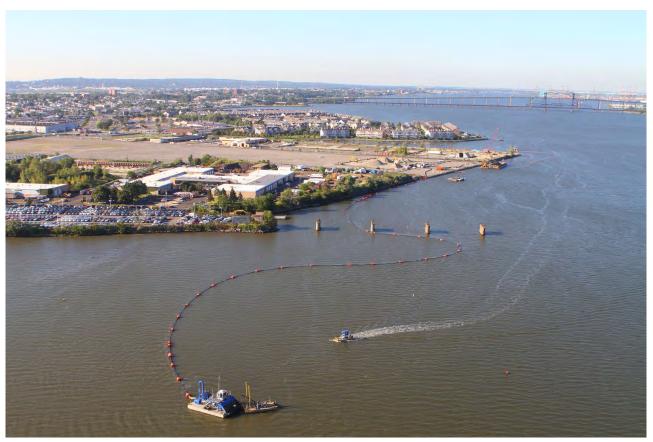
STUDY AREA 7 SEDIMENT REMEDY DOCUMENTATION AND REMEDIAL ACTION SUMMARY REPORT



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EXECUTIVE SUMMARY

This report summarizes the implementation of a sediment remedy during the period of 2012 to 2013 within the Hackensack River in the vicinity of Study Area (SA) 7, which is located along Route 440 in Jersey City, New Jersey (Site). This work was conducted in accordance with the Consent Order on Sediment Remediation and Financial Assurances (Consent Order) entered by the U.S. District Court, District of New Jersey, on May 28, 2008 in the matter of Interfaith Community Organization et al vs. Honeywell International et al, and Riverkeeper, Inc., et al vs. Honeywell International et al (Civil Action Nos. 95-2097 and 06-0022; and as amended on September 4, 2013 as the First Amended Consent Order on Sediment Remediation and Financial Assurances). The Consent Order entered by the U.S. District Court sets forth the specific components of dredging, capping, and monitored natural recovery (MNR) for the Sediment Remedy.

The Consent Order, under Rule 53 of the Federal Rules of Civil Procedure, also specified the appointment of a Special Master, Senator Robert G. Torricelli, who is overseeing the implementation of the sediment remedy.

The remediation was conducted in accordance with the Implementation Plan and Specifications provided in the 100% Design Report, Study Area 7 Sediment Remedy (100% Design) dated April 18, 2012. Major remedy components included:

- Dredging and subsequent capping within a 0.5 acre area adjacent to the SA-7 bulkhead. In general, sediments in the specified areas were dredged to a depth of 2 feet (ft) and then an 18-inch cap was placed over the dredge area.
- Capping of surface sediments (i.e., between depths of 0 to 1 ft) with total chromium concentrations greater than 370 parts per million (ppm). In general, the placement of capping material in these areas achieved at least a 1 ft layer of natural sediments and/or cap material with a concentration of less than 370 ppm total chromium.

Post remedy construction requirements include implementation of the Long-Term Monitoring Plan that will include assessing the ongoing effectiveness of the sediment remedy (i.e., maintenance and/or verification of cap integrity, data collection on nature of benthic community following implementation, erosion monitoring of MNR areas). Long term monitoring will occur for approximately 15 to 25 years, depending on the results, following implementation of the remedy.

The Documentation and Remedial Action Summary Report provides a single reference source for key project documentation including record drawings of sediment dredging and constructed sediment caps, sediment cap verification sampling, and daily construction activities.

For cap areas which have been deferred to a future date (Cap Areas 16, 22, and 28), an addendum to this report will be prepared and annexed to this report.

1.0 INTRODUCTION

1.1 Purpose and Scope

This Documentation and Remedial Action Summary Report (Report) summarizes and documents the implementation of sediment remediation activities within the Hackensack River (Site) in the vicinity of Honeywell's Study Area 7 (SA-7) property in Jersey City, New Jersey. The remedial activities were conducted in accordance with the *100% Design Report for the Study Area 7 Sediment Remedy* (100% Design) prepared by ENVIRON International Corp. (ENVIRON) and Cornerstone Engineering Group, LLC. (Cornerstone), and last revised in April 2012.

1.2 Project Background

SA-7 is a 34-acre parcel of man-made land located west of State Route 440 and north of Kellogg Street in Jersey City, New Jersey. The site is bordered by the Jersey City municipal facilities of the Jersey City Incinerator Authority (JCIA), Jersey City Municipal Utilities Authority (JCMUA), and Jersey City Department of Public Works (JCDPW) to the north, and various former industrial/commercial facilities to the south (see Figures 1 and 2). The SA-7 sediment remediation area covers 71 acres of the Hackensack River.

From the early 1900s to 1954, the Mutual Chemical Company operated a chromite ore processing facility east of Route 440, currently where a shopping center housing the Home Depot and a retail store are located. The processing facility produced chromium products that were essential ingredients in hardened steel and stainless steel, and other commercial and retail products. The process produced a waste known as chromite ore processing residue (COPR).

The Mutual Chemical Company deposited COPR to create the land that is SA-7. Honeywell became the responsible party for the site through a series of business transactions and mergers. In May 2003, a Federal court ruling directed Honeywell to excavate and dispose of approximately 1 million cubic yards of COPR fill that had been placed to create the site. This work was performed between 2005 and 2009, and was documented in the August 17, 2010 *Study Area 7 Completion, Documentation and Remedial Action Report* prepared by Honeywell.

A Consent Order on Sediment Remediation and Financial Assurances (Consent Order) approved by the U.S. District Court, District of New Jersey, on May 28, 2008 in the matter of *Interfaith Community Organization et al vs. Honeywell International et al*, and *Riverkeeper, Inc., et al vs. Honeywell International et al* (Civil Action Nos. 95-2097 and 06-0022) required the remediation of sediments within the Hackensack River in the vicinity of the SA-7 sediment area. The Consent Order, as amended in September 2013, set forth the following specific components of dredging, capping, and monitored natural recovery (MNR) for the Sediment Remedy and the requirements for a long-term monitoring program (LTMP):

- Dredging and subsequent capping in a 0.5 acre area adjacent to the SA-7 bulkhead. Sediments were dredged to a depth of 2 feet (ft) and then capped with 18 inches of sand and armoring.
- Capping of surface sediments (i.e., between depths of 0 to 1 ft) with total chromium concentrations greater than 370 parts per million (ppm) to achieve a 1 ft layer of natural

sediments and/or cap material with a concentration of less than 370 ppm total chromium.

- o A six-inch cap placed over a total of 19 acres
- o A twelve-inch cap placed over a total of 18 acres
- MNR in a total areas of 33 acres where sediments less than 1 ft below the sediment surface are below 370 ppm total chromium but sediments deeper than 1 ft in these areas exceed 370 ppm.
- Long-term monitoring to assess the on-going effectiveness of the sediment remedy (i.e., maintenance and/or verification of cap integrity, data collection on nature of benthic community following implementation, erosion monitoring of MNR areas). Long-term monitoring will be performed in accordance with a Long-Term Monitoring Plan (LTMP) for a period of approximately 15 to 25 years, depending on the results, following implementation of the remedy.

In addition to the sediment remedy, the Consent Order requires that Honeywell implement Beneficial Environmental Projects (BEPs). These BEPs are addressed separately from the sediment remediation project documented in this Report.

1.3 Permitting

Permits from the United States Army Corps of Engineers (USACE), New Jersey Department of Environmental Protection (NJDEP) Division of Land Use Regulation (DLUR), and Hudson-Essex Passaic Soil Conservation District were required for the dredging and capping activities. The following table summarizes the permits obtained over the course of the sediment remedy project:

Table 1.3.1 Permit Summary				
Permit Issuing Agency Purpose Status				
Individual Waterfront Development Permit and Water Quality Certificate for Sediment Remedy (No. 0906-08-0002.4 WFD100001)	NJDEP Office of Dredging and Sediment Technology	Authorizes the remediation of contaminated sediments in the Hackensack River in the area offshore from SA-7.	The permit expires on 05/26/2016.	
Pre-Construction Notice – Nationwide Permit #38 for Sediment Remedy (No. NAN-2013-00232-WSC)	US Army Corps of Engineers	Authorizes the remediation of contaminated sediments in the Hackensack River in the area offshore from SA-7.	The permit expires on 03/18/2017.	
Tidelands Licenses for Sediment Remedy – Capping (No. 0906-04- 0019.4 TDI130001)	NJDEP Division of Land Use Regulation	Allows for the capping of 2,074,852 square feet of tidelands in the Hackensack River	The annual license expires on 07/21/2014.	
Tidelands Licenses for Sediment Remedy – Dredging (No. 0906-04- 0019.4 TDI120001)	NJDEP Division of Land Use Regulation	Allows for the dredging of approximately 2,000 CY of material in the Hackensack River	Expired on 07/21/2013.	

Table 1.3.1 Permit Summary				
Permit Issuing Agency Purpose Status				
Soil Erosion and Sediment Control Plan Approval	Hudson-Essex- Passaic Soil Conservation District	Certifies SES' Soil Erosion and Sediment Control Plan	Approved on 06/21/2012.	

Note that the NJDEP Individual Waterfront Development Permit and Water Quality Certificate for Sediment Remedy and the USACE Nationwide Permit #38 for Sediment Remedy restricted in-water activities from January 1 to June 30 of each year. On December 31, 2012, the USACE and NJDEP issued a 1-week extension to allow in-water work during the first week of January 2013.

Copies of the permits are provided in Appendix A.1.

1.4 Roles and Responsibilities

The following parties were involved in the design and implementation of the Study Area 7 Sediment Remediation project:

Table 1.4.1 Roles and Responsibilities				
Party Responsibility				
Honeywell	Overall compliance with court-ordered remediation			
ENVIRON International Corporation (ENVIRON) Remedial Design and Construction Management				
Cornerstone Environmental Group, LLC (Cornerstone) Remedial Design				
AnchorQEA	Construction Quality Assurance			
Sevenson Environmental Services (SES) Remediation Contractor				
Louis Berger Group	Representative of the Special Master ¹			

1.5 Initial Submittals

As described in the 100% Design, means and methods to be employed for the sediment remedy implementation were described in initial submittals prepared by SES; these submittals covered the

The Consent Order, under Rule 53 of the Federal Rules of Civil Procedure, specified the appointment of a Special Master, Senator Robert G. Torricelli, who oversaw the implementation of the Sediment Remedy and will oversee the first 5 years of the LTMP. If after 5 years of long-term monitoring the Special Master is still supervising other portions of work being performed pursuant to the Consent Order, the Special Master will continue to oversee the LTMP implementation as long as this other work is being performed.

following activities:

- Specific construction methods/techniques and equipment proposed for material delivery, capping and dredging;
- Selection and sourcing of capping materials;
- Loading and unloading methods for capping materials;
- Handling, transporting and disposing of dredged material; and
- Contractor-specific Health & Safety Plan.

Implementation plans prepared by SES in accordance with the 100% Design are provided in Appendix A.2.

1.6 Construction Overview

Sevenson Environmental Services (SES) mobilized to the site on May 21, 2012 and began implementation of the sediment remedy on July 25, 2012. Initially, SES demonstrated capping means and methods as part of the ramp-up phase operations in intertidal cap areas (Cap Areas 13 and 11) and subtidal cap areas (Cap Area 3). The full-scale operations in subtidal areas were initiated on August 23, 2012 (Cap Area 20) and in intertidal areas on August 22, 2012 (Cap Area 12). Capping operations continued through January 4, 2013 (First Construction Season). Sediment removal activities were initiated on July 26, 2012 and concluded on August 29, 2012. Verification activities were conducted concurrent with the sediment removal and capping activities and extended through January 25, 2013 for the First Construction Season. In-water work was discontinued from January 4 to July 8, 2013 due to permit-imposed seasonal restrictions.

Between January 4 and February 8, 2013 SES completed temporary demobilization from the Site. On July 8, 2013, SES initiated remobilization for the Second Construction Season. In-water work resumed on July 29, 2013 and continued through October 8, 2013. Verification activities were conducted concurrent with the sediment capping activities, and were completed on October 8, 2013. SES completed final demobilization during the period of October 8 through 25, 2013.

The remedial construction activities included the following major components:

- Setup of temporary construction facilities.
- Implementation of the Health and Safety Plan.
- Removal, transport and off-site disposal of approximately 2,035 tons of dredged sediments.
- Removal, transport and off-site disposal of approximately 272 tons of debris recovered from the intertidal cap areas.
- Placement of approximately 192,951 tons of clean capping material (i.e., sand, filter and armoring) in 27 intertidal and subtidal cap areas² using hydraulic and mechanical placement methods.

Note that the Consent Order defined 30 cap areas requiring remediation, of which Cap Areas 1 through 15, 17 through 21, 23 through 27, 29, and 30 have been completed. Capping of Cap Area 28 has been deferred pending completion of repairs to a water main by others and will be documented in a supplemental Completion Report. Capping of Cap Areas 16 and 22 will be incorporated into the BEP, which is currently being designed.

• Placement of long-term monitoring plates in each cap area for use as part of the LTMP.

Figures 2 and 3 provide the layout of the dredging and capping areas.

The sediment remedy implementation and related activities at the site were documented by:

- Daily reports prepared by ENVIRON (included in Appendix B.1).
- Dredging Completion Report submitted to NJDEP by Honeywell (included in Appendix B.2).
- The First, Second, and Third Sediment Remedy Declaration Reports submitted to the U.S. District Court, District of New Jersey, documenting the sediment remedy implementation for SA-7 (included in Appendix B.3).

2.0 HEALTH AND SAFETY

2.1 Health and Safety Overview

AMEC as the Site Manager served as the Health and Safety Coordinator for Honeywell. As the Site Manager, AMEC's main responsibilities included:

- Preparing and updating the site HASP for sediment remediation activities.
- Operating perimeter (fixed) and mobile air monitoring stations.
- H&S oversight of Honeywell and Site Management Team personnel on site.
- Providing initial site orientation training to new staff.
- Reviewing and approving contractor HASPs and safety procedures.
- Receiving, reviewing and approving contractor incident reports.
- Tracking and reporting site man-hours and incident rates.
- Maintaining employee training and medical surveillance records.
- Overseeing the site security contractor (Wackenhut).
- Issuing access/ID badges and monitoring site access.

Direct responsibility for employee safety was retained by each contractor. The contractors' responsibilities included:

- Preparing a site-specific HASP and safety procedures.
- Conforming to Honeywell's Remediation & Evaluation Services Contractor Safety Workbook.
- Ensuring that each employee was properly trained in hazardous waste operations and emergency response (HAZWOPER) and all other appropriate construction safety regulations.
- Ensuring that each employee was included in a medical surveillance program consisting of pre-assignment, annual and exit physicals.
- Providing daily "toolbox talk" safety instruction.
- Conducting personal air sampling of employees to monitor exposure to airborne hazards as needed.
- Providing Personal Protective Equipment (PPE) as needed.
- Ensuring employee compliance with site and contractor safety rules.
- Conducting an incident investigation and providing an incident report to Site H&S in the event of an employee injury, property damage, or near miss incident.

As the Construction Manager, ENVIRON's responsibilities included:

- Preparing and updating the site HASP.
- H&S oversight of Construction Management Team personnel on site.
- Reviewing contractor HASPs and safety procedures.
- Conducting inspections of site activities to ensure contractor compliance with the HASP and all applicable OSHA regulations.
- Receiving, reviewing and approving contractor incident reports.
- Tracking and reporting site man-hours and incident rates.
- Maintaining employee training and medical surveillance records.

During the course of the project, approximately 1,800 person-days were worked on site. There were five OSHA recordable incidents and one near miss, none of which resulted in lost or restricted work days.

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An Air Monitoring Program³ was maintained by AMEC to monitor on-site conditions. During the SA-7 sediment remediation project, there were no recorded employee exposures above the OSHA Permissible Exposure Limit (PEL). There was a single event on August 26, 2013 when dust was detected at a concentration above the particulate air monitoring Warning Level set at 250 micrograms per cubic meter (250 ug/m³) along the southern boundary of the site. The elevated reading was attributed to dusts generated by high winds blowing over the clean capping material in the stockpile area as these materials were loaded into the hopper. Dust suppression was immediately implemented by wetting of the stockpile material to reduce dust generation.

2.2 Noise Monitoring

2.2.1 Baseline Noise Survey

On December 15 and 16, 2010 ENVIRON completed a baseline sound pressure level survey to define ambient conditions in the vicinity of the Site and to assess potential sound levels associated with equipment operating on the SA-7 site. To simulate the proposed remediation work, construction equipment being used for the SA-5 remediation was operated at SA-7. At all monitoring locations, sound level measurements were continuously collected for at least ten minutes under ambient conditions as well as with equipment operating on SA-7. The details and results of the sound measurement activities for both ambient and equipment operating conditions are provided in the March 29, 2011 memorandum from ENVIRON to Honeywell (Study Area 7 – Baseline Sound Level Measurement Survey), included in Appendix C.1.

Sound levels were compared to recommended maximum permissible sound levels for residential properties as defined by the *NJDEP Model Noise Control Ordinance*, *June 2010*. Based on the results of the baseline noise survey, it was concluded that:

- The ambient sound pressure levels were already above the recommended permissible level of 50 dB between the hours of 2200 and 0700 (i.e., unrelated to equipment operations).
- Operation of construction equipment at SA-7 was not expected to raise sound levels near residential properties south of the site (near the residences located at Society Hill at Droyers Point).
- Operation of construction equipment at SA-7 did not result in significant changes to sound levels along Kellogg Street.

2.2.2 Noise Monitoring

During the implementation of the sediment remedy, SES conducted routine noise level monitoring to check the noise levels generated by routine on-site operations. On October 11, 2012, SES conducted an additional sound pressure level survey to define the impact of crane operations proposed for loading of capping material during nighttime hours (2200 to 0700) at the southwest corner of the former Colonial Concrete site Background noise levels were also measured at Society Hill during the test operation. The details and results of the sound measurement activities for both ambient and equipment operating

³ The perimeter air monitoring program was implemented by AMEC, the SA-7 Site Manager, as part of the upland construction activities occurring concurrently with implementation of the SA-7 Sediment Remedy.

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conditions are provided in the submittal dated October 16, 2012 from SES regarding "Noise Survey for Crane Operations"; a copy is included in Appendix C.2. The October 11, 2012 noise survey concluded the operations would not result in excess off-site noise levels.

On October 16, 2012, SES conducted an additional sound pressure level survey to define the assess the significance of loading stone into empty hopper barges during nighttime hours (2200 to 0700) at the southwest corner of the former Colonial Concrete site, across the Droyers Cove at Society Hill at Droyers Point. The details and results of the sound measurements for both ambient and equipment operating conditions are provided in the submittal dated October 16, 2012; a copy is included in Appendix C.2. Although noise levels were slightly higher, the noise survey concluded the operations would not result in excess off-site noise levels.

3.0 MOBILIZATION AND SITE PREPARATION

SES mobilized to the site from May 21, 2012 to July 25, 2012. During this period, SES:

- Installed soil erosion and sediment control measures around the capping material stockpile area located on the upland area of SA-7 (see Appendix A.2.viii for SES Material Stockpile and Staging Plan).
- Setup two hydraulic delivery systems for capping operations consisting of feed-hoppers, conveyors, slurry mixing tank and slurry pump system.
- Constructed a temporary dock structure on the southwest corner of the former Colonial Concrete plant using flexi-floats.
- Mobilized the following equipment:

o Spreader	barges (2)
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- o Tug boat
- o Tender boat
- o Pontoon visitors' boat
- Crane boat
- o 150' by 37' hopper barge
- o 30' by 80' deck barge (2)
- o 10' by 40' barge (2)
- o PC490 excavator
- o PC220 excavator
- o CAT 330 excavator
- o Vergona crane
- o TB 228 mini excavator
- o WA380 loader (2)

- o D39 dozer
- o D65WX dozer
- o JCB fork lift
- o Kubota RTV (2)
- o 20' sea container (3)
- o 20 CY dumpster
- o 2,000-gallon fuel tank (3)
- o 500-gallon fuel tank
- o 500-gallon diesel tank
- o Crane mats (11)
- o Danforth anchors (18)
- o Spuds (2)
- o Air compressor
- o 125 kVa Genset generator

During this time period, SES also setup of offices in the 80 Kellogg building, temporary facilities near the dock, and the GPS reference stations used by its marine equipment. As described in the following sections, the following additional equipment was mobilized once the remedial activities were underway:

- Hopper barges (2)
- 21,000-gallon frac tank
- CAT349 excavator
- CAT5110 excavator
- Telebelt conveyor system
- Superior conveyor belt

- Crawler crane
- Manitowac 222 crane
- Vergona crane
- Komatsu Dump Truck
- Assorted deck barges

Between July 8, 2013 and July 29, 2013, SES remobilized for the Second Construction Season. During this period, SES:

- Repaired and installed additional soil erosion and sediment control measures around the capping material stockpile area located on the upland area of SA-7.
- Reestablished the temporary dock on the southwest corner of the former Colonial Concrete plant using flexi-floats.

- Assembled a conveyor system and flexi-float scows for loading and transport of capping material directly from the capping material stockpile area on SA-7 property
- Mobilized the following equipment:

o 10' by 40' flexi-floats (29)

o Scows (8)

o Pontoon visitors' boat

o Push boats (2)

o Crane boat

o PC220 excavator

o CAT345 excavator

o CAT 330 excavator

o Stacking conveyor (2)

o Komatsu Dump Truck

o D65WX dozer

o JCB fork lift

o CAT 950G front-end loader

o 20' sea container (4)

o 20 CY dumpster

o 2,000-gallon fuel tank

o 500-gallon fuel tank (2)

o Crane mats (23)

o Laminated crane mats (50)

o Assorted spuds and spud wells

o Whisperwatt 125 generator

During this time period, SES also setup of office trailers for project personnel on the former Degen Oil parcel, temporary facilities near the dock, chain-link fencing around the designated Support Zone, and the necessary GPS reference stations. As described in the following sections, the following additional equipment was mobilized once the remedial activities were underway:

- Assorted tugboats
- JCB skidsteer
- PC300 excavator
- CAT345LF excavator
- CAT345A excavator

4.0 SEDIMENT REMOVAL

The sediment remedy included dredging and subsequent capping of an approximately 0.5 acre area adjacent to the SA-7 bulkhead designated as Cap Area 23 (refer to Figure 2). Sediments were dredged to a depth of 2 feet and then capped with 18 inches of sand and armoring. In addition, sediment was removed from Cap Area 12 (combined sewer outfall area; see Figure 2) to allow sediment capping to be performed without interfering with the operation of the municipal combined sewer outfall tidal flap. Details of the capping of these areas are provided in Section 5.0 (Sediment Capping).

4.1 General Construction Activities

4.1.1 Pre-Removal Activities

As required by the 100% Design the following tasks were to be completed prior to initiating the sediment removal activities:

- On July 5, 2012, a bathymetric survey of the proposed dredging area was conducted to establish existing conditions and define the removal prism. The pre-dredge bathymetry is provided in Appendix D.1.
- On July 12, 2012, SES began the temporary removal of materials from the SA-6N area to an elevation of 10-ft NGVD for a setback distance of 60 feet. East Coast Surveying surveyed the unloading area to confirm that materials were removed to the required extents and elevation. Excavated soils were placed on plastic sheeting and surrounded by silt fence in accordance with the SESC Plan. The stockpile was also covered with plastic sheeting at the conclusion of removal of soils on July 27, 2012.
- On July 21, 2012, LandMarker Geospatial began the SA-7 bulkhead monitoring program by establishing the baseline pre-dredge conditions. This program consisted of periodic surveying (approximately three time per week) of optical monitoring points spaced at approximately 100 foot intervals along the bulkhead. Throughout dredging operations and during capping operations in Cap Area 23 conducted in October 2012, LandMarker Geospatial collected bulkhead stability monitoring data through October 23, 2012. A final post-capping measurement was made on December 1, 2012. The results of bulkhead monitoring program monitoring are presented in Appendix E.1.

4.1.2 Sediment Removal and Management

Sediment removal activities in Cap Area 12 (combined sewer outfall area; see Figure 3) were conducted on July 23, 2012. Sediment removal activities in Cap Area 23 (see Figure 2 and Figures 4 through 7) commenced on July 26, 2012 and concluded on August 29, 2012. SES used a PC490 excavator with clamshell bucket to perform sediment removal activities. SES utilized an automated system for recording the position and depth of the excavator bucket. This system included GPS positioning antennae linked to SES's base station, inclinometers to the boom and stick, and a bucket switch datalogger which automatically activated when the clamshell bucket was in the closed position. These data were managed using Dredgepack® software and used to generate a daily record of the area and depth of dredged sediments.

Dredged sediment was directly loaded into hopper barges staged next to the sediment dredge barge. During sediment removal in Cap Area 12, materials were loaded into small scows (approximate capacity of 15 CY) for subsequent transfer to hopper barges using the PC490 excavator. Between passes, the excavator bucket was rinsed in a dedicated rinse water tank staged on the dredge barge. In accordance with NJDEP Waterfront Development Permit conditions and SES' *Contaminated Water Management Plan*, upon filling of the hopper barge, excess water was decanted for a 24-hour period and shunted into the Hackensack River. Following decanting, the hopper barges were transported to the Clean Earth Claremont Dredged Material Recycling Facility (DMRF) located in Jersey City, NJ for processing and off-site disposal.

At the completion of dredging operations, the contents of the wash tank were pumped to a frac tank and handled in accordance with SES' *Contaminated Water Management Plan*. On January 31, 2013, Allstate Power Vac removed 2,000 gallons of water from the on-site frac tank and transported it to the Clean Earth DMRF for treatment and disposal.

4.1.3 Sediment Removal Verification Activities

Sediment removal verification activities included confirmation of the extent of removal, verification of the depth of removal and determination of the amount of sediment removed. Real time monitoring of the extent of removal activities was performed by the equipment operator through the Dredgepack® software.

As described above, sediment removal operations included a GPS unit that tracked the time and location at which sediment was removed. From these data, SES provided daily tracking of the extent and quantity of sediments removed. Upon completion of the sediment removal, the final extent of sediment removal was confirmed by comparison of topographic surfaces generated from pre- and post-removal bathymetric surveys.

In addition, ullage logs were maintained for each hopper barge into which dredged sediment was placed. Ullage measurements were made on the four corners of each hopper barge after loading and unloading. These measurements were used to ensure that there was no material loss during transport and estimate the amount of material delivered to Clean Earth. Actual quantities of sediment removed were determined by comparison of topographic surfaces generated by AutoCAD from the pre- and post-removal bathymetric surveys. The final post-removal bathymetry is provided in Appendix D.2.

A total of 2,035.2 CY of dredged sediments were transported and disposed at the Clean Earth Dredging Technologies Inc. Dredged Material Processing Facility in Kearny, NJ.

4.1.4 Post-Removal Activities

As required by the 100% Design, several tasks were completed following the sediment removal activities. These activities included:

• A bathymetric survey of the completed dredging area was conducted on September 17, 2012 to document the as-built conditions and ensure that the target removal prism had been dredged. To the extent necessary (e.g., around the battered piles), the survey was supplemented or verified with soundings or lead line measurements performed from the deck of the crane boat (see Appendix D.2).

• Upon completion and verification of the sediment removal activities, SES backfilled and restored the SA-6N unloading area between October 25 and 26, 2012 using the previously removed activities.

On November 1, 2012 (after Hurricane Sandy), ENVIRON and SES inspected the impacts to the backfilled historic fill at SA-6N. The shoreline directly above the timber bulkhead was partially eroded and was thus restored on November 6, 2012. In addition, to improve the stability of this portion of the shoreline and limit potential future erosion, SES lined the slope with 6-inch rip-rap which was underlain by a separation geotextile.

4.1.5 Backfilling

At the conclusion of dredging operations, the sediment removal areas were backfilled in accordance with the capping requirements provided in the Consent Order and the 100% Design Report. Details of the capping activities in Cap Areas 12 and 23 are provided in Sections 5.5.12 and 5.5.21, respectively.

4.2 Reporting

The sediment removal operations and associated activities were documented in:

- Daily reports prepared by ENVIRON (included in Appendix B.1).
- Dredging Completion Report submitted to NJDEP by Honeywell on January 2, 2013 (included in Appendix B.2).
- The First Sediment Remedy Declaration Report submitted to the U.S. District Court, District of New Jersey documenting the sediment remedy implementation for SA-7 (included in Appendix B.3).

5.0 SEDIMENT CAPPING

The sediment remedy required by the Consent Order included capping of approximately 37.5 acres as follows:

- A 6-inch cap placed over 19 acres where sediments at a depth of six inches or less below the sediment surface do not exceed 370 ppm total chromium, but sediments greater than six inches but less than 12 inches below the sediment surface exceed 370 ppm total chromium.
- A 12-inch cap placed over 18 acres where sediments in the upper six inches or less below the sediment surface exceed 370 ppm total chromium.
- An 18-inch thick cap within the 0.5-acre dredged area.

The locations and designations of sediment capping areas as provided for in the Consent Order are shown in Figures 2 and 3.

The Consent Order defined the following minimum thickness requirements:

- Where a 6-inch cap thickness is required, at least 95 percent of the quality control/quality assurance measurements of total cap thickness taken during construction must be equal to or greater than six inches, and no individual measurement can be less than four inches.
- Where a 12-inch cap thickness is required, at least 95 percent of the quality control/quality assurance measurements of total cap thickness taken during construction must be equal to or greater than 12 inches, and no individual measurement can be less than 10 inches.
- Where an 18-inch cap thickness is required, at least 95 percent of the quality control/quality assurance measurements of total cap thickness taken during construction must be equal to or greater than 18 inches, and no individual measurements can be less than 16 inches.

The Consent Order also required that for any specified capping area, the amount of capping materials placed had to equal at least 110% of the anticipated necessary cap material by weight.

SES began implementation of the sediment remedy on July 25, 2012. Initially, SES demonstrated hydraulic capping means and methods (i.e., spreader barge) as part of the ramp-up phase operations in intertidal Cap Area 13 and subtidal Cap Area 3. The full-scale hydraulic placement operations were initiated on August 23, 2012 and were completed on November 21, 2012. SES demonstrated mechanical capping means and methods (i.e., excavator with clamshell bucket) as part of the ramp-up phase operations in intertidal Cap Area 11. The full-scale mechanical capping operations commenced on August 22, 2012. Capping operations continued through January 4, 2013 (First Construction Season). In-water work was discontinued from January 4 to July 8, 2013 due to permitting restrictions. Mechanical capping operations resumed on July 29, 2013 and continued through October 8, 2013 (Second Construction Season). Verification activities were conducted concurrent with the capping activities.

5.1 Field Changes to Design

The following sections summarize the field changes that were made to the 100% Design during implementation of the SA-7 sediment remedy. Documentation of these field changes to the 100% Design is included in Appendices A.2 and H, as noted in the following sections.

5.1.1 Substitution of Three Armor Material Sizes with Single Armor Material Size

To facilitate material handling, ASTM-1 (2.5-inch armor material) was used in place of the 1.5-inch, 1.6-inch, and 2-inch armor material originally proposed in the 100% Design. The modification did not affect the cap design as larger sized armoring than required was being provided. This modification is reflected in Note 2 on the Cap Material Placement Drawings included in Appendix A of SES' Capping Plan (see Appendix A.2.xiii).

5.1.2 Shoreline Protection Modifications

As a result of the changes in the mechanical cap placement methods (i.e., the addition of the Telebelt system), SES requested to use ASTM-1 (2.5-inch armor material) for shoreline protection instead of 6-inch armor (rip-rap). The commercially available ASTM-1 material has a maximum particle size of four inches, which is the maximum particle size that the Telebelt system can handle. As detailed in the September 27, 2012 Memorandum to Honeywell entitled "SA7 Summary of Contractor Proposed Implementation Changes" (see Appendix H.1), ASTM-1 was allowed to be used in lieu of 6-inch armor provided that the material was placed at a slope no greater than 10 percent. This configuration would achieve the same level of shoreline protection as the 6-inch armor placed on steeper slopes.

5.1.3 Ramp-Up Phase Cap Area Modifications

As a result of schedule restrictions imposed by the tidal cycles, instead of implementing the ramp-up phase on 1-acre of Cap Area 13, means and methods were demonstrated on: (a) 9,477 SF within Cap Area 3; (b) 16,483 SF in Cap Area 11C; and (c) 18,028 SF in Cap Area 13. Details on the ramp-up phase are provided in Section 5.4.

5.1.4 Modifications to Methods for Total Cap Thickness Verification

Following the ramp-up phase, cap thickness verification using 24-inch deep pans for total cap thickness verification was discontinued. Instead, the cap thickness verification approach consisted of the following individual layer thickness measurements:

- Advancing sediment cores or collecting shallow (6- or 8-inch deep) pans to verify the thickness of the sand layer.
- Collecting shallow pans to verify the thickness of each filter and armor layer.
- Manually verifying layer thicknesses in intertidal areas (when pans were not used), by
 excavating into the filter and armor layer cap materials to measure each layer and advancing
 cores to measure the sand layer thickness.

These modifications are documented in the addendum to SES' Capping Plan issued August 22, 2012 (see

Appendix A.2.xiii). Additional details about cap thickness verification methods are provided in Section 5.2.5.

5.1.5 Modifications to the Buttressing Material

The 100% Design required that buttress areas be constructed using sand. As documented in the December 19, 2012 Memorandum to Honeywell entitled "SA-7 Sediments Remedy, Buttress Material" (see Appendix H.2), filter material was approved as a suitable substitute for sand as the material of the construction for the buttress areas. However, the following conditions were imposed for use of filter materials in buttress areas:

- All provisions of the specifications for placement of sand buttress material would apply to the filter buttress material.
- A lift of sand (minimum 2 to 3 inches) must be placed over native sediments prior to placement of the filter material.
- Bathymetric surveys of buttress areas would continue to be used for confirmation of buttress geometry configuration.

Details regarding the placement of buttress materials are provided in Section 5.5 below.

5.1.6 Shoreline Adjustments

As allowed by the 100% Design, adjustments to the extent of the Consent Order cap along the shoreline were made based on existing shoreline conditions (i.e., existing bulkhead limits, existing rip-rap, existing wetlands limits) and the surveyed mean higher high water line (elevation 3.84 feet). These adjustments affected all cap areas that adjoin the shoreline (Cap Areas 2, 4, 5, 6, 7, 11, 12, 13, 18, 23, 26, and 30), although, these adjustments were *de minimis*. As detailed in Section 5.5, the adjustment to the cap area footprint resulted in adjustments to the cap material tonnage requirements.

5.2 General Construction Activities

5.2.1 Imported Material Testing

Capping materials consisted of sand (i.e., grits of the quarrying process), filter (washed 0.75" stone), and armor (0.75" stone, 1.0" stone, 2.5" stone, 3.5" stone, 6" rip-rap (Light Stone Filling), 10" stone (Medium Stone Filling)). All capping materials originated from Tilcon's Mount Hope Quarry at 625 Mount Hope Road, Wharton, New Jersey. Prior to importing any material to the site, SES and/or Tilcon collected samples of the fines of the quarry process (i.e., grits used as the sand layer) for analytical testing⁵. The quarry was also required to produce a signed affidavit verifying the chemical quality of the cap materials and certifying that it is free from contamination. In addition, samples of each material type were subjected to gradation analysis. Both analytical and geotechnical testing were performed at a frequency

⁴ A mixture of sand and filter material (originating from the material stockpile area) was also approved for use in the Cap Area 18 buttress area during the Second Construction Season.

USEPA Target Compound List (TCL) +30/Target Analyte List (TAL) parameters, Extractable Petroleum Hydrocarbons (EPH), pH, and Hexavalent Chromium

of one sample per 5,000 CY. Copies of the analytical and geotechnical reports are provided in Appendices G.2.i and G.2.ii, respectively.

All analytical testing was conducted by Integrated Analytical Laboratories, LLC (IAL) (NJDEP Lab ID No. 14751). All geotechnical testing was performed by Tilcon. While aluminum, beryllium, and/or manganese generally exceeded NJDEP's default impact to groundwater (IGW) screening level, the materials were considered suitable for use as capping material because (a) as per NJDEP guidance the IGW pathway does not need to be addressed for aluminum and manganese unless there is cause to believe that their presence is due to a site discharge, which is not the case; and (b) the detected concentration of beryllium is due to background conditions as opposed to discharges and is consistent with NJDEP's published median concentration for the urban piedmont region where the materials will be placed (see Appendix A.2.vii).

5.2.2 Imported Material Tracking

Capping material was delivered by both truck and barge. Material delivered to the site by truck was stockpiled within staging area on the SA-7 upland area (see Appendix A.2.viii for SES Material Stockpile and Staging Plan). For safety reasons, capping material delivery trucks were restricted to the predetermined truck route. Every load of material delivered to the site by truck was accompanied by a delivery ticket from the quarry.

Material delivered to the project site on barges was transported directly to the cap areas from the Port of Newark, Berth 36 facility via the Hackensack River. Materials were delivered to the barge by truck and stockpiled directly on the barge. When delivery tickets were not available for a particular load delivered to the barge, the quarry issued a summary log containing all of the relevant delivery ticket information for that material order.

ENVIRON recorded the delivery information for each load of capping material delivered (order number, ticket number, delivery truck information, load tonnage, and cumulative tonnage) in a soil tracking log, which is included in Appendix G.1, "Soil Tracking Log". The soil tracking log was also used to track the total tonnage approved for use based on submitted analytical and geotechnical testing results. Scanned copies of the original capping material delivery tickets and quarry summary logs are provided in Appendix G.3. By the completion of the sediment remedy project, a total of approximately 199,660 tons of materials were imported for use as capping materials.

5.2.3 Hydraulic Capping Operations

Hydraulic cap material placement operations were performed using two spreader barges to which sand and stone materials smaller than 1.5 inches in diameter were supplied in a slurry form via floating pipe from the stockpile area within SA-7. In the stockpile area, capping materials were loaded into the feed hopper, weighed on a belt scale, and combined with water in the mixing tank. Once mixed, the slurry was pumped through dedicated floating 16-inch diameter HDPE piping connected to each spreader barge. The approximately 30-foot wide by 40-foot long spreader barges discharged the slurry through a 22-foot wide waterfall-type outfall (steel plate inclined towards the water surface) fabricated on the deck. After the ramp-up phase, SES welded angle iron at three locations on the inclined steel plate to improve the distribution of materials. In-line agitation plates were also installed within the barge's slurry distribution line on the deck of the spreader barge to minimize vortexing within the pipeline.

The position of the barge was controlled by a four-point winch system connected to anchors comprised of steel sheetpiles or Danforth anchors set outside the limits of the cap area. The operator of the spreader

barge monitored and controlled the barge's position from the on-board cabin using RTK-GPS. To ensure 100 percent coverage by the hydraulic spreader barges within the Consent Order limits of each cap, the 20-foot wide lanes created by each pass of the spreader barge were initially overlapped by three feet. However, given tidal effects and variations in the water column depth, the lanes were ultimately overlapped by 10 feet, thereby ensuring two passes of cap material placement over each defined capping lane.

As required by the 100% Design, the caps were constructed with a run-out length beyond the Consent Order limits. Cap material placement began at the start of the runout length, at which point the tonnage at the weigh belt was recorded. Upon entry into and exit from the Consent Order limits of the cap, the tonnage at the weigh belt was also recorded. Upon exit of the Consent Order limits of the cap, no additional material was supplied to the feed hopper, and the material present in the pipe at the time of exit of the Consent Order limits of the cap was placed on the runout section. During placement, the GPS coordinates of the spreader barge were continuously recorded. These recorded coordinates combined with the width of the spreader barge was used to prepare placement coverage maps for verification purposes.

5.2.4 Mechanical Capping Operations

Sediment capping during the First Construction Season was completed using both hydraulic and mechanical placement means. A Telebelt system was also used in some of the intertidal and shallower subtidal cap areas during the First Construction Season. Sediment capping during the Second Construction Season was limited to mechanical placement operations.

The mechanical placement operations generally consisted of long-reach excavators (PC490, CAT345, CAT345A, PC300, CAT349, and CAT5110) or cranes (Vergona crane) staged on barges (i.e., deck barges or flexi-float barges assembly). These barges were staged in predefined locations based on the specific reach of the equipment to ensure the materials could be placed within the cap area limits while providing a minimum overlap with adjoining staging areas. Material was delivered to these barges via small scows or deck barges loaded with cap material at the material staging area. SES adhered to the following procedure for positioning the excavator bucket:

- Installed GPS antennae to the counter the weight of excavators, inclinometers to the boom and stick, and a bucket switch inside the excavator's cab.
- Connected inclinometers and GPS equipment to the Hypack system which provided the exact location of the excavator bucket.
- Tracked the position of the bucket on the operator's computer screen.
- The operator activated the bucket switch "on" when placing material, swung open the bucket until the bucket was empty and then turned off the switch. The switch toggles were recorded on the operator's screen and a digital record of the sweep of the bucket and material placement was recorded.
- Generated output drawing showing "footprint" coverage by material type on a daily basis throughout placement.

During the Second Construction Season, SES mobilized a CAT345 long-stick excavator (CAT345LF)

with a standard bucket. This excavator was used for placement of armor material in cap areas along the shoreline and for buttress material placement on Cap Areas 18/1 and 19. SES also used a skid steer in the intertidal areas during low tide to regrade armoring material, particularly the material which was placed in early stages of the project when means and methods were being tested. Where required, additional material was provided from the material scows by the barge-mounted excavator and spread by the skid steer.

Mechanical placement of material with a diameter of less than 4 inches using the Telebelt system was used in the intertidal areas. The Telebelt system was comprised of two spudded deck barges approximately 165 feet by 43 feet on which the following equipment was mounted:

- A crane with a 175-foot boom to retrieve spuds, unload material barges and stockpile materials on the deck barge.
- Excavator PC220 to load the hopper for the Telebelt with materials stockpiled on the deck barge.
- 116-foot stacking conveyor to feed the Telebelt system.
- Telebelt model 130 (with 126-foot reach from point of rotation)

The Telebelt system was staged in predefined locations based on the reach of the Telebelt to ensure the materials could be placed within the cap area limits while providing a minimum overlap with adjoining staging areas. The coverage of each setup ranged from approximately 8,000 to 15,000 SF (see Capping Plan Addendum – Telebelt Approach and Equipment for Shallow Water dated September 23, 2012 included in Appendix H.3). Material was delivered to the Telebelt system via deck barges (approximately 165 feet by 43 feet) loaded with cap material at the Port of Newark, Berth 36. Since at low tide, the Telebelt system was grounded on the river bottom, repositioning of the Telebelt system and replenishing of capping materials was coordinated during high tide periods. As with the excavator based mechanical placement operations, SES adhered to the following procedure for positioning the telebelt:

- Installed GPS antennae to the tip of the Telebelt boom and a Telebelt switch inside the excavator's cab.
- Connected GPS equipment to the Hypack system which provided the exact location of the tip of the Telebelt boom.
- Tracked the position of the Telebelt boom on the operator's computer screen.
- The operator activated the Telebelt switch "on" when placing material, swung the Telebelt boom until the placement arc was complete and then turned off the switch. The toggle switch operation was recorded on the operator's screen and a digital record of the material placement sweep was recorded.
- Generated output drawing showing "footprint" coverage by material type on a daily basis throughout placement.

5.2.5 Material Placement Verification

Material placement verification activities included confirmation of coverage, thickness verification

measurements and tracking of the tonnage of material placed. As described above, all placement operations included a GPS unit that tracked the time and location at which capping material was placed. From this data, SES generated daily coverage maps of each material layer and operation and overall coverage maps for each material layer. ENVIRON used this data and SES' daily coverage maps to confirm that material for a specific cap layer was placed to the limits of each cap area established by the Consent Order. Where gaps or "blank spots" were identified in the coverage mapping of a particular layer, one of the following actions was performed to further evaluate these areas:

- In intertidal cap areas, coverage was visually inspected at low tide.
- In subtidal cap areas, coverage was evaluated by (a) diver inspections; (b) coring, if the layer in question was sand or filter material, and/or (c) probing with a rod, if the layer in question was armoring material.

When coverage gaps were confirmed, SES placed additional material to provide the required coverage and the verification process was repeated. It should be noted that in some instances, initially identified coverage gaps were the result of data collection or recording errors (e.g., operator error resulting in inadvertent deletion of data files, and/or malfunction of the GPS).

Thickness verification measurements of each layer were performed to ensure that the minimum design requirements were met and ensure that the minimum thickness requirements established by the Consent Order for each cap area were achieved. Thickness verification locations were predefined to assure a relatively even distribution of locations within the cap area and allow deployment pans, when these were used, prior to material placement. Thickness verification measurements were conducted concurrent with cap placement activities and included the following methods:

- 24-inch deep full-depth pans deployed over the native sediment and retrieved after all cap layers were placed to allow measurement of each layer and the total cap at a single location.
- 6- and 8-inch deep intermediate layer pans deployed prior to placement of a specific layer and retrieved after completion of that cap layer to allow measurement of each individual layer.
- Push cores advanced into completed layers with a particle size of less than ¾-inches (i.e., sand, filter, and ¾-inch armor layers).
- Vibracore advanced into completed layers with a particle size of less than ¾-inches (i.e., sand, filter, and ¾-inch armor layers) and located in deep subtidal areas.
- Manual verification performed in intertidal areas by removing cap material until the
 underlying material is exposed and measuring the thickness and measuring the thickness of
 the layer. After the filter layer was removed, the sand thickness was verified using push
 cores.
- Diver assisted manual verification performed in subtidal areas by removing cap material (i.e. armor) until the underlying material is exposed and measuring the thickness of the layer.

Given tidal effects, shallow water and traffic in the river, it was determined during the ramp-up phase that the most effective and representative thickness verification measurements were obtained by push cores, manual verification, and intermediate pans. Based on these findings, the use of full depth pans for

thickness verification was discontinued after the ramp-up phase.

In general, depth verification measurements were performed as follows:

- Measurements were performed at locations established by GPS locations.
- Intermediate pans were deployed and retrieved mainly by a barge-mounted crane. A buoy and floating rope was attached to each of the pans to help the crane boat operator relocate the pans after material placement.
- Standard push cores and Vibracores were advanced from the deck of the crane boat as close to the target verification location as practicable. Note that the Vibracores were only used during the First Construction Season in deep subtidal cap areas where push cores could not be advanced.
- Manual verifications were performed in intertidal areas at low tide when core and pans measurements were not available. Manual verification was performed as close to the target verification location as practicable. After completing the thickness measurements, the cap was restored using the removed materials. During the First Construction Season, manual verification was also performed by divers in deep subtidal cap areas where push cores could not be advanced.

The as-built coordinates of the depth verification locations were recorded upon completion of the measurements.

The tonnage of material placed in each cap area was measured using methods specific to each placement operation as follows:

- For hydraulic placement, a log sheet was completed by the operator of the spreader barge documenting the tonnage readings on the weigh belt at entry and exit of each lane (see Appendix F.3). The weigh belt readings were communicated via two-way radio to the operator from the material staging area.
- For mechanical placement (i.e., excavator, crane and Telebelt operations), ullage logs were maintained for each scow or deck barge used to supply capping material to the mechanical operations (see Appendix F.4). SES developed correlations between ullage measurements and material tonnage for each scow and deck barge. Ullage measurements were made on the four corners of each scow or deck barge after loading and unloading. These measurements were used to calculate the amount of material placed (see Appendices F.1 and F.2). In instances where one scow or deck barge was used to supply material to more than one cap area, additional ullage measurements were made before placing material in the new cap area.
- For both mechanical and hydraulic placement, where material was placed on adjoining and/or multiple cap areas, daily coverage maps were used in combination with tonnage tracking records to confirm the amount of material placed in each cap area.

The total tonnage of all capping material placed both hydraulically and mechanically for the sediment remedy is summarized by cap area, lane (for hydraulic placement), date, and time, to the maximum extent practicable, in the Material Tracking Review Table attached as Table 5.2.1.

5.3 Long-Term Monitoring Plates

Prior to placement of capping material, long-term monitoring plates were installed at predefined locations within each cap area. These plates will be used to evaluate potential for material loss as part of the long term monitoring program. For this purpose, the plates were constructed with stick-up rods sized based on the anticipated cap thickness for each cap area (i.e., design cap thickness plus placement tolerances). As presented in Table 5.3.1 below, two types of long term monitoring plated deployed (Intertidal and Subtidal):

- For subtidal cap areas, the stick-up lengths were designed to exceed the total anticipated cap thickness by at least two inches. However, due to over-placement of materials in some cap areas, it is anticipated that the stick-up rods for some long-term monitoring plates are buried entirely (e.g., Long Term Monitoring Plates 2A, 3A, 6A, 7B, 7C, 10A, 11A, 11B, 11D, 11E, 14A, 15A, 18A, 18B, 19A, 20A, 21A, 25A, and 30A).
- For intertidal cap areas, the stick-up lengths were designed to be covered by at least two inches of capping material.

Table 5.3.1 Long-Term Monitoring Plate Stick-Up Lengths					
Cap Area	Plate ID	Intertidal or Subtidal	Expected Exposed Length (inches)		
1	1A	Subtidal	1		
2	2A	Subtidal	0		
3	3A	Subtidal	0		
4	NA	Subtidal	NA		
5	5A	Intertidal	0		
6A	NA	Intertidal	NA		
6B	6A	Subtidal	0		
7A	7A	Subtidal	3		
74	7C	Subtidal	0		
7B	7B	Subtidal	0		
7C	NA	Subtidal	NA		
8A	NA	Subtidal	NA		
8B	8A	Subtidal	5		
9	9A	Subtidal	5		
10	10A	Subtidal	0		
11A	NA	Subtidal	NA		
	11A	Subtidal	0		
11B	11B	Subtidal	0		
118	11C	Subtidal	1		
	11E	Subtidal	0		
11C	11D	Subtidal	0		
110	11F	Intertidal	0		
12	NA	Subtidal	NA		
13A	13B	Intertidal	0		

Table 5.3.1 Long-Term Monitoring Plate Stick-Up Lengths					
Cap Area	Plate ID	Intertidal or Subtidal	Expected Exposed Length (inches)		
	13D	Intertidal	0		
13B	13A	Intertidal	0		
130	13C	Intertidal	0		
14	14A	Subtidal	0		
15	15A	Subtidal	0		
	17A	Subtidal	3		
17	17B	Subtidal	2		
	17C	Subtidal	2		
18A	18A	Subtidal	0		
10A	18B	Subtidal	0		
18B	NA	Subtidal	NA		
19A	NA	Subtidal	NA		
19B	19A	Subtidal	0		
20	20A	Subtidal	0		
21	21A	Subtidal	0		
23	NA	Subtidal	NA		
24	NA	Subtidal	NA		
25	25A	Subtidal	0		
26	26A	Intertidal	0		
27	27A	Subtidal	3		
29A	29B	Subtidal	1		
29B	29A	Subtidal	5		
230	29C	Subtidal	4		
30A	NA	Subtidal	NA		
30B	30A	Intertidal	0		

Upon placement, the GPS coordinates of the long-term monitoring plates were recorded. The as-built locations of the long-term monitoring plates are provided in Appendix I.

5.4 Ramp-up Phase

The purpose of the ramp-up phase was to demonstrate SES' proposed means and methods for cap placement. During this phase of the project, the procedures for data generation, processing and analysis were tested. In addition, the ramp-up phase also allowed for quality control/quality assurance procedures to be tested and refined. Initially, the ramp-up phase was planned for a 1-acre area within Cap Area 13. This cap area was selected because it is an intertidal area of soft sediments. However, after considering schedule restrictions imposed by the tidal cycles, the ramp-up phase was modified as follows (see Appendix A.2.xii):

- Demonstrate means and methods for hydraulic placement of capping materials in subtidal areas within Cap Area 3 (Lanes 37 and 38 with a total area of approximately 9,477 SF).
- Demonstrate means and methods for mechanical placement of capping materials in intertidal

areas along the southeastern shoreline of Cap Area 11C (total area of approximately 16,483 SF).

• Demonstrate means and methods for hydraulic placement of capping materials in intertidal areas within Cap Area 13 (Lanes 116 to 118 with a total area of approximately 18,028 SF).

The following sections provide details of the ramp-up phase capping activities, including the sequence of capping activities and a summary of the cap thickness verification measurements.

5.4.1 Cap Area 13 – Hydraulic Placement in Intertidal Areas

In accordance with the Ramp-Up Phase Reconfiguration (see Appendix A.2.xii), hydraulic placement of sand began on July 25, 2012 and concluded on July 27, 2012. Hydraulic placement of filter material began on July 31, 2012 and concluded on August 2, 2012. Hydraulic placement of 1.0-inch armor material began on August 4, 2012 and concluded on August 8, 2012. Cap layer thickness verification measurements, consisting of cores, 24-inch deep pans, 8-inch deep pans, and manual verifications, demonstrated that SES could hydraulically place at least 6 inches of sand, 4 inches of filter, and 3 inches of 1.0-inch armor material as required by the 100% Design. These measurements also demonstrated that SES could hydraulically place the 12-inch cap required by the Consent Order.

Details on the full-scale capping operations in Cap Area 13 are presented in Section 5.5.13 below.

5.4.2 Cap Area 3 – Hydraulic Placement in Subtidal Areas

In accordance with the Ramp-Up Phase Reconfiguration (see Appendix A.2.xii), means and methods for hydraulic placement of capping materials in subtidal areas were demonstrated in lanes 37 and 38 of Cap Area 3. Hydraulic placement of sand began on August 9, 2012 and concluded on August 10, 2012. Hydraulic placement of 0.75-inch armor material began on August 10, 2012 and was completed on the same day. Cap layer thickness verification measurements, consisting of 24-inch deep pans, demonstrated that SES could hydraulically place at least 3 inches of sand and 3 inches of 0.75-inch armor material as required by the 100% Design. These measurements also demonstrated that SES could hydraulically place the 6-inch cap required by the Consent Order.

Details on the full-scale capping operations in Cap Area 3 are presented in Section 5.5.3 below.

5.4.3 Cap Area 11 – Mechanical Placement in Intertidal Areas

In accordance with the Second Ramp-Up Phase Reconfiguration (see Appendix A.2.xii), means and methods for mechanical placement of capping materials in intertidal areas were demonstrated in 16,483 square feet of intertidal areas along the southeastern shoreline of Cap Area 11C. Mechanical placement of sand began on September 4, 2012 and concluded on September 16, 2012. Mechanical placement of filter material began on September 13, 2012 and concluded on September 16, 2012. Mechanical placement of 6-inch rip-rap armor material began on September 17, 2012 and concluded on September 20, 2012. Cap layer thickness verification measurements, consisting of cores and manual verifications, demonstrated that SES could mechanically place at least 3 inches of sand, 4 inches of filter, and 5 inches of armor material as required by the 100% Design Report. These measurements also demonstrated that

As detailed in Section 5.1.1, 2.5-inch armor was used for the cap armoring during full-scale capping operations in Cap Area 11C instead of 6-inch armor (rip-rap).

SES could mechanically place the 6-inch cap required by the Consent Order.

Details on the full-scale capping operations in Cap Area 11 are presented in Section 5.5.11 below.

5.5 Full-Scale Phase

Following successful demonstration of means and methods for hydraulic and mechanical placement of cap materials during the ramp-up phase, construction progressed to the full-scale phase. The following sections provide details of the capping activities performed in each of the 27 completed cap areas, including the sequence of capping activities, a summary of the cap thickness verification measurements, and a summary of the total tonnage of capping material placed.

5.5.1 Cap Area 1

Cap Area 1 was completed during the First and Second Construction Seasons using mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Prior to cap construction in the western half of Cap Area 1, where it abuts Cap Area 18 (see Figure 2), SES completed the slope buttressing⁷ initially using sand and then filter materials. Mechanical placement of sand material in the western portion of Cap Area 1 for construction of the slope buttress began on December 3, 2012 and continued through December 29, 2012. However, the buttress placement was not completed by the end of the First Construction Season, and therefore, placement was suspended. Mechanical placement of buttress material resumed on August 1, 2013 and continued through September 19, 2013. A bathymetric survey was conducted on September 20, 2013 to confirm the required slopes had been achieved before proceeding with capping operations. A graphical representation of the bathymetric survey data is included in Appendix D.3.

Following the completion of the bathymetric survey demonstrating that slopes in Cap Area 1 were generally less than 20 percent, SES initiated and completed the mechanical placement of sand material for construction of the cap in the eastern half of Cap Area 1 on September 24, 2013. Placement of 0.75-inch armor material was performed between September 24 and September 25, 2013.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap thickness verification measurements8 for the sand and armor layers

Slope buttressing was required in areas where the existing sediment slope was steeper than 20%. The purpose of the buttress was to reduce the slope and thereby increase factors of safety against slope stability. Once bathymetric surveys demonstrated that the slope buttressing was completed as required by the design, cap material placement was allowed to proceed.

Thickness verification measurements of the buttress materials were not required or performed. Conformance with the design requirements were evaluated through bathymetric surveys conducted after completion of the slope buttressing activities.

using cores and 8-inch deep pans; this work was completed between September 23 and September 25, 2013. Thickness measurements were made at a total of five QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 1 are summarized in Table 5.5.1 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 8. Appendix J.1 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 1.

Table 5.5.1: Cap Area 1 – Thickness Verification Summary

	Thickness (in)		
	Sand Layer	Armor Layer	Total
Consent Order	NA	NA	6
100% Design	3	3	6
QC Depth Verification	3.2 to 6.0	3.0 to 8.0	8.4 to 11.8
	(average 4.2)	(average 6.0)	(average 10.2)
QA Depth Verification	7.0	8.0 to >8	>8 to 15.0
	(1 measurement)	(average 8.0)	(average 11.5)

As shown in Table 5.5.1, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceeded the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 1 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 1,726 tons of buttress and capping material (442 tons of sand, 1,003 tons of filter material used for buttress construction, and 281 tons of 0.75-inch armor) were placed for Cap Area 1. This quantity exceeds the Consent Order tonnage requirements of 510 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.2 Cap Area 2

Cap Area 2 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in western portion of Cap Area 2 began on September 26, 2012 and continued through October 3, 2012. Mechanical placement of sand material in the eastern portion of Cap Area 2 began on December 1, 2012 and continued through December 17, 2012. Following sand thickness and coverage verification of the western portion of Cap Area 2, SES began hydraulic placement of 0.75-inch armor material on October 2, 2012. Following sand thickness and coverage verification of the eastern portion of Cap Area 2, SES began mechanical placement of 0.75-inch armor material on December 20, 2012 and continued through December 29, 2012.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

• ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 2 were made based on a survey of existing

shoreline conditions (i.e., bulkhead) and the mean higher high water elevation (3.84 feet).

• ENVIRON conducted cap thickness verification measurements for the sand and armor layers using cores and 8-inch deep pans between December 2, 2012 and January 2, 2013. Thickness measurements were made at a total of eight QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 2 are summarized in Table 5.5.2 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 9. Appendix J.2 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 2.

Table 5.5.2: Cap Area 2 – Thickness Verification Summary

	Thickness (in)		
	Sand Layer	Armor Layer	Total
Consent Order	NA	NA	6
100% Design	3	3	6
QC Depth Verification	4.0 to 9.0	5.2 to >8	9.2 to 16.5
	(average 6.6)	(average 7.0)	(average 13.7)
QA Depth Verification	8.0 to 10.0	3.5 to >8	13.5 to 16.0
	(average 9.0)	(average 5.8)	(average 14.8)

As shown in Table 5.5.2, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 2 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 2,684 tons of capping material (1,514 tons of sand and 1,170 tons of 0.75-inch armor) were placed for Cap Area 2. This quantity exceeds the Consent Order tonnage requirements of 910 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.3 Cap Area 3

Cap Area 3 was completed during the First Construction Season using hydraulic cap material placement methods. A portion of Cap Area 3 (Lanes 37 and 38) were completed as part of the ramp-up phase (see Section 5.4.2). Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 3 began on August 9, 2012, and continued through August 23, 2012. Placement of 0.75-inch armor material was performed from August 10 through September 17, 2012.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

• ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.

• ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores, 24-inch deep pans, 8-inch deep pans, and Vibracores between August 11 and October 3, 2012. Thickness measurements were made at a total of eighteen QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 3 are summarized in Table 5.5.3 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 10. Appendix J.3 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 3.

Table 5.5.3. Cap Area 3 – Thickness Verification Summary

	Thickness (in)		
	Sand Layer	Armor Layer	Total
Consent Order	NA	NA	6
100% Design	3	3	6
QC Depth Verification	2.0 to 12.0	1.0 to 10.0	6.7 to 17.9
	(average 4.7)	(average 5.1)	(average 11.2)
QA Depth Verification	2.0	4.3	6.3

As shown in Table 5.5.3, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 3 was confirmed based on field records (i.e., spreader barge operator logs); these data are provided in the Material Tracking Review Table (see attached Table 5.2.1). A total of 1,977 tons of capping material (964 tons of sand and 1,013 tons of 0.75-inch armor) were placed for Cap Area 3. This quantity exceeds the Consent Order tonnage requirements of 920 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.4 Cap Area 4

Cap Area 4 was completed during the First Construction Season using mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Prior to cap construction, SES completed slope buttressing using sand materials. Mechanical placement of sand material in the western portion of Cap Area 4 for construction of the slope buttress began on December 9, 2012 and continued through December 10, 2012. A bathymetric survey was conducted on December 11, 2012 to confirm the required slopes had been achieved before proceeding with capping operations. A graphical representation of the bathymetric survey data is included in Appendix D.3.

Following the completion of the bathymetric survey demonstrating that slopes in Cap Area 4 were generally less than 20 percent, SES initiated the mechanical placement of sand material for construction of the cap in the eastern half of Cap Area 4. Placement of sand material was completed on December 20, 2012. Placement of 0.75-inch armor material was performed between December 26 and December 28, 2012.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer

As allowed by Note 4 on Table 1 of Sheet C-10 of the 100% Design, the minimum values for the sand layer were adjusted as the total cap thickness met the total thickness requirement and the armor sizing criteria.

thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 4 were made based on a survey of existing shoreline conditions (i.e., bulkhead) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores and 8-inch deep pans between December 20 and December 29, 2012. Thickness measurements were made at a total of five QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 4 are summarized in Table 5.5.4 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 11. Appendix J.4 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 4.

Table 5.5.4: Cap Area 4 – Thickness Verification Summary

	Thickness (in)		
	Sand Layer	Armor Layer	Total
Consent Order	NA	NA	6
100% Design	3	3	6
QC Depth Verification	3.0 to 8.0	3.0 to >8	6.0 to 16.0
-	(average 4.8)	(average 6.0)	(average 10.8)
QA Depth Verification	7.0	8.0	15.0

As shown in Table 5.5.4, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 4 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided in the Material Tracking Review Table (see attached Table 5.2.1). A total of 296 tons of buttress and capping material (158 tons of sand and 138 tons of 0.75-inch armor) were placed for Cap Area 4. This quantity exceeds the Consent Order tonnage requirements of 190 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.5 Cap Area 5

Cap Area 5 was completed during the First and Second Construction Seasons using mechanical cap material placement methods. Given accessibility restrictions due to tidal cycles, all layers of Cap Area 5 were generally placed for each equipment setup following verification that the underlying layer met the required thickness and coverage. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

SES mechanically placed sand material in Cap Area 5 from December 8 through December 13, 2012 in the First Construction Season, and from August 27 through August 29, 2013 in the Second Construction Season. Placement of filter material was performed from December 9 through December 13, 2012 in the First Construction Season, and from August 27 through August 29, 2013 in the Second Construction Season. Placement of 2.5-inch armor material occurred from December 9 through December 13, 2012 in the First Construction Season, and from August 29 through September 3, 2013 in the Second

Construction Season.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design Report, modifications to the extent of Cap Area 5 were made based on a survey of existing shoreline conditions (i.e., wetlands) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 6- and 8-inch deep pans, and manual verifications between December 9 and December 13, 2012 in the First Construction Season, and between August 28 and August 29, 2013 in the Second Construction Season. Thickness measurements were made at a total of ten QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 5 are summarized in Table 5.5.5 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 12. Appendix J.5 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 5.

Table 5.5.5: Cap Area 5 – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	3.5 to 9.0	5.5 to 7.8	6.0 to > 8	15.5 to 24.5
	(average 5.9)	(average 6.1)	(average 6.2)	(average 18.8)
QA Depth Verification	5.0 to 8.0	>6	6.0 to > 6	17.0 to 19.5
	(average 6.5)	(2 measurements)	(average 6.0)	(average 18.3)

As shown in Table 5.5.5, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 5 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided in the Material Tracking Review Table (see attached Table 5.2.1). A total of 4,130 tons of capping material (900 tons of sand, 1,304 tons of filter, and 1,926 tons of 2.5-inch armor) were placed for Cap Area 5. This quantity exceeds the Consent Order tonnage requirements of 1,480 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.6 Cap Area 6

Cap Area 6 was completed during the First and Second Construction Seasons using mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 6, however, for design purposes Cap Area 6 was divided into two sub-cap areas (Caps Areas 6A and 6B). Cap Area 6A required three inches of 1-inch armor and Cap Area 6B required five inches of 2.5-inch armor. Given accessibility restrictions due to tidal cycles, all layers of Cap Area 6 were generally placed for each equipment setup

following verification that the underlying layer met the required thickness and coverage. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Mechanical placement of sand material in Cap Area 6 began on October 16 and continued through December 7, 2012. Placement of filter material was performed from October 18 through December 9, 2012 in the First Construction Season, and on September 4, 2013 in the Second Construction Season. Placement of 1.0-inch armor material was performed in Cap Area 6A, and placement of 2.5-inch armor material in Cap Area 6B was performed on October 19, 2012. Cap Area 6A was completed on December 7, 2012 and Cap Area 6B was completed on September 4, 2013.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design Report, modifications to the extent of Cap Area 6 were made based on a survey of existing shoreline conditions (i.e., wetlands) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 6-inch deep pans, and manual verifications between October 17, 2012 and January 9, 2013. Thickness measurements were made at a total of twenty-three QC verification locations and three QA verification locations. The thickness verification measurements for Cap Area 6A and Cap Area 6B are summarized in Table 5.5.6a and Table 5.5.6b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 13. Appendix J.6 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 6.

Table 5.5.6a. Cap Area 6A – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	3	10
QC Depth Verification	3.5 to 10.8	5.0 to 10.0	3.0 to 8.0	11.5 to 23.5
	(average 6.1)	(average 6.2)	(average 6.0)	(average 18.2)
QA Depth Verification	8.0	>6	6.5	20.5

Table 5.5.6b. Cap Area 6B – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	3.5 to 11.0	4.5 to 6.2	5.0 to 7.5	15.7 to 23.0
	(average 6.2)	(average 5.8)	(average 6.4)	(average 18.1)
QA Depth Verification	5.0 to 8.0	>6	>6	17.0 to 20.0
	(average 6.5)	(2 measurements)	(2 measurements)	(average 18.5)

As shown in Tables 5.5.6a and 5.5.6b, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 6 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 5,269 tons of capping material (1,289 tons of sand, 1,905 tons of filter, 369 tons of 1.0-inch armor, and 1,707 tons of 2.5-inch armor) were placed for Cap Area 6. This quantity exceeds the Consent Order tonnage requirements of 1,630 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.7 Cap Area 7

Cap Area 7 was completed during the First and Second Construction Seasons using both hydraulic and mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 7, however for design purposes Cap Area 7 was divided into three sub-cap areas (Caps Areas 7A, 7B, and 7C). Cap Area 7A required three inches of 0.75-inch armor, Cap Area 7B required five inches of 2.5-inch armor, and Cap Area 7C required seven inches of 3.5-inch armor. While a filter layer was required for both Cap Area 7B and 7C, the design for Cap Area 7A did not include a filter layer. Given accessibility restrictions due to tidal cycles, for some equipment setups, all layers of Cap Area 7 were placed following verification that the underlying layer met the required thickness and coverage. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 7 began on October 22 and continued through November 15, 2012. Mechanical placement of sand material in Cap Area 7 began December 10, 2012 and continued through January 3, 2013. SES began mechanical placement of filter material in Cap Areas 7B and 7C on December 10, 2012, and continued through December 29, 2012. SES hydraulically placed of 0.75-inch armor material in Cap Area 7A from October 26 through November 17, 2012. Mechanical placement of 0.75-inch armor material in Cap Area 7A began on December 20, 2012 and continued through January 3, 2013. Mechanical placement of 3.5-inch armor material in Cap Area 7C began on December 13, 2012 and continued through December 19, 2012. Mechanical placement of 2.5-inch armor material in Cap Area 7B began on December 19, 2012 and continued through December 29, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design Report, modifications to the extent of Cap Area 7 were made based on a survey of existing shoreline conditions (i.e., existing rip-rap) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 24-inch deep pans, 6- and 8-inch deep pans, and manual verifications between October 24, 2012 and January 9, 2013. Thickness measurements were made at a total of thirty-one QC verification locations and five QA verification locations. The thickness verification measurements for Cap Areas 7A, 7B, and 7C are summarized in Tables 5.5.7a, 5.5.7b, and 5.5.7c, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 14. Appendix J.7 includes GPS coverage records for each

In the Second Construction Season, additional 2.5-inch and 3.5-inch armor material was placed in Cap Areas 7B and 7C, respectively, between August 15, 2013 and August 20, 2013 as part of the regrading of the armor layer.

layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 7.

 As described in the November 8, 2012 "Post-Hurricane Sandy QC Assessment of Constructed Cap Areas" memorandum to Honeywell (see Appendix H.4), ENVIRON and SES conducted additional sand thickness verification in Cap Area 7A between November 2 and November 5, 2012 at a frequency of two locations per acre where the sand layer was exposed. These measurements confirmed that the storm event did not result in substantive loss of the exposed sand layer.

Table 5.5.7a: Cap Area 7A – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Armor Layer	Total		
Consent Order	NA	NA	6		
100% Design	3	3	6		
QC Depth Verification	3.0 to 13.0	3.0 to 8.5	6.0 to 19.5		
_	(average 7.4)	(average 5.6)	(average 13.0)		
QA Depth Verification	8.0 to 10.5	4.5 to 7.0	12.5 to 17.5		
	(average 9.3)	(average 5.8)	(average 15.0)		

Table 5.5.7b: Cap Area 7B – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	5.0 to 7.5	4.5 to >14	8.0 to >14	21.0 to 29.5
_	(average 6.4)	(average 8.6)	(average 9.5)	(average 24.5)
QA Depth Verification	5.0	7.5	14.0	25.5

Table 5.5.7c: Cap Area 7C – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	7	14
QC Depth Verification	3.5 to 9.5	4.5 to >8	8.0 to >14	20.3 to 28
	(average 5.5)	(average 7.0)	(average 12.1)	(average 24.5)
QA Depth Verification	3.5 to 9.0	5.0 to 6.0	8.5 to >14	17.0 to 29.0
	(average 6.3)	(average 5.5)	(average 11.3)	(average 23.0)

As shown in Tables 5.5.7a, 5.5.7b, and 5.5.7c, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 7 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 7,712 tons of capping material (3,621 tons of sand, 758 tons of filter, 1,883 tons of 0.75-inch armor, 721 tons of 2.5-inch armor, and 730 tons of 3.5-inch armor) were placed for Cap Area 7. This quantity exceeds the Consent Order tonnage requirements of 4,560 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.8 Cap Area 8

Cap Area 8 was completed during the First and Second Construction Seasons using both hydraulic and mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 8, however, for design purposes Cap Area 8 was divided into two sub-cap areas (Caps Areas 8A and 8B). Cap Area 8A required three inches of 0.75-inch armor and Cap Area 8B required three inches of 1.0-inch armor. Additionally, the design for Cap Area 8A did not include a filter layer. Given accessibility restrictions due to tidal cycles, for some equipment setups, all layers of Cap Area 8 were placed following verification that the underlying layer met the required thickness and coverage. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 8 began on October 3, 2012, and continued through October 4, 2012. Mechanical placement of sand material in Cap Area 8 was conducted from November 19 through December 13, 2012. Sand placement in Cap Area 8B was completed in the First Construction Season; however, sand placement in Cap Area 8A was not completed until the Second Construction Season. Mechanical placement of sand material in Cap Area 8A resumed on July 31, 2013, and was completed on the same day. SES mechanically placed filter material in Cap Area 8B from November 29 through December 2, 2012. SES began hydraulic placement of 0.75-inch armor material in Cap Area 8A on October 4, 2012, and continued through October 5, 2012. SES completed mechanical placement of 0.75-inch armor material in Cap Area 8A from August 9 through August 21, 2013. SES mechanically placed 1.0-inch armor material in Cap Area 8B from November 29 through December 2, 2012 in the First Construction Season, and on August 27, 2013 in the Second Construction Season.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 8-inch deep pans, and Vibracores between October 4 and December 19, 2012 in the First Construction Season and between July 25 and August 21, 2013 in the Second Construction Season. Thickness measurements were made at a total of eighteen QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 8A and Cap Area 8B are summarized in Table 5.5.8a and Table 5.5.8b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 15. Appendix J.8 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 8.

Table 5.5.8a: Cap Area 8A – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Armor Layer	Total		
Consent Order	NA	NA	6		
100% Design	3	3	6		
QC Depth Verification	3.2 to 18.0	3.0 to > 8	7.7 to 26.0		
_	(average 7.5)	(average 5.4)	(average 13.3)		
QA Depth Verification	6.5	3.5	10.0		

Table 5.5.8b: Cap Area 8B – Thickness Verification S	Summary
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	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	3	10
QC Depth Verification	5.5 to 13.5	5.5 to >6	5.0 to >6	16.5 to 25.5
	(average 9.7)	(average 5.9)	(average 5.8)	(average 21.3)
QA Depth Verification	3.0	4.5	3.0	10.5

As shown in Tables 5.5.8a and 5.5.8b, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 8 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 4,614 tons of capping material (2,229 tons of sand, 589 tons of filter, 1,306 tons of 0.75-inch armor, and 491 tons of 1.0-inch armor) were placed for Cap Area 8. This quantity exceeds the Consent Order tonnage requirements of 2,200 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.9 Cap Area 9

Cap Area 9 was completed during the First Construction Season using hydraulic cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 9 began on August 25, 2012, and continued through August 28, 2012. SES began placement of filter material on August 28, 2012, and continued through August 29, 2012. SES began placement of 1.0-inch armor material on August 29, 2012, and continued through August 31, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using 24-inch deep pans and 8-inch deep pans between August 25 and August 31, 2012. Thickness measurements were made at a total of seven QC verification locations. QC verification location 9-4 was also used as QA verification location QA-9-1. The thickness verification measurements for Cap Area 9 are summarized in Table 5.5.9 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 16. Appendix J.9 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 9.

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	3	10
QC Depth Verification	4.8 to 8.0	0.0 to 5.1	3.2 to 8.0	12.5 to 19.5
	(average 6.2)	(average 3.8)	(average 6.0)	(average 16.0)
QA Depth Verification	4.8	4.5	3.8	13.0

As shown in Table 5.5.9, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 9 was confirmed based on field records (i.e., spreader barge operator logs); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 3,795 tons of capping material (1,974 tons of sand, 979 tons of filter, and 842 tons of 1.0-inch armor) were placed for Cap Area 9. This quantity exceeds the Consent Order tonnage requirements of 900 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.10 Cap Area 10

Cap Area 10 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 10 began on September 21, 2012, and continued until September 25, 2012. Mechanical placement of sand material began on October 4, 2012, and continued through October 18, 2012. Following sand thickness and coverage verification of the northern portion of Cap Area 10, SES began hydraulic placement of 0.75-inch armor material on September 24, 2012. SES mechanically placed 0.75-inch armor material from October 25 through December 4, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for both the sand and armor layers using both cores and 8-inch deep pans between September 22 and December 6, 2012. Thickness measurements were made at a total of eight QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 10 are summarized in Table 5.5.10 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 17. Appendix J.10 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 10.

As allowed by Note 4 on Table 1 of Sheet C-10 of the 100% Design, the minimum values for the filter layer were adjusted as the total cap thickness met the total thickness requirement and the armor sizing criteria.

• As described in the November 8, 2012 "Post-Hurricane Sandy QC Assessment of Constructed Cap Areas" memorandum to Honeywell (see Appendix H.4), ENVIRON and SES conducted additional sand thickness verification in Cap Area 10 between November 2 and November 5, 2012 at a frequency of two locations per acre where the sand layer was exposed. These measurements confirmed that the storm event did not result in substantive loss of the exposed sand layer.

Table 5.5.10: Cap Area 10 – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Armor Layer	Total		
Consent Order	NA	NA	6		
100% Design	3	3	6		
QC Depth Verification	5.0 to 12.0	3.2 to >8	8.3 to 17.8		
_	(average 9.3)	(average 4.5)	(average 13.8)		
QA Depth Verification	9.0	3.8	12.8		

As shown in Table 5.5.10, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 10 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 3,465 tons of capping material (1,438 tons of sand and 2,027 tons of 0.75-inch armor) were placed for Cap Area 10. This quantity exceeds the Consent Order tonnage requirements of 1,070 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.11 Cap Area 11

Cap Area 11 was completed during the First and Second Construction Seasons using both hydraulic and mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 11, however, for design purposes Cap Area 11 was divided into three sub-cap areas (Caps Areas 11A, 11B, and 11C). Cap Area 11B required three inches of 1.0-inch armor, Cap Areas 11A and 11C required five inches of 2.5-inch armor. Given accessibility restrictions due to tidal cycles, for some equipment setups, all layers of Cap Area 11 were placed following verification that the underlying layer met the required thickness and coverage. In addition, a portion of Cap Area 11 (16,483 square feet of intertidal area along the southeastern shoreline of Cap Area 11C) was completed as part of the ramp-up phase (see Section 5.4.3). Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 11 began on September 12, 2012 and continued through October 1, 2012. Mechanical placement of sand material in Cap Area 11 began on December 5, 2012 and continued through December 18, 2013. Sand placement in Cap Area 11A was completed in the First Construction Season, and sand placement in Cap Areas 11B and 11C was completed during the Second Construction Season. Mechanical placement of sand material in Cap Areas 11B and 11C resumed on August 12, 2013 and continued through August 27, 2013.

SES hydraulically placed filter material in completed portions Cap Areas 11A and 11B between September 25, 2012 and October 1, 2012. Mechanical placement of filter material in Cap Area 11A was initiated and completed on December 1, 2012. Mechanical placement of filter material in Cap Areas 11B

and 11C began on December 7, 2012 and continued through December 18, 2012. Filter placement in Cap Areas 11B and 11C was completed in the Second Construction Season from August 15 to September 3, 2013.

SES mechanically placed 1.0-inch armor material in Cap Area 11B between October 23 and December 18, 2012, and hydraulically placed 1.0-inch armor in Cap Area 11B between November 16 and November 21, 2012. SES also mechanically placed 2.5-inch armor material in Cap Area 11A between November 16 and December 5, 2012, and in Cap Area 11C from December 9 through December 18, 2012. Cap Area 11A was completed in the First Construction Season, and Cap Areas 11B and 11C were completed in the Second Construction Season. Mechanical placement of 1.0-inch armor in Cap Area 11B resumed on August 19, 2013 and continued through September 5, 2013. Mechanical placement of 2.5-inch armor in Cap Area 11C resumed on August 21, 2013 and continued through September 27, 2013.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design Report, modifications to the extent of Cap Area 11C were made based on a survey of existing shoreline conditions (i.e., wetlands) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 6- and 8-inch deep pans, Vibracores, and manual verifications between September 13, 2012 and January 25, 2013 in the First Construction Season, and between July 25 and September 27, 2013 in the Second Construction Season. Thickness measurements were made at a total of sixty-seven QC verification locations and nine QA verification locations. The thickness verification measurements for Cap Areas 11A, 11B, and 11C are summarized in Tables 5.5.11a, 5.5.11b, and 5.5.11c, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 18. Appendix J.11 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 11.

Table 5.5.11a: Cap Area 11A – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	3.5 to 15.0	6.0 to 13.0	8.0 to 14.5	23.0 to 29.0
-	(average 7.1)	(average 9.1)	(average 9.6)	(average 25.8)
QA Depth Verification	3.0	7.0	11.0	21.0

Table 5.5.11b: Cap Area 11B – Thickness Verification Summary

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	Thickness (in)				
	Sand Layer	Filter Layer	Armor Layer	Total	
Consent Order	NA	NA	NA	6	
100% Design	3	4	3	10	
QC Depth Verification	3.0 to 12.0	4.0 to 13.0	3.0 to 10.0	14.5 to 27.0	
	(average 6.8)	(average 6.8)	(average 5.8)	(average 19.5)	
QA Depth Verification	3.0 to 11.2	4.0 to 8.0	4.0 to 8.0	13.0 to 22.2	
	(average 6.9)	(average 5.0)	(average 6.3)	(average 18.1)	

Table 5.5.11c: Ca	p Area 11C –	Thickness	Verification Summary
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	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	3.0 to 9.0	3.0 to 11.0	5.5 to 11.5	12.7 to 26.0
	(average 5.4)	(average 6.1)	(average 6.9)	(average 18.1)
QA Depth Verification	3.5 to 9.2	4.0 to 6.0	5.5 to 8.0	13.5 to 24.0
	(average 5.2)	(average 5.5)	(average 6.4)	(average 17.8)

As shown in Tables 5.5.11a, 5.5.11b, and 5.5.11c, the minimum individual layer thicknesses required by the 100% Design were exceeded. ¹² In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 11 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 27,763 tons of capping material (9,785 tons of sand, 9,062 tons of filter, 4,458 tons of 1.0-inch armor, and 4,458 tons of 2.5-inch armor) were placed for Cap Area 11. This quantity exceeds the Consent Order tonnage requirements of 8,580 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.12 Cap Area 12

Cap Area 12 was completed during the First Construction Season using mechanical cap material placement methods. As discussed in Section 4.1.2, sediment removal was initially conducted to allow for placement of the cap materials. Following sediment removal activities, a geotextile was installed as a filter layer. SES placed 10-inch armor material on July 24 through September 19, 2012. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for the armor layer. As allowed by the 100% Design, modifications to the extent of Cap Area 12 were made based on a survey of existing shoreline conditions (i.e., bulkhead and existing rip-rap along the shoreline) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted manual cap layer thickness verification measurements for the armor layer between September 14 and September 26, 2012. Thickness measurements were made at a total of five QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 12 are summarized in Table 5.5.12 below. Mapping of the as-built cap thickness verification locations and measurements is shown in Figure 19. Appendix J.12 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 12.

As allowed by Note 4 on Table 1 of Sheet C-10 of the 100% Design, the minimum values for the filter layer were adjusted as the total cap thickness met the total thickness requirement and the armor sizing criteria.

Table 5.5.12.:Cap Area 12 – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Total			
Consent Order	NA	NA	12		
100% Design	NA	24	24		
QC Depth Verification	NA	24.0 to 25.0	24.0 to 25.0		
		(average 24.3)	(average 24.3)		
QA Depth Verification	NA	24.0	24.0		

As shown in Table 5.5.12, the minimum individual layer thickness required by the 100% Design was exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of armor placed in Cap Area 12 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 757 tons of capping material (757 tons of 10-inch armor) were placed by mechanical methods within Cap Area 12. This quantity exceeds the Consent Order tonnage requirements, as revised based on field verification of the capping limits of Cap Area 12. ¹³

5.5.13 Cap Area 13

Cap Area 13 was completed during the First and Second Construction Seasons using both hydraulic and mechanical cap material placement methods. A portion of Cap Area 13 (Lanes 116 to 118) was completed as part of the ramp-up phase (see Section 5.4.1). The Consent Order identifies this area as Cap Area 13, however, for design purposes Cap Area 13 was divided into two sub-cap areas (Caps Areas 13A and 13B). Cap Area 13A required three inches of 1-inch armor and Cap Area 13B required five inches of 2.5-inch armor. Given accessibility restrictions due to tidal cycles, for some equipment setups, all layers of Cap Area 13 were placed following verification that the underlying layer met the required thickness and coverage. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 13 was initiated on July 25, 2012 and continued through August 13, 2012. Mechanical placement of sand material in Cap Area 13 began on October 22, 2012, and continued through December 9, 2012. Sand placement in Cap Area 13B was completed in the First Construction Season. Sand placement in Cap Area 13A was completed in the Second Construction Season. Mechanical placement of sand material in Cap Area 13A resumed on August 27, 2013 and continued through September 10, 2013. SES hydraulically placed filter material in Cap Area 13 from July 31 through August 8, 2012. Mechanical placement of filter material in Cap Area 13 began on October 22, 2012, and continued through December 3, 2012. Filter placement in Cap Area 13B was completed in the First Construction Season. Filter placement in Cap Area 13A was completed in the Second Construction Season. Mechanical placement of filter material in Cap Area 13A resumed on

The Consent Order tonnage requirement of 1,220 tons defined in Table 2 of Sheet C-10 of the 100% Design was field adjusted because the cap limits defined in the Consent Order extended landward from the existing bulkhead, existing rip-rap along the shoreline, and the field-verified mean higher high water line. Thus, based on field conditions, the surface area of Cap Area 12 was reduced from 8,558 square feet to 6,877 square feet. Based on this surface area and a layer thickness of 20-inches, the adjusted Consent Order tonnage is 820 tons (including the 115% overage). However, the footprint of this cap along the shoreline extended over existing rip-rap, thus the tonnage requirement is overestimated. Based on ENVIRON's review of the cap thickness and coverage verification data, the tonnage requirements for Cap Area 12 have been satisfied.

As noted in Section 5.4.1, hydraulic cap material placement methods were only used in Cap Area 13 during the ramp-up phase. Mechanical cap material placement methods were used to complete full-scale cap material placement activities in Cap Area 13.

September 6, 2013, and continued through September 18, 2013. SES hydraulically placed 1.0-inch armor material in Cap Area 13A from August 4, 2012 through August 16, 2012. SES mechanically placed 1.0-inch armor material in Cap Area 13A from October 19 through December 3, 2012 in the First Construction Season, and from September 9 through September 18, 2013 in the Second Construction Season. SES mechanically placed 2.5-inch armor material in Cap Area 13B from October 24 through November 20, 2012 in the First Construction Season, and from September 25 through September 26, 2013 in the Second Construction Season.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 13 were made based on a survey of existing shoreline conditions (i.e., wetlands and shoreline protection rip-rap) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 24-inch deep pans, 6-inch deep pans, and manual verifications between July 31, 2012 and January 9, 2013 in the First Construction Season and between September 6 and September 26, 2013 in the Second Construction Season. Thickness measurements were made at a total of sixty-three QC verification locations and four QA verification locations. The thickness verification measurements for Cap Area 13A and Cap Area 13B are summarized in Table 5.5.13a and Table 5.5.13b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 20. Appendix J.13 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 13.

Table 5.5.13a: Cap Area 13A – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Filter Layer	Armor Layer	Total	
Consent Order	NA	NA	NA	12	
100% Design	6	4	3	13	
QC Depth Verification	3.0 to 14.0	2.9 to 11.3	3.1 to 12.8	12.6 to 27.0	
	(average 7.4)	(average 5.2)	(average 6.5)	(average 18.9)	
QA Depth Verification	6.0 to 9.0	6.0 to 8.2	4.2 to 8.0	19.2 to 22.0	
	(average 7.2)	(average 7.4)	(average 6.1)	(average 20.6)	

Table 5.5.13b: Cap Area 13B – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	12
100% Design	6	4	5	15
QC Depth Verification	6.0 to 9.0	4.0 to 9.0	6.0 to 12.0	16.0 to 25.0
	(average 6.8)	(average 5.9)	(average 6.5)	(average 19.2)
QA Depth Verification	6.0	>6	>6	18.0

As shown in Tables 5.5.13a and 5.5.13b, the minimum individual layer thicknesses required by

the 100% Design were exceeded.¹⁵ In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 13 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 20,472 tons of capping material (8,340 tons of sand, 5,773 tons of filter, 3,411 tons of 1.0-inch armor, and 2,947 tons of 2.5-inch armor) were placed for Cap Area 13. This quantity exceeds the Consent Order tonnage requirements of 12,000 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.14 Cap Area 14

Cap Area 14 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 14 began on September 4, 2012, and continued through September 7, 2012. SES hydraulically placed 0.75-inch armor material between September 12 and September 17, 2012. Following coverage verification of the eastern portion of Cap Area 14, SES initiated and completed mechanical placement of 0.75-inch armor material along the eastern limits of Cap Area 14 on December 11, 2012.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores, 24-inch deep pans, 8-inch deep pans, and Vibracores between September 4 and December 9, 2012. Thickness measurements were made at a total of ten QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 14 are summarized in Table 5.5.14 below. Mapping of the as-built cap thickness verification locations and measurements for Cap Area 14 is shown on Figure 21. Appendix J.14 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 14.

Table 5.5.14. Cap Area 14 – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Armor Layer	Total		
Consent Order	NA	NA	12		
100% Design	6	3	9		
QC Depth Verification	6.5 to 14.5	4.8 to 12.0	13.0 to 25.3		
	(average 9.3)	(average 7.5)	(average 16.8)		
QA Depth Verification	12.5	3.0	15.5		

As allowed by Note 4 on Table 1 of Sheet C-10 of the 100% Design, the minimum values for the filter layer were adjusted as the total cap thickness met the total thickness requirement and the armor sizing criteria.

As shown in Table 5.5.14, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand and armor placed in Cap Area 14 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 5,305 tons of capping material (3,569 tons of sand and 1,736 tons of 0.75-inch armor) were placed for Cap Area 14. This quantity exceeds the Consent Order tonnage requirements of 2,760 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.15 Cap Area 15

Cap Area 15 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 15 began on September 18, 2012, and continued until September 24, 2012. Mechanical placement of sand material began on October 3, 2012, and continued through October 12, 2012. Following sand thickness and coverage verification of the northwestern portion of Cap Area 15, SES began hydraulic placement of 0.75-inch armor material on September 19, 2012. SES mechanically placed 0.75-inch armor material between November 5 and December 4, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for both the sand and armor layers using both cores and 8-inch deep pans between September 19 and December 6, 2012. Thickness measurements were made at a total of seven QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 15 are summarized in Table 5.5.15 below. Mapping of the cap thickness verification locations and measurements is shown on Figure 22. Appendix J.15 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 15.
- As described in the November 8, 2012 "Post-Hurricane Sandy QC Assessment of Constructed Cap Areas" memorandum to Honeywell (see Appendix H.4), ENVIRON and SES conducted additional sand thickness verification in Cap Area 15 between November 2 and November 5, 2012 at a frequency of two locations per acre where the sand layer was exposed. These measurements confirmed that the storm event did not result in substantive loss of the exposed sand layer.

Table 5.5.15. Cap Area 15 – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Armor Layer	Total		
Consent Order	NA	NA	12		
100% Design	6	3	9		
QC Depth Verification	6.5 to 10.0	3.2 to 12.0	12.7 to 19.8		
	(average 8.2)	(average 7.3)	(average 15.6)		
QA Depth Verification	11.0	6.5	17.5		

As shown in Table 5.5.15, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand and armor placed in Cap Area 15 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 4,774 tons of capping material (2,654 tons of sand and 2,120 tons of 0.75-inch armor) were placed for Cap Area 15. This quantity exceeds the Consent Order tonnage requirements of 1,930 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.16 Cap Area 17

Cap Area 17 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 17 began on September 12, 2012, and continued until September 19, 2012. Hydraulic placement of filter material began on September 15, 2012, and continued through October 11, 2012. SES mechanically placed filter material between November 26 and December 3, 2012. SES mechanically placed 2.5-inch armor material from October 22 through December 11, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- environ conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 8-inch deep pans, Vibracore, and diver-assisted manual verification between September 14 and December 11, 2012. Thickness measurements were made at a total of thirty-one QC verification locations and four QA verification locations. The thickness verification measurements for Cap Area 17 are summarized in Table 5.5.16 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 23. Appendix J.16 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 17.

Table 5.5.16.	Cap Area :	17 – Thickness	Verification	Summary

	Thickness (in)				
	Sand Layer	Filter Layer	Armor Layer	Total	
Consent Order	NA	NA	NA	12	
100% Design	6	4	5	15	
QC Depth Verification	6.0 to 19.0	4.0 to 11.5	5.0 to 12.0	16.5 to 35.0	
	(average 9.1)	(average 7.1)	(average 7.8)	(average 24.0)	
QA Depth Verification	9.5 to 15.5	6.0 to 8.5	7.5 to >8	23.5 to 31.5	
	(average 11.1)	(average 7.2)	(average 7.9)	(average 26.3)	

As shown in Table 5.5.16, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 17 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 22,430 tons of capping material (6,921 tons of sand, 5,685 tons of filter, and 9,824 tons of 2.5-inch armor) were placed for Cap Area 17. This quantity exceeds the Consent Order tonnage requirements of 9,030 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.17 Cap Area 18

Cap Area 18 was completed during the First and Second Construction Seasons using both hydraulic and mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 18, however, for design purposes Cap Area 18 was divided into two sub-cap areas (Caps Areas 18A and 18B). Cap Area 18A required three inches of 0.75-inch armor and Cap Area 18B required five inches of 2.5-inch armor. Additionally, the design for Cap Area 18A did not include a filter layer. In addition, prior to cap construction in the northeastern portion of Cap Area 18, where it abuts Cap Area 1 (see Figure 2), SES completed the required slope buttressing using sand and filter materials. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material within the Cap Area 18A buttress area began on September 26, 2012, and continued through October 18, 2012. Mechanical placement of sand material in Cap Area 18A for both cap and buttress construction was conducted between December 3 and December 29, 2012. Mechanical placement of buttress material resumed on August 1, 2013, and continued through August 27, 2013. Additional buttress material was mechanically placed between September 18, 2013 and September 19, 2013. A bathymetric survey was conducted on September 20, 2013 to confirm that the required slopes were achieved. A graphical representation of the bathymetric survey data is included in Appendix D.3. Armor placement in the buttress area was completed on September 30, 2013.

SES hydraulically placed 0.75-inch armor material in Cap Area 18A (outside of the buttress area) from October 2, 2012 through October 10, 2012; mechanical placement of sand material in areas outside of the buttress area was completed on September 9, 2013. Mechanical placement of 0.75-inch armor material in completed areas outside of the buttress area was conducted between December 13 and December 19, 2012 in the First Construction Season, and between September 6 and September 12, 2013 in the Second Construction Season. Mechanical placement of 2.5-inch armor material in Cap Area 18B was completed between August 5 and September 24, 2013.

Mechanical placement of sand cap material in Cap Area 18B began on December 5, 2012, and continued through December 16, 2012. However, the buttress work of Cap Area 18 was not completed by the end of the First Construction Season, and therefore, placement was suspended. Mechanical placement of sand material in Cap Area 18B was completed on August 8, 2013. Mechanical placement of filter material in Cap Area 18B was conducted from July 29 through August 8, 2013.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 18 were made based on a survey of existing shoreline conditions (i.e., existing rip-rap) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores and 8-inch deep pans between September 27 and December 19, 2012 in the First Construction Season and between July 25 and September 26, 2013 in the Second Construction Season. Thickness measurements were made at a total of thirty-one QC verification locations and six QA verification locations. The thickness verification measurements for Cap Area 18A and Cap Area 18B are summarized in Table 5.5.17a and Table 5.5.17b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 24. Appendix J.17 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 18.
- As described in the November 8, 2012 "Post-Hurricane Sandy QC Assessment of Constructed Cap Areas" memorandum to Honeywell (see Appendix H.4), ENVIRON and SES conducted additional sand thickness verification in Cap Area 18A between November 2 and November 5, 2012 at a frequency of two locations per acre where the sand layer was exposed. These measurements confirmed that the storm event did not result in substantive loss of the exposed sand layer.

Table 5.5.17a: Cap Area 18A – Thickness Verification Summary

	Thickness (in)				
	Sand Layer	Armor Layer	Total		
Consent Order	NA	NA	12		
100% Design	6	3	9		
QC Depth Verification	6.0 to 14.0	3.2 to 13.0	12.0 to 24.0		
	(average 8.8)	(average 7.3)	(average 16.2)		
QA Depth Verification	6.0 to 15.5	3.2 to 8.0	12.2 to 19.0		
	(average 9.6)	(average 4.8)	(average 14.4)		

Table 5.5.17b: Cap Area 18B – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	12
100% Design	6	4	5	15
QC Depth Verification	7.0 to 11.0	4.5 to > 8	5.5 to 12.0	19.0 to 27.5
	(average 9.0)	(average 6.3)	(average 7.7)	(average 23.0)
QA Depth Verification	6.5 to 9.5	6.5 to >8	>8	23.0 to 24.0
	(average 8.0)	(average 7.2)	(2 measurements)	(average 23.5)

As shown in Tables 5.5.17a and 5.5.17b, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 18 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 16,169 tons of buttress and capping material (9,114 tons of sand, 2,003 tons of filter material, 4,277 tons of 0.75-inch armor, and 775 tons of 2.5-inch armor) were placed for Cap Area 18. This quantity exceeds the Consent Order tonnage requirements of 8,230 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.18 Cap Area 19

Cap Area 19 was completed during the First and Second Construction Seasons using both hydraulic and mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 19, however, for design purposes Cap Area 19 was divided into two sub-cap areas (Caps Areas 19A and 19B). Cap Area 19A required three inches of 1.0-inch armor and Cap Area 19B required three inches of 0.75-inch armor. Additionally, the design for Cap Area 19B did not include a filter layer. Finally, prior to cap construction in the western portion of Cap Area 19 (see Figure 3), SES completed the required slope buttressing using sand materials. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in 19B began on September 4, 2012, and was completed on September 10, 2012.

Hydraulic placement of sand material in the buttress area of Cap Area 19A began on September 6, 2012 and continued through September 8, 2012. Mechanical placement of sand material in the buttress area of Cap Area 19A began on December 14, 2012 and continued through December 15, 2012. However, the buttress work in Cap Area 19A was not completed in the First Construction Season. Between September 20 and September 24, 2013, SES regraded the sand material placed during the First Construction Season in the buttress area. A bathymetric survey of the buttress area conducted on September 25, 2013 demonstrated that slopes in Cap Area 19 were generally less than 20 percent. A graphical representation of the bathymetric survey data is included in Appendix D.3.

Following completion of the bathymetric survey, SES mechanically placed filter material in Cap Area 19A between October 1, 2013 and October 7, 2013. Mechanical placement of 1.0-inch armor material in Cap Area 19A began on October 3, 2013 and continued through October 8, 2013.

SES began hydraulic placement of 0.75-inch armor material in Cap Area 19B on September 8, 2012, and continued through September 11, 2012. Mechanical placement of 0.75-inch armor material in Cap Area

19B began on November 9, 2012 in the First Construction Season, and was completed between September 5 and September 6, 2013 in the Second Construction Season.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 8-inch deep pans, and Vibracores between September 4, 2012 and January 3, 2013 in the First Construction Season and between September 5 and October 8, 2013 in the Second Construction Season. Thickness measurements were made at a total of fourteen QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 19A and Cap Area 19B are summarized in Table 5.5.18a and Table 5.5.18b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 25. Appendix J.18 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 19.
- As described in the November 8, 2012 "Post-Hurricane Sandy QC Assessment of Constructed Cap Areas" memorandum to Honeywell (see Appendix H.4), ENVIRON and SES conducted additional sand thickness verification in Cap Area 19B between November 2 and November 5, 2012 at a frequency of two locations per acre where the sand layer was exposed. These measurements confirmed that the storm event did not result in substantive loss of the exposed sand layer.

Table 5.5.18a: Cap Area 19A – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	12
100% Design	6	4	3	13
QC Depth Verification	6.0 to 15.2	4.0 to > 8	8.0 to >8	15.0 to 31.2
_	(average 10.1)	(average 5.8)	(average 8.0)	(average 23.3)
QA Depth Verification	8.0	>8	8.0	24.0

Table 5.5.18b: Cap Area 19B – Thickness Verification Summary

	Thickness (in)				
	Sand Layer Armor Layer Total				
Consent Order	NA	NA	12		
100% Design	6	3	9		
QC Depth Verification	8.5 to 19.0	3.5 to 9.5	13.0 to 27.0		
	(average 11.5)	(average 7.2)	(average 18.8)		
QA Depth Verification	9.0	7.0	16.0		

As shown in Tables 5.5.18a and 5.5.18b, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 19 was confirmed based on field

records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 11,756 tons of buttress and capping material (8,462 tons of sand, 1,191 tons of filter material, 970 tons of 0.75-inch armor, and 1,133 tons of 1.0-inch armor) were placed for Cap Area 19. This quantity exceeds the Consent Order tonnage requirements of 3,880 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.19 Cap Area 20

Cap Area 20 was completed during the First Construction Season using hydraulic cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 20 began on August 24, 2012, and continued through August 30, 2012. Placement of 0.75-inch armor material was performed between September 8 and September 11, 2012.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores and 8-inch deep pans between August 28 and September 11, 2012. Thickness measurements were made at a total of nine QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 20 are summarized in Table 5.5.19 below. Mapping of the as-built cap thickness verification locations and measurements for Cap Area 20 is shown on Figure 26. Appendix J.19 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 20.

Table 5.5.19: Cap Area 20 – Thickness Verification Summary

	Thickness (in)					
	Sand Layer Armor Layer Tot					
Consent Order	NA	NA	12			
100% Design	6	3	9			
QC Depth Verification	7.2 to 21.0	3.8 to 17.0	12.8 to 30.0			
	(average 11.2)	(average 8.2)	(average 19.4)			
QA Depth Verification	8.0	7.0	15.0			

As shown in Table 5.5.19, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand and armor placed in Cap Area 20 was confirmed based on field records (i.e., spreader barge operator logs); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 3,378 tons of capping material (2,067 tons of sand and 1,311 tons of 0.75-inch armor) were placed for Cap Area 20. This quantity exceeds the Consent Order tonnage

requirements of 2,510 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.20 Cap Area 21

Cap Area 21 was completed during the First Construction Season using mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Prior to cap construction of Cap Area 21, SES completed the required slope buttressing using sand materials. Mechanical placement of sand material in the eastern half of Cap Area 21 for construction of the slope buttress began on December 9, 2012, and continued through December 10, 2012. A bathymetric survey was conducted on December 11, 2012, demonstrating that the slopes in Cap Area 21 were generally less than 20 percent. A graphical representation of the bathymetric survey data is included in Appendix D.3.

SES completed the mechanical placement of sand material for construction of the cap in the western half of Cap Area 21 between December 18 and December 20, 2012. Placement of 0.75-inch armor material was performed between December 26 and December 28, 2012.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 21 were made based on a survey of existing shoreline conditions (i.e., bulkhead) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores and 8-inch deep pans between December 20 and December 28, 2012. Thickness measurements were made at a total of six QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 21 are summarized in Table 5.5.20 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 27. Appendix J.20 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 21.

Table 5.5.20: Cap Area 21 – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Total		
Consent Order	NA	NA	12	
100% Design	6	3	9	
QC Depth Verification	7.0 to 11.0	7.5 to >8	14.5 to 19.0	
	(average 9.5)	(average 7.8)	(average 17.2)	
QA Depth Verification	10.0	>8	18.0	

As shown in Table 5.5.20, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand and armor placed in Cap Area 21 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 1,318 tons of buttress and capping material (911 tons of sand and 406 tons of 0.75-inch armor) were placed for Cap Area 21. This quantity exceeds the Consent Order tonnage requirements of 750 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.21 Cap Area 23

Cap Area 23 was completed during the First Construction Season using mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

As discussed in Section 4.2, sediment removal was required prior to capping being conducted. Following completion of the sediment removal, mechanical placement of sand material in Cap Area 23 began on October 8, 2012, and continued through October 17, 2012. Placement of 0.75-inch armor material was performed between October 25 and December 4, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 23 were made based on a survey of existing shoreline conditions (i.e., bulkhead) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores, 24-inch deep pans, and 8-inch deep pans between October 19 and December 6, 2012. Thickness measurements were made at a total of five QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 23 are summarized in Table 5.5.21 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 28. Appendix J.21 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 23.
- As described in the November 8, 2012 "Post-Hurricane Sandy QC Assessment of Constructed Cap Areas" memorandum to Honeywell (see Appendix H.4), ENVIRON and SES conducted additional sand thickness verification in Cap Area 23 between November 2 and November 5, 2012 at a frequency of two locations per acre where the sand layer was exposed. These measurements confirmed that the storm event did not result in substantive loss of the exposed sand layer.

Table 5.5.21: Ca	p Area 23 –	Thickness	Verification	Summary
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	Thickness (in)					
	Sand Layer Armor Layer Total					
Consent Order	NA	NA	18			
100% Design	6	3	18^{16}			
QC Depth Verification	9.5 to 13.5	6.5 to 14.0	18.5 to 24.3			
	(average 11.2)	(average 10.6)	(average 21.7)			
QA Depth Verification	9.2	8.8	18.0			

As shown in Table 5.5.21, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 18 inches.

Finally, the total quantity of sand and armor placed in Cap Area 23 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 2,877 tons of capping material (1,755 tons of sand and 1,122 tons of 0.75-inch armor) were placed for Cap Area 23. This quantity exceeds the Consent Order tonnage requirements of 2,140 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.22 Cap Area 24

Cap Area 24 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 24 began on October 2, 2012, and was completed on the same day. SES hydraulically placed filter material between October 8 and October 10, 2012. SES conducted mechanical placement of 2.5-inch armor material between November 16 and December 11, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 8-inch deep pans, Vibracore, and diver-assisted manual verification between October 3, 2012, and January 7, 2012. Thickness measurements were made at a total of seven QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 24 are summarized in Table 5.5.22 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 29. Appendix J.22 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 24.

As presented in Table 2 in Sheet C-10 of the 100% Design the total cap design thickness or Cap Area 23 is 18 inches. As per Note 3 on Table 1 of Sheet C-10 of the 100% Design, the minimum sand and armor layer thicknesses were provided to allow variation in individual lift thicknesses.

	Thickness (in)			
	Sand Layer Filter Layer Armor Layer Total			
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	3.5 to 9.0	4.5 to 11.0	6.0 to >8	16.0 to 24.5
	(average 5.7)	(average 7.6)	(average 7.4)	(average 20.7)
QA Depth Verification	5.5	4.0	>8	17.5

As shown in Table 5.5.22, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 24 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 2,298 tons of capping material (327 tons of sand, 831 tons of filter, and 1,140 tons of 2.5-inch armor) were placed for Cap Area 24. This quantity exceeds the Consent Order tonnage requirements of 420 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.23 Cap Area 25

Cap Area 25 was completed during the First Construction Season using hydraulic cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 25 began on October 16, 2012, and continued through October 19, 2012. Placement of 0.75-inch armor material was performed between October 17 and October 24, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for both the sand and armor layers using cores, 8-inch deep pans, and diver-assisted manual verification between October 17, 2012 and January 3, 2013. Thickness measurements were made at a total of twelve QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 25 are summarized in Table 5.5.23 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 30. Appendix J.23 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 25.

	Thickness (in)			
	Sand Layer	Armor Layer	Total	
Consent Order	NA	NA	6	
100% Design	3	3	6	
QC Depth Verification	3.0 to 10.5	3.0 to >8	9.0 to 17.0	
	(average 6.8)	(average 5.6)	(average 11.7)	
QA Depth Verification	5.0	3.0	8.0	

As shown in Table 5.5.23, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 25 was confirmed based on field records (i.e., spreader barge operator logs); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 3,903 tons of capping material (2,475 tons of sand and 1,428 tons of 0.75-inch armor) were placed for Cap Area 25. This quantity exceeds the Consent Order tonnage requirements of 1,470 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.24 Cap Area 26

Cap Area 26 was completed during the Second Construction Season using mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Mechanical placement of sand material in Cap Area 26 began on September 9, 2013, and continued through September 17, 2013. Placement of filter and 2.5-inch armor material was performed between September 10 and September 18, 2013.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 26 were made based on a survey of existing shoreline conditions (i.e., wetlands) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using 8-inch deep pans and manual verification between September 9 and September 18, 2013. Thickness measurements were made at a total of five QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 26 are summarized in Table 5.5.24 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 31. Appendix J.24 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 26.

Table 5.5.24: Ca	p Area 26 -	 Thickness 	Verification	Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	5.5 to 7.8	5.0 to > 8	8.0 to >8	19.0 to 23.0
	(average 6.7)	(average 6.7)	(average 8.0)	(average 21.4)
QA Depth Verification	6.0 to 9.5	8.0 to > 8	8.0 to >8	22.0 to 25.5
	(average 7.8)	(average 8.0)	(average 8.0)	(average 23.8)

As shown in Table 5.5.24, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 26 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 1,237 tons of capping material (404 tons of sand, 386 tons of filter, and 447 tons of 2.5-inch armor) were placed for Cap Area 26. This quantity exceeds the Consent Order tonnage requirements of 400 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.25 Cap Area 27

Cap Area 27 was completed during the Second Construction Season using mechanical cap material placement methods. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Mechanical placement of sand material in Cap Area 27 began on September 12, 2013, and continued through September 18, 2013. Placement of 0.75-inch armor material was performed between September 19 and September 23, 2013.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand and armor layers using cores and 8-inch deep pans between September 12 and September 23, 2013. Thickness measurements were made at a total of eleven QC verification locations and one QA verification location. The thickness verification measurements for Cap Area 27 are summarized in Table 5.5.25 below. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 32. Appendix J.25 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 27.

Table 5.5.25.	Cap Area	27 – Thickness	Verification	Summary

	Thickness (in)				
	Sand Layer Armor Layer		Total		
Consent Order	NA	NA	6		
100% Design	3	3	6		
QC Depth Verification	3.0 to 9.0	3.0 to > 8	9.0 to 17.0		
	(average 6.3)	(average 7.0)	(average 13.4)		
QA Depth Verification	4.0	>8	12.0		

As shown in Table 5.5.25, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand and armor placed in Cap Area 27 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 2,836 tons of capping material (1,453 tons of sand and 1,384 tons of 0.75-inch armor) were placed for Cap Area 27. This quantity exceeds the Consent Order tonnage requirements of 1,570 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.26 Cap Area 29

Cap Area 29 was completed during the First Construction Season using both hydraulic and mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 29, however, for design purposes Cap Area 29 was divided into two sub-cap areas (Caps Areas 29A and 29B). Cap Area 29A required five inches of 2.5-inch armor and Cap Area 29B required three inches of 1.0-inch armor. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Hydraulic placement of sand material in Cap Area 29 began on October 2, 2012, and continued through October 19, 2012. SES began hydraulic placement of filter material on October 5 through October 27, 2012. Mechanical placement of filter material was conducted from November 26 through December 13, 2012. Mechanical placement of 2.5-inch armor material was conducted from November 16, 2012 through December 2, 2012. Mechanical placement of 1.0-inch armor material was conducted from December 9 through December 20, 2012.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer.
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 8-inch deep pans, and diver-assisted manual verifications between October 4, 2012 and January 8, 2013. Thickness measurements were made at a total of forty-four QC verification locations and four QA verification locations. The thickness verification measurements for Cap Area 29A and Cap Area 29B are summarized in Table 5.5.26a and Table 5.5.26b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 33. Appendix J.26 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a

photo log of the cap thickness verification measurements for Cap Area 29.

Table 5.5.26a: Cap Area 29A – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	12
100% Design	6	4	5	15
QC Depth Verification	6.0 to 11.5	4.5 to 18.8	5.0 to 11.0	20.0 to 34.3
_	(average 8.3)	(average 8.0)	(average 8.0)	(average 24.2)
QA Depth Verification	6.0	>8	>8	22.0

Table 5.5.26b: Cap Area 29B – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	12
100% Design	6	4	3	13
QC Depth Verification	6.0 to 11.5	2.5 to 12.3	3.0 to > 8	16.5 to 26.8
	(average 7.8)	(average 6.8)	(average 6.8)	(average 22.2)
QA Depth Verification	6.0 to 8.5	7.5 to >8	6.8 to >8	21.5 to 23.2
	(average 7.0)	(average 7.8)	(average 7.6)	(average 22.4)

As shown in Tables 5.5.26a and 5.5.26b, the minimum individual layer thicknesses required by the 100% Design were exceeded.¹⁷ In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 12 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 29 was confirmed based on field records (i.e., spreader barge operator logs and ullage logs for mechanical placement); these data are provided on the Material Tracking Review Table (see attached Table 5.2.1). A total of 24,415 tons of capping material (10,638 tons of sand, 8,172 tons of filter, 3,412 tons of 1.0-inch armor, and 2,194 tons of 2.5-inch armor) were placed for Cap Area 29. This quantity exceeds the Consent Order tonnage requirements of 10,920 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.5.27 Cap Area 30

Cap Area 30 was completed during the First and Second Construction Seasons using mechanical cap material placement methods. The Consent Order identifies this area as Cap Area 30, however, for design purposes Cap Area 30 was divided into two sub-cap areas (Caps Areas 30A and 30B). Cap Area 30A required three inches of 1.0-inch armor and Cap Area 30B required five inches of 2.5-inch armor. Specific dates of material placement are provided on the Material Tracking Review Table (see attached Table 5.2.1).

Mechanical placement of sand material in Cap Area 30B began on December 11, 2012 and continued through December 28, 2012. However, sand placement in Cap Area 30B was not completed in the First Construction Season. Placement of sand material in Cap Area 30B resumed on September 5, 2013, and continued through September 6, 2013. Placement of filter material was conducted between December 12 and December 29, 2012 in the First Construction Season, and between September 5 and September 6, 2013 in the Second Construction Season. Placement of 2.5-inch armor material in Cap Area 30B occurred between December 12 and December 29, 2012 in the First Construction Season, and between

As allowed by Note 4 on Table 1 of Sheet C-10 of the 100% Design, the minimum values for the filter layer were adjusted as the total cap thickness met the total thickness requirement and the armor sizing criteria.

September 6 and September 23, 2013 in the Second Construction Season.

Mechanical placement of sand material in Cap Area 30A began on August 5, 2013, and continued through August 8, 2013. Placement of filter material was conducted between August 8, 2013 and August 13, 2013. Placement of 1.0-inch armor material in Cap Area 30A occurred between August 14 and August 19, 2013.

Prior to initiating placement operations for an overlying material layer, ENVIRON verified the layer thickness and extent of material coverage with respect to the 100% Design and the Consent Order requirements.

- ENVIRON verified that capping material coverage extended to the runout limits defined in the 100% Design by mapping the GPS coverage records for each layer. As allowed by the 100% Design, modifications to the extent of Cap Area 30 were made based on a survey of existing shoreline conditions (i.e., wetlands) and the mean higher high water elevation (3.84 feet).
- ENVIRON conducted cap layer thickness verification measurements for the sand, filter, and armor layers using cores, 6- and 8-inch deep pans, and manual verifications between December 12 and December 29, 2012 in the First Construction Season and between August 6 and September 11, 2013 in the Second Construction Season. Thickness measurements were made at a total of eleven QC verification locations and two QA verification locations. The thickness verification measurements for Cap Area 30A and Cap Area 30B are summarized in Table 5.5.27a and Table 5.5.27b, respectively. Mapping of the as-built cap thickness verification locations and measurements is shown on Figure 34. Appendix J.27 includes GPS coverage records for each layer, tabulated and graphical representation of cap thickness verification measurements and a photo log of the cap thickness verification measurements for Cap Area 30.

Table 5.5.27a: Cap Area 30A – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	3	10
QC Depth Verification	3.5 to 4.0	4.5 to >8	3.5 to > 8	13.0 to 17.0
	(average 3.6)	(average 6.5)	(average 4.9)	(average 15.1)
QA Depth Verification	3.0	10.0	>8	21.0

Table 5.5.27b: Cap Area 30B – Thickness Verification Summary

	Thickness (in)			
	Sand Layer	Filter Layer	Armor Layer	Total
Consent Order	NA	NA	NA	6
100% Design	3	4	5	12
QC Depth Verification	5.0 to 10.0	5.5 to >8	6.0 to >8	18.8 to 25.5
	(average 6.7)	(average 6.5)	(average 7.5)	(average 20.7)
QA Depth Verification	6.5	>8	>8	22.5

As shown in Tables 5.5.27a and 5.5.27b, the minimum individual layer thicknesses required by the 100% Design were exceeded. In addition, 100 percent of the QC and QA measurements exceed the Consent Order cap thickness requirement of 6 inches.

Finally, the total quantity of sand, filter, and armor placed in Cap Area 30 was confirmed based on field records (i.e., ullage logs for mechanical placement); these data are provided on the Material Tracking

Review Table (see attached Table 5.2.1). A total of 5,595 tons of capping material (1,211 tons of sand, 2,120 tons of filter, 851 tons of 1.0-inch armor, and 1,413 tons of 2.5-inch armor) were placed for Cap Area 30. This quantity exceeds the Consent Order tonnage requirements of 1,620 tons presented in Table 2 of Sheet C-10 of the 100% Design.

5.6 Demobilization and Site Restoration

The following sections discuss demobilization activities and site restoration efforts conducted following the First and Second Construction Seasons.

5.6.1 Demobilization after First Construction Season

Between the First and Second Construction Seasons, SES demobilized from the site. Demobilization activities began on January 4, 2013 and were completed on February 8, 2013. During this time, SES:

- Disassembled and demobilized the hydraulic spreader barges.
- Disassembled and demobilized the Telebelt conveyor system.
- Repaired damaged sections of the SA-7 bulkhead resulting from the cap slurry intake HDPE pipelines to the satisfaction of AMEC.
- Repaired existing and installed additional soil erosion and sediment control measures around the capping material stockpile area located on the upland area of SA-7.
- Removed the temporary dock structure on the southwest corner of the former Colonial Concrete plant.
- Demobilized all equipment from the site, with the exception of the following which were staged on the Degen Oil property for use during the Second Construction Season:
 - o PC330 excavator
 - o Komatsu Dump Truck
 - o Pontoon visitors' boat
 - o D65 dozer
 - o Scows (6)
 - o 20' sea containers (3)
 - o Assorted equipment (fuel tanks, crane mats, anchors, fence panels)

5.6.2 Demobilization and Site Restoration after Second Construction Season

While full-scale capping operations were not completed until October 8, 2013, SES mobilized a 200-ton Vergona hydraulic crane to the site on September 30, 2013 to commence the disassembly and demobilization of material scows and flexi-float barges. Demobilization activities were completed on October 25, 2013. Between September 30 and October 25, 2013, SES:

Disassembled and demobilized the conveyor system and flexi-float scows.

- Demobilized all equipment from the site, with the exception of the following which were temporarily staged on-site for subsequent removal by SES at a later date:
 - o Crane mats (23)
 - o Scows (7)
 - Pontoon boat
 - o 10' by 40' flexi-floats (11)
 - o CAT 950G front-end loader
 - o Weeks 46 barge
 - o PC490 excavator
- Removed the temporary dock structure on the southwest corner of the former Colonial Concrete plant.
- Repaired existing and installed additional soil erosion and sediment control measures around
 the capping material stockpile area located on the upland area of SA-7 to the satisfaction of
 the Hudson-Essex-Passaic Soil Conservation District Inspector.
- Regraded the site access road to restore to a smooth surface.
- Restored Work Zone and Support Zone to pre-construction conditions.

During this time period, SES also demobilized the office trailers, temporary facilities near the dock, chain-link fencing around the designated Support Zone, and the GPS reference stations.

5.7 Reporting

The performance of sediment capping operations and associated activities were documented periodically in:

- Daily reports prepared by ENVIRON (included in Appendix B.1);
- Monthly progress reports prepared by Honeywell; and
- The First, Second, and Third Sediment Remedy Declaration Reports submitted to the U.S. District Court, District of New Jersey, documenting the sediment remedy implementation for SA-7 (included in Appendix B.3).

Documentation and Remedial Action Summary Report Study Area 7 Sediment Remedy May 2014

Figures



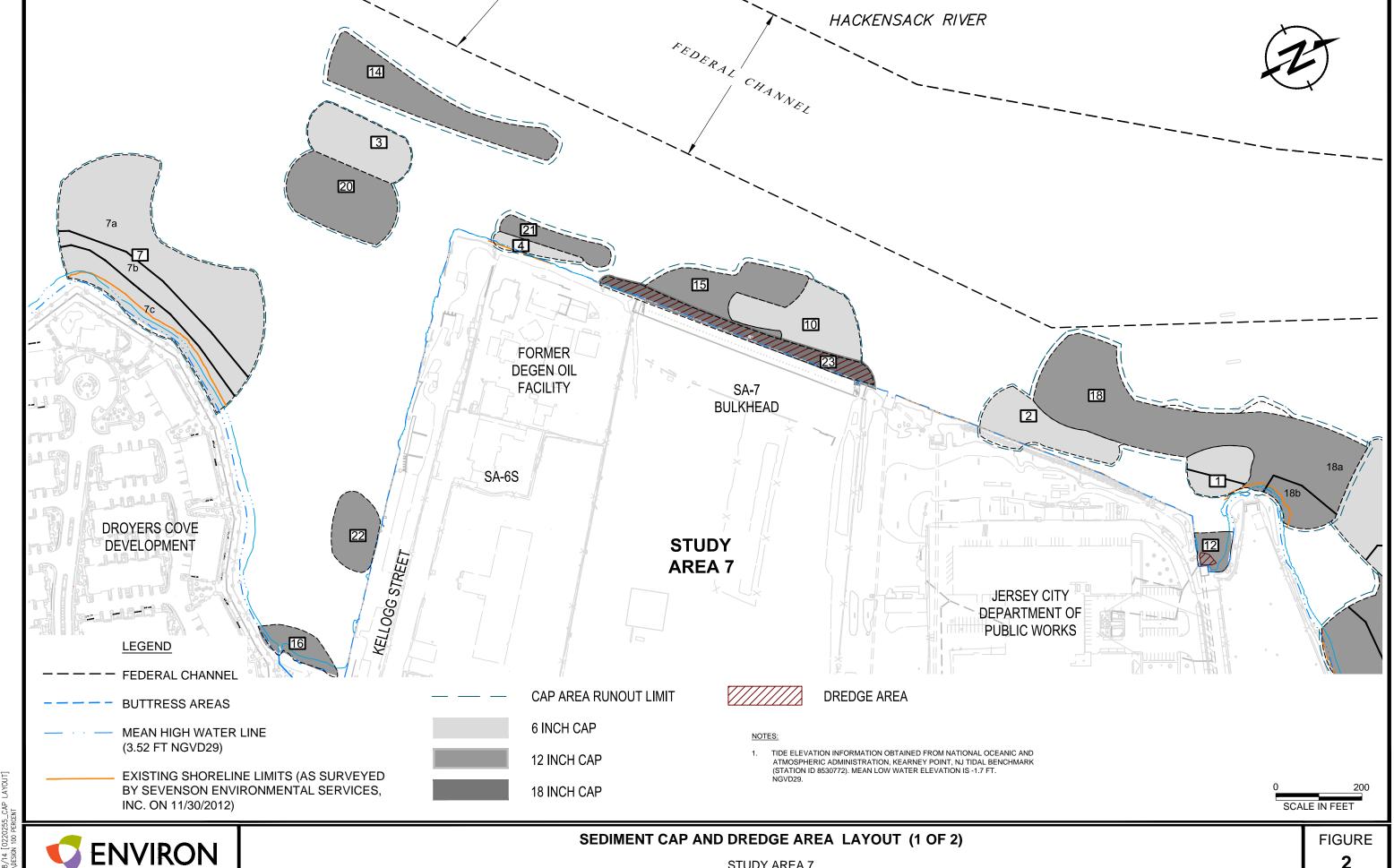
ENVIRON DRAFTED BY: BJK/MSB DATE: 04/17/2014

SA-7 AND VICINITY MAP

HONEYWELL JERSEY CITY, NEW JERSEY **FIGURE**

1

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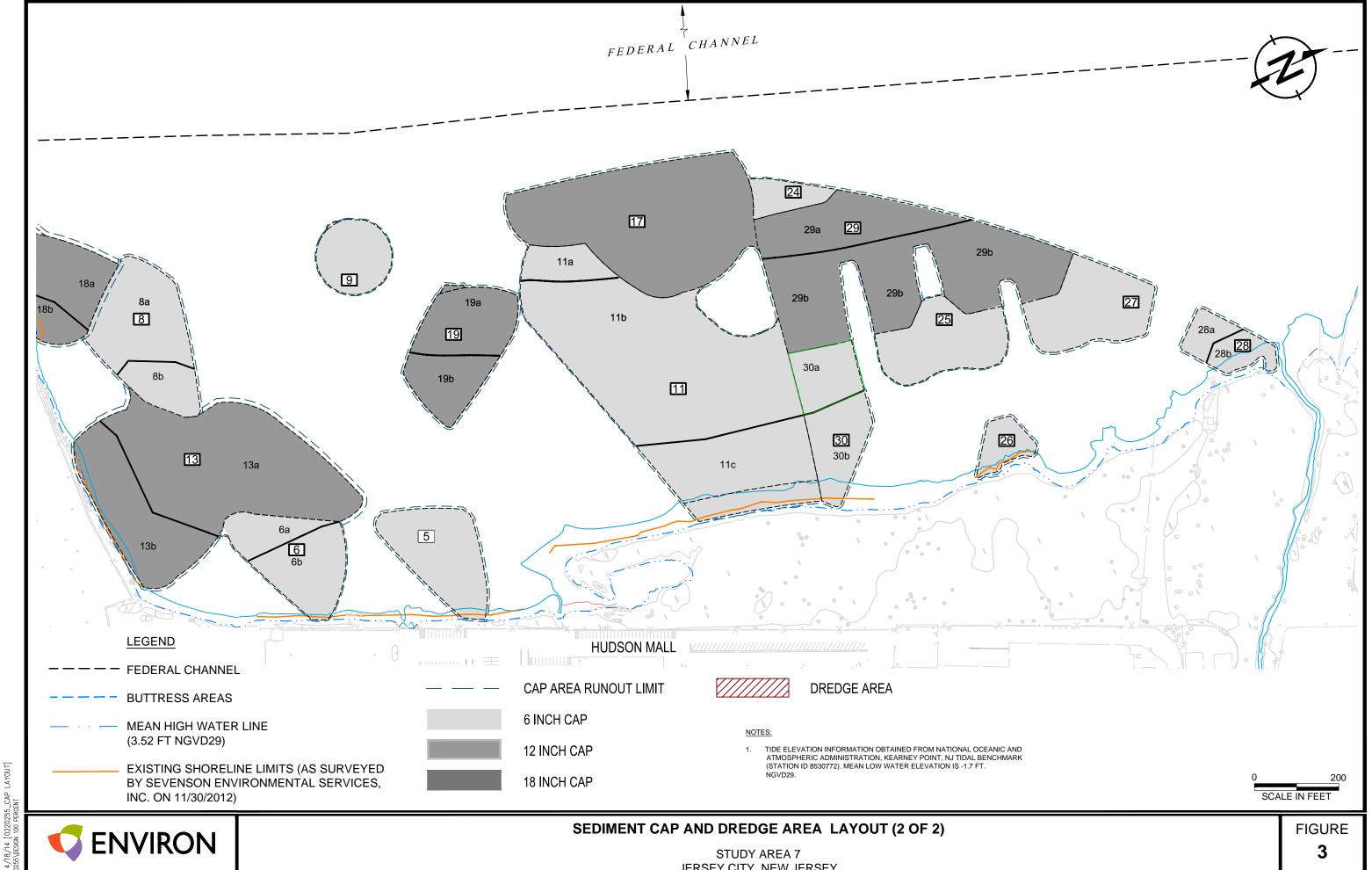


DRAFTED BY: BJK/MSB

DATE: 04/17/2014

STUDY AREA 7 JERSEY CITY, NEW JERSEY 2

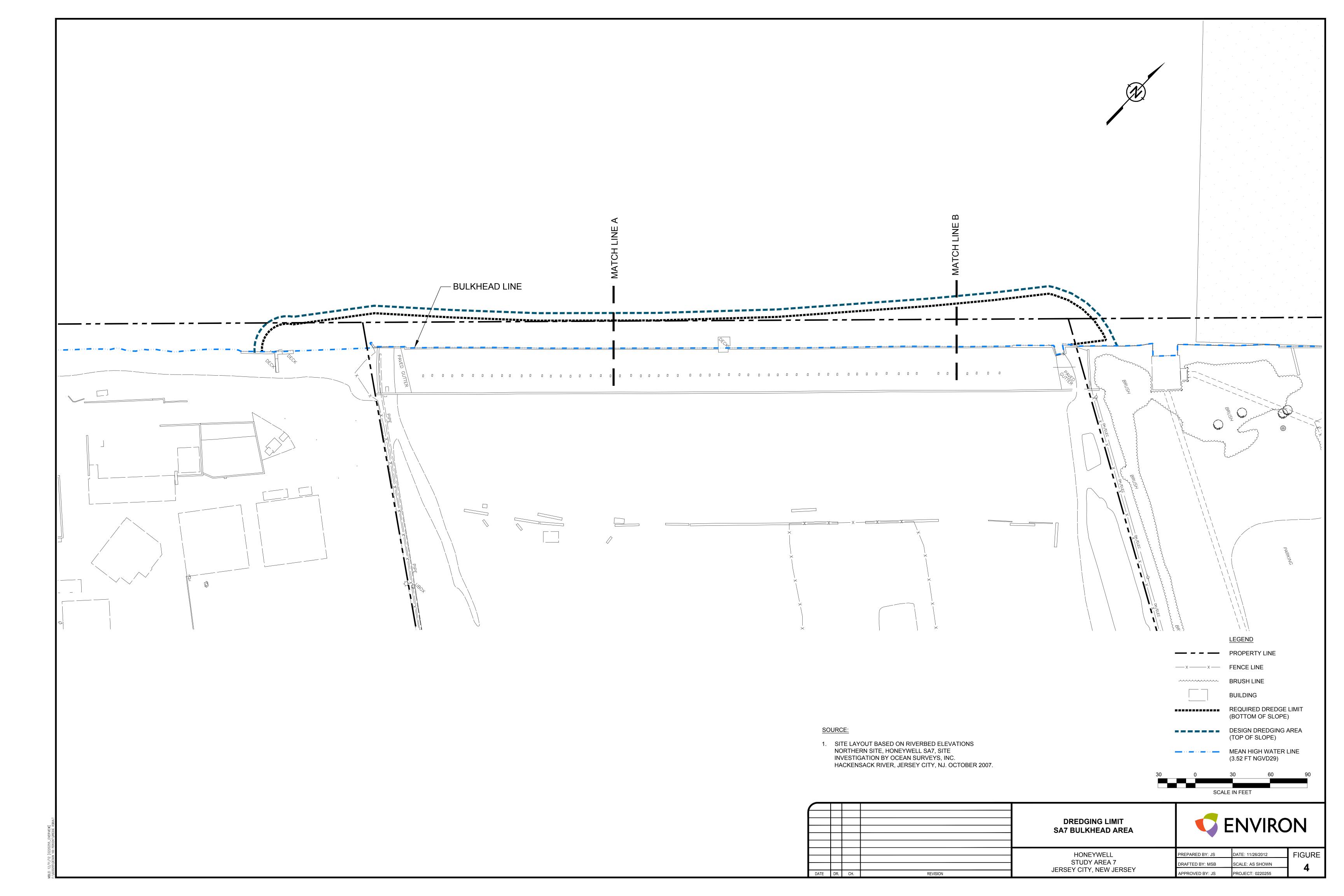
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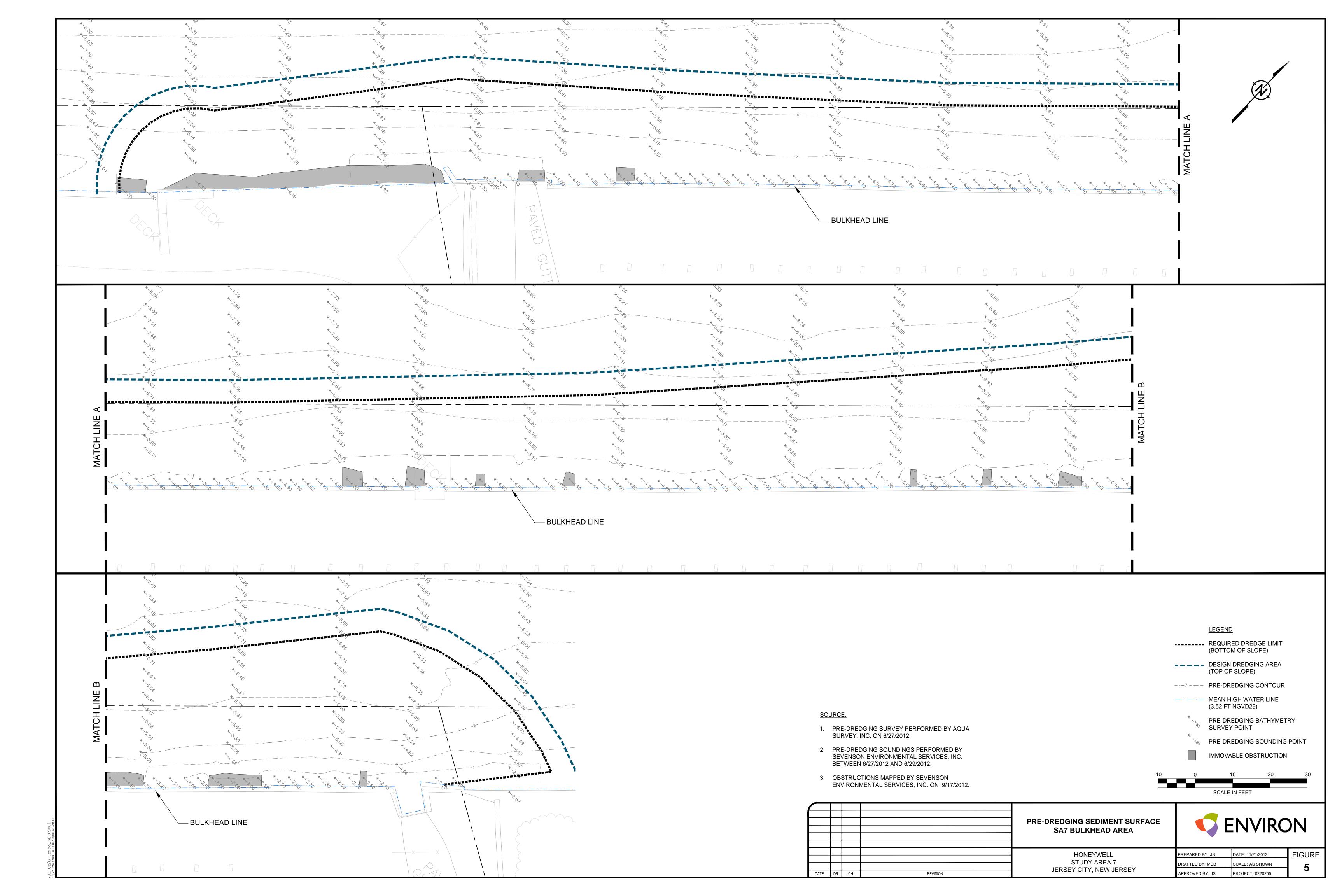


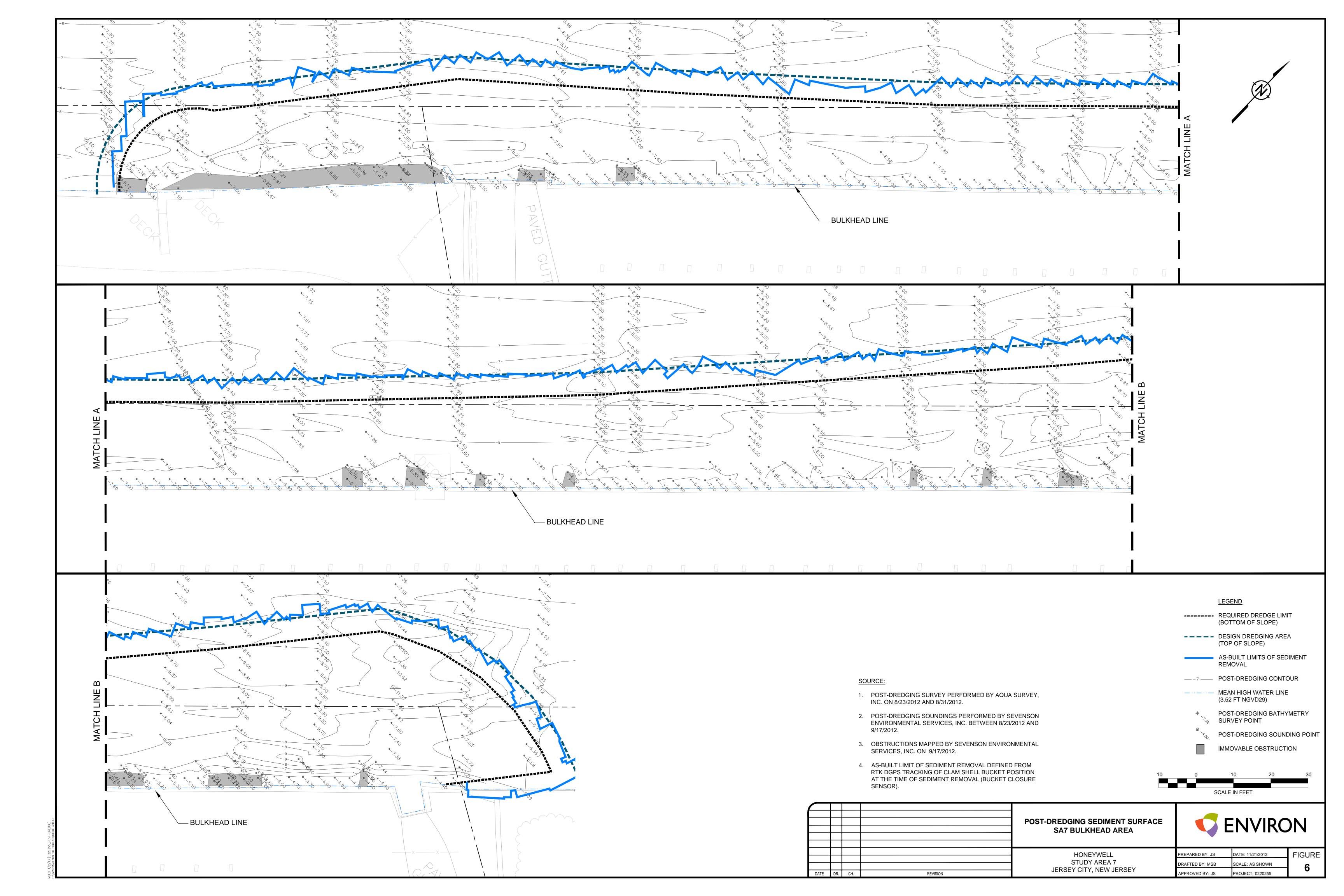
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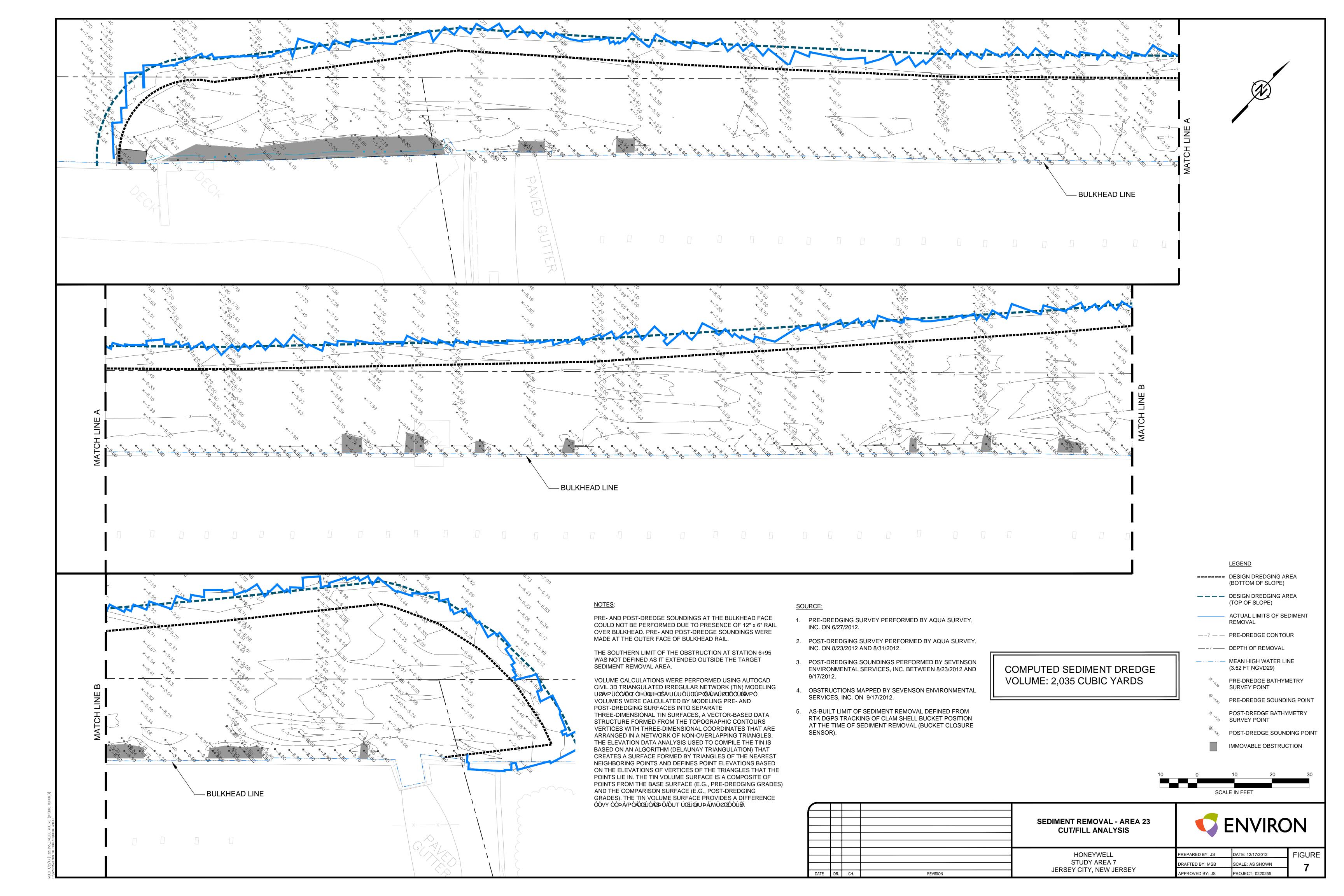
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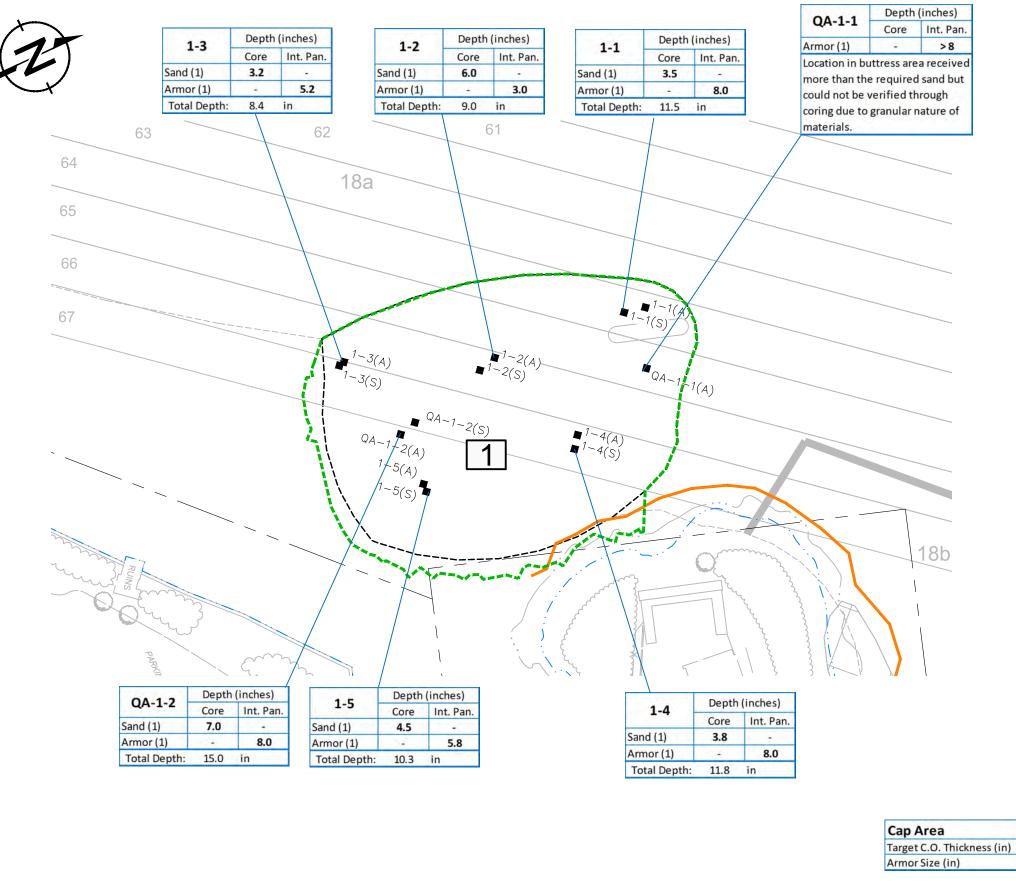
JERSEY CITY, NEW JERSEY











----- CAPPING AREA LIMIT REQUIRED BY

CONSENT ORDER

AS-BUILT CAPPING AREA LIMIT

67 CAP LANE AND IDENTIFICATION

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

MEAN HIGH WATER LINE (3.52 FT NGVD'29)

EXISTING SHORELINE PROTECTION LIMITS (AS SURVEYED BY SEVENSON ENVIRONMENTAL SERVICES, INC. ON 11/30/2012)

BRIDGE ABUTMENT

NOTES:

1

6 0.75

- THE NUMBER NEXT TO THE MATERIAL TYPE IN THE DATABOXES REPRESENTS THE NUMBER OF MATERIAL PLACEMENT PASSES.
- 2. THE TOTAL THICKNESS MEASUREMENT IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL VŸÚÒÁÇÓU ŠÖLÐÁT ÒŒÙWÜÒT ÒÞ VÙÁŒJÒÁVŒSÒÞÆÐAÁUÜÖÖÜÁJØ PREFERENCE: 1) CORES, 2) INTERMEDIATE PANS, 3) FULL ÖÖÚVPÁJŒÞÙÆŒÐÖÁ DÁK ØĎÜŒÐÜÜÜÒÜÆÑÞPŒÖÖÖÄÔÒŠŠÙ INDICATE DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES ARE USED TO COMPUTE THE TOTAL VPØSÞÒÙÙÆT VŠVØÚŠÒÁKŒŠWÒÙÁZUÜÁŒÕŒXÒÞÁT ŒVÒÜŒŠ LAYER SHOWN ON SEPARATE ROWS INDICATE SEQUENTIAL MEASUREMENTS; EACH VALUE IS USED TO ÔUT ÚWVÒÁ/PÒÁ/UVŒŚÁ/PØSÞÒÙÙÆÐUVÒÆÐAÓÖÜVŒÐC CASES A CORE OR VIBRA-CORE MEASUREMENT CAPTURED T VŠVØÚŠÒÁÔŒÚÆSŮËÒÜÜÐÆÐAÁPÖÙÒÁЌРÁPOÙÒÁÔŒÐOÙÚÐÁDENT THE COMBINED VPØSÞÒÙÚÁJØÁ/PÒÙÒÆSŒŸÖÜÜÆÁ
- 3. ACTUAL LANDWARD LIMITS OF CONSTRUCTED CAP AREAS ALONG THE SHORELINE AND BULKHEAD WERE VERIFIED IN THE FIELD AS SPECIFIED ON FINAL DESIGN DRAWINGS C-6 AND C-13; CAP LIMITS WERE ADJUSTED IN THE FIELD AS ØUŠŠUY ÙKÁ
 - 1. AT MEAN HIGHER HIGH WATER LINE (EL. 3.84-FT);
 - 2. AT THE EXISTING BULKHEAD; OR
 - 3. AT THE LIMIT OF WETLANDS

0 40 SCALE IN FEET



CAP AREA 1 DATA
HONEYWELL
STUDY AREA 7

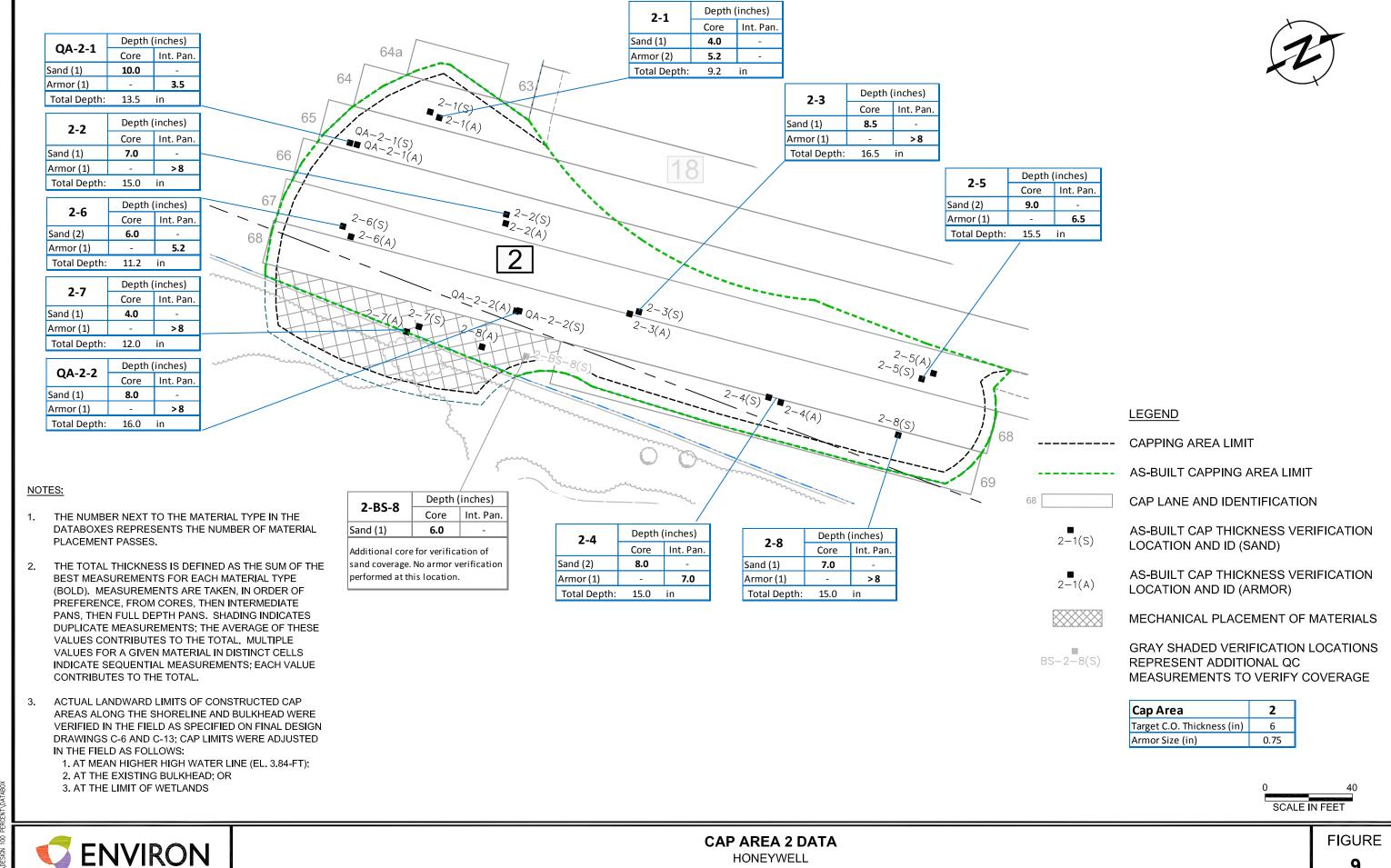
JERSEY CITY, NEW JERSEY

FIGURE

)255F3

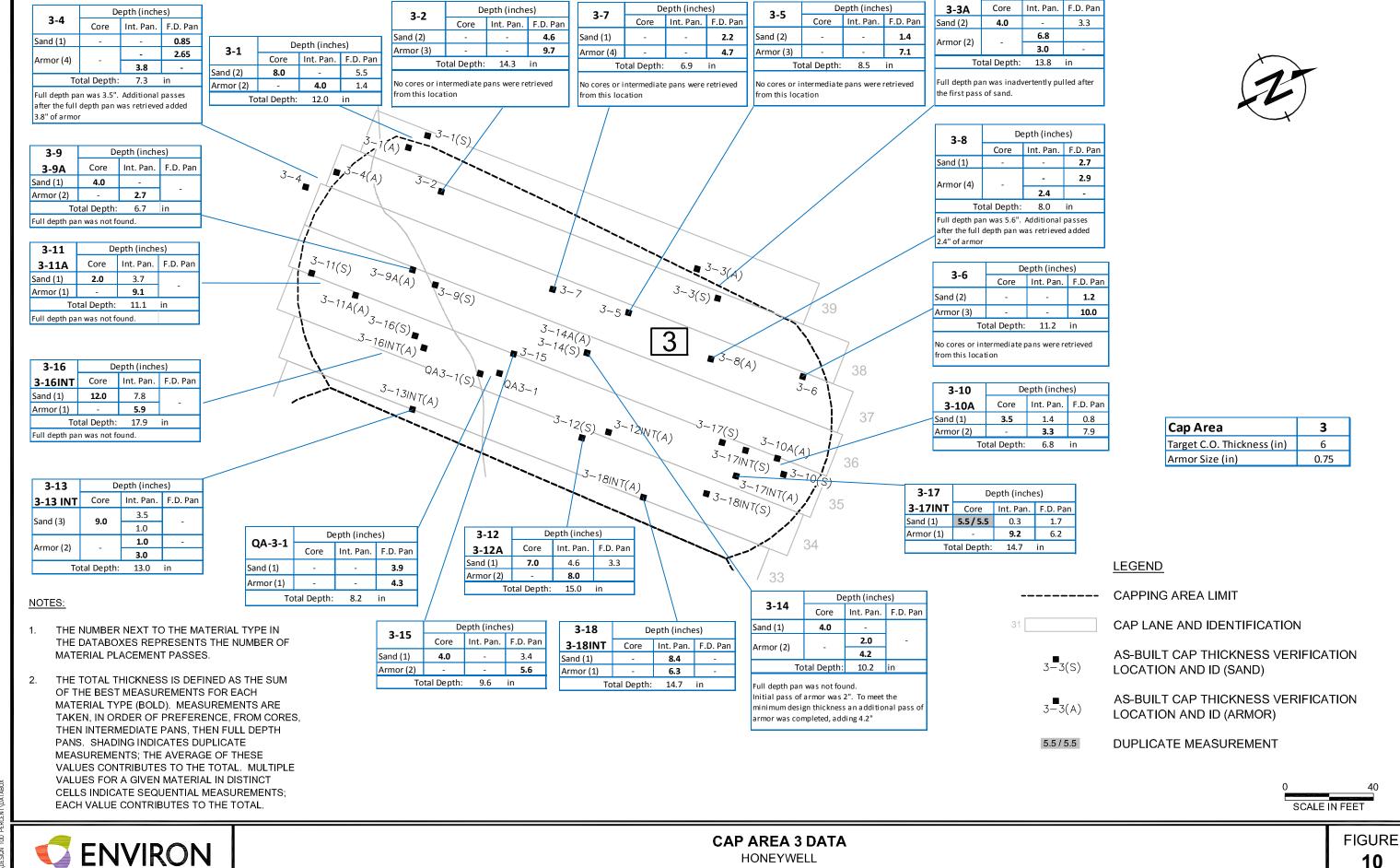
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8



DATE: 01/23/2013

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY



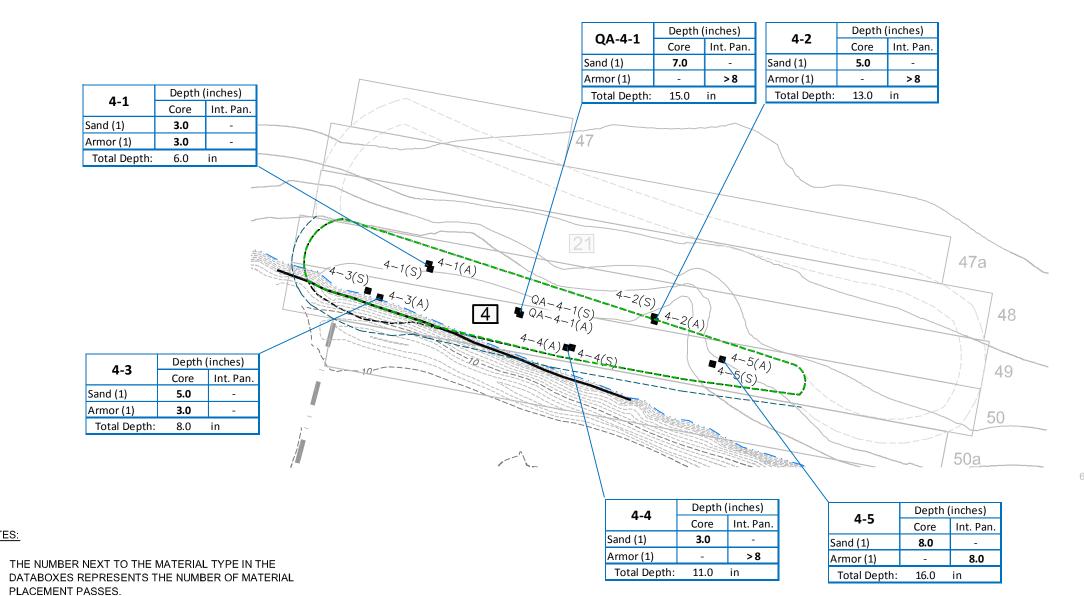
3-3

Depth (inches)

DRAFTED BY: BJK/MSB

DATE: 01/08/2013

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY 10





CAPPING AREA LIMIT

AS-BUILT CAPPING AREA LIMIT

CAP LANE AND IDENTIFICATION

AS-BUILT CAP THICKNESS VERIFICATION 4-1(S) LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

MEAN HIGH WATER LINE (3.52 FT NGVD'29)

SHORE LINE

Cap Area	4
Target C.O. Thickness (in)	6
Armor Size (in)	0.75

SCALE IN FEET



IN THE FIELD AS FOLLOWS:

2. AT THE EXISTING BULKHEAD; OR

3. AT THE LIMIT OF WETLANDS

CONTRIBUTES TO THE TOTAL.

CAP AREA 4 DATA

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE** 11

DATE: 01/11/2013

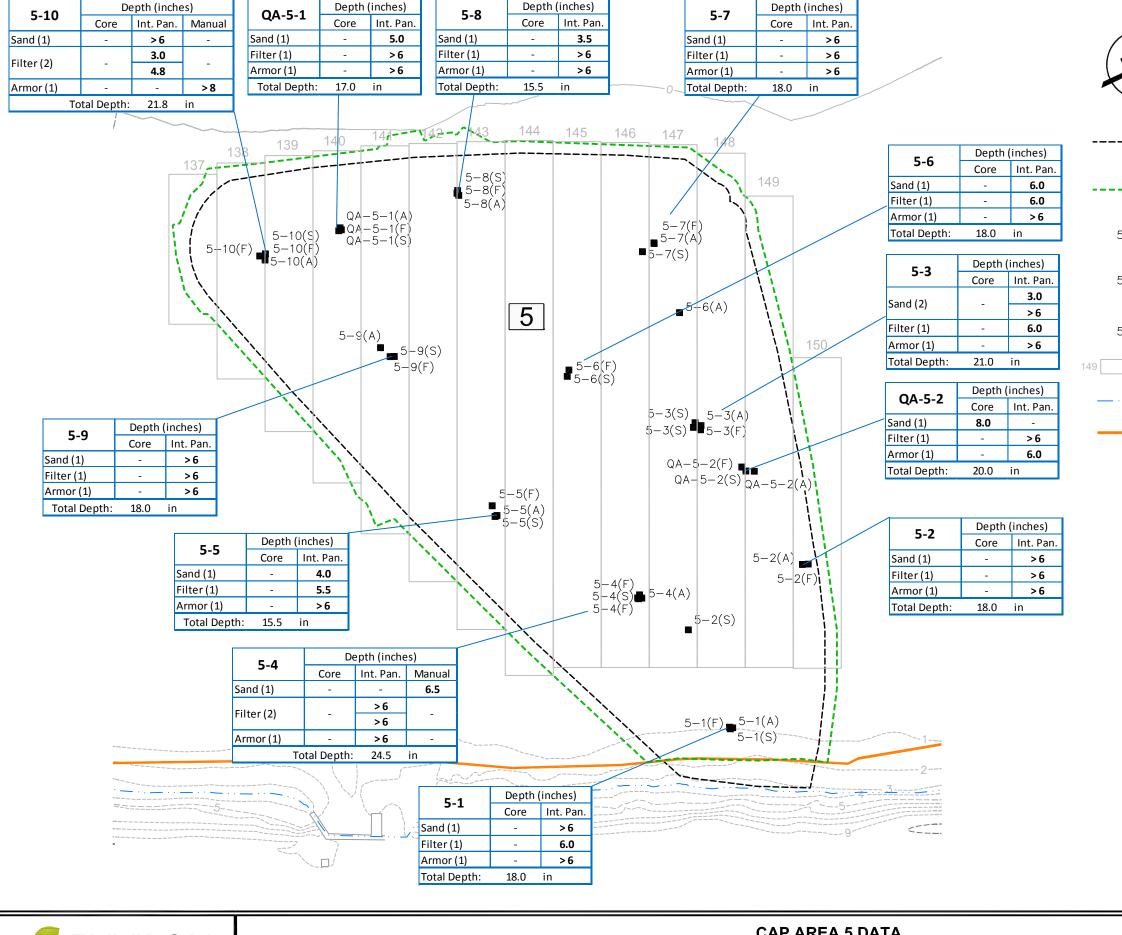
THE TOTAL THICKNESS IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL TYPE

(BOLD). MEASUREMENTS ARE TAKEN, IN ORDER OF PREFERENCE, FROM CORES, THEN INTERMEDIATE PANS, THEN FULL DEPTH PANS. SHADING INDICATES DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES CONTRIBUTES TO THE TOTAL. MULTIPLE VALUES FOR A GIVEN MATERIAL IN DISTINCT CELLS INDICATE SEQUENTIAL MEASUREMENTS; EACH VALUE

ACTUAL LANDWARD LIMITS OF CONSTRUCTED CAP AREAS ALONG THE SHORELINE AND BULKHEAD WERE VERIFIED IN THE FIELD AS SPECIFIED ON FINAL DESIGN DRAWINGS C-6 AND C-13; CAP LIMITS WERE ADJUSTED

1. AT MEAN HIGHER HIGH WATER LINE (EL. 3.84-FT);

NOTES:





Cap Area	5
Target C.O. Thickness (in)	6
Armor Size (in)	2.5

CAPPING AREA LIMIT REQUIRED BY **CONSENT ORDER**

AS-BUILT CAPPING AREA LIMIT

AS-BUILT CAP THICKNESS VERIFICATION 5-1(S) LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (FILTER)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

CAP LANE AND IDENTIFICATION

MEAN HIGH WATER LINE (3.52 FT NGVD'29)

EXISTING SHORELINE PROTECTION LIMITS (AS SURVEYED BY SEVENSON ENVIRONMENTAL SERVICES, INC. ON 11/30/2012)

NOTES:

- 1. THE NUMBER NEXT TO THE MATERIAL TYPE IN THE DATABOXES REPRESENTS THE NUMBER OF MATERIAL PLACEMENT PASSES.
- 2. THE TOTAL THICKNESS MEASUREMENT IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL TYPE (BOLD). MEASUREMENTS ARE TAKEN, IN ORDER OF PREFERENCE: 1) CORES, 2) INTERMEDIATE PANS, 3) FULL DEPTH PANS, AND 4) VIBRA-CORES, SHADED CELLS INDICATE DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES ARE USED TO COMPUTE THE TOTAL THICKNESS. MULTIPLE VALUES FOR A GIVEN MATERIAL LAYER SHOWN ON SEPARATE ROWS INDICATE SEQUENTIAL MEASUREMENTS: EACH VALUE IS USED TO COMPUTE THE TOTAL THICKNESS. NOTE, IN CERTAIN CASES A CORE OR VIBRA-CORE MEASUREMENT CAPTURED MULTIPLE CAP LAYERS. IN THESE CASES, THE CORE MEASUREMENT IS USED TO REPRESENT THE COMBINED THICKNESS OF THESE LAYERS.
- 3. ACTUAL LANDWARD LIMITS OF CONSTRUCTED CAP AREAS ALONG THE SHORELINE AND BULKHEAD WERE VERIFIED IN THE FIELD AS SPECIFIED ON FINAL DESIGN DRAWINGS C-6 AND C-13; CAP LIMITS WERE ADJUSTED IN THE FIELD AS FOLLOWS:
 - 1. AT MEAN HIGHER HIGH WATER LINE (EL. 3.84-FT);
 - 2. AT THE EXISTING BULKHEAD; OR
 - 3. AT THE LIMIT OF WETLANDS

SCALE IN FEET

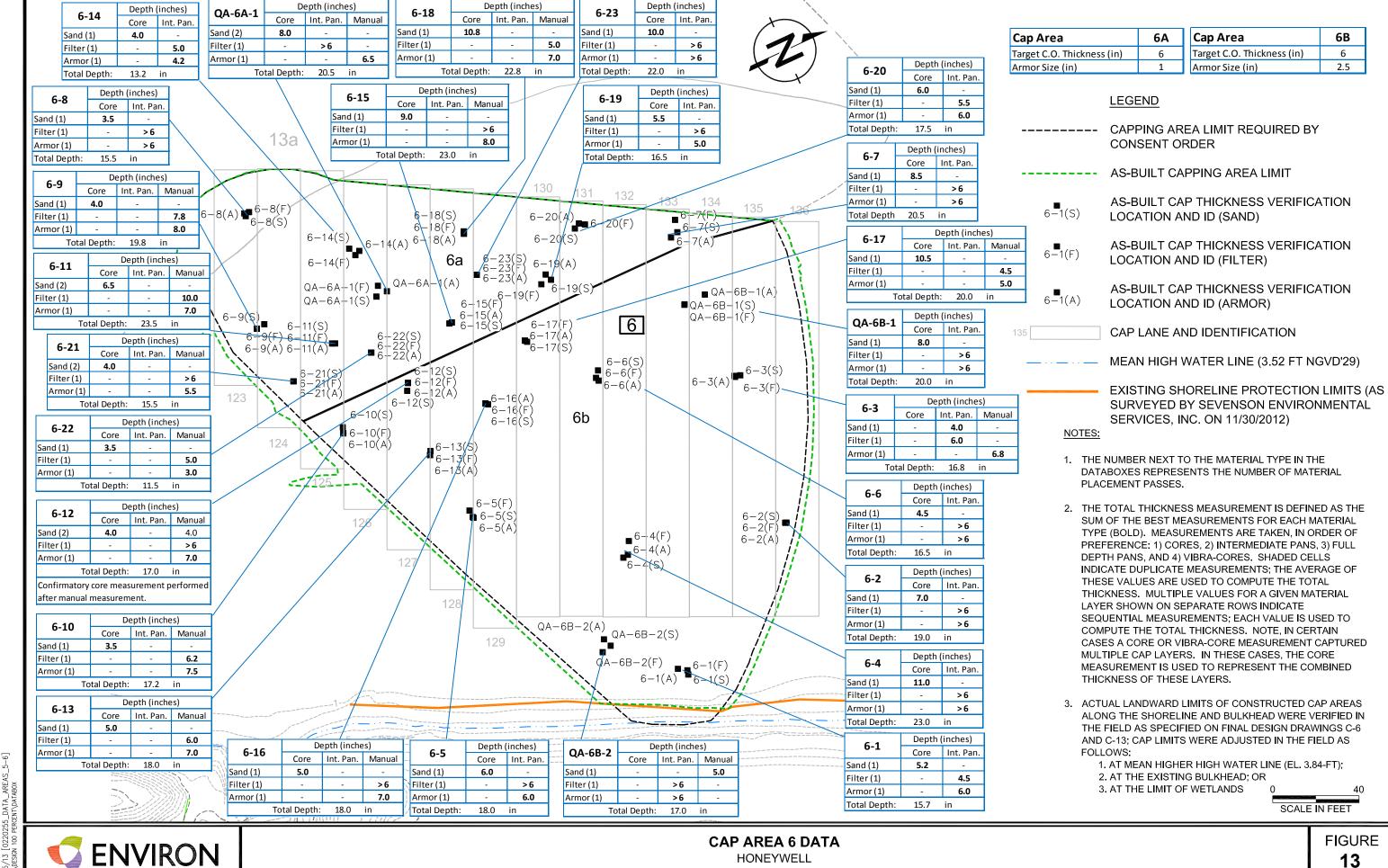


DATE: 12/04/2013

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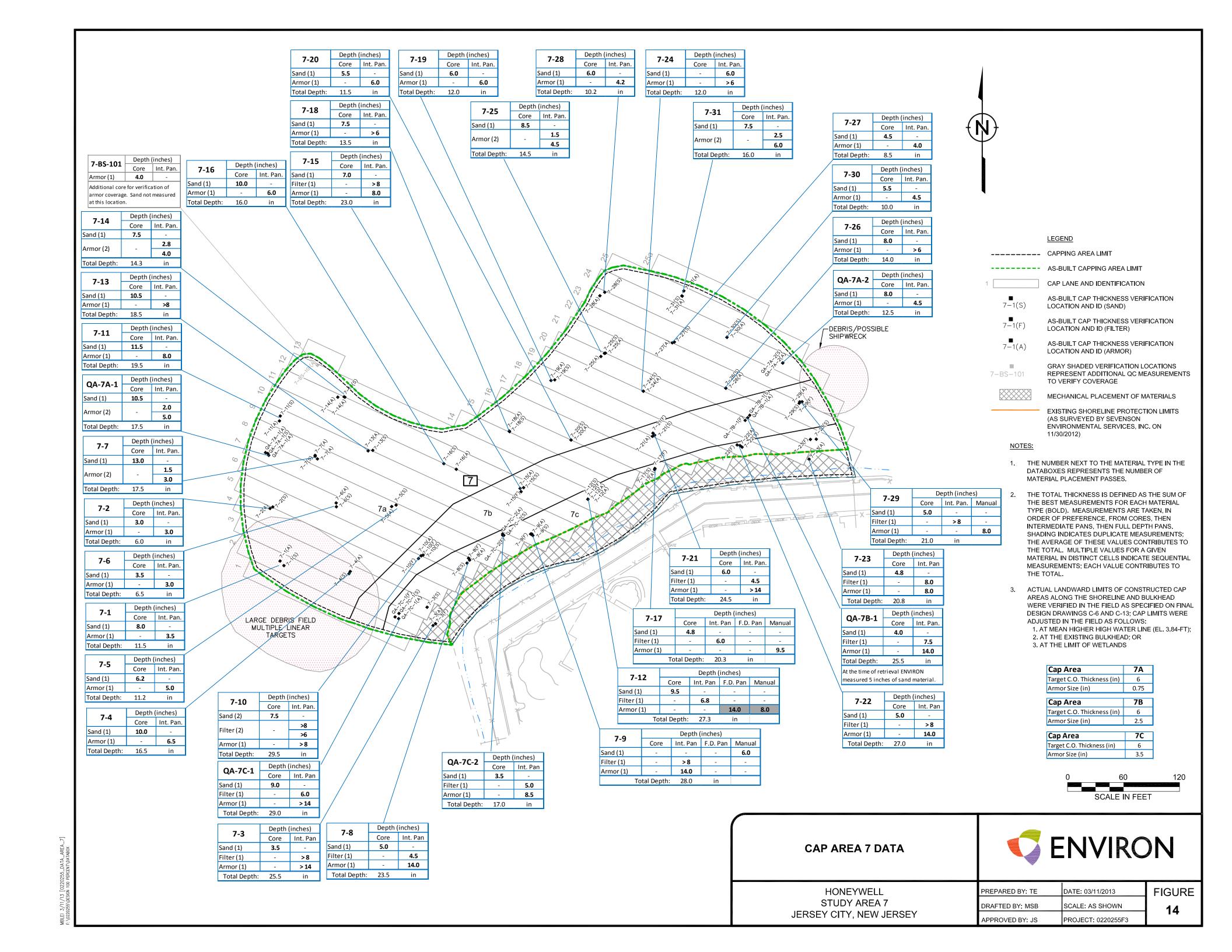
CAP AREA 5 DATA

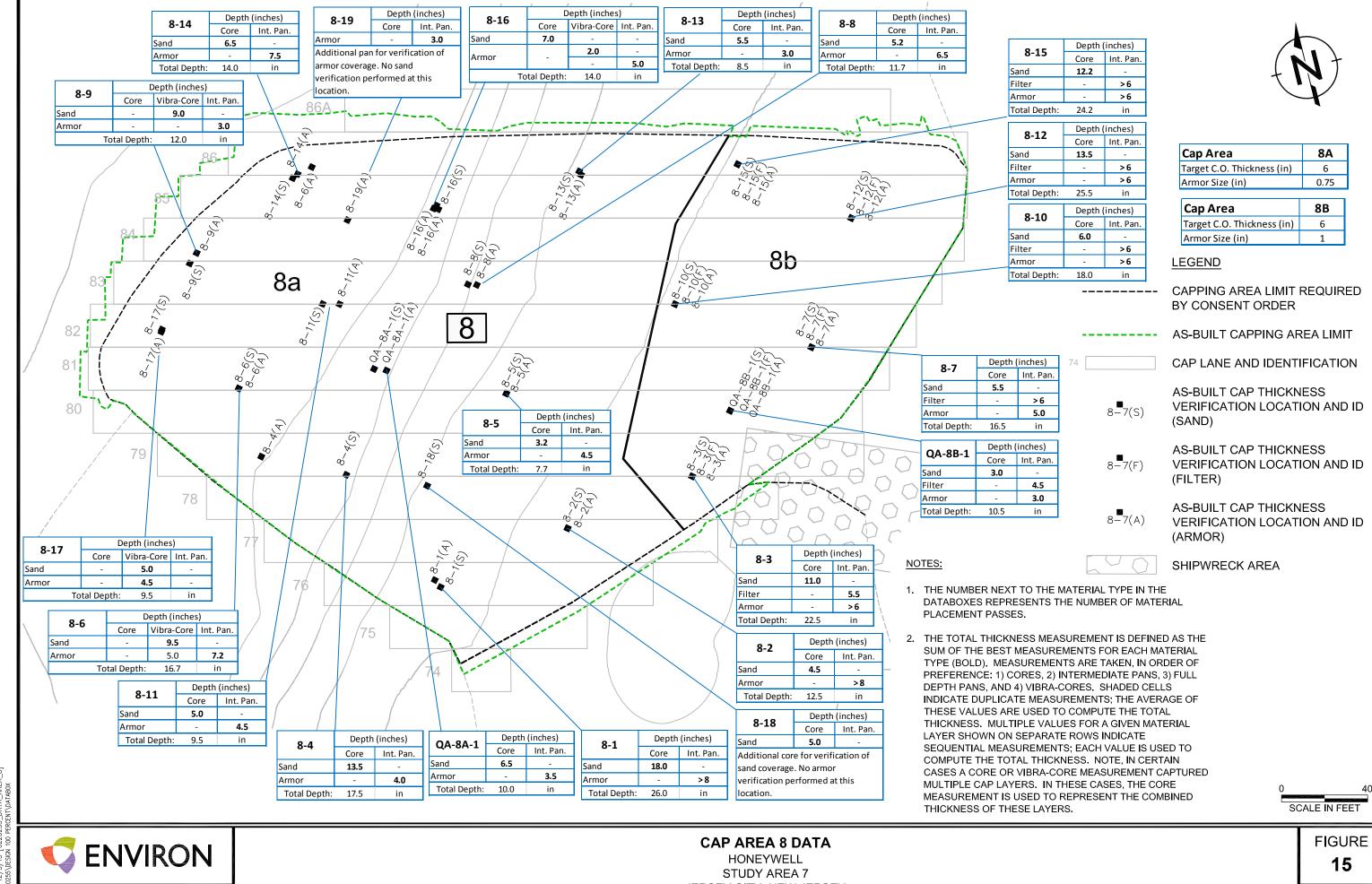
HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE** 12



DATE: 12/04/2013

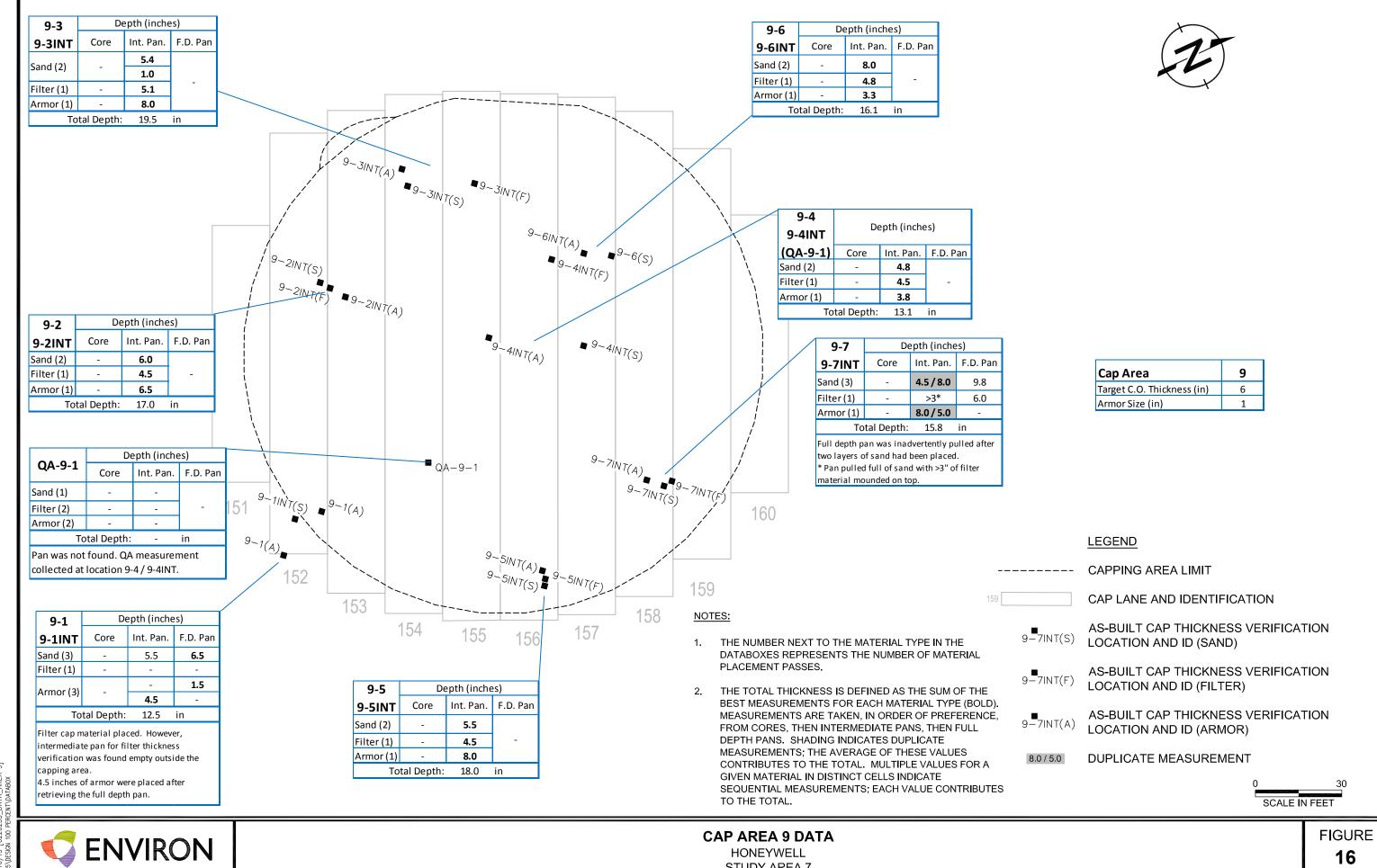
STUDY AREA 7 JERSEY CITY, NEW JERSEY





DATE: 10/30/2013

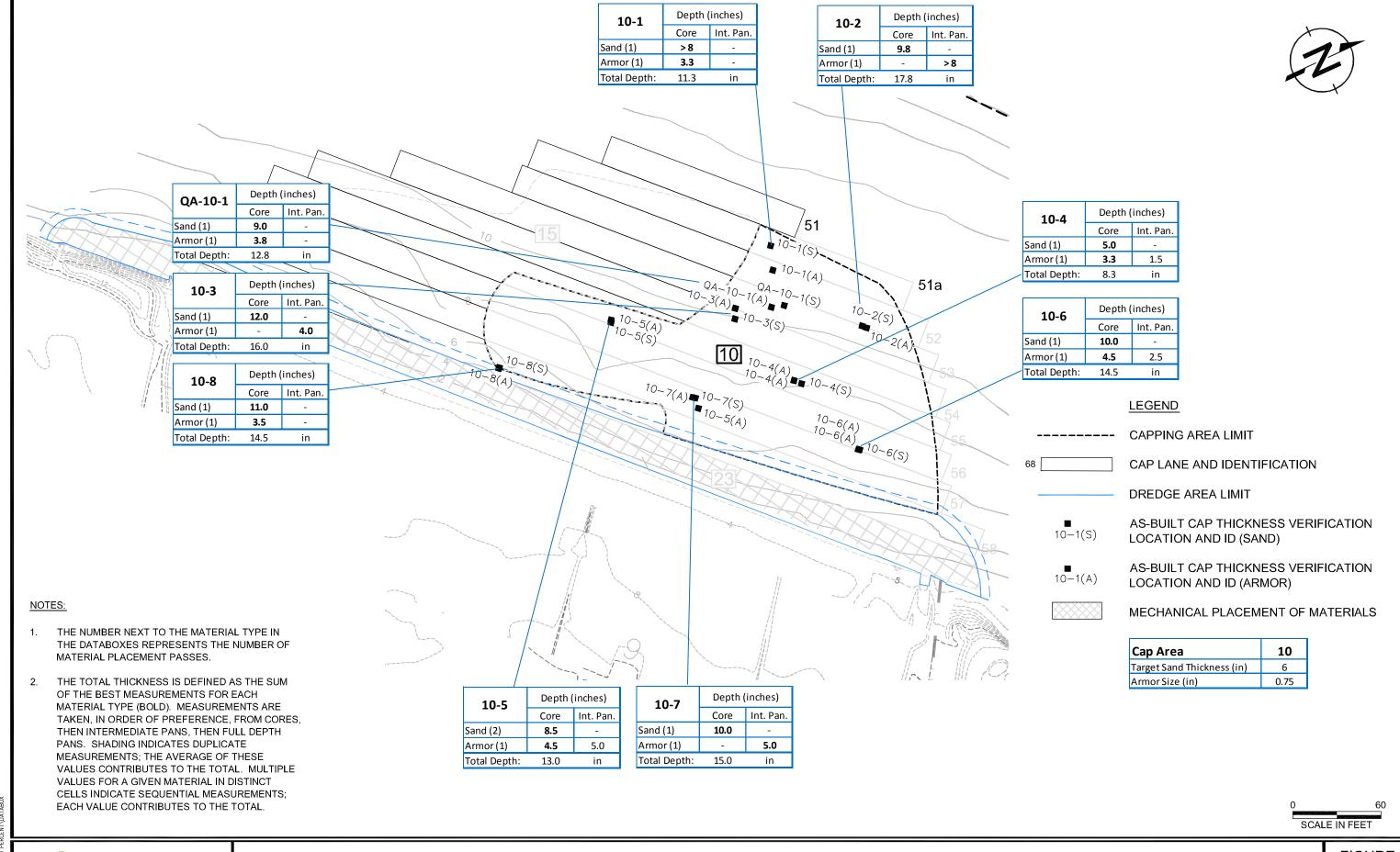
JERSEY CITY, NEW JERSEY



DATE: 01/10/2012

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STUDY AREA 7 JERSEY CITY, NEW JERSEY



MDELL 3/2/13 [0220233_DATA_TO 19 23]
F: \0220255\DESIGN 100 PERCENT\DATABOX

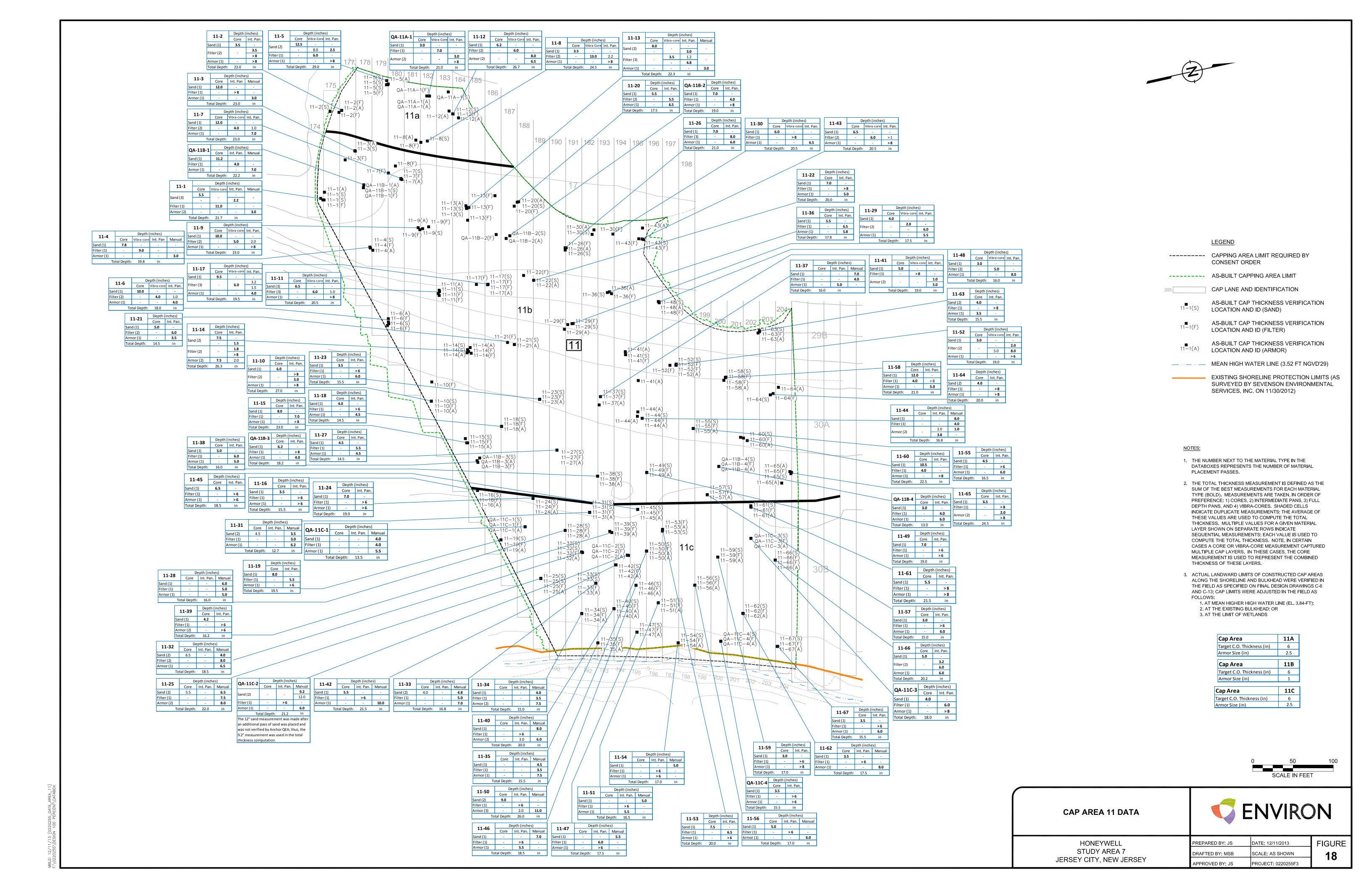
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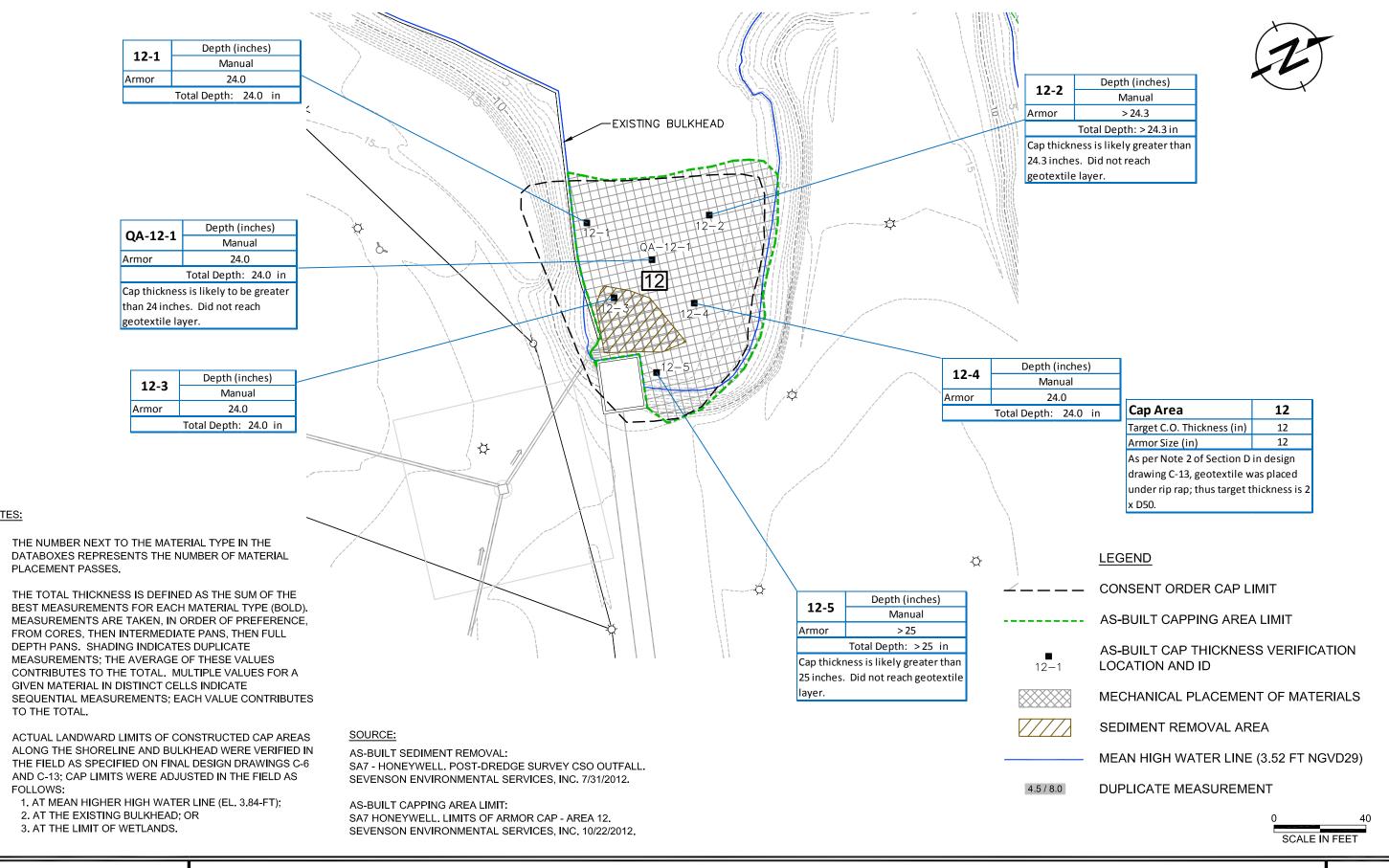
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DATE: 02/05/2013

CAP AREA 10 DATA

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY FIGURE **17**





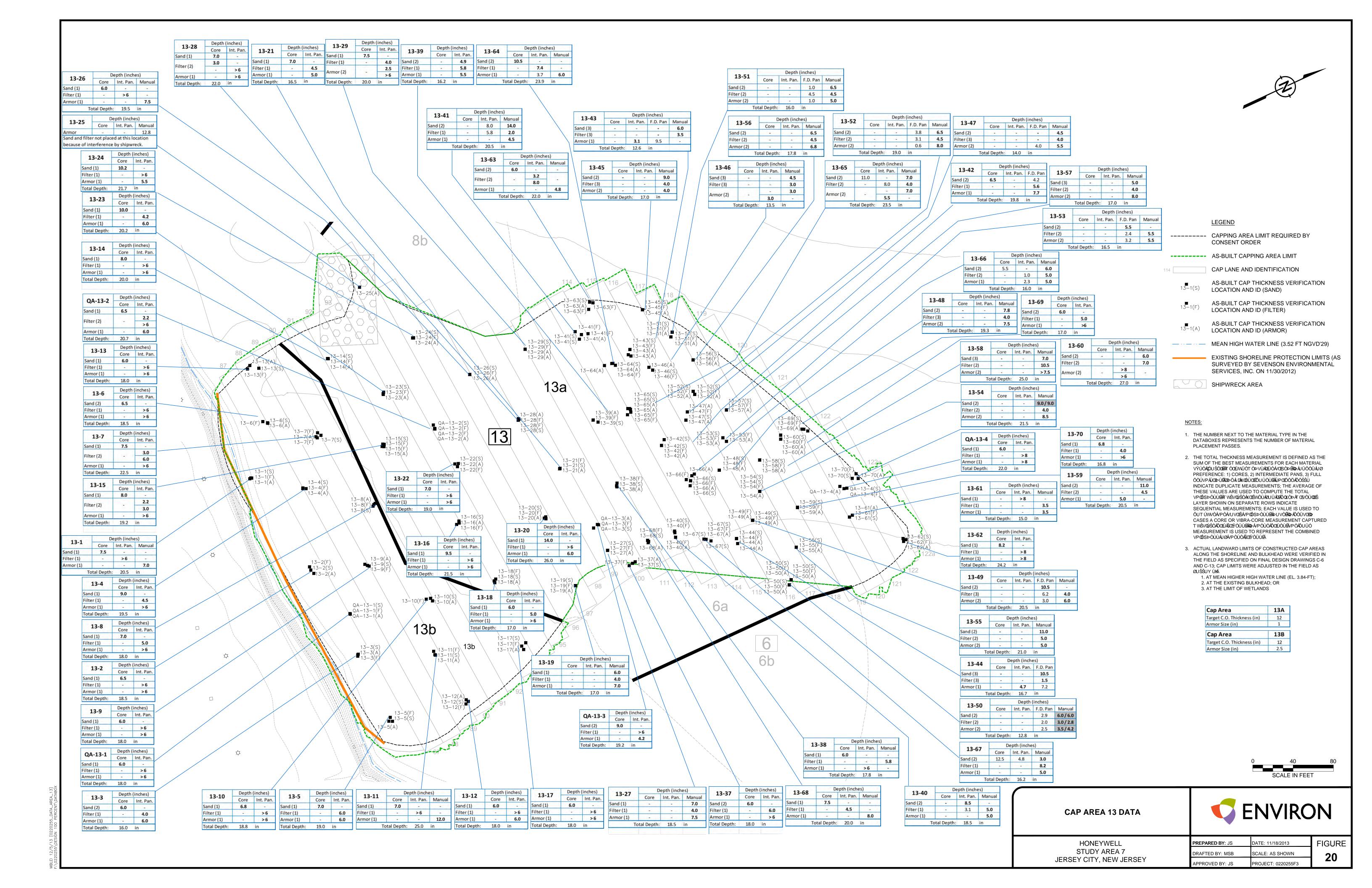
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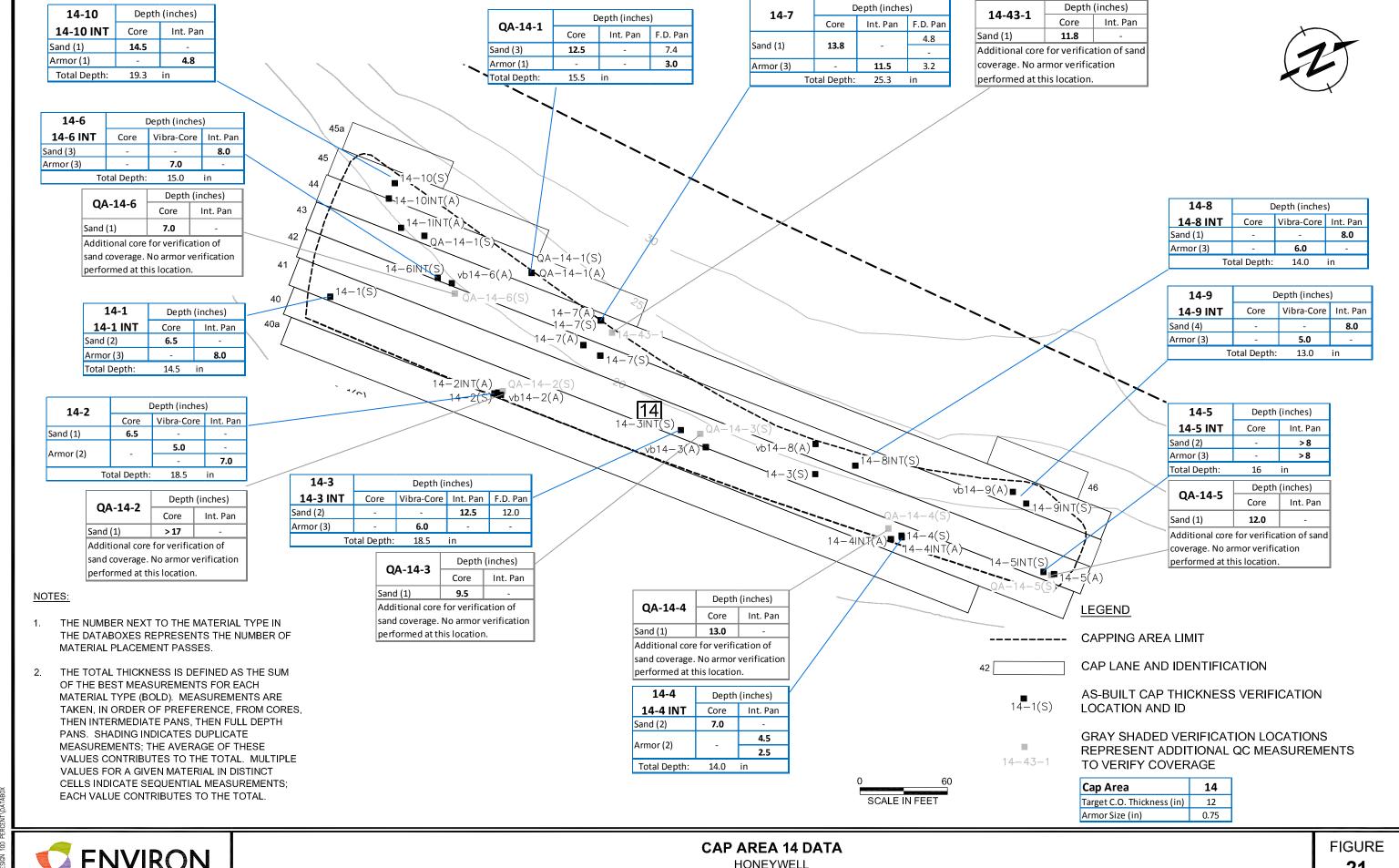
ENVIRON

DATE: 11/26/2012

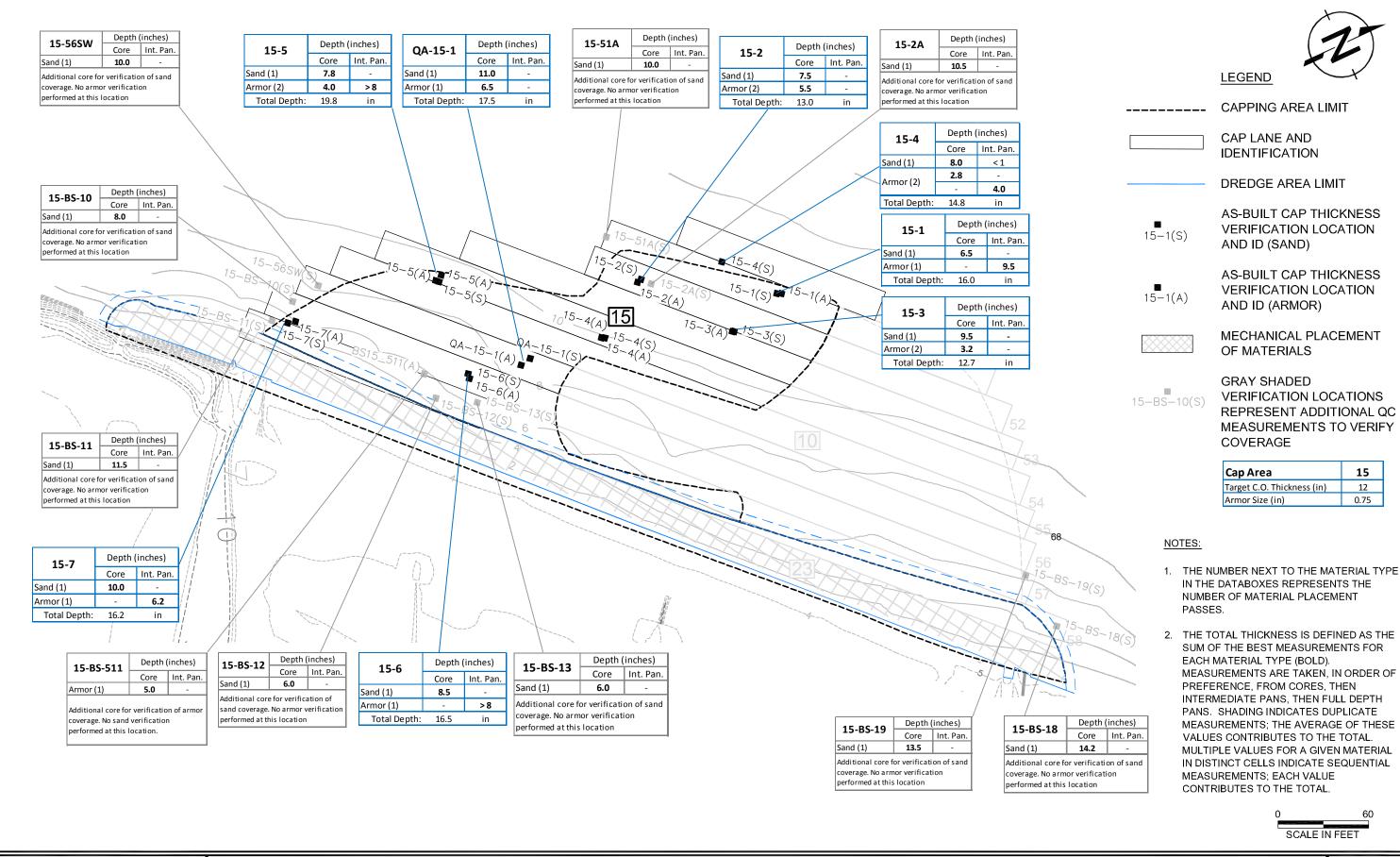
CAP AREA 12 DATA

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE** 19





ENVIRON DRAFTED BY: BJK/MSB DATE: 02/25/2013



ENVIRON DATE: 01/11/2013 DRAFTED BY: BJK/MSB

CAP AREA 15 DATA

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE**

SCALE IN FEET

LEGEND

CAPPING AREA LIMIT

DREDGE AREA LIMIT

AS-BUILT CAP THICKNESS

VERIFICATION LOCATION

AS-BUILT CAP THICKNESS

VERIFICATION LOCATION

MECHANICAL PLACEMENT

VERIFICATION LOCATIONS

REPRESENT ADDITIONAL QC MEASUREMENTS TO VERIFY

15

12

0.75

CAP LANE AND

IDENTIFICATION

AND ID (SAND)

AND ID (ARMOR)

OF MATERIALS

GRAY SHADED

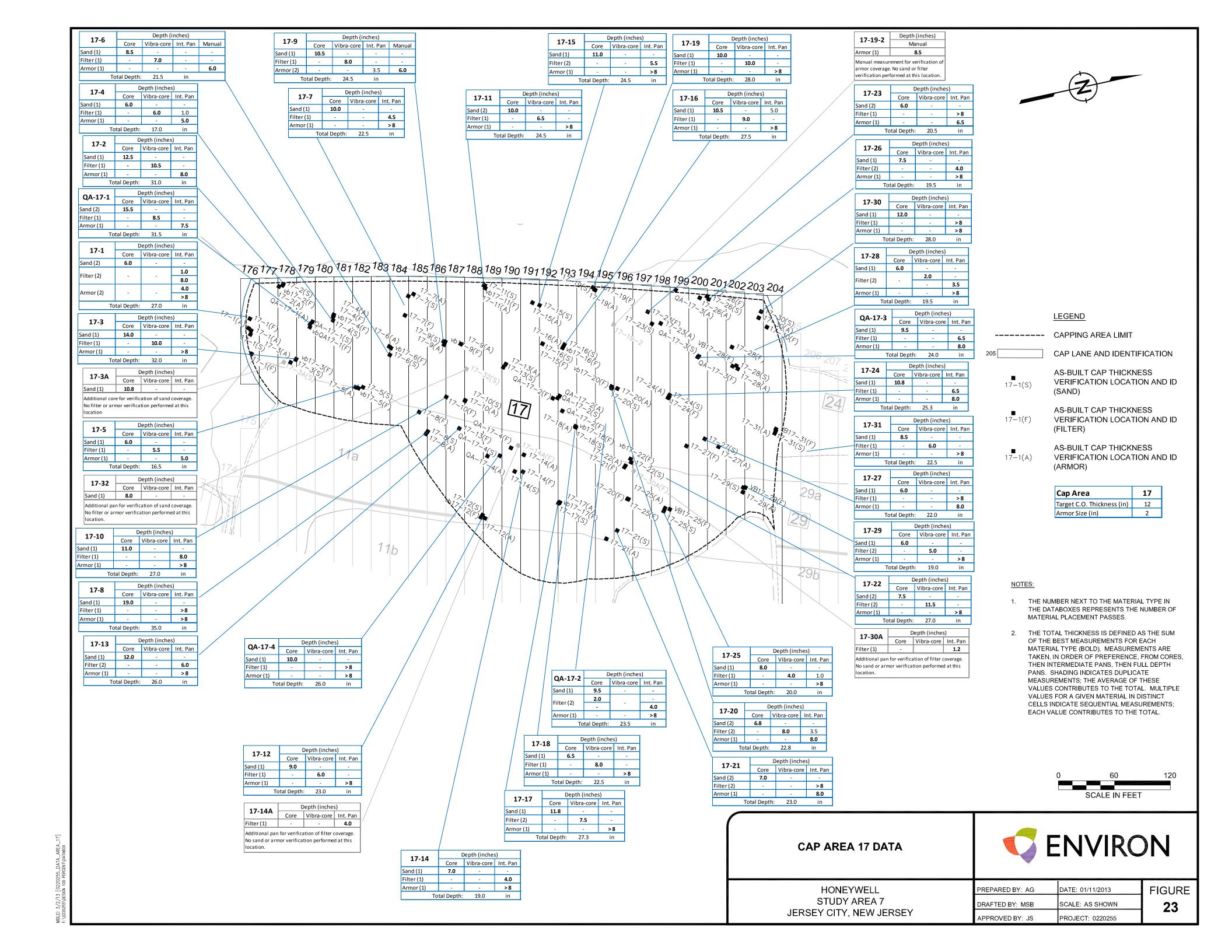
COVERAGE

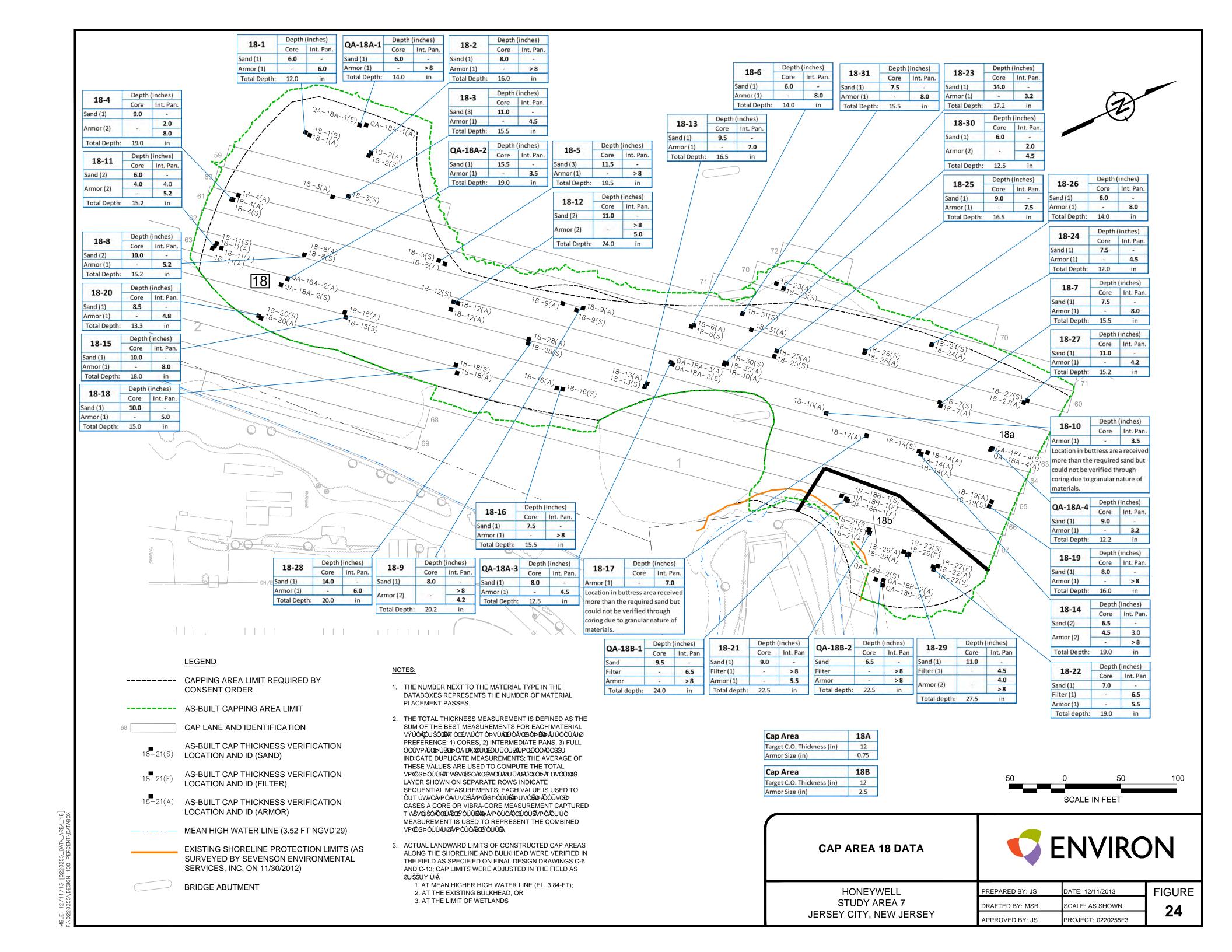
Target C.O. Thickness (in)

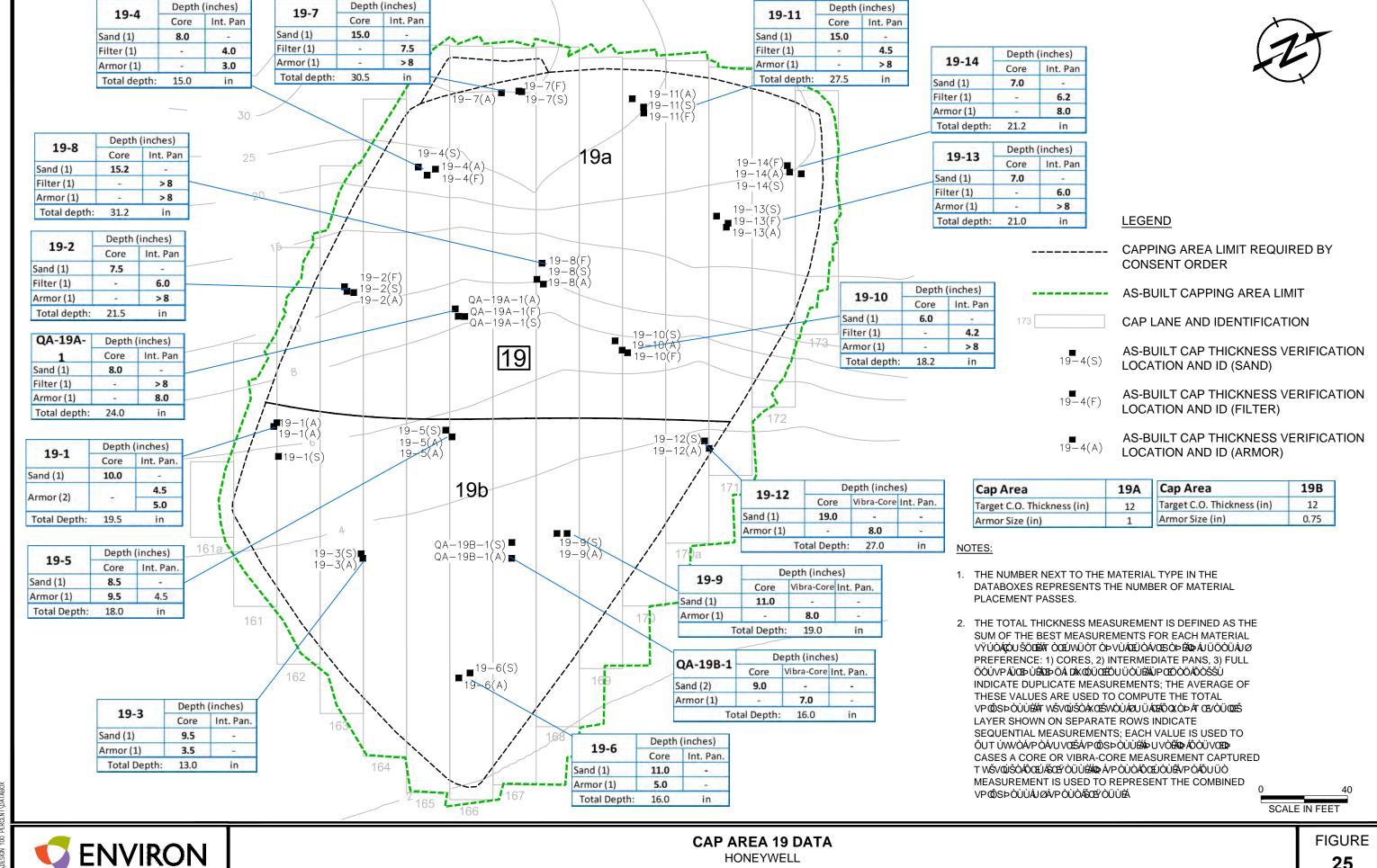
Cap Area

Armor Size (in)

22

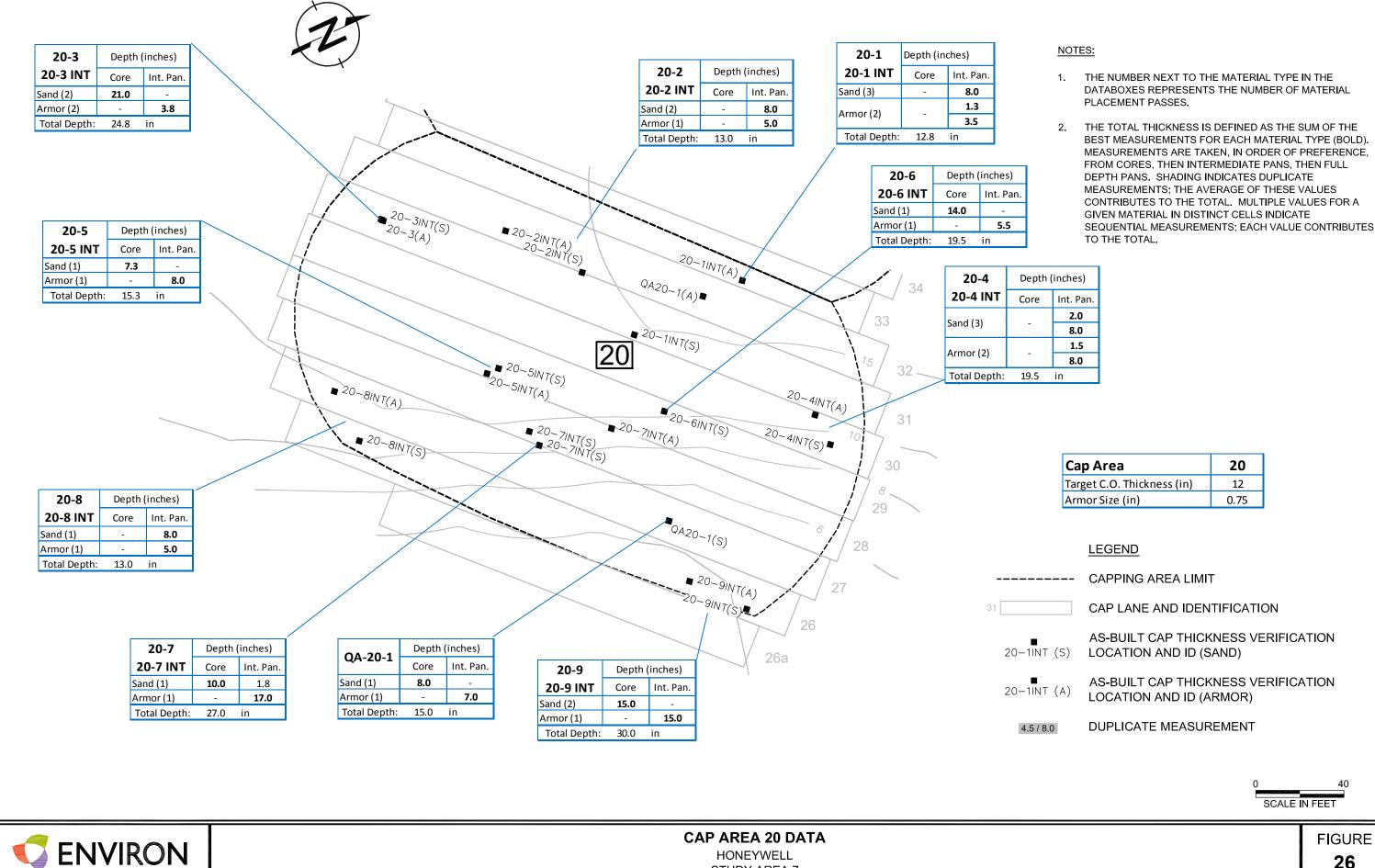






DATE: 11/05/2013

STUDY AREA 7 JERSEY CITY, NEW JERSEY 25



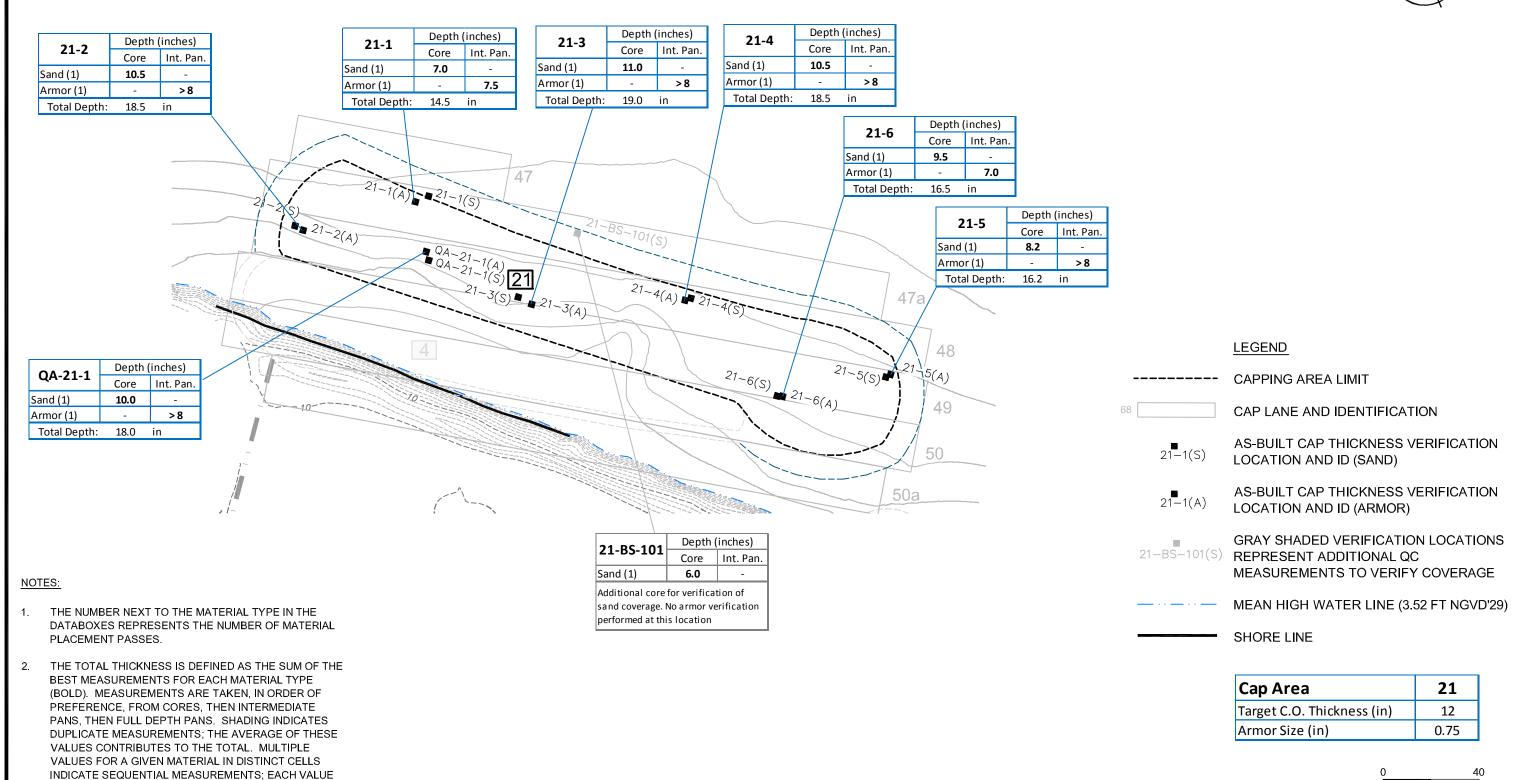
DRAFTED BY: MSB

DATE: 12/17/2012

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE**

26





ENVIRON

CONTRIBUTES TO THE TOTAL.

CAP AREA 21 DATA

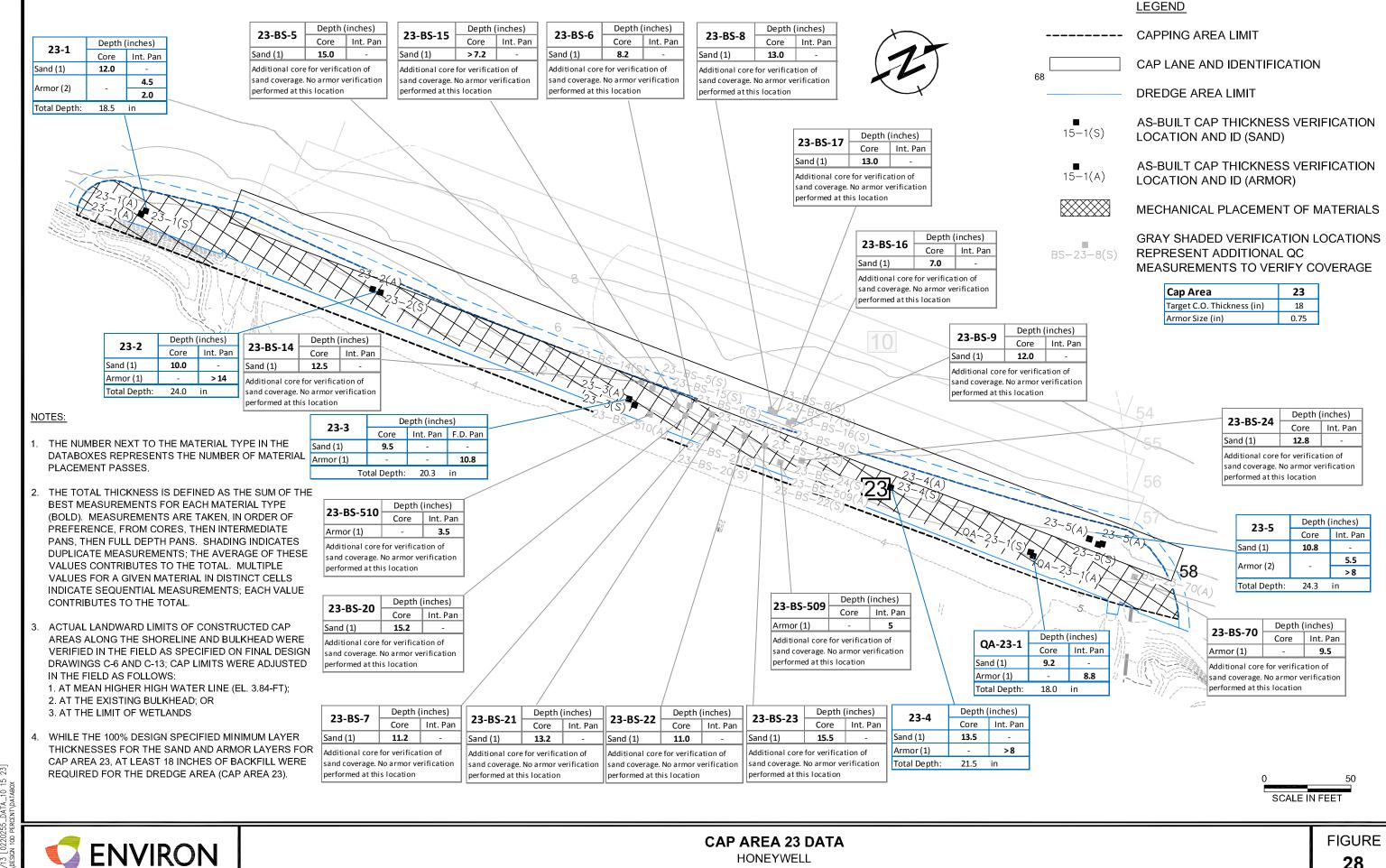
HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY FIGURE

SCALE IN FEET

27

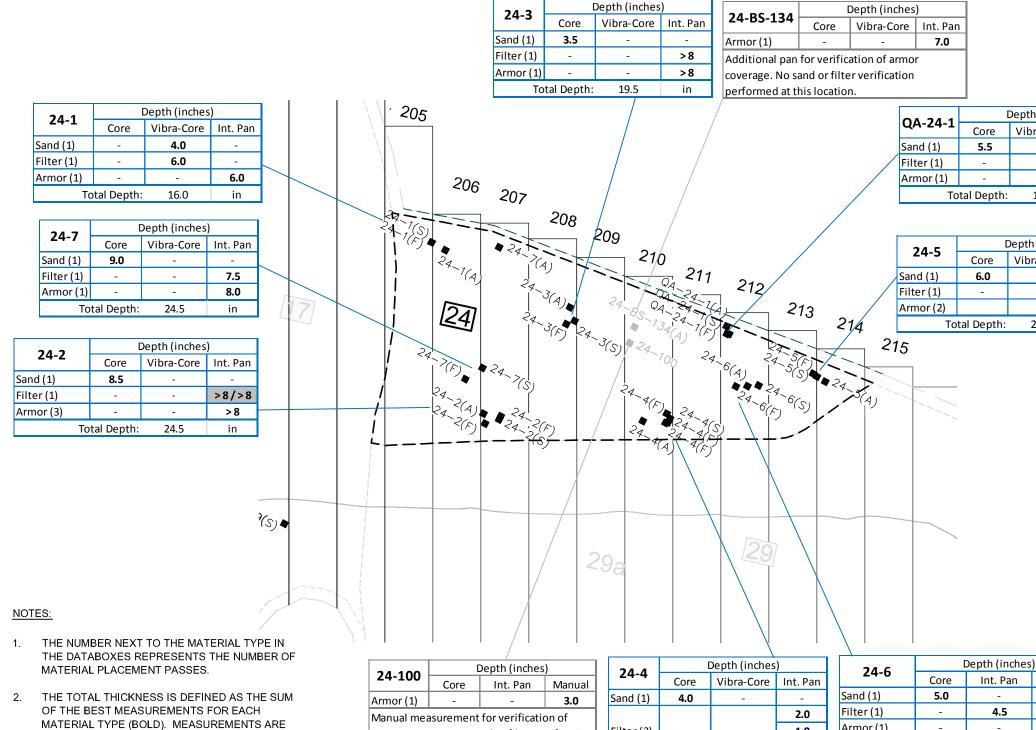
DRAFTED BY: BJK/MSB

DATE: 01/14/2013



DATE: 01/14/2013

STUDY AREA 7 JERSEY CITY, NEW JERSEY 28

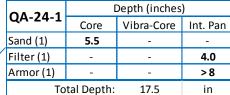


armor coverage. No sand or filter verification

performed at this location.

Filter (3)

Total Depth:



24-5	[Depth (inches)
24-5	Core	Vibra-Core	Int. Pan
Sand (1)	6.0	-	-
Filter (1)	-	-	>8
Armor (2)			7.0
To	tal Depth:	21.0	in

Manual

7.0

in

16.5

LEGEND

CAPPING AREA LIMIT

CAP LANE AND IDENTIFICATION

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS 24-1(F)VERIFICATION LOCATION AND ID (FILTER)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID 24-1(A) (ARMOR)

GRAY SHADED VERIFICATION 24-BS-134(A) LOCATIONS REPRESENT ADDITIONAL QC MEASUREMENTS TO VERIFY COVERAGE

Cap Area	24
Target C.O. Thickness (in)	6
Armor Size (in)	2.5





TAKEN, IN ORDER OF PREFERENCE, FROM CORES,

VALUES CONTRIBUTES TO THE TOTAL. MULTIPLE VALUES FOR A GIVEN MATERIAL IN DISTINCT CELLS INDICATE SEQUENTIAL MEASUREMENTS; EACH VALUE CONTRIBUTES TO THE TOTAL.

THEN INTERMEDIATE PANS, THEN FULL DEPTH PANS. SHADING INDICATES DUPLICATE

MEASUREMENTS; THE AVERAGE OF THESE

CAP AREA 24 DATA

1.0

>8

>8

23.0

Armor (1)

Total Depth:

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE**

29



Depth (inches)	
Core	Int. Pan.
4.0	-
3.5	-
7.5	in
	Core 4.0 3.5

25-11	Depth (inches)	
	Core	Manual
Sand (2)	8.5	-
Armor (1)	-	6.0
Total depth:	14.5	in

25-10	Depth (inches)	
25-10	Core	Int. Pan.
and (1)	8.5	-
Armor (1)	-	>8
Total depth:	16.5	in



25-5	Deptil (Iliches)	
25-5	Core	Int. Pan.
Sand (1)	7.2	-
Armor (1)	-	3.8
Total depth:	11.0	in

25.2	Depth (inches)	
25-3	Core Ir	
Sand (1)	9.0	-
Armor (1)	-	>8
Total Depth:	17.0	in

25-1	Depth (inches)	
25-1	Core	Int. Pan.
Sand (1)	3.0	-
Armor (1)	-	4.5
Total depth:	7.5	in

25-2	Depth (inches)
25-2	Core	Int. Pan.
Sand (1)	6.0	-
Armor (2)	-	1.0
		2.0
Total Depth:	9.0	in

25-9	Depth (inches)							
	Core	Int. Pan.						
Sand (2)	4.0	-						
Armor (1)	-	8.0						
Total depth:	12.0	in						

BS-25-229	Depth (inches)							
D3-Z3-ZZ9	Core	Int. Pan						
Sand (2)	9.0	-						
Additional core	e for verifi	cation of						
sand coverage	. No armor							
verification pe	rformed a	t this						

25 42	Depth (inches)		
25-12	Core	Int. Pan.		
Sand (2)	9.0	-		
Armor (1)	-	6.0		
Total depth:	15.0	Int. Pan.		

Cap Area	25
Target C.O. Thickness (in)	6
Armor Size (in)	0.75

NOTES:

- THE NUMBER NEXT TO THE MATERIAL TYPE IN THE DATABOXES REPRESENTS THE NUMBER OF MATERIAL PLACEMENT PASSES.
- THE TOTAL THICKNESS IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL TYPE (BOLD). MEASUREMENTS ARE TAKEN, IN ORDER OF PREFERENCE, FROM CORES, THEN INTERMEDIATE PANS, THEN FULL DEPTH PANS. SHADING INDICATES DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES CONTRIBUTES TO THE TOTAL. MULTIPLE VALUES FOR A GIVEN MATERIAL IN DISTINCT CELLS INDICATE SEQUENTIAL MEASUREMENTS; EACH VALUE CONTRIBUTES TO THE TOTAL.

25-4	Depth (inches)							
25-4	Core	Int. Pan.						
nd (1)	5.0	-						
mor (1)	-	4.0						
otal Depth:	9.0	in						

	/		
ches)	2F.C	Depth (inches)
ıt. Pan.	25-6	Core	Int. Pan.
_	Sand (1)	3.0	-
4.0	Armor (1)	-	4.0
in	Total depth:	7.0	in

	/		
	25-7	Depth (inches)
	25-7	Core	Int. Pan.
	Sand (1)	10.5	-
	Armor (1)	-	6.5
Ì	Total depth:	17.0	in

\		
04 25 1	Depth (inch
QA-25-1	Core	Int.
Sand (1)	5.5 / 4.5	
Armor (1)	3.0	
Total depth:	8.0	

25_11(S)

LEGEND

POTENTIAL SUBMERGED UTILITY LINE

CAPPING AREA LIMIT

CAP LANE AND IDENTIFICATION

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (SAND)

25−1(A) AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

4.5 / 8.0 **DUPLICATE MEASUREMENT**

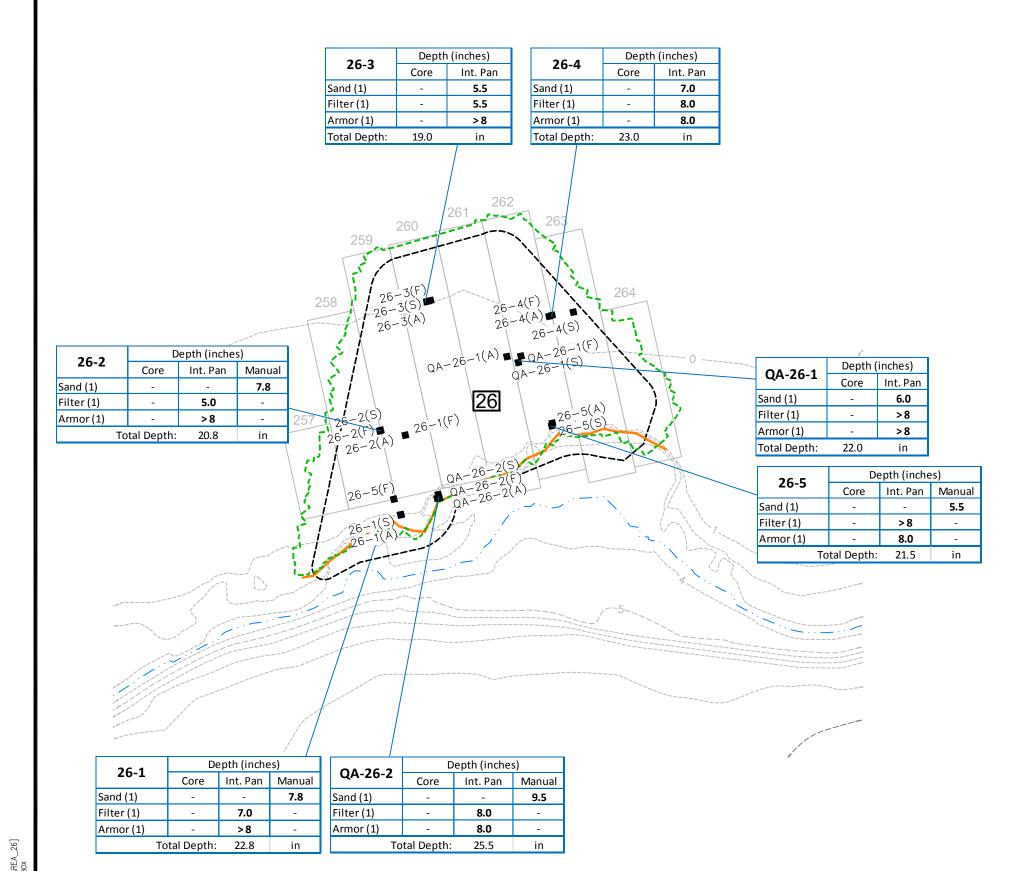
SCALE IN FEET



REVISED CAP AREA 25 DATA

HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE**

30





Cap Area	26
Target C.O. Thickness (in)	6
Armor Size (in)	2.5

----- CAPPING AREA LIMIT REQUIRED BY CONSENT ORDER

----- AS-BUILT CAPPING AREA LIMIT

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (FILTER)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

CAP LANE AND IDENTIFICATION

MEAN HIGH WATER LINE (3.52 FT NGVD'29)

EXISTING SHORELINE PROTECTION LIMITS (AS SURVEYED BY SEVENSON ENVIRONMENTAL

SERVICES, INC. ON 11/30/2012)

NOTES:

- THE NUMBER NEXT TO THE MATERIAL TYPE IN THE DATABOXES REPRESENTS THE NUMBER OF MATERIAL PLACEMENT PASSES.
- 2. THE TOTAL THICKNESS MEASUREMENT IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL TYPE (BOLD). MEASUREMENTS ARE TAKEN, IN ORDER OF PREFERENCE: 1) CORES, 2) INTERMEDIATE PANS, 3) FULL DEPTH PANS, AND 4) VIBRA-CORES. SHADED CELLS INDICATE DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES ARE USED TO COMPUTE THE TOTAL THICKNESS. MULTIPLE VALUES FOR A GIVEN MATERIAL LAYER SHOWN ON SEPARATE ROWS INDICATE SEQUENTIAL MEASUREMENTS; EACH VALUE IS USED TO COMPUTE THE TOTAL THICKNESS. NOTE, IN CERTAIN CASES A CORE OR VIBRA-CORE MEASUREMENT CAPTURED MULTIPLE CAP LAYERS. IN THESE CASES, THE CORE MEASUREMENT IS USED TO REPRESENT THE COMBINED THICKNESS OF THESE LAYERS.
- 3. ACTUAL LANDWARD LIMITS OF CONSTRUCTED CAP AREAS ALONG THE SHORELINE AND BULKHEAD WERE VERIFIED IN THE FIELD AS SPECIFIED ON FINAL DESIGN DRAWINGS C-6 AND C-13; CAP LIMITS WERE ADJUSTED IN THE FIELD AS FOLLOWS:
 - 1. AT MEAN HIGHER HIGH WATER LINE (EL. 3.84-FT);
 - 2. AT THE EXISTING BULKHEAD; OR
 - 3. AT THE LIMIT OF WETLANDS

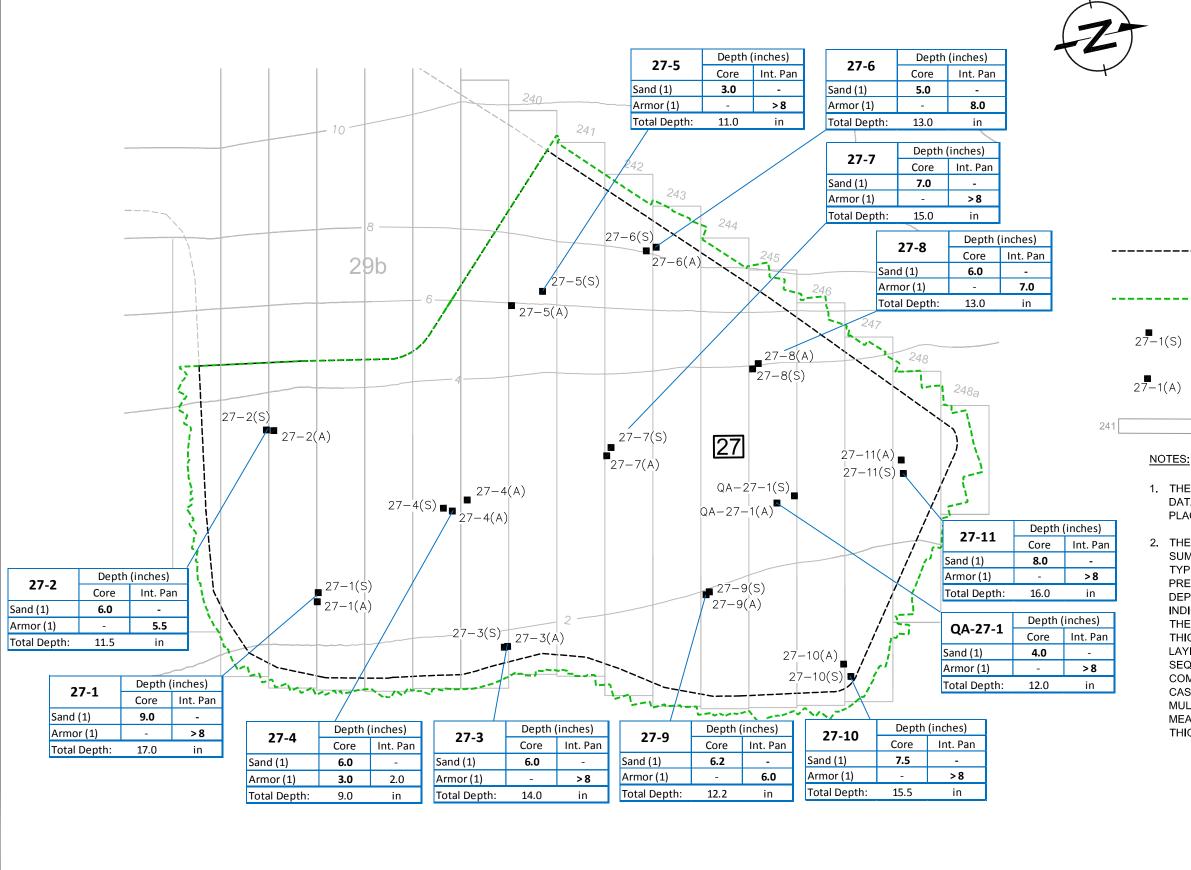
0 40 SCALE IN FEET



CAP AREA 26 DATA
HONEYWELL
STUDY AREA 7

JERSEY CITY, NEW JERSEY

FIGURE





---- CAPPING AREA LIMIT REQUIRED BY CONSENT ORDER

Armor Size (in)

0.75

----- AS-BUILT CAPPING AREA LIMIT

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

CAP LANE AND IDENTIFICATION

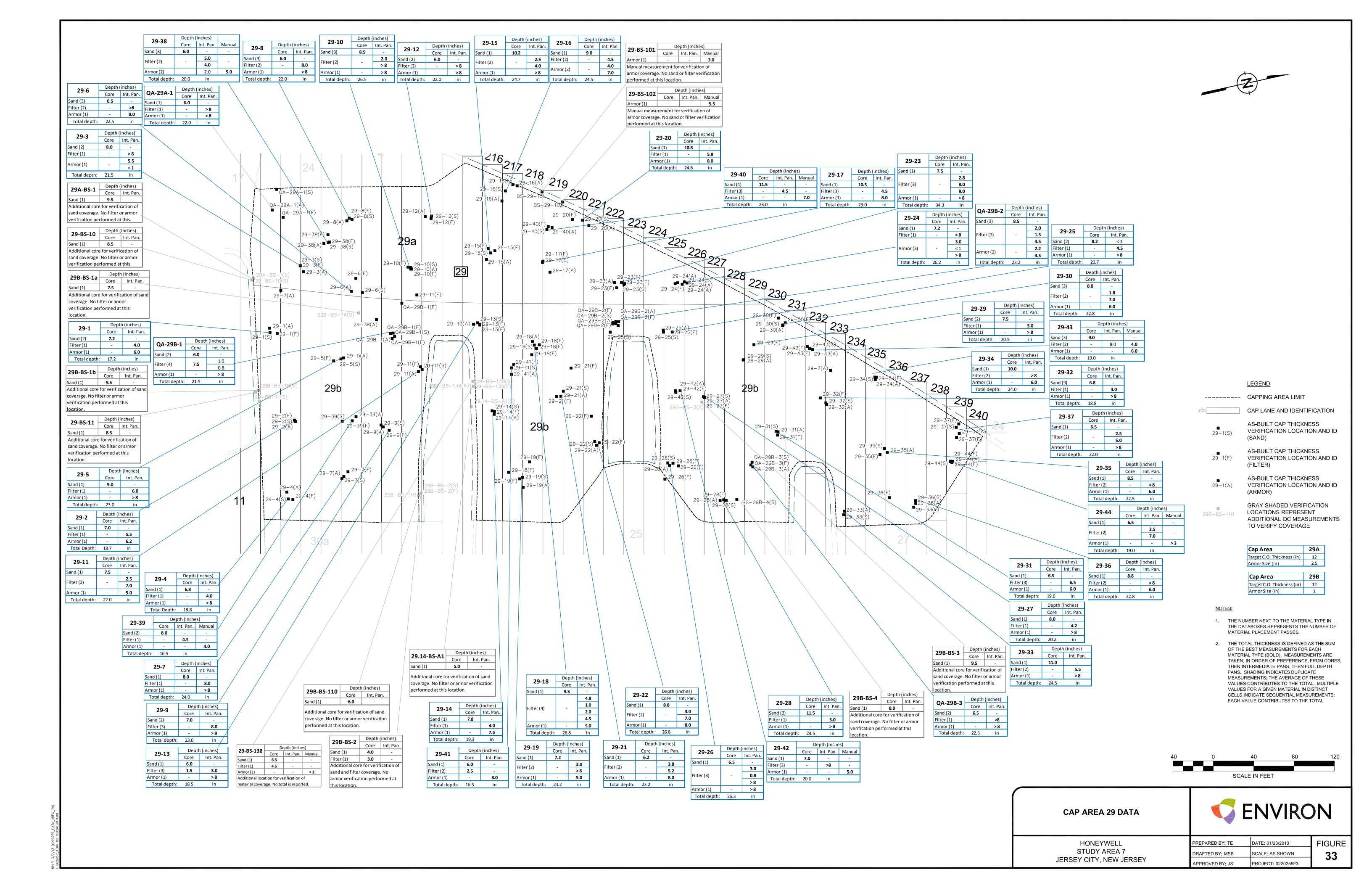
- 1. THE NUMBER NEXT TO THE MATERIAL TYPE IN THE DATABOXES REPRESENTS THE NUMBER OF MATERIAL PLACEMENT PASSES.
- 2. THE TOTAL THICKNESS MEASUREMENT IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL TYPE (BOLD). MEASUREMENTS ARE TAKEN, IN ORDER OF PREFERENCE: 1) CORES, 2) INTERMEDIATE PANS, 3) FULL DEPTH PANS, AND 4) VIBRA-CORES. SHADED CELLS INDICATE DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES ARE USED TO COMPUTE THE TOTAL THICKNESS. MULTIPLE VALUES FOR A GIVEN MATERIAL LAYER SHOWN ON SEPARATE ROWS INDICATE SEQUENTIAL MEASUREMENTS: EACH VALUE IS USED TO COMPUTE THE TOTAL THICKNESS. NOTE, IN CERTAIN CASES A CORE OR VIBRA-CORE MEASUREMENT CAPTURED MULTIPLE CAP LAYERS. IN THESE CASES, THE CORE MEASUREMENT IS USED TO REPRESENT THE COMBINED THICKNESS OF THESE LAYERS.

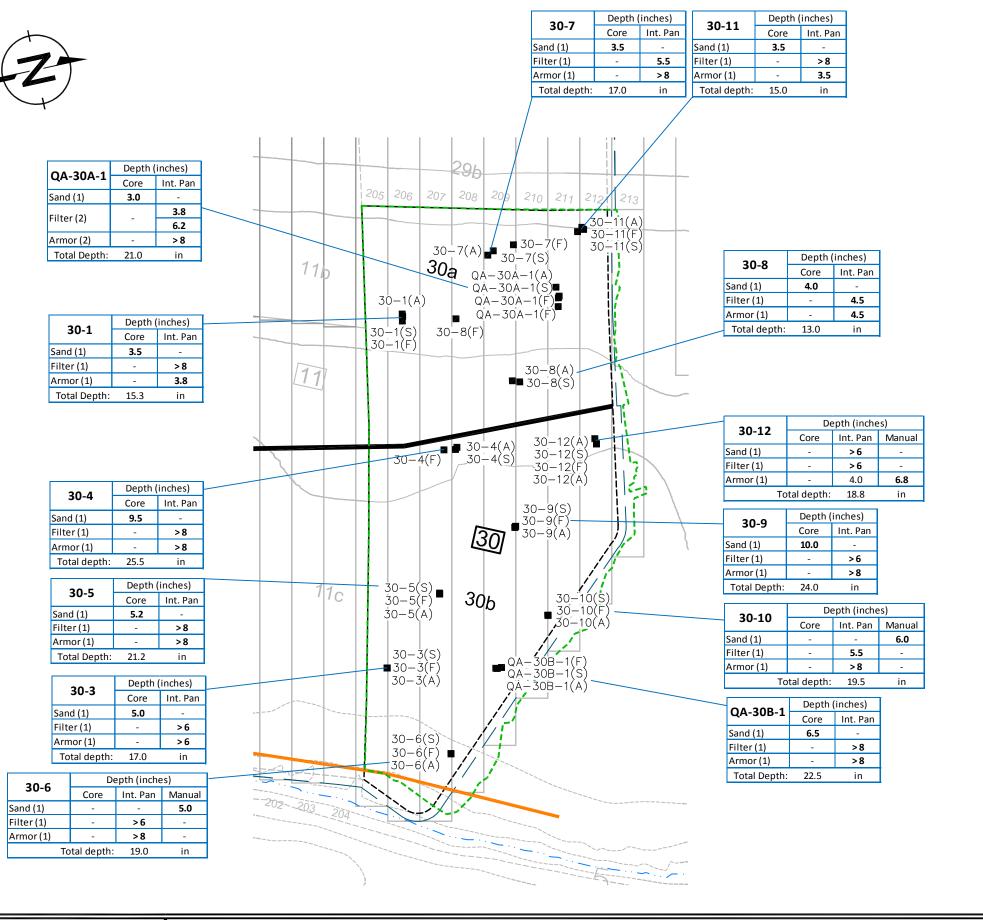
SCALE IN FEET



CAP AREA 27 DATA HONEYWELL STUDY AREA 7 JERSEY CITY, NEW JERSEY **FIGURE**

32





Cap Area	30A
Target C.O. Thickness (in)	6
Armor Size (in)	1

Cap Area	30B
Target C.O. Thickness (in)	6
Armor Size (in)	2.5

----- CAPPING AREA LIMIT REQUIRED BY CONSENT ORDER

----- AS-BUILT CAPPING AREA LIMIT

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (SAND)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (FILTER)

AS-BUILT CAP THICKNESS VERIFICATION LOCATION AND ID (ARMOR)

CAP LANE AND IDENTIFICATION

MEAN HIGH WATER LINE (3.52 FT NGVD'29)

 EXISTING SHORELINE PROTECTION LIMITS (AS SURVEYED BY SEVENSON ENVIRONMENTAL SERVICES, INC. ON 11/30/2012)

NOTES:

- THE NUMBER NEXT TO THE MATERIAL TYPE IN THE DATABOXES REPRESENTS THE NUMBER OF MATERIAL PLACEMENT PASSES.
- 2. THE TOTAL THICKNESS MEASUREMENT IS DEFINED AS THE SUM OF THE BEST MEASUREMENTS FOR EACH MATERIAL TYPE (BOLD). MEASUREMENTS ARE TAKEN, IN ORDER OF PREFERENCE: 1) CORES, 2) INTERMEDIATE PANS, 3) FULL DEPTH PANS, AND 4) VIBRA-CORES. SHADED CELLS INDICATE DUPLICATE MEASUREMENTS; THE AVERAGE OF THESE VALUES ARE USED TO COMPUTE THE TOTAL THICKNESS. MULTIPLE VALUES FOR A GIVEN MATERIAL LAYER SHOWN ON SEPARATE ROWS INDICATE SEQUENTIAL MEASUREMENTS; EACH VALUE IS USED TO COMPUTE THE TOTAL THICKNESS. NOTE, IN CERTAIN CASES A CORE OR VIBRA-CORE MEASUREMENT CAPTURED MULTIPLE CAP LAYERS. IN THESE CASES, THE CORE MEASUREMENT IS USED TO REPRESENT THE COMBINED THICKNESS OF THESE LAYERS.
- ACTUAL LANDWARD LIMITS OF CONSTRUCTED CAP AREAS ALONG THE SHORELINE AND BULKHEAD WERE VERIFIED IN THE FIELD AS SPECIFIED ON FINAL DESIGN DRAWINGS C-6 AND C-13; CAP LIMITS WERE ADJUSTED IN THE FIELD AS FOLLOWS:
 - 1. AT MEAN HIGHER HIGH WATER LINE (EL. 3.84-FT);
 - 2. AT THE EXISTING BULKHEAD; OR
 - 3. AT THE LIMIT OF WETLANDS

0 60 SCALE IN FEET



DRAFTED BY: BJK/MSB

DATE: 10/31/2013

CAP AREA 30 DATA
HONEYWELL
STUDY AREA 7

JERSEY CITY, NEW JERSEY

FIGURE

34

Documentation and Remedial Action Summary Report Study Area 7 Sediment Remedy May 2014

Table 5.2.1

SA7 Detailed Material Volume and Tonnage Log Information provided for tracking purposes only and subject to CM/CQA review. Revised 4.2.14

General Information					Tonnage	and Volumes	from Operate	or Log		Schedule						Position		T	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
Cap 1	Sand (3" Min)	1-mechanical ⁸				18.77				12/3/12	12/6/12					Y	3.5	3.5	Pan 1-1
C.O. Required Thickness ⁴ = 6"	Sand (3" Min)	1-mechanical				96.11				12/7/12	12/11/12					Y	6.0	6.0	Pan 1-2
Target Max Thickness = 12"	Sand (3" Min)	1-mechanical	+			14.89	ļ			12/21/12	12/22/12					Y	3.2	3.2	Pan 1-3
C.O. Est. Quantity ⁵ = 510 tons Est. Design Quantity = 790 tons	Sand (3" Min) Sand (3" Min)	1-mechanical 1-mechanical	+			120.90 136.60	-		-	12/26/12 9/24/13	12/29/12 9/24/13					Y	3.8 4.5	3.8 4.5	Pan 1-4 Pan 1-5
Actual Quantity = 1,726 tons	Sand (S Will) Sand (Buttress)	1-mechanical	+			40.44			H	9/18/13	9/18/13					Y	NA	NA	Pan QA-1-1
As-Built Surface Area ⁷ = 15,481 SF	Sand (Buttress)	1-mechanical	1			14.39	1		H	9/19/13	9/19/13		1			Y	7.0	7.0	Pan QA-1-2
AS-Built Surface Area = 15,461 SF	Subtotal Sand (3" Min)	1-mechanical	15,040	370	444	442.09	0	0	442	3/13/13	9/19/13					'	7.0	7.0	raii QA-1-2
	Filter (Buttress)	1-mechanical	10,010	0.0		76.85	<u> </u>	·		12/26/12	12/29/12					NA	NA	NA	NA
	Filter (Buttress)	1-mechanical				40.81				12/29/12	12/29/12					NA	NA	NA	NA
	Filter (Buttress)	1-mechanical				3.31				8/1/13	8/1/13					NA	NA	NA	NA
	Filter (Buttress)	1-mechanical	1			310.33				8/2/13	8/2/13					NA NA	NA NA	NA	NA
	Filter (Buttress) Filter (Buttress)	1-mechanical 1-mechanical	+			80.67 400.09			-	8/23/13 8/26/13	8/23/13 8/26/13					NA NA	NA NA	NA NA	NA NA
	Filter (Buttress)	1-mechanical				67.60				8/27/13	8/27/13					NA NA	NA NA	NA NA	NA
	Filter (Buttress)	1-mechanical				17.33				9/18/13	9/18/13					NA	NA	NA	NA
	Filter (Buttress)	1-mechanical				6.17				9/19/13	9/19/13					NA	NA	NA	NA
	Subtotal Armor 0.75" (3" Min)		15,040			1,003.17	0	0	1,003							V	0.0	44.5	Dec 4.4
																Y	8.0 3.0	11.5 9.0	Pan 1-1 Pan 1-2
	Armor 0.75" (3" Min)	1-mechanical				205.90				9/24/13	9/24/13					Ý	5.2	8.4	Pan 1-3
																Y	8.0 5.8	11.8 10.3	Pan 1-4 Pan 1-5
	Armor 0.75" (3" Min)	1-mechanical				74.90				9/25/13	9/25/13		I			Y	> 8	NA	Pan QA-1-1
										-, -, -	, ,					Υ	8.0	15.0	Pan QA-1-2
	Subtotal Armor 0.75" (3" Min)		15,040	265	345	280.80	0	0	281										
Cap 2	Total Cap 1 Sand (3" Min)	64a				17.00			1,726	9/26/12 22:08	9/26/12 22:13					V			
C.O. Required Thickness = 6"	Sand (3' Min)	64ab	+			47.00	104.00		-	9/26/12 22:08	9/26/12 22:31	9/28/12 1:25	9/28/12 1:44			Y		†	
Target Max Thickness = 12"	Sand (3" Min)	64	+			84.00	107.00	119.00	H	9/26/12 20:07	9/26/12 20:16	9/28/12 1:53	9/28/12 2:14	9/26/12 22:40	9/27/12 4:47	7 Y	4.0	4.0	Pan 2-1
C.O. Est. Quantity = 910 tons	Sand (3" Min)	65a	1			47.00	27.00	110.00		9/27/12 4:55	9/27/12 5:07	9/27/12 21:49	9/27/12 21:56	3/20/12 22:10	3/2//12 !!!/	Y			
Est. Design Quantity = 1,410 tons	Sand (3" Min)	65				30.00				9/27/12 5:26	9/27/12 5:34					Y	10.0	10.0	Pan QA-2-1
Actual Quantity ⁶ = 2,684 tons	Sand (3" Min)	66a				49.00				9/27/12 5:53	9/27/12 6:14					Y			
As-Built Surface Area = 29,888 SF	Sand (3" Min)	66				9.00	95.00			9/27/12 6:26	9/27/12 6:30	10/3/12 3:59	10/3/12 5:18			Y	7.0	7.0	Pan 2-2
	Sand (3" Min)	67a	1			99.00				10/3/12 10:40	10/3/12 10:57					Y	8.5	8.5	Pan 2-3
	Sand (3" Min) Sand (3" Min)	67 68				91.00			-	10/3/12 11:31	10/3/12 11:44					Y	7.5 8.0	7.5 8.0	Pans 2-5 and 2-6 Pan QA-2-2
	Sand (3" Min)	69	+						·							Y	8.0	8.0	Pan 2-4
	Sand (3" Min)	2-mechanical	1			403.60				12/1/12	12/4/12		İ			Y	4.0	4.0	Pan 2-7
	Sand (3" Min)	2-mechanical				185.30				12/13/12	12/17/12		i			Y	7.0	7.0	Pan 2-8
	Subtotal Sand (3" Min)		26,953	664	797	1,061.90	333.00	119.00	1,514										
	Armor 0.75" (3" Min)	64a				29.00				10/3/12 2:41	10/3/12 2:48					Y			
	Armor 0.75" (3" Min)	64ab				18.00				10/3/12 2:26	10/3/12 2:38					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	64 65a	+			20.00 10.00	30.00		-	10/3/12 2:12 10/2/12 21:14	10/3/12 2:23 10/2/12 21:18	10/3/12 1:54	10/3/12 2:10		<u> </u>	Y	5.2	9.2	Pan 2-1
	Armor 0.75" (3" Min)	65	+			9.00	30.00		H	10/2/12 20:45	10/2/12 21:18	10/3/12 1.34	10/3/12 2.10			Y	3.5	13.5	Pan QA-2-1
	Armor 0.75" (3" Min)	66				0.00				10, 2, 12 20.43	10, 2, 12 20.30		1			Y	> 8	15.0	Pan 2-2
	Armor 0.75" (3" Min)	67a									<u> </u>					Y	> 8	16.5	Pan 2-3
	Armor 0.75" (3" Min)	67								-		-				Y	5.9	13.4	Pans 2-5 and 2-6
	Armor 0.75" (3" Min)	68	1										ļ!		1	Y	> 8	16.0	Pan QA-2-2
	Armor 0.75" (3" Min)	69	1			400.00				12/20/:-	12/22/:-		 		1	Y	7.0	15.0	Pan 2-4
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	2-mechanical 2-mechanical	1			122.80 310.50	-			12/20/12 12/27/12	12/20/12 12/27/12				+	Y	> 8 > 8	12.0 15.0	Pan 2-7 Pan 2-8
	Armor 0.75 (3 Min) Armor 0.75" (3" Min)	2-mechanical				315.80	 			12/28/12	12/27/12				<u> </u>	Y	, ,	13.0	1 412 0
	Armor 0.75" (3" Min)	2-mechanical				304.60				12/29/12	12/29/12		†			Y		 	
	Subtotal Armor 0.75" (3" Min)		26,953	474	616	1,139.70	30.00	0	1,170										
	Total Cap 2								2,684										
Cap 3	Sand (3" Min)	33	1,599	15	18	156.00				8/23/12 15:44	8/23/12 16:32					Y	9	9.0	Pans 3-13 and 3-13 INT
C.O. Required Thickness ⁴ = 6"	Sand (3" Min)	34	4,573	42	51	142.00				8/16/12 14:38	8/16/12 15:03				1	Y	8	7.7	Pans 3-12, 3-12 INT, 3-18, and 3-18 INT
Target Max Thickness = 12"	Sand (3" Min)	35	4,974	46	56	151.00				8/16/12 11:45	8/16/12 14:18					Υ	6	5.7	Pans QA 3-1, QA 3-1 INT, 3-11, 3-11A, 3-16, 3-16 INT, 3-17, and 3-17 INT.
C.O. Est. Quantity ⁵ = 920 tons	Sand (3" Min)	36	5,092	47	57	91.00				8/9/12 13:33	8/9/12 20:06					Υ	3.9	3.9	Pans 3-9, 3-9A, 3-10, 3-10A, 3-14,and 3-15
Est. Design Quantity = 1,428 tons	Sand (3" Min)	37	4,958	46	56	119.00				8/9/12 20:22	8/9/12 22:06					Υ	1.9	1.9	Pans 3-5, 3-6, 3-7, and 3-8.
Actual Quantity = 1,977 tons	Sand (3" Min)	38	4,518	42	51	82.00	68.00			8/10/12 10:28	8/10/12 10:51	8/10/12 14:22	8/10/12 14:44			Y	2.7	2.7	Pans 3-2 and 3-4.
	\- /						66.00					8/10/12 15:08	8/10/12 15:27		1	Y	6.0		
As-Built Surface Area = 28,418 SF	Sand (3" Min)	39	1,519	14	17	89.00	66.00			8/10/12 11:18	8/10/12 11:42	6/10/12 15:06	0/10/12 13.2/				0.0	6.0	Pans 3-1, 3-3, and 3-3A.
1 1	Sand (3" Min) Subtotal Sand (3" Min)	39	1,519 27,237	14 671	17 805	89.00 830.00	134.00	0	964	8/10/12 11:18	8/10/12 11:42	8/10/12 15:08	8/10/12 13.27			'	6.0	6.0	Pans 3-1, 3-3, and 3-3A.

		Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position	Thickness					
Cap Area No.	Material	Lane ID	Surface Area	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 0.75" (3" Min)	34	4,573	42	55	61.00				9/10/12 18:36	9/10/12 19:00					Y	7.2	14.9	Pans 3-12, 3-12 INT, 3-18, and 3-18 INT
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	34/35 35	4,974	46	60	88.00 122.00			-	9/17/12 21:46 8/16/12 19:05	9/17/12 22:51 8/16/12 19:41					Y	7.1	12.8	Pans QA 3-1, QA 3-1 INT, 3-11, 3-11A, 3-16, 3-16
	Armor 0.75" (3" Min)	36	5,092	47	61	119.00	70.00			8/16/12 18:17	8/16/12 18:51	8/17/12 17:56	8/17/12 18:14			Y	4.5	8.3	INT, 3-17, and 3-17 INT. Pans 3-9, 3-9A, 3-10, 3-10A, 3-14, and 3-15
	Armor 0.75" (3" Min)	37	4,958	46	60	110.00		107.00	-	8/10/12 16:44	8/10/12 18:13	-11		8/22/10 13:41		Y	6.8	8.7	Pans 3-5, 3-6, 3-7, and 3-8.
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	38 39	4,518 1,519	42 14	54 18	84.00 48.00	62.00 54.00	26.00	-	8/10/12 15:55 8/22/12 14:15	8/10/12 16:20 8/22/12 14:34	8/10/12 18:30 8/23/12 8:27			9/10/12 20:56	Y	8.1 6.9	10.8 12.9	Pans 3-2 and 3-4. Pans 3-1 and 3-3.
	Subtotal Armor 0.75" (3" Min)		27,237	479	623	694.00	186.00	133.00	1,013	0/22/12 14:15	0/22/12 14.54	0/25/12 0.27	0/23/12 0.44				0.0	12.0	Tanto Franco G.
Cap 4	Total Cap 3 Sand (3" Min)	4-mechanical				17.30			1,977	12/18/12	12/18/12					Y	3.0	3.0	Pans 14-1 and 14-2
C.O. Required Thickness = 6"									-							· · · · · · · · · · · · · · · · · · ·	5.0 5.0	5.0 5.0	
Target Max Thickness = 12" C.O. Est. Quantity = 190 tons	Sand (3" Min)	4-mechanical				119.83			-	12/19/12	12/19/12					·	3.0 8.0	3.0 8.0	Pans 14-3 and 14-4
Est. Design Quantity = 290 tons	Sand (3" Min)	4-mechanical				21.30	_			12/20/12	12/20/12					Υ	7.0	7.0	Pans 14-5 and QA-14-1
Actual Quantity ⁶ = 296 tons As-Built Surface Area = 6,775 SF	Subtotal Sand (3" Min) Armor 0.75" (3" Min)	4-mechanical	5,521	136	163	158.43 20.40	0	0	158	12/26/12	12/26/12					Y	3.0	6.0	Pans 14-1 and 14-2
	Armor 0.75" (3" Min)	4-mechanical				66.48			-	12/27/12	12/27/12					Y	> 8 3.0	13.0 8.0	Pans 14-3 and 14-4
	Armor 0.75" (3" Min)	4-mechanical		1		50.64	1	1	-	12/27/12	12/27/12					Y	> 8 8.0	11.0 16.0	Pans 14-5 and QA-14-1
	Subtotal Armor 0.75" (3" Min)	4-mechanical	5,521	97	126	137.52	0	0	138	12/20/12	12/20/12					'	> 8	15.0	1 dilo 17-0 dilu QA*14*1
	Total Cap 4								296							V	> 6	> 6	
Cap 5	Sand (3" Min)	5-mechanical				150.17			_	12/8/12	12/8/12					Ý V	> 6 > 9	> 6 > 9	Pans 5-1 and 5-2
C.O. Required Thickness = 6"	Sand (3" Min)	5-mechanical				28.46				12/9/12	12/9/12					Ý V	6.5	6.5	Pans 5-3 and 5-4
Target Max Thickness = 21"	Sand (3" Min)	5-mechanical				319.30			_	12/10/12	12/10/12					Y	6.0	6.0	Pans 5-5 and 5-6
C.O. Est. Quantity = 1,480 tons	Sand (3" Min)	5-mechanical				186.61			_	12/11/12	12/11/12					Y	> 6 3.5	> 6 3.5	Pans 5-7 and 5-8
Est. Design Quantity = 3,950 tons Actual Quantity ⁶ = 4,130 tons	Sand (3" Min) Sand (3" Min)	5-mechanical 5-mechanical				102.37 18.46			-	12/12/12 12/13/12	12/12/12 12/13/12					Y	> 6 > 6	> 6 > 6	Pan 5-9 Pan 5-10
As-Built Surface Area = 48,123 SF	Sand (3" Min) Sand (3" Min)	5-mechanical 5-mechanical				70.18 24.30			1	8/27/13 8/29/13	8/27/13 8/29/13					Y	5.0 8.0	5.0 8.0	Pan QA-5-1 Pan QA-5-2
	Subtotal Sand (3" Min)	3 meenemeen	43,938	1,082	1,298	899.85	0	0	900	0,23,13	0, 23, 13								Tan arto E
	Filter	5-mechanical				250.02			_	12/9/12	12/9/12					Y Y	6.0 > 6	12.0 12.0	Pans 5-1 and 5-2
	Filter	5-mechanical				332.18				12/10/12	12/11/12					Y Y	6.0 > 12	15.0 18.5	Pans 5-3 and 5-4
	Filter	5-mechanical				568.99				12/12/12	12/13/12					Y Y	5.5 6.0	9.5 12.0	Pans 5-5 and 5-6
	Filter	5-mechanical				47.02			_	12/13/12	12/13/12					Y Y	> 6 > 6	12.0 9.5	Pans 5-7 and 5-8
	Filter	5-mechanical				61.80				8/28/13	8/28/13					Y Y	> 6 7.8	12.0 13.8	Pans 5-9 and 5-10
	Filter	5-mechanical				44.40				8/29/13	8/29/13					Y Y	> 6 > 6	11.0 14.0	Pans QA-5-1 and QA-5-2
	Subtotal Filter Material	F are showing	43,938	928	1,216	1,304.41	0	0	1,304	42/0/42	12/0/12					Y	> 6	18.0	Dave 5.4 and 5.0
	Armor 2.5" (5" Min)	5-mechanical				351.88			-	12/9/12	12/9/12					Y Y	> 6 > 6	18.0 21.0	Pans 5-1 and 5-2
	Armor 2.5" (5" Min)	5-mechanical				554.09			-	12/11/12	12/11/12					Y Y	> 6 > 6	24.5 15.5	Pans 5-3 and 5-4
	Armor 2.5" (5" Min)	5-mechanical				375.14			-	12/12/12	12/12/12					Y Y	> 6 > 6	18.0 18.0	Pans 5-5 and 5-6
	Armor 2.5" (5" Min)	5-mechanical				401.21		-	-	12/13/12	12/13/12					Y Y	> 6 > 6	15.5 18.0	Pans 5-7 and 5-8
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	5-mechanical 5-mechanical				168.50 33.70		-	-	8/29/13 8/30/13	8/29/13 8/30/13					Y	> 8	21.8 17.0	Pans 5-9 and 5-10 Pan QA-5-1
	Armor 2.5" (5" Min)	5-mechanical	42.020	050	1 /20	41.20	_	0	1,926	9/3/13	9/3/13					Ϋ́	6.0	20.0	Pan QA-5-2
	Subtotal Armor 2.5" (3" Min) Total Cap 5		43,938	959	1,439	1,925.72	0	U	4,130										
Cap 6a	Sand (3" Min)	6a-mechanical				65.37				10/16/12	10/16/12					Y	8.5 3.5	8.5 3.5	Pans 6-7 and 6-8
C.O. Required Thickness = 6"	Sand (3" Min)	6a-mechanical				134.64		<u> </u>		10/17/12	10/17/12					Y Y	4.0 6.5	4.0 6.5	Pans 9-9 and 6-11
Target Max Thickness = 16"	Sand (3" Min)	6a-mechanical				50.61				10/18/12	10/18/12					Y	4.0 9.0	4.0 9.0	Pans 6-14 and 6-15
Est. Design Quantity = 1,300 tons	Sand (3" Min)	6a-mechanical				18.21				10/19/12	10/19/12					Y	10.8 5.5	10.8 5.5	Pans 6-18 and 6-19
As-Built Surface Area = 16,554 SF	Sand (3" Min) Sand (3" Min)	6a-mechanical 6a-mechanical				110.78 11.41			-	10/22/12 10/23/12	10/22/12 10/23/12					Y Y	6.0	6.0 4.0	Pan 6-20 Pan 6-21
	Sand (3" Min)	6a-mechanical				11.19				10/25/12	10/25/12					Y	3.5	3.5	Pan 6-22
	Sand (3" Min) Sand (3" Min)	6a-mechanical 6a-mechanical		+		8.45 37.41	-	1		11/26/12 12/6/12	11/26/12 12/6/12					Y	10.0 8.0	10.0 8.0	Pan 6-23 Pan QA-6A-1
	Subtotal Sand (3" Min)		16,259	400	480	448.07	0	0	448							V	> 6	14.5	
	Filter	6a-mechanical				278.13			-	10/18/12	10/18/12					Ý	> 6 > 6 7.8	9.5 11.8	Pans 6-7 and 6-8
	Filter	6a-mechanical				30.65	ļ			10/19/12	10/19/12					Y Y	7.8 10.0 5.0	11.8 16.5 9.0	Pans 6-9 and 6-11
	Filter	6a-mechanical		1		116.16	1			10/20/12	10/20/12					Ϋ́	5.0 > 6 5.0	15.0 15.8	Pans 6-14 and 6-15
	Filter	6a-mechanical				103.15				10/22/12	10/22/12					Ϋ́Υ	5.0 > 6	11.5	Pans 6-18 and 6-19

	General Information				Tonnage	and Volumes	from Operato	or Log				Sche	edule			Position			hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter	6a-mechanical				66.36				10/23/12	10/23/12					Y Y	5.5 > 6	11.5 10.0	Pan 6-20 and 6-21
	Filter Filter	6a-mechanical 6a-mechanical				4.49 18.84				10/24/12 11/26/12	10/24/12 11/26/12					Y	5.0 > 6	8.5 16.0	Pan 6-22 Pan 6-23
	Filter Subtotal Filter Material	6a-mechanical	16,259	343	449	52.80 670.58	0	0	671	12/6/12	12/6/12					Y	> 6	14.0	Pan QA-6A-1
		Co machanical	10,239	343	443	102.28	0		071	10/10/12	10/10/12					Y	> 6	20.5	Pans 6-7, 6-8, and 6-9
	Armor 1.0" (3" Min)	6a-mechanical								10/19/12	10/19/12					Y Y	> 6 8.0 7.0	15.5 19.8 23.5	
	Armor 1.0" (3" Min)	6a-mechanical				84.56				10/20/12	10/20/12					Y Y	4.2 8.0	13.2 23.0	Pans 6-11 and 6-14
	Armor 1.0" (3" Min)	6a-mechanical	-			127.81				10/23/12	10/23/12					Y	7.0 5.0	22.8 16.5	Pans 6-15 and 6-18
	Armor 1.0" (3" Min)	6a-mechanical				1.67				10/26/12	10/26/12					Y	6.0 5.5	17.5 15.5	Pans 6-19 and 6-20
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	6a-mechanical				19.74 32.48				11/26/12	11/26/12					Y Y	3.0 > 6	11.5 22.0	Pans 6-21 and 6-22 Pans 6-23 and QA-6A-1
	Subtotal Armor 1.0" (3" Min)	ba-mechanical	16,259	286	372	368.54	0	0	369	12/7/12	12/7/12					Y	6.5	20.5	Palls 0-25 and QA-0A-1
	Total Cap 6a								1,487							Y	5.2	5.2	
Cap 6b	Sand (3" Min)	6b-mechanical				2.41				10/16/12	10/17/12					Y Y	7.0 4.0	7.0 4.0	Pans 6-1, 6-2, and 6-3
C.O. Required Thickness = 6"	Sand (3" Min)	6b-mechanical				111.48				10/17/12	10/17/12					Ý Y	11.0 6.0	11.0 6.0	Pans 6-4 and 6-5
Target Max Thickness = 21"	Sand (3" Min)	6b-mechanical				7.23				10/18/12	10/18/12					Y Y	4.5 3.5	4.5 3.5	Pans 6-6 and 6-10
Est. Design Quantity = 2,870 tons	Sand (3" Min)	6b-mechanical				397.92				12/3/12	12/3/12					Y	4.0 5.0	4.0 5.0	Pans 6-12 and 6-13
As-Built Surface Area = 33,380 SF	Sand (3" Min)	6b-mechanical				250.72				12/6/12	12/6/12					Y Y	5.0 10.5	5.0 10.5	Pans 6-16 and 6-17
	Sand (3" Min)	6b-mechanical				71.33				12/7/12	12/7/12					Y Y	8.0 5.0	8.0 5.0	Pans QA-6B-1 and QA-6B-2
	Subtotal Sand (3" Min)		31,963	787	944	841.09	0	0	841							Y	4.5	9.7	
	Filter	6b-mechanical				163.12				10/18/12	10/18/12					Y Y	> 6 6.0	13.0 10.0	Pans 6-1, 6-2, and 6-3
	Filter	6b-mechanical				48.07				10/20/12	10/20/12					Y Y	> 6 > 6	17.0 12.0	Pans 6-4 and 6-5,
	Filter	6b-mechanical				545.85				12/3/12	12/3/12					Y Y	> 6 6.2	10.5 9.7	Pans 6-6 and 6-10
	Filter	6b-mechanical				357.29				12/6/12	12/6/12					Y	> 6 6.0	10.0 11.0 11.0	Pans 6-12 and 6-13
	Filter	6b-mechanical				79.84				12/9/12	12/9/12					Y	> 6 4.5 > 6	15.0 15.0 14.0	Pans 6-16 and 6-17
	Filter Subtotal Filter Material	6b-mechanical	31,963	675	884	39.35 1,233.52	0	0	1,234	9/4/13	9/4/13					Ϋ́	> 6	11.0	Pans QA-6B-1 and QA-6B-2
	Armor 2.5" (3" Min)	6b-mechanical	31,903	673	004	55.38			1,234	10/19/12	10/19/12					Y	6.0 > 6	15.7 19.0	Pans 6-1 and 6-2
	Armor 2.5" (3" Min)	6b-mechanical				182.00				10/20/12	10/20/12					Y	6.8 > 6	16.8 23.0	Pans 6-3 and 6-4
	Armor 2.5" (3" Min)	6b-mechanical				609.00				12/4/12	12/4/12					Y	6.0 > 6	18.0 16.5	Pans 6-5 and 6-6
	Armor 2.5" (3" Min)	6b-mechanical				170.48				12/5/12	12/5/12					Ý Y	7.5 7.0	17.2 17.0	Pans 6-10 and 6-12
	Armor 2.5" (3" Min)	6b-mechanical				430.72				12/7/12	12/7/12					Y Y	7.0 7.0	18.0 18.0	Pans 6-13 and 6-16
	Armor 2.5" (3" Min)	6b-mechanical				121.16				12/9/12	12/9/12					Y Y	5.0 > 6	20.0 20.0	Pans 6-17 and QA-6B-1
	Armor 2.5" (3" Min) Subtotal Armor 2.5" (3" Min)	6b-mechanical	31,963	697	1,046	138.55 1,707.29	0	0	1,707	9/4/13	9/4/13					Y	> 6	17.0	Pan QA-6B-2
C.O. Est. Quantity = 1,630 tons	Total Cap 6b								3,782										
Actual Total Quantity ⁶ = 5,269 tons	Total Cap 6								5,269										
(Caps 6a & 6b)	Sand (3" Min)	1				51.00	30.00			10/22/12 10:25	10/22/12 10:33	10/22/12 11:25	10/22/12 11:31			Y			
C.O. Required Thickness = 6"	Sand (3" Min)	1a				17.00	28.00			10/22/12 10:33	10/22/12 10:40	10/22/12 11:32	10/22/12 11:40			Y			2.74
Target Max Thickness = 12" Est. Design Quantity = 4,350 tons	Sand (3" Min) Sand (3" Min)	2 2a				28.00 59.00				10/22/12 10:51 10/22/12 11:09	10/22/12 11:01 10/22/12 11:19					Y	8.0	8.0	Pan 7-1
As-Built Surface Area = 86,620 SF	Sand (3" Min) Sand (3" Min)	3 3a				67.00 85.00				10/24/12 9:29 10/24/12 10:05	10/24/12 9:47 10/24/12 10:21					Y	10.0	10.0	Pan 7-4
	Sand (3" Min) Sand (3" Min)	4 4a				68.00 73.00				10/24/12 10:23 10/24/12 10:38	10/24/12 10:38 10/24/12 10:54					Y Y	3.0	3.0	Pan 7-2
	Sand (3" Min)	5				73.00				10/24/12 10:56	10/24/12 11:12					Υ	ა.∪	3.0	1 GII 1-2
	Sand (3" Min) Sand (3" Min)	5a 6				60.00 107.00				10/24/12 11:13 10/24/12 14:19	10/24/12 11:32 10/24/12 14:36					Y Y	3.5	3.5	Pan 7-6
	Sand (3" Min) Sand (3" Min)	6a 7				80.00 85.00				10/24/12 14:46 10/24/12 15:06	10/24/12 13:05 10/24/12 15:24					Y	10.5	10.5	Pan QA-7A-1
	Sand (3" Min) Sand (3" Min)	7a 8				91.00 60.00				10/24/12 16:44 10/24/12 16:15	10/24/12 16:05 10/24/12 16:32					Y Y	6.2 13.0	6.2	Pan 7-5 Pan 7-7
	Sand (3" Min)	8a				105.00				10/25/12 7:57	10/25/12 8:15					Y			
	Sand (3" Min) Sand (3" Min)	9 9a				71.00 112.00				10/25/12 8:14 10/25/12 8:28	10/25/12 8:28 10/25/12 8:45					Y Y	11.5 10.5	11.5 10.5	Pan 7-11 Pan 7-13
	Sand (3" Min) Sand (3" Min)	10 10a				102.00 22.00	103.00			10/25/12 9:05 10/25/12 9:23	10/25/12 9:24 10/25/12 9:29	10/25/12 9:42	10/25/12 10:01			Y Y	10.0	10.0	Pan 7-16
	Cana (C Will)	100	1	1		22.00	100.00	1		10/23/12 3.23	10/23/12 3.29	10/23/12 3.42	10,23/12 10:01		ı	'	10.0	10.0	

	General Information				Tonnage a	nd Volumes	from Operat	or Log				Scheo	dule			Position			Thickness	
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane	
	Sand (3" Min)	11				85.00				10/25/12 10:35	10/25/12 10:51		<u> </u>			Y	7.5	7.5	Dec 7.14	
	Sand (3" Min) Sand (3" Min)	11a 12				83.00 60.00	52.00			10/25/12 11:09 10/25/12 11:40	10/25/12 11:28 10/25/12 11:54	11/13/12 17:48	11/13/12 17:58			Y	7.5	7.5	Pan 7-14	
	Sand (3" Min) Sand (3" Min)	13 14				51.00				11/13/12 18:06	11/13/12 18:15					Y				
	Sand (3" Min)	14a				33.00				11/13/12 18:06	11/13/12 18:15		ŀ			Y	7.5	7.5	Pan 7-18	
	Sand (3" Min)	15				47.00				11/13/12 18:34	11/13/12 18:46					Y	E E	E E	Don 7 20	
	Sand (3" Min) Sand (3" Min)	15a 16				56.00 18.00				11/13/12 18:46 11/13/12 18:53	11/13/12 18:53 11/13/12 19:01					Y	5.5	5.5	Pan 7-20	
	Sand (3" Min)	16a				23.00				11/13/12 19:01	11/13/12 19:08					Y				
	Sand (3" Min) Sand (3" Min)	17 17a				35.00 63.00				11/13/12 19:37 11/13/12 19:50	11/13/12 19:50 11/13/12 20:01		· ·			Y				
	Sand (3" Min)	18				10.00				11/14/12 10:35	11/14/12 10:46					Y	6.0	6.0	Pan 7-19	
	Sand (3" Min) Sand (3" Min)	18a 19				30.00 39.00				11/14/12 11:00 11/14/12 11:09	11/14/12 11:08 11/14/12 11:17					Y				
	Sand (3" Min)	19a				28.00				11/14/12 11:38	11/14/12 11:36		į			Y	6.0	6.0	Pan 7-24	
	Sand (3" Min) Sand (3" Min)	20 20a				36.00 43.00				11/14/12 11:37 11/14/12 11:52	11/14/12 11:47 11/14/12 12:00		· ·			Y	8.5	8.5	Pan 7-25	
	Sand (3" Min)	21				35.00				11/14/12 12:01	11/14/12 12:09					Y				
	Sand (3" Min) Sand (3" Min)	21a 22				52.00 30.00				11/14/12 12:37 11/14/12 11:45	11/14/12 12:44 11/14/12 11:55		!			Y	8.0	8.0	Pan 7-26	
	Sand (3" Min)	22a				37.00	42.00			11/14/12 12:55	11/14/12 13:04	11/15/12 10:02	11/15/12 10:13			Y	4.5	4.5	Pan 7-27	
	Sand (3" Min) Sand (3" Min)	23 23a				45.00 25.00				11/15/12 10:14 11/15/12 10:28	11/15/12 10:20 11/15/12 10:41		<u> </u>			Y	6.0	6.0	Pan 7-28	
	Sand (3" Min)	24				36.00				11/15/12 10:42	11/15/12 11:01					Y	6.8	6.8	Pans 7-30 and QA-7A-2	
	Sand (3" Min) Sand (3" Min)	24a 25				38.00 49.00				11/15/12 11:35 11/15/12 11:46	11/15/12 11:45 11/15/12 12:00					Y	7.5	7.5	Pan 7-31	
	Sand (3" Min)	25a				21.00				11/15/12 11:40	11/15/12 11:17		 			Y	7.5	7.5	1 411 7-01	
	Sand (3" Min) Sand (3" Min)	25a 7a-mechanical				29.00 15.90				11/15/12 12:01	11/15/12 12:09 12/9/12		Ï			Y				
	Sand (3" Min)	7a-mechanical				42.60				12/9/12 12/12/12	12/12/12		<u>l</u>			Y				
	Sand (3" Min)	7a-mechanical				3.70				12/20/12	12/20/12					Y				
	Sand (3" Min) Sand (3" Min)	7a-mechanical 7a-mechanical				1.10 13.80				12/27/12 12/28/12	12/27/12 12/28/12		<u> </u>			Y				
	Sand (3" Min)	7a-mechanical				127.00				12/29/12	12/29/12		1			Y				
	Sand (3" Min) Sand (3" Min)	7a-mechanical 7a-mechanical				49.30 4.20				1/2/13 1/3/13	1/2/13 1/3/13					Y				
	Subtotal Sand (3" Min)		82,942	2,043	2,452	2,810.60	255.00	0	3,066											
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	1 1a				27.00 22.00				11/12/12 10:55 11/12/12 11:05			 			Y				
	Armor 0.75" (3" Min)	2				32.00				11/12/12 11:26	11/12/12 11:39		<u> </u>			Y	3.5	11.5	Pan 7-1	
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	2a				28.00 31.00				11/12/12 11:40 11/12/12 11:49	11/12/12 11:49 11/12/12 12:00		<u> </u>			Y	6.5	16.5	Pan 7-4	
	Armor 0.75" (3" Min)	3a				24.00				11/12/12 12:01	11/12/12 12:14		<u> </u>			Y				
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	4 4a				40.00 34.00				11/12/12 12:26 11/12/12 12:42	11/12/12 12:41 11/12/12 12:56		<u> </u>			Y	3.0	6.0	Pan 7-2	
	Armor 0.75" (3" Min)	5				40.00				11/12/12 12:50	11/12/12 13:10		!			Y	0.0	0.0	. 4.1. 2	
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	5a 6				33.00 41.00				11/12/12 13:11 11/12/12 13:21	11/12/12 13:20 11/12/12 13:38		<u> </u>			Y	3.0	6.5	Pan 7-6	
	Armor 0.75" (3" Min)	6a				37.00				11/12/12 13:38	11/12/12 13:50		j			Y				
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	7 7a				29.00 27.00				10/26/12 17:58 10/26/12 17:30			<u> </u>			Y	7.0 5.0		Pan QA-7A-1 Pan 7-5	
	Armor 0.75" (3" Min)	8				4.00				10/26/12 17:27	10/26/12 17:41		<u> </u>			Y	4.5	17.5	Pan 7-7	
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	8a 9				21.00 19.00				10/26/12 17:08 10/26/12 16:51			ĺ	_		Y Y	8.0	19.5	Pan 7-11	
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	9 9a	<u> </u>			25.00	<u> </u>			10/26/12 16:51	10/26/12 17:01 10/26/12 16:45					Y	8.0 > 8	19.5	Pan 7-11 Pan 7-13	
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	10				28.00 30.00	31.00			10/26/12 10:55	10/26/12 11:09 10/26/12 9:44	10/26/12 16:09	10/26/12 16:24	-		Y Y	6.0	16.0	Pan 7-16	
		10a	+	1		29.00	33.00			10/26/12 9:30 10/26/12 8:58	10/26/12 9:12	10/26/12 15:47	10/26/12 16:03			Y	0.0	16.0	1 411 1*10	
	Armor 0.75" (3" Min)	11				-	•			10/26/12 8:18						Y	6.8	14.3	Pan 7-14	
	Armor 0.75" (3" Min)	11a				29.00				10/20/12 0:10	,,	+	+			.,	-			
	` '					29.00				11/17/12 15:27	Î		i 1			Y Y				
	Armor 0.75" (3" Min)	11a 12 12a 13											1			Y				
	Armor 0.75" (3" Min) Armor 0.75" (3" Min) Armor 0.75" (3" Min)	11a 12 12a								11/17/12 15:27						Y				
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 14 14a				12.00 12.00 19.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17					Y Y Y Y Y	> 6	13.5	Pan 7-18	
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 14 14a 15				12.00 12.00 19.00 16.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11					Y Y Y Y	> 6			
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 14 14 15 15				12.00 12.00 19.00 16.00 14.00 21.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:45	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:00 11/17/12 14:53					Y Y Y Y Y Y Y			Pan 7-18 Pan 7-20	
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 14 14 15 15 15a 16				12.00 12.00 19.00 16.00 14.00 21.00 16.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:45 11/17/12 14:37	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:00 11/17/12 14:53 11/17/12 14:44					Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	> 6			
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 14 14 15 15				12.00 19.00 19.00 16.00 14.00 21.00 16.00 17.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:45	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:00 11/17/12 14:53 11/17/12 14:44					Y Y Y Y Y Y Y	> 6			
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 144 14a 15 15a 16 16a 17 17a 18				12.00 19.00 16.00 14.00 21.00 16.00 17.00 17.00 21.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:45 11/17/12 14:29 11/17/12 14:21 11/17/12 14:21 11/17/12 14:11	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:00 11/17/12 14:53 11/17/12 14:37 11/17/12 14:37 11/17/12 14:24 11/17/12 14:21					Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	> 6			
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 14 14a 15 15 16a 16a 17				12.00 19.00 19.00 16.00 14.00 21.00 16.00 17.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:37 11/17/12 14:29 11/17/12 14:29	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:00 11/17/12 14:53 11/17/12 14:44 11/17/12 14:28 11/17/12 14:28 11/17/12 14:28 11/17/12 14:08					Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	> 6	11.5	Pan 7-20	
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 144 14a 15 15 16a 16a 17 17a 18 18a 19				12.00 19.00 16.00 14.00 21.00 17.00 17.00 21.00 14.00 20.00 17.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:37 11/17/12 14:29 11/17/12 14:21 11/17/12 14:11 11/17/12 13:58 11/17/12 13:58	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:01 11/17/12 14:31 11/17/12 14:44 11/17/12 14:28 11/17/12 14:28 11/17/12 14:08 11/17/12 13:57 11/17/12 13:57					Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	> 6	11.5	Pan 7-20	
	Armor 0.75" (3" Min)	11a 12 12a 13a 13a 144 14a 155 15a 16 16a 177 17a 18 18a 19 19a 20				12.00 19.00 16.00 14.00 21.00 16.00 17.00 17.00 21.00 14.00 20.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:45 11/17/12 14:45 11/17/12 14:29 11/17/12 14:21 11/17/12 14:11 11/17/12 13:58 11/17/12 13:58	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:01 11/17/12 14:31 11/17/12 14:44 11/17/12 14:28 11/17/12 14:28 11/17/12 14:08 11/17/12 13:57 11/17/12 13:57					Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	> 6 6.0 6.0 > 6	12.0	Pan 7-20 Pan 7-19 Pan 7-24	
	Armor 0.75" (3" Min)	11a 12 12a 13 13a 144 14a 15 15 16a 16a 17 17a 18 18a 19				12.00 19.00 16.00 14.00 21.00 17.00 17.00 21.00 14.00 20.00 17.00				11/17/12 15:27 11/17/12 15:18 11/17/12 15:12 11/17/12 15:01 11/17/12 14:54 11/17/12 14:45 11/17/12 14:45 11/17/12 14:29 11/17/12 14:11 11/17/12 13:58 11/17/12 13:50 11/17/12 13:43 11/17/12 13:29 11/16/12 13:33	11/17/12 15:35 11/17/12 15:26 11/17/12 15:17 11/17/12 15:11 11/17/12 15:01 11/17/12 14:31 11/17/12 14:44 11/17/12 14:28 11/17/12 14:28 11/17/12 14:08 11/17/12 13:57 11/17/12 13:57					Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	> 6	11.5	Pan 7-20	

			Tonnage	and Volumes	from Operate	or Log				Sche	edule			Position	Thickness				
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 0.75" (3" Min)	22				21.00				11/16/12 11:50						Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	22a 23				25.00 19.00				11/16/12 12:41 11/16/12 12:32	11/16/12 12:49 11/16/12 12:40					Y Y	4.0	8.5	Pan 7-27
	Armor 0.75" (3" Min)	23a				23.00				11/16/12 11:26	11/16/12 12:32					Y	4.2	10.2	Pan 7-28
	Armor 0.75" (3" Min)	24				29.00				11/16/12 12:11	11/16/12 12:26					Y	4.5	11.3	Pans 7-30 and QA-7A-2
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	24a 25				24.00 24.00				11/16/12 11:56 11/16/12 11:43	11/16/12 12:07 11/16/12 11:56					Y Y	8.5	16.0	Pan 7-31
	Armor 0.75" (3" Min)	25a				15.00				11/16/12 11:32	11/16/12 11:39					Y		1910	
	Armor 0.75" (3" Min)	25ab				21.00 148.60				11/16/12 11:39						Y	<u> </u>		
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	7a-mechanical 7a-mechanical				139.70				12/20/12 12/28/12	12/20/12 12/28/12					Y			
	Armor 0.75" (3" Min)	7a-mechanical				162.30				12/29/12	12/29/12					Υ			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	7a-mechanical 7a-mechanical				171.30 101.20				1/2/13 1/3/13	1/2/13 1/3/13					Y			
	Subtotal Armor 0.75" (3" Min)	7a-mechanical	82,942	1,459	1,897	1,819.10	64.00	0	1,883	1/3/13	1/5/13								
	Total Cap 7a								4,949										
Cap 7b	Sand (3" Min)	1														Y			
C.O. Required Thickness = 6" Target Max Thickness = 21"	Sand (3" Min) Sand (3" Min)	2									ľ		-			Y	 		
Est. Design Quantity = 2,320 tons	Sand (3" Min)	4									1					Y			
As-Built Surface Area = 23,961 SF	Sand (3" Min) Sand (3" Min)	5 5a									i i		-			Y Y	7.5	7.5	Pan 7-10
	Sand (3 Min)	6				5.00				10/24/12 14:36	10/24/12 14:41		<u> </u>			Y	7.0	7.0	1 (11)
	Sand (3" Min)	6a				9.00				10/24/12 14:42	10/24/12 14:46					Y			
	Sand (3" Min) Sand (3" Min)	7 7a				0.00 25.00				10/24/12 15:24 10/24/12 16:05	10/24/12 15:24 10/24/12 16:05					Y			
	Sand (3" Min)	8				16.00				10/24/12 16:10	10/24/12 16:15					Y			
	Sand (3" Min)	8a														Y			
	Sand (3" Min) Sand (3" Min)	9 9a														Y	<u> </u>		
	Sand (3" Min)	10														Υ			
	Sand (3" Min) Sand (3" Min)	10a									j					Y Y	7.0	7.0	Pan 7-15
	Sand (3 Min)	11 11a							-							Y	7.0	7.0	Fall 7-15
	Sand (3" Min)	12														Y			
	Sand (3" Min) Sand (3" Min)	13 14							-							Y			
	Sand (3" Min)	15														Y			
	Sand (3" Min) Sand (3" Min)	16 17									- I					Y	ļ		
	Sand (3 Min)	18									I					Y	6.0	6.0	Pan 7-21
	Sand (3" Min)	19									I					Y			
	Sand (3" Min) Sand (3" Min)	20 21														Y	5.0	5.0	Pan QA-7B-1
	Sand (3" Min)	22									l					Y			
	Sand (3" Min)	23 7b-mechanical				21.40				12/10/12	42/40/42					Y	5.0	5.0	Pan 7-29
	Sand (3" Min) Sand (3" Min)	7b-mechanical				67.80				12/10/12 12/16/12	12/10/12 12/16/12					Y			
	Sand (3" Min)	7b-mechanical				41.90				12/17/12	12/17/12					Y			
	Sand (3" Min) Sand (3" Min)	7b-mechanical 7b-mechanical				107.20 6.80				12/20/12 12/27/12	12/20/12 12/27/12					Y			
	Sand (3" Min)	7b-mechanical				45.40				12/28/12	12/28/12					Y			
	Subtotal Sand (3" Min)	7h ma-l	23,669	583	816	345.50 10.10	0	0	346	42/40/22	42/40/22					Y	> 14	21.5	Pan 7-10
	Filter Filter	7b-mechanical 7b-mechanical				23.10				12/10/12 12/11/12	12/10/12 12/11/12					Y	> 14	21.5 15.0	Pan 7-10 Pan 7-15
	Filter	7b-mechanical				121.70				12/17/12	12/17/12					Y	4.5	10.5	Pan 7-21
	Filter Filter	7b-mechanical 7b-mechanical				26.60 56.50				12/18/12 12/20/12	12/18/12 12/20/12		+			Y Y	7.5 > 8	12.5 13.0	Pan QA-7B-1 Pan 7-29
	Filter	7b-mechanical				132.40				12/26/12	12/26/12					Υ		. 5.0	
	Filter	7b-mechanical				94.40				12/28/12	12/28/12		 			Y	<u> </u>	1	
	Filter Subtotal Sand (3" Min)	7b-mechanical	23,669	500	750	8.20 473.00	0	0	473	12/29/12	12/29/12					Y			
	Armor 2.5" (5" Min)	7b-mechanical	,			166.80				12/19/12	12/19/12					Y	> 8	29.5	Pan 7-10
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	7b-mechanical 7b-mechanical	1			59.60 240.20				12/20/12 12/27/12	12/20/12 12/27/12		 			Y	8.0 > 14	23.0 24.5	Pan 7-15 Pan 7-21
	Armor 2.5" (5" Min)	7b-mechanical				156.70				12/27/12	12/27/12					Y	> 14 14.0		Pan 7-21 Pan QA-7B-1
	Armor 2.5" (5" Min)	7b-mechanical				42.20				12/29/12	12/29/12					Y	8.0	21.0	Pan 7-29
	Armor 2.5" (5" Min) Subtotal Sand (3" Min)	7b-mechanical	23,669	500	750	55.40 720.90	0	0	721	8/20/13	8/20/13					Y			
	Total Cap 7B		20,003	555	100	. 20.00		<u> </u>	1,539										
Cap 7c	Sand (3" Min)	7c-mechanical				50.50				12/10/12	12/10/12					Y	9.0 3.5	9.0 3.5	Pans QA-7C-1 and QA-7C-2
C.O. Required Thickness = 6"	Sand (3" Min)	7c-mechanical				51.80				12/12/12	12/12/12					Y	3.5	3.5	Pans 7-3 and 7-8
											i					·	5.0 6.0	5.0 6.0	
Target Max Thickness = 25"	Sand (3" Min)	7c-mechanical				63.30				12/15/12	12/15/12					Y	9.5 4.8	9.5	Pans 7-9 and 7-12
Est. Design Quantity = 3,960 tons	Sand (3" Min)	7c-mechanical				42.10				12/16/12	12/16/12					Y	5.0	4.8 5.0	Pans 7-17 and 7-22
As-Built Surface Area = 30,040 SF	Sand (3" Min)	7c-mechanical	20.200	700	4.042	1.60		^	200	12/17/12	12/17/12					Y	4.8	4.8	Pan 7-23
I	Subtotal Sand (3" Min)		29,360	723	1,012	209.30	0	0	209										

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter	7c-mechanical				44.20				12/10/12	12/10/12			i !		Υ	6.0 5.0	15.0 8.5	Pans QA-7C-1 and QA-7C-2
	Filter	7c-mechanical				13.50				12/11/12	12/11/12			i I		Y	> 8 4.5	11.5 9.5	Pans 7-3 and 7-8
	Filter	7c-mechanical				25.90				12/12/12	12/12/12			İ		Υ	> 8 6.8	14.0 16.3	Pans 7-9 and 7-12
	Filter Filter	7c-mechanical 7c-mechanical				46.80 72.30				12/13/12 12/15/12	12/13/12 12/15/12					Y Y	6.0	10.8 13.0	Pan 7-17 Pan 7-22
	Filter	7c-mechanical				81.80				12/15/12	12/13/12			<u> </u>		Y	8.0	12.8	Pan 7-23
	Subtotal Filter Material	7a mashanisal	29,360	620	930	284.50 125.60	0	0	285	12/12/12	12/12/12					Y	> 14	29.0	Dans OA 70 1 and OA 70 2
	Armor 3.5" (7" Min)	7c-mechanical								12/13/12	12/13/12			<u></u>		Y	8.5 > 14	17.0 25.5	Pans QA-7C-1 and QA-7C-2
	Armor 3.5" (7" Min) Armor 3.5" (7" Min)	7c-mechanical 7c-mechanical				79.80 90.60				12/14/12 12/15/12	12/14/12 12/15/12			j I		Y	14.0 14.0	23.5 28.0	Pans 7-3 and 7-8 Pan 7-9
	Armor 3.5" (7" Min)	7c-mechanical				63.80				12/16/12	12/16/12					Y	11.0	27.3	Pan 7-12
	Armor 3.5" (7" Min) Armor 3.5" (7" Min)	7c-mechanical 7c-mechanical				8.20 150.10				12/17/12 12/18/12	12/17/12 12/18/12] [Y	9.5 14.0	20.3 27.0	Pan 7-17 Pan 7-22
	Armor 3.5" (7" Min) Armor 3.5" (7" Min)	7c-mechanical 7c-mechanical				85.00 54.80				12/19/12 8/15/13	12/19/12 8/15/13			i I		Y Y	8.0	20.8	Pan 7-23
	Armor 3.5" (7" Min)	7c-mechanical				36.00				8/16/13	8/16/13					Y			
	Armor 3.5" (7" Min) Subtotal Armor 3.5" (7" Min)	7c-mechanical	29,360	1,343	2,015	36.00 729.90	0	0	730	8/19/13	8/19/13					Y			
	Total Cap 7C		23,500	1,040	2,010	720.00			1,224										
C.O. Est. Quantity = 4,560 tons Actual Total Quantity ⁶ = 7,712 tons (Caps 7A, 7B, & 7C)	Total Cap 7								7,712		;								
Cap 8a	Sand (3" Min)	74												l L		Y			
C.O. Required Thickness = 6"	Sand (3" Min)	75				16.00				10/4/12 8:50	10/4/12 8:54			 		Y			
Target Max Thickness = 12" Est. Design Quantity = 2,460 tons	Sand (3" Min) Sand (3" Min)	75a 76				17.00 14.00				10/4/14 8:46	10/4/12 8:48 10/4/12 8:44		-	<u> </u>		Y	18.0	18.0	Pan 8-1
As-Built Surface Area = 49,416 SF	Sand (3" Min)	76a				33.00				10/4/12 8:36	10/4/12 8:41			! !		Y			
	Sand (3" Min) Sand (3" Min)	77 77a				34.00 24.00				10/4/12 8:30 10/4/12 5:41	10/4/12 8:35 10/4/12 5:48			! !		Y	4.5	4.5	Pan 8-2
	Sand (3" Min)	78				60.00 41.00				10/4/12 5:22	10/4/12 5:32					Y	12.5	42.5	Don 9.4
	Sand (3" Min) Sand (3" Min)	78a 79				57.00				10/4/12 5:03 10/4/12 4:37	10/4/12 5:11 10/4/14 4:52					Y	13.5	13.5	Pan 8-4
	Sand (3" Min) Sand (3" Min)	79a 80				72.00 37.00				10/4/12 4:22 10/4/12 4:07	10/4/12 4:35 10/4/14 4:15					Y			
	Sand (3" Min)	80a				62.00				10/4/12 4:07	10/4/14 4:15					Y	6.4	6.4	Pans 8-5 and 8-6
	Sand (3" Min) Sand (3" Min)	81 81a				39.00 81.00				10/4/12 3:38 10/4/12 3:22	10/4/12 3:49 10/4/12 3:36					Y	6.5	6.5	Pan QA-8A-1
	Sand (3" Min)	82				72.00	7.00			10/4/12 2:54	10/4/12 3:11	10/4/12 14:09				Y			
	Sand (3" Min) Sand (3" Min)	82a 83				72.00 58.00	5.00 6.00			10/4/14 2:29 10/4/12 2:06	10/4/12 2:43 10/4/12 2:18	10/4/12 13:56 10/4/12 13:40	10/4/12 14:02 10/4/12 13:49			Y	5.0 5.2	5.0 5.2	Pan 8-11 Pan 8-8
	Sand (3" Min)	83a				55.00				10/3/12 23:45	10/3/12 23:58	10/ 1/12 13:10	10/ 1/12 13:13			Y	9.0	9.0	Pan 8-9
	Sand (3" Min) Sand (3" Min)	84 84a				38.00 68.00				10/3/12 23:22 10/3/12 23:13	10/3/12 23:36 10/3/12 13:20			<u> </u>		Y			
	Sand (3" Min)	85				18.00				10/3/12 22:54	10/3/12 23:02					Y	7.0	7.0	Pan 8-16
	Sand (3" Min) Sand (3" Min)	85a 86				55.00 33.00				10/3/12 22:40 10/3/12 22:22						Y	6.0	6.0	Pans 8-13 and 8-14
	Sand (3" Min)	86a 86ab				28.00 36.00				10/3/12 22:07						Y Y			
	Sand (3" Min) Sand (3" Min)	8a-mechanical				193.58				10/3/12 22:13 12/9/12	12/10/12					Y	5.0	5.0	Pan 8-17
	Sand (3" Min) Sand (3" Min)	8a-mechanical 8a-mechanical				59.74 356.50		<u> </u>		12/10/12 12/13/12	12/10/12 12/13/12			i I		Y Y			
	Sand (3" Min)	8a-mechanical				103.00				7/31/13						Y			
	Subtotal Sand (3" Min) Armor 0.75" (3" Min)	74	46,989	1,157	1,388	1,832.82	18.00	0	1,851] 		Y			
	Armor 0.75" (3" Min)	75												<u> </u>		Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	76 77				6.00				10/4/12 18:41	10/4/12 18:44			<u> </u>		Y	> 8	26.0	Pan 8-1
	Armor 0.75" (3" Min)	77a				12.00				10/4/12 18:44	10/4/12 18:50					Y	> 8	12.5	Pan 8-2
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	78 78a				8.00 9.00	1	-		10/4/12 19:04 10/4/12 19:20	10/4/12 19:10 10/4/12 19:26] 		Y	4.0	17.5	Pan 8-4
	Armor 0.75" (3" Min)	79				22.00				10/4/12 20:02	10/4/12 20:02			<u> </u>		Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	79a 80				12.00 26.00				10/4/12 20:11 10/4/12 20:28	10/4/12 20:19 10/4/12 20:38			! 		Y			
	Armor 0.75" (3" Min)	80a				15.00				10/4/12 20:40	10/4/12 20:51			ļ		Y	5.9	12.2	Pans 8-5 and 8-6
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	81 81a				40.00 21.00	<u> </u>	<u> </u>		10/4/12 20:55 10/4/12 21:12	10/4/12 21:10 10/4/12 21:22					Y	3.5	10.0	Pan QA-8A-1
	Armor 0.75" (3" Min)	82				27.00				10/4/12 21:25	10/4/12 21:37			i		Y Y	4 E	0.5	Pon 9 11
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	82a 83		<u> </u>		23.00 34.00				10/4/12 21:38 10/4/12 23:26	10/4/12 21:51 10/4/12 23:12			<u> </u>		Y	4.5 6.5	9.5 11.7	Pan 8-11 Pan 8-8
	Armor 0.75" (3" Min)	83a				24.00				10/4/12 23:28	10/4/12 23:39			i		Y	3.0	12.0	Pan 8-9
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	84 84a	<u> </u>	<u> </u>		20.00 26.00				10/4/12 23:41 10/5/12 1:36	10/4/12 23:51 10/5/12 1:50			 		Y	<u> </u>		
	Armor 0.75" (3" Min)	85				21.00				10/5/12 1:50	10/5/12 2:06			[Y	7.0	14.0	Pan 8-16
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	85a 86	+	-		17.00 16.00				10/5/12 2:11 10/5/12 2:42	10/5/12 2:20 10/5/12 2:41		 	<u> </u>	+	Y	5.3	11.3	Pans 8-13 and 8-14

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position		T	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 0.75" (3" Min)	86a														Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	86ab 8a-mechanical				23.00 149.80				10/5/12 3:34 8/9/13	10/5/12 3:48 8/9/13		<u> </u>			Y	4.5	9.5	Pan 8-17
	Armor 0.75" (3" Min)	8a-mechanical				149.80				8/12/13	8/12/13					Y	1.0	0.0	i ano ii
	Armor 0.75" (3" Min)	8a-mechanical				152.80				8/19/13	8/19/13					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	8a-mechanical 8a-mechanical				303.30 147.95				8/20/13 8/21/13	8/20/13 8/21/13					Y			
	Subtotal Armor 0.75" (3" Min)		46,989	827	1,075	1,305.65	0	0	1,306		-, , -								
	Total Cap 8a								3,156							V	11.0	11.0	
Cap 8b	Sand (3" Min)	8b-mechanical				10.90				11/19/12	11/19/12					Y	5.5	5.5	Pans 8-3 and 8-7
C.O. Required Thickness = 6"	Sand (3" Min)	8b-mechanical				131.17				11/29/12	11/29/12		 			Y	6.0 13.5	6.0 13.5	Pans 8-10 and 8-12
Farget Max Thickness = 16"	Sand (3" Min)	8b-mechanical				152.78				11/30/12	11/30/12					Y	12.2	12.2	Pan 8-15
st. Design Quantity = 1,450 tons s-Built Surface Area = 18,867 SF	Sand (3" Min) Subtotal Sand (3" Min)	8b-mechanical	18,119	446	535	83.51 378.36	0	0	378	12/2/12	12/2/12					Y	3.0	3.0	Pan QA-8B-1
		01 1 1								44/20/42	44/20/42					Y	5.5	16.5	2 0007 1040
	Filter	8b-mechanical				164.50				11/29/12	11/29/12		į			Y Y	> 6 > 6	11.5 12.0	Pans 8-3, 8-7, and 8-10
	Filter	8b-mechanical				290.24				12/1/12	12/1/12					Y	> 6 > 6	19.5 18.2	Pans 8-12 and 8-15
	Filter	8b-mechanical				134.03				12/2/12	12/2/12					Y	4.5	7.5	Pan QA-8B-1
	Subtotal Filter Material		18,119	383	502	588.77	0	0	589								- 6	22.5	
	Armor 1.0" (3" Min)	8b-mechanical				18.36				11/20/12	11/20/12		<u> </u>			Υ	> 6 5.0	22.5 16.5	Pan 8-3
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	8b-mechanical				91.69 15.07				11/29/12	11/29/12					Y	5.0 > 6	16.5 18.0	Pan 8-7 Pan 8-10
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	8b-mechanical 8b-mechanical				166.17				11/30/12 12/1/12	11/30/12 12/1/12					Y	> 6	25.5	Pan 8-10 Pan 8-12
	Armor 1.0" (3" Min)	8b-mechanical				171.47				12/2/12	12/2/12					Y	> 6	24.2	Pan 8-15
	Armor 1.0" (3" Min) Subtotal Armor 1.0" (3" Min)	8b-mechanical	18,119	319	415	28.05 490.81	0	0	491	8/27/13	8/27/13					Y	3.0	10.5	Pan QA-8B-1
	Total Cap 8b		10,113	319	413	430.01			1,458										
C.O. Est. Quantity = 2,200 tons Actual Total Quantity = 4,614 tons Caps 8A & 8B)	Total Cap 8								4,614										
Cap 9	Sand (3" Min)	151				33.00	25.00	57.00		8/25/12 9:33	8/25/12 9:45	8/25/12 9:50	8/25/12 9:59	8/27/12 16:00	8/27/12 16:10	Υ			
C.O. Required Thickness = 6"	Sand (3" Min)	152				55.00	133.00	91.00		8/25/12 10:06	8/25/12 10:19	8/25/12 11:05		8/27/12 15:37	8/27/12 15:54	Y	6.5	6.5	Pans 9-1 and 9-1INT.
Target Max Thickness = 16" C.O. Est. Quantity = 900 tons	Sand (3" Min) Sand (3" Min)	153 154				101.00 143.00	111.00			8/25/12 10:29 8/25/12 11:43	8/25/12 10:48 8/25/12 12:09	8/27/12 23:17	8/27/12 23:35			Y Y	6.0	6.0	Pan 9-2INT.
est. Design Quantity = 2,140 tons	Sand (3" Min)	155				130.00	106.00			8/25/12 14:17	8/25/12 14:41	8/27/12 22:45				Υ	6.4	6.4	Pan 9-3INT.
Actual Quantity = 3,795 tons As-Built Surface Area = 27,007 SF	Sand (3" Min) Sand (3" Min)	156 157				125.00 130.00	132.00 103.00			8/25/12 14:59 8/25/12 15:32	8/25/12 15:22 8/25/12 15:55	8/28/12 9:24 8/27/12 21:28				Y	4.8 5.5	4.8 5.5	Pan 9-4INT. Pan 9-5INT.
AS-Built Surface Area = 27,007 SF	Sand (3 Min)	158				112.00	86.00			8/27/12 14:11	8/27/12 14:32	8/27/12 19:13	8/27/12 19:30			Y	8.0	8.0	Pan 9-6INT.
	Sand (3" Min)	159				89.00	76.00	80.00		8/27/12 14:43	8/27/12 14:59	8/27/12 21:01	8/27/12 21:15	8/28/12 8:13	8/28/12 8:27	Y	6.3	6.3	Pans 9-7 and 9-7INT.
	Sand (3" Min) Subtotal Sand (3" Min)	160	26,704	658	790	56.00 974.00	772.00	228.00	1,974	8/27/12 15:10	8/27/12 15:20					Y			
	Filter	151				30.00			,-	8/28/12 17:33	8/28/12 17:45					Y			
	Filter Filter	151-A 152				23.00 41.00				8/28/12 17:56 8/28/12 18:14	8/28/12 18:04 8/28/12 18:28					Y	n.r.	6.5	Pans 9-1 and 9-1INT. (n.r no recovery)
	Filter	152-A				58.00				8/28/12 18:36			-			Y	n.i.	6.5	Pans 9-1 and 9-11101. (n.r no recovery)
	Filter	153				56.00				8/28/12 19:02						Y	4.5	10.5	Pan 9-2INT.
	Filter Filter	153-A 154				69.00 63.00	52.00			8/28/12 20:03 8/28/12 21:10	8/28/12 20:22 8/28/12 20:53	8/28/12 20:39	8/28/12 20:53			Y			
	Filter	154-A				57.00				8/28/12 21:50						Y			
	Filter Filter	155				60.00 53.00				8/28/12 22:30			I			Y	5.1	11.5	Pan 9-3INT.
	Filter	155-A 156				54.00				8/28/12 23:15 8/29/12 0:23	8/28/12 23:30 8/29/12 0:38					Y	4.5	9.3	Pan 9-4INT.
	Filter	156-A				31.00				8/29/12 1:03	8/29/12 1:22					Y		40.0	Day o SINT
	Filter Filter	157 157-A	1	1		49.00 48.00	1			8/29/12 1:34 8/29/12 2:02						Y	4.5	10.0	Pan 9-5INT.
	Filter	158				44.00				8/29/12 2:31	8/29/12 2:45					Y	4.8	12.8	Pan 9-6INT.
	Filter	158-A		 		52.00	<u> </u>	<u> </u>		8/29/12 2:57			1			Y		<u> </u>	Pan 9-7INT. Pan retrieved full of sand and with
	Filter	159				40.00				8/29/12 3:23	8/29/12 3:37					Y	>3*	9.3	more than 3 inches of filter mounded.
	Filter Filter	159-A 160	1	1		36.00 18.00	45.00			8/29/12 3:49 8/29/12 4:15	8/29/12 4:01 8/29/12 4:20	8/29/12 4:33	8/29/12 4:50			Y		-	
	Subtotal Filter Material	100	26,704	564	739	882.00	97.00	0	979	3/23/12 4.13	0/23/12 4.20	UJ Z JJ 1Z 4.33	3/23/12 4.30						
	Armor 1.0" (3" Min)	151				17.00	18.00			8/29/12 16:27	8/29/12 16:39	8/29/12 16:50	8/29/12 17:00			Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	151-A 152	1	1		25.00 31.00	31.00	68.00		8/29/12 17:13 8/29/12 17:42		8/30/12 23:47	8/31/12 0:02	8/31/12 3:33	8/31/12 5:03	Y	6.0	12.5	Pans 9-1 and 9-1INT.
	Armor 1.0" (3" Min)	152-A				31.00				8/29/12 18:07	8/29/12 18:25	.,, 20,47	,, ==, == 0.02	., 0 =, 12 0.00	-,, 12 5.05	Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	153 153-A		1		34.00 33.00	-	1		8/29/12 18:31	8/29/12 18:51 8/29/12 19:16					Y	6.5	17.0	Pan 9-2INT.
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	153-A 154		 		40.00				8/29/12 18:57 8/29/12 19:23	8/29/12 19:16 8/29/12 19:43		 			Y		 	
	Armor 1.0" (3" Min)	154-A				35.00				8/29/12 20:00	8/29/12 20:14					Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	155 155-A	1	1		38.00 34.00	32.00			8/29/12 20:26 8/29/12 20:56	8/29/12 20:46 8/29/12 21:12	8/29/12 21-20	8/29/12 21:45			Y Y	8.0	19.5	Pan 9-3INT.
	Armor 1.0" (3" Min)	155-A 156				34.00	JZ.00			8/29/12 20:56		0, 23, 12 21.30	5, 23, 12 21.43			Y	3.8	13.1	Pan 9-4INT.
	Armor 1.0" (3" Min)	156-A				37.00				8/29/12 22:25	8/29/12 22:41		į			Y	2.2	10.0	Day of SINT
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	157 157-A		1		30.00 39.00				8/29/12 22:58 8/29/12 23:28	8/29/12 23:12 8/29/12 23:45		+			Y	8.0	18.0	Pan 9-5INT.
		137 17	1			32.00	33.00	.		0, 20, 12 25.20			8/30/12 15:57					1	t

	General Information				Tonnage a	and Volumes	from Operat	or Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 1.0" (3" Min)	158-A				30.00	38.00			8/30/12 2:01	8/30/12 2:15	8/30/12 16:03	8/30/12 16:20			Y	0.5	45.0	D. O. TINIT
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	159 159-A				27.00 24.00				8/30/12 2:27 8/30/12 3:01	8/30/12 2:40 8/30/12 3:13					Y	6.5	15.8	Pan 9-7INT.
	Armor 1.0" (3" Min) Subtotal Armor 1.0" (3" Min)	160	26,704	470	611	15.00 586.00	36.00 188.00	68.00	842	8/30/12 3:25	8/30/12 3:33	8/30/12 3:44	8/30/12 4:01			Y			
	Total Cap 9		26,704	470	011	366.00	100.00	66.00	3,795										
Cap 10	Sand (3" Min)	51				13.00				9/21/12 21:28	9/21/12 21:31					Y			
C.O. Required Thickness = 6" Target Max Thickness = 12"	Sand (3" Min) Sand (3" Min)	51a 51ac				30.00				9/21/12 21:04	9/21/12 21:15					Y			
C.O. Est. Quantity = 1,070 tons	Sand (3" Min)	52 52a				66.00 58.00				9/21/12 17:27	9/21/12 17:51					Y Y	> 8 9.8	8.0 9.8	Pan 10-1
Est. Design Quantity = 1,660 tons Actual Quantity = 3,465 tons	Sand (3" Min) Sand (3" Min)	52a 53				39.00	42.00			9/21/12 19:57 9/21/12 15:54	9/21/12 20:08 9/21/12 16:15	9/22/12 3:22	9/22/12 3:31			Y	9.8	9.8	Pan 10-2
As-Built Surface Area = 32,304 SF	Sand (3" Min) Sand (3" Min)	53a 54				55.00 26.00	66.00			9/21/12 16:41 9/21/12 14:47	9/21/12 16:54 9/21/12 14:55	0/22/12 2:22	0/22/42 2.50			Y	12.0	12.0	Pan 10-3
	Sand (3 Will) Sand (3" Min)	54 54a				41.00	54.00			9/21/12 14:4/	9/21/12 14:55	9/22/12 2:32 9/22/12 2:58	9/22/12 2:50 9/22/12 3:14			Y	12.0	12.0	Fall 10-3
	Sand (3" Min) Sand (3" Min)	55 55a				32.00 151.00				9/25/12 4:03 9/25/12 2:00	9/25/12 4:22 9/25/12 3:53					Y	5.0 8.5	5.0 8.5	Pan 10-4 Pan 10-5
	Sand (3 Min)	56				151.00				9/23/12 2:00	9/23/12 3:53					Y	6.5	0.5	Faii 10-5
	Sand (3" Min) Sand (3" Min)	56a 57				47.00				9/25/12 6:01	9/25/12 6:14					Y	10.0 10.0	10.0 10.0	Pan 10-6 Pan 10-7
	Sand (3 Will) Sand (3" Min)	58									i					Y	11.0	11.0	Pan 10-7
	Sand (3" Min)	10-mechanical				98.00 91.90				10/4/12	10/4/12					Y	9.0	9.0	Pan QA-10-1
	Sand (3" Min) Sand (3" Min)	10-mechanical 10-mechanical				231.10			-	10/5/12 10/8/12	10/5/12 10/8/12					Y			
	Sand (3" Min)	10-mechanical				4.00				10/12/12	10/12/12					Y			
	Sand (3" Min) Sand (3" Min)	10-mechanical 10-mechanical				9.30 4.80				10/13/12 10/15/12	10/13/12 10/15/12					Y			
	Sand (3" Min)	10-mechanical				136.10				10/17/12	10/17/12					Y			
	Sand (3" Min) Subtotal Sand (3" Min)	10-mechanical	31,596	778	934	142.70 1,275.90	162.00	0	1,438	10/18/12	10/18/12					Y			
	Armor 0.75" (3" Min)	51									1					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	51a 51ac														Y			
	Armor 0.75" (3" Min)	52				23.00				9/24/12 21:07	9/24/12 21:19					Y	3.3	11.3	Pan 10-1
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	52a 53				29.00 26.00				9/24/12 20:26 9/24/12 22:38	9/24/12 20:33 9/24/12 22:50					Y	> 8	17.8	Pan 10-2
	Armor 0.75" (3" Min)	53a				31.00				9/24/12 22:00	9/24/12 22:14					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	54 55									<u> </u>					Y	4.0 3.3	16.0 8.3	Pan 10-3 Pan 10-4
	Armor 0.75" (3" Min)	55a														Y	4.5	13.0	Pan 10-5
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	56 56a									<u> </u>					Y	4.5	14.5	Pan 10-6
	Armor 0.75" (3" Min)	57														Y	5.0	15.0	Pan 10-7
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	58 10-mechanical				17.00				10/25/12	10/26/12					Y	3.5 3.8	14.5 12.8	Pan 10-8 Pan QA-10-1
	Armor 0.75" (3" Min)	10-mechanical				389.10				10/26/12	10/26/12					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	10-mechanical 10-mechanical				612.10 838.90				11/5/12 11/6/12	11/6/12 11/7/12					Y			
	Armor 0.75" (3" Min)	10-mechanical				13.90				11/8/13	11/9/12					Y			
	Armor 0.75" (3" Min) Subtotal Armor .75" (3" Min)	10-mechanical	31,596	556	723	47.40 2,027.40	0	0	2,027	12/4/12	12/4/12					Y			
	Total Cap 10								3,465		l								
Cap 11a C.O. Required Thickness = 6"	Sand (3" Min) Sand (3" Min)	174 175		1												Y	<u> </u>		
Target Max Thickness = 21"	Sand (3" Min)	175a				37.00				9/12/12 13:30	9/12/12 13:35					Y	3.5	3.5	Pan 11-2
Est. Design Quantity = 1,400 tons As-Built Surface Area = 15,854 SF	Sand (3" Min) Sand (3" Min)	176a 177	-	<u> </u>		16.00 31.00		-		9/12/12 14:00 9/12/12 15:41	9/12/12 14:03 9/12/12 15:45					Y			
	Sand (3" Min)	177a	1			28.00				9/12/12 16:06	9/12/12 16:10					Y			
	Sand (3" Min) Sand (3" Min)	178 178a	+	 		33.00 30.00				9/12/12 16:29 9/12/12 18:16	9/12/12 16:34 9/12/12 18:21					Y			
	Sand (3" Min)	179				30.00	58.00			9/12/12 18:52	9/12/12 18:57					Y			
	Sand (3" Min) Sand (3" Min)	179a 180	<u> </u>	 		31.00 42.00	41.00			9/12/12 19:18 9/12/12 22:57	9/12/12 19:23 9/12/12 23:04	9/12/12 22:33	9/12/12 22:50			Y Y	14.5	14.5	Pan 11-5
	Sand (3" Min)	180a				31.00				9/12/12 23:42	9/12/12 23:47					Y			
	Sand (3" Min) Sand (3" Min)	181 181a	-	 		36.00 39.00		-		9/13/12 2:19 9/13/12 2:51	9/13/12 2:25 9/13/12 2:57					Y	3.5	3.5	Pan 11-8
	Sand (3" Min)	182				19.00				9/13/12 3:10	9/13/12 3:31					Y	3.0	3.0	Pan QA-11A-1
	Sand (3" Min) Sand (3" Min)	182a 183	+	 		34.00 29.00				9/13/12 4:37 9/13/12 5:22	9/13/12 4:42 9/13/12 5:27					Y			
	Sand (3" Min)	183a				43.00				9/13/12 5:55	9/13/12 6:02					Y	6.2	6.2	Pan 11-12
	Sand (3" Min) Sand (3" Min)	184 184a		1		32.00 25.00		-		9/13/12 6:31 9/13/12 7:00	9/13/12 6:37 9/13/12 7:05					Y			
	Sand (3" Min)	185				29.00				9/13/12 10:41	9/13/12 10:50					Y			
	Sand (3" Min) Sand (3" Min)	185a 186	+	 		20.00 16.00				9/13/12 12:18 9/13/12 12:49	9/13/12 12:21 9/13/12 12:51					Y			
	Sand (3" Min)	186a				12.00				9/13/12 14:48	9/13/12 14:50					Υ			
	Sand (3" Min) Subtotal Sand (3" Min)	187	15,793	389	467	6.00 649.00	99.00	0	748	9/13/12 15:28	9/13/12 15:29					Y			
1	Filter	174	10,133	555	707	0.000	33.00									Y			

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	dule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter Filter	175 175a														Y Y	>11.5	15.0	Pan 11-2
	Filter	176a														Y	>11.5	13.0	1 011 11-2
	Filter Filter	177 178							-							Y			
	Filter	179														Y Y	6.0	20.5	Pan 11-5
	Filter Filter	180 180a														Y			
	Filter Filter	181 181a														Y	13.0	16.5	Pan 11-8
	Filter	182														Υ	7.0	10.0	Pan QA-11A-1
	Filter Filter	182a 183														Y Y			
	Filter Filter	183a														Y Y	6.0	12.2	Pan 11-12
	Filter	184 184a														Y			
	Filter Filter	185 185a							-							Y Y			
	Filter	186				86.00	60.00			9/26/12 21:21	9/26/12 21:36	9/26/12 22:40				Υ			
	Filter Filter	186a 187				56.00 83.00	39.00		-	9/26/12 21:36 9/26/12 23:06	9/26/12 21:52 9/26/12 23:28	9/26/12 22:57	9/26/12 23:06			Y			
	Filter	187a				167.00				9/26/12 23:29	9/27/12 3:28					Y			
	Filter Filter	188 11a-mechanical				67.00 214.99			_	9/27/12 3:29 12/1/12	9/27/12 3:46 12/2/12					Y			
	Subtotal Filter		15,793	333	436	673.99	99.00	0	773							Y	> 8	23.0	
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	11a-mechanical 11a-mechanical				887.51 153.06			_	11/16/12	11/30/12					Y Y	> 8	29.0 24.5	Pans 11-2 and 11-5 Pan 11-8
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	11a-mechanical				22.62				12/1/12 12/3/12	12/2/12 12/3/12					Y	> 8 14.5	26.7	Pan 11-8 Pan 11-12
	Armor 2.5" (5" Min) Subtotal Armor 2.5" (5" Min)	11a-mechanical	15,793	333	500	279.27 1,342.46	0	0	1,342	12/4/12	12/5/12					Υ	> 11	21.0	Pan QA-11A-1
	Total Cap 11a		10,730	000	000	1,042.40			2,863										
Cap 11b	Sand (3" Min)	174				48.00	36.00	65.00		9/21/12 10:03	9/21/12 10:12	9/25/12 5:56	9/25/12 6:02	9/25/12 10:01	9/25/12 10:10	Y	7.7	7.7	D 44.4
C.O. Required Thickness = 6" Target Max Thickness = 16"	Sand (3" Min) Sand (3" Min)	174a 175				100.00 62.00	127.00			9/25/12 6:02 9/21/12 10:18	9/25/12 6:19 9/21/12 10:28	9/25/12 6:19	9/25/12 6:52			Y	7.7	7.7	Pan 11-1
Est. Design Quantity = 13,600 tons As-Built Surface Area = 171,491 SF	Sand (3" Min) Sand (3" Min)	175a 176a				40.00 60.00	15.00	68.00		9/21/12 10:37 9/21/12 15:29	41173.45 9/21/12 15:40	9/21/12 7:50	9/21/12 7:55	9/21/12 10:37	9/21/12 10:48	Y			
A3-Built Surface Area = 171,431 31	Sand (3" Min)	177				77.00				9/21/12 15:43	9/21/12 15:55	5/21/12 7.50	5/21/12 7.55			Y			
	Sand (3" Min) Sand (3" Min)	177a 178				106.00 109.00			-	9/21/12 22:01 9/21/12 22:12	9/21/12 22:11 9/21/12 22:25					Y	12.0 11.2	12.0 11.2	Pan 11-3 Pan QA-11B-1
	Sand (3" Min)	178a				125.00				9/21/12 22:25	9/21/12 22:45					Y Y	7.8	7.8	Pan 11-4
	Sand (3" Min) Sand (3" Min)	179 179a				110.00 146.00				9/21/12 22:45 9/21/12 23:00	9/21/12 23:00 9/21/12 23:21					Y	10.0	10.0	Pan 11-6
	Sand (3" Min) Sand (3" Min)	180 180a				116.00 139.00			-	9/21/12 23:21 9/21/12 23:38	9/21/12 23:38 9/21/12 23:58					Y	12.0	12.0	Pan 11-7
	Sand (3" Min)	181				161.00				9/22/12 2:52	9/22/12 3:14					Y			
	Sand (3" Min) Sand (3" Min)	181a 182				177.00 313.00	9.00			9/22/12 3:15 9/22/12 5:08	9/22/12 3:40 9/22/12 5:54	9/25/12 8:17 9/25/12 8:19	9/25/12 8:19 9/25/12 8:21			Y	10.0 6.0	10.0 6.0	Pan 11-9 Pan 11-10
	Sand (3" Min)	182a				128.00	9.00			9/22/12 3:15		9/25/12 8:21	9/25/12 8:22			Y	6.5	6.5	Pan 11-11
	Sand (3" Min) Sand (3" Min)	183 183a				256.00 132.00	9.00 9.00			9/22/12 6:28 9/22/12 22:09	9/22/12 6:28 9/22/12 11:30	9/25/12 8:22 9/25/12 8:23	9/25/12 8:23 9/25/12 8:25			Y			
	Sand (3" Min) Sand (3" Min)	184 184a				106.00 21.00	9.00 105.00	7.00		9/22/12 11:37 9/22/12 11:49	9/22/12 11:49 9/22/12 11:56	9/25/12 8:25 9/22/12 12:01	9/27/12 13:44 9/22/12 12:18		9/25/12 8:27	Y Y	8.0 10.0	8.0 10.0	Pan 11-15 Pans 11-13 and 11-14
	Sand (3" Min)	185				91.00	6.00			9/22/12 12:34	9/22/12 12:49				-,,	Υ	6.2	6.2	Pan QA-11B-3
	Sand (3" Min) Sand (3" Min)	185a 186				86.00 85.00				9/22/12 13:02 9/22/12 15:10	9/22/12 13:16 9/22/12 15:24	9/26/12 17:17	9/26/12 17:27			Y	9.5	9.5	Pan 11-17
	Sand (3" Min) Sand (3" Min)	186a 187				100.00 118.00	12.00 5.00			9/22/12 15:33 9/22/12 17:24	9/22/12 15:49 9/22/12 17:44		9/26/12 17:27 9/26/12 17:25			Y Y	4.0 7.0	4.0 7.0	Pan 11-18 Pan QA-11B-2
	Sand (3" Min)	187a				116.00	4.00			9/22/12 17:50	9/22/12 18:11	9/26/12 17:25	9/26/12 17:27			Υ	5.3	5.3	Pans 11-20 and 11-21
	Sand (3" Min) Sand (3" Min)	188 188a				83.00 83.00	4.00 10.00			9/24/12 9:52 9/24/12 10:17	9/24/12 10:06 9/24/12 10:31	9/26/12 17:27 9/26/12 17:29	9/26/12 17:29 9/26/12 17:33			Y Y	7.0	7.0	Pan 11-22
	Sand (3" Min)	189				95.00				9/24/12 10:39	9/24/12 10:50		. ,			Y	3.5	3.5	Pan 11-23
	Sand (3" Min) Sand (3" Min)	189a 190				66.00 71.00				9/24/12 10:50 9/24/12 11:01	9/24/12 11:01 9/24/12 11:12					Y	4.5	4.5	Pan 11-27
	Sand (3" Min) Sand (3" Min)	190a 191				67.00 50.00				9/24/12 11:12 9/24/12 11:23	9/24/12 11:23 9/24/12 11:34					Y Y	7.0 4.0	7.0 4.0	Pan 11-26 Pan 11-29
	Sand (3" Min)	191a				67.00				9/24/12 11:46	9/24/12 11:57					Y			
	Sand (3" Min) Sand (3" Min)	192 192a				70.00 71.00			-	9/24/12 12:20 9/24/12 12:39	9/24/12 12:31 9/24/12 12:50					Y	6.0 6.0	6.0 6.0	Pan 11-30 Pans 11-37 and 11-38
	Sand (3" Min)	193				81.00				9/24/12 12:58	9/24/12 13:11					Y	5.5	5.5	Pan 11-36
	Sand (3" Min) Sand (3" Min)	193a 194				74.00 102.00				9/24/12 13:18 9/24/12 13:35	9/24/12 13:30 9/24/12 13:49					Y	5.0	5.0	Pan 11-41
	Sand (3" Min) Sand (3" Min)	194a 195				77.00 62.00				9/24/12 15:32 9/24/12 16:46	9/24/12 15:45 9/24/12 17:00					Y Y	7.3	7.3	Pans 11-43 and 11-44
	Sand (3" Min)	195a				78.00				9/24/12 17:07	9/24/12 17:20					Y	7.0	7.0	Pan 11-49
	Sand (3" Min) Sand (3" Min)	196 196a				42.00 56.00	73.00			9/24/12 16:43 9/24/12 17:44	9/24/12 16:46 9/24/12 17:54	9/24/12 17:29	9/24/12 17:40			Y	3.0	3.0	Pan 11-48
	Sand (3" Min)	197				58.00				9/24/12 18:33	9/24/12 18:42					Y	3.0	3.0	Pan 11-52
1	Sand (3" Min) Sand (3" Min)	197a 198				56.00 52.00				9/24/12 18:47 9/24/12 19:03						Y	<u> </u>	<u> </u>	

	General Information				Tonnage a	ınd Volumes	from Operat	or Log				Scho	edule			Position		П	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Sand (3" Min)	198a				46.00				9/24/12 19:17	9/24/12 19:25					Y	4.5	4.5	Pan 11-55
	Sand (3" Min) Sand (3" Min)	199 199a			+	100.00 83.00				9/24/12 20:28 9/24/12 20:41	9/24/12 20:41 9/24/12 20:54		-			Y	3.0	3.0	Pan 11-57
	Sand (3" Min)	200				56.00				9/24/12 20:54	9/24/12 21:03					Y	7.5	7.5	Pans 11-58 and QA-11B-4
	Sand (3" Min) Sand (3" Min)	200a 201				74.00 57.00				9/24/12 21:03 9/24/12 21:16	9/24/12 21:16 9/24/12 21:28		ļ			Y	ļ		
	Sand (3 Min) Sand (3" Min)	201 201a				93.00				9/24/12 21:18	9/24/12 21:39					Y	10.5	10.5	Pan 11-60
	Sand (3" Min)	202				69.00	56.00			9/24/12 21:39	9/24/12 21:50	- ' '				Y			
	Sand (3" Min) Sand (3" Min)	202a 203				113.00 61.00	39.00 57.00	60.00		9/24/12 22:26 9/24/12 22:44	9/24/12 22:44 9/24/12 22:54	9/25/12 2:38	+	10/1/12 8:57	10/1/12 9:03	Y	4.0	4.0 4.0	Pan 11-63 Pan 11-64
	Sand (3" Min)	203a				20.00	46.00			9/25/12 2:44	9/25/12 2:48	10/1/12 9:12				Y	4.0	4.0	i an i i o i
	Sand (3" Min)	204				64.00 47.00				10/1/12 9:19	10/1/12 9:29					Y	6.5	6.5	Don 44 65
	Sand (3" Min) Sand (3" Min)	204a 11b-mechanical				275.67				10/1/12 9:29 12/14/12	10/1/12 9:40 12/14/12		<u> </u>			Y	6.5	6.5	Pan 11-65
	Sand (3" Min)	11b-mechanical				90.56				12/15/12	12/15/12					Υ			
	Sand (3" Min) Sand (3" Min)	11b-mechanical 11b-mechanical				83.90 140.65				12/17/12 12/18/12	12/17/12 12/18/12					Y			
	Sand (3" Min)	11b-mechanical				45.00				8/12/13	8/12/13		į			Y			
	Sand (3" Min) Sand (3" Min)	11b-mechanical				59.90 144.20				8/16/13	8/16/13 8/19/13					Y	ļ		
	Sand (3 Min) Sand (3" Min)	11b-mechanical				69.25				8/19/13 8/20/13	8/20/13					Y			
	Sand (3" Min)	11b-mechanical				189.10				8/23/13	8/23/13					Y			
	Sand (3" Min) Subtotal Sand (3" Min)	11b-mechanical	169,399	4,172	5,006	35.55 6,605.78	649.00	200.00	7,455	8/27/13	8/27/13					Y			
	Filter	174	,	.,	-,-30	•	2.2.00		.,							Y	11.0	18.7	Pan 11-1
	Filter Filter	175 175a	_			31.00 29.00	46.00			9/25/12 13:32 9/21/12 8:30	9/25/12 13:42 9/21/12 8:35	9/25/12 13:55	9/25/12 14:09			Y	 		
	Filter	176a				15.00	49.00			9/21/12 8:35	9/21/12 8:39		9/25/12 14:09			Y			
	Filter	177				28.00	58.00			9/21/12 8:39	9/21/12 8:49	9/25/12 14:46	9/25/12 15:02			Y			
	Filter Filter	177a 178			+	77.00 55.00				9/25/12 20:05 9/25/12 20:20	9/25/12 20:19 9/25/12 20:33		i i			Y	> 8 4.0	20.0 15.2	Pan 11-3 Pan QA-11B-1
	Filter	178a				71.00				9/25/12 20:33	9/25/12 20:52		i			Y	9.0	16.8	Pan 11-4
	Filter Filter	179 179a				65.00 64.00				9/25/12 20:53 9/25/12 21:39	9/25/12 21:09 9/25/12 21:56					Y	4.0	14.0	Pan 11-6
	Filter	180				64.00				9/25/12 21:56	9/25/12 22:13					Y	4.0	16.0	Pan 11-7
	Filter	180a				83.00				9/25/12 22:14	9/25/12 22:34					Y			
	Filter Filter	181 181a			+	74.00 90.00				9/25/12 22:34 9/25/12 22:54	9/25/12 22:54 9/26/12 1:23					Y	5.0	15.0	Pan 11-9
	Filter	182				29.00				9/26/12 1:23	9/26/12 1:31					Y	> 13	19.0	Pan 11-10
	Filter Filter	182a 183				60.00 59.00	21.00			9/26/12 4:17 9/26/12 4:32	9/26/12 4:32	11/15/12 14:43	11/15/12 14:48			Y	6.0	12.5	Pan 11-11
	Filter	183a				73.00	14.00			9/26/12 4:47	9/26/12 5:06					Y			
	Filter Filter	184				72.00	22.00			9/26/12 5:06	9/26/12 5:24	11/15/12 15:31	11/15/12 15:38			Y	7.0	15.0	Pan 11-15
	Filter	184a 185				70.00 69.00	21.00 22.00			9/26/12 5:24 9/26/12 16:22	9/26/12 5:42 9/26/12 16:38	11/15/12 15:22 11/15/12 15:15	11/15/12 15:31 11/15/12 15:22			Y	9.1 > 8	19.1 14.2	Pans 11-13 and 11-14 Pan QA-11B-3
	Filter	185a				73.00	19.00			9/26/12 16:50	9/26/12 17:09	11/15/12 15:09	11/15/12 15:15			Y			
	Filter Filter	186 186a			+	24.00 25.00				11/15/12 15:03 11/15/12 14:55	11/15/12 15:09 11/15/12 15:03		<u> </u>			Y	6.0 > 6	15.5 10.0	Pan 11-17 Pan 11-18
	Filter	187				66.00	19.00			9/27/12 11:38	9/27/12 11:56		11/15/12 14:55			Y	4.0	11.0	Pan QA-11B-2
	Filter Filter	187a 188				71.00 61.00				9/27/12 12:13 9/27/12 12:37	9/27/12 12:32 9/27/12 12:49		ļ			Y	5.8	11.0	Pans 11-20 and 11-21
	Filter	188a				47.00	65.00			9/27/12 12:49			10/2/12 0:08			Y	> 8	15.0	Pan 11-22
	Filter	189				50.00	39.00	19.00		9/27/12 13:01	9/27/12 13:14			11/15/12 13:30	11/15/12 13:38	Y	> 6	9.5	Pan 11-23
	Filter Filter	189a 190				19.00 84.00	21.00 26.00			9/27/12 13:14 9/28/12 0:50		11/15/12 13:23 11/15/12 13:14				Y	5.5	10.0	Pan 11-27
	Filter	190a				88.00	26.00			9/28/12 1:13	9/28/12 1:35	11/15/12 13:04	11/15/12 13:14			Y	8.0		Pan 11-26
	Filter Filter	191 191a				82.00 80.00	34.00 32.00	40.00		9/28/12 1:35 9/28/12 1:56	9/28/12 1:56 9/28/12 2:17	11/15/12 12:52 10/1/12 22:36		11/15/12 12:42	11/15/12 11:52	Y	8.0	12.0	Pan 11-29
	Filter	192				72.00	26.00	32.00		9/28/12 2:18	9/28/12 2:36	10/1/12 22:29	10/1/12 22:35	11/15/12 12:31	11/15/12 12:42	Υ	> 8	14.0	Pan 11-30
	Filter Filter	192a 193	1			58.00 73.00	11.00 48.00	26.00		9/28/12 2:36 9/28/12 2:52	9/28/12 2:51 9/28/12 3:10	10/1/12 18:38		10/1/12 22:22	10/1/12 22:29	Y	5.0 6.5	11.0 12.0	Pans 11-37 and 11-38 Pan 11-36
	Filter	193a				59.00	21.00			9/28/12 3:46	9/28/12 4:01	10/1/12 22:04	10/1/12 22:09			Y			
	Filter Filter	194 194a				64.00 73.00	26.00 17.00			9/28/12 3:10 9/28/12 3:26	9/28/12 3:26 9/28/12 3:46	10/1/12 21:57				Y	> 8	13.0	Pan 11-41
	Filter	194a 195				76.00	27.00			9/28/12 3:26 9/28/12 15:29						Y	5.0	12.3	Pans 11-43 and 11-44
	Filter	195a				28.00	47.00			9/28/12 15:44						Y	> 6		Pan 11-49
	Filter Filter	196 196a				83.00 68.00	11.00 25.00	24.00		9/28/12 21:47 9/28/12 22:05	9/28/12 22:04 9/28/12 22:24	10/1/12 18:53		10/1/12 20:47	10/1/12 20:54	Y	5.0	8.0	Pan 11-48
	Filter	197				22.00	12.00			9/28/12 22:25	9/28/12 22:30	10/1/12 20:43	10/1/12 20:47	, ,	., , .= ==:0	Y	10.0	13.0	Pan 11-52
	Filter Filter	197a 198				25.00 18.00	52.00 10.00			9/29/12 4:20 9/29/12 4:28		10/1/12 20:53 10/1/12 11:57			-	Y			
	Filter	198a				16.00	23.00	19.00		9/29/12 4:35	9/29/12 4:42	10/1/12 11:51	10/1/12 11:57		10/1/12 14:55	Y	> 6	10.5	Pan 11-55
	Filter	199				24.00	14.00	0.00		9/29/12 5:48				10/1/12 14:55	10/1/12 14:57	Y	> 6	9.0	Pan 11-57
	Filter Filter	199a 200				22.00 25.00	18.00 13.00	0.00		9/29/12 5:55 9/29/12 6:02	9/29/12 6:01 9/29/12 6:08	10/1/12 11:42 10/1/12 11:39		10/1/12 14:57	10/1/12 15:00	Y	4.0	11.5	Pans 11-58 and QA-11B-4
	Filter	200a				18.00	16.00			9/29/12 6:09	9/29/12 6:15	10/1/12 11:35	10/1/12 11:39			Y			
	Filter Filter	201 201a	1			21.00 29.00	21.00	34.00		9/29/12 6:16 9/29/12 6:24		10/1/12 8:05	10/1/12 8:09	10/1/12 11:32	10/1/12 11:35	Y	4.0	14.5	Pan 11-60
	Filter	202				56.00				10/1/12 10:36	10/1/12 10:46		ļ			Y			
I	Filter	202a				41.00				10/1/12 10:46	10/1/12 10:56		!		<u> </u>	Υ	> 8	12.0	Pan 11-63

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position		ī	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter	203				36.00				10/1/12 10:56	10/1/12 11:06					Y	> 8	12.0	Pan 11-64
	Filter Filter	203a 204				26.00			-	10/1/12 11:06	10/1/12 11:17					Y			
	Filter	204a														Y	> 8	14.5	Pan 11-65
	Filter Filter	11b-mechanical 11b-mechanical				389.54 399.41			-	12/14/12 12/15/12	12/14/12 12/15/12					Y			
	Filter	11b-mechanical				27.56				12/15/12	12/13/12					Y			
	Filter	11b-mechanical				333.33				12/18/12	12/18/12					Y			
	Filter Filter	11b-mechanical				97.30 33.70			-	8/21/13 8/22/13	8/21/13 8/22/13					Y			
	Filter	11b-mechanical				114.20				8/23/13	8/23/13					Υ			
	Filter Filter	11b-mechanical 11b-mechanical				114.20 107.35			-	8/26/13 8/27/13	8/26/13 8/27/13					Y			
	Filter	11b-mechanical				24.30				8/28/13	8/28/13					Y			
	Filter Subtotal Filter	11b-mechanical	169,399	3,576	4,685	134.80 4,756.69	972.00	194.00	5,923	8/30/13	8/30/13					Y			
	Armor 1.0" (3" Min)	174	100,000	0,010	4,000	4,700.00	372.00	104.00	0,020							Y	3.0	21.7	Pan 11-1
	Armor 1.0" (3" Min)	175							_							Y	2.0	22.0	Don 14.2
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	177 178				22.00				11/16/12 12:11	11/16/12 12:20					Y	3.0 7.0	23.0 22.2	Pan 11-3 Pan QA-11B-1
	Armor 1.0" (3" Min)	178a				13.00				11/16/12 12:20	11/16/12 12:27	441.21.	44.54.			Y	3.0	19.8	Pan 11-4
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	179 179a				47.00 33.00	12.00 11.00	-		11/16/12 9:03 11/16/12 9:18	11/16/12 9:18 11/16/12 9:34		7 11/16/12 12:34 1 11/16/12 12:41			Y	4.0	18.0	Pan 11-6
	Armor 1.0" (3" Min)	180				30.00	14.00			11/16/12 9:34	11/16/12 9:51	11/16/12 12:41	1 11/16/12 12:49			Y	7.0	23.0	Pan 11-7
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	180a 181				40.00 31.00	15.00			11/16/12 10:38 11/16/12 10:55	11/16/12 10:55 11/16/12 11:15	11/16/12 12:49	11/16/12 13:01			Y			
	Armor 1.0" (3" Min)	181a				33.00				11/16/12 13:51	11/16/12 14:10					Y	> 8	23.0	Pan 11-9
	Armor 1.0" (3" Min)	182				31.00	21.00		-	11/16/12 14:10		11/16/12 15:05	11/16/12 15:12			Y	> 8	27.0	Pan 11-10
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	182a 183				34.00 23.00			-	11/16/12 15:12 11/16/12 15:30	11/16/12 15:30 11/16/12 15:47					Y	> 8	20.5	Pan 11-11
	Armor 1.0" (3" Min)	183a				37.00				11/16/12 16:51	11/16/12 17:07					Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	184 184a				21.00 46.00	14.00		-	11/17/12 1:40 11/17/12 1:59	11/17/12 1:59 11/17/12 2:25	11/19/12 23:35	11/19/12 23:59			Y	> 8 5.3	23.0 24.3	Pan 11-15 Pans 11-13 and 11-14
	Armor 1.0" (3" Min)	185				54.00				11/17/12 2:25	11/17/12 2:55					Y	4.0	18.2	Pan QA-11B-3
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	185a 186				57.00			-	11/17/12 2:55	11/17/12 3:33					Y	4.0	19.5	Pan 11-17
	Armor 1.0" (3" Min)	186a				31.00				11/19/12 13:41	11/19/12 14:02					Y	4.5	14.5	Pan 11-18
	Armor 1.0" (3" Min)	187				32.00	80.00			11/19/12 14:02	11/19/12 14:19	11/20/12 1:36	11/20/12 2:23			Y	> 8 5.0	19.0	Pan QA-11B-2
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	187a 188				63.00 69.00			1	11/20/12 2:23 11/20/12 3:40	11/20/12 3:07 11/20/12 4:24					Y	5.0	16.0	Pans 11-20 and 11-21
	Armor 1.0" (3" Min)	188a				56.00	15.00			11/20/12 4:24	11/20/12 4:57		11/20/12 6:43			Y	5.0	20.0	Pan 11-22
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	189 189a				47.00 34.00			-	11/20/12 4:57 11/20/12 10:12	11/20/12 5:41 11/20/12 10:31					Y	6.0	15.5	Pan 11-23
	Armor 1.0" (3" Min)	190				29.00				11/20/12 10:31	11/20/12 10:49					Y	4.5	14.5	Pan 11-27
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	190a 191				34.00 28.00	3.00 10.00		-	11/20/12 17:24 11/20/12 17:39	11/20/12 17:39 11/20/12 17:59	11/20/12 22:36				Y	6.0 5.5	21.0 17.5	Pan 11-26 Pan 11-29
	Armor 1.0" (3" Min)	191a				28.00	21.00			11/20/12 17:59	11/20/12 18:15	11/20/12 22:20	11/20/12 22:28			Υ			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	192 192a				18.00 40.00	3.00 12.00		-	11/20/12 18:15 11/20/12 18:42	11/20/12 18:33 11/20/12 19:03					Y	6.5 5.0	20.5 16.0	Pan 11-30 Pans 11-37 and 11-38
	Armor 1.0" (3" Min)	193				45.00	12.00			11/20/12 18:42		11/20/12 21.30	11/20/12 22:04			Y	5.8	17.8	Pan 11-36
	Armor 1.0" (3" Min)	193a 194				65.00 35.00			-	11/21/12 5:30 11/21/12 6:15						Y	6.0	19.0	Pan 11-41
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	194 194a				14.00	19.00			11/21/12 6:15			11/21/12 6:57			Y	0.0	19.0	I CIII I I *** I
	Armor 1.0" (3" Min)	195				54.00				11/20/12 23:08	11/20/12 23:40					Y	6.4	18.7	Pans 11-43 and 11-44
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	195a 196					-	-					 	<u> </u>		Y	> 6 8.0	19.0 16.0	Pan 11-49 Pan 11-48
	Armor 1.0" (3" Min)	197														Y	> 6	19.0	Pan 11-52
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	198 199					1	1					+			Y	6.0 6.0	16.5 15.0	Pan 11-55 Pan 11-57
	Armor 1.0" (3" Min)	200														Y	5.5	17.0	Pans 11-58 and QA-11B-4
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	201 202														Y	> 8 3.5	22.5 15.5	Pan 11-60 Pan 11-63
	Armor 1.0" (3" Min)	203														Y	> 8	20.0	Pan 11-64
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	204 11b-mechanical				22.93				10/23/12	10/23/12		 			Y	> 10	24.5	Pan 11-65
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	11b-mechanical				219.81				10/23/12	10/23/12		<u> </u>			Ϋ́			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	11b-mechanical				123.65 290.53				10/25/12	10/25/12 12/14/12					Y Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	11b-mechanical 11b-mechanical				394.88				12/14/12 12/15/12	12/14/12 12/15/12					Y			
	Armor 1.0" (3" Min)	11b-mechanical				259.20				12/18/12	12/18/12					Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	11b-mechanical 11b-mechanical				164.80 116.05	1	1		8/19/13 8/21/13	8/19/13 8/21/13					Y	1	1	
	Armor 1.0" (3" Min)	11b-mechanical				95.45				8/22/13	8/22/13					Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	11b-mechanical 11b-mechanical				176.05 275.20				8/23/13 8/26/13	8/23/13 8/26/13					Y			
	Armor 1.0" (3" Min)	11b-mechanical				292.05				8/27/13	8/27/13					Y			
	Armor 1.0" (3" Min)	11b-mechanical				80.50 58.00			-	8/28/13	8/28/13			-		Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	11b-mechanical 11b-mechanical				59.95				8/29/13 8/30/13	8/29/13 8/30/13		 	<u> </u>		Y	<u> </u>	<u> </u>	
	Armor 1.0" (3" Min)	11b-mechanical				175.95				9/3/13						Y			

	General Information				Tonnage	and Volumes	from Operat	or Log				Scho	edule			Position		1	Thickness
Cap Area No.	Material	Lane ID	Surface Area	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 1.0" (3" Min) Subtotal Armor 1.0" (3" Min)	11b-mechanical	169,399	2,980	3,874	129.20 4,208.20	250.00	0	4,458	9/5/13	9/5/13					Y			
	Total Cap 11b		100,000	2,000	0,011	1,200.20	200.00		17,836							V	2.5	3.5	
Cap 11c	Sand (3" Min)	11c-mechanical				582.48				12/5/12	12/7/02			 		Y Y Y	3.5 8.0 7.0 6.5	8.0 7.0 6.5	Pans 11-16, 11-19, 11-24, and 11-25
C.O. Required Thickness = 6" Target Max Thickness = 21" Est. Design Quantity = 5,820 tons	Sand (3" Min)	11c-mechanical				209.90				12/9/12	12/10/12			i 		Y Y Y	6.0 3.5 4.0 4.8	6.0 3.5 4.0 4.8	Pans 11-28, 11-31, 11-32, and 11-33
As-Built Surface Area = 70,943 SF	Sand (3" Min)	11c-mechanical				273.53			_	12/11/12	12/13/12			 		Y Y Y	4.0 4.5 4.2 8.0	4.0 4.5 4.2 8.0	Pans 11-34, 11-35, 11-39, and 11-40
	Sand (3" Min)	11c-mechanical				109.00				12/14/12	12/14/12			! ! !		Y Y Y	5.5 6.5 7.0	5.5 6.5 7.0	Pans 11-42, 11-45, and 11-46
	Sand (3" Min)	11c-mechanical				93.94				12/16/12	12/16/12			! ! !		Y Y Y	5.5 9.0 5.0	5.5 9.0 5.0	Pans 11-47, 11-50, and 11-51
	Sand (3" Min)	11c-mechanical				131.00				12/17/12	12/17/12			! ! !		Y Y Y	7.5 5.0 5.0	7.5 5.0 5.0	Pans 11-53, 11-54, and 11-56
	Sand (3" Min)	11c-mechanical				75.00				8/14/13	8/14/13			i I J		Y Y Y	3.0 5.5 3.5	3.0 5.5 3.5	Pans 11-59, 11-61, and 11-62
	Sand (3" Min)	11c-mechanical				54.30				8/15/13	8/15/13			! ! !		Y Y Y	5.0 3.5 4.0	5.0 3.5 4.0	Pans 11-66, 11-67, and QA-11C-1
	Sand (3" Min)	11c-mechanical				52.40			1.500	8/21/13	8/21/13			i ! !		Y Y Y	9.2 4.0 3.5	9.2 4.0 3.5	Pans QA-11C-2, QA-11C-3, and QA-11C-4
	Subtotal Sand (3" Min)		71,232	1,754	2,105	1,581.55	0	0	1,582		/- /			<u> </u>		Y	> 6	9.5	
	Filter	11c-mechanical				530.00			-	12/7/12				i !		Y Y Y	5.5 > 6 7.5	13.5 13.0 14.0	Pans 11-16, 11-19, and 11-24
	Filter	11c-mechanical				323.60			-	12/10/12				<u> </u> 		Y Y Y	5.0 3.0 8.0	11.0 6.5 12.0	Pans 11-25, 11-28, and 11-31
	Filter	11c-mechanical				397.04			-	12/12/12				i		Y Y Y	5.0 3.5 3.5	9.8 7.5 8.0	Pans 11-32, 11-33, and 11-34
	Filter	11c-mechanical				293.17			4	12/13/12] [Y Y	> 6 > 6 > 6	10.2 14.0 11.5	Pans 11-35, 11-39, and 11-40
	Filter	11c-mechanical				159.66			-	12/14/12				<u>i</u>		Y Y	> 6 > 6	12.5 13.0	Pans 11-42 and 11-45
	Filter	11c-mechanical		1		76.56			-	12/15/12	+	l		! !		Y Y	6.0	11.5 15.0	Pans 11-46 and 11-47
	Filter	11c-mechanical				156.44			-	12/17/12				<u> </u>		Y Y	> 6 6.5	11.0 14.0	Pans 11-50 and 11-51
	Filter	11c-mechanical		-		196.48			-	12/18/12	+			<u>i</u>		Y Y	> 6 > 6	11.0 11.0	Pans 11-53 and 11-54
	Filter	11c-mechanical				31.80			-	8/15/13	+			i 1		Y V	> 6 > 8	9.0 13.5	Pans 11-56 and 11-59
	Filter	11c-mechanical				30.00			_	8/20/13	8/20/13			<u> </u>		Y	> 6 > 6 9.2	9.5 14.2	Pans 11-61 and 11-62
	Filter	11c-mechanical				116.05			_	8/21/13				<u> </u>		Y Y	> 6	9.5	Pans 11-66 and 11-67
	Filter	11c-mechanical				20.00			_	8/27/13	8/27/13					Y	4.0 > 6	8.0 15.2	Pans QA-11C-1 and QA-11C-2
	Filter	11c-mechanical		ļ		35.60				9/3/13	9/3/13			į		Y Y	6.0 > 6	10.0 9.5	Pans QA-11C-3 and QA-11C-4
	Subtotal Filter		71,232	1,054	1,381	2,366.40	0	0	2,366					<u>.</u> I		Y	> 6	15.5	
	Armor 2.5" (5" Min)	11c-mechanical				917.78			-	12/9/12				 		Y Y Y	> 6 > 6 8.0	19.5 19.0 22.0	Pans 11-16, 11-19, and 11-24
	Armor 2.5" (5" Min)	11c-mechanical				325.69				12/12/12				! ! ! !		Y Y Y	5.0 6.2 6.5	16.0 12.7 18.5	Pans 11-25, 11-28, and 11-31
	Armor 2.5" (5" Min)	11c-mechanical				615.32				12/14/12				! !		Y Y Y	7.0 7.5 7.5	16.8 15.0 15.5	Pans 11-32, 11-33, and 11-34
	Armor 2.5" (5" Min)	11c-mechanical				274.00				12/17/12				! ! !		Y Y Y	> 6 6.0 10.0	16.2 20.0 21.5	Pans 11-35, 11-39, and 11-40
	Armor 2.5" (5" Min)	11c-mechanical				107.70				12/18/12	12/18/12			i I I		Y Y Y	> 6 5.5 > 6	18.5 18.5 17.5	Pans 11-42, 11-45, and 11-46
	Armor 2.5" (5" Min)	11c-mechanical				67.40			-	8/21/13				! ! !		Y Y Y	11.0 5.5 > 6	26.0 16.5 20.0	Pans 11-47, 11-50, and 11-51
	Armor 2.5" (5" Min)	11c-mechanical		1		82.30			-	8/29/13				<u>i</u>		Y	> 6 6.0	17.0 17.0	Pans 11-53 and 11-54
	Armor 2.5" (5" Min)	11c-mechanical		ļ		114.15			-	8/30/13	+			<u>i</u>		Y Y	> 8 > 8	17.0 17.0 21.5	Pans 11-56 and 11-59
	Armor 2.5" (5" Min)	11c-mechanical		<u> </u>		108.55				9/3/13				<u>į</u>		Y Y	8.0 6.0	17.5	Pans 11-61 and 11-62
	Armor 2.5" (5" Min)	11c-mechanical	1	ļ		280.80				9/4/13				! !		Y Y	6.0	20.2 15.5	Pans 11-66 and 11-67
	Armor 2.5" (5" Min)	11c-mechanical		_		162.75				9/5/13	9/5/13			<u> </u>		Y Y	5.5 6.0	13.5 21.2	Pans QA-11C-1 and QA-11C-2

	General Information				Tonnage	and Volumes	from Operat	or Log				Sch	edule			Position		Ţ	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 2.5" (5" Min)	11c-mechanical				59.90				9/27/13	9/27/13			<u> </u>		Y Y	> 8 > 6	18.0 15.5	Pans QA-11C-3 and QA-11C-4
	Subtotal Armor 2.5" (5" Min)		71,232	1,554	2,331	3,116.34	0	0	3,116 7,064										
C.O. Est. Quantity = 8,580 tons	Total Cap 11c								7,064										
Actual Total Quantity ⁶ = 27,763 tons (Caps 11A, 11B, & 11C)	Total Cap 11								27,763					i I					
Cap 12	Sand (6" Min)	12-mechanical												i.					
C.O. Required Thickness = 12"	Subtotal Sand (6" Min)	10 1 1	8,558	301	361	0	0	0	0										
Target Max Thickness = 24" C.O. Est. Quantity =1,220 tons	Filter Subtotal Filter	12-mechanical	8,558	181	237	0	0	0	0										
Est. Design Quantity = 2,333 tons Actual Quantity ⁶ = 757 tons As-Built Surface Area = 6,877 SF	Armor 10.0" (12" Min)	12-mechanical				756.50				7/24/12	9/19/12			 		Y	24.0 >24.3 24.0 24.0 >25.0 24.0	24.0 >24.3 24.0 24.0 >25.0 24.0	Manual verification at locations 12-1, 12-2, 12-3, 12 4, 12-5, and QA-12-1, respectively. Tonnage defined on Ullage Logs.
	Subtotal Armor 10.0" (12" Min)		8,558	1,084	1,734	756.50	0	0	757								24.0	27.0	
C 12-	Total Cap 12	20							757					i I					
Cap 13a C.O. Required Thickness = 12"	Sand (6" Min) Sand (6" Min)	90 91							-					<u>i</u>		Y			
Target Max Thickness = 19"	Sand (6" Min)	92												 		Y	8.0	8.0	Pans 13-14 and 13-15
Est. Design Quantity = 11,400 tons As-Built Surface Area: 129,608 SF	Sand (6" Min) Sand (6" Min)	93 94							-					<u> </u> 		Y	9.8 6.0	9.8 6.0	Pans 13-16 and 13-23 Pan 13-18
AS Built Surface Area. 125,000 Si	Sand (6" Min)	95														Y	6.8	6.8	Pans 13-22 and QA-13-2
	Sand (6" Min) Sand (6" Min)	96 97							-					<u> </u> 		Y	10.2 8.7	10.2 8.7	Pans 13-24 Pans 13-19, 13-20, and 13-26
	Sand (6" Min)	98														Y	7.0	7.0	Pans 13-28
	Sand (6" Min) Sand (6" Min)	99 100							-					l i		Y	7.7 6.8	7.7 6.8	Pans 13-21, 13-27, and QA-13-3 Pans 13-29 and 13-37
	Sand (6" Min)	111	5,500	102	123											Y	6.8	6.8	Pans 13-38 and 13-68
	Sand (6" Min)	112	5,799	107	130	130.00	115.00			8/11/12 16:40	8/11/12 17:10					Y	6.7	6.7	Pans 13-39 and 13-40 Pans 13-41 and 13-65
	Sand (6" Min) Sand (6" Min)	113 114	6,085 6,224	113 115	136 139	212.00 63.00	132.00 210.00	183.00	-	8/13/12 6:07 7/31/12 7:47	8/13/12 17:16 7/31/12 8:54	8/13/12 17:3 7/31/12 8:5		8/13/12 19:20	8/13/12 19:47	Y	10.5 6.4	10.5 6.4	Pans 13-41 and 13-65 Pans 13-42, 13-63, 13-64, 13-66, and 13-67
	Sand (6" Min)	115	6,265	193	234	265.00	175.00			7/30/12 19:46	7/30/12 20:23	7/31/12 6:5				Y	7.0	7.0	Pans 13-43, 13-44, and 13-46
	Sand (6" Min) Sand (6" Min)	116 117	6,226 6,075	192 188	233 227	24.00 38.00	267.00 176.00		-	7/25/12 16:05 7/25/12 14:59	7/25/12 16:41 7/25/12 15:50	7/26/12 16:3 7/27/12 16:3		i		Y	7.6 7.5	7.6 7.5	Pans 13-45, 13-47, 13-48, 13-49, and 13-50 Pans 13-51, 13-52, 13-53, 13-54, 13-55, and 13-56
	Sand (6" Min)	118	5,726	177	214	13.00	19.00	167.00		7/25/12 13:22	7/25/12 13:40	7/25/12 13:4	4 7/25/12 14:31	7/27/12 17:09	7/27/12 17:27	Y	7.7	7.7	Pans 13-57, 13-58, and 13-59
	Sand (6" Min) Sand (6" Min)	119 120	5,055 4,152	156 128	189 155	152.00 207.00	160.00		-	7/30/12 7:55 7/30/12 18:47	7/30/12 8:12 7/30/12 19:12	7/30/12 18:0	9 7/30/12 18:28	! !		Y	6.0 > 8	6.0 8.0	Pan 13-60 Pan 13-61
	Sand (6" Min)	121	3,031	94	113					, , , ,	, ,					Y	6.0	6.0	Pans 13-69 and QA-13-4
	Sand (6" Min) Sand (6" Min)	122 122a	1,628 1,666	50 51	61 62				-					! 		Y	7.5	7.5	Pans 13-62 and 13-70
	Sand (6" Min)	13a-mechanical	,			218.85				10/22/12				! !		Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical 13a-mechanical				42.57 63.37			-	10/23/12 10/24/12	10/23/12 10/24/12			! !		Y			
	Sand (6" Min)	13a-mechanical				146.64				10/25/12	10/25/12					Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical 13a-mechanical				28.42 168.71			-	11/5/12 11/6/12				! !		Y	<u> </u>		
	Sand (6" Min)	13a-mechanical				97.63				11/10/12	11/10/12			İ		Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical 13a-mechanical				71.64 123.74			-	11/13/12 11/14/12	11/13/12 11/14/12					Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical				214.86 13.03				11/15/12	11/15/12 11/16/12					Y Y			
	Sand (6" Min)	13a-mechanical 13a-mechanical				574.50				11/16/12 11/19/12	11/19/12			<u> </u> 		Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical 13a-mechanical				230.51 270.80	ļ <u> </u>			11/26/12 11/27/12	11/26/12 11/27/12] !		Y Y	ļ		
	Sand (6" Min)	13a-mechanical				107.86				11/2//12	11/27/12			<u> </u>		Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical 13a-mechanical				343.80 71.69	<u> </u>			11/29/12 11/30/12	11/29/12 11/30/12			! !	<u> </u>	Y Y			
	Sand (6" Min)	13a-mechanical				117.18				12/2/12	12/2/12			<u> </u> 		Y			
	Sand (6" Min) Sand (6" Min)	13a-mechanical				66.37 23.38				12/9/12	12/9/12 8/27/13					Y			
	Sand (6" Min)	13a-mechanical				125.45				8/27/13 9/6/13	9/6/13			l Į		Y			
	Sand (6" Min)	13a-mechanical				31.80 15.00				9/9/13 9/10/13	9/9/13					Y			
	Sand (6" Min) Subtotal Sand (6" Min)	13a-mechanical	123,253	4,337	5,204	4,271.80	1,254.00	350.00	5,876	9/10/13	9/10/13			İ		Y			
	Filter Filter	90 91														Y Y			
	Filter	92												<u> </u>		Y	5.6	13.6	Pans 13-14 and 13-15
	Filter Filter	93 94														Y Y	5.1 5.0	14.9 11.0	Pans 13-16 and 13-23 Pan 13-18
	Filter	95												<u> </u>		Y	7.1	13.9	Pans 13-18 Pans 13-22 and QA-13-2
	Filter Filter	96 97														Y Y	> 6 5.3	16.2 14.0	Pans 13-24
	Filter Filter	98												<u> </u>		Y	5.3 > 9	14.0 16.0	Pans 13-19, 13-20, and 13-26 Pans 13-28
	Filter	99												<u> </u>		Y	4.8	12.5	Pans 13-21, 13-27, and QA-13-3
Ī	Filter Filter	100 111	5,500	102	133	-		1	-				+	1 1		Y	5.0 5.2	11.8 11.9	Pans 13-29 and 13-37 Pans 13-38 and 13-68

	General Information				Tonnage	and Volume	s from Operat	tor Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter	112	5,799	107	141											Y	5.4	12.1	Pans 13-39 and 13-40
	Filter	113	6,085	113	148	171.00				8/15/12 6:42	8/15/12 7:18					Υ	3.0	13.5	Pans 13-41 and 13-65
	Filter	114	6,224	115	151	150.00										Y	7.5	13.9	Pans 13-42, 13-63, 13-64, 13-66, and 13-67
	Filter	115	6,265	116	152	74.00	78.00	88.00	_	7/31/12 17:45	7/31/12 18:08		7/31/12 18:52	8/1/12 6:56		Y	2.7	9.7	Pans 13-43, 13-44, and 13-46
	Filter	116	6,226	115	151	76.00	80.00	91.00		7/31/12 19:14	7/31/12 19:38	7/31/12 19:57		8/1/12 7:43	8/1/12 8:09	Y	3.8	11.3	Pans 13-45, 13-47, 13-48, 13-49, and 13-50
	Filter Filter	117	6,075 5,726	113	147 139	131.00	96.00 114.00	-	_	8/1/12 8:48 8/2/12 9:01	8/1/12 9:19 8/2/12 9:26	8/1/12 9:46 8/2/12 10:00				Y	4.7 6.3	12.2 14.0	Pans 13-51, 13-52, 13-53, 13-54, 13-55, and 13-56 Pans 13-57, 13-58, and 13-59
	Filter	118 119	5,055	106 94	123	106.00 92.00	92.00	43.00		8/7/12 11:36	8/7/12 11:59	8/7/12 14:38		8/8/12 13:40	8/8/12 13:48	Y	7.0	13.0	Pan 13-60
	Filter	120	4,152	77	101	85.00	76.00	10.00	-	8/6/12 12:19	8/6/12 12:38	8/6/12 12:54		0/0/12 15:40	0/0/12 13.40	Y	3.5	11.5	Pan 13-61
	Filter	121	3,031	56	74					0/0/12 12:13	0/0/12 12:50	0,0,12 12.0	0/0/12 15:11			Y	6.5	12.5	Pans 13-69 and QA-13-4
	Filter	122	1,628	30	39											Υ	6.0	13.5	Pans 13-62 and 13-70
	Filter	122a	1,666	31	40											Y			
	Filter	13a-mechanical				125.55				10/22/12	10/22/12					Y			
	Filter	13a-mechanical				23.22				10/23/12	10/23/12					Y		<u> </u>	
	Filter	13a-mechanical		1		108.46		1	_	10/25/12	10/25/12					Y		1	
	Filter	13a-mechanical		-		49.19	-	-	_	11/6/12	11/6/12					Y		-	
	Filter Filter	13a-mechanical 13a-mechanical		+	 	153.51 33.77	1	+		11/12/12 11/13/12	11/12/12 11/13/12				1	Y	 	+	
	Filter	13a-mechanical		1	1	102.60		1		11/13/12	11/13/12					Y	 	<u> </u>	
	Filter	13a-mechanical				151.61				11/16/12	11/16/12					Y			
	Filter	13a-mechanical				253.05				11/19/12	11/19/12					Y			
	Filter	13a-mechanical			<u> </u>	200.46				11/26/12	11/26/12				ļ	Y		<u> </u>	
	Filter	13a-mechanical		1	 	255.21	1	1		11/27/12	11/28/12					Y		_	
	Filter Filter	13a-mechanical 13a-mechanical	-	1	 	85.74 438.47	-	-		11/28/12 11/29/12	11/18/12 11/29/12				 	Y	 	 	
	Filter	13a-mechanical				56.53		+		12/1/12	12/1/12					Y			
	Filter	13a-mechanical				77.40				12/3/12	12/3/12					Y			
	Filter	13a-mechanical				85.20				9/6/13	9/6/13					Υ			
	Filter	13a-mechanical				114.25				9/9/13	9/9/13					Y			
	Filter	13a-mechanical				33.70				9/10/13	9/10/13					Y			
	Filter	13a-mechanical				40.55		1	_	9/13/13	9/13/13					Y			
	Filter Filter	13a-mechanical 13a-mechanical				22.50 31.80		+	-	9/16/13 9/17/13	9/16/13 9/17/13					Y			
	Filter	13a-mechanical				5.60			-	9/18/13	9/18/13					Y			
	Subtotal Filter		123,253	2,602	3,409	3,333.37	536.00	222.00	4,091	5, 25, 25	5, 5, 5								
	Armor 1.0" (3" Min)	90														Υ			
	Armor 1.0" (3" Min)	91							-							Y	0.0	40.0	D 40 44 40 45
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	92 93						+	-							Y	6.0 6.0	19.6 20.9	Pans 13-14 and 13-15 Pans 13-16 and 13-23
	Armor 1.0" (3" Min)	94		1			1		-							Y	> 6	17.0	Pan 13-18
	Armor 1.0" (3" Min)	95														Υ	6.0	19.9	Pans 13-22 and QA-13-2
	Armor 1.0" (3" Min)	96														Υ	5.5	21.7	Pans 13-24
	Armor 1.0" (3" Min)	97							_							Y	6.8	20.8	Pans 13-19, 13-20, and 13-26
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	98 99		-				-	-							Y	> 6 5.6	22.0 18.1	Pans 13-28 Pans 13-21, 13-27, and QA-13-3
	Armor 1.0" (3" Min)	100						+	-							Y	7.3	19.0	Pans 13-29 and 13-37
	Armor 1.0" (3" Min)	111														Y	7.0	18.9	Pans 13-38 and 13-68
	Armor 1.0" (3" Min)	112	5,799	107	141											Υ	5.3	17.4	Pans 13-39 and 13-40
	Armor 1.0" (3" Min)	113	6,085	113	148											Y	8.5		Pans 13-41 and 13-65
	Armor 1.0" (3" Min)	114	6,224	96	125	173.00		1	_	8/16/12 7:30						Y	5.7	19.6	Pans 13-42, 13-63, 13-64, 13-66, and 13-67
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	115 116	6,265 6,226	97 96	126 125	92.00 76.00	83.00	+	-	8/16/12 8:40 8/4/12 11:40	8/16/12 9:22 8/4/12 12:11	8/6/12 10:49	8/6/12 11:20			Y	4.6 5.4	14.3 16.7	Pans 13-43, 13-44, and 13-46 Pans 13-45, 13-47, 13-48, 13-49, and 13-50
	Armor 1.0" (3" Min)	117	6,075	94	122	76.00	92.00		-	8/4/12 11:40	8/4/12 10:03	8/4/12 10:34				Y	6.5	18.6	Pans 13-51, 13-52, 13-53, 13-54, 13-55, and 13-56
	Armor 1.0" (3" Min)	118	5,726	88	115	71.00	39.00			8/8/12 14:13	8/8/12 14:48				<u> </u>	Y	6.8	20.8	Pans 13-57, 13-58, and 13-59
	Armor 1.0" (3" Min)	119	5,055	78	101									-		Υ	> 14	27.0	Pan 13-60
	Armor 1.0" (3" Min)	120	4,152	64	83			1								Y	3.5	15.0	Pan 13-61
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	121 122	3,031 1,628	47 25	61 33		1	+		 			 		-	Y	7.0 7.0	19.5 20.5	Pans 13-69 and QA-13-4 Pans 13-62 and 13-70
	Armor 1.0" (3" Min)	122 122a	1,666	26	33		+	+							 	Y	7.0	20.0	. a 10 02 and 10-70
	Armor 1.0" (3" Min)	13a-mechanical	,	1 -	1	27.26	1	1		10/19/12	10/19/12					Y			
	Armor 1.0" (3" Min)	13a-mechanical				40.24				10/20/12	10/20/12					Y			
	Armor 1.0" (3" Min)	13a-mechanical				103.02				10/23/12	10/23/12					Y			
	Armor 1.0" (3" Min)	13a-mechanical	-	1		65.29	-	-		10/26/12	10/26/12				1	Y	.	1	
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical		+	1	119.68 3.29	+	+	-	11/13/12 11/14/12	11/13/12 11/14/12		+		1	Y	 	1	
	Armor 1.0" (3" Min)	13a-mechanical		1	1	97.68		†		11/15/12	11/15/12				1	Y	1	1	
	Armor 1.0" (3" Min)	13a-mechanical				105.50				11/16/12	11/16/12					Y			
	Armor 1.0" (3" Min)	13a-mechanical				10.81				11/17/12	11/17/12					Y			
		13a-mechanical		1		254.26	-	-		11/20/12	11/20/12				1	Y	.	1	
	Armor 1.0" (3" Min)					103.99	1	1	4	11/26/12	11/26/12 11/27/12		+		1	Υ	I		I
	Armor 1.0" (3" Min)	13a-mechanical		1		122 71				11/77/17						V			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical				123.71 167.99			-	11/27/12 11/28/12						Y			
	Armor 1.0" (3" Min)	13a-mechanical				123.71 167.99 194.59				11/27/12 11/28/12 11/29/12	11/28/12 11/28/12 11/29/12					Y Y Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical 13a-mechanical				167.99			_	11/28/12	11/28/12					Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical				167.99 194.59 162.10 24.22				11/28/12 11/29/12 11/30/12 12/1/12	11/28/12 11/29/12 11/30/12 12/1/12					Y Y Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical				167.99 194.59 162.10 24.22 24.96				11/28/12 11/29/12 11/30/12 12/1/12 12/2/12	11/28/12 11/29/12 11/30/12 12/1/12 12/2/12					Y Y Y Y Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical				167.99 194.59 162.10 24.22 24.96 48.76				11/28/12 11/29/12 11/30/12 12/1/12 12/2/12 12/3/12	11/28/12 11/29/12 11/30/12 12/1/12 12/2/12 12/3/12					Y Y Y Y Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical 13a-mechanical				167.99 194.59 162.10 24.22 24.96				11/28/12 11/29/12 11/30/12 12/1/12 12/2/12	11/28/12 11/29/12 11/30/12 12/1/12 12/2/12					Y Y Y Y Y			

	General Information				Tonnage	and Volumes	s from Operat	or Log				Sched	dule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 1.0" (3" Min)	13a-mechanical				155.40	Flaceu	riaceu	Area	9/12/13	9/12/13		j			Y			
	Armor 1.0" (3" Min)	13a-mechanical				96.80				9/13/13	9/13/13		<u> </u>			Y			
	Armor 1.0" (3" Min)	13a-mechanical				44.90				9/16/13	9/16/13					Y			
	Armor 1.0" (3" Min) Armor 1.0" (3" Min)	13a-mechanical 13a-mechanical				108.60 59.90				9/17/13 9/18/13	9/17/13 9/18/13		+			Y			
	Subtotal Armor 1.0" (3" Min)		123,253	2,168	2,818	3,197.45	214.00	0	3,411				Î						
Co. 12h	Total Cap 13a	401 1 1				040.07			13,379	40/20/42	40/20/40		i			٧	7.5	7.5	D 40.4 140.0
Cap 13b	Sand (6" Min)	13b-mechanical				310.07				10/23/12	10/23/12		<u>į</u>				6.5 6.0	6.5 6.0	Pans 13-1 and 13-2
C.O. Required Thickness = 12"	Sand (6" Min)	13b-mechanical				611.26				10/24/12	10/24/12		ĺ			Y	9.0	9.0	Pans 13-3 and 13-4
Target Max Thickness = 24"	Sand (6" Min)	13b-mechanical				192.11				11/5/12	11/5/12		į			Υ	7.0 6.5	7.0 6.5	Pans 13-5 and 13-6
Est. Design Quantity = 5,740 tons	Sand (6" Min)	13b-mechanical				245.90				11/6/12	11/6/12		į			Υ	7.5 7.0	7.5 7.0	Pans 13-7 and 13-8
As-Built Surface Area = 58,193 SF	Sand (6" Min)	13b-mechanical				312.77				11/13/12	11/13/12		i			Y	6.0 6.8	6.0 6.8	Pans 13-9 and 13-10
	Sand (6" Min)	13b-mechanical				100.56				11/14/12	11/14/12		į			Υ	7.0	7.0	Pans 13-11 and 13-12
	Sand (6" Min)	13b-mechanical				240.42				11/15/12	11/15/12		i			Y	6.0 6.0	6.0 6.0	Pan 13-13
	Sand (6" Min)	13b-mechanical				205.02				11/16/12	11/16/12		i			Y	6.0	6.0	Pan 13-17
	Sand (6" Min) Subtotal Sand (6" Min)	13b-mechanical	56,138	1,955	2,346	245.54 2,463.65	0	0	2,464	11/19/12	11/19/12					Y	6.0	6.0	Pan QA-13-1
	Filter	13b-mechanical	- 5,.00	.,000	_,5.0	370.44			_,	10/24/12	10/24/12					Y	> 6	13.5	Pans 13-1 and 13-2
	Filter	13b-mechanical				72.82				10/25/12	10/25/12		į			Y	> 6 4.0	12.5 10.0	Pans 13-3 and 13-4
								-					<u></u>				4.5 6.0	13.5 13.0	
	Filter	13b-mechanical				98.58				10/26/12	10/26/12		<u>i</u>			Y	> 6 9.0	12.5 16.5	Pans 13-5 and 13-6
	Filter	13b-mechanical				142.27				11/6/12	11/6/12		i			Y	5.0	12.0	Pans 13-7 and 13-8
	Filter	13b-mechanical				206.61				11/12/12	11/12/12		į			Υ	> 6 > 6	12.0 12.8	Pans 13-9 and 13-10
	Filter	13b-mechanical				96.54				11/13/12	11/13/12		i			Y	> 6	13.0	Pans 13-11
	Filter Filter	13b-mechanical 13b-mechanical				139.98 308.59				11/14/12 11/16/12	11/14/12 11/16/12					Y	> 6 > 6	12.0 12.0	Pan 13-12 Pan 13-13
	Filter	13b-mechanical				202.32				11/19/12	11/19/12		ŀ			Y	> 6	12.0	Pan 13-17
	Filter Subtotal Filter	13b-mechanical	56,138	1,185	1,552	43.98 1,682.13	0	0	1,682	11/20/12	11/20/12		<u> </u>			Y	> 6	12.0	Pan QA-13-1
	Armor 2.5" (5" Min)	13b-mechanical	30,130	1,103	1,332	320.33	•		1,002	10/24/12	10/24/12		i			Y	7.0	20.5	Pans 13-1 and 13-2
													<u> </u>			· Y	> 6 6.0	18.5 16.0	
	Armor 2.5" (5" Min)	13b-mechanical				441.11				10/25/12	10/25/12		<u> </u>			·	> 6 6.0	19.5 19.0	Pans 13-3 and 13-4
	Armor 2.5" (5" Min)	13b-mechanical				138.73				10/26/12	10/26/12		<u> </u>			Y	> 6	18.5	Pans 13-5 and 13-6
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	13b-mechanical 13b-mechanical				510.54 99.46				11/12/12 11/13/12	11/12/12 11/13/12		<u></u>			Y Y	> 6 > 6	22.5 18.0	Pan 13-7 Pan 13-8
	Armor 2.5" (5" Min)	13b-mechanical				285.88				11/14/12	11/14/12					Y	> 6	18.0	Pan 13-9
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	13b-mechanical 13b-mechanical				77.48 15.32				11/15/12 11/16/12	11/15/12 11/16/12					Y	> 6 12.0	18.8 25.0	Pan 13-10 Pan 13-11
	Armor 2.5" (5" Min)	13b-mechanical				597.69				11/17/12	11/17/12		İ			Y	6.0	18.0	Pan 13-12
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	13b-mechanical 13b-mechanical				324.66 65.00				11/20/12 9/25/13	11/20/12 9/25/13		<u></u>			Y Y	> 6 > 6	18.0 18.0	Pan 13-13 Pan 13-17
	Armor 2.5" (5" Min)	13b-mechanical				71.20				9/26/13			į			Y	> 6		Pan QA-13-1
	Subtotal Armor 2.5" (5" Min)		56,138	1,225	1,838	2,947.40	0	0	2,947 7,093				į						
C.O. Est. Quantity = 12,000 tons Actual Total Quantity ⁶ = 20,472 tons	Total Cap 13b Total Cap 13								20,472										
(Caps 13A & 13B)	Cond (C! M:-)	40														V	7.0	7.0	Page 14 4 and 14 4 INT
Cap 14 C.O. Required Thickness = 12"	Sand (6" Min) Sand (6" Min)	40 40a	+	1				-								Y	7.0 7.3	7.0 7.3	Pans 14-4 and 14-4 INT Pans 14-2, 14-5, 14-5 INT
Target Max Thickness = 15"	Sand (6" Min)	40a				40.00	178.00	107.00		9/4/12 8:59	9/4/12 9:08	9/4/12 20:56	9/4/12 22:02	9/7/12 9:18	9/7/12 14:06	Y	6.5	6.5	Pans 14-1, 14-1 INT
C.O. Est. Quantity =2,760 tons	Sand (6" Min)	41				94.00	149.00	97.00		9/4/12 9:30	9/4/12 9:38	9/5/12 2:44	9/5/12 3:22	9/7/12 10:12	9/7/12 10:12	Y	12.5	12.5	Pans 14-3, 14-3 INT
Est. Design Quantity = 2,650 tons Actual Quantity = 5,305 tons	Sand (6" Min) Sand (6" Min)	41a 42	1	1		105.00 113.00	125.00 119.00	245.00 125.00		9/4/12 9:45 9/4/12 10:22	9/4/12 10:06 9/4/12 10:41	9/5/12 4:52 9/5/12 5:58	9/5/12 5:13 9/5/12 6:22	9/6/12 21:10 9/6/12 21:29		Y Y	10.9	10.9	Pans 14-7, 14-8, 14-8 INT
As-Built Surface Area: 53,975 SF	Sand (6" Min)	42 42a				130.00	133.00	61.00		9/4/12 10:22	9/4/12 10:41	9/5/12 5:58	9/5/12 6:22	9/6/12 21:29		Y	8.0		Pans 14-7, 14-8, 14-8 INT Pans 14-6 and 14-6 INT
	Sand (6" Min)	43				141.00	135.00	65.00		9/4/12 11:38	9/4/12 12:03	9/5/12 12:35		9/6/12 22:16	9/6/12 22:36	Y	8.0	8.0	Pans 14-9 and 14-9 INT
	Sand (6" Min) Sand (6" Min)	43a 44	+	-		102.00 145.00	237.00 113.00	73.00 73.00		9/4/12 14:25 9/4/12 14:58	9/4/12 14:44 9/4/12 15:22	9/5/12 15:31 9/5/12 16:51	9/5/12 16:12 9/5/12 17:35	9/6/12 22:41 9/6/12 23:09	9/6/12 23:01 9/6/12 23:25	Y Y	12.5	12.5	Pan QA-14-1
	Sand (6" Min)	44a				130.00	11.00	. 5.00		9/6/12 3:43	9/6/12 5:24	9/6/12 23:39	9/6/12 23:44	5, 5, 12 25.05	5, 5, 12 25.25	Υ			
	Sand (6" Min) Sand (6" Min)	45 45a				79.00 44.00	9.00 12.00			9/6/12 6:00 9/6/12 6:54	9/6/12 6:14 9/6/12 7:07	9/6/12 23:49 9/7/12 0:14	9/6/12 23:53 9/7/12 0:17			Y	14.5	14.5	Pans 14-10, 14-10 INT
1	Sand (6" Min)	45a 45aa			<u> </u>	73.00	8.00			9/6/12 6:35	9/6/12 6:48		9/7/12 0:05			Y			
	O = = + (O!! M !=)	45ab				84.00	12.00			9/6/12 8:28	9/6/12 8:44	9/7/12 2:43	9/7/12 2:49			Y			
	Sand (6" Min)	45-			1	10.00	1	1		9/6/12 9:15	9/6/12 9:22		<u> </u>			Υ		1	<u> </u>
	Sand (6" Min) Sand (6" Min) Sand (6" Min)	45ac 46				137.00				9/4/12 15:36	9/4/12 15:59		I.			Υ			
	Sand (6" Min) Sand (6" Min) Sand (6" Min)		16		4==:	55.00	10/:	046.55	0.500	9/4/12 15:36 9/4/12 16:10	9/4/12 15:59 9/4/12 16:22		 			Y			
	Sand (6" Min) Sand (6" Min)	46	40,757	1,434	1,721		1,241.00	846.00	3,569								7.0	14.0	Pans 14-4, 14-4 INT
	Sand (6" Min) Sand (6" Min) Sand (6" Min) Sand (6" Min) Subtotal Sand (6" Min) Armor 0.75" (3" Min) Armor 0.75" (3" Min)	46 46a 40 40a	40,757	1,434	1,721	55.00 1,482.00 41.00	76.00	24.00	3,569	9/4/12 16:10	9/4/12 16:22 9/12/12 4:38	9/14/12 16:32		9/14/12 18:41		Y Y Y	10.0	17.3	Pans 14-2, 14-5, 14-5 INT
	Sand (6" Min) Sand (6" Min) Sand (6" Min) Sand (6" Min) Subtotal Sand (6" Min) Armor 0.75" (3" Min)	46 46a 40	40,757	1,434	1,721	55.00 1,482.00			3,569	9/4/12 16:10	9/4/12 16:22	9/14/12 16:32	9/14/12 17:02 9/14/12 18:32 9/14/12 20:46	9/14/12 18:41 9/14/12 19:02 9/15/12 4:42	9/14/12 19:09	Y			

Married Marr	Actual Actual Actual Tonnage Pass 1 - Start Pass 1 - End Date/ Pass 2 - Start Pass 2 - End Date/ Pass 3 - Start Pass 3 - End Date/ V	
Ame BY CY Part Co.	Tonnage Tonnage Tonnage Placed in Cap Date/ Time Time Date/ Time Time Date/ Time Date/ Time	nd measurements Total Cumulative Thickness Verification Location Per Lane
Amp 2 of Column C	55.00 64.00 7.00 9/12/12 8:12 9/12/12 8:33 9/14/12 21:34 9/14/12 21:59 9/15/12 5:13 9/15/12 5:20	8.8 19.7 Pans 14-7, 14-8, 14-8 INT
Amp 177 77 35		
March 27 17 16 16 17 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 17 18 18		5.0 13.0 Pans 14-9, 14-9 INT
According 1998 Acco	52.00 16.00 88.00 9/12/12 19:52 9/12/12 20:14 9/13/12 2:11 9/13/12 2:15 9/17/12 17:34 9/17/12 17:50	3.0 15.5 Pan QA-14-1
April 1975 1980		4.8 19.3 Pans 14-10, 14-10 INT
Application Application		4.8 19.3 Pans 14-10, 14-10 INT
### APPLICATE PERMIT AND APPLICATION OF THE APPLICA	47.00 9/12/12 23:13 9/12/12 23:34	
### CASE PER VICE 64,75 17 522 189 2,000 189 1	3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3	
Cap 15		
Cap 15 Cap 15 Cap 16 Cap 16 Cap 16 Cap 17 Cap 16 Cap 17 Cap 16 Cap 17 Cap 16 Cap 17 Cap 16 Cap 18	257.20 12/11/12 12/11/12	
Cap 15 Sead 9 Min		
Content Property Content Con		
Tagget for finderses 12 15 15 15 15 15 15 15		6.5 6.5 Pan 15-1
Secret Files Secret Files Files Secret Files Files Secret Files Secret Files Secret Files Secret Files Files Secret Files Secret Files Secret Files Secret Files Files Secret Files Files Secret Files Files Secret Files Files Secret Files Files Secret Files Files Files Secr		5.0
Marie State Mari		
Sect of Value Section Se		9.5 9.5 Pan 15-3
Send of Value Send of Valu		
Sand (8' Me) 50		
Sand (# Mn) 5-56 17-70 9-800 97-50 9-7-50		7.8 7.8 Pan 15-5
Sour (of Mar) So		
Sand (F Min) 57		
Sand (6" Mn) S8	45.00 98.00 9/18/12 14:52 9/18/12 15:02 9/19/12 10:12 9/19/12 10:30	0.5 0.5 Don 45.0
Sand (6" Min) 15-mechanical 403.80 89.20 103/12 103/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 104/12 1		
Sand (P Min) 15-mechanical See 20	403.80 10/3/12 10/3/12	14.0 QA-15-1
Sand (6" Min) 15-mechanical		Tonnage defined on ullage logs
Sand (6* Min) 15-mechanical 170.70 15.00 10.11/12 10.1		
Sand (8*Min) 15-mechanical 16.00 16.00 19.01 14.01	111 111	
Subtotal Sand (6* Min) 28,457 1,001 1,201 1,401.90 713.00 539.00 2,654		
Amon 0.75° (27 Me) 51a 2.000 33.00 \$720/12.02.2 \$9/20/12.02.4 \$9/20/12.12.2 \$9/20/12.12.8 \$9/20/12.1		
Armor 0.75° (3° Min) 51ac 33.00 28.00 9/20/12 2057 9/20/12 2058 9/20/12		
Armor 0.75' (3' Min) 52 13.00 31.00 9/20/12 1956 9/20/12 1955 9/20/12 1957 Y 5.5 1		9.5 16.0 Pan 15-1
Amor 0.75° (3° Min) 53		5.5 13.0 Pan 15-2
Armor 0.75° (3° Min) 53a		3.2 12.7 Pan 15-3
Armor 0.75° (3° Min) 54 32.00 36.00 9/20/12 1:48 9/20/12 13:45 9/20/12 1		
Armor 0.75° (3° Min) 55		6.8 14.8 Pan 15-4
Armor 0.75° (3° Min) 55a 33.00 9/19/12 23:49 41172.00417 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 22:24 9/19/12 23:03 9/19/12 22:24 9/19/12 23:03 9/19/12 22:24 9/19/12 23:03 9/19/12 22:24 9/19/12 23:03 9/19/12 22:24 9/19/12 23:03 9		12.0 19.8 Pan 15-5
Armor 0.75° (3° Min) 56 56 56.00 55.00 56.00 57 71.50 71.	3, 3, 3, 3, 3, 3, 3	
Armor 0.75" (3" Min) 57		
Armor 0.75" (3" Min)	56.00 9/19/12 22:42 9/19/12 23:03	
Armor 0.75" (3" Min) 15-mechanical 18.90 11/5/12 11/6/		
Armor 0.75" (3" Min) 15-mechanical 238.20 11/6/12 11/7/12 1 11/9/12 1 1/9/1	18.90	6.5 17.5 QA-15-1
Armor 0.75" (3" Min) 15-mechanical 455.80 11/8/12 11/9/12 1 11/9/1		Tonnage defined on ullage logs
Armor 0.75" (3" Min) 15-mechanical 711.50 12/4/12 12/4/12 12/4/12 Subtotal Armor 0.75" (3" Min) 28,457 501 651 1,920.20 200.00 0 2,120		
Subtotal Armor 0.75" (3" Min) 28,457 501 651 1,920.20 200.00 0 2,120	84.80 11/28/12 11/29/12	
Cap 17 Sand (6" Min) 176 72.00 46.00 9/12/12 15:11 9/12/12 15:23 9/12/12 15:23 9/12/12 15:33 Y 6.0 6		6.0 6.0 Pan 17-1
C.O. Required Thickness = 12" Sand (6" Min) 176a 35.00 9/12/12 14:10 9/12/12 14:22 Y	35.00 9/12/12 14:10 9/12/12 14:22	
Target Max Thickness = 24" Sand (6" Min) 177 31.00 9/12/12 15:45 9/12/12 15:55 Y		
C.O. Est. Quantity = 9,030 tons Sand (6" Min) 177a 53.00 9/12/12 16:10 9/12/12 16:22 Y 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12.5		12.5 12.5 Pan 17-2
As-Built Surface Area: 137,996 SF Sand (6* Min) 179 52.00 54.00 9/12/12 18:57 9/12/12 23:52 9/12/12		15.5 15.5 Pan QA-17-1
Sand (6" Min) 179a 53.00 106.00 9/12/12 19:23 9/12/12 19:36 9/12/12 22:33 9/12/12 22:30 Y Sand (6" Min) 180 75.00 9/12/12 23:04 9/12/12 23:07 Y		
		6.0 6.0 Pan 17-4
Sand (6" Min) 181 59.00 9/13/12 2:25 9/13/12 2:34 Y		
Sand (6" Min) 181a 68.00 9/13/12 2:57 9/13/12 3:09 Y Sand (6" Min) 182 129.00 9/13/12 3:10 9/13/12 3:31 Y 6.0 6		6.0 6.0 Pan 17-5
Sand (6 Win) 182 129.00 9/13/12 3.10 9/13/12 4.51 7 0.0 0		0.0 0.0 1 0.11 0
Sand (6" Min) 183 60.00 9/13/12 5:27 9/13/12 5:37 Y	60.00 9/13/12 5:27 9/13/12 5:37	
Sand (6" Min) 184 65.00 9/13/12 6:37 9/13/12 6:48 Y 10.0 10 Sand (6" Min) 184a 69.00 9/13/12 7:05 9/13/12 7:05 9/13/12 7:18 Y 10.0 10		10.0 10.0 Pall 17-1
	100.00 9/13/12 10:50 9/13/12 12:03	

	General Information				Tonnage a	nd Volumes	from Operat	or Log				Sche	dule			Position		T	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Sand (6" Min)	185a				78.00				9/13/12 12:21	9/13/12 12:38					Υ	19.0	19.0	Pan 17-8
	Sand (6" Min) Sand (6" Min)	186 186a			+	102.00 102.00				9/13/12 12:51 9/13/12 14:50	9/13/12 14:40 9/13/12 15:10		1			Y	10.5	10.5	Pan 17-9
	Sand (6" Min)	187				98.00				9/13/12 15:29	9/13/12 15:49					Y			
	Sand (6" Min) Sand (6" Min)	187a 188			+	113.00 141.00				9/13/12 15:56 9/13/12 16:14	9/13/12 16:14 9/13/12 16:37		1			Y	11.0	11.0	Pan 17-10
	Sand (6" Min)	188a				149.00				9/13/12 16:37	9/13/12 17:10					Y	9.5	9.5	Pan 17-11, 17-12
	Sand (6" Min) Sand (6" Min)	189 189a				121.00 147.00				9/13/12 17:22 9/13/12 17:49	9/13/12 17:45 9/13/12 18:12		ŀ			Y	10.0 12.0	10.0 12.0	Pan QA-17-4 Pan 17-13
	Sand (6" Min)	190				129.00				9/13/12 18:13	9/13/12 18:36					Y			
	Sand (6" Min) Sand (6" Min)	190a 191		-		159.00 148.00				9/13/12 18:48 9/13/12 20:46	9/13/12 19:18 9/13/12 21:13					Y	7.0	7.0	Pan 17-14
	Sand (6" Min)	191a				148.00				9/13/12 21:17	9/13/12 21:52					Y	11.0	11.0	Pan 17-15
	Sand (6" Min) Sand (6" Min)	192 192a				156.00 149.00				9/13/12 22:08 9/13/12 22:51	9/13/12 22:36 9/13/12 23:18		I			Y	9.5 11.8	9.5 11.8	Pan QA-17-2 Pan 17-17
	Sand (6" Min)	193				152.00				9/13/12 23:39	9/13/12 23:56					Y	10.5	10.5	Pan 17-16
	Sand (6" Min)	193a				149.00				9/14/12 0:13	9/14/12 0:39					Y	6.5	6.5	Pan 17-18
	Sand (6" Min) Sand (6" Min)	194 194a				145.00 151.00				9/14/12 0:52 9/14/12 1:54	9/14/12 1:15 9/14/12 2:19					Y Y	10.0	10.0	Pan 17-19
	Sand (6" Min)	195				160.00	109.00			9/14/12 2:40	9/14/12 3:06					Y		2.2	D 47 00 47 04
	Sand (6" Min) Sand (6" Min)	195a 196	1	1	+	150.00 139.00	109.00 123.00			9/14/12 3:31 9/14/12 4:12	9/14/12 3:55 9/14/12 4:36	9/19/12 0:57 9/19/12 0:38	9/19/12 1:14 9/19/12 0:57			Y Y	6.9	6.9	Pan 17-20, 17-21
	Sand (6" Min)	196a				130.00	104.00			9/14/12 4:53	9/14/12 5:16	9/19/12 0:23	9/19/12 0:37			Y	7.5	7.5	Pan 17-22
	Sand (6" Min) Sand (6" Min)	197 197a	-	1		141.00	136.00 146.00			9/14/12 5:29 9/14/12 6:15	9/14/12 5:53 9/14/12 6:38	9/19/12 0:00 9/18/12 23:40				Y	6.0	6.0	Pan 17-23
	Sand (6" Min)	198				108.00	110.00			9/14/12 14:24	9/14/12 14:41	3/10/12 25:10	3/10/12 23:33			Y	0.0	0.0	an n 20
	Sand (6" Min) Sand (6" Min)	198a 199				138.00 104.00				9/14/12 14:41 9/14/12 15:03	9/14/12 15:03 9/14/12 15:23					Y Y	9.4	9.4	Pan 17-24, 17-25
	Sand (6" Min)	199 199a				67.00				9/14/12 15:31	9/14/12 15:25					Y			
	Sand (6" Min)	200				154.00				9/14/12 16:13	9/14/12 16:33					Y	7.8	7.8	Pan 17-27, QA-17-3
	Sand (6" Min) Sand (6" Min)	200a 201				99.00 112.00				9/14/12 16:33 9/14/12 16:49	9/14/12 16:49 9/14/12 17:06					Y	7.5	7.5	Pan 17-26
	Sand (6" Min)	201a				83.00				9/14/12 17:06	9/14/12 17:23					Y			
	Sand (6" Min) Sand (6" Min)	202 202a				72.00 77.00				9/14/12 18:33 9/14/12 18:55	9/14/12 18:48 9/14/12 19:11					Y	6.0 6.0	6.0 6.0	Pan 17-28 Pan 17-29
	Sand (6" Min)	203				68.00				9/14/12 19:19	9/14/12 19:34					Υ			
	Sand (6" Min) Sand (6" Min)	203a 204				111.00 117.00				9/14/12 20:36 9/14/12 21:17	9/14/12 20:18 9/14/12 21:35					Y	12.0 8.5	12.0 8.5	Pan 17-30 Pan 17-31
	Sand (6" Min)	204a				71.00				9/14/12 21:35	9/14/12 21:48		i			Y			
	Subtotal Sand (6" Min) Filter	176	133,285	4,690	5,628	5,988.00 33.00	933.00 16.00	0	6,921	9/17/12 16:36	9/17/12 16:45	9/17/12 16:45	9/17/12 16:54			Y	9.0	15.0	Pan 17-1
	Filter	176a				15.00				9/17/12 16:21	9/17/12 16:31		, ,			Υ			
	Filter Filter	177 177a				23.00 30.00	47.00			9/17/12 15:57 9/17/12 15:22	9/17/12 16:08 9/17/12 15:36	9/21/12 7:17	9/21/12 6:59			Y			
	Filter	178				29.00	32.00			9/17/12 15:02	9/17/12 15:15	9/21/12 6:50	9/21/12 6:59			Υ	10.5	23.0	Pan 17-2
	Filter Filter	178a 179				35.00 33.00	38.00 60.00			9/17/12 14:36	9/17/12 14:51	9/21/12 6:40	9/21/12 6:50			Y	10.0	24.0	Pan 17-3
	Filter			1		00.00							9/21/12 6:40			V	10.0		Pan ΩΔ-17-1
	Filter	179a				38.00	30.00			9/17/12 14:14 9/17/12 13:52	9/17/12 14:28 9/17/12 14:08	9/21/12 6:25 9/21/12 6:18	9/21/12 6:40 9/21/12 6:25			Y Y	8.5	24.0	Pan QA-17-1
	Filter	180				36.00	27.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52	9/21/12 6:25 9/21/12 6:10			Y Y	8.5	24.0	
	Filter Filter									9/17/12 14:14 9/17/12 13:52	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52	9/21/12 6:25 9/21/12 6:10 9/21/01 6:10			Y		24.0	Pan QA-17-1 Pan 17-4
	Filter Filter	180 180a 181 181a				36.00 44.00 29.00 69.00	27.00 68.00 35.00 36.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:08 9/17/12 12:42 9/17/12 11:44	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/17/12 12:30	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33	9/21/12 6:25 9/21/12 6:10 9/21/01 6:10 9/21/12 5:52 9/21/12 5:43			Y Y Y Y	6.0	12.0	Pan 17-4
	Filter Filter Filter Filter	180 180a 181 181a 182 182				36.00 44.00 29.00 69.00 25.00 33.00	27.00 68.00 35.00 36.00 36.00 16.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:08 9/17/12 12:42 9/17/12 11:44 9/15/12 7:10 9/15/12 7:01	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/17/12 12:30 9/15/12 7:16 9/15/12 7:10	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25	9/21/12 6:25 9/21/12 6:10 9/21/01 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25			Y Y Y Y Y Y	8.5	24.0	
	Filter Filter Filter Filter Filter Filter	180 180a 181 181a 182 182 182a 183				36.00 44.00 29.00 69.00 25.00 33.00 46.00	27.00 68.00 35.00 36.00 36.00 16.00 18.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:08 9/17/12 12:42 9/17/12 11:44 9/15/12 7:10 9/15/12 7:01	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/17/12 12:30 9/15/12 7:10 9/15/12 7:01	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:20	9/21/12 6:25 9/21/12 6:10 9/21/01 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25			Y Y Y Y Y Y Y	6.0	24.0 12.0 11.5	Pan 17-4 Pan 17-5
	Filter Filter Filter Filter Filter Filter Filter Filter Filter	180 180a 181 181a 182 182				36.00 44.00 29.00 69.00 25.00 33.00	27.00 68.00 35.00 36.00 36.00 16.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:08 9/17/12 12:42 9/17/12 11:44 9/15/12 7:10 9/15/12 7:01	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/17/12 12:30 9/15/12 7:16 9/15/12 7:01 9/15/12 7:01 9/15/12 6:49 9/15/12 6:26	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:15 9/21/12 5:06 9/21/12 5:06	9/21/12 6:25 9/21/12 6:10 9/21/10 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:25 9/21/12 5:20 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	6.0	24.0 12.0 11.5	Pan 17-4
	Filter Filter Filter Filter Filter Filter Filter Filter Filter	180 180a 181 181a 182 182a 183 183a 184				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00	27.00 68.00 35.00 36.00 36.00 16.00 18.00 21.00 24.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:38 9/17/12 12:42 9/17/12 12:42 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:38 9/15/12 6:17 9/15/12 5:51	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:45 9/17/12 12:54 9/17/12 12:54 9/15/12 7:16 9/15/12 7:10 9/15/12 6:49 9/15/12 6:26 9/15/12 6:26	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:43 9/21/12 5:25 9/21/12 5:20 9/21/12 5:00 9/21/12 5:00 9/21/12 4:54	9/21/12 6:25 9/21/12 6:10 9/21/16 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:15 9/21/12 5:15 9/21/12 5:06 9/21/12 5:00			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	6.0 5.5	24.0 12.0 11.5	Pan 17-4 Pan 17-5 Pan 17-6
	Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter	180 180a 181 181a 182a 182a 183 183a 184 184a 185a				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00	27.00 68.00 35.00 36.00 16.00 18.00 36.00 21.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:38 9/17/12 12:42 9/17/12 11:44 9/15/12 7:10 9/15/12 7:01 9/15/12 6:49 9/15/12 6:38	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/15/12 7:10 9/15/12 7:10 9/15/12 7:10 9/15/12 6:26 9/15/12 6:26 9/15/12 6:01 9/15/12 6:01 9/15/12 5:36	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:06 9/21/12 5:06 9/21/12 5:00 9/21/12 4:44 9/21/12 4:44	9/21/12 6:25 9/21/12 6:10 9/21/16 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:00 9/21/12 5:00 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	6.0 5.5	24.0 12.0 11.5	Pan 17-4 Pan 17-5 Pan 17-6
	Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter	180 180a 181 181a 182 182a 183a 183a 184 184a 185 185a 186				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 80.00	27.00 68.00 35.00 36.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:08 9/17/12 12:42 9/17/12 11:44 9/15/12 7:10 9/15/12 7:01 9/15/12 6:49 9/15/12 6:38 9/15/12 6:17 9/15/12 5:21 9/15/12 3:51	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:45 9/17/12 12:54 9/17/12 12:54 9/15/12 7:10 9/15/12 7:10 9/15/12 7:01 9/15/12 6:04 9/15/12 6:04 9/15/12 6:04 9/15/12 6:04 9/15/12 6:04	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:06 9/21/12 5:06 9/21/12 4:44 9/21/12 4:44 9/21/12 4:44 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/10 6:10 9/21/12 5:52 9/21/12 5:53 9/21/12 5:25 9/21/12 5:20 9/21/12 5:20 9/21/12 5:06 9/21/12 5:00 9/21/12 5:00 9/21/12 4:44 9/21/12 4:47			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5	24.0 12.0 11.5 15.5 14.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8
	Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter Filter	180 180a 181 181a 182a 182a 183 183a 184 184a 185a				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00	27.00 68.00 35.00 36.00 16.00 18.00 36.00 21.00 24.00 29.00 18.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:52 9/17/12 13:33 9/17/12 11:44 9/15/12 7:01 9/15/12 7:01 9/15/12 6:49 9/15/12 6:38 9/15/12 6:51 9/15/12 6:51 9/15/12 6:41	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/15/12 7:10 9/15/12 7:10 9/15/12 7:10 9/15/12 6:26 9/15/12 6:26 9/15/12 6:01 9/15/12 6:01 9/15/12 5:36	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:06 9/21/12 5:06 9/21/12 4:44 9/21/12 4:44 9/21/12 4:44 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/10 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06 9/21/12 4:47 9/21/12 4:47 9/21/12 4:44			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5	24.0 12.0 11.5 15.5 14.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7
	Filter Filter	180 180a 181 181a 181a 182a 182a 183a 183a 1844 1849 185 185a 186a 187				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 51.00 60.00 68.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 13.00 12.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:32 9/17/12 13:08 9/17/12 13:08 9/17/12 11:44 9/15/12 7:01 9/15/12 7:01 9/15/12 6:38 9/15/12 6:38 9/15/12 6:31 9/15/12 3:12 9/15/12 3:12 9/15/12 3:12 9/15/12 3:12 9/15/12 3:32 9/15/12 3:32	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:54 9/17/12 12:30 9/15/12 7:10 9/15/12 7:10 9/15/12 6:01 9/15/12 6:01 9/15/12 6:01 9/15/12 4:12 9/15/12 4:12 9/15/12 4:12 9/15/12 2:54 9/15/12 2:54	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:53 9/21/12 5:33 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06 9/21/12 5:06 9/21/12 4:44 9/21/12 4:44 9/21/12 4:43 9/21/12 4:43 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/10 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06 9/21/12 4:47 9/21/12 4:47 9/21/12 4:44			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5	24.0 12.0 11.5 15.5 14.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8
	Filter Filter	180 180a 181 181a 182 182a 183 183a 184a 184a 185 185a 186 186a 187				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 51.00 60.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 13.00 12.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:08 9/17/12 13:08 9/17/12 11:44 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:49 9/15/12 5:51 9/15/12 5:51 9/15/12 3:51 9/15/12 3:51 9/15/12 3:12	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:54 9/17/12 12:54 9/17/12 12:30 9/15/12 7:10 9/15/12 7:10 9/15/12 7:01 9/15/12 6:04 9/15/12 6:05 9/15/12 6:05 9/15/12 6:04 9/15/12 5:36 9/15/12 3:27 9/15/12 3:27 9/15/12 3:27 9/15/12 3:27 9/15/12 3:24 9/15/12 3:24 9/15/12 3:24	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:53 9/21/12 5:33 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06 9/21/12 5:06 9/21/12 4:44 9/21/12 4:44 9/21/12 4:43 9/21/12 4:43 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/10 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06 9/21/12 4:47 9/21/12 4:47 9/21/12 4:44			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5 > 8	24.0 12.0 11.5 15.5 14.5 27.0 18.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8 Pan 17-9
	Filter Filter	180 180a 181 181a 182 182a 183 183a 184 184a 185 185a 186a 186a 187 187a 188 188a 189				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 60.00 68.00 78.00 75.00 82.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 13.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:32 9/17/12 13:38 9/17/12 13:34 9/17/12 11:44 9/15/12 11:44 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:49 9/15/12 6:35 9/15/12 6:34 9/15/12 3:51 9/15/12 3:51 9/15/12 3:32 9/15/12 3:34 9/15/12 2:37 9/15/12 2:37 9/15/12 2:37 9/15/12 2:37 9/15/12 2:37	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 13:25 9/17/12 12:30 9/15/12 7:16 9/15/12 7:10 9/15/12 6:26 9/15/12 6:01 9/15/12 6:01 9/15/12 4:12 9/15/12 4:12 9/15/12 2:44 9/17/12 2:55 9/17/12 2:45	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:35 9/21/12 5:25 9/21/12 5:20 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:43 9/21/12 4:39 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:25 9/21/12 5:20 9/21/12 5:20 9/21/12 5:06 9/21/12 5:00 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 7.0 4.5 >8 8.0 8.0 6.3 >8	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan QA-17-4
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184a 185 185a 186a 187 187a 188a				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 68.00 78.00 75.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 13.00 12.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:31 9/17/12 13:38 9/17/12 13:38 9/17/12 12:42 9/17/12 11:44 9/15/12 7:01 9/15/12 7:01 9/15/12 6:38 9/15/12 6:38 9/15/12 6:39 9/15/12 5:21 9/15/12 4:34 9/15/12 3:51 9/15/12 3:12 9/15/12 13:69 9/17/12 21:35	9/17/12 14:28 9/17/12 14:08 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:30 9/15/12 7:10 9/15/12 7:10 9/15/12 7:10 9/15/12 6:01 9/15/12 6:01 9/15/12 6:01 9/15/12 4:12 9/15/12 4:12 9/15/12 2:54 9/15/12 2:54 9/15/12 2:14 9/17/12 21:09 9/17/12 21:09	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:35 9/21/12 5:25 9/21/12 5:20 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:43 9/21/12 4:39 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/10 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:33 9/21/12 5:25 9/21/12 5:20 9/21/12 5:15 9/21/12 5:06 9/21/12 4:47 9/21/12 4:47 9/21/12 4:44			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5 > 8 8.0 8.0 6.3	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-7 Pan 17-9 Pan 17-10 Pan 17-11, 17-12
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184 185 185 186a 187 187 1878 188 1889 1890 1900				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 68.00 75.00 82.00 77.00 100.00 124.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 13.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:32 9/17/12 13:38 9/17/12 13:38 9/17/12 11:44 9/17/12 11:44 9/15/12 11:44 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:49 9/15/12 6:37 9/15/12 6:37 9/15/12 6:31 9/15/12 3:51 9/15/12 3:51 9/15/12 3:12 9/15/12 1:36 9/17/12 10:48 9/17/12 10:48 9/17/12 10:48 9/17/12 10:48 9/17/12 10:48 9/17/12 10:48 9/17/12 10:48 9/18/12 10:49 9/18/12 10:49 9/18/12 10:49 9/18/12 10:49	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:30 9/15/12 7:16 9/15/12 7:16 9/15/12 7:10 9/15/12 6:26 9/15/12 6:26 9/15/12 6:36 9/15/12 4:42 9/15/12 4:12 9/15/12 2:44 9/15/12 2:54 9/15/12 2:10 9/17/12 2:54 9/17/12 2:41 9/17/12 2:54 9/17/12 2:45 9/18/12 2:05 9/18/12 2:05 9/18/12 2:05	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:35 9/21/12 5:25 9/21/12 5:20 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:43 9/21/12 4:39 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:43 9/21/12 5:25 9/21/12 5:20 9/21/12 5:20 9/21/12 5:06 9/21/12 5:00 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 7.0 4.5 >8 8.0 8.0 6.3 >8	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan QA-17-4
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184a 185 185a 186a 187 187a 188a 188a 189 190 190				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 60.00 68.00 75.00 82.00 77.00 100.00 124.00 109.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:33 9/17/12 13:34 9/17/12 13:38 9/17/12 11:44 9/15/12 11:44 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:49 9/15/12 6:38 9/15/12 6:38 9/15/12 5:51 9/15/12 3:51 9/15/12 3:51 9/15/12 3:34 9/15/12 2:37 9/15/12 13:6 9/17/12 22:19 9/18/12 13:52 9/18/12 13:52 9/18/12 13:52 9/18/12 5:20 9/18/12 5:20 9/18/12 5:20	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:36 9/17/12 13:25 9/17/12 13:25 9/17/12 13:30 9/15/12 7:16 9/15/12 7:16 9/15/12 6:49 9/15/12 6:49 9/15/12 6:60 9/15/12 6:60 9/15/12 4:48 9/15/12 4:42 9/15/12 2:44 9/17/12 21:55 9/17/12 2:41 9/18/12 2:09 9/18/12 2:54 9/18/12 2:55 9/18/12 2:54	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:00 9/21/12 5:00 9/21/12 4:45 9/21/12 4:43 9/21/12 4:39 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:20 9/21/12 5:00 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:39 9/21/12 4:39 9/21/12 4:35			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 7.0 4.5 >8 8.0 8.0 4.0	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0 11.0	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-7 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan QA-17-4 Pan 17-13 Pan 17-14
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184 185 185 186 186a 187 187a 188 188a 189 189a 190 190a 191 191a				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 51.00 60.00 68.00 78.00 75.00 82.00 77.00 100.00 124.00 112.00 127.00	27.00 68.00 35.00 36.00 36.00 16.00 18.00 21.00 24.00 29.00 13.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:52 9/17/12 13:33 9/17/12 13:08 9/17/12 11:44 9/15/12 7:01 9/15/12 7:01 9/15/12 6:39 9/15/12 6:38 9/15/12 6:39 9/15/12 5:51 9/15/12 5:51 9/15/12 3:72 9/15/12 3:72 9/15/12 3:12 9/15/12 13:69 9/17/12 20:48 9/17/12 21:35 9/17/12 21:35 9/17/12 21:35 9/18/12 1:44 9/18/12 5:00 9/18/12 1:44	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:46 9/17/12 13:25 9/17/12 12:30 9/15/12 7:10 9/15/12 7:10 9/15/12 7:10 9/15/12 6:26 9/15/12 6:26 9/15/12 6:01 9/15/12 5:36 9/15/12 4:48 9/15/12 4:48 9/15/12 4:12 9/15/12 2:24 9/15/12 2:54 9/15/12 2:54 9/17/12 21:09 9/17/12 21:09 9/17/12 21:05 9/18/12 2:41 9/18/12 6:52 9/18/12 6:52 9/18/12 6:52 9/18/12 9:18 9/18/12 0:15	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:20 9/21/12 5:06 9/21/12 5:06 9/21/12 5:00 9/21/12 4:47 9/21/12 4:47 9/21/12 4:43 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 10/10/12 2:56 10/10/12 22:56	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:06 9/21/12 5:06 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35 9/21/12 4:35 9/18/12 3:32 9/18/12 3:32			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5 >8 8.0 8.0 6.3 >8 6.0 4.0	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0 18.0 11.0 16.5 15.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-7 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan 0A-17-4 Pan 17-13 Pan 17-14 Pan 17-15 Pan QA-17-2
	Filter Filter	180 180a 1810a 1811 1811 1812 182 182 183 183 184 184 185 185 186 186 187 187 187 188 188 189 199 190 190 191 1911 1911				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 60.00 68.00 75.00 82.00 77.00 100.00 124.00 112.00 87.00	27.00 68.00 35.00 36.00 16.00 18.00 21.00 24.00 29.00 18.00 13.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:32 9/17/12 13:33 9/17/12 13:34 9/17/12 11:44 9/17/12 11:44 9/17/12 11:44 9/15/12 11:44 9/15/12 11:44 9/15/12 6:49 9/15/12 6:49 9/15/12 6:37 9/15/12 6:37 9/15/12 6:37 9/15/12 3:51 9/15/12 3:51 9/15/12 3:51 9/15/12 2:37 9/15/12 1:56 9/17/12 10:48 9/17/12 10:48 9/17/12 10:48 9/17/12 0:48 9/17/12 0:48 9/18/12 6:01 9/18/12 6:01 9/18/12 6:01 9/18/12 6:01 9/18/12 6:01 9/18/12 9:43 9/18/12 19:43	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:25 9/17/12 12:30 9/15/12 7:16 9/15/12 7:16 9/15/12 7:10 9/15/12 6:26 9/15/12 6:26 9/15/12 6:36 9/15/12 6:49 9/15/12 6:49 9/15/12 6:49 9/15/12 4:42 9/15/12 4:12 9/15/12 2:44 9/17/12 2:54 9/15/12 2:09 9/17/12 2:09 9/17/12 2:54 9/18/12 5:57 9/18/12 6:59 9/18/12 6:59	9/21/12 6:25 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:20 9/21/12 5:06 9/21/12 5:06 9/21/12 5:00 9/21/12 4:47 9/21/12 4:47 9/21/12 4:43 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 10/10/12 2:56 10/10/12 22:56	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:06 9/21/12 5:06 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35 9/21/12 4:35 9/18/12 3:32 9/18/12 3:32			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 7.0 4.5 8.0 8.0 6.3 8.6 6.0 4.0 7.5	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 11.0 11.0 16.5 19.3	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan QA-17-4 Pan 17-13 Pan 17-14 Pan 17-15 Pan QA-17-2 Pan QA-17-2 Pan 17-17
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184a 185 185a 186 186a 187 187a 188 188a 189 189a 190 190a 191 191a 192 192 193				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 60.00 68.00 78.00 75.00 82.00 77.00 109.00 112.00 127.00 87.00 82.00 73.00	27.00 68.00 35.00 36.00 16.00 18.00 24.00 29.00 18.00 13.00 5.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:32 9/17/12 13:33 9/17/12 13:34 9/17/12 11:44 9/15/12 11:44 9/15/12 11:44 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:38 9/15/12 6:39 9/15/12 6:31 9/15/12 3:32 9/15/12 3:32 9/15/12 3:32 9/15/12 2:37 9/15/12 2:37 9/15/12 2:37 9/15/12 1:56 9/17/12 20:48 9/18/12 1:35 9/17/12 20:49 9/18/12 6:01 9/18/12 6:01 9/18/12 6:01 9/18/12 9:43 9/18/12 1:35 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:46 9/17/12 13:25 9/17/12 12:30 9/15/12 7:16 9/15/12 7:16 9/15/12 7:16 9/15/12 6:01 9/15/12 6:01 9/15/12 6:02 9/15/12 6:01 9/15/12 6:01 9/15/12 6:02 9/15/12 6:01 9/15/12 6:01 9/15/12 2:34 9/15/12 4:12 9/15/12 2:14 9/15/12 2:14 9/17/12 21:09 9/17/12 21:05 9/18/12 12:54 9/18/12 2:55 9/18/12 2:54 9/18/12 2:55 9/18/12 16:52 9/18/12 16:52 9/18/12 10:42 9/18/12 10:42 9/18/12 10:42 9/18/12 10:42 9/18/12 11:26	9/21/12 6:25 9/21/12 6:18 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:30 9/21/12 5:06 9/21/12 5:06 9/21/12 5:06 9/21/12 4:54 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:00 9/21/12 5:00 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35 9/21/12 4:35 9/21/12 4:35 10/10/12 2:56 10/10/12 22:56 10/10/12 22:29			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 5.5 7.0 4.5 >8 8.0 8.0 6.3 >8 6.0 4.0	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0 11.0 16.5 15.5 19.3 19.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-7 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan 0A-17-4 Pan 17-13 Pan 17-14 Pan 17-15 Pan QA-17-2
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184 185 185 186 186a 187 187a 188 188a 189 189a 190 190a 191 191a 192 192 193 193a 193a				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 51.00 60.00 68.00 75.00 82.00 77.00 100.00 124.00 109.00 112.00 87.00 82.00 77.00 112.00 87.00 82.00 73.00 18.00	27.00 68.00 35.00 36.00 36.00 16.00 18.00 21.00 24.00 29.00 13.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:52 9/17/12 13:33 9/17/12 13:08 9/17/12 11:44 9/15/12 7:01 9/15/12 7:01 9/15/12 6:39 9/15/12 6:39 9/15/12 6:39 9/15/12 6:39 9/15/12 5:51 9/15/12 5:51 9/15/12 3:32 9/15/12 3:32 9/15/12 1:36 9/17/12 20:39 9/17/12 21:35 9/17/12 21:35 9/17/12 20:48 9/17/12 21:35 9/17/12 20:49 9/18/12 1:44 9/18/12 6:01 9/18/12 9:33 9/18/12 1:44 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49 9/18/12 1:49	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:46 9/17/12 13:25 9/17/12 12:30 9/15/12 7:10 9/15/12 7:10 9/15/12 7:10 9/15/12 6:26 9/15/12 6:01 9/15/12 6:01 9/15/12 6:36 9/15/12 4:48 9/15/12 4:48 9/15/12 4:12 9/15/12 2:44 9/15/12 2:54 9/15/12 2:54 9/15/12 2:54 9/15/12 2:10 9/17/12 21:09 9/17/12 21:05 9/18/12 1:55 9/18/12 6:52 9/18/12 10:55 9/18/12 10:42 9/18/12 10:55 9/18/12 10:55 9/18/12 10:55 9/18/12 10:55 9/18/12 10:55	9/21/12 6:25 9/21/12 6:18 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:30 9/21/12 5:06 9/21/12 5:06 9/21/12 5:06 9/21/12 4:54 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:00 9/21/12 5:00 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35 9/21/12 4:35 9/21/12 4:35 10/10/12 2:56 10/10/12 22:56 10/10/12 22:29			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 7.0 4.5 8.0 8.0 8.0 4.0 5.5 6.0 7.5 9.0 8.0	24.0 12.0 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0 18.0 11.0 16.5 15.5 19.3 19.5 14.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8 Pan 17-9 Pan 17-10 Pan 17-11, 17-12 Pan QA-17-4 Pan 17-13 Pan 17-14 Pan 17-15 Pan QA-17-2 Pan 17-17 Pan 17-16 Pan 17-18
	Filter Filter	180 180a 181 181a 181a 182 182a 183 183a 184 184a 185 185a 186 186a 187 187a 188 188a 189 189a 190 190a 191 191a 192 192 193				36.00 44.00 29.00 69.00 25.00 33.00 46.00 41.00 36.00 39.00 58.00 54.00 80.00 60.00 68.00 78.00 75.00 82.00 77.00 109.00 112.00 127.00 87.00 82.00 73.00	27.00 68.00 35.00 36.00 16.00 18.00 24.00 29.00 18.00 13.00 5.00 12.00 5.00			9/17/12 14:14 9/17/12 13:52 9/17/12 13:32 9/17/12 13:33 9/17/12 13:34 9/17/12 11:44 9/15/12 11:44 9/15/12 11:44 9/15/12 7:10 9/15/12 7:10 9/15/12 6:49 9/15/12 6:38 9/15/12 6:39 9/15/12 6:31 9/15/12 3:32 9/15/12 3:32 9/15/12 3:32 9/15/12 2:37 9/15/12 2:37 9/15/12 2:37 9/15/12 1:56 9/17/12 20:48 9/18/12 1:35 9/17/12 20:49 9/18/12 6:01 9/18/12 6:01 9/18/12 6:01 9/18/12 9:43 9/18/12 1:35 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30 9/18/12 1:30	9/17/12 14:28 9/17/12 14:08 9/17/12 13:46 9/17/12 13:36 9/17/12 13:25 9/17/12 13:25 9/17/12 13:30 9/15/12 7:16 9/15/12 7:16 9/15/12 6:26 9/15/12 6:26 9/15/12 6:36 9/15/12 6:49 9/15/12 4:48 9/15/12 4:48 9/15/12 4:42 9/15/12 2:44 9/17/12 21:55 9/17/12 22:41 9/18/12 1:09 9/18/12 1:55 9/18/12 1:26 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:15 9/18/12 1:26 9/18/12 1:26 9/18/12 1:26 9/18/12 1:26 9/18/12 1:26	9/21/12 6:25 9/21/12 6:18 9/21/12 6:18 9/21/12 5:52 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:30 9/21/12 5:06 9/21/12 5:06 9/21/12 5:06 9/21/12 4:54 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34 9/21/12 4:34	9/21/12 6:25 9/21/12 6:10 9/21/12 6:10 9/21/12 5:52 9/21/12 5:33 9/21/12 5:33 9/21/12 5:25 9/21/12 5:25 9/21/12 5:00 9/21/12 5:00 9/21/12 5:00 9/21/12 4:54 9/21/12 4:47 9/21/12 4:47 9/21/12 4:35 9/21/12 4:35 9/21/12 4:35 10/10/12 2:56 10/10/12 22:56 10/10/12 22:29			Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	8.5 6.0 7.0 4.5 8.0 8.0 8.0 4.0 5.5 6.0 7.5 9.0	24.0 12.0 11.5 11.5 15.5 14.5 27.0 18.5 19.0 15.8 18.0 11.0 16.5 19.3 19.5 14.5	Pan 17-4 Pan 17-5 Pan 17-6 Pan 17-7 Pan 17-8 Pan 17-9 Pan 17-10 Pan 17-11 Pan 17-13 Pan 17-13 Pan 17-14 Pan 17-15 Pan 17-15 Pan 17-16

	General Information				Tonnage a	and Volumes	from Operato	or Log				Sche	dule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter Filter	196 196a				88.00 78.00				9/20/12 4:33 9/20/12 3:46	9/20/12 4:57 9/20/12 4:07					Y	11.5	19.0	Pan 17-22
	Filter Filter	197 197a				96.00 92.00				9/20/12 2:50	9/20/12 3:19					Y Y	> 8	14.0	Pan 17-23
	Filter	1973				95.00				9/19/12 2:05 9/19/12 14:13	9/19/12 2:29 9/19/12 14:39					Y	> 0	14.0	Fall 17-23
	Filter Filter	198a 199				100.00 93.00				9/19/12 13:35 9/19/12 13:00	9/19/12 14:02 9/19/12 13:29					Y	5.3	14.7	Pan 17-24, 17-25
	Filter	199a				75.00				9/19/12 10:20	9/19/12 10:45					Y			
	Filter Filter	200 200a				104.00 109.00	62.00			9/19/12 9:52 9/19/12 9:29	9/19/12 10:20 9/19/12 9:52	10/11/12 4:40	10/11/12 5:01			Y	7.3 4.0	15.0 11.5	Pan 17-27, QA-17-3 Pan 17-26
	Filter	201				80.00	69.00			9/19/12 8:58	9/19/12 9:20	10/11/12 4:15	10/11/12 4:40			Υ	0	11.0	
	Filter Filter	201a 202				78.00 71.00	79.00 71.00			9/19/12 8:28 9/19/12 8:02	9/19/12 8:49 9/19/12 8:21	10/11/12 3:47	10/11/12 4:15 10/11/12 3:47			Y	5.5	11.5	Pan 17-28
	Filter	202a				52.00	82.00			9/19/12 7:19	9/19/12 7:41	10/11/12 2:52	10/11/12 3:22			Y	5.0	11.0	Pan 17-29
	Filter Filter	203 203a				71.00 57.00	21.00			9/20/12 10:50 9/20/12 11:04	9/20/12 11:04 9/20/12 11:19	10/2/12 11:12	10/2/12 11:19			Y	8.0	20.0	Pan 17-30
	Filter	204				35.00	40.00			9/20/12 11:19	9/20/12 11:28	9/20/12 23:55	9/21/12 0:07			Y	6.0	14.5	Pan 17-31
	Filter Filter	17-mechanical 17-mechanical				166.80 222.39				11/26/12 12/2/12	11/27/12 12/3/12					Y			
	Subtotal Filter		133,285	2,814	3,686	4,225.19	1,460.00	0	5,685	==, =, ==	,-,						40	07.0	
	Armor 2.5" (5" Min)	17-mechanical				181.71				10/22/12	10/22/12					Y	> 12 8.0 > 8 5.0	27.0 31.0 32.0 17.0	Pan 17-1, 17-2, and 17-3
	Armor 2.5" (5" Min)	17-mechanical				361.67				10/23/12	10/23/12					Y	5.0 6.0 > 8	16.5 21.5 22.5	Pans 17-4, 17-5, and 17-6
	Armor 2.5" (5" Min)	17-mechanical				129.71				11/9/12	11/9/12					Y	> 8 6.0 > 8		Pans 17-7, 17-8, and 17-9
	Armor 2.5" (5" Min)	17-mechanical				778.79				11/10/12	11/10/12					Y	> 8 > 8 > 8	24.5 23.0 26.0	Pans 17-10, 17-11, and 17-12
	Armor 2.5" (5" Min)	17-mechanical				1,048.65				11/11/12	11/13/12					Y	> 8 > 8 > 8	19.0 24.5 27.5	Pans 17-13, 17-14, and 17-15
	Armor 2.5" (5" Min)	17-mechanical				253.67				11/13/12	11/14/12					Y	> 8 > 8 > 8	27.3 22.5 28.0	Pans 17-16, 17-17, and 17-18
	Armor 2.5" (5" Min)	17-mechanical				452.44				11/14/12	11/15/12					Y	8.0 8.0 > 8	22.8 23.0 27.0	Pans 17-19, 17-20, and 17-21
	Armor 2.5" (5" Min)	17-mechanical				1,412.12				11/15/12	11/16/12					Y	6.5 8.0 > 8	20.5 25.3 20.0	Pans 17-22, 17-23, and 17-24
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	17-mechanical 17-mechanical				799.68				11/16/12	11/21/12 12/4/12					Y	> 8 8.0 > 8 > 8	19.5 22.0 19.5 19.0	Pans 17-25, 17-26, and 17-27 Pans 17-28 and 17-29
	Armor 2.5" (5" Min)	17-mechanical				513.80				12/4/12	12/5/12					Y	> 8	28.0	Pans 17-30 and 17-31
	Armor 2.5" (5" Min)	17-mechanical				2,132.46				12/7/12	12/9/12					Y	> 8 7.5	22.5 31.5	Pans QA-17-1 and QA-17-2
	Armor 2.5" (5" Min)	17-mechanical				556.83				12/10/12	12/11/12					Y	> 8 8.0	23.5 24.0	Pans QA-17-3 and QA-17-4
	Subtotal Armor 2.5" (5" Min)	17 meenamear	133,285	3,752	5,628	9,823.67	0	0	9,824	12/10/12	12/11/12					·	> 8	26.0	Tallo git 17 o alla git 17 4
	Total Cap 17							_	22,430										
Cap 18a C.O. Required Thickness = 12"	Sand (6" Min) Sand (6" Min)	59 60				102.00 93.00	60.00 75.00	72.00 258.00		9/26/12 4:00 9/26/12 6:24	9/26/12 4:43 9/26/12 6:41	9/28/12 17:09 9/28/12 18:02	9/28/12 17:14 9/28/12 18:15	10/1/12 10:23		Y	11.0 6.0	11.0 6.0	Pan 18-3 Pan 18-26
Target Max Thickness = 15"	Sand (6" Min)	60a				74.00	45.00	173.00		9/26/12 5:54	9/26/12 6:13	9/28/12 17:21	9/28/12 17:31	10/1/12 10:44	10/8/12 14:12	Y	7.5	7.5	Pan 18-31
Est. Design Quantity = 7,180 tons As-Built Surface Area: 121,150 SF	Sand (6" Min) Sand (6" Min)	61 61a				74.00 89.00	48.00 53.00	132.00 274.00		9/26/12 7:58 9/26/12 6:54	9/26/12 8:13 9/26/12 7:13	9/28/12 18:55 9/28/12 18:35	9/28/12 19:06 9/28/12 18:47	10/8/12 8:34 10/1/12 11:24		Y	8.8 8.9	8.8 8.9	Pans 18-4, 18-5, and 18-6 Pans 18-7, 18-9, 18-25, and 18-27
AS Built Surface Area. 121,150 Si	Sand (6" Min)	62				93.00	115.00	143.00		9/26/12 13:06	9/26/12 13:24	9/28/12 21:32		9/29/12 5:58		Y	6.0	6.0	Pan 18-30
	Sand (6" Min)	62a				94.00	11.00	110.00		9/26/12 8:30	9/26/12 8:48					Y	10.0	10.0	Pan 18-8
	Sand (6" Min) Sand (6" Min)	63 63a				61.00 94.00	72.00 70.00	88.00 153.00		9/26/12 14:20 9/26/12 13:44	9/26/12 14:29 9/26/12 14:00	9/28/12 22:49 9/28/12 22:02		9/29/12 5:34 9/29/12 5:42		Y	8.5 14.0	8.5 14.0	Pans 18-11, 18-12, QA-18A-3, and QA-18A-4 Pan 18-28
	Sand (6" Min)	64ab				40.00	70.00	130.00		9/26/12 16:57	9/26/12 17:06					Y	10.0	10.0	Pan 18-15
	Sand (6" Min)	64						273.00		9/29/12 3:01	9/26/12 3:20	10/1/12 21:36	10/1/12 21:54	10/9/12 9:40	10/18/12 11:05	Y	10.5	10.5	Pan 18-13, 18-14, and QA-18A-2
	Sand (6" Min)	65a				54.00	23.00	392.00		9/26/12 20:32	9/26/12 20:44	9/27/12 5:07	9/27/12 5:12	9/28/12 2:16		Y	8.8	8.8	Pan 18-18, 18-19, and 18-20
	Sand (6" Min) Sand (6" Min)	65 66a				27.00 58.00	29.00 57.00	486.00 63.00		9/26/12 21:44 9/27/12 6:06	9/26/12 21:54 9/27/12 6:14	9/27/12 5:34 10/9/12 10:14		9/28/12 2:51 10/9/12 10:14		Y	7.5	7.5	Pan 18-16
	Sand (6" Min)	66				12.00	57.00	40.00		9/27/12 6:06	9/27/12 6:14	10/9/12 10:14	10/9/12 10:21	10/9/12 10:14		Y		<u> </u>	
	Sand (6" Min)	67									i					Y			
	Sand (6" Min) Sand (6" Min)	67a 70				85.00				10/8/12 16:08						Y	1	+	
	Sand (6" Min)	70a				31.00	79.00			10/8/12 8:17	10/8/12 8:25	10/8/12 16:37	10/8/12 16:52			Y	14.0	14.0	Pan 18-23
	Sand (6" Min)	71				107.00				10/8/12 14:28	10/8/12 14:47					Y	7.5	7.5	Pan 18-24
	Sand (6" Min) Sand (6" Min)	71a 72				123.00 33.00				10/8/12 15:35 10/8/12 16:59	10/8/12 15:57 10/8/12 17:08					Y		-	
	Sand (6" Min)	73				-5.00				10/0/12 10.33	10/0/12 17:00				<u> </u>	Y			
	Sand (6" Min)	18a-mechanical				517.31				12/3/12	12/4/12					Y	6.0	6.0	Pan 18-1
	Sand (6" Min) Sand (6" Min)	18a-mechanical 18a-mechanical				161.56 281.71				12/5/12 12/7/12	12/6/12 12/11/12				1	Y	8.0 6.0	8.0 6.0	Pan 18-2 Pan QA-18A-1
	Sand (6" Min)	18a-mechanical				271.65				12/13/12	12/17/12					Y			
l	Sand (6" Min)	18a-mechanical				441.30		<u> </u>		12/18/12	12/18/12					Y	<u> </u>	<u> </u>	<u> </u>

	General Information				Tonnage :	and Volumes	from Operat	or Log				Sch	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Sand (6" Min)	18a-mechanical				345.65				12/19/12	12/19/12					Y			
	Sand (6" Min) Sand (6" Min)	18a-mechanical 18a-mechanical				463.34 611.90				12/21/12 12/26/12	12/22/12 12/29/12		+			Y			
	Sand (6" Min)	18a-mechanical				95.50				9/9/13	9/9/13					Y			
	Sand (Buttress) Sand (Buttress)	18a-mechanical 18a-mechanical				136.45 48.54				9/18/13 9/19/13	9/18/13 9/19/13					Y			
	Subtotal Sand (6" Min)		110,262	3,880	4,656	4,718.93	737.00	2,787.00	8,243							N10	NA		NA.
	Filter (Buttress) Filter (Buttress)	18a-mechanical 18a-mechanical				519.81 328.53				12/26/12 12/29/12	12/29/12 12/29/12					NA NA	NA NA	NA NA	NA NA
	Filter (Buttress)	18a-mechanical				234.44				8/1/13	8/1/13					NA NA	NA	NA	NA NA
	Filter (Buttress) Filter (Buttress)	18a-mechanical 18a-mechanical				53.27 396.79				8/2/13 8/23/13	8/2/13 8/23/13		+			NA NA	NA NA	NA NA	NA NA
	Filter (Buttress)	18a-mechanical				8.16				8/26/13	8/26/13					NA NA	NA NA	NA NA	NA NA
	Filter (Buttress) Filter (Buttress)	18a-mechanical 18a-mechanical				13.00 58.48				8/27/13 9/18/13	8/27/13 9/18/13		+			NA NA	NA NA	NA NA	NA NA
	Filter (Buttress)	18a-mechanical				20.80				9/19/13	9/19/13					NA	NA	NA	NA
	Subtotal Filter Material Armor 0.75" (3" Min)	59	110,262	NA	NA	1,633.28	0	0	1,633							Y	4.5	15.5	Pan 18-3
	Armor 0.75" (3" Min)	60				28.00				10/9/12 18:18	10/9/12 18:29					Y	8.0	14.0	Pan 18-26
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	60a 61				31.00 45.00	32.00			10/9/12 17:50 10/2/12 9:04	10/9/12 18:07 1/2/00 0:00	10/9/12 18:4:	2 10/9/12 18:53			Y	8.0 8.7	15.5 17.5	Pan 18-31 Pans 18-4, 18-5, and 18-6
	Armor 0.75" (3" Min)	61a				42.00	33.00			10/2/12 6:28	10/2/12 6:49	10/9/12 18:30	0 10/9/12 18:41			Y	8.0	16.9	Pans 18-7, 18-9, 18-25, and 18-27
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	62 62a				43.00 34.00	28.00 60.00			10/2/12 10:54 10/2/12 10:09	10/2/12 11:13 10/2/12 10:25	10/10/12 10:13				Y	6.5 5.2	12.5 15.2	Pan 18-30 Pan 18-8
	Armor 0.75" (3" Min)	63				28.00	26.00			10/2/12 12:15	10/2/12 12:29	10/10/12 11:3	3 10/10/12 11:43			Y	7.5	16.0	Pans 18-11, 18-12, QA-18A-3, and QA-18A-4
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	63a 64ab				48.00 27.00	15.00			10/2/12 11:40 10/2/12 21:50	10/2/12 12:02 10/2/12 22:04	10/10/12 10:28	8 10/10/12 10:37			Y	6.0 > 8	20.0 18.0	Pan 18-28 Pan 18-15
	Armor 0.75" (3" Min)	64a				22.00				10/10/12 11:43	10/10/12 11:52					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	64 65a				25.00 26.00		9.00		10/2/12 21:25 10/2/12 21:18	10/2/12 21:38 10/2/12 21:24		+	10/10/12 11:53	10/10/12 11:59	Y	7.7 5.9	18.2 14.8	Pan 18-13, 18-14, and QA-18A-2 Pan 18-18, 18-19, and 18-20
	Armor 0.75" (3" Min)	65				15.00				10/2/12 20:48	10/2/12 20:56					Υ	> 8	15.5	Pan 18-16
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	66a 66				34.00				10/2/12 17:06	10/2/12 18:12					Y			
	Armor 0.75" (3" Min)	70				28.00				10/9/12 16:42	10/9/12 16:54					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	70a 71				33.00				10/9/12 17:30	10/9/12 17:45					Y	3.2 4.5	17.2 12.0	Pan 18-23 Pan 18-24
	Armor 0.75" (3" Min)	71a				39.00				10/9/12 17:13	10/9/12 17:30					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	72 73											+			Y	 	+	
	Armor 0.75" (3" Min)	18a-mechanical				262.20				12/13/12	12/13/12					Y	6.0	12.0	Pan 18-1
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	18a-mechanical 18a-mechanical				728.10 418.01				12/13/12 12/19/12	12/17/12 12/19/12		+			Y	> 8 > 8	16.0 14.0	Pan 18-2 Pan QA-18A-1
	Armor 0.75" (3" Min)	18a-mechanical				490.55				9/6/13	9/6/13					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	18a-mechanical 18a-mechanical				305.10 329.55				9/9/13 9/10/13	9/9/13 9/10/13					Y			
	Armor 0.75" (3" Min)	18a-mechanical				383.70				9/11/13	9/11/13					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	18a-mechanical 18a-mechanical				74.90 74.90				9/12/13 9/23/13	9/12/13 9/23/13					Y			
	Armor 0.75" (3" Min)	18a-mechanical				118.00				9/24/13	9/24/13					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	18a-mechanical 18a-mechanical				153.50 140.40				9/25/13 9/26/13	9/25/13 9/26/13		+			Y			
	Armor 0.75" (3" Min)	18a-mechanical				24.30				9/27/13	9/27/13					Y			
	Armor 0.75" (3" Min) Subtotal Armor 0.75" (3" Min)	18a-mechanical	110,262	1,940	2,522	22.50 4,073.71	194.00	9.00	4,277	9/30/13	9/30/13					Y			
	Total Cap 18a								14,153								9.0	9.0	
Cap 18b	Sand (6" Min)	18b-mechanical				836.90				12/5/12	12/16/12					Y Y	9.0 7.0 11.0	9.0 7.0 11.0	Pans 18-21, 18-22, and 18-29
C.O. Required Thickness = 12"	Sand (6" Min)	18b-mechanical				33.70				8/8/13	8/8/13					Y Y	9.5 6.5	9.5 6.5	Pans QA-18B-1 and QA-18B-2
Target Max Thickness = 24"	Subtotal Sand (6" Min) Filter	18b-mechanical	11,235	395	474	870.60 84.20	0	0	871	7/29/13	7/29/13					Y	> 8	17.0	Pan 18-21
Est. Design Quantity = 1,150 tons As-Built Surface Area: 12,515 SF	Filter	18b-mechanical				138.60				7/30/13	7/30/13					Υ	6.5	13.5	Pan 18-21 Pan 18-22
	Filter Filter	18b-mechanical 18b-mechanical				43.00 28.10				7/31/13 8/1/13	7/31/13 8/1/13					Y Y	4.5 6.5	15.5 16.0	Pan 18-29 Pan QA-18B-1
	Filter	18b-mechanical 18b-mechanical				56.20				8/1/13 8/8/13	8/8/13					Y	6.5 > 8	14.5	Pan QA-18B-1 Pan QA-18B-2
	Filter (Buttress) Subtotal Filter	18b-mechanical	11,235	237	310	20.24 370.34	0	0	370	8/23/13	8/23/13					Y			
	Armor 2.5" (5" Min)	18b-mechanical	11,230	231	310	309.00	U	U	310	12/18/12	12/19/12					Y	5.5	22.5	Pan 18-21
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	18b-mechanical 18b-mechanical				108.60 57.65				8/5/13 8/6/13	8/5/13 8/6/13					Y	5.5 > 12	19.0 27.5	Pan 18-22 Pan 18-29
	Armor 2.5" (5" Min)	18b-mechanical				162.10				8/7/13	8/7/13					Y	> 12	24.0	Pan QA-18B-1
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	18b-mechanical 18b-mechanical				83.20 22.50				8/8/13 8/9/13	8/8/13 8/9/13					Y	> 8	22.5	Pan QA-18B-2
	Armor 2.5" (5" Min)	18b-mechanical				31.80				9/24/13	8/9/13 9/24/13					Ϋ́Υ			
	Subtotal Armor 2.5" (5" Min) Total Cap 18b		11,235	245	368	774.85	0	0	775 2,016										
C.O. Est. Quantity = 8,230 tons Actual Total Quantity ⁶ = 16,169 tons (Caps 18A & 18B)	Total Cap 18								16,169										

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	dule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
Cap 19a	Sand (6" Min)	161														Y			
C.O. Required Thickness = 12"	Sand (6" Min)	162														Y	7.5		2 400
Target Max Thickness = 19" Est. Design Quantity = 3,097 tons	Sand (6" Min) Sand (6" Min)	163 164				49.00				9/6/12 22:14	9/6/12 22:27					Y	7.5	7.5	Pan 19-2
As-Built Surface Area: 36,580 SF	Sand (6" Min)	164a				165.00				9/5/12 21:41	9/6/12 9:23					Y			
	Sand (6" Min) Sand (6" Min)	165 165a				118.00 74.00				9/6/12 21:49 9/6/12 9:33	9/6/12 22:11 9/6/12 10:33					Y	8.0	8.0	Pan 19-4
	Sand (6" Min)	166				71.00	730.00			9/6/12 20:29	9/6/12 20:34	9/8/12 5:04	9/8/12 7:04			Y	8.0	8.0	Pan QA-19A-1
	Sand (6" Min) Sand (6" Min)	166a 167				72.00 79.00	483.00 449.00			9/6/12 10:47 9/6/12 18:54	9/6/12 11:16 9/6/12 19:23	9/8/12 2:40 9/7/12 23:25	9/8/12 4:36 9/8/12 0:37			Y	15.0	15.0	Pan 19-7
	Sand (6 Min)	167a				363.00	449.00			9/6/12 11:22	9/7/12 3:18	9///12 23:23	9/8/12 0:37			Y	15.0	15.2	Pan 19-8
	Sand (6" Min)	168				72.00	393.00			9/6/12 13:44	9/6/12 14:13	9/7/12 21:34	9/7/12 22:38			Y			
	Sand (6" Min) Sand (6" Min)	168a 169				468.00 55.00				9/6/12 14:19 9/6/12 14:38	9/7/12 4:39 9/7/12 14:50					Y			
	Sand (6" Min)	169a				66.00				9/6/12 14:57	9/7/12 15:11					Y	6.0	6.0	Pan 19-10
	Sand (6" Min) Sand (6" Min)	170 170a				58.00 32.00				9/6/12 15:16 9/6/12 16:44	9/7/12 15:28 9/7/12 17:05					Y	15.0	15.0	Pan 19-11
	Sand (6" Min)	170ab				32.00				9/6/12 17:15	9/7/12 17:35					Y			
	Sand (6" Min) Sand (6" Min)	170ac 171				41.00 33.00				9/6/12 15:42 9/6/12 17:42	9/7/12 16:22 9/7/12 18:03					Y	7.0	7.0	Pan 19-13
	Sand (6 Min)	171a				25.00				9/6/12 17:42	9/7/12 18:35					Y	7.0	7.0	ran 19-13
	Sand (6" Min)	172														Y			
	Sand (6" Min) Sand (6" Min)	173 19a-mechanical				262.10				9/30/13	9/30/13					Y	7.0	7.0	Pan 19-14
	Sand (6" Min)	19a-mechanical				284.60				10/1/13	10/1/13					Y			
	Sand (6" Min) Sand (Buttress)	19a-mechanical 19a-mechanical				24.30 2,497.50				10/7/13 12/4/12	10/7/13 12/15/12					Y			
	Subtotal Sand (6" Min)	13a meenamear	33,389	1,175	1,410	4,941.50	2,055.00	0.00	6,996	12/4/12	12/15/12					•			
	Filter	19a-mechanical				80.50				10/1/13	10/1/13					Y Y Y	6.0 4.0 7.5	13.5 12.0 22.5	Pans 19-2, 19-4, and 19-7
	Filter	19a-mechanical				687.10			-	10/2/13	10/2/13					Ý Y	> 8 4.2 4.5	23.2 10.2 19.5	Pans 19-8 and 19-10
	Filter	19a-mechanical				241.50				10/3/13	10/3/13					Ϋ́	6.0	13.0	Pans 19-11 and 19-13
	Filter	19a-mechanical				181.70				10/7/13	10/7/13					Y Y	6.2 > 8	13.2 16.0	Pans 19-14 and QA-19A-1
	Subtotal Filter Armor 1.0" (3" Min)	19a-mechanical	33,389	705	924	1,190.80 301.50	0.00	0.00	1,191	10/3/13	10/3/13					Y	> 8 3.0	21.5 15.0	Pans 19-2, 19-4, and 19-7
	Armor 1.0" (3" Min)	19a-mechanical				481.20			-	10/4/13	10/4/13					Y Y Y	> 8 > 8 > 8	30.5 31.2 18.2	Pans 19-8 and 19-10
	Armor 1.0" (3" Min)	19a-mechanical				76.80				10/7/13	10/7/13					Y	> 8 > 8	27.5 21.0	Pans 19-11 and 19-13
	Armor 1.0" (3" Min)	19a-mechanical				273.20				10/8/13	10/8/13					Y Y	8.0 8.0	21.2 24.0	Pans 19-14 and QA-19A-1
	Subtotal Armor 1.0" (3" Min) Total Cap 19a		33,389	587	763	1,132.70	0.00	0.00	1,133 9.320										
Cap 19b	Sand (6" Min)	161				44.00			0,020	9/5/12 12:30	9/5/12 12:40					Y			
C.O. Required Thickness = 12"	Sand (6" Min)	161a				0.00				9/5/12 12:59	9/5/12 13:02					Y	10.0	10.0	Pan 19-1
Target Max Thickness = 15" Est. Design Quantity = 1,560 tons	Sand (6" Min) Sand (6" Min)	161ab 161ac				11.00 52.00			-	9/5/12 12:48 9/5/12 12:15	9/5/12 12:53 9/5/12 12:26					Y			
As-Built Surface Area: 26,175 SF	Sand (6" Min)	162				61.00				9/5/12 12:08	9/5/12 11:56					Y			
	Sand (6" Min) Sand (6" Min)	162a 163				61.00 69.00				9/5/12 11:38 9/5/12 11:18	9/5/12 11:51 9/5/12 16:03					Y			
	Sand (6" Min)	163a				65.00				9/5/12 10:59	9/5/12 11:11					Y	9.5	9.5	Pan 19-3
	Sand (6" Min) Sand (6" Min)	164 164a				72.00 68.00				9/5/12 10:36 9/5/12 10:15	9/5/12 10:51 9/5/12 10:29					Y			
	Sand (6" Min)	165				79.00				9/5/12 6:21	9/5/12 6:34					Y			
	Sand (6" Min)	165a				78.00				9/5/12 5:46	9/5/12 6:00					Y	8.5	8.5	Pan 19-5
	Sand (6" Min) Sand (6" Min)	166 166a				74.00 67.00				9/5/12 5:14 9/5/12 4:47	9/5/12 5:26 9/5/12 4:58					Y	11.0	11.0	Pan 19-6
	Sand (6" Min)	167				89.00	61.00			9/5/12 3:40	9/5/12 3:58					Y	9.0	9.0	Pan QA-19B-1
	Sand (6" Min) Sand (6" Min)	167a 168				65.00 100.00	53.00			9/5/12 3:06 9/5/12 3:06	9/5/12 3:17 9/5/12 3:17	9/10/12 18:51	9/10/12 19:14			Y	11.0	11.0	Pan 19-9
	Sand (6" Min)	168a				62.00	14.00			9/5/12 0:52	9/5/12 1:01	9/6/12 4:18	9/6/12 4:28			Y			r un ro
	Sand (6" Min) Sand (6" Min)	169 169a				35.00	25.00			9/5/12 12:14	9/5/12 12:20	9/10/12 17:13	9/10/12 17:25			Y			
	Sand (6" Min)	169a 170				4.00	8.00	9.00		9/4/12 16:05					9/7/12 2:44				
	Sand (6" Min)	170a				27.00	23.00			9/4/12 17:13	9/4/12 17:20					Y	19.0	19.0	Pan 19-12
	Sand (6" Min) Sand (6" Min)	170ab 170ac				8.00 36.00	11.00 27.00			9/6/12 3:24 9/4/12 16:30	9/6/12 3:29 9/4/12 16:38	9/7/12 2:22 9/4/12 16:59	9/7/12 2:28 9/4/12 17:05			Y			
	Sand (6" Min)	171	00.004	0.10	4.010	4.00	4.00	0.00	4.400	9/4/12 15:56	9/4/12 16:01					Y			
	Subtotal Sand (6" Min) Armor 0.75" (3" Min)	161	23,961	843	1,012	1,231.00	226.00	9.00	1,466							Y	9.5	19.5	Pan 19-1
	Armor 0.75" (3" Min)	162														Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	163 164					-									Y	3.5	13.0	Pan 19-3
	Armor 0.75" (3" Min)	164a				38.00				9/11/12 15:45						Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	165 165a				41.00 62.00	38.00	17.00		9/11/12 15:18 9/11/12 4:17	9/11/12 15:36 9/11/12 4:39	9/11/12 4:41	9/11/12 4:53	9/8/12 16:02	9/8/12 16:06	Y Y	9.5	18.0	Pan 19-5
I	AIIIIOI 0.75 (3 IVIIII)	1004	1		ı	02.00	30.00	17.00		5/11/12 4:17	<i>5</i> / ±1/ 12 4:39	<i>5</i> / 11/12 4:41	<i>5</i> / ±1/12 4:53	2/0/12 10:02	3/6/12 10:00	I I	3.5	10.0	i aii 18-0

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Armor 0.75" (3" Min)	166				51.00				9/11/12 3:55	9/11/12 4:14					Y	5.0	16.0	Pan 19-6
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	166a 167				55.00 39.00				9/11/12 3:21 9/11/12 2:58	9/11/12 3:40 9/11/12 3:07					Y Y	7.0	16.0	Pan QA-19B-1
	Armor 0.75" (3" Min)	167a				53.00	37.00			9/10/12 18:51	9/10/12 19:14	9/11/12 2:18	9/11/12 2:33			Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	168 168a				30.00 32.00				9/10/12 18:28 9/10/12 17:55	9/10/12 18:43 9/10/12 18:09					Y Y	8.0	19.0	Pan 19-9
	Armor 0.75" (3" Min)	169				24.00				9/10/12 17:31	9/10/12 17:44					Υ			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	169a 170				25.00 15.00	15.00			9/10/12 17:13 9/10/12 16:41	9/10/12 17:25 9/10/12 16:50	9/10/12 16:58	9/10/12 17:07			Y Y			
	Armor 0.75" (3" Min)	170a				24.00	10.00			9/8/12 16:56	9/8/12 17:05	3/10/12 10.50	5/10/12 17:07			Y	8.0	27.0	Pan 19-12
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	170ab 170ac				13.00 9.00				9/10/12 16:26 9/8/12 16:44	9/10/12 16:35 9/8/12 16:51					Y Y			
	Armor 0.75" (3" Min)	171				8.00	5.00			9/8/12 16:28	9/8/12 16:37	9/8/12 16:31	9/8/12 16:37			Ϋ́			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	19b-mechanical 19b-mechanical				230.60 24.35				11/9/12 9/5/13	11/9/12 9/5/13					Y Y			
	Armor 0.75" (3" Min)	19b-mechanical				84.25				9/6/13	9/6/13					Y			
	Subtotal Armor 0.75" (3" Min) Total Cap 19b		23,961	422	549	858.20	95.00	17.00	970 2,436		I								
C.O. Est. Quantity = 3,880 tons Actual Total Quantity = 11,756 tons (Caps 19A & 19B)	Total Cap 19								11,756										
Cap 20	Sand (6" Min)	26				38.00					Į.					Υ	8.0	8.0	Pans 20-8 and 20-8 INT.
C.O. Required Thickness = 12"	Sand (6" Min)	26-A				22.00				8/28/12 17:16	8/28/12 17:27					Y	15.0	15.0	Pan 20-9 INT.
Target Max Thickness = 15" C.O. Est. Quantity = 2,510 tons	Sand (6" Min) Sand (6" Min)	27 27A				179.00				8/27/12 18:01	8/27/12 18:32					Y Y	8.0	8.0	Pan QA 20-1.
Est. Design Quantity = 2,410 tons	Sand (6" Min)	28				175.00				8/27/12 17:09	8/27/12 17:45					Υ	10.0	10.0	Pan 20-7 INT.
Actual Quantity = 3,378 tons As-Built Surface Area: 39,798 SF	Sand (6" Min) Sand (6" Min)	28-A 29				25.00 178.00	19.00			8/28/12 16:21 8/27/12 16:27	8/28/12 16:34 8/27/12 17:00	8/30/12 2:37	8/30/12 2:45			Y Y	10.7	10.7	Pans 20-5 and 20-6 INT.
As Built surface Area. 33,730 31	Sand (6" Min)	29-A				17.00				8/28/12 16:54	8/28/12 17:05					Ϋ́			
	Sand (6" Min) Sand (6" Min)	30 31				175.00 121.00	55.00 182.00	80.00		8/27/12 15:13 8/27/12 8:26	8/27/12 16:08 8/27/12 9:25	8/27/12 14:50 8/27/12 14:12	8/27/12 15:00 8/27/12 14:44	8/28/12 15:10	8/28/12 15:16	Y Y	10.0 21.0	10.0 21.0	Pan 20-4 INT. Pan 20-3 INT.
	Sand (6" Min)	31-A				200.00	24.00			8/28/12 13:34	8/28/12 14:08	8/30/12 1:30				Y	21.0	21.0	1 att 20-5 iivi .
	Sand (6" Min) Sand (6" Min)	32 32-A				157.00 75.00	32.00			8/24/12 16:21 8/28/12 14:22	8/24/12 16:56 8/28/12 14:37	8/29/12 0:49	8/29/12 1:15			Y	8.0	8.0	Pans 20-2 INT and QA 20-1.
	Sand (6" Min)	33				87.00	75.00	57.00		8/24/12 18:17	8/24/12 18:34	8/28/12 14:22	8/28/12 14:37	8/29/12 21:00	8/29/12 21:23	Y	8.0	8.0	Pan 20-1 INT.
	Sand (6" Min) Subtotal Sand (6" Min)	33-A	37,028	1,303	1,564	63.00 1,512.00	31.00 418.00	137.00	2,067	8/28/12 14:48	8/28/12 15:01	8/29/12 21:57	8/29/12 22:10			Y			
	Armor 0.75" (3" Min)	26	37,026	1,303	1,304	59.00	410.00	137.00	2,007	9/8/12 16:13	9/8/12 16:36					Y	5.0	13.0	Pans 20-8 and 20-8 INT.
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	26a 26ab				44.00 39.00	30.00			9/10/12 13:57 9/8/12 16:50	9/10/12 14:15 9/8/12 17:00	9/10/12 13:22	9/10/12 13:38			Y Y	15.0	30.0	Pan 20-9 INT.
	Armor 0.75 (3 Min) Armor 0.75" (3" Min)	27				69.00	30.00			9/8/12 14:23	9/8/12 14:50	5/10/12 15.22	9/10/12 13.36			Y	7.0	15.0	Pan QA 20-1.
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	27a				68.00 86.00				9/8/12 15:21	9/8/12 15:45 9/8/12 11:19					Y	17.0	27.0	Pan 20-7 INT.
	Armor 0.75" (3" Min)	28 28a				85.00				9/8/12 10:44 9/8/12 11:35	9/8/12 11:19					Y	17.0	27.0	Pall 20-7 INT.
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	29				65.00 80.00				9/8/12 7:51	9/8/12 8:16 9/8/12 9:37					Y Y	6.8	17.4	Pans 20-5 and 20-6 INT.
	Armor 0.75" (3" Min)	29a 30				77.00	54.00			9/8/12 9:07 9/8/12 4:36	9/8/12 5:23	9/11/12 12:32	9/11/12 12:52			Y Y	9.5	19.5	Pan 20-4 INT.
	Armor 0.75" (3" Min)	30a				74.00 64.00	58.00			9/8/12 5:40 9/8/12 3:16	9/8/12 6:13	9/11/12 11:41 9/11/12 13:44				Y	2.0	24.0	Pan 20-3 INT.
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	31 31a				75.00	24.00 15.00			9/8/12 3:16	9/8/12 4:23	9/11/12 13:44	,,			Y	3.8	24.8	Pan 20-3 INT.
	Armor 0.75" (3" Min)	32				46.00	23.00			9/8/12 1:58	9/8/12 2:21	9/11/12 14:24				Y	6.0	14.0	Pans 20-2 INT and QA 20-1.
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	32a 33				49.00 49.00	22.00			9/8/12 2:34 9/11/12 15:23	9/8/12 3:00 9/11/12 15:41	9/11/12 14:08	9/11/12 14:18			Y	4.8	12.8	Pan 20-1 INT.
	Armor 0.75" (3" Min) Subtotal Armor 0.75" (3" Min)	33a	37,028	651	846	56.00 1,085.00	226.00	0	1,311	9/11/12 14:47	9/11/12 15:07					Y			
	Total Cap 20		0.,020	001	0.0	1,000.00			3,378										
Cap 21	Sand (6" Min)	21-mechanical				189.94				12/18/12	12/18/12					Υ	7.0 10.5	7.0 10.5	Pans 21-1 and 21-2
C.O. Required Thickness = 12" Target Max Thickness = 15"	Sand (6" Min)	21-mechanical				406.07				12/19/12	12/19/12					Y	11.0 10.5 8.2	11.0 10.5 8.2	Pans 21-3 and 21-4
C.O. Est. Quantity = 750 tons Est. Design Quantity = 720 tons Actual Quantity = 1,318 tons	Sand (6" Min) Subtotal Sand (6" Min)	21-mechanical	11,032	388	466	315.19 911.20	0	0	911	12/20/12	12/20/12					Y	9.5 10.0	9.5 10.0	Pans 21-5, 21-6, and QA21-1
As-Built Surface Area: 15,243 SF	Armor 0.75" (3" Min)	21-mechanical	.1,002		700	92.35	<u> </u>	<u> </u>	311	12/26/12	12/26/12					Υ	7.5	14.5	Pans 21-1 and 21-2
,	Armor 0.75" (3" Min)	21-mechanical				286.71				12/27/12	12/27/12					Y	> 8	18.5 19.0	Pans 21-3 and 21-4
	Armor 0.75" (3" Min)	21-mechanical				27.41				12/28/12	12/28/12					Y	> 8 > 8 7.0	18.5 16.2 16.5	Pans 21-5, 21-6, and QA21-1
	Subtotal Armor 0.75" (3" Min) Total Cap 21		11,032	194	252	406.47	0	0	406 1,318								> 8	18.0	
Cap 23	Sand (6" Min)	23-mechanical				67.60				10/8/12	10/8/12					Υ	12.0	12.0	Pan 23-1
C.O. Required Thickness = 18" Target Max Thickness = 30"	Sand (6" Min) Sand (6" Min)	23-mechanical 23-mechanical				199.30 271.70				10/9/12	10/9/12					Y Y	10.0 9.5	10.0 9.5	Pan 23-2 Pan 23-3
C.O. Est. Quantity = 2,140 tons	Sand (6" Min)	23-mechanical 23-mechanical				373.20				10/10/12 10/11/12	10/10/12 10/11/12					Y	13.5	13.5	Pan 23-3 Pan 23-4
Est. Design Quantity = 2,260 tons Actual Quantity ⁶ = 2,877 tons	Sand (6" Min) Sand (6" Min)	23-mechanical 23-mechanical				56.50 229.60				10/12/12 10/13/12	10/12/12 10/13/12					Y Y	10.8 9.2	10.8 9.2	Pan 23-5 Pan QA-23-1
Actual Quantity = 2,877 tons As-Built Surface Area: 21,015 SF	Sand (6" Min) Sand (6" Min)	23-mechanical				216.70				10/13/12	10/13/12 10/15/12					Y	9.2	9.2	F all (4A-23-1
1	Sand (6" Min)	23-mechanical			-	193.60				10/16/12	10/16/12	· · · · · · · · · · · · · · · · · · ·				Y			

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Sand (6" Min)	23-mechanical				147.00				10/17/12	10/17/12					Y			
	Subtotal Sand (6" Min) Armor 0.75" (3" Min)	22	21,015	1,479	1,775	1,755.20	0	0	1,755	40/25/42	10/25/12					Y	10.2	24.2	Dane 22.4 and 22.2
	Armor 0.75 (3 Min) Armor 0.75" (3" Min)	23-mechanical 23-mechanical				307.10 66.90			-	10/25/12 10/26/12	10/26/12 10/26/12		-			Y	10.3 10.8	21.3 20.3	Pans 23-1 and 23-2 Pan 23-3
	Armor 0.75" (3" Min)	23-mechanical				175.90				11/6/12	11/7/12					Y	> 8	21.5	Pan 23-4
	Armor 0.75" (3" Min)	23-mechanical				377.00				11/7/12	11/9/12					Υ	> 13.5	24.3	Pan 23-5
	Armor 0.75" (3" Min)	23-mechanical	24.045	270	494	195.30		•	4.422	12/4/12	12/4/12					Υ	8.8	18.0	Pan QA-23-1
	Subtotal Armor 0.75" (3" Min) Total Cap 23		21,015	370	481	1,122.20	0	0	1,122 2,877										
Cap 24	Sand (3" Min)	204a				18.00			2,011	10/2/12 11:35	10/2/12 11:42					Y			
C.O. Required Thickness = 6"	Sand (3" Min)	205				12.00			1	10/2/12 13:36	10/2/12 13:42					Y			
Target Max Thickness = 21"	Sand (3" Min)	205a				45.00				10/2/12 14:00	10/2/12 14:09					Υ	4.0	4.0	Pan 24-1
C.O. Est. Quantity = 420 tons	Sand (3" Min)	206				23.00				10/2/12 14:25	10/2/12 14:32					Y			
Est. Design Quantity = 1,100 tons Actual Quantity = 2,298 tons	Sand (3" Min) Sand (3" Min)	206a 207				15.00 19.00			-	10/2/12 14:49 10/2/12 15:22	10/2/12 14:56 10/2/12 15:27					Y	9.0 8.5	9.0 8.5	Pan 24-7 Pan 24-2
As-Built Surface Area: 13,031 SF	Sand (3" Min)	207a				8.00				10/2/12 15:22	10/2/12 15:53		† †			Y	0.5	0.5	1 011 24-2
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Sand (3" Min)	208				6.00				10/2/12 16:06	10/2/12 16:12					Υ			
	Sand (3" Min)	208a				0.00				10/2/12 16:27	10/2/12 16:32		į			Y	3.5	3.5	Pan 24-3
	Sand (3" Min) Sand (3" Min)	209 209a				0.00			-	10/2/12 16:45	10/2/12 16:50					Y			
	Sand (3" Min)	209a 210				17.00			-	10/2/12 17:17 10/2/12 18:15	10/2/12 17:22 10/2/12 18:19		1			Y			
	Sand (3" Min)	210a				20.00				10/2/12 18:36	10/2/12 18:40					Y	4.0	4.0	Pan 24-4
	Sand (3" Min)	211				21.00				10/2/12 18:59	10/2/12 19:03					Υ			
	Sand (3" Min)	211a				15.00				10/2/12 19:21	10/2/12 19:24		ļ ļ			Y	5.5	5.5	Pan QA-24-1
	Sand (3" Min) Sand (3" Min)	212 212a				11.00 33.00			-	10/2/12 19:40 10/2/12 19:46	10/2/12 19:44 10/2/12 19:49					Y	5.0	5.0	Pan 24-6
	Sand (3" Min)	213				11.00			1	10/2/12 19:40	10/2/12 19:49					Y			
	Sand (3" Min)	213a				36.00				10/2/12 20:08	10/2/12 20:14					Y	6.0	6.0	Pan 24-5
	Sand (3" Min)	214				11.00				10/2/12 20:35	10/2/12 20:36		i			Υ			
	Sand (3" Min)	214a	12.391	205	200	6.00	0	•	207	10/2/12 20:36	10/2/12 20:37					Υ			
	Subtotal Sand (3" Min) Filter	204a	12,391	305	366	327.00 17.00	U	0	327	10/10/12 13:07	10/10/12 13:19					Y			
	Filter	205				24.00	44.00			10/10/12 13:57	10/10/12 13:13	10/10/12 15:50	10/10/12 16:00			Y			
	Filter	205a				33.00	45.00			10/10/12 12:45	10/10/12 12:58	10/10/12 15:23	10/10/12 15:33			Υ	6.0	10.0	Pan 24-1
	Filter	206				34.00	43.00		4	10/10/12 12:32	10/10/12 12:45	10/10/12 14:59	10/10/12 15:08			Y			
	Filter Filter	206a 207	+	1		51.00 1.00	45.00 31.00	37.00	-	10/10/12 12:22 10/9/12 7:10	10/10/12 12:32 10/9/12 7:11	10/10/12 14:38		10/10/12 13:32	10/10/12 13:43	Y	7.5 > 8	16.5 16.5	Pan 24-7 Pan 24-2
	Filter	207a				28.00	01.00	07.00		10/9/12 2:50	10/10/12 2:59	10/10/12 2:55	10/10/12 3:13	10/10/12 13:32	10/10/12 15.45	Y	7.0	10.0	1 411 24 2
	Filter	208				35.00				10/9/12 6:49	10/9/12 6:58					Υ			
	Filter	208a				20.00				10/9/12 6:33	10/9/12 6:39		ļi			Y	> 8	11.5	Pan 24-3
	Filter Filter	209 209a	1			43.00 50.00	21.00		-	10/9/12 5:37 10/9/12 5:17	10/9/12 5:55 10/9/12 5:26	10/9/12 6:08	10/9/12 6:15			Y			
	Filter	210	+			26.00	28.00		-	10/9/12 4:29	10/9/12 3:20	10/10/12 11:49	10/10/12 11:54			Y			
	Filter	210a				21.00	13.00			10/9/12 4:17	10/9/12 4:19					Υ	> 11	15.0	Pan 24-4
	Filter	211				1.00	15.00	8.00		10/9/12 2:42	10/9/12 2:43	10/10/12 2:04		10/10/12 11:59	10/10/12 12:05	Υ			
	Filter Filter	211a 212	1	1		41.00 11.00	15.00		4	10/9/12 2:18	10/9/12 2:32	10/10/12 2:10	10/10/12 2:15			Y	4.0	9.5	Pan QA-24-1
	Filter	212 212a				0.00			-	10/9/12 2:07 10/8/12 23:45	10/9/12 2:12 10/8/12 23:45					Y	4.5	9.5	Pans 24-6
	Filter	213				0.00				10/8/12 22:18	10/8/12 22:18					Y			
	Filter	213a				44.00				10/8/12 21:54	10/8/12 22:08		ĺ			Υ	> 8	14.0	Pan 24-5
	Filter Subtotal Filter	214	12,391	262	242	6.00 486.00	300.00	45.00	831	10/8/12 21:47	10/8/12 21:49		i			Υ			
			12,391	262	343		300.00	45.00	831	/ /	/ /						6.0	16.0	
	Armor 2.5" (5" Min)	24-mechanical				241.30				11/16/12	11/21/12		<u> </u>			Υ	8.0	24.5	Pans 24-1 and 24-7
	Armor 2.5" (5" Min)	24-mechanical				349.00				11/26/12	11/26/12		[i			Υ	> 8 > 8	24.5 19.5	Pans 24-2 and 24-3
	Armor 2.5" (5" Min)	24-mechanical				356.20				11/29/12	12/1/12		i			Υ	> 8	23.0	Pans 24-4 and QA-24-1
	Armor 2.5" (5" Min)	24-mechanical	+	1		68.60				12/7/12	12/9/12		 			Y	> 8 7.0	17.5 16.5	Pan 24-6
	Armor 2.5" (5" Min)	24-mechanical				124.40				12/10/12	12/11/12		İ			Y	7.0	21.0	Pan 24-5
	Subtotal Armor 2.5" (5" Min)		12,391	262	393	1,139.50	0	0	1,140										
	Total Cap 24								2,298										
Cap 25	Sand (3" Min)	215				60.00				10/16/12 9:16	10/16/12 9:23		ļi			Y			
C.O. Required Thickness = 6"	Sand (3" Min)	215a				40.00				10/16/12 9:23	10/16/12 9:31		i			Υ	3.0	3.0	Pan 25-1
Target Max Thickness = 12"	Sand (3" Min)	216		1		34.00			-	10/16/12 9:31	10/16/12 9:38					Y			
C.O. Est. Quantity = 1,470 tons Est. Design Quantity = 2,280 tons	Sand (3" Min) Sand (3" Min)	216a 217	1	1		41.00 37.00				10/16/12 9:38 10/16/12 9:47	10/16/12 9:47 10/16/12 9:54		 		1	Y		1	
Actual Quantity = 3,903 tons	Sand (3 Min)	217a	1	†	1	46.00				10/16/12 9:54	10/16/12 10:04		† †			Y	6.0	6.0	Pans 25-2
As-Built Surface Area: 44,963 SF	Sand (3" Min)	218				14.00	71.00			10/16/12 10:04	10/16/12 10:14		10/16/12 22:14			Y			
	Sand (3" Min)	218a	1			20.00	66.00			10/16/12 18:21	10/16/12 18:26	10/16/12 22:14	10/16/12 22:27			Y			
	Sand (3" Min) Sand (3" Min)	219 219a	+	 	 	50.00 80.00				10/16/12 22:27 10/16/12 22:37	10/16/12 22:37 10/16/12 22:53		 		-	Y	9.0	9.0	Pan 25-3
1	Sand (3" Min)	219a 220	1			48.00				10/16/12 22:37	10/16/12 22:53				<u> </u>	Y	9.0	9.0	1 an 20°3
		220a				65.00				10/16/12 23:02	10/16/12 23:15		<u> </u>			Y			<u> </u>
	Sand (3" Min)												T		T -	Y		1	
	Sand (3" Min)	221				59.00				10/16/12 23:15	10/16/12 23:27		l						
	Sand (3" Min) Sand (3" Min)	221 221a				86.00				10/16/12 23:27	10/16/12 23:45					Y	5.0	5.0	Pan 25-4
	Sand (3" Min) Sand (3" Min) Sand (3" Min)	221 221a 222				86.00 68.00				10/16/12 23:27 10/16/12 23:45	10/16/12 23:45 10/16/12 23:57					Y Y	5.0 7.3	5.0 7.3	Pan 25-4 Pan 25-5
	Sand (3" Min) Sand (3" Min)	221 221a				86.00			-	10/16/12 23:27	10/16/12 23:45					Y			

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	dule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Sand (3" Min)	224				66.00				10/17/12 11:16	10/17/12 11:29					Y			
	Sand (3" Min) Sand (3" Min)	224a 225				68.00 65.00				10/17/12 11:29 10/17/12 11:43	10/17/12 11:43 10/17/12 11:06					Y	10.5	10.5	Pan 25-7
	Sand (3" Min)	225a				60.00				10/17/12 11:56	10/17/12 12:10					Y			
	Sand (3" Min) Sand (3" Min)	226 226a				66.00 54.00	5.00			10/17/12 12:10 10/17/12 12:40	10/17/12 12:40 10/17/12 12:51	10/18/12 23:35	10/18/12 23:50			Y	4.5 7.5	4.5 7.5	Pans QA-25-1 and QA-25-1A Pan 25-8
	Sand (3" Min)	227				43.00	101.00			10/17/12 12:51	10/17/12 12:59	10/18/12 22:40	10/18/12 22:58			Y			
	Sand (3" Min) Sand (3" Min)	227a 228				162.00 46.00	49.00 64.00			10/17/12 20:23 10/17/12 20:41	10/17/12 20:41 10/17/12 20:50	10/18/12 22:08 10/18/12 23:08	10/18/12 23:08 10/18/12 23:21			Y	8.8 4.0	8.8 4.0	Pans 25-11 and 25-12 Pan 25-9
	Sand (3" Min)	228a				57.00	67.00	86.00		10/17/12 20:50	10/17/12 21:02	10/18/12 23:21	10/18/12 23:35	10/19/12 23:10	10/19/12 23:55	Y			
	Sand (3" Min) Sand (3" Min)	229 229a				48.00 59.00	58.00 33.00			10/17/12 21:02 10/17/12 21:11	10/17/12 21:11 10/17/12 21:23	10/19/12 23:27 10/19/12 23:39	10/19/12 23:39 10/19/12 20:45			Y	9.0	9.0	Pan BS-25-229
	Sand (3" Min)	230				48.00				10/17/12 21:23	10/17/12 21:33		,,			Y	8.5	8.5	Pan 25-10
	Sand (3" Min) Subtotal Sand (3" Min)	230a	43,497	1,071	1,285	40.00 1,875.00	514.00	86.00	2,475	10/17/12 21:33	10/17/12 21:43					Y			
	Armor 0.75" (3" Min)	215	10,101	,,,,,,	,,=01	36.00			, ç	10/20/12 13:43	10/20/12 13:52					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	215a 216				24.00 27.00				10/20/12 13:35 10/20/12 13:25	10/20/12 13:43 10/20/12 13:35					Y	5.5	8.5	Pan 25-1
	Armor 0.75" (3" Min)	216a				25.00	9.00			10/20/12 13:16	10/20/12 13:25	10/20/12 16:05				Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	217 217a				28.00 27.00	10.00 16.00			10/20/12 13:06 10/20/12 12:57	10/20/12 13:16 10/20/12 13:06	10/20/12 16:01 10/20/12 15:55	10/20/12 16:05 10/20/12 16:01			Y	3.0	9.0	Pans 25-2
	Armor 0.75" (3" Min)	218				49.00	31.00			10/20/12 12:45	10/20/12 12:57	10/20/12 15:51				Y			-
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	218a 219				41.00 59.00				10/18/12 13:10 10/18/112 12:55	10/18/12 13:21 10/18/12 13:10					Y			
	Armor 0.75" (3" Min)	219a				13.00				10/18/12 12:16	10/18/12 12:27					Y	8.0	17.0	Pan 25-3
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	220 220a				47.00 19.00				10/18/12 12:05 10/18/12 11:39	10/18/12 12:16 10/18/12 11:54					Y			
	Armor 0.75" (3" Min)	221				37.00				10/18/12 11:26	10/18/12 11:39					Y			
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	221a 222				46.00				10/18/12 11:10 10/18/12 10:55	10/18/12 11:26 10/18/12 11:10					Y	4.0 3.8	9.0 11.1	Pan 25-4 Pan 25-5
	Armor 0.75" (3" Min)	222a				38.00				10/18/12 10:42	10/18/12 10:55					Y	0.0	11.1	1 411 20 0
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	223 223a	1			50.00 58.00	35.00			10/18/12 10:12 10/18/12 9:57	10/18/12 10:30 10/18/12 10:12	10/18/12 10:30	10/18/12 10:42			Y	4.0	7.0	Pan 25-6
	Armor 0.75" (3" Min)	224				89.00	00.00			10/18/12 0:38	10/18/12 1:05	10/10/12 10.30	10/10/12 10.42			Y	4.0	7.0	1 411 20 0
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	224a 225	1			54.00 47.00				10/18/12 0:18 10/18/12 0:02	10/18/12 0:38 10/18/12 0:18					Y	6.5	17.0	Pan 25-7
	Armor 0.75" (3" Min)	225a				56.00				10/17/12 22:40	10/18/12 2:02					Y		17.0	1 dil 23-1
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	226 226a				29.00 44.00				10/24/12 5:58 10/24/12 5:48	10/24/12 6:15 10/24/12 5:58					Y	3.3 6.5	7.8 14.0	Pans QA-25-1, and QA-25-1A Pan 25-8
	Armor 0.75" (3" Min)	227				34.00				10/24/12 5:36	10/24/12 5:48					Y	0.3	14.0	1 411 25-0
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	227a 228	1			40.00 39.00	28.00			10/20/12 1:27 10/24/12 5:13	10/20/12 1:55 10/24/12 5:27	10/24/12 5:27	10/24/12 5:36			Y	6.0 8.0	14.8 12.0	Pans 25-11 and 25-12 Pan 25-9
	Armor 0.75" (3" Min)	228a				28.00				10/24/12 5:03	10/24/12 5:13					Y	8.0	12.0	ran 20-9
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	229 229a				40.00 52.00				10/24/12 4:50 10/24/12 4:35	10/24/12 5:03 10/24/12 4:50					Y	NA	NA	Pan BS-25-229
	Armor 0.75" (3" Min)	230				29.00				10/22/12 15:49	10/22/12 16:00					Y	8.0	16.5	Pan 25-10
	Armor 0.75" (3" Min) Armor 0.75" (3" Min)	230a 231				27.00 26.00				10/22/12 15:39 10/22/12 15:31	10/22/12 15:49 10/22/12 15:39					Y			
	Subtotal Armor 0.75" (3" Min)	231	43,497	765	995	1,299.00	129.00	0	1,428	10/22/12 13:31	10/22/12 19.59								
Com 2C	Total Cap 25 Sand (3" Min)	26				102.95			3,903	0/0/42	0/0/43					Y	7.8	7.8	Pan 26-1
Cap 26 C.O. Required Thickness = 6"	Sand (3" Min)	26-mechanical 26-mechanical				89.80				9/9/13 9/10/13	9/9/13 9/10/13					Y	7.8	7.8	Pan 26-2
Target Max Thickness = 21"	Sand (3" Min)	26-mechanical				22.50				9/11/13	9/11/13					Y	5.5	5.5	Pan 26-3
C.O. Est. Quantity = 400 tons Est. Design Quantity = 1,320 tons	Sand (3" Min) Sand (3" Min)	26-mechanical 26-mechanical	+	+		69.30 18.70				9/12/13 9/13/13	9/12/13 9/13/13					Y	7.0 5.5	7.0 5.5	Pan 26-4 Pan 26-5
Actual Quantity ⁶ = 1,237 tons	Sand (3" Min)	26-mechanical				46.80				9/16/13	9/16/13					Y	6.0	6.0	Pan QA-26-1
As-Built Surface Area: 14,257 SF	Sand (3" Min) Subtotal Sand (3" Min)	26-mechanical	14,728	363	436	54.30 404.35	0	0	404	9/17/13	9/17/13					Y	9.5	9.5	Pan QA-26-2
	Filter	26-mechanical				58.05				9/10/13	9/10/13					Y	7.0 5.0	14.8 12.8	Pans 26-1 and 26-2
	Filter	26-mechanical				78.60				9/11/13	9/11/13					Y	5.5	11.0	Pan 26-3
	Filter Filter	26-mechanical 26-mechanical	+	 		30.00 95.40		-		9/12/13 9/13/13	9/12/13 9/13/13					Y	8.0 > 8	15.0 13.5	Pan 26-4 Pan 26-5
	Filter	26-mechanical				45.00				9/17/13	9/17/13					Y	> 8	14.0	Pan QA-26-1
	Filter Subtotal Filter	26-mechanical	14,728	311	407	78.60 385.65	0	0	386	9/18/13	9/18/13					Y	8.0	17.5	Pan QA-26-2
	Armor 2.5" (5" Min)	26-mechanical	,. 20			31.85	_			9/10/13	9/10/13					Y	> 8	22.8	Pan 26-1
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	26-mechanical 26-mechanical	 	-		50.45 39.30		-		9/11/13 9/12/13	9/11/13 9/12/13					Y	> 8 > 8	20.8 19.0	Pan 26-2 Pan 26-3
	Armor 2.5" (5" Min)	26-mechanical				86.10				9/13/13	9/13/13					Y	8.0	23.0	Pan 26-4
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	26-mechanical 26-mechanical	+			39.30 48.65		1		9/16/13 9/17/13	9/16/13 9/17/13					Y	8.0 > 8	21.5 22.0	Pan 26-5 Pan QA-26-1
	Armor 2.5" (5" Min)	26-mechanical				151.70				9/17/13	9/17/13					Y	8.0	25.5	Pan QA-26-2
	Subtotal Armor 2.5" (5" Min) Total Cap 26		14,728	321	482	447.35	0	0	447 1,237										
									1,231							Y	9.0	9.0	
Cap 27	Sand (3" Min)	27-mechanical				278.90				9/12/13	9/12/13					Y Y Y	6.0 6.0 6.0	6.0 6.0 6.0	Pans 27-1, 27-2, and 27-3
C.O. Required Thickness = 6" Target Max Thickness = 12"	Sand (3" Min)	27-mechanical				421.15				9/13/13	9/13/13					Y Y	3.0 5.0	3.0 5.0	Pans 27-4, 27-5, 27-6

	General Information				Tonnage	and Volumes	from Operat	or Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
C.O. Est. Quantity = 1,570 tons	Sand (3" Min)	27-mechanical				138.60				9/16/13	9/16/13					Y	7.0 6.0	7.0 6.0	Pans 27-7 and 27-8
Est. Design Quantity = 1,320 tons Actual Quantity = 2,836 tons	Sand (3" Min)	27-mechanical				250.80				9/17/13	9/17/13					Y	6.0 6.2 7.5	6.0 6.2 7.5	Pans 27-9 and 27-10
As-Built Surface Area: 49,929 SF	Sand (3" Min)	27-mechanical				363.20				9/18/13	9/18/13					Y	8.0	8.0	Pans 27-11 and QA-27-1
,	Subtotal Sand (3" Min)		46,365	1,142	1,370	1,452.65	0	0	1,453							Y	4.0	4.0	
	Armor 0.75" (3" Min)	27-mechanical				475.30				9/19/13	9/19/13					Y Y Y	> 8 5.5 > 8 3.0	17.0 11.5 14.0 9.0	Pans 27-1, 27-2, 27-3, and 27-4
	Armor 0.75" (3" Min)	27-mechanical				614.30				9/20/13	9/20/13					Y Y Y	> 8 8.0 > 8 7.0	11.0 13.0 15.0 13.0	Pans 27-5, 27-6, 27-7, and 27-8
	Armor 0.75" (3" Min)	27-mechanical				293.90				9/23/13	9/23/13					Y Y Y Y	6.0 > 8 > 8 > 8	12.2 15.5 16.0 12.0	Pans 27-9, 27-10, 27-11, and QA-27-1
	Subtotal Armor 0.75" (3" Min) Total Cap 27		46,365	816	1,061	1,383.50	0	0	1,384 2,836										
Cap 29a	Sand (6" Min)	204a				67.00			,	10/2/12 11:29	10/2/12 11:35					Υ			
C.O. Required Thickness = 12" Target Max Thickness = 24"	Sand (6" Min) Sand (6" Min)	205 205a				59.00 65.00				10/2/12 13:03 10/2/12 13:54	10/2/12 13:36 10/2/12 14:00					Y Y	6.0	6.0	Pan QA-29A-1
Est. Design Quantity = 4,570 tons	Sand (6" Min)	206				66.00				10/2/12 13:34	10/2/12 14:00					Y			
As-Built Surface Area: 46,486 SF	Sand (6" Min)	206a 207				66.00 56.00				10/2/12 14:43	10/2/12 14:49					Y Y	8.0	8.0	Pan 29-3
	Sand (6" Min) Sand (6" Min)	207 207a				67.00	32.00			10/2/12 15:16 10/2/12 15:41	10/2/12 15:22 10/2/12 15:47	10/8/12 14:08	10/8/12 14:16			Y			
	Sand (6" Min)	208				69.00	26.00	24.00		10/2/12 16:00	10/2/12 16:06	10/8/12 14:01	10/8/12 14:08	40/0/40 40 54	40/0/40 44 04	Y	6.0	6.0	Pan 29-38
	Sand (6" Min) Sand (6" Min)	208a 209				69.00 66.00	20.00 12.00	24.00 29.00		10/2/12 16:21 10/2/12 16:39	10/2/12 16:27 10/2/12 16:45	10/8/12 10:20 10/8/12 10:13	10/8/12 10:28 10/8/12 10:20	10/8/12 13:54 10/8/12 13:47	10/8/12 14:01 10/8/12 13:54	Y	6.0	6.0	Pan 29-8
	Sand (6" Min)	209a				70.00	12.00	22.00		10/2/12 17:11	10/2/12 17:17	10/8/12 10:13	10/8/12 10:13	10/8/12 13:41	10/8/12 13:47	Y	6.5	6.5	Pan 29-6
	Sand (6" Min) Sand (6" Min)	210 210a				54.00 50.00	13.00 11.00	20.00 17.00		10/2/12 18:09 10/2/12 18:29	10/2/12 18:15 10/2/12 18:36	10/8/12 9:59 10/8/12 9:51	10/8/12 10:16 10/8/12 9:59	10/8/12 13:36 10/8/12 13:31	10/8/12 13:41 10/8/12 13:36	Y			
	Sand (6" Min)	211				48.00	13.00	18.00		10/2/12 18:52	10/2/12 18:59	10/8/12 9:44		10/8/12 13:27	10/8/12 13:31	Y			
	Sand (6" Min)	211a				50.00	14.00 12.00	20.00		10/2/12 19:14	10/2/12 19:21	10/8/12 9:36		10/8/12 13:21	10/8/12 13:27	Y	0.5	8.5	Pon 20.40
	Sand (6" Min) Sand (6" Min)	212 212a				142.00 61.00	13.00	25.00 255.00	-	10/2/12 19:36 10/2/12 19:49	10/2/12 19:40 10/2/12 19:59	10/8/12 9:28 10/8/12 9:21	10/8/12 9:36 10/8/12 9:28	10/8/12 13:15 10/8/12 13:09	10/8/12 13:21 10/8/12 13:15	Y	8.5	0.5	Pan 29-10
	Sand (6" Min)	213				50.00	12.00			10/2/12 20:00	10/2/12 20:07	10/8/12 9:13	10/8/12 9:21			Y	6.0	6.0	Pan 29-12
	Sand (6" Min) Sand (6" Min)	213a 214				76.00 53.00	12.00 17.00			10/2/12 20:14 10/2/12 20:29	10/2/12 20:26 10/2/12 20:35	10/8/12 9:06 10/8/12 8:56				Y	 		
	Sand (6" Min)	214a				80.00	12.00			10/2/12 20:37	10/2/12 20:50	10/8/12 8:49	10/8/12 8:56			Y			
	Sand (6" Min) Sand (6" Min)	215 215a				55.00 85.00	17.00 22.00		-	10/2/12 20:50 10/2/12 20:59	10/2/12 20:59 10/2/12 21:13	10/8/12 8:38 10/8/12 8:31	10/8/12 8:49 10/8/12 8:38			Y			
	Sand (6" Min)	216				64.00	22.00			10/2/12 21:13	10/2/12 21:23	10/0/12 0:51	10/0/12 0.30			Y	10.2	10.2	Pan 29-15
	Sand (6" Min) Sand (6" Min)	216a 217				67.00 69.00				10/2/12 21:23 10/2/12 22:56	10/2/12 21:34 10/2/12 23:07					Y	9.0	9.0	Pan 29-16
	Sand (6" Min)	217 217a				75.00				10/2/12 23:07	10/2/12 23:07					Y	9.0	9.0	Faii 25-10
	Sand (6" Min)	218				69.00				10/2/12 23:18	10/2/12 23:29					Y			
	Sand (6" Min) Sand (6" Min)	218a 219				51.00 70.00				10/2/12 23:29 10/3/12 1:44	10/2/12 23:38 10/3/12 1:55					Y	10.5 11.5	10.5 11.5	Pan 29-17 Pan 29-40
	Sand (6" Min)	219a				62.00				10/3/12 1:55	10/3/12 2:05					Y			
	Sand (6" Min) Sand (6" Min)	220 220a				50.00 46.00	15.00			10/3/12 3:28 10/3/12 2:06	10/3/12 3:43 10/3/12 2:12		10/5/12 10:49			Y	10.8	10.8	Pan 29-20
	Sand (6" Min)	221				42.00	10.00			10/3/12 2:12	10/3/12 2:19	10/3/12 10:13	10/3/12 10:13			Y	10.0	10.0	1 di 20 20
	Sand (6" Min) Sand (6" Min)	221a 222				81.00 53.00				10/3/12 3:43 10/3/12 3:56	10/3/12 3:56 10/3/12 4:04					Y	<u> </u>		
	Sand (6" Min)	222a				44.00				10/3/12 4:04	, ,					Y	7.5	7.5	Pan 29-23
	Sand (6" Min)	223				42.00				10/3/12 4:11	10/3/12 4:18					Y			
	Sand (6" Min) Sand (6" Min)	223a 224				46.00 54.00				10/3/12 4:18 10/3/12 4:25	10/3/12 4:25 10/3/12 4:34					Y	 		
	Sand (6" Min)	224a				38.00				10/3/12 4:34	10/3/12 4:40					Y			
	Sand (6" Min) Sand (6" Min)	225 225a				41.00 27.00				10/3/12 4:40 10/3/12 4:46						Y	7.2	7.2	Pan 29-24
	Sand (6" Min)	226				29.00				10/3/12 4:51	10/3/12 4:55					Y		.=	
	Sand (6" Min) Sand (6" Min)	226a 227				42.00 34.00		1		10/3/12 4:55 10/3/12 5:02	10/3/12 5:02 10/3/12 5:07		 			Y	 		
	Sand (6" Min)	227a				27.00				10/3/12 5:07	10/3/12 5:12					Y			
	Sand (6" Min) Sand (6" Min)	228 228a				32.00 101.00				10/3/12 5:12 10/3/12 5:17	10/3/12 5:17 10/3/12 6:43					Y Y	<u> </u>		
	Sand (6" Min)	2283				3.00				10/3/12 5:17	10/3/12 6:43					Y			
	Subtotal Sand (6" Min)	201	45,017	1,584	1,901	2,883.00	285.00	430.00	3,598							V			
	Filter Filter	204a 205		 												Y	> 8	14.0	Pan QA-29A-1
	Filter	205a														Y			
	Filter Filter	206 206a						1					-			Y	> 8	16.0	Pan 29-3
	Filter	2064				29.00	25.00			10/9/12 6:58	10/9/12 7:08	10/10/12 3:15	10/10/12 3:20			Y	- 0	13.0	
	Filter	207a				65.00				10/10/12 2:25					-	Y Y	0.0	45.0	Don 20 20
	Filter Filter	208 208a		+		20.00 45.00				10/9/12 6:39 10/9/12 6:15	10/9/12 6:49 10/9/12 6:33		 			Y	9.0	15.0	Pan 29-38
	Filter	209				36.00	19.00	İ		10/9/12 5:26			10/11/12 17:31			Y	8.0	14.0	Pan 29-8

	General Information			Tonnage and V	lumes from C	perator Log				Sch	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID Surface	. Required	Total Tons Ac	i 1 - Pas ual Act age Tonr ed Pla	al Actua	Tonnage Placed in Cap	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter	209a			00 41.			10/9/12 4:38				 		Y	> 8	14.5	Pan 29-6
	Filter Filter	210 210a		27				10/9/12 4:19	9 10/9/12 4:29 10/9/12 4:12			<u> </u> 		Y			
	Filter	211		26		10		10/9/12 2:32	2 10/9/12 2:42	10/9/12 23:24	4 10/9/12 23:43	i I		Y			
	Filter Filter	211a 212		29	00 26. 00 37.			10/9/12 2:12 10/9/12 1:46	2 10/9/12 2:18 5 10/9/12 2:07			<u> </u>		Y	> 10	18.5	Pan 29-10
	Filter	212 212a		48				10/8/12 23:28	B 10/8/12 13:45			i		Y	> 10	16.5	Fall 25-10
	Filter	213		24				10/8/12 22:08	8 10/8/12 22:18			į		Y	> 8	14.0	Pan 29-12
	Filter Filter	213a 214		15	00 31.		_	10/8/12 21:49	9 10/8/12 21:54 0 10/8/12 21:47			1		Y			
	Filter	214a			00 34.			10/8/12 18:33	3 10/8/12 18:46			i		Y			
	Filter	215		39				10/8/12 18:20	10/8/12 18:33	10/9/12 21:08		1		Y			
	Filter Filter	215a 216		32			_	10/8/12 18:09	9 10/8/12 18:20 5 10/8/12 18:09			i		Y	6.5	16.7	Pan 29-15
	Filter	216a		54				10/8/12 17:43		10/9/12 21:2:		<u> </u>		Y	0.0	10.7	1 411 23 10
	Filter	217		24				10/8/12 16:09	10/8/12 16:23	10/9/12 21:08		<u> </u>		Y	4.5	13.5	Pan 29-16
	Filter Filter	217a 218		30				10/8/12 15:58	3 10/8/12 16:09 10/6/12 1:57			10/8/12 21:03 10/8/12 15:45	10/8/12 21:17 10/8/12 15:58	Y 3 Y			
	Filter	218a		28				10/6/12 1:40						y Y	4.5	15.0	Pan 29-17
	Filter	219		42				10/6/12 1:30				! !		Y	4.5	16.0	Pan 29-40
	Filter Filter	219a 220		13	00 48.	iu		10/5/12 23:29	10/5/12 23:29 10/5/12 23:29	10/8/12 15:09	9 10/8/12 15:20	<u> </u>	 	Y	+	 	
	Filter	220a		34	00			10/5/12 23:10	10/5/12 23:22			İ		Y	5.8	16.6	Pan 29-20
	Filter	221		37				10/5/12 22:58					<u> </u>	Y		<u> </u>	
	Filter Filter	221a 222		24	00 9.0	0		10/5/12 22:12 10/5/12 22:00			0 10/26/12 9:35	<u> </u>	 	Y	 	 	
	Filter	222a		18		0 20.00		10/5/12 21:14	4 10/5/12 21:21	10/5/12 21:52	2 10/5/12 22:00	10/26/12 9:25	10/26/12 9:30	Y	18.8	26.3	Pan 29-23
	Filter Filter	223		28				10/5/12 21:04	10/5/12 21:14			! '		Y			
	Filter	223a 224		20		10		10/5/12 20:58 10/5/12 20:58	10/5/12 21:04 2 10/5/12 20:58	10/26/12 9:14	10/26/12 9:19			Y			
	Filter	224a			00			10/5/12 20:40	10/5/12 20:52	ĺ		ĺ		Y			
	Filter	225		13				10/5/12 16:54		1		!		Y		45.0	D 00 04
	Filter Filter	225a 226		7.				10/5/12 16:49 10/5/12 11:21	10/5/12 16:54 1 10/5/12 16:49			<u> </u>		Y	> 8	15.2	Pan 29-24
	Filter	226a		13				10/5/12 11:18	8 10/5/12 11:21					Y			
	Filter	227			00			10/5/12 11:15	10/5/12 11:18		-	<u>į</u>		Y			
	Filter Filter	227a 228		10	00			10/5/12 11:12	2 10/5/12 11:15 9 10/5/12 11:12			! !		Y			
	Filter	228a		30	00			10/5/12 11:08	8 10/5/12 11:09			ļ		Y			
	Filter Filter	29a-mechanical 29a-mechanical		33 ⁻ 53				11/26/12	2 11/27/12 2 12/1/12	! }		! }		Y			
	Subtotal Filter	45,0	17 950	1,245 1,64		00 180.0	2,686	12/1/12	12/1/12					·			
	Armor 2.5" (5" Min)	29a-mechanical		519	40			11/16/12	11/21/12	 		 		Y	> 8 5.5 5.0	22.0 21.5 20.0	Pans QA-29A-1, 29-3, and 29-38
	Armor 2.5" (5" Min)	29a-mechanical		193	80			11/26/12	11/26/12					Υ	> 8 8.0 > 8	22.0 22.5 26.5	Pans 29-8, 29-6, and 29-10
	Armor 2.5" (5" Min)	29a-mechanical		30	70			11/27/12	11/28/12					Y	> 8 > 8	22.0 24.7	Pans 29-12 and 29-15
	Armor 2.5" (5" Min)	29a-mechanical		175	30			11/28/12	11/29/12	! !		! !		Y	11 8.0	24.5 23.0	Pans 29-16 and 29-17
	Armor 2.5" (5" Min)	29a-mechanical		716	60			11/29/12	12/1/12] 		 		Υ	8.0 7.0	24.6 23.0	Pans 29-20 and 29-40
	Armor 2.5" (5" Min)	29a-mechanical		286	80			12/1/12	12/2/12]]]]		Y	> 8 > 11	34.3 26.2	Pans 29-23 and 29-24
	Subtotal Armor 2.5" (5" Min)	45,0	17 950	1,425 2,19	.60 0	0	2,194										
Cap 29b	Total Cap 29a Sand (6" Min)	204a		91	00		8,477	10/3/12 12:14	4 10/3/12 12:30					Y			
Cap 250 C.O. Required Thickness = 12"	Sand (6" Min)	204a		100		10		10/3/12 12:12			10/11/12 20:05	i	†	Y	7.2	7.2	Pan 29-1
Target Max Thickness = 19"	Sand (6" Min)	205a		130	00			10/3/12 13:02	2 10/3/12 13:19	ĺ		İ		Υ			
Est. Design Quantity = 10,570 tons As-Built Surface Area: 122,275 SF	Sand (6" Min) Sand (6" Min)	206 206a		78				10/3/12 13:19			+		 	Y	6.9	6.9	Pans 29-2 and 29-4
AS Duilt Surface Area. 122,273 SF	Sand (6" Min)	2004		92				10/3/12 13:52	1 10/3/12 14:06		<u> </u>		<u> </u>	Y	<u> </u>	<u> </u>	
	Sand (6" Min)	207a		75				10/3/12 14:06	5 10/3/12 14:22					Y			
	Sand (6" Min) Sand (6" Min)	208 208a		15 ⁻				10/3/12 14:36			+	<u> </u> 	1	Y	9.0	9.0	Pan 29-5
	Sand (6" Min)	2084		77		0 67.00		10/3/12 14:56			0 10/3/12 20:44	10/11/12 17:40	10/11/12 17:57	7 Y	8.0	8.0	Pans 29-7 and 29-39
	Sand (6" Min)	209a		82	00 32.	0 83.00		10/3/12 17:25	5 10/3/12 17:38	10/3/12 20:44	4 10/3/12 20:51	10/11/12 11:57	10/11/12 18:17	Y			
	Sand (6" Min) Sand (6" Min)	210 210a		97				10/3/12 17:46 10/3/12 17:57	5 10/3/12 17:57 7 10/3/12 18:08	10/3/12 20:53 10/3/12 20:58		10/11/12 18:17	10/11/12 18:30	Y Y	7.0	7.0	Pan 29-9
	Sand (6" Min)	211		70	00 21.	10		10/3/12 18:08	10/3/12 18:22	10/3/12 21:03	1 10/3/12 21:04			Υ	6.0	6.0	Pan QA-29B-1
	Sand (6" Min)	211a		96				10/3/12 18:32						Y			
	Sand (6" Min) Sand (6" Min)	212 212a		66				10/3/12 18:42 10/3/12 18:53	2 10/3/12 18:53 3 10/3/12 19:05				1	Y	7.5	7.5	Pan 29-11
	Sand (6" Min)	213		62				10/3/12 18:55	5 10/3/12 19:16	10/3/12 21:10	10/3/12 21:11	i L		Y	7.0	7.0	
	Sand (6" Min)	213a		26				10/3/12 19:16				į		Y			
	Sand (6" Min) Sand (6" Min)	214 214a		14	00			10/3/12 19:19	10/3/12 19:22 10/3/12 19:26		+	! !	 	Y	1	 	
	Sand (6" Min)	215		50	00			10/3/12 21:38	3 10/3/12 21:46	ĺ		<u> </u>		Y	6.0	6.0	Pan 29-13
	Sand (6" Min)	215a		88				10/3/12 21:46						Y	7.	7.0	D 00 44
1	Sand (6" Min)	216		72	JU			10/3/12 22:00	10/3/12 22:10	1	1	ı	L	Y	7.8	7.8	Pan 29-14

	General Information				Tonnage	and Volume	s from Operat	or Log				Sche	edule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Sand (6" Min)	216a				105.00				10/3/12 22:10	10/3/12 22:28					Y			D 00.44
	Sand (6" Min) Sand (6" Min)	217 217a				86.00 102.00				10/3/12 22:28 10/3/12 22:42	10/3/12 22:42 10/3/12 22:57		+			Y	6.0 7.2	6.0 7.2	Pan 29-41 Pan 29-19
	Sand (6" Min)	218				84.00				10/3/12 22:57	10/3/12 23:12		į			Y	9.5	9.5	Pan 29-18
	Sand (6" Min) Sand (6" Min)	218a 219				111.00 75.00				10/3/12 23:12 10/3/12 23:29	10/3/12 23:29 10/3/12 23:41		<u> </u>			Y			
	Sand (6" Min)	219a				137.00				10/4/12 3:25	10/4/12 3:42					Y	6.2	6.2	Pan 29-21
	Sand (6" Min) Sand (6" Min)	220 220a				87.00 135.00				10/4/12 3:42 10/4/12 4:50	10/4/12 3:55 10/4/12 5:15		 			Y			
	Sand (6" Min)	221				48.00			-	10/4/12 4:50	10/4/12 5:15		 			Y	8.8	8.8	Pan 29-22
	Sand (6" Min)	221a				102.00	87.00			10/4/12 7:35		10/17/12 17:18				Y	0.5		0.000
	Sand (6" Min) Sand (6" Min)	222 222a				31.00 26.00	29.00 15.00		-	10/4/12 7:49 10/4/12 7:52	10/4/12 7:52 10/4/12 7:56	10/17/12 17:32 10/17/12 17:36	10/17/12 17:36 10/17/12 17:39			Y	8.5	8.5	Pan QA-29B-2
	Sand (6" Min)	223				19.00	12.00			10/4/12 7:56	10/4/12 7:59	10/17/12 17:39				Y			
	Sand (6" Min) Sand (6" Min)	223a 224				30.00 76.00	13.00 8.00			10/4/12 7:59 10/4/12 8:04	10/4/12 8:03 10/4/12 8:16	10/17/12 17:42 10/17/12 17:44				Y			
	Sand (6" Min)	224a				72.00				10/4/12 8:16	10/4/12 8:27	7 /				Υ	8.2	8.2	Pan 29-25
	Sand (6" Min) Sand (6" Min)	225 225a				116.00 86.00				10/4/12 8:27 10/4/12 13:44	10/4/12 13:44 10/4/12 13:58					Y	6.5 7.0	6.5 7.0	Pan 29-26 Pan 29-42
	Sand (6" Min)	226				39.00				10/4/12 13:58	10/4/12 14:13					Y	7.0	7.0	1 di 20 42
	Sand (6" Min)	226a	<u> </u>			55.00	109.00			10/4/14 14:44	10/4/12 14:48	10/4/12 15:58				Y	8.0	8.0	Pan 29-27
	Sand (6" Min) Sand (6" Min)	227 227a	+			31.00 37.00	37.00 111.00			10/4/12 14:48 10/4/12 14:53	10/4/12 14:53 10/4/12 14:59	10/4/14 16:10 10/4/14 16:31	10/4/12 16:21 10/4/12 16:43			Y	11.5	11.5	Pan 29-28
	Sand (6" Min)	228				57.00	29.00			10/4/12 14:59	10/4/12 15:13	10/4/12 16:43	10/4/12 16:48			Y			
	Sand (6" Min) Sand (6" Min)	228a 229				45.00 90.00	56.00	 		10/4/12 16:48 10/4/12 17:16	10/4/12 17:02 10/4/12 17:30	10/17/12 18:23	10/17/12 18:29		1	Y	7.5 6.5	7.5 6.5	Pan 29-29 Pan QA-29B-3
	Sand (6" Min)	229a				79.00	21.00			10/4/12 17:58	10/4/12 18:12	10/17/12 18:39	10/17/12 18:34			Y			
	Sand (6" Min) Sand (6" Min)	230 230a				122.00 58.00	34.00 10.00	116.00 81.00		10/4/12 18:39 10/4/12 18:53	10/4/12 18:53 10/4/12 19:08	10/17/12 18:34 10/17/12 18:41		10/19/12 2:22		Y	6.5 8.0	6.5 8.0	Pan 29-31 Pan 29-30
	Sand (6" Min)	231				129.00	55.00	72.00		10/4/12 18:55	10/4/12 13:08	10/17/12 19:07		10/19/12 3:04		Y	0.0	0.0	1 di 25 55
	Sand (6" Min)	231a 232				65.00	32.00	61.00		10/4/12 22:10	10/4/12 22:20		10/17/12 19:18	10/19/12 3:19		Y	0.0	0.0	Den 20 42
	Sand (6" Min) Sand (6" Min)	232a				78.00 59.00	9.00	69.00 66.00		10/4/12 22:20 10/4/12 22:32	10/4/12 22:32 10/4/12 22:42	10/17/12 19:18 10/17/12 19:23	10/17/12 19:23 10/17/12 19:26	10/19/12 3:31 10/19/12 3:46		Y	9.0 6.8	9.0 6.8	Pan 29-43 Pan 29-32
	Sand (6" Min)	233				99.00	56.00			10/4/12 22:42	10/4/12 22:57	10/19/12 3:59	10/19/12 4:15			Y	44.0	44.0	D 0000
	Sand (6" Min) Sand (6" Min)	233a 234				85.00 87.00				10/4/12 22:57 10/4/12 23:11	10/4/12 23:11 10/4/12 23:25		 			Y	11.0	11.0	Pan 29-33
	Sand (6" Min)	234a				59.00				10/4/12 23:25	10/4/12 23:35		<u> </u>			Y			
	Sand (6" Min) Sand (6" Min)	235 235a				127.00 63.00				10/5/12 2:00 10/5/12 2:20	10/5/12 2:20 10/5/12 2:30		ļ į			Y	10.0 8.5	10.0 8.5	Pan 29-34 Pan 29-35
	Sand (6" Min)	236				78.00				10/5/12 2:30	10/5/12 2:42					Y			
	Sand (6" Min) Sand (6" Min)	236a 237				70.00 71.00				10/5/10 2:42 10/5/12 2:54	10/5/12 2:54 10/5/12 3:05		 			Y	8.8	8.8	Pan 29-36
	Sand (6" Min)	237a				75.00				10/5/12 3:05	10/5/12 3:18		İ			Y	0.0	0.0	1 an 29-30
	Sand (6" Min) Sand (6" Min)	238 238a				54.00 65.00				10/5/12 3:18 10/5/12 3:28	10/5/12 3:28 10/5/12 3:40					Y			
	Sand (6" Min)	239				21.00				10/5/12 3:40	10/5/12 3:44		†			Y	6.5	6.5	Pans 29-37 and 29-44
	Sand (6" Min)	239a				18.00 7.00				10/5/12 3:44	10/5/12 3:47		İ			Y			
	Sand (6" Min) Subtotal Sand (6" Min)	240	115,917	4,079	4,895	5,318.00	1,087.00	635.00	7,040	10/5/12 3:47	10/5/12 3:49					1			
	Filter	204a				57.00				10/11/12 20:21						Y	4.0	44.0	Day 20.4
	Filter Filter	205 205a				73.00 63.00			-	10/11/12 22:45 10/11/12 23:10						Y	4.0	11.2	Pan 29-1
	Filter	206				89.00				10/12/12 1:30	10/12/12 2:03					Y	4.8	11.7	Pans 29-2 and 29-4
	Filter Filter	206a 207	+			48.00 69.00				10/12/12 2:03 10/12/12 2:49	10/12/12 2:20 10/12/12 3:05		 			Y			
	Filter	207a				134.00				10/12/12 3:25	10/12/12 4:04					Y			
	Filter Filter	208 208a	1			73.00 65.00				10/12/12 4:04 10/12/12 4:33	10/12/12 4:32 10/12/12 4:55		 			Y	6.0	15.0	Pan 29-5
	Filter	209				0.00				10/15/12 22:32	10/15/12 22:35					Y	6.3	14.3	Pans 29-7 and 29-39
	Filter Filter	209a 210	+			58.00 63.00	12.00 13.00			10/15/12 14:04 10/15/12 14:40		10/15/12 22:27 10/15/12 22:22	10/15/12 22:32 10/15/12 22:27			Y		-	
	Filter	210a				63.00	23.00	41.00		10/15/12 15:18	10/15/12 15:41	10/15/12 22:15	10/15/12 22:22			Y	8.0	15.0	Pan 29-9
	Filter Filter	211 211a	1			71.00 27.00	62.00 72.00	50.00 79.00		10/15/12 15:59 10/15/12 16:16	10/15/12 16:16 10/15/12 16:33	10/15/12 20:35 10/15/12 21:04				Y	7.5	13.5	Pan QA-29B-1
	Filter	212				34.00	11.00	8.00		10/15/12 16:16	10/15/12 21:42	11/12/12 7:27	11/12/12 7:34	11/14/12 23:55	11/15/12 0:10	Y			
	Filter Filter	212a				43.00 10.00	6.00	42.00		10/15/12 21:42	10/15/12 21:57 11/13/12 9:41	11/12/12 7:39	11/12/12 7:49	11/14/12 23:25	11/14/12 23:55	Y	9.5	17.0	Pan 29-11
	Filter	213 213a				44.00				11/13/12 9:35 10/16/12 1:10	10/16/12 1:26		<u> </u>			Y			
	Filter Filter	214 214a				19.00 19.00	19.00			10/16/12 1:26	10/16/12 1:33	10/26/12 22:07	10/26/12 22:25			Y Y			
·	Filter	214a	1			19.00 55.00	19.00			10/16/12 1:33 10/26/12 21:50		10/20/12 22:0/	10/20/12 22:25			Y	4.5	10.5	Pan 29-13
i	Filter	215a				71.00				10/16/12 4:15	10/16/12 4:39		1			Y			
i		216		1		43.00 74.00	38.00	-		10/16/12 4:39 10/16/12 6:00	10/16/12 4:55 10/16/12 6:26		11/13/12 2:57			Y	4.0	11.8	Pan 29-14
İ	Filter Filter	216a								.,, 0.00					1		+		
	Filter Filter	216a 217				84.00	12.00			10/16/12 6:26	10/16/12 6:56	11/12/12 23:47				Y	2.5	8.5	Pan 29-41
	Filter Filter Filter	217 217a				49.00	20.00	71.00 94.00		10/16/12 6:06	10/16/12 7:13	10/20/12 12:30	10/20/12 12:36			Y	> 11	18.2	Pan 29-19
	Filter Filter	217						71.00 94.00			10/16/12 7:13 10/16/12 7:24 10/16/12 19:21	10/20/12 12:30	10/20/12 12:36 10/16/12 8:06						

	General Information				Tonnage	and Volumes	from Operate	or Log				Sche	dule			Position		Т	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
	Filter	220				98.00	37.00			10/16/12 3:30	10/16/12 4:15	10/18/12 17:31	10/18/12 17:38			Y			
	Filter Filter	220a 221				68.00 66.00	30.00 51.00			10/16/12 4:15 10/18/12 4:47	10/16/12 4:33 10/18/12 5:21	10/26/12 4:22 10/26/12 4:05	10/26/12 4:33 10/26/12 4:22			Y	10.0	18.8	Pan 29-22
	Filter	221a				37.00	22.00			10/18/12 5:21	10/18/12 5:30	10/26/12 3:57	10/26/12 4:05			Y			
	Filter Filter	222 222a				23.00 16.00	42.00			10/18/12 5:30 10/18/12 5:37	10/18/12 5:37 10/18/12 5:40	10/26/12 3:49	10/26/12 3:57			Y	8.0	16.5	Pan QA-29B-2
	Filter	223				10.00				10/18/12 3.37	10/18/12 3.40					Y			
	Filter Filter	223a				25.00	20.00	38.00		10/18/12 5:40	10/18/12 5:52	10/18/12 5:52	10/18/12 6:00		10/25/2012 ??	Y			
	Filter	224 224a				28.00 57.00	20.00	45.00 102.00		10/18/12 6:00 10/18/12 6:08	10/18/12 6:08 10/18/12 6:29	10/18/12 8:01	10/18/12 8:10	10/25/12 2:05		Y	4.5	16.2	Pan 29-25
	Filter	225				58.00	52.00	138.00		10/18/12 6:29	10/18/12 6:49	10/20/12 5:37	10/20/12 5:55	10/20/12 5:5!	10/24/12 23:33	Y	> 11.8	18.3	Pan 29-26
	Filter Filter	225a 226				47.00				10/20/12 6:10	10/20/12 6:27					Y	> 8	15.0	Pane 29-42
	Filter	226a				54.00				10/20/12 6:27	10/20/12 6:45					Y	4.2	12.2	Pan 29-27
	Filter Filter	227 227a				19.00 79.00				10/20/12 6:45 10/22/12 22:53	10/20/12 7:05 10/22/12 23:23					Y	5.0	16.5	Pan 29-28
	Filter	2278				51.00	65.00			10/22/12 22:33		10/23/12 4:53	10/23/12 5:13			Y	5.0	16.5	Pan 25-20
	Filter	228a				69.00				10/23/12 5:13	10/23/12 5:38					Y	5.0	12.5	Pan 29-29
	Filter Filter	229 229a				115.00 59.00				10/23/12 5:38 10/23/12 6:10	10/22/12 6:10 10/23/12 6:39					Y	> 8	14.5	Pan QA-29B-3
	Filter	230				44.00	70.00	19.00		10/23/12 6:39	10/23/12 6:55			10/24/12 22:22	10/24/12 22:36	Y	6.5	13.0	Pan 29-31
	Filter Filter	230a 231		1		52.00 36.00	30.00 56.00			10/23/12 12:09 10/23/12 12:27	10/23/12 12:27 10/23/12 12:40	10/24/12 22:12	10/24/12 22:22 10/24/12 22:12			Y Y	8.8	16.8	Pan 29-30
	Filter	231a				13.00	76.00			10/23/12 12:27	10/23/12 12:43	10/23/12 19:56				Y			
	Filter Filter	232				42.00				10/23/12 20:22	10/23/12 20:37					Y	4.0	13.0	Pan 29-43
	Filter	232a 233				42.00 32.00	0.00			10/23/12 20:37 10/23/12 20:50	10/23/12 20:50 10/23/12 21:03	10/24/12 20:20	10/24/12 20:27			Y	4.0	10.8	Pan 29-32
	Filter	233a				40.00	8.00			10/23/12 21:03	10/23/12 21:17	10/24/12 20:13	10/24/12 20:20			Y	5.5	16.5	Pan 29-33
	Filter Filter	234 234a				27.00 19.00	39.00 39.00			10/23/12 21:17 10/23/12 21:26	10/23/12 21:26 10/23/12 21:42	10/24/12 20:00 10/24/12 17:00				Y			
	Filter	235				84.00	23.00			10/24/12 0:50	10/24/12 1:38					Y	> 8	18.0	Pan 29-34
	Filter	235a				70.00	21.00			10/23/12 1:39	10/24/12 2:03	10/24/12 17:16	10/24/12 17:23			Y	> 8	16.5	Pan 29-35
	Filter Filter	236 236a				50.00 57.00	13.00			10/24/12 2:03 10/24/12 2:21	10/24/12 2:21 10/24/12 2:41	10/24/12 17:23	10/24/12 17:31			Y			
	Filter	237				33.00	51.00			10/24/12 2:41	10/24/12 2:53	10/24/12 8:59	10/24/12 9:11			Y	> 8	16.8	Pan 29-36
	Filter Filter	237a 238				33.00 16.00	36.00			10/24/12 9:11 10/24/12 9:23	10/24/12 9:23 10/24/12 9:31	10/24/12 18:02	10/24/12 18:09			Y			
	Filter	238a				6.00	16.00			10/24/12 9:11	10/24/12 9:39	10/24/12 18:09				Y			
	Filter Filter	239 239a				40.00 6.00	16.00			10/24/12 15:38 10/24/12 15:44	10/24/12 15:44 10/24/12 15:49	10/24/12 18:15	10/24/12 18:22			Y	8.5	15.0	Pans 29-37 and 29-44
	Filter	29b-mechanical				32.50				12/13/12	12/13/12					Y			
	Subtotal Filter		115,917	2,447	3,206	3,439.50	1,213.00	833.00	5,486								6.0	17.2	
	Armor 1.0" (3" Min)	29b-mechanical				514.90				12/9/12	12/12/12					Y	6.2 > 8 > 8 > 8 4.0 > 8 > 5,0	18.7 18.8 23.0 24.0 16.5 23.0 21.5	Pans 29-1, 29-2, 29-4, 29-5, 29-7, 29-39, 29-9, QA-29B-1, and 29-11,
	Armor 1.0" (3" Min)	29b-mechanical				1,777.30				12/13/12	12/17/12					Y	> 8 7.5 8.0 5.0 5.0 8.0 8.0	18.5 19.3 16.5 23.2 26.8 23.2 26.8 23.2	Pans 29-13, 29-14, 29-41, 29-19, 29-18, 29-21, 29- 22, QA-29B-2, and 29-25
	Armor 1.0" (3" Min)	29b-mechanical				301.50				12/17/12	12/18/12					Y	> 8 > 8 5.0 > 8 > 8 > 8 > 8 > 8 6.0	22.5 19.0	Pans 29-26, 29-42, 29-27, 29-28, 29-29, QA-29B-3, 29-31, and 29-30
	Armor 1.0" (3" Min) Subtotal Armor 1.0" (3" Min)	29b-mechanical	115,917	2,039	2,651	818.69 3,412.40	0	0	3,412	12/18/12	12/20/12					Y	6.0 > 8 6.0 6.0 6.0 > 8 > 3		Pans 29-43, 29-32, 29-33, 29-34, 29-35, 29-36, 29- 37, and 29-44
	Total Cap 29b		113,917	2,039	2,001	3,412.40	J	J J	15,938										
C.O. Est. Quantity = 10,920 tons Actual Total Quantity = 24,415 tons (Caps 29A & 29B)	Total Cap 29								24,415										
Cap 30a	Sand (3" Min)	30a-mechanical				65.50				8/5/13	8/5/13					Y	3.5 3.5	3.5 3.5	Pans 30-1 and 30-7
C.O. Required Thickness = 6"	Sand (3" Min)	30a-mechanical				161.00				8/6/13	8/6/13					Y	4.0	4.0	Pan 30-8
Target Max Thickness = 16"	Sand (3" Min)	30a-mechanical	1			200.40				8/7/13	8/7/13					Υ	3.5	3.5	Pan 30-11

	General Information				Tonnage	and Volumes	from Operat	tor Log				Scho	edule			Position		1	hickness
Cap Area No.	Material	Lane ID	Surface Area (SF) ¹	Total Volume Required (CY) ²	Total Tons Anticipated	Pass 1 - Actual Tonnage Placed	Pass 2 - Actual Tonnage Placed	Pass 3 - Actual Tonnage Placed	Total Tonnage Placed in Cap Area ³	Pass 1 - Start Date/ Time	Pass 1 - End Date/ Time	Pass 2 - Start Date/ Time	Pass 2 - End Date/ Time	Pass 3 -Start Date/ Time	Pass 3 -End Date/ Time	Cap Limits GPS Field Verified and Documented (Y/N)	Total Layer thickness measurements (inches)	Total Cumulative Thickness (inches)	Thickness Verification Location Per Lane
Est. Design Quantity = 1,680 tons	Sand (3" Min)	30a-mechanical				15.00				8/8/13	8/8/13			į		Y	3.0	3.0	Pan QA-30A-1
As-Built Surface Area: 21,320 SF	Subtotal Sand (3" Min)		21,013	518	622	441.90	0	0	442										
	Filter	30a-mechanical				213.30				8/8/13	8/8/13			!		Y	> 8	11.5	Pans 30-1 and 30-7
	Filter	30a-mechanical		-		195.80		-	-	8/9/13	8/9/13		+	1		Y	5.5 4.5	9.0 8.5	Pan 30-8
	Filter	30a-mechanical		1		295.80		1	_	8/12/13	8/12/13			!		Y	4.5 > 8	11.5	Pan 30-11
	Filter	30a-mechanical				153.50			-	8/13/13	8/13/13			 		Y	10.0	13.0	Pan QA-30A-1
	Subtotal Filter	30a-illechanical	21,013	444	582	858.40	0	0	858	6/13/13	8/13/13					1	10.0	10.0	1 411 477 5077 1
	Armor 1.0" (3" Min)	30a-mechanical				489.30			333	8/14/13	8/14/13			:		Y	3.8	15.3	Pans 30-1 and 30-7
	` '													<u>į </u>		Y	> 8	17.0	
	Armor 1.0" (3" Min)	30a-mechanical				128.00			_	8/15/13	8/15/13			1		Y	4.5	13.0	Pan 30-8
	Armor 1.0" (3" Min)	30a-mechanical				132.90		1	_	8/16/13	8/16/13			<u>i </u>		Y	3.5	15.0	Pan 30-11
	Armor 1.0" (3" Min) Subtotal Armor 1.0" (3" Min)	30a-mechanical	21,013	370	481	101.20 851.40	0	0	851	8/19/13	8/19/13					Y	> 8	21.0	Pan QA-30A-1
	Total Cap 30a		21,013	370	401	651.40	U	U	2,152					 					
C 20b	Sand (3" Min)	201 1 1 1				168.72			2,132	42/44/42	40/40/40			<u> </u>		V	5.0	5.0	Pan 30-3
Cap 30b	` '	30b-mechanical						1	_	12/11/12	12/13/12			 		Y			
C.O. Required Thickness = 6"	Sand (3" Min)	30b-mechanical 30b-mechanical				63.68 68.98			-	12/17/12	12/17/12			<u> </u>		Y	9.5	9.5	Pan 30-4 Pan 30-5
Target Max Thickness = 21" Est. Design Quantity = 2,460 tons	Sand (3" Min) Sand (3" Min)	30b-mechanical		-		116.18		-	-	12/18/12 12/20/12	12/18/12 12/20/12		+	-		Y	5.2 5.0	5.2 5.0	Pan 30-5 Pan 30-6
As-Built Surface Area: 28,583 SF	Sand (3" Min)	30b-mechanical				119.90				12/20/12	12/20/12			!		, , , , , , , , , , , , , , , , , , ,	10.0	10.0	Pan 30-9
As-Built Surface Area. 20,303 3F	Sand (3" Min)	30b-mechanical		-		139.46			-	12/28/12	12/28/12		+			Y	6.0	6.0	Pan 30-10
	Sand (3" Min)	30b-mechanical		†		88.00			-	9/5/13	9/5/13			i		Y	> 6	6.0	Pan 30-12
	Sand (3" Min)	30b-mechanical				3.70				9/6/13	9/6/13			:		Y	6.5	6.5	Pan QA-30B-1
	Subtotal Sand (3" Min)		27,381	674	809	768.62	0	0	769	27 07 20	5/ 5/ 25			i			3.5	3.5	
	Filter	30b-mechanical				220.54				12/12/12	12/12/12					Y	> 6	11.0	Pan 30-3
	Filter	30b-mechanical				142.47				12/13/12	12/13/12			i		Y	> 8	17.5	Pan 30-4
	Filter	30b-mechanical				69.27				12/18/12	12/18/12					Y	> 8	13.2	Pan 30-5
	Filter	30b-mechanical				147.35				12/19/12	12/19/12			1		Y	> 6	11.0	Pan 30-6
	Filter	30b-mechanical				176.68				12/20/12	12/20/12			ļ		Y	> 6	16.0	Pan 30-9
	Filter	30b-mechanical				194.05				12/27/12	12/27/12			1		Y	5.5	11.5	Pan 30-10
	Filter	30b-mechanical				206.32				12/29/12	12/29/12			<u>i </u>		Y	> 6	12.0	Pan 30-12
	Filter	30b-mechanical				13.15				8/23/13	8/23/13			<u> </u>		Y	> 8	14.5	Pan QA-30B-1
	Filter	30b-mechanical	1		1	35.55	1	1		9/5/13	9/5/13			i		Y	1	1	
	Filter Subtotal Filter	30b-mechanical	07.004	570	757	56.15 1.261.53	•		1,262	9/6/13	9/6/13					Y			
	Armor 2.5" (5" Min)	30b-mechanical	27,381	578	/5/	1,261.53	0	0	1,262	12/12/12	12/12/12			_		Y	> 6	17.0	Pan 30-3
	Armor 2.5" (5" Min) Armor 2.5" (5" Min)	30b-mechanical	1	1	1	52.31	1	+	-	12/12/12	12/12/12		+	!		Y	> 8	25.5	Pan 30-3 Pan 30-4
	Armor 2.5" (5" Min)	30b-mechanical	 	 		175.35	1	+		12/14/12	12/15/12			 		Y	> 8	21.2	Pan 30-4
	Armor 2.5" (5" Min)	30b-mechanical	 	t	1	327.56	1	 		12/19/12	12/19/12		+	i 		Y	> 8	19.0	Pan 30-5
	Armor 2.5" (5" Min)	30b-mechanical	1	 		277.38		1		12/28/12	12/28/12			 		Y	>8	24.0	Pan 30-9
	Armor 2.5" (5" Min)	30b-mechanical	1			220.22		1		12/29/12	12/29/12			†		Y	> 8	19.5	Pan 30-10
	Armor 2.5" (5" Min)	30b-mechanical	İ	1		99.20		1		9/6/13	9/6/13			į		Y	6.8	18.8	Pan 30-12
	Armor 2.5" (5" Min)	30b-mechanical		1		52.40				9/9/13	9/9/13			i		Y	> 8	22.5	Pan QA-30B-1
	Armor 2.5" (5" Min)	30b-mechanical				33.70				9/23/13	9/23/13			!		Y			
	Subtotal Armor 2.5" (5" Min)		27,381	597	896	1,413.42	0	0	1,413										
	Total Cap 30b								3,444					i					
C.O. Est. Quantity = 1,620 tons	•																		
Actual Total Quantity ⁶ = 5,595 tons (Caps 30A & 30B)	Total Cap 30								5,595					į					

- 1 Area SF shown is anticipated area to encompass the C.O. limits; actual area will be based on approved layout and runout lengths.
- 2 Estimated volumes include anticipated tolerances and mixing zone material
- 3 For hydraulic placement, tonnage is based on weight belt readings. For mechanical placement, tonnage is based on either material barge ullage logs or weight belt readings.
- 4 The minimum thickness shown are consent order 95% confidence thicknesses
- 5 C.O. Est. Quantity: Estimated quantity to meet Consent Order requirement.
- 6 The as-built cap material volume reflects the modification in cap area to meet the existing bulkhead limit, existing wetlands limit, and mean higher high water line (el 3.84-ft).

 7 The as-built cap surface area includes the runout length and reflects the modification in cap area to meet the existing bulkhead limit, existing wetlands limit, and mean higher high water line (el 3.84-ft).

 8 Tonnage associated with mechanical placement is reported as tonnage distributed during the shifts on the specified day.