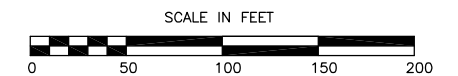


**REPAIR NOTES:**

**DEEP DRAFT DOCK CATWALK REPAIRS**

- (A) REMOVE EXISTING REINFORCING ANGLES AND ASSOCIATED WELDS.
- (B) REMOVE CRACKED WELDS ON EXISTING BEARING PLATES AND REWELD WITH 1 3/8" FILLET WELDS.
- (C) PROVIDE ADDITIONAL BEARING PLATE ASSEMBLY UNDER CATWALK BEAMS WELDED TO DOLPHIN CAP AND CATWALK BEAMS. SEE DETAILS SHEETS 2 AND 3.

**SITE PLAN**



PND Engineers, Inc. (PND) is not responsible for safety programs, methods or procedures of operation, or the construction of the design shown on these drawings. Where specifications are general or not called out, the specifications shall conform to standards of industry. Drawings are for use on this project only and are not intended for reuse without written approval from PND. Drawings are also not to be used in any manner that would constitute a detriment directly or indirectly to PND.

| REV | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |

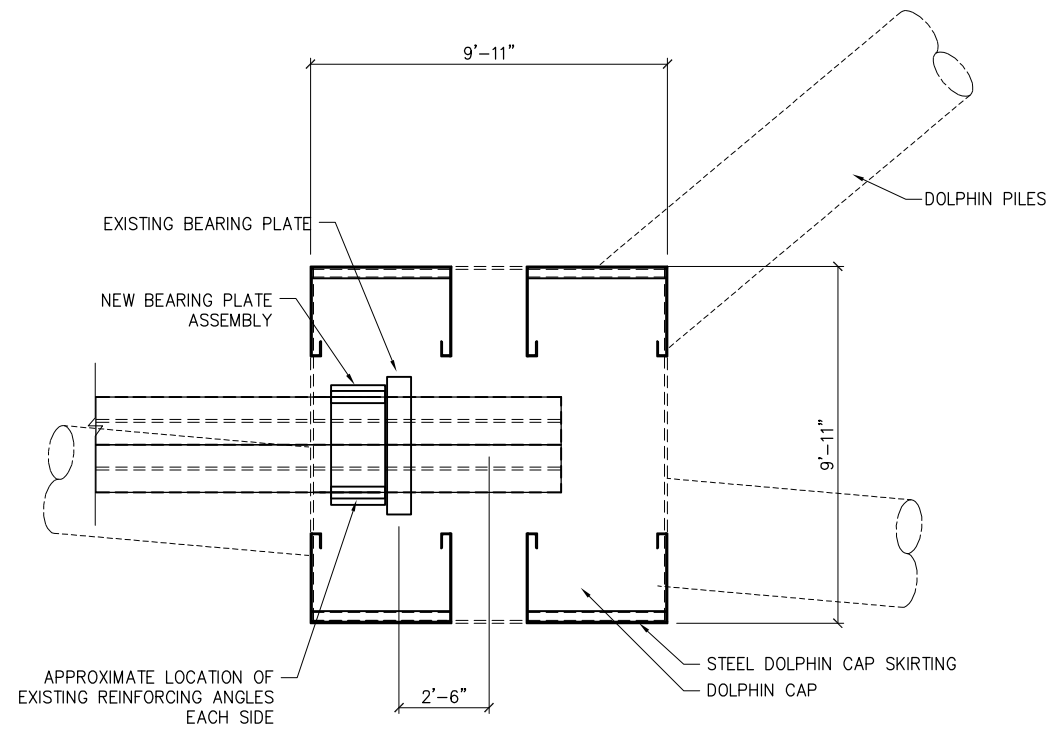


DATE: 12/28/2018

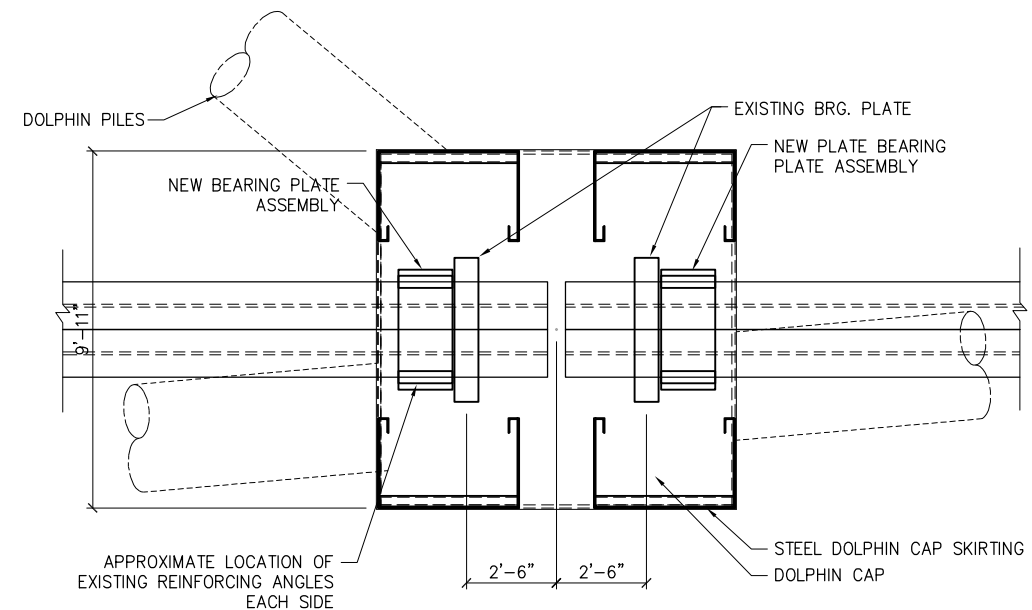
1506 West 36th Avenue  
Anchorage, Alaska 99503  
Phone: 907.561.1011  
Fax: 907.563.4220  
www.pndengineers.com



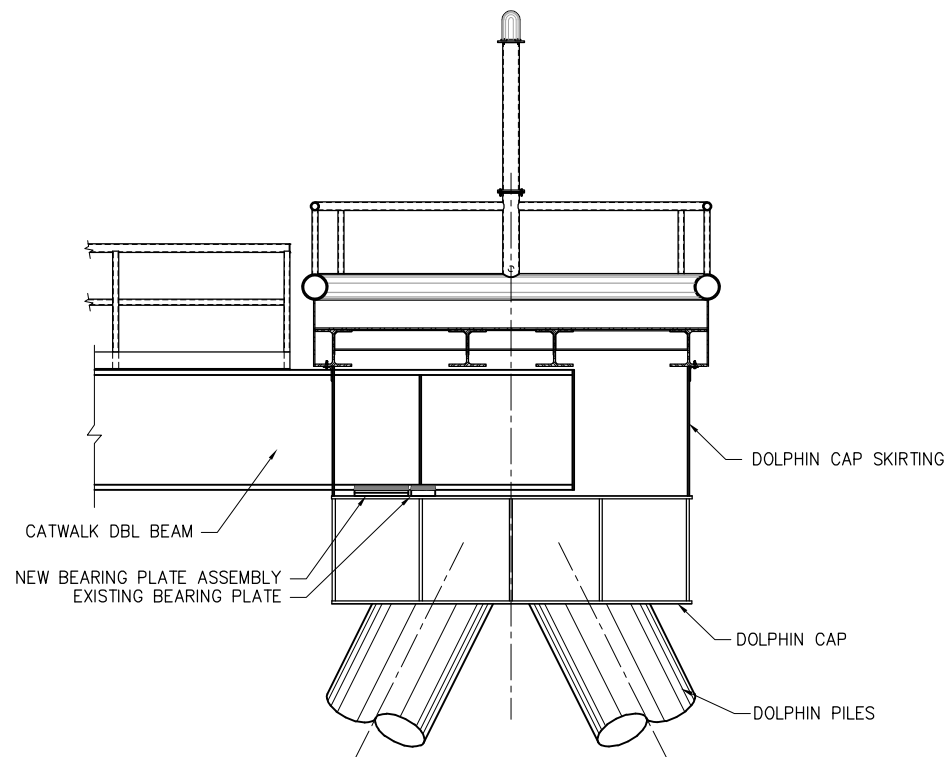
|              |    |  |                      |
|--------------|----|--|----------------------|
| PROJECT:     |    | <b>PORT MACKENZIE DOCK CATWALK REPAIRS</b> |                      |
| TITLE:       |    | DEEP-DRAFT DOCK PLAN                       |                      |
| DESIGNED BY: | CK | DATE:                                      | 12/28/2018           |
| CHECKED BY:  | BH | PROJECT NO.:                               | 181179               |
| SHEET NO.:   |    |  | <b>1</b> OF <b>3</b> |



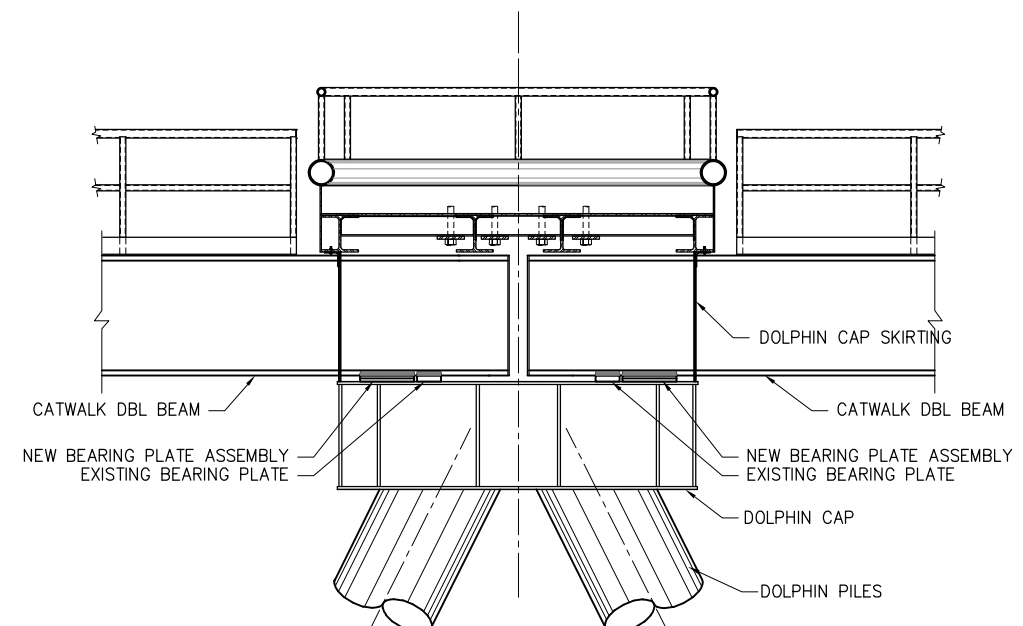
**DOLPHIN #12 PLAN (#1 OPP. HAND)**



**DOLPHIN #2 PLAN (#11 OPP. HAND)**



**DOLPHIN #12 SECTION**



**DOLPHIN #2 SECTION**

PND Engineers, Inc. (PND) is not responsible for safety programs, methods or procedures of operation, or the construction of the design shown on these drawings. Where specifications are general or not called out, the specifications shall conform to standards of industry. Drawings are for use on this project only and are not intended for reuse without written approval from PND. Drawings are also not to be used in any manner that would constitute a detriment directly or indirectly to PND.

| REV | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |



DATE: 12/28/2018

1506 West 36th Avenue  
Anchorage, Alaska 99503  
Phone: 907.561.1011  
Fax: 907.563.4220  
www.pndengineers.com



|              |    |  |               |
|--------------|----|--|---------------|
| PROJECT:     |    | <b>PORT MACKENZIE DOCK CATWALK REPAIRS</b> |               |
| TITLE:       |    | <b>DOLPHINS 1 AND 12 CATWALK DETAILS</b>   |               |
| DESIGNED BY: | CK | DATE:                                      | 12/28/2018    |
| CHECKED BY:  | BH | PROJECT NO:                                | 181179        |
| SHEET NO:    |    |  | <b>2</b> OF 3 |

**STRUCTURAL STEEL –**  
ALL STRUCTURAL STEEL PLATES SHALL BE ASTM A572 GRADE 50 UNLESS NOTED OTHERWISE. GALVANIZE OR SPRAY METALIZE ALL STEEL.

**GALVANIZING –**  
ALL STEEL PRODUCTS TO BE GALVANIZED SHALL BE HOT-DIPPED GALVANIZED (HDG) PER ASTM A385 AND A123. GALVANIZING SHALL BE AFTER FABRICATION UNLESS OTHERWISE NOTED.

**SPRAY METALIZING –**  
ALL SPRAY METALIZING SHALL BE PERFORMED PER AWS C2.23-2003. STEEL SUBSTRATE SHALL BE PREPARED TO SSPC-SP5/NACE NO.1 WHITE METAL BLAST FINISH WITH A MINIMUM ANGULAR PROFILE DEPTH OF 2.5 MILS. BLAST MEDIA SHALL BE KLEEN BLAST SIZE 16-30 AS MANUFACTURED BY KLEEN INDUSTRIAL SERVICES (800-227-1134) OR ENGINEER APPROVED EQUAL. AFTER BLASTING REMOVE DUST AND SPENT ABRASIVE FROM THE SURFACE BY USING OIL-FREE PRESSURIZED AIR, BRUSHING, OR VACUUM CLEANING. THE STEEL SURFACE TEMPERATURE SHALL BE AT LEAST 5 DEGREES F ABOVE THE DEW POINT OF THE AMBIENT AIR TEMPERATURE. FOR FLAME SPRAYING THE INITIAL STARTING AREA SHALL BE PREHEATED TO 250 DEGREES F. FEEDSTOCK SHALL BE 100-PERCENT ZINC APPLIED IN SEVERAL PASSES (APPROXIMATELY 2-4 MILS/PASS) TO A MINIMUM DRY COATING FILM THICKNESS OF 12 MILS. DURING APPLICATION, SPRAY GUN SHALL BE HELD PERPENDICULAR TO THE SUBSTRATE AT A STAND-OFF DISTANCE OF 6 TO 10 INCHES. THE CONTRACTOR SHALL PERIODICALLY VERIFY PASS AND TOTAL COATING THICKNESS. TENSILE BOND STRENGTH SHALL MEASURED PER ASTM D4541 AT THE START OF EACH SHIFT, AFTER ANY CHANGE TO THE APPLICATION METHOD, OR EVERY 500 SQUARE FEET. THE MINIMUM TENSILE BOND SHALL BE 500 PSI. CONTRACTOR SHALL SUBMIT METALIZING EQUIPMENT, BLAST MEDIA, FEEDSTOCK MATERIAL CERTIFICATION, APPLICATION AND QUALITY CONTROL METHOD FOR ENGINEER REVIEW AND APPROVAL.

**GALVANIZING/METALIZING REPAIR –**  
CONTRACTOR SHALL TAKE NECESSARY MEANS TO PROTECT COATINGS DURING TRANSPORTATION, HANDLING, WELDING, CUTTING, AND INSTALLATION. GALVANIZING DAMAGED, INCLUDING THAT REMOVED FOR WELDING, BY WELDS, CUTS, GOUGES, OR OTHER HOLIDAYS IN THE COATINGS SHALL BE REPAIRED BY THE CONTRACTOR.

FIELD REPAIR DAMAGED GALVANIZING BY "GALV-STICK" OR ENGINEER APPROVED EQUAL. CONTRACTOR SHALL SUBMIT REPAIR MATERIALS AND METHODS OF REPAIRS TO ENGINEER FOR REVIEW AND APPROVAL.

**GALV-STICK –**  
GALV-STICK SHALL BE ZINC OR ALUMINUM ALLOY. PREPARE DAMAGED GALVANIZING WITH A GRINDER AND THEN ABRASE THE ENTIRE SURFACE WITH A WIRE BRUSH WHERE APPLICATION OF THE GALVANIZING REPAIR IS REQUIRED. CLEAN THE SURFACE TO REMOVE ALL GREASE, OIL, AND SURFACE DEPOSITS. HEAT LOCAL AREA TO MANUFACTURER SUGGESTED TEMPERATURE AND APPLY GALV-STICK IN MANNER TO ACHIEVE MINIMUM 10 MIL TOTAL FINAL THICKNESS. AFTER COOLING, APPLY 2 COATS OF ZINC-RICH PAINT. ZINC-RICH PAINT SHALL CONTAIN 95% METALLIC ZINC BY WEIGHT IN THE DRY FILM. ALLOW EACH COATING TO DRY THOROUGHLY BETWEEN APPLICATIONS.

**STRUCTURAL STEEL WELDING –**  
ALL WELDING SHALL BE PERFORMED PER LATEST AWS D1.1 BY WELDERS QUALIFIED PER AWS FOR THE TYPE AND POSITION OF THE WELDS. ALL WELDING SHALL BE PERFORMED IN A PROTECTIVE SHELTER CAPABLE OF MAINTAINING AN ATMOSPHERIC TEMPERATURE OF 70 DEGREES FAR. AND A WIND VELOCITY OF LESS THAN 5 MPH. ALL FILLER METAL SHALL HAVE CHARPY IMPACT CRITERIA OF 20 FT-LBS AT -20 DEGREES F AND SHALL HAVE A MAXIMUM CARBON CONTENT OF 0.20%. ALL ELECTRODES SHALL BE PROPERLY CONDITIONED LOW HYDROGEN. ALL FILLET WELDS SHALL BE CONCAVE WELD PROFILES WITH SMOOTH TRANSITIONS TO THE BASE METAL. WELD SURFACE SHALL BE FINISHED PARALLEL TO THE WELD AXIS TO A MAXIMUM ROUGHNESS VALUE OF 250 MICROINCHES PER ASME B46.1.

ALL FIELD WELDS SHALL BE RELIEVED BY HAMMER PEENING. ALL PEENING SHALL BE PERFORMED USING AN ELECTRIC OR PNEUMATIC HAMMER WITH HEMISPHERICAL TIPS DIAMETER BETWEEN 0.25" AND 0.5". PEENING SHALL BE PERFORMED ALONG THE WELD TOES FOR EACH INTERMEDIATE WELD PASS. NO PEENING SHALL BE PERFORMED ON THE ROOT OR FINAL CAP PASS. ALL PEENING SHALL BE IN ACCORDANCE WITH AWS AND THE EQUIPMENT MANUFACTURER. PEENING PROCEDURE AND EQUIPMENT SHALL BE INCLUDED IN THE WPS AND SHALL BE APPROVED BY THE ENGINEER.

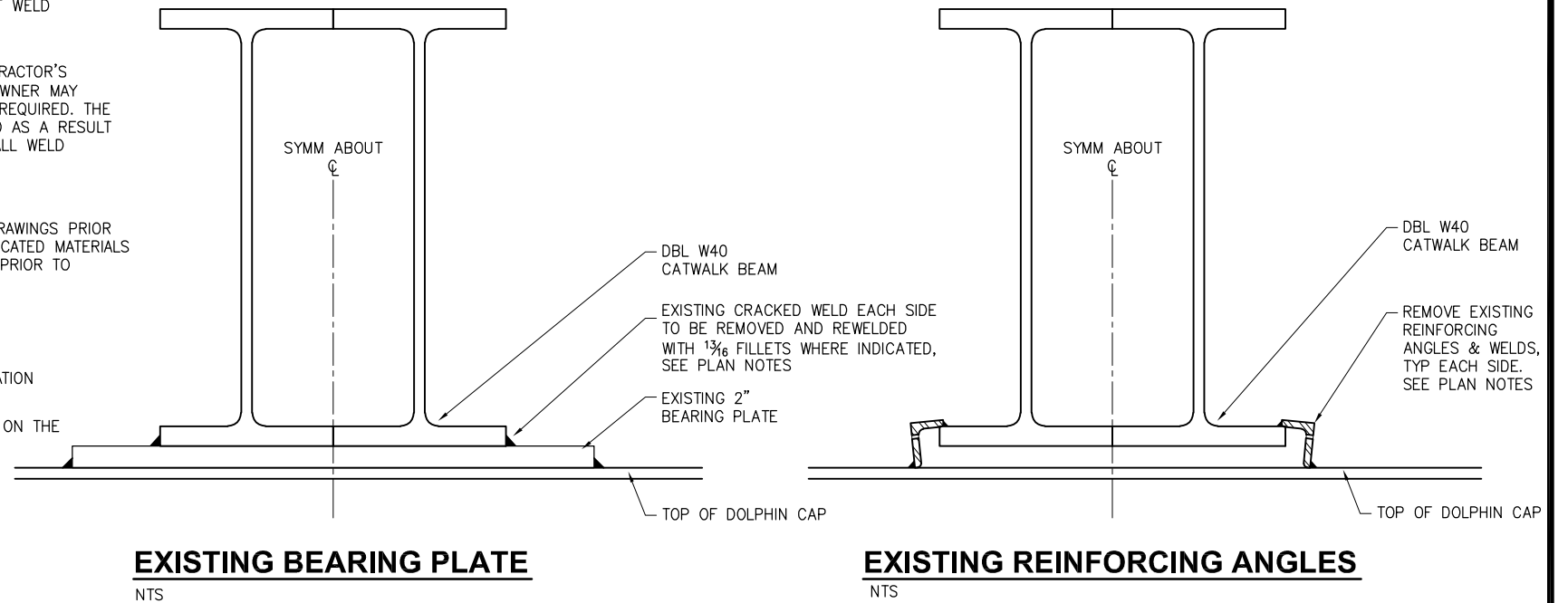
SUBMIT WELDER QUALIFICATIONS AND WELDING PROCEDURES TO ENGINEER FOR APPROVAL AT LEAST 15 DAYS PRIOR TO WELDING.

CONTRACTOR SHALL PROVIDE A CERTIFIED WELDING INSPECTOR (CWI) TO INSPECT ALL SHOP WELDS. OWNER WILL PROVIDE CWI FOR ALL FIELD WELDS. ALL WELDS SHALL BE 100% VISUALLY INSPECTED. CONTRACTOR SHALL SUBMIT WELD INSPECTION REPORTS TO THE OWNER FOR REVIEW.

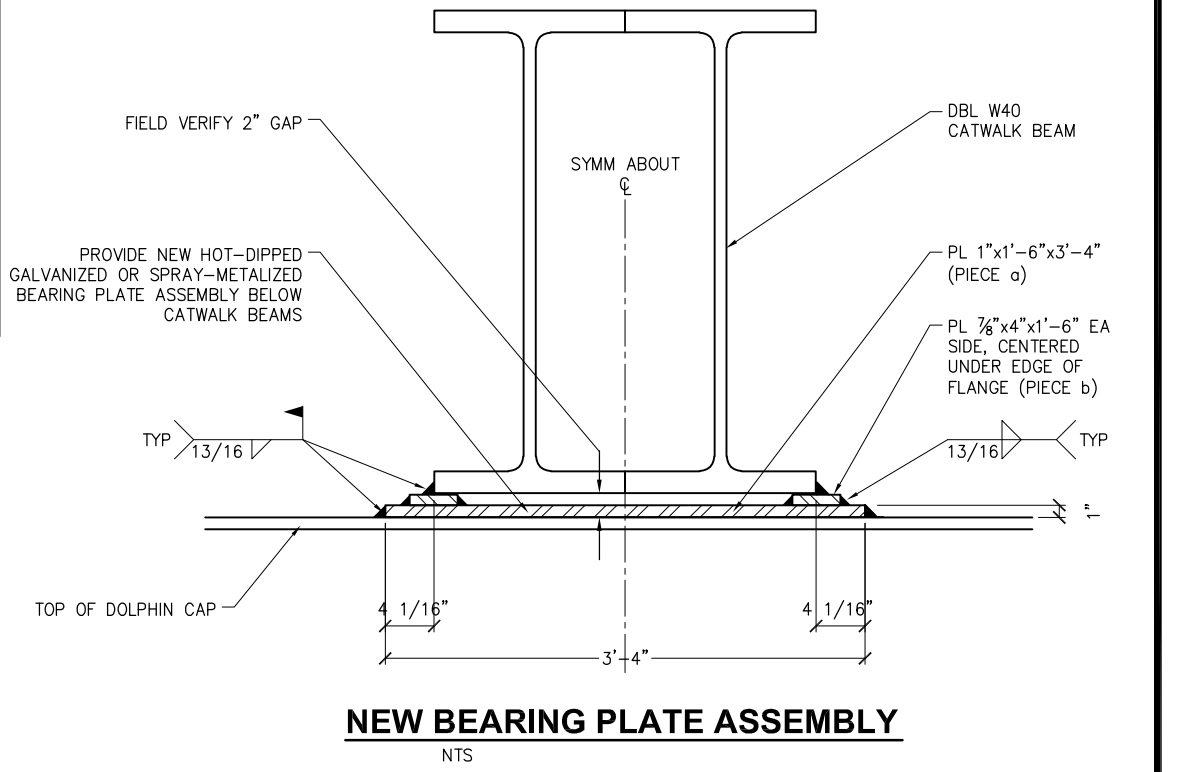
ANY WELD FAILING INSPECTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, WHICH WILL INCLUDE THE COST FOR RETESTING. THE OWNER MAY PROVIDE ADDITIONAL INSPECTION OF SHOP AND FIELD WELDS AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS REQUIRED AS A RESULT OF ADDITIONAL OWNER INSPECTIONS. ACCEPTANCE CRITERIA FOR ALL WELD INSPECTIONS SHALL CONFORM TO AWS D1.1.

**SUBMITTALS –**  
THE CONTRACTOR SHALL FULLY REVIEW SUBMITTALS AND SHOP DRAWINGS PRIOR TO SUBMITTING TO THE ENGINEER. SHOP DRAWINGS OF ALL FABRICATED MATERIALS SHALL BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL PRIOR TO FABRICATION.

- SHOP DRAWINGS AND MATERIAL CERTIFICATIONS:
1. STEEL MATERIAL CERTIFICATIONS
  2. GALVANIZING CERTIFICATION AND/OR METALIZING CERTIFICATION
  3. METALIZING REPAIR METHOD AND MATERIALS
  4. AWS WELDING CERTIFICATION FOR ALL WELDERS UTILIZED ON THE PROJECT
  5. WELDING PROCEDURES FOR ALL SHOP AND FIELD WELDS
  8. STEEL FABRICATION DRAWINGS
  9. SHOP WELD INSPECTION REPORTS

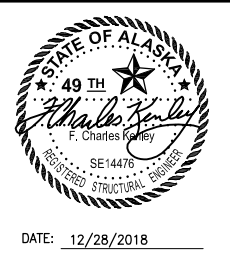


| LIST OF MATERIALS |                            |            |       |           |                   |   |
|-------------------|----------------------------|------------|-------|-----------|-------------------|---|
| ITEM              | DISCRIPTION                | GRADE      | UNITS | NO. UNITS | ITEM WEIGHT (LBS) | REMARKS                                       |
| 100               | NEW BEARING PLATE ASSEMBLY |            | EA.   | 6         | 245 lbs           | SPRAY METALIZED                               |
| a                 | PLATE 1"x1'-6"x3'-4"       | A572 GR 50 | EA.   | 6         |                   |   |
| b                 | PLATE 7/8"x4"x1'-6"        | A572 GR 50 | EA.   | 12        |                   | VERIFY THICKNESS BY FIELD MEASUREMENTS OF GAP |



PND Engineers, Inc. (PND) is not responsible for safety programs, methods or procedures of operation, or the construction of the design shown on these drawings. Where specifications are general or not called out, the specifications shall conform to standards of industry. Drawings are for use on this project only and are not intended for reuse without written approval from PND. Drawings are also not to be used in any manner that would constitute a detriment directly or indirectly to PND.

| REV | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |



1506 West 36th Avenue  
Anchorage, Alaska 99503  
Phone: 907.561.1011  
Fax: 907.563.4220  
www.pndengineers.com

**P | N | D**  
ENGINEERS, INC.

PROJECT: **PORT MACKENZIE DOCK CATWALK REPAIRS**

TITLE: **CATWALK BEARING DETAILS**

DESIGNED BY: CK DATE: 12/28/2018 SHEET NO: **3** OF **3**

CHECKED BY: BH PROJECT NO: 181179