

# STEEP GRADE INSTALLATION



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Section:	15	Revision Number:	01
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## 1. IDENTIFY STEEP GRADE LOCATIONS

- a. Steep grade installation locations will be identified on each project by the Superintendent, Foreman and Health, Safety and Environment (HS&E) Supervisor. Grades 25 degrees and over must be evaluated to determine what aspects, if any, of the plan are applicable.

## 2. PLANNING

- a. The Superintendent will initiate a Safe Work Plan meeting with the Foreman and HS&E Supervisor for each identified location at least a week prior to work starting.
- b. The Superintendent, Foreman and HS&E Supervisor will formulate the Plan based on site specific conditions. The Plan will be written by the HS&E Supervisor. The plan will be reviewed, approved and signed by the Superintendent, Foreman and HS&E Supervisor. The Foreman will communicate and train his crew on the Plan through a Daily Job Safety Analysis (JSA), all crew members will participate and sign the JSA prior to starting work. If an employee starts work after the morning JSA was given, the employee will receive the JSA training from the Foreman or HS&E Supervisor prior to starting work. The Plan will be reviewed, updated and communicated to the crew daily through the JSA process. If a notable change occurs during the work process (environmental, equipment, personnel etc.) the work will be stopped, the Plan will be changed to address the new circumstances and communicated to the crew and signed by all affected employees.

## 3. EMPLOYEE SELECTION

- a. The Superintendent will ensure the Foreman is competent, through knowledge, experience and professionalism with steep grade installation processes. The Foreman will go through a process of selecting the most qualified, experience and competent crew for the steep grade and will be accountable for their experience and competency. The crew selection will be demonstrated in the Site-Specific Plan, identifying positions and experience. The HS&E Supervisor will be experienced in steep grade installations and will be properly trained and knowledgeable on the items listed in the Safe Work Plan.

## 4. EQUIPMENT

- a. All pipe layers utilized in steep grade applications will be equipped with short booms, 24' in length or less, to maximize stability. Equipment operators will be instructed to carry the pipe and maintain a boom position that maximizes stability to the machine and pipe. Boom raising and lowering will be directed by the foreman on site.
- b. Dozer tractors will be equipped with 1 ¼ inch high grade cable with becketts and open spelter socket ends on the winch cable. All connection points will meet or exceed 100 percent of the cable strength.

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- c. 1 ½ inch high grade cable with machined eyes will be used for slings utilized in aiding equipment or pipe up or down the steep grade.
- d. All nylon slings utilized in aiding and stabilizing the pipe up or down the steep grade will have a capacity rating exceeding the weight of the pipe. The nylon sling will be secured to prevent slippage and softeners will be placed to protect against abrasive edges.
- e. Equipment operators will conduct a thorough inspection of the equipment, cables and accessories per manufacturer recommendations each day and/or shift prior to work beginning. The HS&E Supervisor will ensure all equipment inspections are completed correctly, collected and maintained in the project file. All deficiencies identified will be repaired or new equipment will be procured prior to commencing work.
- f. Hands free communication and push to talk devices will be utilized for all steep grade installations. The Foreman, crew and HS&E Supervisor will all utilize the devices. The Foreman will direct the work from a safe location, allowing only necessary communications to occur. All personnel utilizing the communication devices will be trained on the use, care and storage of the devices. Communication devices will be inspected and tested prior to beginning work to ensure operational abilities. All deficiencies identified will be repaired or new communication devices will be procured prior to commencing work.
- g. When parking on an incline, equipment must be parked in a manner that will prevent unintentional movement of the equipment. (i.e. parking equipment perpendicular to the incline and against a berm or other sufficient barrier for the conditions, placing buckets, blades or load on the ground, setting the parking brake and putting the transmission in the manufacturer specified park position)

## 5. INSTALLATION PROCESS

- a. Installations will always be attempted to be made from the bottom of a steep grade working up the grade. Superintendent, Foreman and HS&E Supervisor will ultimately deem the safest way for the site conditions.
- b. The Superintendent, Foreman and HS&E Supervisor will include in the Plan, number and type of anchoring equipment, maximum number of joints to be carried and securing methods based on site specific conditions. This information will be documented on the JSA form as needs and conditions may change constantly.
- c. No personnel or equipment will be allowed in “The Line of Fire” below the operation. The HS&E Supervisor or another designated person will be present to ensure all personnel stay clear and to assist monitoring the entire operation.
- d. All equipment will be removed from the site by the safest route, which will be determined by the Superintendent, Foreman and HS&E Supervisor and indicated on the Plan.