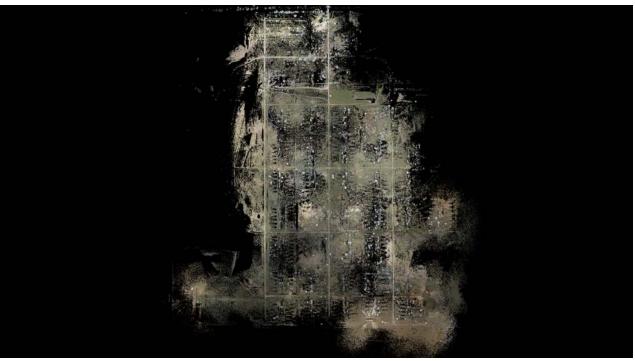
Project Report: 3D Documentation

Amache Japanese American Confinement Site

Granada, Colorado

Report Date: July 30, 2020



Still image from the Amache LiDAR Scan

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 - o Procedures and Scanning Effort Details
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- 6. Data Representation
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1. Project Overview:

Project Team:

Center of Preservation Research, University of Colorado Denver

Ekaterini (Kat) Vlahos <u>kat.vlahos@ucdenver.edu</u> 303.315.0573 Michael Nulty <u>michael.nulty@ucdenver.edu</u> 303.315.5871

Kim Carpenter

National Park Service – Japanese American Confinement Site Program

Kara Miyagishima <u>kara miyagishima@nps.gov</u> 303.607.0977

Project Location:

Amache Japanese American Confinement Site CO-Rd 23 5/10, two miles west of Granada, CO

www.ucdenver.edu/preservation (Click on the "Documentation" link to view project)

Project Dates:

On-Site Scanning: July 8 – July 12, 2019

Post-Processing: August 2019 – September 2019

Deliverable-Processing: October 2019 – May 2020

Project End Date: September 5, 2020

Final Delivery: July 30, 2020



Leica Scan Station P50 located at intersection of the Amache Japanese American Confinement Site.



2. Site Evaluation and Assessment:

Description of Site:

The Granada Relocation Center is located near the town of Granada, Colorado. The relocation center, known more commonly as Camp Amache or Amache was one of 10 centers constructed in the United States during World War II for the purpose of interning Japanese Americans and people of Japanese descent. More than 10,000 people passed through Camp Amache and, at its peak, it housed over 7,300 internees, two-thirds of whom were U.S. citizens. Today, the Granada Relocation Center site consists of a cemetery, a monument, building foundations, and landscaping.

After the conculsion of World War II, Camp Amache's agricultural lands reverted to private farming and ranching while its buildings were demolished or removed. Today, the cemetery, a reservoir, a water well and tank, the road network, concrete foundations, watch towers, the military police compound, and trees planted by the internees still remain. In addition, the original security perimeter fence surrounds the site. Camp Amache is maintained by the Friends of Amache, which operates in partnership with the Amache Preservation Society, the Amache Club, the Amache Historical Society, and the Town of Granada.

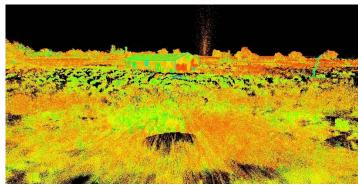
3. Data Gathering and General Site Procedures

Onsite Description of Technical Processes:

Using LiDAR to digitally scan a site and/or structure is different for every project. Depending on the desired outcomes and deliverables expected the strategies involved can vary widely. For the most part though, the equipment we bring is similar. Besides the Leica Scan Station P50, we use a PC laptop, batteries to power the scanner, a tribrach, Nodal Ninja, Digital SLR camera, and a separate, heavy tripod that supports the fully robotic scanner.



Kim with Leica P50 at Amache



View of scan data at Amache with relocated barrack building

Once a thorough site inspection has been completed and scan locations have been identified, the scanner is set up in its first location. These scan locations are determined based on efficient data collection and wide coverage of the site and/or structure that is being documented. We use a software program called Cyclone (made by Leica) to operate the scanner. After the appropriate settings are established the scanner begins collecting data. The scanner is equipped with a digital video camera (low

quality) inside and has the capability of providing a live feed from the perspective of the scanner. Depending on how much and at what point densities we are scanning, a scan can take anytime between two minutes and an hour to complete. On average, the scans required about five minutes to complete the data collection.

Once scanning is completed we use the Digital SLR camera to collect better image information than the scanner can. We take the time to collect HDR (High Dynamic Range) photography at each location. HDR allows us to capture high quality images that give us more information than standard photography. We also collect RAW images for greatest quality and color range. We collect a 365-degree sphere of images that we later stitch together and texture map onto the point cloud data for a more photo-realistic 3D model.



Research Assistant Kim Carpenter in distance collecting HDR photos as the scanner is set up at the next location.

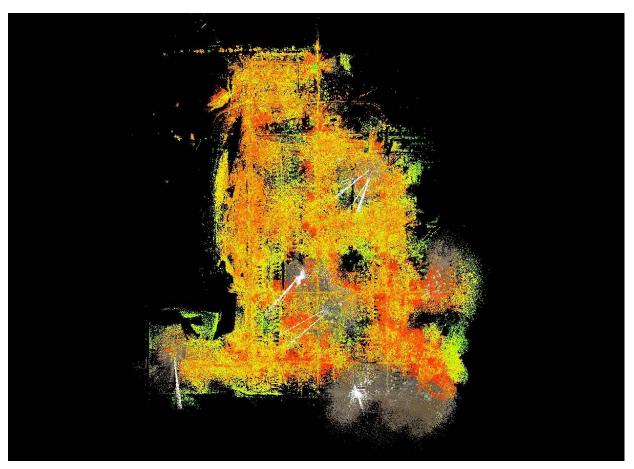
Once scanning and HDR photography collection is complete at one location we begin the careful process of moving to the next location. During the process of moving all the equipment related to the scanning process, it is critical to make sure that they stay out of the way of the scans. We often are shifting around the associated equipment to ensure we are only capturing the site and its structures. At each location the scanner is reset and moved with care.



Procedures and Scanning Effort Details:

The University of Colorado Denver scanned the Amache Japanese American Confinement site and surrounding context using a Leica Scan Station P50 Scanner from Monday, July 8th through July 12th 2019. Two Center of Preservation Research (CoPR) employees, Kim Carpenter and Mike Nulty, were onsite during this time. In total, 121 different scan locations were acquired on site, all of which consisted of 360 degree scans to acquire surrounding context of the site. In addition to scanning, 121 panoramic images were also captured at each location to be used for photo texturing during post processing. On average the 360 degree scan locations took about 7 minutes (please see field notes for a more detailed scan schedule).

This effort is the second phase of LiDAR scanning of this site. The scanning took into account the previous scan effort to ensure the two data sets could be merged.



Aerial view of both data sets merged together. Brown areas show the first area captured in phase one, yellow areas show areas captured during the second phase.

Site Photos:



Scanner tripod with water tower beyond.



Kim setting up scanner along western boundary of site.



Foundation at eastern edge of site.



Image of site with intersection beyond.



4. Data Management

Initial Post-Processing:

In January, the registration processing of the Amache site began. All scan locations were registered together using feature registration with a Mean Absolute Error (MAE) of .003 meters. Over the square mile site, this is a highly accurate outcome.

```
Registration Diagnostics
Status: VALID Registration

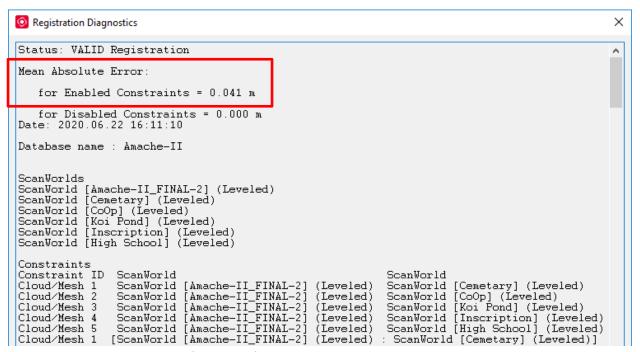
Mean Absolute Error:
for Enabled Constraints = 0.003 m

for Disabled Constraints = 0.000 m
Date: 2020.01.20 09:58:14

Database name: Amache Phase II
```

Amache Registration Diagnostics for all data collected from Phase II.

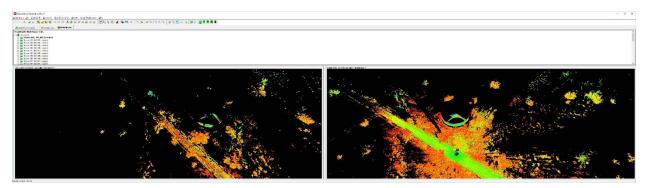
Following the registration of the Phase II data, the Phase I data was registered together. A Mean Absolute Error (MAE) of .041 meters was achieved after all data was registered together. The higher error is due to site changes over the three years since the Phase I data was collected. An example is the introduction of the relocated barrack building and other site changes over time.



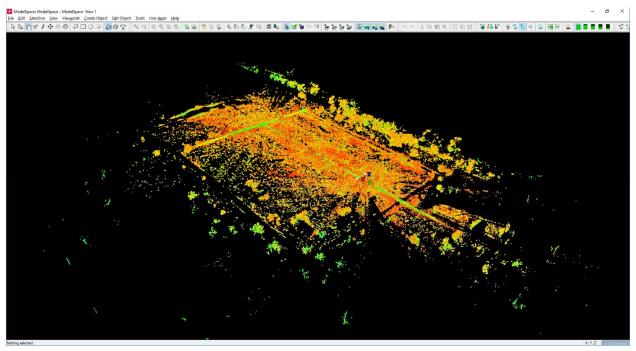
Amache Registration Diagnostics for all data from both Phase I and Phase II.



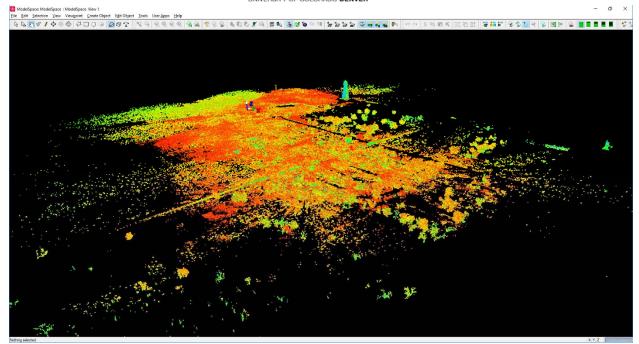
Processing Images:



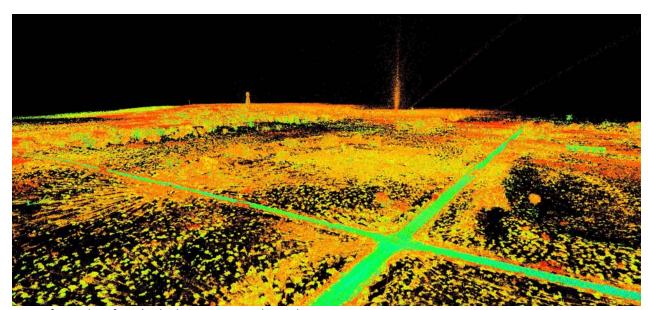
Screen capture showing the registration process.



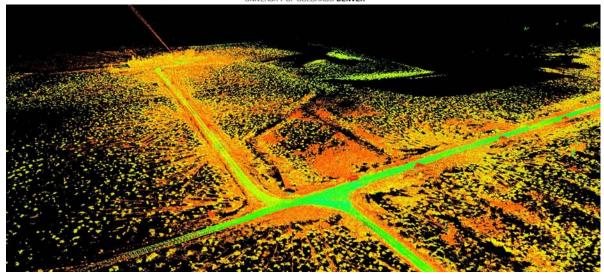
Screen capture showing portions of the scan data registered.



Screen capture showing portions of the scan data registered. The water tower can be seen in the background.



View of scan data from both phases registered together.



View of scan data from above of intersection with cemetery beyond.

The panoramic images were processed and applied to each scan location making the data look more photo-realistic.



Screen capture showing HDR images from one scan location prepared and ready for panoramic image creation.



5. Data Archiving:

Full copies of raw and processed data will be archived in several places and media. CoPR will have a copy of the data backed up on an external hard drive as well as on a local computer. A copy of the data will also be housed on a server located in a different geographic location from the hard drives as extra protection against loss. The data will also be delivered to the National Park Service via an external hard drive for their records. CoPR is not contracted to store or backup the data for any determined amount of time.

Issues of data storage and archiving are complex. In all industries, changes to data and data management practices occur as fast as the technologies creating it. This makes planning for the future of data management difficult because it is impossible to know what the future of data storage and archiving will become. Not only can we not provide long term solutions (more than 30 years) based on current available media and strategies, but it is unknown to what degree changes in the future will alter and affect current data. An example of this is the floppy disk, which we can no longer practically manipulate.

- Copr will not be in a position to archive data for long periods of time.
- CoPR is responsible for data until it is delivered to the client/partner. The client/partner assumes responsibility for data.
- CoPR maintains 1-year and 5-year archiving and storage strategies. They are not considered fool-proof back-up strategies.
- Data collected and managed by CoPR is stored on a remote server for the first year after collection. A copy of the data is also stored on a local computer and an external hard drive
- CoPR will maintain the data as best as it can for research and academic purposes but should not be relied on as an ultimate backup.
- CoPR can recommend possible solutions from other providers for more long term data management solutions.

6. Data Representation:

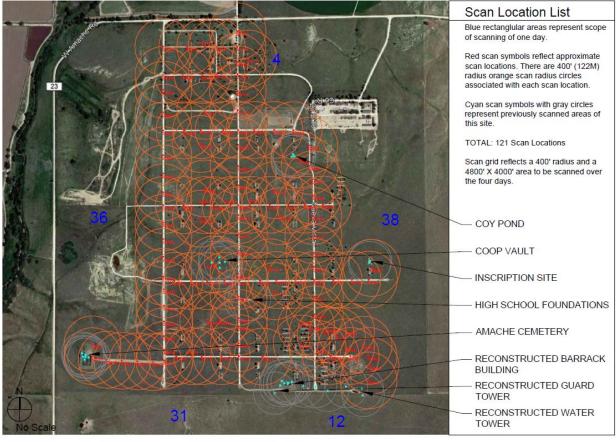
For this project the main focus was to create a set of initial interpretive deliverables that can be used as online visualizations. In order to clearly and concisely present and create useable data, the steps described in previous sections of this final report were completed to not only deliver the outputs described in the scope but, the data can be mined at a later time for additional research and interpretive deliverables. A long list of data types were collected and processed through an even longer list of software and processing techniques. We use these tools to handle the data to output clear and useable deliverables.



7. Field Notes:

The following documents are the final field notes.

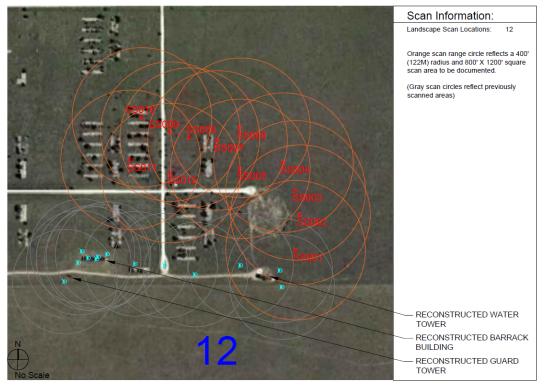
The grey circles indicate scan locations from Phase I, orange circles indicate scan locations from Phase II. The large blue numbers reflect how many scans were completed on each of the five days of scanning.



JACS - Granada, CO

Scan Location Plan

Overall



JACS - Granada, CO

Scan Location Plan

July 8, 2019



Digital Documentation Field Record

PROJECT NAME:	Amache II	
DATE:	7/8/2019	

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS01	Range = 270 meters Time = 6m 47s	AMC 01	P50	3.1mm @ 10m	None	N/A	N/A
SS02	Range = 270 meters Time = 6m 47s	AMC 02	P50	3.1mm @ 10m	None	N/A	N/A
SS03	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 03	P50	3.1mm @ 10m	None	N/A	N/A
SS04	Range = 270 meters Time = 6m 47s	AMC 04	P50	3.1mm @ 10m	None	N/A	N/A
SS05	Range = 270 meters Time = 6m 47s	AMC 05	P50	3.1mm @ 10m	None	N/A	N/A
SS06	Range = 270 meters Time = 6m 47s	AMC 06	P50	3.1mm @ 10m	None	N/A	N/A
SS07	Range = 270 meters Time = 6m 47s	AMC 07	P50	3.1mm @ 10m	None	N/A	N/A
SS08	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 08	P50	3.1mm @ 10m	None	N/A	N/A
SS09	Range = 270 meters Time = 6m 47s	AMC 09	P50	3.1mm @ 10m	None	N/A	N/A
SS10	Range = 270 meters Time = 6m 47s	AMC 10	P50	3.1mm @ 10m	None	N/A	N/A
SS11	Range = 270 meters Time = 6m 47s	AMC 11	P50	3.1mm @ 10m	None	N/A	N/A
SS12	Range = 270 meters Time = 6m 47s	AMC 12	P50	3.1mm @ 10m	None	N/A	N/A

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Center of Preservation Research
COLLEGE OF ARCHITECTURE AND PLANNING
UNIVERSITY OF COLORADO DENVER

Digital Documentation Field Record

7/9/2019

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS13	Range = 270 meters Time = 8m 47s	AMC 13	P50	3.1mm @ 10m	None	N/A	N/A
SS14	Range = 270 meters Time = 8m 47s	AMC 14	P50	3.1mm @ 10m	None	N/A	N/A
SS15	Range = 270 meters Time = 8m 47s (+detail scan of car @ 570 m range)	AMC 15	P50	3.1mm @ 10m	None	N/A	N/A
SS16	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 16	P50	3.1mm @ 10m	None	N/A	N/A
SS17	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 17	P50	3.1mm @ 10m	None	N/A	N/A
SS18	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 18	P50	3.1mm @ 10m	None	N/A	N/A
SS19	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 19	P50	3.1mm @ 10m	None	N/A	N/A
SS20	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range) (+ 1 or 2 detail scans of sign)	AMC 20	P50	3.1mm @ 10m	None	N/A	N/A
SS21	Range = 270 meters Time = 6m 47s	AMC 21	P50	3.1mm @ 10m	None	N/A	N/A
SS22	Range = 270 meters Time = 6m 47s (+detail scan of water tower @ 1km range) (+detail scan of car @ 270 m range)	AMC 22	P50	3.1mm @ 10m	None	N/A	N/A
SS23	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 23	P50	3.1mm @ 10m	None	N/A	N/A
SS24	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 24	P50	3.1mm @ 10m	None	N/A	N/A
SS25	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 25	P50	3.1mm @ 10m	None	N/A	N/A
SS26	Range = 270 meters Time = 6m 47s	AMC 26	P50	3.1mm @ 10m	None	N/A	N/A
SS27	Range = 270 meters Time = 6m 47s	AMC 27	P50	3.1mm @ 10m	None	N/A	N/A
SS28	Range = 270 meters Time = 6m 47s	AMC 28	P50	3.1mm @ 10m	None	N/A	N/A

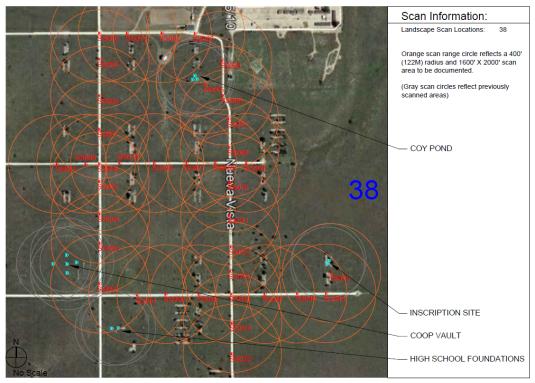
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Digital Documentation Field Record

PROJECT NAME:	Amache II	
DATE:	7/9/2019	

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):	
SS29	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 29	P50	3.1mm @ 10m	None	N/A	N/A	
SS30	Range = 270 meters Time = 6m 47s (+ (2) detail scans of car @ 270 m range)	AMC 30	P50	3.1mm @ 10m	None	N/A	N/A	
SS31	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 31	P50	3.1mm @ 10m	None	N/A	N/A	
SS32	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 32	P50	3.1mm @ 10m	None	N/A	N/A	
SS33	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 33	P50	3.1mm @ 10m	None	N/A	N/A	
SS34	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 34	P50	3.1mm @ 10m	None	N/A	N/A	
SS35	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 35	P50	3.1mm @ 10m	None	N/A	N/A	
SS36	Range = 270 meters Time = 27m 4s (+detail scan of coop @ 270 m range) (+detail scan of car @ 170 m range)	AMC 36	P50	1.6mm@10m coop: 0.8mm@10m car:3.1mm@10m	None	N/A	N/A	
SS37	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 37	P50	3.1mm @ 10m	None	N/A	N/A	***cancelled scan
SS38	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 38	P50	3.1mm @ 10m	None	N/A	N/A	
SS39	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 39	P50	3.1mm @ 10m	None	N/A	N/A	
SS40	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 40	P50	3.1mm @ 10m	None	N/A	N/A	""scanner crashed during detail scan
SS41	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 41	P50	3.1mm @ 10m 1.6mm @ 10m	None	N/A	N/A	
SS42	Range = 270 meters Time = 6m 47s (+detail scan of barrack @ 270 m range) (+detail scan of car @ 270 m range)	AMC 42	P50	3.1mm @ 10m 1.6mm @ 10m	None	N/A	N/A	experimenting with sensitivity settings
SS43	Range = 270 meters Time = 6m 47s (+ (3) detail scans of barrack @ 1km range) (+ (2) detail scans of car @ 1km range)	AMC 43	P50	3.1mm @ 10m (all scans)	None	N/A	N/A	



JACS - Granada, CO

Scan Location Plan

July 10, 2019



PROJECT NAME:	Amache II
	7110/2010

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):	
SS44	Range = 270 meters Time = 6m 47s	AMC 44	P50	3.1mm @ 10m	None	N/A	N/A	1
SS45	Range = 270 meters Time = 6m 47s	AMC 45	P50	3.1mm @ 10m	None	N/A	N/A	
SS46	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 46	P50	3.1mm @ 10m	None	N/A	N/A	
SS47	Range = 270 meters Time = 6m 47s (+(3) detail scans of car @ 270 m range)	AMC 47	P50	3.1mm @ 10m	None	N/A	N/A	
SS48	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 48	P50	3.1mm @ 10m	None	N/A	N/A	
SS49	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 49	P50	3.1mm @ 10m	None	N/A	N/A	
SS50	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 50	P50	3.1mm @ 10m	None	N/A	N/A	
SS51	Range = 270 meters Time = 6m 47s (+(2) detail scans of car @ 270 m range)	AMC 51	P50	3.1mm @ 10m	None	N/A	N/A	
SS52	Range = 270 meters Time = 6m 47s (+detail scan of coop @ 270 m range) (+detail scan of car @ 270 m range)	AMC 52	P50	3.1mm@10m coop: 0.8mm@10m car:3.1mm@10m	None	N/A	N/A	
SS53	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 53	P50	3.1mm @ 10m	None	N/A	N/A	
SS54	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 54	P50	3.1mm @ 10m	None	N/A	N/A	
SS55	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range) (+detail scan of car @ 570 m range)	AMC 55	P50	3.1mm @ 10m 1.6mm @ 10m 3.1mm @ 10m	None	N/A	N/A	
SS56	Range = 570 meters Time = 13m 33s	AMC 56	P50	3.1mm @ 10m	None	N/A	N/A	
SS57	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 57	P50	3.1mm @ 10m	None	N/A	N/A	
SS58	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 58	P50	3.1mm @ 10m	None	N/A	N/A	
SS59	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 59	P50	3.1mm @ 10m	None	N/A	N/A	

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Digital Documentation Field Record

7/10/2019 DATE:

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):	
SS60	Range = 270 meters Time = 6m 47s (+detail scan of car @ 570 m range)	AMC 60	P50	3.1mm @ 10m	None	N/A	N/A	
SS61	Range = 270 meters Time = 6m 47s	AMC 61	P50	3.1mm @ 10m	None	N/A	N/A	
SS62	Range = 270 meters Time = 6m 47s	AMC 62	P50	3.1mm @ 10m	None	N/A	N/A	
SS63	Range = 270 meters Time = 6m 47s	AMC 63	P50	3.1mm @ 10m	None	N/A	N/A	
SS64	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 64	P50	3.1mm @ 10m	None	N/A	N/A	
SS65	Range = 270 meters Time = 6m 47s (+detail scan of water tank @ 570 m range) (+detail scan of car @ 270 m range)	AMC 65	P50	3.1mm @ 10m	None	N/A	N/A	
SS66	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 66	P50	3.1mm @ 10m	None	N/A	N/A	
SS67	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 67	P50	3.1mm @ 10m	None	N/A	N/A	
SS68	Range = 270 meters Time = 6m 47s	AMC 68	P50	3.1mm @ 10m	None	N/A	N/A	
SS69	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 69	P50	3.1mm @ 10m	None	N/A	N/A	""cancelle scan
SS70	Range = 270 meters Time = 6m 47s (+ (2) detail scans of car @ 270 m range)	AMC 70	P50	3.1mm @ 10m	None	N/A	N/A	
SS71	Range = 270 meters Time = 6m 47s (+ detail scan of car @ 270 m range)	AMC 71	P50	3.1mm @ 10m	None	N/A	N/A	
SS72	Range = 270 meters Time = 6m 47s (+ detail scan of car @ 270 m range)	AMC 72	P50	3.1mm @ 10m	None	N/A	N/A	""scanner crashed but shut down
SS73	Range = 570 meters Time = 6m 47s (+ detail scan of car @ 270 m range)	AMC 73	P50	3.1mm @ 10m	None	N/A	N/A	""scanner cr rebooted befo detail scan
SS74	Range = 270 meters Time = 6m 47s (+ detail scan of car @ 270 m range)	AMC 74	P50	3.1mm @ 10m	None	N/A	N/A	
SS75	Range = 270 meters Time = 6m 47s (+ detail scan of car @ 270 m range)	AMC 75	P50	3.1mm @ 10m	None	N/A	N/A	

Center of Preservation Research COLLEGE OF ARCHITECTURE AND PLANNING

Digital Documentation Field Record

Amache II PROJECT NAME: UNIVERSITY OF COLORADO DENVER 7/10/2019

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS76	Range = 270 meters Time = 6m 47s	AMC 76	P50	3.1mm @ 10m	None	N/A	N/A
SS77	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 77	P50	3.1mm @ 10m	None	N/A	N/A
SS78	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 78	P50	3.1mm @ 10m	None	N/A	N/A
SS79	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 79	P50	3.1mm @ 10m	None	N/A	N/A
SS80	Range = 270 meters Time = 8m 47s (+detail scan of car @ 270 m range)	AMC 80	P50	3.1mm @ 10m	None	N/A	N/A
SS81	Range = 270 meters Time = 6m 47s	AMC 81	P50	3.1mm @ 10m	None	N/A	N/A



JACS - Granada, CO

Scan Location Plan

July 11, 2019



Digital Documentation Field Record

PROJECT NAME: Amache II

DATE: 7/11/2019

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS82	Range = 270 meters Time = 6m 47s	AMC 82	P50	3.1mm @ 10m	None	N/A	N/A
SS83	Range = 270 meters Time = 6m 47s	AMC 83	P50	3.1mm @ 10m	None	N/A	N/A
SS84	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 84	P50	3.1mm @ 10m 1.6mm @ 10m	None	N/A	N/A
SS85	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 85	P50	3.1mm @ 10m	None	N/A	N/A
SS86	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 86	P50	3.1mm @ 10m	None	N/A	N/A
SS87	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 87	P50	3.1mm @ 10m	None	N/A	N/A
SS88	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 88	P51	3.1mm @ 10m	None	N/A	N/A
SS89	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 89	P52	3.1mm @ 10m	None	N/A	N/A
SS90	Range = 270 meters Time = 6m 47s	AMC 90	P53	3.1mm @ 10m	None	N/A	N/A
SS91	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 91	P54	3.1mm @ 10m	None	N/A	N/A
SS92	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 92	P55	3.1mm @ 10m	None	N/A	N/A
SS93	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 93	P56	3.1mm @ 10m	None	N/A	N/A
SS94	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 94	P57	3.1mm @ 10m	None	N/A	N/A
SS95	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 95	P58	3.1mm @ 10m	None	N/A	N/A
SS96	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 96	P59	3.1mm @ 10m	None	N/A	N/A
SS97	Range = 570 meters Time = 13m 33s (+detail scan of car @ 270 m range)	AMC 97	P60	3.1mm @ 10m	None	N/A	N/A

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Digital Documentation Field Record

PROJECT NAME: Amache II

DATE: 7/11/2019

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS98	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AMC 98	P50	3.1mm @ 10m	None	N/A	N/A
SS99	Range = 270 meters Time = 6m 47s (+ (2) detail scans of car @ 270 m range)	AMC 99	P50	3.1mm @ 10m	None	N/A	N/A
SS100	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AM100	P50	3.1mm @ 10m	None	N/A	N/A
SS101	Range = 270 meters Time = 27m (+detail scan of car @ 270 m range)	AM101	P50	1.6mm @ 10m 1.6mm @ 10m	None	N/A	N/A
SS102	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AM102	P50	3.1mm @ 10m	None	N/A	N/A
SS103	Range = 270 meters Time = 6m 47s	AM103	P50	3.1mm @ 10m	None	N/A	N/A
SS104	Range = 270 meters Time = 6m 47s	AM104	P50	3.1mm @ 10m	None	N/A	N/A
SS105	Range = 270 meters Time = 6m 47s	AM105	P50	3.1mm @ 10m	None	N/A	N/A
SS106	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AM106	P50	3.1mm @ 10m 1.6mm @ 10m	None	N/A	N/A
SS107	Range = 270 meters Time = 6m 47s (+detail scan of car @ 270 m range)	AM107	P50	3.1mm @ 10m 1.6mm @ 10m	None	N/A	N/A
SS108	Range = 270 meters Time = 6m 47s	AM108	P50	3.1mm @ 10m	None	N/A	N/A
SS109	Range = 270 meters Time = 6m 47s	AM109	P50	3.1mm @ 10m	None	N/A	N/A
SS110	Range = 270 meters Time = 6m 47s	AM110	P50	3.1mm @ 10m	None	N/A	N/A
SS111	Range = 270 meters Time = 6m 47s	AM111	P50	3.1mm @ 10m	None	N/A	N/A
SS112	Range = 270 meters Time = 6m 47s	AM112	P50	3.1mm @ 10m	None	N/A	N/A
SS113	Range = 270 meters Time = 6m 47s	AM113	P50	3.1mm @ 10m	None	N/A	N/A

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Digital Documentation Field Record

PROJECT NAME: Amache II

DATE: 7/11/2019

Station:	Comments / Notes:		Pano Folder Name:		Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS114	Range = 270 meters	Time = 8m 47s	AM114	P50	3.1mm @ 10m	None	N/A	N/A
SS115	Range = 270 meters	Time = 6m 47s	AM115	P50	3.1mm @ 10m	None	N/A	N/A
SS116	Range = 270 meters	Time = 6m 47s	AM116	P50	3.1mm @ 10m	None	N/A	N/A
SS117	Range = 270 meters	Time = 6m 47s	AM117	P50	3.1mm @ 10m	None	N/A	N/A

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JACS - Granada, CO

Scan Location Plan

July 12, 2019



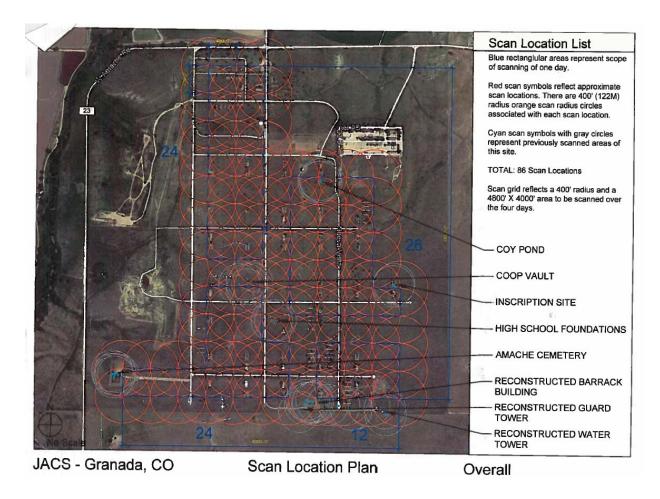
Digital Documentation Field Record

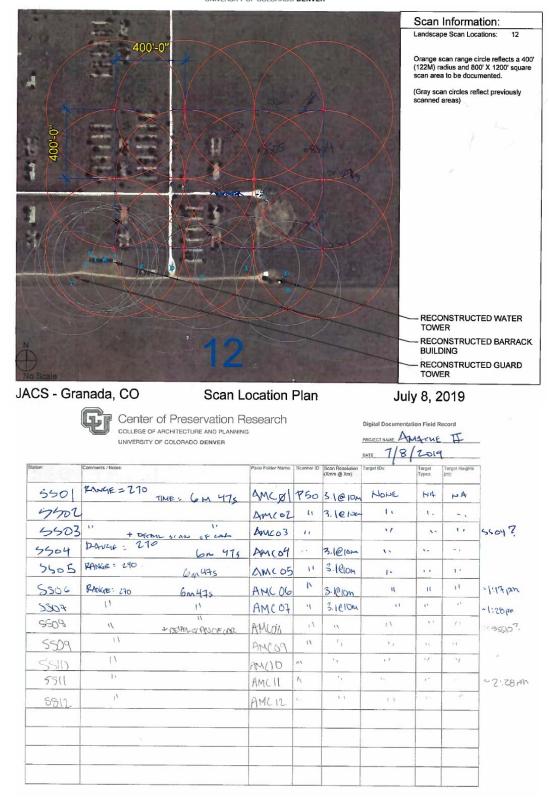
PROJECT NAME:	Amache II	
DATE:	7/12/2019	

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):
SS118	Range = 270 meters Time = 6m 47	s AM118	P50	3.1mm @ 10m	None	N/A	N/A
SS119	Range = 270 meters Time = 6m 47 (+detail scan of car @ 270 m range)	s AM119	P50	3.1mm @ 10m	None	N/A	N/A
SS120	Range = 270 meters Time = 6m 47	s AM120	P50	3.1mm @ 10m	None	N/A	N/A
SS121	Range = 270 meters Time = 6m 47	s AM121	P50	3.1mm @ 10m	None	N/A	N/A



The following documents are the original field notes:

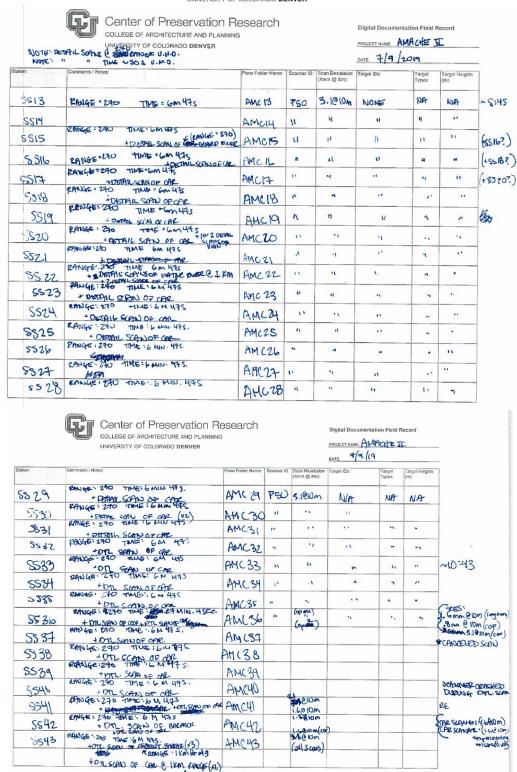




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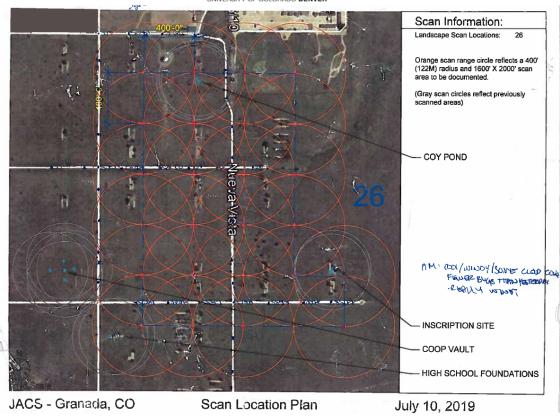




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(second carden = 61.3 00 10m)





	COLLEGE OF ARCHITECTURE AND PLANNING UNIVERSITY OF COLORADO DENVER DOTE: ALL OTL SCANS @ 250M LANGE & 3.		C 17.45		PROJECT NAME AN	AACHEIL		-
	The Carried A 21	WWG INW INC	טויט ליי		DATE 3/19/19			-
tation;	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):	
5244	RANGE . 240 M TIME : 6 M 475	AMC454	P50	3.Immelon	和/4	NA	N/A	
C5 45	RANGE: 290M TIME: 6 M 493	AMC45	PSO	3.mellion	и	٨	11	
5546	PANGE: 270M TIME: 6 M HTS	AMC46	n	ы	14	*1	11	-
8547	HANGE LAD OF CAR MALLYS	AMC47	1x	şt.	ut.	×	P	~6:15 A
5548	PANGE 70 M THE : P M 475	AMC48	н	. (ч	4	NG. 30 A.
85 49	RANGE 270M THE BIN 475 + OTL SOLD OF CAL	AMC49	11	u	*1		4	6:46
5850	PANGE : 220 M TIME : 6 M 175	AMUSO	(1	ц	tre	- 14	**	water # Thomas
5851	RANGE: 2704 TIME: 64 475.	AMCSI	13	A1	ee	и	h	4:16 A.
5552	+ DTL SCAN OF CAY COMMENT	FIMUSZ	[is .	18	•	rs	
5553	+ DTL SCOND OF CAL	AMC53	ч	n	1	- 11	111	ALESSED.
5554	EM GE: 270M TIME: EM 474. OTT SCAN OF CAR RANGE: 290 U TIME: EM 475.	AMS4	"	"	14	14	** .	~7:55 A
85 55	DIL SUN OF COR + ACC STORANTE	ANISS	1.	1.6 morelon			· ·	~8.05 A.
555b	# 100 12 1100-12 May 832	AMCS6	4		, .		יי	~8.31
5554	TUTL GAIN OF CAR	AMCS7	, 5	•1	• (-1	и	18:45
5558	PHOGE: 2001 TIME: 64 475.	ANC58	ii .	14	**		13	~ 8:55
5559	PANGE ZTON THAT IS M 475	AMC 59	4	4	• • •	-		~9:10

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Digital Documentation Field Record

PROJECT HAME: AMACHE II

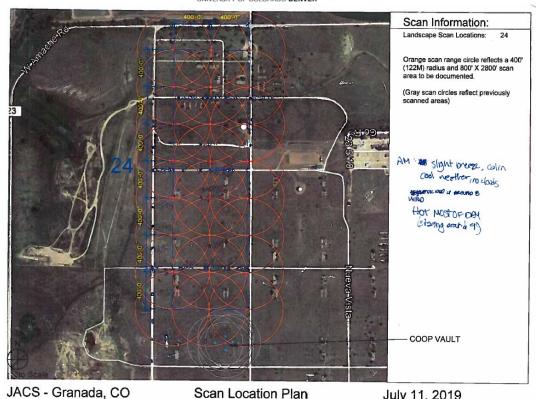
Station:	Comments / Notes;	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):	
SS60	LANGE: STOM TIME: 13 M 555.	AMC 60	P50	3.lmelon	NA	NA	N/A	
5561	RANGE: 270 M nuts: 6 M 47 5.	AMC61	9"	14	**	٠.	4	-
8562	BANGE: 22000 MENE: 6 M 475.	AMC 62	13	r	1.8	ч		
5563	140 GE 270 M TIME: GIN 475.	AMC 63	**	,,		4	11	~ ID Am
8864	EANGE: ZOO M TIME: EM 475.	AMCUA	h	e	14	41		~18 ay
\$565	PANGE 270 M TIME 6 M 435	AMCBS	li .	15	ti	••	-	MO-02
5566	POTL SON OF COLL	AMC66	ts.	11	211	0	1.1	10:48
5-67	PANAE: LOW TIME: 6 M 475	HMCG	M	15	tv .	- ix	-1	
3568	EMULE: 270M TIME: HM 475.	AMC 68	м	LA.	**	,,	, 1	~11:15
5369	PANGE ZON TIME 6M 485.	AMCGA		••	٠,			n:34
5570	PANGE: 270M TIME: 64475.	AMC70	it	1,	• •			A CUNCELED SED
8571	LANGE 270 M THAT 6 M 475	AMCFI		1.6	**	•	-1	
8572	PANGE . 270 M TIME GM 4735 + Dat SCAN OF CAR	AMCTZ	н			~	"	A SCA CHARLE COSSHED
5573	PANCE STOM THAT CAN 495	PAMC73	a	4			11	O Constitute - and the
85 74	HOTE SAU OFOR	AMCH	ч		н	и		SERCLE OTLSON
5575	PANCE: 270M TIME: GM 475	AMCTS	1	ta .			•••	

T	Center of Preservation Research
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PROJECT NAME: MACHE IL

DATE: 1/10/19

tation:	Comments / Notes:	Pano Folder Name:	Scanner IO:	Scan Resolution (Xmm @ Xm):	Torget IDs:	Target Types:	Target Heights (m):	
5576	The state of the s	AMCTG	P80	3.1 m210m	N/A	no/a	N/A	
SS77	RANGE : EDON TIME : LAN TITE .	AMCTT	8 "	-1	"	4	.,	1:300
5578	+ PTL SCAN OF CAR	AM(78	Ti.	t.	×1	٠.	· ·	~1:45
85 79	PANGE 270M TIME 6M 47 S +DTL SCALL OF CAR FANGE 270M TIME 6M 475	AMC79	rk.	*1	ч	-1	**	n1:38
5580	+ DTL SCAN OF CAR	AMC80	IC.	1.5		4	ч	~2:08
5581	RANGE : 210m time : 6m 485	AMC81	-1	4	*4		٦	



July 11, 2019

Center of Preservation Research Digital Documentation Field Record COLLEGE OF ARCHITECTURE AND PLANNING PROJECT NAME AMACHE II UNIVERSITY OF COLORADO DENVER POTE: DETENL SCANS MT ZTOM EAGLE /3.1000 Res. O. NO. DATE - 11/19 Scan Resolutio (Xmm @ Xm): RANGE = ZFO TIME = 64 475 3-1810M 5582 AMC BZ PSO NONE PA AU S:34A PANGE 240 THE - 6M 475 4 ٩. ., 11 5583 AMC83 BANGE 270 TIME: CM 475 3.18 10m 5584 + DETAIL STANDE OR @ ILLEMANDES RANGE : ZOOM THE : BM 475 AMC 84 И 140 / OL1 509V 1.6meson 3. Inview 11 11 ** 2882 AMC 85 26.22A PANGE: 2700 TIME: 60 475 S586 Ange: 270m The om is

Ange: 270m The omits

OBAIL SON OF CHE MAD

Charles 270m The im 475 AMC86 11 .. -1 1632 A 8887 .. --* AMC 87 ~6:45A 5388 15 PANCE - 290M TWE GM 475 88)MA 7:00 S8891 AMC 89 •4 14 ~7:10 PANGE: ZAOM TIME: GM 445 85990 AMC90 . . M7:21 RANGE: 270M TIME: 6m 495 5591 AMC91 14 .. + DILSCAN OF CAR-~9:47 PANGE: 270 M TIME: GANGES

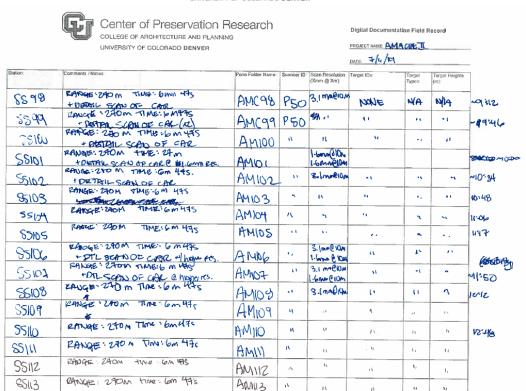
PANGE: 270 M TIME: GANGES

PORT STAND STORE

PANGE: 270 M TIME: GANGES

PAN M(92 a SS92 -5593 AMC93 3594 21.80 46:240 m The Gan 45 AMC 94 .1 . 5595 * AMC95 1, 11 ~8:26 " PANGE: 200 TIME: 6m 475 PANGE: LIDM TIME: UM TO STANDERS STANDE AMC96 5596 .1 *1 4 .. 5897 AMC97 .1 2 19:50 (ctar)

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Station:	Comments / Notes:	_ A	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm);	Target IDs:	Target Types:	Target Heights	
58114	PANGE: Z70m	time 6m 47s	AM 114	P50	3.1 invelor	1000	NA	NA	-
53115	2AUGE: 290 m		AMIIS		11	- 1\	. *	11	
55/16	RANGE: 240 m	time con yas	AMILL		1	E\$	н	, 1	
53117	EAWGE: 290 M	Time: for 475	AMILA		1	1	b	м,	HEXT PAUDI

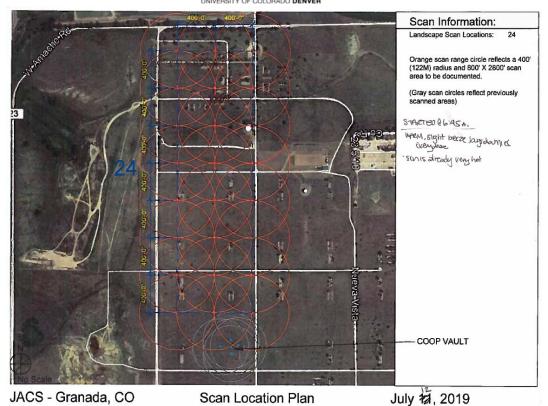
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Digital Documentation Field Record
PROJECT NAME: AMACHE II

DATE: FILE 19

Station:	Comments / Notes:	Pano Folder Name:	Scanner ID:	Scan Resolution (Xmm @ Xm):	Target IDs:	Target Types:	Target Heights (m):	
SSIIY	RANGE 270M TIME 6 M 475	811 MA	P.SO	3.Imelan	NONE	11/4	N/A	6
SSII9	RANGE: 290M TIME: GONLYS + DTL 3 CAN OF CAN	AMUS	f.c.	11	()	r _s	*17	6
5520	PANGE: 240M TIME. GRUGS	PM120	14	",	*1	41	1,	7:
								1