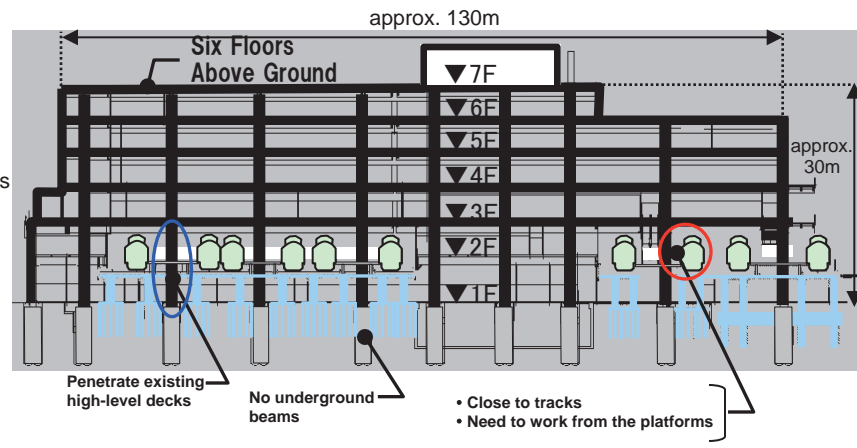
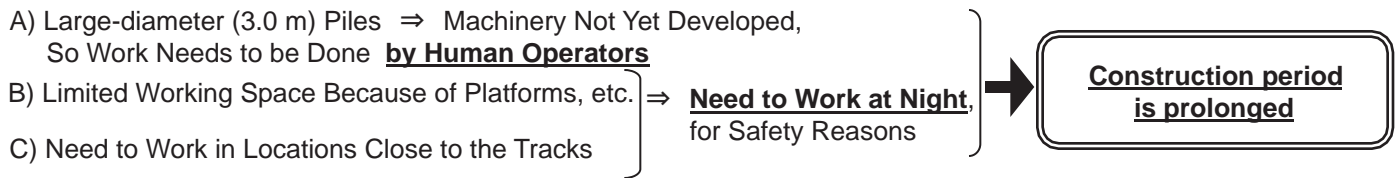


***But at Chiba Station**

- ① There are six levels above the tracks, with a combined height of about 30m
- ② We want a building with open spaces and few columns
- ③ Cost and time considerations rule out underground beams
- ④ Columns have to penetrate the existing high-level decks and have long footings



Thick piles (φ3.0m) are needed



Newly Developed Techniques Introduced

《Development Objectives》

C) Make it possible to work at night in locations close to the tracks

A) Mechanize installation of large-diameter piles

B) Reduce the space needed for installation

《Methods Developed》

【 Pile-Driving Method for Locations Using Both Core Walls and Protective Walls (provisional name) 】
 *Patents Applied For (East Japan Railway Company, Tekken Construction)
 Installation facilitated by simultaneously installing protective steel sheets to prevent the surrounding earth from collapsing

Piles can be driven at the same time that protective steel plates are dug out
 Mechanical installation of large-diameter (3.0m) piles is possible

↓
 Night-time installation possible

【 Pile-Driving Method for Locations with Ultra-Low Clearance (provisional name) 】
 *Patents Applied For (East Japan Railway Company, Tekken Construction, Toa-Tone Boring)
 Because machinery is small and lightweight, it is possible to work in confined spaces

Height 1.8m: small and light
 Possible to install in confined spaces

Mechanical installation of large-diameter (3.0m) piles is possible
 *By combining this with supplementary methods, 24-hour operation is possible

*Thanks to the small scale and lightness of the machinery, the amount of preparatory construction work can be reduced.

《Results of introducing new techniques》

Efficient mechanized installation and night-time working are possible.

We aim to reduce the construction period