FSGA/HAAF GARRISON
FT. STEWART, GA 31314

GARRISON SAFETY SOP – ANNEX Y

EXCAVATIONS AND TRENCHING

FSGA/HAAF Safety Program SOP
6 November 2024

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1. Purpose:

This Annex to the FSGA/HAAF Garrison Safety and Occupational Health (SOH) SOP describes the approved methods for planning and conducting excavations, trenching, and shoring. This regulation will help ensure the safety of FSGA/HAAF personnel, facilities, and equipment when excavating in accordance with OSHA 29 CFR 1926, Standards for the Construction Industry.

2. Scope

This Annex to the Garrison SOH SOP applies to all military and civilian personnel assigned to the FSGA/HAAF Garrison. It is intended to provide additional information so all levels of leadership, SMs, and civilian workforce can properly implement the Garrison SOH Program.

3. References

29 CFR 1910 OSHA Standards for General Industry

29 CFR 1926, OSHA Standards for Construction Industry, Subpart P, Excavations

AR 25-400-2, The Army Records Information Management System (ARIMS)

AR 385-10, The Army Safety Program

DA Pam 25-403 – Guide to Recordkeeping in the Army

DA Pam 385-10, Army Safety Program

4. Records Management:

Records created throughout the processes prescribed by this Annex will be identified, maintained, and disposed of according to AR 25-400-2 (The Army Records Information Management System (ARIMS) and DA Pam 25-403 (Guide to Recordkeeping in the Army). The primary means of recordkeeping for the Garrison Safety Office (GSO) will be the Army Safety Management Information System (ASMIS) located at https://mishap.safety.army.mil . Record titles and descriptions are available on the ARIMS website https://www.arims.army.mil

5. Specific Excavation Requirements

- All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees (e.g., adjacent structures, trees, boulders, sidewalks, curbs, gutters, power/light poles, mailboxes, etc.).
- **Underground Installations:**
    - Estimated location of utilities, such as sewer, telephone, fuel, electric, water lines or any other underground installations that reasonably may be expected to be encountered during excavation work shall have been determined prior to opening an excavation.
    - Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

- When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by **safe and acceptable means.**
  - The use of hand tools being used to probe for underground installations is acceptable only if used in conjunction with detection equipment.
  - Non-conductive hand tools such as “shooters” are an acceptable means for locating underground utilities without using detection equipment when used with appropriate caution.
  - Hydro-vacuum excavation equipment that can be adjusted to use a minimum amount of water and suction pressure, and when appropriately adjusted so the equipment will not damage underground utilities (especially utilities that are particularly vulnerable to damage, such as electrical lines). This type of equipment would be considered an "acceptable means" of locating underground utilities. However, if the equipment cannot be sufficiently adjusted, then this method would not be acceptable under the OSHA standard.
- While the excavation is open, underground installations shall be protected, supported, or removed as necessary to safeguard employees.

- **Access and Egress**
  - **Structural Ramps:**
    - Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design and shall be constructed in accordance with the design.
    - Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.
    - Structural members used for ramps and runways shall be of uniform thickness.
    - Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.
    - Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.
    - Where employees or equipment are required or permitted to cross over excavations, walkways or bridges will be equipped with standard guardrails.
  - Means of egress from trench excavations. A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.
- **Exposure to vehicular traffic.** Employees exposed to public vehicular traffic shall be provided with and shall wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

- **Exposure to falling loads.** No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 29 CFR 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.
- **Warning system for mobile equipment.** When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand, or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
- **Hazardous Atmospheres:**
    - **Testing and controls.** In addition to the requirements set forth in subparts D and E of 29 CFR 1926.50-1926.107, to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:
        - Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.
        - Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with FSGA/HAAF SOH SOP, Annex T, Confined Spaces.
        - Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.
        - When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.
    - **Emergency rescue equipment:**
        - Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.
        - Employees entering bell-bottom pier holes will be protected by the installation of a removable-type casing of sufficient strength to resist shifting of the surrounding earth. Such temporary protection will be provided for the

full depth of that part of each pier hole that is above the bell. Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

- **Protection from hazards associated with water accumulation:**
  - Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
  - If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.
  - If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with preceding paragraphs (h)(1) and (h)(2).
- **Stability of adjacent structures:**
  - Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.
  - Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:
    - A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure
    - The excavation is in stable rock
    - A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity
    - A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.
  - Sidewalks, pavements, and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.
- **Protection of employees from loose rock or soil:**

- Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.
- Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary. This requirement includes temporary or permanent spoil.
  - Temporary spoil must be placed no closer than 2 ft (0.61 m) from the surface edge of the excavation, measured from the nearest base of the spoil to the cut.
  - Spoils should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

- **Inspections:**
  - Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when work is anticipated or in progress in the excavation or excavation area.
  - Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.
- **Walkways** shall be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with 29 CFR 1926.502(b) shall be provided where walkways are 6 feet (1.8 m) or more above lower levels.

6. Requirements for Protective Systems

One method of ensuring the safety and health of workers in an excavation is to slope the sides to an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal). These slopes must be excavated to form configurations that are in accordance with those for Type C soil found in Appendix B of 29 CFR 1926 Subpart P. A slope of this gradation or less is considered safe for any type of soil (see Figure 1).

- **Protection of employees in excavations.**

- Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with this Annex except when:
  - Excavations are made entirely in stable rock
  - Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.
- Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

- **Design of sloping and benching systems.** The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (b)(1); or paragraph (b)(2); or paragraph (b)(3); or paragraph (b)(4), as follows:
  - **Option (1)** - Allowable configurations and slopes.
    - Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.
    - Slopes specified in Appendix B, shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B of 29 CFR 1926 Subpart P.
  - **Option (2)** - Determination of slopes and configurations using 29 CFR 1926 Subpart P, Appendices A and B. Maximum allowable slopes, and allowable configurations for sloping and benching systems, shall be determined in accordance with the conditions and requirements set forth in appendices A and B.
  - **Option (3)** - Designs using other tabulated data.
    - Designs of sloping or benching systems shall be selected from and in accordance with tabulated data, such as tables and charts.
    - The tabulated data shall be in written form and shall include all of the following:
      - Identification of the parameters that affect the selection of a sloping or benching system drawn from such data
      - Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe
      - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
    - At least one copy of the tabulated data which identifies the registered professional engineer, who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the GSO upon request.
  - **Option (4)** - Design by a registered professional engineer.

- Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under this Annex shall be approved by a registered professional engineer.
- Designs shall be in written form and shall include at least the following:
  - The magnitude of the slopes that were determined to be safe for the particular project
  - The configurations that were determined to be safe for the particular project
  - The identity of the registered professional engineer approving the design.
- At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.

- **Design of support systems, shield systems, and other protective systems.** Designs of support systems, shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of this Annex as follows:
  - **Option 1** - Designs using Appendix B. Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in appendices A and C to this subpart. Designs for aluminum hydraulic shoring shall be in accordance with this annex, but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with appendix B.
  - **Option 2** - Designs Using Manufacturer's Tabulated Data.
    - Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.
    - Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.
    - Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the Secretary upon request.
  - **Option 3** - Designs using other tabulated data.
    - Designs of support systems, shield systems, or other protective systems shall be selected from and be in accordance with tabulated data, such as tables and charts.
    - The tabulated data shall be in written form and include all of the following:
      - Identification of the parameters that affect the selection of a protective system drawn from such data
      - Identification of the limits of use of the data

        - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
    - At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.
- **Option 4** - Design by a registered professional engineer.
    - Support systems, shield systems, and other protective systems not utilizing Option 1, Option 2 or Option 3, above, shall be approved by a registered professional engineer.
    - Designs shall be in written form and shall include the following:
        - A plan indicating the sizes, types, and configurations of the materials to be used in the protective system.
        - The identity of the registered professional engineer approving the design.
    - At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Secretary upon request.

- **Materials and equipment.**
    - Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.
    - Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.
    - When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service and shall be evaluated and approved by a registered professional engineer before being returned to service.
- **Installation and removal of support**
    - General.
        - Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.
            - Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.
            - Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

        - Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.
        - Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.
        - Backfilling shall progress together with the removal of support systems from excavations.
    - Additional requirements for support systems for trench excavations.
        - Excavation of material to a level no greater than 2 feet (.61 m) below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.
        - Installation of a support system shall be closely coordinated with the excavation of trenches.
- **Sloping and benching systems.** Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.
- **Shield systems**
    - General.
        - Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.
        - Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.
        - Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.
        - Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.
    - Additional requirement for shield systems used in trench excavations. Excavations of earth material to a level not greater than 2 feet (.61 m) below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.
- To avoid possible failure of a protective system, the employer must ensure that:
    - Materials and equipment are free from damage or defects

- Manufactured materials and equipment are used and maintained in a manner consistent with the recommendations of the manufacturer and in a way that will prevent employee exposure to hazards
- While in operation, damaged materials and equipment are examined by a competent person to determine if they are suitable for continued use. If materials and equipment are not safe for use, they must be removed from service. These materials cannot be returned to service without the evaluation and approval of a registered professional engineer.

Appendix A – Abbreviations

AR	Army Regulation
ARIMS	Army Records Information Management System
ASMIS	Army Safety Management Information System
CFR	Code of Federal Regulations
COR	Contract Office Representative
DA Pam	Department of the Army Pamphlet
DoDI	Department of Defense Instruction
FSGA	Fort Stewart Garrison
GC	Garrison Commander
GSO	Garrison Safety Office
HAAF	Hunter Army Airfield
OHC	Occupational Health Clinic
OSHA	Occupational Safety and Health Administration
POC	Point of Contact
PPE	Personal Protective Equipment
SM	Service Member
SOH	Safety and Occupational Health
SOHMS	Safety and Occupational Health Management Systems
SOP	Standard Operating Procedure
USO	Unit Safety Officer

APPENDIX B - OSHA 1926 Subpart P, Appendix B

(a) ***Scope and application***. This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in § 1926.652(b)(2).

(b) ***Definitions***.

Actual slope means the slope to which an excavation face is excavated.

Distress means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and raveling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

(c) ***Requirements*** –

(1) ***Soil classification***. Soil and rock deposits shall be classified in accordance with appendix A to subpart P of part 1926.

(2) ***Maximum allowable slope***. The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

(3) ***Actual slope***.

(i) The actual slope shall not be steeper than the maximum allowable slope.

(ii) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least ½ horizontal to one vertical (½H:1V) less steep than the maximum allowable slope.

(iii) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with § 1926.651(i).

(4) ***Configurations***. Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1 MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V)(1) FOR EXCAVATIONS LESS THAN 20 FEET DEEP(3)
STABLE ROCK TYPE A (2) TYPE B TYPE C	VERTICAL (90º) 3/4:1 (53º) 1:1 (45º) 1 ½:1 (34º)

Footnote(1) Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

Footnote(2) A short-term maximum allowable slope of 1/2H:1V (63º) is allowed in excavations in Type A soil that are 12 feed (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53º).

Footnote(3) Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

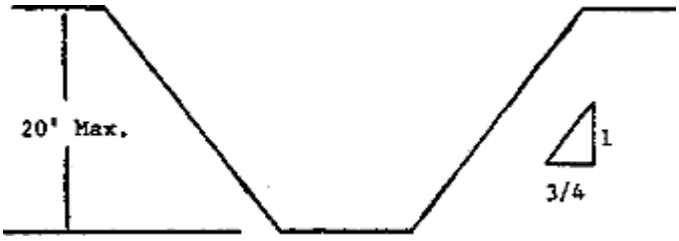
Figure B-1
Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

B-1.1 Excavations made in Type A soil.

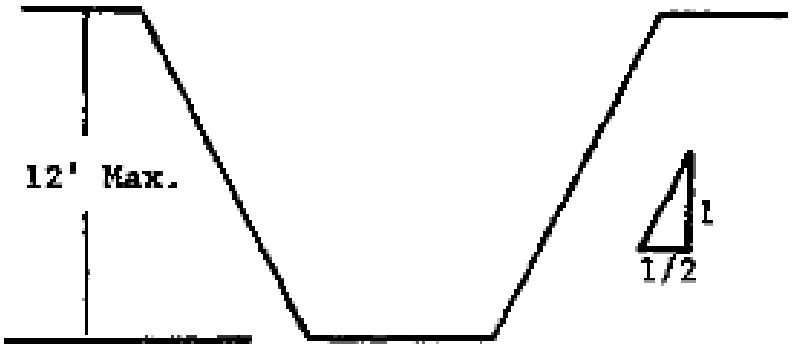
1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of

¾:1.



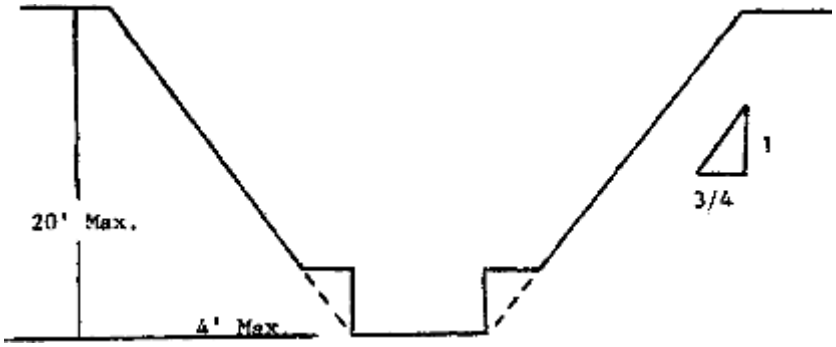
SIMPLE SLOPE -- GENERAL

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1.

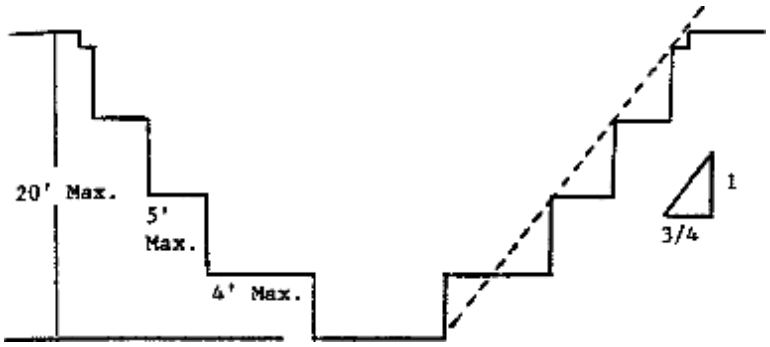


SIMPLE SLOPE -- SHORT TERM

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:

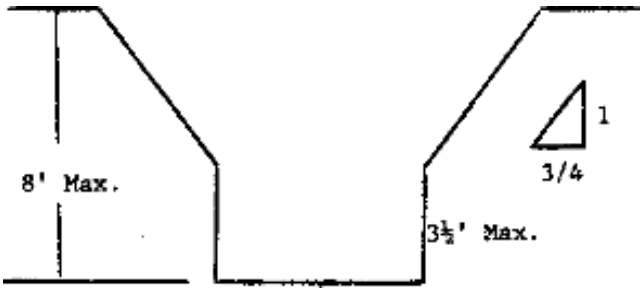


SIMPLE BENCH



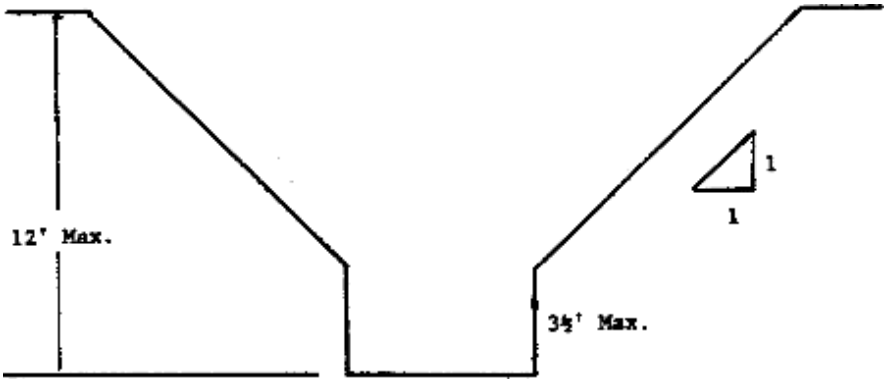
MULTIPLE BENCH

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



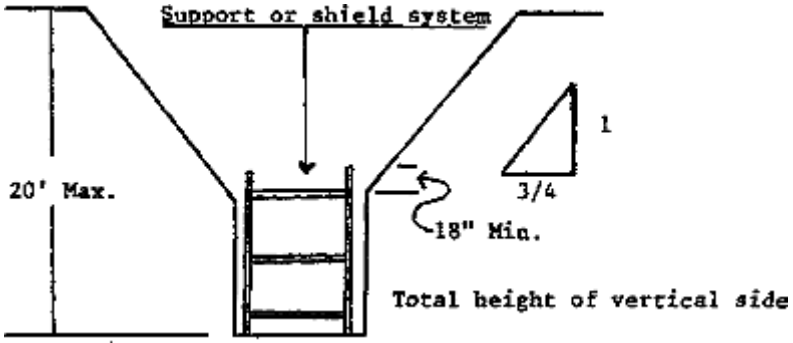
UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 8 FEET IN DEPTH

All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.



UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 12 FEET IN DEPTH

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

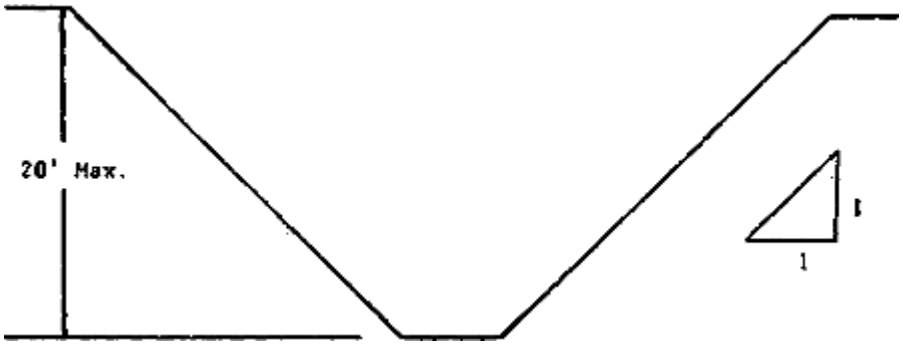


SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

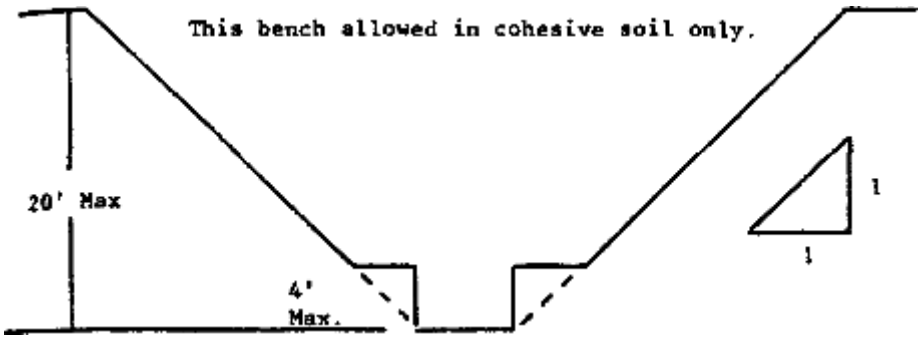
B-1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

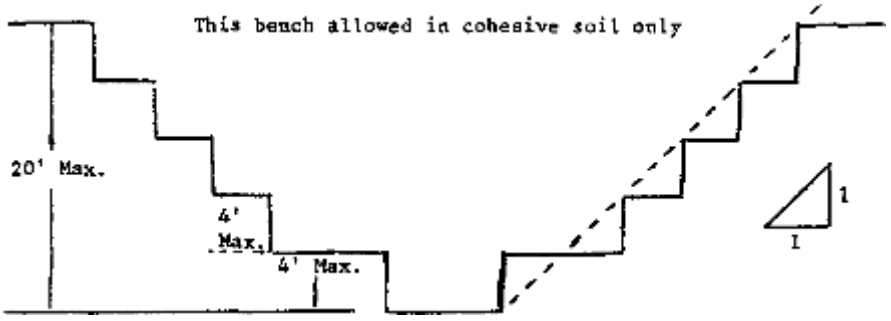


SIMPLE SLOPE

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

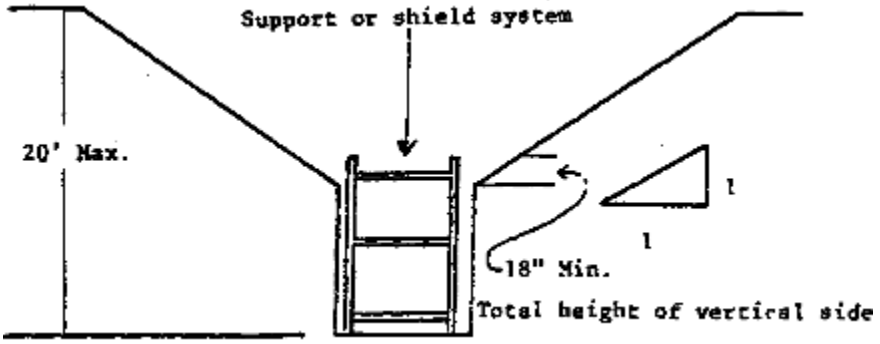


SINGLE BENCH



MULTIPLE BENCH

3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

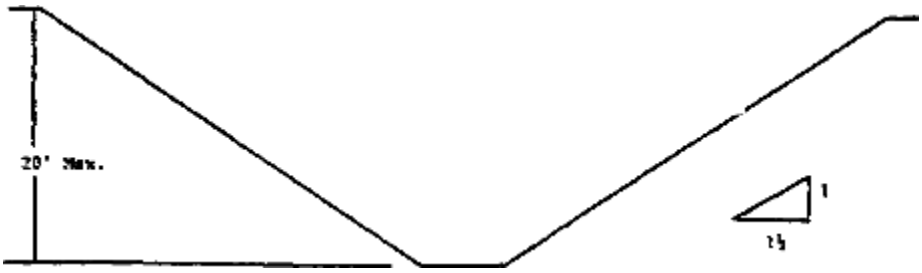


VERTICALLY SIDED LOWER PORTION

4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

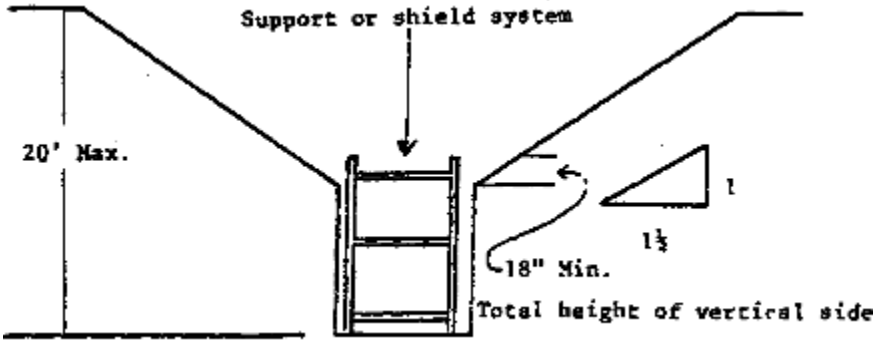
B-1.3 Excavations Made in Type C Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



SIMPLE SLOPE

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

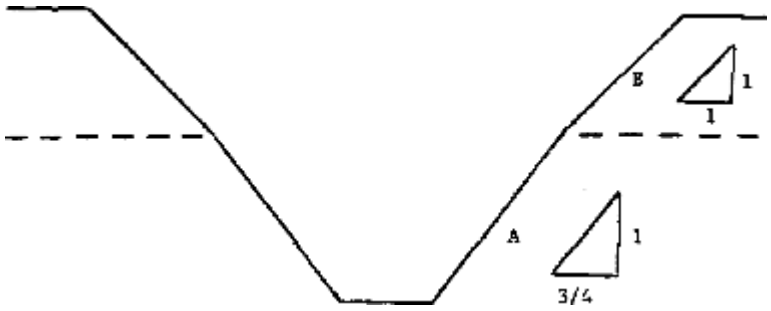


VERTICAL SIDED LOWER PORTION

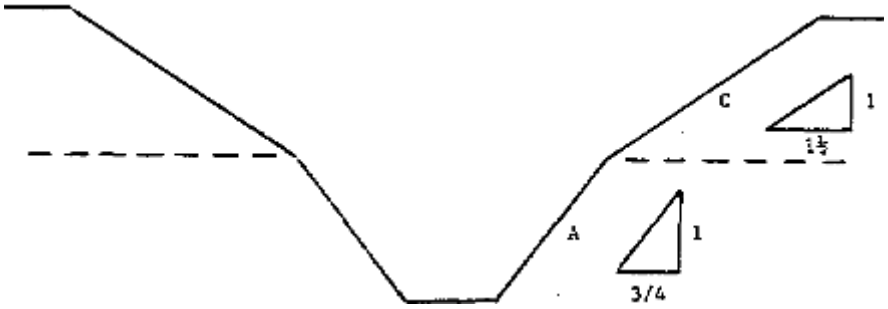
3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B-1.4 Excavations Made in Layered Soils

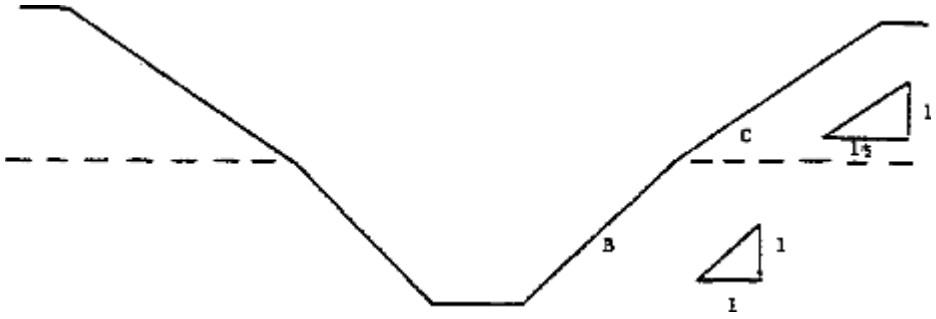
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



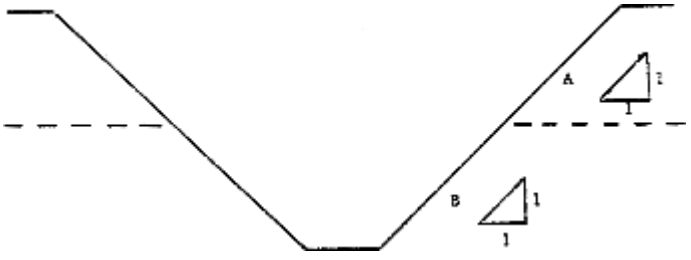
B OVER A



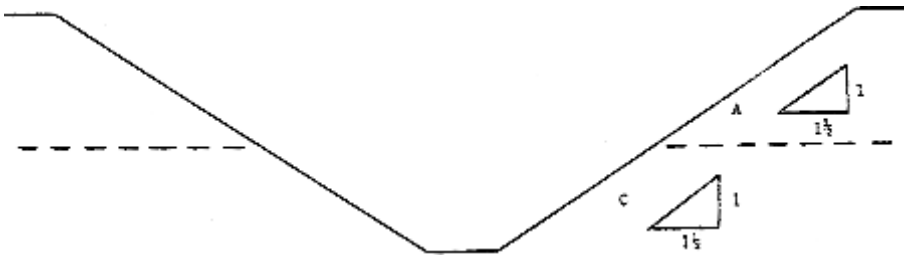
C OVER A



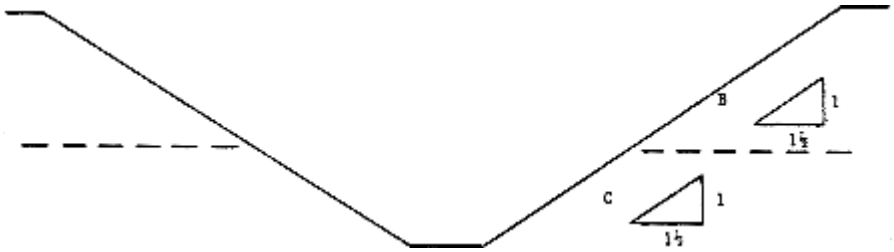
C OVER B



A OVER B



A OVER C



B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

APPENDIX C – ANNUAL GSO REVIEWS

DATE	REVIEWED BY	CHANGES Y/N	SUMMARY OF CHANGES
	MASNICK.GREGORY.SEAN.1058383160 Digitally signed by MASNICK.GREGORY.SEAN.1058383160 Date: 2024.11.13 07:25:08 -05'00'		