

Derin Aç-kapa Yapılarda Uygulanabilecek Bazı Yapım Yöntemleri

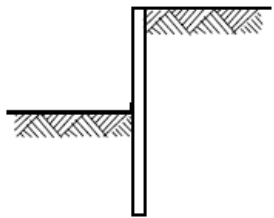
Barış Özcan, İnş. Yük. Müh.
Utkan Çorbacıođlu, İnş. Yük. Müh.



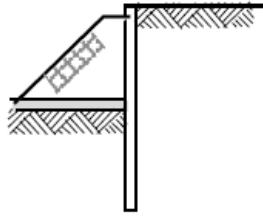
Proje Gereksinimleri ve Tasarım Hedefleri

- Ortam zeminine ve kazı geometrisine uygun yöntem seçimi
- Deformasyonları kontrol etmek ve çevre yapıları korumak
- Araç ve yaya trafiğine minimum etki
- İş programı ile uyumlu
- Ekonomi sağlamak
- Çalışma alanını verimli kullanmak

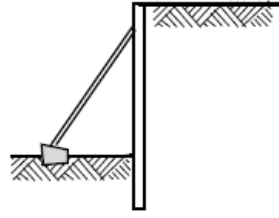
Literatürden Örnekler



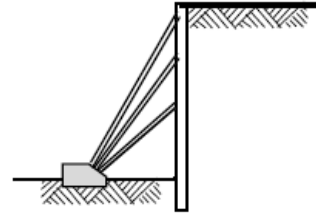
a) Cantiliver wall



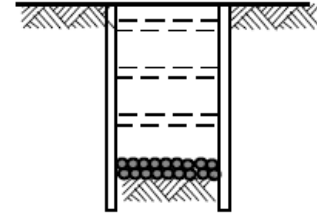
b) Berm and Slab



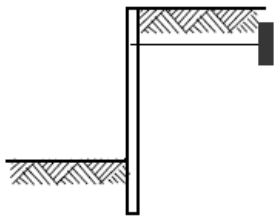
c) Single propped wall



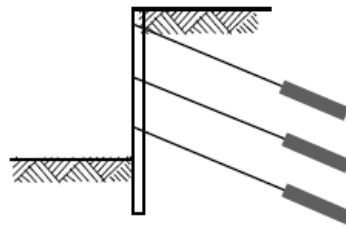
d) Multi-propped wall



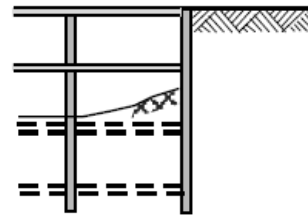
e) Soilcrete-slab



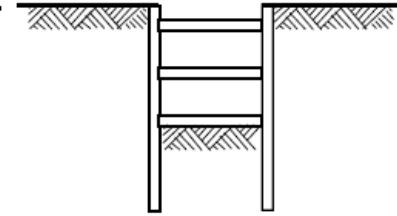
f) Tie-back wall



g) Ground anchors

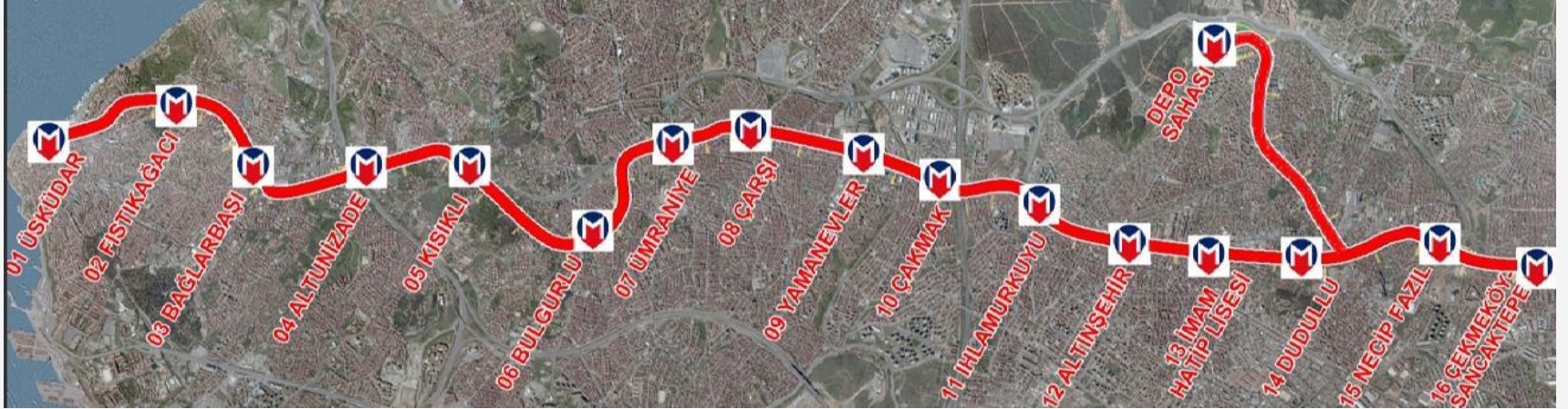


h) Top-down construction



i) Braced excavation

Üsküdar-Ümraniye-Çekmeköy Metro Projesi Güzergahı



Aç – Kapa Yapım Yöntemleri

Bottom – Up

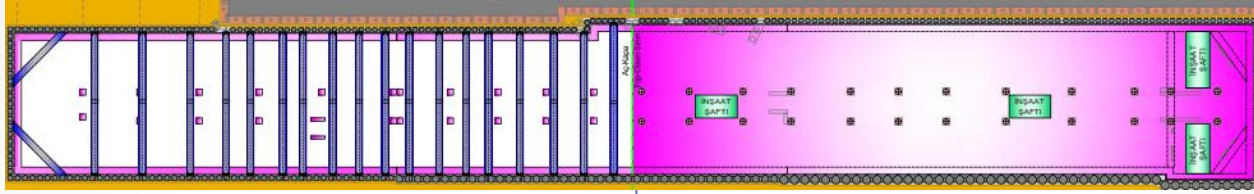
(Klasik Aşağıdan Yukarıya
Yöntem)

Top – Down

(Yukarıdan Aşağıya
Yöntem)

Bottom-Up

Top-Down



Çalışma Alanı
Kazanımı &
Riskli/Tarihi
Yapılar -
Deformasyon
Kontrolü

Üsküdar
İstasyonu
(Planda)

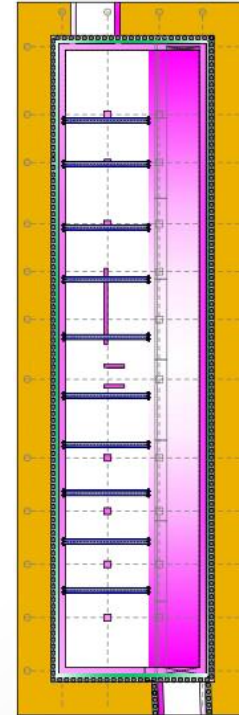
Aç-Kapa Yöntemi
Bottom-Up&Top Down

Dudullu
İstasyonu
(Kesit)

Bağlarbaşı
İstasyonu
(Planda)

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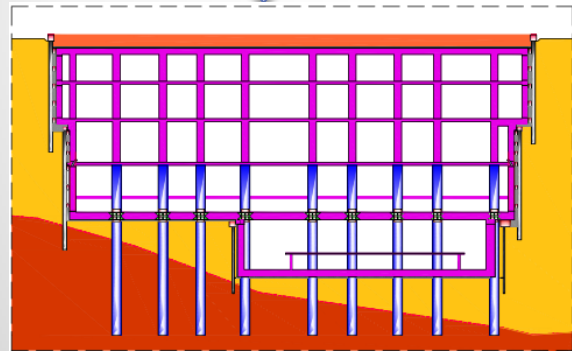
Trafik
Düzenlemesi

Deformasyon
Kontrolü &
İş Programı



Bottom-Up

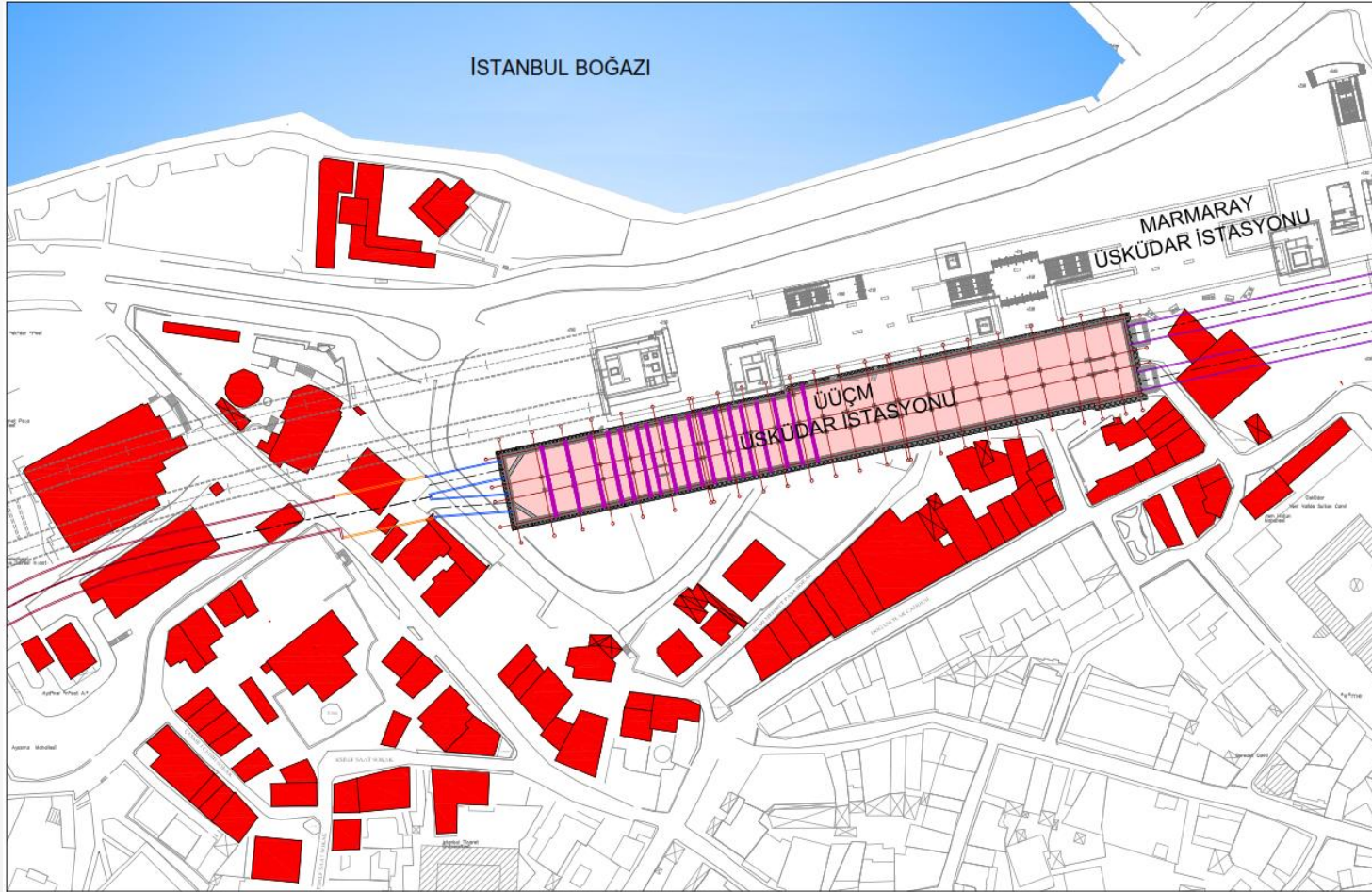
Top-Down



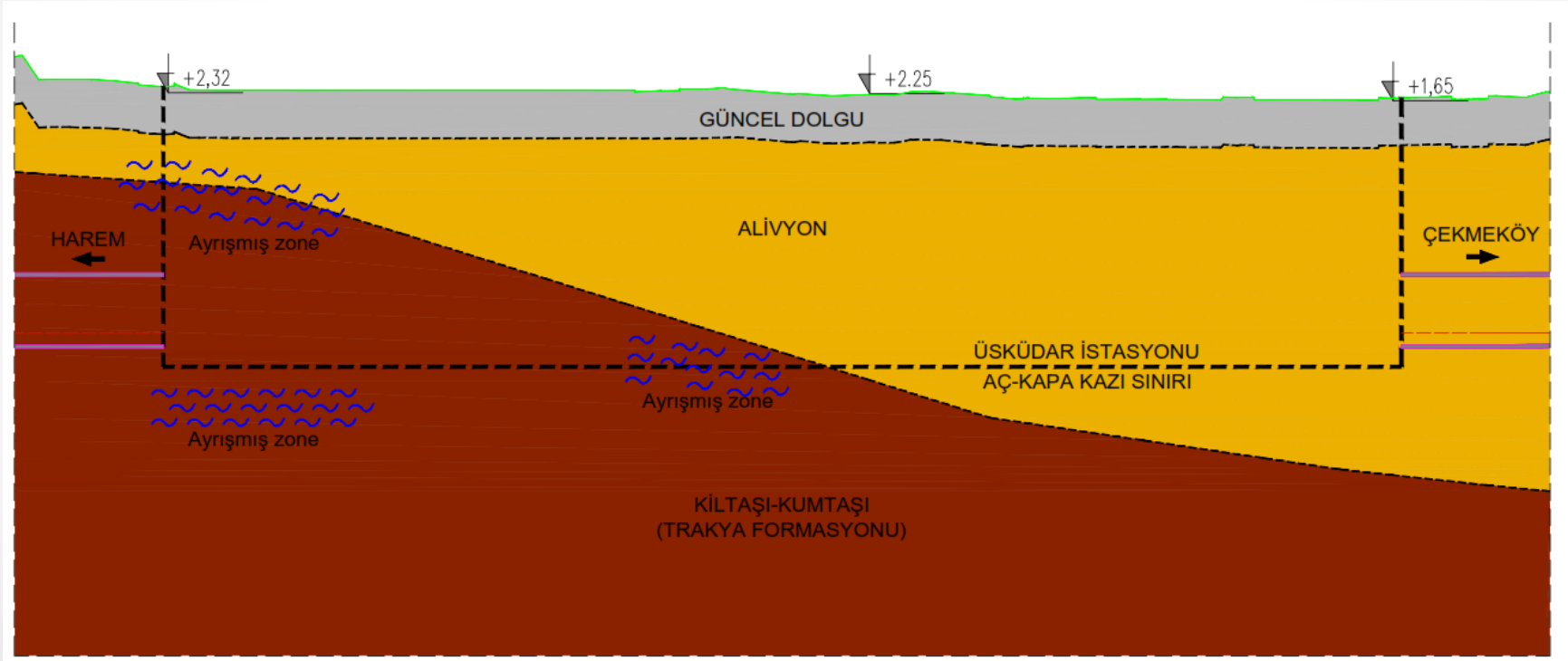
Üsküdar İstasyonu



Üsküdar İstasyonu-Riskli Binalar



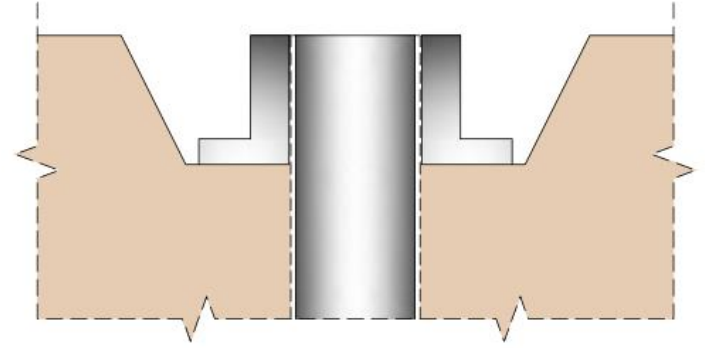
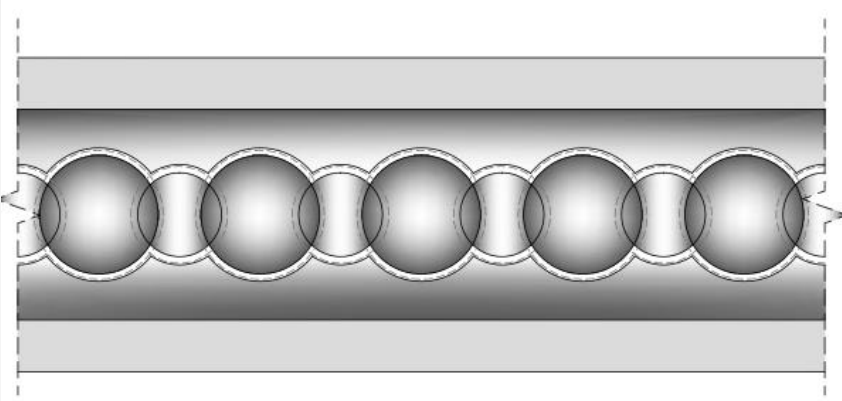
Üsküdar İstasyonu- Jeolojik Kesit



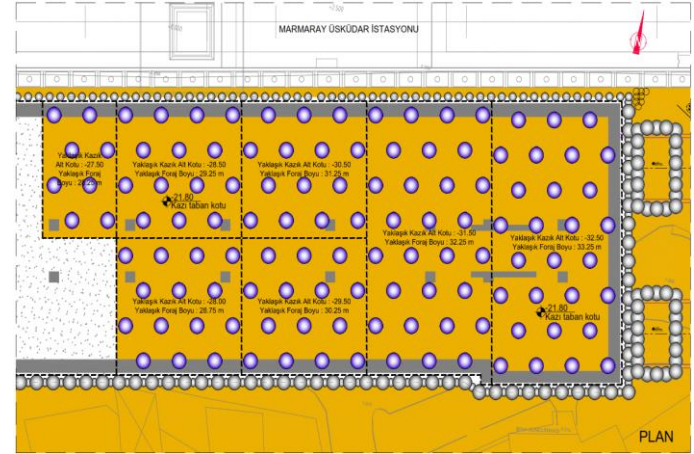
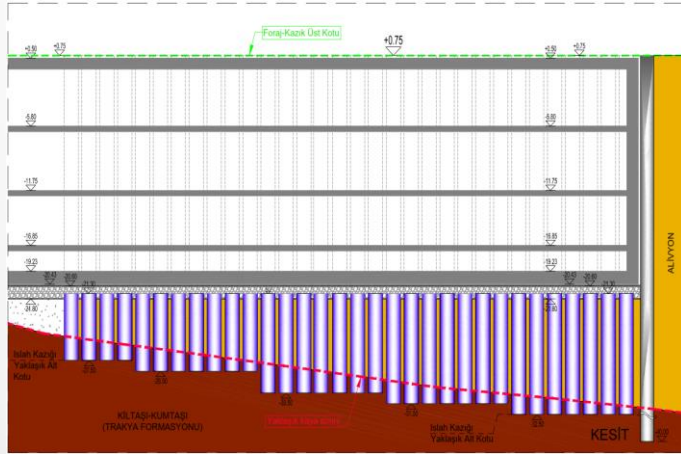
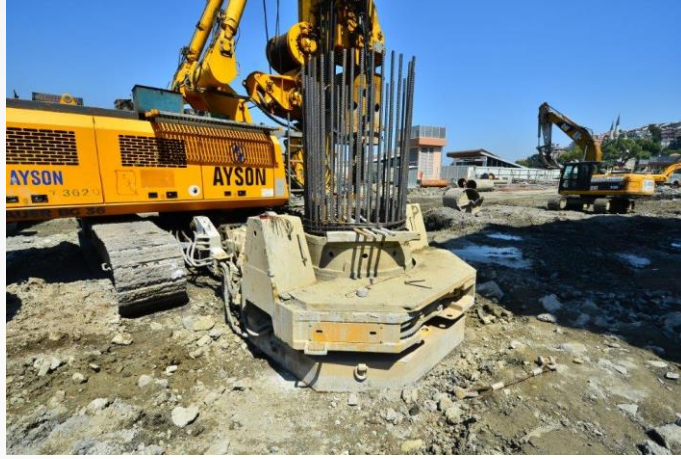
Arkeolojik alıřmalar



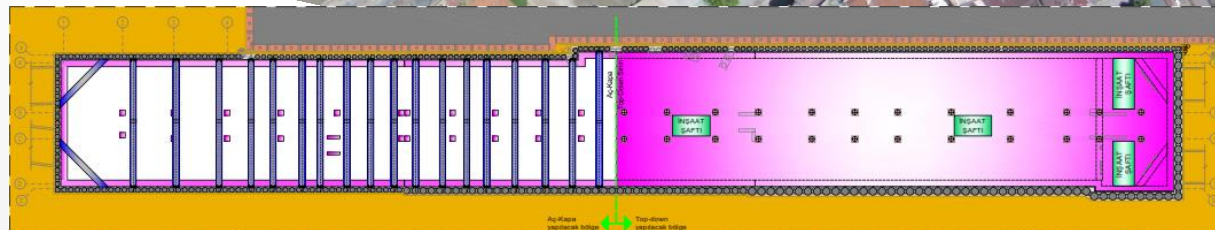
Kazı Destek Sistemi – Başlık Kirişleri



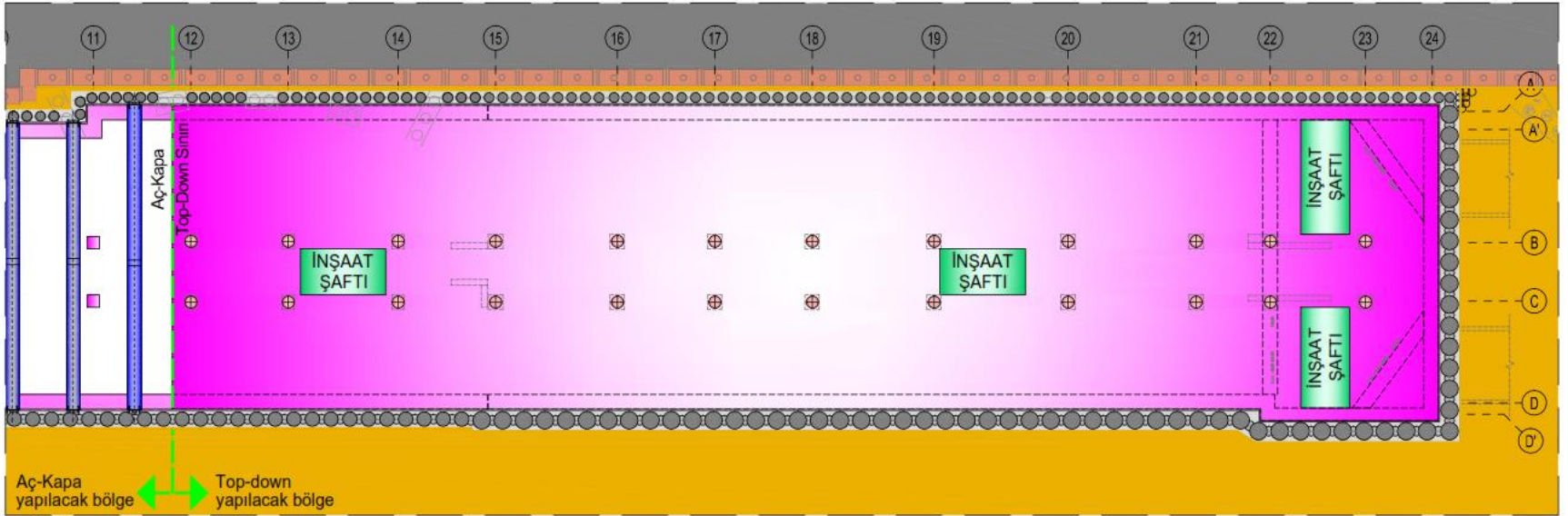
İslah Kazıkları İmalatı



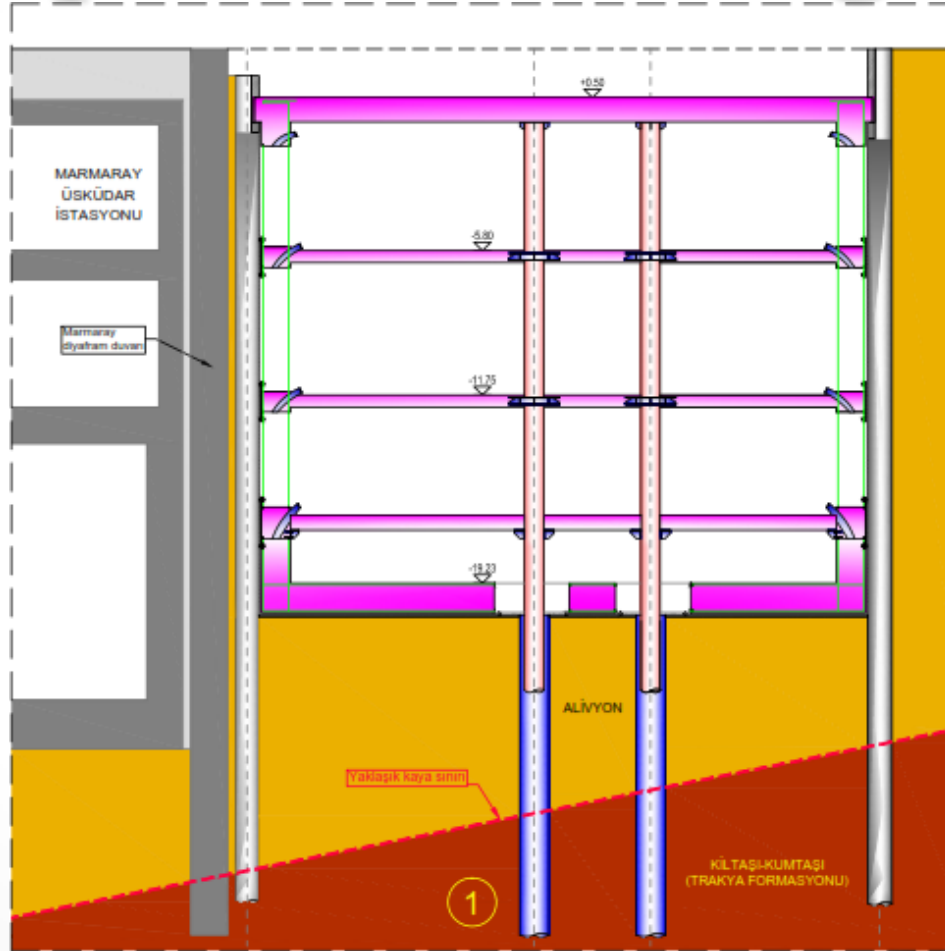
Üsküdar İstasyonu – Yapım Yöntemleri



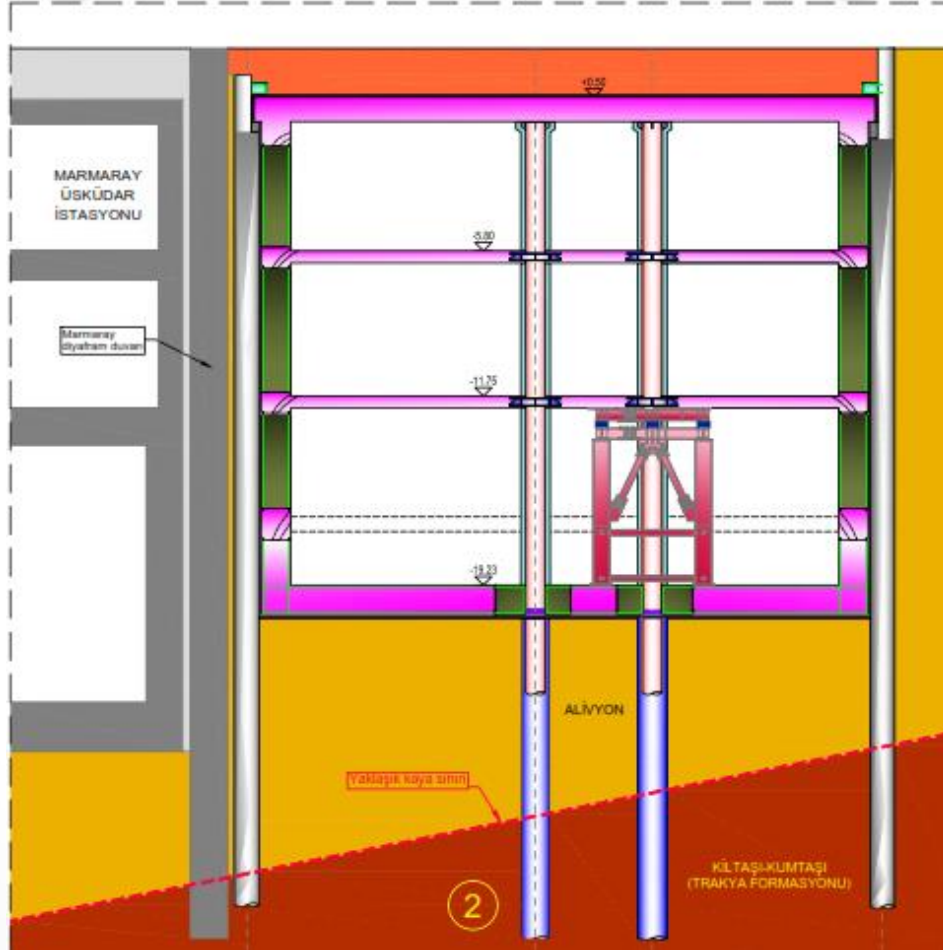
Üsküdar İstasyonu- Top-Down Bölgesi



Üsküdar İstasyonu- Top-Down Bölgesi



Üsküdar İstasyonu- Top-Down Bölgesi



Top-Down Döşeme Askı Donatıları



Kolon-Döşeme Birleşim Detayı



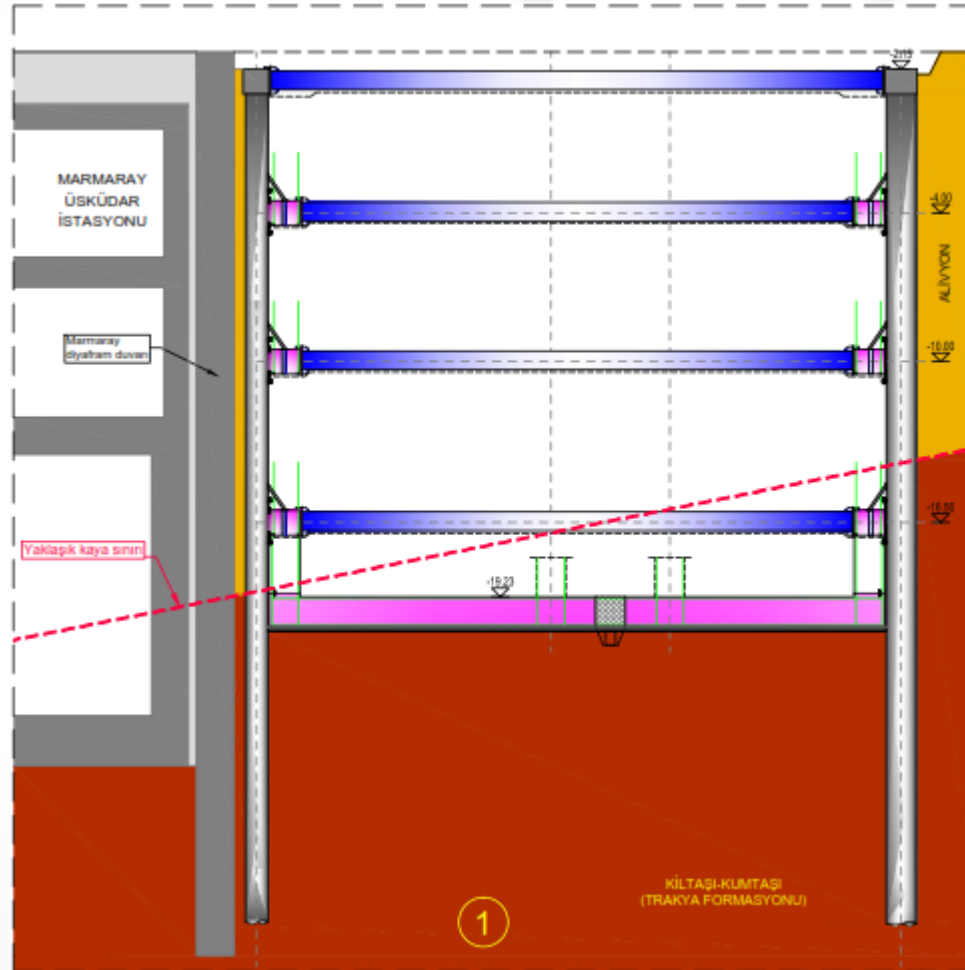
Üsküdar İstasyonu Kolon Askıya Alma Sistemi



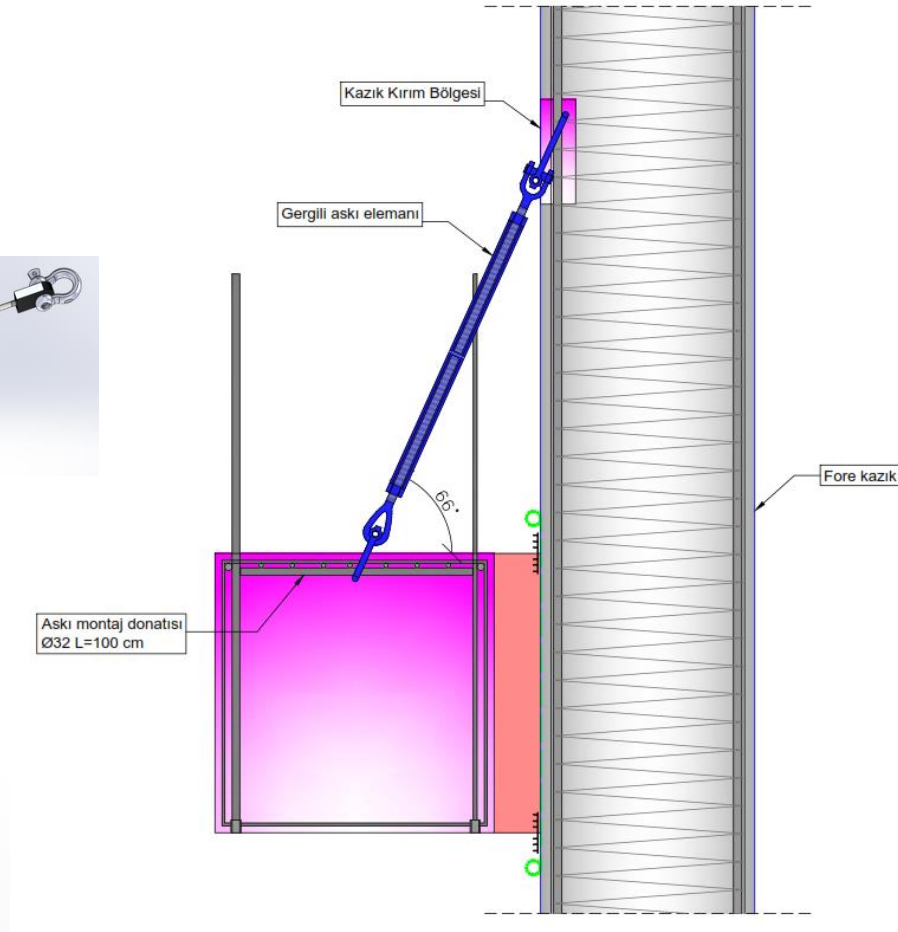
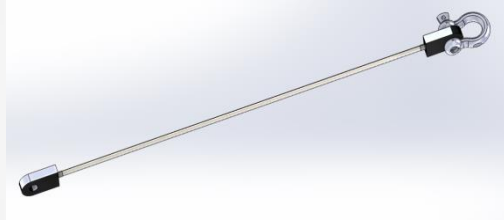
Üsküdar İstasyonu- Bottom-Up Bölgesi



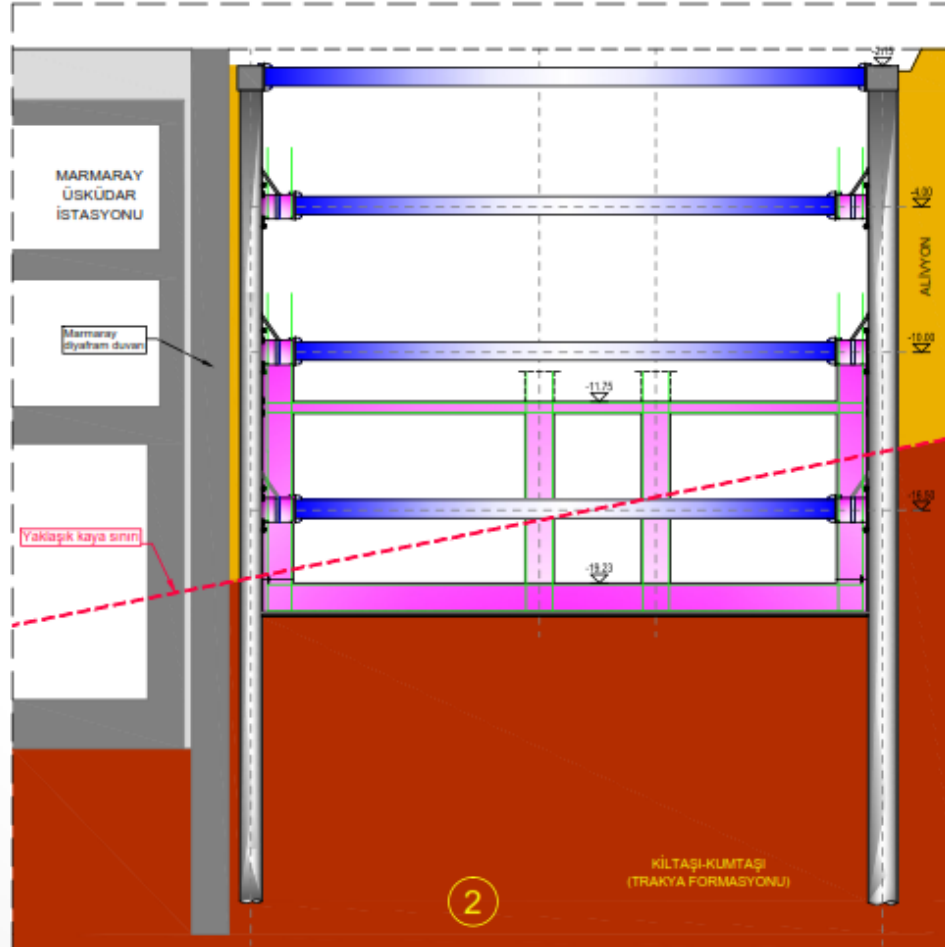
Üsküdar İstasyonu- Bottom-Up Bölgesi



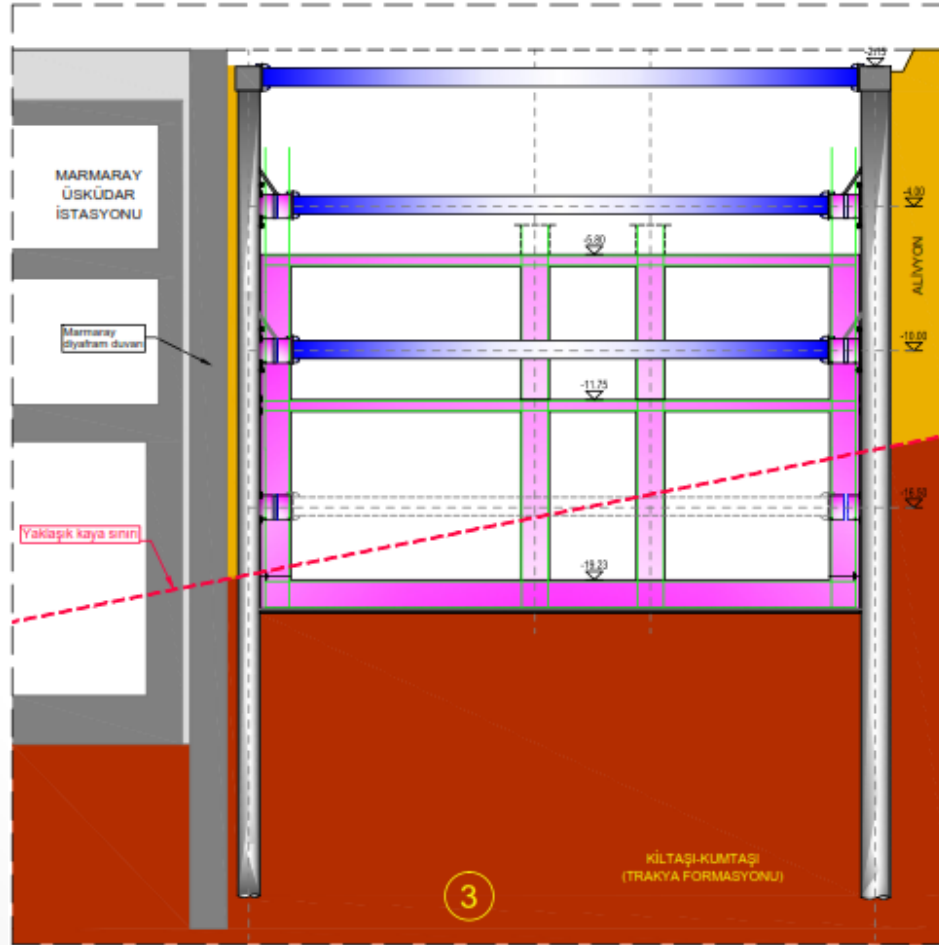
Kiriş Askı Aparatı



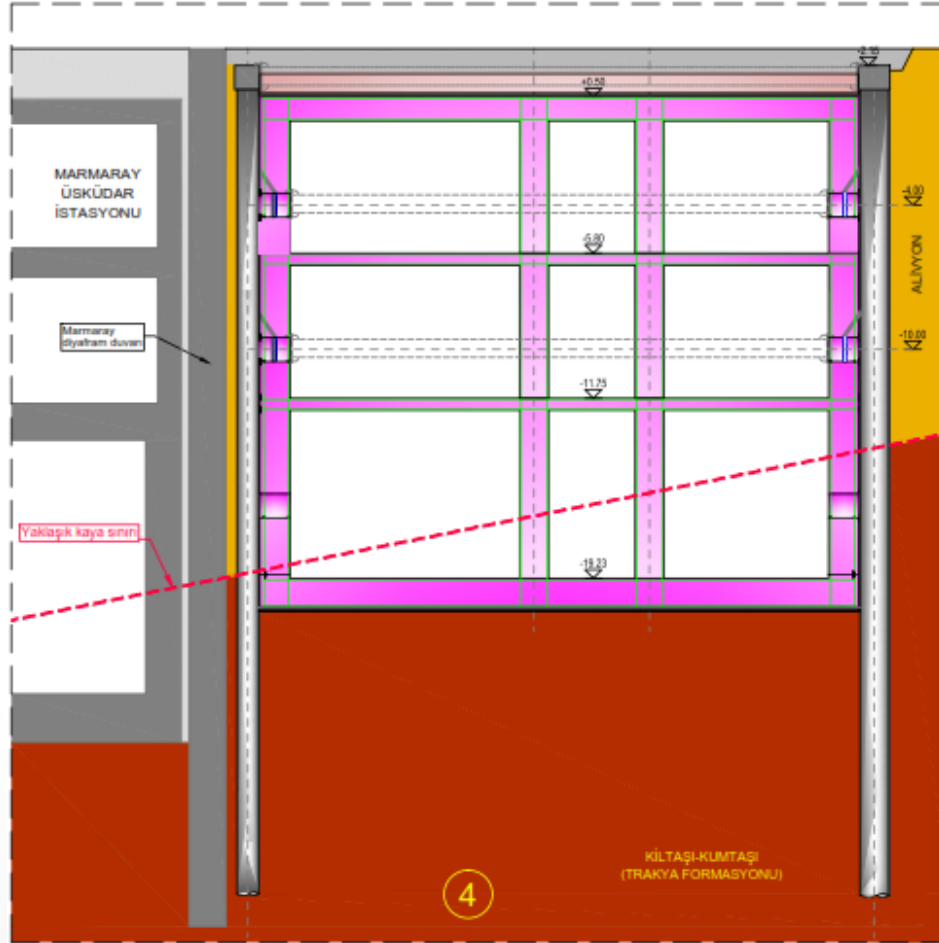
Üsküdar İstasyonu- Bottom-Up Bölgesi



Üsküdar İstasyonu- Bottom-Up Bölgesi



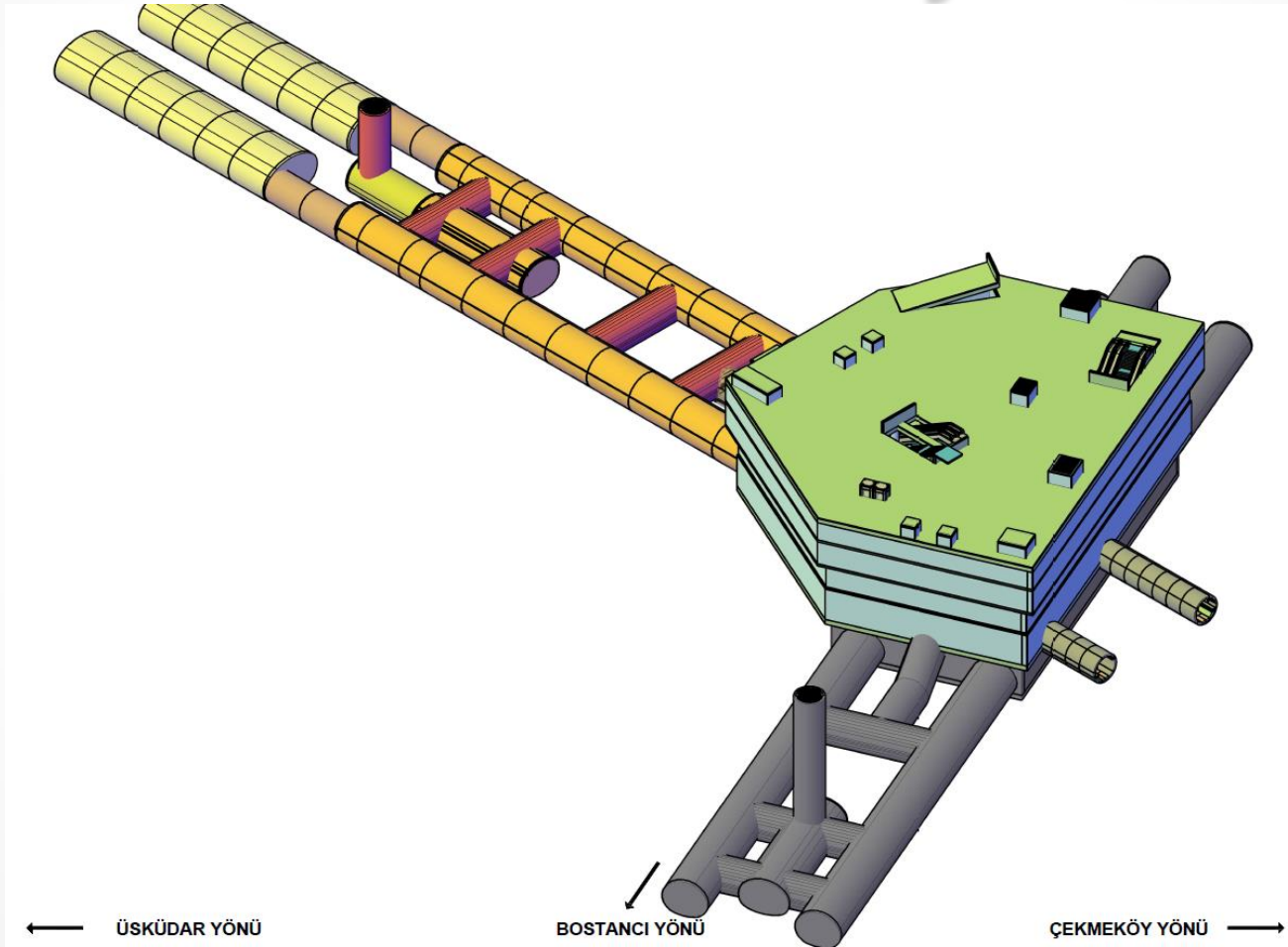
Üsküdar İstasyonu- Bottom-Up Bölgesi



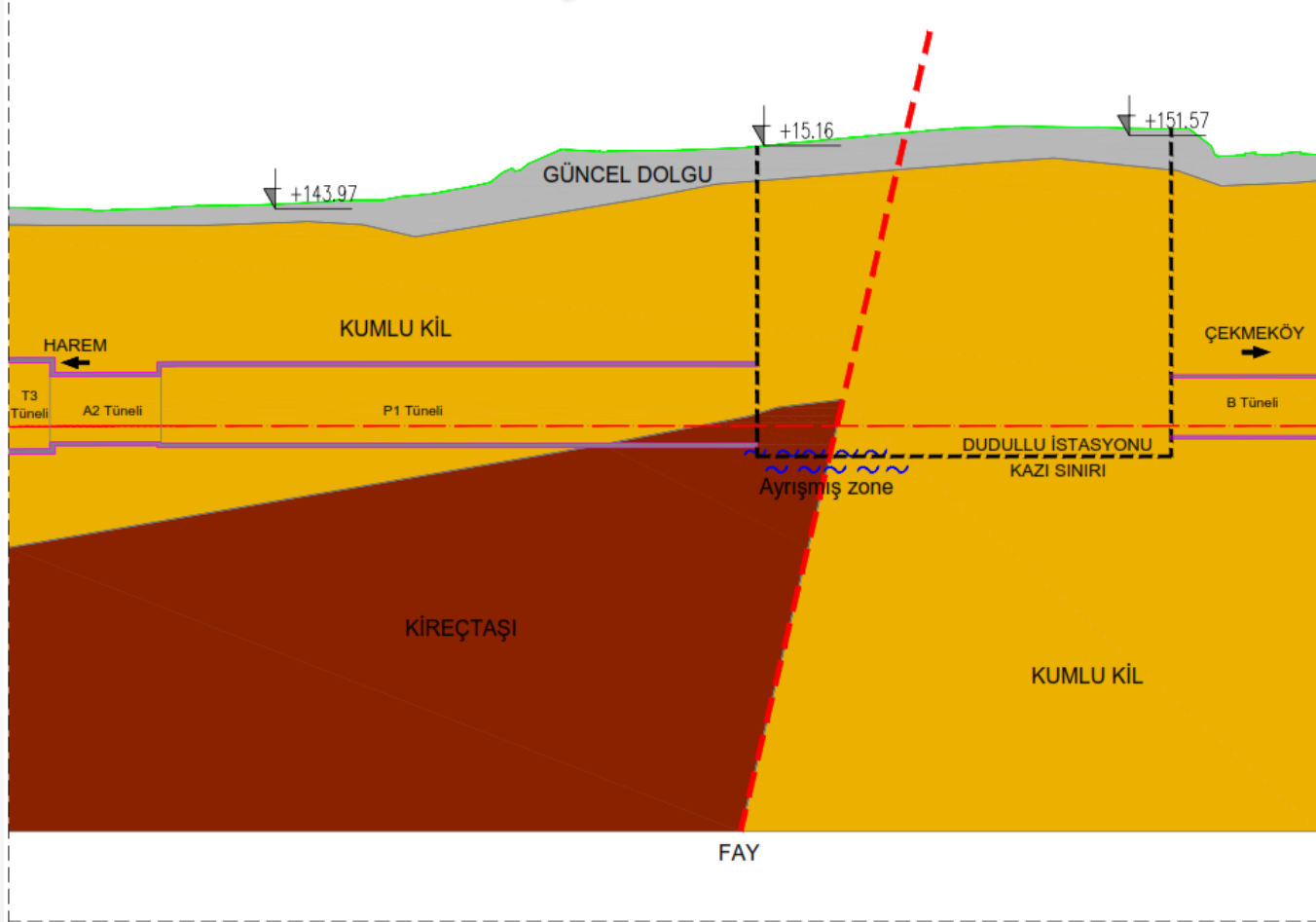
Üsküdar İstasyon TBM Giriş



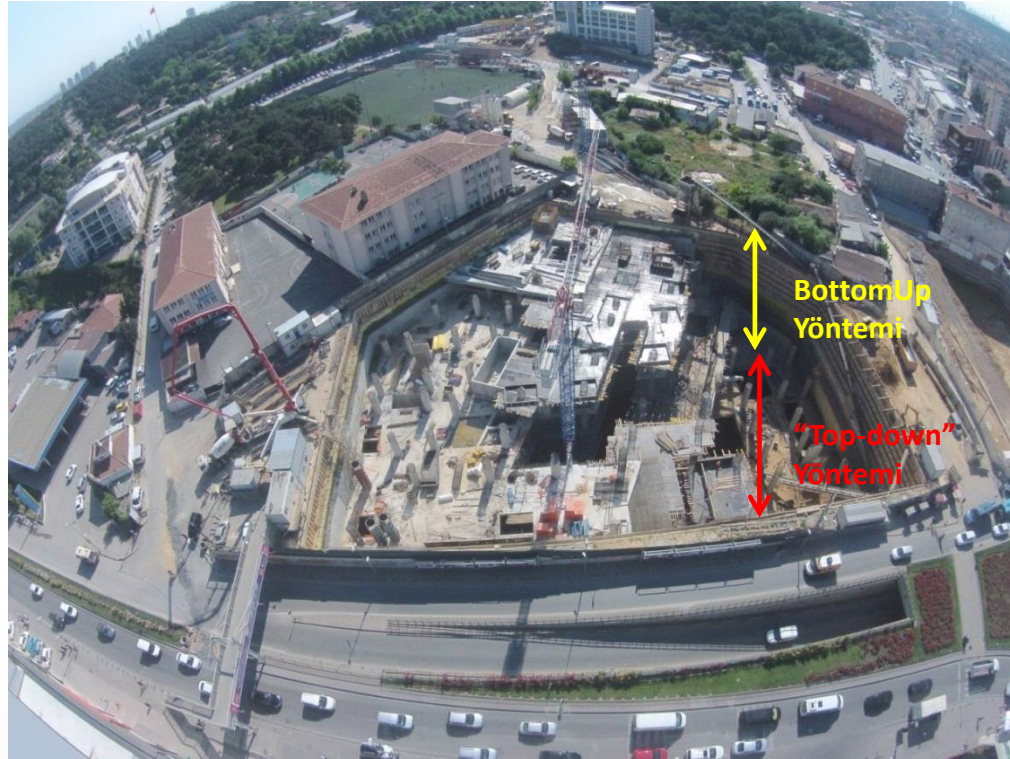
Dudullu İstasyonu



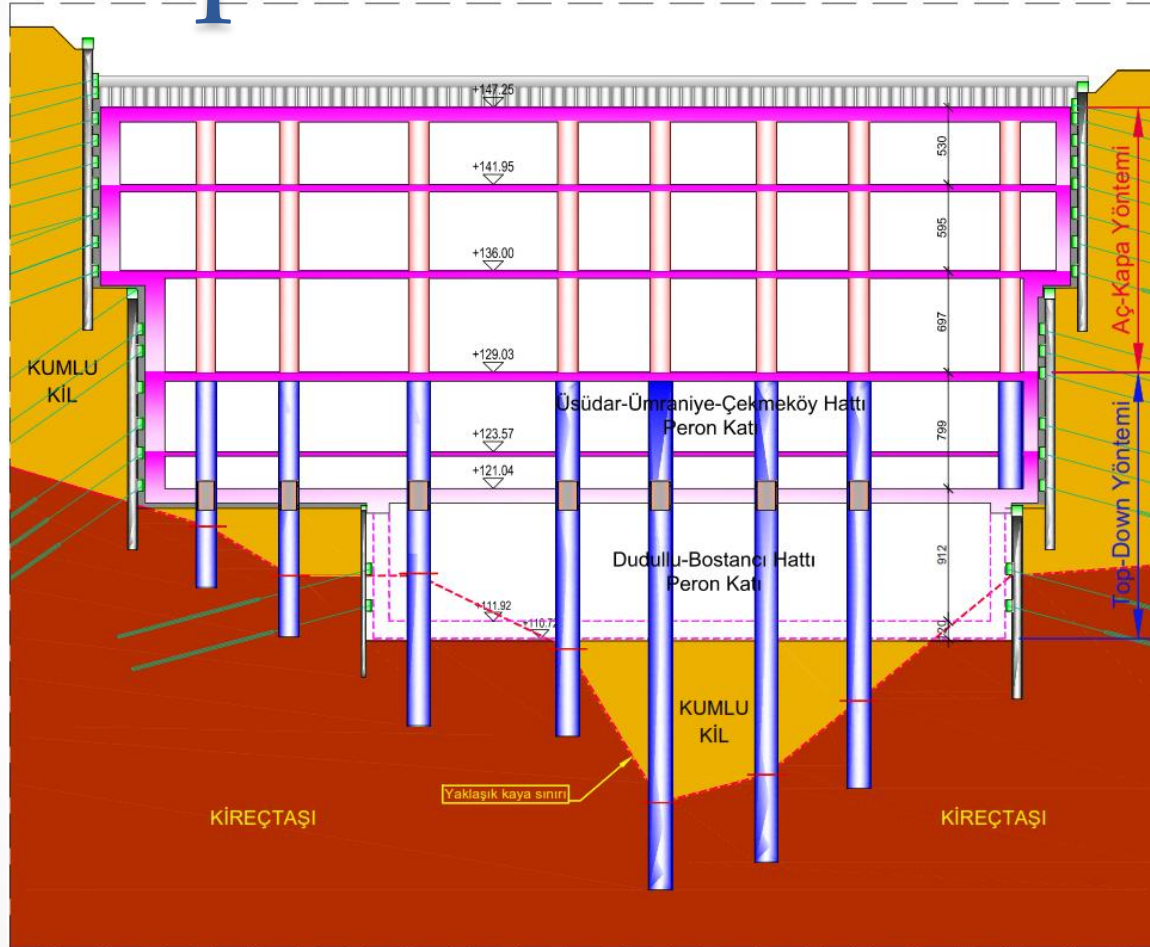
Dudullu İstasyonu- Jeolojik Kesit



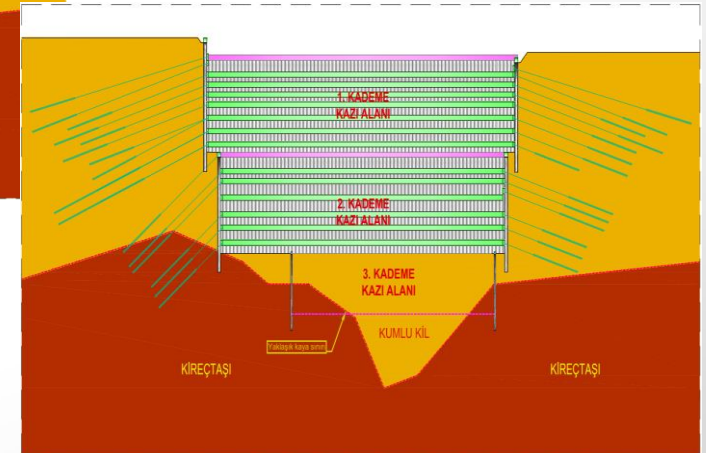
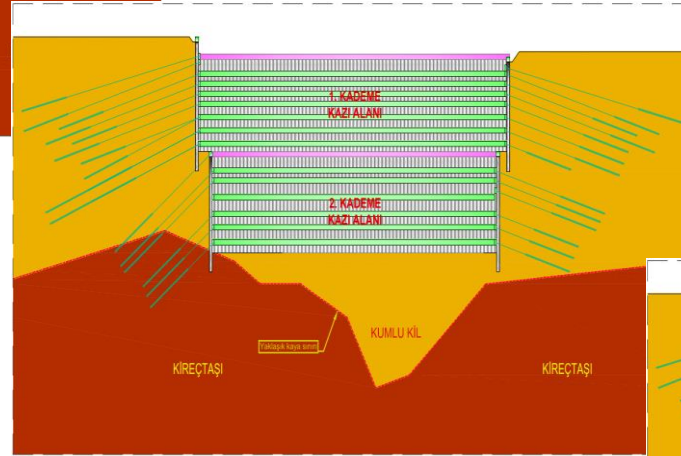
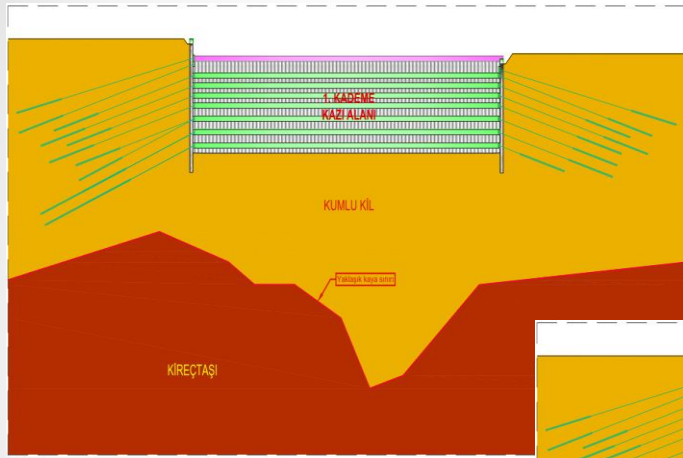
Dudullu İstasyonu – Yapım Yöntemleri



Dudullu İstasyonu – Yapım Yöntemleri



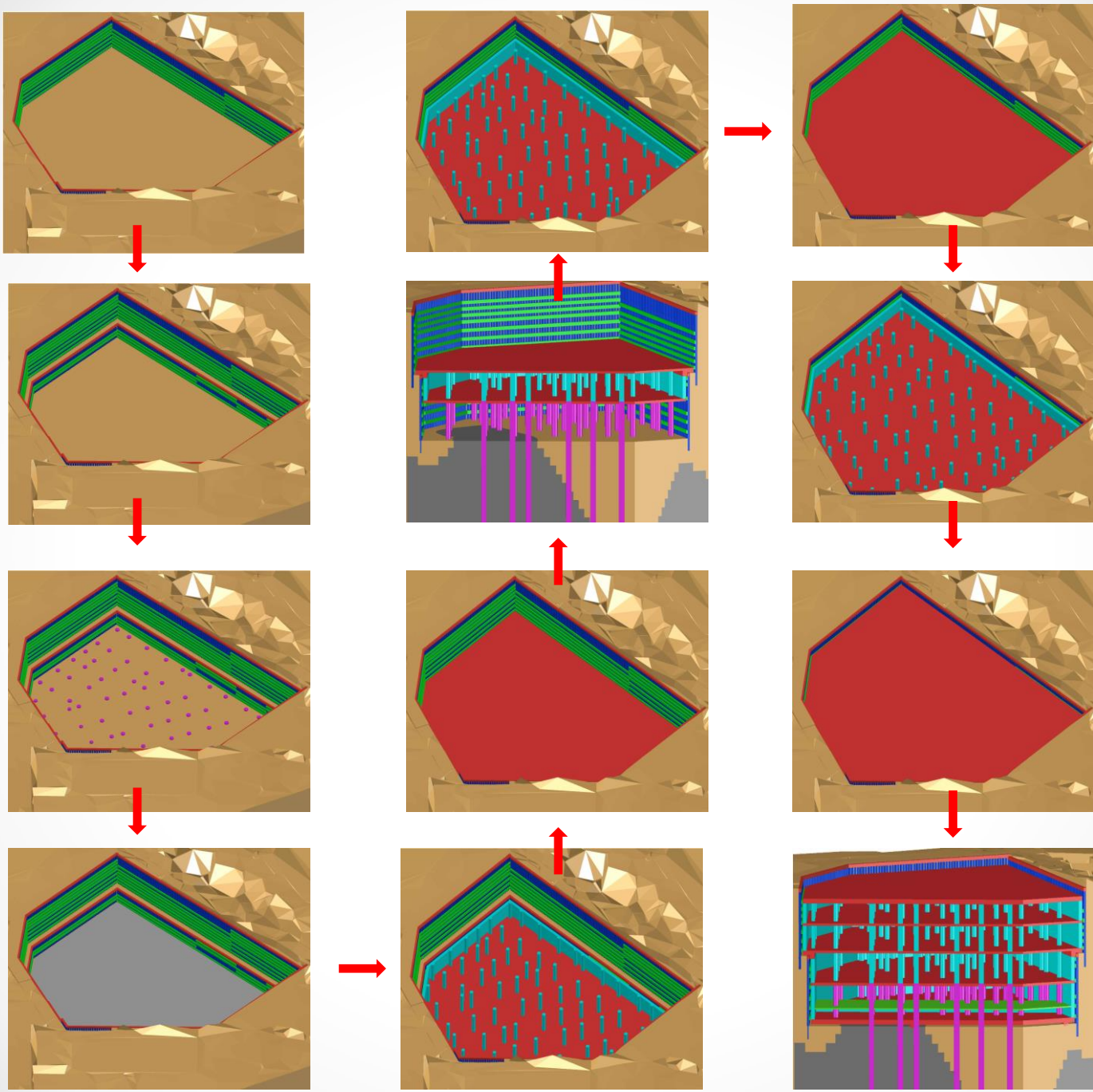
Dudullu İstasyonu Kazı Aşamaları



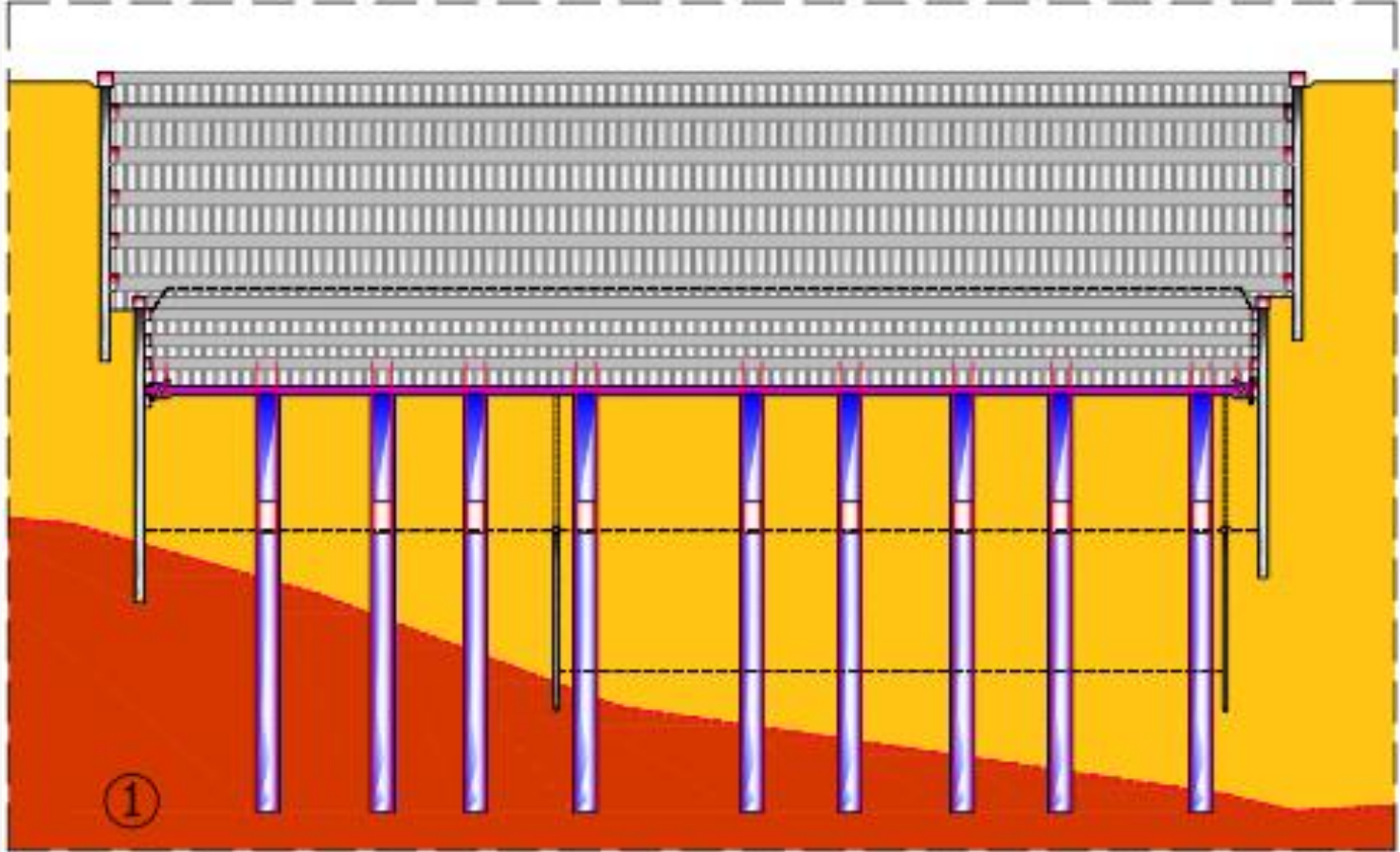
Dudullu İstasyonu Kazı Çalışmaları



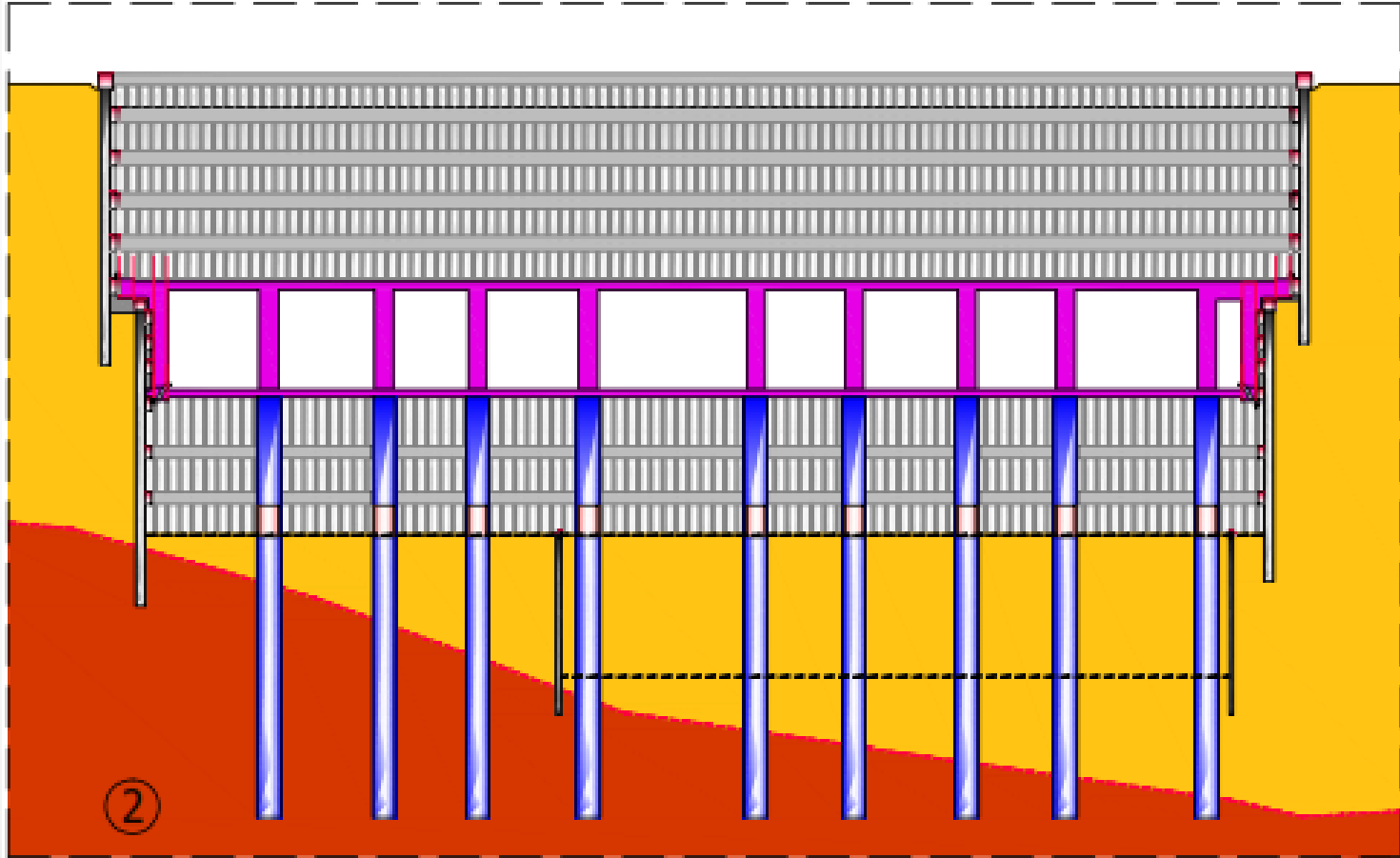
Dudullu İstasyonu Betonarme İmalatları



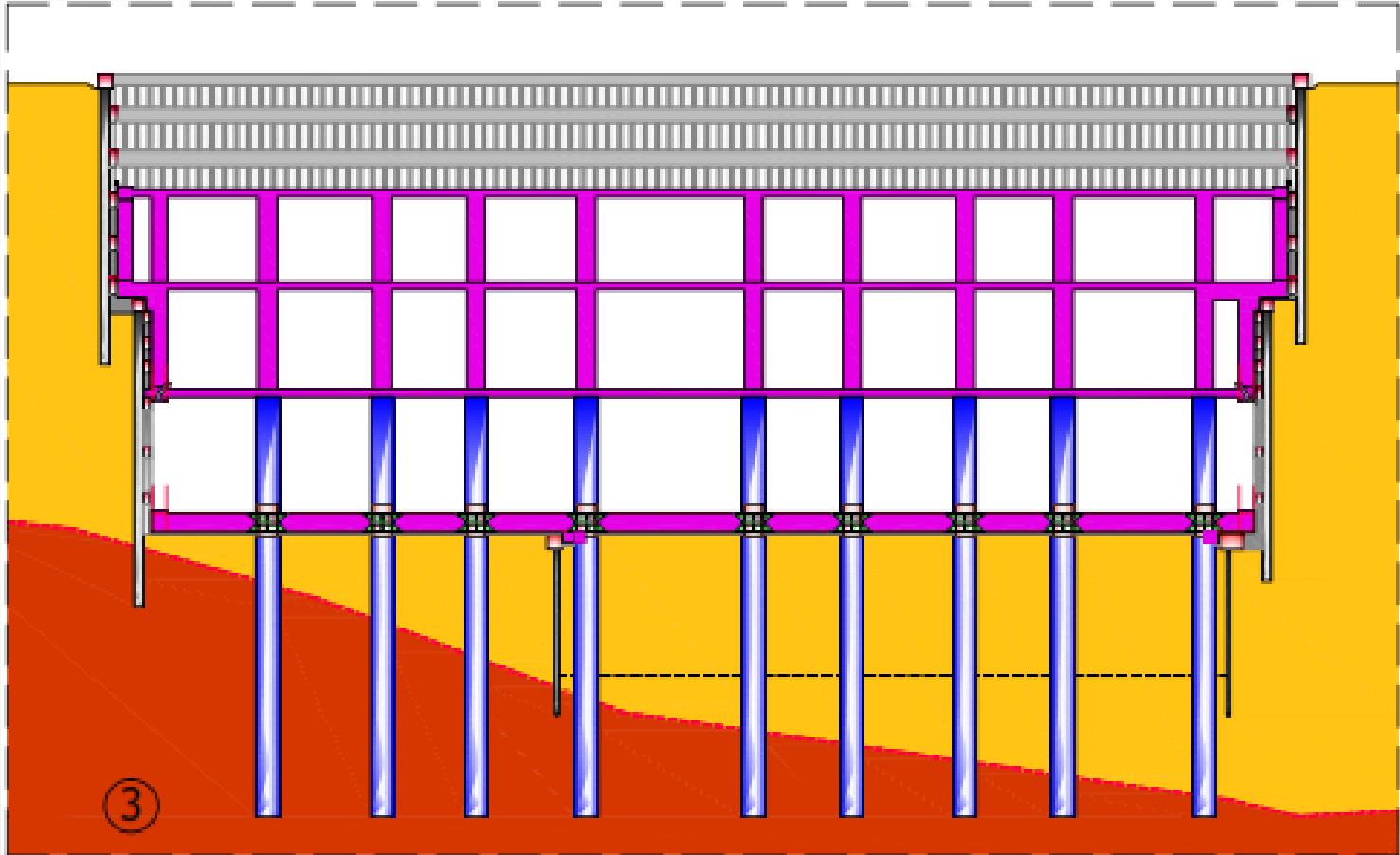
Dudullu İstasyonu- Yapım Yöntemi- İş Faaliyetleri Sırası



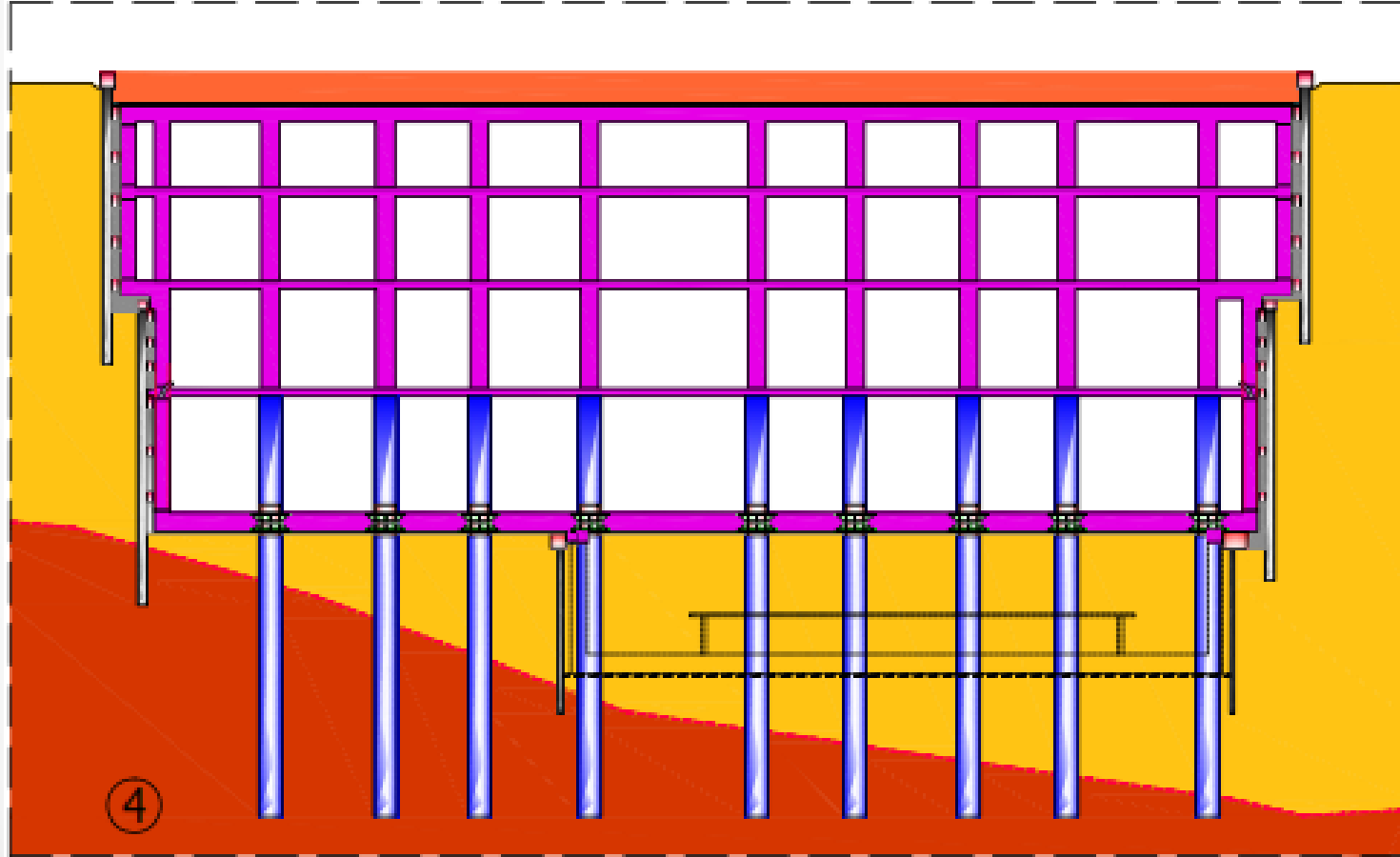
Dudullu İstasyonu- Yapım Yöntemi- İş Faaliyetleri Sırası



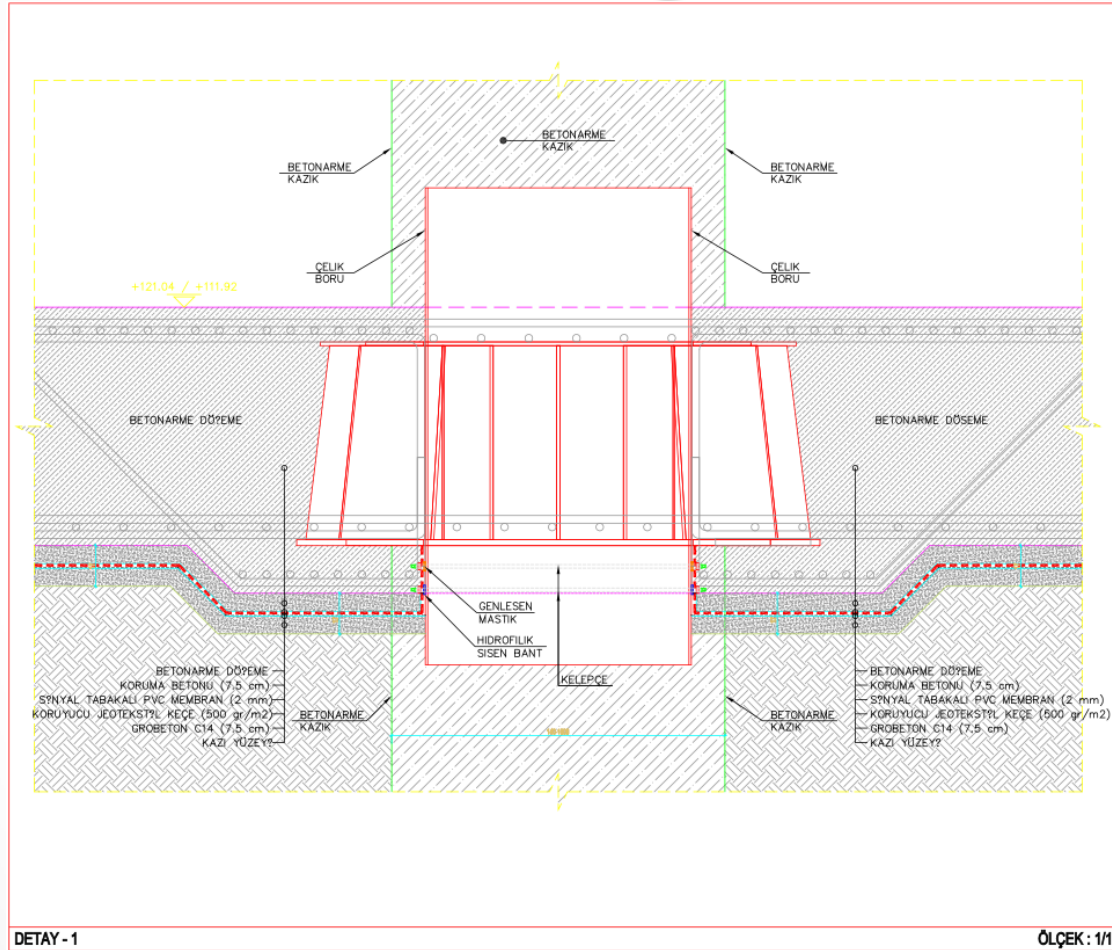
Dudullu İstasyonu- Yapım Yöntemi- İş Faaliyetleri Sırası



Dudullu İstasyonu- Yapım Yöntemi- İş Faaliyetleri Sırası



Kolon Döşeme Birleşim Detayı



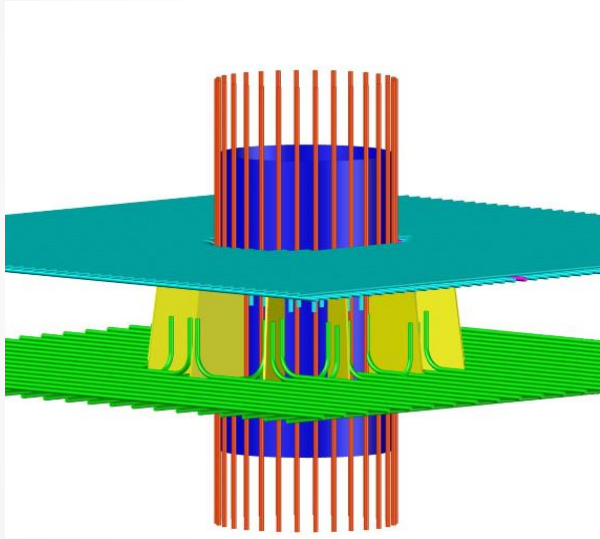
Kolon Döşeme Birleşim Detayı



Kolon Döşeme Birleşim Detayı



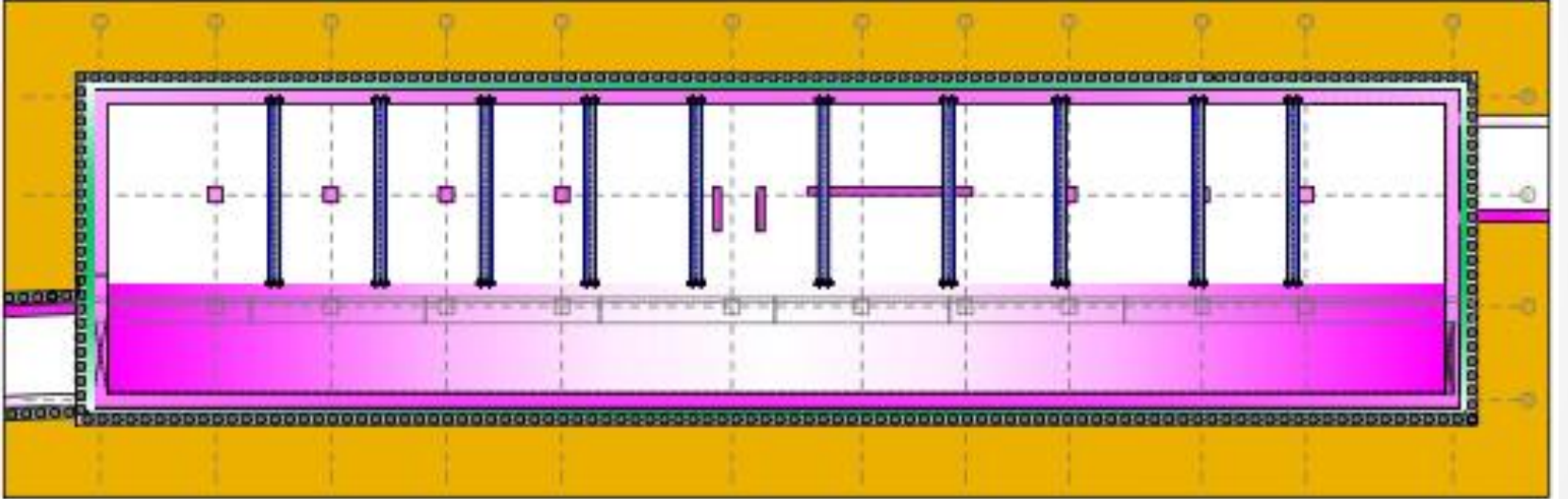
Kolon Döşeme Birleşim Detayı



Bağlarbaşı İstasyonu Yapım Yöntemi



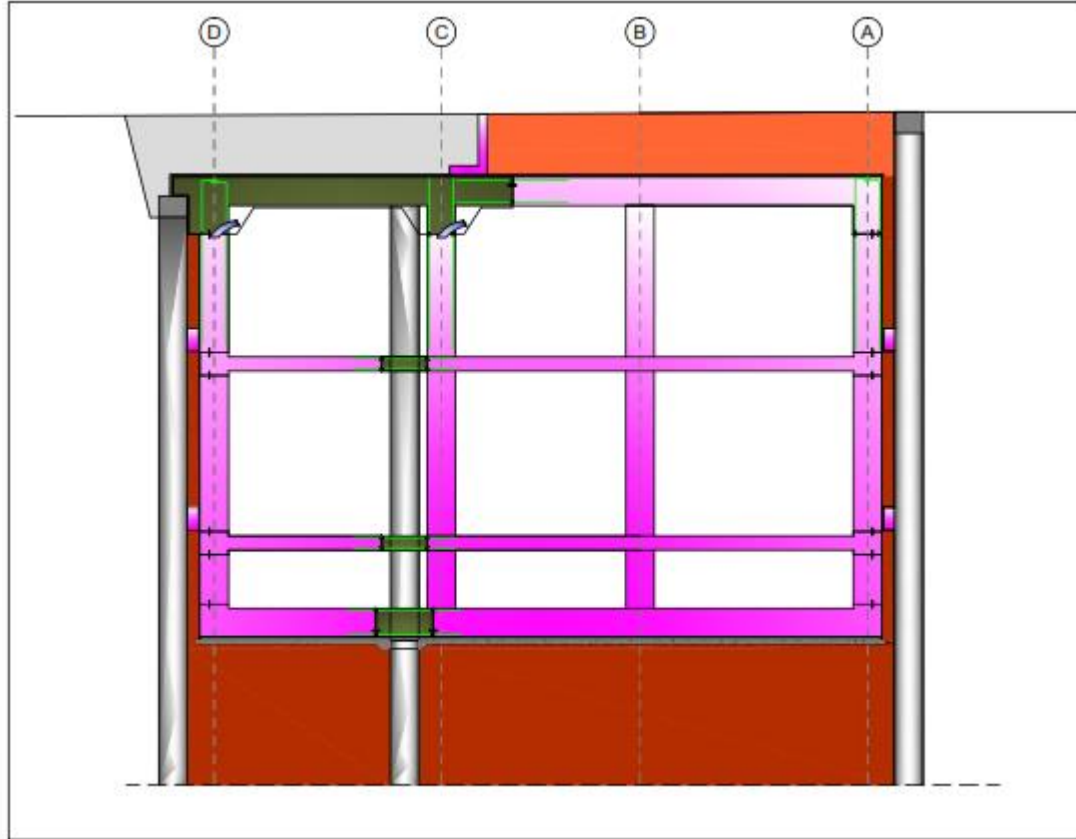
Bağlarbaşı İstasyonu Yapım Yöntemi



Bağlarbaşı Yapım Aşaması



Bağlarbaşı İstasyonu Yapım Yöntemi



Yüksekten Çekim Fotoğraflar

Bağlarbaşı İstasyonu



Yüksekten Çekim Fotoğraflar

Üsküdar İstasyonu



Yüksekten Çekim Fotoğraflar

Dudullu İstasyonu



Teşekkürler

• • •

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