

CEMEX De Zavalla
Cement Terminal



Figure 1
Project Vicinity Map
Maintenance Dredging
Harris County, Texas

Datum: NAD 1983
Projection: UTM
Zone: 15
Units: Meter
Imagery: ESRI World Street Map



0 1 2 4
Miles

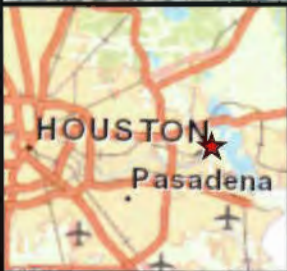
Prepared By: ATKINS/PATT6857

Scale: 1" = 4 miles

Job No.: 100041387

Date: Aug 19, 2015

File: N:\Clients\IC\Cemex\100041387\geo\figs\Cemex_Vicinity_Map.mxd




 Proposed Dredge Area



Figure 2
Aerial Project Location Map
Maintenance Dredging
Harris County, Texas

Datum: NAD 1983
 Projection: UTM
 Zone: 15
 Units: Meter
 Aerials: ESRI USA Imagery



0 2,000 4,000
 Feet

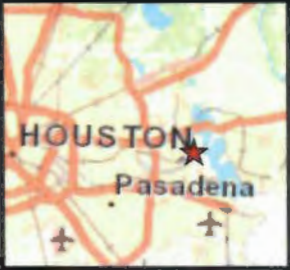
Prepared By: ATKINS/PATT6857

Scale: 1" = 4,000'

Job No.: 100041387

Date: Aug 19, 2015

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-  Area of Concern
(TCEQ San Jacinto
Waste Pit Boundary)
-  Ship Channel
-  Proposed Dredge Area



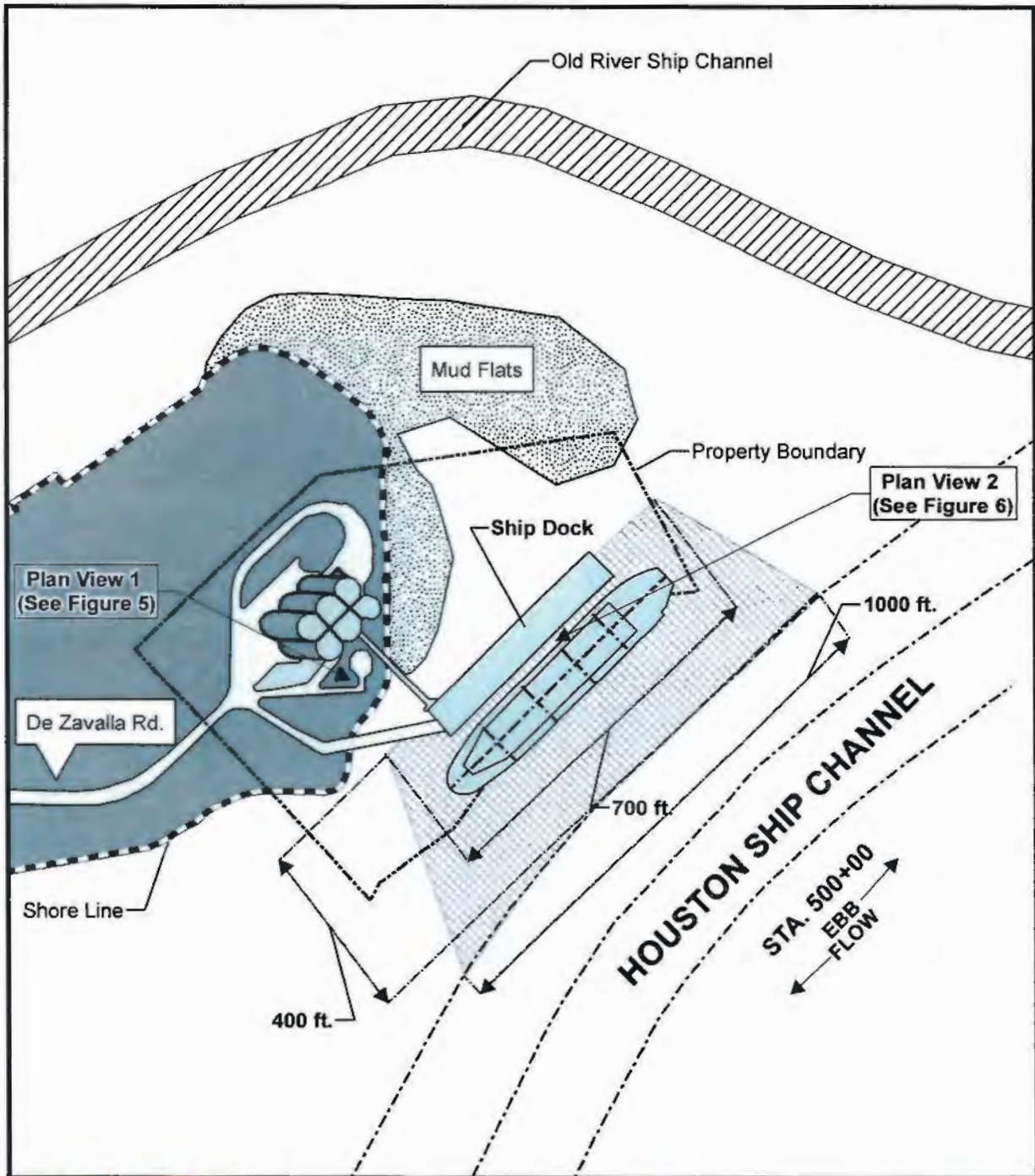
Figure 3
Proposed Dredge Area Map
Maintenance Dredging
Harris County, Texas

Datum: NAD 1983
 Projection: UTM
 Zone: 15
 Units: Meter
 Aerials: ESRI USA Imagery



Prepared By: ATKINS/PATT6857	Scale: 1" = 600'
Job No.: 100041387	Date: Aug 19, 2015

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- Ship Dock
- Docking Area
- Mud Flat
- Old River
- Ship Channel
- Shoreline
- Property Line



Figure 4
Dredging Plan
Harris County, Texas

Datum: NAD 1983
 Projection: UTM
 Zone: 15 North
 Units: Meters
 Aerial: Bing Maps Aerial



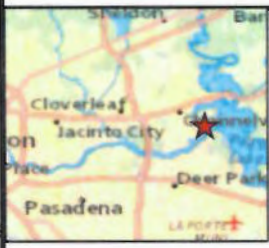
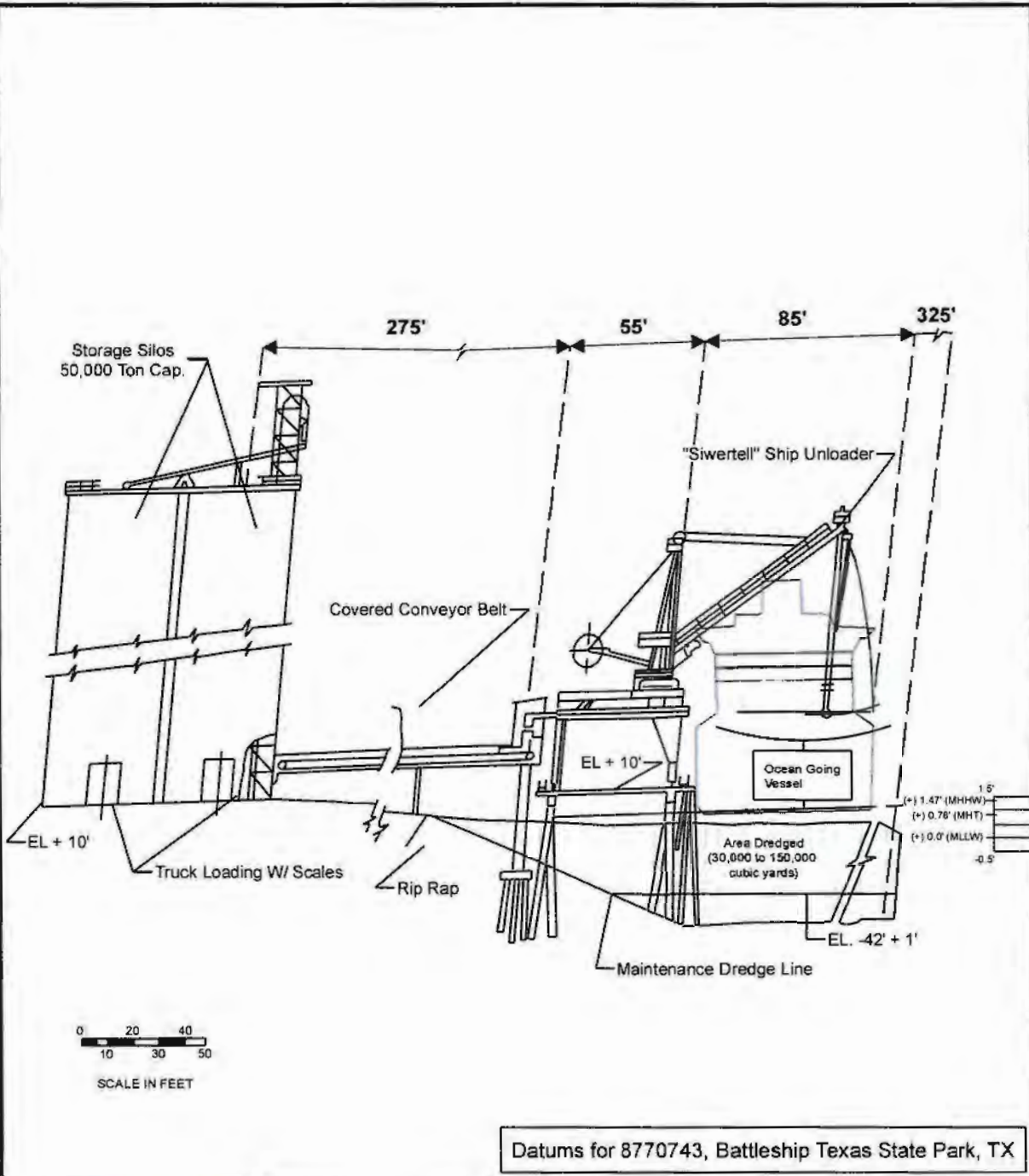
Prepared By: ATKINS/PATT6857

Scale: 1" = 300 feet

Job No.: 100041387

Date: Sep 24, 2015

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Dredge Area

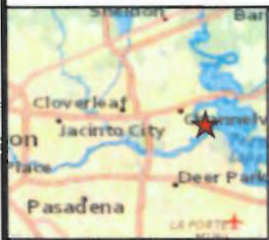
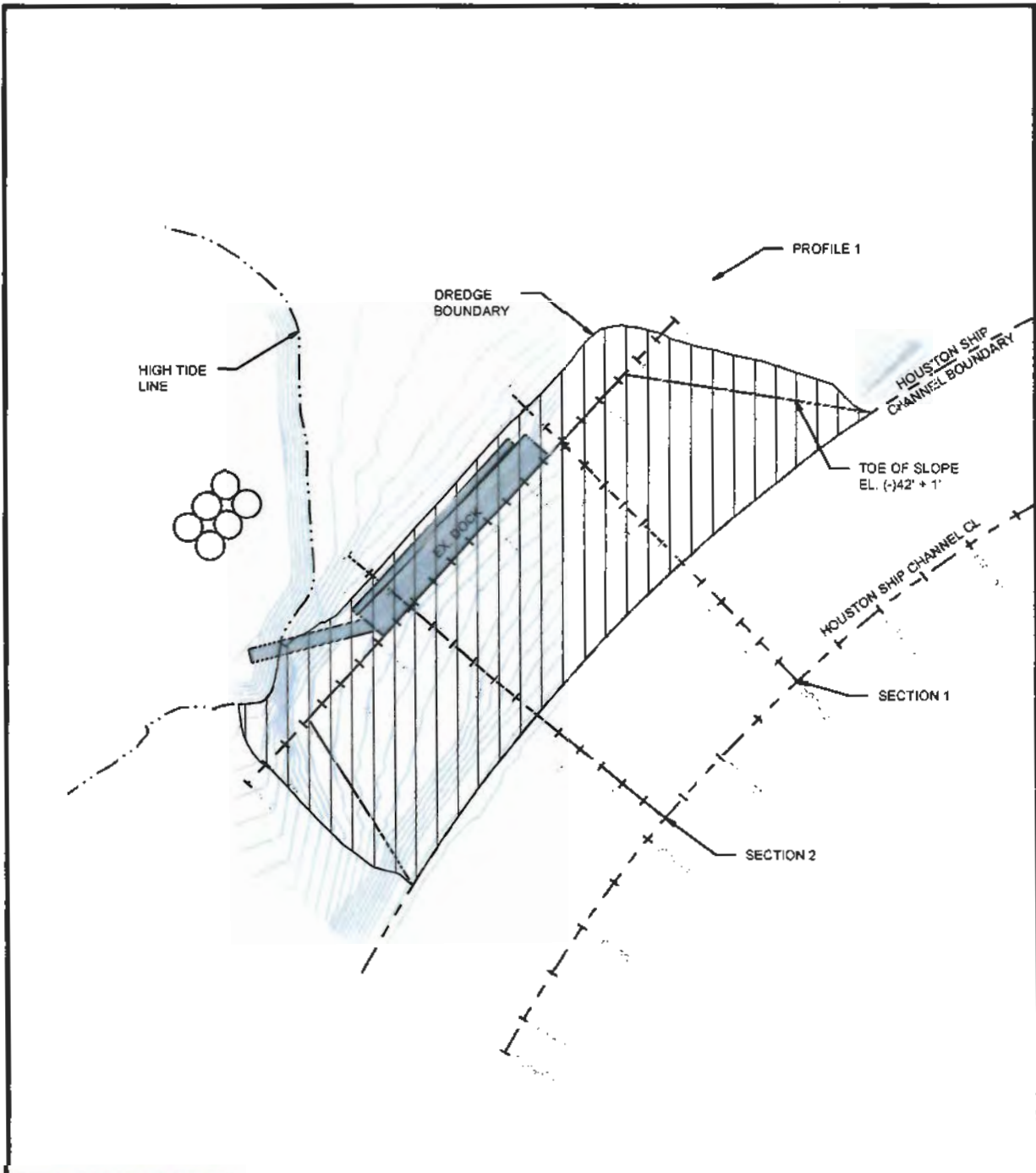


Figure 5
Plan View 1 - Site Elevation
Harris County, Texas

Datum: NAD 1983
Projection: UTM
Zone: 15 North
Units: Meters

Prepared By: ATKINS/PATT6857	Scale: IN FIGURE
Job No.: 100041387	Date: Oct 05, 2015

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Wet Soil Removal Area

Datum: NAD 1983
 Projection: UTM
 Zone: 15 North
 Units: Meters
 Aerial: Bing Maps Aerial



Figure 6
Plan View 2 - Ship dock
Harris County, Texas

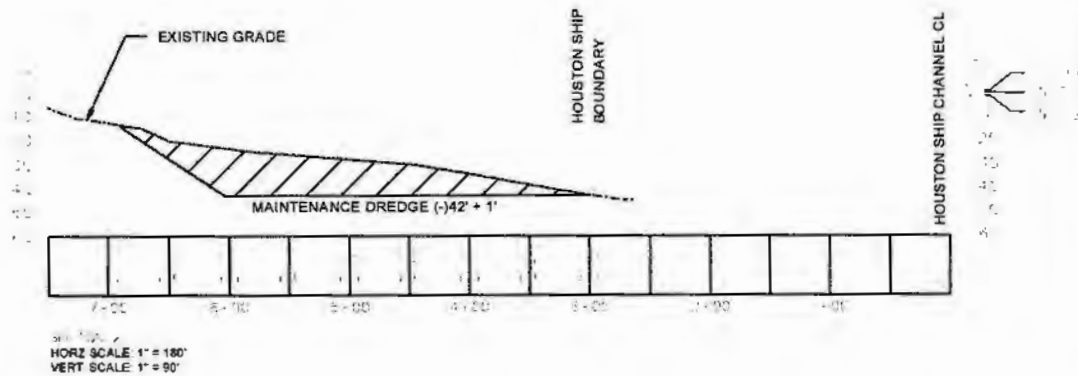
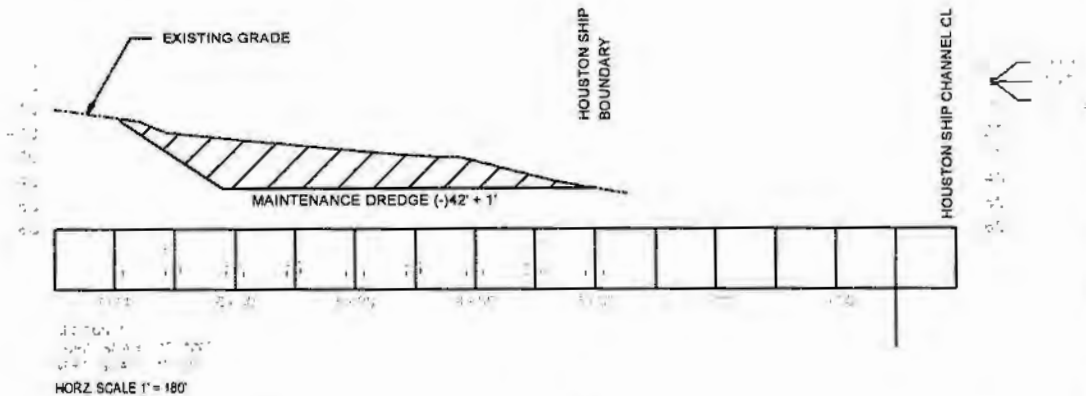
Prepared By: ATKINS/PATT6857

Scale: 1" = 278 feet

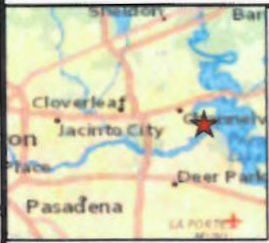
Job No.: 100041387

Date: Sep 28, 2015

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Datums for 8770743, Battleship Texas State Park, TX




 Wet Soil Removal Area

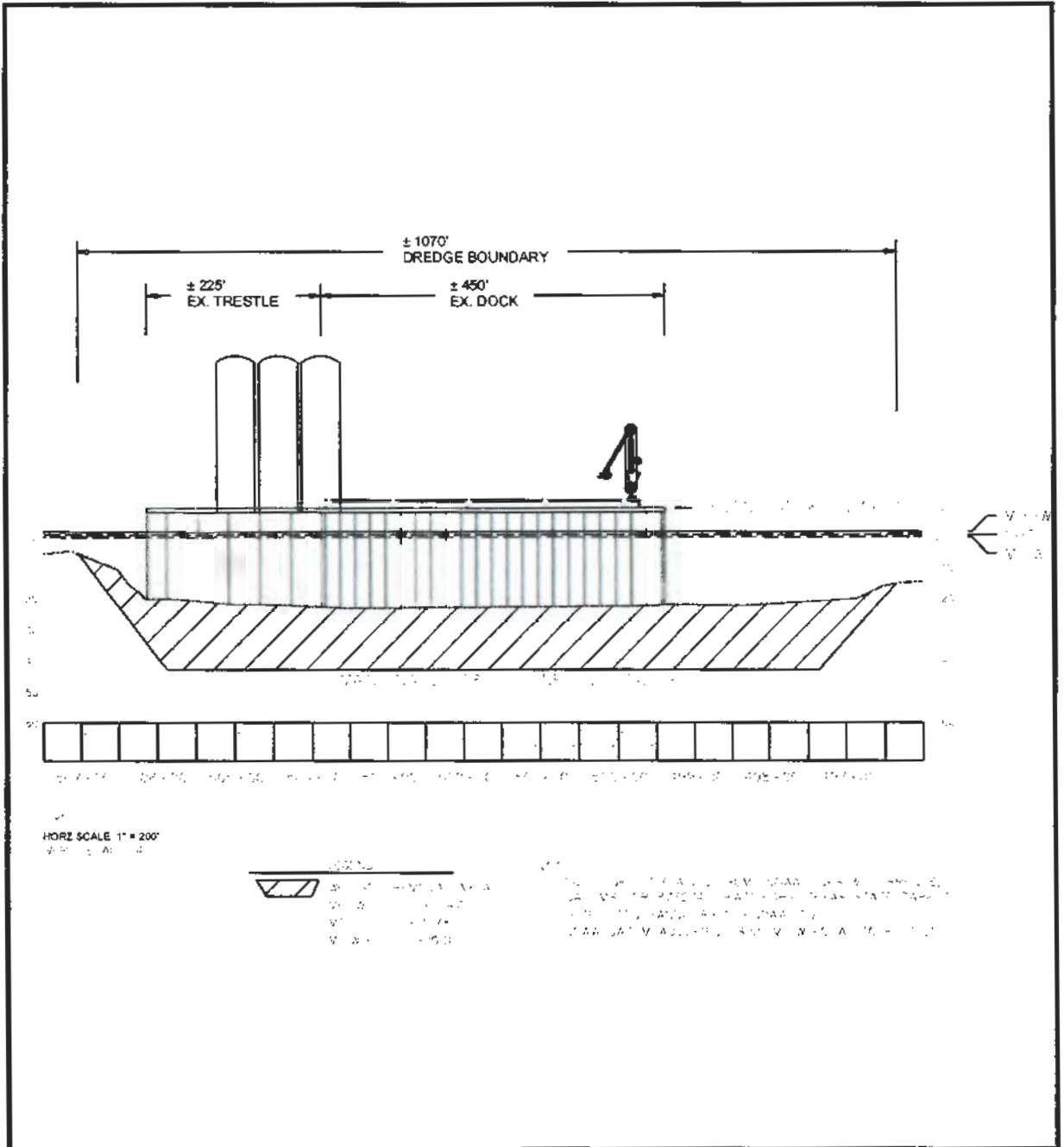


Figure 7
Horizontal Dredge
Harris County, Texas

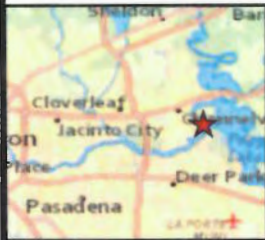
Datum: NAD 1983
Projection: UTM
Zone: 15 North
Units: Meters

Prepared By: ATKINS/PATT6857	Scale: IN FIGURE
Job No.: 100041387	Date: Oct 05, 2015

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Datums for 8770743, Battleship Texas State Park, TX



 Wet Soil Removal Area

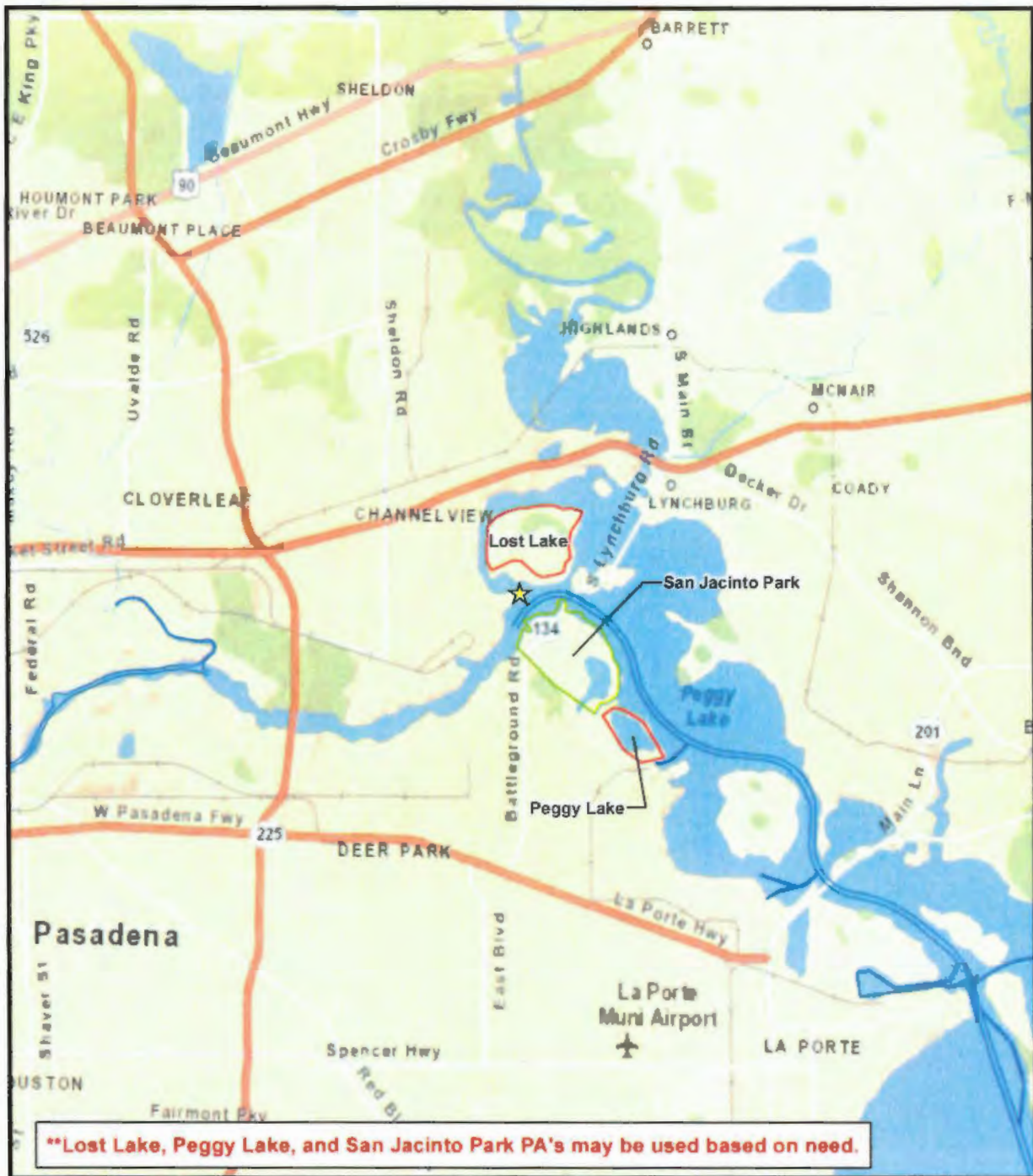


Figure 8
Tide Lines
Harris County, Texas

Datum: NAD 1983
Projection: UTM
Zone: 15 North
Units: Meters

Prepared By: ATKINS/PATT6857 Scale: IN FIGURE
Job No.: 100041387 Date: Oct 05, 2015

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- ★ Project Location
- Ship Channel
- Potential Dredge Material Placement Areas (DMPA)**
- Type
- Beneficial Use Site
- USACE DMPA



Figure 9
Cemex Zavalla DMPA Sites
Harris County, Texas

Datum: NAD 1983
 Projection: UTM
 Zone: 15 North
 Units: Meter
 Imagery: Nat Geo World

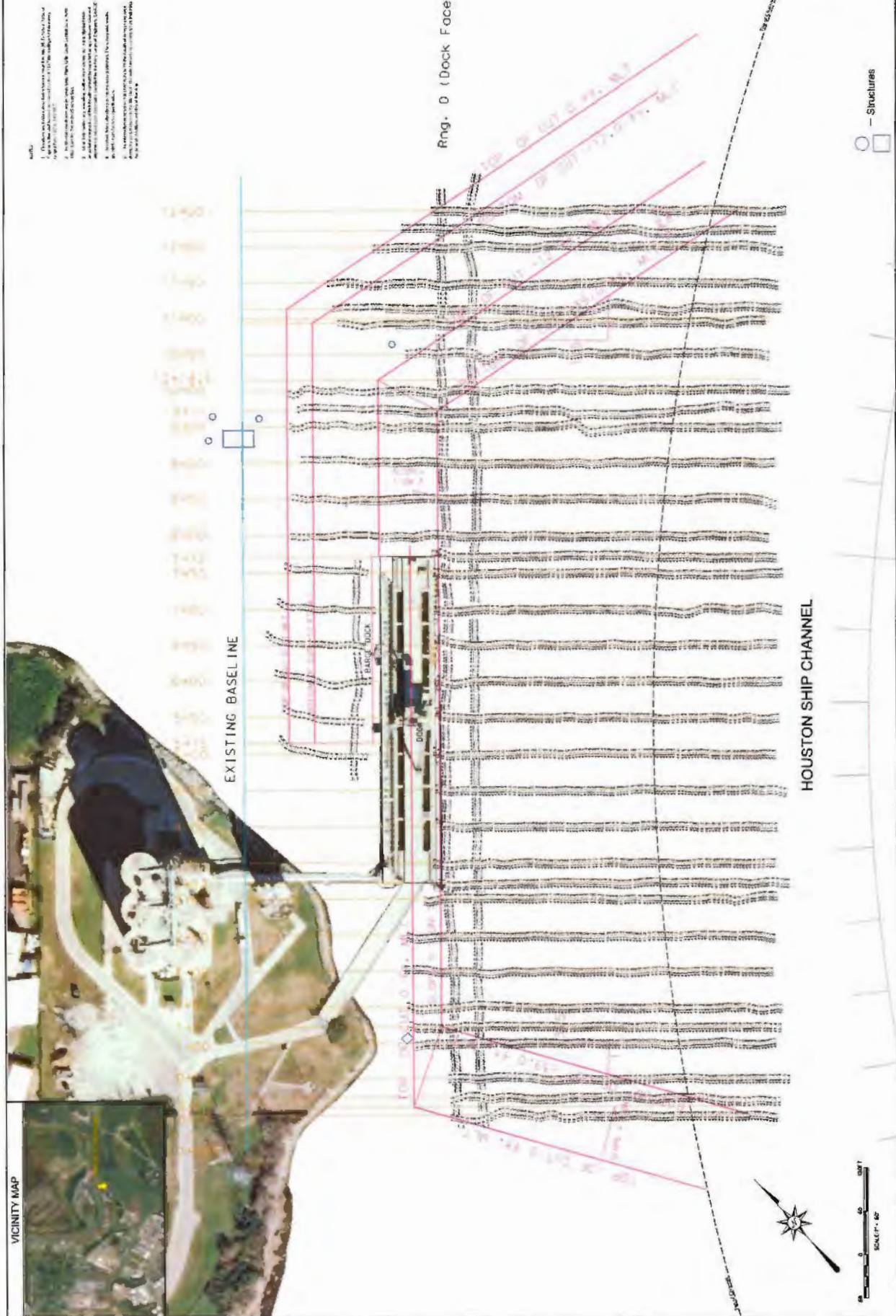


Prepared By: ATKINS/PATT6857	Scale: 1" = 2 miles
Job No.: 100041387	Date: Oct 05, 2015

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Esri, DeLorme, HERE, USGS, Intermap, iPC, NRCAN, METI, TomTom, World Street Map, March 2014, 1:150,000; generated by Atkins, using ArcMap.
 *http://server.arcgisonline.com/ArcGIS/rest/services/World_Street_Map/MapServer (05 October 2015)

Enclosure 2A CEMEX AD Bathymetry, March 2015



- NOTES:**
1. Bathymetric data was collected using a dual frequency echosounder mounted on a survey vessel. The data was processed using the following parameters:
 - a. Sound velocity: 1480 m/s
 - b. Transducer depth: 1.0 m
 - c. Transducer offset: 0.0 m
 - d. Transducer type: EK60
 - e. Transducer frequency: 700 kHz
 - f. Transducer beam width: 1.2 degrees
 - g. Transducer mounting: 1.0 m
 - h. Transducer orientation: 0.0 degrees
 - i. Transducer alignment: 0.0 degrees
 - j. Transducer calibration: 0.0 degrees
 - k. Transducer correction: 0.0 degrees
 - l. Transducer correction: 0.0 degrees
 - m. Transducer correction: 0.0 degrees
 - n. Transducer correction: 0.0 degrees
 - o. Transducer correction: 0.0 degrees
 - p. Transducer correction: 0.0 degrees
 - q. Transducer correction: 0.0 degrees
 - r. Transducer correction: 0.0 degrees
 - s. Transducer correction: 0.0 degrees
 - t. Transducer correction: 0.0 degrees
 - u. Transducer correction: 0.0 degrees
 - v. Transducer correction: 0.0 degrees
 - w. Transducer correction: 0.0 degrees
 - x. Transducer correction: 0.0 degrees
 - y. Transducer correction: 0.0 degrees
 - z. Transducer correction: 0.0 degrees
 2. Bathymetric data was collected on a regular grid with a spacing of 10 meters.
 3. Bathymetric data was collected at a depth of 1 meter below the surface.
 4. Bathymetric data was collected at a depth of 1 meter below the surface.
 5. Bathymetric data was collected at a depth of 1 meter below the surface.
 6. Bathymetric data was collected at a depth of 1 meter below the surface.
 7. Bathymetric data was collected at a depth of 1 meter below the surface.
 8. Bathymetric data was collected at a depth of 1 meter below the surface.
 9. Bathymetric data was collected at a depth of 1 meter below the surface.
 10. Bathymetric data was collected at a depth of 1 meter below the surface.

		Prepared by: Chris Ransome & Associates, Inc. 2121 Birmingham Road, Suite 4000 Houston, TX 77043 Phone: 713.866.4828 Fax: 713.862.2788	Post-Ordnance hydrographic survey Houston Ship Channel De Zavalla Facility CEMEX
NO. _____ REVISIONS BY DATE	PROJECT NUMBER: _____ SHEET NUMBER: _____ SHEET TOTAL: _____ DATE: _____ DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____ TITLE: _____ SCALE: _____ PROJECT LOCATION: _____	PREPARED FOR: CEMEX Houston Ship Channel De Zavalla Facility	PROJECT NUMBER: _____ SHEET NUMBER: _____ SHEET TOTAL: _____ DATE: _____ DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____ TITLE: _____ SCALE: _____ PROJECT LOCATION: _____