ANCHOR QEA

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December 28, 2015

Gary Miller, Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Revised Work Plan for Rock Placement on the Time Critical Removal Action Armored Cap, San Jacinto River Waste Pits Superfund Site, Channelview, Texas

Dear Gary:

This revised [final] work plan (Revised Work Plan) is submitted in response to your letter dated December 22, 2015 (December 22 Letter). The December 22 Letter approved the work plan submitted on behalf of Respondents McGinnes Industrial Maintenance Corporation and International Paper Company (Respondents) on December 21, 2015 (Draft Work Plan), with modifications, and directed that a revised work plan be submitted by December 28, 2015. Pursuant to the December 22 Letter and the authorization contained in a separate email dated December 22, 2015, sampling and related activities as described in the Work Plan were performed on December 23, 2015, with U.S. Environmental Protection Agency (USEPA) oversight. Additional samples were also collected in response to Comment No. 8 of the comments attached to the December 22 Letter.

As part of the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (Site), an armored cap was constructed adjacent to the San Jacinto River north of the Interstate 10 (I-10) bridge. The USEPA performed an underwater inspection of the armored cap on December 9 and 10, 2015, and identified an area on the northwestern part of the cap that requires placement of additional cap material (Figure 1).

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In accordance with the email from you on December 16, 2015, Respondents propose the following:

- Delineation and collection of surface sediment samples in the area in which cap material will be placed (referred to by USEPA as the "damaged area" and "repair area," and referred to in this Revised Work Plan as the "Work Area")
- Placement of cap material over the Work Area

The following provides details on the approach and procedures for completing the work, including a description of the Work Area based on the investigation conducted on December 23, 2015, and a response to comments attached to the December 22 Letter. In light of the fact that sediment samples were collected on December 23, 2015, with USEPA oversight, this Revised Work Plan does not address sediment sampling.

Delineation of the Work Area and Identification of Sample Locations

As outlined in the Draft Work Plan, probing was conducted to delineate the Work Area on December 23, 2015. Probes were advanced at approximately 5-foot intervals along a series of transects to determine any locations in which cap material could not be identified as being present at the TCRA design minimum thickness of 1 foot. Per your directive, additional probing was conducted outside of the Work Area along, and at the toe, of the submerged slope for any indication of a buildup of armor rock at the bottom of the slope (Figure 2).

Global Positioning System (GPS) coordinates were collected to define the perimeter of the Work Area, and survey stakes were driven at locations along the perimeter so the contractor would have visual confirmation of the Work Area during cap maintenance activities.

The probing and sediment sampling during the delineation of the Work Area indicated that armored rock was present over the entire area; however, the cap material was intermixed with shells and soft sediment. The Work Area, shown in Figure 2, measured approximately 20 feet by 22 feet and was on the shelf above the slope that exists in the northwestern part of the armored cap. The water depth in the Work Area was approximately 8 to 18 inches at the time of the delineation and sampling. Areas outside of the Work Area were found to be a solid substrate of armor rock and shells that acted to bind the armor material together,

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making probe penetration difficult. There was not any indication of build-up of armor rock at the toe of the slope outside of the Work Area.

Because of the amount of cap material and the relatively large size of those materials, it was difficult to collect sediment samples within the Work Area; however, three samples were collected within the Work Area after several attempts under your supervision. Probes of the "shelf" between the damaged area and the slope showed that the area did not have a sediment accumulation that could be sampled. With your concurrence, four additional samples were taken from soft sediment accumulations on top of the armored cap material at the base of the slope below the damaged area and then further north (Figure 2).

Placement of Geotextile and Armor Rock

Geotextile and armor rock will be placed over the Work Area with overlap beyond the boundaries of the Work Area, as described below. No existing armor rock is proposed to be removed.

As part of the TCRA planning for cap maintenance, two stockpiles of armor rock (armor rock C and armor rock D) were purchased and staged near the Site. Both armor rock C and armor rock D are larger than the armor rock A used in this portion of the armored cap. Non-woven geotextile will be placed over the Work Area, with a minimum 1-foot thickness of armor rock C on top of the geotextile. The armor rock C will provide long-term reliability of the cap surface from currents, winds, and waves in the area.

The Work Area is a relatively level area located on the shelf above a submerged slope and is set back approximately 15 feet from the top of the slope (Figure 2). Geotextile will be placed using procedures similar to those used during the original cap construction. Because the Work Area is relatively level, the geotextile and armor rock can be placed directly over the Work Area without the use of gravel filter material. As stated previously, the Work Area is relatively level, so construction techniques, such as placement of gravel filter material, and placing armor rock from the bottom up the slope are not required. Geotextile will be initially placed to provide complete coverage between the corner survey stakes that were placed as part of the Work Area delineation. These stakes will provide a visual reference above the water line that will allow the contractor to place the geotextile and armor rock

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accurately. Geotextile seams will be either sewn before deployment or overlapped in accordance with supplier recommendations or at least 2 feet, whichever is greater.

As the geotextile is being placed, rocks will be placed on top of the geotextile edge to secure the geotextile and prevent it from floating. Rock will be placed in the water by a long-reach excavator bucket, and from a maximum drop height of 2 feet, to spread a uniform thickness of rock close to and across the entire geotextile surface. This technique will minimize rock fall energy during placement. Similar methods were used during the TCRA construction for underwater geotextile and rock placement.

The final extent of the cover will be such that there will be at least 5 feet of overlap of the geotextile into the armored cap areas surrounding the Work Area. A minimum of 1 foot of armor rock will be placed over all geotextile, and the edges of the armor rock will be tapered into the surrounding intact armored cap in areas beyond the geotextile. Confirmation probing will be performed at 5-foot intervals throughout the Work Area to assure the minimum 1-foot thickness of armor rock is present over the geotextile. This technique was also used following the original cap construction to assure adequate cap thickness was attained. A bathymetric survey of the area will also be performed following the probing to provide post-construction survey data that can be used as a baseline for future armored cap inspection and monitoring.

Work will be conducted by the Respondents' on-call contractor, USA Environment, L.P. (USA). Based on discussions with USA, access to the Work Area from the land-side is necessary due to shallow water conditions. Consistent with previous land-based construction during the original armored cap construction, work will be conducted as follows:

- Rock will be delivered using dump trucks to a stockpile area at the southeastern entrance to the armored cap, and that is not on the TxDOT right-of-way.
- Small equipment will be used to move rock from the delivery location to a stockpile near the Work Area.
- The rock will be transferred from the stockpile into the Work Area using a long-reach excavator working on mats to limit ground contact pressure.

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- Work will be done during low water conditions, which are both tide- and weather-dependent at the Site.

The construction duration is estimated to be 1 to 2 weeks.

Schedule

With USEPA's approval of this Revised Work Plan, mobilization of construction equipment and cap material will begin on Tuesday, December 29, 2015, assuming weather, tide, and access conditions allow those activities. Please do not hesitate to contact me if you would like to discuss anything.

Sincerely,

David C. Keith

David C. Keith
Project Coordinator
Anchor QEA, LLC

cc: Phil Slowiak, International Paper Company
Dave Moreira, McGinnes Industrial Maintenance Corporation
John Laplante, Anchor QEA, LLC

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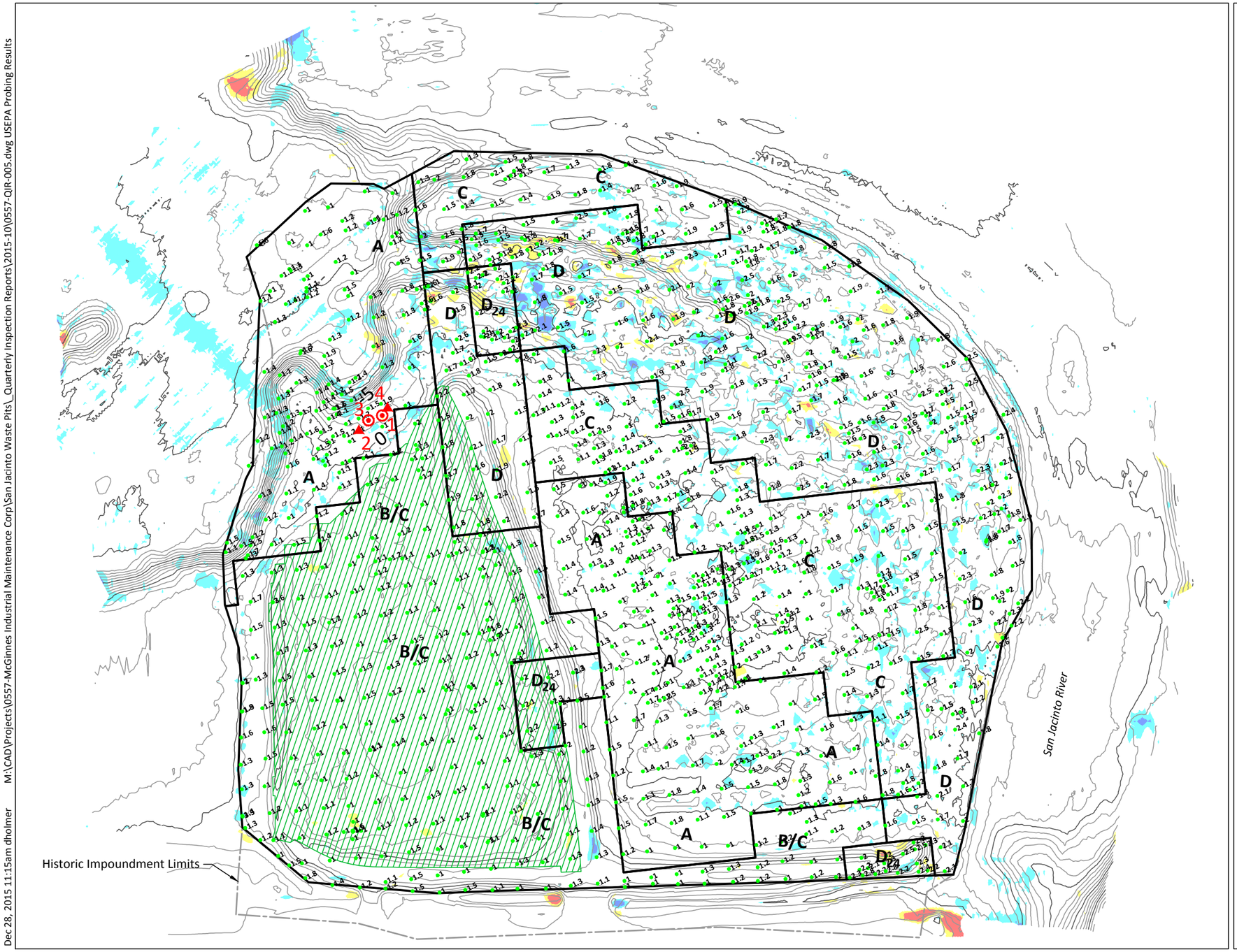
FIGURES



LEGEND:

- October 2015 Bathymetric and Topographic Contours (1 Foot Interval)
- 4▲ USEPA Probe Location (December 2015), Rock
- 1⊙ USEPA Probe Location (December 2015), Soft Sediment
- 1.7 Post Construction Probe Location and Rock Thickness in Feet
- Surveyed Extent of Installed Geotextile and Geomembrane in Western Cell
- B/C Armored Cap Type and Boundary
- Historic Impoundment Limits
- > 1.0 Foot Increase
- 0.5 Foot Increase to 1.0 Foot Increase
- 0.5 Foot Increase to 0.5 Foot Decrease
- 0.5 Foot Decrease to 1.0 Foot Decrease
- > 1.0 Foot Decrease
- 30' × 30' Example 30'x30' Area

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated July 2015 and October 2015.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 120
Scale in Feet

M:\CAD\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_Quarterly Inspection Reports\2015-10\0557-QIR-005.dwg USEPA Probing Results
Dec 28, 2015 11:15am dholmer

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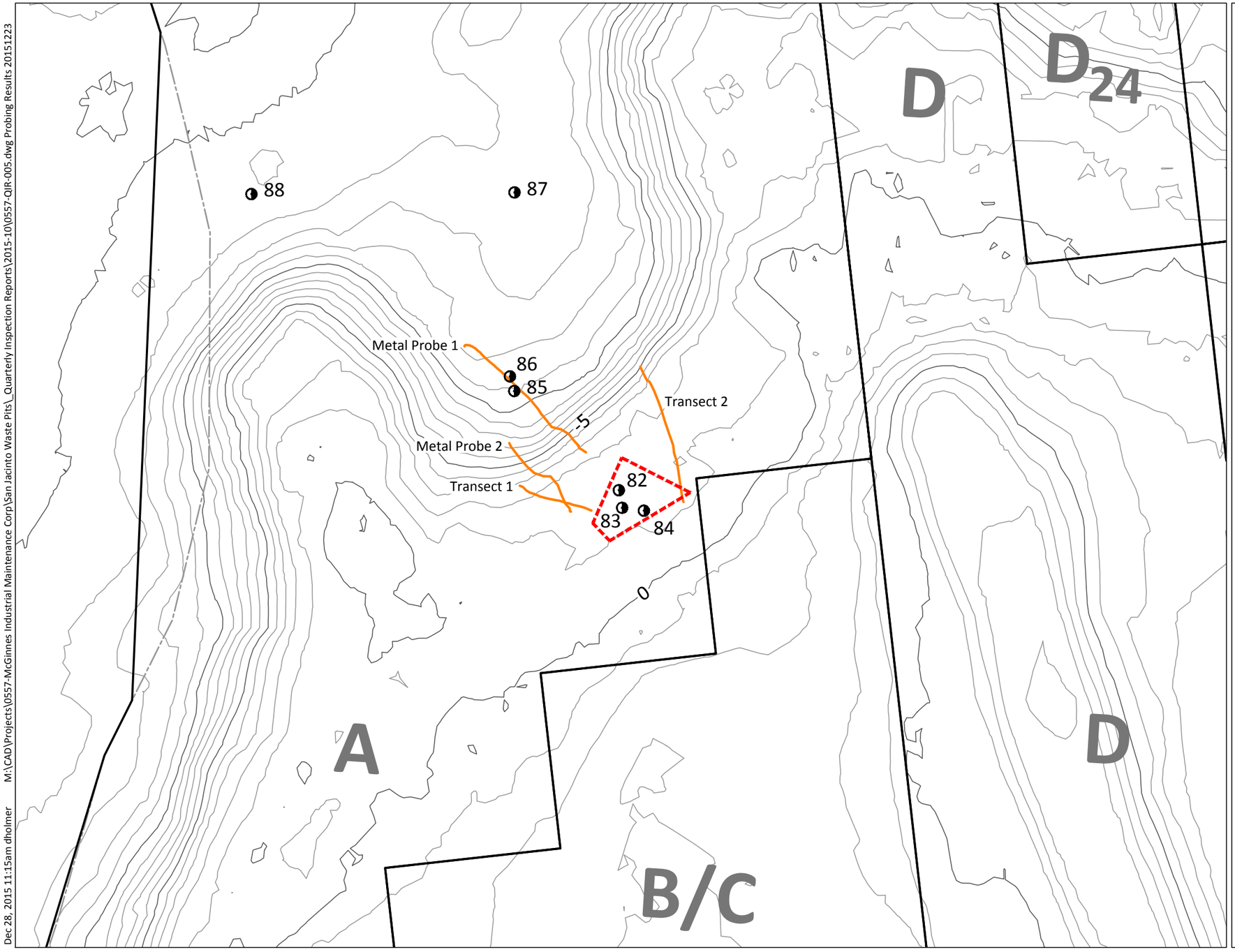
Figure 1
USEPA Probing Results
Post TCRA Inspection
San Jacinto River Waste Pits Superfund Site

Dec 28, 2015 11:15am dholmer M:\CAD\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_Quarterly Inspection Reports\2015-10\0557-QIR-005.dwg Probing Results 20151223



LEGEND:

- October 2015 Bathymetric and Topographic Contours (1 Foot Interval)
- 88 Sample Station (December 23, 2015)
- Probing Transect (December 23, 2015)
- Work Area Boundary (December 23, 2015)
- B/C Armored Cap Type and Boundary
- Historic Impoundment Limits

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated July 2015 and October 2015.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 30
Scale in Feet

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Figure 2
Summary of Probe and Sample Data Collected on December 23, 2015
Post TCRA Inspection
San Jacinto River Waste Pits Superfund Site