Site Assessment/Characterization/Closure

3Bear Cottonwood Water Treatment and Impound
Latitude 32.02141°, Longitude -104.31707°
Section 20 T26S R26E New Mexico Meridian
Eddy County, New Mexico

Prepared For:

3Bear Field Services, LLC

674 Marathon Rd

Hobbs, NM 88240

Prepared By:

Barr Engineering Co.

1600 Broadway

Suite 1600

Denver, CO 80202

June 2019

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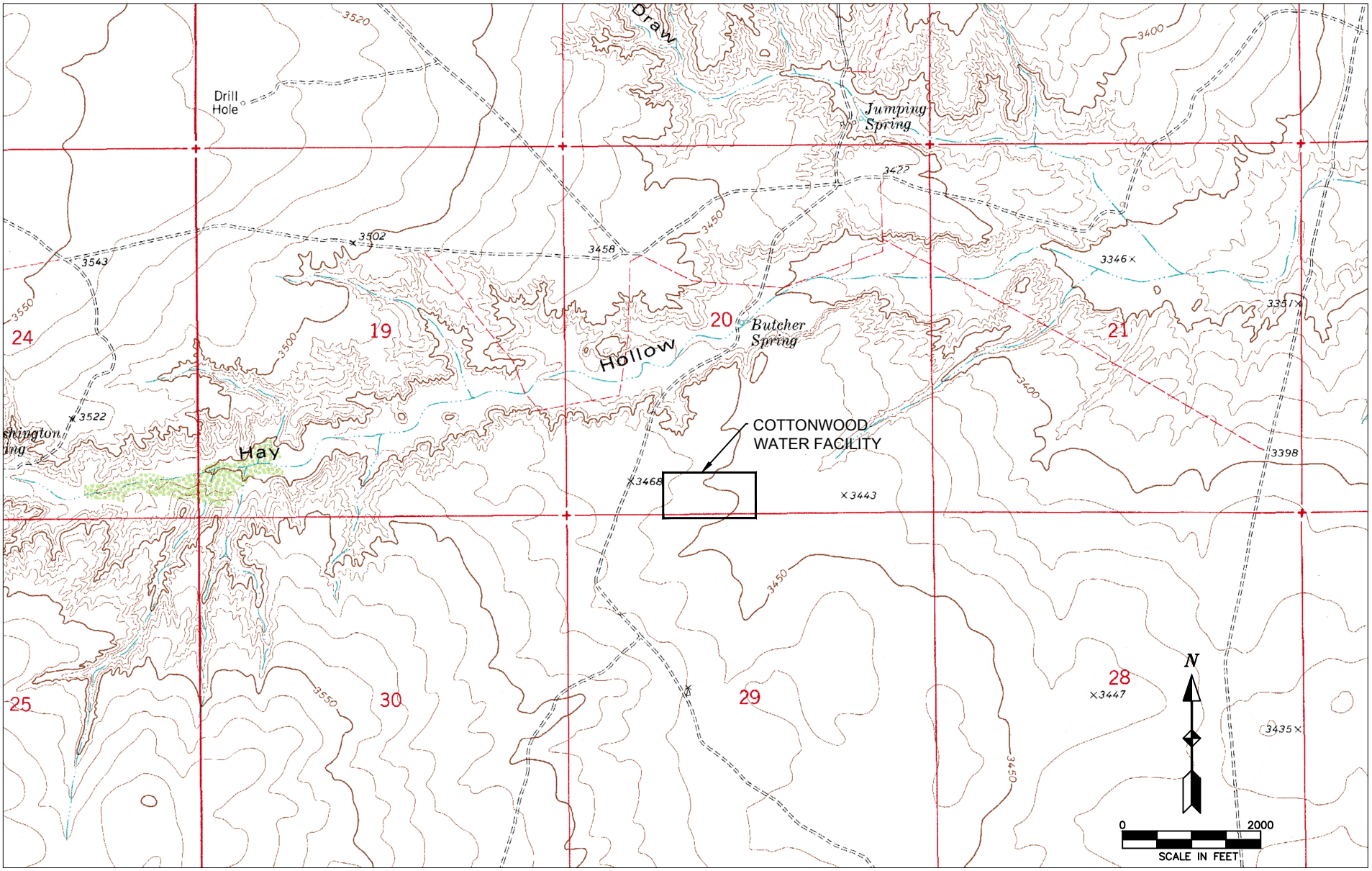
Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.

Figure 1 and Figure 2 show the impact area, surface features, and delineation points. There are not any monitoring wells on site.



SOURCE: USGS JUMPING SPRING, NM 7.5-MINUTE SERIES QUADRANGLE, 1978

PREPARED BY

Marquez Environmental Services, Inc.

Quality ■ Integrity ■ Results

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PREPARED FOR

3Bear Field Services, LLC
674 Marathon Rd
Hobbs, NM 88240

TITLE

FIGURE 1
SITE LOCATION MAP
COTTONWOOD PW RECYCLING
EDDY COUNTY, NM

Project: 3Bear		Date: 8–10–2018	Revision
Scale:		Source: JLJ	△

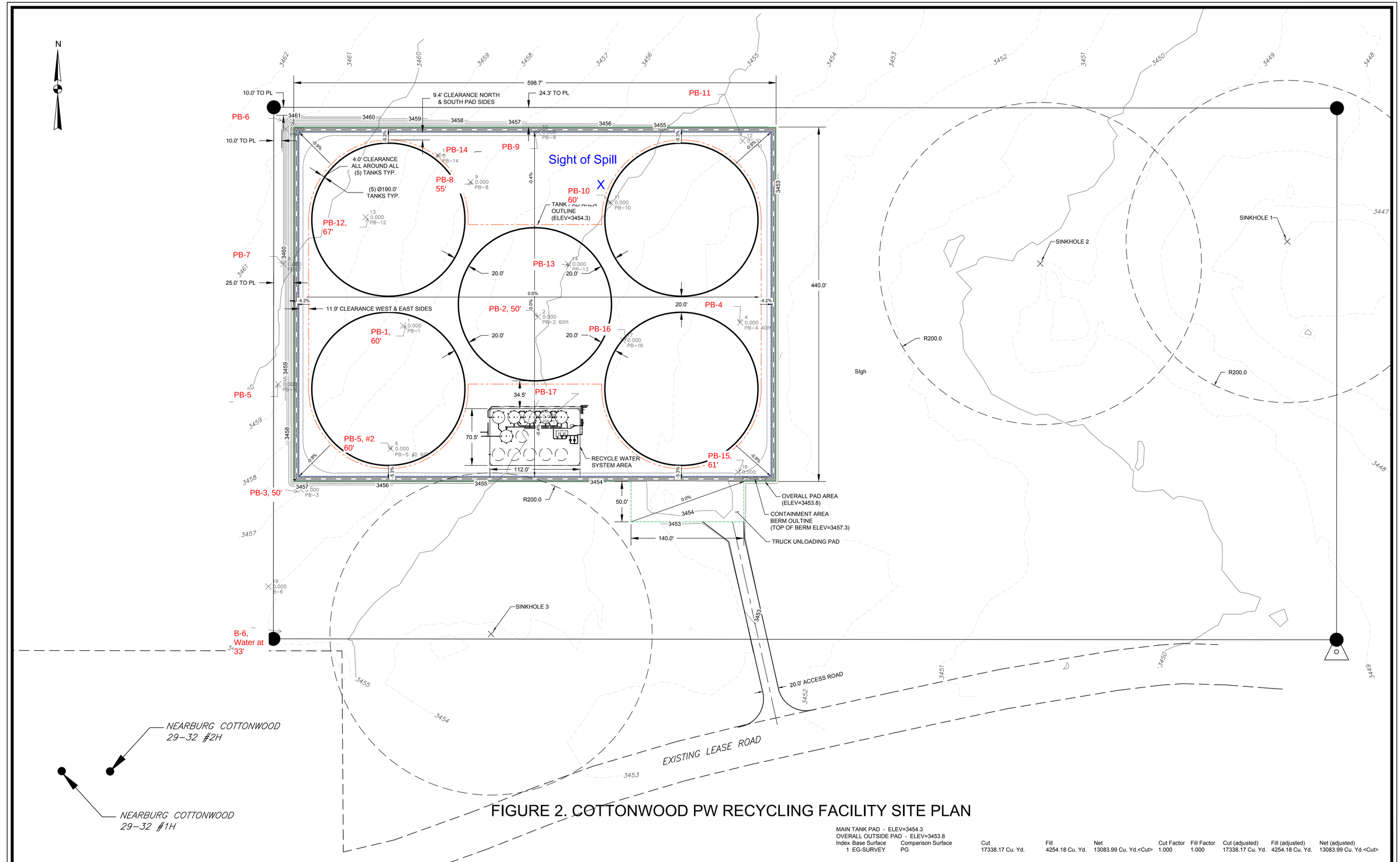

FIGURE 2. COTTONWOOD PW RECYCLING FACILITY SITE PLAN

MAIN TANK PAD - ELEV=3454.3
OVERALL OUTSIDE PAD - ELEV=3453.8

Index	Base Surface	Comparison Surface
1	EG-SURVEY	PG

Cut	Fill	Net	Cut Factor	Fill Factor	Cut (adjusted)	Fill (adjusted)	Net (adjusted)
17338.17 Cu. Yd.	4254.18 Cu. Yd.	13083.99 Cu. Yd.<Cut>	1.000	1.000	17338.17 Cu. Yd.	4254.18 Cu. Yd.	13083.99 Cu. Yd.<Cut>

811 Know what's below. Call before you dig.

REVISIONS

NO.	DATE	DESCRIPTION
A	11/29/2017	ISSUED FOR REVIEW

DESIGNED	NL
DRAWN	JNB
CHECKED	TM
DATE	11/15/2017

Tetra Tech Inc.
4000 N. BIG SPRING ST., SUITE 401
MIDLAND, TX 79705
(432) 682-4559

3BEAR ENERGY, LLC
EDDY COUNTY, NEW MEXICO
GPS (WGS84): 32.021682°N, -104.318212°W

3Bear Energy

NORTH

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: NA

COTTONWOOD PRODUCED WATER RECYCLING FACILITY
CONTAINMENT AREA
RECYCLE WATER SYSTEM
GENERAL ARRANGEMENT

PROJECT NO. 212C-MD-00981
DRAWING NO.
SHEET NO. 1 OF 1

Field data

On March 26, 2019 a leak was detected on tank TK-454 on the Southwest corner of Cottonwood Water Terminal and Impound. TK-454 was removed from service and drained to determine the cause of the leak. After inspecting the tank it was determined that there was a tear in the liner of the tank allowing a small amount of produced water with hydrocarbons to release into the surrounding soil contained within lined storage tank berm; calculated estimate was 11 bbl of produced water was released. To remediate the contaminated liquids, 3Bear excavated the saturated soil until the soil was dry. A total of two cubic yards of contaminated soil was removed from the spill site, concluding that 3Bear's original estimation of the amount of liquids released was a conservative estimation. The tank liner has been repaired and the tank remains out of service until further notice.

Data table of soil contaminant concentration data

As mentioned in the field notes above, this was a small produced water leak that was contained in the lined storage tank berm. Saturated soil was removed until the soil was no longer wet. No confirmation samples were collected.

Depth to Water Determination

The depth to ground water was determined using the New Mexico Office of the State Engineer website. On the website there is a tool to determine water column/average depth to water based on location. Figure 3 shows water depth at five locations within 1,000 meters of the facility. Based on the information provided for the five wells, it was determined that the average depth of ground water is 41 feet.

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Twp	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04041 POD1	C	ED	2	1	3	20	26S	26E	564281	3543559	585	100	60	40
C 04046 POD1	CUB	ED	1	2	3	20	26S	26E	564437	3543647	636	140	100	40
C 01351 X-2	CUB	ED	3	1	3	20	26S	26E	563978	3543413*	650	25		
C 03810 POD1	C	ED	3	1	3	20	26S	26E	563896	3543406	714	100	15	85
C 03812 POD1	C	ED	4	4	1	20	26S	26E	564641	3543737	740	96	15	81
C 01351 X	CUB	ED	4	4	1	20	26S	26E	564581	3543822*	813	25		
C 01351	CUB	ED	4	2	4	19	26S	26E	563772	3543411*	822	25		
C 03811 POD1	C	ED	4	1	4	19	26S	26E	563746	3543436	857	46	15	31

Average Depth to Water: **41 feet**

Minimum Depth: **15 feet**

Maximum Depth: **100 feet**

Record Count: 8

Basin/County Search:

County: Eddy

UTMNAD83 Radius Search (in meters):

Easting (X): 564491.33 **Northing (Y):** 3543013 **Radius:** 1000

Figure 3

Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release

Butcher Spring is a watercourse north of Cottonwood. The spring is within a half mile of the release. Please see Figure 4.

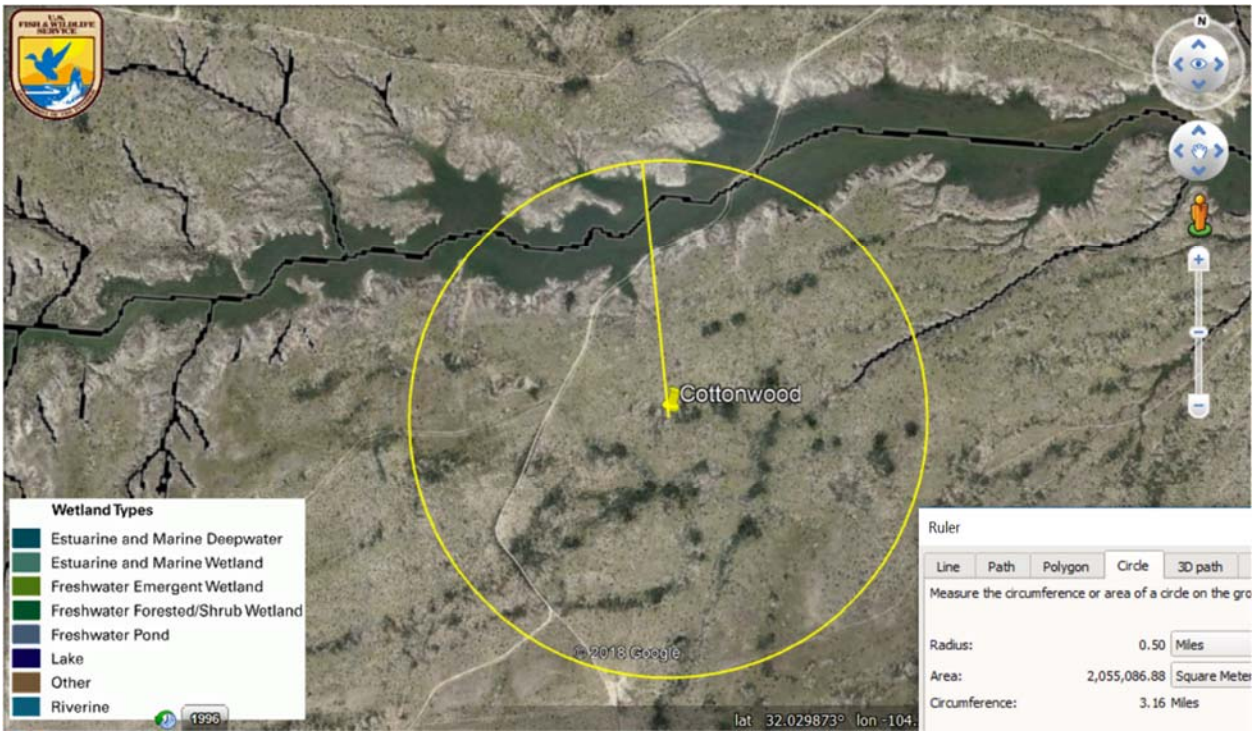

Figure 4

Boring or excavation logs

No boring was required. A total of two cubic yards of contaminated soil was removed and properly disposed. 3Bear stopped digging when surrounding soil was dry.

Photographs including date and GIS information

Figures 5-7 are photographs of the spill. There are no photographs of the remediated site prior to backfill.

Figure 5

Figure 6

Figure 7

Topographic/Aerial maps

Please see Figure 8 for a topographic map and Figure 9 for an Aerial Map.

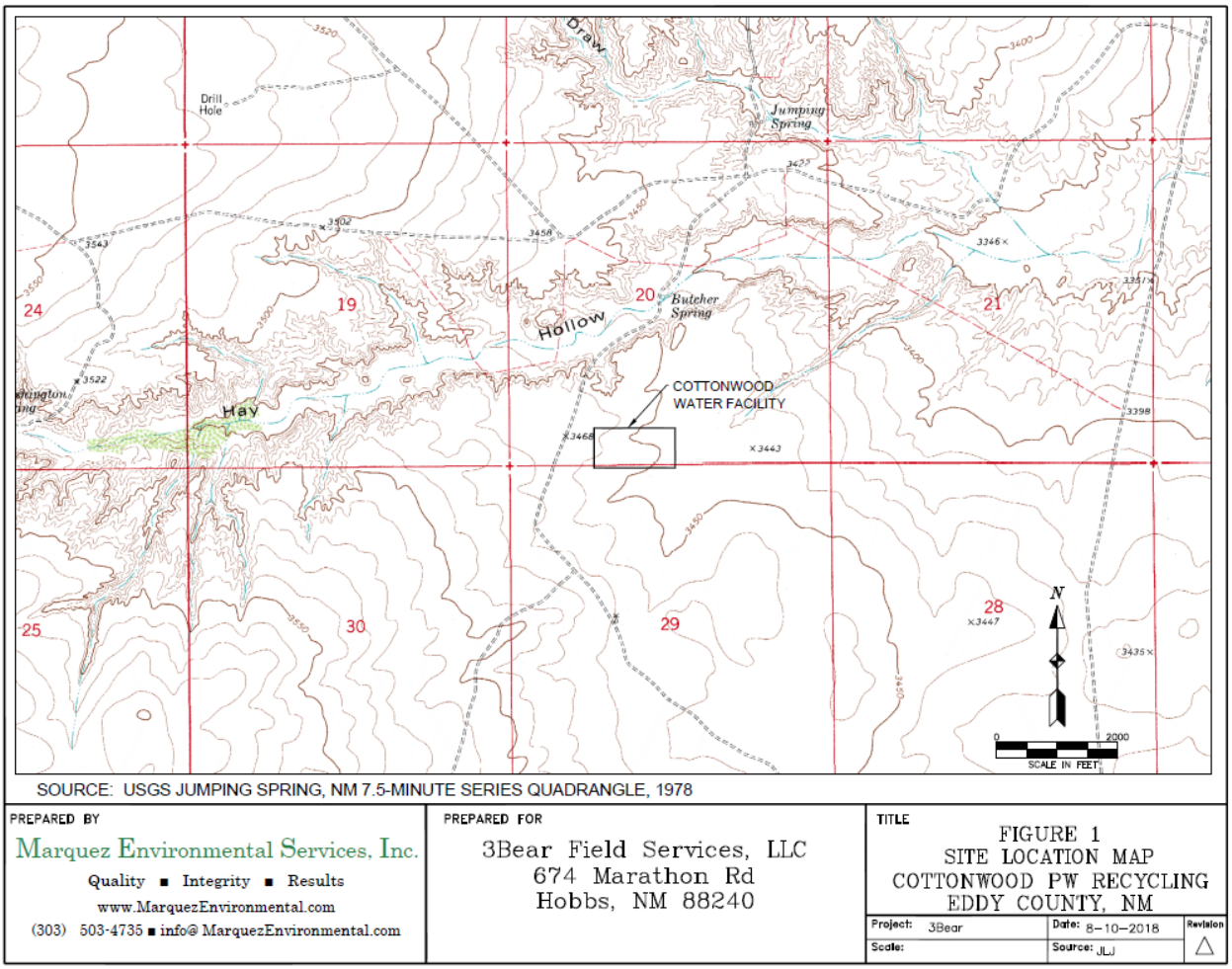

Figure 8


Cottonwood
Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the circumference or area of a circle on the ground
Radius:
500.95
Feet
Area:
72,954.94
Square Meters
Circumference:
3,141.25 Feet
Mouse Navigation
Save
Clear

Figure 9

Laboratory data including chain of custody

No confirmation samples were collected. Therefore, no laboratory data are available.