

# Accelerated Bridge Construction Applications in New Mexico



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# ABC Design Mandate

- **Institutional Support**
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- **Contractor Support**



# NMDOT Bridge Design Guide



New Mexico DEPARTMENT OF  
**TRANSPORTATION**  
MOBILITY FOR EVERYONE

## Bridge Procedures and Design Guide

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### DESIGN PROCESS

comments are incorporated, the plans need to be accepted and signed by the State Bridge Engineer or Bridge Bureau representative. The final plans are then ready to be submitted to the PS&E Bureau for inclusion into the bidding documents.

#### 2.2 BRIDGE DESIGN PROCESS

The process of bridge design can usually be divided into the following phases:

1. Bridge Type Selection and Layout Preparation
2. Foundation Investigation and Analysis (performed by the NMDOT Geotechnical Section)
3. Detailed Design and Plan Development
4. Checking, Reviews, and Approvals

The following sections briefly discuss each of these phases.

##### 2.2.1 Bridge Type Selection and Layout Preparation

In selecting the bridge structure type, the following should be considered:

1. Functional Requirements
2. Economics
3. Future Maintenance
4. Construction Feasibility
5. Aesthetics
6. Accelerated Bridge Construction

A Bridge Type Selection Report will be prepared for all bridge projects. Each bridge project should be reviewed for being a potential candidate for Accelerated Bridge Construction (ABC). An alternate utilizing ABC shall be discussed in the Report. ABC is bridge construction that uses innovative planning, design, materials, and construction methods in a safe and cost-effective manner to reduce the onsite construction time that occurs

when building new bridges or replacing and rehabilitating existing bridges. Examples of ABC may include the use of prefabricated bridge elements and systems (PBES), geosynthetic reinforced soil (GRS) and slide-in bridge construction. While not every bridge project may be a candidate for ABC, the Bridge Engineer will be responsible for weighing out advantages/disadvantages and costs for ABC on each bridge project.

The Report shall be coordinated with the Department and include a weighted decision matrix. The matrix shall include criteria for bridge type cost, anticipated bridge life, user delay costs, and traffic control costs. Other criteria may be added.

Additionally, preliminary bridge layouts will be required in the Report to ensure that serviceability requirements are met and that the proposed bridges are cost effective. The preliminary bridge layout for each bridge shall be approved for serviceability and cost effectiveness by the State Bridge Engineer or his representative before final bridge design begins.

Prior to beginning the Bridge Type Selection and Layout Preparation phase, the bridge design engineer will require, at a minimum, the following information:

1. Project Scoping Report
2. Project Survey Information
3. Project Roadway Typical Section Sheet
4. Project Roadway P&P Sheets
5. Preliminary Drainage Report (for stream crossing structures)
6. Clearance requirements for crossings other than stream crossings.
7. Preliminary Interchange Layout Sheets (for grade separation structures)

The functional requirements for the structure are obtained from the sources listed above as

# Recent Projects

- **NM-13 over Eagle Draw,  
near Roswell, NM**
- **I-10 over Avenida de Mesilla,  
Las Cruces, NM**
- **I-25/Paseo del Norte Interchange,  
Albuquerque, NM**



# Full-Depth Partial-Width Precast Deck Panels



**NM 13 over Eagle Draw**



# Underside View



# Overhang From Below



# Completed Bridge

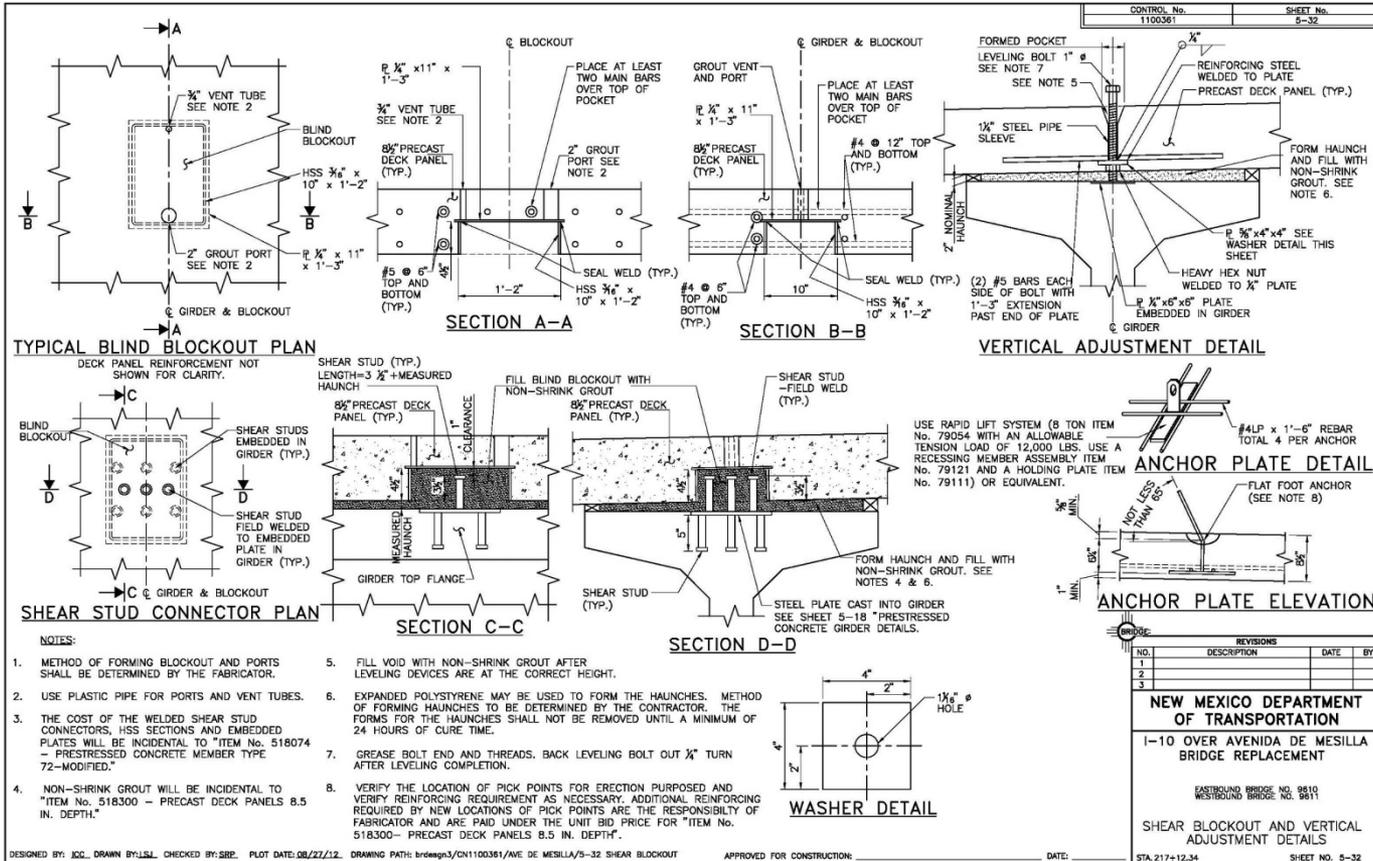
# Full-Depth Full-Width Precast Deck Panels



## I-10/Avenida de Mesilla Interchange

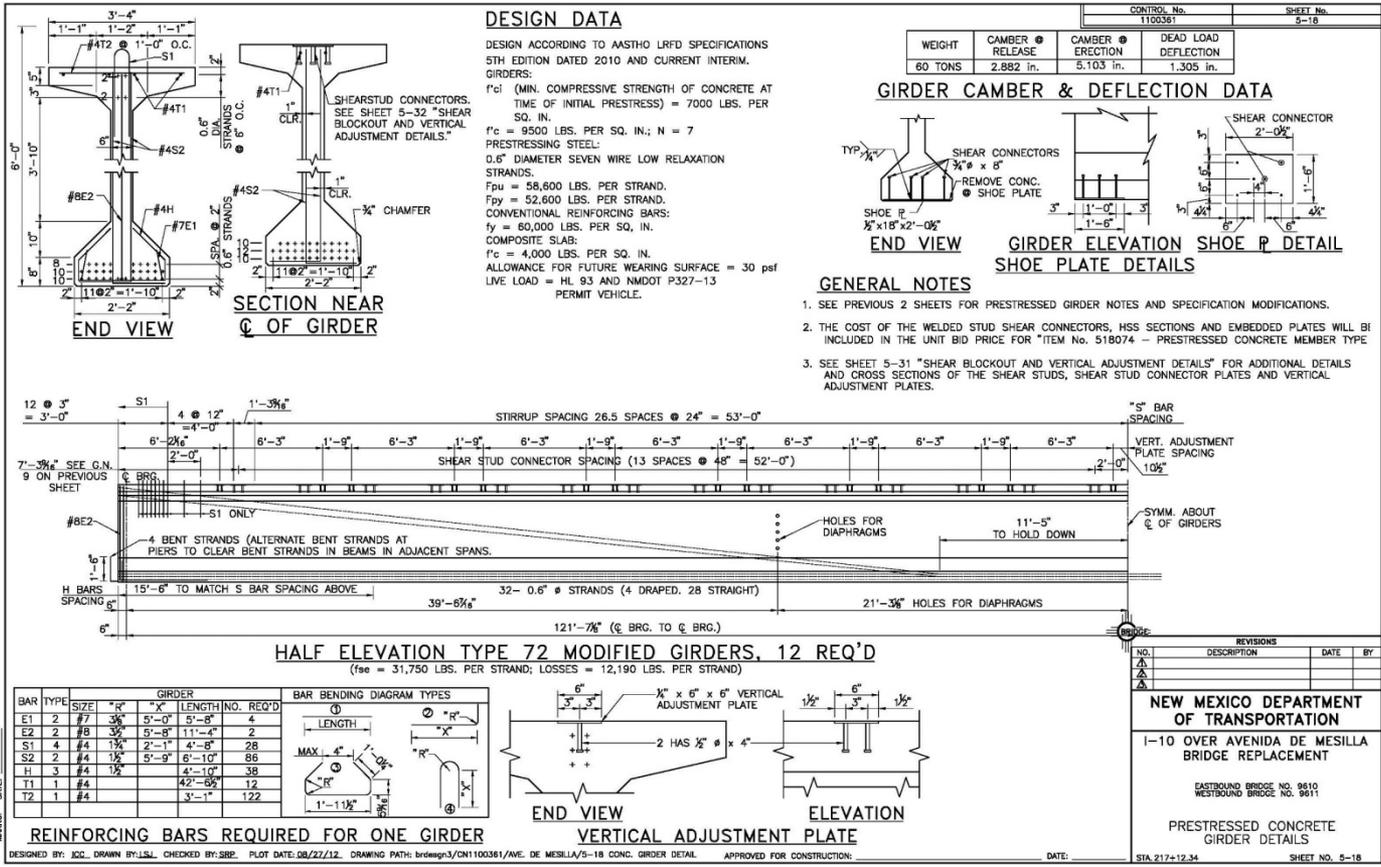






# Panel Details

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# Special Girder Details





# Deck Panel Placement



# Levelling Screws



# Panels After Placement



# Completed Bridge



# Completed Bridge

# Geotextile Reinforced Soil (GRS) Abutment Application



**I-25/Paseo del Norte Interchange**



# Tiered GRS over MSE Wall



# Partial Depth Deck Panels



# Questions?