The New York Chapter of
NYSSPE

Department of Design and Construction

New York City State of Infrastructure

Coastal Resilience

Presented by:

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Deputy Commissioner, Infrastructure Division

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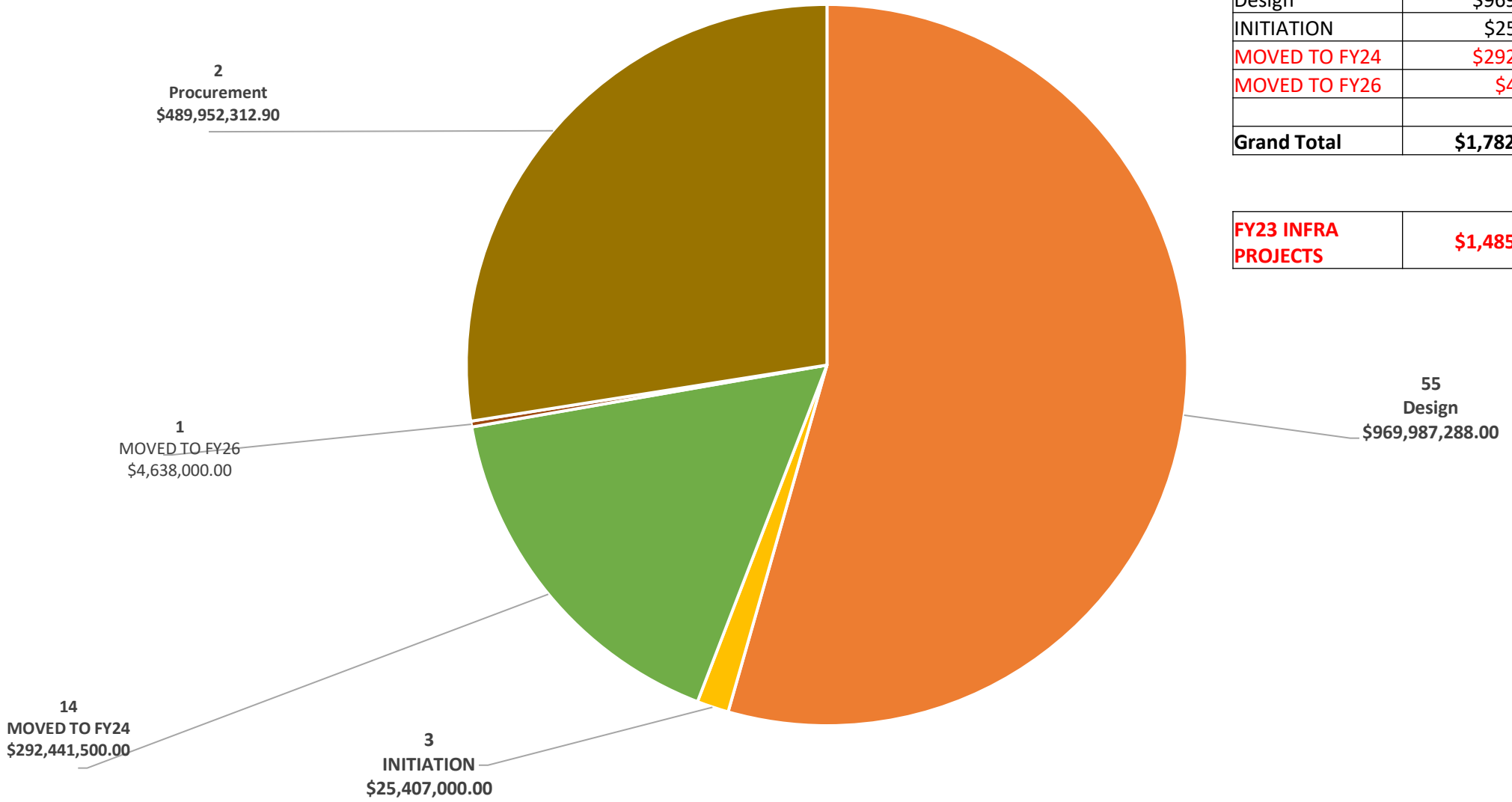
Associate Commissioner, Infrastructure Division

Outline

- NYCDDC Capital Projects FY23 – FY26
- Eastside Coastal Resiliency
- Project Area #2 (PA2)
  - Featuring Flood Wall construction
  - Flood Gates installation
- Questions / Discussion

FY23 INFRA PROJECTS AND CURRENT PHASE



Row Labels	Sum of Const Budget Cost	Count of Const Budget Cost2
Design	$969,987,288.00	55
INITIATION	$25,407,000.00	3
MOVED TO FY24	$292,441,500.00	14
MOVED TO FY26	$4,638,000.00	1
Grand Total	**$1,782,426,100.90**	**75**
FY23 INFRA PROJECTS	**$1,485,346,600.90**	**60**

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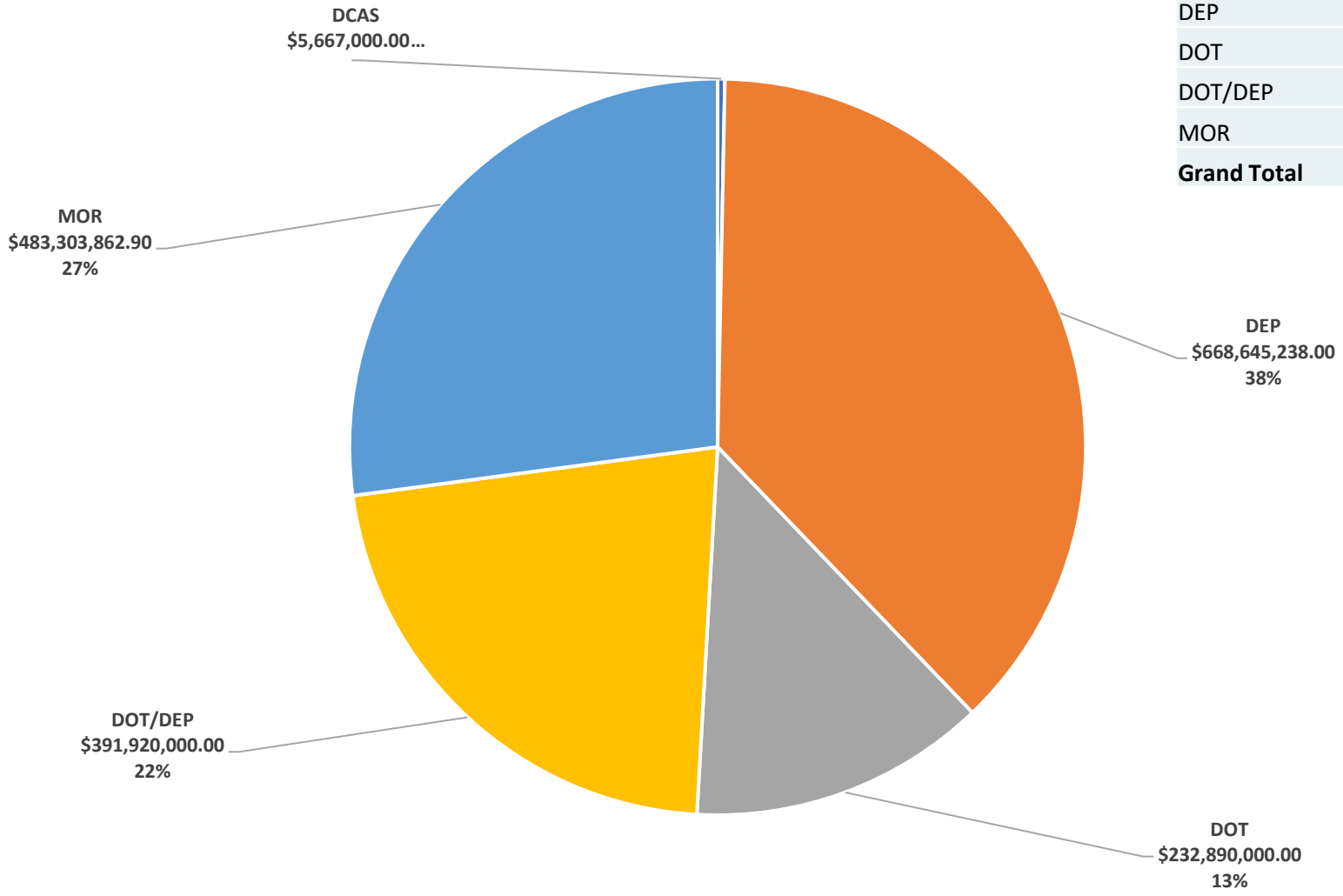
FY23 INFRA PROJECTS BY SPONSOR AGENCIES

Row Labels	Sum of Const Budget Cost
DCAS	$5,667,000.00
DEP	$668,645,238.00
DOT	$232,890,000.00
DOT/DEP	$391,920,000.00
MOR	$483,303,862.90
Grand Total	**$1,782,426,100.90**



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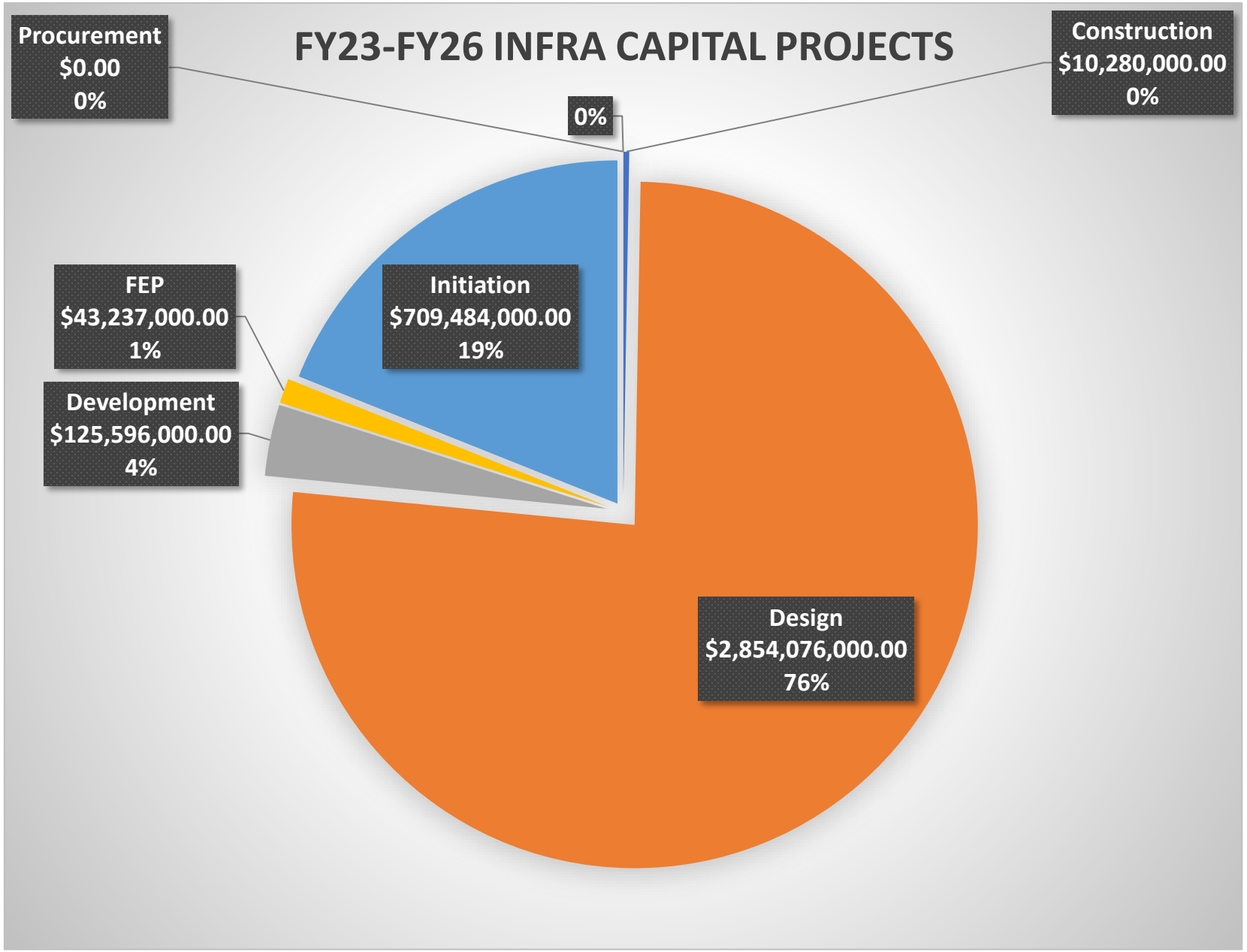
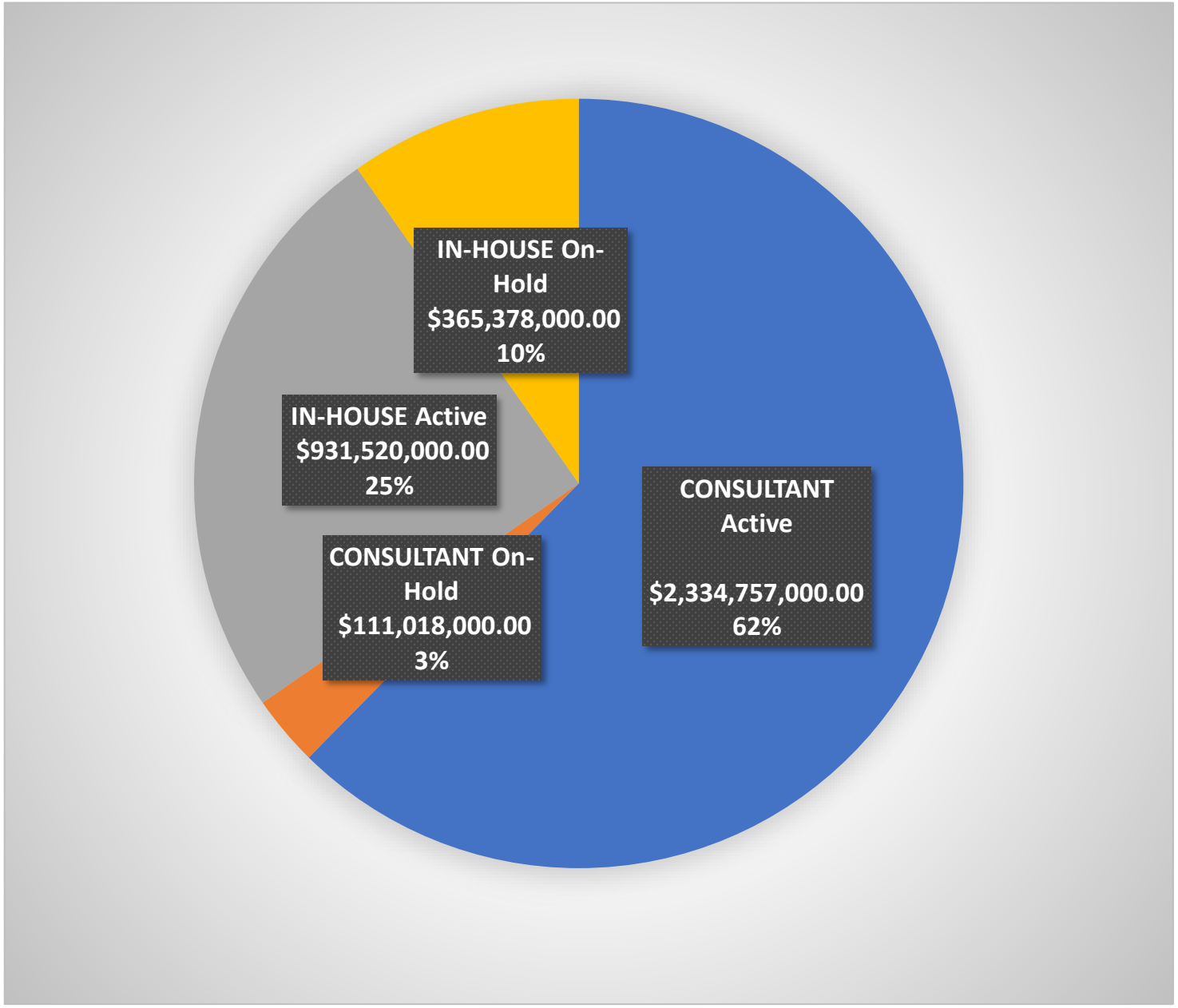
Row Labels	Sum of Const Budget Cost
Construction	$10,280,000.00
Design	$2,854,076,000.00
Development	$125,596,000.00
FEP	$43,237,000.00
Initiation	$709,484,000.00
Procurement	$0.00
(blank)	$0.00
Grand Total	**$3,742,673,000.00**



FY 23 – FY 26 INFRA CAPITAL PROJECTS

Row Labels	Sum of Const Budget Cost	
CONSULTANT	**$**	**2,445,775,000.00**
Active	$	2,334,757,000.00
On-Hold	$	111,018,000.00
IN-HOUSE	**$**	**1,296,898,000.00**
Active	$	931,520,000.00
On-Hold	$	365,378,000.00
Grand Total	**$**	**3,742,673,000.00**



DDC COASTAL RESILIENCY PROJECT PORTOFLIO

East Side Coastal Resiliency (ESCR)
Montgomery St to 23rd St
- $1.45B total budget
- DFE +16.50’ with active deployable
- Status: PA1 & PA2 active construction, PC construction procurement

BK-Bridge Montgomery Coastal Resiliency (BMCR)
Montgomery St to Brooklyn Bridge
- $400M - $500M Estimated total budget
- DFE +16.5' to +18.0’ with active deployable
- Status: construction procurement

Red Hook Coastal Resiliency (RHCR)
Atlantic Basin and Beard St
- $90 M - $100M Estimated total budget
- DFE +10.0’ with active deployable, and passive elevation 8-ft protection
- Status: 60% Design

Bellevue Campus Coastal Resiliency (BCCR)
E. 25th St to E. 30th St
- $200 M – $250M Estimated total budget
- DFE +19.0’ with active deployable
- Status: conceptual Design

Flyover Bridge
East River Park to 15th St
- $100M - $200M Estimated total project budget, fully City funded
- Elevate the existing pedestrian and bike path to avoid a ‘pinch point’
- Shared ADA accessible pedestrian and bike route
- Status: Design mid- 2022 – late- 2024, Construction 2026-2028

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East Side Coastal Resiliency (ESCR)

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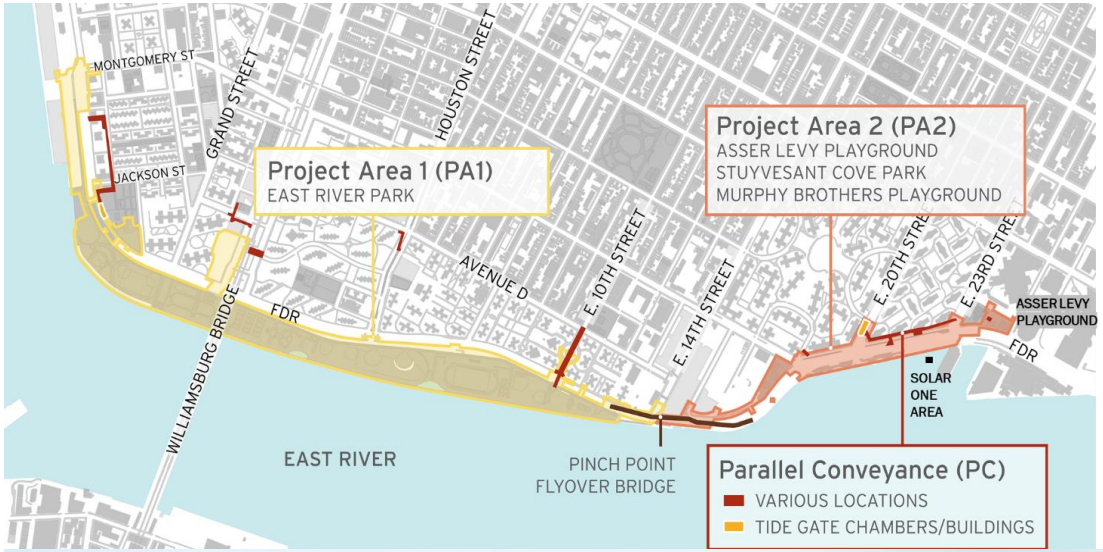

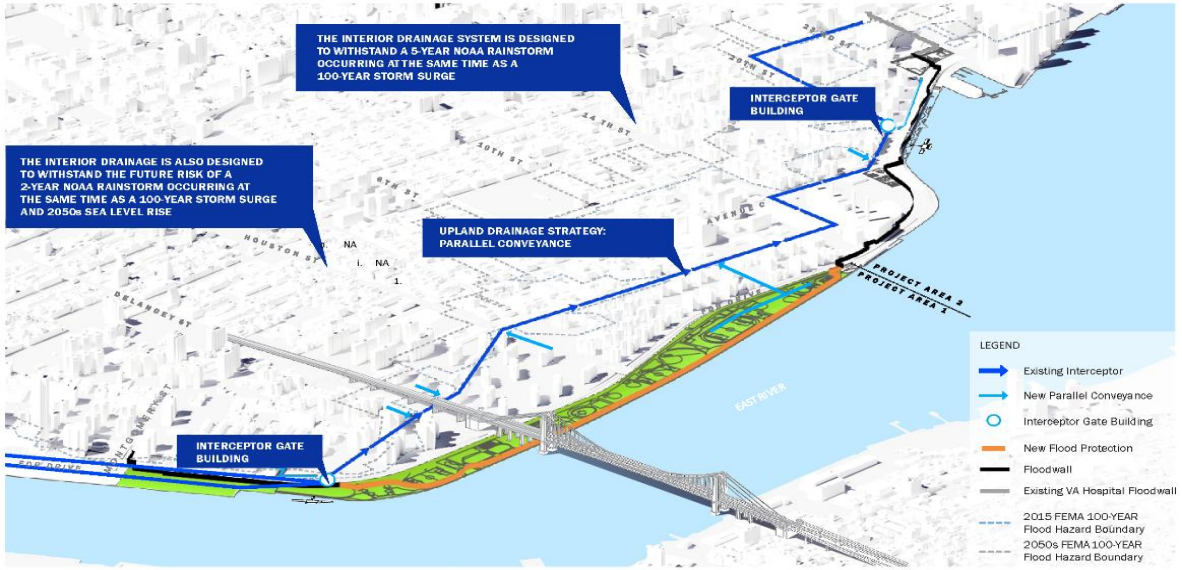

East Side Coastal Resiliency Scope of Work

The NYC Department of Design and Construction (NYCDDC) is managing the East Side Coastal Resiliency (ESCR) project which will protect New Yorkers from the impacts of climate change by reducing flood risk to communities, properties, businesses, critical infrastructure, and public open spaces.

ESCR emerged from the US Department of Housing and Urban Development (HUD)'s Rebuild by Design competition and is located within the Federal Emergency Management Agency (FEMA) 100-year floodplain.

In addition to providing flood protection, the project will strengthen and enhance waterfront spaces on Manhattan's East Side by improving accessibility, increasing ecological diversity, and delivering improved recreational amenities.

Project Area 2 (PA2) encompasses work between East 15th St. and East 25th St. including Asser Levy Playground, Stuyvesant Cove Park, Murphy Brothers Playground, as well as local streets around the East 15th St. Con Edison Facility.

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East Side Coastal Resiliency

- SANDRESM2:
- East Side Coastal Resiliency from
- East 15th Street to East 25th Street

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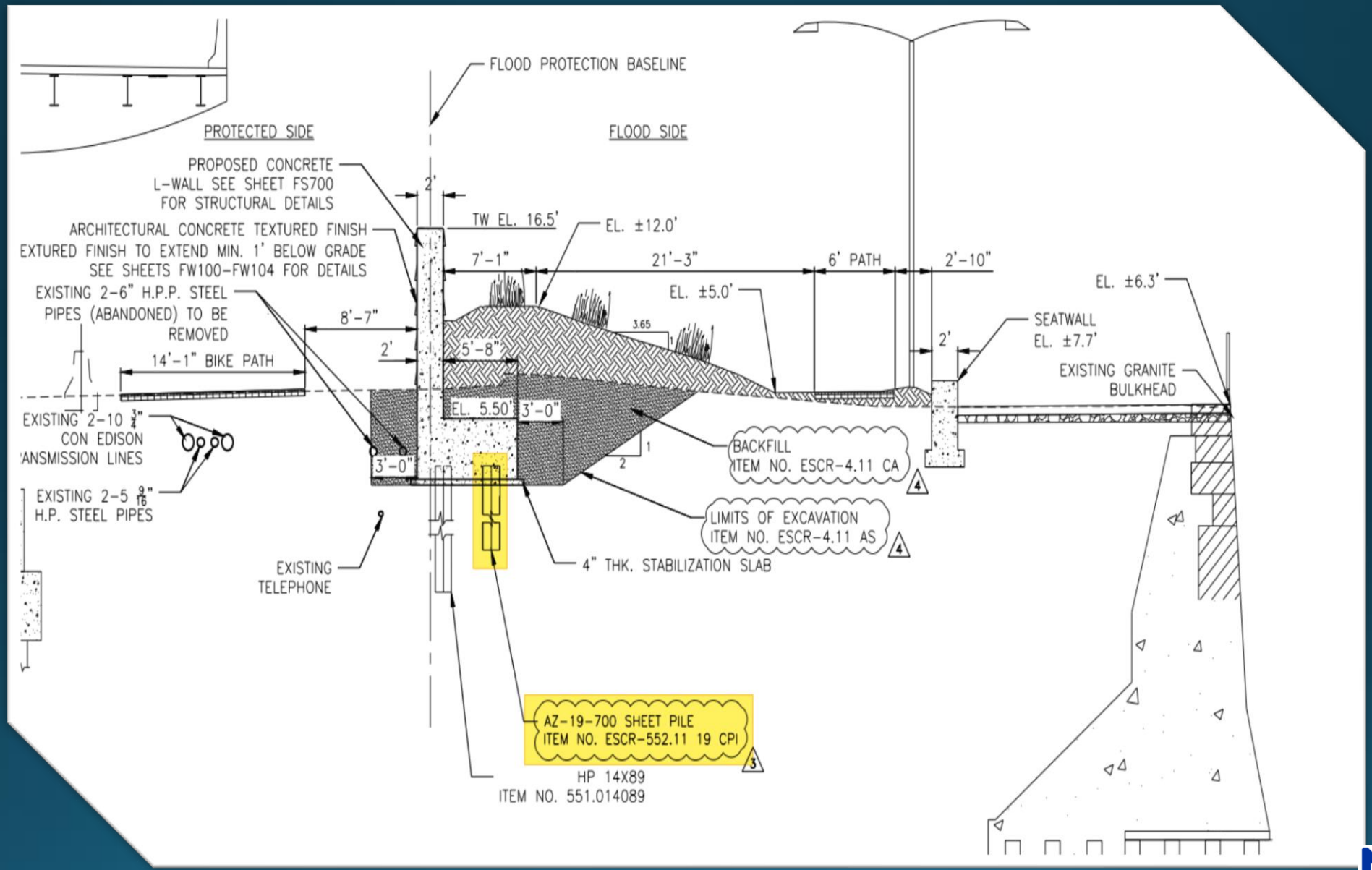
Driving Steel Sheet Pile for Flood Wall Foundations



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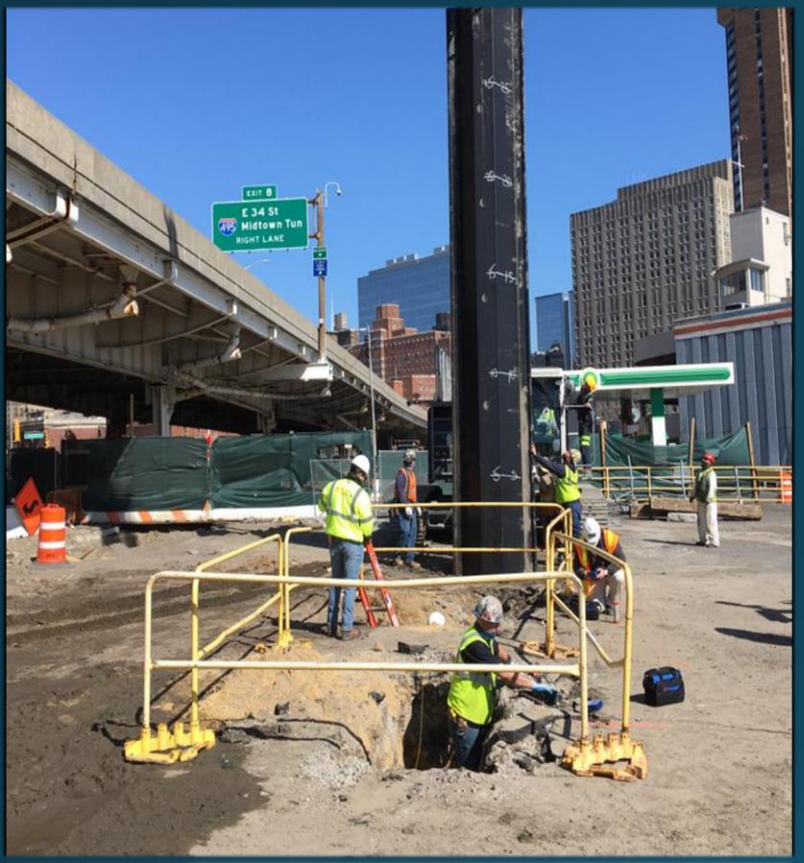
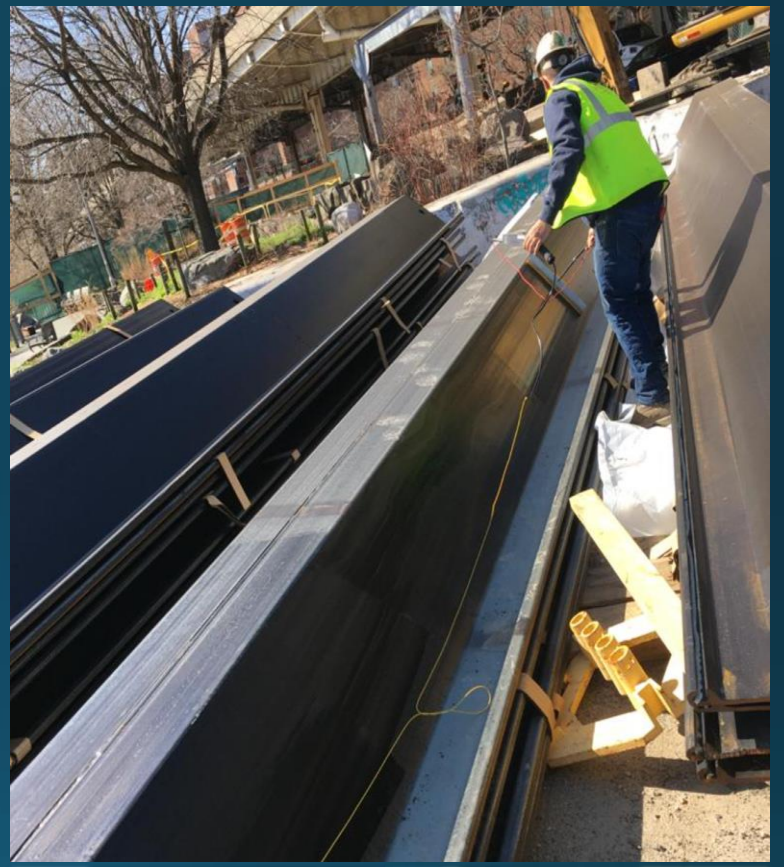
Driving Steel Sheet Pile for Flood Wall Foundations





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Driving Steel Sheet Pile for Flood Wall Foundations

Worlds-First Silent Vibro

Only possible by RTG`s patented lube- and cooling system

First measurement results in Aresing, Germany

QS MR 150AVM – Silent Vibro

Schallemission - *Sound emission*

Rüttler	MR 145V	MR 150 Silent Vibro
betrieben an:	RG 19T	RG 19T EEP
Betriebsart	Standard-Modus mit Spundwandkette	Standard-Modus mit gedämmter Spundwandkette

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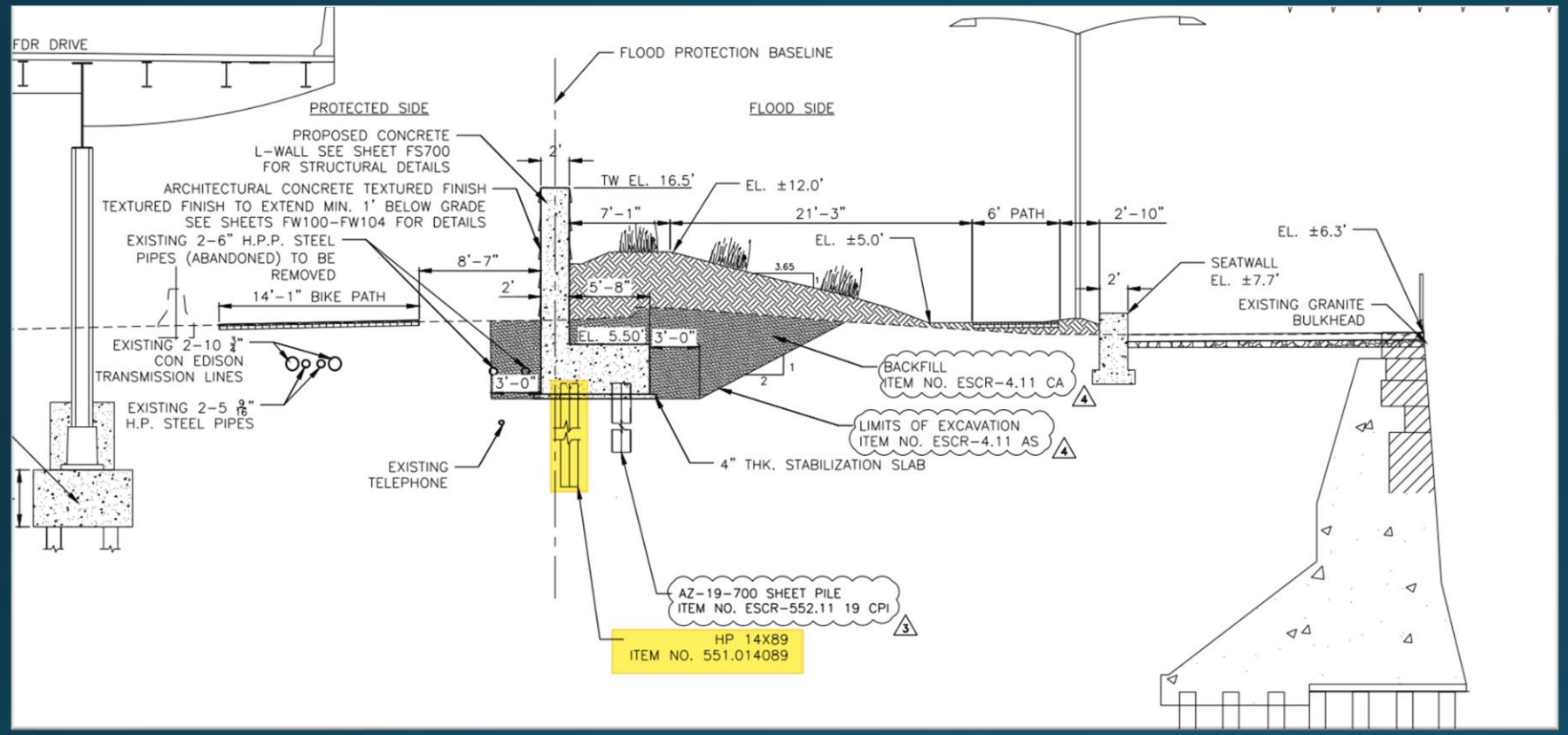

Driving Steel H-Pile for Flood Wall Foundations

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Driving Steel H-Pile for Flood Wall Foundations

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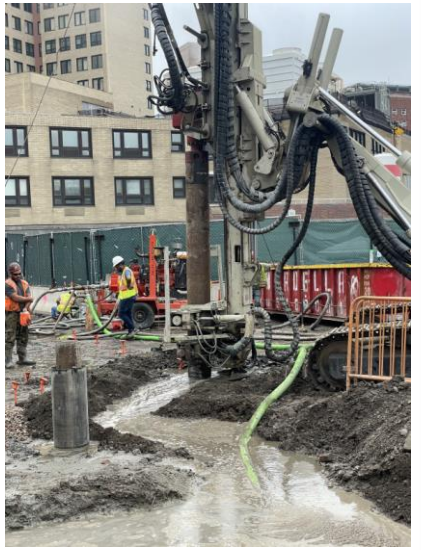
Steel H-Pile Design Loads and Tip Elevations for Flood Wall Foundations

ESCR - PROJECT AREA 2 STRUCTURES AND FOUNDATION LOADS

Reach	Boring	1 Structure/ Monolith Label	2 Pile Type	3 Base EL of Liquefaction	4 Dead load + shaft load (tons)	5 Rock EL	6 Maximum Compress Load (tons)	7 Maximum Tension Load (tons)	8 Max Lateral Load (tons)
O	O-1	MLO1-2, 4-7	HP 14x89	-43.3	25.37	< -106.7	61.0	7.0	28.1
		MLO3	HP 14x89		29.23		82.0	7.0	31.9
	O-2	MLO8-11, MLO13-14	HP 14x89	-42.5	25.37	-122.5	61.0	7.0	28.1
		MLO12	HP 14x89		25.37		82.0	7.0	38.6
		MLO15	HP 14x89		21.60		42.0	5.0	21.4
		MLO16	HP 14x89		26.89		62.0	6.0	29.2
	O-3	36' Gate	36 in. Shafts	-42.3	55.3	-122.3	72.5	24.5	40.7
		36' Gate	24 in. Shafts		40.6		69.0	26.0	0.0
		ML017	24 in. Shafts		30.3		54.0	23.4	26.9
		MLO18	24 in. Shafts		29.9		61.0	23.4	20.8
		MLO19,20	24 in. Shafts		29.5		47.0	23.4	20.8

Driving Micropiles for Flood Wall Foundations



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Micropile Load Test

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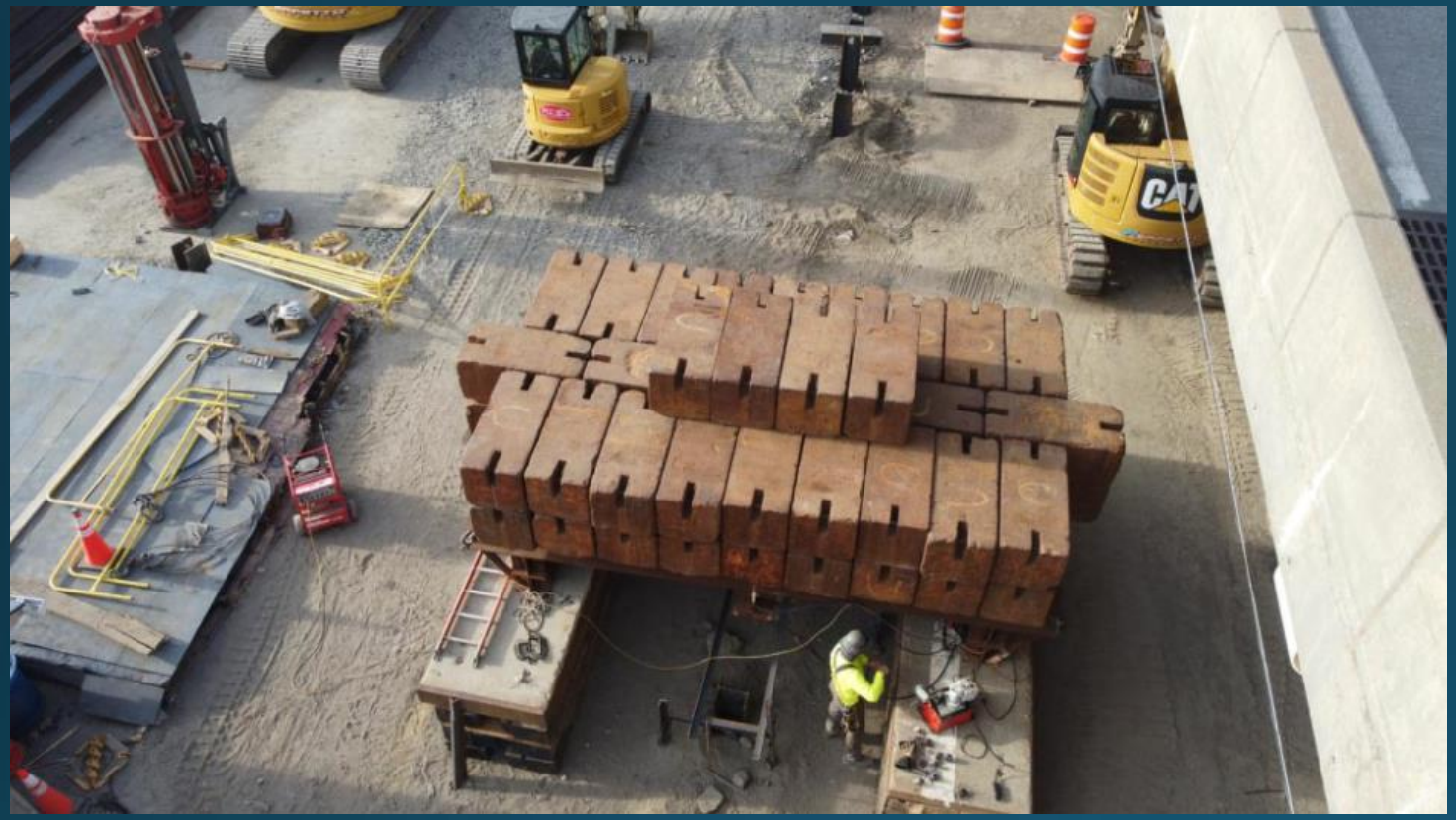

Steel H-Pile Load Test

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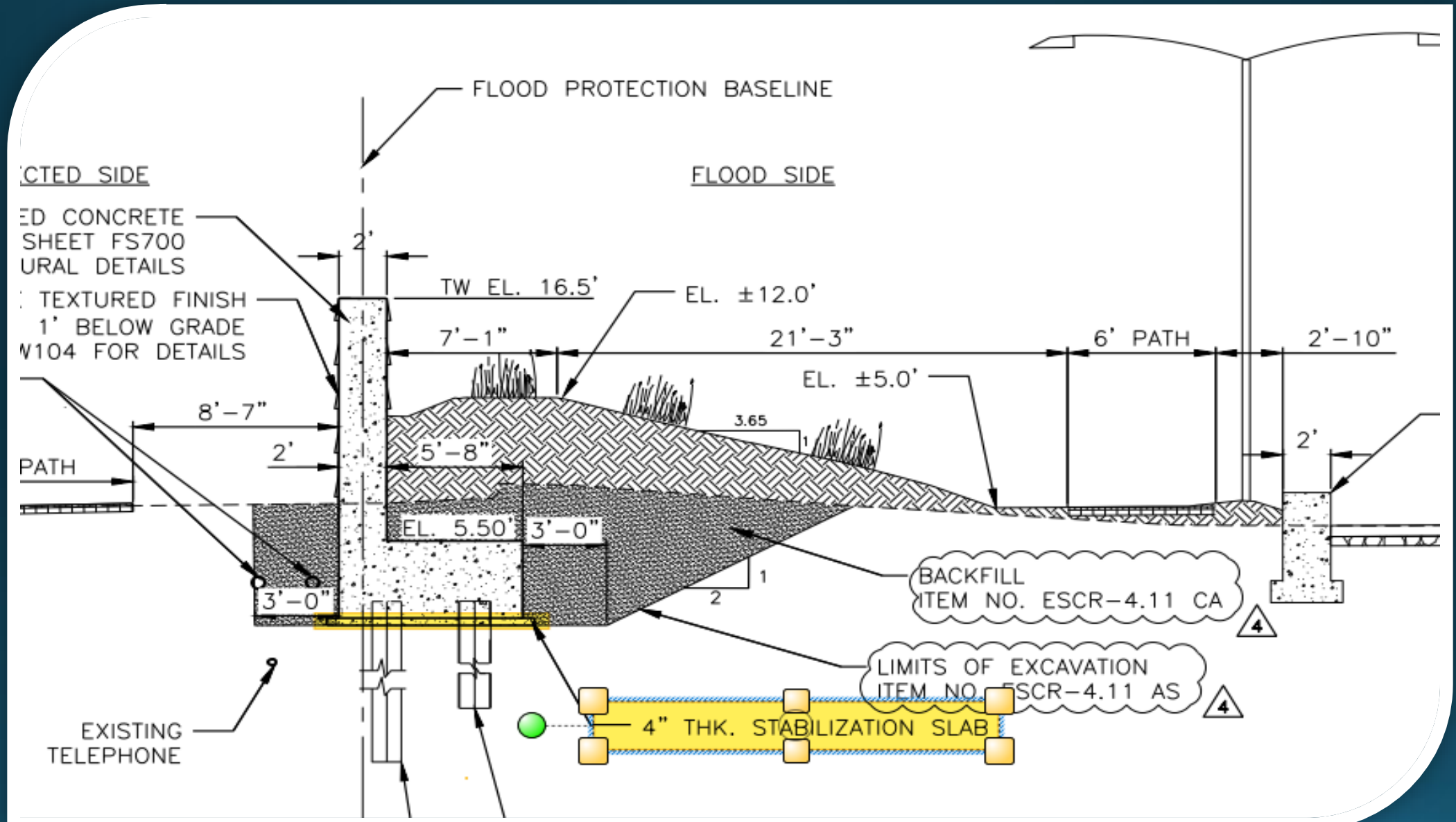
Installation of the 4-inch-thick Stabilization Slab for Flood Wall Foundations



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Installation of the 4-inch-thick Stabilization Slab for Flood Wall Foundations

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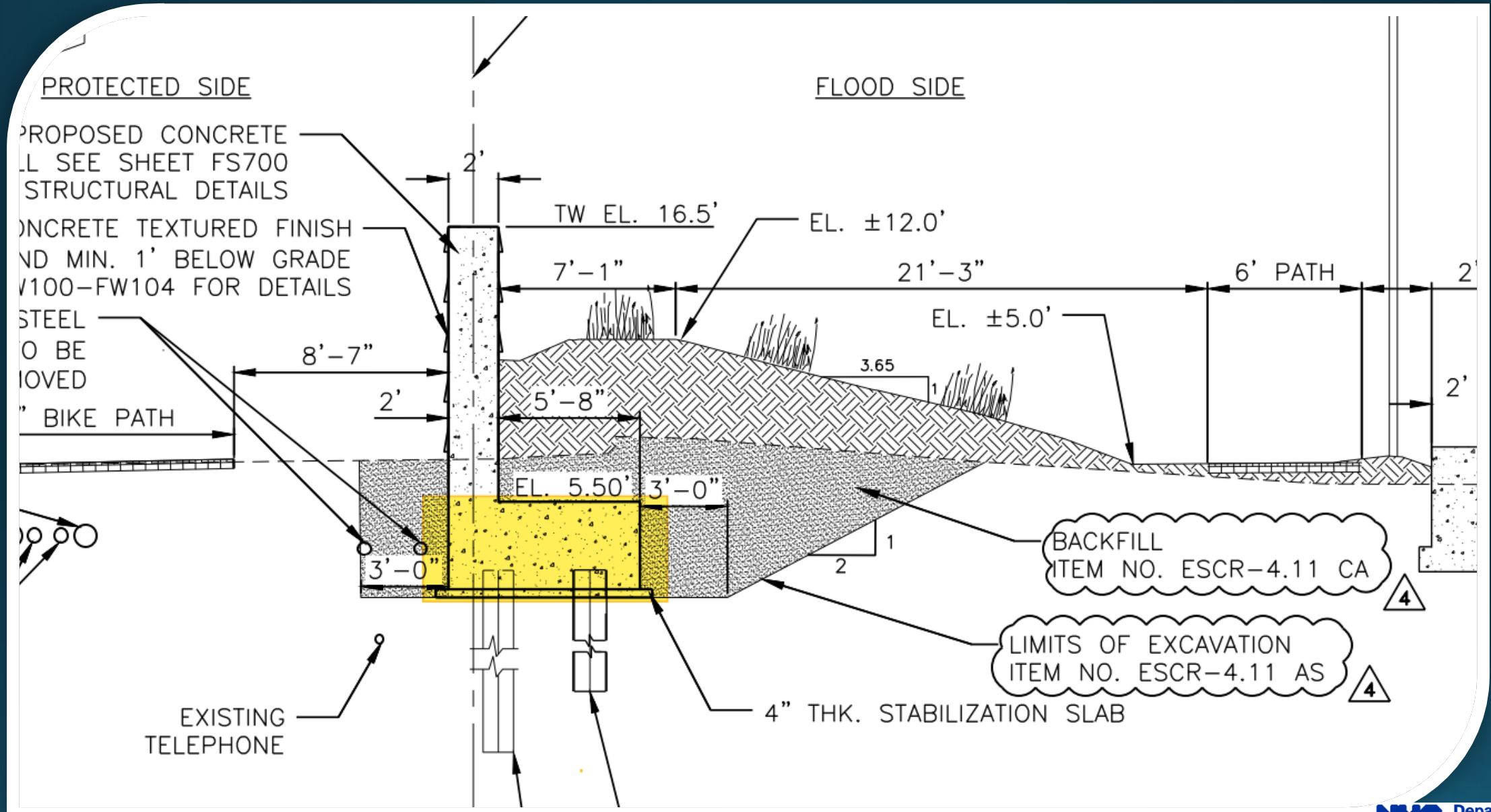
Installation of the Reinforced Concrete Flood Wall Foundations



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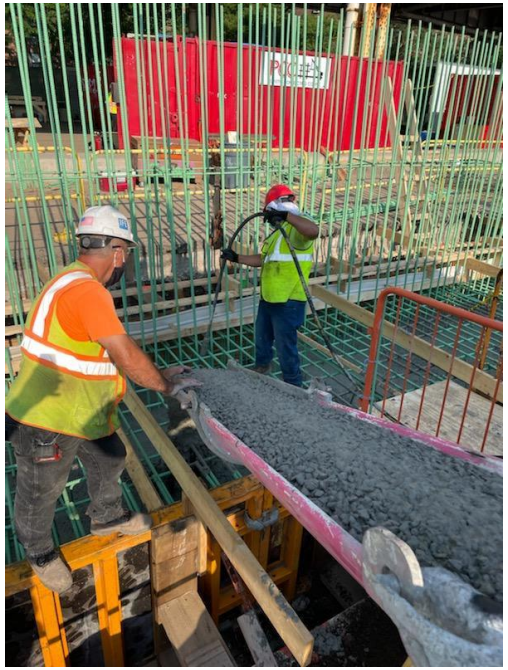
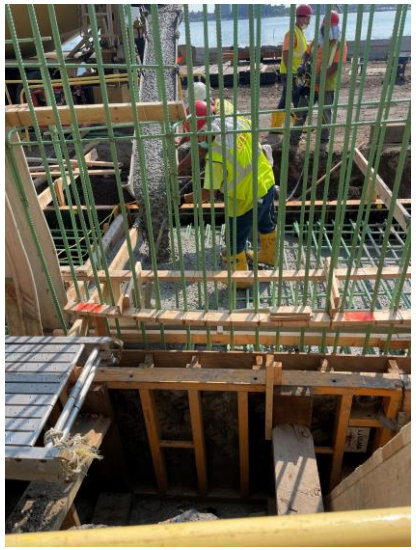
Installation of the Reinforced Concrete Flood Wall Foundations

Department of Design and Construction

Installation of the Reinforced Concrete Flood Wall Foundations





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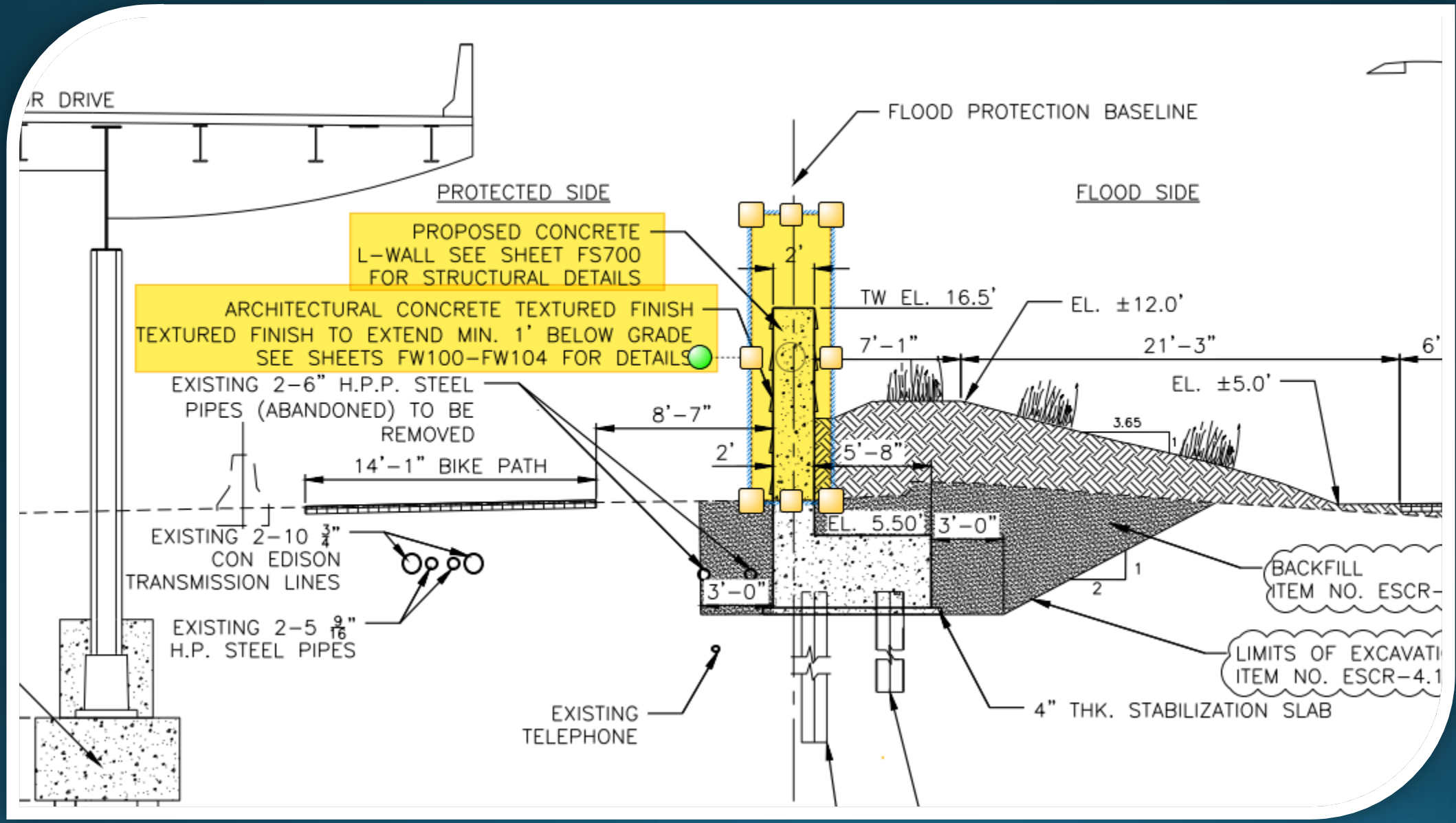
Installation of the Reinforced Concrete Flood Wall



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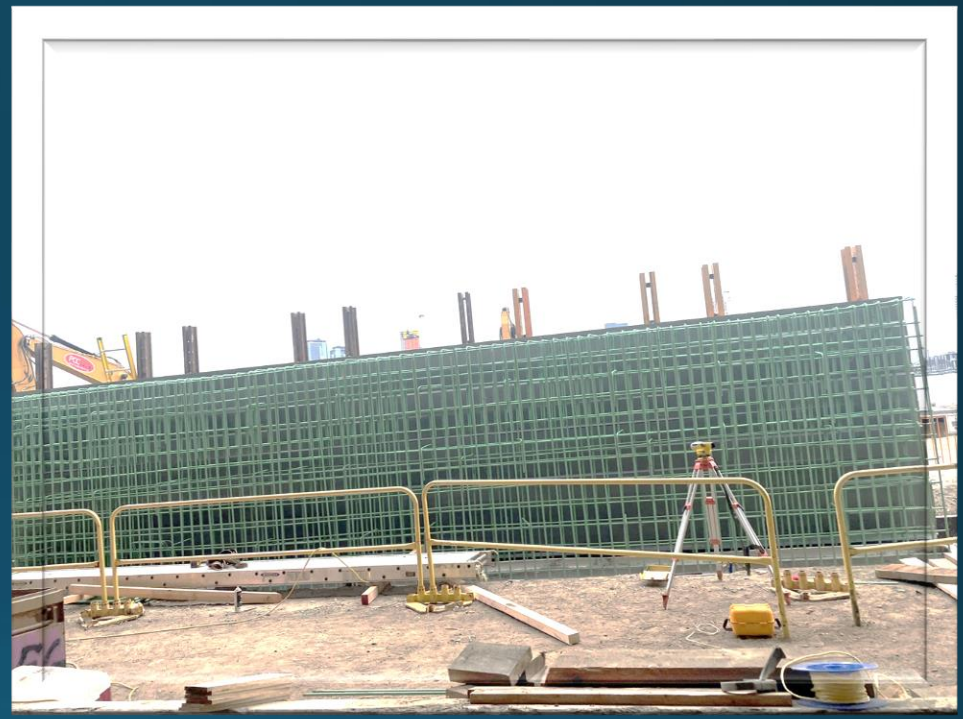
Installation of the Reinforced Concrete Flood Wall



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Installation of the Reinforced Concrete Flood Wall

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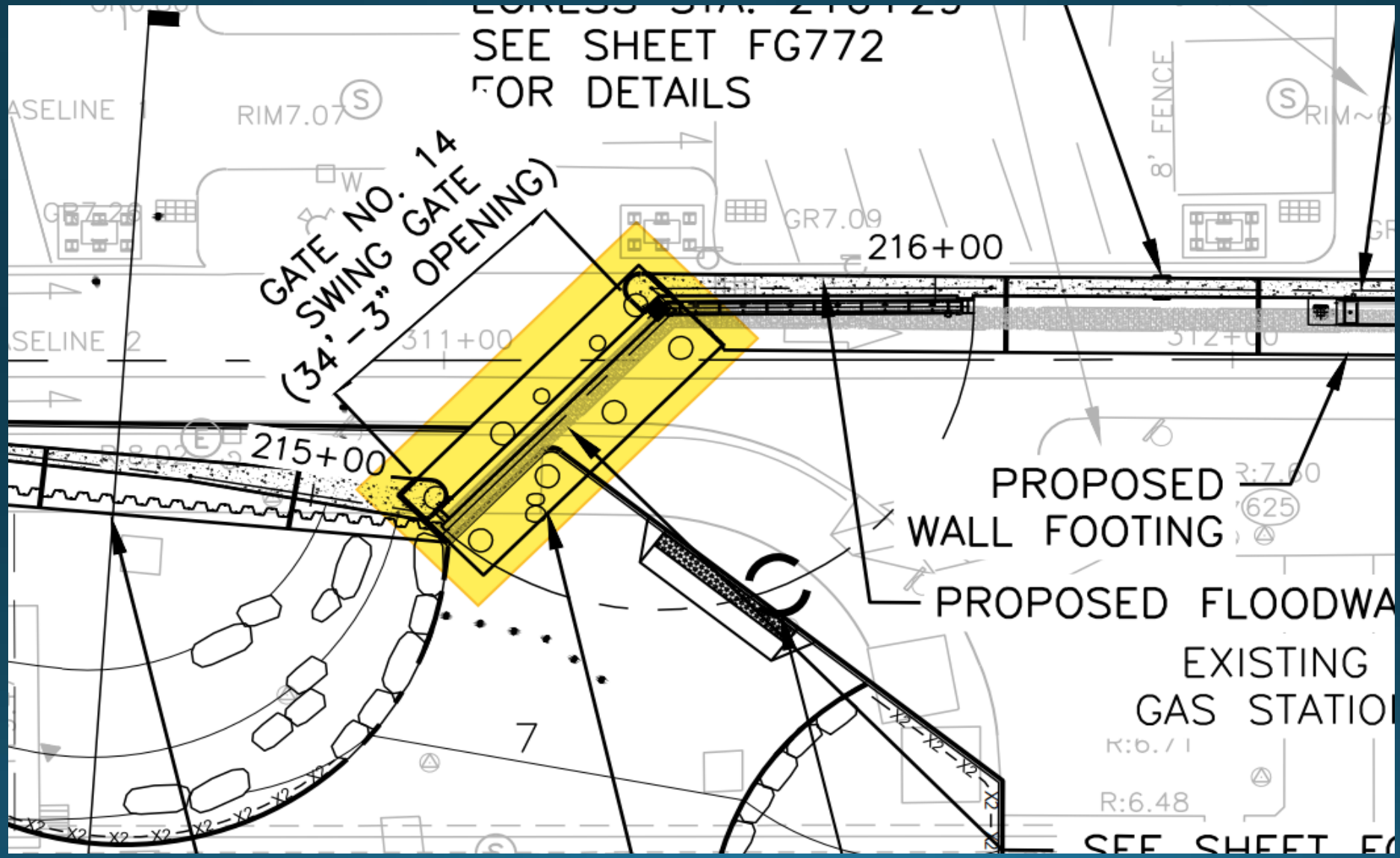
Installation of the Reinforced Concrete Flood Wall

NYC DDC Department of Design and Construction

Installation of the Swing Flood Gate Foundations



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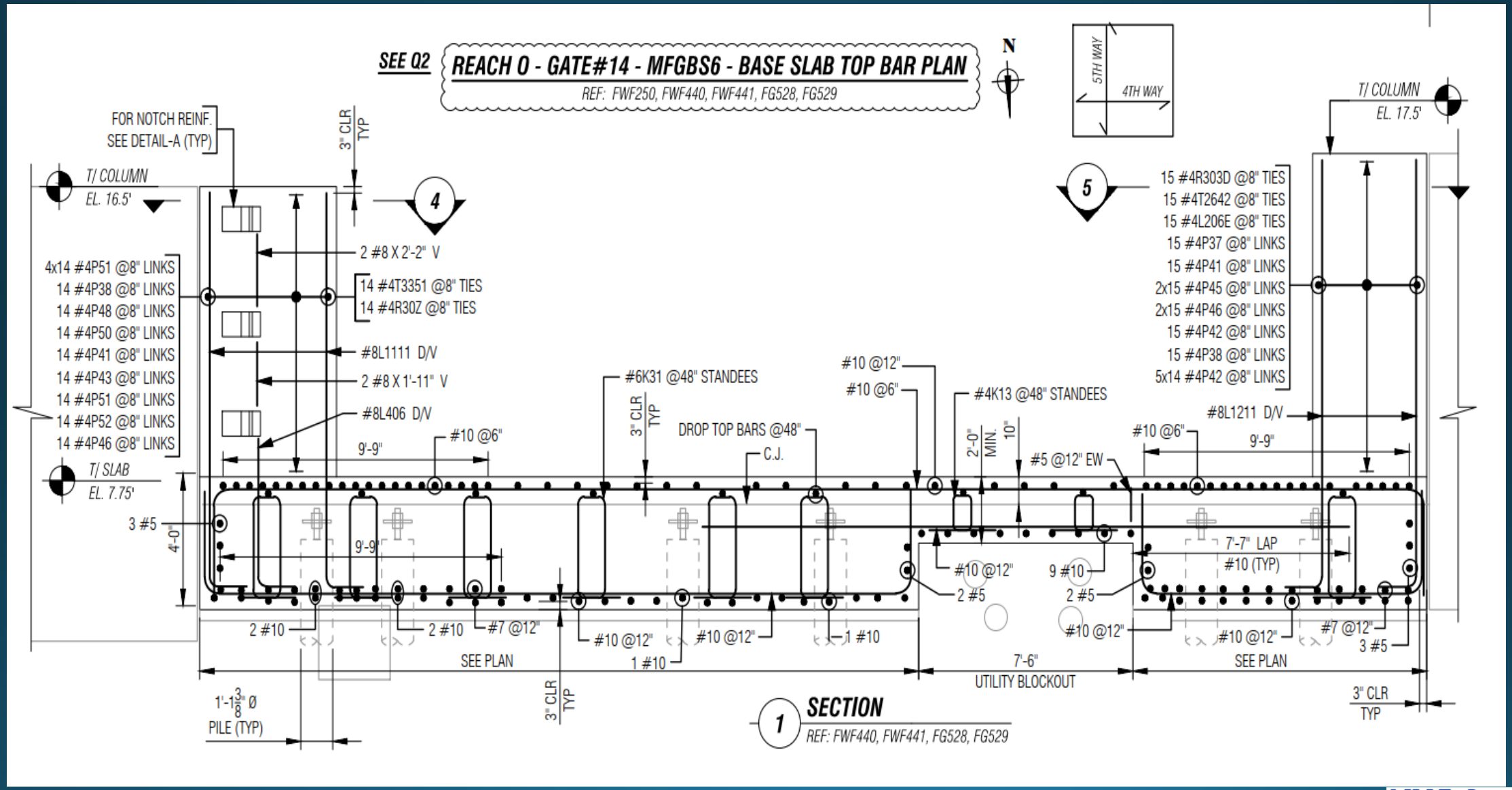
Installation of the Swing Flood Gate Foundations



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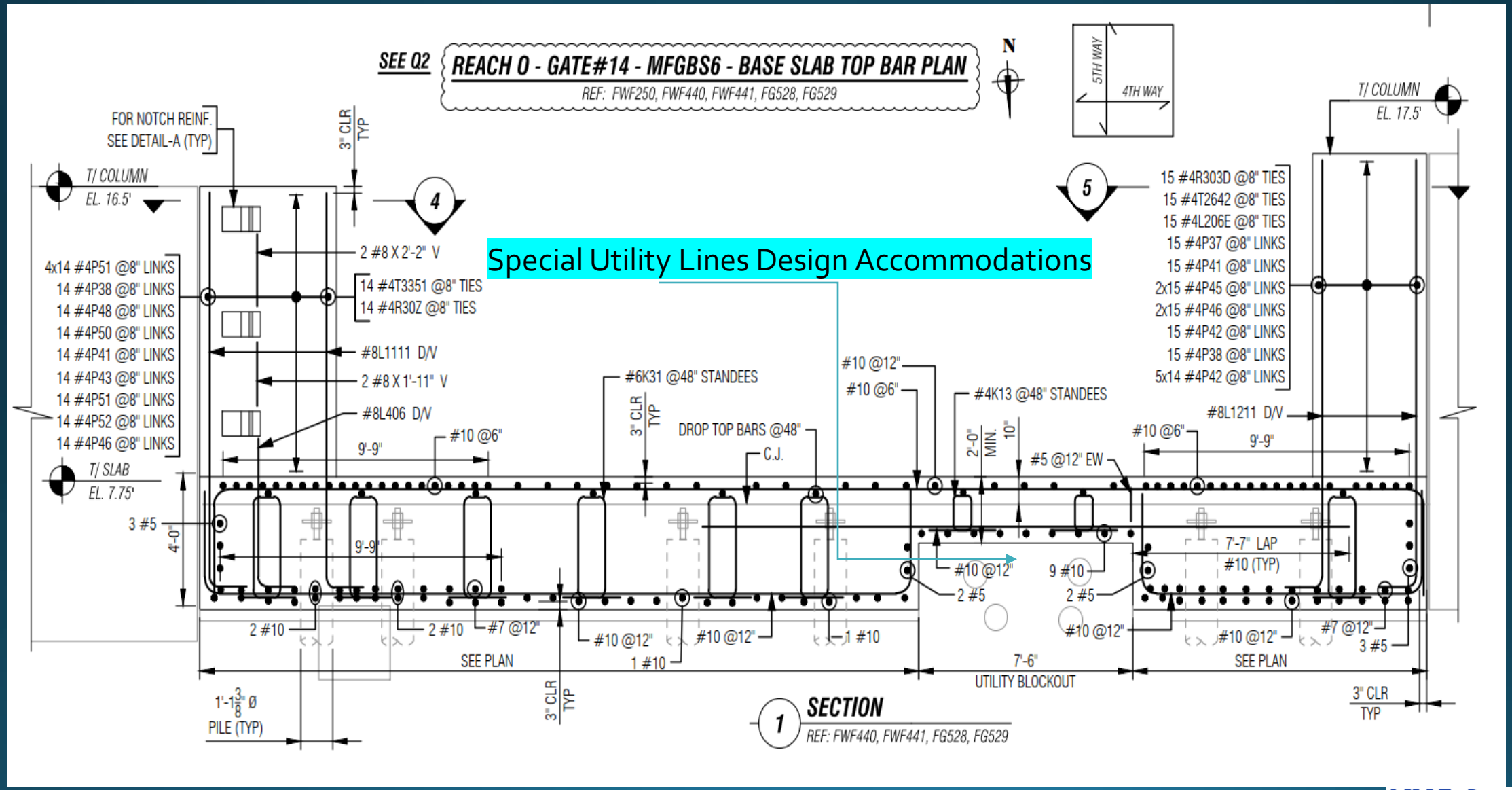
Installation of the Swing Flood Gate Foundations



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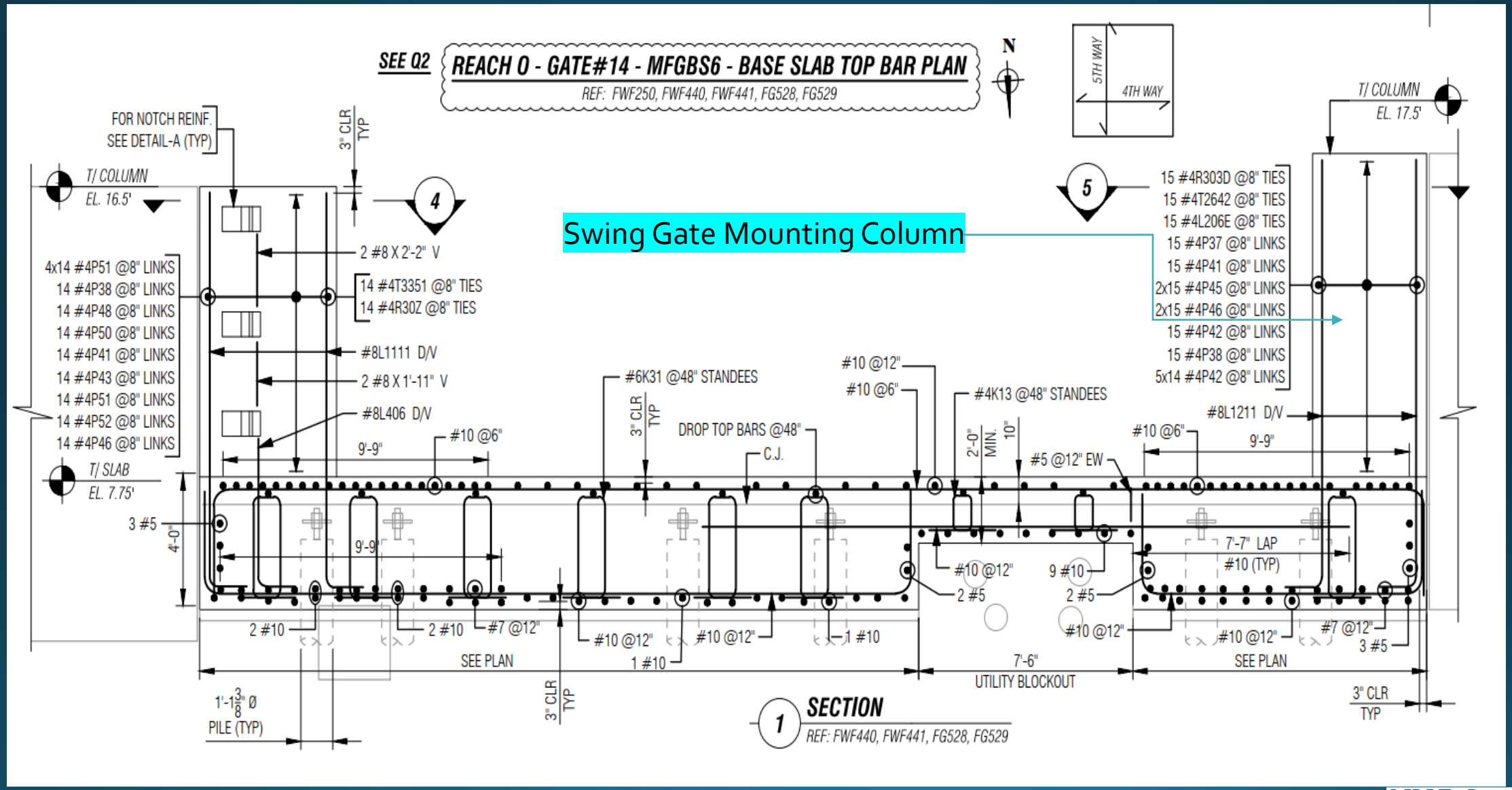
Installation of the Swing Flood Gate Foundations



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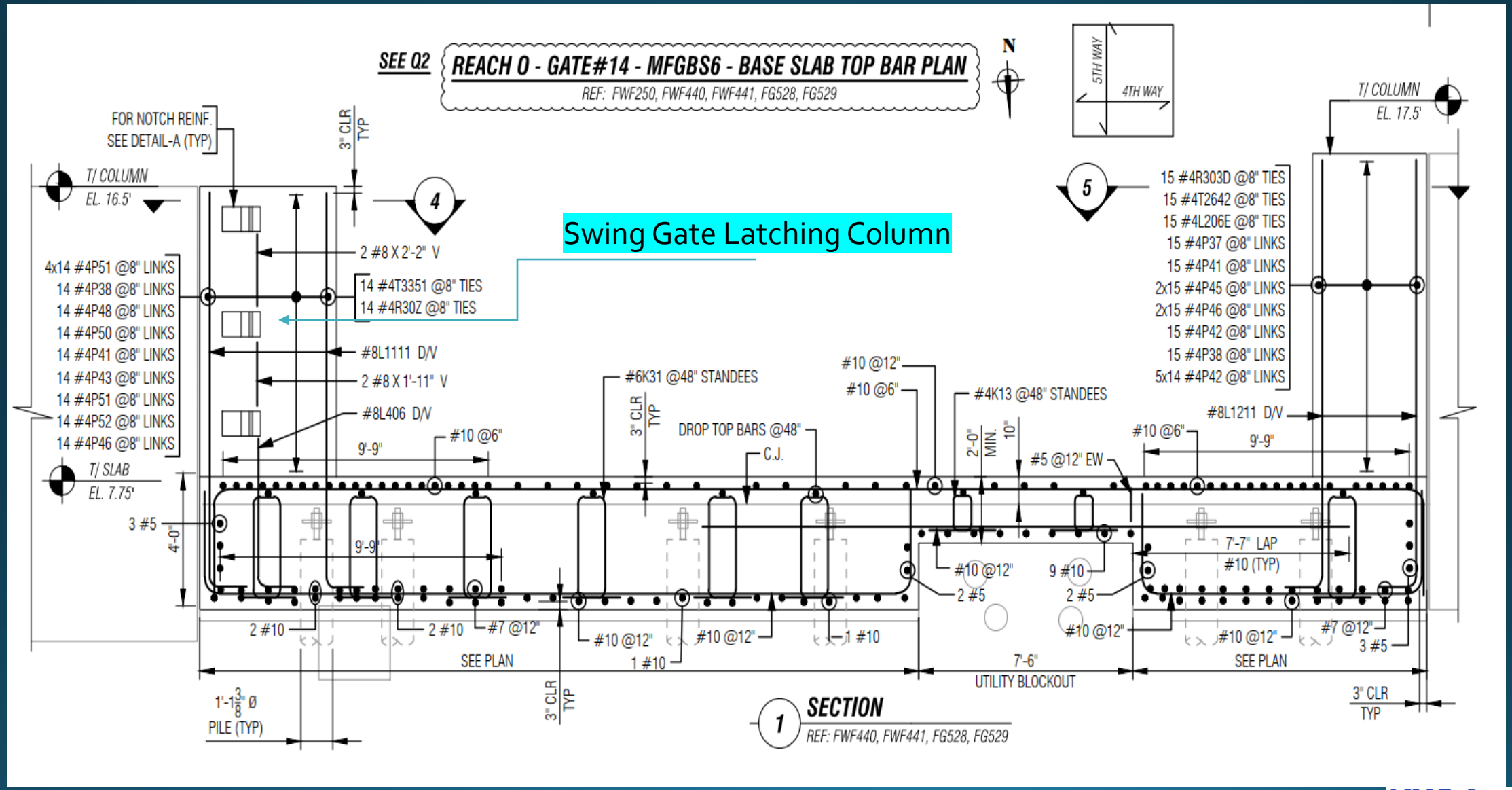
Installation of the Swing Flood Gate Foundations



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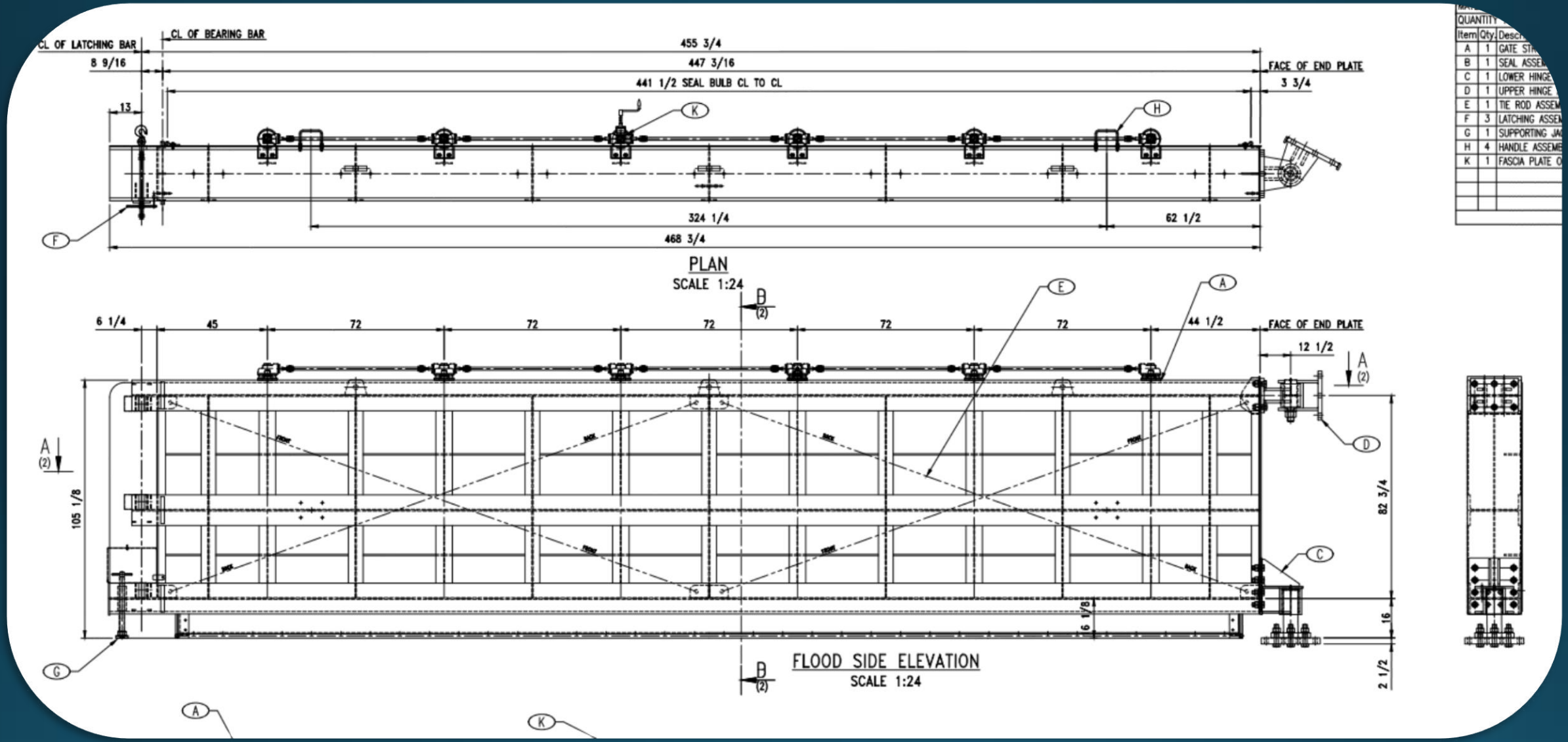
Fabrication of the Swing Flood Gate



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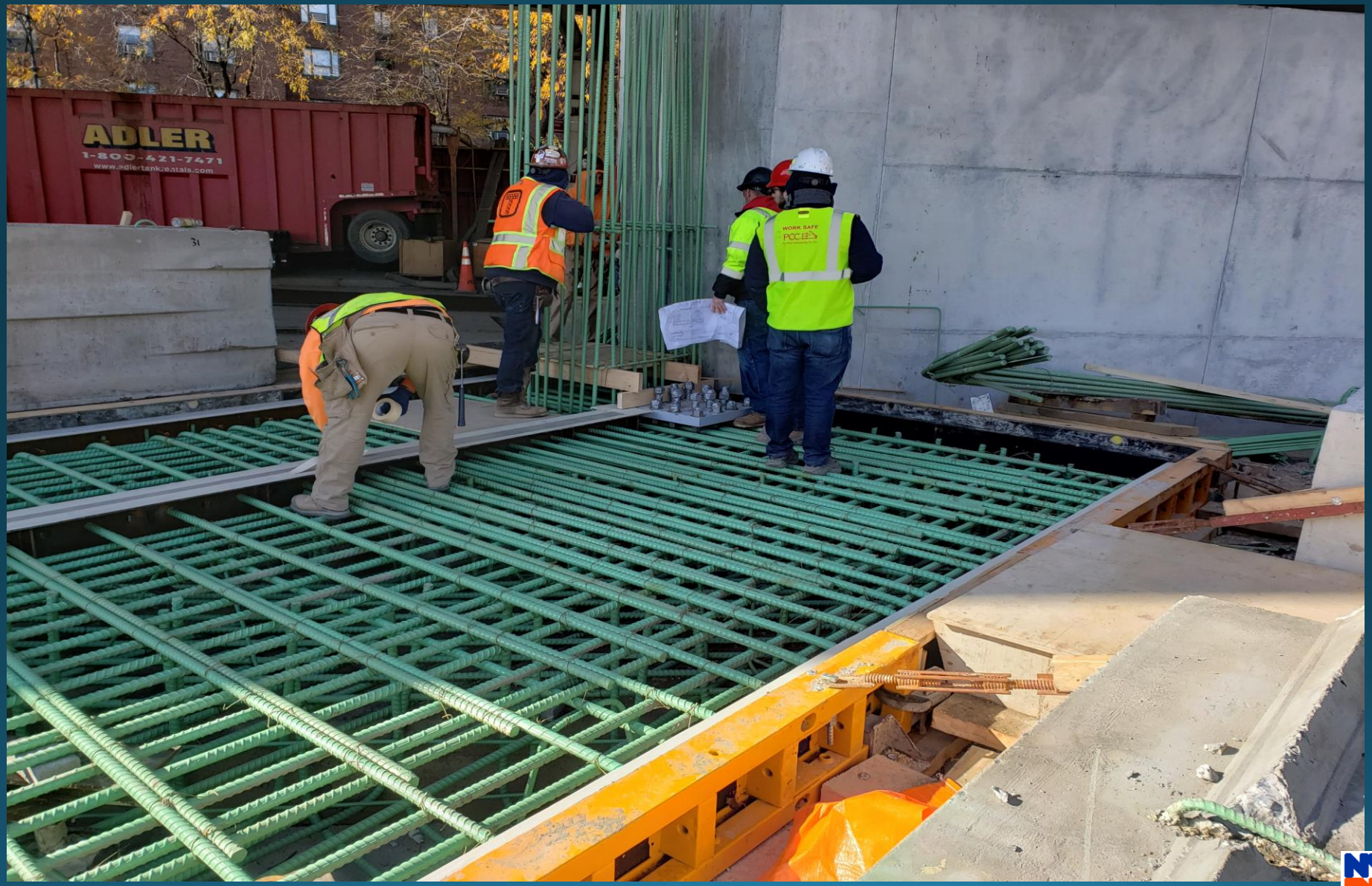
Installation of the Swing Flood Gate Foundations



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Installation of the Swing Flood Gate Foundations

Department of Design and Construction

Fabrication of the Swing Flood Gate

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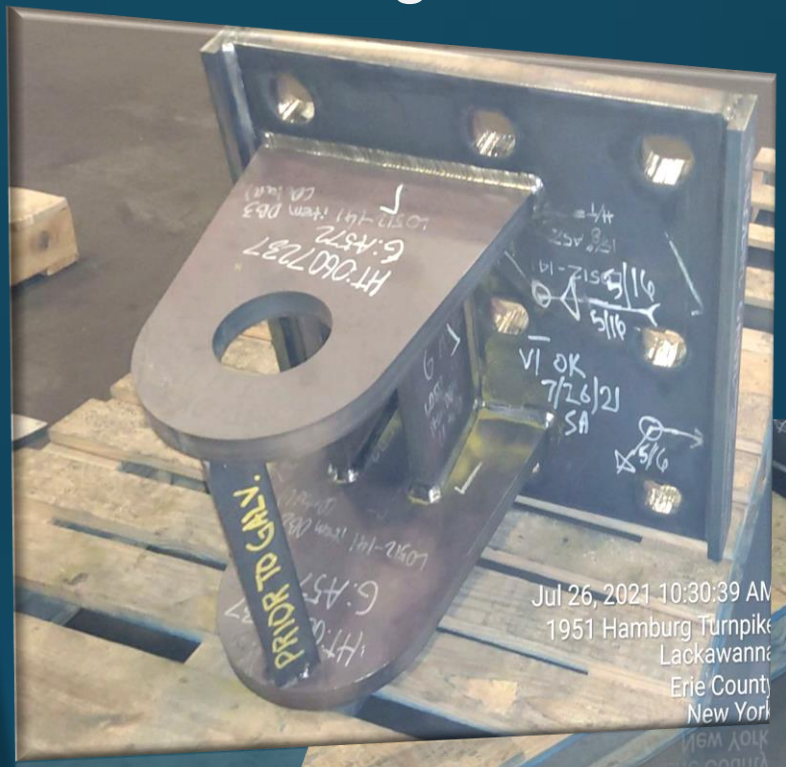

Fabrication of the Swing Flood Gate

Picture #4 - Gate Structure - North Gate #14 - in process welding

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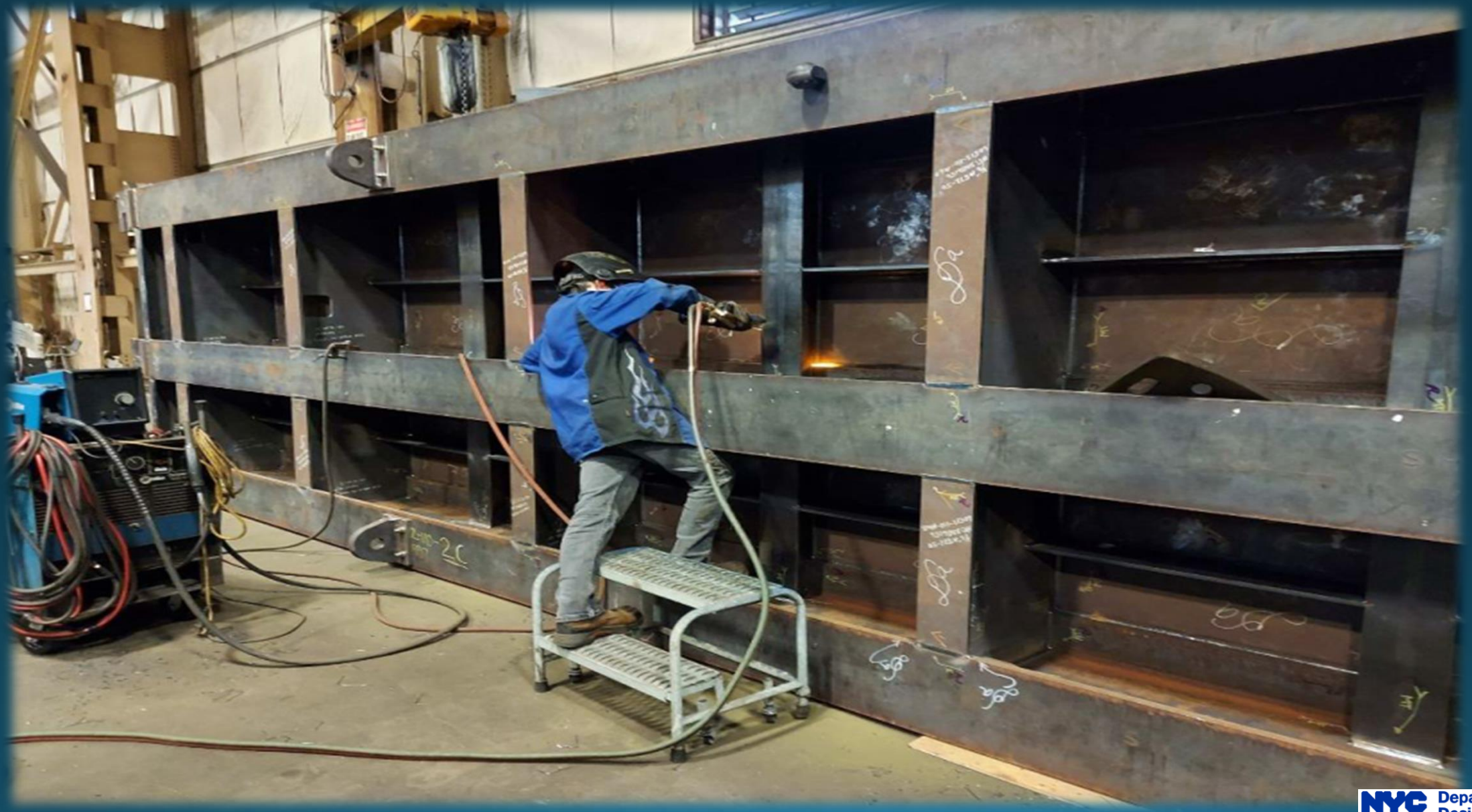
Fabrication of the Swing Flood Gate



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Fabrication of the Swing Flood Gate

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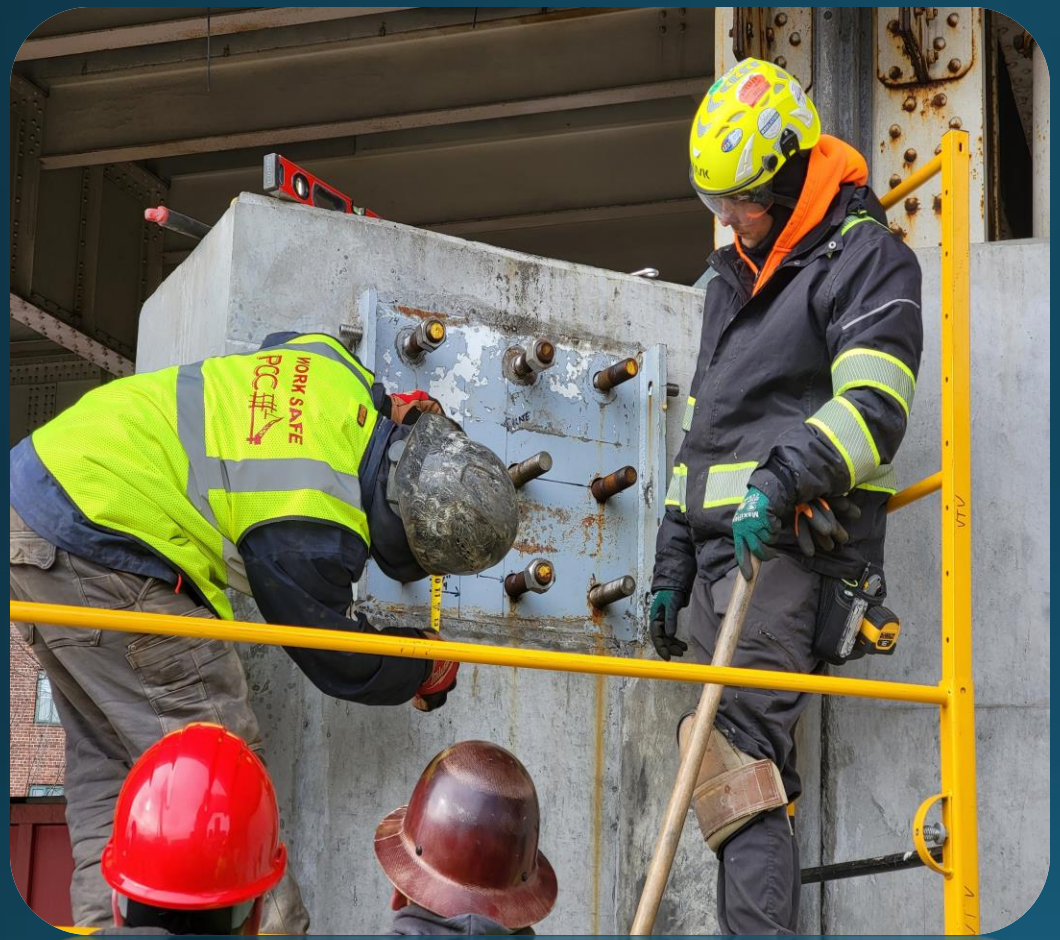
Installation of the Swing Flood Gate



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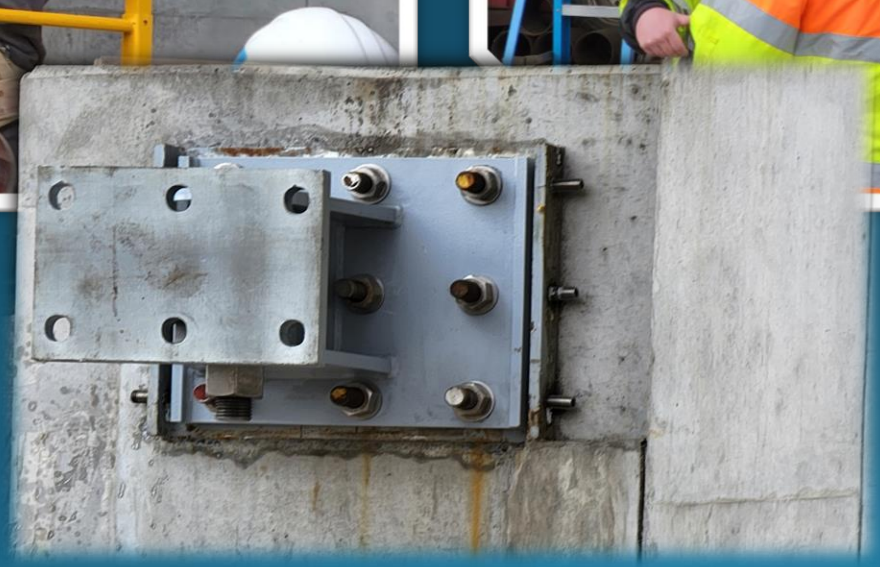
Installation of the Swing Flood Gate



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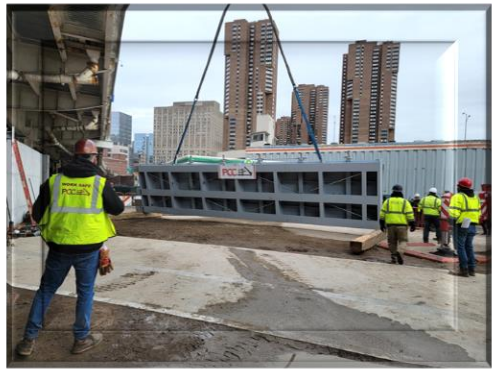
Installation of the Swing Flood Gate



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Installation of the Swing Flood Gate

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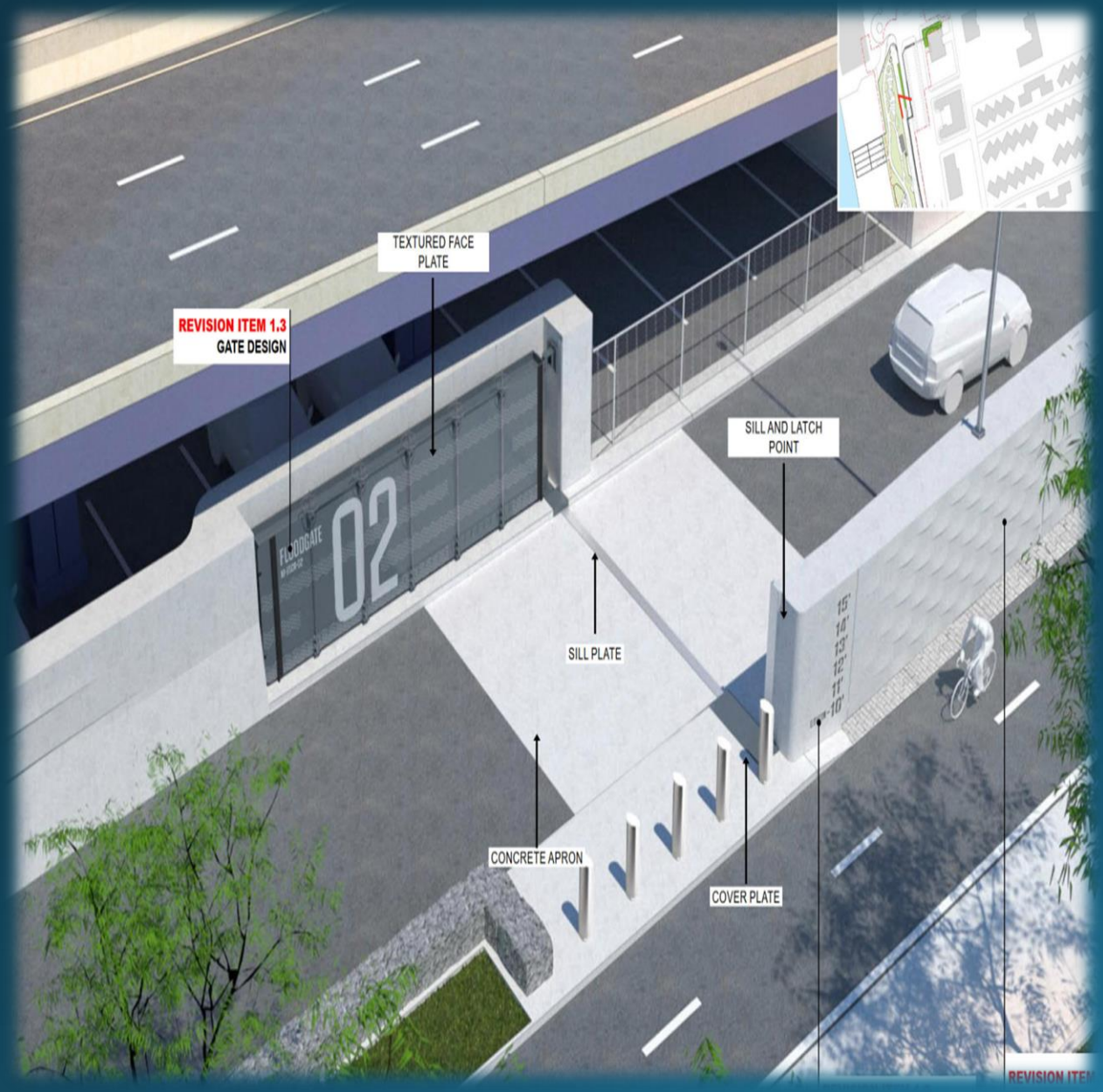

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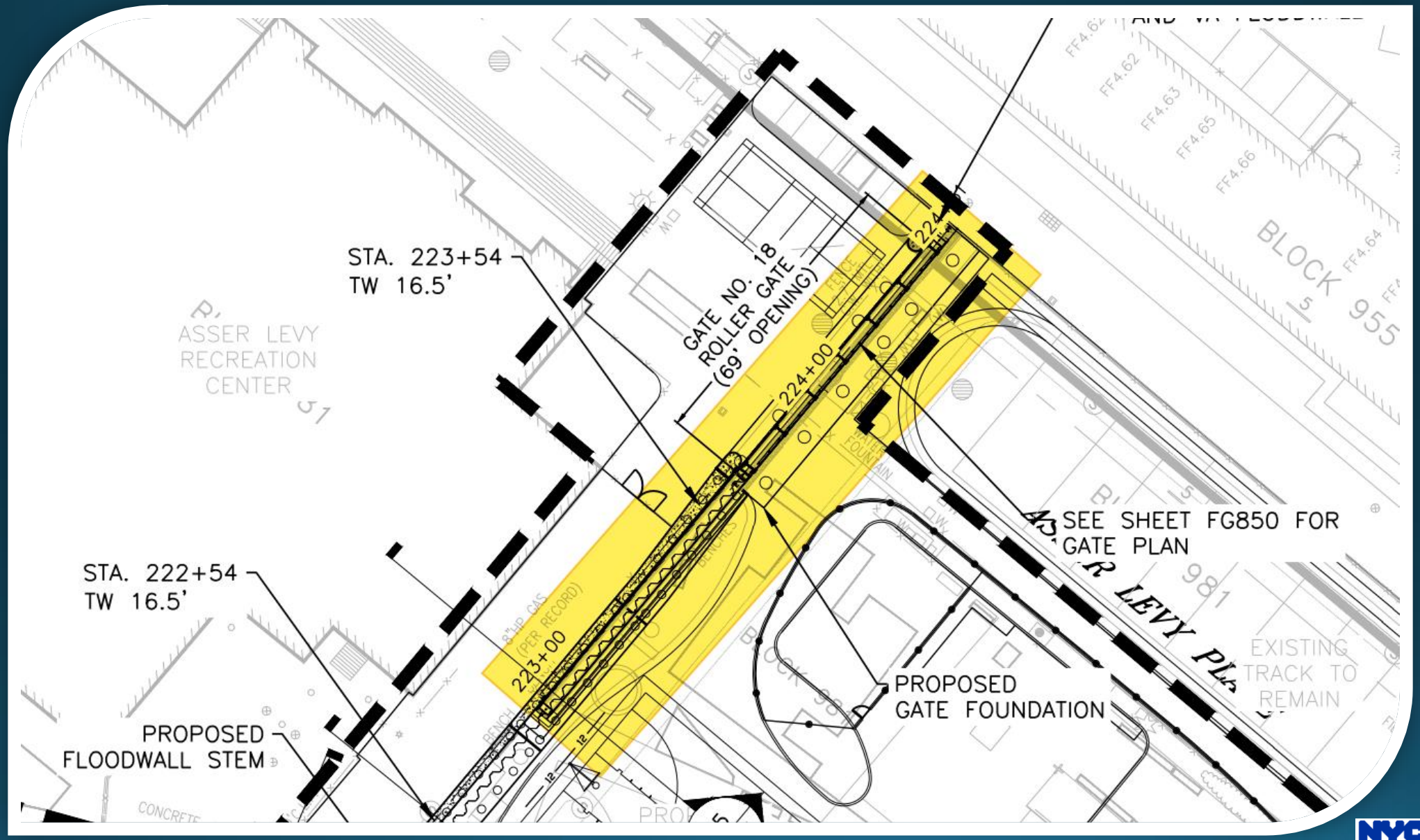
Installation of the Roller Flood Gate Foundations



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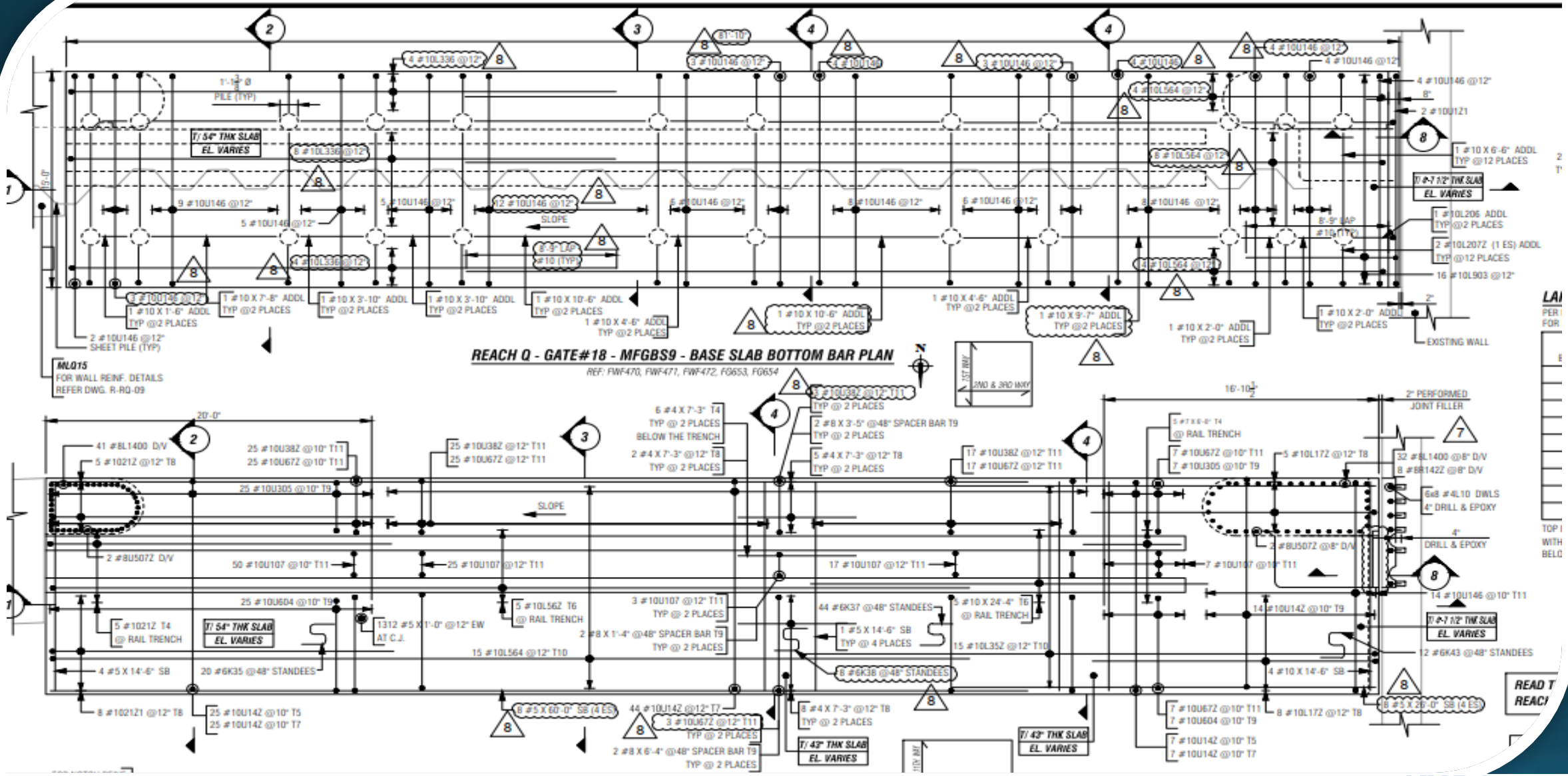
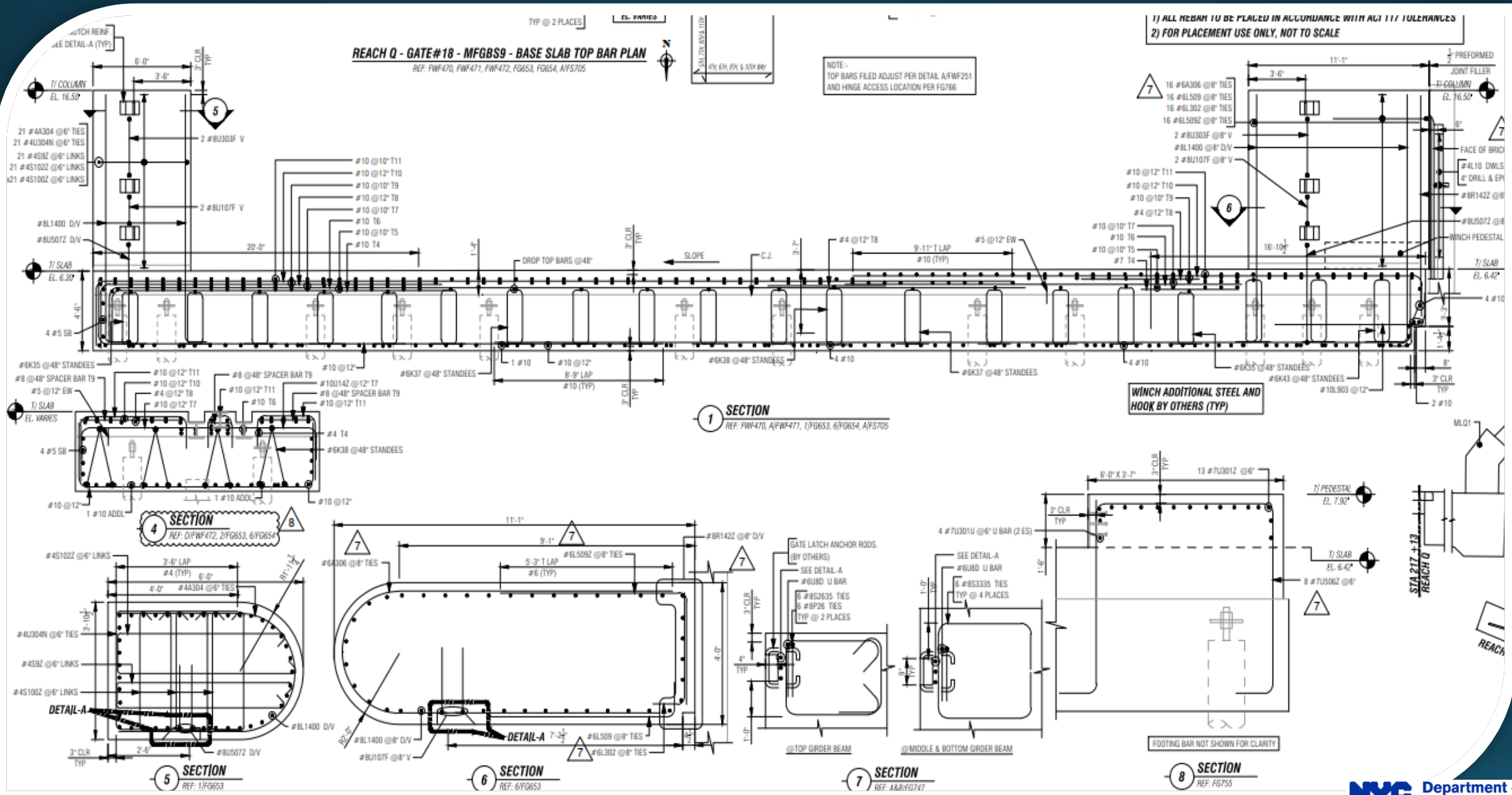
Installation of the Roller Flood Gate Foundations



Department of Design and Construction

Installation of the Roller Flood Gate Foundations



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Installation of the Roller Flood Gate Foundations

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Installation of the Roller Flood Gate Foundations

Preparation for Pouring Concrete in Cold Weather, enclosures were installed with heaters left over night to keep the formwork and rebars warm before the concrete were poured the next day.

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Installation of the Roller Flood Gate Foundations

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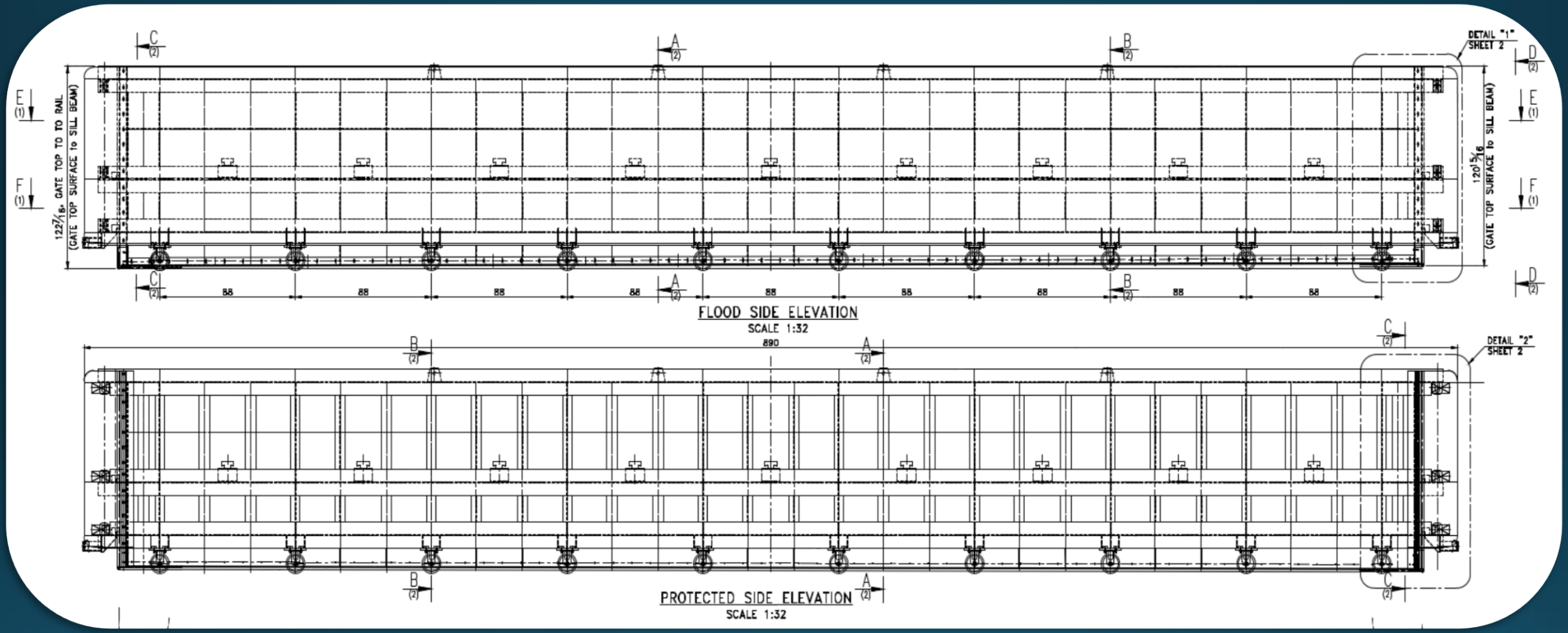
Fabrication of Roller Flood Gates



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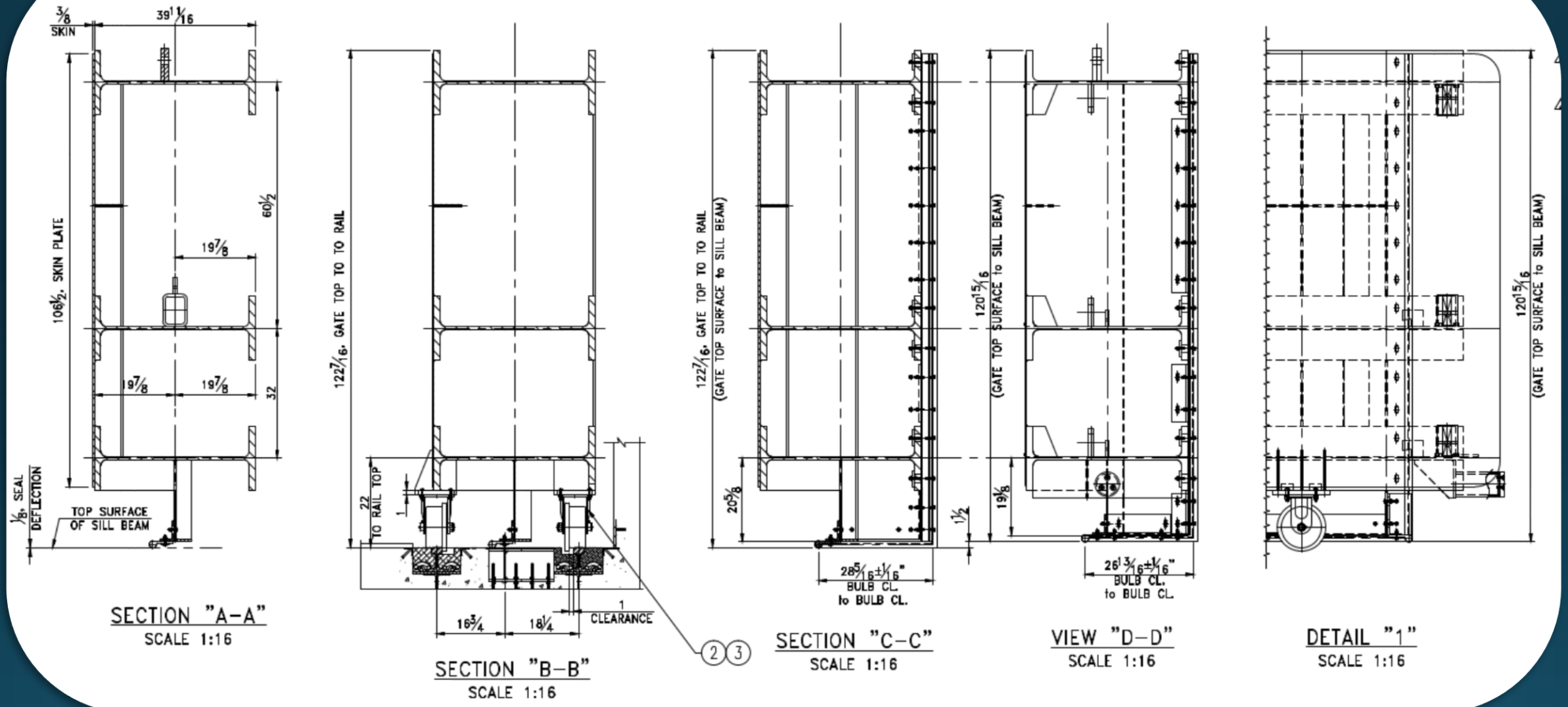
Fabrication of Roller Flood Gates



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Fabrication of Roller Flood Gates

Picture #3 - Welder applies pre-heating.

Fabrication of Roller Flood Gates

Picture #2 - Welder prepares base metal for 2F FCAW welding.

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Fabrication of Roller Flood Gates

Picture #1 - View of Floodgate #18 in vertical positio, Sequence 2.

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Fabrication of Roller Flood Gates

Picture #6 - View.

Location of Roller Flood Gate # 18 at Asser Levy Playground

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QUESTIONS

[illegible]

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1. What is the purpose of driving Steel Sheet Piles for the Food Wall foundation ?

a) Install an impervious cutoff barrier
b) Reduce seepage infiltration
c) Contribute to stabilize the floodwall structure
d) All of the above

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a) Install an impervious cutoff barrier
b) Reduce seepage infiltration
c) Contribute to stabilize the floodwall structure
d) All of the above

2. Steel H-Piles were driven to depth of 47 ft to 120 ft depending on location for the Food Wall foundation in order to Transfer structural load of Flood protection system to rock strata.

a) True
b) False

2. Steel H-Piles were driven to depth of 47 ft to 120 ft depending on location for the Food Wall foundation in order to Transfer structural load of Flood protection system to rock strata.

a) True
b) False

3) Steel Sheet Piles and H-Piles were driven with Silent Vibro RTG MR150 which Combined vibration and pressing driving method instead of traditional hammering method

a) Minimize noise to neighboring community
b) Faster pile installation

3) Steel Sheet Piles and H-Piles were driven with Silent Vibro RTG MR150 which Combined vibration and pressing driving method instead of traditional hammering method

a) Minimize noise to neighboring community
b) Faster pile installation

4) What types of Micro Piles were installed at depth ranging from 75 ft to 90 ft for wall foundation in Project area 2

a) Single case
b) Double case
c) All the above

4) What types of Micro Piles were installed at depth ranging from 75 ft to 90 ft for wall foundation in Project area 2

a) Single case
b) Double case
c) All the above

5) 34 ft wide Flood gate #14 installed at Solar One at Stuyvesant Cove Park weighs 16 tons. What type of gate is installed?

a) Swing Gate
b) Roller Gate

5) 34 ft wide Flood gate #14 installed at Solar One at Stuyvesant Cove Park weighs 16 tons. What type of gate is installed?

a) Swing Gate
b) Roller Gate

6) 70 ft wide gate #18 installed at Asser Levy Playground weighing 45 tons is of what type ?

a) Swing Gate
b) Roller Gate

6) 70 ft wide gate #18 installed at Asser Levy Playground weighing 45 tons is of what type ?

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OPEN DISCUSSION

Department of Design and Construction