



# Bus Ramps Public Outreach Presentation

September 10, 2014

# Transbay Transit Center

**TJPA**





# Bus Ramp Team

CM/GC:

Webcor -Obayashi

Contractor:

Shimmick Construction

Construction  
Oversight:

Turner Construction

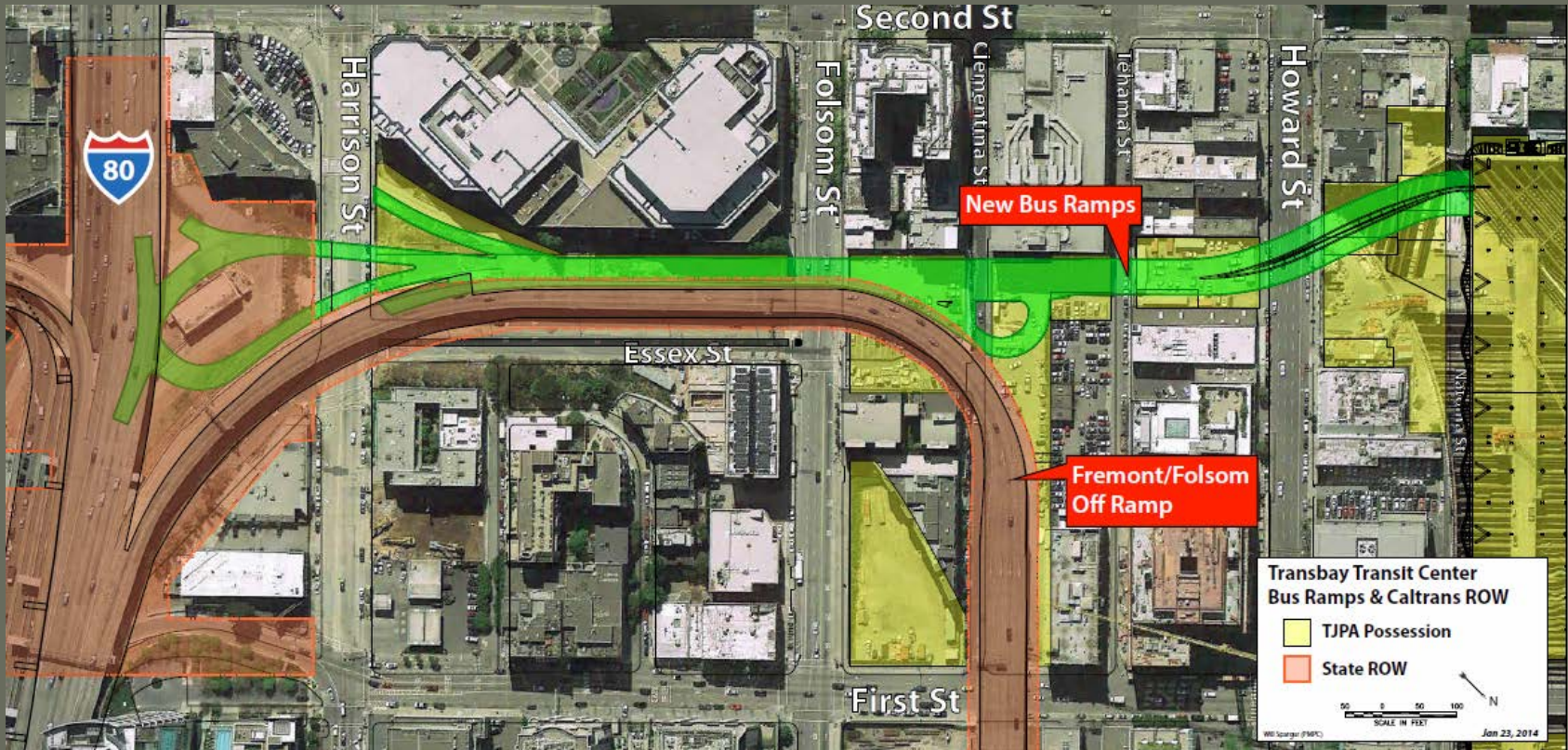
Owner:

TJPA



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# Bus Ramp Scope of Work



Bus Ramps Overall Site Plan



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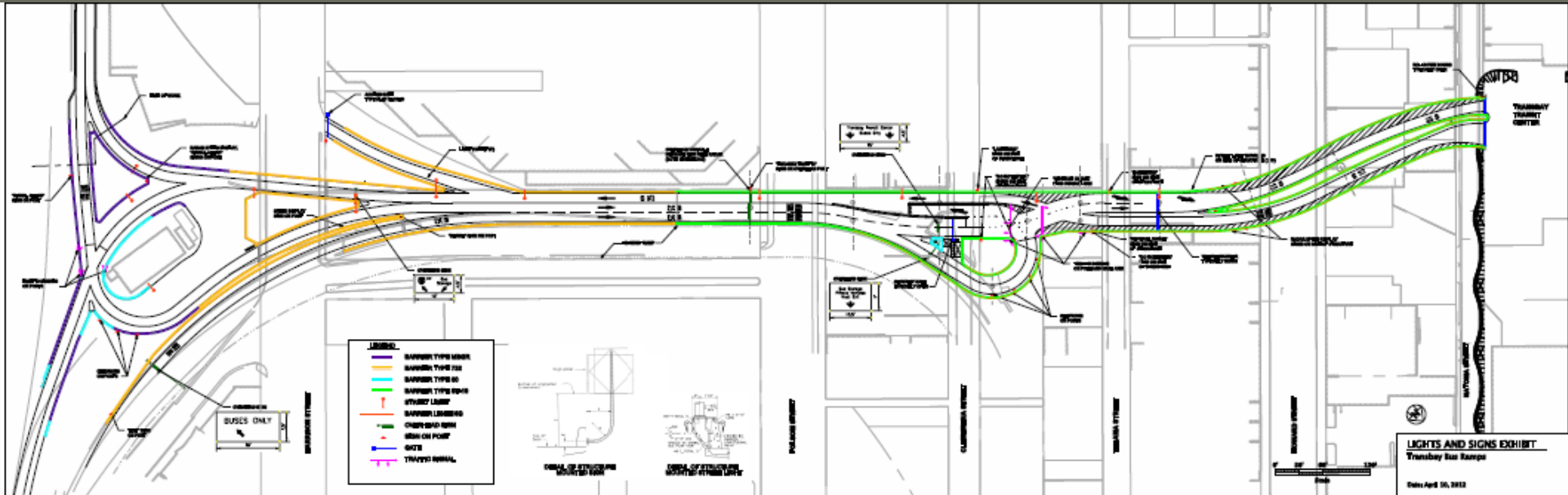
# Bus Ramp Project Scope of Work





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# Bus Ramp Scope of Work

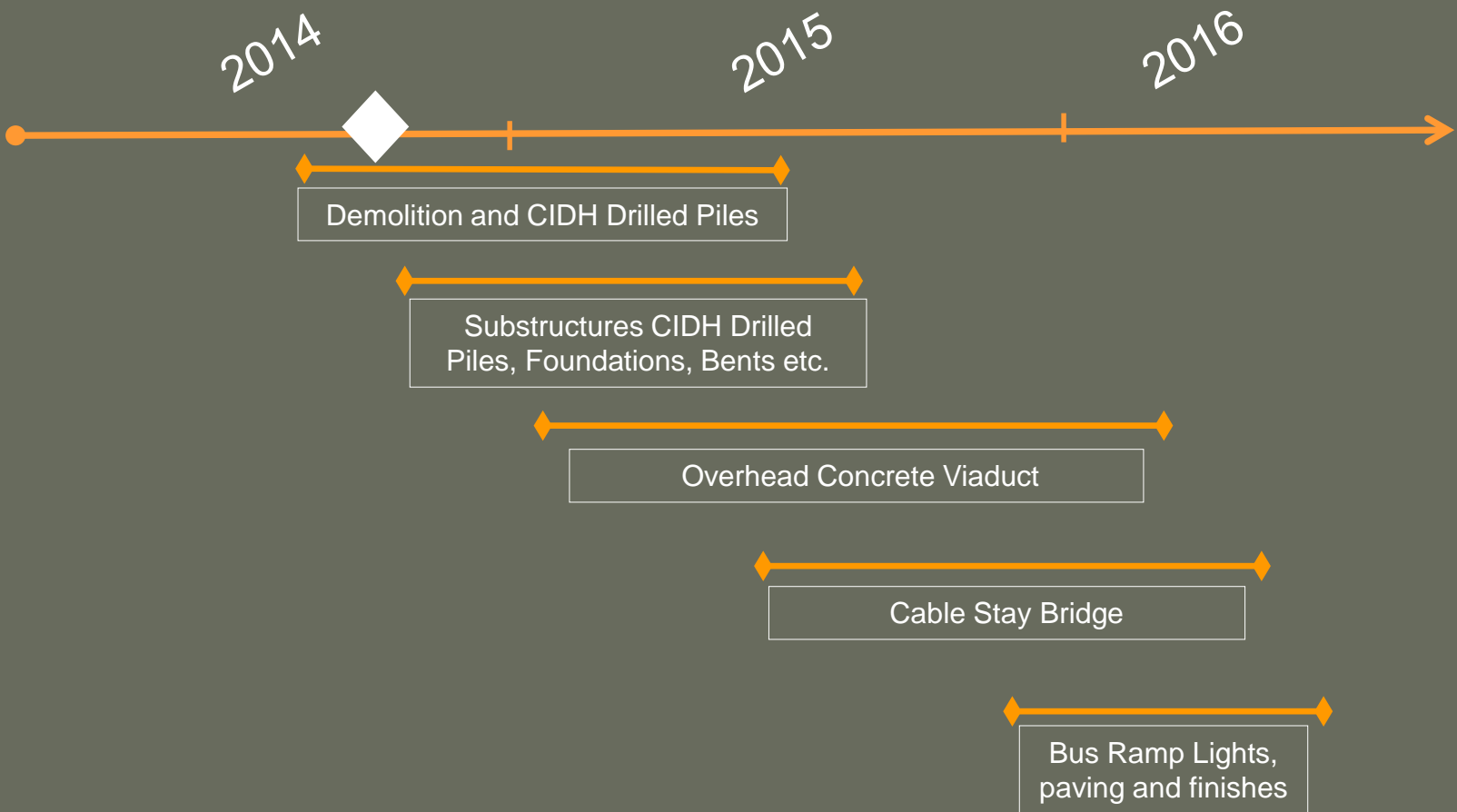


Bus Ramps Overall Site Plan



Transbay Transit Center

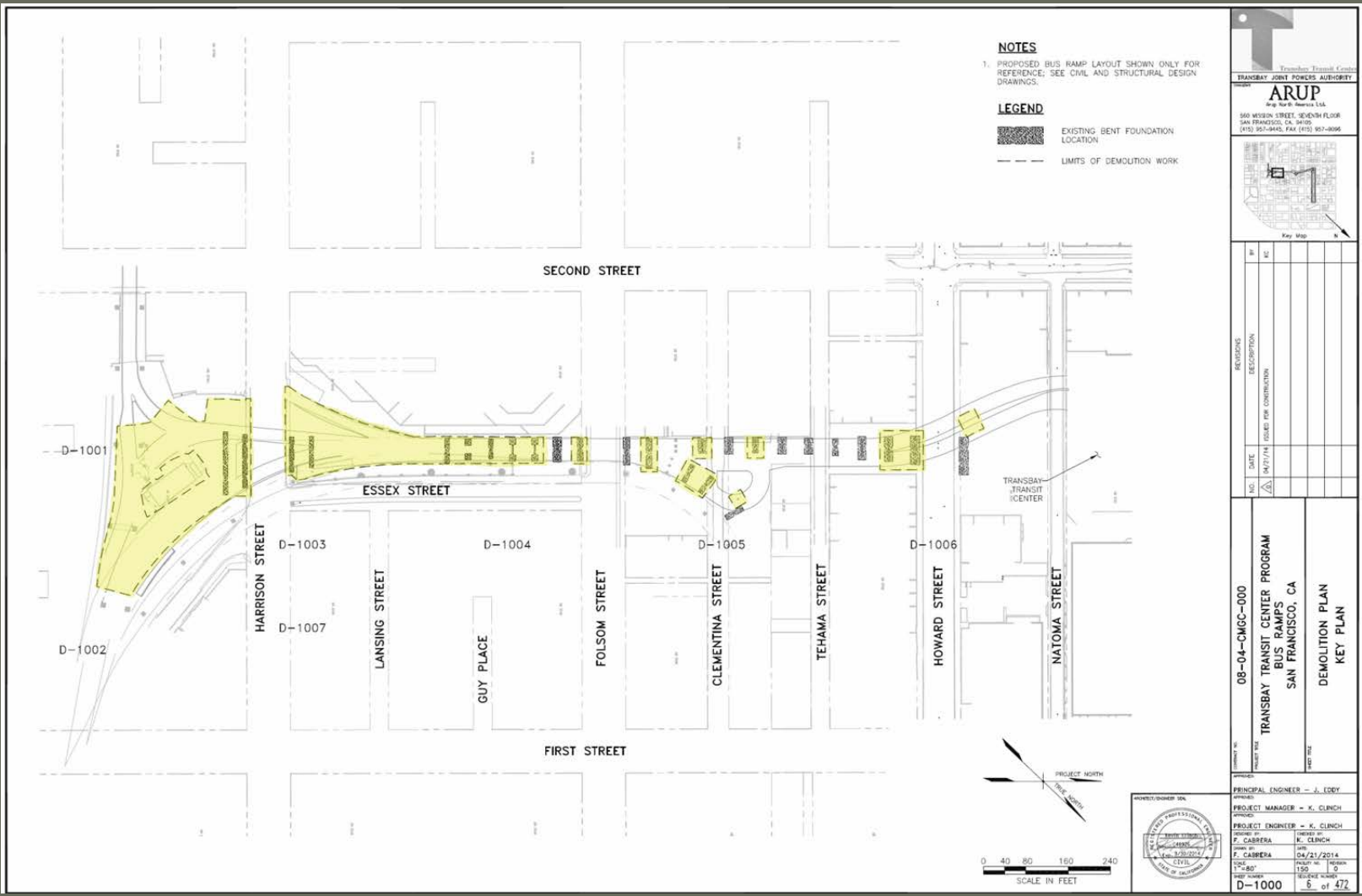
# Bus Ramp Timeline Summary





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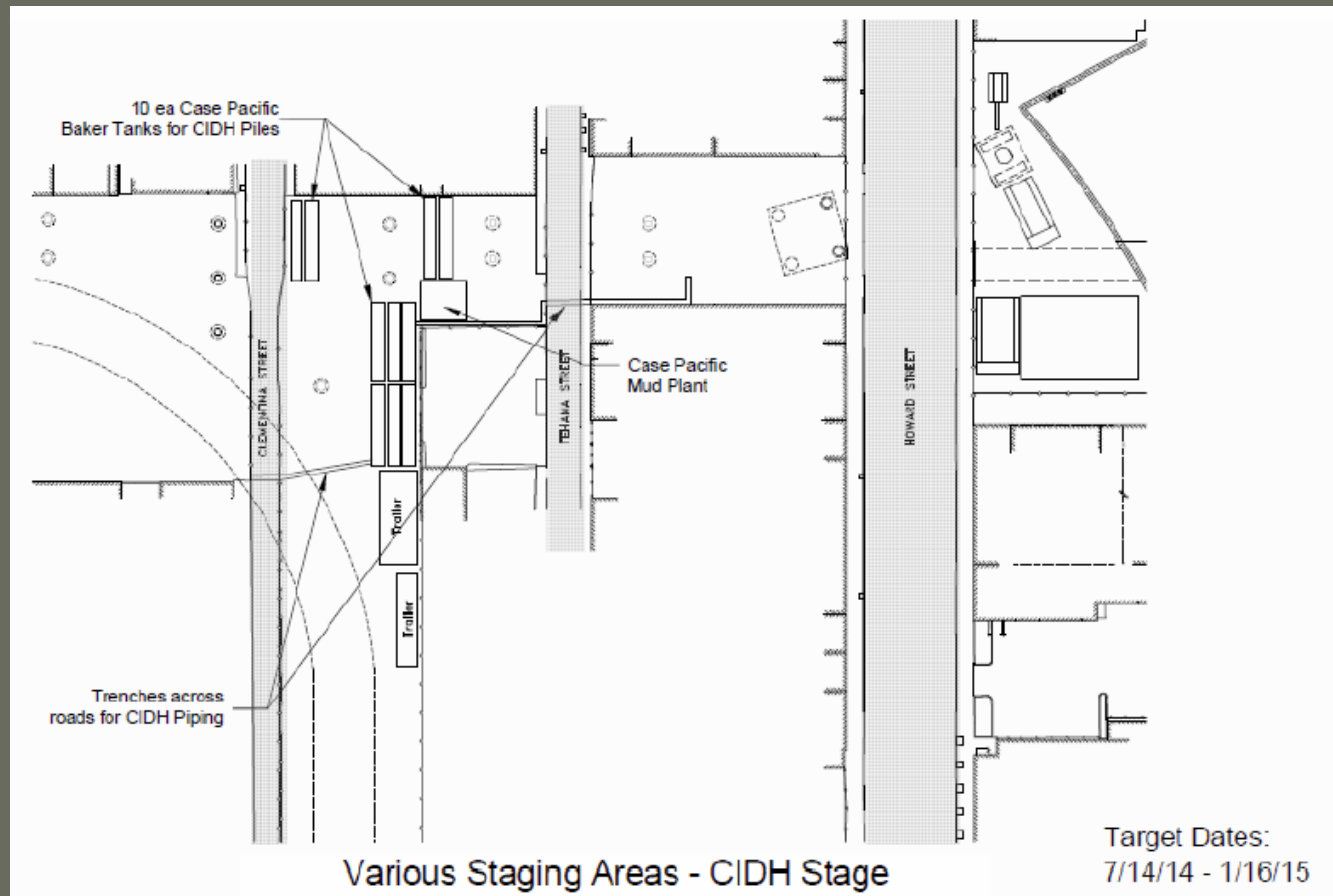
# Bus Ramp Demolition





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# CIDH Pile Equipment Staging



- (17) CIDH piles
- 8 ft. & 9 ft. diameters
- Length 65-150 ft.





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# CIDH Pile Installation



CIDH starter casing installation

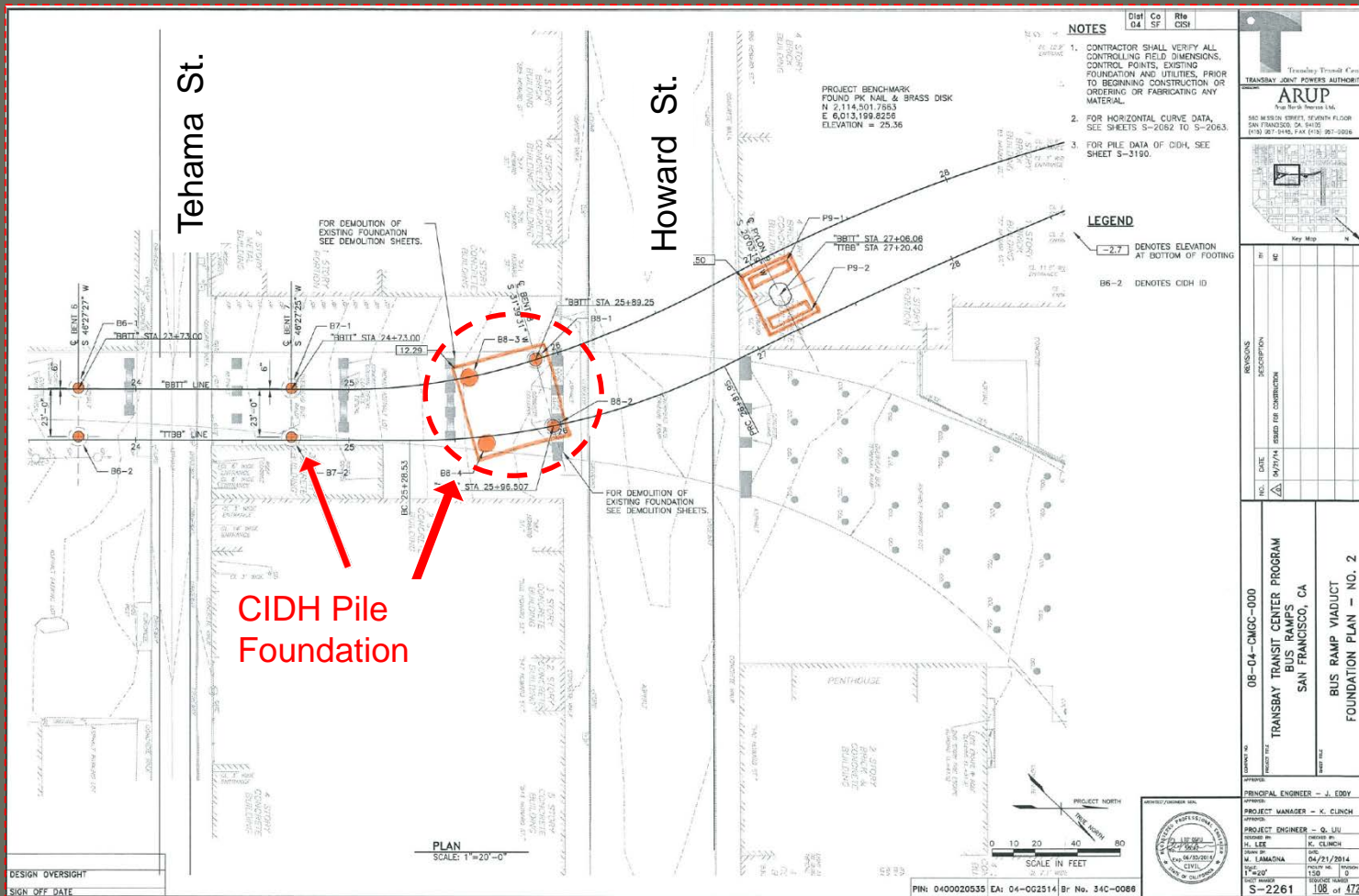


CIDH rebar cage installation



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# New CIDH Piles

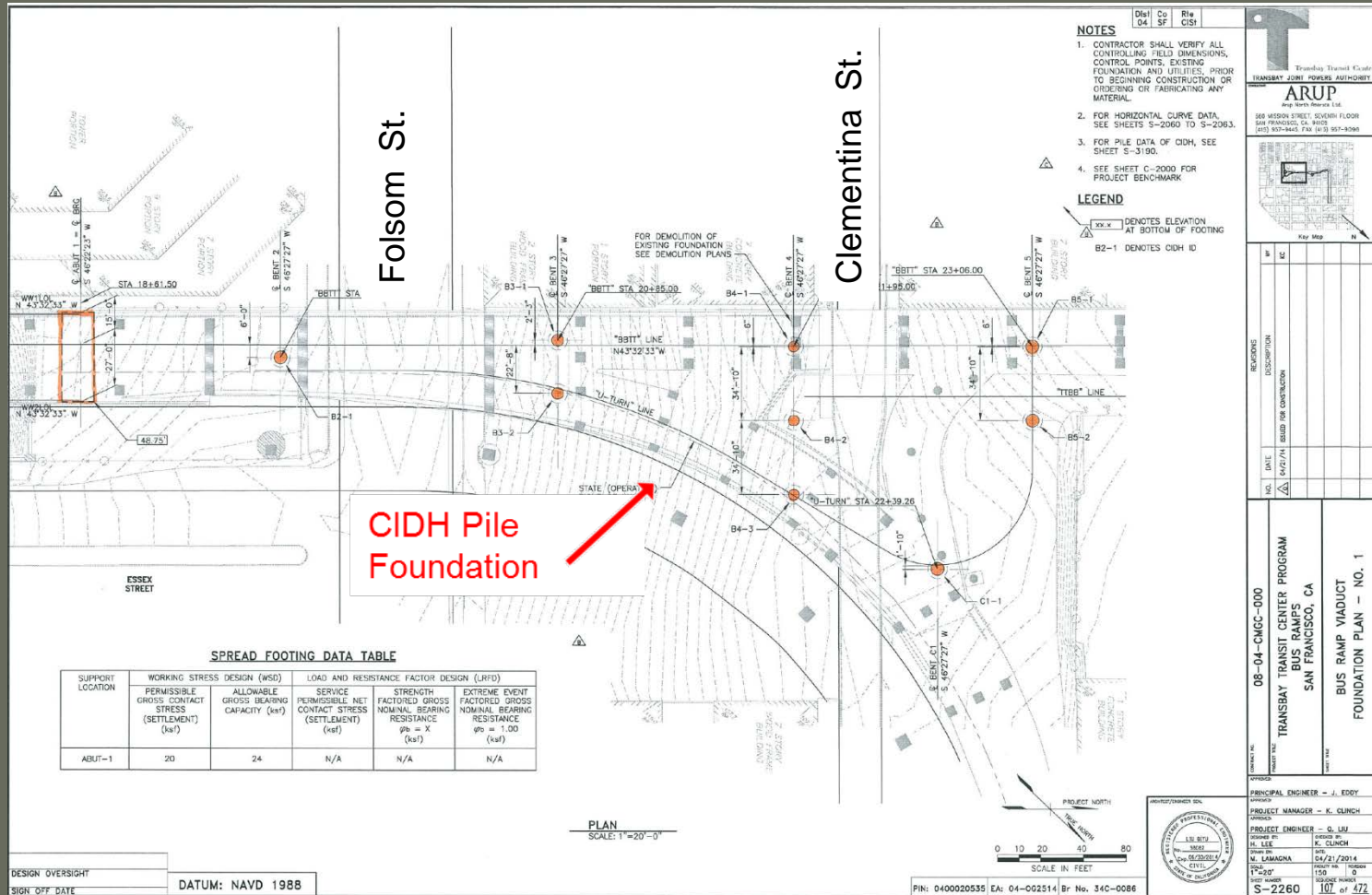


Tehama and Howard St. CIDH Piles



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# New CIDH Piles



- NOTES**
- CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS, CONTROL POINTS, EXISTING FOUNDATION AND UTILITIES, PRIOR TO BEGINNING CONSTRUCTION OR ORDERING OR FABRICATING ANY MATERIAL.
  - FOR HORIZONTAL CURVE DATA, SEE SHEETS S-2060 TO S-2063.
  - FOR PILE DATA OF CIDH, SEE SHEET S-3180.
  - SEE SHEET C-2000 FOR PROJECT BENCHMARK
- LEGEND**
- xx-x DENOTES ELEVATION AT BOTTOM OF FOOTING
  - B2-1 DENOTES CIDH ID

SPREAD FOOTING DATA TABLE

SUPPORT LOCATION	WORKING STRESS DESIGN (WSD)		LOAD AND RESISTANCE FACTOR DESIGN (LRFD)		
	PERMISSIBLE GROSS CONTACT STRESS (SETTLEMENT) (ksf)	ALLOWABLE GROSS BEARING CAPACITY (ksf)	SERVICE PERMISSIBLE NET CONTACT STRESS (SETTLEMENT) (ksf)	STRENGTH FACTORED GROSS NOMINAL BEARING RESISTANCE $\phi_n = X$ (ksf)	EXTREME EVENT FACTORED GROSS NOMINAL BEARING RESISTANCE $\phi_n = 1.00$ (ksf)
ABUT-1	20	24	N/A	N/A	N/A

DESIGN OVERSIGHT  
SIGN OFF DATE

DATUM: NAVD 1988

PLAN  
SCALE: 1"=20'-0"



PN: 0400020535 EA: 04-002514 Br No. 34C-0086



Transbay Transit Center  
TRANSBAY JOINT POWERS AUTHORITY

**ARUP**  
400 North Bridge Lane  
560 Mission Street, Seventh Floor  
San Francisco, CA 94105  
(415) 907-9443 FAX (415) 907-9396

Key Map

NO.	DATE	REVISIONS
1	04/21/2014	ISSUED FOR CONSTRUCTION

PROJECT NO. 08-04-CMGC-000  
TRANSBAY TRANSIT CENTER PROGRAM  
BUS RAMP  
SAN FRANCISCO, CA  
BUS RAMP VIADUCT  
FOUNDATION PLAN - NO. 1

DESIGNED BY: J. EDDY  
CHECKED BY: K. CLINCH  
PROJECT ENGINEER: Q. LIU  
DESIGNED BY: K. CLINCH  
CHECKED BY: M. LAMONA  
DATE: 04/21/2014  
SCALE: 1/8"=1'-0"  
SHEET NUMBER: 0  
TOTAL SHEETS: 472  
S-2260

## Folsom St. and Clementina St. CIDH Piles



# Cast In Drilled Hole (CIDH) Piles

## Bus Ramp Construction - Cast In Drilled Hole Piles

Lot	Location	CIDH Piles Qty.	Typ. 9 foot diameter- Pile Depth	Target Start Date	Target End Date
H	Clementina -Tehama	5	<u>90-100 ft.</u>	10/1/2014	10/27/2014
I	Clementina -Folsom	5	<u>75-100 ft.</u>	10/28/2014	11/30/2014
A	Folsom- Harrison	1	<u>≤ 65 ft.</u>	12/1/2014	12/7/2014
G	Tehama-Howard	6	<u>120-150 ft.</u>	12/8/2014	1/18/2015



# Bus Ramp Project Underground Construction Hours

## Permitted Hours of Demolition:

Monday - Friday 13 Hours per day

Saturday 7AM - 8PM

No Sunday.

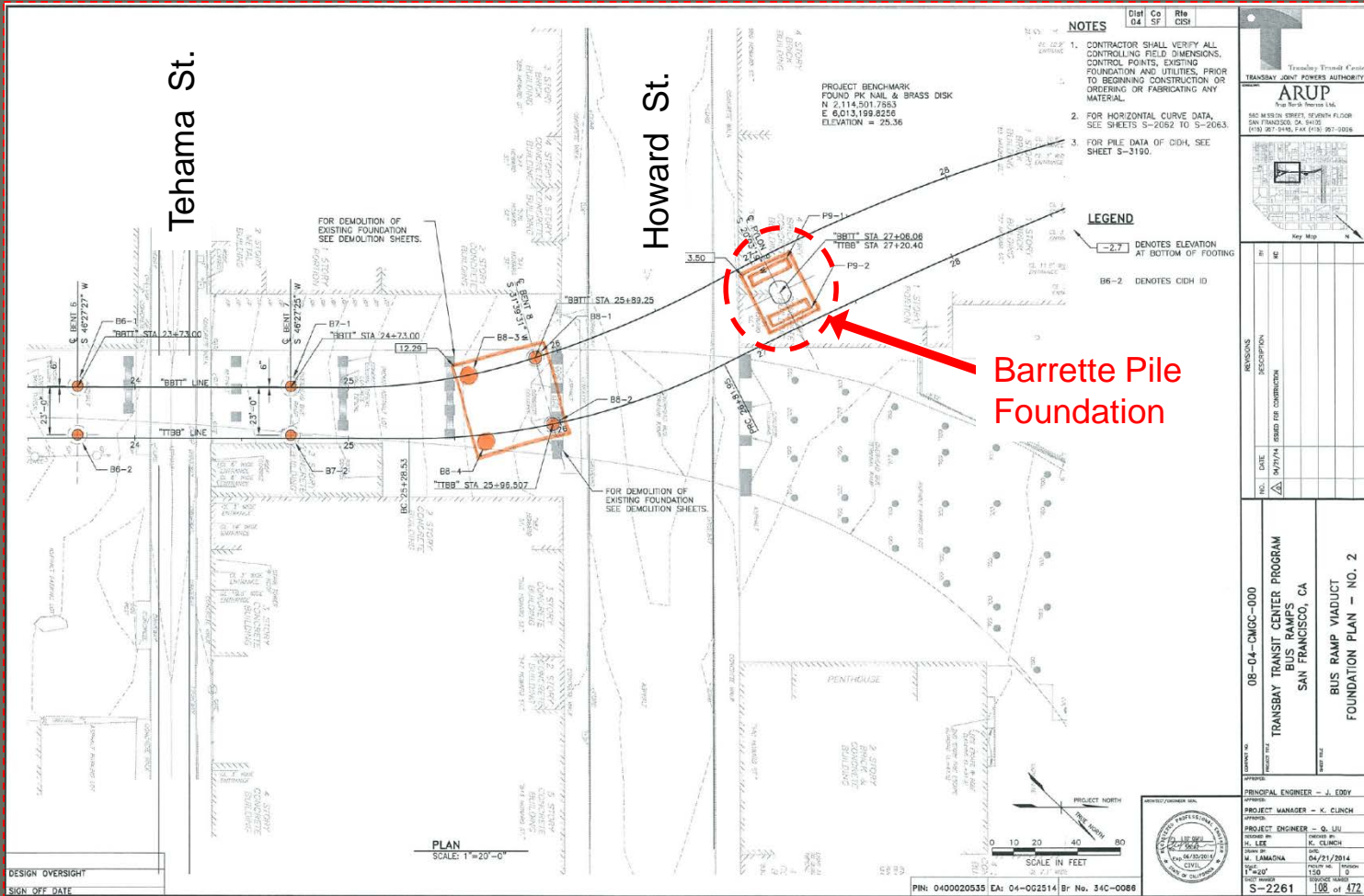
## Permitted Hours of CIDH Piers

Monday - Friday : 24 Hours per day

Saturday 7AM - 11PM

No Sunday.

# Bridge Pylon 9 (2) Barrette Piles

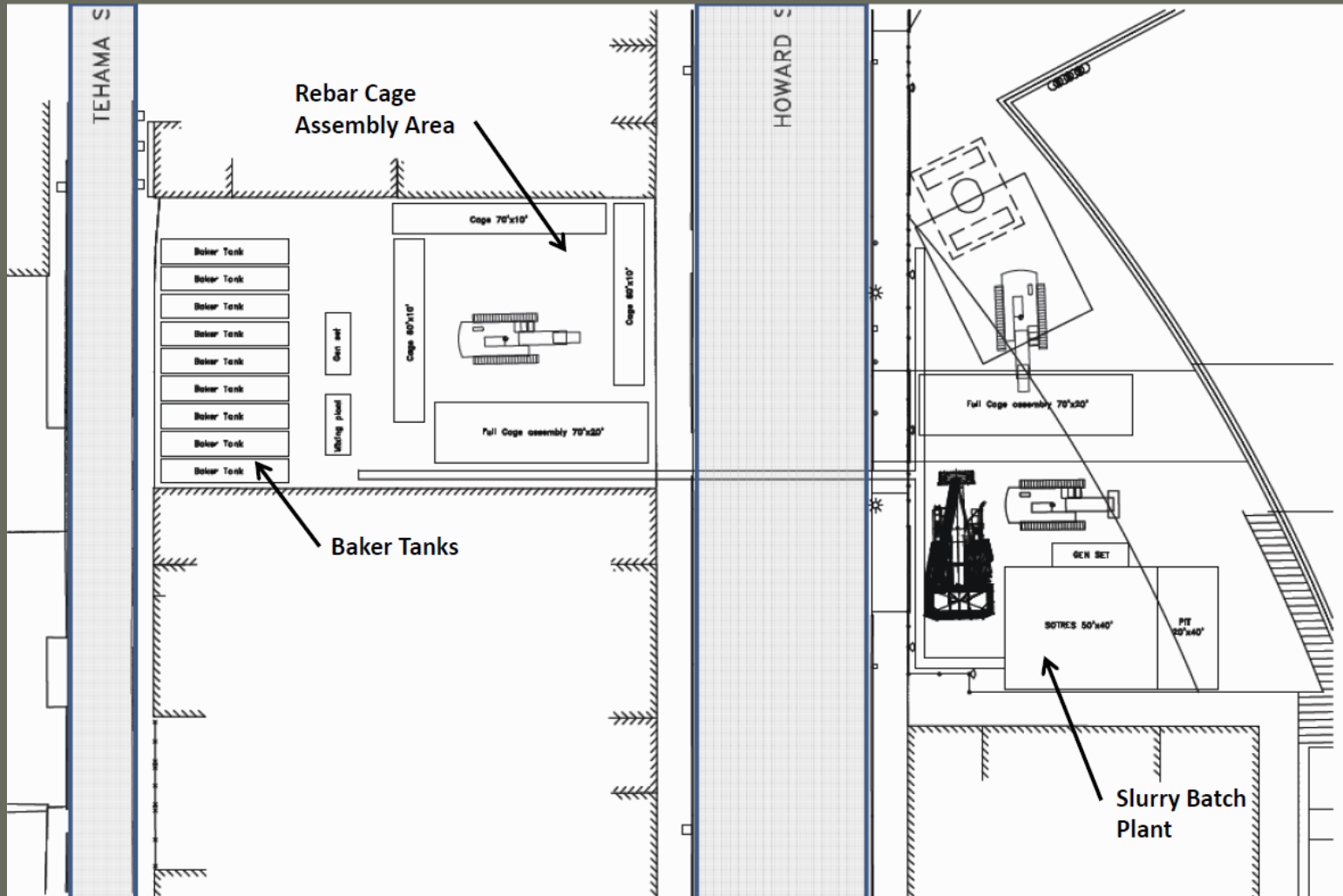


Tehama St. and Howard St. Overcrossings



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# Barrette Pile Equipment Howard and Tehama St.





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# Bridge Pylon 9 Barrette Pile Installation



Slurry batch plant



Panel cage



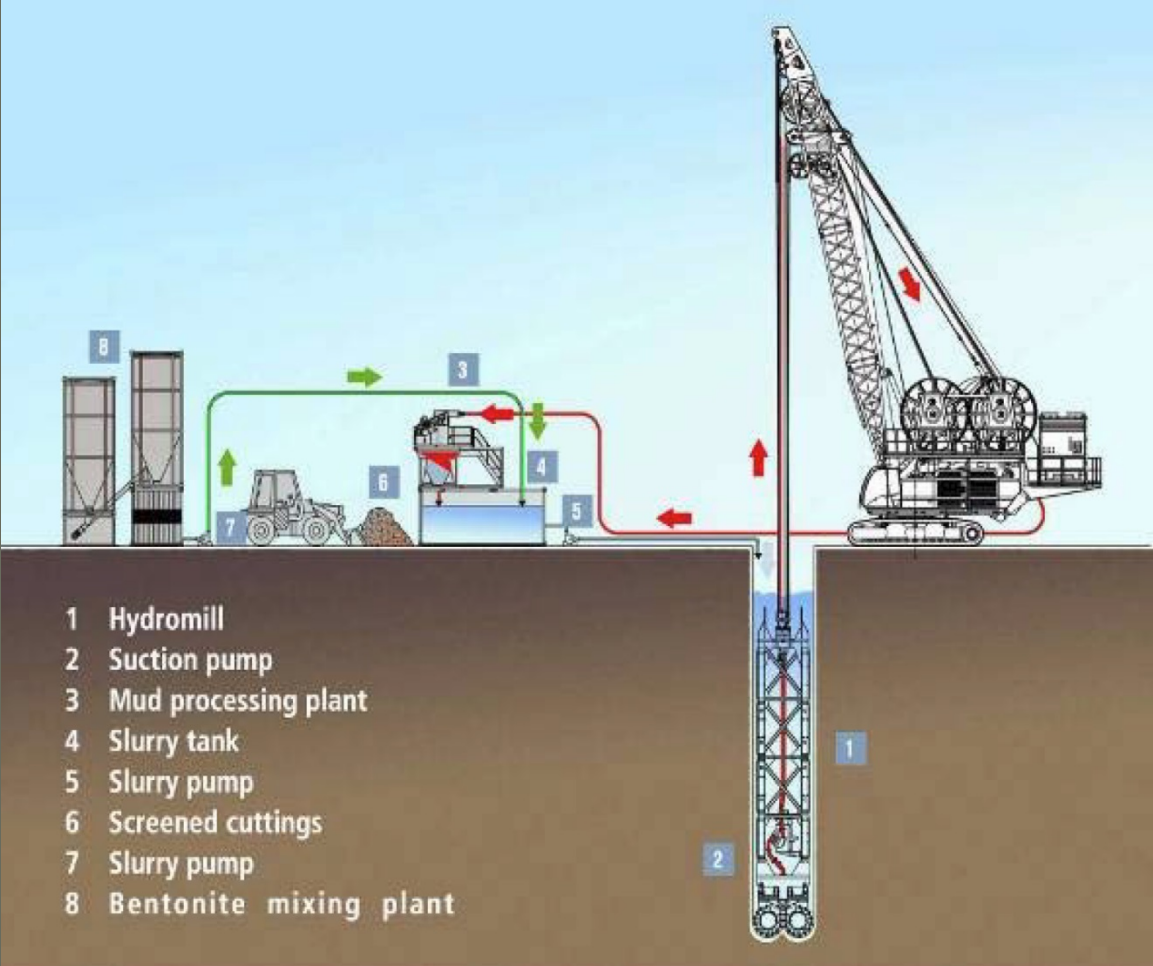
Excavation





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# Bridge Pylon 9 Barrette Pile Installation



Barrette Pile Schematic



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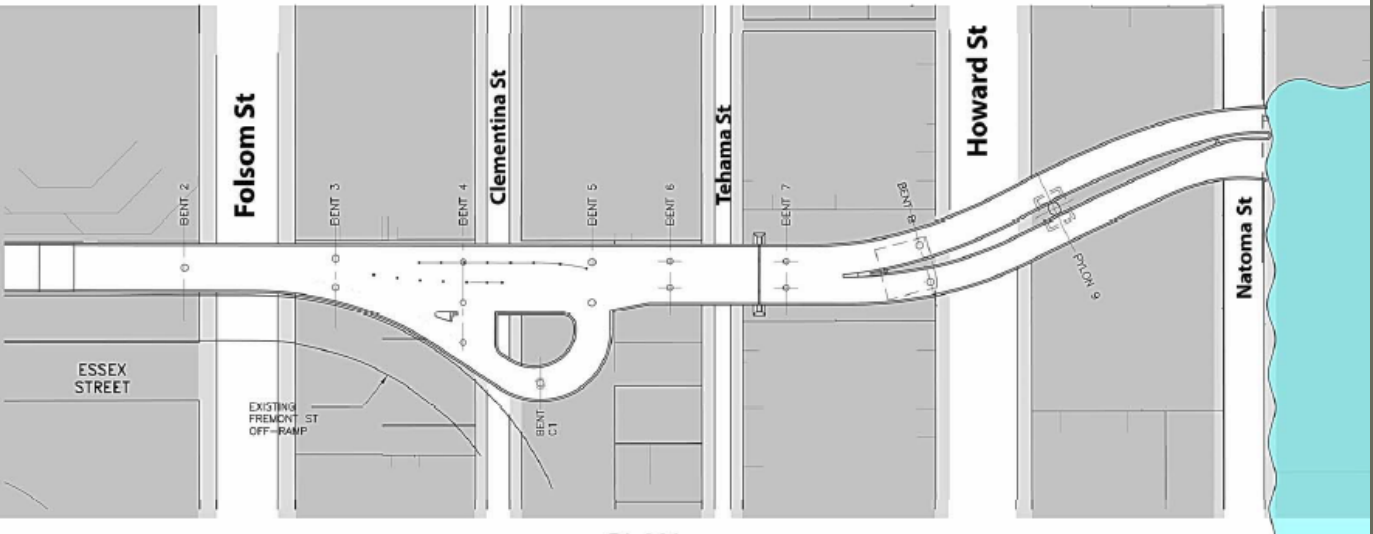
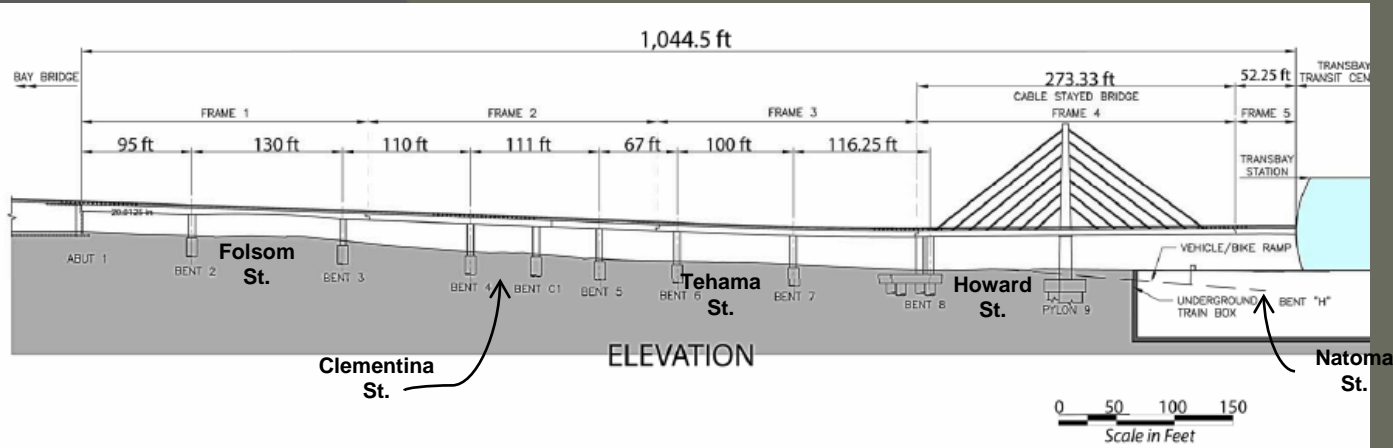
# Bus Ramp Concrete Viaduct





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# Bus Ramp Concrete Viaduct





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# Bus Ramp Overcrossing Viaduct Falsework



Typical roadway falsework



Typical roadway falsework



# Concrete Viaduct and Overcrossings

- **Bay Bridge off-ramp to Transbay Transit Center :**
  1. Tehama Overcrossing (Frame 3): Dec. 2014 – June 2015
  2. Clementina Overcross (Frame 2): April 2015 – Feb. 2016
  3. Bay Bridge Off-ramp (Essex): May 2015 – Dec. 2015
  4. Folsom St. Overcross (Frame 1): Sept. 2015 – Feb. 2016
  5. Howard St. Superstructure (Frame 4): Dec. 2014 –Feb. 2016
  6. Connection to Transit Center( Frame 5): Jan. 2016 –May. 2016



# Bus Ramp Project Construction Hours

## Permitted Hours of Demolition:

Monday - Friday 13 Hours per day

Saturday 7AM - 8PM

No Sunday.

## Permitted Hours of CIDH Piers

Monday - Friday : 24 Hours per day

Saturday 7AM - 11PM

No Sunday.

## Permitted Hours of Falsework and Viaduct Construction:

Monday - Friday Hours TBD (will require some 24 hour per day at overcrossings)

Saturday 7AM-8PM

No Sunday.



# Bay Bridge/Harrison Ave Concrete Viaduct

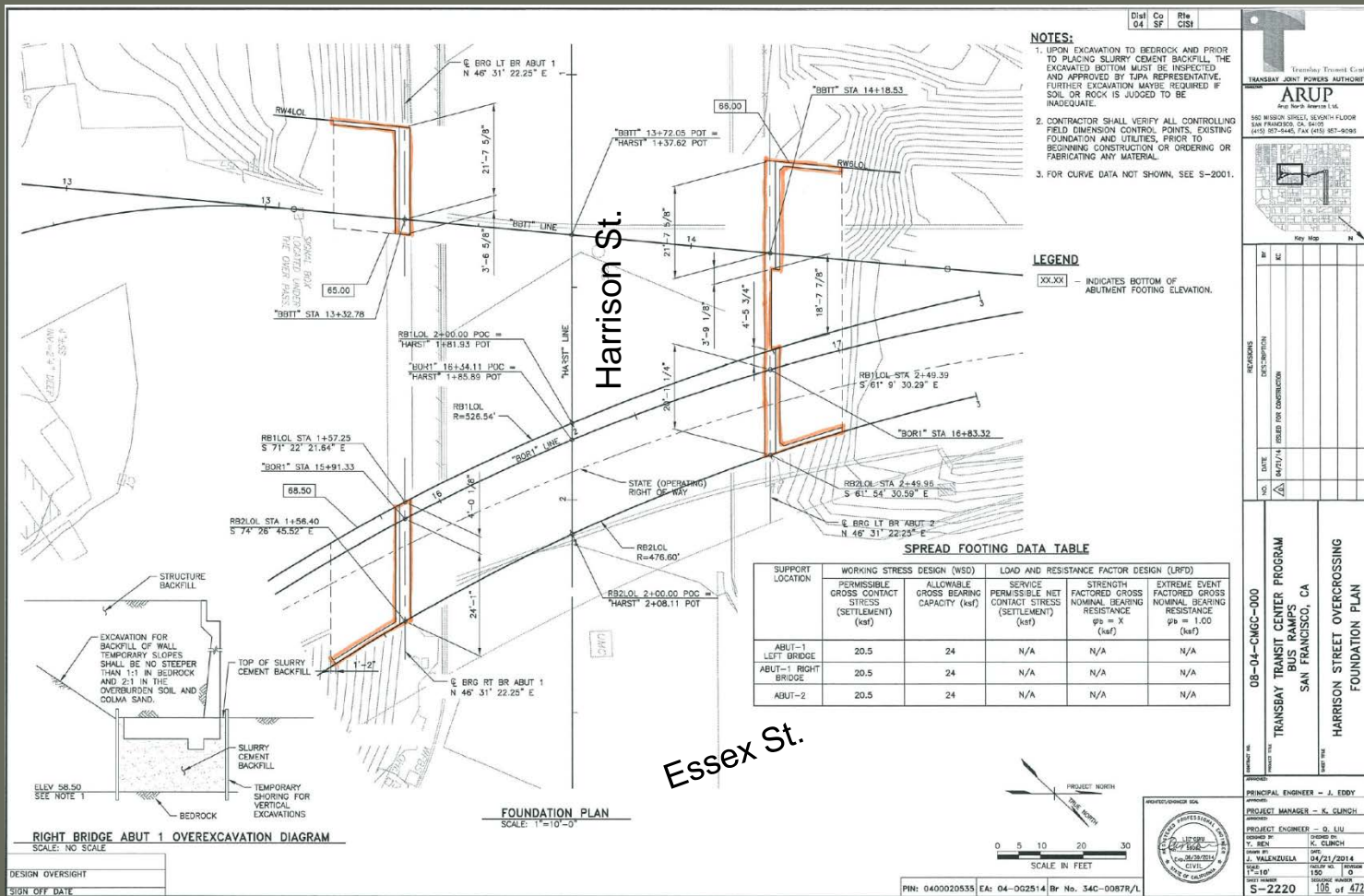
## Construction Schedule Bay Bridge Off-ramp:

- Harrison St. Demolition: Oct. 2014 – Dec. 2014
- CIDH Piles( 3) 7 ft. diameter: Dec. 2014 – Feb. 2015
- CIDH Piles (8) 24” diameter: Dec. 2014 – Feb. 2015
- Abutment Construction: Jan. 2015 - May 2015
- Harrison St. AWSS Utility Relocate: Dec. 2014–June 2015
- Harrison St. Superstructure Viaduct: May 2015- Dec. 2015



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# Bus Ramp New Foundations



## Harrison St. Retaining Walls





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# Bus Ramps New Foundations

**NOTES**

- CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS, CONTROL POINTS, EXISTING FOUNDATIONS, AND EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION, ORDERING ANY MATERIAL, OR FABRICATING ANY MATERIAL.
- FOR HORIZONTAL CURVE DATA SEE S-2000.

**BASIS OF HORIZONTAL AND VERTICAL CONTROL**

1. FOR BASIS OF HORIZONTAL AND VERTICAL CONTROL, SEE SURVEY PREPARED BY MARTIN M. RGN, SHEET 1 OF 10, DATED 12-24-09 OR LATEST REVISION ISSUED.

**PILE DATA TABLE**

LOCATION	PILE TYPE	NOMINAL RESISTANCE (KIPS)		DESIGN TIP ELEVATIONS (FT)	SPECIFIED TIP ELEVATION (FT)	NOMINAL DRIVING RESISTANCE (KIPS)	CUT OFF ELEVATION (FT)
		COMPRESSION	TENSION				
BENT 25A	84" CIDH	1430	N/A	78(c), 63(d)	63	NA	85.00
BENT 21	84" CIDH	2180	N/A	72(c), 54(d)	54	NA	83.00
BENT 22	84" CIDH	2500	N/A	46(c), 45(d)	35	NA	74.00
BENT 23	84" CIDH	2240	N/A	59(c), 41(d)	41	NA	68.00
ABUT 24	24" CIDH	420 EACH	N/A	70(d)	70	NA	81.00

**PILE DATA TABLE NOTES**

- DESIGN TIP ELEVATIONS ARE CONTROLLED BY: (a) COMPRESSION, (b) TENSION, (c) SETTLEMENT, (d) LATERAL LOADS.
- THE CIDH SPECIFIED TIP ELEVATION SHALL NOT BE RAISED.
- THE CIDH SHALL EXTEND AT LEAST 10 FEET INTO BEDROCK.
- TJPA REPRESENTATIVE WILL CONFIRM DEPTH TO TOP OF BEDROCK.
- AT BENT 22, TO ACCOUNT FOR VARIATIONS IN ROCK DEPTH, FABRICATE REINFORCING STEEL 10 FT LONGER THAN THAT INDICATED BY THE TIP ELEVATION.

XX-XX DENOTES ELEVATION AT BOTTOM OF FOOTING OR PILE CAP.

0 10 20 40 60  
SCALE IN FEET

PIN: 0400020535 EA: 04-062514 Br No. 34-1275

DESIGN OVERSIGHT  
SIGN OFF DATE

08-04-CHCC-000  
TRANSBAY TRANSIT CENTER PROGRAM  
BUS RAMP'S  
SAN FRANCISCO, CA  
FREMONT STREET OFF RAMP (WIDEN)  
FOUNDATION PLAN

PRINCIPAL ENGINEER - J. EDDY  
PROJECT MANAGER - K. CLINCH  
PROJECT ENGINEER - G. LIM  
DESIGNER - M. WYLLIE  
CHECKER - K. CLINCH  
DATE: 04/21/2014  
SCALE: 1"=20'-0"  
SHEET NO. 129 OF 170  
SHEET NUMBER 5-2200 162 OF 372

## Harrison St. Foundations



# Howard Street Cable Stay Bridge

## Cable Stay Bridge Construction Schedule

### **Howard Street – Frame 4 Cable Stayed Bridge:**

- Demolition: June 2014 - October 2014
- Substructure: June 2014 - October 2014
- Bridge Pylon 9: October 2014 – June 2015
- Superstructure: December 2014 – November 2015
- Cable Installation: Sept. 2015 – February 2016

### **Bridge Connection Frame 5 to Transit Center:**

- West Connection: Jan. 2016 – May 2016
- East Connection: Feb. 2016 – May 2016





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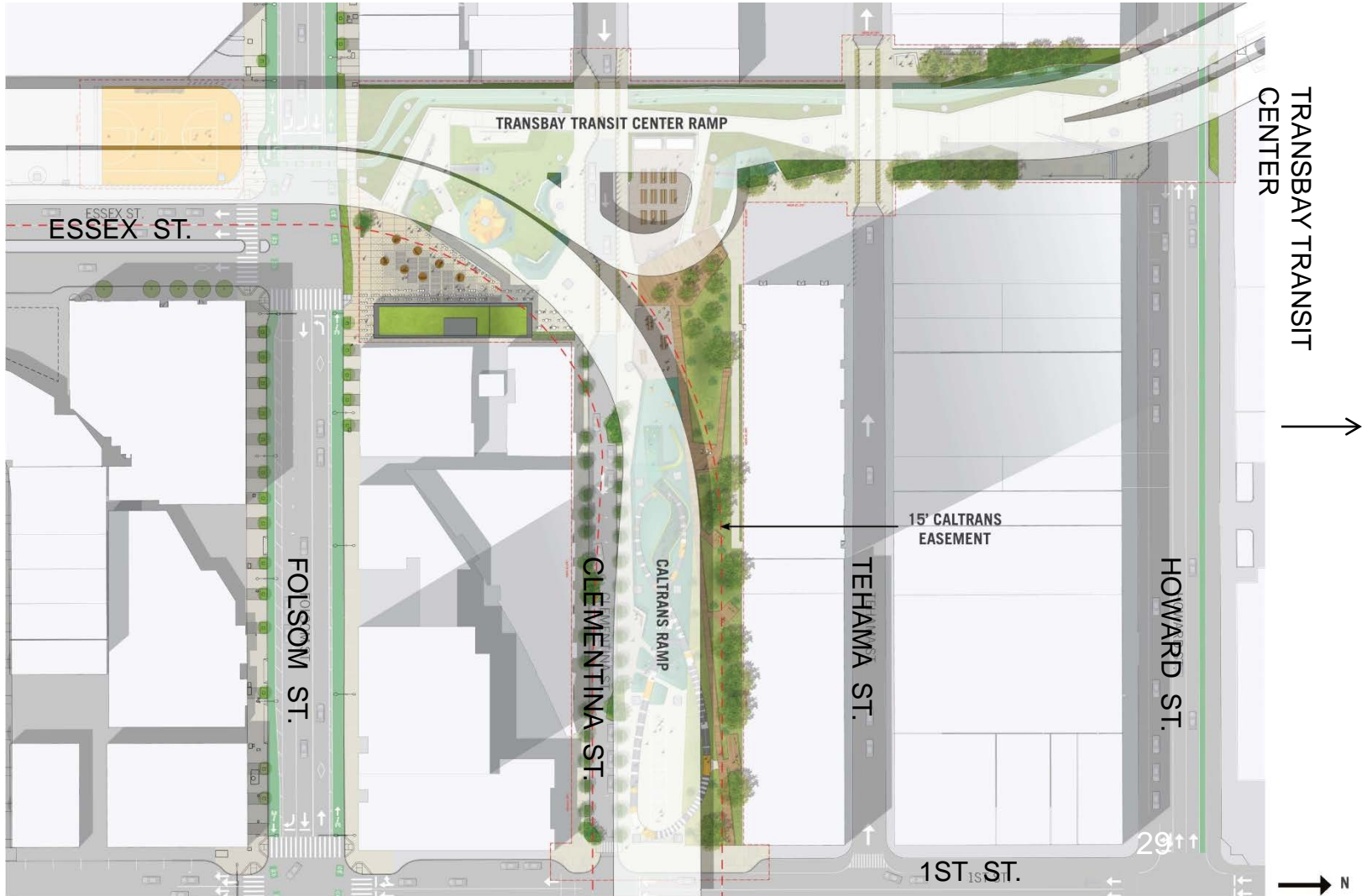
# Cable Stayed Bridge and Green Space



# URP

OCII | CMG |  
ARUP | YA.studio

## Under-Ramp Park Overhead Ramps

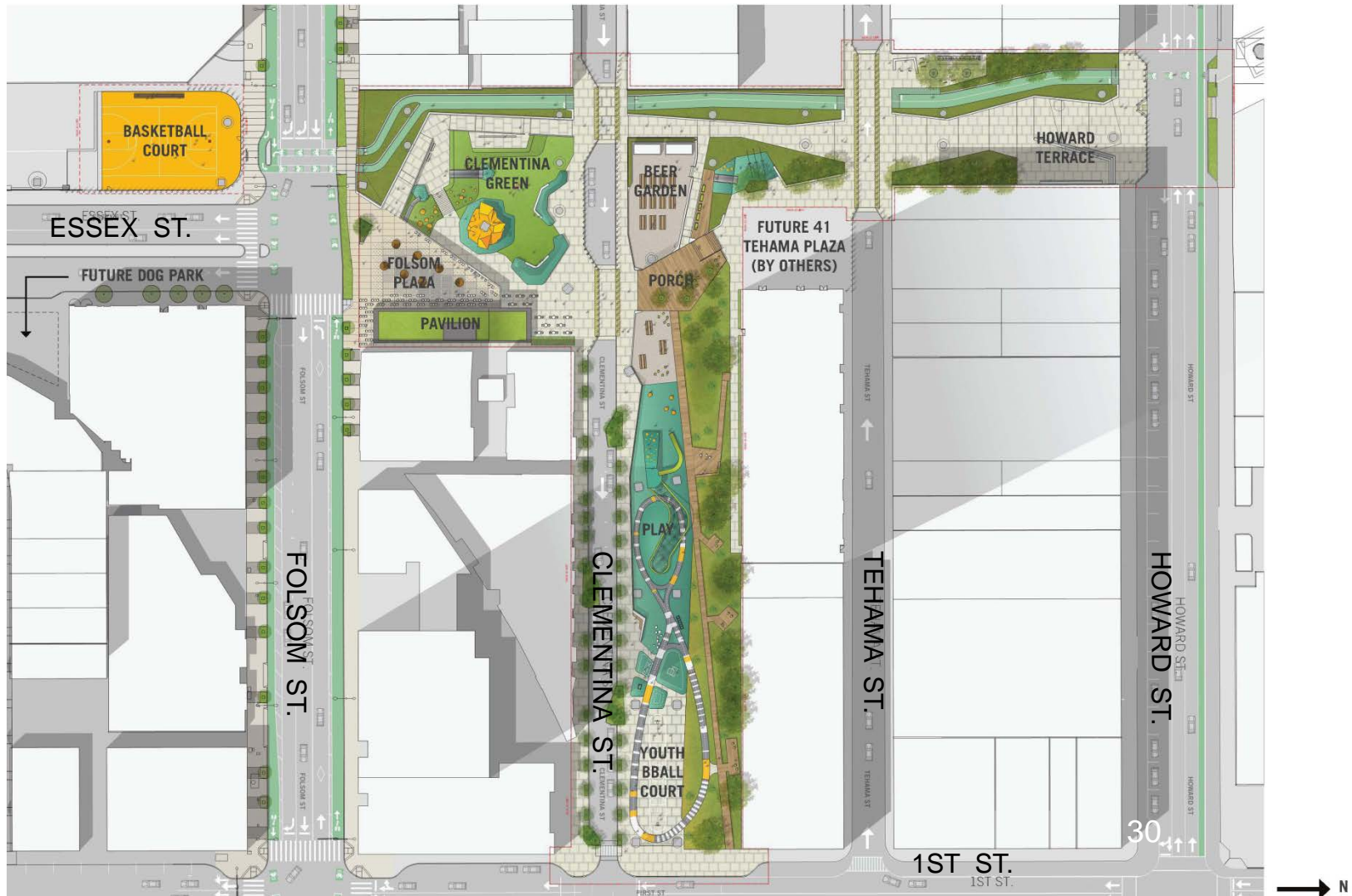


# URP

OCII | CMG

ARUP | YA.studio

## Under-Ramp Park Illustrative Plan





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# Questions?

Questions?

Should you have any general questions about the Transbay Transit Center Project, please call Adam Alberti or Nathan Bengtsson, Transbay Outreach Team, at: (415) 227-9700 or via e-mail at: [info@transbaycenter.org](mailto:info@transbaycenter.org).

Construction Hotline:

If you have any urgent questions regarding site-specific demolition or construction activities, please call our construction activity number: (415) 409-TJPA (8572).

Website:

Please continue to check our website for the most up to date schedule of activities at:

<http://transbaycenter.org/construction-updates>

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