



# ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	PAY UNIT	ESTIMATED QUANTITIES
110	Mobilization & Demobilization	L.S.	All Req'd
111(1)	Erosion and Pollution Control, Administration	L.S.	All Req'd
111(2)	Erosion and Pollution Control	C.S.	All Req'd
112	Construction Surveying by the Contractor	L.S.	All Req'd
120(1)	DBE Adjustment	C.S.	All Req'd
201	Removal of Structures & Obstructions	L.S.	All Req'd
301(1)	16"Ø x 9/16" wall Pipe Piles, Furnished or Salvaged	L.F.	270 269.25
301(2)	16"Ø x 9/16" wall Pipe Piles, Driven	EA.	3
301(3)	18"Ø x 1/2" wall Pipe Piles, Furnished	L.F.	475 425.7
301(4)	18"Ø x 1/2" wall Pipe Piles, Driven	EA.	6
302(1)	Dolphin "2R" Cap & Fender	L.S.	All Req'd
302(2)	Dolphin "D" Fender Modification	L.S.	All Req'd
302(3)	Dolphin "3" Fender Modification	L.S.	All Req'd
302(4)	Dolphin "1" Modification	L.S.	All Req'd
302(5)	New Catwalks	L.S.	All Req'd
308	Prestressed Pile Anchors	EA.	2
302(6)	STRUCTURAL STEEL MOD.	L.S.	A.R.

See plans for Structure Location

200,852.70

# GENERAL NOTES

Specifications: Per Contract Documents for Project No. A.I.P. 3-02-0144-1299/67717  
 Construction: Per Contract Documents for Project No. A.I.P. 3-02-0144-1299/67717

Dolphin: Alaska Marine Engineering Standards

Design Loads:

Dolphin: Berthing E = 25 ft. - Kips Service  
 Bridges & Aprons: AASHTO HS20-44  
 Walkways: 85 psf  
 Catwalks: 65 psf

Design Unit Stresses:

Steel: A36  $F_s = 20$  Ksi  
 A252 Gr. 2  $F_s = 19.25$  Ksi  
 A500 Gr. B  $F_s = 25$  Ksi  
 A572  $F_s = 27$  Ksi  
 A108  $F_s = 29$  Ksi  
 A608 Gr. D  $F_s = 30$  Ksi

Materials:

Steel: Tube Sections A500 Gr. B  
 Pile A252 Gr. 2, A501 or A53, Gr. B, type E or S  
 Pipe A53, Gr. B, type E or S  
 All other shall be A36

Protective Coatings:

Dolphin Cap, Piles and Fender System Steel: Galvanized after fabrication.

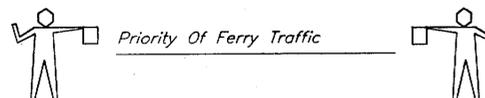
Rails and Misc. Steel: Galvanized after fabrication.

Piling:

Size: 18" dia. x 1/2" wall steel pipe for Graving Dolphins  
 16" dia. x 9/16" wall steel pipe for Dolphin "D" Fender

Tips: Steel Cutting Shoe APF 0-14000 or 0-14001 or equal  
 (may reuse Cutting Shoe on Salvaged Piling if not damaged)

Driving Requirements: See table this sheet.



- Once the Contractor begins improvements the following will remain in force until the project is completed.
  - The Contractor shall conduct his operations so as not to interfere with normal scheduled ferry access or vehicular traffic to and from the existing ferry facilities.
  - Ferry traffic shall have priority over construction activities and it shall be the Contractor's responsibility to coordinate his activities with ferry arrivals and departures.
  - Terminal personnel will stage traffic, and operate the transfer equipment.
  - Contractor shall provide safe access and lighting for terminal personnel to tie up points as required throughout the contract.
- The Contractor shall not stockpile any materials in the existing staging area without approval of the Engineer.

# PILING DATA

PILE LOCATION (Layout Shts. 3 & 9)	STRUCTURE ORIENTATION & (pile tip)	DIA. Inches	CAPACITY (TONS)		ELEVATIONS		TIP ELEVATIONS		TOTAL ESTIMATED LENGTH	
			BEARING	UPLIFT	APPROX MUDDLINE	CUT-OFF	MIN.	EST.		
MOORING STRUCTURE "D"										
	Fender	3	16	20	--	-48	+24.75	-65	-65	219.25
MOORING STRUCTURE "1"										
	Batter 3:1	2	18	35	35	-25	+29.70	-50	-50	167
MOORING STRUCTURE "2R"										
	Vertical	2	18	*	**	-30	+22.33	-50	-50	148
	Batter 3:1	2	18	35	35	-25	+27.33	-50	-50	163

\*Piles to be driven approximately 1 foot into fractured bedrock for anchor installation.  
 \*\*Pile Anchors required on these two vertical piles. See Sheet 10 for details.

PATH: Q:\Ktn\6771\MF\DRAWINGS\SHEET2.DWG		
PLOT: xx		
BY:	DATE:	DESCRIPTION OF CHANGE:

STATE OF ALASKA  
 DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES  
 SOUTHEAST REGION DESIGN & CONSTRUCTION

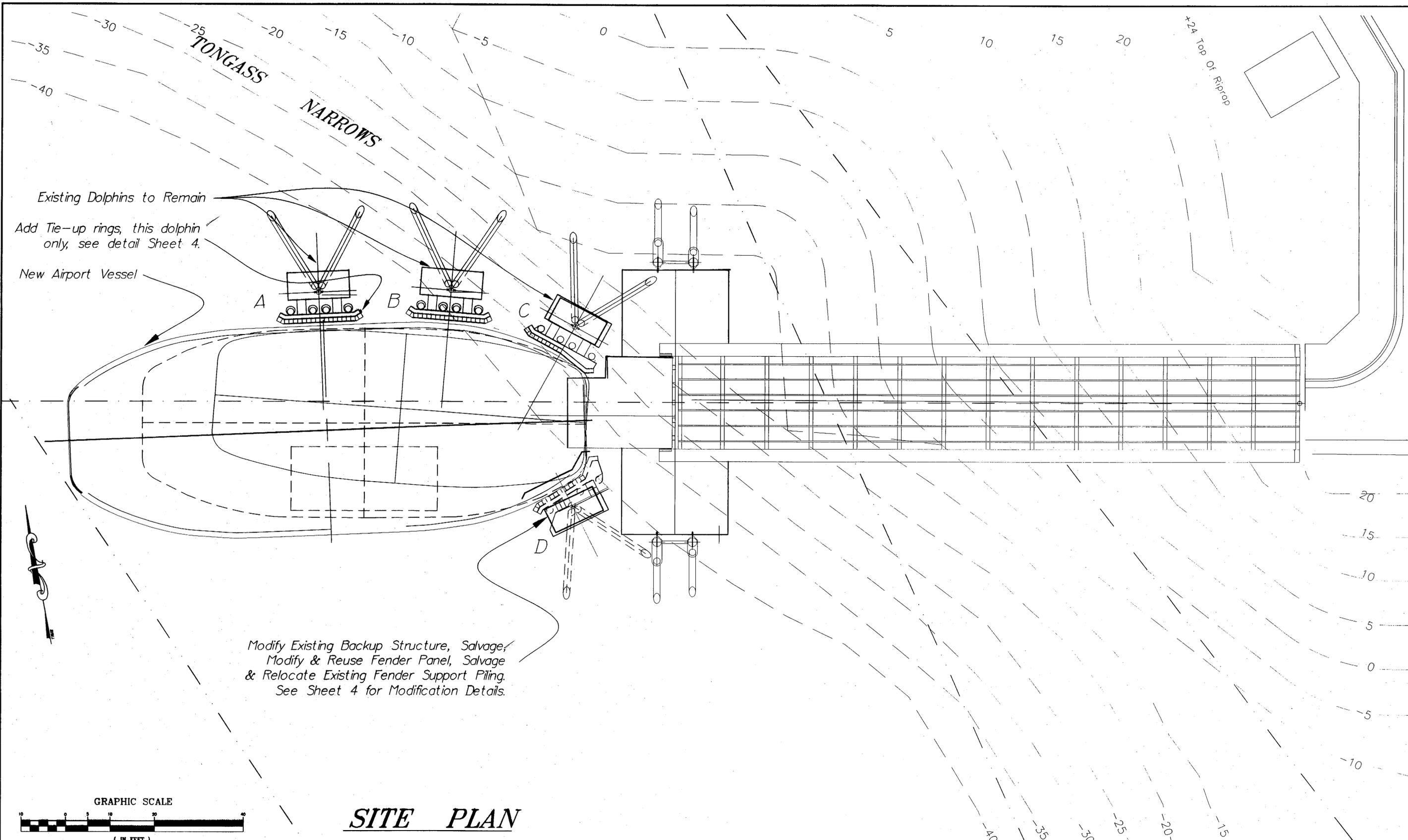
KETCHIKAN

AIRPORT FERRY TERMINALS  
 DOLPHIN & FENDER RELOCATION  
 PROJECT NO. A.I.P. 3-02-0144-1299 / 67717  
**QUANTITIES & GENERAL NOTES**

ALA

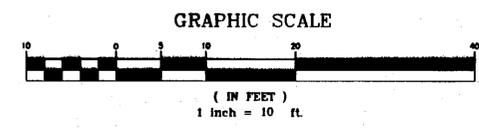
PILE DRIVING RECORD														
STATE OF ALASKA DEPARTMENT OF HIGHWAYS										SHEET OF FORMULA USED TO DETERMINE BEARING				
INSTR: A SKETCH SHOWING THE LOCATION OF THE PILES BY NUMBER SHALL BE DRAWN ON THE BACK OF THIS FORM OR ON AN ATTACHED SHEET										P = 2 <i>W.H.G.</i>				
STRUCTURE NAME: <i>Dolphin #1 &amp; #2R</i>										BRIDGE NO. <i>3+0.1</i>				
CONTRACTOR: _____										DISTRICT: _____				
TYPE OF BRIDGE: _____										TYPE OF HAMMER: _____				
PROJECT NO. <i>67717</i>										WT. OF RAM OR GRAVITY HAMMER: <i>15,000</i>				
MANUFACTURER: <i>FEC</i>										STROKE LENGTH, MAX: <i>36"</i>				
										NO. BLOWS PER MIN: <i>240</i>				
										M.F.P.S. MAXIMUM ENERGY RATING: <i>15,000</i>				
DATE	ABUTMENT OR PIER NO.	FILE NO.	TYPE OF PILE (SPECFY TIP & BOTT. DIMETER OF TAPER & CONCRETE PILE IN INCHES)	LENGTH PLACED IN LEADS INCLUDING EXTENSIONS (FT.)	CUTOFF LENGTH (FT.)	NET LENGTH CUT OFF TO TIP (FT.)	PENETRATION IN GROUP (FT.)	FILE QUOTY ELEVATION	OBSERVED GROUP ELEVATION	PILE TIP ELEVATION	DEEP OF HAMMER (INCHES)	AVERAGE PENETRATION OF LAST 5 BLOWS (TONS)	CORRECTED BEARING (TONS)	REMARKS
7-2	1	A	18" x 12"	85	12	73	19	29.70	-24	-45	36	1"	50	Refusal.
7-2	1	B		85	11	74	19	29.70	-25	-44	36	1"	50	Refusal.
7-7	2R	A		74	5.42	68.58	14.08	22.33	-31.67	-46.25	36	.25"	105	Refusal.
7-7	2R	B		74	6.33	67.67	12.33	22.33	-33	-46.33	36	.20"	110	Refusal.
7-12	2R	C		85	14.84	70.16	17.84	27.33	-25	-45	36	.25"	100	Refusal.
7-12	2R	D		85	12.67	72.33	17.84	27.33	-25	-42.84	36	.25"	100	Refusal.

DISTRIBUTION OF COPIES: HEADQUARTERS: DISTRICT ENGINEER: COLLEGE (1) ORIGINAL'S FILE



Existing Dolphins to Remain  
 Add Tie-up rings, this dolphin only, see detail Sheet 4.  
 New Airport Vessel

Modify Existing Backup Structure, Salvage,  
 Modify & Reuse Fender Panel, Salvage  
 & Relocate Existing Fender Support Piling.  
 See Sheet 4 for Modification Details.



## SITE PLAN

NOTE: DO NOT SCALE FROM THESE PLANS—USE DIMENSIONS

PATH: Q:\KTN\67717\MF\DRAWINGS\SHEET3.DWG		
BY:	DATE:	DESCRIPTION OF CHANGE:
<b>RECORD OF REVISIONS</b>		

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 DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES  
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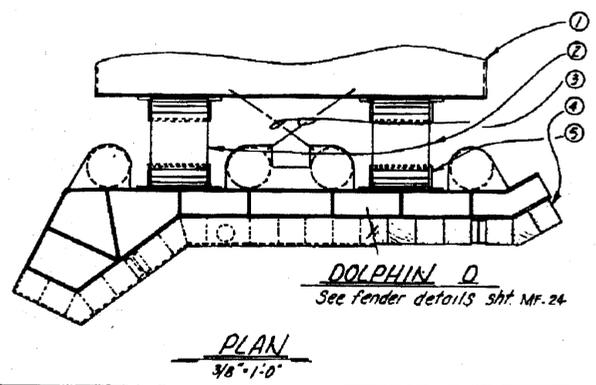
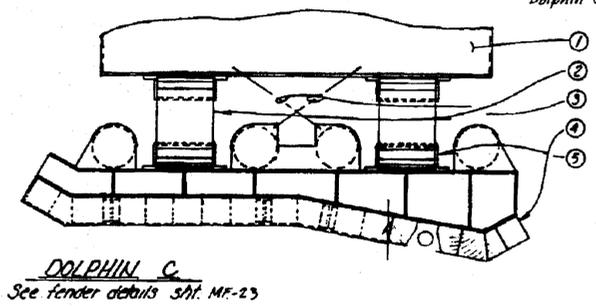
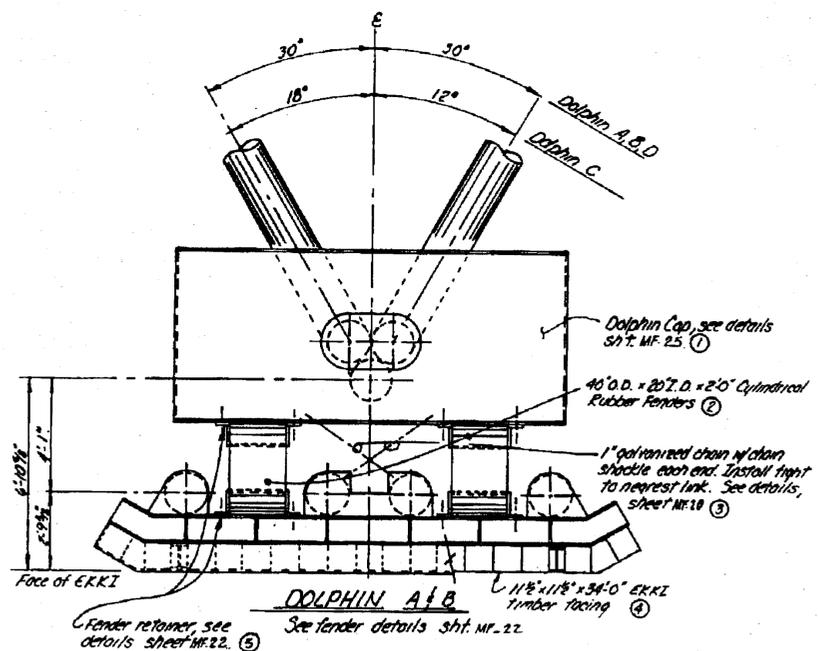
KETCHIKAN  
 KETCHIKAN AIRPORT FERRY TERMINAL  
 DOLPHIN AND FENDER RELOCATION  
 PROJECT NO. A.I.P. 3-02-0144-1299 / 67717  
 ALASKA  
**GENERAL LAYOUT, KETCHIKAN TERMINAL**

DESIGNED BY: BAS  
 DRAWN BY: BN  
 CHECKED BY: RM

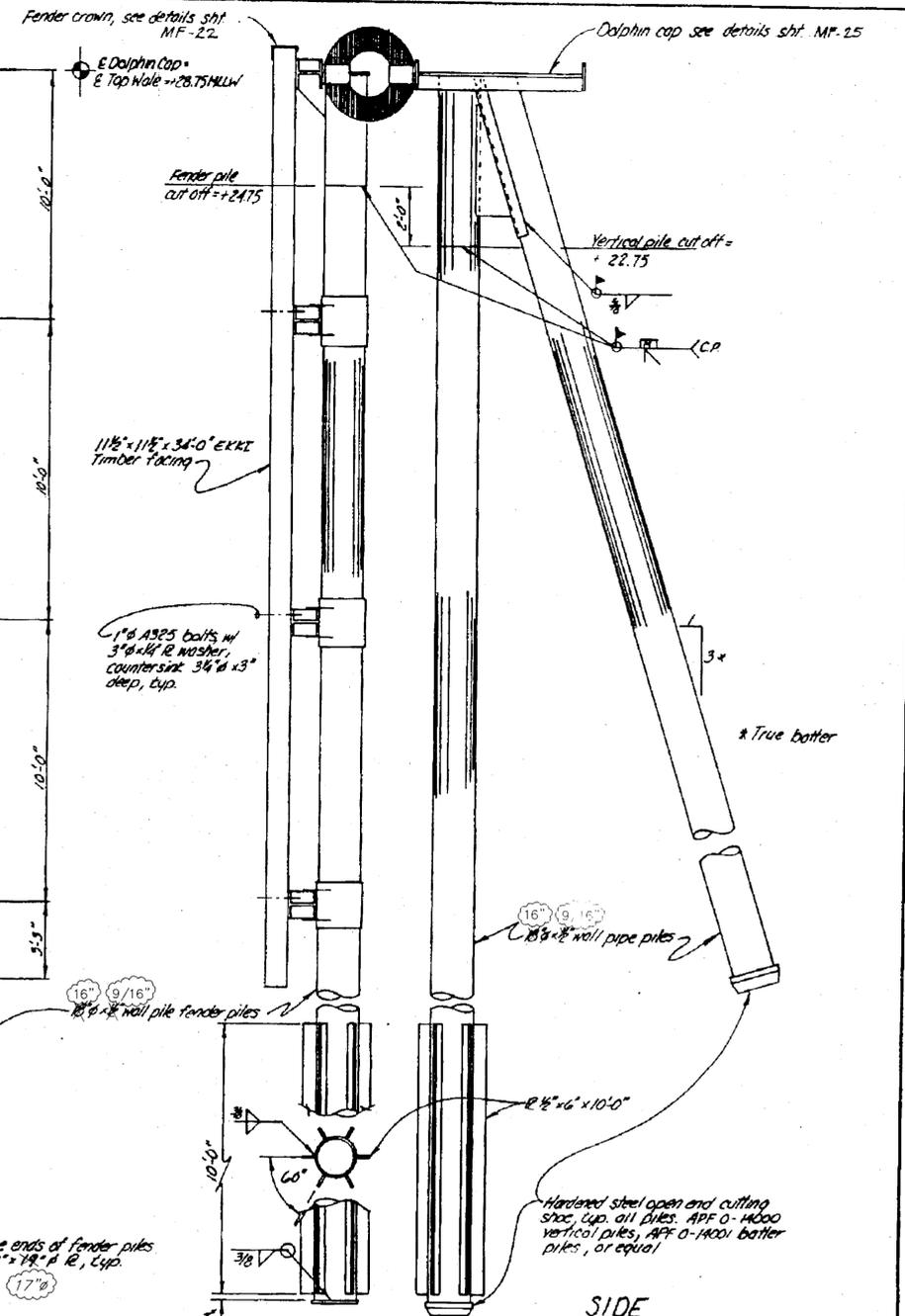
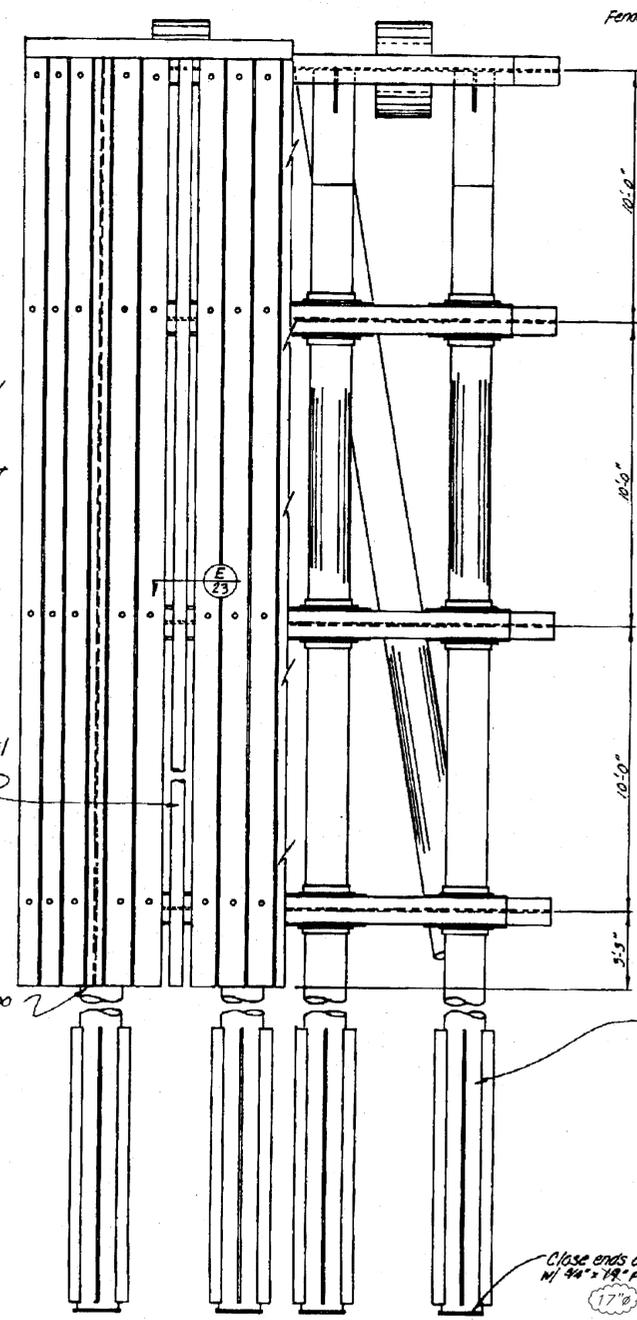
PROJECT NO. 67717  
 DATE: JANUARY, 1999  
 SHEET 3 OF 18







6" nom. double-extra strong pipe, see Detail on sheet MF. 22  
Dolphin C & D only.



ELEVATION  
3/8 x 1-0

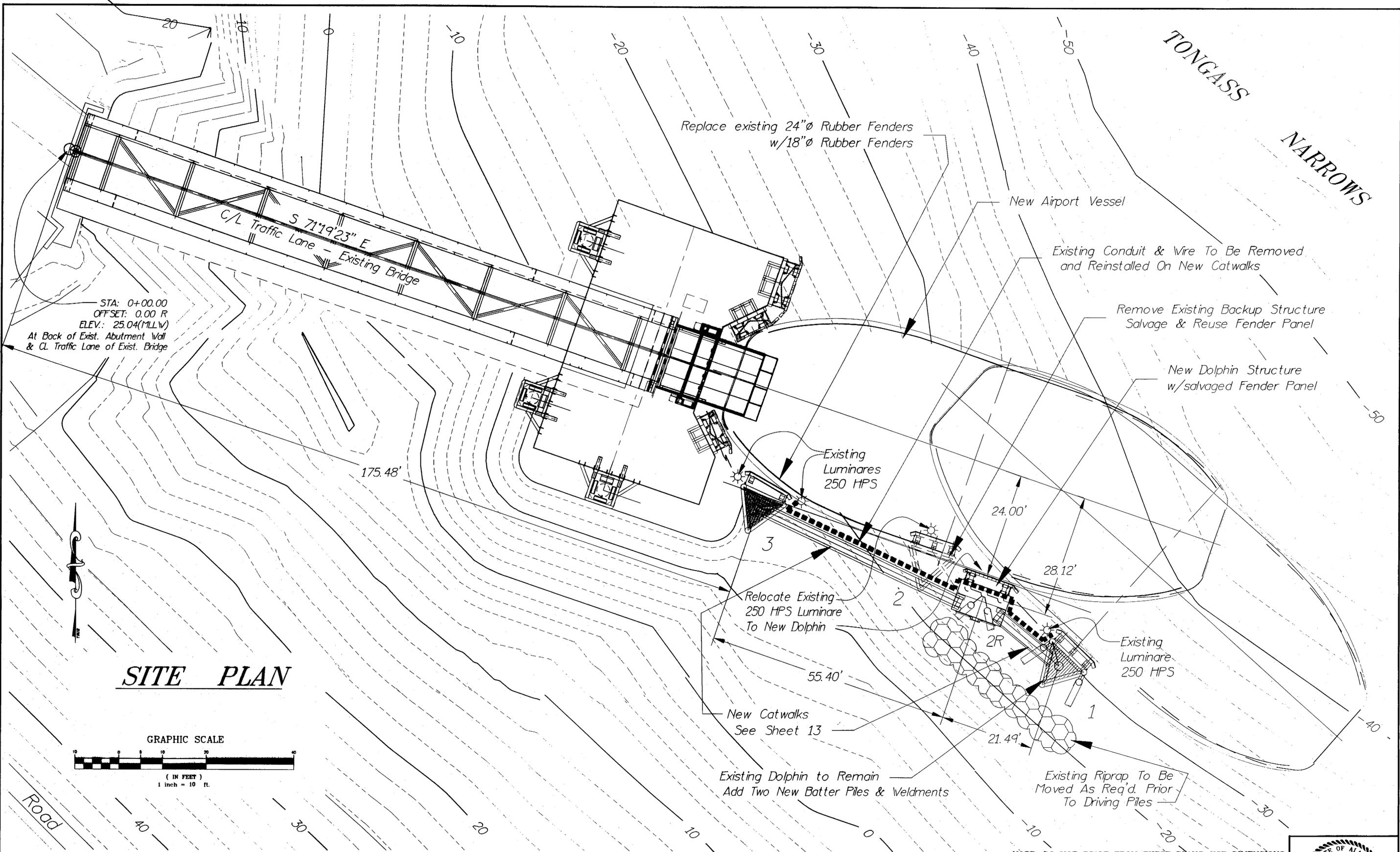
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Sheet 5 of 18

DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
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DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
KETCHIKAN		ALASKA	
AS-BUILT			
DOLPHIN PLAN & ELEVATIONS			
DESIGNED JAL	CHECKED JS	DRAWN JAL	DATE 2-87
PROJECT NUMBER FM-0922(2)	SHEET MF-21		OF 53

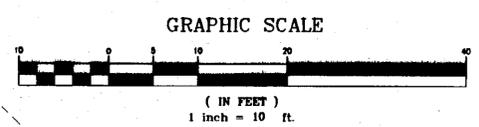








**SITE PLAN**



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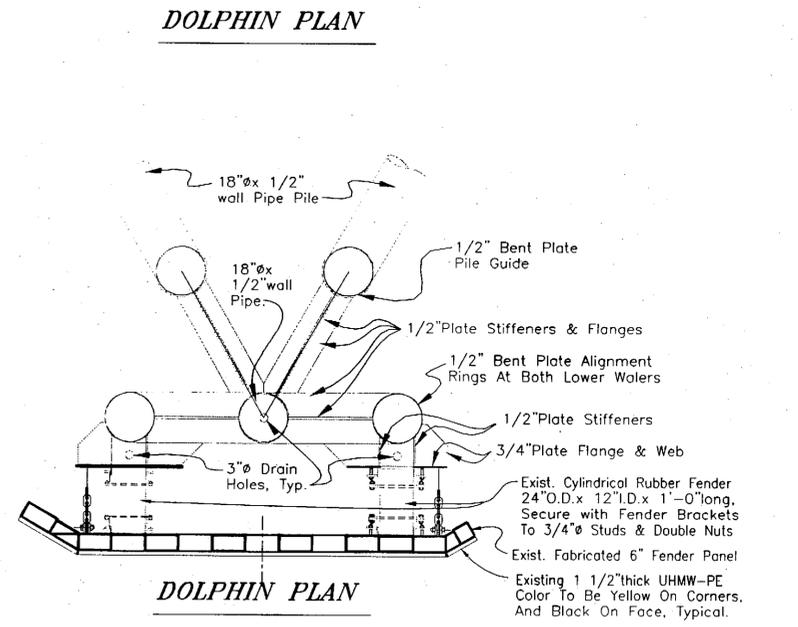
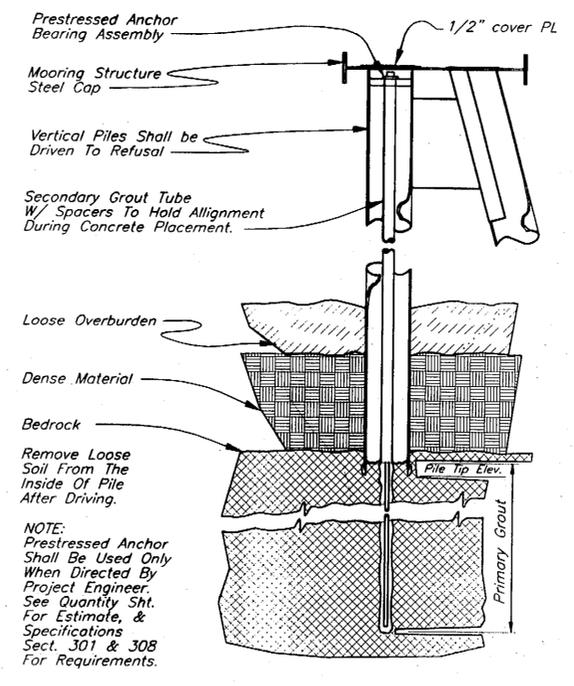
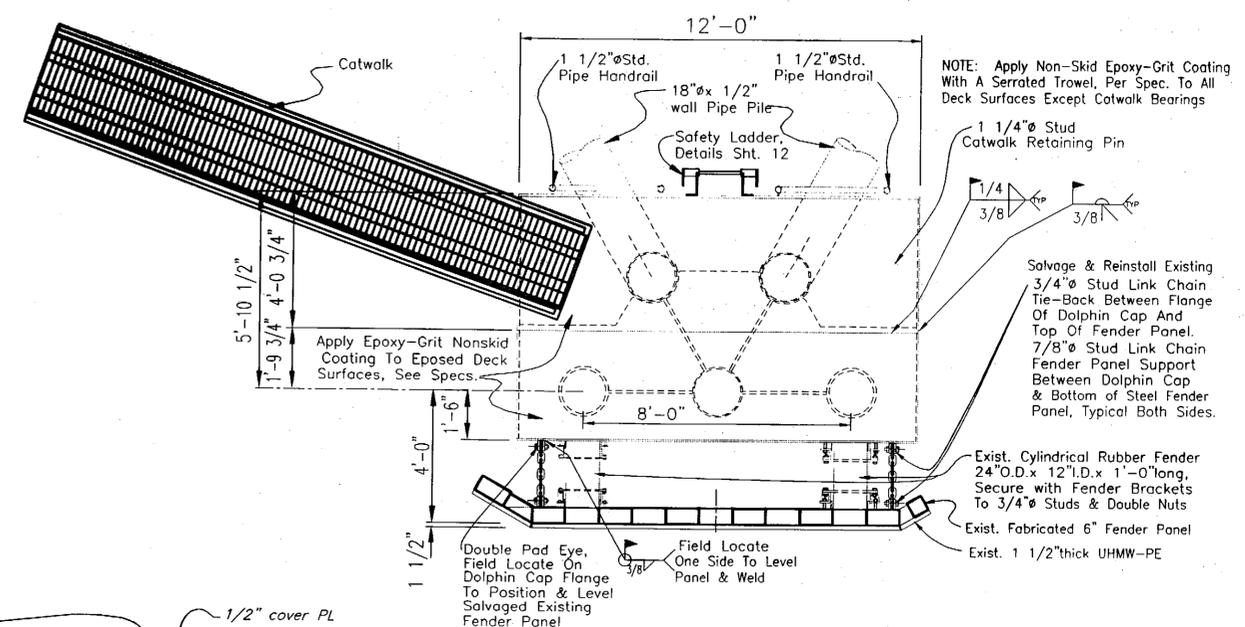
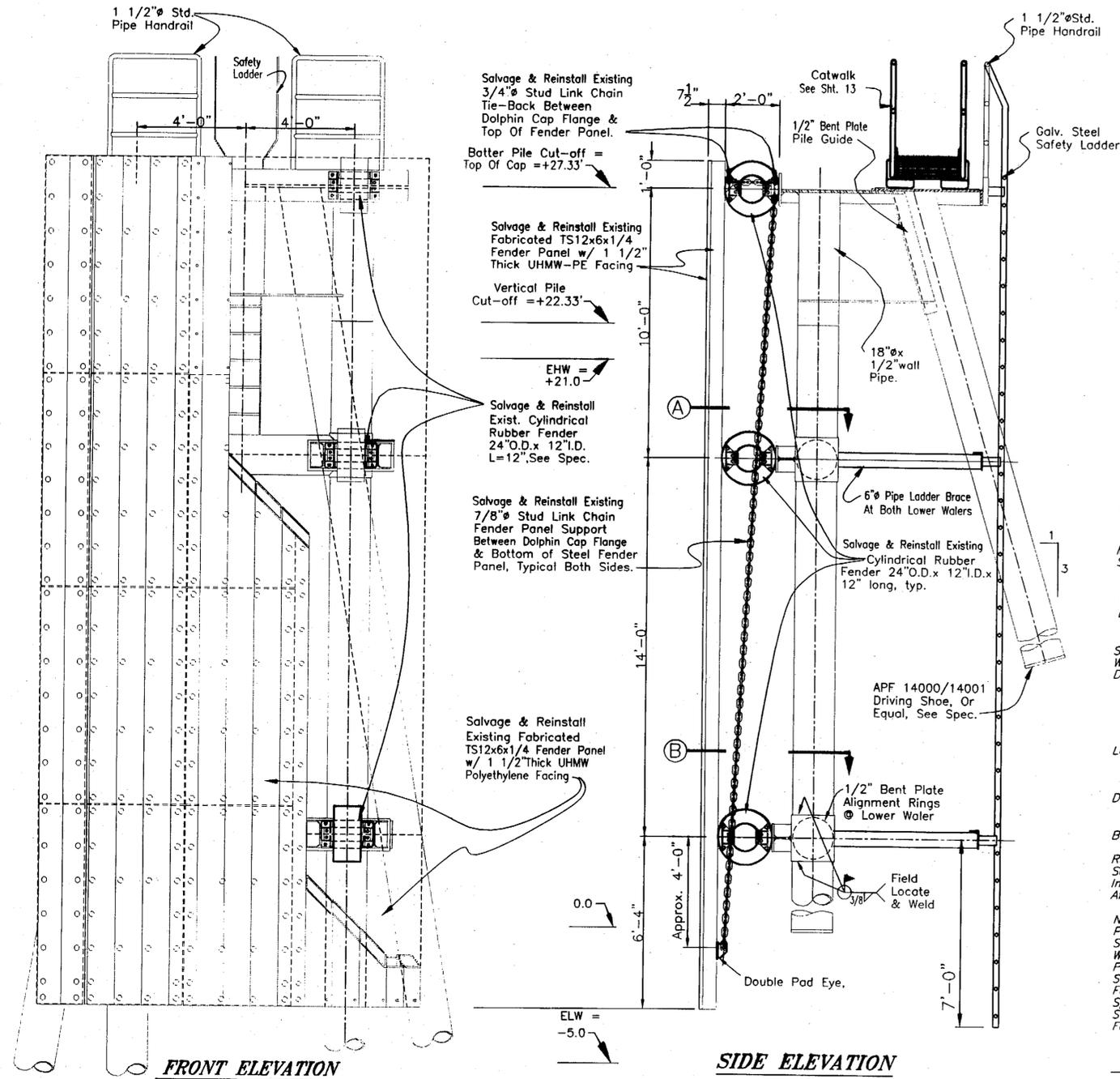
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BY:	DATE:	DESCRIPTION OF CHANGE:
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STATE OF ALASKA  
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 SOUTHEAST REGION DESIGN & CONSTRUCTION

KETCHIKAN ALASKA  
**KETCHIKAN AIRPORT FERRY TERMINALS  
 DOLPHIN & FENDER RELOCATION**  
 PROJECT NO. A.I.P. 3-02-0144-1299 / 67717  
**GENERAL LAYOUT, GRAVINA TERMINAL**

DESIGNED BY:	BAS	PROJECT NO.	67717
DRAWN BY:	BAS	DATE:	JAN, 1999
CHECKED BY:	RM	SHEET	9 OF 18





**PRESTRESSED PILE ANCHOR**  
Submit Design for approval

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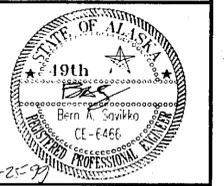
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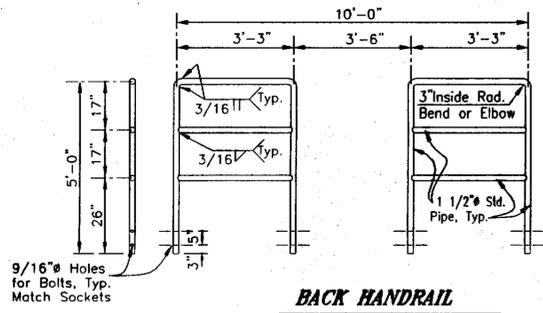
KETCHIKAN  
KETCHIKAN AIRPORT FERRY TERMINALS  
DOLPHIN & FENDER RELOCATION  
PROJECT NO. A.I.P. 3-02-0144-1299/67717  
**FENDER PANEL DETAILS**

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

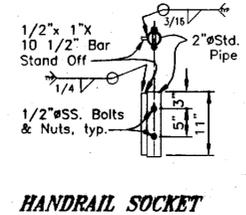
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CHECKED BY: RWM

PROJECT NO. 67717  
DATE: JAN, 1999  
SHEET 10 OF 18

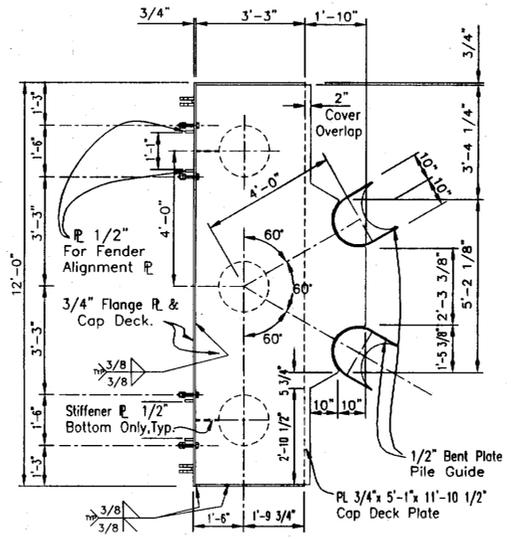




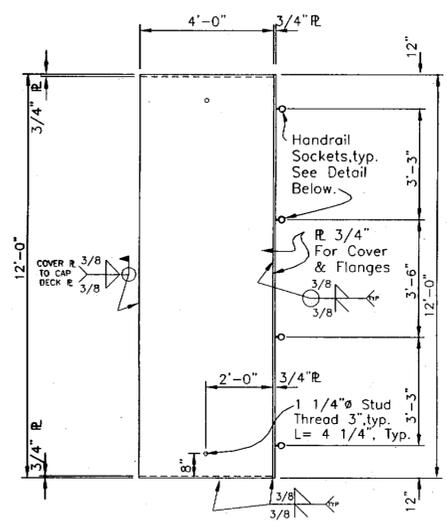
**BACK HANDRAIL**  
As Req'd.



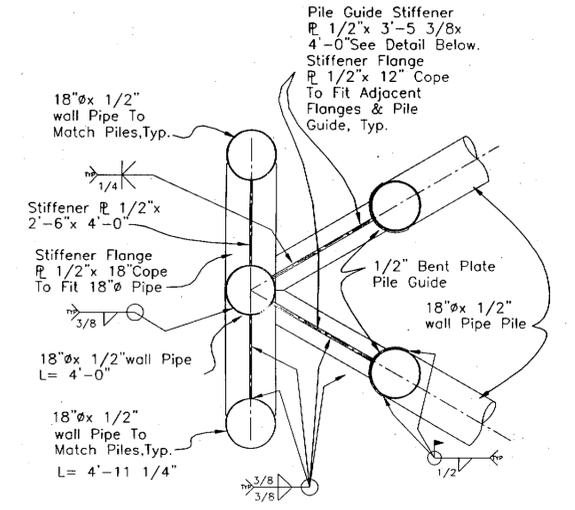
**HANDRAIL SOCKET**



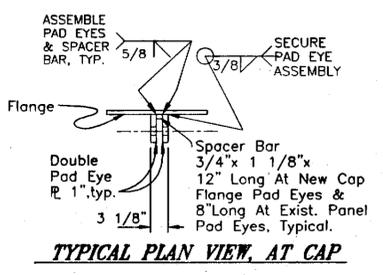
**CAP DECK PLAN**



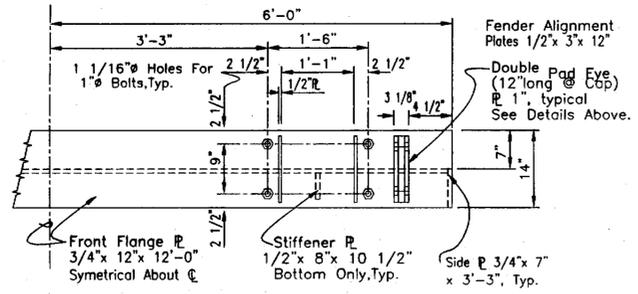
**COVER PLAN**



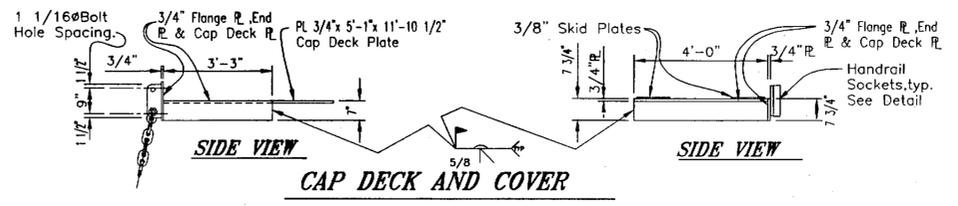
**SECTION A**



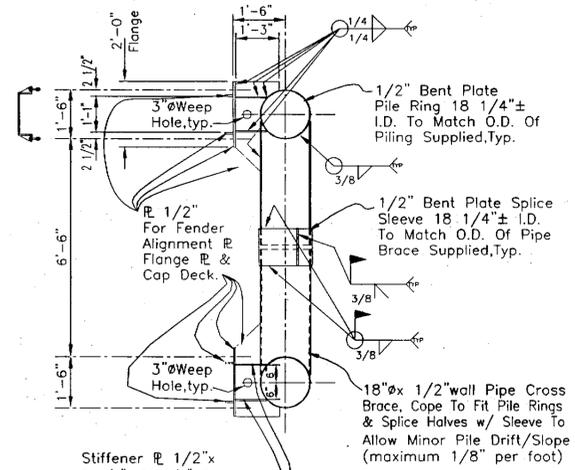
**TYPICAL PLAN VIEW, AT CAP**



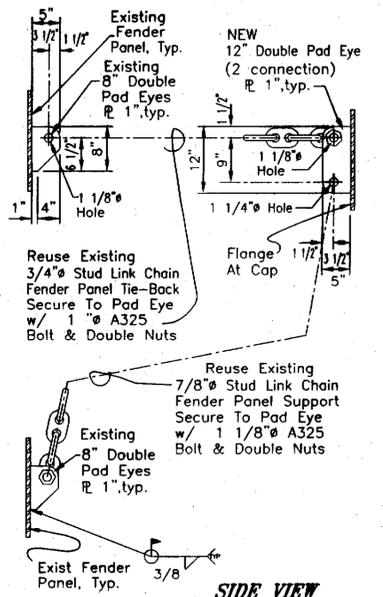
**CAP FLANGE PLATE DETAIL**



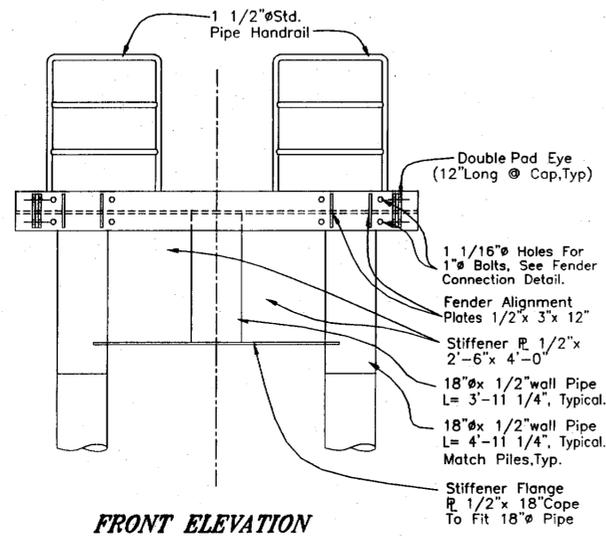
**SIDE VIEW CAP DECK AND COVER**



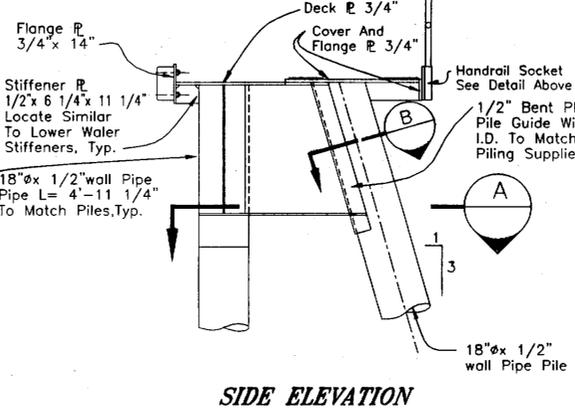
**PLAN LOWER WALER**



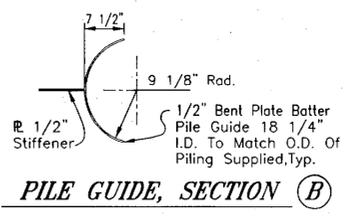
**DOUBLE PAD EYE DETAIL**



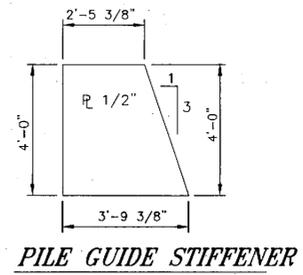
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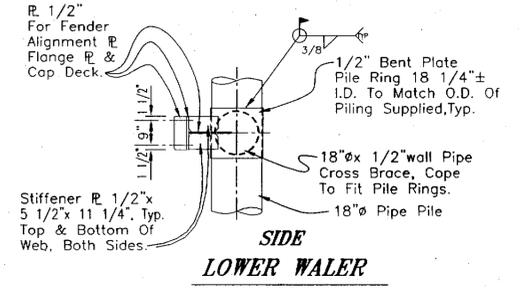
**SIDE ELEVATION**



**PILE GUIDE, SECTION B**



**PILE GUIDE STIFFENER**



**SIDE LOWER WALER**

RECORD OF REVISIONS		
NO.	DATE	DESCRIPTION OF CHANGE

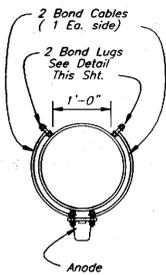
STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES  
SOUTHEAST REGION DESIGN & CONSTRUCTION

KETCHIKAN  
KETCHIKAN AIRPORT FERRY TERMINALS  
DOLPHIN & FENDER RELOCATION  
PROJECT NO. A.I.P. 3-02-0144-1299 / 67717  
**MOORING STRUCTURE CAP & WALER DETAILS**

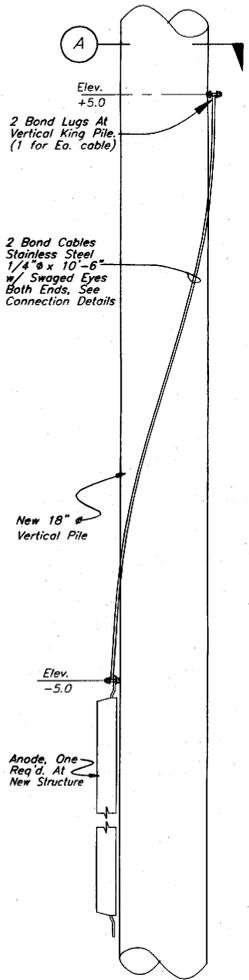
DESIGNED BY: BAS	PROJECT NO. 67717
DRAWN BY: BN	DATE: DEC, 1998
CHECKED BY: RWM	SHEET 11 OF 18



NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

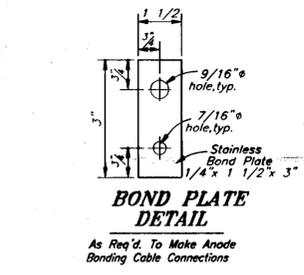


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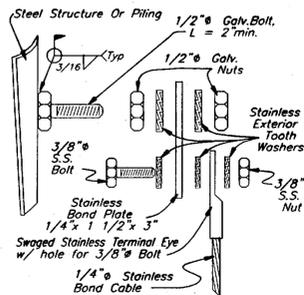
**ANODE INSTALLATION TYPICAL ELEVATION**

One Anode Required At New Dolphin "2R"



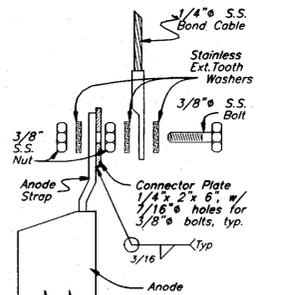
**BOND PLATE DETAIL**

As Req'd. To Make Anode Bonding Cable Connections

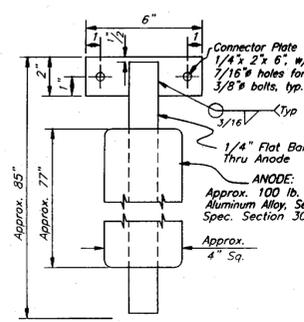


**BOND LUG CONNECTION DETAIL**

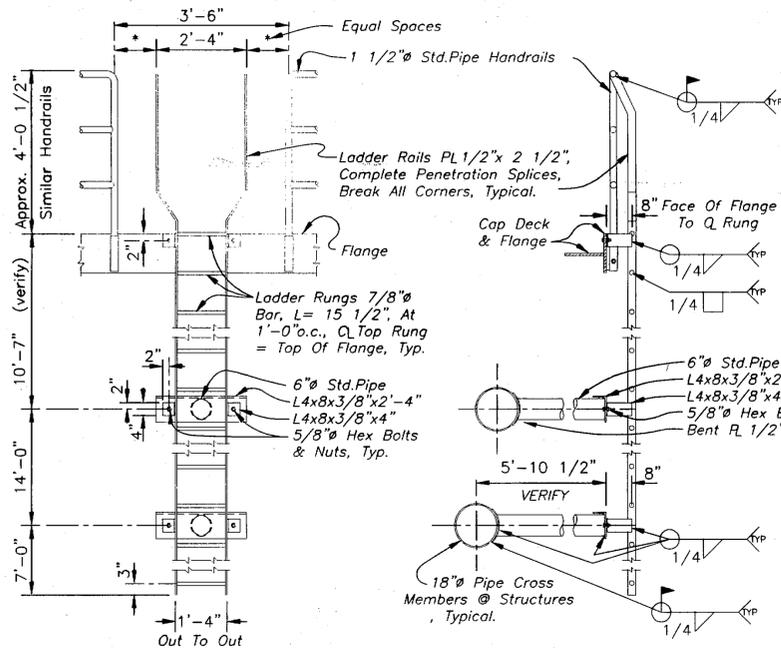
(Apply min. 1/8" thick coating of waterproof corrosion protection grease to all connections)



**ANODE & CABLE CONNECTION DETAIL**

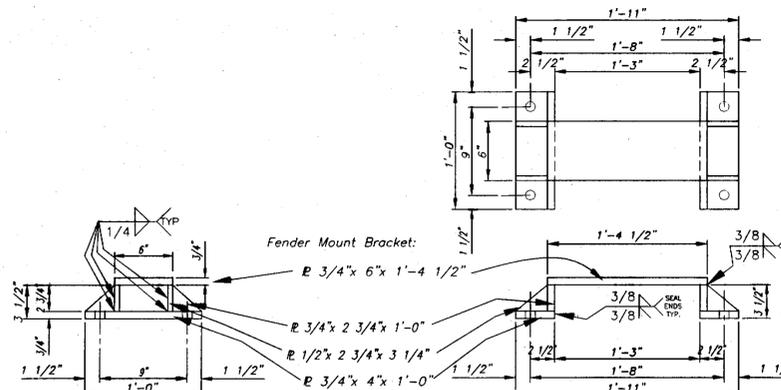


**ANODE DETAIL**

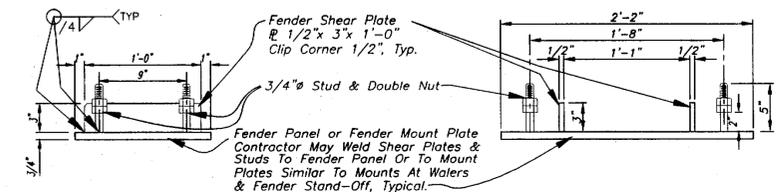


**SAFETY LADDER DETAILS**

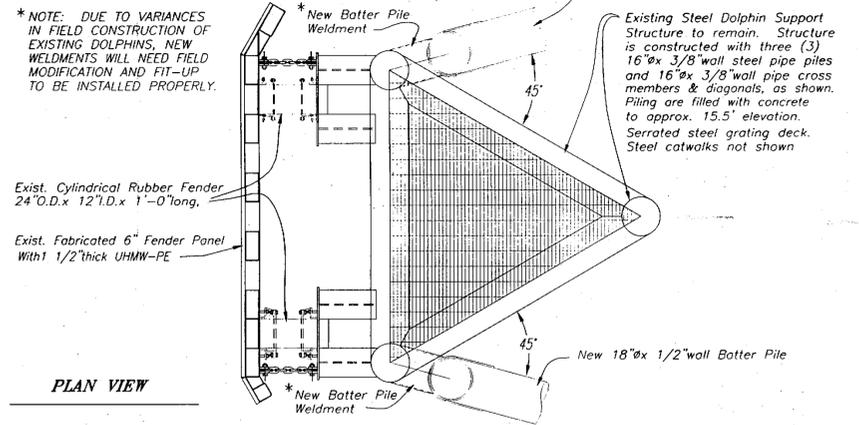
SAFETY LADDER REQUIRED ON MOORING STRUCTURES



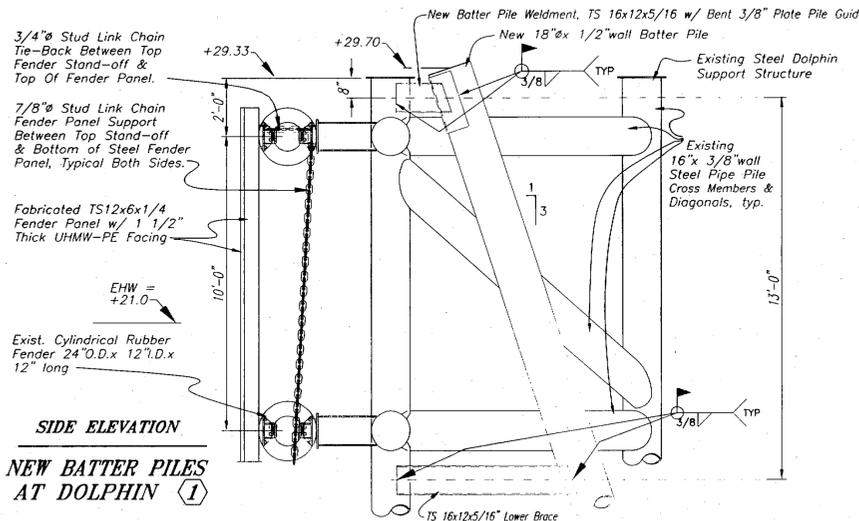
**FENDER MOUNT BRACKET DETAILS (12 req'd. per fender panel)**



**FENDER MOUNT PLATE & MOUNTING DETAILS**

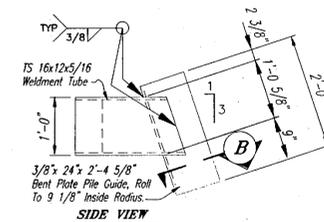


**PLAN VIEW**

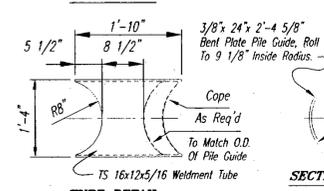


**SIDE ELEVATION**

**NEW BATTER PILES AT DOLPHIN (I)**



**TUBE DETAIL**



**BATTER PILE LOWER BRACE**

NOTE: DO NOT SCALE FROM THESE PLANS—USE DIMENSIONS

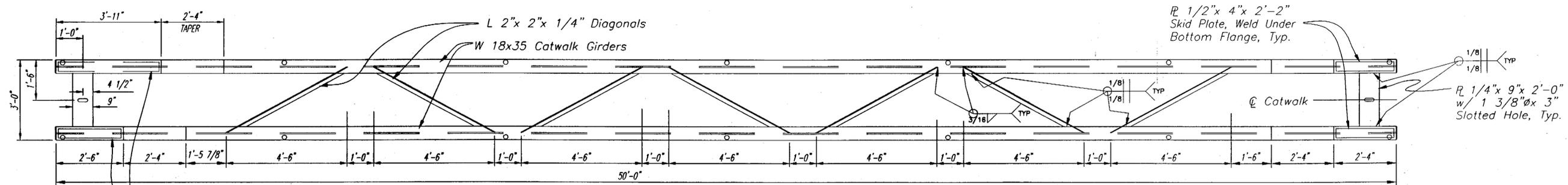
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PLOT:	
BY:	
DATE:	
DESCRIPTION OF CHANGE:	

STATE OF ALASKA  
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AND PUBLIC FACILITIES  
SOUTHEAST REGION DESIGN & CONSTRUCTION

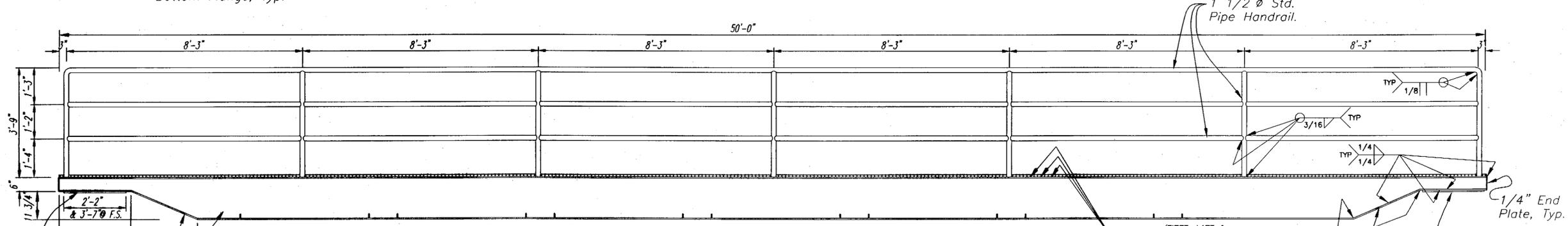
KETCHIKAN  
KETCHIKAN AIRPORT FERRY TERMINALS  
DOLPHIN & FENDER RELOCATION  
PROJECT NO. A.I.P. 3-02-0144-1289 / 67717  
**MISCELLANEOUS DOLPHIN DETAILS**

DESIGNED BY:	BAS	PROJECT NO.	67717
DRAWN BY:	BN	DATE:	JAN, 1999
CHECKED BY:	RWM	SHEET 12 OF 18	1-25-99

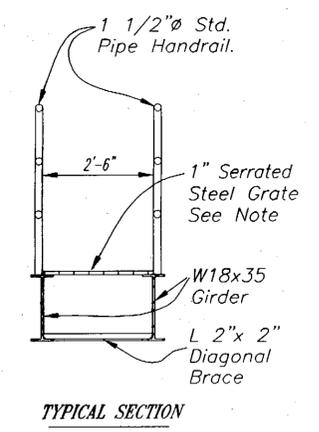




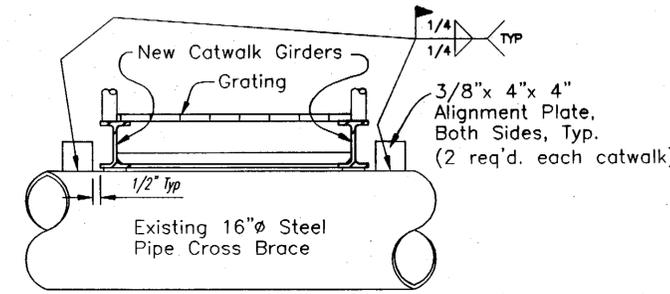
**PLAN VIEW**  
(grating & rails not shown)



**ELEVATION**  
**3' x 50' Access Catwalk**

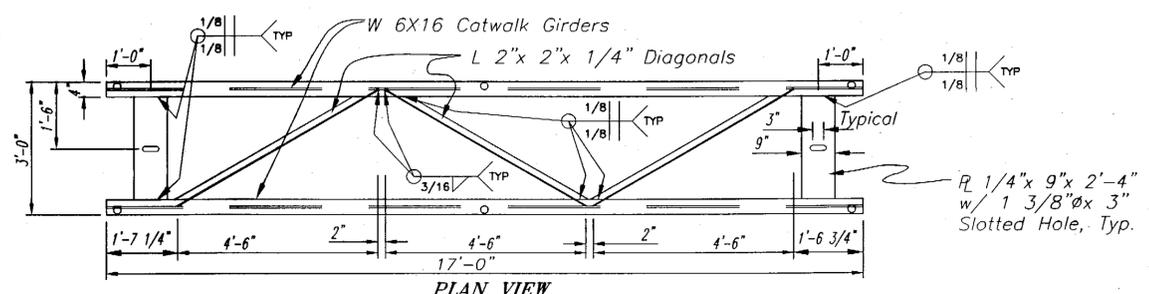


**TYPICAL SECTION**

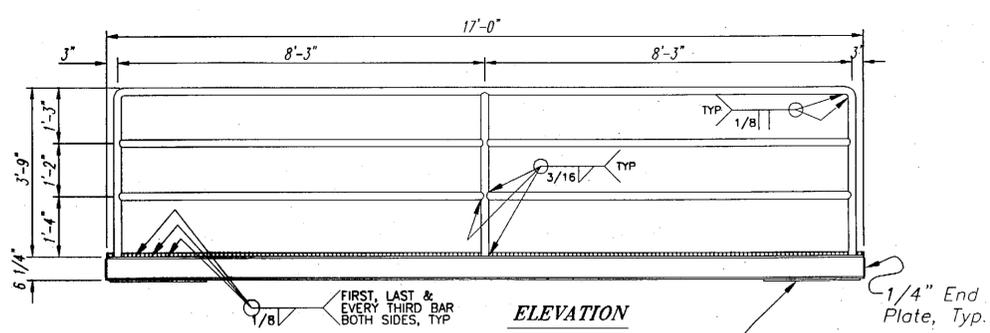


**Alignment Block @ Existing Dolphin**

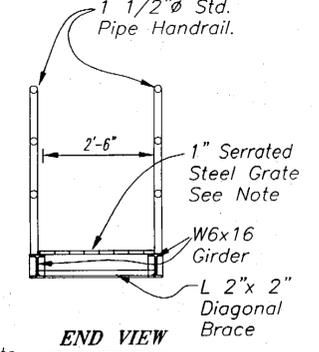
- GENERAL NOTES:**
- Hot-dip Galvanize After Fabrication.
  - Galvanized Steel Serrated Grating Has 1" x 1/8" Bearing Bars @ 1 3/16" o.c., 1/4" Cross Bars @ 4" o.c., Secure Grating To Top Flange Of Catwalk Girder w/ 1/8" x 2" Fillet Weld At First Bar, Last Bar & Every Third Bearing Bar Between, Both Ends, Each Grating Panel, Typical.
  - Approximate Shipping Weight Of 3' x 50' Catwalk is 5,600 lbs., & Approx. Shipping Weight Of 3' x 17' Catwalk is 1400 lbs.



**PLAN VIEW**  
(grating & rails not shown)



**ELEVATION**  
**3' x 17' Access Catwalk**



**END VIEW**

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

PATH: Q:\K7M\67717\MF\DRAWINGS\SHEET13.DWG		
PLOT:		
BY:	DATE:	DESCRIPTION OF CHANGE:
RECORD OF REVISIONS		

STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES  
SOUTHEAST REGION DESIGN & CONSTRUCTION

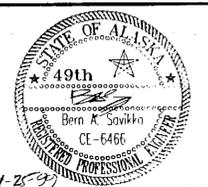
KETCHIKAN

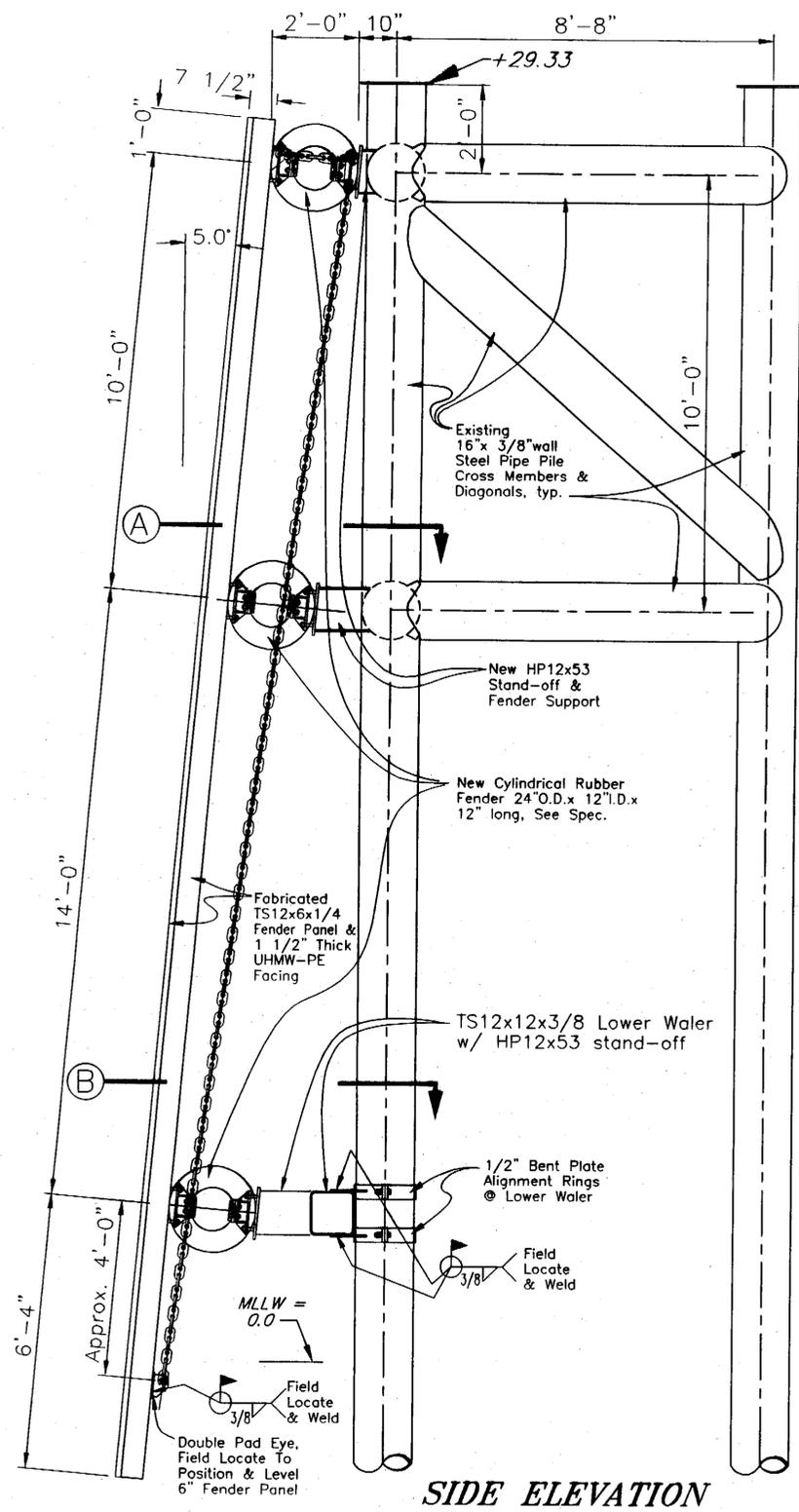
KETCHIKAN AIRPORT FERRY TERMINALS  
DOLPHIN & FENDER RELOCATION  
PROJECT NO. A.I.P. 3-02-0144-1299 / 67717  
**3' x 50' & 3' x 17' CATWALKS**

ALASKA

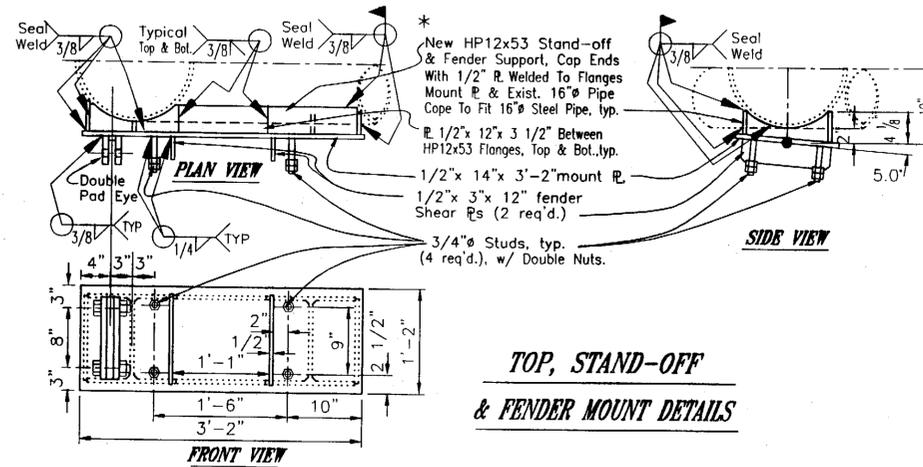
DESIGNED BY:	BAS
DRAWN BY:	BN
CHECKED BY:	RWM

PROJECT NO.	67717
DATE:	JAN, 1999
SHEET 13 OF 18	1-28-99

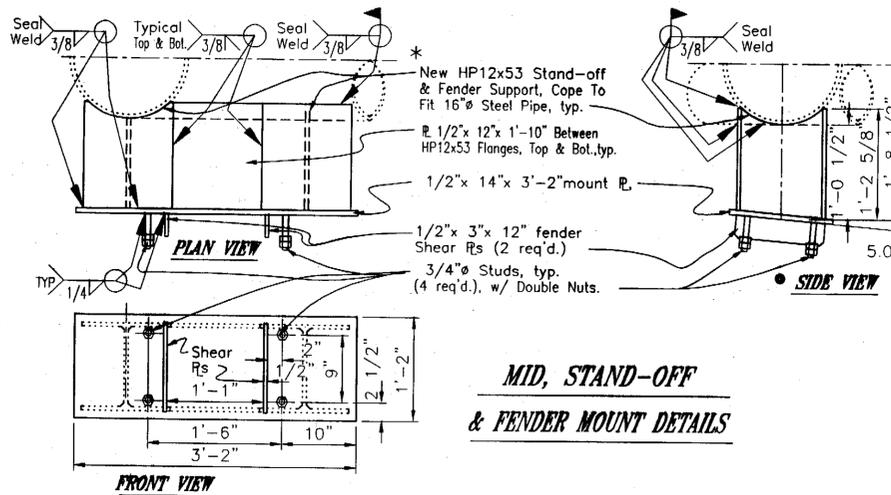




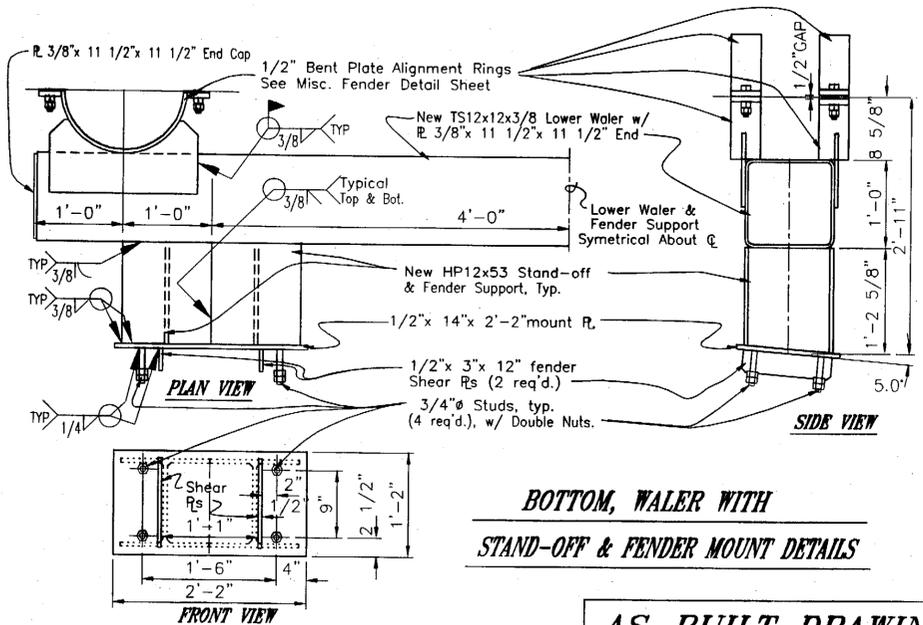
**SIDE ELEVATION**



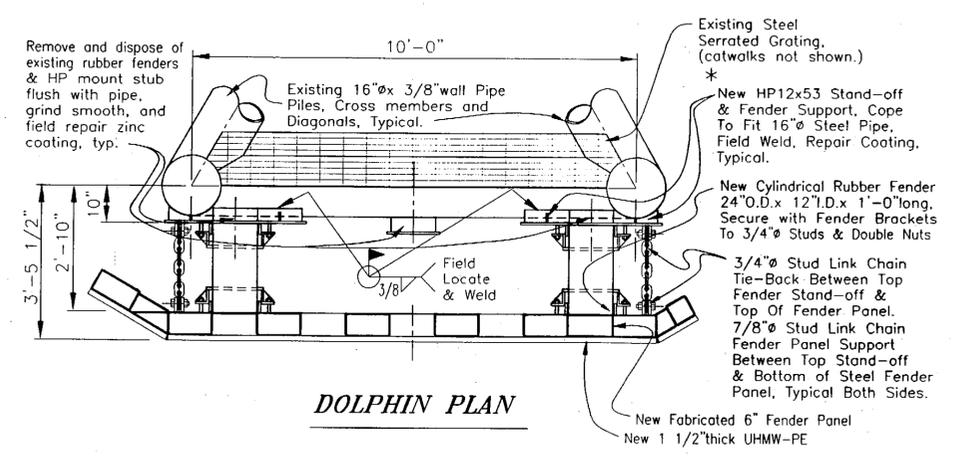
**TOP, STAND-OFF & FENDER MOUNT DETAILS**



**MID, STAND-OFF & FENDER MOUNT DETAILS**

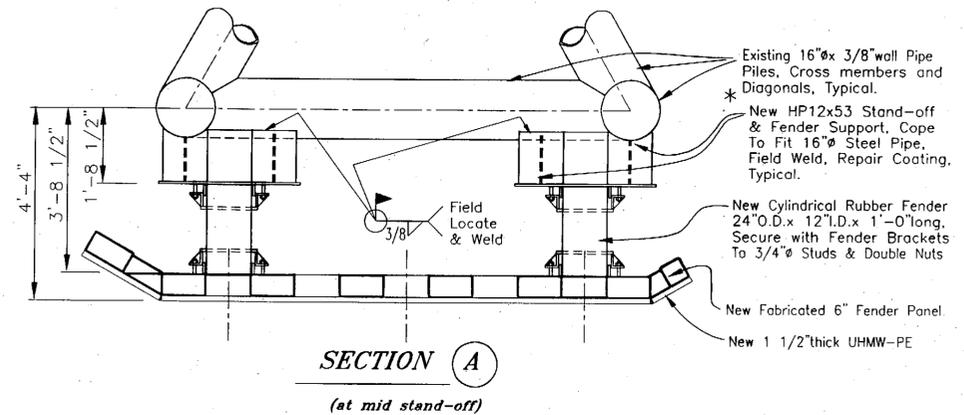


**BOTTOM, WATER WITH STAND-OFF & FENDER MOUNT DETAILS**

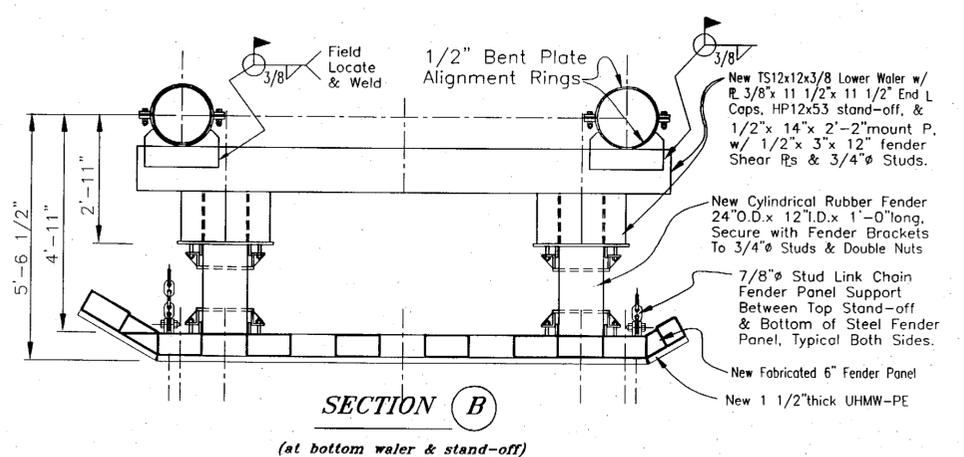


**DOLPHIN PLAN**

\* NOTE: DUE TO VARIANCES IN FIELD CONSTRUCTION OF EXISTING DOLPHINS, NEW WELDMENTS WILL NEED FIELD MODIFICATION & FIT-UP TO BE INSTALLED PROPERLY.



**SECTION A (at mid stand-off)**



**SECTION B (at bottom water & stand-off)**

**AS-BUILT DRAWING**  
Project No. 67717 SHEET 14 of 18

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

PATH: Q:\KTH\67717\MF\DRAWINGS\SHEET14.DWG		
PLOT:		
BY:	DATE:	DESCRIPTION OF CHANGE:
<b>RECORD OF REVISIONS</b>		

STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES  
SOUTHEAST REGION DESIGN & CONSTRUCTION

KETCHIKAN

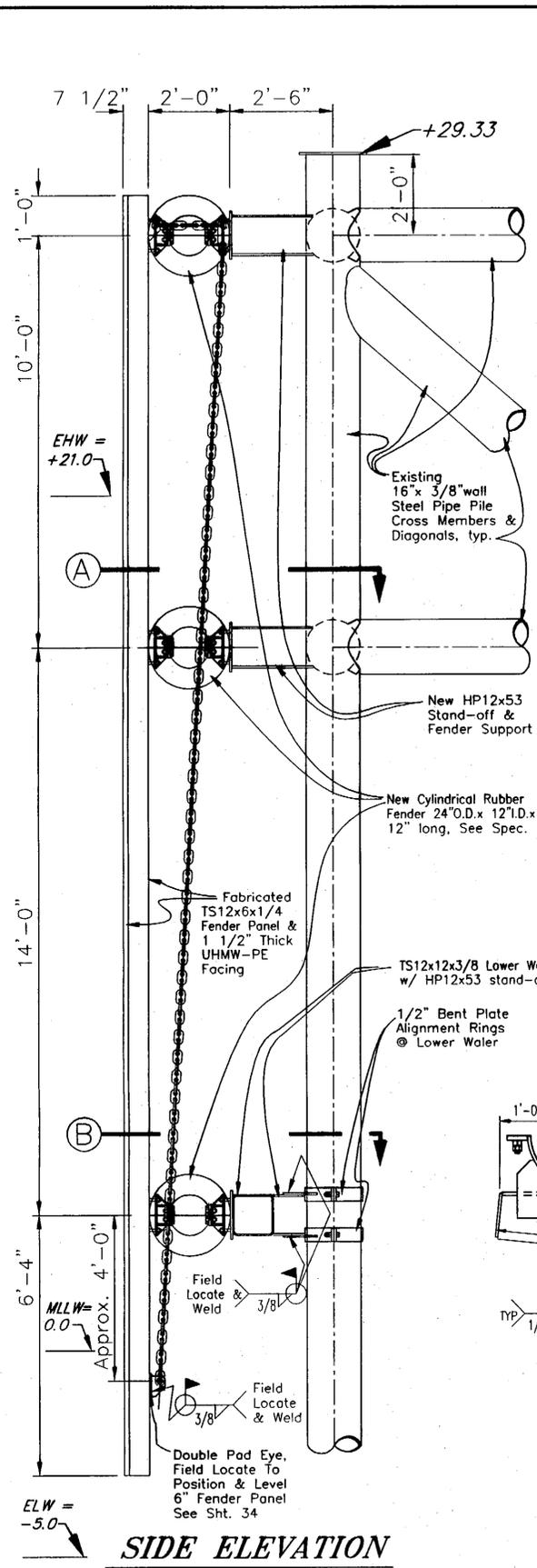
KETCHIKAN AIRPORT  
GRAVINA ISLAND FERRY TERMINAL  
PROJECT NO. A.I.P. 3-02-0144-1097/72030

**DOLPHIN 2 DETAILS**

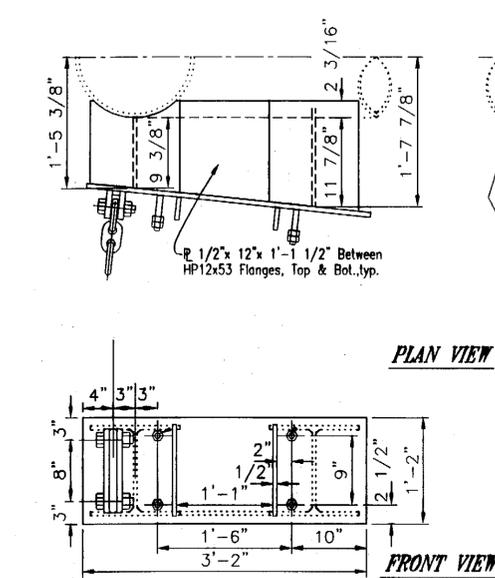
ALASKA

DESIGNED BY:	BAS/BN	PROJECT NO.	72030
DRAWN BY:	BN	DATE:	APRIL, 1997
CHECKED BY:	JAL	SHEET 31 OF 41	1-25-97

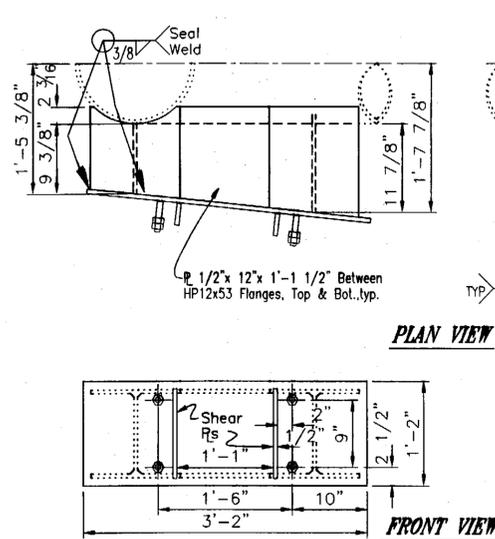




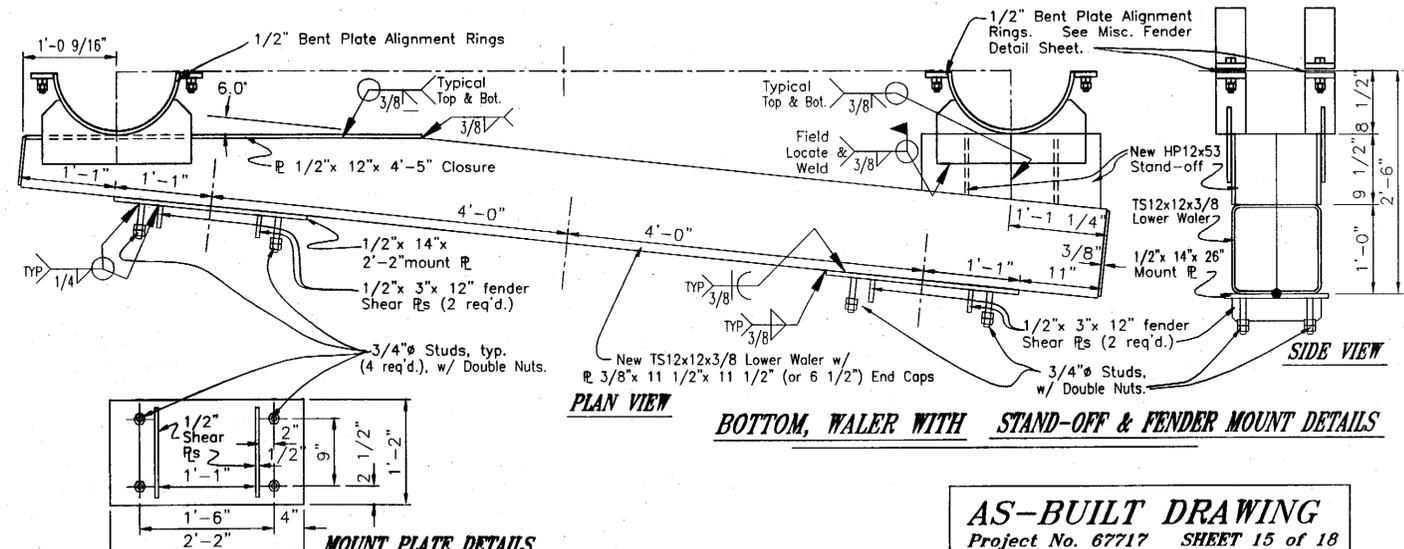
**SIDE ELEVATION**



**TOP, STAND-OFF & FENDER MOUNT DETAILS**

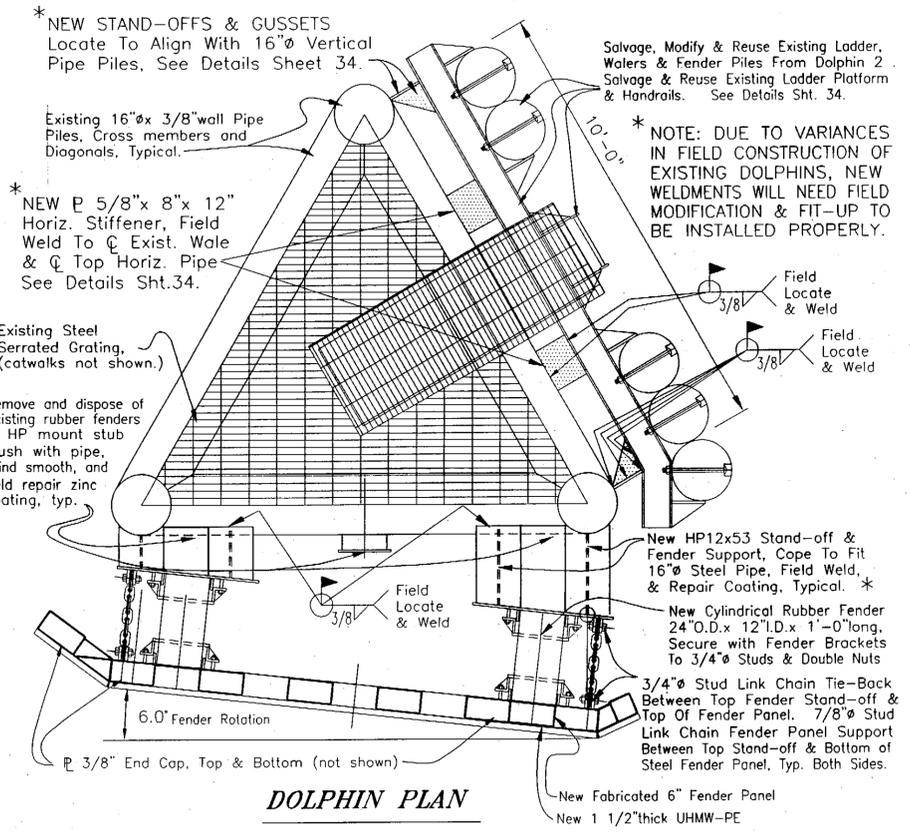


**MID, STAND-OFF & FENDER MOUNT DETAILS**

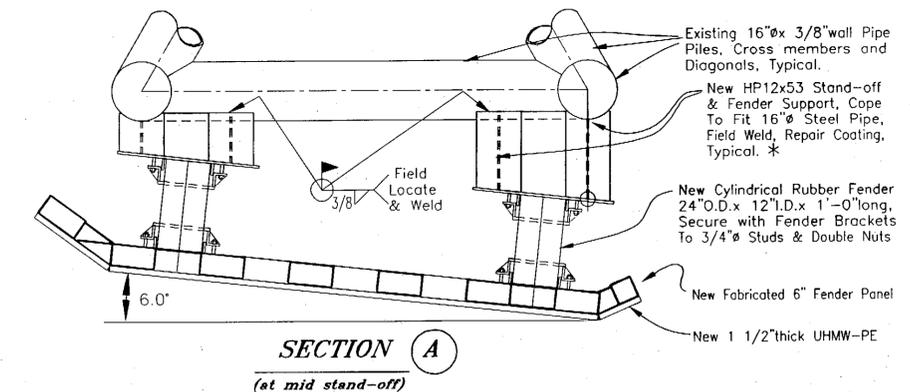


**BOTTOM, WALER WITH STAND-OFF & FENDER MOUNT DETAILS**

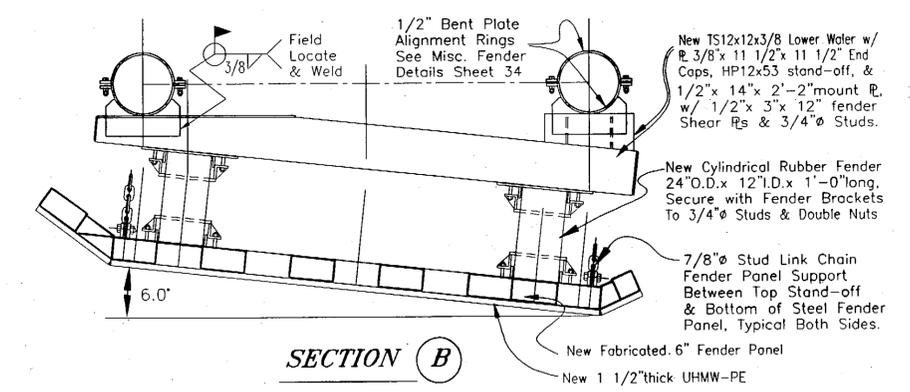
**AS-BUILT DRAWING**  
Project No. 67717 SHEET 15 of 18



**DOLPHIN PLAN**



**SECTION A (at mid stand-off)**



**SECTION B (at bottom waler & stand-off)**

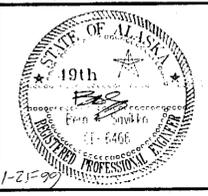
NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

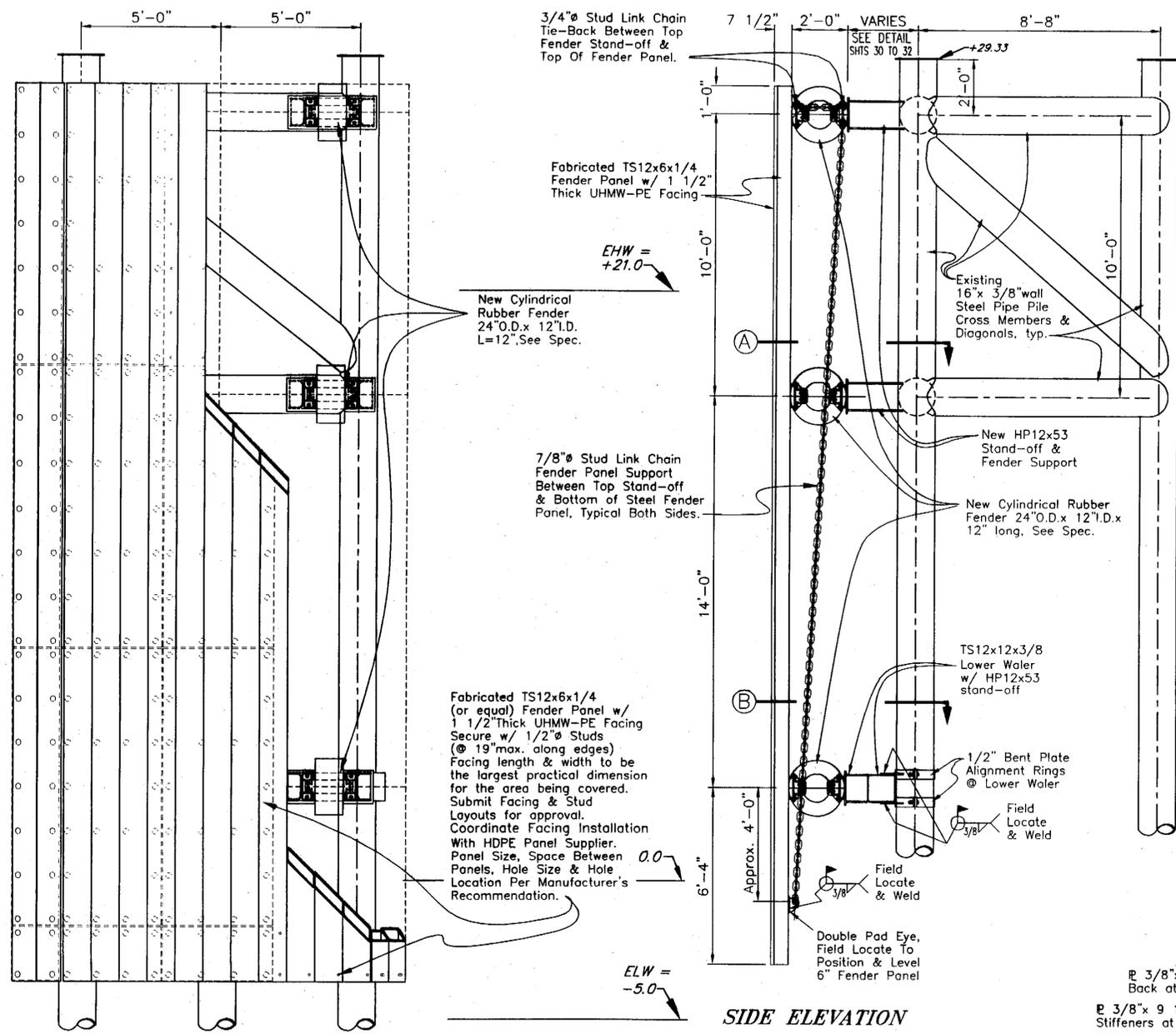
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PLOT:		
BY:	DATE:	DESCRIPTION OF CHANGE:
RECORD OF REVISIONS		

STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES  
SOUTHEAST REGION DESIGN & CONSTRUCTION

KETCHIKAN  
KETCHIKAN AIRPORT  
GRAVINA ISLAND FERRY TERMINAL  
PROJECT NO. A.I.P. 3-02-0144-1097/72030  
**DOLPHIN 3 DETAILS**

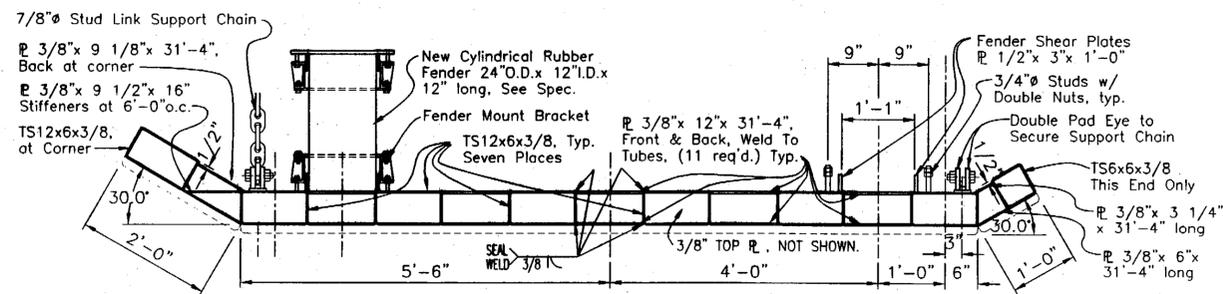
ALASKA	DESIGNED BY: BAS/BN	PROJECT NO. 72030
	DRAWN BY: BN	DATE: APRIL, 1997
	CHECKED BY: JAL	SHEET 32 OF 41



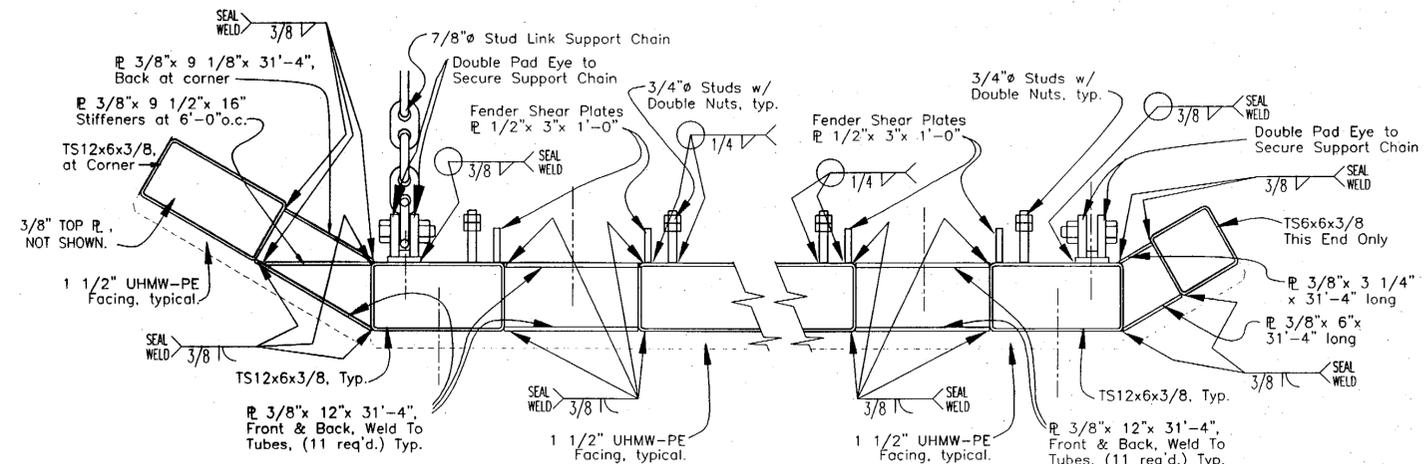


**FRONT ELEVATION**

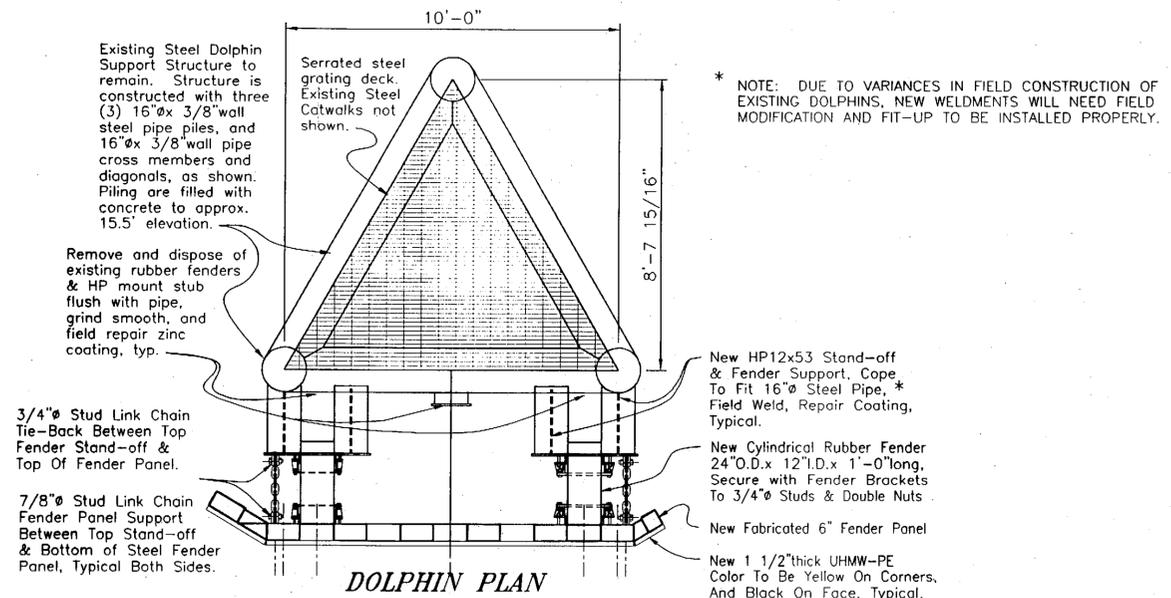
**SIDE ELEVATION**



**FENDER PANEL DETAIL 1**



**FENDER PANEL DETAIL 2**



**DOLPHIN PLAN**

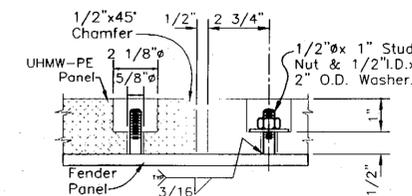
\* NOTE: DUE TO VARIANCES IN FIELD CONSTRUCTION OF EXISTING DOLPHINS, NEW WELDMENTS WILL NEED FIELD MODIFICATION AND FIT-UP TO BE INSTALLED PROPERLY.

NOTE:

3/8" End Caps, Top and Bottom, Seal Weld To Panel, Supply Fittings In Top Cap, Pressure Test, (to 5 psi. for 10 min.) & Install S.S. Plug.

Fabricated 6" thick Steel Fender Panel with 1 1/2" thick UHMW-PE Facing, Typical.

**FENDER PANEL DETAIL 3**



**SECTION AT FENDER FACE**

**AS-BUILT DRAWING**  
Project No. 67717 SHEET 16 of 18

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

PATH: Q:\KTN\67717\MF\DRAWINGS\SHEET16.DWG		
PLOT:		
BY:	DATE:	DESCRIPTION OF CHANGE:
<b>RECORD OF REVISIONS</b>		

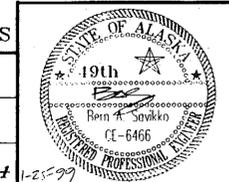
STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES  
SOUTHEAST REGION DESIGN & CONSTRUCTION

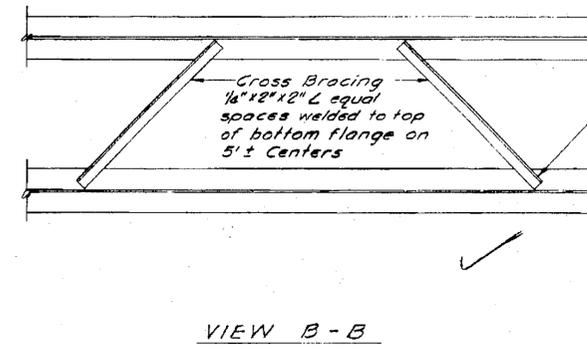
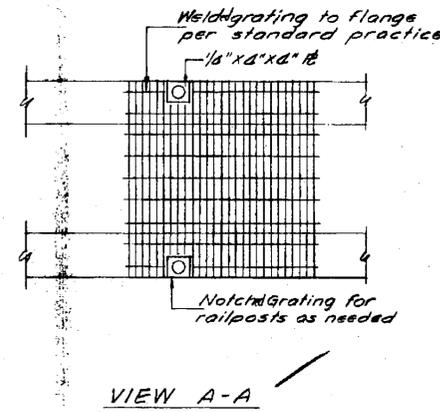
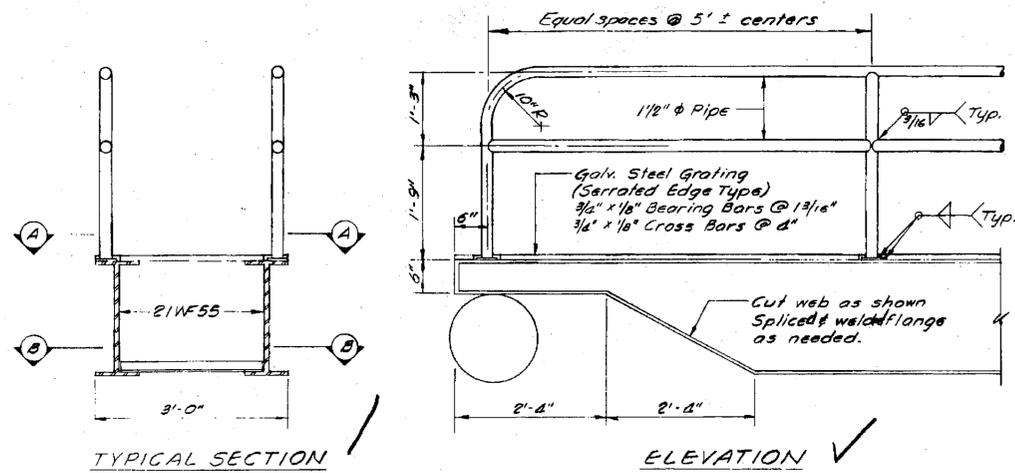
KETCHIKAN

KETCHIKAN AIRPORT  
GRAVINA ISLAND FERRY TERMINAL  
PROJECT NO. A.T.P. 9-02-0144-1097/72030  
**FENDER PANEL DETAILS**

ALASKA

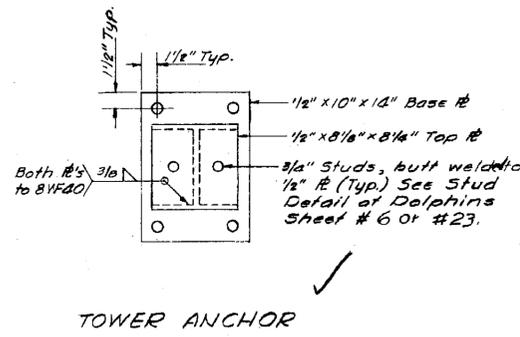
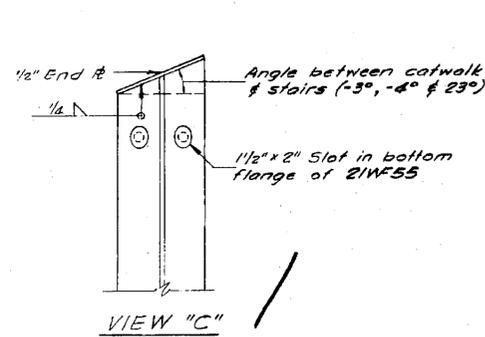
DESIGNED BY:	BAS/BN	PROJECT NO.	72030
DRAWN BY:	BN	DATE:	APRIL, 1997
CHECKED BY:	JAL	SHEET 33 OF 41	





**GENERAL NOTES**

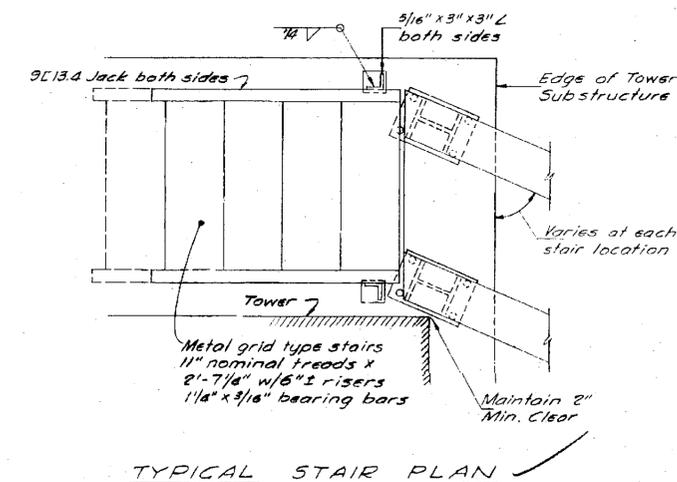
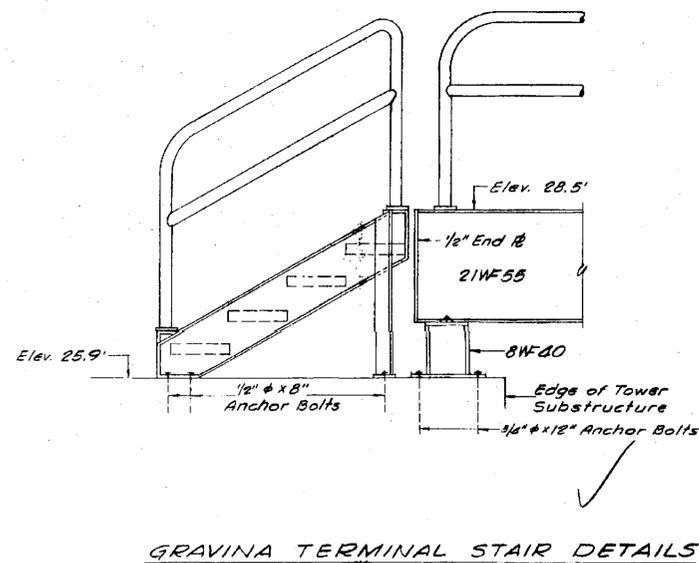
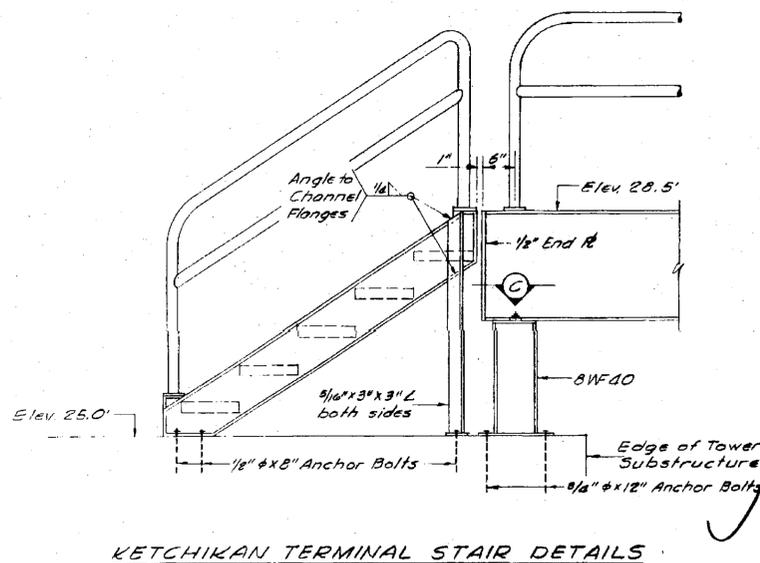
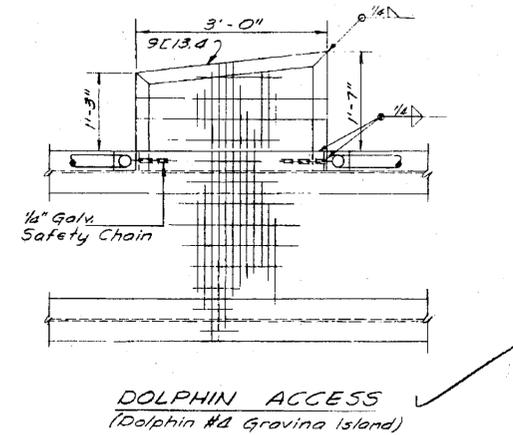
1. Natural camber in 21WF55 beam ~~shall~~ be placed up.
2. ~~Grating dimensions may be substituted with the approval of the engineer.~~
3. For catwalk layout see Layout Plans sheets #4 & #23.



**APPROXIMATE SPAN LENGTH**

KETCHIKAN TERMINAL		GRAVINA TERMINAL	
Dolphin #1 to #2	31'	Dolphin #1 to #2	36'
" #2 to #3	31'	" #2 to #3	37'
" #3 to Tower	45'	" #3 to Tower B	40'
		" #5 to Tower A	19'
Approx. wt. A-36 steel		Approx. wt. A-36 steel	
14,000 lbs.		7,800 lbs.	

*Note: These values are for general information. The actual span lengths from ~~the actual span lengths from~~*



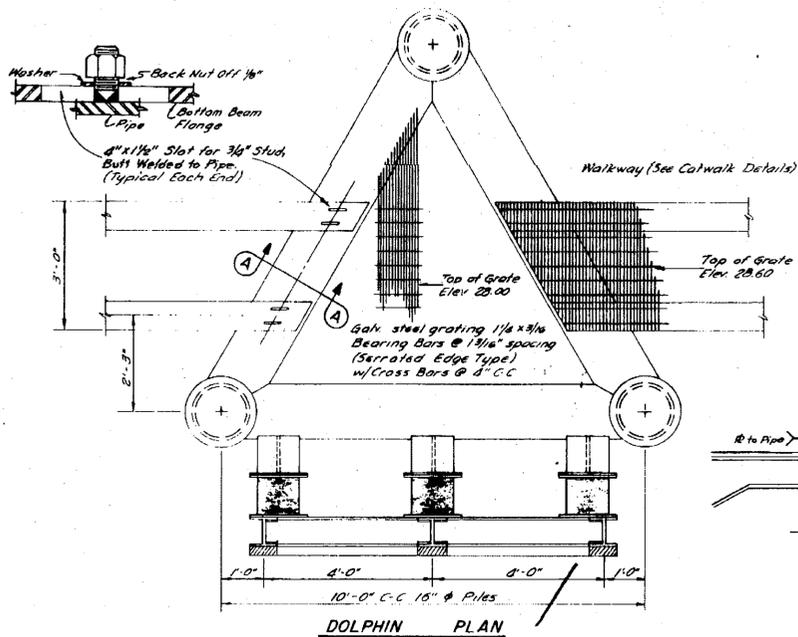
AS-BUILT

**CATWALK DETAILS**

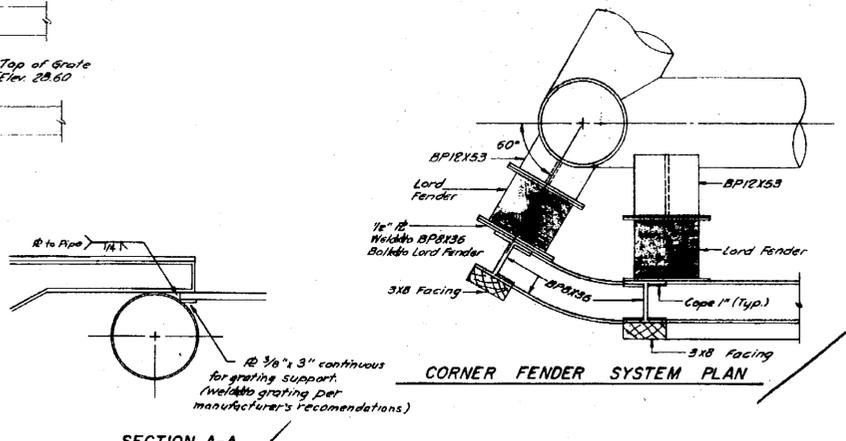
**BOMHOFF & ASSOCIATES**  
Engineering and Surveys  
1020 West Fireweed Lane  
Anchorage, Alaska 99503

DESIGNED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
SCALE: \_\_\_\_\_  
DATE: \_\_\_\_\_  
SHEET OF \_\_\_\_\_

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	F-095-2(9) A.D.A.P. 8-02-0144-03	1972	23	35

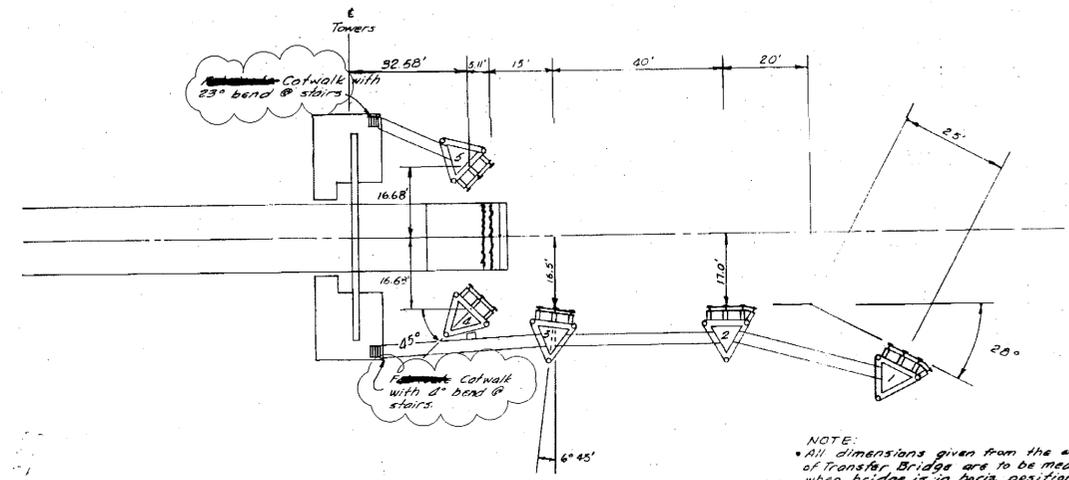


DOLPHIN PLAN



CORNER FENDER SYSTEM PLAN

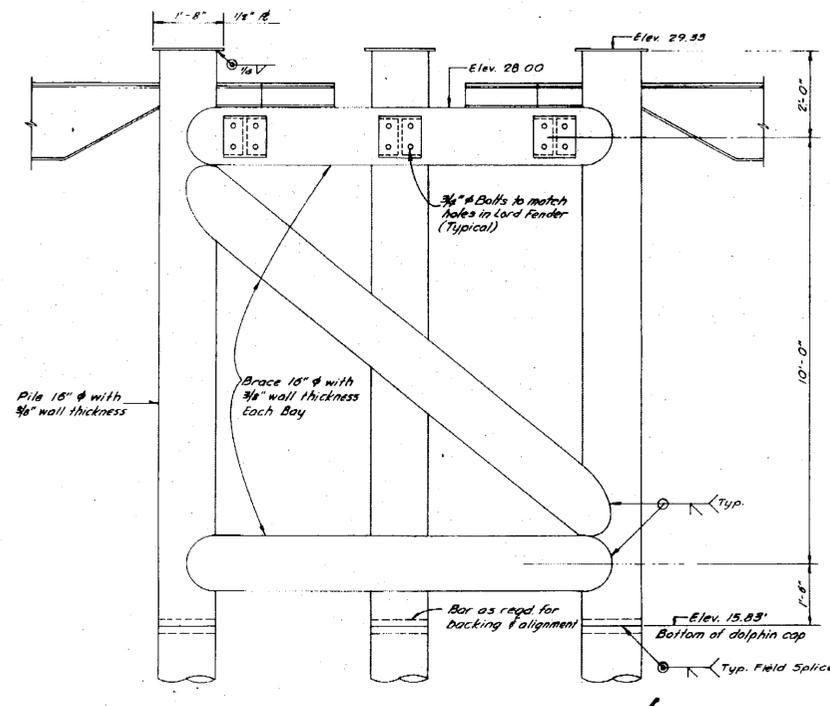
SECTION A-A



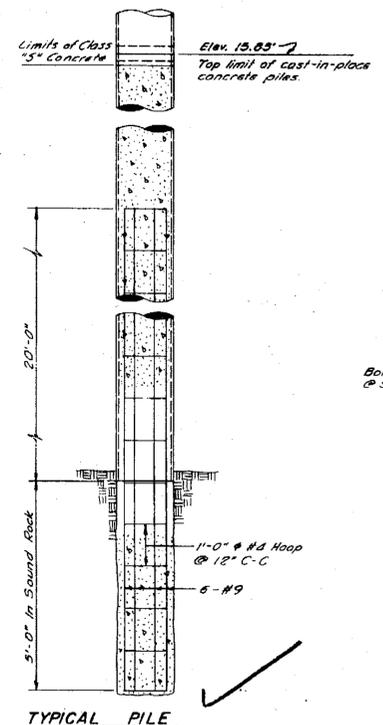
LAYOUT PLAN

NOTE:  
 • All dimensions given from the end of Transfer Bridge are to be measured when bridge is in horiz. position.  
 • See sheet 19 for catwalk details.  
 • See sheet 20 for tower details.

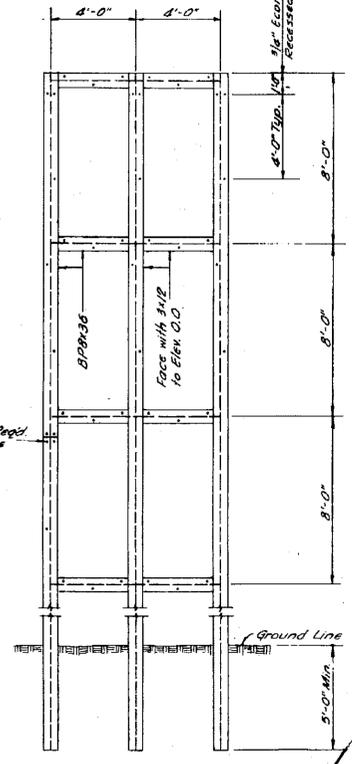
APPROXIMATE SOUND ROCK ELEV.	
Dolphin No. 1	47'
No. 2	47'
No. 3	40'
No. 4	38'
No. 5	43'



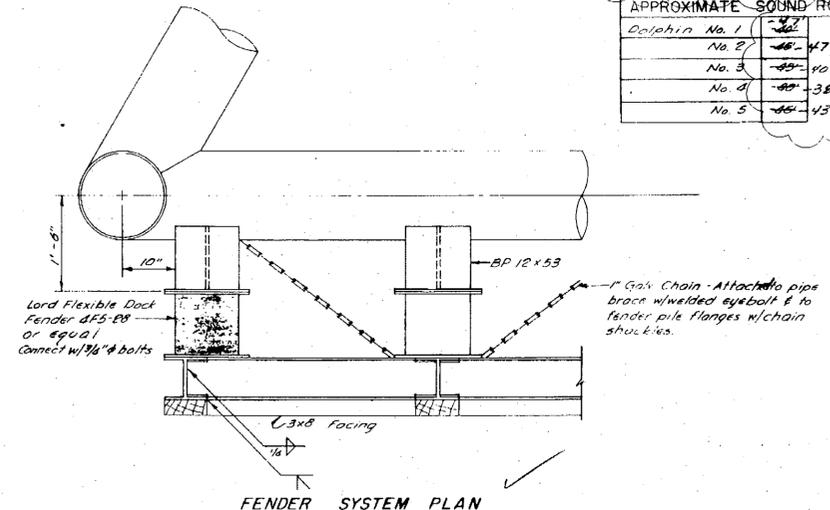
DOLPHIN ELEVATION



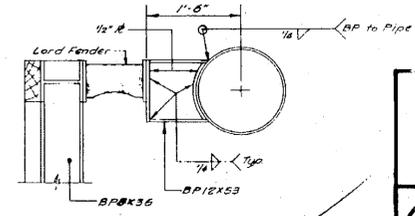
TYPICAL PILE



FENDER PILE ELEVATION



FENDER SYSTEM PLAN



FENDER SYSTEM SECTION

AS-BUILT

**DOLPHIN DETAILS**  
 GRAVINA ISLAND AIRPORT  
 FERRY TERMINAL  
 BOMHOFF & ASSOCIATES  
 Engineering and Surveys  
 1020 West Fireweed Lane  
 Anchorage, Alaska 99503



DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
SCALE:	
DATE:	
SHEET	OF

Project No. 67717  
 Sheet 18 of 18