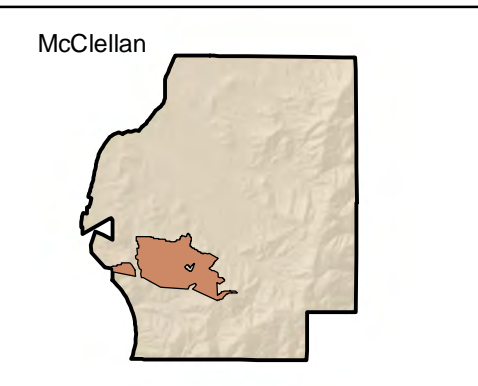
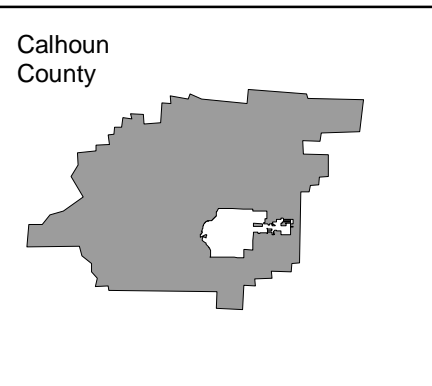
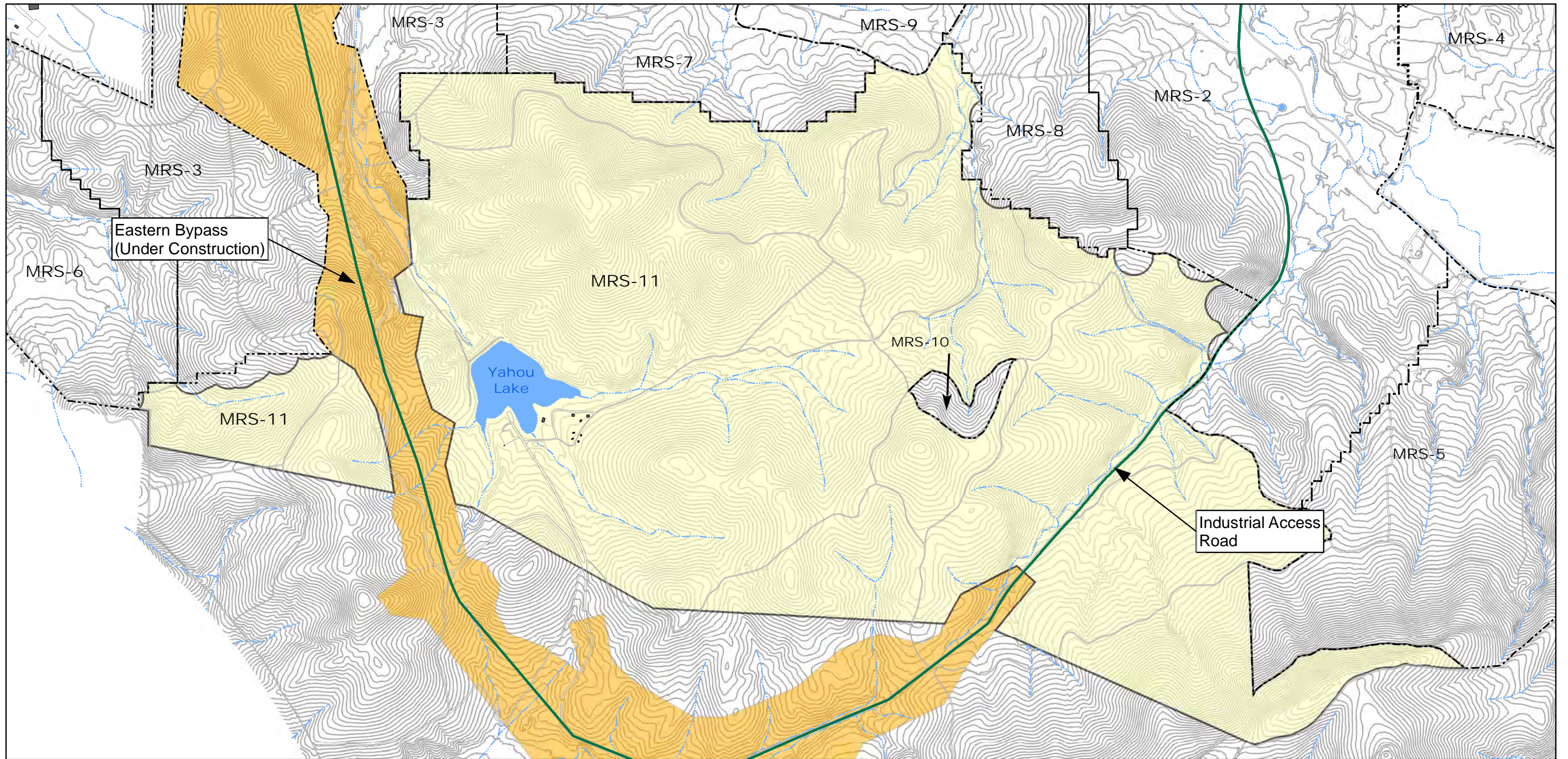


Appendix A
Figures

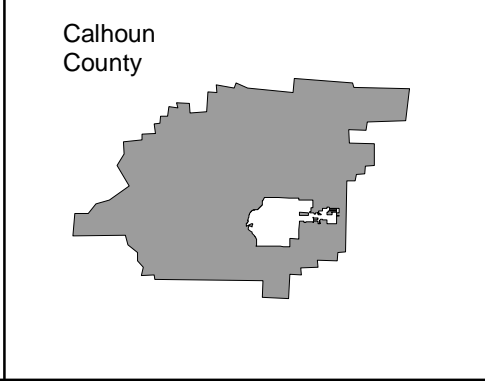
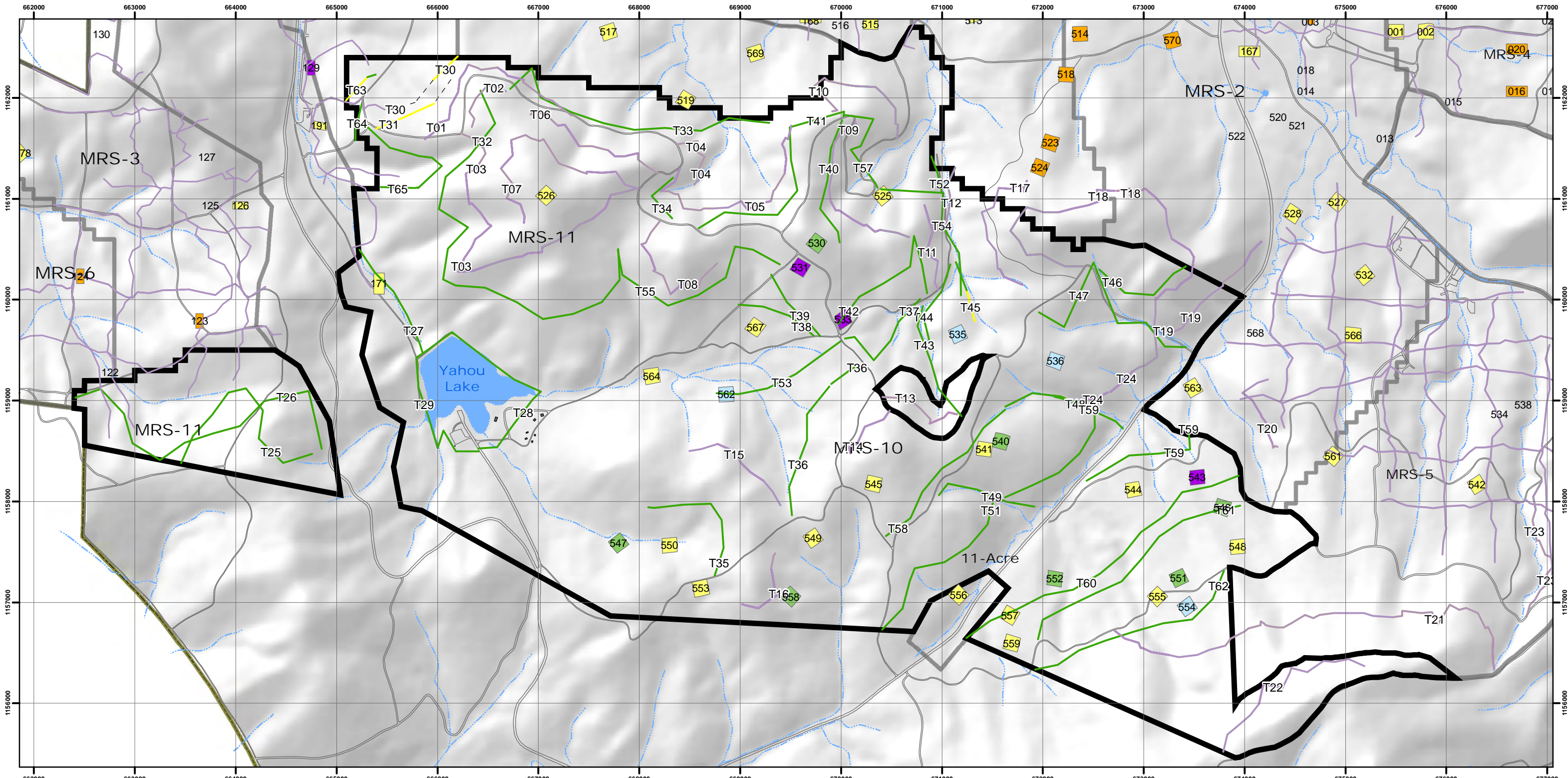


Legend

MRS-11 Boundary	Lakes
Bravo MRS	Contour Lines (10 foot interval)
Eastern Bypass (Previously Cleared)	Major Road
Buildings	Roads
	Streams

**Figure 1-1
MRS-11 Location**

Munitions Response Site 11
Bravo MRA McClellan
Anniston, Alabama



- Legend**
- McClellan Boundary
 - MRS11 Boundary
 - Bravo MRS
 - Buildings
 - Streams
 - Roads
 - Delineation Transect Paths

- Grids by Target Type**
- MEC
 - Munitions Debris
 - Small Arms
 - Range/Cultural Debris
 - No Subsurface Finds

- Mountain Transects by TargetType**
- MEC
 - Munitions Debris
 - Small Arms
 - Range/Cultural Debris
 - No Metal Present

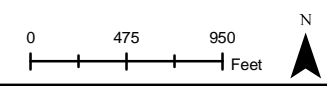
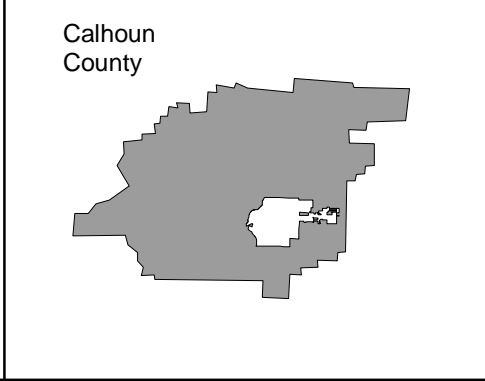
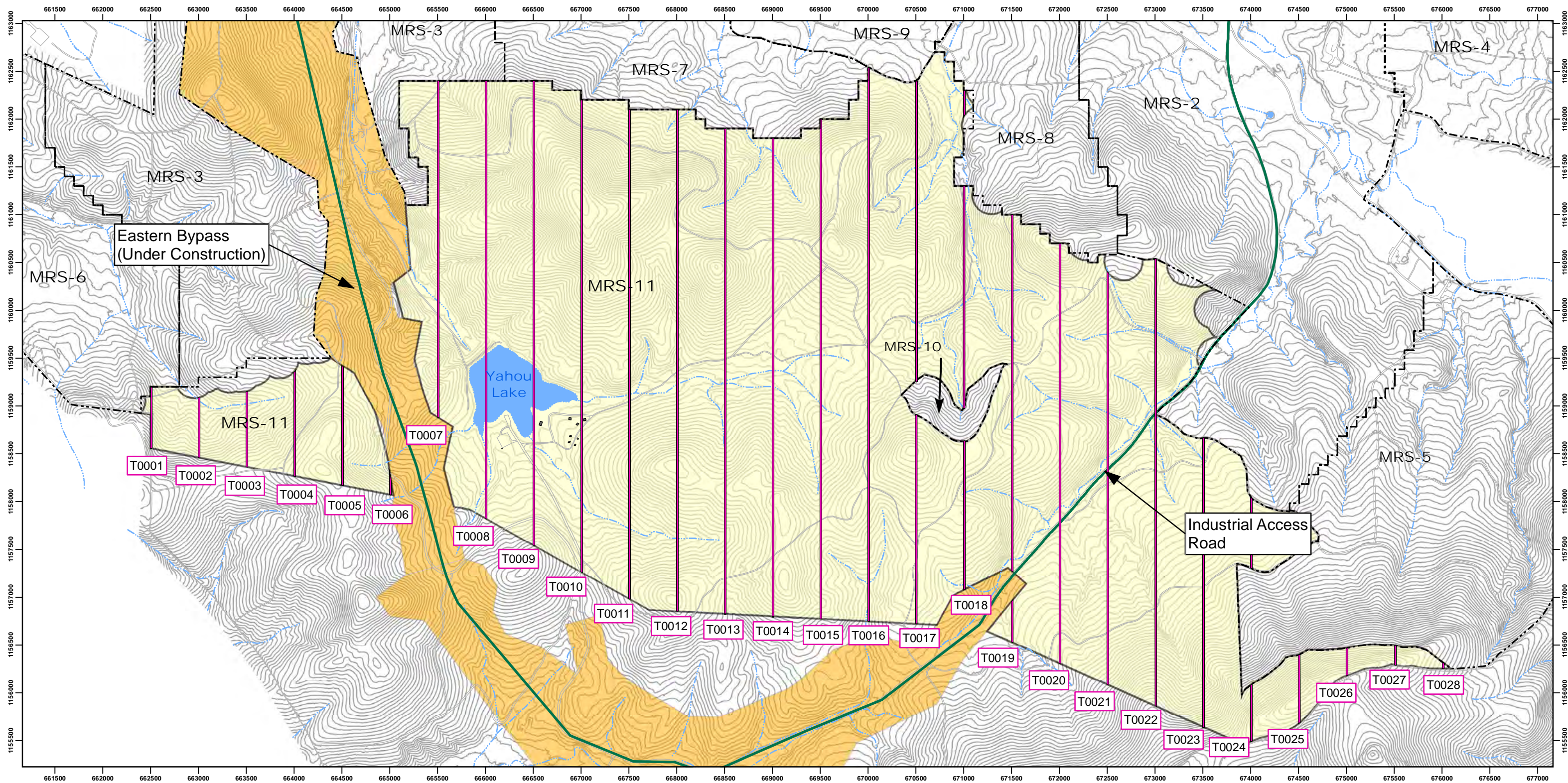


Figure 1-2
Draft Bravo EE/CA (2004)
Results for MRS-11 Area

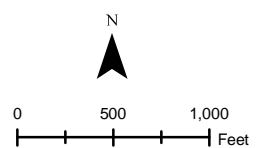
Munitions Response Site 11
 Bravo MRA McClellan
 Anniston, Alabama





Legend

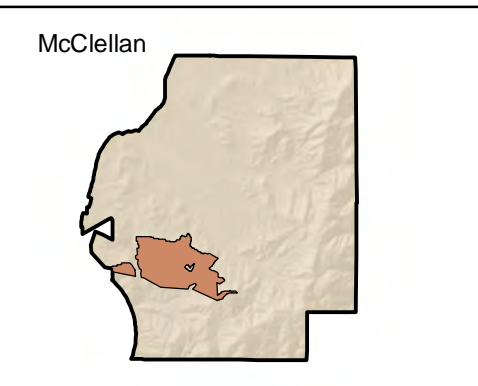
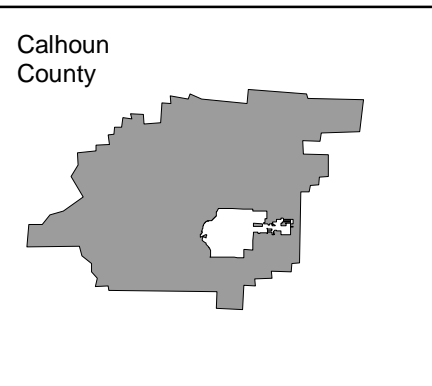
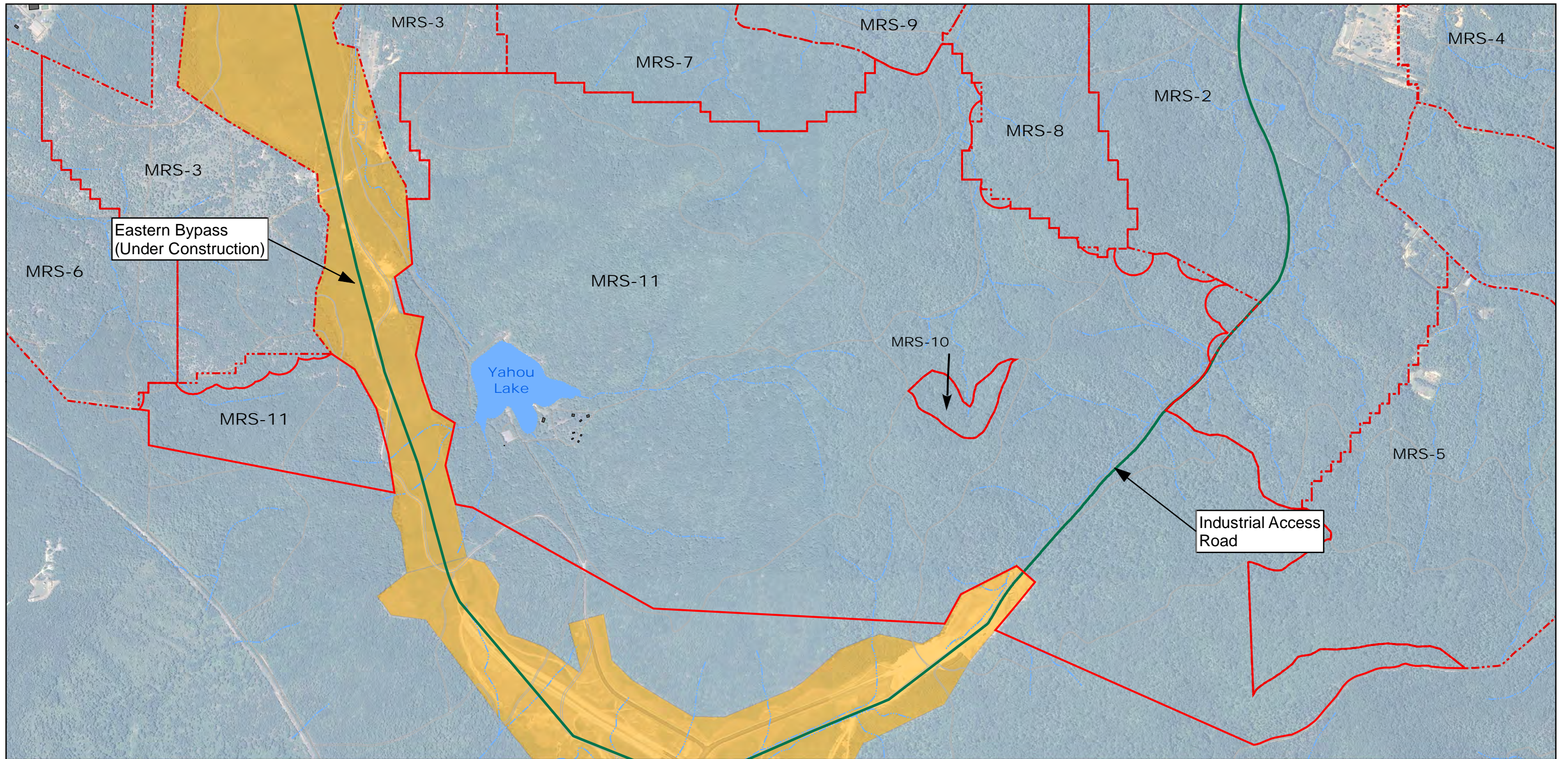
- MRS-11 Boundary
- 20-Foot Wide Transect Lanes
- Bravo MRS
- Eastern Bypass (Previously Cleared)
- Buildings
- T0005 Transect UoP
- Lakes
- Contour Lines (10 foot interval)
- Major Road
- Roads
- Streams



**Figure 1-3
Transect Design MRS-11
Supplemental Characterization**

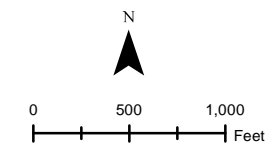
Munitions Response Site 11
Bravo MRA McClellan
Anniston, Alabama





Legend

- MRS-11 Boundary
- Bravo MRS
- Eastern Bypass (Previously Cleared)
- Buildings
- Lakes
- Major Road
- Roads
- Streams



**Figure 1-5
MRS-11 Site Features**

Munitions Response Site 11
Bravo MRA McClellan
Anniston, Alabama



Appendix B
Emergency Points of Contact
(See PWP 2007)

EMERGENCY CONTACT LIST

ORGANIZATION	CONTACT PERSON	NUMBER(S)
911		911
789th EOD Fort Benning		706-545-4154 – (24hr) 706-545-5372 –Operations 706-545-7117 - Admin
Montgomery Dispatch for Alabama Forestry Commission	Operator	800-572-2017
Alabama Department of Environmental Management	Tracy Strickland	334-271-7738
	Julie Ange	334-270-5646
	Brandi Little	334-274-4226
Alabama Dept. of Public Safety EOD Investigations	Corporal Thad Snyder	256-435-5873 – Office 256-223-2978 – Cell 256-435-3521 – 24 hrs
Anniston Fire	Chief Bill Fincher	256-231-7647 - Office 256-231-7644/7645 - Main
Anniston Police	Chief Layton McGrady	256-238-1800 - Main
ATF	Report Stolen Explosives	800-800-3855
Calhoun County Sheriff	Sheriff Larry Amerson	256-236-6600 - Main
Cobra-Homeland Security	Bruce Greene	256-847-2061 - Office 256-310-2902- Cell
	Leo Usry	256-847-2514 – Office 256-310-8113 - Cell
Dynamic Security	JR Burdett	256-525-1332 - Cell
	Tom Pelham	256-239-6266 - Cell
MDA	Robin Scott	256-236-2011 -Office 256-473-5779- Cell
Matrix Environmental Services (MES)	Site Mgr – Roger Hall	256-847-0780
	Task Mgr - Jason Soth	256-453-9424 - Cell
	Site Operations Mgr - Cecil Taylor	256-310-8004 - Cell
	Program Mgr - Richard Satkin	770-594-0331 – Office 410-935-8188 – Cell
	UXO QC – Harry Wallace	256-591-5983 - Cell
	UXO QA – Anthony O’Shaughnassey	256-454-4569 - Cell
Poison Control		800-292-6678
Randy Ginn	Alabama Forestry Commission	256-591-2706 - Cell
Range Control		847-3037 / 3038 / 3039
Transition Force	Scott Bolton	848-3845 – Office 423-280-6926- Cell
	Joe Ostrander (Security)	848-5680 - Office
US Fish & Wildlife	Steve Miller	848-6833 – Office 310-9194 – Cell

Appendix C

Accident Prevention Plan (APP)

(The APP has been superseded by the most recent version of the McClellan Health and Safety Plan)

Appendix D
Forms
(See PWP 2007)

Appendix E
SOPs
(See PWP 2007)

Appendix F
Visual Sampling Plan (VSP) Results

MRS-11

Transect Sampling for Unexploded Ordnance (UXO) Target Detection

Summary

This report summarizes the probability of traversing and detecting a target area of specific size and shape for different target area densities above background. Simulation details and a power curve estimate how well the specified design would detect the target. The selected design statement is:

If 20 foot wide transects with a parallel pattern are spaced 500 feet between transects (520 feet on centers) over the entire site, these transects have an approximately 95% chance of traversing and detecting any 600 foot diameter (300 foot radius) circular target area having a bivariate normal distribution with an average density of 223.831 anomalies per acre above the background density of 40 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.

The following table summarizes the sampling design developed. A figure that shows the transect placement in the field and a table that lists the transect placement coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Ensure high probability of traversing and detecting a target area that has a specified size and shape
Required Probability of Traversing the Target	100%
TARGET AREA AND TRANSECT INPUTS	
Type of Sampling Design	Transects
Transect Pattern	Parallel
Transect Width	20 feet
Area of target area	282743.34 ft ²
Shape of target area of concern	Circular
Radius of target area of concern	300 feet
SIMULATION PARAMETERS FOR PROBABILITY OF DETECTION	
Formula for calculating the probability of traversing and detecting target area	Monte Carlo Simulation (method described below)
Decision Rule	Flag if at least 95% confident an area has density greater than background density
Background Density of the Site	40 anomalies / acre
Proposed Evaluation Transect Spacing	500 feet
Distribution of target area density above background	Bivariate Normal
Target Area density above background evaluation range	10 to 500 anomalies / acres Target average
Instrument false negative rate	0%
Minimum precision	0.1
Maximum error	0.03
Search Window Diameter	590 feet
PROPOSED TRANSECT DESIGN AND COST INFORMATION	
Number of selected sample areas ^a	2
Specified sampling area ^b	44063012.27 ft ²
Computed spacing between transects	500 feet
Computed spacing between transect centers	520 feet
Number of transects to be surveyed	37

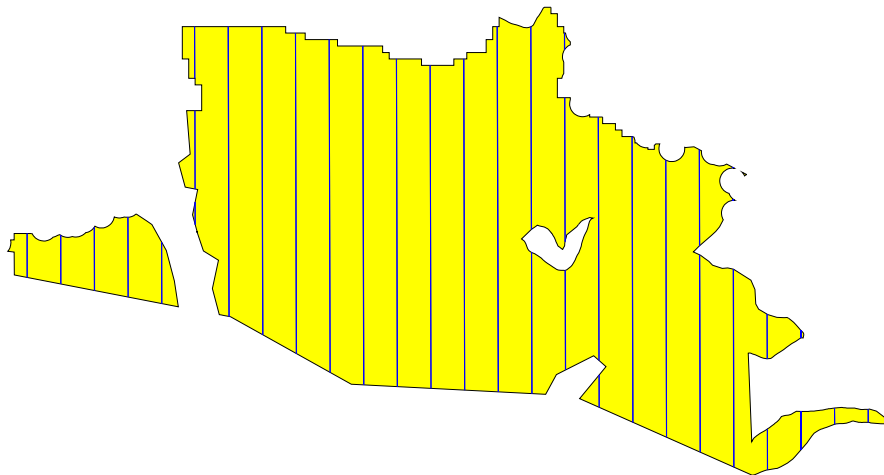
Transect Coverage	3.85% of total site area
Linear transect coverage	84852.52 feet
Area of transect coverage	1697050.3625 ft ²

^a The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.

^b The sampling area is the total surface area of the selected colored sample areas on the map of the site.

^c See the Cost of Sampling section for an explanation of the costs presented here.

Site Map With Proposed Transect Design



Summary of Transect Survey Design for Area: Area 2						
(All measurements are in feet)						
Start Coordinate		End Coordinate		Transect		ID
X	Y	X	Y	Width	Length	
675708.1990	1156278.6004	675707.6353	1156478.7088	20.0000	200.1092	0
675188.2843	1156247.5914	675187.5750	1156499.4113	20.0000	251.8208	0
674669.3898	1155854.4035	674667.7178	1156447.9531	20.0000	593.5520	0
674664.5247	1157581.5035	674664.1740	1157706.0067	20.0000	124.5036	0
674150.2722	1155540.4341	674148.4854	1156174.7308	20.0000	634.2992	0
674145.4244	1157261.3906	674143.4757	1157953.1757	20.0000	691.7878	0
673630.1425	1155585.7342	673621.5176	1158647.5613	20.0000	3061.8393	0
673618.5168	1159712.8559	673618.4624	1159732.1600	20.0000	19.3041	0
673617.1125	1160211.3923	673617.0816	1160222.3417	20.0000	10.9494	0
673109.4897	1155816.7320	673100.8951	1158867.8347	20.0000	3051.1148	0
673100.4896	1159011.7777	673096.3093	1160495.7740	20.0000	1484.0022	0
672588.8370	1156047.7298	672576.7572	1160336.0436	20.0000	4288.3308	0
672068.1842	1156278.7276	672055.7299	1160700.0046	20.0000	4421.2945	0
671547.5315	1156509.7254	671546.1193	1157011.0359	20.0000	501.3124	0

671545.4859	1157235.9023	671534.8828	1161000.0046	20.0000	3764.1172	0
671025.9021	1157087.4296	671021.5589	1158629.2485	20.0000	1541.8250	0
671020.3097	1159072.7041	671014.0356	1161300.0046	20.0000	2227.3094	0
671011.9423	1162043.1447	671011.2187	1162300.0046	20.0000	256.8609	0
670506.9285	1156722.3063	670500.7760	1158906.4557	20.0000	2184.1580	0
670499.7709	1159263.2637	670490.9376	1162399.0684	20.0000	3135.8171	0
669986.8504	1156749.3133	669970.9329	1162400.0046	20.0000	5650.7137	0
669466.7722	1156776.3202	669452.3393	1161900.0046	20.0000	5123.7047	0
668946.6941	1156803.3271	668932.6189	1161800.0046	20.0000	4996.6973	0
668426.6160	1156830.3340	668412.3352	1161900.0046	20.0000	5069.6907	0
667906.5378	1156857.3409	667891.7697	1162100.0046	20.0000	5242.6845	0
667385.9928	1157050.0863	667371.4860	1162200.0046	20.0000	5149.9387	0
666865.1718	1157340.8112	666851.2022	1162300.0046	20.0000	4959.2131	0
666344.3508	1157631.5360	666330.9185	1162400.0046	20.0000	4768.4875	0
665823.5513	1157914.6392	665810.9164	1162400.0046	20.0000	4485.3831	0
665299.5449	1159336.1582	665298.5591	1159686.1118	20.0000	349.9550	0
665297.9931	1159887.0610	665294.5763	1161100.0046	20.0000	1212.9484	0
665293.1679	1161600.0046	665290.9144	1162400.0046	20.0000	800.0032	0
664782.9802	1158115.9151	664780.3034	1159066.1690	20.0000	950.2577	0
664262.6946	1158216.5419	664259.2193	1159450.2801	20.0000	1233.7431	0
663742.4091	1158317.1687	663739.6498	1159296.7236	20.0000	979.5588	0
663222.1236	1158417.7955	663219.9958	1159173.1557	20.0000	755.3632	0
662701.8381	1158518.4223	662699.9230	1159198.2871	20.0000	679.8674	0

Summary of Transect Survey Design for Area: Area 4						
(All measurements are in feet)						
Start Coordinate		End Coordinate		Transect		ID
X	Y	X	Y	Width	Length	

Primary Sampling Objective

The primary purpose of sampling at this site is to traverse and detect target areas of a given size and shape with required high probability. The transect design tools provide a statistically defensible method to use transect survey data that covers only a small proportion of the total study area.

Selected Sampling Approach

The specified sampling approach was random parallel transect sampling. If parameters change from those specified in the table above, then the probability of detecting the target area will be different from those computed by VSP and reported here.

Simulation Details

To generate an estimated probability on a graph, VSP runs a Monte Carlo simulation based on the entered parameters. For each iteration, VSP creates a square site with the target area centered at the origin and rotated at a random angle. A parallel transect pattern is placed randomly so that 20 feet wide transects are parallel to the x axis.

VSP calculates the total area of the site traversed by transects, A_b , which can vary for each iteration.

The expected number of detected background anomalies, λ_b , is calculated as $\lambda_b = D_b A_b (1 - P_{fn})$ where D_b is the background density of 40 anomalies / acres and P_{fn} is the instrument false negative rate of 0. A random number of detected background anomalies is generated using a Poisson distribution with parameter λ_b . VSP randomly places these anomalies within the traversed areas of the site.

To simulate the number of additional anomalies in the target area, VSP uses an approximation technique to randomly place additional detected anomalies in the traversed areas of the target area. Portions of transects overlapping the target area are divided into small sections. For each section, the quantile of the target area in which it lies is determined, the expected number of additional anomalies is determined, and a random number of detected anomalies is determined using a Poisson distribution and placed within the section.

VSP uses a moving window along each transect to determine which areas have density significantly greater than background density. The window moves 1/6 of the search window diameter for each iteration. Where D_a is the actual density for the current window, the null and alternative hypotheses for determining if the area inside the window has density significantly greater than background density, D_b , are as follows:

$$\text{Null Hypothesis: } H_o : D_a \leq D_b$$

$$\text{Alternative Hypothesis: } H_a : D_a > D_b$$

VSP checks each window to see if the actual number of detected anomalies is significantly greater than the expected number of anomalies for a Poisson distribution. If any windows intersecting the target area are flagged as significant, then we determine the target area has been detected.

250 iterations are run to begin the simulation to estimate a probability of detection. If the specified Maximum Error has not been achieved, additional iterations are run until the Maximum Error is met. If the total number of iterations is n and the proportion of target areas detected is p , then another iteration is run if

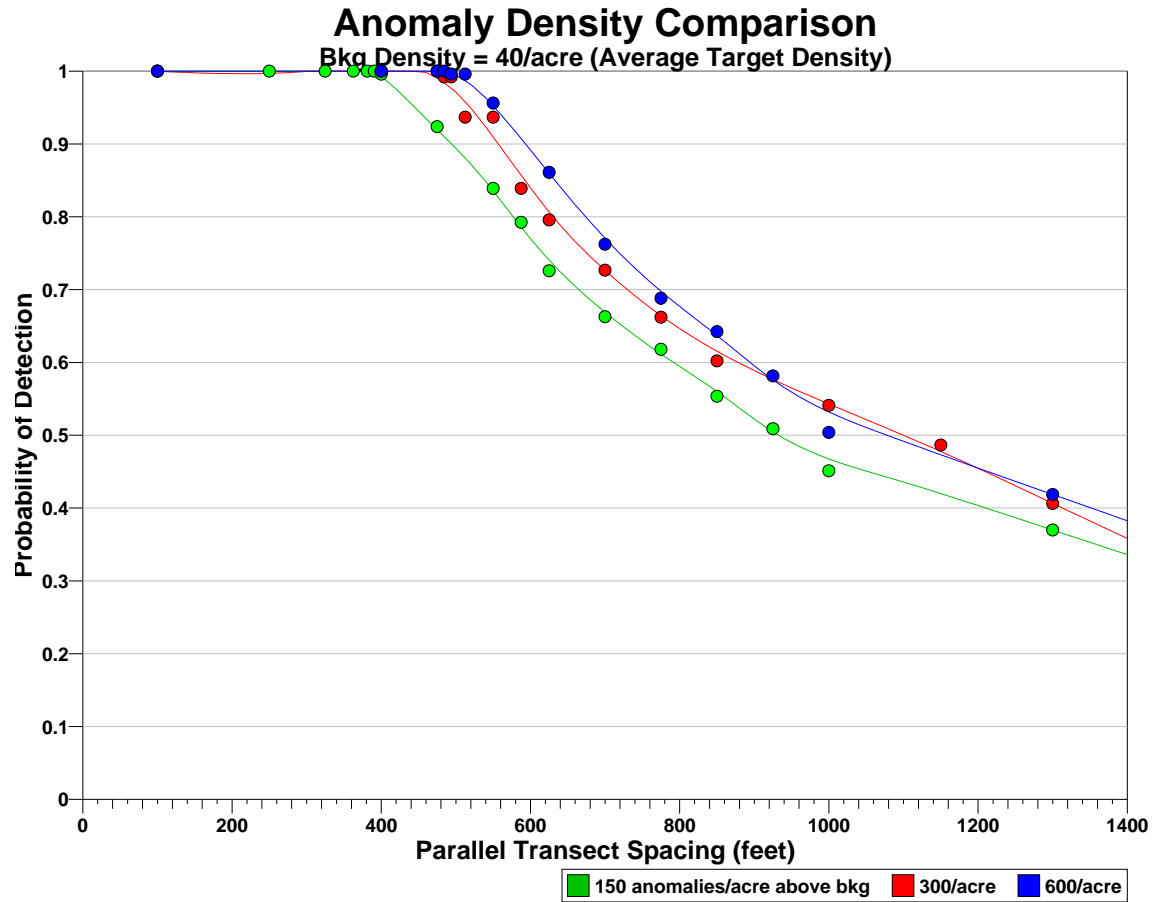
$$\text{Maximum Error} < 1.96 * \sqrt{\frac{p(1-p)}{n}}$$

The quantity $1.96 * \sqrt{\frac{p(1-p)}{n}}$ is the 95th percentile of the standard error of the mean for a binomial distribution. We are 95% certain that the estimated probability is close to the true probability (within the maximum error). When all iterations are completed, VSP tabulates the estimated probability the target area has been detected, p/n . VSP repeats this process for a number of densities above background determined by simulation results and the minimum precision specified. The results are plotted in the power curve below.

Target Detection Power Curve

The following figure is a target detection performance diagram. It shows the probability of detecting the specified target area for a range of transect spacings. The estimated probability of detecting the target area is on the vertical axis, and a range of possible transect spacings are shown on the horizontal axis.

The legend at the bottom of the graph indicates the color of the line representing the target area densities above background used. Lines are fit by first smoothing the points using a moving average, then fitting the line using a cubic spline.



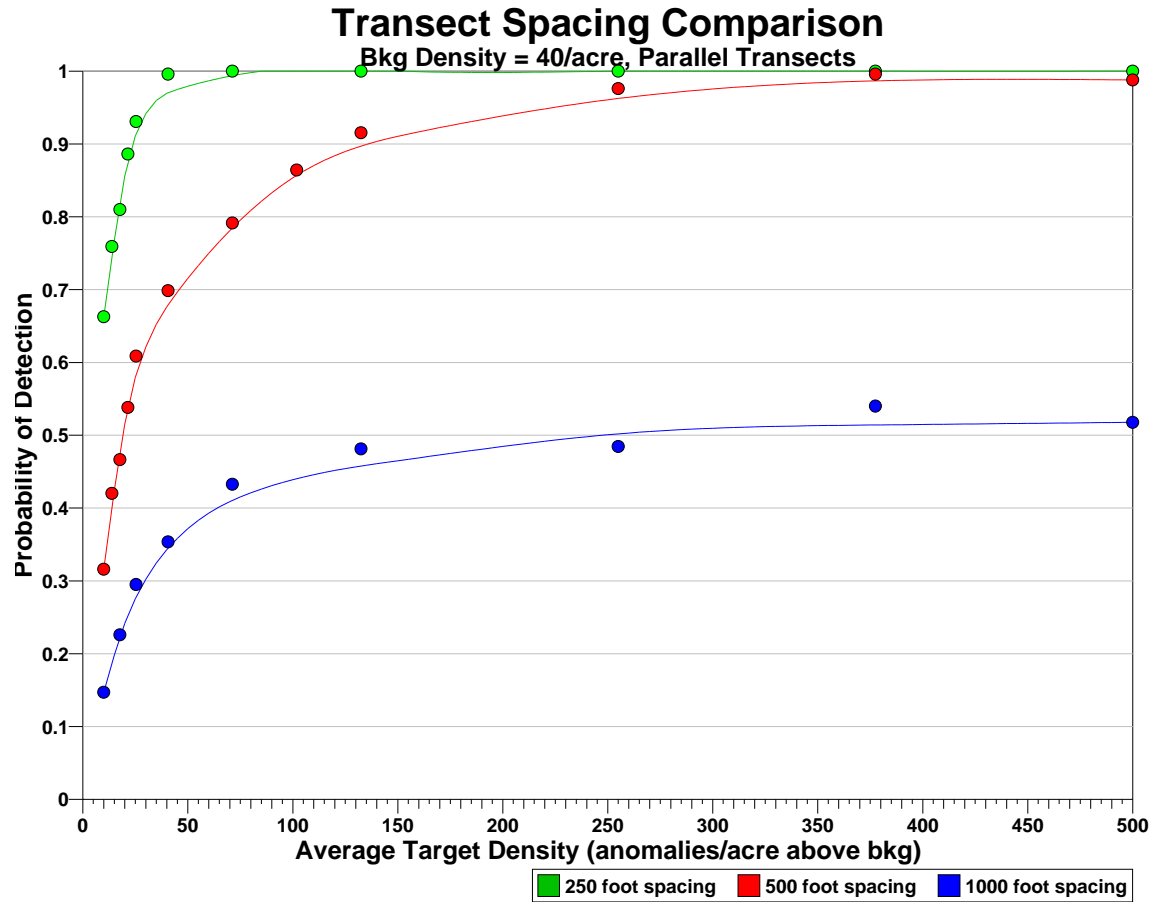
The transect spacings and the simulated probabilities of detecting the target area are shown in the table below:

Curve	Transect Spacing	Estimated Probability of Detecting the Target Area
1	100	1
1	250	1
1	325	1
1	362.5	1
1	381.25	1
1	390.625	1
1	400	0.996016
1	475	0.923841
1	550	0.8391
1	587.5	0.792319
1	625	0.725882
1	700	0.662827
1	775	0.618056
1	850	0.553555
1	925	0.508903
1	1000	0.451277
1	1300	0.369849
2	100	1

2	400	1
2	475	1
2	484.375	0.992032
2	493.75	0.992032
2	512.5	0.936759
2	550	0.936759
2	587.5	0.8391
2	625	0.795683
2	700	0.726737
2	775	0.662134
2	850	0.602151
2	1000	0.540999
2	1150	0.48641
2	1300	0.406402
3	100	1
3	400	1
3	475	1
3	484.375	1
3	493.75	0.996016
3	512.5	0.996016
3	550	0.956175
3	625	0.861057
3	700	0.762274
3	775	0.688113
3	850	0.642202
3	925	0.581328
3	1000	0.503745
3	1300	0.418672

The following figure is a target detection performance diagram. It shows the probability of detecting the specified target area for a range of target area densities above background. The estimated probability of detecting the target area is on the vertical axis, and a range of possible target area densities above background are shown on the horizontal axis.

The legend at the bottom of the graph indicates the color of the line representing the transect spacing used. Lines are fit by first smoothing the points using a moving average, then fitting the line using a cubic spline.



The target area densities above background and the simulated probabilities of detecting the target area are shown in the table below:

Curve	Target Density	Estimated Probability of Detecting the Target Area
1	10	0.662827
1	13.8281	0.759283
1	17.6562	0.81003
1	21.4844	0.886311
1	25.3125	0.930909
1	40.625	0.996016
1	71.25	1
1	132.5	1
1	255	1
1	377.5	1
1	500	1
2	10	0.316017
2	13.8281	0.420192
2	17.6562	0.466604
2	21.4844	0.538172
2	25.3125	0.608653
2	40.625	0.698554
2	71.25	0.791489

2	101.875	0.864271
2	132.5	0.915408
2	255	0.976096
2	377.5	0.996016
2	500	0.988048
3	10	0.147114
3	17.6562	0.225936
3	25.3125	0.295045
3	40.625	0.353484
3	71.25	0.432793
3	132.5	0.481238
3	255	0.484536
3	377.5	0.540057
3	500	0.517824

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