



2600SEG134 SAFETY STANDARD FOR EXCAVATIONS

HUMAN RESOURCES DEPARTMENT SAFETY AND INDUSTRIAL HYGIENE UNIT	TOPIC: VERIFICATION LIST FOR XCAVATIONS	REVISIÓN A	PAGE 1 OF 4
TO BE USED WITH STANDARD 2600SEG134 SAFETY STANDARD FOR EXCAVATIONS		DATE REVISED: 23-MAY-07	EFFECTIVE DATE: 23-MAY-07

DETAILS	REQUIREMENTS	NUMBER	YES/ NO
GENERAL PLANNING - 6.0			
EVIDENCE BY COMPETENT PERSON	There is evidence that the works have been studied, planned, and have been initiated under the supervision of a competent person.	6.1	
PRIOR STUDY OF THE TERRAIN	A study of the terrain was performed prior to its opening, with the objective of knowing about its stability and the possible existence of underground installations, especially electrical, waste, or potable water infrastructure at the site.	6.1.4	
EMERGENCIES	Emergency accesses and exits have been built (use of hand ladders, ramps, or other means of access or exit).	6.1.1	
RELEASES	The release from the units responsible for the utilities were requested and executed, as well as the location of the reference stakes, prior to the excavation.	6.1.2	
APPROVED PROTECTION SYSTEMS	Measures to guarantee the safety of workers have been undertaken, such as the installation of props, protection for uneven ground, and earth movement with adequate slopes and/or footways.	6.1.3	
DEPTH	Is the depth of the ditch equal or greater than 1.5 m.? Is it propped and/or do the angles of repose meet the standards or recommendations?	6.1.6	
PRECAUTIONARY MEASURES	Avoid the accumulation of excavated material and equipments near the border of the ditches. If unavoidable, take precautions to keep the walls from collapsing and the materials from falling to the bottom.	6.1.5	
DISTANCES	Place the excavated material, equipment, trucks, or any other cargo at a distance less than half of the depth of the excavation.	6.1.5	
CHECK BEFORE RESTARTING WORK	In case rain or water flows flood the excavation, a thorough and detailed check must be conducted before restarting the works.	6.1.7	
CONTROL OF SUPERFICIAL / SUBTERRANEAN WATERS	Any water gushing or falling into the excavations must be diminished and controlled effectively and immediately to prevent changes in the stability of slopes.	6.1.7	

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DETAILS	REQUIREMENTS	NUMBER	YES/ NO
DIVERSION OF WATERS	During the rainy season or for torrents coming from drainages, leaks, or springs, preventive measures are taken to divert the waters.	6.1.7	
USE OF MACHINES AND VENTILATION	Machines powered by combustion engines, which produce gases such as carbon monoxide, are installed inside the excavations and the equipment necessary for their extraction is not used.	6.1.8.	
PROTECTION OF EXCAVATIONS			
CHECKS	Props are checked before beginning the work day.	6.2.1	
PREVENTIVE MEASURES	Preventive measures are heightened following work interruptions of more than one day or atmospheric alterations such as rains.	6.2.1	
EFFECTIVENESS	Props work as a protection system to keep waters from falling to the bottom of the ditch and act as a temporary pluvial drain keeping them away.	6.2.1	
FOOTRAIL (recommended)	A railing that is higher than the protective walls of the excavation by at least 20 cm. over the border of the ditch to act as footrail and to keep objects and materials from falling into the ditch.	6.2.2	
OTHER PROTECTIVE MEASURES	When excavation operations get close to the estimated location of an underground installation, all the necessary protective measures shall be undertaken, such as: protecting the underground installation, manual excavation, shoveling, using gloves or other safety equipment recommended.	6.2.3	
LOCATION OF LADDERS, ACCESS RAMP	If the excavation is 1.2 meters or more deep, at least, a ladder, steps, ramps, or any other means of safe exit must be placed at no more than 7.5 m from the area where the workers are located.	6.2.4	
HANDLING MATERIALS	The workers inside the ditch must be away from the reach of any vehicle while loading and unloading material to prevent being injured by materials or equipment.	6.2.5	
DIVERSION OF WATERS	If the excavation works interrupt the natural drainage of water, divert the waters by using ditches, dikes, or other adequate means to keep water from penetrating the excavation.	6.2.6	
ADJACENT STRUCTURES	When the stability of adjacent buildings, walls, or other structures is in danger because of excavation operations, use support systems such as props, buttresses, and other structures approved for retention and support.	6.2.7	

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DETAILS	REQUIREMENTS	NUMBER	YES/ NO
DAILY INSPECTION BY A COMPETENT PERSON	A competent person performs daily inspections of the excavations, adjacent areas, and protection systems to determine if there is evidence of a situation that may cause slides, failures of the protective systems, and dangerous weather conditions.	6.2.8	
CROSSING OVER EXCAVATIONS	If workers are required or allowed to cross over the excavations there are bridges with guardrails.	6.2.9	
SAFETY AT THE END OF THE WORK DAY	At the end of each work day the excavation is covered, signs indicating there is an excavation in progress are set in place, and the area is cordoned off if the cover cannot resist the passage of pedestrian or vehicular traffic.	6.2.10	
UNNECESSARY EXCAVATIONS	More ditches than those necessary have been opened.	6.2.10	
EXCAVATION EQUIPMENT	When it is necessary to leave the excavator unattended, place the blade, digging bucket, or shovel dipper at ground level and lock the ignition system at the off position.	6.2.11	
PREPARATIONS - 6.3			
VERIFY:	That all personnel going to work inside the excavation knows about the dangers involved and how to control them.	6.3.1	
	The impact on adjacent activities	6.3.2.	
	Proximity to buildings	6.3.3	
	Installations of public utilities, roads of high traffic, and any other source of vibrations.	6.3.4	
	Underground services and installations, mainly electric, to avoid possible contacts.	6.3.5	
	Soil conditions	6.3.6	
	Obtainment of necessary permits and coordination	6.3.7	
TALUS - 6.4			
SLIDES	Each worker in the excavation is protected from slides by means of an adequate protection system [talus, or terraces, or a system of propping or buttressing]. Note: Excavations made in stable rock, or less than 1.5 m deep, and if a ground check performed by a competent person indicates that there is no evidence of a potential slide.	6.4	

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DETAILS	REQUIREMENTS	NUMBER	YES/ NO
PROTECTION SYSTEMS - 6.5			
C O N S I D E R A T I O N S	When a protection system is selected, the competent person considers the type of soil, sources of vibration, any earth works that have already taken place on the surface, presence of water, layers of soil, heavy equipment adjacent to the excavation, limited work area, and other dangerous conditions that may arise.	6.5	
	An approved option is the use of taluses to take to the ground the excavated material until it reaches its angle of repose.	6.5.1	
	Another approved option is the protection of the excavation face using a shoring system.	6.5.2	
	Use props or a shoring system if no taluses are made.	6.5.3.	
	To remove the props begin from below and continue to the top of the excavation, and to install the prop, do it the opposite way.	6.5.4	
PERSONAL PROTECTION EQUIPMENT - 6.6			
SUPPLIES	Workers that work in the excavation are provided with hard hats, safety or rubber boots, and other protection gear necessary for each specific risk.	6.6.1	
VESTS	Employees working in the excavation and that are exposed to vehicular traffic wear orange reflective vests or other safety garments.	6.6.2	
TRAINING - 6.7			
EDUCATION AND INFORMATION	Operators working inside the excavations are duly informed and trained on rescue procedures, dangers, and controls.	6.7.1	