

**FINAL**

**Preble's Meadow Jumping Mouse  
Mitigation Tracking Spreadsheet for  
PBA Part II Activities**

**October 10, 2005**



**ADMIN RECORD**

SW-A-005197

1/25

Preble's Mouse Mitigation Debit/Credit Spreadsheet\*

Preble's Meadow Jumping Mouse Mitigation Tracking Spreadsheet for Part II activities in the PBA  
10/10/2005

| GIS Ref # | Date Project Initiated | Date Project Completed | Project Description         | Impacted Acres                                | Mitigation Ratio | Acres to Mitigate | Mitigation Project   | Total Debit (-) Acres | Date Mitigation Initiated | Mitigation Agency Concurrence Date | Total Credit (+) Acres (In-situ) | Balance [Debit (-)/ Credit (+)] | Comment   |
|-----------|------------------------|------------------------|-----------------------------|---|------------------|-------------------|--|-----------------------|---------------------------|------------------------------------|----------------------------------|---------------------------------|---|
| A         | 5/3/2004               | 5/12/2004              | OPWL east                   | 0.0141 Lower Quality<br>0.0 Higher Quality    | 1.5 : 1<br>2 : 1 | 0.0212<br>0.0     | Road and Culvert Removals  | NA                    | 5/12/2004                 |                                    | NA                               | NA                              | Removed as a separate impact because area re-disturbed as part of B Pond Remediation, WWTP, North Access Road Removal projects. Area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R.  |
| B         | 5/3/2004               | 5/12/2004              | OPWL east                   | 0.0189 Lower Quality<br>0.0 Higher Quality    | 1.5 : 1<br>2 : 1 | 0.0284<br>0.0     | Miscellaneous  | -0.0284               | 5/12/2004                 |                                    | [0.0284]                         | -0.0284                         | Disturbance amount reduced by 0.0469 acres because this portion of the OPWL East project was redisturbed by the B Pond Remediation, WWTP, North Access Road Removal projects. This portion of the OPWL area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R. The portion of the polygon outside the redisturbed area is the amount that remains. |
| C         | 5/3/2004               | 5/12/2004              | OPWL east                   | 0.0111 Lower Quality<br>0.0 Higher Quality    | 1.5 : 1<br>2 : 1 | 0.0167<br>0.0     | Pond Remediation and Removal Projects  | -0.0167               | 5/12/2004                 |                                    | [0.0111]                         | -0.0167                         |   |
| D         | 5/17/2004              | 5/25/2004              | OPWL west                   | 0.0147 Lower Quality<br>0.0 Higher Quality    | 1.5 : 1<br>2 : 1 | 0.0221<br>0.0     | Waste Water Treatment Plant  | NA                    | 5/25/2004                 |                                    | NA                               | NA                              | Removed as a separate impact because area re-disturbed as part of B Pond Remediation, WWTP, North Access Road Removal projects. Area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R.  |
| E         | 5/17/2004              | 5/25/2004              | OPWL west                   | 0.0073 Lower Quality<br>0.0 Higher Quality    | 1.5 : 1<br>2 : 1 | 0.0110<br>0.0     | Miscellaneous  | NA                    | 5/25/2004                 |                                    | NA                               | NA                              | Removed as a separate impact because area re-disturbed as part of B Pond Remediation, WWTP, North Access Road Removal projects. Area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R.  |
| F         | 5/17/2004              | 5/25/2004              | OPWL west                   | 0.0305 Lower Quality<br>0.0 Higher Quality    | 1.5 : 1<br>2 : 1 | 0.0458<br>0.0     | Road and Culvert Removals  | NA                    | 5/25/2004                 |                                    | NA                               | NA                              | Removed as a separate impact because area re-disturbed as part of B Pond Remediation, WWTP, North Access Road Removal projects. Area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R.  |
| G         | 6/17/2004              | 6/28/2004              | OLF Geotechnical Sampling   | 0.1375 Lower Quality<br>0.0472 Higher Quality | 1.5 : 1<br>2 : 1 | 0.2063<br>0.0944  | Original Landfill Project  | NA                    | 6/28/2004                 |                                    | NA                               | NA                              | Removed as a separate impact because portions of area re-disturbed as larger part of OLF Project and also to make tracking easier. Counted as part of the overall OLF Project. Now accounted for in totals for GIS Ref# V.  |
| H         | 5/3/2004               | 6/17/2004              | 2004 Herbicide Applications |   | 60:1             |                   | 2004 Herbicide Applications (30 acres/annually for 3 yrs to offset 0.51 acres mitigation needed) |                       | 5/3/2004                  |                                    | 0.1700                           | 0.1700                          |   |
| I         | 7/12/2004              | 7/20/2004              | Culvert Removal Woman Creek | 0.0390 Lower Quality<br>0.0341 Higher Quality | 1.5 : 1<br>2 : 1 | 0.0585<br>0.0682  | Road and Culvert Removals  | -0.1267               | 7/20/2004                 |                                    | [0.0731]                         | -0.1267                         |   |
| J         | 7/6/2004               | 7/28/2004              | Well Installations          | 0.00 Lower Quality<br>0.0645 Higher Quality   | 1.5 : 1<br>2 : 1 | 0.00<br>0.1290    | Well Installations   | -0.1290               | 8/3/2004                  |                                    | [0.0639]                         | -0.1290                         | Polygon modified from original 8/3/04 data due to error. In-situ remediation is 0.0006 acres smaller than impacts due to concrete well pad loss. Five wells drilled, only 2 were used. Three were dry.  |
| K         | 8/30/2004              | 5/15/2005              | B Pond Remediation          | 0.1642 Lower Quality<br>0.00 Higher Quality   | 1.5 : 1<br>2 : 1 | 0.2463<br>0.00    | Road and Culvert Removals  | NA                    |                           |                                    | NA                               | NA                              | Removed as a separate impact because area re-disturbed as part of B Pond Remediation, WWTP, North Access Road Removal projects. Area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R.  |
| L         | 8/30/2004              | 5/15/2005              | B Pond Remediation          | 0.0005 Lower Quality<br>0.00 Higher Quality   | 1.5 : 1<br>2 : 1 | 0.0008<br>0.00    | Miscellaneous  | NA                    |                           |                                    | NA                               | NA                              | Removed as a separate impact because area re-disturbed as part of B Pond Remediation, WWTP, North Access Road Removal projects. Area had not been approved as habitat yet, so area should not be double counted. Now accounted for in totals for GIS Ref# R.  |
| M         | 11/18/2004             | 12/30/2004             | East Shooting Range         | 0.70 Lower Quality<br>0.14 Higher Quality     | 1.5 : 1<br>2 : 1 | 1.05<br>0.28      | NA   | -1.3300               | 12/30/2004                |                                    | [0.8400]                         | -1.3300                         | Consulted under separate BA. Mitigation addressed by PBA.   |
| N         | 12/1/2004              | Ongoing                | East Trenches               | 0.1645 Lower Quality<br>0.00 Higher Quality   | 1.5 : 1<br>2 : 1 | 0.195<br>0.00     | Pond Remediation and Removal Projects  | -0.2468               |                           |                                    | 0.000                            | -0.2468                         | Moved from Part I to Part II of PBA due to ongoing disturbance. Updated disturbance acreage on 9/27/05 because after last changing of iron filings they expanded into an area where connexes were placed last summer. Added this area to the permanent loss. Previous acreage was 0.13 of lower quality habitat.  |
| O         | 1/12/2005              | 1/12/2005              | Well Installations          | 0.0016 Lower Quality<br>0.00 Higher Quality   | 1.5 : 1<br>2 : 1 | 0.0024<br>0.00    | Well Installations   | -0.0024               | 1/12/2005                 |                                    | [0.0013]                         | -0.0024                         | In-situ remediation is 0.0003 acres smaller than impacts due to concrete well pad loss. One well installed.   |

Preble's Mouse Mitigation Debit/Credit Spreadsheet\*

| GIS Ref # | Date Project Initiated | Date Project Completed | Project Description   | Impacted Acres                                | Mitigation Ratio | Acres to Mitigate | Mitigation Project   | Total Debit (-) Acres | Date Mitigation Initiated | Mitigation Agency Concurrence Date | Total Credit (+) Acres (In-situ) | Balance [Debit (-)/ Credit (+)] | Comment  |
|-----------|------------------------|------------------------|---|---|------------------|-------------------|--|-----------------------|---------------------------|------------------------------------|----------------------------------|---------------------------------|--|
| P         | 12/22/2004             | 3/4/2005               | C-1 Pond Notching   | 1.4193 Lower Quality<br>0.1658 Higher Quality | 1.5 : 1<br>2 : 1 | 2.1290<br>0.3316  | Pond Remediation and Removal Projects  | -2.4606               | 3/4/2005                  |                                    | [2.2091]                         | -2.4606                         | Credit amount includes in-situ restored (1.5331 acres) and new habitat created where roads and spillway were located (0.6760 acres).   |
| Q         | 1/10/2005              | 5/24/2005              | Functional Channel #3   | 0.5768 Lower Quality<br>0.0589 Higher Quality | 1.5 : 1<br>2 : 1 | 0.8652<br>0.1178  | Road and Culvert Removals  | -0.9830               | 5/24/2005                 |                                    | [0.8589]                         | -0.9830                         | Credit amount includes in-situ restored (0.5768 acres) and new habitat where N. Access Road was located (0.2821 acres).  |
| R         | 8/30/2004              | 5/15/2005              | B Pond Remediation, WWTP, North Access Road Removal in South Walnut Creek | 5.4397 Lower Quality<br>0.8582 Higher Quality | 1.5 : 1<br>2 : 1 | 8.1596<br>1.7164  | B Pond Remediation, WWTP, North Access Road Removal  | -9.8760               | 5/15/2005                 |                                    | [6.0648]                         | -9.8760                         | Credit amount is 0.2331 less than total disturbance that could return because some areas ended up under riprap. The overall value for this line value incorporates the disturbances previously listed in GIS Ref #s A, D, E, F, G, and a portion of B. This area is located in Functional Channel #4.  |
| S         | 5/1/2005               | 6/15/2005              | 2005 Herbicide Applications   |   | 60:1             |                   | 2005 Herbicide Applications (30 acres/annually for 3 yrs to offset 0.51 acres mitigation needed) |                       | 5/1/2005                  |                                    | 0.1700                           | 0.1700                          |  |
| T         | 6/29/2005              | 7/6/2005               | Well Installations  | 0.0516 Lower Quality<br>0.0025 Higher Quality | 1.5 : 1<br>2 : 1 | 0.0774<br>0.0050  | Well Installations   | -0.0824               | 7/6/2005                  |                                    | [0.0541]                         | -0.0824                         | One well installed. No loss due to concrete pad placement because the existing well was removed and a new one put in.  |
| U         | 7/15/2005              | 9/1/2005               | Dam Maintenance   | 3.1600 Lower Quality<br>0.2200 Higher Quality | 1.5 : 1<br>2 : 1 | 4.7400<br>0.4400  | Dam Maintenance and Safety Activities  | -5.1800               | NA                        |                                    | 0.0000                           | -5.1800                         | Used number listed in PBA Part II as conservative estimate of impacts.   |
| V         | 6/7/2004               | 9/12/2005              | Original Landfill Project   | 6.7398 Lower Quality<br>2.8997 Higher Quality | 1.5 : 1<br>2 : 1 | 10.1097<br>5.7994 | Original Landfill Project  | -15.9091              | 9/12/2005                 |                                    | [9.6395]                         | -15.9091                        | Items listed in Row G were combined with this row for the final OLF impacts because of overlaps in the disturbances. Therefore Row G has been excluded from the calculations.  |
| W         | 9/12/2005              | 10/10/2005             | North Access Road Removal (NW of B371)                                    | 0.4657 Lower Quality<br>0.0076 Higher Quality | 1.5 : 1<br>2 : 1 | 0.6986<br>0.0152  | Road and Culvert Removals  | -0.7138               | 10/10/2005                |                                    | [0.6148]                         | -0.7138                         | Total area not restored because North Walnut Creek channel was lined with riprap where the culvert beneath the road was taken out. So cannot count this area as habitat. However, the Total Credit (in-situ) value does include the areas that were once beneath the North Access Road. These areas were seeded after project completion and should now become habitat, so they are included as additional credit. |
| X         | 9/12/2005              | 9/15/2005              | Surface Water Equipment Removals  | 0.0271 Lower Quality<br>0.0094 Higher Quality | 1.5 : 1<br>2 : 1 | 0.0407<br>0.0188  | Surface Water Equipment Removals   | -0.0595               | 9/15/2005                 |                                    | [0.0365]                         | -0.0595                         |  |
| Y         | 8/15/2005              | 8/16/2005              | C-2 Woman Creek Bypass Riprap Repair                                      | 0.1538 Lower Quality<br>0.0073 Higher Quality | 1.5 : 1<br>2 : 1 | 0.2307<br>0.0146  | Pond Remediation and Removal Projects  | -0.2453               | 9/16/2005                 |                                    | [0.1611]                         | -0.2453                         |  |
| Z         | 9/15/2005              | 9/30/2005              | Culvert Removal North Walnut Creek (on road to Present Landfill)          | 0.0000 Lower Quality<br>0.0000 Higher Quality | 1.5 : 1<br>2 : 1 | 0.0000<br>0.0000  | Road and Culvert Removals  |                       | 9/30/2005                 |                                    | [0.7993]                         | 0.0000                          | This credit comes from the conversion of the road and storage area (on the way to the Present Landfill) that was ripped and seeded west of North Access Road. The acreage that should return to habitat is: 0.7993 acres.  |
|           |                        |                        |   |   |                  |                   | <b>Total Acreage</b>   | <b>-37.3897</b>       |                           |                                    | <b>0.3400</b>                    | <b>-37.0497</b>                 |  |

NOTE: Only acreage values greater than 0.0002 acres are incorporated in this spreadsheet. The reason is that the GPS unit being used becomes inaccurate for polygons smaller than this.

In the Total Credit column the brackets indicate that the credit has not been applied yet. After USFWS concurrence for that project, the brackets will be removed and the credits applied.

The yellow shaded rows at the top of the spreadsheet have been consolidated into GIS Ref # R due to overlaps in the disturbances.

The blue shaded rows at the top of the spreadsheet have been consolidated into GIS Ref # V due to overlaps in the disturbances.

**Total Potential Credit**

**[21.7959]**

Preble's Mouse Mitigation Debit/Credit Spreadsheet\*

| Credit Project                  | Total Credit (+)<br>Acres | Comments   |
|---------------------------------|---------------------------|--|
| Conservation Easement           | 60.0000                   | Section 16 Conservation Easement Purchase  |
| IA Created/Linked Habitat Areas | 44.8211                   | Includes potential created/linked PMJM habitat areas in Functional Channels - FC#1, FC#2, FC#3, and FC#4. Areas were delineated as the wetlands plus a 100 ft. buffer around the outside edge (like what was done on the PMJM Protection Areas Map). |
| <b>Total</b>                    | <b>104.8211</b>           |  |

Preble's Mouse Mitigation Debit/Credit Spreadsheet\*

In the Total Credit column the brackets indicate that the credit has not been applied yet. After USFWS concurrence for that project, the brackets will be removed and the credits applied.

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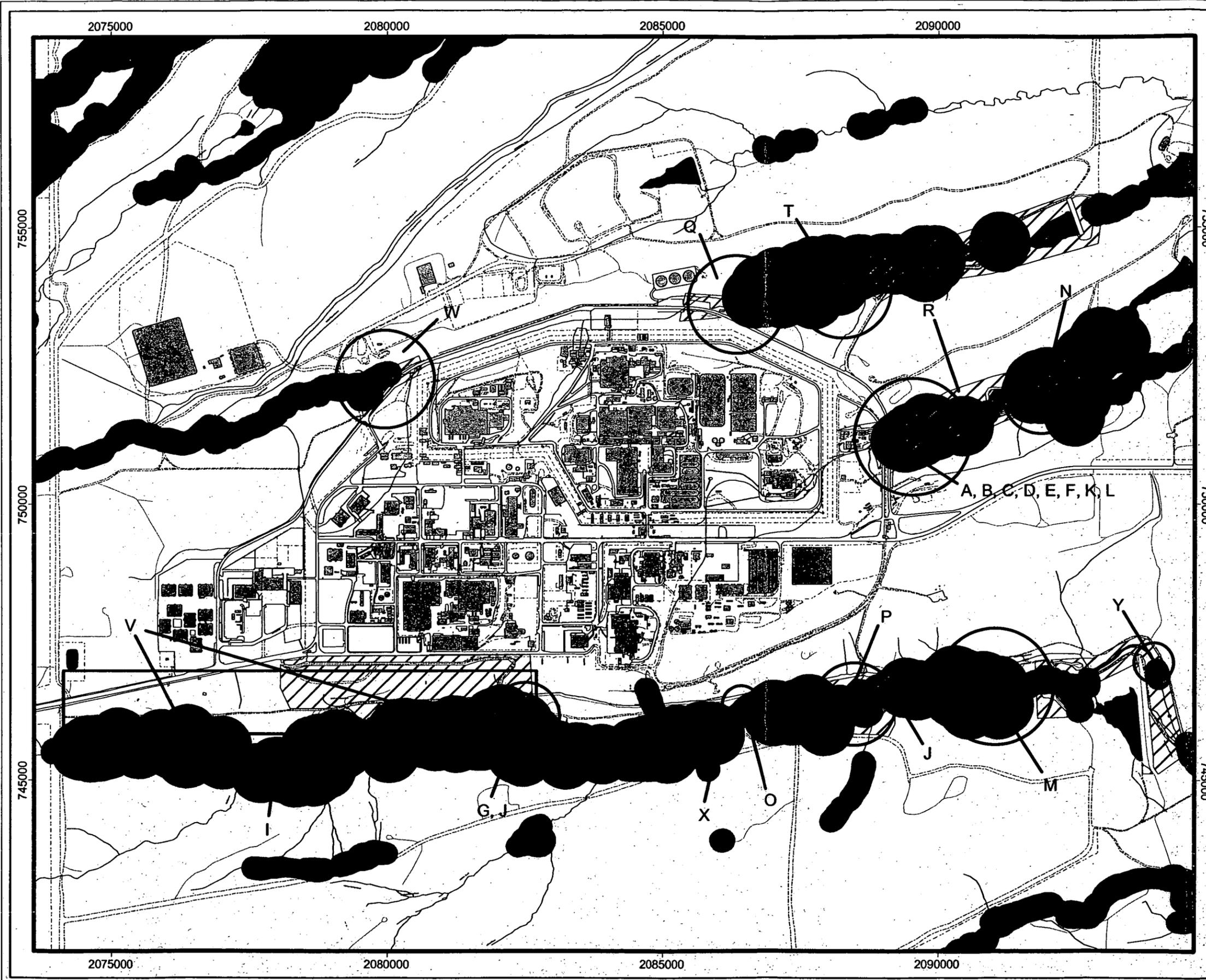
| Credit Project                  | Total Credit (+)<br>Acres | Comments   |
|---------------------------------|---------------------------|--|
| Conservation Easement           | 60.0000                   | Section 16 Conservation Easement Purchase  |
| IA Created/Linked Habitat Areas | 44.8211                   | Includes potential created/linked PMJM habitat areas in Functional Channels - FC#1, FC#2, FC#3, and FC#4. Areas were delineated as the wetlands plus a 100 ft. buffer around the outside edge (like what was done on the PMJM Protection Areas Map). |
| <b>Total</b>                    | 104.8211                  |  |

## Preble's Mouse GIS Methodology

A geographic information system (GIS) has been used for determining impacts to Preble's mouse habitat as required by the Programmatic Biological Assessment (PBA), Part II. The GIS methodology used to determine final impacts to the Preble's mouse habitat is outlined below. The PBA Part II listed several projects that would adversely affect the Preble's mouse habitat. Based on estimated project footprints a projected impact of "X" acres was determined for each project. However, the PBA also states that actual impacts, not the estimated impacts, would be used for mitigation purposes. This document outlines the methods used to determine and account for the actual impacts that need to be mitigated.

1. After project completion, the actual disturbance area on the ground is delineated using a geographic positioning system (GPS). We use a Trimble GPS system to walk the edges of the disturbances. Disturbances are defined as areas disturbed by construction activities and/or areas of trampled vegetation. Typically the data are collected as line features because given the many bends and twists that need to be accounted for it is too easy to corrupt a polygon feature by crossing back over a line. So field data are collected as line features.
2. The data from the GPS is downloaded to a computer and then corrected using base station files from a local base station (such as CompassCom in Denver or the USFS in Ft. Collins). Data are corrected with Pathfinder Office software.
3. After correcting the data are exported as a line feature shapefile.
4. The data are then moved to the Site GIS on the network drive and placed into the appropriate directory. The GIS drive is GISSRV\Ecology\. The Preble's mouse directory for all the PBA data is GISSRV\Ecology\Projects\FY2004\04-003504-0035. It contains a subdirectory for each of the different projects. The name of these field data files are typically the date followed by the initials of the person who collected it.
5. The software used to conduct the GIS analyses and manipulate the data is ArcView 3.2. The Preble's mouse PBA Part II ArcView project file is called PBA Pt II Mitigation Tracking.apr and is found at GISSRV\Ecology\Projects\FY2004\04-003504-0035.
6. The line shapefile collected in the field is opened in ArcView and a new empty polygon shapefile is created. Within the polygon shapefile, new polygon or polygons are traced over the lines in the line feature shapefile to create the actual project disturbance polygon file for the project disturbance. It is named appropriately for the specific project that was delineated. After it is created and QA'ed, the area and perimeter of the polygons are updated. [Note: In ArcView the area and perimeter must be updated each time a change is made to a polygon because otherwise it retains the data from the originating polygon.]
7. To determine the actual impacts to Preble's habitat the actual project disturbance polygon file is used as a cookie cutter to clip out the Preble's mouse protection area locations in the project area. The GeoWizard in ArcView is used for this process. This new file (call it the actual PMJM project footprint file) is then used to determine the total actual acreage of Preble's mouse habitat impacted by the project. The area and perimeter are updated in the new actual PMJM project footprint file after being clipped with the actual project footprint file and is used to calculate the total impacts to Preble's habitat by the project.
8. Per the PBA requirements there are two different mitigation ratios used for impacts to Preble's mouse habitat. There are impacts to lower quality habitat (mitigated at a 1.5:1 ratio) and higher quality habitat (2:1 ratio). Habitat quality is based on the type of vegetation present. The 1996 RFETS vegetation map is used to determine the vegetation type present at a given location for Preble's mitigation. Higher quality habitat is defined as all woody vegetation classifications and short marsh, tall marsh, and wet meadow wetland types. Lower quality habitat is defined as all grassland classifications, mud flats, and other disturbed community types. Open water, riprap, concrete, roads, and structures are not considered habitat for the Preble's mouse.

9. To determine the quality of the habitat impacted by a project, the actual PMJM project footprint file is used as a cookie cutter to clip out the 1996 RFETS vegetation map. This new file (call it the PMJM habitat quality file) then shows what specific vegetation types were impacted in the project area. The area and perimeter of the PMJM habitat quality file are updated after being clipped. The different habitat types representative of lower and higher quality habitat are sorted and then the total acreage of lower and higher quality habitat impacted by the project is calculated.
10. This information is then added to the Preble's mouse debit/credit mitigation spreadsheet to keep a running total of current debit/credits for impacts to Preble's mouse habitat at the Site.



**Rocky Flats Environmental  
Technology Site  
Programmatic Biological  
Assessment  
Disturbance Tracking  
October 10, 2005**

**Legend**

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter matches projects on spreadsheet)

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EG&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1/85.



500 0 500 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

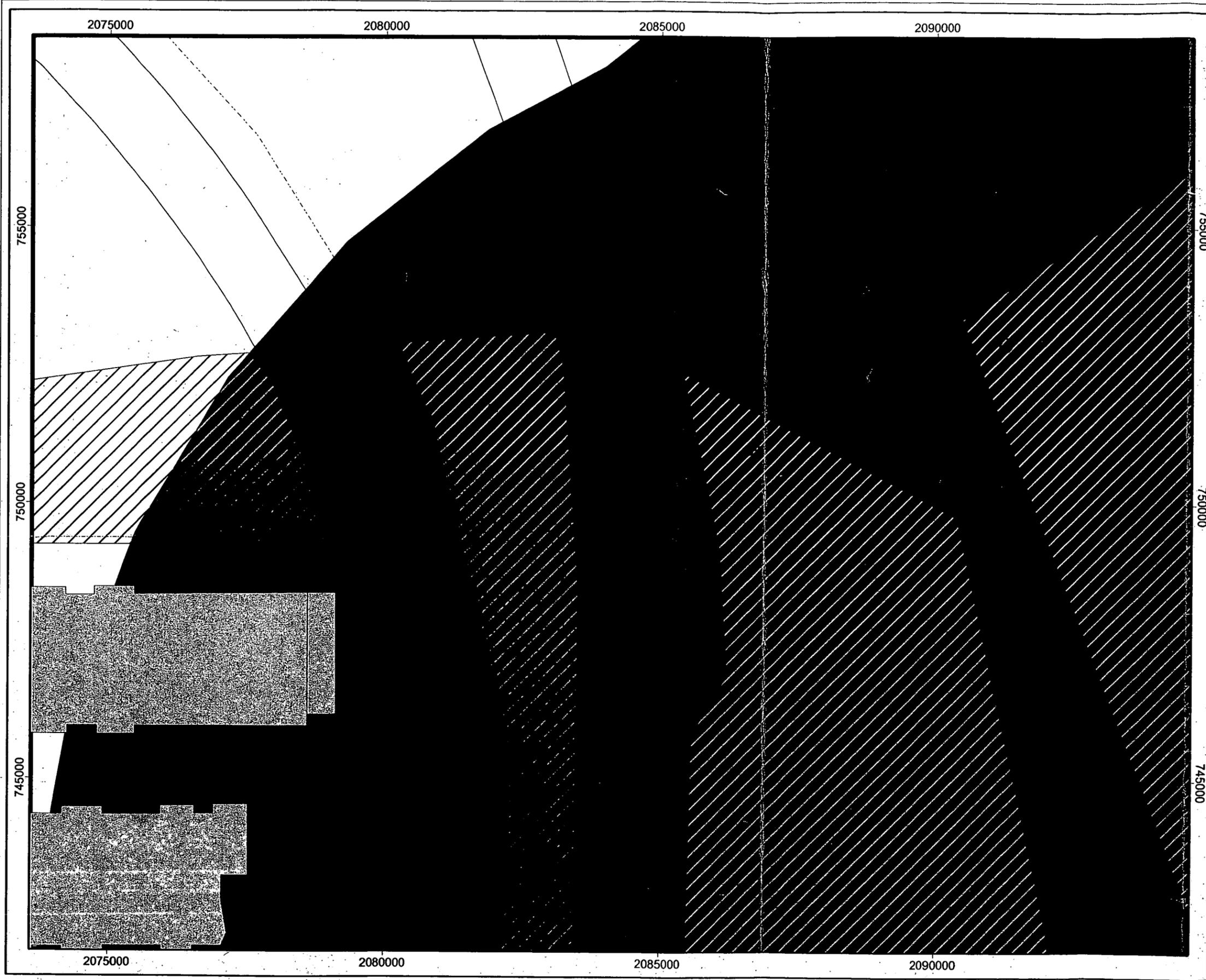
**U.S. Department of Energy  
Rocky Flats Environmental Technology Site**

Prepared by: **Professional Environmental Group, L.L.C.**

For:  **Kaiser-Hill  
Company, LLC** RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035 October 10, 2005

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**Rocky Flats Environmental  
Technology Site  
Programmatic Biological  
Assessment  
Disturbance Tracking  
June 1, 2004**

**Legend**

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-  Dirt roads
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DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EG&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1/96.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

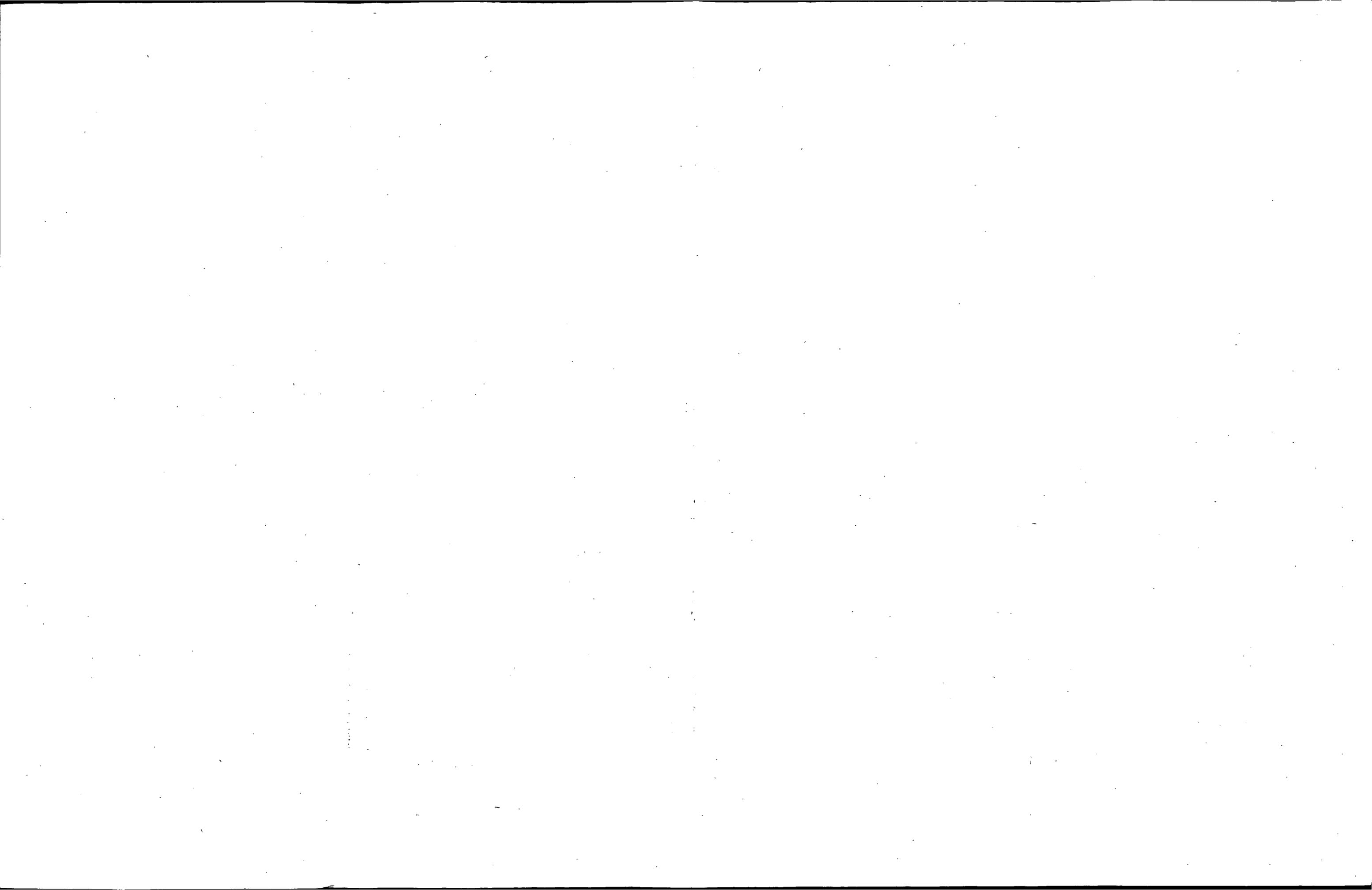
**U.S. Department of Energy  
Rocky Flats Environmental Technology Site**

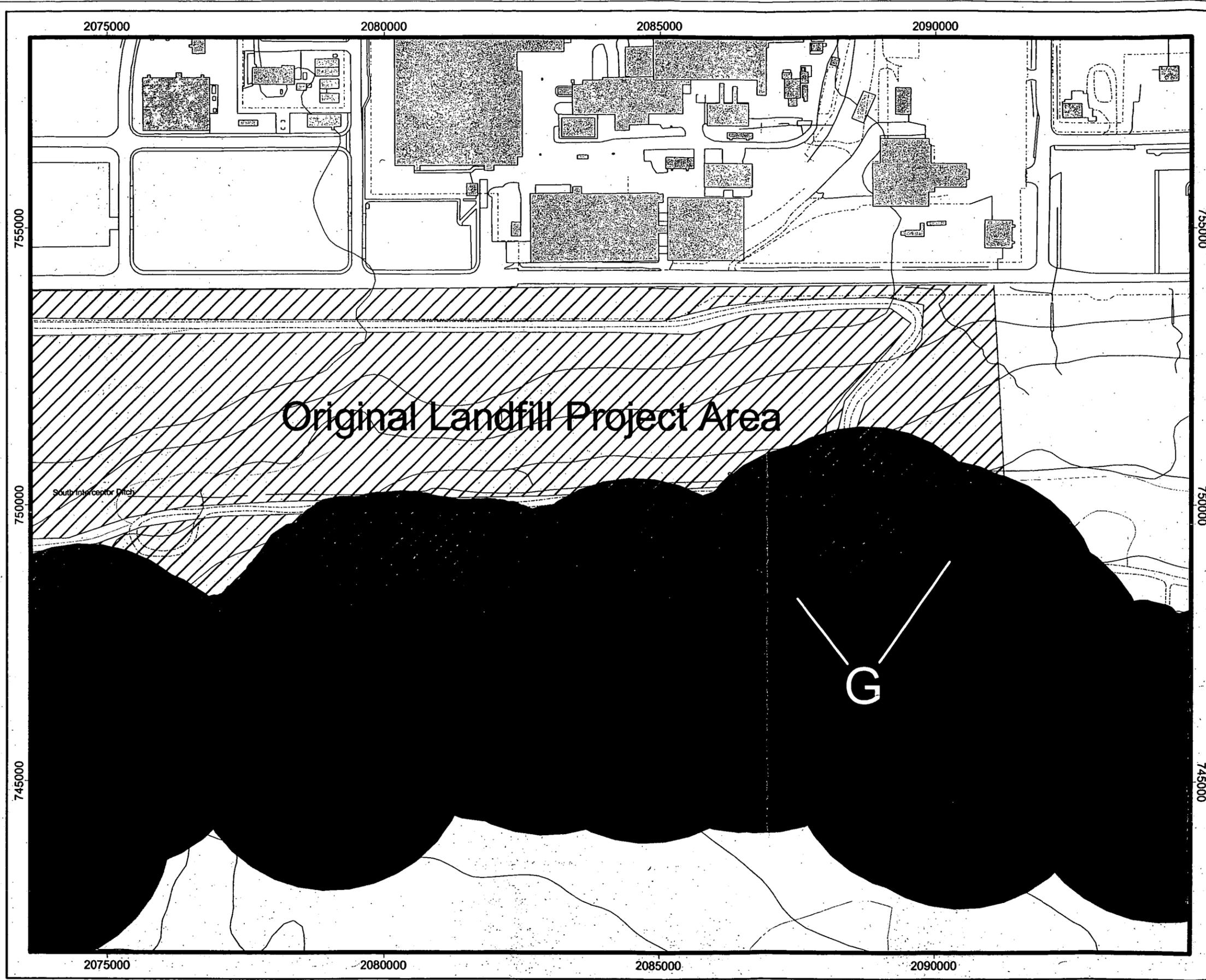
Prepared by: **Professional Environmental Group, L.L.C.**

For:  **Kaiser-Hill  
Company, LLC** RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035 June 1, 2004

C:\Projects\172004\04-0035\RFETA Pt II Mitigation Tracking.apr\PLM Disturbance Tracking Map





**Rocky Flats Environmental  
Technology Site  
Programmatic Biological  
Assessment  
Disturbance Tracking  
July 1, 2004**

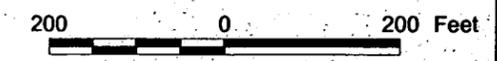
**Legend**

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EC&G RSI, Las Vegas.  
Digitized from the orthophotographs, 1/95.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

**U.S. Department of Energy  
Rocky Flats Environmental Technology Site**

Prepared by: **Professional Environmental Group, L.L.C.**

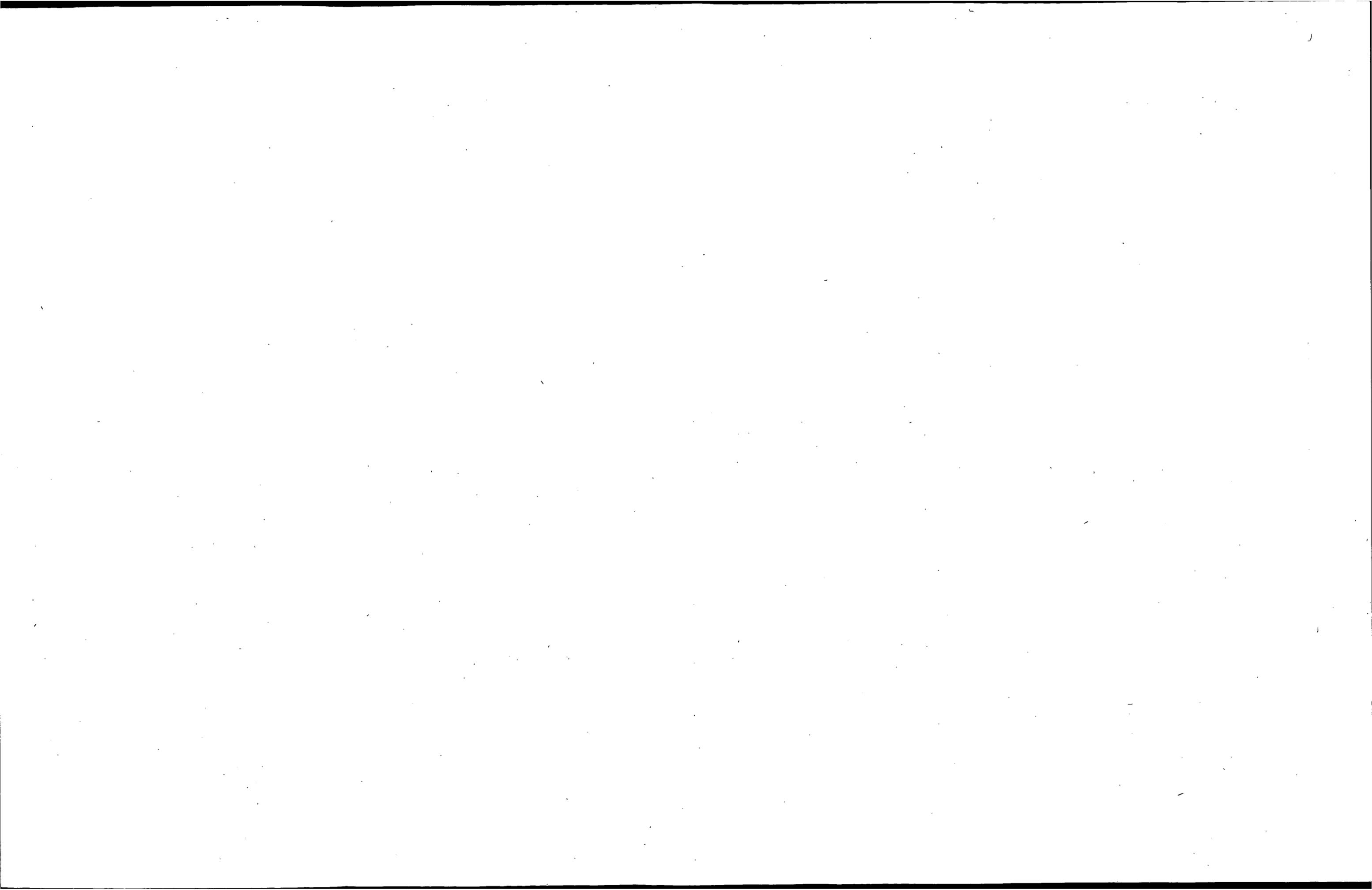
For:  **Kaiser-Hill  
Company, LLC**

RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035

July 1, 2004

C:\Projects\F2004\04-0035\BPA Pt II Mitigation Tracking.aprx\PJ\JM Disturbance Tracking Map 2



2075000

2080000

2085000

2090000

# Rocky Flats Environmental Technology Site

## 2004 Broadcast Herbicide Application Locations

### PBA Part II Credit Tracking

Figure 1  
Legend

-  Roundup
-  Plateau
-  Transline
-  Tordon 22K 1pt/acre
-  Tordon 22K 1 qt/acre
-  Current Preble's Protection Areas

Standard Features

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/85.



1000 0 1000 2000 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by: Professional Environmental Group, L.L.C.

For:  Kaiser-Hill Company, LLC

RFETS GIS Dept.  
303-868-7707

MAP ID: 04-0021

July 1, 2004

755000

75

745000

755000

750000

745000

Total Acres Sprayed

|              |               |
|--------------|---------------|
| Plateau      | 16.26         |
| Roundup      | 10.59         |
| Tordon 1pt   | 227.45        |
| Tordon 1qt   | 62.36         |
| Transline    | 13.95         |
| <b>Total</b> | <b>330.61</b> |

Acres inadvertently treated in Preble's habitat outside Rock Creek = 0.18 acres

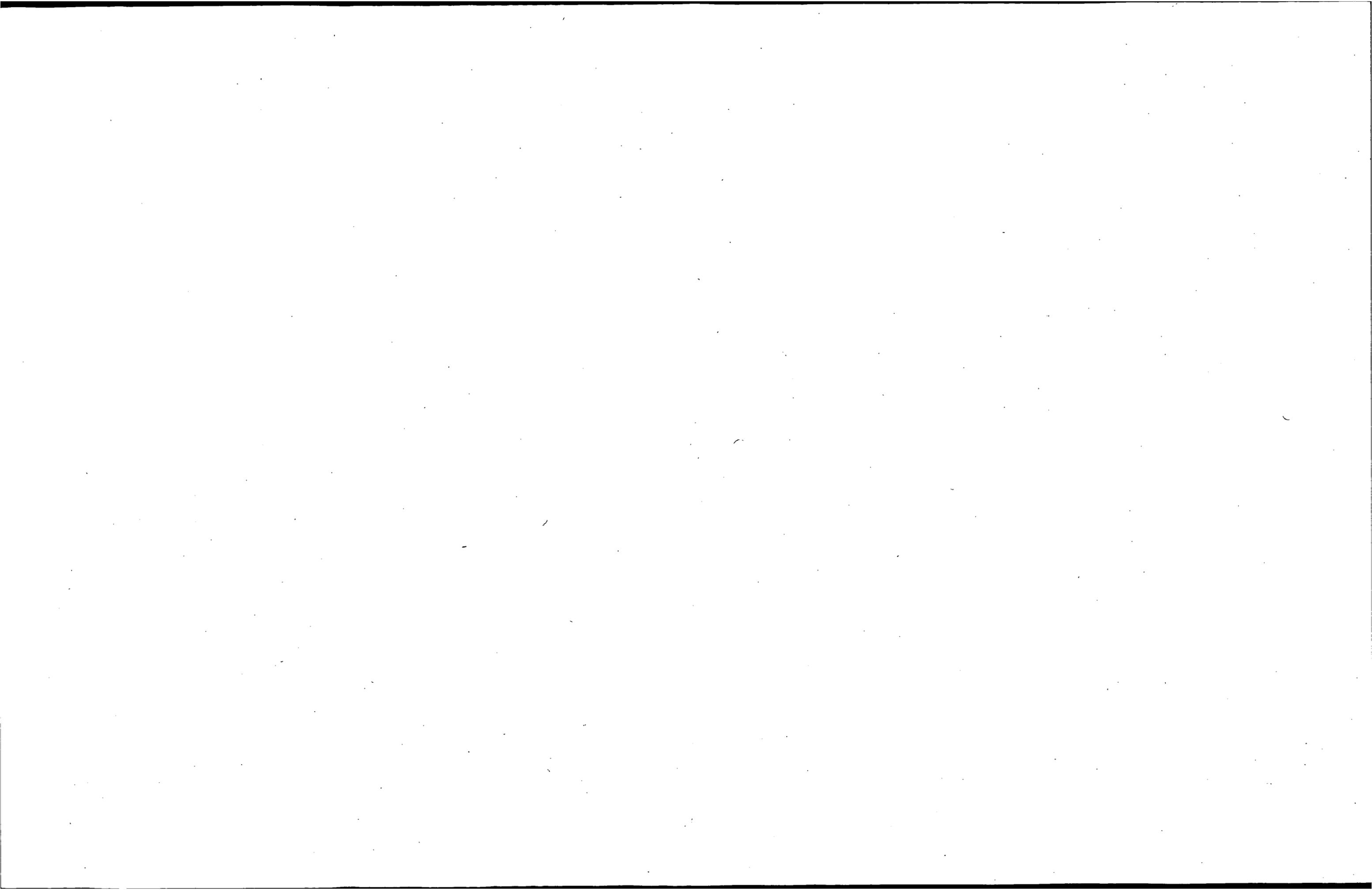
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Rocky Flats Environmental  
Technology Site  
Programmatic Biological  
Assessment  
Disturbance Tracking  
August 3, 2004

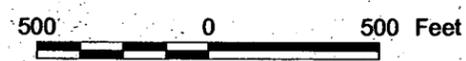
Legend

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

Standard Features

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EG&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1/95.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

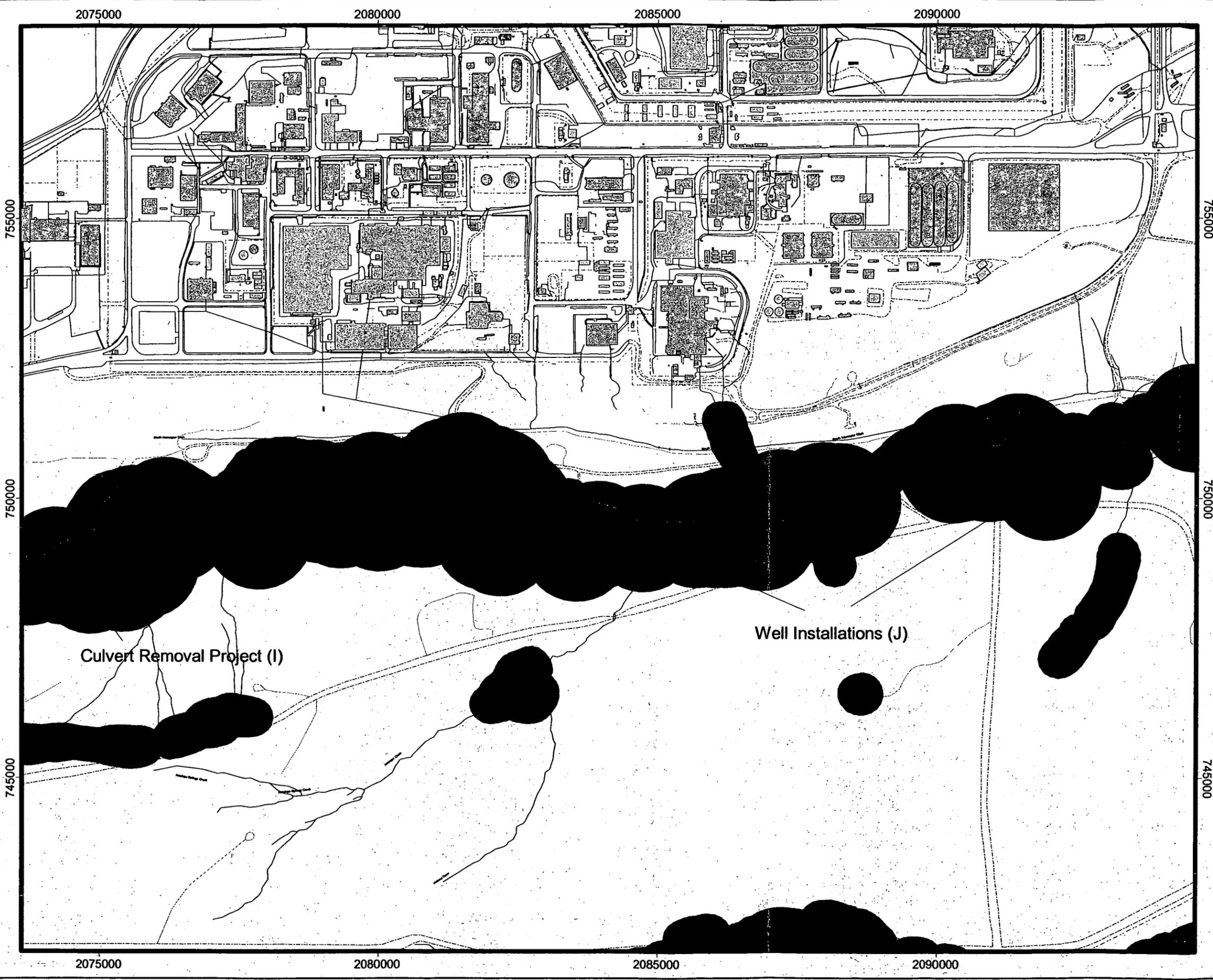
Prepared by: Professional Environmental Group, L.L.C.

For:  Kaiser-Hill  
Company, LLC

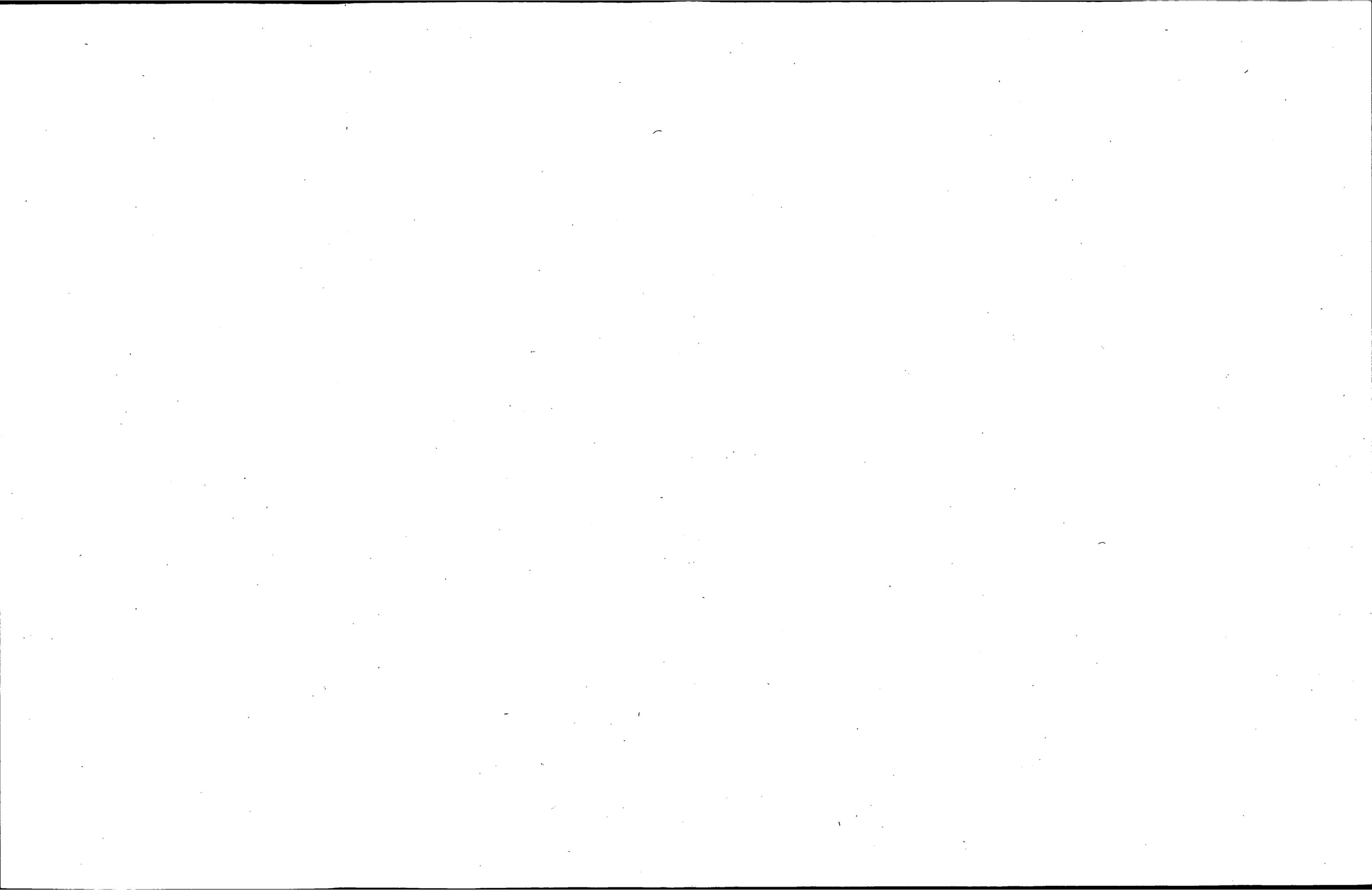
RFETS GIS Dept.  
303-966-7707

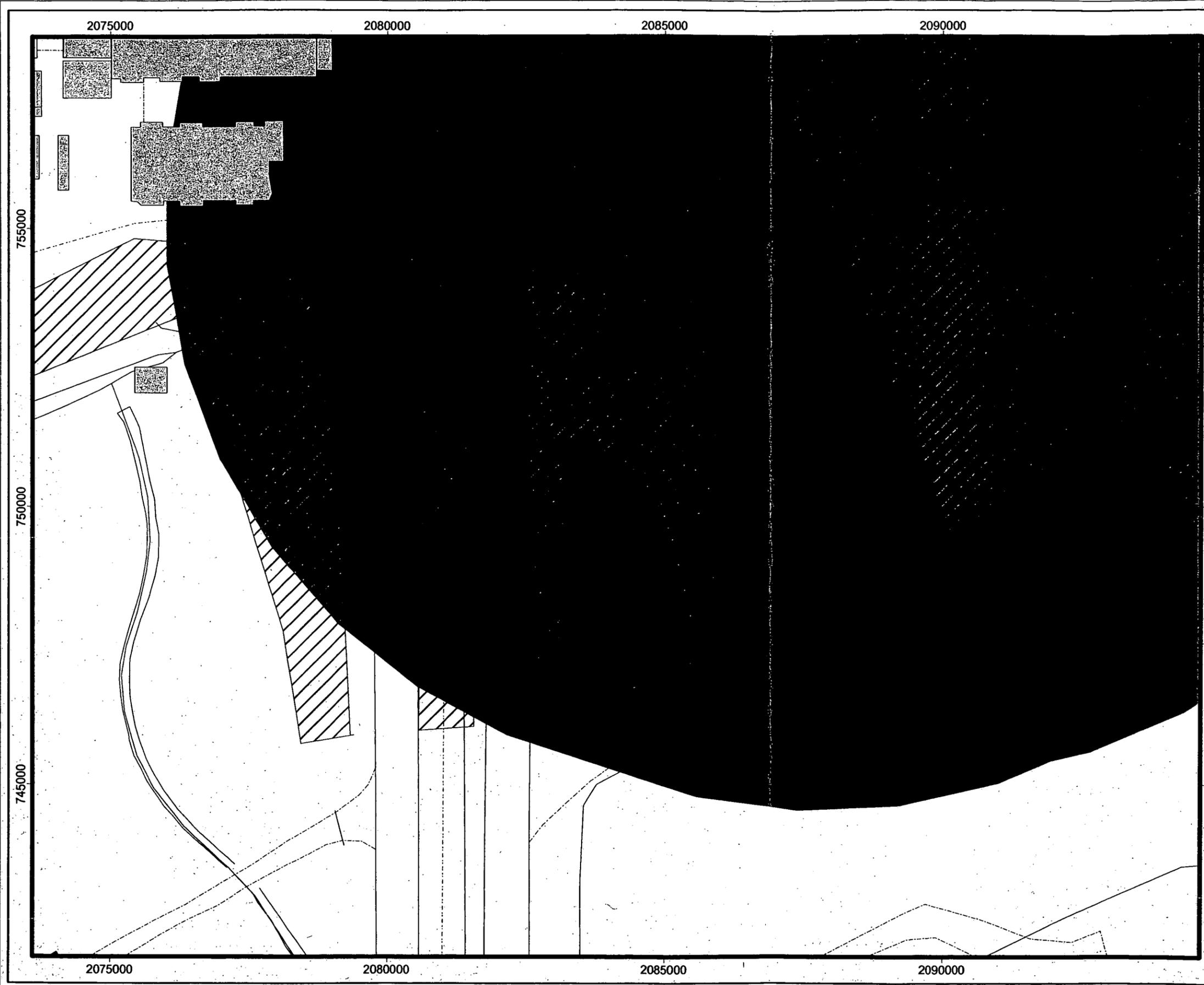
MAP ID: 04-0035

August 3, 2004



C:\Projects\17200404-0035\PBA Pt II Mitigation Tracking.aprx\PKM\Disturbance Tracking Map 3





**Rocky Flats Environmental  
Technology Site  
Programmatic Biological  
Assessment  
Disturbance Tracking  
September 8, 2004**

**Legend**

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EC&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1/95.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

**U.S. Department of Energy  
Rocky Flats Environmental Technology Site**

Prepared by: **Professional Environmental Group, L.L.C.**

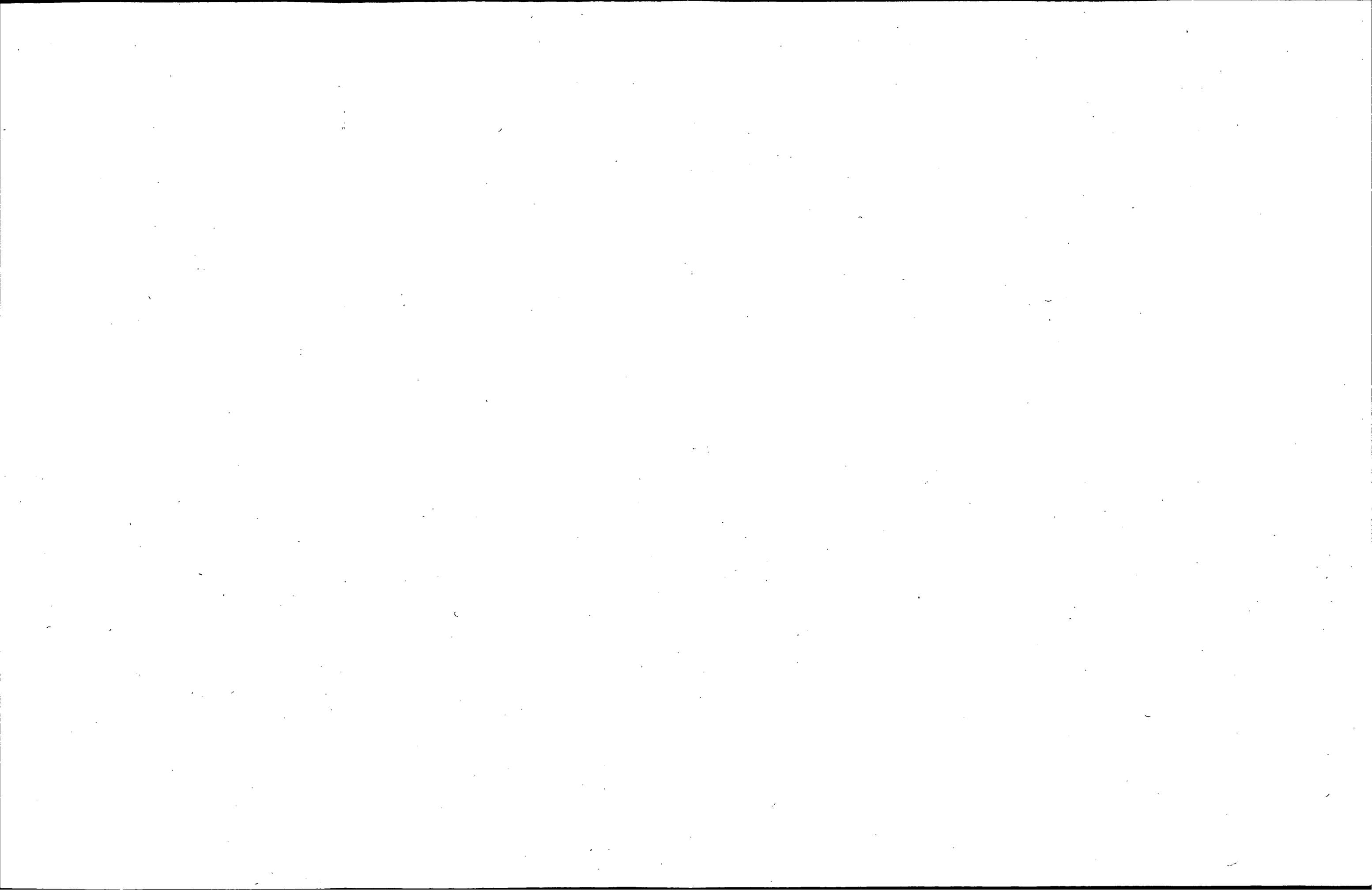
For:  **Kaiser-Hill  
Company, LLC**

RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035

September 8, 2004

G:\Projects\F2004\04-0035\PBA PI II Mitigation Tracking.apr\PAJIM Disturbance Tracking Map 5





# East Shooting Range Programmatic Biological Assessment Disturbance Tracking

January 3, 2005

## Legend

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

## Standard Features

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/95.



200 0 200 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by: Professional Environmental Group, L.L.C.

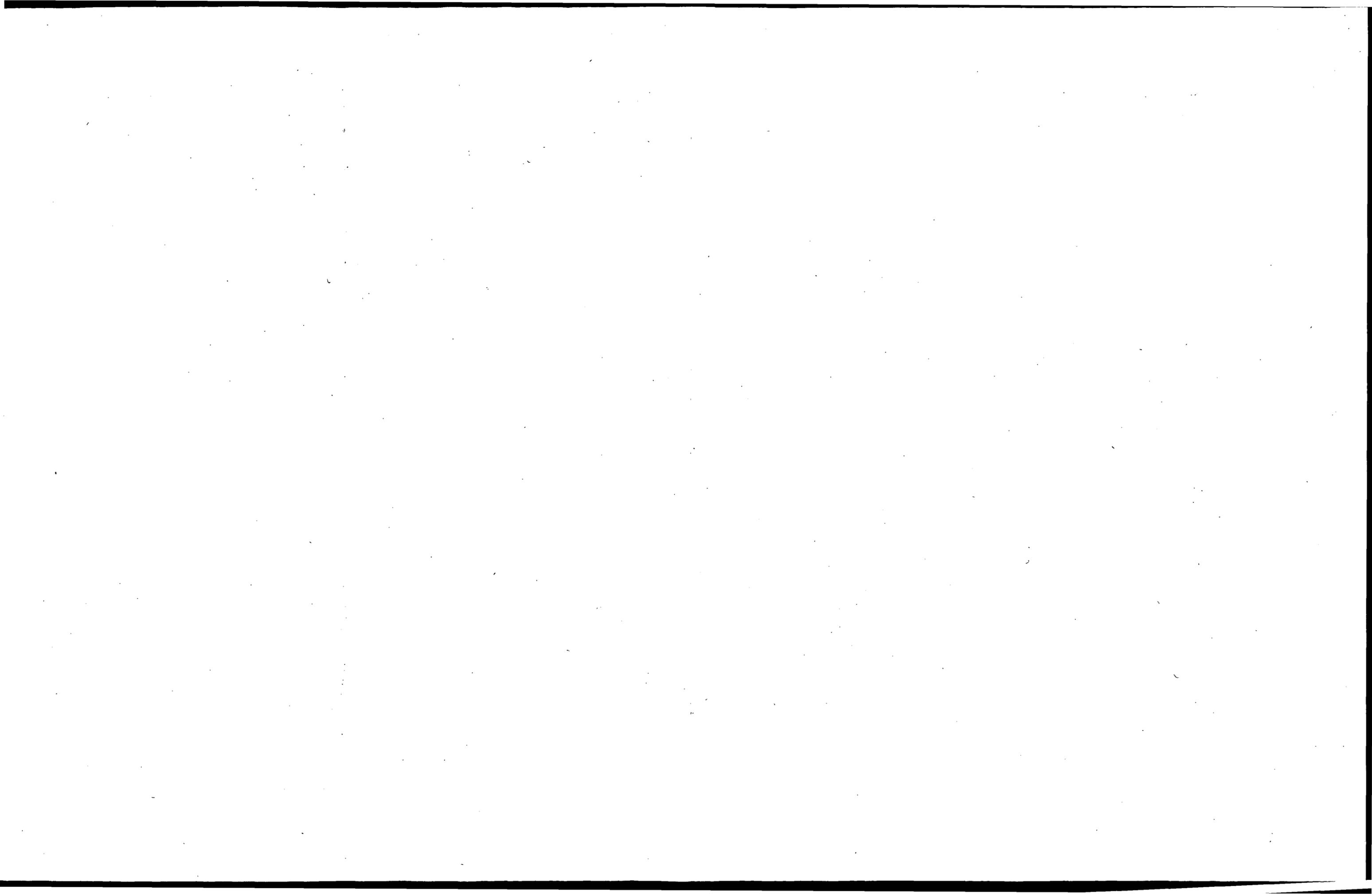
For:  Kaiser-Hill Company, LLC

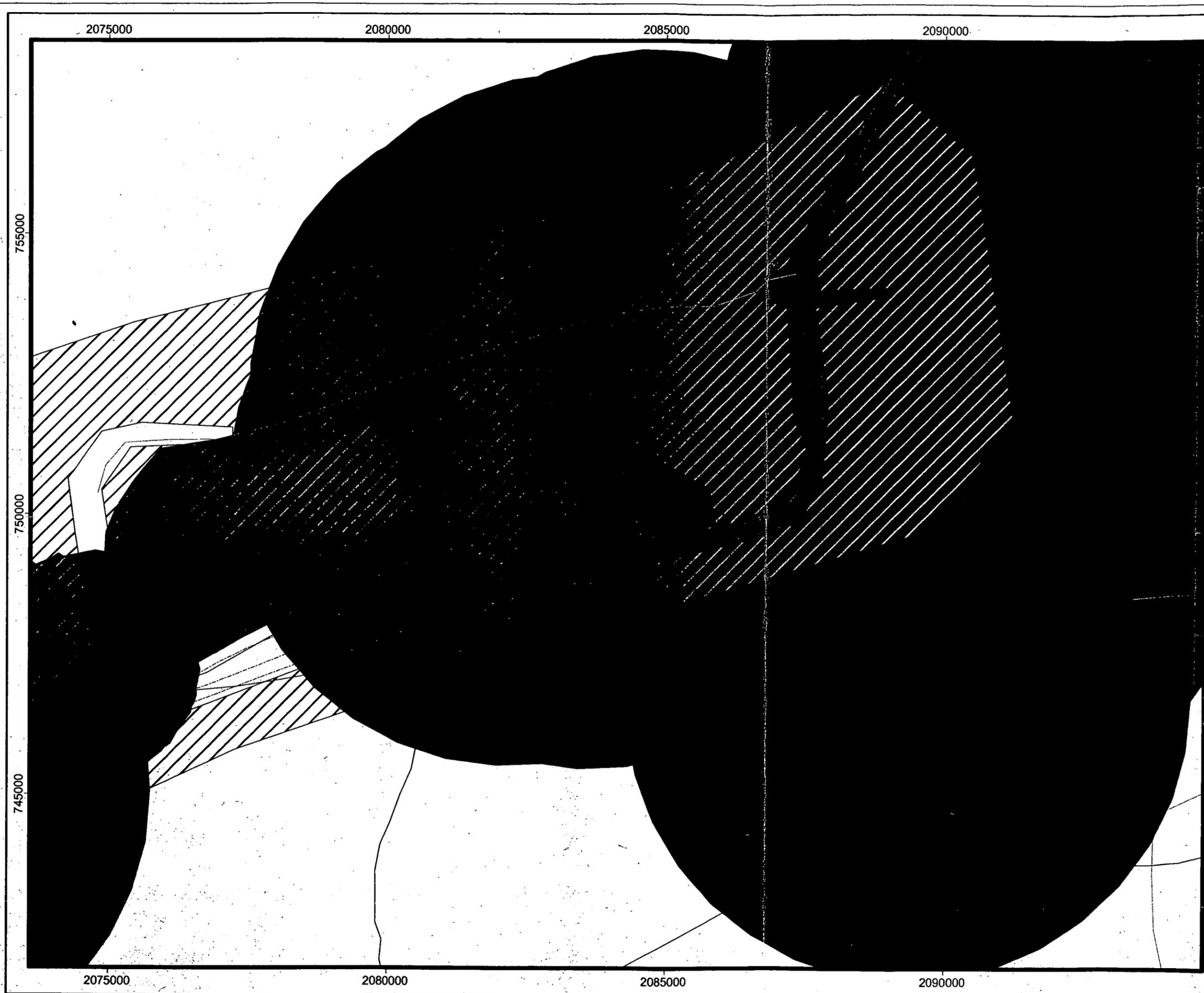
RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035

January 3, 2005

C:\Projects\172004\04-0035\PBA Part II Mitigation Tracking.aprx\East Shooting Range





**East Trenches Update  
09/27/05)  
Programmatic Biological  
Assessment  
Disturbance Tracking  
October 10, 2005**

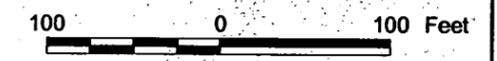
**Legend**

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EGIS RSI, Las Vegas. Digitized from the orthophotographs, 1/05.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

**U.S. Department of Energy  
Rocky Flats Environmental Technology Site**

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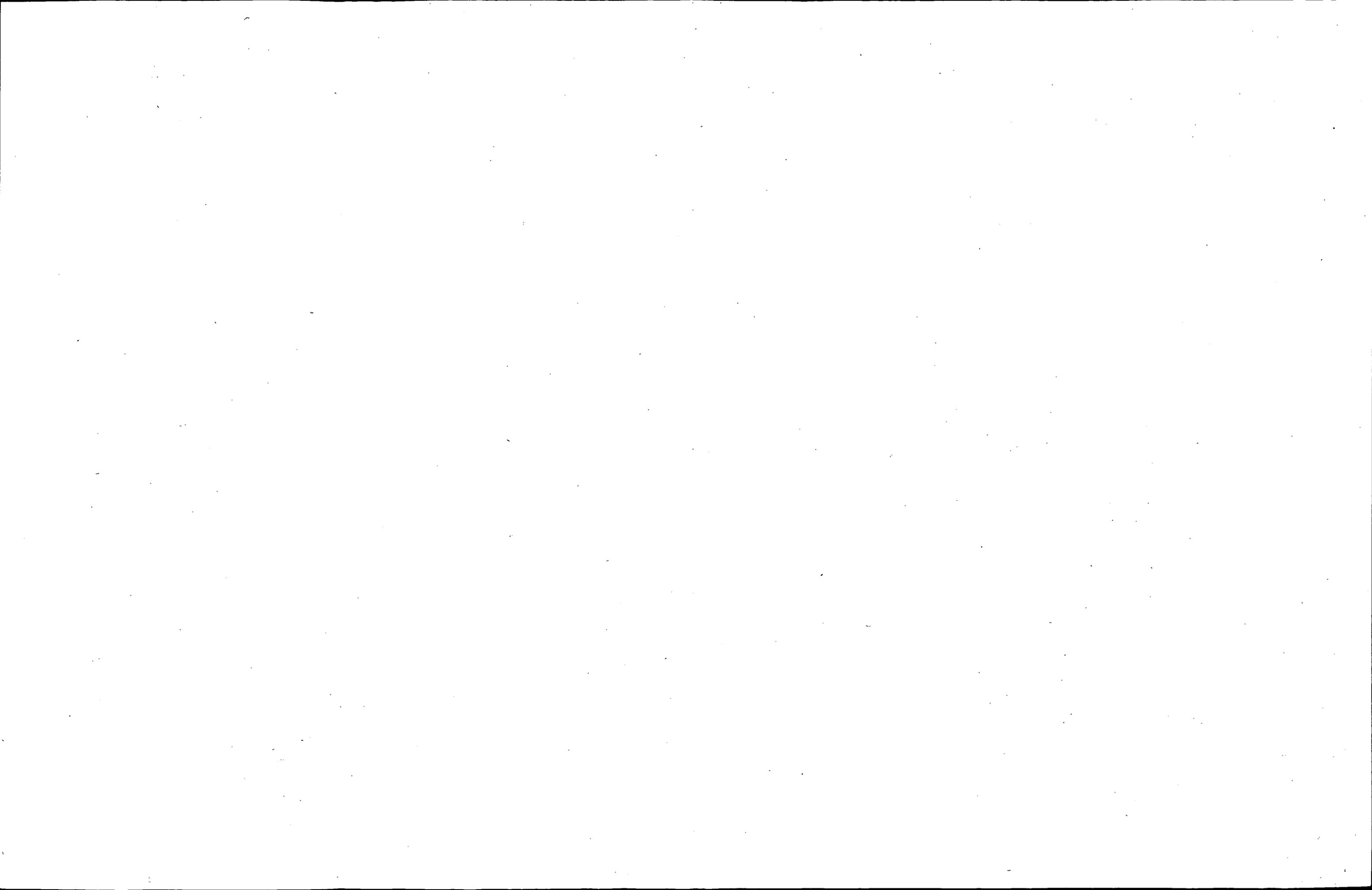
For:  Kaiser-Hill Company, LLC

RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035 October 10, 2005

C:\Projects\FY2004\04-0035\PEGA Pt II Mitigation Tracking and East Trenches Update 092705





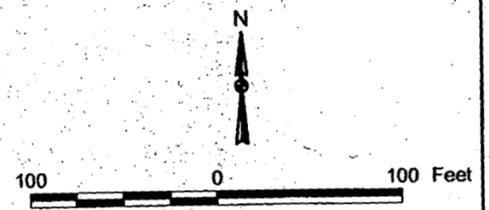


# C-1 Pond Dam Notch Programmatic Biological Assessment Disturbance Tracking

- Legend**
- Current Preble's Protection Areas
  - Temporary Disturbance
  - Non-Habitat Remaining (previously none habitat [road, riprap])
  - Permanent Loss (new spillway)

- Standard Features**
- Buildings
  - Demolished Buildings
  - Lakes & ponds
  - Streams & ditches
  - Fences
  - Paved roads
  - Dirt roads
  - Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EG&S RSI, Las Vegas.  
Digitized from the orthophotographs, 1/95.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

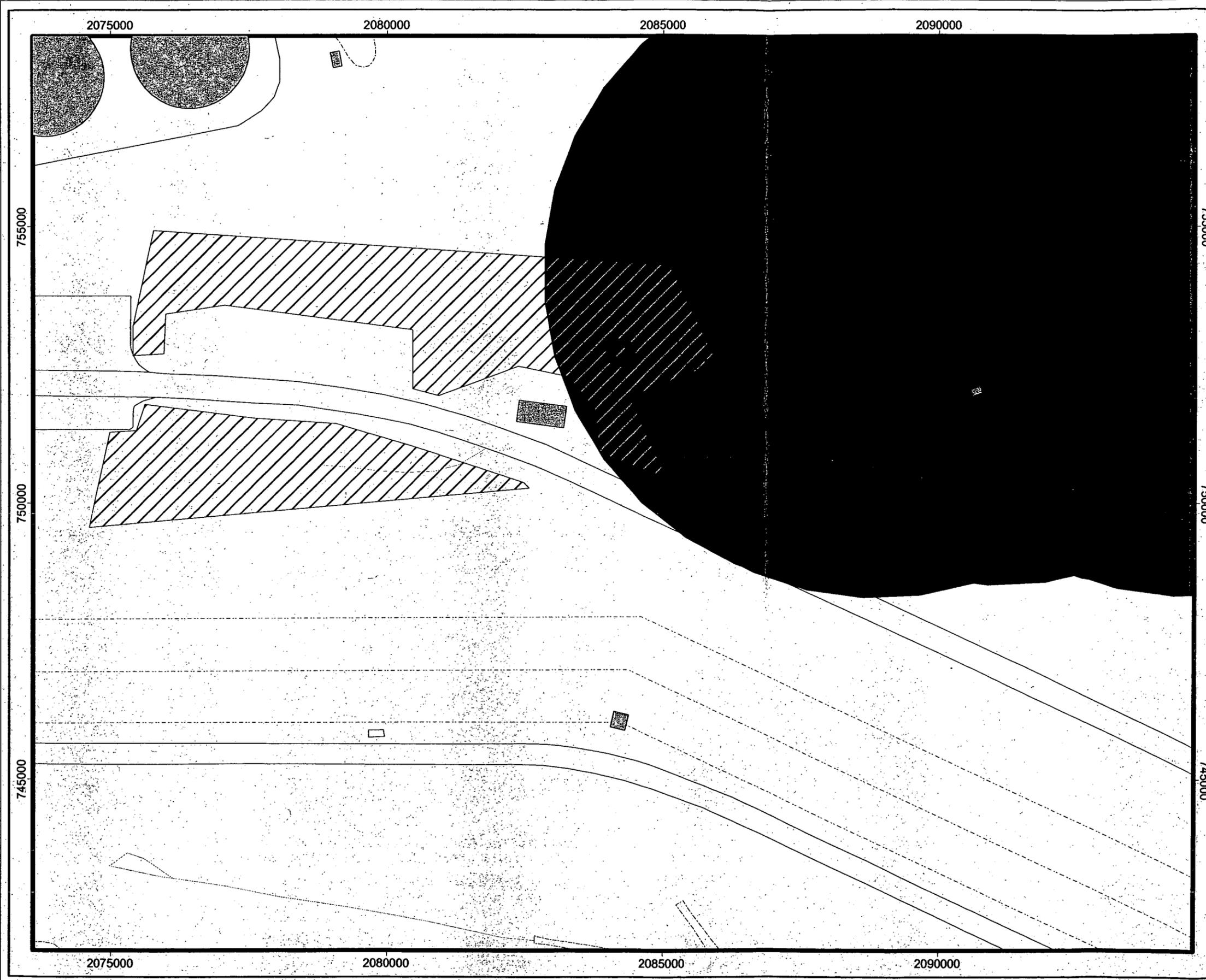
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by: Professional Environmental Group, L.L.C.

For: Kaiser-Hill Company, LLC  
RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035 April 5, 2005

© Professional Environmental Group, L.L.C. 2004/04-0035/PBA Pt II Millgallon Tracking.apr-C-1 Pond



**Functional Channel #3  
Programmatic Biological  
Assessment  
Disturbance Tracking**

June 7, 2005

**Legend**

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/95.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

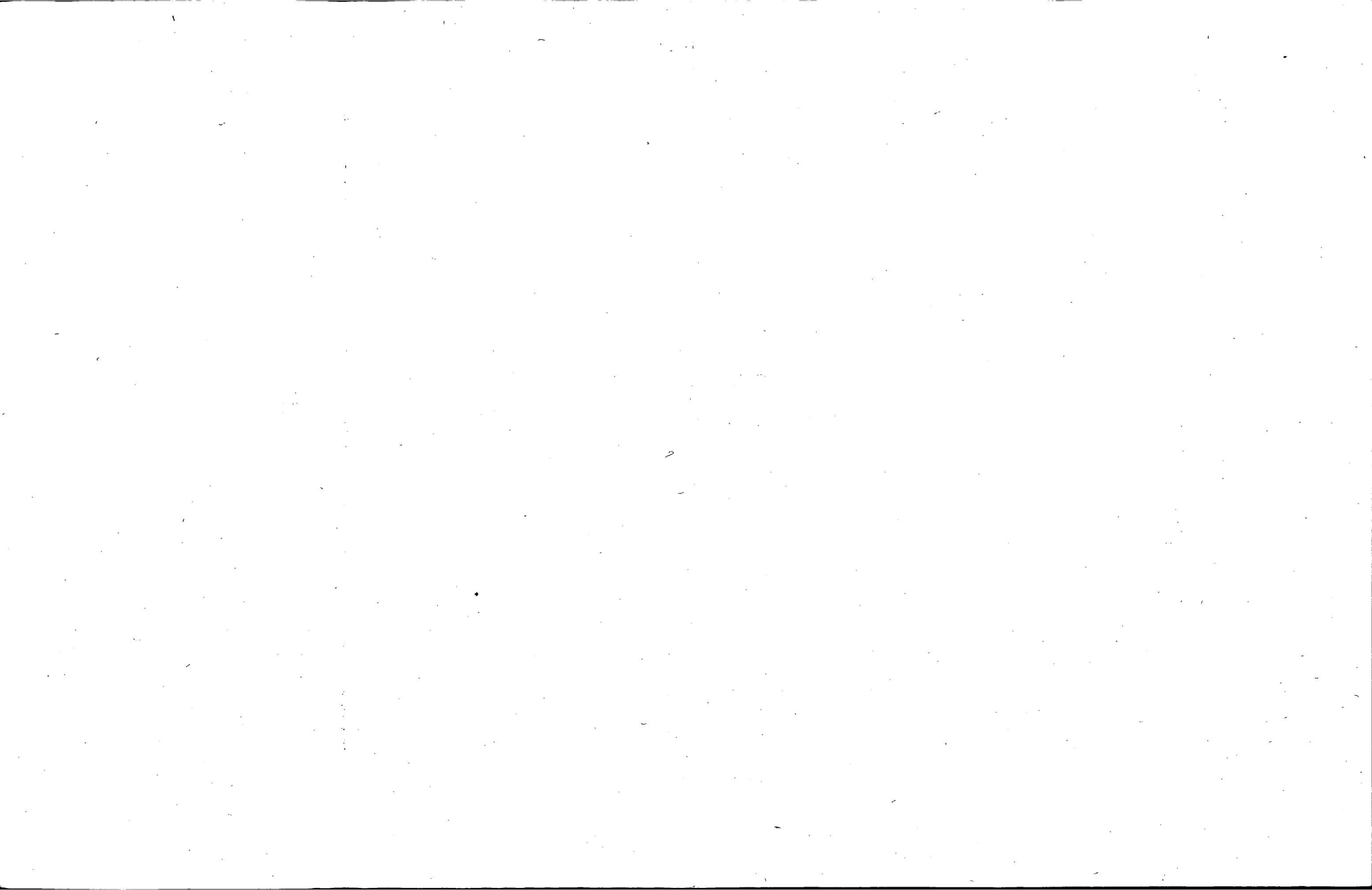
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

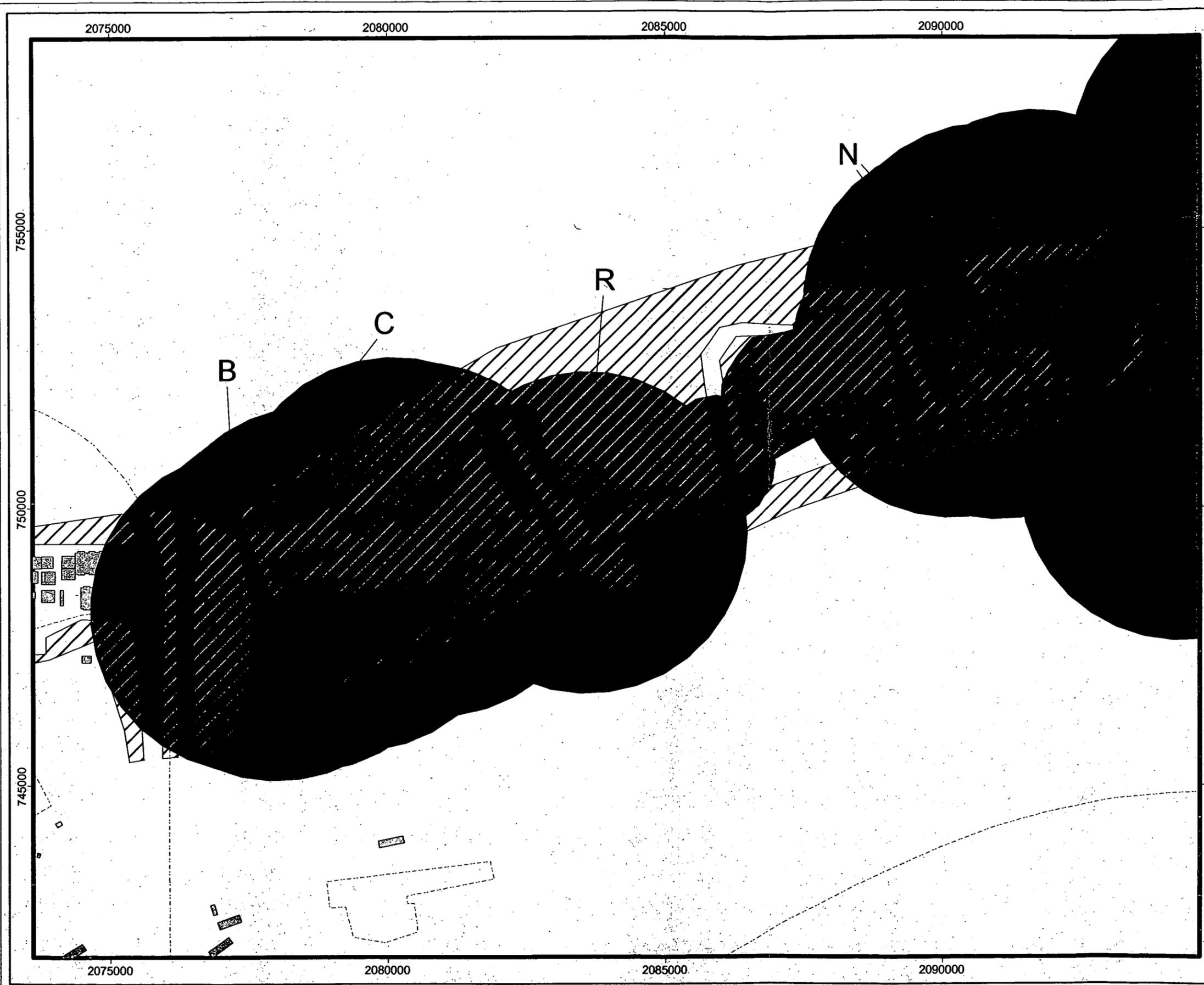
Prepared by: Professional Environmental Group, L.L.C.

For:  Kaiser-Hill Company, LLC RFETS GIS Dept.  
303-966-7707

MAP ID: 04-0035 June 7, 2005

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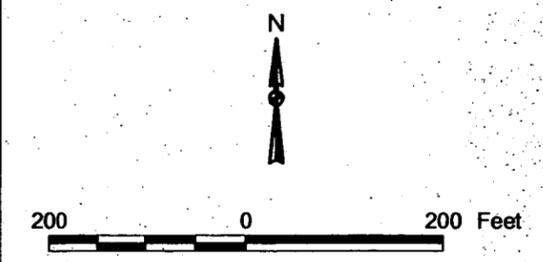




**Rocky Flats Environmental  
Technology Site  
Programmatic Biological  
Assessment  
Disturbance Tracking  
July 11, 2005**

- Legend**
-  Current Preble's Protection Areas
  -  Project Footprints for PBA Part II Activities
  -  Project Disturbances (Letter match projects on spreadsheet)
- Standard Features**
-  Buildings
  -  Demolished Buildings
  -  Lakes & ponds
  -  Streams & ditches
  -  Fences
  -  Paved roads
  -  Dirt roads
  -  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EG&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1/95.

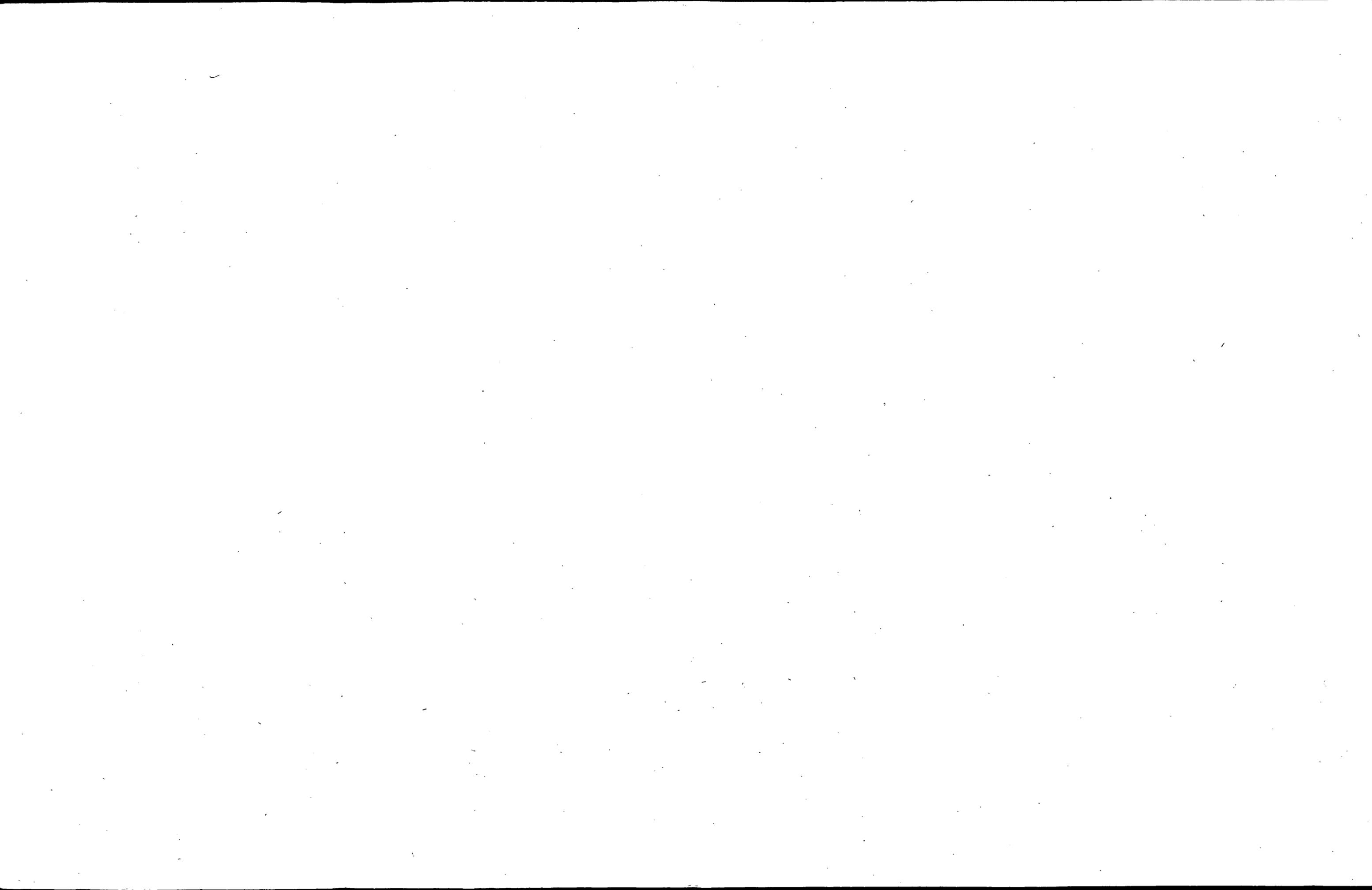


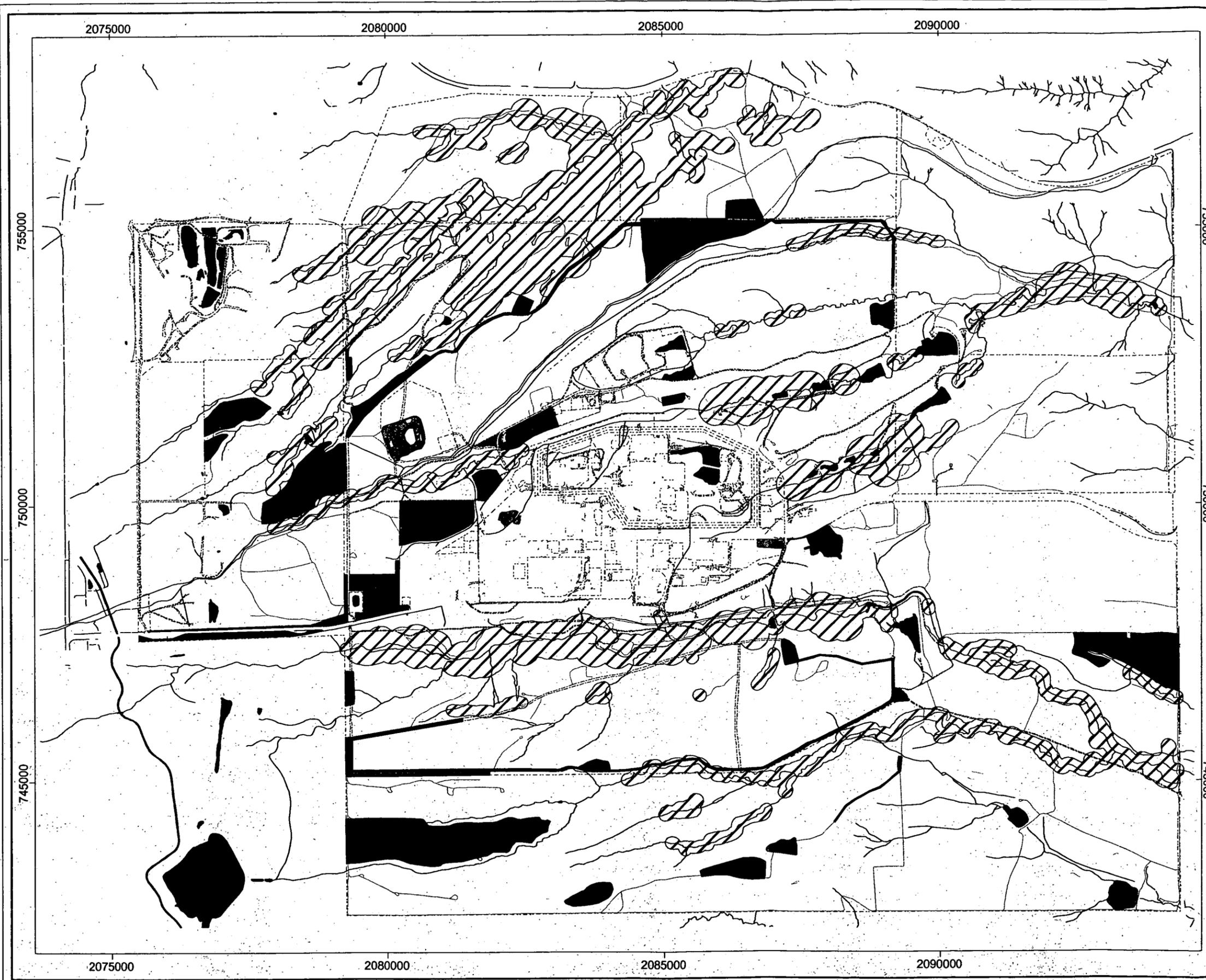
State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

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For: Kaiser-Hill Company, LLC  
RFETS GIS Dept. 303-968-7707  
MAP ID: 04-0035 July 11, 2005

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### 2005 Herbicide Application Locations at RFETS PBA Part II Credit Tracking

-  Plateau (6 oz/acre; 107 acres)
-  Tordon 22K (1 pt/acre; 248 acres)
-  Transline (1 pt/acre; 35 acres)
-  Tordon 22K (1 qt/acre) + Telar (1 oz/acre; 42 acres)
-  Preble's Mouse Protection Areas

#### Standard Features

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/95.



1000 0 1000 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

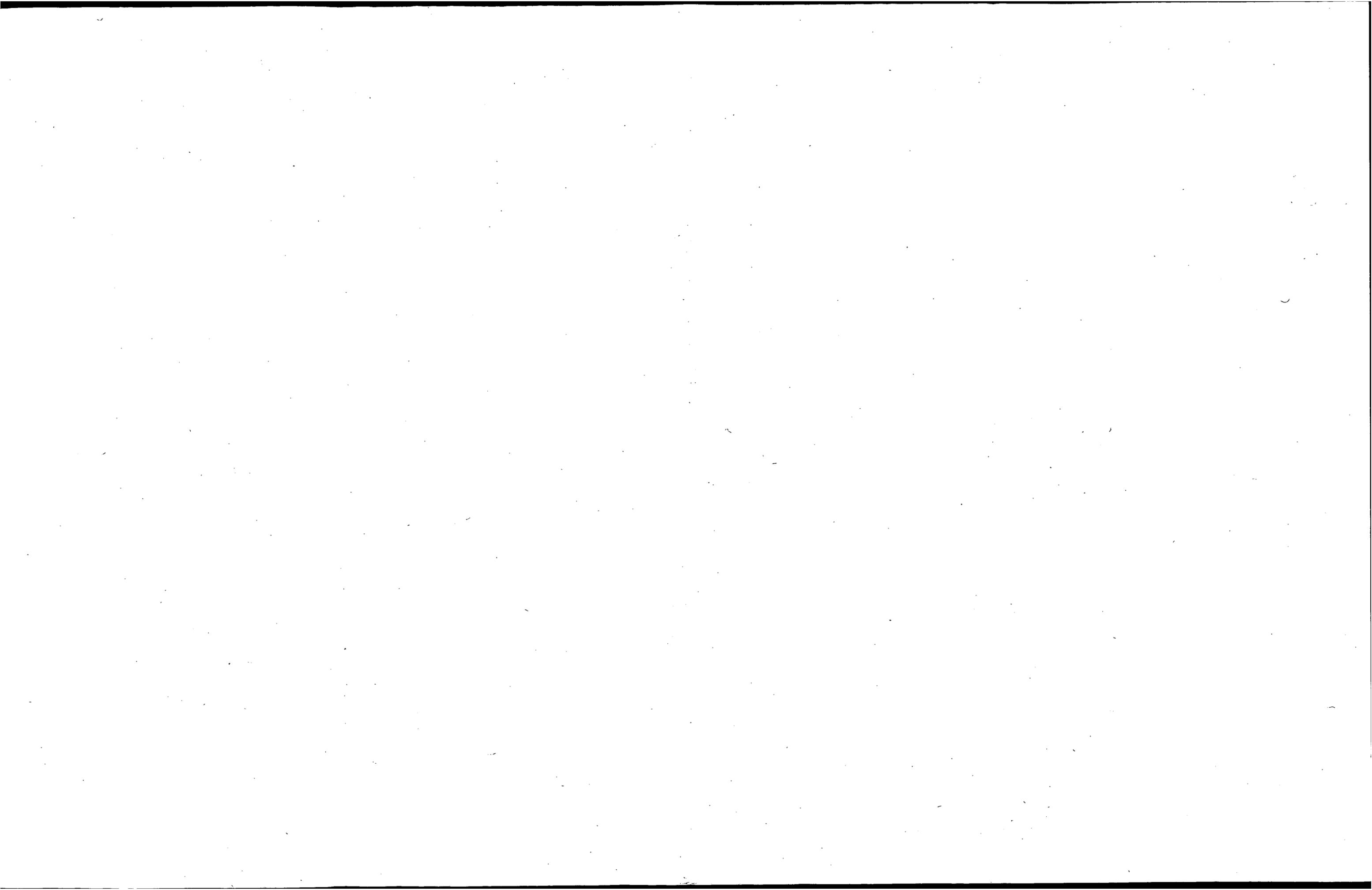
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

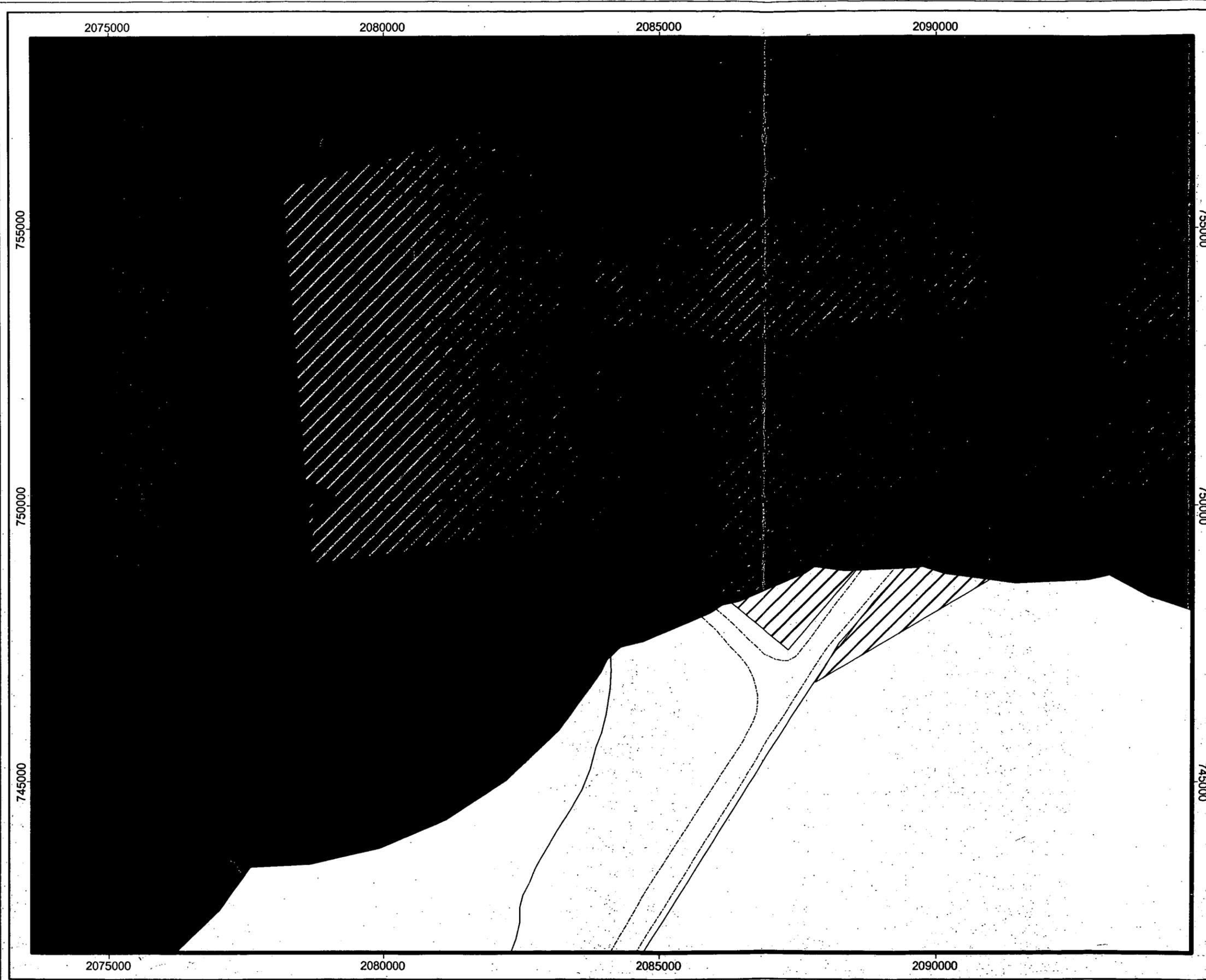
Prepared by: Professional Environmental Group, L.L.C.

For:  Kaiser-Hill Company, LLC  
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303-966-7707

MAP ID: 05-0012 October 10, 2005

C:\Projects\F200505-0012\2005 herbicide locations.apr\2005 Herbicide Locations USFWS Spreadsheet





# Well Installation Programmatic Biological Assessment Disturbance Tracking

August 4, 2005

## Legend

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Project Disturbances (Letter match projects on spreadsheet)

## Standard Features

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by E&G RSL, Las Vegas. Digitized from the orthophotographs, 1/95.



0 100 Feet

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

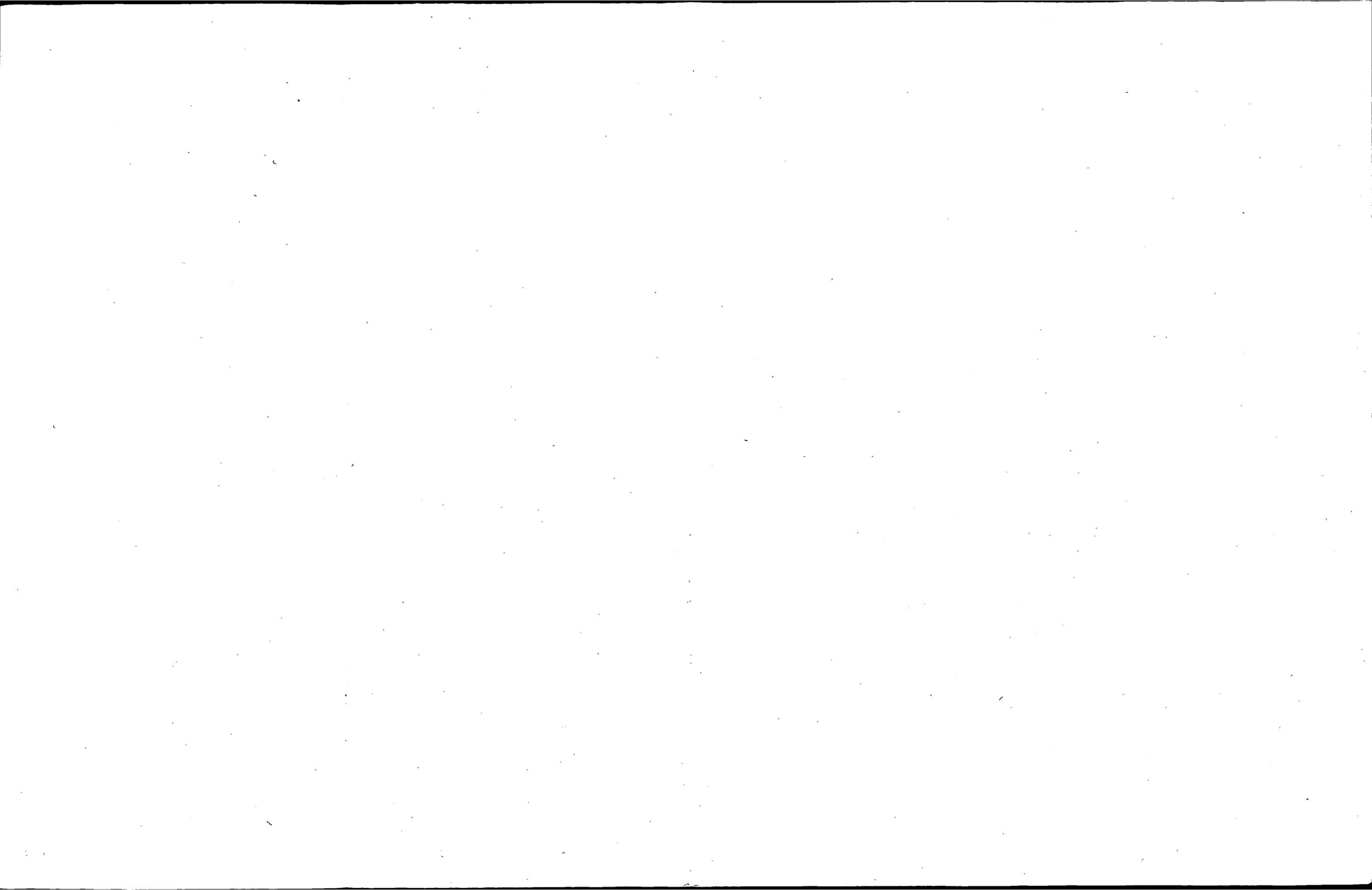
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

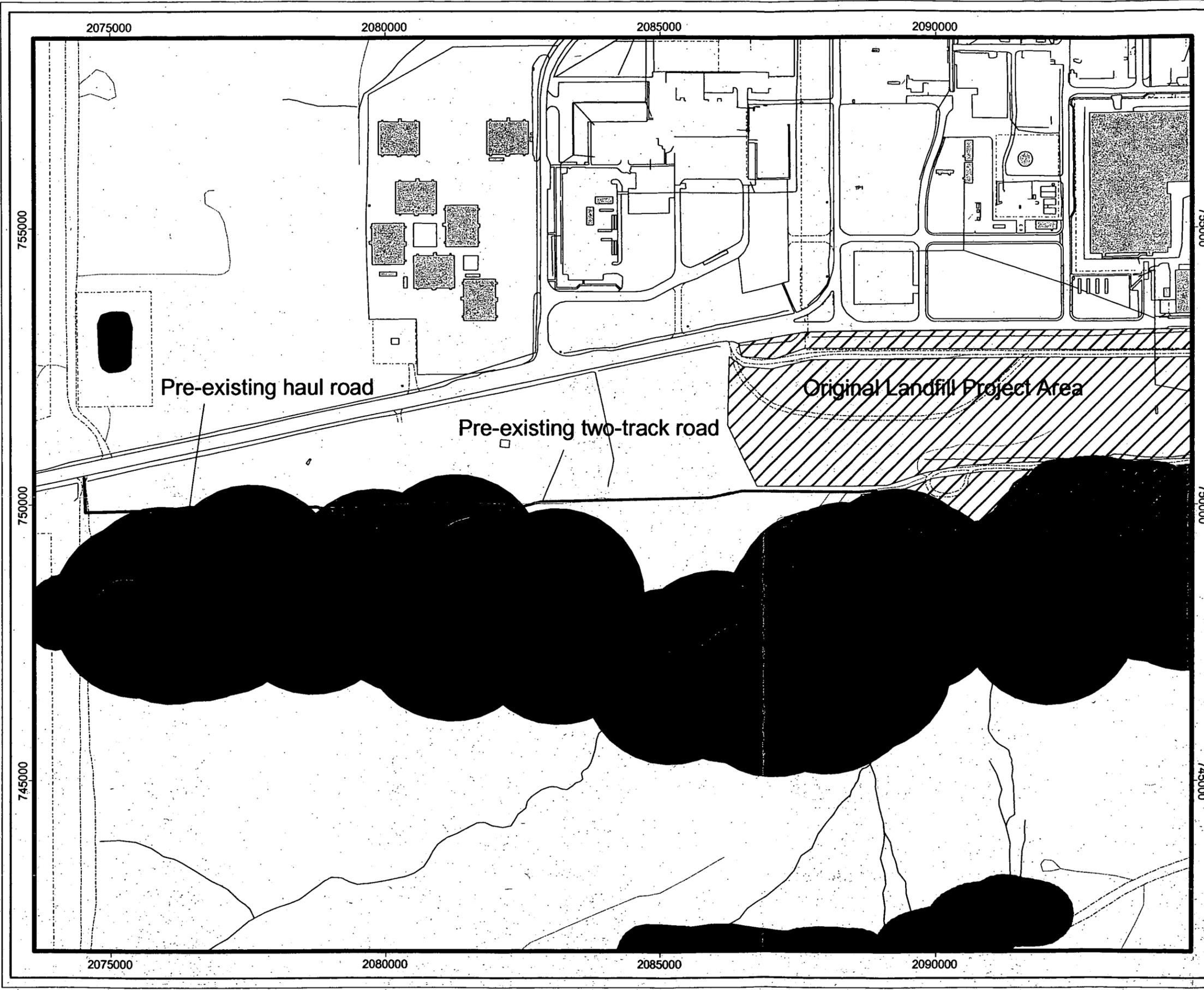
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For:  Kaiser-Hill Company, LLC  
RFETS GIS Dept. 303-966-7707

MAP ID: 04-0035 August 4, 2005

C:\Projects\FY2004\04-0035\PEGA P1 II Mitigation Tracking.apr\Well Installations\Well Installation 05b





**Original Landfill Project  
West Haul Road  
Modification**

**Figure 1  
March 15, 2005**

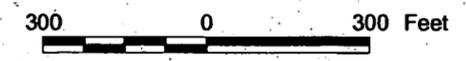
**Legend**

-  Current Preble's Protection Areas
-  Project Footprints for PBA Part II Activities
-  Existing Haul Road
-  Existing Two-Track Road

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other  
structures from 1994 aerial fly-over data  
captured by EG&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1/95.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

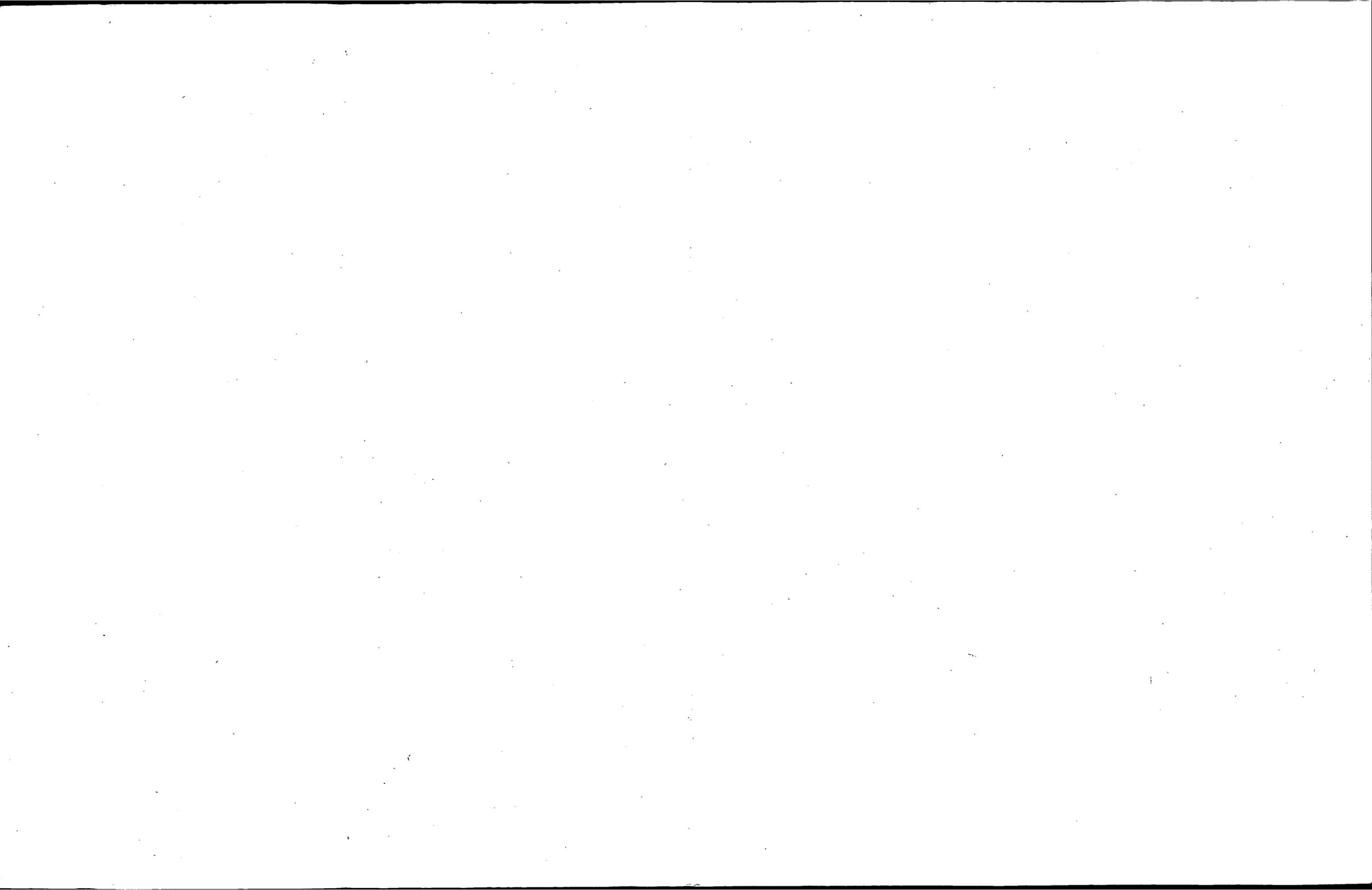
**U.S. Department of Energy  
Rocky Flats Environmental Technology Site**

Prepared by: **Professional Environmental Group, L.L.C.**

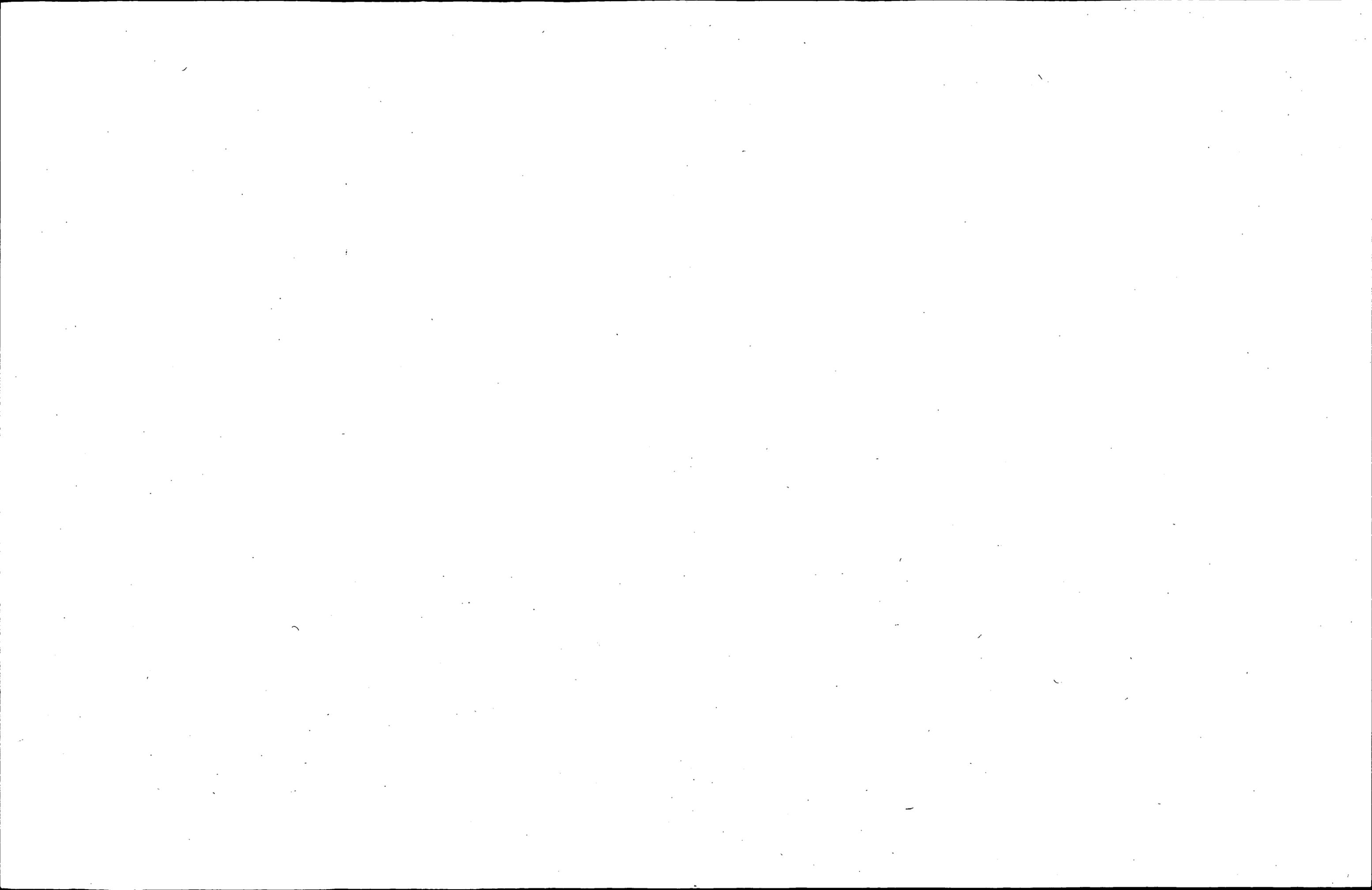
For:  **Kaiser-Hill  
Company, LLC** RFETS GIS Dept.  
303-966-7707

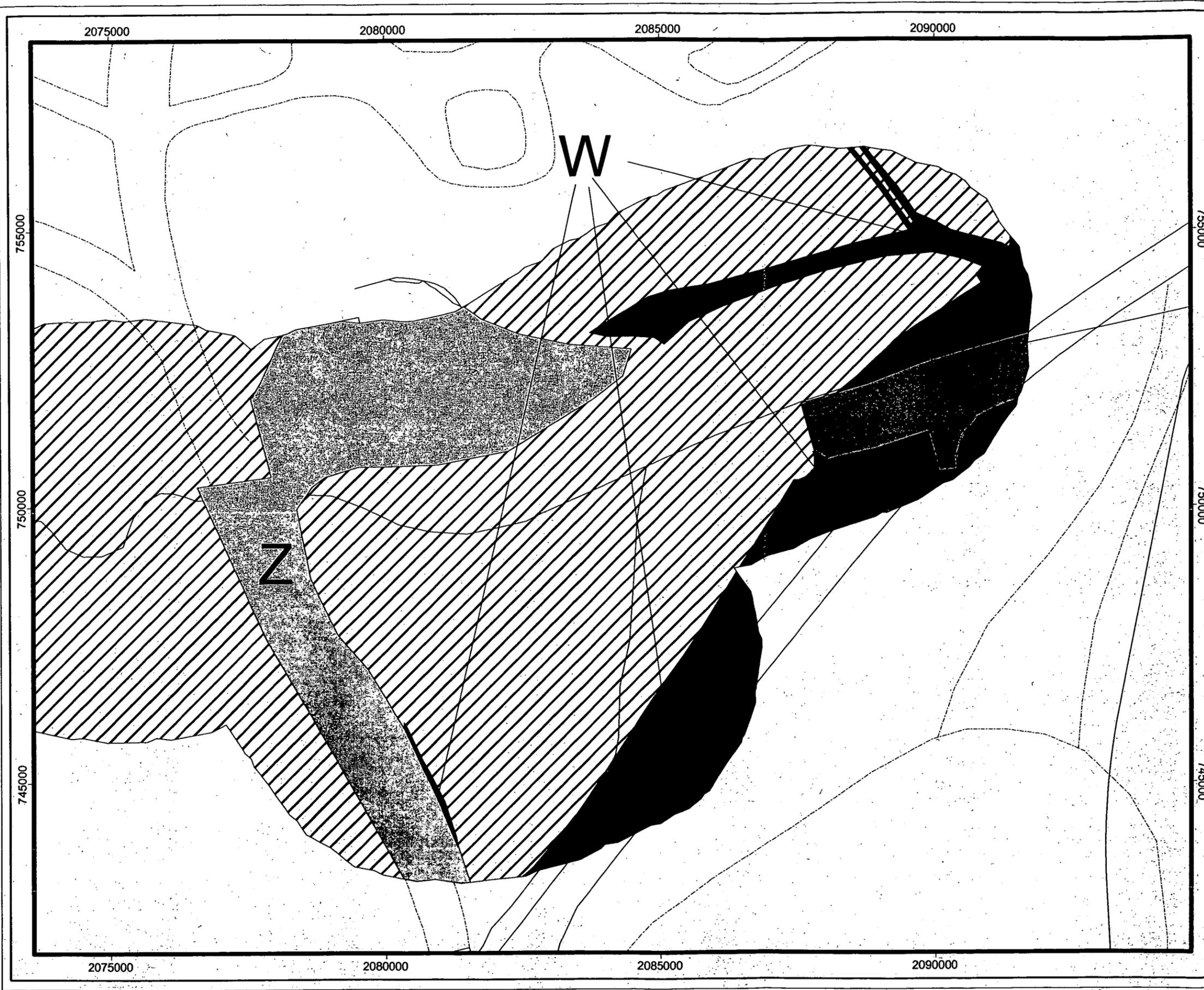
MAP ID: 04-0035 March 15, 2005

G:\Projects\FY2004\04-0035\PEGA Pr II Mitigation Tracking.apr\OLF west haul road







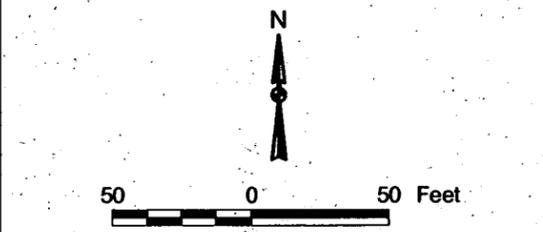


**North Access Road (B371 Area)  
Programmatic Biological  
Assessment  
Disturbance Tracking  
October 7, 2005**

- Legend**
-  Current Preble's Protection Areas
  -  Project Disturbances  
(Letter matches projects on spreadsheet)
  -  Riprap area along North Walnut Creek
  -  Credit Area where road and rock/sand storage area were located

- Standard Features**
-  Buildings
  -  Demolished Buildings
  -  Lakes & ponds
  -  Streams & ditches
  -  Fences
  -  Paved roads
  -  Dirt roads
  -  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/85.

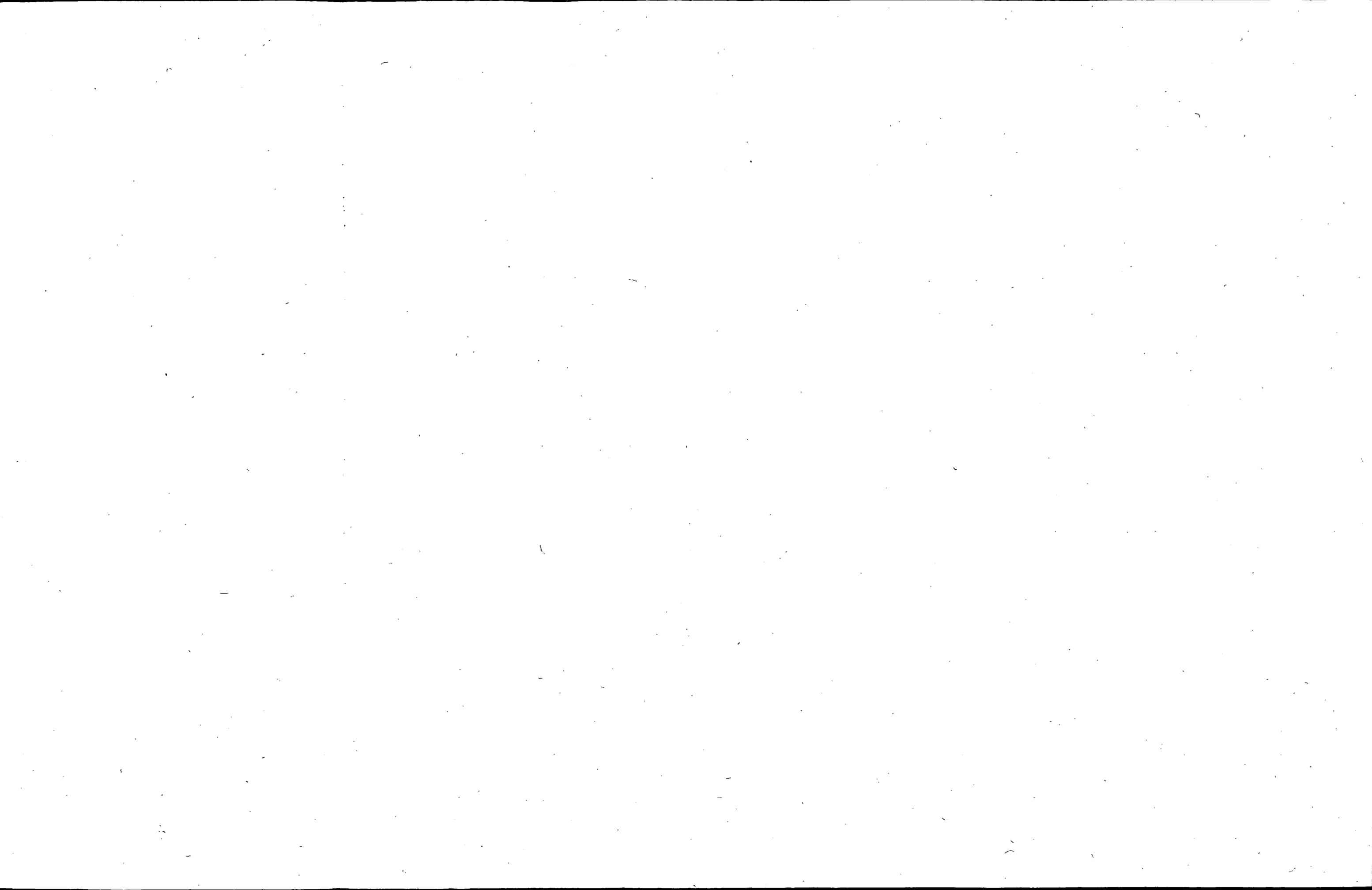


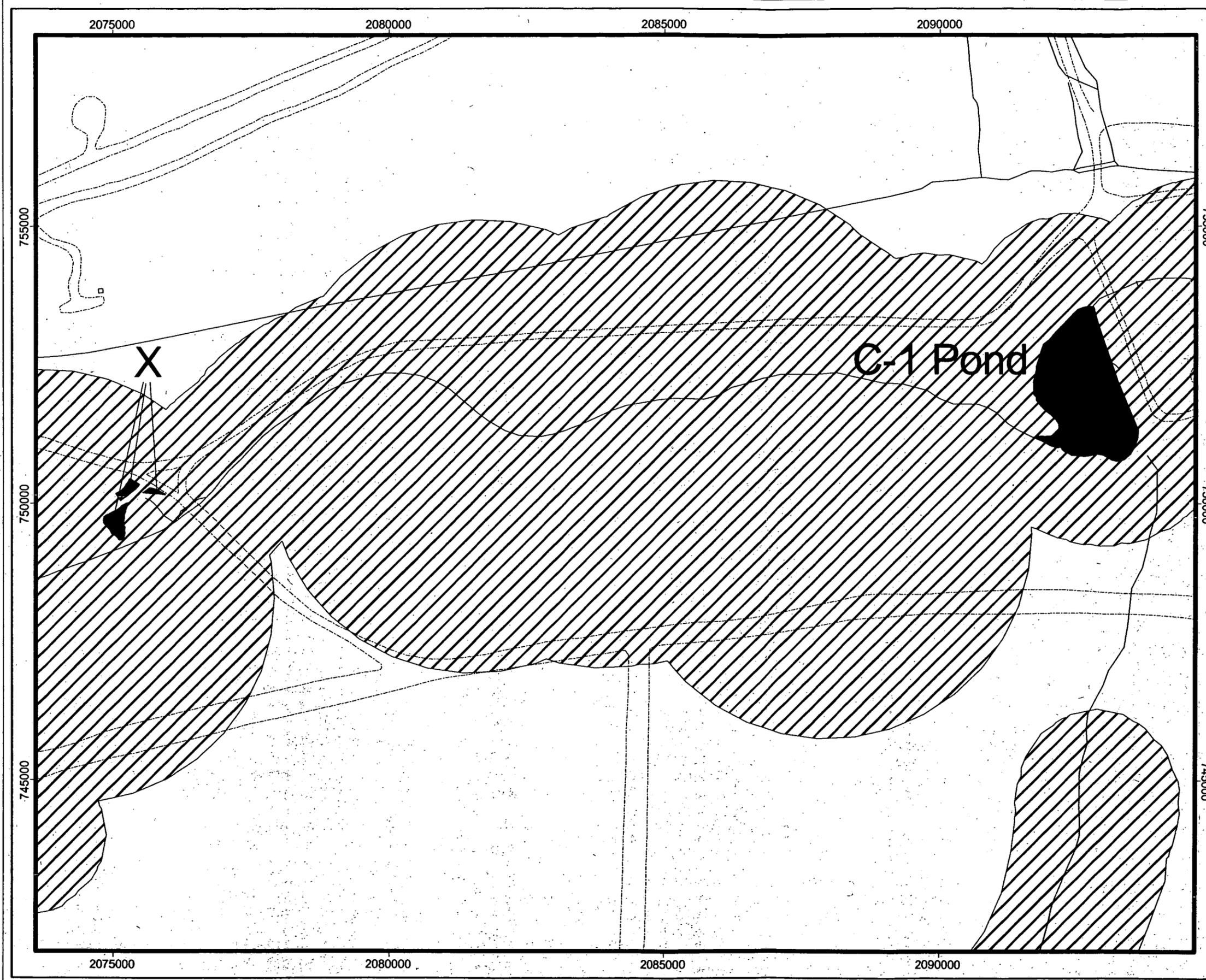
State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
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For:  Kaiser-Hill Company, LLC  
RFETS GIS Dept. 303-966-7707  
MAP ID: 04-0035 October 7, 2005

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**Surface Water Equipment  
Removal Programmatic Biological  
Assessment Disturbance Tracking**

**October 10, 2005**

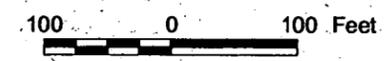
**Legend**

-  Current Preble's Protection Areas
-  Project Disturbances  
(Letter matches projects on spreadsheet)

**Standard Features**

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
Buildings; fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/85.



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

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Prepared by: **Professional Environmental Group, L.L.C.**

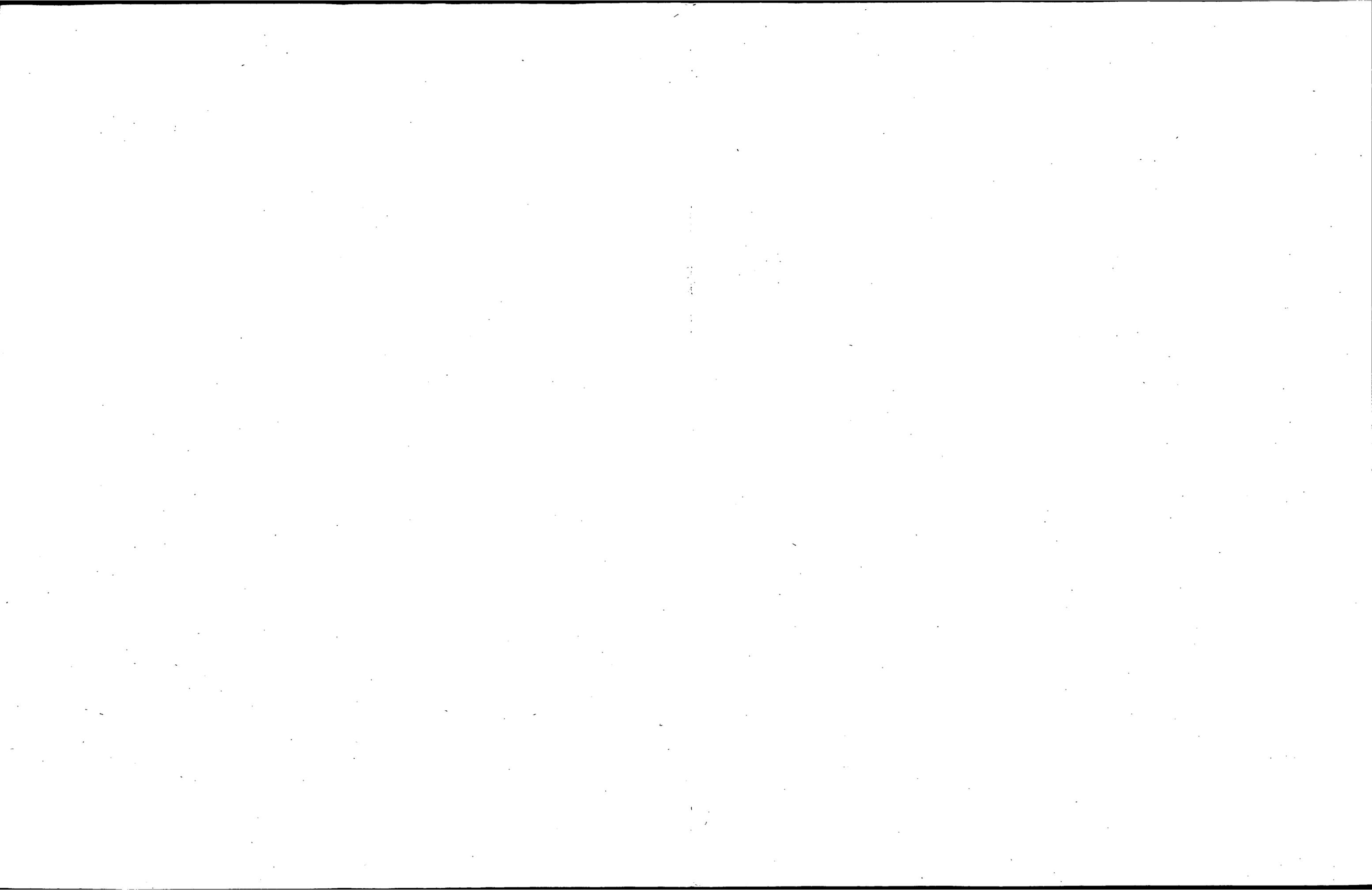
For:  Kaiser-Hill  
Company, LLC

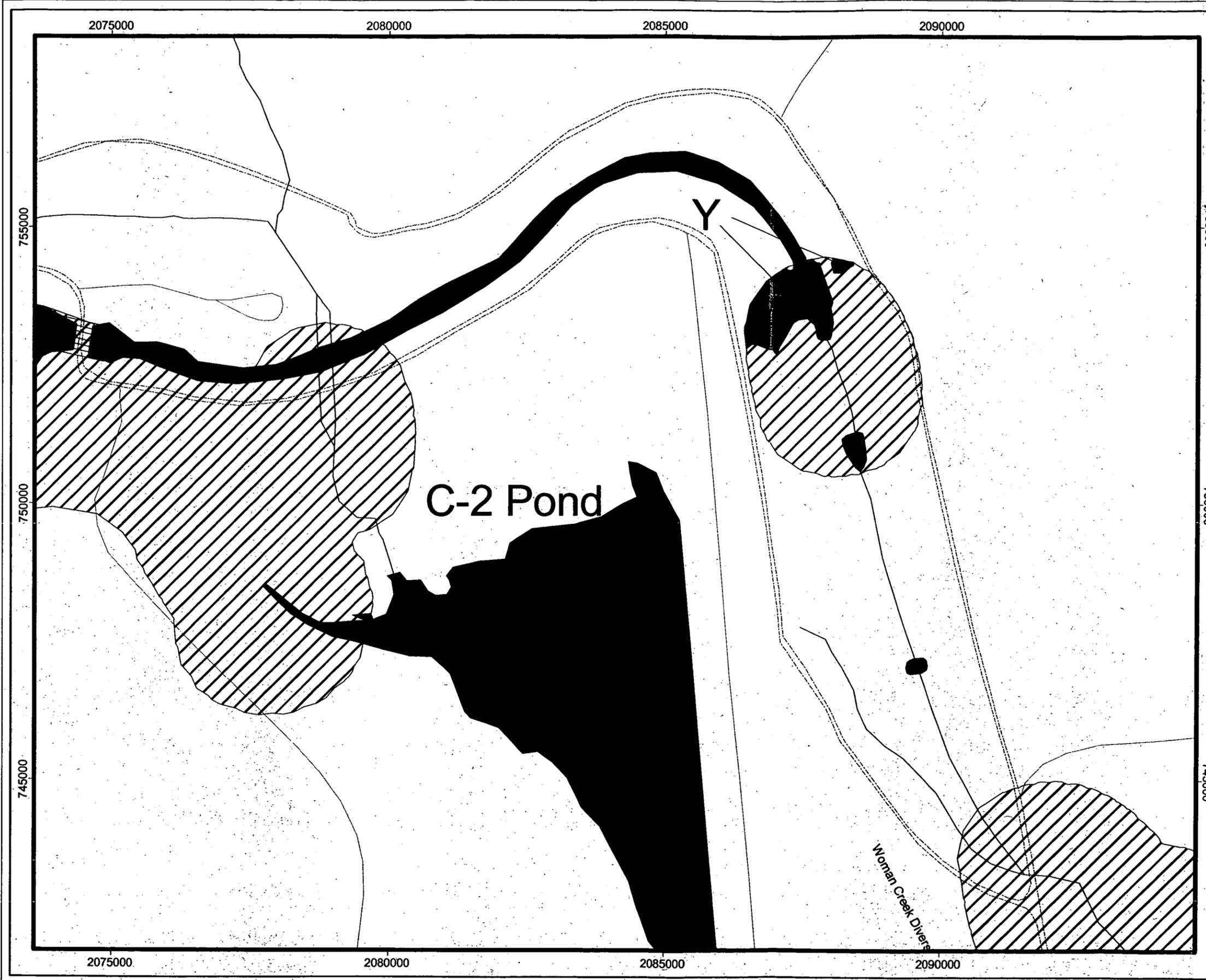
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MAP ID: 04-0035

October 10, 2005

C:\Projects\172004\04-0035\PEBA Pt II Mitigation Tracking.apr\Surfaces\Water Equipment Removal





Woman Creek Bypass Riprap  
 Repair Programmatic Biological  
 Assessment Disturbance  
 Tracking

October 10, 2005

Legend

-  Current Preble's Protection Areas
-  Project Disturbances  
(Letter matches projects on spreadsheet)

Standard Features

-  Buildings
-  Demolished Buildings
-  Lakes & ponds
-  Streams & ditches
-  Fences
-  Paved roads
-  Dirt roads
-  Contours (20 ft. intervals)

DATA SOURCE BASE FEATURES:  
 Buildings, fences, hydrography, roads and other  
 structures from 1994 aerial fly-over data  
 captured by EG&G PSL, Las Vegas.  
 Digitized from the orthophotographs, 1/85.



100 0 100 Feet

State Plane Coordinate Projection  
 Colorado Central Zone  
 Datum: NAD27

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MAP ID: 04-0035

October 10, 2005

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