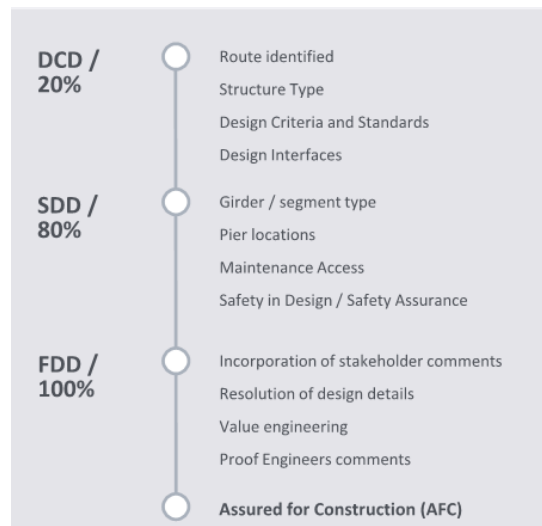


Impact of Engineering Interfaces in Bridge Design and Major

Infrastructure Projects by Dr. David Jefferson, BSc, PhD, MICE, CEng, Technical Principal – Bridges, SMEC Australia Pty Ltd.

Public Lecture held on 18th July 2019 at the Engineers Australia Auditorium, Chatswood.

Bridge design is challenging, often involving multiple disciplines making decisions that influence the final structure as designs develop. The interface between engineering disciplines and the impact of their decisions on the final design is often not well understood, which presents a significant risk for both designers and contractors. The complexity of the interfaces may be vastly different depending on the scope of works, method of construction, the form of contract and the design program. In David's presentation, he talked about bridge behaviour, typical structural forms and the measures that can be adopted to achieve optimum structural performance that are compatible with the bridges' function. He then presented several case studies where significant structural challenges were overcome while also addressing the functional requirements. These case studies included a road viaduct over floodplains, a rail viaduct (Northwest Rail Link) supporting directly fixed rail track and a cable stay bridge constructed over a busy road intersection. David's presentation demonstrated how a balanced approach to addressing engineering interfaces can be used to reach an optimum structural solution. In the presentation, he explained the amount of detail a designer need to include in the design depending on the client requirements and the associated risks. He also pointed out stringent client requirements (North West rail Link Project), amount of analysis designer needs to carry out to ensure design is in accordance with Scope of Works and Technical Criteria documents. He also pointed out that it is a good practice to identify the interface requirements at the beginning of the project. The presentation was attended and well received by the audience. The live broadcast video can be watched [here](#).



The presentation slides can be found [here](#).



Dr David Jefferson is a Technical Principal with [SMEC Australia](#), which is a member of the Surbana Jurong Group. David has over 30 years' professional experience in bridge and structural engineering and has been involved in many large multi-disciplinary civil infrastructure projects within Australia and overseas. David is responsible for technical oversight of the Structures Group within SMEC's Sydney office. David is also a successful Design Lead and Design Manager delivering numerous projects to Clients' satisfaction, and has keys skills in feasibility, concept and detailed design of bridges and civil

engineering structures; design verification and design management of road and rail bridges, retaining walls and other structures that form part of major transport projects.