

FHWA Roadway Departure Technology Transfer
Roadside Safety Systems Installer Training

Session 4: Pre-Installation Considerations

Course Topics

- Session 3 – Guardrail Design and Site-specific Installation Considerations
- **Session 4 – Pre-Installation Considerations**

Session 4 Objectives

- Review project plans & specifications
- Visit jobsite
- Schedule manpower and equipment
- Identify personnel safety needs

Session 4 Outline

- Preliminary Project Analysis – Contractor
- Pre-installation Review – “Review Team”
- Job Site Analysis
- Vehicle and Equipment Analysis
- Project Personnel Safety Analysis



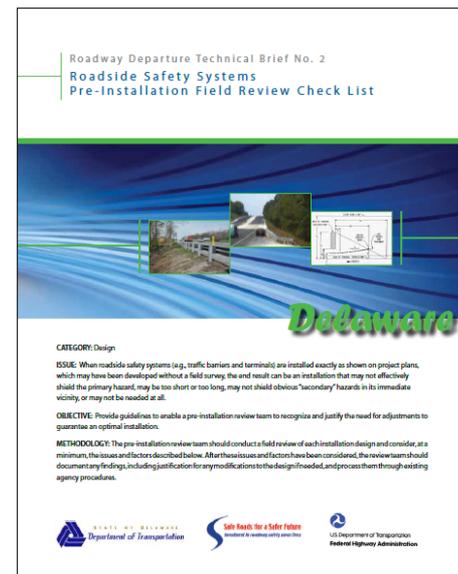
Preliminary Project Analysis

- Receive, read, understand, and complete the contract or work order.
- Mark project plans to include estimating notes and installation ideas to complete the project within estimate and on time.
- Do a value engineering analysis of existing bid items. Notify engineer of possible changes to evaluate.
- If acting as a subcontractor, call the prime contractor to coordinate scheduling.

Pre-installation Review Guidelines

The following is an example of a ***Pre-installation Review*** that one State has done. Delaware may want to consider a similar program.

See Technical Brief # 2.



Pre-installation Review Guidelines

A pre-installation review is performed to ensure an optimal installation.

These reviews are conducted on all interstate, expressway and/or other projects where federal oversight is being done.

Pre-installation Review Guidelines

The “review team” would consist of the ***PennDOT Inspector-in-Charge, District guardrail Mentor, FHWA Representative and Contractor’s Representative.***

Prior to the review the contractor must place temporary markers to indicate the locations of all permanent traffic barrier and end treatments.

Pre-installation Review Guidelines

Reviews will look at the following items:

- Barrier Length of need
- End terminal/crash cushion selection
- Slopes and grading
- Miscellaneous – existing barriers to be removed, other locations within the project limits that need to be addressed, areas where barriers can be reduced or eliminated.

Pre-installation Review Follow-Up

- Revisions made through existing procedures.
- Information transmitted to design as lessons learned.
- Summaries annually for statewide action.

Job Site Analysis: Site Visit

- Check for **existing conditions** that may cause potential problems for field crews:
 - Culverts – check fill depth
 - Bridges – check for correctly formed wing walls (including correct pattern & depth for inserts).
 - Curbing/sidewalk -
 - Ask whether to take grade from roadway or from curb/sidewalk.
 - Discuss liability for repair of sidewalk after post installation.

Job Site Analysis: Site Visit

- Paved slopes
 - Saw through paving before driving posts and patch after posts are driven with in-kind material.
- Ditches/Slopes
 - Verify correct lateral placement
- Site Grading
 - Verify adequate recovery area exists.
- A minimum of 3 working days before starting project, call the utility locator.



Job Site Analysis



➤ Other Critical / Last Minute Details:

- Ensure proper traffic control will be provided.
- Be aware of local labor service for employment if additional personnel is needed.
- If material is taken from inventory, load now. If material requirements change, notify material supplier and confirm delivery date, time, location.
- Let the prime contractor know you are mobilizing.

Vehicle and Equipment Analysis

➤ Vehicles

- Crew truck with capability to transport men, material, and tools.
- 2-5 ton flat bed material hauler capable to pull a trailer.
- Large rotating amber beacon or strobe lights mounted to each vehicle and clearly visible for 360-degrees around the vehicle (all vehicles including construction equipment)



Note that the road is closed as there is no traffic control

Vehicle and Equipment Analysis

➤ Primary Equipment

- 25-ton, 25-ft trailer to haul material and or equipment.
- Remote from operating station drop hammer or vibratory post driver.
 - Other attachments: post puller, pressure auger, down hole hammer rock drill. Usually mounted on a 2-ton truck.
- Arrow board, channelizing devices, truck mounted attenuator and temporary traffic control signs.



Vehicle and Equipment Analysis

➤ Specialized Equipment

- Backhoe
- Skid steer
- Forklift
- Knuckle boom truck
- Grass trimmer



- ## ➤ All vehicles and equipment are subject to scheduled inspection and maintenance procedures and documentation.

Project Personnel Safety Analysis

5 Areas

- Personal Protective Equipment
- Personnel Safety Procedures
- Identification of Procedures for Hazardous Materials
- Crew Briefing
- Verification of Special Skills Certification



Project Personnel Safety Analysis: Personal Protective Equipment

➤ **Mandatory safety equipment**

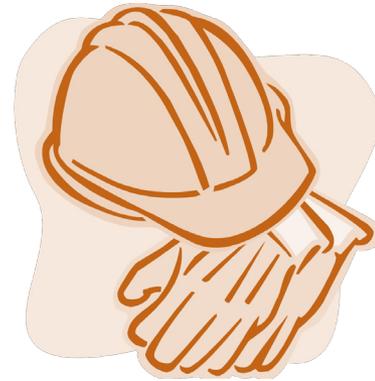
(unless otherwise directed by local agency)

- Head protection (hard hats)
- Eye protection (safety glasses)
- Foot protection (safety toe / composite)
- High visibility safety apparel (retroreflective vests)
- First aid kit in all crew trucks & all company locations



➤ **Optional safety equipment**

- Hand protection (gloves)
- Weather-related clothing (rain suit)



Project Personnel Safety Analysis: Personnel Safety Procedures

- Pre-hire, annual, and/or random drug testing?
- Equipment operation
- Emergency procedures
 - Locate nearest hospital
- Evacuation plans
- Accident reporting
 - Notification of insurance
 - Report injuries



Project Personnel Safety Analysis: Hazardous Materials

- Identification of and procedures for Hazardous Materials
 - Hazardous Materials Handbook (zinc poisoning from oxygen and acetylene torch).
 - Receiving and transporting of Hazardous Materials: galvanized material, gasoline, diesel, hydraulic fluid, antifreeze, explosives and caps.
 - Schedule and amount of explosives (if used).
 - Documentation of inventory.
 - Material Safety Data Sheets (MSDS) / discuss with crew.
 - Disposal of Hazardous Material (Uniform Hazardous Waste Manifest).



Project Personnel Safety Analysis: Crew Briefing

- Crew briefing
 - Plans
 - Estimate notes and installation ideas
 - Jobsite conditions
 - Pre-trip inspection of equipment/loaded material
 - Review reporting procedures
 - Daily safety briefing
 - Confirm crew understands by asking questions

Project Personnel Safety Analysis: Special Skills Certification

- Verification of special skills certifications
 - Contractor's license
 - Certified Installer certification (required by some DOTs)
 - CDL license
 - Equipment Operator license/certifications
 - company post driving training
 - fork lift training
 - backhoe training
 - skid steer training
 - Traffic control flagging certification



Session 4 Outcomes

- Interpret Plans and Specifications.
- Visit Installation Site(s).
- Schedule Manpower & Equipment Needed.
- Ensure Adequate and Proper Safety Measures are Followed.