Hamline University
Department of Criminal Justice and Forensic Science

CJFS 3410: Crime Scene Investigation
Lab Manual
Version 3.0.

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FORENSIC
SCIENCE

Table of Contents

CSI Field and Laboratory Notebook Guidelines

Each student is required to keep a laboratory notebook to record observations associated with laboratory exercises. The book must be bound so that the pages are not removable. Composition "marble" notebooks (approximately 7 1/2" x 10") with sewn bindings are ideal. It is best to select a notebook that has a wide (approximately one inch) top and left margin on each page. The cover of the notebook must indicate the **student's name, course number and semester/year**. Entries must be made in either black or blue water-insoluble ink. The first page of the notebook must be reserved for the table of contents. A table of contents "template" is provided in Guidelines Appendix A. You must neatly cut and tape this template into your notebook for use throughout the semester. An example of usage is shown below. Please ensure that each column of the table of contents is complete before you hand in an exercise for grading.

Table of Contents Entry Example

Exercise	Pages	Transferred By	Received By	Transferred By	Received By	Grade
		Student's Initials	JSS	JSS	Student's Initials	
1. Night Crime Scene	2-10	01-Jan-2023	01-Jan-2023	07-Jan-2023	07-Jan-2023	0.95

Each page of the notebook must be consecutively numbered in the top margin (outer edge of each page furthest from the binding). This must be completed for all pages in the notebook before the second class meeting. Just before commencing a lab exercise, the student must sign in by placing the date in the left margin of the page, and writing "*Entered crime scene and began investigation at XXXX hours OR I began lab work at XXXX hours.*" An example is shown in Guidelines Appendix B. Line out any remaining unused space on this line and initial the entry. When you leave the lab, repeat the process, but indicating the time you exited the crime scene or lab.

The top line of each page should include the date on which entries on that page were made. When more than one page is used for entries for the same exercise on a particular day, all subsequent pages should indicate the date followed by the word "continued" in parentheses, followed by a time stamp of "*XXXX hours". Be sure to record your activities in a manner that would withstand scrutiny by any outside observer. Your reputation depends on your honesty and integrity.*

Data and observations recorded for each exercise must be entered into the notebook contiguously. You may not leave blank spaces in your notes for the purpose of "filling in" information at a later date or time. Please record all observations in your notebook (for knowns, controls and unknowns) at the time they are made and avoid summarizing data. If you repeat a number of tests, the notebook should normally reflect multiple entries. Always document in the present or past tense and only document what you did (*e.g.,* not what you intend to do).

If you make an error in your notebook, you can correct it by placing a single line through the entry and placing the corrected entry to the right of the error. Always initial and date each correction. If a correction is lengthy or found after including other observations, mark the error using the date, initials, "* pp." and the page number of the next available blank line in your notebook; write the correction on

this line under an underlined heading such as: **** Correction of entry made on page #.*** Do not attempt to obliterate an entry either by inking it out or using whiteout. Never overwrite data.

When inserting a chart, sketch attachment, or other loose paper into your notebook, tape down one side onto a blank page (applying tape to the back and front side of the edge). If necessary, fold the insert so that it is not protruding from your notebook. In the middle of the blank space beneath the taped in material, indicate what the page has been reserved for. Finally, draw a diagonal line through the blank space beneath the taped in material (breaking intermittently so as to avoid crossing out writing that denotes what the page is reserved for). Similarly, a diagonal line should be drawn through any unused portion of any page. All diagonal lines should be initialed and dated. If you only fill half a line in the notebook, be sure to use a straight solid line to line out any remaining space.

The required date format is day-month-year (for example, 01-Jan-2021). When the date is comprised of a single digit, use a preceding zero. Months are designated by the first three letters (for example, Sep, Oct, Nov). The date format is not to have any spaces between the day, month, and year. The required time format is military time (e.g., 6:15 PM is expressed 1815 hours).

The last entry in the notebook for each exercise should be a brief report/conclusion regarding the results or the scene investigation or lab analysis. Make sure that you are signed into the notebook, then start a new page, and label the first line (after the margin) with the following "***Report of Night Crime Scene:***". State your conclusions, and then sign, date and time stamp the report. An example is provided in Guidelines Appendix B. If the exercise is accompanied by a typed summary, the notebook report page should include a statement that directs the reader to the typed summary report (including specifics regarding the author and title of the report, as well as the total number of pages included in the typed document). Be sure to include the page number of the "report page" in the table of contents. When you are finished, hand the notebook in to the instructor or teaching assistance for grading. To do this, use the chain of custody columns that are included in the table of contents page of your notebook.

As a final note on documentation, students must learn to document relevant information in an efficient manner. Devise protocols and refer to the protocol each time instead of tediously rewriting information that is available in an earlier portion of your notebook. A lawyer, judge, or other scientist may scrutinize the notebook of a forensic scientist. Put yourself in the position of the opposing team and think about how your documentation may be attacked.

Crime Scene Investigations

Crime scenes and investigation techniques are the focus of this course. Please follow the following guidelines for documenting the scenes.

Please be as thorough as possible with the mock crime scenes. Everything that is done throughout the course of the investigation must be contiguously documented. The notebook should be detailed in a manner so that the notes should suffice for a later trial. That is the goal of the field notes, contain any information that could be needed later and with enough detail so that the notes can remind the investigator of what they had done and provide details for testimony.

Sign in to the notebook upon arrival/entry of the crime scene. Additionally sign in to the notebook whenever there is any laboratory analysis being conducted (*See Signing into Notebook Section*). The

following line should be the title of the lab exercise or the incident number. Line out the remainder of both of these lines.

Notebook Grading

Each assignment and laboratory exercise will be graded based on (a.) the thoroughness of the scene investigation, (b.) notebook documentation, (c.) a typed *Criminal Investigation* report, and/or (d.) a combination of items (a.)-(c.). Keep in mind that the course instructor can demand to see and assess the notebook at any point in time, regardless of whether or not a summary report has been provided by the student. In terms of notebook documentation, some common errors are listed below. Students will be penalized for not adhering to the guidelines, and for repeatedly making the same mistake. Most errors will receive a deduction of 2% ***per occurrence***. As the semester progresses, if a student continues to repeat errors or commit new errors, the deduction/penalty for not progressing with your documentation skills will increase above 2% per occurrence. Please be warned that egregious errors will receive much higher deductions, regardless of when committed.

Errors	
Improper format (*e.g.,* date, time, page #)	Incontiguous entry (some are minor, others are egregious)
Improper error correction	Improper insertion
Omission of observations or data	Naming the wrong person from the team that completed a task
Handing in a lab late; see syllabus	Extensive summarization of observations

Help

In many cases an exercise will not contain rote instructions. Instead, the student is expected to interpret the objectives provided in the exercise, and then determine the most appropriate manner in which to proceed. It is expected that the student will consult appropriate resources prior to beginning the exercise. If the student continues to have questions or problems, he or she should consult the instructor to ask questions in-person or via email.

Guidelines Appendix A. Table of Contents Template

Exercise	Pages	Transferred By	Received By	Transferred By	Received By	Grade

Please cut out and tape the above table of contents template onto the first page of your laboratory notebook. Hand-transcribed replicas of the table of contents are not permitted.

Guidelines Appendix B. Documentation Examples

Signing Into Notebook

	2
01-Jan-2023	*Entered crime scene and began investigation at 0935 hours.* ——————— JSS
	Incident 23-0101001: Night Crime Scene ———————————
	Was dispatched to 900 Holton Ave., Saint Paul, MN (*other address if given*) for a
	shooting. Upon arrival I began by interviewing Lead Detective John Smith...

Formal Completion Report

	15
01-Jan-2023	(continued) 1420 hours
	Completion of Incident 23-0101001: Night Crime Scene ————
	The crime scene investigation uncovered...
	01-Jan-2023 ———— *Jamie Spaulding* ———— 1422 hours
	Note: The report and signature formally finish the lab. No additional information, conclusions, etc.
	can be added. Please leave the remaining space on this page blank; the instructor will use it for
	grading purposes.
	Also, keep in mind that you should not begin a report unless you have sufficient time to finish it
	(*e.g.,* you should not take a break while writing a report; all work must be contiguous).

Please note that your notebook will be treated as evidence. You must comply with all documentation guidelines and ensure that your work meets both professional and academic standards of ethics for the forensic reporting of laboratory and field data. Dishonest entries and practices are deemed a violation of professional ethics and the student code of conduct.

Lab 1: Crime Scene Equipment

Objective of Lab Exercise

This lab will introduce the various tools which can be used during the course of a crime scene investigation. Furthermore, the lab will introduce you to the various vendors and costs of a crime scene investigation. Note: you will need to bring a laptop or tablet for this lab.

Lab Instructions

You will be assigned to a group and asked to brainstorm items that can be used during the course of an investigation. Record your thoughts in your notebook. After the group brainstorming session, each group will present the equipment ideas that they collectively generated.

After the brainstorming session, you will have to search for forensic equipment from forensic vendor websites[1]. Several vendors and their websites are provided below:

Vendor Name	Website Link
Arrowhead Forensics	https://www.arrowheadforensics.com/
CrimeTech	https://www.crimetech.net/
CSI Forensic Supply	https://www.csiforensic.com/
Doje's Forensic Supplies	https://www.dojes.com/
EVIDENT	https://www.shopevident.com/
Forensic Source	https://forensicssource.com/
Foster + Freeman	https://www.fosterfreeman.com/
Lynn Peavey Company	https://lynnpeavey.com/
Sirchie	https://www.sirchie.com/
Spex Forensics	https://spexforensics.com/
TriTech Forensics	https://tritechforensics.com/

You will have to search these websites for the following products which are commonly used during crime scene investigations and for the collection of evidence. Record the item name, quantity you would stock, vendor name, and cost of the items in your notebook. Additionally, you will have to add three items of your choosing at the end of the list which are not already included. It may be useful to structure your data in tabular form; an example has been provided in Table 1. Be sure to follow the notebook conventions outlined in the *CSI Field and Laboratory Notebook Guidelines*.

[1] Note that this list is not exhaustive. Additionally, the listing of these vendors does not imply any endorsement.

100' Extension cord
100' Tape measure
128 GB SD Card
25' Tape measure
3D Scanner
Adhesive scales
Anti-static bags, Cell phone
Bindle paper
Butcher paper
Cable tags and ties
Calculator
Coin size manila envelopes
Compass
Crime scene barricade tape
Cyanoacrylate (super glue) wands/packets
Dental Stone
Disinfectant (10\% bleach solution)
DSLR Camera with Zoom Lens
Electrostatic dust lifter
Entomology collection kit
Evidence bags large
Evidence bags medium
Evidence bags small
Evidence collection containers- Gun
Evidence collection containers- Knife
Evidence identifiers (numbers, placards)
Evidence seals/tape for evidence bags
Faraday bags
Fingerprint ink pads, cards and card holders
First-aid kit
Flares
Flood lights
Forensic light source (ALS, goggles)
Gunshot residue kit
Laser Trajectory kit
Latent Print kit
Letter size manila envelopes
L-Scale
Macro Lens
Metal detector
Nitrile gloves
Permanent markers
Personal protective equipment- Tyvek
Presumptive blood test Kit
Privacy screen
Reflective vest
Respirator with filters
Roll of string
Scalpel
Scissors
Sexual assault evidence collection kit
Shovel
Sifting screens
Snow wax
Tactical Flashlight
Tarp or tent
Thermometer
Toolmark Casting kit
Trace evidence vacuum collection Kit
Traffic cones
Tripod
Wooden/metal stakes
Student Choice 1
Student Choice 2
Student Choice 3

Table 1. Example table for crime scene equipment list.

Item	**Quantity**	**Vendor**	**Cost**

Notebook Requirement for the Lab

Include your list or table of the item, quantity, vendor, and cost in your notebook. For the formal completion: write a brief reflection on the equipment potentially employed at crime scenes and your thoughts about the expense of that equipment; namely, was the cost what you expected?

Lab 2: Notetaking and Description of Evidence

Objective of Lab Exercise

This lab will challenge you to consider every facet and all potential information about an object and document the details. Documenting the object in such great detail will help you consider the potential information at scenes of crime and the evidence generated through that incident. Any detail of any object may become highly relevant to the case at hand and it is crucial that you as the investigator has captured such traces.

Lab Instructions

You will be provided with a small wooden block. Treat this block as evidence and describe the block in ***9 handwritten pages*** in your notebook. To further document the evidence, sketch and photograph the block as appropriate. *Note: the sketch(s) and photo(s) do not count toward your page count.* An example sketch has been provided in Figure 1. Ensure that you sign into and out of the notebook as you work to complete this lab, documenting your observations in a contemporaneous manner.

Notebook Requirement for the Lab

This lab has four requirements:

1. Handwritten observations of the wooden block
2. Images which document the block
3. Sketches with measurements which document the block
4. Formal completion which includes a reflection of the exercise

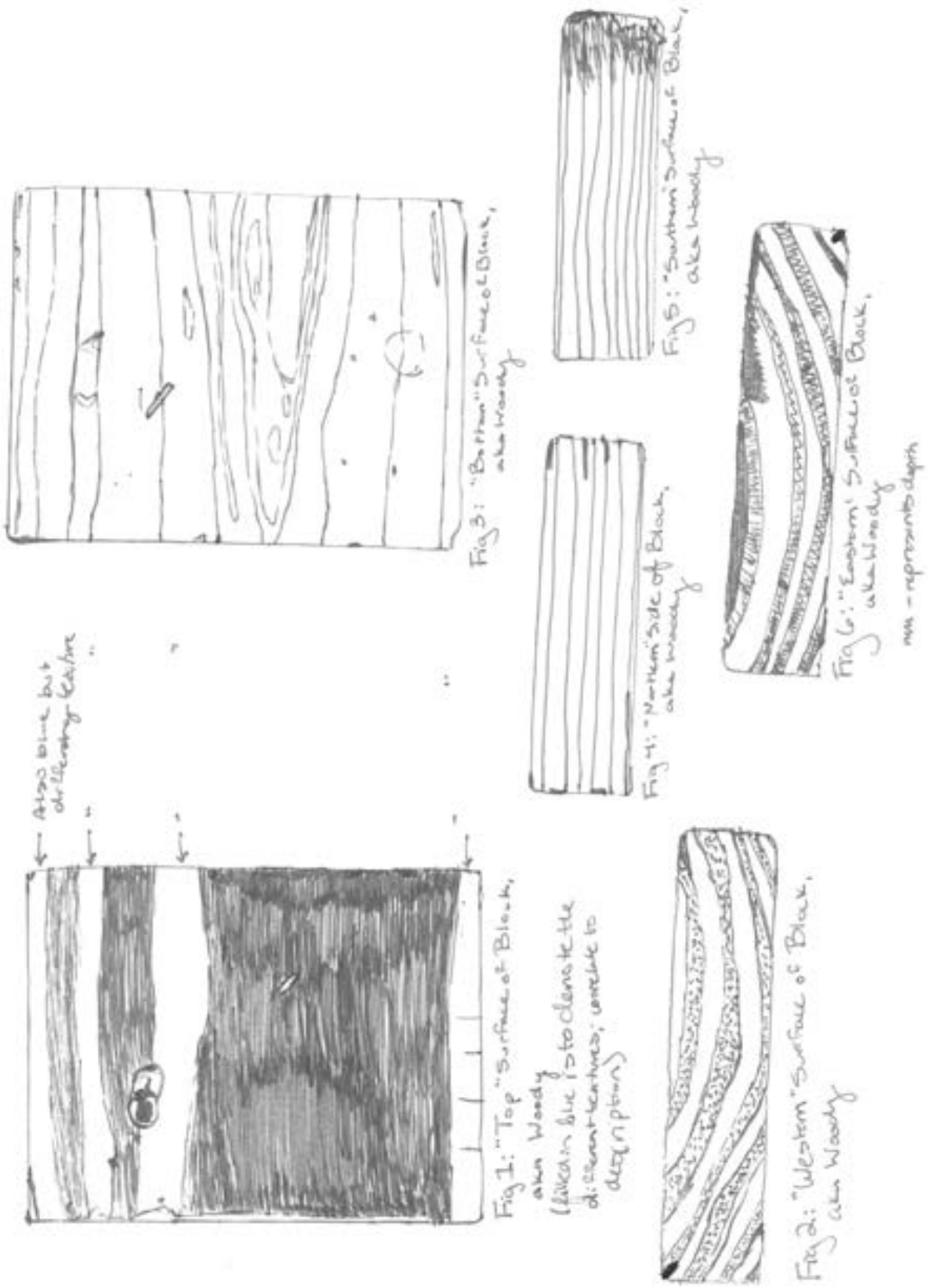


Fig. 1. Example sketch of the wooden block similar to the sample you have been provided for this lab.

Lab 3: Crime Scene and Evidence Photography

Objective of Lab Exercise

Become familiar with the operation of a DSLR camera and learn the proper methodology of documenting a crime scene and the evidence within that scene through photography.

Background Information for Lab

The images you capture should accurately depict the scene and evidentiary object as they appear on scene. It is imperative that your images are properly exposed, in focus, have an appropriate depth of field, and accurate color depiction (white balance). External flash units are helpful tools, however, one must be mindful of the reflections that can occur due to the directionality of the flash and the position of the subject matter. Otherwise, hotspots can appear in the image as overexposed areas. Different exposures (both over and under) are presented relative to the proper exposure (0) for an image are given in Figure 2. Also, examples of different white balance settings are given in Figure 3, take care to note the change in color between the images.

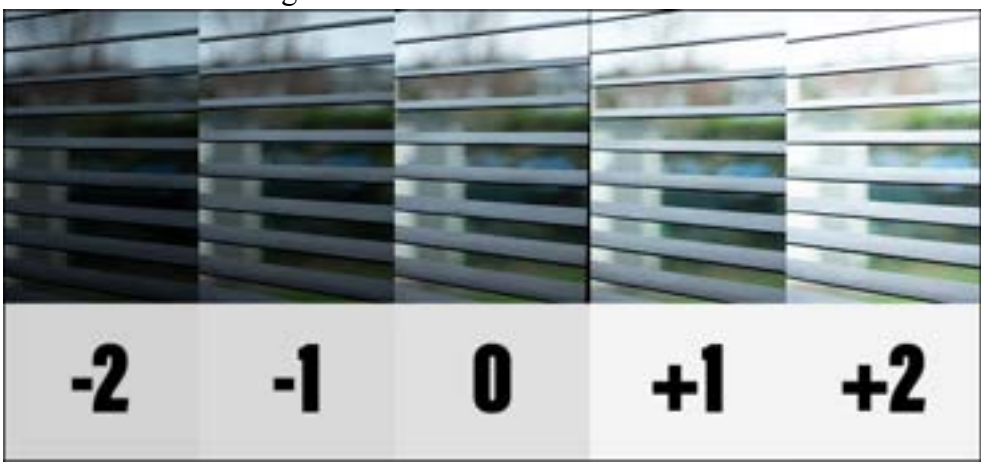


Fig. 2. Exposures for an image from 2 levels underexposed (-2) through two levels of overexposure (+2) with zero indicating proper exposure.

Additionally, several common errors are presented in Figure 4. The following paragraph is intended to expose you to several common mistakes as well as present a critique of these images similar to the scrutiny your images will face. The image on the far left exhibits an example of improper depth of field. Notice that the evidence marker is in clear focus, whereas the cartridge case is out of focus. There is another major concern with the image: the intent. This example does not capture the evidence in an orthogonal plane meaning that it's not a proper close-up of the evidence item. Therefore, the intent must be a midrange photo depicting the location of the evidence relative to some fixed point in the scene; something that cannot be discerned from this image. The image in the middle displays a clearly out of focus image. This close up image does contain a scale properly positioned in the same plane as the item of interest, however, both are fuzzy given the focus of the camera. Finally, the image on the far right attempts to capture a blood-like substance on a wooden floor. The flash has created a major hotspot in the middle of this evidence, making the image unusable by masking the blood-like stains. Additionally, an evidence placard and scale should be present in this image. Here the evidence placard is especially critical to ensure that bloodstains are not transposed with one another.

Fig. 3. Illustration of lighting conditions and the effect on coloration captured by the camera.

Fig. 4. Illustration of lighting conditions and the effect on coloration captured by the camera.

The direction at which light is applied to a subject is an enormously important aspect of flash photography. The directionality of light can affect shadows, reflections, and the harshness or softness of the light recorded. Light produced by a flash can be bounced off surfaces, such as a wall or ceiling, in order to change the directionality of light and thus have a tremendous effect on the final appearance of a photograph. A reference of different lighting techniques is provided in Figure 5. These various techniques can be applied to alleviate hotspots, shadows, and to evenly illuminate your sample. For

example, oblique lighting is beneficial when trying to improve subjects that would profit by creating detail through shadows, such as impression evidence.

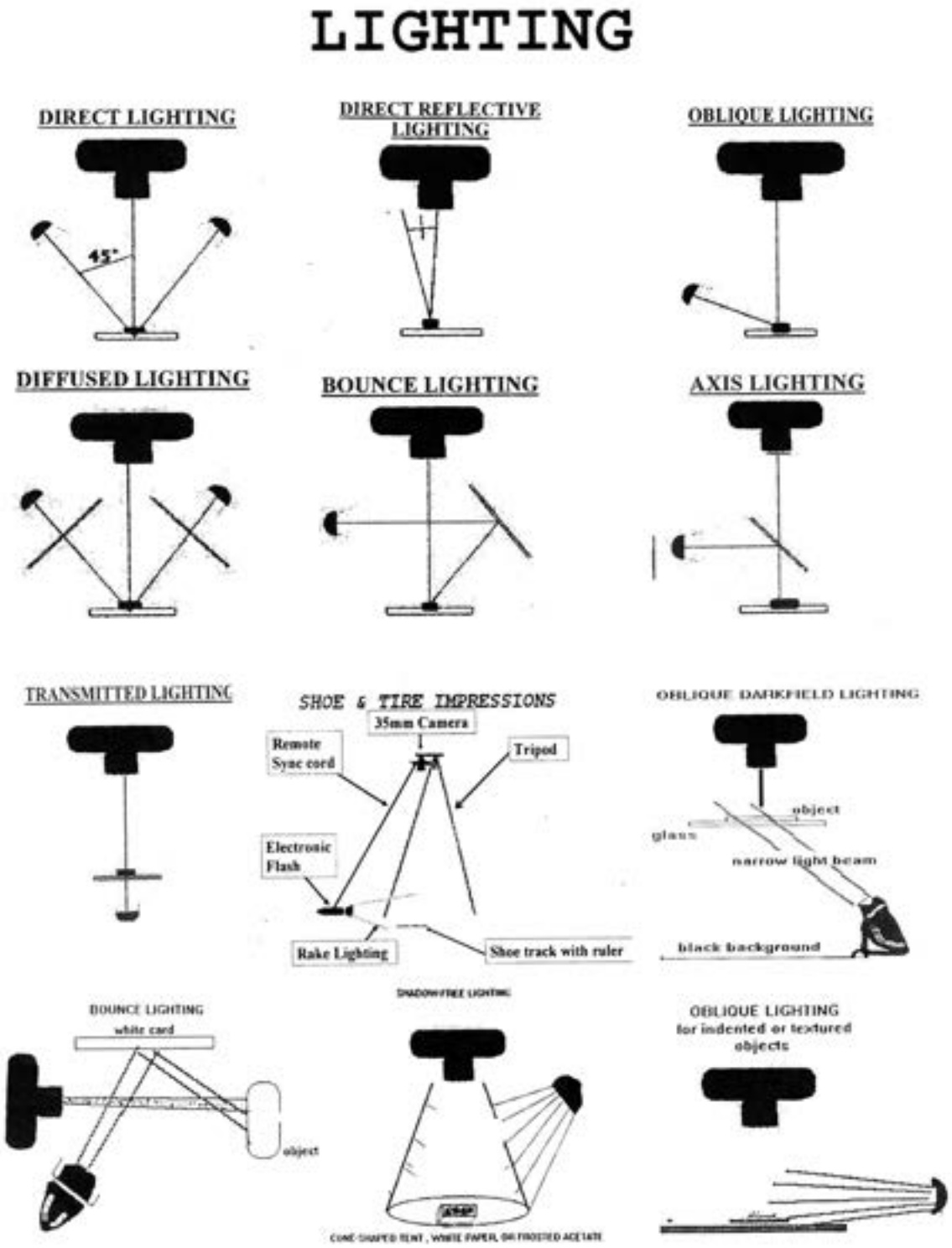


Fig. 5. Reference illustrating various lighting techniques and how they can be used to illuminate the target of a photograph.

Lab Instructions

For this lab, you will be tasked with the photographic capture/documentation of a crime scene and evidence. For the purposes of the lab, ***you should only use the camera on Manual Exposure and Manual Focus.*** You will be provided with a Canon EOS Rebel T7 DSLR camera kit with a Speedlite (external flash unit), and two lenses: an 18-55mm f/3.5-5.6 standard zoom lens and a 75-300 f/4-5.6 telephoto lens.

Begin by orienting yourself with the functions and menus of the camera. Next, complete and capture an image of the provided Case ID Card (*see* *Appendix I, pg 40*). The Case ID Card contains a color and gray scale for verifying camera settings in addition to space for the case information. It is good practice to capture a photo of the completed card at the start of each scene. You will also be responsible for maintaining a photo log as you capture the images to record all of the necessary information for the images. You will need to include: the image name or number, a brief description of the image contents, notes, F-Stop, shutter speed, and subject to target distance. A blank form is provided in *Appendix I, pg. 60*.

Before entering the crime scene, make some preliminary observations of the scene so you can plan the photos you will need to take. Evidence will already be identified with evidence markers for you, your only task is photography. Start by photographing the scene from every angle. If it is an enclosed space or room, it should be documented from every corner, up, down, and eye level with both wide angle and normal perspectives. These images provide an understanding of where objects are within the space and where these objects are located in connection to each other. It is critical to ensure that all of the scene is contained in these images.

Next, take midrange or evidence establishing photos. The purpose of a midrange photo is to illustrate and document the relationship between different pieces of evidence and between the evidence and the crime scene itself; requiring the composition of multiple pieces of evidence in the same image. Often, the photograph can sometimes be enhanced by rotating the camera 90°. Depth of field plays a crucial role in capturing quality relationship images, ensure that everything is in focus. Strive to record midrange photographs with smaller apertures because they are better able to show relationships between evidence with a larger depth of field. However, note that smaller apertures require longer exposure times with all else being equal and take this into consideration as a tripod may be necessary.

Once you have captured midrange photos, progress to close-up photos. Close-up photographs are imperative to achieving the complete and thorough documentation of a crime scene. Keys to capturing quality photographs are a stable camera, filling the viewfinder with the subject, and providing the viewer with some sort of identification for the evidence. Furthermore, ensure that the scale is in the same plane as the object you are photographing.

Notebook Requirement for the Lab

This lab has three requirements:

1. Completed photo log, affixed to your notebook
2. Upload of images to the class Google Drive
3. Formal completion which includes a reflection of the exercise

Appendices for Lab

The lab has three additional forms attached as appendices:

1. Case ID Card (pg. 40)
2. Photography Log Form Front Sheet (pg. 60)
3. Photography Log Form Additional Sheets (pg. 61)

Lab 4: Crime Scene Measurement and Mapping

Objective of Lab Exercise

During this exercise, you will complete a rough sketch to learn the fundamentals of documenting a crime scene through sketching. You will also be responsible for measuring the scene in order to create a final sketch.

Background Information for Lab

There are two phases to crime scene sketching - the rough sketch and the final sketch. The most common view used in crime scene sketches is the "bird's eye" view or the view of the scene as from directly above. This particular sketch does not contain the appearance or contents of vertical surfaces like walls or cabinets. In the event these are needed, an elevation sketch can also be done which is the view from the side, and is always accompanied by the cardinal direction.

Note that there is no requirement for the sketch to be an architectural reproduction of the scene. However, attention to detail is imperative with a crime scene sketch. Unless the following criteria are not met, the sketch may not be admitted into court:

1. Must be a fair and accurate depiction of the scene.
2. Must be relevant or material to the point at issue.
3. Must not appeal to the emotions or prejudice the court or jury.
4. Must be supported by the verbal testimony of the person who made the sketch or someone who was present during the creation of the sketch, that is, the sketch must be sponsored by someone.

Simply drawing a sketch is meaningless or confusing unless additional details are included with the drawing. These include:

Header: The header should include: 1. Case number 2. Incident identification 3. Incident location 4. Date when the sketch was originally created, which may differ from the date of the crime if the sketch was created at a later date 5. Name of the person creating the sketch or forensic map
Legends: The legend may include: 1. Evidence legend 2. Blood legend 3. Furniture legend, *etc*.
Scales and orientation indicator: This area includes: 1. An indicator of north 2. The dimensions of the scene 3. A "not to scale" notation (This should always be included in sketches because they are not architectural drawings. Including a scale transforms a sketch into a forensic map.)

For the purposes of this lab, either the rectangular coordinates method, triangulation method, or the baseline offset method will be used for measuring the scene. The *rectangular coordinates method* utilizes fixed landmarks. Measurements are taken at 90° angles to the fixed landmarks. The *triangulation method* uses two reference points. Measurements are taken at angles from these reference points to the object being measured. Do not use triangulated furniture or evidence to triangulate other items within the scene. Always use the original reference points. The *baseline offset method* utilizes straight lines. Place a tape measure in a straight line within your scene to establish this baseline from a fixed and immovable point. Preferably, place the tape measurer in a north-south or east-west orientation. Document one end of the tape measurer to the known landmark. Measurements are then taken at perpendicular angles to the baseline tape measure. Examples of these measurement techniques are provided in Figure 6.

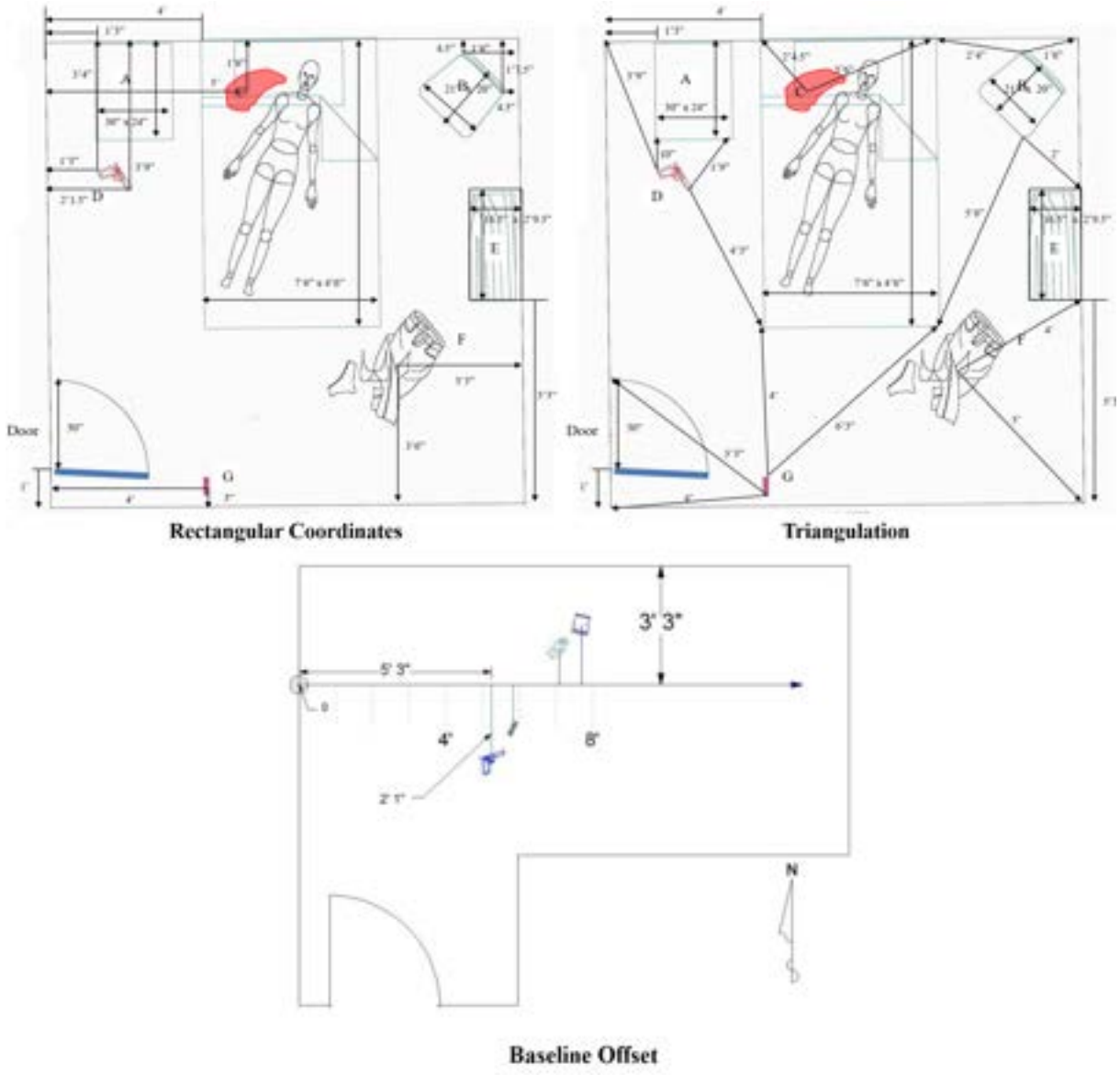


Fig. 6. Illustration of the rectangular coordinates, triangulation, and baseline offset methods. Note that not all facets of the sketch have been included (*e.g.,* legends, indication of north, *etc*.) since the figure serves as a reminder of how the measurements are to be taken.

Lab Instructions

It may be helpful to begin by completing the title block and some required information for the sketch. Allocating the space now will ensure that there is room for everything later. Legends can then be filled as you add items to the sketch. Alternatively, you can use the Field Sketch Form provided (see *Appendix I, pg. 50*). Begin your sketch by drawing the overall layout of the scene. The rough sketch will not look exactly like the scene. Some walls may appear to be shorter or longer than they actually are. The measurements you will take are used to correct this issue in the final sketch. If applicable: add doors and windows, including the door swing path; add furniture and other non-evidence items; add the body; add the evidence; and add any other feature of note.

Once the general sketch has been created, take measurements of the scene. First, decide the ideal method of measuring for the scene. Next, take measurements using either the rectangular coordinates method, triangulation method, or the baseline offset method.

Measure the following:

1. Walls
2. Doors
3. Windows
4. Furniture and non-evidence items
5. Body, which includes the head, shoulders, elbows, wrists/hands, waist, knees, ankles/feet
6. Evidence

Depending on the scene, it may be useful to use the back side of the rough sketch to record measurements or a measurement log form (*see Appendix I, pg. 59*). Recall that accuracy denotes the closest to the actual value and precision denotes the repeatability of your measuring technique. Ensure that you use a consistent method to measure the scene to reduce any potential measurement errors. When choosing a measuring device, consider (a) the overall measuring range (it may be more cumbersome to use a 300 ft tape measure when a majority of your measurements are nearer than 2 ft) and (b) the overall measuring accuracy (note the tolerances of the measuring device, for example, a six foot tape used for commerce is generally accurate to within ± 1/32 of an inch). Another consideration: when using a laser measure unit, check that it is calibrated through comparison to a steel tape measure before use. Capture a photograph demonstrating the calibration. An example of a completed rough sketch is given in Figure 7.

Recall that the rough sketch may be seized by the court. This is not the seizing of a photocopy; the actual rough sketch may be seized. The rough sketch therefore must be made permanent. This can be done either by tracing rough sketch lines with an ink pen or using colored pencils to add additional security features. For the purposes of this lab, a photocopy will suffice so that your sketch does not smudge or smear.

After the lab session, use both your rough sketch and your measurements to create a ***to-scale*** final sketch.

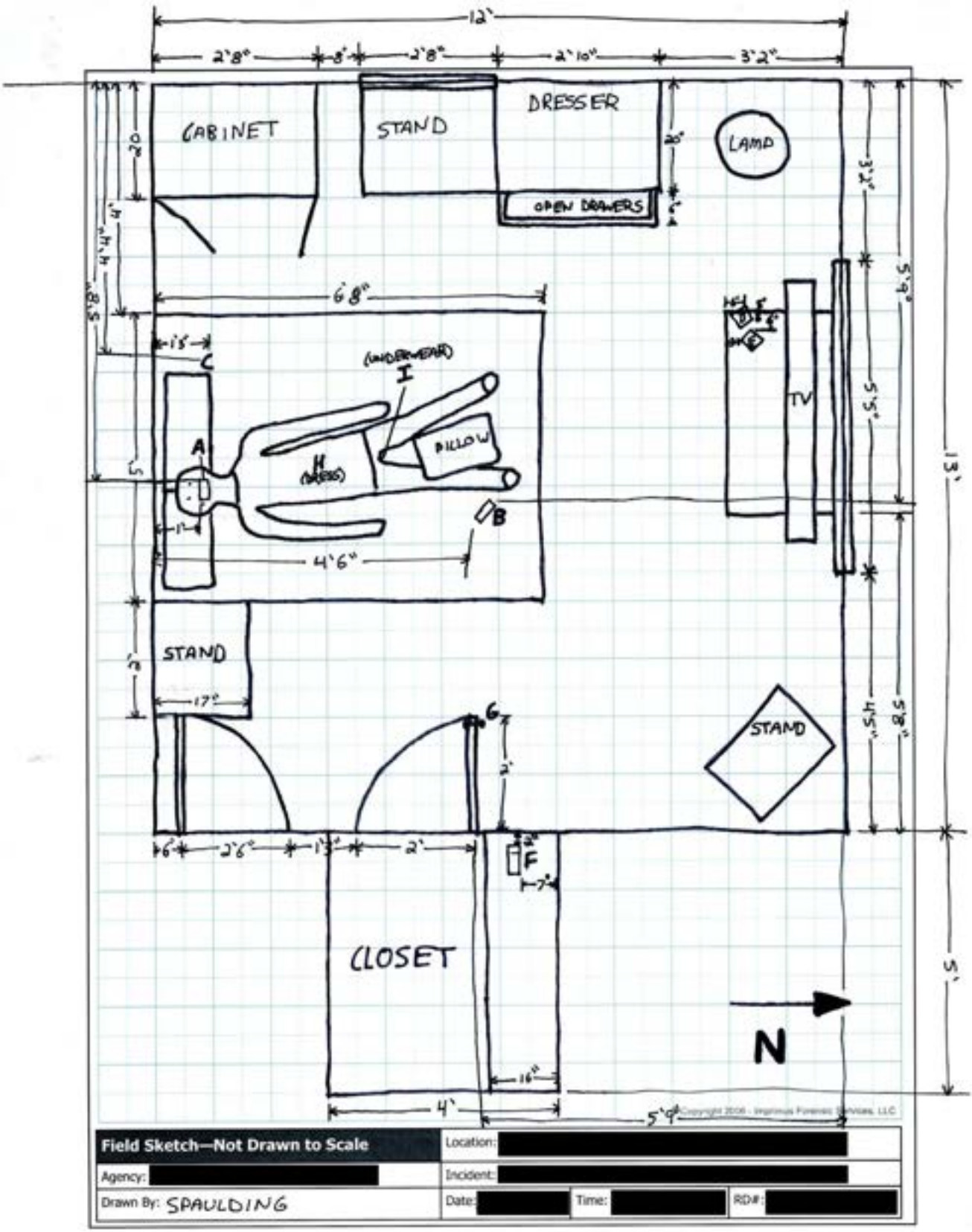


Fig. 7. Example rough sketch.

Notebook Requirement for the Lab

This lab has four requirements:

1. Completed rough sketch, affixed to your notebook
2. Completed measurement log, affixed to your notebook
3. Completed final sketch, affixed to your notebook
4. Formal completion which includes a reflection of the exercise

Appendices for Lab

The lab has three additional forms attached as appendices:

1. Field Sketch Form (pg. 50)
2. Graph Paper Sheet (pg. 57)
3. Measurement Log (pg. 59)

Lab 5: On Scene Detection of Biological Evidence

Objective of Lab Exercise

Become familiar with the operation and utility of presumptive tests and alternate light sources (ALS) to direct the collection, recovery, and subsequent analysis of biological evidence both on scene and in the lab.

Background Information for Lab

This lab is comprised of three different sections: (1) color catalytic presumptive tests performed on blood-like stains, (2) chemiluminescent presumptive tests performed for the detection of bloodstains, and (3) the use of an alternate light source to detect biological evidence.

Section I: Kastle-Meyer/Phenolphthalein Presumptive Test for Blood

The Kastle-Meyer test is a presumptive blood test in which the chemical indicator phenolphthalein is used to detect the possible presence of hemoglobin. The test is based on the peroxidase-like activity of hemoglobin in blood to catalyze the oxidation of phenolphthalin to phenolphthalein. A positive reaction is indicated by a resulting bright pink color. An image of a test kit and a positive reaction is provided in Figure 8.

Fig. 8. Images of a commercial phenolphthalein presumptive test kit for blood (left) and the color change on a swab indicating a presumptive positive result for blood (right).

Section II: Chemiluminescent Detection of Blood

Luminol and BlueStar are latent blood reagents that exhibit chemiluminescence, with a blue glow, when mixed with an appropriate oxidizing agent. The solution is commonly used to detect trace amounts of blood at crime scenes, as it reacts with the iron in hemoglobin. When sprayed evenly across an area, trace amounts of an activating oxidant make the luminol emit a blue glow that can be seen in a darkened room. The luminescent glow only lasts about 30 seconds, but can be documented photographically. However, given the short time period of luminescence it is crucial that the camera equipment is prepared and ready to as soon as the luminol is sprayed. The glow is stronger in areas receiving more spray; the intensity of the glow does not indicate the amount of blood or other activator present. An image of a scene with cleaned bloodstains before and after treatment with luminol is provided in Figure 9.

Fig. 9. Image of an area with bloodstains that are not visible due to cleaning before (left) and and after the application of luminol (right).

Section III: Detection with an Alternate Light Source

Recall the lecture information on the various wavelengths of light and their applications for fluorescence on a crime scene. Forensic evidence (and the surfaces it is found on) have varying chemical and physical properties. The correct wavelength and goggles along with a dark environment are needed to view evidence. Camera filters can be substituted for a pair of goggles provided they are the same color/tint. The power of the light source will dictate how close the user needs to be to the evidence in order to see it. Stronger light sources enable the user to stand farther away while weaker ones require the user to be closer. Several suggested wavelengths are shown in Figure 10 and Figure 11. Note that multiple pairs are given as certain combinations may be more useful for certain concentrations of your target.

Lab Instructions

Begin the lab by requesting samples from the instructor and completing the chain of custody form as evidence is transferred to you.

Section I: Kastle-Meyer/Phenolphthalein Presumptive Test for Blood

Begin this section of the lab by reviewing the instructions on the lid of the phenolphthalein presumptive test kit. *When applying drops of reagents, be sure to keep the dropper from touching the swab as this could lead to contamination and misleading results for subsequent tests.* The procedure is also provided below:

1. Apply 1-2 drops of distilled water on the swab (if stain is dry)
2. Rub surface of suspected stain thoroughly with swab
3. Apply 1 drop alcohol to the swab
4. Apply 1 drop phenolphthalein to the swab
5. Apply 1 drop hydrogen peroxide to the swab

If color changes to pink within 10 seconds, the sample is presumptively positive for blood. If the swab does not turn pink (or turns pink eventually after 10 seconds), the sample is presumptively negative.

Start the examination by performing a negative control by completing the steps outlined above on a clean/sterile swab. This is to ensure that there is no contamination on the swabs which could give a false positive result. If a reaction occurs, attempt another negative control using a different box of swabs. Once the negative control has been successfully completed, perform a positive control using the "Known Bloodstain Control" provided in the kit. The positive control is to ensure that a reaction does occur in the presence of a bloodstain and that the reagents are functioning in an expected manner. Document your observations of the controls in your notebook.

Next, you will be provided with two questioned samples. Perform the Kastle-Meyer test, record your observations, and draw conclusions given the result of your presumptive test findings.

Section II: Chemiluminescent Detection of Blood

Section II will be performed together as a class. A demonstration of bloodstain enhancement will conducted through the application of a chemiluminescent solution. Your main responsibility during this section is to document observations, time the length of luminescence, and capture images of the treated bloodstains.

Section III: Detection with an Alternate Light Source

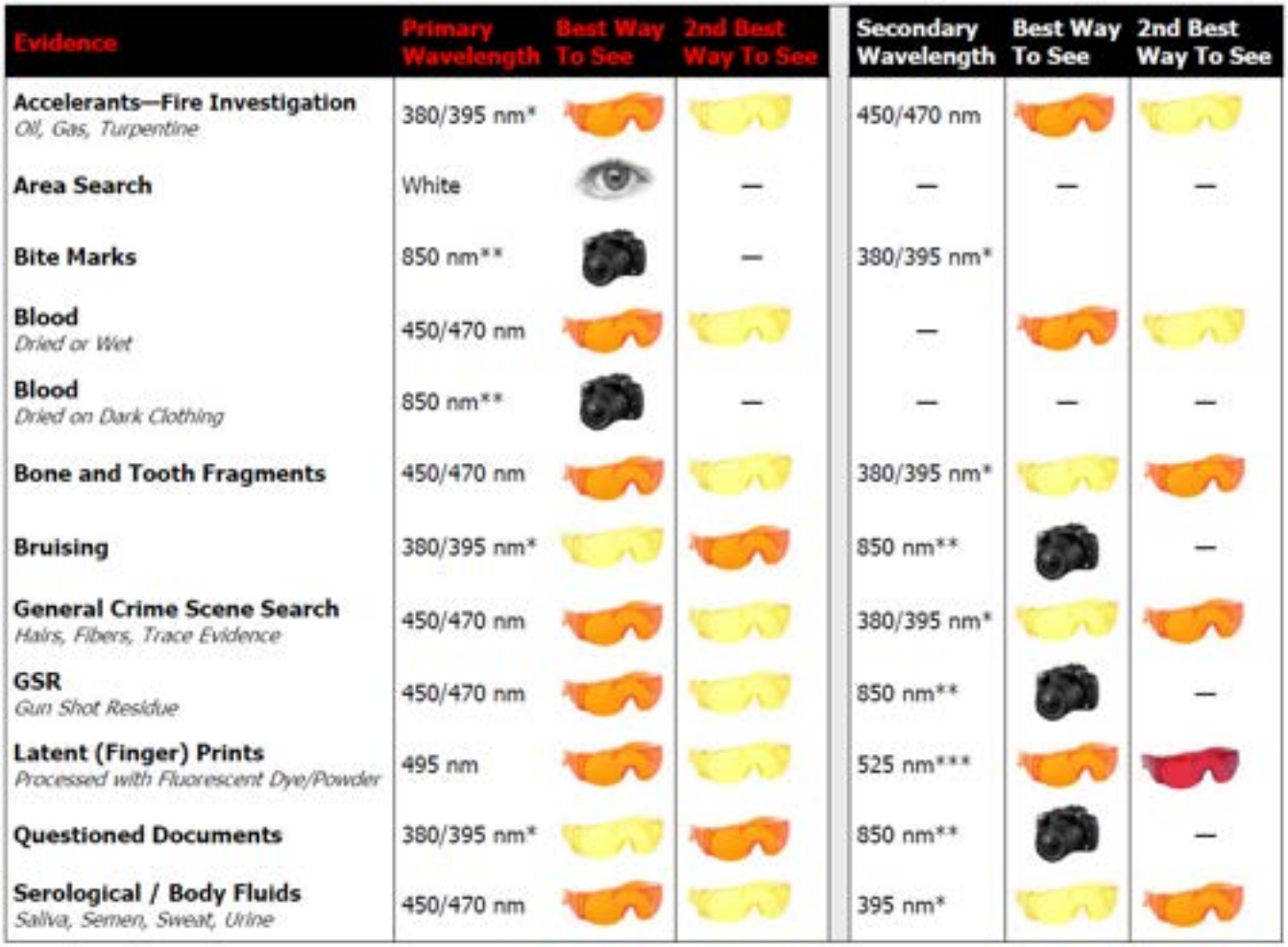
Several samples will be provided to you as known control samples. Make observations of these samples using different light/goggle combinations and record in your notebook as a reference. Next, you will be given several questioned samples that you will be asked to presumptively indicate through comparison to the control samples. You can also use the ALS to visualize various other forms of evidence:

- Fingerprints treated with dye stains
- Hairs and/or fibers
- Questioned documents

Document your observations and capture an image of each sample under ALS.

Notebook Requirement for the Lab

For this lab, you will have to annotate the procedures as you complete the lab. Provide any observations you draw as you complete the lab. Sketch and image samples as appropriate. Provide a chart of your preference of ALS and goggle combination for each sample (similar to Figure 10, no secondary combinations required). Finally, the formal completion should include an overall reflection of the exercise and a discussion of how biological evidence is detected in investigations.



Evidence	Primary Wavelength	Best Way To See	2nd Best Way To See	Secondary Wavelength	Best Way To See	2nd Best Way To See
Accelerants—Fire Investigation *Oil, Gas, Turpentine*	380/395 nm*			450/470 nm		
Area Search	White		—	—	—	—
Bite Marks	850 nm**		—	380/395 nm*		
Blood *Dried or Wet*	450/470 nm			—		
Blood *Dried on Dark Clothing*	850 nm**		—	—	—	—
Bone and Tooth Fragments	450/470 nm			380/395 nm*		
Bruising	380/395 nm*			850 nm**		—
General Crime Scene Search *Hairs, Fibers, Trace Evidence*	450/470 nm			380/395 nm*		
GSR *Gun Shot Residue*	450/470 nm			850 nm**		—
Latent (Finger) Prints *Processed with Fluorescent Dye/Powder*	495 nm			525 nm***		
Questioned Documents	380/395 nm*			850 nm**		—
Serological / Body Fluids *Saliva, Semen, Sweat, Urine*	450/470 nm			395 nm*		

Fig. 10. Guide for forensic searches using ALS. Primary and secondary wavelengths are listed for each type of evidence along with the best tools to use.

Wavelengths

White	UV	Violet	Blue	Blue Green	Green	Orange	Red	IR
400-700nm	350-380nm	395-425nm	450-510nm	450-510nm	490-560nm	570-610nm	600-650nm	800-900nm

Camera Filter / Viewing Goggles

None	UV 420nm	Yellow 455/495nm	Orange 550nm	Orange 550nm	Red 590nm	Red 645nm	None	IR (with IR sensitive camera)

Biological & Trace Evidence

	White	UV	Violet	Blue	Blue Green	Green	IR*
Blood	X		X	X			X
Bruising		X	X				X
Bite Marks		X	X				
Body Fluids		X	X	X			
Bone & Teeth				X	X	X	
Hair			X	X			

Trace Evidence

	White	UV	Violet	Blue	Blue Green	Green	Orange	Red	IR*
Fibers		X	X	X	X	X	X		X
Gunshot Residue				X	X	X			X
Drug Residue		X	X						
Accelerants				X	X	X			
Shoeprints	X								
General Debris	X		X	X	X	X	X	X	

Fingerprint Evidence Treatments

	UV	Violet	Blue	Blue Green	Green	Orange	Red	IR*
Acid Yellow			X					
Ardrox			X					
Basic Yellow		X	X					
DFO				X	X	X		
Natural 1*			X				X	
Natural 2*								X
Greenwop				X				
1,2 Indanedione								
Magnetic Red			X					
Nanoparticles	X	X	X	X	X			
Ninhydrin					X			
PolyCyano UV	X							
Redwop			X	X				
Rhodamine 6G				X				

Fig. 11. Forensic light source guide for application to various forms of evidence.

Lab 6: Recovery of Impression Evidence

Objective of Lab Exercise

This lab is intended to facilitate your understanding of various types of impression evidence and how it can be collected.

Lab Instructions

Section I: Casting of Footwear Evidence

For this section of the lab you will be tasked with casting outsole impressions of footwear using dental stone. Begin by creating an impression using your shoe in dirt or sand. The mixing of dental stone is best accomplished in a large plastic zipper bag. Measure out the recommended volume of water as indicated on the package. Add the appropriate amount of water to a pre-measured amount of dental stone. The average footwear impression requires approximately two (2) pounds of dental stone and approximately ten (10) ounces of water. The amount of water required may vary depending on the casting product. The resulting mixture should have the viscosity of heavy cream. The viscosity of the mixture may need to be adjusted based upon the nature of the impression. Mix continuously for a minimum of 3-5 minutes so that the powder can thoroughly absorb the water. Pour the casting material carefully outside the perimeter of the impression and direct the flow into the impression. Pour the dental stone from the bag into itself so that the impression is not altered by direct flow. Ensure the impression is completely filled and/or covered evenly. In the event that the casting material does not flow completely into the impression, the top surface of the casting material can be agitated to help it flow. Casts should be of sufficient thickness to avoid breakage. If necessary, additional casting material may be poured over the top of the original cast to complete the cast and/or add thickness.

Casts should be marked prior to removal. Markings should include evidence identifier numbers which link the casts to diagrams and/or photographs; date and initials; and any other pertinent information such as case number. Allow casting material to thoroughly harden prior to removal. Carefully remove the cast impression from the substrate. It may be necessary to excavate the cast to avoid breakage. Allow dental stone casts to thoroughly dry for 48 hours prior to any attempts to clean the cast. Whenever possible or permitting, submit the cast with the sediment untouched to be cleaned in the laboratory by the examiner to prevent destruction or loss of detail. For cleaning, the soil and sand can be cleaned from casts using water and a soft brush. Make an effort to preserve any soil or other evidence attached to the cast in the event it becomes probative. For the purposes of this lab, simply collect the cast sample and they will be cleaned at a later time after thorough drying. An illustration of the process where a shoe was used to make an impression in dirt which was then cast is given in Figure 12.

Note: In the event of snow, we will also use Snow Impression Wax to prepare the fragile snow surface. The aerosol spray is specifically for footwear or tire tracks on fragile snow covered surfaces. This preparation is needed since most gypsum-based casting materials (*e.g., dental* stone) generate heat during the curing process, it is necessary to provide an insulating medium. By spraying the Snow Impression Wax into the impression before using dental stone, the impression detail is fixed to avoid melting when the casting medium is applied.

Fig. 12. Images of the shoe outsole (left); resultant impression in dirt (center); and the cast after extraction and cleaning (right).

Section II: Casting of Toolmark Evidence

To cast toolmark evidence from a crime scene, you will first create the toolmark. Do so by forcefully pressing the provided tool (*e.g.,* screwdriver) into wood to create an impression. From the large Mikrosil tube, squeeze out approximately 1 cm onto the supplied mixing card. Add approximately 1 cm of the small tube of hardener. If a large amount is needed, squeeze out equal lengths of Mikrosil and hardener. Use supplied mixing sticks and thoroughly mix until a uniform color is achieved. Mixing time should take approximately 1 1/2 minutes. Apply the mixed Mikrosil to the tool mark using the mixing stick. On a pad of paper, write identifying information (case number, date, item number, collector's initials) on the smooth side with a pen or pencil. Press the label into the Mikrosil before it sets. The information will be permanently recorded in the case by using this method. Allow the Mikrosil cast to set. The setting time is dependent on the environmental conditions but should take 5-8 minutes at 68°F or 12-15 minutes at 14°F. The setting time can be shortened by increasing the amount of hardener or lengthened by decreasing it, but do not add more than 6% hardener. Once completely set, remove the cast from the wood. An example of a toolmark, the casting process, and the comparison are shown in Figure 13.

Fig. 13. A toolmark deposited by a screwdriver (left) is cast with Mikrosil (center) and subsequently identified to the exemplar using comparison microscopy (right).

Section III: Collection of Known Exemplars

In this section of the lab, you will collect known exemplars of shoes for comparison. To do so, you will apply either Shoe Shine or a thin layer of Petroleum Jelly to the outsole of the shoe. Next, the shoe needs to "step" on a piece of paper. This can be done by hand but take care to press the shoe to the paper and capture the outsole heel-to-toe. After the shoe has left the impression on paper, use black fingerprint powder to develop the impression. The powder will adhere to the medium capturing an exemplar of the outsole. A magnified portion of an outsole with the corresponding known exemplar is shown in Figure 14.

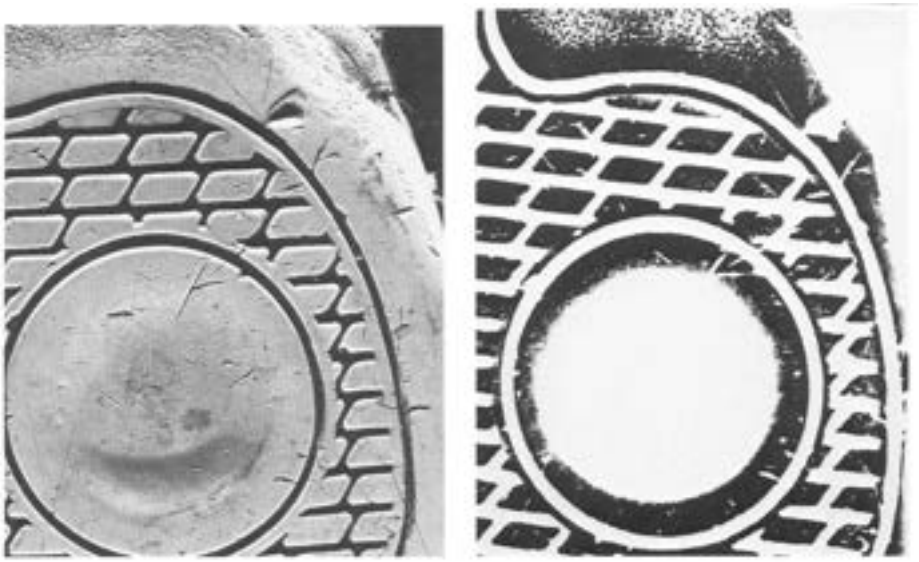


Fig. 14. A shoe outsole (left) and the recovered known exemplar using ShoeShine and black fingerprint powder (right).

Notebook Requirement for the Lab

For this lab, you will have to annotate the procedures as you complete the lab. Provide any observations you draw as you complete the lab. If you find something noteworthy, feel free to document with a quick sketch or image. Additionally, provide a brief discussion of impression evidence and the role (advantages and disadvantages) it has in a given investigation. Finally, include your formal completion with an overall reflection of the exercise.

Lab 7: Shooting Reconstruction

Objective of Lab Exercise

This lab is intended to facilitate your understanding of trajectory reconstruction and how to elucidate where a firearm was discharged from impact(s) on a scene.

Background Information for Lab

Gunshot trajectory reconstruction can be used to determine locations of victims and suspects during shooting incidents. Trajectory reconstruction may be used to determine special circumstances like lying in wait, sequence of shots fired, help to determine the initial shooter, and identify potential positions of the shooter. The zones of possibility for where the shooter may be positioned are provided in Figure 15.

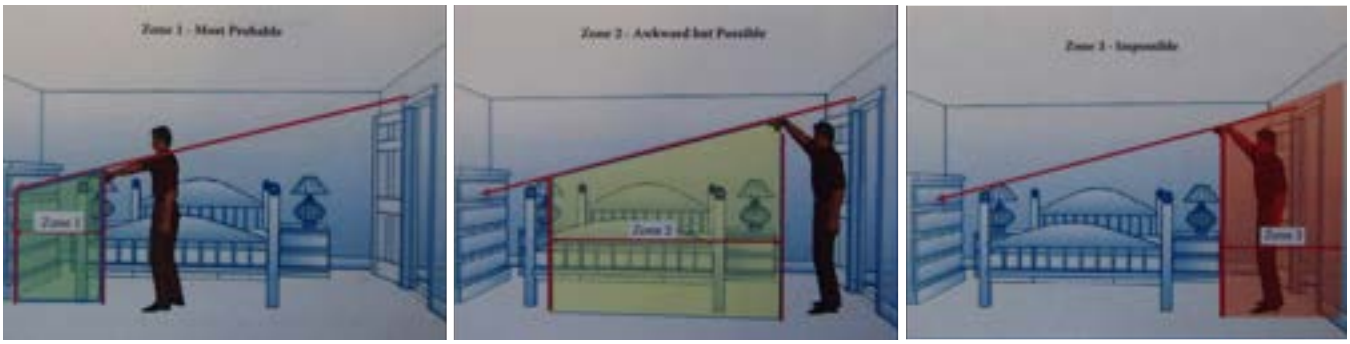


Fig. 15. Images of the zones of probability for where a shot originated along a trajectory including: Zone 1 - most probable (left); Zone 2 - awkward but possible (center); and Zone 3 - impossible (right).

Lab Instructions

This exercise will teach students how to properly document shooting scenes for later prosecution. This exercise covers topics such as stringing bullet holes to determine individual bullet pathways; measurement of entrance holes; using trajectory paths to position victims and suspects; industry standard terminology; use of laser pointers to locate bullet holes. Begin by documenting the bullet holes in the surface provided. Next use the probe from the trajectory kit and affix it through the center of the defect, taking care to ensure that no damage occurs to the outside edge of the defect. Once the probe is affixed, take measurements of the azimuth and zenith angles. Measurements of the azimuth and zenith angles for an example bullet-like defect are illustrated in Figure 16. Once documented, use either string or laser to determine the linear trajectory of the projectile. Next visualize the trajectory and define zones of possibility for where the origin resulted.

Notebook Requirement for the Lab

For this lab, you will have to annotate the procedures as you complete the lab. Provide any observations you draw as you complete the lab. If you find something noteworthy, feel free to document with a quick sketch or image. Additionally, provide a brief discussion of impression evidence and the role (advantages and disadvantages) it has in a given investigation. Finally, include your formal completion with an overall reflection of the exercise.

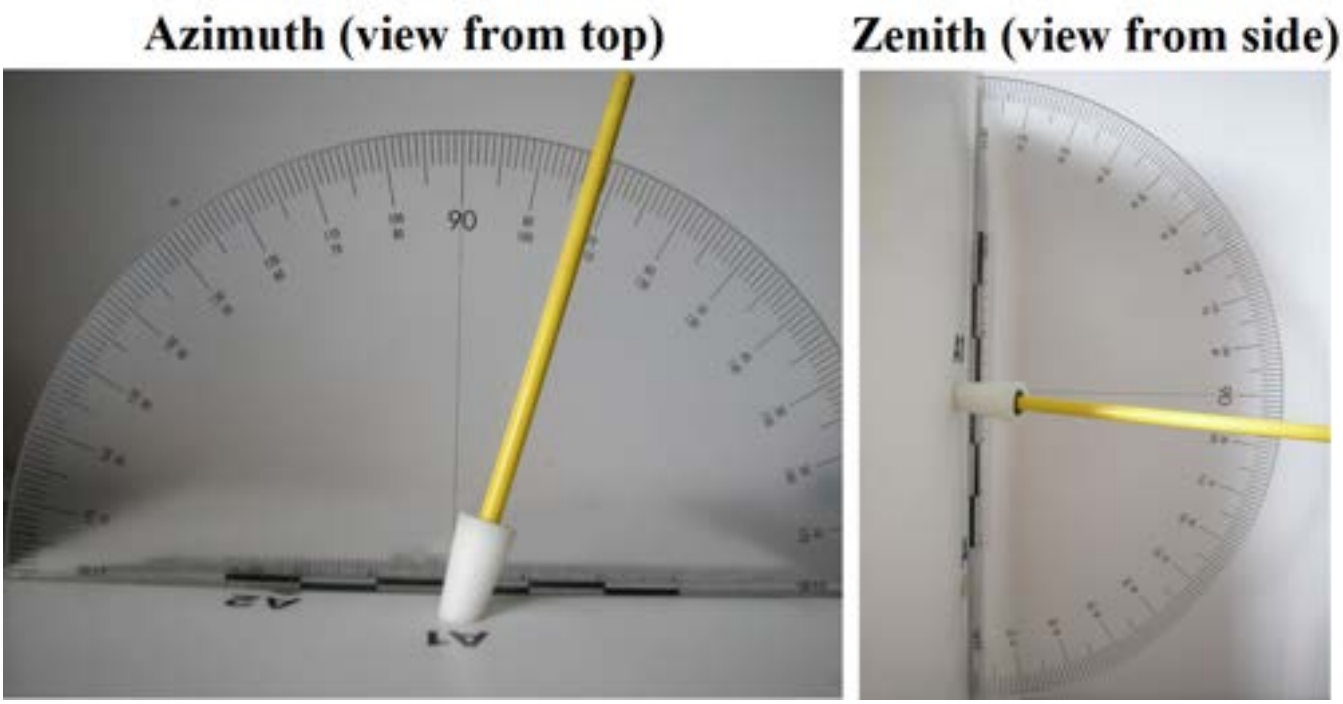


Fig. 16. Azimuth/horizontal (left) and zenith/vertical (right) angle measurements of a bullet defect.

Lab 8: Preservation of Fingerprint Evidence

Objective of Lab Exercise

The purpose of this exercise is to successfully recover and preserve latent fingerprints from crime scenes for subsequent analysis and identification purposes.

Lab Instructions

Using the provided fingerprint kits, you will practice your development of fingerprint evidence through the collection from items of evidence and public spaces. Using black or magnetic powder you will need to develop and lift four fingerprints which meet the following parameters:

- six or more identifiable minutiae. A fingerprint with labeled minutiae is given in Figure 17.
- recovered from at least one stationary object (*e.g.,* door handle)
- recovered from at least one article that could be collected from a scene and processed at a lab (*e.g.,* bottle)
- through the use of more than one type of development medium (*e.g.,* black and magnetic powder)

Fig. 17. Image of a fingerprint marked up with numerous minutiae.

Notebook Requirement for the Lab

For this lab, you will have to document your collection as you complete the lab. Provide any relevant details including: the location, the powder type, the tape used, and any other relevant details. Additionally, provide a brief discussion of the clarity and moreover the utility of the fingerprint for identification purposes. Finally, include your formal completion with an overall reflection of the exercise.

Mock Crime Scene Reconstruction Protocol

Objective of Lab Exercise

Apply lecture materials and all skills you have learned throughout the course in a practical manner through the investigation of mock crime scenes.

Lab Instructions

You will be assigned to a crime scene team and tasked with investigating the staged crime scene. Your first task should be the interview of a first responding officer who will be available to answer questions about the scene (including case details and information), their response, and actions while on scene. Upon your arrival, the scene boundary will be established for you to dictate the extent of the scene. Using the necessary equipment you will have to assess, observe, document, search, collect, and analyze evidence to reconstruct the actions and events of the incident. Given this, delegate tasks and roles to all members of your team and begin your investigation. Consider the following workflow for your investigation:

1. Delegate tasks to crime scene team
2. Interview initial responding officer
3. Conduct an initial walk-through of the scene with limited personnel
4. Conduct a team meeting to brief all members on the scenario and record callout information/ scene details
5. Document and process the scene as necessary to include:
    - Field notes/narrative descriptions of scene
    - Crime scene sketching, measurement, and mapping
    - Photography
    - Collection of evidence
    - Completion of crime scene forms and logs as necessary
6. After processing, conduct a team debriefing and recheck to ensure that all necessary actions and tasks have been completed
7. Gather all equipment and scrap material from evidence packaging
8. Release and exit the crime scene

No set instructions will be provided for crime scenes, namely because there is no set prescriptive process for investigating a scene of crime. Rather the mock scenes are a test of your practical understanding and application of the course material.

Notebook Requirement for the Lab

Please be as thorough as possible with your documentation of the mock crime scenes. Everything done throughout the course of the investigation must be contiguously documented and recorded. Your notebook should be detailed in a manner where your notes would suffice for a later trial, containing any information that could be needed later and with enough detail to outline actions and provide details for testimony. It is also important to note that the field notes that you take will be essential in the completion of other forms and statements expected from the investigation, namely the complete scene investigation report (*see* *Appendix II, pg. 65*). Any information that is not contained within the field notes is subject to scrutiny within the court as it was not documented in a contemporaneous manner.

Rubric for Mock Crime Scene Investigation

Criteria	Excellent	Good	Satisfactory	Poor	Points Received
Adherence to Notebook Guidelines	(10-9) Follows entirety of notebook guidelines including: proper sign in/out; corrections; date/time format; contiguous writing; no blank space/ overwrites; completion of TOC; proper form taping; and correct adherence to the remainder of protocol.	(8-7) Follows the entirety of the notebook documentation guidelines. Few minor errors were made in completion of the notebook assignment.	(6-5) Follows the entirety of the notebook documentation guidelines. Several minor errors or few major errors were made in completion of the notebook assignment.	(4-1) Did not follow notebook guidelines or several major errors were made during the completion of the notebook assignment.	___ of 10
Sufficient Level of Detail	(10-9) Provides a high level of detail regarding all facets of the lab. - clear understanding of actions taken. - clear descriptions of objects in scene An outside observer would experience no ambiguity with limited context.	(8-7) Provides a high level of detail regarding SOME facets of the lab. Detail does not completely describe actions taken nor objects in the scene. Ambiguity can be found due to the amount of detail provided.	(6-5) Minimal effort made in descriptions. Detail does not completely explain actions taken or assignment as completed. Outside observers would experience much confusion.	(4-1) Detail is often not enough to distinguish objects or describe action taken.	___ of 10
Logical Sequence of Action	(10-9) Follows a logical sequence of actions. A clear thought out intention is evident and logic present to the action taken and flow to the lab. Any missing requirements found through re-checks performed throughout the lab.	(8-7) Follows a logical sequence of actions with few exceptions to the lab. A mostly thought out approach is evident in the student's progression through the lab. Any missing requirements found through re-checks performed throughout the lab.	(6-5) Some thought applied to flow and sequence of events. Majority of lab exercise appears to have been done randomly without the logical progression.	(4-1) Random progression with respect to technique throughout the lab. No thought applied to a logical sequence of events or flow in completion of tasks. Lab incomplete.	___ of 10
Accuracy of Techniques	(10-9) Completes the technique being evaluated with a visibly high level of comprehension. All steps completed with a high level of understanding bordering mastery of the technique.	(8-7) Completes the technique being evaluated with a high level of comprehension. Majority of the exercise is completed as required with few minor flaws. Good proficiency.	(6-5) Completes the technique being evaluated with some comprehension. Several minor flaws or few major errors are evident. An incomplete cognitive recognition that there are errors in the completed exercise is also evident. Incomplete understanding of the concepts and techniques.	(4-1) Several minor errors or major errors were made in completion of the technique. Many gaps in the students' understanding of the concepts or techniques are evident. Failure to recognize any flaws in the technical approach applied to the exercise. Incomplete techniques or missing required aspects.	___ of 10

Rubric for Mock Crime Scene Investigation

Teamwork	(5) Cohesive team effort can be observed throughout the completion of the lab exercise. Team receives a shared effort from the student and is equal to that given from the remainder of the group members. Overall good delegation of tasks, high level of communication is shown, and all members function as a single unit.	(4) Team provides a good effort and there is a fair delegation of tasks; however, a lack of communication occurs at points in the exercise.	(3-2) Student does not engage well with the team. 1) Student dominates the group and assume the majority of the work and operates in isolation. 2) Student does not actively participate in the lab assignment and takes a passive roll.	(1) Limited engagement from the student and minimal effort is put forth toward the group. No communication with other group members is shown.	___ of 5
Formal Completion/ Report	(5) Formal completion/report contains a brief report/ conclusion regarding the results or the scene investigation or lab analysis. Proper format and procedure is followed. A complete understanding is evident. References to reports or other important documentation is made. Any problems encountered are covered and a logical reasoning is provided. Mastery of the subject.	(4) Few errors in addressing the totality of the aspects in the excellent category. Formatting errors are evident.	(3-2) Formal completion provides a summary of exercise. Does not address all requirements.	(1) Formal completion lacks substance and does not even provide a summary of the events that took place in the exercise.	___ of 5
				TOTAL SCORE	___ of 50

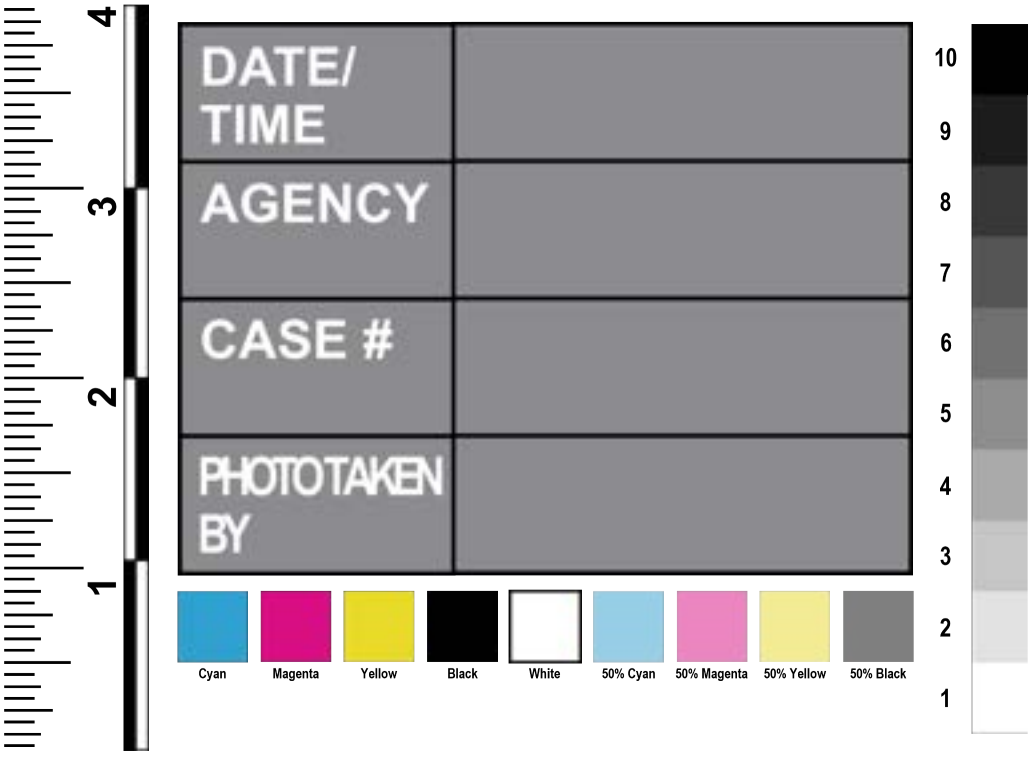
Appendix I: Crime Scene Forms and Logs

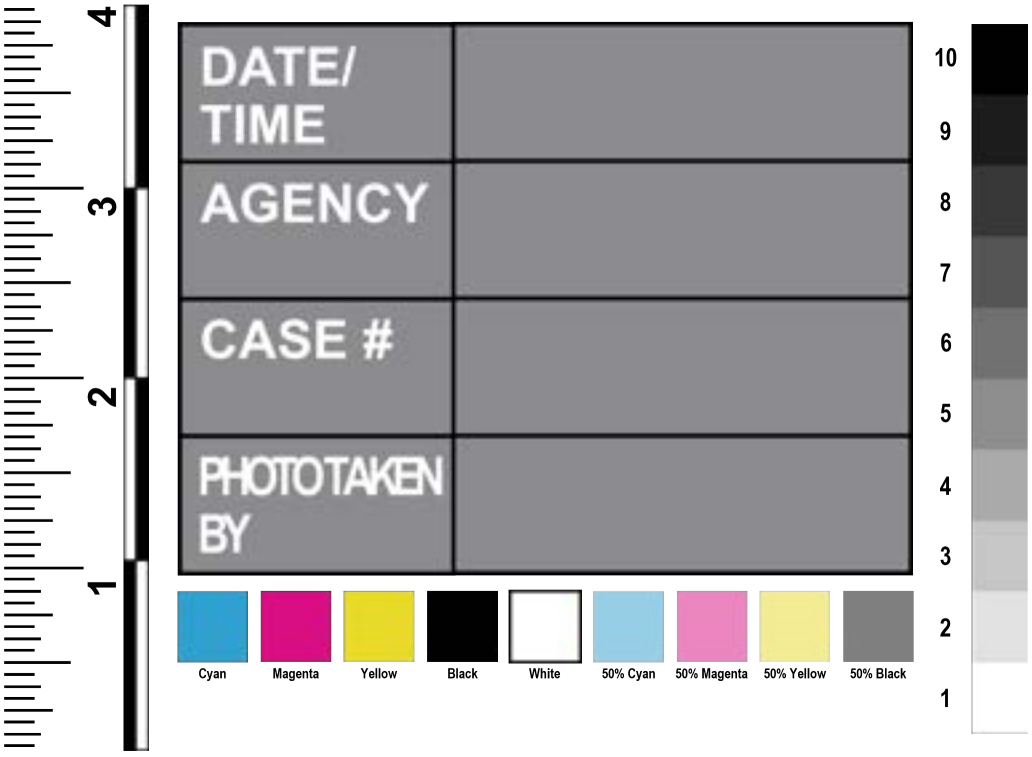
Table of Contents for Appendix I

Table of Contents Template

Exercise	Pages	Transferred By	Received By	Transferred By	Received By	Grade

Case ID Form (4” x 5 ⅜”)





CHAIN OF CUSTODY FORM

THIS FORM SHOULD BE UPDATED EACH TIME EVIDENCE CHANGES CUSTODY

ORIGINATING AGENCY: ______________________________________ **TELEPHONE:** __________________________

CONTACT PERSON: ______________________________________ **EMAIL:** __________________________

INCIDENT #: __________________________ **CREATION DATE/TIME:** ___________________________________

ITEM #	DESCRIPTION	RELEASED BY		RELEASED TO		REASON FOR TRANSFER
		DATE:	NAME/AGENCY:	DATE:	NAME/AGENCY:	
		TIME:	SIGNATURE:	TIME:	SIGNATURE:	
		DATE:	NAME/AGENCY:	DATE:	NAME/AGENCY:	
		TIME:	SIGNATURE:	TIME:	SIGNATURE:	
		DATE:	NAME/AGENCY:	DATE:	NAME/AGENCY:	
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ITEM #	DESCRIPTION	RELEASED BY		RELEASED TO		REASON FOR TRANSFER
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		TIME:	SIGNATURE:	TIME:	SIGNATURE:	

Hamline University Forensic Science Program
1536 Hewitt Ave.
Saint Paul, MN 55104-1284

INCIDENT #: _____

COVER SHEET FOR INCIDENT INVESTIGATION

INCIDENT DETAILS

1. DAY/DATE	**2. CALL TIME**	**3. SCENE TIME**
4. LOCATION OF CALL		
5. VICTIM	**6. SEX** **7. RACE** **8. AGE**	
9. RESIDENCE ADDRESS	**10. PHONE NUMBER**	
11. ADDITIONAL VICTIMS		
12. WITNESS INFORMATION		
13. INCIDENT TYPE		
14. VEHICLE INVOLVED MAKE MODEL LICENSE NUMBER STATE VEHICLE YEAR		
(15 CONTINUED) COLOR VIN #		ADDITIONAL VEHICLE(S) ☐ YES (see attached) ☐ NO

16. SCENE PROCESSED FOR **EVIDENCE** ☐ YES ☐ NO **LATENT PRINTS** ☐ YES ☐ NO **ITEMS SUBMITTED TO LAB** ☐ YES ☐ NO	**TOOLS USED** ☐ BLACK POWDER ☐ MAGNETIC POWDER ☐ FLUORESCENT POWDER ☐ FLUORESCENT DYE ☐ DFO ☐ BIO PRESUMPTIVE ☐ DRUG PRESUMPTIVE	☐ NINHYDRIN ☐ CYANOACRYLATE ☐ SPR ☐ ALS ☐ DENTAL STONE ☐ TOOL CASTING ☐ FLUID SWAB ☐ DNA SAMPLE SWAB	☐ METAL DETECTOR ☐ TEMP GAUGE ☐ MEASURING DEVICE ☐ TRAJECTORY ☐ OTHER: LIST:_____
15. OTHER RELATED INCIDENT NUMBERS			

REPORT CONTENTS

1. PHOTOS ☐ YES ☐ NO	**STORAGE FORMAT** ☐ SD ☐ CF ☐ FILM ☐ CD	**PHOTO NUMBERS**
2. SKETCH ☐ ROUGH ☐ FORMAL	**3. MEASUREMENT LOG** ☐ YES ☐ NO	**4. EVIDENCE RECOVERY LOG** ☐ YES ☐ NO
5. CHAIN OF CUSTODY FORM ☐ YES ☐ NO	**6. DETAILED EVIDENCE DESC.** ☐ YES ☐ NO	**7. INCIDENT RECONSTRUCTION** ☐ YES ☐ NO
8. ADDITIONAL ATTACHMENTS (PLEASE LIST)		

Hamline University Forensic Science Program
1536 Hewitt Ave.
Saint Paul, MN 55104-1284

INCIDENT #: _____

PERSONNEL

1. INITIAL RESPONDING OFFICER	FIRST	LAST	BADGE #
2. INVESTIGATIVE TEAM LEAD	FIRST	LAST	BADGE #
3. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
4. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
5. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
6. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
7. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
8. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
9. CRIME SCENE INVESTIGATOR	FIRST	LAST	BADGE #
10. ADDITIONAL PERSONNEL / ROLE (PLEASE LIST)			

TABLE OF CONTENTS

Crime Scene Investigator's Report
Scene Conditions and Initial Observations

AGENCY: _____ **INCIDENT #:** _____
INVESTIGATOR: _____ **DISPATCH DATE/TIME:** _____
LOCATION: _____ **ARRIVAL DATE/TIME:** _____
LOCATION TYPE: _____
TYPE OF OFFENSE: _____
VICTIM NAME: _____ **AGE:** _____ **SEX:** _____
VICTIM ADDRESS: _____

VEHICLE:	WEATHER:	ATTACHED REPORTS (CIRCLE)
MAKE:	OUTSIDE TEMPERATURE:	SKETCH FIREARM EVIDENCE
MODEL:	INSIDE TEMPERATURE:	PHOTO VEHICLE INJURY
YEAR:	A/C HEATER SETTING:	
COLOR:	WEATHER:	OTHER:
LICENSE PLATE:		

SCENE NOTES:

SCENE NOTES, continued: _____

Signature: _____ **Date**: _____

CRIME SCENE ENTRY LOG SHEET

ALL PERSONS ENTERING THE CRIME SCENE MUST SIGN THIS SHEET

AGENCY: _____ **INCIDENT #:** _____

SCENE LOCATION: _____

NOTE: Officers assigned to maintain scene security must also log in and out on this sheet and should state their reason as "Log Officer".

			IN	OUT	
NAME & TITLE	**INITIALS**	**AGENCY**	**DATE / TIME**	**DATE / TIME**	**REASON FOR ENTERING**

EVIDENCE RECOVERY LOG FORM

ALL EVIDENCE RECOVERED FROM THE SCENE MUST BE RECORDED

AGENCY: _____ **INCIDENT #:** _____

LOCATION: _____

Note: Evidence log officers should sign and date after last item # is entered

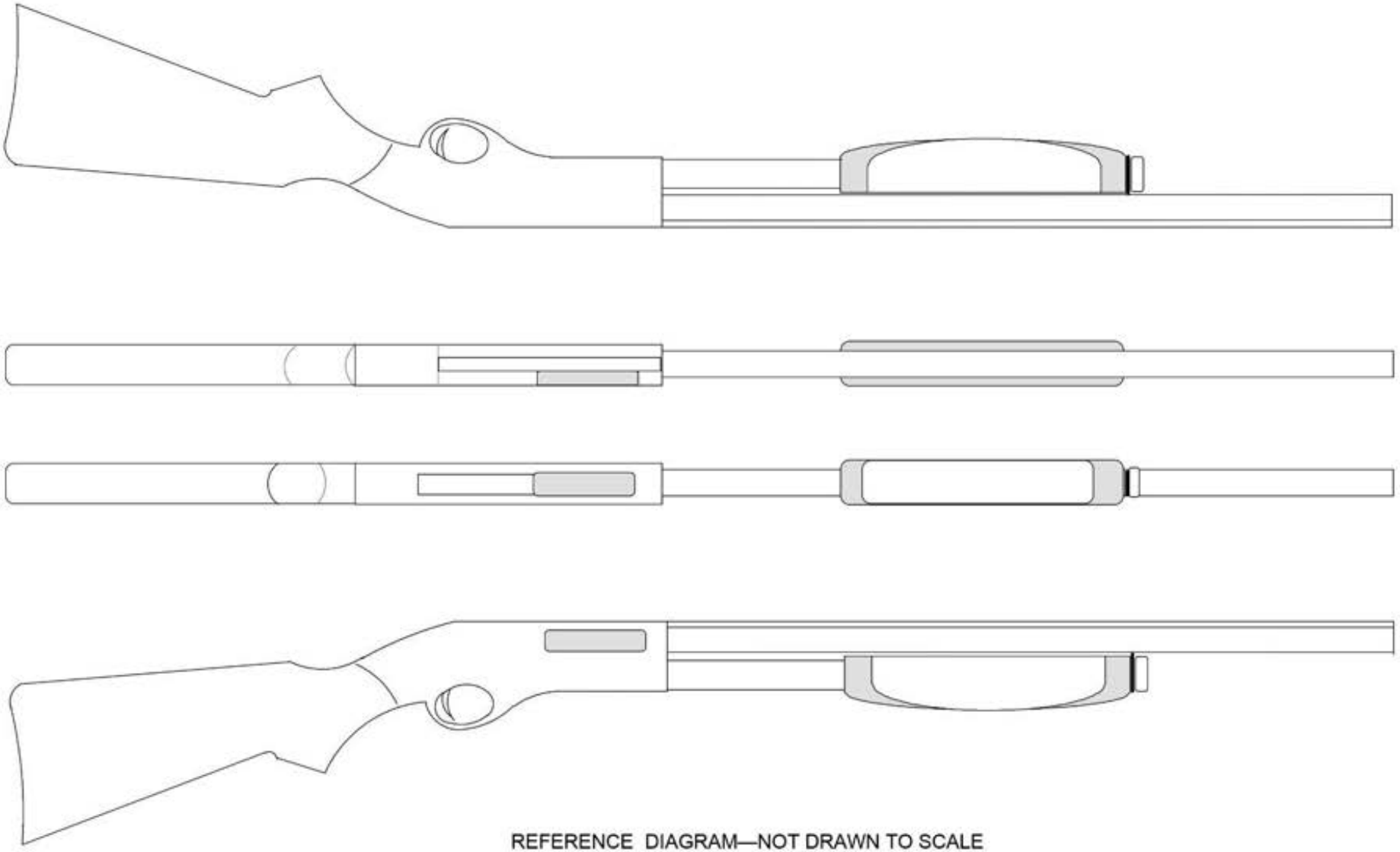
ITEM #	DESCRIPTION	RECOVERED BY	INITIALS	DATE/TIME

ITEM #	DESCRIPTION	RECOVERED BY	INITIALS	DATE/TIME

EVIDENCE LOG OFFICER: _____ **PAGE ____ OF _____**

Copyright 2006 - Imprimus Forensic Services, LLC

Field Sketch—Not Drawn to Scale	Location:		
Agency:	Incident:		
Drawn By:	Date:	Time:	RD#:

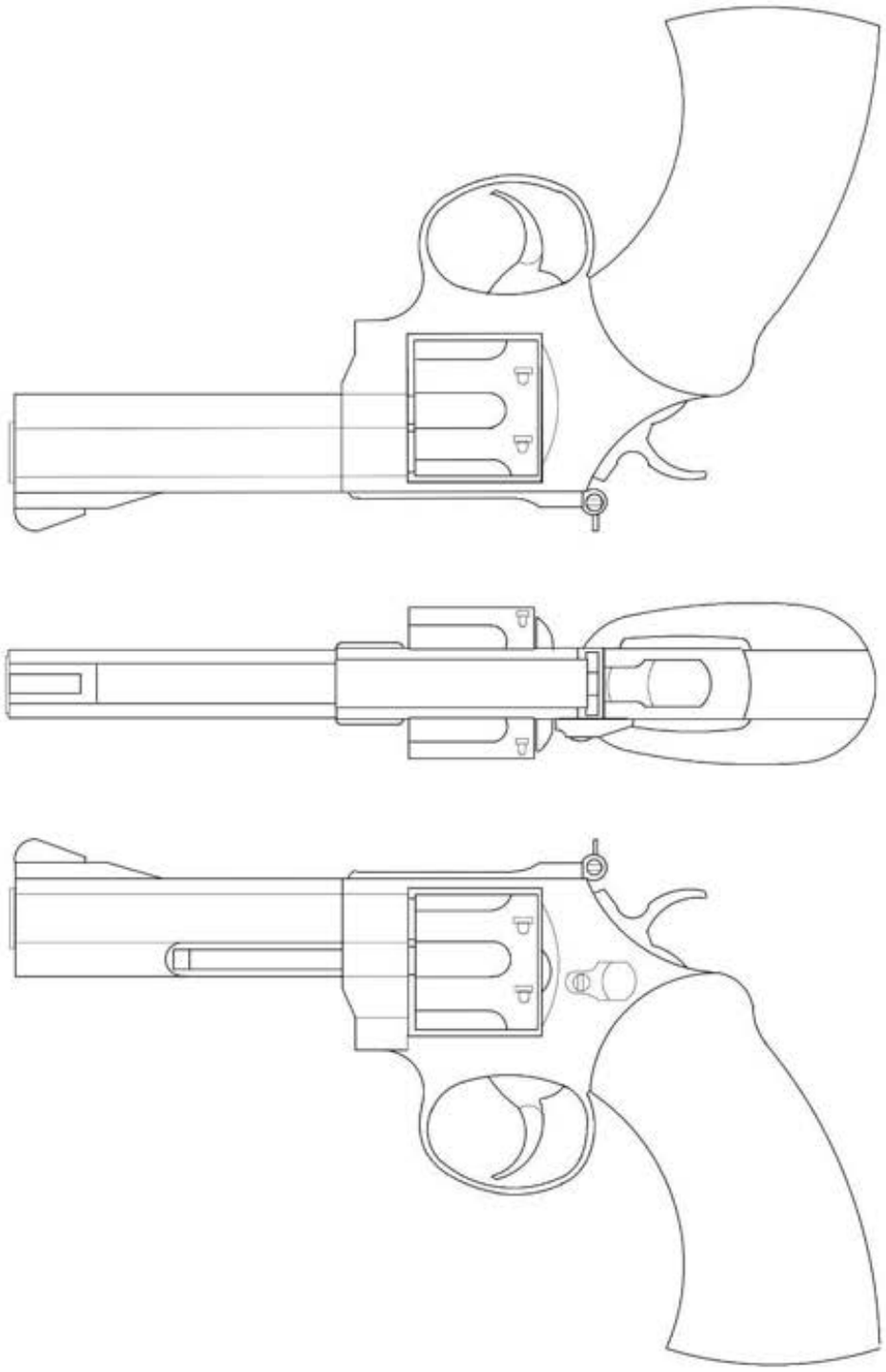


REFERENCE DIAGRAM—NOT DRAWN TO SCALE

CASE INFORMATION	
Agency :	Incident #:
Incident:	Victim:

Signature:

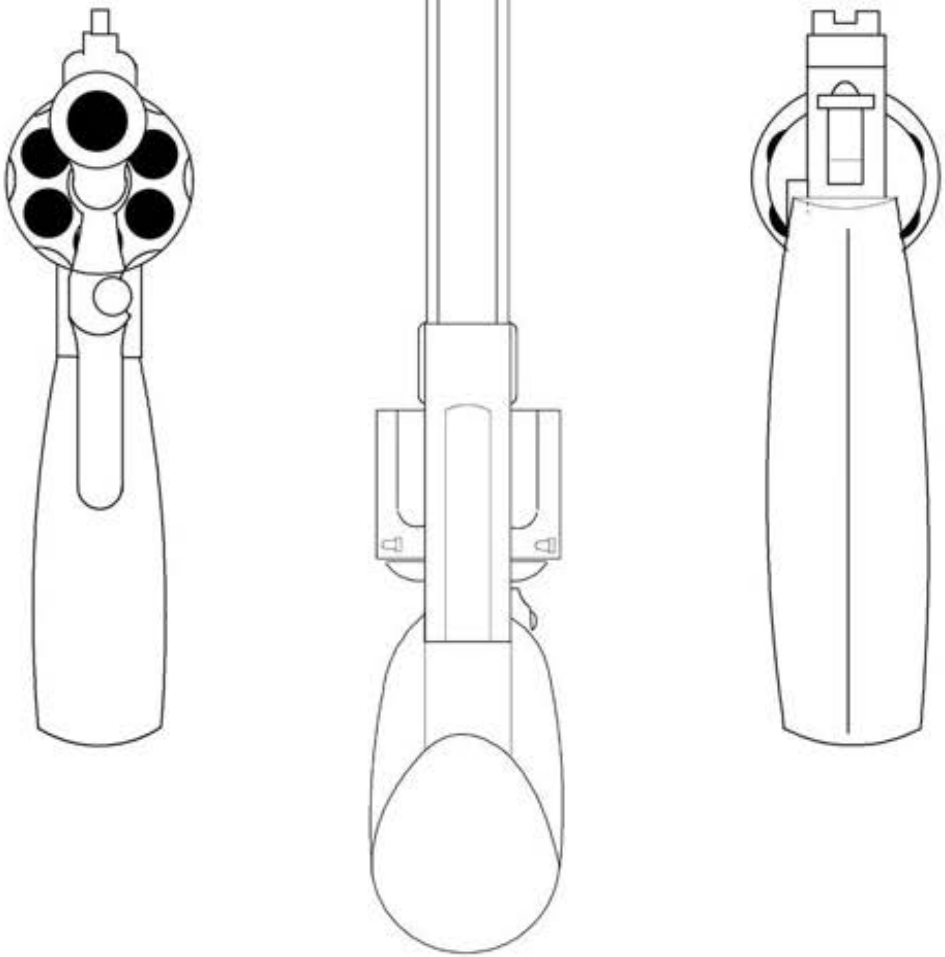
FIREARM EXAM INFORMATION	
Make:	Model:
Caliber:	Serial #:
Barrel Length:	Date:
Exam By:	Time:



REFERENCE DIAGRAM—NOT DRAWN TO SCALE

CASE INFORMATION	
Agency :	Incident #:
Incident:	Victim:
FIREARM EXAM INFORMATION	
Make:	Model:
Caliber:	Serial #:
Barrel Length:	Date:
Exam By:	Time:
NOTES	

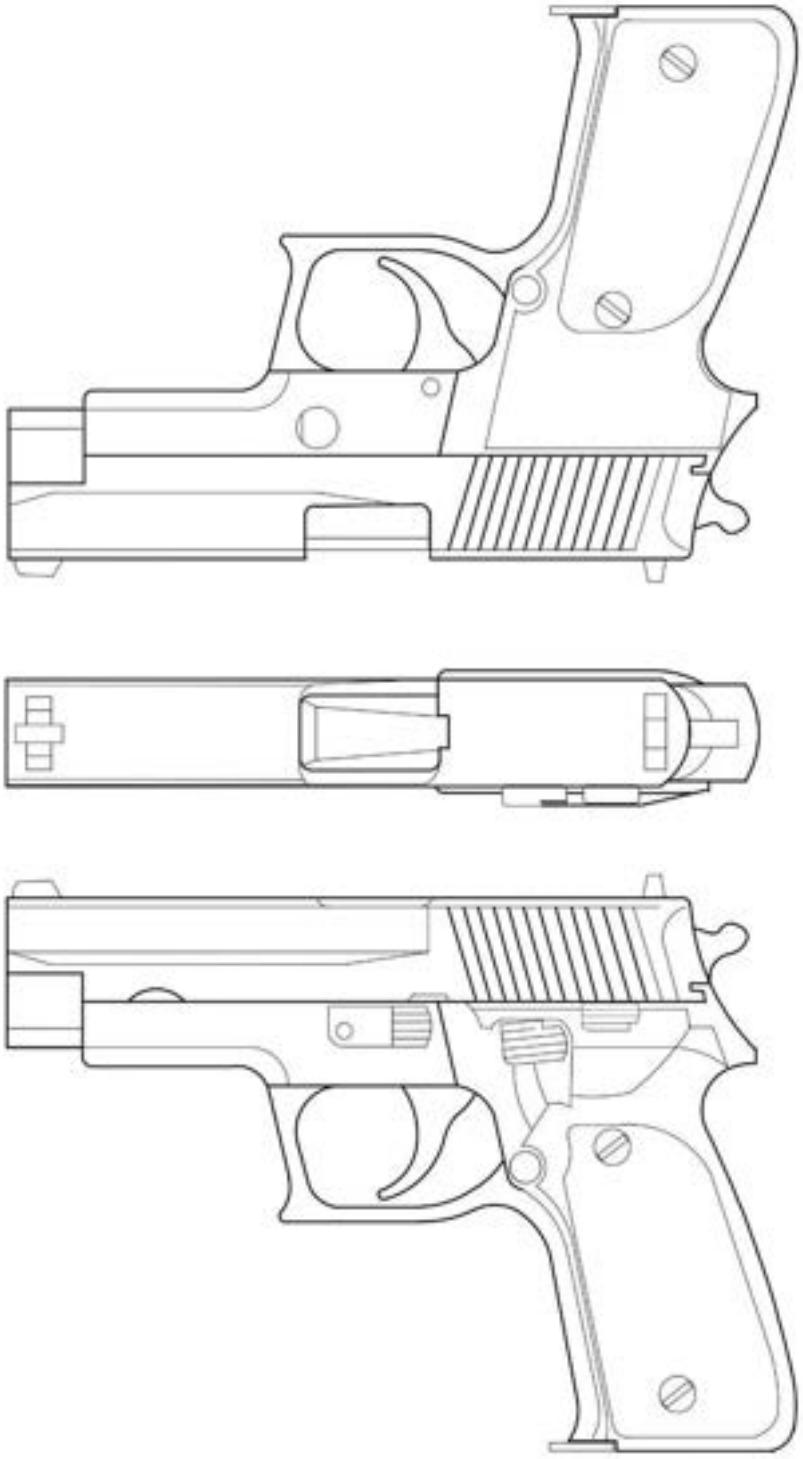
Signature:



REFERENCE DIAGRAM—NOT DRAWN TO SCALE

CASE INFORMATION	
Agency :	Incident #:
Incident:	Victim:
FIREARM EXAM INFORMATION	
Make:	Model:
Caliber:	Serial #:
Barrel Length:	Date:
Exam By:	Time:
NOTES	

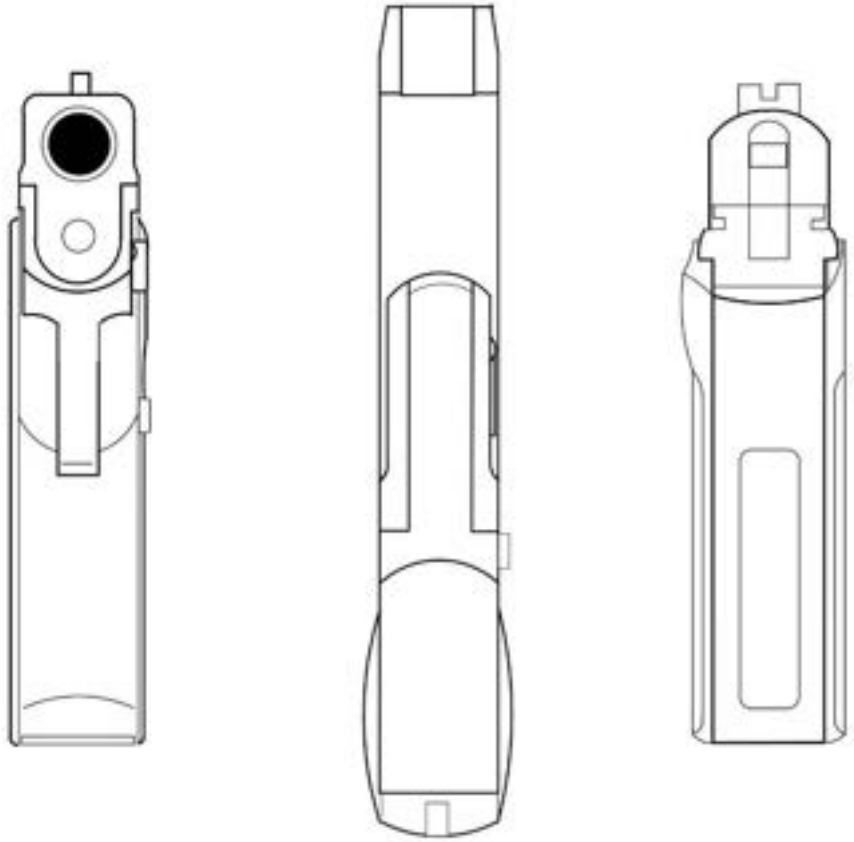
Signature:



REFERENCE DIAGRAM—NOT DRAWN TO SCALE

CASE INFORMATION	
Agency :	Incident #:
Incident:	Victim:
FIREARM EXAM INFORMATION	
Make:	Model:
Caliber:	Serial #:
Barrel Length:	Date:
Exam By:	Time:
NOTES	

Signature: _____



REFERENCE DIAGRAM—NOT DRAWN TO SCALE

CASE INFORMATION	
Agency :	Incident #:
Incident:	Victim:
FIREARM EXAM INFORMATION	
Make:	Model:
Caliber:	Serial #:
Barrel Length:	Date:
Exam By:	Time:
NOTES	

Signature:

HAMLINE UNIVERSITY
Hamline University Forensics Science Program
1536 Hewitt Ave
Saint Paul, MN 55104-1284

Forensic Laboratory
Vehicle Processing Report

PLEASE TYPE OR PRINT LEGIBLY

Agency Case No.: _____
Sex Crime Kit Tracking No.: _____
Evidence No. (HU Det Use): _____

Submitting Agency: _____ Date: _____

Mailing Address: _____ City: _____ ZIP: _____

Investigator: _____ Title: _____

Email: _____ Phone #1: _____ Phone #2: _____

Criminal Offense: _____

Incident Date: _____ Time: _____ County of Offense: _____

Brief Description of Crime: _____

_____

List Items Submitted:	List Sections(s) and Examinations Requested:
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____

1) Victim: _____ Race: _____ DOB: _____ SSN: _____ - ____ - _____

2) Victim: _____ Race: _____ DOB: _____ SSN: _____ - ____ - _____

1) Suspect: _____ DOB: _____ SSN: _____ - ____ - _____

SID No: _____ FBI No.: _____ Race: _____ Sex: _____ Height: ____ft. ____in. Wt.: ____lbs.

2) Suspect: _____ DOB: _____ SSN: _____ - ____ - _____

SID No: _____ FBI No.: _____ Race: _____ Sex: _____ Height: ____ft. ____in. Wt.: ____lbs.

FOR LABORATORY PERSONNEL USE ONLY - DO NOT WRITE IN THIS BOX

Received via: ☐ Evidence Locker ☐ U.S. Mail ☐ Certified Mail _____
☐ Other _____

Date: _____/_____/_____

Laboratory Case No.: _____ Request No.: _____

Two copies: Submit with evidence
One copy: Retained by submitting officer

GUNSHOT RESIDUE RECOVERY LOG

AGENCY: _____ **INCIDENT #:** _____ **LAB FILE #:** _____

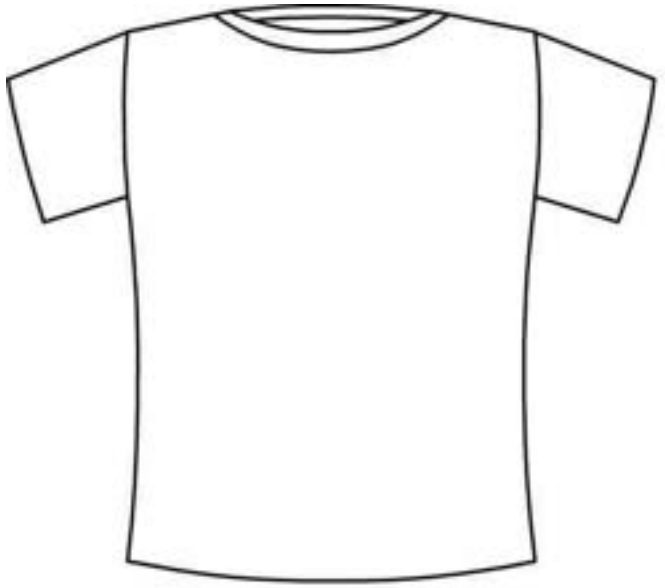
Specimen: _____

Marked: _____

Location of other

marks, initals: _____

Description: _____



MICROSCOPIC EXAMINATION

Specimen/hole no: _____

Smoke: _____

Bullet wipe: _____

Ripping/tearing: _____

Singeing/burning: _____

Gunpowder/type: _____

Sample: _____

Distance from hole: _____

CHEMICAL EXAMINATION

Specimen/hole no: _____

Greiss test: _____

_____

Sodium Rhodizonate: _____

_____

Measurement Reference Table			
Describe Reference Point			
Describe Reference Line			
Item #	**Description**	**X-Axis E/W**	**Y-Axis N/S**

Incident Information			
Agency		Address	
Incident #			
Date		Location Description	
Incident Type			
Recorded By		Date/Time Collected	

PHOTOGRAPHY LOG FORM

SUPPLEMENT TO EVIDENCE REPORT

PHOTOGRAPHER: _____ **ASSISTANT:** _____

AGENCY: _____ **INCIDENT #:** _____

LOCATION: _____ **DATE/TIME:** _____

CAMERA: _____ **STORAGE FORMAT: SD CF FILM OTHER** _____

Note: Photographer should sign and date after last item # is entered

PHOTO #	DESCRIPTION OF IMAGE	NOTES/CONDITIONS OF PHOTO (Filter, Lighting, Shooting Position, etc.)

PHOTO #	DESCRIPTION OF IMAGE	**NOTES:** (ISO, F#, Exp, Lens, etc.)

SHOOTING VEHICLE DOCUMENTATION – TWO DOOR CAR

Incident #	Crime/Incident	Location of Crime/Incident	Date of Crime	Date Processed

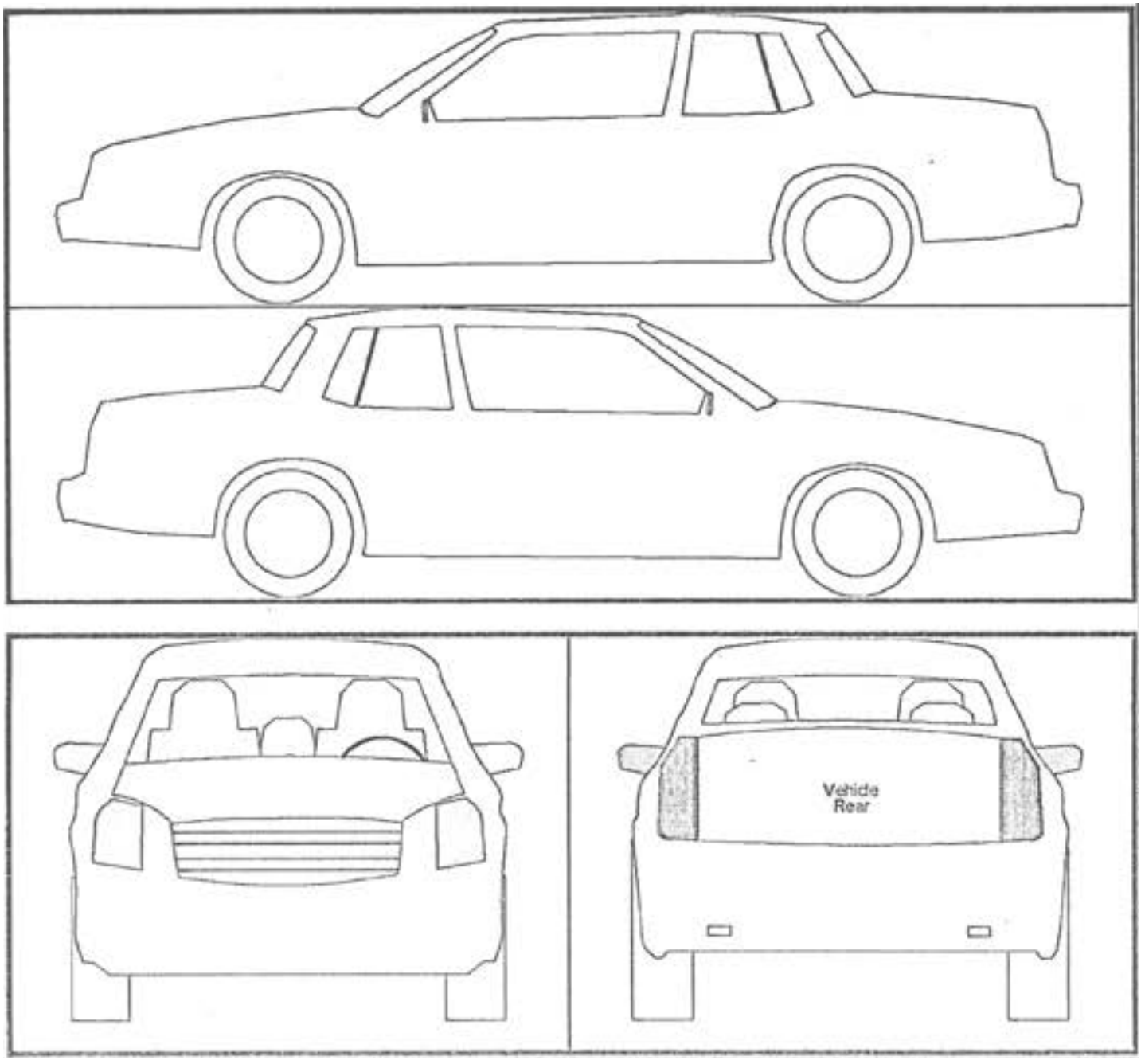
Location Processed	Date/Time of Request	Arrival Time	Departure Time	☐ Warrant	☐ Waiver	☐ NONE

Investigator	Investigator Present	☐ YES	☐ NO	VEHICLE	☐ SUSPECT	☐ VICTIM	☐ STOLEN	☐ OTHER

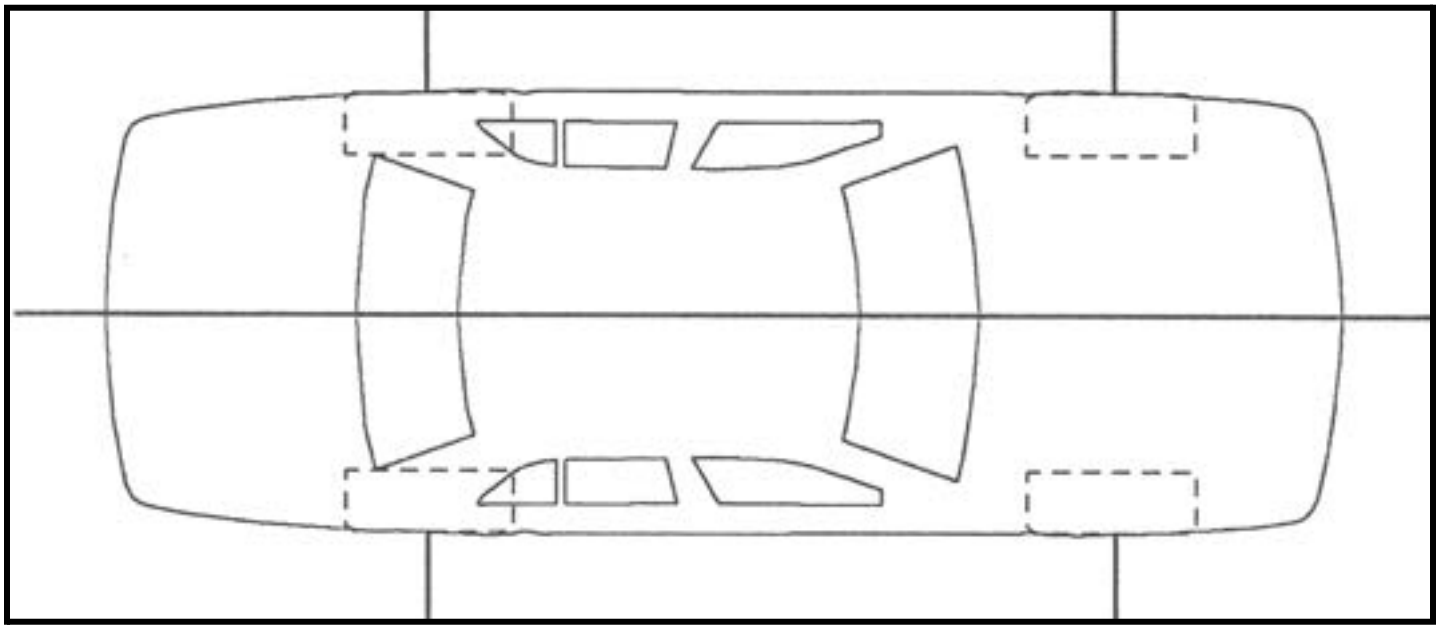
Type of Processing Requested

Year	Make	Model	No. Doors	Color	Tag	Tag Mo./Yr.	State

Decal No.	VIN	Sealed	☐ YES	☐ NO	Date Sealed	Initialed	☐ YES	☐ NO	Initials



SHOOTING VEHICLE DOCUMENTATION – TWO DOOR CAR



BD –

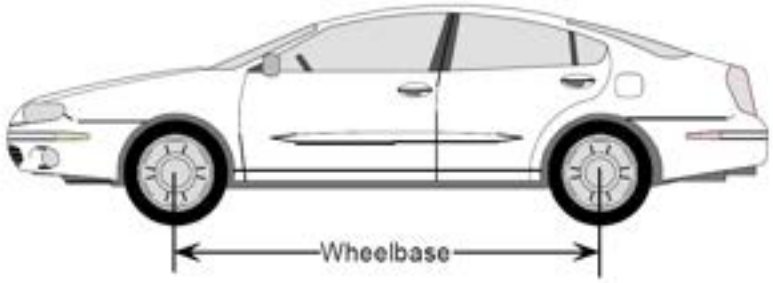
Notes / Additional Information:

Passenger Vehicle

TIRE TRACK EXAMINATION WORKSHEET

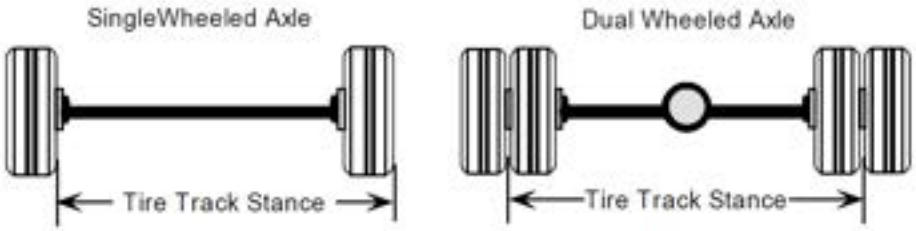
Supplement to Evidence Report

VEHICLE		CASE INFORMATION	
MAKE:		AGENCY:	INCIDENT #:
MODEL:		INCIDENT:	DATE:
TYPE:		VEHICLE EXAM INFORMATION	
COLOR:	YEAR:	EXAM LOCATION:	
VIN #:		DATE:	TIME:
LIC. #:	STATE:	PERFORMED BY:	
		SIGNATURE:	



WHEELBASE	
METRIC*	INCHES

*Metric measurements are required. (Centimeters)



TIRE TRACK STANCE		
AXLE	METRIC*	INCHES
FRONT		
REAR		

*Metric measurements are required. (Centimeters) Vehicle must be on ground

TIRE INFORMATION					
Location	**Front Pass.**	**Front Driver**	**Rear Pass.**	**Rear Driver**	**Spare**
Manufacturer					
Brand					
Type					
Size					
# of Ribs					
Tread Width (mm)					
Serial Number					
Mold Number					
Wear					

Hamline University Forensics Science Program
1536 Hewitt Ave
Saint Paul, MN 55104-1284

Forensic Laboratory
Vehicle Processing Report

Agency: _____ Agency Case No.: _____

Date/Time: _____ Type of Location: _____ Investigating Officer: _____

Victim Name: _____ Victim Address: _____

Inventory Control Number: _____ Images Taken: ☐ YES ☐ NO

Make: _____

Model: _____

Year: _____

Color: _____

Plate Number: _____

State: _____

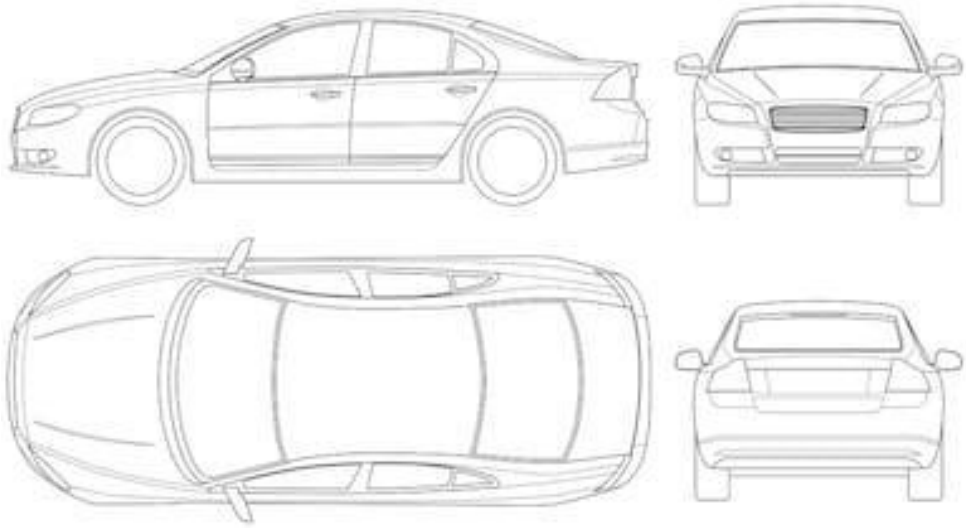
VIN: _____

Odometer: _____

Clock/Time: _____

Windows: _____

Lights: _____



Motor Running: _____ Clearly identify artifacts on the vehicle. Number them and describe in narrative.

Keys in Ignition: _____ Climate Control: _____ Blower/Fan: _____

Radio: _____ Exterior Temp.: _____ Interior Temp.: _____

Vehicle Length: _____ Front Bumper to Windshield : _____ Front Windshield To Rear Window : _____

Vehicle Width: _____ Notes: _____

Other Markings: _____

_____

Evidence Collected **Photo Images**

1.	11.	1.	11.
2.	12.	2.	12.
3.	13.	3.	13.
4.	14.	4.	14.
5.	15.	5.	15.
6.	16.	6.	16.
7.	17.	7.	17.
8.	18.	8.	18.
9.	19.	9.	19.
10.	20.	10.	20.

Investigating Officer: _____ Signature: _____

Note: Start listing photo images on this report – if additional space is needed, use photo image continuation report.

Hamline University Forensics Science Program
1536 Hewitt Ave
Saint Paul, MN 55104-1284

Forensic Laboratory
Vehicle Processing Report

Evidence Collected **Photo Images**

Appendix II: Example Crime Scene Report

The following is an example of a crime scene report. Please follow this format for the completion of reports in this class. Note that there may be additional forms that will need to be included for particular investigations. This report is a supplement to your field notes that are contained within your notebook, not a replacement, as the notebook will also be collected. If you have questions regarding the format, template, or more specific questions regarding your report; ask the instructor.

It is important to remember that reports are a collective effort. Numerous individuals contribute to the success of a crime scene investigation and as such these contributions extend to the subsequent report documenting the investigative team's actions and findings.

Hamline University Forensic Science Program
1536 Hewitt Ave.
Saint Paul, MN 55104-1284

INCIDENT #: 23-00101

COVER SHEET FOR INCIDENT INVESTIGATION

INCIDENT DETAILS

1. DAY/DATE	2. CALL TIME	3. SCENE TIME
01-JAN-2023	0821 hrs	0841 hrs

4. LOCATION OF CALL
900 Holton St. Saint Paul, MN 55104

5. VICTIM	6. SEX	7. RACE	8. AGE
Brandy Hennessy	F	W	24

9. RESIDENCE ADDRESS	10. PHONE NUMBER
900 Holton St. Saint Paul, MN 55104	651-523-2237

11. ADDITIONAL VICTIMS
–NONE–

12. WITNESS INFORMATION
–NONE–

13. INCIDENT TYPE
HOMICIDE

14. VEHICLE INVOLVED MAKE MODEL LICENSE NUMBER STATE VEHICLE YEAR
–NONE–

(15 CONTINUED) COLOR VIN #
–NONE–

ADDITIONAL VEHICLE(S)
☐ YES (see attached) ☑ NO

16. SCENE PROCESSED FOR

EVIDENCE
☑ YES ☐ NO

LATENT PRINTS
☑ YES ☐ NO

ITEMS SUBMITTED TO LAB
☑ YES ☐ NO

TOOLS USED

☐ BLACK POWDER	☐ NINHYDRIN	☐ METAL DETECTOR
☐ MAGNETIC POWDER	☐ CYANOACRYLATE	☐ TEMP GAUGE
☐ FLUORESCENT POWDER	☐ SPR	☑ MEASURING DEVICE
☐ FLUORESCENT DYE	☐ ALS	☐ TRAJECTORY
☐ DFO	☐ DENTAL STONE	☑ OTHER:
☑ BIO PRESUMPTIVE	☐ TOOL CASTING	LIST: Silver FP Powder
☐ DRUG PRESUMPTIVE	☐ FLUID SWAB	
	☐ DNA SAMPLE SWAB	

15. OTHER RELATED INCIDENT NUMBERS
–NONE–

REPORT CONTENTS

1. PHOTOS	STORAGE FORMAT	PHOTO NUMBERS
☑ YES ☐ NO	☑ SD ☐ CF ☐ FILM ☐ CD	DSC 3526 – DSC 3632

2. SKETCH	3. MEASUREMENT LOG	4. EVIDENCE RECOVERY LOG
☑ ROUGH ☑ FORMAL	☐ YES ☑ NO	☑ YES ☐ NO

5. CHAIN OF CUSTODY FORM	6. DETAILED EVIDENCE DESC.	7. INCIDENT RECONSTRUCTION
☑ YES ☐ NO	☑ YES ☐ NO	☑ YES ☐ NO

8. ADDITIONAL ATTACHMENTS (PLEASE LIST)
ACTION TAKEN NARRATIVES; CRIME SCENE ENTRY LOG

PERSONNEL

	FIRST	LAST	BADGE #
1. INITIAL RESPONDING OFFICER	ALBERT	BLANTON	75
2. INVESTIGATIVE TEAM LEAD	JAMIE	SPAULDING	13
3. CRIME SCENE INVESTIGATOR	JACK	DANIEL	07
4. CRIME SCENE INVESTIGATOR	JOHNATHON	WALKER	16
5. CRIME SCENE INVESTIGATOR	JAMES	BEAM	18
6. CRIME SCENE INVESTIGATOR	——	—	—
7. CRIME SCENE INVESTIGATOR	——	—	—
8. CRIME SCENE INVESTIGATOR	——	—	—
9. CRIME SCENE INVESTIGATOR	——	—	—
10. ADDITIONAL PERSONNEL / ROLE (PLEASE LIST)			

TABLE OF CONTENTS

Scene Narrative

ASSIGNED: 01-JAN-2023; 0821 to investigator: JAMIE SPAULDING (13)

On 01-Jan-2023 at 0821 hours, the Hamline Crime Scene Unit was dispatched to 900 Holton St. Saint Paul, MN 55104 for a missing persons case. The Hamline Crime Scene Unit arrived on the scene at 0841 hours and put on PPE including Tyvek Suits, gloves, masks, and shoe covers. I was briefed by Sgt. Albert BLANTON and we completed an initial walkthrough of the crime scene determined to be confined to the upstairs office of the residence **(Photographs #1-16)**.

As lead investigator, I delegated tasks to the team as follows:
Jamie SPAULDING – scene management and notetaking
Jack DANIEL – evidence collection, bloodstain pattern analysis
Johnathon WALKER – scene photography
James BEAM – scene processing, diagram/sketch

While the walkthrough was completed, investigators BEAM and WALKER calibrated the Leica DISTO D2 Laser Distance Measure for sketching **(Photograph #17)** and DANIEL prepared equipment and documentation logs. All lights to the residence were turned off upon arrival. At 0857 hours, the lights were turned on by WALKER to assist with the investigation. The doorway entrance to the office was located on the north wall of the room and was open upon arrival. On the east wall, there were three filing cabinets, the one farthest left was white, the middle one was white and the rightmost one was blue. Each cabinet had five drawers, all closed and locked. There was also a white air vent on the east wall to the right of the filing cabinets. There was a door frame in the southeast corner of the room. There was no door, and a black curtain hung down. A small black lamp was located in the southeast corner as well. Next to it sat a plastic bin with black wheels and a blue lid. Nothing remarkable was found inside the bin, only a stack of blank yellow papers. A white paper towel with reddish-brown stains was found behind the plastic bin **(Photograph #18-20)**. This paper towel was labeled as *Evidence A* and was examined further. There appeared to be pattern transfers made in the reddish-brown liquid with an object that has a straight edge **(Photograph #21-22)**.

On the south wall, there were two windows. The leftmost window was closed, and the blinds were raised. On this window, two reddish-brown stains were visible in the center of the bottom windowpane and appeared to flow downward due to gravity. There was also one circular droplet on the white ledge of the window, where people often lift to open the window **(Photograph #23)**. In addition, reddish-brown stains were located on the wall below the window. These stains were relatively elliptical and traveled down to the floor. This pattern was labeled as *Evidence D* **(Photograph #24)**. This led to more reddish-brown stains on the floor in front of the window. Over twenty large, circular droplets were surrounded by numerous smaller circular droplets. This pattern spanned the width of the room, ending in front of the chair located to the left of the doorway on the north wall. The pattern was labeled as *Evidence C* **(Photograph #25-26)**.

A brown cabinet was located in the center of the south wall, between the two windows. A HeatSeal device and an empty tissue box were sitting on top of the cabinet. Nothing remarkable was found inside

the cabinet. A corkboard was located on the wall above the cabinet with one green tac on the board. The second window on this wall was located to the right of the cabinet. The window was closed, and the blinds were raised. A reddish-brown hand-shaped print was located on the lower panel of the window. Three drops were found dripping down the window due to gravity. This handprint was labeled as *Evidence F* **(Photograph #27-28)**. Three reddish-brown drops were located on the floor in front of the window. In addition, a reddish-brown smear-stain was found on the floor in front of this window. The smear traveled from the brown cabinet in the middle of this wall to below the rightmost window, determined based on the diminishing volume of the reddish-brown liquid. The smear was labeled as *Evidence G* **(Photograph #29-30)**.

A brown bookshelf was located in the southwest corner of the room. On the top of the bookshelf, there were two billiards trophies, one book, a decorative statue, a small plant, a notebook and a white fan. On the second shelf, there were empty envelopes, a pile of miscellaneous sticky notes and an empty orange file folder. On the third shelf, there was a box of HeatSeal sheets, a black electrical cord and a blue electrical cord. On the fourth shelf, there were two full white binders, a bookend and a “Beware of the Dog” sign. On the fifth shelf, there were three bookends. The bottom of the bookshelf appeared to be broken **(Photograph #31)**. Investigator WALKER moved the bookshelf and found a door to a crawl space. Inside the crawl space, a decedent was found. The decedent appeared to be male and was wearing a t-shirt and jeans. The victim had apparent wounds to the chest and was labeled as *Evidence B*. In the crawl space, there no other remarkable items nor anything of evidentiary value **(Photographs #32-40)**.

On the west wall, there was a window in the northwest corner. This window was closed, and the blinds were raised. On the north wall, there was a closet door in the northwest corner. Nothing remarkable was found inside the closet. To the right of the door, there was a paper shredder. Nothing remarkable was inside the paper shredder, however, there were pieces of shredded paper found throughout the scene. An L–shaped desk was against the north wall, protruding out into the middle of the room **(Photograph #41-42)**.

From left to right, there was a black Epson printer and a phone book, open to “Taylor, EH”. Then there was a white phone that was off the receiver and a pen and notebook. Inside the notebook there was a page stating, “Dec 27, 2022 Evan Williams Call: Concern over Case #22-120001, wants case thrown out, becoming aggressive and yelling, threats made if case lost!” **(Photograph #43)**. Next to the notebook, there were two Dell computer monitors, turned off. There was also a keyboard, computer mouse, Deskjet printer, solar calculator and pink mechanical pencil. A black swivel chair was adjacent to the desk, in front of the two computer monitors. On the floor next to the desk, there was a black computer tower and a black bag. Nothing remarkable was found inside the bag. Two white shelves were installed above the desk. On the top shelf, there was one piece of art. On the second shelf, there was one picture, an analog clock and two black bins. Another black swivel chair was located on the backside of the desk. In addition, a black cabinet was located against the north wall. This cabinet had two drawers, both closed and locked. Three piles of journals were on top of the cabinet, next to two more piles of journals on the desk. A few reddish-brown stains were located behind the cabinet on the wall, the stains appeared relatively circular at the top of the wall, becoming more elliptical as they traveled down the wall. The tails of the droplets pointed towards the floor. There were approximately seven elliptical stains and four circular stains.

There were also reddish-brown stains located on the ceiling. These stains started directly above the leftmost window on the south wall and spanned about half the width of the entire ceiling. The stains appeared to start relatively circular and seemed to become more elliptical as they approached the north wall. Closest to the window, the stains appeared to be very concentrated. The patterns toward the middle of the ceiling become less concentrated and more sporadic. Analysis suggests that these patterns are from three separate events. The patterns were labeled as *Evidence E* **(Photograph #44-47)**. Two light fixtures were also on the ceiling, however, nothing remarkable was found on or inside them.

After initial documentation of notes, photographs and sketches, the entire scene was searched by Investigator DANIEL. This process occurred as the team moved throughout the room, and the findings are noted above in the location where they were found. Investigator BEAM dusted the bookshelf and crawl space door for fingerprints. No prints were recovered on the crawl space door. Possible friction ridge detail was recovered from the side of the bookshelf and was lifted for further analysis (*Evidence H)*. The white paper towel (*Evidence A*) was collected and packaged by Investigator DANIEL at 1049 hours. X, Y and Z measurements were taken by DANIEL and SPAULDING from sample stains for bloodstain pattern analysis from the southeast corner of the room, used as the reference corner.

All materials and equipment were gathered, the lights were turned off, and the scene was released to Sgt. BLANTON at 1110 hours on 01-JAN-2023.

Action Taken Statement

ASSIGNED: 01-JAN-2023; 0821 to investigator: JAMIE SPAULDING (13)

Upon arrival at the scene I adorned a Tyvek suit, gloves, a face mask, and shoe covers. I was briefed by Sgt. BLANTON and we completed an initial walkthrough of the crime scene in the upstairs of the residence. During this initial walkthrough I made and recorded several observations within my notebook. There were several red stains present on the floor, ceiling, and walls with likely cast off present on the south wall concentrated around the windows. There were red stains on the floor smeared near the desk and window which decreased on fluid volume as directed toward the rightmost window on the east wall.

After the initial walkthrough was completed, I delegated tasks for my unit during the team briefing. At 0855 hours, I began observations and descriptions of the scene disposition in my field notes. At 0921 hours WALKER discovered a hidden crawl space behind a bookshelf which contained a body, laid face down. After the body was photographed by WALKER and sketched by BEAM, DANIEL and I rolled the body over, we identified three chest wounds which were narrow and approximately two inches vertically in length in the central upper chest area below the collarbone. The victim was identified as Brandy HENNESSY, owner of the residence using the photo on her driver's license identification found in the office.

At 0947 hours, I paired with DANIEL and we documented the cast off patterns on the south wall and ceiling. Conjunctively, we identified three patterns on the south wall and labeled them as Evidence C, D and G. For these three patterns we marked 27 total stains of interest as a sample which accurately represented each of the patterns. DANIEL and I measured the coordinates of each stain from an origin. The origin was designated in the southeast corner of the room, at the meeting of both walls, on the floor. Each of the 27 marked stains were measured from this origin. The stains positioned on the north wall were given a (X, Z) coordinate where X was distance along the wall from the origin and Z represented height from the base of the wall. These measurements were taken in inches and were recorded on the wall in the area of the stains for photographic capture. Next, we documented the bloodstain patterns on the ceiling in the same manner, except using an X, Y, and Z position from the established origin. These measurements were also taken in inches and recorded on the ceiling near the stain. A small adhesive scale was also placed near each stain to establish scale within the photographs. Additionally, a level was used to create a plumb line near each stain, this provided upward direction and axis to the photos.

At 1105 hours I called a unit meeting to ensure that all tasks were completed on the scene. Collectively, we gathered our equipment, gathered all materials from scene processing and packaging, and signed out of the scene at 1110 hours. At 1110 hours, the crime scene at 900 Holton St. Saint Paul, MN 55104 was released to the custody of Sgt. BLANTON.

At 1606 hours on 07-JAN-2023, DANIEL and I entered the computer lab in Drew Science Center (1556 Hewitt Ave, St Paul, MN 55104), room 219W. We started a new project within the HemoSpat software program, entitled it "23-00101" and entered the dimensions of the room received from Investigator BEAM. Next, we began to import the images of the stains from the crime scene into the HemoSpat program. We entered them individually using the tools within the program to analyze each of the stains. After this was completed two dimensional elevation views were created of the room which showed the

SPAULDING ACTION TAKEN continued; Page 2:

trajectory of the stains. This yielded an evident area of origin. I terminated lab work at 1819 hours after completing bloodstain pattern analysis for the cast off patterns within the crime scene.

Note: Original field notes available upon request.

Jamie Spaulding
Hamline Crime Scene Unit
Senior Lead Investigator

Action Taken Statement

ASSIGNED: 01-JAN-2023; 0821 to investigator: JACK DANIEL (07)

Upon arrival at the scene at 0841, I put on a Tyvek suit, gloves, a face mask, and shoe covers.

At 0855 hours, I entered the scene in the upstairs office and began placing evidence placards as I progressed through the office from the doorway on the north wall to the east wall, south wall and windows, west wall, the north wall, and completion with the stains found on the ceiling. I was assisted by WALKER and BEAM. I also utilized the Kastle-Meyer (Phenolphthalein) test to presumptively test sample stains on the patterns marked as evidence items. All examined samples returned a presumptive positive indication for blood, see notes.

At 0909 hours, I began assisting BEAM with measurements for the plan sketch of the scene. Together we took the measurement and I called it out to BEAM to document the sketch.

At 0921 hours, I assisted SPAULDING and we rolled the body found in the crawl space over. We identified three narrow chest wounds approximately two inches in length in the central upper chest area. We identified the victim as Brandy HENNESSY, using her photo identification found in the office.

At 0925, I resumed helping BEAM with measurement of the sketch, focused on the crawl space where the victim was located.

I signed out of the primary office scene at 0941 hours to retrieve my compass dividers from the crime scene vehicle for measuring bloodstains. I signed back into the scene at 0951 hours. However, given the number of stains, I decided to measure and document the stains for bloodstain pattern analysis using the HemoSpat software rather than manual stringing of the bloodstains on scene. Once WALKER completed photographing the scene, I labeled reference bloodstains with their X, Y, and Z dimensions using the southeast corner of the room as the origin. I was assisted by SPAULDING.

At 1049 hours, I collected Evidence A (paper towel with blood-like stains) and packaged the item in a brown paper evidence bag. The bag was sealed with tamper-proof evidence tape, initialed and dated along the seams of the tape, and placed in our crime scene staging area outside the office.

At 1105 hours, we had a unit meeting to ensure tasks were completed. After, I helped gather our equipment, materials, and signed out of the scene at 1110 hours.

Note: Original field notes available upon request.

JACK DANIEL

Jack Daniel
Hamline Crime Scene Unit
Crime Scene Investigator

Action Taken Statement

ASSIGNED: 01-JAN-2023; 0821 to investigator: JOHNATHON WALKER (16)

Upon arrival at the scene at 0841, I wore protective equipment including: a Tyvek suit, gloves, a face mask, and shoe covers.

After the initial walkthrough and team briefing, I entered the scene in the upstairs office at 0855 hours. I took overall photographs of the entire scene using a Nikon D7500 DSLR camera with a Nikor 18-140mm lens. All images were stored on a 128GB SD card, labeled “JW–SD#4”. I contiguously completed the photo log on my agency issued IPad Pro as I captured images throughout the scene.

I then assisted DANIEL and BEAM with searching the office. I discovered a crawl space behind a bookcase on the west wall. We moved the bookcase and opened the door to the crawlspace locating a body. I notified SPAULDING and then the team examined this area. I took overall photographs inside of the crawlspace.

I took midrange and closeup with scale images of all marked items of evidence, including: A, B, C, D, E, F, and G. Additional photographs were taken in the room to fully document the entirety of the scene.

At 1105 hours, we had a unit meeting to ensure tasks were completed. After, I helped gather our equipment, materials, and signed out of the scene at 1110 hours.

Note: Original field notes available upon request.

John Walker
Hamline Crime Scene Unit
Crime Scene Investigator

Action Taken Statement

ASSIGNED: 01-JAN-2023; 0821 to investigator: JAMES BEAM (18)

Upon arrival at the scene at 0841, I used a Tyvek suit, gloves, a face mask, and shoe covers for personal protective equipment.

After suiting up in my PPE, I signed into the scene at 0850 hours. Investigator WALKER and I documented the calibration of the Bosch laser with a ruler and the Nikon camera. After the initial walkthrough was completed, I began sketching the initial scene. Once I completed the overall measurements of the furniture and the room dimensions, I moved into the crawl space to sketch the secondary scene. I recorded the measurements for the dimensions of the crawl space as well as the boxes, ladders, and insulation in the area, along with the position of the body. I completed the secondary scene rough sketch and proceeded to add the evidence locations for the primary scene into the first rough sketch. I signed out of the primary scene at 1026 hours to retrieve latent print collection equipment.

At 1031 hours, I re-entered the scene with silver fingerprint powder, a Zephyr fiberglass fingerprint brush, magnetic powder, and a magnetic applicator. I attempted to retrieve latent prints from the sides and top of the bookshelf, the crawlspace door, and the entrance frame of the crawlspace. Possible friction ridge impressions were detected on the right side of the bookshelf, previously in front of the crawl space. I lifted the detail using clear lifting tape and applied the lift to a black backing card, identified as Evidence H.

Once processing was completed, I performed a final search of scene and discovered the notebook page discussing a meeting with “Evan Williams” on the desk, revealing a possible suspect/motive (Photograph 43).

I helped pack up our equipment and officially signed out of the scene at 1110 hours. I released the scene and then proceeded to complete the chain of custody form and the request for analysis form for the scene’s evidence.

James B. Beam

James Beam
Hamline Crime Scene Unit
Crime Scene Investigator

Summary of Evidence Collected

Evidence Item	Description
A	Paper towel with blood-like stains
H	Friction ridge impression lift from bookshelf

Description of Evidence

Evidence Item A: Paper towel with blood-like stains
A white paper towel with reddish-brown blood-like stains, located in the southeast corner of the office behind the plastic bin. The towel appears to have pattern transfer stains from an object with a straight edge.

Evidence Item H: Friction ridge impression lift from bookshelf
Recovered latent friction ridge detail from the right side of the black bookshelf which was located in front of the crawlspace door. The friction ridge detail was developed using silver magnetic fingerprint powder and lifted with clear lifting tape. The recovered lift was affixed to a black fingerprint card to visualize the detail.

—END OF EVIDENCE DESCRIPTION—

CRIME SCENE ENTRY LOG SHEET

ALL PERSONS ENTERING THE CRIME SCENE MUST SIGN THIS SHEET

AGENCY: HAMLINE FORENSIC SCIENCE INCIDENT #: 23-00101

SCENE LOCATION: 900 HOLTON ST. SAINT PAUL, MN 55104

NOTE: Officers assigned to maintain scene security must also log in and out on this sheet and should state their reason as "Log Officer".

			IN	OUT	
NAME & TITLE	INITIALS	AGENCY	DATE / TIME	DATE / TIME	REASON FOR ENTERING
JAMIE SPAULDING, LEAD INVEST.	JSP	HUFS	01/01/23 1046	01/01/23 1110	CSI, LEAD
Jack Daniel, CSI	JD	HUFS	01.01.23 1047	01.01.23 1041	CSI, BPA
John Walker, CSI	JW	HUFS	1-1-23 1047	1-1-23 1111	CSI, PHOTO
James Beam, csi	JB	HUFS	1/1/23 1050	1/1/23 1020	csi, sketch
Jack Daniel	JD	HUFS	01.01.23 1051	01.01.23 1110	BPA
James Beam	JB	HUFS	1/1/23 1031	1/1/23 1110	latent fingerprints
			/	/	
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			/	/	JSP 01/01/2023
			/	/	
			/	/	

EVIDENCE RECOVERY LOG FORM

ALL EVIDENCE RECOVERED FROM THE SCENE MUST BE RECORDED

AGENCY: HAMLINE FORENSIC SCI. **INCIDENT #:** 23-00101

LOCATION: 900 HOLTON ST. SAINT PAUL, MN 55104

Note: Evidence log officers should sign and date after last item # is entered

ITEM #	DESCRIPTION	RECOVERED BY	INITIALS	DATE/TIME
A	PAPER TOWEL WITH BLOOD-LIKE STAINS	JACK DANIEL	JD	01.01.23 1049
H	FRI LIFT FROM BOOKSHELF	JAMES BEAM	JB	1/1/23 1051
END	JAMIE SPAULDING			01/01/2023
	INTENTIONALLY BLANK			
			JSS	01-JAN-2023

CHAIN OF CUSTODY FORM

THIS FORM SHOULD BE UPDATED EACH TIME EVIDENCE CHANGES CUSTODY

ORIGINATING AGENCY: HAMLINE FORENSIC SCIENCE **TELEPHONE:** 651-523-2237

CONTACT PERSON: JAMIE SPAULDING **EMAIL:** JSPAULDING02@HAMLINE.EDU

INCIDENT #: 23-00101 **CREATION DATE/TIME:** 01-JAN-2023

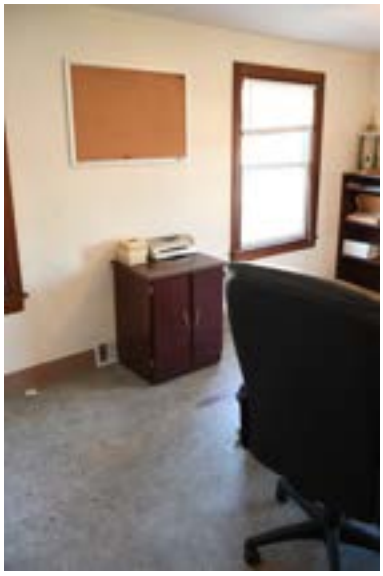
ITEM #	DESCRIPTION	RELEASED BY		RELEASED TO		REASON FOR TRANSFER
A	PAPER TOWEL WITH BLOOD-LIKE STAINS	DATE: 01/01/23	NAME/AGENCY: SPAULDING HUFS	DATE: 01/9/23	NAME/AGENCY: Kowalski HUFS	EVIDENCE STORAGE
		TIME: 1133	SIGNATURE: JSP	TIME: 1133	SIGNATURE: BMK	
H	FRI LIFT FROM BOOKSHELF	DATE: 01/01/23	NAME/AGENCY: SPAULDING HUFS	DATE: 01/9/23	NAME/AGENCY: Kowalski HUFS	EVIDENCE STORAGE
		TIME: 1133	SIGNATURE: JSP	TIME: 1133	SIGNATURE: BMK	
		DATE:	NAME/AGENCY:	DATE:	NAME/AGENCY:	
		TIME:	SIGNATURE:	TIME:	SIGNATURE:	
		DATE:	NAME/AGENCY:	DATE:	NAME/AGENCY:	
		TIME:	SIGNATURE:	TIME:	SIGNATURE:	
		DATE:	NAME/AGENCY:	DATE:	NAME/AGENCY:	
		TIME:	SIGNATURE:	TIME:	SIGNATURE:	

Photo Album

Compiled by Johnathon Walker. All photos archived by Hamline Forensic Science.

Photograph #1. DSC_3530. SE from entrance overall. 1/60s. f/3. ISO 800.

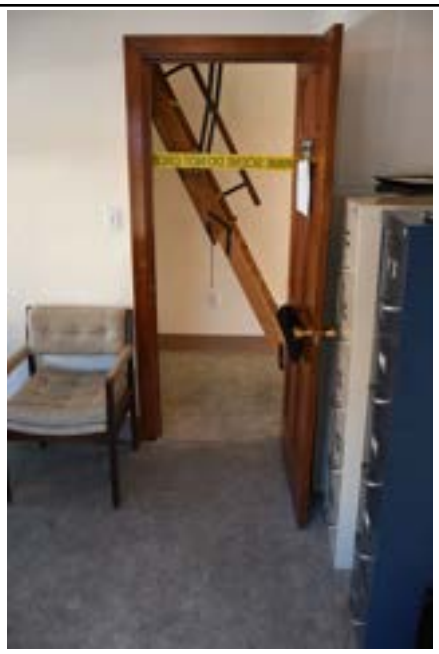
Photograph #2. DSC_3529. Entrance showing S wall. 1/60s. f/3.5. ISO 800.



Photograph #3. DSC_3533. SW from entrance overall. 1/60s. f/3.5. ISO 800.

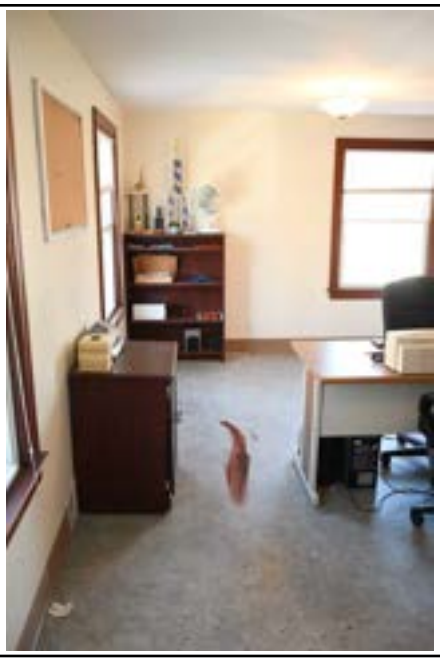
Photograph #4. DSC_3534. W from entrance overall. 1/60s. f/3.5. ISO 800.

Photograph #5. DSC_3538. NE from E wall overall. 1/60s. f/3.5. ISO 800.



Photograph #6. DSC_3537. N from E wall overall. 1/60s. f/3.5. ISO 800.

Photograph #7. DSC_3536. NW from E wall overall. 1/60s. f/3.5. ISO 800.



Photograph #8. DSC_3535. W wall from E wall overall. 1/60s. f/3.5. ISO 800.

Photograph #9. DSC_3539. E from SW corner overall. 1/60s. f/3.5. ISO 800.

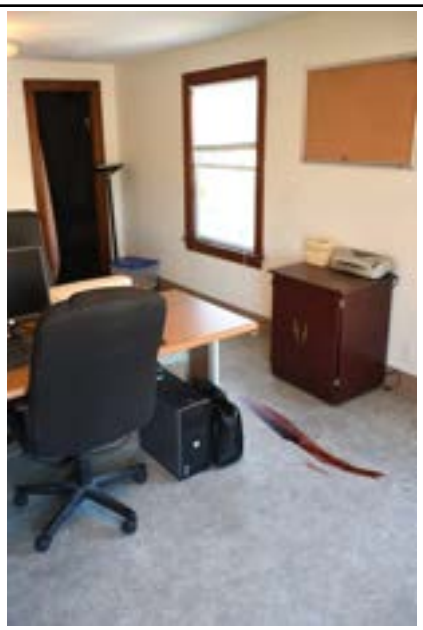
Photograph #10. DSC_3540. NE from SW corner overall. 1/60s. f/3.5. ISO 800.

Photograph #11. DSC_3541. N from SW corner overall. 1/60s. f/8. ISO 800.

Photograph #12. DSC_3542. N from SW corner overall. 1/60s. f/8. ISO 800.

Photograph #13. DSC_3550. S from NW corner overall. 1/60s. f/8. ISO 800.

Photograph #14. DSC_3554. S from NW corner overall. 1/60s. f/5. ISO 800.



Photograph #15. DSC_3544. SE from NW corner overall. 1/60s. f/22. ISO 800.

Photograph #16. DSC_3543. E from NW corner overall. 1/60s. f/3.5. ISO 800.

Photograph #17. DSC_3527. Laser calibration. 1/40s. f/5. ISO 1600. +1.5 exposure.

Photograph #18. DSC_3585. Midrange of A, C, and D. 1/60s. f/3.5. ISO 800.

Photograph #19. DSC_3586. Midrange of A. 1/60s. f/3.5. ISO 800.

Photograph #20. DSC_3591. Closeup w/scale of A. 13/10s. f/8. ISO 100.Tripod.

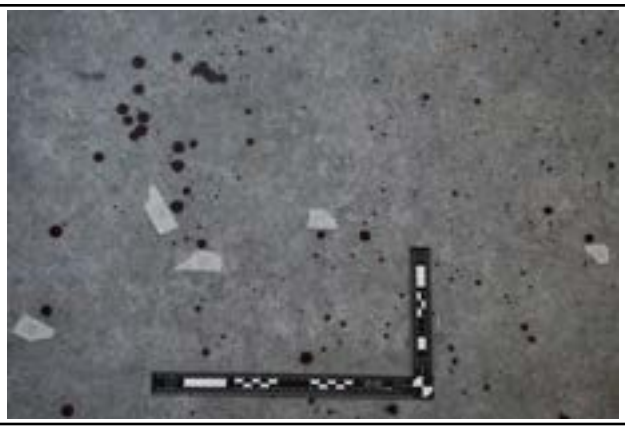
Photograph #21. DSC_3622. Closeup evidence A, unfolded, Side 1. 1/4s. f/8. ISO 100. Tripod.

Photograph #22. DSC_3623. Closeup evidence A, unfolded, Side 2. 1/4s. f/8. ISO 100. Tripod.

Photograph #23. DSC_3609. Shows droplets on window glass and pane. 1/30s. f/8. ISO 100. Tripod.

Photograph #24. DSC_3610. Shows pattern below window pane. 1/4s. f/8. ISO 100. Tripod.

Photograph #25. DSC_3598. Midrange of C and D. 1/15s. f/8. ISO 400. Tripod.



Photograph #26. DSC_3599. Closeup of evidence C. 1/4s. f/8. ISO 100. Tripod.

Photograph #27. DSC_3624. Midrange of evidence F. 1/100s. f/8. ISO 100. Tripod.

Photograph #28. DSC_3626. Closeup w/scale of evidence of evidence F. 1/100s. f/7.1. ISO 100. Tripod.

Photograph #29. DSC_3627. Midrange of G. 3/10s. f/8. ISO 100. Tripod.

Photograph #30. DSC_3631. Closeup of G w/scale. 1/4s. f/8. ISO 100. Tripod.

Photograph #31. DSC_3553. Bookshelf on W wall. 1/60s. f/4.5. ISO 800.

Photograph #32. DSC_3556. Door behind bookshelf on W wall. 1/60s. f/3.5. ISO 800.

Photograph #33. DSC_3557. Midrange of door on W wall. 1/60s. f/3.5. ISO 800.

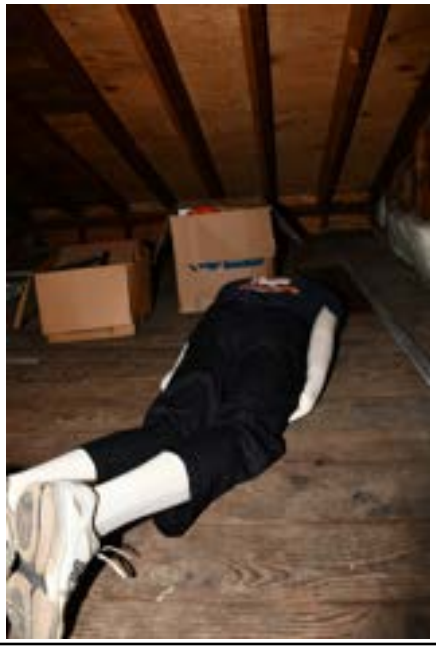
Photograph #34. DSC_3594. Midrange of B. 20s. f/8. ISO 100. Tripod.

Photograph #35. DSC_3596. Closeup of B. 1/60s. f/4. ISO 100. Flash Unit.

Photograph #36. DSC_3560. S from W door. 1/60s. f/7.1. ISO 800. Flash Unit.

Photograph #37. DSC_3561. SW from W door. 1/60s. f/7.1. ISO 800. Flash Unit.

Photograph #38. DSC_3569. NW from W door. 1/60s. f/7.1. ISO 800. Flash Unit.



Photograph #39. DSC_3568. N from W door. 1/60s. f/7.1. ISO 800. Flash Unit.

Photograph #40. DSC_3567. N from W door. 1/60s. f/7.1. ISO 800. Flash Unit.

Photograph #41. DSC_3551. Desk lining N wall. 1/60s. f/3.5. ISO 800.

Photograph #42. DSC_3552. Desk oriented North to South. 1/60s. f/3.5. ISO 800.

Photograph #43. DSC_3632. Shows notebook page. 1/60s. f/6.3. ISO 400.

Photograph #44. DSC_3614. Evidence E, ceiling, South. 1/15s. f/8. ISO 100. Tripod.

Photograph #45. DSC_3616. Evidence E, ceiling, segment 2. 1/15s. f/8. ISO 100. Tripod.

Photograph #46. DSC_3617. Evidence E, ceiling, segment 3. 1/10s. f/8. ISO 100. Tripod.

Photograph #47. DSC_3618. Evidence E, ceiling, segment. 1/15s. f/8. ISO 100. Tripod.

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— END OF PHOTO ALBUM —

PHOTOGRAPHY LOG FORM

SUPPLEMENT TO EVIDENCE REPORT

PHOTOGRAPHER: John Walker **ASSISTANT:** N/A

AGENCY: Hamline Forensic Science **INCIDENT #:** 23-00101

LOCATION: 900 Holton St. Saint Paul, MN **DATE/TIME:** 01-Jan-2023/0855

CAMERA: Nikon D7500 **STORAGE FORMAT:** **SD** CF FILM OTHER

Note: Photographer should sign and date after last item # is entered

PHOTO #	DESCRIPTION OF IMAGE	NOTES/CONDITIONS OF PHOTO (Filter, Lighting, Shooting Position, etc.)
DSC_3526	Laser calibration (underexposed)	1/60, f/5, ISO 1600
DSC_3527	Laser calibration	1/40, f/5, ISO 1600
DSC_3528	Entrance showing S wall (underexposed)	1/60, f/3.5, ISO 100
DSC_3529	Entrance showing S wall	1/60, f/3.5, ISO 400
DSC_3530	SE from entrance overall	1/60, f/3.5, ISO 400
DSC_3531	S from entrance overall	1/60, f/4.5, ISO 400
DSC_3532	S from entrance overall	1/60, f/4.5, ISO 400
DSC_3533	SW from entrance overall	1/60, f/3.5, ISO 400
DSC_3534	W from entrance overall	1/60, f/3.5, ISO 400
DSC_3535	W wall from E wall overall	1/60, f/3.5, ISO 400
DSC_3536	NW from E wall overall	1/60, f/3.5, ISO 400
DSC_3537	N from E wall overall	1/60, f/3.5, ISO 400
DSC_3538	NE from E wall overall	1/60, f/3.5, ISO 400
DSC_3539	E from SW corner overall	1/60, f/3.5, ISO 400
DSC_3540	NE from SW corner overall	1/60, f/3.5, ISO 400
DSC_3541	N from SW corner overall	1/60, f/8, ISO 400
DSC_3542	N from SW corner overall	1/60, f/9, ISO 400
DSC_3543	E from NW corner overall	1/60, f/3.5, ISO 400
DSC_3544	SE from NW corner overall	1/60, f/3.5, ISO 400
DSC_3545	S from NW corner overall (underexposed)	1/60, f/22, ISO 400
DSC_3546	S from NW corner overall (underexposed)	1/60, f/22, ISO 400

PHOTO #	DESCRIPTION OF IMAGE	NOTES: (ISO, F#, Exp, Lens, etc.)
DSC_3547	S from NW corner overall (underexposed)	1/60, f/16, ISO 400
DSC_3548	S from NW corner overall (underexposed)	1/60, f/16, ISO 800
DSC_3549	S from NW corner overall (underexposed)	1/60, f/11, ISO 400
DSC_3550	S from NW corner overall	1/60, f/8, ISO 400
DSC_3551	Desk on N wall	1/60, f/3.5, ISO 400
DSC_3552	Desk oriented N to S	1/60, f/3.5, ISO 400
DSC_3553	Bookshelf on W wall	1/60, f/4.5, ISO 400
DSC_3554	S from NW corner overall	1/60, f/5, ISO 400
DSC_3555	Door behind bookshelf on W wall	1/60, f/4, ISO 400
DSC_3556	Door behind bookshelf on W wall	1/60, f/3.5, ISO 400
DSC_3557	Midrange of door on W wall	1/60, f/3.5, ISO 400
DSC_3558	Closeup of door on W wall	1/60, f/3.5, ISO 400
DSC_3559	W from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3560	S from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3561	SW from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3562	Accidental exposure	1/60, f/7.1, ISO 400, Flash Unit
DSC_3563	Accidental exposure	1s, f/3.5, ISO 400
DSC_3564	NW from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3565	N from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3566	Accidental exposure	1/60, f/7.1, ISO 400, Flash Unit
DSC_3567	N from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3568	N from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3569	NW from W door	1/60, f/7.1, ISO 400, Flash Unit
DSC_3570	Ladder in crawl space	1/60, f/7.1, ISO 400, Flash Unit
DSC_3571	SW corner crawl space	1/60, f/7.1, ISO 400, Flash Unit
DSC_3572	E from W wall crawl space	1/60, f/7.1, ISO 400, Flash Unit
DSC_3573	SE from SW corner crawl space	1/60, f/7.1, ISO 400, Flash Unit
DSC_3574	S from NW corner crawl space	1/60, f/7.1, ISO 400, Flash Unit

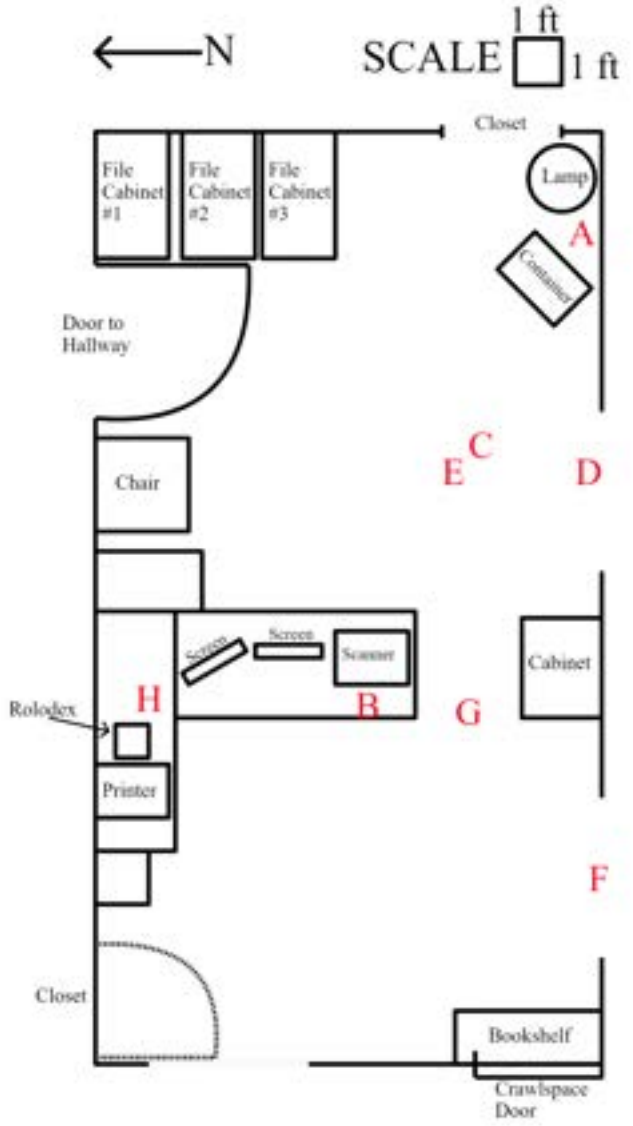
PHOTO #	DESCRIPTION OF IMAGE	NOTES: (ISO, F#, Exp, Lens, etc.)
DSC_3575	S from NW corner	1/60, f/7.1, ISO 400, Flash Unit
DSC_3576	NW corner	1/60, f/7.1, ISO 400, Flash Unit
DSC_3577	NE corner from NW corner	1/60, f/7.1, ISO 400, Flash Unit
DSC_3578	NE corner from NW corner	1/60, f/7.1, ISO 400, Flash Unit
DSC_3579	Accidental exposure	5s, f/3.5, ISO 400, Flash Unit
DSC_3580	Accidental exposure	5s, f/3.5, ISO 400, Flash Unit
DSC_3581	Upper body of victim	1/60, f/7.1, ISO 400, Flash Unit
DSC_3582	Upper body of victim	1/60, f/7.1, ISO 400, Flash Unit
DSC_3583	Victim, N to S	1/60, f/7.1, ISO 400, Flash Unit
DSC_3584	Lower body of victim	1/60, f/7.1, ISO 400, Flash Unit
DSC_3585	Midrange A, C, D	1/60, f/3.5, ISO 400
DSC_3586	Midrange A	1/60, f/3.5, ISO 400
DSC_3587	Closeup A	1/60, f/3.5, ISO 400
DSC_3588	Closeup w/ scale A (underexposed)	1/60, f/4, ISO 100, Tripod
DSC_3589	Closeup w/ scale A (overexposed)	2s, f/8, ISO 100, Tripod
DSC_3590	Closeup w/ scale A (blurry)	3/10, f/8, ISO 100, Tripod
DSC_3591	Closeup w/ scale A	3/10, f/8, ISO 100, Tripod
DSC_3592	Midrange B (underexposed)	1/20, f/8, ISO 100, Tripod
DSC_3593	Midrange B (glare)	5s, f/8, ISO 100, Tripod
DSC_3594	Midrange B	20s, f/8, ISO 100, Tripod
DSC_3595	Closeup B (flash low power)	1/60, f/4, ISO 100, Flash, Tripod
DSC_3596	Closeup B	1/60, f/4, ISO 100, Flash, Tripod
DSC_3597	Accidental exposure	1/15, f/8, ISO 400
DSC_3598	Midrange C, D	1/15, f/8, ISO 400
DSC_3599	Closeup C	1/4, f/8, ISO 100, Tripod
DSC_3600	Closeup C, segment 2	1/4, f/8, ISO 100, Tripod
DSC_3601	Closeup C, segment 3	1/4, f/8, ISO 100, Tripod
DSC_3602	Closeup C, segment 4	1/4, f/8, ISO 100, Tripod

PHOTO #	DESCRIPTION OF IMAGE	NOTES: (ISO, F#, Exp, Lens, etc.)
DSC_3603	Closeup C, segment 5	1/4, f/8, ISO 100, Tripod
DSC_3604	Closeup C, segment 6	1/4, f/8, ISO 100, Tripod
DSC_3605	Closeup C, segment 7	1/4, f/8, ISO 100, Tripod
DSC_3606	Midrange C, D	1/4, f/8, ISO 100, Tripod
DSC_3607	Closeup C (reference stains)	1/4, f/8, ISO 100, Tripod
DSC_3608	Midrange C, D (overexposed)	1/4, f/8, ISO 400
DSC_3609	Midrange C, D (underexposed)	1/30, f/8, ISO 100, Tripod
DSC_3610	Midrange C, D	1/4, f/8, ISO 100, Tripod
DSC_3611	Closeup D	1/4, f/8, ISO 100, Tripod
DSC_3612	Closeup D (reference stains)	1/5, f/8, ISO 100, Tripod
DSC_3613	Evidence E, ceiling S	1/15, f/8, ISO 100, Tripod
DSC_3614	Evidence E, ceiling S	1/15, f/8, ISO 100, Tripod
DSC_3615	Evidence E, ceiling, segment 2	1/13, f/8, ISO 100, Tripod
DSC_3616	Evidence E, ceiling, segment 2	1/10, f/8, ISO 100, Tripod
DSC_3617	Evidence E, ceiling, segment 3	1/10, f/8, ISO 100, Tripod
DSC_3618	Evidence E, ceiling, segment 4	1/10, f/8, ISO 100, Tripod
DSC_3619	Evidence E, ceiling S, (reference stains)	1/10, f/8, ISO 100, Tripod
DSC_3620	Evidence E, ceiling S, (reference stains)	1/15, f/8, ISO 100, Tripod
DSC_3621	Evidence E, ceiling, segment 3 (ref stains)	1/10, f/8, ISO 100, Tripod
DSC_3622	Closeup A, unfolded, side 1	1/4, f/8, ISO 100, Tripod
DSC_3623	Closeup A, unfolded, side 2	1/4, f/8, ISO 100, Tripod
DSC_3624	Midrange F	1/100, f/8, ISO 100, Tripod
DSC_3625	Closeup F	1/100, f/7.1, ISO 100, Tripod
DSC_3626	Closeup w/ scale F	1/100, f/7.1, ISO 100, Tripod
DSC_3627	Midrange G	3/10, f/8, ISO 100, Tripod
DSC_3628	Midrange G	3/10, f/8, ISO 100, Tripod
DSC_3620	Closeup G (overexposed)	1/2, f/8, ISO 100, Tripod
DSC_3630	Closeup G	1/4, f/8, ISO 100, Tripod

PHOTO #	DESCRIPTION OF IMAGE	NOTES: (ISO, F#, Exp, Lens, etc.)
DSC_3630	Closeup G w/ scale	1/4, f/8, ISO 100, Tripod
DSC_3604	Notebook page	1/60, f/6.3, ISO 100, Tripod
END PHOTO LOG	John Walker Johnnie Walker	01/01/2023

Final Sketch of Office (Bird's Eye View)

Sketches made while on scene are retained and archived by Hamline Forensic Science.

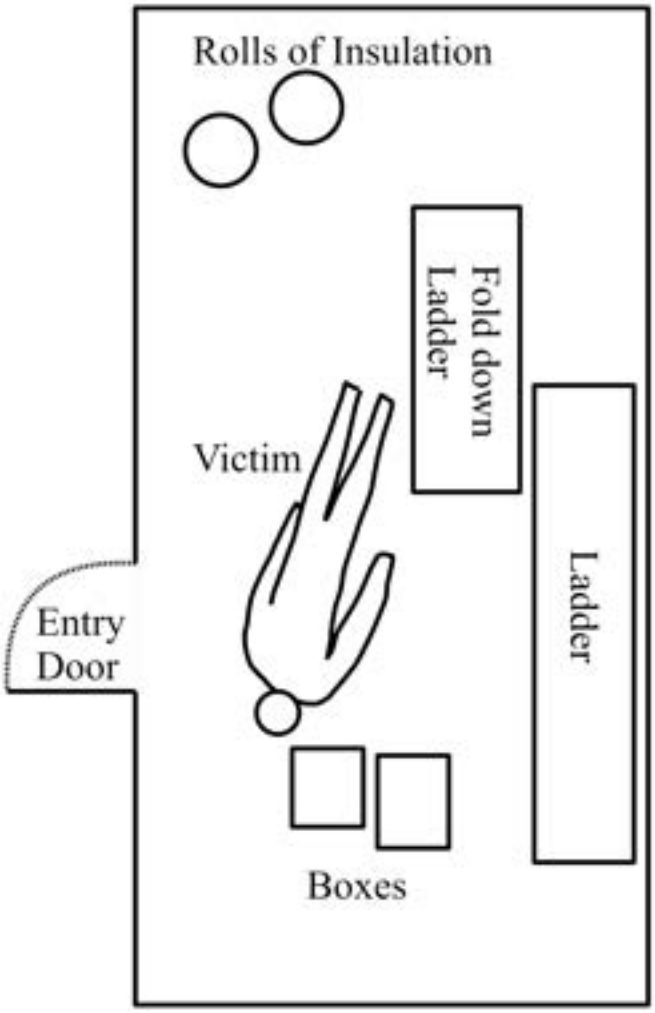


CASE ID#:21-00101
Location: 900 Holton St.
Saint Paul, MN 55104
Scene Portrayed: Office
Date: 01-Jan-2023
Victim: Brandy Hennessy
Sketched by: James BEAM

Legend
A: Paper towel with blood-like stains
B: Crumpled paper, insignificant
C: Bloodstain pattern on floor in front of SE window
D: Bloodstain pattern on floor below SE window
E: Bloodstain pattern on ceiling above SE window
F: Bloodstain pattern on/below SW window/sill
G: Bloodstain smear/drag mark near desk and SW window

Final Sketch of Crawl Space Adjacent to Office (Bird's Eye View)

Sketches made while on scene are retained and archived by Hamline Forensic Science.



SCALE 1ft □ 1ft

N ↓

CASE ID#:21-00101
Location: 900 Holton St.
Saint Paul, MN 55104
Scene Portrayed: Crawl Space
Date: 01-Jan-2023
Victim: Brandy Hennessy
Sketched by: James BEAM

Hamline University Forensic Science Program
1536 Hewitt Ave.
Saint Paul, MN 55104-1284

INCIDENT #: 23-00101

Agency Case No.: **23-00101**
Sex Crime Kit Tracking No.: N/A
Evidence No. (HU Det Use): _____

Submitting Agency: Hamline Forensic Science Date: 01-Jan-2023

Mailing Address: 1536 Hewitt Ave City: Saint Paul ZIP: 55104

Investigator: Jamie Spaulding Title: Senior CSI

Email: jspaulding02@hamline.edu Phone #1: 651-523-2237 Phone #2: _____

Criminal Offense: Homicide

Incident Date: 01-Jan-2023 Time: 0821 hours County of Offense: Ramsey

Brief Description of Crime: Victim assaulted with weapon in her home office and dragged into crawl space adjacent to the office.

List Items Submitted:	List Sections(s) and Examinations Requested:
1. A – Paper towel with blood-like stains	Biology/DNA
2. H – Friction Ridge Lift from Bookshelf	Latent Prints
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

1) Victim: Brandy Hennessy Race: W DOB: 02/21/1998 SSN: 123 - 45 - 6789

2) Victim: _____ Race: _____ DOB: _____ SSN: _____ - ____ - _____

1) Suspect: Evan Williams DOB: 10/04/2003 SSN: 987 - 65 - 4321

SID No: _____ FBI No.: _____ Race: W Sex: M Height: 6 ft. 3 in. Wt.: 265 lbs.

2) Suspect: _____ DOB: _____ SSN: _____ - ____ - _____

SID No: _____ FBI No.: _____ Race: _____ Sex: _____ Height: ____ft. ____in. Wt.: ____lbs.

FOR LABORATORY PERSONNEL USE ONLY - DO NOT WRITE IN THIS BOX

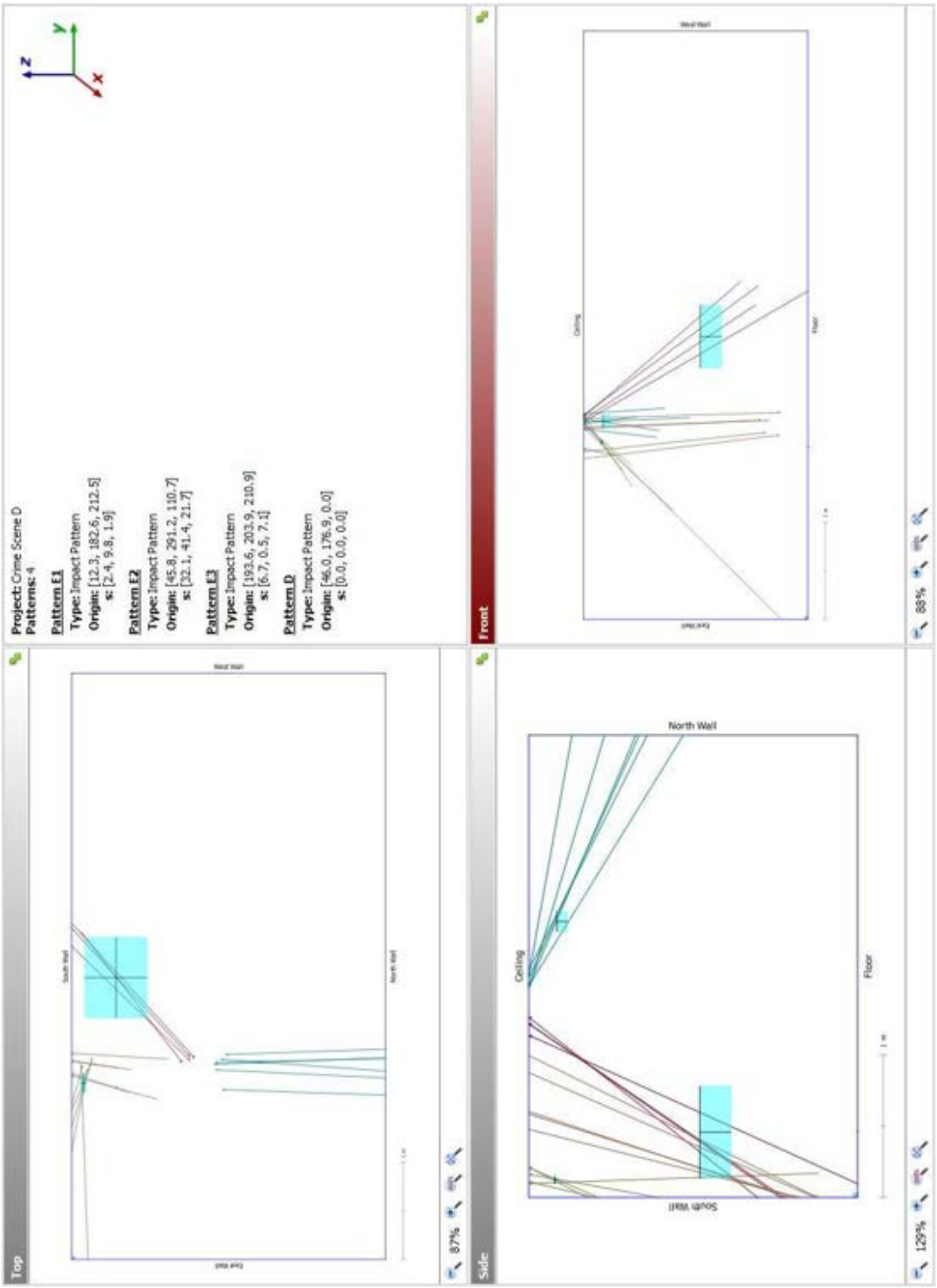
Received via: ☐ Evidence Locker ☐ U.S. Mail ☐ Certified Mail _____
☐ Other _____

Date: ____/____/____

Laboratory Case No.: _____ Request No.: _____

Two copies: Submit with evidence
One copy: Retained by submitting officer

Bloodstain Pattern Analysis Results – Hemospat



Incident Reconstruction

Based on the observations of the scene and the evidence therein, a suspect entered the upstairs office of 900 Holton St. at an unknown time and date. *Evidence A* appeared to have a pattern transfer in the form of a knife or similar shaped object impression. This in combination with the incised wounds to the chest of the victim indicate that the victim was possibly stabbed. It is hypothesized that the victim was standing near the southeast window when she was attacked with a knife. The cast-off patterns on the ceiling (*Evidence E*) indicate the victim was stabbed at least twice - *Evidence E1* appeared to be going south and *Evidence E2* and *E3* patterns appeared to be going northward, with *E2* at a much more acute angle than *E3*. At this point, the victim collapsed and the suspect dragged the victim towards the west wall (*Evidence G*). The smear appeared to be directional and a skeletonized stain swipe on the southern end of the smear was going towards the west wall. The victim likely attempted to get help or attract attention, indicated by the reddish-brown handprint on the southwest window (*Evidence F*). The suspect moved the bookshelf and placed the victim's body into the crawl space on the other side of the west wall before placing the bookshelf back into place to cover up the hidden crawl space entrance.