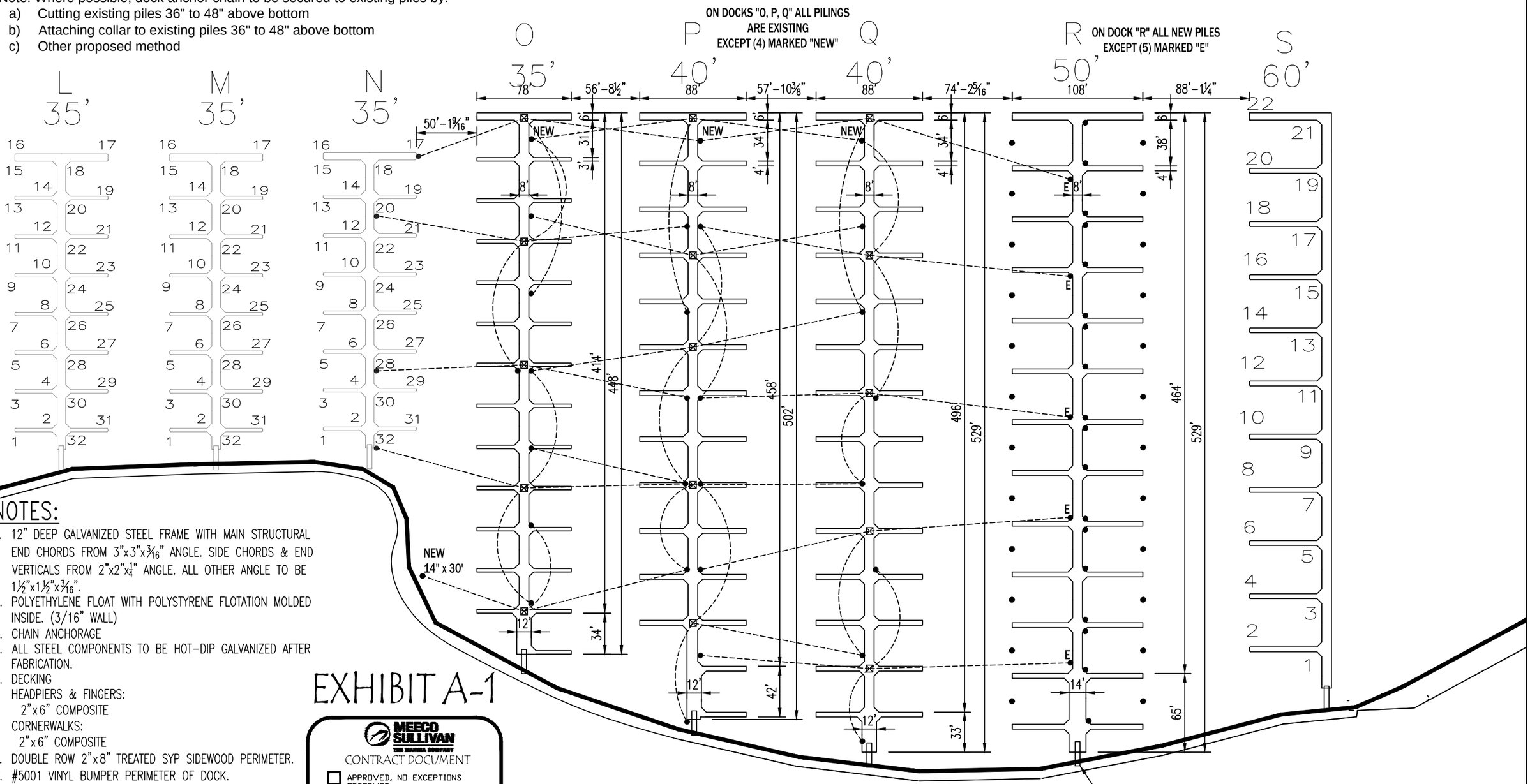
Burnham Harbor Drawing List

	<u>Meeco Sullivan</u>
Sheet 1	Site Plan and Anchoring
Sheet 2	Dock Plan "O"
Sheet 3	Dock Plan "P"
Sheet 4	Dock Plan "Q"
Sheet 5	Dock Plan "R"
Sheet 6	Frame Detail - Opposing Diagonals
Sheet 7	Finger to Headpier Connection
Sheet 8	Section View - Flotation Unit
Sheet 9	Sidewood
Sheet 10	Aluminum ADA Gangway
Sheet 11	Gangway to Shoreline
	<u>New Marina Water Systems</u>
T-1.0	Title Sheet
M-1.0	Proposed Water Supply
M-2.0	Details
	<u>Marina Electrical Equipment Inc.</u>
E-1	Revised Electrical Layout
	Electrical Details

NOT an engineered drawing
NOT FOR CONSTRUCTION

Note: Where possible, dock anchor chain to be secured to existing piles by:

a) Cutting existing piles 36" to 48" above bottom
b) Attaching collar to existing piles 36" to 48" above bottom
c) Other proposed method



NOTES:

1. 12" DEEP GALVANIZED STEEL FRAME WITH MAIN STRUCTURAL END CHORDS FROM 3"x3"x3/16" ANGLE. SIDE CHORDS & END VERTICALS FROM 2"x2"x1/4" ANGLE. ALL OTHER ANGLE TO BE 1 1/2"x1 1/2"x3/16".
2. POLYETHYLENE FLOAT WITH POLYSTYRENE FLOTATION MOLDED INSIDE. (3/16" WALL)
3. CHAIN ANCHORAGE
4. ALL STEEL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. DECKING
   HEADPIERS & FINGERS:
   2"x6" COMPOSITE
   CORNERWALKS:
   2"x6" COMPOSITE
6. DOUBLE ROW 2"x8" TREATED SYP SIDEWOOD PERIMETER.
7. #5001 VINYL BUMPER PERIMETER OF DOCK.
8. CORNER BUMPERS ON OUTSIDE CORNERS OF DOCK.
   BUMPER COLORS
   VINYL BUMPERS: BLACK
   CORNER BUMPERS: BLACK
9. 10" ALUMINUM DECK CLEATS.
10. DECK FLOTATION LIVELOAD- ~30 P.S.F.

EXHIBIT A-1

MEECO SULLIVAN
THE MARINA COMPANY

CONTRACT DOCUMENT

- ☐ APPROVED, NO EXCEPTIONS OBSERVED
- ☐ APPROVED AS NOTED
- ☐ REVISED AS NOTED AND RESUBMIT

DATE_____BY_____

NOT an engineered drawing
NOT FOR CONSTRUCTION

NO.	REVISION DESCRIPTION	BY	DATE

MEECO SULLIVAN
THE MARINA COMPANY
1501 E. ELECTRIC AVE. McALESTER, OKLAHOMA, USA 74501
Phone: (918) 423-6833 Fax: (918) 423-3215

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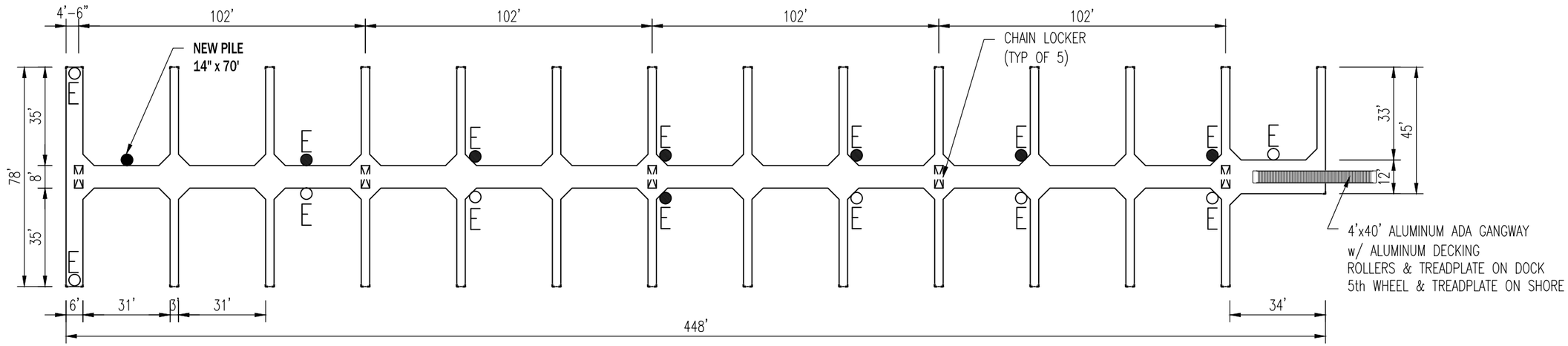
SCALE: 1"=80'-0"	DATE: 11/27/18	SHEET 1

BURNHAM HARBOR
CHICAGO, IL



● = EXISTING 14" PIPE PILE – CUT OFF AT 36" ABOVE MUD LINE
ADD COLLAR FOR CHAIN ATTACHMENT – REFERENCE SHEET #1
FOR QUANTITY OF CHAIN ATTACHMENTS.

○ = EXISTING PIPE PILE TO BE REMOVED.

NOTE: DOCK N EXISTING PIPE PILE – LEAVE IN PLACE. ADD CHAIN ATTACHMENT AT 36" ABOVE MUD LINE.

NOTES:

1. 12" DEEP GALVANIZED STEEL FRAME WITH MAIN STRUCTURAL END CHORDS FROM 3"x3"x3/16" ANGLE. SIDE CHORDS & END VERTICALS FROM 2"x2"x1/4" ANGLE. ALL OTHER ANGLE TO BE 1½"x1½"x3/16".
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3. CHAIN ANCHORAGE
4. ALL STEEL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. DECKING
   HEADPIERS & FINGERS:
   2"x6" COMPOSITE
   CORNERWALKS:
   2"x6" COMPOSITE
6. DOUBLE ROW 2"x8" TREATED SYP SIDEWOOD PERIMETER.
7. #5001 VINYL BUMPER PERIMETER OF DOCK.
8. CORNER BUMPERS ON OUTSIDE CORNERS OF DOCK.
   BUMPER COLORS
   VINYL BUMPERS: BLACK
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10. DECK FLOTATION LIVELOAD– ~30 P.S.F.

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DATE_____BY_____

DOCK PLAN "O"
(26) 31' x 35' OPEN SLIPS
(1) 4' x 40' ADA GANGWAY

NO.	REVISION DESCRIPTION	BY	DATE

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THE MARINA COMPANY
1501 E. ELECTRIC AVE. Phone: (918) 423-6833
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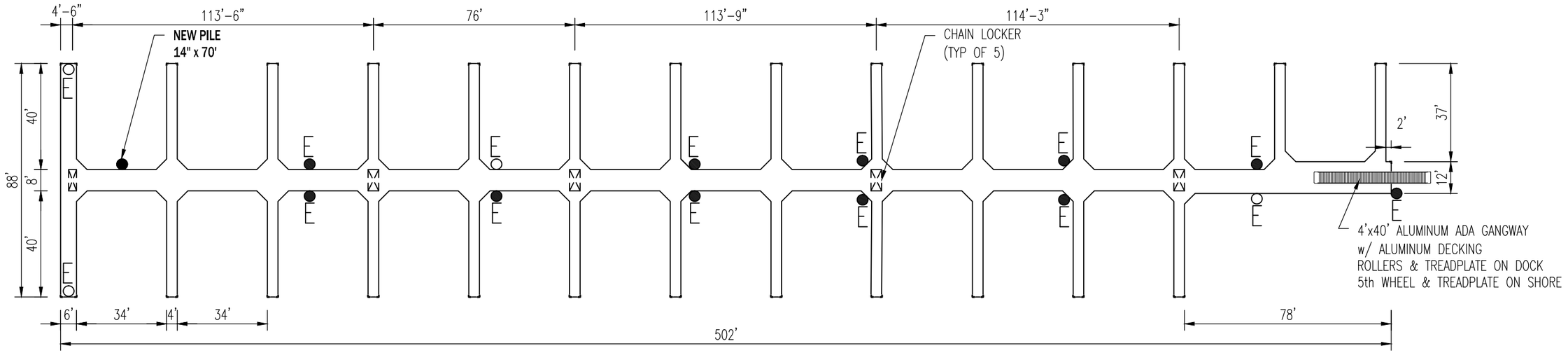
CHICAGO, IL



● = EXISTING 14" PIPE PILE – CUT OFF AT 36" ABOVE MUD LINE
ADD COLLAR FOR CHAIN ATTACHMENT – REFERENCE SHEET #1
FOR QUANTITY OF CHAIN ATTACHMENTS.

○ = EXISTING PIPE PILE TO BE REMOVED.

NOTES:

1. 12" DEEP GALVANIZED STEEL FRAME WITH MAIN STRUCTURAL END CHORDS FROM 3"x3"x3/16" ANGLE. SIDE CHORDS & END VERTICALS FROM 2"x2"x1/4" ANGLE. ALL OTHER ANGLE TO BE 1½"x1½"x3/16".
2. POLYETHYLENE FLOAT WITH POLYSTYRENE FLOTATION MOLDED INSIDE. (3/16" WALL)
3. CHAIN ANCHORAGE
4. ALL STEEL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. DECKING
   HEADPIERS & FINGERS:
   2"x6" COMPOSITE
   CORNERWALKS:
   2"x6" COMPOSITE
6. DOUBLE ROW 2"x8" TREATED SYP SIDEWOOD PERIMETER.
7. #5001 VINYL BUMPER PERIMETER OF DOCK.
8. CORNER BUMPERS ON OUTSIDE CORNERS OF DOCK.
   BUMPER COLORS
   VINYL BUMPERS: BLACK
   CORNER BUMPERS: BLACK
9. 10" ALUMINUM DECK CLEATS.
10. DECK FLOTATION LIVELOAD– ~30 P.S.F.

EXHIBIT A-1

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DOCK PLAN "P"

(24) 34' x 40' OPEN SLIPS
(1) 34' x 37' OPEN SLIP
(1) 4' x 40' ADA GANGWAY

NO.	REVISION DESCRIPTION	BY	DATE

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THE MARINA COMPANY
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CHICAGO, IL

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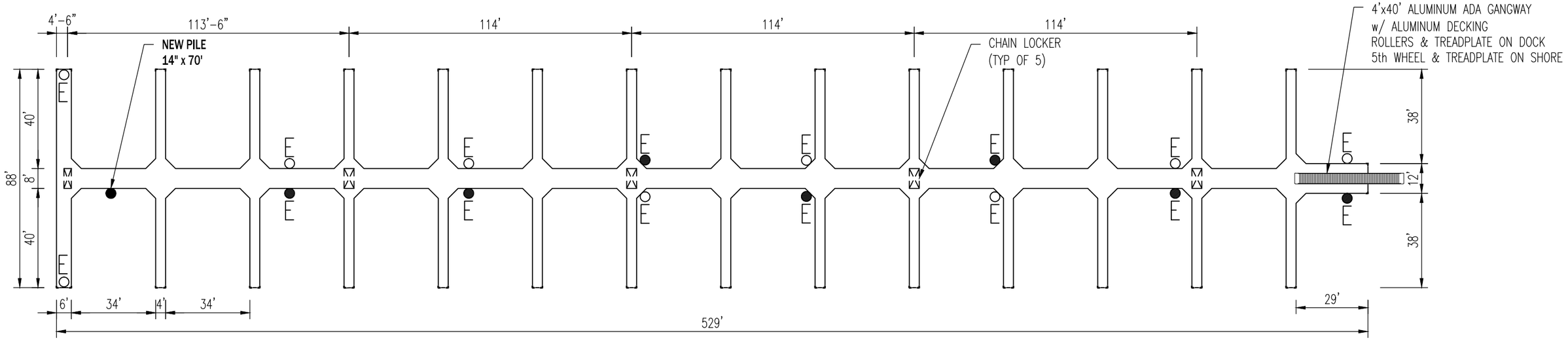

● = EXISTING 14" PIPE PILE – CUT OFF AT 36" ABOVE MUD LINE
ADD COLLAR FOR CHAIN ATTACHMENT – REFERENCE SHEET #1
FOR QUANTITY OF CHAIN ATTACHMENTS.

○ = EXISTING PIPE PILE TO BE REMOVED.

NOTES:

1. 12" DEEP GALVANIZED STEEL FRAME WITH MAIN STRUCTURAL END CHORDS FROM 3"x3"x3/16" ANGLE. SIDE CHORDS & END VERTICALS FROM 2"x2"x1/4" ANGLE. ALL OTHER ANGLE TO BE 1½"x1½"x3/16".
2. POLYETHYLENE FLOAT WITH POLYSTYRENE FLOTATION MOLDED INSIDE. (3/16" WALL)
3. CHAIN ANCHORAGE
4. ALL STEEL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. DECKING
   HEADPIERS & FINGERS:
   2"x6" COMPOSITE
   CORNERWALKS:
   2"x6" COMPOSITE
6. DOUBLE ROW 2"x8" TREATED SYP SIDEWOOD PERIMETER.
7. #5001 VINYL BUMPER PERIMETER OF DOCK.
8. CORNER BUMPERS ON OUTSIDE CORNERS OF DOCK.
   BUMPER COLORS
   VINYL BUMPERS: BLACK
   CORNER BUMPERS: BLACK
9. 10" ALUMINUM DECK CLEATS.
10. DECK FLOTATION LIVELOAD– ~30 P.S.F.

EXHIBIT A-1

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☐ APPROVED AS NOTED
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DOCK PLAN "Q"

(26) 34' x 40' OPEN SLIPS
(2) 29' x 38' OPEN SLIPS
(1) 4' x 40' ADA GANGWAY

NO.	REVISION DESCRIPTION	BY	DATE

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THE MARINA COMPANY
1501 E. ELECTRIC AVE. McALESTER, OKLAHOMA, USA 74501
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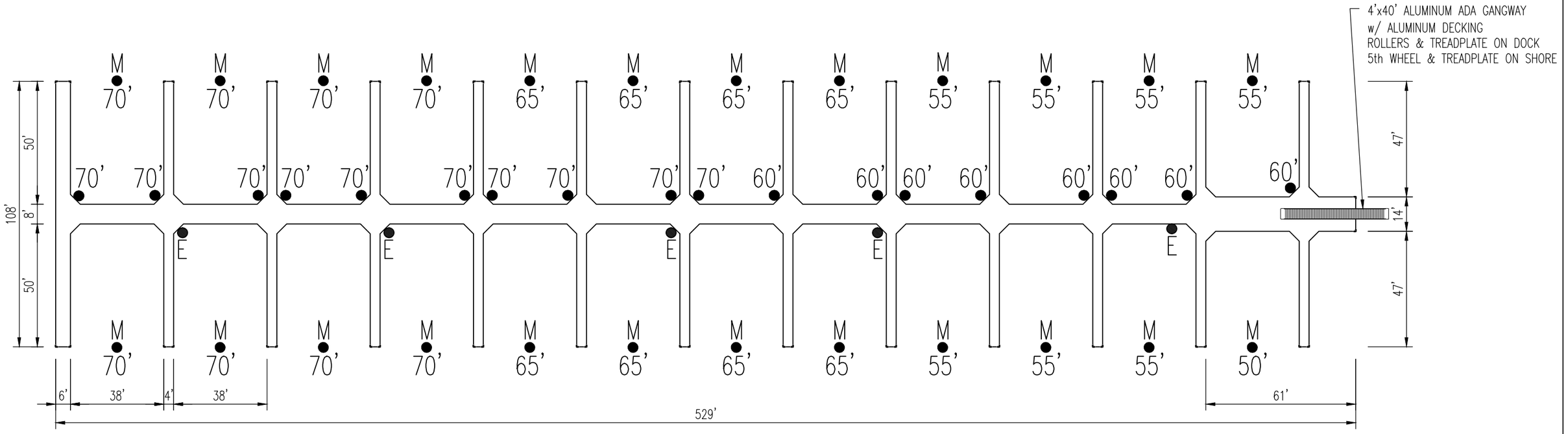
CHICAGO, IL



ALL EXISTING PIPE PILING EXCEPT THOSE MARKED "E" ARE TO BE REMOVED AND REUSED IF ACCEPTABLE.

M = MOORING PIPE PILING = 14"x.5 WALL, LENGTH AS NOTED.

E = EXISTING PIPE PILING – CUT OFF AT 36" ABOVE MUD LINE AND ADD CHAIN ATTACHMENT.

ALL NEW PIPE PILING ALONG MAINWALK TO BE 16"x.5 WALL (50ksi YEILD), LENGTH AS NOTED.

NOTES:

1. 12" DEEP GALVANIZED STEEL FRAME WITH MAIN STRUCTURAL END CHORDS FROM 3"x3"x3/16" ANGLE. SIDE CHORDS & END VERTICALS FROM 2"x2"x1/4" ANGLE. ALL OTHER ANGLE TO BE 1½"x1½"x3/16".
2. POLYETHYLENE FLOAT WITH POLYSTYRENE FLOTATION MOLDED INSIDE. (3/16" WALL)
3. CHAIN ANCHORAGE
4. ALL STEEL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. DECKING
   HEADPIERS & FINGERS:
   2"x6" COMPOSITE
   CORNERWALKS:
   2"x6" COMPOSITE
6. DOUBLE ROW 2"x8" TREATED SYP SIDEWOOD PERIMETER.
7. #5001 VINYL BUMPER PERIMETER OF DOCK.
8. CORNER BUMPERS ON OUTSIDE CORNERS OF DOCK.
   BUMPER COLORS
   VINYL BUMPERS: BLACK
   CORNER BUMPERS: BLACK
9. 10" ALUMINUM DECK CLEATS.
10. DECK FLOTATION LIVELOAD– ~30 P.S.F.

EXHIBIT A-1

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THE MARINA COMPANY
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DATE_____BY_____

DOCK PLAN "R"

(22) 38' x 50' OPEN SLIPS
(2) 38' x 47' OPEN SLIPS
(1) 4' x 40' ADA GANGWAY

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THE MARINA COMPANY
1501 E. ELECTRIC AVE. Phone: (918) 423–6833
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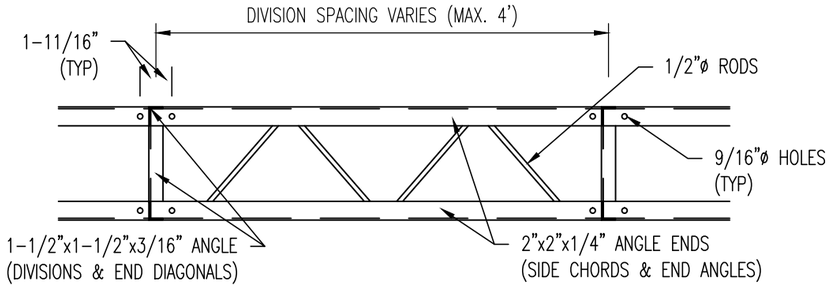
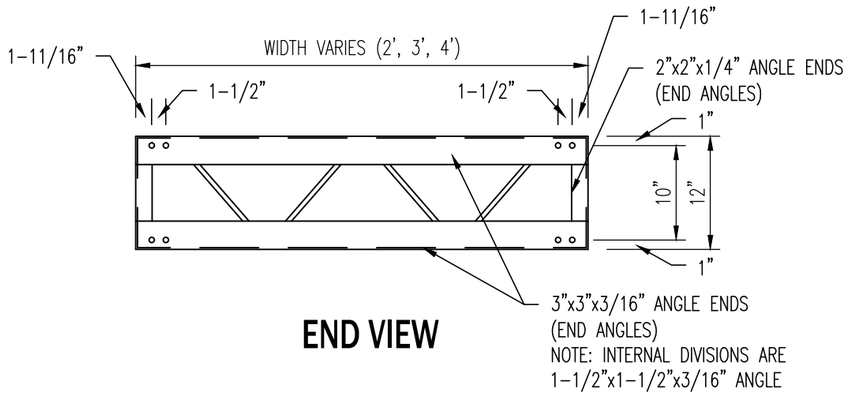
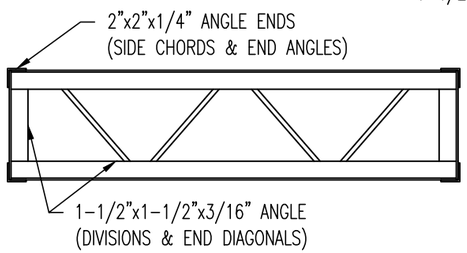


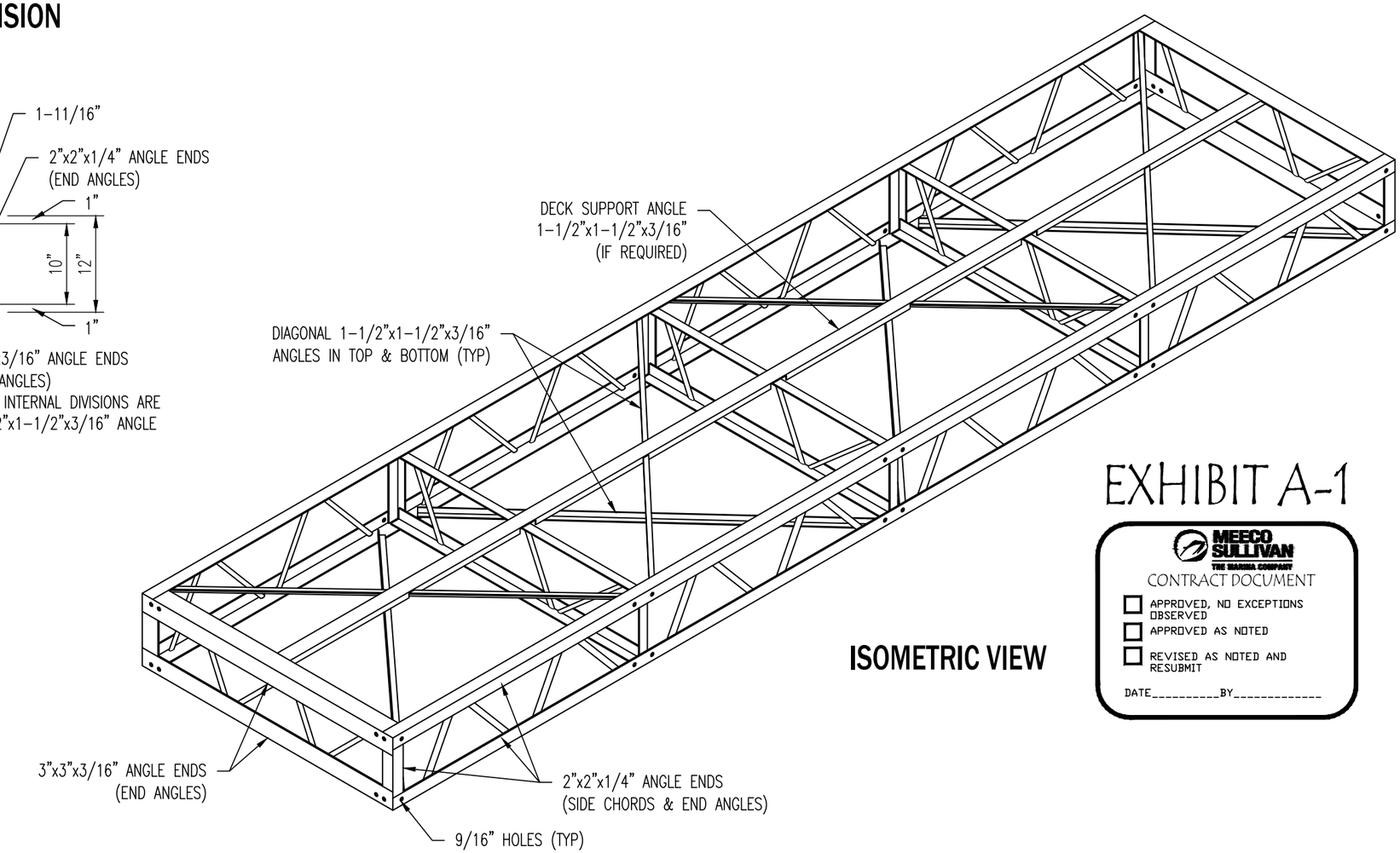
PARTIAL SIDE VIEW - 4' DIVISION



END VIEW



SECTION VIEW



ISOMETRIC VIEW

EXHIBIT A-1

MEECO SULLIVAN
THE MARINA COMPANY

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- ☐ APPROVED, NO EXCEPTIONS OBSERVED
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FRAME DETAIL - OPPOSING DIAGONALS

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THE MARINA COMPANY
1501 E. ELECTRIC AVE.
McALESTER, OKLAHOMA, USA 74501
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Fax: (918) 423-3215

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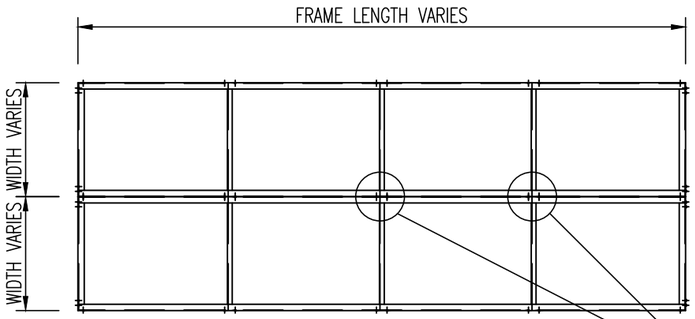
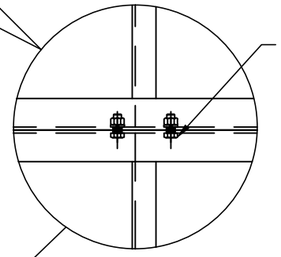


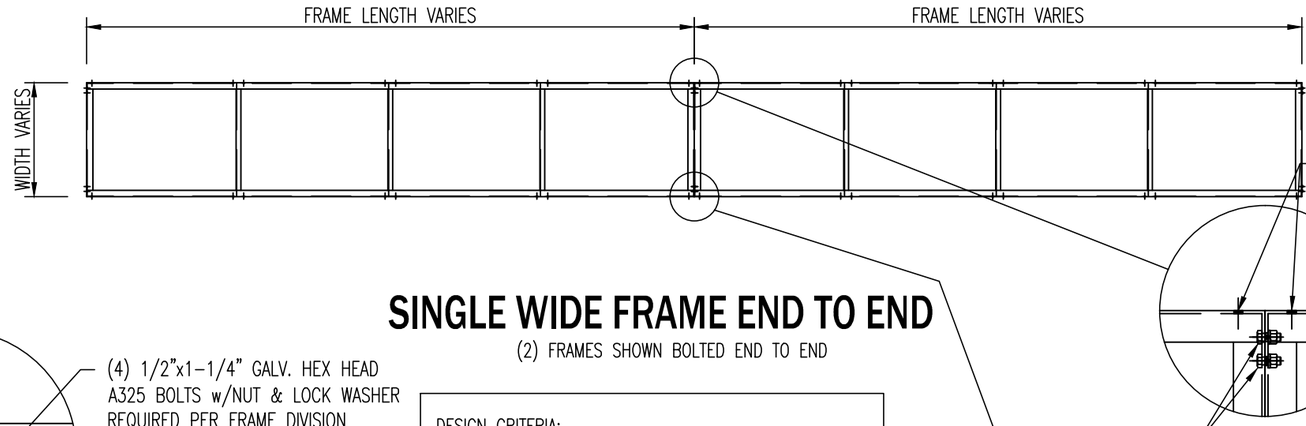
DOUBLE WIDE FRAME SIDE TO SIDE

(2) FRAMES SHOWN BOLTED SIDE TO SIDE

NOTE: ALL CONNECTIONS MAY NOT BE APPLICABLE TO THIS SPECIFIC PROJECT.



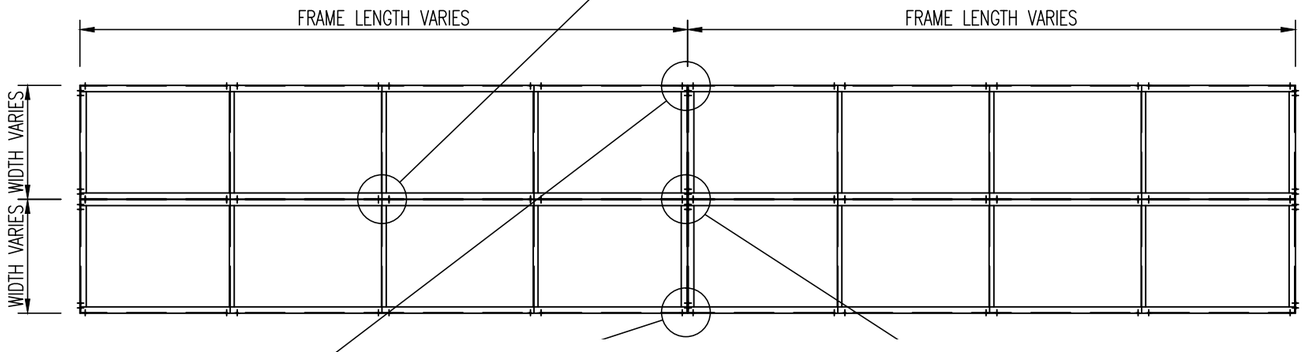
(4) 1/2"x1-1/4" GALV. HEX HEAD A325 BOLTS w/NUT & LOCK WASHER REQUIRED PER FRAME DIVISION
(1) AT TOP FRAME ANGLE &
(1) AT BOTTOM FRAME ANGLE



SINGLE WIDE FRAME END TO END

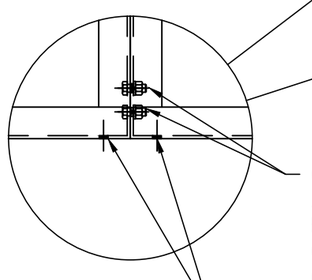
(2) FRAMES SHOWN BOLTED END TO END

DESIGN CRITERIA:
FRAMES ARE DESIGNED WITH PRE-PUNCHED HOLES FOR CONNECTING FRAMES END TO END AND SIDE TO SIDE FOR VARIOUS DOCK CONFIGURATIONS. THE MIN. REQUIRED BOLTS FOR THE SYSTEM DESIGN ARE INDICATED. ADDITIONAL HOLES NOT USED ARE FOR DESIGN UNIFORMITY AND TO ALLOW FOR FUTURE RECONFIGURATION AND OR ACCESSORY CONNECTIONS.



DOUBLE WIDE FRAME END TO END

(4) FRAMES SHOWN BOLTED SIDE TO SIDE AND END TO END



(4) 1/2"x1-1/4" GALV. HEX HEAD A325 BOLTS w/NUT & LOCK WASHER REQUIRED PER FRAME DIVISION
(1) AT TOP FRAME ANGLE &
(1) AT BOTTOM FRAME ANGLE

NO BOLTS REQUIRED
AT THESE HOLE LOCATIONS

EXHIBIT A-1

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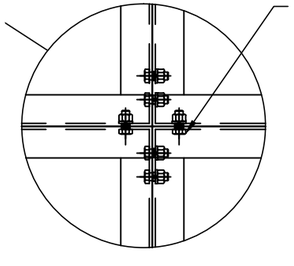
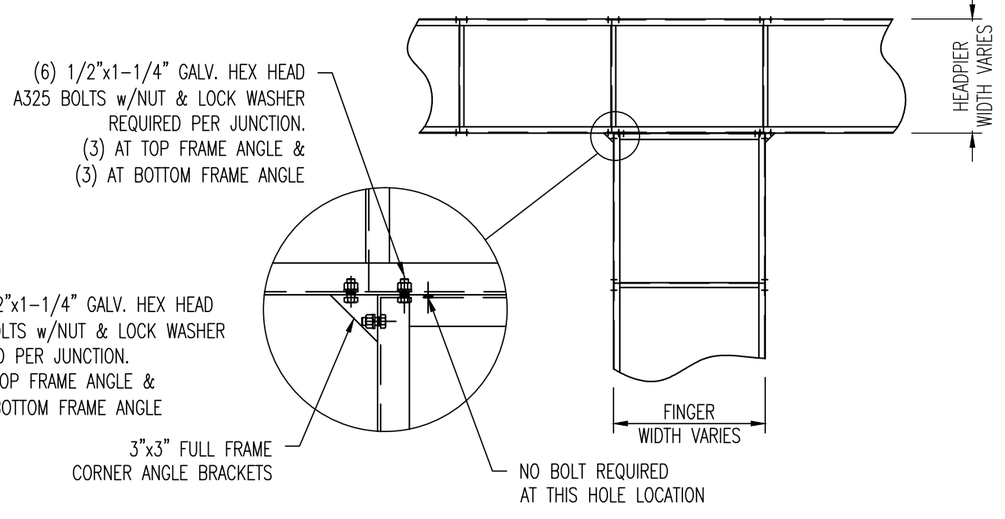


(12) 1/2"x1-1/4" GALV. HEX HEAD A325 BOLTS w/NUT & LOCK WASHER REQUIRED PER JUNCTION.
(4) AT TOP FRAME ANGLE &
(4) AT BOTTOM FRAME ANGLE

REQUIRED BOLTS WHERE (4) FRAMES COME TOGETHER



FINGER TO HEADPIER CONNECTION

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1501 E. ELECTRIC AVE. McALESTER, OKLAHOMA, USA 74501
Phone: (918) 423-6833 Fax: (918) 423-3215

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CHICAGO, IL

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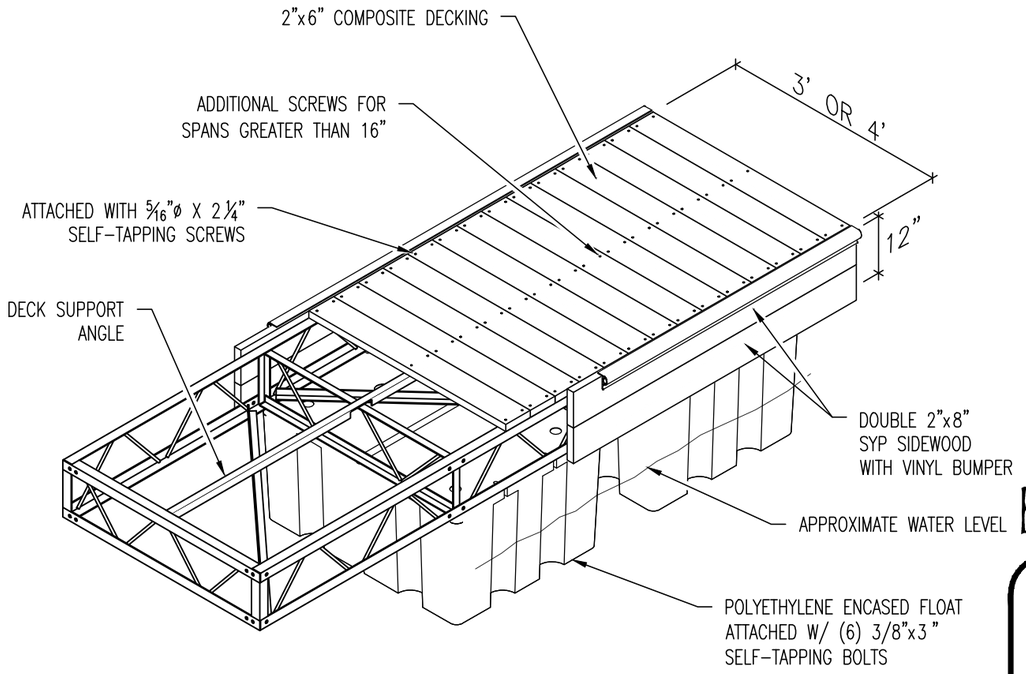

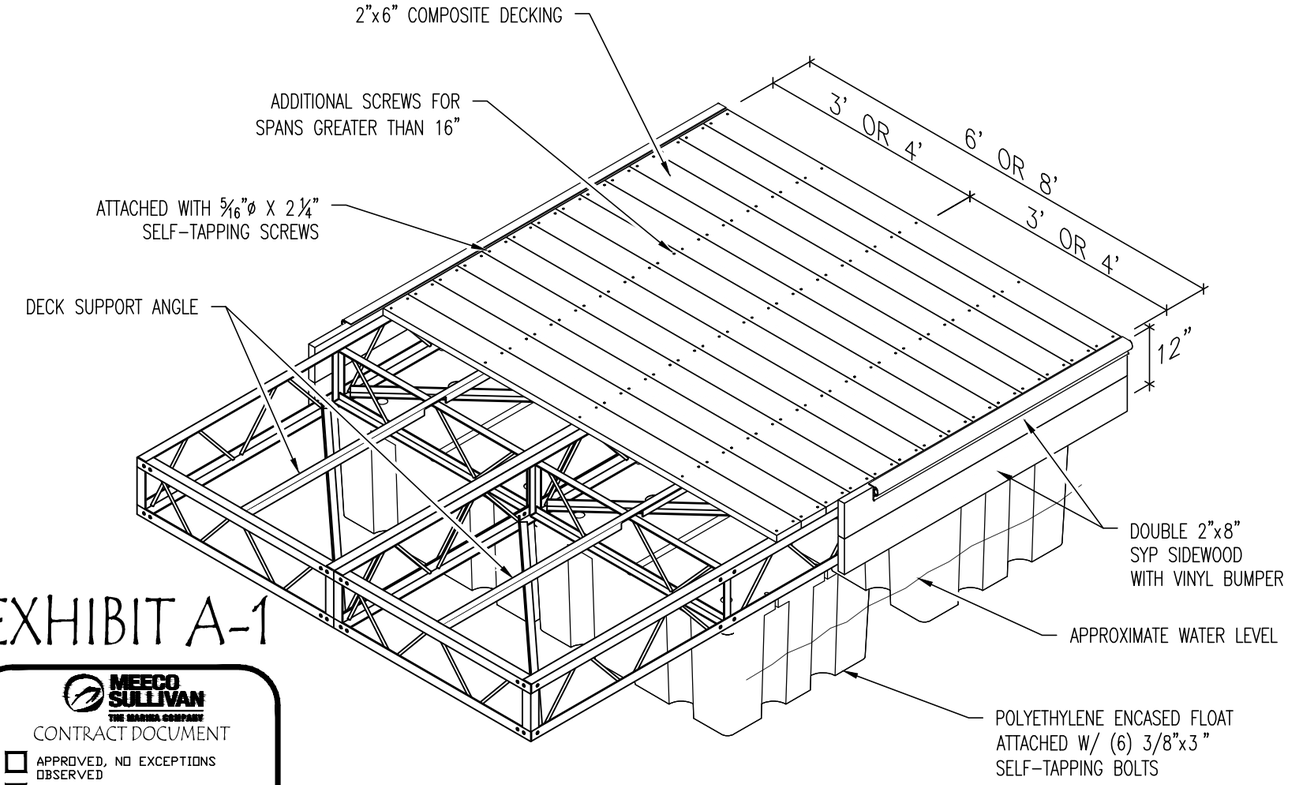

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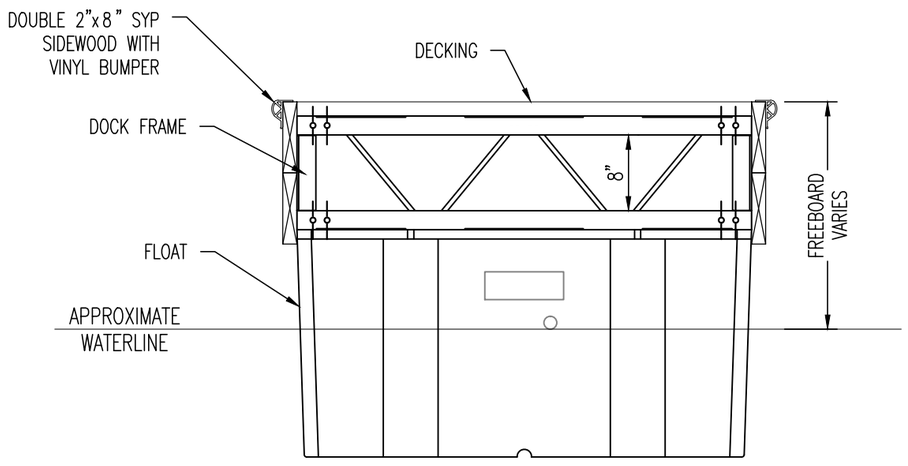
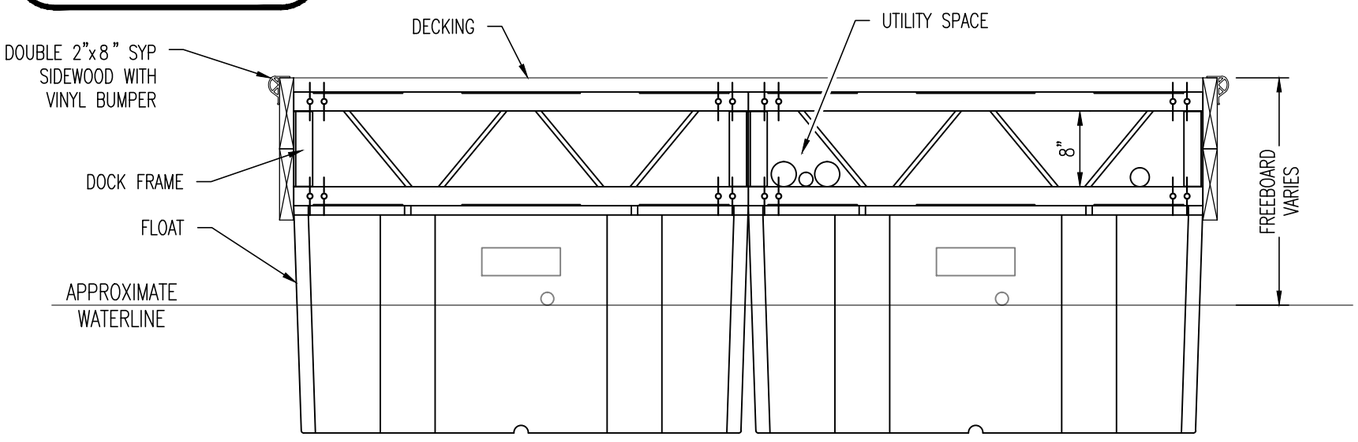
DATE_____BY_____

FLOTATION UNIT



SECTION VIEW

FLOTATION UNIT



SECTION VIEW

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THE MARINA COMPANY
1501 E. ELECTRIC AVE.
McALESTER, OKLAHOMA, USA 74501
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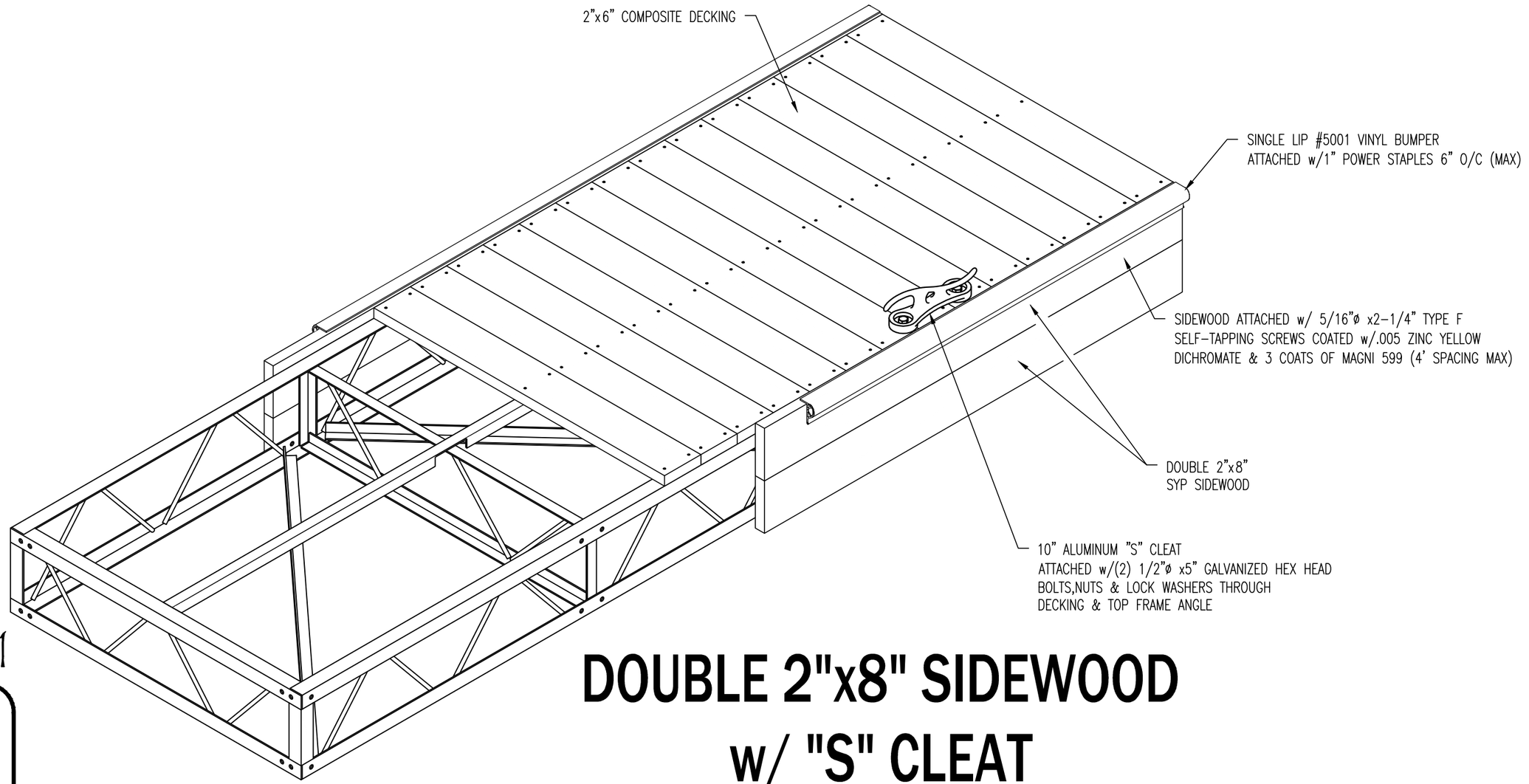
CHICAGO, IL



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DATE_____BY_____

DOUBLE 2"x8" SIDEWOOD w/ "S" CLEAT

NO.	REVISION DESCRIPTION	BY	DATE

MEECO SULLIVAN
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McALESTER, OKLAHOMA, USA 74501
Phone: (918) 423-6833
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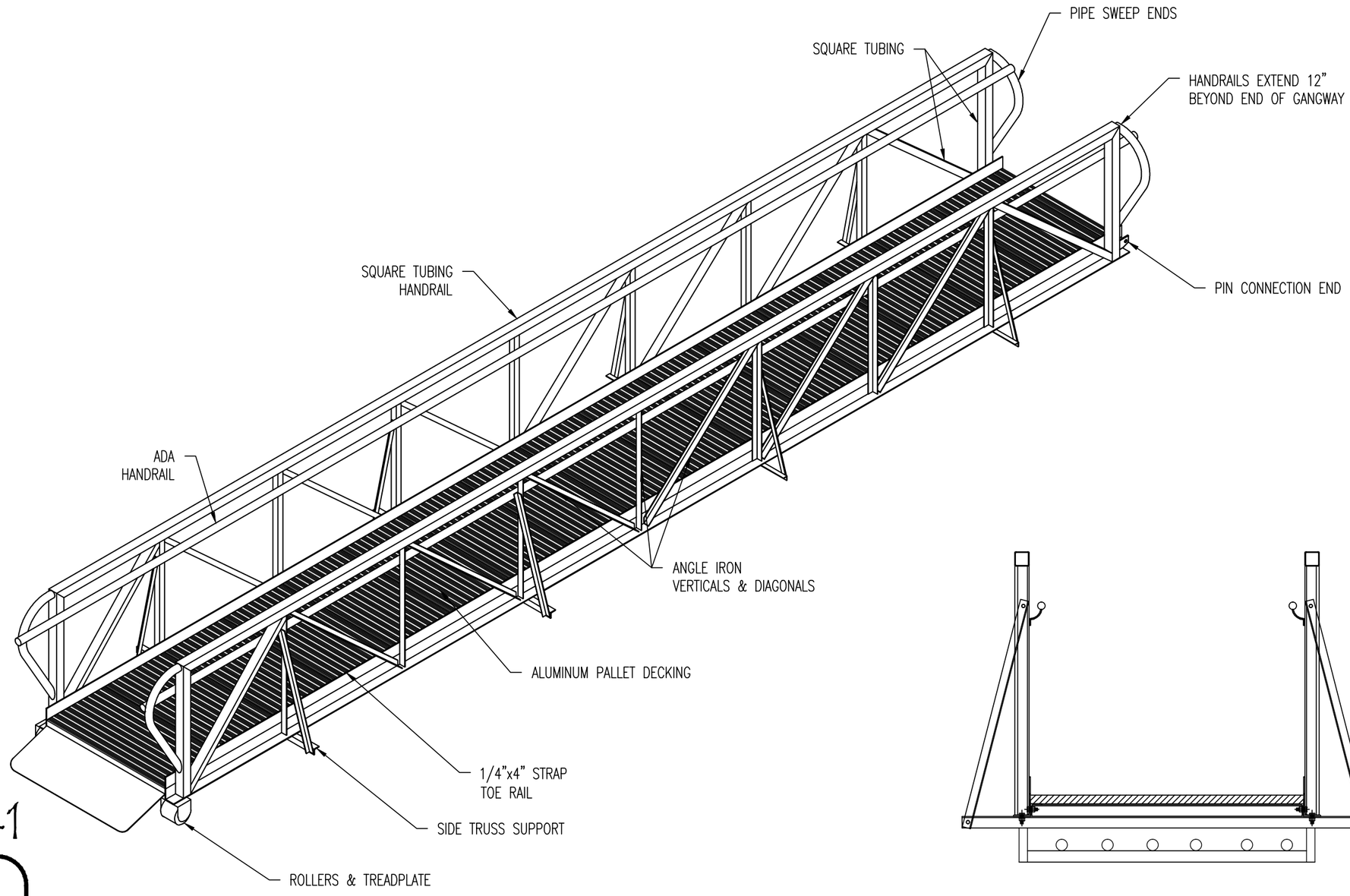
CHECKED BY:	JOB #	PLAN # 8419
SCALE: 1:16	DATE: 11/27/18	SHEET 9

BURNHAM HARBOR
CHICAGO, IL

M:\ARCHIVE\8400\8419-Burnham Harbor\8419-1.dwg, 9, 11/27/2018 4:34:00 PM, RLittleton



GANGWAY SECTION

EXHIBIT A-1

MEECO SULLIVAN
THE MARINA COMPANY
CONTRACT DOCUMENT

- ☐ APPROVED, NO EXCEPTIONS OBSERVED
- ☐ APPROVED AS NOTED
- ☐ REVISED AS NOTED AND RESUBMIT

DATE_____BY_____

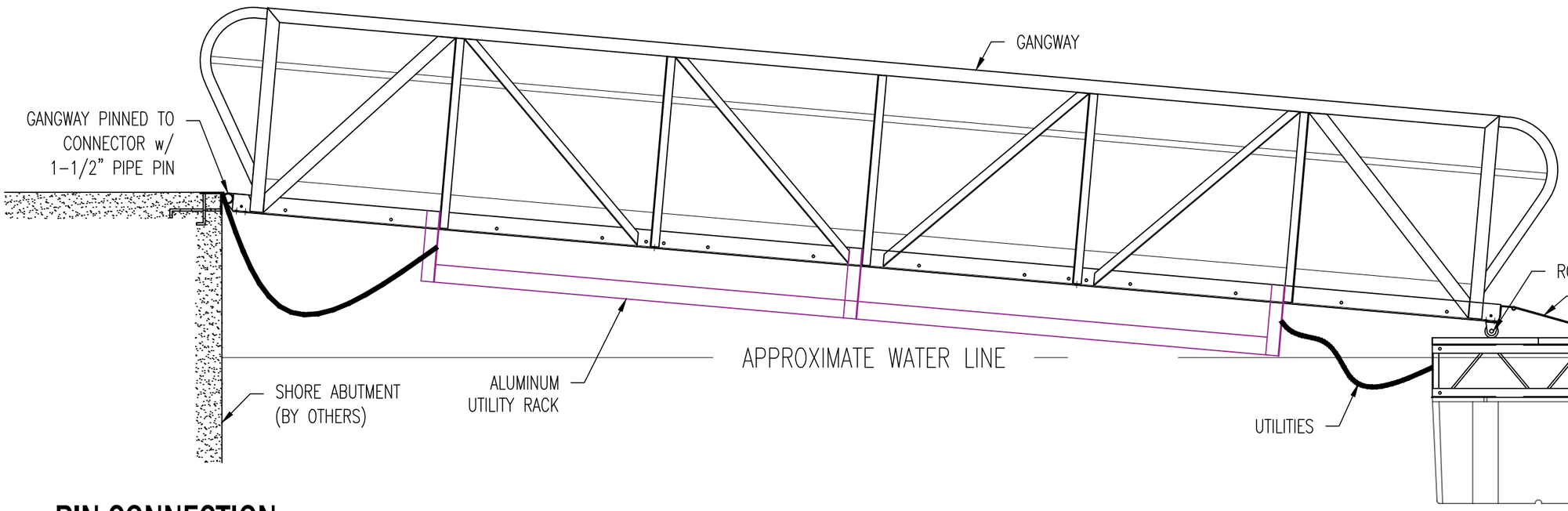
ALUMINUM ADA GANGWAY

NO.	REVISION DESCRIPTION	BY	DATE

MEECO SULLIVAN
THE MARINA COMPANY
1501 E. ELECTRIC AVE.
McALESTER, OKLAHOMA, USA 74501
Phone: (918) 423–6833
Fax: (918) 423–3215

DRAWN BY: RTL	FILE NAME: 8419-1	
CHECKED BY:	JOB #	PLAN # 8419
SCALE: 0.024728	DATE: 11/27/18	SHEET 10

BURNHAM HARBOR
CHICAGO, IL



PIN CONNECTION
SHORE END

ROLLER & TREADPLATE
DOCK END

EXHIBIT A-1

MEECO SULLIVAN
THE MARINA COMPANY

CONTRACT DOCUMENT

- ☐ APPROVED, NO EXCEPTIONS OBSERVED
- ☐ APPROVED AS NOTED
- ☐ REVISED AS NOTED AND RESUBMIT

DATE_____BY_____

NO.	REVISION DESCRIPTION	BY	DATE

MEECO SULLIVAN
THE MARINA COMPANY
1501 E. ELECTRIC AVE.
McALESTER, OKLAHOMA, USA 74501
Phone: (918) 423-6833
Fax: (918) 423-3215

DRAWN BY: RTL	FILE NAME: 8419-1	
CHECKED BY:	JOB #	PLAN # 8419
SCALE: 0.037194	DATE: 11/27/18	SHEET 11

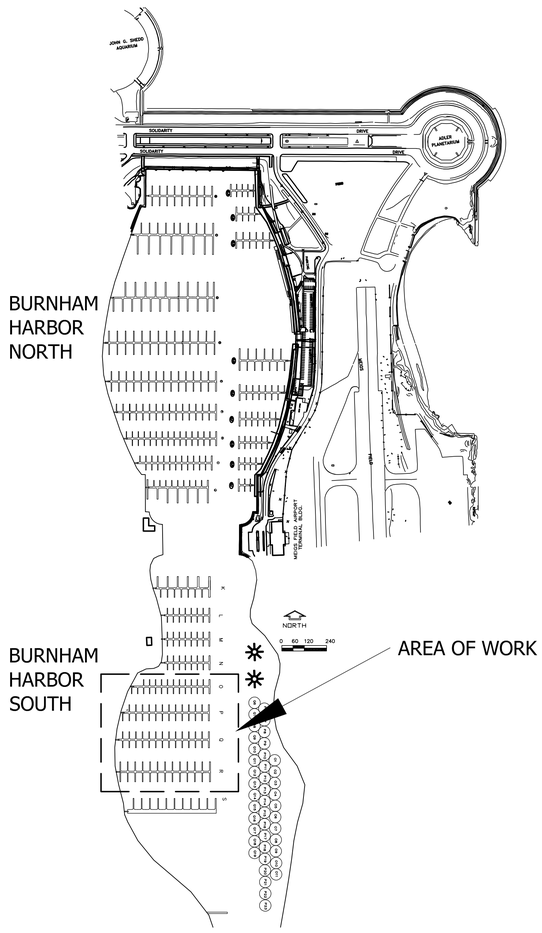
BURNHAM HARBOR
CHICAGO, IL

BURNHAM HARBOR SOUTH

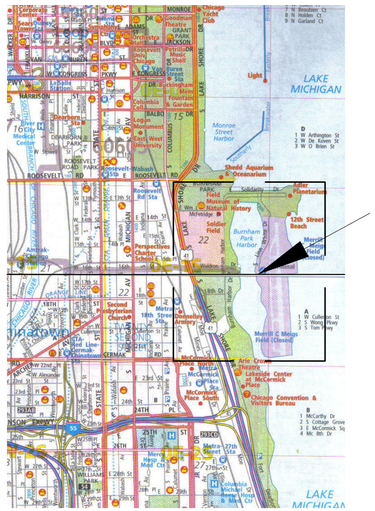
NEW MARINA WATER SYSTEMS

CHICAGO, ILLINOIS

BURNHAM HARBOR MAP



AREA MAP



PROJECT SCOPE

1. FURNISH AND INSTALL NEW WATER SYSTEM FOR MARINA DOCKS TO BE REPLACED FROM EXISTING WATER SUPPLY LINES.

SHEET INDEX

OWNER

Chicago Park District
471 N. Fairbanks Ct.
Chicago, Illinois
(312) 747-0567

CHICAGO PARK DISTRICT

425 East McFetridge Drive
Chicago, Illinois, 60605
60605

E		
D		
C		
B		
A	SUBMITTAL FOR REVIEW	11.27.2018
ISSUANCE		DATE

PROJECT MANAGER:
WESTREC MARINA MANAGEMENT, INC.
541 N. FAIRBANKS CT., SUITE 1020
CHICAGO, IL 60611
(312) 747-0737
westrec@westrecchicago.com

MECHANICAL ENGINEER:
HWR, INC.
1601 SHERMAN AVE., SUITE 230
EVANSTON, IL 60201
(847) 864-9366
hwrinc@gmail.com

DRAWN:	FJN
CHECKED:	LA
SCALE:	SEE DWG
DATE:	11.27.18
SPEC. NO.:	
W.O. NO.:	

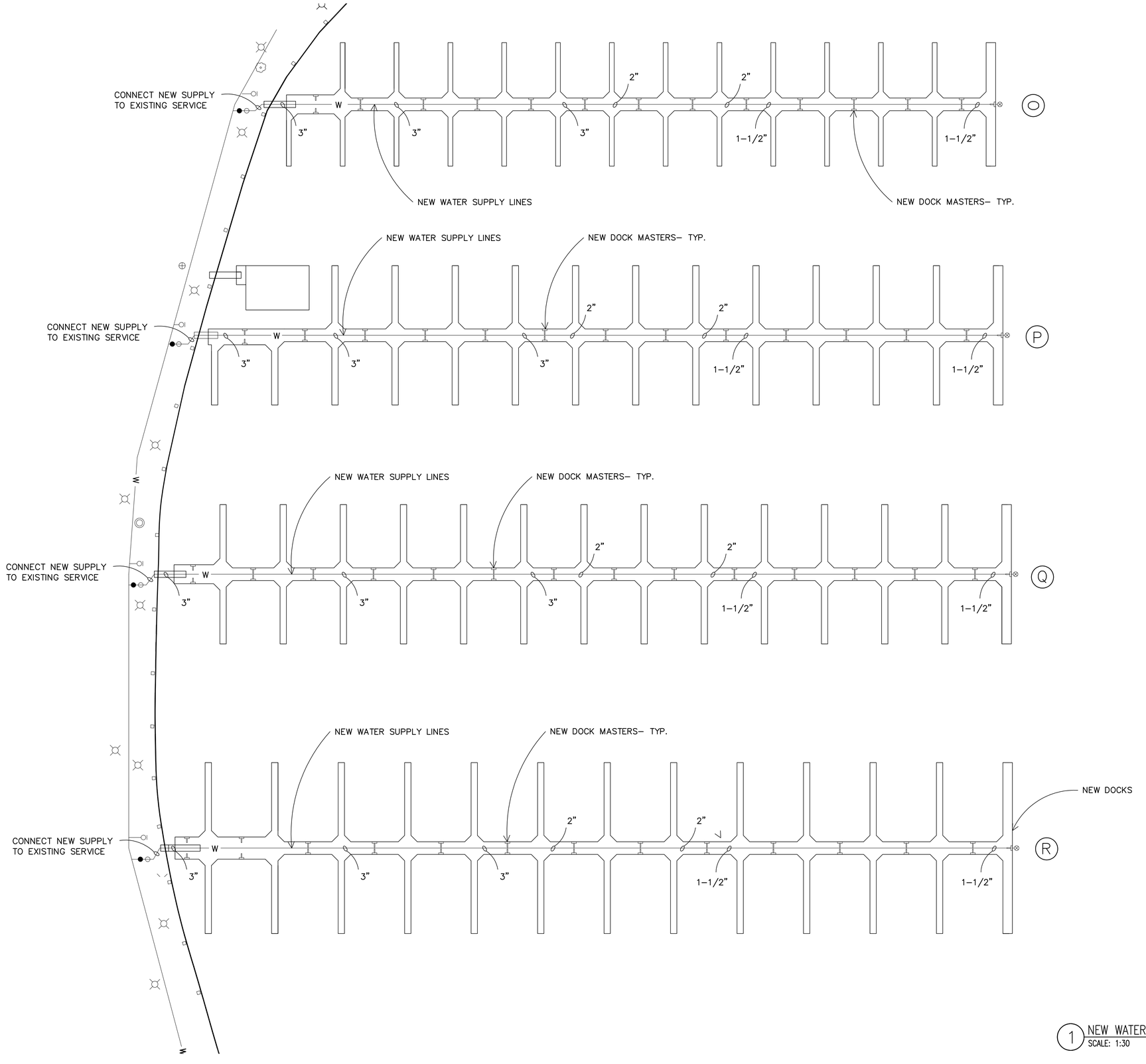
SHEET INFORMATION

BURNHAM HARBOR SOUTH NEW MARINA WATER SYSTEMS

PARK NO./PROJECT NO.

T-1.0

DRAWING NO.



1 NEW WATER SUPPLY SYSTEM TO NEW DOCKS
SCALE: 1:30

CHICAGO PARK DISTRICT

425 East McFetridge Drive
Chicago, Illinois, 60605
60605

E		
D		
C		
B		
A	SUBMITTAL FOR REVIEW	11.27.2018

ISSUANCE DATE

PROJECT MANAGER:
WESTREC MARINA MANAGEMENT, INC.
541 N. FAIRBANKS CT., SUITE 1020
CHICAGO, IL 60611
(312) 747–0737
westrec@westrecchicago.com

MECHANICAL ENGINEER:
HWR, INC.
1601 SHERMAN AVE., SUITE 230
EVANSTON, IL 60201
(847) 864–9366
hwrinc@gmail.com

DRAWN:	FJN
CHECKED:	LA
SCALE:	SEE DWG
DATE:	11.27.18
SPEC. NO.:	
W.O. NO.:	

SHEET INFORMATION

BURNHAM HARBOR SOUTH NEW MARINA WATER SYSTEMS

PARK NO./PROJECT NO.

M–1.0

DRAWING NO.

GENERAL NOTES

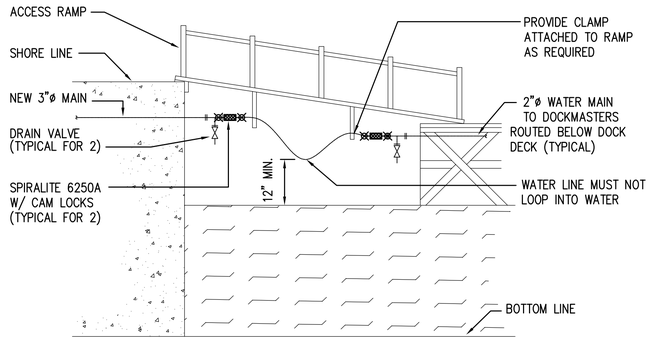
1. ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF CHICAGO BUILDING CODE AND THE STATE OF ILLINOIS PLUMBING CODE.

2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION WITH ALL OTHER TRADES FOR INSTALLATION OF PLUMBING WORK. IF PLUMBING AFER INSTALLATION INTERFERES WITH ANY OTHER TRADE, THIS CONTRACTOR SHALL REMOVE AND REROUTE PLUMBING AT HIS OWN EXPENSE.

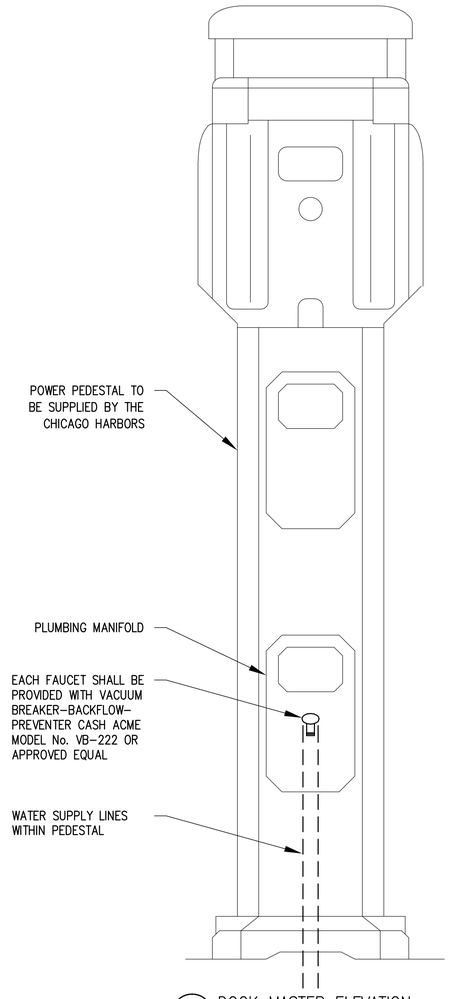
3. ALL PIPING, FITTINGS, AND JOINTS SHALL BE CHICAGO APPROVED.

4. ALL EXSISITNG WATER MAIN PIPING SHOWN ON DRAWINGS SHOULD BE VERIFIED IN FIELD.

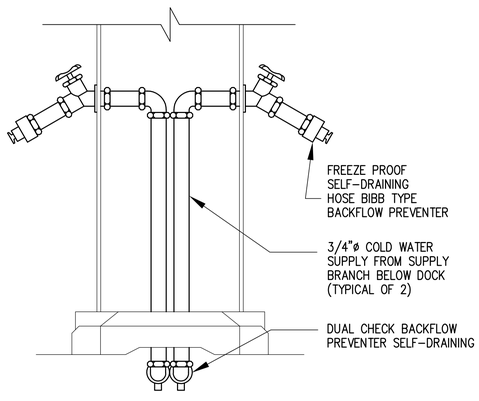
5. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES REQUIRED BY THE CITY OF CHICAGO.



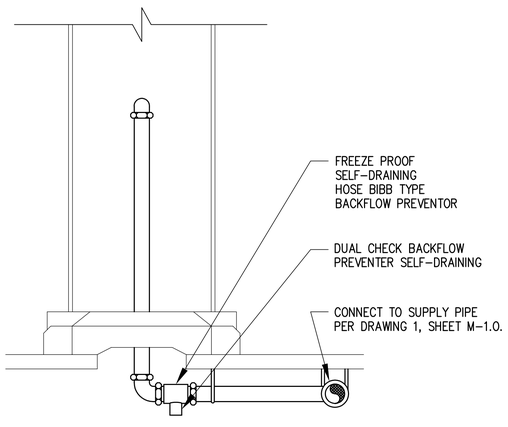
5 RAMP TO DOCK SUPPLY DETAIL
SCALE: NO TO SCALE



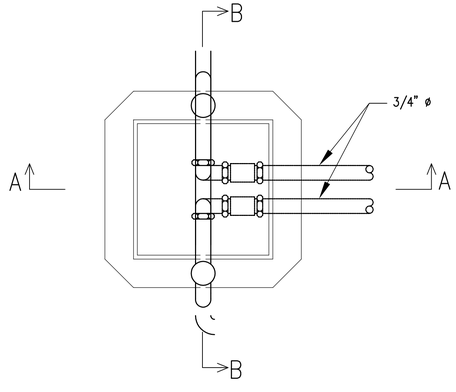
1 DOCK MASTER ELEVATION
SCALE: NO TO SCALE



4 WATER FAUCET DETAIL B–B
SCALE: NOT TO SCALE



3 WATER FAUCET DETAIL A–A
SCALE: NO TO SCALE



2 WATER FAUCET DETAIL– PLAN
SCALE: NO TO SCALE

CHICAGO PARK DISTRICT

425 East McFetridge Drive
Chicago, Illinois, 60605
60605

E		
D		
C		
B		
A	SUBMITTAL FOR REVIEW	11.27.2018
ISSUANCE	DATE	

PROJECT MANAGER:
WESTREC MARINA MANAGEMENT, INC.
541 N. FAIRBANKS CT., SUITE 1020
CHICAGO, IL 60611
(312) 747–0737
westrec@westrecchicago.com

MECHANICAL ENGINEER:
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EVANSTON, IL 60201
(847) 864–9366
hwrinc@gmail.com

DRAWN:	FJN
CHECKED:	LA
SCALE:	SEE DWG
DATE:	11.27.18
SPEC. NO.:	
W.O. NO.:	

SHEET INFORMATION

BURNHAM HARBOR SOUTH
NEW MARINA WATER SYSTEMS

PARK NO./PROJECT NO.

M–2.0

DRAWING NO.

LEGEND

P1 HARBOR LIGHT SS
SIDE 1: 30A 125V - 20A 125V GFCI - 30A 125V, ¾" WATER
SIDE 2: 30A 125V - 20A 125V GFCI - 30A 125V, ¾" WATER

P2 HARBOR LIGHT SS
SIDE 1: 30A 125V - 20A 125V GFCI - 30A 125V, ¾" WATER
SIDE 2: BLANK

P3 HARBOR LIGHT SS
SIDE 1: 50A 125/250V - 20A 125V GFCI, ¾" WATER
SIDE 2: 50A 125/250V - 20A 125V GFCI, ¾" WATER

P4 HARBOR LIGHT SS
SIDE 1: 50A 125/250V - 20A 125V GFCI - 30A 125V, ¾" WATER
SIDE 2: 50A 125/250V - 20A 125V GFCI - 30A 125V, ¾" WATER

P5 HARBOR LIGHT SS
SIDE 1: 100A 120/208V, ¾" WATER
SIDE 2: 50A 125/250V - 20A 125V GFCI - 50A 125/250V, ¾" WATER

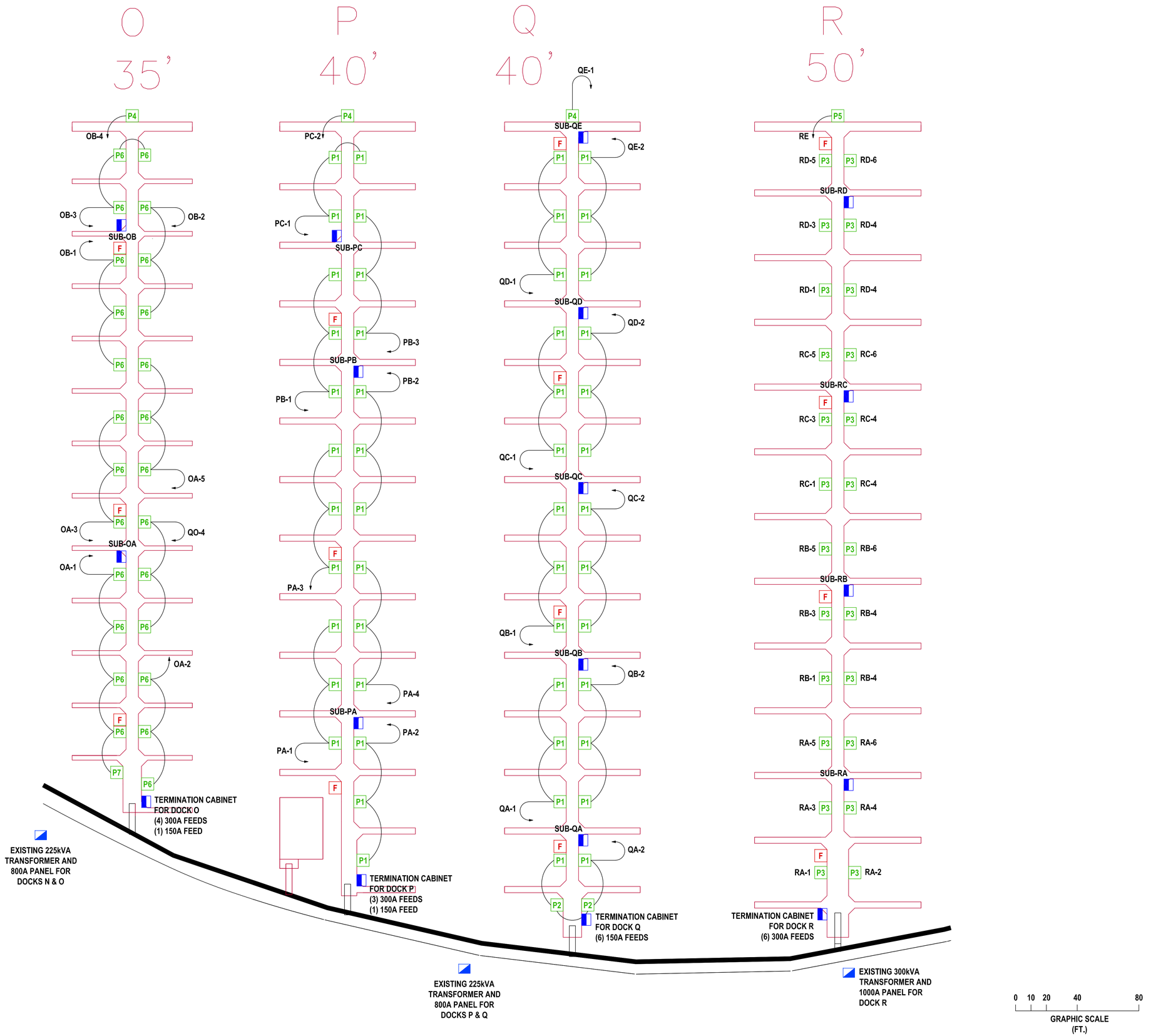
P6 HARBOR LIGHT SS
SIDE 1: 30A 125V - 20A 125V GFCI, ¾" WATER
SIDE 2: 30A 125V - 20A 125V GFCI, ¾" WATER

P7 HARBOR LIGHT SS
SIDE 1: 30A 125V - 20A 125V GFCI, ¾" WATER
SIDE 2: BLANK

F FIRE STATION
24" LIFE RING
10-LB TYPE ABC EXTINGUISHER
AUDIBLE STROBE

NOTES:

1. ELECTRICAL DESIGN WAS DEVELOPED USING THE FOLLOWING EXISTING ON-SHORE CONDITIONS:
   1.1. DOCK O - FOUR (4) 300A FEEDERS, ONE (1) 150A FEEDER
   1.2. DOCK P - THREE (3) 300A FEEDERS, ONE (1) 150A FEEDER
   1.3. DOCK Q - FIVE (5) 150A FEEDERS
   1.4. DOCK R - SIX (6) 300A FEEDERS
2. ALL FEEDER CABLES SHALL BE IN ACCORDANCE WITH THE ATTACHED WIRING SCHEDULE.
3. ALL ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO TAPS AND SPLICES, LOCATED BELOW THE ELECTRICAL DATUM PLANE SHALL UTILIZE APPROVED JUNCTION BOXES AND SEALED WIRE CONNECTORS LISTED AND IDENTIFIED FOR SUBMERSION.
4. ALL POWER PEDESTALS SHALL INCLUDE POLYCARBONATE HOUSING, LED LIGHTING ASSEMBLY WITH CLEAR LENS, FACTORY-WIRED COPPER BUS SYSTEM, 3/4" WATER VALVES (ONE PER ACTIVE SLIP), HIGH-SPEED RJ-45 INTERNET JACK (ONE PER ACTIVE SLIP), AND ELECTRONIC METERING WITH VISUAL kWH DISPLAY AND OPTIONAL WIRELESS OUTPUT.
5. EACH 30A AND 50A RECEPTACLE SHALL BE PROTECTED AT A 30mA GFI LEVEL WITH SHUNT-TRIP CIRCUIT BREAKERS AND A GROUND-FAULT MONITOR INTEGRAL TO EACH POWER PEDESTAL. THIS METHOD IS PREFERRED DUE TO THE HIGH FAILURE RATE OF GROUND-FAULT CIRCUIT BREAKERS CURRENTLY IN USE IN MARINA FACILITIES.
6. EACH DOCK SHALL HAVE A DISTRIBUTION CABINET AT THE BOTTOM OF THE GANGWAY FOR WINTERIZATION / DISCONNECTION PURPOSES.
7. ALTERNATE: NEW TRANSFORMERS PROVIDING 127/220V SECONDARY VOLTAGES TO BE PROVIDED PER CUSTOMER REQUEST.



PROJECT

BURNHAM HARBOR
CHICAGO, IL

MARINA ELECTRICAL EQUIPMENT, INC.
1715 MERRIMAC TRAIL
WILLIAMSBURG, VA 23185
TEL: 1-855-258-3939
FAX: 757-258-3988
WEB: www.marinaelectricalequipment.com

NO.	REVISION	DATE
1	Tap Feed Layout	11/5/18
2	Cabinet Layout	11/14/18
3	Cabinets on Dock	11/21/18
4	O-Dock Design	11/28/18
-	-	-
-	-	-

DATE: 11/28/2018
DRAWN: CLD
CHECKED: ----
SCALE: SEE DRAWING

REVISED ELECTRICAL LAYOUT

SHEET

E-1

Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg, VA 23185
Toll Free: 1-855-258-3939
Fax: 757-258-3988
Web: www.marinaelectricalequipment.com

Highest Quality Weatherproof Electrical Equipment

Complimentary Electrical Design and Layout Services Provided for:
Westrec - Chicago Harbors

Project:	**Burnham Harbor**		
Original Design Date:	10/26/18		
Rev.1:	11/14/18	**Rev.4:**	-
Rev.2:	11/21/18	**Rev.5:**	-
Rev.3:	11/28/18	**Rev.6:**	-
Contact:	Scott Stevenson		
Street:	541 N. Fairbanks Ct. - Suite 1020		
City, State, Zip	Chicago, IL 60611		
Phone:	312-742-8520		
Fax:	-		
E-mail:	sstevenson@chicagoharbors.com		

Filenames:	
Layout Drawing:	Burnham Harbor OPQR 11-28-18.dwg
One-Line Diagram:	-
Calculations Filename:	Burnham Harbor OPQR 11-28-18.xls

Primary Voltage:	-
Secondary Voltage:	120/208V
Voltage Drop:	5% Cumulative
Wire Type:	G-GC, G

Design Person: CLD **E-mail:** chrisdolan@marinaee.com
Salesperson: Chris Dolan

Thank you for the opportunity to provide an electrical design and quotation. Marina Electrical Equipment, Inc. (MEE) has provided the following electrical design as a complimentary service to assist you in planning your project. Please note that all wire lengths, electrical calculations, short-circuit current ratings, etc. are based on information provided to MEE by others. It is the responsibility of the customer to verify all equipment and wire lengths, and to determine that the electrical design meets all appropriate codes and standards before purchasing any equipment or material.

Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Panel Cabinet: O

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
O A	3	3	120 / 208		33				330.00	39.60	33	60%	90%	1	178.20	64.15	300	3	G	255	0.0380	350MCM	4	Incl.	-	1.732	2.99	1.44%
O B	3	3	120 / 208		18	2			246.67	29.60	20	70%	90%	1	155.40	55.94	300	3	G	470	0.0380	350MCM	4	Incl.	-	1.732	4.81	2.31%
Panel	3	3	120 / 208	0	51	2	0	0	SEE PANEL SCHEDULE BELOW										EXISTING FEEDER CABLES TO REMAIN									

Panel Schedule:
Panel Cabinet: O

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
O A	300	3	39.60			AØ	29.60			3	300	O B
				39.60		BØ		29.60				
					39.60	CØ			29.60			
O -3	SPACE	3	0.00			AØ	0.00			3	SPACE	O -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
O -5	SPACE	3	0.00			AØ	0.00			3	SPACE	O -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			
O -7	SPACE	3	0.00			AØ	0.00			3	SPACE	O -8
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
69.20	69.20	69.20

ELECTRICAL ABBREVIATIONS

ST	Shunt Trip
GFM	Ground Fault Monitor
GFCI	Class A Ground Fault Circuit Interrupter (People Protection)
EPD	Class B Equipment Protective Device (Equipment Protection)
SPD	Surge Protective Device
MCB	Main Circuit Breaker
MLO	Main Lug Only
LSIG	Long Time, Short Time, Instantaneous & Ground Fault
EGC	Equipment Grounding Conductor
GEC	Grounding Electrode Conductor
kAIC	Ampere Interrupting Capacity (x 1000)
ECB	Enclosed Circuit Breaker

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Panel Cabinet: P

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable								
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
P A	3	3	120 / 208		48				480.00	57.60	48	50%	90%	1	216.00	77.76	300	3	G	175	0.0380	350MCM	4	Incl.	-	1.732	2.49	1.20%
P B	3	3	120 / 208		36				360.00	43.20	36	60%	90%	1	194.40	69.98	300	3	G	405	0.0380	350MCM	4	Incl.	-	1.732	5.18	2.49%
P C	3	3	120 / 208		12	2			186.67	22.40	14	80%	90%	1	134.40	48.38	150	3	G	475	0.0380	350MCM	4	Incl.	-	1.732	4.20	2.02%
Panel	3	3	120 / 208	0	96	2	0	0	SEE PANEL SCHEDULE BELOW										EXISTING FEEDER CABLES TO REMAIN									

Panel Schedule:
Panel Cabinet: P

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
P A	300	3	57.60			AØ	43.20			3	300	P B
				57.60		BØ		43.20				
					57.60	CØ			43.20			
P C	150	3	26.40			AØ	0.00			3	300	P -4
				14.40		BØ		0.00				
					26.40	CØ			0.00			
P -5	SPACE	3	0.00			AØ	0.00			3	SPACE	P -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			
P -7	SPACE	3	0.00			AØ	0.00			3	SPACE	P -8
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
127.20	115.20	127.20

ELECTRICAL ABBREVIATIONS	
ST	Shunt Trip
GFM	Ground Fault Monitor
GFCI	Class A Ground Fault Circuit Interrupter (People Protection)
EPD	Class B Equipment Protective Device (Equipment Protection)
SPD	Surge Protective Device
MCB	Main Circuit Breaker
MLO	Main Lug Only
LSIG	Long Time, Short Time, Instantaneous & Ground Fault
EGC	Equipment Grounding Conductor
GEC	Grounding Electrode Conductor
kAIC	Ampere Interrupting Capacity (x 1000)
ECB	Enclosed Circuit Breaker

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Panel Cabinet: Q

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
Q A	3	3	120 / 208		24				240.00	28.80	24	70%	90%	1	151.20	54.43	150	3	G	125	0.0380	350MCM	4	Incl.	-	1.732	1.24	0.60%
Q B	3	3	120 / 208		24				240.00	28.80	24	70%	90%	1	151.20	54.43	150	3	G	240	0.0380	350MCM	4	Incl.	-	1.732	2.39	1.15%
Q C	3	3	120 / 208		24				240.00	28.80	24	70%	90%	1	151.20	54.43	150	3	G	355	0.0380	350MCM	4	Incl.	-	1.732	3.53	1.70%
Q D	3	3	120 / 208		24				240.00	28.80	24	70%	90%	1	151.20	54.43	150	3	G	470	0.0380	350MCM	4	Incl.	-	1.732	4.68	2.25%
Q E	3	3	120 / 208		12	2			186.67	22.40	14	80%	90%	1	134.40	48.38	150	3	G	585	0.0380	350MCM	4	Incl.	-	1.732	5.17	2.49%
Panel	3	3	120 / 208	0	108	2	0	0	SEE PANEL SCHEDULE BELOW										EXISTING FEEDER CABLES TO REMAIN									

Panel Schedule:
Panel Cabinet: Q

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
Q A	150	3	28.80			AØ	28.80			3	150	Q B
				28.80		BØ		28.80				
					28.80	CØ			28.80			
Q C	150	3	28.80			AØ	28.80			3	150	Q D
				28.80		BØ		28.80				
					28.80	CØ			28.80			
Q E	150	3	14.40			AØ	0.00			3	SPACE	Q -6
				26.40		BØ		0.00				
					26.40	CØ			0.00			
Q -7	SPACE	3	0.00			AØ	0.00			3	SPACE	Q -8
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
129.60	141.60	141.60

ELECTRICAL ABBREVIATIONS

ST	Shunt Trip
GFM	Ground Fault Monitor
GFCI	Class A Ground Fault Circuit Interrupter (People Protection)
EPD	Class B Equipment Protective Device (Equipment Protection)
SPD	Surge Protective Device
MCB	Main Circuit Breaker
MLO	Main Lug Only
LSIG	Long Time, Short Time, Instantaneous & Ground Fault
EGC	Equipment Grounding Conductor
GEC	Grounding Electrode Conductor
kAIC	Ampere Interrupting Capacity (x 1000)
ECB	Enclosed Circuit Breaker

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Panel Cabinet: R

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
R A	3	3	120 / 208			12			400.00	48.00	12	80%	90%	1	288.00	103.68	300	3	G	160	0.0380	350MCM	4	Incl.	-	1.732	3.03	1.46%
R B	3	3	120 / 208			12			400.00	48.00	12	80%	90%	1	288.00	103.68	300	3	G	290	0.0380	350MCM	4	Incl.	-	1.732	5.50	2.64%
R C	3	3	120 / 208			12			400.00	48.00	12	80%	90%	1	288.00	103.68	300	3	G	415	0.0380	350MCM	4	Incl.	-	1.732	7.87	3.78%
R D	3	3	120 / 208			12			400.00	48.00	12	80%	90%	1	288.00	103.68	300	3	G	540	0.0190	Two (2) 350MCM	4	Incl.	-	1.732	5.12	2.46%
R E	3	3	120 / 208					1	100.00	12.01	1	100%	90%	1	90.00	32.42	100	3	G	580	0.0620	#4/0	4	Incl.	-	1.732	5.61	2.69%
Panel	3	3	120 / 208	0	0	48	0	1	SEE PANEL SCHEDULE BELOW										EXISTING FEEDER CABLES TO REMAIN									

Panel Schedule:
Panel Cabinet: R
Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
R A	300	3	48.00			AØ	48.00			3	300	R B
				48.00		BØ		48.00				
					48.00	CØ			48.00			
R C	300	3	48.00			AØ	48.00			3	300	R D
				48.00		BØ		48.00				
					48.00	CØ			48.00			
R E	100	3	12.01			AØ	0.00			3	SPACE	R -6
				12.01		BØ		0.00				
					12.01	CØ			0.00			
R -7	SPACE	3	0.00			AØ	0.00			3	SPACE	R -8
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
204.01	204.01	204.01

ELECTRICAL ABBREVIATIONS	
ST	Shunt Trip
GFM	Ground Fault Monitor
GFCI	Class A Ground Fault Circuit Interrupter (People Protection)
EPD	Class B Equipment Protective Device (Equipment Protection)
SPD	Surge Protective Device
MCB	Main Circuit Breaker
MLO	Main Lug Only
LSIG	Long Time, Short Time, Instantaneous & Ground Fault
EGC	Equipment Grounding Conductor
GEC	Grounding Electrode Conductor
kAIC	Ampere Interrupting Capacity (x 1000)
ECB	Enclosed Circuit Breaker

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: OA

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
OA -1	3	3	120 / 208		9				90.00	10.80	9	80%	90%	1	64.80	23.33	80	3	G	155	0.3100	#4	4	Incl.	-	1.732	5.39	2.59%
OA -2	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	175	0.3100	#4	4	Incl.	-	1.732	4.57	2.20%
OA -3	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	105	0.3100	#4	4	Incl.	-	1.732	2.74	1.32%
OA -4	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	115	0.3100	#4	4	Incl.	-	1.732	3.00	1.44%
OA -5	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	150	0.3100	#4	4	Incl.		1.732	3.91	1.88%
Panel	3	3	120 / 208	0	33	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: OA

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
OA -1	80	3	10.80			AØ	7.20			3	60	OA -2
				10.80		BØ		7.20				
					10.80	CØ			7.20			
OA -3	60	3	7.20			AØ	7.20			3	60	OA -4
				7.20		BØ		7.20				
					7.20	CØ			7.20			
OA -5	60	3	7.20			AØ	0.00			3	SPACE	OA -6
				7.20		BØ		0.00				
					7.20	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
39.60	39.60	39.60

Total Connected kW:	118.80	Demand kW:	64.15	SPD Protection (kA/Phase):	-
Total Receptacles:	33	Demand Current:	178.07	GFM Trip Setting (mA):	-
Demand Factors: Rec:	60%	Demand kVA:	64.15	GFM Branch/Main Protection:	-
Meter:	90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
PF:	1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: OB

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
OB -1	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	105	0.3100	#4	4	Incl.	-	1.732	2.74	1.32%
OB -2	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	105	0.3100	#4	4	Incl.	-	1.732	2.74	1.32%
OB -3	3	3	120 / 208		6				60.00	7.20	6	90%	90%	1	48.60	17.50	60	3	G	70	0.3100	#4	4	Incl.	-	1.732	1.83	0.88%
OB -4	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	85	0.1900	#2	3	Incl.	-	2	2.91	1.40%
Panel	3	3	120 / 208	0	18	2	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: OB

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
OB -1	60	3	7.20			AØ	7.20			3	60	OB -2
				7.20		BØ		7.20				
					7.20	CØ			7.20			
OB -3	60	3	7.20			AØ	12.00			2	100	OB -4
				7.20		BØ		0.00				
					7.20	CØ			12.00			
OB -5	SPACE	3	0.00			AØ	0.00			3	SPACE	OB -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
33.60	21.60	33.60

Total Connected kW:	88.80		Demand kW:	55.94	SPD Protection (kA/Phase):	-
Total Receptacles:	20		Demand Current:	155.29	GFM Trip Setting (mA):	-
Demand Factors:	Rec:	70%	Demand kVA:	55.94	GFM Branch/Main Protection:	-
	Meter:	90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF:	1.000	Poles:	3		

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Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: PA

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
PA -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	110	0.1900	#2	4	Incl.	-	1.732	3.13	1.50%
PA -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	120	0.1900	#2	4	Incl.	-	1.732	3.41	1.64%
PA -3	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	205	0.1900	#2	4	Incl.	-	1.732	5.83	2.80%
PA -4	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	125	0.1900	#2	4	Incl.	-	1.732	3.55	1.71%
Panel	3	3	120 / 208	0	48	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: PA

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
PA -1	100	3	14.40			AØ	14.40			3	100	PA -2
				14.40		BØ		14.40				
					14.40	CØ			14.40			
PA -3	100	3	14.40			AØ	14.40			3	100	PA -4
				14.40		BØ		14.40				
					14.40	CØ			14.40			
PA -5	SPACE	3	0.00			AØ	0.00			3	SPACE	PA -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE		
AØ kW	BØ kW	CØ kW
57.60	57.60	57.60

Total Connected kW:	172.80		Demand kW:	77.76	SPD Protection (kA/Phase):	-
Total Receptacles:	48		Demand Current:	215.84	GFM Trip Setting (mA):	-
Demand Factors:	Rec:	50%	Demand kVA:	77.76	GFM Branch/Main Protection:	-
	Meter:	90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF:	1.000	Poles:	3		

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Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: PB

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
PB -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	120	0.1900	#2	4	Incl.	-	1.732	3.41	1.64%
PB -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	110	0.1900	#2	4	Incl.	-	1.732	3.13	1.50%
PB -3	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	125	0.1900	#2	4	Incl.	-	1.732	3.55	1.71%
Panel	3	3	120 / 208	0	36	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: PB

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
PB -1	100	3	14.40			AØ	14.40			3	100	PB -2
				14.40		BØ		14.40				
					14.40	CØ			14.40			
PB -3	100	3	14.40			AØ	0.00			3	SPACE	PB -4
				14.40		BØ		0.00				
					14.40	CØ			0.00			
PB -5	SPACE	3	0.00			AØ	0.00			3	SPACE	PB -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
43.20	43.20	43.20

Total Connected kW:	129.60	Demand kW:	69.98	SPD Protection (kA/Phase):	-
Total Receptacles:	36	Demand Current:	194.26	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 60%	Demand kVA:	69.98	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

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Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: PC

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
PC -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	80	0.1900	#2	4	Incl.	-	1.732	2.27	1.09%
PC -2	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	100	0.1900	#2	3	Incl.	-	2	3.42	1.64%
Panel	3	3	120 / 208	0	12	2	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: PC

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
PC -1	100	3	14.40			AØ	12.00			2	100	PC -2
				14.40		BØ		0.00				
					14.40	CØ			12.00			
PC -3	SPACE	3	0.00			AØ	0.00			3	SPACE	PC -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
PC -5	SPACE	3	0.00			AØ	0.00			3	SPACE	PC -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
26.40	14.40	26.40

Total Connected kW:	67.20	Demand kW:	48.38	SPD Protection (kA/Phase):	-
Total Receptacles:	14	Demand Current:	134.30	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 80%	Demand kVA:	48.38	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	150	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

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Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: QA

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
QA -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	130	0.1900	#2	4	Incl.	-	1.732	3.70	1.78%
QA -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	100	0.1900	#2	4	Incl.	-	1.732	2.84	1.37%
Panel	3	3	120 / 208	0	24	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: QA

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
QA -1	100	3	14.40			AØ	14.40			3	100	QA -2
				14.40		BØ		14.40				
					14.40	CØ			14.40			
QA -3	SPACE	3	0.00			AØ	0.00			3	SPACE	QA -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
QA -5	SPACE	3	0.00			AØ	0.00			3	SPACE	QA -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
28.80	28.80	28.80

Total Connected kW:	86.40	Demand kW:	54.43	SPD Protection (kA/Phase):	-
Total Receptacles:	24	Demand Current:	151.09	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 70%	Demand kVA:	54.43	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	150	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: QB

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
QB -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	130	0.1900	#2	4	Incl.	-	1.732	3.70	1.78%
QB -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	110	0.1900	#2	4	Incl.	-	1.732	3.13	1.50%
Panel	3	3	120 / 208	0	24	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: QB

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
QB -1	100	3	14.40			AØ	14.40			3	100	QB -2
				14.40		BØ		14.40				
					14.40	CØ			14.40			
QB -3	SPACE	3	0.00			AØ	0.00			3	SPACE	QB -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
QB -5	SPACE	3	0.00			AØ	0.00			3	SPACE	QB -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
28.80	28.80	28.80

Total Connected kW:	86.40	Demand kW:	54.43	SPD Protection (kA/Phase):	-
Total Receptacles:	24	Demand Current:	151.09	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 70%	Demand kVA:	54.43	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	150	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: QC

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
QC -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	130	0.1900	#2	4	Incl.	-	1.732	3.70	1.78%
QC -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	110	0.1900	#2	4	Incl.	-	1.732	3.13	1.50%
Panel	3	3	120 / 208	0	24	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: QC

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
QC -1	100	3	14.40			AØ	14.40			3	100	QC -2
				14.40		BØ		14.40				
					14.40	CØ			14.40			
QC -3	SPACE	3	0.00			AØ	0.00			3	SPACE	QC -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
QC -5	SPACE	3	0.00			AØ	0.00			3	SPACE	QC -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
28.80	28.80	28.80

Total Connected kW:	86.40	Demand kW:	54.43	SPD Protection (kA/Phase):	-
Total Receptacles:	24	Demand Current:	151.09	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 70%	Demand kVA:	54.43	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	150	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: QD

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
QD -1	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	130	0.1900	#2	4	Incl.	-	1.732	3.70	1.78%
QD -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	110	0.1900	#2	4	Incl.	-	1.732	3.13	1.50%
Panel	3	3	120 / 208	0	24	0	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: QD

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
QD -1	100	3	14.40			AØ	14.40			3	100	QD -2
				14.40		BØ		14.40				
					14.40	CØ			14.40			
QD -3	SPACE	3	0.00			AØ	0.00			3	SPACE	QD -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
QD -5	SPACE	3	0.00			AØ	0.00			3	SPACE	QD -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
28.80	28.80	28.80

Total Connected kW:	86.40	Demand kW:	54.43	SPD Protection (kA/Phase):	-
Total Receptacles:	24	Demand Current:	151.09	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 70%	Demand kVA:	54.43	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	150	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: QE

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
QE -1	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	40	0.1900	#2	3	Incl.	-	2	1.37	0.66%
QE -2	3	3	120 / 208		12				120.00	14.40	12	80%	90%	1	86.40	31.10	100	3	G	110	0.1900	#2	4	Incl.	-	1.732	3.13	1.50%
Panel	3	3	120 / 208	0	12	2	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: QE

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
QE -1	100	2	0.00			AØ	14.40			3	100	QE -2
				12.00		BØ		14.40				
					12.00	CØ			14.40			
QE -3	SPACE	3	0.00			AØ	0.00			3	SPACE	QE -4
				0.00		BØ		0.00				
					0.00	CØ			0.00			
QE -5	SPACE	3	0.00			AØ	0.00			3	SPACE	QE -6
				0.00		BØ		0.00				
					0.00	CØ			0.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
14.40	26.40	26.40

Total Connected kW:	67.20	Demand kW:	48.38	SPD Protection (kA/Phase):	-
Total Receptacles:	14	Demand Current:	134.30	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 80%	Demand kVA:	48.38	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	150	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: RA

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
RA -1	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	90	0.1900	#2	3	Incl.	-	2	3.08	1.48%
RA -2	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	80	0.1900	#2	3	Incl.	-	2	2.74	1.32%
RA -3	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	45	0.1900	#2	3	Incl.	-	2	1.54	0.74%
RA -4	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	35	0.1900	#2	3	Incl.	-	2	1.20	0.58%
RA -5	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	55	0.1900	#2	3	Incl.	-	2	1.88	0.90%
RA -6	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	60	0.1900	#2	3	Incl.	-	2	2.05	0.99%
Panel	3	3	120 / 208	0	0	12	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: RA

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
RA -1	100	2	12.00			AØ	0.00			2	100	RA -2
				12.00		BØ		12.00				
					0.00	CØ			12.00			
RA -3	100	2	12.00			AØ	12.00			2	100	RA -4
				0.00		BØ		12.00				
					12.00	CØ			0.00			
RA -5	100	2	0.00			AØ	12.00			2	100	RA -6
				12.00		BØ		0.00				
					12.00	CØ			12.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
48.00	48.00	48.00

Total Connected kW:	144.00	Demand kW:	103.68	SPD Protection (kA/Phase):	-
Total Receptacles:	12	Demand Current:	287.79	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 80%	Demand kVA:	103.68	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: RB

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
RB -1	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	90	0.1900	#2	3	Incl.	-	2	3.08	1.48%
RB -2	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	80	0.1900	#2	3	Incl.	-	2	2.74	1.32%
RB -3	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	45	0.1900	#2	3	Incl.	-	2	1.54	0.74%
RB -4	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	35	0.1900	#2	3	Incl.	-	2	1.20	0.58%
RB -5	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	55	0.1900	#2	3	Incl.	-	2	1.88	0.90%
RB -6	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	60	0.1900	#2	3	Incl.	-	2	2.05	0.99%
Panel	3	3	120 / 208	0	0	12	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: RB

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
RB -1	100	2	12.00			AØ	0.00			2	100	RB -2
				12.00		BØ		12.00				
					0.00	CØ			12.00			
RB -3	100	2	12.00			AØ	12.00			2	100	RB -4
				0.00		BØ		12.00				
					12.00	CØ			0.00			
RB -5	100	2	0.00			AØ	12.00			2	100	RB -6
				12.00		BØ		0.00				
					12.00	CØ			12.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
48.00	48.00	48.00

Total Connected kW:	144.00	Demand kW:	103.68	SPD Protection (kA/Phase):	-
Total Receptacles:	12	Demand Current:	287.79	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 80%	Demand kVA:	103.68	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

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Marina Electrical Equipment, Inc.
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Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: RC

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
RC -1	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	90	0.1500	#1	3	Incl.	-	2	2.43	1.17%
RC -2	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	80	0.1500	#1	3	Incl.	-	2	2.16	1.04%
RC -3	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	45	0.1900	#2	3	Incl.	-	2	1.54	0.74%
RC -4	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	35	0.1900	#2	3	Incl.	-	2	1.20	0.58%
RC -5	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	55	0.1900	#2	3	Incl.	-	2	1.88	0.90%
RC -6	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	60	0.1900	#2	3	Incl.	-	2	2.05	0.99%
Panel	3	3	120 / 208	0	0	12	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: RC

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
RC -1	100	2	12.00			AØ	0.00			2	100	RC -2
				12.00		BØ		12.00				
					0.00	CØ			12.00			
RC -3	100	2	12.00			AØ	12.00			2	100	RC -4
				0.00		BØ		12.00				
					12.00	CØ			0.00			
RC -5	100	2	0.00			AØ	12.00			2	100	RC -6
				12.00		BØ		0.00				
					12.00	CØ			12.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
48.00	48.00	48.00

Total Connected kW:	144.00	Demand kW:	103.68	SPD Protection (kA/Phase):	-
Total Receptacles:	12	Demand Current:	287.79	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 80%	Demand kVA:	103.68	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

Thank you for the opportunity to provide an electrical design and quotation. Marina Electrical Equipment, Inc. (MEE) has provided the following electrical design as a complimentary service to assist you in planning your project. Please note that all wire lengths, electrical calculations, short-circuit current ratings, etc. are based on information provided to MEE by others. It is the responsibility of the customer to verify all equipment and wire lengths, and to determine that the electrical design meets all appropriate codes and standards before purchasing any equipment or material.

Marina Electrical Equipment, Inc.
1715 Merrimac Trail
Williamsburg VA 23185

Project Name: Burnham Harbor
Original Design Date: 10/26/2018 Rev.1: 11/14/18 Rev.2 11/21/18 Rev.3 11/28/18 Rev.4 - Rev.5 - Rev.6 -
Subpanel: RD

Circuit ID	Phase	Phase Adj	Voltage	Receptacles					Total Line Current	Total Line kW	Total Rec.	Demand Factors		Power Factor	Dem. Current	Dem. kW	CB Size	CB Poles	Cable									
				20A GFCI, 120V	30A, 120V	50A, 120/240V	100A 1Ø, 120/240V	100A 3Ø, 208Y/120V				Rec.	Meter						Cable Type	Circuit Length	Resist.	Size	Qty. Cond.	EGC	GEC	Phase Adj.	VD	VD%
RD -1	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	90	0.1900	#2	3	Incl.	-	2	3.08	1.48%
RD -2	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	80	0.1900	#2	3	Incl.	-	2	2.74	1.32%
RD -3	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	45	0.1900	#2	3	Incl.	-	2	1.54	0.74%
RD -4	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	35	0.1900	#2	3	Incl.	-	2	1.20	0.58%
RD -5	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	55	0.1900	#2	3	Incl.	-	2	1.88	0.90%
RD -6	1	2	120 / 208			2			100.00	12.00	2	100%	90%	1	90.00	21.60	100	2	G-GC	60	0.1900	#2	3	Incl.	-	2	2.05	0.99%
Panel	3	3	120 / 208	0	0	12	0	0	SEE PANEL SCHEDULE BELOW										SEE MAIN PANEL SCHEDULE FOR FEEDER CALCULATIONS									

Panel Schedule:
Subpanel: RD

Service Voltage: 120 / 208 **Phase: 3** **Bussing: Tin Plated Copper** **kAIC: 22** **Fully Rated**

Circuit ID	CB Size	CB Poles	AØ kW	BØ kW	CØ kW	Ø Bal.	AØ kW	BØ kW	CØ kW	CB Poles	CB Size	Circuit ID
RD -1	100	2	12.00			AØ	0.00			2	100	RD -2
				12.00		BØ		12.00				
					0.00	CØ			12.00			
RD -3	100	2	12.00			AØ	12.00			2	100	RD -4
				0.00		BØ		12.00				
					12.00	CØ			0.00			
RD -5	100	2	0.00			AØ	12.00			2	100	RD -6
				12.00		BØ		0.00				
					12.00	CØ			12.00			

TOTAL PHASE BALANCE

AØ kW	BØ kW	CØ kW
48.00	48.00	48.00

Total Connected kW:	144.00	Demand kW:	103.68	SPD Protection (kA/Phase):	-
Total Receptacles:	12	Demand Current:	287.79	GFM Trip Setting (mA):	-
Demand Factors:	Rec: 80%	Demand kVA:	103.68	GFM Branch/Main Protection:	-
	Meter: 90%	MLO SIZE:	300	Enclosure Type:	N3RX Stainless Steel
	PF: 1.000	Poles:	3		

NOTE: P Calculated as P=I*E*cos(θ)

Thank you for the opportunity to provide an electrical design and quotation. Marina Electrical Equipment, Inc. (MEE) has provided the following electrical design as a complimentary service to assist you in planning your project. Please note that all wire lengths, electrical calculations, short-circuit current ratings, etc. are based on information provided to MEE by others. It is the responsibility of the customer to verify all equipment and wire lengths, and to determine that the electrical design meets all appropriate codes and standards before purchasing any equipment or material.