Earth-based methods for raising bridge scaffolding



Overview

The document outlines various erection methods for concrete bridges, including traditional scaffolding, the use of auxiliary beams, cantilever methods, and incremental launching techniques.

Key Takeaways

Movable Scaffolding Systems (MSS) and advanced shoring techniques allow bridge scaffolding to be raised and moved using ground-supported or pier-supported systems without relying on overhead cranes. Movable Scaffolding Systems (MSS)MSS are widely used for constructing multi-span bridges and viaducts, particularly for prestressed concrete decks. They are designed to support the formwork and working platforms while being self-launching or movable along the bridge piers.

There are two main types: Overhead MSS: The main steel structure is above the deck, and the formwork is suspended from it.

Underslung MS

S: The main structure is below the deck, supporting the formwork from underneath. Both types are generally equivalent in terms of weight and cost for the same span and deck load.

MS

S can be assembled and dismantled from the ground or behind abutments, which is particularly useful in areas with limited access, such as rivers, railways, or deep valleys.

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Advanced Shoring and Gantry Systems

For long or multi-span bridges, advanced shoring techniques use movable supporting beams or gantries that rest on the ground or piers. These systems allow the scaffolding to be incrementally advanced span by span: A supporting beam spans one or more bridge sections. Transverse beams along the gantry secure the formwork and working platforms.

Roller bearings and launching jacks enable the gantry to move forward as construction progresses. This method is particularly suited for spans of 30 to 60 meters and allows for efficient cast-in-situ construction without the need for overhead cranes.

Span-by-

Span and Balanced Cantilever MethodsSpan-by-span construction: The scaffolding supports each bridge span individually, allowing rapid construction cycles. Precast segments can be placed using erection trusses or overhead gantries, but the scaffolding itself remains ground-supported. Balanced cantilever construction: For long spans, scaffolding can support cantilevered segments extending from piers.

The system is designed to maintain stability while segments are cast outward, eventually connecting opposing cantilevers.

Practical Advantages

Reduced reliance on cranes: Earth-based MSS and gantry systems minimize the need for large lifting equipment. Adaptable to difficult terrain: Systems can be used over rivers, valleys, or congested areas. Efficient assembly and reuse: MSS can be moved along the bridge, allowing repeated use for multiple spans.

Safety and precision: Engineered scaffolding ensures stable support for workers and concrete formwork. In summary, earth-based methods for raising bridge scaffolding rely on movable scaffolding systems, advanced shoring, and gantry-supported falsework. These systems allow safe, efficient, and repeatable construction of multi-span bridges without the need for overhead lifting, making them ideal for long spans, challenging terrain, and high-volume projects.

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Article Content

Erection Methods for Concrete Bridges

The document outlines various erection methods for concrete bridges, including traditional scaffolding, the use of auxiliary beams, cantilever methods, and incremental launching techniques.

Comparative study on design of earth retaining structures for bridges

In this study, the focus is directed toward understanding the correlation between parameters such as cost, base to height ratio and safe bearing capacity of soil for various types of earth retaining

Bridge Construction Methods Transformed by Crane Alternatives

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In the present paper the author has attempted to present the linkage between the Bridge erection technology and the Permanent design of bridges with certain live case studies. Bridges are the

FHWA Bridge Maintenance: Superstructure

If jacking is to be accomplished by the maintenance crew, the bridge maintenance supervisor shall supply an engineer with a complete listing of the type of equipment to raise the bridge along with

Construction Methods : BBR Network

We have extensive experience in bridge construction methods including heavy lifting, launching, balanced cantilever and advanced shoring.

MOVABLE SCAFFOLDING SYSTEM – NRS BRIDGE

One of the latest innovation enables the Underlane Type MSS to operate without the need for external cranes or lifting equipment. The system is most suitable for bridges over waterways, bridges with

Scaffolding for Bridge Construction: A Comprehensive Guide

Discover expert scaffolding practices in bridge construction for building finishing contractors, ensuring safety and efficiency.

Bridge Deck Erection – Methods and Different Equipments Used

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The specific type and configuration of movable scaffolding equipment depend on factors such as the bridge design, span length, construction method, and project requirements.

Formwork technology for bridge construction

Comprehensive information about formwork and scaffolding solutions in bridge construction with falsework, feed scaffolding and cantilever construction or incremental pushing methods.

Scaffolding in the infrastructure sector

Scaffolding in the infrastructure sector - types of scaffolding and challenges in bridge construction Wherever transport networks, bridges, public buildings or even supply and disposal

Chapter 11.2 Earth Retaining Systems

Determine lateral earth pressure based on soil strength parameters, wall geometry, and retained soil. Determine lateral earth pressure on the retaining wall induced by surcharge loads or loads in

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This is very unique way to get beneath bridges to make repairs. Instead of anchoring a barge in the water beneath the bridge, or parking a giant truck with a bridge inspection bucket (like a

Bridge Scaffolding-

Scaffolding For Arch Bridge Arch bridge support scaffolding refers to a system of scaffolds that are used for supporting the construction and maintenance processes of arch bridges. It can provide a sturdy

Scaffolding for Bridge Construction – Types and Challenges

Whether it''s a building construction, or a bridge construction process, with a supportive scaffolding framework, it is possible to achieve the same. Since infrastructure projects are large, the

Movable Scaffolding Systems for Bridge Building

Movable Scaffolding Systems (MSS): Types, Design Rules and Advantages Movable Scaffolding Systems (MSS) have become one of the most efficient

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SECTION 7

A CP for scaffolding must have received a documented, minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g., Mast-Climbing, Adjustable, Tubular

Safe & Secure Bridges: Selecting the Right Scaffolding

Discover how to select the ideal scaffolding for bridge construction projects. Explore options and expert tips with Al Eiman''s trusted scaffolding solutions.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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