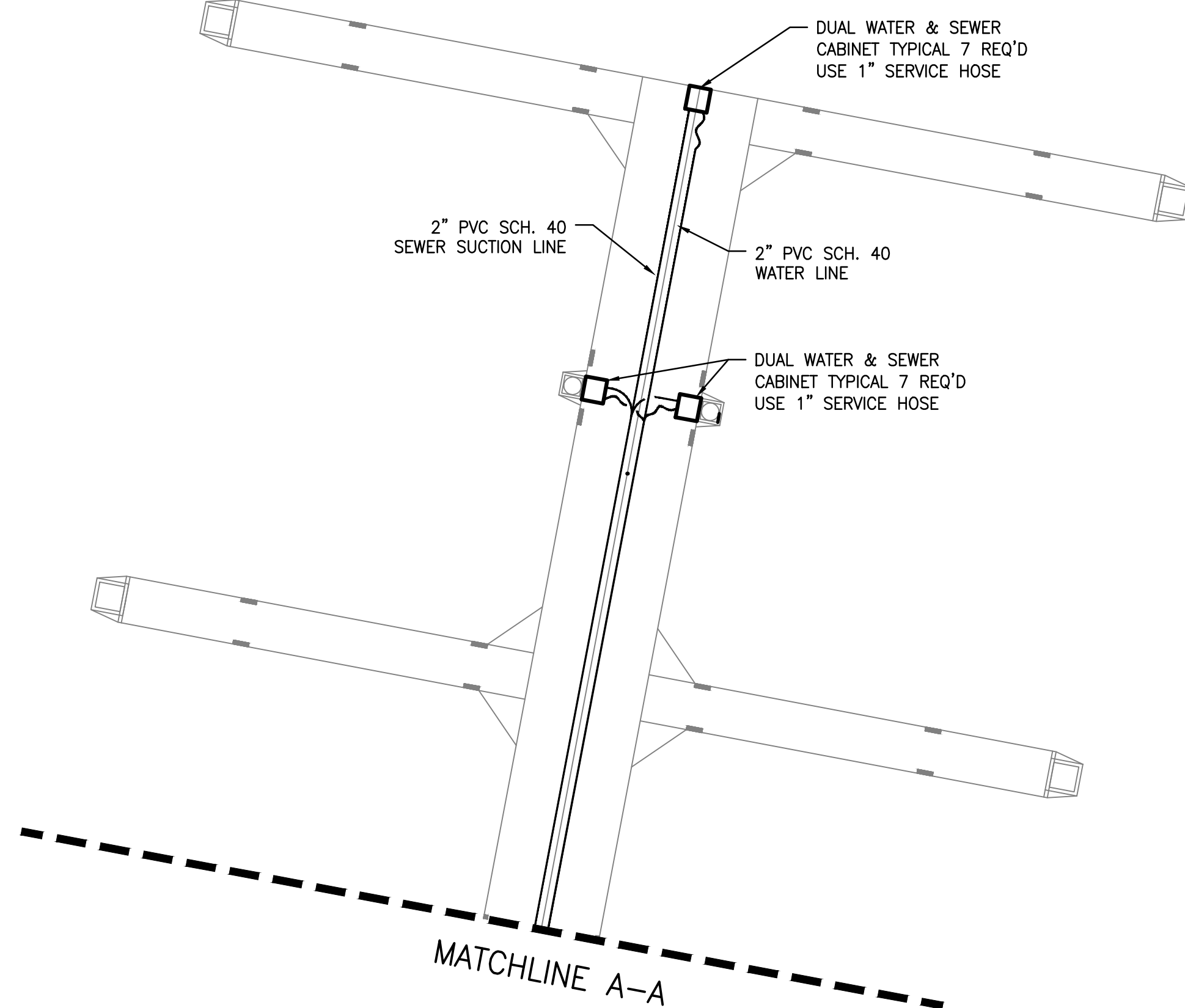
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**PLUMBING SECTION THRU MAIN PIER PLAN**  
 SCALE: 1"=10'  
 (REDUCED SCALE: 1"=20')



NOTES:  
 1. PROVIDE 1" SERVICE TO EACH CABINET.

**DUAL WATER & SEWER CABINET DETAIL**  
 SCALE: N.T.S.



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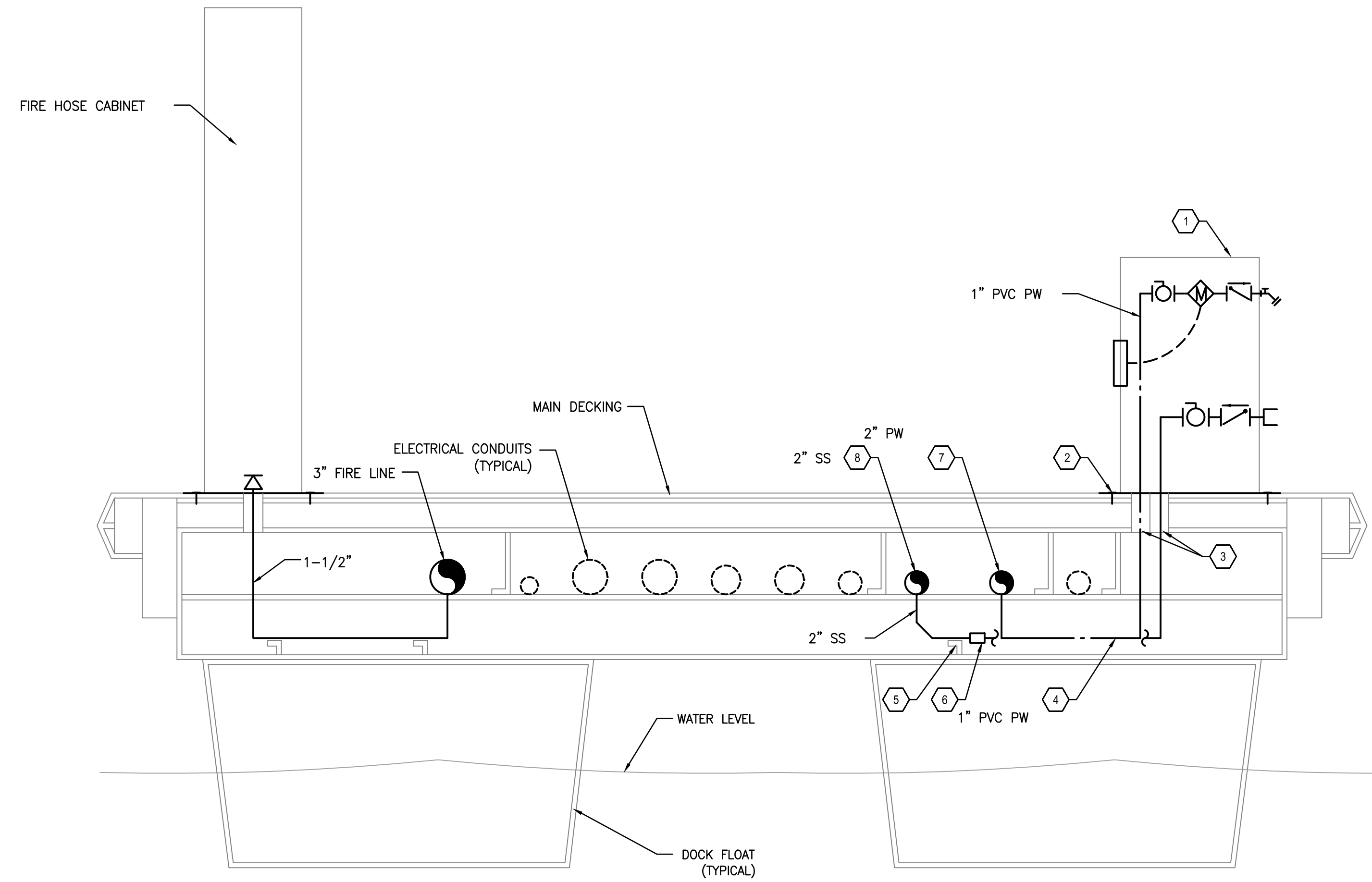
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**PLUMBING SITE PLAN**

Project No. 215613443  
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Scale: 1"=10'  
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**KEY NOTES:**

1. SINGLE SLIP POTABLE WATER & SANITARY SEWER 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 CABINET BRANCH PIPE.
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.

**PLUMBING SECTION THRU MAIN PIER PLAN**  
SCALE: N.T.S.

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