A photograph of a port terminal. In the foreground, a yellow gantry crane structure is visible, with a red light and a white control box. The background shows a large open area with shipping containers, some labeled 'COSCO', and a clear sky. The scene is illuminated by bright sunlight, creating long shadows.

Marine Terminal Innovations at Maher Terminals, Elizabeth, NJ

**Facilities Engineering Seminar
Panel V: Equipment, Automation & Operation
January 2006 | Jacksonville, FL**

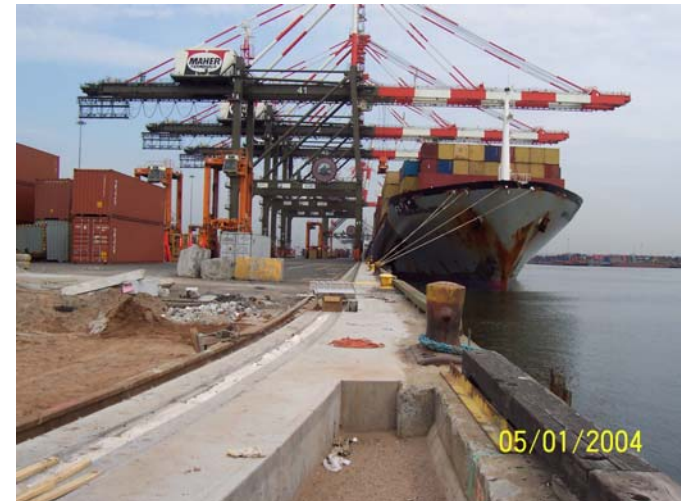
Presentation

- Reconstruction Overview
- Paperless Gate Facilities
- Grounded Reefer Plugs
- Skybridges



Terminal Reconstruction

- Involves Combining Two Discontinuous Terminals Into One Complete Terminal.
- Once Complete, The New Terminal will Cover Approx. 450 Acres in Area.



Consolidated Terminal

- About 35 Separate Projects
- 10,000 Feet of Contiguous Berth
- New Grades, Paving, and Utilities
- Remodeled Office Space
- New Maintenance Facility



Contiguous Berth



OCR Paperless Gate System



Gate System

- SAIC Technology for Data Collection
- Direct Interface with the MTL S Container Terminal Management System
- CBP RPM System Directly Integrated

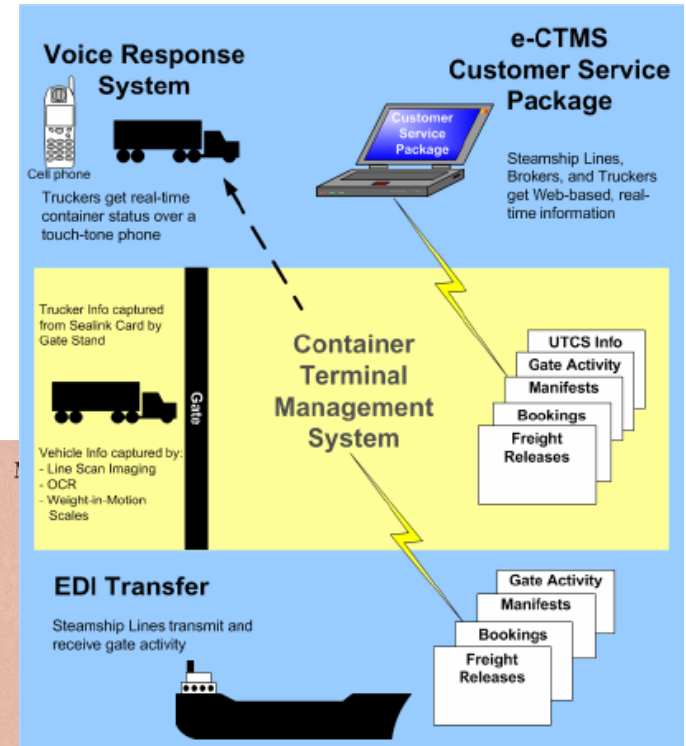


**SYSTEMS FOR
MARINE
AUTOMATION IN
REAL
TIME**



Paperless Gate System Benefits

- Increase Gate Moves Per Hour
- Decrease Trucks' Turn-around-times
- Increase Throughput And Overall Terminal Efficiency
- Reduce Idling Time - Improve Environmental Performance
- Increase Manpower Efficiency, Thereby Reducing Operating Costs
- Improves Security



MAHER TERMINAL

Date: _____
 Deliver Full _____
 Container No: _____
 Chassis No: _____
 Trucking Co: _____
 Driver ID: _____
 Vessel/Voyage: _____
 Port: _____
 TIR: B.FREDERICKS CKR: R.VERCRUYSE
 DRV: JESSIE G SEC: C.CORSALE
 Time In: 0729 Time Out: 0759



Gate Flow



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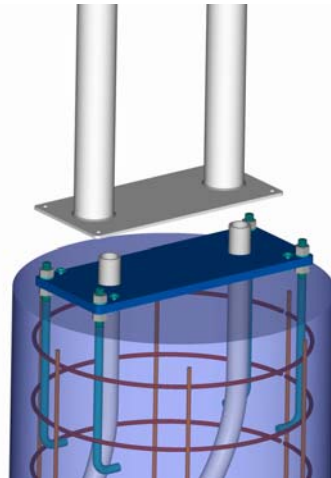
MAHER TERMINALS **Maher Terminals Fleet Street Imaged EIR**

Date:	11/17/1997	Visit:	108909
Deliver Full			
Container No:	EISU 3414909	Seal No:	368828
Chassis No:	TAXZ137896	Location:	TJ21
Trucking Co:	RMV Trucking		
Driver ID:	25611		
Vessel/Voyage:	Ever Renown/0680E		
Port:			
TIR:	B.FREDERICKS	CKR:	R.VERCRUYSE
DRV:	JESSIE G	SEC:	C.CORSALE
Time In:	0729	Time Out:	0759



Gate Infrastructure

- Included The Following Work Elements:
 - Pavement Reconstruction/Overlay, Grading, And Drainage
 - Lighting and Fire Protection
 - Hundreds of Foundations
 - Thousands Of Feet Of New Duct Bank, Consisting Of Single Conduit Banks To Duct Banks Of Over 40 Conduits
 - Extension Of Site Electrical System
 - Canopy Structures
 - CEV Buildings



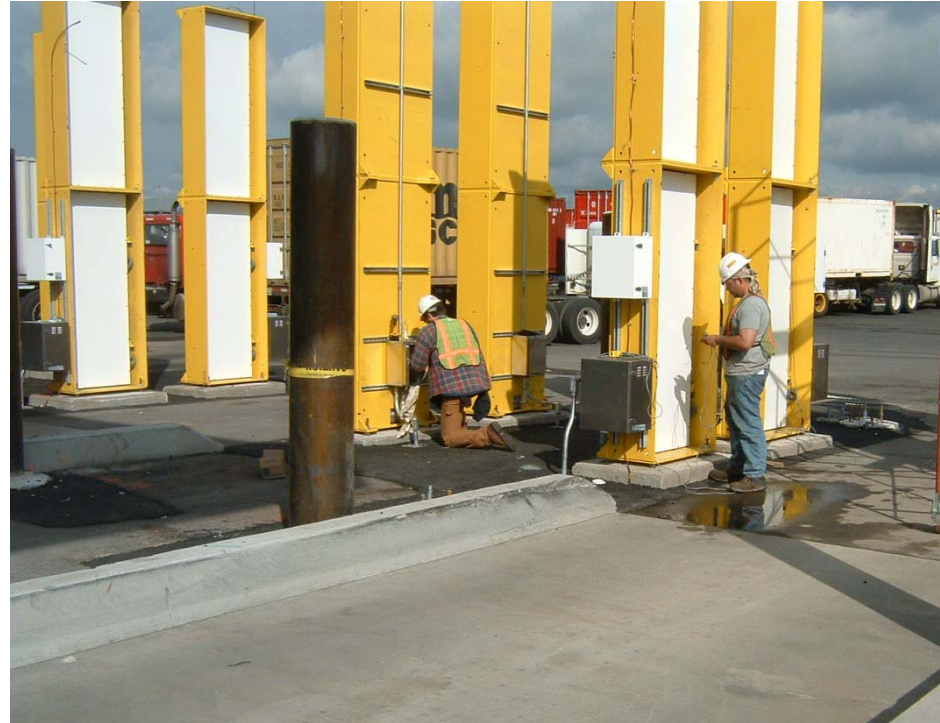
Reliability

- Fully Redundant
 - Equipment is Doubled at Portals
 - Two Dedicated Substations And Backup Generators
 - Multiple Servers and UPS Required Controlled Environment (CEV Buildings)



Integrated RPM

- Integrated RPM System
- Downstream Side of Outbound Portals
- Double System for Increased Velocity and Redundancy
- Driver Directed to Secondary Screening at Outbound Lanes



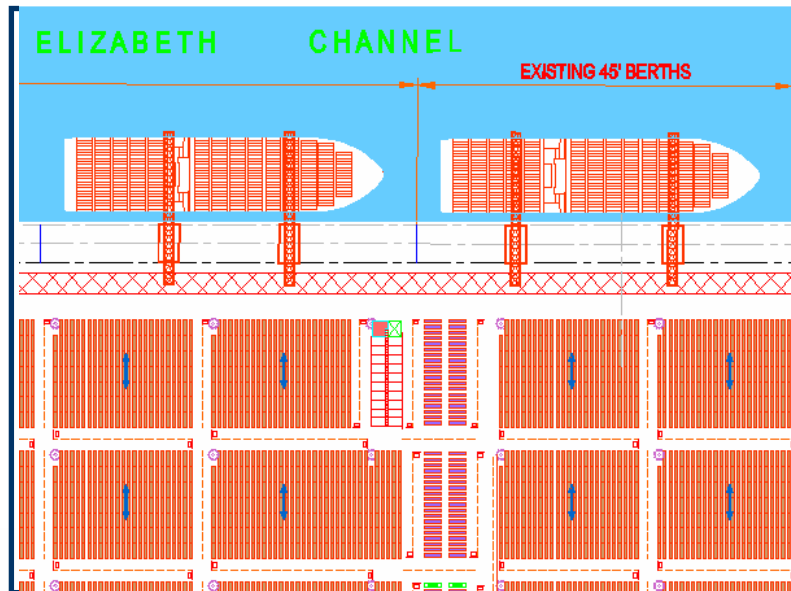
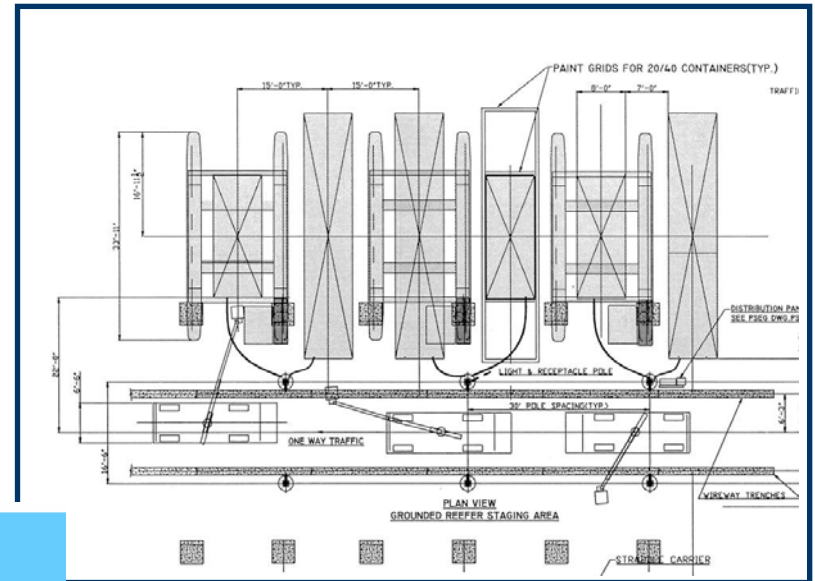
Grounded Reefer Plugs

1200 Grounded
Reefer Slots



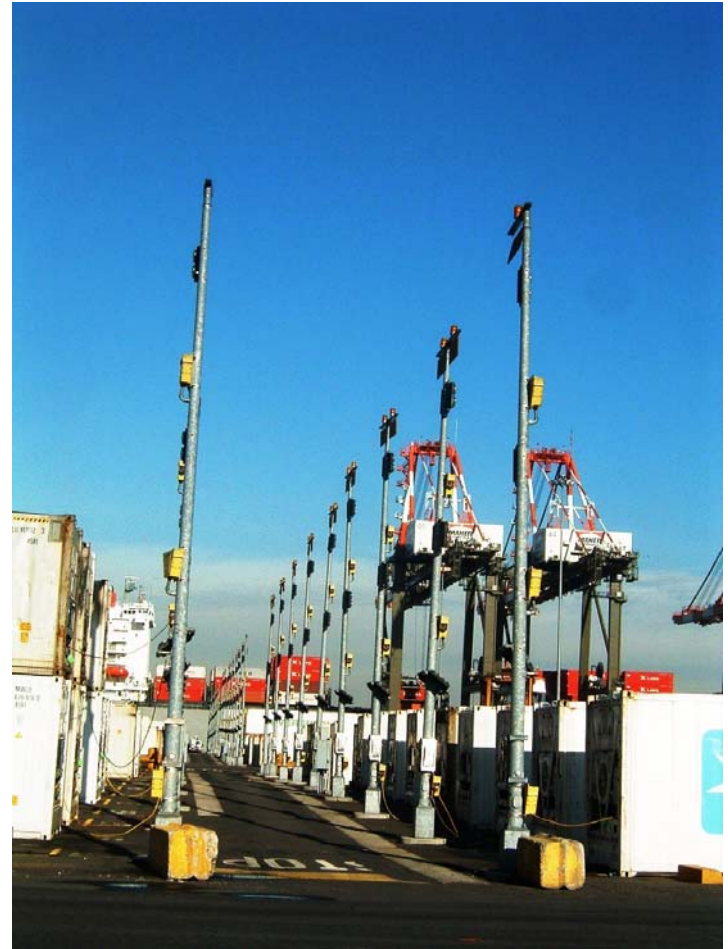
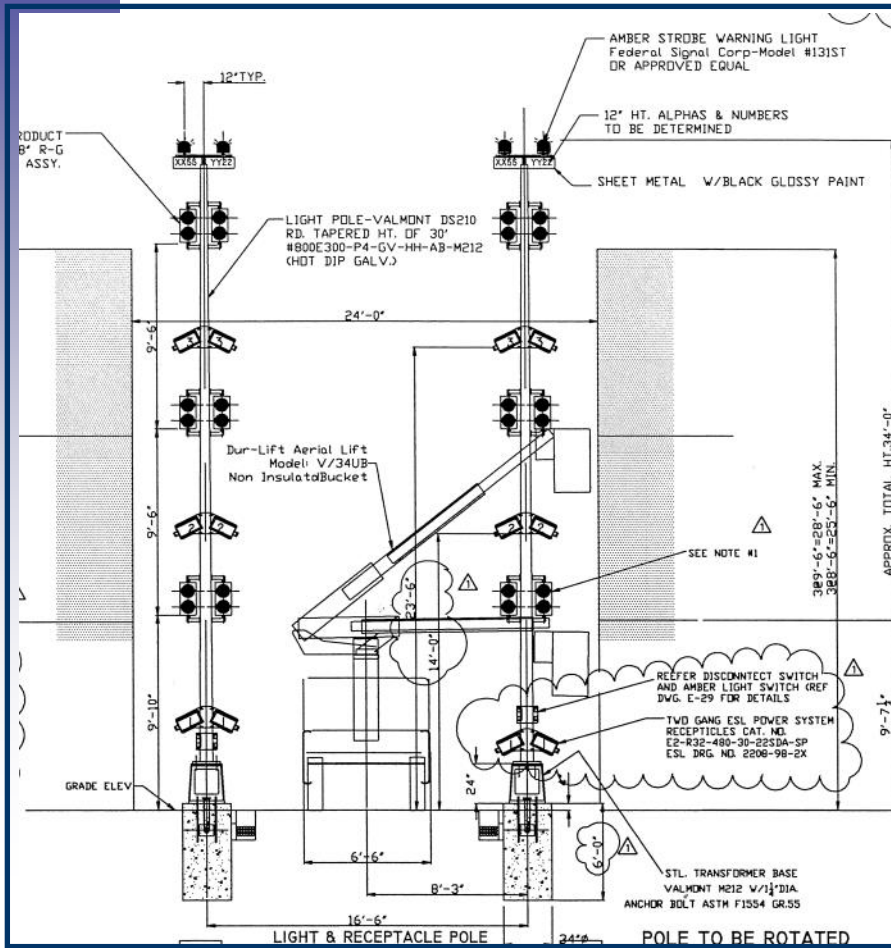
Grounded Reefer Slots

- Reefer Outlet Poles
 - Two Rows of Poles separated by Access Roadway
 - 6 Outlets per Pole



- Served by Bucket Truck
- Can Access 12 Receptacles from One Set-Up

Grounded Reefer Slots



Grounded Reefer Slots

- LED Lights Indicate Connection Status to Operator
- Strobe Signals Power Loss



- Much Lower Initial Capital Cost
- More Efficient Use of Manpower

Straddle Carrier Skybridges

Marine Buildings with Skybridge
Parking for Strads



Straddle Carrier Skybridges

- Skybridges Allow Operators to Climb Stairs in Buildings to Access Straddle Carriers
- Up to 20 Strads can Stage at One Skybridge



- Significant Loss-Time-Injury Rate Associated With Scaling Straddle Carriers
- Increased Efficiency At Operator Breaks

A large-scale construction site featuring several concrete pump trucks (orange and grey) positioned around a series of vertical rebar structures. The scene is set outdoors under an overcast sky. In the foreground, there are rows of rebar structures with green plastic caps. A white pickup truck with the number 9811 is visible on the left. Two workers in orange safety vests are standing on the right side of the site. The overall atmosphere is industrial and busy.

Thank You

Christopher A. Lawrence, PE
CH2M HILL