TEXAS DEPARTMENT OF TRANSPORTATION – DALLAS DISTRICT

WILLIAM HALE, P.E. – DISTRICT ENGINEER

DESIGN SCHEMATIC

SH 121/DNT INTERCHANGE, COLLIN COUNTY

SH 121: FROM NORTH OF LEGACY DRIVE TO NORTH OF SH 289 (PRESTON ROAD), 2.16 MILES
DNT: FROM SOUTH OF LEGACY DRIVE TO NORTH OF GAYLORD PARKWAY, 1.84 MILES

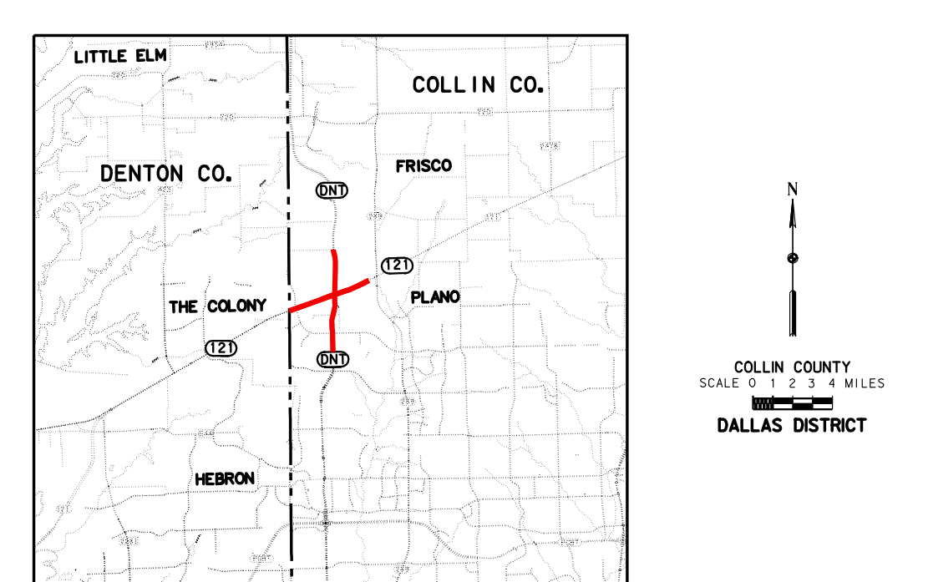
CSJ: 0364–04–047

DESIGN SPEED

MAINLANES – 70 MPH (URBAN FREEWAY)
SLIP RAMPS – 50 MPH (URBAN ARTERIAL)
DIRECT CONNECTORS – 45 MPH
FRONTAGE ROADS – 50 MPH
CROSS STREETS – 45 MPH

HIGHWAY CLASSIFICATION

OTHER URBAN FREEWAY


LITTLE ELM
COLLIN CO.
DENTON CO.
FRISCO
DNT
121
THE COLONY
PLANO
HEBRON
DALLAS CO.
N
COLLIN COUNTY
SCALE 0 1 2 3 4 MILES
DALLAS DISTRICT

DATE APPROVED

DATE SUBMITTED

DATE REVISED

PREPARED BY HNTB
UNDER THE SUPERVISION OF:
CHRISTOPHER M. BERGERON, P.E.

NOT INTENDED FOR
CONSTRUCTION, BIDDING
OR PERMIT PURPOSES.

SERIAL NO. 72895
DATE: ____________

0 100 200
HORIZONTAL
0 10 20
VERTICAL
SCALE IN FEET

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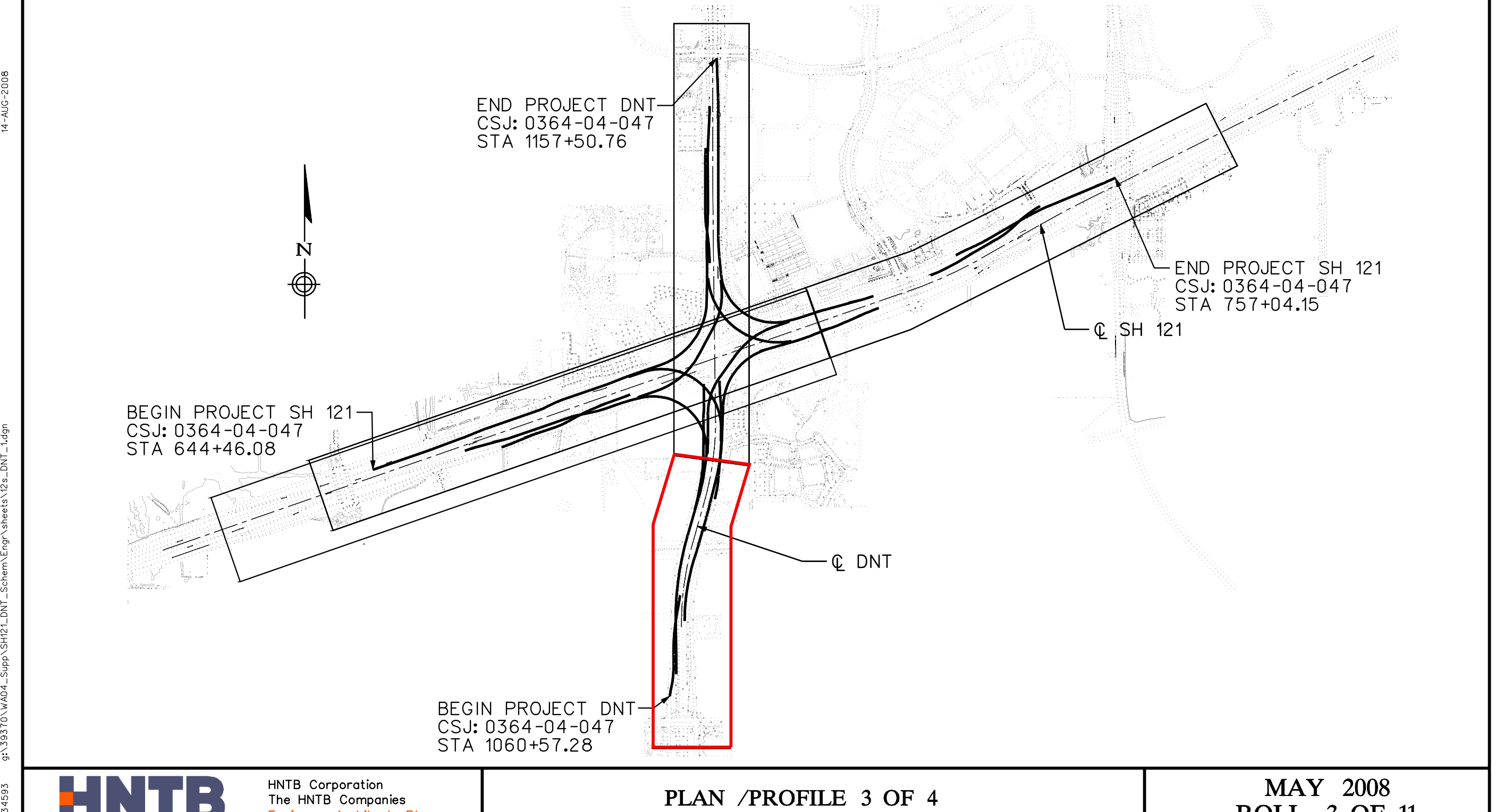
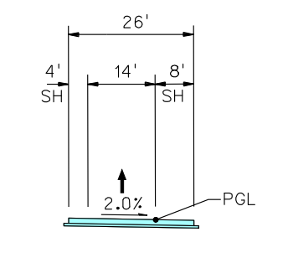

END PROJECT DNT
CSJ: 0364-04-047
STA 1157+50.76
N
END PROJECT SH 121
CSJ: 0364-04-047
STA 757+04.15
℄ SH 121
BEGIN PROJECT SH 121
CSJ: 0364-04-047
STA 644+46.08
℄ DNT
BEGIN PROJECT DNT
CSJ: 0364-04-047
STA 1060+57.28

HNTB Corporation
The HNTB Companies
Engineers Architects Planners

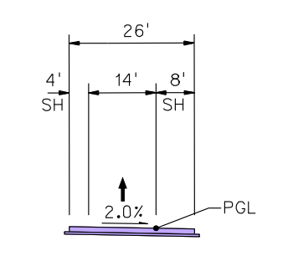
PLAN /PROFILE 3 OF 4

MAY 2008
ROLL 3 OF 11

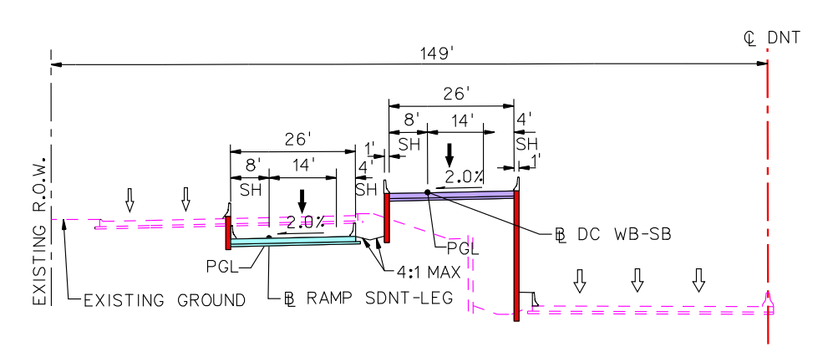
34593 g:\39370\WA04_Supp\SH121_DNT_Schem\Engr\sheets\12s_DNT_1.dgn 14-AUG-2008


26'
4' SH
14'
8' SH
2.0%
PGL

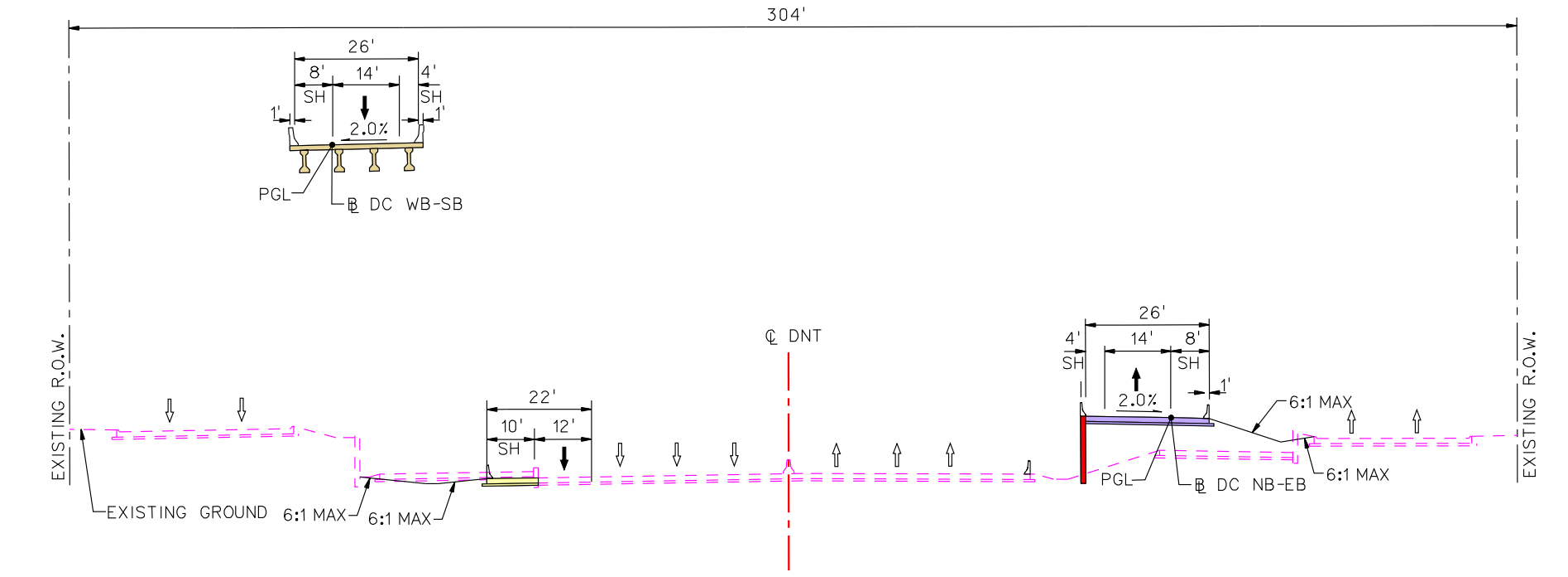
SLIP RAMP PROPOSED TYPICAL SECTION


26'
4' SH
14'
8' SH
2.0%
PGL

DIRECT CONNECTOR RAMP PROPOSED TYPICAL SECTION


149'
℄ DNT
26'
8' 14' 4'
SH SH
1'
26'
8' 14' 4'
SH SH
2.0%
2.0%
EXISTING R.O.W.
PGL
PGL
4:1 MAX
℄ DC WB-SB
EXISTING GROUND
℄ RAMP SDNT-LEG

℄ DNT STA 1086+50
PROPOSED HALF-SECTION


304'
26'
8' 14' 4'
SH SH
1'
2.0%
PGL
℄ DC WB-SB
EXISTING R.O.W.
℄ DNT
22'
10' 12'
SH
EXISTING GROUND
6:1 MAX
6:1 MAX
26'
4' 14' 8'
SH SH
1'
2.0%
6:1 MAX
6:1 MAX
PGL
℄ DC NB-EB
EXISTING R.O.W.

℄ DNT STA 1103+50
PROPOSED SECTION

℄ DC WB-SB

	PC 29+02.88	7,084,127.2286	2,482,406.0269	S 0° 52' 07.2" E			
DCWBSB-3	PI 31+29.71	7,083,900.4274	2,482,409.4658	13° 36' 56.9" RT	451.52'	226.83'	1,900.00'
	PT 33+54.40	7,083,679.1907	2,482,359.4166	S 12° 44' 49.7" W			
	PC 36+33.12	7,083,407.3374	2,482,297.9167	S 12° 44' 49.7" W			
DCWBSB-4	PI 36+91.83	7,083,350.0743	2,482,284.9624	2° 24' 08.6" RT	117.40'	58.71'	2,800.00'
	PT 37+50.52	7,083,293.4045	2,482,269.6192	S 15° 08' 58.3" W			
	PC 44+13.36	7,082,653.5988	2,482,096.3928	S 15° 08' 58.3" W			
DCWBSB-5	PI 49+01.10	7,082,182.8179	2,481,968.9295	15° 25' 51.6" LT	969.56'	487.73'	3,600.00'
	PT 53+82.92	7,081,695.0927	2,481,971.3255	S 0° 16' 53.3" E			
	PC 66+59.13	7,080,418.8990	2,481,977.5950	S 0° 16' 53.3" E			
DCWBSB-6	PI 68+38.09	7,080,239.9402	2,481,978.4742	1° 42' 31.8" LT	357.90'	178.96'	12,000.00'
	PT 70+17.03	7,080,061.0872	2,481,984.6895	S 1° 59' 25.1" E			
	PC 82+01.58	7,078,877.2451	2,482,025.8294	S 1° 59' 25.1" E			
DCWBSB-7	PI 82+28.70	7,078,850.1450	2,482,026.7712	1° 06' 35.0" RT	54.23'	27.12'	2,800.00'
	PT 82+55.82	7,078,823.0317	2,482,027.1879	S 0° 52' 50.1" E			

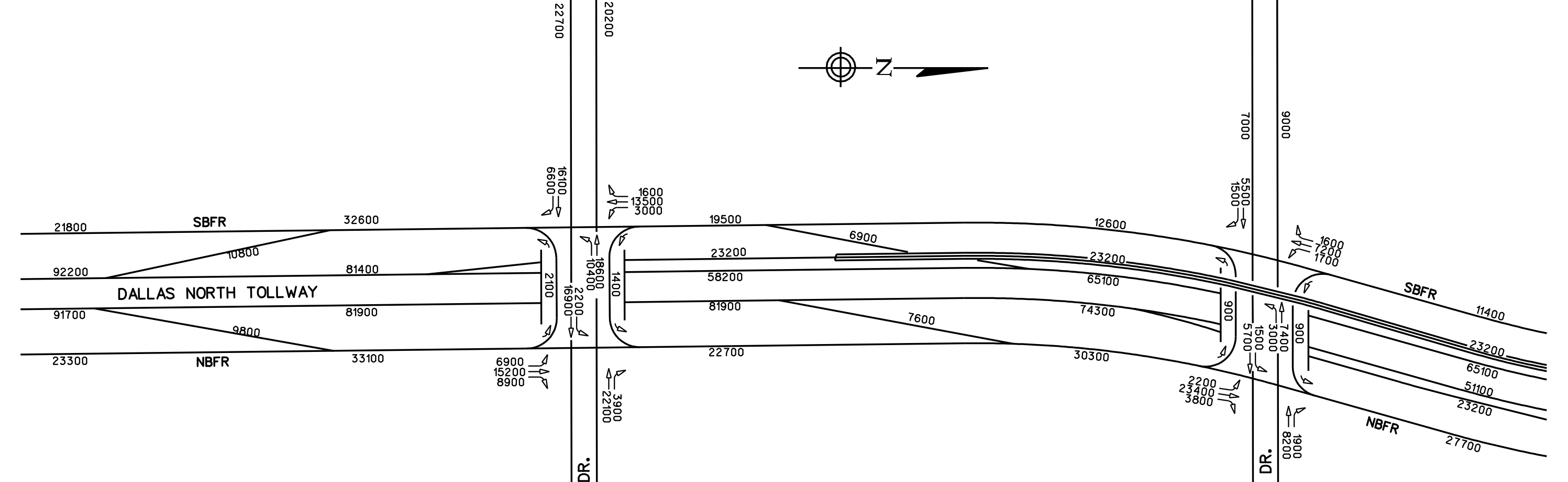
℄ DC NB-EB

	PC 10+00.00	7,081,624.4466	2,482,084.9656	N 0° 31' 04.1" E			
DCNBEB-1	PI 13+76.72	7,082,001.1517	2,482,088.3701	15° 19' 31.7" RT	748.94'	376.72'	2,800.00'
	PT 17+48.94	7,082,363.5614	2,482,191.2174	N 15° 50' 35.8" E			
	PC 29+25.32	7,083,495.2520	2,482,512.3767	N 15° 50' 35.8" E			
DCNBEB-2	PI 32+69.17	7,083,826.0410	2,482,606.2504	15° 39' 45.7" LT	683.41'	343.85'	2,500.00'
	PT 36+08.74	7,084,169.8905	2,482,607.3340	N 0° 10' 50.0" E			

SUPERELEVATION RATES

	STATION	CROSS SLOPE (FT/FT)
DC WB-SB	28+15	-0.020
	29+50	-0.040
	33+10	-0.040
	34+45	-0.020
	35+45	-0.020
	36+80	-0.031
	37+05	-0.031
	38+40	-0.020
	43+25	-0.020
	44+60	+0.025
	53+35	+0.025
	54+75	-0.020
DC NB-EB	20+42	-0.027
	21+75	-0.020
	28+30	-0.020
	29+75	+0.033
	35+60	+0.033
	37+05	-0.020

℄
(-) | (+)
(+) | (-)
SIGN CONVENTION


Z
21800
SBFR
32600
10800
92200
81400
DALLAS NORTH TOLLWAY
91700
81900
9800
23300
NBFR
33100
22700
20200
16100
6600
1600
13500
3000
2100
18600
10400
2200
16900
1400
6900
15200
8900
3900
22100
19500
23200
58200
81900
22700
6900
7600
12600
23200
65100
74300
30300
7000
9000
5500
1500
900
1500
5700
7400
3000
1600
7200
1700
2200
23400
3800
900
1900
8200
SBFR
11400
23200
65100
51100
23200
NBFR
27700
LEGACY DR.
25800
26000
HEADQUARTERS DR.
9500
10100

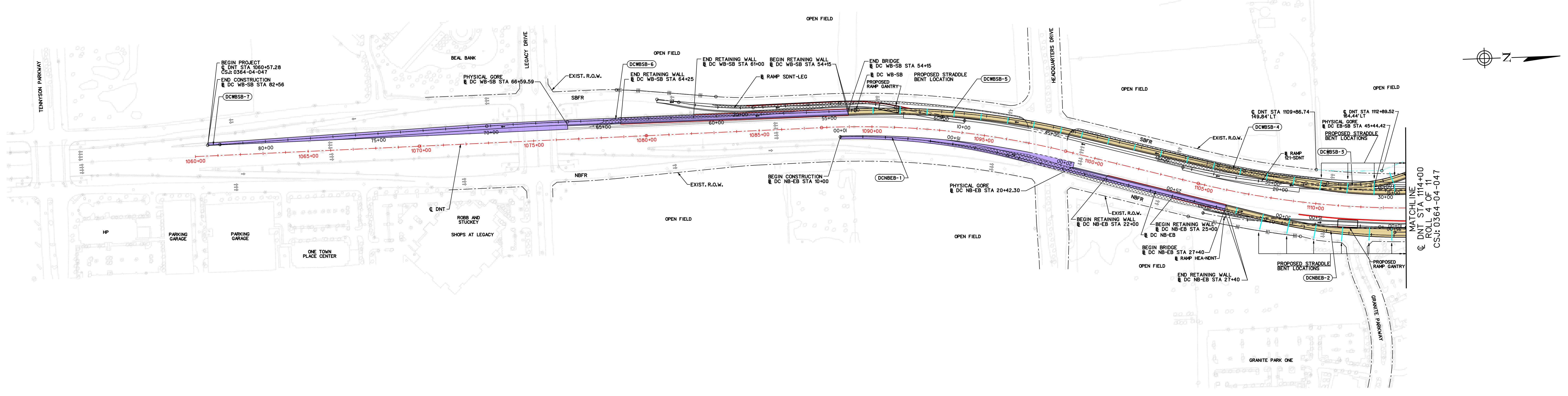
NOTES:

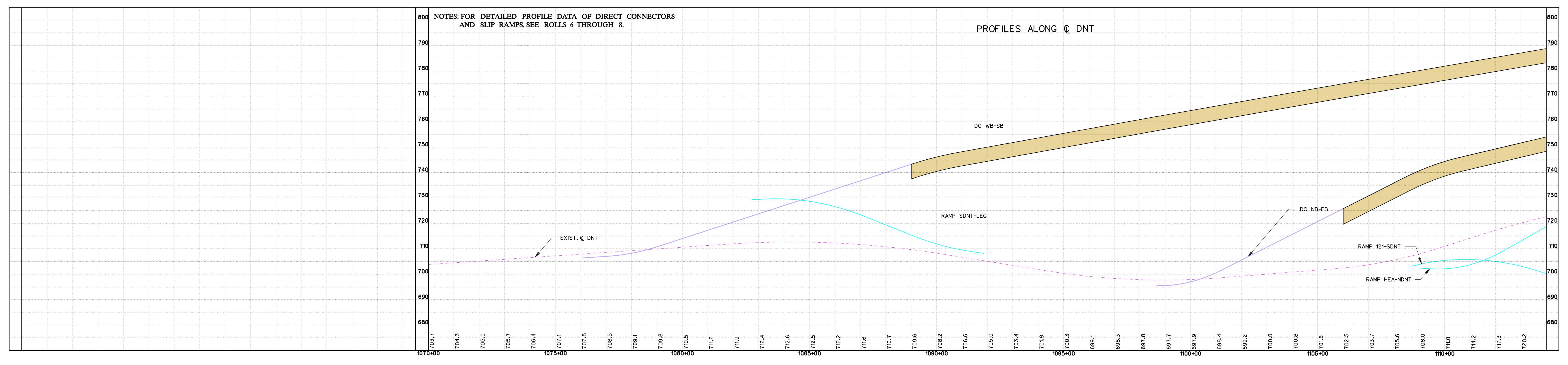
1. YEAR 2030 AVERAGE DAILY TRAFFIC (ADT) IN VEHICLES PER DAY (VPD).

2. SOURCE: TXDOT TRANSPORTATION PLANNING AND PROGRAMMING.

TRAFFIC DIAGRAM
NOT TO SCALE

THESE ARE PRELIMINARY DESIGN CONCEPTS
Subject to change based on further developments resulting from public input and technical review.


TENNYSON PARKWAY
BEAL BANK
LEGACY DRIVE
OPEN FIELD
BEGIN PROJECT
℄ DNT STA 1060+57.28
CSJ: 0364-04-047
END CONSTRUCTION
℄ DC WB-SB STA 82+56
DCWBSB-7
PHYSICAL GORE
℄ DC WB-SB STA 66+59.59
EXIST. R.O.W.
SBFR
DCWBSB-6
END RETAINING WALL
℄ DC WB-SB STA 64+25
END RETAINING WALL
℄ DC WB-SB STA 61+00
BEGIN RETAINING WALL
℄ DC WB-SB STA 54+15
℄ RAMP SDNT-LEG
END BRIDGE
℄ DC WB-SB STA 54+15
℄ DC WB-SB
PROPOSED RAMP GANTRY
PROPOSED STRADDLE BENT LOCATION
DCWBSB-5
80+00
75+00
70+00
65+00
60+00
55+00
50+00
45+00
40+00
35+00
30+00
1060+00
1065+00
1070+00
1075+00
1080+00
1085+00
1090+00
1095+00
1100+00
1105+00
1110+00
10+00
15+00
20+00
25+00
NBFR
EXIST. R.O.W.
BEGIN CONSTRUCTION
℄ DC NB-EB STA 10+00
DCNBEB-1
PHYSICAL GORE
℄ DC NB-EB STA 20+42.30
℄ DNT
HP
PARKING GARAGE
PARKING GARAGE
ONE TOWN PLACE CENTER
ROBB AND STUCKEY
SHOPS AT LEGACY
HEADQUARTERS DRIVE
℄ DNT STA 1109+86.74
149.84' LT
DCWBSB-4
℄ DNT STA 1112+89.52
164.44' LT
PHYSICAL GORE
℄ DC EB-SB STA 45+44.42
PROPOSED STRADDLE BENT LOCATIONS
℄ RAMP 121-SDNT
DCWBSB-3
EXIST. R.O.W.
BEGIN RETAINING WALL
℄ DC NB-EB STA 22+00
BEGIN RETAINING WALL
℄ DC NB-EB STA 25+00
℄ DC NB-EB
BEGIN BRIDGE
℄ DC NB-EB STA 27+40
℄ RAMP HEA-NDNT
END RETAINING WALL
℄ DC NB-EB STA 27+40
PROPOSED STRADDLE BENT LOCATIONS
DCNBEB-2
PROPOSED RAMP GANTRY
GRANITE PARKWAY
GRANITE PARK ONE
MATCHLINE
℄ DNT STA 1114+00
ROLL 4 OF 11
CSJ: 0364-04-047
Z



NOTES: FOR DETAILED PROFILE DATA OF DIRECT CONNECTORS AND SLIP RAMPS, SEE ROLLS 6 THROUGH 8.

NOTES:

1. IN COLLIN COUNTY, DESIGN BASED ON NAD 83 SURFACE COORDINATES WITH A SCALE FACTOR OF 1.000152710.

2. FACILITY WILL BE CONTINUOUSLY LIGHTED.

3. FOR DETAILED SLIP RAMP HORIZONTAL GEOMETRY DATA AND COA STATIONS AND OFFSETS, SEE ROLL 5.

LEGEND

- 🟨 Main Lane
- 🟪 Direct Connector
- 🟩 Frontage Road/Cross Street
- 🟦 Ramp
- 🟫 Bridge Structure
- — - - Existing ROW
- —·— Proposed ROW
- —·— Existing Centerline
- —·— Proposed Baseline
- ▨ Pavement Removal
- —ǁ— Control of Access
- —— Proposed Retaining Wall
- —— Column / Bent

TEXAS DEPARTMENT OF TRANSPORTATION – DALLAS DISTRICT

WILLIAM HALE, P.E. – DISTRICT ENGINEER

DESIGN SCHEMATIC

SH 121/DNT INTERCHANGE, COLLIN COUNTY

SH 121: FROM NORTH OF LEGACY DRIVE TO NORTH OF SH 289 (PRESTON ROAD), 2.16 MILES
DNT: FROM SOUTH OF LEGACY DRIVE TO NORTH OF GAYLORD PARKWAY, 1.84 MILES

CSJ: 0364–04–047

DESIGN SPEED

MAINLANES – 70 MPH (URBAN FREEWAY)
SLIP RAMPS – 50 MPH (URBAN ARTERIAL)
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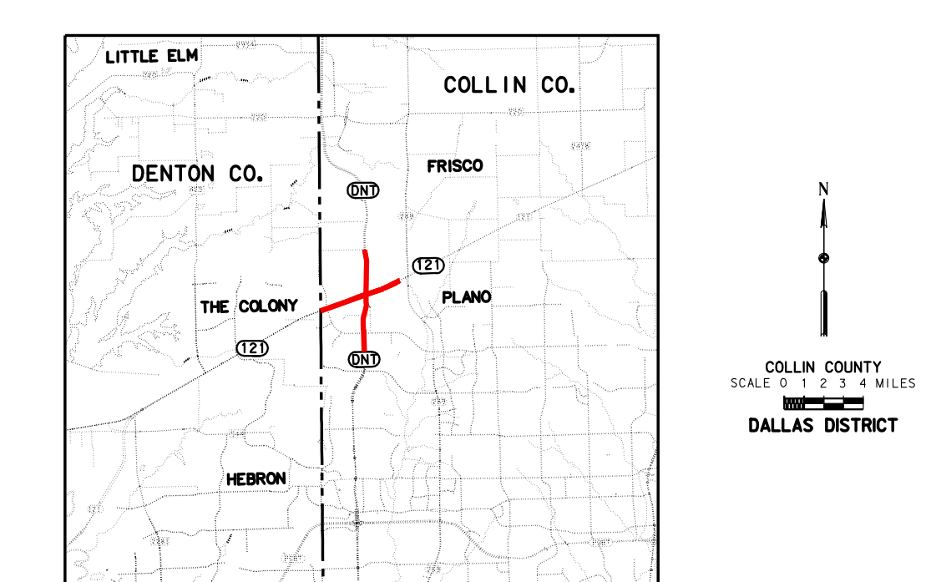
FRONTAGE ROADS – 50 MPH
CROSS STREETS – 45 MPH

HIGHWAY CLASSIFICATION

OTHER URBAN FREEWAY


LITTLE ELM
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DENTON CO.
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HEBRON
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COLLIN COUNTY
SCALE 0 1 2 3 4 MILES
DALLAS DISTRICT

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SERIAL NO. 72895
DATE: ____________

0 100 200
HORIZONTAL
0 10 20
VERTICAL
SCALE IN FEET

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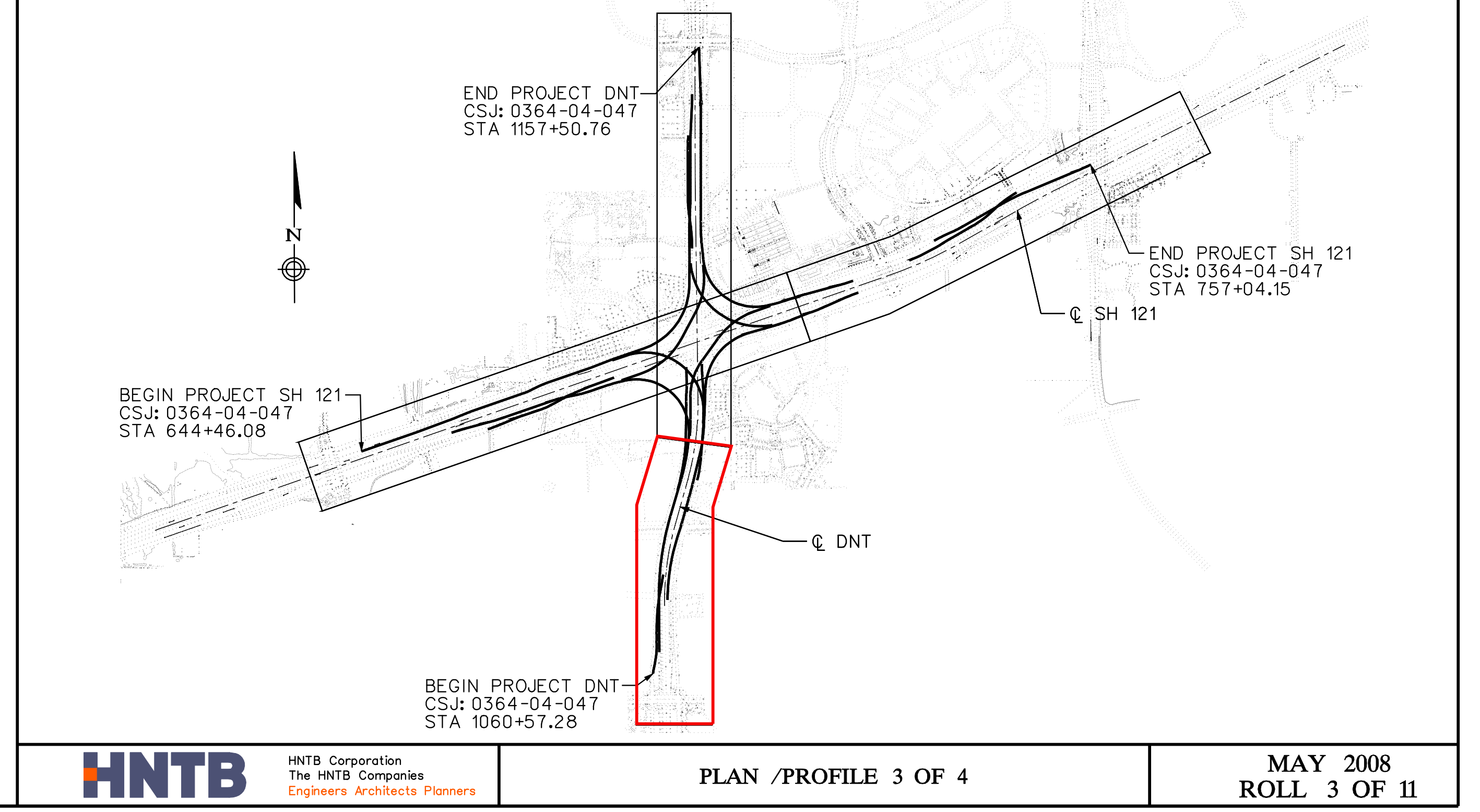
END PROJECT DNT
CSJ: 0364-04-047
STA 1157+50.76
N
END PROJECT SH 121
CSJ: 0364-04-047
STA 757+04.15
℄ SH 121
BEGIN PROJECT SH 121
CSJ: 0364-04-047
STA 644+46.08
℄ DNT
BEGIN PROJECT DNT
CSJ: 0364-04-047
STA 1060+57.28

HNTB Corporation
The HNTB Companies
Engineers Architects Planners

PLAN /PROFILE 3 OF 4

MAY 2008
ROLL 3 OF 11