NIM STORMWATER PIPE EXTENSION PROJECT NO. 201055.02 CONTRACT NO. 071143

PORT COMMISSIONERS:

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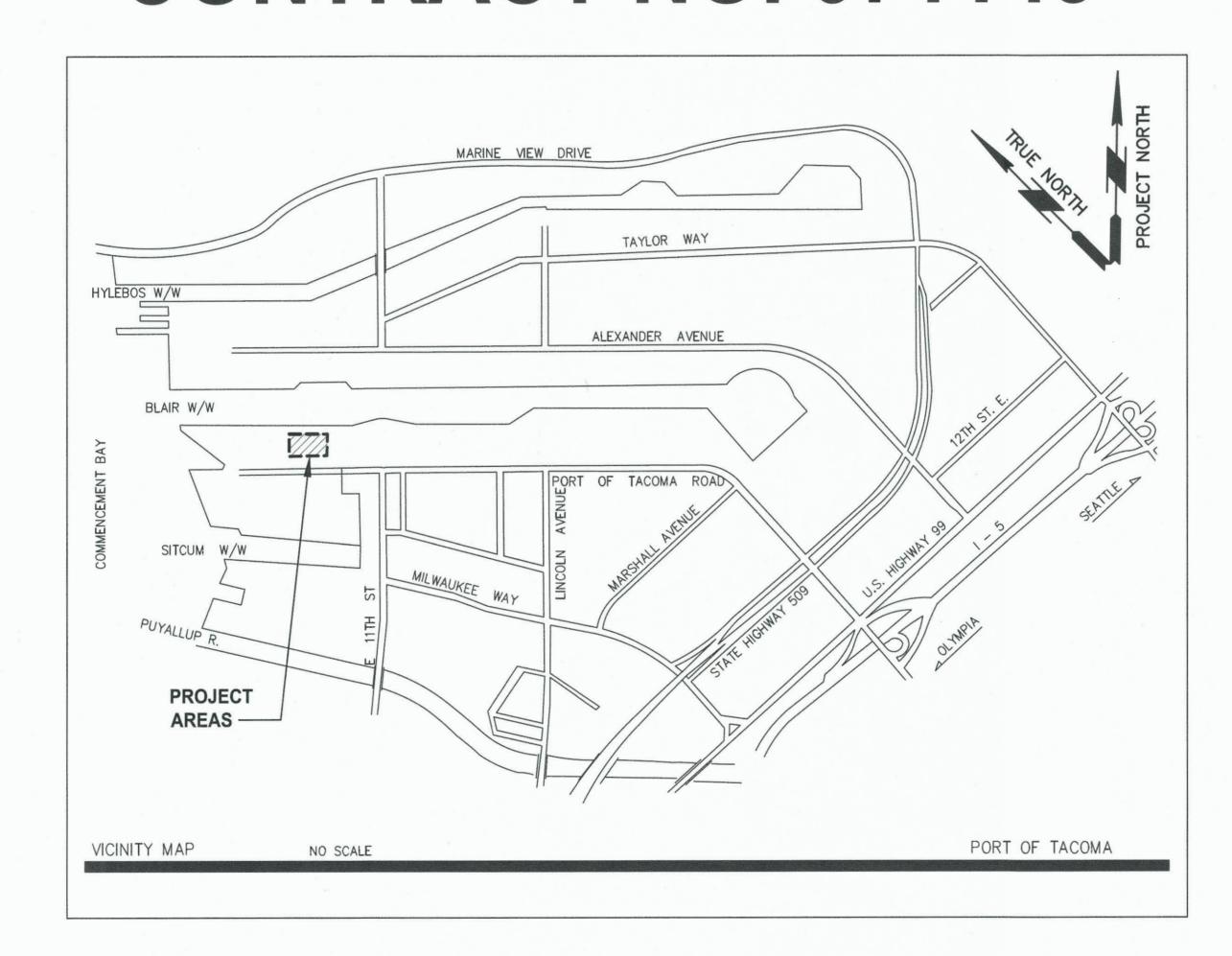
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GENERAL NOTES

- 1. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND PROTECT ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN. CONTRACTOR SHALL VERIFY LOCATION, DEPTH, SIZE, TYPE AND CONDITION OF EXISTING UTILITIES BEFORE CONSTRUCTION.
- 2. THE CONTRACTOR SHALL HIRE AND PAY FOR SERVICES OF PRIVATE LOCATING COMPANY PRIOR TO STARTING WORK IN ANY AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UTILITIES DURING CONSTRUCTION AND SHALL ALSO CONTACT THE UNDERGROUND UTILITIES LOCATION SERVICE (1-800-424-5555) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- 3. A GEOTECHNICAL REPORT PREPARED BY HART CROWSER, INC. TITLED "TERMINAL 3&4 BACKLANDS REDEVELOPMENT - GATE COMPLEX PORT OF TACOMA, TACOMA WASHINGTON" AND DATED SEPTEMBER 22, 2017 IS AVAILABLE FOR REVIEW. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE CONTENTS OF THE REPORT AND MAKE HIS OWN INTERPRETATION OF ITS CONTENTS.
- 4. CONTRACTOR SHALL OBTAIN ALL OVER THE COUNTER PERMITS AND PAY ALL FEES REQUIRED FOR INSTALLATION OF STORM DRAINS.
- 5. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE SITE BEFORE STARTING WORK AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- 6. SLOPE OF FINISHED GRADE SHALL MATCH EXISTING ON ALL SIDES AND EDGES.
- 7. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROL FACILITIES AS REQUIRED IN THE SPECIFICATIONS AND TEMPORARY EROSION AND SEDIMENTATION CONTROL PLANS. SEE TEMPORARY EROSION AND SEDIMENT CONTROL DRAWINGS.
- 8. ALL DEVIATIONS FROM THESE PLANS SHALL BE RECORDED ON A SET OF "AS-BUILT" DRAWINGS AS REQUIRED IN THE SPECIFICATIONS.
- 9. THE CONTRACTOR SHALL COORDINATE AND ARRANGE FOR ALL UTILITY CONNECTIONS, UTILITY RELOCATIONS AND/OR SERVICE INTERRUPTIONS WITH TENANT, APPROPRIATE UTILITY OWNER AND WITH THE CITY OF TACOMA.
- 10. EXISTING UTILITIES IN SERVICE WHICH ARE DAMAGED DUE TO CONSTRUCTION WORK SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE AND INSPECTED AND ACCEPTED BY UTILITY OWNER'S REPRESENTATIVE PRIOR TO BACKFILLING.
- 11. THE CONTRACTOR SHALL KEEP PAVED AREAS ADJACENT TO THE SITE CLEAN AT ALL TIMES BY SWEEPING DAILY. WASHING OF THESE AREAS WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL.
- 12. ALL WORK IS WITHIN AN OPERATING SECURED TERMINAL. ALL OF THE CONTRACTORS PERSONNEL ARE REQUIRED TO HAVE A VALID TWIC CARD ON THEIR PERSON WHEN ON SITE. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

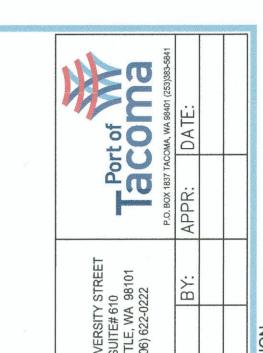
HORIZONTAL DATUM

- 1. WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2007 (PER PORT OF TACOMA SURVEY CONTROL MAP - 2007)
- 2. MEASURED SOUTH 31°00'47" EAST 3340.24 FEET BETWEEN PORT OF TACOMA MONUMENTS 923 AND 903 LOCATED ALONG MILWAUKEE WAY

VERTICAL DATUM

- 1. MLLW (PER PORT OF TAOCMA 2007 SECTION CONTROL MAP)
- 2. TIDE 22 1933 BENCHMARK: LOCATED AT NE CORNER OF 11TH ST. BRIDGE AT THE INTERSECTION OF E. 11TH ST. AND MILWAUKEE WAY ELEVATION = 19.39 (BASED ON 1960-1978 TIDAL EPOCH)

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GENERAL

- THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE ENGINEER BEFORE BEGINNING AFFECTED WORK. THE ENGINEER WILL RESOLVE ANY SUCH CONFLICT.
- 2. ALL DIMENSIONS AND DETAILS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
- 3. IN THE EVENT OF CONFLICTING REQUIREMENTS BETWEEN THE CONTRACT DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS, REFER TO DIVISION O OF THE CONTRACT SPECIFICATIONS FOR GUIDANCE.

CODES AND STANDARDS

ALL WORK SHALL CONFORM TO THE MINIMUM REQUIREMENTS FOR THE FOLLOWING CODES AND STANDARDS (PARTIAL LIST):

- 1. INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION, AS AMENDED AND ADOPTED BY THE CITY OF TACOMA.
- 2. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES. ASCE/ANSI 7-10, 2010.
- 3. AMERICAN CONCRETE INSTITUTE (ACI), BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY, ACI 318-14, 2014.
- 4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, 14TH EDITION.
- 5. AMERICAN WELDING SOCIETY (AWS), STRUCTURAL WELDING CODE - STEEL, AWS D1.1, 2015.

LIVE LOAD DESIGN CRITERIA

- 1. ALL UNDERGROUND STRUCTURES SHALL BE DESIGNED TO ACCOMODATE THE FOLLOWING DESIGN LIVE LOADS: a. TOP PICK LOADING:
 - 219 KIP AXLE LOAD, PLUS 30% IMPACT
 - 4 TIRES PER AXLE
 - 230 PSI CONTACT PRESSURE
 - 23" DUAL WHEEL SPACING b. STRADDLE CARRIER LOADING:
 - 30.9 KIP WHEEL LOAD, PLUS 30% IMPACT
 - •145 PSI CONTACT PRESSURE
 - •80" WHEEL SPACING

REINFORCED CONCRETE

- 1. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 301, UON.
- 2. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE.
- 3. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING STEEL SHALL CONFORM TO THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES: ACI 315 AND ACI SP-66.
- 4. REINFORCING STEEL
 - a. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A615, GRADE 60.
 - b. LAP SPLICE ALL REINFORCING BARS AS NOTED ON SCHEDULE C THIS SHEET.
 - c. PROVIDE CORNER BARS AT ALL CORNERS. CORNER BARS SHALL MATCH THE NUMBER, SPACING, AND DIAMETER OF ALL HORIZONTAL REINFORCEMENT AT THE CORNER, UON. TERMINATED STRAIGHT BARS SHALL EXTEND FULL AVAILABLE LENGTH INTO ADJOINING MEMBERS.
 - d. MECHANICAL SPLICES SHALL DEVELOP AT LEAST 125 PERCENT OF THE YIELD STRENGTH OF THE BAR IN TENSION.

- e. REINFORCING SHALL BE SUPPORTED AS SPECIFIED BY THE PROJECT SPECIFICATIONS AND THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE (MSP). REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.
- f. ALL HORIZONTAL REINFORCEMENT AT DISCONTINUITIES AND CORNERS SHALL END WITH STANDARD 90 DEGREE HOOKS IN ACCORDANCE WITH ACI 315, UON.
- g. PROVIDE THE FOLLOWING CONCRETE COVER OVER REINFORCEMENT, UON.

CONCRETE AGAINST GROUND: 3" **EXPOSED CONDITIONS:** 1-1/2" 2" #5 BAR AND SMALLER: #6 BAR AND LARGER:

WHEN SPLICING BARS OF DIFFERENT SIZES, USE SPLICE LENGTH VALUES FOR LARGER BARS.

2. PRECAST CONCRETE

		MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS
a.	PRECAST VAULTS	4,500 PSI

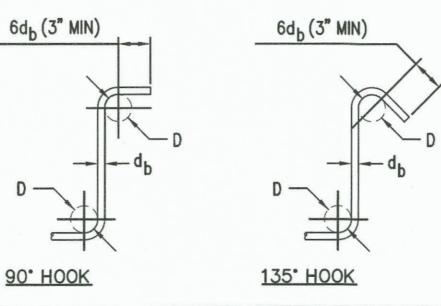
3. CAST-IN-PLACE CONCRETE

		MINIMUM COMPRESSIVE STRENGTH AT 3 DAYS	MAX W/C
a. CAS	T-IN-PLACE CRETE, UON	4,500 PSI	0.45

- 4. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4 IN.
- 5. CONSTRUCTION JOINTS SHALL BE PROVIDED ONLY AS NOTED ON THE DRAWINGS AND AS SPECIFICALLY PERMITTED BY THE ENGINEER.
- 6. CONCRETE MIX SHALL BE AIR ENTRAINED WITH A TARGET OF 5% + /- 1 1/2%, UON IN THE SPECIFICATIONS.
- 7. GROUT SHALL BE NON-METALLIC AND NON-SHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS, UON.
- 8. CONCRETE ANCHORS
 - a. USE OF DRILLED ADHESIVE CONCRETE ANCHORS, WHERE NOT SPECIFIED IN THE DOCUMENTS, SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
 - b. EPOXY OR ADHESIVE-TYPE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SPECIAL INSPECTION IS REQUIRED FOR ADHESIVE ANCHORS.
 - c. ACCEPTABLE ADHESIVES ARE HILTI HIT HY 200, ICE, OR HVA SYSTEMS; OR SIMPSON EPOXY TIE (SET) SYSTEM. INTERNATIONAL CONFERENCE OF BUILDING OFFICIAL (ICBO) OR INTERNATIONAL CODE COUNCIL (ICC) REPORTS SHALL BE SUBMITTED FOR ALL ADHESIVE ANCHOR PRODUCTS.
 - d. ACCEPTABLE EXPANSION ANCHORS ARE HILTI KB TZ. SIMPSON STRONG-BOLT2, POWERS POWER-STUD+SD1, OR EQUIVALENT.

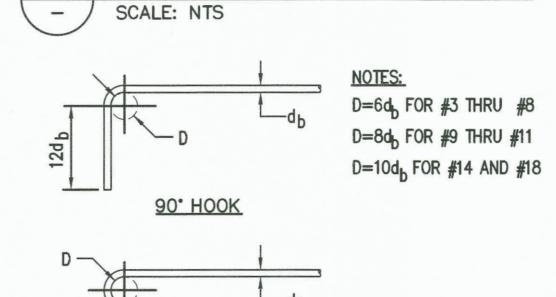
GEOTECHNICAL

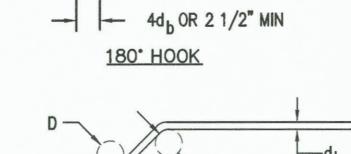
- 1. IF UNSUITABLE MATERIAL IS FOUND DURING EXCAVATION, REFER .TO SPECIFICATION SECTION 31 00 00.
- 2. SEE REFERENCE DOCUMENTS FOR GEOTECHNICAL INFORMATION.



BAR SIZE	#3	#4	#5	#6	#7	#8
D	1 1/2"	2"	2 1/2"	4 1/2"	5 1/4"	6"

TYPICAL STIRRUP AND TIE HOOKS





45° BEND

TYPICAL REINFORCING HOOKS SCALE: NTS

BAR	LAP SPLICE LENGTH IN INCHES				
SIZE	OTHER BARS	TOP BARS			
#3	19	24			
#4	25	32			
#5	31	40			
#6	37	48			
#7	54	70			
#8	62	80			
#9	70	91			
#10	79	102			
#11	87	113			

NOTES:

- 1. THE ABOVE SPLICE LENGTHS APPLY TO BARS WITH A MINIMUM SPACING OF 3db INCHES ON CENTER.
 - db = BAR NOMINAL DIAMETER
- 2. DEVELOPMENT LENGTH OF BARS TO BE 77% OF LAP SPLICE LENGTH.
- 3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.



SPECIAL INSPECTIONS:

SPECIAL INSPECTION SHALL BE IN ACCORDANCE WITH IBC 2015, CHAPTER 17 WITH CITY OF TACOMA AMENDMENTS. SEE BELOW FOR INSPECTION SCHEDULE:

MATERIAL	INSPECTION ITEM	REFERENCE STANDARD	CONTINUOUS	PERIODIC
	REINFORCING			
	EMBEDDED BOLTS		6	× ,
CONCRETE	VERIFY DESIGN MIX STRENGTH, SLUMP, AIR, TEMPERATURE OF FRESH CONCRETE	ACI 318		X



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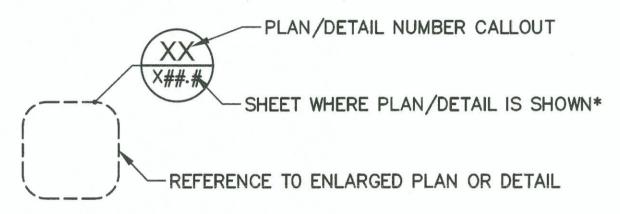
LEGEND (CONT'D)

EXISTING	DESCRIPTION
	BURIED POWER LINE
——————————————————————————————————————	RECORD BURIED POWER BURIED TELECOM LINE
——————————————————————————————————————	RECORD TELECOM LINE OVERHEAD POWER LINE
	CHAIN LINK FENCE
	WOOD OR SPLIT RAIL FENCE RAILROAD TRACKS
۵۵. ۵	CONCRETE SURFACE
	ASPHALT SURFACE

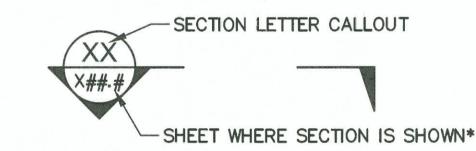
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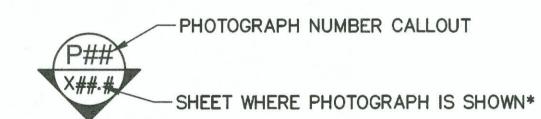
-PLAN/SECTION/DETAIL LETTER/NUMBER CALLOUT **VIEW TITLE** XX SCALE: ##:## X##.#

-SHEET WHERE PLAN/SECTION/DETAIL IS SHOWN*



*NOTE: DASH (-) INDICATES SECTION OR DETAIL FROM SAME SHEET





NOTES:

1. ADDITIONAL LEGEND FOR SURVEY ITEMS SHOWN ON SURVEY SHEETS CONTAINED IN APPENDIX A.

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LEGEND AND ABBREVIATIONS

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