

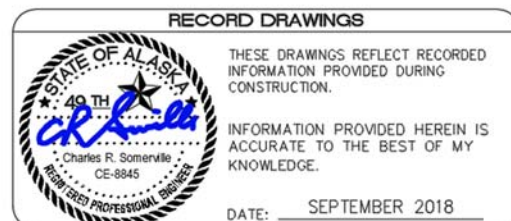
HAINES BOROUGH  
PORTAGE COVE HARBOR EXPANSION

Volume 2 of 2

AS-BUILT PLANS



SEPTEMBER, 2016

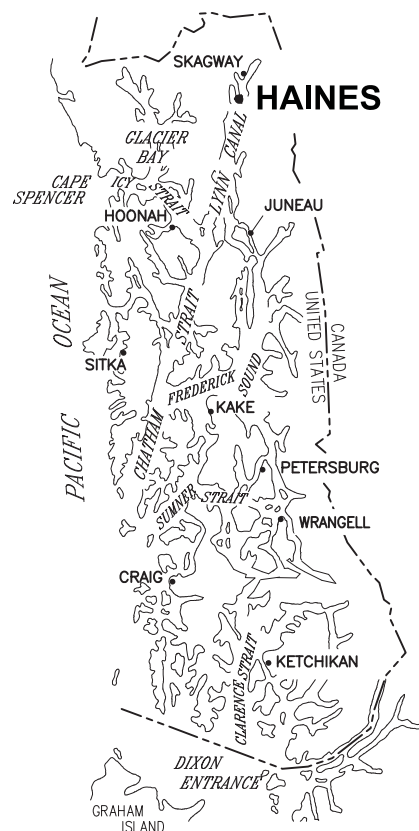


DESIGN PND # 102029.01  
CA/CI PND # 162091.01

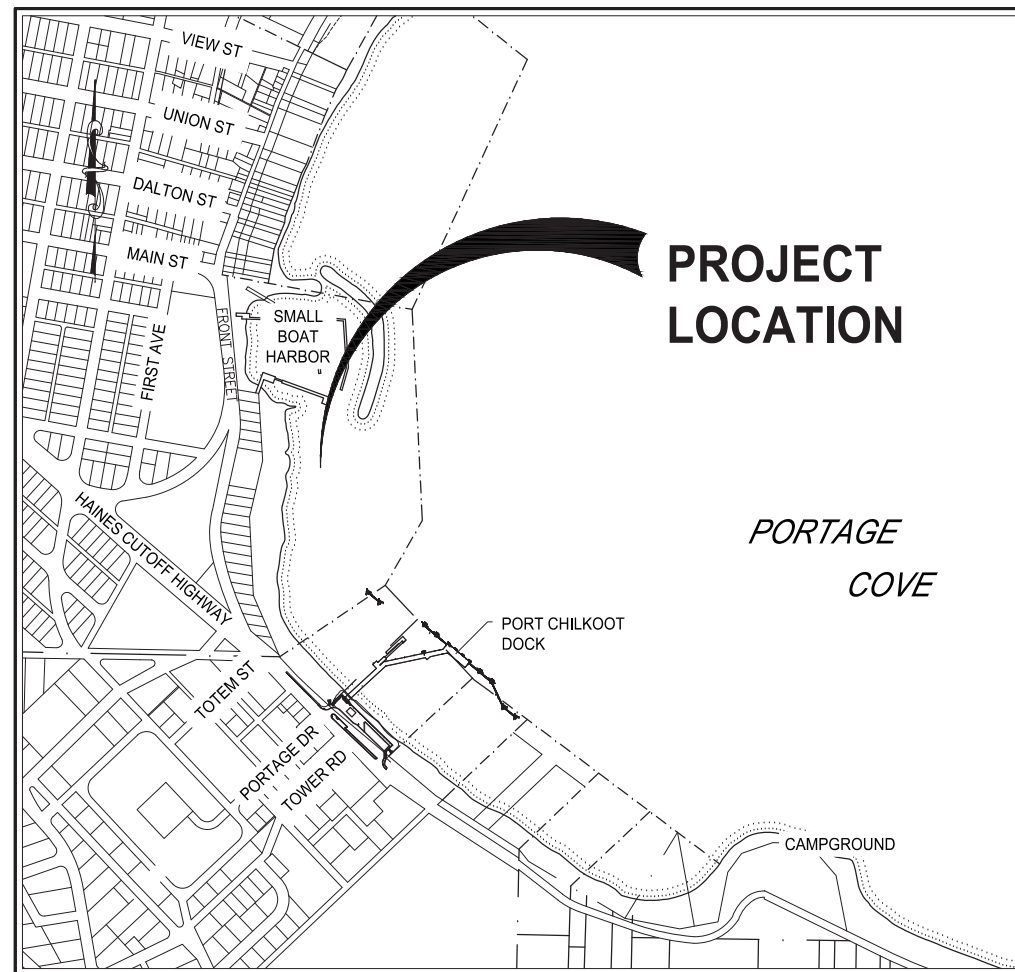
# HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION



LOCATION MAP

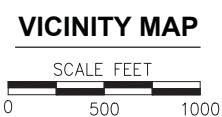


SOUTHEAST ALASKA



**PROJECT  
LOCATION**

PORTAGE  
COVE



VICINITY MAP  
MAP ADAPTED FROM: HAINES BOROUGH GIS

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TIDAL DATA	
HIGHEST OBSERVED WATER LEVEL (APPROX.)	= 26.5 FEET
MEAN HIGHER HIGH WATER	= 16.7 FEET
MEAN HIGH WATER	= 15.7 FEET
MEAN LOWER WATER	= 1.6 FEET
MEAN LOWER LOW WATER	= 0 FEET
LOWEST OBSERVED WATER LEVEL (APPROX.)	= -6.5 FEET

FROM: NOAA NOS/CO-OPS STATION ID:9452400 SKAGWAY, ALASKA

DRAWING INDEX		
SHEET NO.	DWG. NO.	TITLE
<b>GENERAL</b>		
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2 OF 32	1.02	GENERAL NOTES, LEGEND AND ABBREVIATIONS
3 OF 32	1.03	EXISTING CONDITIONS, SURVEY CONTROL & BH LOCATIONS
4 OF 32	1.04	EXISTING CONDITIONS AND SITE PHOTOGRAPHS
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6 OF 32	1.06	DEMOLITION, SALVAGE & DISPOSAL PLAN
7 OF 32	1.07	TRANSIENT FLOAT PLAN - PILE LAYOUT AND DETAILS
<b>WASTE WATER OUTFALL</b>		
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<b>UPLANDS</b>		
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<b>WAVE BARRIER</b>		
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20 OF 32	5.03	WAVE BARRIER SOUTH PARTIAL PLAN
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23 OF 32	5.06	ROCK BREAKWATER SECTION
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28 OF 32	5.11	BOX CAP DETAILS
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30 OF 32	5.13	LADDER
31 OF 32	5.14	PILE ANODES ADDITIVE ALTERNATE 'B'
34 OF 32	5.15	NAVIGATION STRUCTURE DETAILS

PROJECT SCHEDULE	
DESCRIPTION	SCHEDULE
1. SUBSTANTIAL COMPLETION	MAY 31, 2018
2. FINAL COMPLETION OF ALL WORK UNDER THIS CONTRACT.	JUNE 30, 2018



**RECORD DRAWINGS**

THESE DRAWINGS REFLECT RECORDED INFORMATION PROVIDED DURING CONSTRUCTION.

INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

DATE: SEPTEMBER 2018

REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
1	9/21/16	ADDENDUM NO.2	PJD	JDO	CRS
2	3/10/17	CHANGE ORDER # 02	KLL	SCS	CRS
3	9/2018	AS-BUILT	KLL	MBH	CRS



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DRAWN: PJD APPROVED: CRS

SCALE: AS SHOWN

DATE: 8/23/16

**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

SHEET TITLE:  
**COVER SHEET, VICINITY MAPS  
AND DRAWING INDEX**

PND PROJECT NO.: 102029.01

**1.01**

SHEET  
**1 OF 32**

# GENERAL NOTES

- THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION GENERAL PERMIT (CGP) IN ACCORDANCE WITH CONTRACT SPECIFICATIONS AND STATE LAW. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF THE CGP AT ALL TIMES INCLUDING THE DEVELOPMENT, IMPLEMENTATION AND MAINTENANCE OF A STORM WATER POLLUTION PREVENTION PLAN WITH APPROPRIATE SPILL PREVENTION AND RESPONSE MEASURES.
- MATCH EXISTING GRADES AT PROJECT LIMITS AND WHERE REQUIRED TO MATCH ELEVATIONS AT EXISTING SURFACES.
- THE LOCATIONS AND ELEVATIONS OF EXISTING FEATURES AND UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE. UTILITIES SHOWN ARE TAKEN FROM EXISTING AS-BUILT RECORDS AND OTHER SOURCES. ADDITIONAL UTILITIES MAY BE PRESENT HOWEVER ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS IN THE FIELD AS NECESSARY PRIOR TO BEGINNING WORK. THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED IN THE FIELD SHALL BE RECORDED ON THE CONTRACTOR'S RECORD DRAWINGS. CONTACT LOCAL UTILITIES AT THE FOLLOWING NUMBERS FOR LOCATE SERVICE A MINIMUM OF TWO BUSINESS DAYS PRIOR TO ANY EXCAVATION:  
**WATER AND WASTE MATERIAL (907) 766-2237 OR 766-2200**  
**POWER AND LIGHT (AP&T) (907) 766-2331**  
**CATV (907) 766-2137**  
**TELEPHONE (GTE) (907) 766-2311**
- PROPERTY DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ITS PRE-CONSTRUCTION CONDITION OR BETTER AT NO ADDITIONAL COST.
- PROPERTY LINE LOCATIONS USED IN THESE PLANS ARE DERIVED FROM RECORD PLATS AND DO NOT REPRESENT A BOUNDARY SURVEY.
- PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION. NO ASSURANCE IS GIVEN THAT THE INDICATED POSITION OF ANY EXISTING UTILITY IS CORRECT OR THAT THE INFORMATION IS COMPLETE. ALL LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE CORRECT AND TRUE LOCATION AS TO AVOID DAMAGE OR DISTURBANCE. DAMAGE TO EXISTING SITE FACILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- OVERHEAD UTILITIES INCLUDING ELECTRICAL POWER, TELEPHONE, CABLE TV, AND OTHER OVERHEAD LINES ARE GENERALLY NOT SHOWN, THE LINES THAT ARE SHOWN ARE LOCATED BY POINT-TO-POINT, POLE-TO-POLE. DETERMINE THE EXTENT OF HAZARDS OR IMPACTS ON CONSTRUCTION ACTIVITIES CREATED BY OVERHEAD OR UNDERGROUND LINES IN ALL AREAS AND FOLLOW PROCEDURES DURING CONSTRUCTION AS REQUIRED BY LAW. PRIOR TO CONSTRUCTION, MEET WITH UTILITY OWNERS TO DETERMINE THE EXTENT OF HAZARDS AND TAKE PRECAUTIONS AS REQUIRED TO PROTECT PERSONS AND PROPERTY AND TO AVOID DISRUPTION OF SERVICE.
- GRADING AND ALIGNMENT OF PIPE, STRUCTURES & FINAL SURFACING ARE SUBJECT TO MINOR REVISIONS BY THE ENGINEER TO FIT SITE CONDITIONS. GRADE ALL IMPROVEMENTS WITH POSITIVE DRAINAGE AWAY FROM BUILDINGS TO DITCHES, SWALES OR STORM DRAIN INLETS.
- THE DRAWINGS DO NOT NECESSARILY SHOW ALL TREES, BUSHES OR OTHER PLANTINGS THAT WILL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES.
- ALL ITEMS DESIGNATED TO BE REMOVED, INCLUDING PAVEMENT, SHALL BE DISPOSED OF AT CONTRACTOR-PROVIDED DISPOSAL SITE, APPROVED BY THE ENGINEER, EXCEPT AS NOTED.
- CONTRACTOR SHALL REFERENCE ALL EXISTING SURVEY MONUMENTS PRIOR TO CONSTRUCTION. DISTURBED MONUMENTS SHALL BE RESET OR REPLACED EXCEPT WHERE MONUMENT WOULD BE A HAZARD AS DETERMINED BY THE ENGINEER. EXISTING SURVEY MONUMENTS MAY NOT BE SHOWN ON THE DRAWINGS. ALL WORK SHALL BE DONE BY, OR UNDER THE DIRECTION OF, AN ALASKA REGISTERED LAND SURVEYOR.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES TO PRIVATE AND PUBLIC PROPERTY ASSOCIATED WITH THE CONSTRUCTION ACTIVITIES, INCLUDING BUT NOT LIMITED TO DAMAGES CAUSED BY COMPACTION EFFORTS.
- HORIZONTAL DIMENSIONS ON PLAN AND PROFILE SHEETS TO PIPELINES, MANHOLES, AND OTHER FACILITIES, ARE TO THE CENTERLINES OF THOSE FACILITIES UNLESS SPECIFICALLY NOTED OTHERWISE. PIPELINE LENGTHS ARE MEASURED HORIZONTALLY. (I.E. PLANAR - NOT CORRECTED FOR SLOPE)

# LEGEND

EXISTING	THIS PROJECT	
		OVERHEAD ELECTRICAL
		BURIED FUEL LINE
		ELECTRICAL (UNDERGROUND)
		WATER
		SANITARY SEWER
		SANITARY SEWER (ABANDONED)
		COMMUNICATION (CABLE/TEL)
		STORM DRAIN
		FORCE MAIN
		INFERRED SOIL STRATUM CHANGE
		PROPERTY LINE
		GRADE BREAK
		GEOTEXTILE FABRIC
		SILT CONTAINMENT BOOM
		GUY WIRE ANCHOR
		SURVEY CONTROL
		NAVIGATION AID
		UTILITY POLE
		BOLLARD
		CURB & GUTTER
		ELECTRICAL TRANSFORMER
		ELECTRICAL HANDHOLE
		FIRE HYDRANT
		LIGHT POLE
		SANITARY SEWER MANHOLE
		STORM DRAIN STRUCTURE
		STORM DRAIN CURB INLET
		SIGN
		JERSEY BARRIER
		TREE/VEGETATION
		SIDEWALK RAMP DIRECTION
		GUARDRAIL
		WATER VALVE
		LAYOUT POINT
		LAYOUT RADIUS
		ARTWORK/ DISPLAYS
		ARMOR ROCK, UNO
		DREDGE BASIN OR SHOT ROCK BORROW PLAN VIEW
		BASE COURSE GRADING C-1

# ABBREVIATIONS

<b>A</b>	AT	<b>H</b>	H&T HUB & TACK	<b>Q</b>	QTY QUANTITY
<b>@</b>	ASBESTOS CEMENT PIPE	<b>HD</b>	HEAVY DUTY	<b>R</b>	R/RAD RADIUS
<b>AC</b>	ASPHALT CONCRETE PAVEMENT	<b>HDG</b>	HOT-DIPPED GALVANIZED	<b>RE</b>	RIM ELEVATION
<b>ACP</b>	AMERICANS WITH DISABILITIES ACT	<b>HDPE</b>	HIGH DENSITY POLYETHYLENE	<b>REF</b>	REFERENCE
<b>ADA</b>	ADJUSTABLE	<b>HORIZ</b>	HORIZONTAL	<b>REINF</b>	REINFORCEMENT
<b>ADJ</b>	ASSOCIATED PILE AND FITTING CORP.	<b>HSE</b>	HOUSE	<b>REQD</b>	REQUIRED
<b>APF</b>	APPROXIMATE	<b>HT</b>	HEIGHT	<b>RET</b>	RETAINING
<b>APPROX. or APPX.</b>	ALASKA TIDELANDS SURVEY	<b>HWY.</b>	HIGHWAY	<b>RO</b>	ROUGH OPENING
<b>ATS</b>	AIR RELEASE VALVE	<b>I</b>	IN ACCORDANCE WITH	<b>ROW</b>	RIGHT OF WAY
<b>AV</b>	BEGINNING OF CURB CUT	<b>IAW</b>	INSIDE DIAMETER	<b>S</b>	SOUTH
<b>B</b>	BUTTERFLY VALVE	<b>ID</b>	INVERT ELEVATION	<b>S</b>	SCHED/SCH SCHEDULE
<b>BCC</b>	BOREHOLE	<b>IE</b>	INCH	<b>SD</b>	STORM DRAIN
<b>BFV</b>	BUILDING	<b>IN</b>	INCLUDE (D) (ING)	<b>SDI</b>	STORM DRAIN INLET STRUCTURE
<b>BH</b>	BEGINNING OF PROJECT	<b>IP</b>	INSULATE (D) (ION)	<b>SDO</b>	STORM DRAIN OUTLET STRUCTURE
<b>BLDG</b>	BOTTOM	<b>INSUL</b>	INVERT	<b>SDR</b>	STANDARD DIMENSION RATIO
<b>BOP/BP</b>	CURB & GUTTER	<b>INV</b>	JUNCTION BOX	<b>SF</b>	SQUARE FOOT
<b>BTM, BOT</b>	CATCH BASIN	<b>J</b>	LBS POUNDS	<b>SHLDR</b>	SHOULDER
<b>C</b>	CAST IRON	<b>L</b>	LINEAR FEET	<b>SI</b>	STREET INTERSECTION
<b>C&amp;G</b>	CAST-IN-PLACE	<b>LBS</b>	LIVE LOAD	<b>SPEC</b>	SPECIFICATION (S)
<b>CB</b>	CONTROL JOINT	<b>LF</b>	LOCATION	<b>SQ</b>	SQUARE
<b>CB</b>	CLEAR	<b>LL</b>	LUMP SUM	<b>SRB</b>	SHOT ROCK BORROW
<b>CI</b>	CORRUGATED METAL PIPE	<b>LOC</b>	MAXIMUM	<b>SSC</b>	SANITARY SEWER CONNECTION
<b>CIP</b>	CORPS OF ENGINEERS	<b>LS</b>	MATCH EXISTING	<b>SS</b>	STAINLESS STEEL, SANITARY SEWER
<b>CJ</b>	COMMUNICATION	<b>MAX</b>	MECHANICAL	<b>SDMH</b>	STORM DRAIN MANHOLE
<b>CL</b>	CONCRETE	<b>M.E.</b>	MANUFACTURE (R)	<b>SMH</b>	SANITARY SEWER MANHOLE
<b>CLR</b>	COMPLETE PENETRATION	<b>MECH</b>	MANHOLE	<b>STA</b>	STATION
<b>CMP</b>	CORRUGATED POLYETHYLENE PIPE	<b>MFR</b>	MECHANICAL JOINT	<b>STD</b>	STANDARD
<b>CO</b>	CORNER	<b>MH</b>	MALLEABLE IRON	<b>STL</b>	STEEL
<b>C.O.E.</b>	COUNTERSINK	<b>MJ</b>	MINIMUM	<b>STRG</b>	STRONG
<b>COMM</b>	CENTER	<b>MI</b>	MEAN LOWER LOW WATER	<b>SW</b>	SIDEWALK
<b>CONC.</b>	CUBIC YARD	<b>MIN</b>	1000 SQUARE FEET	<b>SWR</b>	SEWER
<b>CP</b>	DISSIMILAR PIPE COUPLING	<b>MLLW</b>	MECHANICALLY STABILIZED EARTH MATERIAL (S)	<b>SY</b>	SQUARE YARD
<b>CPEP/CPP</b>	DOUBLE	<b>MSF</b>	NON FROST SUSCEPTIBLE	<b>SYM</b>	SYMMETRICAL
<b>COR</b>	DEMOLITION	<b>MSE</b>	NOT IN CONTRACT	<b>T</b>	THICK
<b>COR</b>	DEAD LOAD	<b>MTL</b>	NUMBER	<b>t</b>	TOP AND BOTTOM
<b>CSC</b>	DUCTILE IRON PIPE	<b>N</b>	NOT TO SCALE	<b>T&amp;B</b>	TONGUE AND GROOVE
<b>CTR</b>	DOWN	<b>NFS</b>	OVERBURDEN	<b>TBC</b>	TOP BACK OF CURB
<b>CY</b>	DETAIL	<b>NIC</b>	ON CENTER	<b>TBD</b>	TO BE DETERMINED
<b>D</b>	EAST	<b>NO</b>	OUTSIDE DIAMETER	<b>TBM</b>	TEMPORARY BENCH MARK
<b>DCP</b>	EACH	<b>NTS</b>	ORIGINAL GOUND	<b>TD</b>	TRENCH DRAIN
<b>D/DIA</b>	EDGE OF CONCRETE	<b>O</b>	OVERHEAD ELECTRICAL	<b>TEL</b>	TELEPHONE
<b>DBL</b>	END OF CURB CUT	<b>OBD</b>	OIL-WATER SEPARATOR	<b>TEMP</b>	TEMPERATURE, TEMPORARY
<b>DEMO</b>	EXISTING GRADE	<b>OC</b>	OPPOSITE	<b>TH</b>	TEST HOLE
<b>DL</b>	EXPANSION JOINT	<b>OD</b>	PIPE	<b>THK</b>	THICK
<b>DIP</b>	ELEVATION	<b>OG</b>	POINT OF CURVATURE, PIECE	<b>TRANS</b>	TRANSVERSE
<b>DIM</b>	ELECTRICAL	<b>OHE</b>	PRECAST CONCRATE	<b>TV</b>	TELEVISION
<b>DN</b>	END OF PAVEMENT	<b>OWS</b>	POINT OF COMPOUND CURVATURE	<b>TYP</b>	TYPICAL
<b>DN</b>	END PROJECT	<b>OPP</b>	POLYETHYLENE	<b>U</b>	UNIFORM BUILDING CODE
<b>DTL</b>	EQUAL	<b>P</b>	PEDESTAL	<b>UBC</b>	UNDERGROUND ELECTRIC
<b>E</b>	EQUIPMENT	<b>P</b>	PERFORATE (D)	<b>UE</b>	UNIFORM MECHANICAL CODE
<b>EA.</b>	ESTIMATE	<b>PC</b>	POINT OF INTERSECTION	<b>UMC</b>	ULTRA HIGH MOLECULAR WEIGHT
<b>EA.</b>	EACH WAY	<b>PCC</b>	PLYWOOD	<b>UHMW</b>	UNLESS OTHERWISE NOTED
<b>EC</b>	EXCAVATE	<b>PE</b>	PROPERTY LINE, PLATE	<b>UON/UNO</b>	UNIFORM PLUMBING CODE
<b>ECC</b>	EXISTING	<b>PED</b>	POINT OF CURVE	<b>UPC</b>	US ARMY CORPS OF ENGINEERS
<b>EG</b>	FACE OF CURB	<b>PER</b>	POLYPROPYLENE	<b>USACE</b>	
<b>EJ</b>	FLOOR DRAIN	<b>PERF</b>	POINT OF REVERSE CURVATURE	<b>V</b>	VALVE BOX
<b>EL/ELEV</b>	FINISHED FLOOR	<b>PI</b>	PROJECT	<b>VB</b>	VERTICAL
<b>ELEL</b>	FINISHED GRADE	<b>PLWD</b>	PARKING	<b>VG</b>	VALLEY GUTTER
<b>EP</b>	FIRE HYDRANT, FLAT HEAD	<b>PL</b>	PRESSURE REDUCING VALVE	<b>W</b>	WEST
<b>EP</b>	FINISH (ED)	<b>POC</b>	POUND PER SQUARE INCH	<b>W/</b>	WITH
<b>EQ</b>	FORCE MAIN SEWER	<b>PP</b>	POINT, PRESSURE TREATED,	<b>WD</b>	WOOD
<b>EQU</b>	FOUNDATION	<b>PRJ</b>	POINT OF TANGENCY	<b>WELDMT</b>	WELDMENT
<b>EST</b>	FACE OF CURB	<b>PRKG</b>	POINT OF VERTICAL CURVATURE,	<b>WL</b>	WATERLINE
<b>EW</b>	FOOT	<b>PRV</b>	POLY-VINYL CHLORIDE	<b>WQU</b>	WATER QUALITY UNIT
<b>EXC</b>	FOOTING	<b>PSI</b>	POINT OF VERTICAL INTERSECTION	<b>WV</b>	WATER VALVE
<b>EXIST</b>	FLOWLINE OR FLANGE	<b>PT</b>		<b>WW</b>	WATER WATER
<b>F</b>	GALLON	<b>PVC</b>		<b>WWTP</b>	WASTE WATER TREATMENT PLANT
<b>FC</b>	GALVANIZED	<b>PVI</b>		<b>W/O</b>	WITHOUT
<b>FD</b>	GRADE BREAK			<b>X</b>	TRANSFORMER
<b>FF</b>	GALLONS PER MINUTE			<b>XFMR</b>	ANGLE POINT
<b>FG</b>	GROUND			<b>&lt;PT</b>	
<b>FH</b>	GATE VALVE				
<b>FIN</b>					
<b>FM</b>					
<b>FND</b>					
<b>FOC</b>					
<b>FT</b>					
<b>FTG</b>					
<b>FL</b>					
<b>G</b>					
<b>GAL</b>					
<b>GALV</b>					
<b>GB</b>					
<b>GPM</b>					
<b>GRD</b>					
<b>GV</b>					



**RECORD DRAWINGS**

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DATE: SEPTEMBER 2018

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**P | N | D**

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DESIGN: TCB CHECKED: CRS SCALE: NTS  
DRAWN: KLL APPROVED: CRS

DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **GENERAL NOTES, LEGEND AND ABBREVIATIONS**

PND PROJECT NO.: 102029.01

**1.02**

SHEET 2 OF 32





**A** INTERTIDAL BOULDERS W/ TIMBER, CONCRETE, STEEL DEBRIS AND ORGANICS



**B** ARTWORK/ DISPLAY TO BE RELOCATED BY OWNER



**C** INNER HARBOR DREDGE AREA LOOKING NORTH



**D** SEAPLANE FLOAT PILE HOOPS TO BE REMOVED, SALVAGED AND REINSTALLED BY CONTRACTOR; FLOAT RELOCATED AND REINSTALLED BY OWNER



**E** TRANSIENT FLOAT PILES TO BE REPLACED EXISTING LIGHT FIXTURES TO BE SALVAGED AND REINSTALLED BY CONTRACTOR. POWER CABLE TO BE SALVAGED BY CONTRACTOR, POWER CABLE TO BE INSTALLED BY OWNER



**F** DREDGE AREA INNER HARBOR LOOKING EAST



**G** DREDGE AREA LOOKING WEST AT TRANSIENT FLOAT



**H** EXISTING USACE RUBBLE MOUND BREAKWATER AND NAVIGATION AID



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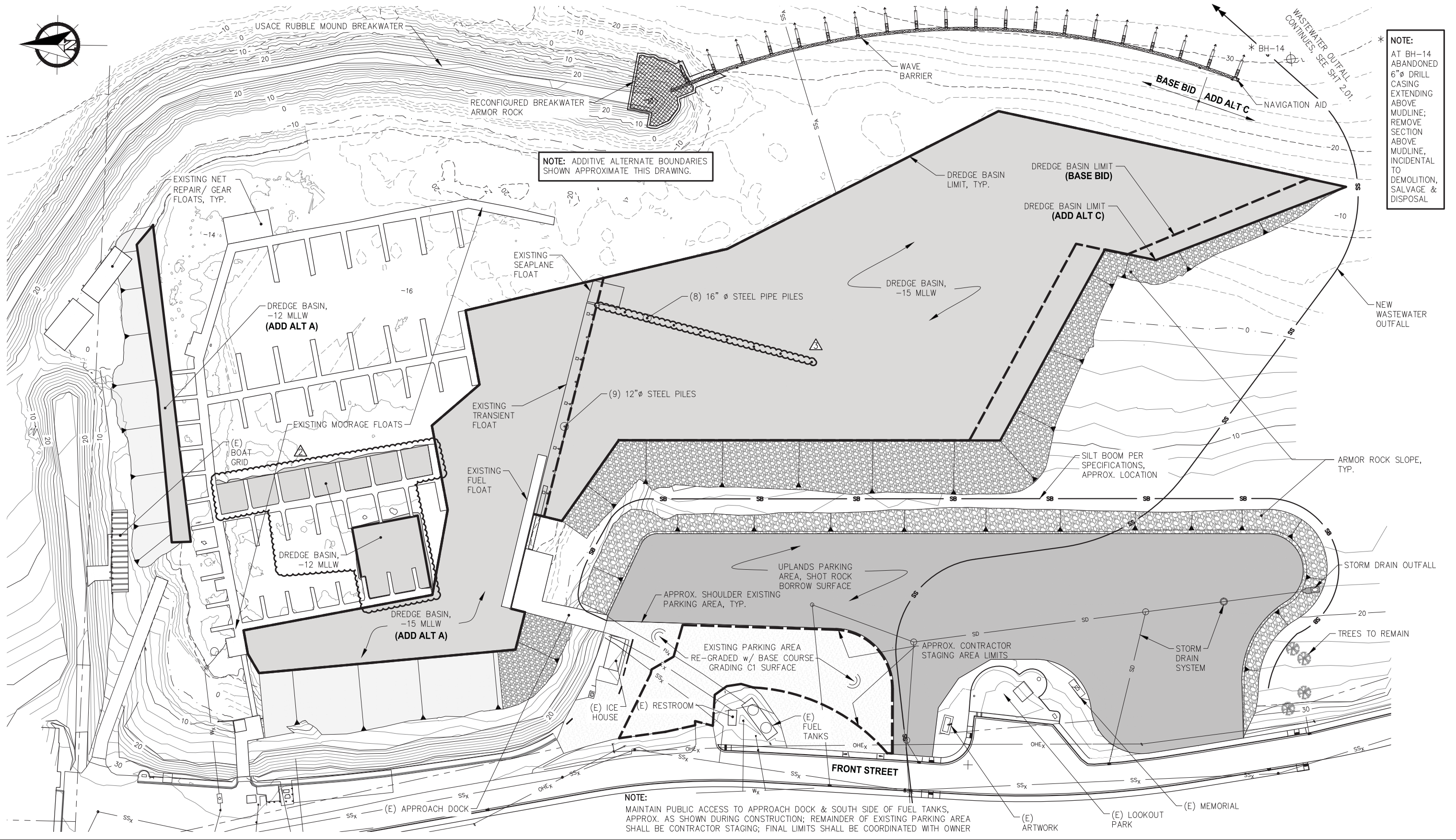
DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **EXISTING CONDITIONS AND SITE PHOTOGRAPHS**

PND PROJECT NO.: 102029.01

**1.04**  
SHEET 4 OF 32



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DATE: SEPTEMBER 2018

**REVISIONS**

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
1	3/10/17	CHANGE ORDER # 02	KLL	SCS	CRS
2	9/2018	AS-BUILT	KLL	MBH	CRS

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 0 50 100 FT.

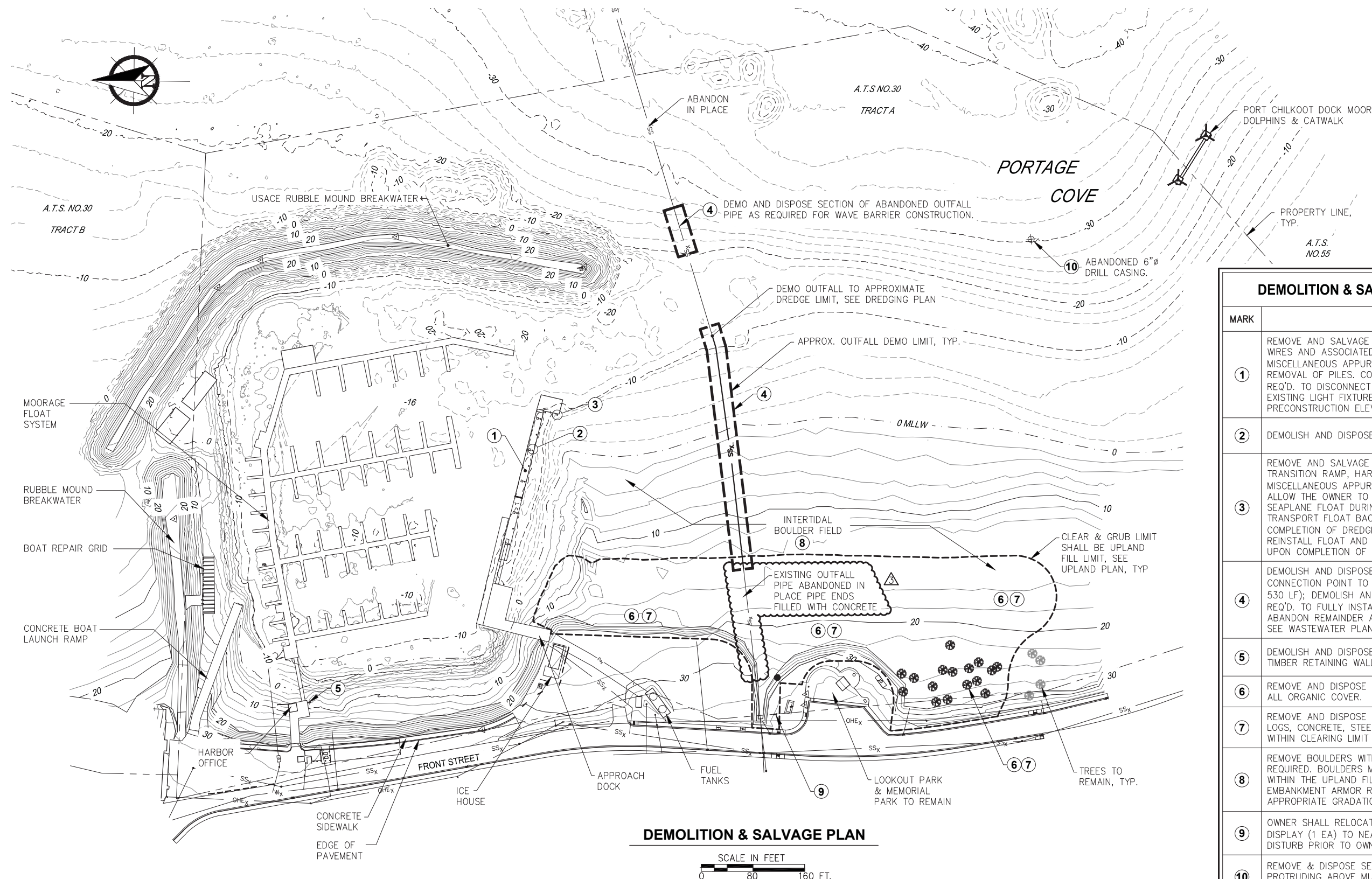
DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **GENERAL SITE PLAN**

PND PROJECT NO.: 102029.01

1.05  
 SHEET 5 OF 32



**DEMOLITION & SALVAGE PLAN**



DEMOLITION & SALVAGE SUMMARY TABLE		
MARK	ITEM	BASE BID/ ADD ALT
①	REMOVE AND SALVAGE LIGHT FIXTURES, OVERHEAD WIRES AND ASSOCIATED HARDWARE AND MISCELLANEOUS APPURTENANCES AS REQ'D. FOR REMOVAL OF PILES. COORDINATE WITH UTILITY AS REQ'D. TO DISCONNECT POWER. REINSTALL EXISTING LIGHT FIXTURES ON NEW PILES TO PRECONSTRUCTION ELEVATION.	BASE BID
②	DEMOLISH AND DISPOSE (9) 12"Ø STEEL PILES.	BASE BID
③	REMOVE AND SALVAGE TWO PILE HOOPS, TRANSITION RAMP, HARDWARE AND OTHER MISCELLANEOUS APPURTENANCES AS REQ'D. TO ALLOW THE OWNER TO TEMPORARILY RELOCATE SEAPLANE FLOAT DURING DREDGING; OWNER SHALL TRANSPORT FLOAT BACK TO SITE UPON COMPLETION OF DREDGING, COORDINATE AS REQ'D. REINSTALL FLOAT AND ALL APPURTENANCES UPON COMPLETION OF DREDGE WORK.	BASE BID
④	DEMOLISH AND DISPOSE EXISTING OUTFALL PIPE; CONNECTION POINT TO DREDGING LIMITS, (APPROX. 530 LF); DEMOLISH AND DISPOSE SECTION AS REQ'D. TO FULLY INSTALL WAVE BARRIER; ABANDON REMAINDER AND DIFFUSER IN PLACE, SEE WASTEWATER PLAN	BASE BID
⑤	DEMOLISH AND DISPOSE ALL TIMBER PILES & TIMBER RETAINING WALL WITHIN DREDGE LIMIT.	ADD ALT. A
⑥	REMOVE AND DISPOSE TREES, CLEAR AND GRUB ALL ORGANIC COVER.	BASE BID
⑦	REMOVE AND DISPOSE MISCELLANEOUS TIMBER, LOGS, CONCRETE, STEEL AND OTHER DEBRIS WITHIN CLEARING LIMIT SHOWN.	BASE BID
⑧	REMOVE BOULDERS WITHIN DREDGE AREAS AS REQUIRED. BOULDERS MAY BE RELOCATED TO WITHIN THE UPLAND FILL PRISM OR UTILIZED AS EMBANKMENT ARMOR ROCK IF WITHIN APPROPRIATE GRADATION LIMITS.	BASE BID
⑨	OWNER SHALL RELOCATE EXISTING ARTWORK/ DISPLAY (1 EA) TO NEARBY LOCATION; DO NOT DISTURB PRIOR TO OWNER COORDINATION.	BASE BID
⑩	REMOVE & DISPOSE SECTION OF 6"Ø DRILL CASING PROTRUDING ABOVE MUDLINE; LOCATION SHOWN IS APPROXIMATE, FIELD LOCATE AS REQUIRED.	BASE BID



**RECORD DRAWINGS**

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DATE: SEPTEMBER 2018

REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
3	9/2018	AS-BUILT	KLL	MBH	CRS

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DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **DEMOLITION, SALVAGE & DISPOSAL PLAN**

PND PROJECT NO.: 102029.01

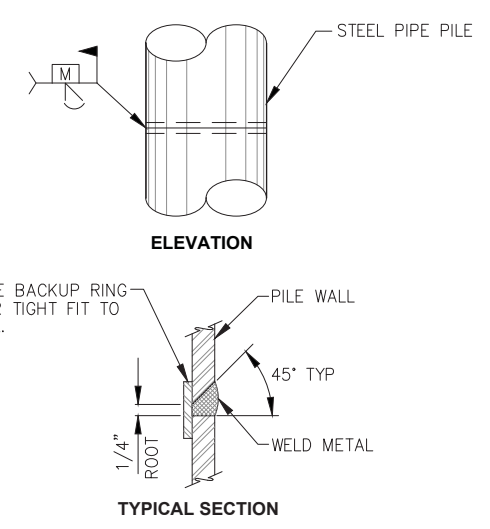
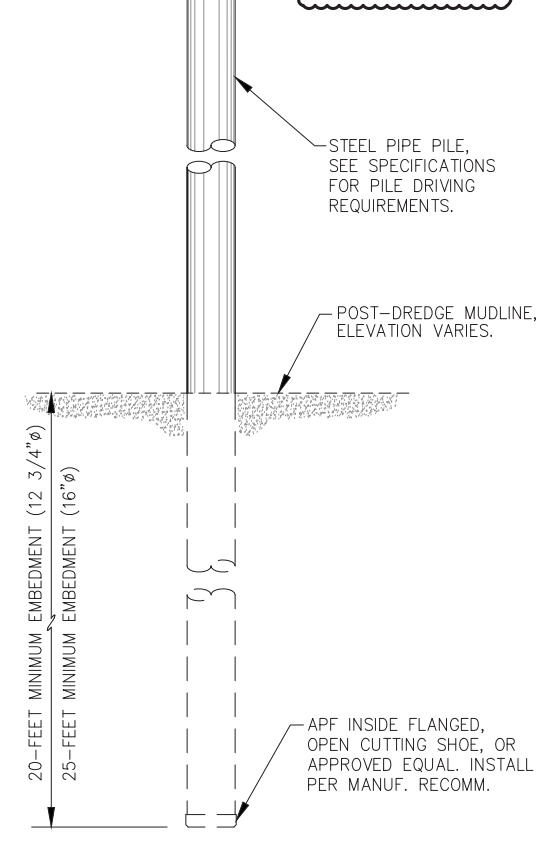
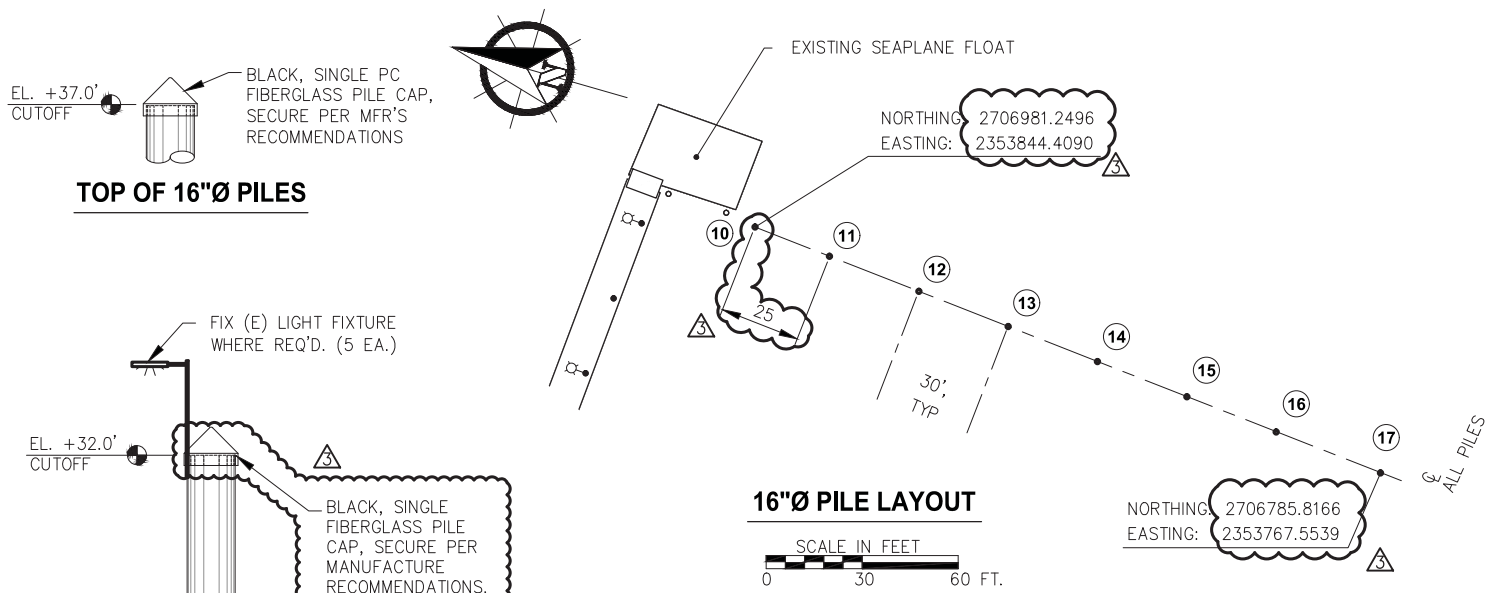
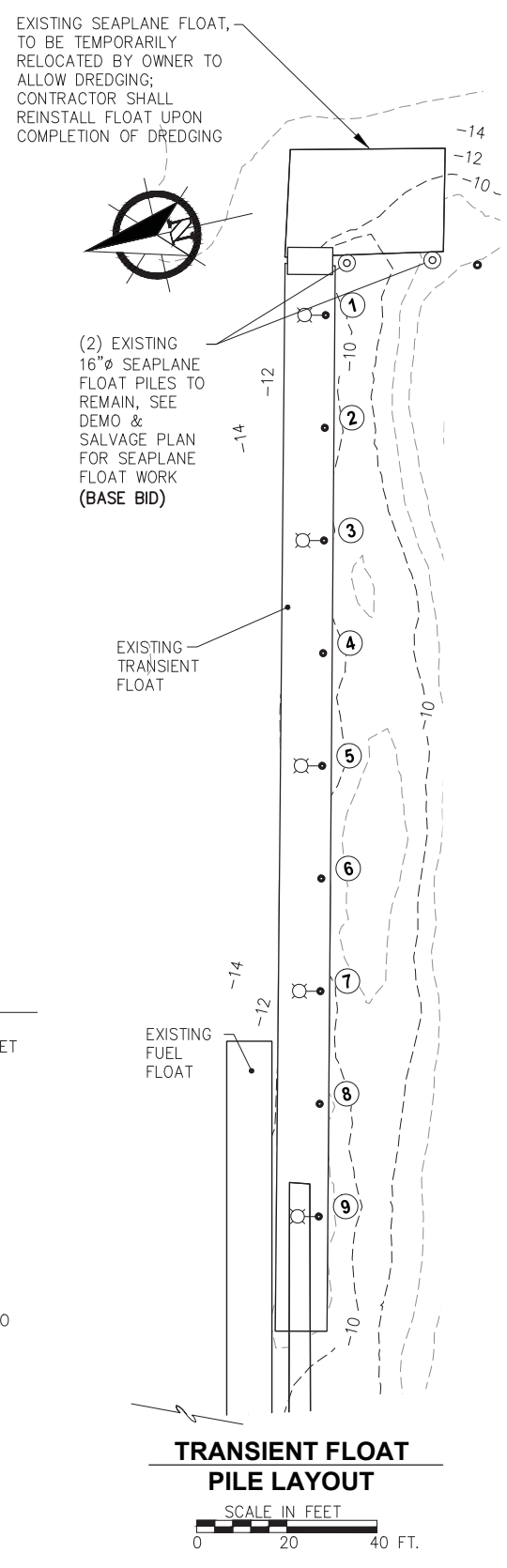
**1.06**  
SHEET 6 OF 32

OWNER FURNISHED PILE SCHEDULE						
PILE #	PILE LENGTH (FT)	PILE SIZE	OWNER PROVIDED LENGTHS (FT)	ANTICIPATED CUTOFF (70')	NO. OF FIELD SPLICES REQ'D. BY CONTRACTOR	CUTTING SHOE
①	70	12 3/4"ø x 0.500"t	61.5 *	26.5' ±	1	(OF) ON 61.5' PILE
			35			
②	70	12 3/4"ø x 0.500"t	45 *	1.5' ±	1	(OF) ON 45' PILE
			26.5 (CUTOFF FROM 1)			
③	70	12 3/4"ø x 0.500"t	57 *	16' ±	1	(OF) ON 57' PILE
			29			
④	70	12 3/4"ø x 0.500"t	59 *	5' ±	1	(OF) ON 59' PILE
			16 (CUTOFF FROM 3)			
⑤	70	12 3/4"ø x 0.500"t	43.5 *	3.5' ±	1	(OF) ON 43.5' PILE
			30			
⑥	70	12 3/4"ø x 0.500"t	34.5 *	0	1	(OF) ON 34.5' PILE
			35.5			
⑦	70	12 3/4"ø x 0.500"t	29 *	0	1	(OF) ON 29' PILE
			41			
⑧	70	12 3/4"ø x 0.500"t	28 *	1.5 ±	1	(OF) ON 43.5' PILE
			43.5			
⑨	70	12 3/4"ø x 0.500"t	34	0	1	(CF) FIELD INSTALL
			36			

**NOTE:**  
 (OF) = OWNER FURNISHED AND CURRENTLY INSTALLED ON PILE INDICATED BY \*  
 (CF) = CONTRACTOR FURNISHED

CONTRACTOR FURNISHED PILE SCHEDULE		
PILE #	PILE LENGTH (FT)	PILE SIZE
⑩⑪⑫⑬⑭⑮⑯⑰	80	16"ø x 0.500"t

- NOTES:**
- ANTICIPATED LENGTHS & CUTOFF LENGTHS ESTIMATED FOR REFERENCE ONLY, PILES SHALL MEET MIN. EMBEDMENT REQUIREMENTS.
  - 12 3/4"ø PILES AND ASSOCIATED WORK AT THE TRANSIENT FLOAT SHALL BE PERFORMED UNDER **BASE BID** AND SHALL BE COMPLETED PRIOR TO **ADDITIVE ALTERNATE A** DREDGING.  
**CONTRACTOR OPTION (INCIDENTAL):** TEMPORARILY RELOCATE TRANSIENT FLOAT PRIOR TO ADD ALT A DREDGING AND INSTALL FLOAT AND PILES UPON COMPLETION OF DREDGING.  
 CONTRACTOR SHALL:
    - SURVEY LOCATIONS OF FLOATS & PILES PRIOR TO REMOVAL.
    - TEMPORARILY STOW GANGWAY, COORDINATE WITH OWNER.
    - COORDINATE WITH OWNER TO DISCONNECT & STOW ELECTRICAL & SEWER WORKS.
    - DRIVE A TEMPORARY PILE TO SECURE THE EAST END OF THE FUEL FLOAT.
  - OWNER SHALL SUPPLY PIECES OF 12 3/4"ø HDG STEEL PIPE FOR PILES IN LENGTHS ADEQUATE TO CONSTRUCT (9) 70' STEEL PILES, CONTRACTOR SHALL FIELD SPLICE PILES & INSTALL CUTTING SHOES AS REQ'D; OWNER-FURNISHED PILE MATERIALS SHALL BE DELIVERED TO SITE UPLANDS STAGING AREA BY OWNER, COORDINATE AS REQ'D.
  - REPAIR DAMAGE TO TOP OF PILES CAUSED BY DRIVING PRIOR TO INSTALLATION OF CAPS
  - PROVIDE OWNER & ENGINEER A MINIMUM OF 7 DAYS NOTICE PRIOR TO PERFORMING ANY TRANSIENT FLOAT WORK OR REQUIRING DISCONNECT OF EXISTING FACILITIES.
  - PRIOR TO ORDERING PILE MATERIALS THE CONTRACTOR SHALL INSPECT OWNER FURNISHED MATERIALS & NOTIFY THE ENGINEER OF ANY CONCERNS WITH THE SUITABILITY OF THEIR USE.
  - 16-INCH DIAMETER PILES SHALL BE INSTALLED PER THE TYPICAL STEEL MOORING FLOAT PILE DETAIL SHOWN THIS SHEET EXCEPT TOP AS NOTED. PILES SHALL BE FURNISHED BY THE CONTRACTOR WITH CUTTING SHOES AS SHOWN.



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REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
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▲	9/2018	AS-BUILT	KLL	MBH	CRS

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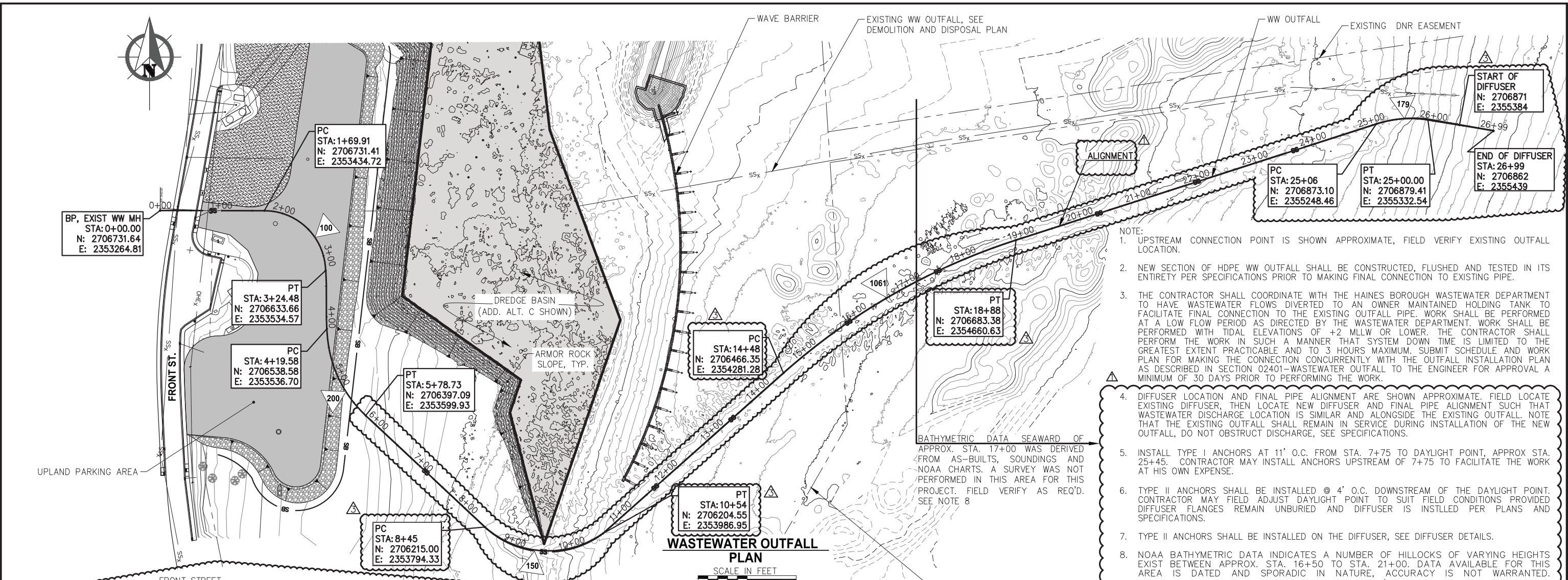
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **TRANSIENT FLOAT PLAN - PILE LAYOUT AND DETAILS**

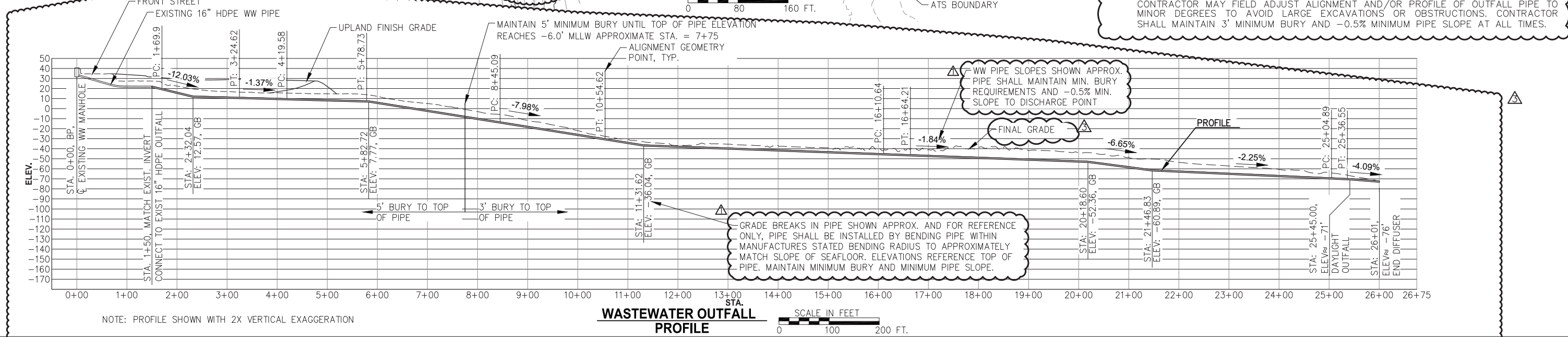
PND PROJECT NO.: 102029.01

1.07  
 SHEET 7 OF 32





- NOTE:
- UPSTREAM CONNECTION POINT IS SHOWN APPROXIMATE, FIELD VERIFY EXISTING OUTFALL LOCATION.
  - NEW SECTION OF HDPE WW OUTFALL SHALL BE CONSTRUCTED, FLUSHED AND TESTED IN ITS ENTIRETY PER SPECIFICATIONS PRIOR TO MAKING FINAL CONNECTION TO EXISTING PIPE.
  - THE CONTRACTOR SHALL COORDINATE WITH THE HAINES BOROUGH WASTEWATER DEPARTMENT TO HAVE WASTEWATER FLOWS DIVERTED TO AN OWNER MAINTAINED HOLDING TANK TO FACILITATE FINAL CONNECTION TO THE EXISTING OUTFALL PIPE. WORK SHALL BE PERFORMED AT A LOW FLOW PERIOD AS DIRECTED BY THE WASTEWATER DEPARTMENT. WORK SHALL BE PERFORMED WITH TIDAL ELEVATIONS OF +2 MLLW OR LOWER. THE CONTRACTOR SHALL PERFORM THE WORK IN SUCH A MANNER THAT SYSTEM DOWN TIME IS LIMITED TO THE GREATEST EXTENT PRACTICABLE AND TO 3 HOURS MAXIMUM. SUBMIT SCHEDULE AND WORK PLAN FOR MAKING THE CONNECTION CONCURRENTLY WITH THE OUTFALL INSTALLATION PLAN AS DESCRIBED IN SECTION 02401-WASTEWATER OUTFALL TO THE ENGINEER FOR APPROVAL A MINIMUM OF 30 DAYS PRIOR TO PERFORMING THE WORK.
  - DIFFUSER LOCATION AND FINAL PIPE ALIGNMENT ARE SHOWN APPROXIMATE. FIELD LOCATE EXISTING DIFFUSER, THEN LOCATE NEW DIFFUSER AND FINAL PIPE ALIGNMENT SUCH THAT WASTEWATER DISCHARGE LOCATION IS SIMILAR AND ALONGSIDE THE EXISTING OUTFALL. NOTE THAT THE EXISTING OUTFALL SHALL REMAIN IN SERVICE DURING INSTALLATION OF THE NEW OUTFALL, DO NOT OBSTRUCT DISCHARGE, SEE SPECIFICATIONS.
  - INSTALL TYPE I ANCHORS AT 11' O.C. FROM STA. 7+75 TO DAYLIGHT POINT, APPROX STA. 25+45. CONTRACTOR MAY INSTALL ANCHORS UPSTREAM OF 7+75 TO FACILITATE THE WORK AT HIS OWN EXPENSE.
  - TYPE II ANCHORS SHALL BE INSTALLED @ 4' O.C. DOWNSTREAM OF THE DAYLIGHT POINT. CONTRACTOR MAY FIELD ADJUST DAYLIGHT POINT TO SUIT FIELD CONDITIONS PROVIDED DIFFUSER FLANGES REMAIN UNBURIED AND DIFFUSER IS INSTALLED PER PLANS AND SPECIFICATIONS.
  - TYPE II ANCHORS SHALL BE INSTALLED ON THE DIFFUSER, SEE DIFFUSER DETAILS.
  - NOAA BATHYMETRIC DATA INDICATES A NUMBER OF HILLOCKS OF VARYING HEIGHTS EXIST BETWEEN APPROX. STA. 16+50 TO STA. 21+00. DATA AVAILABLE FOR THIS AREA IS DATED AND SPORADIC IN NATURE, ACCURACY IS NOT WARRANTED. CONTRACTOR MAY FIELD ADJUST ALIGNMENT AND/OR PROFILE OF OUTFALL PIPE TO MINOR DEGREES TO AVOID LARGE EXCAVATIONS OR OBSTRUCTIONS. CONTRACTOR SHALL MAINTAIN 3' MINIMUM BURY AND -0.5% MINIMUM PIPE SLOPE AT ALL TIMES.



**HAINES BOROUGH ALASKA**

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**REVISIONS**

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
1	9/21/16	ADDENDUM NO.2	TCB	CRS	CRS
2	9/2018	AS-BUILT	KLL	MBH	CRS

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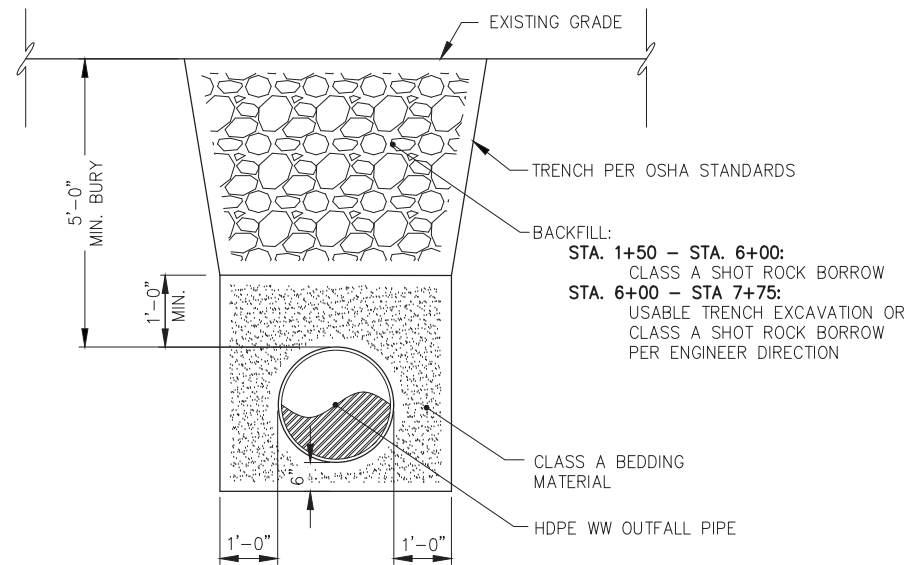
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **WASTEWATER OUTFALL PLAN & PROFILE**

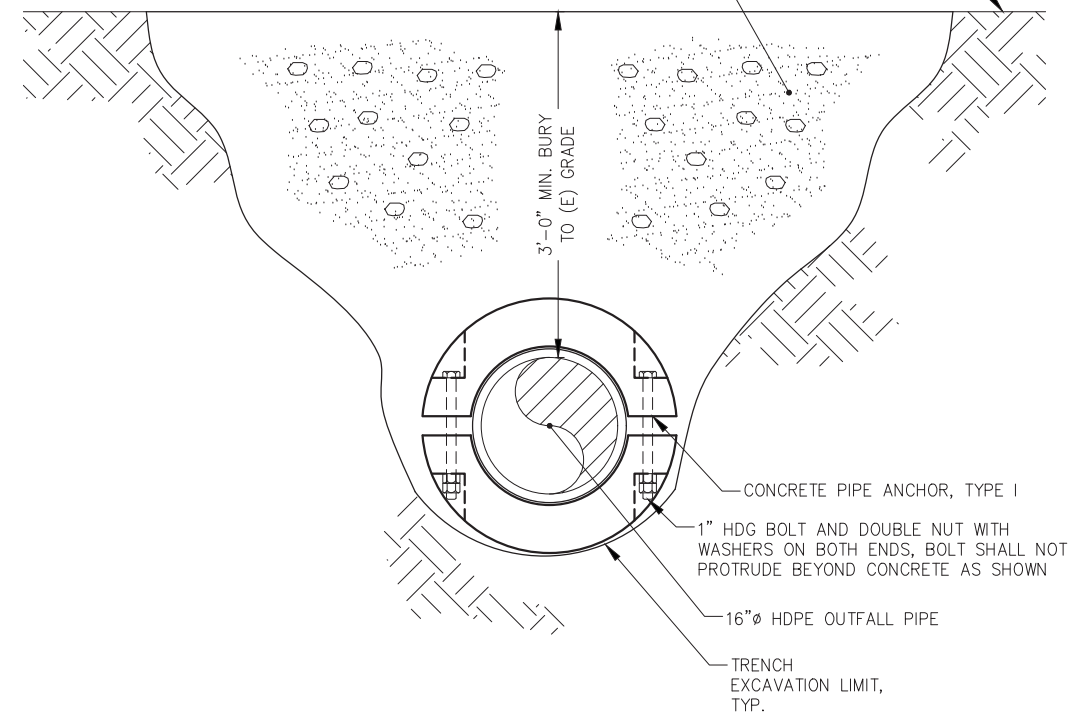
PND PROJECT NO.: 102029.01

DATE: 8/23/16

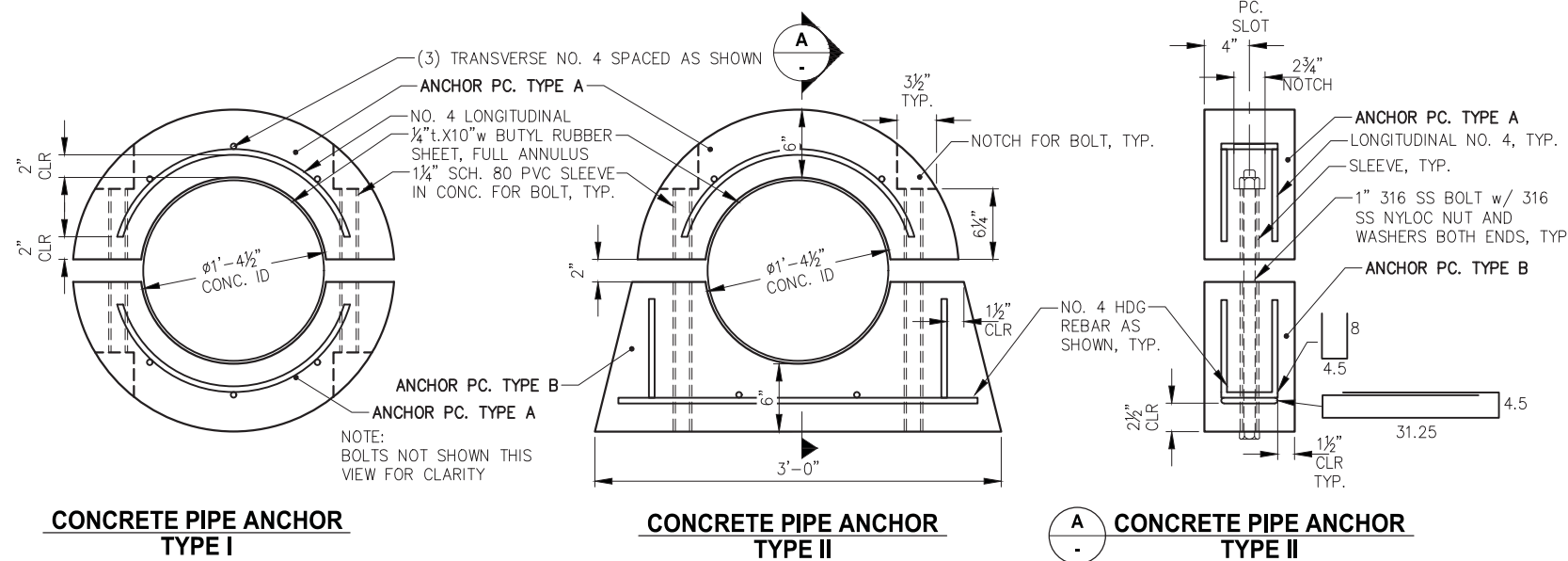
**2.01**  
SHEET 8 OF 32



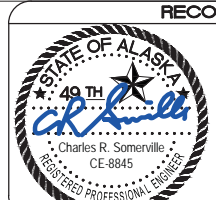
**OUTFALL PIPE TRENCH STA. 1+50 TO STA. 7+75 SECTION**



**OUTFALL PIPE TRENCH STA. 7+75 TO DAYLIGHT SECTION**



- NOTES:**
- BOLTS, NUTS & WASHERS FOR TYPE II PIPE ANCHOR SHALL BE FULLY PASSIVATED 316 SS.
  - DOUBLE NUTS MAY BE SUBSTITUTED FOR NYLOC NUTS PROVIDED ALL THREADS ARE ENGAGED & BOLT DOES NOT PROTRUDE BEYOND CONCRETE.
  - ANCHORS SHALL BE INSTALLED SNUG-TIGHT AROUND THE OUTFALL PIPE SO AS TO PREVENT SLIPPAGE OF ANCHORS UPON INSTALLATION, BUT NOT EXCESSIVELY TIGHT TO DEFORM THE PIPE.



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1	9/21/16	ADDENDUM NO.2	KLL	CRS	CRS

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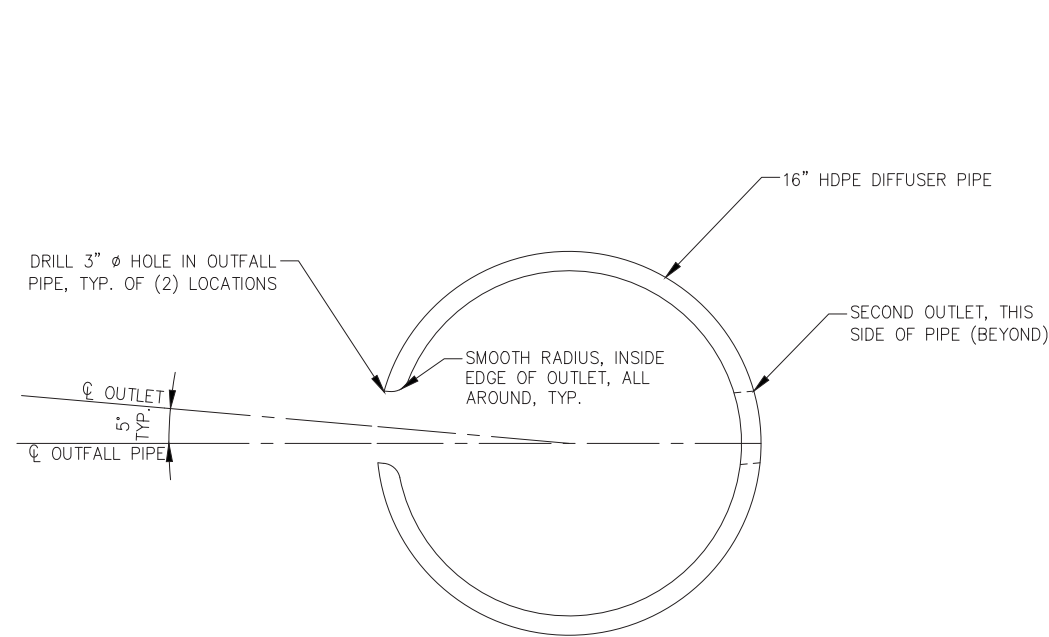
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **WASTEWATER OUTFALL DETAILS**

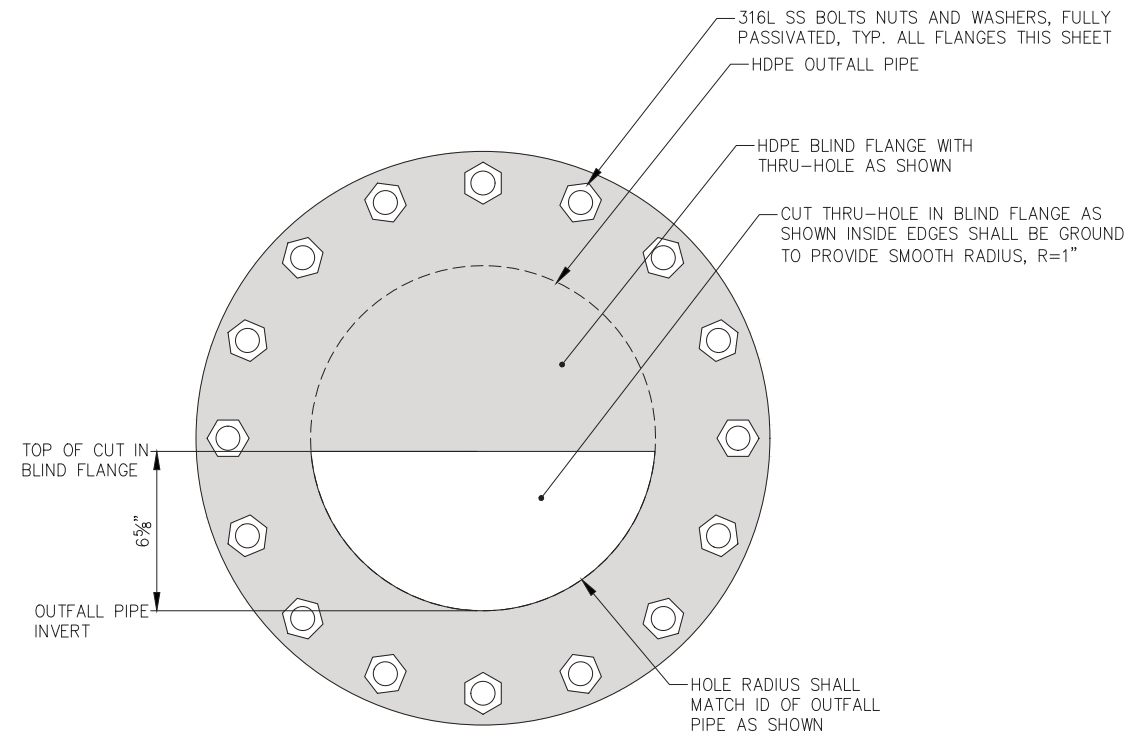
PND PROJECT NO.: 102029.01

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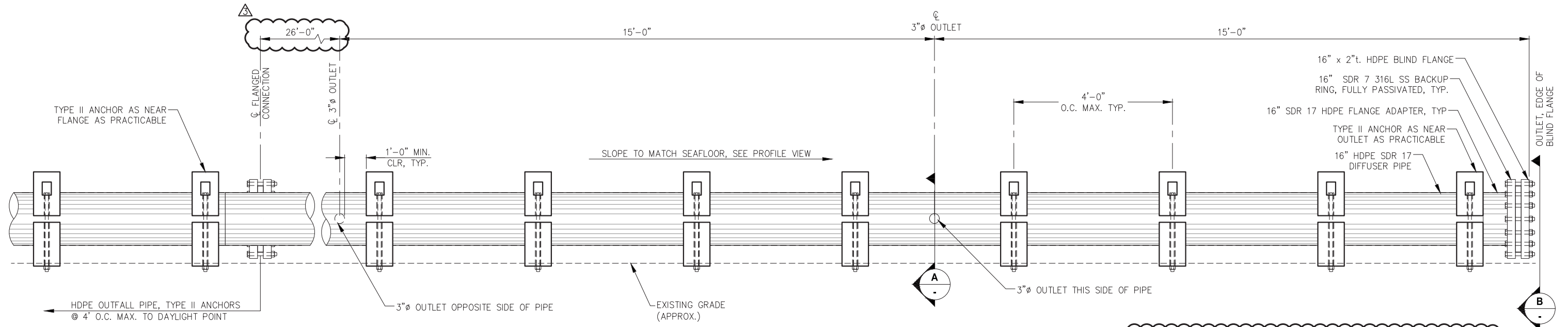
SHEET 9 OF 32



**A** DIFFUSER OUTLET  
TYPICAL SECTION



**B** DIFFUSER END  
ELEVATION



**WASTEWATER OUTFALL DIFFUSER  
ELEVATION**

**NOTE:** INSTALL DIFFUSER IN A GENERALLY FLAT AREA SUCH THAT DISCHARGES ARE UNOBSTRUCTED FOR MINIMUM 10- FEET OUTSIDE THE PIPE AND TO ENSURE OUTLETS ARE ABOVE GRADE AS SHOWN. THIS MAY REQUIRE MINOR GRADING OF THE SEAFLOOR IN THE DIFFUSER AREA WHICH SHALL BE CONSIDERED INCIDENTAL TO DIFFUSER INSTALLATION.



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2	9/2018	AS-BUILT	KLL	MBH	CRS



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**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

SHEET TITLE:  
**WASTEWATER OUTFALL  
DIFFUSER DETAILS**

PND PROJECT NO.: 102029.01

**2.03**

SHEET  
10 OF 32

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**DREDGE SUMMARY TABLE**

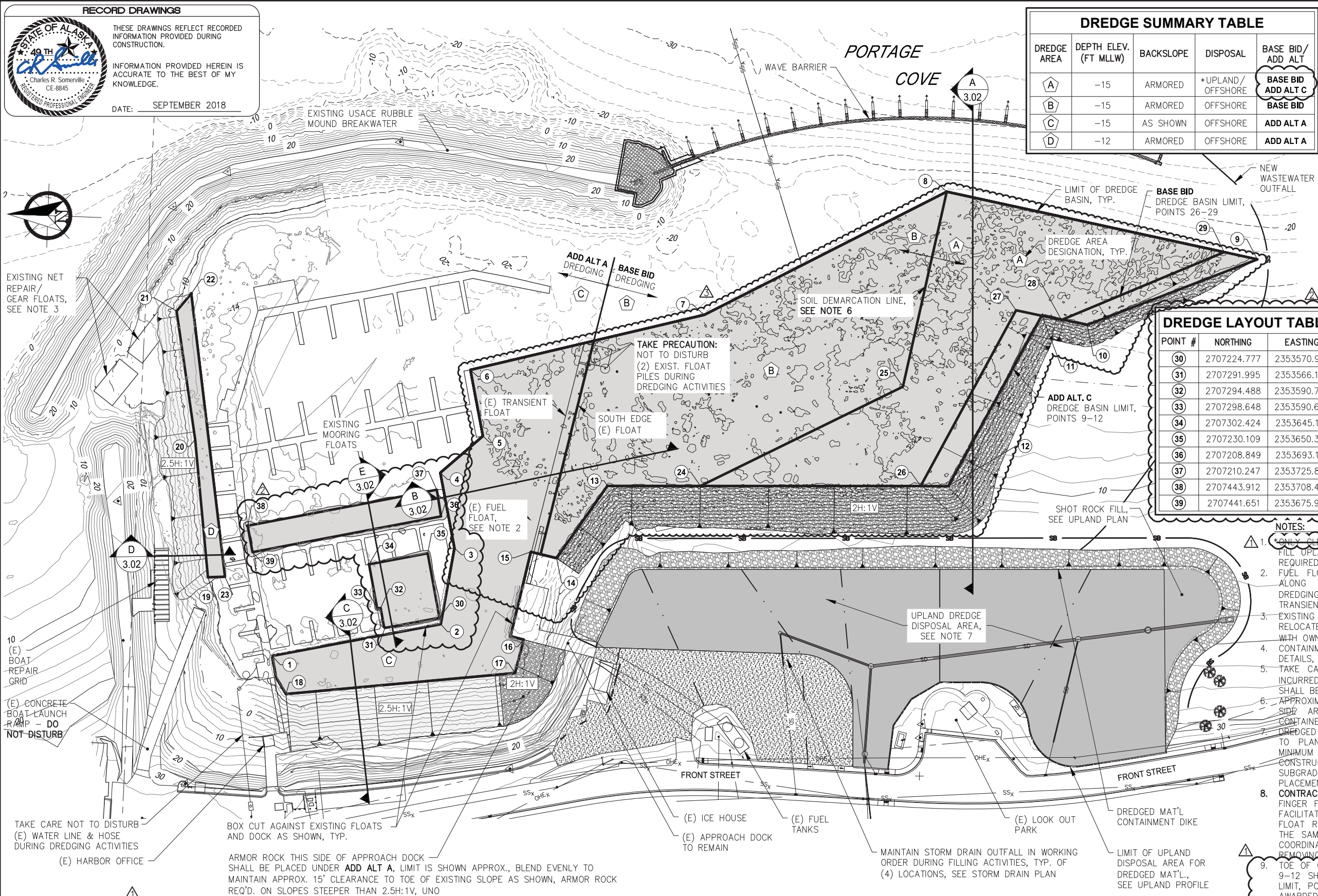
DREDGE AREA	DEPTH ELEV. (FT MLLW)	BACKSLOPE	DISPOSAL	BASE BID/ADD ALT
A	-15	ARMORED	*UPLAND/OFFSHORE	BASE BID ADD ALT C
B	-15	ARMORED	OFFSHORE	BASE BID
C	-15	AS SHOWN	OFFSHORE	ADD ALT A
D	-12	ARMORED	OFFSHORE	ADD ALT A

**DREDGE LAYOUT TABLE**

POINT #	NORTHING	EASTING
1	2707432.156	2353548.002
2	2707224.058	2353562.987
3	2707197.021	2353652.937
4	2707203.643	2353745.856
5	2707147.145	2353784.293
6	2707153.113	2353866.043
7	2706863.01	2353900.156
8	2706553.166	2354015.445
9	2706187.367	2353890.878
10	2706401.781	2353835.141
11	2706455.285	2353853.066
12	2706591.963	2353659.685
13	2707003.661	2353706.936
14	2707075.108	2353626.825
15	2707105.298	2353637.955
16	2707126.058	2353532.786
17	2707141.088	2353493.607
18	2707420.698	2353499.944
19	2707498.860	2353651.855
20	2707495.270	2353820.003
21	2707499.943	2353977.621
22	2707479.901	2353996.644
23	2707478.202	2353650.161
24	2706891.336	2353694.044
25	2706633.001	2353786.029
26	2706625.308	2353663.512
27	2706485.838	2353862.664
28	2706432.299	2353844.728
29	2706226.432	2353904.181

**DREDGE LAYOUT TABLE**

POINT #	NORTHING	EASTING
30	2707224.777	2353570.914
31	2707291.995	2353566.193
32	2707294.488	2353590.763
33	2707298.648	2353590.635
34	2707302.424	2353645.117
35	2707230.109	2353650.380
36	2707208.849	2353693.113
37	2707210.247	2353725.866
38	2707443.912	2353708.497
39	2707441.651	2353675.988



- NOTES:**
- \*ONLY CLEAN GRANULAR DREDGE MATERIAL SHALL BE USED TO FILL UPLAND PARKING AREA PER TYPICAL SECTION TO EXTENT REQUIRED, REMAINING MATERIAL SHALL BE DISPOSED OFFSHORE.
  - FUEL FLOAT SHALL BE TEMPORARILY MOVED LONGITUDINALLY ALONG THE TRANSIENT FLOAT BY OWNER TO FACILITATE DREDGING, COORDINATE WITH OWNER AS REQ'D. ALSO SEE TRANSIENT FLOAT PLAN CONDITIONS SHEET 1.07.
  - EXISTING NET REPAIR/ GEAR FLOATS WILL BE TEMPORARILY RELOCATED BY OWNER TO FACILITATE DREDGING, COORDINATE WITH OWNER AS REQ'D.
  - CONTAINMENT DIKE DETAILS & LAYOUT SHALL BE PER UPLANDS DETAILS, CONSTRUCT PRIOR TO DREDGING ACTIVITIES.
  - TAKE CARE NOT TO UNDERMINE EXISTING FACILITIES, DAMAGE INCURRED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT NO COST TO THE OWNER.
  - APPROXIMATE SOIL DEMARCATION BOUNDARY; SOILS TO SOUTH SIDE ARE TYPICALLY CLEANER & SUITABLE FOR UPLAND CONTAINED DISPOSAL.
  - DREDGED MATERIAL DISPOSED IN THE UPLANDS SHALL BE FILLED TO PLAN LIMIT THEN ALLOWED TO SETTLE & DEWATER A MINIMUM OF 30 DAYS PRIOR TO RESUMING UPLAND CONSTRUCTION; PLACE ADDITIONAL DREDGE SPOILS TO SUBGRADE LIMITS FOLLOWING SETTLEMENT PERIOD, PRIOR TO PLACEMENT OF GEOTEXTILE FABRIC..
  - CONTRACTOR OPTION:** FINGER FLOATS ALONG DREDGE AREA D MAY BE REMOVED TO FACILITATE DREDGING; CONTRACTOR SHALL BE RESPONSIBLE FOR FLOAT REMOVAL, TRANSPORT, STORAGE & REINSTALLATION IN THE SAME LOCATION TO PRE-EXISTING CONDITION OR BETTER; COORDINATE WITH OWNER A MINIMUM OF 1 WEEK PRIOR TO REMOVING FLOATS.
  - TOE OF CLASS II ARMOR ROCK SLOPE SHOWN BETWEEN POINTS 9-12 SHALL BE RELOCATED ALONG BASE BID DREDGE BASIN LIMIT, POINTS 26-29, SHOULD ADDITIVE ALTERNATE C NOT BE AWARDED. THERE IS AN ADDITIONAL 160 CY OF CLASS II ARMOR ROCK REQUIRED IN THIS REGION UNDER ADDITIVE ALTERNATE C.

10. TO THE MAXIMUM PAY LIMIT (INCLUDING OVER DREDGE ALLOWANCE) FOR EACH RESPECTIVE DREDGE AREA, IT IS ESTIMATED THAT THE INDIVIDUAL AREAS CONTAIN NEARLY LINE DREDGE VOLUMES APPROXIMATELY AS FOLLOWS:

AREA A (BASE BID):	42,000 CY
AREA A (BASE BID + ADD ALT. C):	49,020 CY
AREA B:	41,500 CY
AREA C:	14,230 CY
AREA D:	1,910 CY

11. SHOULD ADDITIVE ALTERNATE C BE AWARDED, DISPOSAL CONDITIONS SHALL BE PER AREA A REQUIREMENTS.

**REVISIONS**

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
▲	9/21/16	ADDENDUM NO.2	PJD	JDO	CRS
▲	3/10/17	CHANGE ORDER # 02	KLL	SCS	CRS
▲	9/2018	AS-BUILT	KLL	MBH	CRS

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SCALE: SCALE IN FEET  
0    60    120 FT.

DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

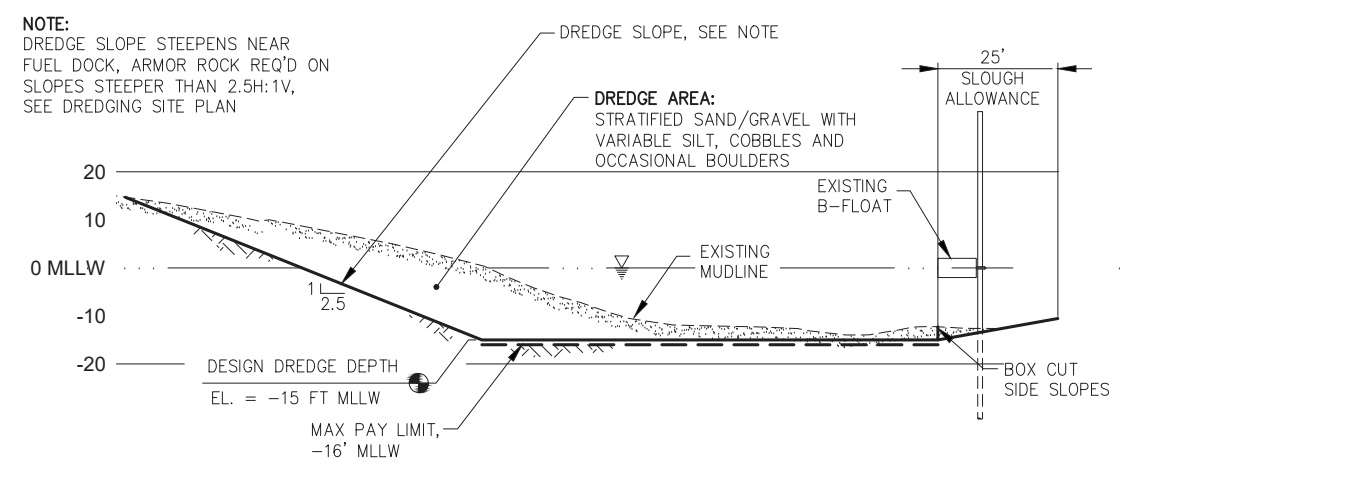
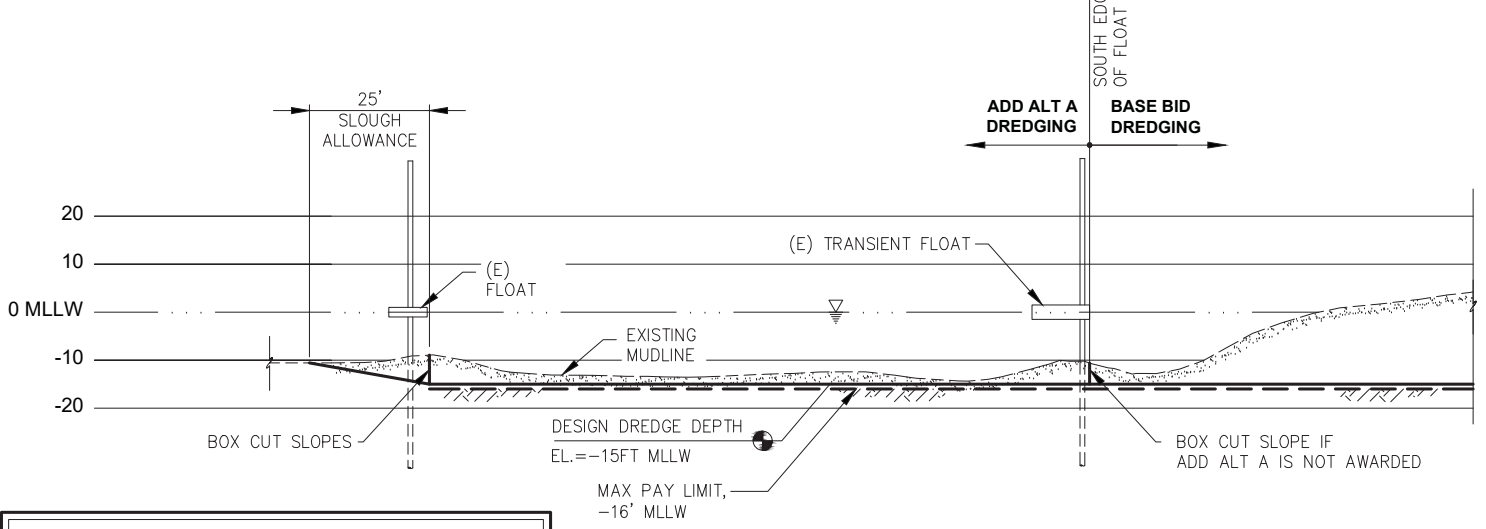
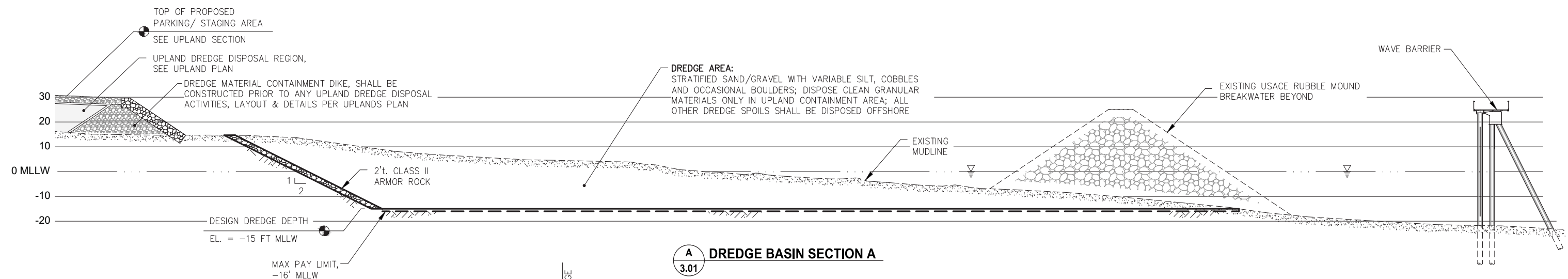
SHEET TITLE: **DREDGING PLAN**

PND PROJECT NO.: 102029.01

**3.01**

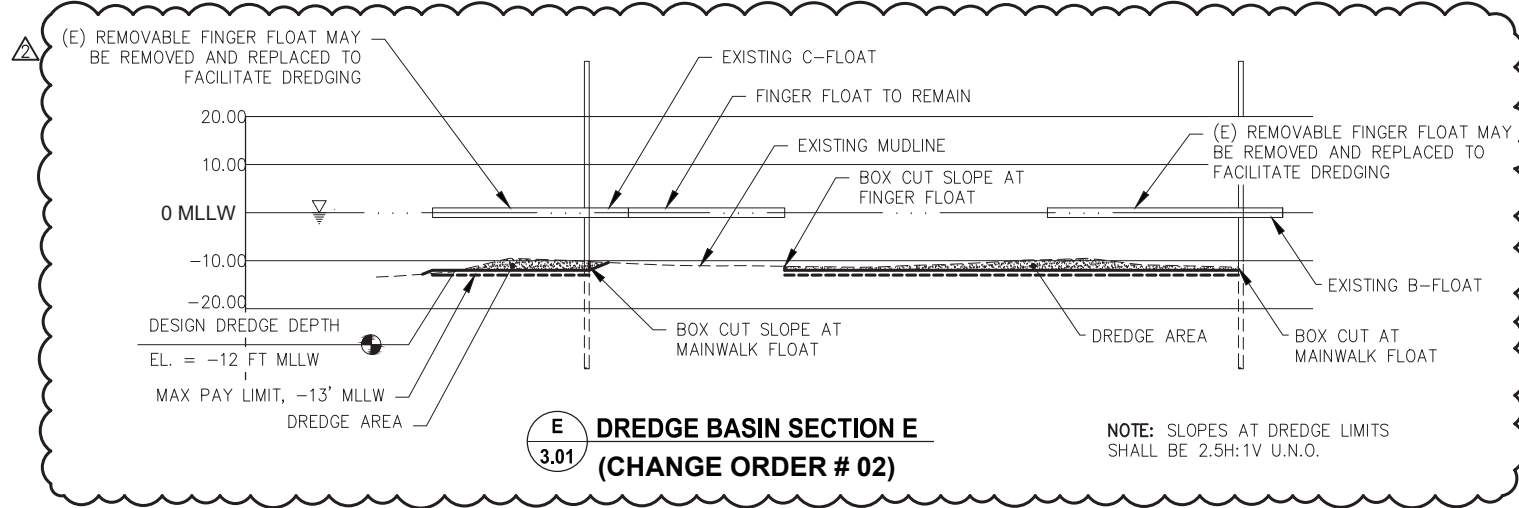
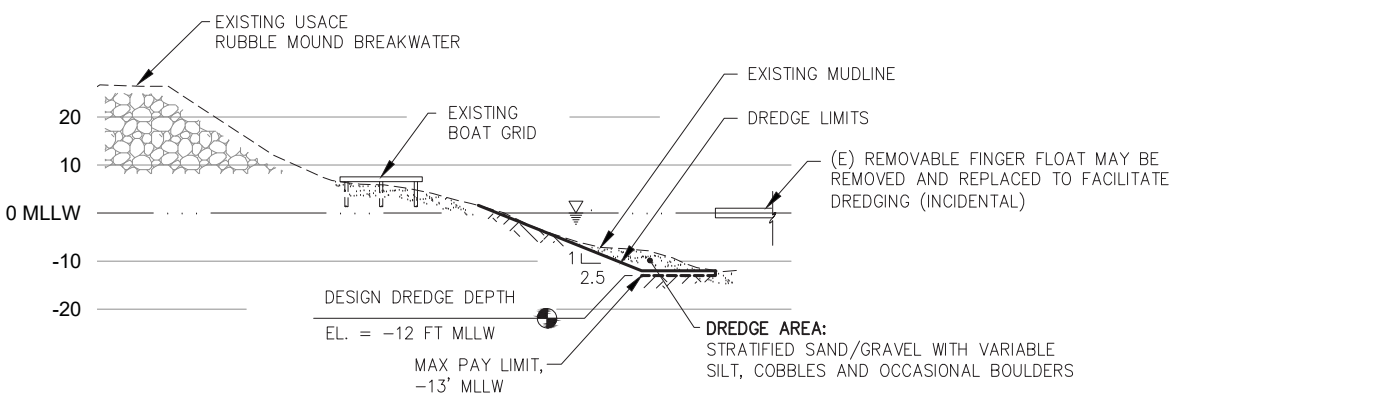
SHEET 11 OF 32





NOTE:  
SEE GEOTECHNICAL REPORT: (HAINES BOROUGH SOUTH PORTAGE COVE HARBOR EXPANSION GEOTECHNICAL ENGINEERING REPORT MARCH, 2015) FOR DETAILED SOIL DESCRIPTIONS WITHIN DREDGE AREAS

- NOTES:
- BID SCHEDULE VOLUMES ARE APPROXIMATE, FINAL PAY QUANTITIES SHALL BE DETERMINED BY THE PRE AND POST DREDGE SURVEYS.
  - PRE & POST DREDGE SURVEYS SHALL EXTEND 25' MIN. BEYOND DREDGE LIMITS TO DETERMINE SLOUGH.
  - SLOUGH ALLOWANCE IS TYPICAL ALL BOX CUTS.



**RECORD DRAWINGS**

THESE DRAWINGS REFLECT RECORDED INFORMATION PROVIDED DURING CONSTRUCTION.

INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

DATE: SEPTEMBER 2018

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
Δ	3/10/17	CHANGE ORDER # 02	KLL	SCS	CRS

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SCALE: SCALE IN FEET  
0 20 40 FT.

DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **DREDGING SECTIONS**

PND PROJECT NO.: 102029.01

**3.02**

SHEET 12 OF 32

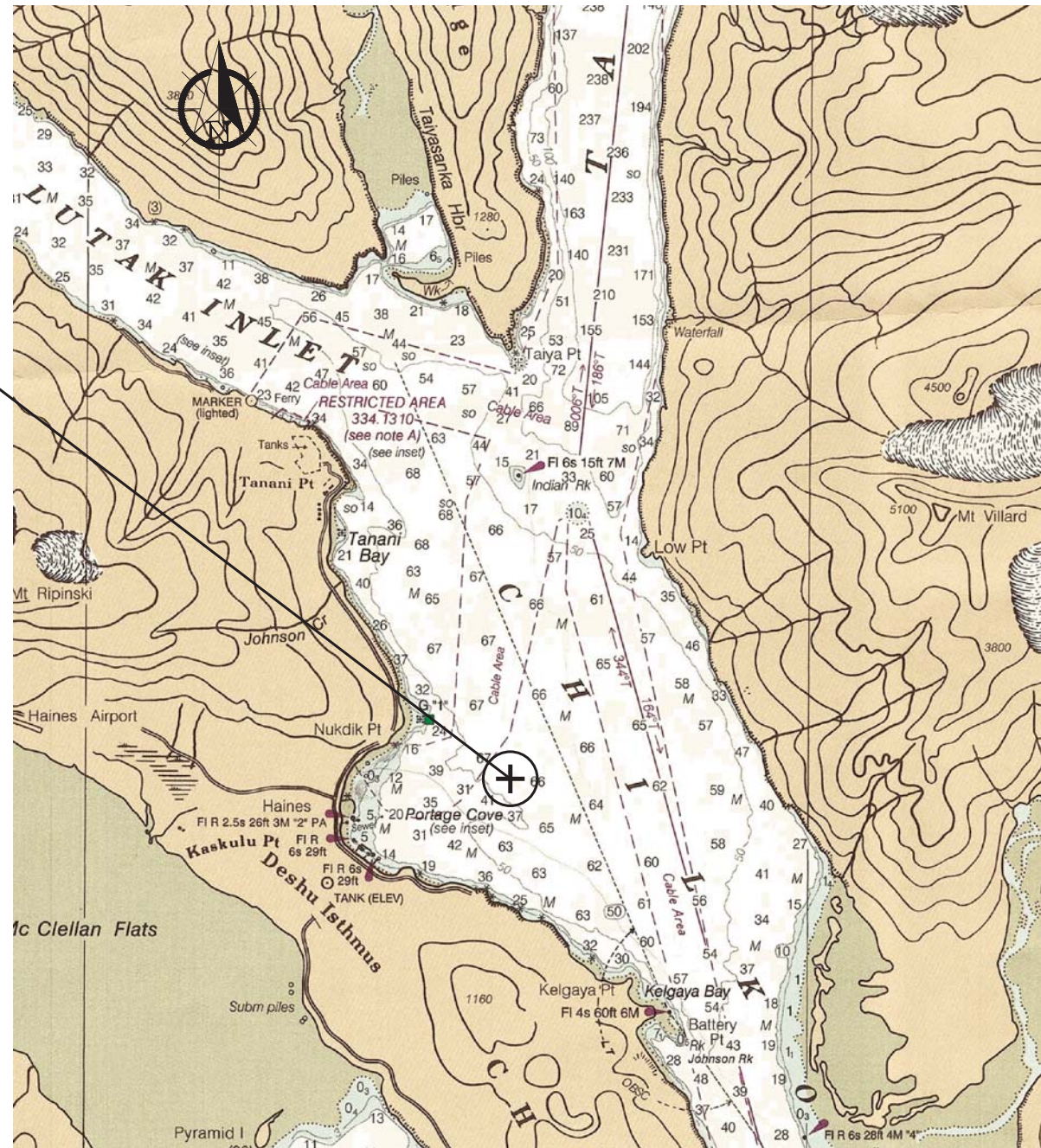
OFFSHORE DISPOSAL SITE  
(± 50 ACRES)

OFFSHORE DISPOSAL SITE CENTER:

LAT: N 59°14'18"

LONG: W 135°24'12"

NOTE:  
CENTER LOCATION APPROXIMATE



BATHYMETRY FROM: NOAA 17317  
LYNN CANAL - SHERMAN POINT TO SKAGWAY

OFFSHORE DISPOSAL PLAN



RECORD DRAWINGS

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SCALE:  
AS SHOWN

DATE: 8/23/16

HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION

SHEET TITLE:  
**DREDGING OFFSHORE  
DISPOSAL PLAN**

PND PROJECT NO.: 102029.01

3.03

SHEET  
13 OF 32

LAYOUT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2706366.24	2353308.30	35.30	ESRB, ME
2	2706360.88	2353370.33	34.03	ESRB, PC, SUB-FILL DEMARCATION
3	2706303.85	2353450.18	32.01	ESRB, PCC, BEGIN CLASS IV ARMOR
4	2706316.26	2353526.15	29.94	ESRB, PT
5	2706342.71	2353529.18	29.12	ESRB, SUB-FILL DEMARCATION
6	2706431.30	2353539.31	26.39	ESRB, GB
7	2706469.70	2353543.70	27.35	ESRB, END CL IV ARMOR
8	2706613.74	2353560.16	29.09	ESRB, GB
9	2706733.56	2353573.86	25.71	ESRB, GB
10	2706853.37	2353587.56	28.13	ESRB, GB
11	2706973.19	2353601.26	24.81	ESRB, GB, PC
12	2706993.06	2353590.95	25.18	ESRB, PT
13	2707036.90	2353519.20	27.28	ESRB, ME@DOCK

LAYOUT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
14	2707038.93	2353513.56	27.11	ESRB, ME@DOCK
15	2707010.78	2353509.39	27.36	ESRB, GB
16	2706940.29	2353498.93	26.50	ESRB, GB
17	2706835.81	2353483.44	29.69	ESRB
18	2706792.72	2353477.05	31.01	ESRB, PC
19	2706737.69	2353405.25	32.67	ESRB, PT, GB
20	2706745.97	2353334.01	34.95	ESRB, ME
21	2706704.46	2353326.36	34.39	ESRB, ME
22	2706691.84	2353378.59	33.38	ESRB, ME
23	2706666.30	2353407.93	32.84	ESRB, ME
24	2706629.26	2353424.39	32.71	ESRB, GB, ME
25	2706580.27	2353418.84	30.58	ESRB, PC
26	2706533.80	2353386.91	29.58	ESRB, POC, GB, ME

LAYOUT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
27	2706527.03	2353358.92	30.45	ESRB, PRC, ME
28	2706469.91	2353303.69	35.41	ESRB, PT, ME
29	2707017.25	2353489.81	27.48	EC1, ME
30	2707043.30	2353501.43	26.73	EC1, ME@DOCK
31	2707035.47	2353442.81	27.75	EC1, ME
32	2707057.85	2353451.35	27.55	EC1, ME
33	2707060.07	2353437.62	27.98	EC1, ME
34	2707062.69	2353431.14	27.96	EC1, ME
35	2707068.16	2353433.09	28.03	EC1, ME
36	2707082.62	2353431.61	27.02	EC1, ME
37	2707096.94	2353411.00	29.70	EC1, ME
38	2707107.39	2353391.54	31.94	EC1, ME
39	2707101.78	2353375.47	32.84	EC1, ME

LAYOUT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
40	2706956.07	2353394.29	30.72	EC1, ME
41	2706937.86	2353387.15	32.26	EC1, ME
42	2706931.50	2353420.27	28.84	EC1, ME
43	2706917.49	2353428.00	28.50	EC1, GB, ME
44	2706901.73	2353428.67	28.78	EC1, ME
45	2706889.17	2353423.39	29.87	EC1, ME
46	2706864.89	2353383.38	31.20	EC1, ME
47	2706860.08	2353353.87	35.31	EC1, ME
48	2707018.87	2353397.84	29.45	ON FG
49	2707002.41	2353445.05	28.01	ON FG
50	2706974.31	2353472.86	27.61	ON FG
51	2706924.90	2353465.19	27.54	ON FG
52	2706875.49	2353457.51	29.02	ON FG

LAYOUT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
53	2706826.08	2353449.83	30.88	ON FG
54	2706776.68	2353442.15	31.91	ON FG
55	2706727.27	2353434.48	30.84	ON FG
56	2706678.75	2353426.94	31.94	ON FG
57	2706515.63	2353387.15	29.78	ON FG
58	2706465.72	2353384.16	31.14	ON FG
59	2706415.80	2353381.17	32.44	ON FG
60	2706365.62	2353378.17	33.73	ON FG
61	2707014.71	2353555.51	26.21	ON FG
62	2706965.08	2353549.45	25.74	ON FG
63	2706915.45	2353543.39	26.81	ON FG
64	2706865.82	2353537.34	28.27	ON FG
65	2706816.19	2353531.28	29.44	ON FG

LAYOUT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
66	2706766.56	2353525.22	28.46	ON FG
67	2706716.92	2353519.17	27.97	ON FG
68	2706667.29	2353513.11	29.15	ON FG
69	2706617.66	2353507.05	30.47	ON FG
70	2706568.03	2353500.99	29.04	ON FG
71	2706518.40	2353494.94	28.44	ON FG
72	2706468.76	2353488.88	27.53	ON FG
73	2706419.13	2353482.82	28.74	ON FG
74	2706369.50	2353476.76	30.09	ON FG
75	2706319.87	2353470.71	31.52	ON FG

STORM DRAIN STRUCTURES				
STRUCTURE	NORTHING	EASTING	RIM ELEV.	TYPE
S1	2706729.88	2353347.47	33.98	6' DIA. TYPE I MH W/ SOLID COVER
S2	2706815.29	2353505.45	29.57	4' DIA. TYPE II MH W/ SOLID COVER
S3	2706710.21	2353452.69	29.97	6' DIA. TYPE I MH W/ SOLID COVER
S4	2706456.14	2353456.70	28.26	6' DIA. TYPE I MH W/ SOLID COVER
S5	2706370.49	2353458.06	30.35	OIL WATER SEPARATOR
S6	2706267.85	2353459.68	19.4'	OUTFALL STRUCTURE

STORM DRAIN PIPE						
PIPE	TYPE	LENGTH	FROM	INVERT	TO	INVERT
P1	24" CPEP-S	10.00'	CTE	27.17	S1	26.90
P2	12" CPEP-S	10.00'	CTE	29.20	S1	29.00
P3	36" CPEP-S	107.05'	S1	26.80	S3	24.66
P4	24" CPEP-S	40.00'	CTE	25.40	S2	25.00
P5	24" CPEP-S	117.58'	S2	24.95	S3	23.80
P6	36" CPEP-S	254.11'	S3	23.75	S4	21.20
P7	12" CPEP-S	128.55'	CTE	FIND	S4	22.00
P8	36" CPEP-S	85.66'	S4	21.15	S5	20.30
P9	36" CPEP-S	102.66'	S5	20.25	S6	19.40

**NOTES:**

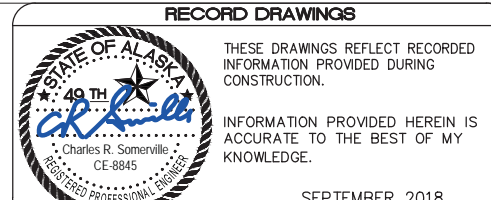
- SHOULD FIELD CONDITIONS WARRANT, STORM DRAIN STRUCTURE STRUCTURE S1 SHALL BE LOCATED TO PREVENT CONFLICT WITH EXISTING WASTEWATER OUTFALL PIPE, CONNECTED PIPES SHALL BE FIELD ADJUSTED AS REQUIRED, (INCIDENTAL).
- INVERT ELEVATIONS PROVIDED AT CONNECTIONS TO EXISTING ARE APPROXIMATE, FIELD LOCATE.
- STORM DRAIN STRUCTURE RIM ELEVATIONS ARE 6" BELOW FINISH GRADE
- STORM DRAIN OUTFALL ELEVATION REFERENCES THE INVERT ELEVATION OF THE DISCHARGE PIPE AT OUTLET.
- STORM DRAIN OUTFALL HORIZONTAL LOCATION APPROX. LOCATE ALONG PIPE BEARING SHOWN, FACED IN SLOPE PER OUTFALL DETAIL, SHEET 4.03.

**LAYOUT TABLE NOTE:**

- TABLE ELEVATIONS AT MATCH POINTS ARE SHOWN FOR REFERENCE ONLY, MATCHING EXISTING SURFACES SHALL TAKE PRECEDENCE, NOTIFY ENGINEER PRIOR TO WORK OF ANY SUBSTANTIAL DISCREPANCIES, (INCIDENTAL).

**ABBREVIATIONS:**

- ESRB: EDGE OF CLASS A SRB
- EC1: EDGE OF C-1
- FG: FINISH GRADE
- GB: GRADE BREAK
- ME: MATCH EXISTING
- PC: POINT OF CURVATURE
- PCC: POINT OF COMPOUND CURVATURE
- POC: POINT ON CURVE
- PRC: POINT OF REVERSE CURVATURE



REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
3	9/2018	AS-BUILT	KLL	MBH	CRS

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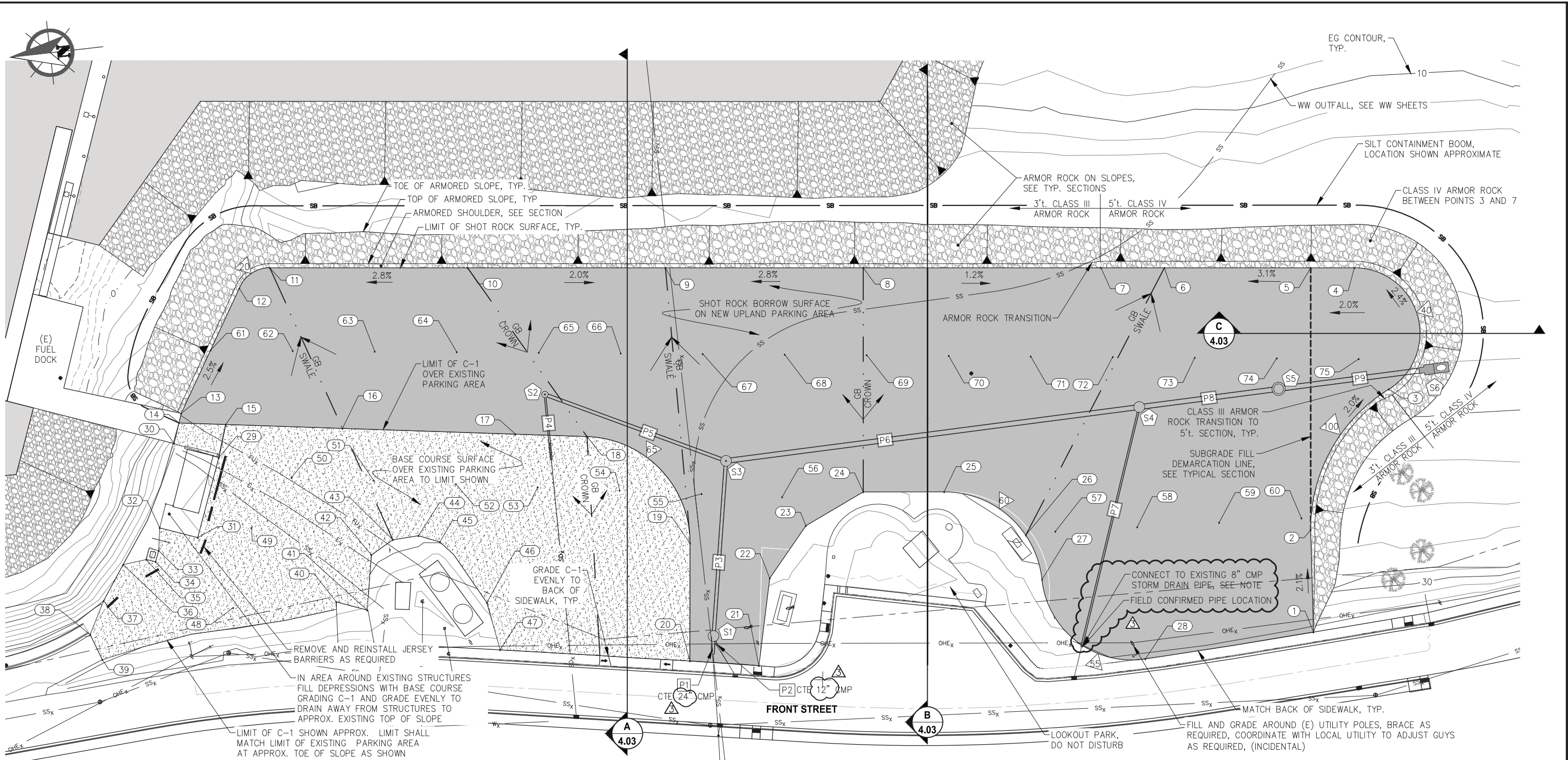
DATE: 8/23/16

**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

SHEET TITLE:  
**LAYOUT TABLES**

4.01  
SHEET  
14 OF 32

PND PROJECT NO.: 102029.01



**GRADING AND DRAINAGE PLAN**

LAYOUT POINTS ARE SHOWN THIS SHEET.

**NOTES:**

- CONNECTIONS TO EXISTING PIPES SHALL BE COUPLED AS SHOWN IN THE CONCRETE ENCASMENT DETAIL, SHEET 4.03.
- THE 8" CMP PIPE TO BE CONNECTED UPSTREAM TO PIPE P7 IS BURIED IN THE EXISTING SLOPE. CONTRACTOR SHALL FIELD LOCATE AND SUBMIT COORDINATES AND INVERT ELEVATION TO ENGINEER PRIOR TO MATERIAL ORDER. (INCIDENTAL)
- GRADE ARROWS PROVIDED ARE SPOT GRADES AND ARE FOR REFERENCE ONLY, POINTS SHALL CONTROL.
- WATER OR WASTEWATER PIPES, INCLUDING THE 16" WASTEWATER OUTFALL SHALL BE INSULATED WITH BOARD INSULATION PER SPECIFICATIONS AT ALL LOCATIONS WHERE THE DISTANCE BETWEEN THE WW PIPE AND A STORM DRAIN PIPE OR STRUCTURE IS LESS THAN 3' PER ENGINEER DIRECTION.
- CONSTRUCT STORM DRAIN SYSTEM IN A MANNER THAT DIRECTS FLOWS OUTSIDE OF THE DREDGED MATERIAL CONTAINMENT DIKE TO PREVENT SATURATION OF FILL MATERIALS.
- SILT BOOM REQUIRED AROUND UPLAND FILL AREAS AS REQUIRED TO CONTAIN RUNOFF, LOCATION SHOWN APPROXIMATE, SEE SPECIFICATIONS.
- (4) EXISTING STORM DRAIN PIPES TO BE CONNECTED TO NEW SYSTEM SHALL BE CLEANED OUT FROM THE CONNECTION POINT TO THE UPSTREAM STRUCTURE. PIPES SHALL BE COMPLETELY CLEARED OF SILT, GRAVEL AND DEBRIS AS DETERMINED BY THE ENGINEER PRIOR TO MAKING CONNECTIONS TO NEW PIPES.



**RECORD DRAWINGS**

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DATE: SEPTEMBER 2018

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
1	9/21/16	ADDENDUM NO.2	PJD	JDO	CRS
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SCALE: SCALE IN FEET  
0 30 60 FT.

DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

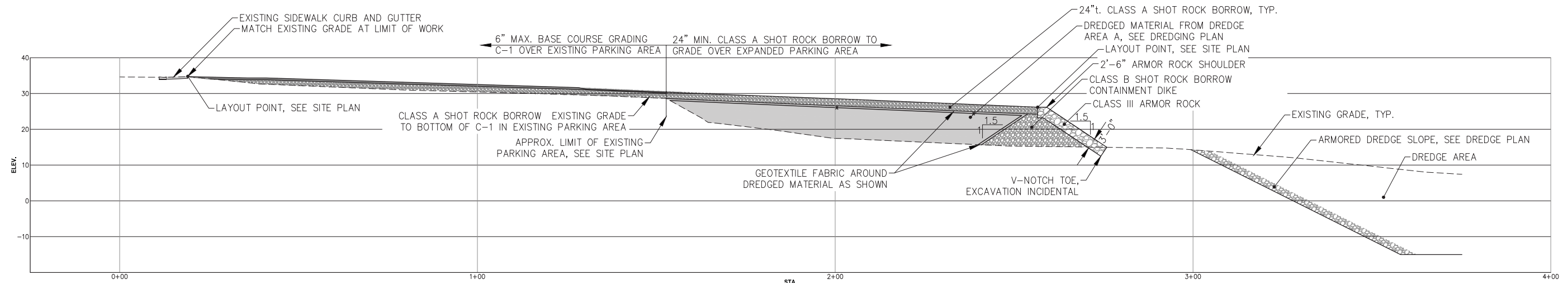
SHEET TITLE: **UPLAND GRADING AND DRAINAGE PLAN**

PND PROJECT NO.: 102029.01

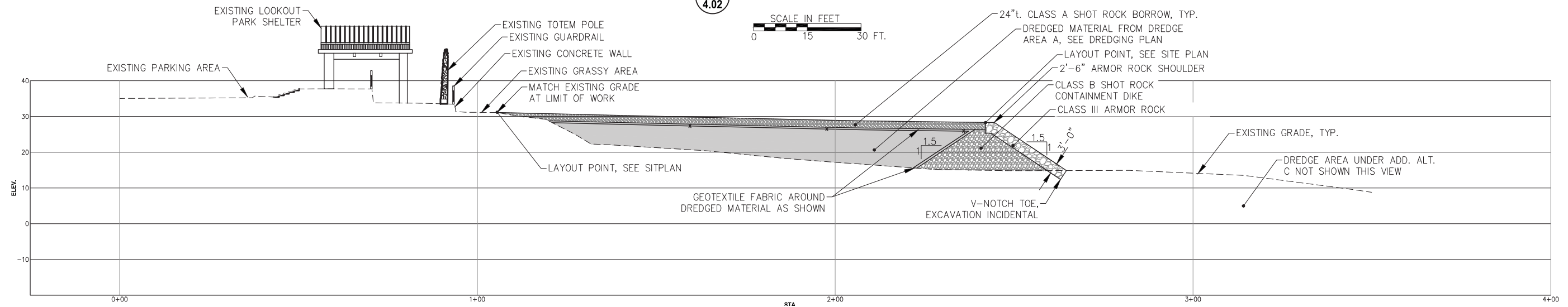
**4.02**

SHEET 15 OF 32

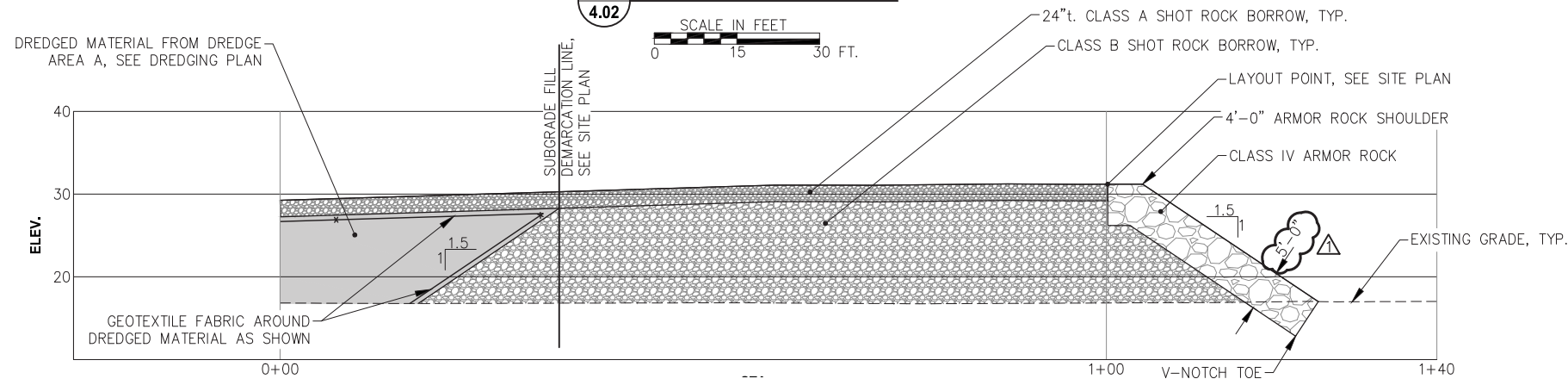




**A**  
4.02 UPLAND FILL SECTION



**B**  
4.02 UPLAND FILL SECTION



**C**  
4.02 UPLAND FILL SECTION

**NOTE:**  
APPROXIMATELY 23,000 CY NEAT LINE FILL VOLUME OF DREDGE MATERIAL IS ESTIMATED TO BE PLACED WITHIN THE UPLAND CONTAINMENT AREA; CONTRACTOR SHALL VERIFY QUANTITY PRIOR TO BID



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SCALE: AS SHOWN

DATE: 8/23/16

**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

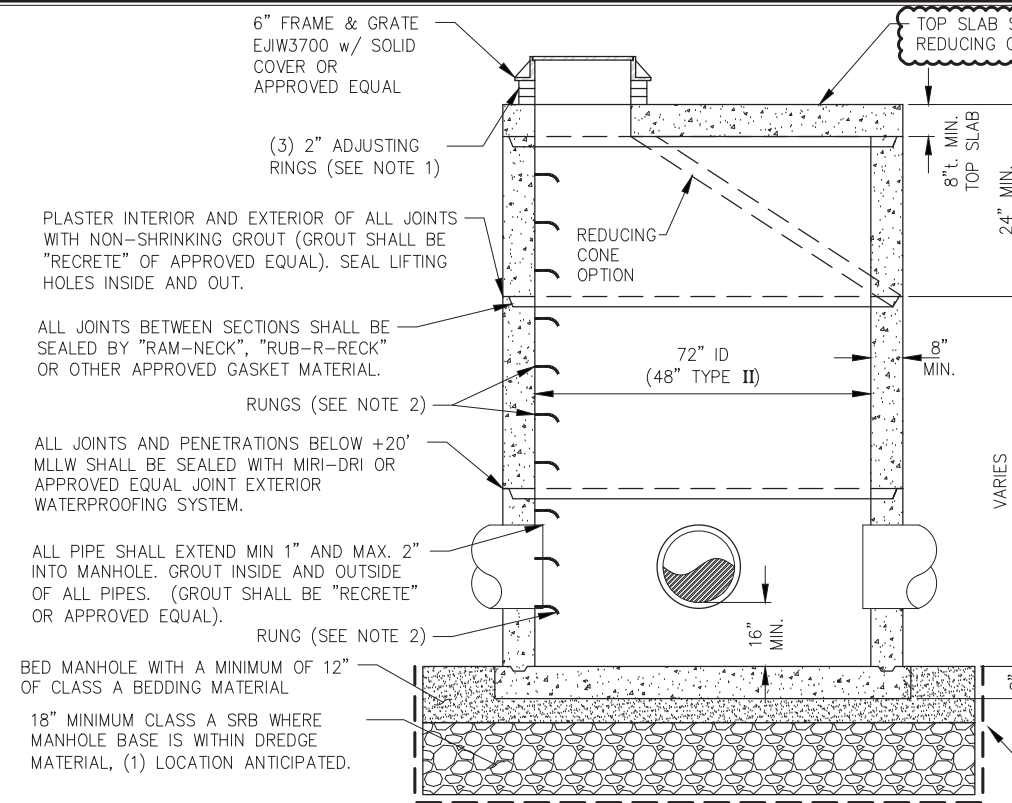
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**UPLAND SECTIONS**

PND PROJECT NO.: 102029.01

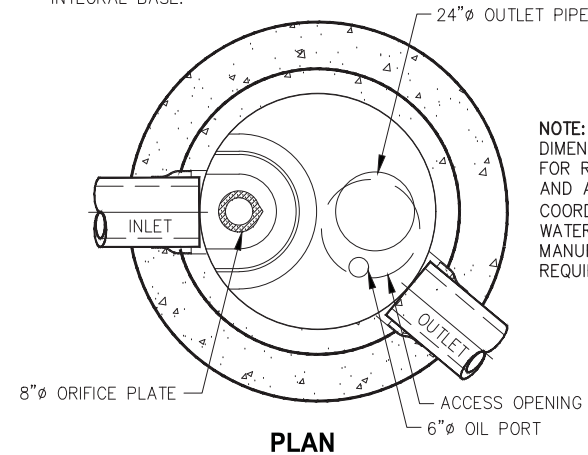
**4.03**

SHEET  
16 OF 32



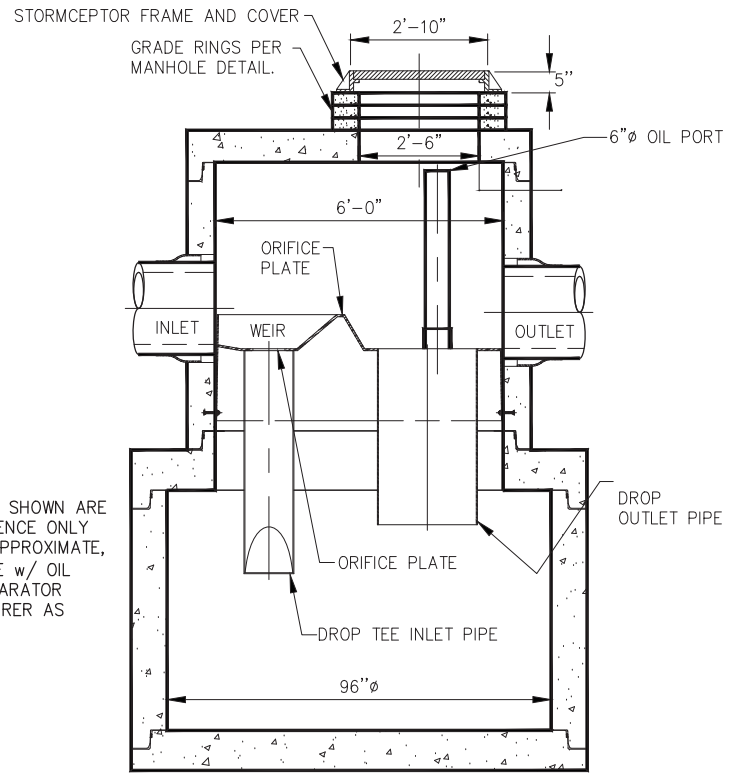
**STORM DRAIN MANHOLE - TYPE I (AS SHOWN)**

- NOTES:**
1. TOP RING SHALL BE EJIW INFRA RISER OR APPROVED EQUAL.
  2. RUNGS TO BE PLACED 12" O.C. ON OBSTRUCTED SIDE OF MANHOLE. LAST RUNG SHALL BE 18" MAXIMUM FROM BOTTOM OF MANHOLE, AND TOP RUNG SHALL BE 6" MAXIMUM FROM TOP OF CONE. IF UNOBSTRUCTED SIDE NOT AVAILABLE, LAST RUNG SHALL BE PLACED 6" OVER SMALLEST PIPE. REFER TO ASTM C-478.
  3. BLOCKOUTS MUST BE FORMED.
  4. COVER SHALL BE STENCILED "DRAIN".
  5. TYPE II MANHOLES SHALL HAVE INTEGRAL BASE.



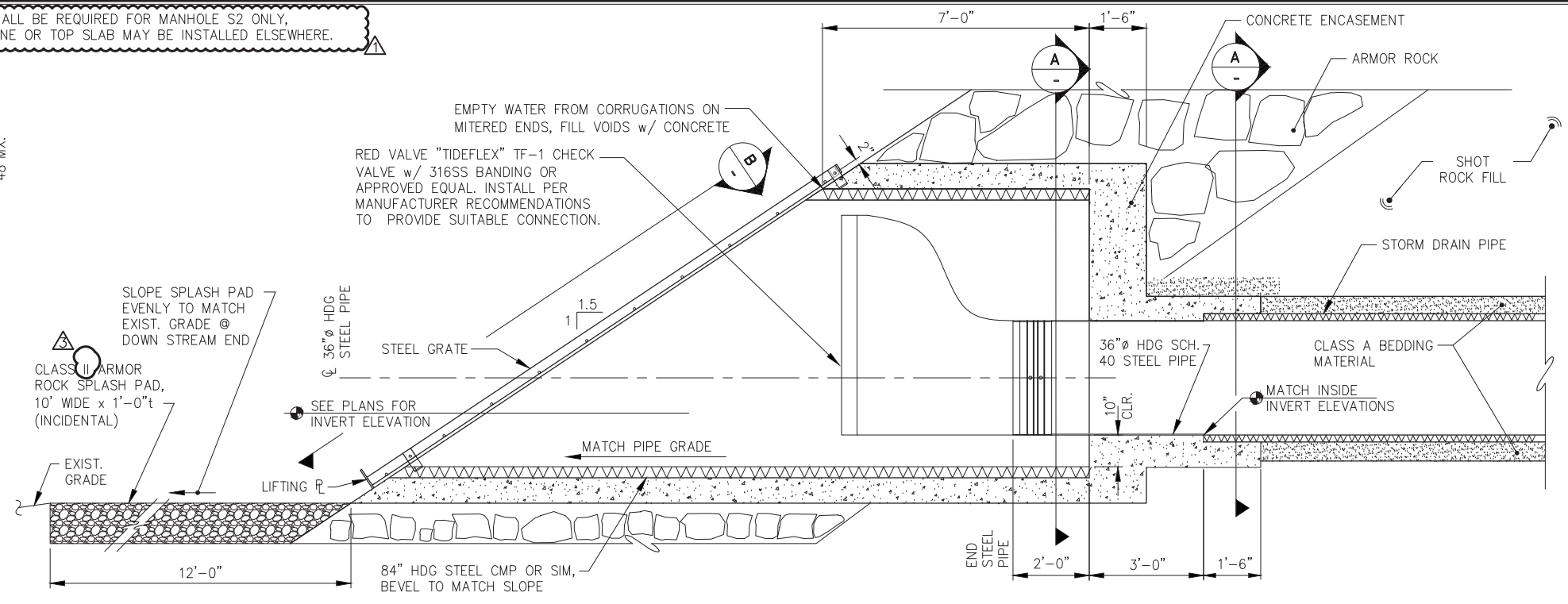
**OIL WATER SEPARATOR**

**NOTE:** DIMENSIONS SHOWN ARE FOR REFERENCE ONLY AND ARE APPROXIMATE, COORDINATE w/ OIL WATER SEPARATOR MANUFACTURER AS REQUIRED.



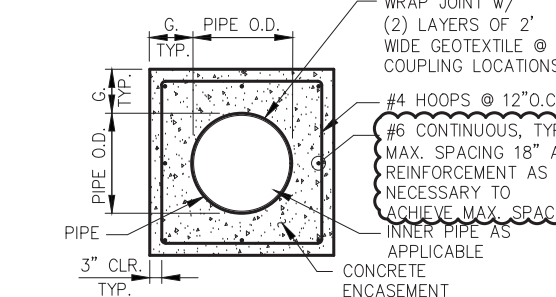
**SECTION THROUGH CHAMBER**

**NOTE:** SUBGRADE PREPARATION SIMILAR TO S.D. MANHOLE



**STORM DRAIN OUTFALL STRUCTURE**

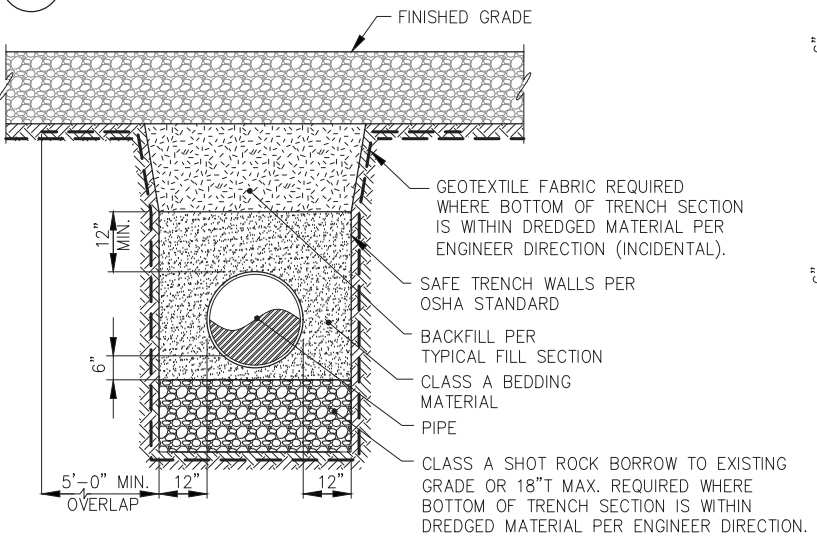
**NOTE:** PROVIDE GEOTEXTILE FABRIC WRAP AROUND DISSIMILAR PIPE COUPLINGS PER CONCRETE ENCASEMENT DETAIL THIS SHEET.



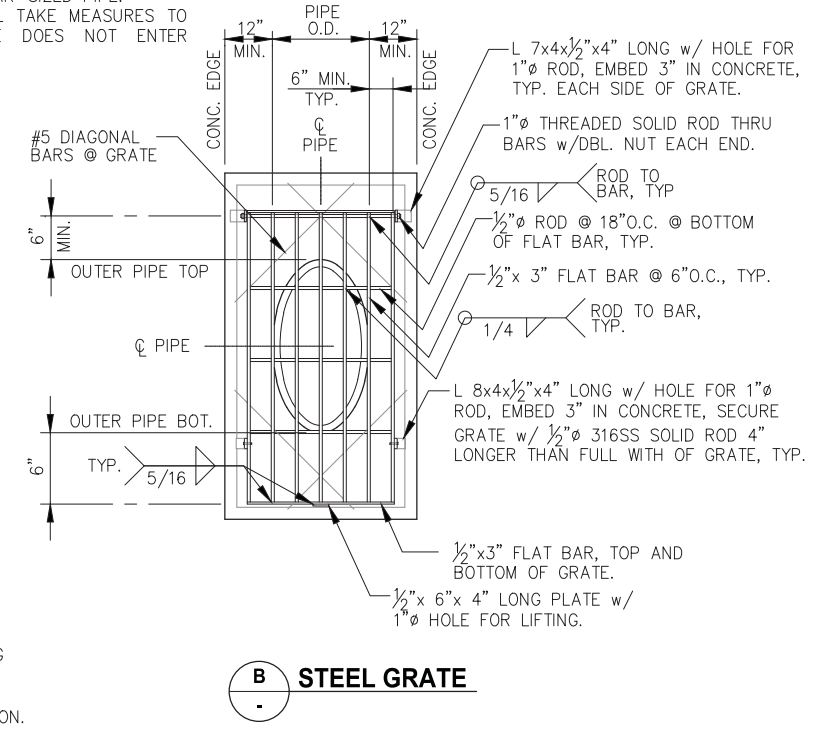
**CONCRETE ENCASEMENT SECTION**

**CONCRETE ENCASEMENT NOTES:**

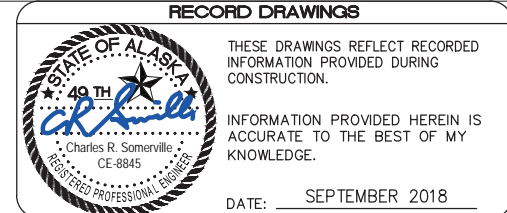
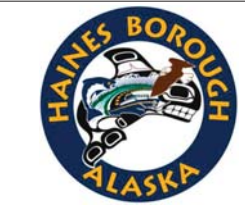
1. G=8" @ PIPE COUPLINGS 12" AROUND CMP PIPE FOR OUTFALL.
2. ENCASEMENTS SHALL BE 4' LONG UNO.
3. MATCH INSIDE INVERTS @ ALL LOCATIONS INCLUDING DISSIMILAR-SIZED PIPE.
4. CONTRACTOR SHALL TAKE MEASURES TO ENSURE CONCRETE DOES NOT ENTER PIPE (INCIDENTAL)



**TYPICAL STORM DRAIN PIPE BEDDING SECTION**



**STEEL GRATE**



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2	9/2018	AS-BUILT	KLL	MBH	CRS

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**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **STORM DRAIN DETAILS**

DATE: 8/23/16

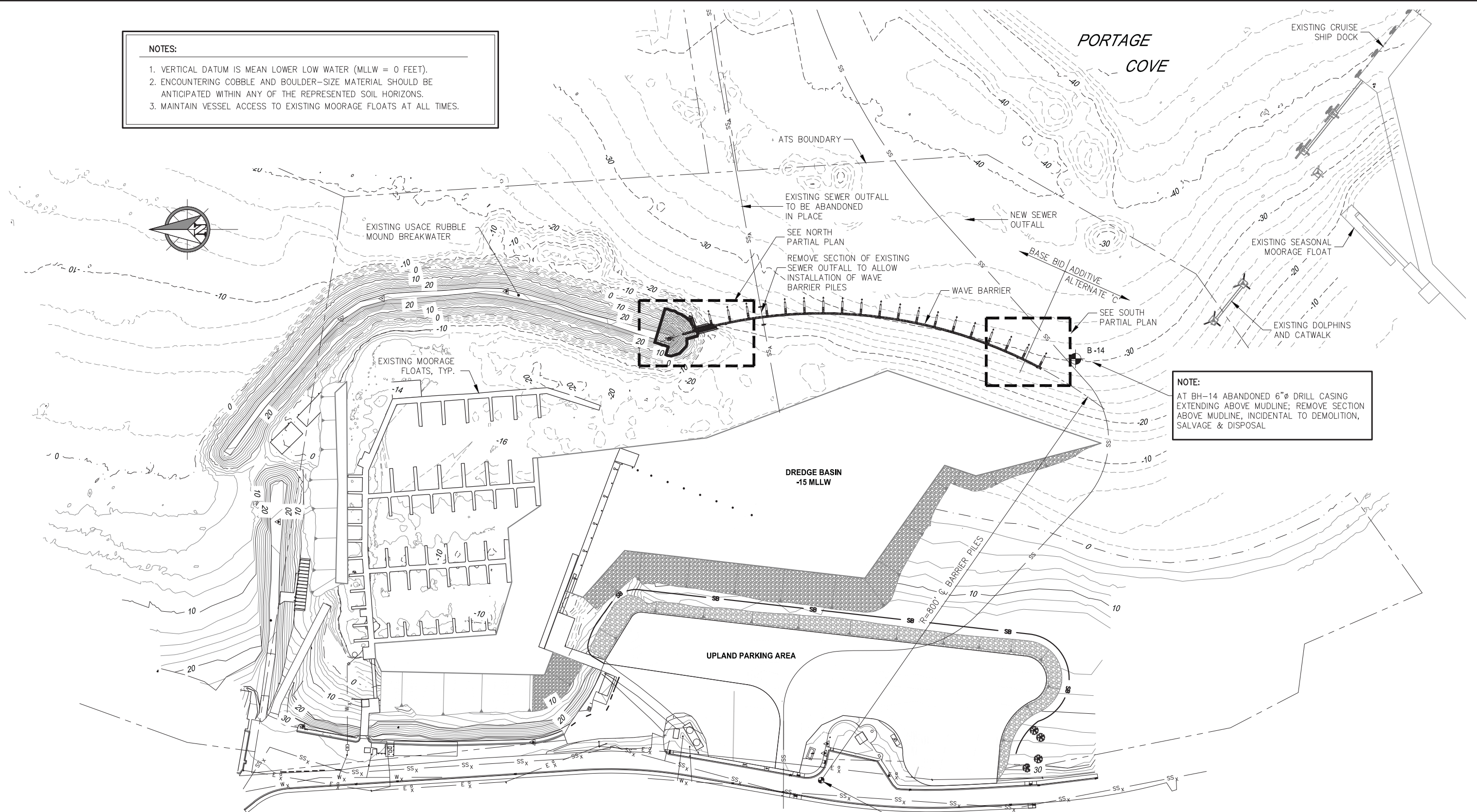
PND PROJECT NO.: 102029.01

**4.04**

SHEET 17 OF 32

**NOTES:**

1. VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW = 0 FEET).
2. ENCOUNTERING COBBLE AND BOULDER-SIZE MATERIAL SHOULD BE ANTICIPATED WITHIN ANY OF THE REPRESENTED SOIL HORIZONS.
3. MAINTAIN VESSEL ACCESS TO EXISTING MOORAGE FLOATS AT ALL TIMES.



**NOTE:**  
 AT BH-14 ABANDONED 6" DRILL CASING  
 EXTENDING ABOVE MUDLINE; REMOVE SECTION  
 ABOVE MUDLINE, INCIDENTAL TO DEMOLITION,  
 SALVAGE & DISPOSAL

**WAVE BARRIER SITE PLAN**

ESTABLISH WORK POINT CENTER OF ARC  
 N: 2706666.85  
 E: 2353313.39



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 DRAWN: GRD APPROVED: CRS

SCALE: SCALE IN FEET  
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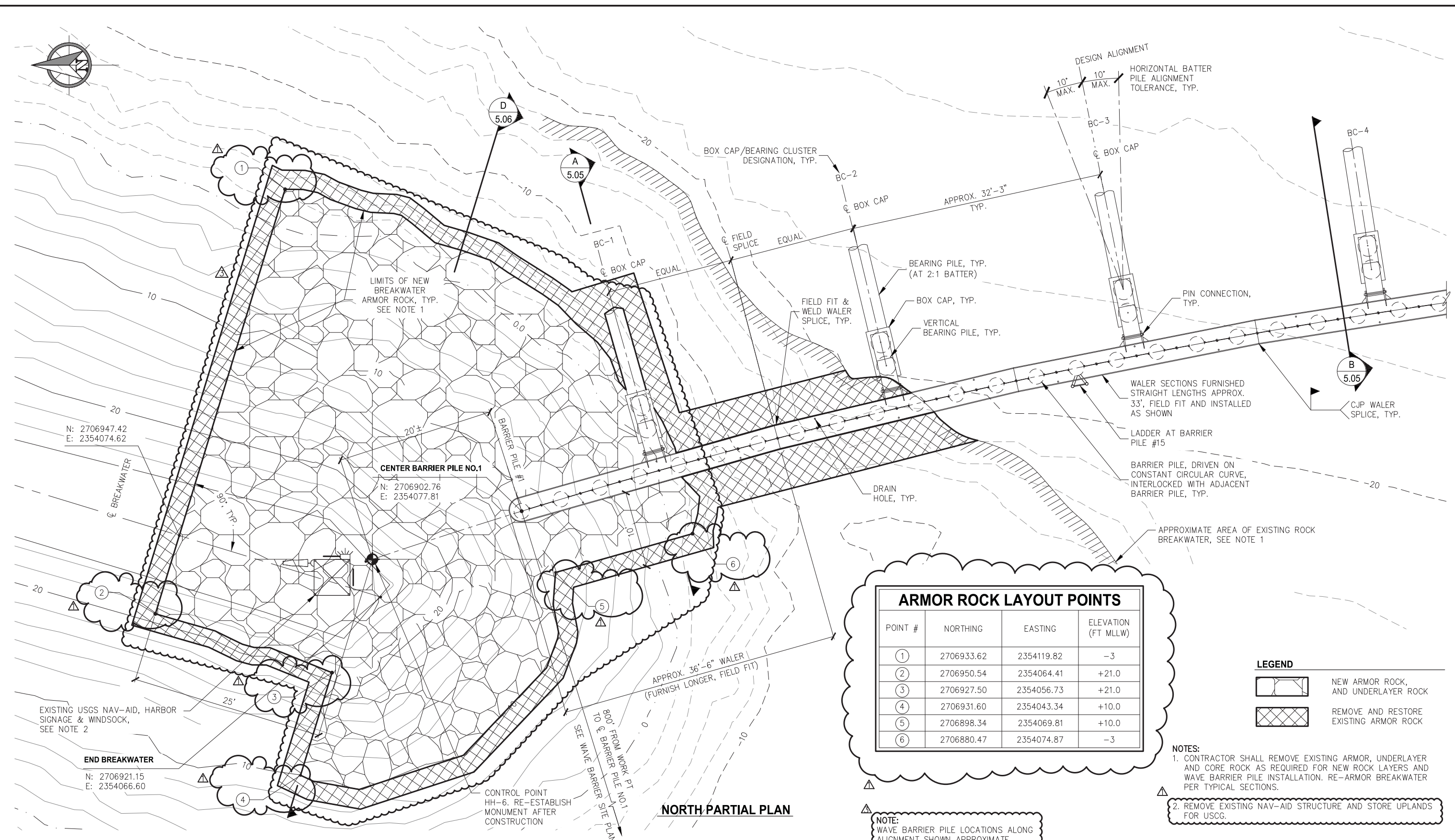
DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **WAVE BARRIER SITE PLAN**

PND PROJECT NO.: 102029.01

**5.01**  
 SHEET 18 OF 32



N: 2706947.42  
E: 2354074.62

CENTER BARRIER PILE NO.1  
N: 2706902.76  
E: 2354077.81

EXISTING USGS NAV-AID, HARBOR SIGNAGE & WINDSOCK, SEE NOTE 2

END BREAKWATER  
N: 2706921.15  
E: 2354066.60



CONTROL POINT HH-6. RE-ESTABLISH MONUMENT AFTER CONSTRUCTION

**NORTH PARTIAL PLAN**

**ARMOR ROCK LAYOUT POINTS**

POINT #	NORTHING	EASTING	ELEVATION (FT MLLW)
①	2706933.62	2354119.82	-3
②	2706950.54	2354064.41	+21.0
③	2706927.50	2354056.73	+21.0
④	2706931.60	2354043.34	+10.0
⑤	2706898.34	2354069.81	+10.0
⑥	2706880.47	2354074.87	-3

**LEGEND**

-  NEW ARMOR ROCK, AND UNDERLAYER ROCK
-  REMOVE AND RESTORE EXISTING ARMOR ROCK

**NOTES:**

1. CONTRACTOR SHALL REMOVE EXISTING ARMOR, UNDERLAYER AND CORE ROCK AS REQUIRED FOR NEW ROCK LAYERS AND WAVE BARRIER PILE INSTALLATION. RE-ARMOR BREAKWATER PER TYPICAL SECTIONS.
2. REMOVE EXISTING NAV-AID STRUCTURE AND STORE UPLANDS FOR USCG.

**NOTE:**  
WAVE BARRIER PILE LOCATIONS ALONG ALIGNMENT SHOWN APPROXIMATE

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
1	9/21/16	ADDENDUM NO.2	PJD	JDO	CRS
2	9/2018	AS-BUILT	KLL	MBH	CRS

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DESIGN: JDO    CHECKED: CRS  
DRAWN: GRD    APPROVED: CRS

SCALE: SCALE IN FEET  
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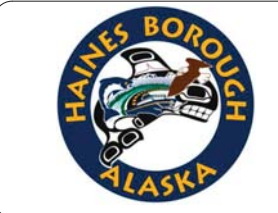
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **WAVE BARRIER NORTH PARTIAL PLAN**

PND PROJECT NO.: 102029.01

DATE: 8/23/16

**5.02**  
SHEET 19 OF 32

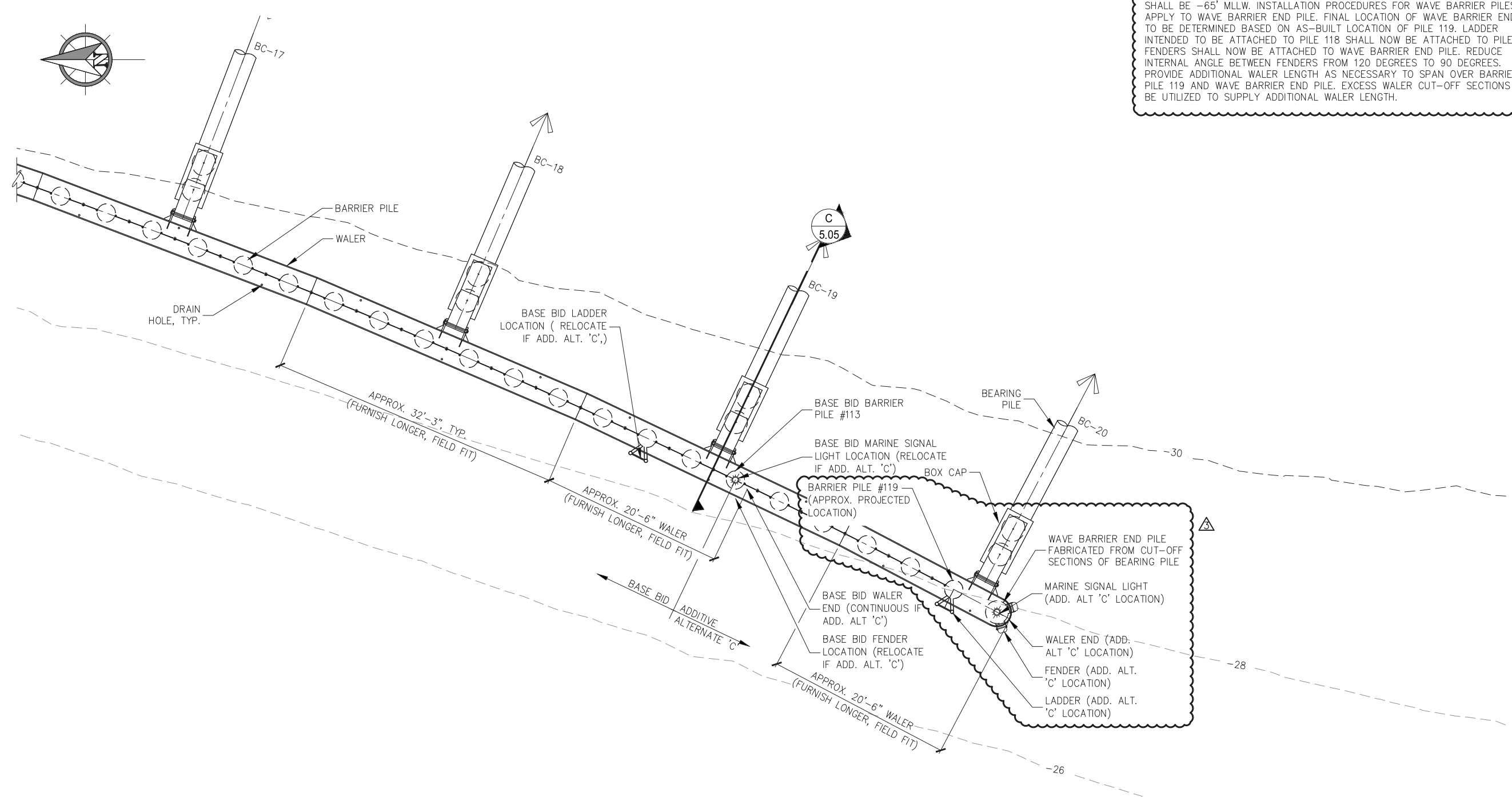


**RECORD DRAWINGS**

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INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

DATE: SEPTEMBER 2018



NOTE: WAVE BARRIER END PILE SHALL BE FABRICATED FROM CUT-OFF SECTIONS OF 30" DIA. BEARING PILES. PILE SHALL BE MIN. 90' LONG. TIP ELEVATION SHALL BE -65' MLLW. INSTALLATION PROCEDURES FOR WAVE BARRIER PILES APPLY TO WAVE BARRIER END PILE. FINAL LOCATION OF WAVE BARRIER END PILE TO BE DETERMINED BASED ON AS-BUILT LOCATION OF PILE 119. LADDER INTENDED TO BE ATTACHED TO PILE 118 SHALL NOW BE ATTACHED TO PILE 119. FENDERS SHALL NOW BE ATTACHED TO WAVE BARRIER END PILE. REDUCE INTERNAL ANGLE BETWEEN FENDERS FROM 120 DEGREES TO 90 DEGREES. PROVIDE ADDITIONAL WALER LENGTH AS NECESSARY TO SPAN OVER BARRIER PILE 119 AND WAVE BARRIER END PILE. EXCESS WALER CUT-OFF SECTIONS MAY BE UTILIZED TO SUPPLY ADDITIONAL WALER LENGTH.

**SOUTH PARTIAL PLAN**

NOTE: WAVE BARRIER PILE LOCATIONS ALONG ALIGNMENT SHOWN APPROXIMATE



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DATE: SEPTEMBER 2018

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
3	9/2018	AS-BUILT	KLL	MBH	CRS

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DESIGN: JDO    CHECKED: CRS    SCALE: SCALE IN FEET  
DRAWN: GRD    APPROVED: CRS    0 6 12 FT.

DATE: 8/23/16

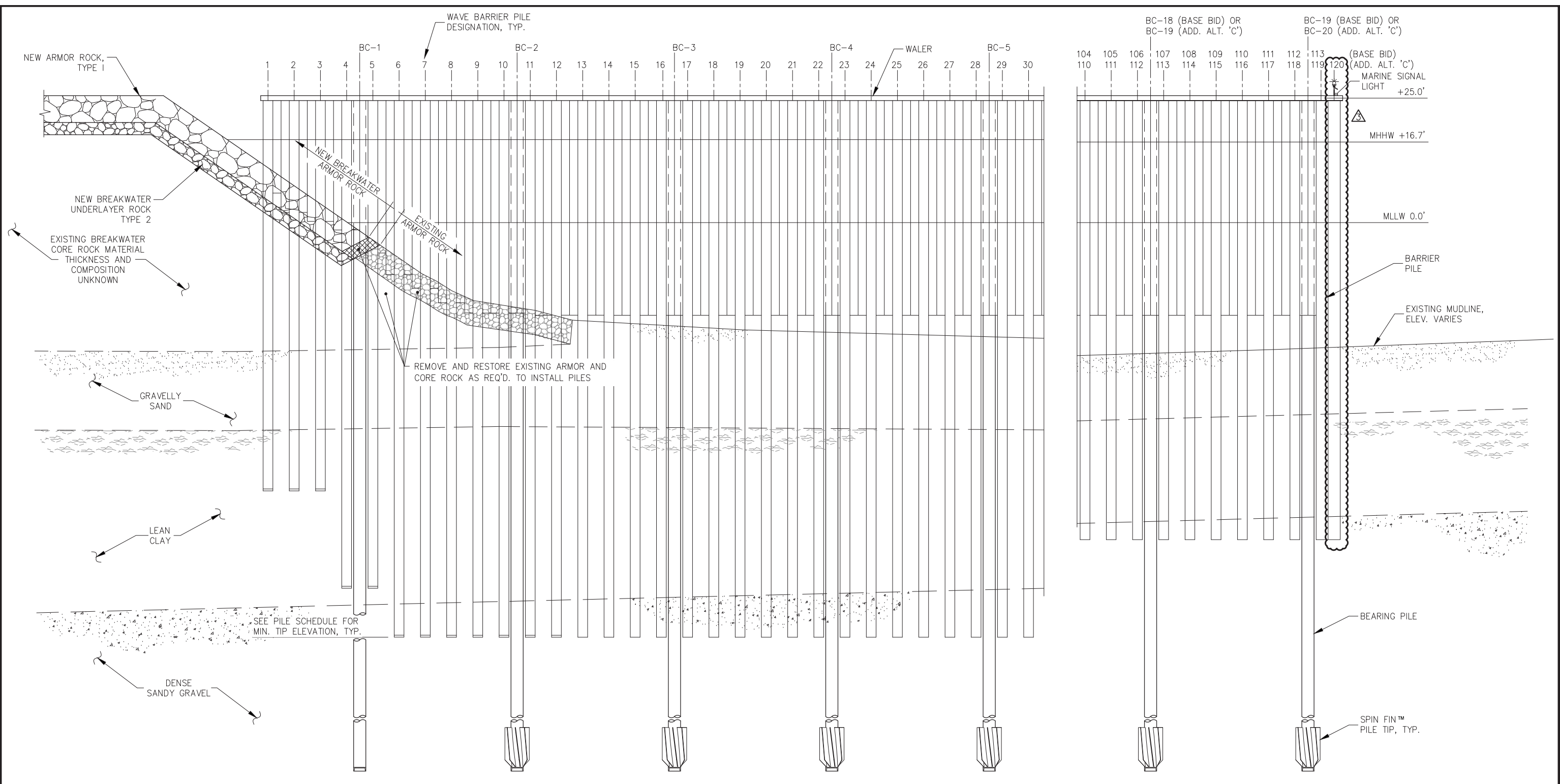
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **WAVE BARRIER SOUTH PARTIAL PLAN**

PND PROJECT NO.: 102029.01

**5.03**

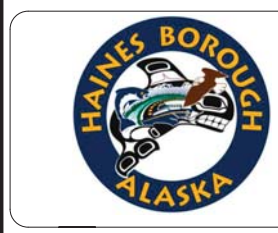
SHEET 20 OF 32



**NOTE:**  
 1. SOIL INFORMATION SHOWN IS APPROXIMATE AND FOR GENERAL ILLUSTRATION PURPOSES ONLY. SEE GEOTECHNICAL REPORT FOR SPECIFIC SOILS INFORMATION.  
 2. SEE PILE SCHEDULE FOR DETAILS NOT SHOWN AND INSTALLATION CRITERIA.

SPIN FIN™ PILE IS A REGISTERED TRADEMARK OF PND ENGINEERS, INC.

**PARTIAL ELEVATION**  
 NOTE: LADDERS NOT SHOWN FOR CLARITY



**RECORD DRAWINGS**

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DATE: SEPTEMBER 2018

REVISIONS						
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.	
3	9/2018	AS-BUILT	KLL	MBH	CRS	

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DESIGN: JDO CHECKED: CRS  
 DRAWN: GRD APPROVED: CRS

SCALE: SCALE IN FEET  
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DATE: 8/23/16

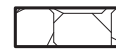


**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

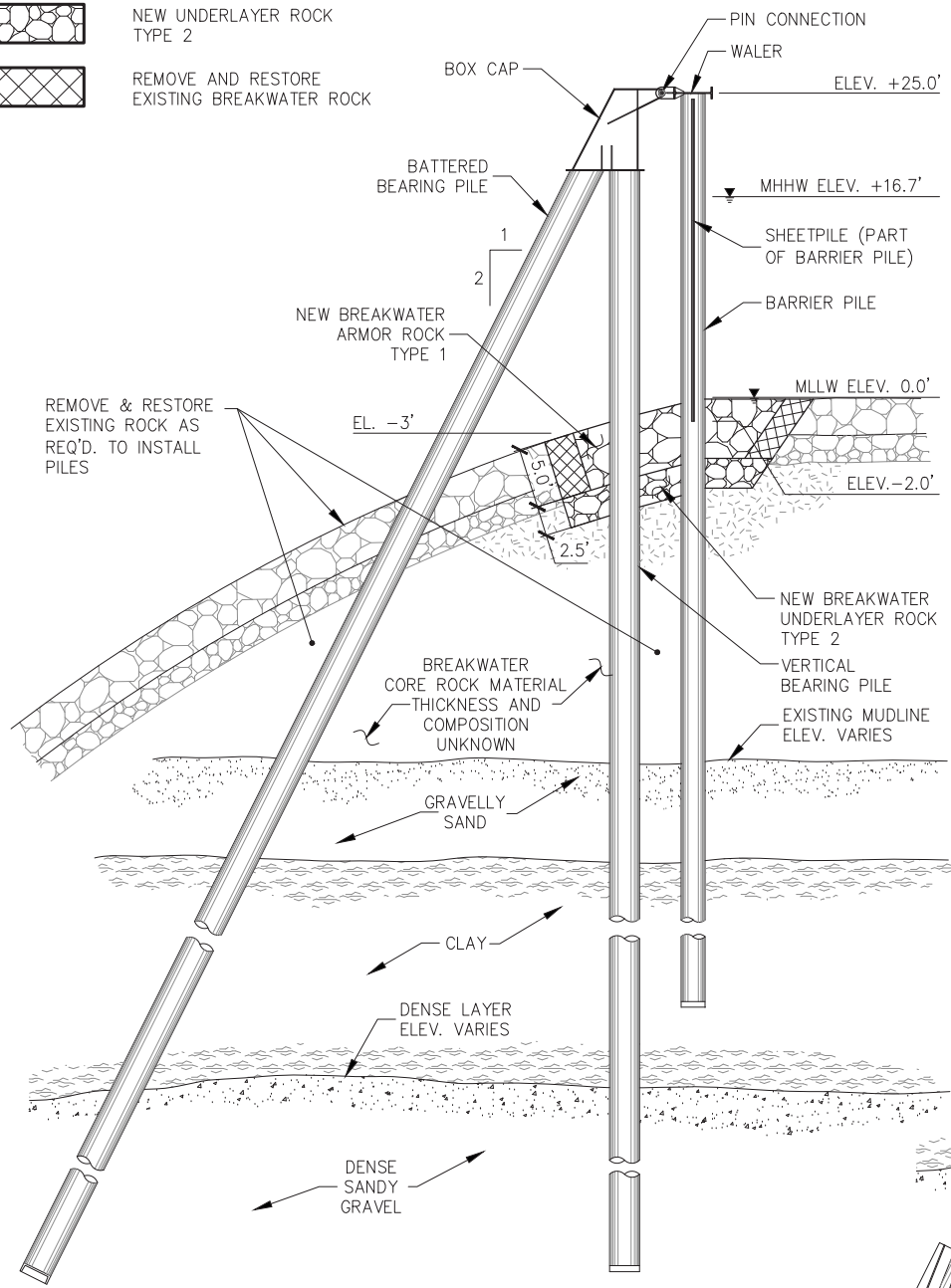
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PND PROJECT NO.: 102029.01

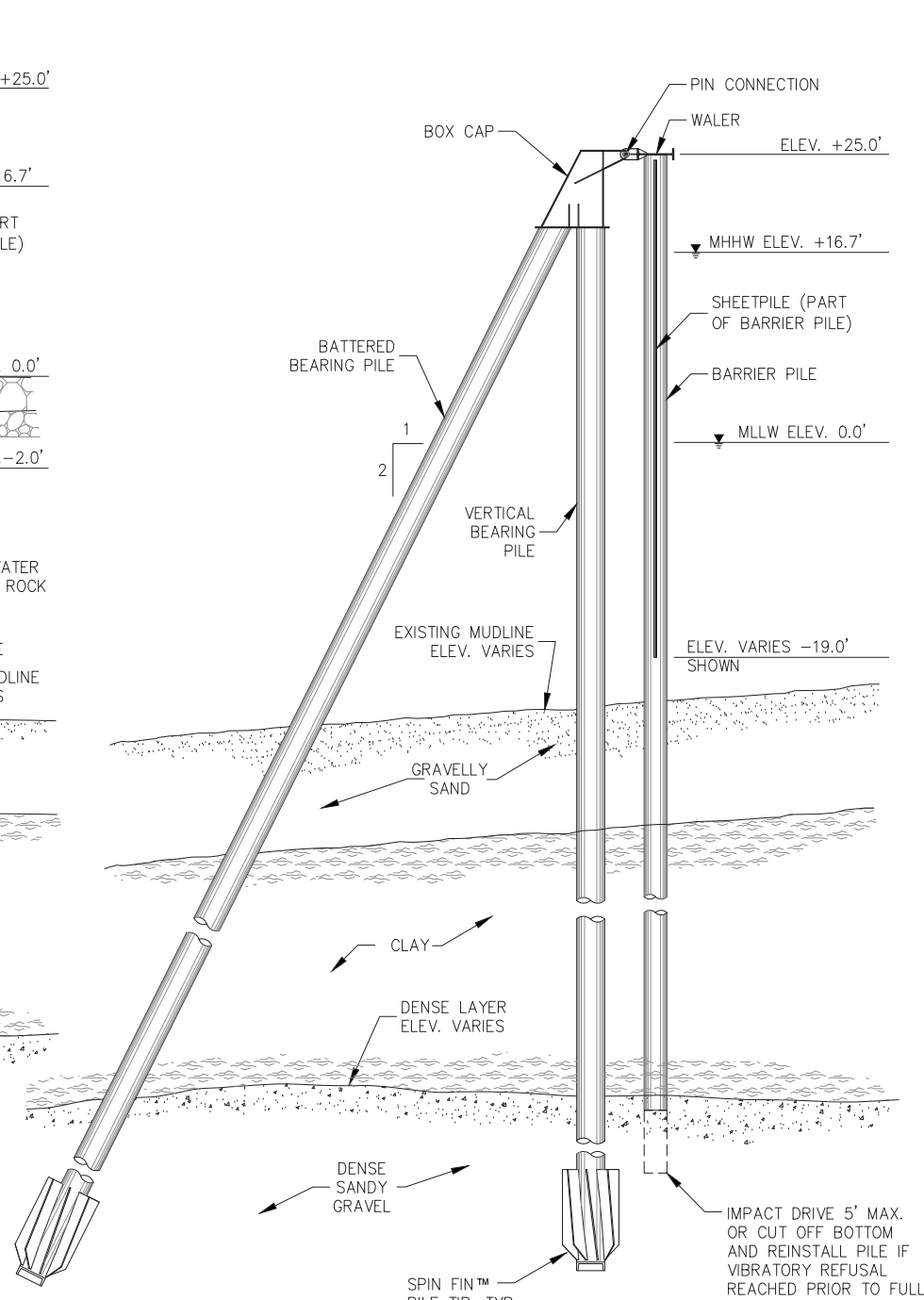
5.04  
 SHEET 21 OF 32

**NEW ARMOR ROCK SIZE:**

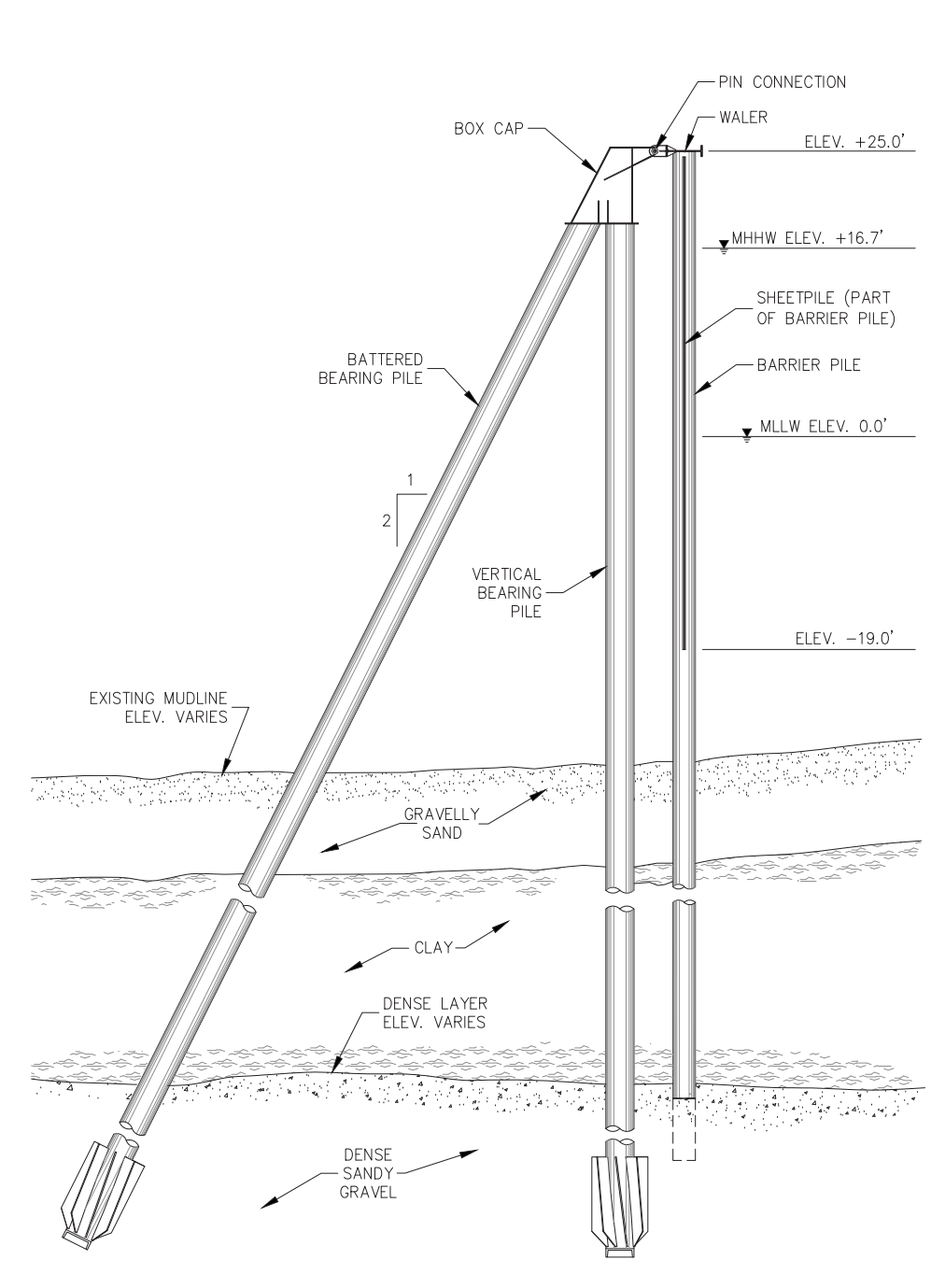
-  NEW ARMOR ROCK TYPE 1
-  NEW UNDERLAYER ROCK TYPE 2
-  REMOVE AND RESTORE EXISTING BREAKWATER ROCK



**A** TYPICAL SECTION  
5.02



**B** TYPICAL SECTION  
5.02



**C** TYPICAL SECTION  
5.03

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DATE: SEPTEMBER 2018

REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

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DESIGN: JDO CHECKED: CRS  
DRAWN: GRD APPROVED: CRS

SCALE: SCALE IN FEET  
0 8 16 FT.

DATE: 8/23/16

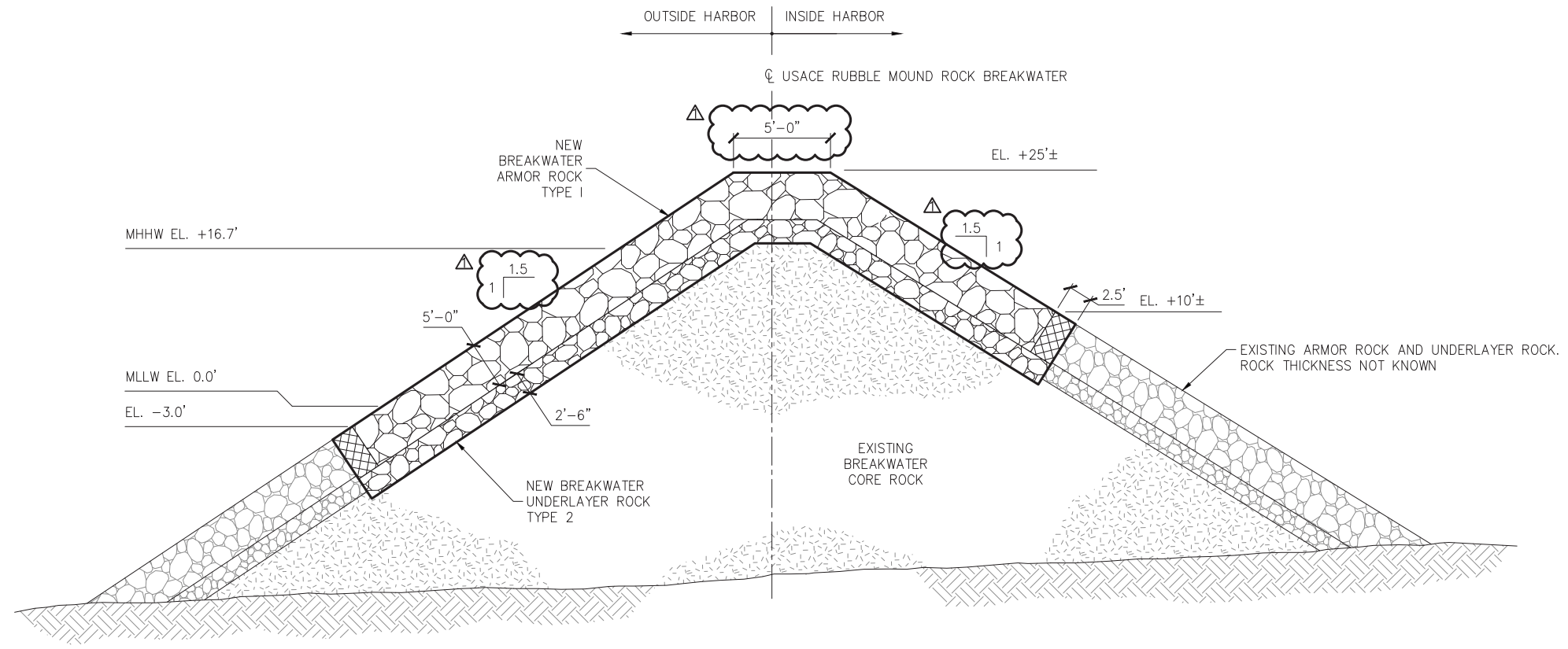
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: TYPICAL SECTIONS




PND PROJECT NO.: 102029.01

5.05

SHEET 22 OF 32



**D** TYPICAL SECTION  
5.02

- NEW ARMOR ROCK SIZE:**
-  NEW ARMOR ROCK TYPE 1
  -  NEW UNDERLAYER ROCK TYPE 2
  -  REMOVE AND RESTORE EXISTING ARMOR ROCK



**RECORD DRAWINGS**

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INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

DATE: SEPTEMBER 2018

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
▲	9/21/16	ADDENDUM NO.2	PJD	JDO	CRS

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DESIGN: JDO    CHECKED: CRS    SCALE:  
DRAWN: GRD    APPROVED: CRS

DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **ROCK BREAKWATER SECTION**

PND PROJECT NO.: 102029.01

**5.06**  
SHEET 23 OF 32

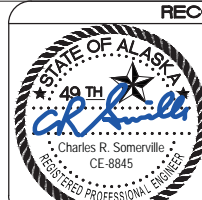


WAVE BARRIER PILE SCHEDULE								
PILE LOCATION	PILE SIZE DIAMETER X WALL	SUPPLY LENGTH (FT)	MAX. LENGTH OF BARE PILE (FT)	LENGTH OF SHEETPILE (FT)	TIP TYPE	PILE TIP ELEVATION (FT MLLW)	DESIGN COMPRESSION CAPACITY	COMMENTS
							(ALLOWABLE/ULTIMATE) (kips)	
1	24" dia x 0.500"t	80	40	20	Cutting Shoe	-55	--	PS31 one side of pile only*
2	24" dia x 0.500"t	80	40	23	Cutting Shoe	-55	--	PS31 both sides
3	24" dia x 0.500"t	80	40	25	Cutting Shoe	-55	--	PS31 both sides
4	24" dia x 0.500"t	100	50	27	Cutting Shoe	-75	--	PS31 both sides
5	24" dia x 0.500"t	100	50	32	Cutting Shoe	-75	--	PS31 both sides
6	24" dia x 0.500"t	100	50	36	Cutting Shoe	-75	--	PS31 both sides
7	24" dia x 0.500"t	100	50	40	Cutting Shoe	-75	--	PS31 both sides
8	24" dia x 0.500"t	100	50	42	Cutting Shoe	-75	--	PS31 both sides
9	24" dia x 0.500"t	100	50	44	Cutting Shoe	-75	--	PS31 both sides
10	24" dia x 0.500"t	110	50	44	Cutting Shoe	-85	--	PS31 both sides
11	24" dia x 0.500"t	110	50	44	Cutting Shoe	-85	--	PS31 both sides
12	24" dia x 0.500"t	110	50	44	Cutting Shoe	-85	--	PS31 both sides
13	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
14	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
15	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
16	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
17	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
18	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
19	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
20	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
21	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
22	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
23	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
24	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
25	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
26	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
27	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
28	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
29	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
30	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
31	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
32	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
33	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
34	24" dia x 0.500"t	110	50	44	None	-85	--	PS31 both sides
35	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
36	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
37	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
38	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
39	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
40	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
41	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
42	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
43	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
44	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
45	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
46	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
47	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
48	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
49	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
50	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides

WAVE BARRIER PILE SCHEDULE (Cont.)								
PILE LOCATION	PILE SIZE DIAMETER X WALL	SUPPLY LENGTH (FT)	MAX. LENGTH OF BARE PILE (FT)	LENGTH OF SHEETPILE (FT)	TIP TYPE	PILE TIP ELEVATION (FT MLLW)	DESIGN COMPRESSION CAPACITY	COMMENTS
							(ALLOWABLE/ULTIMATE) (kips)	
51	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
52	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
53	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
54	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
55	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
56	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
57	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
58	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
59	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
60	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
61	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
62	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
63	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
64	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
65	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
66	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
67	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
68	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
69	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
70	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
71	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
72	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
73	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
74	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
75	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
76	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
77	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
78	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
79	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
80	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
81	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
82	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
83	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
84	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
85	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
86	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
87	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
88	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
89	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
90	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
91	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
92	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
93	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
94	24" dia x 0.500"t	100	40	44	None	-75	--	PS31 both sides
95	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
96	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
97	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
98	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
99	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
100	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides

\* PAY PARTICULAR ATTENTION TO INTERLOCK ORIENTATION

NOTE: CUTTING SHOE SHALL BE APF OUTSIDE FLANGED OPEN CUTTING SHOE OR APPROVED EQUAL



**RECORD DRAWINGS**  
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 DATE: SEPTEMBER 2018

REVISIONS					
REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
3	9/2018	AS-BUILT	KLL	MBH	CRS

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DESIGN: JDO    CHECKED: CRS    SCALE:  
 DRAWN: GRD    APPROVED: CRS

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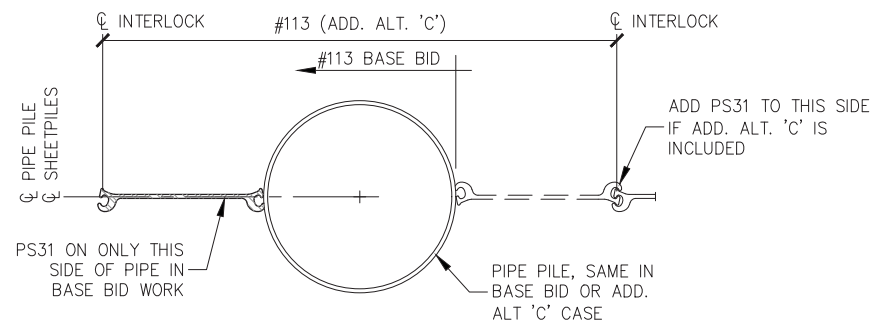
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **PILE SCHEDULE**

PND PROJECT NO.: 102029.01

**5.07**  
 SHEET 24 OF 32

WAVE BARRIER PILE SCHEDULE (Cont.)								
PILE LOCATION	PILE SIZE DIAMETER x WALL	SUPPLY LENGTH (FT)	MAX. LENGTH OF BARE PILE (FT)	LENGTH OF SHEETPILE (FT)	TIP TYPE	PILE TIP ELEVATION (FT MLLW)	DESIGN COMPRESSION CAPACITY	COMMENTS
							(ALLOWABLE/ ULTIMATE) (kips)	
101	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
102	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
103	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
104	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
105	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
106	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
107	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
108	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
109	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
110	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
111	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
112	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
113	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 one side of pile only (see detail below)
ADDITIVE ALTERNATE 'C'								
113	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides of pile (see detail below)
114	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
115	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
116	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
117	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
118	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 both sides
119	24" dia x 0.500"t	90	30	44	None	-65	--	PS31 one side of pile only*
* PAY PARTICULAR ATTENTION TO INTERLOCK ORIENTATION								
FIELD ORDER NO. 7								
120	30" dia x 0.750"t	90	-	-	-	-65	--	-



**BARRIER PILE #113**  
(USE APPROPRIATE PILE FOR  
BASE BID OR ADD. ALT. 'C')

BEARING PILE SCHEDULE								
PILE LOCATION	PILE BATTER	PILE SIZE DIAMETER x WALL	SUPPLY LENGTH (FT)	LENGTH OF BARE PILE (FT)	TIP TYPE	CAPACITY (ALLOWABLE/ULTIMATE) (kips)		MINIMUM TIP ELEVATION (FT MLLW)
						COMPRESSION	TENSION	
BC-1	Vertical	30" dia x 0.75"t	160	80	Cutting Shoe Only	300/680	290/650	-135
	2:1	30" dia x 0.750"t	200	100	Cutting Shoe Only	335/750	325/730	-155
BC-2	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-3	Vertical**	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1**	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-4	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-5	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-6	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-7	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-8	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-9	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-10	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-11	Vertical**	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1**	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-12	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-13	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-14	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-15	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-16	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-17	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-18	Vertical	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
BC-19	Vertical**	30" dia x 0.750"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1**	30" dia x 0.750"t	200	100	SPIN FIN	600/1350	575/1300	-155
ADDITIVE ALTERNATE 'C'								
BC-20	Vertical	30" dia x 0.75"t	160	80	SPIN FIN	550/1240	525/1180	-135
	2:1	30" dia x 0.75"t	200	100	SPIN FIN	600/1350	575/1300	-155

\*\* INDICATES PDA REQUIRED (SEE SPECIFICATION 02896)

NOTE: CUTTING SHOE SHALL BE APF OUTSIDE FLANGED OPEN CUTTING SHOE OR APPROVED EQUAL

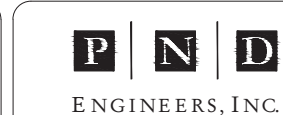
SEE PILE DRIVING RECORDS FOR INSTALLATION RESULTS

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DATE: SEPTEMBER 2018

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3	9/2018	AS-BUILT	KLL	MBH	CRS



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DRAWN: GRD APPROVED: CRS

SCALE:

DATE: 8/23/16

**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

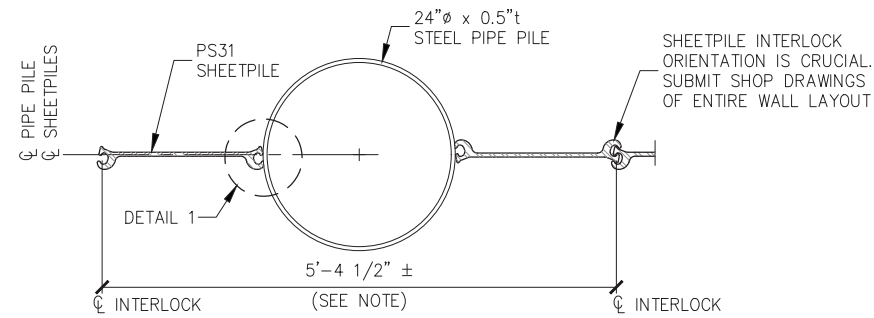
SHEET TITLE:

**PILE SCHEDULE**

PND PROJECT NO.: 102029.01

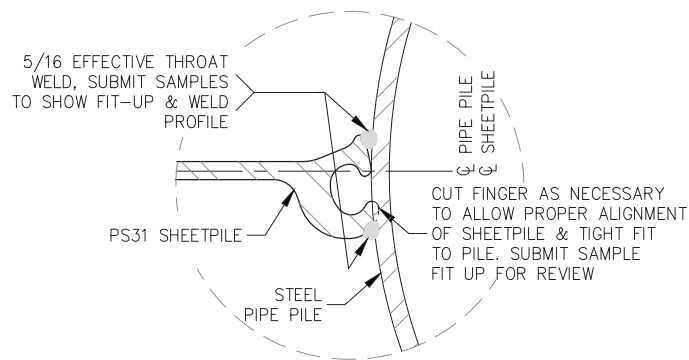
**5.08**

SHEET  
**25 OF 32**

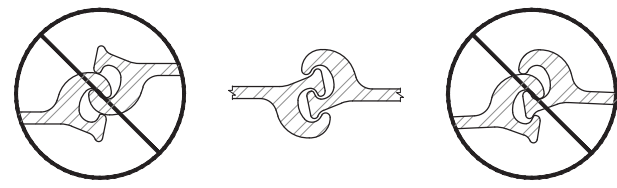


**TYPICAL BARRIER PILE**

NOTE: IF DIMENSION VARIES SUBSTANTIALLY FROM THIS ESTIMATE DUE TO FIT-UP OF PROPOSED SHEETPILE, ADDITIONAL BARRIER PILES AND SHEETPILE MAY BE REQUIRED TO OBTAIN OVERALL DESIRED LENGTH OF WAVE BARRIER SHOWN.

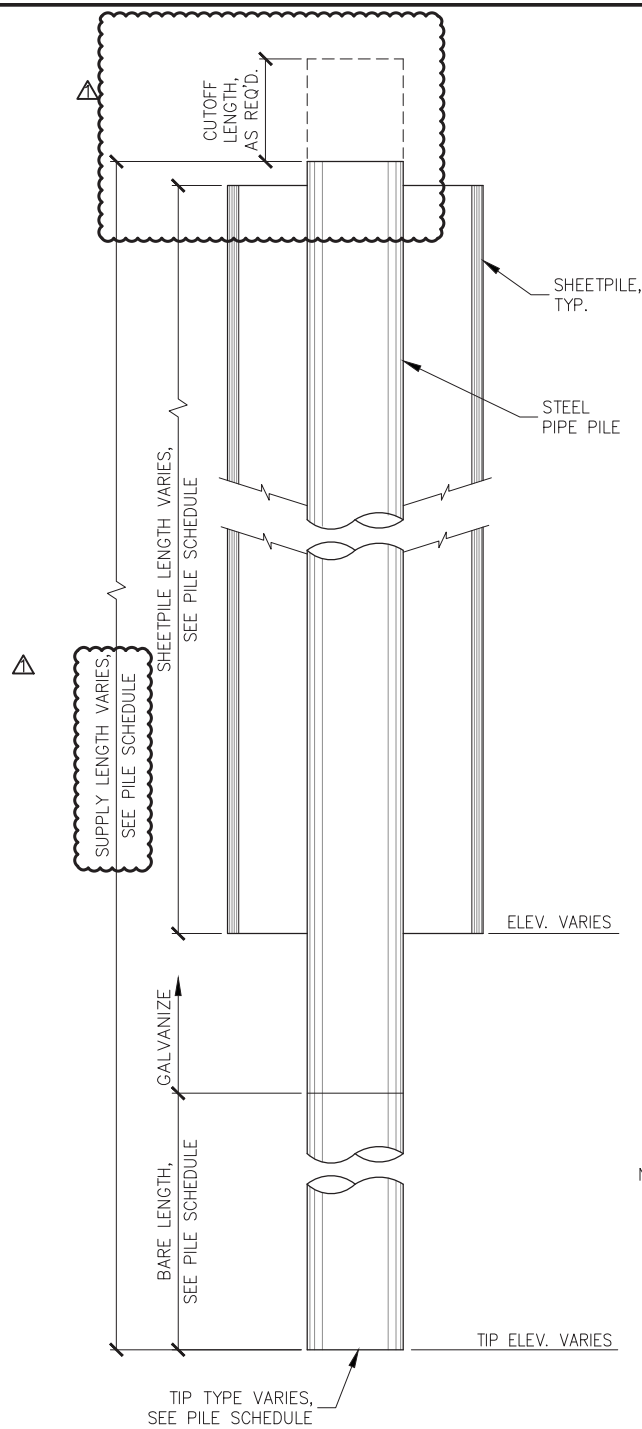


**DETAIL 1**

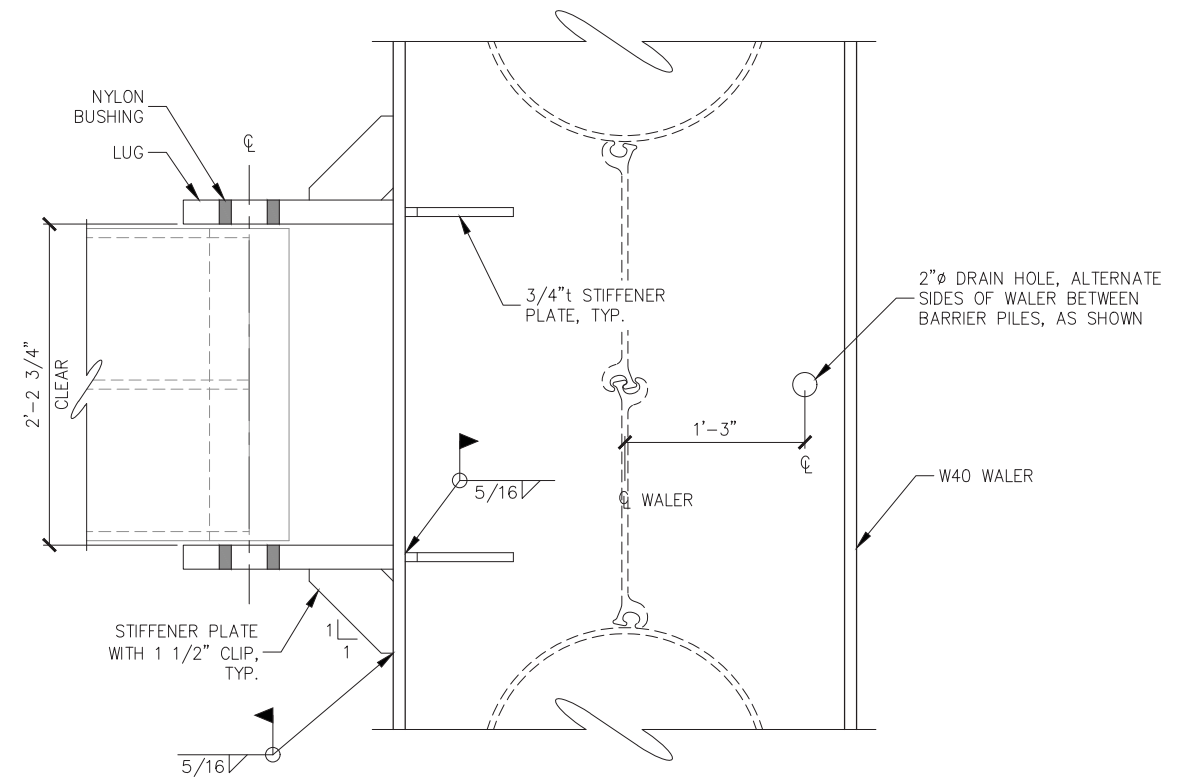


**SHEETPILE INTERLOCK DETAILS**

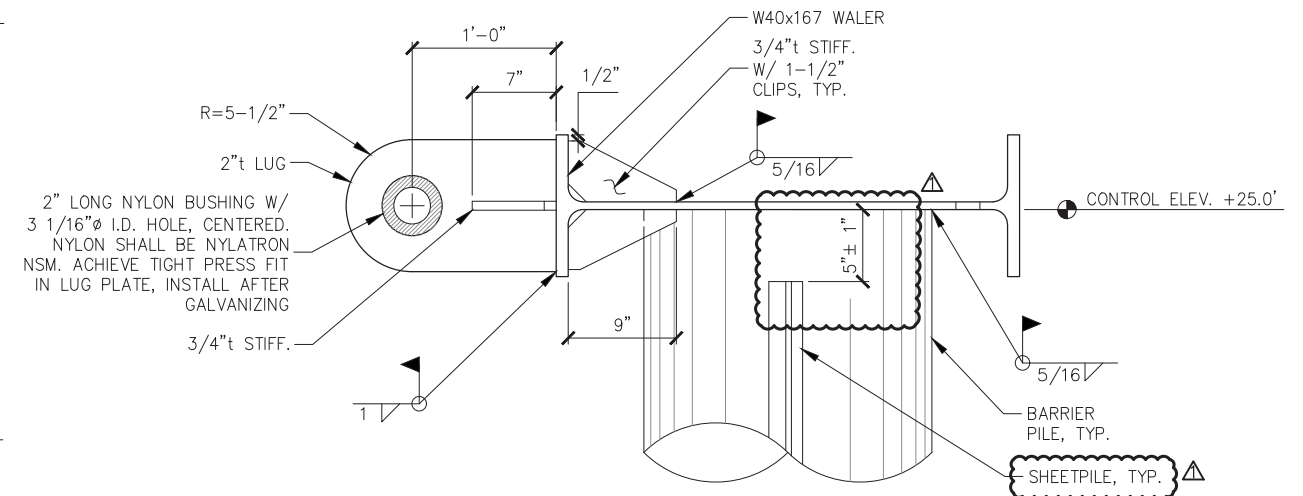
NOTE: ORIENTATION OF INTERLOCKS IS CRITICAL, VIEW SHOWN FROM TOP.



**TYPICAL WAVE BARRIER PILE**

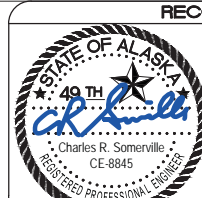


**PLAN**



**ELEVATION**

**WALER DETAILS**



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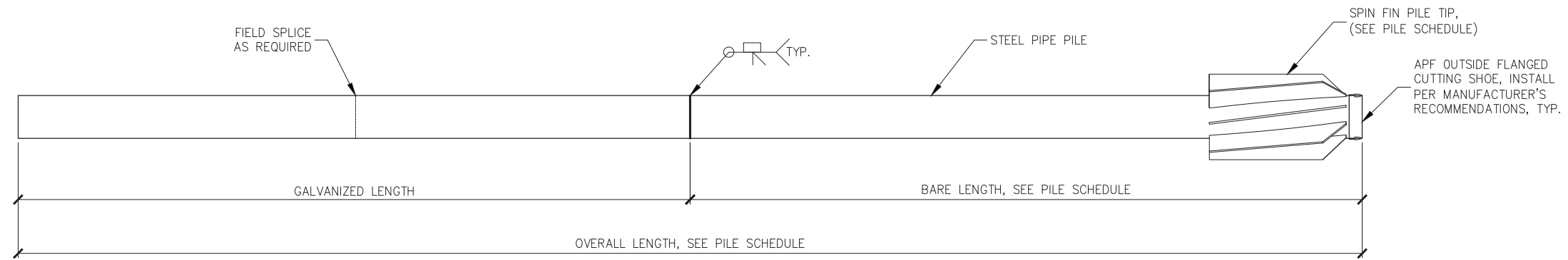
**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **BARRIER PILES AND WALERS**

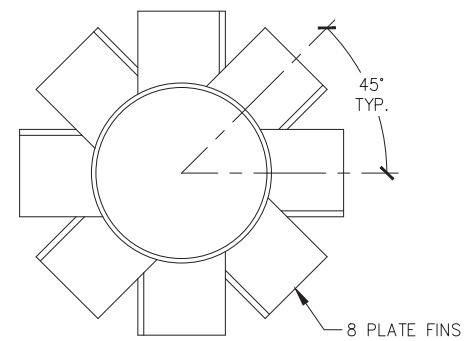
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**5.09**

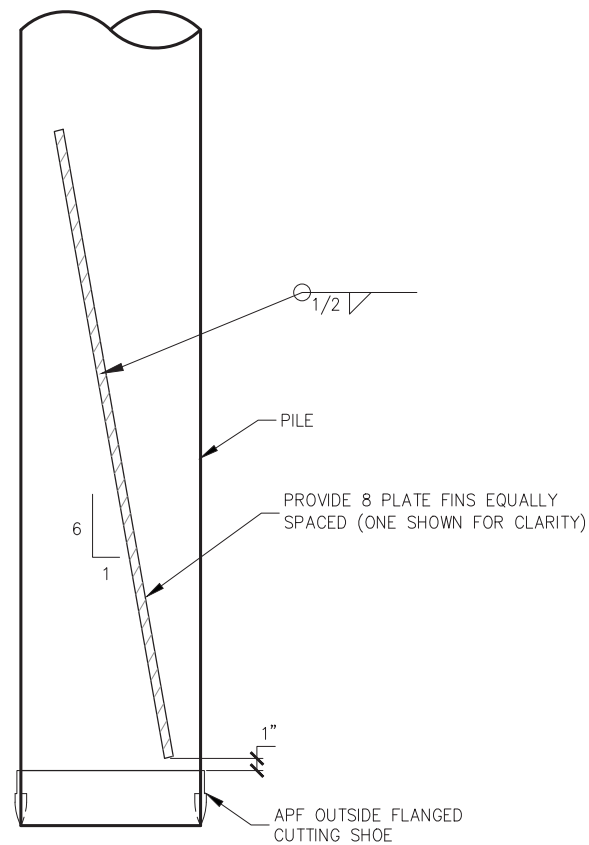
SHEET 26 OF 32



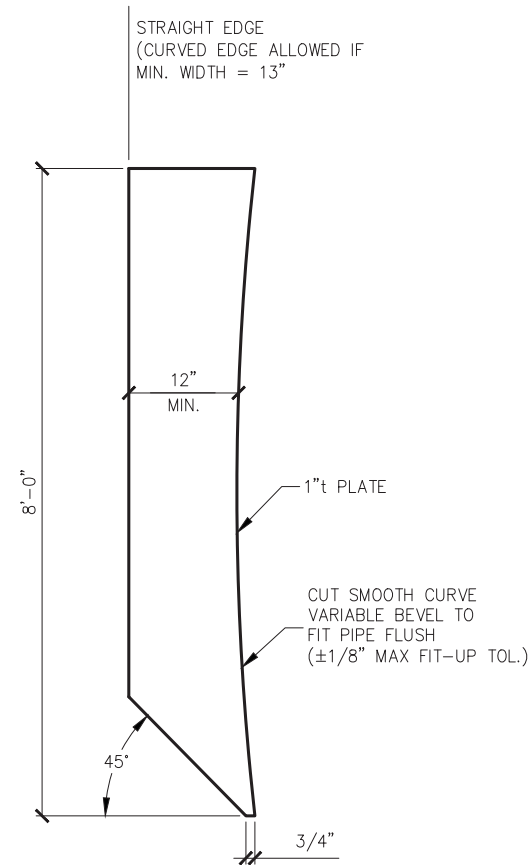
**BEARING PILE**  
NTS



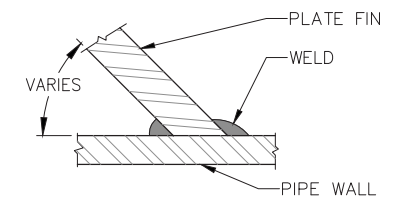
**PLAN**



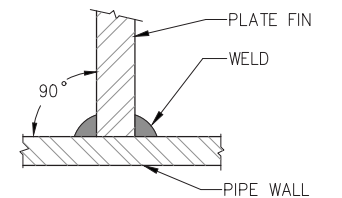
**ELEVATION**



**PLATE FIN**  
NTS



**PILE/FIN SECTION**  
NTS



**PILE/FIN SECTION AT CENTERLINE OF PLATE**  
NTS

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**SPIN FIN PILE TIP**  
NTS

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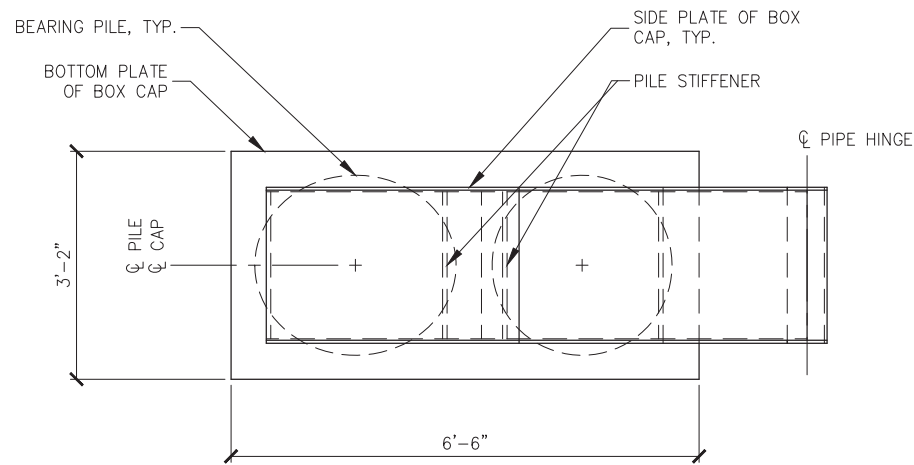
**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

SHEET TITLE:  
**BEARING PILE DETAILS**

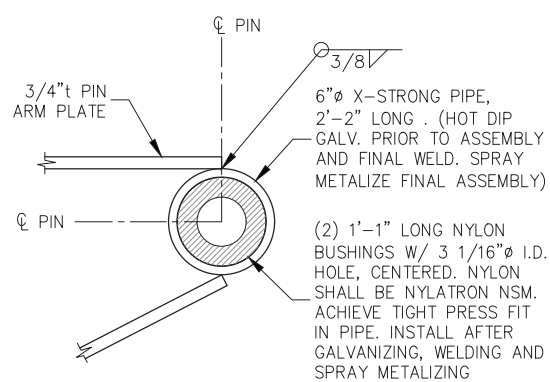
PND PROJECT NO.: 102029.01

**5.10**

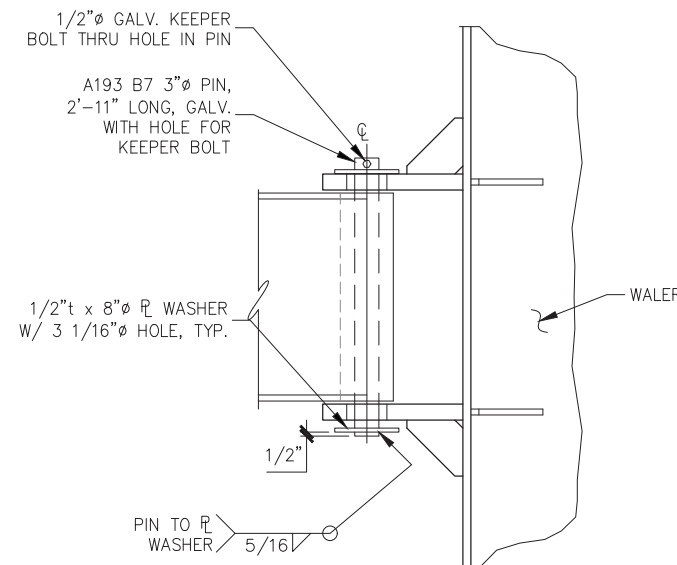
SHEET  
**27 OF 32**



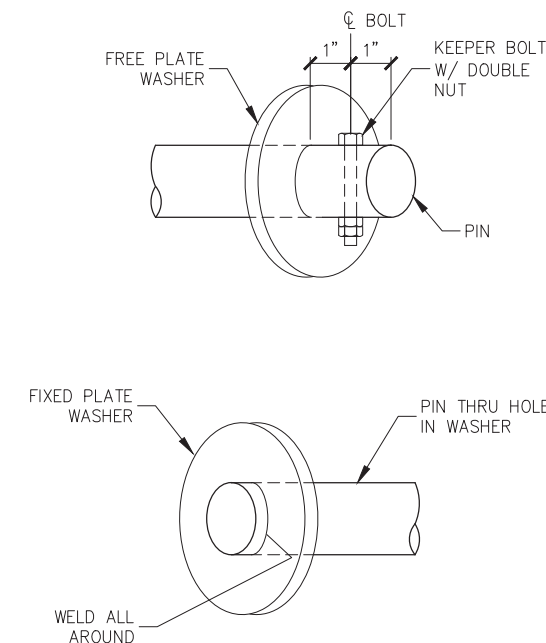
**PLAN**



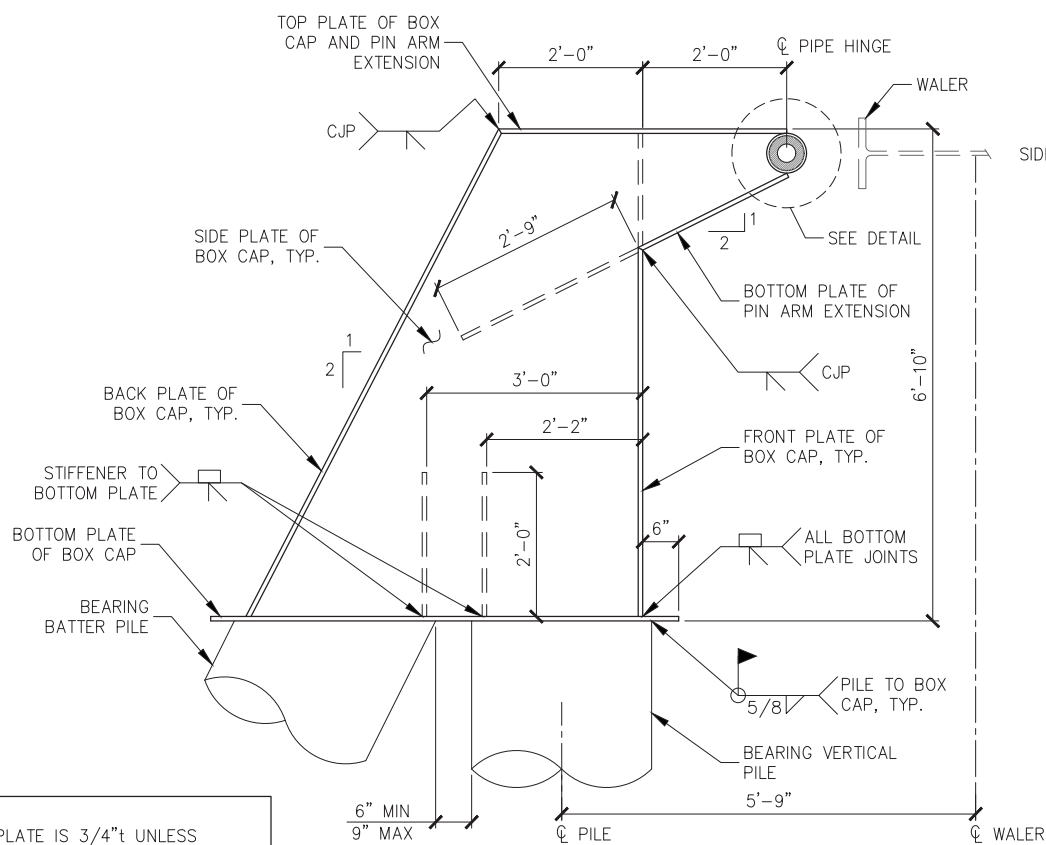
**DETAIL**



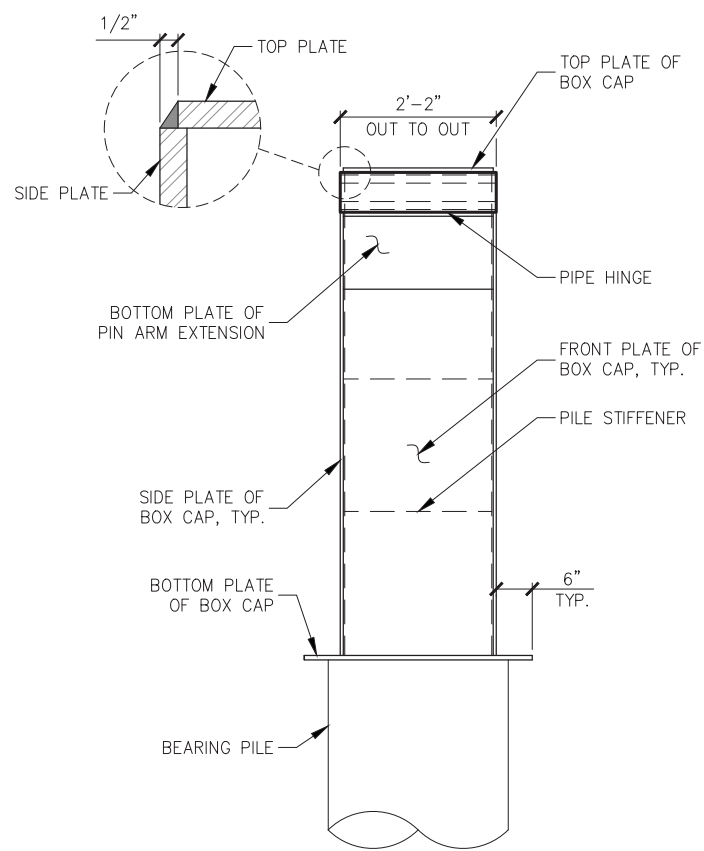
**PIN CONNECTION PLAN**



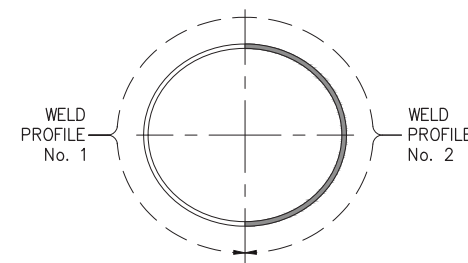
**PIN CONNECTION DETAILS**



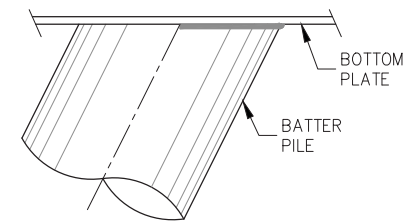
**SIDE ELEVATION**



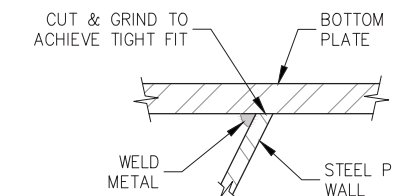
**FRONT ELEVATION**



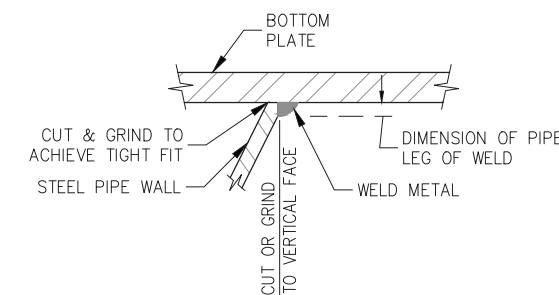
**PLAN**



**SIDE VIEW**



**No 1 WELD PROFILE**



**No 2 WELD PROFILE**

**BATTER PILE WELD**  
(ALL BATTER PILES)

- NOTES:**
1. ALL PLATE IS 3/4"t UNLESS OTHERWISE NOTED.
  2. ALL OTHER WELDS ON BOX CAP NOT SHOWN SHALL BE 1/2" FILLET OR EQUIVALENT BEVEL, ALL AROUND.
  3. SPRAY METALIZE BOX CAP AFTER FINAL SHOP ASSEMBLY OF STEEL COMPONENTS

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**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

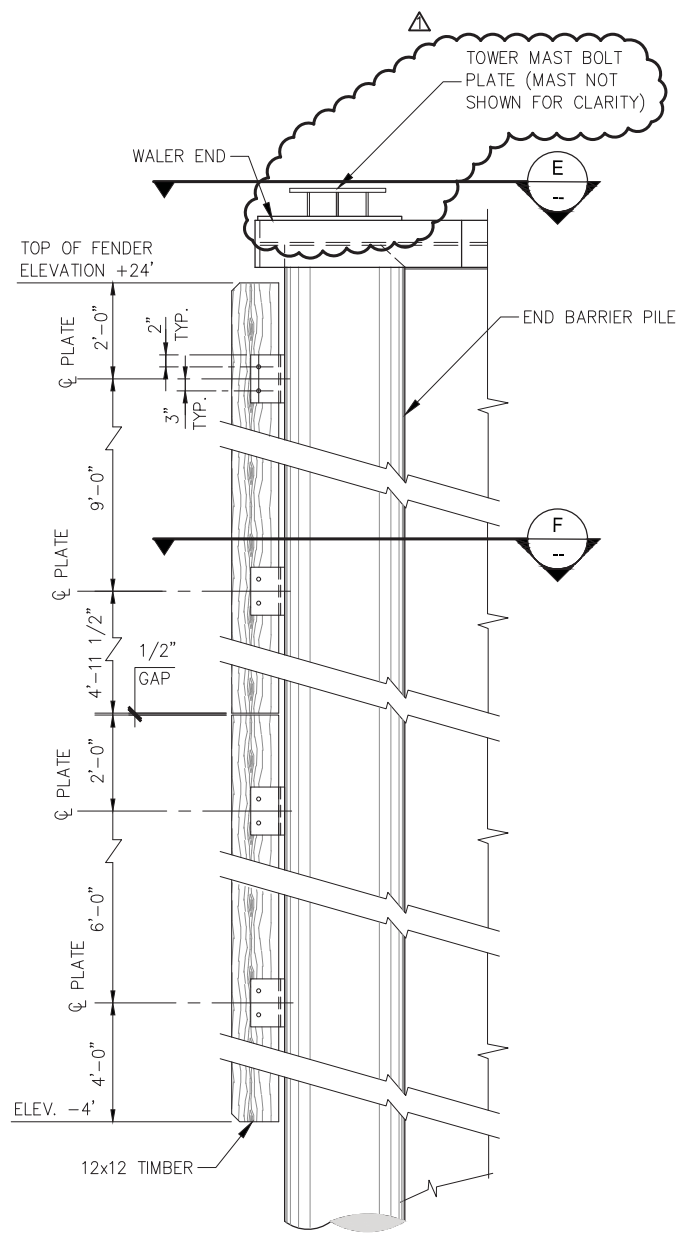
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**BOX CAP DETAILS**

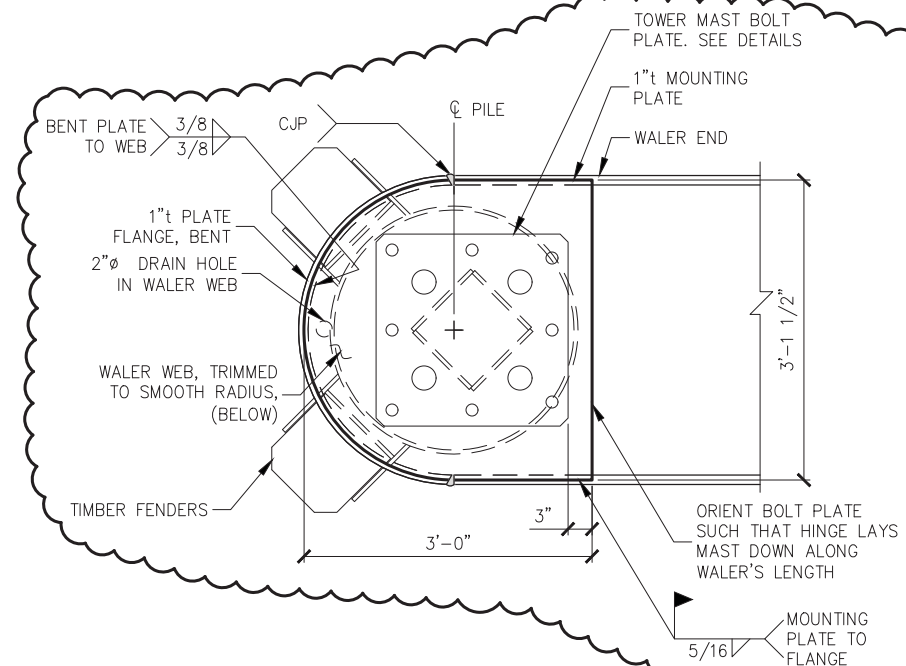
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SHEET  
**28 OF 32**

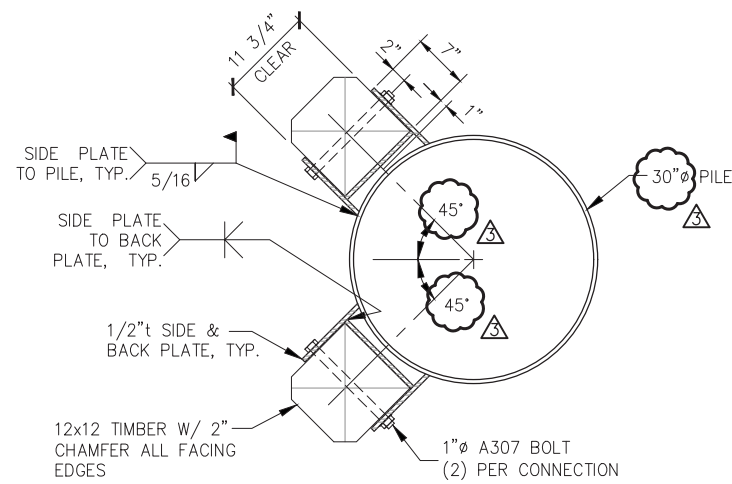
PND PROJECT NO.: 102029.01



**PARTIAL ELEVATION**

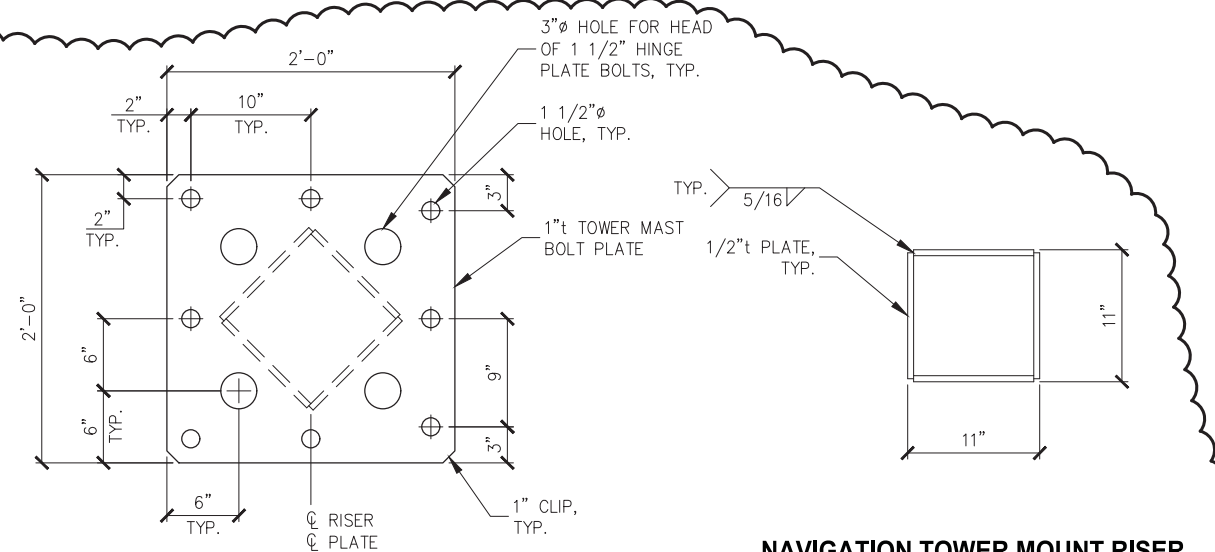


**VIEW**



**VIEW**

**FENDER**



**PLAN**

**ELEVATION**

**NAVIGATION TOWER MOUNT**

**NAVIGATION TOWER MOUNT RISER**

**FENDER NOTE:**

ALL SAWN TIMBER SHALL BE S4S AND CONFORM TO COAST REGION DOUGLAS FIR NO.1, SELECT STRUCTURAL, OR BETTER ACCORDING TO WCLIB GRADING RULES, STANDARD NO.17 AND SHALL BE PRESSURE TREATED. TIMBER SHALL BE TREATED WITH CREOSOTE TO A MINIMUM NET RETENTION OF 20.0 POUNDS PER CUBIC FOOT PER AWPA C28. SAWN TIMBER COMPONENTS SHALL BE CUT, DRILLED, DAPPED AND SHAPED AS MUCH AS PRACTICAL BEFORE PRESSURE TREATING. ANY FIELD FABRICATION OR DAMAGE SHALL BE REPAIRED PER AWPA M4. FIELD DRILLED HOLES SHALL BE SWABBED WITH PRESERVATIVE PRIOR TO BOLT INSTALLATION. ALL ENDS, INCLUDING FIELD CUT ENDS, SHALL BE SEALED AFTER CUTTING WITH A SEALER AS RECOMMENDED BY THE TIMBER SUPPLIER AND AS APPROVED BY THE ENGINEER.

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1	9/21/16	ADDENDUM NO.2	GRD	JDO	CRS
2	9/2018	AS-BUILT	KLL	MBH	CRS

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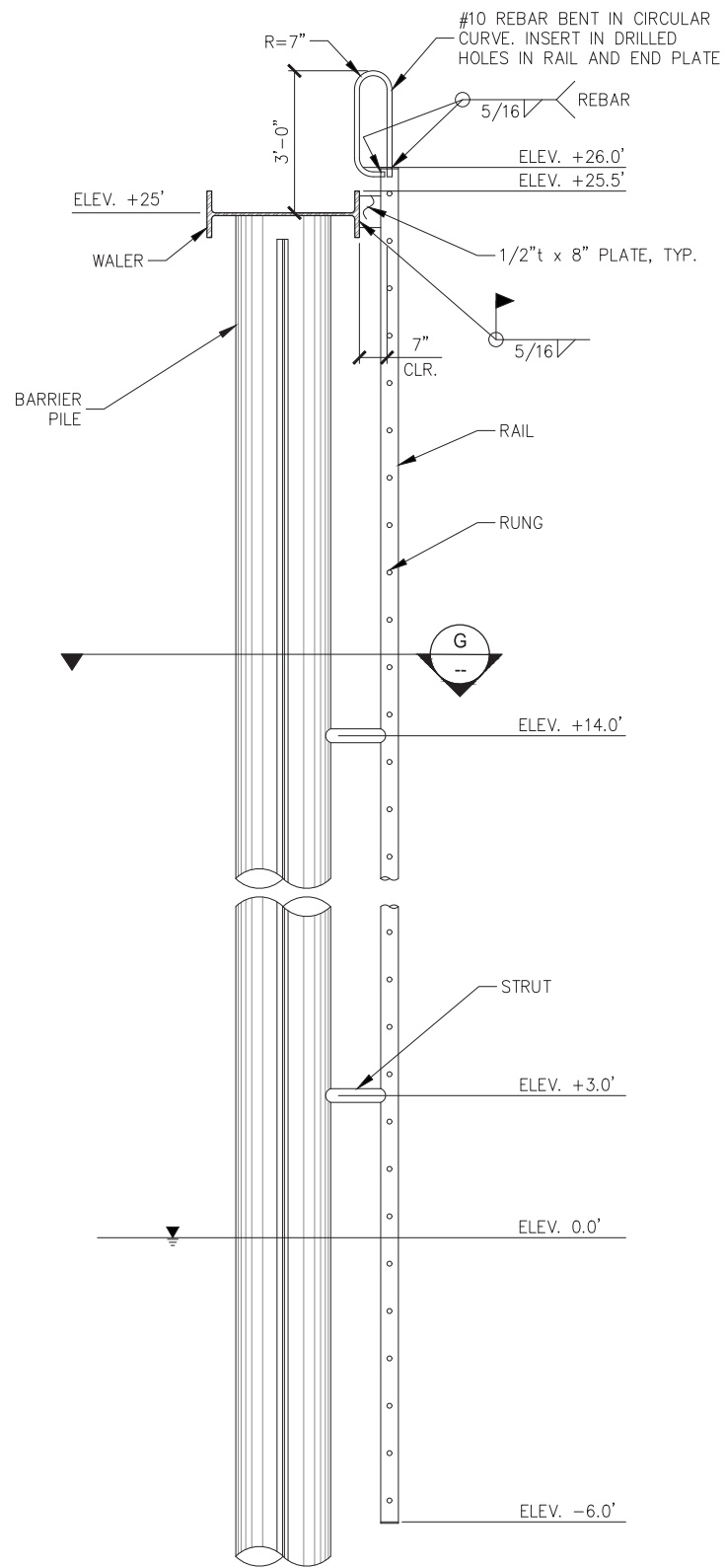
DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

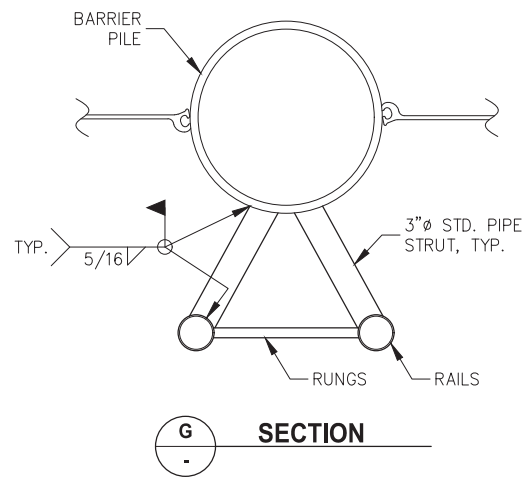
SHEET TITLE: **FENDER AND NAVIGATION TOWER MOUNT**

5.12 SHEET 29 OF 32

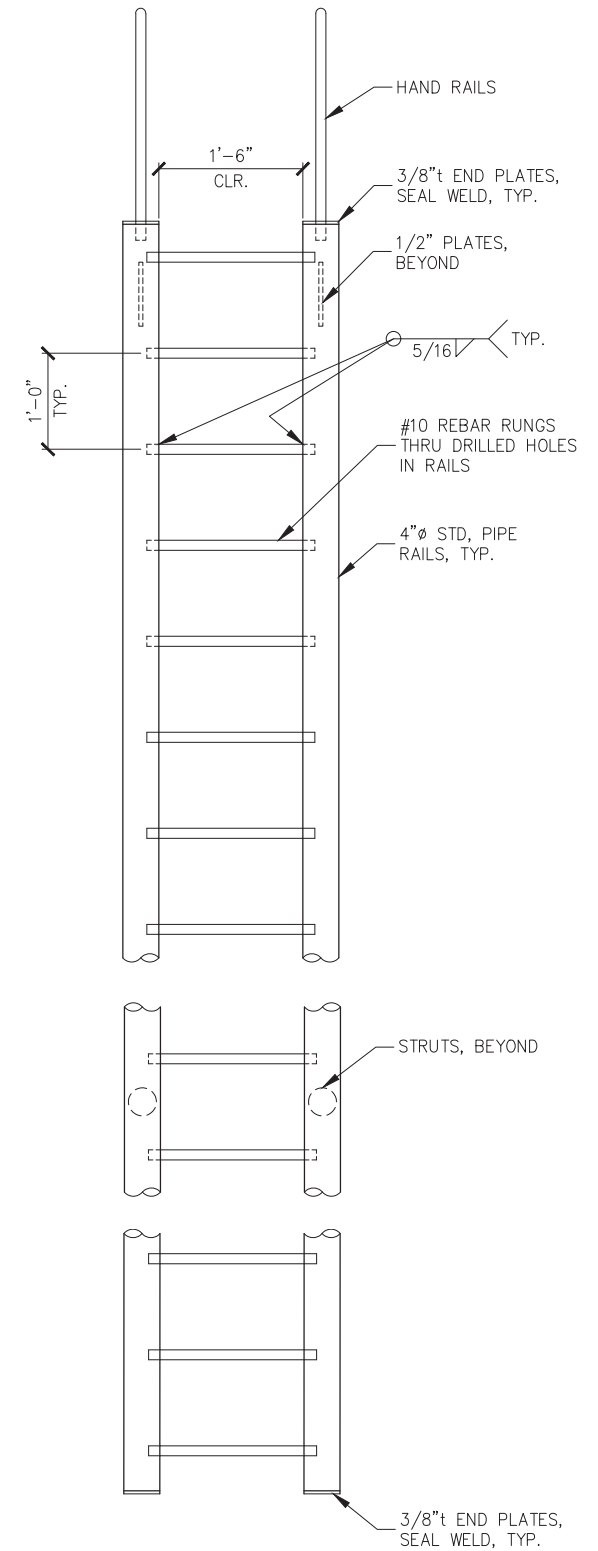
PND PROJECT NO.: 102029.01



**PROFILE**



**SECTION G**



**ELEVATION**



**RECORD DRAWINGS**

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**HAINES BOROUGH  
PORTAGE COVE  
HARBOR EXPANSION**

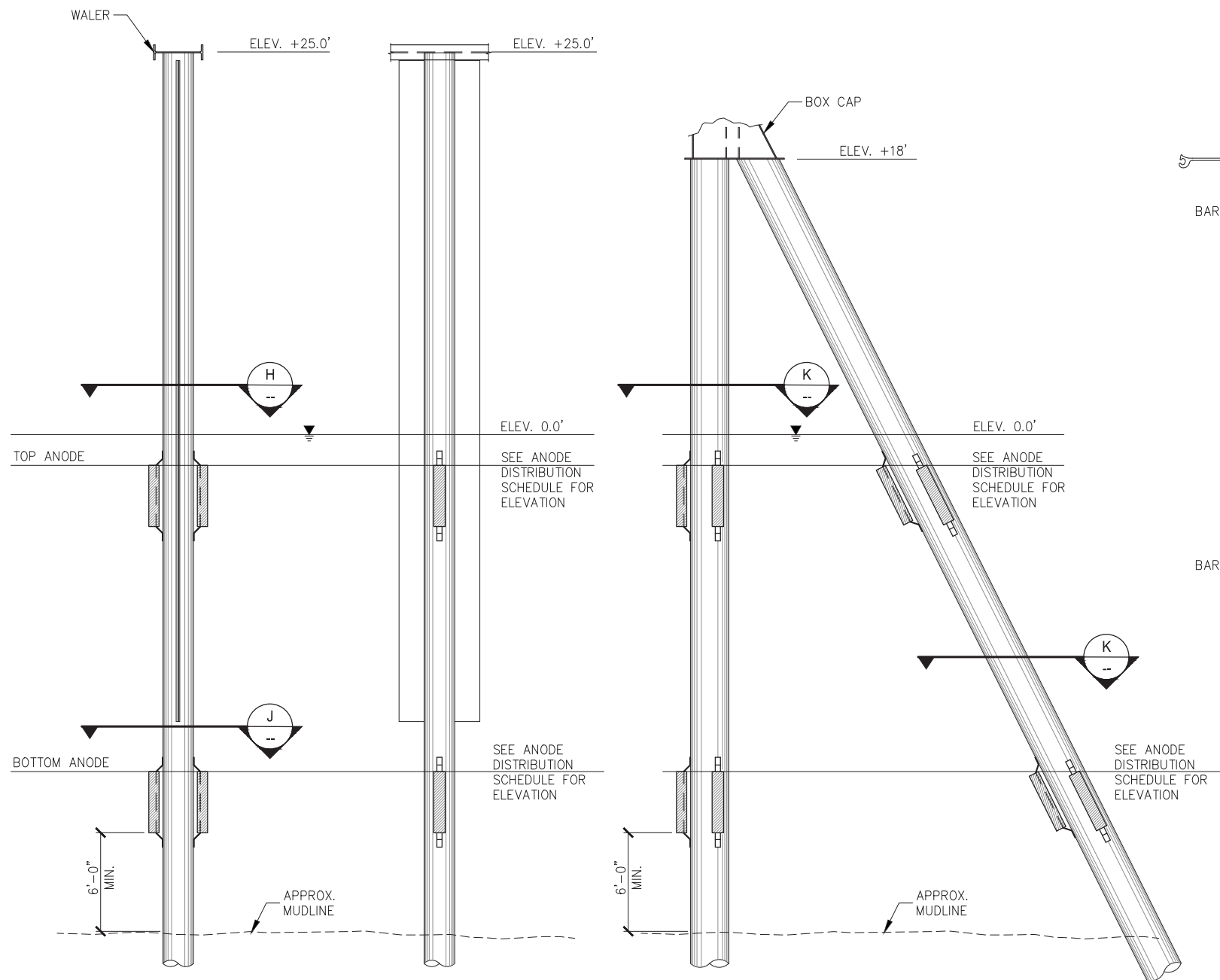
SHEET TITLE:

**LADDER**

PND PROJECT NO.: 102029.01

**5.13**

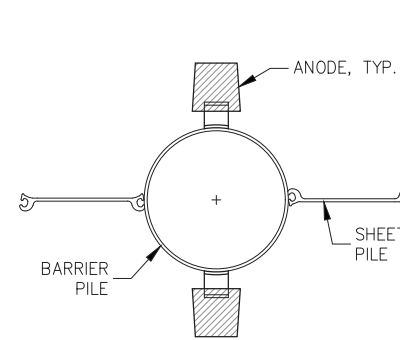
SHEET  
**30 OF 32**



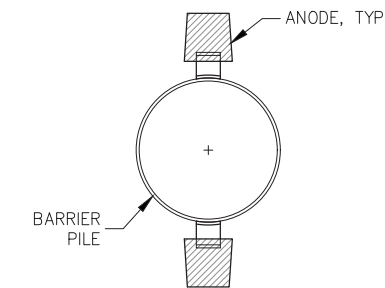
**PROFILE** **ELEVATION**

**BARRIER PILE ANODES**

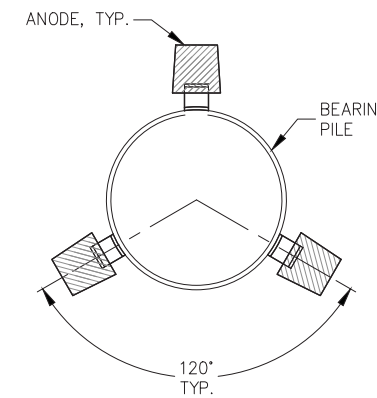
**BEARING PILE CLUSTER ANODES**



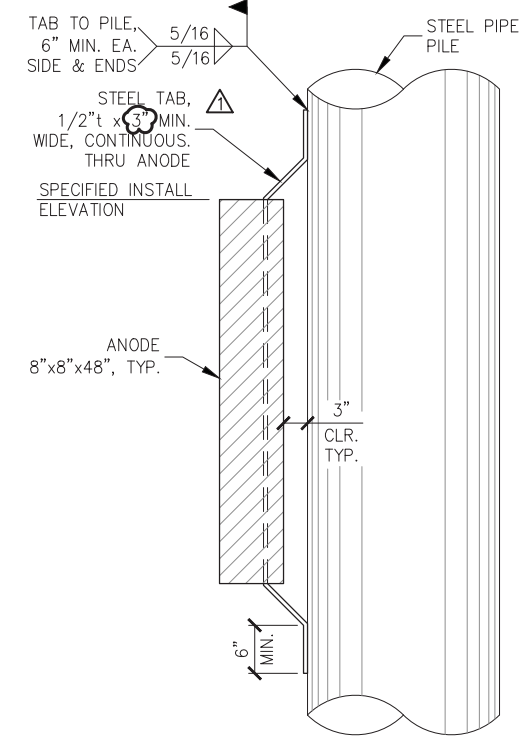
**H SECTION**



**J SECTION**



**K SECTION**

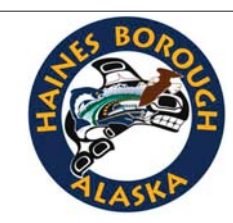


**ANODE DETAIL**

ANODE DISTRIBUTION SCHEDULE		
PILE DESIGNATION	TOP ANODES ELEV. (MLLW)	BOTTOM ANODES ELEV. (MLLW)
BARRIER PILES 1 TO 5	NA	NA
BARRIER PILES 6 TO 32 (EVEN ONLY)	-2.0'	NA
BARRIER PILES 34 TO 40 (EVEN ONLY)	-2.0'	-15.0'
BARRIER PILES 42 TO 46 (EVEN ONLY)	-2.0'	-16.0'
BARRIER PILES 48 TO 112 (EVEN ONLY)	-2.0'	-17.0'
* BARRIER PILES 114 TO 118 (EVEN ONLY)	-2.0'	-16.0'
BEARING PILE CLUSTER BC-1	NA	NA
BEARING PILE CLUSTERS BC-2 TO BC-5	-2.0'	NA
BEARING PILE CLUSTERS BC-6 TO BC-7	-2.0'	-15.0'
BEARING PILE CLUSTERS BC-8 TO BC-19	-2.0'	-17.0'
* BEARING PILE CLUSTER BC-20	-2.0'	-17.0'
FENDER PILE FO NO. 7	-2.0'	-17.0'

\* ADDITIVE ALTERNATE 'C' ONLY.

**NOTE:**  
ANODES SHOWN ON TYPICAL SECTION VIEWS OF BARRIER PILE AND BEARING PILES FOR GENERAL ILLUSTRATION. QUANTITIES AND PLACEMENT ELEVATIONS VARY ALONG WALL. REFER TO ANODE DISTRIBUTION SCHEDULE FOR SPECIFICS.



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DATE: SEPTEMBER 2018

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.
1	9/21/16	ADDENDUM NO.2	KLL	CRS	CRS
2	9/2018	AS-BUILT	KLL	MBH	CRS

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

9360 Glacier Highway, Ste. 100  
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www.pndengineers.com

DESIGN: JDO CHECKED: CRS SCALE:  
DRAWN: GRD APPROVED: CRS

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **PILE ANODES ADDITIVE ALTERNATE 'B'**

DATE: 8/23/16

PND PROJECT NO.: 102029.01

**5.14**  
SHEET 31 OF 32





**EXISTING NAV-AID STRUCTURE**

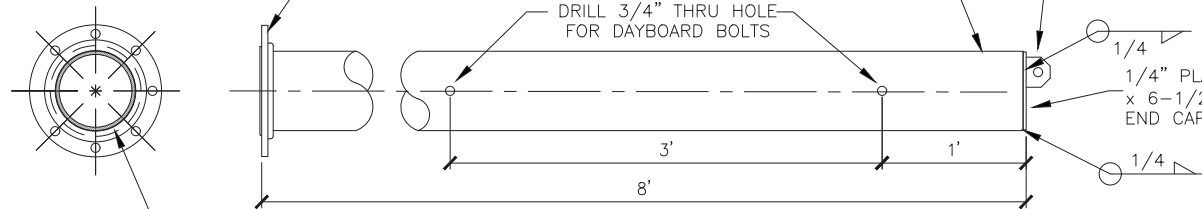
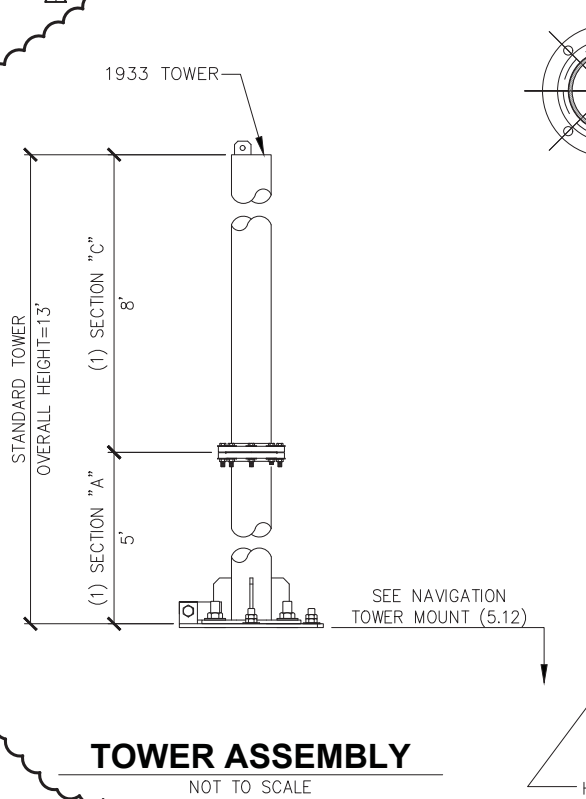


**EXISTING NAV-AID FOUNDATION**

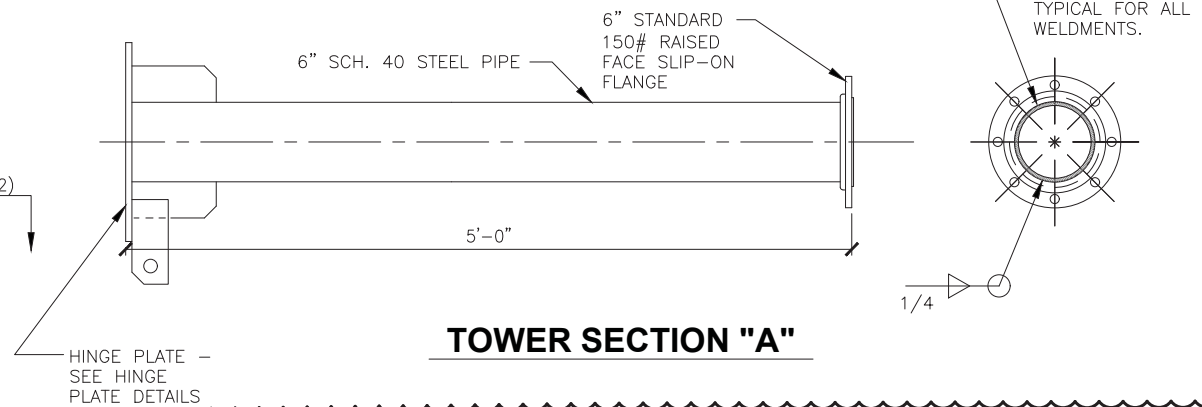
- NOTES:**
1. ALL OWNER FURNISHED MATERIALS SHALL BE INSTALLED BY CONTRACTOR ON NAVIGATION TOWER MOUNT.
  2. DELIVERABLES LIST SHOWS ASSEMBLIES/ PARTS REQUIRED FOR ONE TOWER ONLY.
  3. ALL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION W/ MIN. OF 2 OZ. ZINC/S.F., IN ACCORDANCE WITH ASTM A153. THREADED PARTS SHALL BE FREE TO TURN IN NUTS AND ALL DRILLED HOLES SHALL BE FREE TO ACCEPT INTENDED HARDWARE AFTER GALVANIZING.
  4. ALL DRILLED HOLES SHALL BE POSITIONED WITHIN  $\pm 1/32"$  TOLERANCE.
  5. ALL PIPE SHALL CONFORM TO ASTM A53, GRADE B (35,000 PSI STEEL).
  6. ALL PLATE SHALL CONFORM TO ASTM A-36/A 36M.

OWNER FURNISHED MATERIALS		
1933 TOWER KIT		
DELIVERABLE ASSEMBLIES/ PARTS		
PART	QTY.	DESCRIPTION
BASE PLATE ASSEMBLY	1	SEE BASE PLATE DETAILS
HINGE PLATE NUTS	4	1-1/2"-6 A563 NUT, EA. WITH (1) FL. WASHER, (1) LK. WASHER
TOWER SECTION "A"	1	6" D SCH. 40 STEEL PIPE W/ HINGE PLATE & FLANGE; SEE TOWER SECTION "A" DETAILS
TOWER SECTION "C"	1	6" D SCH. 40 STEEL PIPE W/ FLANGE, CAP, & LIFTING TAB; SEE TOWER SECTION "C" DETAILS
FLANGE BOLT	8	5/8"-11 x 4" A325 BOLT, EA. WITH (1) LOCK WASHER & (1) NUT; ALL GALVANIZED
HINGE TAB BOLT	2	1"-8 x 2-1/2" A325 BOLT, EA. WITH (1) LOCK WASHER & (1) NUT; ALL GALVANIZED

**NOTE:**  
CONTRACTOR TO REMOVE AND SALVAGE EXISTING NAV-AID STRUCTURE; DELIVER AND STORE AT CONTRACTOR STAGING AREA.

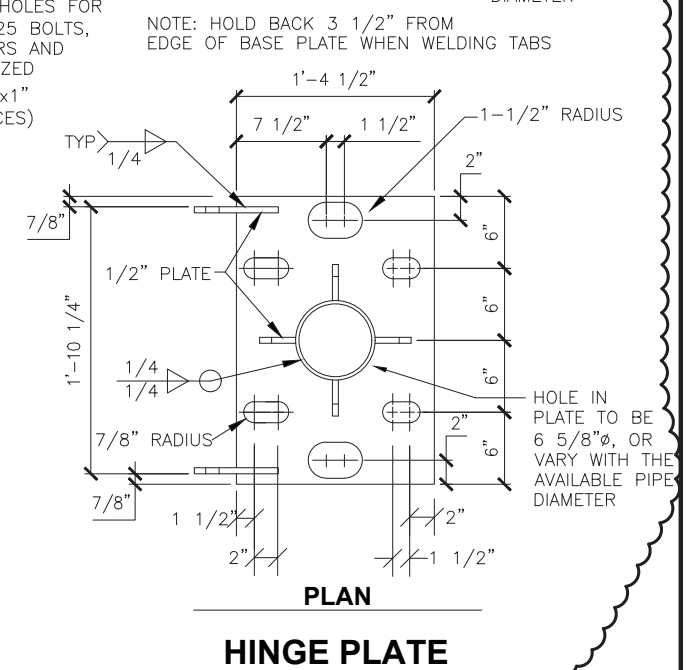
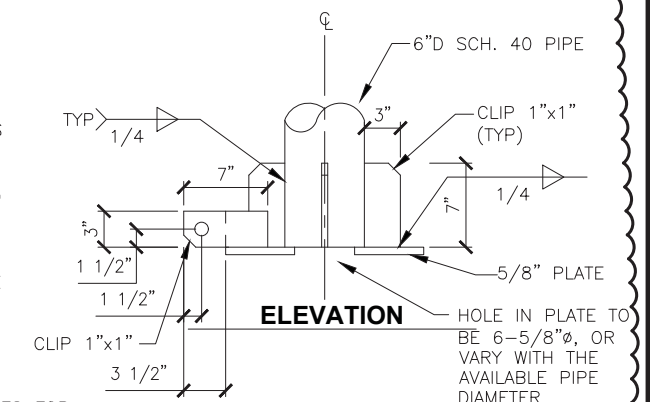
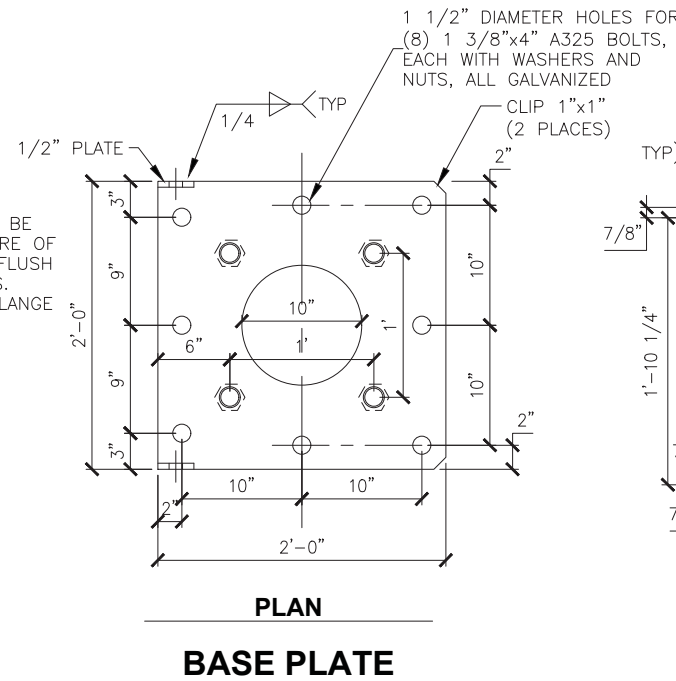
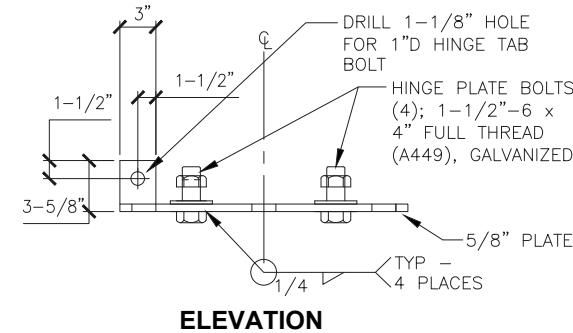


**TOWER SECTION "C"**



**TOWER SECTION "A"**

LIFTING TAB; 1/4" PLATE, 2"x2-1/2", 3/4" CENTERED HOLE, CLIP 3/4"x3/4" (2 PLACES)



**RECORD DRAWINGS**

THESE DRAWINGS REFLECT RECORDED INFORMATION PROVIDED DURING CONSTRUCTION.

INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

DATE: SEPTEMBER 2018

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DATE: 8/23/16

**HAINES BOROUGH PORTAGE COVE HARBOR EXPANSION**

SHEET TITLE: **NAVIGATION STRUCTURE DETAILS**

PND PROJECT NO.: 102029.01

**5.15**  
SHEET 32 OF 32