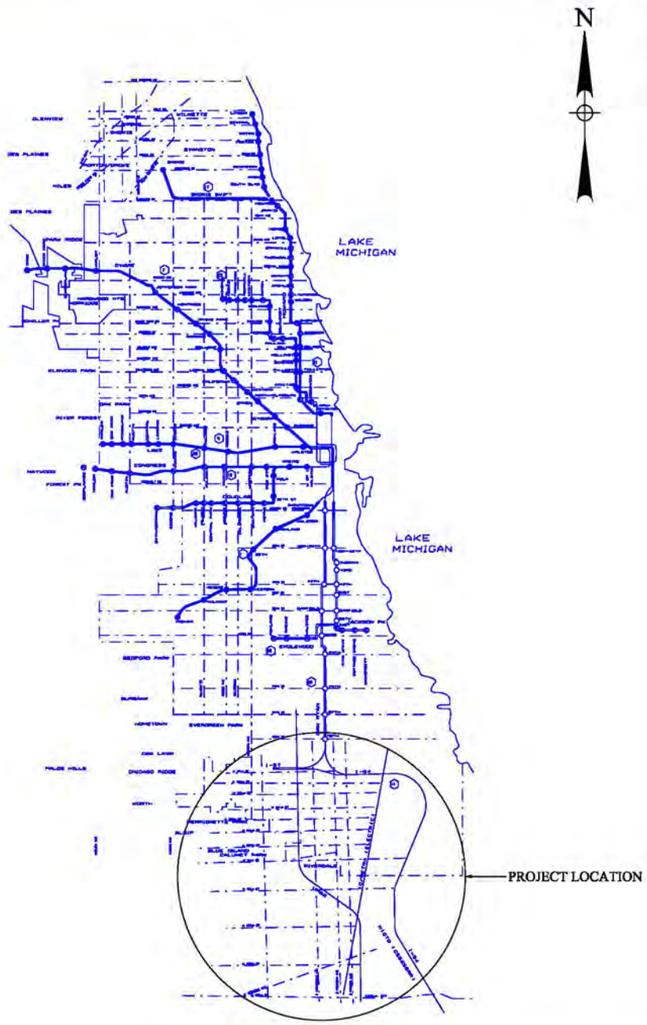
# Appendix F
# Plans and Profiles

# DRAFT ENVIRONMENTAL IMPACT STATEMENT
# CTA RED LINE EXTENSION
## ALL ALTERNATIVES




ORIENTATION MAP

INDEX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MAY 1, 2015

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

**SENSITIVE SECURITY INFORMATION**

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DRAWING SCALE IS NOT GUARANTEED.
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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
ALL ALTERNATIVES

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| PROJECT NO | CTA-RLE |
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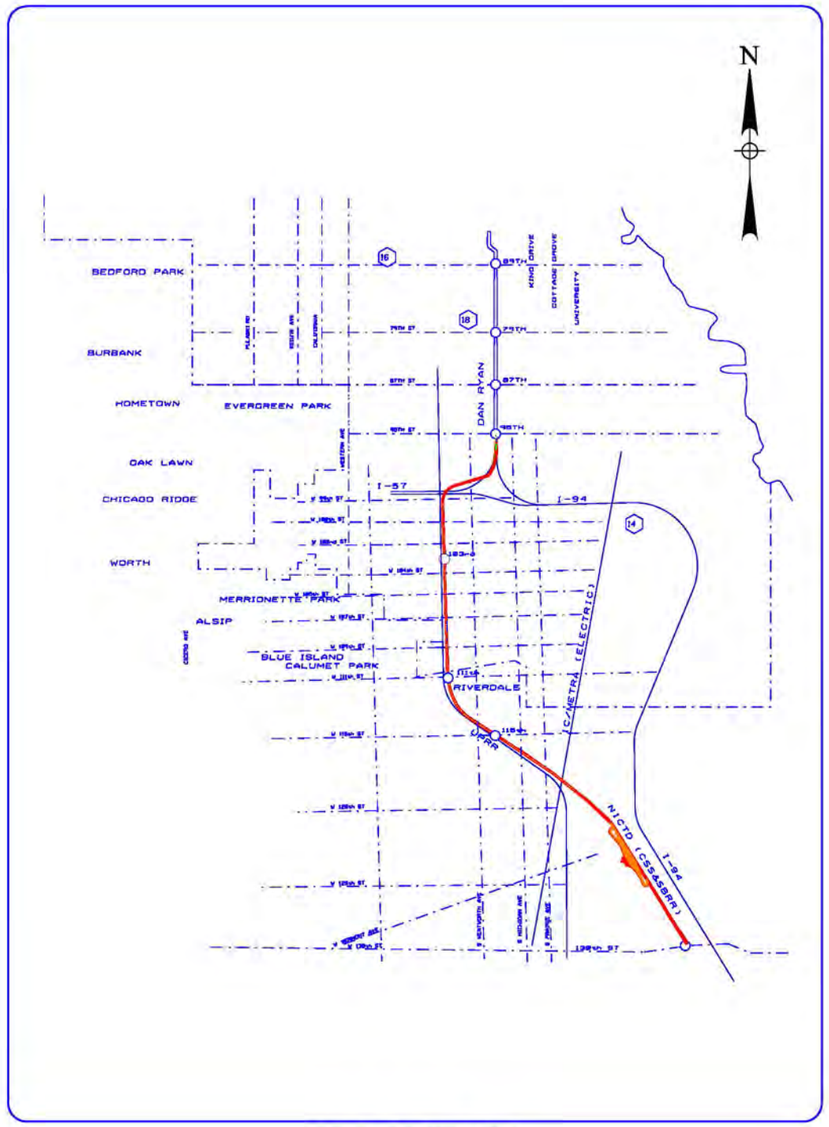
# DRAFT ENVIRONMENTAL IMPACT STATEMENT
# CTA RED LINE EXTENSION
## UNION PACIFIC RAILROAD
## EAST OPTION




ORIENTATION MAP

INDEX


UNION PACIFIC RAILROAD ALTERNATIVE

EAST OPTION 2 - 18


MAY 1, 2015

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION

2 OF 51

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| FILE NAME | CTARLE_G_COVER.dgn |

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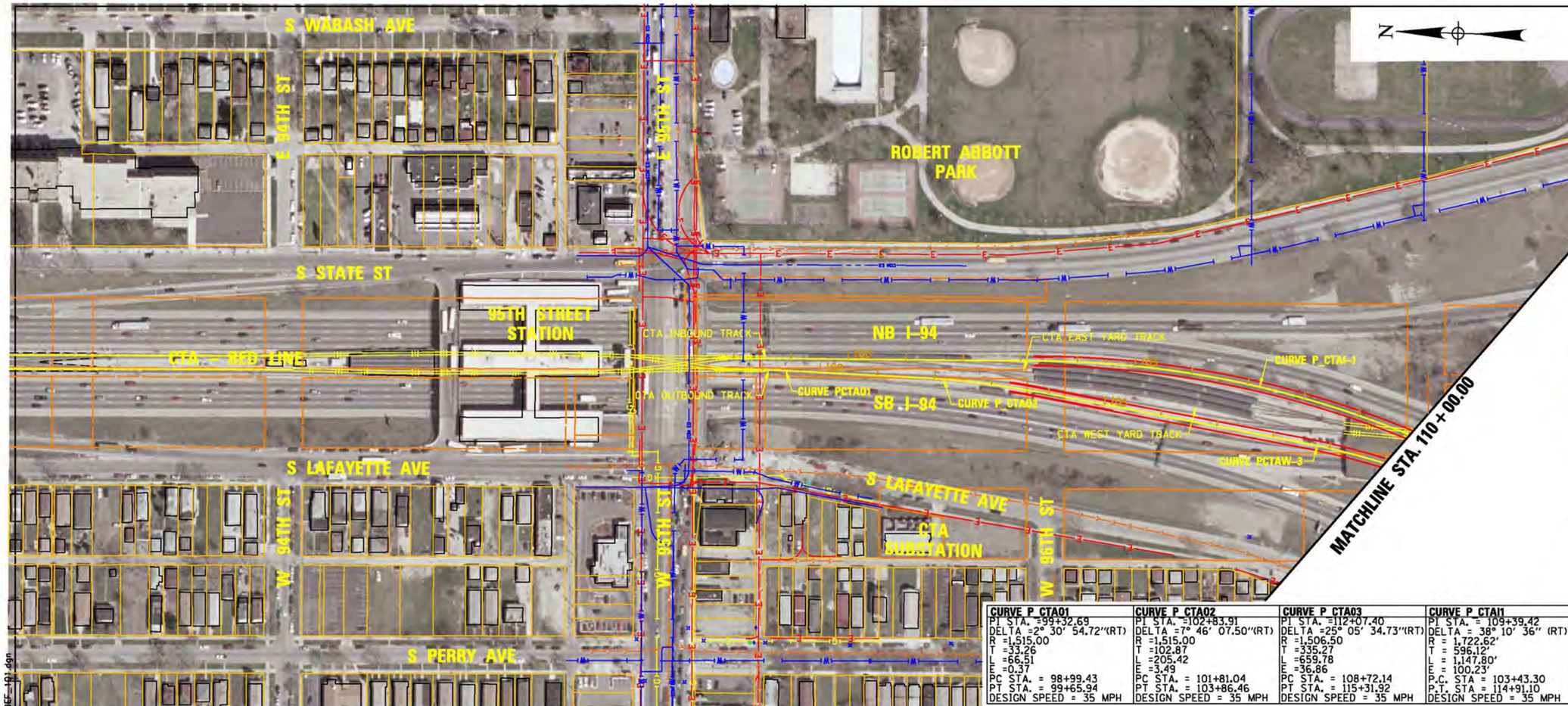
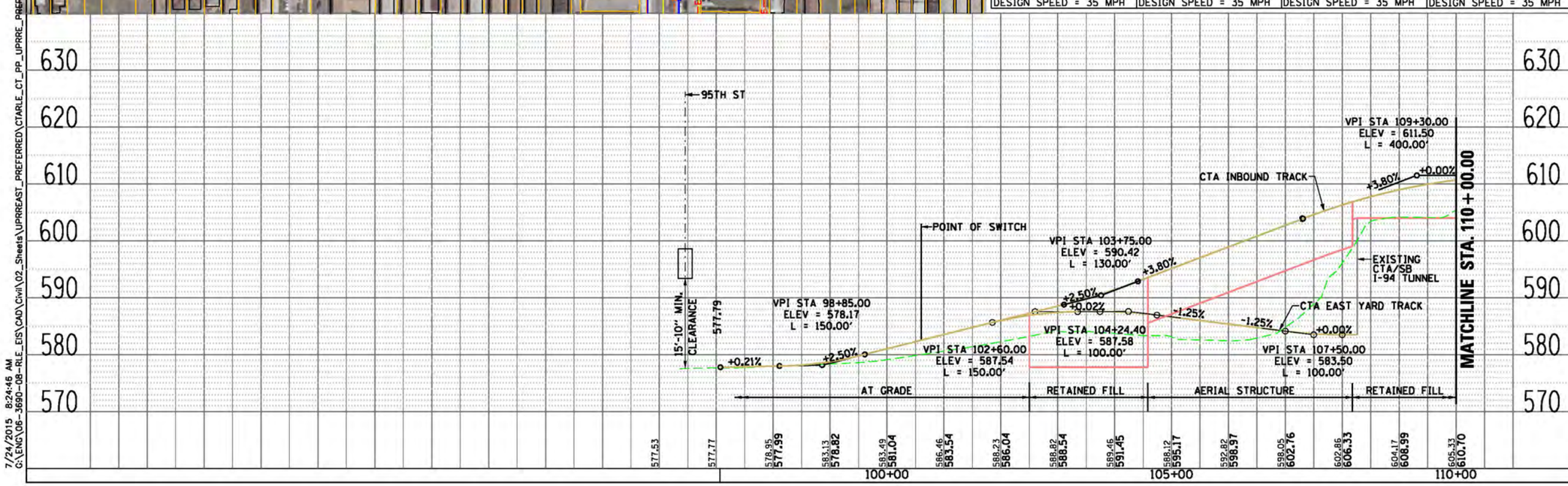



| CURVE P CTA01 | CURVE P CTA02 | CURVE P CTA03 | CURVE P CTAI1 |
|---|---|---|---|
| PI STA. =99+32.69 | PI STA. =102+83.91 | PI STA. =112+07.40 | PI STA. = 109+39.42 |
| DELTA =2° 30' 54.72"(RT) | DELTA =7° 46' 07.50"(RT) | DELTA =25° 05' 34.73"(RT) | DELTA = 38° 10' 36" (RT) |
| R =1,515.00 | R =1,515.00 | R =1,506.50 | R = 1,722.62' |
| T =33.26 | T =102.87 | T =335.27 | T = 596.12' |
| L =66.51 | L =205.42 | L =659.78 | L = 1,147.80' |
| E =0.37 | E =3.49 | E =36.86 | E = 100.23' |
| PC STA. = 98+99.43 | PC STA. = 101+81.04 | PC STA. = 108+72.14 | P.C. STA = 103+43.30 |
| PT STA. = 99+65.94 | PT STA. = 103+86.46 | PT STA. = 115+31.92 | P.T. STA = 114+91.10 |
| DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



| | |
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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
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| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_101.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

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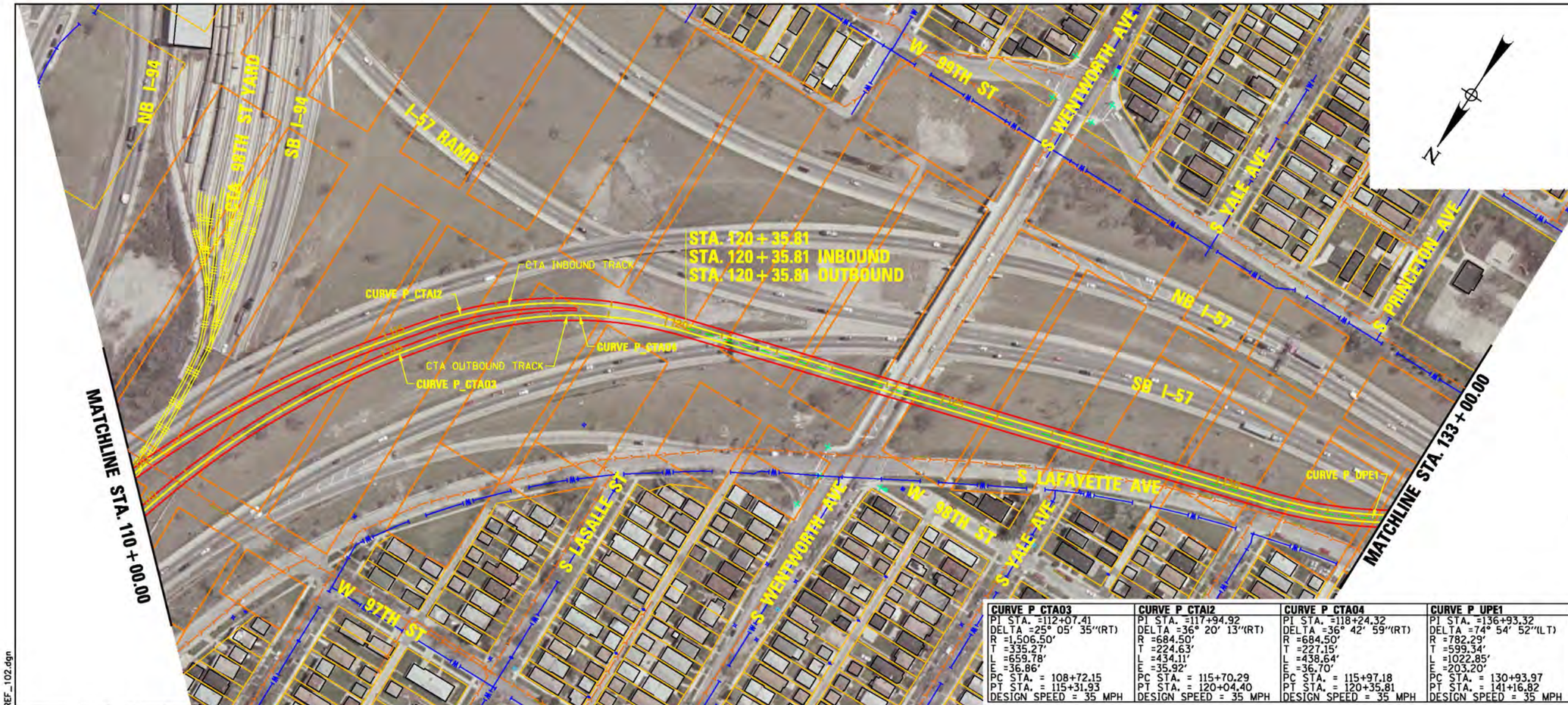


| CURVE P_CTAO3 | CURVE P_CTAI2 | CURVE P_CTAO4 | CURVE P_UPE1 |
|---|---|---|---|
| PI STA. =112+07.41 | PI STA. =117+94.92 | PI STA. =118+24.32 | PI STA. =136+93.32 |
| DELTA =25° 05' 35"(RT) | DELTA =36° 20' 13"(RT) | DELTA =36° 42' 59"(RT) | DELTA =74° 54' 52"(LT) |
| R =1,506.50' | R =684.50' | R =684.50' | R =782.29' |
| T =335.27' | T =224.63' | T =227.15' | T =599.34' |
| L =659.78' | L =434.11' | L =438.64' | L =1022.85' |
| E =36.86' | E =35.92' | E =36.70' | E =203.20' |
| PC STA. = 108+72.15 | PC STA. = 115+70.29 | PC STA. = 115+97.18 | PC STA. = 130+93.97 |
| PT STA. = 115+31.93 | PT STA. = 120+04.40 | PT STA. = 120+35.81 | PT STA. = 141+16.82 |
| DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH |

## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_102.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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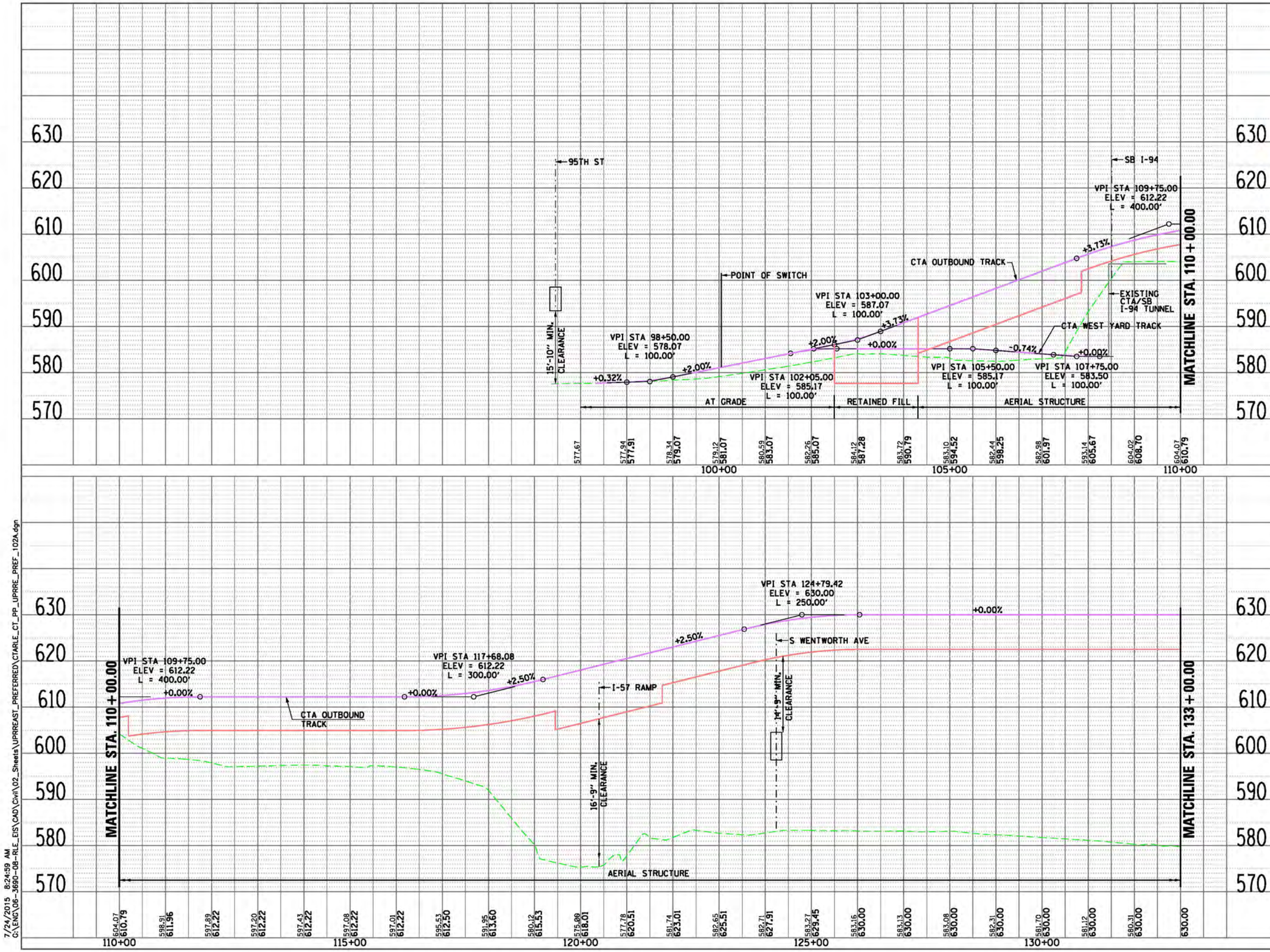


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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V 1" = 10'-0"

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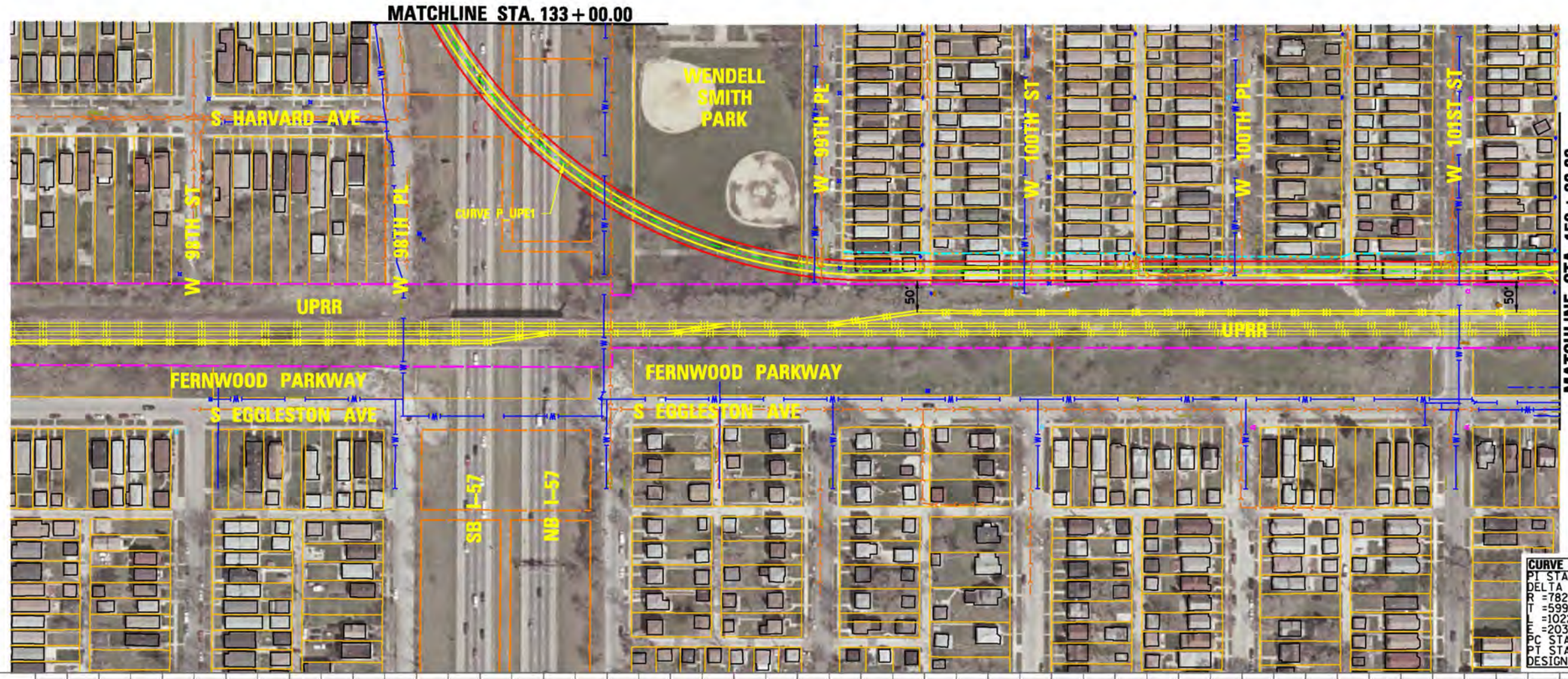
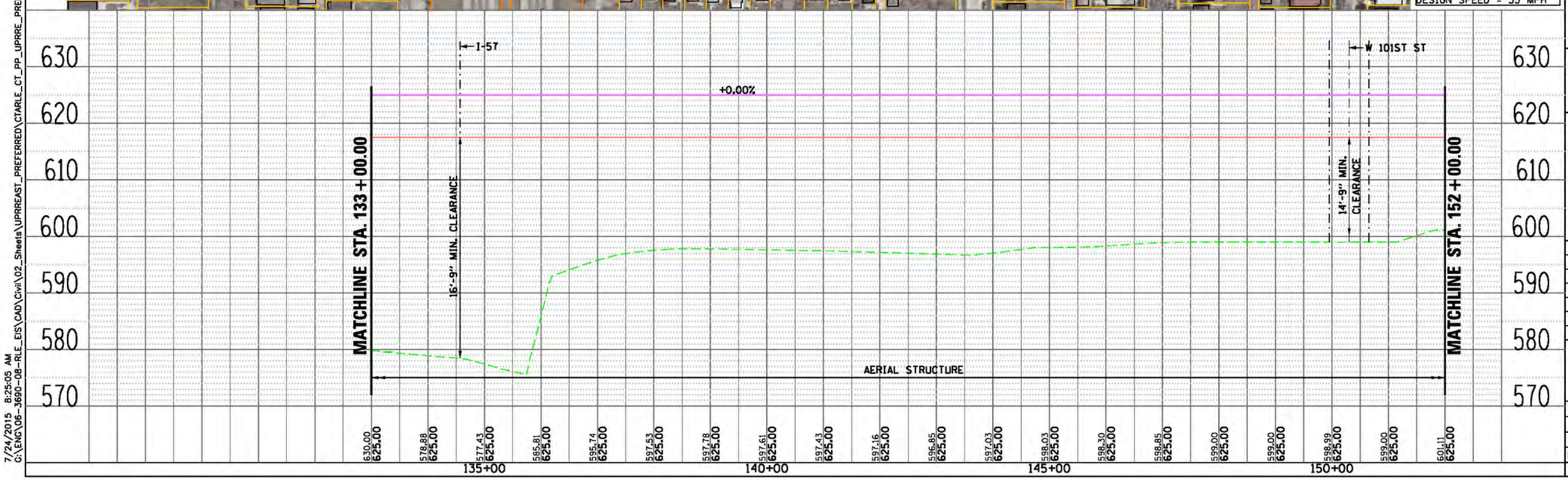



**CURVE P UPE1**
PI STA. =136+93.32
DELTA =74° 54' 52"(LT)
R =782.29'
T =599.34'
L =1022.85'
E =203.20'
PC STA. = 130+93.97
PT STA. = 141+16.82
DESIGN SPEED = 35 MPH




## LEGEND

**PLAN**
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
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| DRAWN BY | |
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V 1" = 10'-0"

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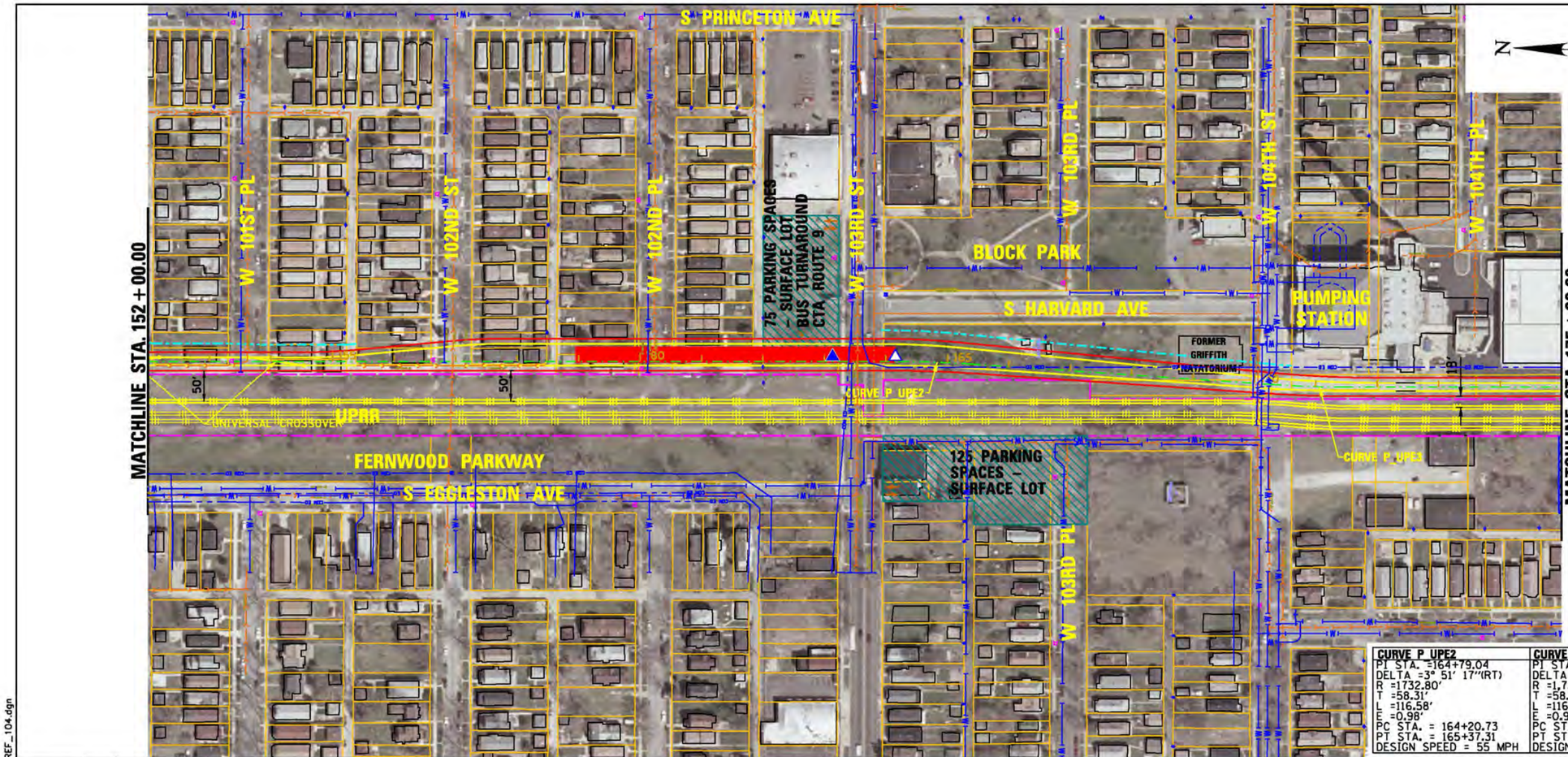
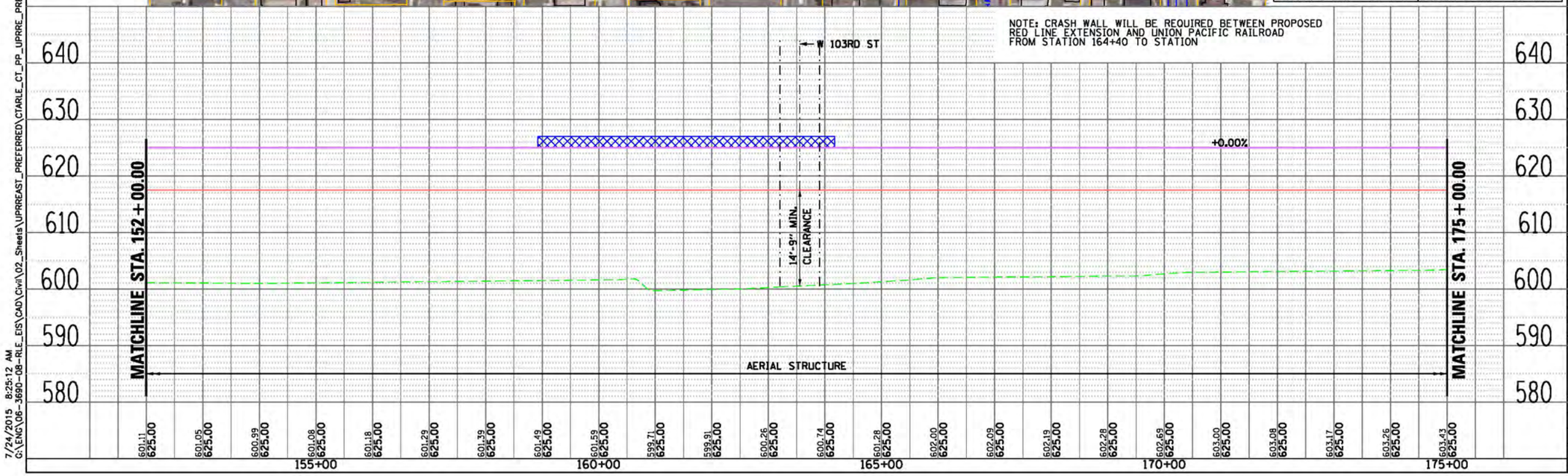



| CURVE P UPE2 | CURVE P UPE3 |
|---|---|
| PI STA. =164+79.04 | PI STA. =170+87.96 |
| DELTA =3° 51' 17"(RT) | DELTA =3° 51' 35"(LT) |
| R =1732.80' | R =1,732.80' |
| T =58.31' | T =58.39' |
| L =116.58' | L =116.73' |
| E =0.98' | E =0.98' |
| PC STA. = 164+20.73 | PC STA. = 170+29.57 |
| PT STA. = 165+37.31 | PT STA. = 171+46.30 |
| DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH |

NOTE: CRASH WALL WILL BE REQUIRED BETWEEN PROPOSED RED LINE EXTENSION AND UNION PACIFIC RAILROAD FROM STATION 164+40 TO STATION




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

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ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



| | |
|---|---|
| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_104.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|

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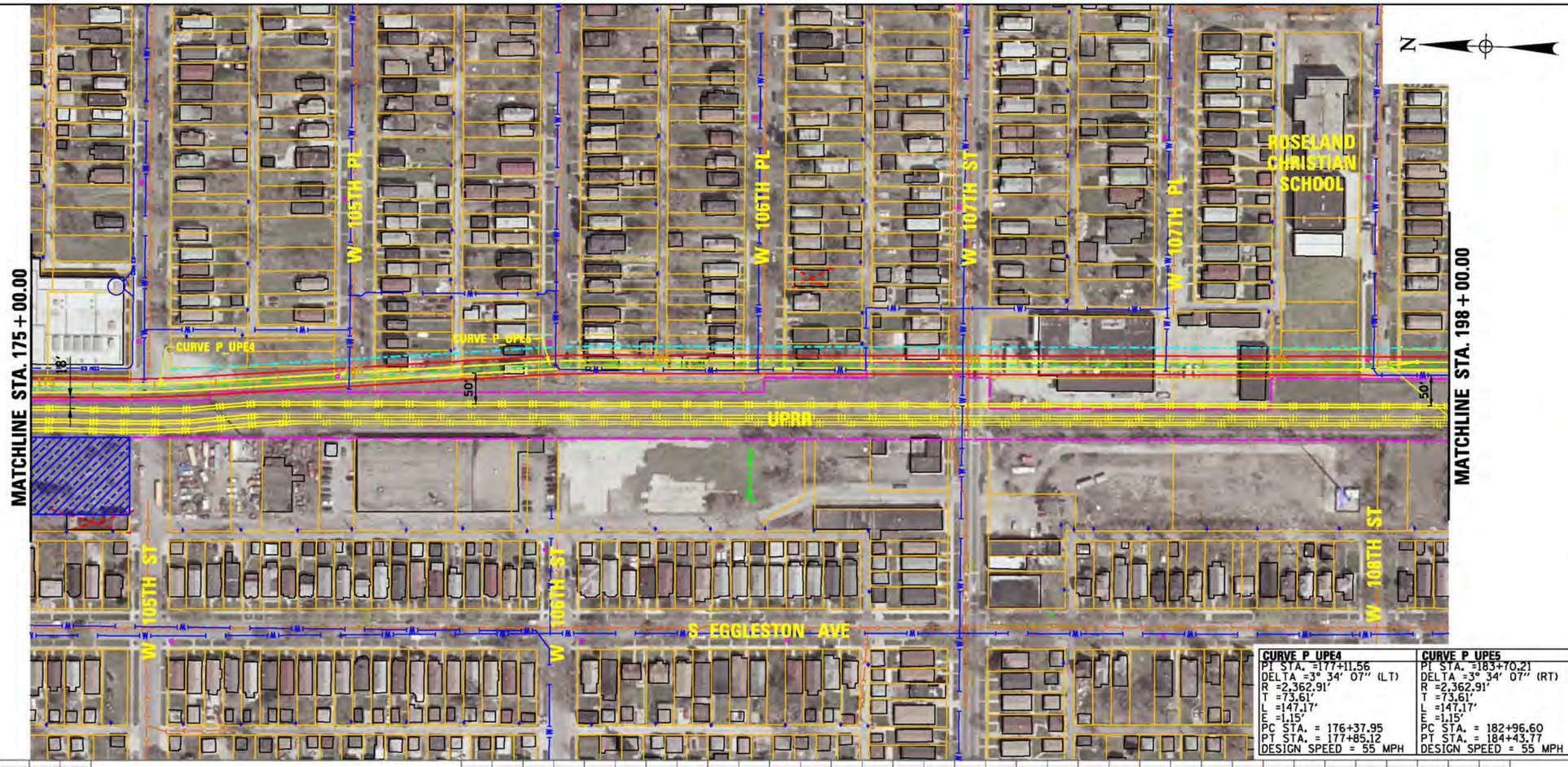
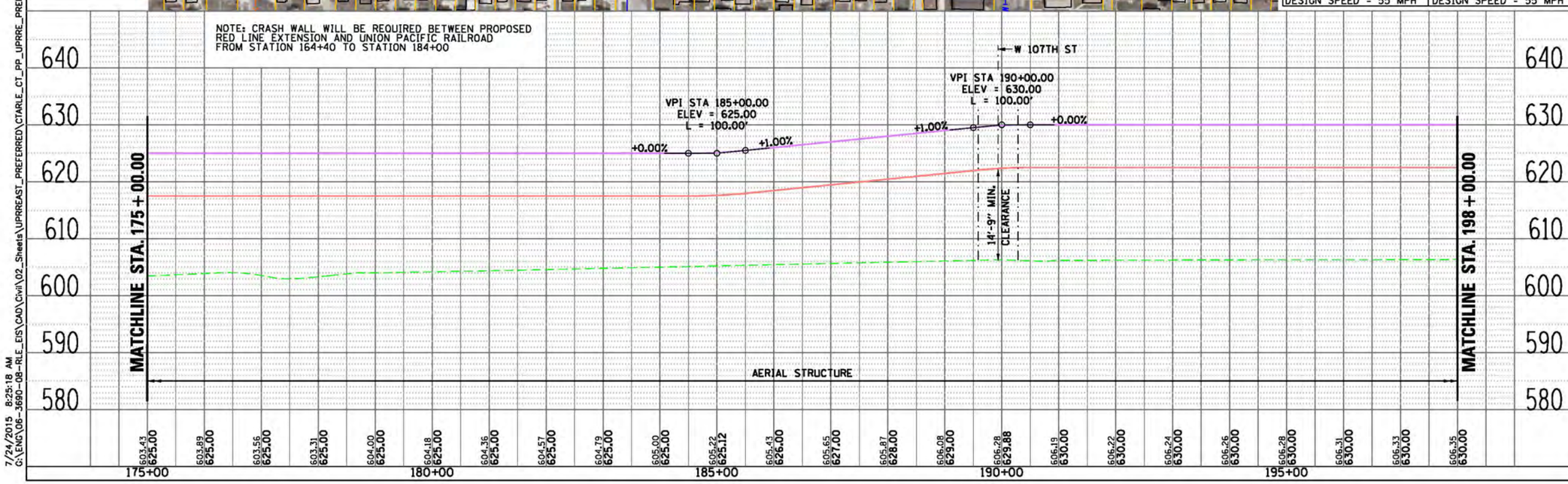



| CURVE P UPE4 | CURVE P UPE5 |
|---|---|
| PI STA. =177+11.56 | PI STA. =183+70.21 |
| DELTA =3° 34' 07" (LT) | DELTA =3° 34' 07" (RT) |
| R =2,362.91' | R =2,362.91' |
| T =73.61' | T =73.61' |
| L =147.17' | L =147.17' |
| E =1.15' | E =1.15' |
| PC STA. = 176+37.95 | PC STA. = 182+96.60 |
| PT STA. = 177+85.12 | PT STA. = 184+43.77 |
| DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

**SENSITIVE SECURITY INFORMATION**

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



IN CHARGE
APPROVED BY
CHECKED BY
DESIGNED BY
DRAWN BY
PROJECT NO CTA-RLE
FILE NAME CTARLE_CT_PP_UPRRE_PREF_105.dgn

100 0 100 200
SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:25:18 AM
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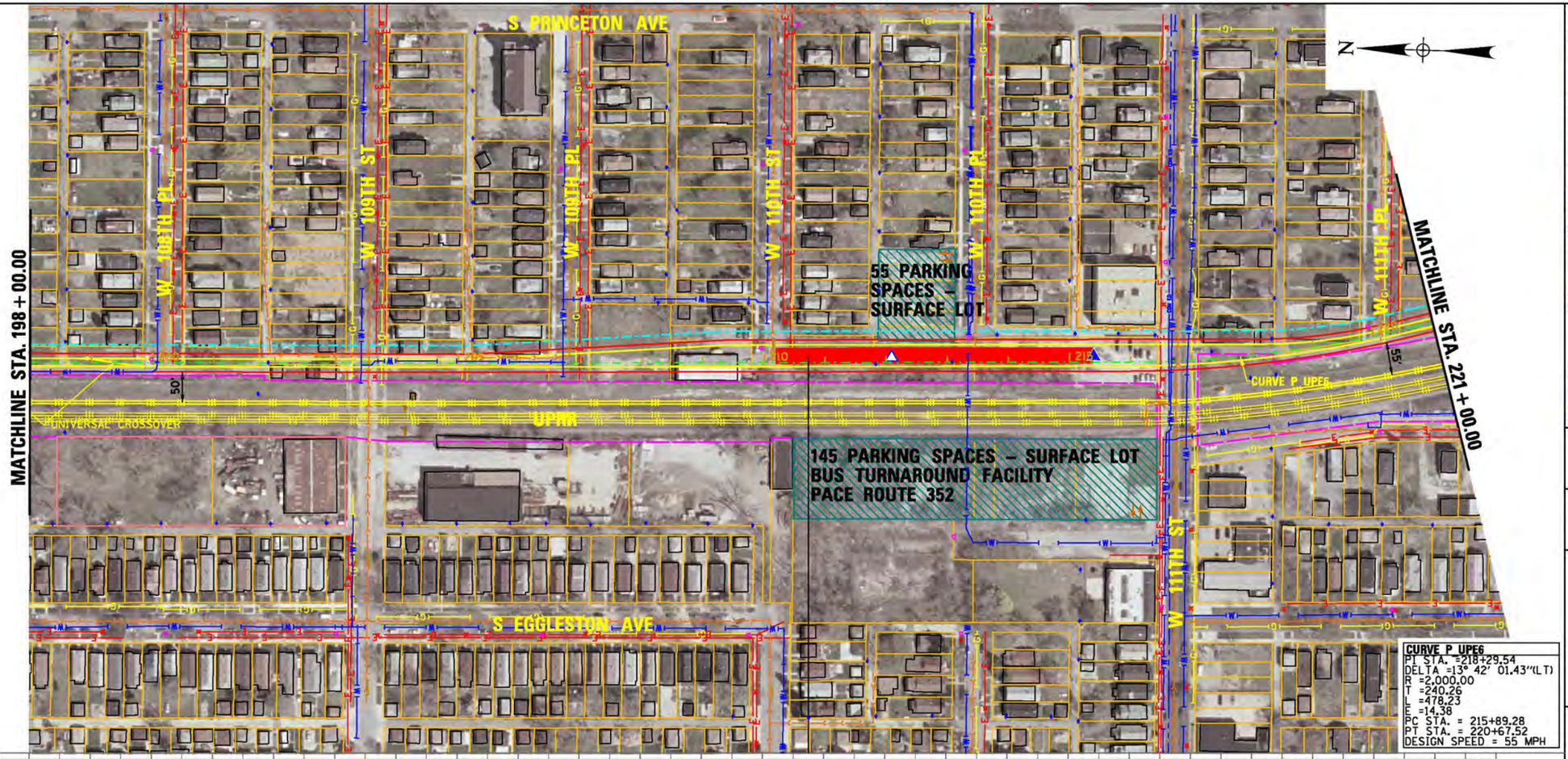
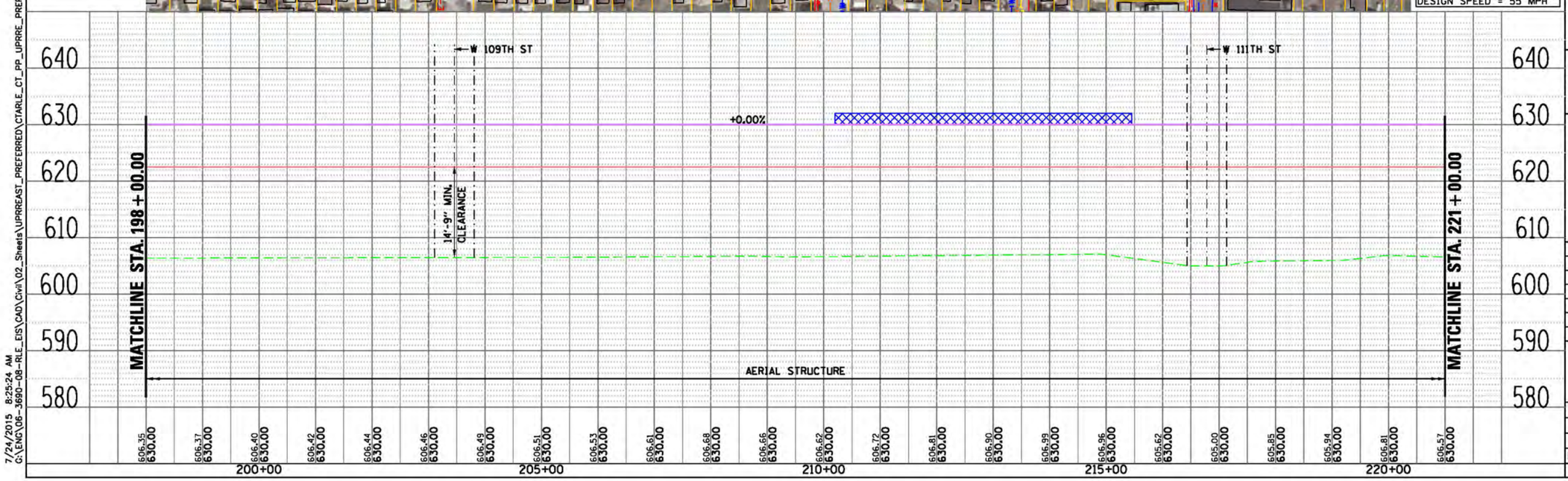



**CURVE P UPE6**
PI STA. =218+29.54
DELTA =13° 42' 01.43"(LT)
R =2,000.00
T =240.26
L =478.23
E =14.38
PC STA. = 215+89.28
PT STA. = 220+67.52
DESIGN SPEED = 55 MPH




## LEGEND

**PLAN**
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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|---|---|
| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_106.dgn |

100 0 100 200
SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:25:24 AM
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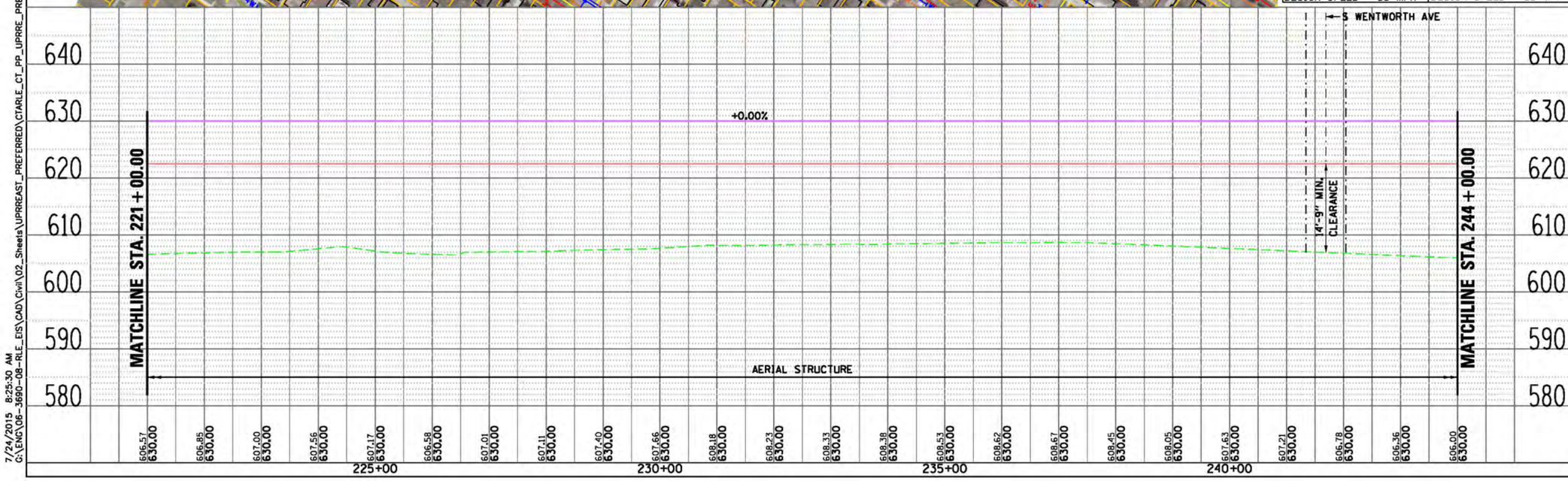
| CURVE P_UPE7 | CURVE P_UPE8 |
|---|---|
| PI STA. =225+40.49 | PI STA. =233+10.45 |
| DELTA =11° 16' 52.99"(LT) | DELTA =30° 56' 04.69"(LT) |
| R =2,379.00 | R =1,695.00 |
| T =234.97 | T =469.02 |
| L =468.42 | L =915.15 |
| E =11.58 | E =63.70 |
| PC STA. = 223+05.52 | PC STA. = 228+41.42 |
| PT STA. = 227+73.94 | PT STA. = 237+56.57 |
| DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_107.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:25:30 AM
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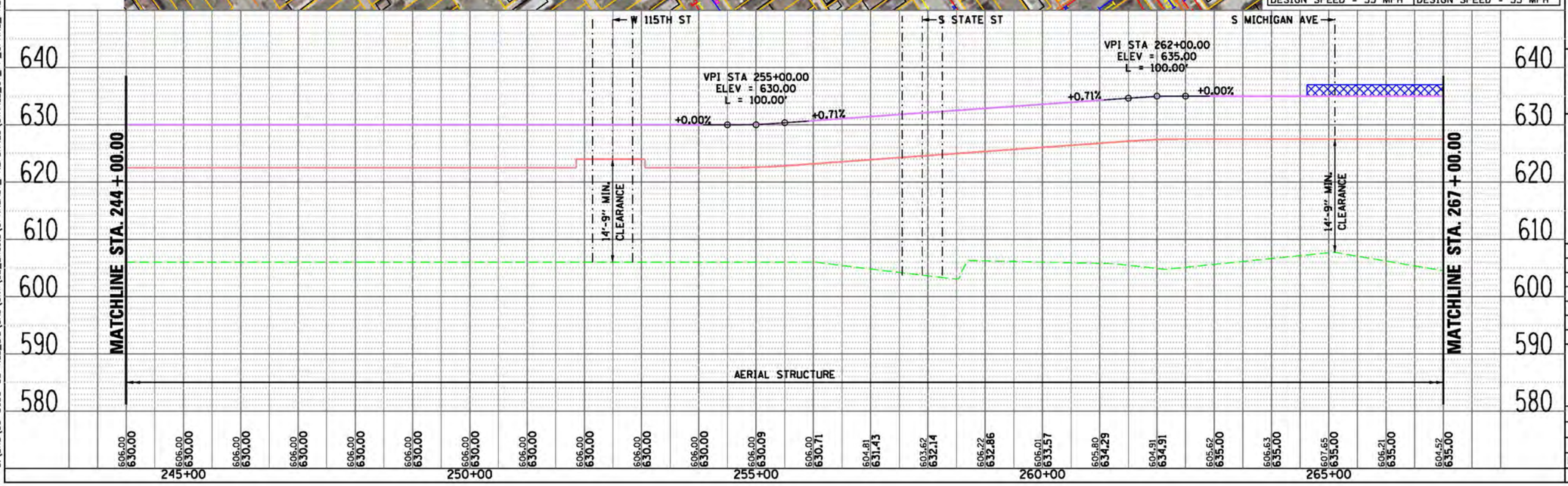
| CURVE P UPE9 | CURVE P UPE10 |
|---|---|
| PI STA. =254+15.00 | PI STA. =259+99.68 |
| DELTA =2° 11' 37" (RT) | DELTA =2° 23' 35" (LT) |
| R =2,362.91 | R =2,362.91 |
| T =45.24 | T =49.35 |
| L =90.46 | L =98.69 |
| E =0.43 | E =0.52 |
| PC STA. = 253+69.76 | PC STA. = 259+50.32 |
| PT STA. = 254+60.23 | PT STA. = 260+49.01 |
| DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_108.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:25:36 AM
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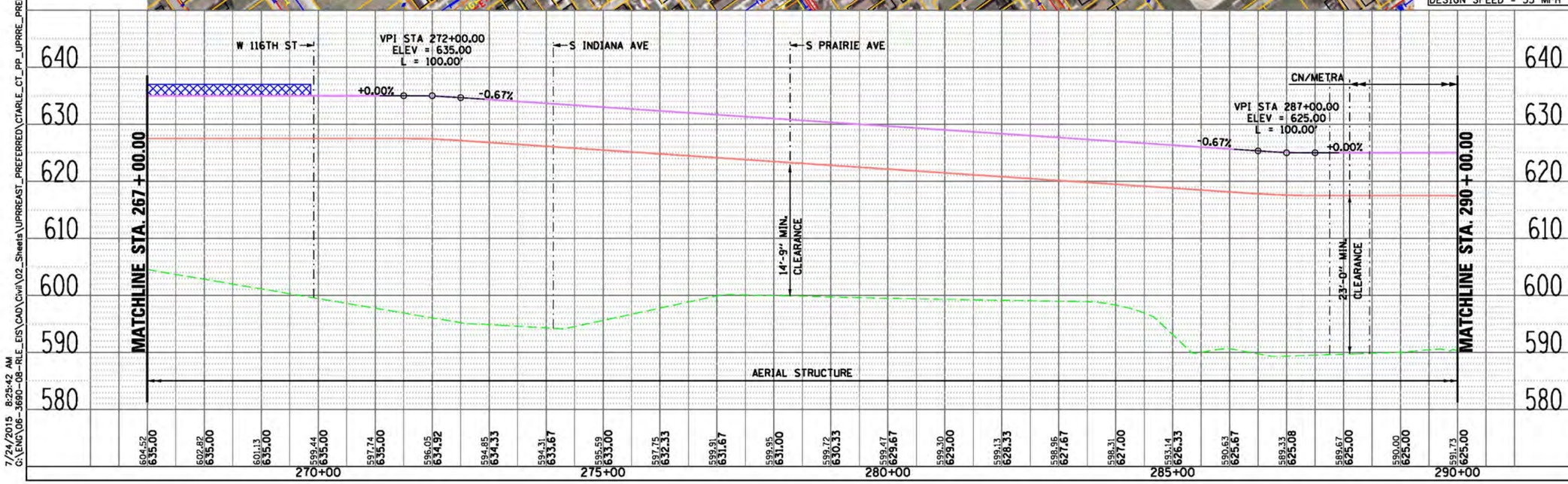
| CURVE P_UPE11 |
|---|
| PI STA. =287+41.84 |
| DELTA =8° 22' 49.78" (RT) |
| R =2,400.00 |
| T =175.83 |
| L =351.04 |
| E =6.43 |
| PC STA. = 285+66.01 |
| PT STA. = 289+17.05 |
| DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_109.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

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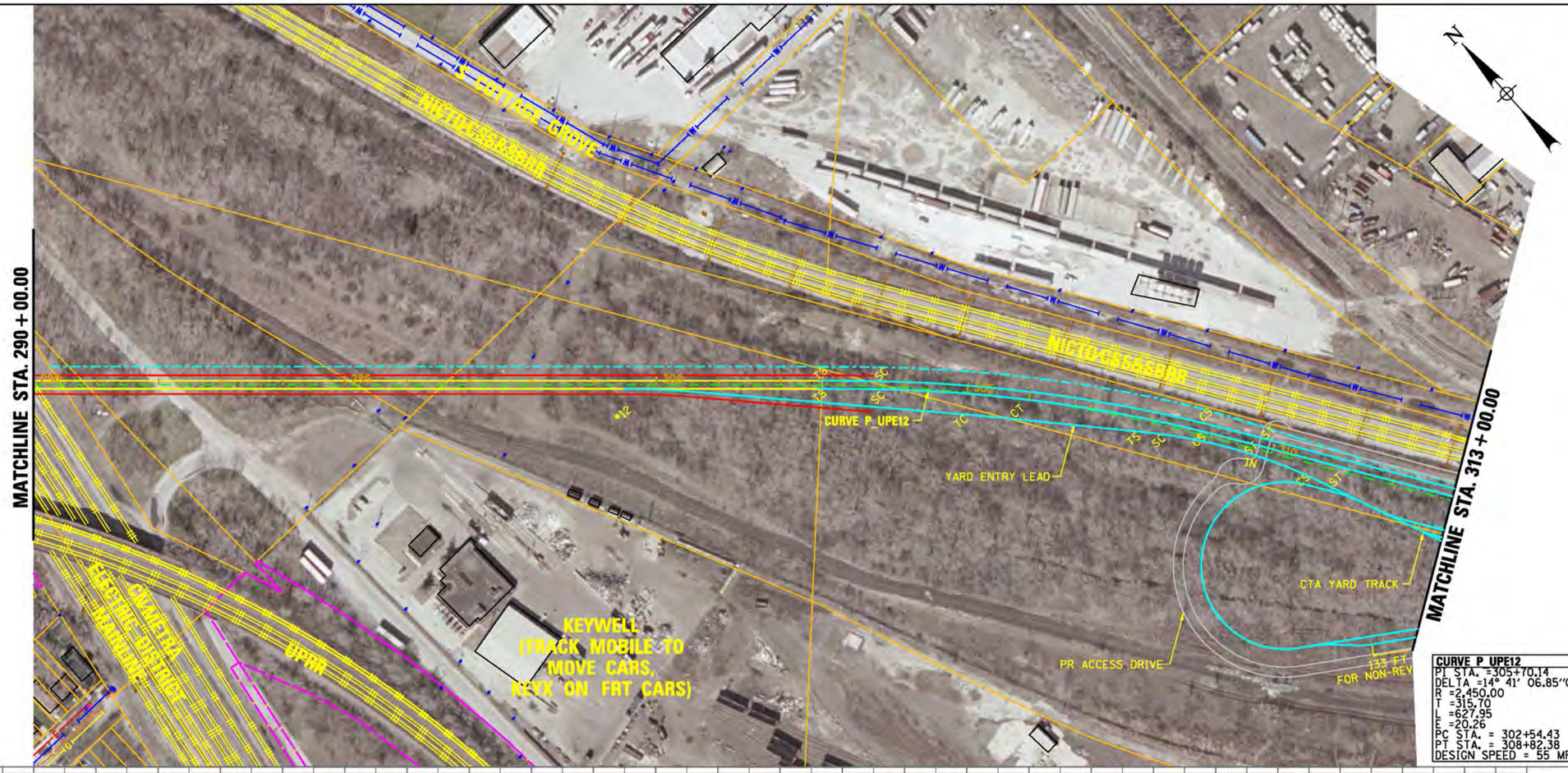
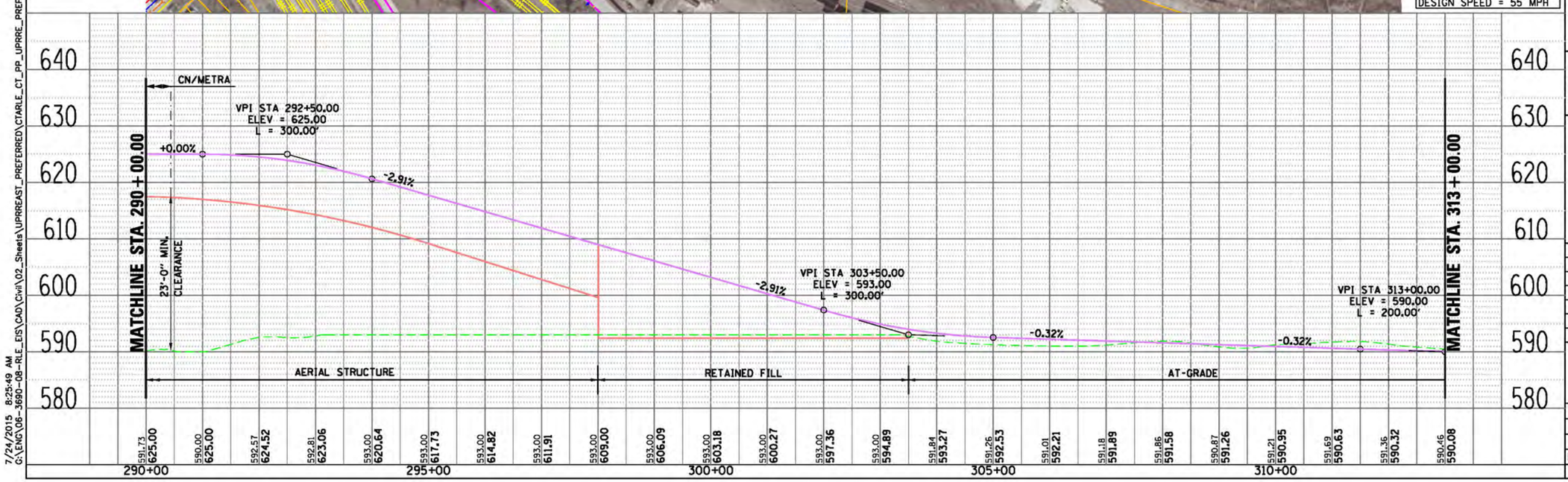



**CURVE P_UPE12**
PI STA. =305+70.14
DELTA =14° 41' 06.85"(RT)
R =2,450.00
T =315.70
L =627.95
E =20.26
PC STA. = 302+54.43
PT STA. = 308+82.38
DESIGN SPEED = 55 MPH




## LEGEND

**PLAN**
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_110.dgn |

100 0 100 200
SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:25:49 AM
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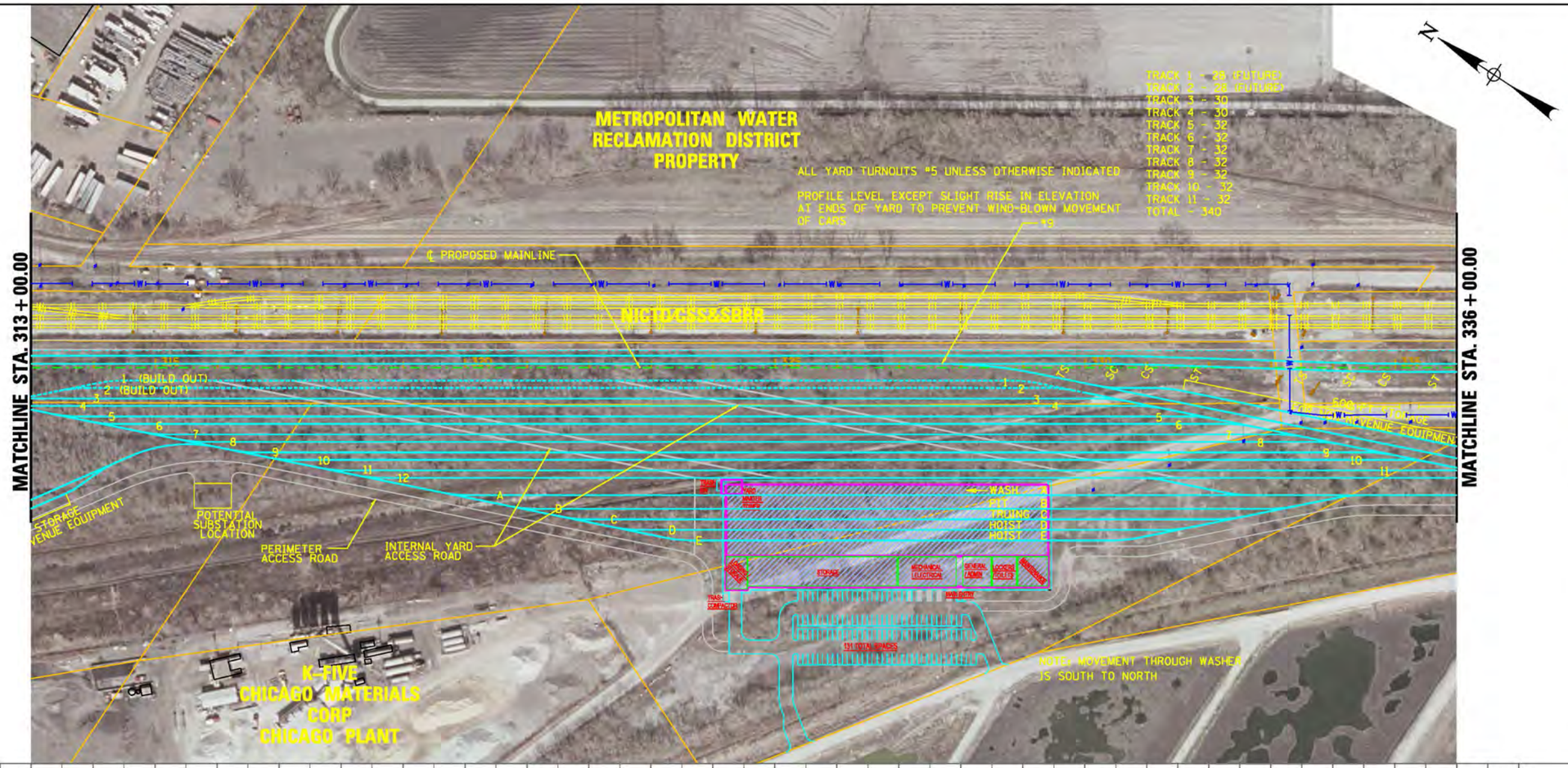


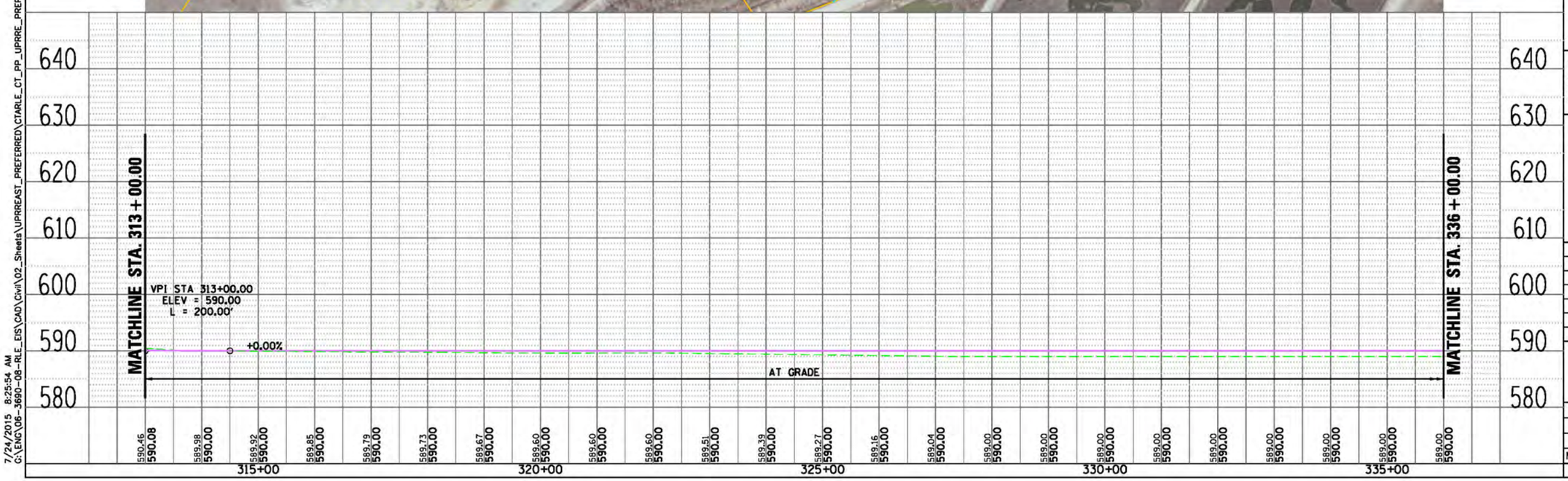


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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|---|---|
| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_111.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|

SHEET TITLE

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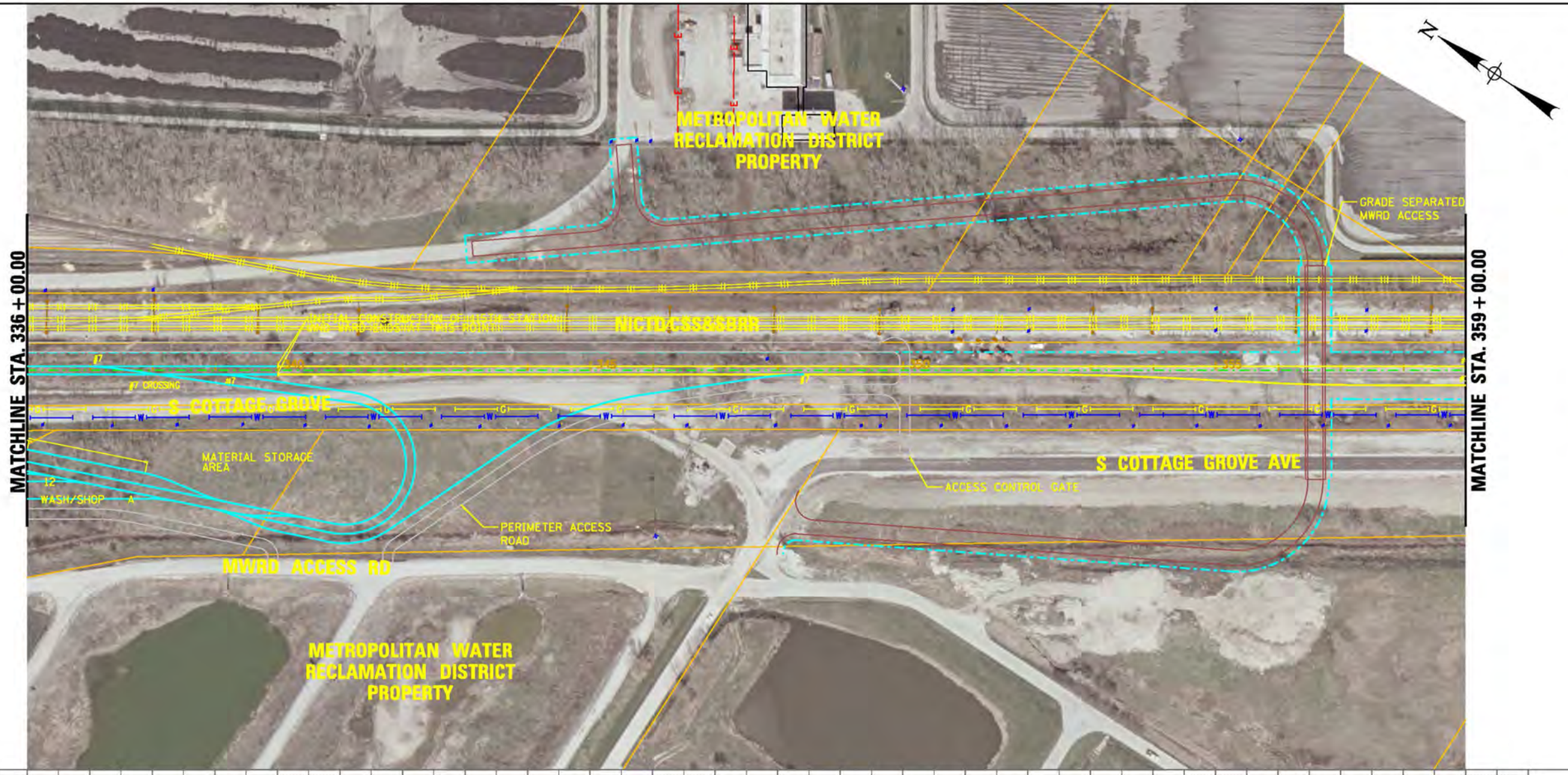


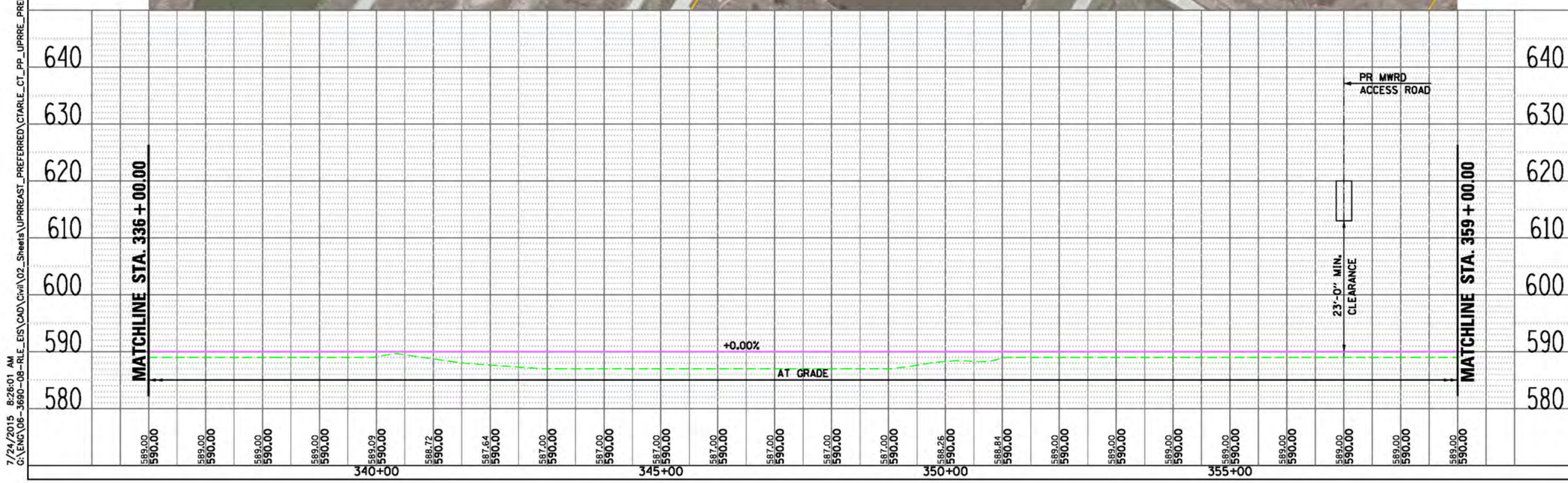


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION

15 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_112.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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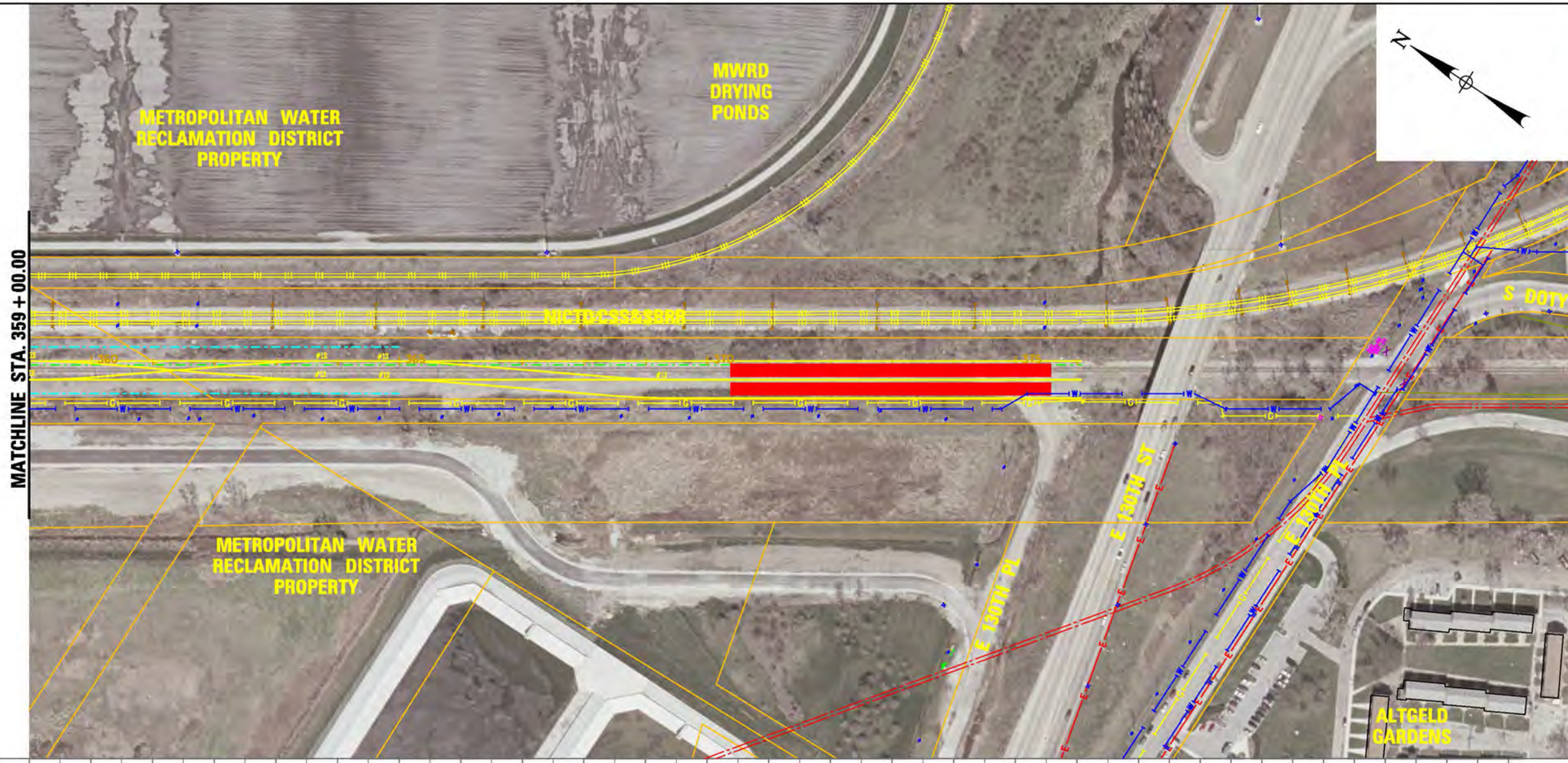


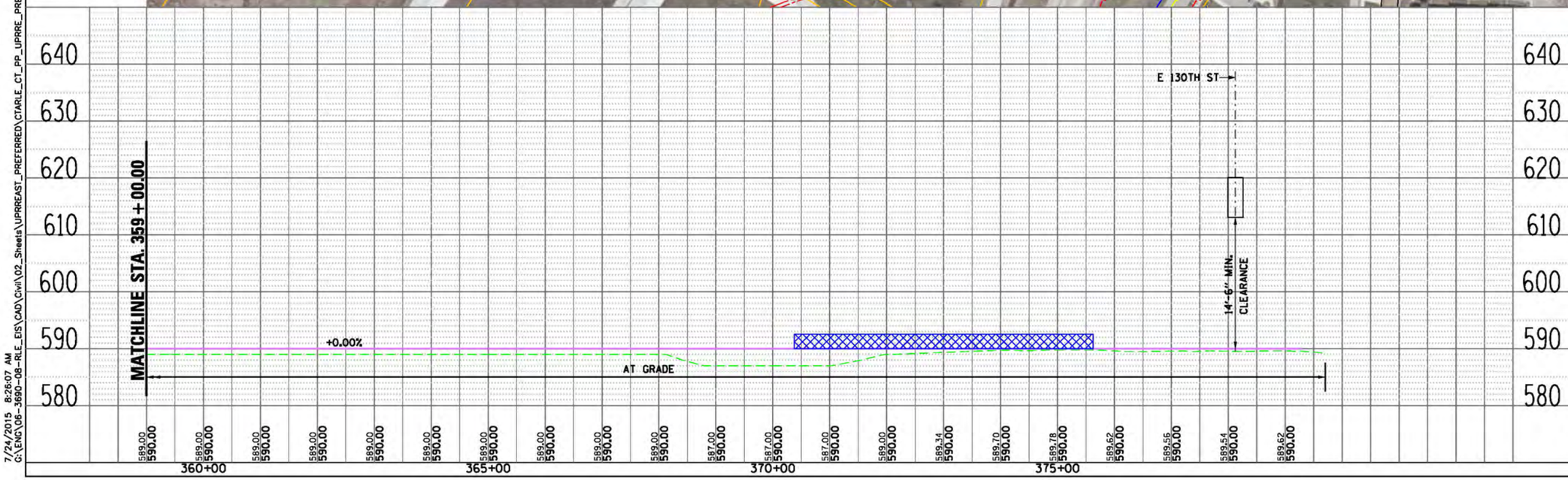


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_113.dgn |

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V 1" = 10'-0"

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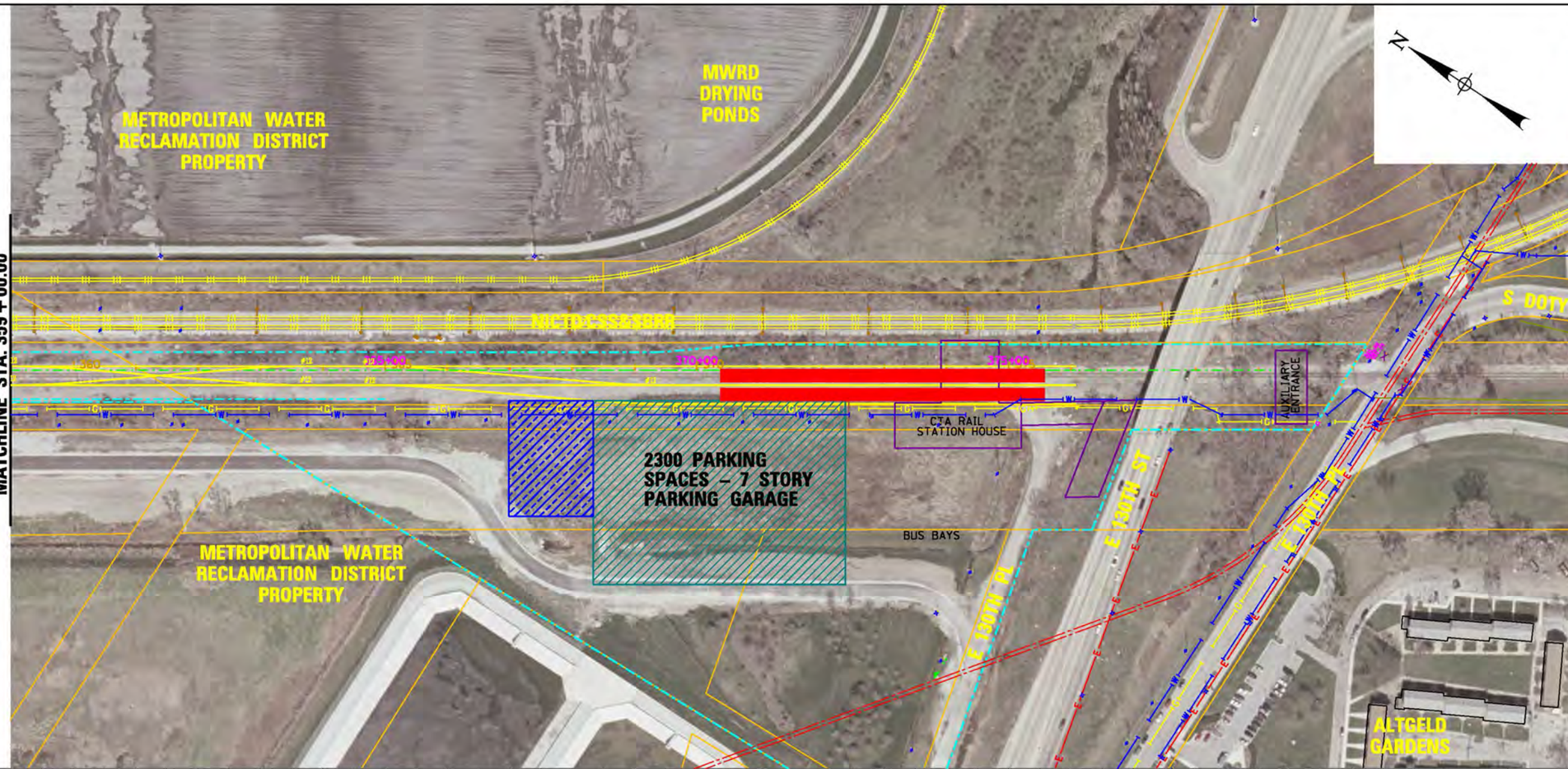


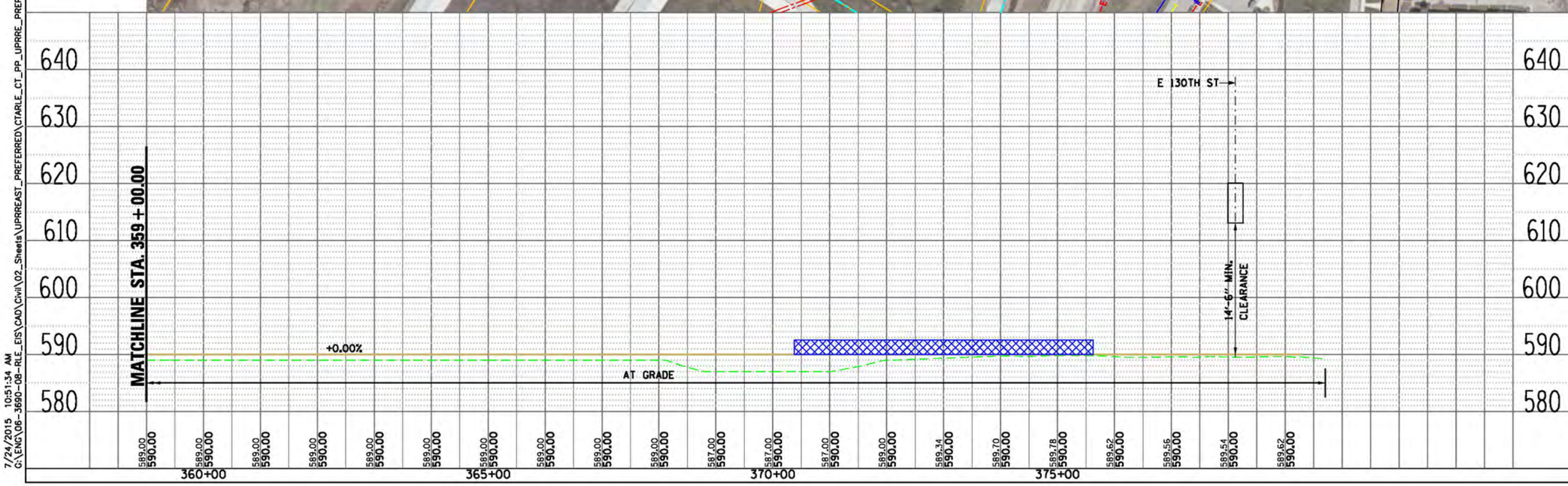


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
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- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
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- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_113_StationAlt.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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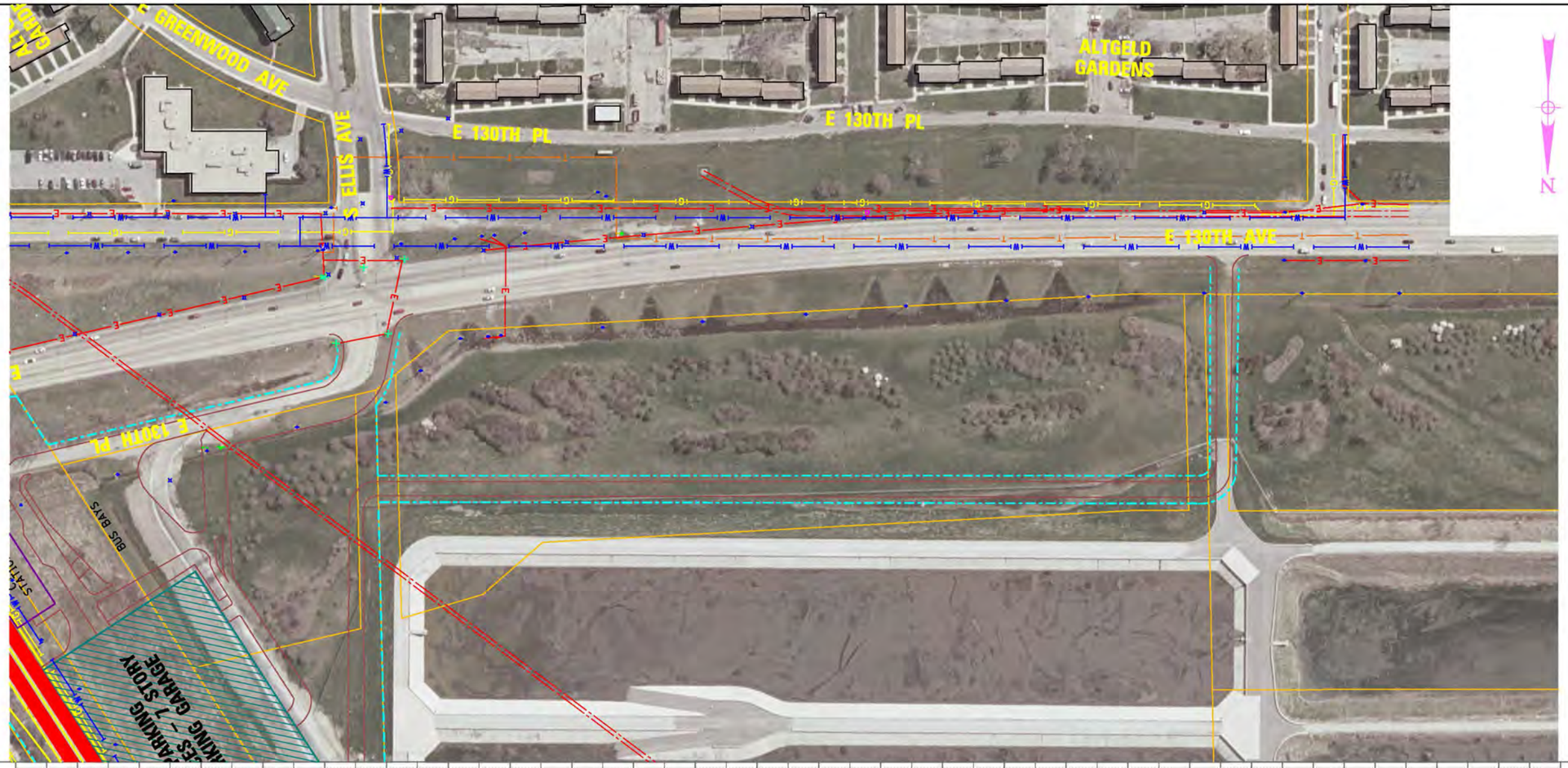


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST OPTION



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| IN CHARGE | |
| APPROVED BY | |
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| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRE_PREF_114.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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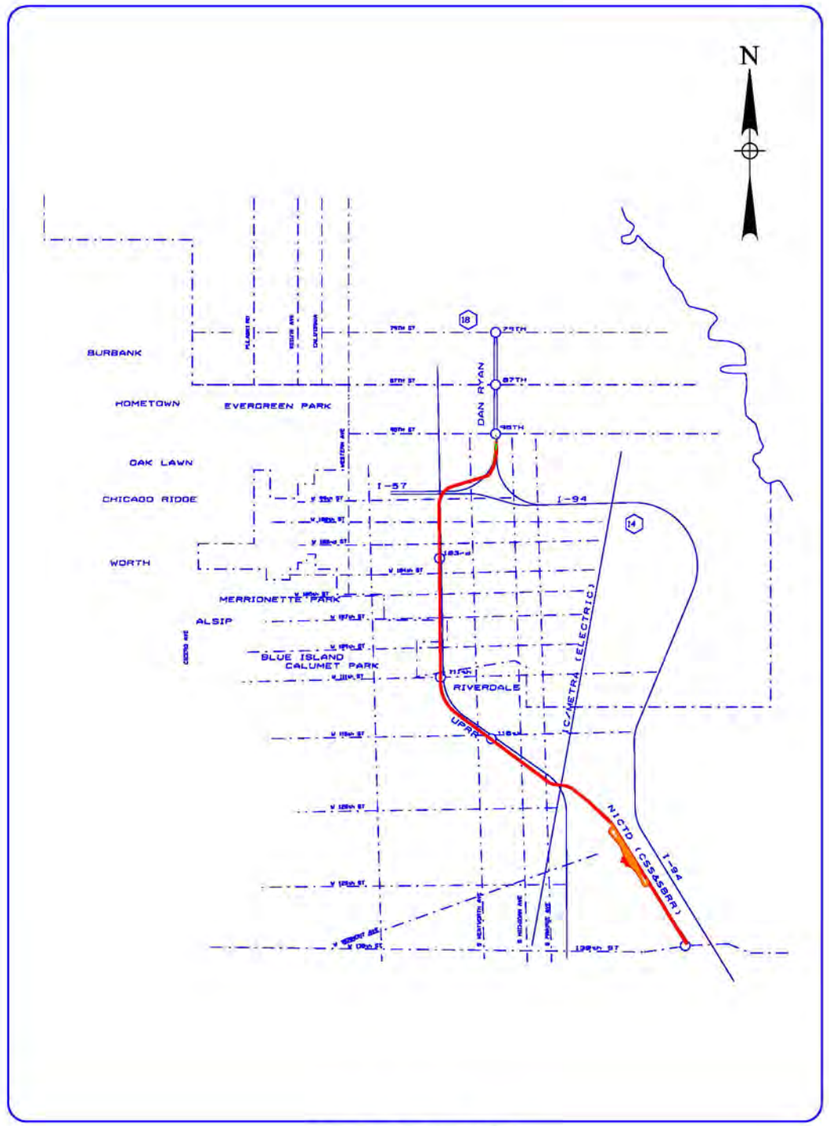
# DRAFT ENVIRONMENTAL IMPACT STATEMENT
# CTA RED LINE EXTENSION
## UNION PACIFIC RAILROAD
## WEST OPTION




ORIENTATION MAP

INDEX

UNION PACIFIC RAILROAD ALTERNATIVE

WEST OPTION 19 - 34

MAY 1, 2015

PRELIMINARY DRAFT

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

19 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
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| DRAWN BY | |
| PROJECT NO | CTA-RLE |
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| MARK | DATE | DESCRIPTION |
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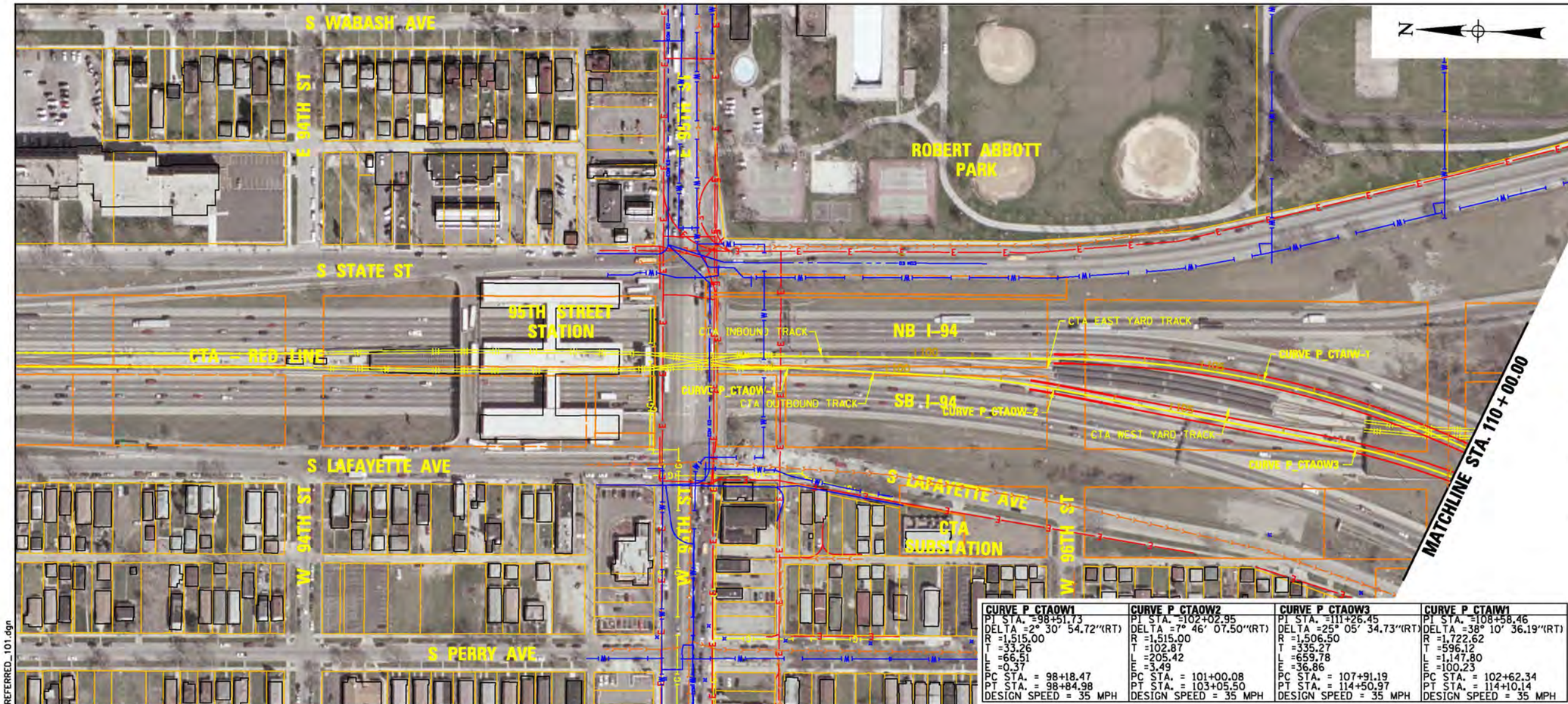
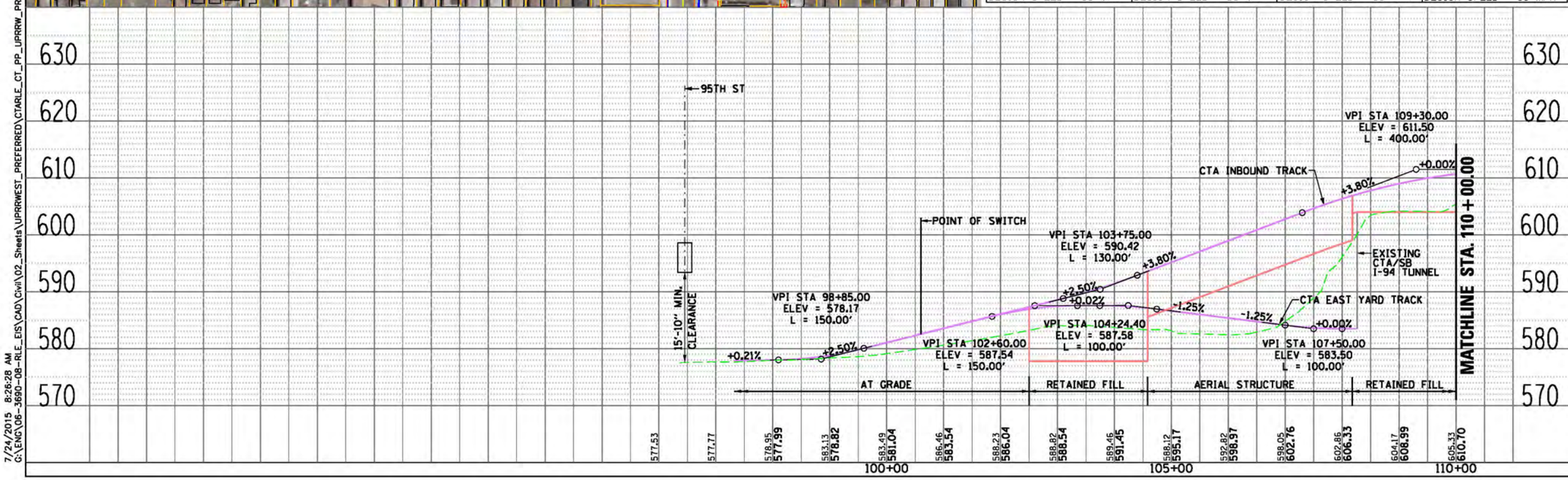



| CURVE P CTAOW1 | CURVE P CTAOW2 | CURVE P CTAOW3 | CURVE P CTAIW1 |
|---|---|---|---|
| PI STA. =98+51.73 | PI STA. =102+02.95 | PI STA. =111+26.45 | PI STA. =108+58.46 |
| DELTA =2° 30' 54.72"(RT) | DELTA =7° 46' 07.50"(RT) | DELTA =25° 05' 34.73"(RT) | DELTA =38° 10' 36.19"(RT) |
| R =1,515.00 | R =1,515.00 | R =1,506.50 | R =1,722.62 |
| T =33.26 | T =102.87 | T =335.27 | T =596.12 |
| L =66.51 | L =205.42 | L =659.78 | L =1,147.80 |
| E =0.37 | E =3.49 | E =36.86 | E =100.23 |
| PC STA. = 98+18.47 | PC STA. = 101+00.08 | PC STA. = 107+91.19 | PC STA. = 102+62.34 |
| PT STA. = 98+84.98 | PT STA. = 103+05.50 | PT STA. = 114+50.97 | PT STA. = 114+10.14 |
| DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



| | |
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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_101.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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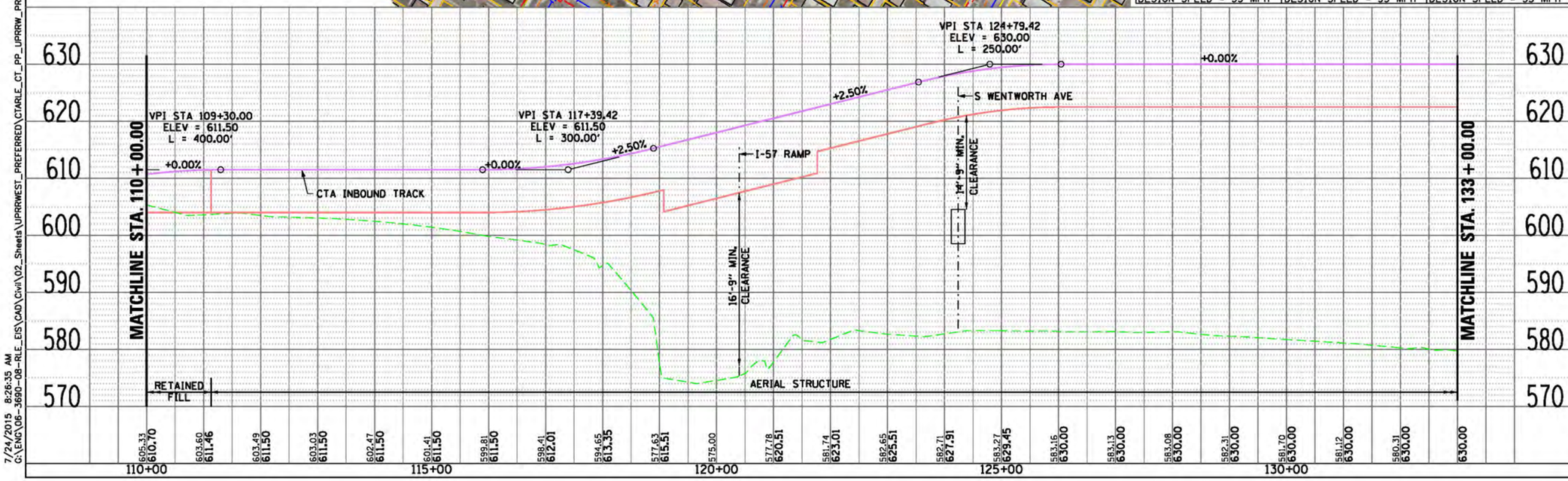
| CURVE P CTAOW3 | CURVE P CTAIW2 | CURVE P CTAOW4 |
|---|---|---|
| PI STA. =111+26.45 | PI STA. =117+13.96 | PI STA. =117+43.36 |
| DELTA =25° 05' 34.73"(RT) | DELTA =36° 20' 12.77"(RT) | DELTA =36° 42' 58.83"(RT) |
| R =1,506.50 | R =684.50 | R =684.50 |
| T =335.27 | T =224.63 | T =227.15 |
| L =659.78 | L =434.11 | L =438.64 |
| E =35.98 | E =35.92 | E =36.70 |
| PC STA. = 107+91.19 | PC STA. = 114+89.33 | PC STA. = 115+16.22 |
| PT STA. = 114+50.97 | PT STA. = 119+23.44 | PT STA. = 119+54.86 |
| DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH | DESIGN SPEED = 35 MPH |




## LEGEND

PLAN
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
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- PR PARKING
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ENTRANCES
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PROFILE
- EX GROUND
- PR TOP OF RAIL
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PRELIMINARY DRAFT

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cta

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_102.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
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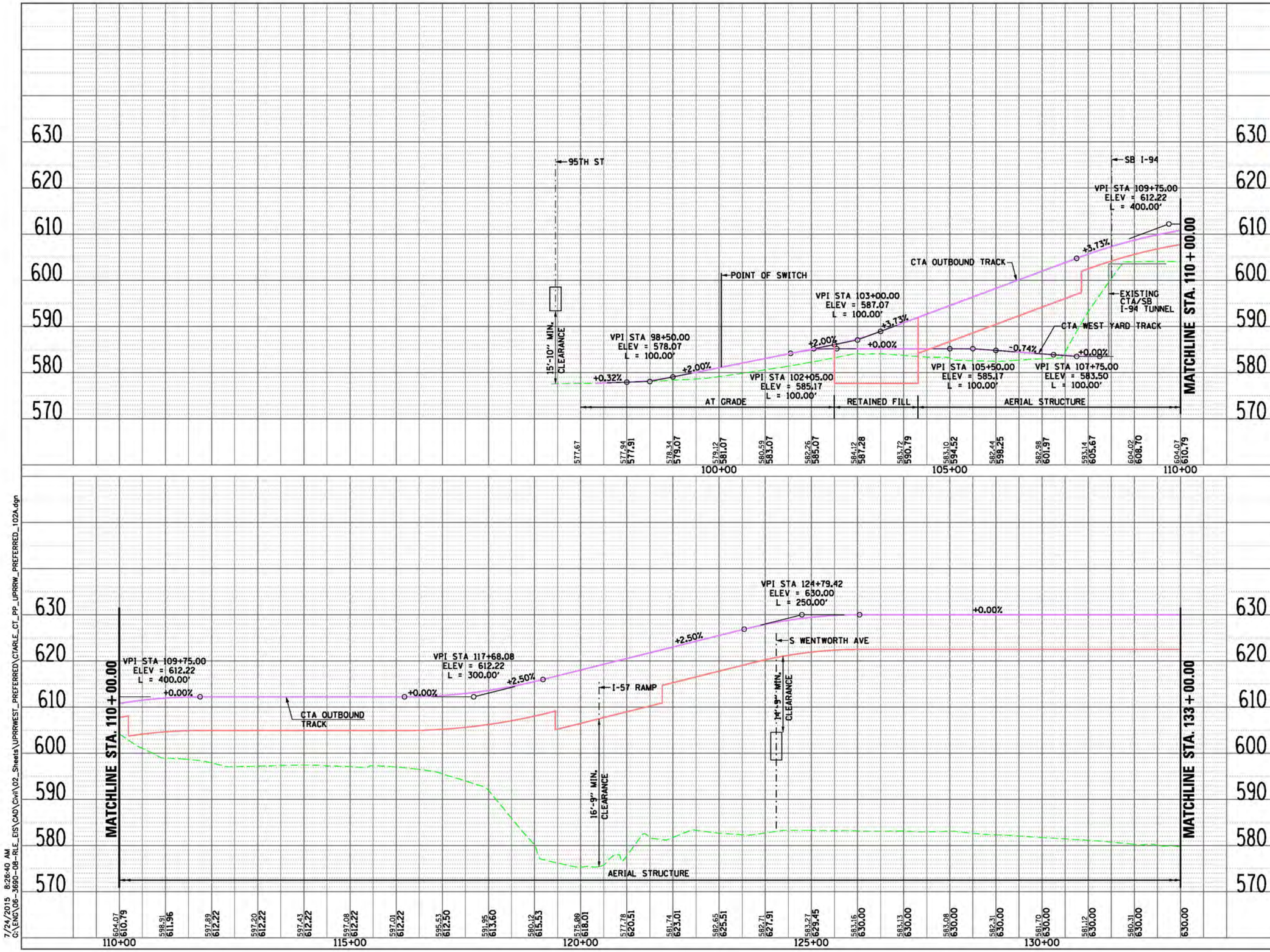


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
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- PR STATION PLATFORM
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- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

**SENSITIVE SECURITY INFORMATION**

WARNING: THIS RECORD CONTAINS SENSITIVE SECURITY INFORMATION THAT IS CONTROLLED UNDER 49 CFR PARTS 15 AND 1520. NO PART OF THIS RECORD MAY BE DISCLOSED TO PERSONS WITHOUT A "NEED TO KNOW" AS DEFINED IN CFR PARTS 15 AND 1520, EXCEPT WITH THE WRITTEN PERMISSION OF THE ADMINISTRATOR OF THE TRANSPORTATION SECURITY ADMINISTRATION OR THE SECRETARY OF TRANSPORTATION. UNAUTHORIZED RELEASE MAY RESULT IN CIVIL PENALTY OR OTHER ACTION. FOR U.S. GOVERNMENT AGENCIES, PUBLIC DISCLOSURE IS GOVERNED BY 5 U.S.C. 552 AND 49 CFR PARTS 15 AND 1520.

DRAWING SCALE IS NOT GUARANTEED. CTA ASSUMES NO RISK OF LIABILITY FOR ERRORS CAUSED, DIRECTLY OR INDIRECTLY, BY SCALING OF THIS DRAWING.

RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_102A.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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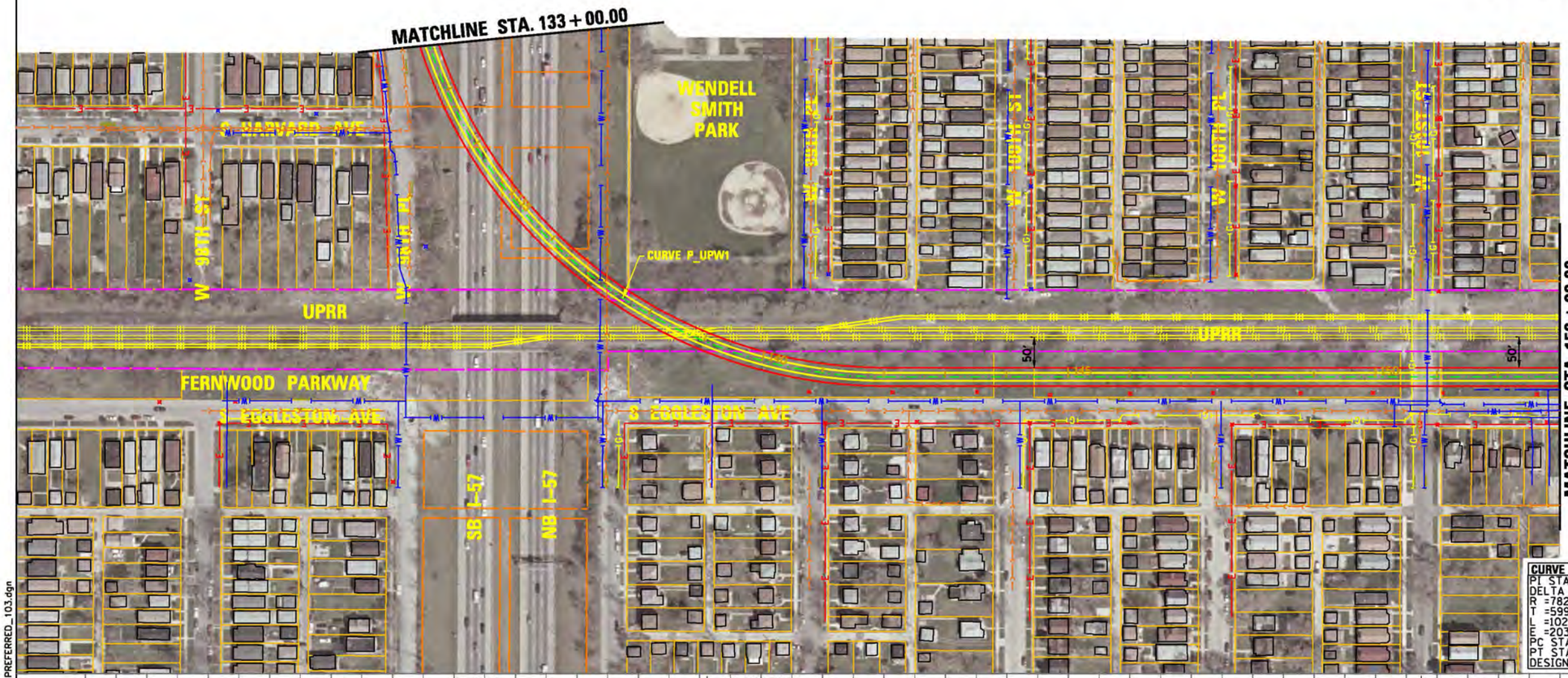
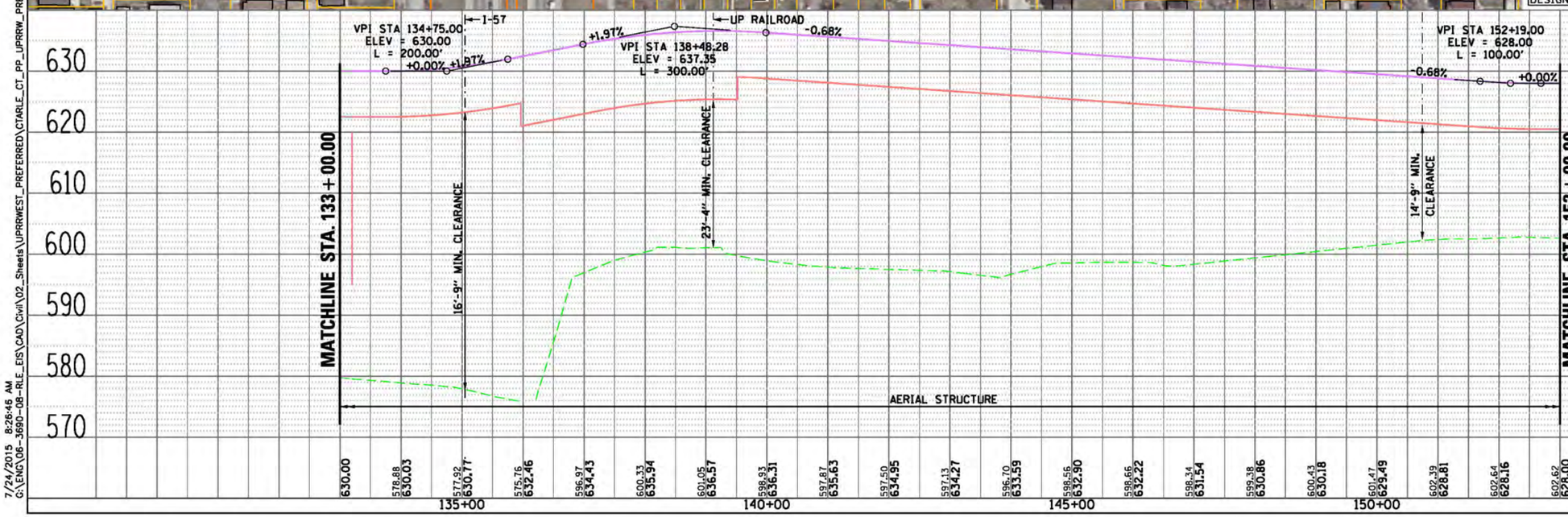
SHEET TITLE

7/24/2015 8:26:40 AM
G:\ENG\06-3690-08-RLE_EIS\CAD\Civil\02_Sheets\UPRRWEST_PREFERRED\CTARLE_CT_PP_UPRRW_PREFERRED_102A.dgn




| CURVE P_UPW1 |
|---|
| PI STA. =137+81.18 |
| DELTA =74° 56' 54.61"(LT) |
| R =782.29 |
| T =599.71 |
| L =1023.31 |
| E =203.43 |
| PC STA. = 131+81.46 |
| PT STA. = 142+04.78 |
| DESIGN SPEED = 35 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_103.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:26:46 AM
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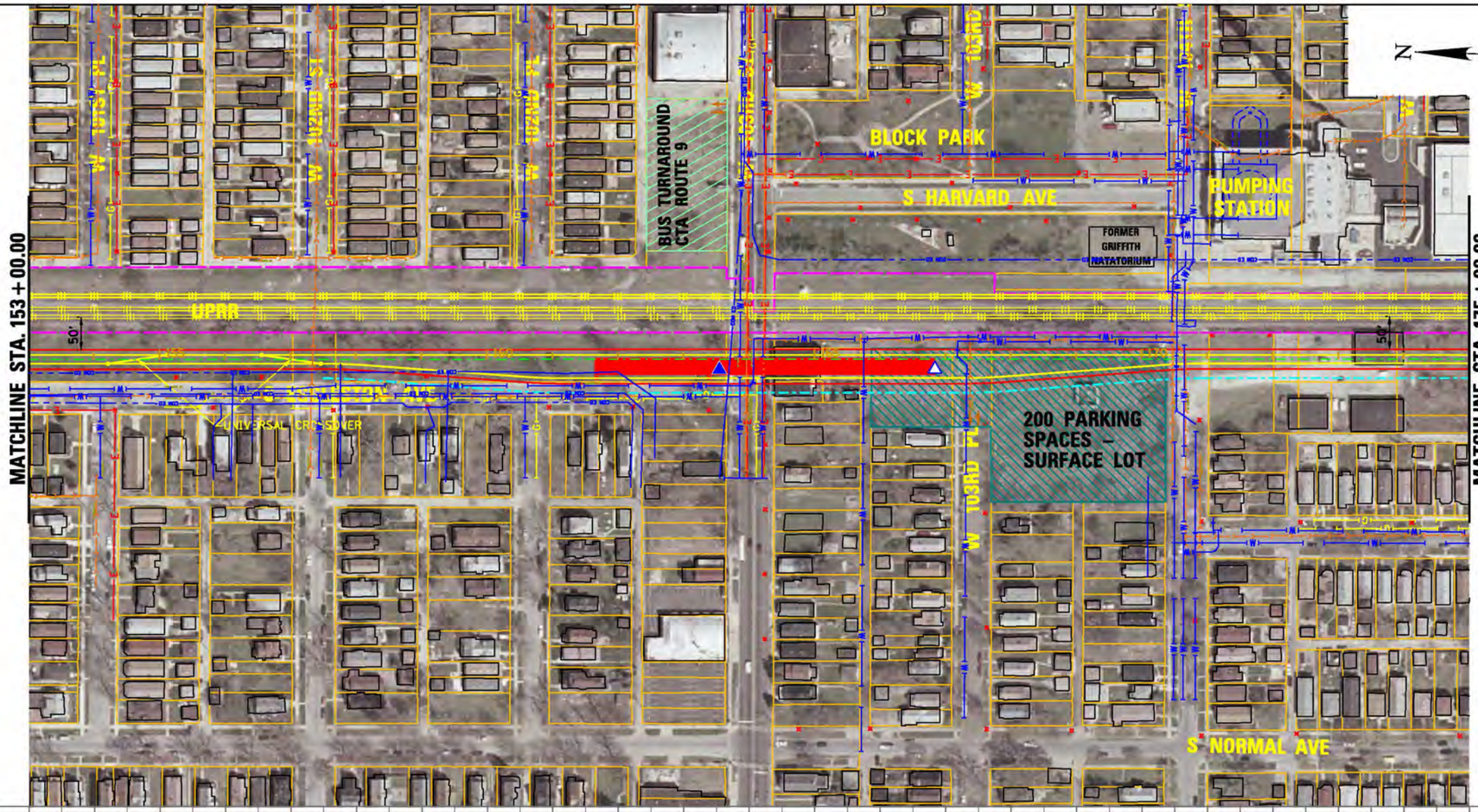


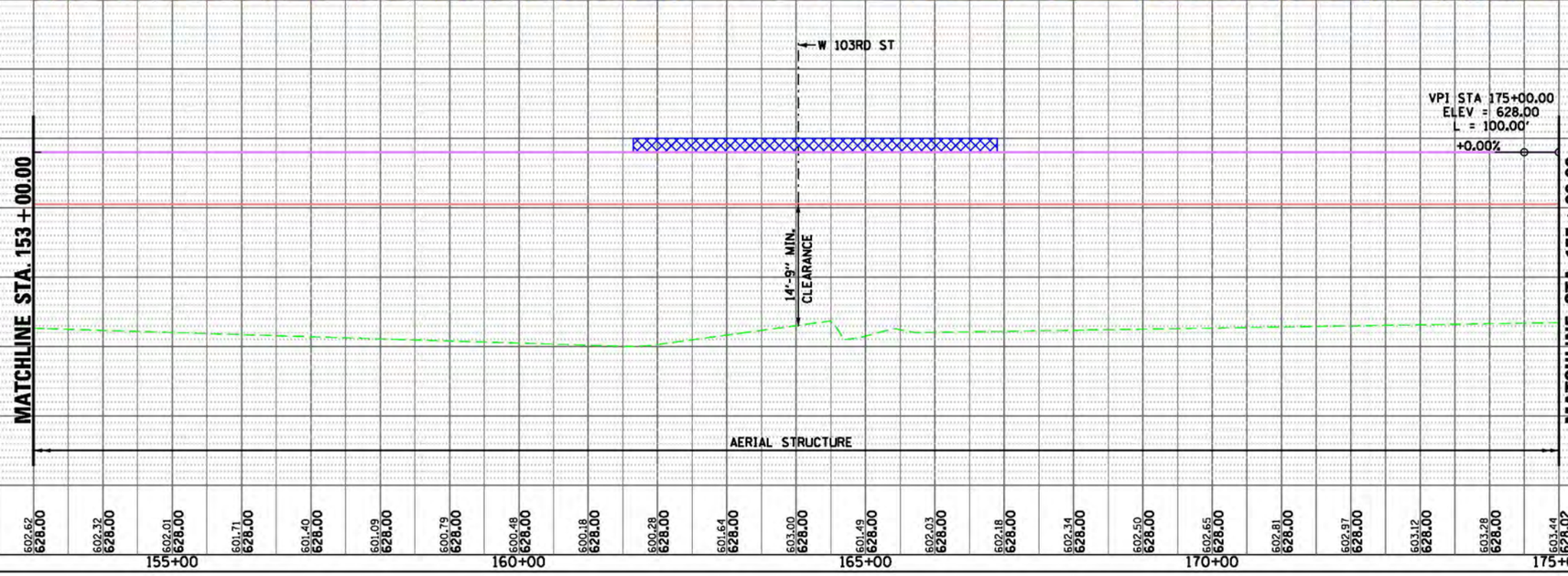


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_104.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:26:53 AM
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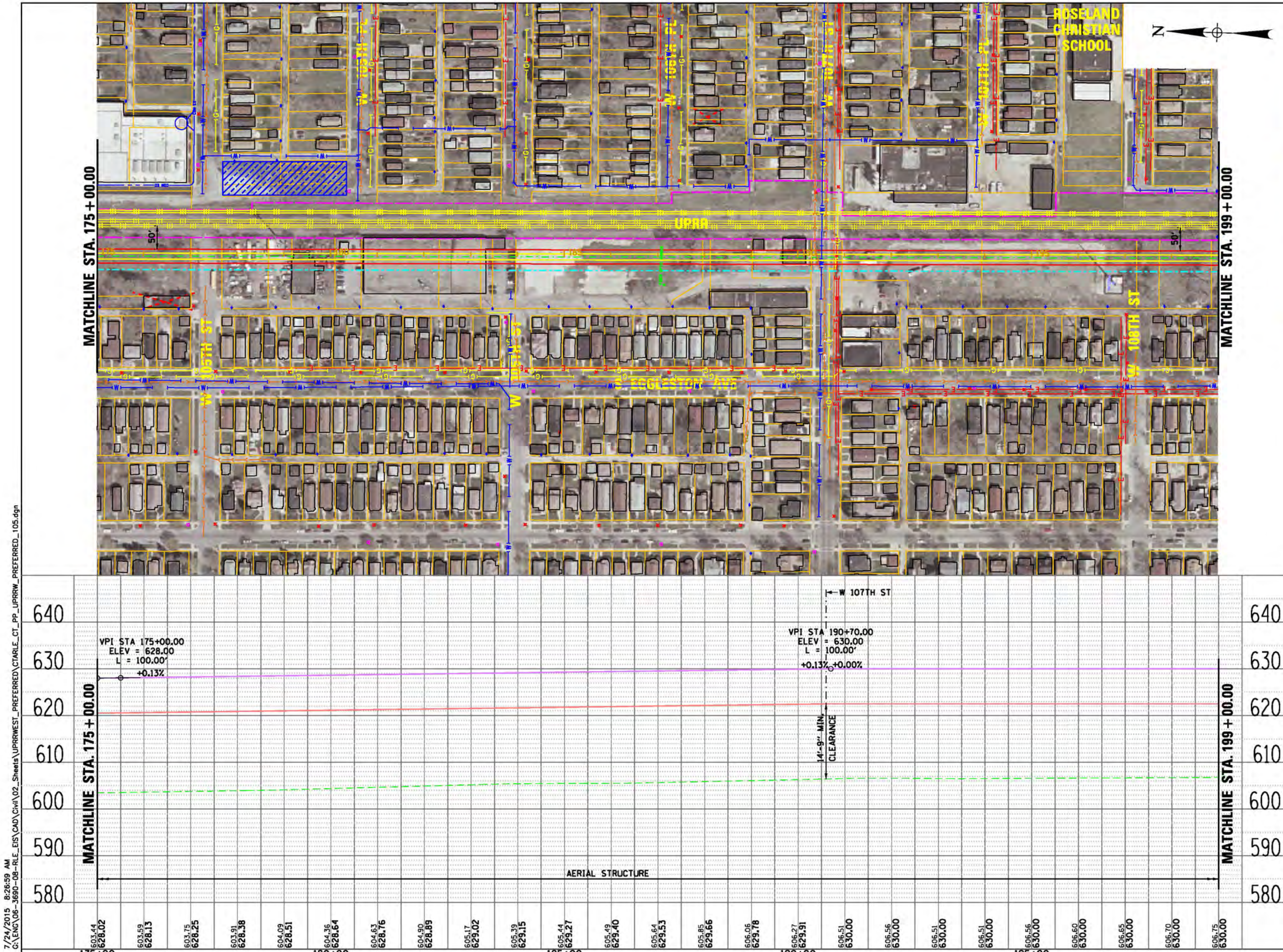


## LEGEND

**PLAN**
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

**SENSITIVE SECURITY INFORMATION**

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

25 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_105.dgn |

100 0 100 200
SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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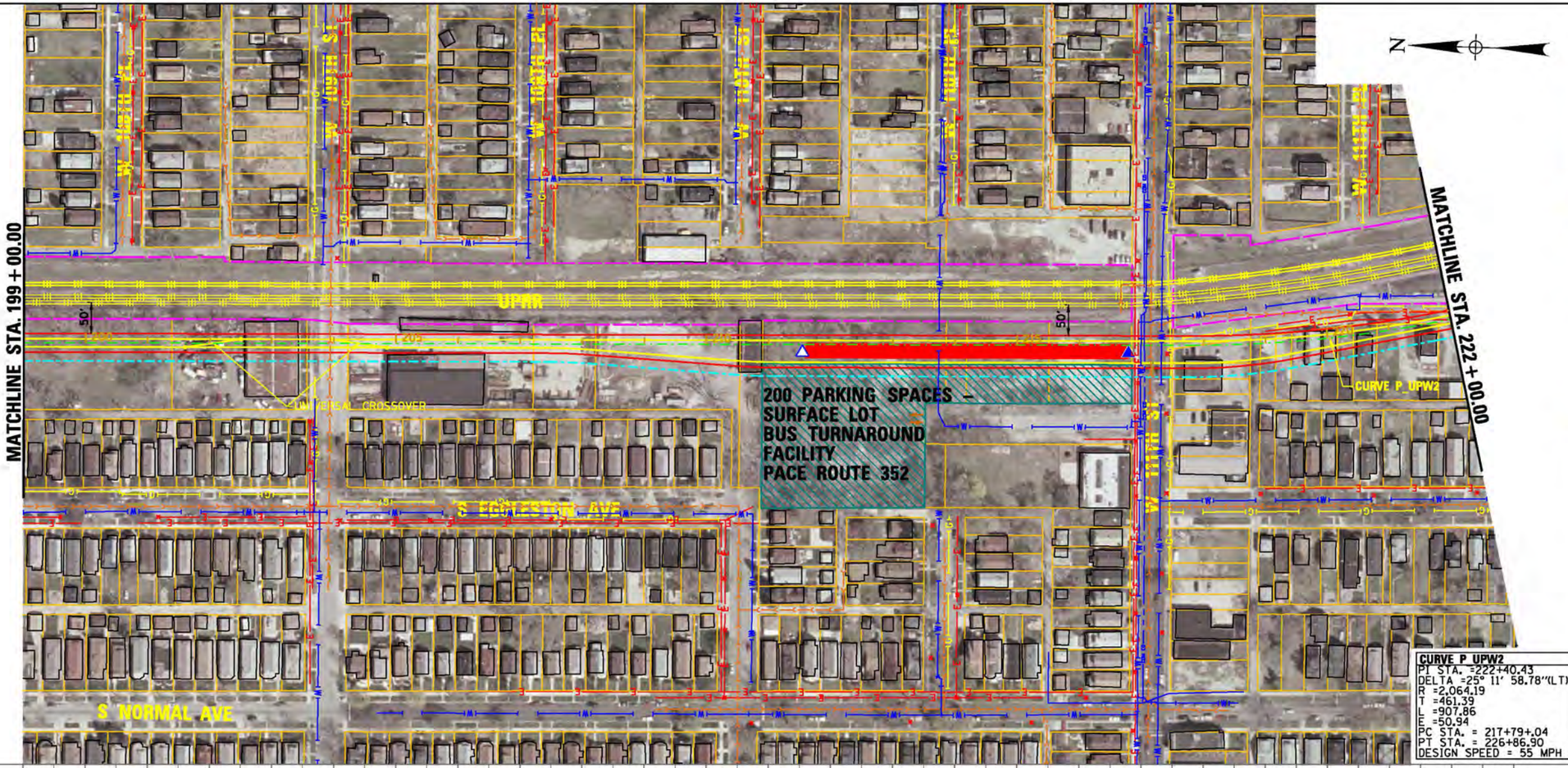
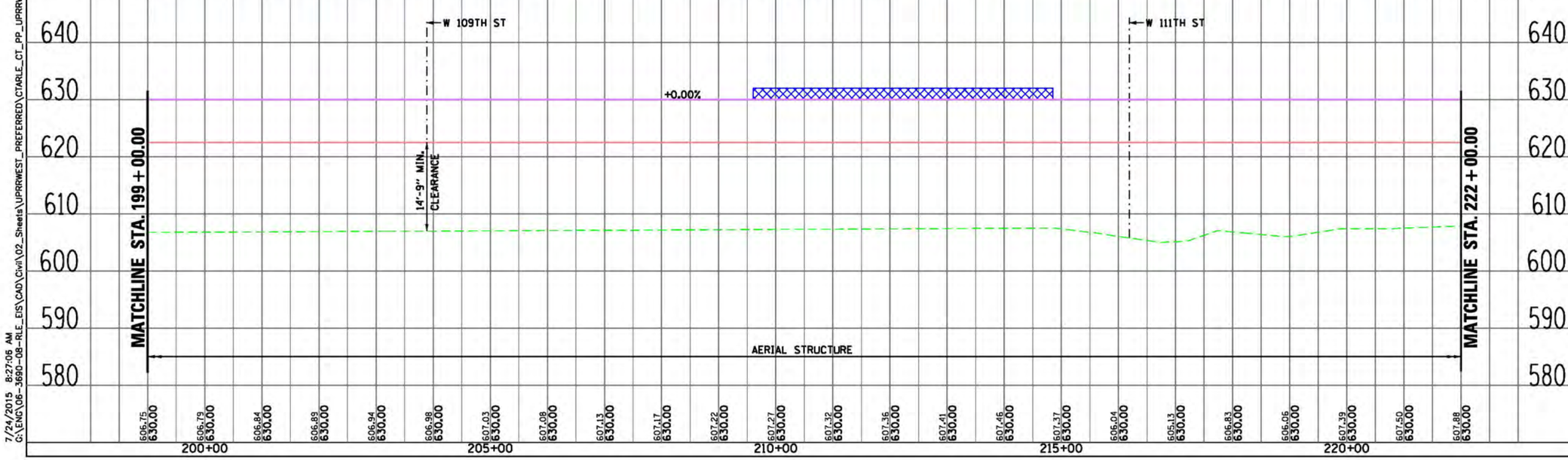
SHEET TITLE




CURVE P UPW2
PI STA. =222+40.43
DELTA =25° 11' 58.78"(LT)
R =2,064.19
T =461.39
L =907.86
E =50.94
PC STA. = 217+79+.04
PT STA. = 226+86.90
DESIGN SPEED = 55 MPH




## LEGEND

**PLAN**
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
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| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_106.dgn |

100 0 100 200
SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
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SHEET TITLE

7/24/2015 8:27:06 AM
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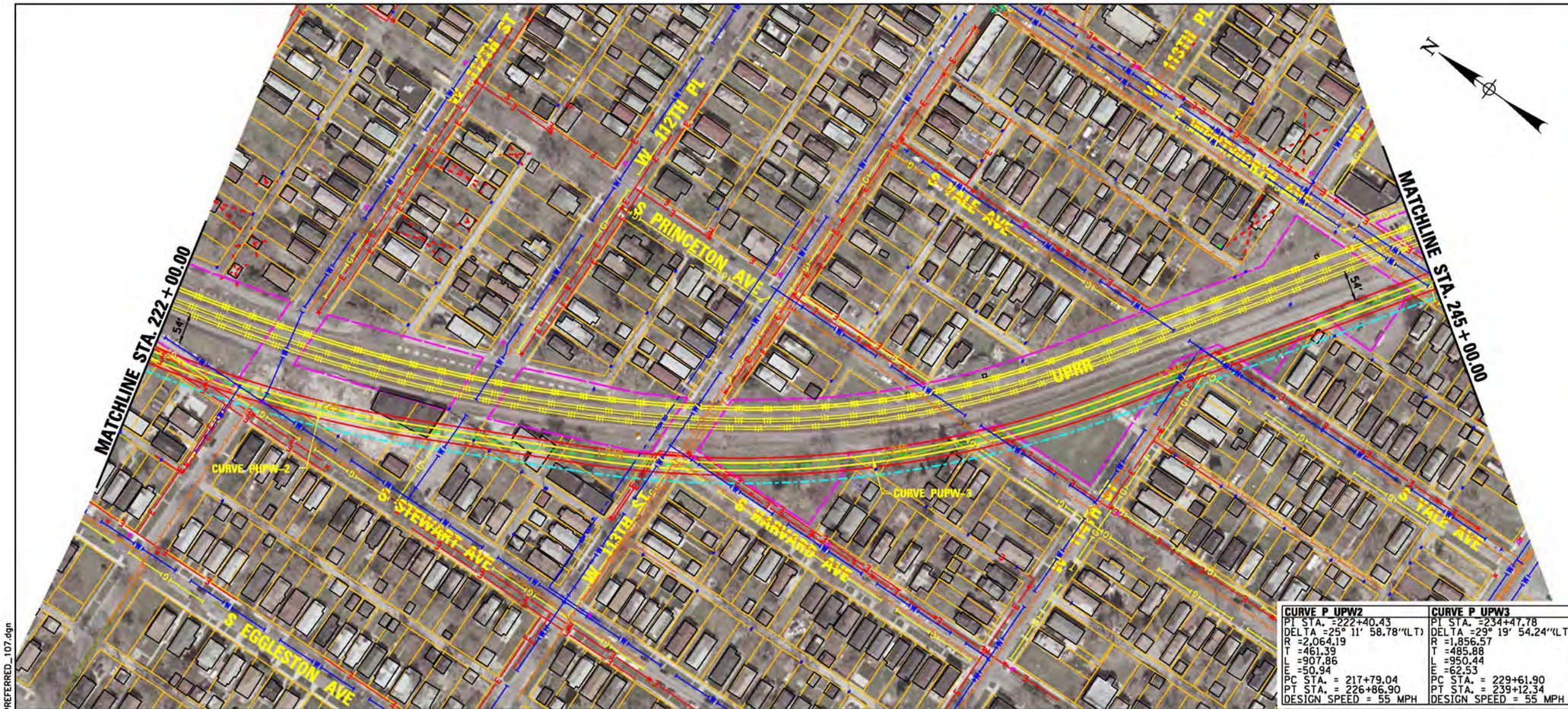
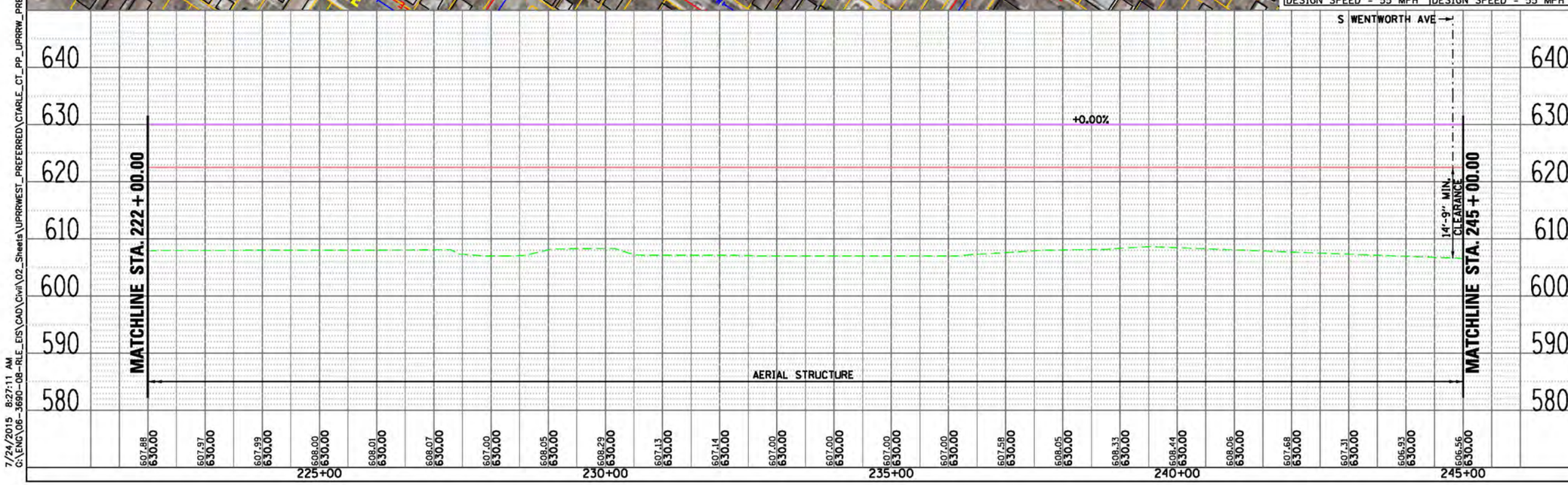



| CURVE P UPW2 | CURVE P UPW3 |
|---|---|
| PI STA. =222+40.43 | PI STA. =234+47.78 |
| DELTA =25° 11' 58.78"(LT) | DELTA =29° 19' 54.24"(LT) |
| R =2,064.19 | R =1,856.57 |
| T =461.39 | T =485.88 |
| L =907.86 | L =950.44 |
| E =50.94 | E =62.53 |
| PC STA. = 217+79.04 | PC STA. = 229+61.90 |
| PT STA. = 226+86.90 | PT STA. = 239+12.34 |
| DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

27 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_107.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
|---|---|---|
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SHEET TITLE

7/24/2015 8:27:11 AM
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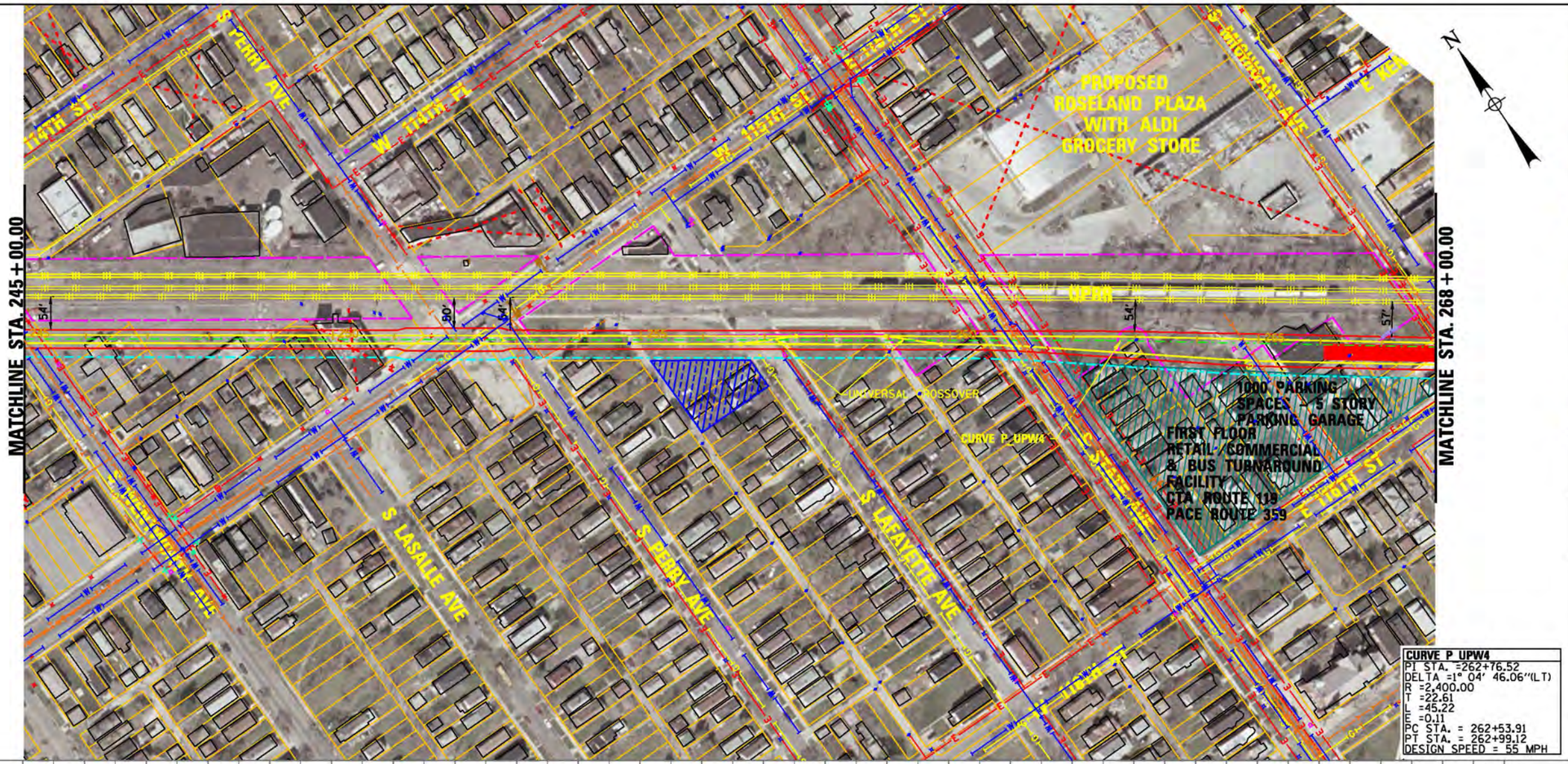
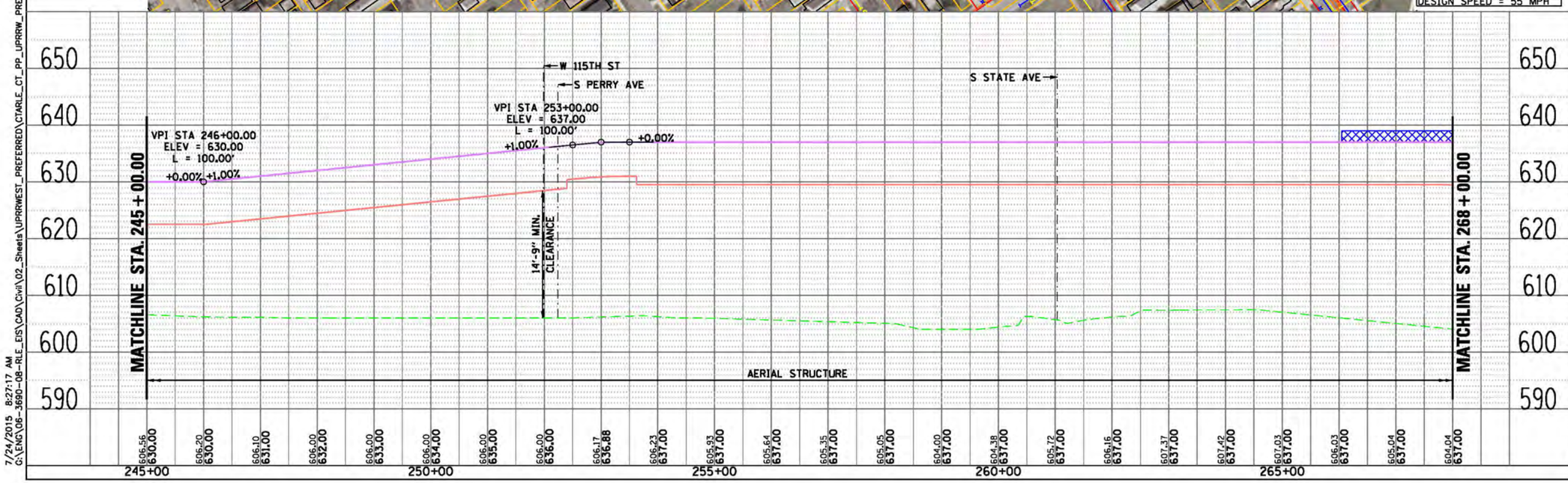



| CURVE P UPW4 |
|---|
| PI STA. =262+76.52 |
| DELTA =1° 04' 46.06"(LT) |
| R =2,400.00 |
| T =22.61 |
| L =45.22 |
| E =0.11 |
| PC STA. = 262+53.91 |
| PT STA. = 262+99.12 |
| DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

28 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_108.dgn |

100 0 100 200

SCALE H 1" = 100'-0"
V 1" = 10'-0"

| MARK | DATE | DESCRIPTION |
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SHEET TITLE

7/24/2015 8:27:17 AM
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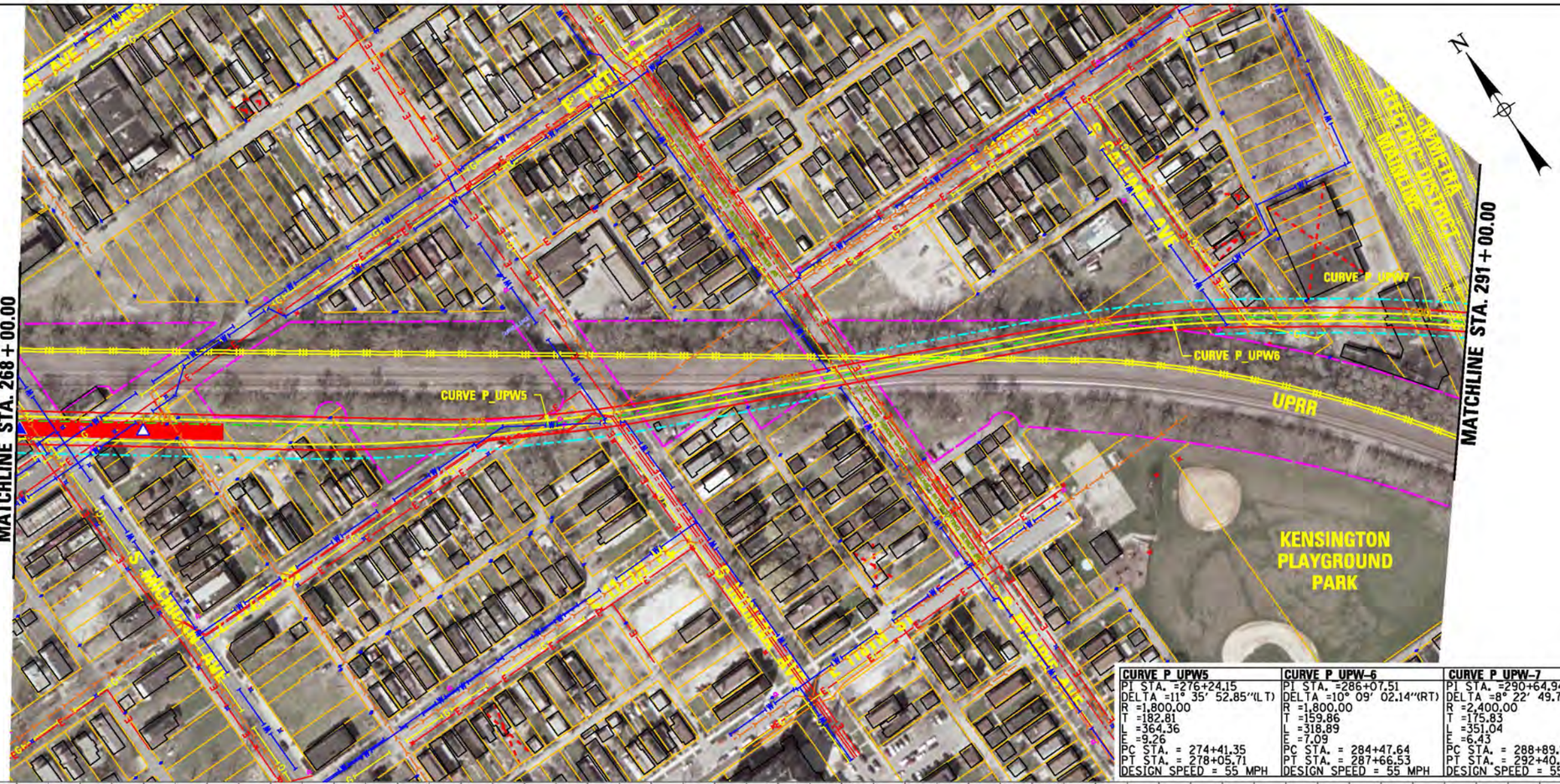
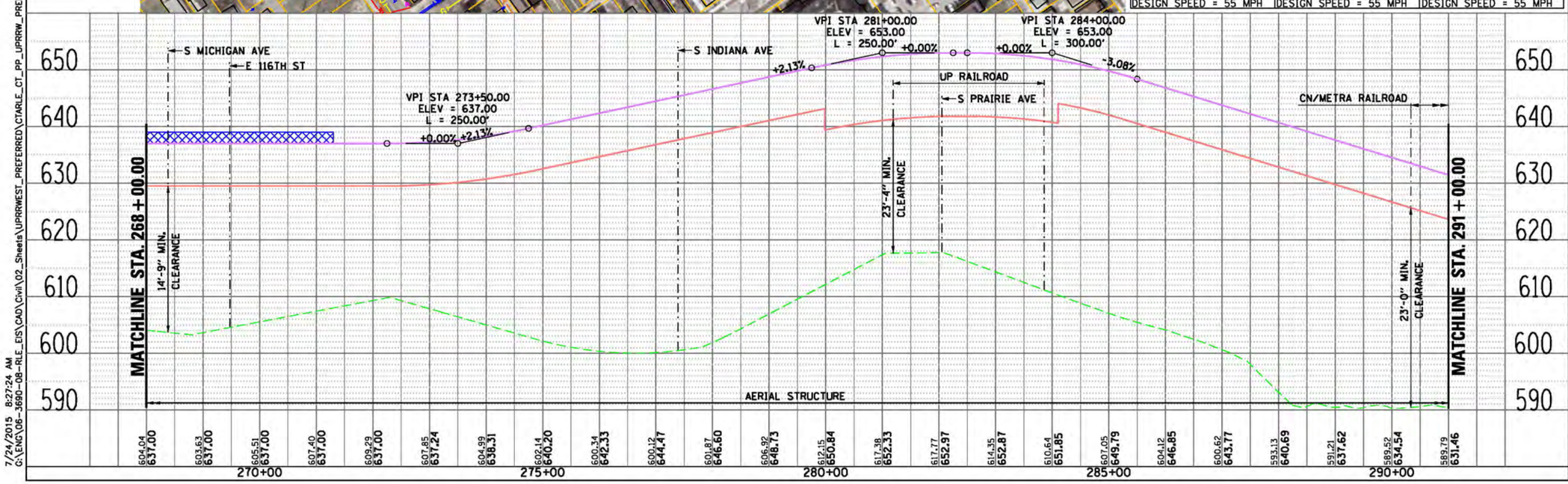



| CURVE P_UPW5 | CURVE P_UPW-6 | CURVE P_UPW-7 |
|---|---|---|
| PI STA. =276+24.15 | PI STA. =286+07.51 | PI STA. =290+64.94 |
| DELTA =11° 35' 52.85"(LT) | DELTA =10° 09' 02.14"(RT) | DELTA =8° 22' 49.78"(RT) |
| R =1,800.00 | R =1,800.00 | R =2,400.00 |
| T =182.81 | T =159.86 | T =175.83 |
| L =364.36 | L =318.89 | L =351.04 |
| E =9.26 | E =7.09 | E =6.43 |
| PC STA. = 274+41.35 | PC STA. = 284+47.64 | PC STA. = 288+89.11 |
| PT STA. = 278+05.71 | PT STA. = 287+66.53 | PT STA. = 292+40.15 |
| DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH | DESIGN SPEED = 55 MPH |




## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

**SENSITIVE SECURITY INFORMATION**

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

29 OF 51

| | |
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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_109.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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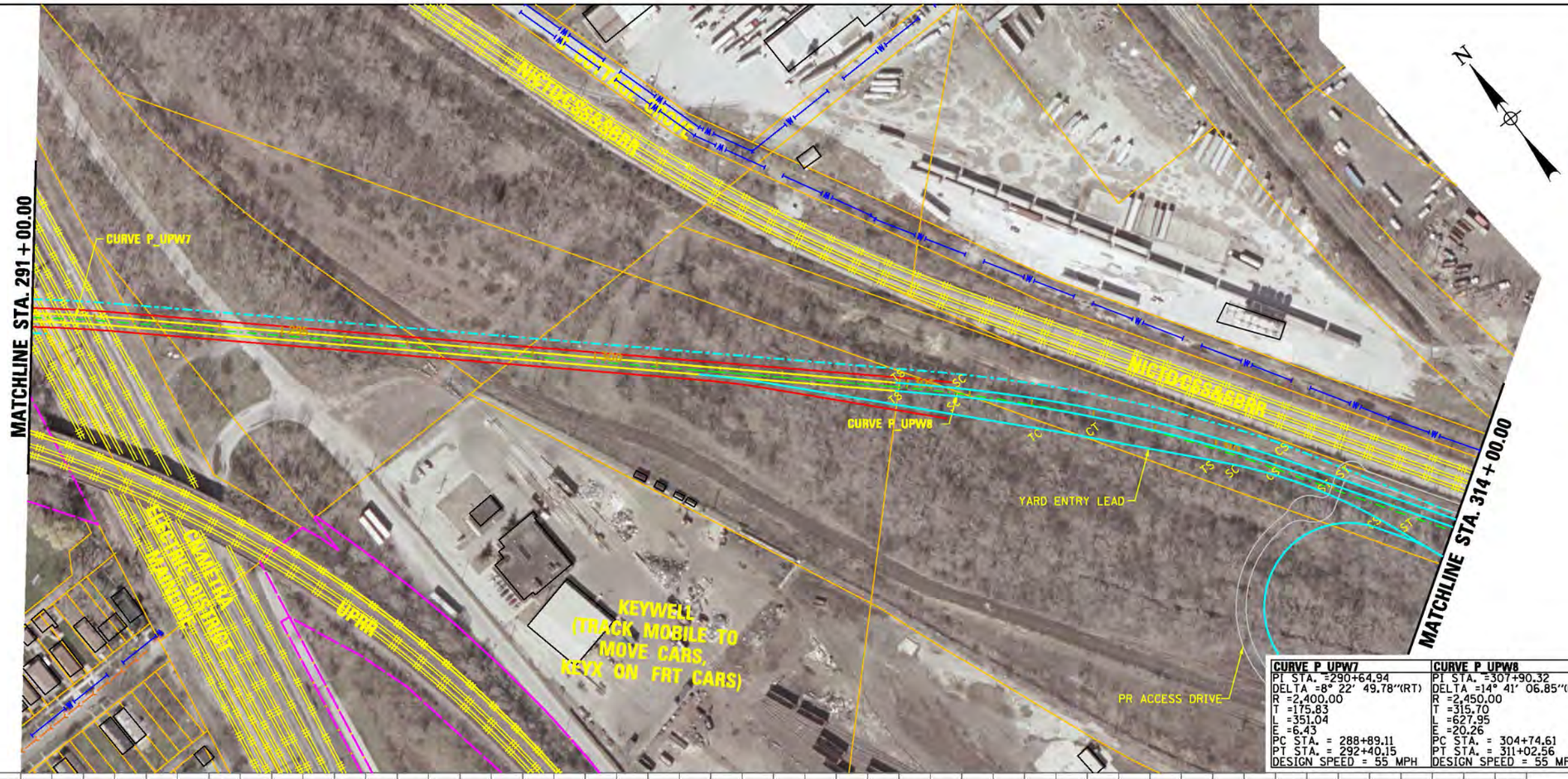


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|---|---|
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| R =2,400.00 | R =2,450.00 |
| T =175.83 | T =315.70 |
| L =351.04 | L =627.95 |
| E =6.43 | E =20.26 |
| PC STA. = 288+89.11 | PC STA. = 304+74.61 |
| PT STA. = 292+40.15 | PT STA. = 311+02.56 |
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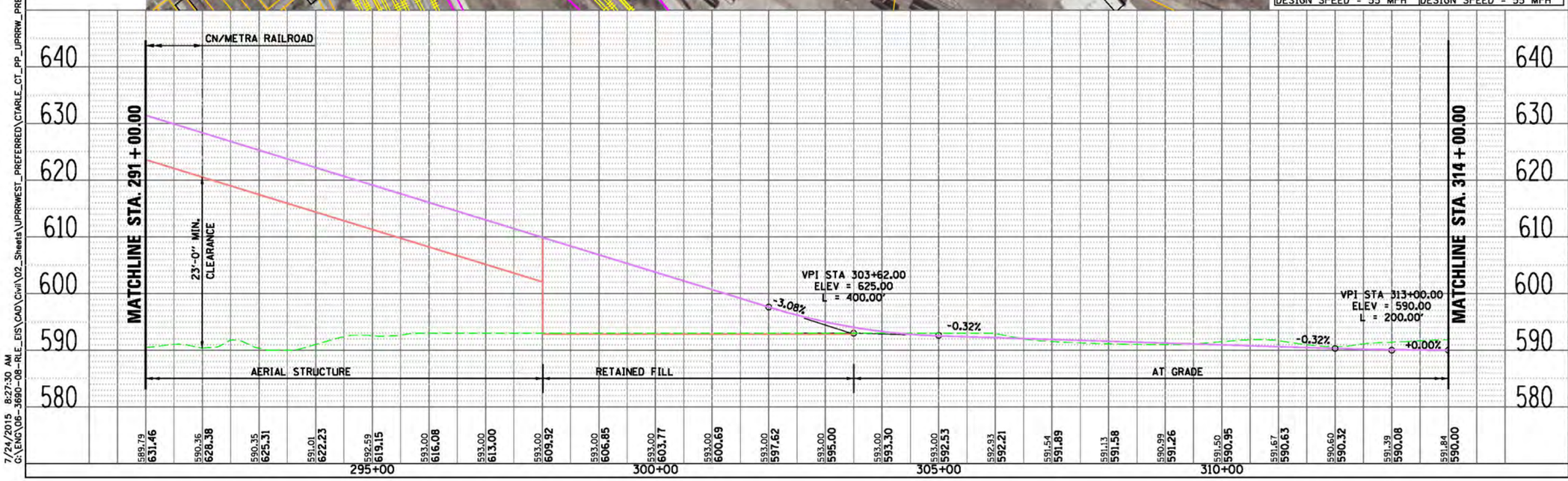


## LEGEND

PLAN
- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

UTILITIES
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

ENTRANCES
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

PROFILE
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



| | |
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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_110.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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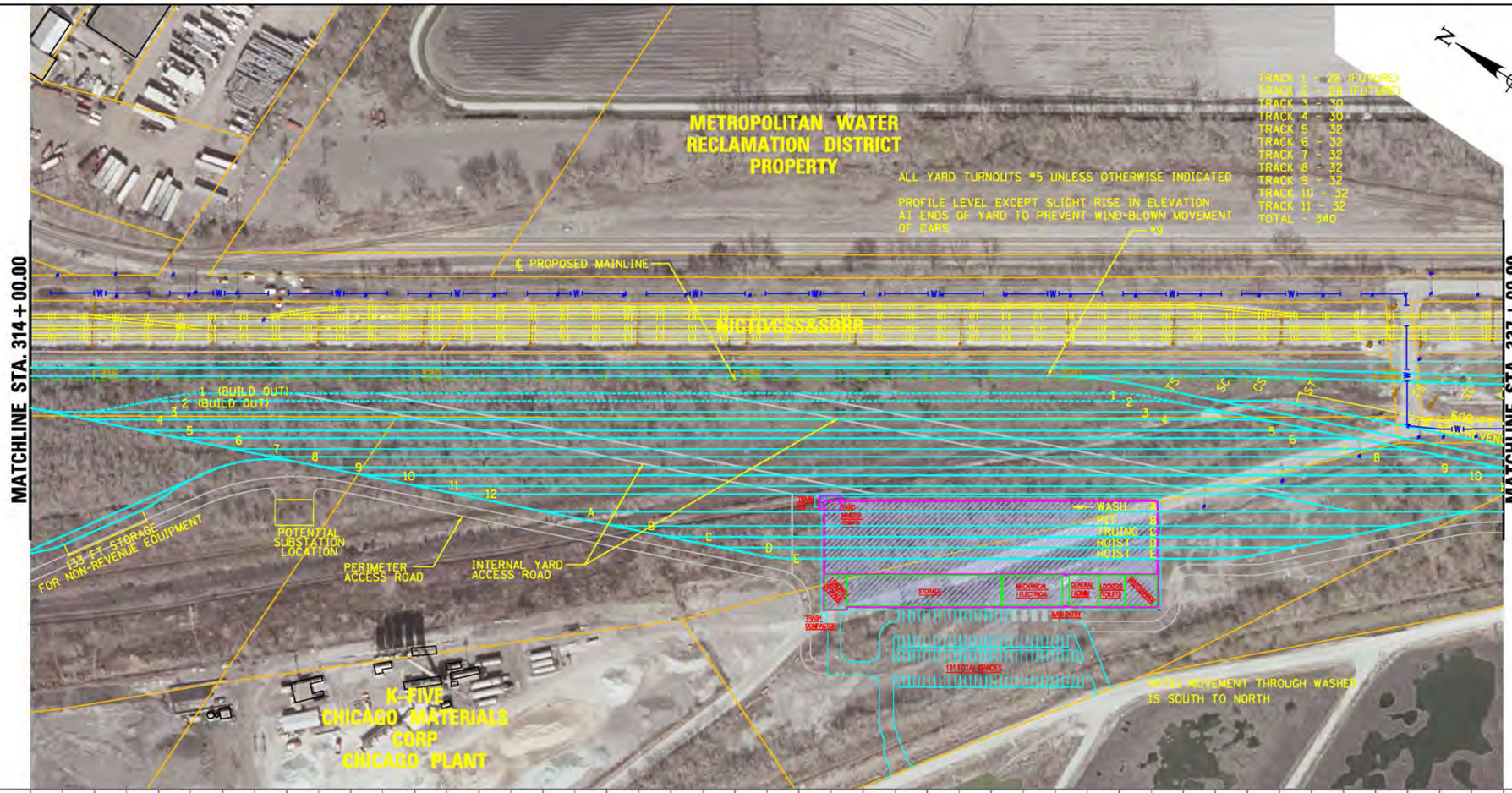


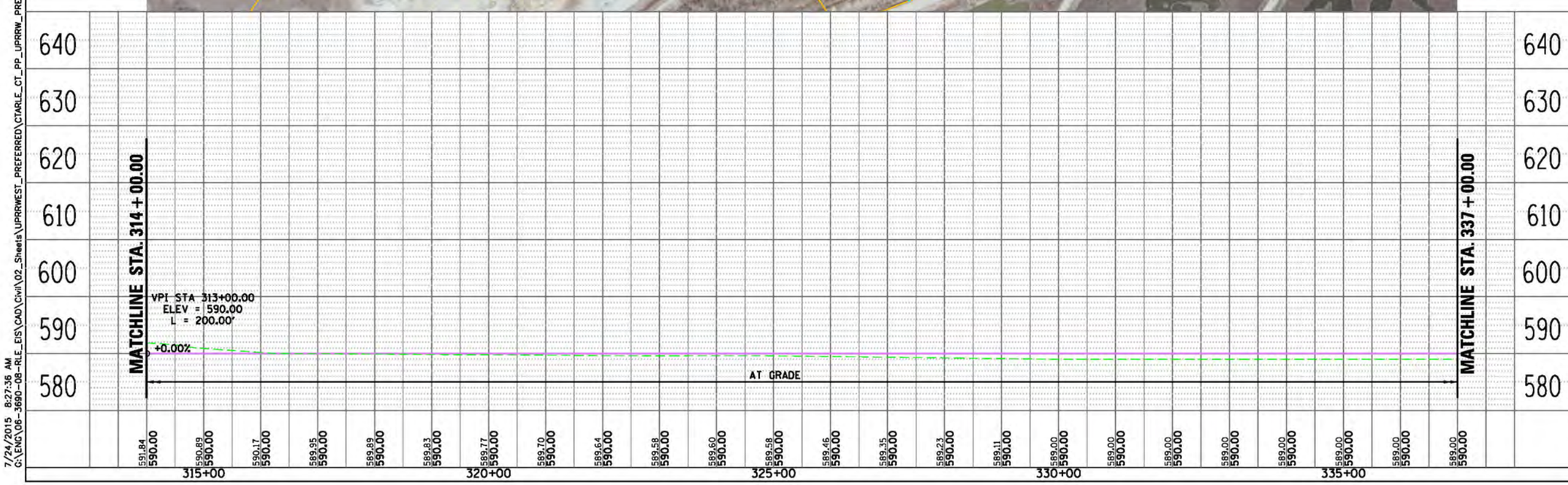


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

30 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_111.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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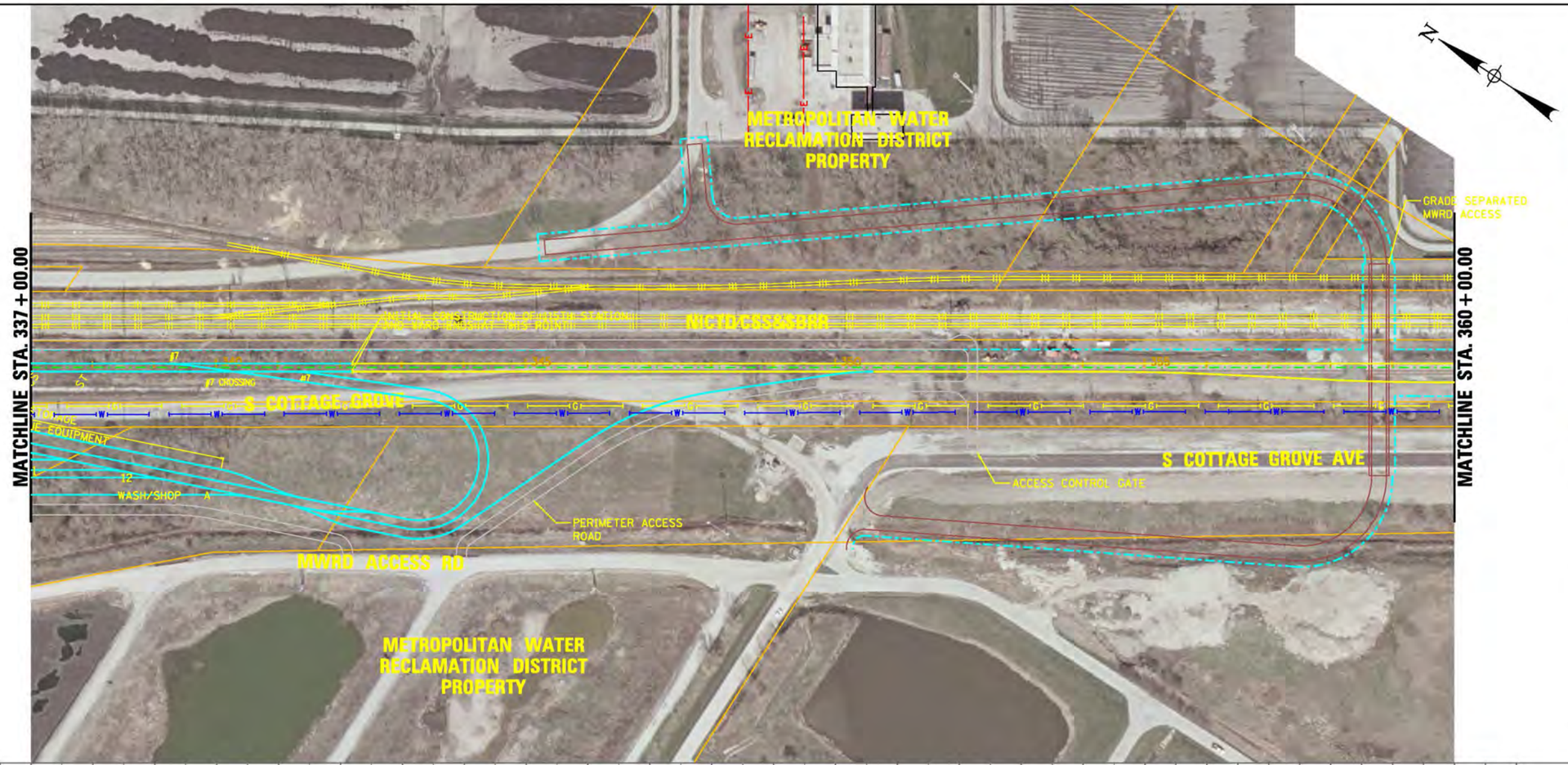


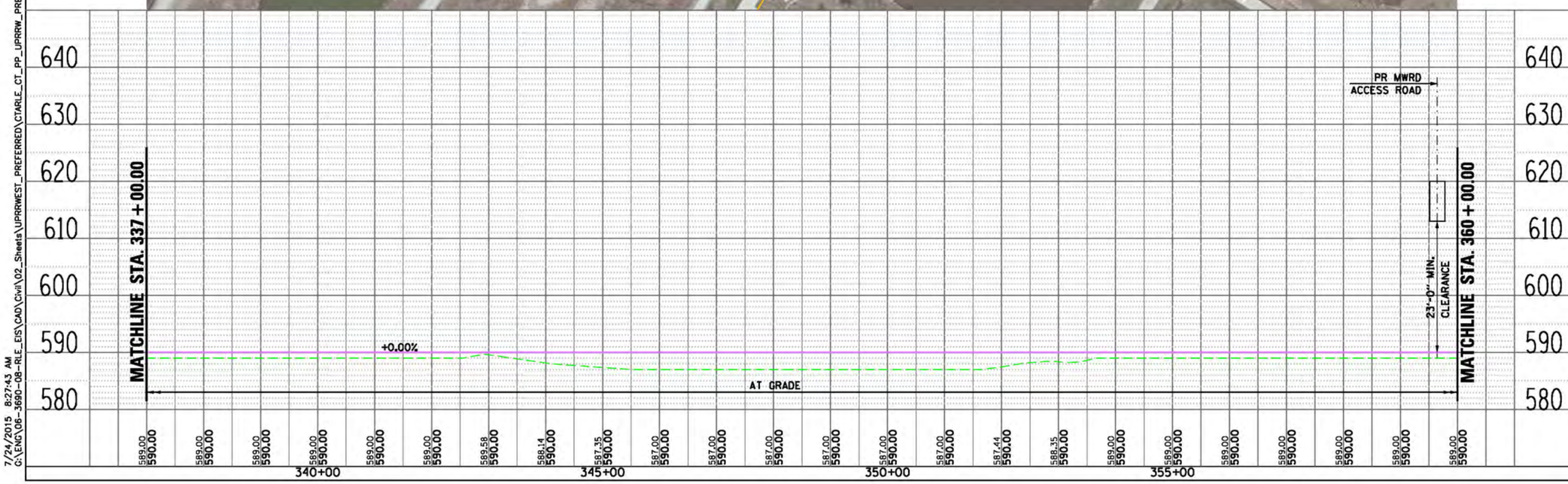


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION

**UTILITIES**

- EXISTING WATER LINES
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- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION



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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_112.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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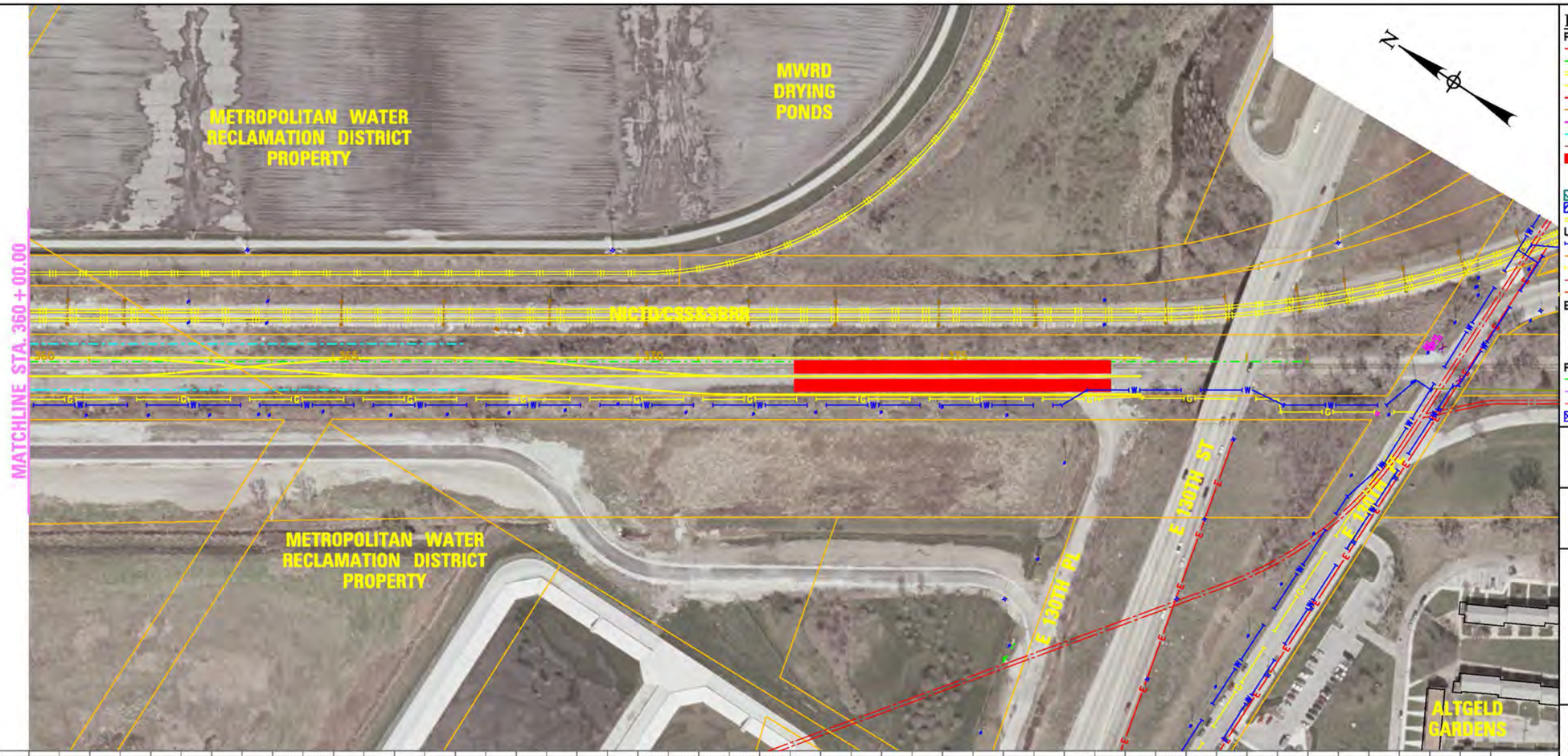


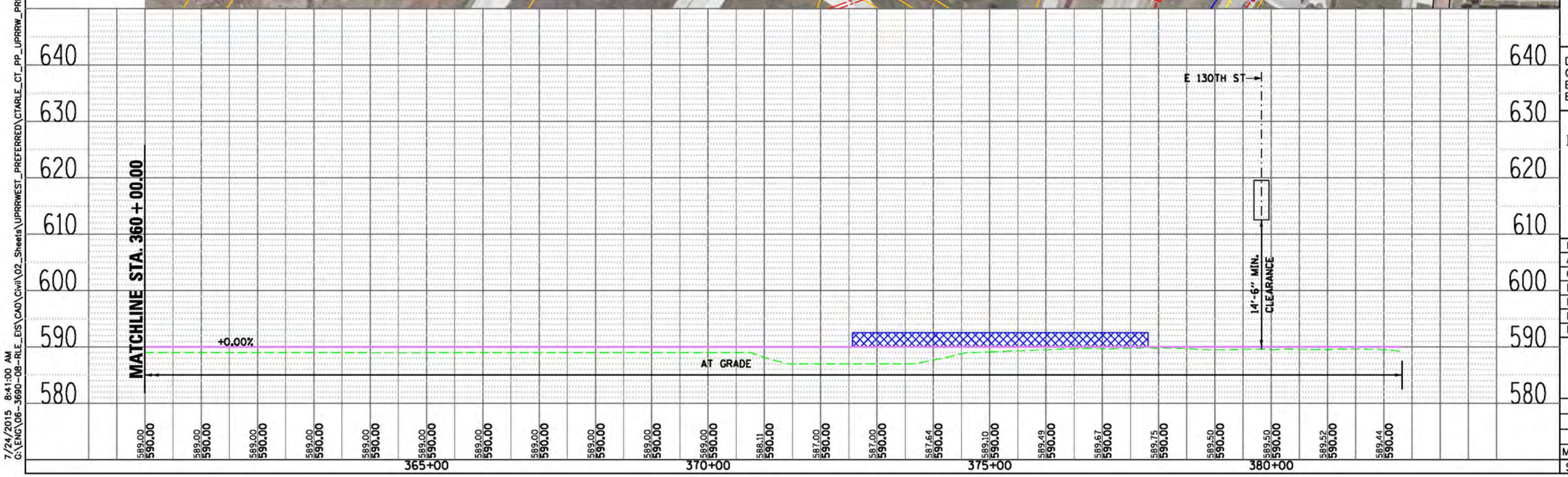


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

33 OF 51

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| APPROVED BY | |
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| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_CT_PP_UPRRW_PREFERRED_113.dgn |

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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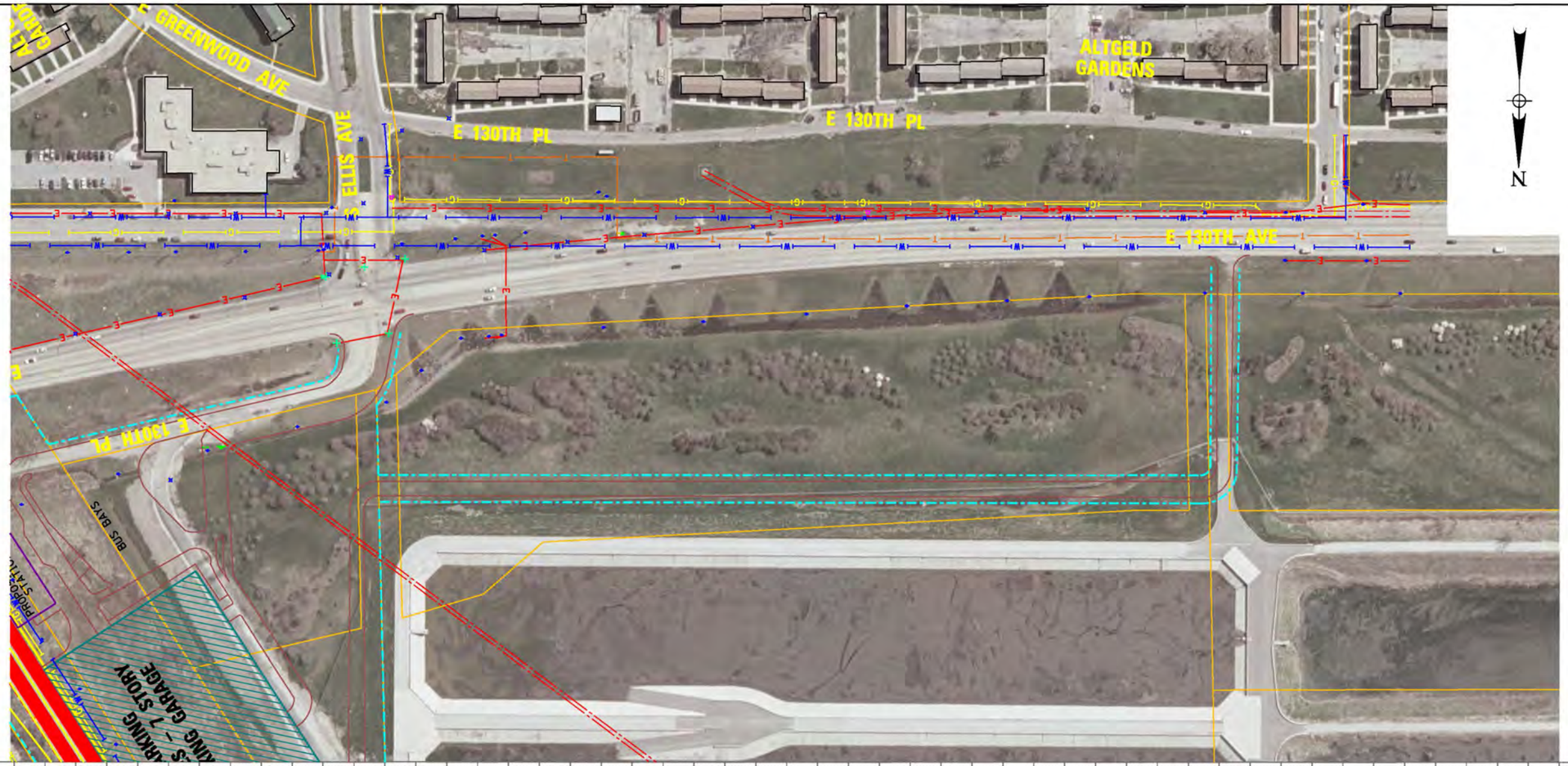


## LEGEND

**PLAN**

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

**UTILITIES**

- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

**ENTRANCES**

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

**PROFILE**

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
WEST OPTION

34 OF 51

IN CHARGE
APPROVED BY
CHECKED BY
DESIGNED BY
DRAWN BY
PROJECT NO CTA-RLE
FILE NAME CTARLE_CT_PP_UPRRW_PREFERRED_114.dgn

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SCALE H 1" = 100'-0"
V 1" = 10'-0"

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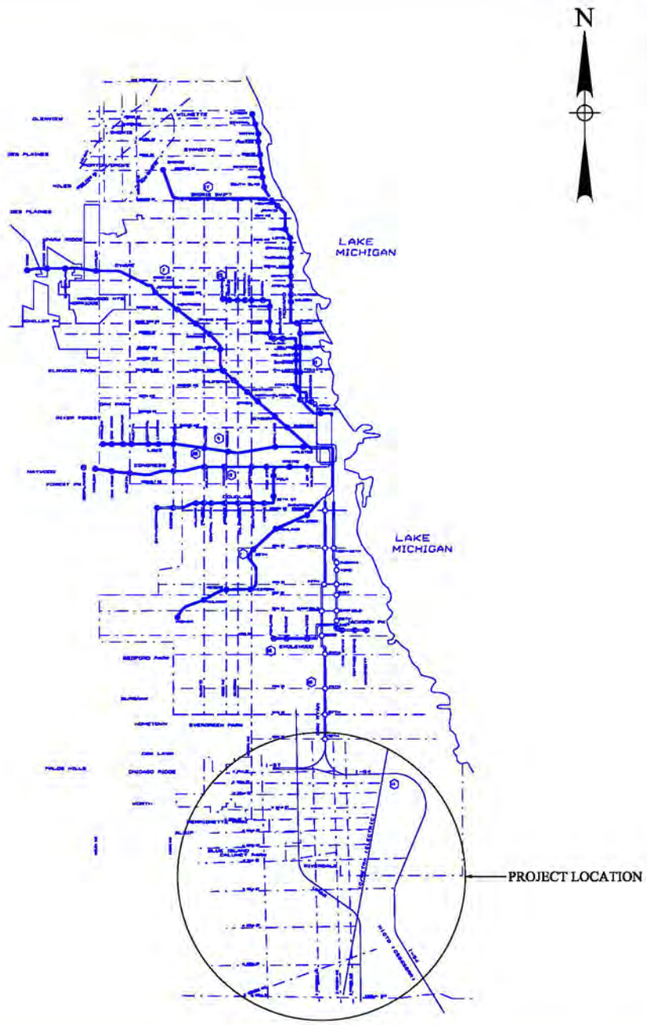
# DRAFT ENVIRONMENTAL IMPACT STATEMENT
# CTA RED LINE EXTENSION
## ALL ALTERNATIVES
## PIER LOCATIONS




ORIENTATION MAP

INDEX


ALL ALTERNATIVES

PIER LOCATIONS 35 - 43


MAY 1, 2015

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
ALL ALTERNATIVES
PIER LOCATIONS

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| IN CHARGE | |
| APPROVED BY | |
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| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_G_COVER_PIERS.dgn |

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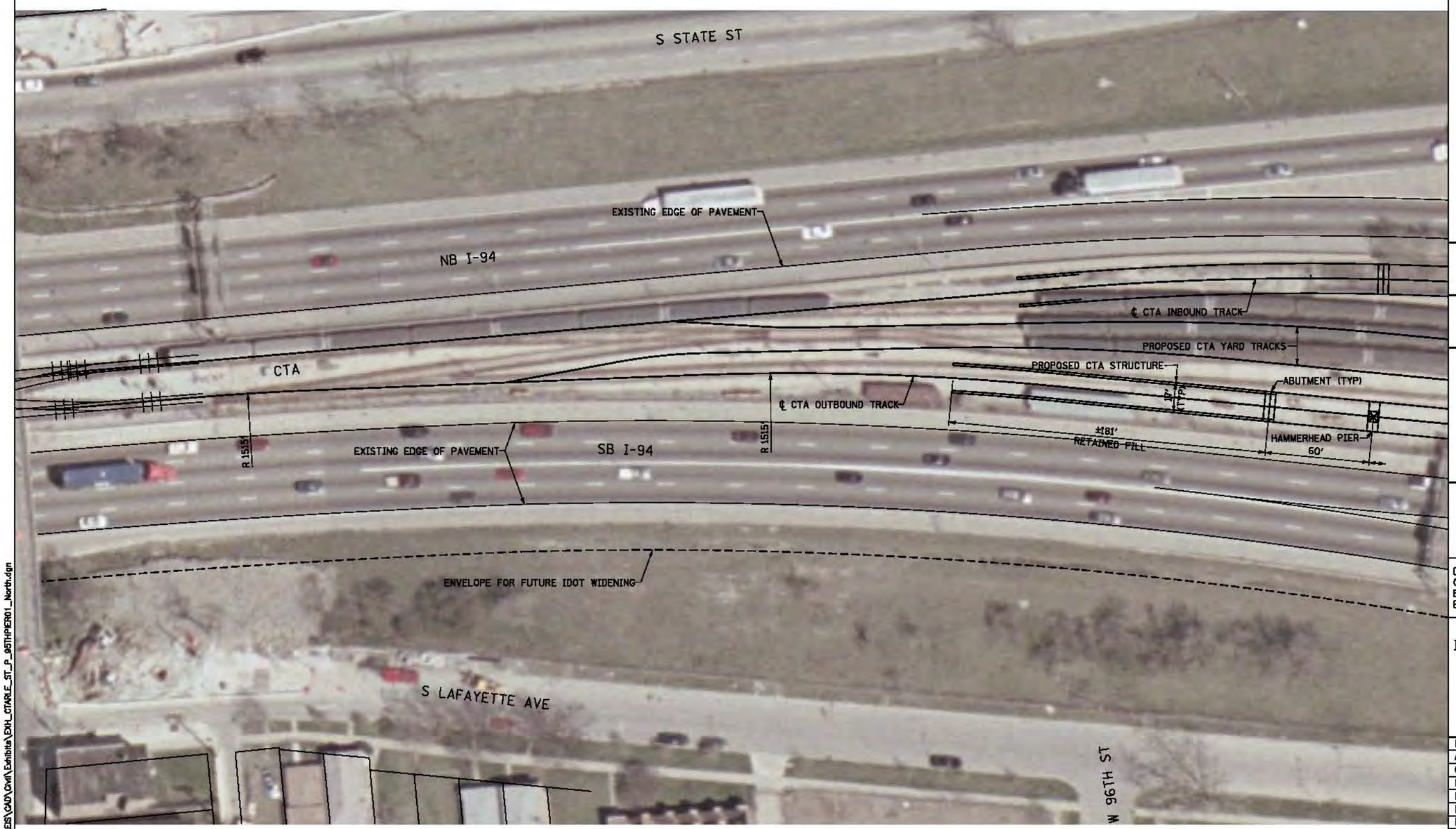


**PLAN**

PRELIMINARY DRAFT

CWC Transit Group

cta

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

36 OF 51

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| IN CHARGE | |
| APPROVED BY | |
| CHECKED BY | |
| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | EXH_CTARLE_ST_P_95THPIER01_North.dgn |

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SCALE H 1" = 30'-0"

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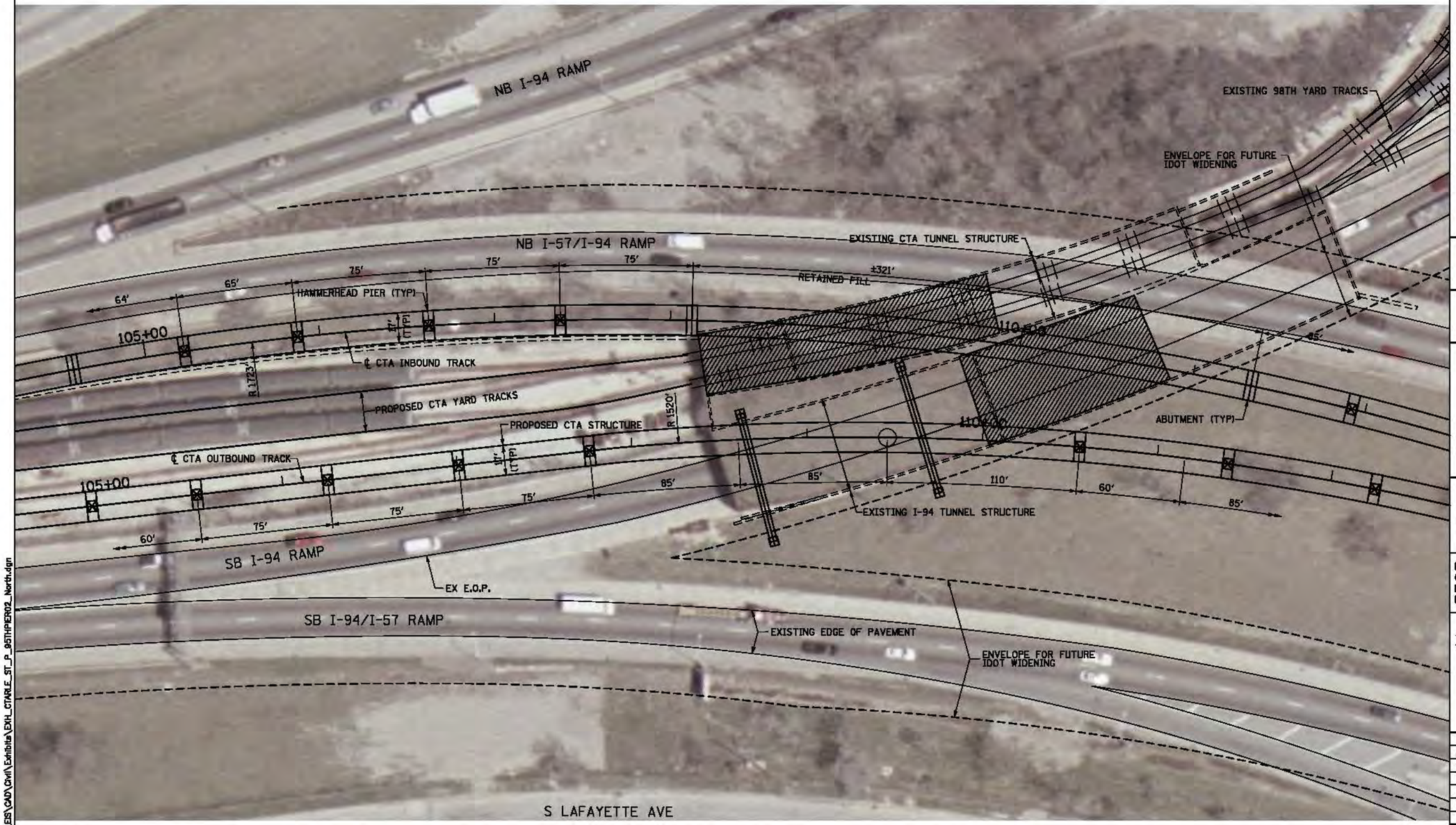


**PLAN**

**LEGEND**

RE-DECK EXISTING TUNNEL SUPERSTRUCTURE

PRELIMINARY DRAFT

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

37 OF 51

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| PROJECT NO | CTA-RLE |
| FILE NAME | EXH_CTARLE_ST_P_95THPIER02_North.dgn |

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SCALE H 1" = 30'-0"

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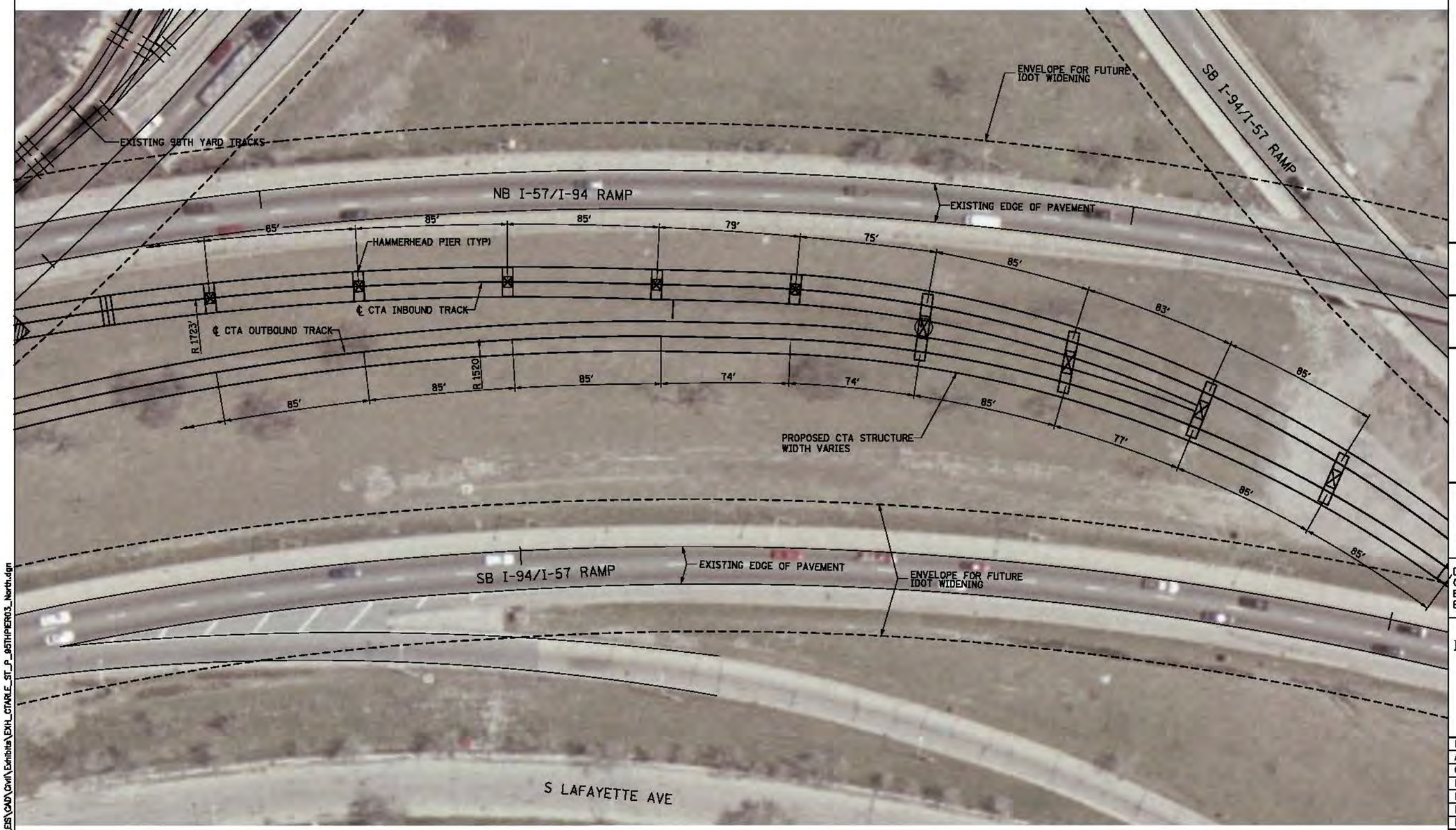


**PLAN**

PRELIMINARY DRAFT

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

38 OF 51

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| PROJECT NO | CTA-RLE |
| FILE NAME | EXH_CTARLE_ST_P_95THPIER03_North.dgn |

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SCALE H 1" = 30'-0"

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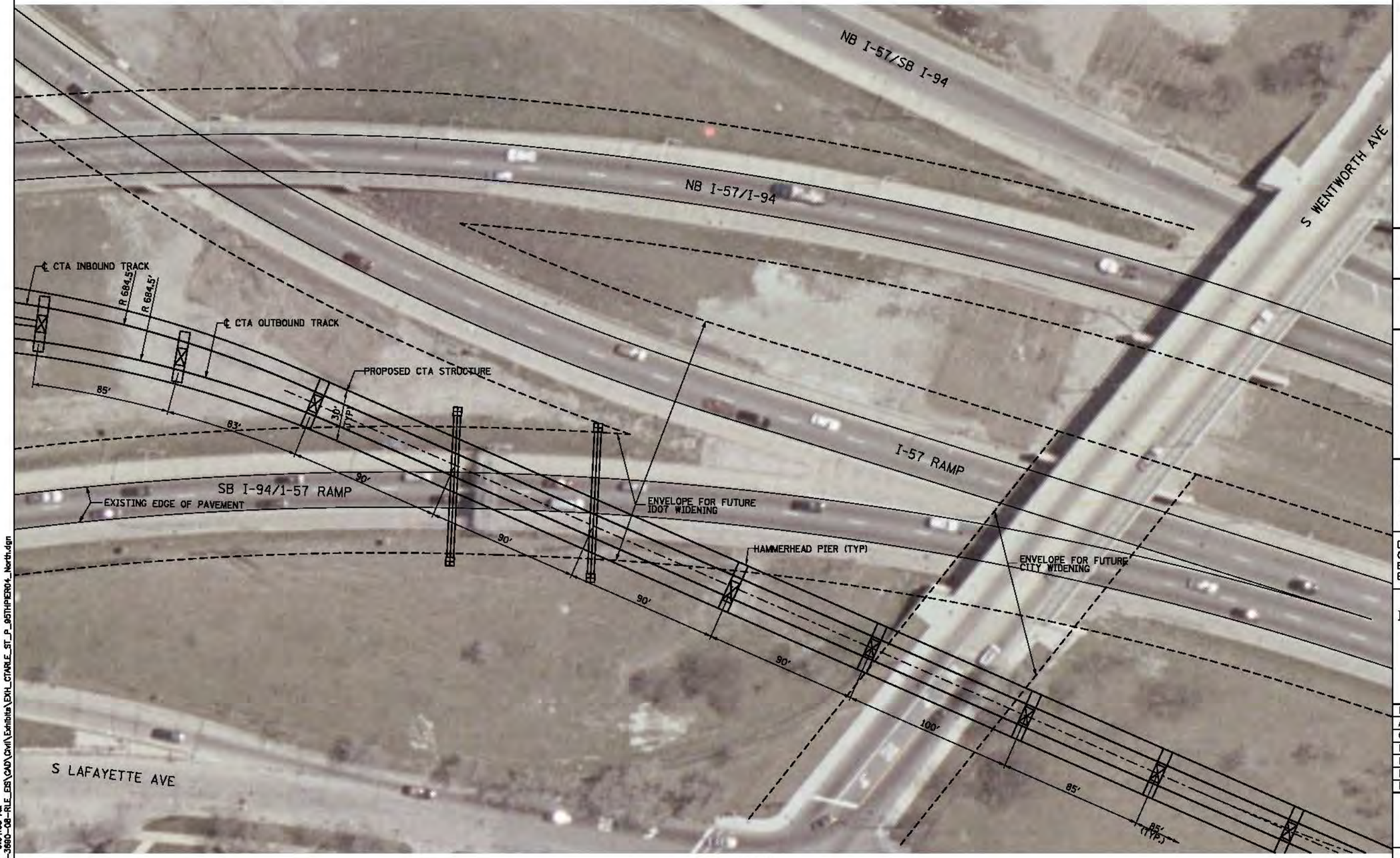


**PLAN**

PRELIMINARY DRAFT

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

39 OF 51

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| PROJECT NO | CTA-RLE |
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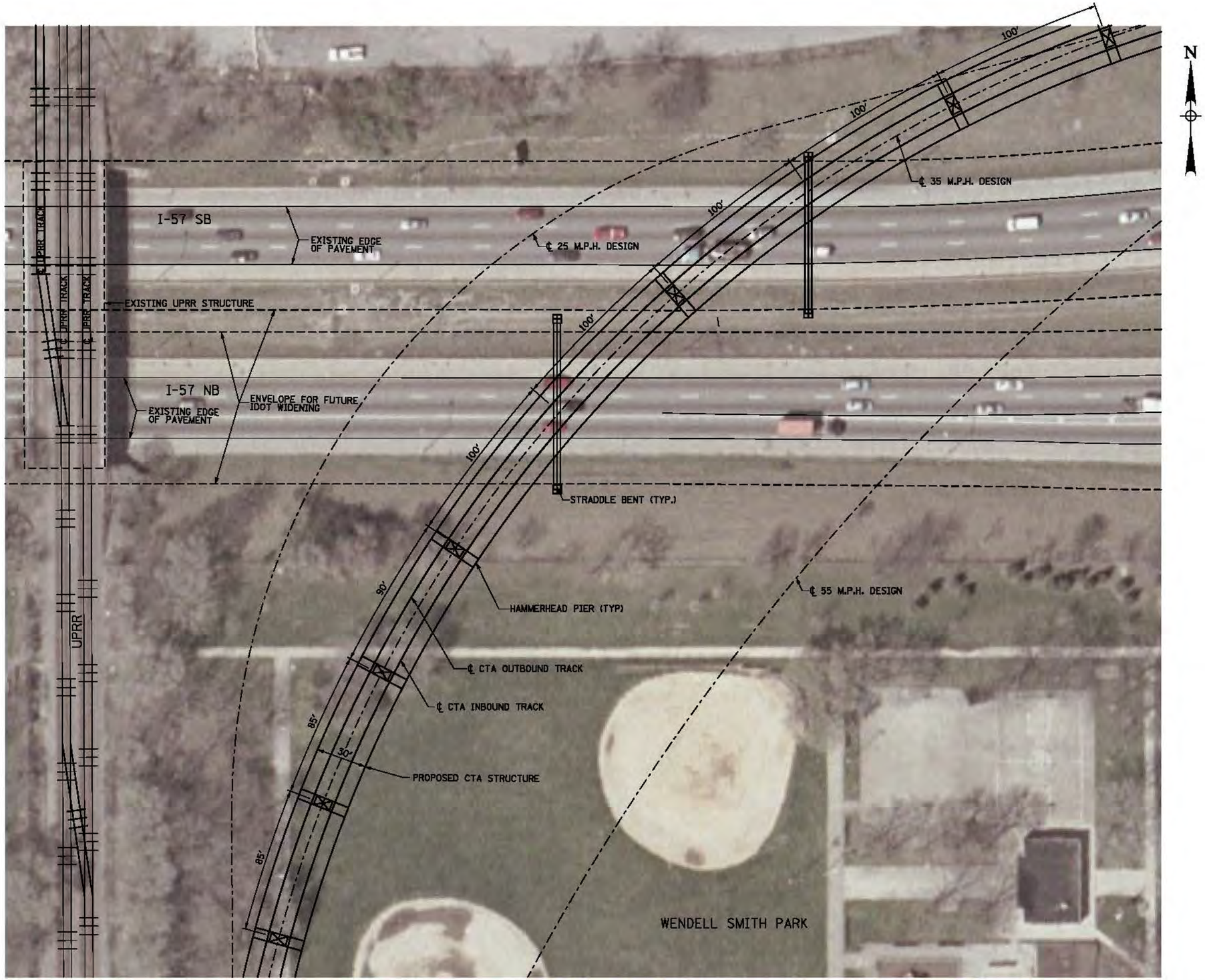


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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
EAST SIDE ALTERNATIVE
PIER LOCATION OVER I-57



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| APPROVED BY | |
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| PROJECT NO | CTA-RLE |
| FILE NAME | EXH_CTARLE_ST_P_95THPIER05_NorthEastA2.dgn |

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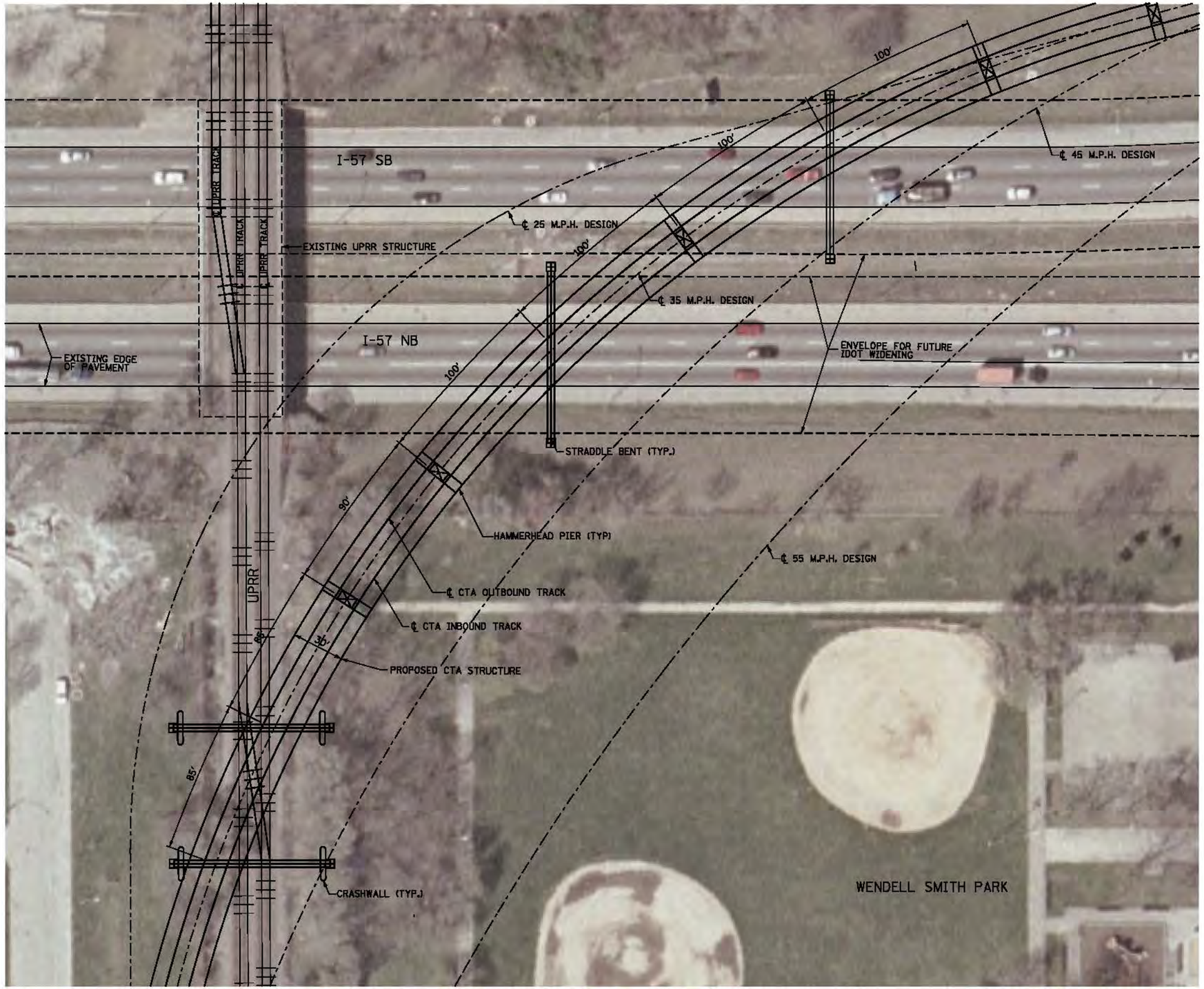


PRELIMINARY DRAFT

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
WEST SIDE ALTERNATIVE
PIER LOCATION OVER I-57

41 OF 51

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| PROJECT NO | CTA-RLE |
| FILE NAME | EXH_CTARLE_ST_P_95THPIER05_NorthWESTA2.dgn |

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**PLAN**

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
WEST SIDE ALTERNATIVE
PIER LOCATION OVER PRAIRIE AVE



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| PROJECT NO | CTA-RLE |
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**PLAN**

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
EAST & WEST SIDE ALTERNATIVE
PIER LOCATION OVER CN/METRA



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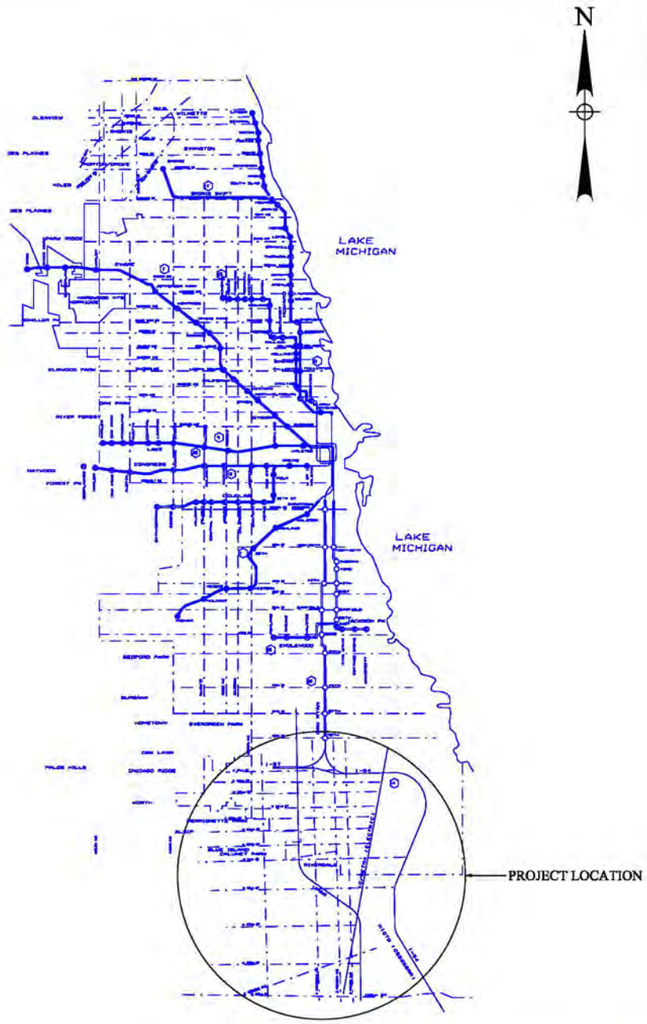
# DRAFT ENVIRONMENTAL IMPACT STATEMENT
# CTA RED LINE EXTENSION
## ALL ALTERNATIVES
## SECTIONS




ORIENTATION MAP

INDEX


ALL ALTERNATIVES

SECTIONS 44 - 51


MAY 1, 2015

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
ALL ALTERNATIVES
SECTIONS

44 OF 51

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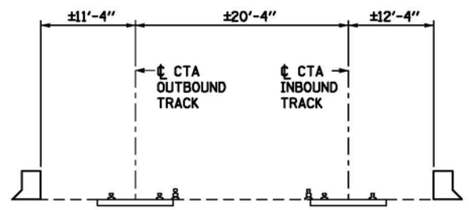
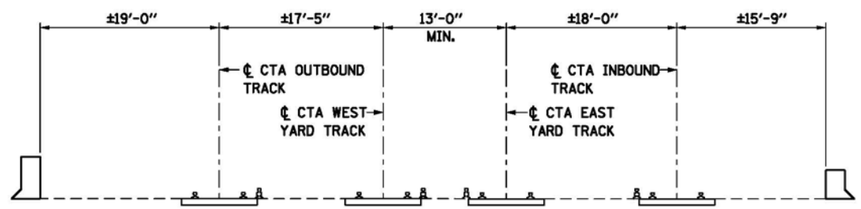



## SECTION LEAVING 95TH ST. STATION

LOOKING NORTH

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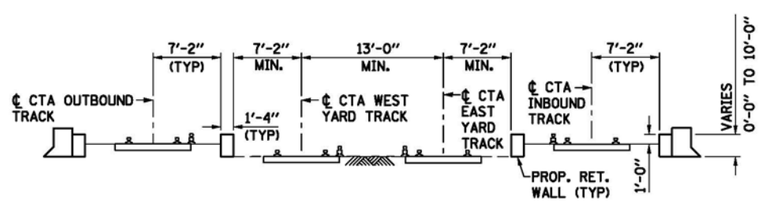
LOOKING NORTH




## SECTION IN RETAINED EMBANKMENT STRUCTURE

LOOKING NORTH

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
ALL ALTERNATIVES
SECTIONS SOUTH OF 95TH ST.



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| PROJECT NO | CTA-RLE |
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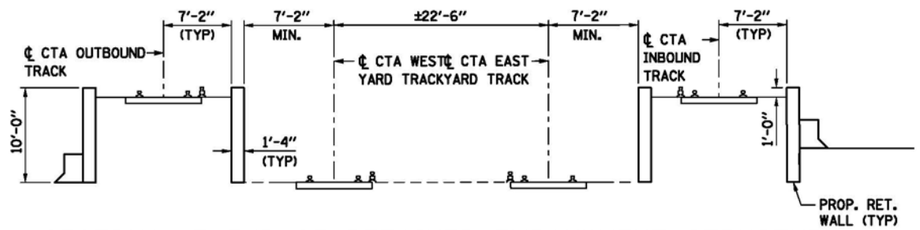
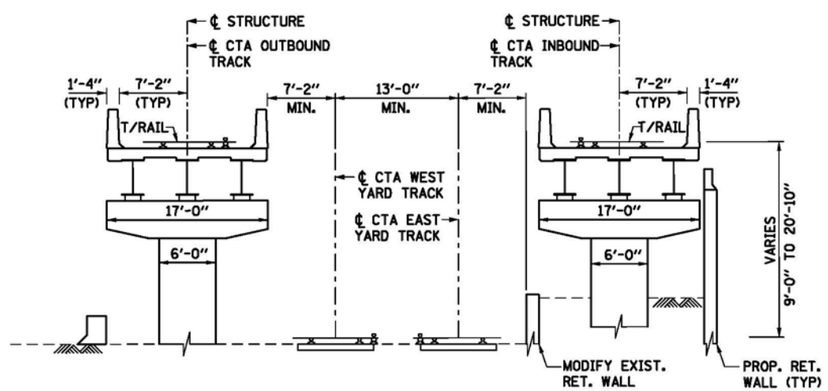



## SECTION AT END OF RETAINED EMBANKMENT STRUCTURE

LOOKING NORTH




## AERIAL STRUCTURE

LOOKING NORTH

PRELIMINARY DRAFT

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
ALL ALTERNATIVES
SECTIONS SOUTH OF 95TH ST.



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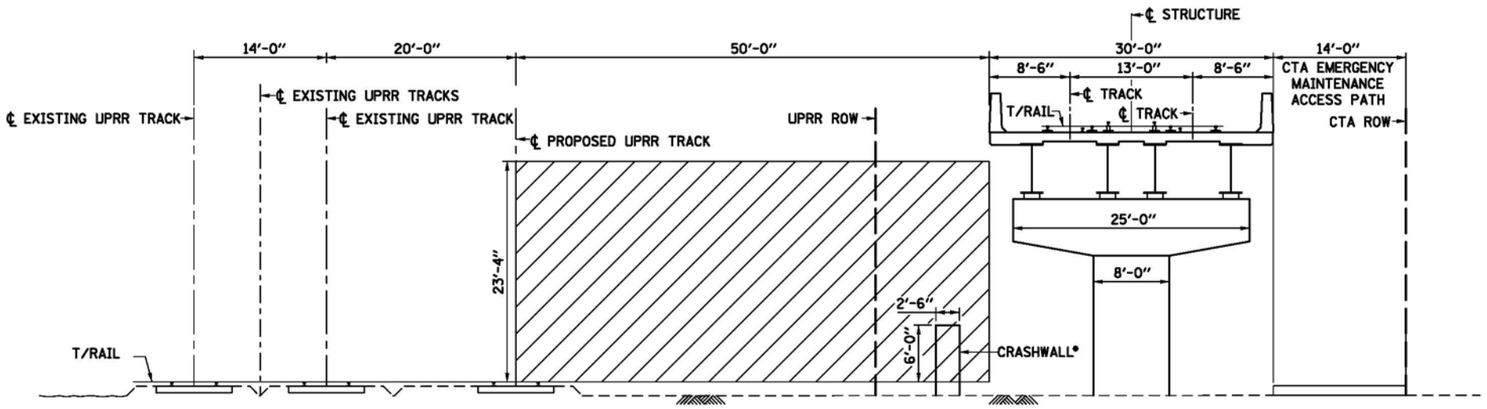
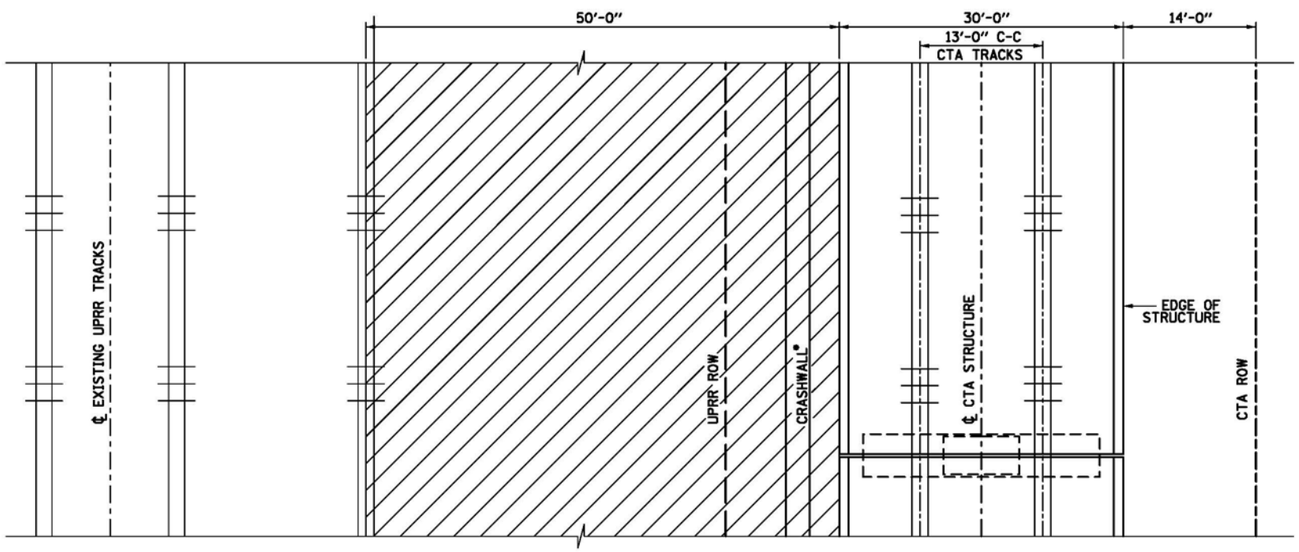



## SECTION

*REQUIRED IF CTA STRUCTURE IS LESS THAN 50' FROM ℄ NEAREST UPRR TRACK

## LEGEND

REQUIRED UPRR CLEARANCE




## PLAN

PRELIMINARY DRAFT

CWC Transit Group

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
CLEARANCE



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| IN CHARGE | |
| APPROVED BY | |
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| DESIGNED BY | |
| DRAWN BY | |
| PROJECT NO | CTA-RLE |
| FILE NAME | CTARLE_ST_TS_201_UPCLEAR.dgn |

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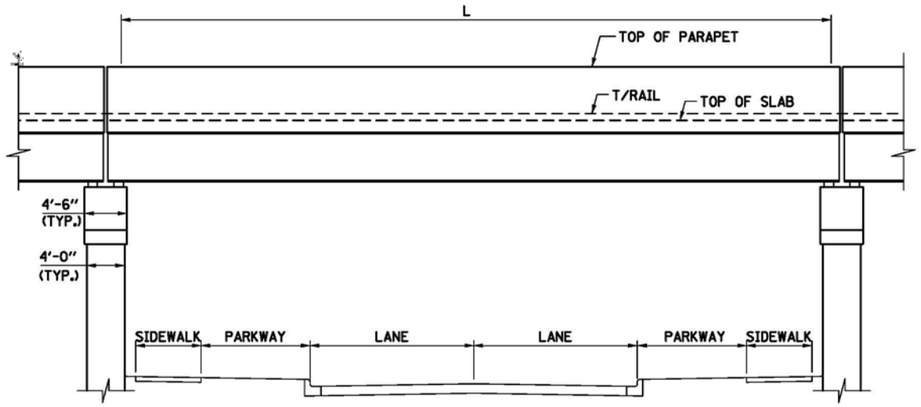
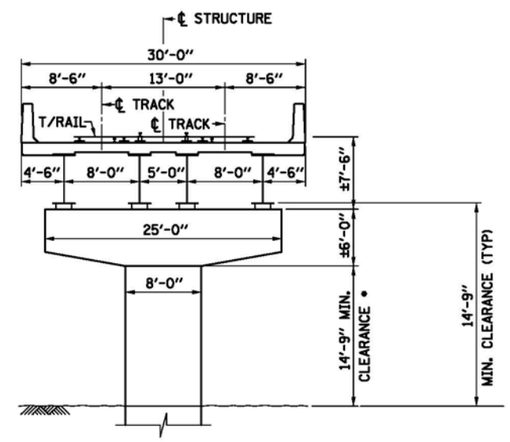


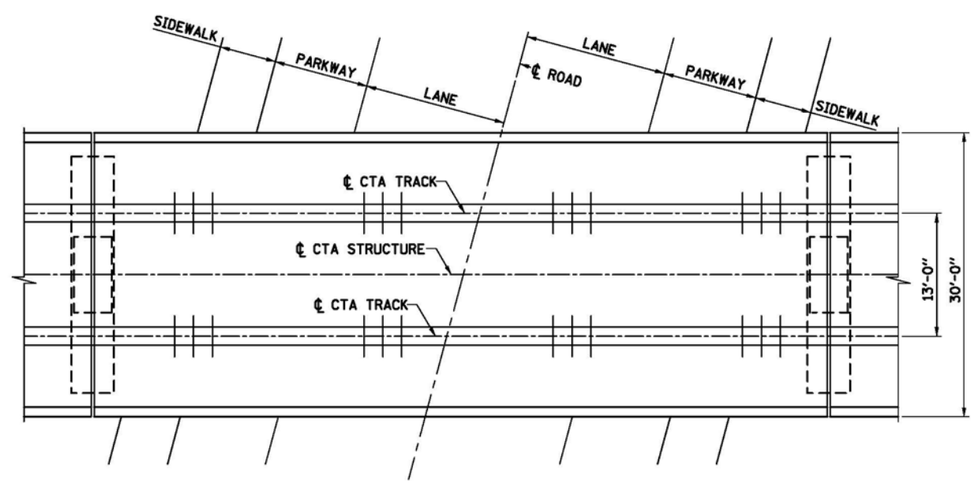

## ELEVATION

| TYP. SPAN (L) | CROSSING FOR UPRR EAST, WEST, & ROW ALT. |
|---|---|
| 75' | W. 101ST, W. 107TH, W. 109TH, W. 11TH, S. PRAIRIE AVE. (E) |
| 85' | W. 103RD, S. WENTWORTH AVE., S. PERRY AVE. (W), S. MICHIGAN AVE., S. INDIANA AVE. |




## SECTION

• MINIMUM VERTICAL CLEARANCE IS TO BOTTOM OF PIER CAP WHERE PIER CAP OVERHANGS TRAVELD ROADWAY.




## PLAN

PRELIMINARY DRAFT

CWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
VIADUCT CROSSING
75' AND 85' SPAN



IN CHARGE
APPROVED BY
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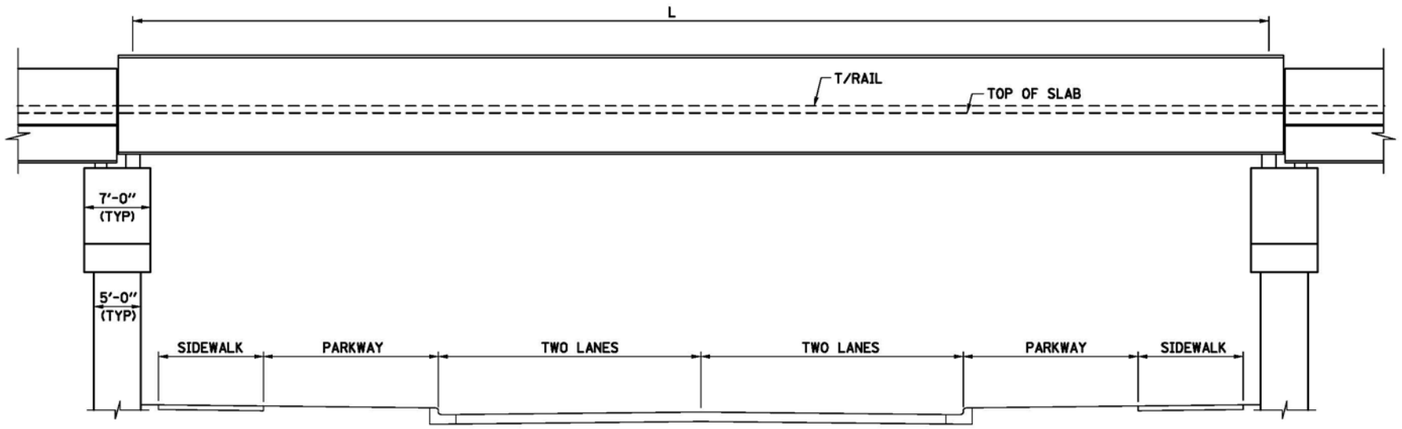
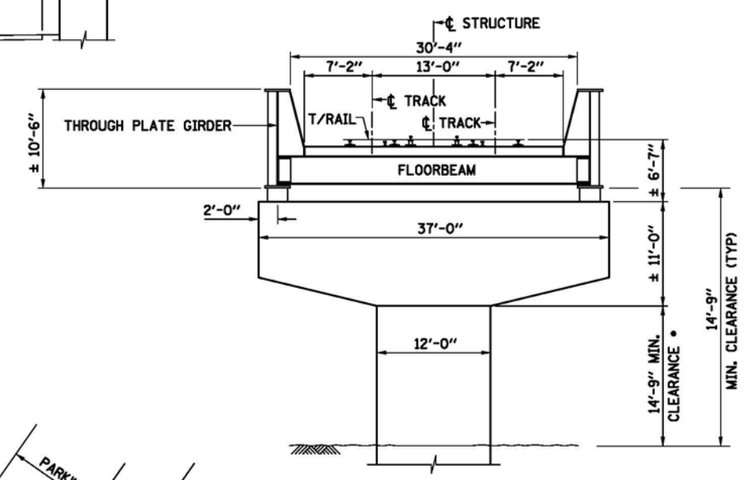



## ELEVATION

| TYP. SPAN (L) | CROSSING FOR UPRR EAST, ROW, AND WEST ALT. |
|---|---|
| 120' (TPG) | W. 115TH, W. 1116TH |

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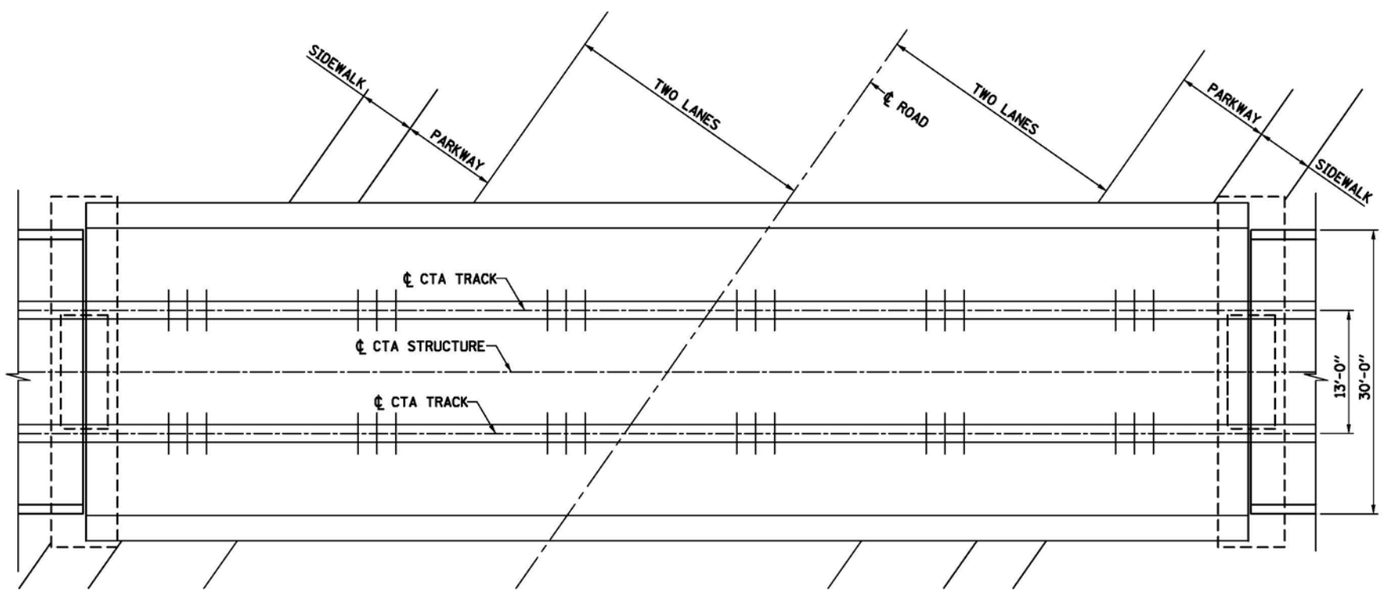
• MINIMUM VERTICAL CLEARANCE IS TO BOTTOM OF PIER CAP WHERE PIER CAP OVERHANGS TRAVELD ROADWAY.




## PLAN

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
VIADUCT CROSSING
120' SPAN



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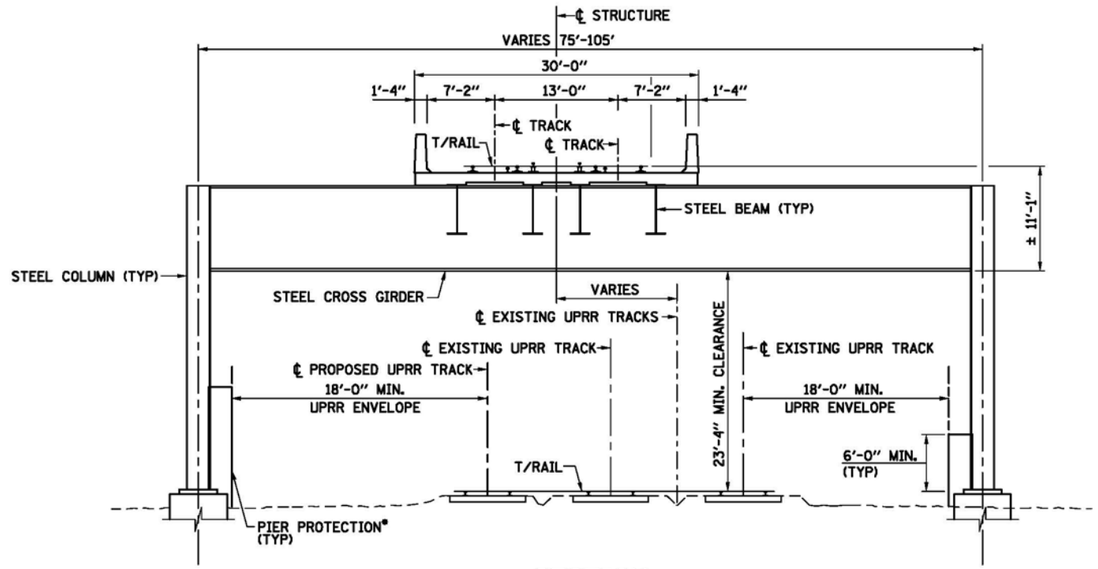
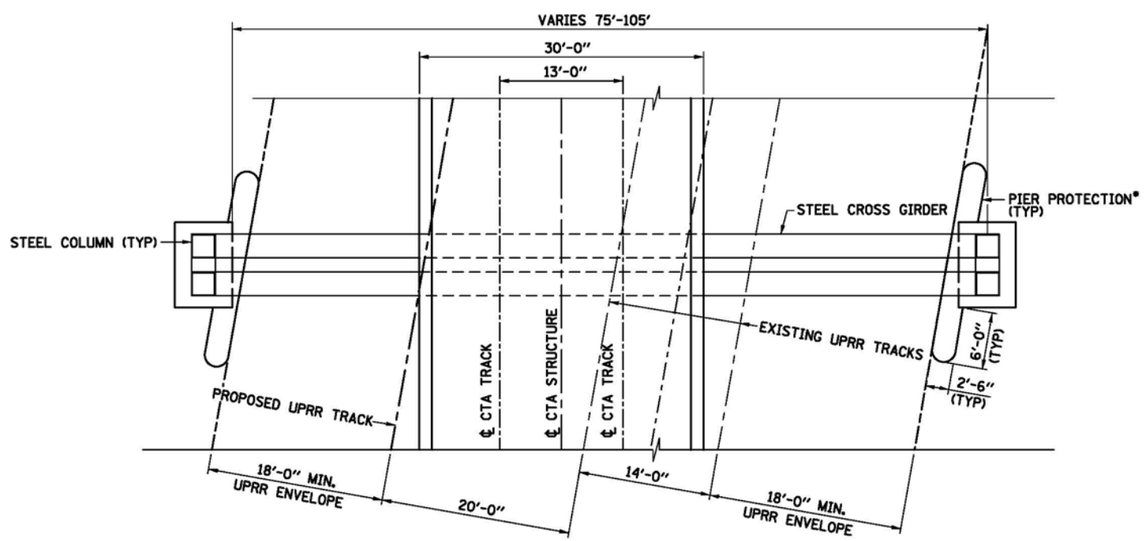



## SECTION

*REQUIRED IF CTA FOUNDATION IS WITHIN 25' OF CENTERLINE OF UPRR TRACK




## PLAN

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
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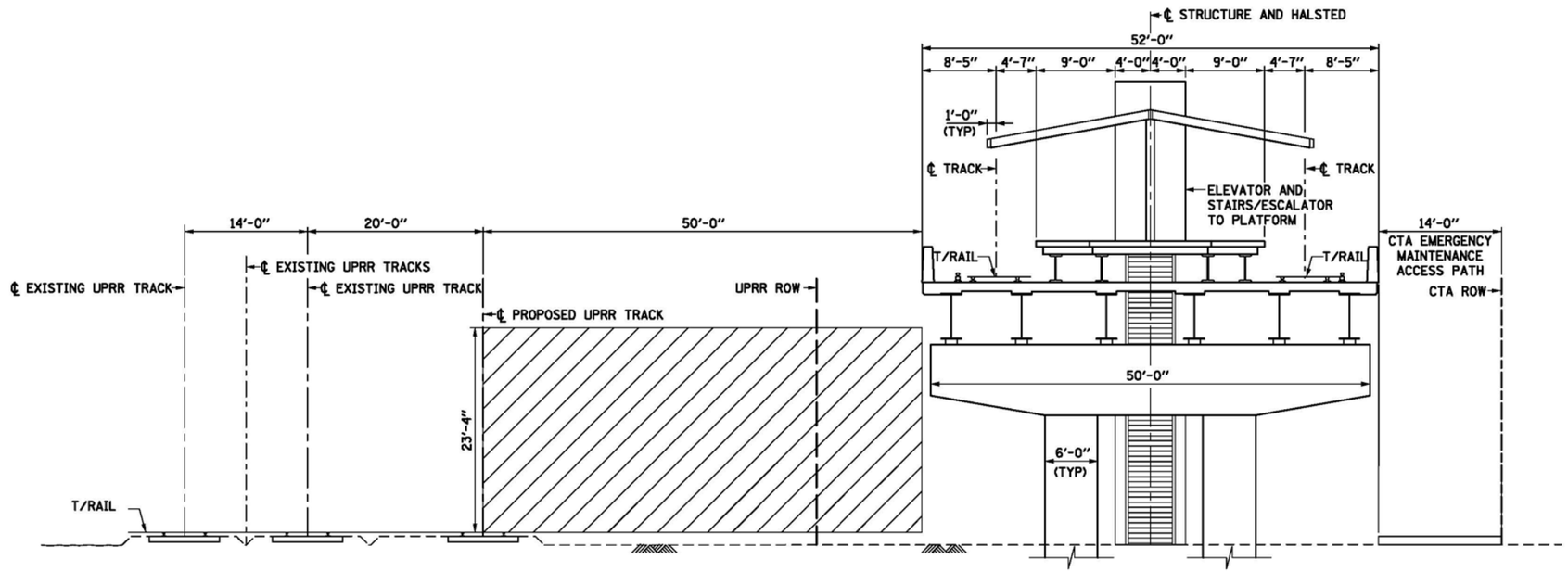
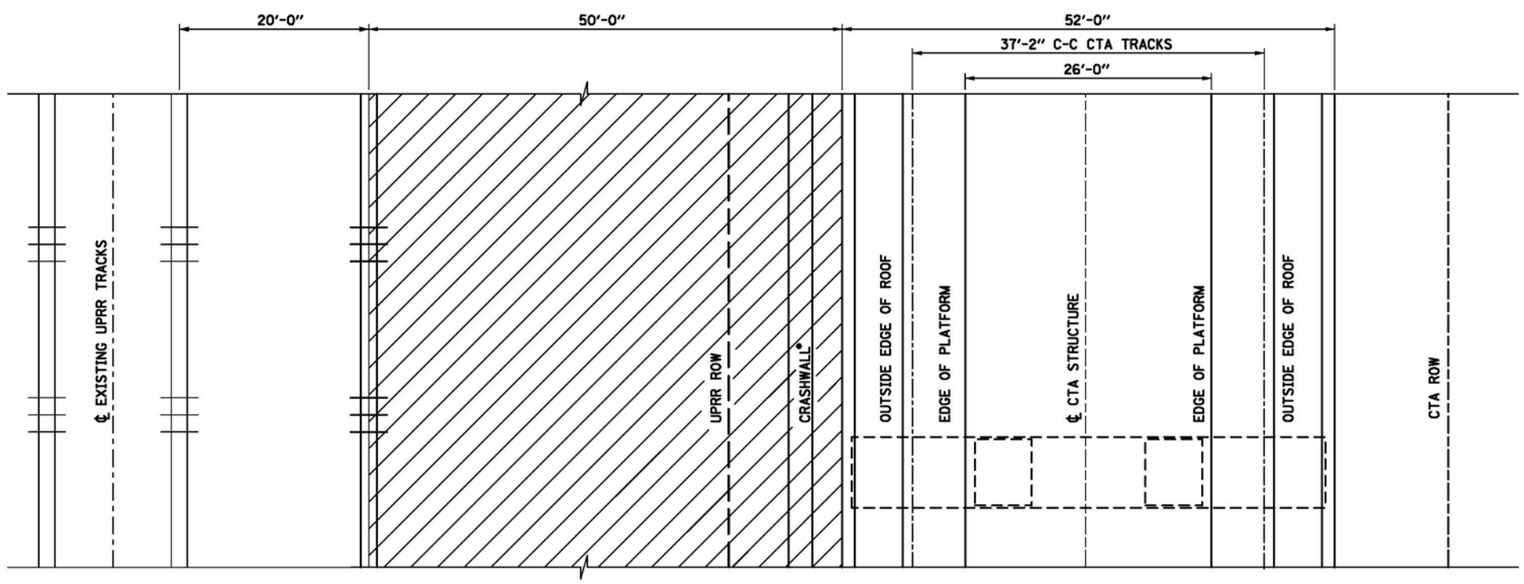



SECTION

LEGEND

REQUIRED UPRR CLEARANCE




PLAN

PRELIMINARY DRAFT

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
TYPICAL STATION SECTION

51 OF 51

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# Memorandum

*To:* *CTA, Sonali Tandon*

*From:* *CWC - Wight & Company*

*Date:* *January 6, 2015, revised March 16, 2015*

*Subject:* *Evaluation of Conceptual Red Line Extension Alignment*

## Purpose

The purpose of this memo is to verify that the conceptual Red Line Extension (RLE) alignment meets certain minimum design criteria and to analyze the potential benefits or drawbacks of different variations of the two Union Pacific Railroad (UPRR) Alignments. Both the East and West Options have been checked for horizontal clearance and curves.

## Verification #1: UPRR Horizontal Clearance

We checked the proposed alignment to verify that it would provide a minimum fifty foot horizontal clearance from the centerline of UPRR's future third track on east side of the UPRR corridor.

The minimum clearance distance is met along the entire East Alignment, with the exception of the following two locations:

- The proposed alignment would shift west to avoid an existing pump station at 104th Street (proposed alignment stationing 166+00 through 182+25). The centerline of UPRR's potential third track and the centerline of the proposed RLE would have a minimum separation of 27.6 feet. If the UPRR East Option is selected, the minimum separation distance would not be met through this segment of the extension. Relocating the existing pump station so the alignment could be adjusted is not feasible. A crash wall could be provided between the UPRR tracks and the proposed extension.

- Farther south from 104th Street, the proposed alignment again shifts west towards the UPRR tracks north of the proposed Michigan Avenue station (near 116th Street, from approximate station 257+00 to 278+00). The centerline of UPRR's potential third track and the centerline of the proposed RLE have a minimum separation of 46.8 feet. More detailed design could likely adjust the proposed alignment through this section to provide the minimum required separation. Note that the proposed alignment in this area is entirely outside the existing UPRR right-of-way.

The minimum clearance distance would be met along the entire West Option except where the CTA facility would cross the UPRR at I-57 and near the Metra Electric District tracks.

## Verification #2: Design Speed at Wendell Smith Park

The proposed alignment from April 2013 had a 15 mph (335-foot radius) curve connecting the East-West portion of the extension (which runs along I-57) to the North-South portion of the extension (which would run along the east edge of the UPRR right-of-way.) The small radius was intended to minimize the impacts the proposed improvement would have on Wendell Smith Park. A curve speed of 15 mph would be a severe constraint on a new rail alignment and has been dropped from further consideration. We checked the possibility of increasing the design speed through this turn to improve future operations. (See the February 27, 2015 memorandum *Documentation of Red Line Extension Curve Speed Discussion* for curve speed criteria.) The attached Exhibit 1 depicts the various design speeds that were analyzed and their corresponding impacts to the park.

Generally, as the design speed increases the impacts on the park would become more severe. A 25 mph (388.80-foot radius) curve could provide a faster operation speed for the CTA with minimal additional impacts on the park compared to the proposed 15 mph curve. Increasing to a 35 mph (730.13-foot radius) curve for the East Option would cause severe impacts to the park, specifically eliminating the ability to use the existing baseball fields. Curves of 45 mph and 55 mph are not recommended with either alignment due to impacts at the park.

## Verification #3: Location of Proposed 103rd St Station

The proposed 103rd Street station would be located one block north of the historic Roseland Pump Station, located at 351 West 104th Street. The Roseland Pump Station provides water to approximately 750,000 residents of the City of Chicago and south suburbs. The minimum separation between the edge of the proposed track structure and the face of the pump station building is 8.8 feet. We checked to see if adjusting the location of the proposed 103rd Street station could increase this spacing. Shifting the station to the north would have no impact on the spacing between the proposed CTA structure and the pump station. The minimum spacing occurs south of the point of tangency of the southernmost curve associated with the 103rd Street station, as shown in the attached Exhibit 2; therefore, shifting the station north has no effect on this minimum spacing. Shifting the station south would decrease this minimum spacing.

The station could be shifted approximately 265 feet north to avoid conflict with the existing communications tower located just west of the intersection of Harvard Avenue and 103rd Place. This shift would require two additional properties to be acquired where the northernmost station curves tie back into the alignment. The distance pedestrians would walk from both the surface lot (at the southwest corner of the UPRR and 103rd Street) and the bus turnaround lot (at the northeast corner to the station platform) would be increased by this

shift. The shift of the 103rd Street station to the north to avoid the tower is not included on the plan sheets as additional residential displacements would be required.

## Verification #4: Illinois Department of Transportation Comments

The Illinois Department of Transportation (IDOT) provided several comments via e-mail (attached Exhibit 3) after reviewing the proposed RLE horizontal alignment in the area of I-90/94, I-57, and 95th Street.

IDOT commented that the piers for the proposed RLE structure "should be placed such that the Department has the flexibility to widen our roadways either towards the roadway's median or outward with standard cross-section elements. As such any pier(s) placed in our medians should be placed in the middle of our medians, not immediately behind any existing or proposed barrier walls. Also, any piers proposed on the outside of our roadways should be placed at least 27feet from the existing outside edges of pavement to account for any additional lanes, shoulders, and barrier walls that are needed to protect the pier from being struck by a vehicle." Exhibit 1 depicts the conceptual pier locations for the proposed alignment from the existing 95th street station south to Wendell Smith Park. CWC adjusted the pier locations to fall outside the limits of IDOT's future widening.

IDOT pointed out that any structure crossing a roadway should provide a minimum of 15'-0" of vertical clearance. The RLE would cross the following IDOT facilities: 95th Street, southbound I-94, I-57 ramp, and I-57 mainline. The extension would not modify the existing 15'-10" clearance at 95th Street. The proposed extension would cross the existing southbound I-94 tunnel. This clearance would not be affected by the RLE. The profile would rise from the tunnel, cross the I-57 ramp, and eventually cross over Wentworth Avenue. A 16-foot clearance is provided over Wentworth Avenue, which would lead to an approximately 31-foot clearance over the I-57 ramp. The alignment would then cross the I-57 mainline with an approximately 39-foot clearance. Excessive clearance is provided over the IDOT roadways because of the height the profile reaches to go over Wentworth Avenue.

IDOT also commented on the need for barrier warrant analysis, permitting, and air rights agreements. These tasks will be addressed in the future when the project moves from conceptual to preliminary design.

cc: file

**PLAN**

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

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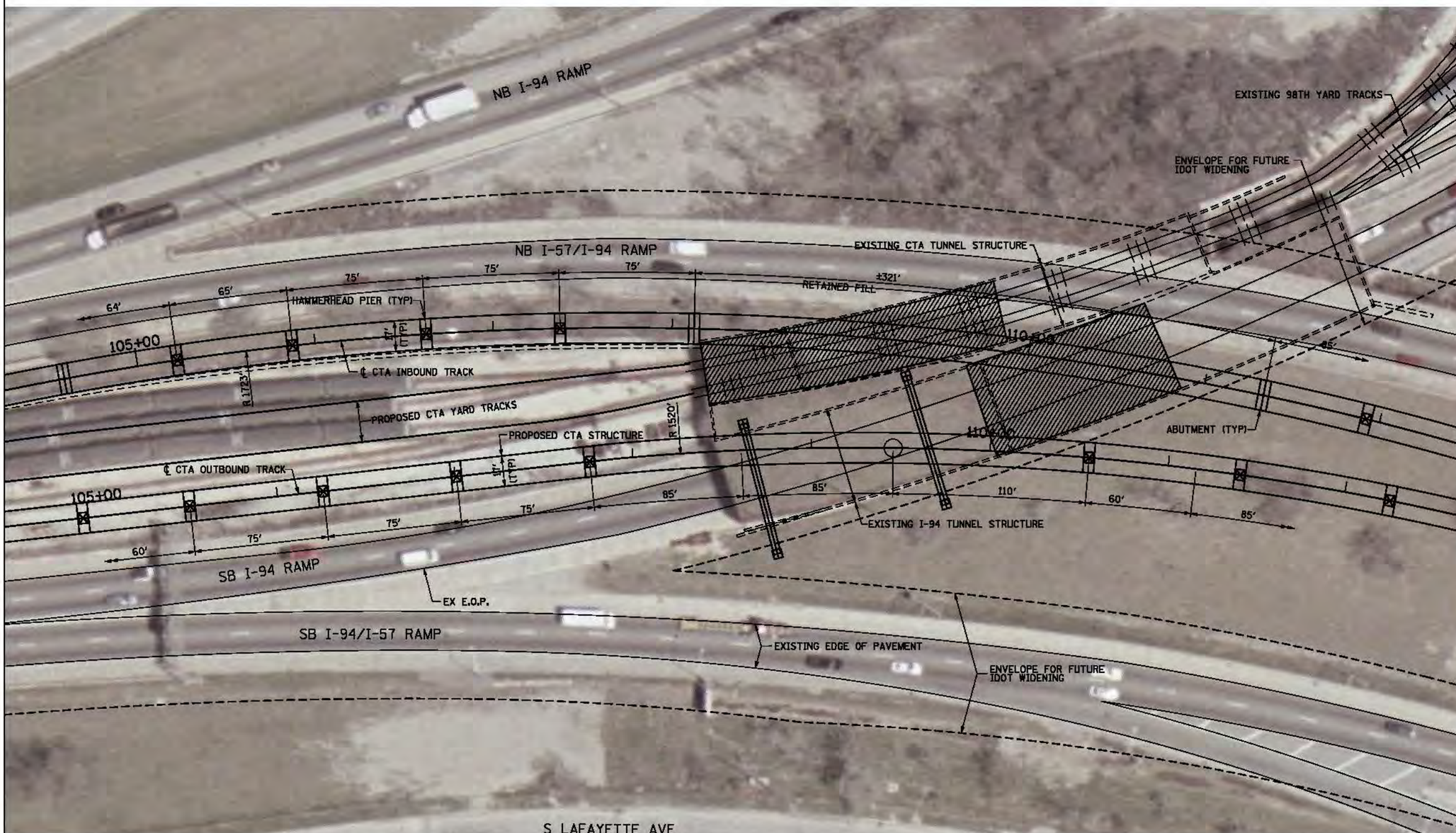
**EXHIBIT 1 - CURVES AT WENDALL SMITH AND PIER LOCATIONS (1/6)**




**PLAN**

**LEGEND**

RE-DECK EXISTING TUNNEL SUPERSTRUCTURE

CWC Transit Group

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

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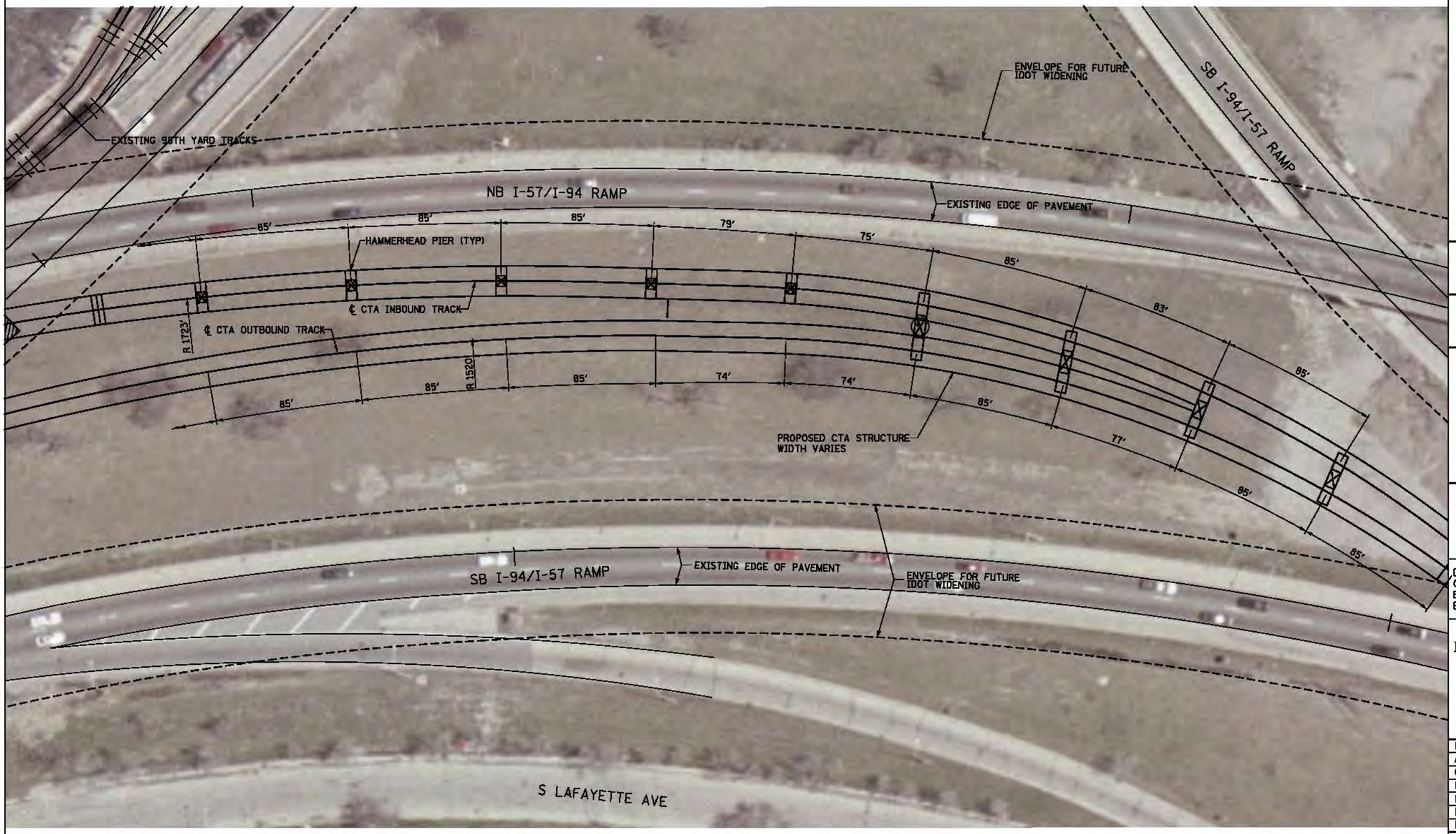
**EXHIBIT 1 - CURVES AT WENDALL SMITH AND PIER LOCATIONS (2/6)**

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CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
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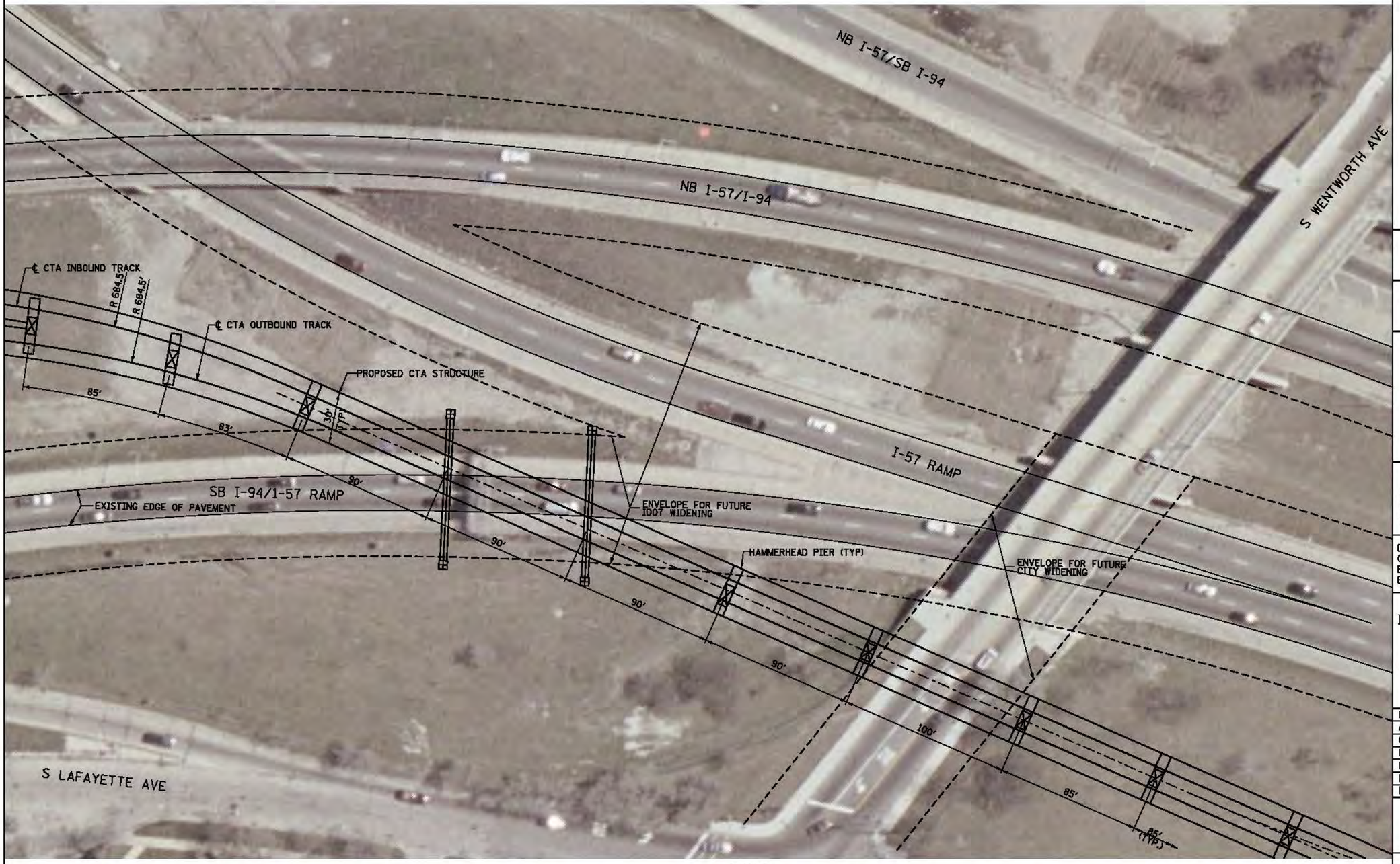
**EXHIBIT 1 - CURVES AT WENDALL SMITH AND PIER LOCATIONS (3/6)**




**PLAN**

GWC Transit Group

cta

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

ALL ALTERNATIVES
PIER LOCATION
SOUTH OF 95TH ST STATION

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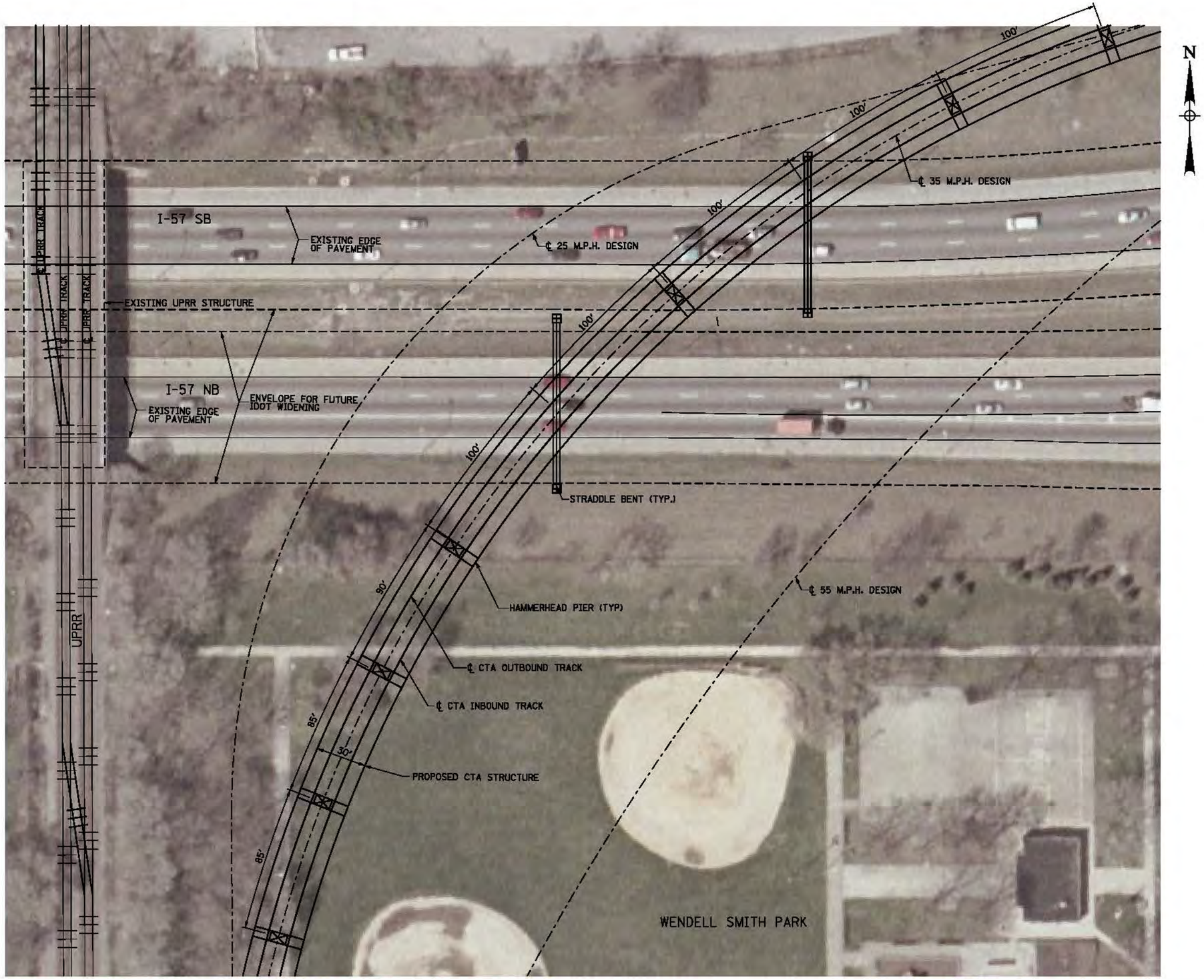
**EXHIBIT 1 - CURVES AT WENDALL SMITH AND PIER LOCATIONS (4/6)**

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
EAST SIDE ALTERNATIVE
PIER LOCATION OVER I-57

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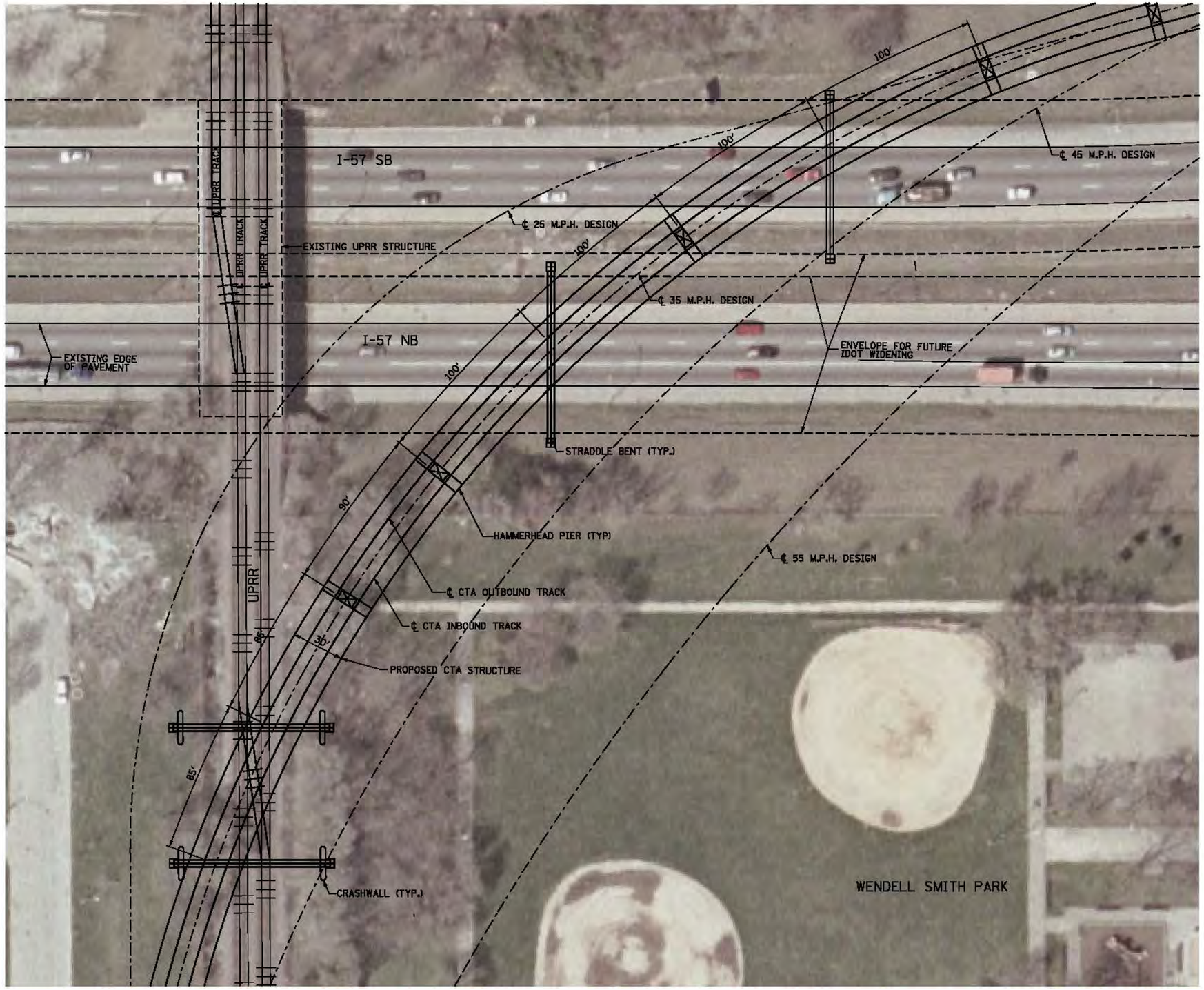
**EXHIBIT 1 - CURVES AT WENDALL SMITH AND PIER LOCATIONS (5/6)**




CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
WEST SIDE ALTERNATIVE
PIER LOCATION OVER I-57

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**EXHIBIT 1 - CURVES AT WENDALL SMITH AND PIER LOCATIONS (6/6)**

W 104TH ST

W 104TH PL

PUMPING STATION

FORMER GRIFFITH NATATORIUM

170+00

175+00

8.8' MINIMUM SEPARATION

P.O.T. 103RD ST STATION CURVE

SUBSTATION

LEGEND

PLAN

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

UTILITIES

- EXISTING WATER LINES
- EXISTING SEWER LINE

ENTRANCES

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

PROFILE

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION

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**EXHIBIT 2 - 103RD ST STATION ANALYSIS (1/1)**

**From:** Salley, Jason R [mailto:Jason.Salley@illinois.gov]
**Sent:** Tuesday, December 16, 2014 8:39 AM
**To:** Tandon, Sonali; Baczek, John A
**Subject:** RE: CTA Red Line Extension

Sonali,
Good morning.

We have looked at your proposed alignment of the CTA's Red Line Extension near I-90/94 at I-57 & 95th St and we offer the following comments:

1. The piers for the structures carrying the Red-Line over any of the Department's roadways should be placed such that the Department has the flexibility to widen our roadways either towards the roadway's median or outward with standard cross-section elements. As such any pier(s) placed in our medians should be placed in the middle of our medians, not immediately behind any existing or proposed barrier walls. Also, any piers proposed on the outside of our roadways should be placed at least 27-ft from the existing outside edges of pavement to account for any additional lanes, shoulders and barrier walls that are needed to protect the pier from being struck by a vehicle.
2. Any structures carrying the Red-Line over our roadways should provide at least 15'-0" of vertical clearance over our roadways.
3. The existing barrier walls along I-57 may have to be extended and/or replaced in order to adequately protect any proposed piers along I-57 from being struck by vehicles. The length of the extensions will be subject to barrier warrant and length of need analyses to be done during Contract Plan preparation should this project proceed towards construction. New barrier walls or guardrail may also be required if piers are proposed along I-57 where there are no existing barrier walls to extend. Lastly, existing barrier that are to be extended to protect proposed CTA piers may need to be rehabilitated or replaced depending on their condition at the time of the construction of this project. The cost sharing of this work is to be determined at the time of the preparation of the Contract Plans.
4. Should the extension of the Red-Line move towards Contract Plan preparation, the CTA should ascertain a Permit from the Department for the construction of the extension within our Right-of-Way.
5. The extension of the Red-Line as depicted will require an Air Rights Agreement with the Federal Highway Administration as well as the Department.
6. Wentworth Ave is under the Jurisdiction and Maintenance of the City of Chicago. Please coordinate this extension with them in order to ascertain any requirements or concerns that they might have. Please share their comments with the Department so that all concerns are shared with all of the interested parties along the corridor.

Attached you will find a copy of the geometrics for I-57 south of its interchange with I-90/94 as per the Department's Phase I report for I-90/94 from 31st Street to I-57.

Please contact me or John Baczek if you have any questions or need any clarifications.

*Sincerely,*
*Jason Salley, P.E.*
*Geometrics Engineer*
*IDOT - District 1*
*P: 847.705.4085*
*F: 847.705.4159*

# Memorandum

*To:* *CTA, Sonali Tandon*

*From:* *CWC - Wight & Company*

*Date:* *December 2, 2014, revised March 16, 2015*

*Subject:* *Evaluation of Grade Separation of Red Line Extension*

## Purpose

The purpose of this memo is to compare the potential benefits or drawbacks of constructing the proposed Red Line Extension (RLE) as an elevated track structure with the benefits or drawbacks of constructing the RLE as an at-grade track with roadway overpasses or underpasses.

The proposed extension must be elevated from 95th Street until south of Interstate 57 (I-57) (approximately station 135+00) to provide the required clearance over the expressway. South of I-57, the proposed track structure could potentially be lowered to match existing grade. Using the maximum allowable grade, this match point would occur 950 feet south of the interstate (approximately station 144+50.) The profile of this option is shown in the attached Exhibit A. The proposed track can potentially remain at grade for 2.57 miles (approximately station 280+00), at which point the track must be elevated to clear the CN/Metra Electric District mainline tracks.

Costs presented in this memorandum are macro-level estimates based on 2012 dollars. The costs presented are for comparison of the construction costs and do not include soft costs and unallocated contingencies. These costs do not represent the full cost of implementing the RLE.

## Option #1: Aerial Track Structure

The initial planning phases, including the Alternatives Analysis study that was completed in 2009, has the RLE on aerial track structure.

Approximate construction cost = $100 to $120 million per mile of double track

Estimated Total Construction Cost ~ $120 M * 2.57 miles = $308.4 Million

### Benefits:

- Minimizes effects on the neighborhood
- Minimizes noise levels as compared to at-grade trains
- Built-in security by being above grade
- Maintains existing roadway access

### Drawbacks:

- Cost of aerial structure
- Public perception of visual impacts due to height of the structure

## Option #2: At-grade track, roads overpass track

Approximate construction cost = $10 million per mile of double track.

Track construction cost ~ $10 M * 2.57 miles = $25.7 Million

Roadway overpasses would be constructed at 101st Street, 103rd Street, 107th Street, 109th Street, 111th Street, Wentworth Avenue, 115th Street, and State Street (8 Crossings).

Overpass construction cost ~ $25 million / each * 8 = $200 Million

Estimated Total Construction Cost ~ $25.7 Million + $200 Million = $225.7 Million

### Benefits:

- Potential $82.7M construction savings versus Option #1: Aerial Track Option (Note: Potential construction savings would not outweigh the additional right-of-way acquisition covered under "Drawbacks" below.)
- CTA at-grade, vehicular traffic is grade separated from the CTA and Union Pacific Railroad (UPRR)

### Drawbacks:

- An analysis of the potential 107th Street overpass revealed approximately 220 residents would be adversely affected by the construction of the overpass (reduced access, increased travel distance and time, perceived visual impacts of overpasses, additional displacements, neighborhood interruption during construction, etc.) Extrapolating to the entire project, approximately 1,500 homes would have some adverse impact. Refer to Exhibit B.
- Additional right-of-way acquisition. Refer to Exhibit B.

- Closure of some cross streets where they intersect with the embankment for bridge approaches.
- Relocation of utilities along the roadways and cross streets.
- Community impacts due to neighborhood isolation.
- Potential visual impacts for homes near overpasses (abutting an approximately 30-foot tall embankment).
- Additional security may be required to protect the train operations and third rail as compared to aerial track structure.
- Potential increase in noise levels affecting adjoining residents.

## Option #3: At-grade track, cross-roads underpass track

Approximate construction cost = $10 million per mile of double track.

Track construction cost ~ $10 M * 2.57 miles = $25.7 Million

Roadway underpasses would be constructed at 101st Street, 103rd Street, 107th Street, 109th Street, 111th Street, Wentworth Avenue, 115th Street, and State Street (8 Crossings).

Underpass construction cost ~ $60 million / each * 8 = $480 Million

Estimated Total Construction Cost ~ $25.7 Million + $480 Million = $505.7 Million

### Benefits:

- CTA at-grade, vehicular traffic is grade separated from the CTA and UPRR

### Drawbacks:

- Costs of structure is significantly higher than Options #1 and #2.
- Property impacts similar to Option #2; additional property impacts would occur to accommodate the underpass structure (reduced access due to grade difference and needed retaining wall for underpass structure).
- Additional right-of-way acquisition.
- Closure of some cross streets required where the streets intersect or would require lowing cross streets to intersect at grade. Lowering of cross streets would require additional right-of-way and additional property impacts due to access.
- Community impacts due to neighborhood isolation.

- Additional costs associated with a pumping station for drainage (flood prevention).
- Relocation of utilities along the major roadways and cross streets.
- Additional security may be required to protect the train operations and third rail as compared to aerial track structure.
- No additional benefits over the Options #1 or #2

## Option #4: At-grade track between crossroads, maximum allowable grade

Another option considered to take advantage of the significantly lower cost of constructing at-grade track is to lower the profile of the proposed extension between crossroads to run at-grade as much as possible while avoiding the prohibitive adverse effects of constructing roadway overpasses or underpasses. Using the maximum allowable grades provided in the *CTA Infrastructure Design Criteria Manual*, and the minimum vertical curves recommended by AREMA, Exhibit C was created to show what the proposed profile would look like if the track were lowered to grade between crossroads. Note that Exhibit C does not show a realistic construction alternative; its purpose is solely to show the maximum possible length of at-grade construction between crossroads.

The combination of the tight existing crossroad spacing and the relatively shallow maximum allowable profile grade prevents the profile from dropping down to grade in all but two locations: 950 feet between 103rd Street/ 107th Street, and 1000 feet between 111th Street/ Wentworth Avenue.

### Benefits:

- Potential construction savings versus Option #1: Aerial Track Option =

  1950 ft/5280 ft * ($120 Million - $10 Million) = $ 40.6 Million

### Drawbacks:

- Potential customer discomfort caused by constantly varying profile (a “rollercoaster” feel).
- Increased train spacing to provide safe braking distance which would lead to increased running time and need for additional cars.
- Increased operational risks related to traction.
- Additional energy consumption, vehicle wear and tear, and wheel/track maintenance.

## Option #5: Track on retained embankment

After analyzing the option of varying the vertical alignment at the maximum allowable grade, we considered varying the vertical alignment at a gentler grade which would avoid the

"rollercoaster" feel of the maximum grade while taking advantage of shorter structure heights. In conjunction with the gentler grade, we evaluated where it would be feasible to install the tracks on embankment with retaining walls rather than aerial track structure.

A significant portion of the alignment could potentially be built on embankment with retaining walls. Below are the approximate station ranges of the UPRR East Option which could be built on retained embankment:

| Start Station | End Station | Retaining Wall Length |
|---|---|---|
| 137+50 | 150+00 | 1,250 ft |
| 150+75 | 159+85 | 910 ft |
| 165+80 | 189+60 | 2,380 ft |
| 190+30 | 203+08 | 1,278 ft |
| 203+83 | 209+85 | 602 ft |
| 217+13 | 241+34 | 2,421 ft |
| 242+04 | 252+14 | 1,010 ft |
| 252+84 | 257+55 | 471 ft |
| 258+25 | 264+27 | 602 ft |
| 270+40 | 280+00 | 960 ft |
| | Total | 11,884 ft |

## Benefits:

- Track structure on retained embankment can be constructed for approximately $50 Million / mile. Potential construction savings for this option versus Option #1: Aerial Track Option = 11884 ft/5280 ft * ($120 Million - $50 Million) = $ 157.5 Million (Note that the "planning level" costs per mile are intended to show the order of magnitude of cost savings in order to determine whether an alternative has merit for further study in the Preliminary Engineering phase. If additional crossings are required, the order of magnitude cost savings would be similar.)

- Potential for reduced noise impacts based on use of ballasted track system on the embankment.

- Potential lower maintenance for retaining walls versus aerial track structure.

### Drawbacks:

- Visual impacts (and accompanying community impacts) from retaining walls (approximate 23′ retained height above grade).
- Visual impacts from potential graffiti (and accompanying increased maintenance cost).

## Conclusions:

- Constructing the proposed extension at-grade, with roadway underpasses is the most expensive option, and offers no unique benefits.
- Constructing the proposed extension at-grade, with roadway overpasses offers potential construction savings on the track, but could potentially adversely affect more homes than Option #1: Aerial Track Structure. Although a detailed analysis of the additional right-of-way acquisition was not performed, the potential adverse impacts on such a large number of homes likely outweigh the potential $100 million in savings.
- The small cost benefits of Option #4 (which shows only a short section of track has the potential to be constructed at-grade) would not outweigh the operational drawbacks of the inclines.
- Options #1 and #5: Aerial Track Structure and Track on Retained Embankment would extend transit service with the best balance of cost and neighborhood impacts over Options #2, #3, and#4. Option #5 has the potential for a sizable construction cost savings (over $100 million) if the potential community impacts (including visual impacts) are acceptable or can be mitigated.

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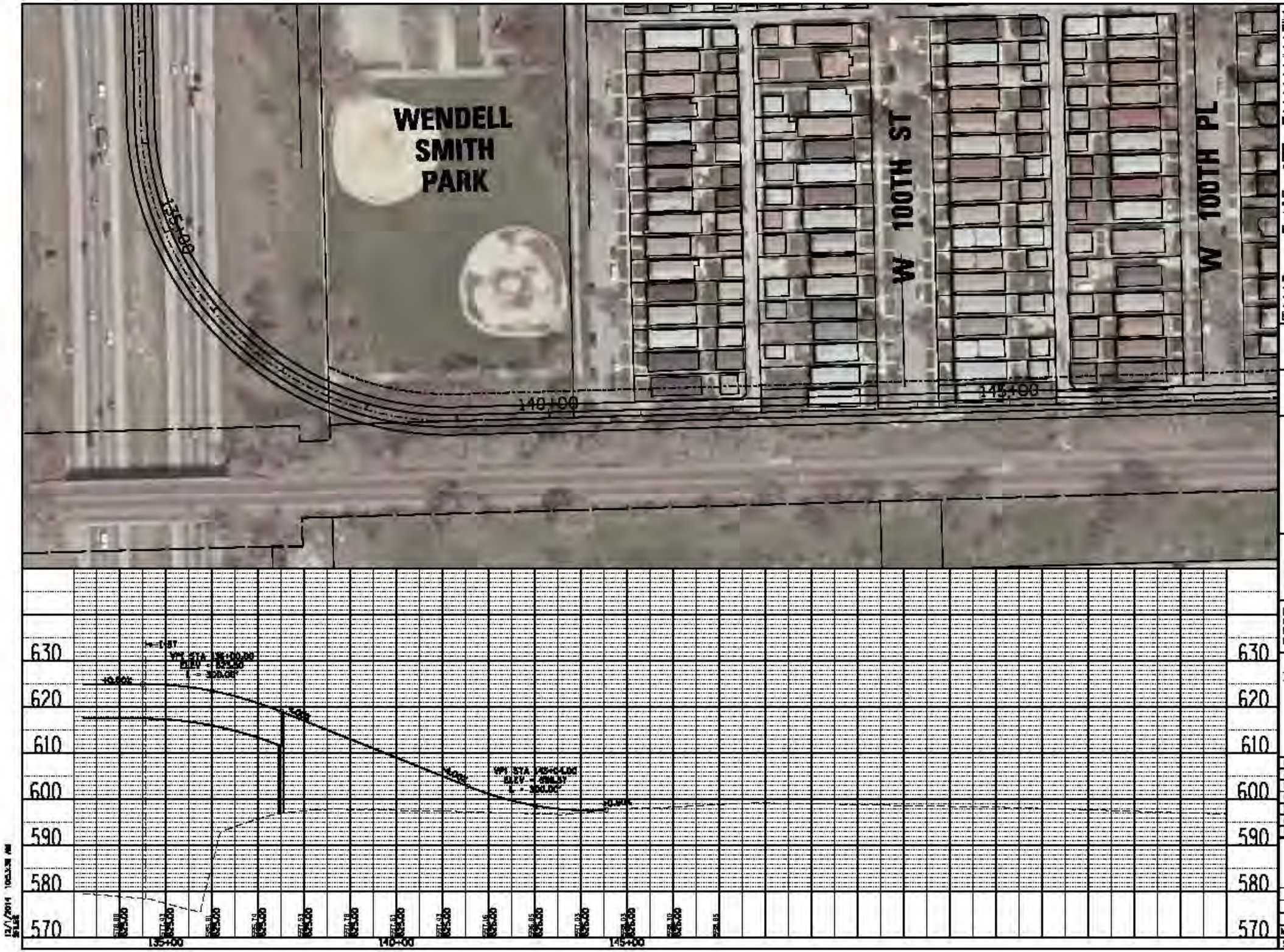


LEGEND

PLAN

- EX CENTERLINE
- PR CENTERLINE
- EX TRACK CENTERLINE
- PR TRACK CENTERLINE
- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPPER TRACK CENTERLINE

UTILITIES

- EXISTING WATER LINES
- EXISTING SEWER LINE

ENTRANCES

- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

PROFILE

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

cta

CHICAGO TRANSIT AUTHORITY

SENSITIVE SECURITY INFORMATION

[redacted]

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY

UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION
- AT GRADE PROFILE

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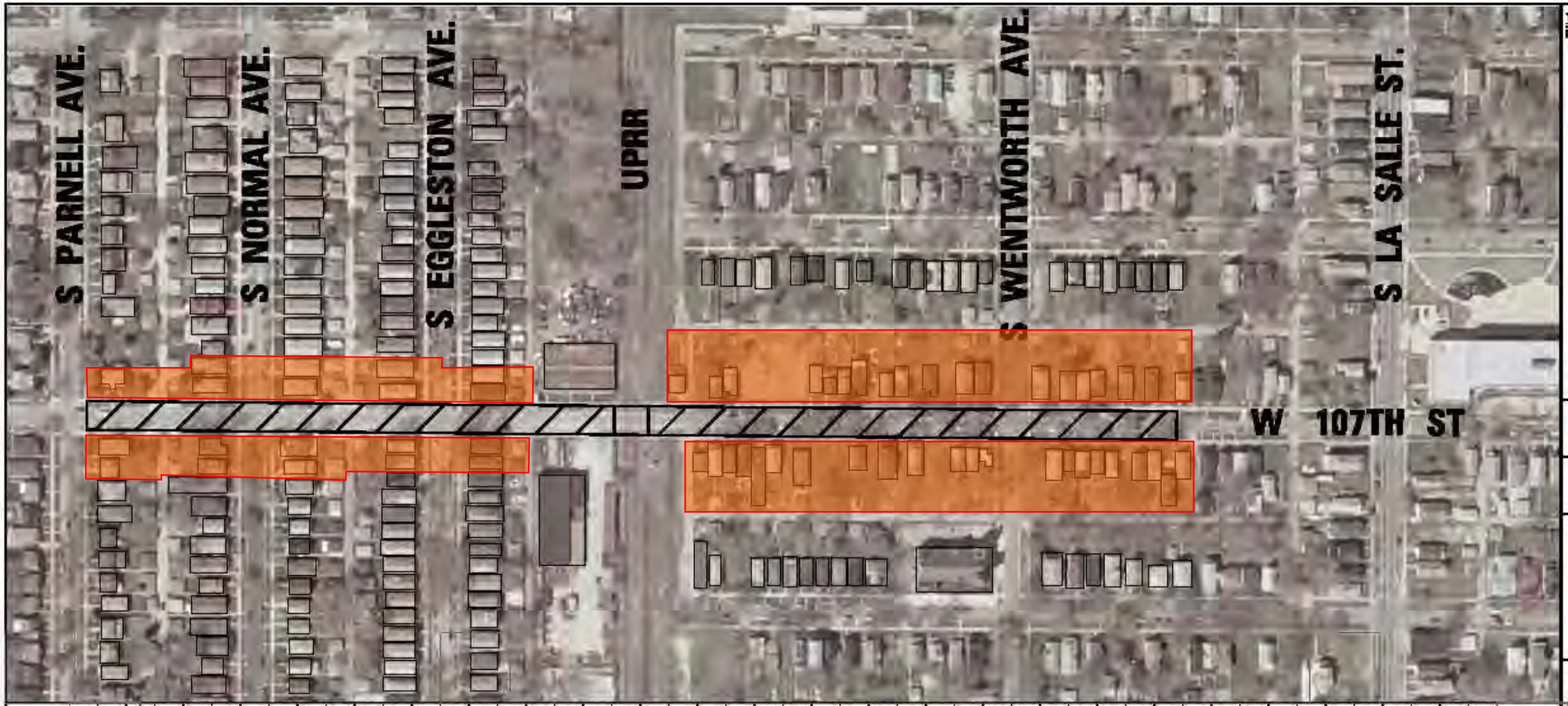
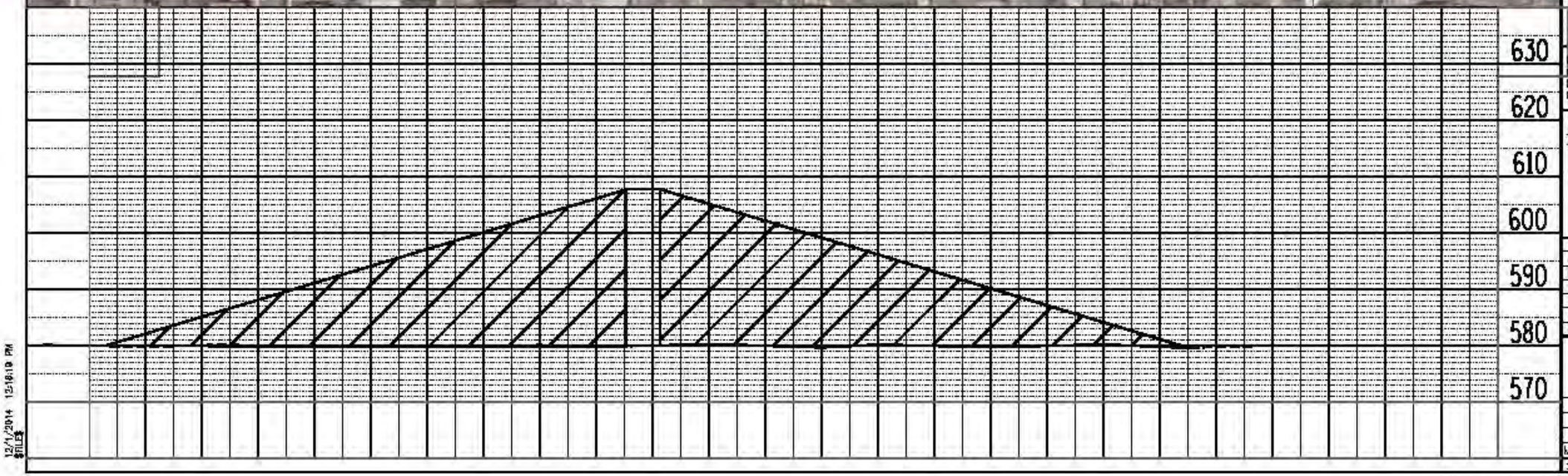
EXHIBIT A - AT GRADE OPTION ANALYSIS




LEGEND
PLAN

- EX BUILDING - INFLUENCED
- EX BUILDING - PROBABLE ACQUISITION
- NSE WALL - BRIDGE APPROACH

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**RED LINE EXTENSION ENVIRONMENTAL IMPACT STUDY**
**UNION PACIFIC RAILROAD ALTERNATIVE**
**EAST SIDE OPTION - PROPOSED ROADWAY OVERPASS**

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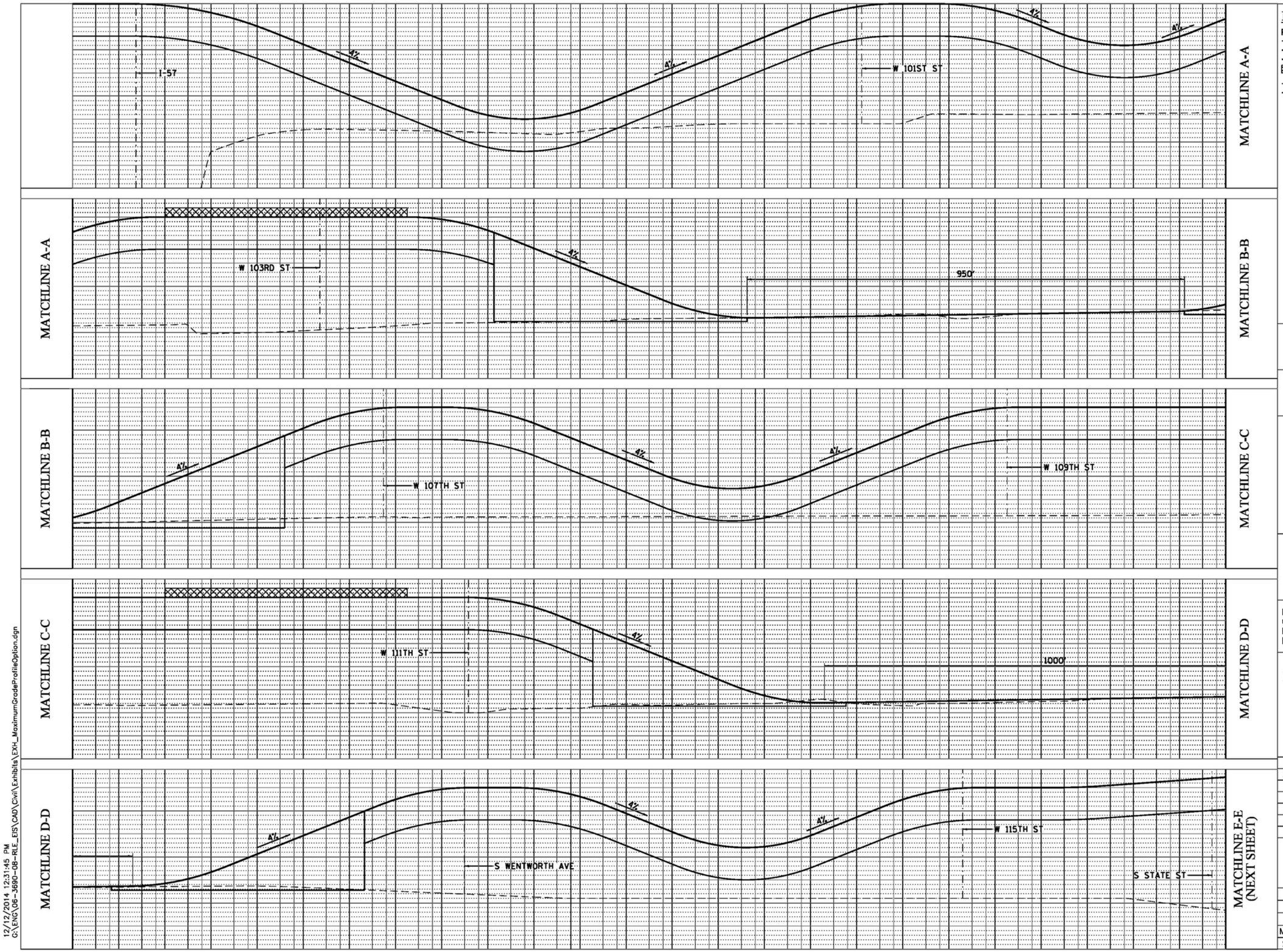
**EXHIBIT B - AT GRADE OPTION ANALYSIS**




## LEGEND

PROFILE

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION
- EX CENTERLINE
- PR CENTERLINE

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION -
MAXIMUM PROFILE GRADES

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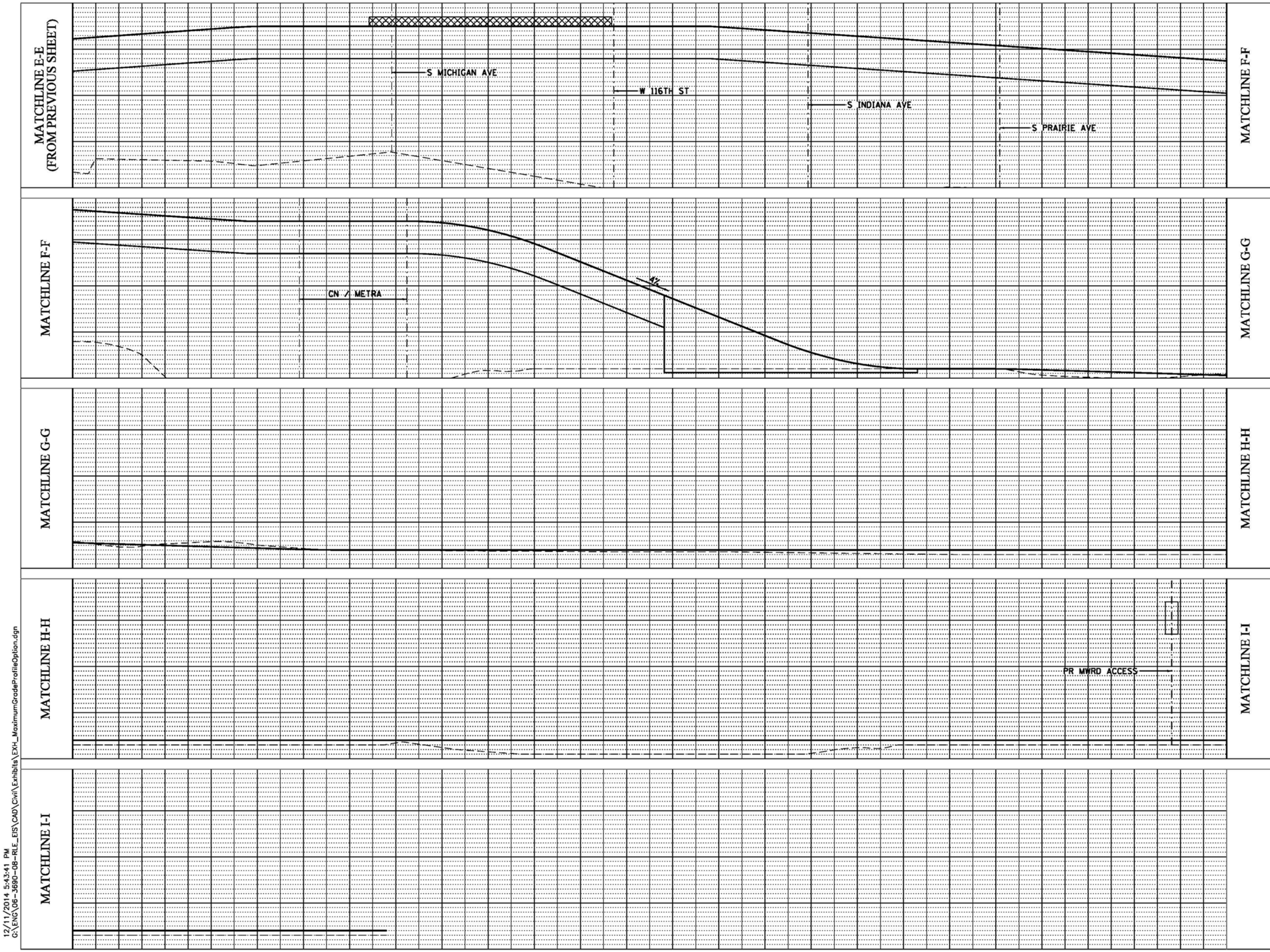


LEGEND

PROFILE

- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION
- EX CENTERLINE
- PR CENTERLINE

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION -
MAXIMUM PROFILE GRADES

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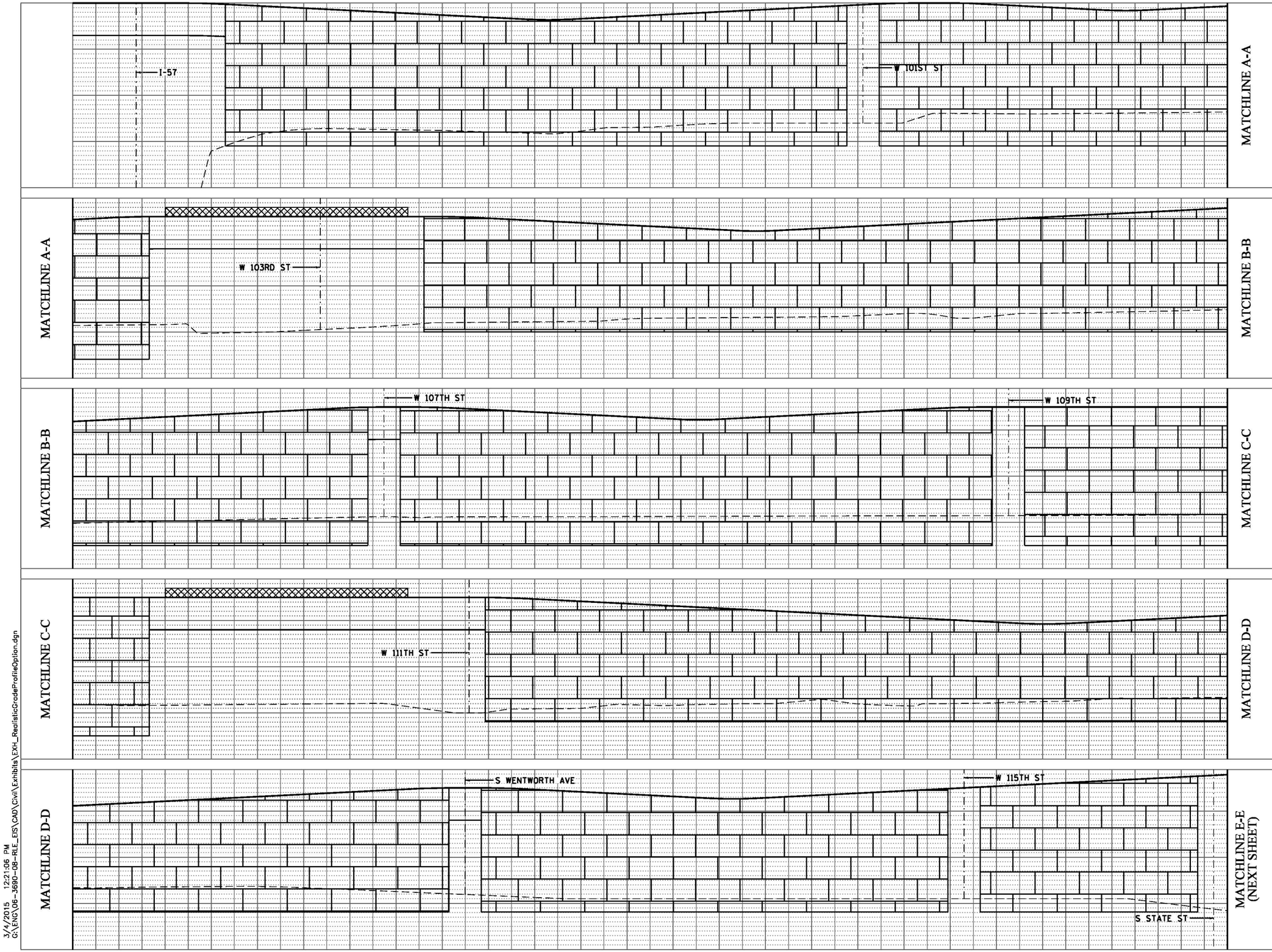
**EXHIBIT C - MAXIMUM GRADE PROFILE OPTION ANALYSIS -2/2**




## LEGEND

PROFILE

- EX GROUND
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- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION
- EX CENTERLINE
- PR CENTERLINE
- PR RETAINING WALL

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION -
REALISTIC PROFILE GRADES

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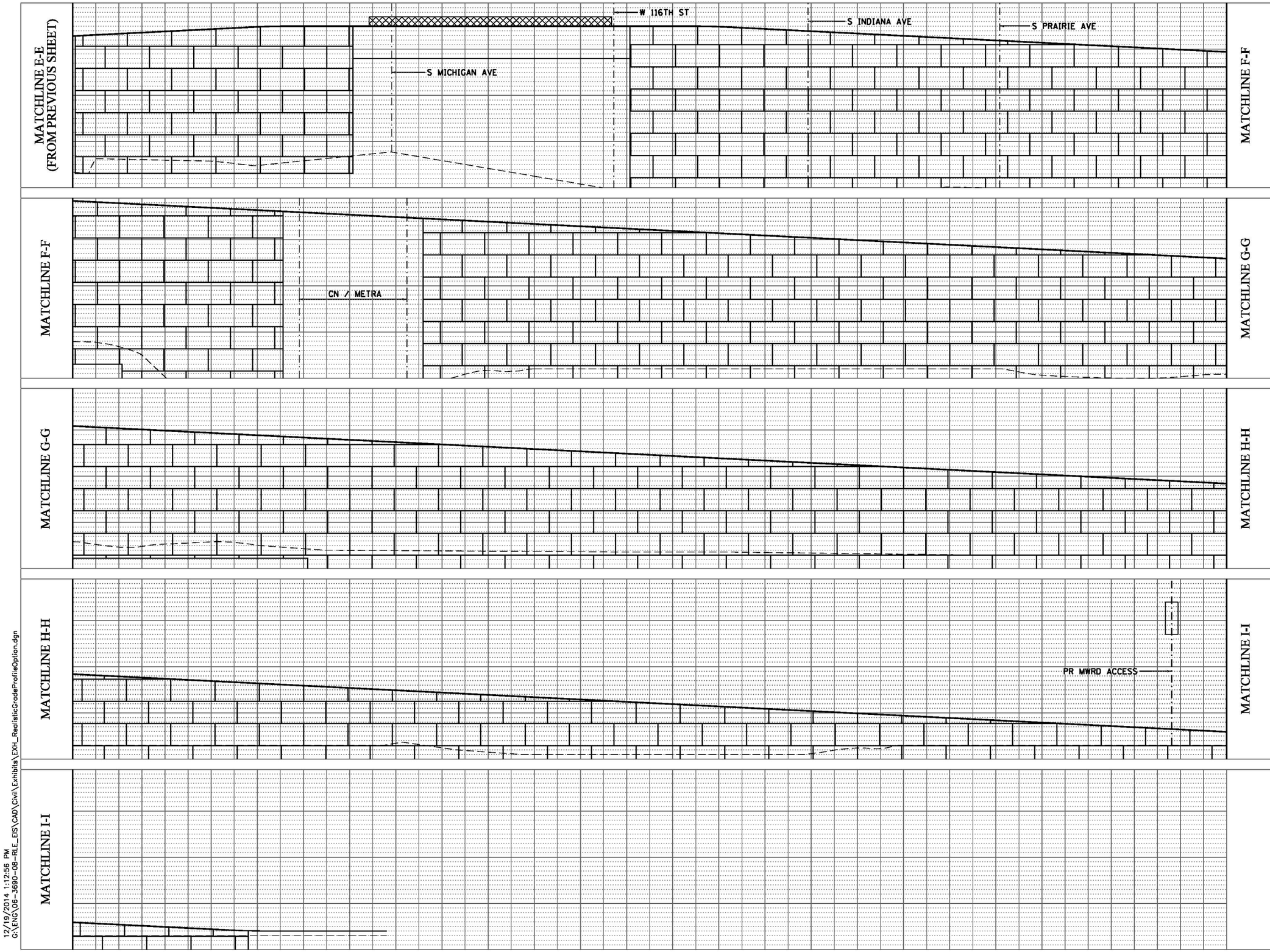
**EXHIBIT D - RETAINING WALL OPTION ANALYSIS -1/2**




LEGEND

PROFILE
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION
- EX CENTERLINE
- PR CENTERLINE
- PR RETAINING WALL

CWC Transit Group

cta

CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION -
REALISTIC PROFILE GRADES

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**EXHIBIT D - RETAINING WALL OPTION ANALYSIS -2/2**

CWC Transit Group

# Memorandum

*To:* *Sonali Tandon*

*From:* *CWC, Wight & Company*

*Date:* *December 2, 2014, revised June 11, 2015*

*Subject:* *120th Street Rail Shop and Yard Program*

The purpose of this document is to summarize program data collected for a Red Line Extension (RLE) yard for use in a future design phase of the project. This document was developed through meetings with CTA Rail Operations, Infrastructure, Planning, Maintenance, and Scheduling. The programming elements listed in this document indicate an ideal yard and are based on past experiences and lessons learned. The design and layout of the Midway yard was used as a guide when developing this document as Midway represents a yard on the current CTA system with good flow and operations. At the time of design, current CTA design criteria pertinent to yards (as found in the Infrastructure Design Criteria Manual) should be reflected in the layout and design.

Note that the conceptual layout related to this document was required to function with an intermediate RLE phase having service terminating at 115th Street and the ultimate RLE extension to 130th Street. In the intermediate phase, yard storage should accommodate a minimum of 288 cars on storage tracks. (Potential storage on the interior cleaning track, shop leads, or yard leads would not be included in this count.) In the ultimate build-out, yard storage should accommodate a minimum of 340 cars. See the yard capacity attachment to this memorandum for further detail.

The existing 98th Street Yard could be used to store extra trains or for sweeping cars. The use of the existing 98th Street Yard should be considered when designing the future yard. The 98th Street Yard should not be used as a maintenance facility after the new yard becomes active.

## GENERAL

This scope document was developed to indicate the overall scope of the Red Line Extension - 120th Street Rail Shop and Yard and indicate the general design parameters. The scope does not indicate or describe all the work required for the full performance and completion of the project. The materials, details, sizes and quantities of the rail shop and yard are to be designed by a future designer and constructed by a contactor. The designer and contractor shall provide

all the requirements of the scope documents and shall include all items and services reasonably inferable from the scope documents. The designer and contractor shall only have contact with the firm retained to prepare these scope documents as authorized by the CTA. The preparer of the scope documents will not be responsible for the acts or omissions of the designer, contractor or any subcontractor or sub-consultant.

# PROJECT LOCATION & EXISTING CONDITIONS:

The site of the proposed Red Line Extension Rail Yard is generally industrial in nature. It is located west of the I-94 expressway and Lake Calumet at approximately 122nd Street. The site is accessible by Cottage Grove Avenue as well as local access drives. The Metropolitan Water Reclamation District currently owns the site as well as much of the adjacent properties to the south and east. Three existing train tracks directly to the east of the site are operated by the Northern Indiana Commuter Transportation District, Chicago South Shore and South Bend Railroads. The K-Five Materials Corporation plant is directly northwest of the proposed site.

# CODE COMPLIANCE

The entire project shall comply with the City of Chicago, State of Illinois and Federal Code requirements and the American with Disabilities Act (ADA) as applicable.

The entire project shall also comply with the Chicago Transit Authority standards, unless otherwise shown.

# ARCHITECTURAL SCOPE

## Site

### Yard:

- 11 Storage tracks – various combinations of train lengths for a total of 340 cars not including any shop tracks, shop leads, or yard leads

- Track 12 (adjacent to shop) shall have door level cleaning platform with area allocated for trash containers.

- Sidewalks between every storage track, or utility vehicle access width between every other storage track – see yard section alternatives attachment to this memorandum.

- The storage track shall accommodate two 16-foot drives crossing the storage tracks generally running southwest to northeast from each end of the shop building – see plan view.

- The yard should generally be level and should be raised above the potential flood elevation. The profile should include slight upward slopes at each end to prevent wind-driven roll-away trains.

- The use of photovoltaic panels should be studied to cover and protect the parked trains or a portion of the parked trains from the elements and to offset the building electrical load.
- A yard master tower is required. Master tower is depicted in the exhibit documents on the roof of the shop.
- The site lighting should be carefully planned to be energy efficient, vandal resistant, easy to maintain, and meet safety regulations. American Railway Engineering Maintenance of Way Association (AREMA) policy should be used as a minimum standard and guideline for the lighting of the yard. Fixtures utilizing the latest available technologies should be considered.
- A secure fence shall be provided around the entire yard and coordinated with the security system. (Perimeter cameras with infrared and analytics should be considered.)

### Other Site Requirements (including exterior of shop):

- Minimum of 130 vehicle parking spaces including handicap accessible spots as required by code.
- All site utilities shall be coordinated for clearances and cover depths to meet each specific utilities requirement.
- Site drainage shall conform to the City of Chicago Stormwater Management Ordinance Manual and City of Chicago Regulations for Sewer Construction and Stormwater Management. Best Management Practices shall be utilized wherever possible.
- Loading dock is required for parts delivery. Truck turning radius required to be coordinated with CTA.
- Landscape shall be in accordance with the City of Chicago zoning code.
- Provide locations for snow and track/bulk material storage.
- Trash compactor located near loading dock.
- Trash bin near cleaning platform.
- Provide sections of short track for non-revenue equipment storage.

## Building

The floor area of the entire shop including the track bays, administration, maintenance and ancillary areas is depicted in the exhibit document as 85,000 SF. The final area should be coordinated with CTA to confirm all building requirements are met. The envelope design must properly address performance concerns including thermal, condensation, durability, constructability and economy. Daylighting and high performance glazing shall be utilized in the

shop and administration areas. The floor area depicted in the exhibit drawings show all the programed space located on the main level but multiple levels may be utilized if it is found to be economical. Stairs and an elevator would need to be added to the program if multiple floors are utilized. Depending on the type of hoists used, a partial basement may be required.

## Shop:

- Five required track bays - All five tracks run all the way through shop
- Interior Wash Track:
  - No Pit
  - Minimum capacity of 10 cars
  - Pull Through access with overhead doors at both ends
  - Out-to-out width for the bay to accommodate the brushes and control room
  - Water treatment and water recycling equipment
- Pit Track:
  - Minimum capacity of 10 cars
  - Overhead door access on both ends
- Wheel Truing Track:
  - Truing machine (4-car length) with hoists on the remainder of the track
- Two (2) Shop Tracks with Hoists
  - Minimum capacity of 10 cars each
  - Overhead door access on both ends

## General/Administration:

- Shop Office (must be located on 1st floor)
- Superintendent Office
- Conference/Classroom
- Lunch Room
- Pantry/Kitchen

- Janitor Closets (2)
- Building Maintenance
- Grounds Maintenance
- Track Maintenance
- Cab Signal Maintenance
- Yard Master Tower

### Toilet/Lockers:

- Main Men's Locker Room
- Main Women's Locker Room
- Maintenance Men's Locker Room
- Maintenance Women's Locker
- Office Unisex Toilet

### Mechanical/Electrical:

- Mechanical Equipment Room
- Electrical Equipment Room
- Communications/IT Room

### Storage Areas:

- General Building Storage
- Small Part Storage
- Hazardous Material Storage
- Oil Storage

## STRUCTURAL

The foundation and slab system shall be designed by a structural engineer based on recommendations from the geotechnical engineering report. The structural framing system shall be designed in accordance with generally accepted engineering principles. The structural system shall be selected so that the chemicals and materials used in the shop and wash track shall not have a negative impact on the structural systems performance.

# MEP

## Mechanical

The HVAC system shall be selected to be energy efficient, meet all indoor air quality and thermal comfort requirements and must be straightforward to operate and maintain. Incorporation of renewable energy sources into the design of the building is recommended where possible. An appropriate system includes wind turbines and photovoltaic panels capable of generating electric energy to offset the building's electrical load.

## Electrical

Incoming electrical service should be discussed with the CTA and selected to meet the facility needs. The size of the electrical service equipment shall be determined by a Professional Engineer to conform to the City of Chicago Building Code and the National Electrical Code. Interior Lighting shall be provided to meet the requirements of the occupants and utilize a minimum number of separate lamps for building maintenance.

## Plumbing/Fire Protection

The building shall provide restrooms facilities capable of meeting CTA requirements and plumbing and accessibility codes. Low water consumption fixtures should be selected. Selection of toilet accessories, partitions and lockers should be durable and easy to maintain. The design shall include fire protection according to applicable codes including heat and smoke detectors, and associated alarm sirens and strobes. The fire alarm system shall be integrated with the City of Chicago security annunciation system to alert proper authorities. An automatic sprinkler system shall also be included. The fire alarm system will be of addressable type, and be in accordance with the City of Chicago Building Code, National Fire Protection Association and the requirements of the Bureau of Fire Prevention, whichever is more stringent.

## Communications

The provisions for information technology shall be coordinate with the CTA IT department. The data system shall be a combination of direct cable and wireless.

## Automation, Measurement & Verifications

The building shall include a Building Automation System (BAS). The systems that tie into the BAS system shall be discussed with the CTA. The controls system shall integrate to a Graphical User Interface (GUI). A measurement and verification system to monitor energy use should be considered and shall be discussed with CTA.

# SECURITY

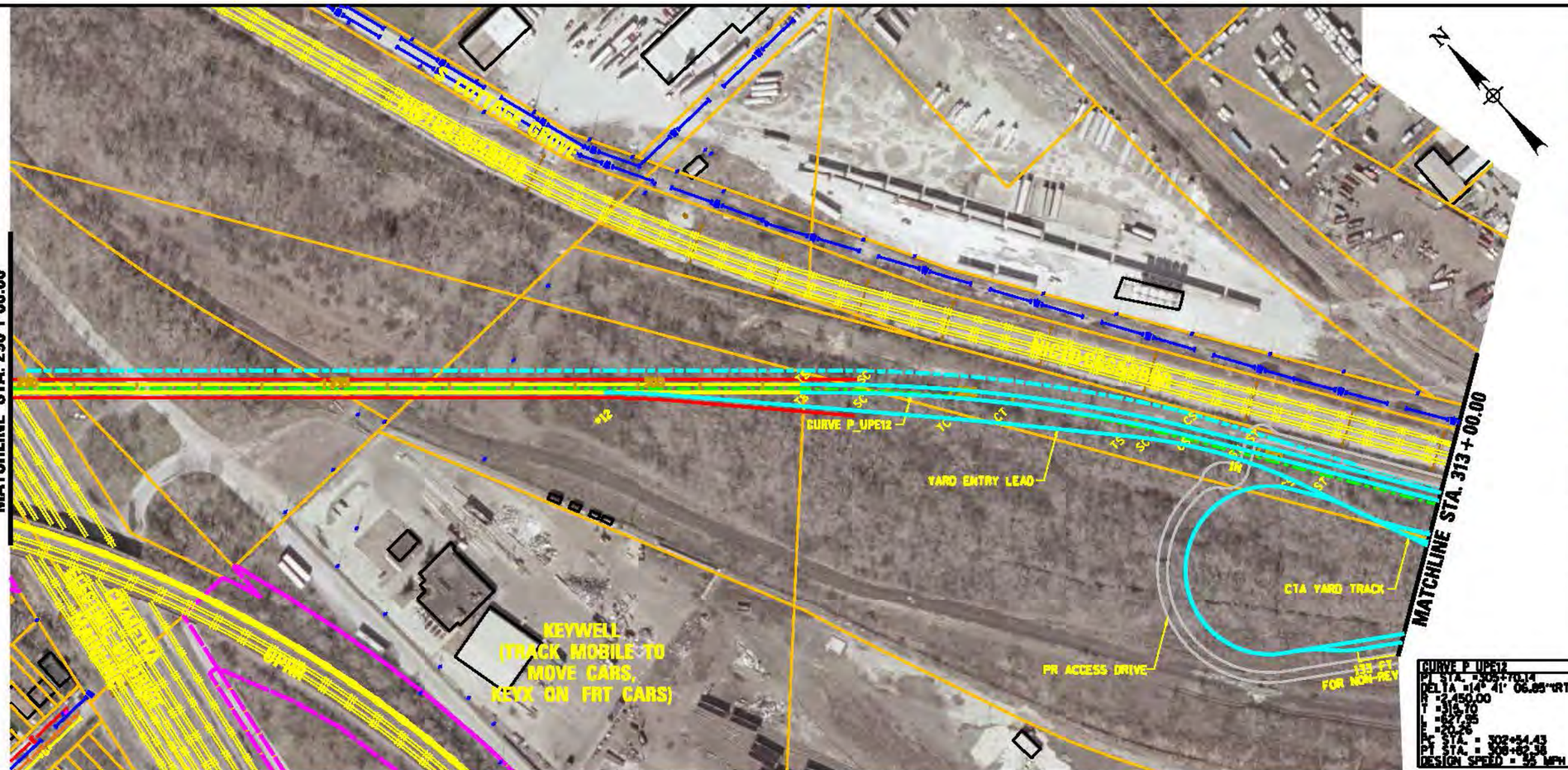
The security system shall consist of intrusion detection/access control and Surveillance System. The security system will be monitored, if required, by a third party security contract, or with a direct link to the Chicago Police Department local precinct. A direct link to the CTA Control Center will also be included. The surveillance system shall be provided with Raceways, Closed-

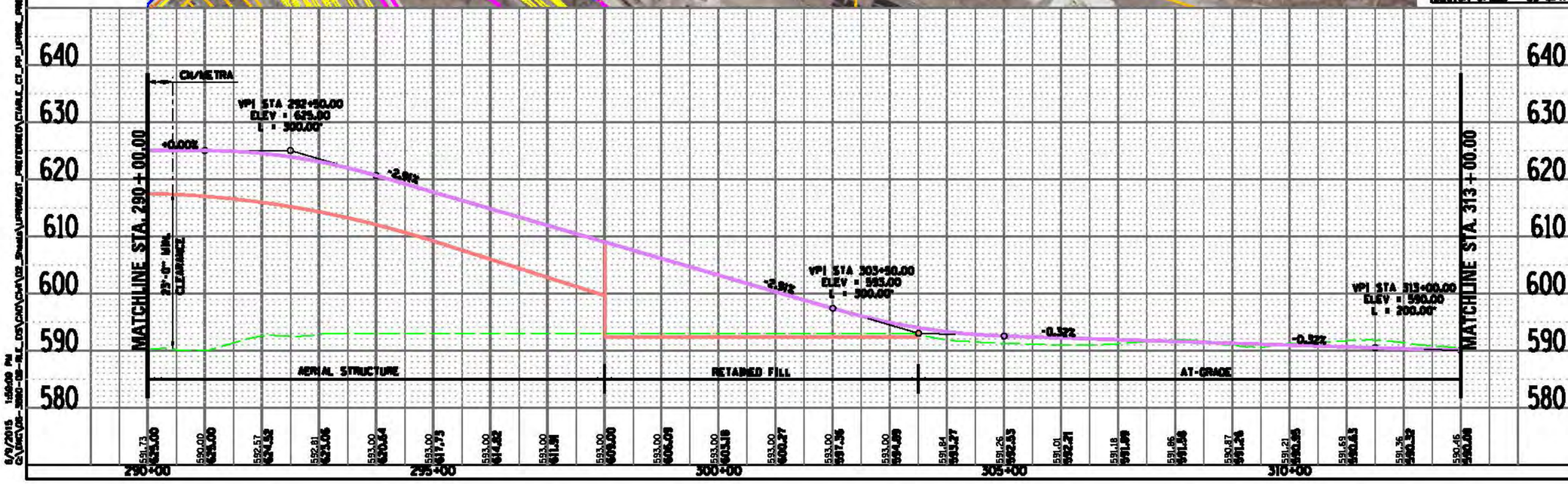
Circuit Television (CCTV)-UTP cables, jacks, patch panels, patch cords, high resolution Pan Tilt Zoom (PTZ) cameras, infrared cameras, multiplexes, monitors, Digital Video Recorder (DVR), interface modules, fiber distribution and all appurtenances for a complete surveillance system. The surveillance system coverage shall include but not be limited to, the building interior, the rail yard, loading areas and parking areas. Exterior cameras shall have the capability to send the video signal to the OEMC (Office of Emergency Management and Communications) upon request as a part of the Third Party Initiative Program. Camera selection shall be coordinated with OEMC for their compatibility.

Attachments:

- Plan view conceptual schematics of yard and shop
- Yard capacity detail
- Flow schematics (into and out of the yard, and internal movements)
- Yard Storage Track Spacing Alternatives

cc: File




LEGEND

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- PR CENTERLINE
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- PR TRACK STRUCTURE
- EX ROADWAY RIGHT-OF-WAY
- EX RAILROAD RIGHT-OF-WAY
- PR PERMANENT ENVELOPE
- PR ROADWAY/HARDSCAPE
- PR STATION PLATFORM
- EX BUILDING OUTLINE
- PR BUILDING OUTLINE
- PR PARKING
- PR CTA SUBSTATION
- PR UPRR TRACK CENTERLINE

UTILITIES
- EXISTING WATER LINES
- EXISTING SEWER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE LINE

ENTRANCES
- PRIMARY ENTRANCE
- SECONDARY ENTRANCE
- EXIT ONLY
- PROPOSED PARKING ENTRANCE

PROFILE
- EX GROUND
- PR TOP OF RAIL
- PR ELEVATED STRUCTURE DEPTH
- PLATFORM LOCATION

GWC Transit Group

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CHICAGO TRANSIT AUTHORITY

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RED LINE EXTENSION
ENVIRONMENTAL IMPACT STUDY
UNION PACIFIC RAILROAD
ALTERNATIVE
EAST SIDE OPTION

13 OF 51

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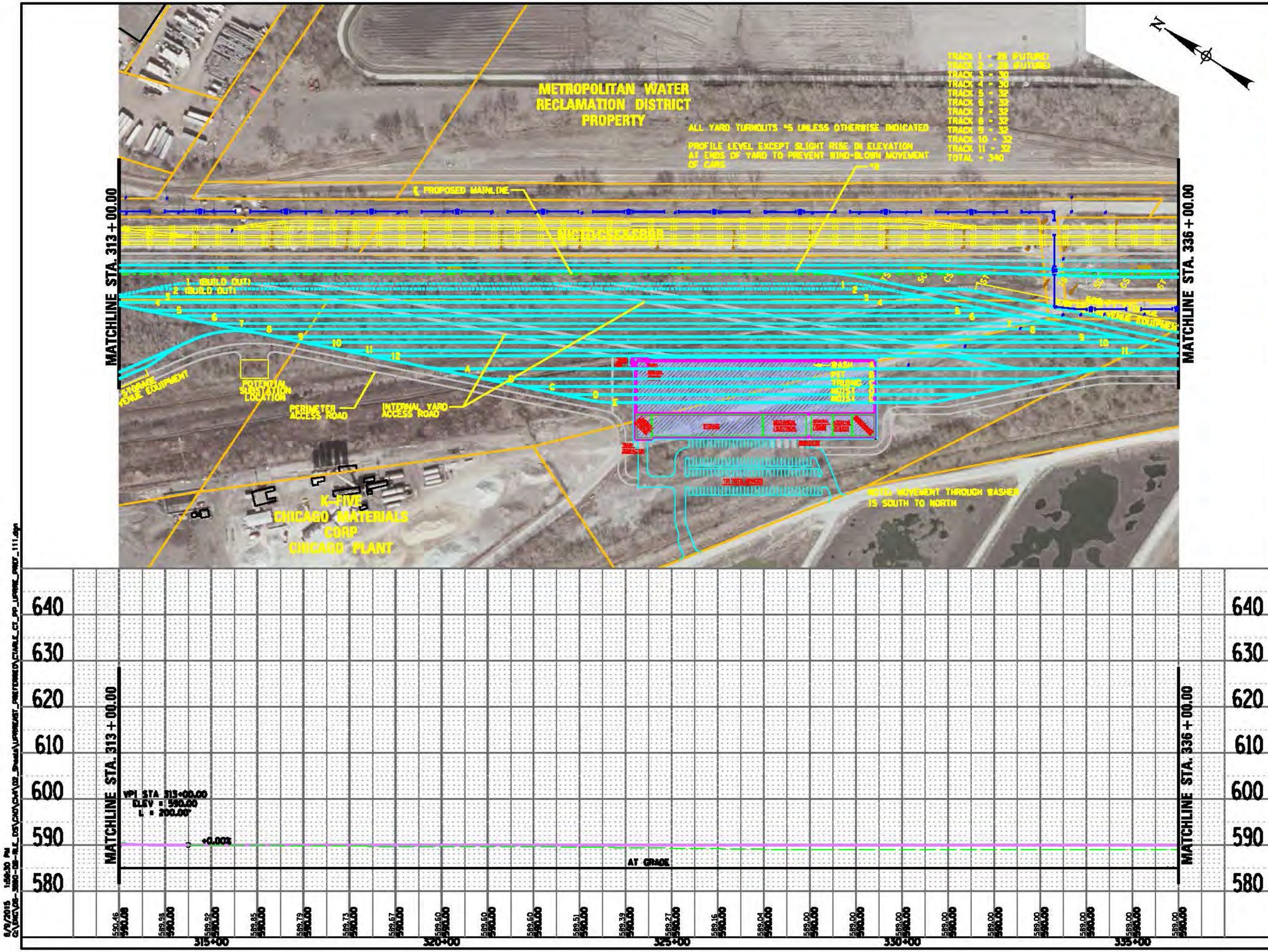


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RED LINE EXTENSION
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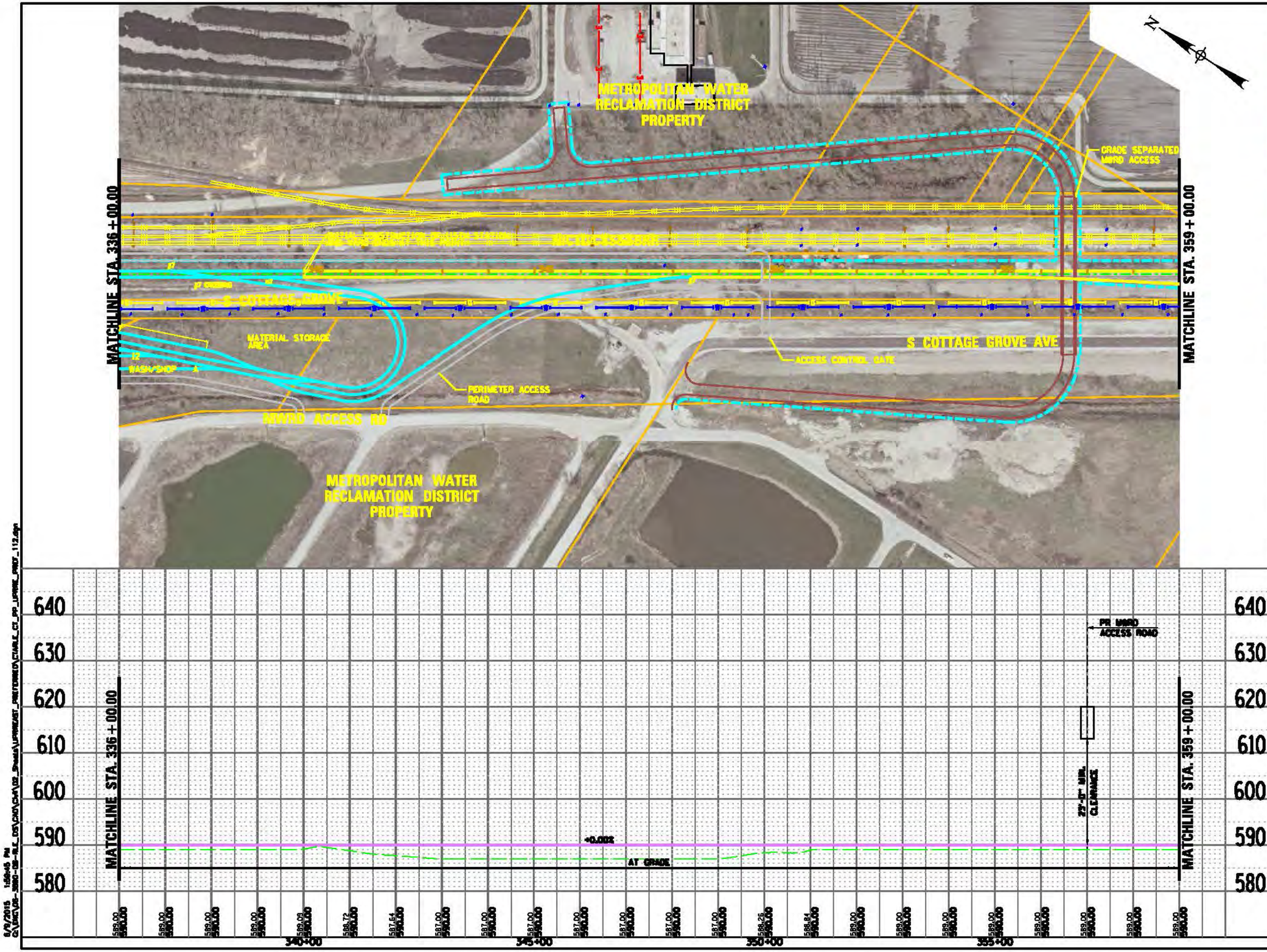


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UTILITIES
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- EXISTING ELECTRIC LINE
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ENTRANCES
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PROFILE
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## RLE Yard Storage Requirements

***Ultimate Build-Out***

Assumptions:

- Store 80 cars (8 x 10-car trains) for RPM ultimate build-out
- Replace maximum storage in 98th Yard
- Store 78 additional cars for RLE operation
- The minimum number of Red Line cars in operation (due to 7/24 service) is 40 cars (10 trains x 4 cars)
- Do not assume any trains stored on yard leads
- Discount storage requirements by 12 cars (~3%) for cars in shop undergoing maintenance, wheel truing, washing or interior cleaning

*At night when 4-car trains are operating, ten 10-car trains are broken into ten 4-car trains (in service) plus ten 6-car trains which need to be stored*

| | | |
|---|---|---|
| RPM | 80 | cars |
| 98th Yard | 234 | cars |
| RLE | 78 | cars |
| Total | 392 | cars |
| In Service | (40) | cars |
| In Shop | (12) | cars |
| **Storage** | **340** | **cars** |

5 Storage Tracks @ 32 cars (2 trains x 10 cars/train + 2 trains x 6 cars/train) +
6 Storage Tracks @ 30 cars (3 trains x 10 cars/train) = 340 cars

***RPM Phase 1 and RLE to 115th Street***

Assumptions:

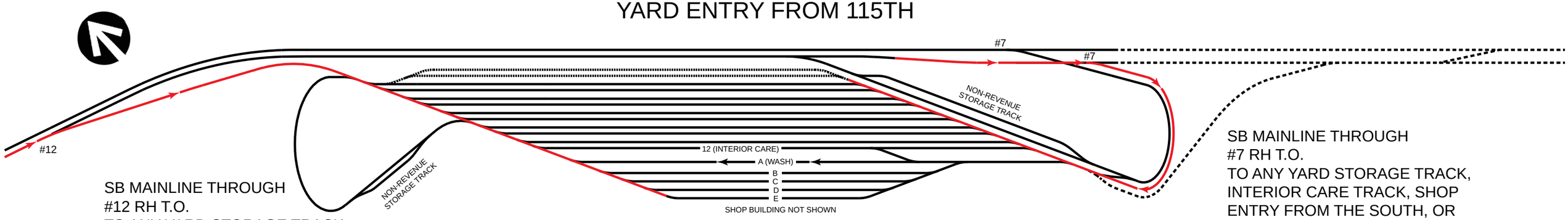
- Store 40 cars (5 x 8-car trains) for RPM Phase 1
- Replace maximum storage in 98th Yard
- Store 64 additional cars for RLE operation to 115th Street
- The minimum number of Red Line cars in operation (due to 7 day/24 hour service) is 40 cars (10 trains x 4 cars)
- Do not assume any trains stored on yard leads
- Discount storage requirements by 10 cars (~3%) for cars in shop undergoing maintenance, wheel truing, washing or interior cleaning

*At night when 4-car trains are operating, five 8-car trains are broken into ten 4-car trains - no need to store partial trains*

| | | |
|---|---|---|
| RPM | 40 | cars |
| 98th Yard | 234 | cars |
| RLE | 64 | cars |
| Total | 338 | cars |
| In Service | (40) | cars |
| In Shop | (10) | cars |
| **Storage** | **288** | **cars** |

9 Storage Tracks @ 32 cars (4 trains x 8 cars/train) = 288 cars

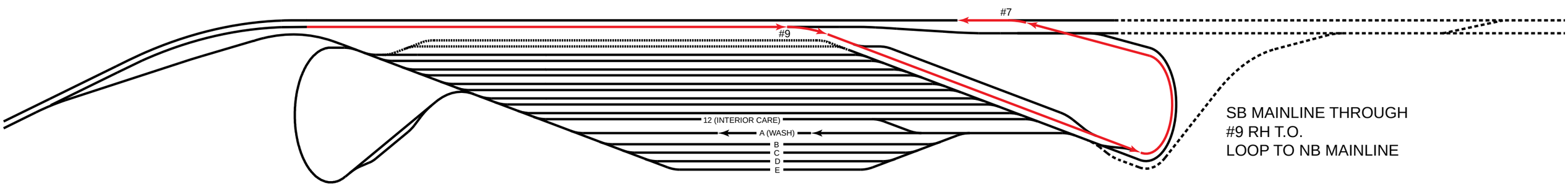
## YARD ENTRY FROM 115TH




SB MAINLINE THROUGH
#12 RH T.O.
TO ANY YARD STORAGE TRACK,
INTERIOR CARE TRACK, OR SHOP
ENTRY FROM THE NORTH

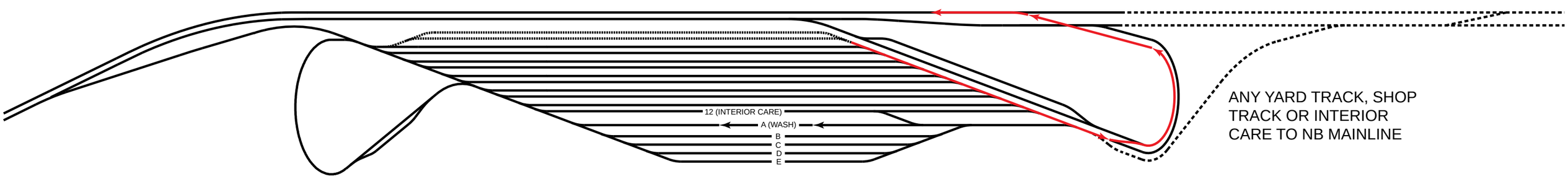
SB MAINLINE THROUGH
#7 RH T.O.
TO ANY YARD STORAGE TRACK,
INTERIOR CARE TRACK, SHOP
ENTRY FROM THE SOUTH, OR
WASH TRACK

## RETURN TO SERVICE FROM 115TH




SB MAINLINE THROUGH
#9 RH T.O.
LOOP TO NB MAINLINE

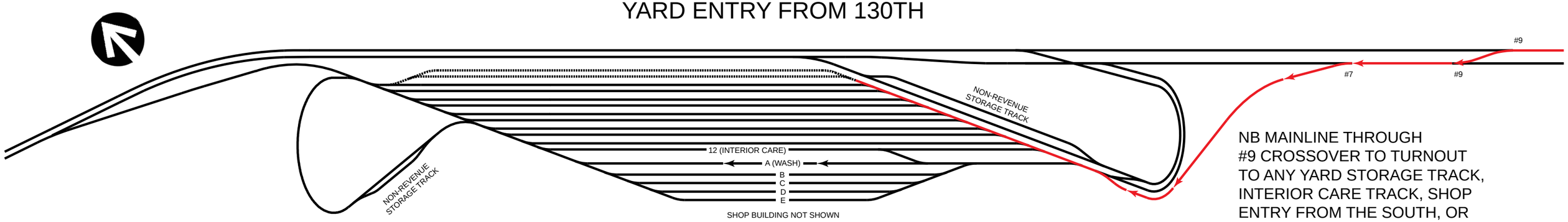
## EXIT YARD TO 115TH




ANY YARD TRACK, SHOP
TRACK OR INTERIOR
CARE TO NB MAINLINE

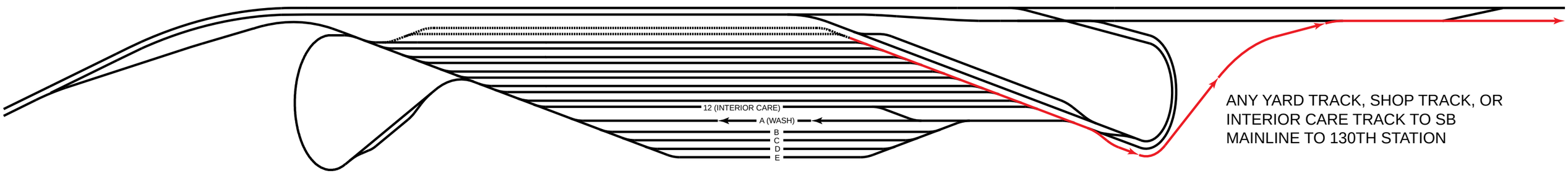
NTS

## YARD ENTRY FROM 130TH



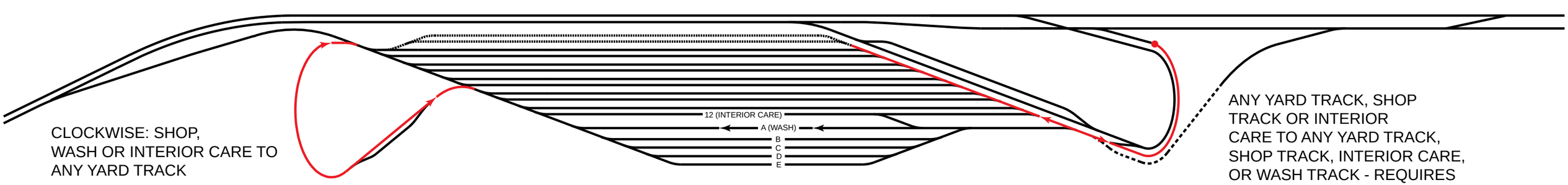

NB MAINLINE THROUGH #9 CROSSOVER TO TURNOUT TO ANY YARD STORAGE TRACK, INTERIOR CARE TRACK, SHOP ENTRY FROM THE SOUTH, OR WASH TRACK

## EXIT YARD TO 130TH




ANY YARD TRACK, SHOP TRACK, OR INTERIOR CARE TRACK TO SB MAINLINE TO 130TH STATION

## INTERNAL YARD MOVEMENTS



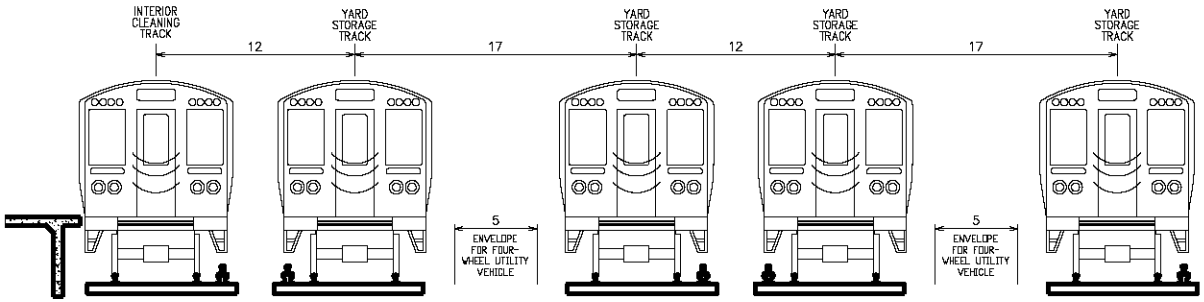

CLOCKWISE: SHOP, WASH OR INTERIOR CARE TO ANY YARD TRACK

COUNTER CLOCKWISE: ANY YARD TRACK TO SHOP (NORTH ENTRANCE) OR INTERIOR CARE

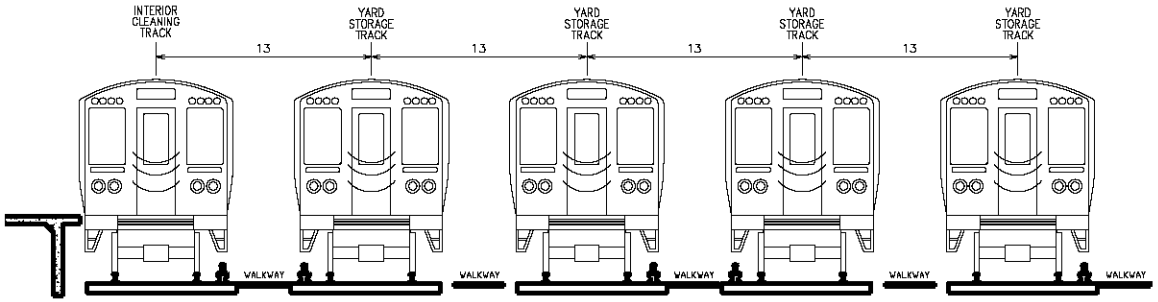
ANY YARD TRACK, SHOP TRACK OR INTERIOR CARE TO ANY YARD TRACK, SHOP TRACK, INTERIOR CARE, OR WASH TRACK - REQUIRES REVERSAL OF TRAIN AT ●

ALL INTERNAL YARD TURNOUTS ARE #5

NTS




POTENTIAL YARD TRACK LAYOUT WITH ROOM FOR UTILITY VEHICLE BETWEEN EVERY OTHER TRACK




POTENTIAL YARD TRACK LAYOUT WITH WALKWAY BETWEEN EACH TRACK

# Memorandum

*To:* *Sonali Tandon*

*From:* *CWC, Wight & Company*

*Date:* *February 19, 2015, revised March 16, 2015*

*Subject:* *130th Street Terminal Station Options*

The purpose of this memorandum is to provide a decision support document for the elimination of one of the station options for the extension of the Red Line to 130th Street. To date, the Union Pacific Railroad (UPRR) Rail Alternative has included two options for the 130th Street terminal station: the South and West Station Options. FTA has indicated that CTA should prepare the Draft Environmental Impact Statement (EIS) for the Red Line Extension (RLE) with the preferred alternative clearly identified to streamline the environmental process. To streamline the Draft EIS, CTA would like to present one terminal station in the Draft EIS; this memorandum serves as documentation.

This memorandum briefly describes the station options and evaluates the pros and cons of each option. This memorandum also provides a recommendation for the preferred station location.

## 130th South Station Option (Figure 1)

The South Station Option would be located immediately west of the Northern Indiana Commuter Transportation District/Chicago South Short & South Bend Railroad (NICTD/CSS&SBRR) right-of-way at 130th Street. The station and platform would be at grade. The station area would have three tracks running to the station. The platform would extend underneath 130th Street and would terminate before 130th Place, south of 130th Street. A total of 2,300 parking spaces are proposed in a seven-story parking structure. Pedestrians would access the station from 130th Place or from the parking structure. Vehicles would access the parking structure from 130th Street. Pedestrians from Altgeld Gardens would access the station from 130th Place, not needing to cross 130th Street.

## 130th West Station Option (Figure 2)

The West Station Option would be located along the north side of 130th Street at Evans Avenue. The station and platform would be at grade. A total of 2,300 parking spaces are proposed in a four-story parking structure plus a surface parking lot. Pedestrians from Altgeld Gardens would access the station through a pedestrian cross walk on 130th Street. A traffic signal at 130th Street, marked crosswalk, and curb ramps would be provided as part of the project.

## Evaluation of Station Options

The City of Chicago Department of Transportation conducted a Market/Access study for the 130th Street Station in 2010 which evaluated the two station options. The study built upon CTA's Alternatives Analysis from 2009 but did not provide a recommendation for the final location of the station. The results of the study indicated that the South Station Option provided the best opportunity to meet the goals of the 130th Street Gateway Vision. The 130th Street Gateway Vision is to develop 130th Street into a gateway for the City of Chicago as well as the greater Calumet Area. The study stated that the South Station Option would:

- Promote possible development of a joint intermodal station with NICTD
- Support future studies to extend the Red Line across the Little Calumet River
- Encourage the visioning conducted by the Chicago Housing Authority for Altgeld Gardens
- Establish pedestrian and bicycle accessibility between 130th Street Station and the City's proposed Kensington Bikeway, Carver Military Academy and Altgeld Gardens
- Provide a potential catalyst for other public and private investment in the study area and as identified in the City's plans for the Calumet Region.

Stakeholders from the project area have indicated a preference for the South Station Option, as indicated in *Summary Report of the Developing Communities Project Community Visioning Session for the Proposed Red Line Extension*, compiled in September 2010. The master planning process undertaken by the Chicago Housing Authority (CHA) for the Altgeld Gardens Murray Homes in 2013 included evaluating the existing conditions, land uses in the planning area, and community facilities. The comprehensive master planning process recommended the South Station Option because it provided better connectivity to the Community Center and Ellis Avenue, which is a major north-south street that includes proposed retail. Stakeholders also indicated their preference for the South Station Option during the CTA public informational meeting held May 13, 2014.

The South Station Option is on tangent track leading to/from the proposed yard, which would be north of the station. To access the West Station Option, the tracks would curve to the west. In addition to the curved tracks, the cost of approximately 1100 feet of additional track needed for the West Station Option increases the cost over the South Station Option by nearly $30 million, assuming all other amenities to the station would be of equal value. The additional track and curve leading to the West Station Option would create higher operational costs over the South Station Option.

Based on the results of the environmental analysis performed for the RLE Draft EIS in 2012–2015, the West Station Option would have an impact on pedestrian safety; however, the

proposed traffic signal at 130th Street and the pedestrian crosswalk would mitigate the impact. Both station options have the potential for wetland impacts. Fieldwork would be required at either location to determine if jurisdictional wetlands are present. Both station options would have traffic impacts related to the park & ride facilities off of 130th Street. Mitigation measures to minimize the traffic impacts include optimizing the traffic cycles and adding in turn-lanes. Both station options would also require land acquisition from the Metropolitan Water Reclamation District of Greater Chicago (MWRD).

The South Station Option would better serve the Carver Military Academy High School, located east of the station area, south of 130th Street. Students and faculty of the Carver Military Academy would be able to access the station through Doty Avenue. The South Station Option would be closer to the Ford Motor Company on Torrence Avenue.

The South Station Option would provide the best opportunity for a future connection to NICTD, because the NICTD tracks would parallel the proposed RLE at this station. Improving regional rail connections and linkages to other public transportation modes in the project area is one element of the RLE Project's purpose and need. The West Station Option would not accommodate a direct regional rail connection to other public transportation.

During a meeting with MWRD on September 16, 2013 regarding the proposed RLE yard and station options, MWRD indicated that they do not have future plans for any of the parcels where the station options are proposed. MWRD indicated that the vacant parcels are intended to act as buffers (both visually and for odors) for the lagoons to the surrounding communities. MWRD tentatively indicated that the South Station Option would be better than the West Station Option.

## Recommendations

Based on the evaluation of station options, input from the local community, and project costs, the South Station Option is the preferred station location for the 130th Street Terminal Station. The South Station Option would provide benefits to the project and would best meet the project's purpose and need of providing other transit connections to NICTD in the future.

cc: CWC, File