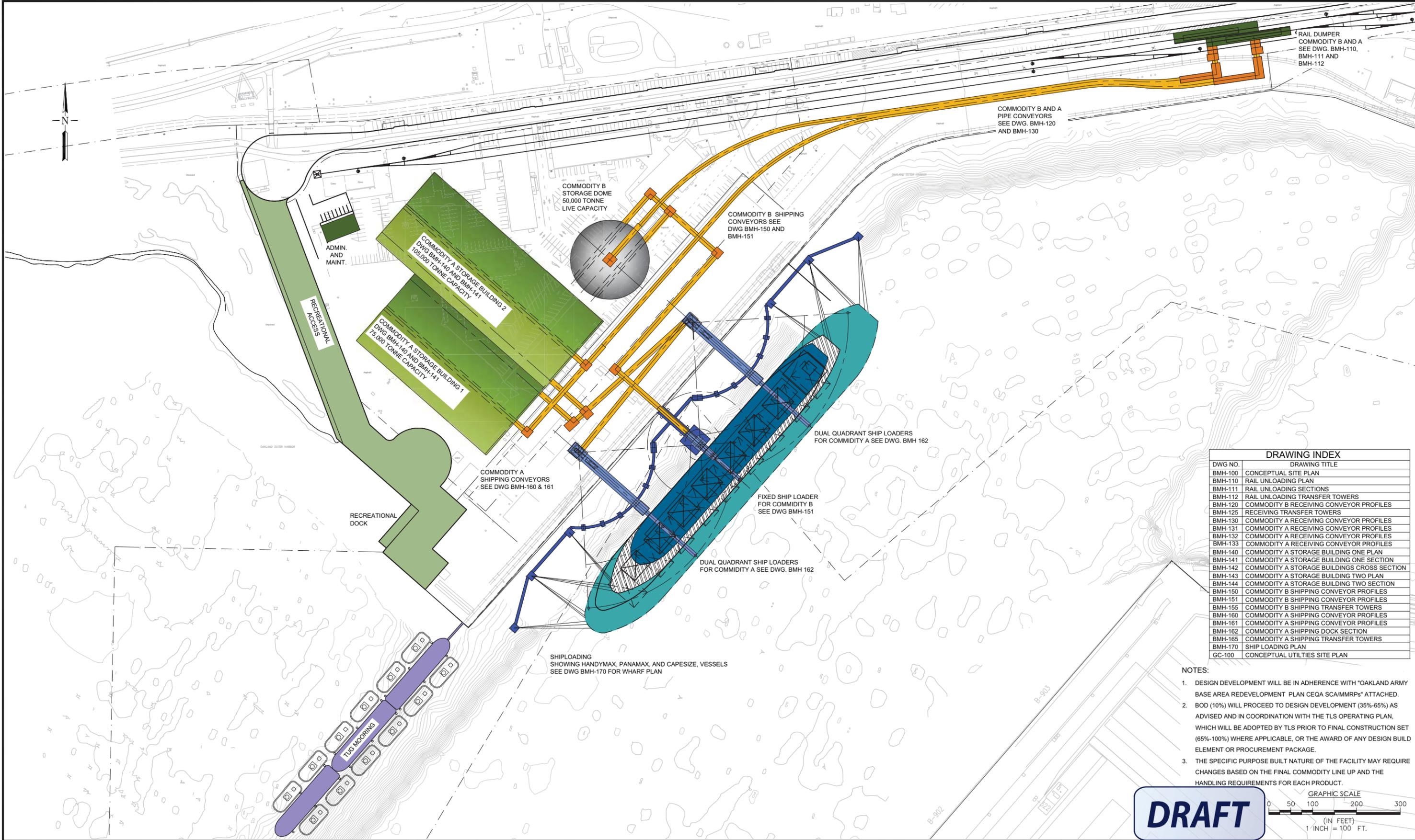


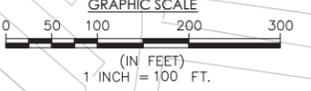
Conceptual Drawings

- These drawings show the possible layout for a two commodity bulk terminal.
- The final facility configuration will be determined during the design process.



DRAWING INDEX	
DWG NO.	DRAWING TITLE
BMH-100	CONCEPTUAL SITE PLAN
BMH-110	RAIL UNLOADING PLAN
BMH-111	RAIL UNLOADING SECTIONS
BMH-112	RAIL UNLOADING TRANSFER TOWERS
BMH-120	COMMODITY B RECEIVING CONVEYOR PROFILES
BMH-125	RECEIVING TRANSFER TOWERS
BMH-130	COMMODITY A RECEIVING CONVEYOR PROFILES
BMH-131	COMMODITY A RECEIVING CONVEYOR PROFILES
BMH-132	COMMODITY A RECEIVING CONVEYOR PROFILES
BMH-133	COMMODITY A RECEIVING CONVEYOR PROFILES
BMH-140	COMMODITY A STORAGE BUILDING ONE PLAN
BMH-141	COMMODITY A STORAGE BUILDING ONE SECTION
BMH-142	COMMODITY A STORAGE BUILDINGS CROSS SECTION
BMH-143	COMMODITY A STORAGE BUILDING TWO PLAN
BMH-144	COMMODITY A STORAGE BUILDING TWO SECTION
BMH-150	COMMODITY B SHIPPING CONVEYOR PROFILES
BMH-151	COMMODITY B SHIPPING CONVEYOR PROFILES
BMH-155	COMMODITY B SHIPPING TRANSFER TOWERS
BMH-160	COMMODITY A SHIPPING CONVEYOR PROFILES
BMH-161	COMMODITY A SHIPPING CONVEYOR PROFILES
BMH-162	COMMODITY A SHIPPING DOCK SECTION
BMH-165	COMMODITY A SHIPPING TRANSFER TOWERS
BMH-170	SHIP LOADING PLAN
GC-100	CONCEPTUAL UTILITIES SITE PLAN

- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCAMMRPs" ATTACHED.
 - BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
 - THE SPECIFIC PURPOSE BUILT NATURE OF THE FACILITY MAY REQUIRE CHANGES BASED ON THE FINAL COMMODITY LINE UP AND THE HANDLING REQUIREMENTS FOR EACH PRODUCT.



DRAFT

OAKLAND GLOBAL

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BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAP
CHECKED BY: -

HDR

OBOT
OAKLAND BULK AND OVERSIZED TERMINAL

TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.

CONCEPTUAL SITE PLAN
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

REV	DATE	COMMENT	CHECKED BY	DATE
1	07/17/2015	ISSUED AT 10% ENGINEERING	-	-
2	05/06/2015	ISSUED FOR INFORMATION	-	-

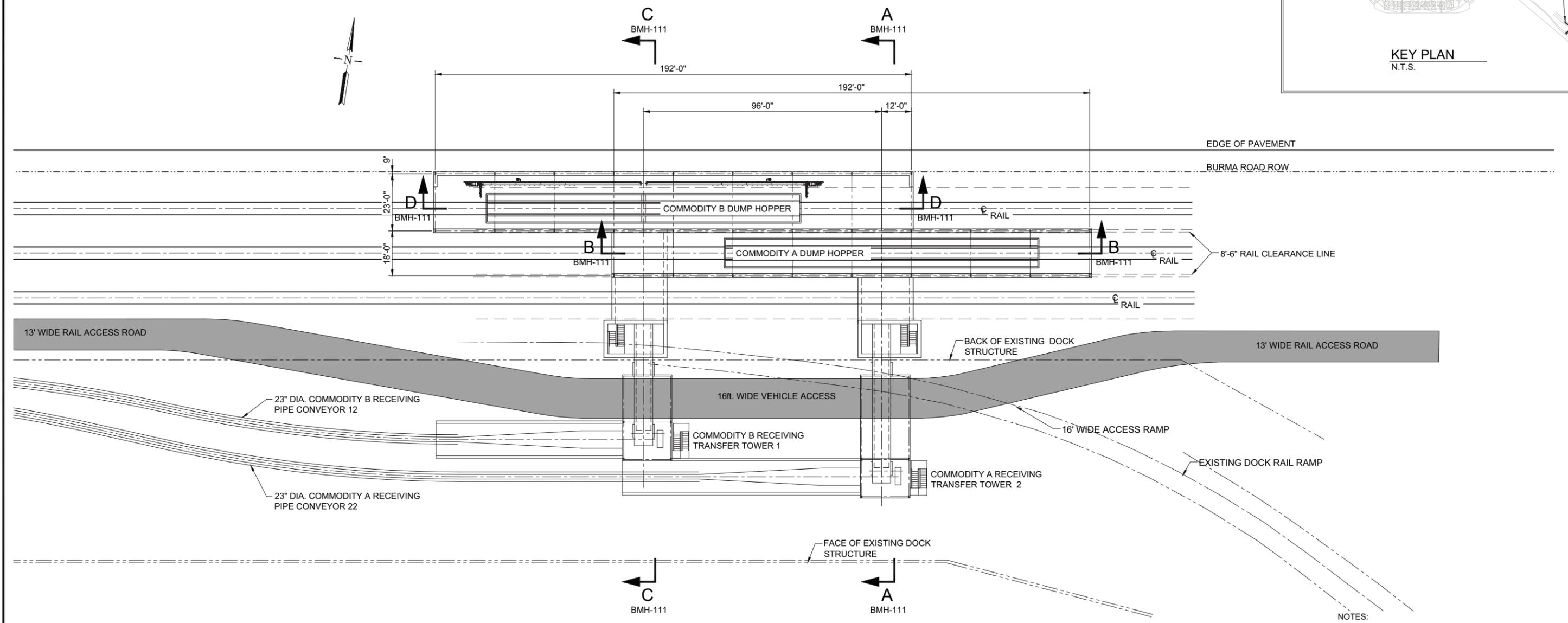
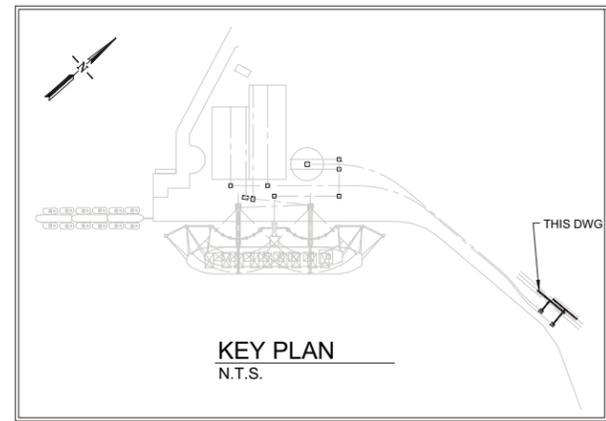
DRAWING NO.
BMH-100

SHEET OF

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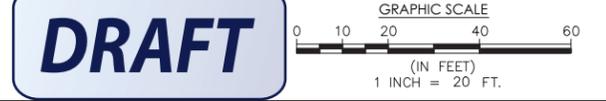
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RAIL UNLOADING PLAN
1"=20'-0"

- NOTES:
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CALIFORNIA OAKLAND GLOBAL
CITY OF OAKLAND

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HDR

ROBOT
OAKLAND BULK AND OVERSIZED TERMINAL

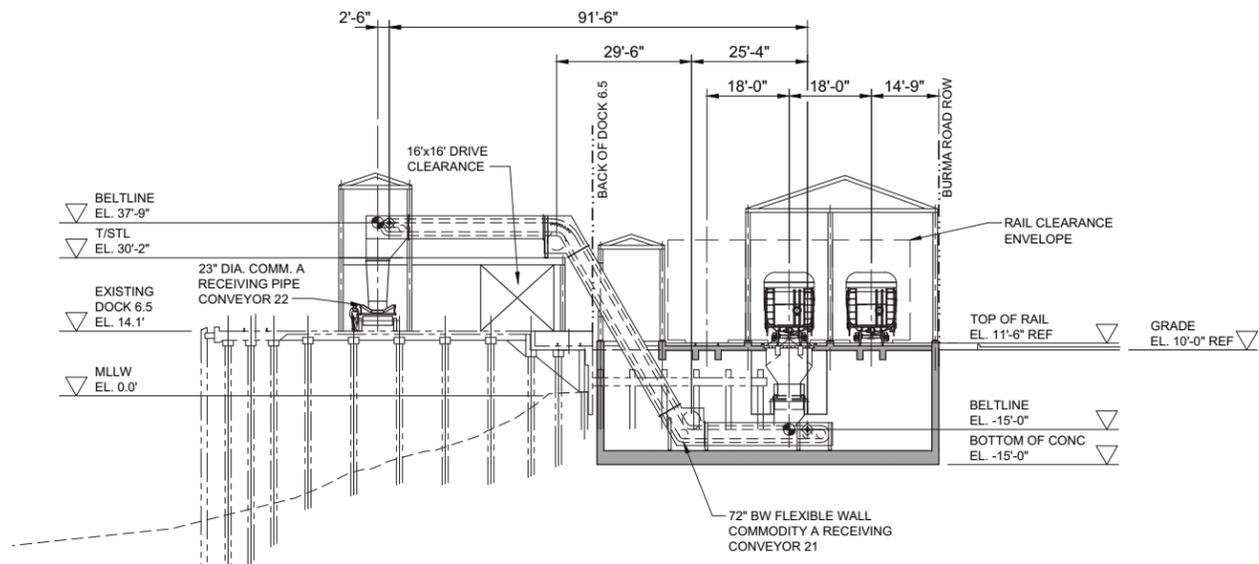
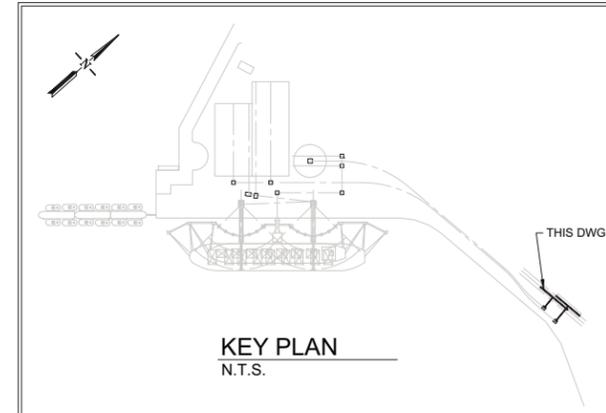
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
RAIL UNLOADING PLAN
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

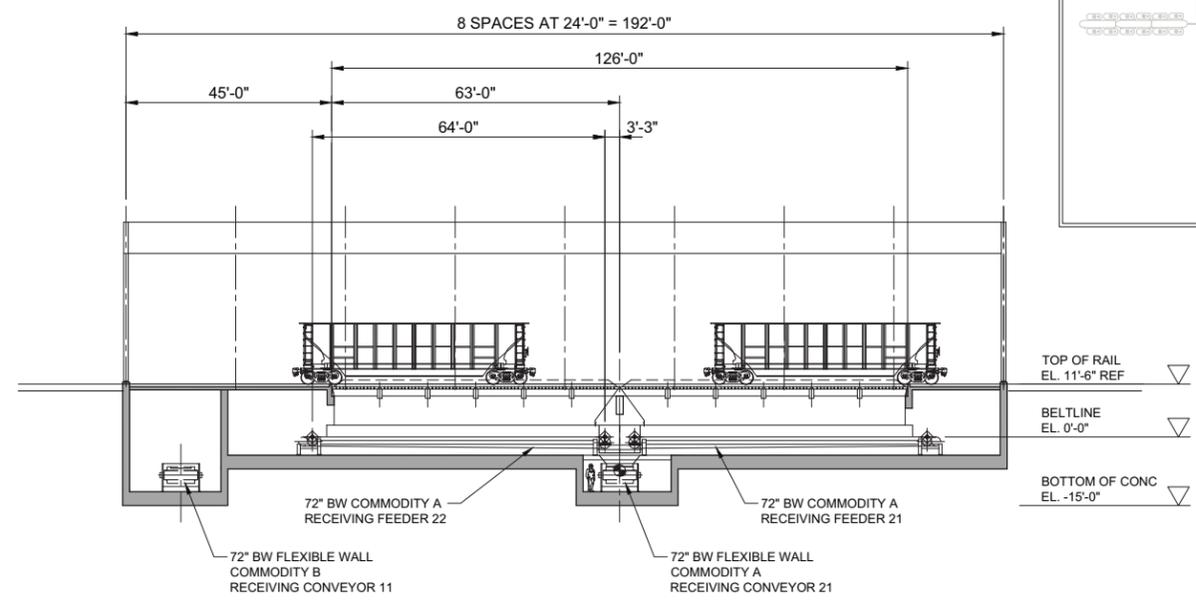
CALIFORNIA CAPITAL & INVESTMENT GROUP

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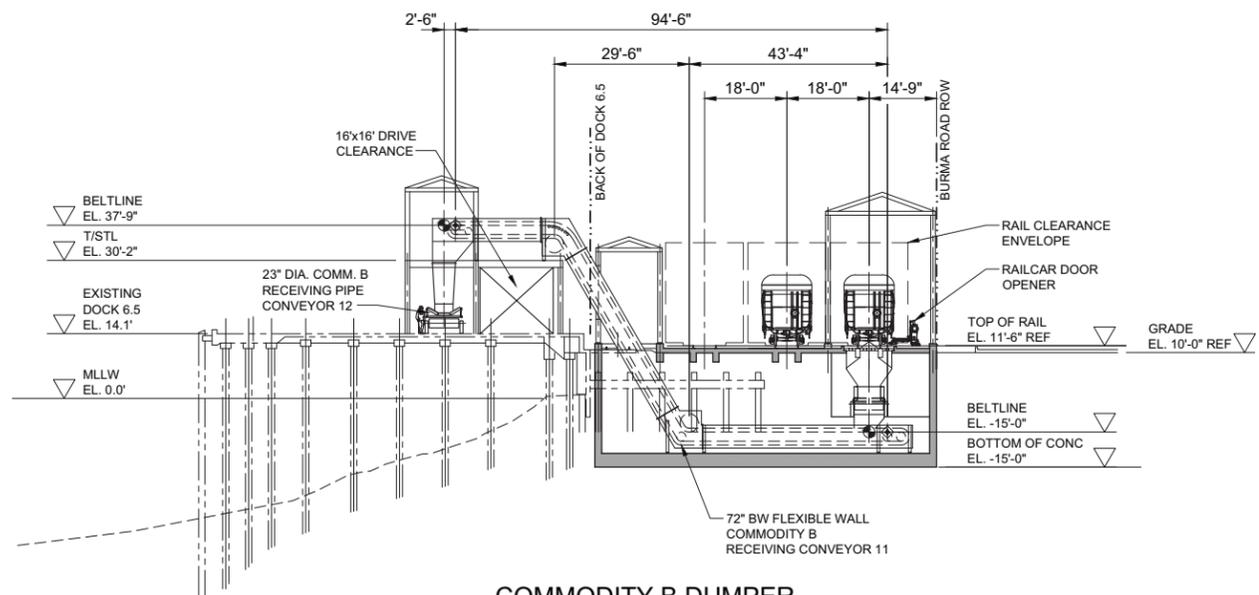
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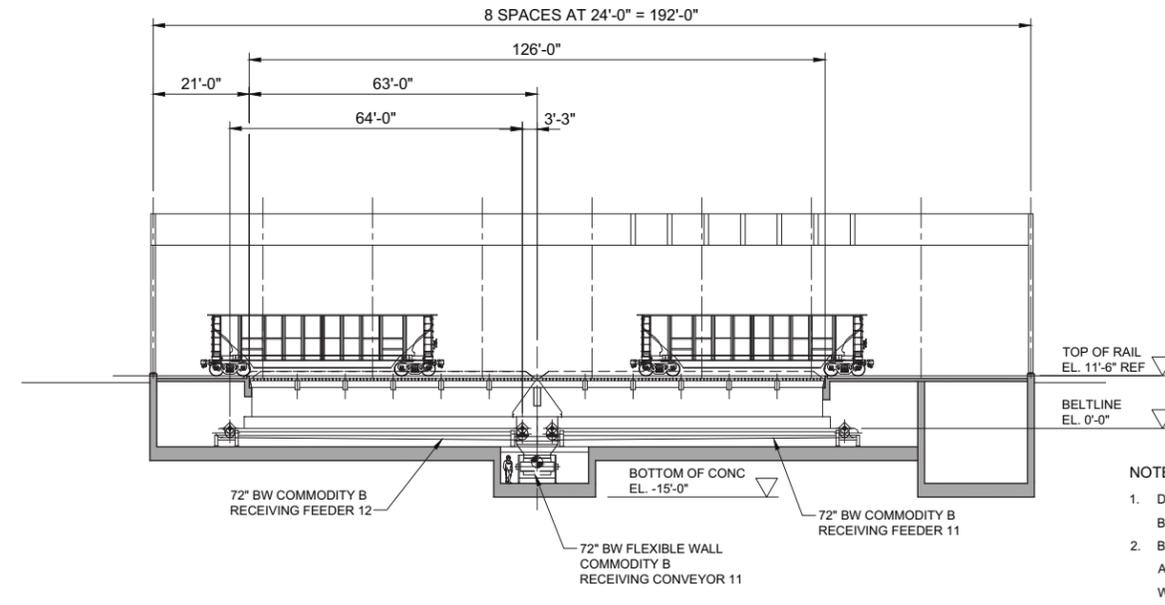
COMMODITY A DUMPER SECTION A-A
DWG BMH-110
1"=20'-0"



COMMODITY A DUMPER SECTION B-B
DWG BMH-110
1"=20'-0"

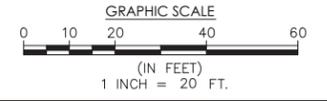


COMMODITY B DUMPER SECTION C-C
DWG BMH-110
1"=20'-0"



COMMODITY B DUMPER SECTION D-D
DWG BMH-110
1"=20'-0"

- NOTES:
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CHECKED BY: -

HDR

ROBOT
OAKLAND BULK AND OVERSIZED TERMINAL

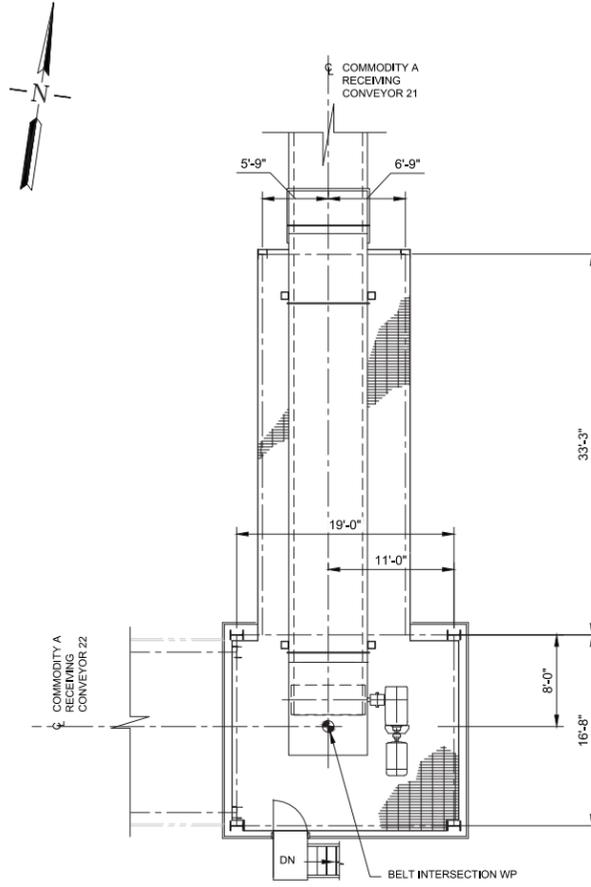
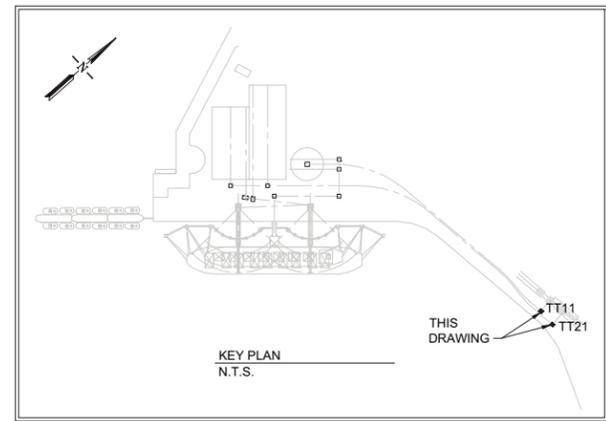
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
RAIL UNLOADING SECTIONS
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

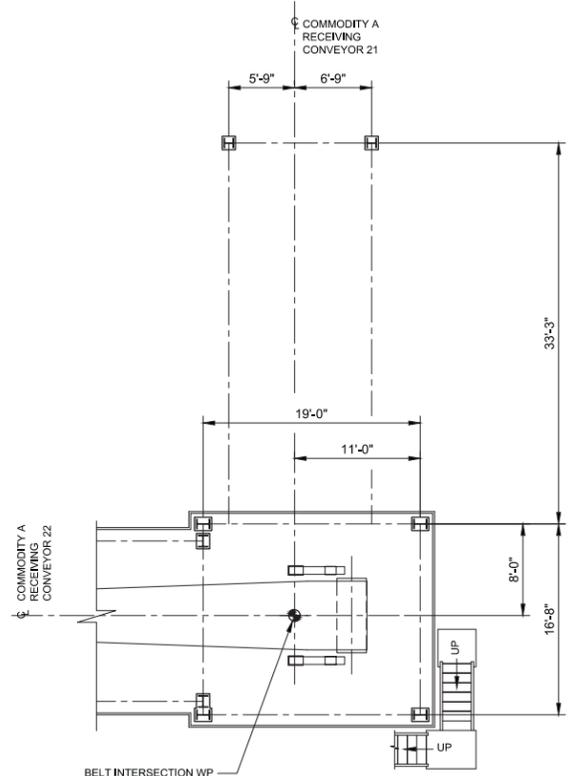
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SHEET 1 OF 1						SCALE: 1"=20'-0"

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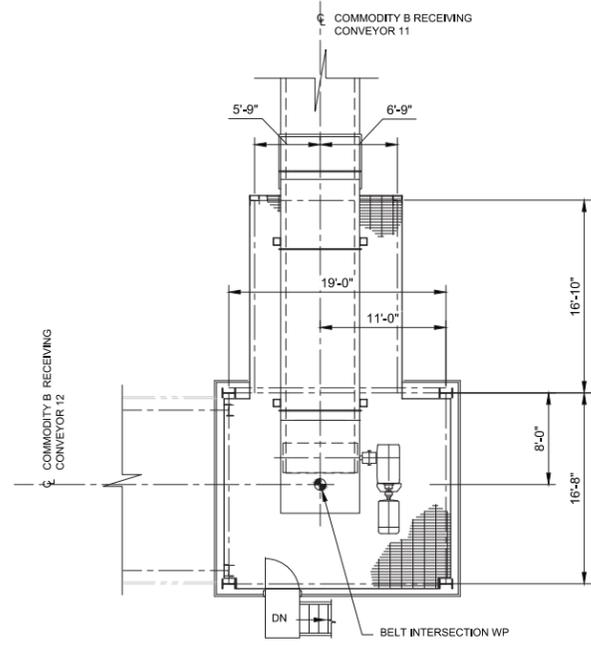
COMMODITY A RECEIVING TT21
PLAN AT 30'-0"

1/8"=1'-0"



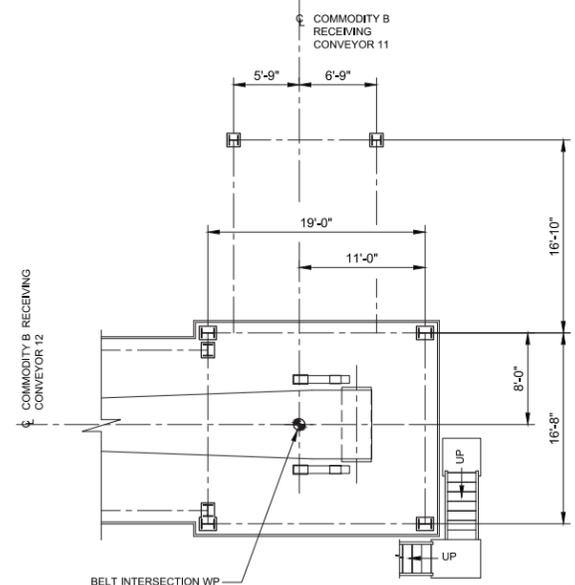
COMMODITY A RECEIVING TT21
PLAN AT GRADE (T/DOCK)

1/8"=1'-0"



COMMODITY B RECEIVING TT11
PLAN AT 30'-0"

1/8"=1'-0"



COMMODITY B RECEIVING TT11
PLAN AT GRADE (T/DOCK)

1/8"=1'-0"

- NOTES:
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DRAFT



HDR

WALNUT CREEK, CA 94596
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JOB NO. 254612

DRAWN BY: RRM

CHECKED BY: -



PROJECT INFO.

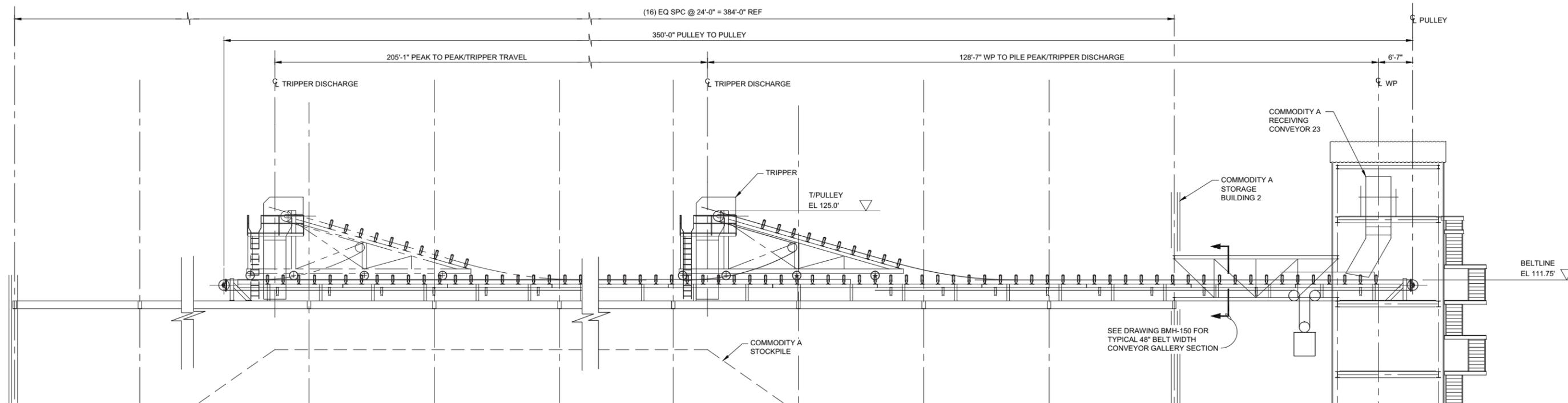
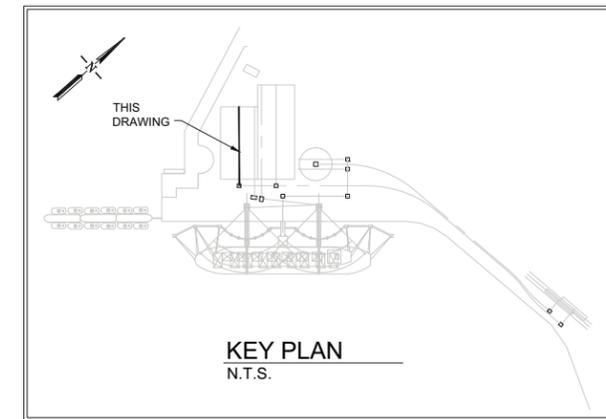
RECEIVING TRANSFER TOWER PLANS
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE	DRAWING NO.
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						SHEET 1 OF 1
						SCALE: NOTED

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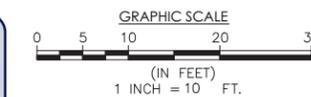
PROFILE - COMMODITY A RECEIVING CONVEYOR 24

1" = 10'

NOTES:

- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
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ROBOT
OAKLAND BULK AND OVERSIZED TERMINAL

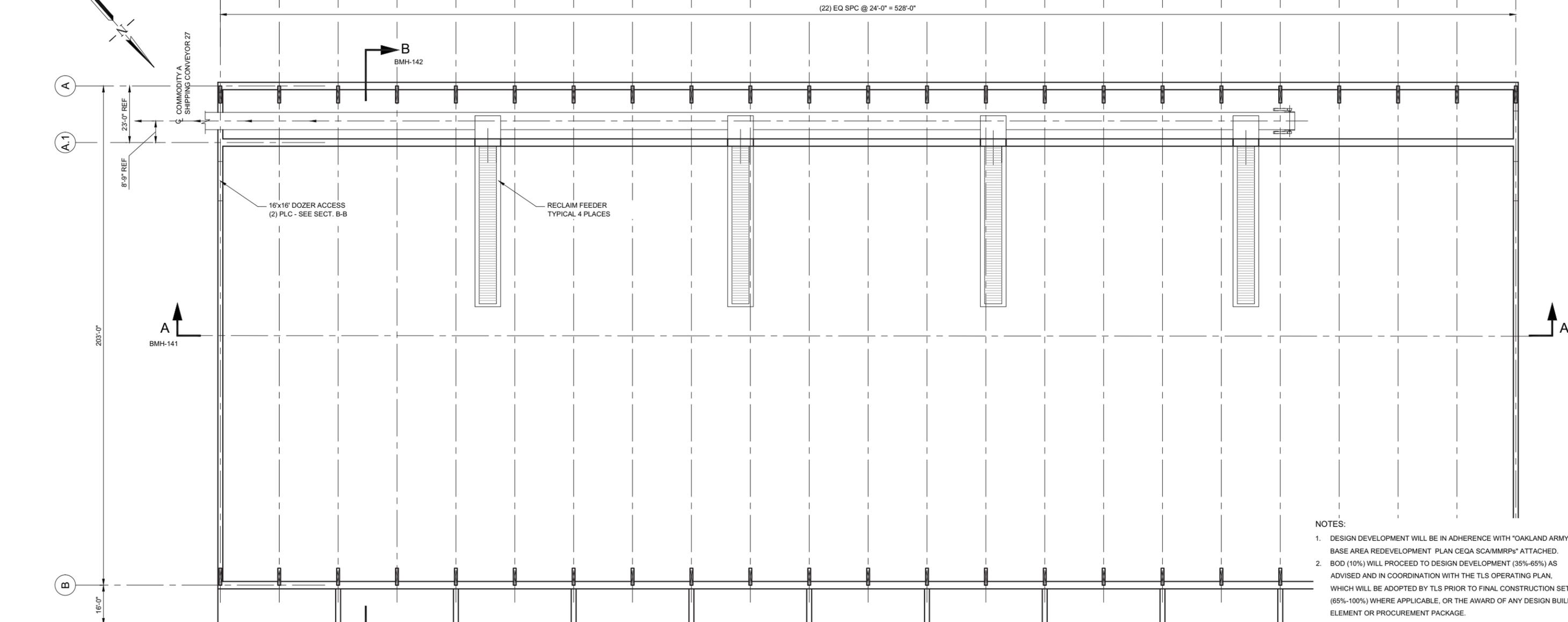
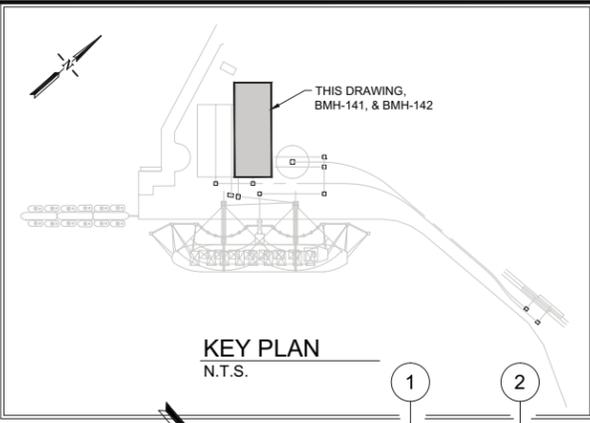
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
COMMODITY A RECEIVING CONVEYOR PROFILE
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



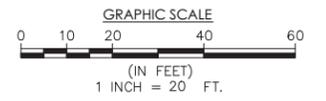
CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE	DRAWING NO.
						BMH-132
						SHEET -- OF --
						SCALE: NOTED
						DATE: 04/03/2015



PLAN - COMMODITY A STORAGE BUILDING 1
1" = 20'

- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
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PORT OF OAKLAND
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CITY OF OAKLAND

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JOB NO. 254612
DRAWN BY: JAP
CHECKED BY: -

ORBOT
OAKLAND BULK AND OVERSIZED TERMINAL

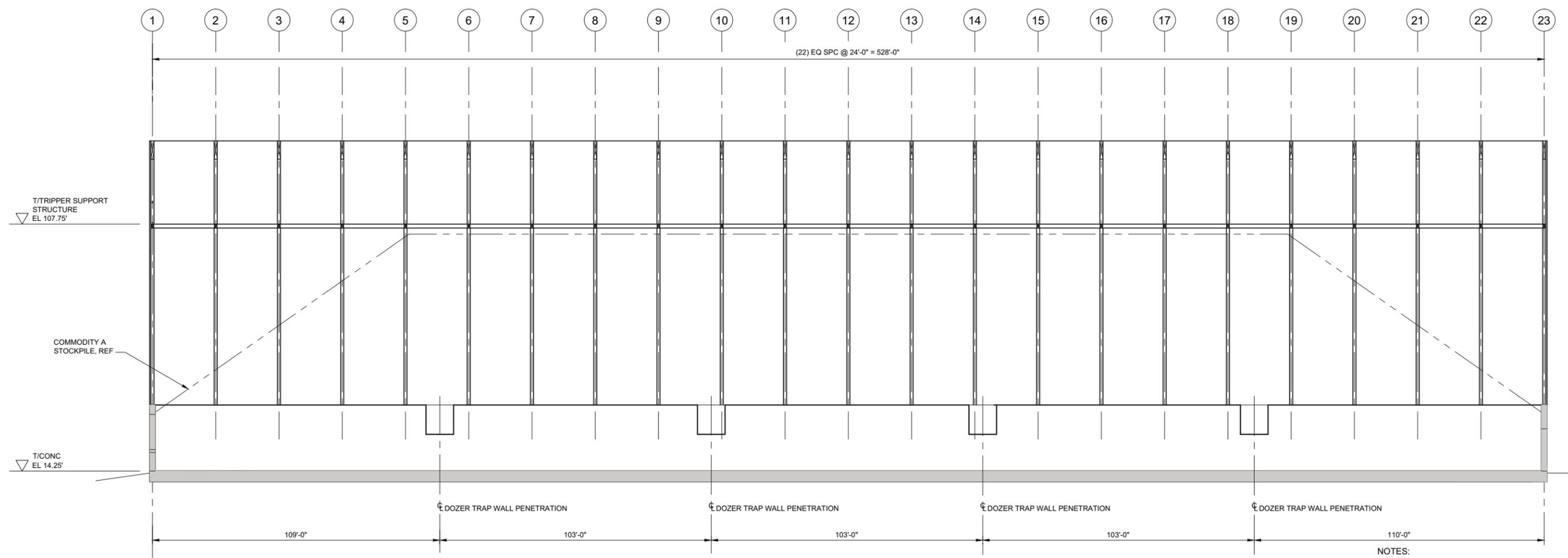
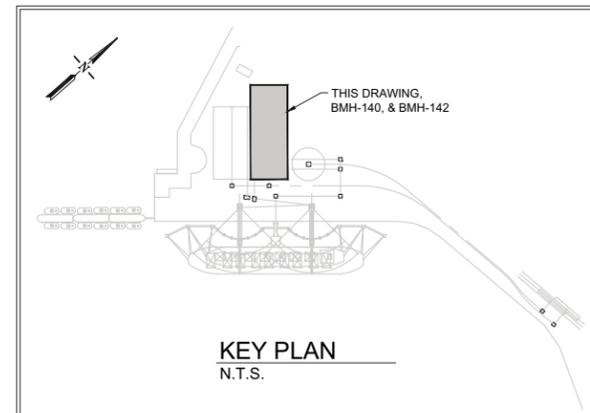
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
COMMODITY A STORAGE BUILDING PLAN
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

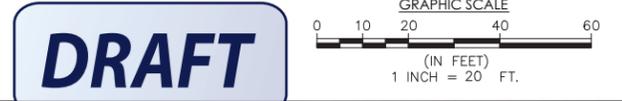
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						SCALE: NOTED

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CONVEYORS NOT SHOWN THIS VIEW
SECTION A-A - COMMODITY A STORAGE BUILDING 1
 1" = 20'

- NOTES:
1. DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
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JOB NO. 254612
 DRAWN BY: RRM
 CHECKED BY: -

ORBOT
 OAKLAND BULK AND OVERSIZED TERMINAL

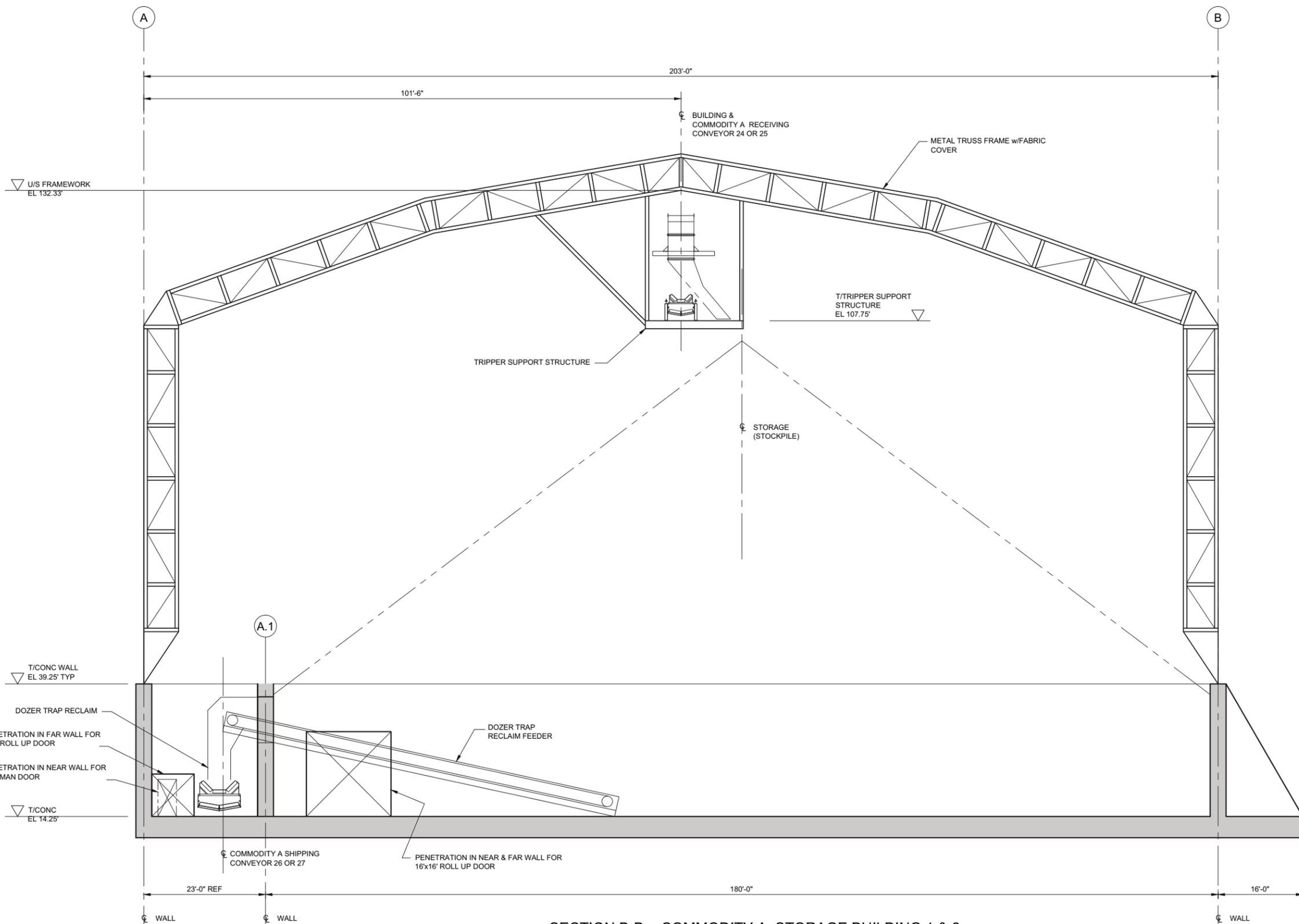
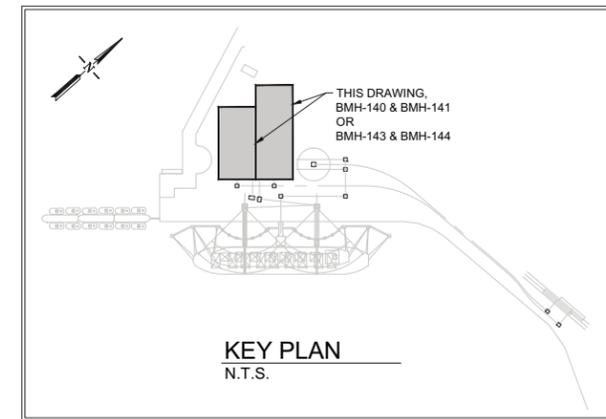
TLS
 TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
 COMMODITY A STORAGE BUILDING 1 SECTION
 OAKLAND BULK AND OVERSIZED TERMINAL
 CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA
 CAPITAL & INVESTMENT
 GROUP

DRAWING NO.		BMH-141	
SHEET		OF	
SCALE:	NOTED	CHECKED BY:	C.O.O.
DATE:	04/03/2015	ISSUED @ 10% ENGINEERING	07/17/2015
REV	DATE	COMMENT	

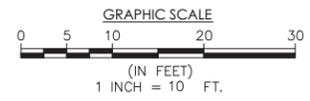
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SECTION B-B - COMMODITY A STORAGE BUILDING 1 & 2

1" = 10'
STORAGE BUILDING 1 - AS SHOWN
STORAGE BUILDING 2 - OPPOSITE

- NOTES:**
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ORBOT
OAKLAND BULK AND OVERSIZED TERMINAL

TLS
TERMINAL LOGISTICS SOLUTIONS

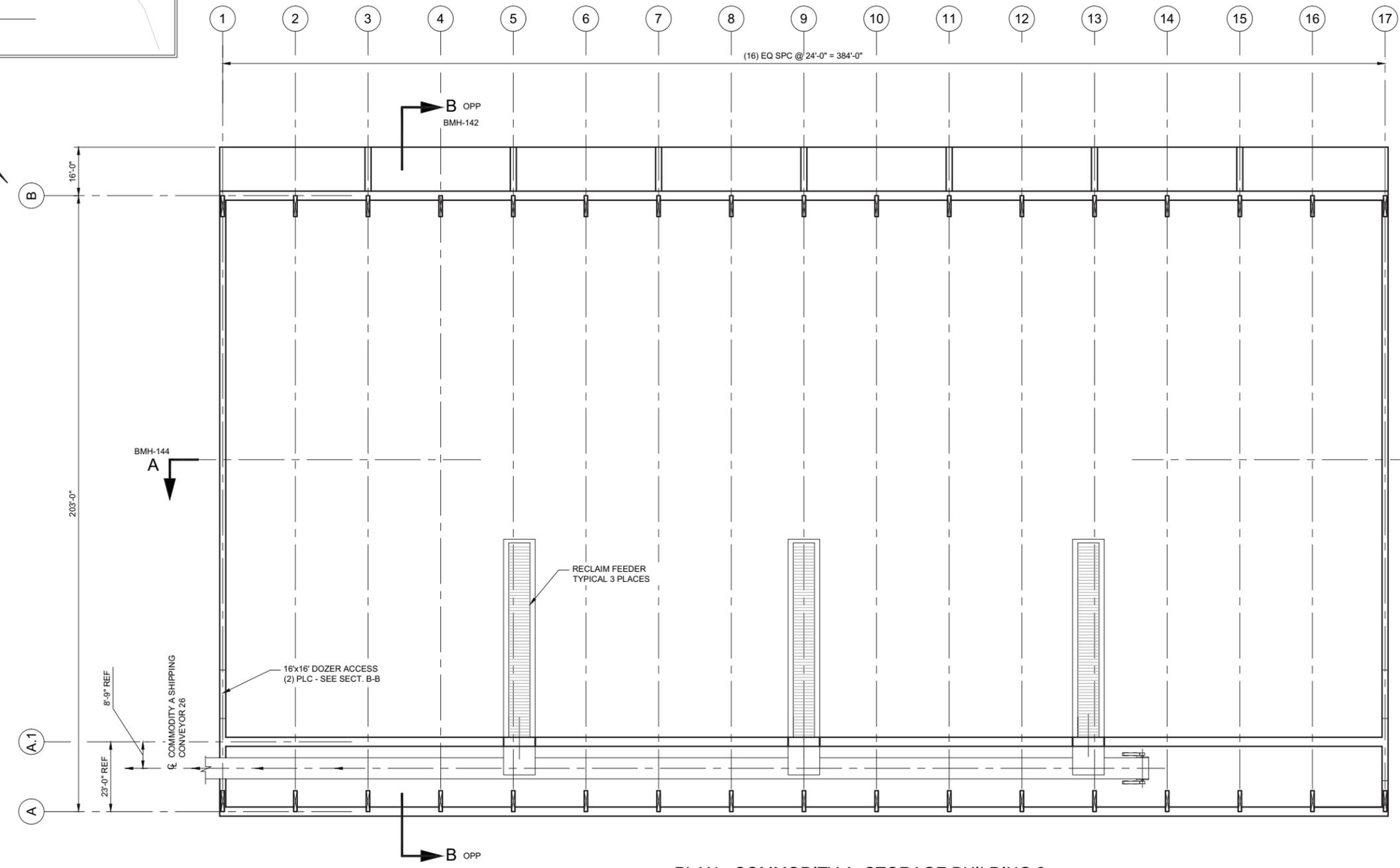
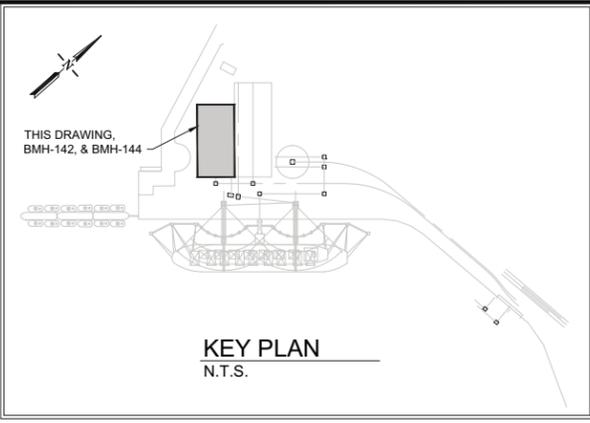
PROJECT INFO.
COMMODITY A STORAGE BUILDING SECTION
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE
△	07/17/2015	ISSUED @ 10% ENGINEERING			04/03/2015

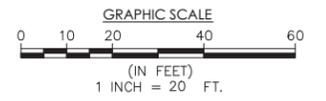
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SCALE: NOTED

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PLAN - COMMODITY A STORAGE BUILDING 2
1" = 20'

- NOTES:
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DRAWN BY: RRM
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ROBOT
OAKLAND BULK AND OVERSIZED TERMINAL

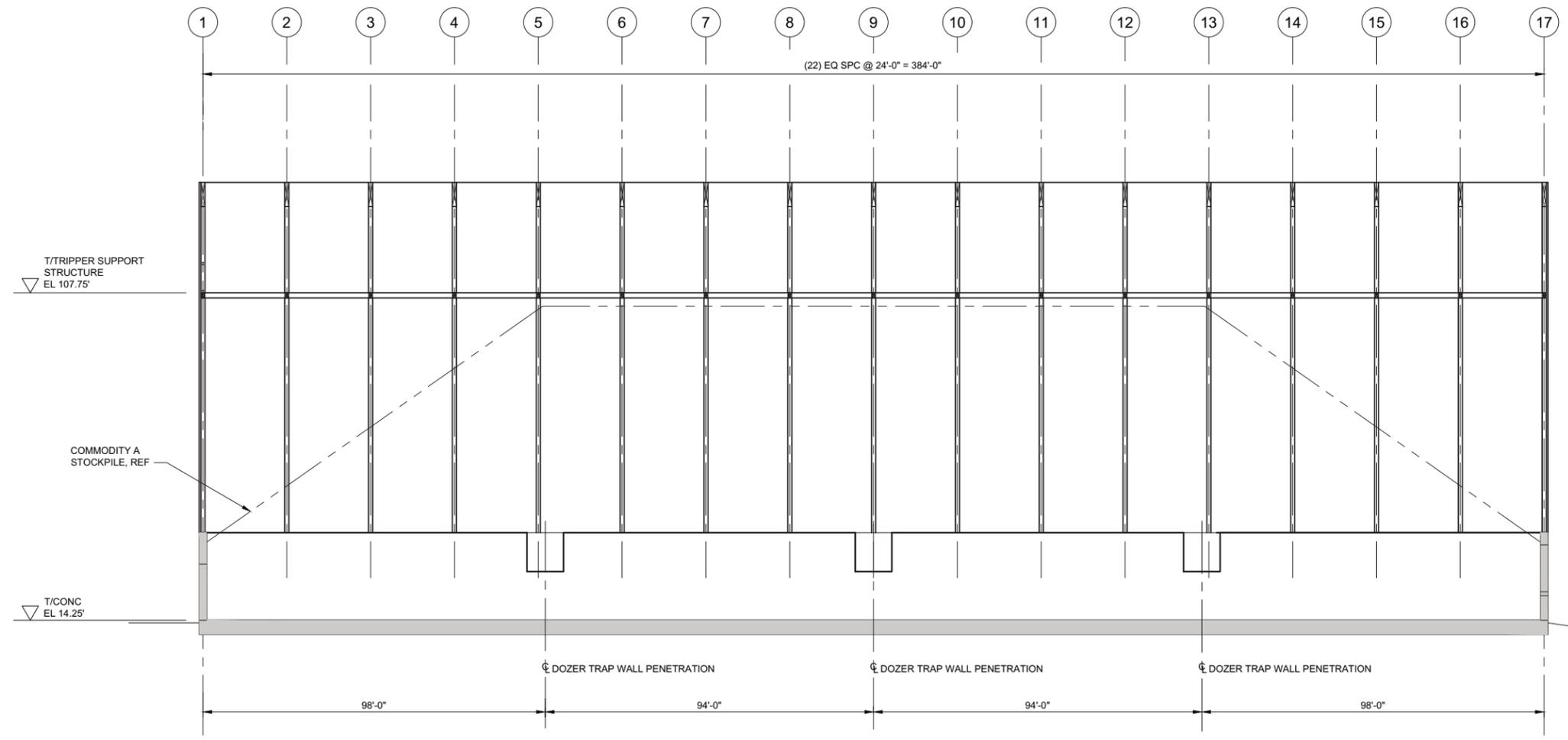
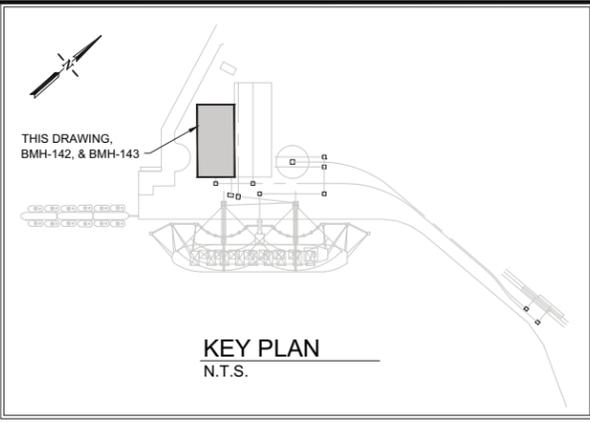
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
COMMODITY A STORAGE BUILDING PLAN
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA
CAPITAL & INVESTMENT
GROUP

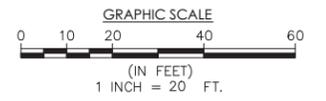
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△	07/17/2015	ISSUED @ 10% ENGINEERING			04/03/2015	BMH-143
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						SCALE: NOTED

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 Jul 27, 2015 - 3:22pm, Plotted By: jspresler
 C:\working\acc\0669935\CCG_BMH_140-141-142-143-144.dwg



CONVEYORS NOT SHOWN THIS VIEW
SECTION A-A - COMMODITY A STORAGE BUILDING 2
1" = 20'

- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
 - BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
 - THE SPECIFIC PURPOSE BUILT NATURE OF THE FACILITY MAY REQUIRE CHANGES BASED ON THE FINAL COMMODITY LINE UP AND THE HANDLING REQUIREMENTS FOR EACH PRODUCT.



DRAFT

OAKLAND GLOBAL

one vision, one team, one project™

HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: RRM
CHECKED BY: -

ORBOT
OAKLAND BULK AND OVERSIZED TERMINAL

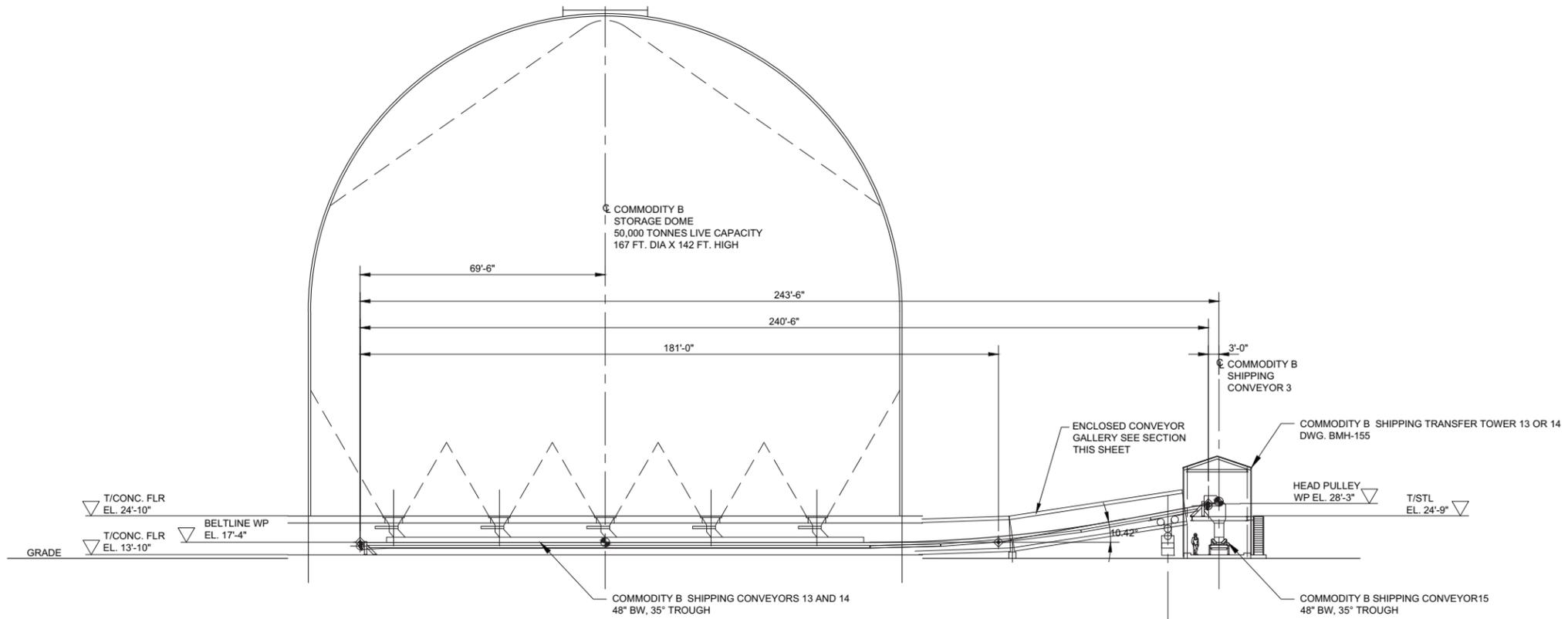
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
COMMODITY A STORAGE BUILDING SECTION
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA
CAPITAL & INVESTMENT
GROUP

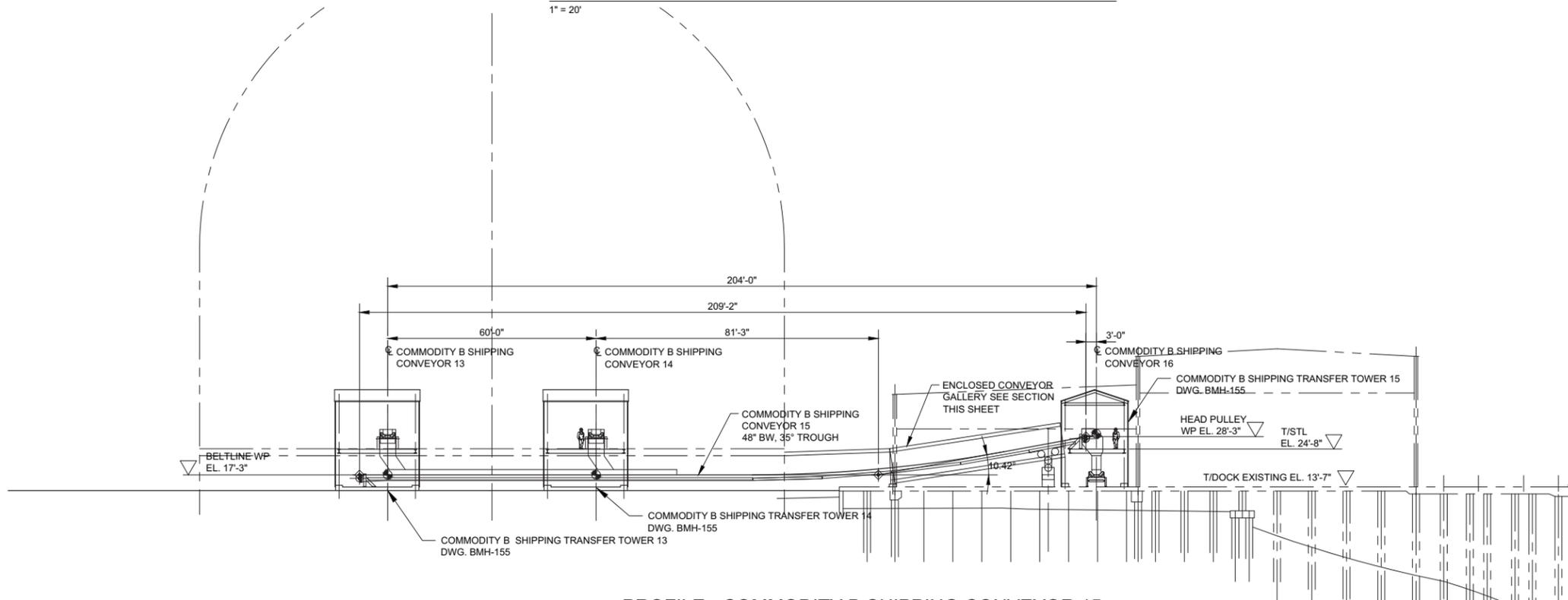
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						SHEET ___ OF ___
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						DATE: 04/03/2015

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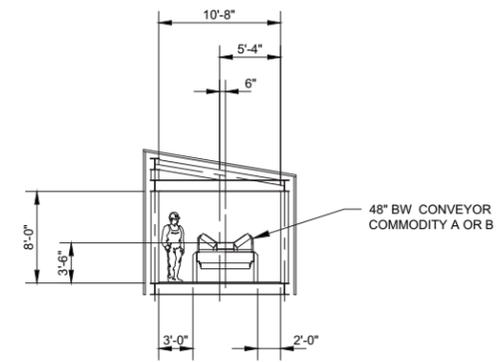
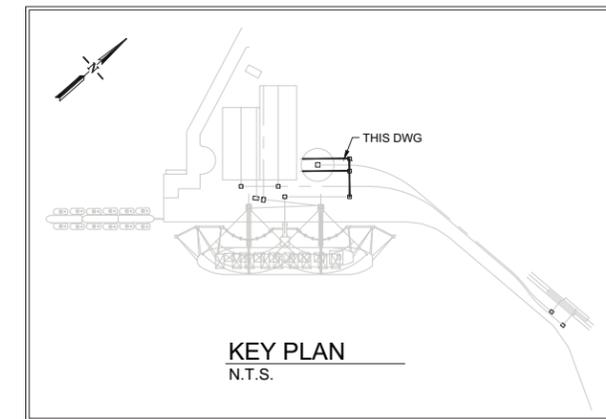
PROFILE - COMMODITY B SHIPPING CONVEYOR 13 AND 14

1" = 20'



PROFILE - COMMODITY B SHIPPING CONVEYOR 15

1" = 20'



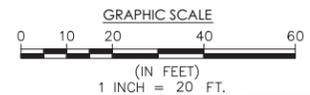
TYPICAL SECTION
48" BELT WIDTH
CONVEYOR GALLERY

1" = 20'

NOTES:

- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
- BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
- THE SPECIFIC PURPOSE BUILT NATURE OF THE FACILITY MAY REQUIRE CHANGES BASED ON THE FINAL COMMODITY LINE UP AND THE HANDLING REQUIREMENTS FOR EACH PRODUCT.

DRAFT



OAKLAND GLOBAL



"one vision, one team, one project"

HDR

WALNUT CREEK, CA 94596
BELLEVUE, WA 98004



OBOT

OAKLAND BULK AND OVERSIZED TERMINAL



PROJECT INFO.

COMMODITY B SHIPPING CONVEYOR PROFILES
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

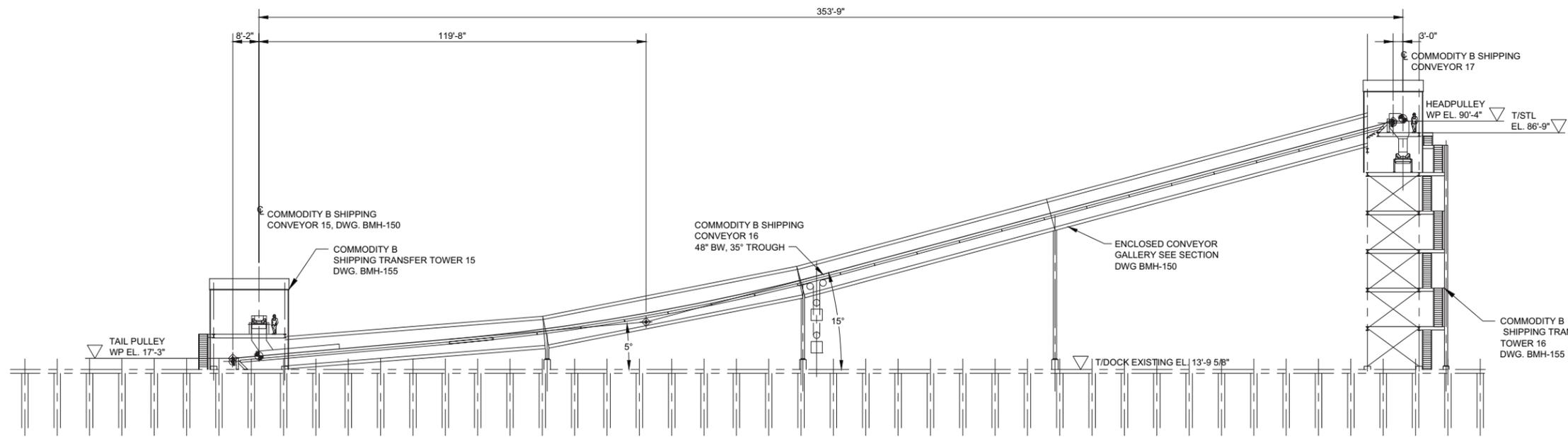


CALIFORNIA
CAPITAL & INVESTMENT
GROUP

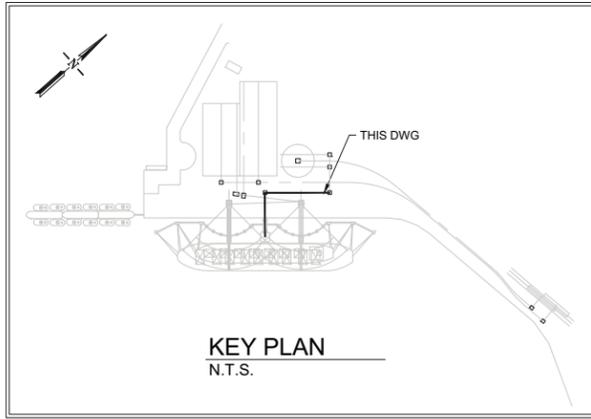
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SHEET		OF	
REV	DATE	COMMENT	CHECKED BY
07/17/2015	ISSUED AT 10% ENGINEERING	-	C.O.O.
SCALE:		NOTED	
DATE:		04/03/2015	

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Jul 27, 2015 - 3:33pm, Plotted By: jasper

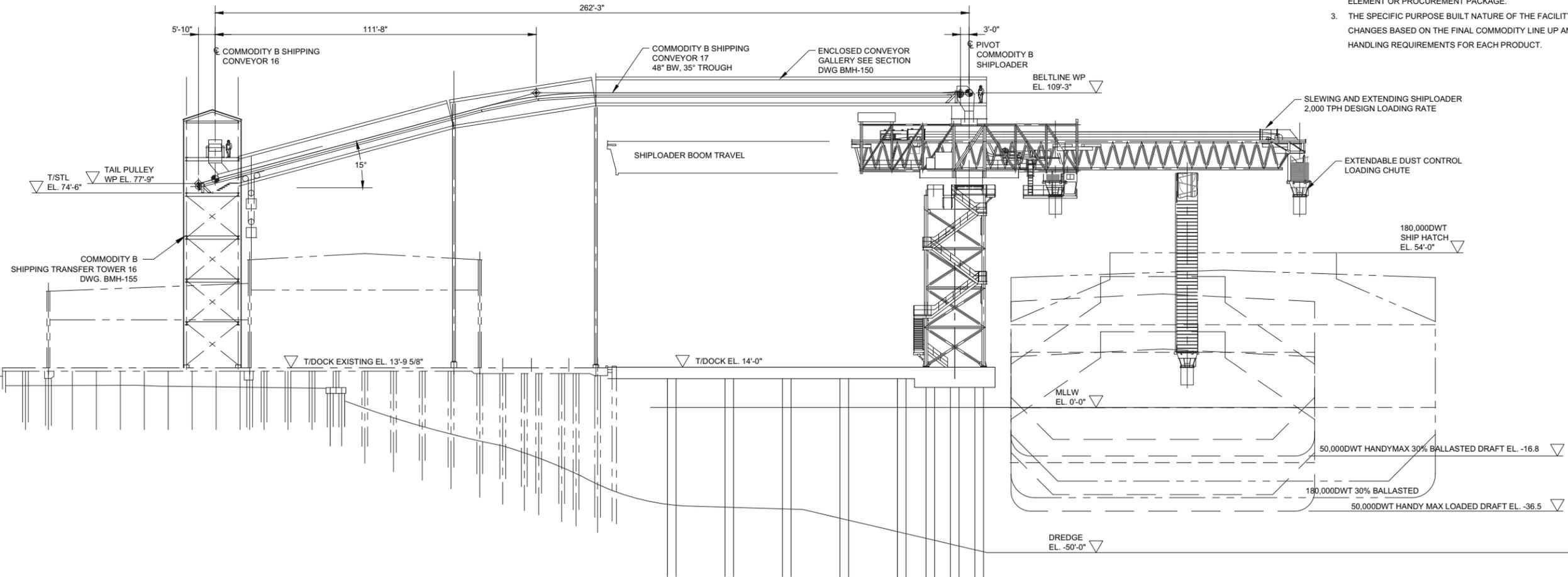


PROFILE - COMMODITY B SHIPPING CONVEYOR 16
1" = 20'



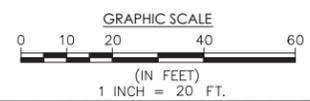
NOTES:

- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
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PROFILE - COMMODITY B SHIPPING CONVEYOR 17 AND DOCK SECTION COMMODITY B SHIPLOADER
1" = 20'

DRAFT



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HDR
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BELLEVUE, WA 98004

ORBOT
OAKLAND BULK AND OVERSIZED TERMINAL



PROJECT INFO.
COMMODITY B SHIPPING CONVEYOR PROFILES
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



CALIFORNIA
CAPITAL & INVESTMENT
GROUP

DRAWING NO.

BMH-151

SHEET OF

REV	DATE	COMMENT	CHECKED BY	DATE
07/17/2015	ISSUED AT 10% ENGINEERING			

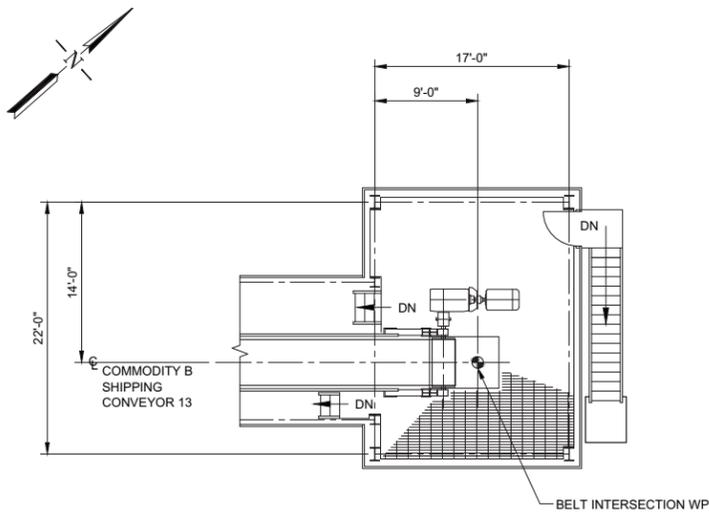
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Jul 27, 2015 - 3:33pm, Plotted By: jasper

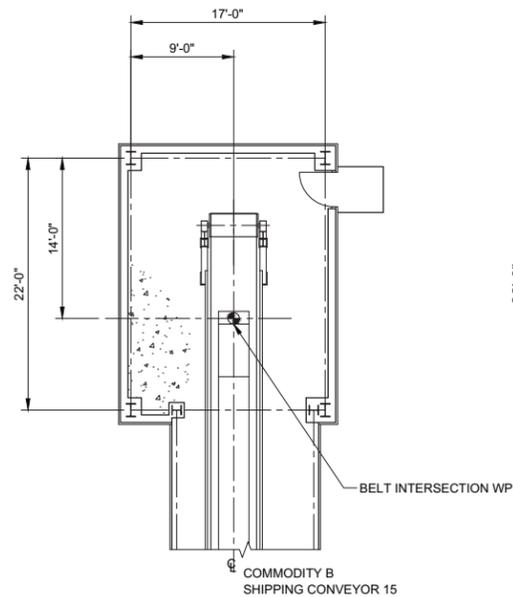


JOB NO. 254612
DRAWN BY: JAP
CHECKED BY: -

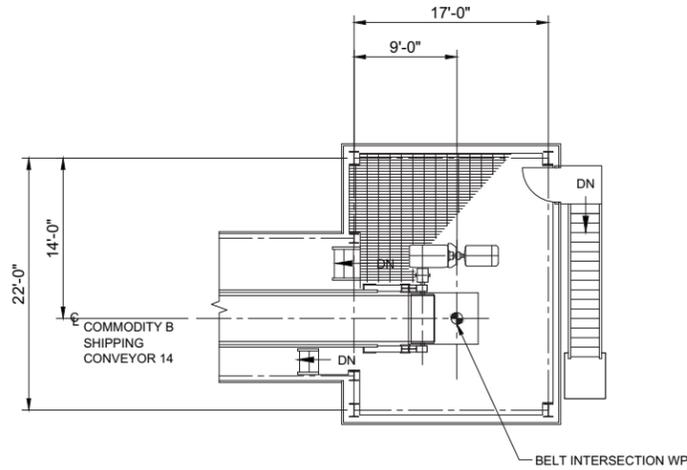
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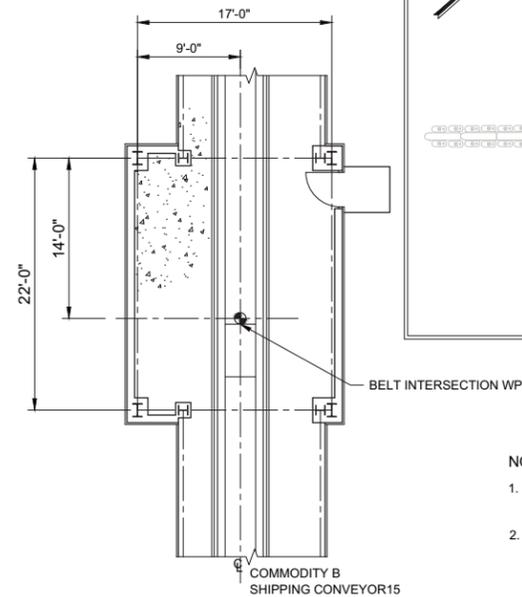
COMMODITY B SHIPPING TT13
PLAN AT T/STL 24'-9"
1/8"=1'-0"



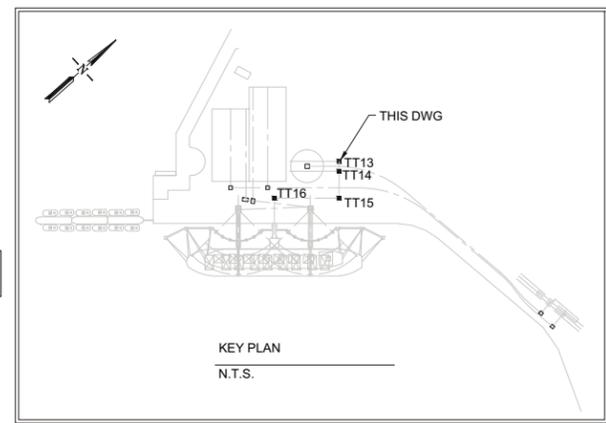
COMMODITY B SHIPPING TT13
PLAN AT T/CONC 13'-10"
1/8"=1'-0"



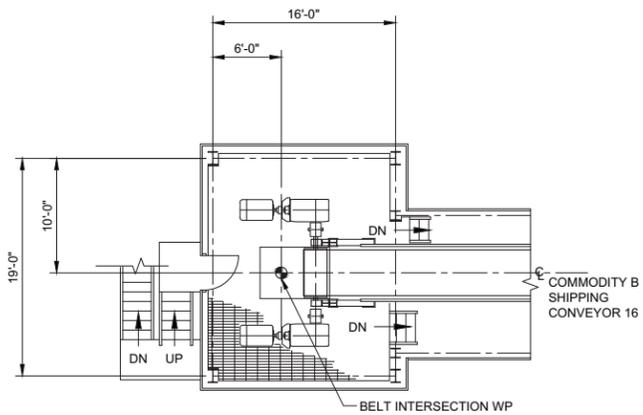
COMMODITY B SHIPPING TT14
PLAN AT T/STL 24'-9"
1/8"=1'-0"



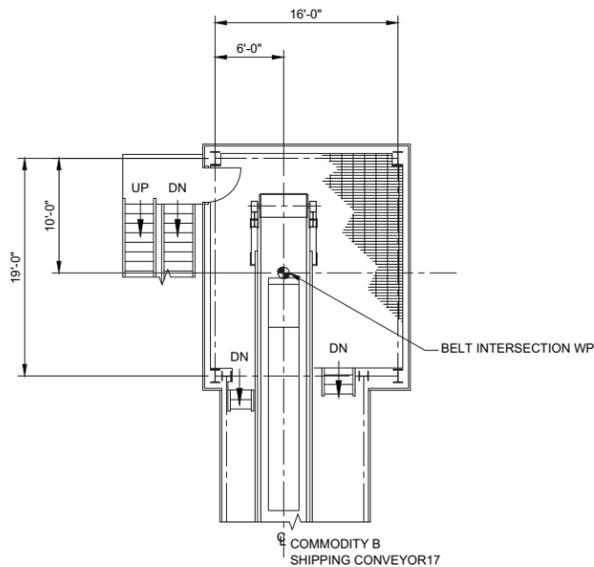
COMMODITY B SHIPPING TT14
PLAN AT T/CONC 13'-10"
1/8"=1'-0"



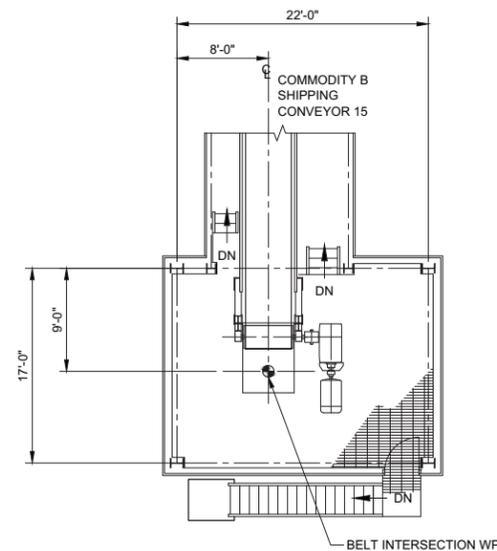
- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCAMMRPS" ATTACHED.
 - BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
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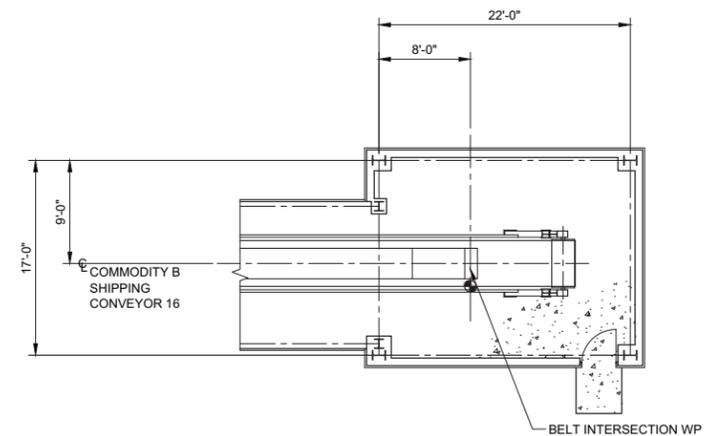
COMMODITY B SHIPPING TT16
PLAN AT T/STL 86'-9"
1/8"=1'-0"



COMMODITY B SHIPPING TT16
PLAN AT T/STL 74'-6"
1/8"=1'-0"



COMMODITY B SHIPPING TT15
PLAN AT T/STL 24'-9"
1/8"=1'-0"



COMMODITY B SHIPPING TT15
PLAN AT T/EXISTING DOCK
1/8"=1'-0"

DRAFT



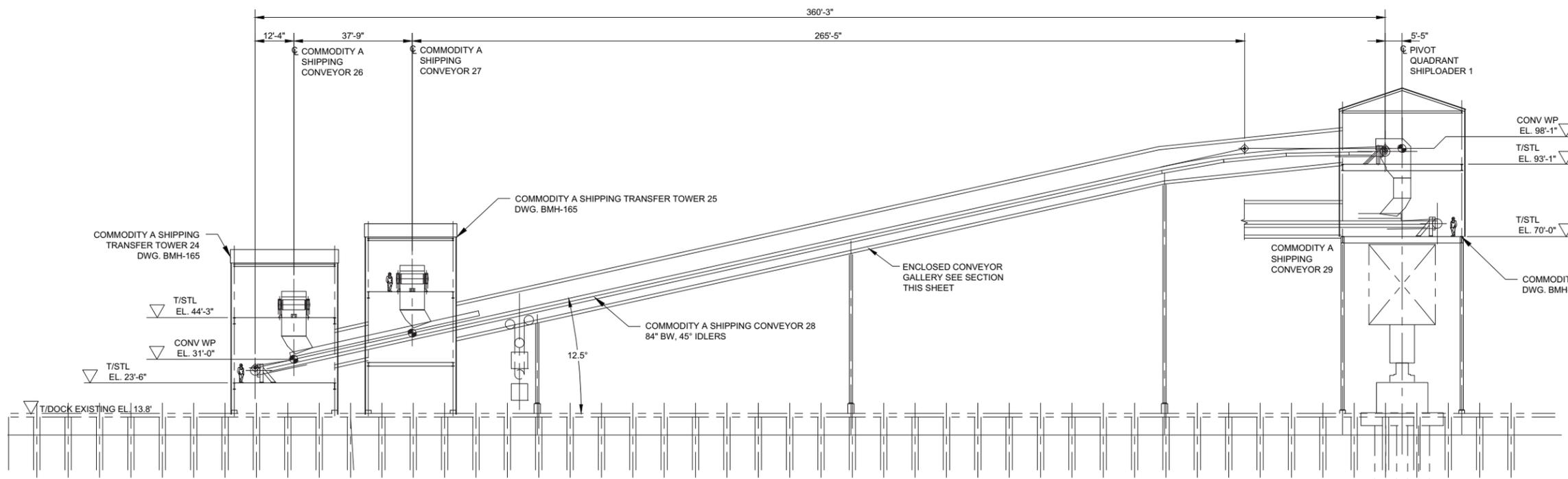
HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004
JOB NO. 254612
DRAWN BY: JAP
CHECKED BY: -



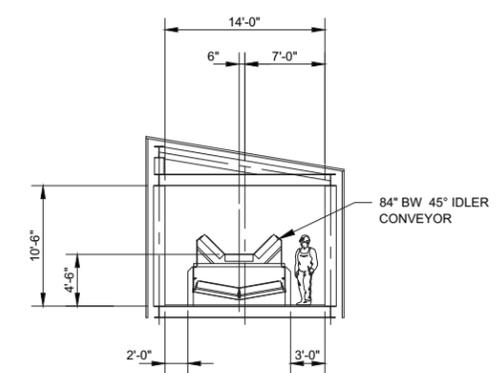
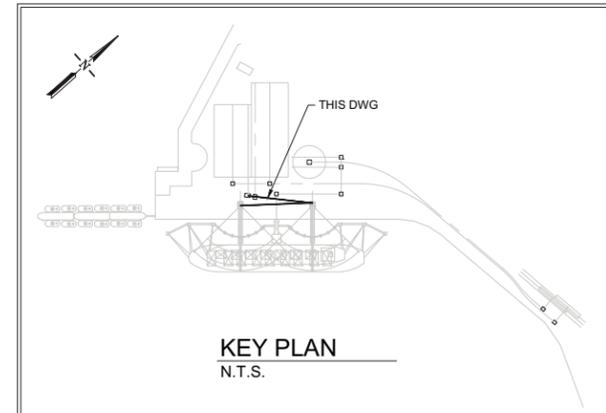
PROJECT INFO.
COMMODITY B SHIPPING TRANSFER TOWERS
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



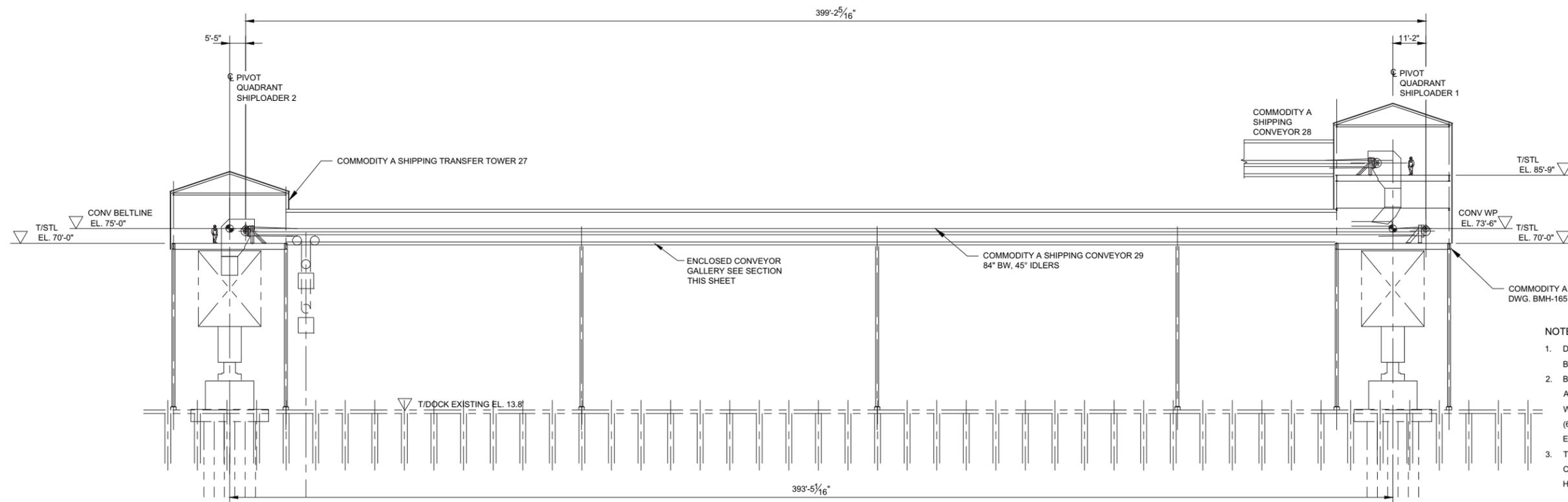
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						SHEET 1 OF 1
						SCALE: NOTED



PROFILE COMMODITY A SHIPPING CONVEYOR 28
1" = 20'

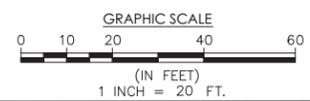


**TYPICAL SECTION
COMMODITY A SHIPPING
ENCLOSED GALLERY**
1/8" = 1'-0"



PROFILE COMMODITY A SHIPPING CONVEYOR 29
1" = 20'

- NOTES:**
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
 - BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
 - THE SPECIFIC PURPOSE BUILT NATURE OF THE FACILITY MAY REQUIRE CHANGES BASED ON THE FINAL COMMODITY LINE UP AND THE HANDLING REQUIREMENTS FOR EACH PRODUCT.



DRAFT

OAKLAND GLOBAL
PORT OF OAKLAND
"one vision, one team, one project"

HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004
JOB NO. 254612
DRAWN BY: JAP
CHECKED BY: -

ORBOT
OAKLAND BULK AND OVERSIZED TERMINAL

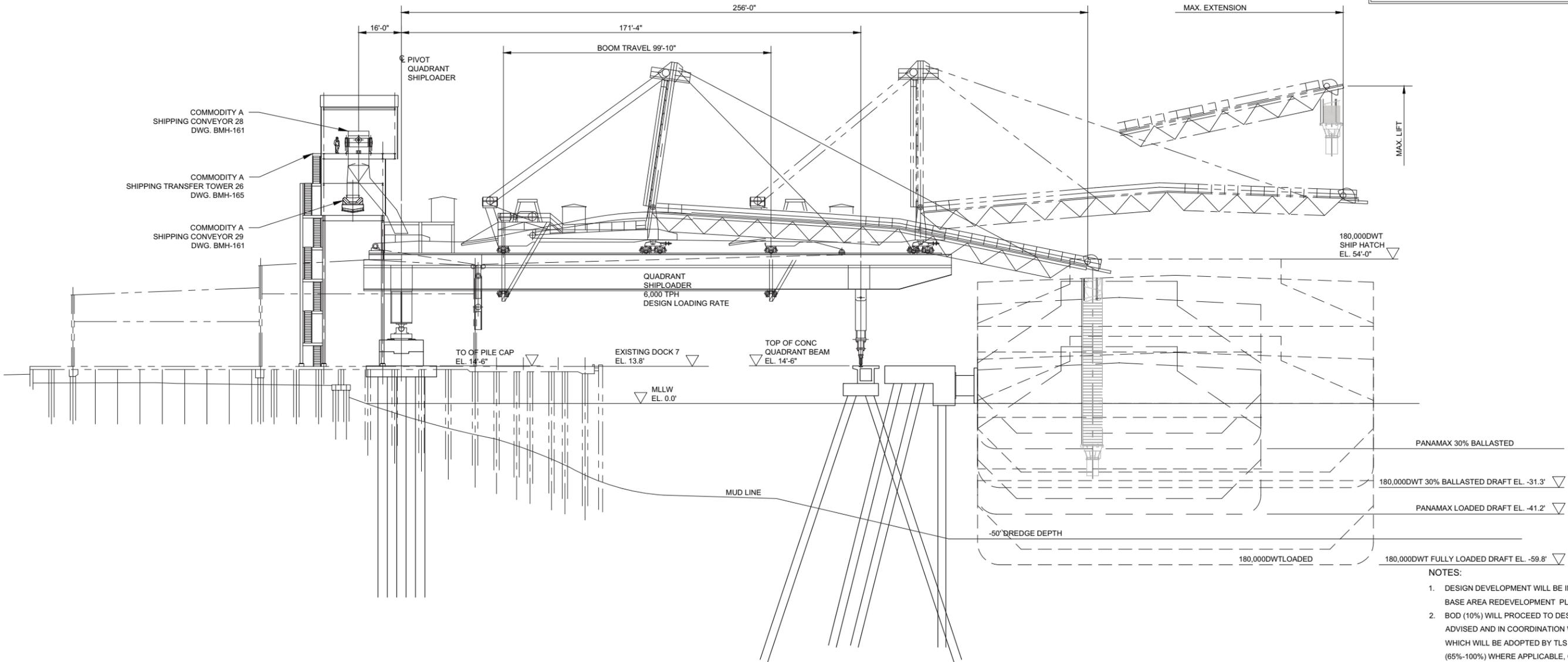
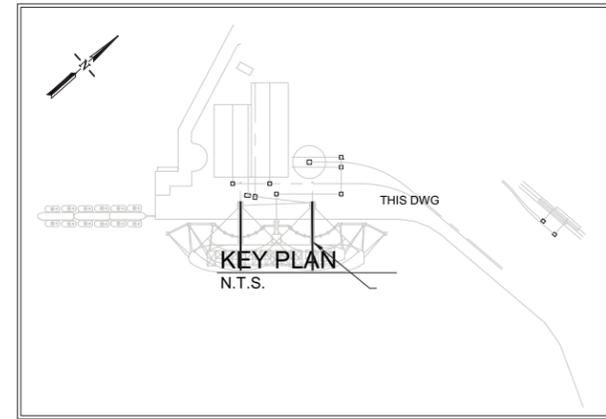
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
COMMODITY A SHIPPING CONVEYOR PROFILES
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE	DRAWING NO.
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SCALE: NOTED						SHEET -- OF --

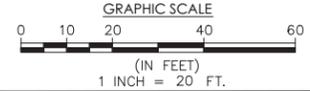
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- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
 - BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
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**DOCK SECTION COMMODITY A
QUADRANT SHIPLoadERS 1 AND 2**
1" = 20'

DRAFT



OAKLAND GLOBAL

 "one vision, one team, one project"

HDR
 WALNUT CREEK, CA 94596
 BELLEVUE, WA 98004
 JOB NO. 254612
 DRAWN BY: JAP
 CHECKED BY: -

ORBOT
 OAKLAND BULK AND OVERSIZE TERMINAL

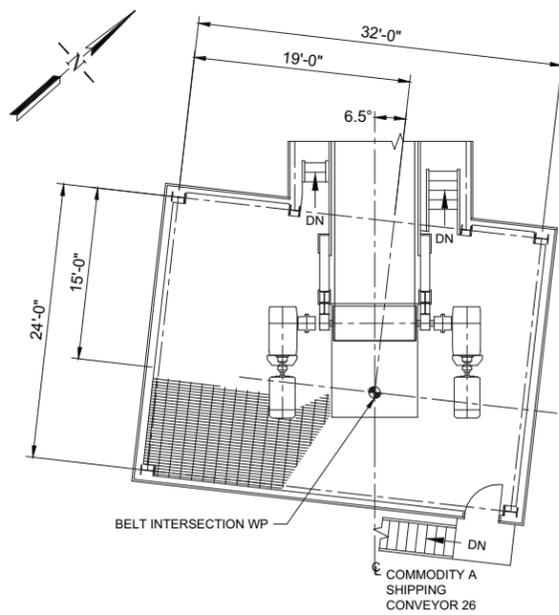
TLS
 TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
 COMMODITY A SHIPPING DOCK SECTION
 OAKLAND BULK AND OVERSIZE TERMINAL
 CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

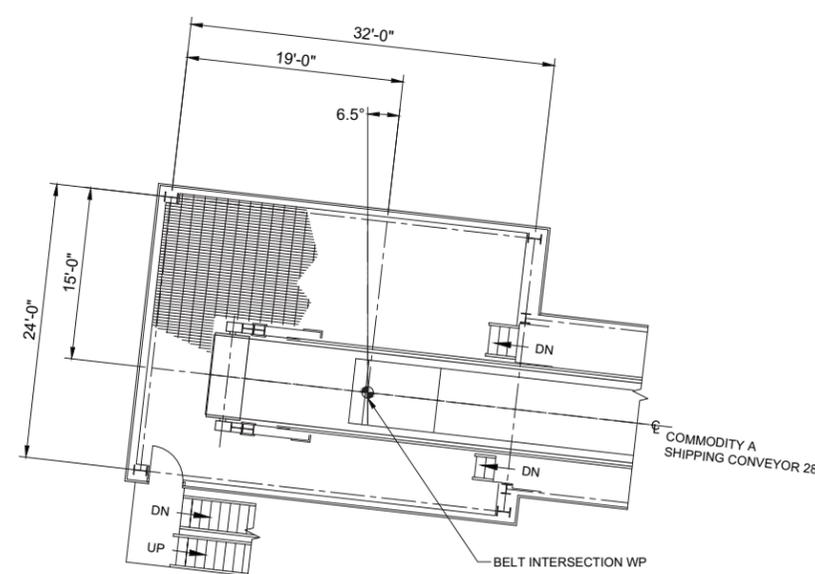
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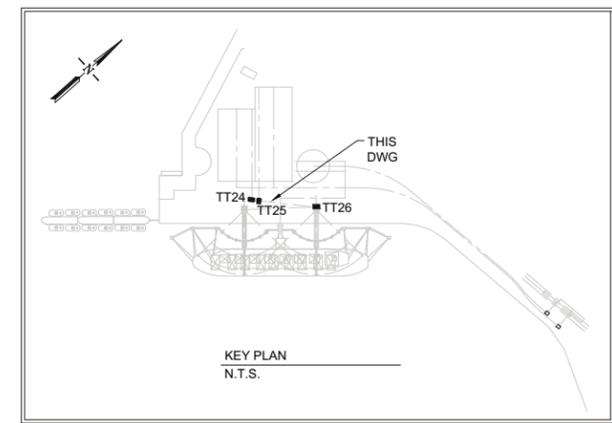
COMMODITY A SHIPPING TT24
PLAN AT T/STL 44'-3"

1/8"=1'-0"

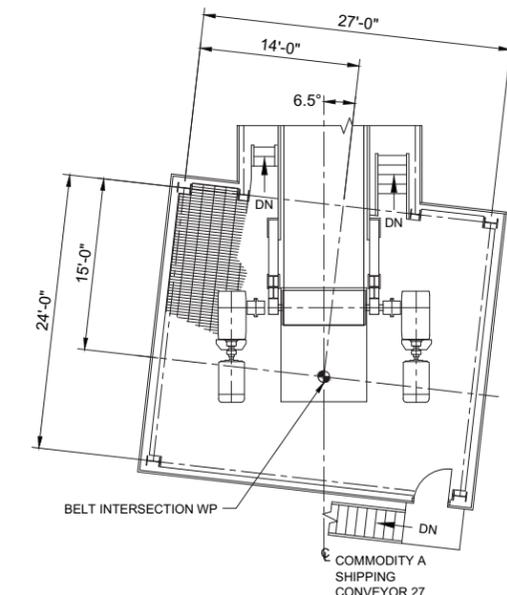


COMMODITY A SHIPPING TT24
PLAN AT T/STL 23'-6"

1/8"=1'-0"

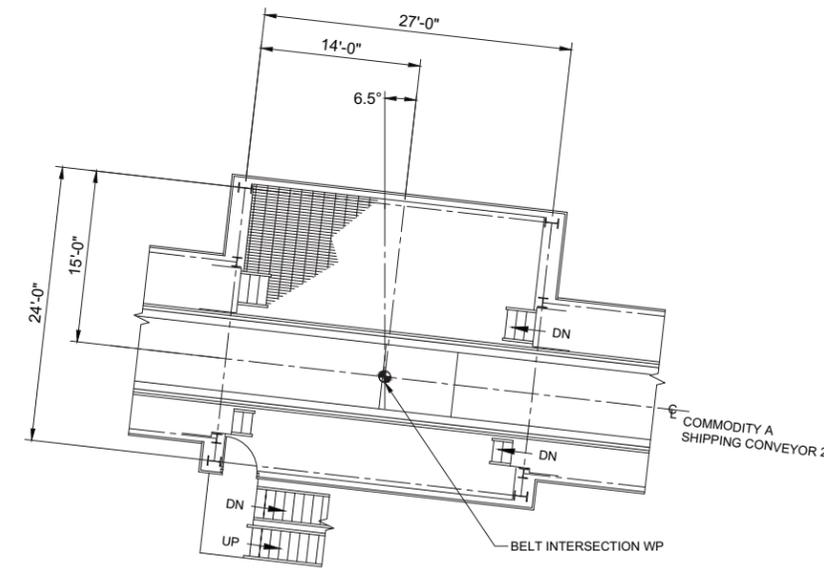


KEY PLAN
N.T.S.



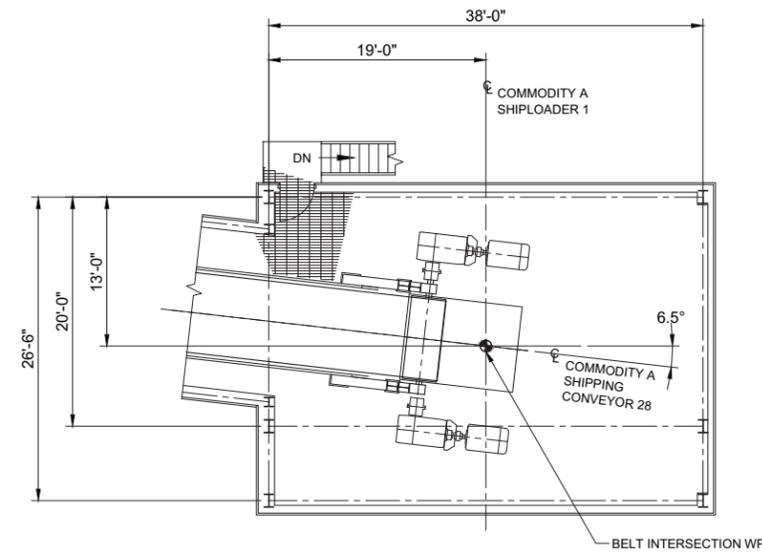
COMMODITY A SHIPPING TT25
PLAN AT T/STL 52'-6"

1/8"=1'-0"



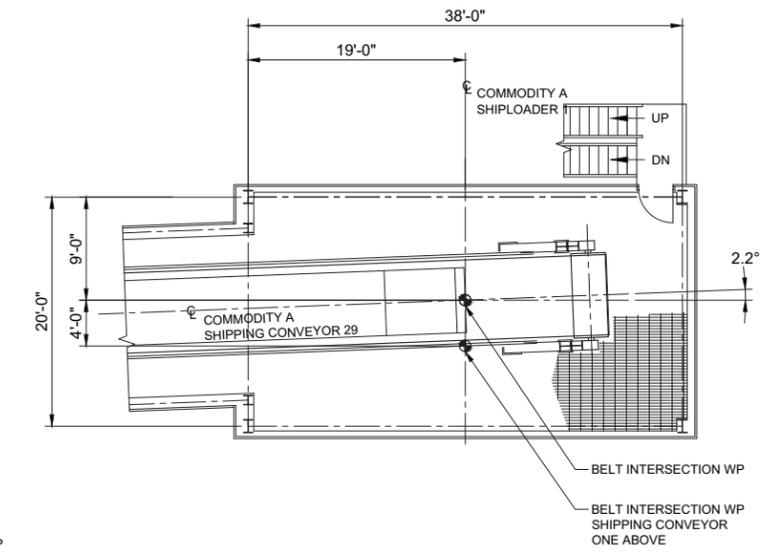
COMMODITY A SHIPPING TT25
PLAN AT T/STL 30'-0"

1/8"=1'-0"



COMMODITY A SHIPPING TT26
PLAN AT T/STL 93'-0"

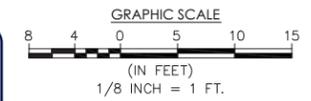
1/8"=1'-0"



COMMODITY A SHIPPING TT26
PLAN AT T/STL 70'-0"

1/8"=1'-0"

- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
 - BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
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DRAFT

OAKLAND GLOBAL

"one vision, one team, one project"

HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAP
CHECKED BY: -

ROBOT
OAKLAND BULK AND OVERSIZED TERMINAL

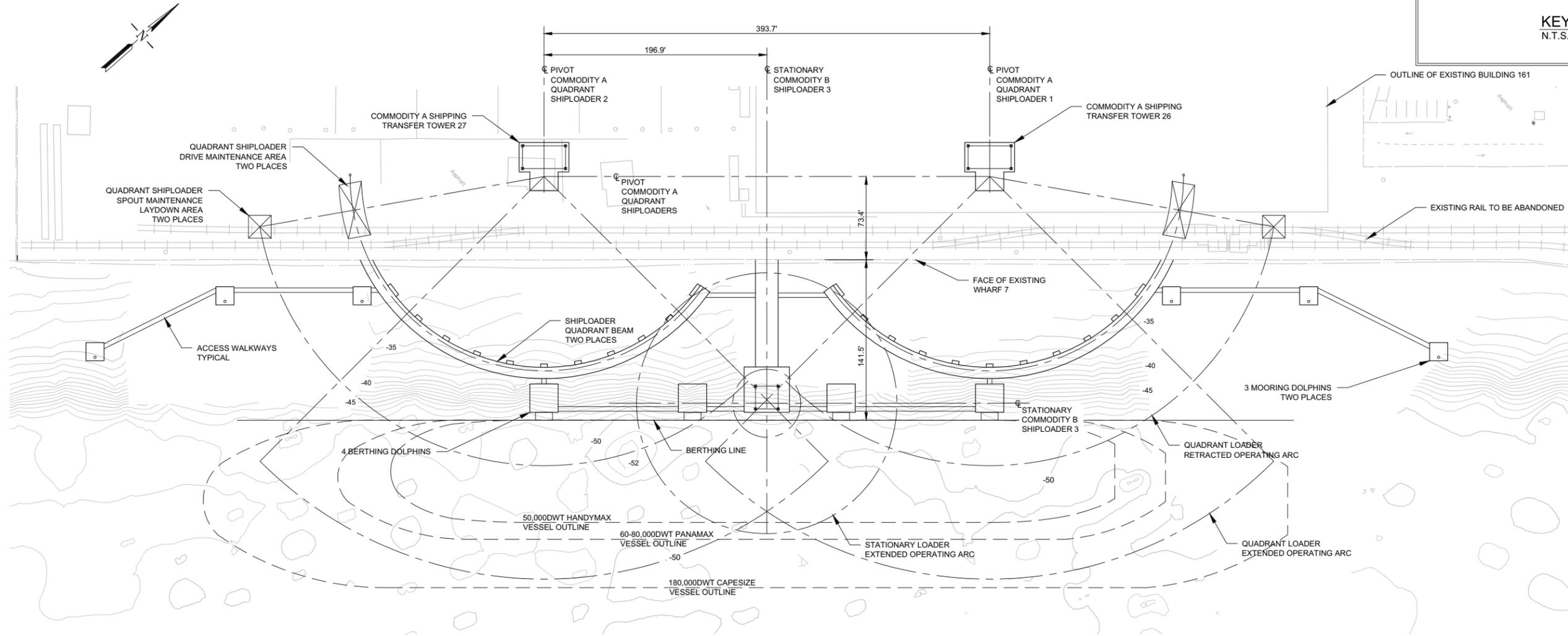
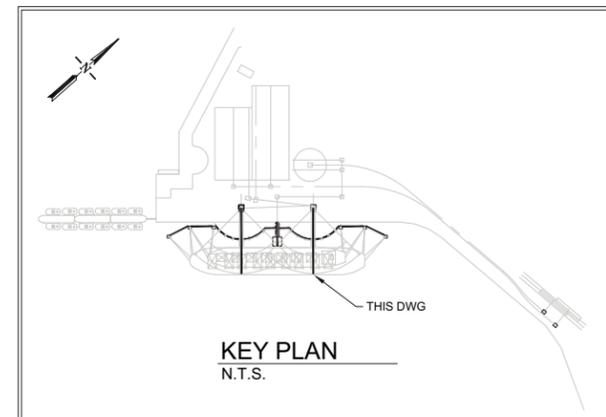
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
COMMODITY A SHIPPING TRANSFER TOWERS
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA CAPITAL & INVESTMENT GROUP

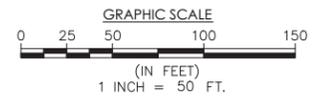
REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE	DRAWING NO.
△	07/17/2015	ISSUED AT 10% ENGINEERING			04/03/2015	BMH-165
					SCALE:	NOTED
					SHEET	OF

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 Jul 27, 2015 - 3:38pm, Plotted By: jasper
 C:\working\acc\0669935\CCG_BMH_165.dwg



DOCK PLAN
SHIPLOADERS 1, 2 AND 3
1" = 50'

- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
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BELLEVUE, WA 98004

JOB NO.	254612
DRAWN BY:	JAP
CHECKED BY:	-

HDR

ROBOT
OAKLAND BULK AND OVERSIZED TERMINAL

TLS
TERMINAL LOGISTICS SOLUTIONS

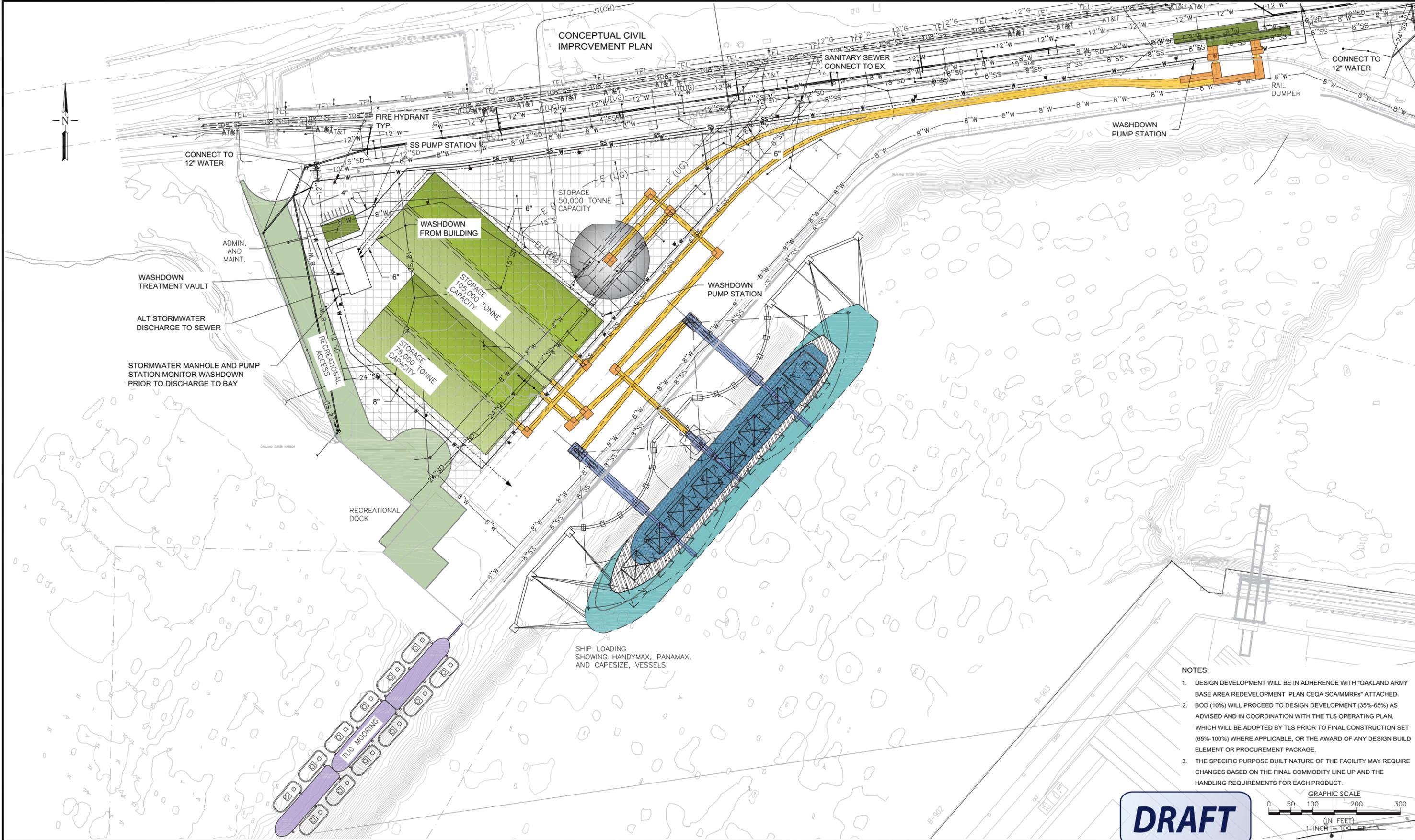
PROJECT INFO.
SHIPLOADER DOCK PLAN
OAKLAND BULK AND OVERSIZED TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



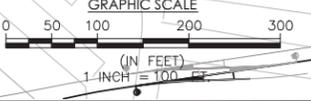
CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE	DRAWING NO.
07/17/2015	ISSUED AT 10% ENGINEERING	-	-	-	04/03/2015	BMH-170
					SCALE:	1" = 50'-0"
					SHEET	OF

C:\working\acc\0669935\CCG_BMH_170.dwg, 170.dwg, 170, 7/27/2015 3:36:37 PM, jasper
 Jul 27, 2015 - 3:36pm, Plotted By: jasper
 C:\working\acc\0669935\CCG_BMH_170.dwg



- NOTES:
1. DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCAMMRPs" ATTACHED.
 2. BOD (10%) WILL PROCEED TO DESIGN DEVELOPMENT (35%-65%) AS ADVISED AND IN COORDINATION WITH THE TLS OPERATING PLAN, WHICH WILL BE ADOPTED BY TLS PRIOR TO FINAL CONSTRUCTION SET (65%-100%) WHERE APPLICABLE, OR THE AWARD OF ANY DESIGN BUILD ELEMENT OR PROCUREMENT PACKAGE.
 3. THE SPECIFIC PURPOSE BUILT NATURE OF THE FACILITY MAY REQUIRE CHANGES BASED ON THE FINAL COMMODITY LINE UP AND THE HANDLING REQUIREMENTS FOR EACH PRODUCT.



DRAFT

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HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO.	254612
DRAWN BY:	AVY
CHECKED BY:	-

HDR

ROBOT
OAKLAND BULK AND OVERSIZE TERMINAL

TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.

CONCEPTUAL CIVIL SITE PLAN
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

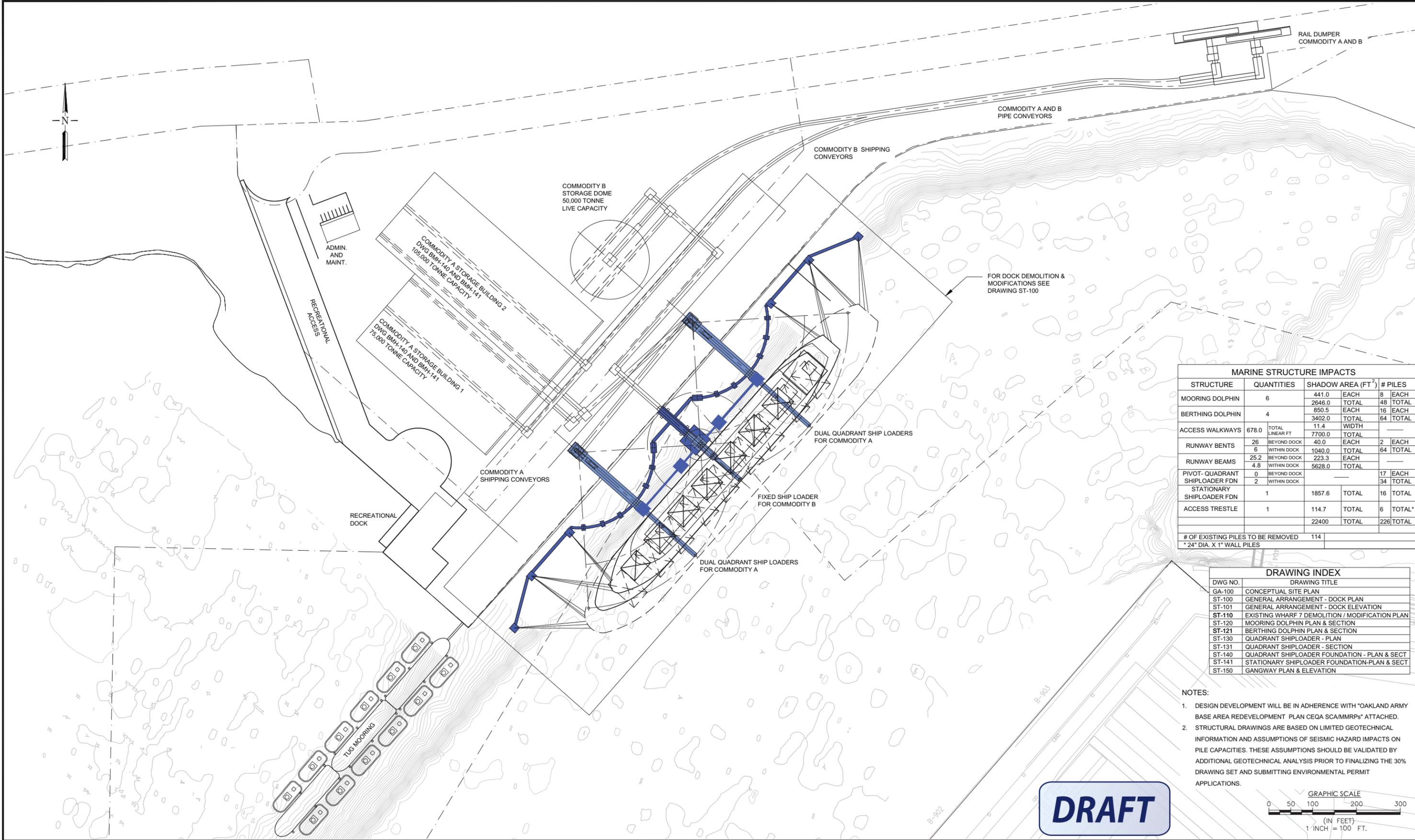


CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE
▲	07/17/2015	ISSUED AT 10% ENGINEERING	-	-	04/03/2015

DRAWING NO. GC-100
SHEET 1 OF 1
SCALE: 1" = 100'-0"

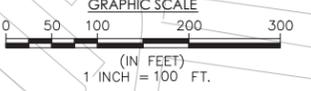
Jul 27, 2015 - 3:56pm, Plotted By: jasperter
 C:\working\loc\0669940 GC-100.dwg



MARINE STRUCTURE IMPACTS				
STRUCTURE	QUANTITIES	SHADOW AREA (FT ²)	# PILES	
MOORING DOLPHIN	6	441.0	EACH	8
		2646.0	TOTAL	48
BERTHING DOLPHIN	4	850.5	EACH	16
		3402.0	TOTAL	64
ACCESS WALKWAYS	678.0	TOTAL	11.4	WIDTH
		7700.0	TOTAL	
RUNWAY BENTS	26	BEYOND DOCK	40.0	EACH
		WITHIN DOCK	1040.0	TOTAL
RUNWAY BEAMS	4.8	BEYOND DOCK	223.3	EACH
		WITHIN DOCK	5628.0	TOTAL
PIVOT-QUADRANT SHIPLOADER FDN	2	BEYOND DOCK		17
		WITHIN DOCK		34
STATIONARY SHIPLOADER FDN	1	1857.6	TOTAL	16
			TOTAL	6
ACCESS TRESTLE	1	114.7	TOTAL	6
		22400	TOTAL	226
# OF EXISTING PILES TO BE REMOVED		114		
* 24" DIA. X 1" WALL PILES				

DRAWING INDEX	
DWG NO.	DRAWING TITLE
GA-100	CONCEPTUAL SITE PLAN
ST-100	GENERAL ARRANGEMENT - DOCK PLAN
ST-101	GENERAL ARRANGEMENT - DOCK ELEVATION
ST-110	EXISTING WHARF 7 DEMOLITION / MODIFICATION PLAN
ST-120	MOORING DOLPHIN PLAN & SECTION
ST-121	BERTHING DOLPHIN PLAN & SECTION
ST-130	QUADRANT SHIPLOADER - PLAN
ST-131	QUADRANT SHIPLOADER - SECTION
ST-140	QUADRANT SHIPLOADER FOUNDATION - PLAN & SECT
ST-141	STATIONARY SHIPLOADER FOUNDATION-PLAN & SECT
ST-150	GANGWAY PLAN & ELEVATION

- NOTES:
- DESIGN DEVELOPMENT WILL BE IN ADHERENCE WITH "OAKLAND ARMY BASE AREA REDEVELOPMENT PLAN CEQA SCA/MMRPs" ATTACHED.
 - STRUCTURAL DRAWINGS ARE BASED ON LIMITED GEOTECHNICAL INFORMATION AND ASSUMPTIONS OF SEISMIC HAZARD IMPACTS ON PILE CAPACITIES. THESE ASSUMPTIONS SHOULD BE VALIDATED BY ADDITIONAL GEOTECHNICAL ANALYSIS PRIOR TO FINALIZING THE 30% DRAWING SET AND SUBMITTING ENVIRONMENTAL PERMIT APPLICATIONS.



DRAFT

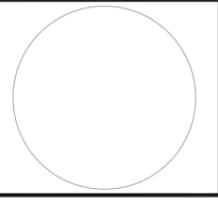
Aug 12, 2015 - 4:52pm, Plotted By: jwofe
C:\working\loc_d066943\CCG-GA-100.dwg

OAKLAND GLOBAL

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HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAW
CHECKED BY: CAG



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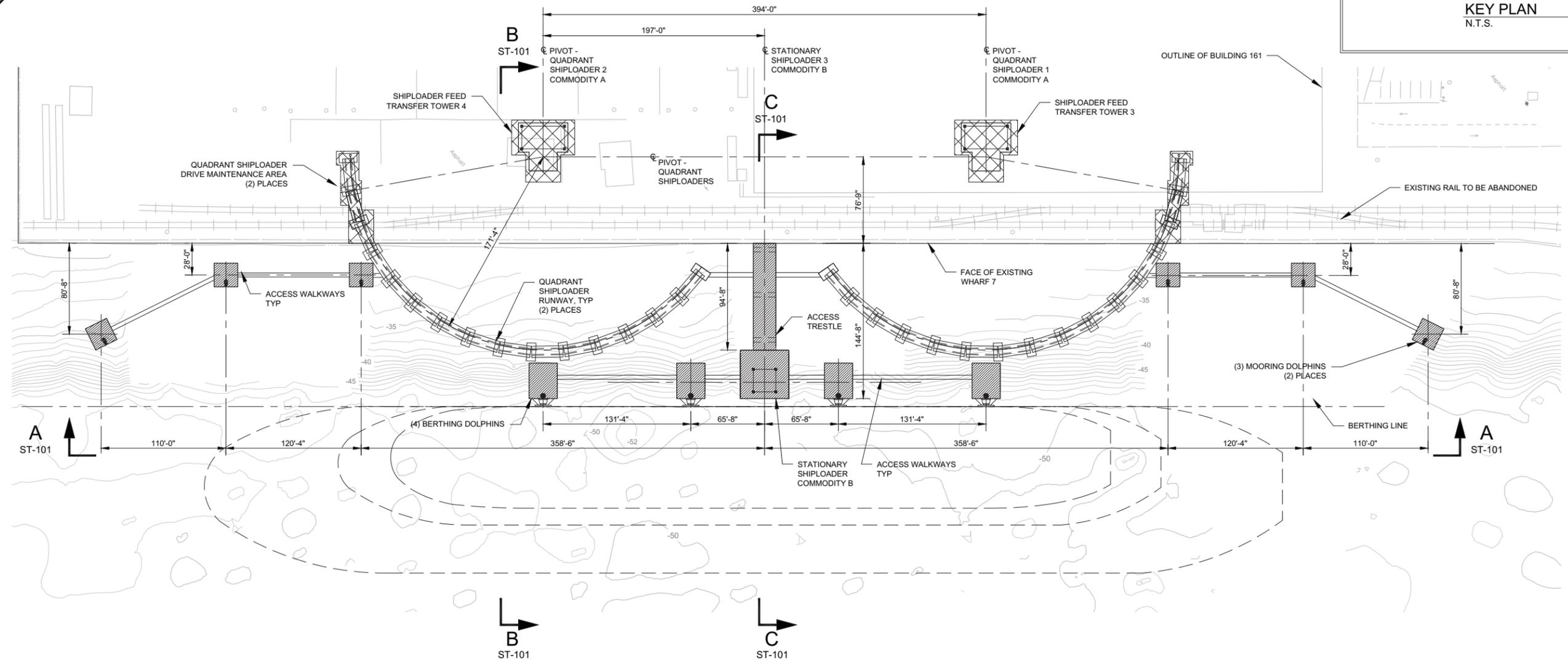
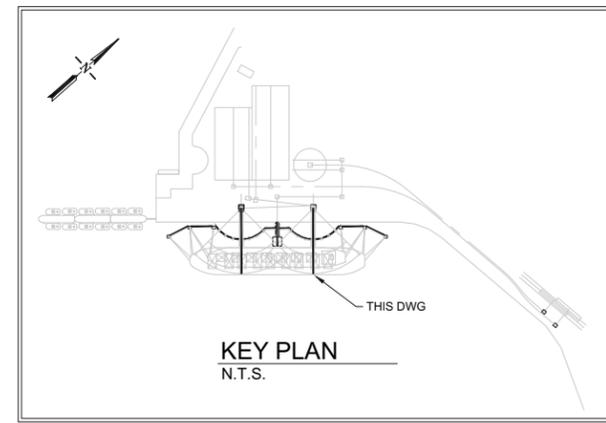
PROJECT INFO.
CONCEPTUAL SITE PLAN
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



CALIFORNIA
CAPITAL & INVESTMENT
GROUP

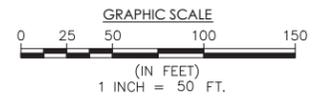
REV	DATE	COMMENT	CHECKED BY	DATE
1	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG	04/03/2015

DRAWING NO.
GA-100
SHEET 1 OF 11
SCALE: 1" = 100'-0"



NEW BERTH PLAN
1" = 50'-0"

DRAFT



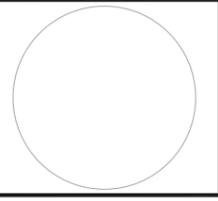
Aug 12, 2015 - 3:50pm, Plotted By: jwofe
C:\working\acc_d066943\CCG-ST-100.dwg

OAKLAND GLOBAL

PORT OF OAKLAND
CITY OF OAKLAND
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HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO.	254612
DRAWN BY:	JAW
CHECKED BY:	CAG



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TERMINAL LOGISTICS SOLUTIONS

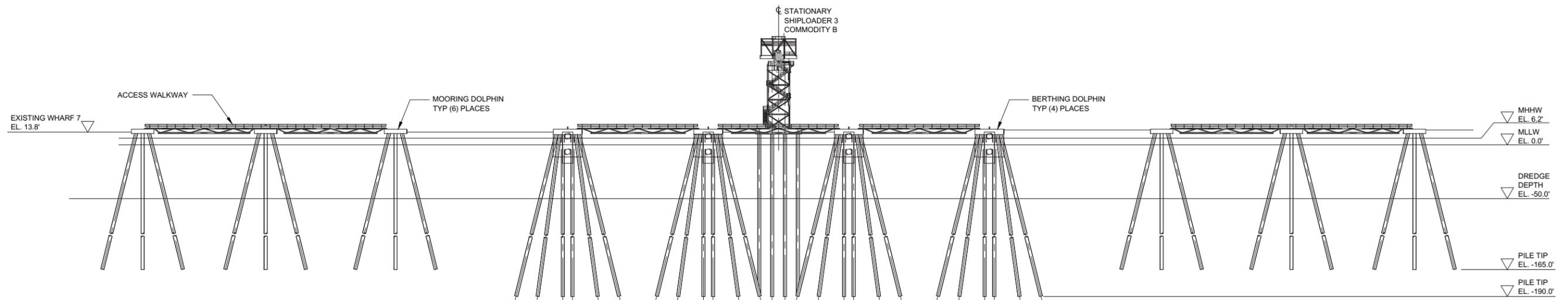
PROJECT INFO.
SHIPLOADER DOCK PLAN
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



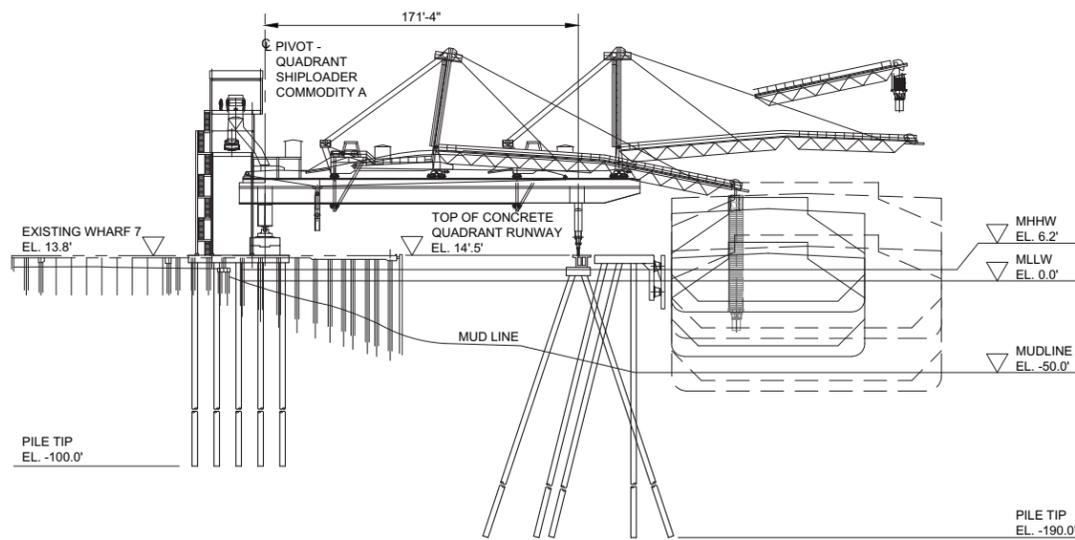
CALIFORNIA
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REV	DATE	COMMENT	CHECKED BY	DATE
△	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG	

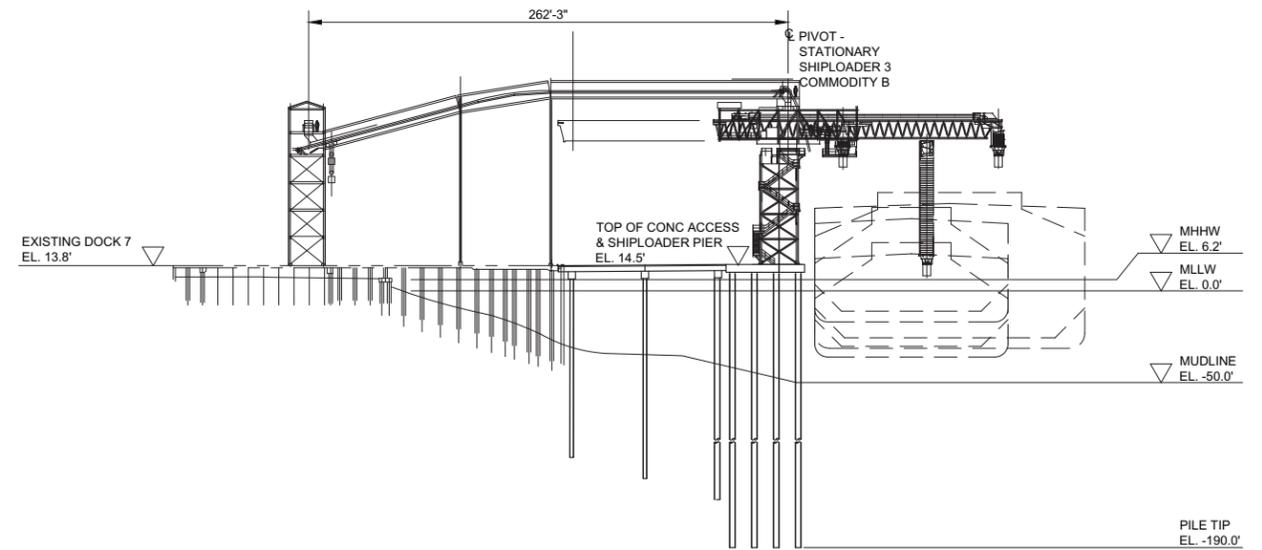
DRAWING NO.
ST-100
SHEET 2 OF 11
SCALE: 1" = 50'-0"
DATE: 04/03/2015



DOCK SECTION A-A
1" = 50'-0"

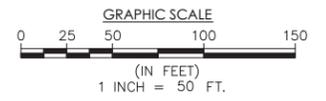


DOCK SECTION AT COMMODITY A SHIPLOADER 1 & 2 SECTION B-B
1" = 50'-0"



DOCK SECTION AT COMMODITY B SHIPLOADER 3 SECTION C-C
1" = 50'-0"

DRAFT



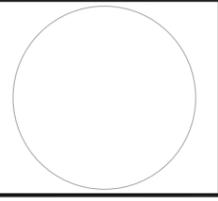
Aug 12, 2015 - 4:13pm, Plotted By: jlwife
C:\working\acc_d066943\CCG-ST-101.dwg

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WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
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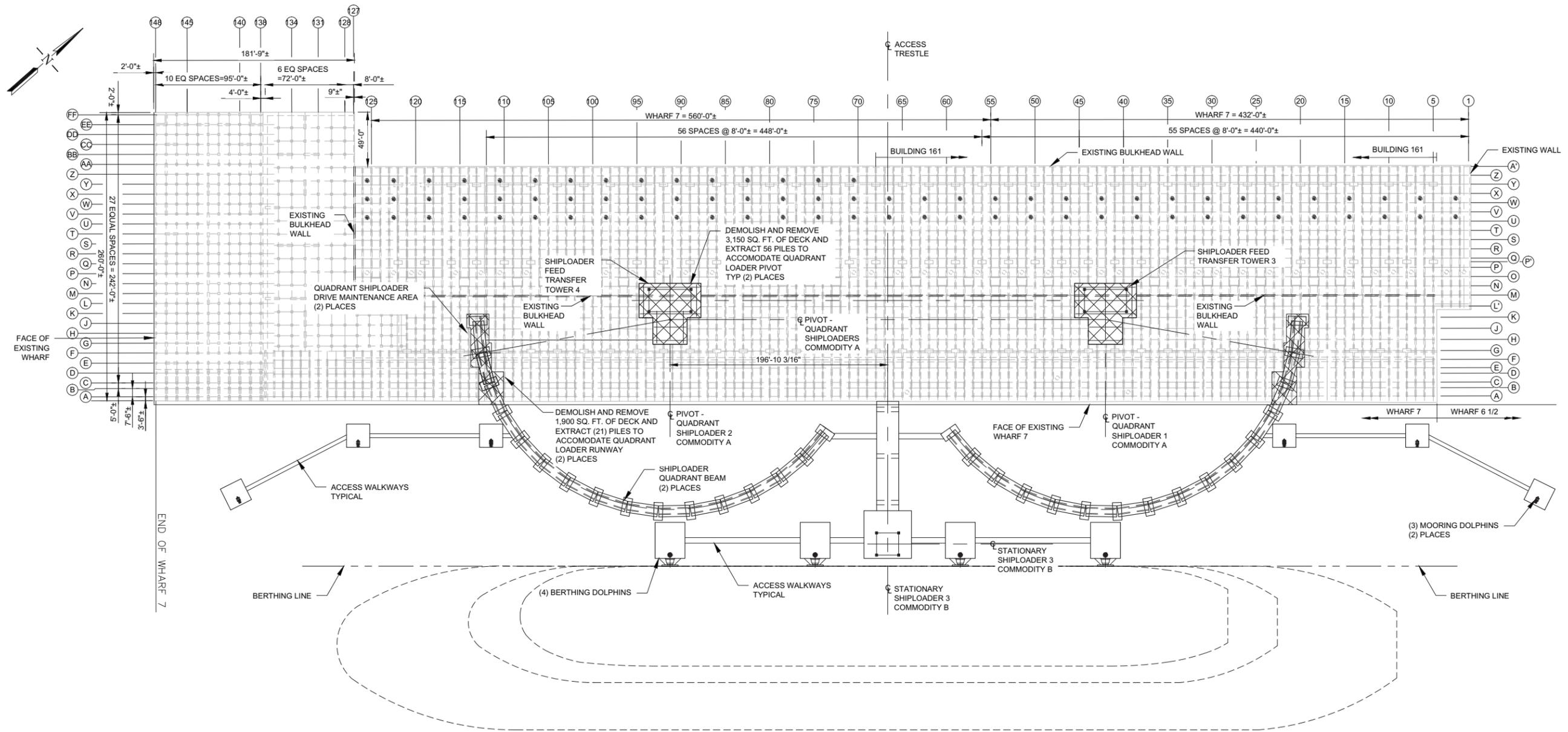
PROJECT INFO.
SHIPLOADER DOCK PLAN
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



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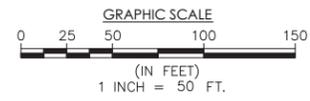
REV	DATE	COMMENT	CHECKED BY	DATE
△	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG	04/03/2015

DRAWING NO.
ST-101
SHEET 3 OF 11
SCALE: 1" = 50'-0"



EXISTING WHARF DEMO/MODIFICATION PLAN
1" = 50'-0"

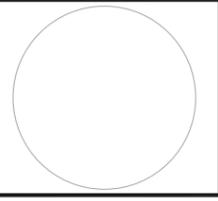
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Aug 12, 2015 - 4:54pm, Plotted By: jwoife
C:\working\acc_d066943\CCG-ST-110.dwg

OAKLAND GLOBAL
PORT OF OAKLAND
CALIFORNIA CAPITAL & INVESTMENT GROUP
CITY OF OAKLAND
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HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004
JOB NO. 254612
DRAWN BY: JAW
CHECKED BY: CAG



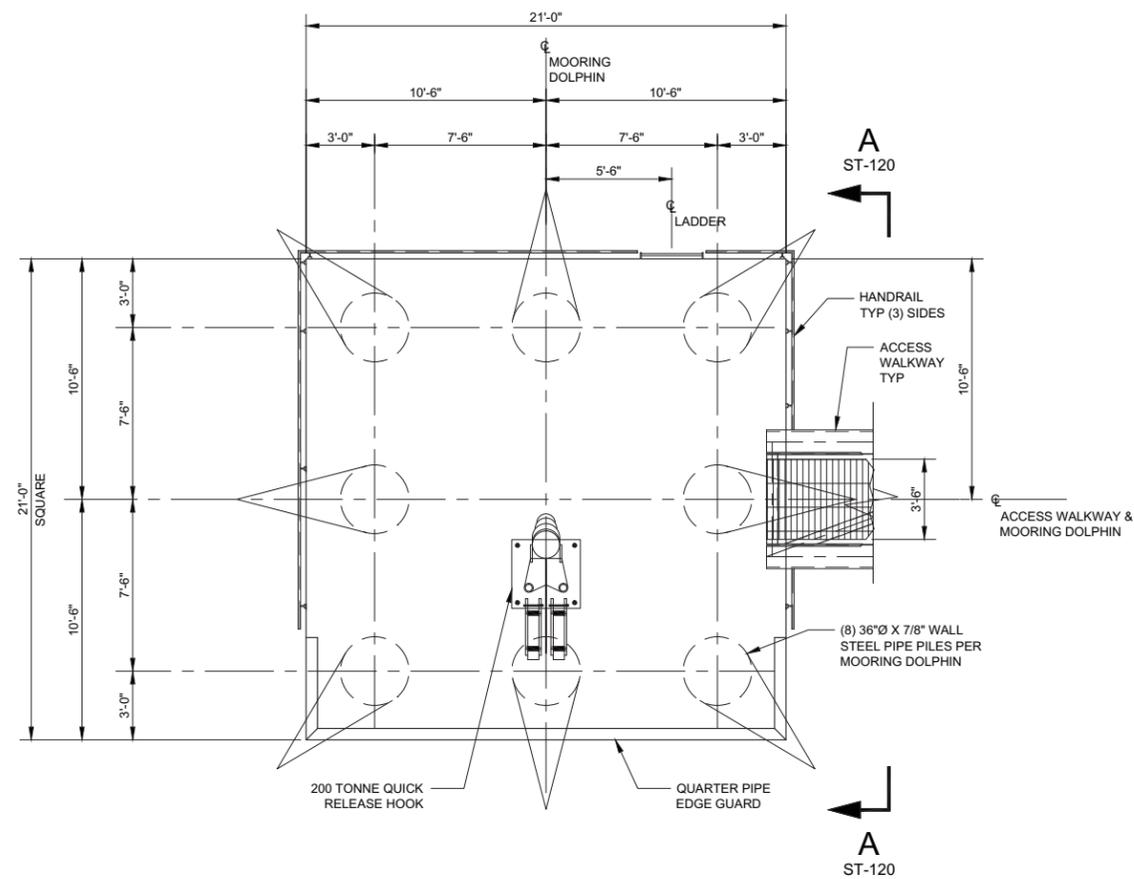
TLS
TERMINAL LOGISTICS SOLUTIONS

PROJECT INFO.
EXISTING WHARF DEMO/MODIFICATION PLAN
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

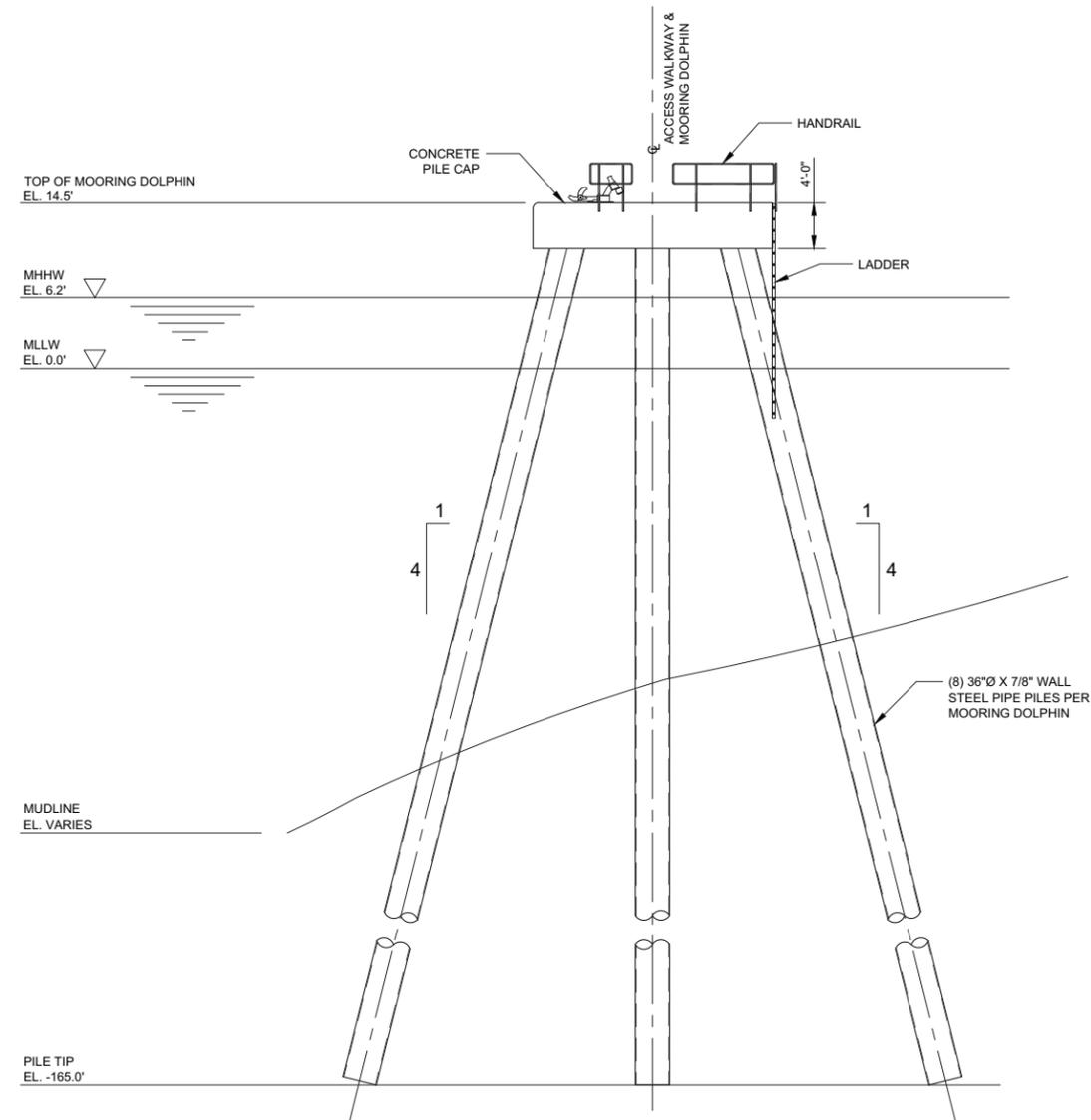
CALIFORNIA CAPITAL & INVESTMENT GROUP

REV	DATE	COMMENT	CHECKED BY	DATE
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DRAWING NO.
ST-110
SHEET 4 OF 11
SCALE: 1" = 50'-0"

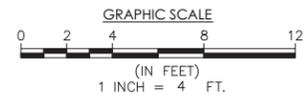


MOORING DOLPHIN PLAN
1/4" = 1'-0" TYP (6) PLACES



MOORING DOLPHIN SECTION SECTION A-A
1/8" = 1'-0"

DRAFT



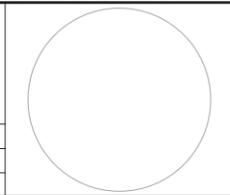
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OAKLAND GLOBAL

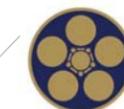
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HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAW
CHECKED BY: CAG

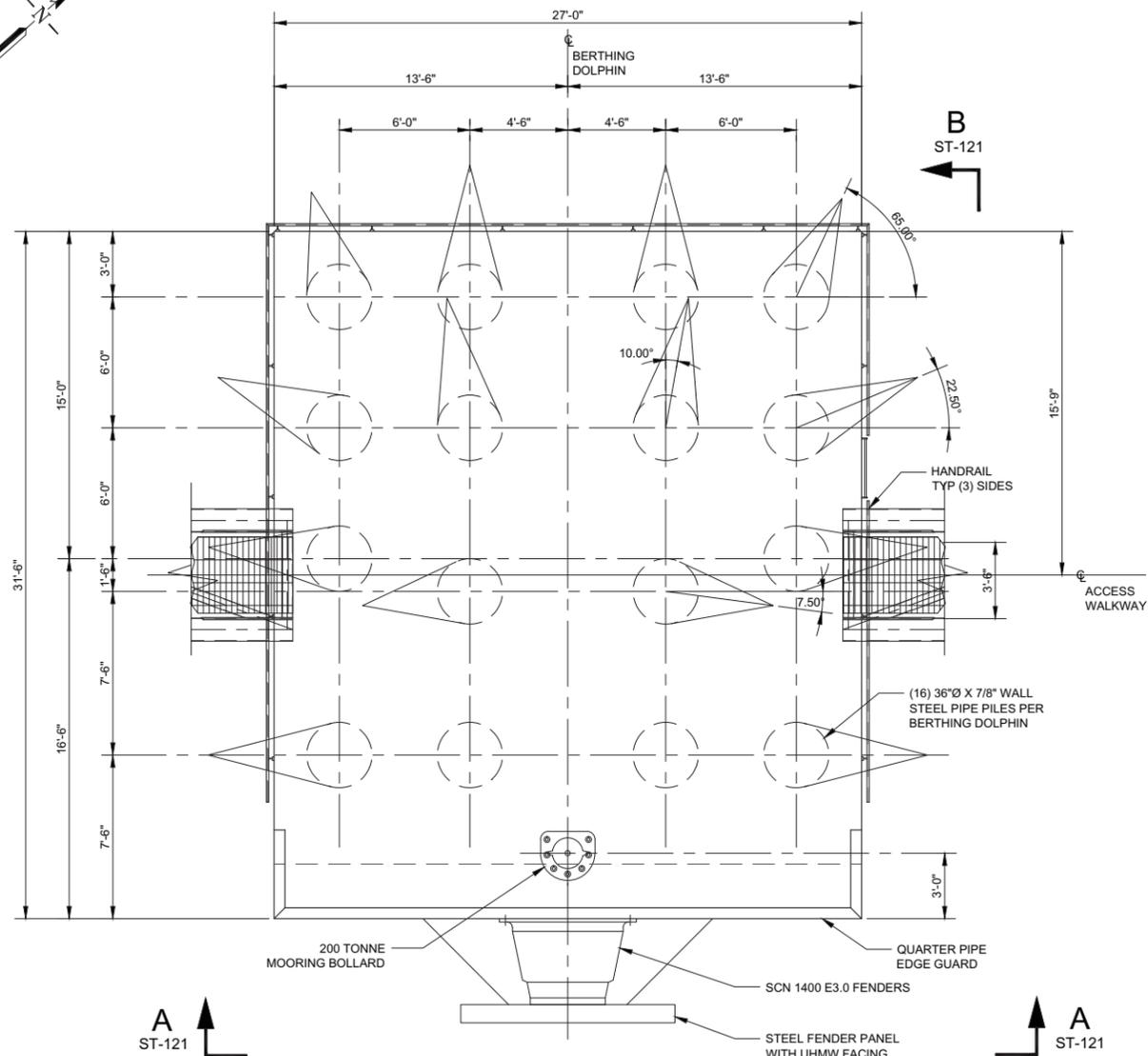


PROJECT INFO.
MOORING DOLPHIN PLAN & SECTION
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

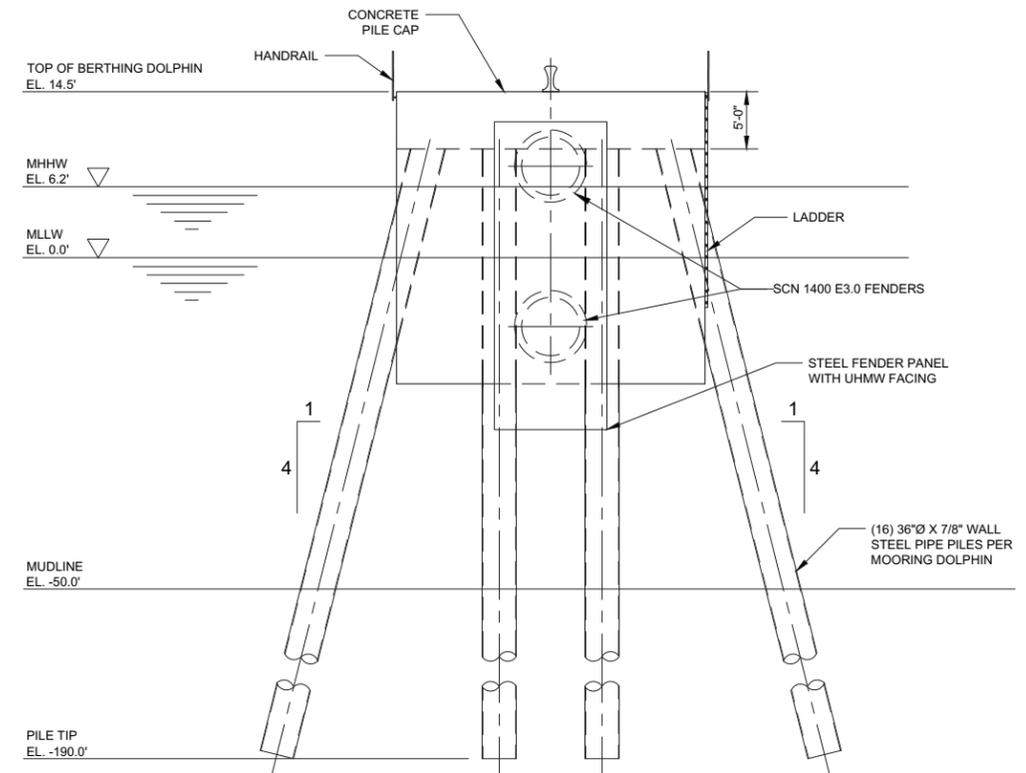


CALIFORNIA
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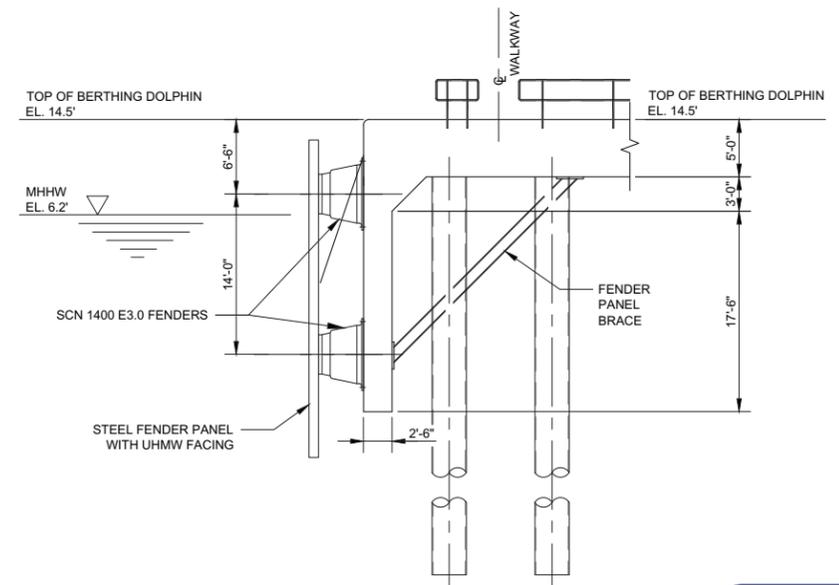
DRAWING NO.		ST-120	
SHEET 5 OF 11		SCALE: 1/4" = 1'-0"	
REV	DATE	COMMENT	CHECKED BY: C.O.O. DATE: 04/03/2015
△	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG



BERTHING DOLPHIN PLAN
1/4" = 1'-0" TYP (4) PLACES

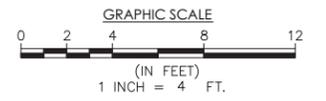


BERTHING DOLPHIN SECTION SECTION A-A
1/8" = 1'-0"



BERTHING DOLPHIN SECTION SECTION B-B
1/8" = 1'-0"

DRAFT



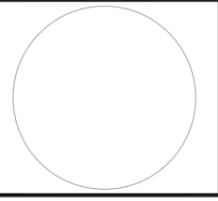
Aug 13, 2015 - 8:49am, Plotted By: jwoife
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OAKLAND GLOBAL

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HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAW
CHECKED BY: CAG



TLS
TERMINAL LOGISTICS SOLUTIONS

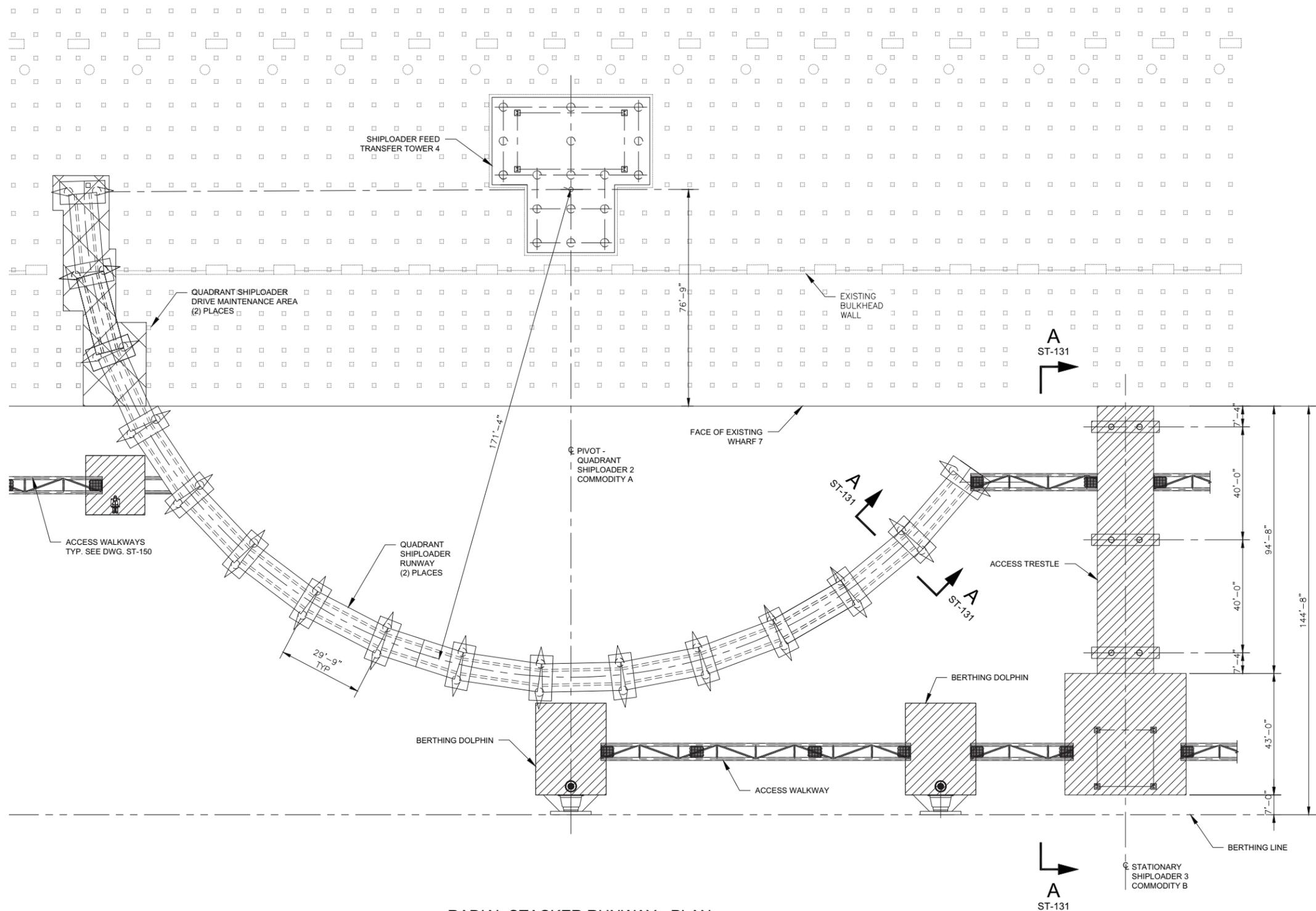
PROJECT INFO.
BERTHING DOLPHIN PLAN & SECTION
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE
△	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG	-	04/03/2015

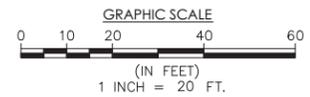
DRAWING NO.
ST-121
SHEET 4 OF 11
SCALE: 1/4" = 1'-0"



RADIAL STACKER RUNWAY - PLAN

1" = 20'-0"

DRAFT



Aug 12, 2015 - 3:43pm, Plotted By: jwoffe
C:\working\acc_d066943\COG-ST-130.dwg

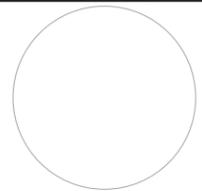
OAKLAND GLOBAL

PORT OF OAKLAND
CALLEGO OAKLAND TERMINAL
CITY OF OAKLAND

"one vision, one team, one project"

HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAW
CHECKED BY: CAG



TLS
TERMINAL LOGISTICS SOLUTIONS

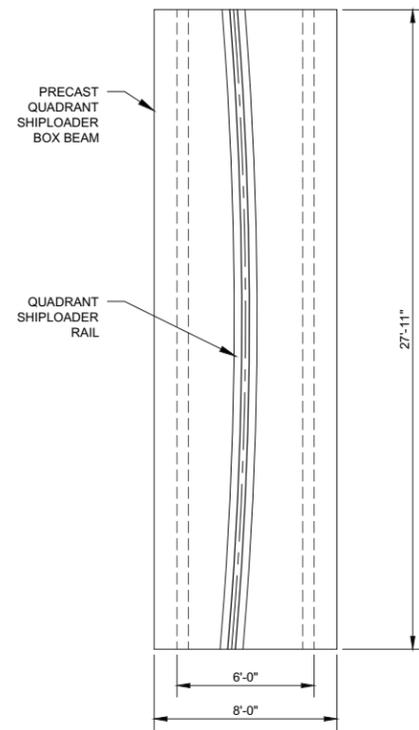
PROJECT INFO.
RADIAL STACKER RUNWAY - PLAN & ELEVATION
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



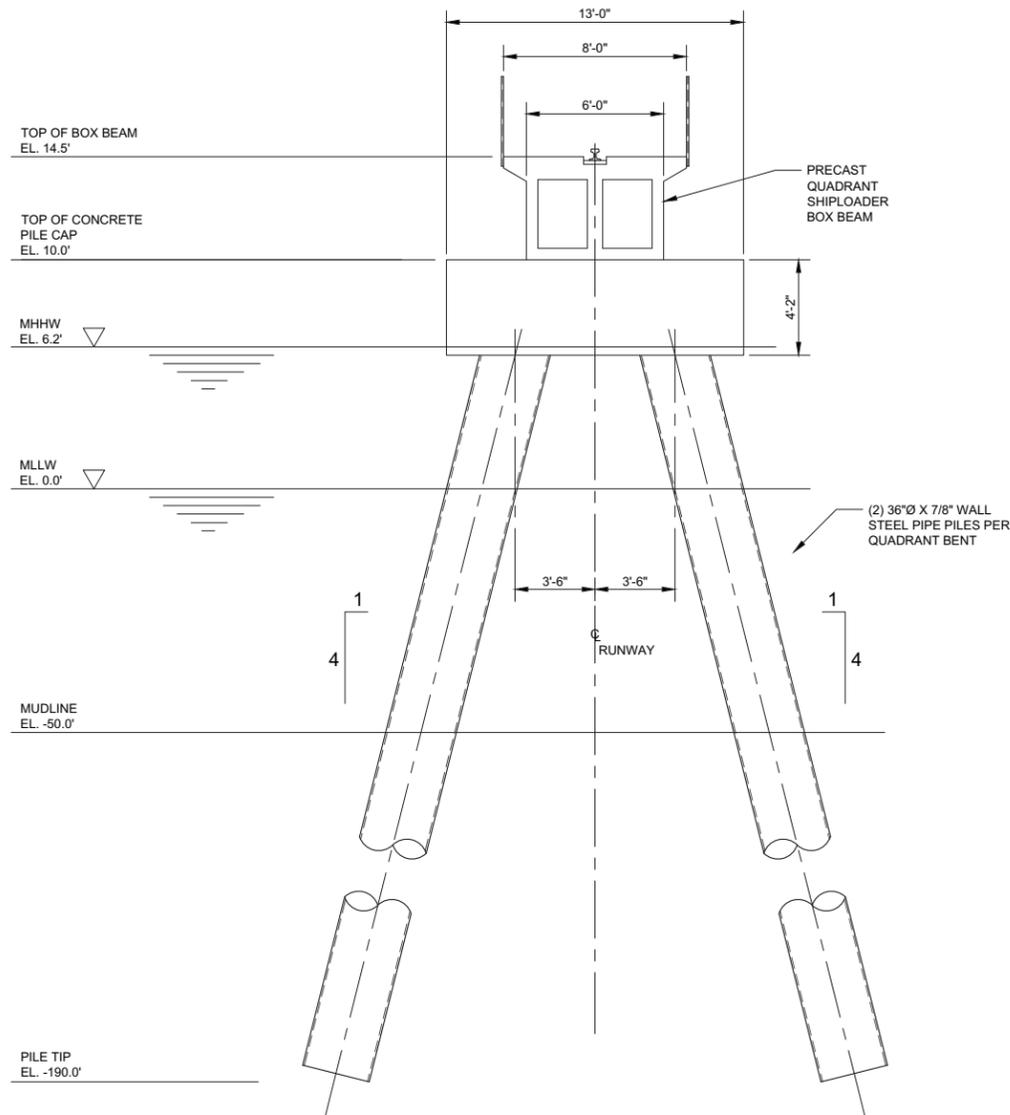
CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE
1	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG		04/03/2015

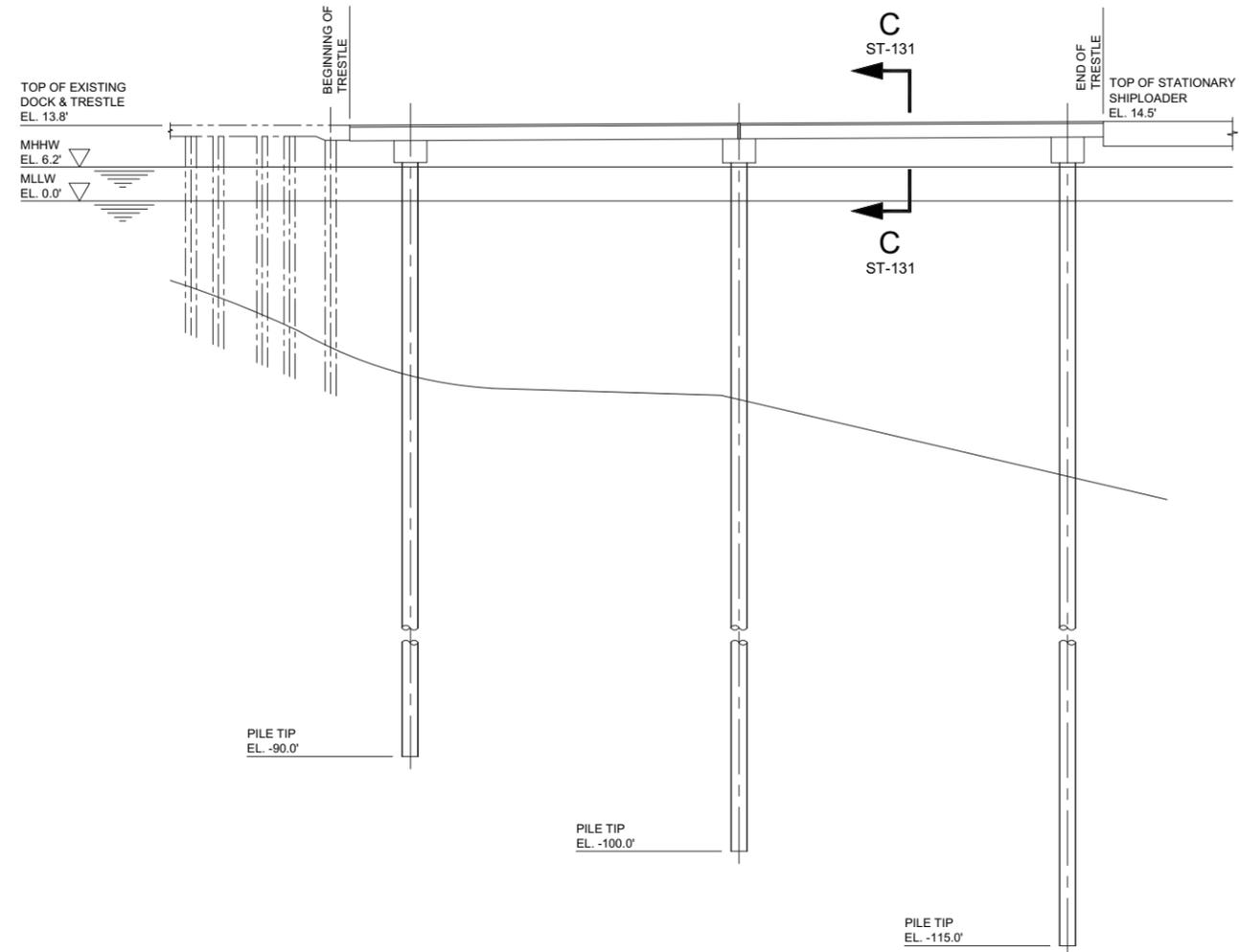
DRAWING NO.
ST-130
SHEET 2 OF 11
SCALE: 1" = 20'-0"



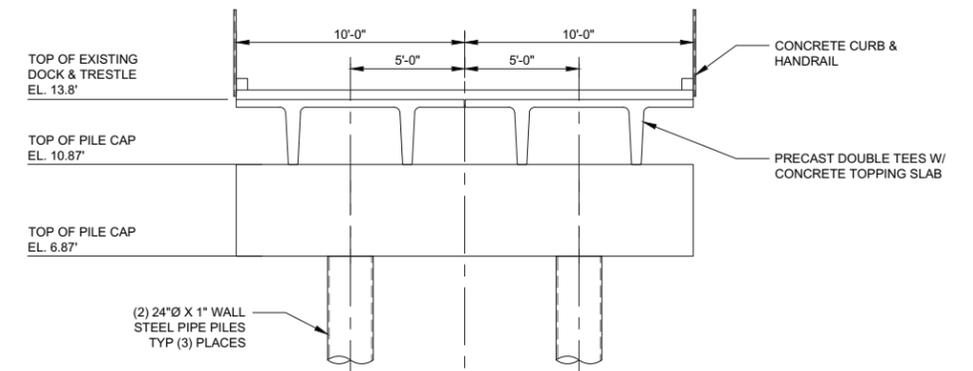
QUADRANT SHIPLoader RUNWAY BEAM PLAN
 1/4" = 1'-0" (15) REQUIRED PER QUADRANT



QUADRANT SHIPLoader RUNWAY SECTION A-A
 1/4" = 1'-0" (16) REQUIRED PER QUADRANT

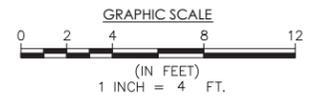


ACCESS TRESTLE SECTION B-B
 1/16" = 1'-0"



ACCESS TRESTLE SECTION C-C
 1/2" = 1'-0"

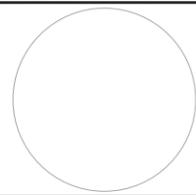
DRAFT



Aug 12, 2015 - 4:17pm, Plotted By: jlwilf



HDR	
WALNUT CREEK, CA 94596 BELLEVUE, WA 98004	
JOB NO.	254612
DRAWN BY:	JAW
CHECKED BY:	CAG

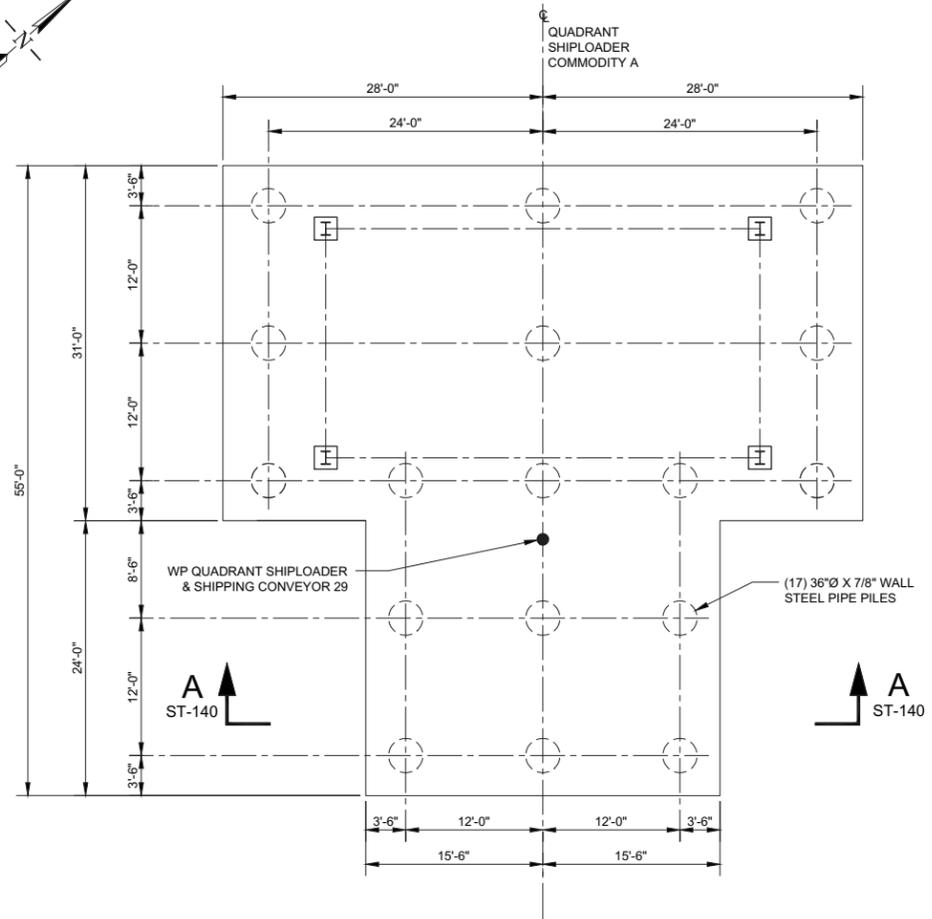


PROJECT INFO.
RADIAL STACKER RUNWAY - PLAN & SECTION
 OAKLAND BULK AND OVERSIZE TERMINAL
 CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

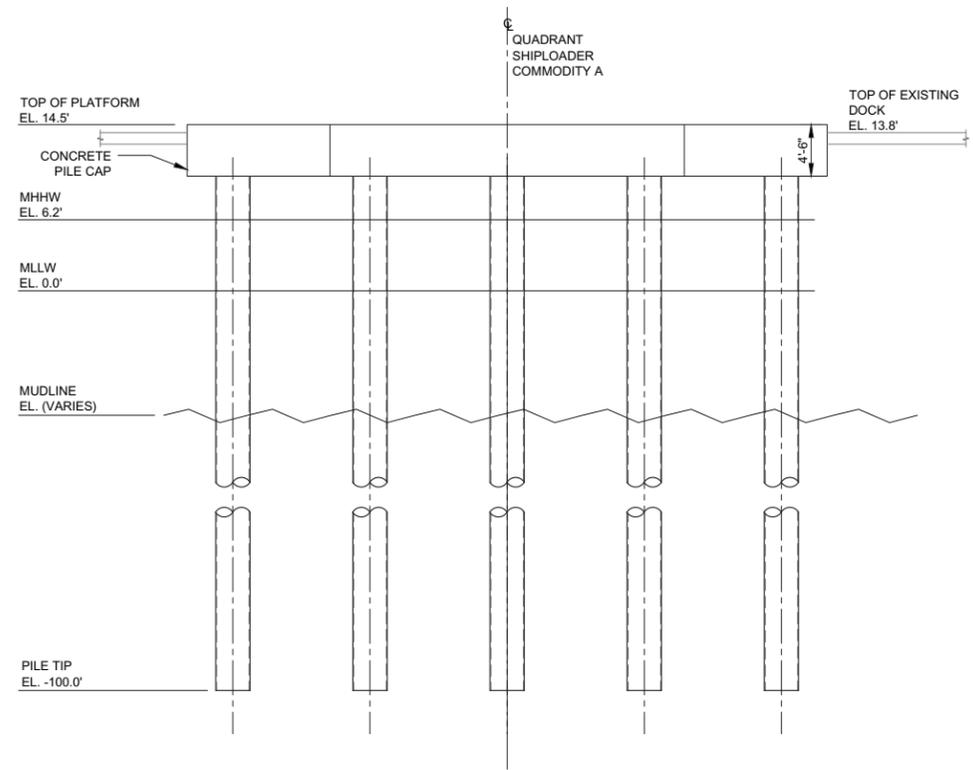


CALIFORNIA
 CAPITAL & INVESTMENT
 GROUP

DRAWING NO.		ST-131	
SHEET 8 OF 11		SCALE: 1/4" = 1'-0"	
REV	DATE	COMMENT	CHECKED BY
Δ	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG
			C.O.O.
			DATE: 04/03/2015

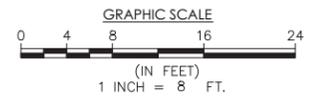


QUADRANT SHIPLOADER
PIVOT SUPPORT PLAN
COMMODITY A
1/8" = 1'-0"



QUADRANT SHIPLOADER
COMMODITY A
SECTION A-A
1/8" = 1'-0"

DRAFT

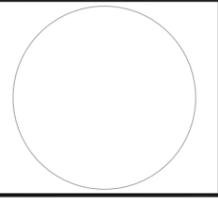


Aug 12, 2015 - 4:16pm, Plotted By: jlwife
C:\working\loc_d066943\CCG-ST-140.dwg

OAKLAND GLOBAL

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HDR	
WALNUT CREEK, CA 94596 BELLEVUE, WA 98004	
JOB NO.	254612
DRAWN BY:	JAW
CHECKED BY:	CAG



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TERMINAL LOGISTICS SOLUTIONS

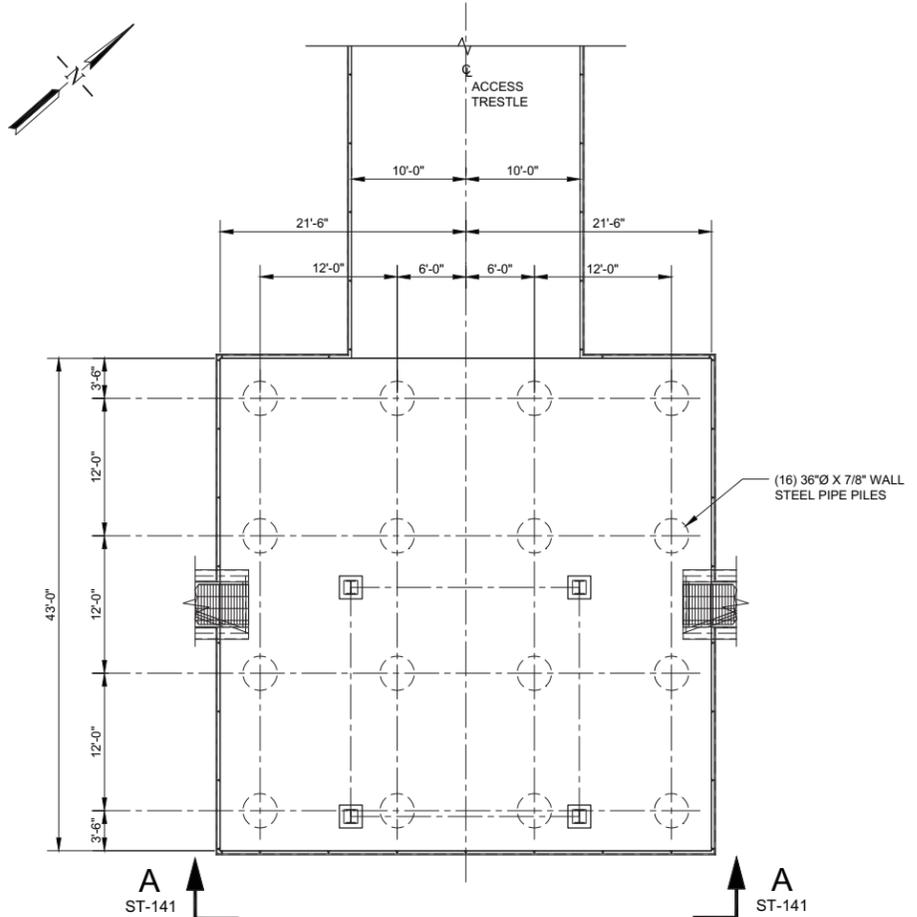
PROJECT INFO.
QUADRANT SHIPLOADER
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



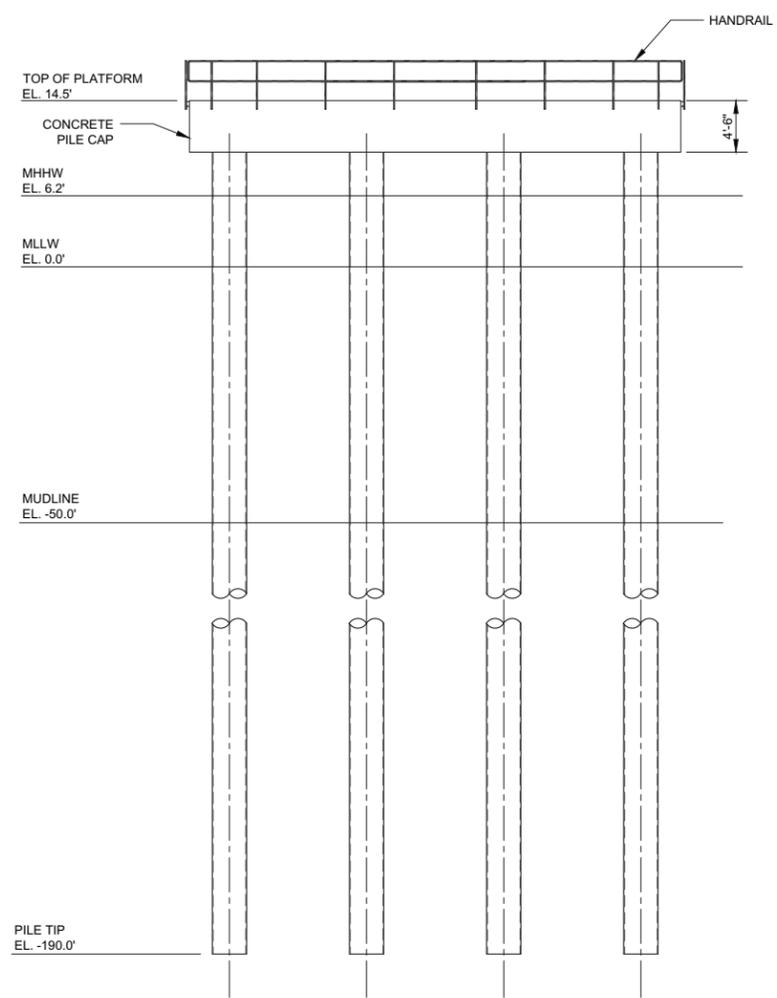
CALIFORNIA
CAPITAL & INVESTMENT
GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE
△	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG	-	04/03/2015

DRAWING NO.
ST-140
SHEET 2 OF 11

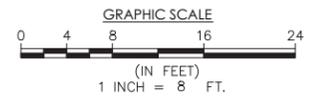


STATIONARY SHIPLOADER
COMMODITY B
1/8" = 1'-0"



STATIONARY SHIPLOADER
COMMODITY B
SECTION A-A
1/8" = 1'-0"

DRAFT

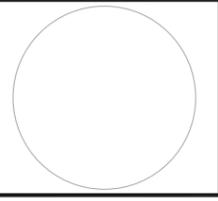


Aug 12, 2015 - 4:16pm, Plotted By: jlwife
C:\working\loc_d066943\CCG-ST-141.dwg

OAKLAND GLOBAL

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HDR	
WALNUT CREEK, CA 94596 BELLEVUE, WA 98004	
JOB NO.	254612
DRAWN BY:	JAW
CHECKED BY:	CAG



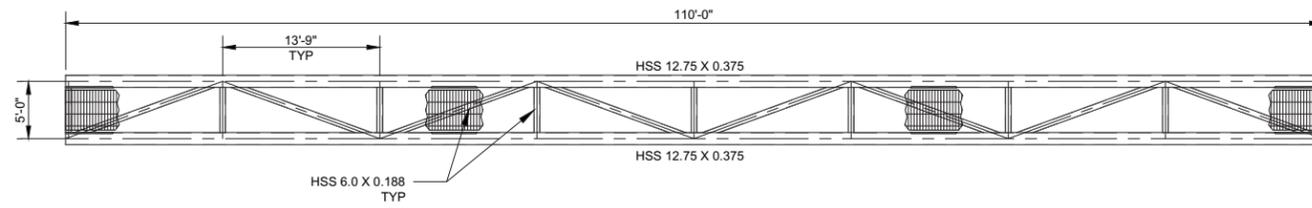
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STATIONARY SHIPLOADER
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA



CALIFORNIA
CAPITAL & INVESTMENT
GROUP

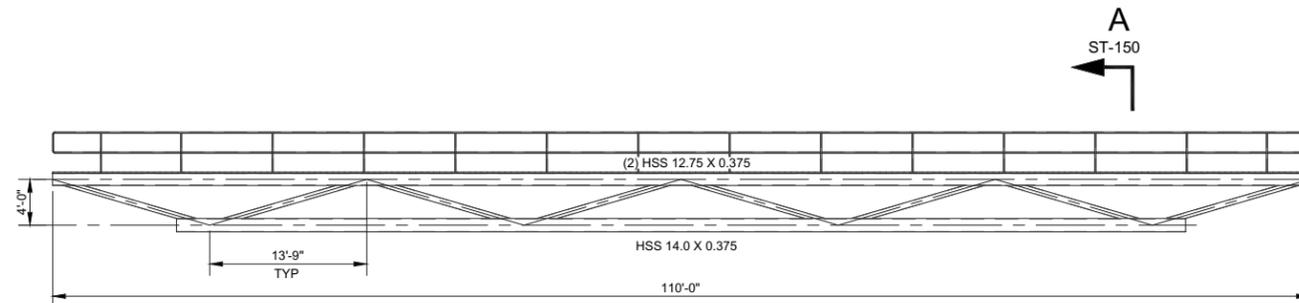
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ST-141
SHEET 10 OF 11
SCALE: 1/8" = 1'-0"



GANGWAY PLAN

1/8" = 1'-0"

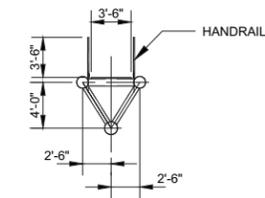


GANGWAY ELEVATION

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A
ST-150

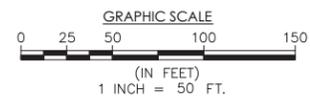
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SECTION A-A

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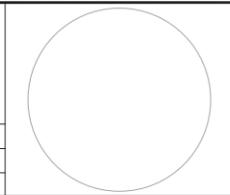
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OAKLAND GLOBAL

one vision, one team, one project

HDR
WALNUT CREEK, CA 94596
BELLEVUE, WA 98004

JOB NO. 254612
DRAWN BY: JAW
CHECKED BY: CAG



PROJECT INFO.
GANGWAY PLAN, ELEVATION & SECTION
OAKLAND BULK AND OVERSIZE TERMINAL
CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

CALIFORNIA
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GROUP

REV	DATE	COMMENT	CHECKED BY	C.O.O.	DATE
△	08/12/2015	ISSUED FOR CLIENT REVIEW	CAG	-	04/03/2015

DRAWING NO.
ST-150
SHEET 11 OF 11
SCALE: 1" = 50'-0"

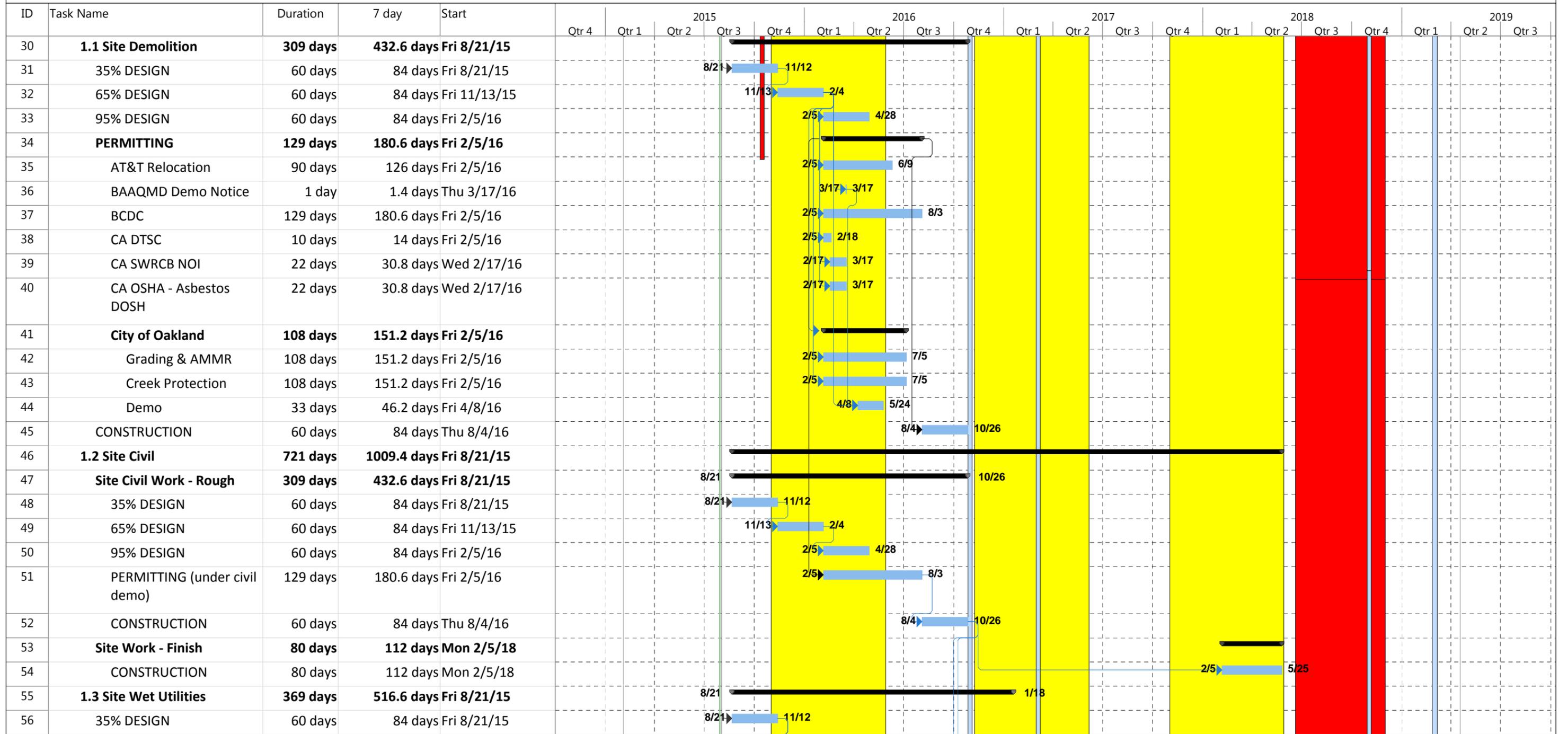
Conceptual Schedule

- A conceptual design and construction schedule based on the conceptual facility has been included to illustrate the time to deliver the TLS facility.

NOTE: This schedule is based on estimated task durations for the conceptual program

Terminal Logistics Solution

Data Date: 7/21/15



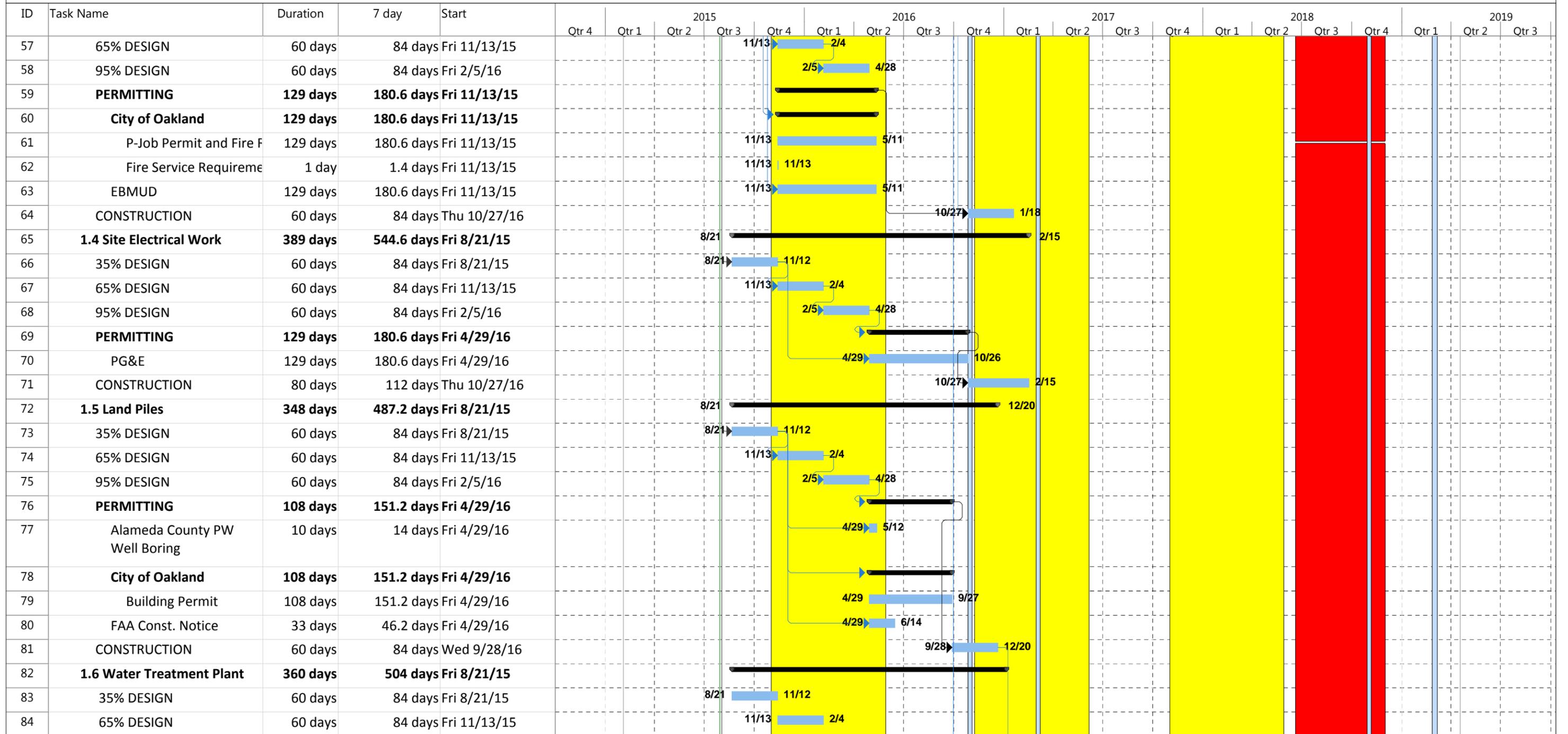
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Data Date: 7/21/15

Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
Split		Inactive Milestone		Manual Summary		Deadline			
Milestone		Inactive Summary		Start-only		Critical			
Summary		Manual Task		Finish-only		Critical Split			
Project Summary		Duration-only		External Tasks		Progress			

NOTE: This schedule is based on estimated task durations for the conceptual program

Terminal Logistics Solution

Data Date: 7/21/15



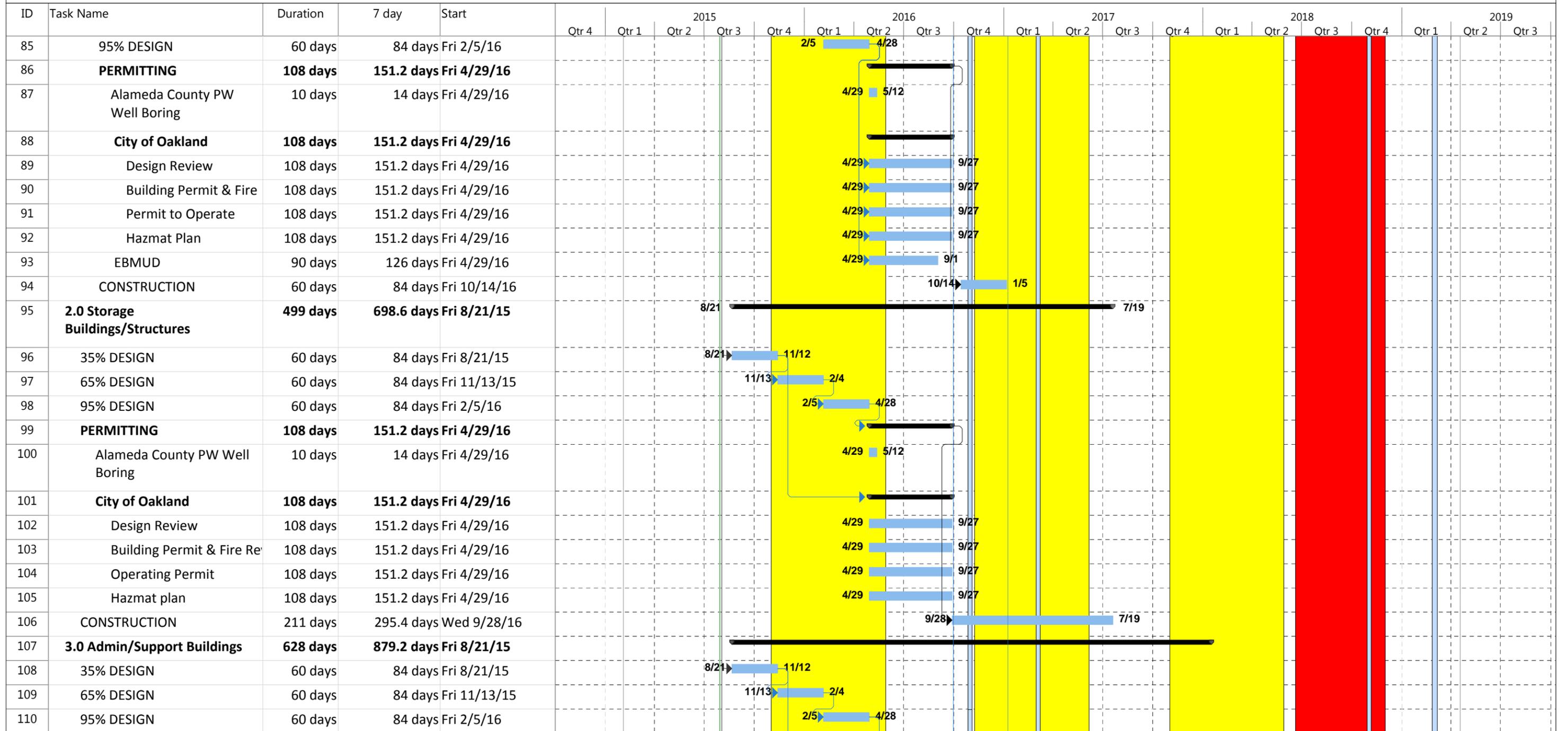
Project: 2015-07-30 OBOT (2007)
Data Date: 7/21/15

Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
Split		Inactive Milestone		Manual Summary		Deadline			
Milestone		Inactive Summary		Start-only		Critical			
Summary		Manual Task		Finish-only		Critical Split			
Project Summary		Duration-only		External Tasks		Progress			

NOTE: This schedule is based on estimated task durations for the conceptual program

Terminal Logistics Solution

Data Date: 7/21/15

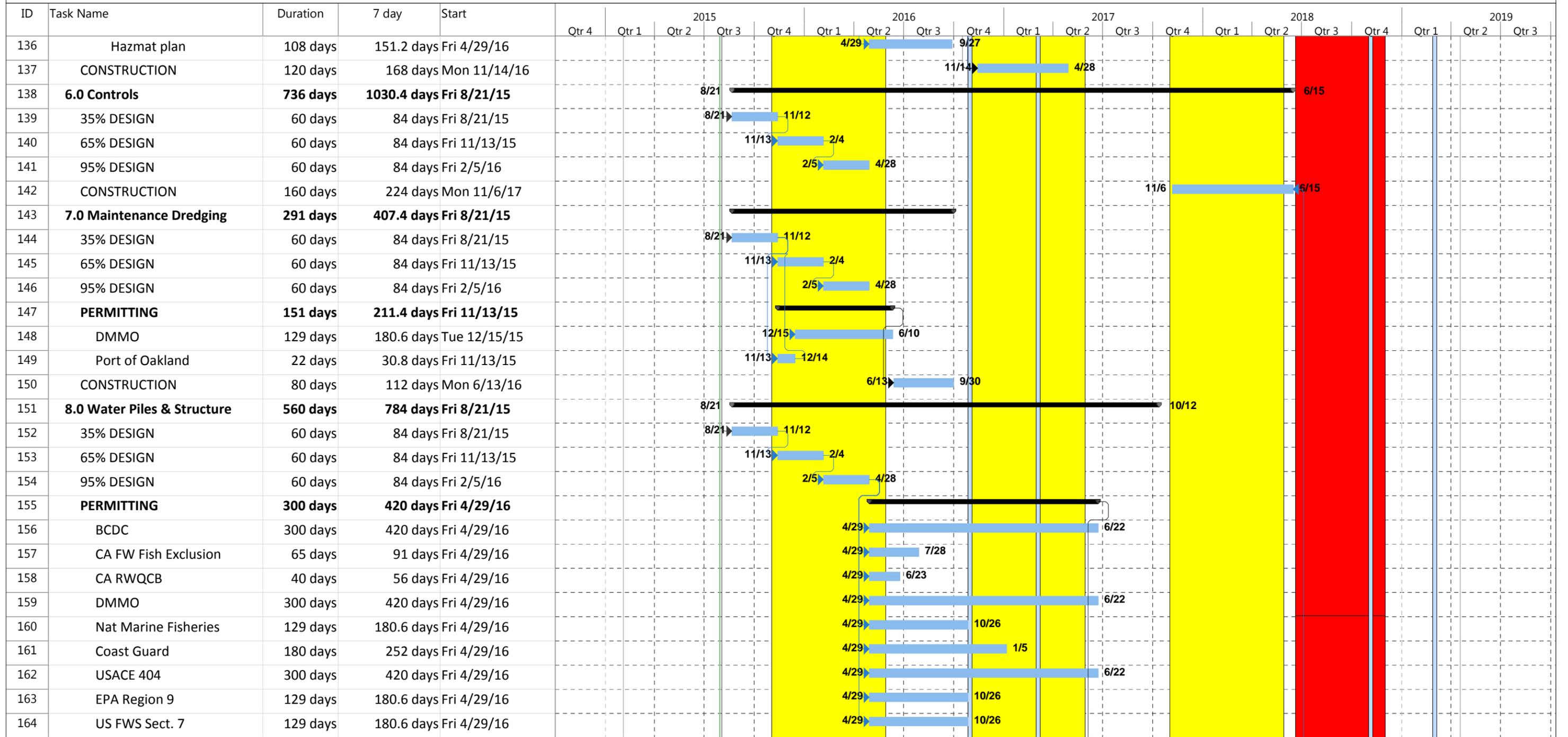


Project: 2015-07-30 OBOT (2007) Data Date: 7/21/15	Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
	Split		Inactive Milestone		Manual Summary		Deadline			
	Milestone		Inactive Summary		Start-only		Critical			
	Summary		Manual Task		Finish-only		Critical Split			
	Project Summary		Duration-only		External Tasks		Progress			

NOTE: This schedule is based on estimated task durations for the conceptual program

Terminal Logistics Solution

Data Date: 7/21/15

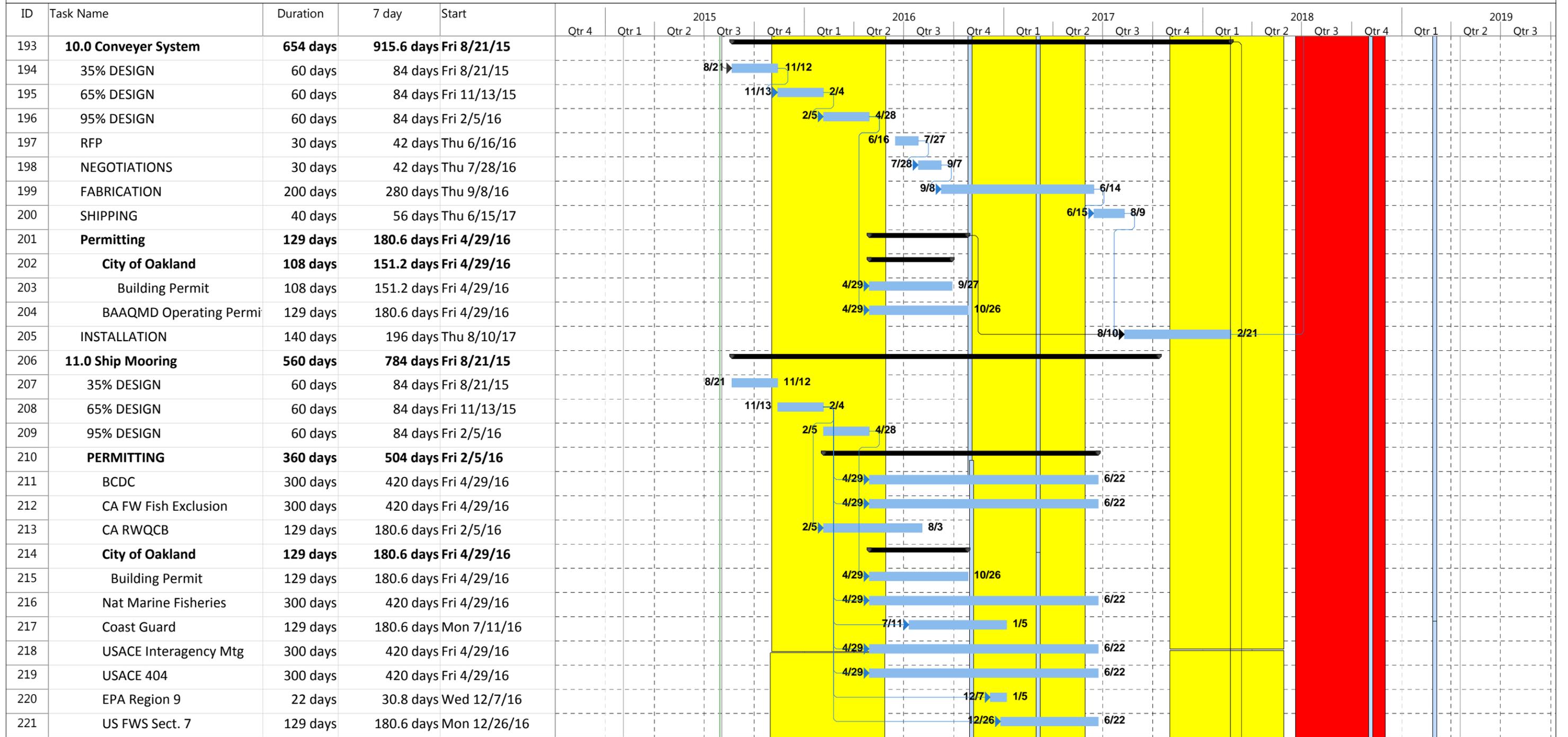


Project: 2015-07-30 OBOT (2007) Data Date: 7/21/15	Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
	Split		Inactive Milestone		Manual Summary		Deadline			
	Milestone		Inactive Summary		Start-only		Critical			
	Summary		Manual Task		Finish-only		Critical Split			
	Project Summary		Duration-only		External Tasks		Progress			

NOTE: This schedule is based on estimated task durations for the conceptual program

Terminal Logistics Solution

Data Date: 7/21/15



Project: 2015-07-30 OBOT (2007)
Data Date: 7/21/15

Task		Inactive Task		Manual Summary Rollup		External Milestone		Manual Progress	
Split		Inactive Milestone		Manual Summary		Deadline			
Milestone		Inactive Summary		Start-only		Critical			
Summary		Manual Task		Finish-only		Critical Split			
Project Summary		Duration-only		External Tasks		Progress			

Oakland Bulk and Oversize Terminal Preliminary Simulation

- This simulation models terminal operations for two commodities.



California Capital Investment Group

Oakland Bulk and Oversize Terminal
Preliminary Simulation

Port of Oakland
July 24, 2015



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1 Overview

A preliminary spreadsheet simulation (Simulation) was prepared for the Oakland Bulk and Oversize Terminal (OBOT), which is a proposed multi-commodity bulk material facility. The OBOT is part of the redevelopment of the Oakland Army Base. The Simulation is based on the Basis of Design working document, dated May 4, 2015, as thus far developed for the project.

There are two commodities in the Simulation, each is being received in unit trains, unloaded in separate unloading pits, conveyed to storage along independent conveyance systems, reclaimed and conveyed in independent systems for loading into ocean-going vessels by separate shiploaders. The Simulation assumes that two different sources for Commodity A are being received, stored and loaded. There is no requirement for product segregation or blending for Commodity B.

The focus of the Simulation was on the train unloading and ship loading. The Simulation was prepared to estimate the occupancy rates of the material dumping stations (train processing) and berth (ship loading). Estimated total through-unit-trains and through-the-ship rates were calculated to provide preliminary dumper pit and conveyor capacities required to meet the criteria as defined in the Basis of Design. The Simulation did not go into details of storage capacities and reclaim systems, which will be more thoroughly analyzed after grounding the design basis.

The Simulation assumes that the operations schedule is:

- Railcar unloading will be done as required, 362 days per year, 7-days per week, 24-hours per day, with a 2-hour per day allowance for maintenance.
- Ship loading will be done as required, 362 days per year, 7-days per week, 22-hours per day (assumes 2 each 1-hour meal times).

1.1 Materials and Throughput

The Simulation assumptions are for two commodities, each being processed through separate handling systems (rail unloading, conveying, storage and ship loaders), but both being loaded at the same berth. The annual throughputs are 5.0Mtpa (million tonnes per annum) for Commodity A and 1.5Mtpa for Commodity B. Both commodities are assumed to be received in 104-car unit trains. For both commodities, unit trains must be turned around and released back to the railroad within a 24-hour period.

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2 Rail Unloading

2.1 Commodity A

Commodity A will be delivered in open or closed top, bottom discharge, aluminum railcars. The specific type of bottom dump railcar or the mechanism for opening the discharge gates has not yet been determined. Final railcar types may impact the Simulation, but some type of automated hopper opening and closing system is assumed.

The following assumptions were used for the Simulation:

- Trains
 - 104-car unit trains
 - Capacity of each car is 110 metric tons
 - Unit trains are unloaded in 26-car segments (4 segments per unit train)
 - Continuous unloading (movements by switcher [locomotive] or indexer)
 - Train speed is approximately 0.2mph, with a 3.5-minute per railcar cycle
 - 2-hours total for switching 4 each 26-car segments
 - 2-hours per day for maintenance (22 hours available per 24 hours)

Results

Based on the above assumptions, the total unloading time for each unit train is 7.20 hours (5.2 hours total discharge time + 2 hours for switching). This excludes the time required to reassemble the empty trains, air test and ready for departure. This represents a discharge rate of approximately 2,200 tonnes per hour for the dumper and a through-the-train rate of approximately 1,590 tonnes per hour.

The design basis is for approximately 437 trains per year, or 1.2 trains per day. In order to accommodate the additional 0.2 trains/day (“intermittent” train), one additional unit train was added every 5 days. The dumper occupancy rate for a single unit train per day discharge is approximately 30% (or 33%, based on 22 hours of dumper availability). The occupancy rate for those days which include unloading of the “intermittent” train, is approximately 63% (the 2-hour maintenance is not included in the “intermittent” train occupancy rate).

Figure 2-1. Rail Unloading – Commodity A

Spreadsheet Simulation – Rail Unloading		
Commodity A		
Annual Throughput	5,000,000	
Operations		
Operating Days/Year	362	
Shifts/Day	3	
Hours/Shift	8	
Work hours/Day	24	
Cars/Train	104	
Capacity/Car (MT)	110 MT	
Capacity/Train (MT)	11,440 MT	
Number of Trains/Year	437	
Switching Time (4 strings)	120	Minutes
Dumper Design Cycle Time	181	Seconds
One Car Unloading Rate	2,200	MTPH
Time to Unload 1 Train	434	Minutes
Actual Normal Train Count/Day	1	
Total Time to Unload Unit Trains	7.2	Hours
Through-the-train Rate	1590	MTPH
Dumper Maintenance Time/Day	2.0	Hours
Maximum Dumper Occupancy Available	92%	
Actual Dumper Occupancy	33%	
Interval Train		
Add One Train Recurrence Interval	5	Days
Makeup train to be Unloaded at Interval	11,440	MT
Number of Added Trains on Recurrence Interval	1	
MT on Recurrence Interval	11,440	MT
Added Time to Dump Recurrent Interval Train	434	Minutes
Total Recurrence Interval Dumping Day	14.5	Hours
Dumper Occupancy on Interval Day	63%	

2.2 Commodity B

Commodity B will be delivered in closed top, bottom discharge railcars. The specific configuration of the railcar hoppers and gates will vary. The Simulation assumes that the cars will be discharged in a stationary position, with the gates being opened and closed by a pneumatic hopper opening device. The Commodity B dumper pit will occupy two cars at a time, allowing two cars to be emptied per each shifting of railcars.

The following assumptions were used for the Simulation:

- Trains
 - 104-car unit trains
 - Capacity of each car is 90 metric tons
 - Unit trains are unloaded in 26-car segments (4 segments per unit train)
 - 2-car unloading (movements by switcher [locomotive] or indexer)
 - 12.87-minute cycle times/2-cars (approximately 9,32 cars per hour)
 - 2-hours total for switching 4 each 26-car segments
 - 2-hours per day for maintenance (22 hours available per 24 hours)

Results

Based on the above assumptions, the total unloading time for each unit train is 14.87 hours (12.87 hours total discharge time + 2 hours for switching). This excludes the time required to reassemble the empty trains, air test and ready for departure. This represents a discharge rate of 727 tonnes per hour for the dumper and a through-the-train rate of approximately 630 tonnes per hour.

The design basis is for approximately 160 trains per year, or 0.44 trains per day. In order to accommodate the 24-hour turnaround time for the unit trains, the Simulation assumes continuous discharging for each unit train as received until completed. The dumper occupancy rate for a single unit train per day discharge is approximately 62%.

Figure 2-2. Rail Unloading – Commodity B

Spreadsheet Simulation – Rail Unloading		
Commodity B		
Annual Throughput		1,500,000
Operations		
Operating Days/ Year		362
Shifts/Day		3
Hours/Shift		8
Work hours/Day		24
Cars/Train		104
Capacity/Car (MT)		90 MT
Capacity/Train (MT)		9,360 MT
Number of Trains/Year		160
Switching Time (4 strings)		120 Minutes
Dumper Design Cycle Time		420 Seconds
One Car Unloading Rate		727 MTPH
Total Time to Unload Trains		892 Minutes
Required Unloading/Day		4,144 MT
Actual Required Train Count/Day		0.44
Total Time to Unload Unit Trains		14.87 Hours
Through-the-train Rate		630 MTPH
Dumper Maintenance Time/Day		2.0 Hours
Maximum Dumper Occupancy Available		92%
Actual Dumper Occupancy		62%



3 Ship Loading

3.1 Commodity A

Commodity A will be loaded into Panamax and/or Capesize ships. The Basis of Design is for ships up to 180,000DWT. Due to draft restrictions, such ships are limited to load at an approximate maximum of 130,000 tonnes. The Simulation assumes 120,000 tonnes per ship, for a total of approximately 42 ships.

The following assumptions were used for the Simulation:

- Capesize Ships
 - Available material in storage for loading of vessel
 - 120,000 tonnes per shipment
 - 9 hold loading, 2 fills per hold
 - 24-hour loading, with two each 1-hour meal breaks
 - 6,000 tonnes peak loading capacity
 - Dual quadrant shiploaders (3,000 peak capacity each)
 - 60% at peak rate, 40% at 60% of peak rate
 - 2 hours for switching holds
 - 5 hours per ship for berthing, customs, marine survey and de-berthing

Results

Based on the above assumptions, the time required for hatch filling is 27.5 hours, for an average hatch loading rate of approximately 4,370 tonnes per hour. The total through-the-ship time is 32.5 hours, for an average rate of approximately 3,700 tonnes per hour.

Based on the Simulation, the berth occupancy rate for Capesize ships is 17%. The Simulation does not assume maintenance time during ship loading, as it is customary to assume maintenance time between ships will minimize downtime during loading. This becomes more of a concern when the occupancy rate approaches 60% or greater.

While the Simulation is based on 42 ships @ 120,000 tonnes each, there will likely be a mix of smaller ships, which will reduce the average loading and increase the total number of ships. This will increase the berth occupancy rate, but is not expected to have a significant impact.

Figure 3-1. Ship Loading – Commodity A

Spreadsheet Simulation – Ship Loading		
Commodity A		
Throughput (MTPY)	5,000,000	
Operations		
Operating Days/Year	362	
Shifts/Day	3	
Hours/Shift	8	
Work hours/Day	22	
Average Ship Loading	120,000	MT
Number of Ships/Year	42	
Maximum Loading Time Available (Hours)	7,964	
Hours/Ship Available at Berth	190	
Number of Berths	1	
Hatches/Ship	9	
Fills/Hatch	2	
Average/Peak Ratio Shiploader	73%	
Shiploader Capacity (Peak) – Each	6,000	MTPH
Product Per Hatch	13,333 MT	
Fill Time/Hatch	2.8	Hours
Hatch Changes	2.0	Hours
Real Time to Load Each Ship	27.5	Hours
Berthing Time	1	Hours
De-berthing Time	1	Hours
Marine Survey	2	Hours
Customs Clearance	1	Hours
Total Time – Through-the-Ship	32.5	Hours
Average Through-the-Hatch SL Rate	3,698	MTPH
Ship Loading Efficiency	62%	
Actual Berth Occupancy	17%	

3.2 Commodity B

Commodity B will be loaded into Handysize and/or Handymax ships. The Basis of Design is for ships up to 50,000DWT. The Simulation assumes average loadings of 35,000 tonnes per ship, for a total of approximately 43 ships.

The following assumptions were used for the Simulation:

- Handy Ships
 - Available material in storage for loading of vessel
 - 35,000 tonnes per shipment
 - 5 hold loading, 2 fills per hold
 - 24-hour loading, with two each 1-hour meal breaks
 - 2,000 tonnes peak loading capacity
 - Single, stationary shiploader
 - 60% at peak rate, 40% at 60% of peak rate
 - 3.5 hours for line hauling and hold changes
 - 5 hours per ship for berthing, customs, marine survey and de-berthing

Results

Based on the above assumptions, the time required for hatch filling is 25.7 hours, for an average hatch loading rate of approximately 1,360 tonnes per hour. The total through-the-ship time is 30.7 hours, for an average rate of approximately 1,140 tonnes per hour.

Based on the Simulation, the berth occupancy rate for Handysize ships is 17%. The Simulation does not assume maintenance time during ship loading, as it is customary to assume maintenance time between ships will minimize downtime during loading. This becomes more of a concern when the occupancy rate approaches 60% or greater.

Figure 3-2. Ship Loading – Commodity B

Spreadsheet Simulation – Ship Loading		
Commodity B		
Throughput (MTPY)	1,500,000	
Operations		
Operating Days/Year	362	
Shifts/Day	3	
Hours/Shift	8	
Work hours/Day	22	
Average Ship Loading	35,000	MT
Number of Ships/Year	43	
Maximum Loading Time Available for Loading	7,964	
Hours/Ship Available at Each Berth	185	
Number of Berths	1	
Hatches/Ship	5	
Fills/Hatch	2	
Average/Peak Ratio Shiploader	68%	
Shiploader Capacity (Peak) – Each	2,000	MTPH
Product Per Hatch	7,000	MT
Fill Time/Hatch	4.4	Hours
Line Hauling and Hatch Changes	3.5	Hours
Real Time to Load Each Ship	25.7	Hours
Berthing Time	1	Hours
De-berthing Time	1	Hours
Marine Survey	2	Hours
Customs Clearance	1	Hours
Total Time – Through-the-Ship	30.7	Hours
Average Through-the-Hatch SL Rate	1,141	MTPH
Ship Loading Efficiency	57%	
Actual Berth Occupancy	17%	

4 Summary

The Simulation shows that the ability to unload unit trains of each commodity, store, reclaim and load ocean-going ships per the current Basis of Design, at the throughput rates listed above, is achievable. Further, the ability to handle both commodities under these assumptions can be done by sharing a single berth. The total occupancy rate for combining both commodities at a single berth is approximately 34%. This is a very comfortable rate, but it should be noted that there will be times when ships arrivals occur close enough together to cause conflicts. Related costs for demurrage and product inventory levels, as well as other operational circumstances will provide the data required to make decisions, when these conflicts occur.

As referenced in the Overview, the Simulation did not focus on storage and/or method of reclaim. As the Basis of Design is further defined, detailed analyses will be required to review options and related costs.

The site has restrictions for overall product storage capacity. Given the current Basis of Design and level of engineering completed to date, the major risk for the facility resides in balancing inventories with inbound and outbound shipments. As a matter of reference, marine terminal bulk handling facilities typically have between 4 and 10% of annual throughput for storage. Given the annual throughputs identified in the Basis of Design to date, storage for both commodities is at or below minimum levels. Therefore, the scheduling of trains and ships will be critical to minimize demurrage costs.

The need to receive, store and load two different grades of Commodity A adds an additional constraint. As it is necessary to segregate the two grades, there are two options:

- One is to store one grade in storage building 1, which has an estimated storage capacity of 130,000 tonnes¹, and the other grade in storage building 2, which has an estimated storage capacity of 100,000 tonnes¹.
- The other option is to store both grades in each warehouse. However, by doing so, in order to maintain segregation within the storage buildings, the storage capacity of each building will be reduced by 20 – 25%.

In the case of a single grade of Commodity A, the total estimated storage capacity is 230,000 tonnes, which is equivalent to approximately 4.6% of annual throughput. In the case of segregation of grades, the related 185,000 tonnes of storage represents approximately 3.7% of annual throughput. These are on the low end of the scale by industry standards and cause of concern to balance rail receipts with shipments. This situation is further exacerbated by the potential for having shipments up to 130,000 tonnes¹.

¹ The capacities are based on a mid-range product density. The capacities and percentages of throughput will vary with actual product densities and should be calculated to match specific products.

The following table summarizes the Simulation. Included in the table are minimum and maximum days between ships. These are based on the average shipment sizes identified in the Simulation and inventory levels as noted. In the case of both commodities, the maximum storage capacity is equal to or less than 150% of the average shipment size, which results in a very narrow operating range with regard to scheduled loadings. Therefore, interruptions and changes to the scheduled arrivals of unit trains and/or ships will lead to demurrage charges. Opportunities to minimize this will be a key component of continued project development.

Table 4-1. Simulation Summary

Commodity	Commodity A	Commodity B	Units
Annual Throughput	5,000,000	1,500,000	MT
Rail Unloading:			
Peak Rate	2,000	850	MTPH
Through-the-train	1,590	630	MTPH
Dumper Occupancy	33%	62%	
Ship Loading:			
Peak Rate	6,000	2,000	MTPH
Through-the-ship	3,700	1,140	MTPH
Berth Occupancy	17%	17%	
Storage:			
Capacity	230,000 / 185,000	50,000	MT
Average Ship Loading	120,000	35,000	MT
% of Storage	4.6% / 3.7%	3.3%	
Min Time between Ships	3 - 4 ¹	5 ²	Days
Max Time between Ships	8 - 10 ³	12 ⁴	Days
¹ Assumes 60,000 tonnes in storage at completion of previous ship			
² Assumes 15,000 tonnes in storage at completion of previous ship			
³ Assumes 0 tonnes in storage at completion of previous ship			
⁴ Assumes 0 tonnes in storage at completion of previous ship			