PND ENGINEERS, INC.

September 2, 2022 PND Proj. No. 194022.02

Mr. Jeff Griffin
Port Manager
Port of Bandon
390 1st Street SW
Bandon, OR 97411

Re: Port of Bandon Marina Geotechnical Evaluation

Dear Mr. Griffin:

As a part of the Port of Bandon's marina redevelopment design work, PND is tasked with providing a geotechnical evaluation of the marina basin with the purpose of determining the pile size and construction methods for installing float piles to support the new marina floats.

For this evaluation, PND researched geological records, past geotechnical investigations, and queried West Coast Contractors about historic construction methods to construct the float piles within the boat basin. PND did not perform any new geotechnical investigations or geotechnical lab analysis as a part of this evaluation but rather used past data historical data to develop this evaluation.

Site Geology

The marina is located within the boat basin at the mouth of the Coquille River and sited in a region of complex of soil formations. South of the marina, much of Bandon's Old Town is sited on manmade fill. The area around the mouth of the river also contains alluvial deposits, foredune deposits, Pleistocene sedimentary rock, and a mélange of Sixes River Cretaceous and Jurassic rock outcroppings. See Attachment C for a geologic map of the region. Given the complexity of the geology in the proximity of the boat basin, an evaluation of the previous geotechnical exploration of the basin is of critical importance to determine the appropriate pile type and installation methods for the new marina.

Previous Geotechnical Investigation

In 1983, a geotechnical investigation of the boat basin was performed by HGE, Inc. The investigation included 94 water jet probes, three (3) test holes, and three (3) drilled holes. All holes were located within the extent of the existing basin. A map of the probes, drilled holes, and test holes is included in Attachment D.

The 94 water jet probes were used to infer the vertical elevation of the bedrock surface elevation at the location tested. Based on the quantity of probe locations, a bedrock contour map was developed which shows the bedrock varying from El. -4 feet to El. -14 feet within the basin.

The three test holes were used to determine the mudline elevation and overburden characteristics at the location tested. For the three test holes, the ground elevation varied from -0.4 feet to -3 feet with the overburden varying in thickness from 0 feet to more than 12.7 feet. For the two test holes with overburden present, the overburden was reported to be sand and gravel.

The drilled holes were used to determine the mudline elevation, overburden thickness and characteristics, and the bedrock surface elevation and characteristics. The overburden thickness varied from 3 to 4 feet and was reported to be sand and gravel. The bedrock elevation ranged from -2.5 to -10.6 feet and consisted of sandstone and silt stone. The maximum drilled hole depth was elevation -12.6 feet.

Past Pile Construction Methods

The HGE drawings of existing marina, provided in Attachment B, show that the pile installation depths range from El. -25.5 feet to El. -29.5 feet. West Coast Contractors provided feedback on the installation methods for the existing piles and indicated that the piles were predrilled 15 feet into bedrock. The existing piles include both 12-inch diameter timber piles and 12.75-inch diameter steel pipe piles.

In addition to the drawings and historic geotechnical data, photos of the original construction of the marina are included in Attachment D. These photos show the marina dammed and dredged in the dry prior to construction of the marina floats.

Initial Pile Size

The pile size to support the marina floats will be controlled by the water depth and the forces associated with wind, waves, current, and vessel size within the marina. Based on an initial evaluation of controlling forces, PND recommends installing 16-inch-diameter, 0.5-inch-thick steel pipe piles spaced at approximately 20 feet along the length of Float C. The recommended pile size on Float C is controlled by the wave loading on this outside float. The interior floats are subject to lower forces associated with wind and vessel impact and smaller piles may be considered. Floats A, B, D, and E may be supported by 12.75-inch-diameter, 0.5-inch-thick steel pipe piles spaced at approximately 40 feet along the floats. However, the cost of mobilizing and reconfiguring the socketing equipment for the smaller pile size may be cost prohibitive. Therefore, in the 30% design, PND has shown 16-in-diameter, 0.5-inch-thick steel piles throughout the marina.

For this initial pile size analysis, tsunami loads are not considered. Consideration of tsunami loads on the marina would significantly increase the size and cost of the piles and marina, in general.

Recommended Installation Methods

Based on the shallow bedrock encountered in the drilled test holes from the previous geotechnical investigation along with construction procedures from the original marina construction, PND recommends that all piles should be socketed a minimum of 15 feet into the bedrock. Pile

socketing into bedrock will increase construction costs over traditional pile driving. However, this method is recommended to achieve the necessary embedment to laterally-support the piles so that they can resist the applied forces from the wind, waves, and vessels to the floats.

This geotechnical evaluation has been developed to support the 30% design of the Port of Bandon marina redevelopment. Please let me know if you have any questions on this evaluation.

Sincerely,
PND Engineers, Inc.

Rian M. Johnson, P.E., S.E., P.Eng.
Principal

Attachment:

A) Port of Bandon Marina Redevelopment 30% Design Float Layout and Pile Plan
B) Port of Bandon Coquille River Boat Basin Original Layout Drawings
C) Geologic Map of Bandon
D) Previous Geotechnical Data and Original Construction Photos
E) Wind and Wave Loading on Piles

Attachment A: Port of Bandon Marina Redevelopment
30% Design Float Layout and Pile Plan

PND
ENGINEERS, INC.

COQUILLE RIVER
EBB
FLOOD
EXISTING BREAKWATER
NAVIGATION CHANNEL
8' WIDE CONCRETE BREAKWATER FLOAT AND LARGE VESSEL BERTHING
FLOAT C
8'
80'
50' TYP.
70'
60'
6' TYP.
20' TYP.
28'
4' TYP.
EXISTING FUELING STATION
EXISTING FISH HANDLING PIER
SHORT TERM MOORAGE AND FUELING FLOAT
EXISTING UTILITY SHED
EXISTING BOARDWALK
EXISTING PARKING
EXISTING PIER
FLOAT D (HDPE)
232'
111'
91'
38' TYP.
6'
38'
38'
65'
6'
50'
30'
28' TYP.
8'
FLOAT B (HDPE)
FLOAT E (HDPE)
FLOAT A (HDPE)
SUPPORT FLOAT
8'x12' KAYAK FLOAT
NEW WEST GANGWAY
EXISTING SIDEWALK
FIRST STREET EAST
EXISTING APPROACH PIER
REINSTALL EXISTING EAST GANGWAY

PROPOSED FLOAT LAYOUT

0 20 40 80 120 FT

30% LEVEL PRELIMINARY PLANS (REV.1)

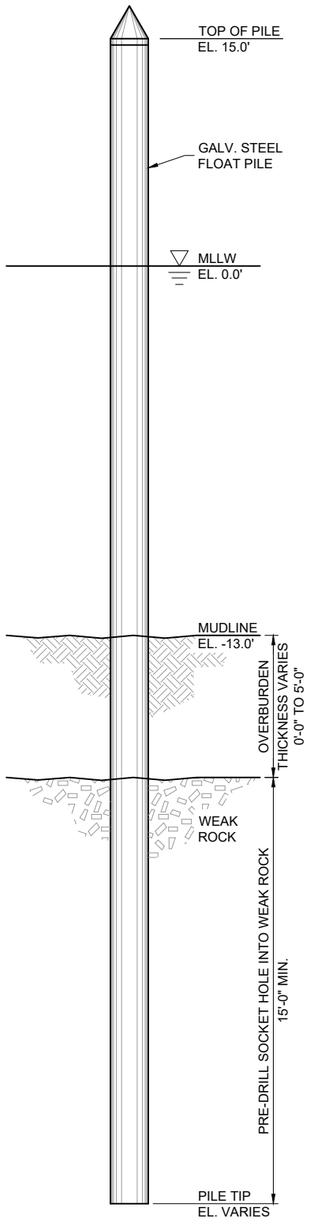
PND ENGINEERS, INC
1736 Fourth Avenue S., Suite A
Seattle, Washington 98134
P: 206.624.1387
www.pndengineers.com

REVISIONS		
REV	DATE	DESCRIPTION

PROJECT:
PORT OF BANDON
BANDON MARINA REDEVELOPMENT

TITLE:
PROPOSED FLOAT LAYOUT

DESIGNED BY:	CM	PROJECT NO:	194022	SHEET NO:	
DRAWN BY:	DM	DATE:	JUNE 2020	4	OF 10
CHECKED BY:	RJ	SCALE:	NOTED		



TYPICAL FLOAT PILE

PILE SCHEDULE			
FLOAT	PILE SIZE	THICKNESS	PILE COUNT
A	16"Ø	0.500"	9
B	16"Ø	0.500"	18
C	16"Ø	0.500"	15
D	16"Ø	0.500"	2
E	16"Ø	0.500"	5
TOTAL	- -	- -	49

30% LEVEL PRELIMINARY PLANS (REV.1)

P N D
ENGINEERS, INC
1736 Fourth Avenue S., Suite A
Seattle, Washington 98134
P: 206.624.1387
www.pndengineers.com

REVISIONS

REV	DATE	DESCRIPTION

PROJECT:
PORT OF BANDON
BANDON MARINA REDEVELOPMENT

TITLE:
PILE DETAILS

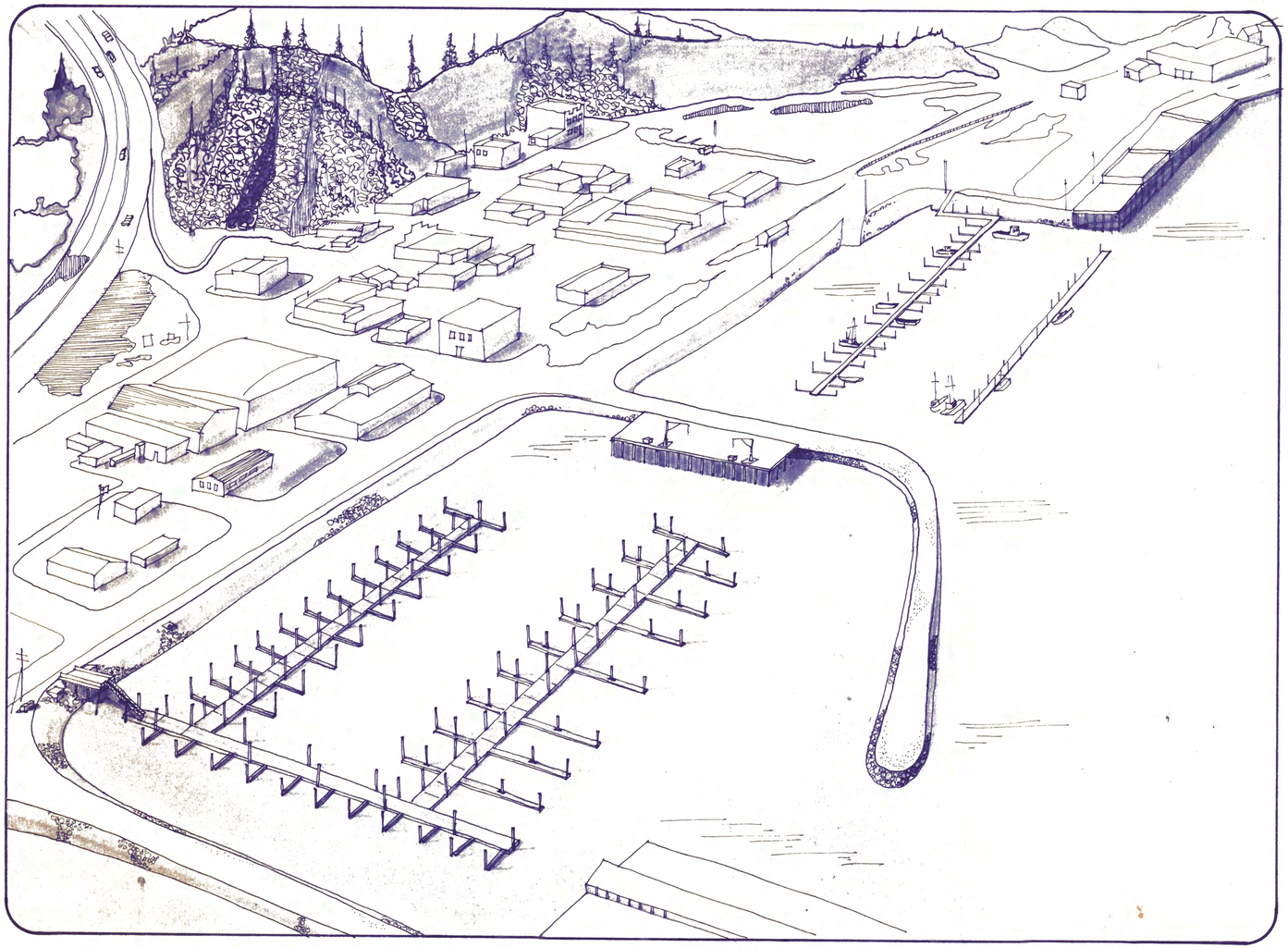
DESIGNED BY:	CM	PROJECT NO:	194022	SHEET NO:	
DRAWN BY:	DM	DATE:	JUNE 2020	5	OF 10
CHECKED BY:	RJ	SCALE:	NOTED		

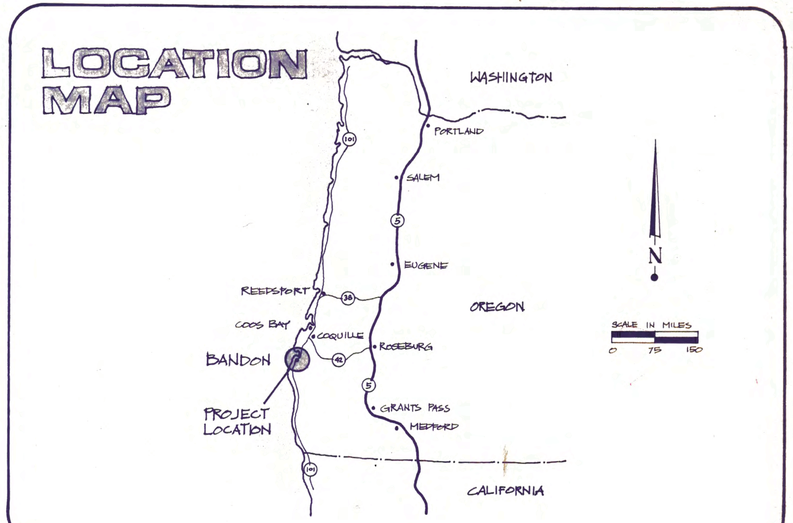
Attachment B: Port of Bandon Coquille River Boat Basin
Original Layout Drawings

PORT OF BANDON

COQUILLE RIVER BOAT BASIN DEVELOPMENT

COOS COUNTY, OREGON





JULY, 1982

PROJECT NO. 2071

EDA PROJECT NO. 07-01-02549

SHEET INDEX

PRELIMINARY

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1975 RICHARD D. WOODS

RECORD DRWG'S 11/83 R.K.

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE

PROJECT

PROJECT #

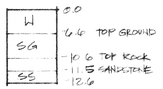
DATE

SHEET NO.

OF

WATER JET® PROBE RESULTS

PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.
P-1	-8.3	P-16	-9.2	P-31	-5.6	P-46	-4.6	P-68	-9.7
P-2	-11.8	P-17	-11.0	P-32	-0.7	P-47	-11.5	P-69	-12.3
P-3	-7.2	P-18	-9.7	P-33	-1.8	P-48	-2.6	P-70	-15.7
P-4	-15.7	P-19	-9.6	P-34	-3.0	P-49	-1.5	P-71	-9.7
P-5	-15.7	P-20	-9.4	P-35	-4.0	P-50	-1.0	P-72	-15.3
P-6	-1.6	P-21	-9.1	P-36	-9.5	P-51	-0.4	P-73	-12.8
P-7	-4.5	P-22	-10.1	P-37	-9.5	P-52	-2.0	P-74	-5.6
P-8	-2.5	P-23	-11.0	P-38	-4.3	P-53	-1.8	P-81	-4.9
P-9	-2.4	P-24	-8.8	P-39	-11.1	P-54	-1.6	P-91	-4.3
P-10	-2.3	P-25	-10.7	P-40	-11.0	P-55	-1.6	P-92	-9.7
P-11	-14.3	P-26	-1.7	P-41	-12.0	P-56	-1.0	P-93	-4.6
P-12	-4.3	P-27	-1.7	P-42	-6.8	P-57	-0.9	P-94	-4.9
P-13	-0.3	P-28	-8.7	P-43	-10.7	P-58	-15		
P-14	-2.2	P-29	-7.7	P-44	-11.7	P-59	-15		
P-15	-4.2	P-30	-6.6	P-45	-3.6	P-62	-4.0		



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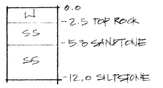

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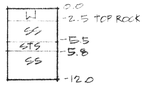

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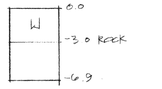

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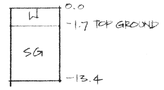

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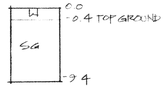


TH-6

LEGEND

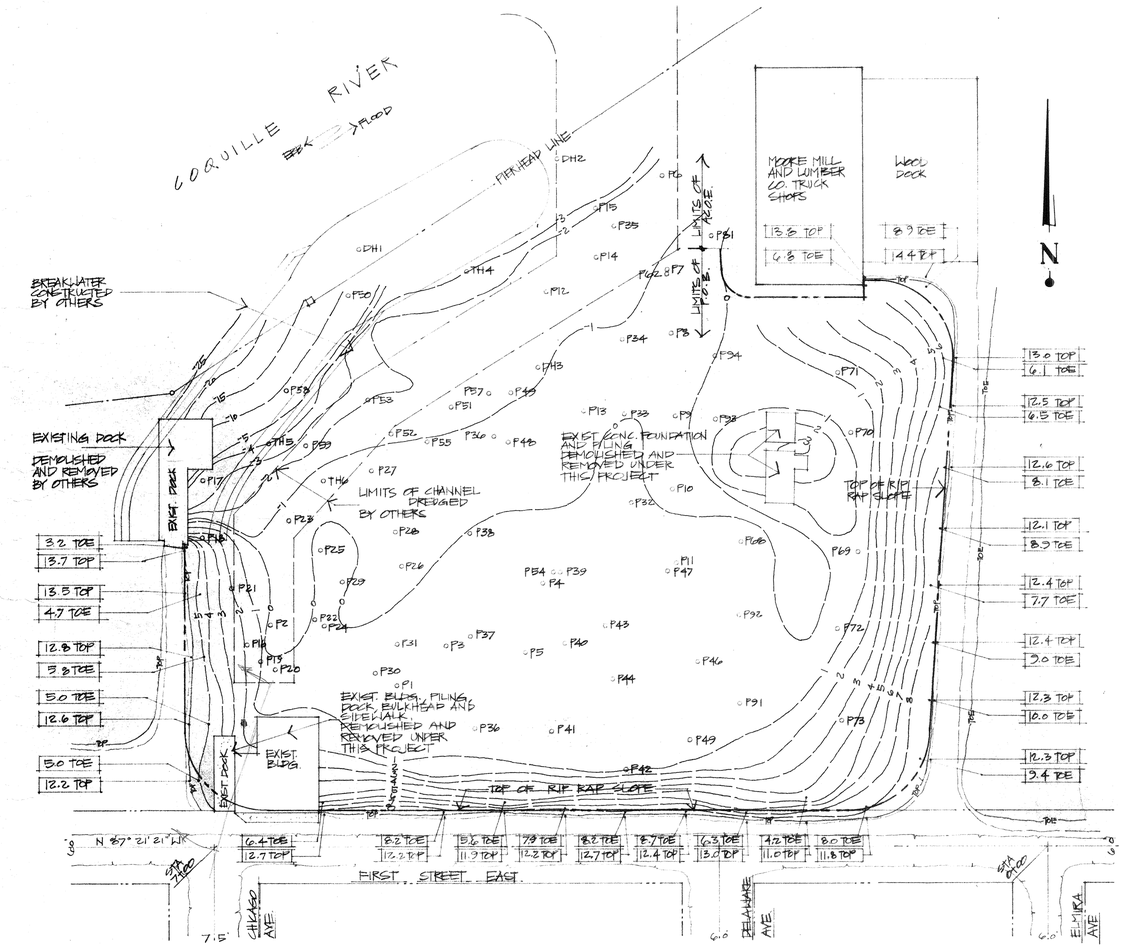
- 8.7 TOE — EXISTING ELEVATION
- TOP OF RIP RAP SLOPE
- A.C. PAVEMENT
- 8 — EXISTING CONTOUR LINE * W/ELEV.
- TOP — EXIST TOP OF BANK
- TOE — EXIST. TOE OF BANK
- EXIST. EDGE OF GRAVEL

CORE DRILLING ABBREVIATIONS

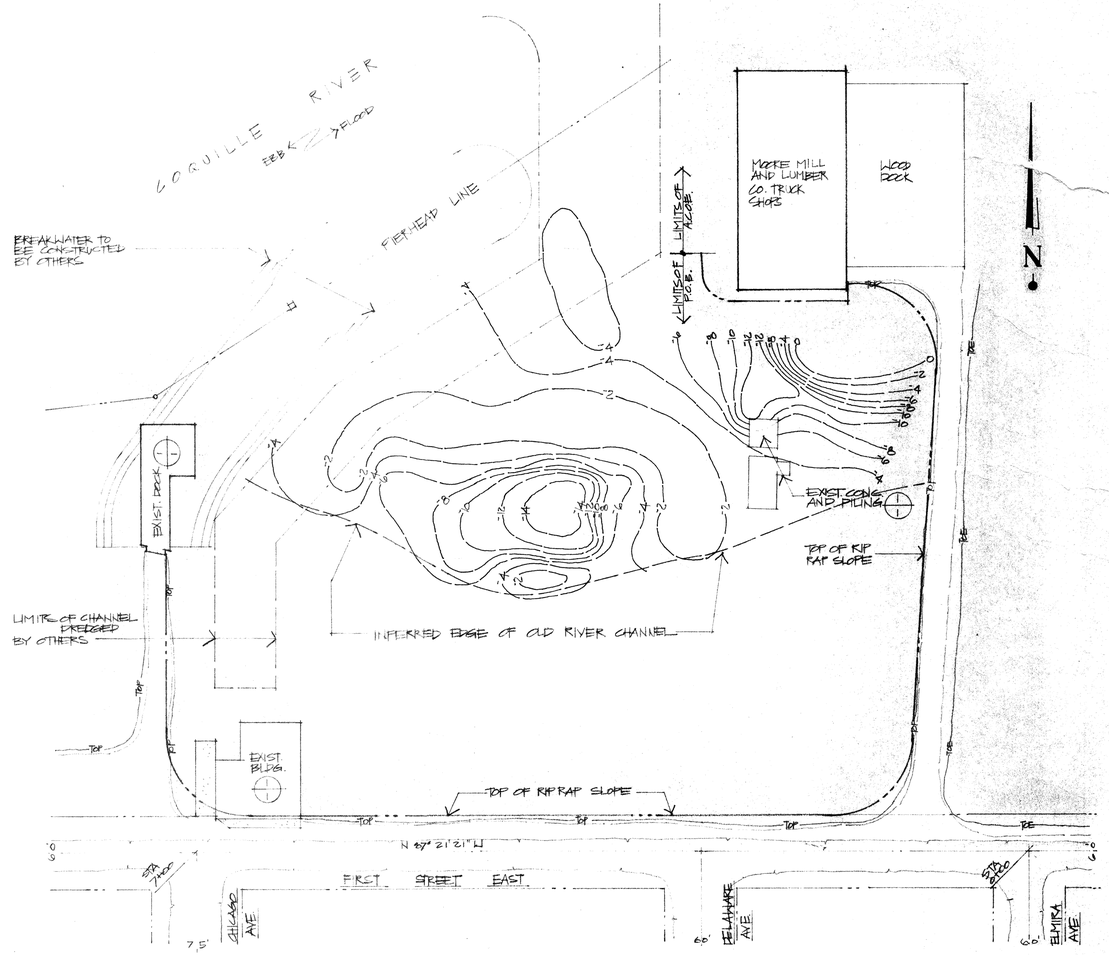
W – WATER
SS – SANDSTONE
STS – SILTSTONE
SG – SAND AND GRAVEL

NOTES:

1. INFERRED SANDSTONE/SILTSTONE ROCK CONTOURS FROM GEO. RECON INTERNATIONAL LTD'S GEO-PHYSICAL SURVEY.
2. INFERRED SANDSTONE/SILTSTONE ROCK CONTOURS BASED ON SEISMIC REFRACTION SURVEY RESULTS.
3. ELEVATIONS SHOWN ARE MEAN LOWER LOW WATER (MLLW) DATUM.
4. EXISTING ELEVATIONS AND SURFACE CONTOURS BASED ON SURVEYS OF AUGUST 11, 1980
5. CORE DRILLING AND TRIGON DRILLING LOGS AND PROBE RESULTS, P-1 THRU P-59 FROM US. ARMY CORP OF ENGINEERS' SURVEYS OF JUNE 1978.
6. PROBE RESULTS P-60 THRU P-101, FROM US. ARMY CORP OF ENGINEERS' SURVEYS OF FEBRUARY, 1982.
7. BEARINGS - LAMBERT PROJECTION OF OREGON, SOUTH ZONE



1/1 SURFACE CONTOURS AND DEMOLITION PLAN
1" = 60'



2/1 INFERRED ROCK CONTOURS
1" = 60'

RECORD DRWG. 11/83 R.K.

EDA PROJECT NO. 07-01-02543

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1980 RICHARD D. NORTH

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

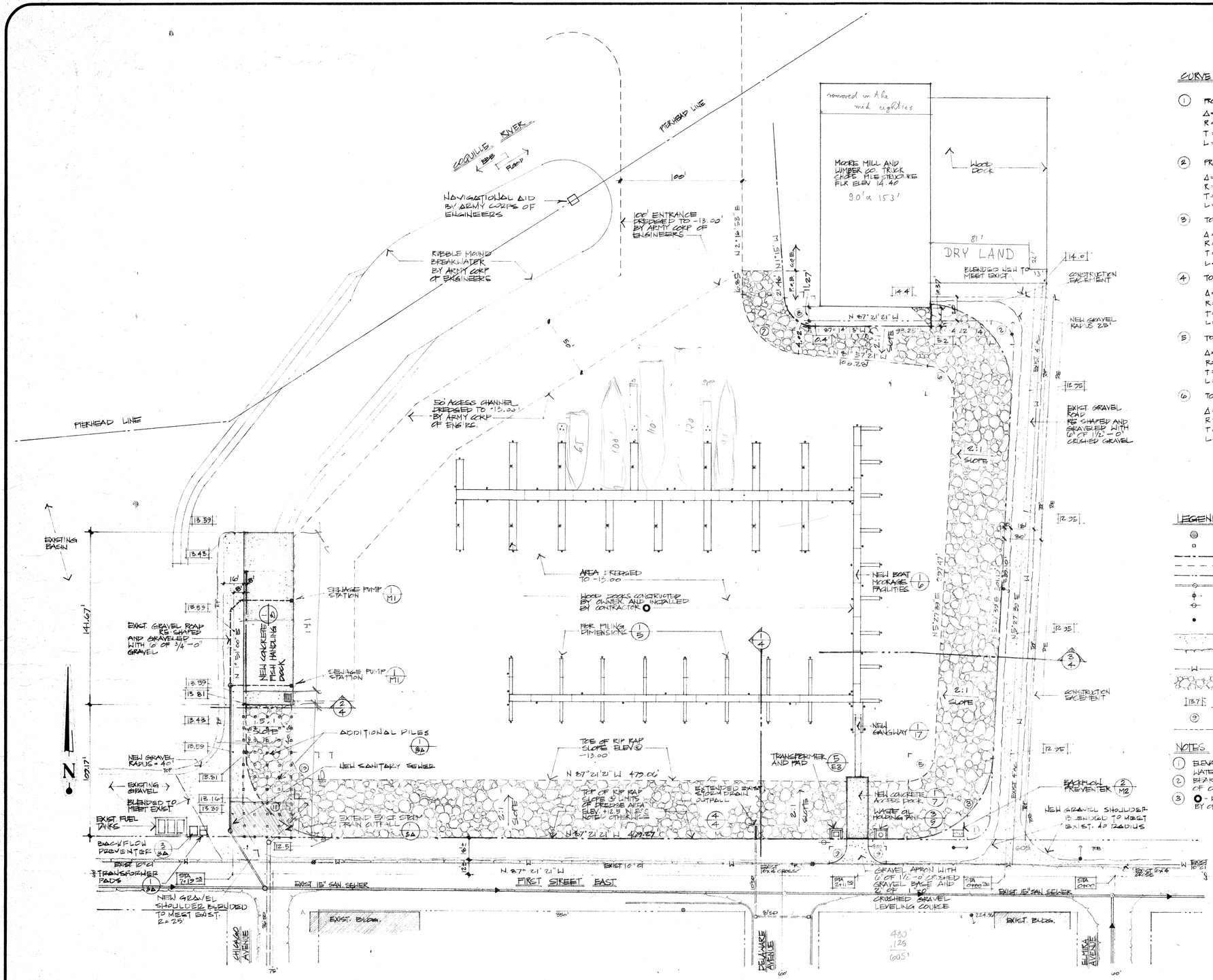
HGE INC

SHEET TITLE
CONTOUR AND DEMOLITION PLANS

PROJECT PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

PROJECT # 2071
DATE JULY, 1982

SHEET NO. 1 OF



CURVE DATA

1. PROPERTY LINE SE CORNER
   Δ = 87° 11'
   R = 19.00'
   T = 18.09'
   L = 28.91'
2. PROPERTY LINE NE CORNER
   Δ = 92° 49'
   R = 19.00'
   T = 19.96'
   L = 30.78'
3. TOP OF RIP RAP @ SE COR.
   Δ = 87° 11'
   R = 70.00'
   T = 66.64'
   L = 106.51'
4. TOP OF RIP RAP @ NE COR.
   Δ = 92° 49'
   R = 70.00'
   T = 78.53'
   L = 113.40'
5. TOE OF RIP RAP @ SE COR.
   Δ = 87° 11'
   R = 23.00'
   T = 21.90'
   L = 35.00'
6. TOE OF RIP RAP @ NE COR.
   Δ = 87° 05'
   R = 23.00'
   T = 21.86'
   L = 34.96'
7. TOE OF RIP RAP @ SW COR. TRUCK SHOP
   Δ = 88° 57' 14"
   R = 50.00'
   T = 44.94'
   L = 73.22'
8. TOP OF RIP RAP @ SW COR TRUCK SHOP
   Δ = 85° 59' 18"
   R = 25.00'
   T = 23.31'
   L = 37.52'
9. AC. APRON
   Δ = 90° 00'
   R = 15.00'
   T = 15.00'
   L = 23.56'
10. TOE OF RIP RAP
    Δ = 89° 12' 21"
    R = 70.00'
    T = 22.68'
    L = 35.81'
11. TOE OF RIP RAP
    Δ = 89° 12' 21"
    R = 70.00'
    T = 69.04'
    L = 108.98'

LEGEND

- NEW MANHOLE
- EXIST. WATER METER
- TOP OF RIP RAP
- TOE OF RIP RAP
- PROPERTY LINE
- EXISTING MANHOLE AND LINE
- EXIST. CATCH BASIN
- EXIST. FIRE HYDRANT
- EXIST. UTILITY POLE
- EDGE OF GRAVEL
- EDGE OF AC. PAVEMENT
- WATERLINE
- NEW RIP RAP
- NEW ELEVATION
- CURVE DATA NO.
- CONSTRUCTION EASEMENT BOUNDARY

NOTES

1. ELEVATIONS ARE MEAN LOWER LOW WATER (MLLW) DATUM
2. BEARINGS - LAMBERT PROJECTION OF OREGON, SOUTH ZONE
3. ⊙ - MONUMENTS FURNISHED BY OTHER

1/2 SITE PLAN

1" = 40'

RECORD DRWG. 11/83 R.K.

REGISTERED PROFESSIONAL ENGINEER OREGON RICHARD D. KNOX

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

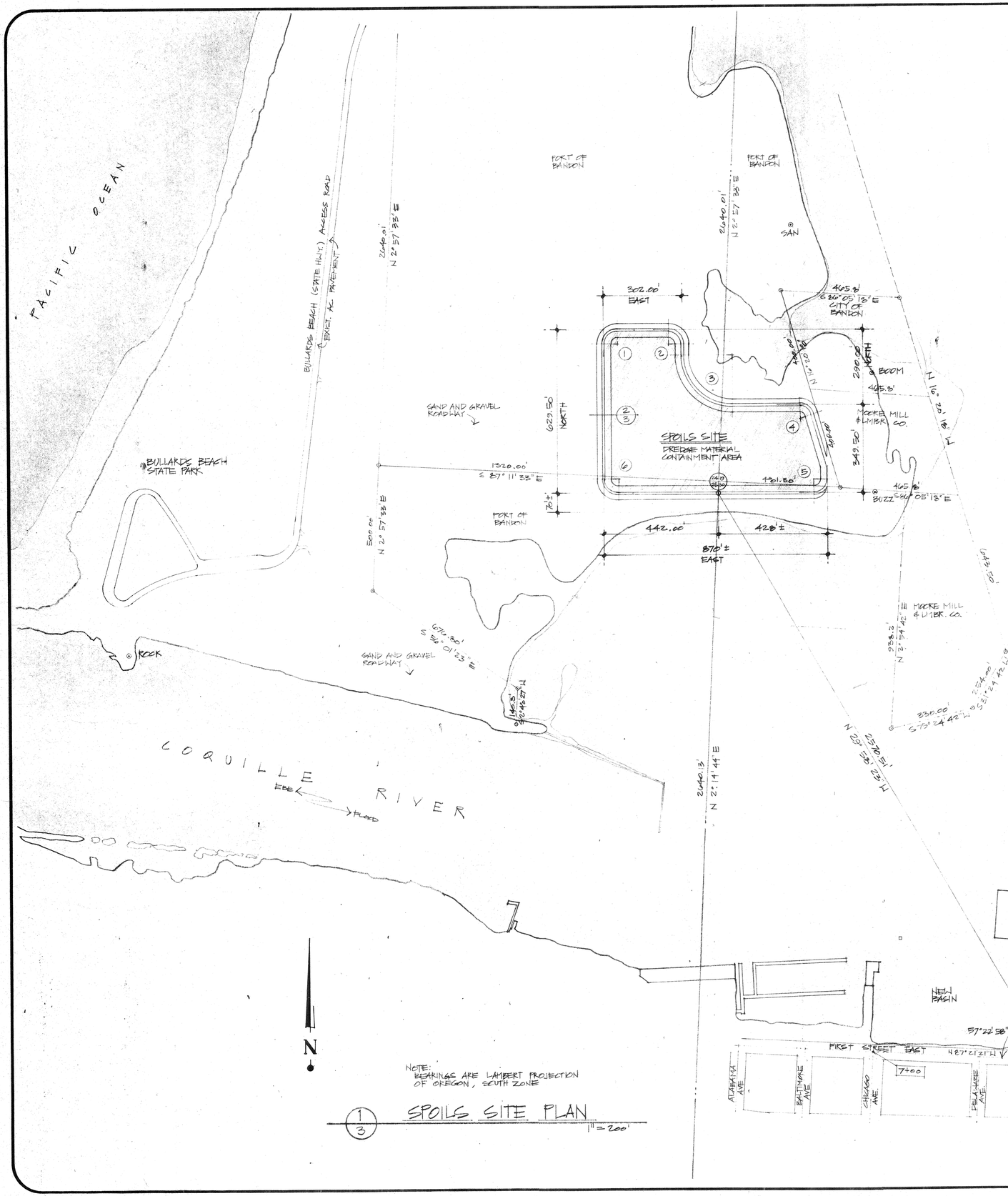
SHEET TITLE: SITE PLAN

PROJECT: PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

PROJECT # 2371
DATE JULY, 1982

SHEET NO. 2

EDA PROJECT NO. 07-01-05512



1/3 SPOILS SITE PLAN
1" = 200'

NOTE:
BEARINGS ARE LAMBERT PROJECTION OF OREGON, SOUTH ZONE

DIKE & CURVE DATA:

(SEE SECTION BELOW)

① Δ = 90° 00' 00"
R = 50.00'
T = 50.00'
L = 78.54'

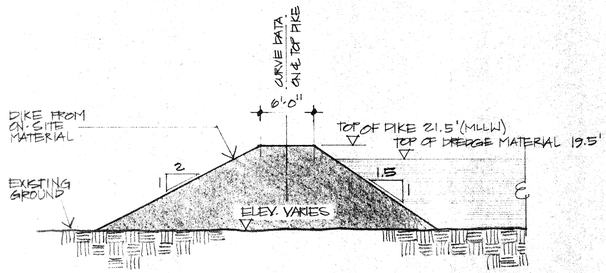
② Δ = 90° 00' 00"
R = 50.00'
T = 50.00'
L = 78.54'

③ Δ = 90° 00' 00"
R = 200.00'
T = 200.00'
L = 314.16'

④ Δ = 73° 39' 42"
R = 50.00'
T = 37.45'
L = 64.28'

⑤ Δ = 90° 00' 00"
R = 50.00'
T = 50.00'
L = 78.54'

⑥ Δ = 90° 00' 00"
R = 50.00'
T = 50.00'
L = 78.54



2/3 SECTION @ DIKE
1/8" = 1'-0"

NOTE: DIKES CONSTRUCTED BUT, SPOILS SITE NOT UTILIZED

RECORD DRWG. 11/83 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE SPOILS SITE

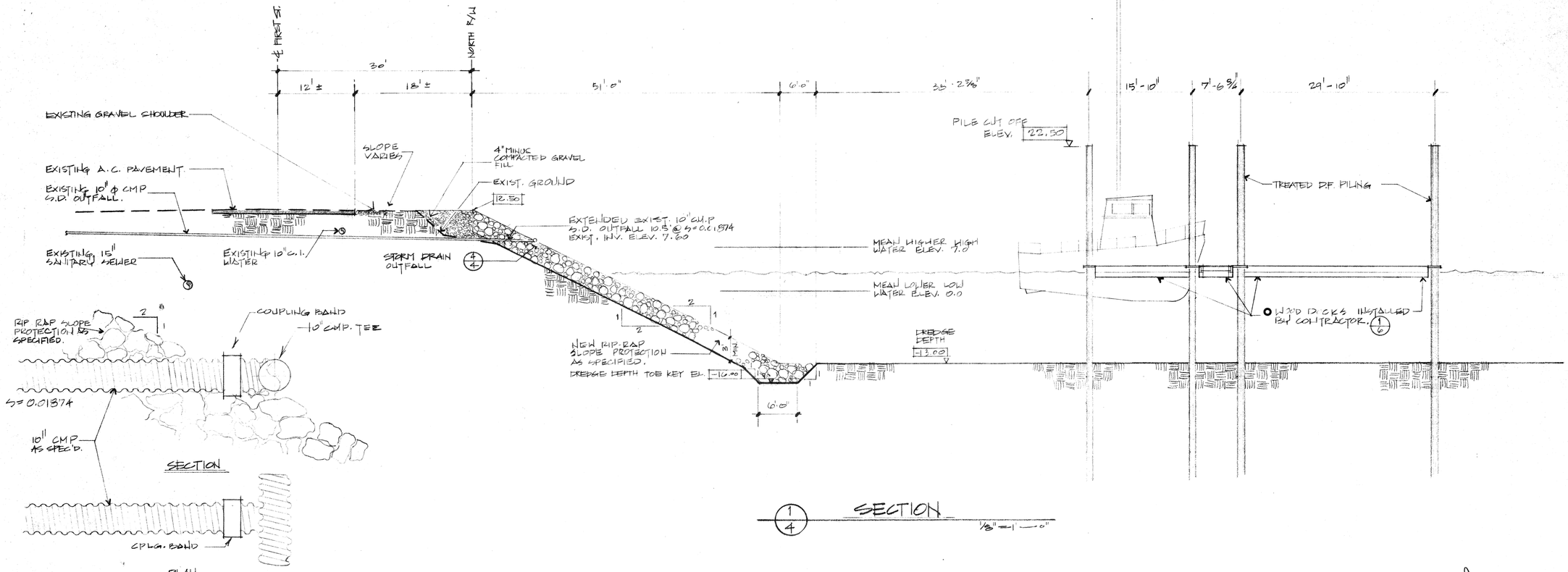
PROJECT PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

PROJECT # 2071
DATE JULY, 1982

SHEET NO. 3 OF

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 1973
RICHARD D. MOREY

KAE ASSOCIATES



O - DENOTES FURNISHED BY OWNER.

RECORD DRWG. 1/83 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Roseburg, Oregon / 1 N. Main Ave. 97470 / (503) 672-1652
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

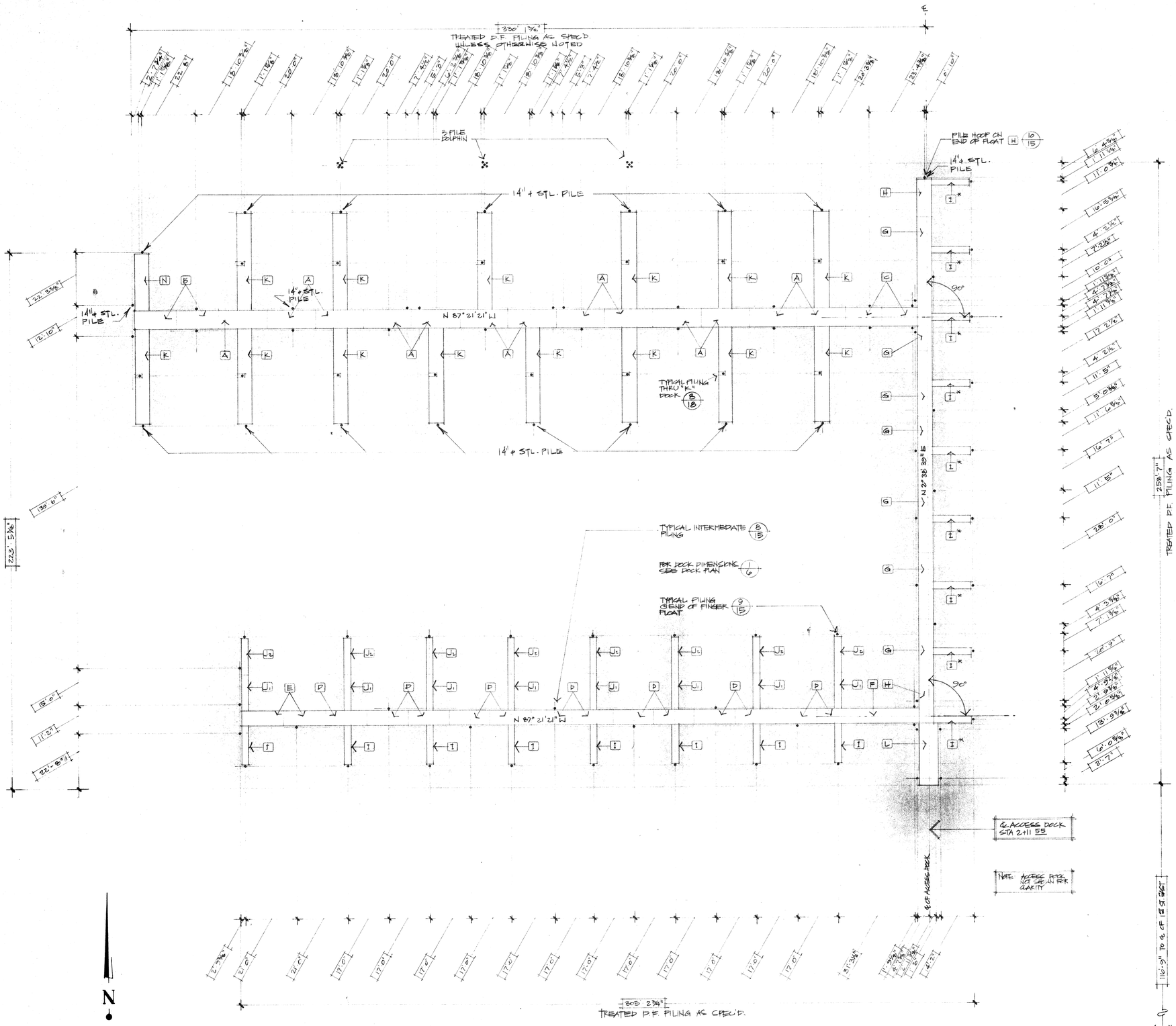
SHEET TITLE: SECTIONS

PROJECT: PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

PROJECT # 2071

DATE JULY, 1982

SHEET NO. 4



PILE SCHEDULE

FLOAT OR PILE DESIGNATION	PILE LENGTH (FT.)	MINIMUM PENETRATION - TIP ELEVATION
A B C K N	32	-29.5
D E F J J₁ I	49	-26.5
G H I*	45	-29.5
L	45	-29.5
5 PILE DOLPHIN	32	-29.5

*EAST BERTHS ONLY - SEE PILING PLAN

NOTES:

1. FLOAT SECTIONS SUPPLIED BY OWNER.
2. BEARING - LAMBERT PROJECTION OF OREGON, SOUTH ZONE

1/5 PILING PLAN

1" = 20'

RECORD DRWG. 1/05 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N.W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

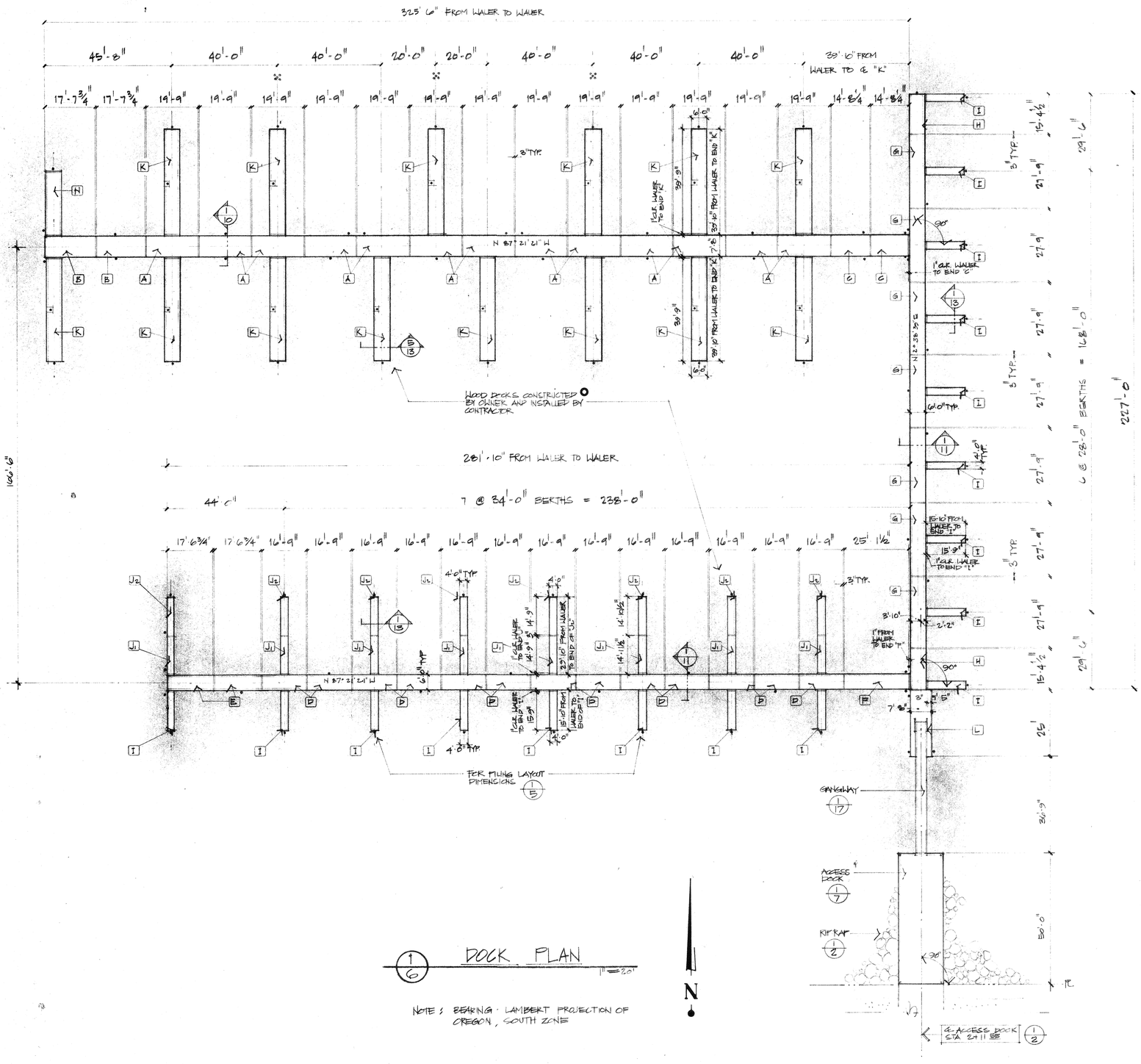
SHEET TITLE: PILING PLAN

PROJECT: PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

PROJECT # 2071

DATE JULY, 1982

SHEET NO. 5



1/6 DOCK PLAN

1" = 20'

NOTE: BEARING - LAMBERT PROJECTION OF OREGON, SOUTH ZONE

N

O - DENOTES FURNISHED BY OWNER

RECORD DRWG. 11/83 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE: DOCK PLAN

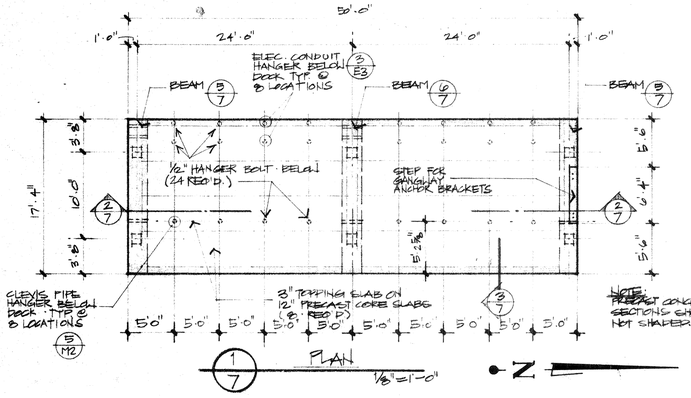
PROJECT: PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

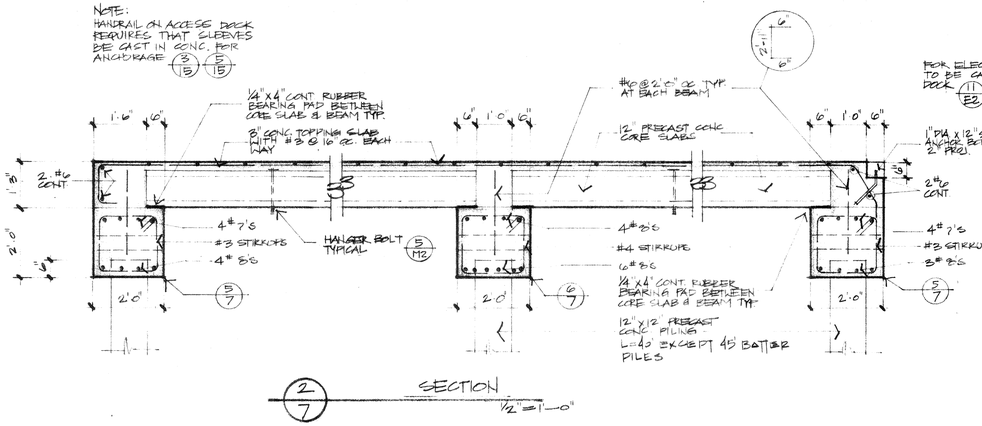
PROJECT # 2071

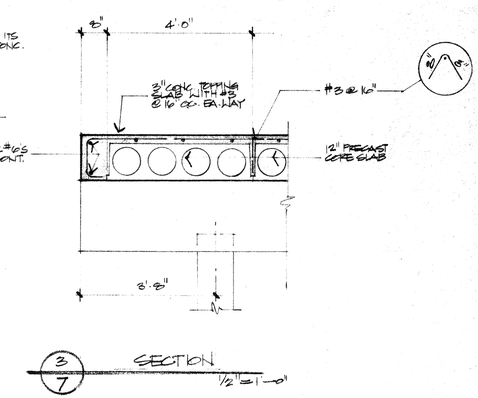
DATE JULY, 1982

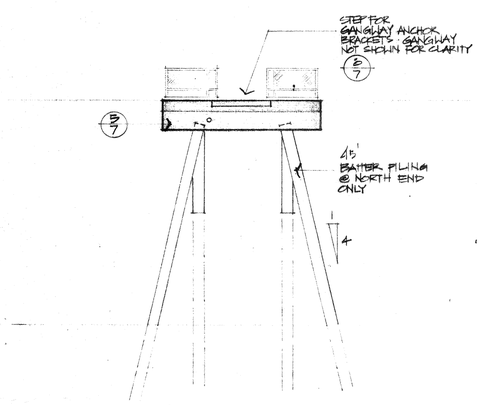
SHEET NO. 6

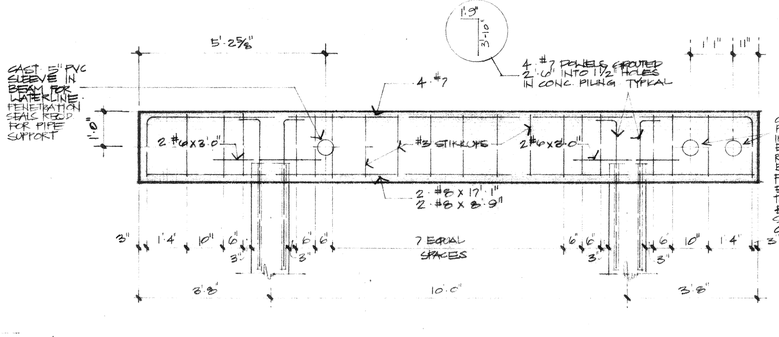
KAE ENGINEERING

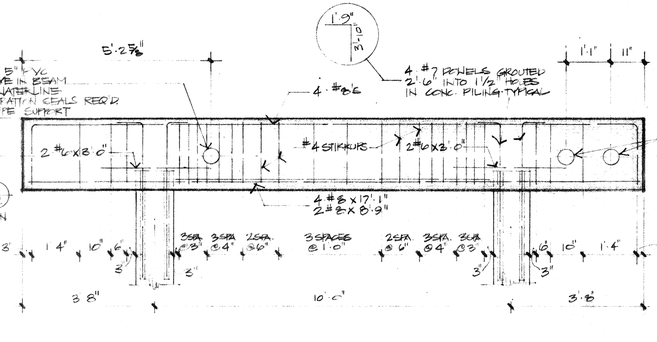




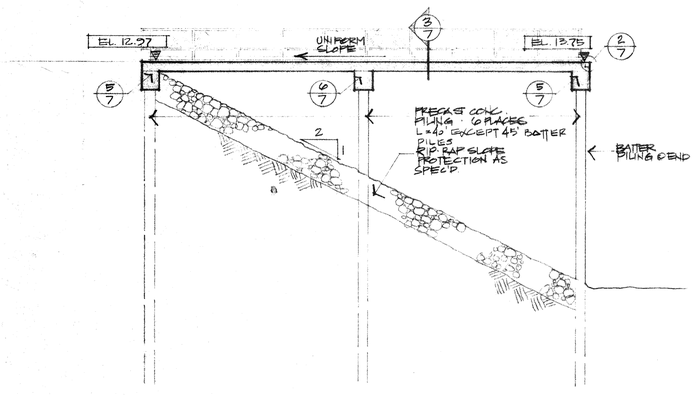




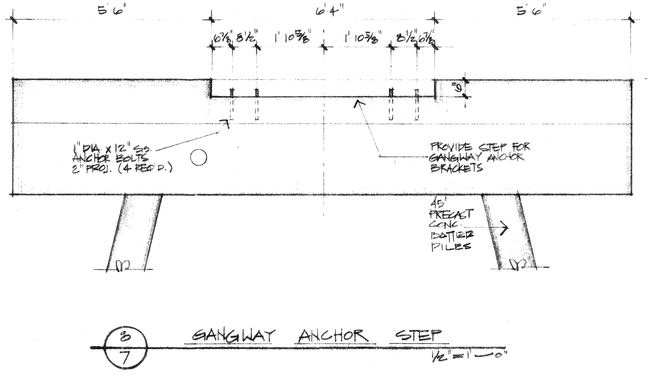


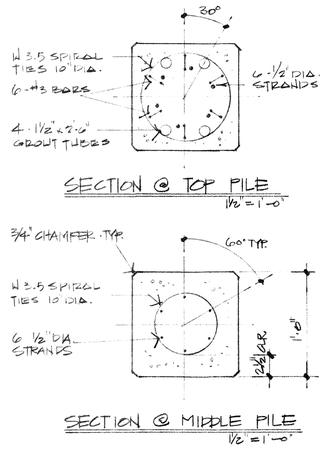


NOTE:
TYPICAL CONCRETE COVERAGE OVER BARS FROM FACE OF CONC TO EDGE OF BAR IS 1 1/2" FOR #3'S AND 2" FOR #4'S AND LARGER

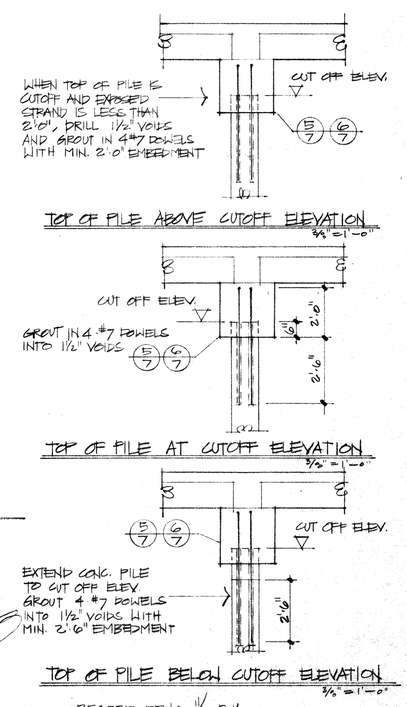


NOTE: ELEV'S ARE MLLW DATUM





PILE CONNECTION DETAILS



RECORD DRWG. 1/83 R.K.

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

SHEET TITLE: ACCESS DOCK PLAN, SECTION AND DETAILS

PROJECT PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

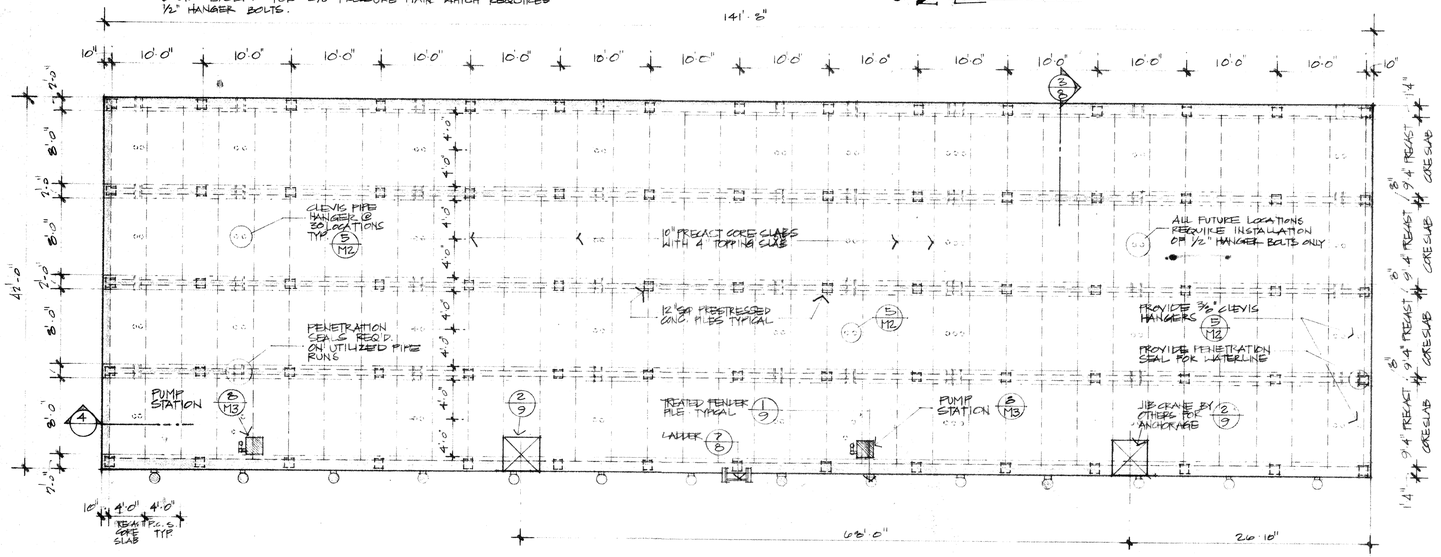
PROJECT # 2071

DATE JULY, 1982

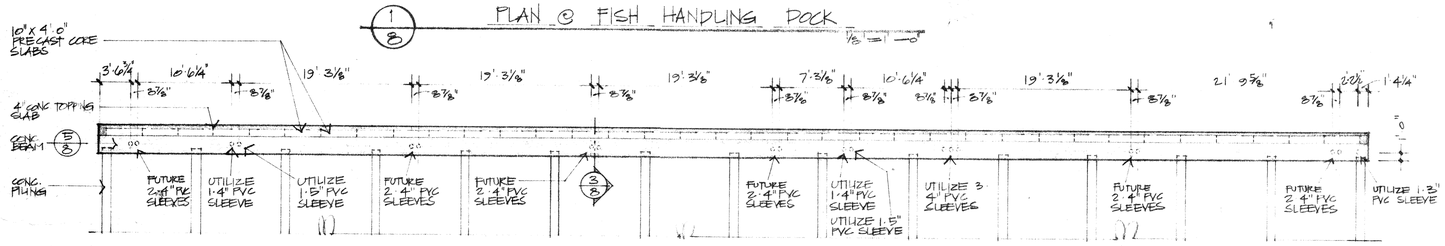
SHEET NO. 7

EDA PROJECT NO. 07-01-02549

NOTE:
HANGER BOLT LOCATIONS ARE SHOWN DOTTED. LOCATIONS TO BE UTILIZED REQUIRE INSTALLATION OF CLEVIS PIPE HANGERS. (5/M2) ALL FUTURE LOCATION REQUIRE INSTALLATION OF ½" HANGER BOLTS ONLY. ALL UTILITY RUNS REQUIRE ⅜" HANGER BOLTS EXCEPT FOR 2½" PRESSURE MAIN WHICH REQUIRES ½" HANGER BOLTS.

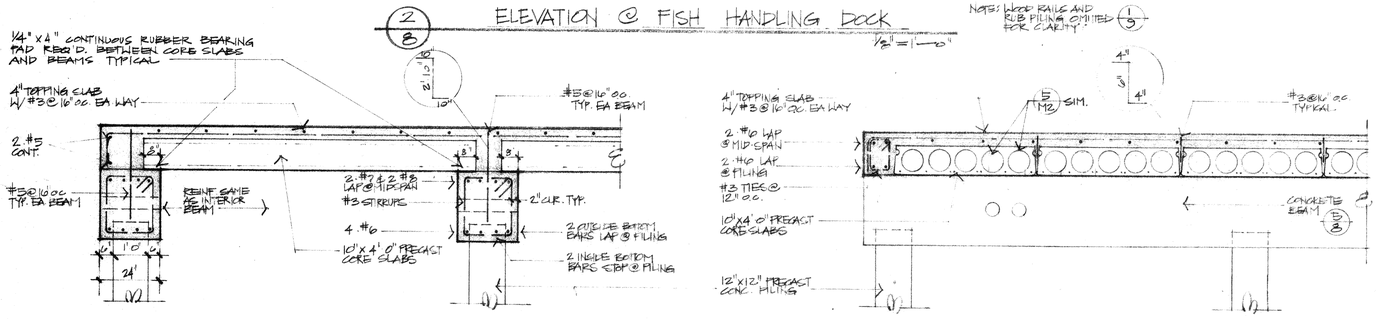


1/8 PLAN @ FISH HANDLING DOCK 1/8"=1'-0"

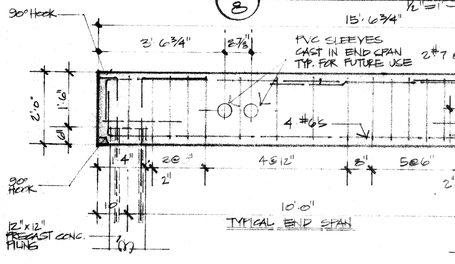


2/8 ELEVATION @ FISH HANDLING DOCK 1/2"=1'-0"

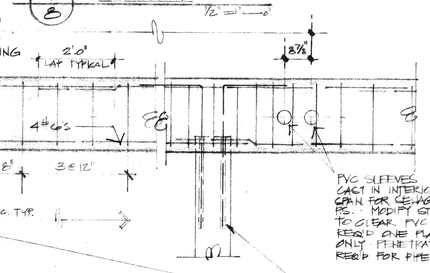
NOTE: WOOD RAILS AND RUB PILING OMITTED (1/9) FOR CLARITY.



3/8 SECTION 1/2"=1'-0"



4/8 SECTION 1/2"=1'-0"



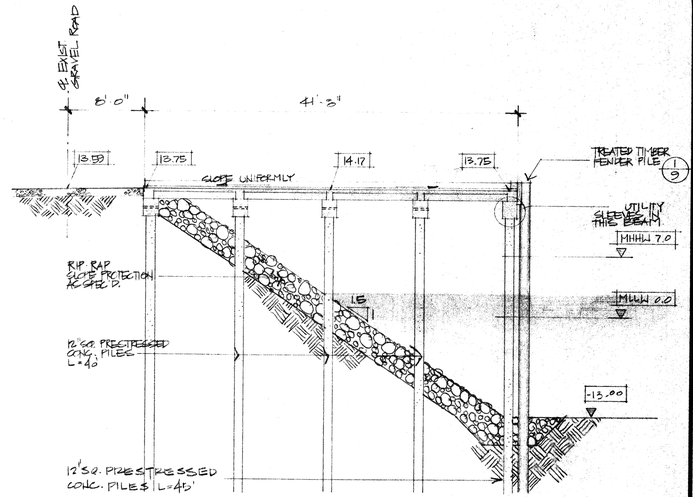
5/8 TYPICAL CONCRETE BEAM 1/2"=1'-0"

NOTE: BEAM REQ'D. 5 PLACES. PVC SLEEVES FOR UTILITIES IN 4 BEAMS ONLY. NO SLEEVES IN EAST BEAM.

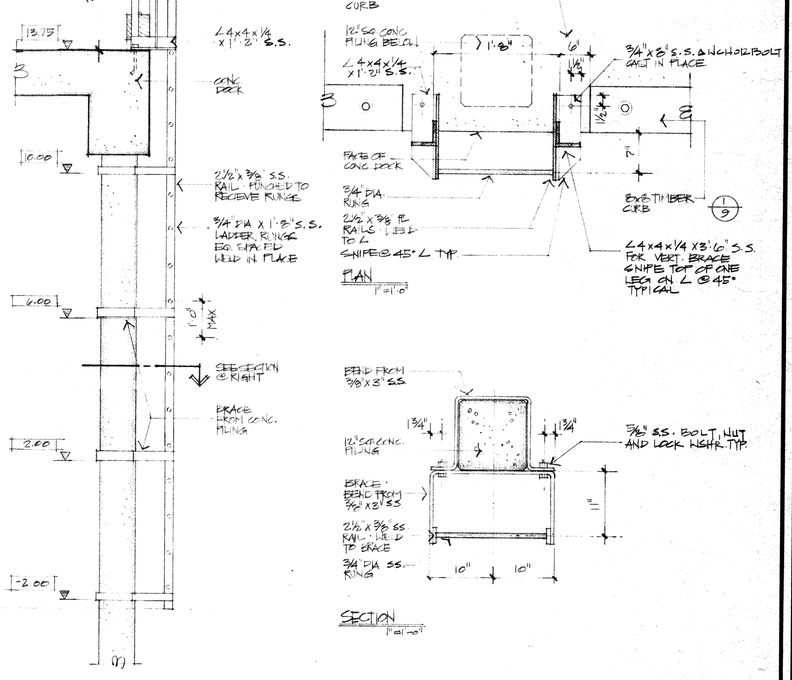
NOTE:
TYPICAL CONCRETE COVERAGES OVER BARS FROM FACE OF CONC. TO EDGE OF BAR IS 1½" FOR #3'S AND 2" FOR #4'S AND LARGER

4-#7 DOWELS GROUTED 2'-0" INTO 11½" HOLES IN CONC. PILING TYPICAL

O PIPING FURNISHED BY OWNER



6/8 SECTION @ FISH HANDLING DOCK 1/8"=1'-0"



7/8 LADDER DETAILS AS SHOWN

NOTE: ELEV'S. ARE MLLW DATUM

RECORD DRWG. 11/83 R.K.

REGISTERED PROFESSIONAL ENGINEER OREGON RICHARD D. BURDEN

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE: FISH HANDLING DOCK

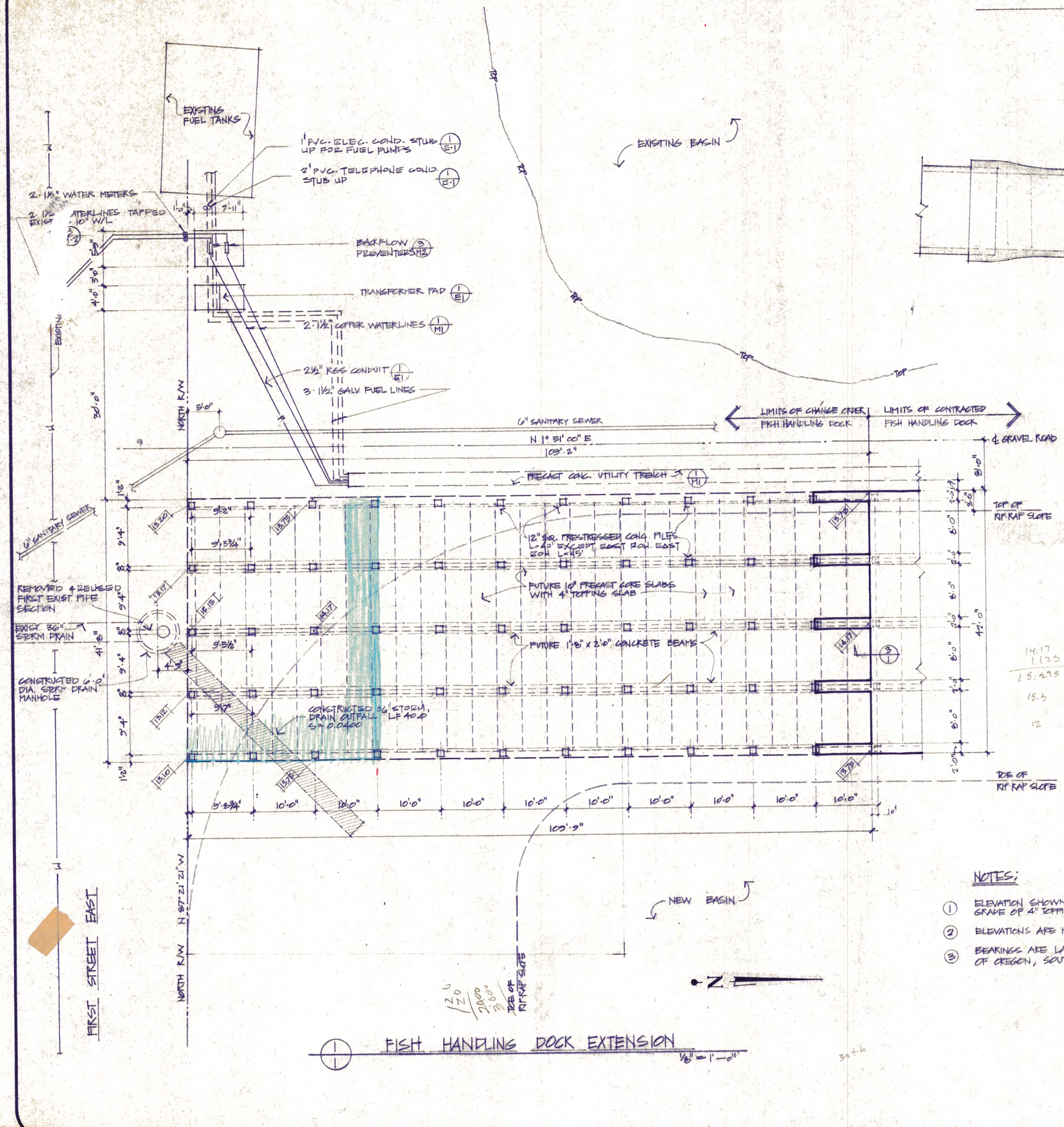
PROJECT: PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

PROJECT # 2071

DATE: JUL-Y, 1982

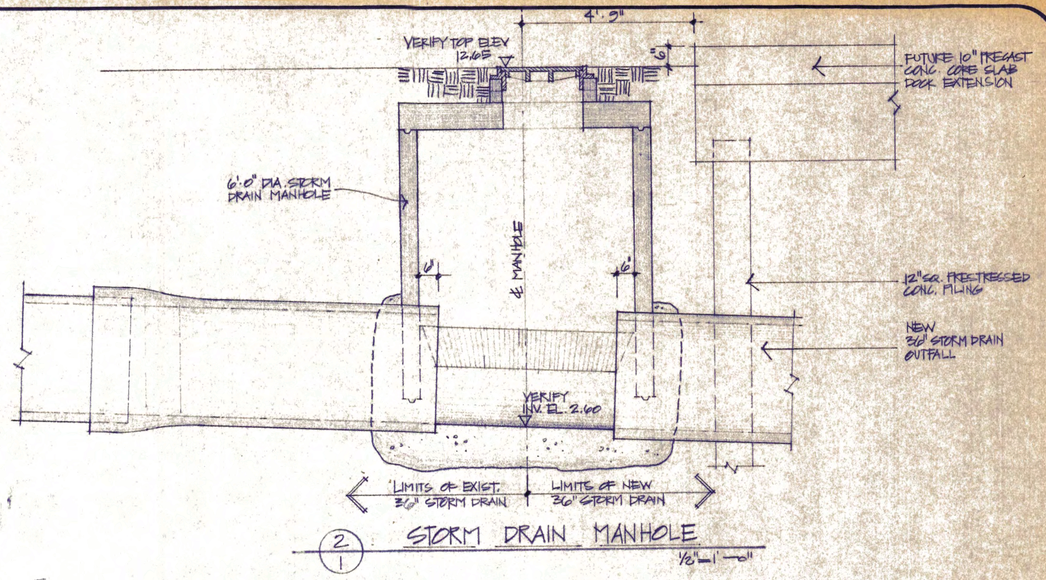
SHEET NO. 8

K&E CRYSTALOID



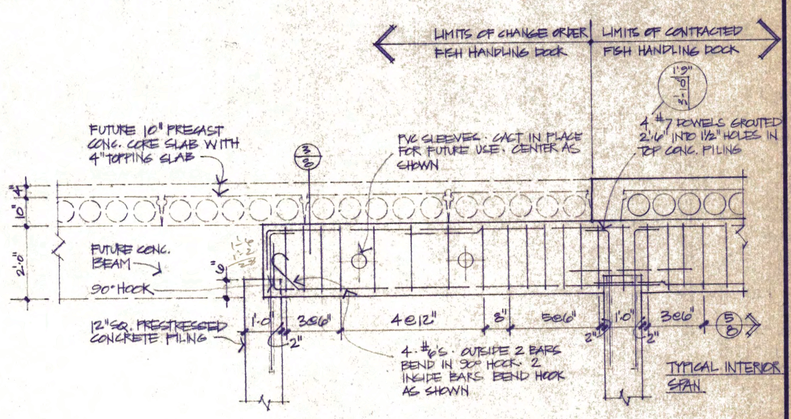
FISH HANDLING DOCK EXTENSION

1/8" = 1'-0"



STORM DRAIN MANHOLE

1/2" = 1'-0"



SECTION @ F.H. DOCK CONNECTION

1/2" = 1'-0"

NOTES:

1. ELEVATION SHOWN 13.75' ARE FINISH GRADE OF 4" TOPPING SLAB.
2. ELEVATIONS ARE MLLW DATUM.
3. BEARINGS ARE LAMBERT PROJECTION OF OREGON, SOUTH ZONE.

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1986 RICHARD D. NORICH

RECORD DRWG 1/83 R.K.
REVISED STORM DRAIN LOCATION AND DETAIL - 1-12-83

EDA PROJECT NO. 07-01-02549

HGE INC

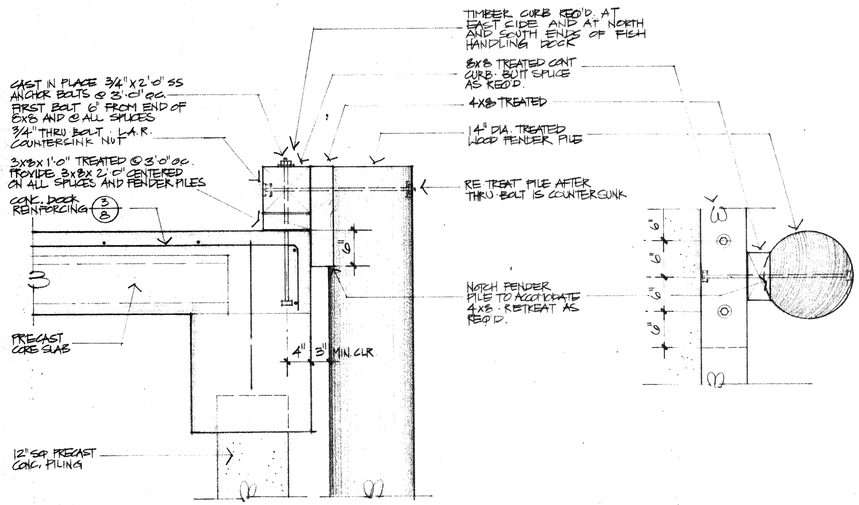
HGE INC/ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 319 S.W. 5th Ave. 97204 / (503) 227-1927
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

SHEET TITLE: FISH HANDLING DOCK EXTENSION

PROJECT: PORT OF BANDON
CORVILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

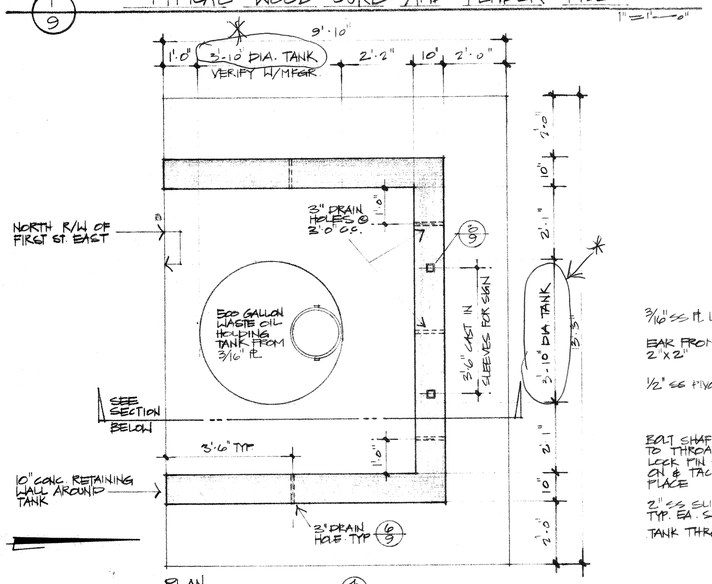
PROJECT # 2071A
DATE JAN. 1983

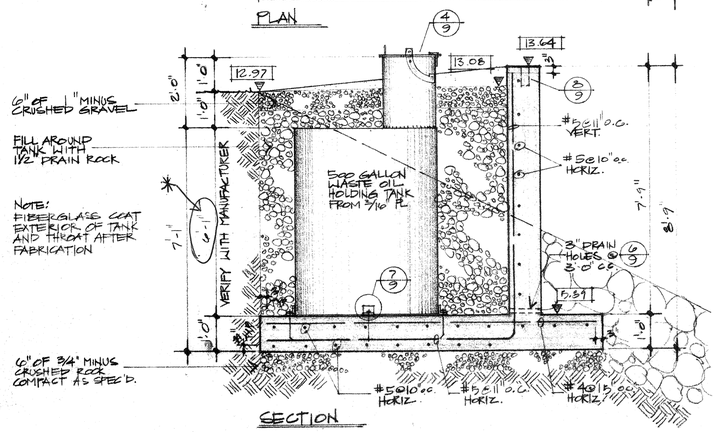
SHEET NO. 8A OF



(1/9) TYPICAL WOOD CURB AND FENDER PILE

1" = 1'-0"

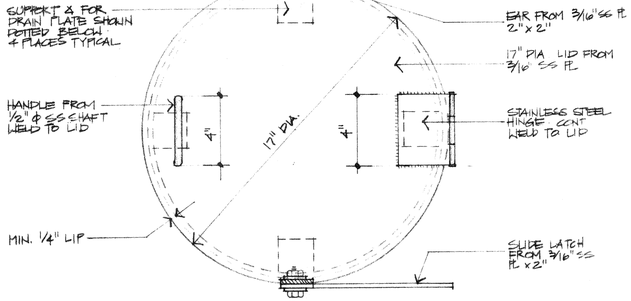


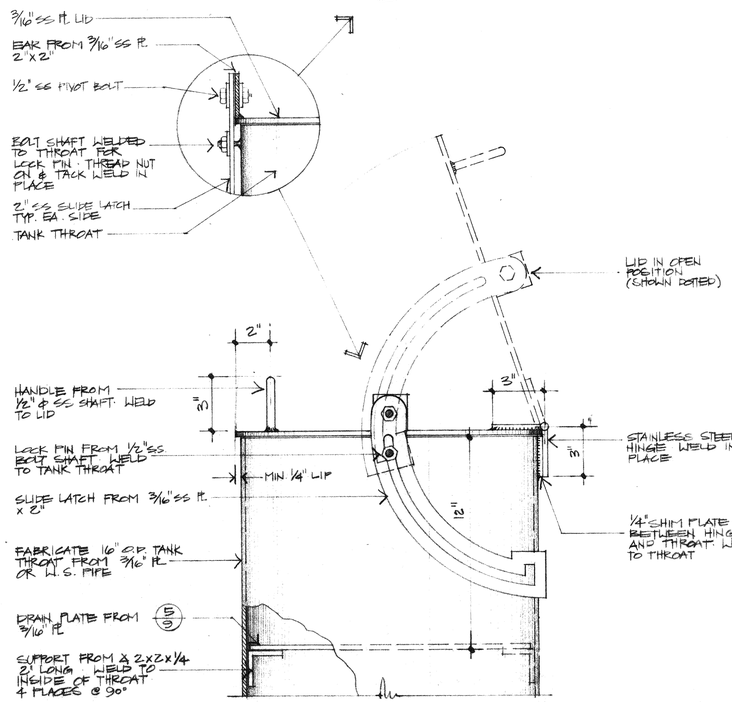


(3/9) WASTE OIL HOLDING TANK

NOTE: ELEVS. ARE MLLW DATUM

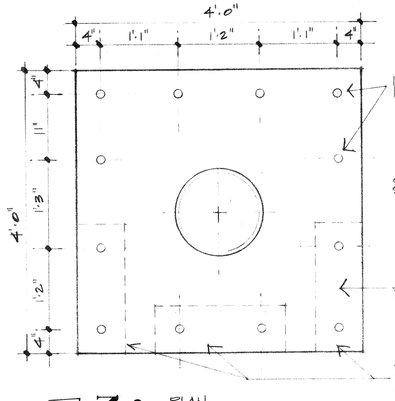
1/2" = 1'-0"

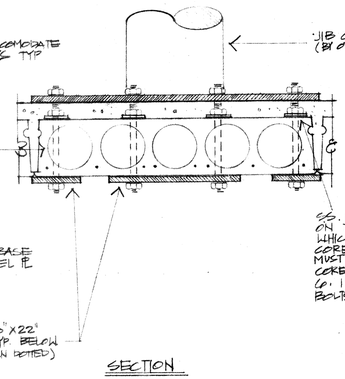


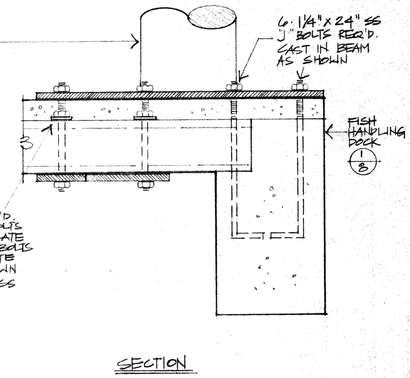


(4/9) HOLDING TANK THROAT

3" = 1'-0"





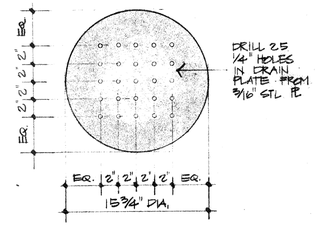


SECTION

SECTION

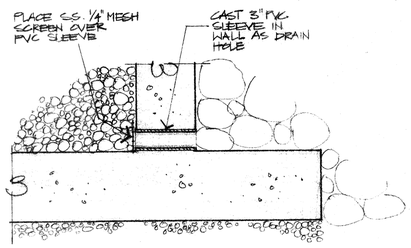
(2/9) JIB CRANE BASE

1" = 1'-0"



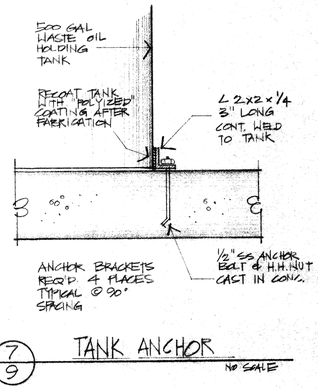
(5/9) DRAIN PLATE

1 1/2" = 1'-0"



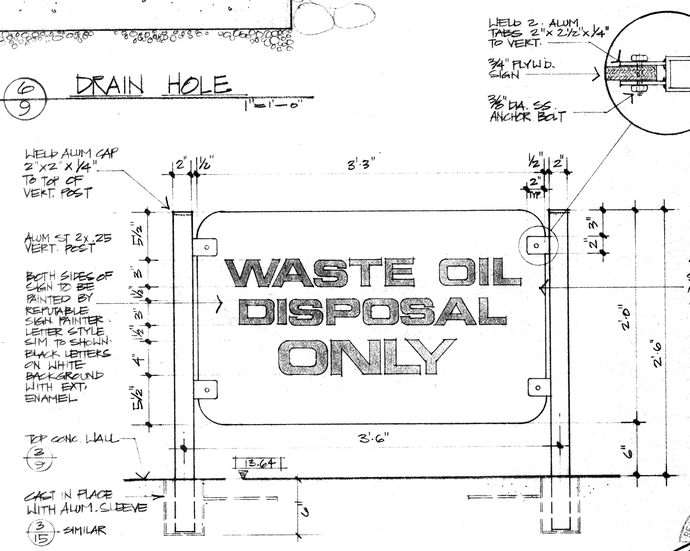
(6/9) DRAIN HOLE

1" = 1'-0"



(7/9) TANK ANCHOR

NO SCALE



(8/9) WASTE OIL SIGN

RECORD DRWG. "AS B.U.K."

1 1/2" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER OREGON DEC. 31, 1981 RICHARD D. HOYER

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE: WASTE OIL HOLDING TANK AND DETAILS

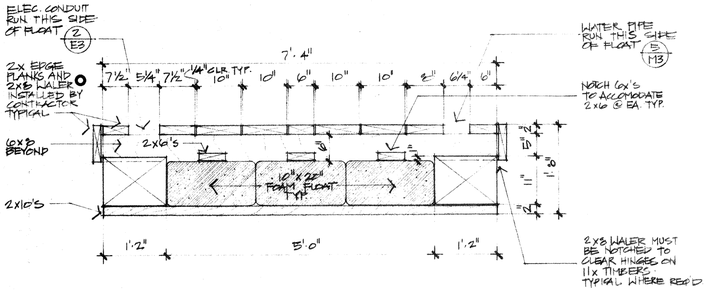
PROJECT: PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

PROJECT # 2971

DATE: JULY, 1982

SHEET NO. 9

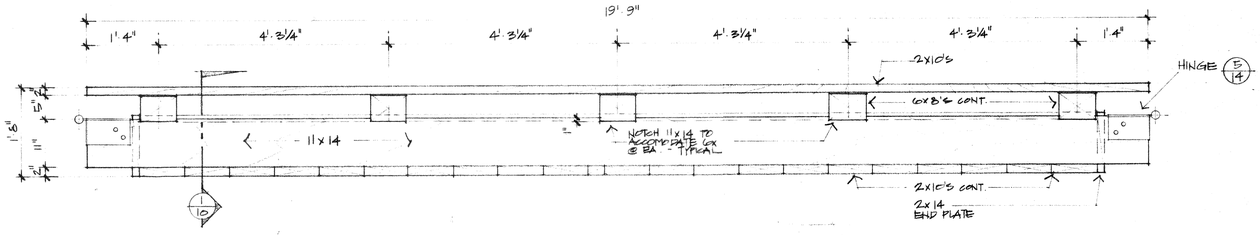
EDA PROJECT NO. 07-01-02549



1/10 SECTION @ FLOATS

NOTE: TYPICAL VIEW @ FLOATS A, B, & C

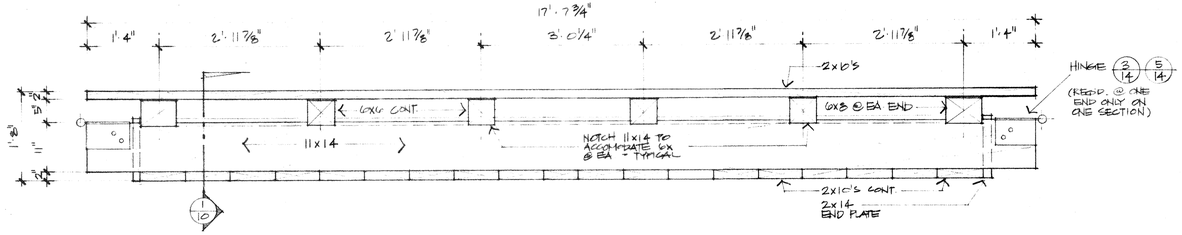
3/4"=1'-0"



2/10 ELEVATION @ FLOAT A

3/4"=1'-0"

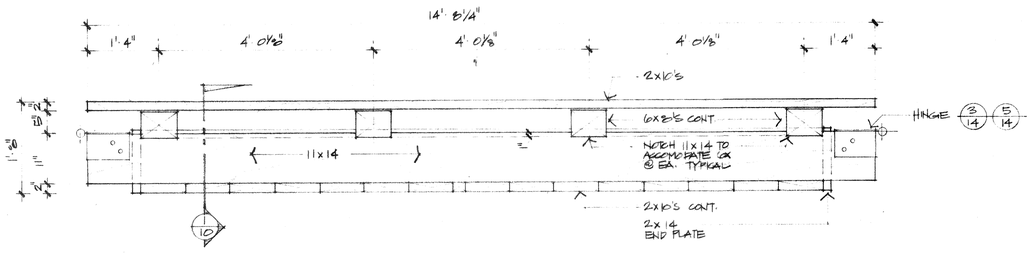
NOTE: 2x8 WALER OMITTED FOR CLARITY



3/10 ELEVATION @ FLOAT B

3/4"=1'-0"

NOTE: 2x8 WALER OMITTED FOR CLARITY



4/10 ELEVATION @ FLOAT C

3/4"=1'-0"

NOTE: 2x8 WALER OMITTED FOR CLARITY

O - DENOTES FURNISHED BY OWNER

RECORD DRWG. 11/05 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

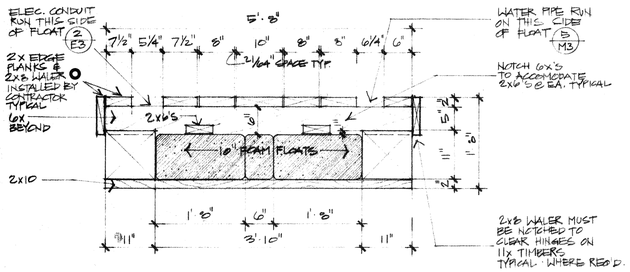
SHEET TITLE: FLOAT SECTIONS AND ELEVATIONS

PROJECT: PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

PROJECT # 2071

DATE JULY, 1982

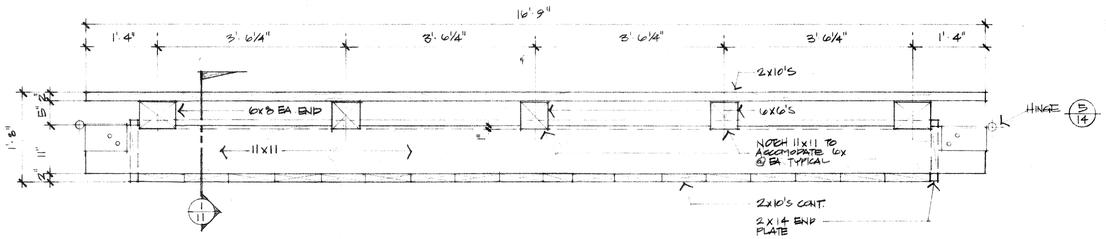
SHEET NO. 10



1/11 SECTION @ FLOATS

NOTE: TYPICAL VIEW @ FLOATS D E F G AND H

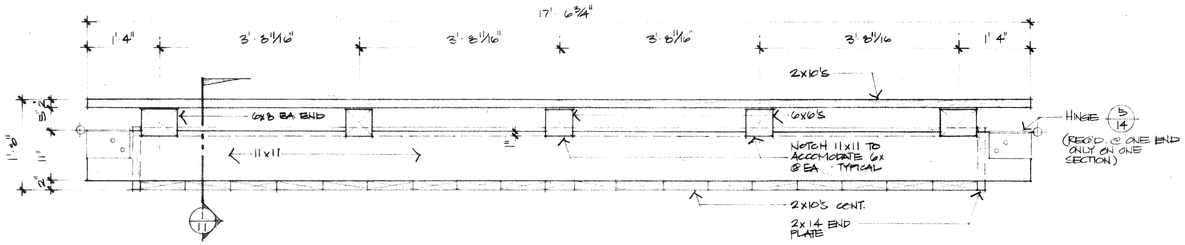
3/4"=1'-0"



2/11 ELEVATION @ FLOAT D

NOTE: 2x8 WALER OMITTED FOR CLARITY

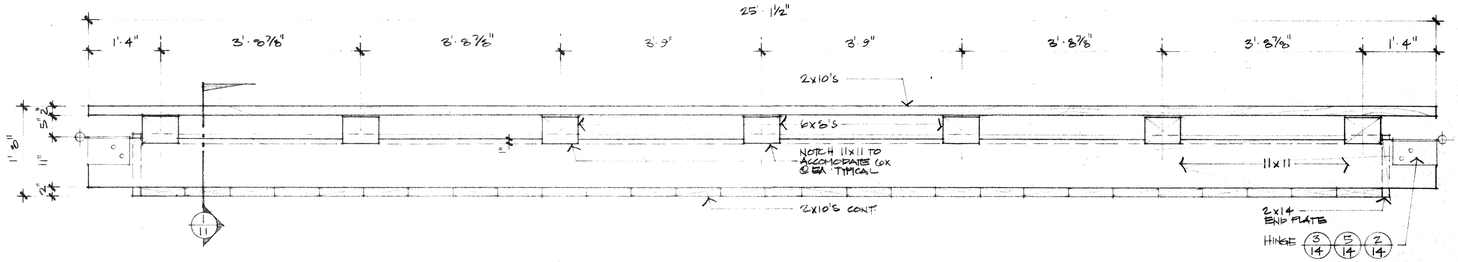
3/4"=1'-0"



3/11 ELEVATION @ FLOAT E

NOTE: 2x8 WALER OMITTED FOR CLARITY

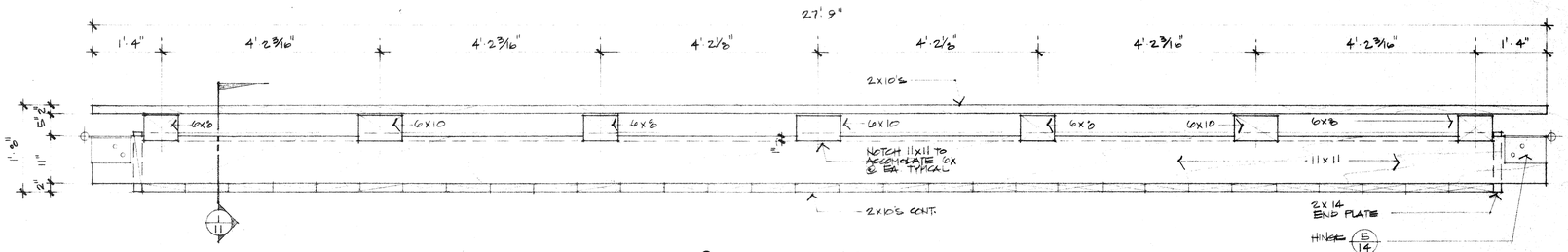
3/4"=1'-0"



4/11 ELEVATION @ FLOAT F

NOTE: 2x8 WALER OMITTED FOR CLARITY

3/4"=1'-0"



5/11 ELEVATION @ FLOAT G

NOTE 2x8 WALER OMITTED FOR CLARITY

3/4"=1'-0"

O - DENOTES FURNISHED BY OWNER

RECORD DRWG. 1/03 R.K.

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1997 RICHARD D. NORTH

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

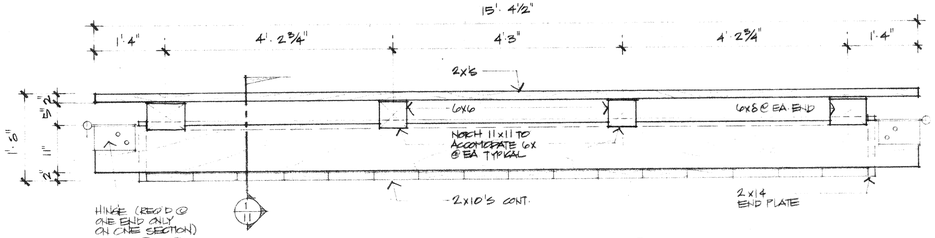
SHEET TITLE: FLOAT SECTIONS AND ELEVATIONS

PROJECT: PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

PROJECT # 2071

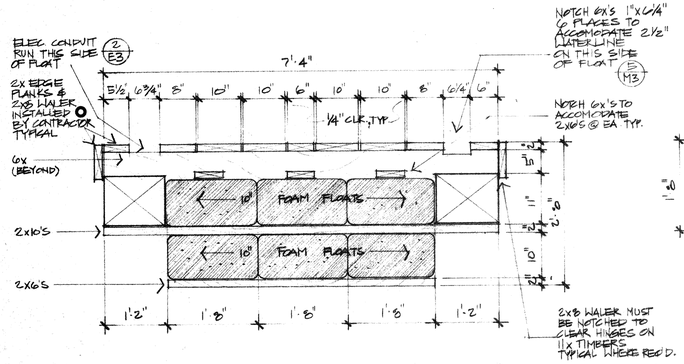
DATE JULY, 1996

SHEET NO. 11

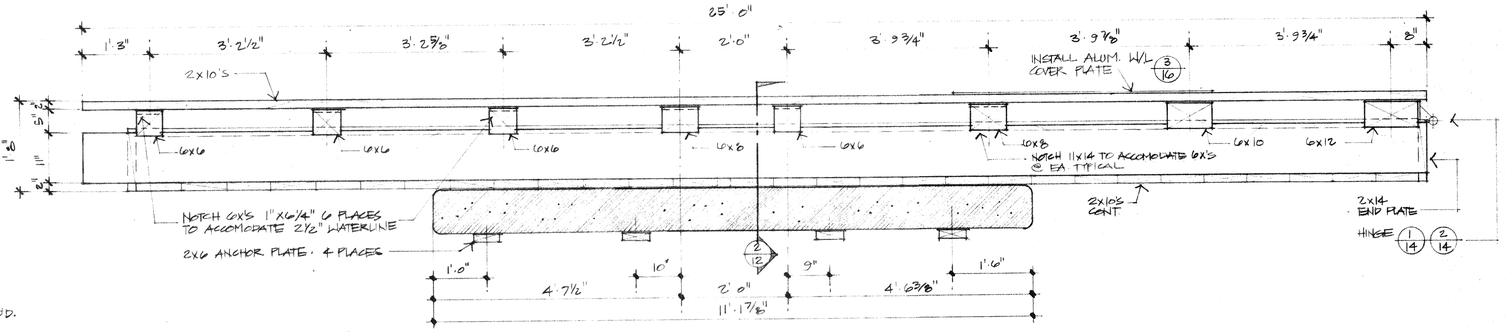


1/12 ELEVATION @ FLOAT [H] 3/4"=1'-0"

NOTE: 2x8 WALER OMITED FOR CLARITY

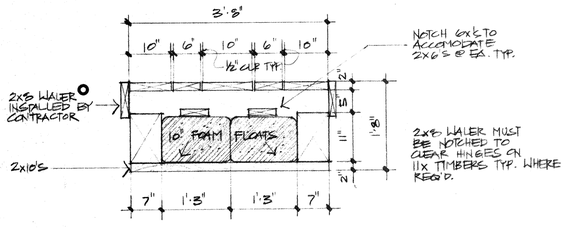


2/12 SECTION @ FLOAT [L] 3/4"=1'-0"



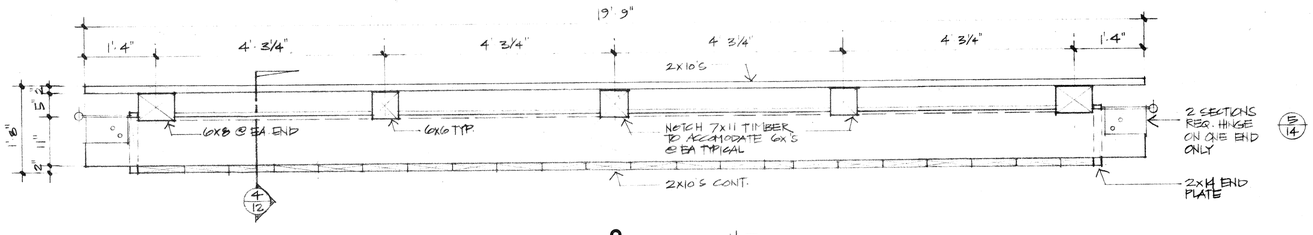
3/12 ELEVATION @ FLOAT [L] 3/4"=1'-0"

NOTE 2x8's WALER OMITED FOR CLARITY



4/12 SECTION @ FLOAT [M] 3/4"=1'-0"

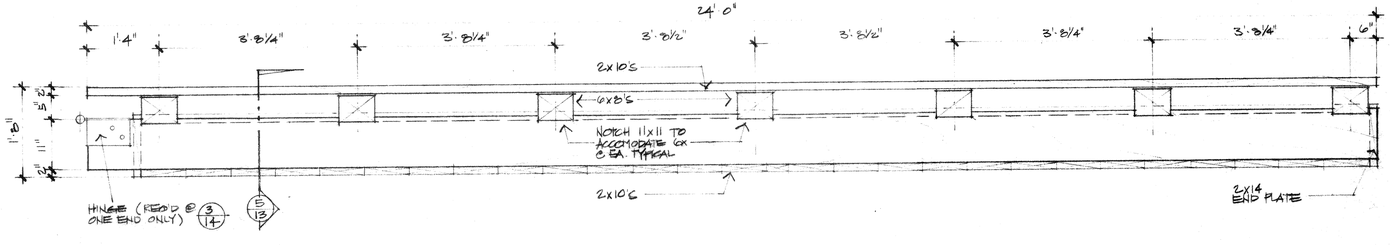
DELETED



5/12 ELEVATION @ FLOAT [M] 3/4"=1'-0"

NOTE: 2x8 WALER OMITED FOR CLARITY

DELETED



6/12 ELEVATION @ FLOAT [N] 3/4"=1'-0"

NOTE: 2x8 WALER OMITED FOR CLARITY

O- DENOTES FURNISHED BY OWNER

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1989 RICHARD D. NOPED

RECORD DRWG. 11/99 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1186
Portland, Oregon / 19 N.W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

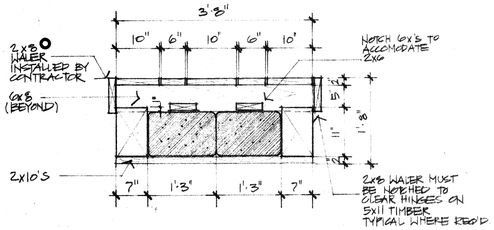
SHEET TITLE FLOAT ELEVATIONS AND SECTIONS

PROJECT PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

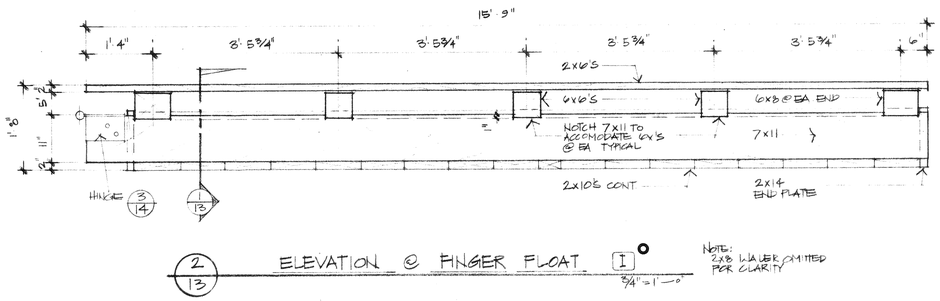
PROJECT # 2071

DATE JULY, 1992

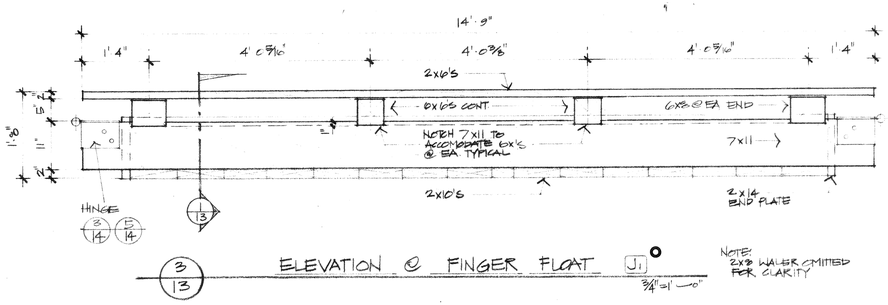
SHEET NO. 12



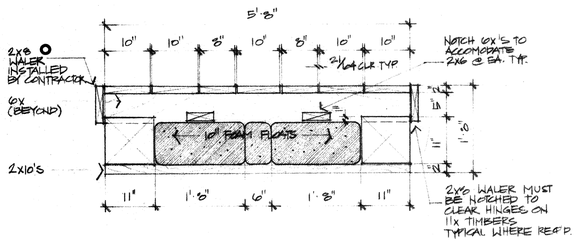
1/13 SECTION @ FINGER
TYP. @ FINGERS I J1 J2
3/4"=1'-0"



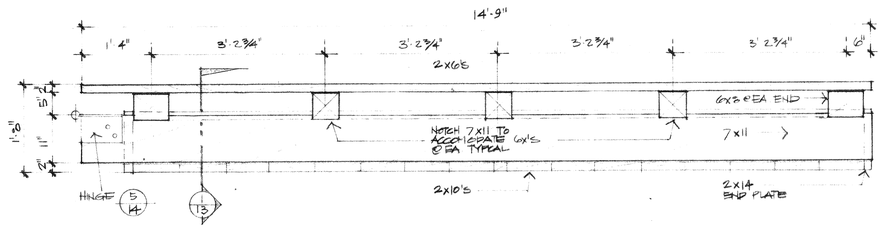
2/13 ELEVATION @ FINGER FLOAT I
3/4"=1'-0"
NOTE: 2x8 WALER OMITTED FOR CLARITY



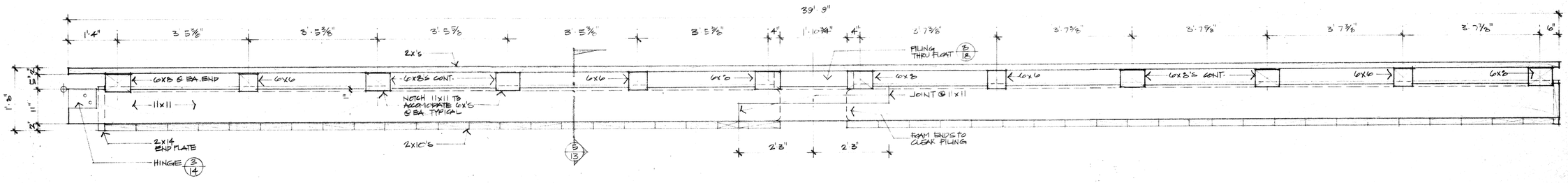
3/13 ELEVATION @ FINGER FLOAT J1
3/4"=1'-0"
NOTE: 2x8 WALER OMITTED FOR CLARITY



3/13 SECTION @ FINGER
TYP. @ FINGER K AND N
3/4"=1'-0"



4/13 ELEVATION @ FINGER FLOAT U2
3/4"=1'-0"



6/13 ELEVATION @ FINGER FLOAT K
3/4"=1'-0"
NOTE: 2x8 WALER OMITTED FOR CLARITY

O - DENOTES FURNISHED BY OWNER

RECORD DRWG. 1/93 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th. Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

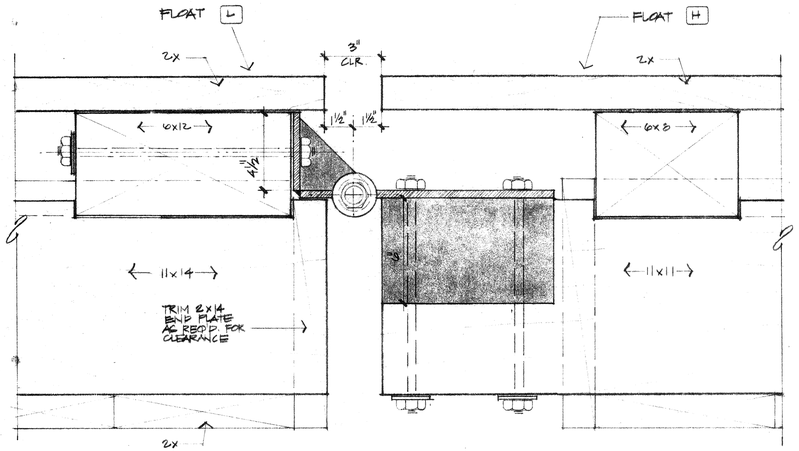
SHEET TITLE: FLOAT SECTIONS AND ELEVATIONS

PROJECT: PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

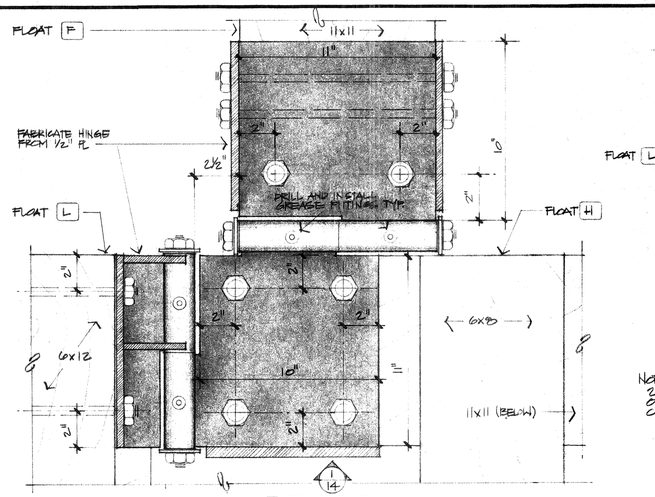
PROJECT # 2071

DATE JULY, 1992

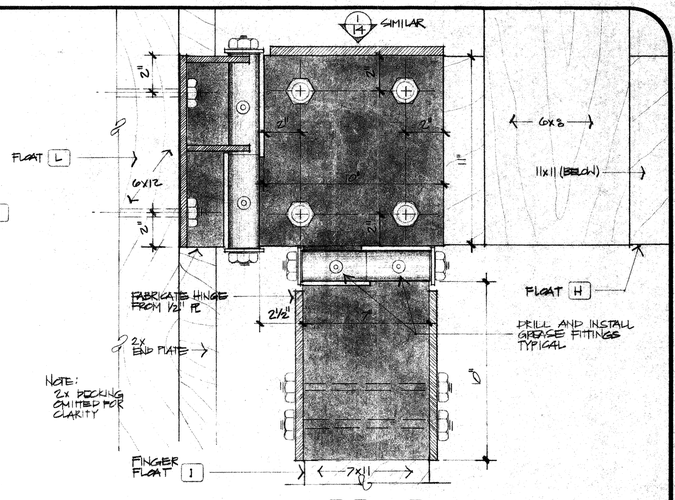
SHEET NO. 13



1/14 ELEVATION @ HINGE 1 — ALTERNATE "A" SHOWN — 3"=1'-0"

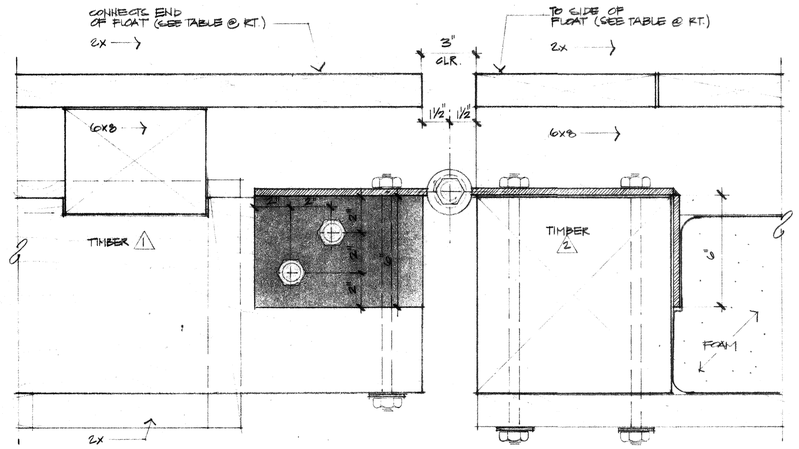


ALTERNATE A: CONNECTS FLOATS L H AND F (1 REQ'D.)

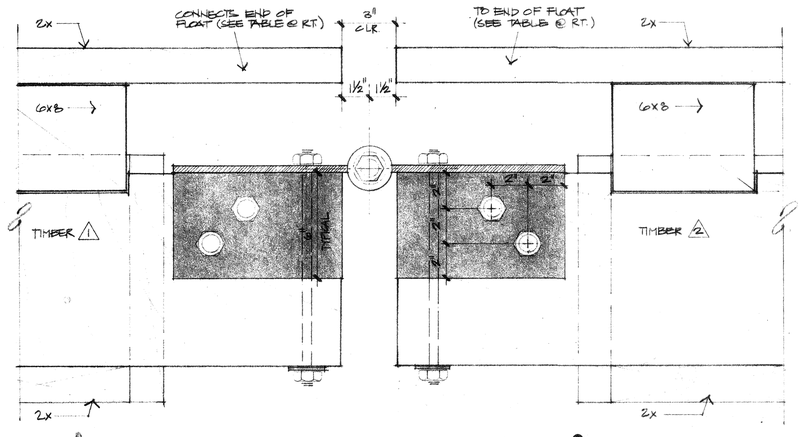


ALTERNATE B: CONNECTS FLOATS L H AND J (1 REQ'D.)

2/14 PLAN @ HINGE 1 — 3"=1'-0"



3/14 ELEVATION @ HINGE 3 4 5 — 3"=1'-0"



5/14 ELEVATION @ HINGE 6 7 8 — 3"=1'-0"

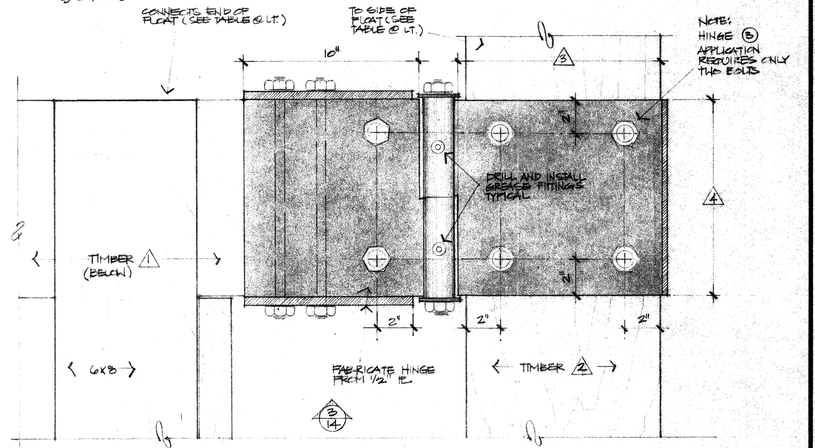
HINGE NO.	2	3	4	5
CONNECTS END OF FLOAT	PELLETED SEE HINGE 1/15	I J	C	K N
TO SIDE OF FLOAT		D E G H	G	A
TIMBER 1		7 x 11	11 x 14	11 x 11
TIMBER 2		11 x 11	11 x 11	11 x 14
DIMEN. 3		11½"	11½"	14½"
DIMEN. 4		7"	14"	11"

FLOAT TABLE

NOTES:
1) ALL HINGES USE 1" DIA. STOCK FOR HINGE PIVOT BOLT LENGTHS VARY. ALL THRU BOLTS FOR ANCHORING HINGE TO FLOAT ARE FROM ⅝" DIA STOCK WITH A 2" DIA WASHER TYPICAL. 2 NUTS ARE REQ'D. WITH EA. PIVOT BOLT AND THRU BOLT
2) ALL HINGES TO BE FABRICATED BY OWNER
3) ALL FLOATS A THRU N TO BE CONSTRUCTED BY OWNER AND INSTALLED BY CONTRACTOR

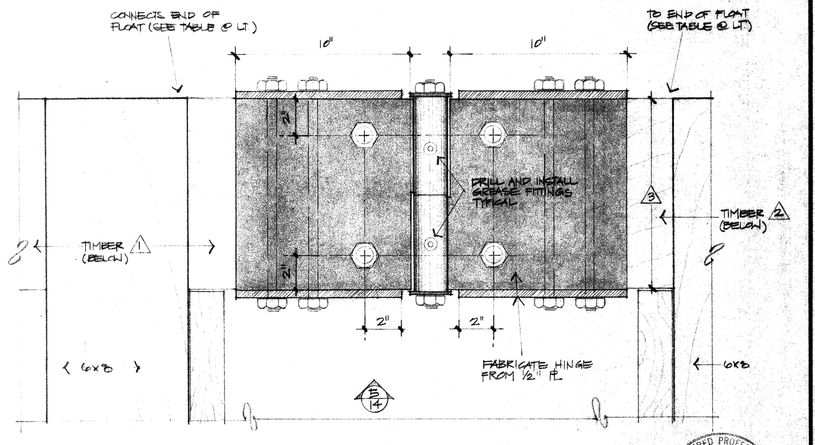
HINGE NO.	6	7	8
CONNECTS END OF FLOAT	D E G	J1 M	A B C L
TO END OF FLOAT	D E F G H	J2 M	A B C
TIMBER 1	11 x 11	7 x 11	11 x 14
TIMBER 2	11 x 11	7 x 11	11 x 14
DIMEN. 3	11"	7"	14"
△			

FLOAT TABLE



4/14 PLAN @ HINGE 3 4 5 — 3"=1'-0"

NOTE: REFER TO FLOAT TABLE @ LT FOR ALTERNATES. 2X DECK. OMITTED FOR CLARITY



6/14 PLAN @ HINGE 6 7 8 — 3"=1'-0"

NOTES: HINGE 6 SHOWN · REFER TO TABLE @ LEFT FOR ALTERNATES. 2X DECKING OMITTED FOR CLARITY. RECORD DRWG. 1/83 B.K.

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 31, 1979 RICHARD D. NOREEN

O — PENCILS FURNISHED BY OWNER.

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE: HINGE DETAILS

PROJECT: PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

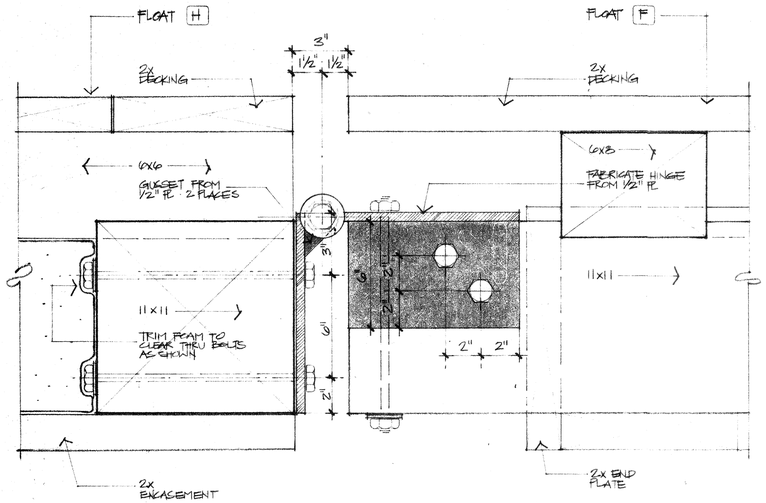
PROJECT # 2271

DATE JULY, 1982

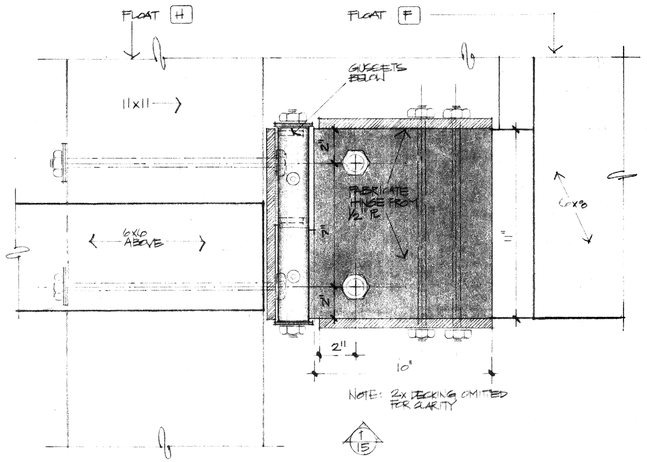
SHEET NO. 14

K&E

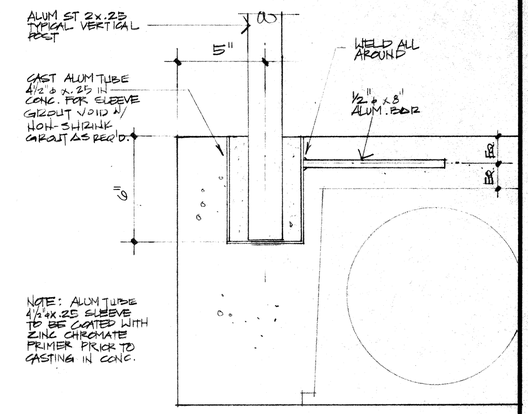
EDA PROJECT NO. 07-01-02549



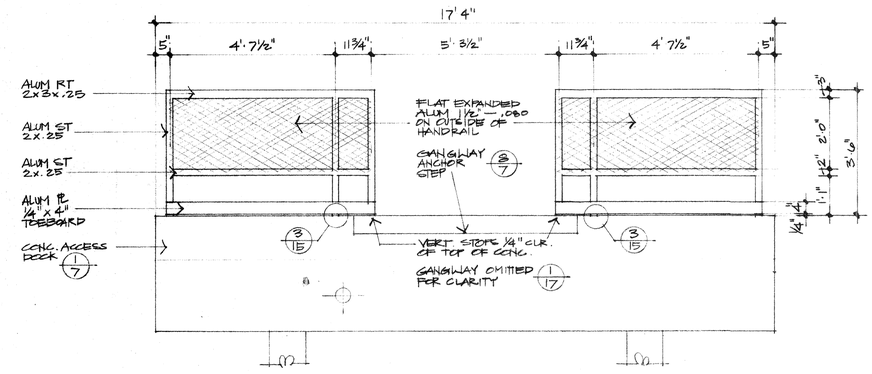
1/15 ELEVATION @ HINGE 9
NOTE: THIS APPLICATION REQ'D. 1 PLACE ONLY. 3"=1'-0"



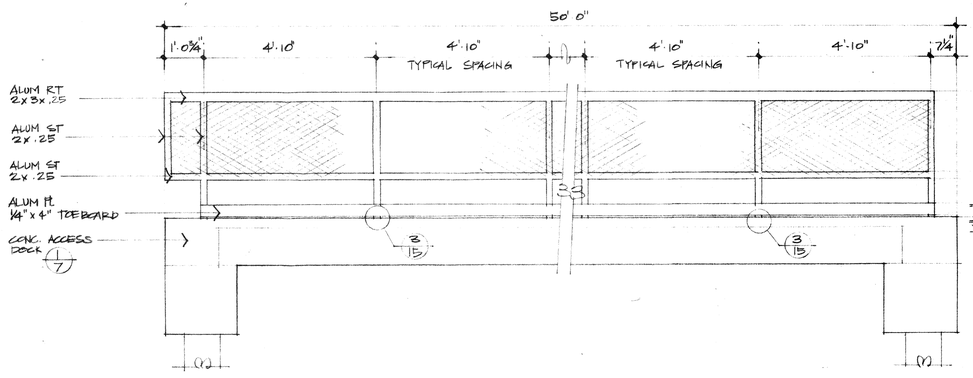
2/15 PLAN @ HINGE 9
3"=1'-0"



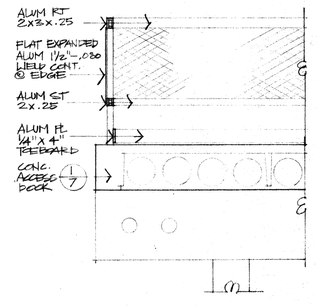
3/15 HANDRAIL ANCHOR
3"=1'-0"



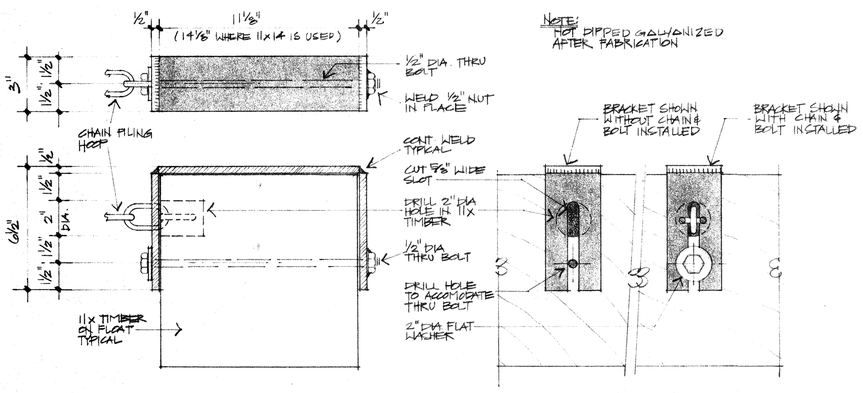
4/15 HANDRAIL ELEVATION @ ACCESS DOCK
½"=1'-0"



5/15 HANDRAIL ELEVATION @ ACCESS DOCK
½"=1'-0"

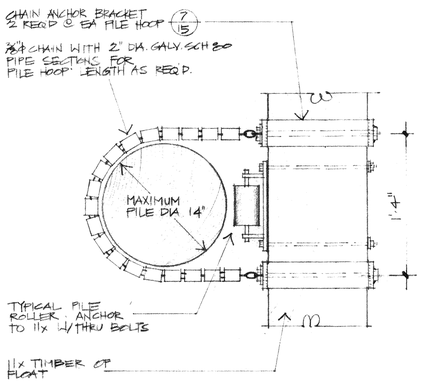


6/15 SECTION
½"=1'-0"

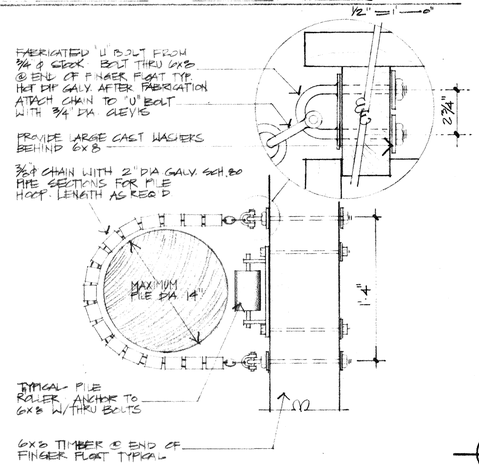


INSTALLATION PROCEDURE:
1) PLACE END OF CHAIN IN 2" DIA HOLE DRILLED IN 11x TIMBER.
2) SLIP BRACKET IN PLACE AS SHOWN. ALIGN SECOND CHAIN LINK IN ⅝" SLOT AS BRACKET SLIDES IN PLACE.
3) INSTALL THRU BOLT WITH WASHER, THRU BRACKET AND 11x TIMBER. TIGHTEN BOLT.

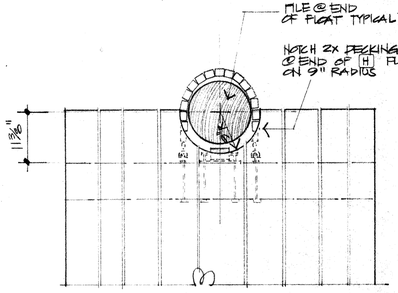
7/15 CHAIN ANCHOR BRACKET
3"=1'-0"



8/15 TYPICAL PILING HOOP
½"=1'-0"



9/15 PILE HOOP @ FINGER FLOAT
1½"=1'-0"



10/15 PILE HOOP @ END OF FLOAT H
(1 APPLICATION ONLY) ¾"=1'-0"

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1978 RICHARD D. NOJECH

RECORD DRWG. 1/33 R.K.

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 319 S.W. 5th Ave. 97204 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0864

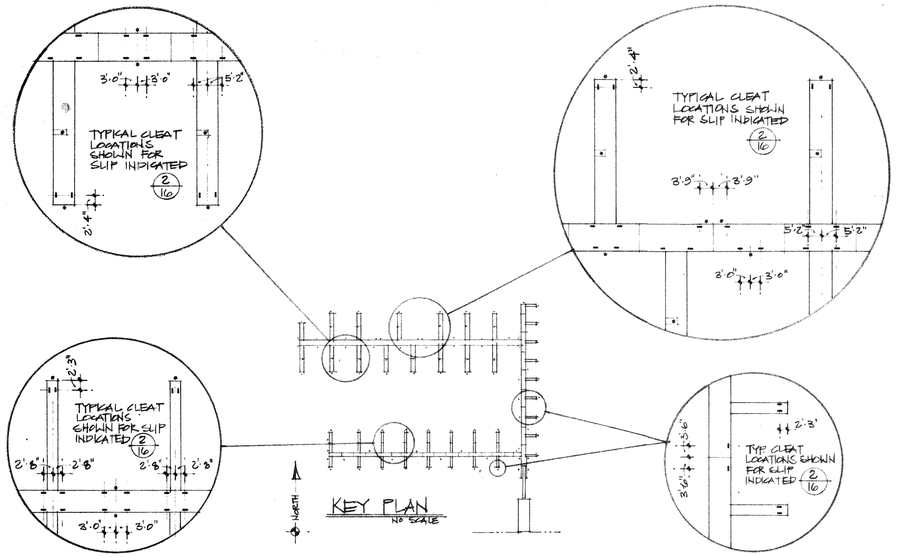
HGE INC

SHEET TITLE
DETAILS

PROJECT PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

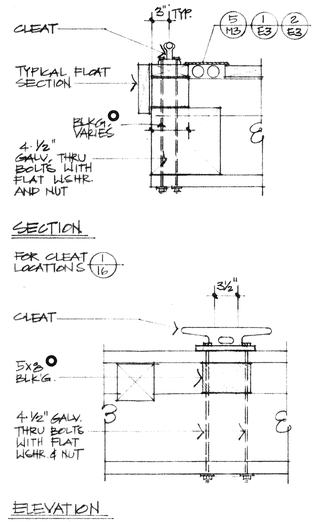
PROJECT # 2071
DATE July, 1978

SHEET NO. 15



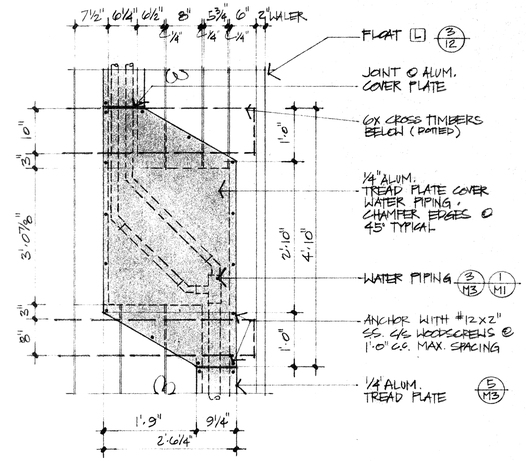
1/16 CLEAT LOCATIONS

DETAILS @ 1" = 20'



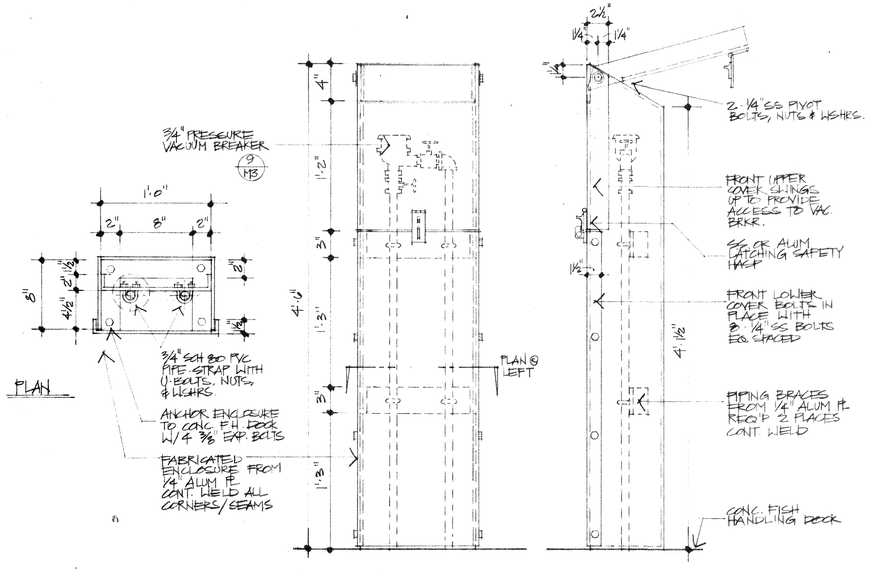
2/16 TYPICAL CLEAT

1" = 1'-0"



3/16 WATERLINE COVER PLATE

3/4" = 1'-0"



4/16 VACUUM BREAKER ENCLOSURE

2 REQ'D. 1 1/2" = 1'-0"

O — DENOTES FURNISHED BY OWNER

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1967 RICHARD D. NORELL

RECORD DRWG. 11/83 R.K.
REVISED 8-10-82 RLB

EDA PROJECT NO. 07-01-02548

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

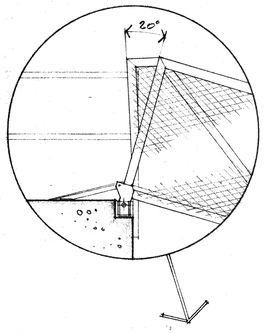
SHEET TITLE DETAILS

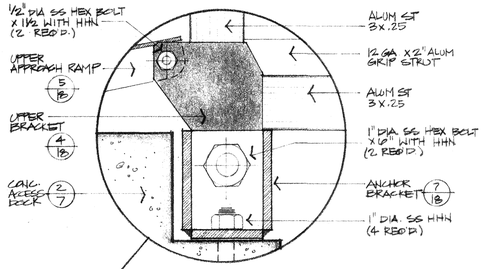
PROJECT PORT OF BANDON
CORUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

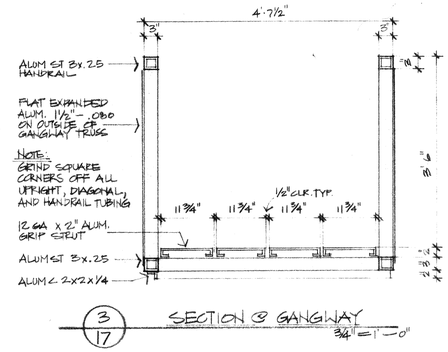
PROJECT # 2271
DATE JULY, 1982

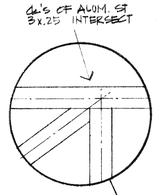
SHEET NO. 16 OF

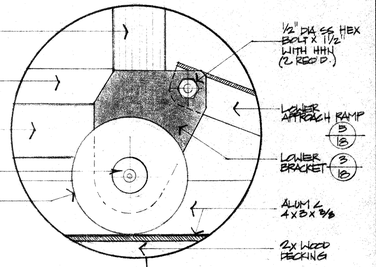
K&E

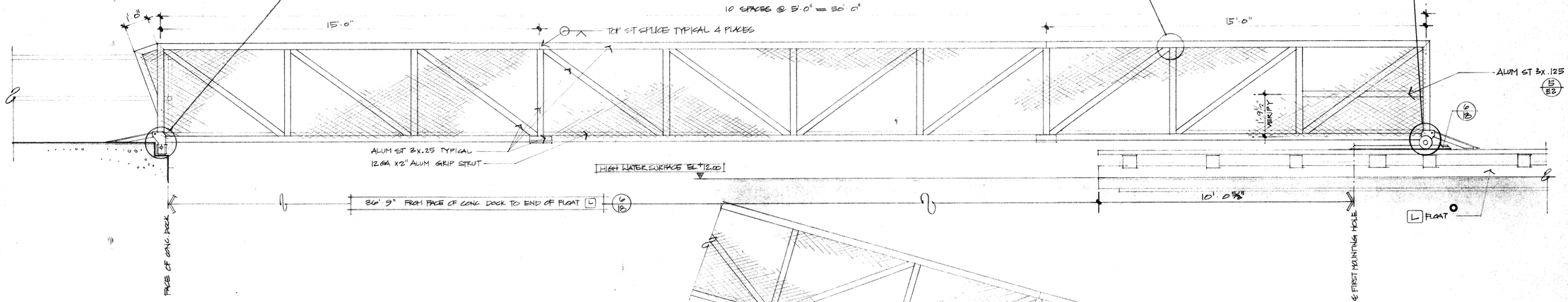


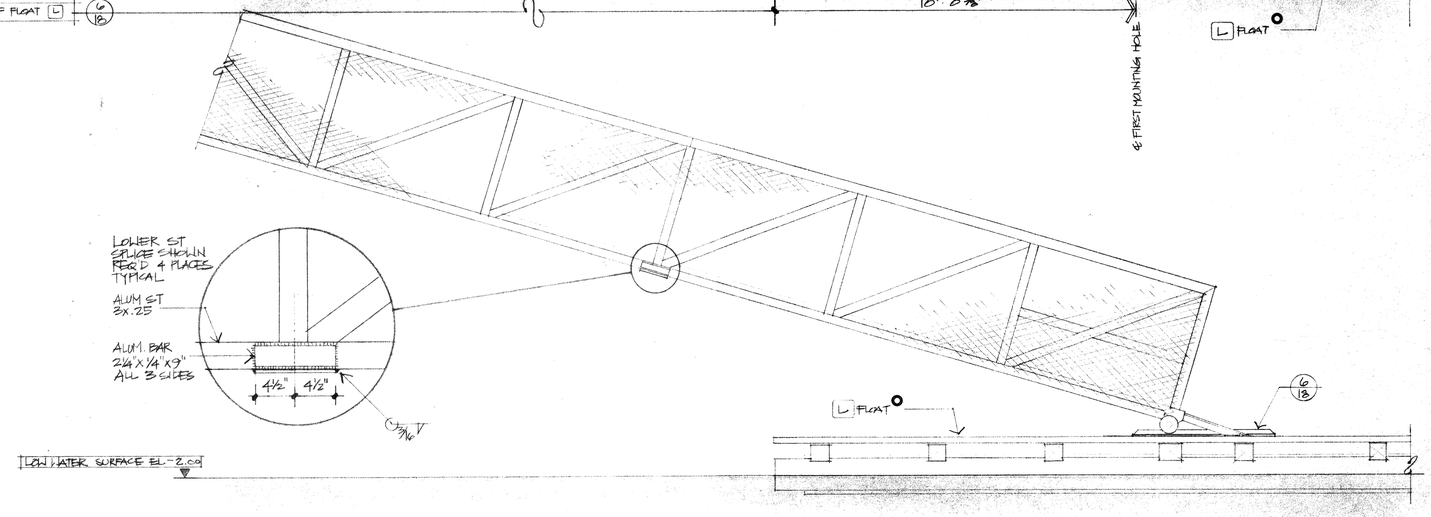




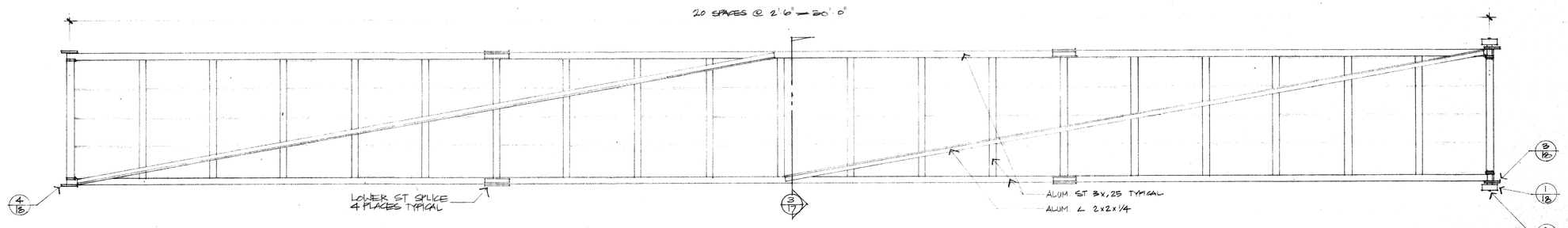








1/17 GANGWAY ELEVATION
½" = 1'-0"



2/17 GANGWAY REFLECTED PLAN
½" = 1'-0"

O - DENOTES FURNISHED BY OWNER

RECORD DRWG. 1/93 RK

EDA PROJECT NO. 07-01-02549

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1980 RICHARD D. NOWICKI

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE: GANGWAY PLAN, ELEVATION AND DETAILS

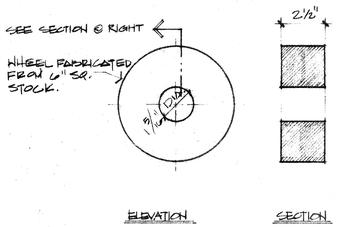
PROJECT PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

PROJECT # 2071

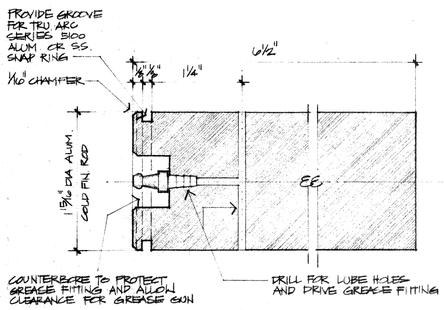
DATE JULY, 1992

SHEET NO. 17

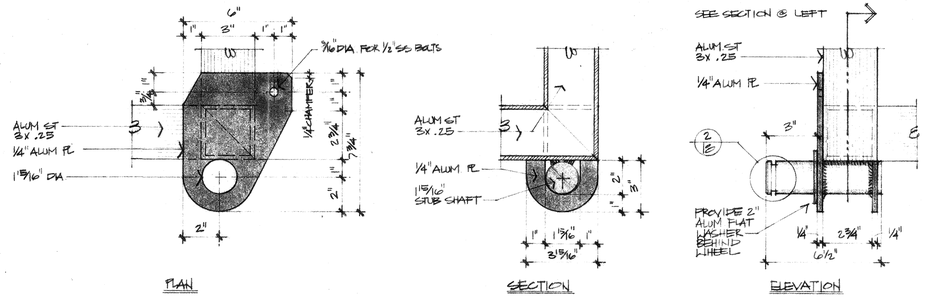
K-E



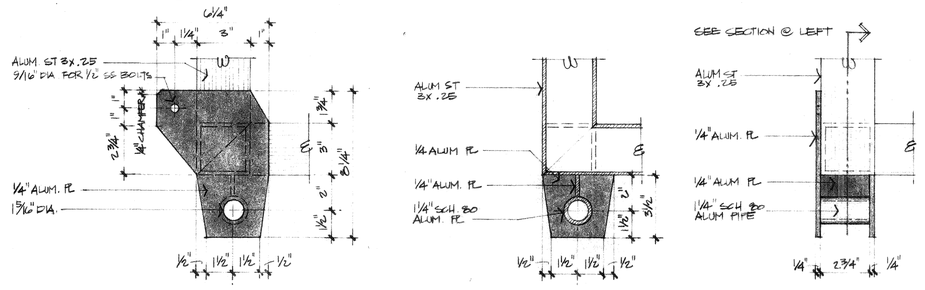
1/18 WHEEL 3"=1'-0"



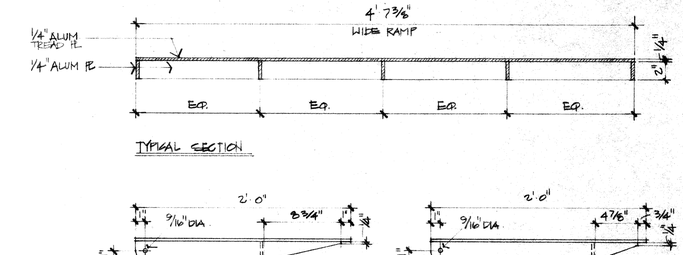
2/18 SECTION @ SUB SHAFT ACTUAL SIZE



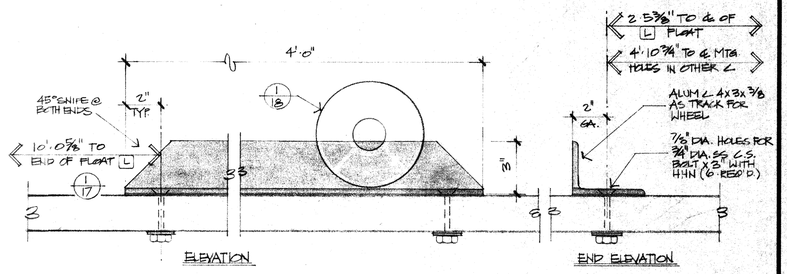
3/18 LOWER BRACKET DETAIL 3"=1'-0"



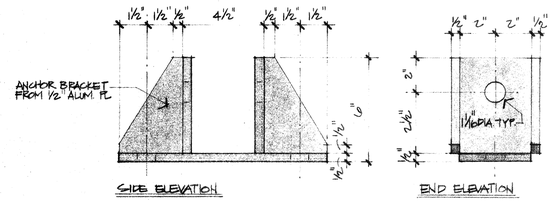
4/18 UPPER BRACKET DETAIL 3"=1'-0"



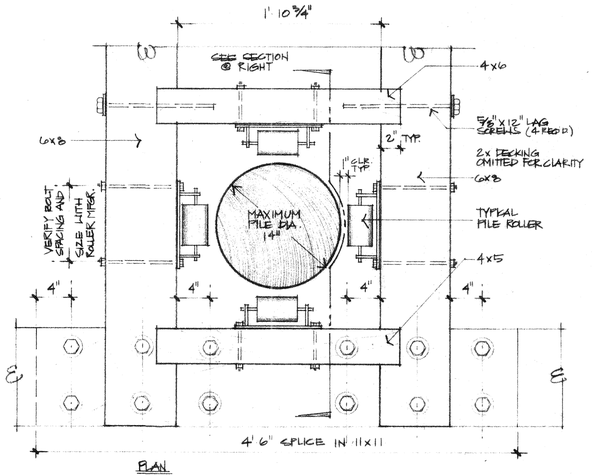
5/18 APPROACH RAMPS 1½"=1'-0"

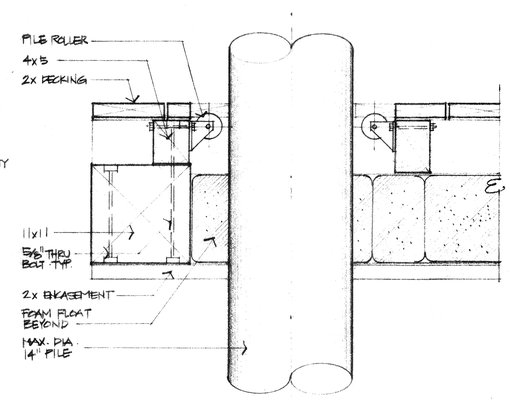


6/18 WHEEL TRACK 3"=1'-0"



7/18 ANCHOR BRACKET 3"=1'-0"





8/18 PILING THRU FLOAT [K] 1½"=1'-0"

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1980 RICHARD D. NUREET

RECORD DRWG. 11/83 R.K.

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE: GANGWAY DETAILS

PROJECT PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

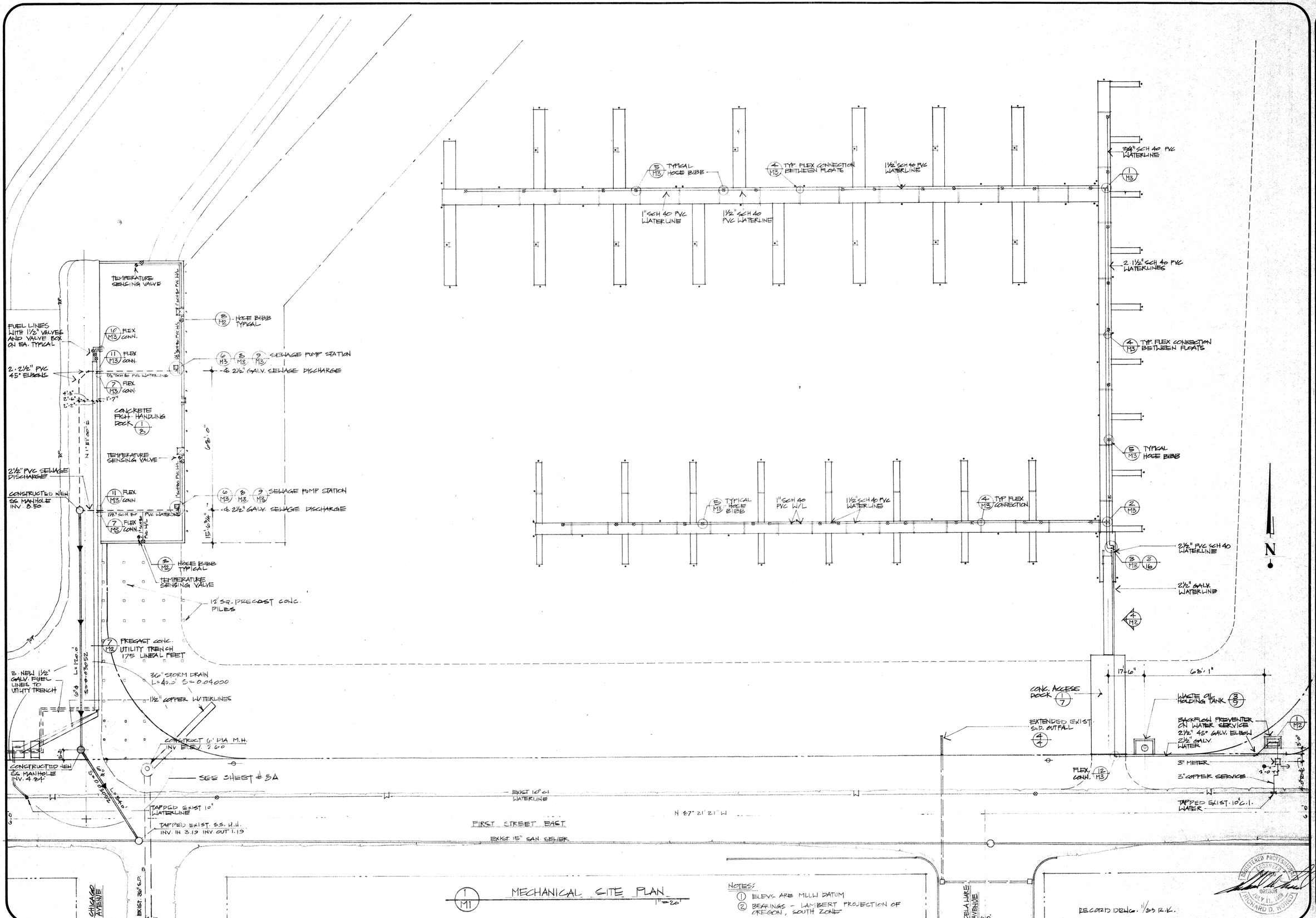
PROJECT # 2071

DATE JULY, 1982

SHEET NO. 18

K&E CONTAINING

EDA PROJECT NO. 07-01-02549



1 / M1 MECHANICAL SITE PLAN 1"=20'

NOTES:
1. ELEVS. ARE MLLW DATUM
2. BEARINGS - LAMBERT PROJECTION OF OREGON, SOUTH ZONE

HGE INC./ENGINEERS & PLANNERS
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Portland, Oregon / 19 N.W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

SHEET TITLE MECHANICAL SITE PLAN

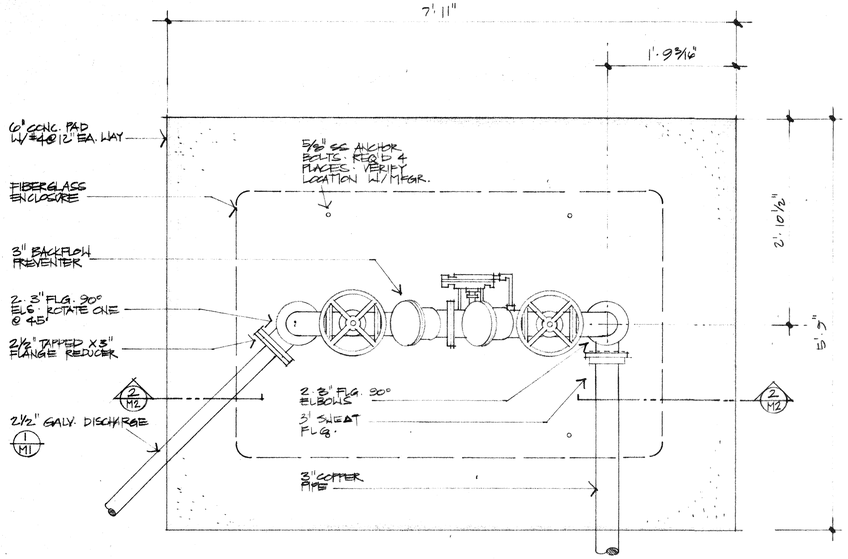
PROJECT PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

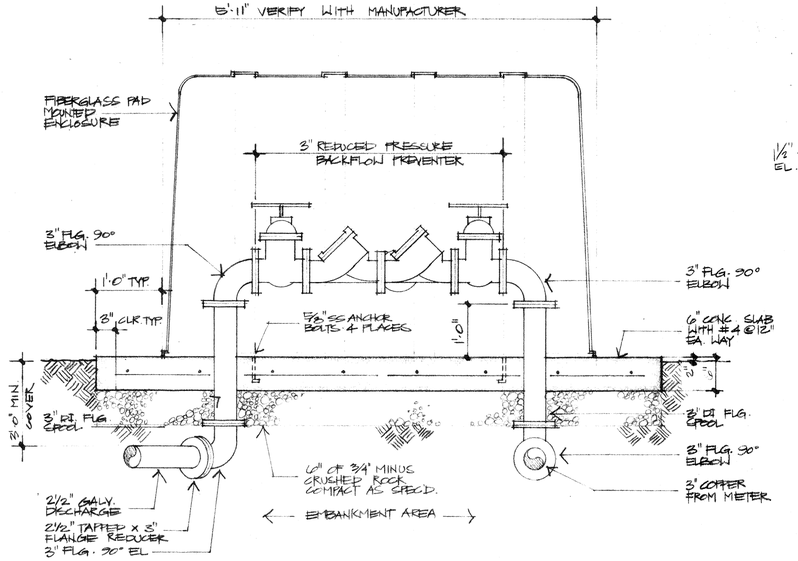
PROJECT # 2071

DATE JULY, 1992

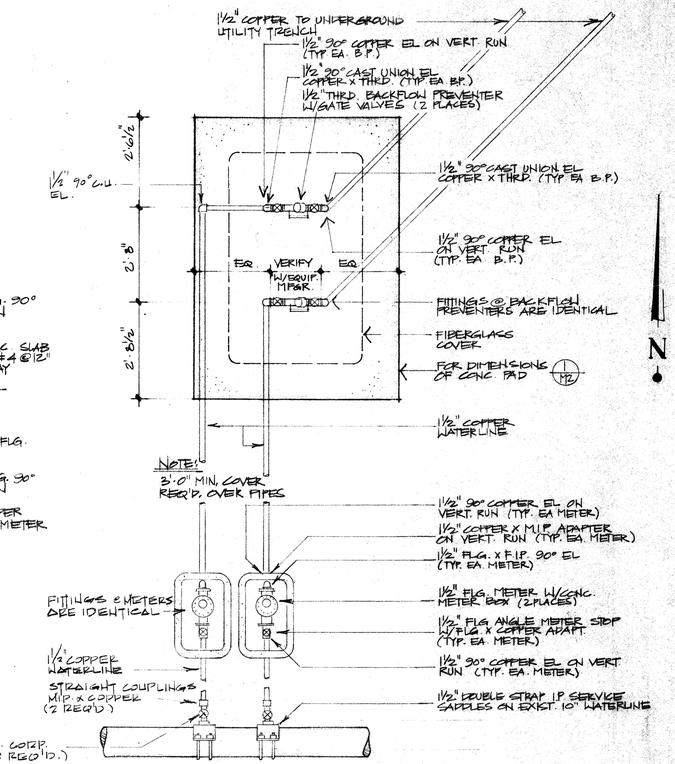
SHEET NO. M1

FEMA PROJECT NO. DR-861-0571

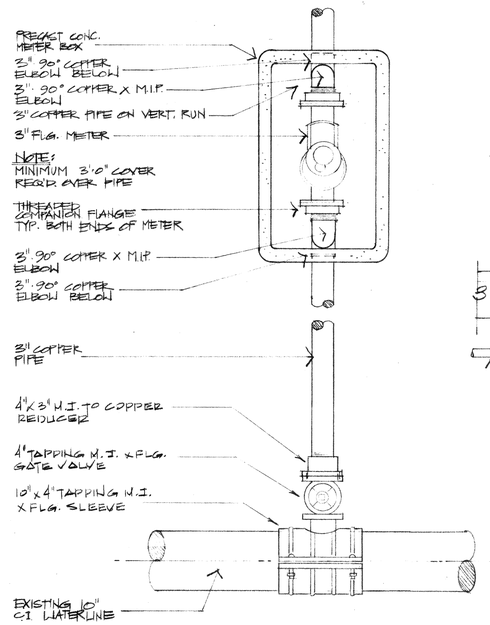


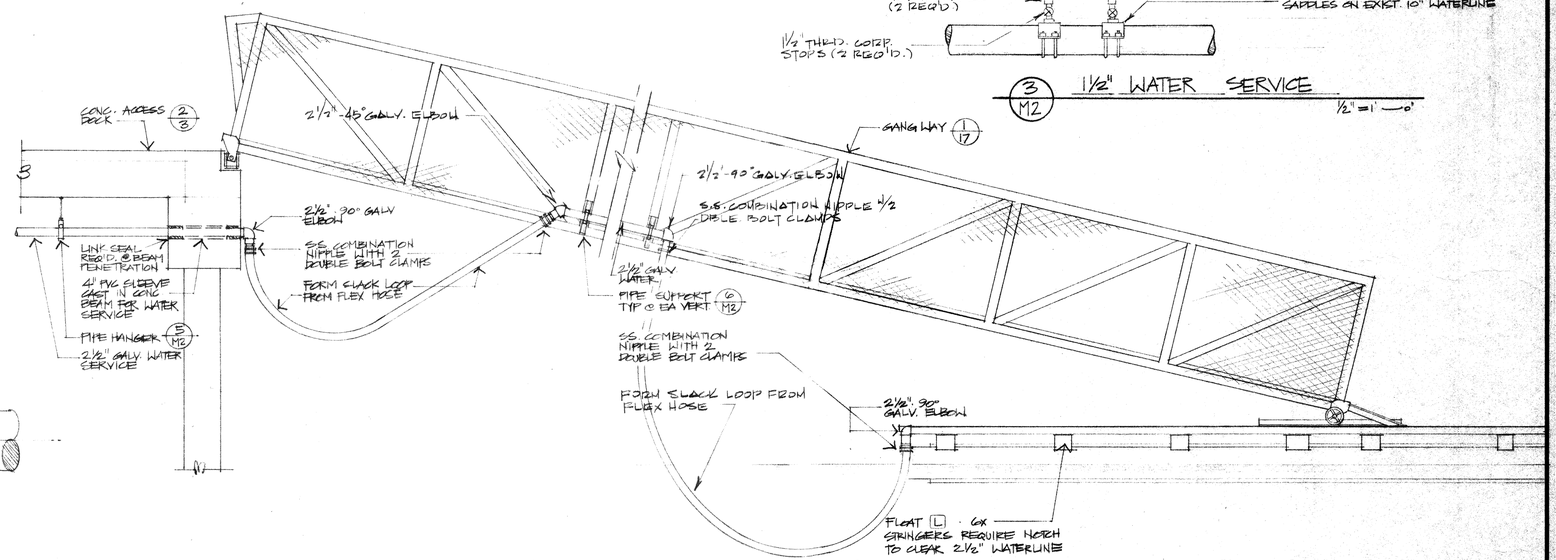


2 M2 SECTION @ BACKFLOW PREVENTER 1"=1'-0"



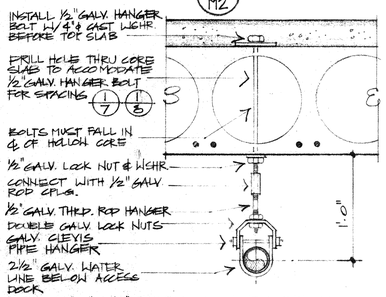
3 M2 1½" WATER SERVICE ½"=1'-0"



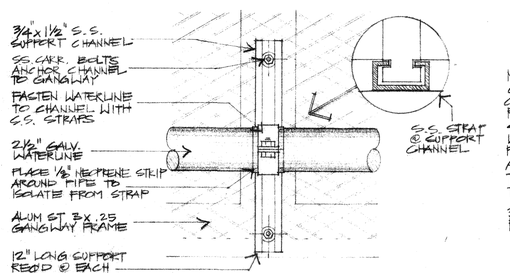


4 M2 WATER SERVICE GANGWAY ½"=1'-0"

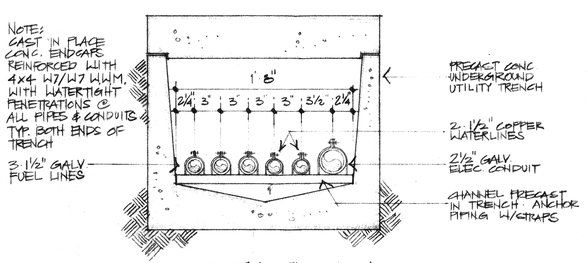
1 M2 3" WATER SERVICE 1"=1'-0"



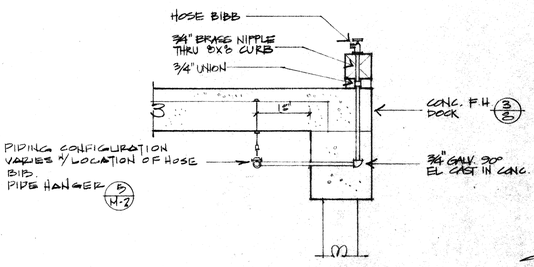
5 M2 PIPE HANGER NO SCALE



6 M2 PIPE SUPPORT NO SCALE



7 M2 UTILITY TRENCH NO SCALE



8 M2 HOSE BIBB ON F.H. DOCK ½"=1'-0"

RECORD DRWG. 11/83 R.K.

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1995 RICHARD D. MCKEE

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269.1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222.1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926.0064

HGE INC

SHEET TITLE: WATERLINE

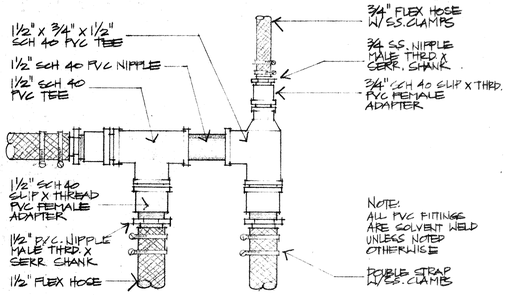
PROJECT: PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

PROJECT # 2021

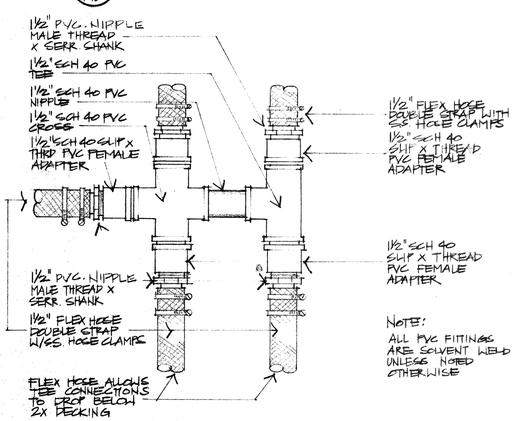
DATE: JULY, 1982

SHEET NO. M2

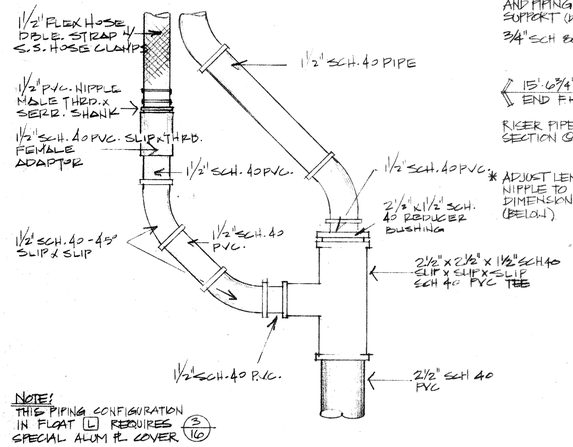
NOTE: 3/4" FLEX HOSE UTILIZED S.S. NIPPLES, MALE THRD. x SERR. SHANK.



1 M3 WATERLINE PIPING — NO SCALE

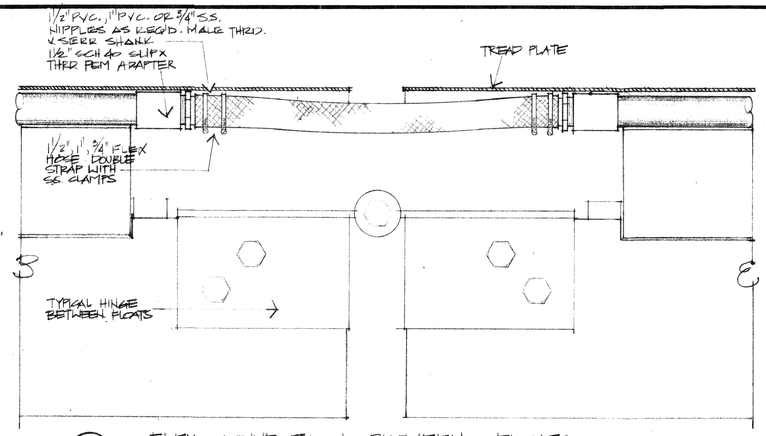


2 M3 WATERLINE PIPING — NO SCALE

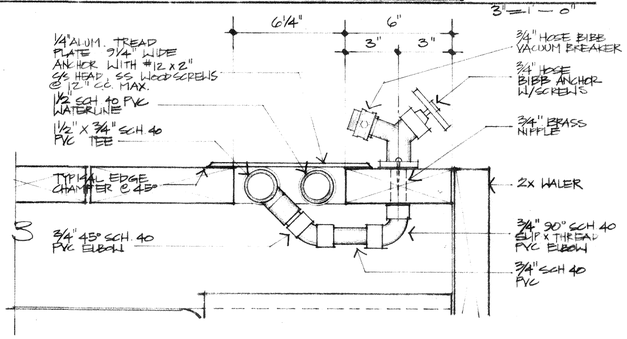


NOTE: THIS PIPING CONFIGURATION IN FLOAT [L] REQUIRES SPECIAL ALUM PL. COVER (3/16)

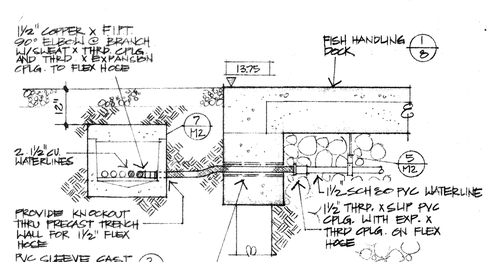
3 M3 WATERLINE PIPING — NO SCALE



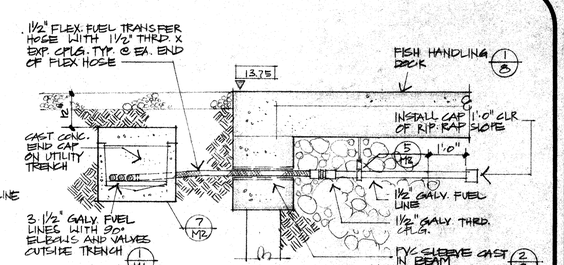
4 M3 FLEX CONNECTION BETWEEN FLOATS — 3/8"=1'-0"



5 M3 TYPICAL HOSE BIBB — 3"=1'-0"

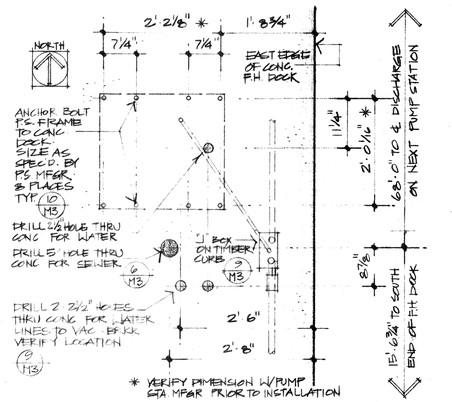


7 M3 WATERLINE FLEX CONNECTION — NO SCALE

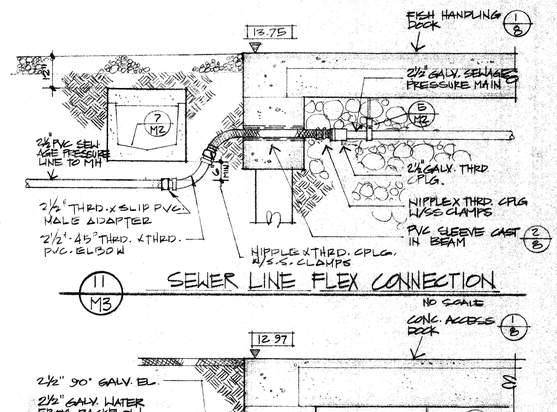


10 M3 FUEL LINE FLEX CONNECTION — NO SCALE

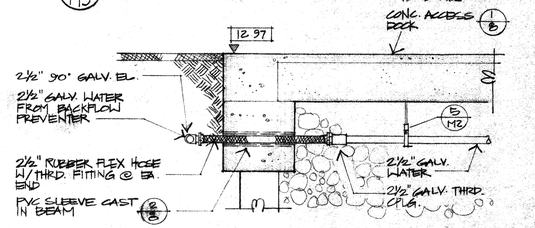
NOTE: ELEV'S. ARE MLLW DATUM



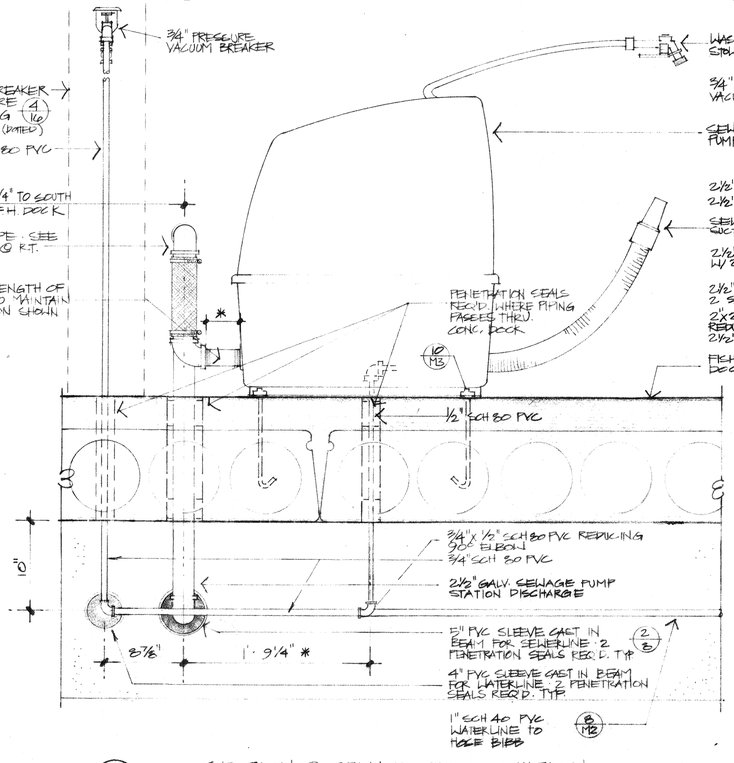
8 M3 PUMP STATION MOUNTING PLAN — ¾"=1'-0"



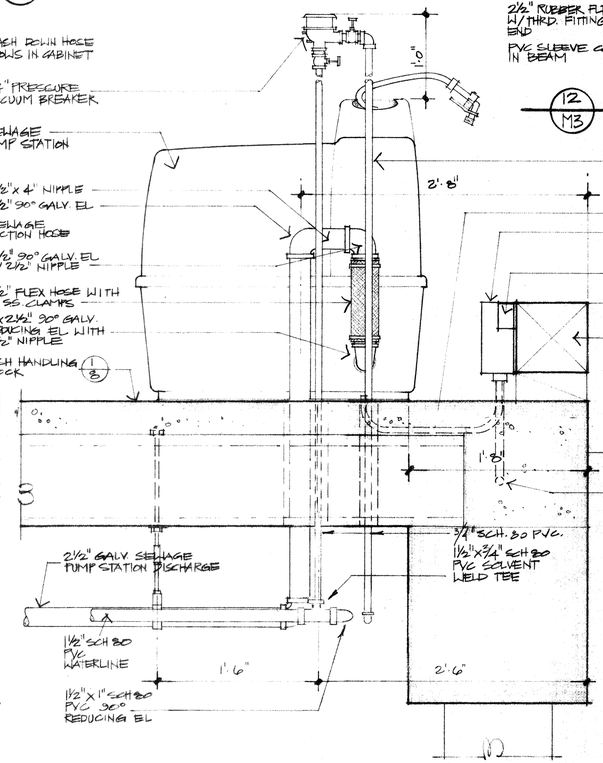
11 M3 SEWER LINE FLEX CONNECTION — NO SCALE



12 M3 WATERLINE FLEX CONNECTION — NO SCALE



6 M3 SECTION @ SEWAGE PUMP STATION — 1½"=1'-0"



9 M3 SECTION @ SEWAGE PUMP STATION — 1½"=1'-0"

RECORD DRWG. 1/85 R.K.
REVISED 8-10-82 RLB

NOTE: EXPANSION ANCHORS IN TOPPING SLAB USED AS ALTERNATE

⅜" x 12" SS ANCHOR BOLTS VERIFY SIZE AND SPACING W/PUMP MFGR. PRIOR TO INSTALLATION

P.S. BASE PLATE

BREAK OUT 6" HOLE @ ANCHOR BOLT LOCATIONS. SET ANCHOR BOLTS IN NON-SHRINK GROUT. GROUT TO EXTEND 3" ALL SIDE OF ANCHOR BOLT

10 M3 P.S. ANCHOR — 1½"=1'-0"

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 13, 1971 RICHARD D. NORKEY

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St., So. 97321 / (503) 926-0064

HGE INC

SHEET TITLE MECHANICAL DETAILS

PROJECT PORT OF BANDON COQUILLE RIVER BOAT BASIN COOS COUNTY, OREGON

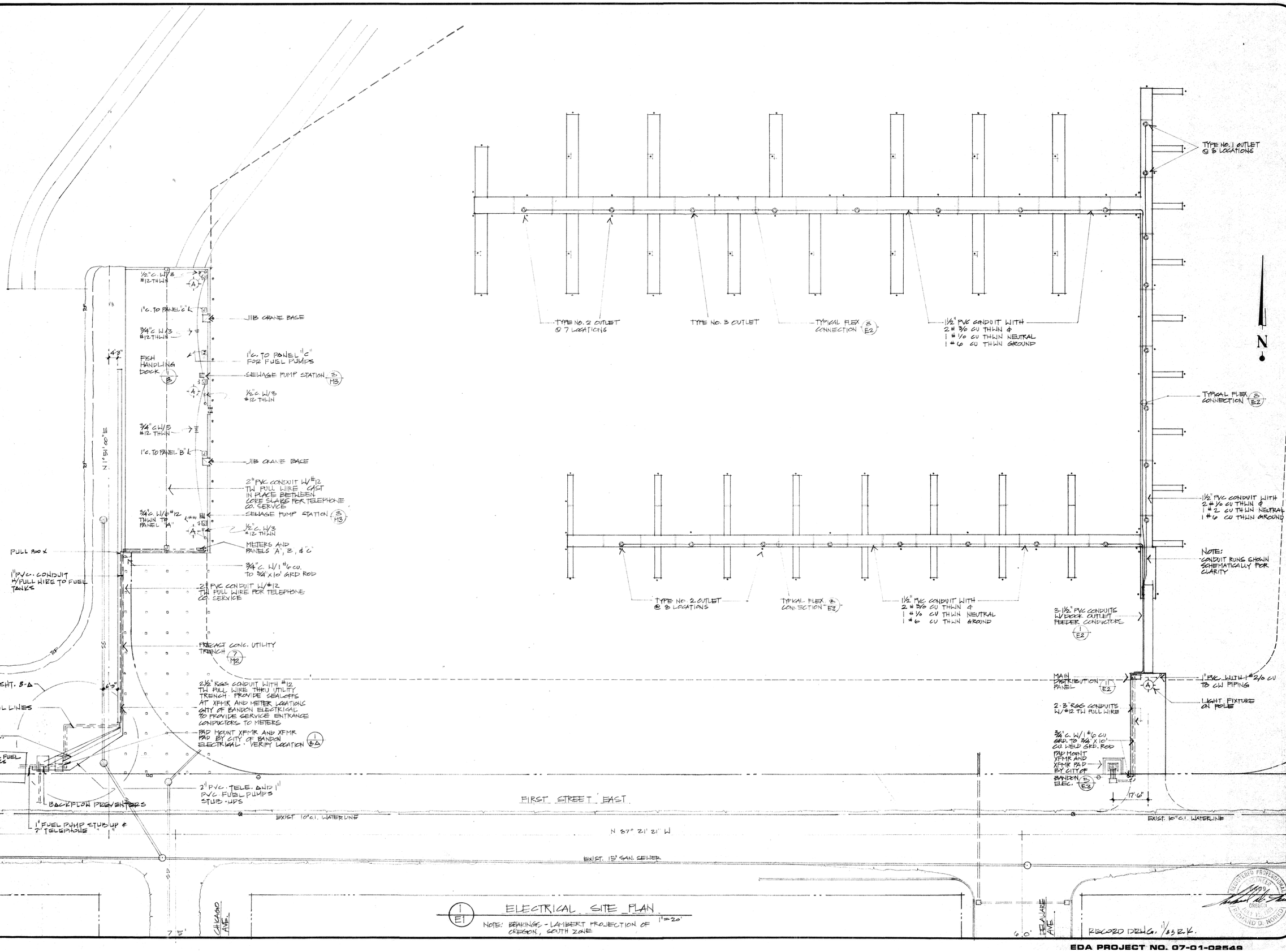
PROJECT # 2271

DATE JULY, 1982

SHEET NO. M3

K&E ESTABLISHED

FDA PROJECT NO. 07-81-02512



1 E1 ELECTRICAL SITE PLAN

NOTE: BEARINGS - LAMBERT PROJECTION OF OREGON, SOUTH ZONE

1"=20'

RECORD DRWG. 1/83 R.K.

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 15, 1980 RICHARD D. NOYES

EDA PROJECT NO. 07-01-02549

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

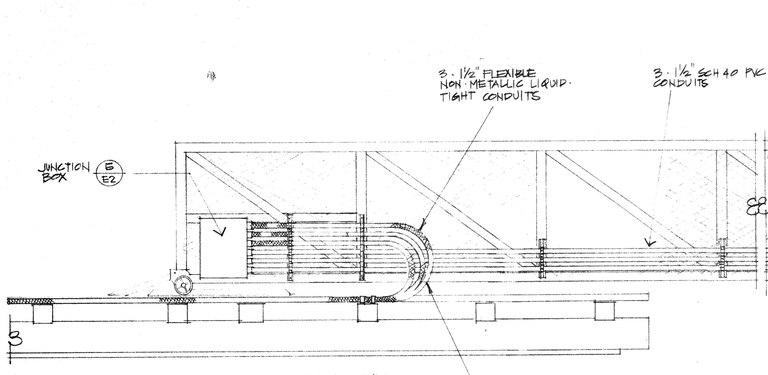
SHEET TITLE ELECTRICAL SITE PLAN

PROJECT PORT OF BANDON LOBVILLE RIVER BOAT BASIN COOS COUNTY, OREGON

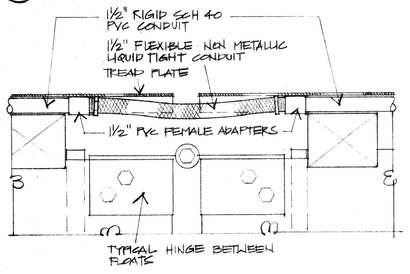
PROJECT # 2271

DATE JULY, 1982

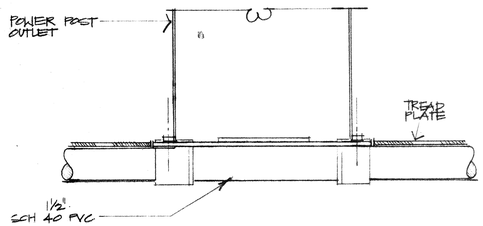
SHEET NO. E1



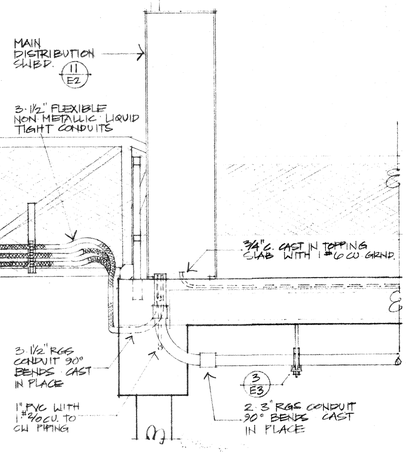
1/E2 POWER ENTRY @ GANGWAY — 1/2"=1'-0"



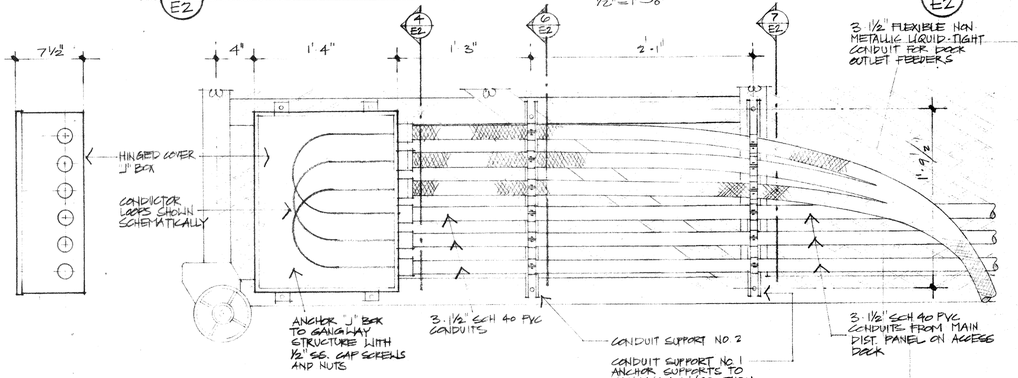
8/E2 FLEX CONNECTION BETWEEN FLOATS — NO SCALE



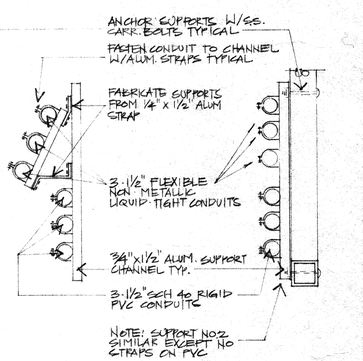
9/E2 CONDUIT ENTRY @ POWER POST — 3/4"=1'-0"



2/E2 MAIN DIST PANEL @ ACCESS DOCK — 1/2"=1'-0"



3/E2 ELEVATION @ MAIN DIST. PANEL — 1/2"=1'-0"

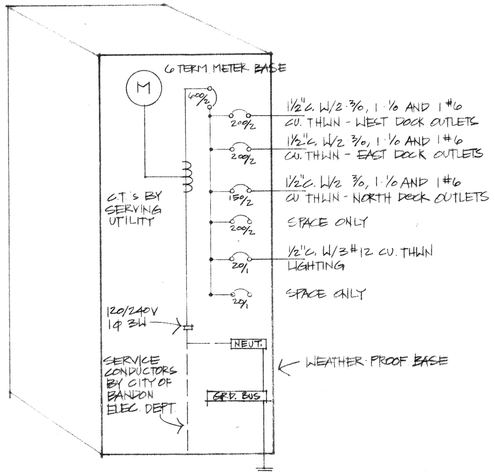


4/E2 "J" BOX — 1½"=1'-0"

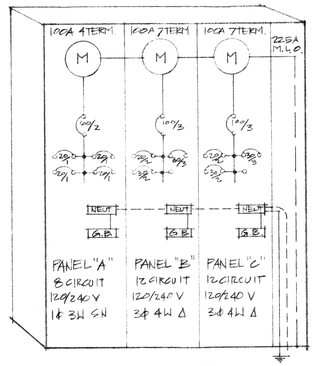
5/E2 CONDUITS @ "J" BOX — 1½"=1'-0"

6/E2 SUPPORT NO. 1 — 1½"=1'-0"

7/E2 SUPPORT NO. 2 — 1½"=1'-0"

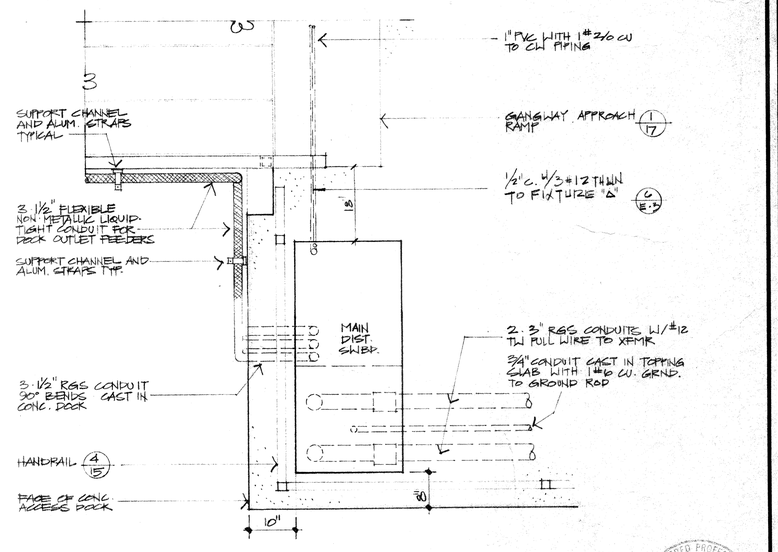


MDS-1



MDS-2

10/E2 MAIN DIST. SWITCHBOARD ELECTRICAL SCHEMATIC — NO SCALE



11/E2 PLAN @ MAIN DIST. SWBD — ¾"=1'-0"

RECORD DRWG. 1/83 R.K.

HGE INC. / ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-6064

HGE INC

SHEET TITLE: ELECTRICAL DETAILS

PROJECT: PORT OF BANDON — CITY OF BANDON, COOS COUNTY, OREGON

PROJECT # 2071

DATE JULY, 1982

SHEET NO. E2

REGISTERED PROFESSIONAL ENGINEER — OREGON — RICHARD D. MARSH

EDA PROJECT NO. 07-01-02549

Attachment C: Geologic Map of Bandon

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
www.OregonGeology.org
W. Lawrence Givens, Governing Board Chair
Vicki S. McConnell, Director and State Geologist
Andrew V. Pollock, Assistant Director, Geologic Survey and Services
Rachel L. Smith, Project Operations Manager
Ian P. Madin, Chief Scientist

Geologic Map of the Bandon 7.5' Quadrangle, Coos County, Oregon

2014

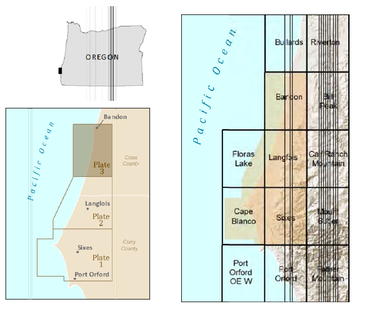
OPEN-FILE REPORT O-14-01

Geologic Map of the Southern Oregon Coast Between Port Orford and Bandon, Curry and Coos Counties, Oregon

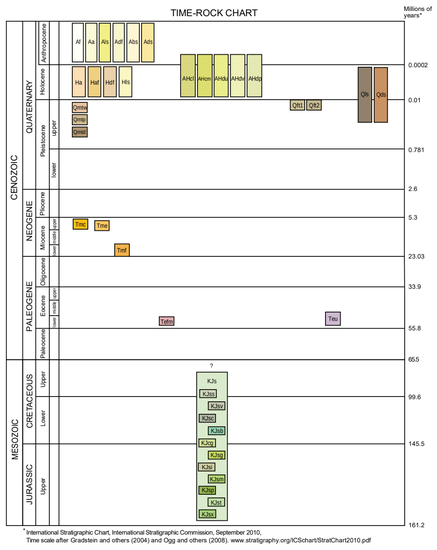
By Thomas J. Wiley, Jason D. McClaughry, Lina Ma, Katherine A. Mickelson, Clark A. Niewendorp, Laura L. Stimely, Heather H. Herinckx, and Jonathan Rivas

This project was supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program under USGS award number G13AC00137.

PLATE 3



Clockwise starting at top left:
Location map.
Project area; U.S. Geological Survey 7.5-minute quadrangles
Map plate extent shown with a filled semi-opaque dark brown polygon.



* International Stratigraphic Chart, International Stratigraphic Commission, September 2010, Time scale after Gradstein and others (2004) and Ogg and others (2008). www.stratigraphy.org/ICSchart/StratChart2010.pdf

NOTE: These data were mapped at 1:8,000 scale; 1:24,000-scale plates cannot show all the detail of 1:8,000-scale mapping. Please use the geodatabase to explore in full detail.

EXPLANATION OF MAP UNITS

See Explanation of Map Units (in pamphlet) for complete unit descriptions.

UPPER CENOZOIC SURFICIAL DEPOSITS

ANTHROPOCENE SURFICIAL DEPOSITS

- Af — modern fill and construction material (Anthropocene)
- Aa — alluvium (Anthropocene)
- Als — landslide deposits (Anthropocene)
- Adf — debris fan deposits (Anthropocene)
- Abs — beach and berm deposits (Anthropocene)
- Ads — foredune deposits (Anthropocene)

ANTHROPOCENE AND HOLOCENE SURFICIAL DEPOSITS

- AHcl — coastal lacustrine deposits (Anthropocene and Holocene)
- AHcm — coastal marsh deposits (Anthropocene and Holocene)
- AHdu — unvegetated dune deposits (Anthropocene and Holocene)
- AHdv — vegetated dune deposits (Anthropocene and Holocene)
- AHdp — deflation plain sand (Anthropocene and Holocene)

HOLOCENE SURFICIAL DEPOSITS

- Ha — alluvium (Holocene)
- Haf — alluvial fan deposits (Holocene)
- Hdf — debris fan deposits (Holocene)
- Hls — landslide deposits (Holocene)

QUATERNARY SURFICIAL DEPOSITS

- Qls — landslide deposits (Holocene and upper Pleistocene)
- Qds — upland coastal dune deposits (Holocene and upper Pleistocene)

Fluvial terrace deposits and strath terraces (upper Pleistocene)

- Qft1 — fluvial terrace sediments 1 (upper Pleistocene)
- Qft2 — fluvial terrace sediments 2 (upper Pleistocene)

Coastal marine terrace deposits (Pleistocene)

- Qmtw — Whiskey Run terrace sediments (north of Floras Creek, upper Pleistocene, ~80 ka)
- Qmtp — Pioneer terrace sediments (upper Pleistocene, ~105 ka)
- Qmtd — Seven Devils terrace sediments (north of Floras Creek, upper Pleistocene, ~125 ka)

Unconformity

LOWER PLEISTOCENE AND MIOCENE ROCKS

MIOCENE SEDIMENTARY ROCKS

- Tmc — diatomite of China Creek (upper Miocene, Messinian Stage)
- Tme — Empire Formation (upper Miocene, Wishkahan Pacific Northwest Molluscan Stage)

Unconformity

- Tmf — sandstone of Floras Lake (lower and middle Miocene, Wishkahan and Newportian Pacific Northwest Molluscan Stages)

Unconformity

LOWER CENOZOIC AND MESOZOIC ROCKS

PALEOGENE SEDIMENTARY ROCKS

- Teu — Umpqua Group (lower to middle Eocene)

Unconformity (?)

SIXES RIVER TERRANE

Fulmar (central) subterrane

- Tefm — sandstone of Fivemile Point (lower Eocene)

Unconformity

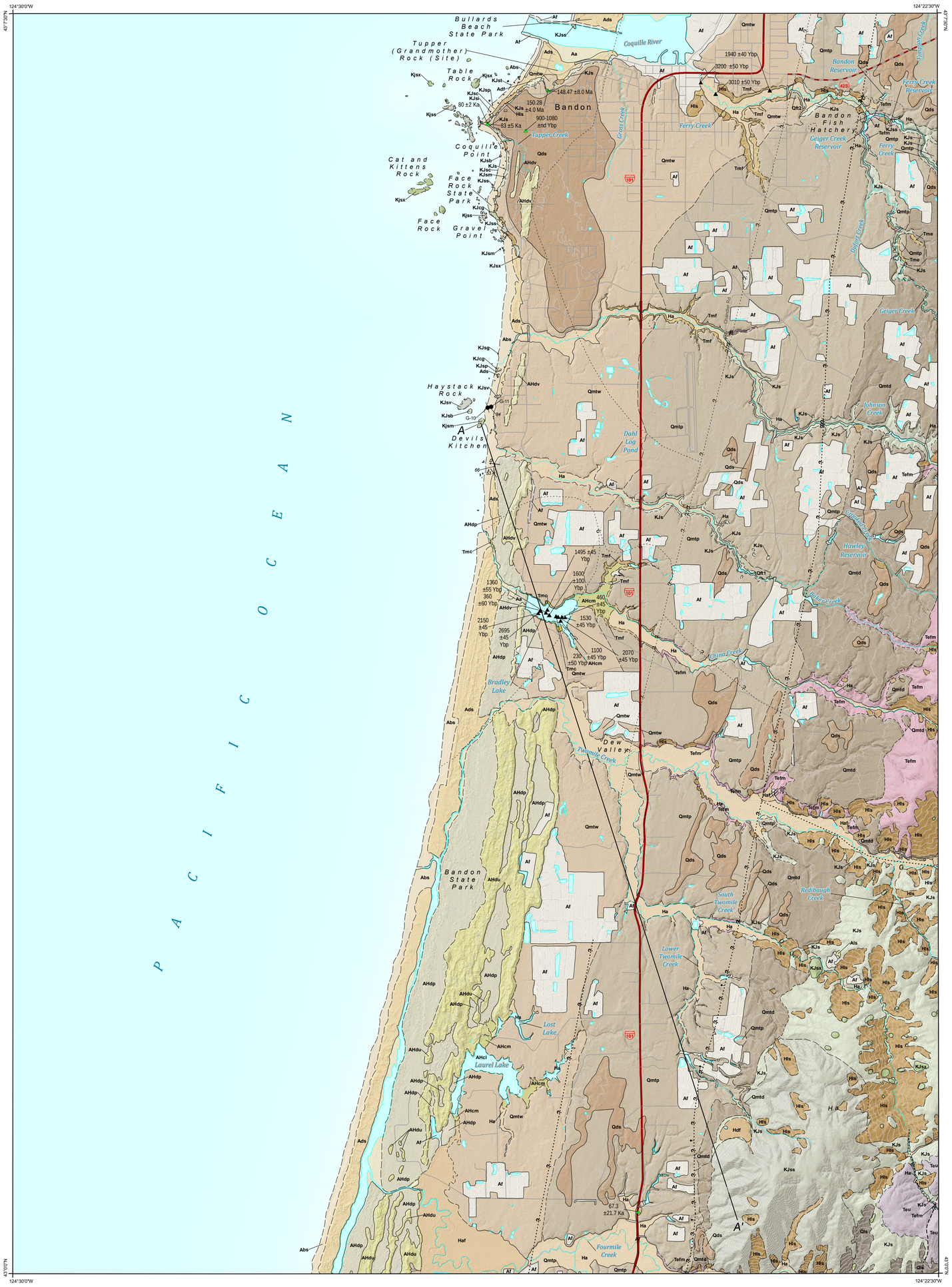
- KJs — melange of Sixes River (Upper(?) Cretaceous to Jurassic)
  - KJss — sandstone
  - KJsv — volcanic and meta-volcanic rocks
  - KJsc — chert
  - KJsb — blueschist
  - KJcg — conglomerate
  - KJsg — garnet schist
  - KJsi — course-grained igneous rocks
  - KJsm — other metamorphic rocks
  - KJsp — serpentinite and meta-serpentinite
  - KJst — siltstone
  - KJsx — melange blocks, undivided

SCALE 1:24 000 (1 inch equals 2 000 feet)

Contour interval is 40 feet.

1 0.5 0 1 MILE

1 0.5 0 1 KILOMETER

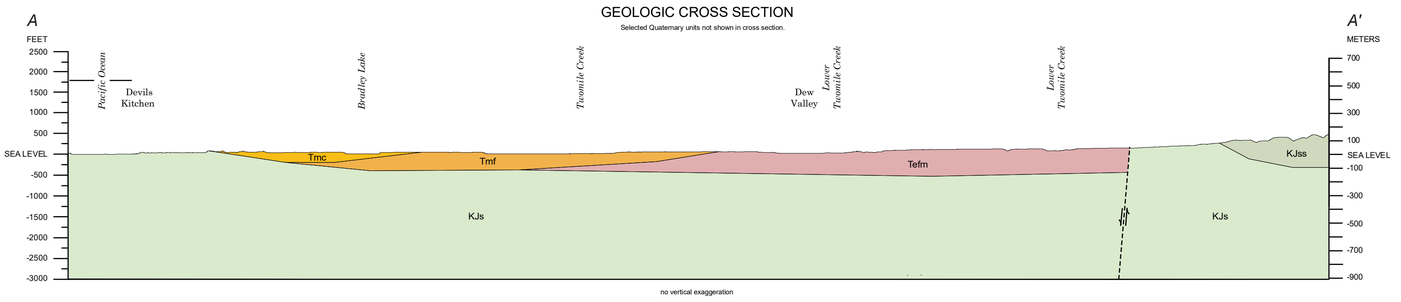


EXPLANATION OF SYMBOLS FOR ALL MAP PLATES

- Waterbody
- Stream
- Road
- State Highway (255)
- U.S. Highway (101)
- A — A′ Cross Section
- China Mountain 2567 — Lidar-derived elevation
- G-39 — Location of whole-rock XRF geochemical analysis sample (see Table 2 in pamphlet)
- 22 — Incline bedding–Showing strike and dip
- Vertical bedding–Showing strike
- 16 — Overturned bedding–Showing strike and dip
- 67 — Inclined metamorphic or tectonic foliation–Showing strike and dip
- 128.6 Ka — Location of radiometric age obtained from subsurface core sample. Only the uppermost or youngest age is labeled on the map. Age in thousands of years (Ka) or years before present (Ybp). See geodatabase for complete data.
- 128.6 Ma — Location of radiometric age.Age in millions of years (Ma), thousands of years (Ka), or years before present (Ybp). See geodatabase for complete data.
- Contact — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Fault — solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Normal fault — ball and bar on downthrown block; solid line where accurately located, long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain.
- Strike-slip fault, right-lateral offset — short-dashed where inferred, dotted where concealed, queried where uncertain Arrows show relative motion.
- Oblique-slip fault, right-lateral offset — short-dashed where inferred, dotted where concealed, queried where uncertain. Arrows show relative motion, ball and bar on downthrown block.
- Thrust fault — long-dashed where approximate, short-dashed where inferred, dotted where concealed, queried where uncertain. Sawteeth on upper (tectonically higher) plate.

GEOLOGIC CROSS SECTION

Selected Quaternary units not shown in cross section.



Source Data: DOGAMI Lidar Data Quadrangles LDQ-2009-43124-A4-Bandon. Geologic data, water features (mapped to lidar extent), and 10-m digital elevation models from Oregon Department of Geology and Mineral Industries (2014). Transportation data are from Curry and Coos Counties (2010) and were edited by DOGAMI to improve spatial accuracy of features or to add newly constructed features not present in the original data layer.

Projection: Oregon Statewide Lambert Conformal Conic, Unit: International Feet, Horizontal Datum: NAD 1983 HARN.

Software: Esri ArcGIS® 10.1 and Adobe® Illustrator® CS6

Time-Rock Chart References: Gradstein, F. M., Ogg, J. G., and Smith, A. G., eds., 2004, A geologic time scale 2004: Cambridge, U.K., Cambridge University Press, 589 p.
Ogg, J. G., Ogg, G., and Gradstein, F. M., 2008, The concise geologic time scale: Cambridge University Press, 177 p.

Field Work: Conducted in 2013 and 2014 by Thomas J. Wiley, Jason D. McClaughry, Lina Ma, Katherine A. Mickelson, Clark A. Niewendorp, and Heather H. Herinckx

Cartography: Daniel E. Coe

Nature of the Northwest

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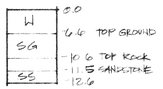
telephone (971) 673-2331
http://www.NatureNW.org

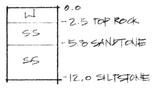
Attachment D: Historic Geotechnical Data

WATER JET® PROBE RESULTS

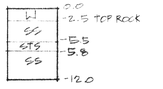
PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.	PROBE #	REFUSAL ELEV.
P-1	-8.3	P-16	-9.2	P-31	-5.6	P-46	-4.6	P-68	-9.7
P-2	-11.8	P-17	-11.0	P-32	-0.7	P-47	-11.5	P-69	-12.3
P-3	-7.2	P-18	-9.7	P-33	-1.8	P-48	-2.6	P-70	-15.7
P-4	-15.7	P-19	-9.6	P-34	-3.0	P-49	-1.5	P-71	-9.7
P-5	-15.7	P-20	-9.4	P-35	-4.0	P-50	-1.0	P-72	-15.3
P-6	-1.6	P-21	-9.1	P-36	-9.5	P-51	-0.4	P-73	-12.8
P-7	-4.5	P-22	-10.1	P-37	-9.5	P-52	-2.0	P-74	-5.6
P-8	-2.5	P-23	-11.0	P-38	-4.3	P-53	-1.8	P-81	-4.9
P-9	-2.4	P-24	-8.8	P-39	-11.1	P-54	-1.6	P-91	-4.3
P-10	-2.3	P-25	-10.7	P-40	-11.0	P-55	-1.6	P-92	-9.7
P-11	-14.3	P-26	-1.7	P-41	-12.0	P-56	-1.0	P-93	-4.6
P-12	-4.3	P-27	-1.7	P-42	-6.8	P-57	-0.9	P-94	-4.9
P-13	-0.3	P-28	-8.7	P-43	-10.7	P-58	-15		
P-14	-2.2	P-29	-7.7	P-44	-11.7	P-59	-15		
P-15	-4.2	P-30	-6.6	P-45	-3.6	P-62	-4.0		



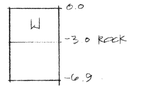
DH-1



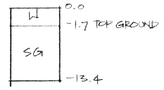
DH-2



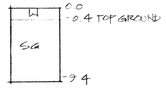
DH-3



TH-4



TH-5



TH-6

LEGEND

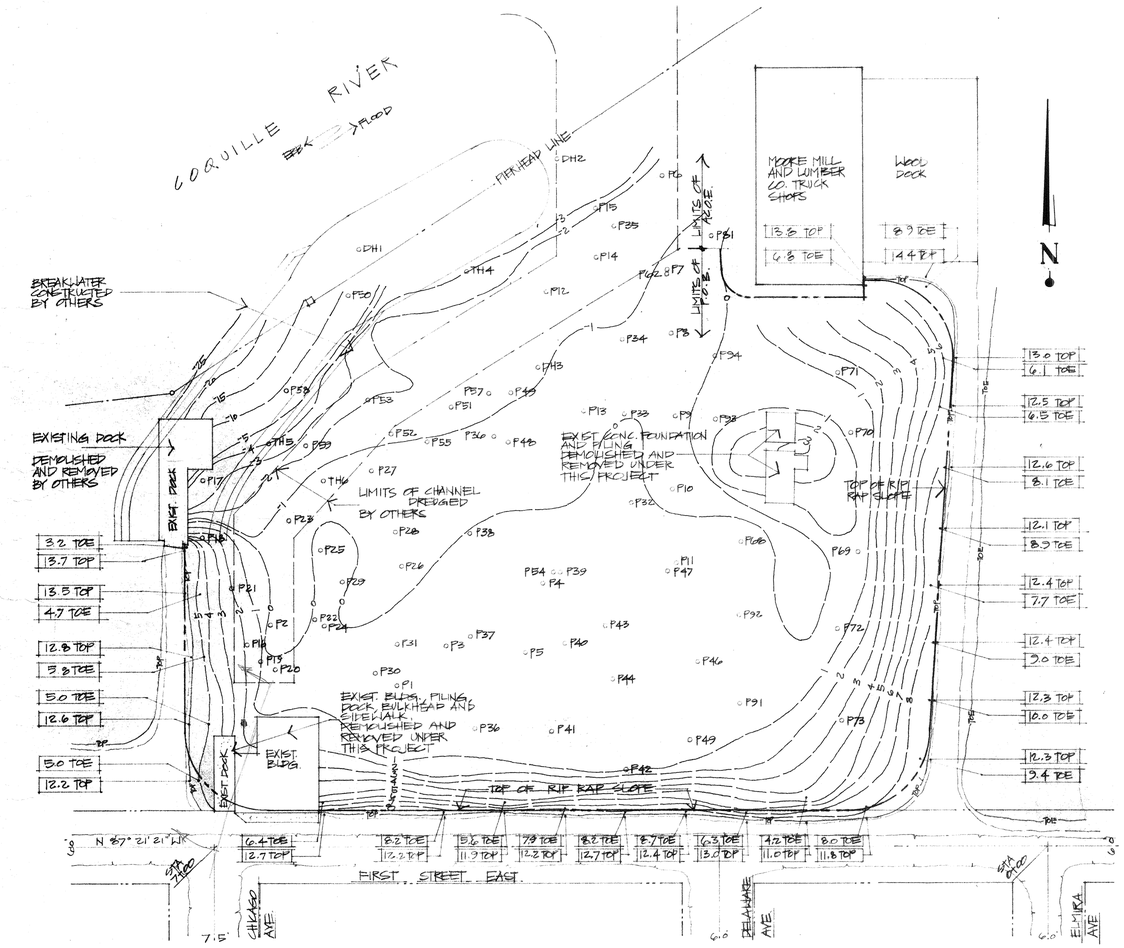
- 8.7 TOE — EXISTING ELEVATION
- TOP OF RIP RAP SLOPE
- A.C. PAVEMENT
- 8 — EXISTING CONTOUR LINE * W/ELEV.
- TOP — EXIST TOP OF BANK
- TOE — EXIST. TOE OF BANK
- EXIST. EDGE OF GRAVEL

CORE DRILLING ABBREVIATIONS

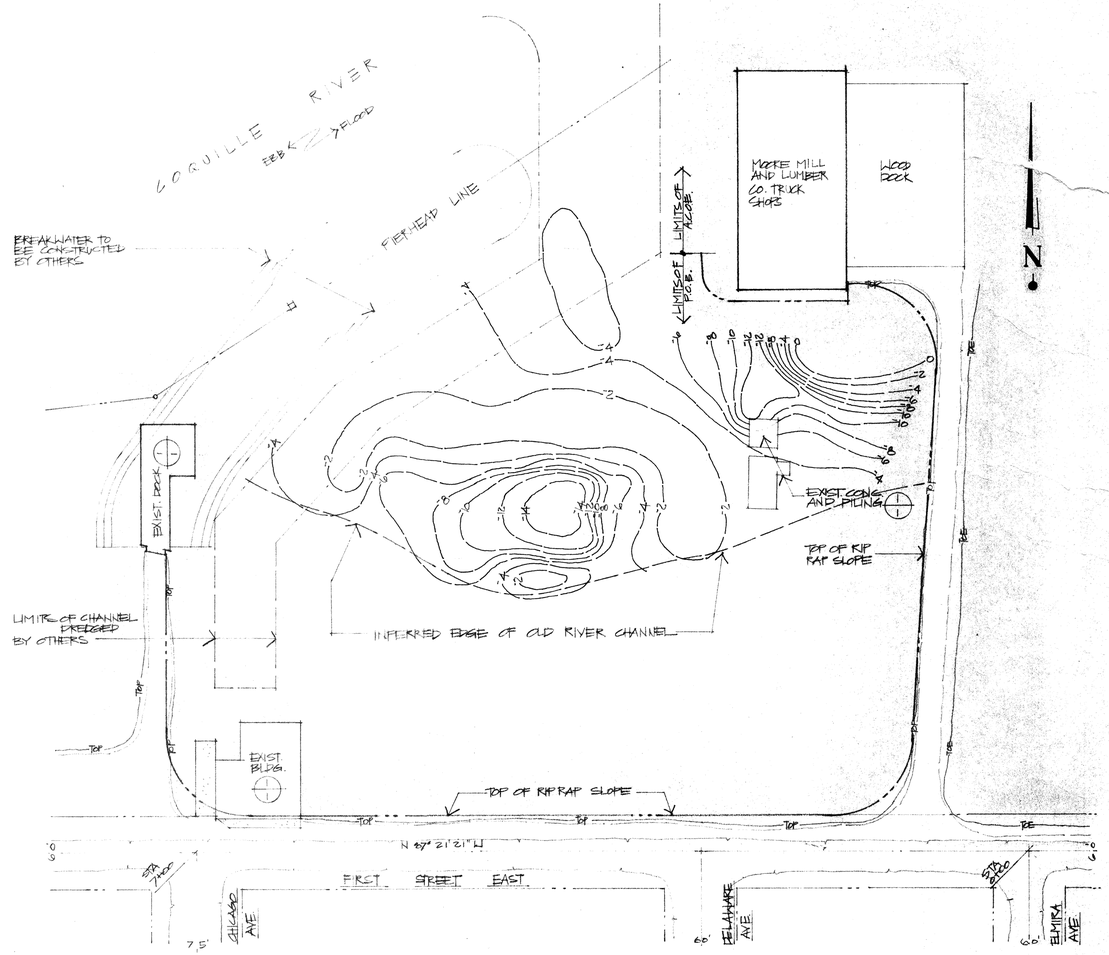
W – WATER
SS – SANDSTONE
STS – SILTSTONE
SG – SAND AND GRAVEL

NOTES:

1. INFERRED SANDSTONE/SILTSTONE ROCK CONTOURS FROM GEO. RECON INTERNATIONAL LTD'S GEO-PHYSICAL SURVEY.
2. INFERRED SANDSTONE/SILTSTONE ROCK CONTOURS BASED ON SEISMIC REFRACTION SURVEY RESULTS.
3. ELEVATIONS SHOWN ARE MEAN LOWER LOW WATER (MLLW) DATUM.
4. EXISTING ELEVATIONS AND SURFACE CONTOURS BASED ON SURVEYS OF AUGUST 11, 1980
5. CORE DRILLING AND TRIGON DRILLING LOGS AND PROBE RESULTS, P-1 THRU P-59 FROM US. ARMY CORP OF ENGINEERS' SURVEYS OF JUNE 1978.
6. PROBE RESULTS P-60 THRU P-101, FROM US. ARMY CORP OF ENGINEERS' SURVEYS OF FEBRUARY, 1982.
7. BEARINGS - LAMBERT PROJECTION OF OREGON, SOUTH ZONE



1/1 SURFACE CONTOURS AND DEMOLITION PLAN
1" = 60'



2/1 INFERRED ROCK CONTOURS
1" = 60'

RECORD DRWG. 11/83 R.K.

EDA PROJECT NO. 07-01-02543

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 11, 1980 RICHARD D. NORTH

HGE INC./ENGINEERS & PLANNERS
Coos Bay, Oregon / 375 Park Avenue 97420 / (503) 269-1166
Portland, Oregon / 19 N. W. 5th Ave. 97209 / (503) 222-1687
Albany, Oregon / 300 Ellsworth St. So. 97321 / (503) 926-0064

HGE INC

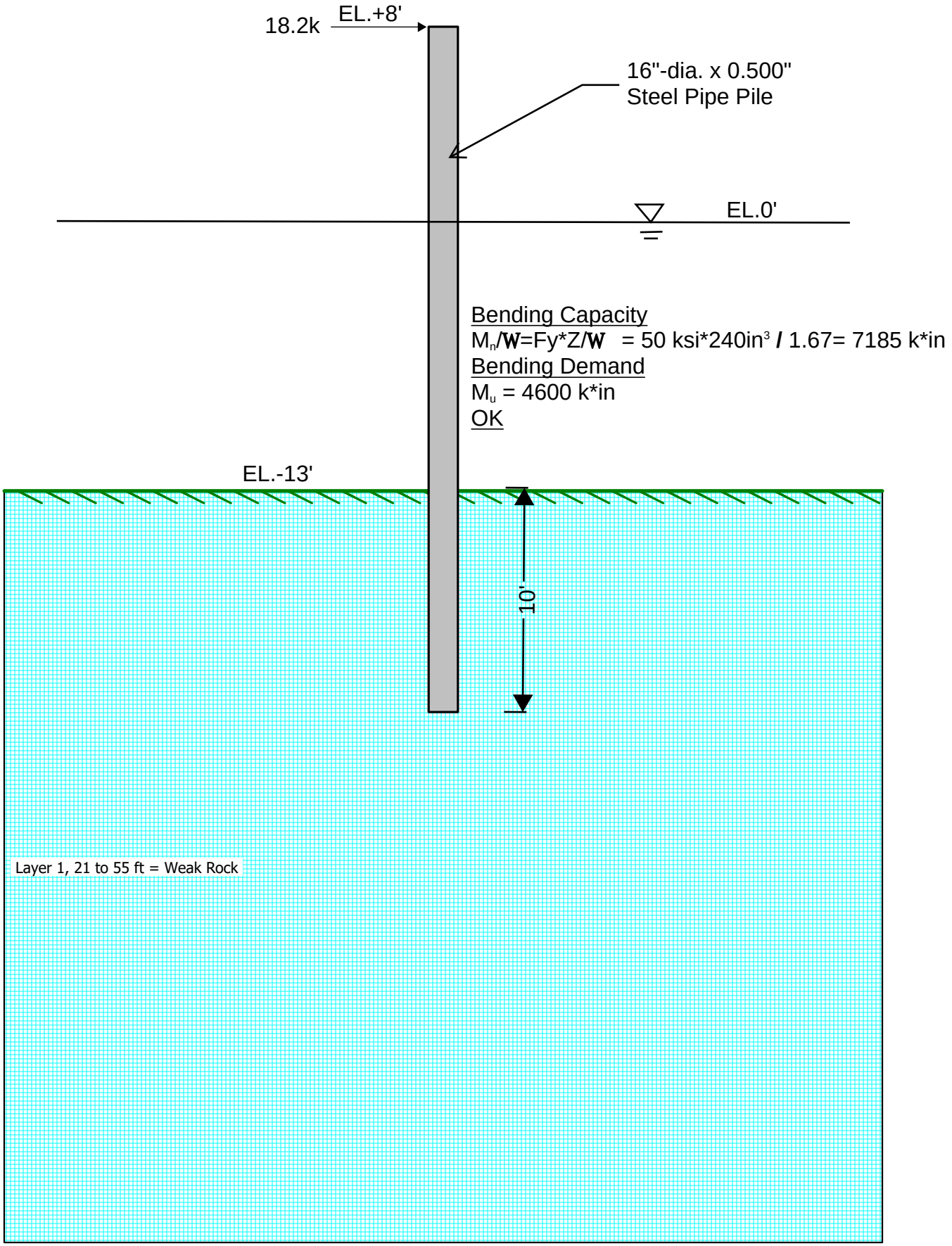
SHEET TITLE
CONTOUR AND DEMOLITION PLANS

PROJECT PORT OF BANDON
COQUILLE RIVER BOAT BASIN
COOS COUNTY, OREGON

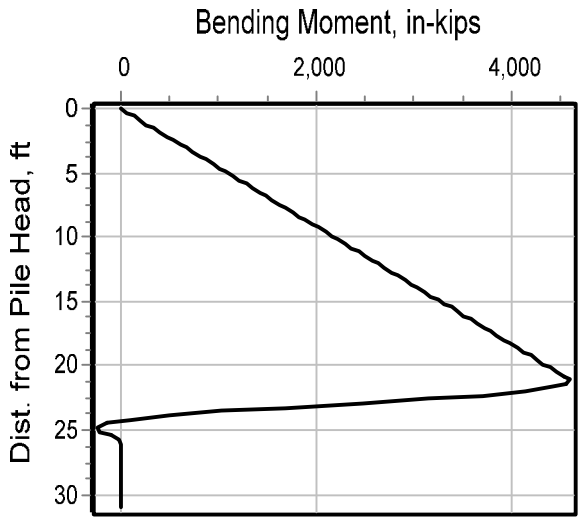
PROJECT # 2071
DATE JULY, 1982

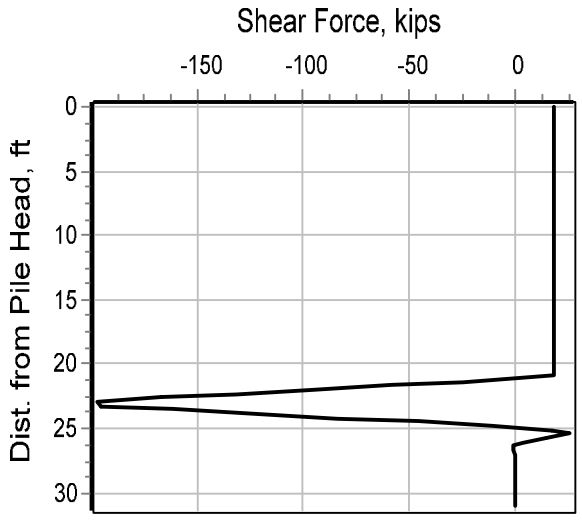
SHEET NO. 1 OF

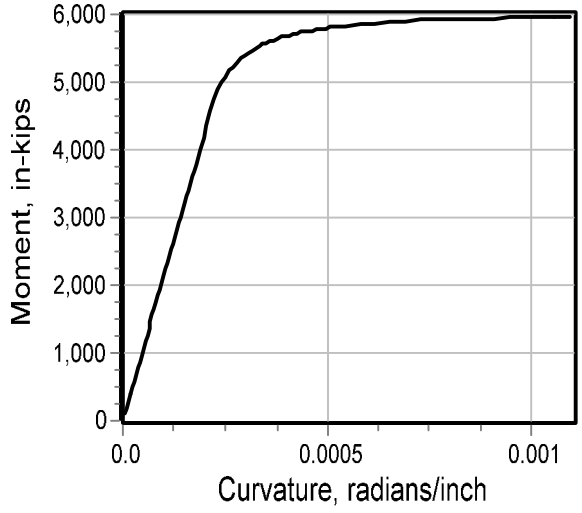
Attachment E: Wave and Wind Loading on Piles

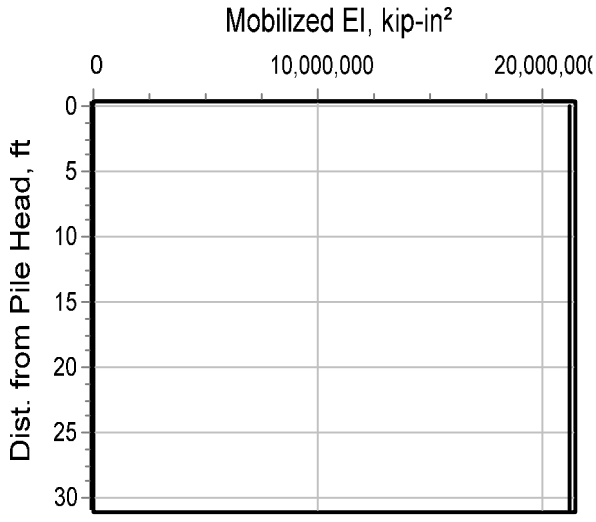


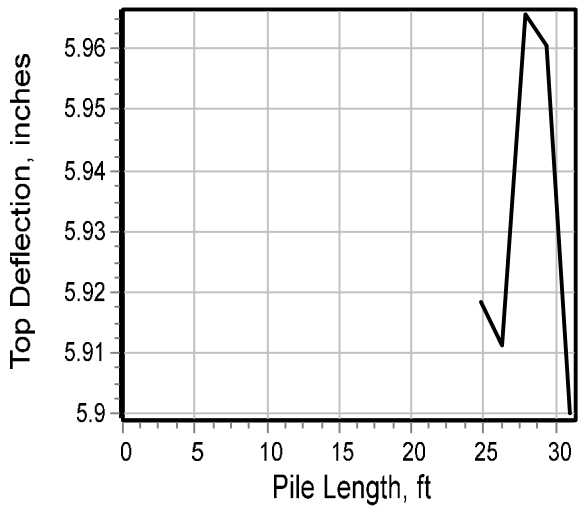

Deflection, inches
0
1
2
3
4
5
Dist. from Pile Head, ft
0
5
10
15
20
25
30


Bending Moment, in-kips
0
2,000
4,000
Dist. from Pile Head, ft
0
5
10
15
20
25
30


Shear Force, kips
-150
-100
-50
0
Dist. from Pile Head, ft
0
5
10
15
20
25
30


6,000
5,000
4,000
3,000
2,000
1,000
0
Moment, in-kips
0.0
0.0005
0.001
Curvature, radians/inch


Mobilized EI, kip-in²
0
10,000,000
20,000,000
Dist. from Pile Head, ft
0
5
10
15
20
25
30


5.96
5.95
5.94
5.93
5.92
5.91
5.9
Top Deflection, inches
0
5
10
15
20
25
30
Pile Length, ft

P | N | D

3240 Eastlake Avenue East
Seattle, WA 98102
phone 206.624.1387
fax 206.624.1388

Project: 94022.02
Sheet Number: _____ Of: _____
Calculated by: TCS Date: 3/20
Checked by: _____ Date: _____

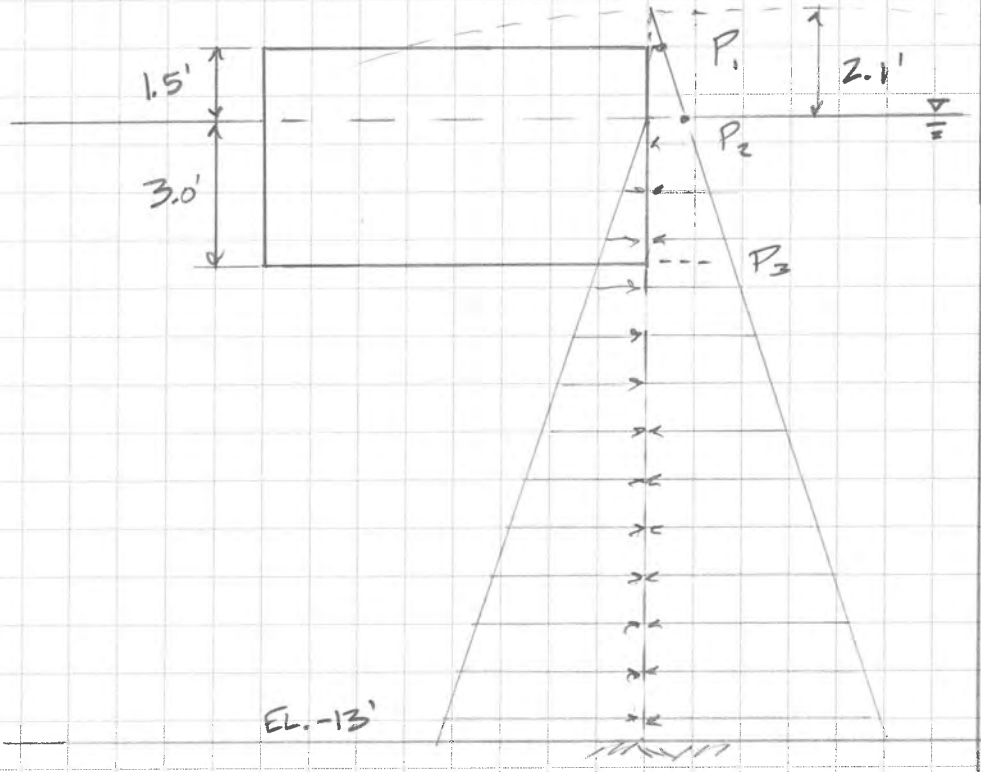
WAVE LOADING ON FLOAT C

NOTES

$H_s = 2.3'$ $H_p = 4.3'$

$T_p = 2.5s$

$H_{max} = 4.3'$



$P_1 = 64pcf\ (0.6') = 39psf$

$P_2 = 64pcf\ (2.1') = 134psf$

$P_3 = 64pcf\ (2.1' + 3' - 3') = 134psf$

TOTAL FORCE $= [(134psf + 39psf)/2] \times 1.5' + [(134psf)] \times 3'$

$= 532plf$

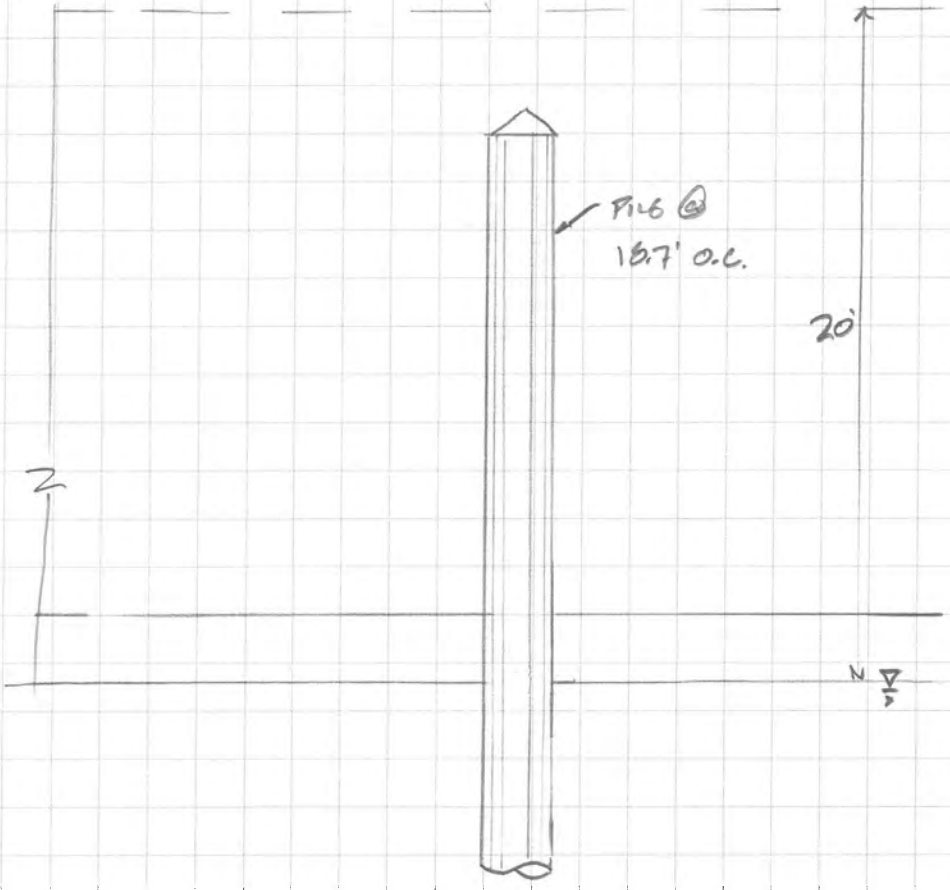
LOAD TO PILE $= 532plf \times 16.7'$ O.C. $= 10k/PILE$

P | N | D

3240 Eastlake Avenue East
Seattle, WA 98102
phone 206.624.1387
fax 206.624.1388

Project: 194022.02
Sheet Number: _____ Of: _____
Calculated by: RS Date: 3/20
Checked by: _____ Date: _____

WIND LOADING ON FLOAT 'C'



NOTES

AREA = 374 ft²

WIND PRESSURE = $p = C_D\ 0.00256\ V^2$

$= 1.2\ (0.00256)\ (85\ mph)^2 = 22\ psf$

$P_{WIND} = p \cdot A = 22\ psf \cdot 374\ ft^2 = 8.2\ k$

TOTAL LOAD PER PILE = WAVE + WIND

$= 10k + 8.2k = 18.2\ k/pile$

CURRENT IN BASIN IS NEGLIGIBLE