



**NEW SOUTH WALES POLICE  
FORENSIC SERVICES GROUP  
CRIME SCENE PROCEDURES MANUAL - GENERAL**

Title: Section 7.0 Collection of Specimens / Items

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## 7.0 COLLECTION OF SPECIMENS/ITEMS

### 7.1 PROCEDURES

#### 7.1.1 Biological Specimens/Items

- “Biological evidence” refers to tissue or fluid of a biological origin (eg blood, semen, saliva).
- When handling, sampling, or collecting any potential biological material, take appropriate occupational health and safety precautions.

Refer to **FSG OH&S MANUAL, Biological Hazards and Crime Scene Procedures Manual - General, Section 4 Contamination Prevention**

- Before collecting or swabbing any biological trace evidence, consider whether such an action may contaminate or destroy other evidence (eg fingerprints or bloodstain patterns).
- Collect target stains only when the item itself cannot be collected and taken to the laboratory.
- Give priority to excising target stains from the substrate, rather than to swabbing.
- Swab only where excising is not possible (eg from skin).

#### 7.1.2 Collecting Samples from Suspects

- When collecting a sample from a suspect, (buccal swab, hair sample, blood sample, gunshot residue, nail clippings, or trace evidence from the suspect’s body) take care to follow procedures.

Refer to **NSW Police Intranet – Crimes (Forensic Procedures) Act 2000, Carrying Out Forensic Procedures. Forensic Procedures Implementation Team**

- If you need to collect a suspect’s clothing, items, or footwear for further examination, where possible, place a piece of clean paper (eg rolled brown paper) on the floor, and ask the suspect to stand on the paper while removing the clothing, items or footwear.
- Check the piece of paper for any trace evidence which may have fallen from the suspect before disposing of the paper in a contaminated waste container.

#### 7.1.3 Collecting Samples from Victims or Volunteers

- Before seeking their consent to a forensic procedure, you must explain to volunteers:

- a. the nature and purpose of the procedure
- b. how the information obtained from the procedure will be used.

Refer to NSW Police Intranet – Crimes (Forensic Procedures) Act 2000, Carrying Out Forensic Procedures, Part 8. Forensic Procedures Implementation Team

- If you need to collect a victim's clothing, items, or footwear for further examination, where possible, place a piece of clean paper (eg rolled brown paper) on the floor, and ask the victim to stand on the paper while removing the clothing, items or footwear.
- Check the piece of paper for any trace evidence that may have fallen from the victim before disposing of the paper in a contaminated waste container.

#### 7.1.4 Physical Evidence (excluding fingerprints)

- To prevent damage to/contamination of the sample, use systematic collection/sampling techniques.
- Follow a collection sequence which maximises the potential evidence collected while providing the highest level of protection to that evidence.
- Where necessary, liaise with fingerprints specialists, forensic biologists, pathologists, analysts etc, to determine a collection sequence that will ensure maximum evidentiary value is obtained from the material available for collection.

#### 7.1.5 Control Samples

Definition: A "control or reference" sample is material of similar composition to a suspect sample collected from a scene or item. The control sample is collected to allow the examiner/analyst to separate the original material from the introduced substance(s) resulting from the crime/incident.

- Collect control or reference samples whenever you collect a sample (biological or non biological) for analysis/examination.
- For comparison purposes, ensure material collected as a control is an adequate and representative sample in volume and number. This may necessitate collecting multiple control samples.

#### 7.1.6 Collection Sequencing

- The sequence of collection techniques varies depending upon the type of examination required and the particular item being examined.
- When determining the manner and sequence in which material is to be collected from a scene or object, consider the following:
  - a. the presence of fingerprints
  - b. blood, semen and other biological stains
  - c. appropriate collection technique
  - d. possible effects on other trace material, tool marks, latent shoe marks, or

glove marks.

#### 7.1.7 Fire Debris

- Package samples collected from a suspicious fire scene immediately and seal them in an approved bag or container (ie cryovac arson bag or arson tin).

Refer to [Crime Scene Procedures Manual - General, Section 8 Evidence Management](#)

- At the first opportunity, forward specimen samples collected from suspicious fire scenes to the Physical Evidence Section, Division of Analytical Laboratories.
- Collect samples of burnt and/or partially burnt materials from the suspected area of origin and other relevant damaged or undamaged areas.

#### 7.1.8 Paint Samples

- Do not remove a scraped paint sample if the paint sample is on an item which can be collected (eg a tool). Protect areas of interest and package appropriately.

Refer to [Crime Scene Procedures Manual - General, Section 8 Evidence Management](#)

- Avoid damaging any tool mark impressions that may relate to the incident/inquiry by taking a paint sample from the area immediately adjacent to the impressed area.
- Place samples in a suitably labelled plastic container and seal according to methods outlined.

Refer to [Crime Scene Procedures Manual - General, Section 8. Evidence Management](#)

#### 7.1.9 Gunshot Residues

Ensure a control sample is collected.

Refer to [Gunshot Residue Sampling Procedures Gunshot Residue Sampling Procedures](#)

#### 7.1.10 Glass

- Carefully collect and place samples in a suitably labelled plastic container and seal according to methods outlined.

Refer to [Crime Scene Procedures Manual - General, Section 8 Evidence Management](#)

- Collect control samples of broken glass from the scene. Samples should be at least 1cm square and should have the thickness of the original unbroken material.
- If glass is stained, painted or has variable thicknesses, collect all available glass for reference.
- Where the possibility of physical matching exists, as with the matching of glass on a roadway with glass remaining in the frame of a suspect vehicle's headlight, collect all available glass.

- Send samples to the Physical Evidence Laboratory, Division of Analytical Laboratories.

#### 7.1.11 Vehicular Globes

- Take extreme care not to disturb the filament. Ensure photographs, including a close up of the filament are taken prior to its removal from the vehicle.
- Remove the entire globe from the vehicle.
- Place the globe in a suitably labelled container padded with paper towelling or plastic bubble wrap. Seal according to methods outlined.

#### [Crime Scene Procedures Manual - General, Section 8 Evidence Management](#)

- Send the packaged globe to Physical Evidence Laboratory, Division of Analytical Laboratories.

#### 7.1.12 Metal

- Note the condition and surroundings of the article.
- Protect against moisture and chemicals, especially acids and other corrosive substances.
- If wet by water, item should be air dried as soon as possible.
- If wet by aggressive or corrosive chemicals or substances, collect a swab from the surface, then wash and dry it as soon as possible.
- Attached foreign matter should not be disturbed or removed.
- If a piece of metal is fractured:
  - a. recovers all pieces, using tweezers for small pieces, as fingers can destroy evidence
  - b. keep pieces separate and carefully protect them from abrasions or damage
  - c. wrap items in protective material (eg plastic bubble wrap or cloth). Carefully place items in suitably labelled packaging and seal according to methods outlined.

[Refer to Crime Scene Procedures - General, Section 8 Evidence Management](#)

#### 7.1.13 Tool Mark Impressions

- Prior to casting, a suitably qualified Forensic Investigator must assess impressions caused by tools or implements for quality and detail.
- Use a Kerr brand dental extrusion gun, or Microsil brand dental impression material to cast tool or implement impressions.

#### 7.1.14 Suspected Bite Marks

- Consider swabbing the bite mark or partial bite mark before undertaking any further examination or collection of impressions.

- Where a bite mark or partial bite mark is impressed into the surface of an immovable object, take a cast of the impression using either Kerr brand dental extrude material or Microsil brand impression material.
- If the object is portable, collect, package and label it.

Refer to [Crime Scene Procedures Manual - General](#), Section 8 [Evidence Management](#)

- If there is a bite mark or partial bite mark on the skin of a person living or deceased, arrange for a suitably qualified medical practitioner or forensic pathologist/odontologist to examine the area.
- If there is a bite mark or partial bite mark on the skin of a person who is a suspect, follow the procedure.

Refer to [NSW Police Intranet – Crimes \(Forensic Procedures\) Act 2000, Carrying Out Forensic Procedures](#). [Forensic Procedures Implementation Team](#)

- If there is a bite mark or partial bite mark on the skin of a person who is a victim, follow the procedure noted above.

See [7.1.3 Collection of Samples from Victims or Volunteers](#).

- Whether a bite mark or partial bite mark is on a person who is living or deceased, immobilise the impressed area in its normal anatomical position before casting using either Kerr brand dental extrude material or Microsil brand impression material.
- When required to cast a bite mark on a person, do not stretch or flatten the skin to facilitate better elevation, contrast or position.

## 7.1.15 Entomology – Collection of Maggots

### 7.1.15.1 Collection And Treatment Of Entomological Specimens Of Forensic Importance

The collection of entomological evidence at the scene of a crime is best done by a Forensic Entomologist. The following S.O.P.S. apply to the collection and treatment of all entomological evidence, not that just associated with corpses. Law enforcement authorities should ensure that it is adhered to as far as possible on occasions when it is not feasible for a Forensic Entomologist to do the work.

### 7.1.15.2 General Procedures

Relevant 'Deceased Persons' and 'Entomology' forms obtained from the Police Intranet should be utilised.

Collect detailed written and photographic evidence, recording:

- the geographical location;
- the habitat or environment;
- the nature of any medium on which specimens are found e.g. a dead body;
- the appearance of this medium e.g. in the case of a body, presence of physical damage, presence and extent of clothing, extent of decomposition;
- the nature and position of insects on the medium;
- the nature and position of insects surrounding the medium.

Collect representative samples of all the insect life history stages (eggs, larvae, pupae and puparia and adults) that can be found.

Kill and preserve eggs in 80% ethanol, along with any immature stages of insects other than the larvae of flies.

Samples of fly larvae should be killed immediately, preferably in boiling water or near-boiling water (~70°C+). Other killing agents cause larvae to shrink, making the accurate estimation of their age difficult. If boiling water cannot be obtained, kill the larvae in 80% ethanol. Record the procedure that has been used.

Preserve larvae in acetic alcohol (3 parts 90% ethanol : 1 part glacial acetic acid). If glacial acetic acid is unavailable, larvae may be stored in 80% ethanol, but this will cause the internal tissues to turn black which is undesirable.

Take a representative sample of larvae (at least several dozen where possible) and keep them alive and moist in a well-aerated container. Deliver these to the Forensic Entomologist as soon as possible. If there is any delay keep the larvae cool by placing their container on ice or in a refrigerator. Ensure that predaceous larvae of *Chrysomya rufifacies* (hairy maggots) are separated from the larvae of other species (smooth maggots), otherwise they may kill them and destroy potentially important evidence.

Kill and preserve representative samples of all adult insects other than moths in 80% ethanol. Place moths alive in a vial stoppered with tissue or cotton wool to prevent their movement. Collect flying adult insects with a net.

Place all specimens in containers that are clearly labeled with the time, date, geographical location, part of the medium or its surroundings from which the specimens came, and with the name of the collector.

#### 7.1.15.3 Additional Procedures at the Scene of Discovery of a Dead Body

Record the following temperatures using a thermometer shielded from direct sunlight:

- temperature of the air around the body, measured at several levels from the ground up;
- temperature at the surface of the body;
- temperature at the interface between the body and the ground;
- temperature at the centre of any aggregations of fly larvae in or adjacent to the body;
- temperature of the soil at several levels from the surface down, measured at a distance several metres from the body and, once the body has been removed, at a point corresponding to where it lay.

When the body is partly covered by soil or vegetation record also

- the temperature at several points in the soil or vegetation surrounding the body into which larvae may have moved to pupate.

If the body is indoors, or inside a motor vehicle, record the air temperature both inside and outside this structure.

Also record the relative degree and period of exposure of the body to direct sunshine and shade and, if possible, the relative humidity. Note the time at which all measurements are made.

Obtain detailed climatic data from the nearest meteorological station from the location of

the body. Collect parallel data, if possible, from both this and the scene of death for several days after the discovery of the body.

#### 7.1.15.4 Collection of Specimens on the Body

Look for fly egg masses in shaded interstices, such as between the torso and limbs, in the skin creases of the neck, at the hair line and between skin and clothing. They may occur around body openings and wounds.

Fly larvae will most likely be found in the nasal openings, ears, mouth and eyes, and a site of any traumatic injury. If the body is unclothed, the anal and genital areas may also be infested. Aim at collecting a sample of several hundred larva, ensuring that it is as representative as possible of the total population. In particular, collect in separate containers from any aggregations for which the temperature was recorded.

It is important to collect larvae of all sizes, not just the largest.

#### 7.1.15.5 Collection of Specimens in Close Vicinity to the Body

Search the area within a radius of at least six metres from the body for 'wandering' larvae and puparia. If the body is indoors, examine the perimeter of the room containing the corpse and any adjacent rooms. Larvae shy away from light. Search dark recesses, such as folds in sheets and the pile of carpets. If outdoors, examine soil and vegetation carefully.

If the fly puparia contain pupae, place a sample in a well-aerated container, while others should be placed directly in 80% ethanol. If puparia do not contain pupae, they should be placed into 80% ethanol. Be sure to collect the operculum (lid) of the pupal case.

#### 7.1.15.6 Collection of Specimens Beneath the Body in and Around the Surrounding Ground

Collect 100 cc samples of the soil and vegetation from the area directly beneath the body, as well as from one metre away for comparison. Place these samples in plastic bags or containers. Do not preserve them in liquid. Keep the samples cool if there is any delay delivering them to the Entomologist.

#### 7.1.15.7 Collection of Specimens from Buried and Immersed Remains

Insect evidence associated with buried remains is best collected in conjunction with a physical anthropologist. Many specimens may be in the soil surrounding the body.

Preserve specimens of aquatic fauna from immersed remains in 80% ethanol, and also keep some alive in water-filled containers. Insects (other than arthropods) take time to drown after immersion in water. The presence of dead specimens on a corpse can therefore help to estimate the period of immersion.

#### Additional Procedures at the Time of Post Mortem

Insect evidence will need to be collected at the post mortem. Attention should be paid to the following points:

- thoroughly examine the body bag for insects;
- record the period and temperature of refrigeration if the body was placed in a mortuary cooler prior to post mortem;
- note the temperatures of larval aggregations in the body;
- search for very small insects (fleas, lice and mites).
- Enquire whether any drugs are to be tested for.

#### 7.1.15.8 Delivery of Specimens to Forensic Entomologist

All specimens must be delivered to the Forensic Entomologist as soon as possible accompanied with both the 'Entomology' form and digital images of the deceased and surrounding area. If any delay must occur the specimens must be kept cool.

1. Hand deliver specimens in their respective containers/packaging to the Forensic Entomologist.
2. TNT Courier specimens in the prescribed post pack containers.

NB: Complete the Specimen/Exhibit Examination Form (P377)

#### 7.1.15.9 ENTOMOLOGIST KIT CONTENTS

##### KIT:

- Plastic storage container (approx 52 litre)

##### COLLECTION TOOLS:

- Tweezers – disposable x 10
- Tongue Depressors x 10
- Trowel – plastic
- Artist brush – disposable x 2
- Net – collapsible x 1

##### STORAGE CONTAINERS

- 100ml plastic specimen jars (dead specimens) x 10
- 1 litre plastic specimen jars (live specimens) x 5
- Schott bottle 100ml (to store ethanol) x 5
- Plastic pre-seal bags (large) x 10
- Paper exhibit bags No.12 x 10

##### GENERAL TOOLS:

- Gauze (organza) 20cm squares x 5
- Thermometer x 1
- Gloves x 20 pairs
- Elastic bands x 10
- Ethanol (80%) x 500ml

##### LABELS:

- Large – (1 litre containers) x 2 sheets/12 labels
- Small – (100ml containers) x 1 sheets/16 labels

##### LITERATURE:

- Instruction checklist/pictures
- S.O.P.S.
- Entomology Job sheet



- Contents form

#### 7.1.15.10 Summarised Procedures for Collection of Forensic Entomological Evidence

1. CONTACT Forensic Entomologist for initial advice.
2. RECORD death scene, especially nature and extent of insect infestation.
3. RECORD temperatures of maggots, corpse, and surrounding air and soil.
4. COLLECT all kinds and sizes of insects on and beneath corpse. Kill most in ethanol; keep sample of fly larvae and pupae alive.
5. LOOK for fly pupae and pupal cases around and beneath corpse. Collect soil and leaf litter samples to ensure no specimens are missed.
6. COLLECT additional insects and temperature measurements at a post mortem.
7. DELIVER insect specimens, digital images and 'Entomology' form to Forensic Entomologist ASAP. Keep live specimens fed and aerated.
8. OBTAIN weather data for crime scene between last sighting of deceased and several days after collection of insect evidence.

Refer to for Jobsheet 8 online Entomology and Entomology Exam & Labels

#### 7.1.16 Marine Biology

It can be very difficult to determine the age of human remains or other items after long periods of immersion. Marine biologists may assist by examining biological specimens, crustaceans in particular, which are clinging to the body or item.

- Photograph body showing the distribution of the creatures.
- Collect a representative sample of specimens from the body as soon as possible, and before refrigerating the body.
- Where possible, collect a sample of the specimens in a sample of the water from where body was located.
- Preserve the sample in 80% ethanol.
- Convey specimens as soon as possible to the relevant laboratory.

Refer to Crime Faculty.

#### 7.1.17 Botanical Specimens

##### Leafy Plant Material

- a. place leafy plant material, either dry or fresh, in paper bags labelled and sealed in accordance with Evidence Management procedures
- b. preserve very fleshy or delicate structures, including small algae and orchid flowers, in an airtight glass or plastic jar with a liquid preservative (80% ethanol). Do not dry them
- c. send the specimens promptly to Botanical Services, Royal Botanical Gardens, Sydney.

### Plant Poisoning

- a. collect all samples in paper bags
- b. collect a combined sample of the grass or plants and soil in the affected area (approximately 200g of the surface soil)
- c. collect a control sample of grass or plants and soil from the affected area (control sample should be the same size as the suspect sample)
- d. to avoid fungal activity and herbicide decomposition send the samples promptly to the Division of Analytical Laboratories.

### Roots

- a. collect two to three pieces of root material about 75mm long and at least 3mm in diameter
- b. clean samples thoroughly. If from sewerage pipes, roots should be soaked in disinfectant for approximately 1 hour
- c. place samples in plastic bubble wrap to prevent damage
- d. pack in a plastic bag within a suitably labelled paper bag and seal in accordance with Evidence Management procedures
- e. prevent roots drying out
- f. keep refrigerated
- g. forward to suitable laboratory. **Refer to Expert List.**

### Seeds

- a. to avoid seeds splitting or being damaged, place them in a small plastic or paper bag within a labelled plastic container. Place the container in a suitably labelled paper bag and seal it in accordance with Evidence Management procedures.
- c. if you suspect that seeds are cannabis, submit them to the Seeds Laboratory, NSW Department of Agriculture.
- d. if you do not suspect them of being cannabis, send seeds to Botanical Services, Royal Botanical Gardens, Sydney for analysis.

### Wood

- a. place timber or sawdust samples in a plastic bag or specimen container within a suitably labelled paper bag sealed in accordance with Evidence Management procedures
- b. dry specimens before packing them into plastic containers. Air dry specimens taken from wounds
- c. send samples to the laboratory which conducts timber examinations. **Refer to Crime Faculty.**

## Soil

- Record the location and depth of the soil sample and the basic geology surrounding it (eg sandstone, sandy soil, vegetation).
- Unless you are sure the sample is representative of the soil material, collect a range of samples. Soils can vary greatly over vertical and horizontal distances.
- Collect samples with clean tools.

Refer to [Crime Scene Procedures Manual - General, Section 4 Contamination Prevention](#)

- Do not mix different soil materials.
- Place samples in clean labelled containers within a suitably labelled paper bag and seal in accordance with Evidence Management procedures.
- Collect control samples.
- To avoid changes in chemical composition, air dry samples as soon as possible.
  - a. if practical, lay samples on a plastic sheet during collection
  - b. do not store wet samples in sealed containers for lengthy periods.
- Store soil samples in plastic or cloth bags. Do not use metal containers (eg arson tins) unless unavoidable, as these may affect some chemical properties.
- Minimise handling of samples.
- Send samples to the laboratory that conducts soil examinations.

Refer to [Crime Faculty](#).

### 7.1.19 Animal Baits and Poisons

- Animal poisons are toxic to humans. When handling, sampling, or collecting any potential hazardous material, take appropriate Occupational Health & Safety precautions.  
[Refer to Occupational Health & Safety Manual, Chapter 5 - Policies](#)
- For suspected poisoned baits of meat, vegetable, powder, etc:
  - a. collect the whole sample in a suitable plastic or glass container
  - b. refrigerate
  - c. send to Division of Analytical Laboratories as soon as possible.
- When valuable animals have been poisoned:
  - a. contact a veterinary surgeon who may remove the stomach and liver for analysis

- b. pack samples in a post mortem kit
  - c. refrigerate
  - d. send to the Division of Analytical Laboratories as soon as possible.
- In less serious cases, you may decline police involvement and give any specimens to the owner for testing by a commercial analyst at the owner's expense.

#### 7.1.20 Handpicking

- When examining crime scenes, garments, bodies or other articles, first search for any gross/macroscopic material which can be removed by hand with the aid of tweezers.
- Wear gloves when collecting material by hand.
- To help you to find foreign particles on an object, use a light source such as a Pollilight or a strong torch.
- To reduce the likelihood of damaging items, use plastic tweezers to collect evidence.
- Collect macroscopic material (eg hairs, large paint and glass fragments, pieces of vegetation, wool) before applying a general collection technique such as tape lifting, sweeping or vacuuming.
- Trace evidence materials (eg. Hairs) should be scraped into a clean folded paper envelope before placement into the labelled specimen jar. (these materials are very difficult to remove from plastic containers as they cling firmly to sides)

#### 7.1.21 Swabbing

Swabbing is an effective technique for collecting moist or dried biological and chemical stains.

- Keep a swab collection kit in the forensic investigation vehicle and another in the examination areas of each facility.
- Use a fresh sterile swab stick to collect each swab.
- When examining a motor vehicle for traces of biological evidence for DNA analysis, target the following areas:
  - a. steering wheel (mainly the outer edges where the hands are more likely to grip)
  - b. gearshift lever, or transmission selector (top surface)
  - c. seat belts (outer edge and under surface where the fabric rubs against the neck).
- As soon as possible, air dry all swabs collected in a secure location.

### 7.1.22 **Tape Lifting**

Tape lifting is a reliable method of collecting trace material from a variety of surfaces, particularly garments. Collecting material in this way makes it easier to compare trace material and examine trace evidence using a microscope.

- Apply a strip of adhesive tape no more than 7.5cm long to the surface of an object in repeated lifts by applying, removing and reapplying the tape to the surface.
- Stick the tape on a clean sheet of clear, overhead transparency film labelled with appropriate case identifiers.

### 7.1.23 **Sweeping**

This collection technique is useful for examining a variety of areas including small inaccessible areas or those where there is a mass of material (eg the floors or boots of motor vehicles).

- Use a brush with a head about 25 mm wide and, where possible, a non-painted handle.
- Ensure the brush is clean. Use a fresh brush whenever contamination or cross transfer may occur (eg when examining a scene and then the defendant's/victim's vehicle).

### 7.1.24 **Scraping**

This technique may be used to collect dried non biological material.

7.1.24.1 Use a metal or plastic implement (eg a scalpel).

7.1.24.3 Where possible, use a new disposable scalpel. If not, clean the implement before using it.

### 7.1.25 **Vacuuming**

Collecting microscopic material from garments, motor vehicles and other objects by vacuuming is another way of collecting trace material. It is important to note that this technique can be inefficient, as the vacuum collects background/foreign matter, which may obscure the evidence.

- The vacuum cleaner must have a specialised, custom made stainless steel or plastic nozzle containing an evidence collection chamber.
- Material is collected by suction through clean filter paper, or a piece of cotton material, which rests on a perforated plate located in a central evidence collection chamber.

### 7.1.26 **Casting**

- Obtain casts of 3D impressions where impression evidence is present and may provide identifiable evidence.
- Casts should be constructed of either:

- a. Freshly prepared dental stone
- b. Kerr brand dental extrusion material
- c. Microsil brand casting medium
- d. Pedilen casting foam.

## 7.2 METHODS

### 7.2.1 Swabbing

Method A: Individual Sterile Swab Stick – applies to swabbing of visible stains

- a. remove a sterile swab stick from the crime scene kit
- b. complete a field specimen/item label including:
  - i. time
  - ii. date
  - iii. incident location
  - iv. incident type
  - v. specimen collection location
  - vi. collection officer's name, rank and station
- c. put on a pair of disposable gloves, mask and eye protection (personal prescription glasses are suitable)
- d. using a pair of clean scissors, cut approximately 0.5cm from the end of the tube or cut a 'V' into the end of the tube, allowing air to circulate so the swab can dry without being exposed
- e. when necessary, place 1-2 drops of sterile water from a disposable vial on the end of the swab stick
- f. roll the swab stick firmly over the stain or target area
- g. if possible, concentrate the stain in one area of the swab
- h. place the swab stick back in the tube
- i. package and seal the swab appropriately.

Method B: Individual Sterile Swab Sticks – applies to swabbing surfaces for epithelial DNA

- a. remove two sterile swab sticks from the crime scene kit
- b. complete a field specimen/item label for the first swab stick as for 7.2.1.1 b.
- c. using a pair of clean scissors, cut approximately 0.5cm from the end of the tube or cut a 'V' into the end of the tube, allowing air to circulate so the swab

- can dry without being exposed
- d. put on a pair of disposable gloves, mask and eye protection (personal prescription glasses suitable)
  - e. place 1-2 drops of sterile water from a disposable vial on the end of the swab stick
  - f. roll the wet swab stick firmly over the stain or target area
  - g. if possible, concentrate the stain in one area of the swab
  - h. place the first swab stick back in the tube
  - i. label the second swab stick as for 7.2.1.1 b.
  - j. using a pair of clean scissors, cut approximately 0.5cm from the end of the tube or cut a 'V' into the end of the tube, allowing air to circulate so the swab can dry without being exposed
  - k. do not wet the end of the swab stick
  - l. roll the second swab stick firmly over the target area
  - m. if possible, concentrate the stain in one area of the swab
  - n. place the second swab stick back in the tube
- (advise from biologists at DAL recommends repeat swabbing technique which has shown to increase DNA recovery rates)
- o. again remove the wet swab stick from the tube and repeat steps f. g. & h.
  - p. again remove the dry swab stick from the tube and repeat steps l. m. n. & o.
  - q. as they have come from the same target area, package them together and seal them before sending them to the appropriate laboratory.
  - r. if item or location changes, put on a fresh pair of disposable gloves

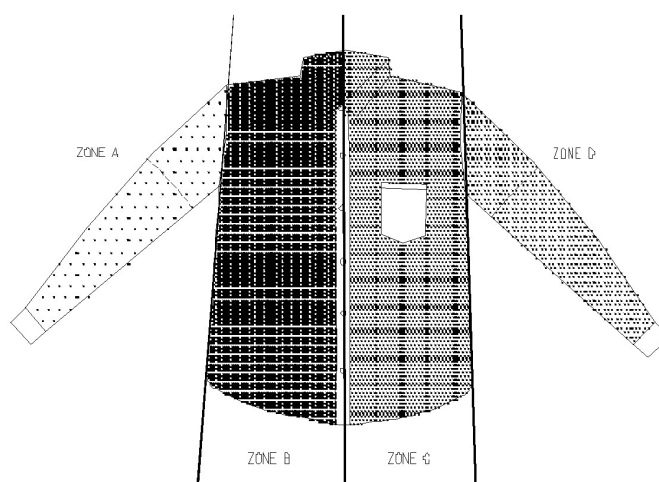
Refer to [Crime Faculty and Crime Scene Procedures Manual - General](#), Chapter 8 Evidence Management

### 7.2.2 Tape Lifting

- Take a piece of transparent adhesive tape no more than 7.5cm long.
- Apply the piece of tape to the surface of the objects in repeated lifts by applying, removing and reapplying the tape to the surface.
- Stick the tape on a clean sheet of clear, overhead transparency film labelled with appropriate case identifiers.

- Avoid collecting too much material on one piece of tape.
- When using adhesive tape from a dispenser, to prevent contamination discard the first 5cm.
- Examine garments and other objects in segments (eg the front and back of a cardigan/shirt, see Figure 1). Use the piece of tape only while its adhesive qualities remain.

Figure 1



### 7.2.3 Scraping (non biological material only)

- Remove a suitably sized sterile plastic container from the crime scene vehicle or crime kit.
- Complete a field specimen/item label including:
  - i. time
  - ii. date
  - iii. incident location
  - iv. incident type
  - v. specimen collection location
  - vi. collection officer's name, rank and station
- Put on latex gloves, mask and plastic eye protection (personal prescription glasses are suitable).
- Remove and unwrap a new disposable scalpel, or affix a new scalpel blade to the scalpel handle.
- Holding the plastic container below or adjacent to the collection area, use the



scalpel blade to scrape the target specimen from the surface and into the container. Alternatively, excise a section of the substrate (eg timber window frame) and place it in the container.

- As soon as you have collected a sufficient sample, close the plastic container and affix an exhibit security seal.
- Remove and discard the scalpel or blade in an approved sharps container.
- When removing a paint sample by scraping, ensure all paint layers are removed, exposing the substrate.
- If loose flakes of paint are visible around the collection area, use a fresh pair of plastic tweezers to remove, collect and package them appropriately.
- Trace evidence materials (eg. Paint flakes) should be scraped into a clean folded paper envelope before placement into the labelled specimen jar. (these materials are very difficult to remove from plastic containers as they cling firmly to sides)

#### 7.2.4 **Vacuuming**

- Before using the nozzle, check that it is clean. It should have been stored in a ziplock plastic bag with a notation of the last time it was cleaned.
- If the nozzle does not appear to be clean, or there is no date confirming when it was last cleaned, clean it thoroughly prior to use by washing it in hot (where available) soapy water, rinsing it in clean water, and allowing it to air dry. Do not use paper towel or cloth to dry the nozzle as these materials may leave contaminants behind.
- Use a fresh filter paper to collect vacuum samples from each new area.
- Before collecting the scene sample, obtain a control vacuum sample using the clean filter provided with the vacuum kit. Run the vacuum cleaner for approximately 30 seconds without applying the nozzle to any surface.
- Obtain the scene sample by running the vacuum nozzle over the target surface using a fresh filter provided with the vacuum kit.
- Package all samples in paper bags immediately and enclose in labelled paper bags.

Refer to [Crime Scene Procedures Manual - General, Section 8 Evidence Management](#)

- Clean the nozzle thoroughly cleaned between collecting the control sample collection and collecting the scene sample/s. (See 7.2.4)
- After completing the sampling procedure, clean the nozzle thoroughly in accordance with 7.2.4.2 and store it in the vacuum kit in a clean ziplock plastic bag, noting the date it was cleaned and by whom.

#### 7.2.5 **Casting**

- Obtain casts of 3D impressions where such impression evidence is present and

may provide identifiable evidence.

- Casts should be constructed of either:
  - a. freshly prepared dental stone
  - b. Kerr brand dental extrusion material
  - c. Microsil brand casting medium
  - d. Pedilen casting foam.
- The two alternative methods for mixing dental stone are:
  - a. resealable plastic bag
  - b. bulk mixing.
- The resealable plastic bag method involves pre-measuring a set weight of dental stone powder and storing it in resealable plastic bags. This method is preferable, both in terms of ease of use and accuracy.
- Place approximately 900g of dental stone powder in a 25cm x 30cm resealable (ziplock) plastic bag.
- The following materials should be carried in all operational crime scene vehicles as part of a casting kit:
  - a. approximately five pre-measured 900g bags of dental stone powder
  - b. a plastic bottle containing at least 375ml of water
  - c. form materials for use on uneven surfaces (eg cardboard strips, or prefabricated frames)
  - d. spoon or flat stick for bulk mixing
  - e. plastic mixing bowl or bucket for bulk mixing.
- Method A: Resealable Plastic Bag
  - f. take from the casting kit a 25cm x 30cm resealable ziplock plastic bag containing pre-measured 900g of dental stone powder
  - g. add approximately 375ml of stored bottle water, to the resealable plastic bag containing the dental stone
  - h. fully close and seal the plastic bag
  - i. mix the materials by gently agitating and massaging the contents
  - j. ensure all available materials are mixed (including from the corners of the bag) to a material viscosity similar to pancake mix or thick cream
  - k. carefully pour material next to the impression so it flows over the impression

- I. enter the following details on a wooden tongue depressor from the cast kit:
    - i. time
    - ii. date
    - iii. forensic case number
    - iv. item number.
  - m. place the tongue depressor with these details at the rear of the cast area before the dental stone has fully set
  - n. allow the cast to dry before removing it
  - o. package the cast appropriately and allow it to air dry
  - p. once it is dry, wash the cast to remove any debris.
- **Method B: Bulk mixing**  
This method differs from Method A in the quantity of materials used as required for tyre impressions, multiple footwear impressions etc.
    - a. pour required amount of bulk dental stone powder into a suitably sized container (eg bucket or large bowl)
    - b. while mixing, slowly pour small amounts of water into the powder until the mixture has the consistency of a pancake mix or thick cream
    - c. follow 7.2.5.7 (h) and (i).
  - If the impression is on a sloping or uneven surface, place a piece of form material on the low side of the impression to allow the casting material to build up.

#### 7.2.6 Tool Mark Impressions

- Impressions caused by tools or implements must be assessed by a suitably qualified Forensic Investigator for quality and detail prior to casting.
- Tool or implement impressions should be cast using a Kerr brand dental extrusion gun or Microsil brand dental impression material.
- Prepare a cast using a Kerr brand dental extrusion gun.
  - a. insert the ratchet plunger into the extrusion gun
  - b. place sufficient extrusion material to complete the cast into the cartridge
  - c. attach a fresh mixer tip to the front of the extrusion material cartridge
  - d. slowly squeeze the trigger of the extrusion gun trigger until the material has completely filled the mixer tip
  - e. before applying the material to impression surface, prepare a wooden tongue depressor with the following information:

- i. time
  - ii. date
  - iii. forensic case number
  - iv. item number
- f. place the mixer tip close to the tool mark impression surface, taking care not to touch the impression surface
  - g. squeeze the trigger slowly
  - h. to ensure sufficient extrude material penetrates the impression to record the fine detail, move the mixer tip across the impression surface while continuing to squeeze the trigger slowly
  - i. cover an area at least 1.5 times the size of the impression with extrusion material
  - j. gently place the flat side of the tongue depressor against the back of the wet extrusion material
  - k. allow the cast to dry
  - l. when the cast is dry, place it in a fully labelled resealable (ziplock) plastic bag and seal.  
[Refer to Crime Scene Procedures Manual - General, Section 8 Evidence Management](#)
- To prepare a cast using Microsil brand dental impression material:
    - a. before preparing the impression material, enter the following information on a wooden tongue depressor:
      - i. time
      - ii. date
      - iii. forensic case number
      - iv. item number
    - b. following the manufacturer's instructions apply the required amount of Part A
    - c. following the manufacturer's instructions apply the correct amount of Part B to a clean surface for mixing
    - d. mix Parts A and B thoroughly, using a mixing stick from the crime kit
    - e. when well mixed, apply the material liberally to the impression area, using either a tongue depressor or mixing stick
    - f. cover an area at least 1.5 times the size of the impression with extrusion material
    - g. gently place the flat side of the labelled tongue depressor against the back of the wet extrusion material

- h. allow the cast to dry
- i. when the cast is dry, place it in a fully labelled resealable (ziplock) plastic bag and seal.  
[Refer to Crime Scene Procedures Manual, Section 8 Evidence Management](#)

7.2.7 **Buccal Swabs and Hair Samples from Suspects, Victims or Volunteers**  
[Refer to Guide for Using Buccal \(Mouth\) Kit and DNA Hair Sampling Kit in Carrying Out Forensic Procedures - Crimes \(Forensic Procedures\) Act 2000 – NSW Police Intranet – Forensic Procedures Implementation Team](#)