



# NATURAL AWARENESS TRACKING SCHOOL, LLC STANDARD 7100

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Foundations for Awareness, Signcutting and Tracking

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## 7200 FOUNDATIONS FOR AWARENESS, SIGNCUTTING AND TRACKING

**7200** This document establishes a training standard named "Foundations for Awareness, Signcutting and Tracking (F.A.S.T.).

**7201** **Scope:** This standard outlines all knowledge, skill and ability (KSA) requirements for conducting the F.A.S.T. training. This and additional standards were developed to define the minimum qualification requirements necessary for certification as a visual tracking resource by the Commonwealth of Virginia's Department of Emergency Management (VDEM).

The certifications issued under these standards are a requirement for those personnel who wish to voluntarily participate in the search and rescue program of the Virginia Department of Emergency Management at the level indicated in this standard.

**7202** **Purpose:** The searcher with tracking knowledge, skills and abilities is willing to perform the following functions in the general environment of the Commonwealth of Virginia any time of the year, day or night, and in most weather conditions and terrain experienced in the Commonwealth of Virginia. In order to accomplish this, the tracking resource will be able to:

7202.1 Search for missing persons in wilderness, rural, suburban and urban areas, using the rudimentary art and skills associated with awareness, signcutting and tracking addressed in these standards, as a member of a ground search and rescue team that has a Memorandum of Understanding (MOU) with VDEM.

7202.2 Assist, when needed, in missing person investigations on searches to help obtain necessary signcutting and tracking information.

7202.3 Interface with and instruct other searchers, search staff and local agencies on the abilities of Trackers, and tracking team tactics that might be utilized.

7202.4 Demonstrate the ability to explain to other searchers and staff on being clue, sign and track aware and the importance of each.

7202.5 Navigate accurately on land, day or night in most weather and terrain conditions common to the Commonwealth of Virginia.

7202.6 Survive an unexpected wilderness emergency.

7202.7 Perform other activities which may be required based upon the searcher's knowledge, skills, abilities, training, experience and base's needs including, but not limited to, working in base, working with other ground teams, and assisting ground rescue teams in the evacuation of the search subject(s).

**7203** **General:**

7203.1 Outlined in the following standard are all the KSA's to be presented during a F.A.S.T. course.

**7204** **Definitions:** The definitions listed here are for the purpose of these standards only. They may or may not reflect the definitions used by other individuals, groups, agencies or publications. These definitions are in rudimentary terms.

7204.1 Accordion signcutting - a systematic method whereby two tracking resources (A & B) work together to advance the tracking team along the line of sign. One resource (A) works track-by-track while the other resource (B) moves ahead along the speculated direction of travel. Upon detecting the subject's track or sign, B communicates that and the direction of travel to A. A then converges on B's position. A then resumes track-by-track work while B makes another jump ahead in the speculated direction of travel.

7204.2 Action indicator - See pressure release.

7204.3 Adhesion - Molecular attraction that holds the surfaces of two substances (e.g. water and sand particles) in contact.

7204.4 Aerial spoor - any visible disturbance to vegetation above ground level.

- 7204.5 Aging - the process of determining time lapse since [the track or] sign was made, considering all factors of vegetation damage, rain, sun and other natural elements' effects.
- 7204.6 Angle of vision - at a track, the angle from the ground to the viewer's eye.
- 7204.7 Arch - the bottom part of a shoe/foot between the heel and the ball.
- 7204.8 Awareness bubble - the spatial extent of your ability to pick up on sensory stimuli. How far you can see, hear, smell or otherwise detect objects or occurrences.
- 7204.9 Backtrack - to follow a line of tracks (or sign) opposite the direction of travel of the track maker and towards its origins.
- 7204.10 Ball - the part of the foot just behind the large toe, formed by the intersection of the first metatarsal joint.
- 7204.11 Baseline - conditions of the naturally occurring environment. The baseline may be those conditions surrounding a particular disturbance.
- 7204.12 Binary search theory - the theory that finding a person is expedited by eliminating areas because no clues have been found in those areas.
- 7204.13 Bound - an animal's gait, characterized when the hind feet land on or in front of the tracks made by the front feet.
- 7204.14 Bracketing - the act of determining events that clearly occurred before and after a track or sign was made. This process assists with aging sign.
- 7204.15 Brief - the exchange of information, usually at the onset of a situation, that conveys important knowledge from the upper levels of a hierarchy to the lower - i.e., information from the Incident staff conveyed to a tracking team before they begin their assignment.
- 7204.16 Bruising - footfall damage to vegetation, usually indicated by color variation contrasting with surrounding area of the same vegetation.
- 7204.17 Brushing out - using a branch, grass, clothing article or other object in an attempt to brush or erase tracks from an area.
- 7204.18 Casting - the filling of a three-dimensional footwear impression with material that takes on and retains the characteristics that were left in that impression by the track maker.
- 7204.19 Cave-in - material that has fallen into the track after the foot leaves the impression.
- 7204.20 Class characteristic - an intentional or unavoidable characteristic that repeats during the manufacturing process and is shared by one or more other shoes.
- 7204.21 Cliff - a straight upright edge where the ground cover has been packed perpendicular to the ground surface.
- 7204.22 Clue - An indication of a person's presence or passage, specifically that of the missing person.
- 7204.23 Cohesion - the force holding a solid or liquid together, owing to attraction between like molecules.
- 7204.24 Color - wavelength of light as seen by the eye and interpreted by the brain. Its value is in differentiating one object from another. In nature color tends to be muted and less vivid, which requires more aggressive visual searching.
- 7204.25 Compressed Areas - areas of ground surface that include loose debris and vegetation both living and dead, surface moisture and all types of soil surfaces, compacted in a manner consistent with that of "human footfalls."
- 7204.26 Compression - an area to which pressure has been applied by a track-maker.
- 7204.27 7204.28 Conclusively human - evidence that, when considered on its own, can without a doubt be described as having been made by a human being.
- 7204.28 Contamination - (1) disturbances made from anyone or anything, other than the quarry, that obscures or completely obliterates the quarry's sign, such as other people's tracks, animal sign or weather. (2) one of many reasons to keep people away from the PLS/LKP.

- 7204.29 Contrast - (1) the difference in feel or appearance of one area from another. (2) the value of a particular ground cover (see value).
- 7204.30 Corroborant sign - Sign that is not...conclusive on its own, but is used with other evidence to make conclusive decisions.
- 7204.31 Crack - (1) a narrow opening. (2) a weakness or flaw caused by decay, age or deficiency.
- 7204.32 Crease - a straight fold in vegetation or other objects.
- 7204.33 Crevasse - a fracture in the ground cover positioned either inside or outside of a track impression and generally parallel to the edge of the track.
- 7204.34 Crumbling - broken into many pieces. Disintegrating.
- 7204.35 Crying - see weeping.
- 7204.36 Debrief - the exchange of information, usually at the close of a situation, that conveys important knowledge and experience from the lower levels of a hierarchy to the upper - i.e., information conveyed to the Incident Commander from a tracking team after completing an assignment.
- 7204.37 Degree of wear - the extent to which a particular portion of a shoe is worn.
- 7204.38 Dental stone - a gypsum product similar to plaster of Paris, but with different properties due to the way it is manufactured. It is far superior to plaster of Paris for use in casting footwear impressions because of its hardness and durability.
- 7204.39 Design elements - the various shaped components on an outsole that, together, make up the outsole design.
- 7204.40 Direct register - see registering.
- 7204.41 Dirt time - the time spent practicing tracking skills.
- 7204.42 Distortion - an unclear or inaccurate representation of the shoe outsole in the impression due to interference with the impression making process.
- 7204.43 Disturbance - any disarrangement of the natural state of ground surface, including but not limited to: leaf litter, loose debris, and duff, probably caused by footfall movement.
- 7204.44 Disturbance bubble - the extent of a person's disturbance to the surrounding environment in the form of noise, odor, and visual presence. How far away you can be heard, smelled, seen or otherwise detected.
- 7204.45 Drag out - the material that was dragged from its original location to a new location by a foot or other track maker such as a stick.
- 7204.46 Drop off - the material that was removed from a previous track making event and fell from a foot between footfalls or from another track maker such as a fire.
- 7204.47 Dulling - the reduced luminance of an area in comparison with prior conditions or the surrounding area.
- 7204.48 Edge - the division or boundary between two or more objects or areas.
- 7204.49 Embedded - any small object impressed into soil or vegetation due to...compression of the ground surface.
- 7204.50 Evidence - something that furnishes proof.
- 7204.51 Explosion - a forceful dispersion of material from its origin by a track maker.
- 7204.52 Feature signcutting - the act of moving along a narrow physical feature such as a stream bank, road, drainage, forest edge, trail, etc., while looking for sign.
- 7204.53 Fissuring - a crack in the ground cover occurring inside or outside of an impression and oriented away from the edge of an impression.
- 7204.54 Flagging - vegetation turned in a direction of travel.

- 7204.55 Flattening - the leveling of soil, pebbles, twigs, rocks or other substances into the ground. It creates an alteration in the texture of the surface that produces a flattened area, which usually creates a shine by reflecting more light than the surrounding area.
- 7204.56 Focus lock - fixing your attention on a small area to the exclusion of your surroundings.
- 7204.57 Footprint - visible evidence that a paw, hoof or foot has contacted a surface.
- 7204.58 Footwear - any apparel worn on the foot, such as shoes, boots, etc.
- 7204.59 F.A.S.T. Course Coordinator - An individual who oversees the operation of the Foundations for Awareness, Signcutting & Tracking (F.A.S.T.) Course for VDEM. The F.A.S.T. Course Coordinator is appointed by the VDEM Search and Rescue (SAR) Coordinator.
- 7204.60 Frost heave - the lifting or lateral movement of soil caused by freezing of water resulting in the formation of ice lenses or ice needles.
- 7204.61 Gait - a manner or rate of movement or progress.
- 7204.62 Gallop - the fastest of the gaits. Tracks left by the hind feet ahead of the tracks left by the front feet.
- 7204.63 Ghost track - see inventing sign.
- 7204.64 Ground spoor - any imprints, marks, indentations, transfers or vegetative damage found on the ground.
- 7204.65 Ground cover - a material or combination of materials that lie(s) on the surface of the ground and are impacted by track makers. The top layer of the ground. Examples of ground covers include soil, leaves, vegetation, asphalt, snow, etc. Also called substrate.
- 7204.66 Group - a set of tracks left by either two or all four feet of an animal.
- 7204.67 Healing - the process by which vegetation closes and cures damaged areas. This is a primary sign-aging element.
- 7204.68 Heel - a separate component attached to the rear portion of the outsole. In a one-piece outsole, it is the raised area in the rear portion of the outsole. In a flat shoe, it is the heel area.
- 7204.69 Heel marks - the curved mark, indications, or depression on the ground surface made by the initial impact of the heel portion of footwear usually as a result of the normal walking motion.
- 7204.70 Heel strike - the moment when the heel contacts a surface.
- 7204.71 Identifying characteristic - a particular characteristic, individual to a specific shoe, that resulted from an occurrence that randomly [or intentionally] added or removed something from the shoe outsole and which caused or contributed to making that shoe outsole unique.
- 7204.72 Imprinting - to mark by or as if by pressure.
- 7204.73 Indexing - creating a sign or track similar to a track or sign in question. Indexing is done to aid interpretation of the age, manner of creation and other characteristics of a track or sign in question.
- 7204.74 Indirect register - see registering.
- 7204.75 Individual characteristic - see identifying characteristic.
- 7204.76 Inter-group distance - the distance between groups of four tracks of an animal's gait as measured from the front edge of the first group to the rear edge of the successive group.
- 7204.77 Intertwined vegetation - vegetation that has interlaced in an unnatural and usually temporary state as a result of a footfall or vehicle fire.
- 7204.78 Inventing sign - seeing sign that is not present, usually because of fatigue and/or a "need" to see it. To fabricate sign within the "mind's eye." A tendency to try to make footfall characteristics where natural surface imperfections, shadowing or disturbance occurs.
- 7204.79 Last known point (LKP) - the most recent location the quarry can conclusively be said to have been, based on all available evidence including sign, [vehicles], personal gear, sign-in or summit logs, etc. [The LKP] differs from Point Last Seen (PLS) in that a PLS requires the visual

- identification of the subject by another human. In a typical wilderness tracking operation, the PLS will stay the same, while the LKP changes as new sign and evidence are [dis]covered.
- 7204.80 Leapfrog signcutting - a systematic method whereby two tracking resources (A &B) work together to advance the tracking team along the line of sign. One resource (A) works track-by-track while B moves ahead along the speculated direction of travel. Upon detecting the subject's track or sign, B communicates that and the direction of travel to A. A then marks their last track and moves ahead of B in the speculated direction of travel.
- 7204.81 Lighting - use of the correct angle of a primary light source in order to ensure optimum visual inspection capabilities.
- 7204.82 Line of sign - a series of tracks and sign indicating the passage of a particular quarry. Also called a trail.
- 7204.83 Logo - a name, design or pattern that appears on the sides and bottoms of shoes and which is a trademark of the manufacturer.
- 7204.84 Lope - the slower of galloping gaits. The tracks are left in groups of four. The first foot in the group will be a front foot and the last will be a [hind] foot.
- 7204.85 Lost person questionnaire - a document used to investigate, record and communicate information about the missing person, including his/her physical description, personal belongings, habits, etc.
- 7204.86 Marking - highlighting the presence of sign or tracks utilizing a standard system, such as scuff marks, engineering tape, colored flags or wooden pickets, so you or others can readily find it again.
- 7204.87 Movement - an objects change in location.
- 7204.88 Multiple-factoring reasoning - using two or more indicators to form a judgment or deduction.
- 7204.89 Negative impression - an impression that is produced when the contact areas of a shoe remove residue from a surface and in which the residue on the surface remains where the areas of the sole did not come in contact with the surface.
- 7204.90 Negative space - the space in the visual field that is unoccupied by objects, such as the space between trees, branches and leaves. The opposite of positive space.
- 7204.91 Oblique light - light that is positioned at a low angle of incidence relative to the surface being photographed. Also referred to as side-lighting.
- 7204.92 Outsole - the outermost sole of a shoe. The portion of the sole that contacts the ground.
- 7204.93 Overhang - a wall of a track that slopes over the floor of the track.
- 7204.94 Pace - the rate of movement. As determined in the Virginia SAR training, it is the stride length.
- 7204.95 Partial print - an impression that is incomplete but retains indentifying characteristics of the track maker.
- 7204.96 Path of most resistance - a route traveled by the clue-aware searcher that is near but different from the most likely path traveled by the quarry.
- 7204.97 Peak - the highest point of a ridge.
- 7204.98 Perimeter cut - sign cutting around the boundary or outer edge of an area.
- 7204.99 Pitch - the distance from a straddle line on one side of the body to the center of the front of the foot. A measurement of the amount of angle of the foot placement in relation to the direction of travel.
- 7204.100 Plate - a thin crust of soil, snow or other material formed by a disturbance to a layer of cohesive cover.
- 7204.101 Point last seen (PLS) - a specific location where someone last saw (laid eyes on) the missing person. Also known as the place last seen.

- 7204.102 Plume - an area that contains ground cover that has been disturbed and spread out from the track.
- 7204.103 Pock - a hole or depression from which an object such as a stone was recently removed.
- 7204.104 Positive impression - an impression in which the residue visually represents the areas of the sole that actually came in contact with the ground surface.
- 7204.105 Positive space - the space in the visual field that is occupied by solid objects such as trees, branches and leaves. The opposite of negative space.
- 7204.106 Pressure releases - the physical attributes found in and around a track, which were created by the energy of the foot as it contacted the ground and the pressure in exerted as it left the ground. There are more than one in each track, and they can provide information about the maker of the track, when the track was made and some actions of the track maker.
- 7204.107 Primary impact point - the point where the shoe or boot strikes the ground first. This is usually the heel unless abnormal circumstances occurred.
- 7204.108 Prime sign area - the area where the next footfall should appear, within the 60 degree arc, beneath the tip of the point person's sign cut stick when the stick is properly "set-up" and on the last indentified footfall.
- 7204.109 Probability of Detection-c (PODc) - the "percentage of probability" that if clues from a missing subject were actually in the search area, the searcher would have located (detected) those clues by the search effort, i.e. c=clues.
- 7204.110 Quarry - an object of pursuit, usually pertaining to people or animals.
- 7204.111 Registering - when the track left by the front foot is partially (indirect register) or totally (direct register) covered by the track left by the hind foot. Normally associated with animal tracking, or if two (or more) people were walking in a line and the back person was stepping into the front person's tracks.
- 7204.112 Regularity - an effect caused by straight lines, circles, or other geometric shapes pressed into the ground leaving systematic marks that are not normally found in nature.
- 7204.113 Reverse transfer - see negative impressions.
- 7204.114 Ridge - a mound or crest of material that has been pushed, or remains, above the level of the nearby ground cover.
- 7204.115 Ripping - a crack in the ground cover that occurs perpendicular to the line of travel. It can occur inside or outside of a track, and is made by the moving contact of a track maker with the ground cover.
- 7204.116 Rounded slope - a curved edge leaning away from the track floor.
- 7204.117 Route influencers - things that will induce a person to walk a certain route. They could be physical barriers such as downed trees, briars, rough terrain, sounds or lights.
- 7204.118 SARTI - The Search and Rescue Tracking Institute. A nonprofit volunteer search and rescue group that trains regularly in the art and science of tracking. SARTI has a memorandum of understanding with the Virginia Search and Rescue Council and provides tracking-trained volunteers to missing person incidents.
- 7204.119 Scat - feces, droppings, excrement, manure.
- 7204.120 Scuff - mark caused by footfalls contacting firm ground indicating movement in a determinable direction of travel.
- 7204.121 Search Team Leader (STL) - The Leader of a Ground Search and Rescue Team who has been certified at that level by the Commonwealth of Virginia's Department of Emergency Management (VDEM). Also known as a Field Team Leader.
- 7204.122 Search Team Member (STM) - A Member of a Ground Search and Rescue Team who has been certified at that level by VDEM. Also known as a Field Team Member.
- 7204.123 Shape - the visual makeup characteristic of a particular item or kind of item.

- 7204.124 Shine - the light reflected from within the human footfall damage.
- 7204.125 Shoot from the hip - to act or speak hastily without consideration of the consequences. Arriving at a conclusion without sound reasoning or verifiable justification.
- 7204.126 Sign - An indicator of activity; a disturbance that is unnatural or out of place in the environment.
- 7204.127 Signcutting - the systematic and regimented procedure utilized by Trackers to locate and identify the physical evidence of the passage of a specific person.
- 7204.128 Single-factor reasoning - using only one indicator to form a judgment or deduction.
- 7204.129 Slope - (1) upward or downward slant or inclination or degree of slant. (2) a straight edge that inclines away from the floor of the track.
- 7204.130 Spoor - see track
- 7204.131 State Search and Rescue (SAR) Coordinator - the person designated by the Director of VDEM to coordinate the SAR program administered by VDEM and to coordinate overall State SAR operations when required or requested.
- 7204.132 Step length - the distance from one heel impression or similar mark to that left by the subsequent footfall.
- 7204.133 Step-by-step method - a disciplined teaching system where a tracker sees each step in sequence and proceeds no further than the last visible track, using the stride to determine where next to look for sign.
- 7204.134 Straddle - the distance between the inside of the heels of both feet as measured perpendicular to the direction of travel and between the two straddle lines.
- 7204.135 Stride length - the linear distance between two successive steps of the same foot.
- 7204.136 Subject - the missing person or person of interest. Also called quarry.
- 7204.137 Substrate - see ground cover.
- 7204.138 Substantiating evidence - see corroborant sign.
- 7204.139 Time and distance gap - the temporal and spatial separation between quarry and searcher.
- 7204.140 Tactics - the art or skill of employing available means to accomplish an end. A system or mode of procedure.
- 7204.141 Tactile - using the sense of touch to aid in [acquiring and] assessing information, usually the age of a track.
- 7204.142 Tear - (noun) damage from being torn. (verb) to separate parts or pull apart by force.
- 7204.143 Texture - the visual and tactile surface characteristics and appearance of something. The relative proportion of the various grain sizes in a soil.
- 7204.144 Thirty-six inch detection method - the systematic method of searching for sign by segmenting an area into 36 inch sections and concentrating on looking for sign in that area.
- 7204.145 Terminal impact point - the point where the foot leaves the ground in preparation for the next step. This is usually the toe unless abnormal circumstances occurred.
- 7204.146 Toe dig - the indented mark or sign of exertion evidencing a normal walking motion, the result of the natural bending or flex of the foot and footgear as the body weight is thrust forward from the ball of the foot and tip of the toe onto the next step.
- 7204.147 Track - (noun) The identifiable imprint or disturbance left. Also called trace, imprint, mark, spoor, impression; (verb) to follow a subject by locating and proceeding along its sequences of foot disturbances or sign.
- 7204.148 Tracker - A member of a Ground Search and Rescue Team who has been certified at one of three (3) levels by VDEM. These levels are Level 3 - Operational Tracker, Level 2 - Tracking Technician and Level 1 - Tracking Specialist.



- 7204.149 Track maker - anything that can form, or did form, a track. Examples of track makers include humans and other animals, weather phenomena, hiking sticks, plants, vehicles, machines, other wheeled equipment, etc.
- 7204.150 Track trap - an area where, in the right conditions, sign of passage would be easily detected. Track traps can be naturally occurring or man-made.
- 7204.151 Tracking - Looking for, finding and interpreting tracks and sign. Following a track maker by the sign and tracks that it has left in its passage.
- 7204.152 Tracking stick - a stick or other suitable object used to measure and mark the size of a track and the [step length]. Its use speeds the tracking process in challenging mediums by identifying prime sign area and size comparisons to questioned tracks. It has also been called a signcutting stick.
- 7204.153 Tracking team - a specified number of trained trackers, working as one unit to find or follow a line of tracks or sign.
- 7204.154 Track pattern - a distinctive arrangement or tracks.
- 7204.155 Trail width - overall width of a group of tracks.
- 7204.156 Transfer - any substance inadvertently collected by footgear in a footfall and deposited by succeeding footfalls.
- 7204.157 Transition - when a track pattern, stride, or gait is altered.
- 7204.158 Upper - all of the components of the shoe above the midsole and the outsole.
- 7204.159 Value - the degree of lightness or darkness of a particular color. Also called contrast.
- 7204.160 Varied vision - to alternate your visual focus from looking for tracks and detail up close to looking up often and scanning ahead in the distance.
- 7204.161 Vegetation damage - broken, abraded or otherwise damaged leaves, stems, or branches of plants, often described by trackers as bruising, smashing, smooshing, splitting, or other words.
- 7204.162 Virginia Department of Emergency Management (VDEM) - agency that provides support, training, certification, group notifications and guidance for search and rescue to SAR groups and local governments and agencies. VDEM also issues Memorandums of Understanding (MOUs) with SAR groups.
- 7204.163 Walk - to move each foot independently of the other indicated by two parallel rows of alternating, evenly spaced footprints that indicate a normal, unhurried pace.
- 7204.164 Wear - the erosion of the outsole due to frictional and abrasive forces that occur between the outsole and the ground.
- 7204.165 Wear characteristics - changes in the surface of the outsole that are observable in the impression and/or known shoe and that reflect the erosion of the surface of the outsole.
- 7204.166 Wear Pattern - the position of wear on a shoe. An arrangement or pattern of wear characteristics that stand out against areas of relatively less or greater wear.
- 7204.167 Weeping - the natural exudation of vegetation fluids resulting from damage to a plant.
- 7204.168 Any additional terms and definitions will be drawn from the textbook Foundations for Awareness, Signcutting and Tracking

**7205 Prerequisites:**

- 7205.1 Personnel attending the training must be at least 18 years of age or older.
- 7205.2 It is recommended that applicants for tracking training hold an active membership in a professional, paid or volunteer, Search and Rescue (SAR) group, or an established emergency services organization or Emergency Management Services such as a law enforcement agency, rescue squad, or a fire department.
- 7205.3 Applicants should be currently VDEM certified as either a Field Team Member [or Search Team Member (STM)] or a Field Team Leader [or Search Team Leader (STL)], or their equivalent as

recognized by the Commonwealth of Virginia's Department of Emergency Management Search and Rescue Program.

7205.4 Applicants must agree to allow VDEM or the applicant's member group to perform a background check within three (3) years.

**7206 Requirements:**

7206.1 Successful completion of the F.A.S.T. course includes completing the written test with a minimum score of seventy percent (70%).

**7207 Certification**

7207.1 At this time there is no recognized credentialing as a F.A.S.T.

7207.2 Participants that successfully complete the course and written test per 7206 will receive a certificate of training.

**7208 Testing:**

7208.1 Testing will be conducted within the Scope of the Foundations for Awareness, Signcutting and Tracking (F.A.S.T.) course

7208.2 Testing will include written and practical exam stations that cover the KSA's from this standard.

**7209 Forms:**

7209.1 Application for attendance in F.A.S.T. course.



## **KNOWLEDGE AND PERFORMANCE EXPECTATIONS**

The tracking candidate must demonstrate a working understanding of the items listed under each subject and must be able to demonstrate the ability to perform and/or discuss the skills herein. Specific written and field tests have been designed to evaluate the candidate's knowledge and performance skills.

### **7210 Misconceptions**

7210.1 Describe and clarify ten misconceptions about tracking as it relates to search and rescue

### **7211 Tracking / Signcutting Tools**

Describe the following signcutting tools, demonstrate their usage, and explain or show how they may be improvised:

- 7211.1 Tracking/signcutting stick
- 7211.2 Measuring tape
- 7211.3 Notebook/Pen Pencils
- 7211.4 Craft sticks or other track markers, including reflective markers.
- 7211.5 String
- 7211.6 Baseline
- 7211.7 Indexing
- 7211.8 Track Traps, Natural and Man Made
- 7211.9 Mirror
- 7211.10 Sunlight/Moonlight
- 7211.11 Small and large light sources/colored lenses/headlamps
- 7211.12 Sun Glasses – Colors
- 7211.13 Night Vision Goggles
- 7211.14 Hand-Held Radios
- 7211.15 Cell Phones
- 7211.16 Flash Cards
- 7211.17 Dividers and Calipers
- 7211.18 Magnifying glass
- 7211.19 Binoculars
- 7211.20 Tweezers
- 7211.21 Flagging tape
- 7211.22 Aluminum Foil
- 7211.23 Camera
- 7211.24 Casting material

### **7212 Tracking Stick**

- 7212.1 Describe and demonstrate what may be used as a tracking stick.
- 7212.2 Describe what, and demonstrate how, measurements are placed on a tracking stick.
- 7212.3 Explain the disadvantages of using o-rings, rubber bands, etc. on one's tracking stick.
- 7212.4 Explain what one must not use one's tracking stick for and why.

### **7213 Using Light Sources**

- 7213.1 Describe (normally) the best times of day to track using the sun.
- 7213.2 Explain and demonstrate ways to overcome overhead sun, washout and night tracking.
- 7213.3 Explain and demonstrate how to approach a sign/track using the sun and other light sources.
- 7213.4 Define and demonstrate the "Angle of Vision."

- 7213.5 Define and demonstrate "Side Heading".
- 7213.6 Explain and demonstrate how to make your own "Sun" and under what conditions it may or may not work.

**7214 Log Book**

- 7214.1 Explain the importance and legal issues of maintaining a logbook and writing After Action Reports.
- 7214.2 Explain the importance of learning to draw/sketch
- 7214.3 Describe and display what information should be recorded in one's log book including but not limited to the following:
  - 7214.3.1 Sketches of sign, tracks and surrounding area(s)
  - 7214.3.2 Six track measurements
  - 7214.3.3 Six stride measurements
  - 7214.3.4 Interview questions including but not limited to:
    - 7214.3.4.1 Callout information
    - 7214.3.4.2 Subject information
    - 7214.3.4.3 Weather information – past, current, future
    - 7214.3.4.4 Footwear information

**7215 Awareness**

- 7215.1 Explain the importance of awareness.
- 7215.2 Describe eight negative effects on awareness.
- 7215.3 Explain eight ways to become more clue/sign/track aware.
- 7215.4 Explain how each of the senses is important and how each is used in awareness.
- 7215.5 Describe and demonstrate how and why a tracker would use "Wide Angle Vision."
- 7215.6 Describe seven basic elements of visual perception and demonstrate the ability to detect each.
- 7215.7 Explain the problems of locking in on a track.
- 7215.8 Explain and demonstrate the ability of how to overcome locking in on a track.
- 7215.9 Explain and demonstrate the ability to scan your search area.
- 7215.10 Explain baselines and when and how they are used.
- 7215.11 Explain and demonstrate the ability to instruct other search team members on being more aware and how to search for sign.

**7216 Tracking tactics and related knowledge**

- 7216.1 Explain Inventory and Elimination as it applies to search and rescue tracking.
- 7216.2 Describe and show what a tracker is looking for.
- 7216.3 Describe and show where a tracker may look for sign and tracks.
- 7216.4 Explain the different types of track traps and demonstrate the ability to utilize them.
- 7216.5 Explain and demonstrate the usage of the "36-Inch Detection Method".
- 7216.6 Explain and demonstrate how one approaches track traps, sign and tracks.
- 7216.7 Explain why to use, and demonstrate the usage of, a path of most resistance.
- 7216.8 Explain and demonstrate how one may physically mark and protect a clue, sign or track.
- 7216.9 Describe, and demonstrate the ability to obtain the information a tracker needs from base, other searchers, family, friends and other tracking personnel.
- 7216.10 Explain and demonstrate where the tracker's tasks begin and why.
- 7216.11 Describe how to search for downed aircraft.
- 7216.12 Explain who may get briefed and debriefed and why.

- 7216.13 Describe, and demonstrate the ability to report to base and others, the information a tracker should report back to his/her debriefer and other tracking personnel.
- 7216.14 Describe how to work as or with:
- 7216.14.1 Member of a Ground Search Team
  - 7216.14.2 Member of a Hasty Ground Search Team
  - 7216.14.3 Member of a Dog Team
  - 7216.14.4 Member of an Evacuation Team
  - 7216.14.5 Base Personnel.
  - 7216.14.6 Local Authority Having Jurisdiction
  - 7216.14.7 Other tracking personnel.
  - 7216.14.8 Other personnel at a search.
- 7216.15 Describe how and demonstrate the ability to perform the following:
- 7216.15.1 Feature Signcutting
  - 7216.15.2 Perimeter Signcutting
  - 7216.15.3 Cross Signcutting
  - 7216.15.4 Expanding and Collapsing Circle Signcutting
  - 7216.15.5 Leapfrog and Accordion Tracking
  - 7216.15.6 PLS/LKP Signcutting
- 7216.16 Explain and demonstrate the ability to instruct other search team members on the tactics a tracker may use.
- 7216.17 Explain and demonstrate how one would physically follow a clue/sign/track trail.
- 7216.18 Describe and demonstrate the position of a tracker on a Ground Search Team and explain when and why that may change.
- 7216.19 Describe and demonstrate ways to protect the Point Last Seen (PLS) or the Last Known Position (LKP).
- 7216.20 Describe how a tracker may be used on a team with other tracking personnel.
- 7216.21 Describe and demonstrate the ability to use other search resources in tracking tactics.
- 7216.22 Demonstrate the ability to locate relatively easy tracks among other tracks and sign.
- 7216.23 Explain and demonstrate ways one may overcome a "trashed" (contaminated or disturbed) PLS or LKP.
- 7216.24 Explain why signcutting/tracking may or may not work for one on any given day.
- 7216.25 Explain the number one "Rule" in signcutting and tracking.
- 7216.26 Explain why trackers are forced to break the rule in 7216.25 and what the consequences of such actions may be.
- 7216.27 Explain the benefits of backtracking the person of interest once s/he has been located.

## **7217 Night Tracking**

- 7217.1 Explain why searchers may search inadequately at night.
- 7217.2 Explain and demonstrate why tracking may be easier at night than during the day.
- 7217.3 Explain and demonstrate ways to track at night more effectively.
- 7217.4 Explain and demonstrate how to use one's lights effectively.
- 7217.5 Explain the dangers of night tracking.

## **7218 Footwear Information**

- 7218.1 Describe the different types of footwear and how this information may or may not be of use to a tracker.

- 7218.2 Describe problems with characterizing outsoles according to footwear types.
- 7218.3 Describe the dangers of determining unknown measurements of a track (footwear) based upon a known, or reported, shoe size.
- 7218.4 Describe the problems with "We have the same shoe that the missing person is wearing" type statements from friends and relatives.
- 7218.5 Describe and demonstrate the dangers of describing track or outsole information over the radio.
- 7218.6 Explain the importance of a track identification form.

**7219 Aging**

- 7219.1 Explain the two main reasons that sign/tracks age.
- 7219.2 Describe four influences that help create aging.
- 7219.3 Describe other ways (subcategories of influences) that tracks may age.
- 7219.4 Explain foot indexing, describe when it is used, and demonstrate the ability to use it correctly.
- 7219.5 Explain finger indexing, describe when it is used, and demonstrate the ability to use it correctly.
- 7219.6 Explain how old tracks can look new and how new tracks can look old.
- 7219.7 Describe the aging time flow.
- 7219.8 Describe and demonstrate ways to determine the relative age of clues, sign or tracks.
- 7219.9 Explain why trying to age sign or a track is one of the most dangerous aspects of tracking in search and rescue.
- 7219.10 Explain tactile aging, when and how utilized.
- 7219.11 Explain why it is better to utilize both hands (fingers) when tactile aging.
- 7219.12 Describe at least four different tactile comparisons one can make when aging tracks, sign, index marks and baselines.

**7220 Tracking on different ground covers**

- 7220.1 Tracking in Soils
  - 7220.1.1 Describe soil solids.
  - 7220.1.2 Describe pore space.
  - 7220.1.3 Describe the contents of soils and their effects on tracks.
  - 7220.1.4 Explain how moisture and air may affect sign or tracks.
  - 7220.1.5 Explain how different soil types can affect tracking, aging and pressure releases.
  - 7220.1.6 Describe which of, and how, the basic elements of visual perception are involved with finding sign/tracks in/on soils.
  - 7220.1.7 Demonstrate the ability to explain and discover eight different ways of detecting sign/tracks in/on soils.
  - 7220.1.8 Demonstrate the ability to give a relative age and to determine a direction of travel in/on soils.
  - 7220.1.9 Explain weather influences on soils.
  - 7220.1.10 Explain time of year, time of day, location and outside influences on soils.
- 7220.2 Tracking in Leaves and Pine Needles
  - 7220.2.1 Describe how the basic elements of visual perception are involved with the finding of sign/tracks in/on leaves and pine needles.

- 7220.2.2 Demonstrate the ability to explain and discover eight different ways of detecting sign/tracks in/on leaves and pine needles.
- 7220.2.3 Demonstrate the ability to give a relative age and to determine a direction of travel in/on leaves and pine needles.
- 7220.2.4 Explain weather influences on leaves and pine needles.
- 7220.2.5 Explain time of year, time of day, location and outside influences on leaves and pine needles.
- 7220.3 Signcutting/Tracking in Grass
- 7220.3.1 Describe how the basic elements of visual perception are involved with the finding of sign/tracks on/in grass.
- 7220.3.2 Demonstrate the ability to explain and discover eight different ways of detecting sign/tracks on/in grass.
- 7220.3.3 Demonstrate the ability to give a relative age and to determine a direction of travel on/in grass.
- 7220.3.4 Explain weather influences on grass.
- 7220.3.5 Explain time of year, time of day, location and outside influences on grass.
- 7220.3.6 Explain how the sun may be used while tracking on grass.
- 7220.4 Signcutting/Tracking in Low Vegetation
- 7220.4.1 Describe how the basic elements of visual perception are involved with the finding of sign/tracks in/on low vegetation.
- 7220.4.2 Demonstrate the ability to explain and discover six different ways of detecting sign/tracks in/on low vegetation.
- 7220.4.3 Demonstrate the ability to give a relative age and to determine a direction of travel in/on low vegetation.
- 7220.4.4 Explain weather influences on low vegetation.
- 7220.4.5 Explain time of year, time of day, location and outside influences on low vegetation.
- 7220.5 Signcutting/Tracking on Gravel/Rocks/Stones
- 7220.5.1 Describe how the basic elements of visual perception are involved with the finding of sign/tracks on/in gravel/rocks/stones.
- 7220.5.2 Demonstrate the ability to explain and discover six different ways of detecting sign/tracks on/in gravel/rocks/stones.
- 7220.5.3 Demonstrate the ability to give a relative age and to determine a direction of travel on gravel/rocks/stones.
- 7220.5.4 Explain weather influences on gravel/rock/stone.
- 7220.5.5 Explain time of year, time of day, location and outside influences on gravel/rock/stone.
- 7220.6 Signcutting/Tracking on Frost/Dew/Sleet/Snow
- 7220.6.1 Describe how the basic elements of visual perception are involved with the finding of sign/tracks on/in frost/dew/sleet/snow.
- 7220.6.2 Demonstrate the ability to discover five ways of detecting sign/tracks on/in frost/dew/sleet/snow.
- 7220.6.3 Demonstrate the ability to give a relative age and to determine a direction of travel on frost/dew/sleet/snow.
- 7220.6.4 Explain weather influences on frost/dew/sleet/snow.

7220.6.5 Explain time of year, time of day, location and outside influences on frost/dew/sleet/snow.

## **7221 Animal Tracks and Sign**

- 7221.1 Describe the following basic animal gaits.
  - 7221.1.1 Walking
  - 7221.1.2 Trotting
  - 7221.1.3 Galloping
- 7221.2 Describe and demonstrate the ability to identify the following families' tracks and basic gaits:
  - 7221.2.1 Canine (Dog, Coyote, Red Fox, Gray Fox)
  - 7221.2.2 Feline (House cat, Bobcat, Mountain Lion)
  - 7221.2.3 Raccoon
  - 7221.2.4 Deer
  - 7221.2.5 Bear
- 7221.3 Describe how and why an animal's track or gait may appear to be human.
- 7221.4 Explain the difference in measuring an animal gait vs. a human stride.
- 7221.5 Describe which animals' tracks and gaits may cause problems for a tracker and other searchers.
- 7221.6 Describe why the following animal sign can be confused for human sign:
  - 7221.6.1 Deer trails and beds
  - 7221.6.2 Turkey scratches
  - 7221.6.3 Animal tracks

## **7222 Pressure Releases**

- 7222.1 Define pressure releases.
- 7222.2 Explain how, and why, many pressure releases could be associated with one sign or track.
- 7222.3 Describe what could cause each of the following pressure releases, and demonstrate the ability to find each of the following:
  - 7222.2.1 Cliff
  - 7222.2.2 Overhang
  - 7222.2.3 Cave-in
  - 7222.2.4 Slope
  - 7222.2.5 Ridge
  - 7222.2.6 Peak
  - 7222.2.7 Crevasse
  - 7222.2.8 Fissure
  - 7222.2.9 Plume
  - 7222.2.10 Drag out
  - 7222.2.11 Ripping
  - 7222.2.12 Explosion
- 7222.4 Explain why the reading of pressure releases is one of the most dangerous aspects of tracking in search and rescue.
- 7222.5 Explain why one should have more than one track or sign to determine what the pressure releases may be signifying.



**7223 Human Strides**

- 7223.1 Describe four (4) common human strides and demonstrate the ability to detect each on easy soil conditions.
- 7223.2 Describe the problems with determining what stride is being used and the dangers of mis-reading strides.
- 7223.3 Describe what can be confused for human strides.
- 7223.4 Explain why a 'known' step length may not assist a tracker.
- 7223.5 Discuss how many total clues, sign and tracks may be in one mile of foot travel from the PLS or LKP.

**7224 Tracking on Slopes**

- 7224.1 Describe and demonstrate ways to detect uphill, downhill and sidehill travel and determine a direction of travel.
- 7224.2 Describe the possible variables and demonstrate how a person going up or down hill may use longer or shorter strides.
- 7224.3 Describe variables that can affect the determination of the direction of travel.
- 7224.4 Describe five different influences in ones' stride that may assist a tracker in reading each of the above.

**7225 Tracking Evasive Persons**

- 7225.1 Discuss what type of missing subjects might use evasive maneuvers.
- 7225.2 Describe seven ways to detect evasive tactics.
- 7225.3 Describe five ways to counter evasive tactics used by a missing subject.
- 7225.4 Describe and demonstrate the ability to detect four signs that a person may be walking backwards.
- 7225.5 Explain at what point one would abort a task for a missing subject being evasive.
- 7225.6 Explain at what point one would abort a task for a missing subject reported to be armed.

**7226 Other required Knowledge, Skills and Abilities**

- 7226.1 Explain the problems with "Shooting from the Hip."
- 7226.2 Describe the following terms a tracker may encounter:
  - 7226.2.1 Conclusive evidence
  - 7226.2.2 Substantiating evidence
  - 7226.2.3 Conclusively human
  - 7226.2.4 Corroborant sign
  - 7226.2.5 Spoor
  - 7226.2.6 Ghost tracks
  - 7226.2.7 Bleeding eye syndrome
  - 7226.2.8 Prime sign area
  - 7226.2.9 Aerial spoor
  - 7226.2.10 Arch
  - 7226.2.11 Back Track
  - 7226.2.12 Degree of Wear
  - 7226.2.13 Baselines

7226.2.14 Individual Characteristics

7226.3 Explain what information is needed from people who state that they are trackers.

7226.4 Explain some of the legal ramifications in signcutting/tracking mistakes.

7226.5 Explain why a tracker must prove everything.

7226.6 Describe why you shouldn't give interviews.

**7227 Certification / Recertification / Reciprocity**

**7227.1** Discuss the process by which personnel are certified, recertified or otherwise recognized as a tracker in the Virginia Search & Rescue program.

