ALASKA RAILROAD CORPORATION
327 W. Ship Creek Ave.
Anchorage, AK 99501
wallaces@akrr.com
Phone (907)265-2425
Cell (907)744-0031

ADDENDUM NO. 2
Invitation to Bid (ITB) 26-18-214518
Seward Freight Dock Expansion 1 Construction
Alaska Railroad Corporation
Date: May 18, 2026

This Addendum is issued to provide clarification in response to bidder questions and extend the bid closing date. All other terms and conditions of the referenced solicitation remain unchanged.

The bid closing date has been extended by this Addendum from June 4, 2026, to **June 17, 2026, at 3:00 PM AKST.**

QUESTION AND ANSWERS:

1. Where can I find the plan holders list on your web site?

   Answered in Addendum No. 1.

2. For bonding/surety reasons, what is the Engineer's Estimate or budget for the project?

   Answered in Addendum No. 1.

3. Corps Permit Page 3 of 9, full length silt curtain used on the south end of the dock expansion between the sheet pile construction and the west side of the sediment groin. If this is a requirement, please explain in further detail. Where, when, to install, when to remove.
   A full-length silt curtain must be used on the west side of the sediment groin whenever fill is placed outside of a completed cell in such a way that it contains the work area and prevents an increase in turbidity and sedimentation in open waters.

4. Could the engineer provide an estimated pulling strength required to remove the spin fin piles? Is the thought that these can be pulled without damage?
   With the exception of the top of the pile (at the attachment point), the piles shall be pulled without damage. Damaged piles shall be replaced by the contractor at the contractor's expense. Extraction is anticipated to be with a vibratory hammer or other non-damaging method, with templates used as appropriate. With a vibratory hammer that has enough eccentric moment to move the pile up and down with adequate amplitude, the pulling force will be much less than the static pulling resistance. Assuming a vibratory hammer, the pullout force will be the dead weight of the elements, plus the remaining skin friction and dynamic forces caused by the hammer. Also, it's important that the pile be allowed to freely rotate as it is being extracted to minimize required extraction forces.

5. Are any of the existing dolphin piles filled with concrete or gravel?

The Dolphin piles are not anticipated to be filled with concrete or gravel, although some material may be present at ends.

6. Several times the Corps permit refers to "in-water work year". Please define.
   Pile-driving and in-water work are anticipated to be constructed within the first year of construction. As such, the Incidental Harassment Authorizations were issued to cover effects to marine mammals from pile driving within the first year of construction. Other timing restrictions are included in the "Project Description & Mitigation Measures" appended to the project's NEPA Environmental Assessment.

7. 2.1.2 Mitigation Measures 3. Says in-water work will be conducted at the lowest points of the tidal cycle when feasible. Is it reasonable to think piles could be driven and pulled at any tide, some fill operations would be better off at lower tides, filling above the tide levels for the most part?
   "In-water work will be conducted at the lowest points of the tidal cycle when feasible." No further clarification has been provided.

8. Who is responsible for sunflower sea star surveys and relocating them?
   To The conference with NMFS regarding potential impacts to sunflower sea stars was conducted in the face on an imminent listing of the species. Per NMFS, the measures included in an Incidental Take Statement become applicable in the event the species becomes listed. Should that occur. The contractor is responsible for surveying and relocating sunflower sea stars, should it be required. For bidding, assume that sea star listing does not occur prior to project completion and any changes will be negotiated when and if sea stars become listed as a protected species.

9. Sheet 5 of 37 shows survey control. Assuming points 601, 602, and 603 are most likely destroyed by the cruise ship dock demolition, are there any replacement control points available?
   Pt.601 and Pt.602 can be considered lost. Field investigations from early May indicate that Pt.603, Pt.604 and Pt.507 still exist. More than adequate monuments should exist to recover to establish control values as shown on the Survey Control Document. It is the responsibility of the contractor to recover and densify control as needed for the project. If the contractor is unable to establish control values from the information on Sheet 5, they are to immediately notify the ARRC project manager for information on how to proceed.

10. Could you provide quantities for the Install South Slope Armor Rock, the Install East Slope Riprap, and various layers of fill for the Sheet Pile Dock Extension?
    The bidders are responsible for estimating all quantities that are not defined in the Plans. To assist Bidders the 95057 ARRC Dock Sediment Control Groin Plan Set and 99068 Seward Railroad Dock Plan Set 1 are included for reference.

11. Could you provide Sheet 11 of 37 with existing topography, bathymetry shown through the extension area?
    This question will be answered in Addendum No. 3.

12. Will you be providing Open Cell Dock construction specifications or do we use the railroad standard specs for piling?
    See section 530 of the supplemental specifications to the ARRC SSC.

13. Will Builder's Risk be required on this project?
    Yes. Builder's Risk Insurance shall be required.

14. Will Railroad Protective insurance be required?
    Yes. Railroad Protective Insurance shall be required for work within 50' of the railroad tracks.

15. For the Bid Items No. 2 and 3, Salvaging armor rock, will this be paid by cross section of existing or cross section of the resultant stockpile, or another method?
    To Salvaged armor rock will be paid by the survey cross section of the resulting stockpile after salvage.

16. If additional riprap or armor is required, is the existing stockpile at the dock storage area available for use on this project at no cost to the contractor?
    The Owner Suppled stockpile discussed in the Invitation to Bid is available for the contractor's use. No additional stockpiles are available to the contractor.

17. For alternate Item A2 do you have existing depths along the face?
    See the bathymetry on sheets 6 & 11 of the Plans.

18. Note on Sheet 23 of 37 says PS27.5 may be substituted with PS31's. What sheets are allowed to be PS27.5?
    Tailwall sheets are allowed to be PS27.5. See Owner Supplied materials in the Invitation to Bid 26-18-214518 on page 24 of 83.

19. Regarding owner furnished sheet piling, are they all PS31 or are there some PS27.5?
    All Owner Supplied sheets are PS31.

20. The permit does not allow impact pile driving July 15 to September 15. Am I missing something or will in-water work be allowed year round except for impact pile driving?
    A summary of timing restrictions is included in the "Project Description & Mitigation Measures" appended to the project's NEPA Environmental Assessment.

21. If longer sheet pile is cut for 60' foot sheets, does the railroad want the cutoffs or will the contractor be required to deal with them?
    The contractor is responsible for disposal of sheet pile cutoffs. All Owner Supplied materials not used by the contractor for construction of the project will remain property of the ARRC.

22. What is the pin pile specification, diameter, wall thickness, etc for the fender assemblies?
    Pin Piles shall be 24" dia x ¾" th steel pipe piles. Pipe pile specifications shall be per section 715 of the supplemental specifications to the ARRC Specifications.

23. In the past there have been some projects where the question of compatibility between 2 different sheet pile manufactures was an issue. Is that going to be a concern where the expansion ties into the existing X Pile on this project?
    The existing dock was constructed with PS31 & PS27.5 sheet pile. Compatibility is not anticipated to be an issue.

24. What is the pin pile specification, diameter, wall thickness, etc for the fender assemblies?
    See response to question 22 of this Addendum.

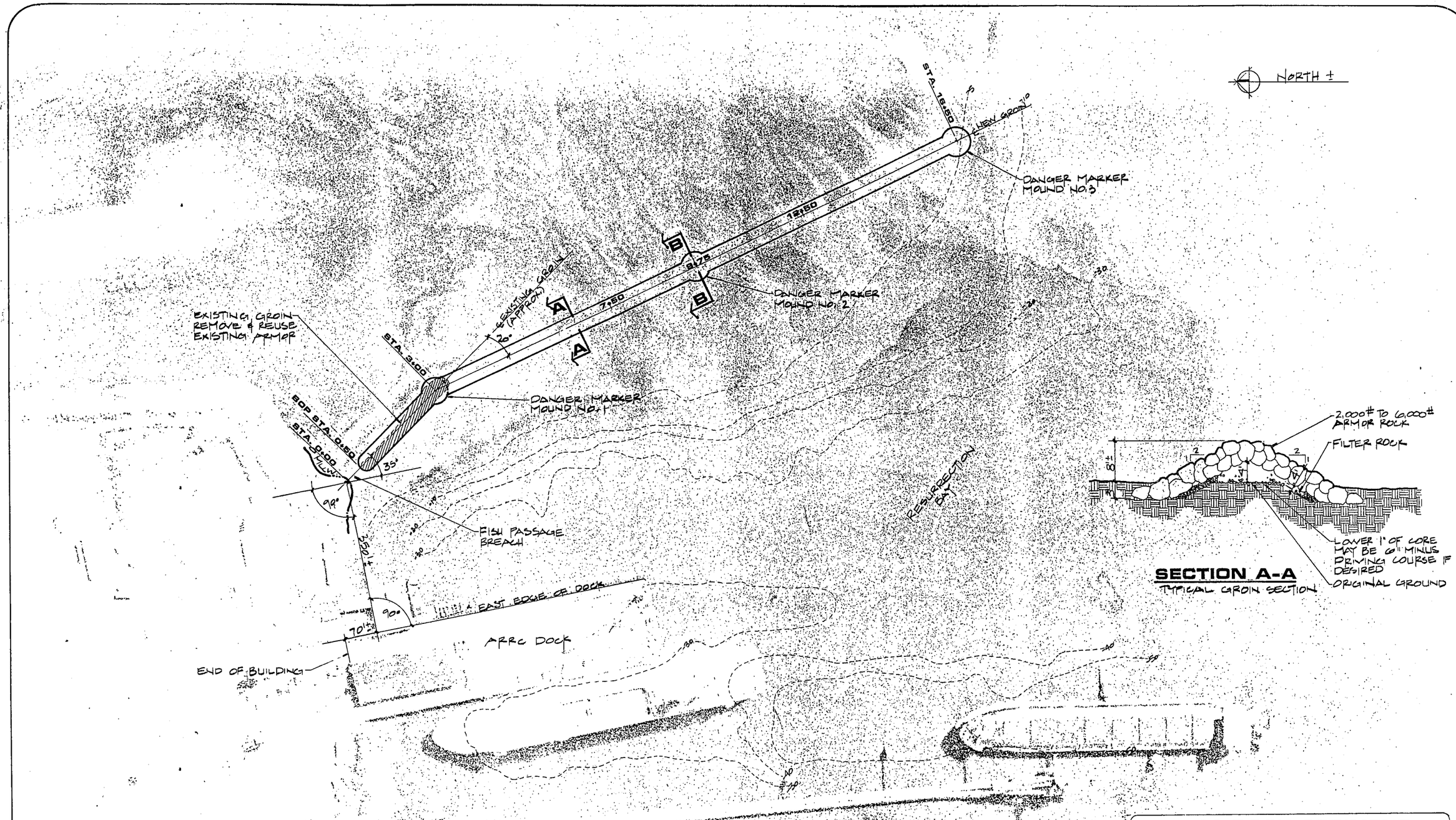
25. In the past there have been some projects where the question of compatibility between 2 different sheet pile manufactures was an issue. Is that going to be a concern where the expansion ties into the existing X Pile on this project?
    The existing dock was constructed with PS31 & PS27.5 sheet pile. Compatibility is not anticipated to be an issue.

26. I believe Harris Sand and Gravel replaced a batter pile on the dolphin in 2020. Was the damaged pile pulled in it's entirety, or was it cut off and replaced with a new spin fin pile?
    The damaged pile was cut off at mudline and the new pile driven next to it.

Please acknowledge receipt of this and all addenda in your firms Supply Bid Form
(Form 395-0129).

Sincerely,

Sarah B. Wallace
Contract Administration Specialist
Alaska Railroad Corporation



SECTION A-A
TYPICAL GROIN SECTION

NOTES:

1. DATUM IS MEAN LOWER LOW WATER = 0.0 FEET.
2. BATHYMETRIC CONTOURS ARE IN FEET.
3. THE LOCATIONS OF BATHYMETRIC CONTOURS ARE APPROXIMATE.

PLAN
SCALE (APPROX)
0 100 200 300 600 FEET

STATE OF ALASKA 49TH D. Nottingham No. 12014 REGISTERED PROFESSIONAL ENGINEER

ARRC DOCK SEDIMENT CONTROL GROIN

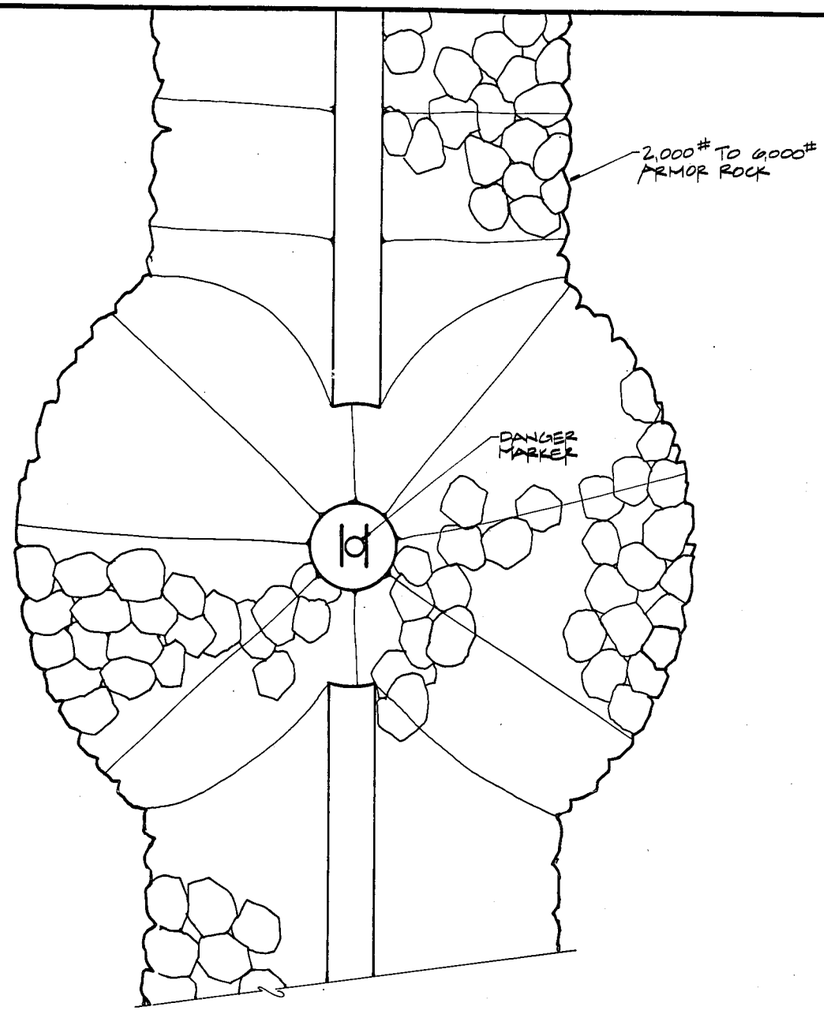
Designed DN
Drawn ARV
Checked HA
Project No. 95037

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 West 36th Avenue,
Anchorage, Alaska 99503
(907) 561-1011

Date 4/96
Scale —

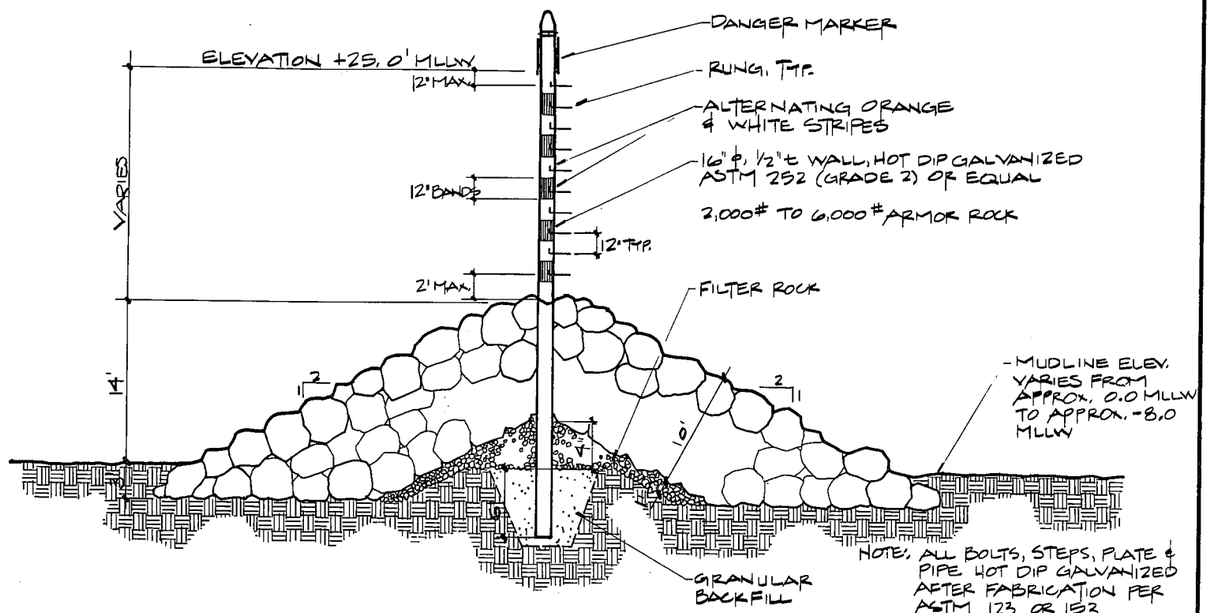
SITE PLAN & TYPICAL SECTION

sheet 1 of 2



TYPICAL PLAN AT DANGER MARKER MOUND

NTS



TYPICAL SECTION B-B AT DANGER MARKER MOUND

NTS

EARTHWORK SPECIFICATIONS

A. GENERAL
The earthwork shall be performed in accordance with these plans and specifications, and all Federal and State permits and approvals for the project.

B. PRODUCTS
I. Armor Rock:
Armor rock shall meet the following criteria: a minimum of 50% by weight of the stones shall weigh 3,000 pounds per piece. No more than 10% by weight of the stones shall weigh more than 6,000 pounds per piece. No more than 15% by weight of the stones shall weigh less than 2,000 pounds per piece.

Stones shall be blocky and predominately angular in shape. No more than 25% by weight of the stones shall have a length of more than 2.5 times its breadth or thickness. No stone shall have a length exceeding 3 times its breadth or thickness.

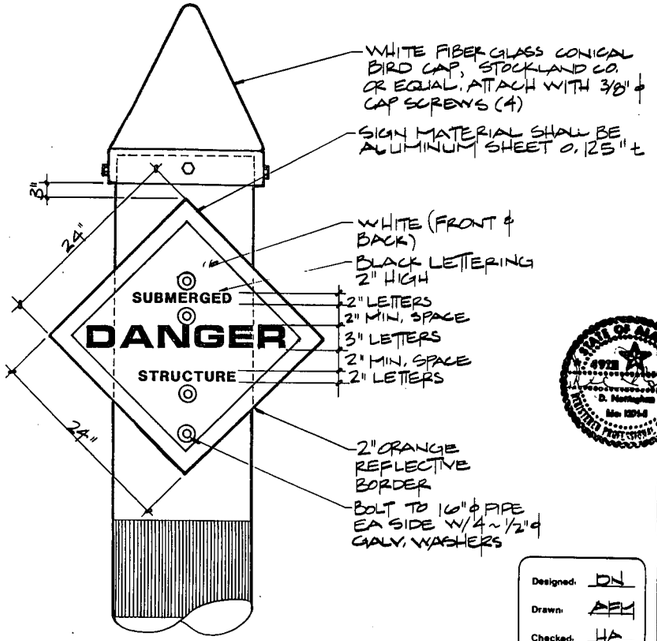
II. Filter Rock:
Filter rock shall conform to Alaska Department of Transportation and Public Facilities Standard Specifications (1988) for Class I Riprap.

C. SUITABILITY OF MATERIALS
Stones from the selected source should meet the following requirements for quality:

Specific Gravity, BSSD (ASTM C127)	Not less than 2.60
Water Absorption (ASTM C127)	Not more than 2.5%
Angular Wear (ASTM C535) (1,000 revolutions)	Not more than 30%
Sodium Sulfate Soundness (5 cycles ASTM C88)	Not more than 5%

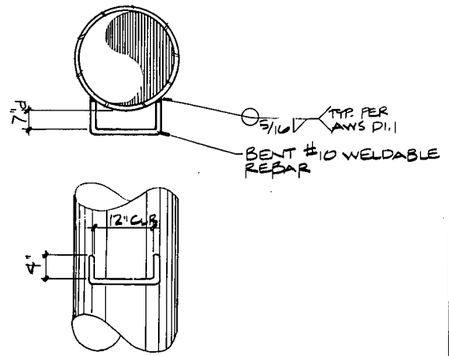
D. PLACEMENT
I. Filter Rock
A key trench shall be excavated where shown on the plans. The filter rock shall be handled or dumped into place so as to secure a stone mass of the thickness, height, and length shown on the plans, with a minimum of voids.

II. Armor Rock
The stability of the slopes of the groin structure, and their ability to withstand wave attack, is dependent on the effective interlocking of one stone with another. Armor shall be placed in a manner so that the filter rock layer is not ruptured. The armor rock shall be handled or dumped into place so as to secure a stone mass of the thickness, height, and length shown on the plans, with a minimum of voids. The stones shall be manipulated sufficiently by means of a backhoe, rock tongs, or other suitable equipment to secure a reasonably regular surface and mass stability. Placement shall begin at the toe and proceed up the slope. The stones shall not be dumped from a height greater than 3 feet.



DANGER MARKER DETAIL

NTS



STEP DETAIL

ARRC DOCK SEDIMENT CONTROL GROIN

Designed: DN
Drawn: APM
Checked: HA
Project No. 95057

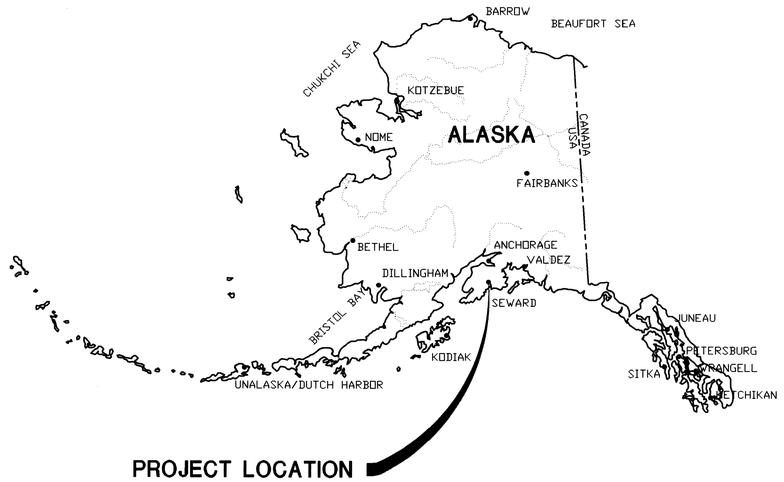
Date: 2/96
Scale: —

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 West 36th Avenue,
Anchorage, Alaska 99503
(907) 561-1011

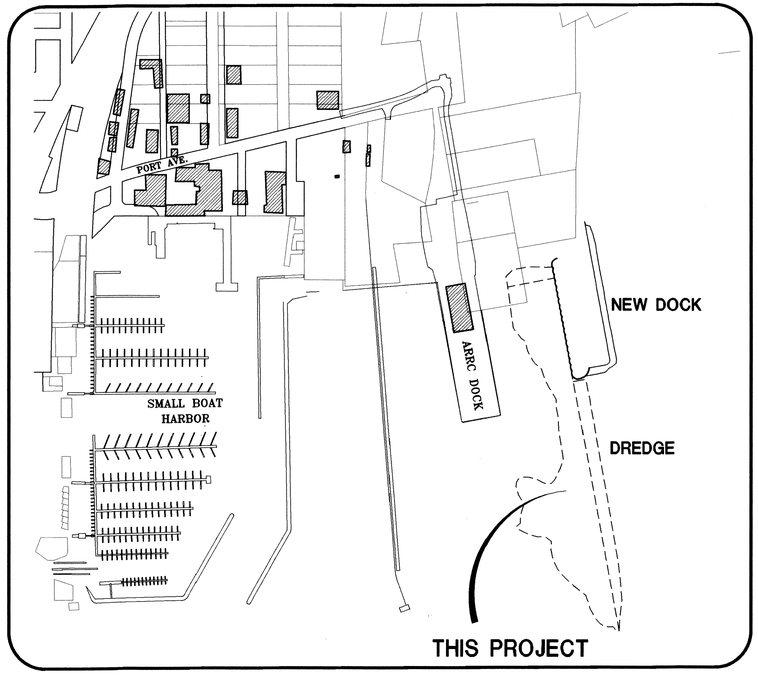
SECTIONS, DETAILS, & TECHNICAL SPECS.

sheet 2 of 2

ALASKA RAILROAD CORPORATION
NEW SEWARD RAILROAD DOCK
2000



STATE MAP



VICINITY MAP

DRAWING INDEX

DWG. NO.	TITLE
1	COVER SHEET, VICINITY MAP AND DRAWING INDEX
2	EXISTING SITE PLAN AND PROJECT CONTROL
3	SITE DEMOLITION PLAN
4	SITE PLAN, DREDGING AND TEST HOLE LOCATIONS
5	DOCK SECTIONS AND TYPICAL SECTIONS
6	DOCK PLAN AND DETAILS
7	SHEET PILE AND VIBROCOMPACTION PLAN AND DETAILS
8	FENDER DETAILS – 1 OF 2
9	FENDER DETAILS – 2 OF 2
10	MOORING DOLPHIN DETAILS
11	CATWALK DETAILS
12	MISCELLANEOUS DETAILS – 1 OF 2
13	MISCELLANEOUS DETAILS – 2 OF 2
14	WATER LINE PLAN
15	UTILITY DETAILS
16	GENERAL NOTES – 1 of 2
17	GENERAL NOTES – 2 of 2
E1	ELECTRICAL DEMOLITION SITE PLAN
E2	ELECTRICAL REMODEL SITE PLAN
E3	ELECTRICAL DETAILS
E4	ELECTRICAL DETAILS
E5	ELECTRICAL DETAILS
E6	ELECTRICAL SPECIFICATIONS
E7	ELECTRICAL SPECIFICATIONS

WORK SUMMARY

MAJOR ITEMS OF WORK INCLUDE:

1. APPROXIMATELY 215,000 CY DREDGING (NEATLINE VARIES)
2. CONSTRUCT NEW ±627' OPEN CELL SHEET PILE BULKHEAD DOCK
3. CONSTRUCT STRUCTURAL STEEL, BOLLARDS AND FENDERS
4. CONSTRUCT NEW MOORING DOLPHIN AND CATWALK
5. REMOVE AND SALVAGE PORTIONS OF EXISTING ROCK GROIN
6. CONSTRUCT FILL ARMOR AND RIPRAP SLOPE PROTECTION
7. INSTALL NEW WATER LINES
8. INSTALL ELECTRICITY AND 4 NEW HI MAST LIGHTS

ISSUED FOR CONSTRUCTION
3/23/2000

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

TIDAL BENCH MARKS

POINT #	NORTHING	EASTING	ELEVATION	TIDAL BENCH MARK
115	2235939.966	1744780.417	24.78	5090D 1991
588	2236440.420	1744674.370	24.78	NO 22 1966
604	2236169.603	1744663.788	24.19	5090C 1978

TIDAL INFORMATION

LOCATION	MEAN HIGHER HIGH WATER	MEAN HIGH WATER	MEAN LOW WATER	EXTREME LOW WATER
SEWARD,ALASKA	10.6'	9.7'	1.4'	-4.0'

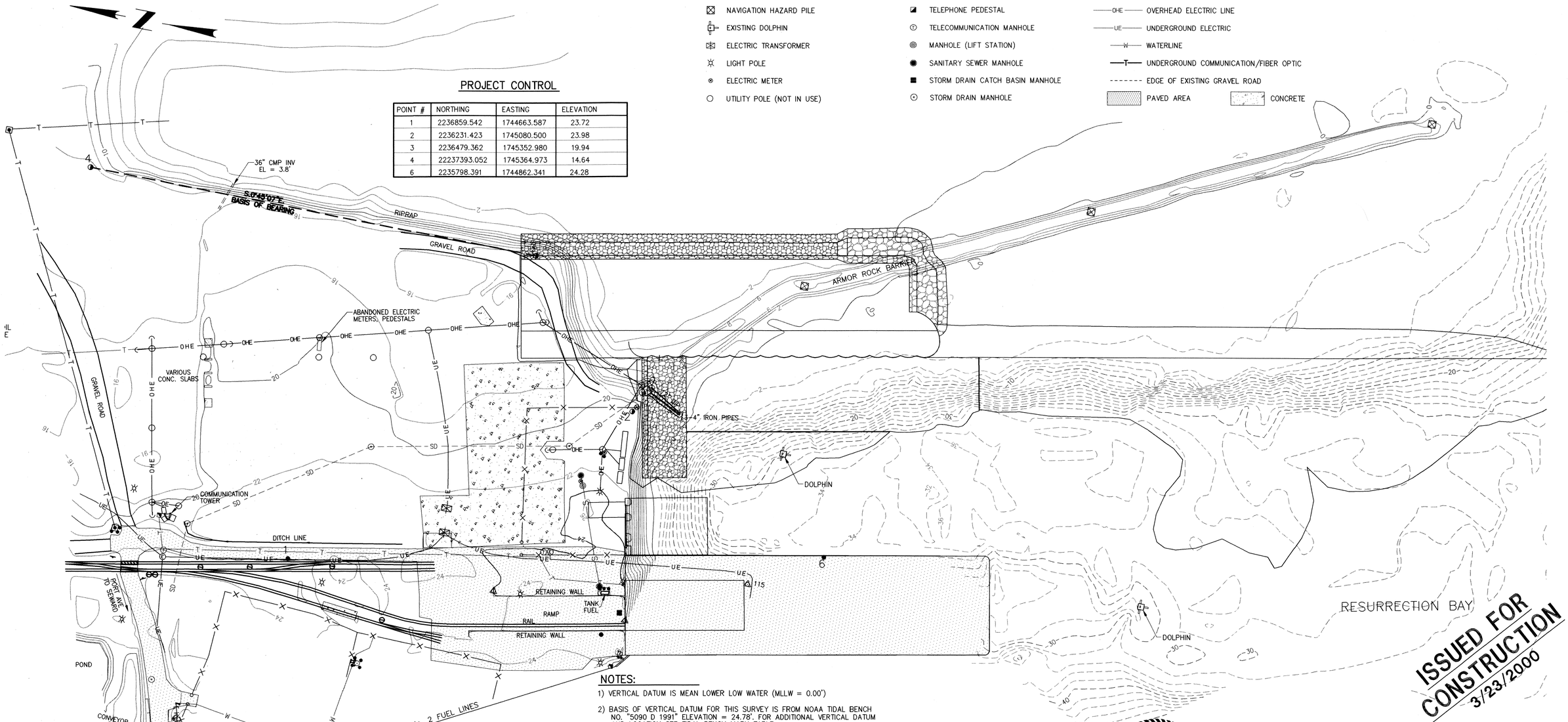
INFORMATION FROM NOAA CHART NO. 16682

LEGEND

- SET PND YPC ON 5/8" X 30" REBAR
- FOUND #5 REBAR
- SET MAGNETIC NAIL/SPIKE (TRAV. PT.)
- FOUND CORP. MONUMENT AS DESCRIBED
- FOUND NOAA BENCH MARK
- NAVIGATION HAZARD PILE
- EXISTING DOLPHIN
- ELECTRIC TRANSFORMER
- LIGHT POLE
- ELECTRIC METER
- UTILITY POLE (NOT IN USE)
- POWER POLE
- GUY ANCHOR
- ELECTRIC MANHOLE
- ELECTRIC PEDESTAL
- AT&T FIBER OPTIC MANHOLE
- TELEPHONE PEDESTAL
- TELECOMMUNICATION MANHOLE
- MANHOLE (LIFT STATION)
- SANITARY SEWER MANHOLE
- STORM DRAIN CATCH BASIN MANHOLE
- STORM DRAIN MANHOLE
- FIRE HYDRANT
- WATER VALVE
- RAILROAD SWITCH
- RAILROAD SIGN
- BOLLARDS
- OHE — OVERHEAD ELECTRIC LINE
- UE — UNDERGROUND ELECTRIC
- W — WATERLINE
- T — UNDERGROUND COMMUNICATION/FIBER OPTIC
- EDGE OF EXISTING GRAVEL ROAD
- PAVED AREA
- CONCRETE

PROJECT CONTROL

POINT #	NORTHING	EASTING	ELEVATION
1	2236859.542	1744663.587	23.72
2	2236231.423	1745080.500	23.98
3	2236479.362	1745352.980	19.94
4	22237393.052	1745364.973	14.64
6	2235798.391	1744862.341	24.28



PLAN

GRAPHIC SCALE

0 100 200 300 400

NOTES:

1) VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW = 0.00')
2) BASIS OF VERTICAL DATUM FOR THIS SURVEY IS FROM NOAA TIDAL BENCH NO. "5090 D 1991" ELEVATION = 24.78'. FOR ADDITIONAL VERTICAL DATUM AND LOCATION SEE TIDAL BENCH MARK TABLE.
3) BASIS OF COORDINATES FOR THIS SURVEY WERE TAKEN FROM THE ARMY CORPS OF ENGINEERS SEWARD HARBOR CONDITION SURVEY JULY 11-12, 1991. CONTROL STATION USED WAS "LP-8" CONVERTED FROM NAD 27 TO NAD 83 FEET.
4) BASIS OF BEARING IS BASED ON A TIE BETWEEN ARMY CORPS OF ENGINEERS CONTROL STATIONS MONUMENTS "LP-8 & LP-9". THE BEARING BETWEEN THE AFOREMENTIONED CONTROL STATIONS, AFTER CONVERTING COORDINATES TO NAD 83 FEET, IS S30°21'10"W.
4) FIELD SURVEY WAS COMPLETED SEPT. 3, 1999.
5) CONTOURS ARE IN FEET.
6) DEPTH OBTAINED WITH INTERSPACE 448 DEPTH SOUNDER, HORIZONTAL POSITION BY DIFFERENTIAL GPS.

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
EXISTING SITE PLAN AND PROJECT CONTROL

DESIGNED BY: DN
DRAWN BY: WAY
APPROVED BY: DN
SCALE : AS NOTED
DATE : 3/23/2000
FILE: 99068-02.DWG
DWG NO. 2 OF 17

36" CMP INV
EL = 3.8'

RIPRAP

GRAVEL ROAD

ARMOR ROCK BARRIER

REMOVE ALL ARMOR/RIPRAP ROCK AND BARRIER MARKER FROM WITHIN NEW DOCK FOOTPRINT. SALVAGED ROCK MEETING THE REQUIREMENTS OF THE ARMOR, RIPRAP AND/OR FILTER ROCK AS SPECIFIED, MAY BE INCORPORATED INTO THE PROJECT. DEBRIS SHALL BE DISPOSED OF IN AN APPROVED OFFSITE LOCATION.

SPOIL PILE

ABANDONED ELECTRIC METERS, PEDESTALS

OHE

UE

VARIOUS CONC. SLABS

NEW DOCK

OUTFALL AND ASSOCIATED BUILDING TO BE REMOVED BY CONTRACTOR

3-4" IRON PIPES

REMOVE DOLPHIN AND PILES

DREDGE AREA

GRAVEL ROAD

SD

OE

COMMUNICATION TOWER

DITCH LINE

PORT AVE TO SEWARD

RETAINING WALL

TANK FUEL

RAMP

RAIL

EXISTING DOCK

POND

INVERT
EL = 23.85'

INVERT
EL = 24.01'

CMP INVERT
EL = 11.26'

CENTER OF TWO 8" No. 2 FUEL LINES

FUEL LINE

NOTES:
1. SEE ELECTRICAL DRAWING E1 FOR ELECTRICAL AND COMMUNICATIONS COMPONENT DEMOLITION.
2. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A LOCATION AS DIRECTED BY OWNER. THE CONTRACTOR SHALL DISPOSE OF ALL UNWANTED MATERIALS IN AN APPROVED OFFSITE DISPOSAL LOCATION.

ISSUED FOR CONSTRUCTION
3/23/2000

PLAN

GRAPHIC SCALE
0 80 160 240 320

STATE OF ALASKA 49TH
D. Nottingham
No. 1204-E
REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
SITE DEMOLITION PLAN

DESIGNED BY: DN	SCALE : AS NOTED	FILE: 99068-3.DWG	
DRAWN BY: WAY		DWG NO. 3 OF 17	
APPROVED BY: DN	DATE : 3/23/2000		

REMOVE EXISTING ROCK BARRIER WITHIN AREA OF NEW WORK

1.5:1 SLOPE | 2:1 SLOPE

TOP OF TOE ELEV. = 0.0' FOR 50' FROM END

RIPRAP

ELEV. 18.5

GRAVEL ROAD

TH#4(50)

ARMOR ROCK BARRIER

ARMOR ROCK

TH#7(100)

WRAP TOE ARMOR, 5' THICK, 25' RADIUS

REFER TO GEOTECHNICAL REPORT FOR TEST HOLE INFORMATION.

TH#8(50)

TH#9(50)

ELEV. 20.0

OHE

TH#5

TH#6(50)

CATWALK

MOORING DOLPHIN

2:1 DREDGE BACKSLOPE

ELEV. 18.0

2:1 FILL

4" IRON PIPES

DREDGE TO ELEVATION -34.0 NEATLINE 150' X 600' AS SHOWN

DREDGE LIMITS SHOWN AT -33.0'

EXISTING DOLPHIN

1 1/2:1 BACKSLOPE PROTECT W/ 1' THICK FILTER ROCK AND 5' THICK ARMOR ROCK

UE

SD

RETAINING WALL

TANK FARM

RAMP

RAIL

RETAINING WALL

CENTER OF TWO 8" No. 2 FUEL LINES

RESURRECTION BAY

EARTHWORK SUMMARY
DREDGING = 215,000 CY NEATLINE AS SHOWN
FILL = 90,000 CY
ARMOR ROCK = 7900 CY
RIPRAP = 4230 CY
FILTER ROCK = 2080 CY

ISSUED FOR CONSTRUCTION 3/23/2000

PLAN

GRAPHIC SCALE

0 80 160 240 320

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
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REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :

NEW SEWARD RAILROAD DOCK

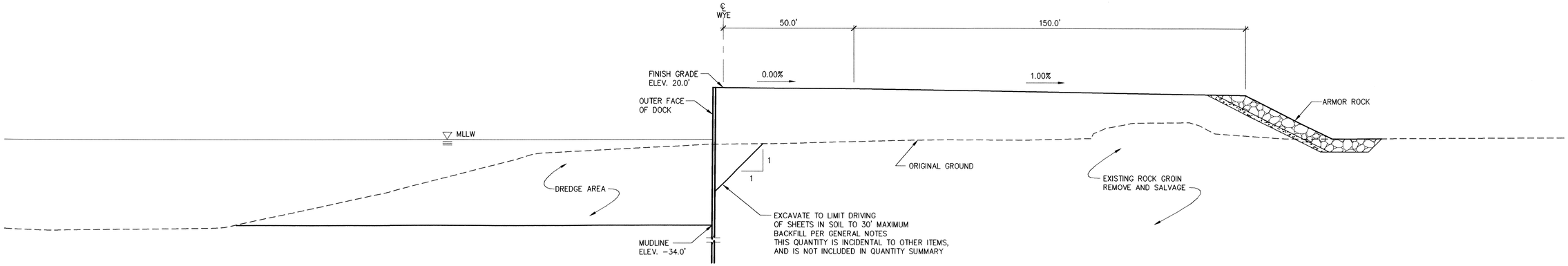
TITLE:

SITE PLAN, DREDGING AND TESTHOLE LOCATIONS

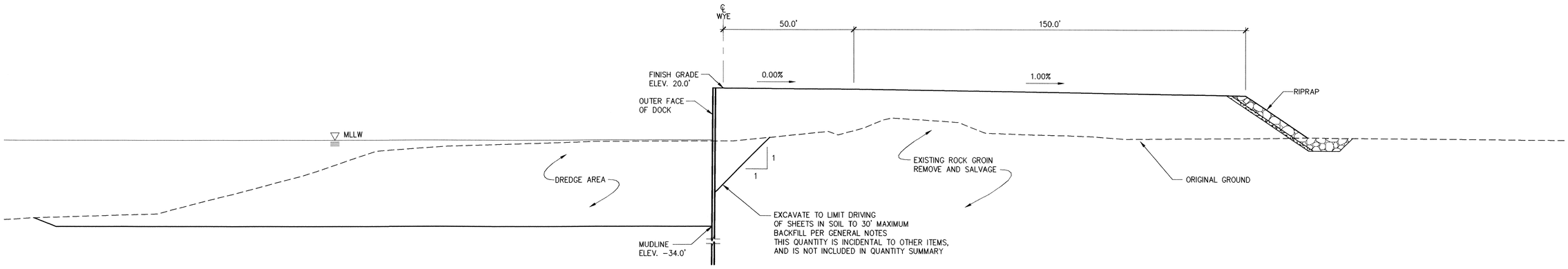
DESIGNED BY: DN
DRAWN BY: WAY
APPROVED BY: DN

SCALE : AS NOTED
DATE : 3/23/2000

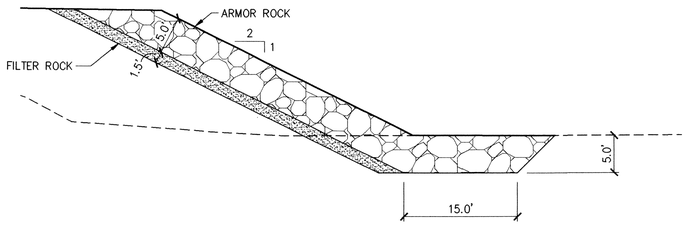
FILE: 99068-04.DWG
DWG NO. 4 OF 17



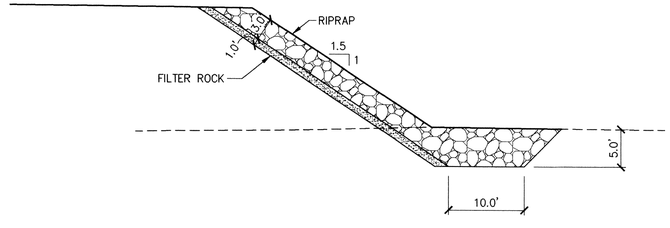
SECTION A



SECTION B



TYPICAL ARMOR ROCK SECTION



TYPICAL RIPRAP SECTION

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :

NEW SEWARD RAILROAD DOCK

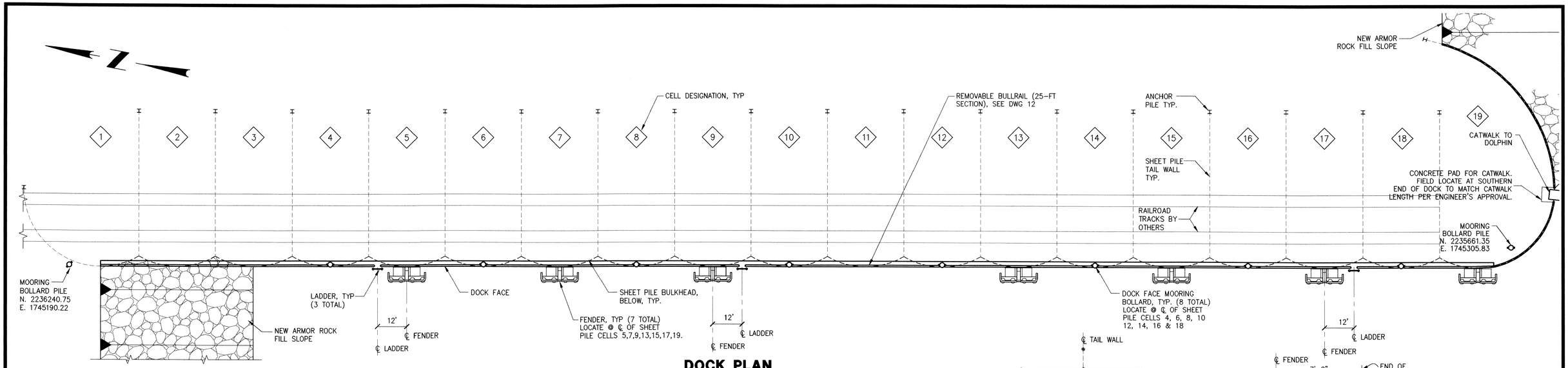
TITLE:

DOCK SECTIONS AND TYPICAL SECTIONS

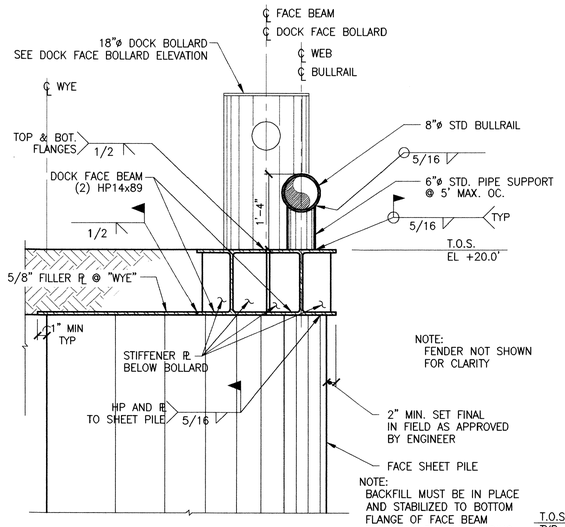
DESIGNED BY: SJ
DRAWN BY: WAY
APPROVED BY: DN

SCALE : AS NOTED
DATE : 3/23/2000

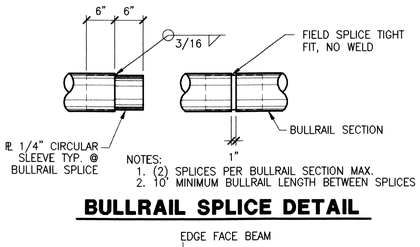
FILE: 99086-05.DWG
DWG NO. 5 OF 17



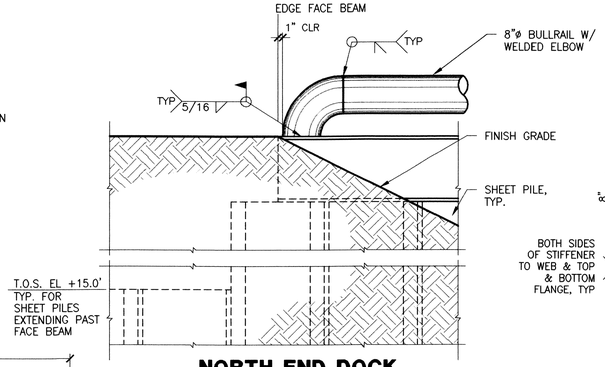
DOCK PLAN



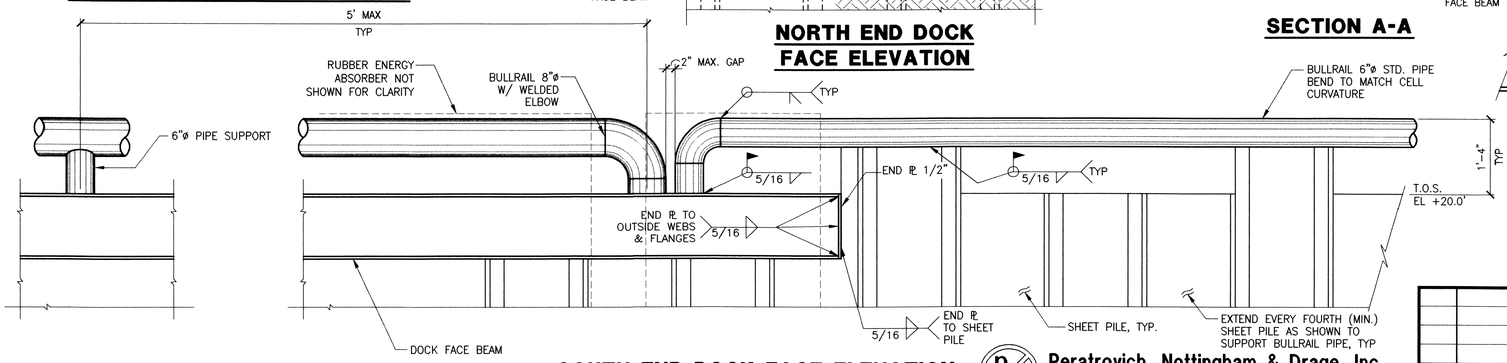
TYPICAL DOCK FACE SECTION



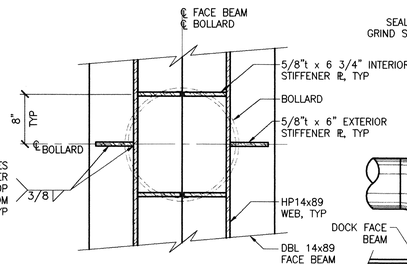
BULLRAIL SPLICE DETAIL



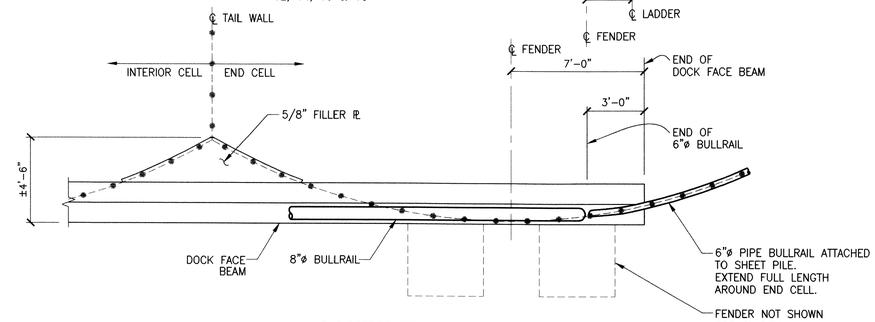
NORTH END DOCK FACE ELEVATION



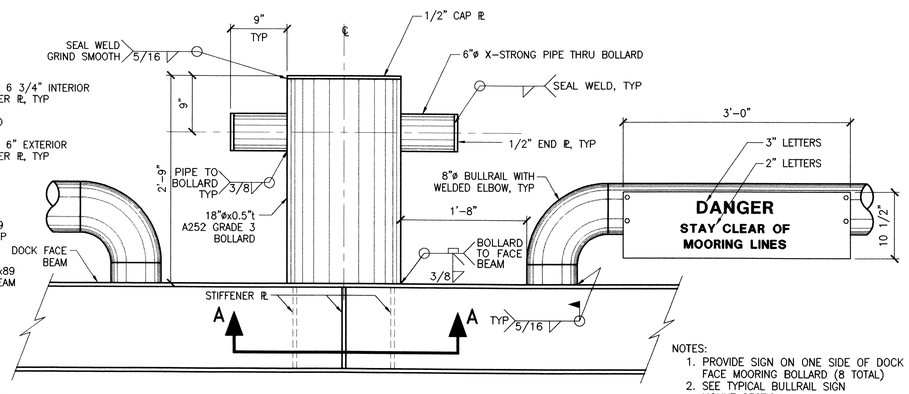
SOUTH END DOCK FACE ELEVATION



SECTION A-A



SOUTH END PLAN



DOCK FACE BOLLARD ELEVATION

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :

NEW SEWARD RAILROAD DOCK

TITLE:

DOCK PLAN AND DETAILS

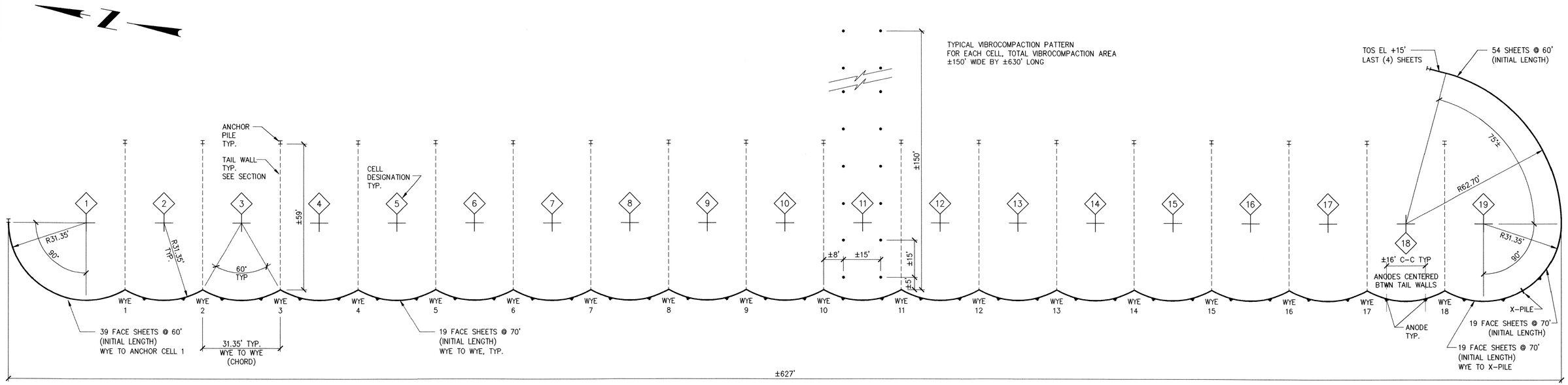
REV.	DATE	BY	REVISION

DESIGNED BY: KWB
DRAWN BY: WAY
APPROVED BY: DN

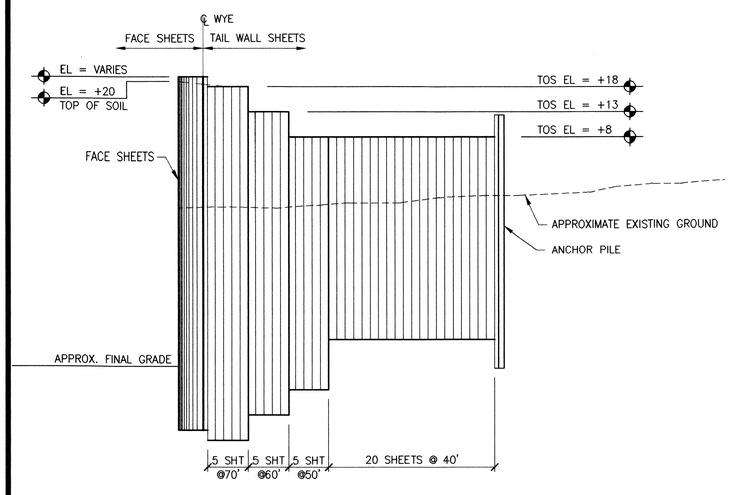
SCALE : AS NOTED
DATE : 3/23/2000

FILE: 99068-06.DWG
DWG NO. 6 OF 17

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

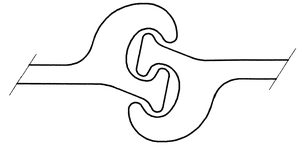


SHEET PILE LAYOUT

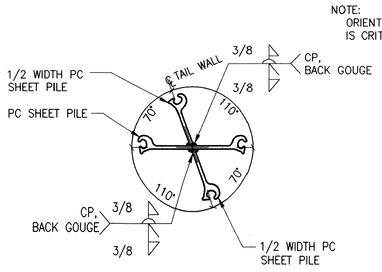


TYPICAL TAIL WALL SECTION

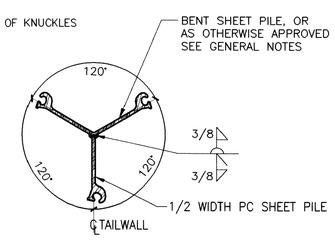
WYE LAYOUT TABLE		
WYE	POSITION (FT)	
	NORTHING	EASTING
1	2236213.35	1745198.91
2	2236182.53	1745204.64
3	2236151.71	1745210.36
4	2236120.89	1745216.09
5	2236090.06	1745221.82
6	2236059.24	1745227.55
7	2236028.42	1745233.28
8	2235997.60	1745239.01
9	2235966.78	1745244.73
10	2235935.95	1745250.46
11	2235905.13	1745256.19
12	2235874.31	1745261.92
13	2235843.49	1745267.65
14	2235812.66	1745273.37
15	2235781.84	1745279.10
16	2235751.02	1745284.83
17	2235720.20	1745290.56
18	2235689.38	1745296.29



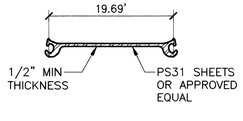
SHEET PILE INTERLOCK TYPICAL DETAIL



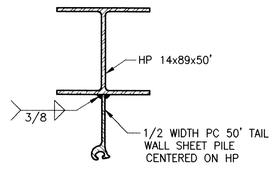
X-PILE SECTION
(70' EA.)



WYE SECTION
(70' EA.)



SHEET PILE SECTION



ANCHOR PILE SECTION

MATERIAL QUANTITIES	
DESCRIPTION	NUMBER
70' SHEETS	451
60' SHEETS	183
50' SHEETS	90
40' SHEETS	360
70' WYES	18
70' X-PILE	1
50' ANCHOR	20
70' SHEETS (EXTRA)	15

STATE OF ALASKA 49TH
D. Nottingham
No. 1204-E
REGISTERED PROFESSIONAL ENGINEER

ISSUED FOR CONSTRUCTION
3/23/2000

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

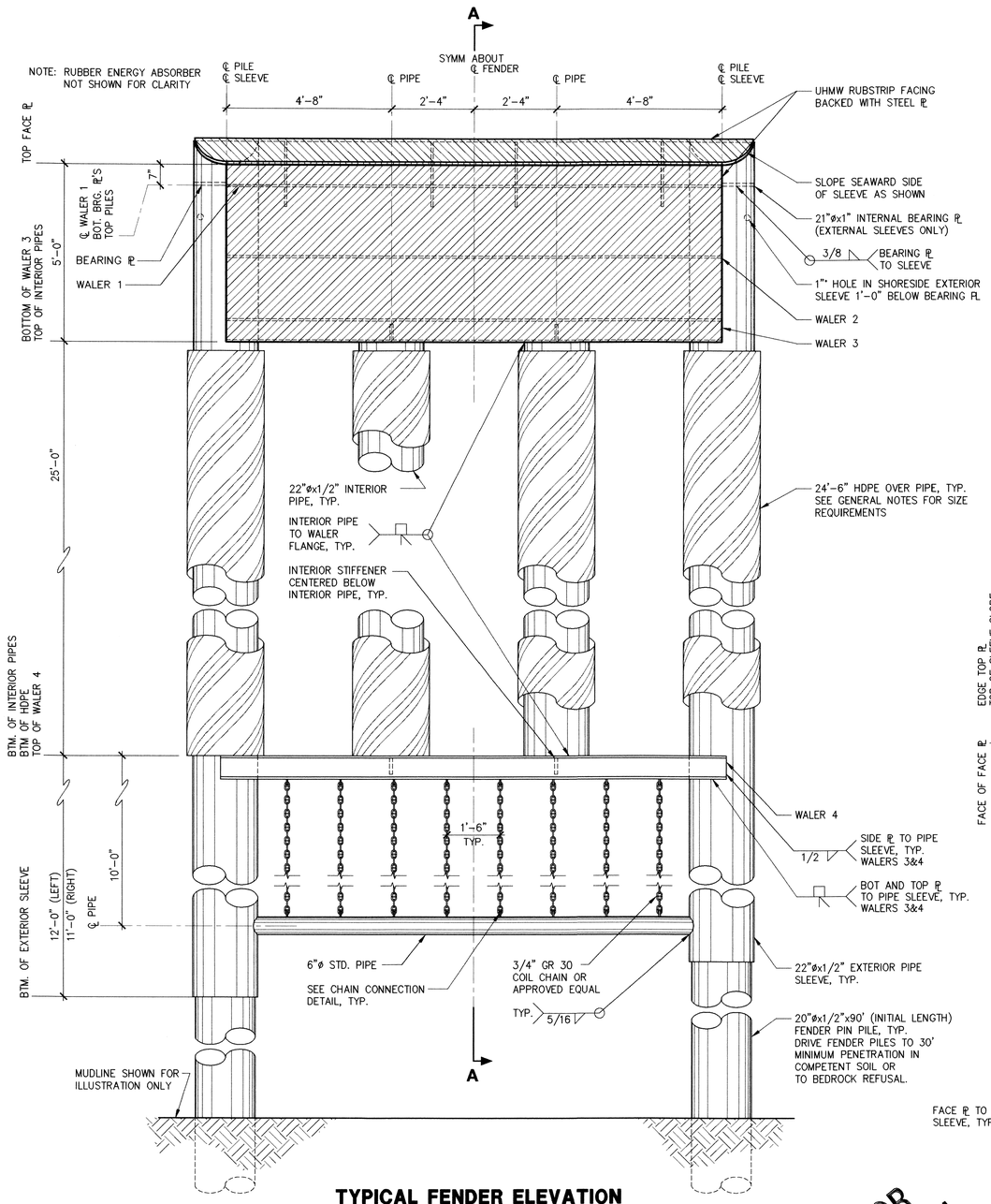
PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
SHEET PILE AND VIBROCOMPACTION PLAN AND DETAILS

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

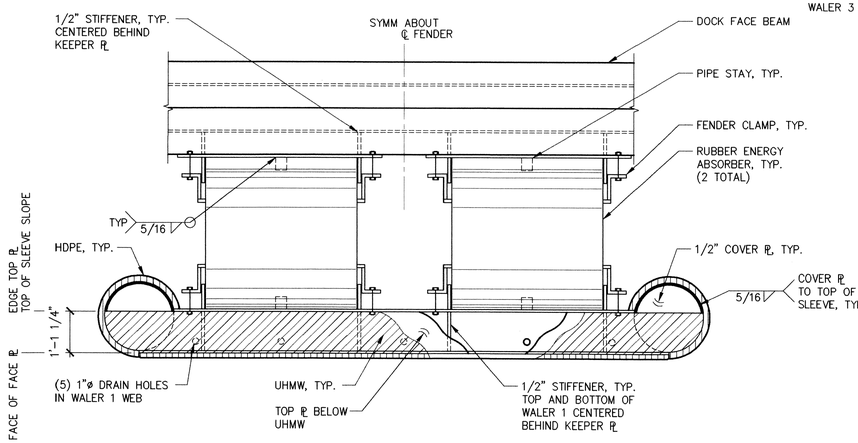
DESIGNED BY: KWB
DRAWN BY: WAY
APPROVED BY: DN
SCALE : NONE
DATE : 3/23/2000
FILE: 99068-07.DWG
DWG NO. 7 OF 17



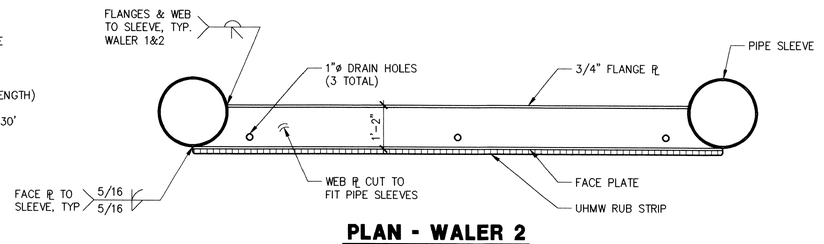
TYPICAL FENDER ELEVATION

NOTE:
RUBBER ENERGY ABSORBER MUST BE HELD BY CLAMPS IN A POSITION CENTERED ON SUPPORTS AND WALERS. BOLTS FOR CLAMPS SHALL HAVE LONG THREAD LENGTHS CAPABLE OF TIGHTENING UNTIL RUBBER IS DEFORMED AROUND CLAMPS AS APPROVED BY THE ENGINEER. BOLTS SHALL BE TIGHTENED IN AN ALTERNATING SEQUENCE SUCH THAT THE CLAMP IS EVENLY TIGHT IN FINAL POSITION. AFTER TIGHTENING, A NYLOCK NUT SHALL BE INSTALLED AGAINST THE FIRST NUT.

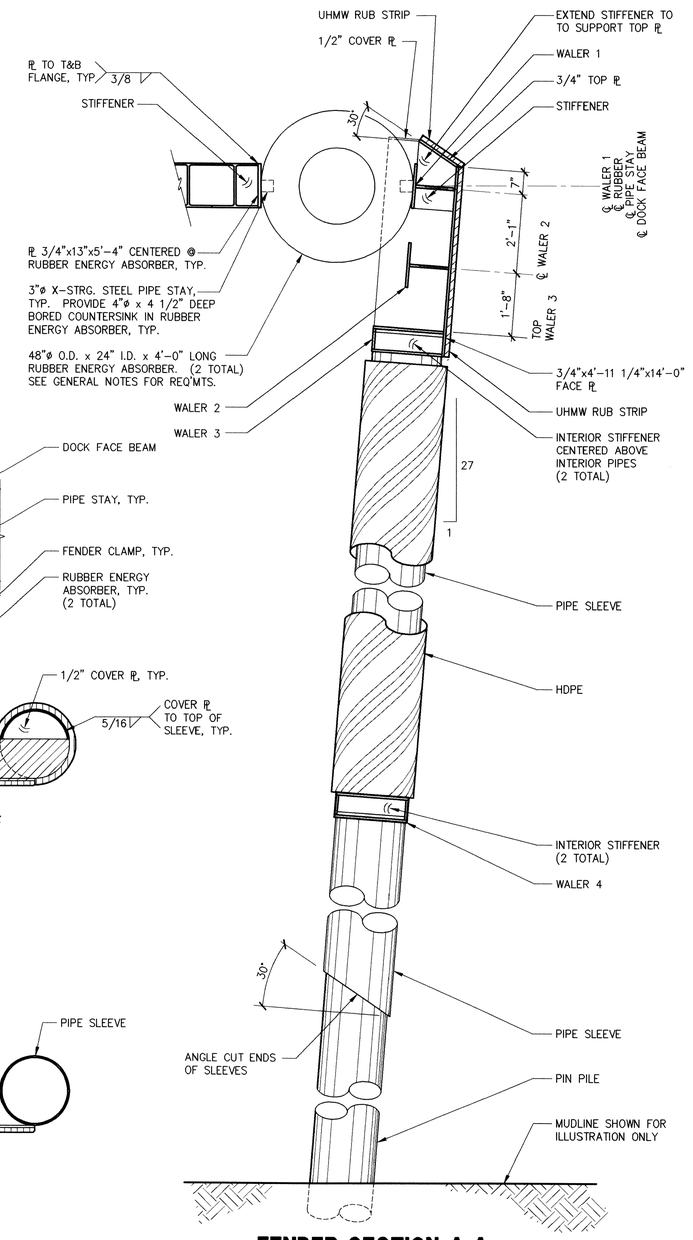
NOTE:
WELD ALL COMPONENTS WITH 5/16" FILLET WELDS ALL AROUND OR EQUIVALENT. SEAL WELD ALL JOINTS UNLESS OTHERWISE NOTED.



PLAN - TYPICAL FENDER



PLAN - WALER 2



FENDER SECTION A-A

NOTE:
ALL FENDER STEEL SHALL BE GALVANIZED. IF REQUIRED FOR GALVANIZING, HOLES IN WALER 3 OR WALER 4 SHALL BE REPAIRED. INSIDE AND OUTSIDE OF EXTERIOR SLEEVES SHALL BE GALVANIZED.

ISSUED FOR CONSTRUCTION
3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

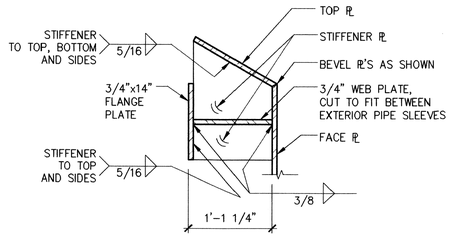
REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

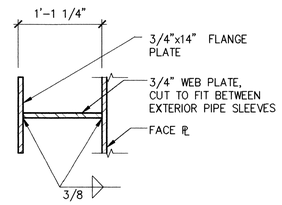
PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
FENDER DETAILS 1 OF 2

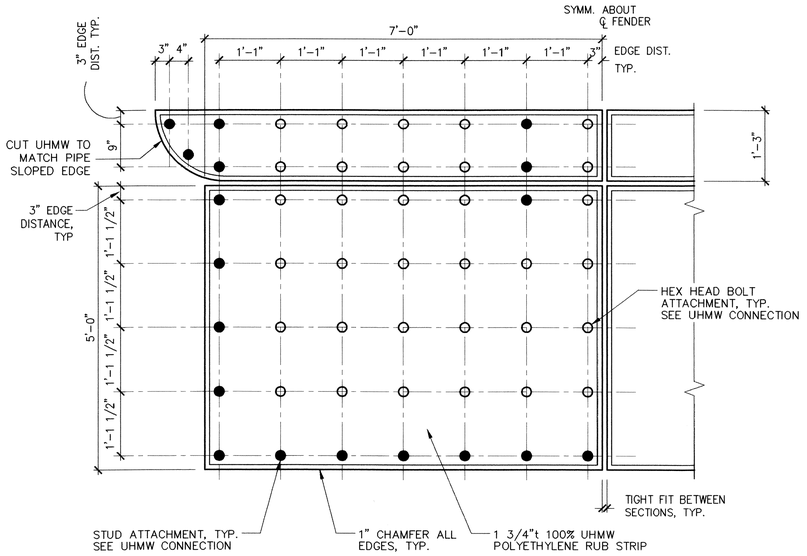
DESIGNED BY: KWB
DRAWN BY: WAY
APPROVED BY: DN
SCALE : AS NOTED
DATE : 3/23/2000
FILE: 99068-08.DWG
DWG NO. 8 OF 17



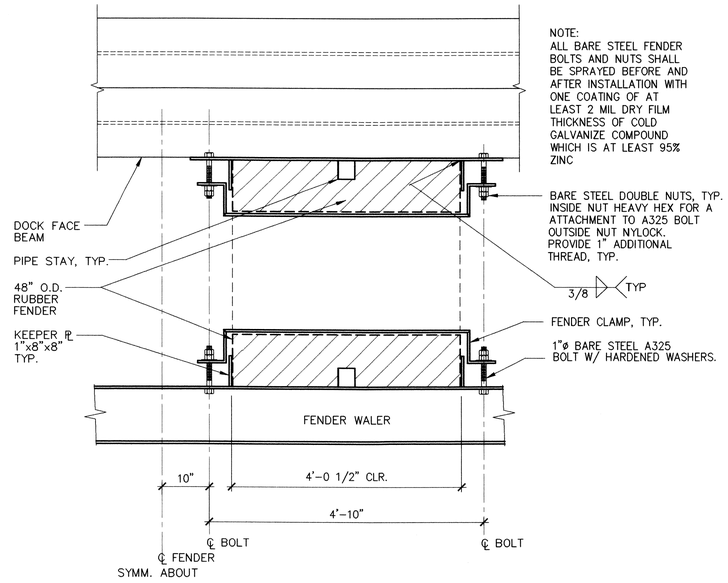
SECTION - WALER 1



SECTION - WALER 2

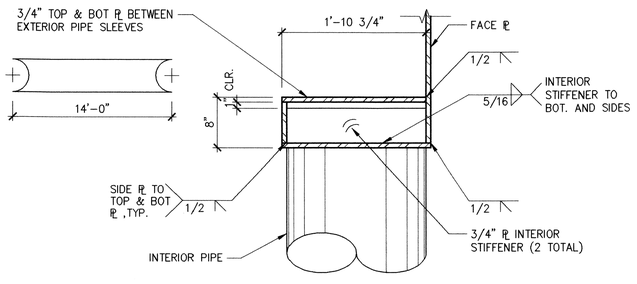


UHMW LAYOUT

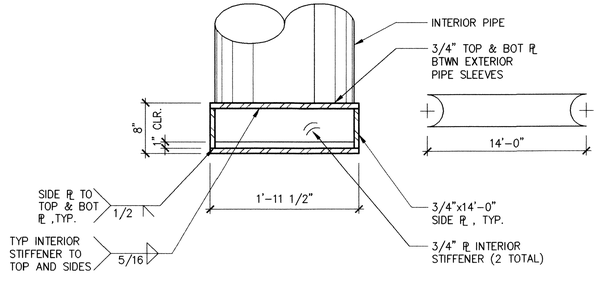


FENDER ATTACHMENT PLAN

NOTE: PROVIDE (16) 1"ø A325 BOLTS PER FENDER UNIT

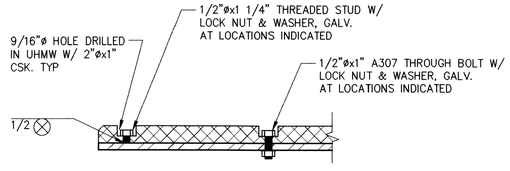


SECTION - WALER 3



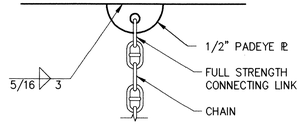
SECTION - WALER 4

NOTE:
WELD ALL COMPONENTS WITH 5/16" FILLET WELDS ALL AROUND OR EQUIVALENT. SEAL WELD ALL JOINTS UNLESS OTHERWISE NOTED.

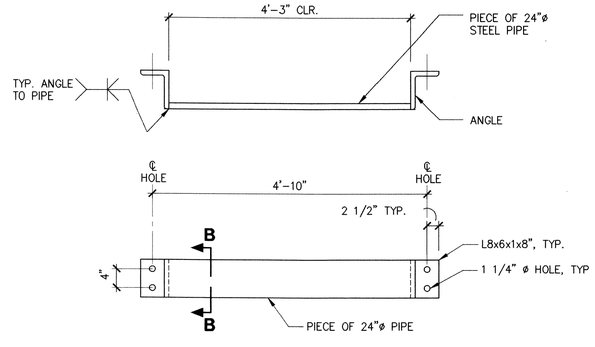


UHMW CONNECTION

SECTION B-B



CHAIN CONNECTION DETAIL



FENDER CLAMP

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :

NEW SEWARD RAILROAD DOCK

TITLE:

FENDER DETAILS 2 OF 2

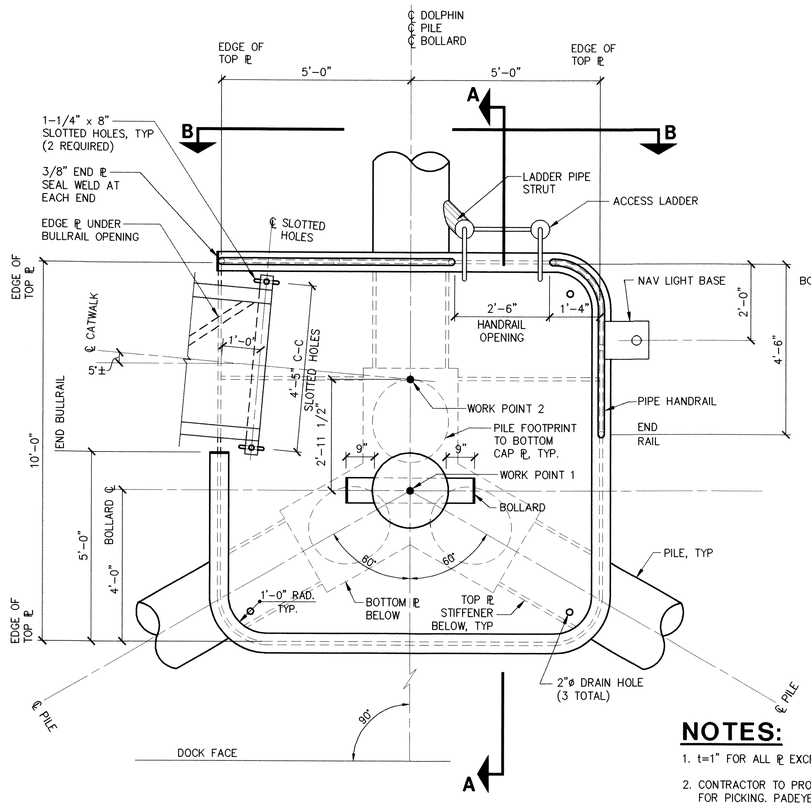
Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

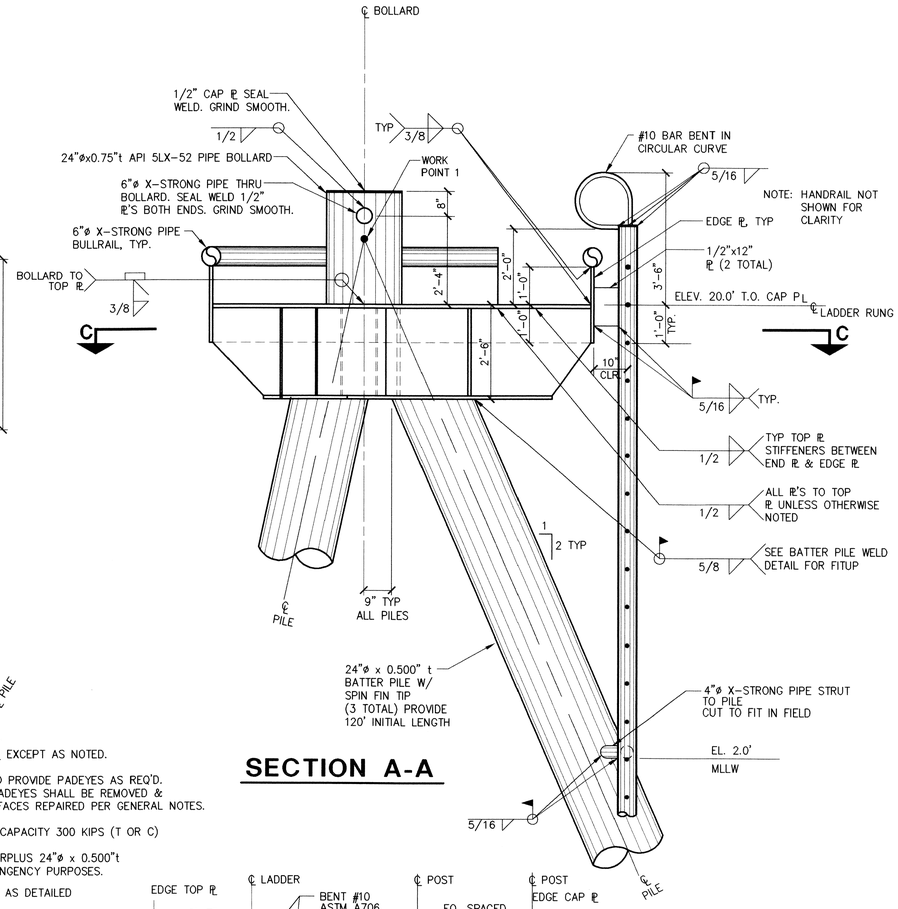
DESIGNED BY: KWB
DRAWN BY: WAY
APPROVED BY: DN

SCALE : AS NOTED
DATE : 3/23/2000

FILE: 99068-09.DWG
DWG NO. 9 OF 17



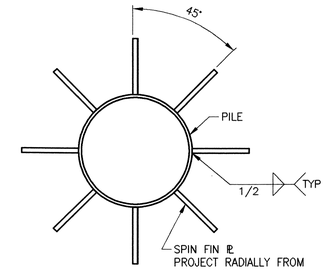
WEST DOLPHIN PLAN

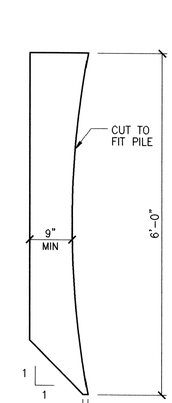


SECTION A-A

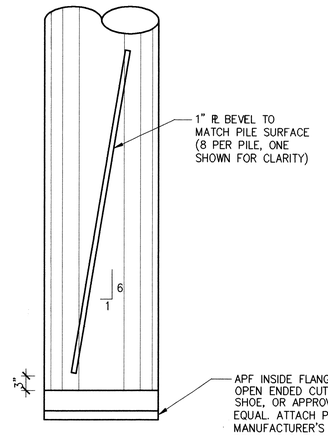
NOTES:

1. t=1" FOR ALL ℞ EXCEPT AS NOTED.
2. CONTRACTOR TO PROVIDE PADEYES AS REQ'D. FOR PICKING. PADEYES SHALL BE REMOVED & METALIZED SURFACES REPAIRED PER GENERAL NOTES.
3. REQUIRED PIPE CAPACITY 300 KIPS (T OR C)
4. PROVIDE 40' SURPLUS 24"ø x 0.500"t PIPE FOR CONTINGENCY PURPOSES.
5. PROVIDE ANODE AS DETAILED ON SHEET 12.

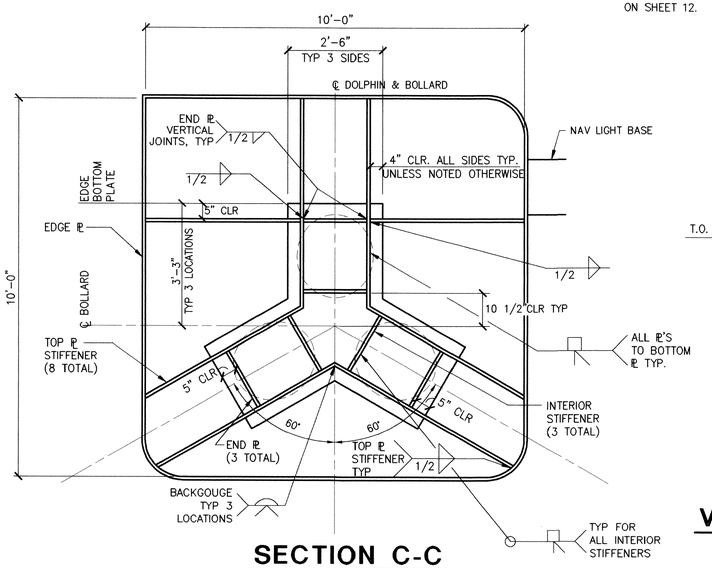




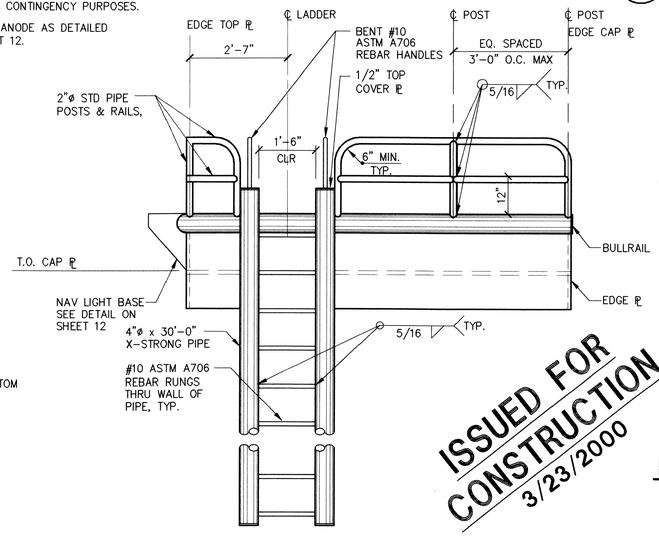
FIN PLATE



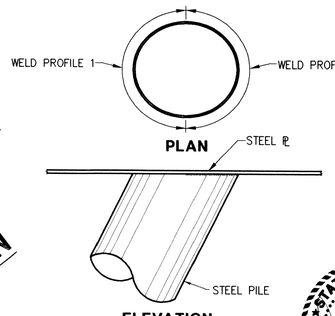
DOLPHIN PILE TIP DETAIL



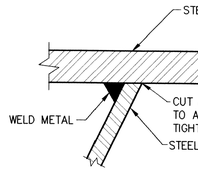
SECTION C-C



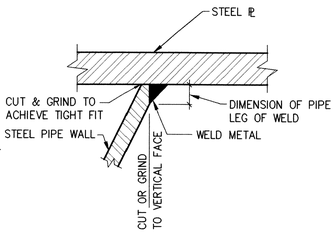
VIEW B-B HANDRAIL/ACCESS LADDER



BATTER PILE WELD



WELD PROFILE 1



WELD PROFILE 2

ISSUED FOR CONSTRUCTION
3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :

NEW SEWARD RAILROAD DOCK

TITLE:

MOORING DOLPHIN DETAILS

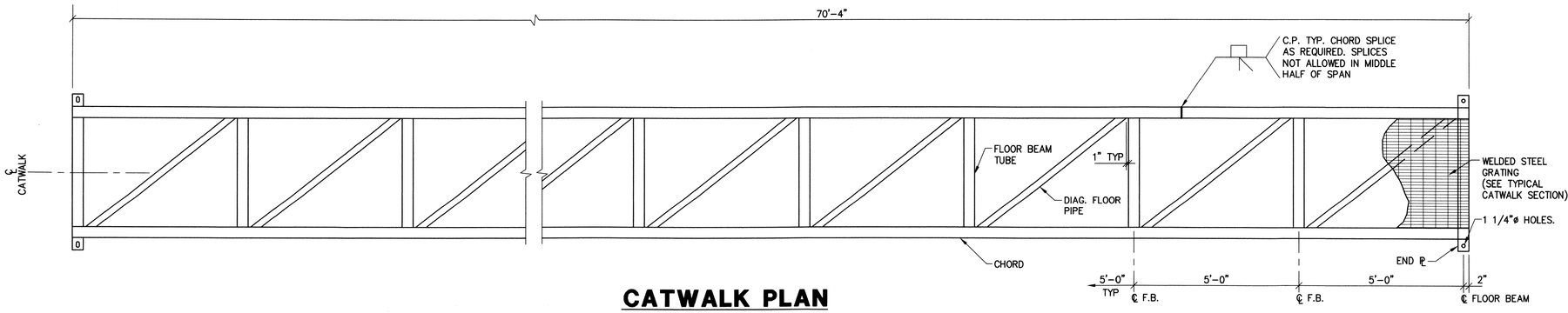
Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

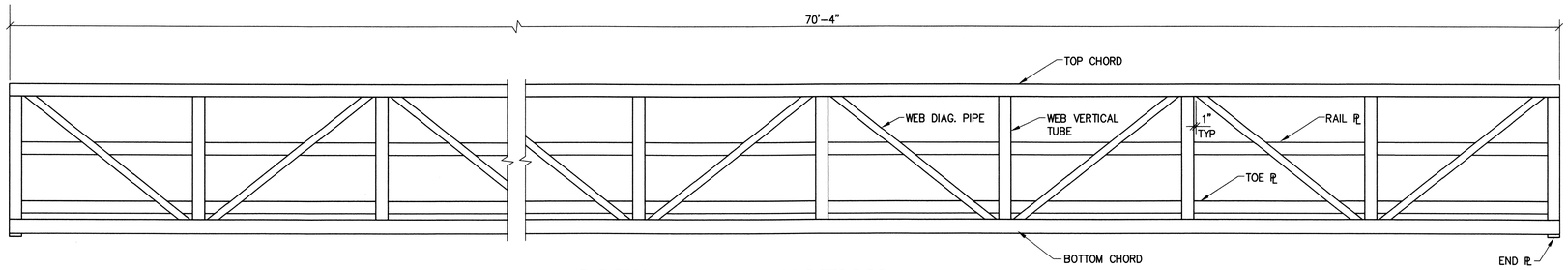
DESIGNED BY: KWB
DRAWN BY: WAY
APPROVED BY: DN

SCALE : AS NOTED
DATE : 3/23/2000

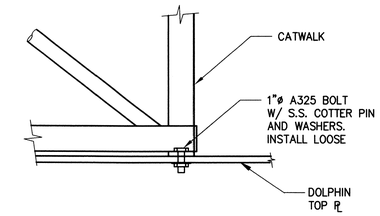
FILE: 99068-010.DWG
DWG NO. 10 OF 17



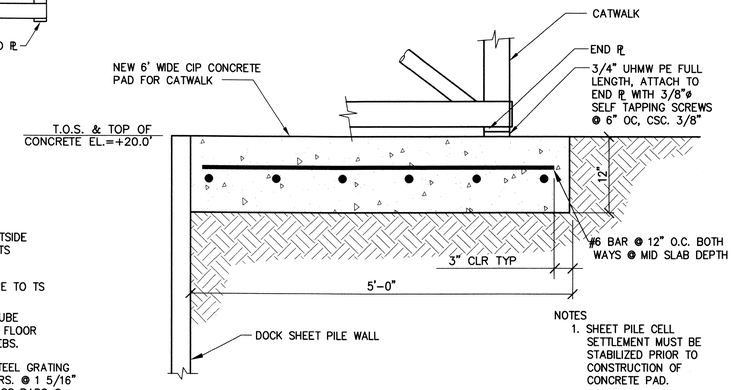
CATWALK PLAN



CATWALK ELEVATION

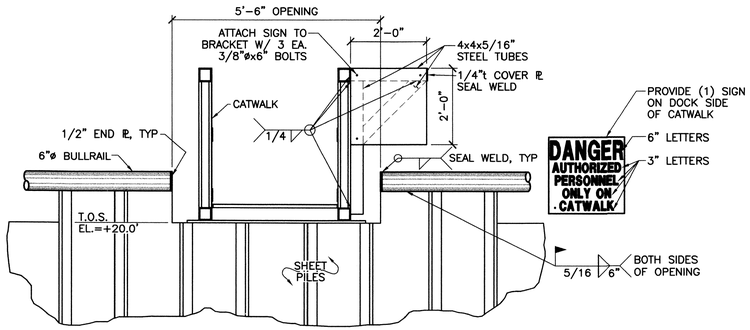


DOLPHIN CONNECTION

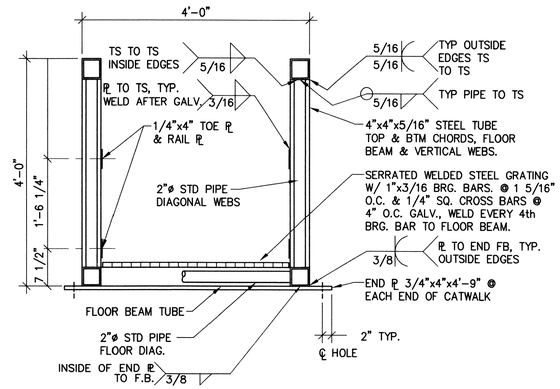


DOCK CONNECTION

NOTES
1. SHEET PILE CELL SETTLEMENT MUST BE STABILIZED PRIOR TO CONSTRUCTION OF CONCRETE PAD.
2. PROVIDE TIMBER MATTING FOR CATWALK SUPPORT DURING SHEET PILE STABILIZATION. BOTTOM CHORD MUST REMAIN ELEVATED ABOVE STEEL SHEET PILES.



CATWALK/DOCK BREACH ELEVATION



TYPICAL CATWALK SECTION

ISSUED FOR CONSTRUCTION 3/23/2000

NOTES:

1. FOR CATWALK FABRICATION REPAIR HOLES IN EXCESS OF 1/4"ø REQUIRED FOR GALVANIZING. 2 HOLES PER WEB OR F.B. PER MEMBER ALLOWED. 2 HOLES IN CHORD MEMBERS ALLOWED AT EACH WEB TO F.B. CONNECTION. HOLES ALLOWED IN BOTTOM OF MEMBERS ONLY.

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

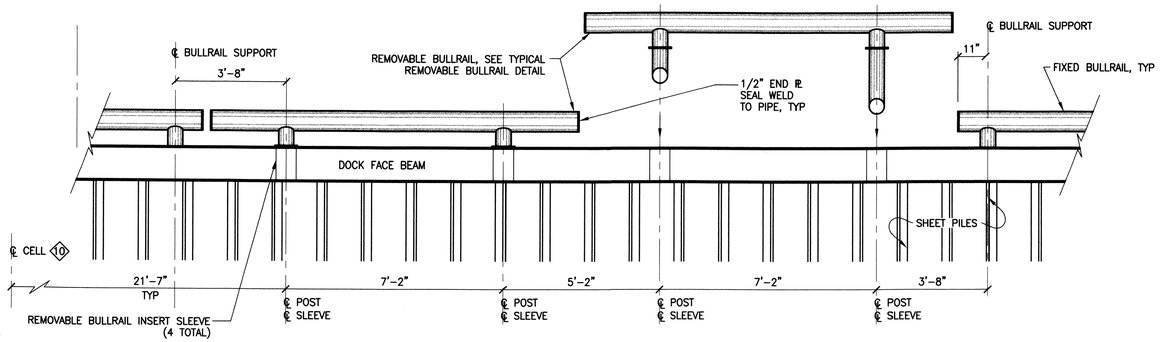
PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
CATWALK DETAILS

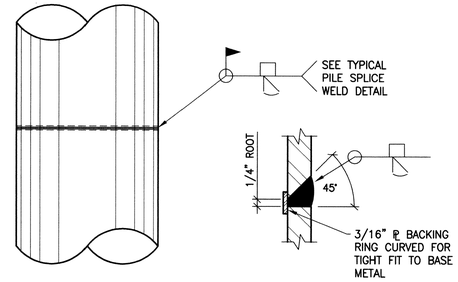
DESIGNED BY: KWB
DRAWN BY: WAY
APPROVED BY: DN

SCALE : AS NOTED
DATE : 3/23/2000

FILE: 99068-11.DWG
DWG NO. 11 OF 17



REMOVABLE BULLRAIL ELEVATION

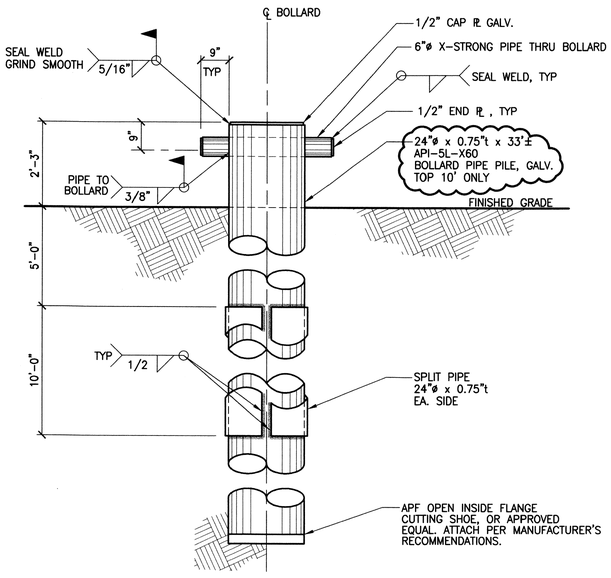


PILE SPLICE DETAIL

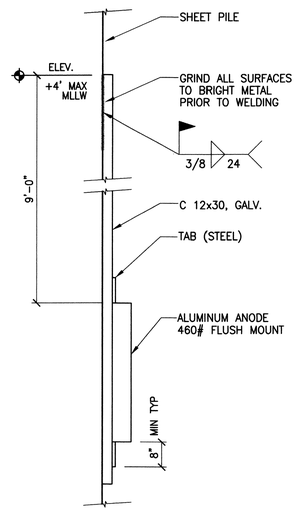
TYPICAL FOR ALL FIELD PIPE PILE SPLICES (SHOP WELDS, IF REQ'D. SIMILAR)

TYPICAL PILE SPLICE WELD

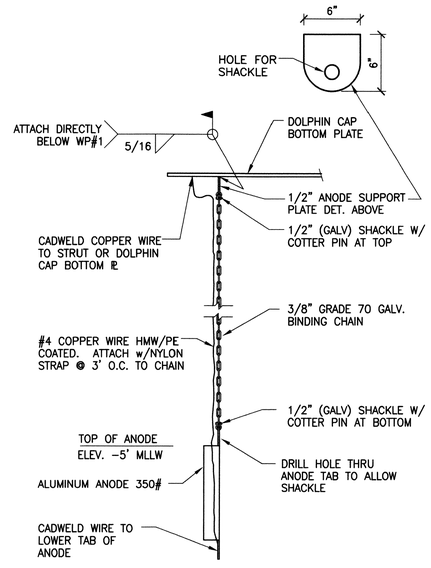
ISSUED FOR CONSTRUCTION
3/23/2000



MOORING BOLLARD PILE

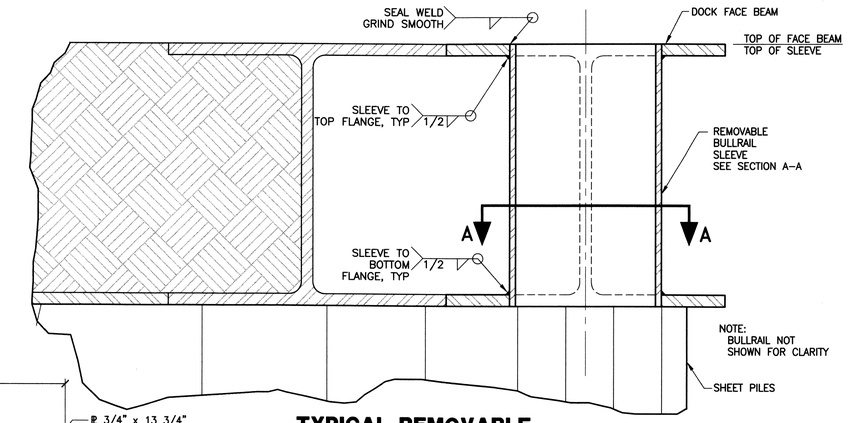


DOCK ANODE ELEVATION

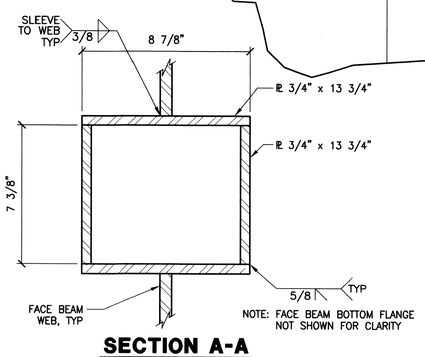


DOLPHIN ANODE DETAIL

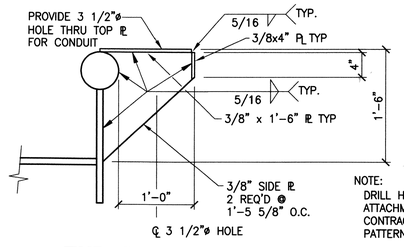
(1 REQUIRED)



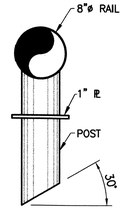
TYPICAL REMOVABLE BULLRAIL FACE SECTION



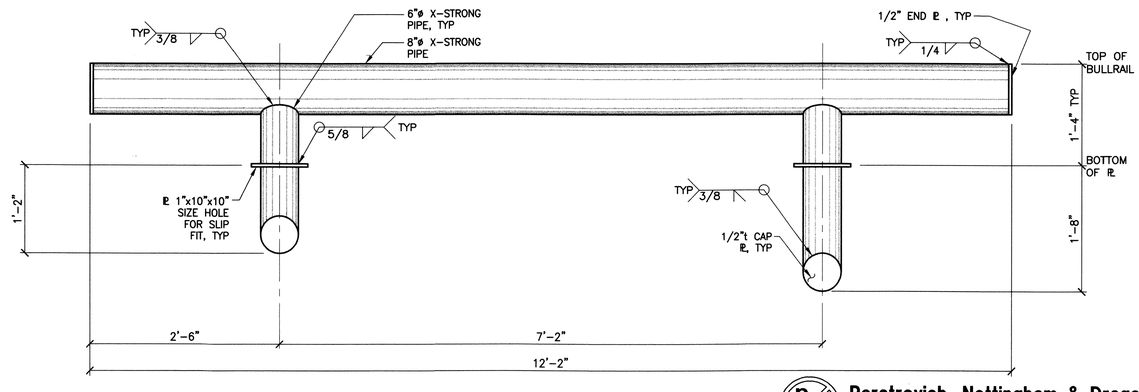
SECTION A-A



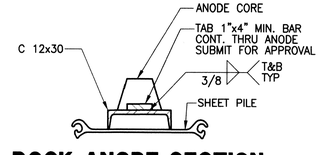
TYP. DOLPHIN NAV. LIGHT BRACKET



SIDE VIEW



TYPICAL REMOVABLE BULLRAIL DETAIL



DOCK ANODE SECTION

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

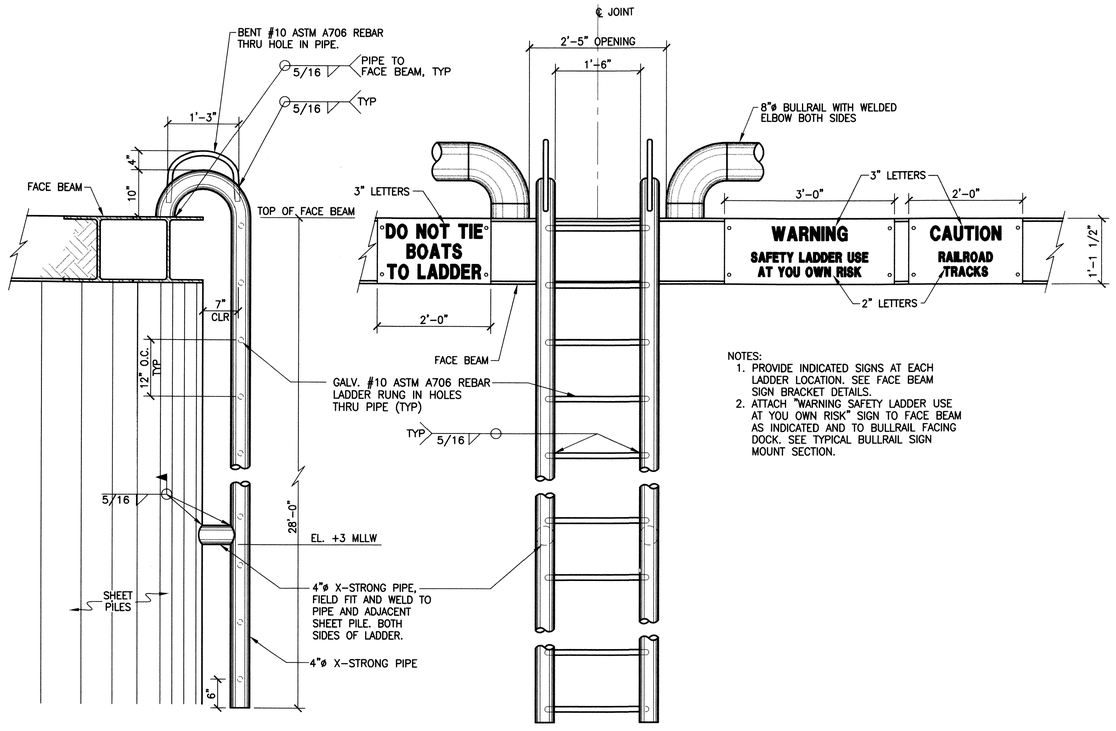
PROJECT :

NEW SEWARD RAILROAD DOCK

TITLE:

MISCELLANEOUS DETAILS 1 OF 2

DESIGNED BY:	EF	SCALE : AS NOTED	FILE: 99068-12.DWG
DRAWN BY:	WAY		DWG NO. 12 OF 17
APPROVED BY:	DN	DATE : 3/23/2000	

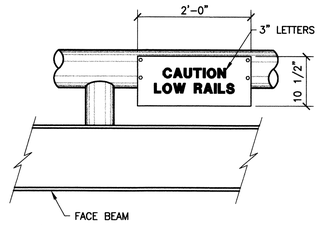


SECTION

ELEVATION

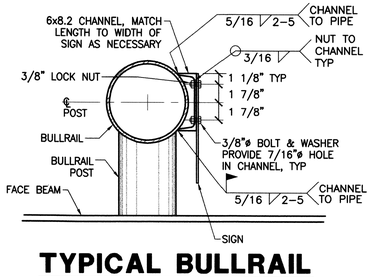
NOTES:
1. PROVIDE INDICATED SIGNS AT EACH LADDER LOCATION. SEE FACE BEAM SIGN BRACKET DETAILS.
2. ATTACH "WARNING SAFETY LADDER USE AT YOU OWN RISK" SIGN TO FACE BEAM AS INDICATED AND TO BULLRAIL FACING DOCK. SEE TYPICAL BULLRAIL SIGN MOUNT SECTION.

TYPICAL ACCESS LADDER DETAILS

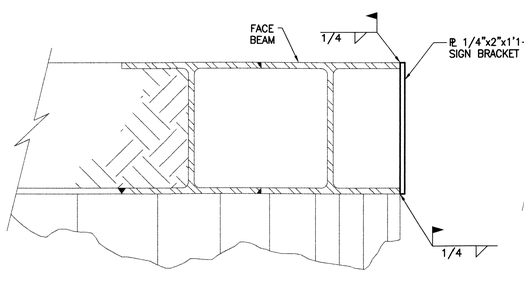


"CAUTION LOW RAILS" SIGN

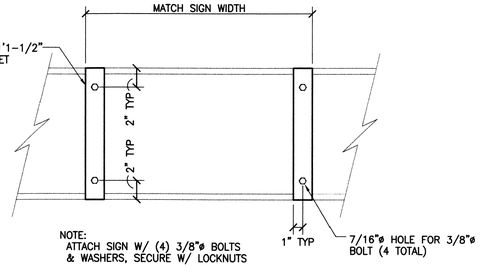
NOTES:
1. PROVIDE @ OWNER SPECIFIED LOCATIONS. (10 TOTAL)
2. SEE TYPICAL BULLRAIL SIGN MOUNT SECTION



TYPICAL BULLRAIL SIGN MOUNT SECTION



TYPICAL FACE BEAM SIGN BRACKET SECTION



TYPICAL FACE BEAM SIGN BRACKET ELEVATION

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

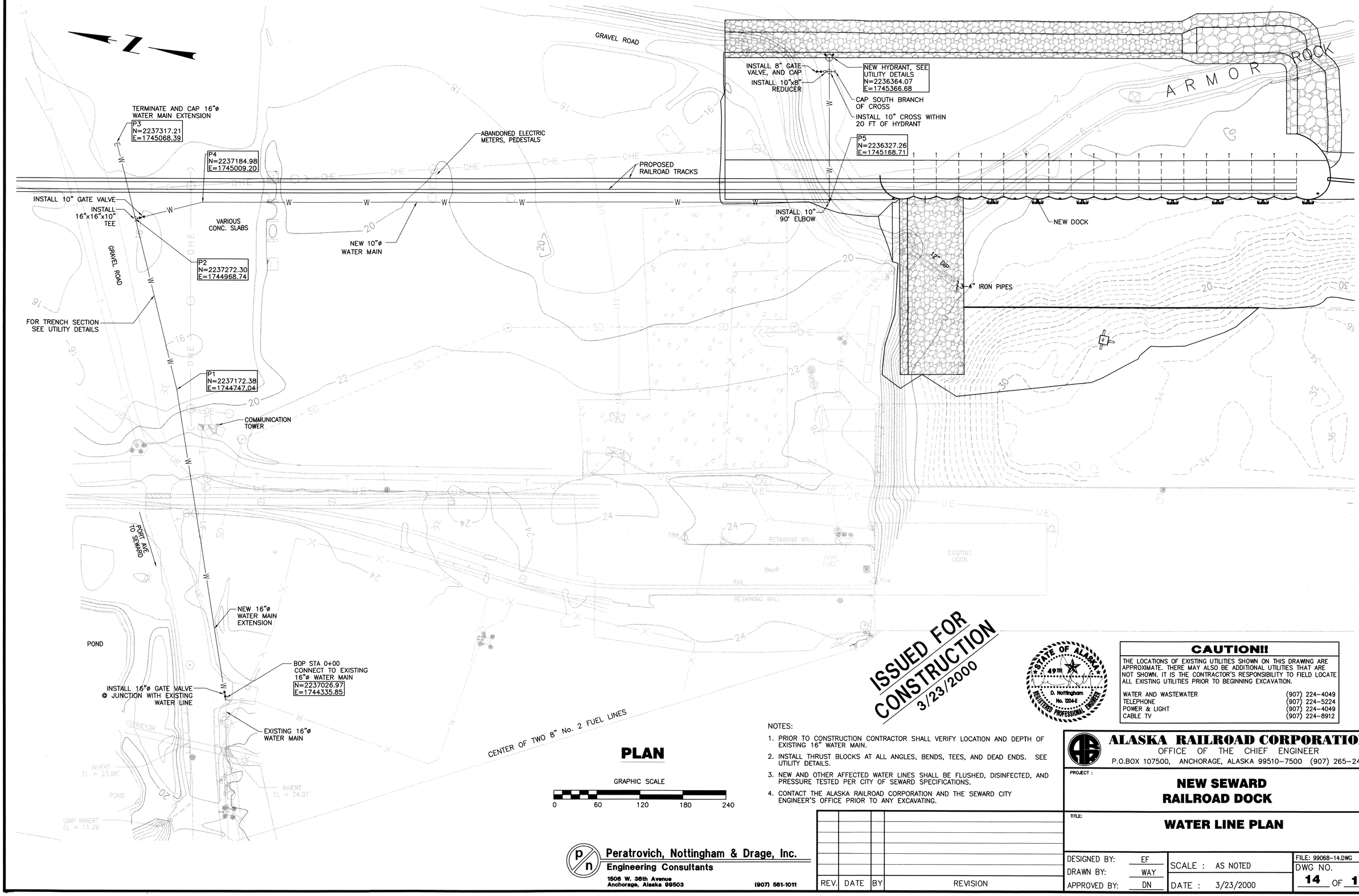
PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
MISCELLANEOUS DETAILS 2 OF 2

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

DESIGNED BY: EF
DRAWN BY: WAY
APPROVED BY: DN
SCALE : AS NOTED
DATE : 3/23/2000
FILE: 99068-13.DWG
DWG NO. 13 OF 17



PLAN

GRAPHIC SCALE

0 60 120 180 240

ISSUED FOR CONSTRUCTION
3/23/2000

STATE OF ALASKA 49TH
D. Nottingham
No. 12044
REGISTERED PROFESSIONAL ENGINEER

CAUTION!!

THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS DRAWING ARE APPROXIMATE. THERE MAY ALSO BE ADDITIONAL UTILITIES THAT ARE NOT SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING EXCAVATION.

WATER AND WASTEWATER	(907) 224-4049
TELEPHONE	(907) 224-5224
POWER & LIGHT	(907) 224-4049
CABLE TV	(907) 224-8912

NOTES:

1. PRIOR TO CONSTRUCTION CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF EXISTING 16" WATER MAIN.
2. INSTALL THRUST BLOCKS AT ALL ANGLES, BENDS, TEES, AND DEAD ENDS. SEE UTILITY DETAILS.
3. NEW AND OTHER AFFECTED WATER LINES SHALL BE FLUSHED, DISINFECTED, AND PRESSURE TESTED PER CITY OF SEWARD SPECIFICATIONS.
4. CONTACT THE ALASKA RAILROAD CORPORATION AND THE SEWARD CITY ENGINEER'S OFFICE PRIOR TO ANY EXCAVATING.

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :

NEW SEWARD RAILROAD DOCK

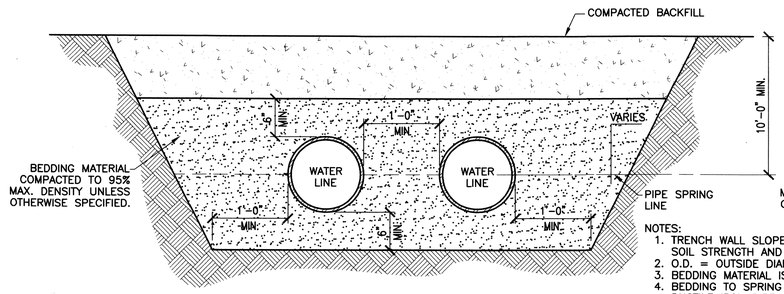
TITLE:

WATER LINE PLAN

DESIGNED BY: EF
DRAWN BY: WAY
APPROVED BY: DN

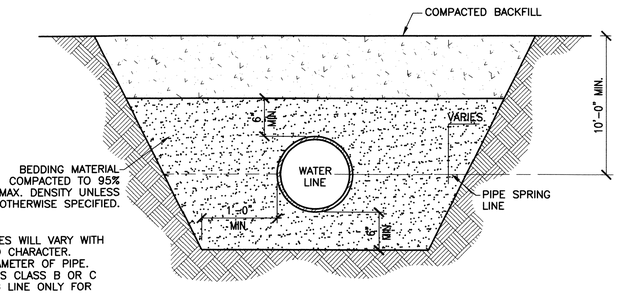
SCALE : AS NOTED
DATE : 3/23/2000

FILE: 99068-14.DWG
DWG NO. 14 OF 17

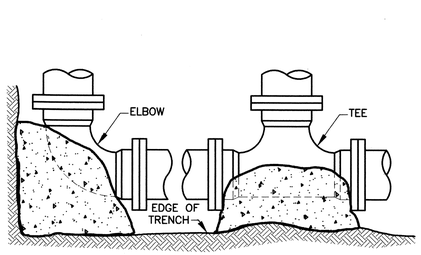


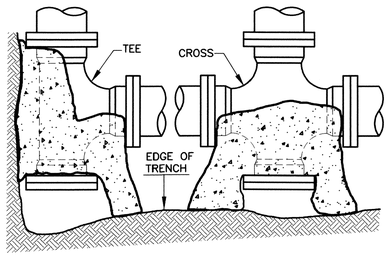
NOTES:
1. TRENCH WALL SLOPES WILL VARY WITH SOIL STRENGTH AND CHARACTER.
2. O.D. = OUTSIDE DIAMETER OF PIPE.
3. BEDDING MATERIAL IS CLASS B OR C
4. BEDDING TO SPRING LINE ONLY FOR DUCTILE IRON PIPE.

TYPICAL TRENCH SECTION/DUAL PIPE

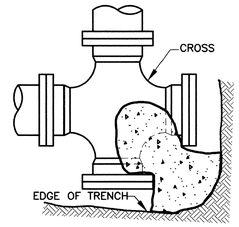


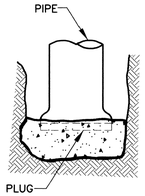
TYPICAL TRENCH SECTION/SINGLE PIPE



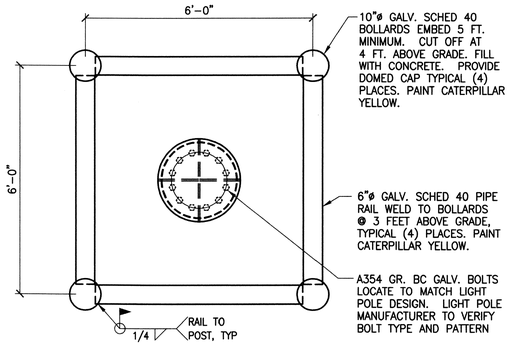


PIPE SIZE	MIN. BASE AREA SQ. M.		
	90° BEND	45° BEND	PLUG
6"	.186	.093	.186
8"	.232	.139	.232
10"	.418	.232	.418
12"	.557	.325	.557
14"	.743	.418	.743
16"	.976	.557	.976
24"	2.230	1.208	2.230

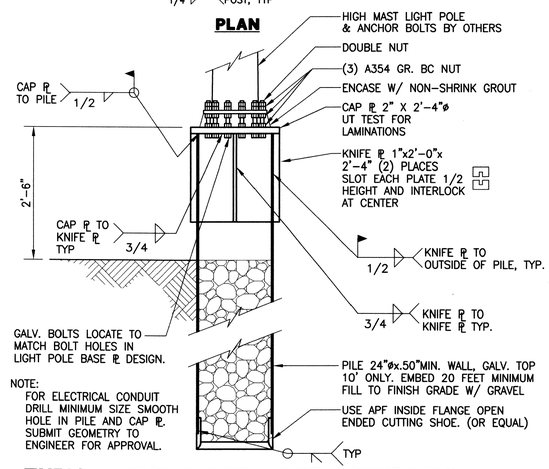




THRUST BLOCKS

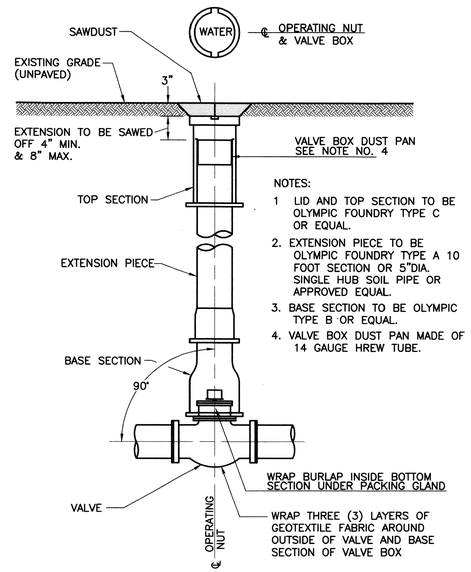


PLAN



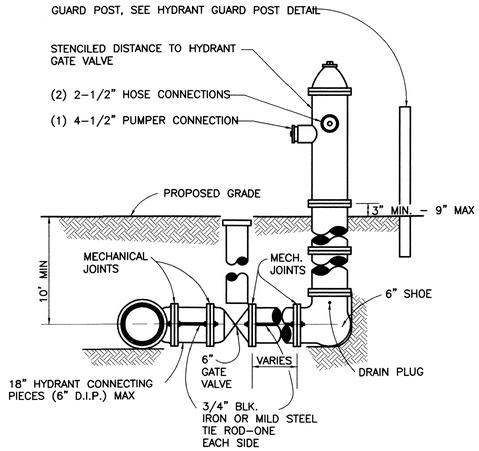
NOTE:
FOR ELECTRICAL CONDUIT DRILL MINIMUM SIZE SMOOTH HOLE IN PILE AND CAP ℄. SUBMIT GEOMETRY TO ENGINEER FOR APPROVAL.

TYPICAL HIGH MAST LIGHT FOUNDATION



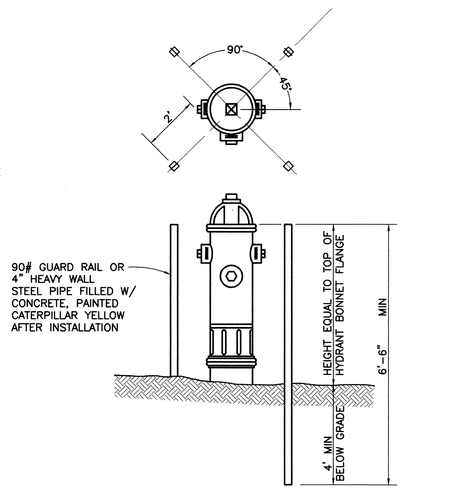
NOTES:
1. LID AND TOP SECTION TO BE OLYMPIC FOUNDRY TYPE C OR EQUAL.
2. EXTENSION PIECE TO BE OLYMPIC FOUNDRY TYPE A 10 FOOT SECTION OR 5"DIA. SINGLE HUB SOIL PIPE OR APPROVED EQUAL.
3. BASE SECTION TO BE OLYMPIC TYPE B OR EQUAL.
4. VALVE BOX DUST PAN MADE OF 14 GAUGE HREW TUBE.

TYPICAL VALVE BOX



HYDRANT INSTALLATION NOTES:
1. HYDRANT BARREL MUST BE INSTALLED PLUMB AND THE LEG MUST BE INSTALLED LEVEL.
2. DRAIN PLUG TO BE INSTALLED BY CONTRACTOR.
3. SEE WATER LINE PLAN FOR LOCATION.
4. ALL HYDRANTS SHALL BE PAINTED CATERPILLAR YELLOW.
5. AUXILIARY GATE VALVE BOX TO BE INSTALLED ACCORDING TO DETAIL FOR TYPICAL VALVE BOX.
6. VALVES SHALL BE TIED TO THE MAIN LINE AND HYDRANTS SHALL BE TIED TO THE VALVE.

SINGLE PUMPER 'L' BASE HYDRANT ASSEMBLY



NOTES:
1. GUARD POSTS WILL BE FURNISHED & INSTALLED BY THE CONTRACTOR.
2. POSTS SHALL BE LOCATED TO ALLOW UNRESTRICTED ACCESS TO PUMPER AND HOSE CONNECTIONS.

HYDRANT GUARD POSTS

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510-7500 (907) 265-2456

PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
UTILITY DETAILS

DESIGNED BY: EF
DRAWN BY: WAY
APPROVED BY: DN

SCALE : AS NOTED
DATE : 3/23/2000

FILE: 98068-15.DWG
DWG NO. 15 OF 17

GENERAL NOTES (CIVIL AND STRUCTURAL ONLY)

DATUM

TIDAL LEVELS – ELEVATION DATUM FOR THIS PROJECT IS 0.0 MEAN LOWER LOW WATER.

EXTREME HIGH WATER	+15.1 FT.
MEAN HIGHER HIGH WATER (MHHW)	+10.6 FT.
MEAN HIGH WATER (MHW)	+9.7 FT.
MEAN LOW WATER (MLW)	+1.4 FT.
MEAN LOWER LOW WATER (MLLW)	+0.0 FT.
EXTREME LOW WATER	−4.0 FT.

DESIGN PARAMETERS

WIND –
110 MPH EXPOSURE "D" (UBC) EXCEPT FOR VESSEL MOORING LOADS. FOR VESSEL MOORING LOADS, 80 MPH IN NORTH–SOUTH DIRECTION OCTOBER THRU APRIL, 50 MPH IN NORTH–SOUTH DIRECTION MAY THRU SEPTEMBER, 32 MPH IN EAST–WEST DIRECTION YEAR ROUND.

EARTHQUAKE –
DESIGN HORIZONTAL OPEN CELL RESPONSE ACCELERATION: 0.13G OPERATING, 0.19G CONTINGENCY

LIVE LOAD –
1000 PSF UNIFORM LIVE LOAD OR COOPER E–80 ON TWO TRACKS AT DOCK FACE

BERTHING –
44,000–TON CRUISE SHIP APPROACHING DOCK AT 0.5 FT./SEC. ASSUME SHIP'S QUARTER POINT SHALL CONTACT FENDER AT 10 DEGREES FROM PARALLEL TO DOCK FACE. MAXIMUM DOCKING ENERGY TO EACH FENDER IS 250 KIP–FT.

DOCK FACE MOORING BOLLARD –
100 KIPS IN ANY HORIZONTAL DIRECTION

MOORING BOLLARD PILE AND DOLPHIN–
200 KIPS IN ANY SEAWARD DIRECTION AT A 30° MAXIMUM INCLINE FROM HORIZONTAL

DESIGN VESSELS –

CARGO SHIP:	LENGTH =	656 FT.
	BEAM =	85 FT.
	TONNAGE =	40,800 LT (DISPLACEMENT)
CRUISE SHIP:	LENGTH =	856 FT.
	BEAM =	106 FT.
	TONNAGE =	44,000 LT (DISPLACEMENT)

CORROSION –
PILES PROTECTED BY ANODES. STRUCTURAL STEEL SPRAY–METALLIZED AND/OR GALVANIZED. AFTER 10 YEARS OWNER SHOULD DEVELOP AN INSPECTION PROGRAM.

MATERIALS

STRUCTURAL STEEL –
ALL MISCELLANEOUS STEEL PLATES AND SHAPES, EXCLUDING DOLPHIN CAP AND SPIN–FIN PLATES, SHALL BE ASTM A572 GRADE 50 OR EQUAL AS APPROVED BY ENGINEER, UNLESS NOTED OTHERWISE ON PLANS.

ALL DOLPHIN CAP AND SPIN FIN PLATES SHALL BE ASTM A36 OR EQUAL AS APPROVED BY ENGINEER.

ALL MISCELLANEOUS PIPE SHALL BE ASTM A53 GRADE B, TYPE E OR S, UNLESS NOTED OTHERSWISE. FENDER SLEEVES SHALL BE API–5LX–52 OR EQUAL AS APPROVED BY ENGINEER.

STEEL ERECTION SHALL CONFORM TO AISC STANDARDS.

ALL PLATES 1–1/2 INCHES THICK, OR GREATER, SHALL BE 100% STRAIGHT BEAM ULTRASONICALLY TESTED FOR LAMINATIONS AND ANY DISCONTINUITIES FOUND SHALL REQUIRE REPLACEMENT OF THE PLATE.

SPLICES SHALL BE FULL–STRENGTH BUTT–WELDED WITH BACKING PLATES PER AWS SPECIFICATIONS. CARE SHALL BE TAKEN THAT MEMBERS REMAINS IN STRAIGHT ALIGNMENT THROUGH SPLICES.

STEEL PIPE PILES – DOLPHIN SUPPORT PILES SHALL BE ASTM A–252 GRADE 3, WITH ASTM 36 CHEMISTRY. GALVANIZING IS NOT REQUIRED ON BOTTOM 40–FEET OF PILES. SPIRAL WELD PIPE MAY BE USED ONLY UPON ENGINEER'S APPROVAL.

ALL FENDER PILES SHALL BE API–5LX–52, GALVANIZED FULL LENGTH.

PILE SPLICES SHALL BE FULL–STRENGTH BUTT–WELDED WITH BACKING RINGS PER AWS SPECIFICATIONS. CARE SHALL BE TAKEN THAT MEMBERS REMAINS IN STRAIGHT ALIGNMENT THROUGH SPLICES. NO PIECE OF PILE LESS THAN 5 FEET LONG SHALL BE SPLICED.

SHEET PILES – SHEET PILES SHALL MEET REQUIREMENTS OF ASTM A328 WITH CHEMISTRY SIMILAR TO A36 OR ENGINEER APPROVED EQUAL AND SHALL BE INSTALLED FULL LENGTH WITHOUT SPLICES UNLESS OTHERWISE APPROVED BY ENGINEER.

MINIMUM INTERLOCK TENSILE STRENGTH OF FLAT SHEET PILES SHALL BE 16,000 POUNDS PER INCH. FLAT SHEET PILE ALLOWABLE INTERLOCK SWING ANGLE SHALL BE AT LEAST 7 DEGREES.

BOLTS – ALL BOLTS SHALL BE ASTM A325, GALVANIZED UNLESS OTHERWISE NOTED. ALL A325 BOLTS SHALL BE INSTALLED PER AISC TURN–OF–THE–NUT TIGHTENING, OR OTHER ENGINEER APPROVED METHODS UNLESS OTHERWISE NOTED. ALL ASTM A307 SHALL BE GALVANIZED. GALVANIZED WASHERS SHALL BE USED IN ALL AREAS WHERE THE BOLT HEAD OR NUT SHALL BEAR AGAINST OVERSIZED HOLES IN STEEL (I.E. MORE THAN 1/16 INCH LARGER THAN BOLT DIAMETER). GALVANIZED NUTS AND WASHERS SHALL CONFORM TO THE SPECIFICATION FOR THE CORRESPONDING BOLT.

CONCRETE –CONCRETE SHALL HAVE A MINIMUM OF SIX SACKS/CY AND A MINIMUM COMPRESSIVE STRENGTH OF F'C = 4000 PSI. ENTRAINED AIR SHALL BE 5 +/− 2%. MIX DESIGN SHALL BE SUBMITTED AND APPROVED 6 WEEKS PRIOR TO SCHEDULED CONCRETE PLACEMENT.

REINFORCING STEEL – ALL REINFORCING SHALL BE NEW BILLET STOCK ASTM A–615, GRADE 60 STEEL UNLESS NOTED OTHERWISE. BARS SHALL BE SUPPORTED ON APPROVED CHAIRS OR WELL–CURED CONCRETE BLOCKS. REINFORCING STEEL SHALL BE DETAILED, BENT, AND PLACED IN ACCORDANCE WITH THE LATEST ACI 318. TWO–INCH MINIMUM CLEARANCE UNLESS OTHERWISE NOTED. REINFORCEMENT SHALL BE LAP–SPLICED FOR TENSION UNLESS OTHERWISE NOTED ON THE DRAWINGS. SPLICES SHALL BE 3–FOOT LAP MINIMUM, UNLESS OTHERWISE SPECIFIED ON DRAWING. BARS SHALL BE CLEAN AND FREE FROM CUTTING OIL OR OTHER DELETERIOUS MATERIAL.

RUBBER FENDERS – ASTM DESIGNATION D–2000 3BA 720A(14), B(13), C(12), F(19), Z(1), AND Z(3) OR APPROVED EQUAL WITH DUROMETER HARDNESS OF 70± 10 (ASTM D2240) AND A MINIMUM ELONGATION OF 300% (ASMT (D412)

OVERALL DIMENSIONS OF THE RUBBER FENDER MAY VARY FROM SPECIFIED AS FOLLOWS:
1. OUTSIDE DIAMETER – 47 TO 49 INCHES.
2. INSIDE DIAMETER – 23.5 TO 25.5 INCHES.
3. LENGTH – 47.5 TO 48.5 INCHES.

ALL EDGES SHALL BE PROVIDED WITH A 2 INCH CHAMFER.

THE FENDER SHALL ABSORB A MIN. OF 32 FOOT–KIPS PER FOOT OF FENDER WITH A DEFLECTION OF 24" & A MAX. OF 40 KIPS PER FOOT OF FENDER AT 24" DEFLECTION.

UHMW PE FENDER FACING – PROTECTIVE FACING SHALL BE MADE OF 100 % UHMW POLYETHYLENE WITH 2.5% BY WEIGHT UV–STABILIZATION COMPOUND AND HAVING UV–STABILIZED DYES CONFORMING TO THE FOLLOWING SPECIFICATIONS:

PROPERTY	TEST METHOD	ACCEPTANCE REQUIREMENT
MOLECULAR WEIGHT		3.0 MILLION, MIN.
ULTIMATE TENSILE STRENGTH	ASTM D638	4,000 PSI, MIN.
IZOD IMPACT, DOUBLE NOTCH	ASTM D256A	18 FT.–LBS./IN., MIN.
ABRASION WEAR (CARBON STL=100)	SAND SLURRY	18 MAX.
WATER ABSORPTION	ASTM D570	NIL
COEFFICIENT OF FRICTION	ASTM D1894	0.20 MAX.

HDPE SLEEVES – HIGH DENSITY POLYETHYLENE PIPE SLEEVES SHALL MEET THE REQUIREMENTS OF ASTM F714 AND SHALL HAVE THE FOLLOWING DIMENSIONAL REQUIREMENTS:
1. INSIDE DIAMETER SHALL BE A MINIMUM OF 22.5 INCHES AND A MAXIMUM OF 24 INCHES.
2. WALL THICKNESS SHALL BE A MINIMUM OF 1.5 INCHES.

SPRAY METALLIZING – ALL DOLPHIN CAPS AND OTHER MATERIAL SPECIFICALLY DESIGNATED TO BE SPRAY METALLIZED SHALL BE SPRAY METALLIZED WITH ALUMINUM OR ZINC PER THE STEEL STRUCTURES PAINTING COUNCIL (SSPC) GUIDE NO. 23. MINIMUM DRY COATING THICKNESS OF 6 MILS IS REQUIRED. METALLIZING AND/OR GALVANIZING DAMAGED FROM SHIPPING, HANDLING, WELDING, CUTTING, OR BY OTHER MEANS, SHALL BE REPAIRED BY SPRAY METALLIZING TO A MINIMUM COATING THICKNESS OF 6 MILS. CONTRACTOR SHALL SUBMIT REPAIR MATERIAL AND METHOD OF REPAIR FOR REVIEW AND APPROVAL.

GALVANIZING – ALL STRUCTURAL STEEL, INCLUDING BOLTS, NUTS AND WASHERS NOT SPECIFIED TO BE SPRAY METALLIZED, SHALL BE GALVANIZED PER ASTM A123 OR A153 AFTER FABRICATION UNLESS OTHERWISE NOTED. GALVANIZING DAMAGED FROM SHIPPING, HANDLING, WELDING, CUTTING, OR BY OTHER MEANS, SHALL BE REPAIRED BY SPRAY METALLIZING.

PAINT FINISH – HIGH MAST LIGHT PROTECTIVE BOLLARDS AND HYDRANT GUARD POSTS SHALL BE PAINTED WITH TWO 4–MIL COATS OF ZINC OXIDE PAINT. TOP COAT SHALL BE "CATERPILLAR YELLOW" OR OTHER SUITABLE BRIGHT SAFETY YELLOW.

FILL – FILL SHALL CONSIST OF A DURABLE WELL–GRADED GRAVEL AND/OR ROCK, WITH NO MORE THAN 10% PASSING THE #200 SIEVE, AND SHALL BE FREE OF ORGANICS, ICE, SNOW, AND OTHER DELETERIOUS MATERIALS. BELOW ELEVATION +2' MATERIAL SHALL BE 18–INCH MINUS. FILL ABOVE ELEVATION +2' TO 8 INCHES BELOW THE FINISHED GRADE SHALL BE 12 –INCH MINUS. CARE SHALL BE TAKEN TO AVOID PLACING LARGER ROCKS WHERE THEY MAY INTERFERE WITH SHEET AND PIPE PILE DRIVING. OVERSIZE MATERIAL MAY BE USED IN THE FILL AT THE DISCRETION OF THE ENGINEER.

THE CONTRACTOR IS RESPONSIBLE TO LOCATE A FILL SOURCE MEETING THE REQUIREMENTS SPECIFIED ABOVE.

THE DREDGE SPOILS MEETING THE DESCRIPTION OF FILL MAY BE INCORPORATED IN THE FILL.

GRAVEL SURFACING – SURFACE MATERIAL FOR THE DOCK AREA SHALL CONSIST OF 2–INCH MINUS, WELL– GRADED GRAVEL CONFORMING TO THE REQUIREMENTS OF SUBBASE GRADING A IN PARAGRAPH 703–2.09 ALASKA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 1988 EDITION.

THE CONTRACTOR IS RESPONSIBLE TO LOCATE A GRAVEL SOURCE MEETING THE REQUIREMENTS SPECIFIED ABOVE.

ROCK FOR ARMOR, RIPRAP, AND FILTER–
STONES SHALL BE BLOCKY AND PREDOMINANTLY ANGULAR IN SHAPE. ROUNDED ROCK WILL NOT BE ACCEPTED. NO MORE THAN 25% BY WEIGHT OF THE STONES SHALL HAVE LENGTHS OF MORE THAN 2.5 TIMES THEIR BREADTH OR THICKNESS. NO STONE SHALL HAVE A LENGTH EXCEEDING 3 TIMES ITS BREADTH OR THICKNESS. STONES FROM THE SELECTED SOURCE SHALL MEET THE FOLLOWING REQUIREMENTS FOR QUALITY:

SPECIFIC GRAVITY, BSSD	(ASTM C127)	NOT LESS THAN 2.60
WATER ABSORPTION	(ASTM C127)	NOT MORE THAN 2.5%
ANGULAR WEAR	(1000 REVOLUTIONS, ASTM C535)	NOT MORE THAN 30%
SODIUM SULFATE SOUNDNESS	(5 CYCLES, ASTM C88)	NOT MORE THAN 5%

ARMOR ROCK SHALL BE WELL GRADED WITH WEIGHTS OF INDIVIDUAL STONES RANGING FROM A MINIMUM 500 LBS. TO A MAXIMUM OF 10,000 LBS. AT LEAST 50 PERCENT OF THE INDIVIDUAL STONES SHALL WEIGH MORE THAN 3,000 LBS.

FILTER ROCK SHALL BE WELL GRADED WITH WEIGHTS OF INDIVIDUAL STONES RANGING FROM A MINIMUM 1.0 LBS. TO A MAXIMUM OF 50 LBS. AT LEAST 50 PERCENT OF THE INDIVIDUAL STONES SHALL WEIGH MORE THAN 7.0 LBS.

RIPRAP ROCK SHALL BE WELL GRADED, WITH NO MORE THAN 10% OF INDIVIDUAL STONES WEIGHING MORE THAN 1,400 LBS., AND WITH ALL INDIVIDUAL STONES WEIGHING MORE THAN 25 LBS., AND A MINIMUM OF 50% BY WEIGHT OF THE STONES SHALL WEIGH 700 LBS. OR MORE.

FOR PRODUCTION OF ROCK, A TEST SHOT SHALL BE PERFORMED TO DETERMINE DRILL PATTERNS, POWDER FACTORS, AND DELAYS, BASED ON PREVIOUS EXPERIENCE OR AS DIRECTED BY ARRC. INDIVIDUAL ROCKS REPRESENTING THE VARIOUS SIZES REQUIRED FOR ARMOR ROCK AND RIPRAP SHALL BE WEIGHED, CLEARLY LABELED AND PLACED IN PLAIN VIEW OF THE SORTING OPERATION. IN ADDITION, A REPRESENTATIVE PILE OF GRADED ROCK WEIGHING AT LEAST 10 TONS, BUT NO LESS THAN 20 INDIVIDUAL STONES, SHALL BE PLACED IN PLAIN VIEW OF THE SORTING OPERATIONS. A MINIMUM 5 TON PILE PRODUCED IN A SIMILAR MANOR SHALL BE PLACED FOR FILTER ROCK. THESE STOCKPILES WILL BE USED AS A VISUAL AID IN PRODUCING, SORTING, AND STOCKPILING ARMOR ROCK AND RIPRAP. THE STOCKPILES DESCRIBED ABOVE SHALL BE IN PLACE BEFORE COMMENCING SORTING OPERATIONS, AND BEFORE LAYING OUT THE DRILL PATTERN FOR THE SECOND SHOT.

WATER LINE (DIP) – WATER LINE SHALL BE NEW AWWA C–151, CLASS 52 DUCTILE IRON W/ AWWA C104 CEMENT MORTAR LINING AND POLY ENCASEMENT PER AWWA C105. FITTINGS SHALL BE IN ACCORDANCE W/ AWWA C110.

SIGNS – ALL SIGNS SHALL BE 16 GA GALVANIZED PLATE. ALL SIGNS SHALL HAVE BLACK LETTERING ON YELLOW BACKGROUND. SIGNS SHALL BE LETTERED WITH BLOCK STYLE LETTERING AS SHOWN ON THE PLANS. SIGNS SHALL BE MOUNTED AS SHOWN ON THE PLANS.

LIFE RINGS – THE OWNER WILL PROVIDE U.S. COAST GUARD APPROVED 30–INCH–DIAMETER, ORANGE LIFE RINGS WITH 100 FEET OF 1/2–INCH–DIAMETER FLEXIBLE NYLON ROPE AND CONNECTION/HOLDING CASE AND HANGER AS REQUIRED ON THE DOCK AND BREASTING DOLPHINS.

INSTALLATION

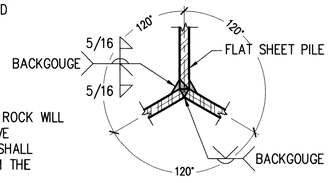
STRUCTURAL STEEL WELDING – PER LATEST AWS D1.1 BY WELDERS QUALIFIED PER AWS FOR THE TYPE AND POSITION OF THE WELDS WELDED. ALL FILLER METAL SHALL MEET CHARPY IMPACT CRITERIA OF 20 FT–LB AT −20 DEGREES FAHRENHEIT AND SHALL HAVE A MAXIMUM CARBON CONTENT OF 0.20%. ALL SMAW ELECTRODES SHALL BE PROPERLY CONDITIONED LOW HYDROGEN. SUBMIT WELDER QUALIFICATIONS AND WELDING PROCEDURES TO ENGINEER FOR APPROVAL AT LEAST 15 DAYS PRIOR TO WELDING.

THE CONTRACTOR SHALL PROVIDE AN INDEPENDENT, CERTIFIED WELDING INSPECTOR TO INSPECT ALL SHOP WELDS AS INDICATED ON THE DRAWINGS. THE OWNER SHALL PROVIDE WELDING INSPECTION FOR ALL FIELD WELDS.

ALL WELDS SHALL BE 100% VISUALLY INSPECTED. IN ADDITION 10% OF ALL CJP SHOP WELDS SHALL BE TESTED BY UT EXAMINATION OR OTHER NDT METHODS APPROVED BY ENGINEER. ANY WELD FAILING INSPECTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, WHICH WILL INCLUDE THE COST FOR RETESTING.

HDPE WELDING – HDPE WELDS SHALL PROVIDE THE FULL STRENGTH OF PIPE. PIPE WELD REINFORCEMENT SHALL NOT EXCEED 1/8 INCH.

"WYE" PILE FABRICATION –
1. FOR NEW SHEETS DEVELOP APPROPRIATE AWS WELD PROCEDURES BASED ON THE MILL CERTIFICATIONS AND CURRENT AWS D1.1 MANUAL.
2. STRAIGHTEN SHEETS AS REQUIRED.
3. HEAT SHEET WITH ROSE BUDS TO 100 DEG. F. MINIMUM AND BEND SHEETS.
4. TACK WELD STOPS ON THE BENT SHEETS TO HOLD THE BEND ANGLE.
5. DYE PENETRANT TEST (100%) THE BENT SHEETS FOR CRACKS AND REPAIR CRACKS PER AWS D1.1 PROCEDURES.
6. ALL WELDS ARE DONE WITH 150 DEG. F. MINIMUM PREHEAT BACKSTEP WELD IN APPROXIMATE 6–INCH LENGTHS TO CONTROL HEAT. SLIGHT ADJUSTMENTS IN PROCEDURE MAY BE NECESSARY TO CONTROL THE BUILDUP OF HEAT.
7. CUT FLAT SHEET "B" DOWN CENTERLINE AT THE WPS SPECIFIED ANGLE.
8. WELD THE FLAT SHEET "B" TO THE BENT SHEET "A" WITH A SINGLE BEVEL FULL PENETRATION GROOVE WELD. BACKGOUGE AND BACK WELD THE OTHER SIDE.
9. WELD REQUIRED FILLET REINFORCEMENT ON THE WELDS.
10. INSPECT ALL INTERLOCKS AND REPAIR ALL TACK WELDS.
11. STRAIGHTEN ALL LEGS OF THE WYE.



TYPICAL WYE SECTION WELDS

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

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Engineering Consultants
1506 W. 36th Avenue
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REV.	DATE	BY	REVISION

FLAT SHEET PILE DRIVING –
SHEET PILES SHALL BE DRIVEN FULL LENGTH WITH A VIBRATORY AND/OR IMPACT HAMMER BY METHODS WHICH WILL ACHIEVE PENETRATION WITHOUT PILE DAMAGE. METHODS SUCH AS TRENCHING AND/OR DREDGING MAY BE REQUIRED IF DRIVING BECOMES DIFFICULT. PILES WILL BE DRIVEN SUCH THAT THE TIPS OF ADJACENT PILES DO NOT VARY MORE THAN 5 FEET EXCEPT IN INSTANCES OF DIFFICULT DRIVING WHERE THIS DISTANCE MAY BE REDUCED TO 2 FEET. THE ENGINEER SHALL BE CONTACTED IF DIFFICULT DRIVING IS ENCOUNTERED.

FACE AND END SHEET PILES SHALL BE DRIVEN USING A TEMPLATE SUCH THAT PILES ARE DRIVEN WITHIN 3 INCHES OF PLAN LOCATION AT THE CUTOFF ELEVATION AND NOT MORE THAN 1/8–INCH PER FOOT OF LENGTH OUT OF PLUMB IN ANY DIRECTION. FACE AND END SHEETS SHALL BE DRIVEN AND LEFT 2 FEET ABOVE PLANNED CUT–OFF ELEVATION, AND MONITORED AS DESCRIBED BELOW BEFORE CUTOFF. HOLES MAY BE CUT IN THE TAILWALLS TO ALLOW FOR TIDAL EQUALIZATION, PLACEMENT, SIZE AND NUMBER OF HOLES WILL BE AT THE DIRECTION OF THE ENGINEER.

WYE SHEETS SHALL BE DRIVEN NOT MORE THAN 2 INCHES FROM PLAN LOCATION AT THE TOP, AND NOT MORE THAN ¼ –INCH PER FOOT OF LENGTH OUT OF PLUMB. THE PLAN WYE DRIVING LOCATION SHALL BE DETERMINED IN CONSULTATION WITH THE ENGINEER AS THE COMPLETED CELLS ARE EXPECTED TO MOVE OUTWARDS 12 INCHES OR MORE AS THE CELL EXPANDS AND SETTLES.

IF OBSTACLES ARE ENCOUNTERED ALONG THE CELL FACE THAT WOULD INTERFERE WITH SHEET DRIVING, THE DEBRIS SHALL BE EXCAVATED, REMOVED, AND THE SUBSEQUENT VOID REFILLED. IF OBSTACLES ARE ENCOUNTERED ALONG THE TAIL WALL, THE DEBRIS WILL BE REMOVED AS PREVIOUSLY STATED, OR THE WALL ALIGNMENT SHALL BE CURVED AWAY FROM THE OBSTACLE IN A SMOOTH CURVE AS APPROVED BY THE ENGINEER.

SHOULD ROCK OR OBSTRUCTIONS IN THE FILL BE ENCOUNTERED DURING DRIVING, THE ENGINEER SHALL BE CONTACTED. SHOULD SOFT SOILS BE ENCOUNTERED, FACE SHEETS MAY REQUIRE SUPPORT FROM THE TEMPLATE BEFORE FILLING CELL. SHEETPILE CELL FILLING –

SHEETPILE CELL FILLING –
FILL IN THE SHEETPILE CELLS SHALL CONSIST OF THAT PREVIOUSLY DESCRIBED FOR FILL. CARE SHALL BE TAKEN TO AVOID PLACING LARGER ROCKS WHERE THEY MAY INTERFERE WITH SHEET AND PIPE PILE DRIVING. OVERSIZE MATERIAL MAY BE USED IN THE FILL AT THE DISCRETION OF THE ENGINEER.

THE INITIAL FILL FROM MUDLINE TO ELEVATION +2 MLLW SHALL NOT BE DUMPED INTO FINAL POSITION, BUT SHALL BE DUMPED ON THE TOP OF THE EMBANKMENT AND BULLDOZED INTO PLACE IN A MANNER THAT WILL ENSURE PROPER PLACEMENT IN NEARLY HORIZONTAL LAYERS, SUCH THAT VOIDS, POCKETS, AND BRIDGING WILL BE REDUCED TO A MINIMUM. THE INTERVENING SPACES AND INTERSTICES SHALL BE FILLED WITH SIMILAR STONES AND EARTH AS MAY BE AVAILABLE FROM EXCAVATION, SO AS TO FORM A DENSE EMBANKMENT.

FILL SHALL BE PLACED IN 18–INCH–THICK MAXIMUM HORIZONTAL LIFTS ABOVE ELEVATION +2. EACH LIFT SHALL BE COMPACTED TO ACHIEVE NOT LESS THAN 95% STANDARD PROCTOR DENSITY, WITH METHODS EQUAL TO OR GREATER THAN 8 PASSES OF A 10 –TON VIBRATORY ROLLER MOVING AT APPROXIMATELY 2 TO 4 MPH. DENSITY MEASUREMENT METHODS MAY BE ADJUSTED BY THE ENGINEER AS APPLICABLE FOR MATERIALS SUPPLIED. SMALLER COMPACTORS AND ADDITIONAL CARE SHALL BE USED TO COMPACT WITHIN 5 FEET OF THE DOCK FACE SHEET PILES TO PREVENT DAMAGE, DISTORTION, OR EXCESSIVE SOIL PRESSURES ON THE BULKHEAD FACE. SPECIAL CARE SHALL ALSO BE USED TO OBTAIN THOROUGH COMPACTION AGAINST ANCHOR WALL SHEET PILES.

FILL SHALL BE PLACED AS FOLLOWS AROUND SHEET PILE CELLS TO PREVENT DISTORTION OF THE BULKHEAD. PLACE FILL IN APPROXIMATELY LEVEL LIFTS ACROSS THE ENTIRE CELL AREA. FILL AROUND ANCHOR WALL SHEETS FIRST, AND THEN FILL AGAINST FACE SHEETS. THE ELEVATION OF FILL BETWEEN ADJACENT CELLS SHALL NOT DIFFER BY MORE THAN 3 FEET. UNEVEN FILLING OF CELLS OR FAILURE TO MAINTAIN PLAN DISTANCE BETWEEN WYES WILL RESULT IN UNDESIRABLE/UNACCEPTABLE DISTORTIONS OF THE SHEET PILE WHICH CONTRACTOR MAY BE REQUIRED TO CORRECT.

DURING AND AFTER FILLING, THE OPEN CELL FACE IS EXPECTED TO MOVE 12 INCHES OR MORE OUTWARD AND TO SETTLE VERTICALLY. AFTER FILLING TO WITHIN TWO FEET OF FINISHED GRADE, THE FILLING SHALL BE DISCONTINUED AND VERTICAL AND HORIZONTAL MOVEMENT OF THE CELLS WILL BE MEASURED BY THE CONTRACTOR EVERY THREE DAYS.

CELL SETTLEMENT MAY BE CONSIDERED STABILIZED WHEN SHEET PILE WYE DIRECTIONAL MOVEMENT (HORIZONTAL AND/OR VERTICAL) RATES SLOW TO A 7–DAY AVERAGE OF 0.05 FEET OR LESS PER WEEK (7 DAYS). AFTER STABILIZATION, SHEET PILE CUTOFF, SHEET PILE WELDING AND FILLING TO FINISH ELEVATION CAN BEGIN. VERTICAL SETTLEMENT OF THE DOCK AND SHEET PILES AFTER COMPLETION IS EXPECTED. ADDITIONAL GRADING MAY BE REQUIRED TO COMPENSATE FOR THIS SETTLEMENT.

ALASKA RAILROAD CORPORATION
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PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
GENERAL NOTES 1 of 2

DESIGNED BY:	KWB	SCALE : NONE	FILE: 99068-16.DWG
DRAWN BY:	RLC		DWG NO. 16 OF 17
APPROVED BY:	DN	DATE : 3/23/2000	

VIBROCOMPACTION – VIBROCOMPACTION SHALL BE USED THROUGHOUT THE SHEETPILE CELL AREA TO COMPACT THE NEW FILL MATERIAL AND THE UNDERLYING SOIL. VIBROCOMPACTION SHALL BE PERFORMED AROUND THE ENTIRETY OF THE SHEETPILE WALL STRUCTURES IN THE AREAS DESIGNATED ON THE PLANS.

VIBROCOMPACTION SHALL CONSIST OF DRIVING A STEEL PILE PROBE WITH A VIBRATORY HAMMER ON A 15 FOOT X 15 FOOT GRID THROUGHOUT THE DESIGNATED AREA. THE PILE PROBE SHALL CONSIST OF A STEEL HP14X89 PILE WITH A TIP MODIFICATION CONSISTING OF TIP REINFORCEMENT AND EIGHT 8–INCH X 8–INCH ANGLES WELDED AS OPPOSING PAIRS TO THE HP14X89 WEB AND FLANGES SPACED 5 FEET APART AS APPROVED BY THE ENGINEER. THE PROBE SHALL BE DRIVEN TO –60 FEET MLLW AND RAISED TO THE SURFACE FOUR TIMES AT EACH GRID LOCATION FOR EACH COVERAGE OF THE AREA AS APPROVED BY THE ENGINEER. FILL MATERIAL SHALL BE PUSHED INTO ANY VOID CREATED BY THE OPERATION AS THE VIBRATION IS BEING CONDUCTED.

VIBROCOMPACTION SHALL BE PERFORMED ONCE FILL HAS REACHED THE +8 ELEVATION.

THE VIBRATORY HAMMER UTILIZED FOR VIBROCOMPACTION SHALL HAVE A MINIMUM HORSEPOWER OF 300 H.P. AND MINIMUM ECCENTRIC MOMENT OF 2,000 IN.–LBS. OR AS OTHERWISE APPROVED BY ENGINEER.

DOCK FACE BEAM INSTALLATION – DOCK FACE BEAM SHALL BE INSTALLED AFTER SHEET PILE STRUCTURES HAVE BEEN BACKFILLED, VIBROCOMPACTED AND HAVE STABILIZED. THE SHEET PILE CELLS SHALL BE SURVEYED AND THE LOCATION OF THE DOCK FACE BEAM SHALL BE ADJUSTED AND APPROVED BY THE ENGINEER.

SUPPORT PIPE PILE DRIVING – ALL PILES SHALL BE DRIVEN. THE CONTRACTOR SHALL SUBMIT A PLAN FOR PILE DRIVING. THE PLAN SHALL CONTAIN HAMMER TYPE AND DRIVING METHOD FOR ALL PILE TYPES. THE CONTRACTOR SHALL NOT MOBILIZE HAMMERS AND RELATED EQUIPMENT PRIOR TO RECEIVING WRITTEN APPROVAL OF THE PLAN. THE CONTRACTOR SHOULD ALLOW ONE WEEK FOR REVIEW OF THE PLAN BY THE ENGINEER. ALL PILE DRIVING METHODS SHALL MEET THE REQUIREMENTS OF THE PERMITS ISSUED FOR THIS PROJECT.

STEEL PIPE SUPPORT PILES SHALL BE DRIVEN WITH AN IMPACT HAMMER WITH A MINIMUM RATED ENERGY OF 50,000 FT.–LBS. OR AS OTHERWISE APPROVED BY ENGINEER. ANY HAMMER THAT CAUSES DAMAGE TO THE PILES DURING DRIVING OPERATIONS SHALL BE SUBSTITUTED WITH AN ACCEPTABLE ALTERNATE HAMMER AT NO ADDITIONAL EXPENSE TO THE OWNER. IMPACT HAMMERS SHALL BE SUPPLIED WITH NEW CAPBLOCK CUSHIONS, WHICH SHALL BE CHANGED AT THE MANUFACTURER'S RECOMMENDED CYCLE. THE CONTRACTOR'S DRIVING PLAN SHALL INCLUDE MANUFACTURER'S RECOMMENDATIONS AND INFORMATION ON HAMMER CUSHION.

DRIVING METHODS FOR ALL PILES SHALL UTILIZE A DRIVING TEMPLATE.

PILES SHALL BE PLACED WITHIN 1% OF SPECIFIED VERTICAL ALIGNMENT AND WITHIN 2 INCHES OF SPECIFIED LOCATION AT CUTOFF. BATTER PILES WITH A 2V:1H SLOPE SHALL BE PLACED SO THEIR SLOPE VARIES BETWEEN 5–3/4" AND 6–1/4" HORIZONTAL TO ONE–FOOT VERTICAL AND WITHIN 2 INCHES OF LOCATION AT CUTOFF. PILES HITTING OBSTACLES, MISALIGNED PILES AND PILES THAT HAVE NOT ACHIEVED MINIMUM PENETRATION PRIOR TO REFUSAL SHALL BE PULLED BY THE CONTRACTOR WITH A VIBRATORY HAMMER AND REDRIVEN AT NO ADDITIONAL COST TO THE OWNER. A VIBRATORY HAMMER WITH A MINIMUM HORSEPOWER OF 300 H.P. AND MINIMUM ECCENTRIC MOMENT OF 2,000 IN.–LBS. OR AS OTHERWISE APPROVED BY ENGINEER MUST BE AVAILABLE AND ON SITE DURING ALL PIPE PILE DRIVING OPERATIONS.

PILES LENGTHS SHALL BE SUPPLIED AS SPECIFIED. SUPPORT PILES SHALL BE DRIVEN UNTIL REQUIRED PILE CAPACITY AS SHOWN ON THE PILE IS OBTAINED. PILE CAPACITY WILL BE DETERMINED SOLELY BY THE ENGINEER.

ALL PILE INSTALLATION SHALL BE CONDUCTED WITH ENGINEER PRESENT. THE CONTRACTOR SHALL ASSIST ENGINEER IN MONITORING THE PILE DRIVING. THE CONTRACTOR SHALL MARK EACH PILE WITH ONE–FOOT INCREMENTS WITH EVERY FIVE–FOOT INCREMENT NUMBERED. FOR DETERMINATION OF PILE REFUSAL OR CAPACITY, THE CONTRACTOR SHALL MARK THE PILES WITH ONE–INCH INCREMENTS DURING THE FINAL DRIVE. THE MARKS SHALL BE VISIBLE/READABLE FROM ALL SIDES OF THE PILE.

ALL STEEL PIPE PILE CUTOFFS ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE THE PIPE FROM THE PROJECT SITE.

DOLPHIN PILES SHALL BE DRIVEN AFTER SHEET PILE STRUCTURES HAVE BEEN BACKFILLED, VIBROCOMPACTED AND HAVE STABILIZED. THE SHEET PILE CELLS SHALL BE SURVEYED, FINAL LOCATION OF DOCK FACE BEAM SHALL BE DETERMINED AND THE LOCATION OF THE DOLPHIN PILES SHALL BE ADJUSTED AND APPROVED BY THE ENGINEER.

PILES SHALL BE DRIVEN TO REQUIRED PILE CAPACITY AND EMBEDMENT AS SHOWN ON THE DRAWINGS. PILE CAPACITY AND EMBEDMENT WILL BE DETERMINED SOLELY BY THE ENGINEER.

FENDER PILE DRIVING –
ALL PILES SHALL BE DRIVEN. THE CONTRACTOR SHALL SUBMIT A PLAN FOR PILE DRIVING. THE PLAN SHALL CONTAIN HAMMER TYPE AND DRIVING METHOD. THE CONTRACTOR SHALL NOT MOBILIZE HAMMERS AND RELATED EQUIPMENT PRIOR TO RECEIVING WRITTEN APPROVAL OF THE PLAN. THE CONTRACTOR SHOULD ALLOW ONE WEEK FOR REVIEW OF THE PLAN BY THE ENGINEER. ALL PILE DRIVING METHODS SHALL MEET THE REQUIREMENTS OF THE PERMITS ISSUED FOR THIS PROJECT.

FENDER PILES SHALL BE DRIVEN AFTER SHEET PILE STRUCTURES HAVE BEEN BACKFILLED, VIBROCOMPACTED AND HAVE STABILIZED . THE SHEET PILE CELLS SHALL BE SURVEYED, DOCK FACE BEAM INSTALLED AND THE LOCATION OF THE FENDER PILES SHALL BE ADJUSTED AND APPROVED BY THE ENGINEER.

STEEL PIPE FENDER PILES SHALL BE DRIVEN WITH A VIBRATORY HAMMER WITH A MINIMUM HORSEPOWER OF 300 H.P. AND MINIMUM ECCENTRIC MOMENT OF 2,000 IN.–LBS. OR AN IMPACT HAMMER WITH A MINIMUM RATED ENERGY OF 50,000 FT.–LBS. OR AS OTHERWISE APPROVED BY ENGINEER. ANY HAMMER THAT CAUSES DAMAGE TO THE PILES DURING DRIVING OPERATIONS SHALL BE SUBSTITUTED WITH AN ACCEPTABLE ALTERNATE HAMMER AT NO ADDITIONAL EXPENSE TO THE OWNER. IMPACT HAMMERS SHALL BE SUPPLIED WITH NEW CAPBLOCK CUSHIONS, WHICH SHALL BE CHANGED AT THE MANUFACTURER'S RECOMMENDED CYCLE. THE CONTRACTOR'S DRIVING PLAN SHALL INCLUDE MANUFACTURER'S RECOMMENDATIONS AND INFORMATION ON HAMMER CUSHION.

DRIVING METHODS FOR ALL PILES SHALL UTILIZE A DRIVING TEMPLATE.

FENDER PILES SHALL BE PLACED WITHIN 1% OF SPECIFIED VERTICAL ALIGNMENT AND WITHIN 1 INCH OF SPECIFIED LOCATION AT CUTOFF. PILES HITTING OBSTACLES, OR MISALIGNED PILES SHALL BE PULLED BY THE CONTRACTOR WITH A VIBRATORY HAMMER AND REDRIVEN AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL ENSURE THAT FENDER PILES DO NOT CONTACT SHEET PILES DURING DRIVING OPERATIONS.

PILES SHALL BE SUPPLIED IN THE LENGTH SPECIFIED. FENDER PIN PILES SHALL BE DRIVEN WITH EITHER AN IMPACT HAMMER OR VIBRATORY HAMMER AS REQUIRED TO OBTAIN THE REQUIRED PENETRATION OR PILE REFUSAL. PILE REFUSAL AND PENETRATION WILL BE DETERMINED SOLELY BY THE ENGINEER.

FENDER PILES SHALL BE PLACED AT THE LOCATION AND ALIGNMENT NOTED ON THE PLANS. FORCING OF FENDER SYSTEM OVER THE PIN PILES WILL NOT BE ALLOWED.

ALL PILE INSTALLATION SHALL BE CONDUCTED WITH THE ENGINEER PRESENT. THE CONTRACTOR SHALL ASSIST THE ENGINEER IN MONITORING THE PILE DRIVING. THE CONTRACTOR SHALL MARK EACH PILE WITH ONE–FOOT INCREMENTS WITH EVERY FIVE–FOOT INCREMENT NUMBERED. FOR DETERMINATION OF PILE REFUSAL, THE CONTRACTOR SHALL MARK THE PILES WITH ONE–INCH INCREMENTS DURING THE FINAL DRIVE. THE MARKS SHALL BE VISIBLE/READABLE FROM ALL SIDES OF THE PILE.

ALL STEEL PIPE PILE CUTOFFS ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE THE PIPE FROM THE PROJECT SITE.

CONCRETE PLACEMENT – CONCRETE SHALL BE FORMED, BATCHED, PLACED AND CURED PER ASTM C–94.

REINFORCING BAR WELDING – ALL REINFORCING BAR WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.4. THE CONTRACTOR SHALL PROVIDE AN INDEPENDENT WELDING INSPECTOR FOR ALL WELDS. WELDS SHALL BE 100% VISUALLY TESTED BY THE WELDING INSPECTOR. WELDS MAY ALSO BE TESTED BY MAGNETIC PARTICLE, ULTRASONIC, OR RADIOGRAPHIC TESTING METHODS. ANY REJECTED WELD SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, WHICH WILL INCLUDE ALL COST FOR RETESTING.

DREDGING – THE CONTRACTOR SHALL DREDGE THE INDICATED AREAS AS ALLOWED BY AND UNDER THE CONDITIONS STIPULATED IN THE COE PERMIT AND DGC FINAL CONSISTENCY DETERMINATION FOR THIS PROJECT. THE CONTRACTOR SHALL DREDGE THE INDICATED AREAS WITH A CRANE EQUIPPED WITH A HEAVY DREDGING BUCKET OR BACKHOE. THE CONTRACTOR SHALL DREDGE THE MATERIAL TO THE NOTED EXTENT AND DEPTH ON THE PLANS AND SPECIFICATIONS.

USABLE DREDGED MATERIAL MAY BE INCORPORATED INTO THE CELL FILL AS APPROVED BY THE ENGINEER. UNUSABLE DREDGE MATERIAL SHALL BE DISPOSED OF AS SPECIFIED IN THE COE PERMIT.

WATER LINE – WATER LINE CONSTRUCTION SHALL CONFORM TO CITY OF SEWARD INSTALLATION GUIDELINES AND IN ACCORDANCE WITH THE LATEST ADOPTED CODES, RULES, AND REGULATIONS.

SITEWORK

DEMOLITION – THE CONTRACTOR SHALL REMOVE THE STRUCTURES INDICATED ON THE PLANS. THE CONTRACTOR IS ADVISED TO INSPECT THE SITE TO DETERMINE THE SCOPE OF DEMOLITION WORK PRIOR TO BIDDING.

ALL SALVAGEABLE MATERIAL, AS DETERMINED BY THE OWNER, SHALL BE STORED AS DIRECTED BY THE OWNER. FOR ALL OTHER MATERIAL, THE CONTRACTOR SHALL REMOVE THE MATERIAL FROM THE PROJECT SITE AND TRANSPORT IT TO A LEGAL DISPOSAL AREA.

PLACEMENT OF ARMOR, RIPRAP AND FILTER ROCK–
THE STABILITY OF THE ARMORED SLOPES, AND THEIR ABILITY TO WITHSTAND WAVE ATTACK, IS DEPENDENT ON THE EFFECTIVE INTERLOCKING OF ONE STONE WITH ANOTHER. ARMOR SHALL BE PLACED IN A MANNER SO THAT THE FILTER ROCK LAYER IS NOT RUPTURED. THE ARMOR ROCK SHALL BE HANDLED OR MANIPULATED INTO PLACE SO AS TO SECURE A STONE MASS OF THE DIMENSIONS SHOWN ON THE PLANS, WITH A MINIMUM OF VOIDS. THE STONES SHALL BE MANIPULATED SUFFICIENTLY BY MEANS OF A BACKHOE, ROCK TONGS, OR OTHER SUITABLE EQUIPMENT TO SECURE A REASONABLY REGULAR SURFACE AND MASS STABILITY. PLACEMENT SHALL BEGIN AT THE TOE AND PROCEED UP THE SLOPE. THE STONES SHALL NOT BE DUMPED FROM A HEIGHT GREATER THAN 4 FEET.

OTHER

SUBMITTALS – SHOP DRAWINGS FOR ALL FABRICATED MATERIALS SHALL BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL PRIOR TO FABRICATION OR SHIPPING OF ANY ITEM. CERTIFICATIONS, MANUFACTURER'S DATA, AND OTHER INFORMATION FOR ALL MATERIALS, INCLUDING THOSE NOT SPECIFICALLY NOTED IN THE GENERAL NOTES OR SHOWN ON INDIVIDUAL DRAWINGS, SHALL BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL. ALL METHODS AND MATERIALS SHALL CONFORM TO THE CONTRACT DOCUMENTS, GENERAL NOTES, THE PLANS, GOOD WORKMANSHIP, GENERALLY ACCEPTED INDUSTRY STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS. A MINIMUM OF THREE SETS SHALL BE PROVIDED WITH EACH SUBMITTAL. THE REVIEWED COPY WILL BE RETURNED AND MARKED AS REQUIRED FOR ACCEPTANCE AND NON–ACCEPTANCE.

THE FOLLOWING IS A LIST OF REQUIRED SUBMITTALS FOR THIS PROJECT. THE ENGINEER MAY REQUIRE ADDITIONAL SUBMITTALS.

CIVIL/STRUCTURAL SUBMITTALS:
1. BULLRAIL LAYOUT PLAN WITH DETAILED LENGTHS AND SUPPORTS.
2. STEEL CERTIFICATION FOR ALL STEEL USED INCLUDING CHEMISTRY, YIELD, AND MILL NUMBERS.
3. GALVANIZING CERTIFICATION AND/OR METALLIZING CERTIFICATION.
4. METALLIZING REPAIR METHOD AND MATERIALS.
5. AWS WELDING CERTIFICATION FOR ALL WELDERS UTILIZED ON THE PROJECT.
6. WELDING PROCEDURES FOR ALL SHOP AND FIELD WELDS.
7. STEEL FABRICATION DRAWINGS.
8. SIGN SHOP DRAWINGS.
9. PILE DRIVING HAMMERS AND PILE DRIVING METHODS/PLAN.
10. TEMPLATE FABRICATION DRAWINGS.
11. REINFORCING STEEL CERTIFICATION.
12. C.I.P. CONCRETE MIX DESIGN.
13. VIBRO COMPACTION PROBE SHOP DRAWINGS.
14. VIBRO COMPACTION PROCEDURE/PLAN.
15. UHMW SHOP DRAWINGS.
15. RED–LINED AS–BUILT DRAWINGS.
16. DOCK AND DOLPHIN LAYOUT DIAGRAM.
17. DREDGING PLAN

ELECTRICAL SUBMITTALS:
SEE ELECTRICAL GENERAL NOTES

ISSUED FOR CONSTRUCTION 3/23/2000

STATE OF ALASKA 49TH D. Nottingham No. 1204-E REGISTERED PROFESSIONAL ENGINEER

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
1506 W. 36th Avenue
Anchorage, Alaska 99503
(907) 561-1011

REV.	DATE	BY	REVISION

ALASKA RAILROAD CORPORATION
OFFICE OF THE CHIEF ENGINEER
P.O.BOX 107500, ANCHORAGE, ALASKA 99510–7500 (907) 265–2456

PROJECT :
NEW SEWARD RAILROAD DOCK

TITLE:
GENERAL NOTES 2 of 2

DESIGNED BY: KWB
DRAWN BY: RLC
APPROVED BY: DN

SCALE : NONE
DATE : 3/23/2000

FILE: 99068–17.DWG
DWG NO. 17 OF 17