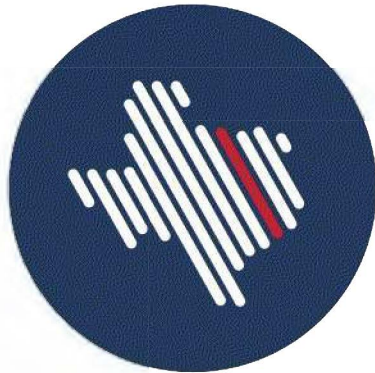


# **Dallas to Houston High-Speed Rail Final Environmental Impact Statement**

## **Appendix G: Dallas to Houston High-Speed Rail Passenger Service from Houston to Dallas Final Conceptual Engineering Plans and Details Set 8 of 14**



**TEXAS  
CENTRAL**



**TEXAS  
CENTRAL**



**DALLAS TO HOUSTON HIGH-SPEED RAIL**  
PASSENGER SERVICE FROM HOUSTON TO DALLAS

**FINAL CONCEPTUAL ENGINEERING  
PLANS AND DETAILS**  
PROJECT DEFINITION FOR FINAL ENVIRONMENTAL IMPACT STATEMENT  
VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

JULY 1, 2019



U.S. Department of Transportation  
**Federal Railroad Administration**

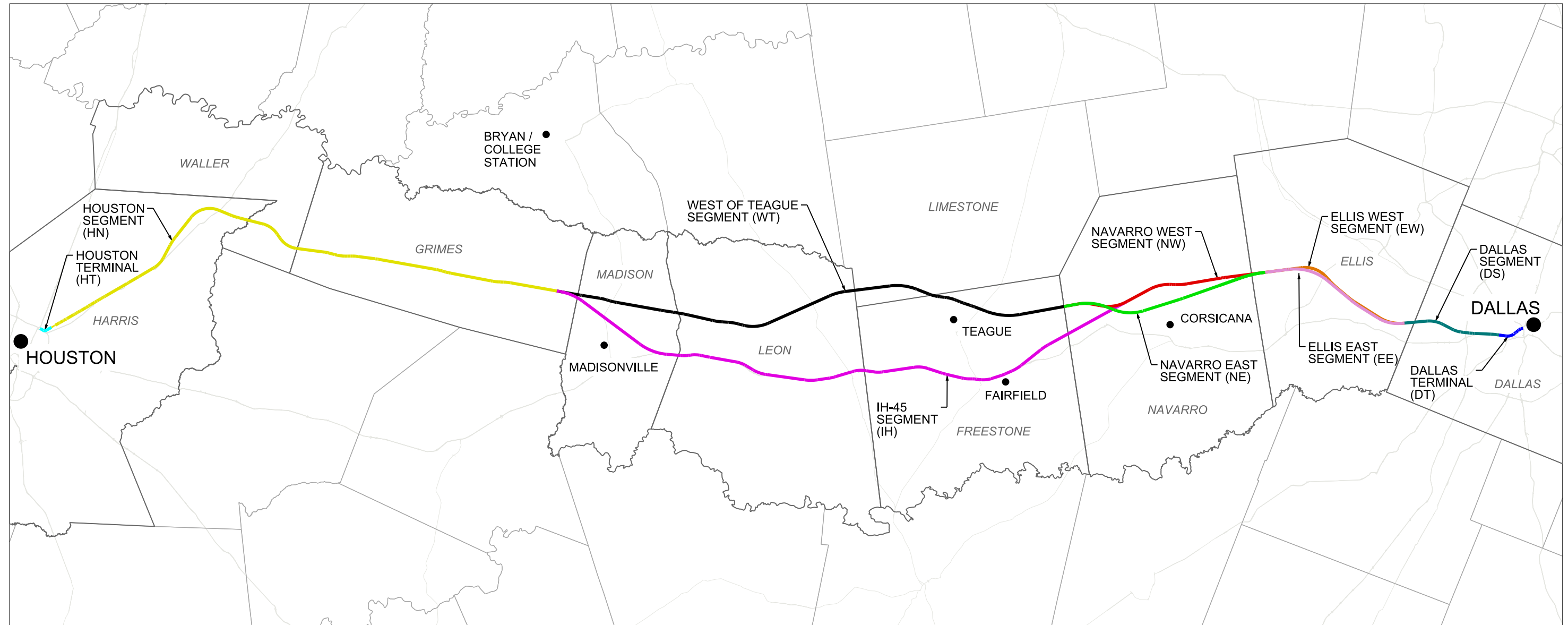
**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FRESE  
NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

COVER SHEET



ALIGNMENT ALTERNATIVE	FRA SEGMENT ID	SEGMENT NAMES	SEGMENT ABBREVIATION
A	5, 4, 3A, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, NAVARRO WEST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EW, NW, WT, HN
B	5, 4, 3B, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, NAVARRO EAST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EW, NE, WT, HN
C	5, 3C, 2A, 1	DALLAS SEGMENT, ELLIS WEST SEGMENT, IH-45 SEGMENT, HOUSTON SEGMENT	DS, EW, IH, HN
D	5, 4, 3A, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, NAVARRO WEST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EE, NW, WT, HN
E	5, 4, 3B, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, NAVARRO EAST SEGMENT, WEST OF TEAGUE SEGMENT, HOUSTON SEGMENT	DS, EE, NE, WT, HN
F	5, 3C, 2B, 1	DALLAS SEGMENT, ELLIS EAST SEGMENT, IH-45 SEGMENT, HOUSTON SEGMENT	DS, EE, IH, HN

- NOTES:  
 1. REFER TO FCE REPORT FOR SEGMENT NAMES AND ALIGNMENT ALTERNATIVES.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. THOMPSON**  
 DRAWN BY  
**D. THOMPSON**  
 CHECKED BY  
**R. BURNS**  
 IN CHARGE  
**C. TAYLOR**  
 DATE  
**02/25/2019**

**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
 www.arup.com  
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**FREESSE & NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**GENERAL LOCATION PLAN**

Scale  
 AS SHOWN  
 Drawing Status  
**FINAL**  
 Job No: 234180  
 Drawing No: GEN-00-00002  
 Rev: 01

VOLUME 1A - GENERAL SHEETS & TYPICAL SECTIONS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections 1A-1 GENERAL, 1A-2 RAILWAY TYPICAL SECTIONS, 1A-3 ROADWAY AND GRADE SEPARATION TYPICAL SECTIONS, 1A-4 CIVIL STRUCTURES TYPICAL DETAILS, 1A-5 CIVIL UTILITIES TYPICAL DETAILS, 1A-6 GENERAL - ALIGNMENT CURVE DATA TABLES.

VOLUME 1B - GENERAL SHEETS & TYPICAL SECTIONS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes section 1B-1 RAILWAY TYPICAL SECTIONS and 1B-2 ROADWAY AND GRADE SEPARATION TYPICAL SECTIONS.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for the Houston Segment, including CVL-HN-01101 through CVL-HN-01154-B.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for the Houston Segment, including CVL-HN-01155 through CVL-HN-01206, and West of Teague Segment including CVL-WT-01250 through CVL-WT-01252.

Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a table for design and drawing responsibilities.

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Lists D. THOMPSON, R. BURNS, and C. TAYLOR.



Project information including Drawing Title (GENERAL INDEX SHEET 1 OF 5), Scale (NO SCALE), Job No (234180), Drawing No (GEN-00-00003), and Rev (01).

PLOT TIME: 5/31/2019 9:49:34 AM

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing details for 2A-2 WEST OF TEAGUE SEGMENT.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing details for 2A-2 WEST OF TEAGUE SEGMENT, 2A-3 NAVARRO WEST SEGMENT, and 2A-4 ELLIS WEST SEGMENT.

VOLUME 2A - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing details for 2A-4 ELLIS WEST SEGMENT and 2A-5 DALLAS SEGMENT.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Revision table for the drawing.

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Designer information table.



Table with columns: Drawing Title, Scale, Drawing Status, Job No, Drawing No, Rev. Project metadata table.

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers CVL-IH-01350 to CVL-IH-01420 and their corresponding descriptions for the IH-45 segment.

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers CVL-IH-01421 to CVL-IH-01442 and CVL-NE-01600 to CVL-NE-01631, covering the IH-45 segment and the NAVARRO EAST segment.

VOLUME 2B - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Contains drawing numbers CVL-EE-01814 to CVL-EE-01823 and their corresponding descriptions for the ELLIS EAST segment.

Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a header row and one data row.

Design and drawing information table with fields: DESIGNED BY (D. THOMPSON), DRAWN BY (D. THOMPSON), CHECKED BY (R. BURNS), IN CHARGE (C. TAYLOR), DATE (02/25/2019).



Project information including Drawing Title (GENERAL INDEX SHEET 3 OF 5), Scale (NO SCALE), Drawing Status (FINAL), Job No (234180), Drawing No (GEN-00-00005), and Rev (01).

PLOT TIME: 5/24/2018 3:22:14 PM

PLOT BY: M-YPWICS01S

**VOLUME 3A - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS**

DRAWING NO.	DRAWING DESCRIPTIONS
<b>3A-1 STATIONS</b>	
STA-00-03000	GENERAL - STATIONS - TYPICAL SECTIONS
STA-HN-06000	HOUSTON SEGMENT - STATIONS - STATIONS SECTIONS
STA-HN-06001	HOUSTON SEGMENT - STATIONS - STATION SECTIONS - FUTURE EXPANSION
STA-HN-01005	HOUSTON SEGMENT - STATIONS - HOUSTON TRANSIT STATION - CIVIL SITE PLAN
STA-HN-01015	HOUSTON SEGMENT - STATIONS - HOUSTON NORTHWEST MALL - CIVIL SITE PLAN (FSL)
STA-HN-01016	HOUSTON SEGMENT - STATIONS - HOUSTON NORTHWEST MALL - TERMINAL ROAD - PLAN & PROFILE
STA-HN-01017	HOUSTON SEGMENT - STATIONS - HOUSTON NORTHWEST MALL - MANGUM ROAD - PLAN & PROFILE
STA-HN-01018	HOUSTON SEGMENT - STATIONS - HOUSTON NORTHWEST MALL - 18TH STREET - PLAN & PROFILE
STA-HN-01019	HOUSTON SEGMENT - STATIONS - HOUSTON NORTHWEST MALL - CIVIL SITE PLAN - FUTURE BUILD
STA-HN-01025	HOUSTON SEGMENT - STATIONS - INDUSTRIAL STATION - CIVIL SITE PLAN
STA-HN-01034	HOUSTON SEGMENT - STATIONS - BRAZOS VALLEY STATION - CIVIL SITE PLAN
STA-DS-01045	DALLAS SEGMENT - STATIONS - STATION SECTIONS
STA-DS-01046	DALLAS SEGMENT - STATIONS - STATION SECTIONS - FUTURE EXPANSION
STA-DS-01049	DALLAS SEGMENT - STATIONS - DALLAS STATION - CIVIL SITE PLAN
STA-DS-01050	DALLAS SEGMENT - STATIONS - DALLAS STATION - HOTEL STREET - PLAN & PROFILE
STA-DS-01053	DALLAS SEGMENT - STATIONS - DALLAS STATION - PROPOSED STREET 1 - PLAN & PROFILE
STA-DS-01054	DALLAS SEGMENT - STATIONS - DALLAS STATION - PROPOSED STREET 2 - PLAN & PROFILE
<b>3A-2 MAINTENANCE FACILITIES, YARDS AND SHOPS</b>	
MNT-00-02002	HN, WT, EW, DS - MAINTENANCE FACILITIES - TYPICAL MOW FACILITY
MNT-00-02003	GENERAL - MAINTENANCE FACILITIES - TYPICAL SIDING OFF
MNT-00-02004	GENERAL - MAINTENANCE FACILITIES - KEY MAP
MNT-HN-04008	HOUSTON SEGMENT - MAINTENANCE FACILITIES - MOW-HN-2 - LAYOUT
MNT-HN-04009	HOUSTON SEGMENT - MAINTENANCE FACILITIES - MOW-HN-2 - PROFILE
MNT-HN-04010	HOUSTON SEGMENT - MAINTENANCE FACILITIES - HOUSTON TMF - SHEET 1 OF 3
MNT-HN-04011	HOUSTON SEGMENT - MAINTENANCE FACILITIES - HOUSTON TMF - SHEET 2 OF 3
MNT-HN-04012	HOUSTON SEGMENT - MAINTENANCE FACILITIES - HOUSTON TMF - SHEET 3 OF 3
MNT-HN-04013	HOUSTON SEGMENT - MAINTENANCE FACILITIES - HOUSTON TMF - PROFILE
MNT-HN-04014	HOUSTON SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY HN-5 - LAYOUT
MNT-HN-04015	HOUSTON SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY HN-5 - PROFILE
MNT-WT-04016	WEST OF TEAGUE SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY WT-1 - LAYOUT
MNT-WT-04017	WEST OF TEAGUE SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY WT-1 - PROFILE
MNT-WT-04018	WEST OF TEAGUE SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 1 OF 2
MNT-WT-04019	WEST OF TEAGUE SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 2 OF 2
MNT-WT-04020	WEST OF TEAGUE SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY WT-2 - LAYOUT
MNT-WT-04021	WEST OF TEAGUE SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY WT-2 - PROFILE
MNT-EW-04036	ELLIS WEST SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY EW-1 - LAYOUT
MNT-EW-04037	ELLIS WEST SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY EW-1 - PROFILE
MNT-DS-04042	DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS TMF - SHEET 1 OF 2
MNT-DS-04043	DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS TMF - SHEET 2 OF 2
MNT-DS-04044	DALLAS SEGMENT - MAINTENANCE FACILITIES - DALLAS TMF - PROFILE
<b>3A-3 RAILWAY FACILITIES</b>	
SYS-00-01001	HN, WT, NW, EW, DS - RAILWAY FACILITIES - SP, SSP, ATP - TYPICAL LAYOUT PLAN
SYS-00-01002	HN, WT, NW, EW, DS - RAILWAY FACILITIES - MSH, SSH, ISH, CH - TYPICAL LAYOUT PLAN
SYS-00-01003	HN, WT, NW, EW, DS - RAILWAY FACILITIES - TPSS LOOP 2FDR - TYPICAL LAYOUT PLAN
SYS-00-01004	HN, WT, NW, EW, DS - RAILWAY FACILITIES - TPSS LOOP 1FDR - TYPICAL LAYOUT PLAN
SYS-00-01005	HN, WT, NW, EW, DS - RAILWAY FACILITIES - TPSS RADIAL 2FDR - TYPICAL LAYOUT PLAN
SYS-00-01006	HN, WT, NW, EW, DS - RAILWAY FACILITIES - TPSS RADIAL 1FDR - TYPICAL LAYOUT PLAN
SYS-00-02000	GENERAL - RAILWAY FACILITIES - FACILITIES SPACING - ALIGN ALT A FSL
SYS-00-02001	GENERAL - RAILWAY FACILITIES - FACILITIES SPACING - ALIGN ALT A ISL
SYS-00-03000	HT1, HT2, HT3, HN1, HN2, - WT, NW, EW, DS, DT - RAILWAY FACILITIES - FACILITY LOCATIONS
<b>3A-4 ROADWAY FACILITIES</b>	
RDY-00-03037	GENERAL - ROADWAY FACILITIES - EMERGENCY RESPONSE MAINTENANCE - AND STAGING AREA LAYOUTS

**VOLUME 3B - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS**

DRAWING NO.	DRAWING DESCRIPTIONS
<b>3B-1 STATIONS (NOT USED)</b>	
<b>3B-2 MAINTENANCE FACILITIES, YARDS AND SHOPS</b>	
MNT-00-02012	IH, EE - MAINTENANCE FACILITIES - TYPICAL MOW FACILITY
MNT-IH-04022	IH-45 SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY IH-1 - LAYOUT - SHEET 1 OF 3
MNT-IH-04023	IH-45 SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY IH-1 - LAYOUT - SHEET 2 OF 3
MNT-IH-04024	IH-45 SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY IH-1 - LAYOUT - SHEET 3 OF 3
MNT-IH-04025	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 1 OF 8
MNT-IH-04026	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 2 OF 8
MNT-IH-04027	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 3 OF 8
MNT-IH-04028	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 4 OF 8
MNT-IH-04029	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 5 OF 8
MNT-IH-04030	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 6 OF 8
MNT-IH-04031	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 7 OF 8
MNT-IH-04032	IH-45 SEGMENT - MAINTENANCE FACILITIES - TRACK CONNECTION - LAYOUT - SHEET 8 OF 8
MNT-IH-04033	IH-45 SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY IH-2 - LAYOUT - SHEET 1 OF 3
MNT-IH-04034	IH-45 SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY IH-2 - LAYOUT - SHEET 2 OF 3
MNT-IH-04035	IH-45 SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY IH-2 - LAYOUT - SHEET 3 OF 3
MNT-EE-04038	ELLIS EAST SEGMENT - MAINTENANCE FACILITIES - MOW FACILITY EE-1 - LAYOUT
<b>3B-3 RAILWAY FACILITIES</b>	
SYS-00-01010	IH, NE, EE - RAILWAY FACILITIES - TPSS - TYPICAL LAYOUT PLAN
SYS-00-01011	IH, NE, EE - RAILWAY FACILITIES - SP, SSP, ATP - TYPICAL LAYOUT PLAN
SYS-00-01012	IH, NE, EE - RAILWAY FACILITIES - MSH, SSH, ISH, CH - TYPICAL LAYOUT PLAN
SYS-00-02002	GENERAL - RAILWAY FACILITIES - FACILITY SPACING - ALIGNMENT ALTERNATIVE B
SYS-00-02003	GENERAL - RAILWAY FACILITIES - FACILITY SPACING - ALIGNMENT ALTERNATIVE C
SYS-00-02004	GENERAL - RAILWAY FACILITIES - FACILITY SPACING - ALIGNMENT ALTERNATIVE D
SYS-00-02005	GENERAL - RAILWAY FACILITIES - FACILITY SPACING - ALIGNMENT ALTERNATIVE E
SYS-00-02006	GENERAL - RAILWAY FACILITIES - FACILITY SPACING - ALIGNMENT ALTERNATIVE F
SYS-00-03010	IH, NE, EE - RAILWAY FACILITIES - FACILITY LOCATIONS

**VOLUME 4B - NOT USED**

**VOLUME 4B - ROADWAY PLAN SHEETS**

DRAWING NO.	DRAWING DESCRIPTIONS
<b>4B-1 IH-45 SEGMENT</b>	
RDY-IH-01101	IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 5 IH1 10+00 TO IH1 1120+00
RDY-IH-01102	IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 5 IH1 1120+00 TO IH1 2240+00
RDY-IH-01103	IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 3 OF 5 IH1 2240+00 TO IH1 3360+00
RDY-IH-01104	IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 4 OF 5 IH1 3360+00 TO IH2 224+00
RDY-IH-01105	IH-45 SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 5 OF 5 IH2 224+00 TO IH2 540+81
RDY-IH1-04001	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 100+00 TO IH1 100+00
RDY-IH1-04002	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 100+00 TO IH1 190+00
RDY-IH1-04003	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 190+00 TO IH1 280+00
RDY-IH1-04004	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 280+00 TO IH1 370+00
RDY-IH1-04005	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 370+00 TO IH1 460+00
RDY-IH1-04006	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 460+00 TO IH1 550+00
RDY-IH1-04007	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 550+00 TO IH1 640+00
RDY-IH1-04008	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 640+00 TO IH1 730+00
RDY-IH1-04009	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 730+00 TO IH1 820+00
RDY-IH1-04010	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 820+00 TO IH1 910+00
RDY-IH1-04011	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 910+00 TO IH1 1000+00
RDY-IH1-04012	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1000+00 TO IH1 1090+00
RDY-IH1-04013	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1090+00 TO IH1 1180+00
RDY-IH1-04014	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1180+00 TO IH1 1270+00
RDY-IH1-04015	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1270+00 TO IH1 1360+00
RDY-IH1-04016	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1360+00 TO IH1 1450+00
RDY-IH1-04017	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1450+00 TO IH1 1540+00
RDY-IH1-04018	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1540+00 TO IH1 1630+00
RDY-IH1-04019	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1630+00 TO IH1 1720+00
RDY-IH1-04020	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1720+00 TO IH1 1810+00
RDY-IH1-04021	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1810+00 TO IH1 1900+00
RDY-IH1-04022	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1900+00 TO IH1 1990+00
RDY-IH1-04023	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 1990+00 TO IH1 2080+00
RDY-IH1-04024	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2080+00 TO IH1 2170+00
RDY-IH1-04025	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2170+00 TO IH1 2260+00
RDY-IH1-04026	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2260+00 TO IH1 2350+00
RDY-IH1-04027	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2350+00 TO IH1 2440+00
RDY-IH1-04028	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2440+00 TO IH1 2530+00
RDY-IH1-04029	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2530+00 TO IH1 2620+00
RDY-IH1-04030	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2620+00 TO IH1 2710+00
RDY-IH1-04031	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2710+00 TO IH1 2800+00
RDY-IH1-04032	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2800+00 TO IH1 2890+00
RDY-IH1-04033	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2890+00 TO IH1 2980+00
RDY-IH1-04034	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 2980+00 TO IH1 3070+00

DESIGNED BY	D. THOMPSON
DRAWN BY	D. THOMPSON
CHECKED BY	R. BURNS
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

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Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

**GENERAL INDEX SHEET 4 OF 5**

Scale  
NO SCALE

Drawing Status  
FINAL

Job No	Drawing No	Rev
234180	GEN-00-00006	01

**VOLUME 4B - ROADWAY PLAN SHEETS**

DRAWING NO.	DRAWING DESCRIPTIONS
<b>4B-1 IH-45 SEGMENT</b>	
RDY-IH1-04035	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3070+00 TO IH1 3160+00
RDY-IH1-04036	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3160+00 TO IH1 3250+00
RDY-IH1-04037	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3250+00 TO IH1 3340+00
RDY-IH1-04038	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3340+00 TO IH1 3430+00
RDY-IH1-04039	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3430+00 TO IH1 3520+00
RDY-IH1-04040	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3520+00 TO IH1 3610+00
RDY-IH1-04041	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3610+00 TO IH1 3700+00
RDY-IH1-04042	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3700+00 TO IH1 3790+00
RDY-IH1-04043	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3790+00 TO IH1 3880+00
RDY-IH1-04044	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3880+00 TO IH1 3970+00
RDY-IH1-04045	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 3970+00 TO IH1 4060+00
RDY-IH1-04046	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 4060+00 TO IH1 4150+00
RDY-IH1-04047	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 4150+00 TO IH1 4240+00
RDY-IH1-04048	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH1 4240+00 TO IH1 4329+69
RDY-IH2-04049	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 10+00 TO IH2 100+00
RDY-IH2-04050	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 100+00 TO IH2 190+00
RDY-IH2-04051	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 190+00 TO IH2 280+00
RDY-IH2-04052	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 280+00 TO IH2 370+00
RDY-IH2-04053	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 370+00 TO IH2 460+00
RDY-IH2-04054	IH-45 SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. IH2 460+00 TO IH2 540+81
<b>4B-2 NAVARRO EAST SEGMENT</b>	
RDY-NE-01101	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 2 NE 10+00 TO NE 1070+00
RDY-NE-01102	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 2 NE 1070+00 TO NE 1652+05
RDY-NE-04001	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 10+00 TO NE 100+00
RDY-NE-04002	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 100+00 TO NE 190+00
RDY-NE-04003	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 190+00 TO NE 280+00
RDY-NE-04004	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 280+00 TO NE 370+00
RDY-NE-04005	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 370+00 TO NE 460+00
RDY-NE-04006	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 460+00 TO NE 550+00
RDY-NE-04007	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 550+00 TO NE 640+00
RDY-NE-04008	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 640+00 TO NE 730+00
RDY-NE-04009	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 730+00 TO NE 820+00
RDY-NE-04010	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 820+00 TO NE 910+00
RDY-NE-04011	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 910+00 TO NE 1000+00
RDY-NE-04011A	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - MATCHLINE RDY-NE-04011
RDY-NE-04012	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1000+00 TO NE 1090+00
RDY-NE-04013	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1090+00 TO NE 1180+00
RDY-NE-04014	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1180+00 TO NE 1270+00
RDY-NE-04015	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1270+00 TO NE 1360+00
RDY-NE-04016	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1360+00 TO NE 1450+00
RDY-NE-04017	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1450+00 TO NE 1540+00
RDY-NE-04018	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1540+00 TO NE 1630+00
RDY-NE-04019	NAVARRO EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. NE 1630+00 TO NE 1652+05
<b>4B-3 ELLIS EAST SEGMENT</b>	
RDY-EE-01101	ELLIS EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 1 OF 2 EE 9+56 TO EE 1064+00
RDY-EE-01102	ELLIS EAST SEGMENT - CIVIL HIGHWAY - KEY MAP - SHEET 2 OF 2 EE 1064+00 TO EE 1232+15
RDY-EE-04001	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 9+56 TO EE 100+00
RDY-EE-04002	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 100+00 TO EE 190+00
RDY-EE-04003	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 190+00 TO EE 280+00
RDY-EE-04004	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 280+00 TO EE 370+00
RDY-EE-04005	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 370+00 TO EE 460+00
RDY-EE-04006	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 460+00 TO EE 550+00
RDY-EE-04007	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 550+00 TO EE 640+00
RDY-EE-04008	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 640+00 TO EE 730+00
RDY-EE-04009	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 730+00 TO EE 820+00
RDY-EE-04010	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 820+00 TO EE 910+00
RDY-EE-04011	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 910+00 TO EE 1000+00
RDY-EE-04012	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 1000+00 TO EE 1090+00
RDY-EE-04013	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 1090+00 TO EE 1180+00
RDY-EE-04014	ELLIS EAST SEGMENT - CIVIL HIGHWAY - PLAN VIEW - STA. EE 1180+00 TO EE 1232+15

**Volume 5A - WILDLIFE CROSSING SHEETS**

DRAWING NO.	DRAWING DESCRIPTIONS
<b>Volume 5A</b>	
WLC-DS-04001	DS SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 1 OF 23)
WLC-DS-04002	DS SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 2 OF 23)
WLC-DS-04003	DS SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 3 OF 23)
WLC-EW-04001	EW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 4 OF 23)
WLC-EW-04002	EW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 5 OF 23)
WLC-NW-04001	NW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 6 OF 23)
WLC-NW-04002	NW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 7 OF 23)
WLC-NW-04003	NW SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 8 OF 23)
WLC-WT-04001	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 9 OF 23)
WLC-WT-04002	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 10 OF 23)
WLC-WT-04003	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 11 OF 23)
WLC-WT-04004	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 12 OF 23)
WLC-WT-04005	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 13 OF 23)
WLC-WT-04006	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 14 OF 23)
WLC-WT-04007	WT SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 15 OF 23)
WLC-HN-04001	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 16 OF 23)
WLC-HN-04002	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 17 OF 23)
WLC-HN-04003	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 18 OF 23)
WLC-HN-04004	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 19 OF 23)
WLC-HN-04005	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 20 OF 23)
WLC-HN-04006	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 21 OF 23)
WLC-HN-04007	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 22 OF 23)
WLC-HN-04008	HN SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 23 OF 23)

**VOLUME 5B - WILDLIFE CROSSING SHEETS**

DRAWING NO.	DRAWING DESCRIPTIONS
<b>Volume 5B</b>	
WLC-EE-04001	EE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 1 OF 15)
WLC-EE-04002	EE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 2 OF 15)
WLC-NE-04001	NE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 3 OF 15)
WLC-NE-04002	NE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 4 OF 15)
WLC-NE-04003	NE SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 5 OF 15)
WLC-IH-04001	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 6 OF 15)
WLC-IH-04002	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 7 OF 15)
WLC-IH-04003	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 8 OF 15)
WLC-IH-04004	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 9 OF 15)
WLC-IH-04005	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 10 OF 15)
WLC-IH-04006	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 11 OF 15)
WLC-IH-04007	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 12 OF 15)
WLC-IH-04008	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 13 OF 15)
WLC-IH-04009	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 14 OF 15)
WLC-IH-04010	IH-45 SEGMENT THSR - POTENTIAL WILDLIFE CROSSINGS (SHEET 15 OF 15)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. THOMPSON</b>
DRAWN BY <b>D. THOMPSON</b>
CHECKED BY <b>R. BURNS</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>



Drawing Title  
**GENERAL INDEX SHEET 5 OF 5**

Scale <b>NO SCALE</b>	Drawing Status <b>FINAL</b>
Job No <b>234180</b>	Drawing No <b>GEN-00-00007</b>
	Rev <b>01</b>



**GENERAL NOTES:**

1. THESE DRAWINGS ACCOMPANY FINAL CONCEPTUAL ENGINEERING (FCE) REPORT.
2. DRAWING SET INCLUDES FIVE (5) VOLUMES. AFTER RELEASE OF THE DRAFT EIS (DEIS), WHICH IDENTIFIED ALTERNATIVE A AS THE PREFERRED ALTERNATIVE. ADDITIONAL DESIGN DEVELOPMENT AND REFINEMENT OF ALTERNATIVE A WAS UNDERTAKEN TO MITIGATE IMPACTS AND TO IMPROVE CONSTRUCTABILITY. THIS REPORT ADDRESSES THE REFINED DESIGN APPROACHES AND DETAILS FOR THE SEGMENTS IN BUILD ALTERNATIVE A, FOR ALL OTHER SEGMENTS NOT A PART OF THE PREFERRED ALTERNATIVE (ELLIS EAST, NAVARRO EAST, AND IH-45 SEGMENTS), NO CHANGES TO DESIGN WAS ADVANCED OTHER THAN ALIGNMENT REVISIONS REQUIRED TO ACCOUNT FOR ALIGNMENT REVISIONS ADVANCED IN ALTERNATIVE A. TO FACILITATE COMPARISON FOR IMPACT ANALYSIS, THE APPENDICES TO THE FCE REPORT INCLUDES ALL SEGMENTS. THE DRAWING SET HAS BEEN ORGANIZED INTO VOLUMES 1A-5A AND 1B-5B, WITH THE PREFERRED ALTERNATIVE DESIGN DRAWINGS INCLUDED IN THE 1A-5A VOLUMES.
3. CONCEPTUAL ENGINEERING WAS DEVELOPED TO IDENTIFY PROJECT LIMIT OF DISTURBANCE (LOD), OR "PROJECT FOOTPRINT". CONCEPTUAL ENGINEERING DRAWINGS AND FCE REPORT ARE ISSUED TO PROVIDE PROJECT DEFINITION FOR ENVIRONMENTAL ANALYSES ONLY. FINAL DESIGN WOULD BE DEVELOPED TO MITIGATE ANY IMPACTS IDENTIFIED THROUGH ENVIRONMENTAL ANALYSES. NOT FOR CONSTRUCTION.
4. FOR STANDARD GENERAL ABBREVIATIONS, SEE DRAWING GEN-00-0009.
5. FOR STANDARD GENERAL SYMBOLS, SEE DRAWING GEN-00-0009.
6. "ORIGINAL GROUND" SHOWN ON PROFILES REFERS TO THE APPROXIMATE EXISTING GROUND LINE AT HSR CENTERLINE AS SHOWN ON PLAN AND PROFILE DRAWINGS.
7. ALL HORIZONTAL AND VERTICAL DISTANCES ARE IN US CUSTOMARY UNITS EXCEPT AS NOTED OTHERWISE.
8. GENERAL NOTES FOR PROJECT ELEMENTS INCLUDED ON GENERAL NOTES PAGES. REFER TO INDIVIDUAL DISCIPLINE DRAWINGS FOR ADDITIONAL NOTES.

**BASEMAPPING NOTES:**

1. DTM DATA SHOWN ON THE DRAWINGS WAS OBTAINED FROM THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS) AND HOUSTON-GALVESTON AREA COUNCIL (HGAC).
  - DALLAS COUNTY LIDAR, 2009, SOURCED FROM TNRIS.
  - HGAC LIDAR, 2008.
  - TNRIS LIDAR, 2009-2013.
  - TNRIS STRATMAP CONTOURS, 1997.
2. LIDAR SOURCES WERE FILTERED TO SHOW ONLY BARE EARTH, AND SUPPLEMENTED BY CONTOUR DATA WHERE LIDAR SOURCES WERE NOT AVAILABLE.
3. NAD 83 HORIZONTAL CONTROL DATUM WAS USED FOR HORIZONTAL COORDINATE VALUES.
4. NAVD 88 VERTICAL DATUM WAS USED FOR ELEVATION VALUES.
5. ALL DATA HAS BEEN REPROJECTED TO TEXAS STATE PLANE, SOUTH CENTRAL, CENTRAL, AND NORTH CENTRAL ZONES, US SURVEY FEET.
6. AERIAL IMAGERY WAS OBTAINED FROM ARCGIS ONLINE SERVICES. SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
7. THE BACKGROUND IMAGERY ON THE PLAN SHEETS MAY SHOW BUILDINGS AND OTHER INFRASTRUCTURE FEATURES THAT HAVE SUBSEQUENTLY BEEN REMOVED AND/OR DEMOLISHED, WHERE IT HAS BEEN VERIFIED THAT BUILDINGS HAVE BEEN REMOVED, DEMOLISHED, RECONFIGURED, OR CONSTRUCTED. THE AERIAL IMAGERY ON THE PLAN SHEET IS MARKED WITH HATCHING.

**LOD NOTES:**

1. THE PROJECT LOD WAS DEVELOPED TO DEFINE A CONSERVATIVE ESTIMATE OF THE POTENTIAL "PROJECT FOOTPRINT" FOR ENVIRONMENTAL ANALYSIS AND DOES NOT REPRESENT THE FINAL HSR RIGHT-OF-WAY (ROW).
2. LOD USED FOR EIS ANALYSIS FOOTPRINT. PROPERTY WITHIN THE LOD MAY BE RETURNED TO ADJACENT LANDOWNERS OR OTHER PRIVATE PARTIES FOLLOWING PROJECT CONSTRUCTION OR MAY BE TRANSFERRED TO ROADWAY OR UTILITY AUTHORITY AS APPROPRIATE. PROPOSED PROJECT WORKS WITHIN PRIVATE PROPERTIES WOULD BE SUBJECT TO NEGOTIATION WITH LANDOWNERS. ANY TEMPORARY OR PERMANENT USE OF LAND OWNED BY TXDOT, COUNTY, MUNICIPAL, OR OTHER PUBLIC ENTITIES WOULD REQUIRE APPROPRIATE APPROVALS.

**TRACK NOTES:**

1. THE ALIGNMENT SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE CENTERLINE OF THE TWO-TRACK HSR MAINLINE TRACKS.
2. THE PROFILE SHOWN ON THE PLAN AND PROFILE DRAWINGS REPRESENTS THE TOP OF THE LOWER RAIL THROUGH HORIZONTAL CURVES AND SPIRALS FOR THE TWO-TRACK HSR SYSTEM.
3. THE PROPOSED HSR SYSTEM INCLUDES TWO TRACKS WITH ADDITIONAL TRACKS AT STATIONS, MAINTENANCE OF WAY FACILITIES, AND TRAINSET MAINTENANCE FACILITIES, AS SHOWN ON DRAWINGS.
4. MAINLINE CROSSOVERS ARE PROVIDED AT THE ENTRANCE AND EXIT OF ALL STATIONS, MAINTENANCE OF WAY (MOW) FACILITIES, AND TRAINSET MAINTENANCE FACILITIES (TMF).

**PLAN AND PROFILE GENERAL NOTES:**

1. SECTION TYPE DETAIL SHOWN ON PROFILE SHEETS REPRESENT A SIMPLIFIED SUMMARY OF THE MAJOR STRUCTURAL TYPE OF THE PROPOSED HSR. THE ACTUAL PLAN DIMENSIONS TAKE PRECEDENCE OVER THE SECTION TYPE IDENTIFIED IN PROFILE.
2. ALL EXISTING AND PROPOSED STRUCTURAL ELEMENTS SHOWN ARE BASED ON CONCEPTUAL ENGINEERING DESIGN AND AERIAL IMAGERY AND MAY BE REVISED BASED ON MORE ADVANCED SURVEY AND DESIGNS.
3. SEE SHEET GEN-00-00010 FOR A KEY TO INFORMATION SHOWN ON PLAN AND PROFILE DRAWINGS.
4. LIMITS OF SPECIAL TRACK WORK ARE INDICATED ON THE PLAN SHEETS. ADDITIONAL DETAILS FOR MAINTENANCE OF WAY FACILITIES AND TRAINSET MAINTENANCE FACILITIES ARE SHOWN ON THE VOLUME 3 DRAWINGS.

**ROADWAY NOTES:**

1. EXISTING ROADWAY LOCATIONS ARE APPROXIMATE BASED ON AERIAL IMAGERY BACKGROUNDS.
2. PROPOSED ROADWAY WORKS, INCLUDING NEW ROADWAYS, RECONFIGURATION AND REALIGNMENTS OF EXISTING ROADWAYS, AND ROADWAY REMOVALS ARE CONCEPTUAL IN NATURE AND WERE DEVELOPED TO IDENTIFY GENERAL CONFIGURATION AND LOCATION FOR ENVIRONMENTAL IMPACT ANALYSES. ROADWAY WORKS WOULD BE DETAILED DURING FINAL DESIGN AND WOULD COMPLY WITH APPLICABLE STATE, CITY, COUNTY, OR LOCAL REQUIREMENTS.
3. SEE SHEET GEN-00-00011 FOR A KEY TO INFORMATION SHOWN ON ROADWAY PLAN DRAWINGS.
4. ROADWAY GEOMETRY IS BASED ON TXDOT ROADWAY DESIGN MANUAL. ROAD DESIGN SPEEDS MATCH EXISTING POSTED SPEED LIMITS OR MATCH DESIGN SPEED DETERMINED FROM TXDOT ROADWAY FUNCTIONAL CLASSIFICATION SPEED GUIDELINES, WHICHEVER IS GREATER.
5. SUPERELEVATION TRANSITION LENGTHS WERE NOT DETAILED IN ROADWAY APPROACH DESIGN.
6. SEE DRAWINGS CVL-00-03030 TO CVL-00-03034B FOR TYPICAL ROADWAY CROSS SECTIONS.
7. FOR SEGMENTS HH, WT, NW, EW, AND DS, ROADWAY REMOVALS ARE SHOWN ON RAIL PLAN AND PROFILE SHEETS. FOR SEGMENTS IH, NE, AND EE, ROADWAY REMOVALS ARE NOT SHOWN ON RAIL PLAN AND PROFILE SHEETS. REFER TO ROADWAY PLAN SHEETS IN VOLUME 4 FOR SEGMENT 2B, 3B, AND 4B ROADWAY REMOVALS.
8. NOT ALL PRIVATE ROADS AND DRIVEWAYS ARE REPRESENTED ON THE RAIL PLAN AND PROFILE SHEETS.
9. THE CLEARANCE ENVELOPES SHOWN ON THE RAIL PLAN AND PROFILE SHEETS REPRESENT THE APPROXIMATE ROADWAY CLEARANCE ENVELOPE. THE BOTTOM OF THE CLEARANCE ENVELOPE REPRESENTS THE TOP OF THE ROADWAY PAVEMENT. CLEARANCE ENVELOPE DOES NOT INCLUDE ROADWAY STRUCTURAL ELEMENTS.
10. ROADWAY ELEVATIONS FOR ROADWAY OVER RAILWAY CROSSINGS DO NOT REPRESENT THE PROPOSED ROADWAY ELEVATION, BUT RATHER THE MINIMUM HEIGHT REQUIRED FOR CLEARANCES, INCLUDING ALLOWANCES FOR ROADWAY STRUCTURAL ELEMENTS. SEE FCE REPORT FOR ADDITIONAL INFORMATION.
11. ROADWAY TYPICAL SECTIONS ACCOUNT FOR THE NECESSARY SPACE TO CONSTRUCT TEMPORARY ROADWAYS DURING CONSTRUCTION. CLOSE COORDINATION WITH ROADWAY AUTHORITIES, COMMUNITIES, AND EMERGENCY RESPONSE ENTITIES WOULD BE UNDERTAKEN DURING FINAL DESIGN AND CONSTRUCTION TO ENSURE ACCESS DURING THE CONSTRUCTION PHASE.
12. USE OF TXDOT RIGHT-OF-WAY FOR PERMANENT IMPROVEMENTS WILL REQUIRE THE APPROPRIATE APPROVAL FROM TXDOT.
13. PLANNED ROADS, SUCH AS MTFP ROADS IN HOUSTON, ARE SHOWN IN PROFILES IN VOLUME 2, BUT ARE NOT SHOWN IN PLAN IN VOLUME 2. AS THESE ROADS ARE PLANNED AND NOT EXISTING, THE AERIAL IMAGERY BACKGROUNDS DO NOT SHOW THESE ROADS. PLANNED ROADS ARE SHOWN IN THE FCE REPORT APPENDIX B: ROAD SEPARATION DATABASE.

**TYPICAL SECTIONS NOTES:**

1. SECTIONS ILLUSTRATE TYPICAL REQUIREMENTS TO GUIDE CONCEPTUAL ENGINEERING DESIGN DEVELOPMENT. LOCATION SPECIFIC CONDITIONS WOULD ESTABLISH REQUIREMENTS AT EACH LOCATION AND OVERALL WIDTH OF LIMIT OF DISTURBANCE WOULD VARY AS IDENTIFIED ON DIMENSION LINES AND IN NOTES.
2. OFFSET BETWEEN INFRASTRUCTURE ELEMENTS SUCH AS DISTANCE BETWEEN EMBANKMENT, FENCES, DRAINAGE SWALE, ACCESS ROAD, ETC. WOULD VARY BASED ON LOCAL REQUIREMENTS AND SITE SPECIFIC CONDITIONS.
3. TYPICAL ROADWAY DRAINAGE SYSTEM PROVIDED AS SHOWN IN TYPICAL SECTIONS. LOCATION SPECIFIC CONFIGURATION AND SIZE WOULD BE ADVANCED DURING MORE DETAILED DESIGN.
4. LOCATION SPECIFIC CONDITIONS WOULD DICTATE FENCING REQUIREMENTS.
5. EMBANKMENT HEIGHTS AND CUT DEPTHS VARY WITH SURROUNDING GRADE AND RAIL PROFILE ELEVATION.
6. CRASH BARRIERS NOT SHOWN. LOCATION SPECIFIC CONDITIONS WILL DICTATE CRASH BARRIER REQUIREMENTS TO ENSURE SAFETY AND TO SATISFY APPLICABLE REGULATORY REQUIREMENTS.
7. SUBSURFACE GROUND IMPROVEMENTS ARE NOT SHOWN AND WILL BE BASED ON SITE SPECIFIC REQUIREMENTS.
8. RAIL HEIGHT VARIES WITH SURROUNDING GRADE AND RAIL PROFILE. THE BOTTOM OF SUBBALLAST SHALL BE NO LESS THAN 2FT ABOVE 100 YEAR FLOODPLAIN.

**UTILITIES NOTES:**

1. REFER TO THE FCE REPORT FOR A LIST OF MAJOR UTILITY CROSSINGS, THEIR ASSUMED SIZE, AND ASSOCIATED LOCATIONS ALONG THE ALIGNMENT.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON INFORMATION RECEIVED, AS DOCUMENTED IN THE FINAL CONCEPTUAL ENGINEERING REPORT.
3. NO FIELD SURVEYS HAVE BEEN CONDUCTED TO LOCATE AND VERIFY UTILITY LOCATIONS.
4. NOT ALL EXISTING UNDERGROUND UTILITIES HAVE BEEN SHOWN. REFER TO THE FCE REPORT FOR MAJOR UTILITIES INCLUDED IN PROJECT MAPPING.
5. LOD NOT SHOWN FOR UTILITIES THAT ARE NOT IMPACTED BY THE ALIGNMENT. ONLY MAJOR UTILITIES THAT ARE PROTECTED, RELOCATED OR ELEVATED ARE SHOWN ON THE PLAN AND PROFILE VIEW. REFER TO DRAWING NO. CUT-00-0100 FOR TYPICAL UTILITY CROSSING DETAILS. UTILITY LODS FOR FUTURE PROPOSED CONNECTIONS TO TPSS FACILITIES ARE SHOWN.
6. FOR PARALLEL TRANSMISSION LINE CROSSINGS OVER NEW ELEVATED ROADWAYS, A LOD IS SHOWN ON THE PLAN ONLY. REFER TO DRAWING NO. CUT-00-0100 FOR TYPICAL UTILITY CROSSING DETAILS.
7. MANY UTILITY CONFLICTS ALONG THE HEMPSTEAD ROAD CORRIDOR IN HOUSTON WOULD BE RESOLVED DURING FINAL DESIGN. A CONTINUOUS LOD IS SHOWN ON THE DRAWINGS TO REPRESENT THAT UTILITIES WOULD BE RELOCATED ON ONE OR BOTH SIDES OF THE ROADWAY AS REQUIRED. ALL WORK WOULD BE COORDINATED WITH UTILITY PROVIDERS TO MINIMIZE IMPACTS AND COORDINATE WITH OTHER PLANNED UTILITY PROJECTS ALONG CORRIDOR.
8. FOR UTILITY WORK REQUIRED BY UTILITY COMPANIES, EACH UTILITY OWNER WOULD DEVELOP THE DESIGN IN ACCORDANCE WITH APPLICABLE DESIGN STANDARDS AND REGULATORY AGENCY REVIEW PROCESSES.

**DRAINAGE NOTES:**

1. PROPOSED DETENTION BASIN LOCATIONS AND DIMENSIONS SHOWN ARE APPROXIMATE AND ARE INTENDED FOR PRELIMINARY PLANNING AND ENVIRONMENTAL IMPACT ANALYSIS PURPOSES ONLY. SITE SPECIFIC CONFIGURATIONS WOULD BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH APPLICABLE REQUIREMENTS.
2. EXISTING CULVERTS ARE NOT SHOWN.
3. PROPOSED TRACK AND ROADWAY STORMWATER DRAINAGE WOULD BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH APPLICABLE REQUIREMENTS. REFER TO TYPICAL SECTION DRAWINGS FOR PROPOSED CONFIGURATIONS.
4. EXISTING STORMWATER FACILITIES ARE NOT SHOWN.
5. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) WATER QUALITY CRITERIA WOULD BE MET FOR STORMWATER RUNOFF AND PROTECTION OF EXISTING WATER RESOURCES.
6. CONSTRUCTION OF THE RAIL MAY REQUIRE THE RECONFIGURATION OF PONDS OR STOCK TANKS IMMEDIATELY ADJACENT TO THE RAIL CORRIDOR. IN CASES WHERE THE CURRENT DESIGN NECESSITATES A FULL RELOCATION OF THE POND, ALLOWANCES HAVE BEEN MADE WITHIN THE LOD. IN CASES WHERE THE FULL RELOCATION OF THE POND IS NOT REQUIRED UNDER THE CURRENT DESIGN, ADDITIONAL COORDINATION WITH LANDOWNER WILL BE UNDERTAKEN TO DEVELOP IMPROVEMENTS CONSIDERING LANDOWNER PREFERENCES.

**STRUCTURES GENERAL NOTES:**

1. TYPICAL SECTIONS WERE DEVELOPED TO IDENTIFY GENERAL ARRANGEMENTS AND ALLOWANCES FOR STRUCTURAL ELEMENTS. TYPICAL SECTIONS WERE USED AS THE BASIS FOR DEVELOPMENT OF LOD FOR ENVIRONMENTAL ANALYSIS.
2. APPROXIMATE HSR VIADUCT AND BRIDGE STRUCTURE LIMITS AND DEPTHS ARE SHOWN ON THE PROFILES TO SUPPORT ENVIRONMENTAL IMPACT ANALYSIS. LIMITS OF STRUCTURES AND EMBANKMENTS WOULD BE REFINED DURING FINAL DESIGN.
3. PLAN AND PROFILE DRAWINGS DO NOT SHOW LIMITS OF STRUCTURES IN PLAN VIEW. SITE SPECIFIC STRUCTURAL DESIGN WOULD BE DEVELOPED DURING FINAL ENGINEERING IN ACCORDANCE WITH APPLICABLE REQUIREMENTS. DESIGN OF FOUNDATIONS, ABUTMENTS, PIERS AND OTHER STRUCTURES WOULD BE DEVELOPED TO MITIGATE ANY IMPACTS IDENTIFIED THROUGH ENVIRONMENTAL ANALYSIS.
4. HSR PROFILE WAS DEVELOPED TO PROVIDE A MINIMUM 3FT VERTICAL CLEAR DISTANCE FROM ESTIMATED 100 YEAR FLOOD LEVEL TO BRIDGE SOFFIT FOR RIVER AND FLOODPLAIN CROSSINGS. FINAL DESIGN WOULD BE DEVELOPED TO MEET OR EXCEED THIS REQUIREMENT.
5. SPECIAL STRUCTURES WOULD BE REQUIRED TO MITIGATE IMPACTS OR ADDRESS UNIQUE SITE SPECIFIC ISSUES SUCH AS LONG SPANS, CROSSOVER STRUCTURES, AND STRADDLE BENTS TO AVOID OR MITIGATE IMPACTS. THE CONSTRUCTABILITY REPORT IDENTIFIES SPECIAL STRUCTURE LOCATIONS. PLAN AND PROFILE DRAWINGS IDENTIFY ADDITIONAL LOD EXPECTED FOR CONSTRUCTION STAGING AND WORKING AREAS FOR SPECIAL STRUCTURES.

**SYSTEMS GENERAL NOTES:**

1. SYSTEMS SCHEMATICS, SHOWN ON SHEETS SYS-00-02000 THROUGH SYS-00-02006, SHOW LOCATIONS OF SYSTEMS FACILITIES THAT HAVE BEEN INCLUDED FOR EACH END-TO-END ALTERNATIVE.
2. AREA FOR SYSTEMS FACILITY SITES HAVE BEEN INCLUDED WITHIN THE PROJECT LOD. THESE AREAS ARE GENERICALLY CALLED OUT AS "RAIL SYSTEMS SITES" ON THE PLAN AND PROFILE SHEETS. REFER TO FCE REPORT TO DETERMINE THE SPECIFIC FACILITY TYPE AT EACH INDIVIDUAL LOCATION.
3. TYPICAL LAYOUT PLANS FOR EACH OF THE SYSTEMS FACILITIES ARE INCLUDED IN SHEETS SYS-00-01000 THROUGH SYS-00-01006.
4. LOD DEVELOPED FOR ENVIRONMENTAL IMPACT ANALYSIS OF SYSTEMS SITES INCLUDED SPACE FOR A DRIVEWAY AND SPACE TO PARK A LIMITED NUMBER OF MAINTENANCE VEHICLES.
5. SYSTEMS BUILDINGS WOULD BE DETAILED DURING FINAL DESIGN TO CONSIDER SITE SPECIFIC CONDITIONS, BE CONTEXT SENSITIVE, AND MINIMIZE VISUAL IMPACT. THE RADIO MAST AT COMMUNICATION FACILITIES WOULD BE APPROXIMATELY 50FT (15M) ABOVE THE TOP OF RAIL ELEVATION.
6. TPSS WOULD BE CONNECTED TO THE NEAREST 138KV TRANSMISSION LINES DESIGNED BY UTILITY PROVIDER AND SUBJECT TO ENVIRONMENTAL REVIEW.

**FACILITY NOTES:**

1. PROPOSED HSR FACILITIES WOULD INCLUDE STATIONS AND ASSOCIATED PARKING GARAGES, MAINTENANCE OF WAY (MOW) FACILITIES, TRAINSET MAINTENANCE FACILITIES (TMF), AND RAILWAY SYSTEMS SITES, INCLUDING TRACTION POWER SUPPLY FACILITIES, SIGNAL HOUSES, AND COMMUNICATIONS HOUSES. LOCATIONS, LIMITS OF DISTURBANCE, AND AREAS SHOWN FOR THE VARIOUS PROPOSED FACILITIES ARE FOR PRELIMINARY PLANNING PURPOSES ONLY.
2. ALL FACILITIES WOULD BE POWERED FROM THE LOCAL UTILITY GRID.
3. ACCESS, SECURITY, AND UTILITY PROVISION REQUIREMENTS FOR ALL FACILITIES WOULD BE DETAILED DURING FINAL DESIGN.

**CONSTRUCTION CONSIDERATION NOTES:**

1. CONSTRUCTION REQUIREMENTS WERE CONSIDERED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING AND ARE DOCUMENTED IN THE PROJECT CONSTRUCTABILITY REPORT.
2. TEMPORARY CONSTRUCTION AREAS REQUIRED FOR CONSTRUCTION ACCESS, CONSTRUCTION STAGING, AND PRECASTING FACILITIES WERE IDENTIFIED DURING DEVELOPMENT OF THE CONCEPTUAL ENGINEERING. CONSTRUCTION STAGING AREAS AND PRECAST FACILITIES ARE INCLUDED IN THE PROJECT LOD.
3. SPECIAL STRUCTURES REQUIRED TO MITIGATE IMPACTS OR ADDRESS UNIQUE SITE SPECIFIC ISSUES SUCH AS LONG SPANS, CROSSOVER STRUCTURES, AND STRADDLE BENTS ARE IDENTIFIED IN THE CONSTRUCTABILITY REPORT.
4. MEASURES REQUIRED TO MITIGATE NOISE, TRAFFIC, AND OTHER ENVIRONMENTAL IMPACTS WOULD BE IDENTIFIED THROUGH THE ENVIRONMENTAL ANALYSES. MORE DETAILED DESIGN INCLUDING DEVELOPMENT OF MAINTENANCE AND PROTECTION OF TRAFFIC AND OTHER CONSTRUCTION SPECIFIC PLANS AND PROCEDURES WOULD BE REQUIRED TO SECURE APPLICABLE PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. THOMPSON</b>
DRAWN BY <b>D. THOMPSON</b>
CHECKED BY <b>R. BURNS</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>



Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990



2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freesse.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

**GENERAL NOTES**

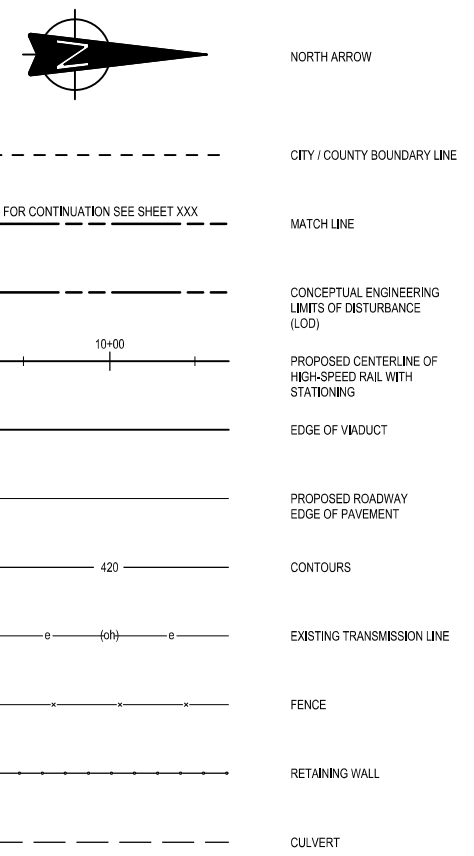
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Job No <b>234180</b>	Drawing No <b>GEN-00-00008</b>	Rev <b>01</b>

**ABBREVIATIONS**

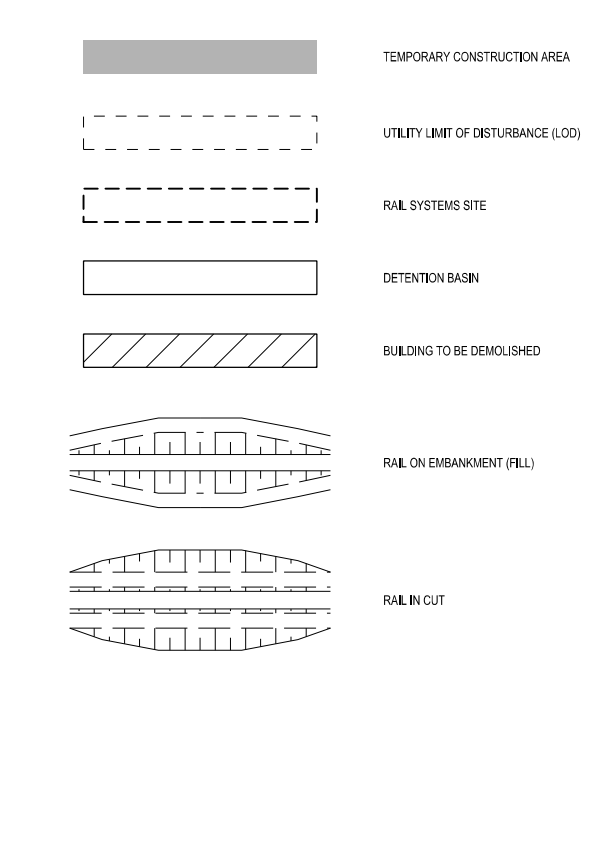
**LEGEND**

ALT	ALTERNATE ALIGNMENT	SC	SPIRAL CURVE
APPROX	APPROXIMATE	SH	STATE HIGHWAY
ATP	AUTOTRANSFORMER POST	SO	SIDING OFF
AVE	AVENUE	SP	SECTIONING POST
BLVD	BOULEVARD	SSH	SUB-SIGNAL HOUSE
BNSF	BURLINGTON NORTH SANTE FE RAILROAD	SSP	SUB-SECTIONING POST
BOT	BOTTOM	ST	STREET, SPIRAL TO TANGENT
CH	COMMUNICATION HOUSE	STA	STATION
CO RD	COUNTY ROAD	STD	STANDARD
CL	CENTERLINE	SYM	SYMMETRICAL
C	CENTERLINE	TBD	TO BE DETERMINED
CLSM	CONTROLLED LOW STRENGTH MATERIAL	TCEQ	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CO	COUNTY	TEMP	TEMPORARY
CR	COUNTY ROAD	THFN	TEXAS HIGHWAY FREIGHT NETWORK
CS	CURVE TO SPIRAL	TMF	TRAINSET MAINTENANCE FACILITY
CVL	CIVIL	TPSS	TRACTION POWER SUBSTATION
DIA	DIAMETER	TS	TANGENT SPIRAL
DIST	DISTANCE, DISTRICT	TYP	TYPICAL
DR	DRIVE	TOR	TOP OF RAIL
DRG	DRAWING	US	UNITED STATES, UNITED STATES HIGHWAY
DS	DALLAS SEGMENT	UPRR	UNION PACIFIC RAILROAD
DSN	DALLAS SEGMENT NORTH	VAR	VARIABLE
DSS	DALLAS SEGMENT SOUTH	VERT, V	VERTICAL
DT	DALLAS TERMINUS SEGMENT	WB	WESTBOUND
DWY	DRIVEWAY	WT	WEST OF TEAGUE
Ea	ACTUAL SUPERELEVATION	XING	CROSSING
EE	ELLIS EAST SEGMENT	YR	YEAR
ELECT	ELECTRIC		
ELEV	ELEVATION		
EMB	EMBANKMENT		
ENGR	ENGINEER		
EPA	ENVIRONMENTAL PROTECTION AGENCY		
ERMISA	EMERGENCY RESPONSE AND MAINTENANCE STAGING AREA		
Eu	UNBALANCED SUPERELEVATION		
EW	ELLIS WEST SEGMENT		
EXIST, EX.	EXISTING		
EXT	EXTERIOR		
FDN	FOUNDATION		
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY		
FG	FINISHED GRADE		
FIG	FIGURE		
FL	FLOW LINE		
FM	FARM TO MARKET ROAD		
FRS	FREIGHT RAIL SIDING		
FTG	FOOTING		
FWY	FREEWAY		
G	GRADIENT		
GEN	GENERAL		
H	HEIGHT, HIGHWAY BRIDGE		
HN	HOUSTON SEGMENT		
HNN	HOUSTON SEGMENT NORTH		
HNS	HOUSTON SEGMENT SOUTH		
HORIZ, H	HORIZONTAL		
HRW	HIGHWAY RETAINING WALL		
HSR	HIGH SPEED RAIL		
HT	HOUSTON TERMINUS SEGMENT		
HWY	HIGHWAY		
IH	INTERSTATE HIGHWAY		
ISH	INTERMEDIATE SIGNAL HOUSE		
JRC	CENTRAL JAPAN RAILWAY COMPANY		
KV	KILOVOLT		
L	LENGTH		
LN	LANE		
LOD	LIMITS OF DISTURBANCE		
LVC	LENGTH OF VERTICAL CURVE		
MAINT	MAINTENANCE		
MAX	MAXIMUM		
MOW	MAINTENANCE-OF-WAY		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MPH	MILES PER HOUR		
MSH	MAIN SIGNAL HOUSE		
MTFP	(CITY OF HOUSTON) MAJOR THOROUGHFARE AND FREEWAY PLAN		
NB	NORTHBOUND		
NE	NAVARRO EAST SEGMENT		
NED	NATIONAL ELEVATION DATASET		
NHD	NATIONAL HYDROGRAPHY DATASET		
NLCD	NATIONAL LAND COVER DATASET		
NO	NUMBER		
NTS	NOT TO SCALE		
N/A	NOT APPLICABLE		
NW	NAVARRO WEST SEGMENT, NOISE WALL		
NWI	NATIONAL WETLANDS INVENTORY		
NWIH	PORTION OF NAVARRO WEST ASSOCIATED WITH IH-45 SEGMENT		
OCS	OVERHEAD CATENARY SYSTEM		
OD	OUTSIDE DIAMETER		
OG	ORIGINAL GRADE		
OH	OVERHEAD		
OPP	OPPOSITE		
PKWY	PARKWAY		
POB	POINT OF BEGINNING		
POE	POINT OF END		
PVMT	PAVEMENT		
PVC	POINT VERTICAL CURVATURE		
PVI	POINT VERTICAL INTERSECTION		
PVT	POINT VERTICAL TANGENT		
R	RADIUS, RAIL BRIDGE		
RD	ROAD		
RDWY	ROADWAY		
RM	RANCH TO MARKET ROAD		
ROW	RIGHT OF WAY		
RR, R/R	RAILROAD		
RTE	ROUTE		
RWY	RAILWAY		

**PLAN**

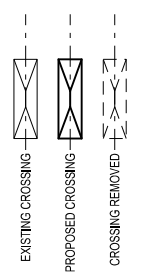
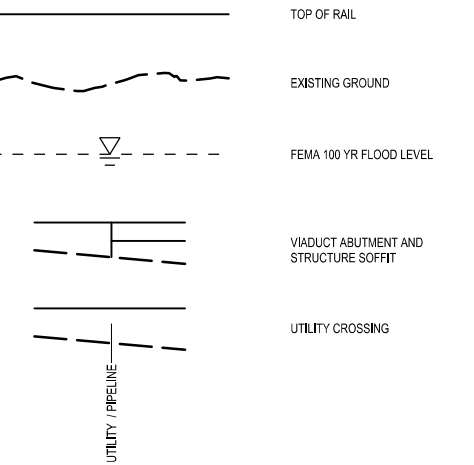


**LEGEND**



NOTE:  
1. FOR ADDITIONAL DETAIL REGARDING INFORMATION SHOWN ON DRAWINGS, SEE RAIL ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00010. FOR SEGMENTS IH, NE, AND EE, SEE ROAD ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00011.

**PROFILE**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. THOMPSON</b>
DRAWN BY <b>D. THOMPSON</b>
CHECKED BY <b>R. BURNS</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>



Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990



2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freesse.com  
Texas Registered Engineering Firm: F-2144

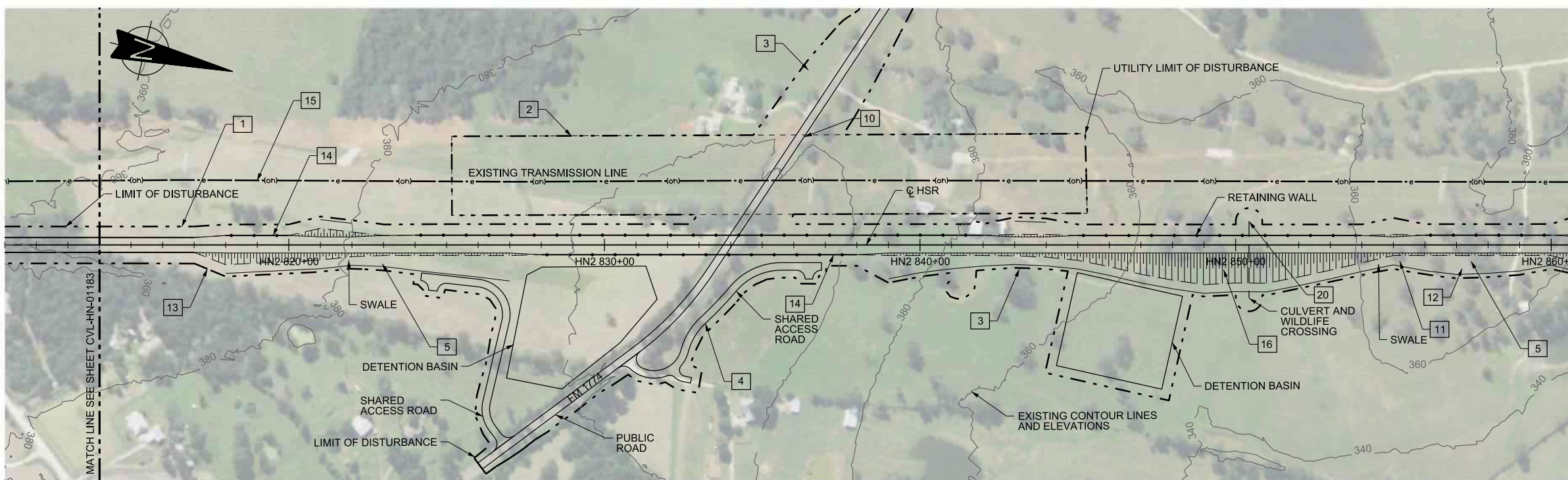
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



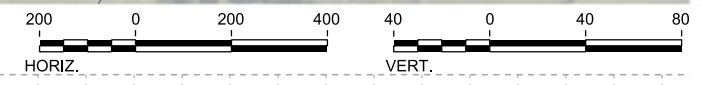
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**GENERAL ABBREVIATIONS AND LEGEND**

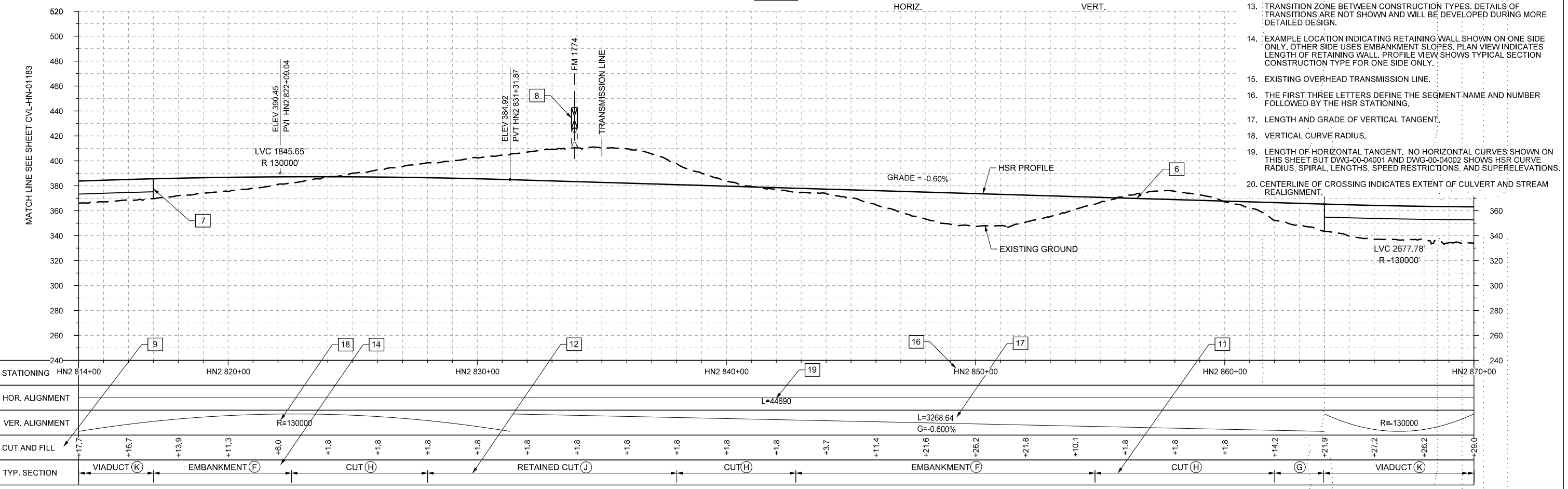
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Drawing Status <b>FINAL</b>		
Job No <b>234180</b>	Drawing No <b>GEN-00-00009</b>	Rev <b>01</b>



PLAN



- NOTES:
- LIMIT OF DISTURBANCE (LOD) FOR THE PROJECT. LOD VARIES BASED ON IMPACT AT EACH LOCATION. LOD USED FOR ENVIRONMENTAL ANALYSIS.
  - UTILITY LIMIT OF DISTURBANCE. TRANSMISSION LINE TO BE RAISED AS NECESSARY TO SUIT THE GRADE SEPARATION OF THE ROADWAY. REFER TO UTILITY TYPICAL DETAILS.
  - LOD IS OFFSET FROM THE EDGE OF PROPOSED ROADWAY TO ACCOMMODATE SIDE SLOPES ASSOCIATED WITH THE GRADE SEPARATION OF THE ROADWAY AND ACCESS ROAD.
  - DETAILS ON THE TYPE AND WIDTH OF THE ACCESS ROAD ARE SHOWN IN TYPICAL SECTIONS IN VOLUME 1.
  - SWALE EXTENTS SHOWN ON RAIL PLAN SHEETS ARE ONLY GENERATED BY COMPUTER MODEL FOR EMBANKMENT CONSTRUCTION TYPE AND WOULD EXTEND BEYOND THE LIMITS SHOWN. FINAL EXTENTS AND ARRANGEMENTS OF SWALES WOULD BE DEVELOPED DURING FINAL DESIGN AND BE BASED ON SITE SPECIFIC CONDITIONS AND REQUIREMENTS. LOCATION AND CONFIGURATION OF SWALES FOR OTHER CONSTRUCTION TYPES ARE SHOWN ON THE TYPICAL SECTIONS.
  - PROFILE OF THE HSR ALIGNMENT AT TOP OF RAIL.
  - START, END, AND APPROXIMATE UNDERSIDE OF VIADUCT STRUCTURES. TYPICAL STRUCTURE DEPTH SHOWN.
  - CLEARANCE BOX SHOWING 16'-6" FROM EXISTING ROADWAY ALIGNMENT. CLEARANCE BOX SHOWS APPROXIMATE SPACE OCCUPIED BY EXISTING OR PROPOSED ROADWAYS OR FREIGHT RAIL LINES. ACTUAL CLEARANCE REQUIRED VARIES BASED ON ROAD OR RAIL TYPE. FOR DETAILS ON REQUIRED CLEARANCE SEE FCE REPORT.
  - CUT AND FILL VALUES SHOW HEIGHT OF HSR PROFILE AT THE TOP OF RAIL ELEVATION RELATIVE TO GROUND. CUT AND FILL IS CUSTOMARY NOMENCLATURE. HOWEVER VALUES ARE NOT INTENDED TO PROVIDE DEPTHS OF EXCAVATIONS OR HEIGHTS OF EARTHWORKS. WHERE TOP OF RAIL IS WITHIN 6 FEET OF EXISTING GROUND A CUT SECTION MAY BE REQUIRED TO ACCOMMODATE DEPTH OF TRACK STRUCTURE AND DRAINAGE. LIMITS WILL VARY BY LOCATION AND SITE SPECIFIC TOPOGRAPHY. TYPICAL SECTIONS IN VOLUME 1 ILLUSTRATE RELATIONSHIP BETWEEN TOP OF RAIL LEVEL AND TRACK STRUCTURE.
  - REALIGNED OR REPROFILED ROADWAY. FULL EXTENTS OF ROAD REALIGNMENT SHOWN ON ROADWAY SHEETS IN VOLUME 2.
  - EXTENTS OF RAIL EMBANKMENT SLOPES REFER TO SECTIONS.
  - EXTENTS OF CUT SLOPES REFER TO SECTIONS.
  - TRANSITION ZONE BETWEEN CONSTRUCTION TYPES. DETAILS OF TRANSITIONS ARE NOT SHOWN AND WILL BE DEVELOPED DURING MORE DETAILED DESIGN.
  - EXAMPLE LOCATION INDICATING RETAINING WALL SHOWN ON ONE SIDE ONLY. OTHER SIDE USES EMBANKMENT SLOPES. PLAN VIEW INDICATES LENGTH OF RETAINING WALL. PROFILE VIEW SHOWS TYPICAL SECTION CONSTRUCTION TYPE FOR ONE SIDE ONLY.
  - EXISTING OVERHEAD TRANSMISSION LINE.
  - THE FIRST THREE LETTERS DEFINE THE SEGMENT NAME AND NUMBER FOLLOWED BY THE HSR STATIONING.
  - LENGTH AND GRADE OF VERTICAL TANGENT.
  - VERTICAL CURVE RADIUS.
  - LENGTH OF HORIZONTAL TANGENT. NO HORIZONTAL CURVES SHOWN ON THIS SHEET BUT DWG-00-04001 AND DWG-00-04002 SHOWS HSR CURVE RADIUS, SPIRAL, LENGTHS, SPEED RESTRICTIONS, AND SUPERELEVATIONS.
  - CENTERLINE OF CROSSING INDICATES EXTENT OF CULVERT AND STREAM REALIGNMENT.



PROFILE

DESIGNED BY <b>J. ENRIQUEZ</b>
DRAWN BY <b>P. TONKIN</b>
CHECKED BY <b>R. BURNS</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>

REV	DATE	BY	CHK	APP	DESCRIPTION

**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
 www.arup.com  
 Texas Registered Engineering Firm: F-1590

**FRESE AND NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**GENERAL**  
**RAIL ANNOTATION TO CLARIFY DESIGN INTENT**

Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No <b>234180</b>	Drawing No <b>GEN-00-00010</b>	Rev <b>01</b>
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# VOLUME 2B

## RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS (SEGMENTS IH, NE, EE)

**NOTE:**

AFTER RELEASE OF THE DRAFT EIS (DEIS), WHICH IDENTIFIED ALTERNATIVE A AS THE PREFERRED ALTERNATIVE, ADDITIONAL DESIGN DEVELOPMENT AND REFINEMENT OF ALTERNATIVE A WAS UNDERTAKEN TO MITIGATE IMPACTS AND TO IMPROVE CONSTRUCTABILITY. THIS REPORT ADDRESSES THE REFINED DESIGN APPROACHES AND DETAILS FOR THE SEGMENTS IN BUILD ALTERNATIVE A. FOR ALL OTHER SEGMENTS NOT A PART OF THE PREFERRED ALTERNATIVE (ELLIS EAST, NAVARRO EAST, AND IH-45 SEGMENTS), NO CHANGES TO DESIGN WERE ADVANCED OTHER THAN ALIGNMENT REVISIONS REQUIRED TO ACCOUNT FOR ALIGNMENT REVISIONS ADVANCED IN ALTERNATIVE A. TO FACILITATE COMPARISON FOR IMPACT ANALYSIS, THE APPENDICES TO THE FCE REPORT INCLUDES ALL SEGMENTS. THE DRAWING SET HAS BEEN ORGANIZED INTO VOLUMES 1A-5A AND 1B-5B, WITH THE PREFERRED ALTERNATIVE DESIGN DRAWINGS INCLUDED IN THE 1A-5A VOLUMES.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**K. SEYMOUR**

DRAWN BY  
**D. THOMPSON**

CHECKED BY  
**R. BURNS**

IN CHARGE  
**C. TAYLOR**

DATE  
**2/25/2019**



Drawing Title  
**GENERAL**

Scale <b>NO SCALE</b>		
Drawing Status <b>FINAL</b>		
Job No <b>234180</b>	Drawing No <b>GEN-00-0000</b>	Rev <b>01</b>

# 2B-1

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# IH-45 SEGMENT

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**K. SEYMOUR**

DRAWN BY  
**D. THOMPSON**

CHECKED BY  
**R. BURNS**

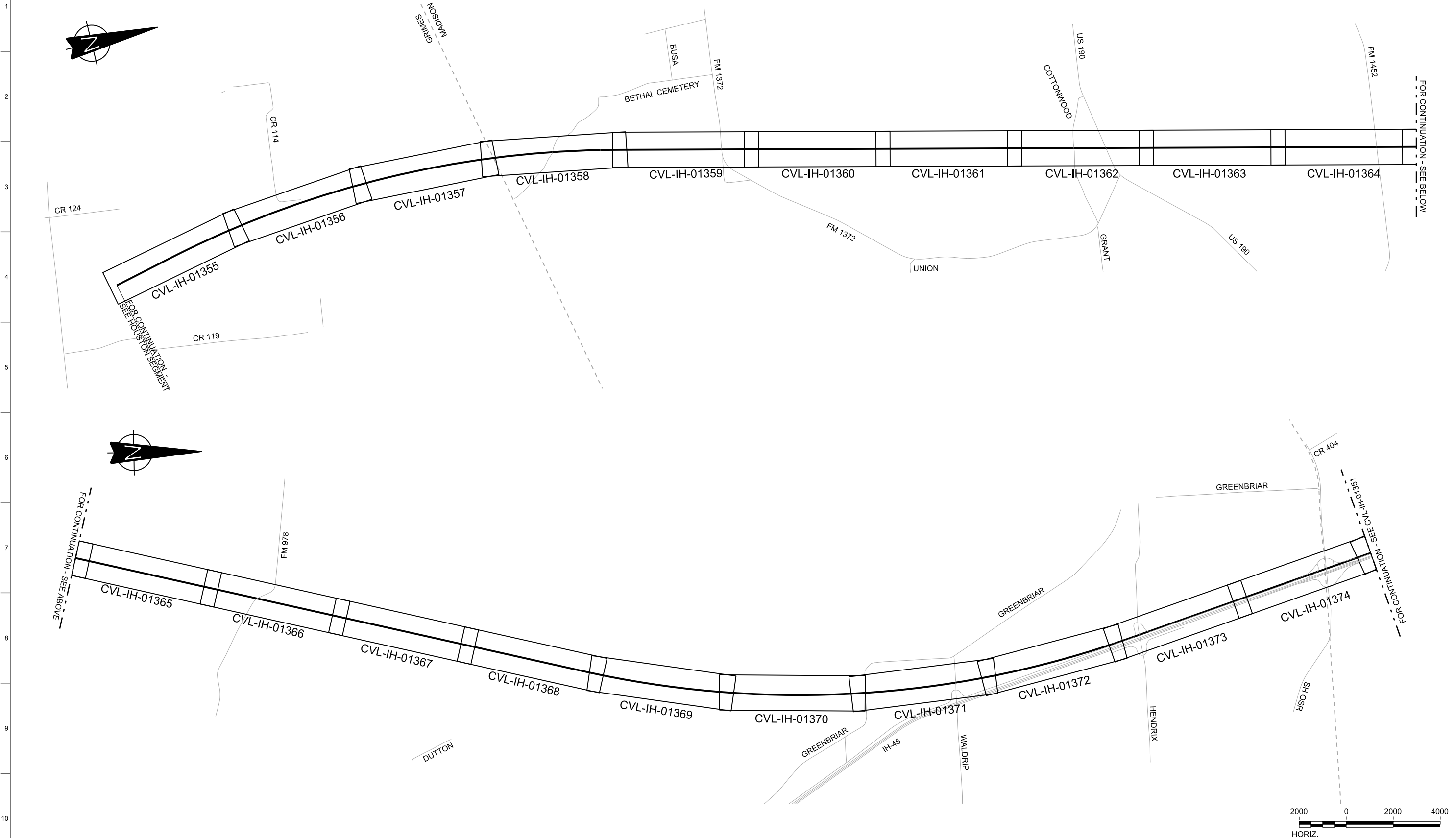
IN CHARGE  
**C. TAYLOR**

DATE  
**2/25/2019**



Drawing Title  
**GENERAL**

Scale <b>NO SCALE</b>		
Drawing Status <b>FINAL</b>		
Job No <b>234180</b>	Drawing No <b>GEN-00-0000</b>	Rev <b>01</b>

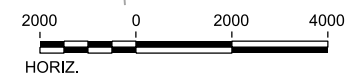


FOR CONTINUATION - SEE BELOW

FOR CONTINUATION - SEE ABOVE

FOR CONTINUATION - SEE ABOVE

FOR CONTINUATION - SEE ABOVE



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

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Tel (214) 217 2200 Fax (214) 217 2201  
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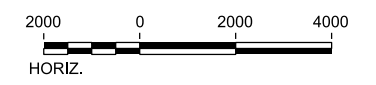
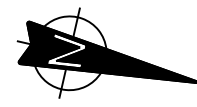
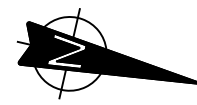
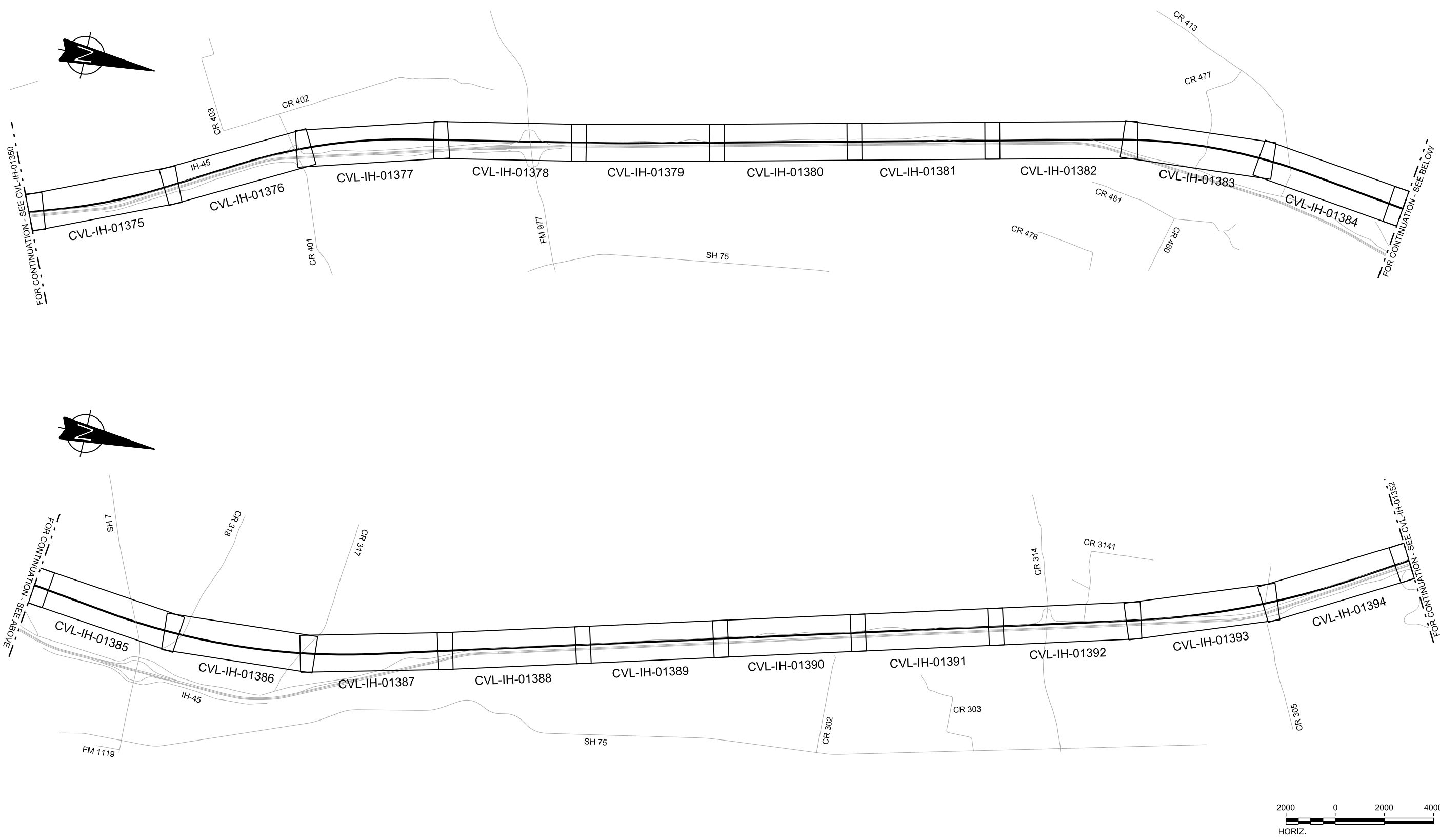
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
KEY MAP - SHEET 1 OF 5  
IH1 10+00 TO IH1 1130+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01350	Rev 01



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**



Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990



2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

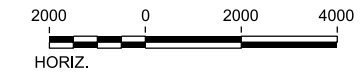
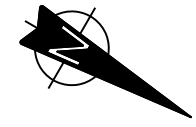
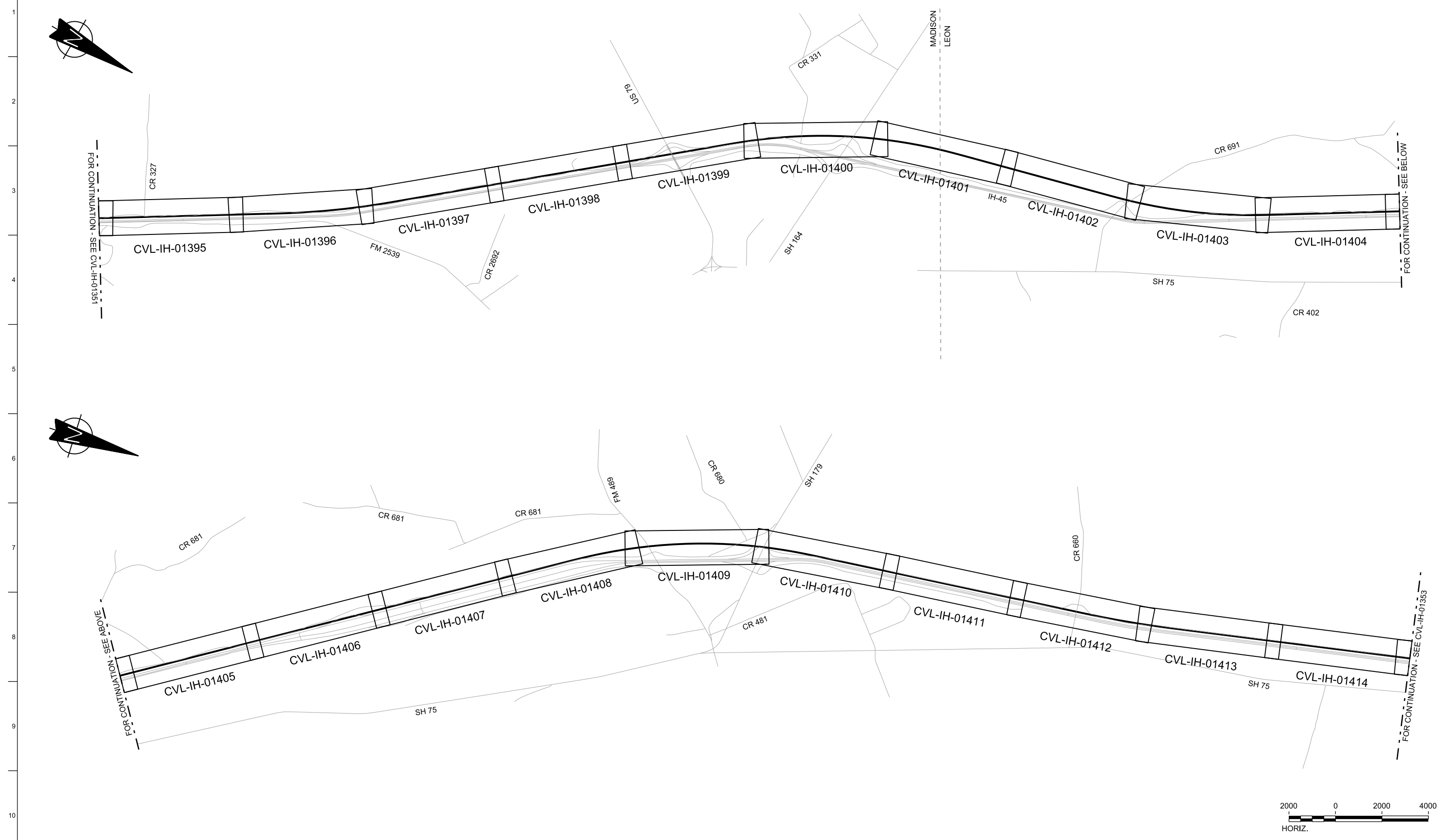
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
KEY MAP - SHEET 2 OF 5  
IH1 1130+00 TO IH1 2250+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01351	Rev 01



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**R. GIBBINS**

CHECKED BY  
**C. ZWIEBEL**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

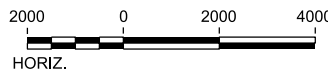
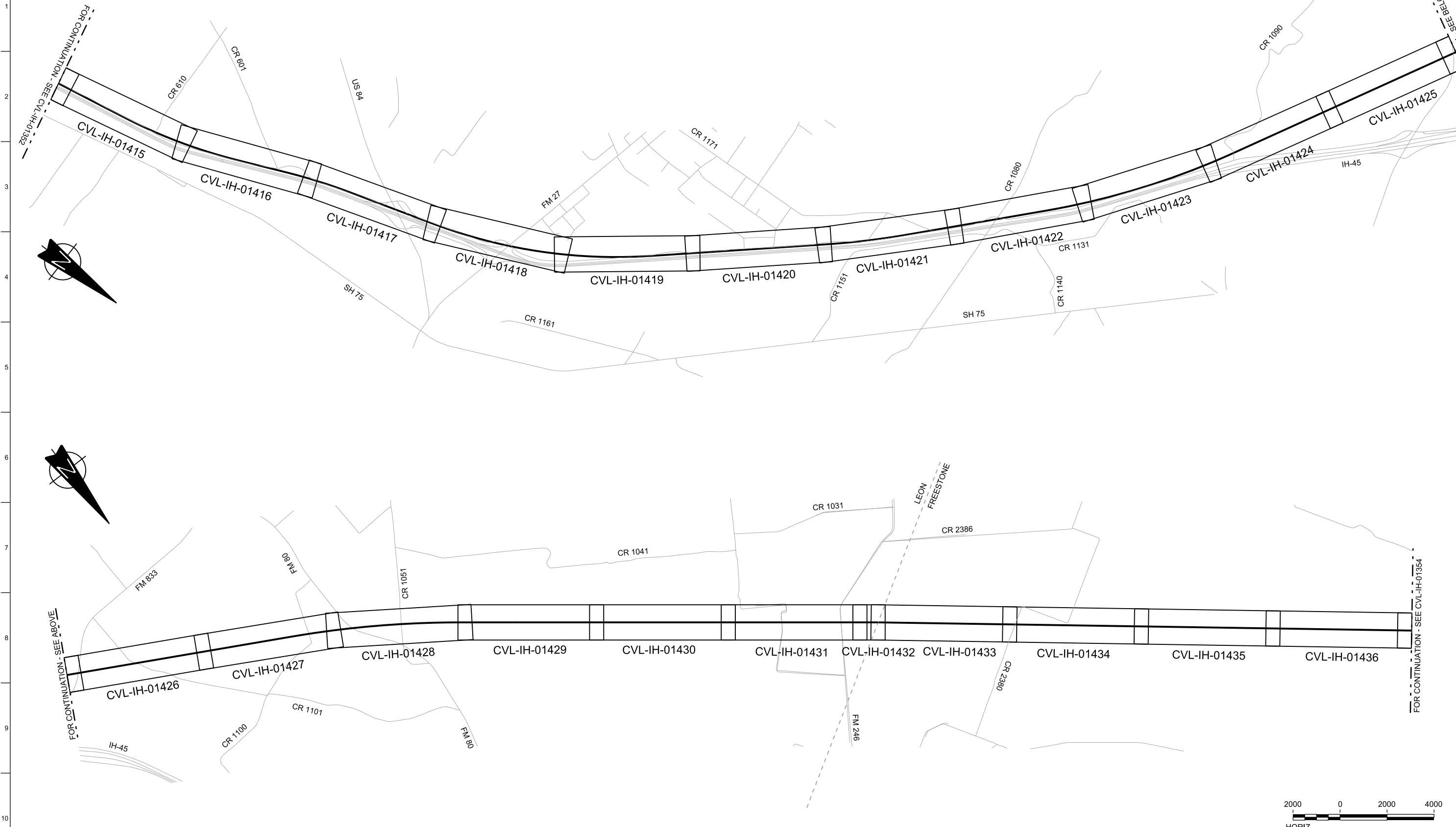
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
KEY MAP - SHEET 3 OF 5  
IH1 2250+00 TO IH1 3370+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01352	Rev 01





REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

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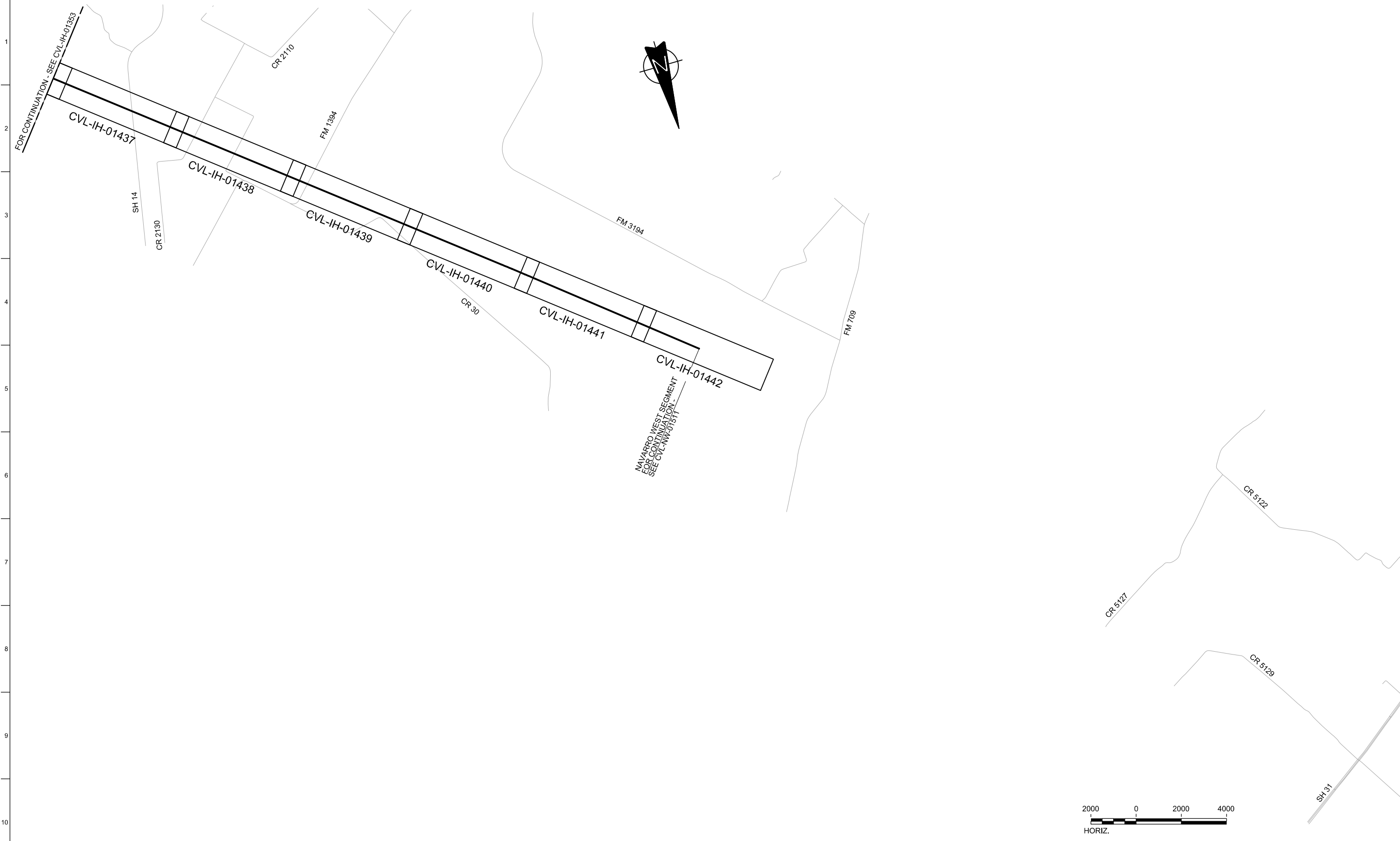
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freesse.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
KEY MAP - SHEET 4 OF 5  
IH1 3370+00 TO IH2 234+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01353	Rev 01



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FREESSE AND NICHOLS**

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Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

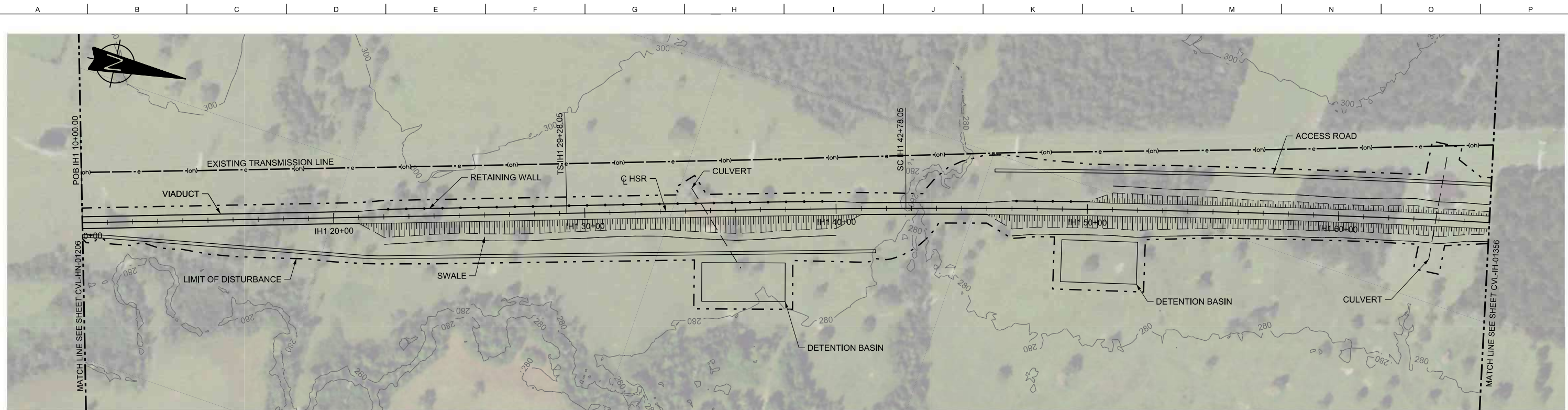
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
KEY MAP - SHEET 5 OF 5  
IH2 234+00 TO IH2 540+81**

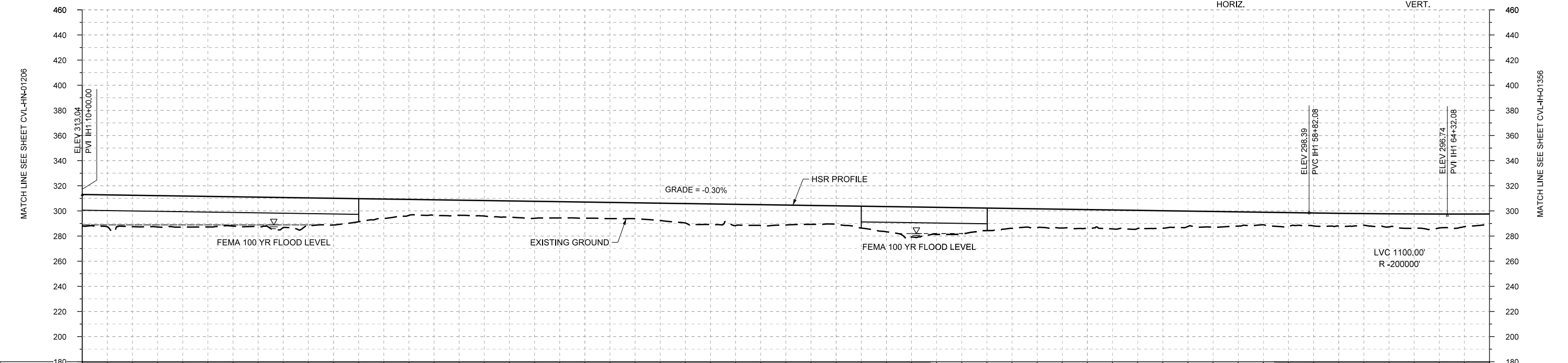
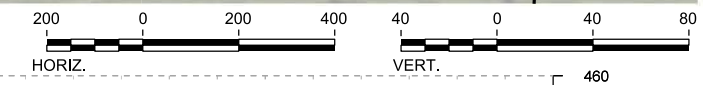
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No <b>234180</b>	Drawing No <b>CVL-IH-01354</b>	Rev <b>01</b>
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PLAN



PROFILE

STATIONING	IH1 10+00	IH1 20+00	IH1 30+00	IH1 40+00	IH1 50+00	IH1 60+00	IH1 66+00																					
HOR. ALIGNMENT	L=1928		L=1350			R=42000 L=18296																						
VER. ALIGNMENT	L=4882.08 G=-0.300%				R=200000																							
CUT AND FILL	+25.2	+24.9	+24.7	+23.3	+23.9	+21.2	+15.3	+12.4	+12.3	+13.5	+12.8	+12.6	+15.5	+15.8	+14.7	+20.0	+21.7	+17.9	+15.0	+15.4	+14.5	+12.2	+11.3	+11.4	+10.1	+10.4	+11.1	+8.2
TYP. SECTION	VIADUCT (K)				EMBANKMENT (F)				VIADUCT (K)		EMBANKMENT (F)																	

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FRESE & NICHOLS**

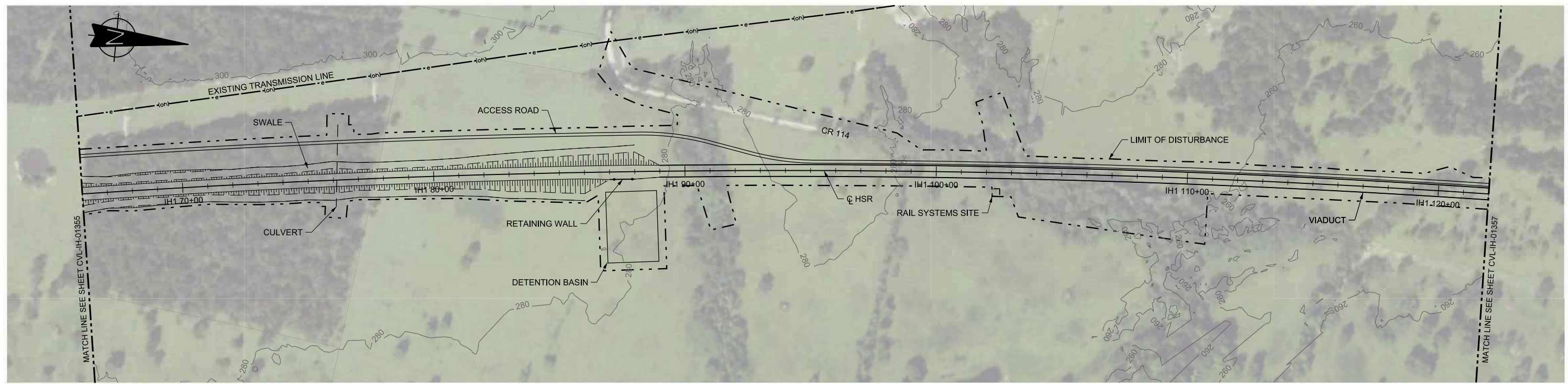
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

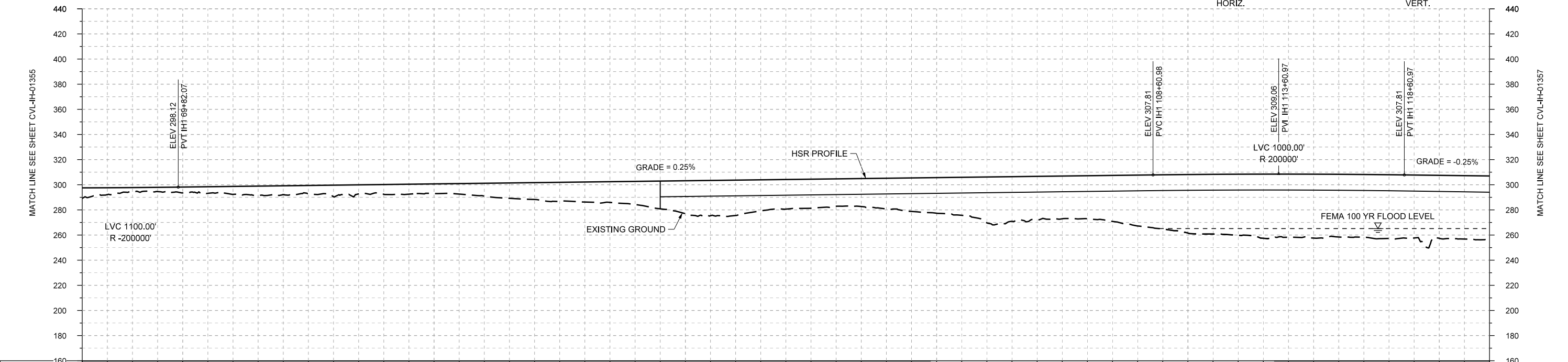
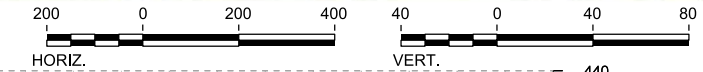
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 10+00 TO IH1 66+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01355	01	



PLAN



STATIONING	IH1 66+00	IH1 70+00	IH1 80+00	IH1 90+00	IH1 100+00	IH1 110+00	IH1 120+00	IH1 122+00																					
HOR. ALIGNMENT	R=42000 L=18296																												
VER. ALIGNMENT	L=3878.90 G=0.250%																												
CUT AND FILL	+8.2	+3.0	+4.7	+6.3	+7.1	+9.2	+7.8	+7.8	+10.3	+13.4	+16.0	+16.5	+26.6	+28.2	+23.6	+21.8	+24.5	+28.4	+36.6	+34.3	+34.3	+40.5	+46.6	+46.6	+50.2	+49.9	+50.7	+50.1	+50.8
TYP. SECTION	CUT (H)		EMBANKMENT (F)										VIADUCT (E)																

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
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**FRESE & NICHOLS**

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Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

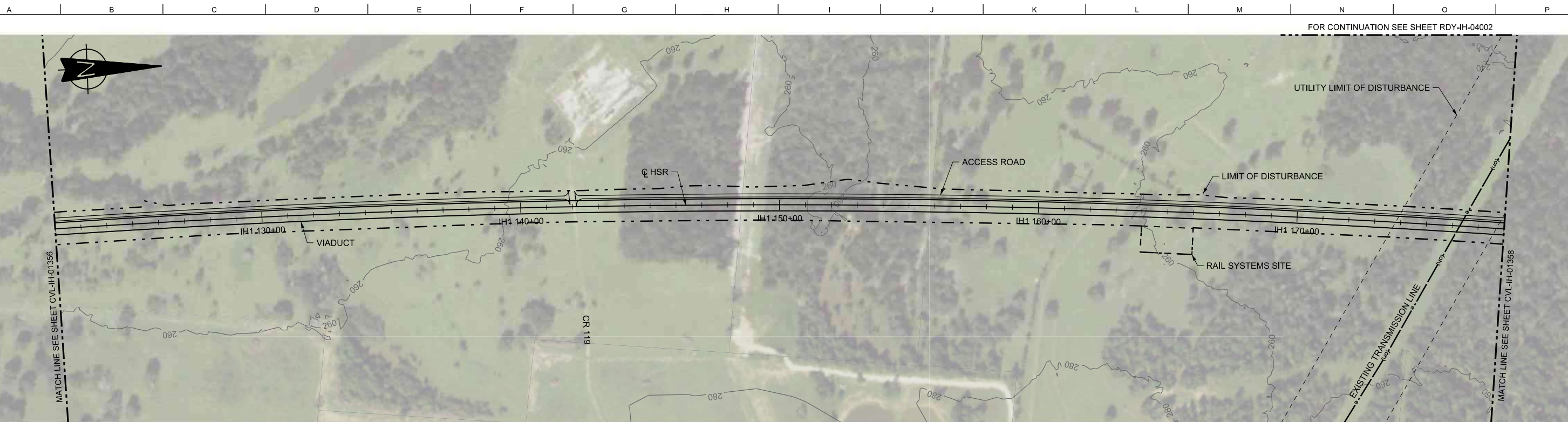
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 66+00 TO IH1 122+00**

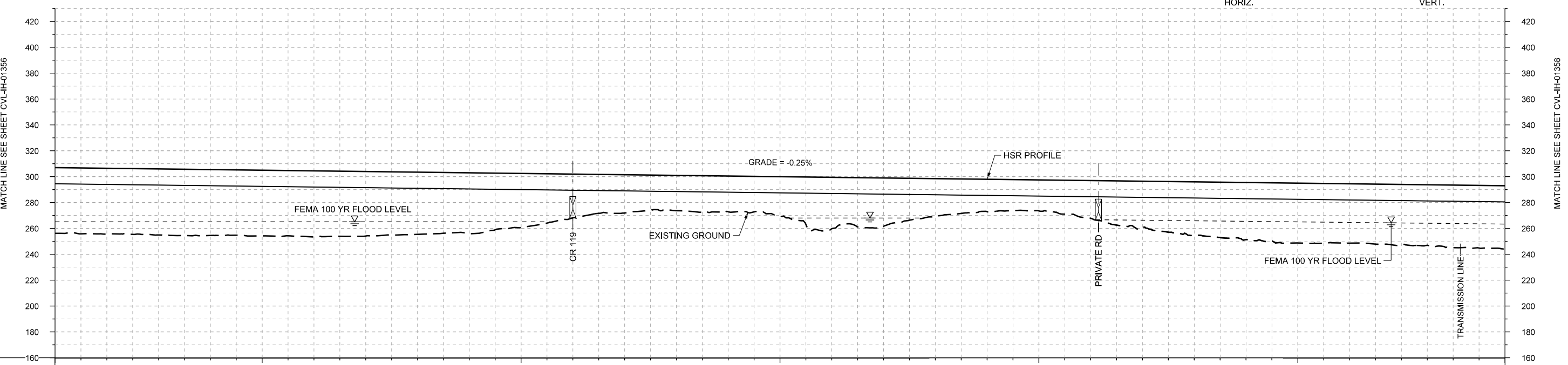
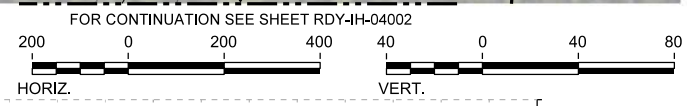
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01356	01



PLAN



PROFILE

STATIONING	IH1 122+00	IH1 130+00	IH1 140+00	IH1 150+00	IH1 160+00	IH1 170+00	IH1 178+00																						
HOR. ALIGNMENT	R=42000 L=18296																												
VER. ALIGNMENT	L=12624.04 G=-0.250%																												
CUT AND FILL	+50.8	+51.0	+51.1	+51.0	+50.8	+51.1	+49.9	+48.1	+47.1	+41.9	+33.9	+29.6	+27.3	+27.7	+30.4	+39.8	+37.5	+29.1	+25.1	+24.0	+29.1	+35.8	+41.4	+44.3	+46.3	+45.9	+48.8	+48.4	+49.1
TYP. SECTION	VIADUCT (E)																												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. PETRIN</b>
DRAWN BY <b>J. BORGHESI</b>
CHECKED BY <b>T. WAGNER</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>

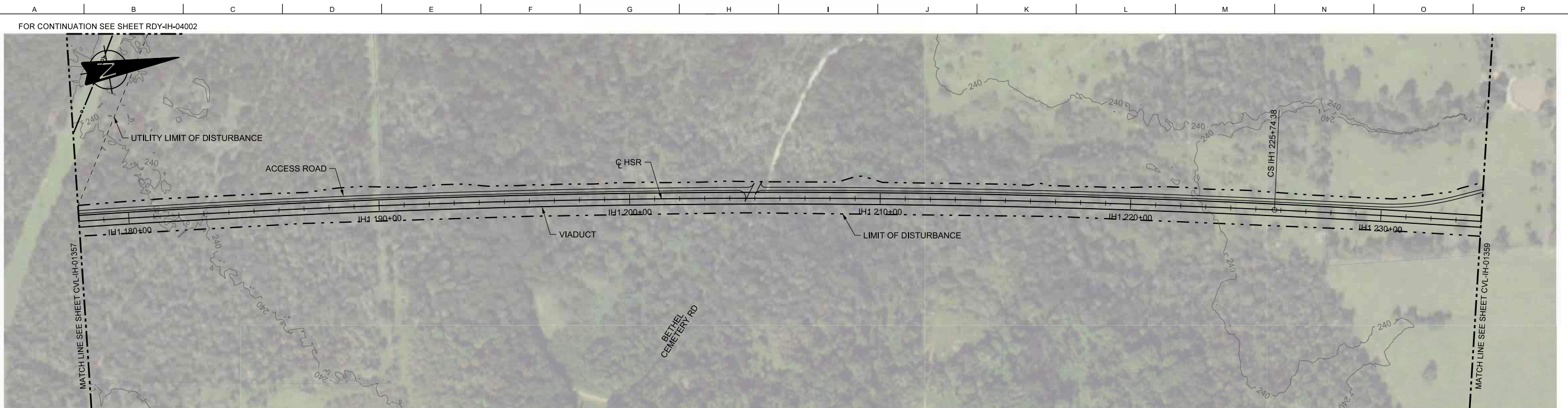
**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
 www.arup.com  
 Texas Registered Engineering Firm: F-1990

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 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

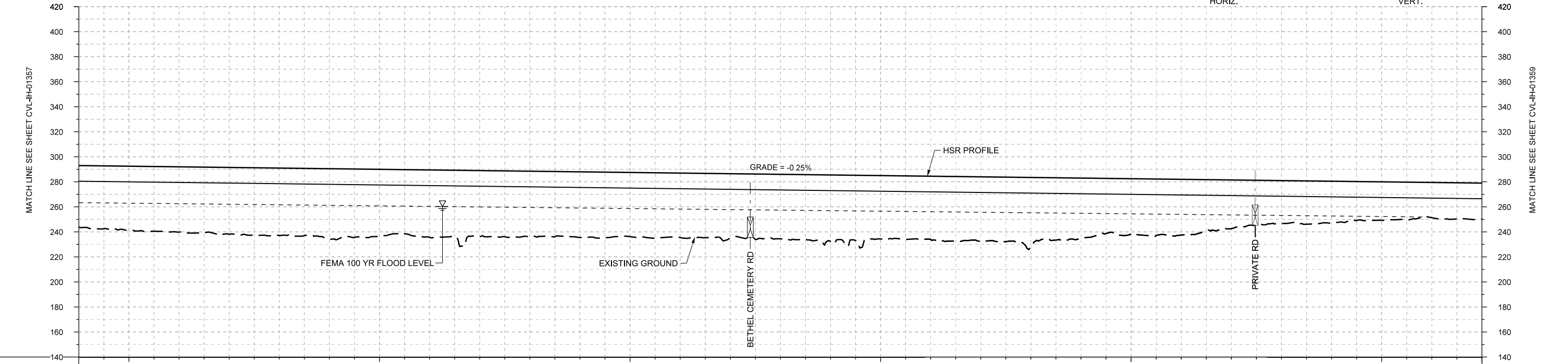
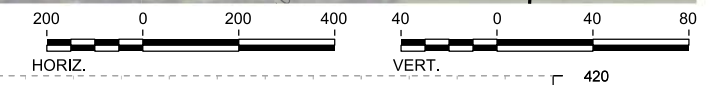
DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 122+00 TO IH1 178+00**

Scale AS SHOWN	Drawing Status <b>FINAL</b>	
Job No 234180	Drawing No CVL-IH-01357	Rev 01



PLAN



PROFILE

STATIONING	IH1 178+00	IH1 180+00	IH1 190+00	IH1 200+00	IH1 210+00	IH1 220+00	IH1 230+00	IH1 234+00																					
HOR. ALIGNMENT	R=42000 L=18296				L=12624.04 G=-0.250%																								
VER. ALIGNMENT																													
CUT AND FILL	+46.1	+51.0	+52.2	+53.4	+54.1	+56.4	+53.4	+53.9	+52.8	+52.2	+52.5	+51.3	+51.6	+51.8	+51.6	+53.4	+50.7	+50.5	+51.3	+53.9	+48.5	+44.1	+44.5	+38.9	+34.4	+33.4	+30.7	+28.2	+28.7
TYP. SECTION	VIADUCT (E)																												

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
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**FREESSE AND NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

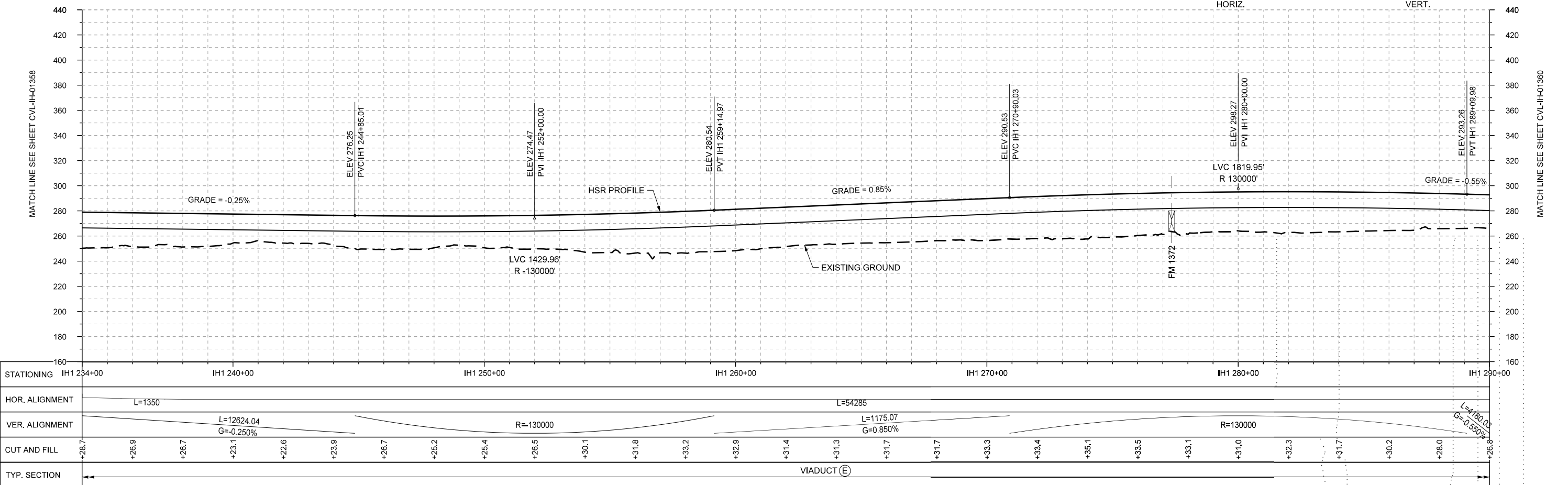
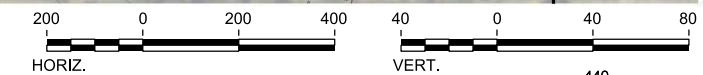
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 178+00 TO IH1 234+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01358	01	

REV	DATE	BY	CHK	APP	DESCRIPTION



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FRESE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

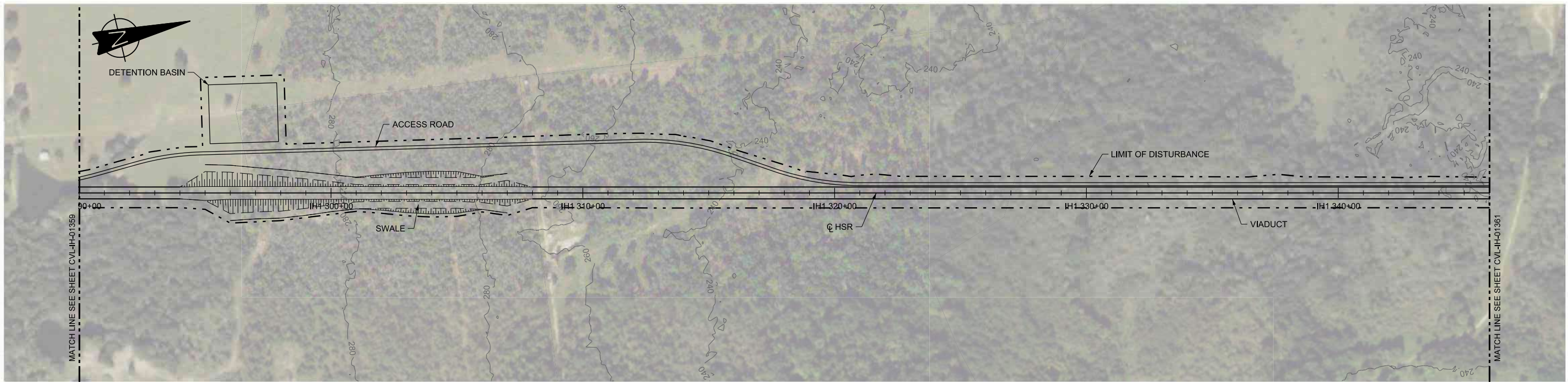
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 234+00 TO IH1 290+00**

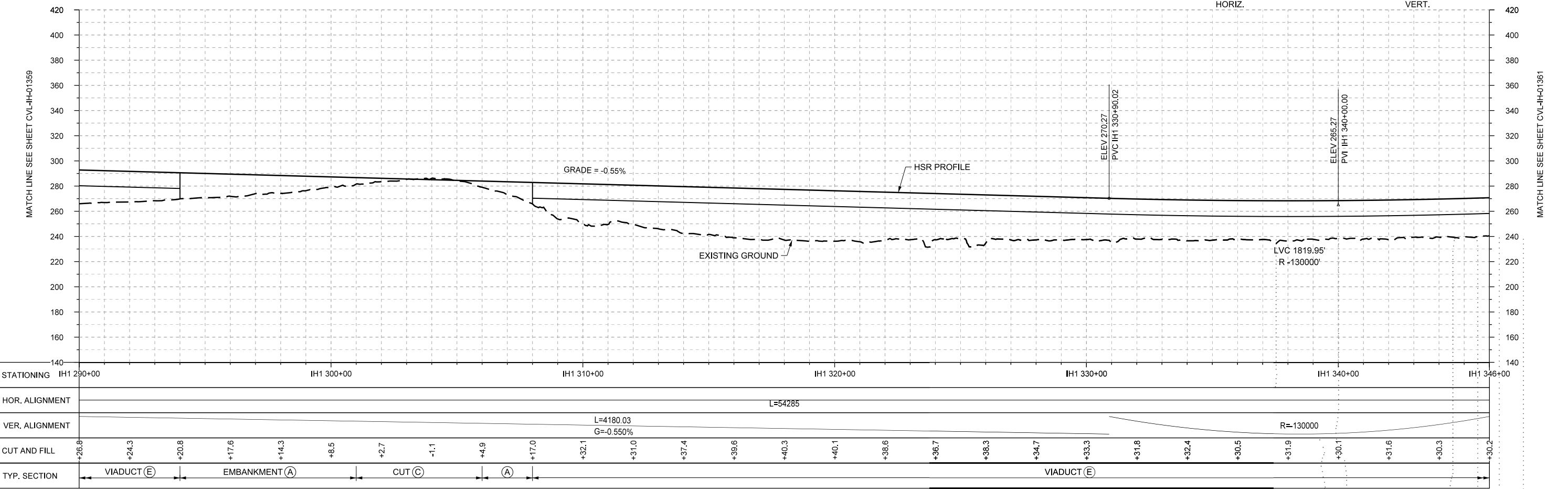
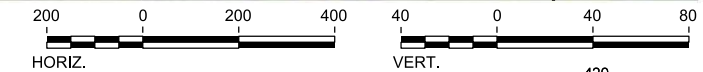
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No <b>234180</b>	Drawing No <b>CVL-IH-01359</b>	Rev <b>01</b>
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PLAN



PROFILE

STATIONING	IH1 290+00	IH1 300+00	IH1 310+00	IH1 320+00	IH1 330+00	IH1 340+00	IH1 346+00																						
HOR. ALIGNMENT	L=54285																												
VER. ALIGNMENT	L=4180.03 G=-0.550%																												
CUT AND FILL	+26.8	+24.3	+20.8	+17.6	+14.3	+8.5	+2.7	-1.1	+4.9	+17.0	+32.1	+31.0	+37.4	+39.6	+40.3	+40.1	+38.6	+36.7	+36.3	+34.7	+33.3	+31.8	+32.4	+30.5	+31.9	+30.1	+31.6	+30.3	+30.2
TYP. SECTION	VIADUCT (E)		EMBANKMENT (A)			CUT (C)		(A)	VIADUCT (E)																				

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
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www.arup.com  
Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

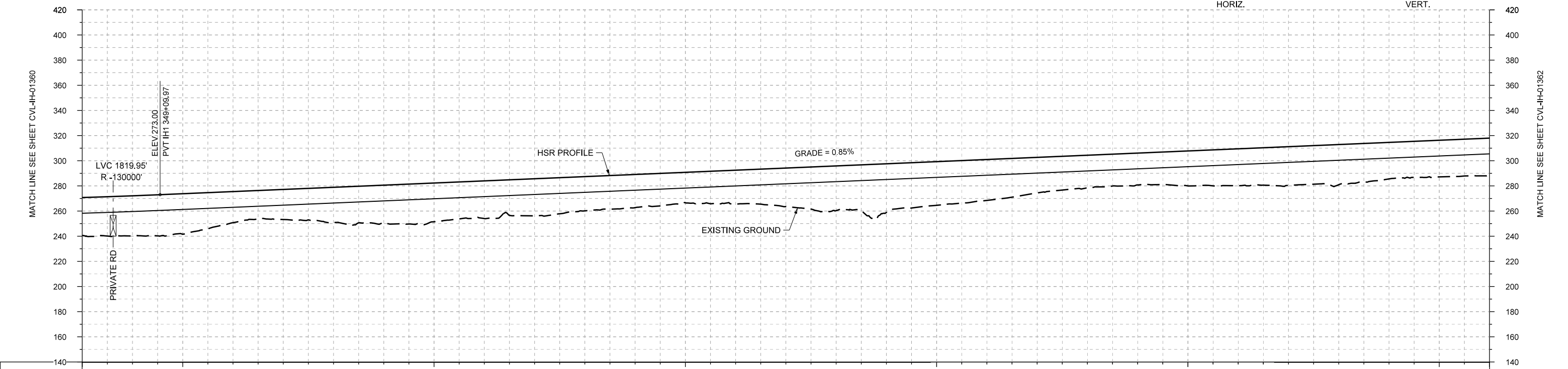
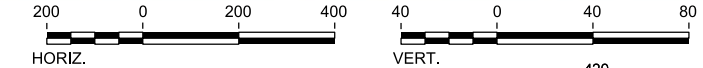
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 290+00 TO IH1 346+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01360
Rev	01





PLAN



STATIONING	IH1 346+00	IH1 350+00	IH1 360+00	IH1 370+00	IH1 380+00	IH1 390+00	IH1 400+00	IH1 402+00																					
HOR. ALIGNMENT	L=54285																												
VER. ALIGNMENT	R=130000      L=6687.58 G=0.850%																												
CUT AND FILL	+30.2	+32.0	+32.2	+24.8	+23.9	+26.3	+29.6	+30.9	+30.0	+29.5	+27.2	+26.4	+24.2	+27.1	+30.6	+35.6	+38.7	+34.8	+32.6	+28.3	+26.0	+25.4	+27.8	+29.3	+30.8	+32.0	+28.1	+26.1	+30.0
TYP. SECTION	VIADUCT (E)																												

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

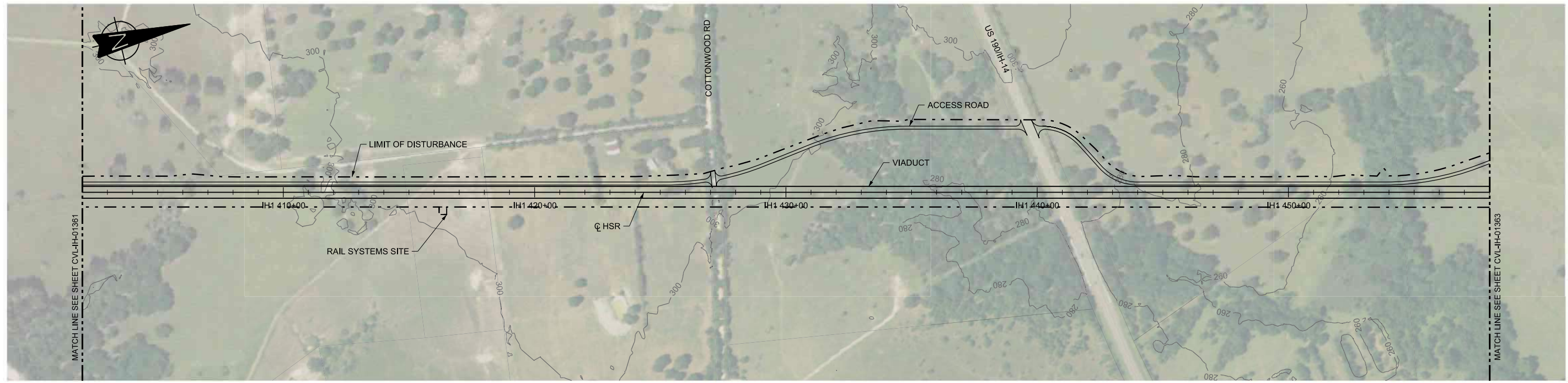
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

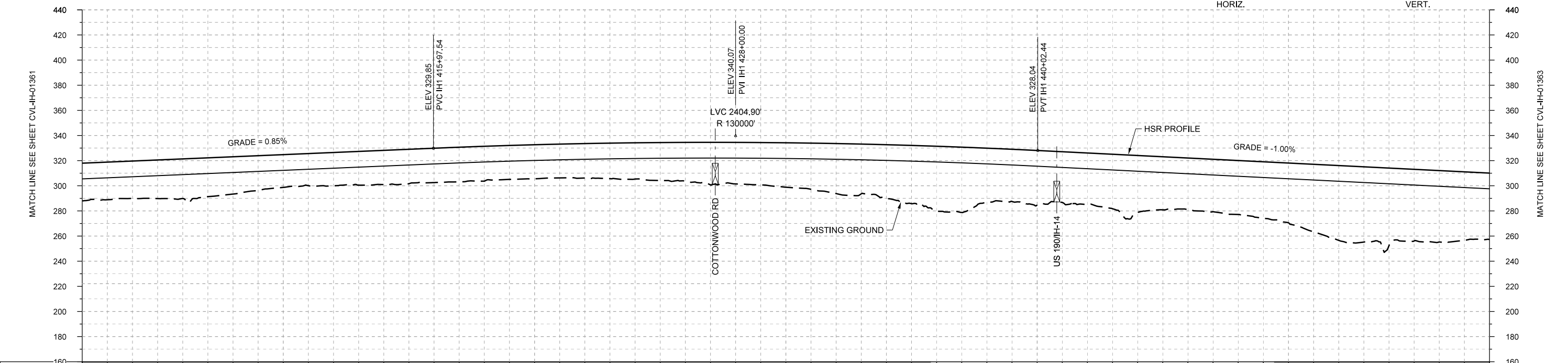
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 346+00 TO IH1 402+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01361	01	



PLAN



STATIONING	IH1 402+00	IH1 410+00	IH1 420+00	IH1 430+00	IH1 440+00	IH1 450+00	IH1 458+00
HOR. ALIGNMENT	L=54285						
VER. ALIGNMENT	L=6687.58 G=0.850%			R=130000		L=3207.94 G=-1.000%	
CUT AND FILL	+30.0	+29.7	+31.6	+29.7	+26.1	+26.5	+27.3
TYP. SECTION	VIADUCT (E)						

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

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Tel (214) 217 2200 Fax (214) 217 2201  
www.freesse.com  
Texas Registered Engineering Firm: F-2144

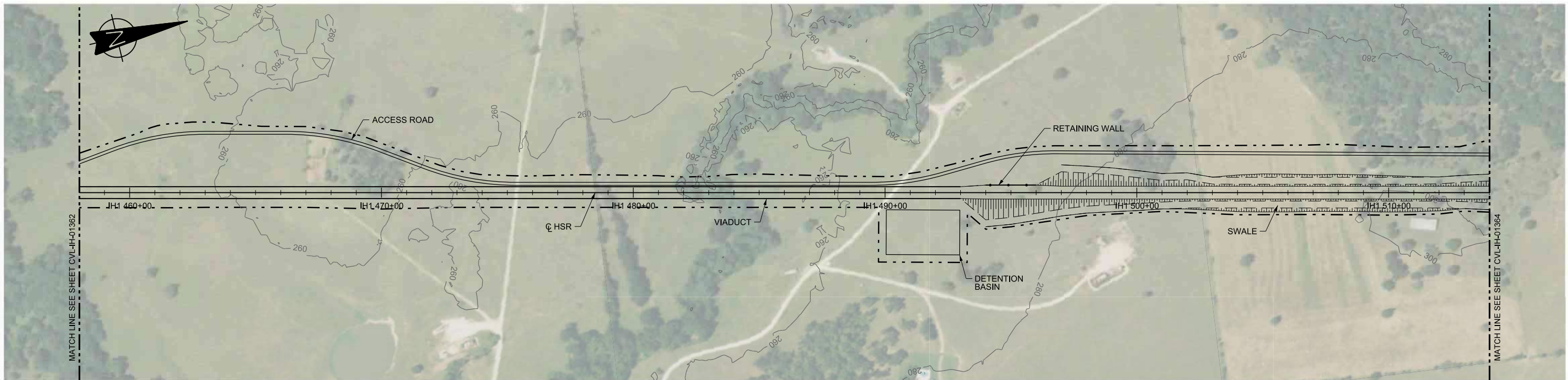
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

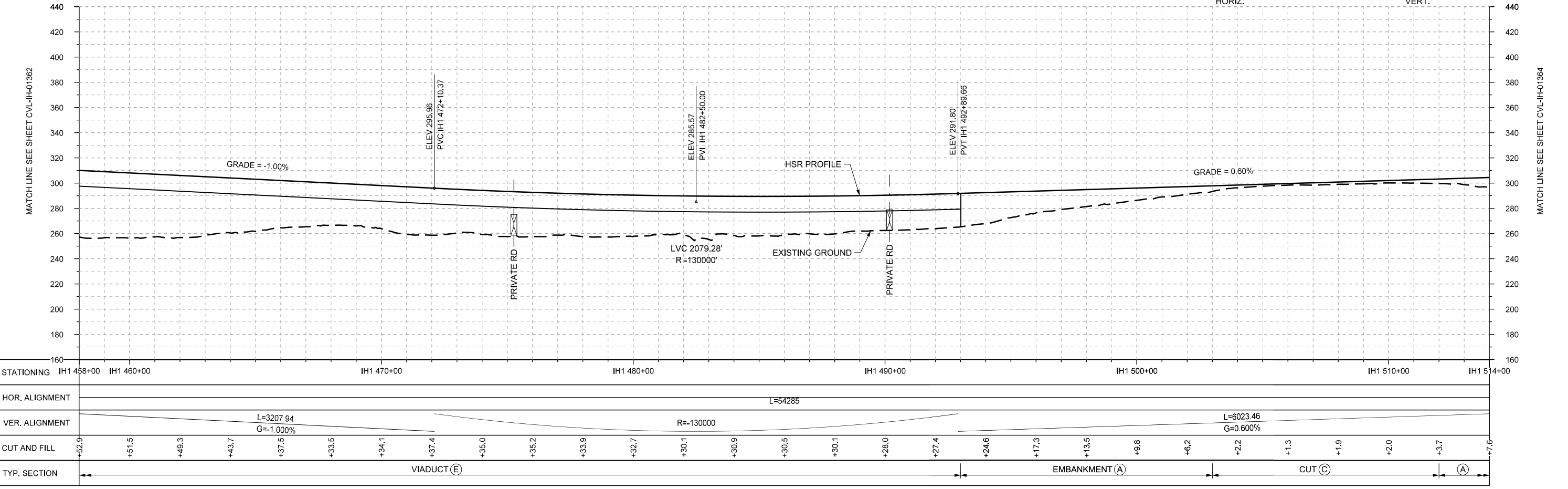
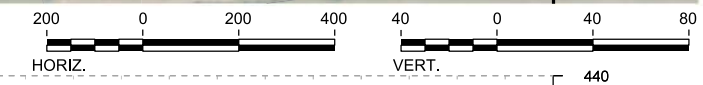
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 402+00 TO IH1 458+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01362	01	



PLAN



PROFILE

DESIGNED BY <b>D. PETRIN</b>
DRAWN BY <b>J. BORGHESI</b>
CHECKED BY <b>T. WAGNER</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>

REV	DATE	BY	CHK	APP	DESCRIPTION

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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

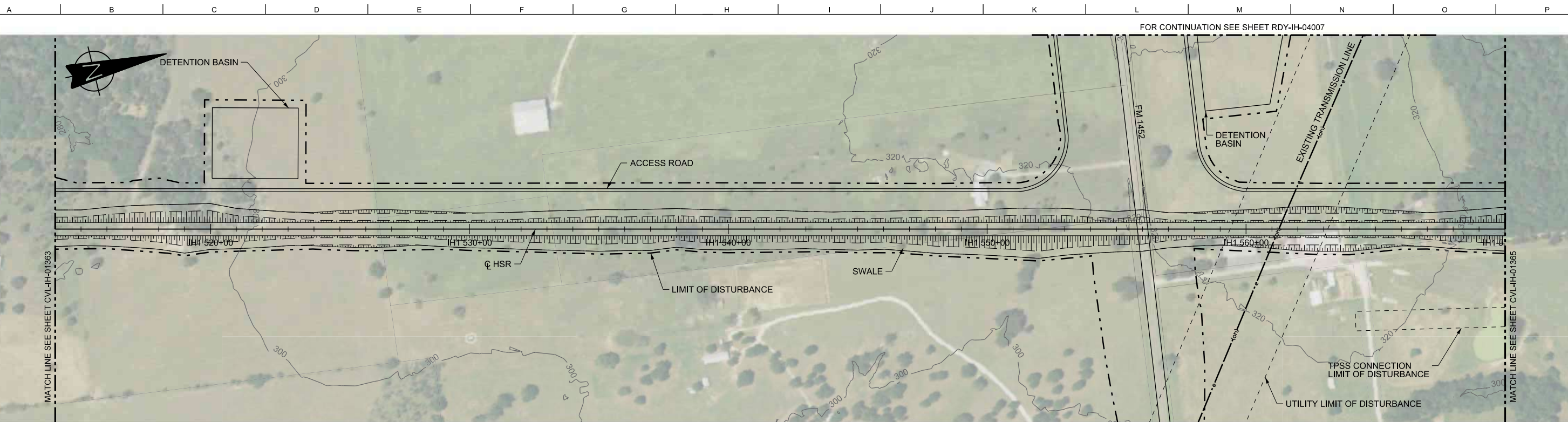
Drawing Title

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CIVIL  
PLAN AND PROFILE  
IH1 458+00 TO IH1 514+00**

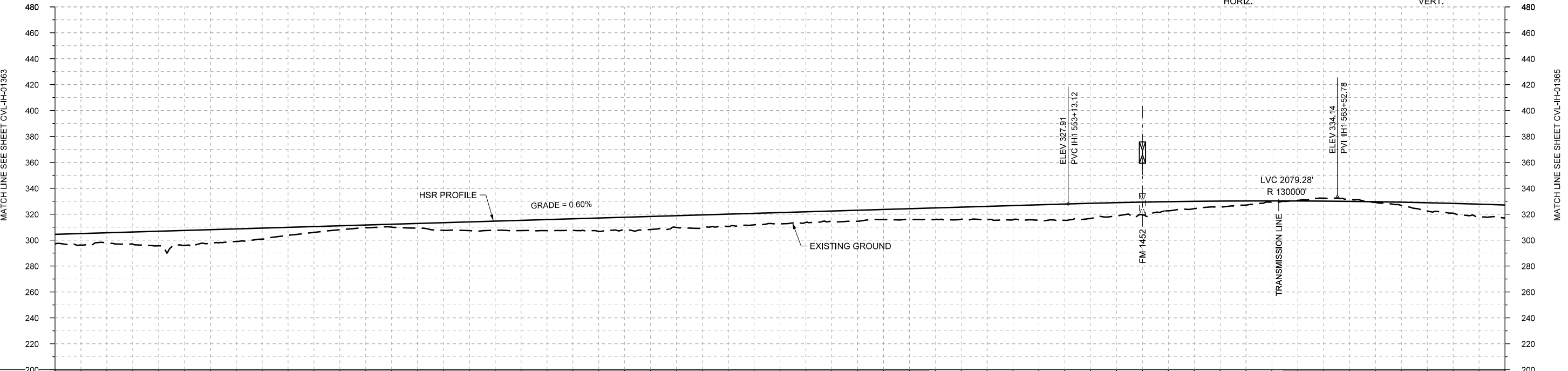
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No 234180	Drawing No CVL-IH-01363	Rev 01
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PLAN



PROFILE

STATIONING	IH1 514+00	IH1 520+00	IH1 530+00	IH1 540+00	IH1 550+00	IH1 560+00	IH1 570+00																						
HOR. ALIGNMENT	L=54285																												
VER. ALIGNMENT	L=6023.46 G=0.600%																												
CUT AND FILL	+7.6	+7.8	+11.2	+10.4	+8.4	+4.4	+2.0	+3.6	+6.6	+7.8	+9.0	+9.9	+9.0	+9.4	+8.5	+8.3	+7.8	+9.0	+10.4	+11.9	+11.7	+9.8	+5.7	+3.2	-0.4	-1.5	+2.5	+7.6	+10.1
TYP. SECTION	EMBANKMENT (A)				CUT (C)		EMBANKMENT (A)										CUT (C)		EMBANKMENT (A)										

DESIGNED BY	D. PETRIN
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IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

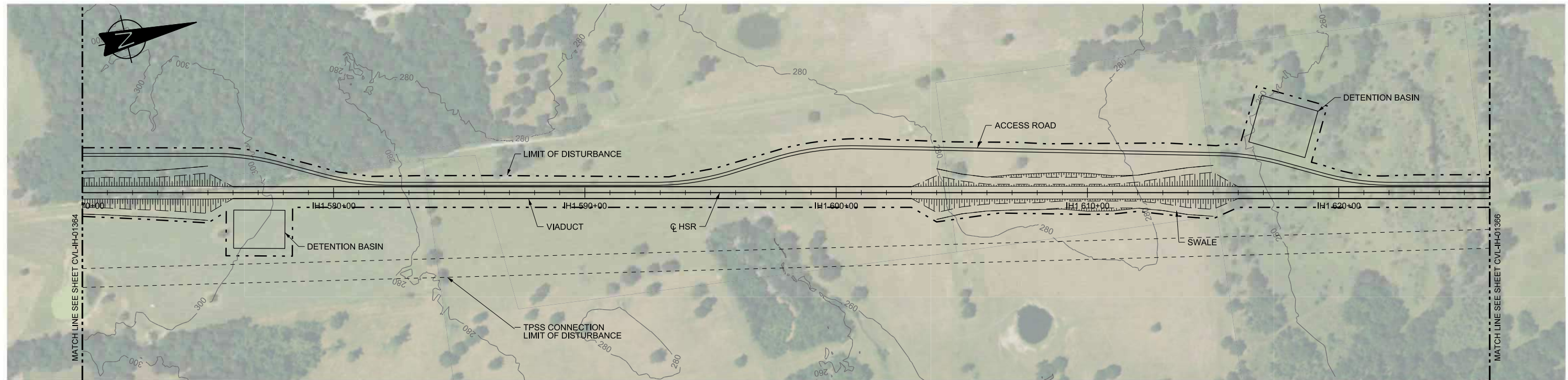
Drawing Title

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PLAN AND PROFILE  
IH1 514+00 TO IH1 570+00**

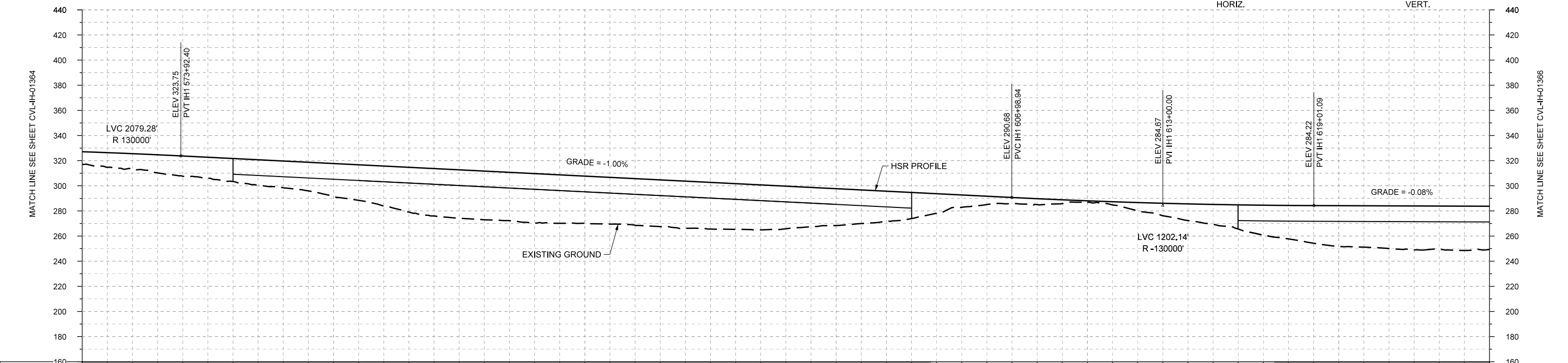
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01364	01



PLAN



STATIONING	IH1 570+00	IH1 580+00	IH1 590+00	IH1 600+00	IH1 610+00	IH1 620+00	IH1 626+00
HOR. ALIGNMENT	L=54285						
VER. ALIGNMENT	R=130000		L=3306.54 G=-1.000%			R=130000	
CUT AND FILL	+10.1	+12.9	+16.1	+18.3	+21.3	+26.2	+31.7
	+37.8	+38.8	+39.4	+37.5	+37.1	+36.4	+33.9
	+29.4	+23.9	+15.6	+6.6	+4.7	+1.3	+6.5
	+13.3	+19.2	+26.6	+32.3	+33.9	+34.7	+34.4
TYP. SECTION	EMBANKMENT (A)		VIADUCT (E)			EMBANKMENT (A)	
	CUT (C)		EMBANKMENT (A)		VIADUCT (E)		

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
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IN CHARGE  
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DATE  
**02/25/2019**

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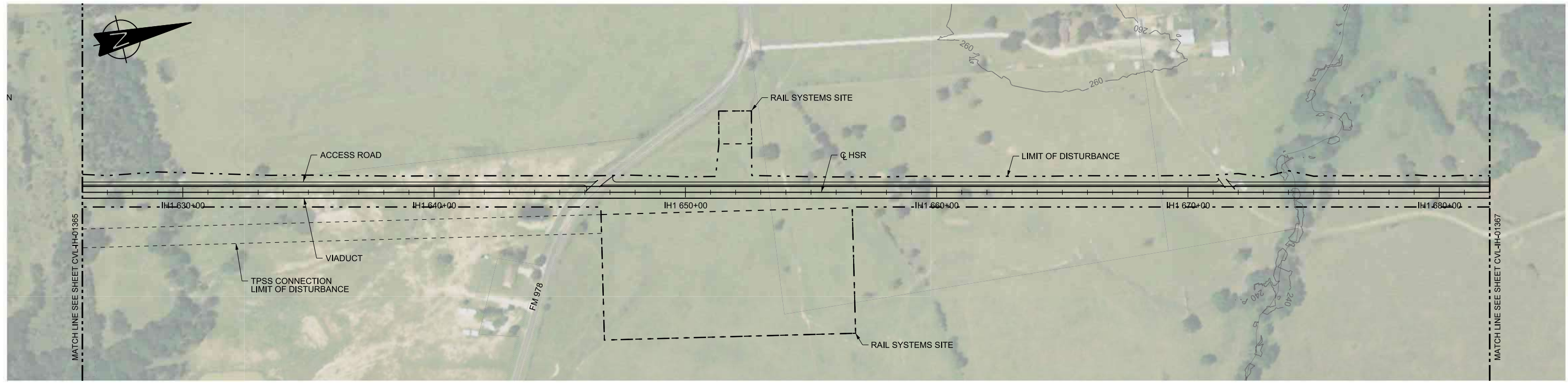
2711 North Haskell Ave., Suite 3300  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

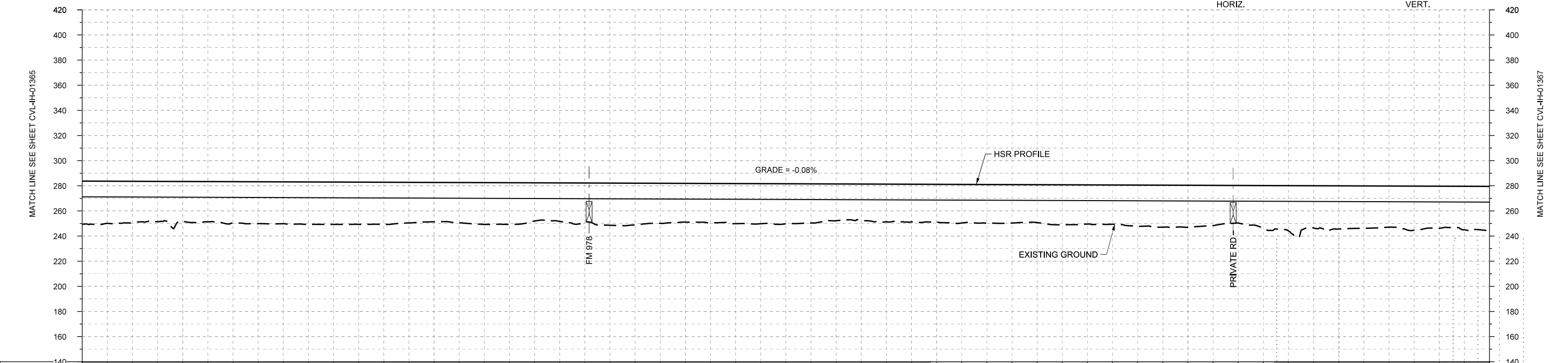
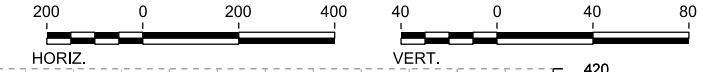
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 570+00 TO IH1 626+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01365
Rev	01



PLAN



PROFILE

STATIONING	IH1 626+00	IH1 630+00	IH1 640+00	IH1 650+00	IH1 660+00	IH1 670+00	IH1 680+00	IH1 682+00																					
HOR. ALIGNMENT	L=54285																												
VER. ALIGNMENT	L=9589.98 G=-0.075%																												
CUT AND FILL	+34.4	+32.5	+31.8	+32.9	+33.3	+33.6	+33.5	+31.3	+33.2	+30.3	+30.6	+33.1	+30.8	+31.9	+31.8	+29.1	+30.0	+30.1	+30.7	+30.1	+31.2	+32.7	+33.4	+29.8	+36.0	+34.3	+32.7	+33.5	+36.2
TYP. SECTION	VIADUCT (E)																												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
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IN CHARGE  
**C. TAYLOR**

DATE  
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Tel (214) 217 2200 Fax (214) 217 2201  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

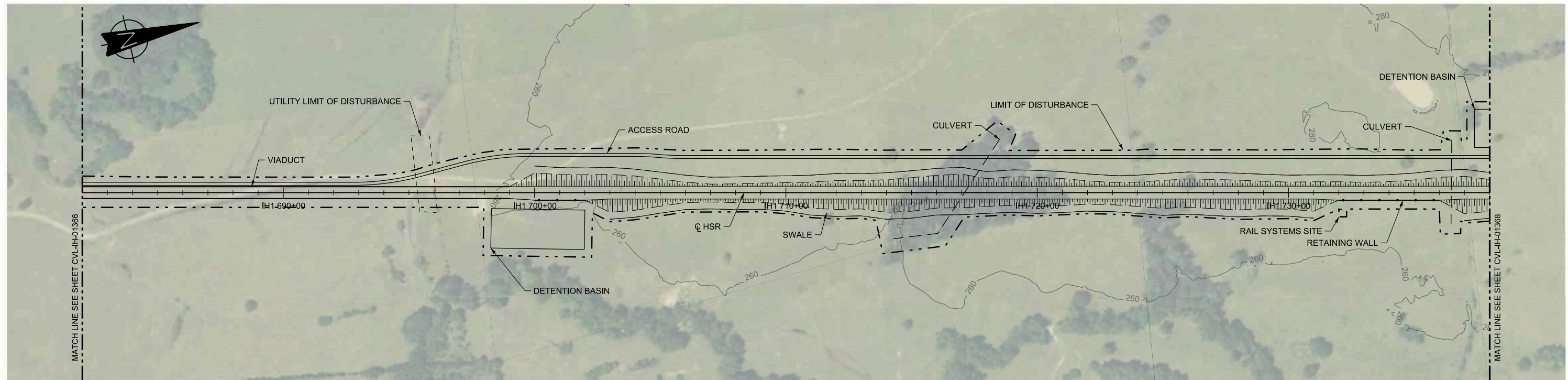
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 626+00 TO IH1 682+00**

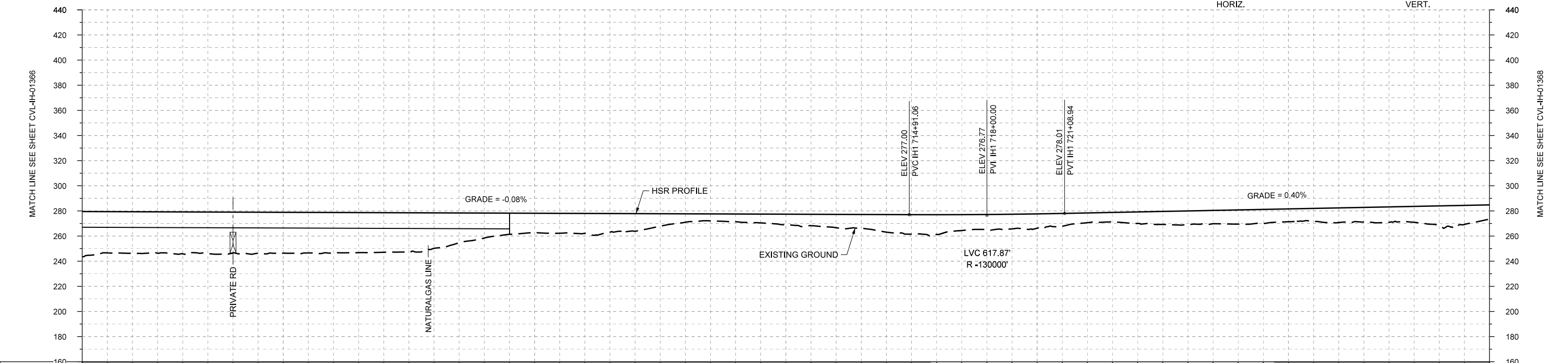
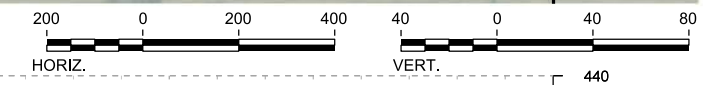
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01366	01



PLAN



STATIONING	IH1 682+00	IH1 690+00	IH1 700+00	IH1 710+00	IH1 720+00	IH1 730+00	IH1 738+00																						
HOR. ALIGNMENT	L=54285																												
VER. ALIGNMENT	L=9589.98 G=-0.075%			R=130000		L=15921.36 G=0.400%																							
CUT AND FILL	+36.2	+33.1	+33.4	+32.4	+32.5	+32.3	+31.5	+28.2	+19.9	+15.5	+15.8	+14.0	+6.7	+6.1	+8.4	+10.6	+14.0	+15.8	+12.2	+11.4	+7.8	+8.2	+10.9	+11.3	+10.2	+11.7	+12.3	+15.6	+11.4
TYP. SECTION	VIADUCT (E)										EMBANKMENT (A)																		

PROFILE

DESIGNED BY	D. PETRIN
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IN CHARGE	C. TAYLOR
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REV	DATE	BY	CHK	APP	DESCRIPTION

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Dallas, Texas 75204  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

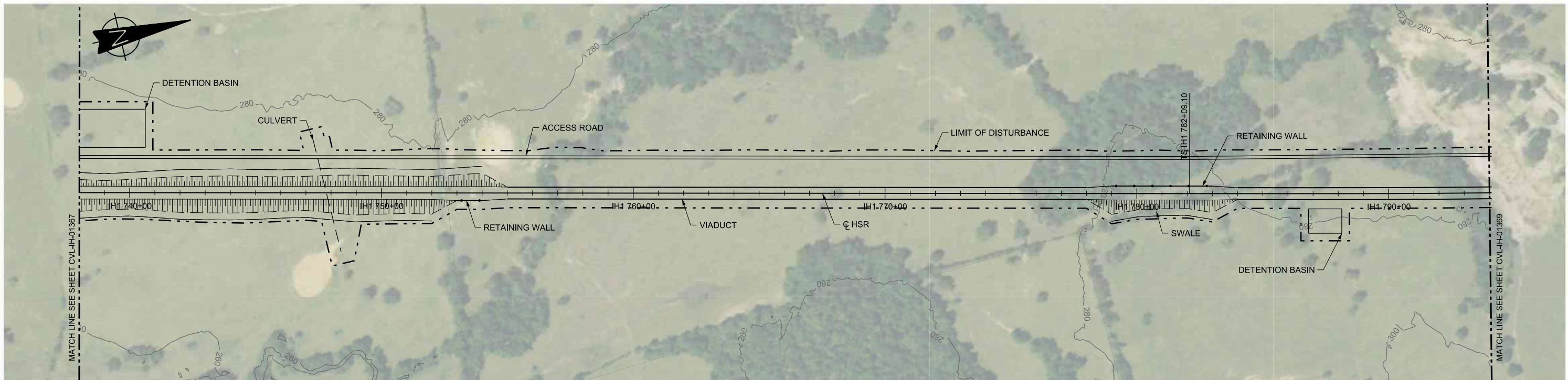
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 682+00 TO IH1 738+00**

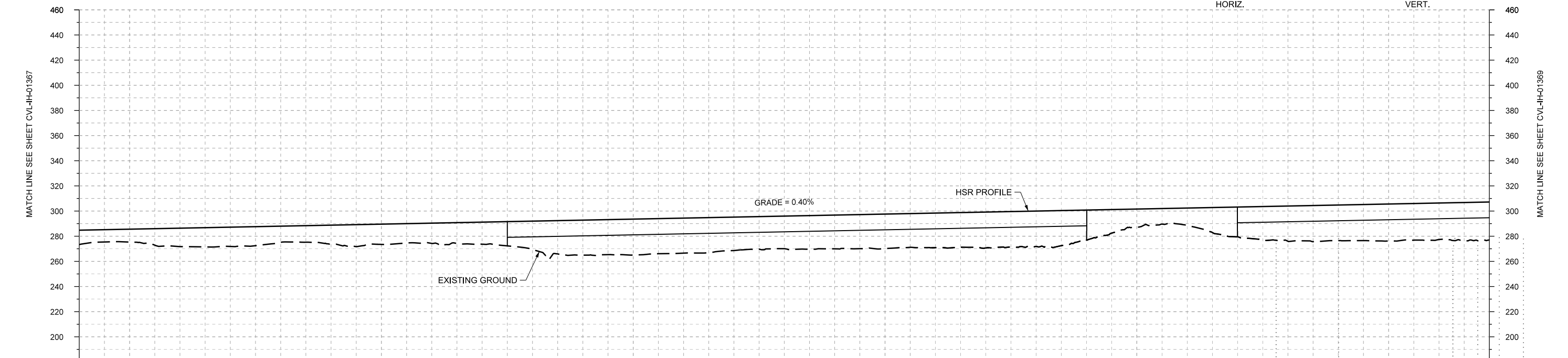
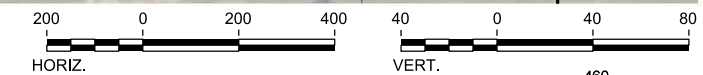
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01367	01



PLAN



PROFILE

STATIONING	IH1 738+00	IH1 740+00	IH1 750+00	IH1 760+00	IH1 770+00	IH1 780+00	IH1 790+00	IH1 794+00																						
HOR. ALIGNMENT	L=54285																													
VER. ALIGNMENT	L=15921.36 G=0.400%																													
CUT AND FILL	+11.4	+10.3	+14.7	+15.4	+12.9	+15.2	+16.1	+16.1	+17.5	+22.6	+27.9	+26.6	+27.9	+26.6	+25.9	+26.8	+27.5	+27.5	+26.5	+26.2	+23.9	+14.5	+13.8	+23.7	+26.0	+26.3	+28.4	+29.0	+30.4	
TYP. SECTION	EMBANKMENT (A)										VIADUCT (E)										EMBANKMENT (A)						VIADUCT (E)			

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
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IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

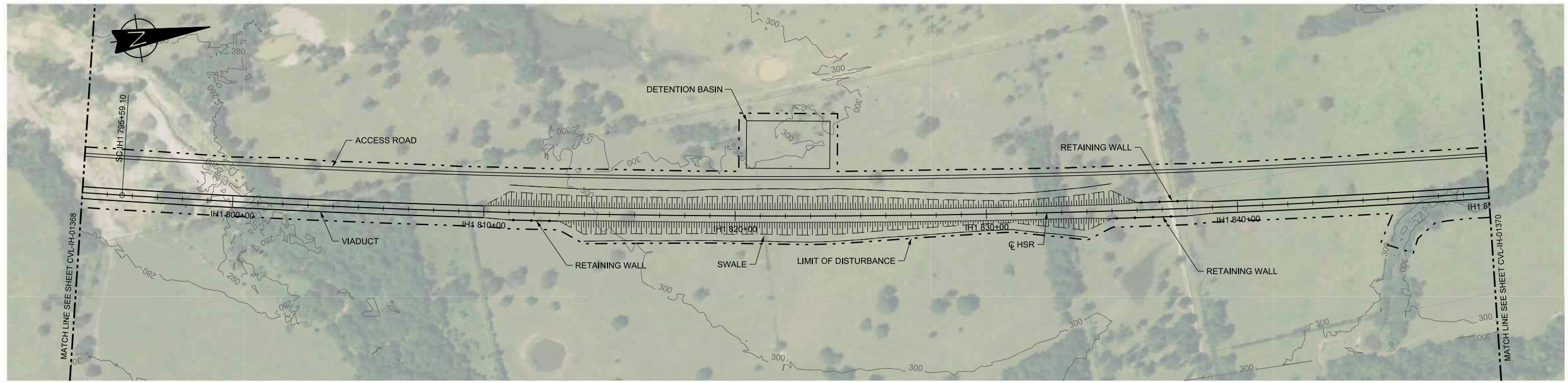
**TEXAS CENTRAL**

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

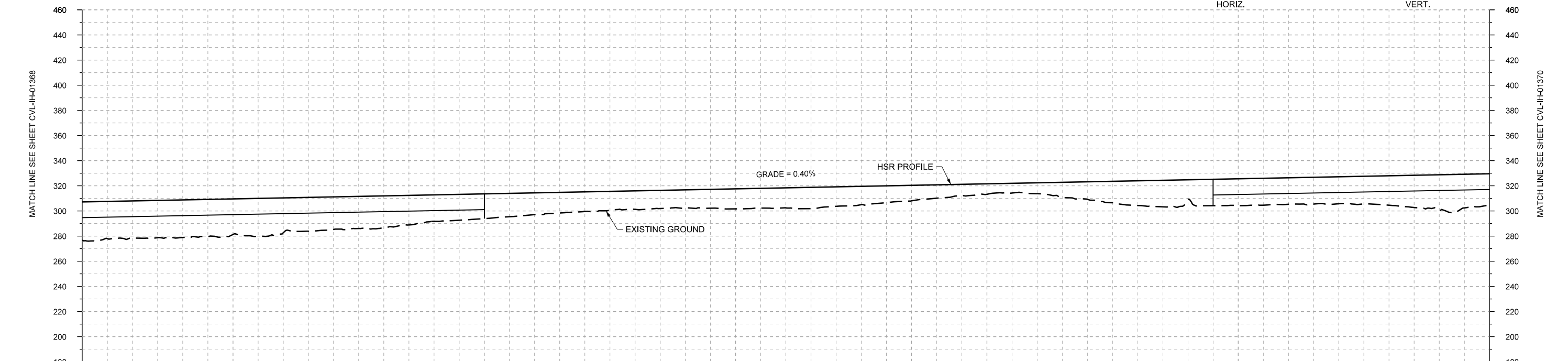
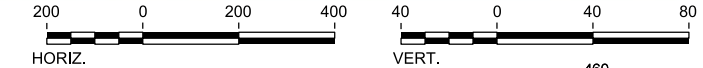
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 738+00 TO IH1 794+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01368	01	





PLAN



PROFILE

STATIONING	IH1 794+00	IH1 800+00	IH1 810+00	IH1 820+00	IH1 830+00	IH1 840+00	IH1 850+00																						
HOR. ALIGNMENT	L=1350			R=42000 L=22142																									
VER. ALIGNMENT				L=15921.36 G=0.400%																									
CUT AND FILL	+30.4	+29.6	+29.9	+28.3	+27.7	+26.0	+25.3	+21.1	+19.7	+17.3	+15.6	+14.7	+14.5	+15.9	+15.9	+15.5	+13.4	+10.7	+8.3	+8.7	+13.9	+19.7	+15.5	+21.4	+21.1	+21.5	+23.4	+28.0	+25.1
TYP. SECTION	VIADUCT (E)				EMBANKMENT (A)										RETAINED FILL (B)		VIADUCT (E)												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	D. PETRIN
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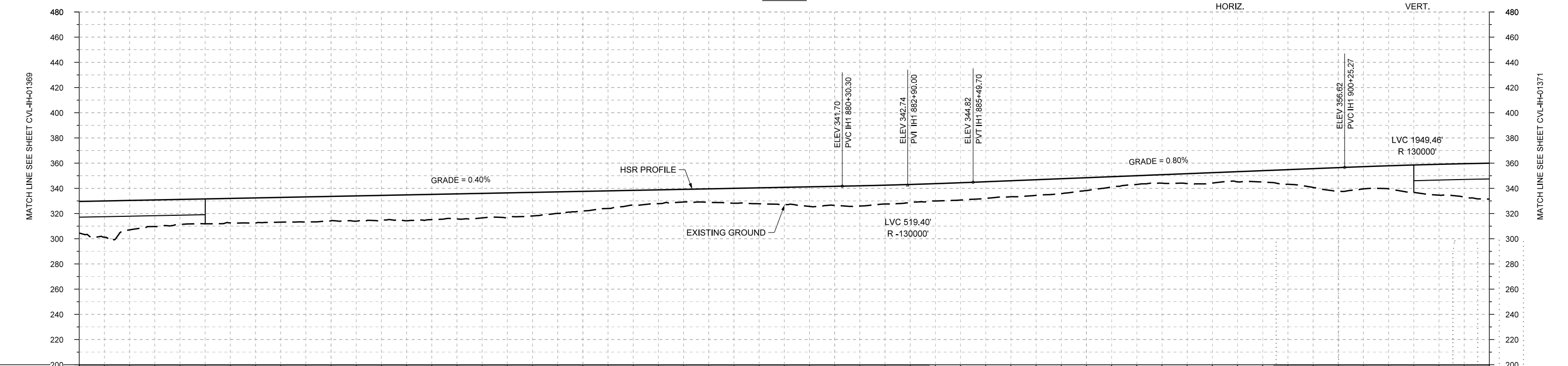
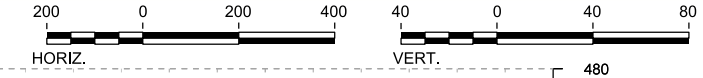
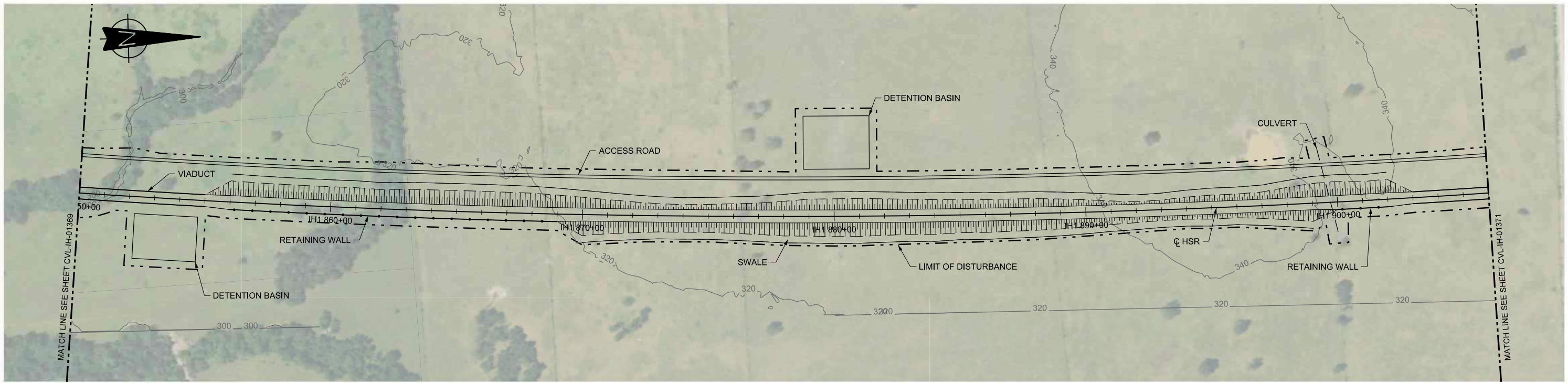
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 794+00 TO IH1 850+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01369
Rev	01



STATIONING	IH1 850+00	IH1 860+00	IH1 870+00	IH1 880+00	IH1 890+00	IH1 900+00	IH1 906+00
HOR. ALIGNMENT	R=42000 L=22142						
VER. ALIGNMENT	L=15921.36 G=0.400%						
CUT AND FILL	+25.1	+23.4	+19.9	+19.4	+19.6	+19.4	+19.4
TYP. SECTION	VIADUCT (E)		EMBANKMENT (A)				VIADUCT (E)

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

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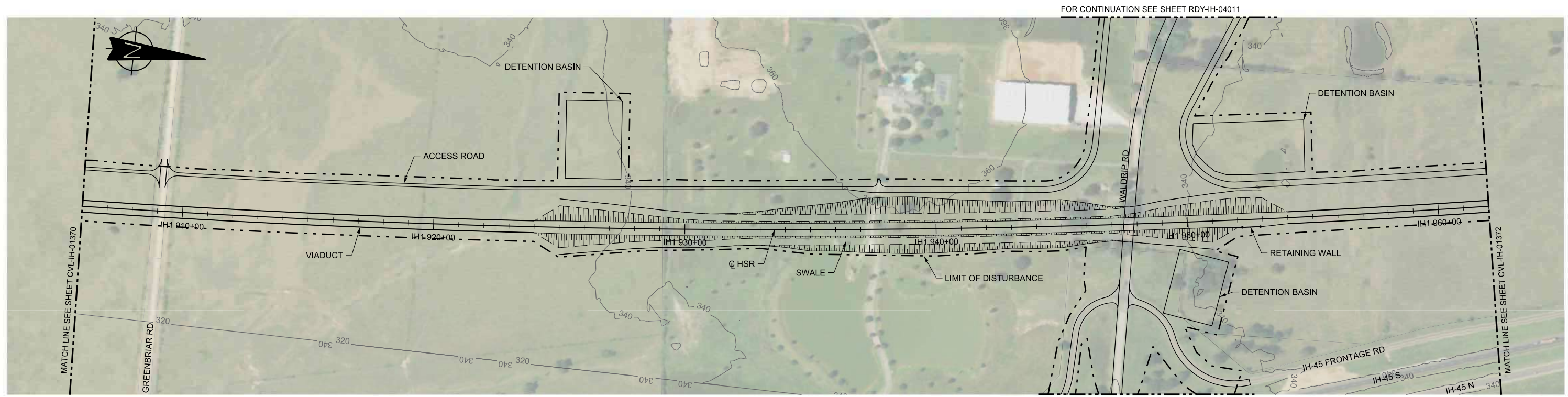
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
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CIVIL  
PLAN AND PROFILE  
IH1 850+00 TO IH1 906+00**

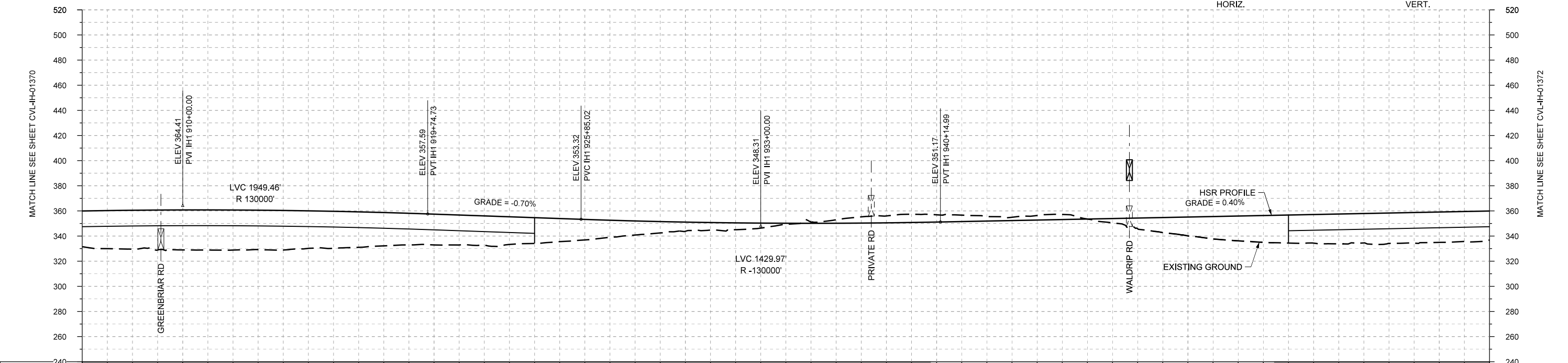
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01370	01



PLAN



PROFILE

STATIONING	IH1 906+00	IH1 910+00	IH1 920+00	IH1 930+00	IH1 940+00	IH1 950+00	IH1 960+00	IH1 962+00																				
HOR. ALIGNMENT					R=42000 L=22142																							
VER. ALIGNMENT	R=130000		L=610.29 G=-0.700%	R=130000		L=3437.51 G=0.400%																						
CUT AND FILL	+28.5	+31.0	+31.8	+31.9	+31.4	+29.4	+26.5	+24.5	+23.3	+20.5	+16.3	+11.2	+7.3	+5.5	+0.9	-2.7	-5.5	-5.8	-3.6	-3.6	+8.5	+15.0	+19.7	+22.3	+23.7	+24.2	+24.2	+23.1
TYP. SECTION	VIADUCT (E)					EMBANKMENT (A)					CUT (C)					EMBANKMENT (A)					VIADUCT (E)							

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. PETRIN</b>
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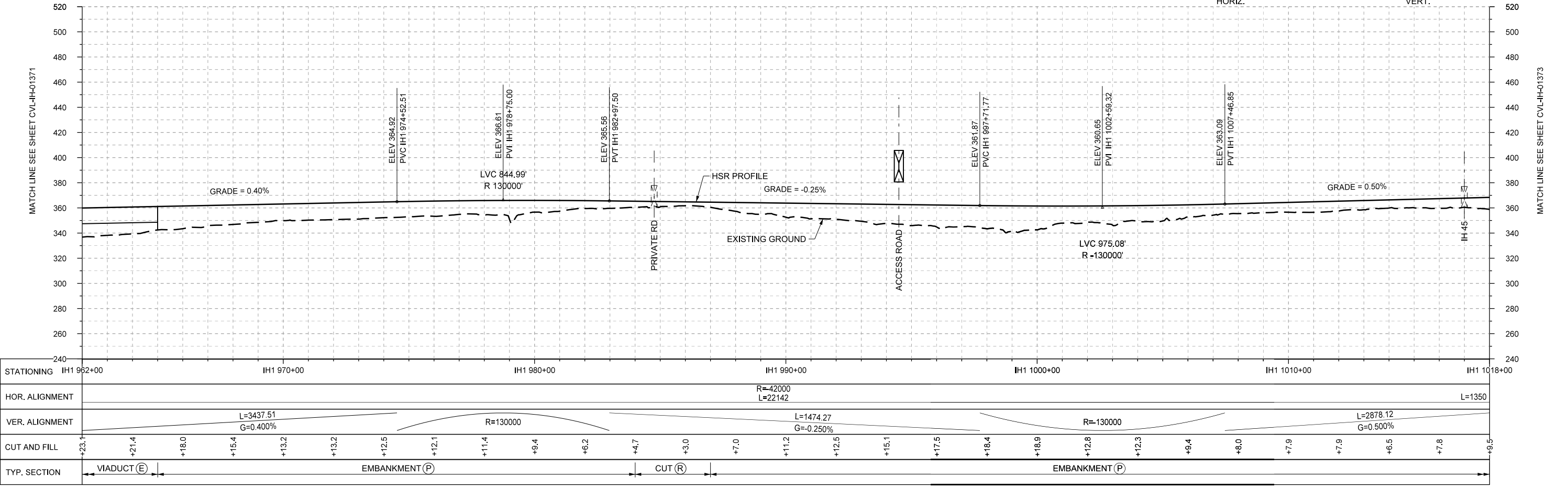
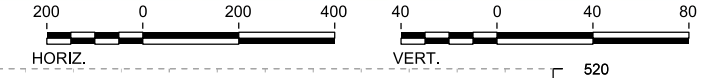
DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 906+00 TO IH1 962+00**

Scale AS SHOWN	Drawing Status <b>FINAL</b>	
Job No 234180	Drawing No CVL-IH-01371	Rev 01



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. PETRIN</b>
DRAWN BY <b>J. BORGHESI</b>
CHECKED BY <b>T. WAGNER</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>

**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
 www.arup.com  
 Texas Registered Engineering Firm: F-1990

**FREES NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING

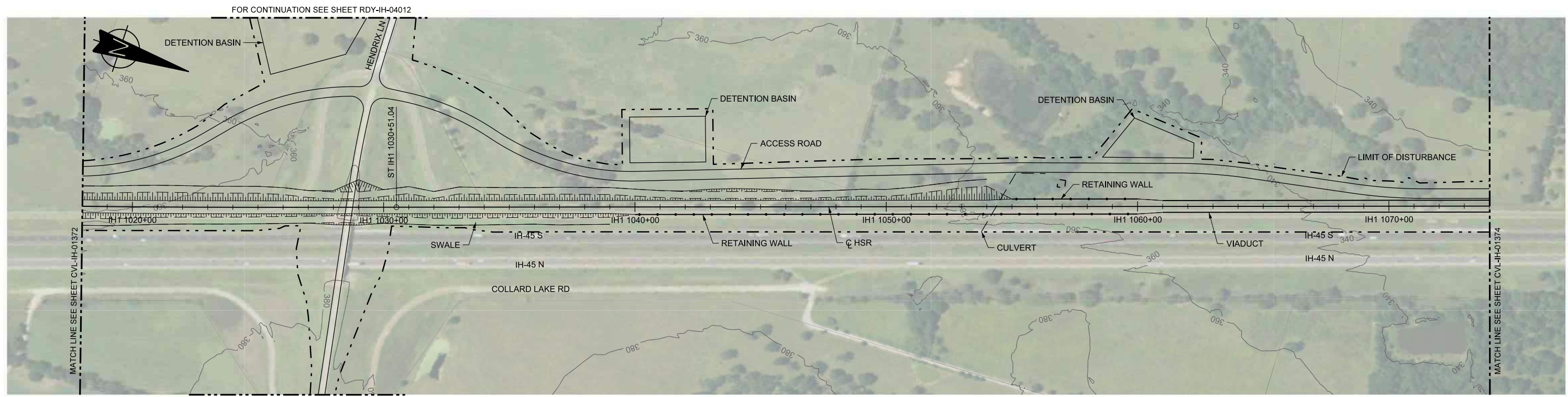
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 962+00 TO IH1 1018+00**

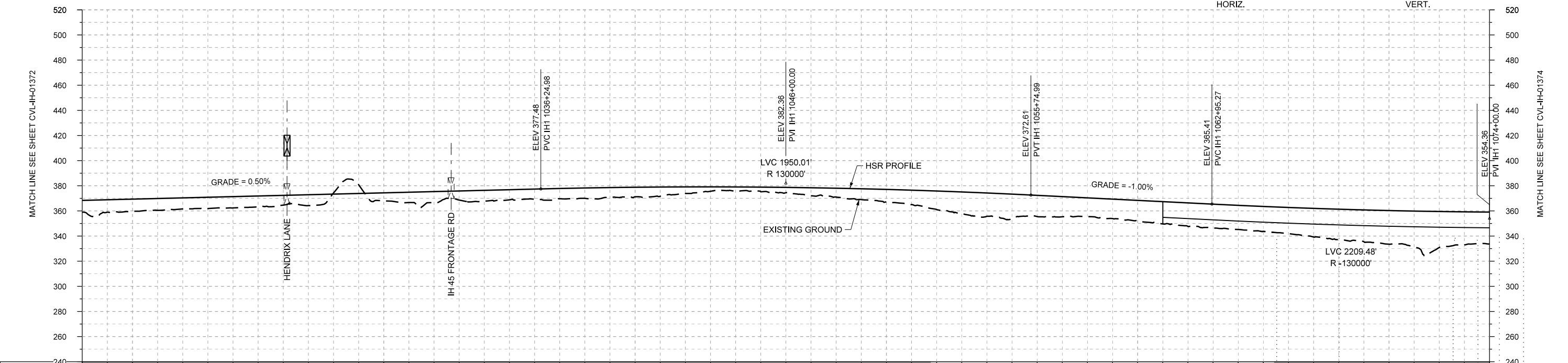
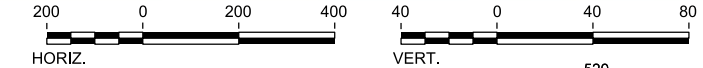
Scale  
 AS SHOWN

Drawing Status  
**FINAL**

Job No 234180	Drawing No CVL-IH-01372	Rev 01
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PLAN



PROFILE

STATIONING	IH1 1018+00 IH1 1020+00		IH1 1030+00		IH1 1040+00		IH1 1050+00		IH1 1060+00		IH1 1070+00		IH1 1074+00																
HOR. ALIGNMENT	L=1350																												
VER. ALIGNMENT	L=2878.12 G=0.500%		R=130000																										
CUT AND FILL	+9.5	+9.7	+8.8	+9.0	+7.8	-0.9	+6.4	+8.8	+8.6	+8.1	+8.2	+7.6	+5.2	+3.1	+4.3	+7.0	+9.9	+14.7	+16.5	+16.9	+14.9	+16.4	+16.7	+19.2	+20.8	+24.2	+26.8	+26.6	+25.4
TYP. SECTION	EMBANKMENT (P)				(R)	EMBANKMENT (P)				(Q)	CUT (R)	(Q)	EMBANKMENT (P)				RETAINED FILL (Q)		VIADUCT (T)										

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Dallas, Texas 75204  
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Texas Registered Engineering Firm: F-2144

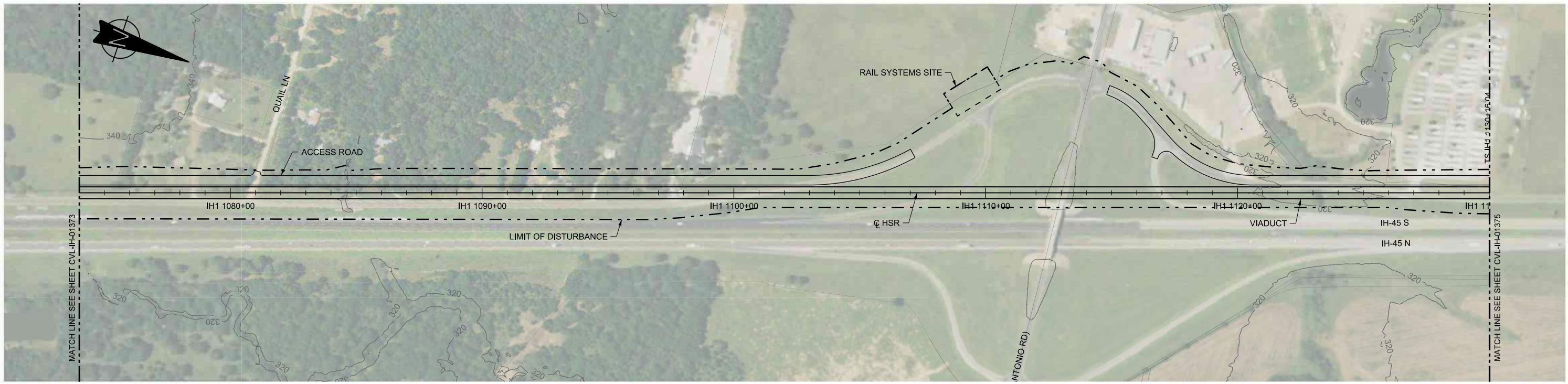
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

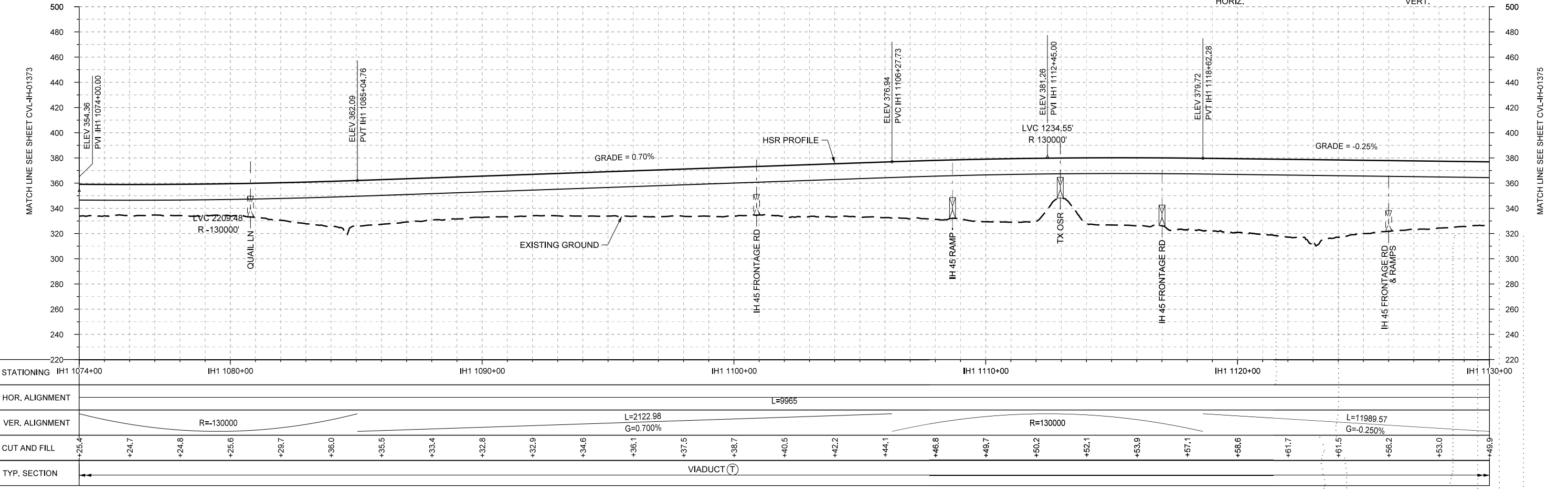
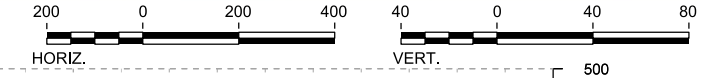
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1018+00 TO IH1 1074+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01373	01	



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Houston, Texas 77042 USA  
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2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

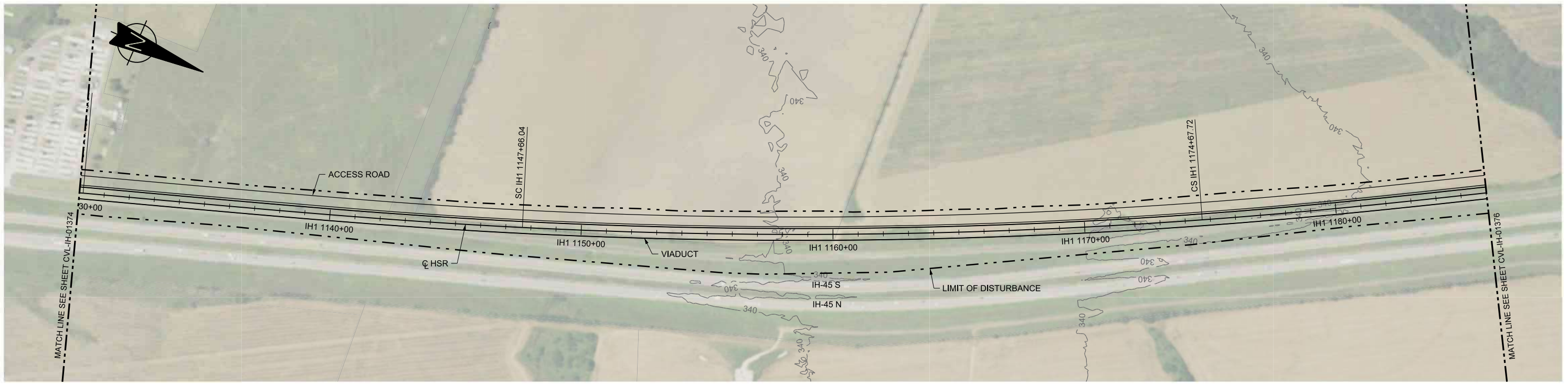
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1074+00 TO IH1 1130+00**

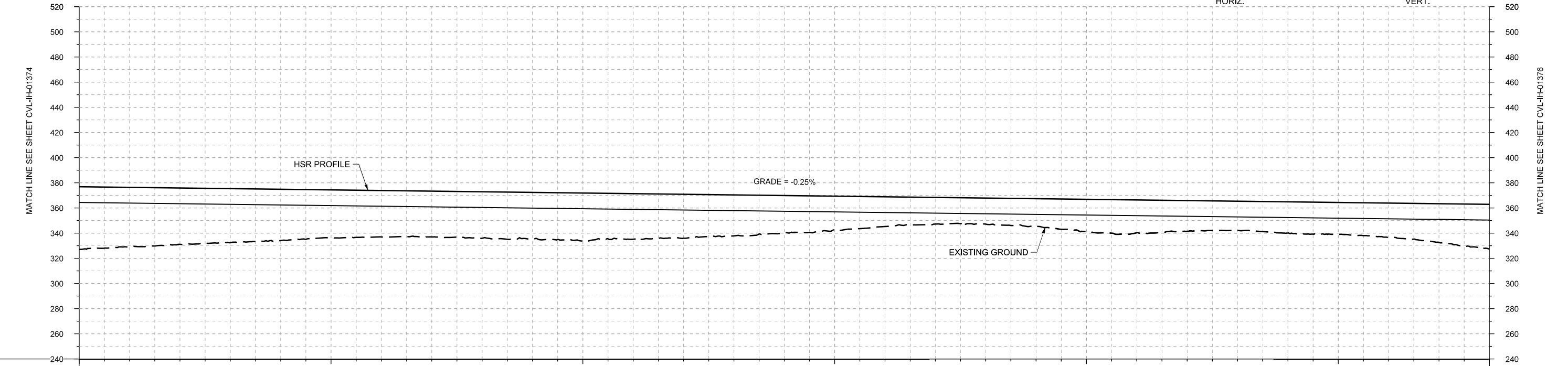
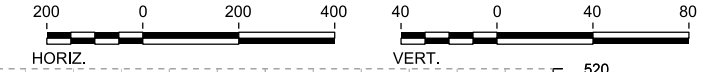
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No <b>234180</b>	Drawing No <b>CVL-IH-01374</b>	Rev <b>01</b>
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PLAN



PROFILE

STATIONING	IH1 1130+00	IH1 1140+00	IH1 1150+00	IH1 1160+00	IH1 1170+00	IH1 1180+00	IH1 1186+00																						
HOR. ALIGNMENT	L=9965		R=22000 L=2702		L=1750																								
VER. ALIGNMENT	L=1750		L=11989.57 G=-0.250%		L=1750																								
CUT AND FILL	+45.9	+47.3	+44.8	+43.0	+40.8	+38.1	+36.9	+36.4	+37.0	+37.4	+36.2	+36.2	+35.0	+32.6	+29.7	+26.5	+23.6	+21.2	+20.7	+22.5	+25.5	+26.1	+24.4	+23.2	+24.8	+25.5	+27.6	+30.8	+35.5
TYP. SECTION	VIADUCT (T)																												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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10370 Richmond Ave., Suite 475  
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**FREESSE & NICHOLS**

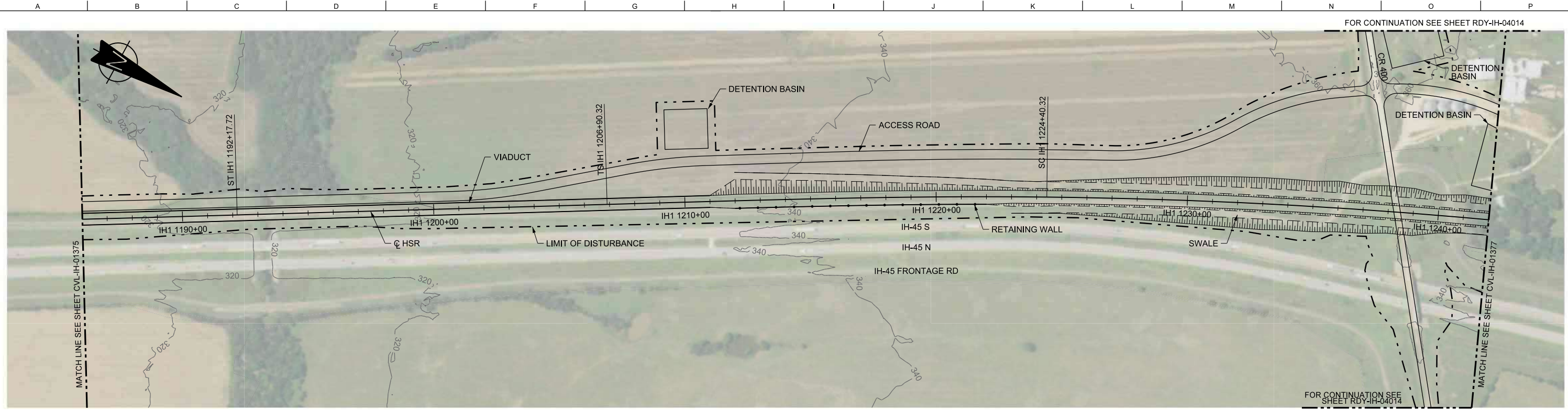
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

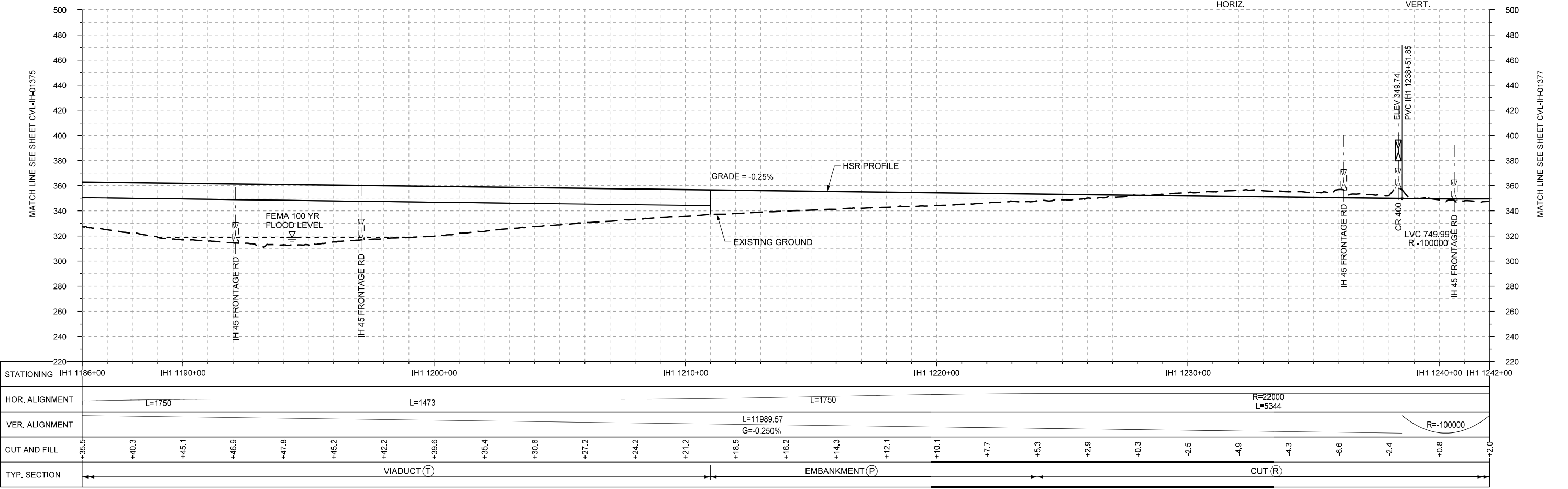
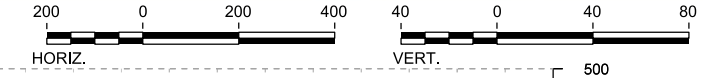
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1130+00 TO IH1 1186+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01375	01	



PLAN



PROFILE

STATIONING	IH1 1186+00	IH1 1190+00	IH1 1200+00	IH1 1210+00	IH1 1220+00	IH1 1230+00	IH1 1240+00	IH1 1242+00																					
HOR. ALIGNMENT	L=1750		L=1473		L=1750		R=22000 L=5344																						
VER. ALIGNMENT			L=11989.57 G=-0.250%				R=100000																						
CUT AND FILL	+35.5	+40.3	+45.1	+46.9	+47.8	+45.2	+42.2	+39.6	+35.4	+30.8	+27.2	+24.2	+21.2	+18.5	+16.2	+14.3	+12.1	+10.1	+7.7	+5.3	+2.9	+0.3	-2.5	-4.9	-4.3	-6.6	-2.4	+0.8	-2.0
TYP. SECTION	VIADUCT (T)										EMBANKMENT (P)										CUT (R)								

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
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**FRESE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

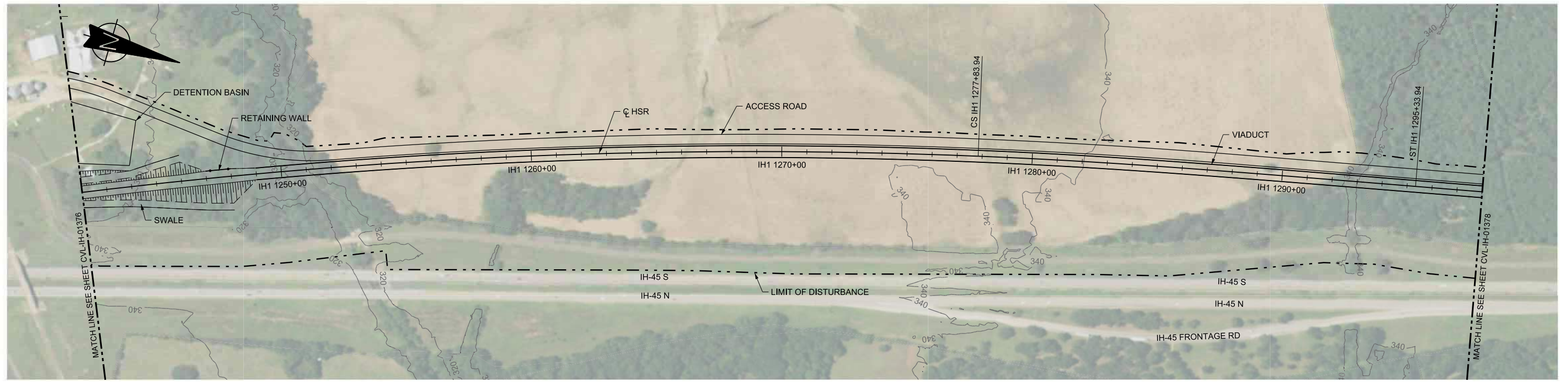
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

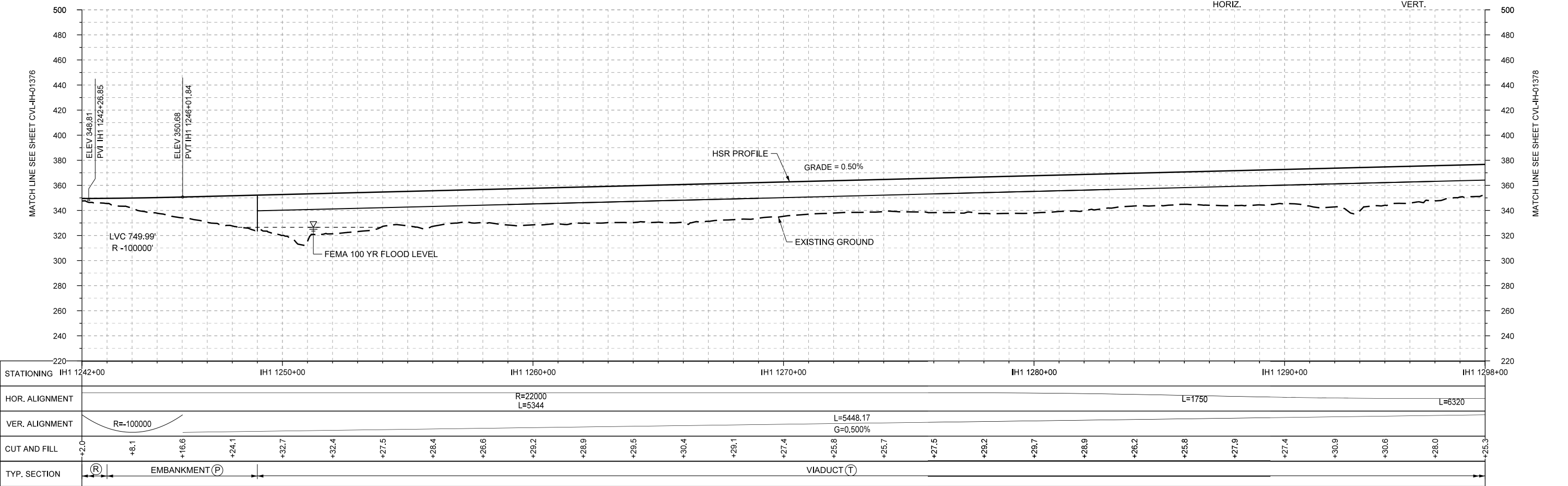
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1186+00 TO IH1 1242+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01376
Rev			01





PLAN



PROFILE

STATIONING	IH1 1242+00	IH1 1250+00	IH1 1260+00	IH1 1270+00	IH1 1280+00	IH1 1290+00	IH1 1298+00																							
HOR. ALIGNMENT			R=22000 L=5344			L=1750	L=6320																							
VER. ALIGNMENT	R=-100000			L=5448.17 G=0.500%																										
CUT AND FILL	+2.0	+8.1	+16.6	+24.1	+32.7	+32.4	+27.5	+28.4	+26.6	+29.2	+28.9	+29.5	+30.4	+29.1	+27.4	+25.8	+25.7	+27.5	+29.2	+28.7	+28.9	+26.2	+25.8	+27.9	+27.4	+30.9	+30.6	+28.0	+25.3	
TYP. SECTION	(R)	EMBANKMENT (P)																												

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
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Tel (214) 217 2200 Fax (214) 217 2201  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

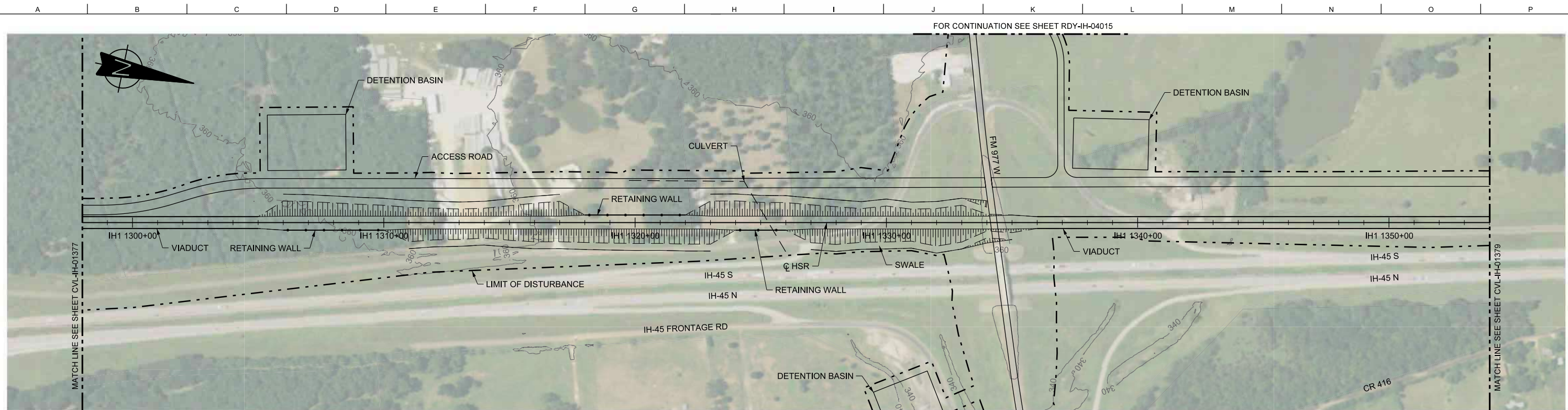
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1242+00 TO IH1 1298+00**

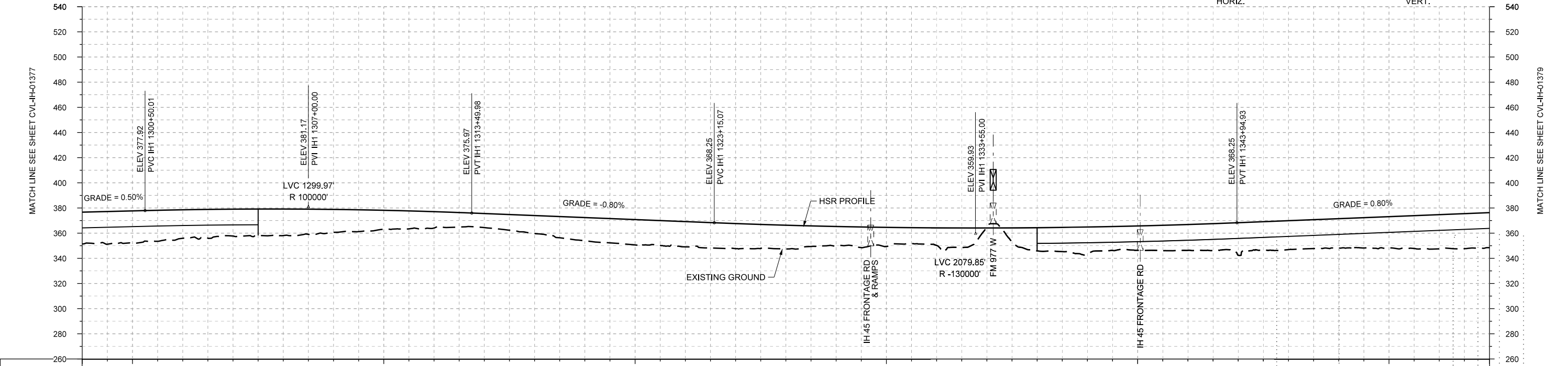
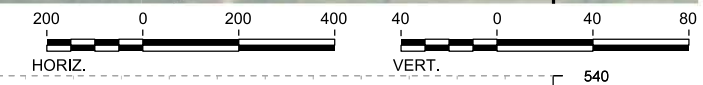
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01377	01



PLAN



STATIONING	IH1 1298+00	IH1 1300+00	IH1 1310+00	IH1 1320+00	IH1 1330+00	IH1 1340+00	IH1 1350+00	IH1 1354+00	
HOR. ALIGNMENT	L=8320								
VER. ALIGNMENT	L=5448.17 G=0.500%		R=100000			L=965.10 G=-0.800%		R=130000	
CUT AND FILL	+25.3	+25.6	+22.7	+21.4	+21.1	+18.2	+15.1	+13.1	
TYP. SECTION	VIADUCT (T)			EMBANKMENT (P)				VIADUCT (T)	

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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**FRESE & NICHOLS**

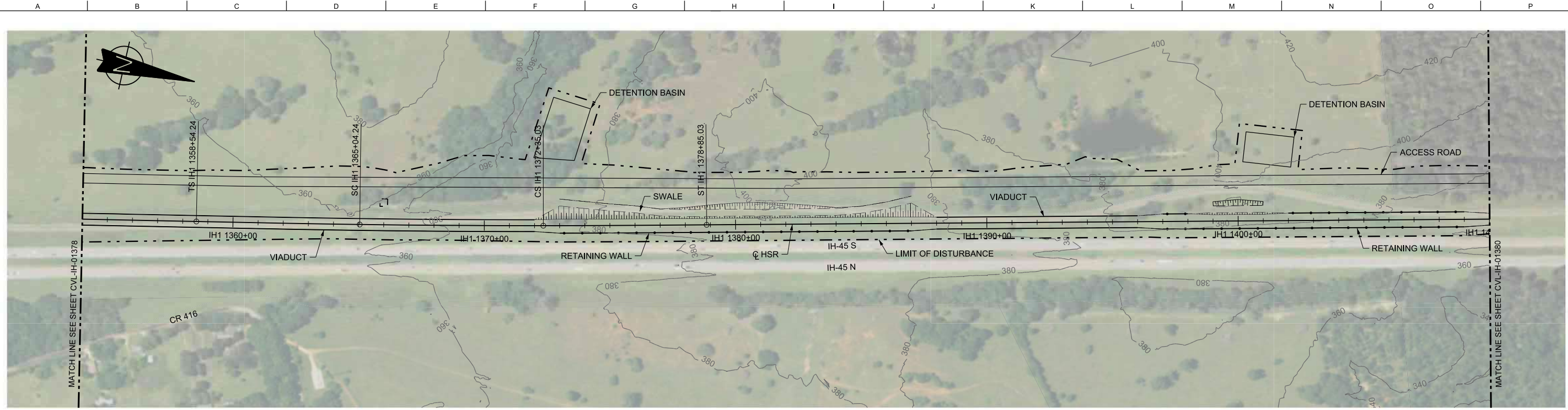
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

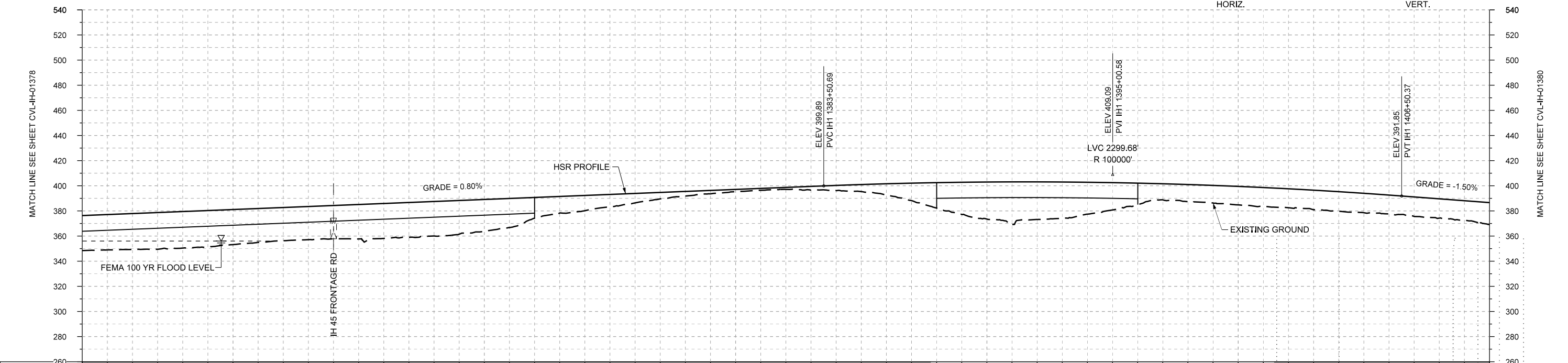
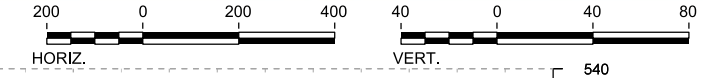
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1298+00 TO IH1 1354+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01378
Rev	01



PLAN



STATIONING	IH1 1354+00		IH1 1360+00		IH1 1370+00		IH1 1380+00		IH1 1390+00		IH1 1400+00		IH1 1410+00																
HOR. ALIGNMENT	L=6320		L=650		R=-50000 L=731		L=650		L=18445		R=100000		L=1686.05 G=-1.500%																
VER. ALIGNMENT					L=3955.77 G=0.800%																								
CUT AND FILL	+27.9	+28.6	+28.1	+27.9	+26.4	+26.5	+27.8	+27.4	+25.4	+18.6	+12.2	+7.6	+3.7	+1.8	+1.6	+4.1	+8.9	+20.3	+29.5	+29.9	+25.4	+17.1	+13.7	+14.7	+15.1	+15.6	+15.2	+15.4	+17.6
TYP. SECTION	VIADUCT (T)										EMBANKMENT (P)		CUT (R)		EMBANKMENT (P)		VIADUCT (T)		RETAINED FILL (Q)		CUT (R)		RETAINED FILL (Q)						

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

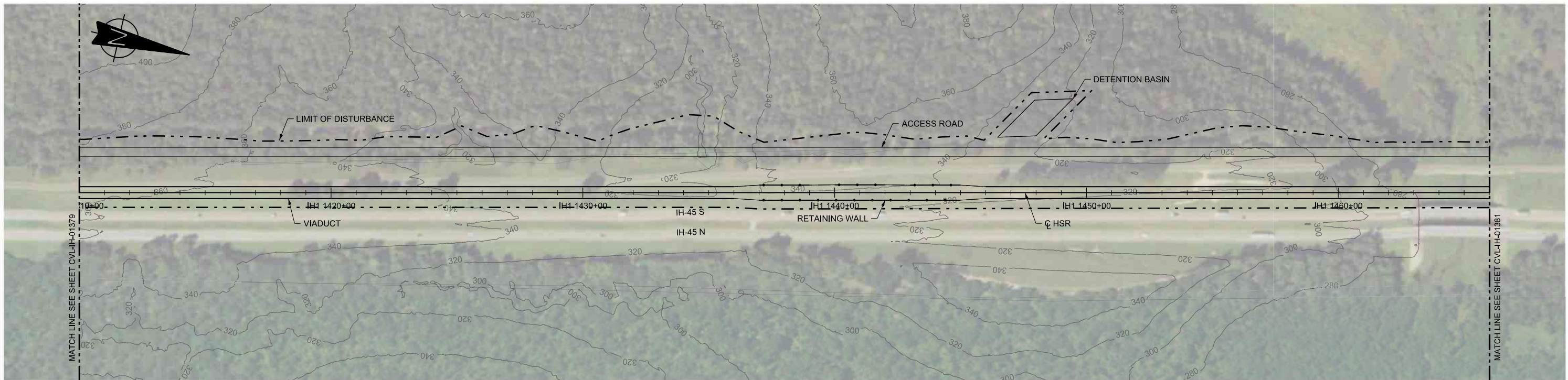
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1354+00 TO IH1 1410+00**

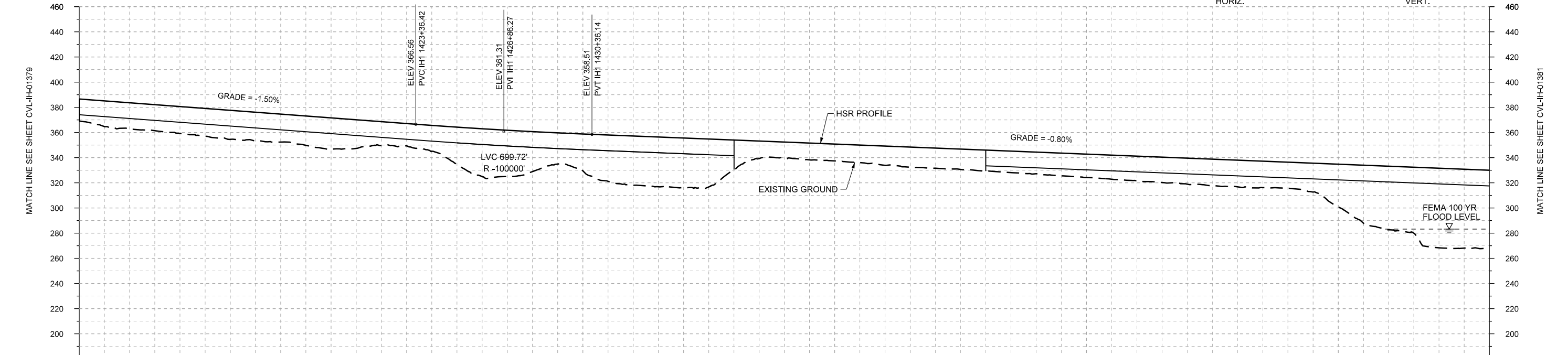
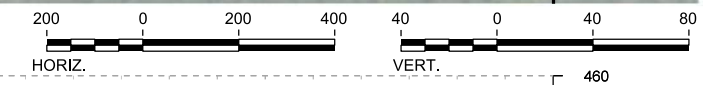
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01379	01



PLAN



PROFILE

STATIONING	IH1 1410+00	IH1 1420+00	IH1 1430+00	IH1 1440+00	IH1 1450+00	IH1 1460+00	IH1 1466+00																						
HOR. ALIGNMENT	L=18445																												
VER. ALIGNMENT	L=1686.05 G=-1.500%		R=100000		L=3811.93 G=-0.800%																								
CUT AND FILL	+17.6	+21.0	+21.4	+23.1	+22.2	+25.0	+19.0	+20.5	+38.1	+31.8	+29.3	+39.1	+39.7	+23.5	+12.7	+13.4	+15.3	+16.0	+16.6	+17.2	+18.6	+19.6	+20.7	+21.2	+20.7	+34.0	+50.6	+63.3	+62.2
TYP. SECTION	VIADUCT (T)										RETAINED FILL (Q)						VIADUCT (T)												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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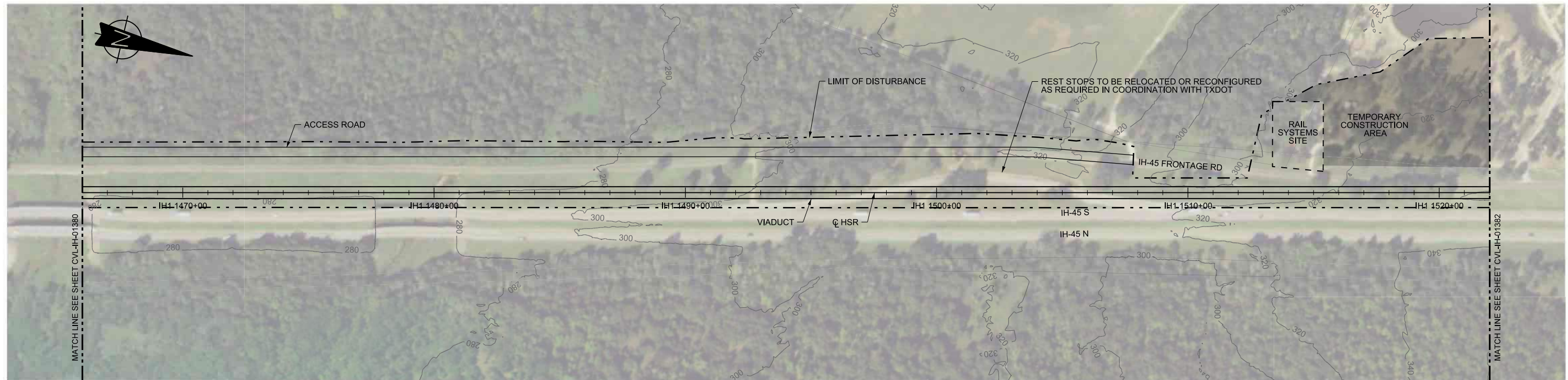
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

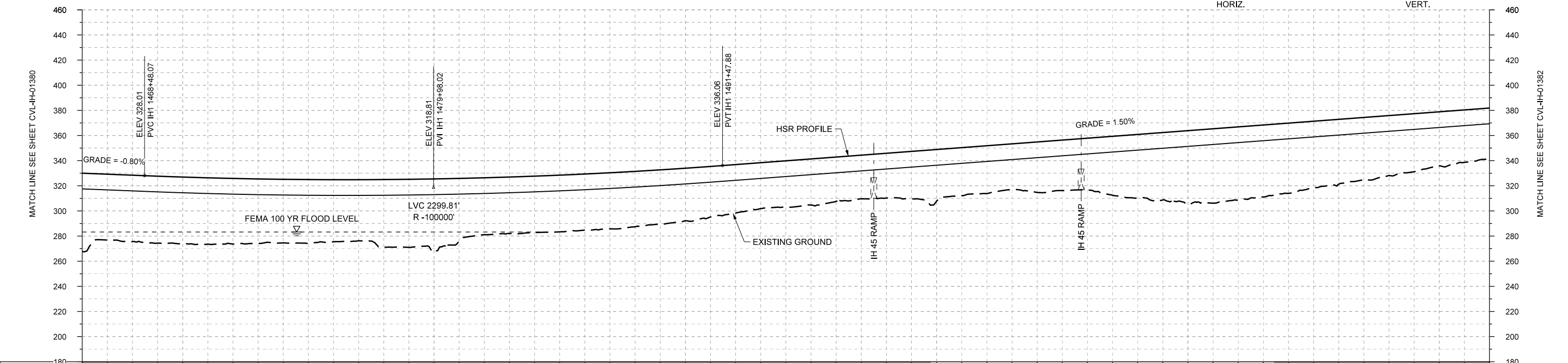
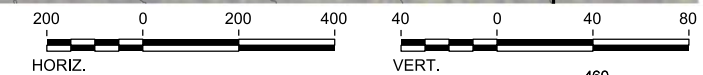
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1410+00 TO IH1 1466+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01380
Rev			01



PLAN



STATIONING	IH1 1466+00	IH1 1470+00	IH1 1480+00	IH1 1490+00	IH1 1500+00	IH1 1510+00	IH1 1520+00	IH1 1522+00																					
HOR. ALIGNMENT	L=18445																												
VER. ALIGNMENT	L=3811.93 G=-0.800%				R=100000		L=4624.51 G=1.500%																						
CUT AND FILL	+62.2	+52.8	+53.1	+52.2	+50.6	+49.4	+53.8	+57.6	+45.3	+44.8	+44.7	+44.1	+41.8	+38.5	+36.8	+35.2	+35.6	+41.0	+38.1	+40.1	+41.2	+50.5	+57.8	+58.3	+55.8	+51.5	+47.7	+42.9	+40.7
TYP. SECTION	VIADUCT (T)																												

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**  
DRAWN BY  
**J. BORGHESI**  
CHECKED BY  
**T. WAGNER**  
IN CHARGE  
**C. TAYLOR**  
DATE  
**02/25/2019**

**ARUP**  
Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

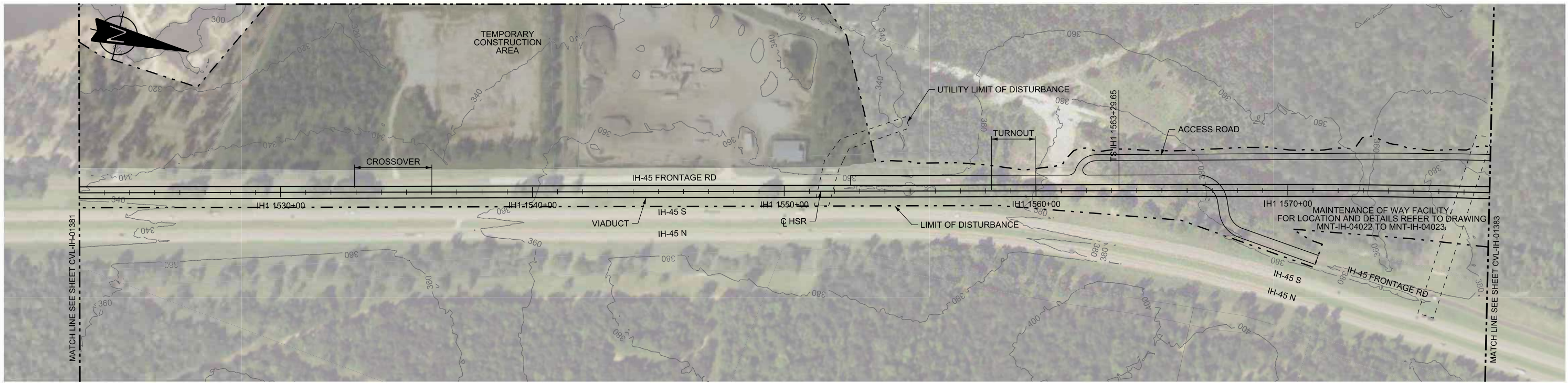
**FRESE & NICHOLS**  
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
**TEXAS CENTRAL**  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

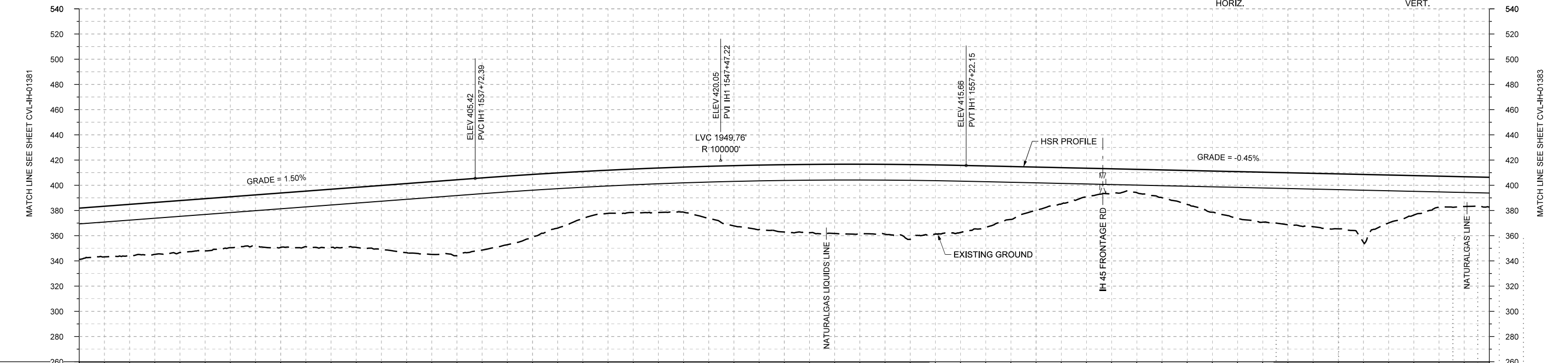
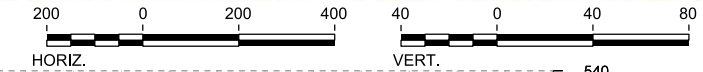
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1466+00 TO IH1 1522+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01381
Rev			01

FOR CONTINUATION SEE SHEET RDY-IH-04018



PLAN



PROFILE

STATIONING	IH1 1522+00	IH1 1530+00	IH1 1540+00	IH1 1550+00	IH1 1560+00	IH1 1570+00	IH1 1578+00
HOR. ALIGNMENT	L=18445						L=1750
VER. ALIGNMENT	L=4624.51 G=1.500%			R=100000		L=10760.26 G=-0.450%	
CUT AND FILL	+46.7	+40.3	+41.2	+40.4	+43.1	+46.2	+50.9
			+57.7	+57.2	+49.5	+37.2	+34.5
				+35.7	+47.8	+53.4	+54.9
					+55.4	+54.8	+48.7
					+34.4	+22.7	+18.5
						+26.9	+37.1
							+41.1
							+43.6
							+38.0
							+24.6
							+23.8
TYP. SECTION	VIADUCT (T)						

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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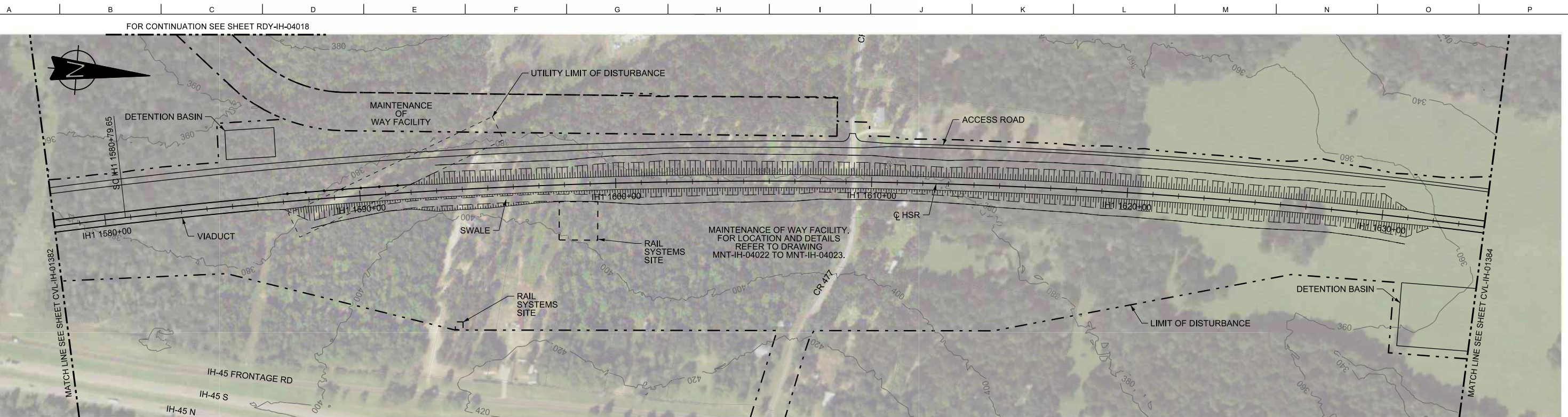
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

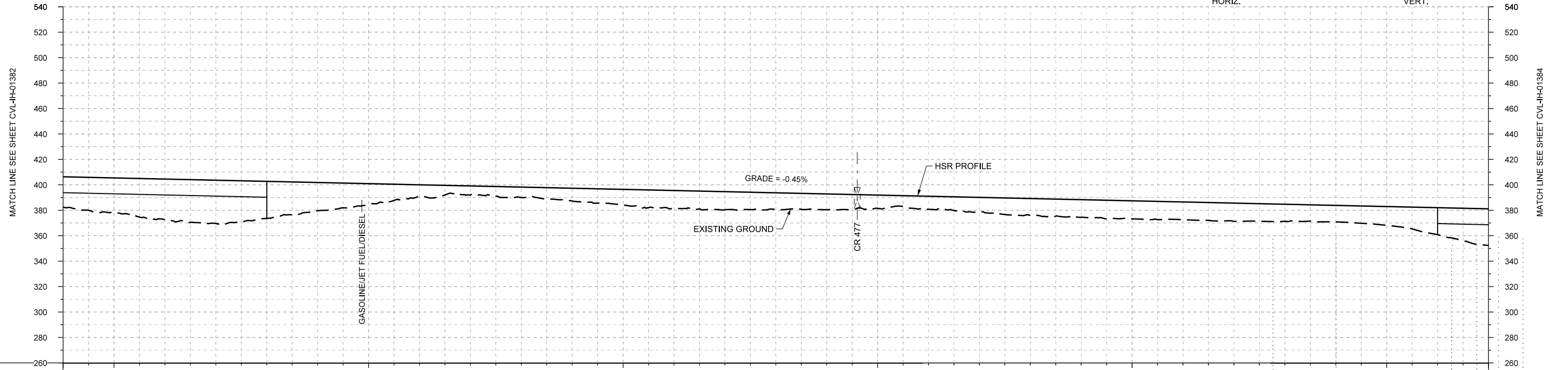
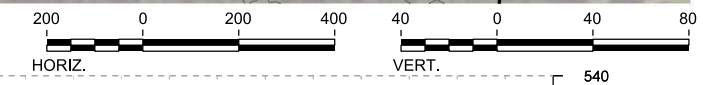
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1522+00 TO IH1 1578+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01382
Rev	01



PLAN



PROFILE

STATIONING	IH1 1578+00	IH1 1580+00	IH1 1590+00	IH1 1600+00	IH1 1610+00	IH1 1620+00	IH1 1630+00	IH1 1634+00																						
HOR. ALIGNMENT	L=1750				R=22000 L=6246																									
VER. ALIGNMENT					L=10760.26 G=-0.450%																									
CUT AND FILL	+23.8	+27.3	+32.1	+34.0	+29.1	+22.2	+16.6	+9.3	+7.1	+8.2	+10.0	+12.3	+14.2	+14.2	+13.0	+12.4	+10.4	+10.2	+11.6	+13.3	+13.8	+14.2	+13.9	+14.3	+13.4	+13.4	+12.9	+14.8	+21.2	+28.8
TYP. SECTION	VIADUCT (T)				(B)		EMBANKMENT (A)												VIADUCT (E)											

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1578+00 TO IH1 1634+00**

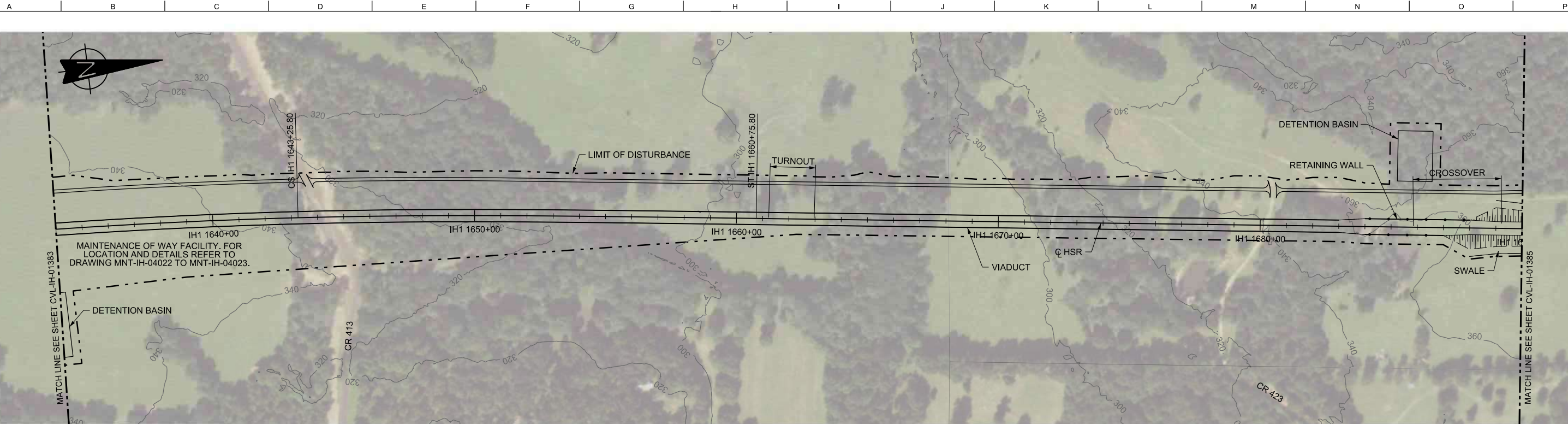
Scale

AS SHOWN

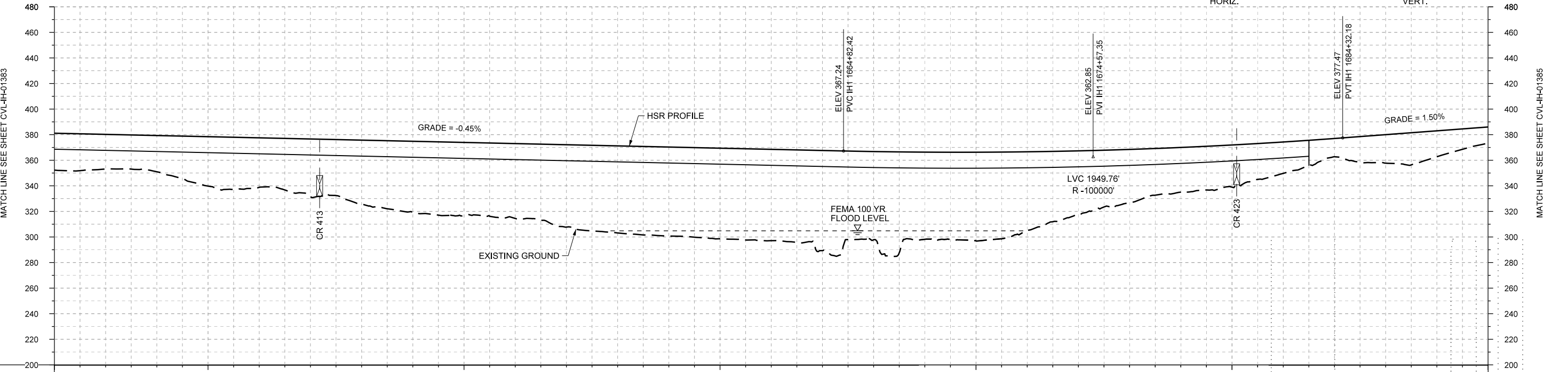
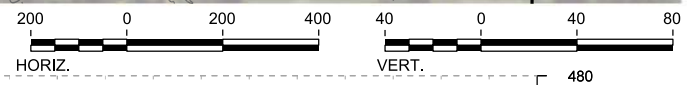
Drawing Status

**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01383	01



PLAN



PROFILE

STATIONING	IH1 1634+00	IH1 1640+00	IH1 1650+00	IH1 1660+00	IH1 1670+00	IH1 1680+00	IH1 1690+00																						
HOR. ALIGNMENT	R=22000 L=6246		L=1750		L=5118																								
VER. ALIGNMENT			L=10760.26 G=-0.450%		R=100000		L=5435.15 G=1.500%																						
CUT AND FILL	+28.8	+27.0	+28.3	+38.6	+36.7	+44.7	+50.1	+55.6	+57.0	+58.5	+64.4	+68.1	+69.6	+70.8	+71.4	+76.3	+69.0	+68.1	+69.3	+61.6	+49.2	+41.7	+34.8	+33.0	+24.6	+14.3	+22.3	+20.3	+12.6
TYP. SECTION	VIADUCT (E)															RETAINED FILL (B)					(A)								

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

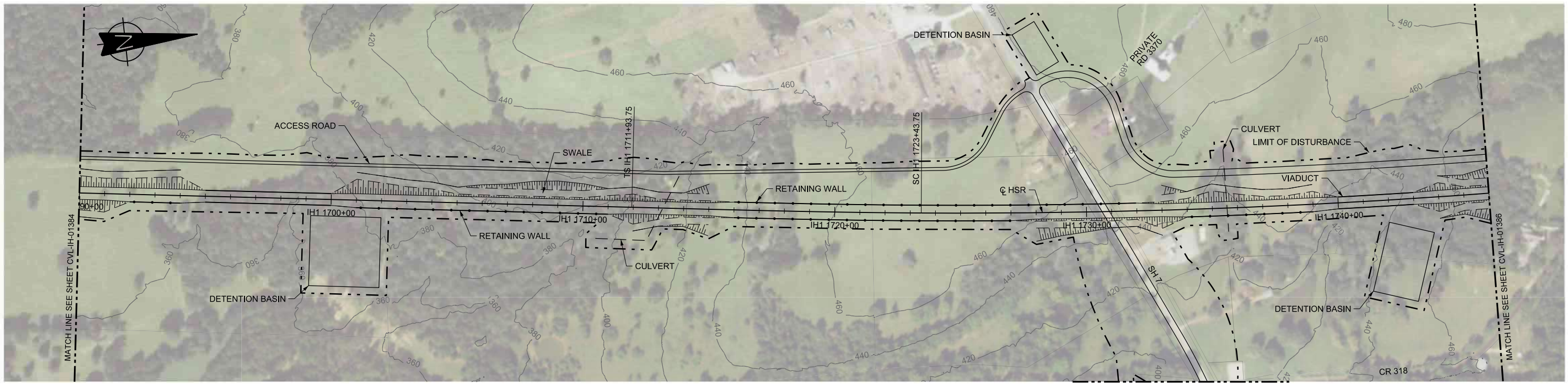
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1634+00 TO IH1 1690+00**

Scale  
AS SHOWN

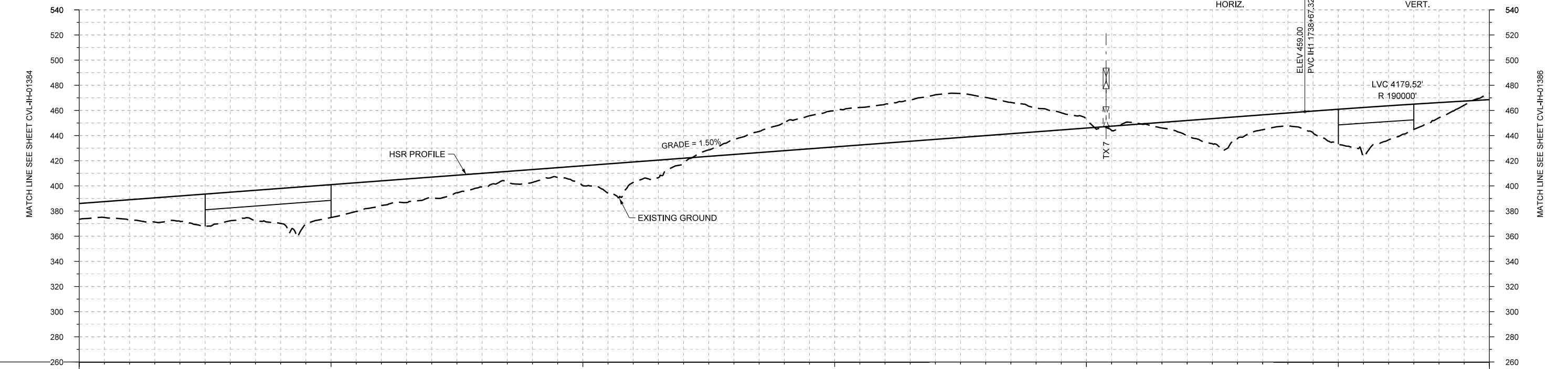
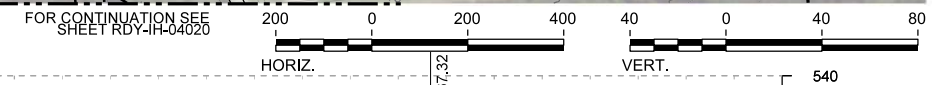
Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01384	01





PLAN



PROFILE

STATIONING	IH1 1690+00		IH1 1700+00		IH1 1710+00		IH1 1720+00		IH1 1730+00		IH1 1740+00		IH1 1746+00																		
HOR. ALIGNMENT	L=5118											L=1150		R=28000 L=10051																	
VER. ALIGNMENT	L=5435.15 G=1.50%											R=190000																			
CUT AND FILL	+12.6	+16.2	+20.2	+22.7	+27.9	+26.2	+19.5	+16.4	+11.0	+10.2	+15.8	+16.2	+4.0	-11.8	-22.3	-28.9	-30.9	-35.4	-30.3	-19.3	-6.8	-1.0	+11.7	+17.4	+10.2	+27.6	+27.1	+12.0	-4.7		
TYP. SECTION	EMBANKMENT (A)			VIADUCT (E)			EMBANKMENT (A)			(B)	CUT (C)		(B)	EMBANKMENT (A)		CUT (C)		RETAINED CUT (D)				CUT (C)		(D)	EMBANKMENT (A)			VIADUCT (E)		CUT (C)	

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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**FREESSE & NICHOLS**

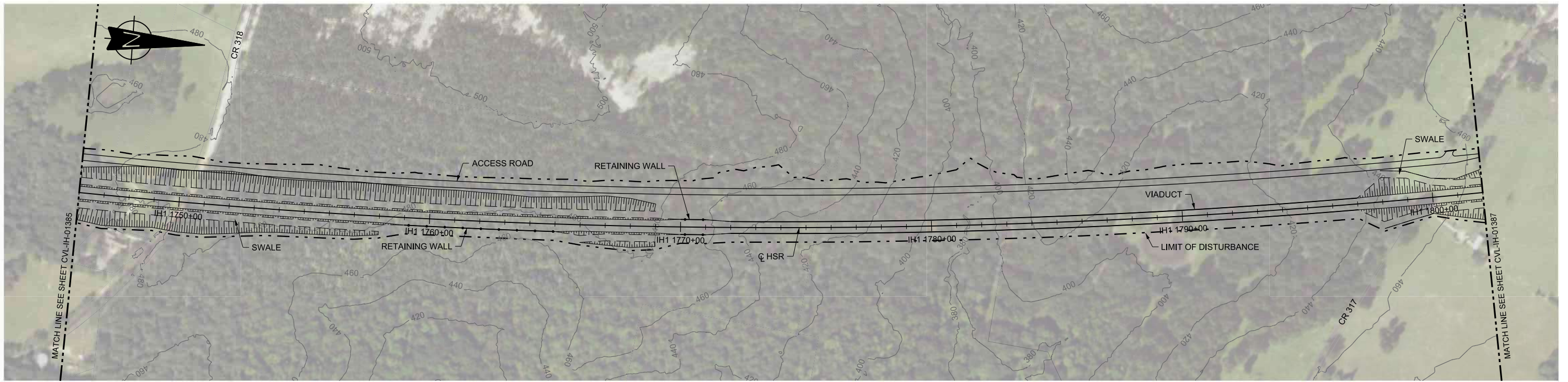
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

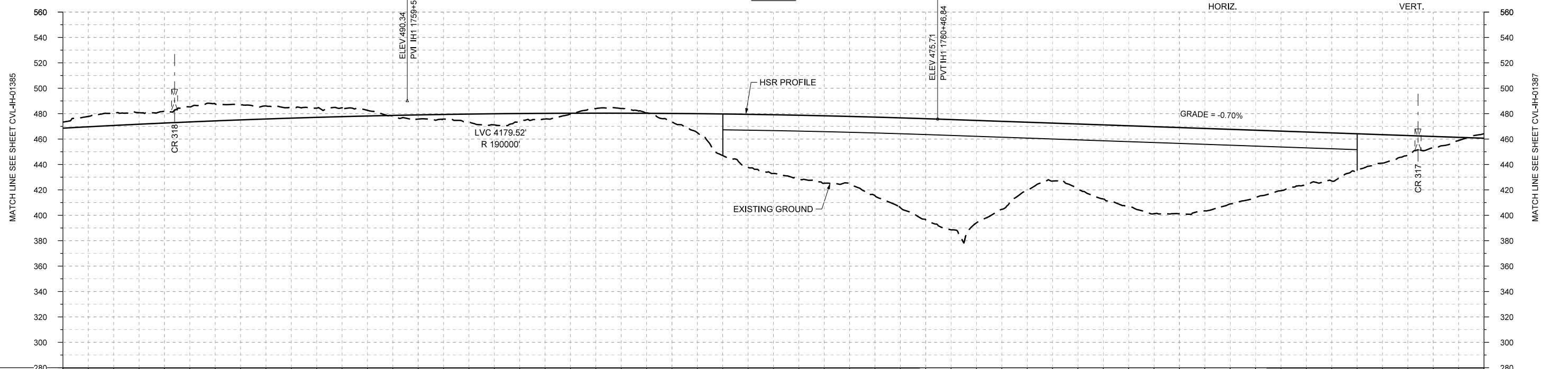
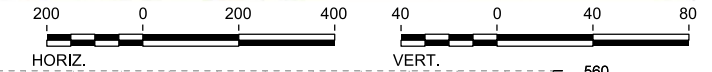
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1690+00 TO IH1 1746+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01385	Rev 01



PLAN



PROFILE

STATIONING	IH1 1746+00	IH1 1750+00	IH1 1760+00	IH1 1770+00	IH1 1780+00	IH1 1790+00	IH1 1800+00	IH1 1802+00																					
HOR. ALIGNMENT	R=28000 L=10051																												
VER. ALIGNMENT	R=190000																												
CUT AND FILL	-1.7	-9.9	-9.3	-13.3	-10.3	-7.3	-4.4	+3.3	+6.5	+6.1	+0.6	-3.8	+6.7	+32.8	+46.2	+53.0	+61.8	+79.6	+80.6	+53.5	+51.0	+63.6	+67.9	+58.7	+46.9	+37.8	+22.3	+8.8	-3.6
TYP. SECTION	CUT (C)										(B)		VIADUCT (E)										EMBANKMENT (A)		(C)				

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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www.freesse.com  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

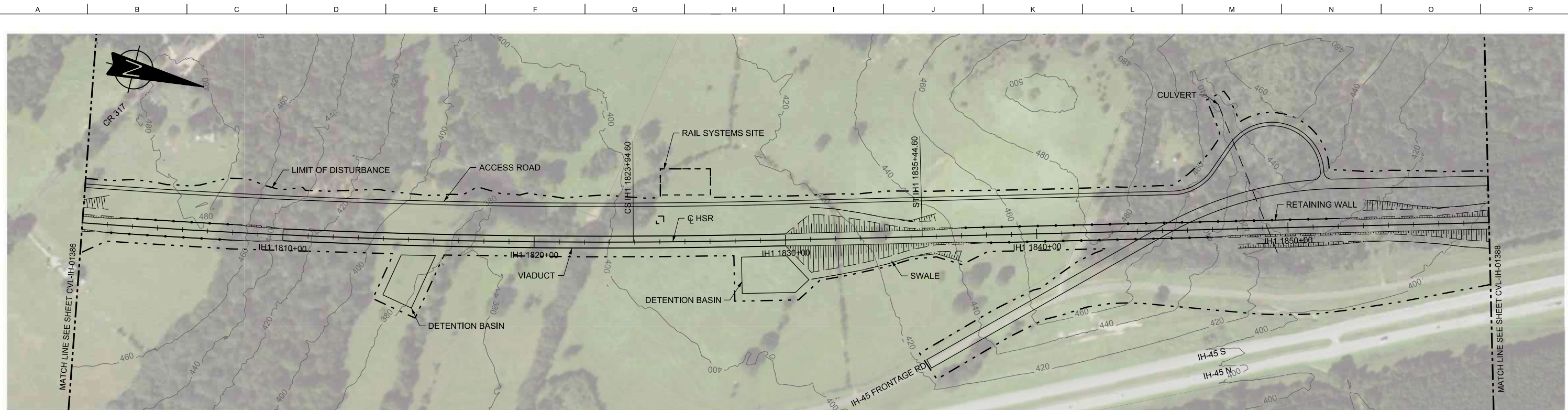
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1746+00 TO IH1 1802+00**

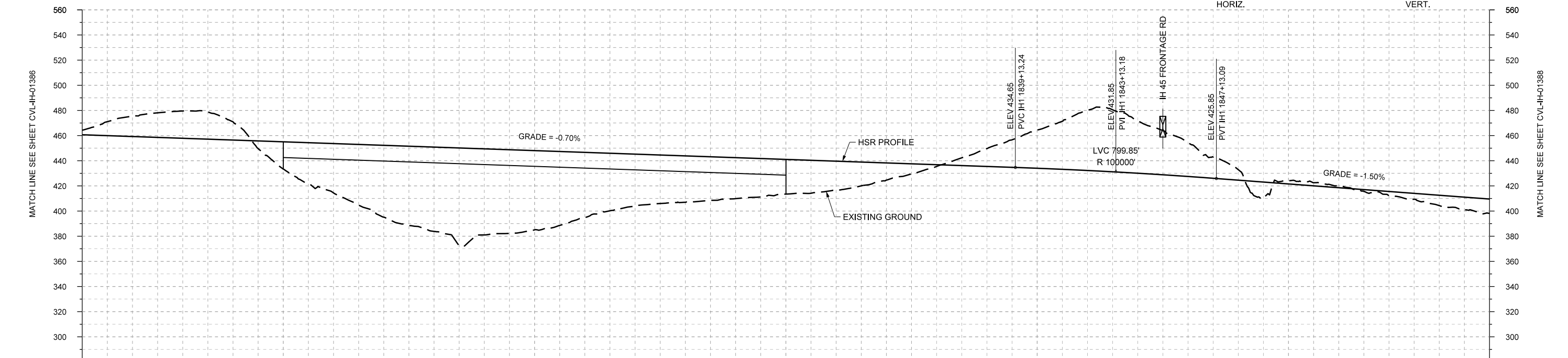
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01386	01



PLAN



PROFILE

STATIONING	IH1 1802+00	IH1 1810+00	IH1 1820+00	IH1 1830+00	IH1 1840+00	IH1 1850+00	IH1 1858+00																						
HOR. ALIGNMENT	R=28000 L=10051		L=5866.40 G=-0.700%		L=1150	L=29598	L=6968.56 G=-1.500%																						
VER. ALIGNMENT																													
CUT AND FILL	-3.6	-16.3	-21.8	-14.5	+21.6	+39.2	+57.1	+67.0	+68.4	+62.9	+51.5	+40.9	+36.9	+32.5	+27.5	+22.6	+13.6	+1.3	-14.3	-0.4	-47.8	-41.6	-27.0	-8.4	-2.6	-1.5	+3.4	+8.2	+1.4
TYP. SECTION	RETAINED CUT (D)		VIADUCT (E)		EMBANKMENT (A)		CUT (C)		RETAINED CUT (D)		CUT (C)		EMBANKMENT (A)																

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
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DRAWN BY  
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IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

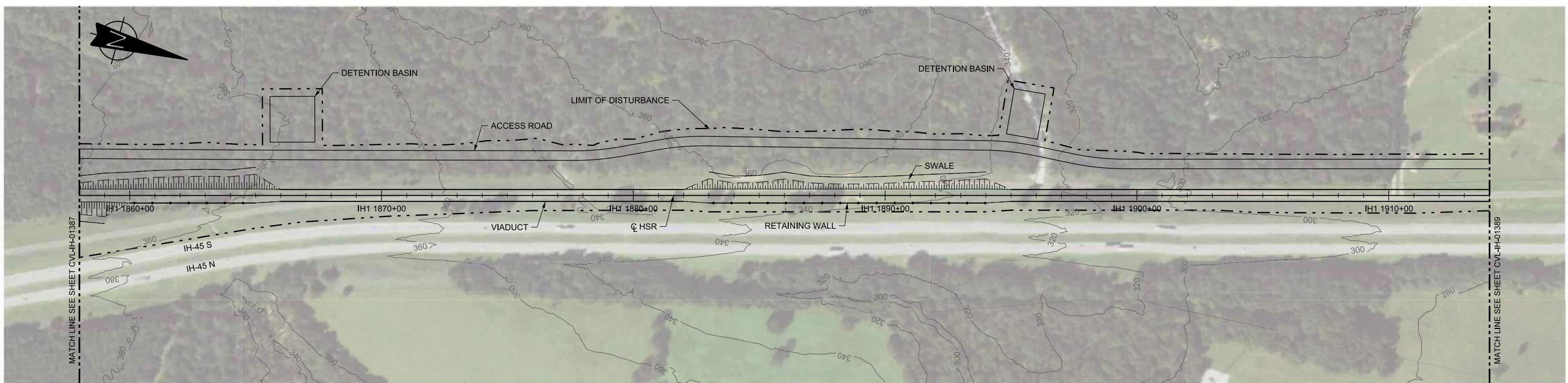
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1802+00 TO IH1 1858+00**

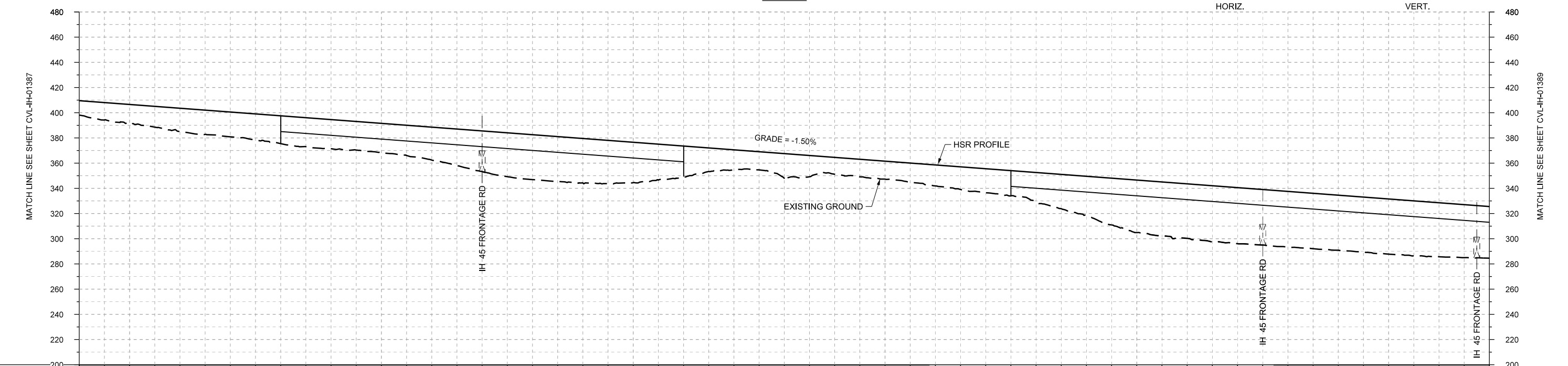
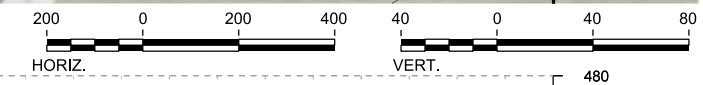
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01387	01



PLAN



PROFILE

STATIONING	IH1 1858+00	IH1 1860+00	IH1 1870+00	IH1 1880+00	IH1 1890+00	IH1 1900+00	IH1 1910+00	IH1 1914+00																					
HOR. ALIGNMENT	L=29598																												
VER. ALIGNMENT	L=6968.56 G=-1.500%																												
CUT AND FILL	+11.4	+15.4	+18.5	+19.6	+22.0	+23.1	+22.9	+26.1	+32.2	+35.6	+35.2	+32.0	+24.6	+15.8	+19.5	+13.3	+14.2	+16.6	+19.0	+22.9	+31.2	+41.7	+43.2	+44.4	+44.2	+43.6	+43.7	+42.8	+41.0
TYP. SECTION	EMBANKMENT (P)			VIADUCT (T)				EMBANKMENT (P)				VIADUCT (T)																	

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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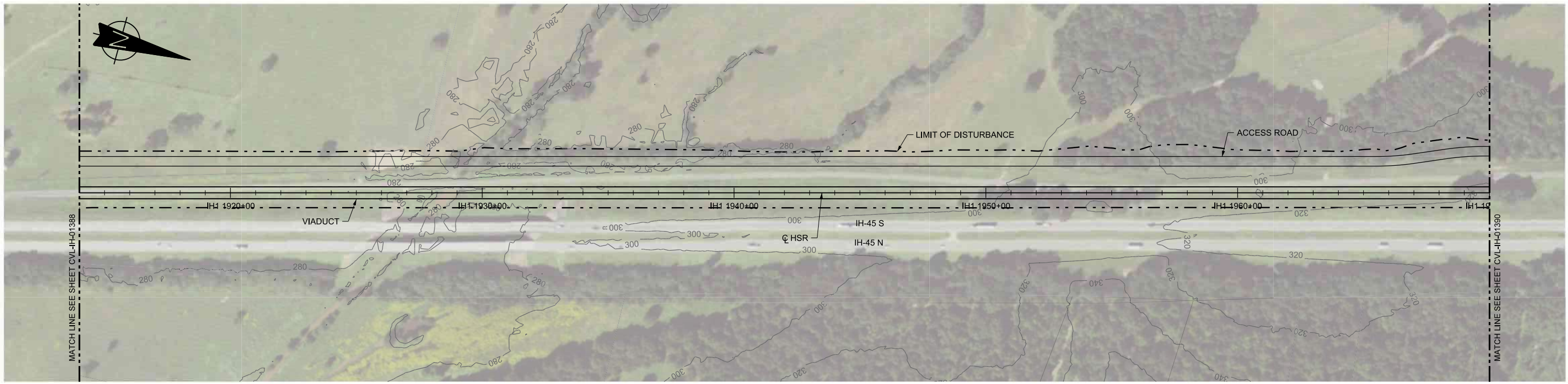
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

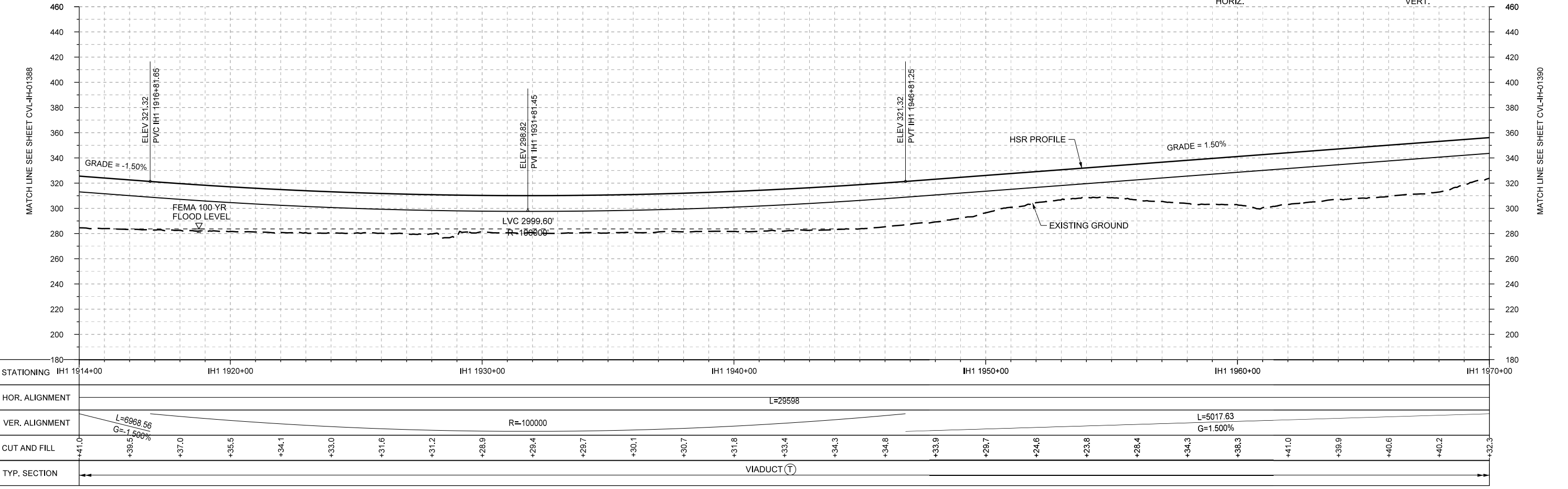
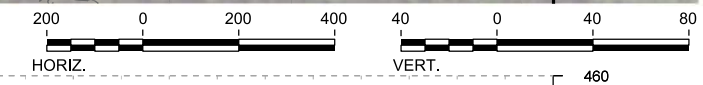
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1858+00 TO IH1 1914+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01388	01	



PLAN



PROFILE

STATIONING	IH1 1914+00	IH1 1920+00	IH1 1930+00	IH1 1940+00	IH1 1950+00	IH1 1960+00	IH1 1970+00																						
HOR. ALIGNMENT	L=29598																												
VER. ALIGNMENT	L=6968.56 G=1.500% R=100000																												
CUT AND FILL	+41.0	+39.5	+37.0	+35.5	+34.1	+33.0	+31.6	+31.2	+29.9	+29.4	+29.7	+30.1	+30.7	+31.8	+33.4	+34.3	+34.8	+33.9	+29.7	+24.6	+23.8	+28.4	+34.3	+38.3	+41.0	+39.9	+40.6	+40.2	+32.3
TYP. SECTION	VIADUCT (T)																												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

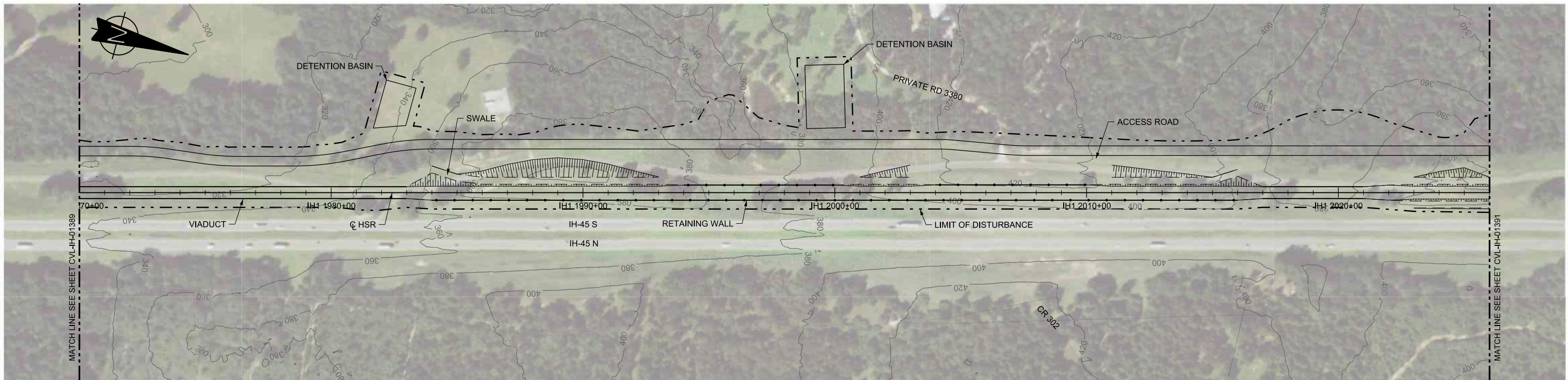
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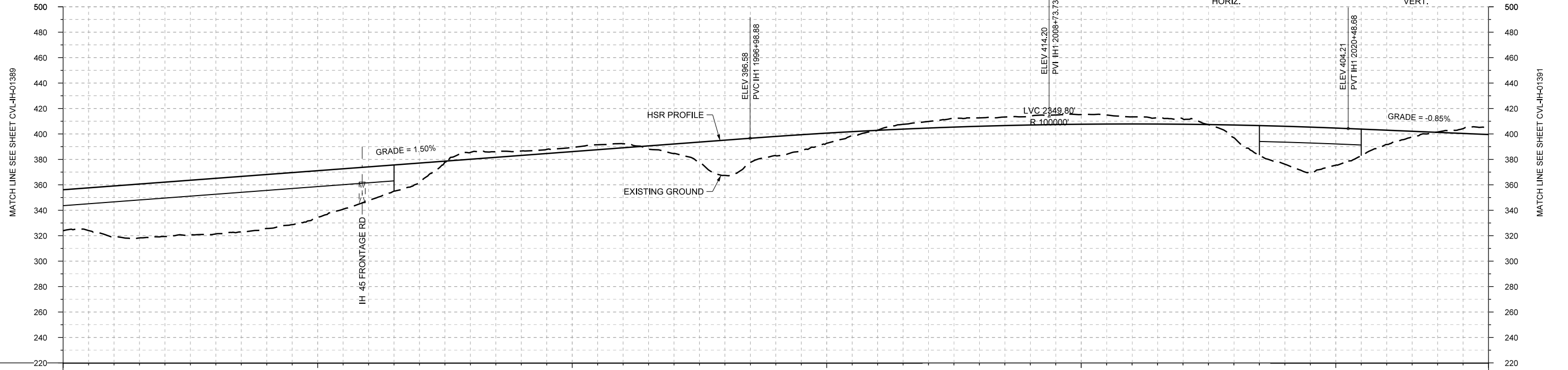
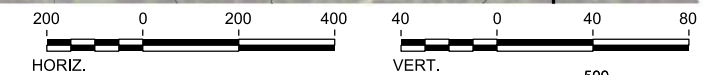
DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 1914+00 TO IH1 1970+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01389
Rev	01



PLAN



PROFILE

STATIONING	IH1 1970+00	IH1 1980+00	IH1 1990+00	IH1 2000+00	IH1 2010+00	IH1 2020+00	IH1 2026+00																						
HOR. ALIGNMENT	L=29598																												
VER. ALIGNMENT	L=5017.63 G=1.500%			R=100000			L=2991.93 G=-0.850%																						
CUT AND FILL	+32.3	+40.0	+42.7	+43.7	+42.5	+36.8	+26.5	+15.2	-5.4	-3.5	-3.3	-3.2	+7.5	+27.7	+15.1	+7.9	-0.1	-5.2	-6.6	-7.0	-7.6	-5.6	-4.1	+10.0	+29.8	+29.2	+11.2	-0.3	-5.2
TYP. SECTION	VIADUCT (T)			(P)	(Q)	CUT (R)			RETAINED FILL (Q)			CUT (R)			RETAINED CUT (S)			CUT (R)			(Q)	VIADUCT (T)		CUT (R)					

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**



Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990



2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

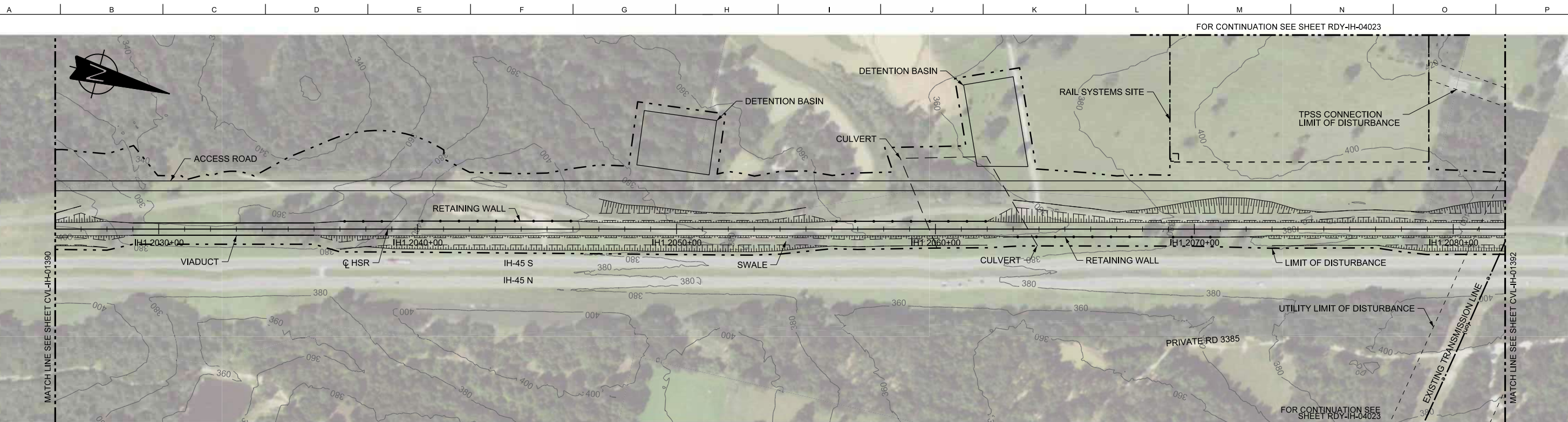
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



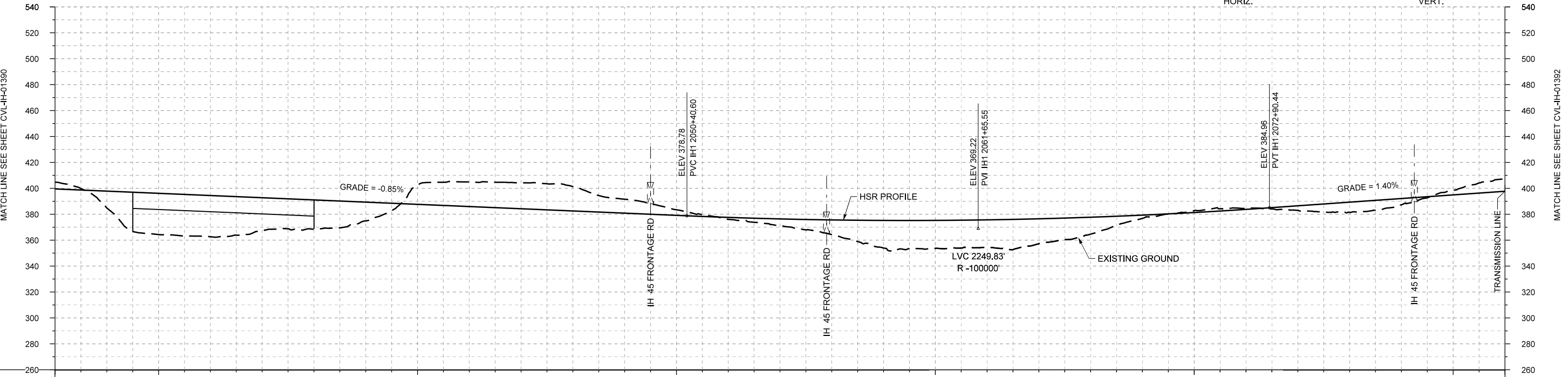
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 1970+00 TO IH1 2026+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01390
Rev			01



PLAN



PROFILE

STATIONING	IH1 2026+00	IH1 2030+00	IH1 2040+00	IH1 2050+00	IH1 2060+00	IH1 2070+00	IH1 2080+00	IH1 2082+00																					
HOR. ALIGNMENT	L=29598																												
VER. ALIGNMENT	L=2991.93 G=-0.850%				R=100000		L=2958.25 G=1.400%																						
CUT AND FILL	-5.2	+13.0	+31.8	+31.8	+25.4	+22.5	+14.5	-14.8	-19.0	-20.0	-18.8	-10.8	-4.3	+1.6	+5.4	+11.3	+21.2	+21.5	+21.4	+19.3	+13.1	+2.5	-1.5	-0.9	+3.4	+7.9	+4.9	-3.4	-9.5
TYP. SECTION	CUT (R)		VIADUCT (T)			P		Q		CUT (R)				EMBANKMENT (P)			Q		CUT (R)		EMBANKMENT (P)		CUT (R)						

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
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IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION



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Houston, Texas 77042 USA  
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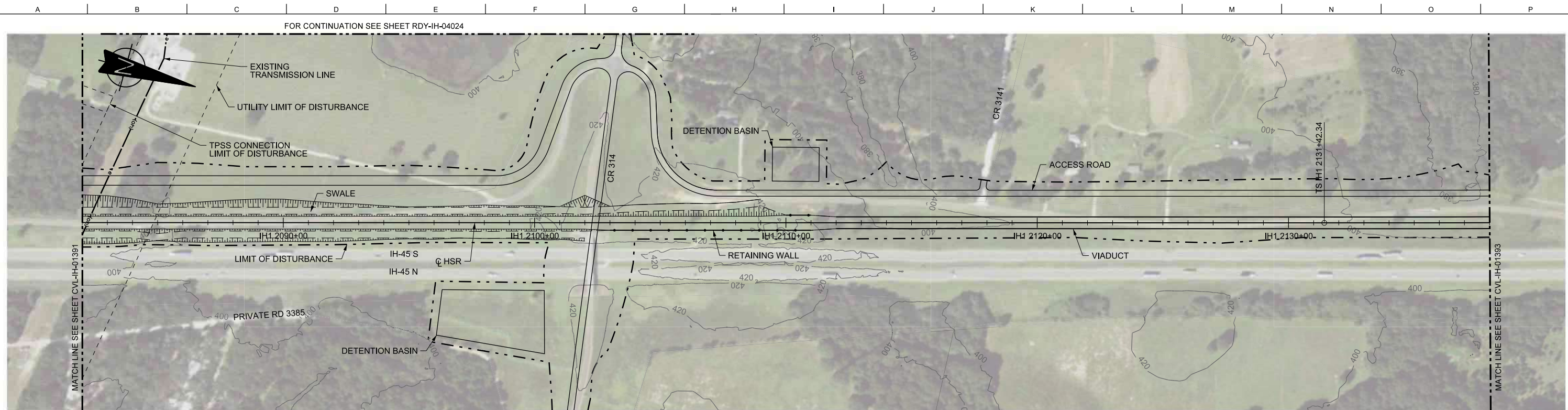
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



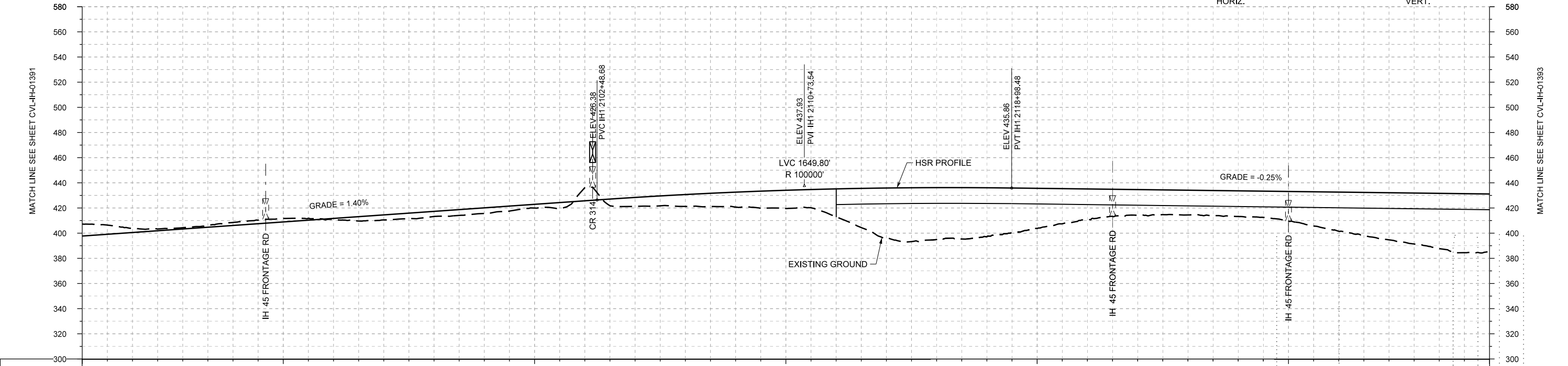
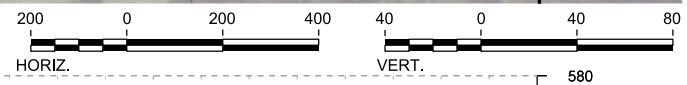
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2026+00 TO IH1 2082+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01391
Rev	01



PLAN



PROFILE

STATIONING	IH1 2082+00	IH1 2090+00	IH1 2100+00	IH1 2110+00	IH1 2120+00	IH1 2130+00	IH1 2138+00																						
HOR. ALIGNMENT	L=29598																												
VER. ALIGNMENT	L=2958.25 G=1.400%			R=100000		L=6028.18 G=-0.250%																							
CUT AND FILL	-0.5	-3.3	-1.0	-2.4	-2.8	+0.6	+4.0	+4.0	+4.5	+3.0	-10.4	+7.1	+9.5	+11.9	+14.5	+22.2	+40.2	+41.3	+39.0	+31.8	+24.4	+20.6	+19.6	+20.3	+23.5	+31.1	+37.4	+43.9	+45.7
TYP. SECTION	CUT (R)				(P)	CUT (R)	EMBANKMENT (P)			RETAINED FILL (Q)		VIADUCT (T)																	

DESIGNED BY	D. PETRIN
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CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

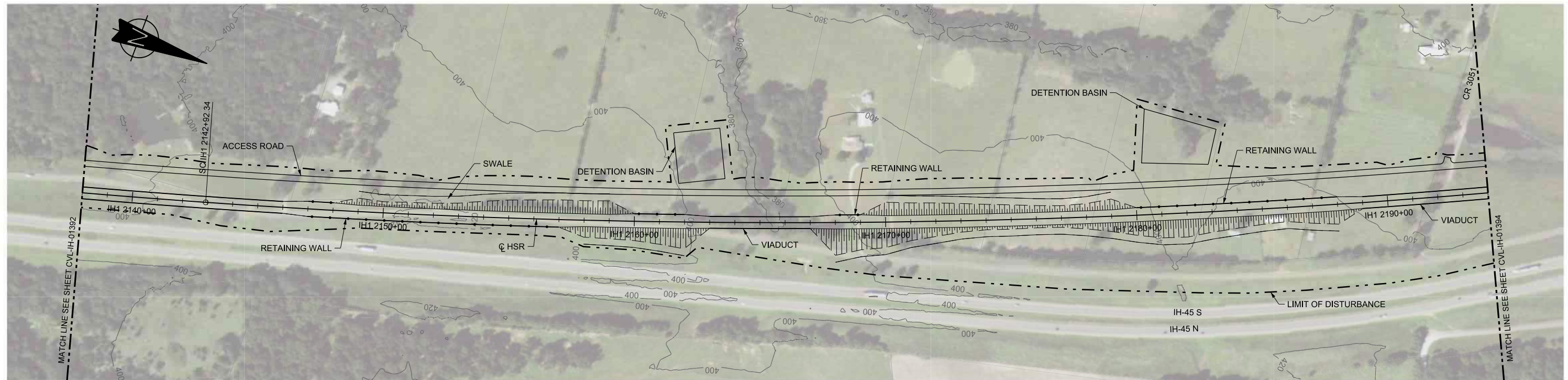
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2082+00 TO IH1 2138+00**

Scale  
AS SHOWN

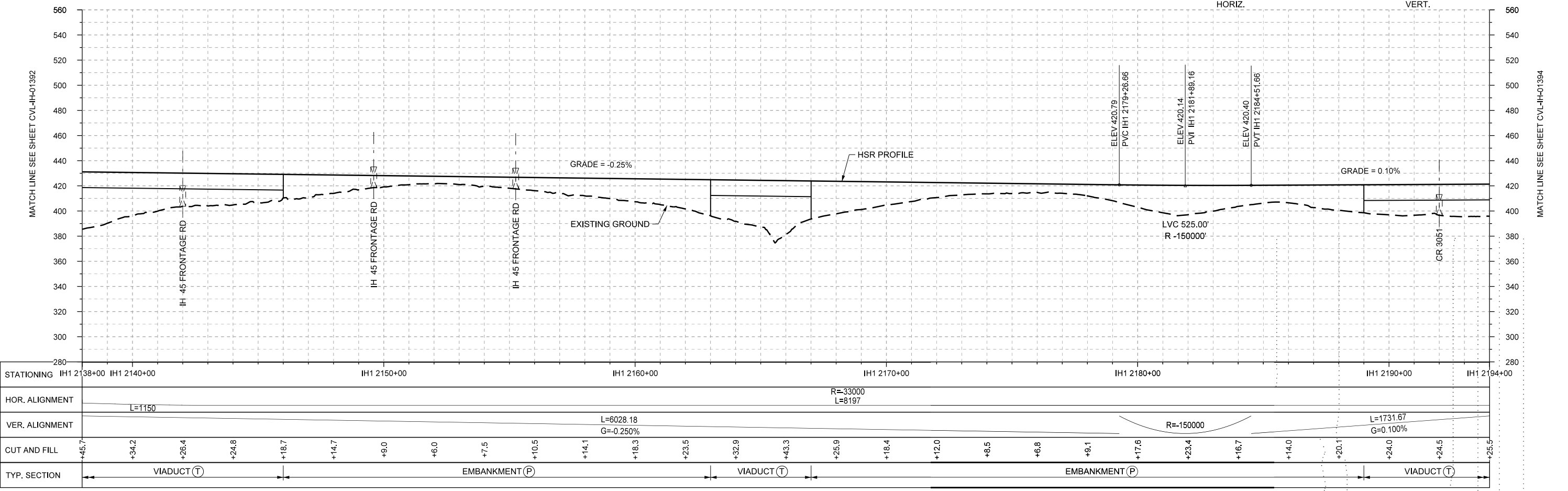
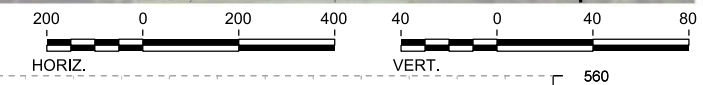
Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01392	01





PLAN



PROFILE

STATIONING	IH1 2138+00	IH1 2140+00	IH1 2150+00	IH1 2160+00	IH1 2170+00	IH1 2180+00	IH1 2190+00	IH1 2194+00																					
HOR. ALIGNMENT	L=1150		R=33000 L=8197			R=150000																							
VER. ALIGNMENT	L=6028.18 G=-0.250%		L=1731.67 G=0.100%																										
CUT AND FILL	+45.7	+34.2	+26.4	+24.8	+18.7	+14.7	+9.0	+6.0	+7.5	+10.5	+14.1	+16.3	+23.5	+32.9	+43.3	+25.9	+18.4	+12.0	+8.5	+6.8	+9.1	+17.6	+23.4	+16.7	+14.0	+20.1	+24.0	+24.5	+25.5
TYP. SECTION	VIADUCT (T)		EMBANKMENT (P)			VIADUCT (T)		EMBANKMENT (P)			VIADUCT (T)			EMBANKMENT (P)			VIADUCT (T)												

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-2144

**FRESE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

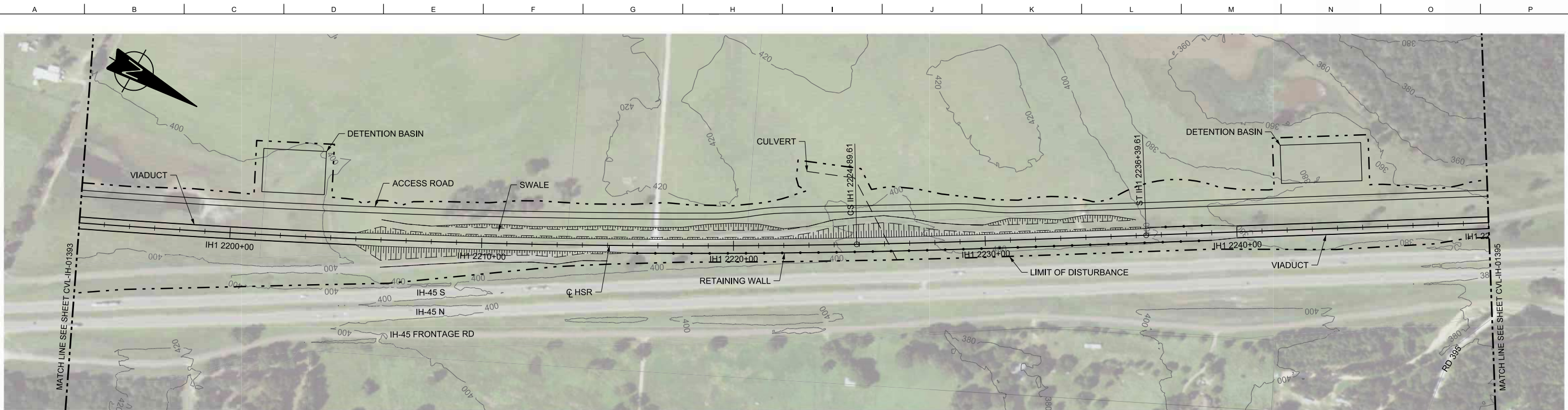
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2138+00 TO IH1 2194+00**

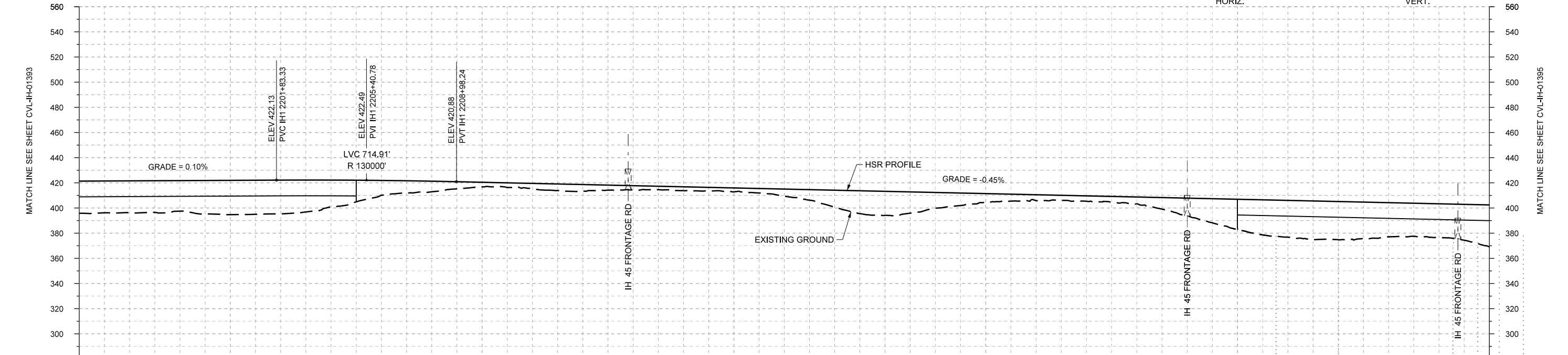
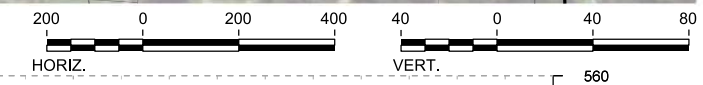
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01393	01



PLAN



PROFILE

STATIONING	IH1 2194+00	IH1 2200+00	IH1 2210+00	IH1 2220+00	IH1 2230+00	IH1 2240+00	IH1 2250+00																						
HOR. ALIGNMENT			R=33000 L=8197		L=1150	L=9943.79 G=-0.450%	L=8244																						
VER. ALIGNMENT	L=1731.67 G=0.100%		R=130000																										
CUT AND FILL	+25.5	+25.3	+24.2	+27.2	+26.8	+21.3	+11.8	+8.4	+3.6	+4.3	+5.1	+3.2	+3.0	+3.1	+5.6	+13.4	+18.1	+12.5	+6.7	+4.7	+4.3	+5.4	+14.2	+24.0	+29.2	+30.3	+27.1	+26.6	+33.3
TYP. SECTION	VIADUCT (T)			EMBANKMENT (P)			CUT (R)			EMBANKMENT (P)			CUT (R)			RETAINED FILL (Q)			VIADUCT (T)										

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freesse.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

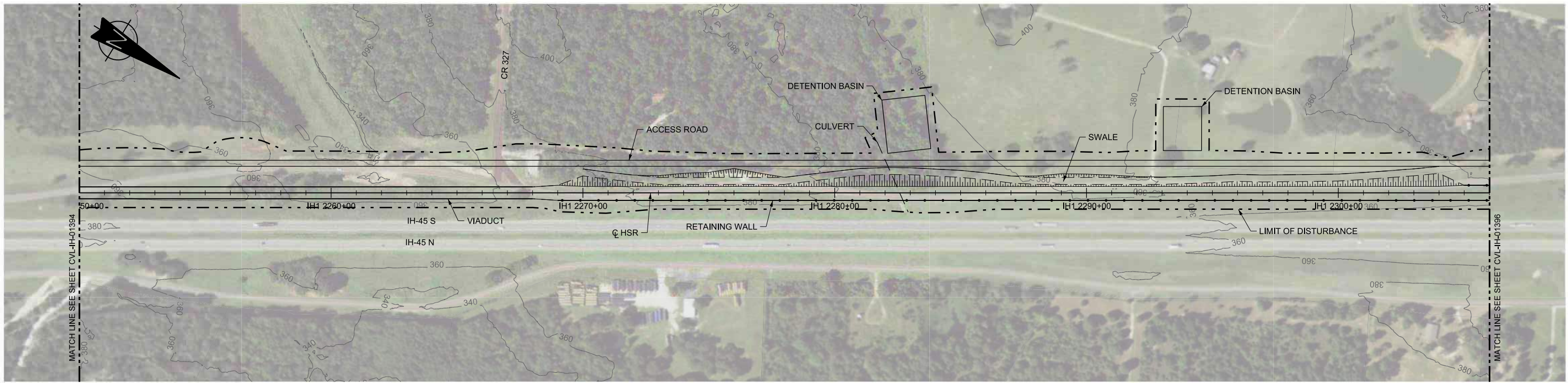
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2194+00 TO IH1 2250+00**

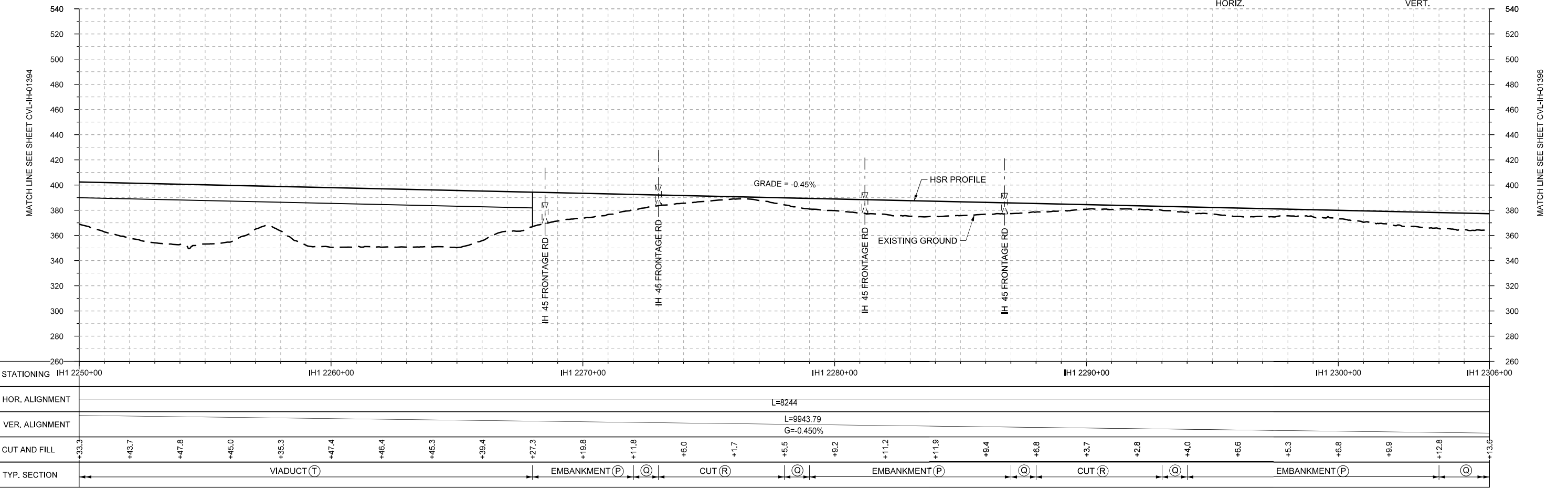
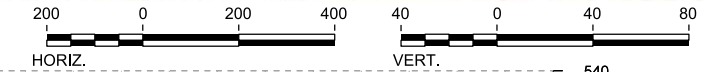
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01394	01



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
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Texas Registered Engineering Firm: F-1990

**FRESE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

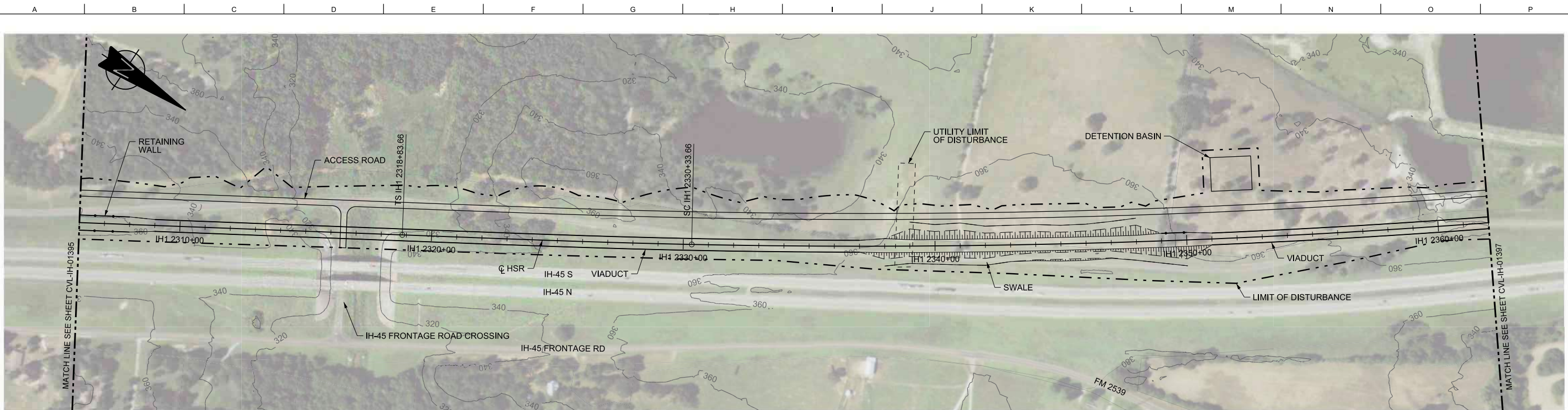
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2250+00 TO IH1 2306+00**

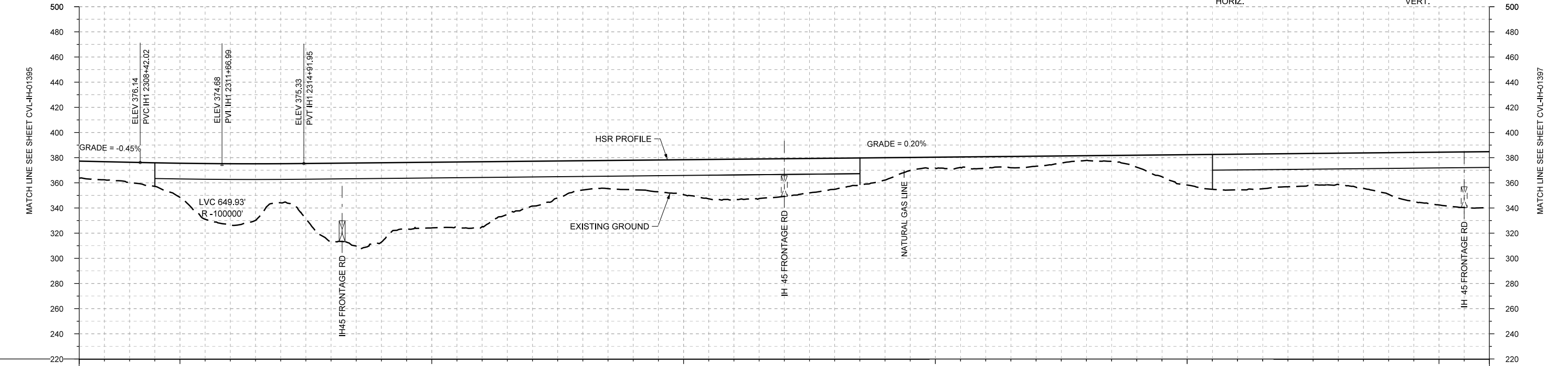
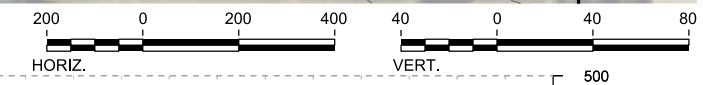
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01395	01



PLAN



PROFILE

STATIONING	IH1 2306+00	IH1 2310+00	IH1 2320+00	IH1 2330+00	IH1 2340+00	IH1 2350+00	IH1 2360+00	IH1 2362+00																					
HOR. ALIGNMENT	L=8244		L=1150		R=33000 L=3595																								
VER. ALIGNMENT	L=9943.79 G=-0.450%		R=100000		L=10377.89 G=0.200%																								
CUT AND FILL	+13.6	+16.0	+27.1	+48.9	+31.1	+62.4	+63.1	+52.1	+51.6	+35.6	+23.2	+23.4	+27.8	+32.0	+30.0	+24.7	+17.7	+8.5	+8.9	+7.9	+3.7	+9.5	+24.1	+26.3	+26.2	+24.9	+33.1	+41.9	+44.6
TYP. SECTION	RETAINED FILL (Q)		VIADUCT (T)		EMBANKMENT (P)			VIADUCT (T)																					

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
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**FRESE & NICHOLS**

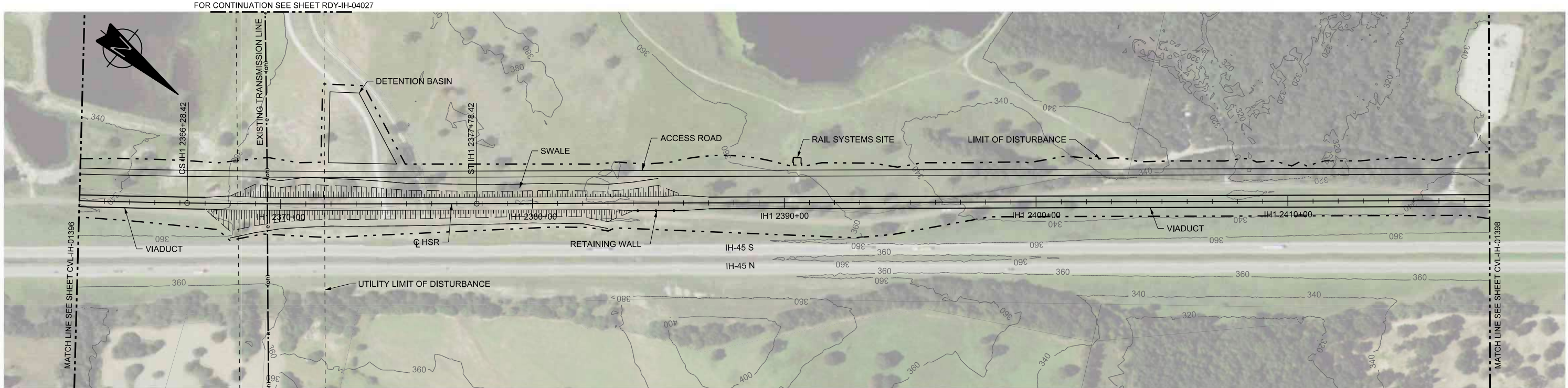
2711 North Haskell Ave., Suite 3300  
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Tel (214) 217 2200 Fax (214) 217 2201  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

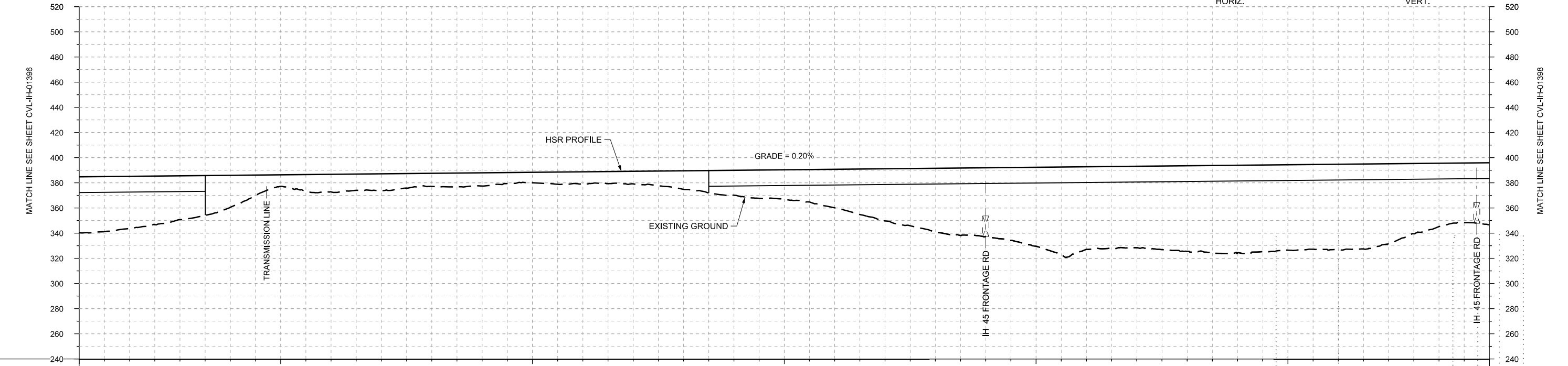
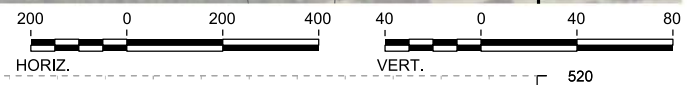
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2306+00 TO IH1 2362+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01396
Rev			01



PLAN



PROFILE

STATIONING	IH1 2362+00	IH1 2370+00	IH1 2380+00	IH1 2390+00	IH1 2400+00	IH1 2410+00	IH1 2418+00																						
HOR. ALIGNMENT	R=33000 L=3595		L=1150		L=13653																								
VER. ALIGNMENT			L=10377.89 G=0.200%																										
CUT AND FILL	+44.6	+41.5	+34.9	+25.4	+9.1	+14.0	+13.6	+10.3	+10.4	+8.2	+9.3	+10.0	+14.7	+19.8	+23.4	+30.6	+41.4	+50.5	+54.7	+62.8	+65.7	+64.7	+65.0	+68.7	+67.8	+67.9	+63.6	+50.3	+48.3
TYP. SECTION	VIADUCT (T)		EMBANKMENT (P)										VIADUCT (T)																

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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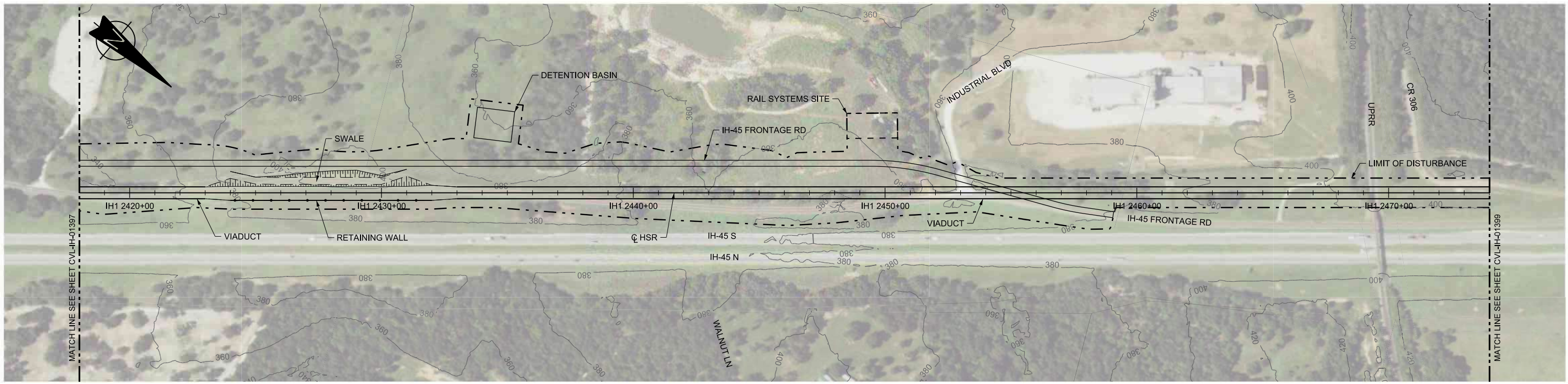
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

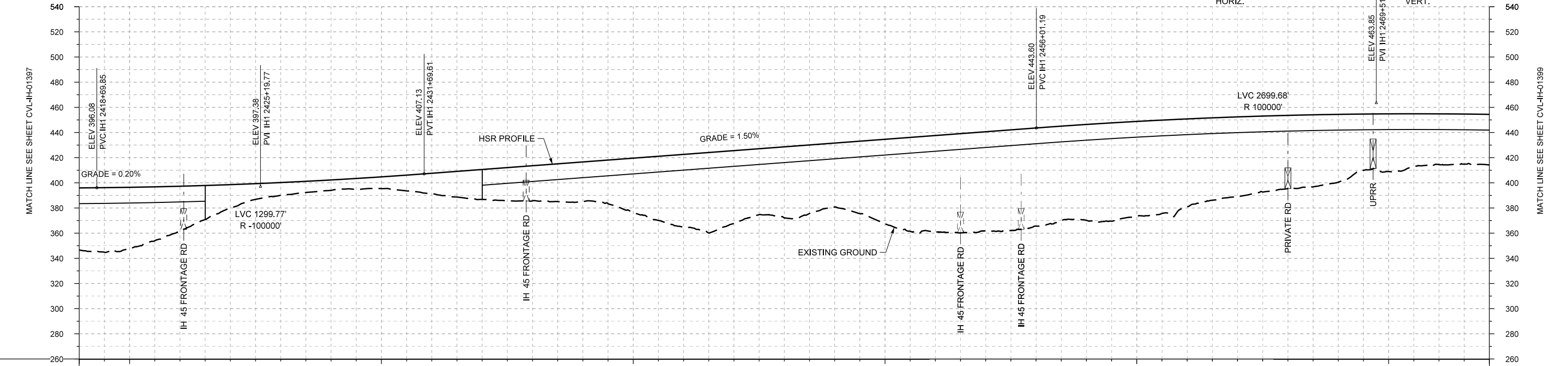
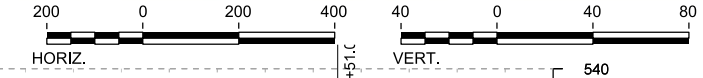
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2362+00 TO IH1 2418+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01397
Rev	01



PLAN



PROFILE

STATIONING	IH1 2418+00	IH1 2420+00	IH1 2430+00	IH1 2440+00	IH1 2450+00	IH1 2460+00	IH1 2470+00	IH1 2474+00																				
HOR. ALIGNMENT	L=13653																											
VER. ALIGNMENT	L=1097.88 G=0.200%		R=100000			L=2431.58 G=1.500%		R=100000																				
CUT AND FILL	+49.3	+48.4	+38.0	+18.4	+10.2	+8.3	+9.3	+16.3	+23.8	+27.9	+31.6	+43.2	+58.1	+57.7	+56.5	+50.9	+67.2	+76.6	+78.8	+78.0	+76.3	+75.6	+69.8	+63.4	+56.2	+53.9	+45.9	+40.1
TYP. SECTION	VIADUCT (T)		(P)	(Q)	CUT (R)		RETAINED FILL (Q)										VIADUCT (T)											

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
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DRAWN BY  
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**C. TAYLOR**

DATE  
**02/25/2019**

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**FRESE & NICHOLS**

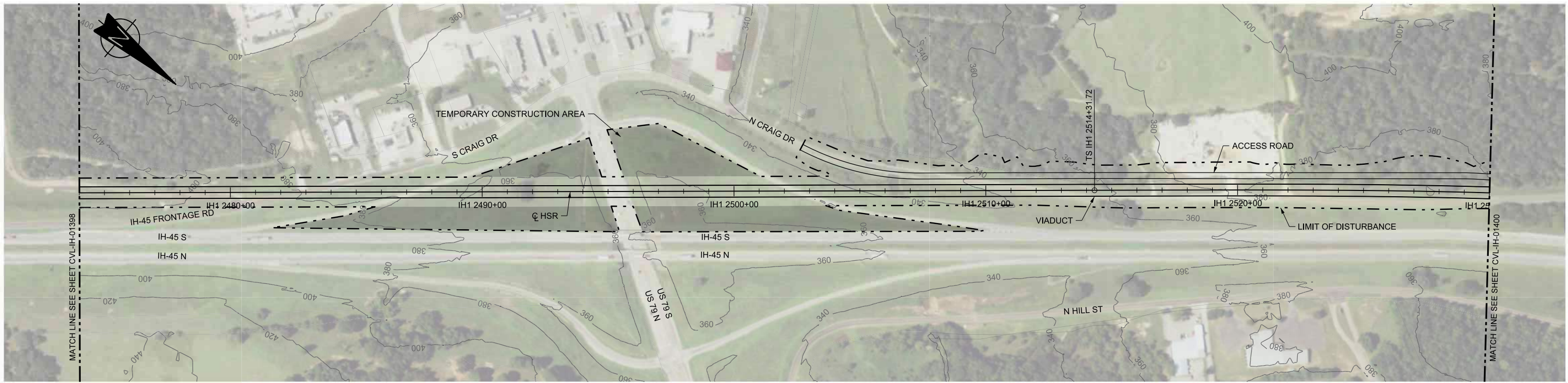
2711 North Haskell Ave., Suite 3300  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

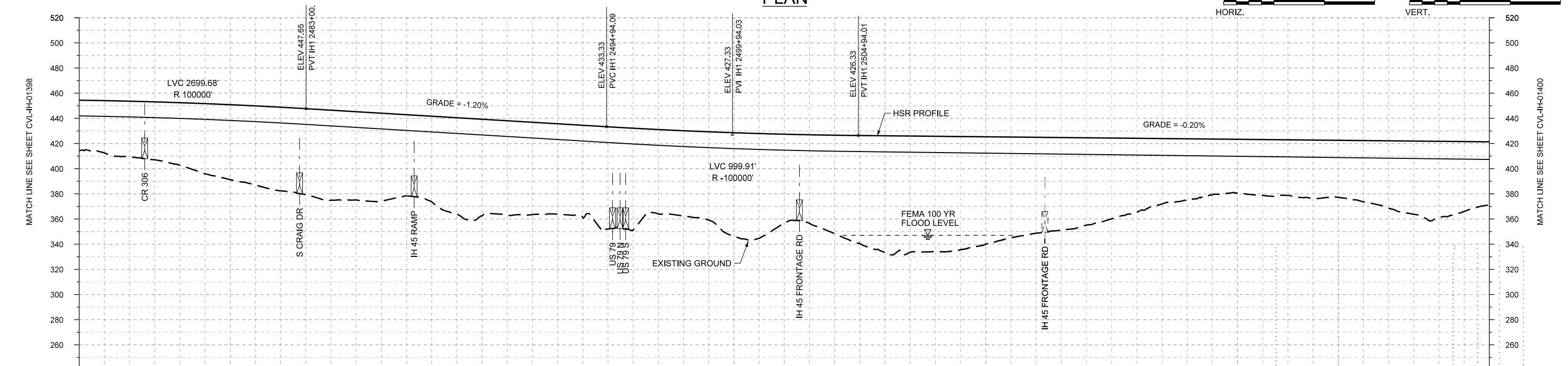
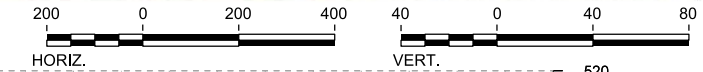
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2418+00 TO IH1 2474+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01398
Rev	01		



PLAN



PROFILE

STATIONING	IH1 2474+00	IH1 2480+00	IH1 2490+00	IH1 2500+00	IH1 2510+00	IH1 2520+00	IH1 2530+00
HOR. ALIGNMENT	L=13653						L=1750
VER. ALIGNMENT	R=100000		L=1193.22 G=-1.200%			R=100000	
CUT AND FILL	+40.1	+44.4	+43.7	+59.6	+66.4	+71.5	+70.1
TYP. SECTION	VIADUCT (T)						
	+68.2	+73.4	+73.3	+80.9	+67.8	+82.3	+70.6
	+78.2	+69.4	+58.8	+43.3	+42.7	+44.2	+45.2
	+53.5	+60.4	+50.1				

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FRESE & NICHOLS**

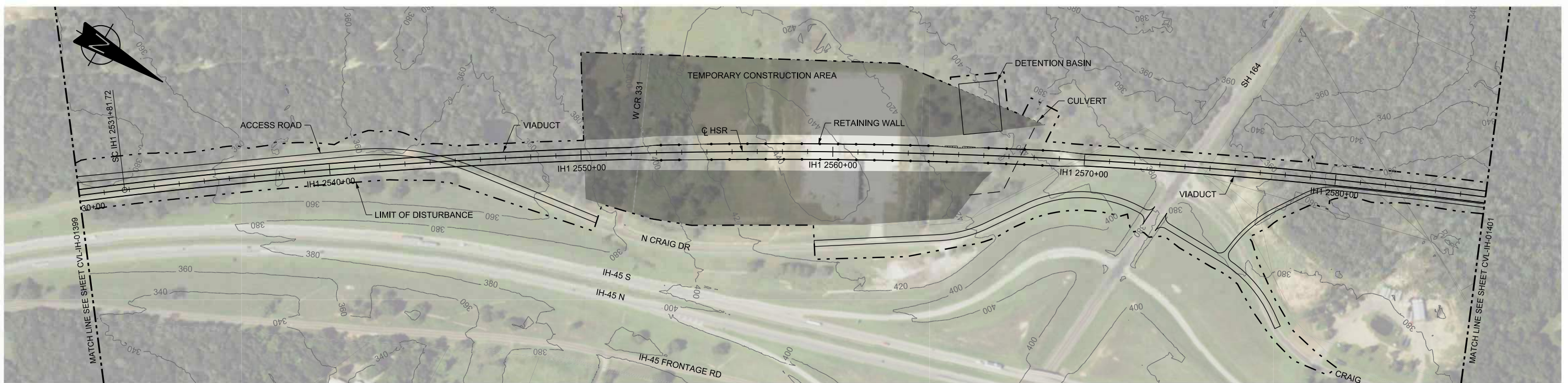
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

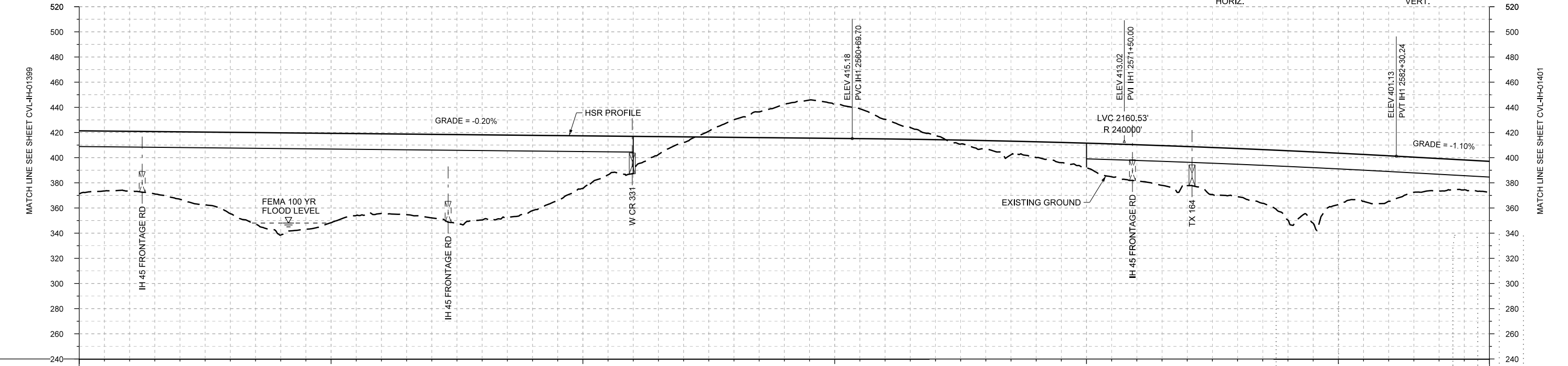
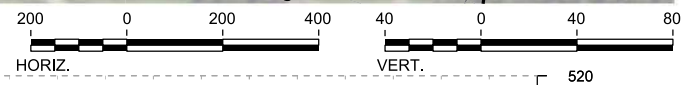
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2474+00 TO IH1 2530+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01399
Rev	01



PLAN



PROFILE

STATIONING	IH1 2530+00	IH1 2540+00	IH1 2550+00	IH1 2560+00	IH1 2570+00	IH1 2580+00	IH1 2586+00																						
HOR. ALIGNMENT	L=1750		R=22000 L=7857			L=5192.03 G=-1.100%																							
VER. ALIGNMENT	L=5575.70 G=-0.200%																												
CUT AND FILL	+50.1	+47.5	+53.5	+64.6	+81.2	+71.0	+63.3	+66.4	+67.7	+59.8	+41.8	+29.7	+4.4	-14.0	-26.4	-27.0	-15.6	-3.2	+6.4	+12.5	+19.3	+28.8	+31.0	+38.3	+55.2	+40.9	+36.2	+25.7	+24.9
TYP. SECTION	VIADUCT (T)				(B)		RETAINED CUT (D)				RETAINED FILL (B)				VIADUCT (E)														

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

Arup Texas, Inc.  
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Houston, Texas 77042 USA  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2530+00 TO IH1 2586+00**

Scale

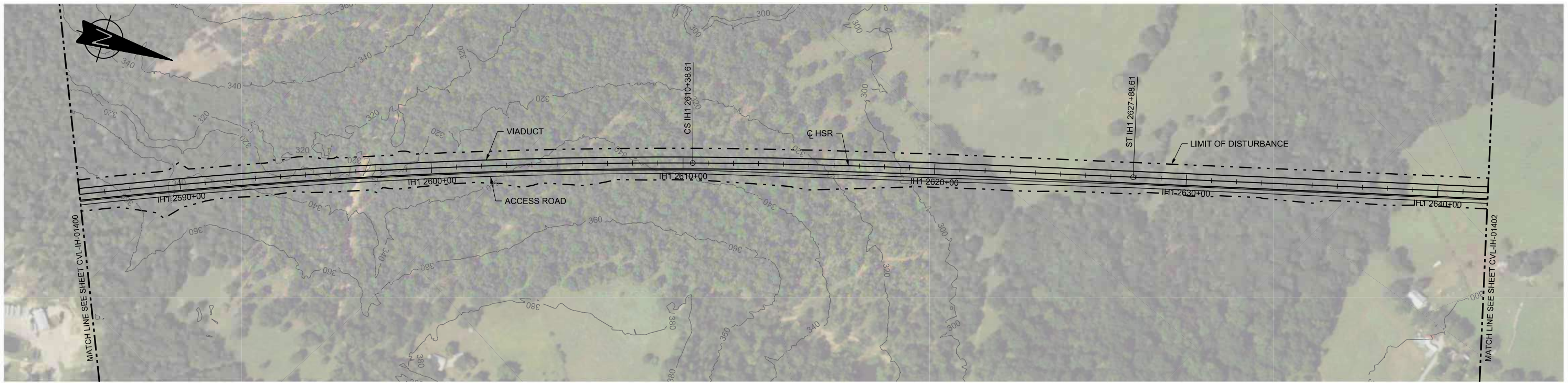
AS SHOWN

Drawing Status

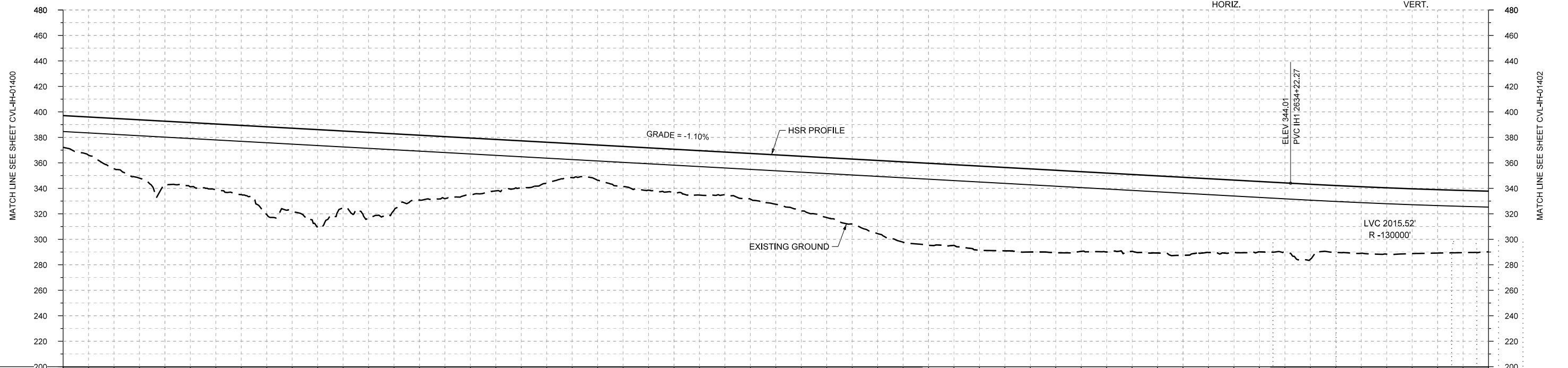
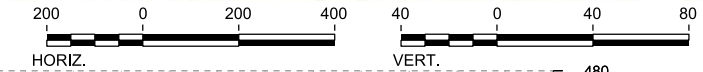
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01400	01





PLAN



PROFILE

STATIONING	IH1 2586+00	IH1 2590+00	IH1 2600+00	IH1 2610+00	IH1 2620+00	IH1 2630+00	IH1 2640+00	IH1 2642+00																				
HOR. ALIGNMENT	R=22000 L=7857			L=1750			L=5342																					
VER. ALIGNMENT				L=5192.03 G=-1.100%			R=130000																					
CUT AND FILL	+24.9	+38.6	+48.7	+51.6	+66.9	+76.0	+67.7	+50.9	+44.6	+37.2	+26.7	+31.7	+34.0	+33.6	+36.8	+47.1	+57.5	+64.4	+66.3	+65.3	+62.6	+60.4	+61.3	+56.7	+54.4	+52.4	+52.1	+47.5
TYP. SECTION	VIADUCT (E)																											

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

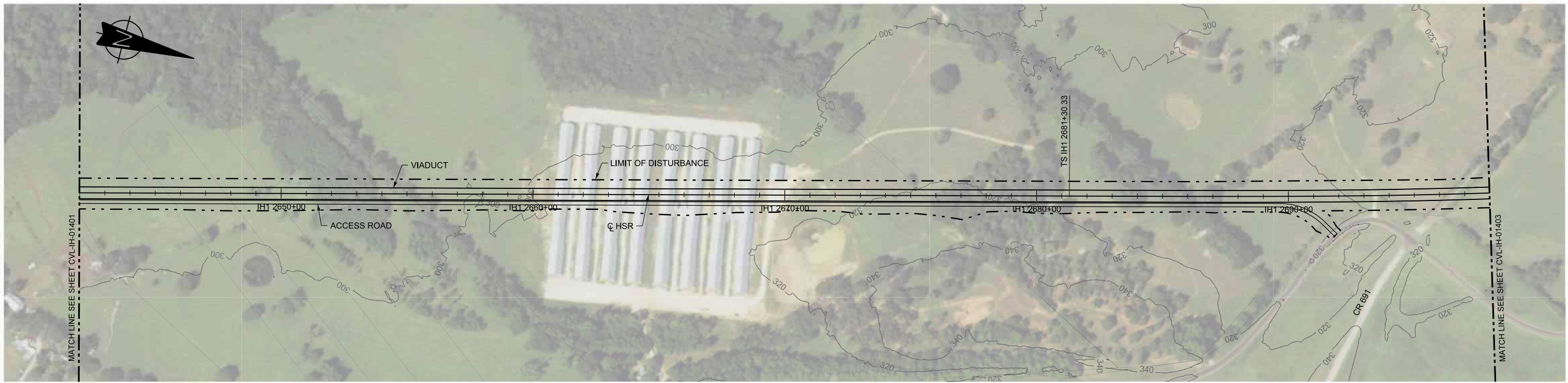
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2586+00 TO IH1 2642+00**

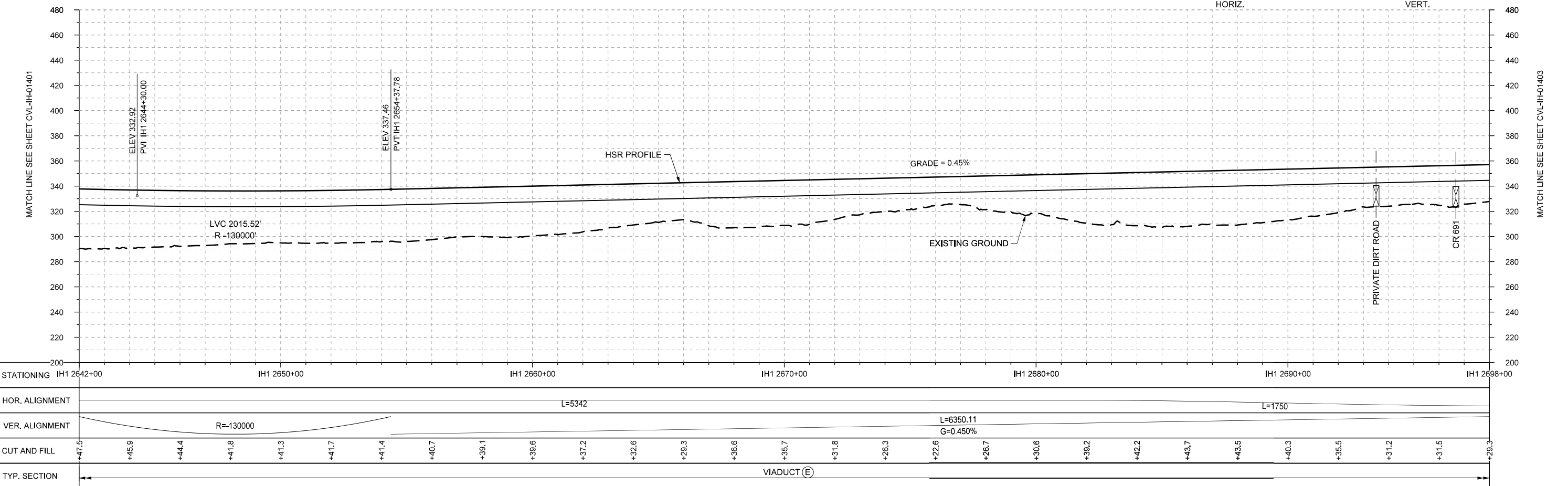
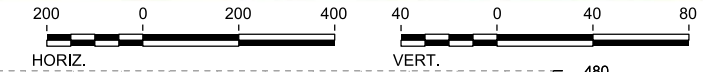
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01401	01



PLAN



PROFILE

STATIONING	IH1 2642+00	IH1 2650+00	IH1 2660+00	IH1 2670+00	IH1 2680+00	IH1 2690+00	IH1 2698+00									
HOR. ALIGNMENT	L=5342						L=1750									
VER. ALIGNMENT	R=130000						L=6350.11 G=0.450%									
CUT AND FILL	+47.5	+45.9	+44.4	+41.8	+41.3	+41.7	+41.4									
TYP. SECTION	VIADUCT (E)															

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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**FRESE & NICHOLS**

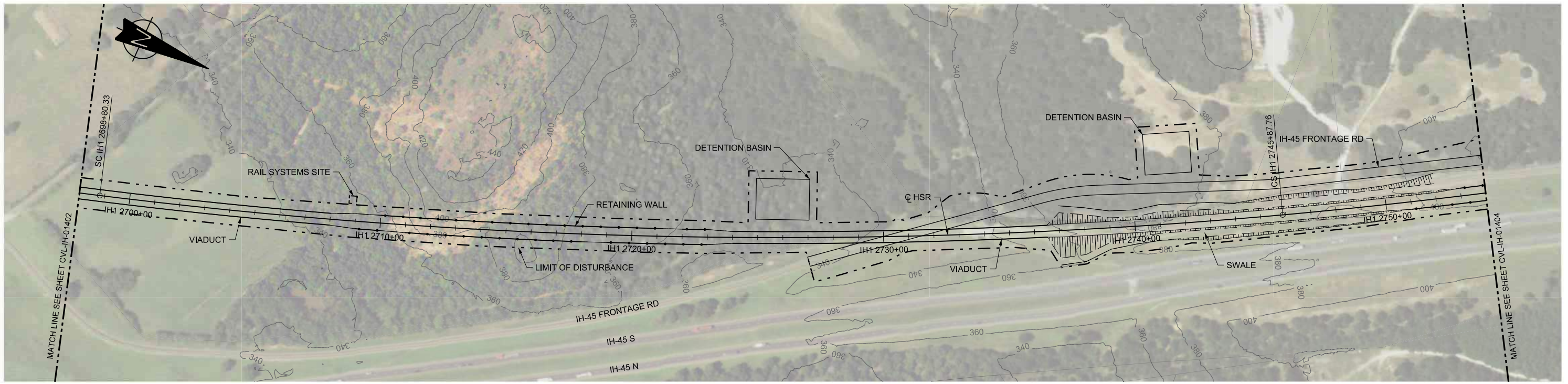
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

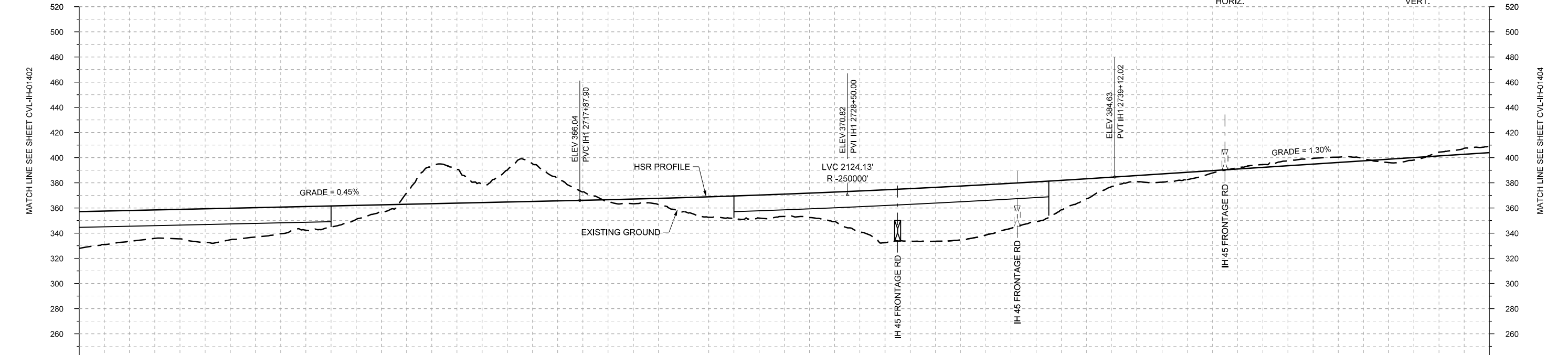
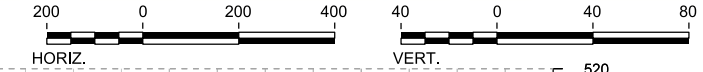
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2642+00 TO IH1 2698+00**

Scale AS SHOWN	Drawing Status <b>FINAL</b>	
Job No 234180	Drawing No CVL-IH-01402	Rev 01



PLAN



PROFILE

STATIONING	IH1 2698+00	IH1 2700+00	IH1 2710+00	IH1 2720+00	IH1 2730+00	IH1 2740+00	IH1 2750+00	IH1 2754+00																					
HOR. ALIGNMENT	L=1750		R=22000 L=4707			L=1750																							
VER. ALIGNMENT	L=6350.11 G=0.450%		R=250000			L=6925.17 G=1.300%																							
CUT AND FILL	+29.3	+24.6	+23.5	+25.0	+21.2	+18.8	+5.9	-29.9	-14.3	-30.0	-6.7	+3.8	+11.1	+17.3	+17.7	+23.5	+42.0	+42.9	+40.1	+31.7	+15.9	+4.7	+5.9	-0.9	-3.9	-4.2	+2.7	-2.9	-5.1
TYP. SECTION	VIADUCT (E)		(B)	RETAINED CUT (D)			RETAINED FILL (B)		VIADUCT (T)		EMBANKMENT (P)			CUT (R)			(Q)												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. PETRIN</b>
DRAWN BY <b>J. BORGHESI</b>
CHECKED BY <b>T. WAGNER</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>

**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
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 Texas Registered Engineering Firm: F-1990

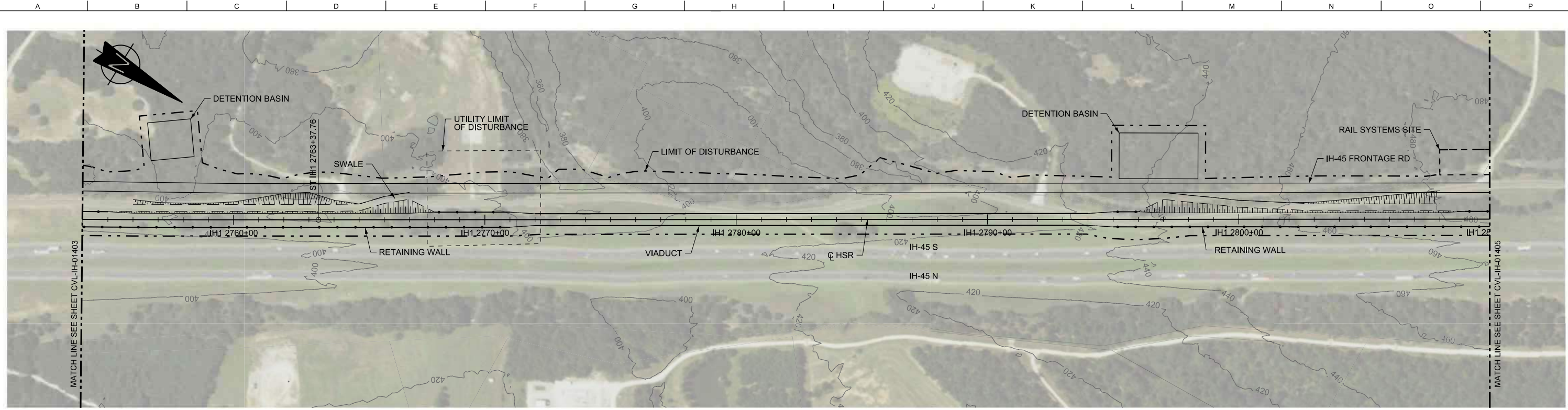
**FRESE & NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING

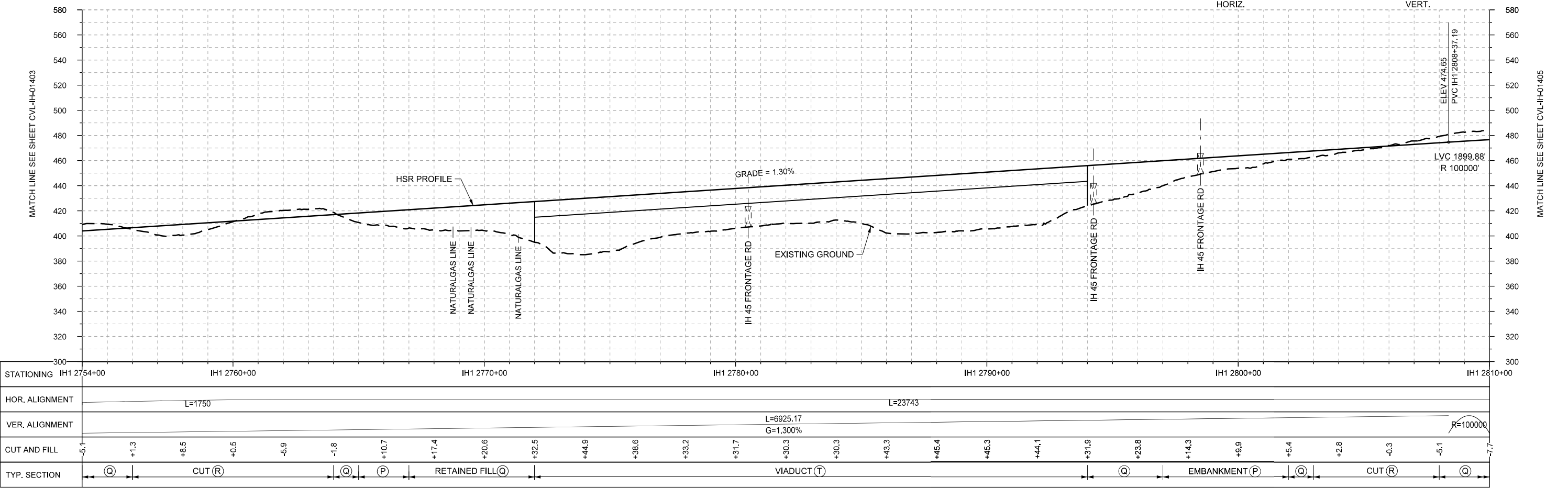
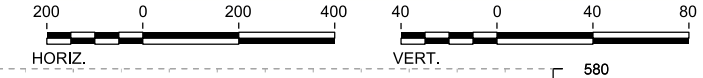
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 2698+00 TO IH1 2754+00**

Scale AS SHOWN	Drawing Status FINAL	
Job No 234180	Drawing No CVL-IH-01403	Rev 01



PLAN



PROFILE

STATIONING	IH1 2754+00	IH1 2760+00	IH1 2770+00	IH1 2780+00	IH1 2790+00	IH1 2800+00	IH1 2810+00																						
HOR. ALIGNMENT	L=1750			L=23743																									
VER. ALIGNMENT				L=6925.17 G=1.300%																									
CUT AND FILL	-5.1	+1.3	+8.5	+0.5	-5.9	-1.8	+10.7	+17.4	+20.6	+32.5	+44.9	+38.6	+33.2	+31.7	+30.3	+30.3	+43.3	+45.4	+45.3	+44.1	+31.9	+23.8	+14.3	+9.9	+5.4	+2.8	-0.3	-5.1	-7.7
TYP. SECTION	Q	CUT (R)			Q	P	RETAINED FILL (Q)			VIADUCT (T)				Q	EMBANKMENT (P)		Q	CUT (R)		Q									

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
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Dallas, Texas 75204  
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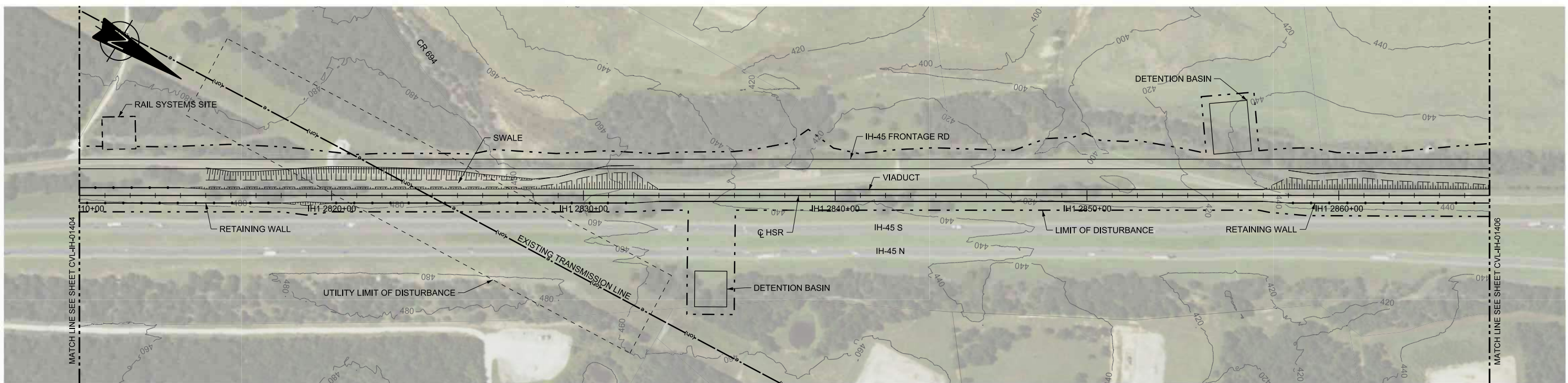
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

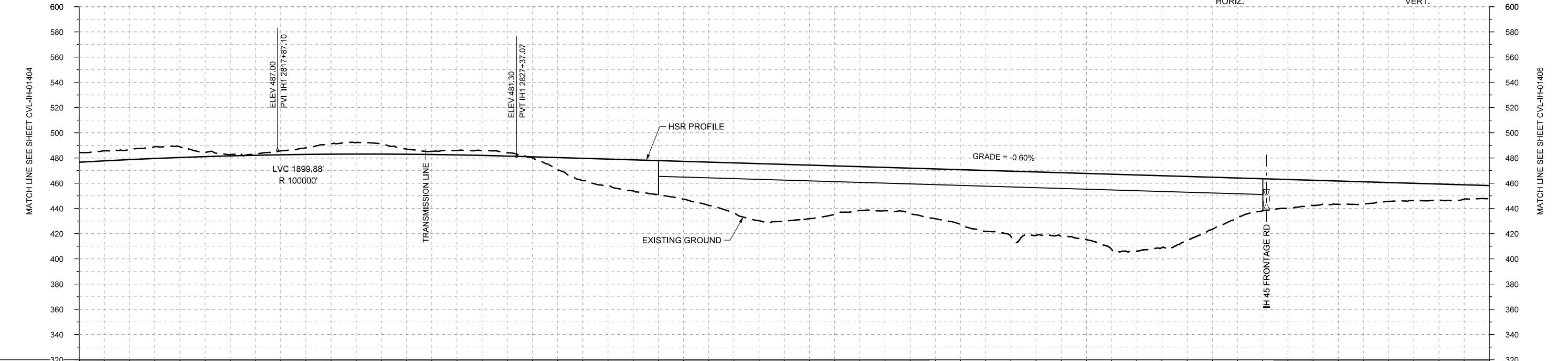
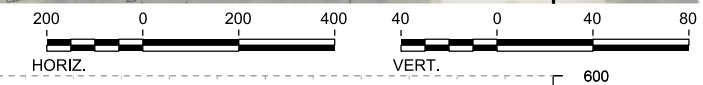
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2754+00 TO IH1 2810+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01404
Rev			01



PLAN



PROFILE

STATIONING	IH1 2810+00	IH1 2820+00	IH1 2830+00	IH1 2840+00	IH1 2850+00	IH1 2860+00	IH1 2866+00																						
HOR. ALIGNMENT	L=23743																												
VER. ALIGNMENT	R=100000			L=11557.91 G=-0.600%																									
CUT AND FILL	-7.7	-7.8	-8.4	-1.0	-3.2	-8.3	-7.9	-2.5	-3.9	+0.8	+17.6	+24.6	+29.9	+39.9	+45.0	+38.5	+34.3	+39.5	+46.3	+50.2	+52.5	+60.4	+50.7	+31.4	+22.8	+18.4	+15.0	+12.9	+10.2
TYP. SECTION	RETAINED FILL (Q)			CUT (R)				(Q)	EMBANKMENT (P)		VIADUCT (T)										EMBANKMENT (P)								

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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2711 North Haskell Ave., Suite 3300  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

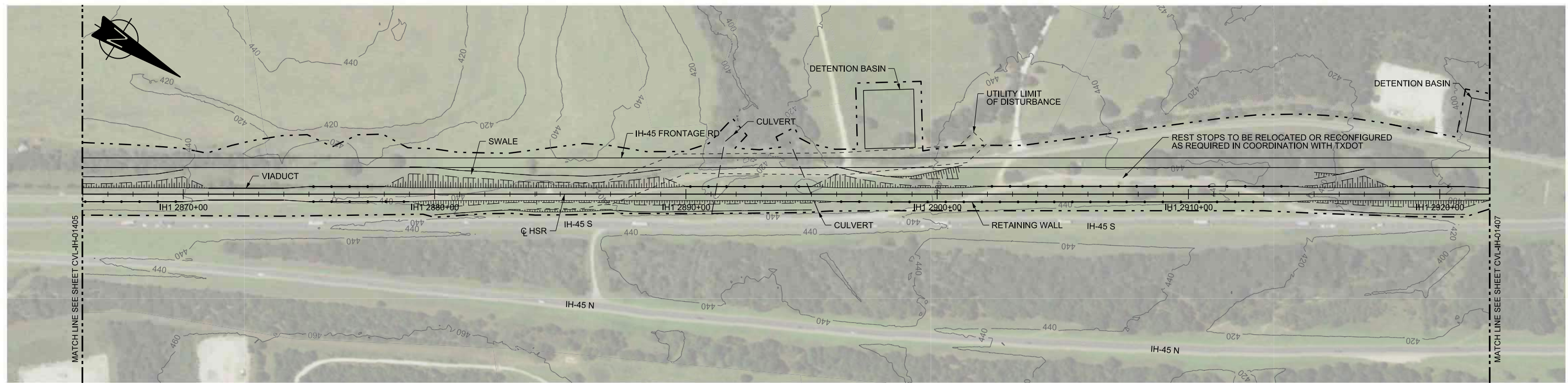
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2810+00 TO IH1 2866+00**

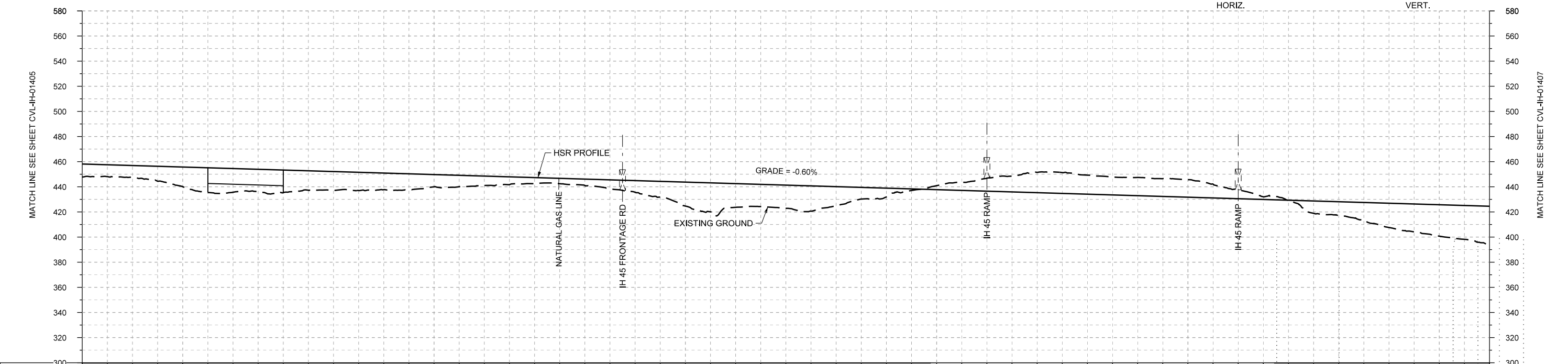
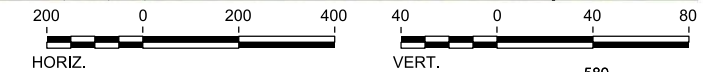
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01405	01



PLAN



STATIONING	IH1 2866+00	IH1 2870+00	IH1 2880+00	IH1 2890+00	IH1 2900+00	IH1 2910+00	IH1 2920+00	IH1 2922+00																					
HOR. ALIGNMENT	L=23743																												
VER. ALIGNMENT	L=11557.91 G=-0.600%																												
CUT AND FILL	+10.2	+9.3	+15.6	+18.8	+18.0	+14.8	+13.2	+9.7	+7.5	+4.8	+5.1	+9.3	+18.1	+18.8	+18.4	+15.1	+7.0	-3.2	-10.3	-16.2	-15.1	-14.5	-13.9	-7.1	-0.3	+11.0	+18.3	+25.0	+30.8
TYP. SECTION	EMBANKMENT (P)		VIADUCT (T)		RETAINED FILL (Q)		EMBANKMENT (P)		(S)		CUT (R)		RETAINED CUT (S)				EMBANKMENT (P)												

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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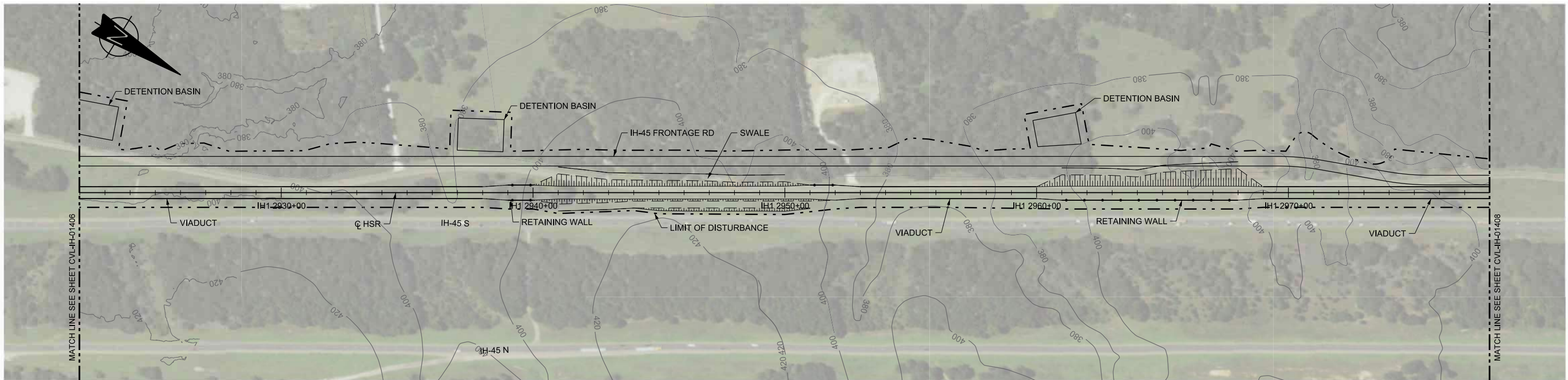
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

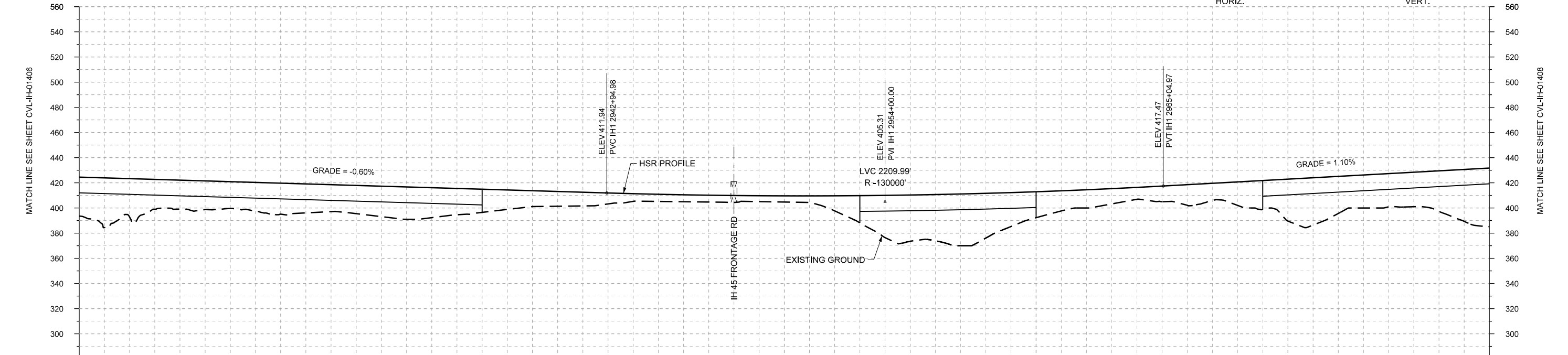
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2866+00 TO IH1 2922+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01406	01	



PLAN



PROFILE

STATIONING	IH1 2922+00	IH1 2930+00	IH1 2940+00	IH1 2950+00	IH1 2960+00	IH1 2970+00	IH1 2978+00																						
HOR. ALIGNMENT	L=23743																												
VER. ALIGNMENT	L=11557.91 G=-0.600%			R=130000		L=9195.44 G=1.100%																							
CUT AND FILL	+30.8	+30.5	+23.0	+21.3	+24.6	+21.4	+24.2	+23.8	+18.4	+12.6	+10.9	+6.1	+5.5	+5.5	+4.9	+12.0	+33.6	+36.7	+36.6	+20.6	+14.5	+9.5	+16.3	+16.6	+33.4	+29.5	+26.4	+32.2	+46.6
TYP. SECTION	VIADUCT (T)				(Q)	EMBANKMENT (P)			RETAINED FILL (Q)		VIADUCT (T)		EMBANKMENT (P)			VIADUCT (T)													

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
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**FREESSE & NICHOLS**

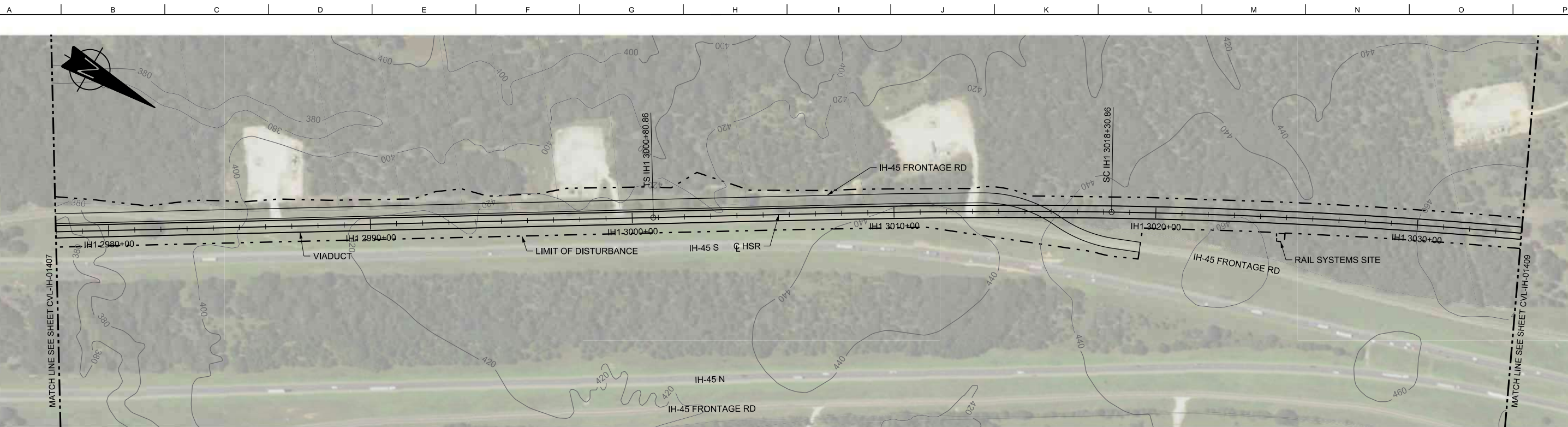
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

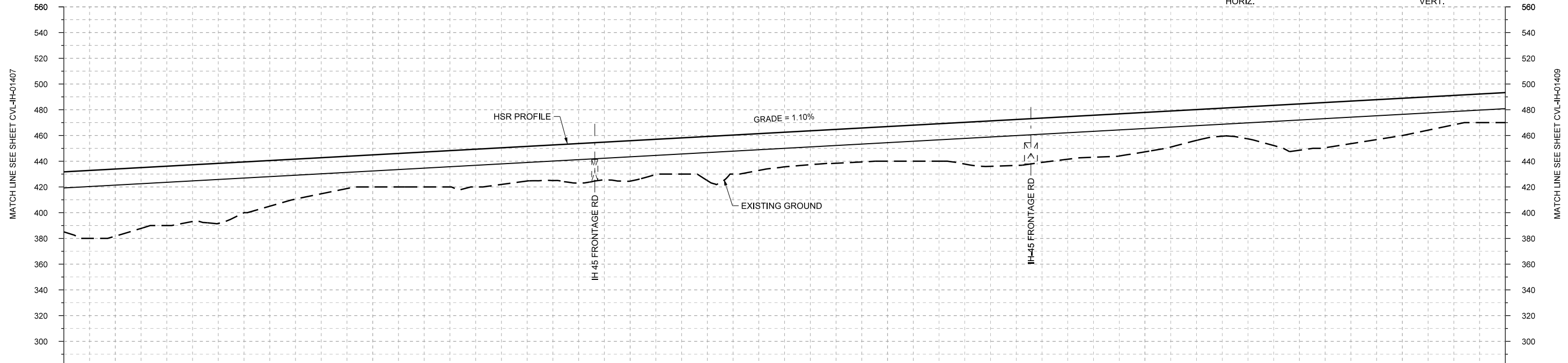
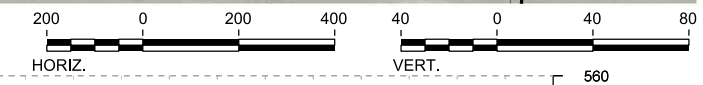
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2922+00 TO IH1 2978+00**

Scale AS SHOWN	Drawing Status <b>FINAL</b>	
Job No 234180	Drawing No CVL-IH-01407	Rev 01



PLAN



PROFILE

STATIONING	IH1 2978+00	IH1 2980+00	IH1 2990+00	IH1 3000+00	IH1 3010+00	IH1 3020+00	IH1 3030+00	IH1 3034+00																				
HOR. ALIGNMENT	L=23743				L=1750		R=22000 L=8373																					
VER. ALIGNMENT					L=9195.44 G=1.100%																							
CUT AND FILL	+46.6	+52.2	+46.1	+46.7	+35.5	+26.0	+24.9	+27.1	+29.3	+26.9	+30.8	+31.4	+28.1	+30.3	+26.9	+29.1	+36.3	+34.4	+32.6	+30.6	+23.9	+25.0	+36.0	+33.1	+26.9	+22.8	+23.3	
TYP. SECTION	VIADUCT (T)																											

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**  
DRAWN BY  
**J. BORGHESI**  
CHECKED BY  
**T. WAGNER**  
IN CHARGE  
**C. TAYLOR**  
DATE  
**02/25/2019**

**ARUP**  
Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

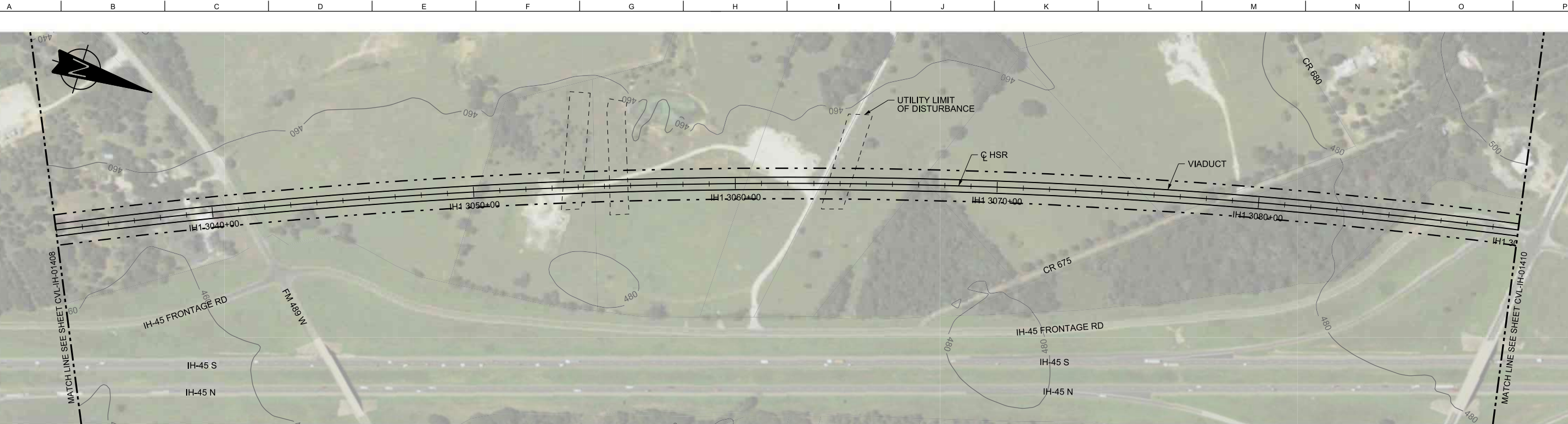
**FRESE & NICHOLS**  
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
**TEXAS CENTRAL**  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

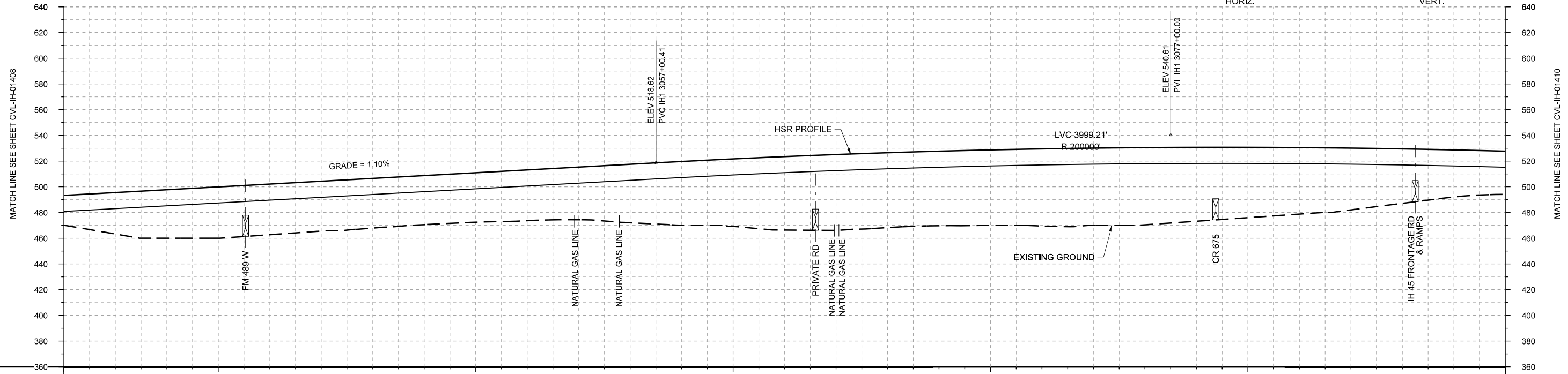
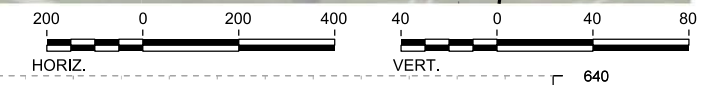
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 2978+00 TO IH1 3034+00**

Scale  
AS SHOWN  
Drawing Status  
**FINAL**  
Job No  
234180  
Drawing No  
CVL-IH-01408  
Rev  
01





PLAN



PROFILE

STATIONING	IH1 3034+00	IH1 3040+00	IH1 3050+00	IH1 3060+00	IH1 3070+00	IH1 3080+00	IH1 3090+00																					
HOR. ALIGNMENT	R=22000 L=8373																											
VER. ALIGNMENT	L=9195.44 G=1.100%																											
CUT AND FILL	+23.3	+32.2	+37.7	+39.9	+39.4	+38.7	+38.6	+38.1	+38.4	+39.4	+40.9	+45.5	+49.6	+52.4	+57.2	+59.0	+58.2	+58.0	+58.7	+60.0	+60.1	+60.1	+57.5	+54.7	+51.7	+48.1	+42.4	+36.6
TYP. SECTION	VIADUCT (T)																											

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**



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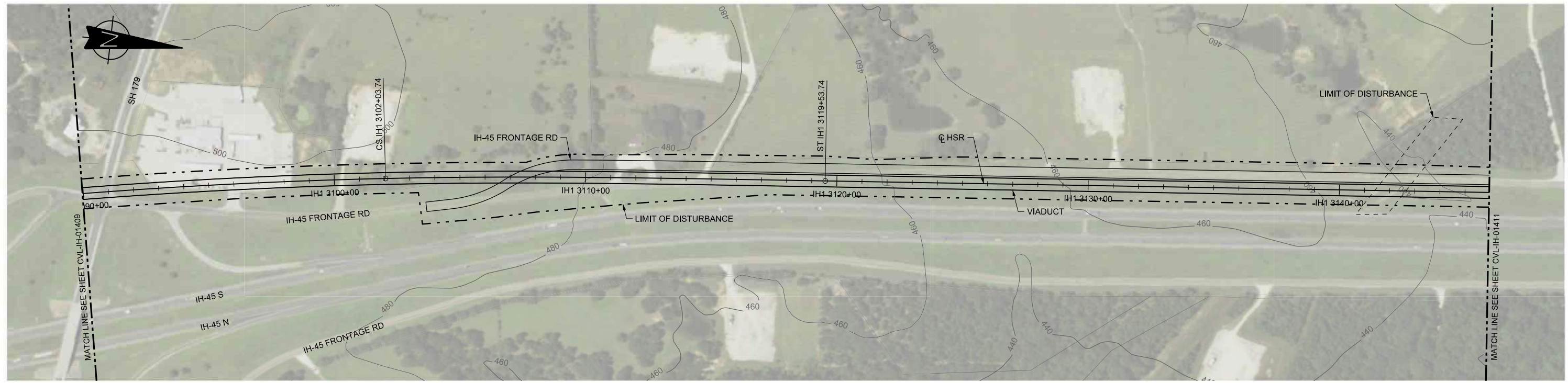
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



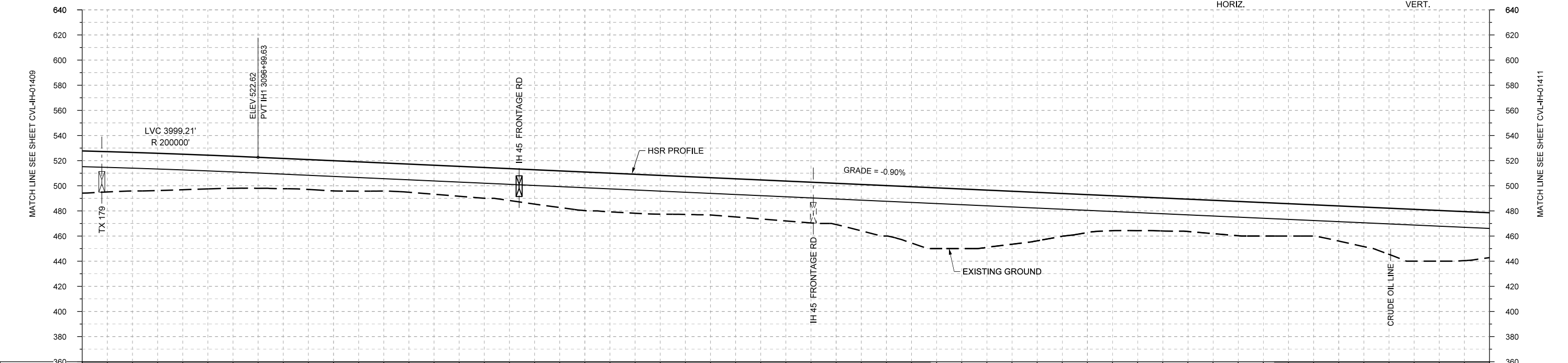
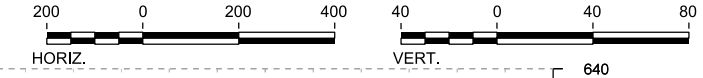
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3034+00 TO IH1 3090+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01409
Rev			01



PLAN



STATIONING	IH1 3090+00	IH1 3100+00	IH1 3110+00	IH1 3120+00	IH1 3130+00	IH1 3140+00	IH1 3146+00																						
HOR. ALIGNMENT	R=22000 L=8373		L=1750		L=8893.09 G=-0.900%																								
VER. ALIGNMENT	R=200000																												
CUT AND FILL	+33.6	+30.6	+28.3	+26.5	+24.1	+24.0	+22.3	+23.1	+24.5	+27.3	+30.7	+31.0	+30.1	+30.3	+31.7	+32.7	+40.1	+48.3	+45.6	+38.5	+30.1	+26.8	+25.7	+27.3	+25.7	+27.9	+36.7	+40.3	+35.7
TYP. SECTION	VIADUCT (T)																												

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Dallas, Texas 75204  
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Texas Registered Engineering Firm: F-2144

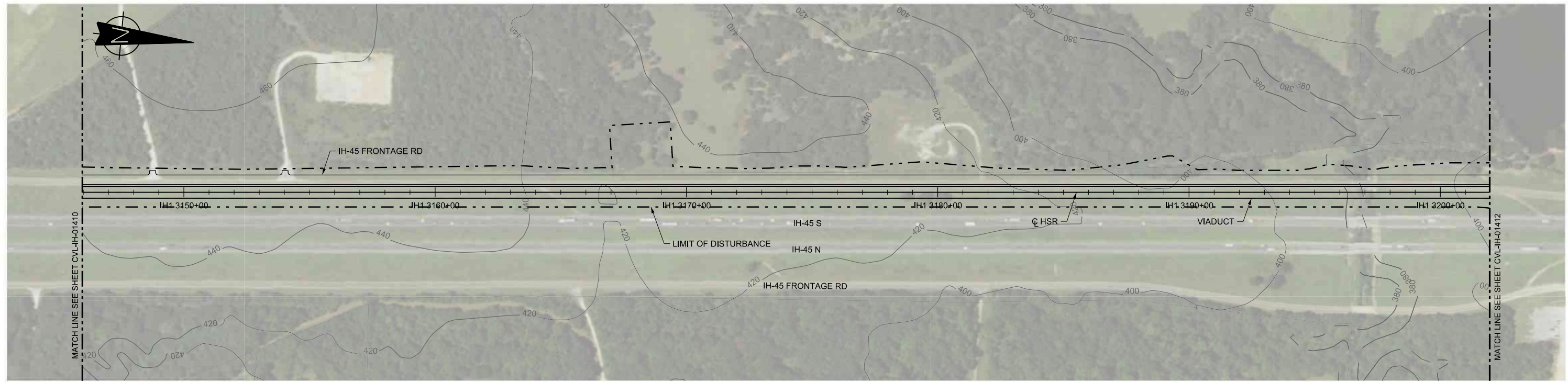
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

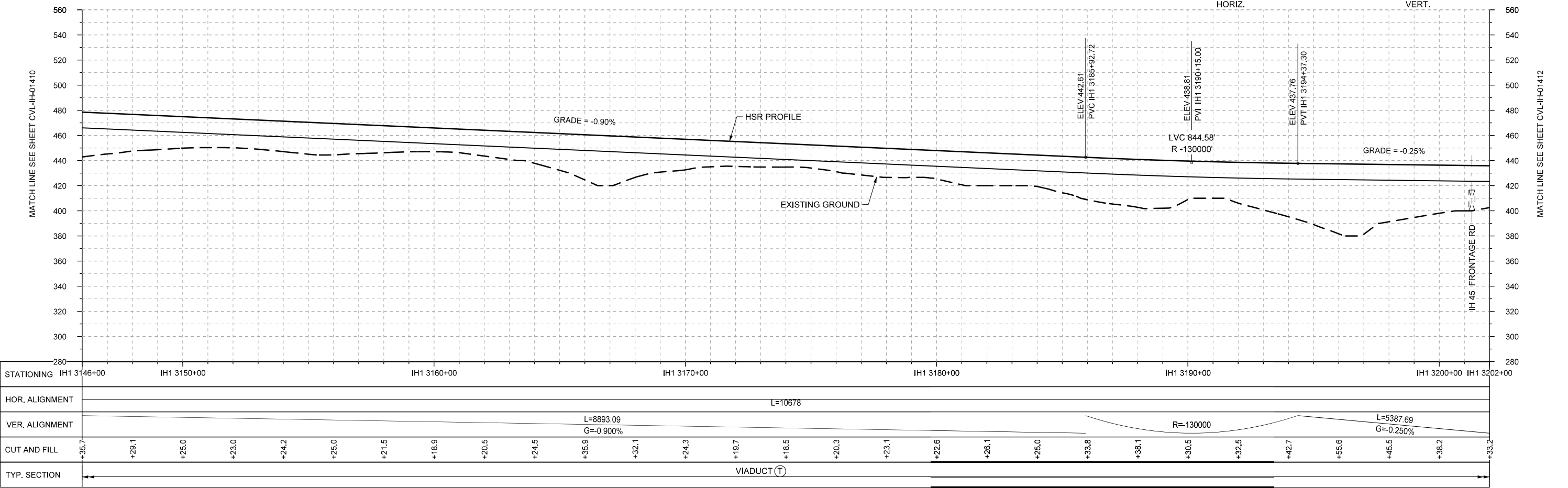
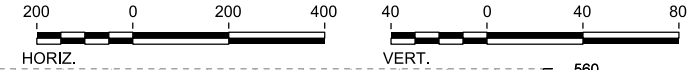
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3090+00 TO IH1 3146+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01410	01	



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>D. PETRIN</b>
DRAWN BY <b>J. BORGHESI</b>
CHECKED BY <b>T. WAGNER</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>02/25/2019</b>

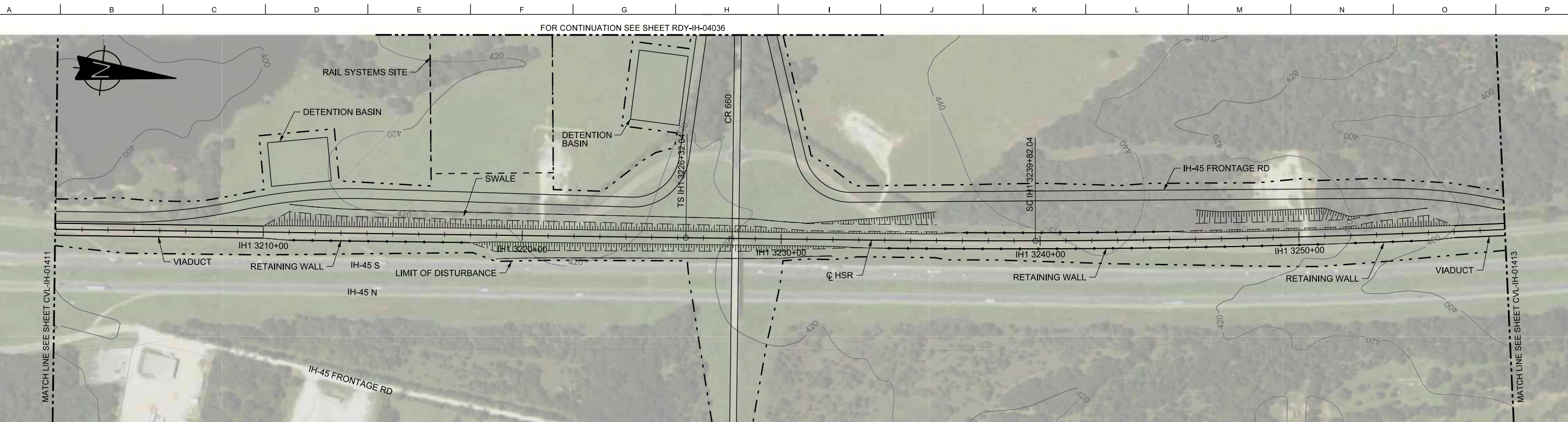
**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
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 www.arup.com  
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 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freesse.com  
 Texas Registered Engineering Firm: F-2144

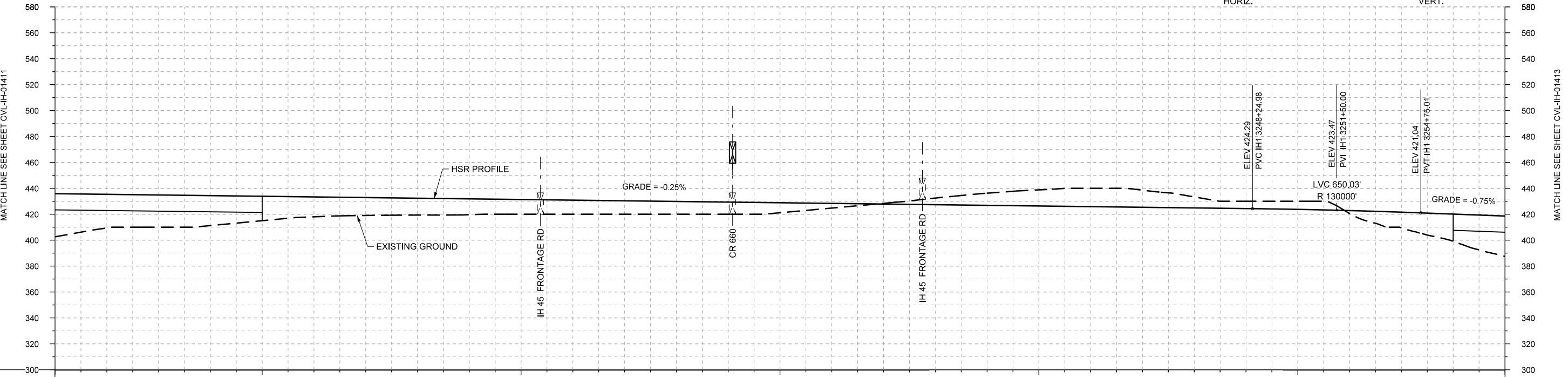
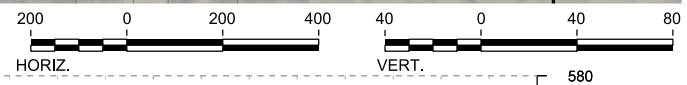
DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 3146+00 TO IH1 3202+00**

Scale AS SHOWN	Drawing Status <b>FINAL</b>	
Job No 234180	Drawing No CVL-IH-01411	Rev 01



FOR CONTINUATION SEE SHEET RDY-IH-04036  
**PLAN**



STATIONING	IH1 3202+00	IH1 3210+00	IH1 3220+00	IH1 3230+00	IH1 3240+00	IH1 3250+00	IH1 3258+00																						
HOR. ALIGNMENT	L=10678			L=1350		R=42000 L=2197																							
VER. ALIGNMENT	L=5387.69 G=-0.250%			L=1350		R=130000	L=2725.03 G=-0.750%																						
CUT AND FILL	+33.2	+25.9	+24.8	+23.1	+18.8	+15.3	+13.8	+12.9	+12.2	+11.3	+10.8	+10.3	+9.8	+9.3	+7.7	+3.6	-0.6	-5.2	-9.4	-12.5	-14.2	-13.2	-8.5	-5.7	-6.3	+2.4	+12.1	+21.1	+31.2
TYP. SECTION	VIADUCT (T)			EMBANKMENT (P)					CUT (R)			RETAINED CUT (R)			CUT (R)		(Q)	EMBANKMENT (P)		(T)									

**PROFILE**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**  
DRAWN BY  
**J. BORGHESI**  
CHECKED BY  
**T. WAGNER**  
IN CHARGE  
**C. TAYLOR**  
DATE  
**02/25/2019**

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10370 Richmond Ave., Suite 475  
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Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
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Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

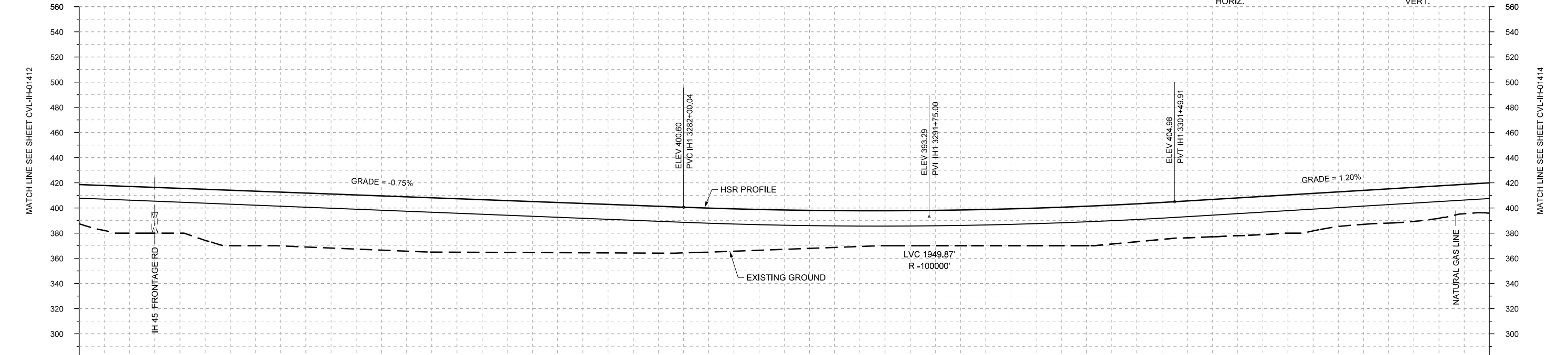
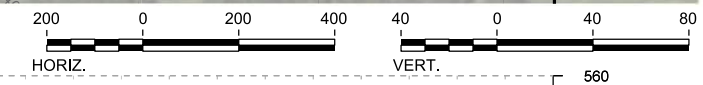
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
**TEXAS CENTRAL**  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3202+00 TO IH 1 3258+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01412
Rev	01



PLAN



PROFILE

STATIONING	IH1 3258+00	IH1 3260+00	IH1 3270+00	IH1 3280+00	IH1 3290+00	IH1 3300+00	IH1 3310+00	IH1 3314+00																					
HOR. ALIGNMENT	R=42000 L=2197		L=1350		L=11452																								
VER. ALIGNMENT	L=2725.03 G=-0.750%																												
CUT AND FILL	+31.2	+37.1	+35.6	+44.1	+42.8	+43.0	+43.1	+43.2	+41.8	+40.5	+39.2	+37.9	+35.3	+33.7	+31.3	+29.3	+27.8	+28.1	+28.8	+29.9	+31.4	+30.1	+29.3	+30.0	+30.4	+27.5	+27.2	+25.8	+24.1
TYP. SECTION	VIADUCT (T)																												

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

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Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

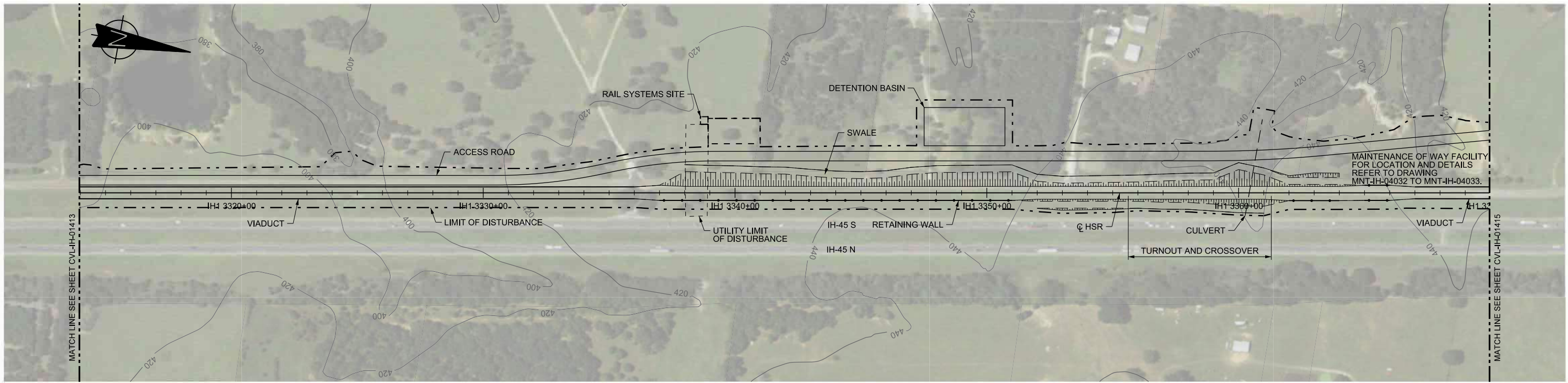
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3258+00 TO IH1 3314+00**

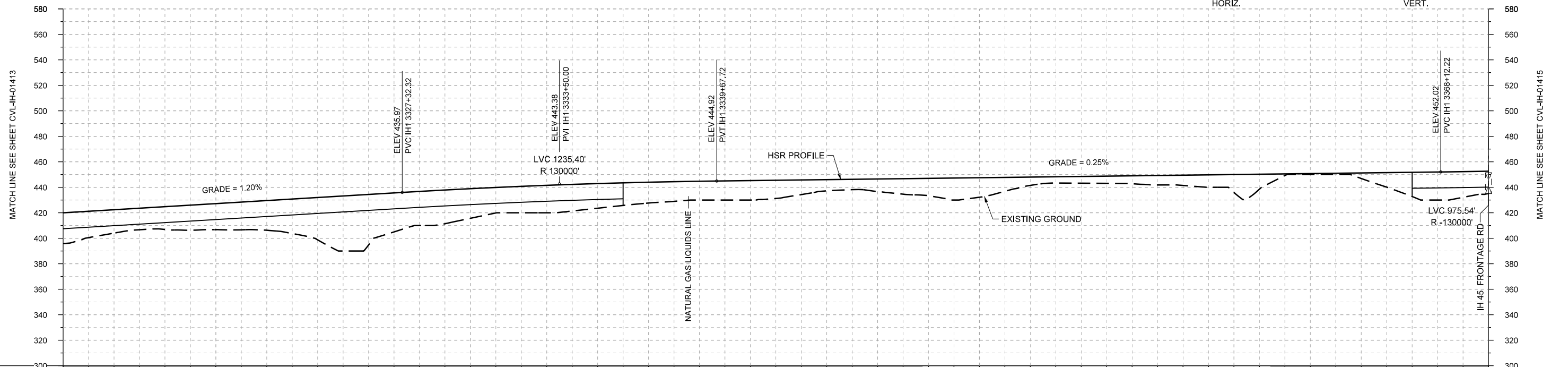
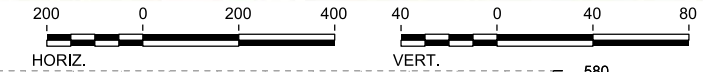
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01413	01



PLAN



PROFILE

STATIONING	IH1 3314+00	IH1 3320+00	IH1 3330+00	IH1 3340+00	IH1 3350+00	IH1 3360+00	IH1 3370+00
HOR. ALIGNMENT	L=11452						
VER. ALIGNMENT	L=2582.41 G=1.200%		R=130000			L=2844.50 G=0.250%	
CUT AND FILL	+24.1	+18.4	+17.9	+20.4	+23.3	+33.3	+38.7
TYP. SECTION	VIADUCT (T)			(Q)	EMBANKMENT (P)		CUT (R)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

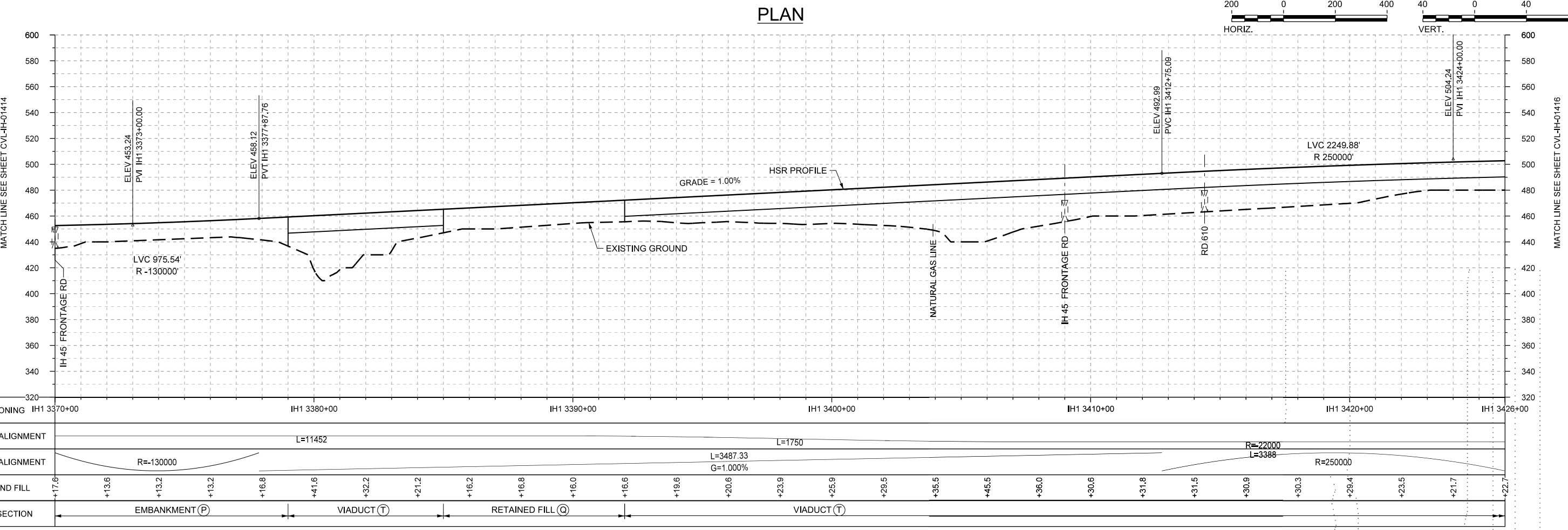
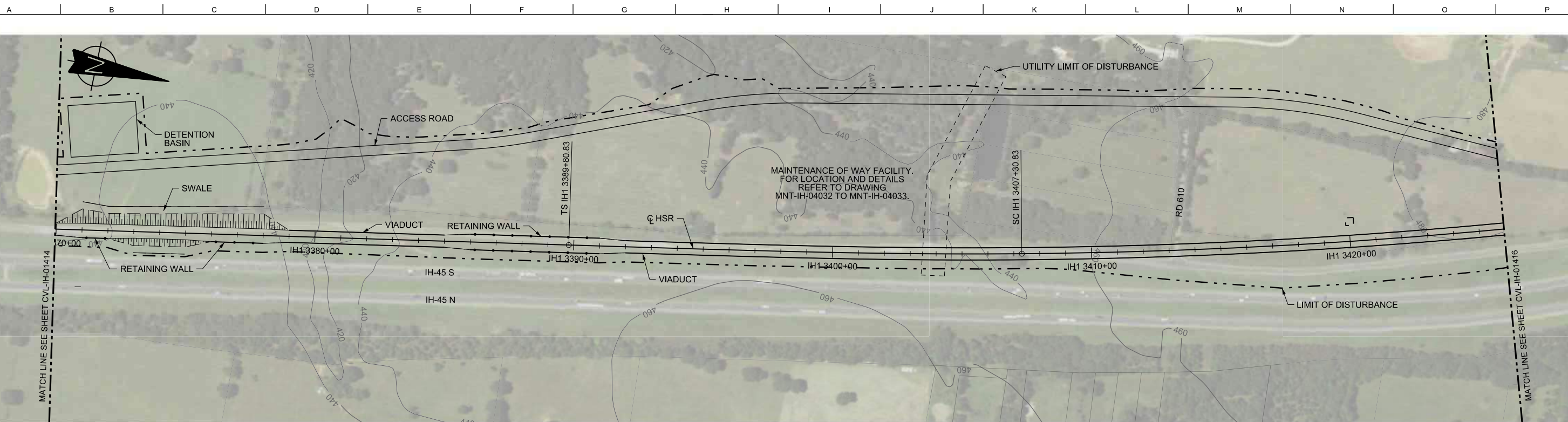
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3314+00 TO IH1 3370+00**

Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01414	01



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

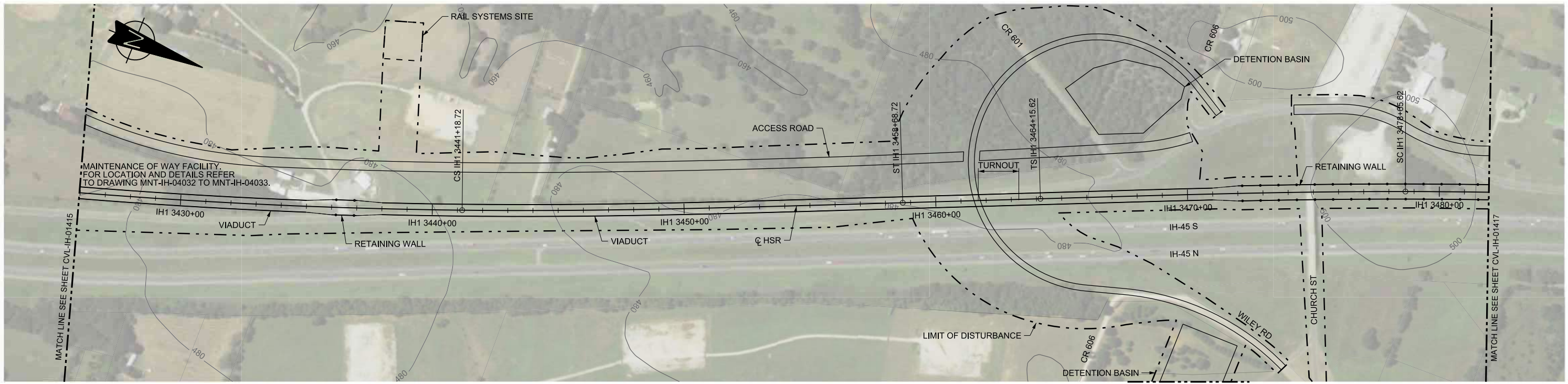
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3370+00 TO IH1 3426+00**

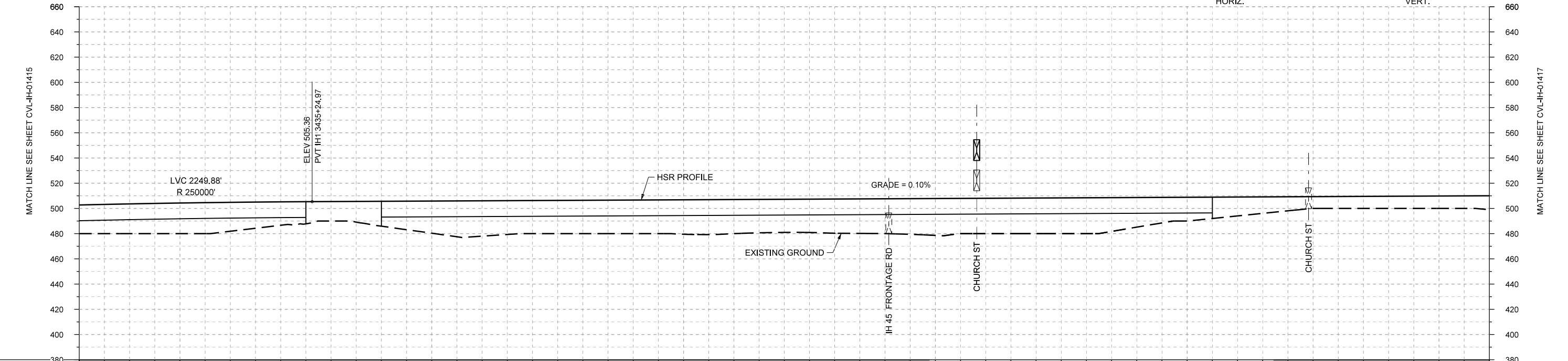
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No <b>234180</b>	Drawing No <b>CVL-IH-01415</b>	Rev <b>01</b>
-------------------------	-----------------------------------	------------------



PLAN



PROFILE

STATIONING	IH1 3426+00	IH1 3430+00	IH1 3440+00	IH1 3450+00	IH1 3460+00	IH1 3470+00	IH1 3480+00	IH1 3482+00																					
HOR. ALIGNMENT				L=1750	L=547	L=1450	R=24000 L=1401																						
VER. ALIGNMENT	R=250000 L=3388					L=7895.03 G=0.100%																							
CUT AND FILL	+22.7	+23.6	+24.3	+22.9	+18.6	+15.4	+19.7	+26.5	+28.0	+26.2	+26.4	+26.6	+27.3	+27.0	+26.2	+27.1	+27.6	+29.2	+26.0	+28.2	+28.4	+23.4	+18.8	+14.9	+11.1	+9.4	+9.6	+9.8	+11.1
TYP. SECTION	VIADUCT (T)			RETAINED FILL (Q)		VIADUCT (T)										RETAINED FILL (Q)													

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**



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Texas Registered Engineering Firm: F-2144

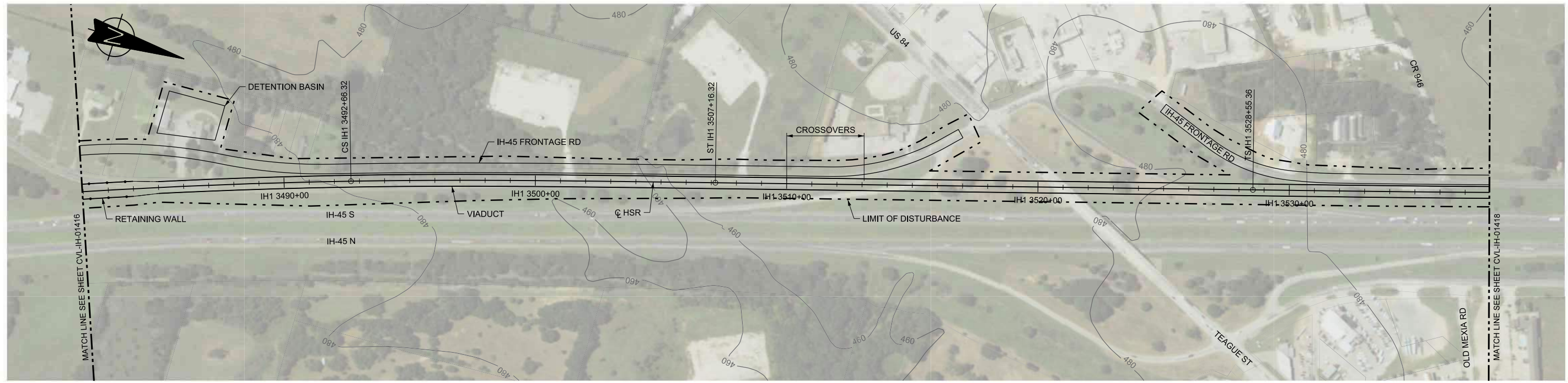


1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

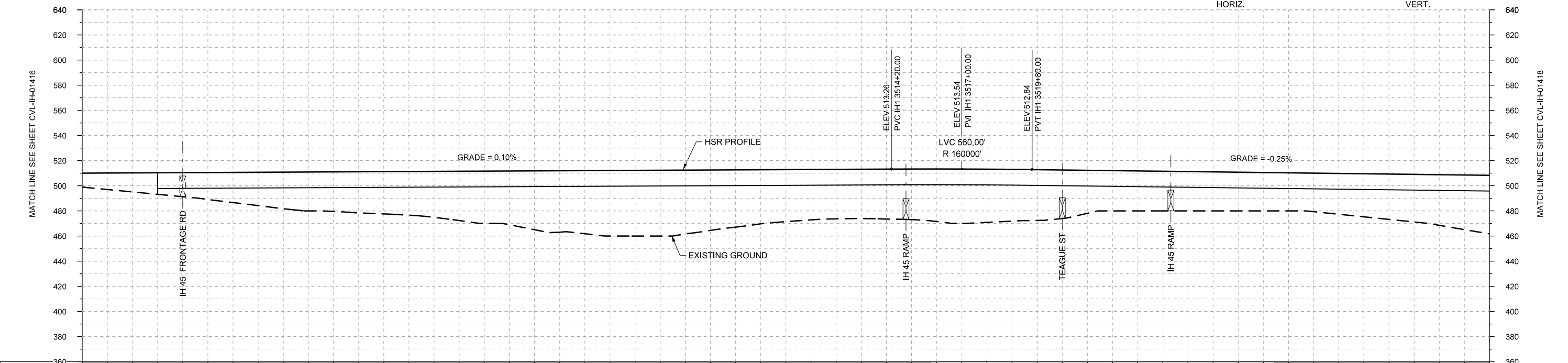
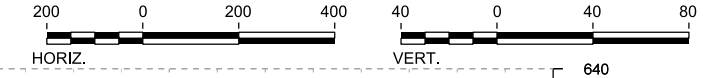
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3426+00 TO IH1 3482+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01416	01	





PLAN



STATIONING	IH1 3482+00	IH1 3490+00	IH1 3500+00	IH1 3510+00	IH1 3520+00	IH1 3530+00	IH1 3538+00																						
HOR. ALIGNMENT	R=24000 L=1401		L=1450		L=2139		L=1750																						
VER. ALIGNMENT	L=7895.03 G=0.100%																												
CUT AND FILL	+11.1	+15.1	+19.1	+24.0	+29.1	+31.4	+33.6	+36.5	+41.6	+48.8	+50.2	+52.2	+50.7	+45.5	+41.3	+39.3	+39.7	+41.7	+42.3	+40.4	+34.2	+31.8	+31.3	+30.8	+30.3	+32.5	+36.1	+40.3	+46.5
TYP. SECTION	RETAINED FILL (Q)			VIADUCT (T)																									

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FRESE AND NICHOLS**

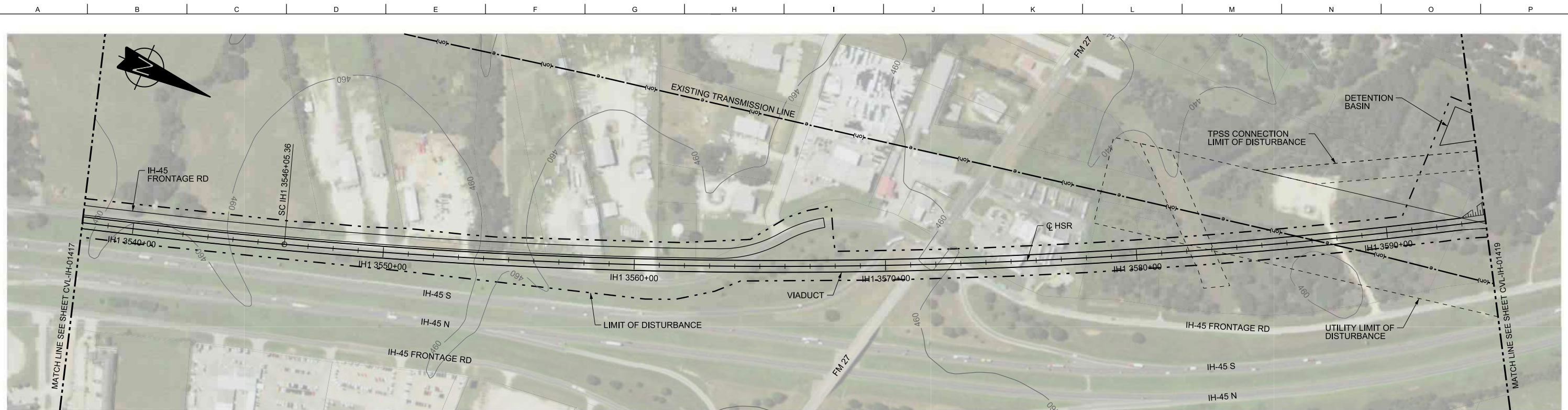
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

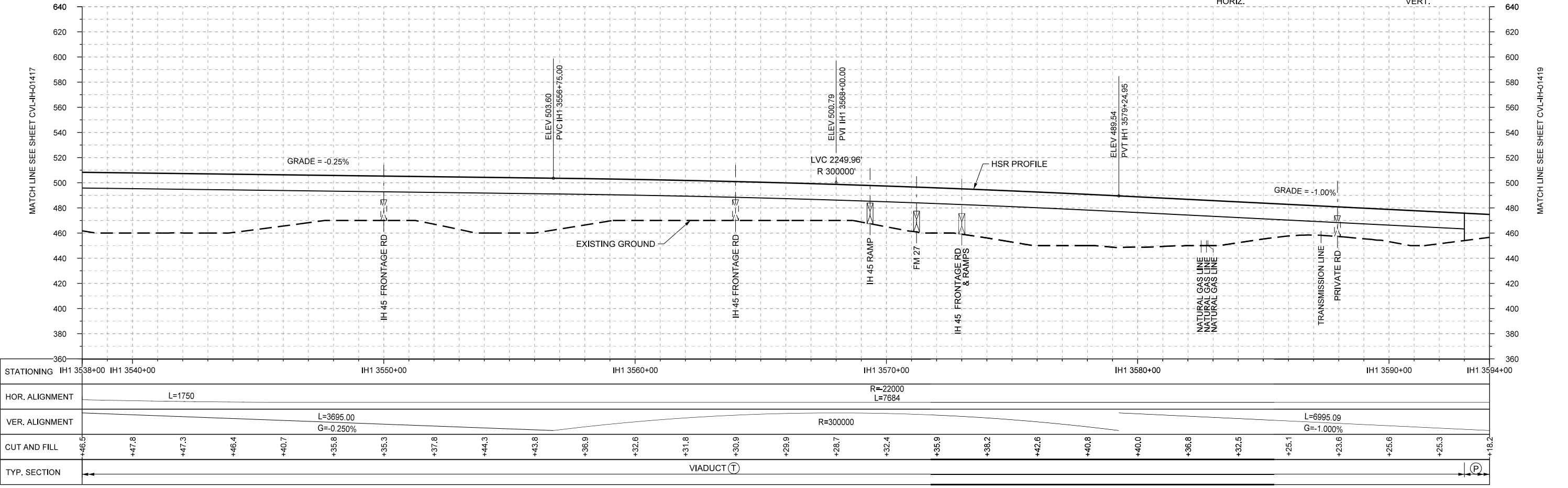
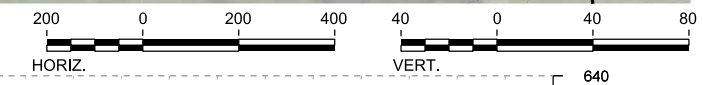
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3482+00 TO IH1 3538+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01417	Rev 01



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Texas Registered Engineering Firm: F-2144

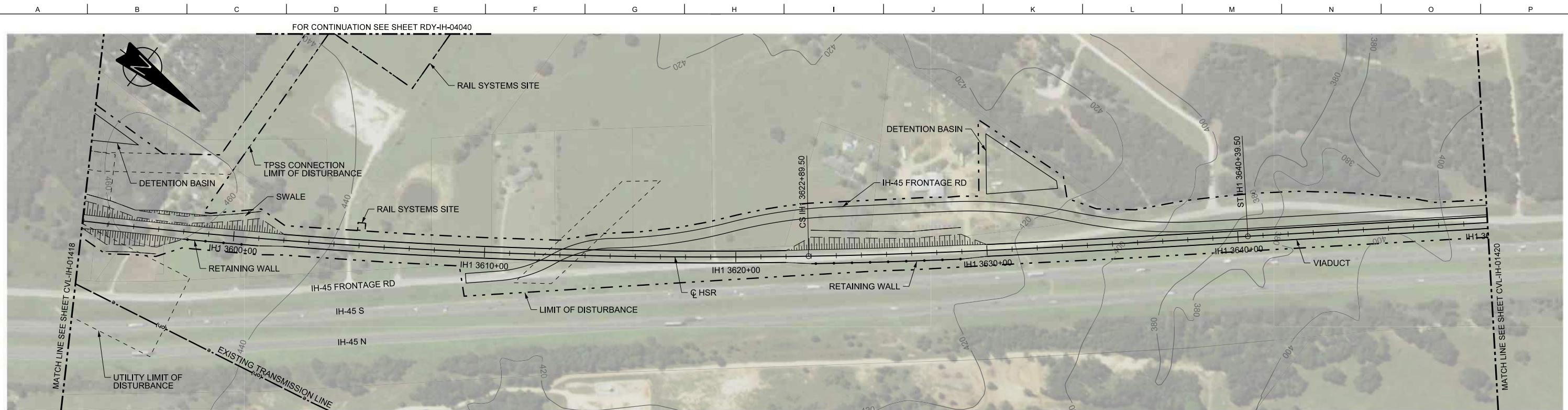
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

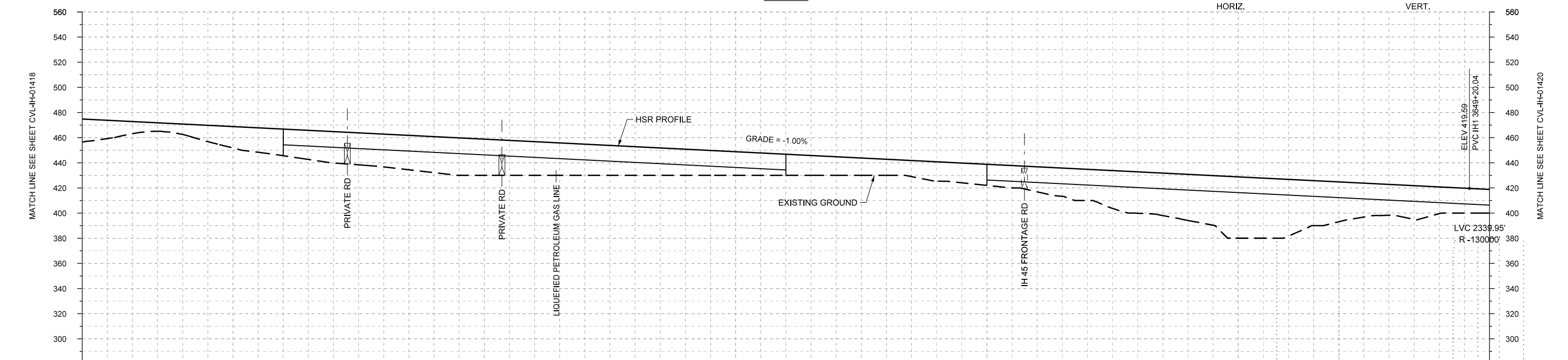
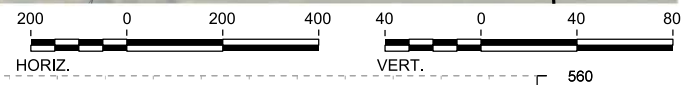
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3538+00 TO IH1 3594+00**

Scale AS SHOWN		
Drawing Status <b>FINAL</b>		
Job No 234180	Drawing No CVL-IH-01418	Rev 01



FOR CONTINUATION SEE SHEET RDY-IH-04036 **PLAN**



STATIONING	IH1 3594+00	IH1 3600+00	IH1 3610+00	IH1 3620+00	IH1 3630+00	IH1 3640+00	IH1 3650+00																						
HOR. ALIGNMENT			R=22000 L=7684																										
VER. ALIGNMENT				L=6995.09 G=-1.000%	L=1750		L=6048																						
CUT AND FILL	+18.2	+9.6	+8.3	+17.0	+21.2	+25.0	+26.1	+26.7	+28.8	+28.8	+24.8	+22.8	+20.8	+18.8	+16.8	+14.8	+12.8	+15.4	+16.8	+19.9	+24.8	+33.0	+36.7	+48.8	+45.0	+31.7	+24.5	+21.3	+18.8
TYP. SECTION	EMBANKMENT (P)			VIADUCT (T)		EMBANKMENT (P)			VIADUCT (T)																				

**PROFILE**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**  
DRAWN BY  
**J. BORGHESI**  
CHECKED BY  
**T. WAGNER**  
IN CHARGE  
**C. TAYLOR**  
DATE  
**02/25/2019**



Arup Texas, Inc.  
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Houston, Texas 77042 USA  
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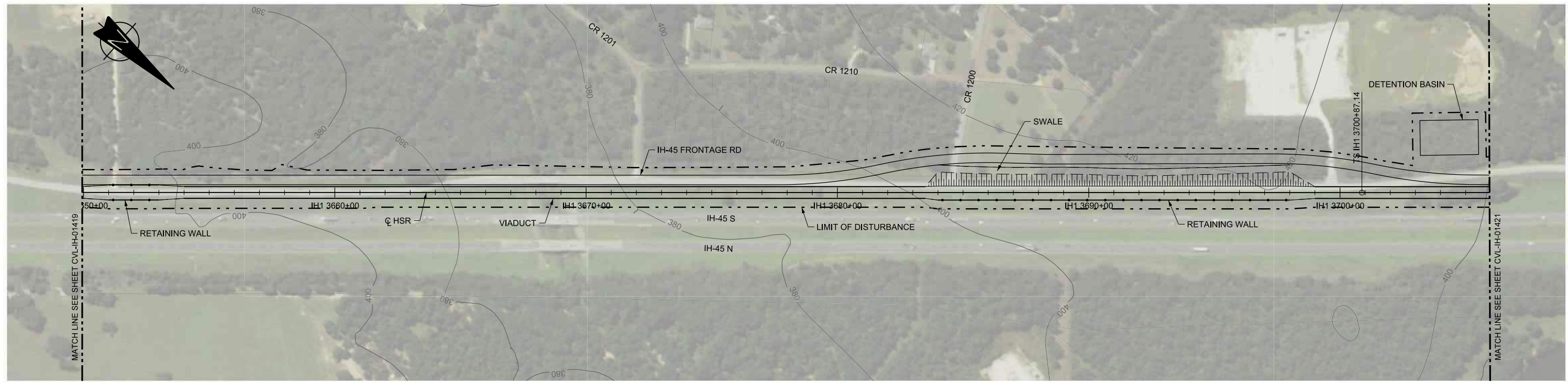
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



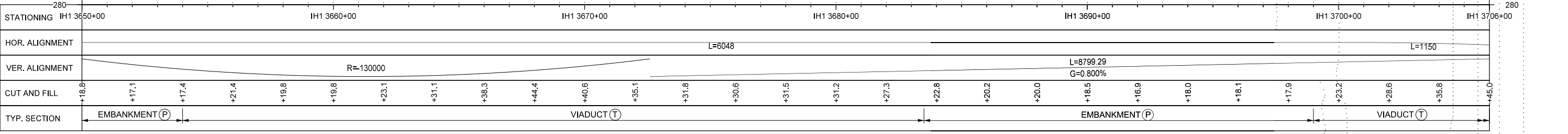
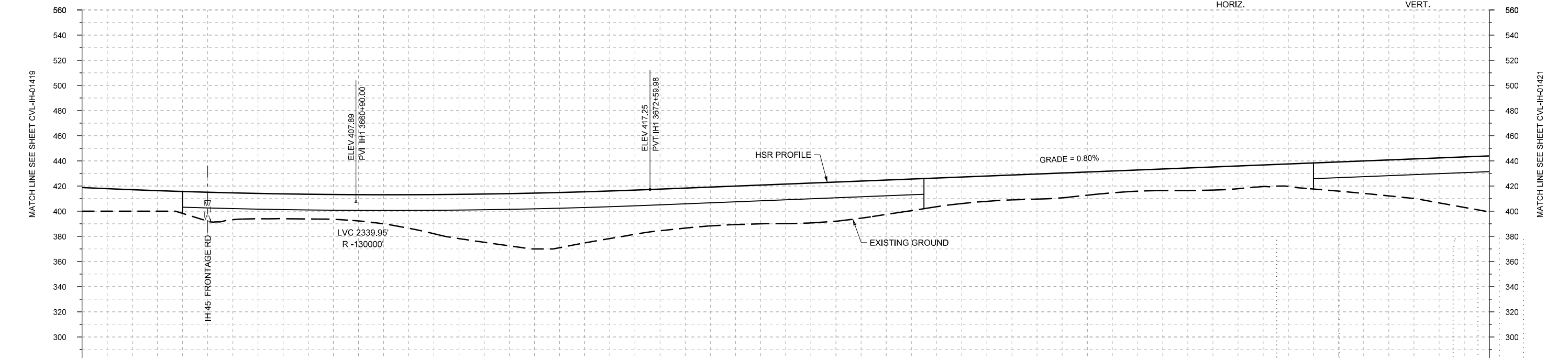
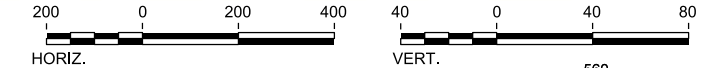
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3594+00 TO IH1 3650+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01419
Rev	01



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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Houston, Texas 77042 USA  
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**FREESSE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

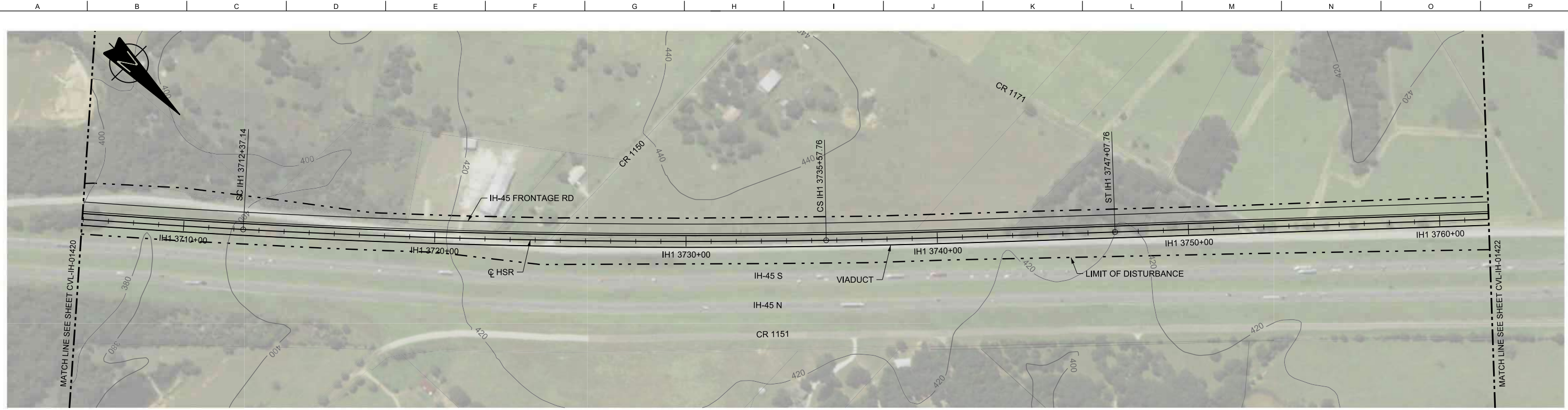
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3650+00 TO IH1 3706+00**

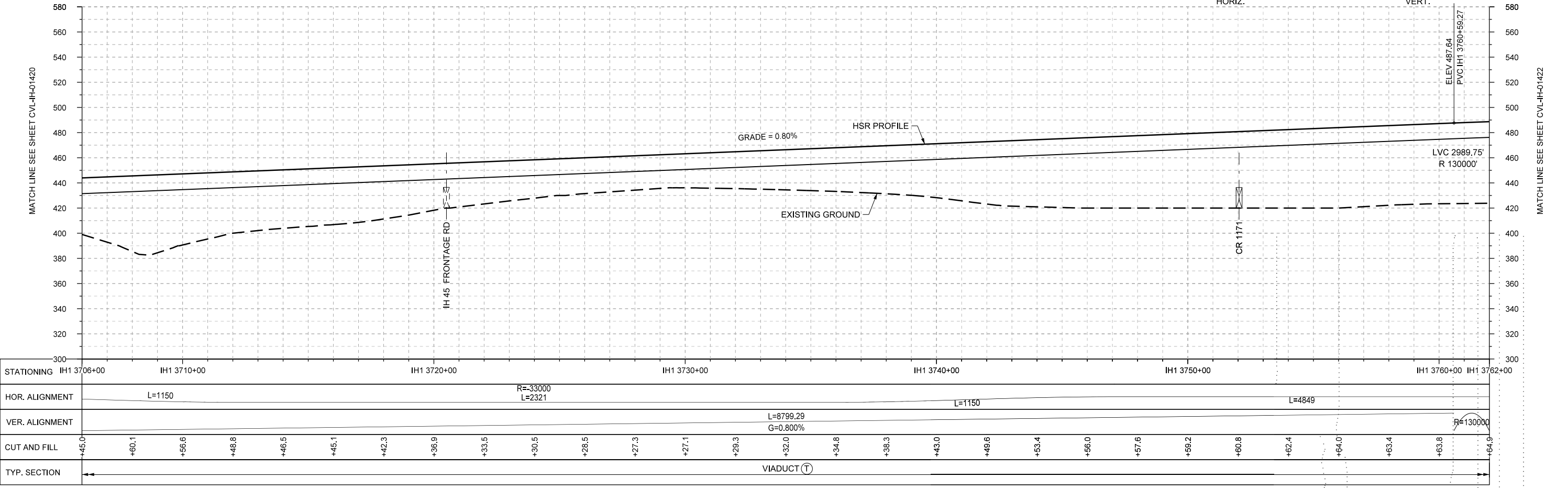
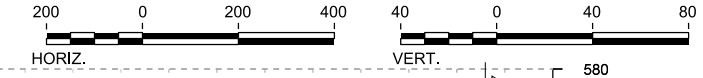
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01420	01



PLAN



PROFILE

STATIONING	IH1 3706+00	IH1 3710+00	IH1 3720+00	IH1 3730+00	IH1 3740+00	IH1 3750+00	IH1 3760+00	IH1 3762+00
HOR. ALIGNMENT	L=1150		R=-33000 L=2321		L=1150		L=4849	
VER. ALIGNMENT			L=8799.29 G=0.800%				R=130000	
CUT AND FILL	+45.0	+60.1	+56.6	+48.8	+46.5	+45.1	+42.3	+36.9
			+33.5	+30.5	+28.5	+27.3	+27.1	+29.3
				+34.8	+36.3	+43.0	+49.6	+53.4
					+56.0	+57.6	+59.2	+60.8
						+62.4	+64.0	+63.4
							+63.8	+64.9
TYP. SECTION	VIADUCT (T)							

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
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IN CHARGE  
**C. TAYLOR**

DATE  
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**FRESE & NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING

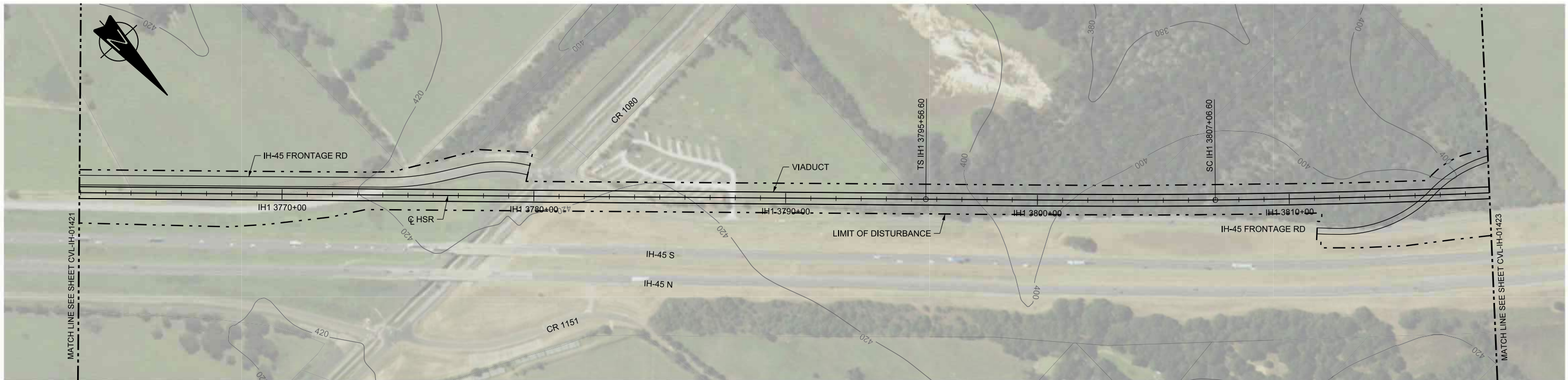
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 3706+00 TO IH1 3762+00**

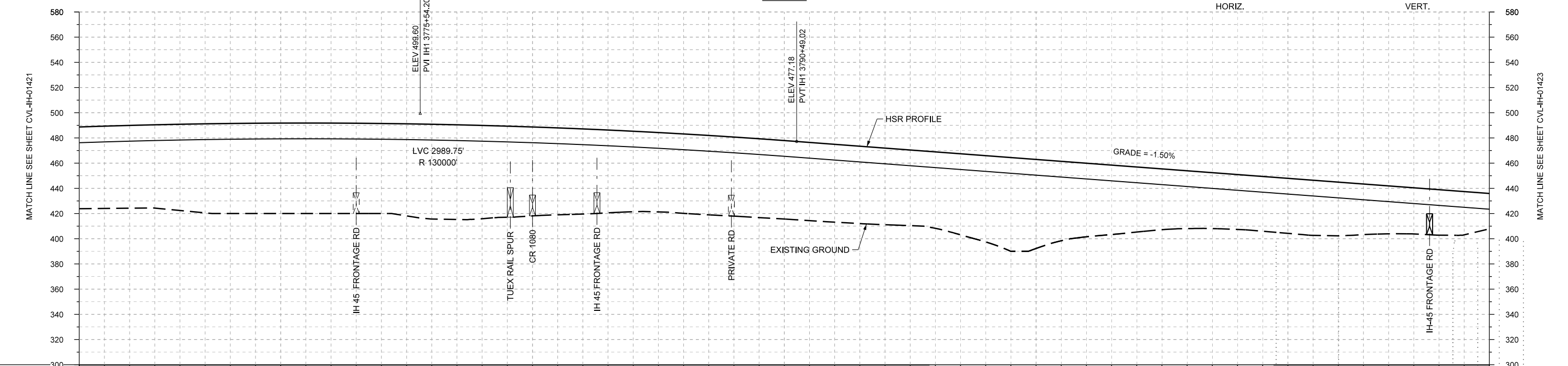
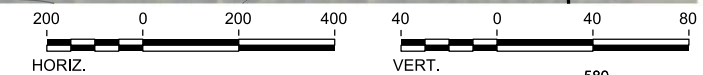
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01421	01



PLAN



PROFILE

STATIONING	IH1 3762+00	IH1 3770+00	IH1 3780+00	IH1 3790+00	IH1 3800+00	IH1 3810+00	IH1 3818+00																						
HOR. ALIGNMENT	L=4849		L=1150			R=33000 L=7257																							
VER. ALIGNMENT	R=130000																												
CUT AND FILL	+64.9	+65.7	+68.4	+71.5	+71.8	+71.8	+71.5	+75.2	+74.1	+70.6	+67.5	+63.9	+63.0	+62.8	+62.3	+61.8	+60.8	+60.7	+68.4	+70.6	+58.4	+51.6	+45.9	+43.6	+43.6	+42.6	+38.0	+36.1	+28.1
TYP. SECTION	VIADUCT (T)																												

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
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DATE  
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Dallas, Texas 75204  
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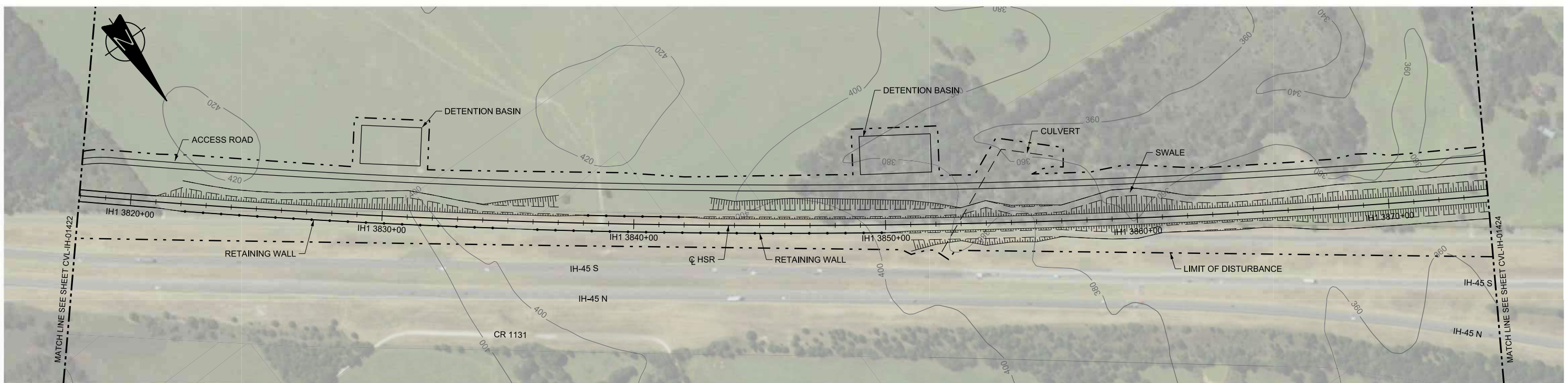
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



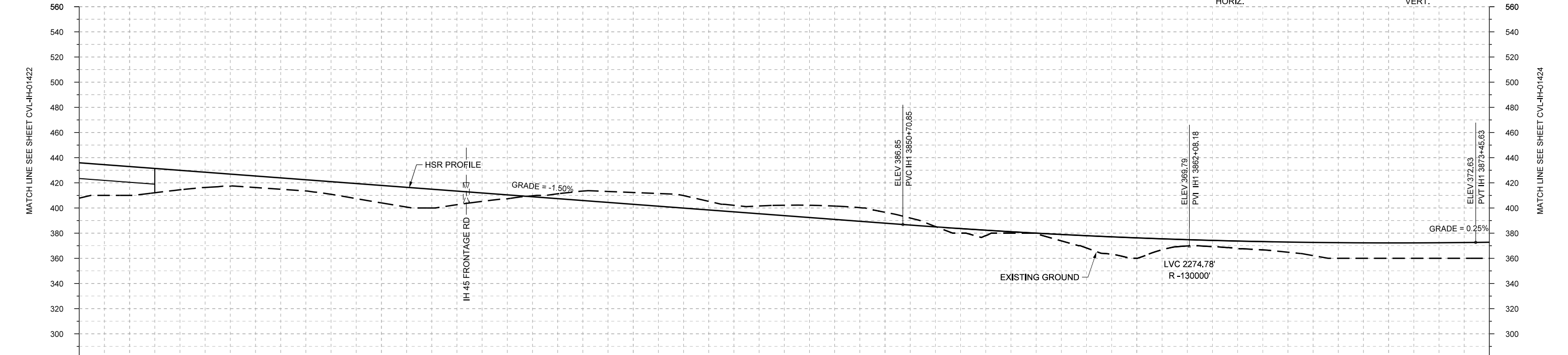
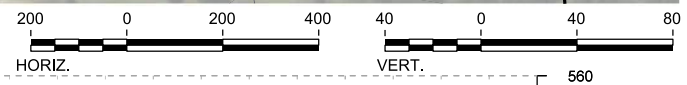
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3762+00 TO IH1 3818+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01422	01	



PLAN



PROFILE

STATIONING	IH1 3818+00	IH1 3820+00	IH1 3830+00	IH1 3840+00	IH1 3850+00	IH1 3860+00	IH1 3870+00	IH1 3874+00																					
HOR. ALIGNMENT	R=33000 L=7257																												
VER. ALIGNMENT	L=6021.84 G=-1.500%				R=130000																								
CUT AND FILL	+28.1	+22.9	+15.4	+9.5	+9.0	+10.0	+13.9	+14.9	+6.6	-0.8	-7.5	-9.4	-9.9	-5.2	-8.3	-10.6	-8.7	-0.3	+4.3	+0.5	+9.8	+16.2	+5.0	+6.0	+8.1	+12.4	+12.2	+12.4	+12.8
TYP. SECTION	VIADUCT (T)		EMBANKMENT (P)				(Q)	CUT (R)	RETAINED CUT (S)			CUT (R)		(P)	CUT (R)	EMBANKMENT (P)													

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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10370 Richmond Ave., Suite 475  
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**FRESE & NICHOLS**

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Dallas, Texas 75204  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

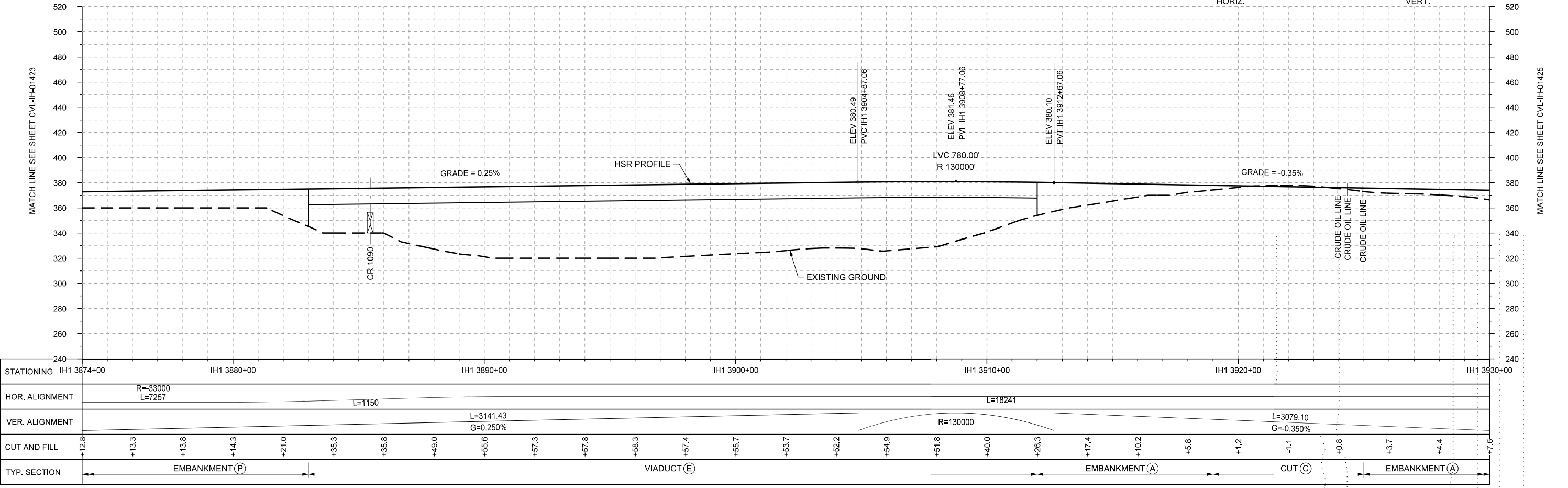
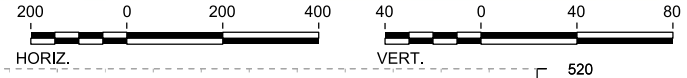
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3818+00 TO IH1 3874+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01423	01	



FOR CONTINUATION SEE SHEET RDY-IH-04044  
**PLAN**



STATIONING	IH1 3874+00	IH1 3880+00	IH1 3890+00	IH1 3900+00	IH1 3910+00	IH1 3920+00	IH1 3930+00																					
HOR. ALIGNMENT	R=33000 L=7257		L=1150			L=18241																						
VER. ALIGNMENT	L=3141.43 G=0.250%			R=130000		L=3079.10 G=-0.350%																						
CUT AND FILL	+12.8	+13.3	+13.8	+14.3	+21.0	+35.3	+35.8	+49.0	+55.6	+57.3	+57.8	+57.4	+55.7	+53.7	+52.2	+54.9	+51.8	+40.0	+26.3	+17.4	+10.2	+5.8	+1.2	-1.1	+0.8	+3.7	+4.4	+7.6
TYP. SECTION	EMBANKMENT (P)				VIADUCT (E)				EMBANKMENT (A)				CUT (C)		EMBANKMENT (A)													

**PROFILE**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**  
DRAWN BY  
**J. BORGHESI**  
CHECKED BY  
**T. WAGNER**  
IN CHARGE  
**C. TAYLOR**  
DATE  
**02/25/2019**



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10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

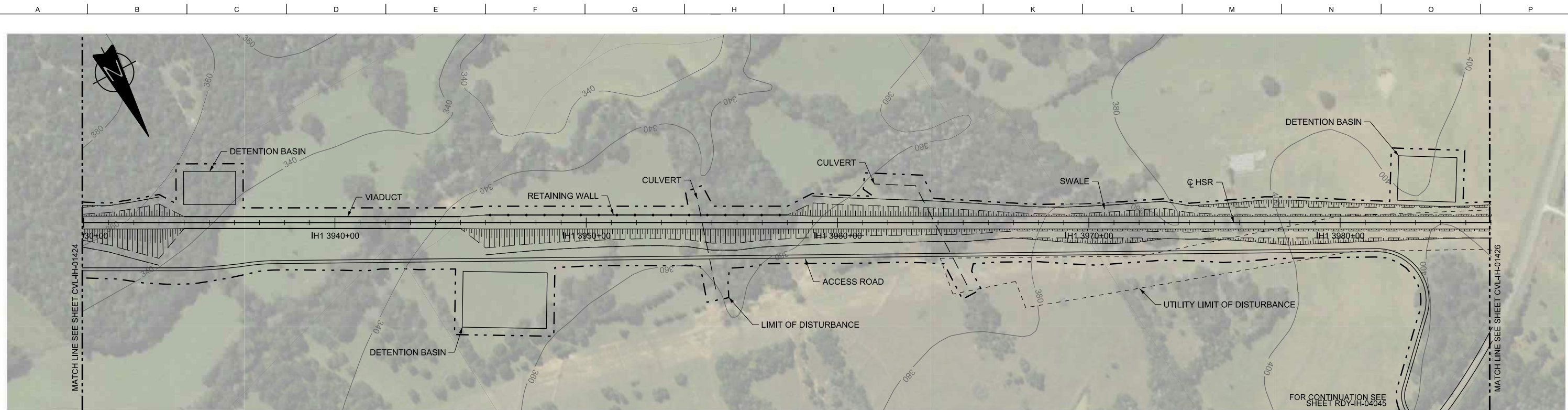


1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

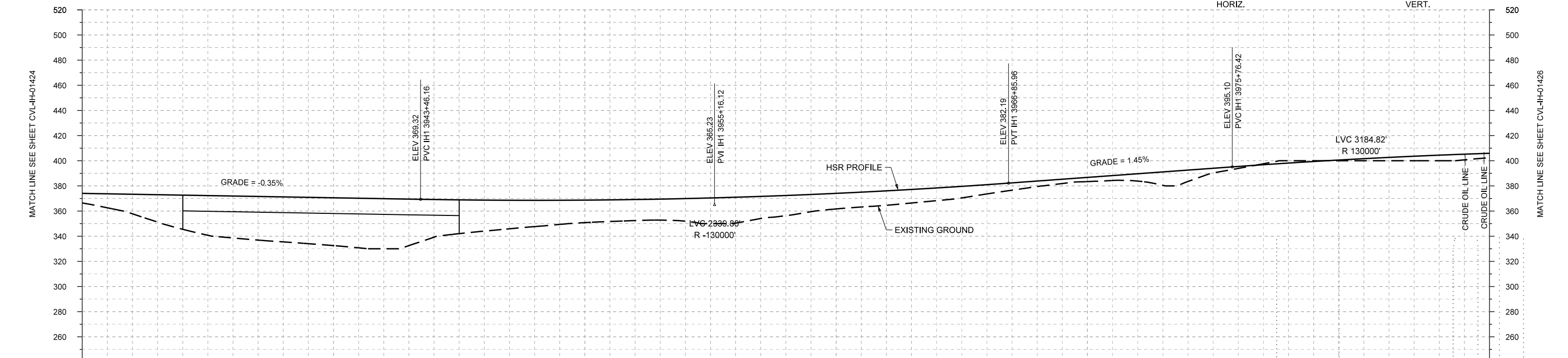
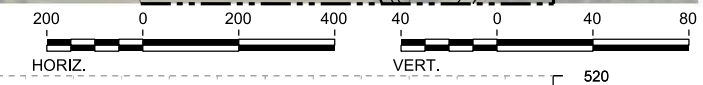
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3874+00 TO IH1 3930+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01424	01	

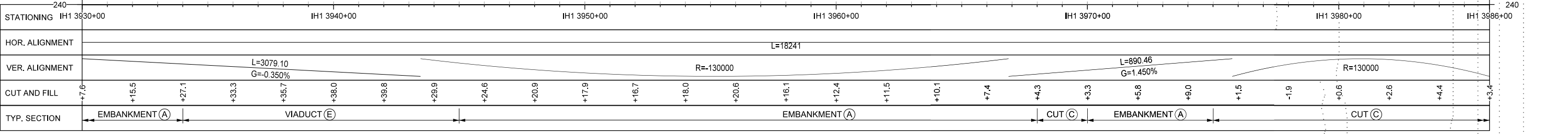




PLAN



PROFILE



DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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Houston, Texas 77042 USA  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

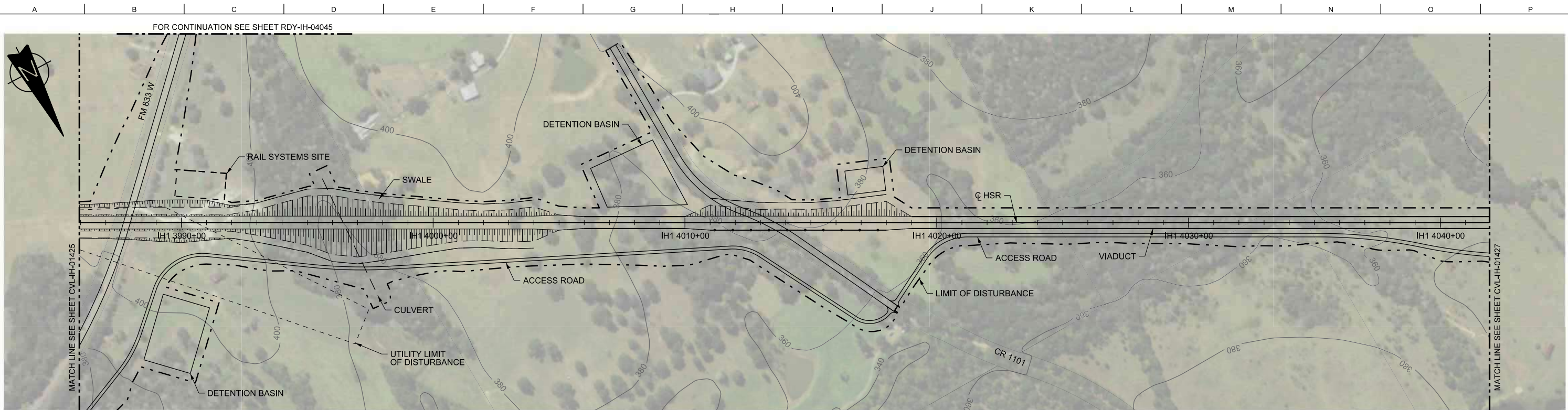
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3930+00 TO IH1 3986+00**

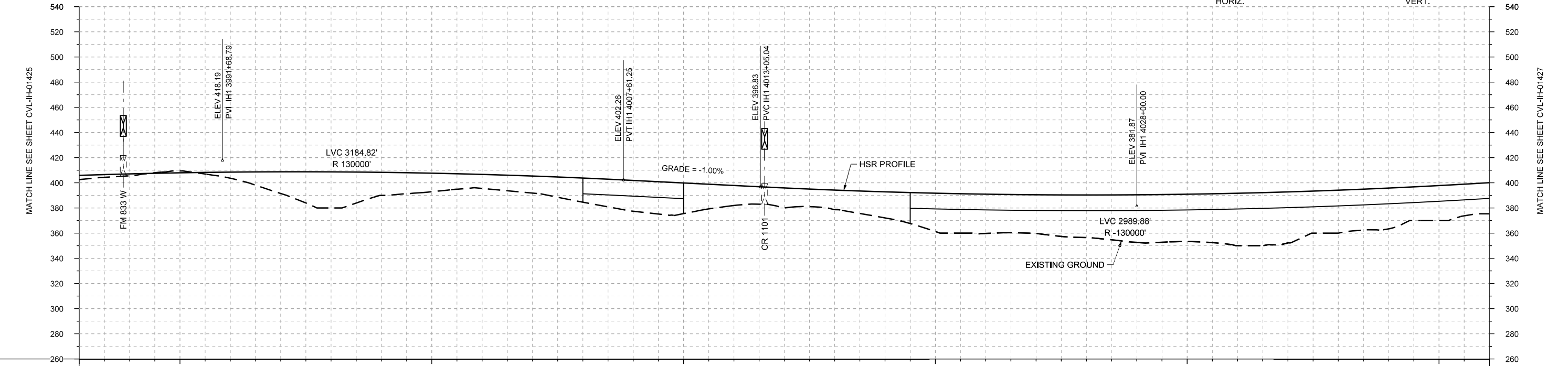
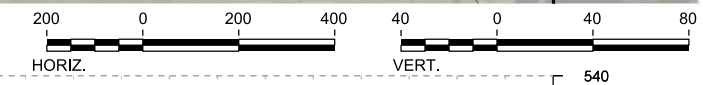
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01425	01



PLAN



PROFILE

STATIONING	IH1 3986+00	IH1 3990+00	IH1 4000+00	IH1 4010+00	IH1 4020+00	IH1 4030+00	IH1 4040+00	IH1 4042+00																					
HOR. ALIGNMENT	L=18241																												
VER. ALIGNMENT	R=130000				L=543.79 G=-1.000%		R=130000																						
CUT AND FILL	+3.4	+1.5	-1.5	+4.9	+17.2	+26.7	+18.3	+14.7	+11.2	+13.6	+19.2	+24.5	+24.4	+15.9	+15.9	+15.6	+20.7	+30.4	+31.2	+30.7	+33.8	+37.8	+37.6	+41.7	+40.6	+34.1	+32.4	+27.8	+24.7
TYP. SECTION	CUT (C)		EMBANKMENT (A)				VIADUCT (E)		EMBANKMENT (A)		VIADUCT (E)																		

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

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**C. TAYLOR**

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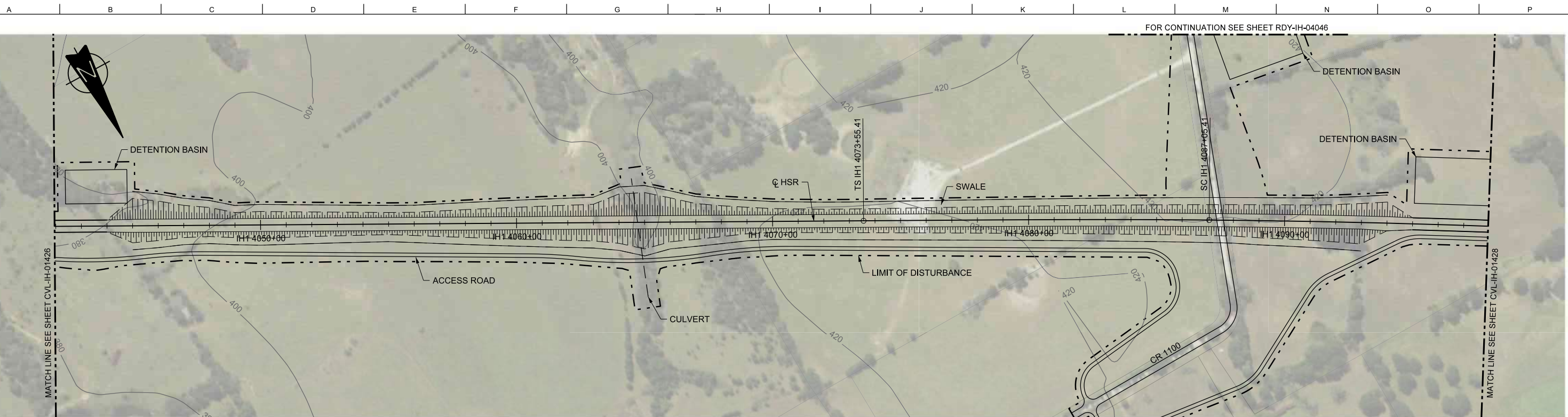
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

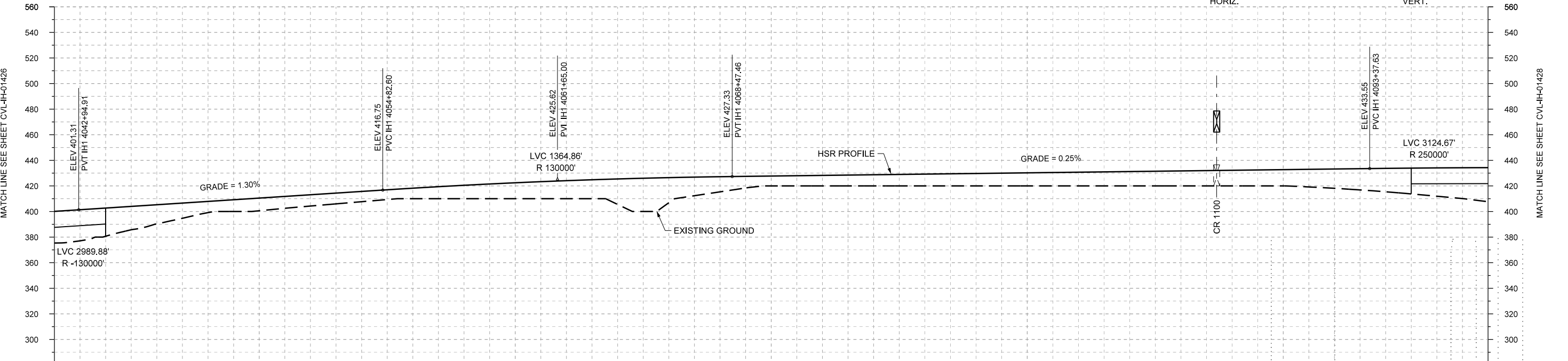
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 3986+00 TO IH1 4042+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01426
Rev			01



PLAN



PROFILE

STATIONING	IH1 4042+00	IH1 4050+00	IH1 4060+00	IH1 4070+00	IH1 4080+00	IH1 4090+00	IH1 4098+00																						
HOR. ALIGNMENT			L=18241		L=1350																								
VER. ALIGNMENT	R=130000	L=1187.69 G=1.300%		R=130000		L=2490.17 G=0.250%	R=250000																						
CUT AND FILL	+24.7	+22.0	+15.0	+8.8	+8.9	+8.8	+8.0	+8.2	+10.5	+12.4	+14.1	+19.9	+19.7	+11.8	+7.7	+8.2	+8.7	+9.2	+9.7	+10.2	+10.7	+11.2	+11.7	+12.2	+12.7	+15.1	+18.3	+22.2	+26.7
TYP. SECTION	VIADUCT (E)		EMBANKMENT (A)												VIADUCT (E)														

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FREESSE & NICHOLS**

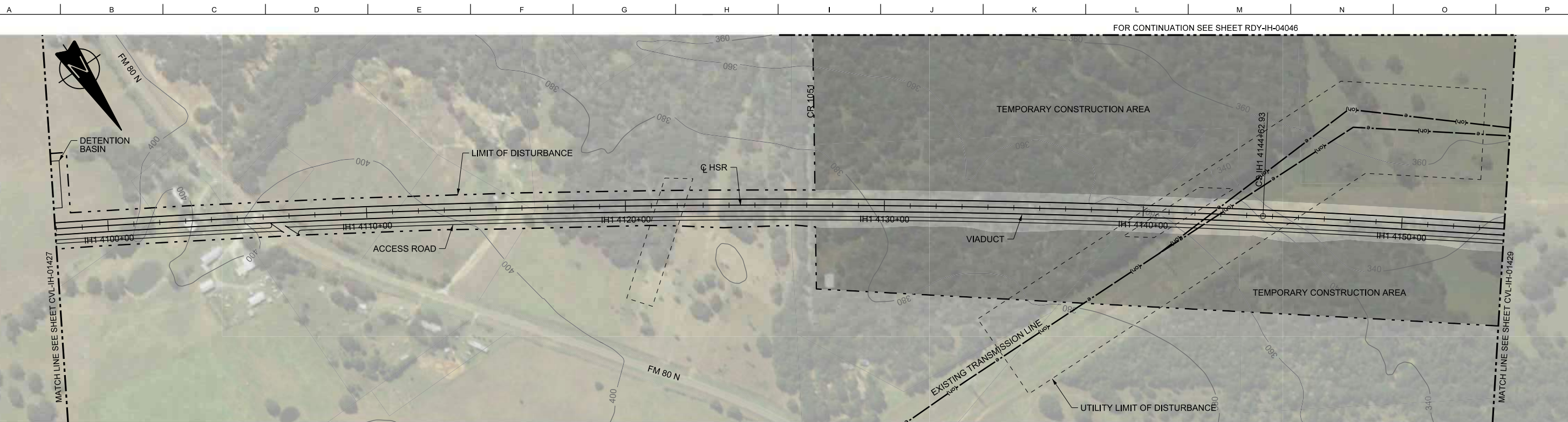
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

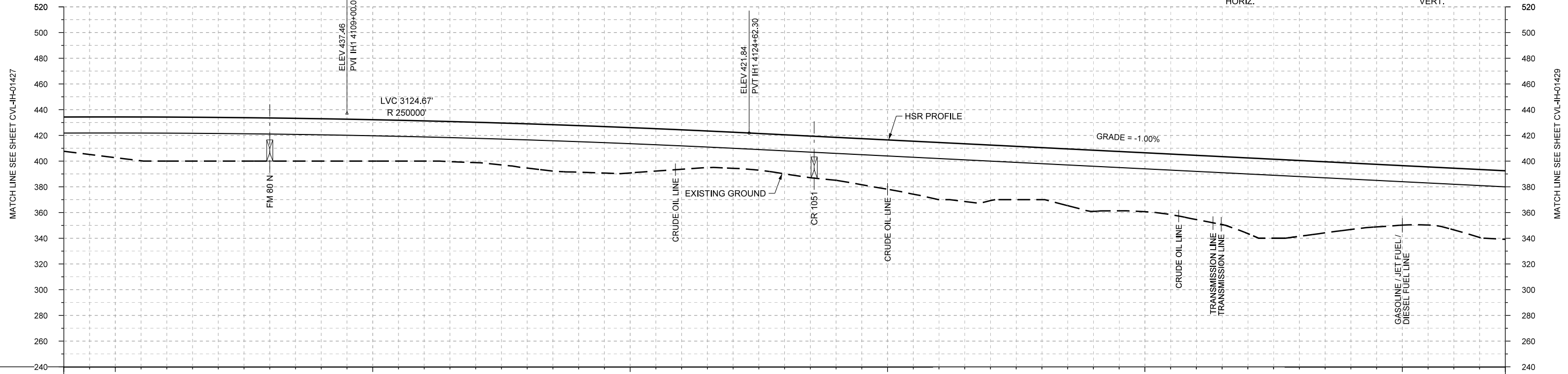
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 4042+00 TO IH1 4098+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01427
Rev	01



PLAN



PROFILE

STATIONING	IH1 4098+00	IH1 4100+00	IH1 4110+00	IH1 4120+00	IH1 4130+00	IH1 4140+00	IH1 4150+00	IH1 4154+00																					
HOR. ALIGNMENT	R=42000 L=5758				L=1350																								
VER. ALIGNMENT	R=250000				L=7187.82 G=-1.000%																								
CUT AND FILL	+26.7	+31.6	+34.2	+33.9	+33.5	+32.9	+32.2	+31.3	+31.4	+34.4	+36.2	+35.2	+30.7	+28.1	+30.5	+33.4	+38.4	+44.5	+43.2	+40.5	+47.6	+45.9	+50.0	+58.9	+59.0	+51.7	+48.3	+48.0	+53.4
TYP. SECTION	VIADUCT (E)																												

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
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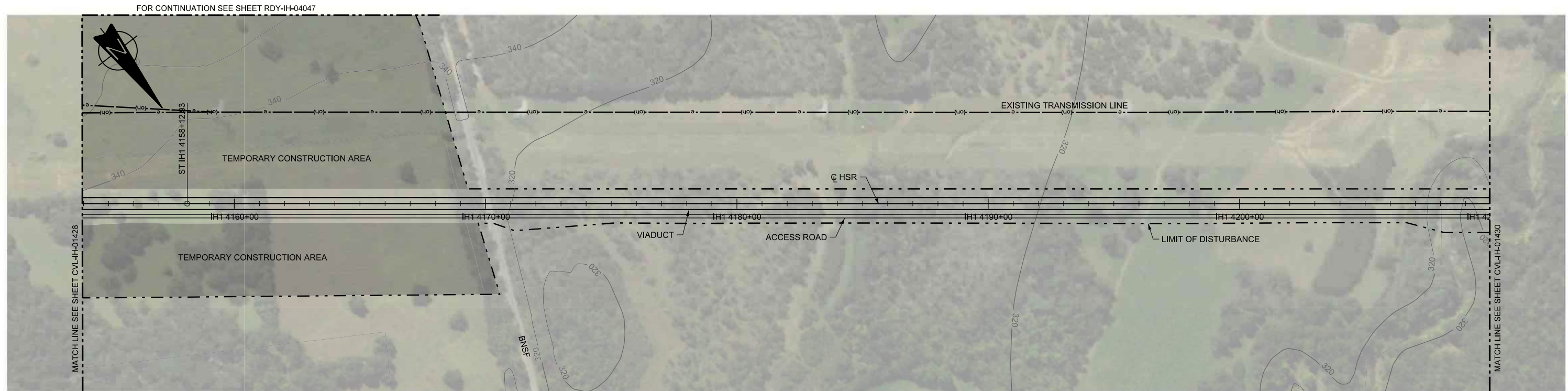
**FRESE & NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING

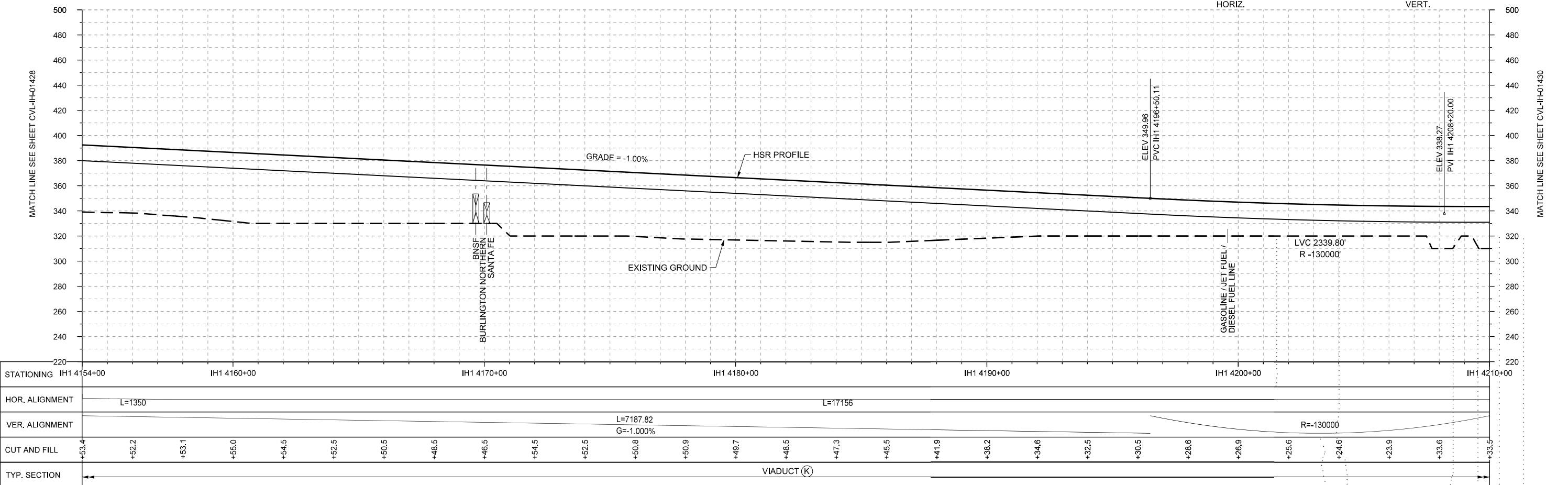
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH1 4098+00 TO IH1 4154+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01428
Rev	01



PLAN



PROFILE

STATIONING	IH1 4154+00		IH1 4160+00		IH1 4170+00		IH1 4180+00		IH1 4190+00		IH1 4200+00		IH1 4210+00																
HOR. ALIGNMENT	L=1350												L=17156																
VER. ALIGNMENT	L=7187.82 G=-1.000%										R=130000																		
CUT AND FILL	+53.4	+52.2	+53.1	+55.0	+54.5	+52.5	+50.5	+48.5	+46.5	+54.5	+52.5	+50.8	+50.9	+49.7	+48.5	+47.3	+45.5	+41.9	+36.2	+34.6	+32.5	+30.5	+26.6	+26.9	+25.6	+24.6	+23.9	+33.6	+33.5
TYP. SECTION	←										→																		

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

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IN CHARGE  
**C. TAYLOR**

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10370 Richmond Ave., Suite 475  
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**FRESE AND NICHOLS**

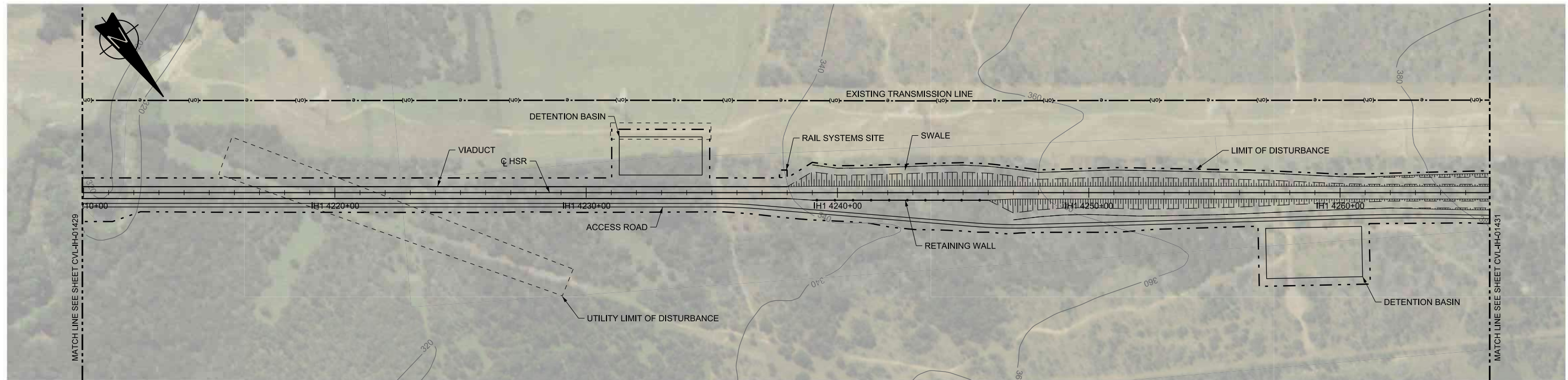
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

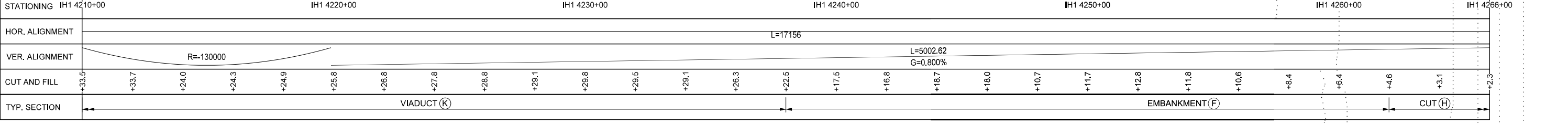
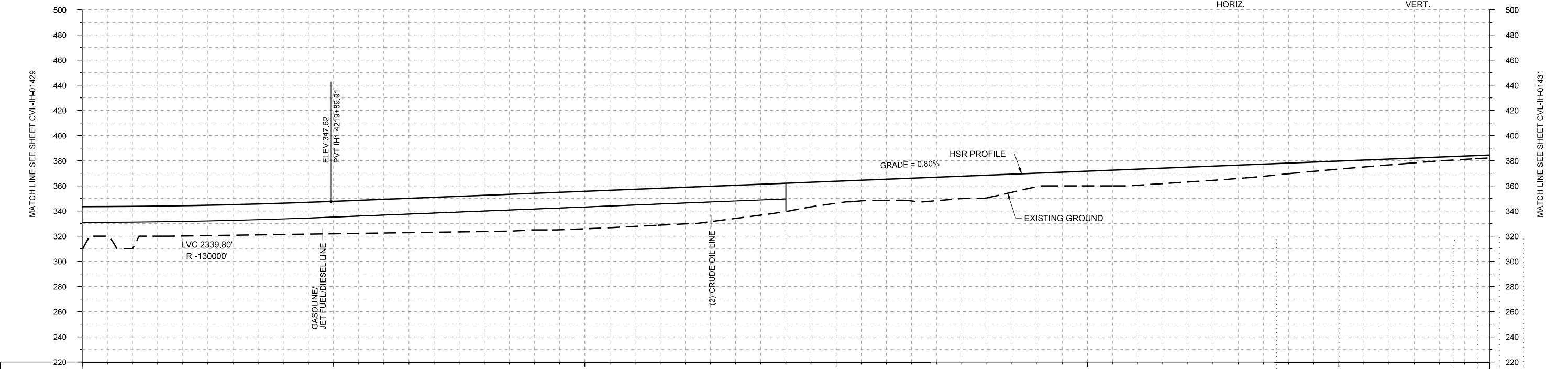
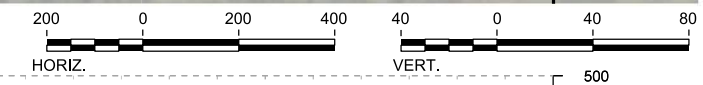
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 4154+00 TO IH1 4210+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01429	01	



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

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CHECKED BY  
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**C. TAYLOR**

DATE  
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**FREES & NICHOLS**

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Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

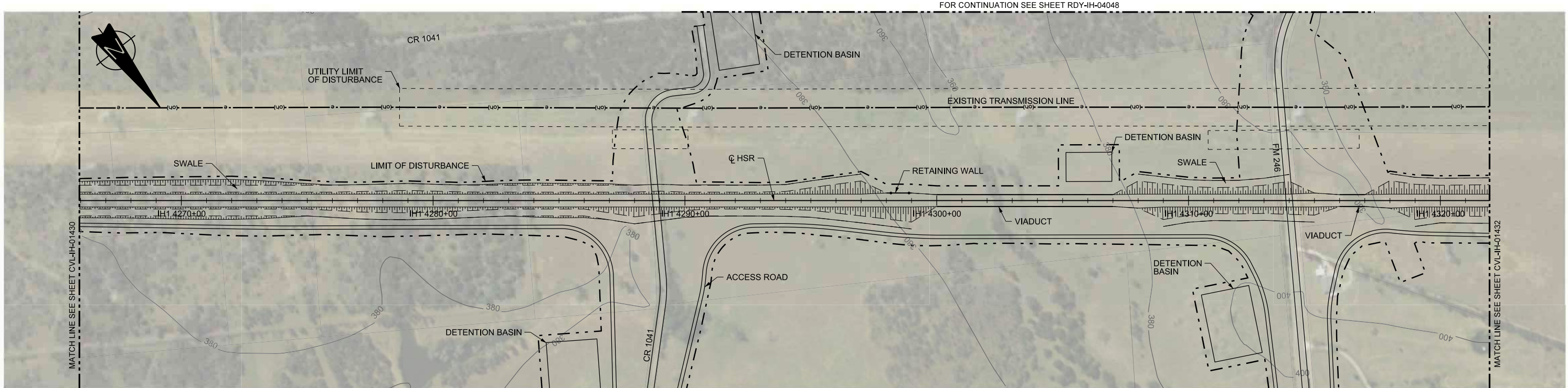
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 4210+00 TO IH1 4266+00**

Scale  
AS SHOWN

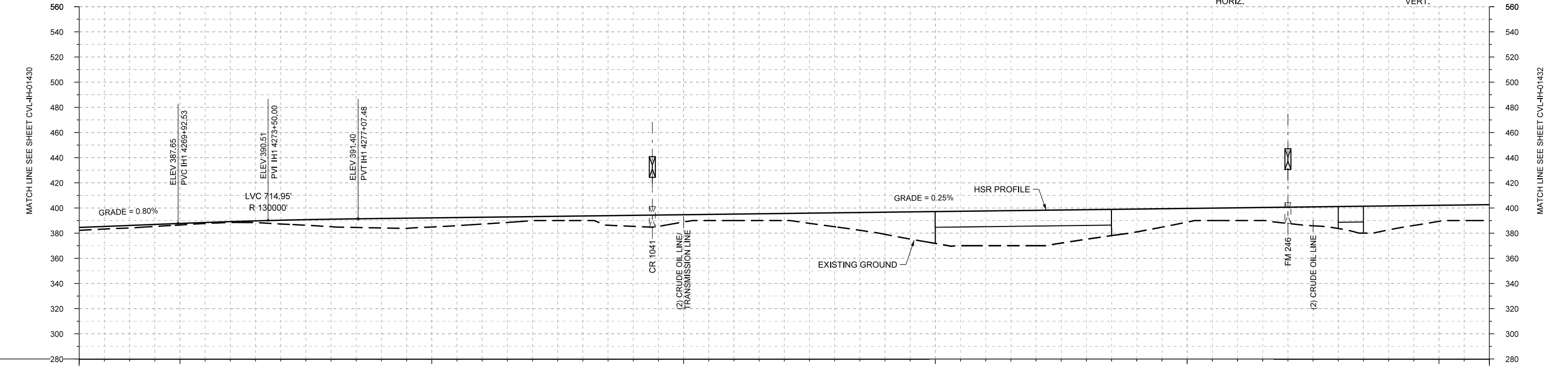
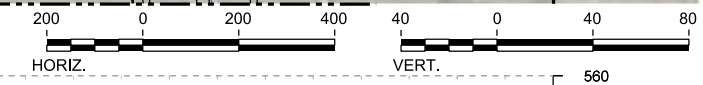
Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01430	01



PLAN

FOR CONTINUATION SEE SHEET RDY-IH-04048



PROFILE

STATIONING	IH1 4266+00	IH1 4270+00	IH1 4280+00	IH1 4290+00	IH1 4300+00	IH1 4310+00	IH1 4320+00	IH1 4322+00																					
HOR. ALIGNMENT	L=17156																												
VER. ALIGNMENT	L=5002.62 G=0.800%		R=130000			L=5261.67 G=0.250%																							
CUT AND FILL	+2.3	+2.0	+1.3	+0.7	+3.0	+6.0	+7.5	+7.2	+5.4	+3.2	+3.6	+8.7	+5.8	+5.1	+5.6	+11.0	+17.6	+25.3	+27.6	+28.1	+23.4	+18.1	+10.8	+10.1	+12.9	+17.4	+19.0	+12.7	+12.6
TYP. SECTION	CUT (H)			EMBANKMENT (F)			CUT (H)			EMBANKMENT (F)			VIADUCT (K)			EMBANKMENT (F)			VIADUCT (K)		EMBANKMENT (F)								

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**  
DRAWN BY  
**J. BORGHESI**  
CHECKED BY  
**T. WAGNER**  
IN CHARGE  
**C. TAYLOR**  
DATE  
**02/25/2019**

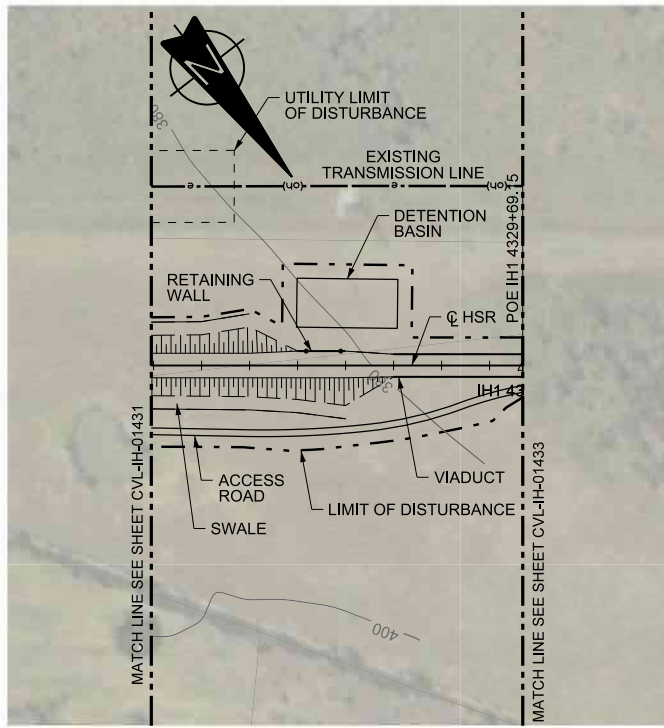
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Houston, Texas 77042 USA  
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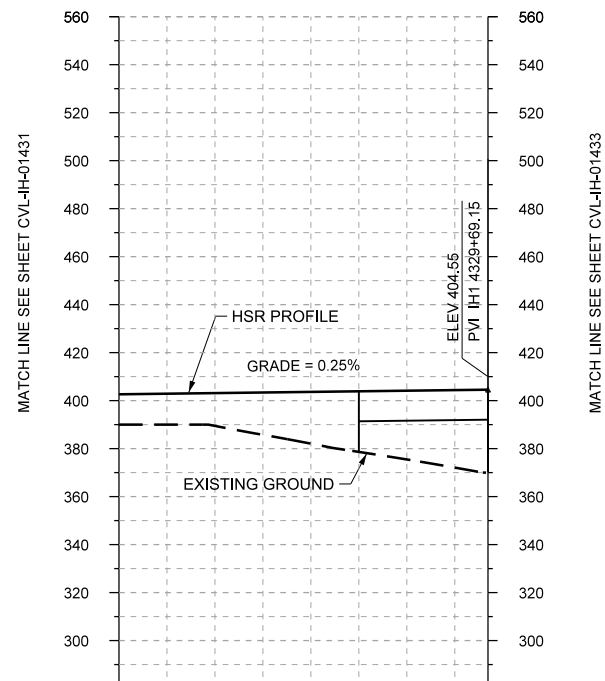
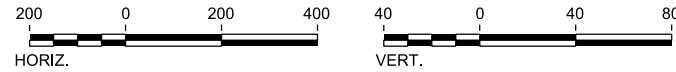
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
**TEXAS CENTRAL**  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH1 4266+00 TO IH1 4322+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01431
Rev			01



PLAN



STATIONING	IH1 4322+00		IH1 4329+69	
HOR. ALIGNMENT	L=17156			
VER. ALIGNMENT	L=5261.67 G=0.250%			
CUT AND FILL	+12.6	+13.6	+21.5	+28.6
TYP. SECTION	EMBANKMENT (F)		(K)	

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019



Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990



2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

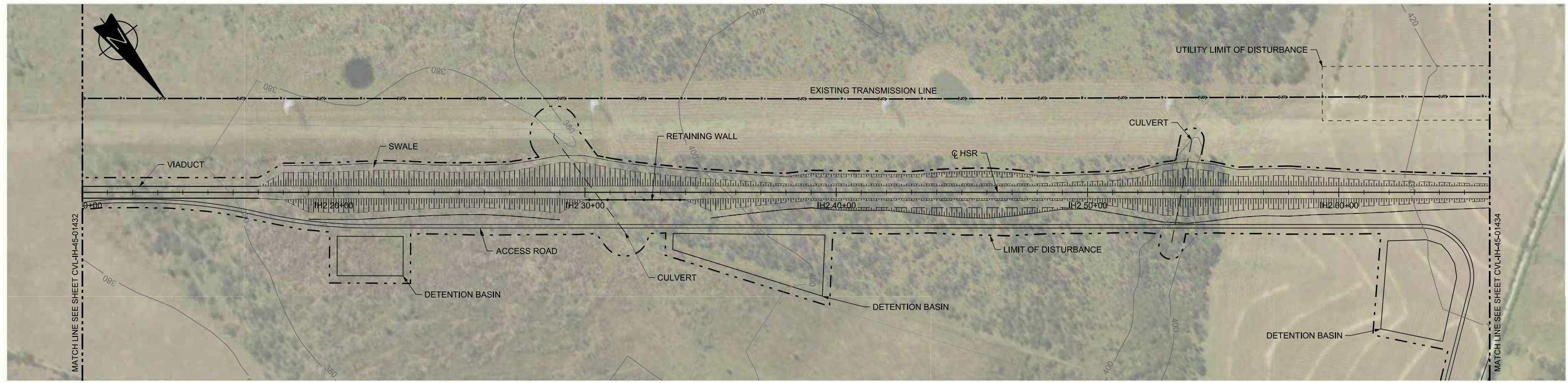
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING



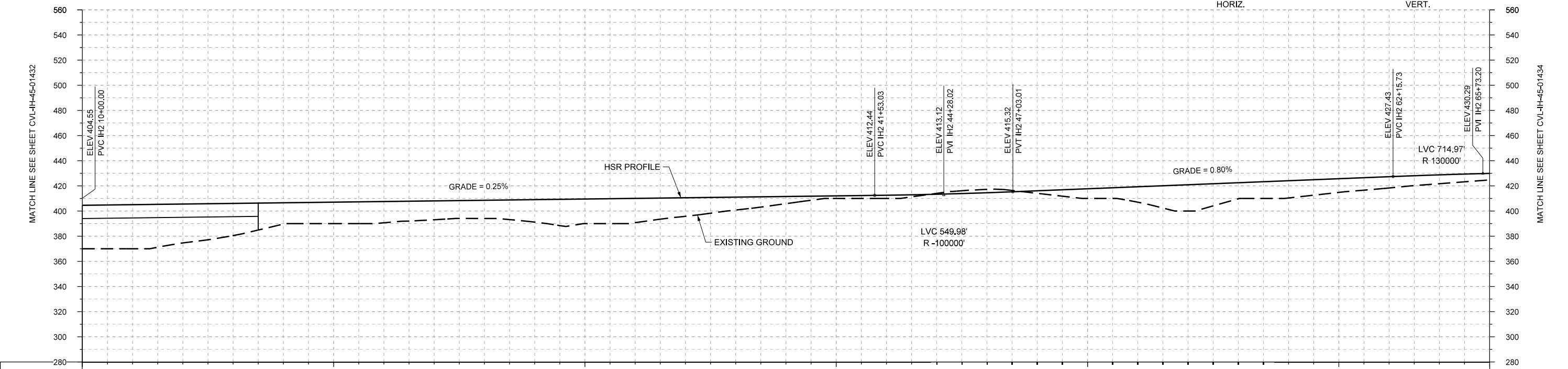
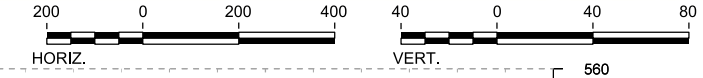
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title	IH (45) SEGMENT CIVIL PLAN AND PROFILE IH1 4322+00 TO IH1 4329+69		
Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	234180	Drawing No	CVL-IH-01432
Rev			01





PLAN



PROFILE

STATIONING	IH2 10+00	IH2 20+00	IH2 30+00	IH2 40+00	IH2 50+00	IH2 60+00	IH2 66+00		
HOR. ALIGNMENT	L=43573								
VER. ALIGNMENT	L=3153.03 G=0.250%			R=100000		L=1512.72 G=0.800%			
CUT AND FILL	+34.6	+35.1	+31.0	+25.6	+17.0	+17.1	+17.0		
				+15.0	+14.5	+17.9	+19.6		
				+19.3	+14.8	+10.3	+5.7		
				+2.1	+2.6	-0.7	-2.7		
				+2.0	+7.7	+12.3	+20.9		
				+12.8	+13.7	+10.9	+9.0		
				+7.1	+5.2				
TYP. SECTION	VIADUCT (K)		EMBANKMENT (F)			CUT (H)		EMBANKMENT (F)	

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
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Houston, Texas 77042 USA  
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**FRESE & NICHOLS**

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Dallas, Texas 75204  
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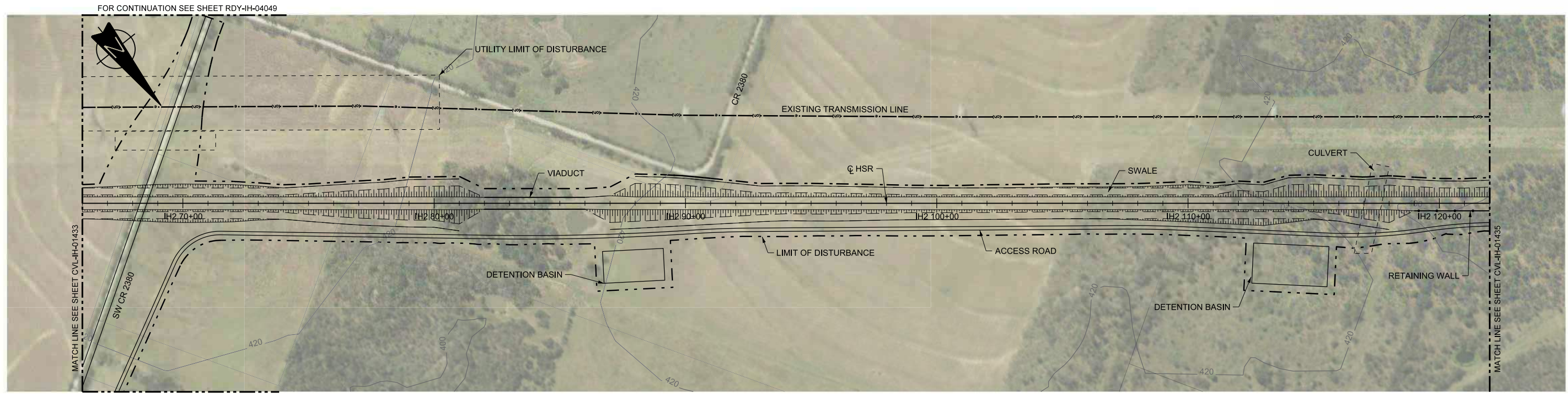
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

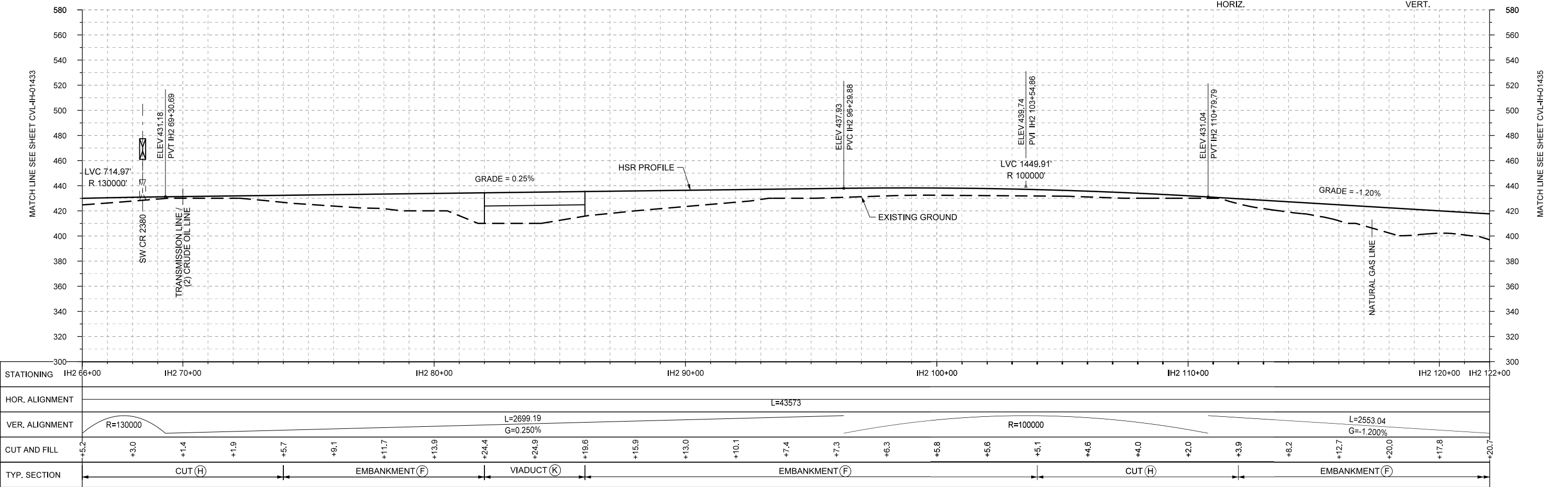
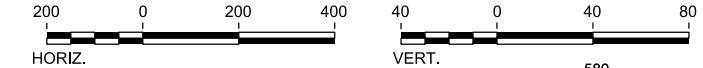
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 10+00 TO IH2 66+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01433	01	



PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
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IN CHARGE  
**C. TAYLOR**

DATE  
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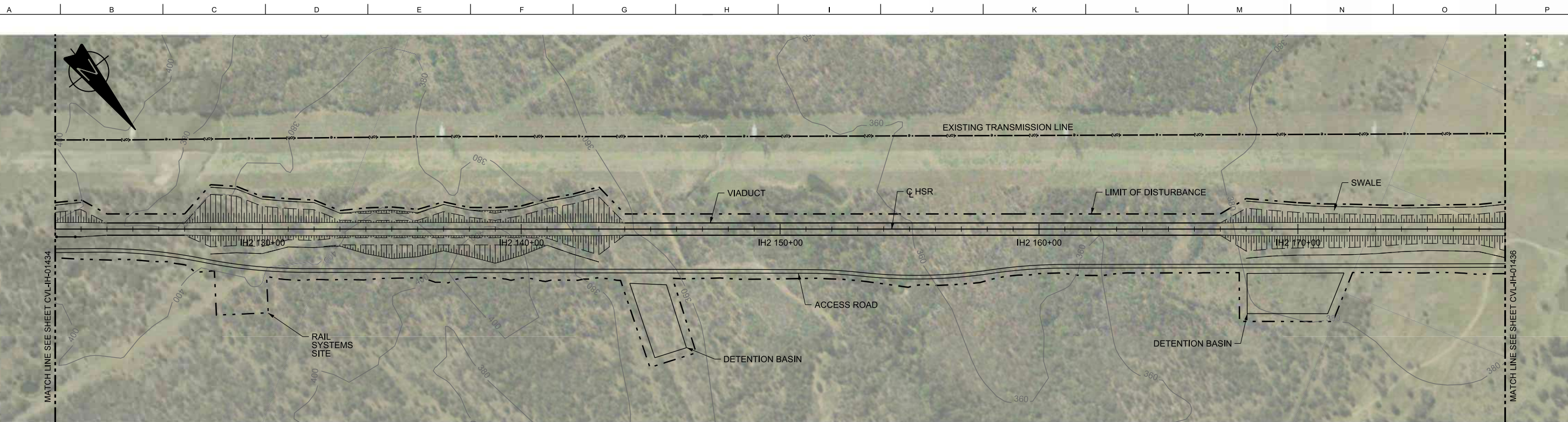
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

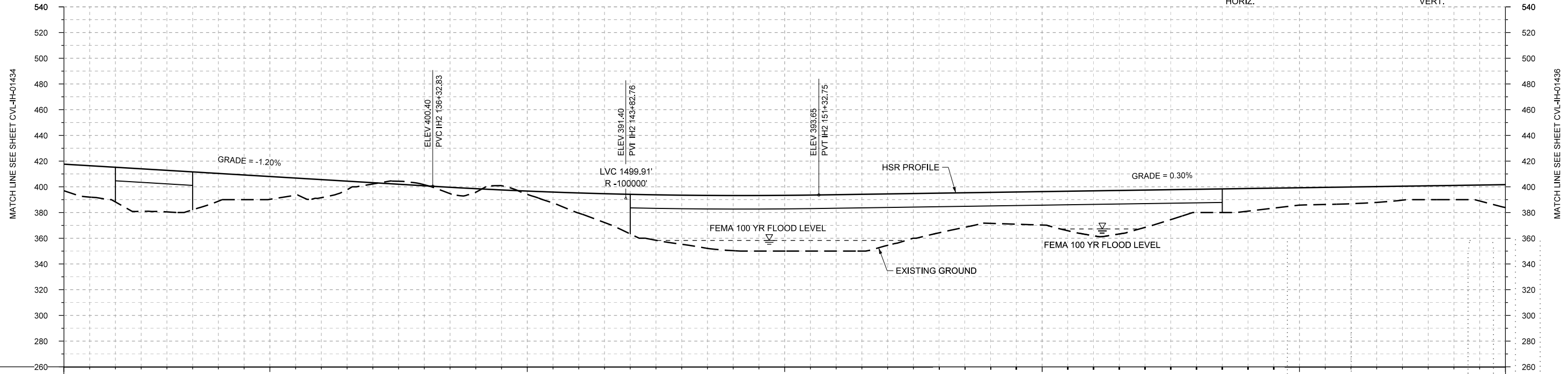
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 66+00 TO IH2 122+00**

Scale AS SHOWN	Drawing Status <b>FINAL</b>	
Job No 234180	Drawing No CVL-IH-01434	Rev 01



PLAN



PROFILE

STATIONING	IH2 122+00	IH2 130+00	IH2 140+00	IH2 150+00	IH2 160+00	IH2 170+00	IH2 178+00																						
HOR. ALIGNMENT	L=43573																												
VER. ALIGNMENT	L=2553.04 G=-1.200%			R=100000		L=10742.60 G=0.300%																							
CUT AND FILL	+20.7	+27.0	+32.3	+21.6	+17.7	+14.0	+1.0	-0.8	+2.8	+2.6	+15.7	+30.8	+38.2	+42.9	+43.3	+43.9	+40.0	+30.9	+24.1	+28.0	+35.0	+29.1	+18.1	+17.6	+13.6	+13.1	+10.9	+11.1	+17.9
TYP. SECTION	(F)	VIADUCT (K)	EMBANKMENT (F)	CUT (H)	(F)	CUT (H)	EMBANKMENT (F)										VIADUCT (K)												EMBANKMENT (F)

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

REV	DATE	BY	CHK	APP	DESCRIPTION

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10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

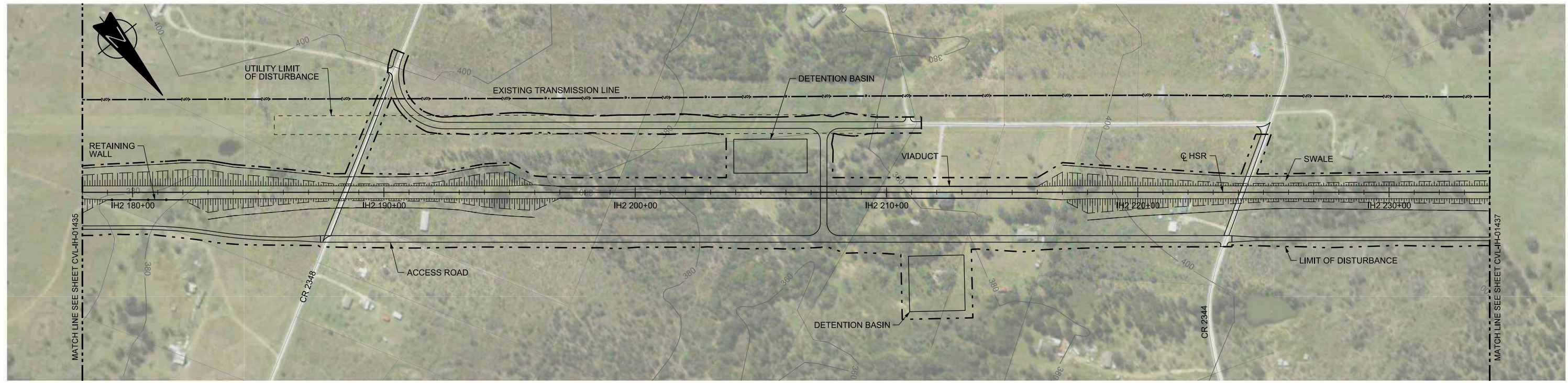
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 122+00 TO IH2 178+00**

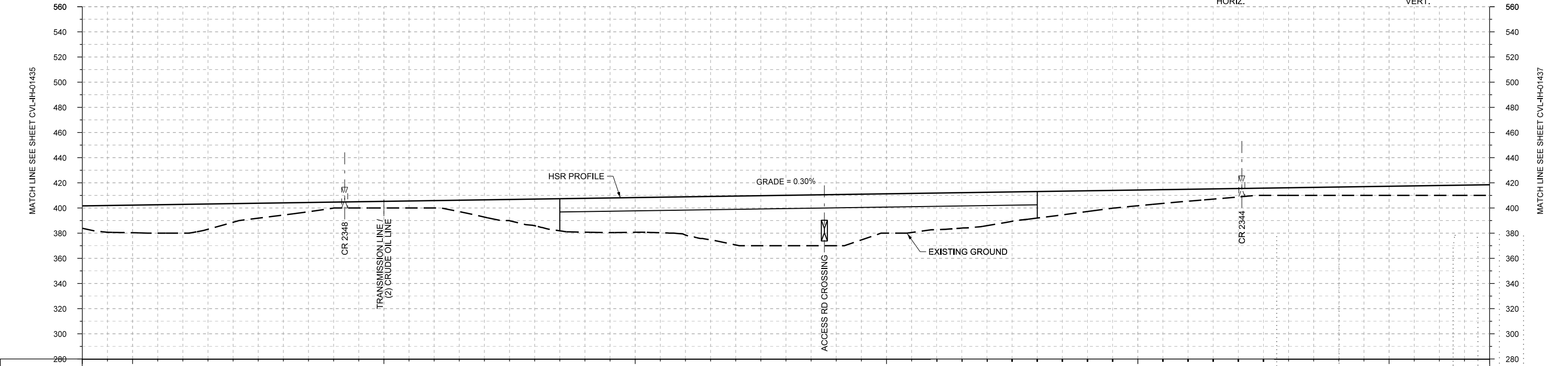
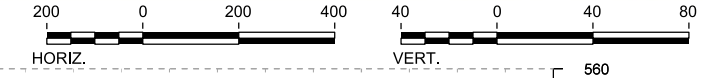
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01435	01



PLAN



STATIONING	IH2 178+00	IH2 180+00	IH2 190+00	IH2 200+00	IH2 210+00	IH2 220+00	IH2 230+00	IH2 234+00																					
HOR. ALIGNMENT	L=43573																												
VER. ALIGNMENT	L=10742.60 G=0.300%																												
CUT AND FILL	+17.9	+22.0	+22.9	+14.9	+8.7	+4.8	+5.3	+5.9	+13.8	+21.2	+27.0	+27.6	+30.4	+38.9	+40.1	+40.7	+31.3	+29.1	+26.5	+21.1	+16.5	+12.5	+9.5	+6.8	+6.1	+6.7	+7.3	+7.9	+8.5
TYP. SECTION	EMBANKMENT (F)			CUT (H)		EMBANKMENT (F)			VIADUCT (K)				EMBANKMENT (F)																

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

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**FRESE & NICHOLS**

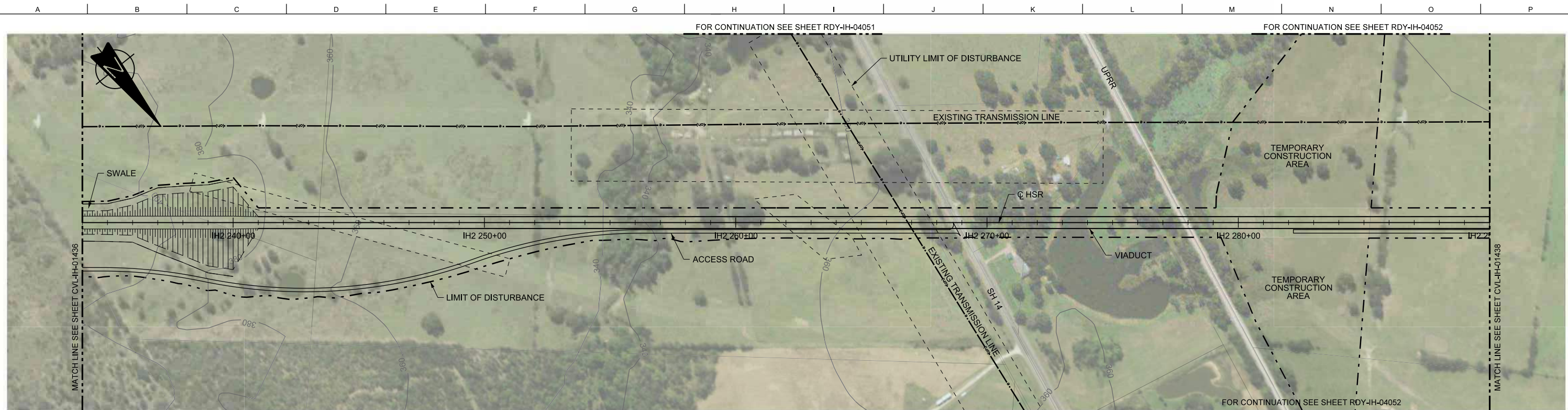
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

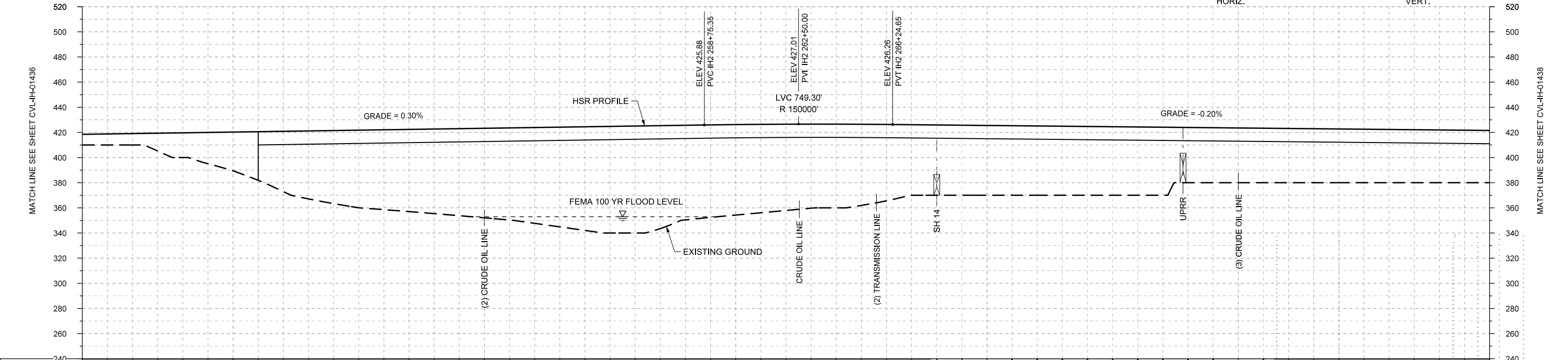
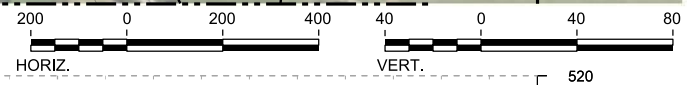
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 178+00 TO IH2 234+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01436	01	



PLAN



STATIONING	IH2 234+00	IH2 240+00	IH2 250+00	IH2 260+00	IH2 270+00	IH2 280+00	IH2 290+00																						
HOR. ALIGNMENT	L=43573																												
VER. ALIGNMENT	L=10742.60 G=0.300%			R=150000		L=16070.43 G=-0.200%																							
CUT AND FILL	+8.5	+9.1	+19.7	+30.8	+46.0	+58.1	+63.5	+67.3	+71.2	+76.2	+82.5	+85.1	+75.3	+71.9	+66.6	+66.5	+60.7	+55.9	+55.5	+55.1	+54.7	+54.3	+43.9	+43.5	+43.1	+42.7	+42.3	+41.9	+41.5
TYP. SECTION	EMBANKMENT (F)										VIADUCT (K)																		

PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

**ARUP**

Arup Texas, Inc.  
10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
www.arup.com  
Texas Registered Engineering Firm: F-1990

**FRESE & NICHOLS**

2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144

DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

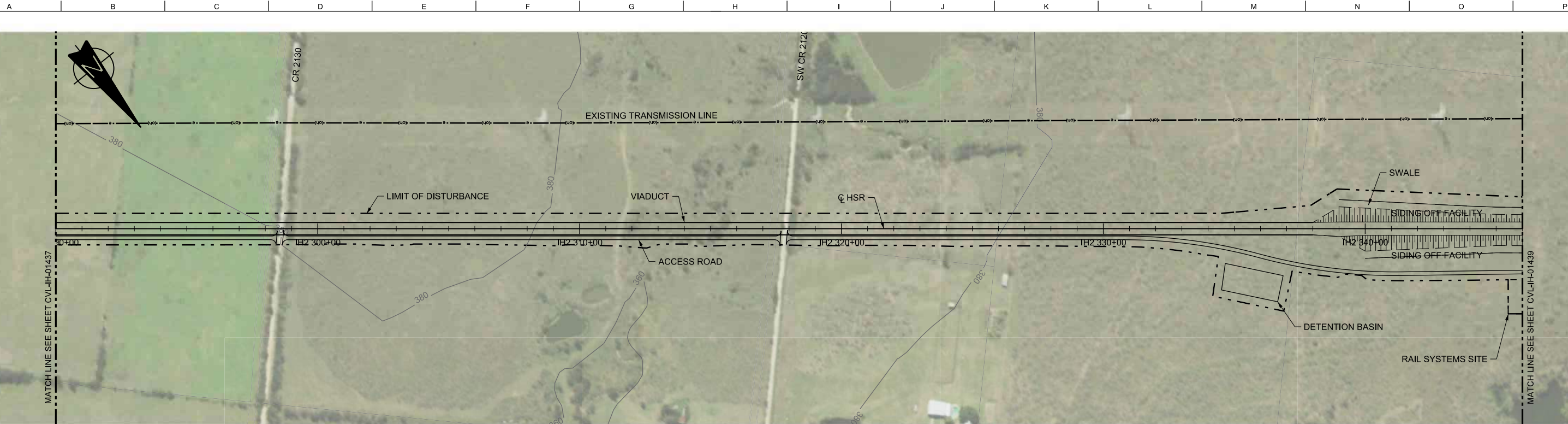
Drawing Title

**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 234+00 TO IH2 290+00**

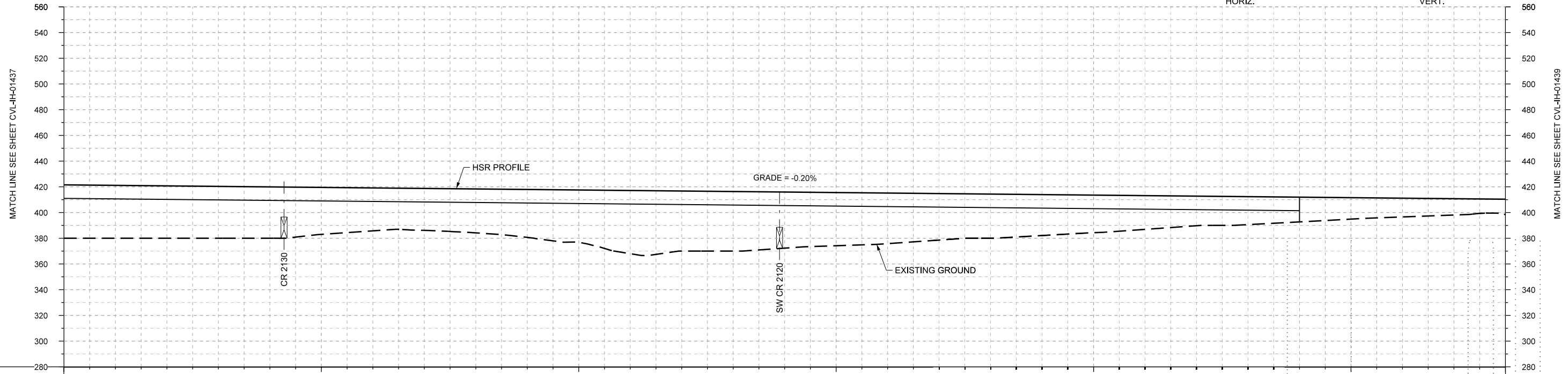
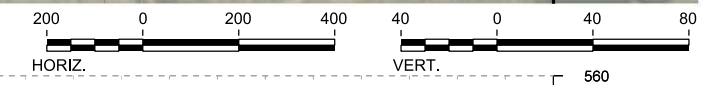
Scale  
AS SHOWN

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01437	01



PLAN



PROFILE

STATIONING	IH2 290+00	IH2 300+00	IH2 310+00	IH2 320+00	IH2 330+00	IH2 340+00	IH2 346+00																						
HOR. ALIGNMENT	L=43573																												
VER. ALIGNMENT	L=16070.43 G=-0.200%																												
CUT AND FILL	+41.5	+41.1	+40.7	+40.3	+39.9	+36.5	+33.4	+32.6	+34.1	+37.3	+40.7	+49.1	+46.7	+46.3	+43.6	+41.3	+39.3	+36.1	+34.3	+31.8	+29.1	+26.2	+23.0	+21.7	+19.2	+16.6	+14.5	+12.6	+11.9
TYP. SECTION	VIADUCT (K)													EMBANKMENT (F)															

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

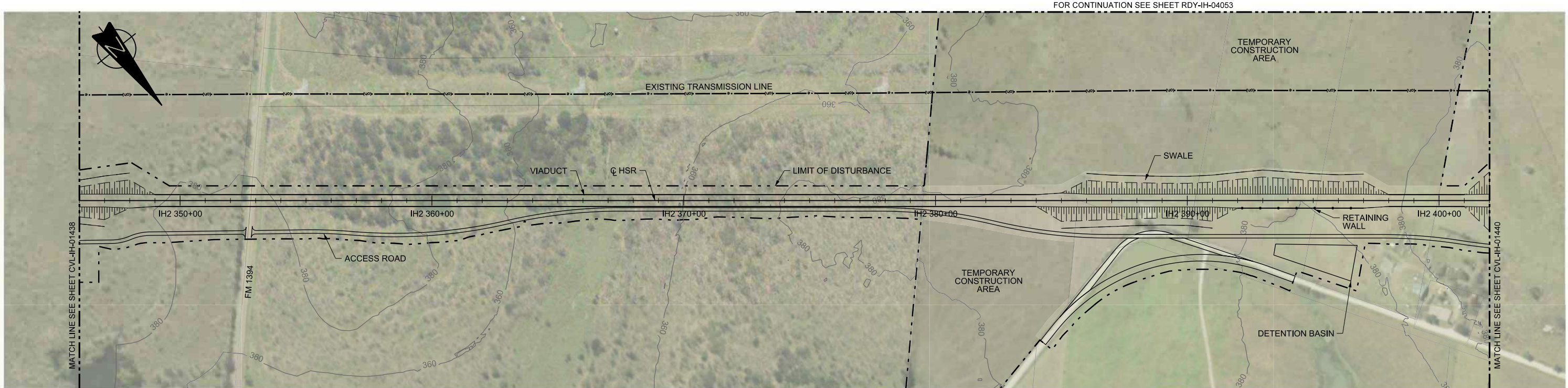
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 290+00 TO IH2 346+00**

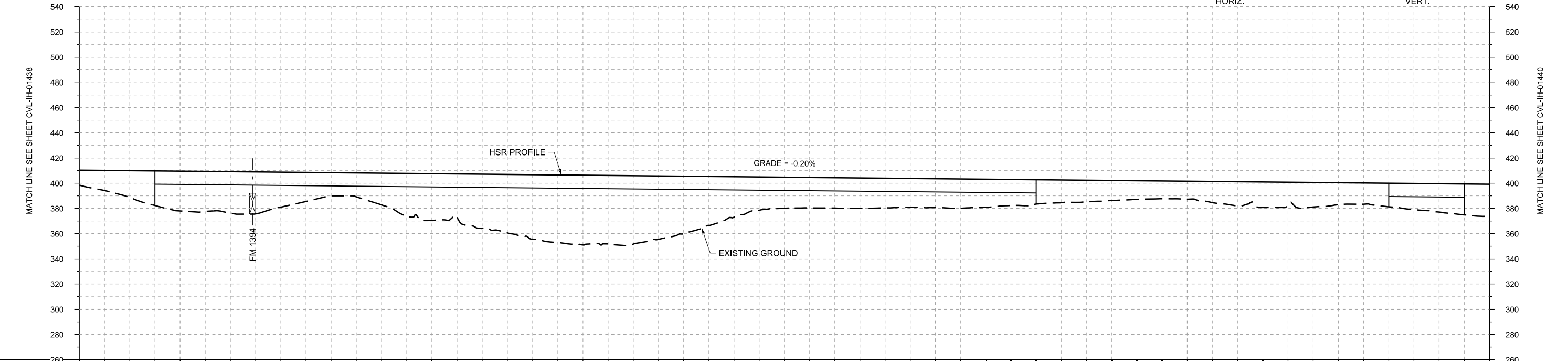
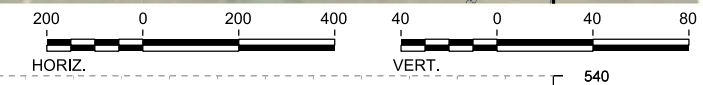
Scale  
**AS SHOWN**

Drawing Status  
**FINAL**

Job No	Drawing No	Rev
234180	CVL-IH-01438	01



PLAN



PROFILE

STATIONING	IH2 346+00	IH2 350+00	IH2 360+00	IH2 370+00	IH2 380+00	IH2 390+00	IH2 400+00	IH2 402+00																					
HOR. ALIGNMENT	L=43573																												
VER. ALIGNMENT	L=16070.43 G=-0.200%																												
CUT AND FILL	+11.9	+21.2	+31.5	+32.8	+27.7	+19.3	+25.2	+37.2	+43.1	+51.2	+55.4	+54.3	+45.5	+32.2	+24.7	+24.1	+23.6	+22.9	+22.3	+19.4	+17.1	+14.8	+14.3	+19.4	+17.8	+17.4	+18.7	+22.5	+26.0
TYP. SECTION	EMBANKMENT (F)		VIADUCT (K)										EMBANKMENT (F)				VIADUCT (K)		(F)										

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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10370 Richmond Ave., Suite 475  
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**FREESSE AND NICHOLS**

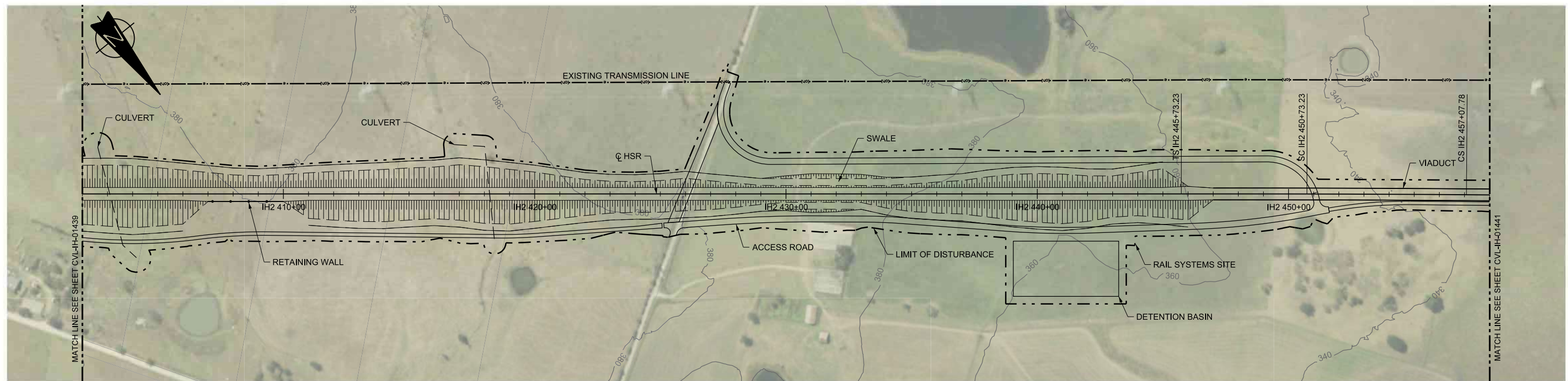
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

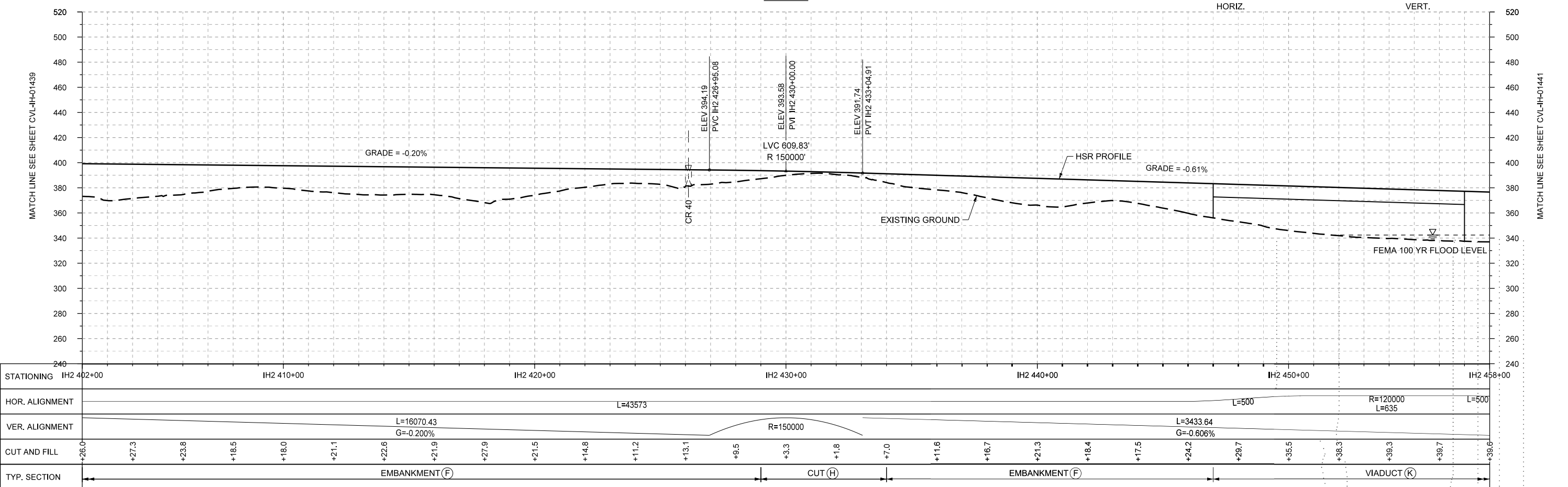
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 346+00 TO IH2 402+00**

Scale	AS SHOWN		
Drawing Status	FINAL		
Job No	Drawing No	Rev	
234180	CVL-IH-01439	01	



PLAN



PROFILE

STATIONING	IH2 402+00	IH2 410+00	IH2 420+00	IH2 430+00	IH2 440+00	IH2 450+00	IH2 458+00																						
HOR. ALIGNMENT	L=43573						L=500	R=120000 L=635	L=500																				
VER. ALIGNMENT	L=16070.43 G=-0.200%			R=150000		L=3433.64 G=-0.606%																							
CUT AND FILL	+26.0	+27.3	+23.8	+18.5	+18.0	+21.1	+22.6	+21.9	+27.9	+21.5	+14.8	+11.2	+13.1	+9.5	+3.3	+1.8	+7.0	+11.6	+16.7	+21.3	+18.4	+17.5	+24.2	+29.7	+35.5	+38.3	+39.3	+39.7	+38.6
TYP. SECTION	EMBANKMENT (F)										CUT (H)		EMBANKMENT (F)					VIADUCT (K)											

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

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**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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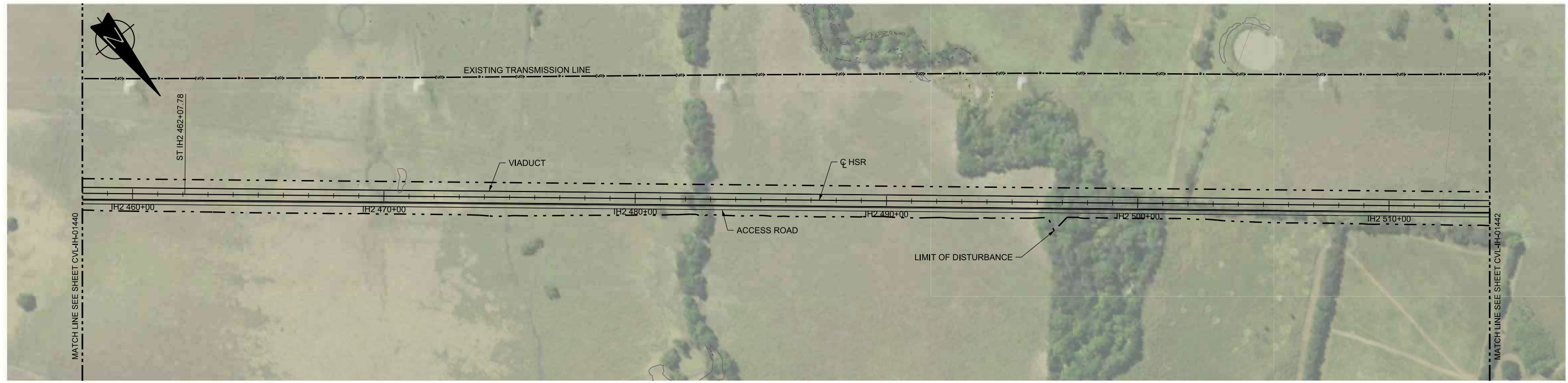
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

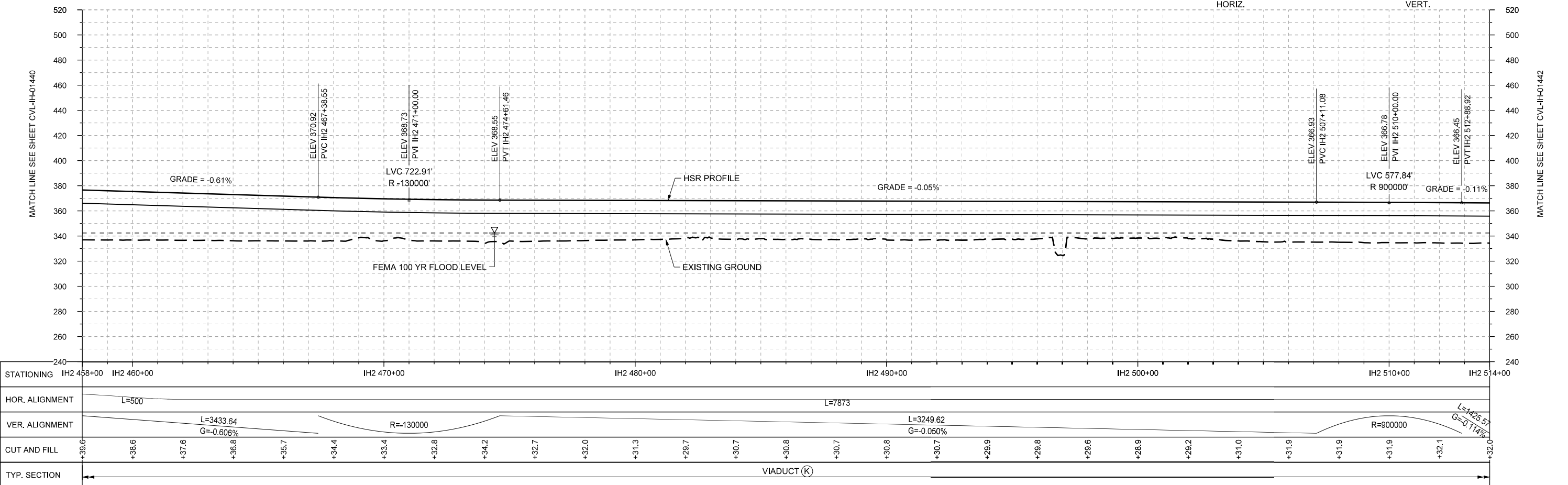
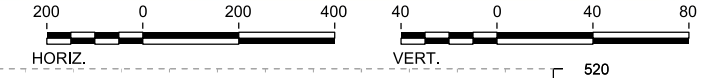
Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 402+00 TO IH2 458+00**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01440
Rev	01





PLAN



PROFILE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**D. PETRIN**

DRAWN BY  
**J. BORGHESI**

CHECKED BY  
**T. WAGNER**

IN CHARGE  
**C. TAYLOR**

DATE  
**02/25/2019**

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10370 Richmond Ave., Suite 475  
Houston, Texas 77042 USA  
Tel (713) 783 2787 Fax (713) 343 1467  
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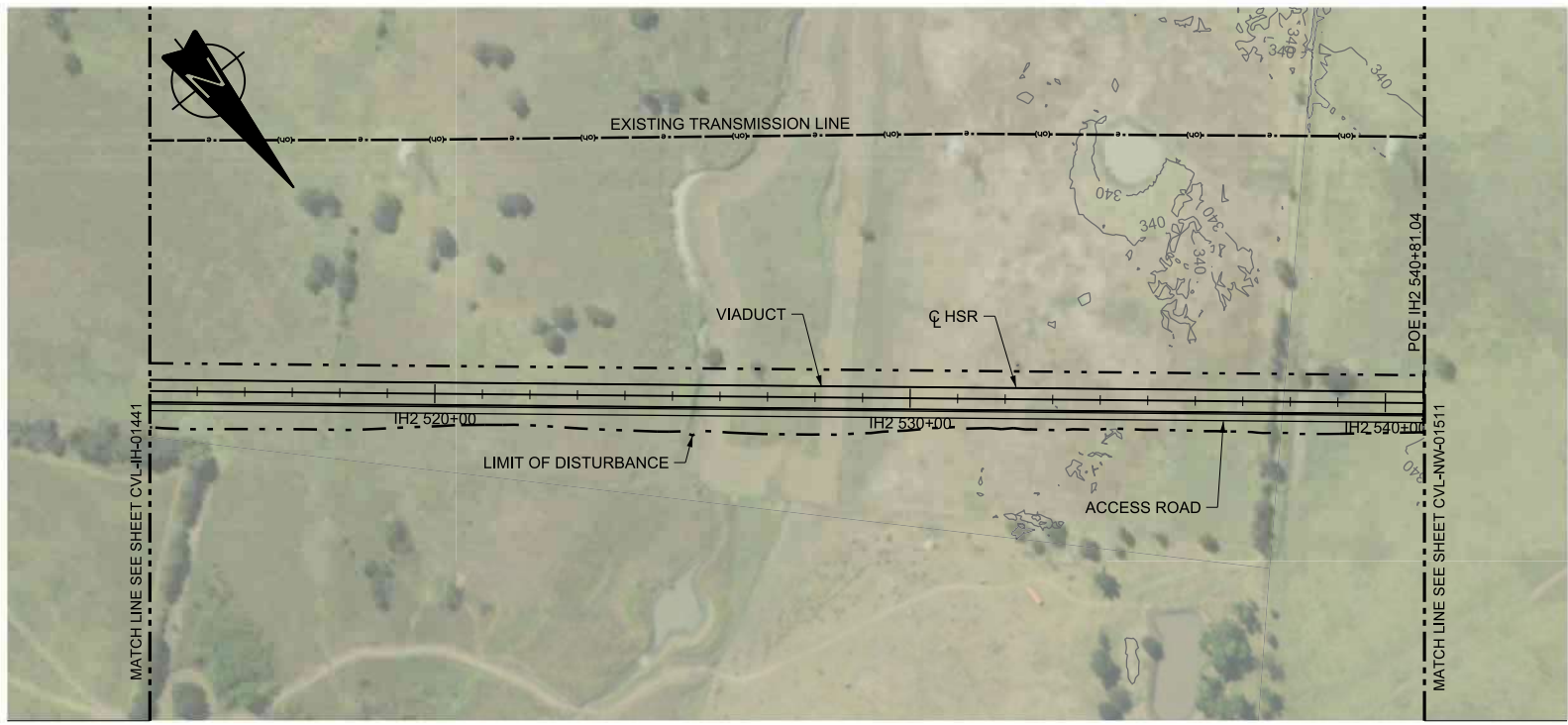
DALLAS TO HOUSTON HIGH-SPEED RAIL  
FINAL CONCEPTUAL ENGINEERING

**TEXAS CENTRAL**

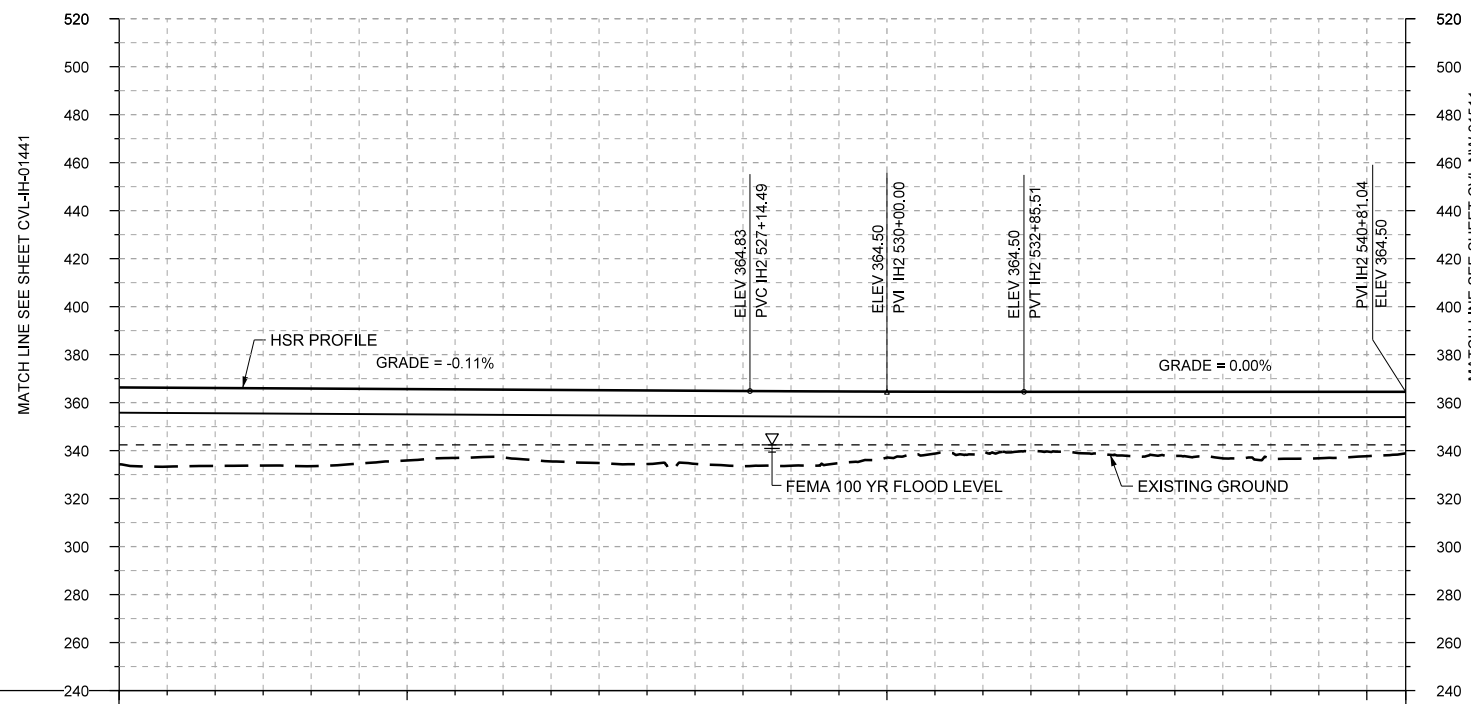
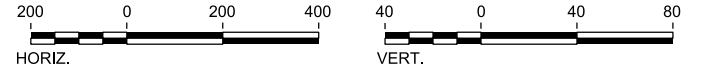
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
CIVIL  
PLAN AND PROFILE  
IH2 458+00 TO IH2 514+00**

Scale AS SHOWN		
Drawing Status FINAL		
Job No 234180	Drawing No CVL-IH-01441	Rev 01



PLAN



PROFILE

STATIONING	IH2 514+00	IH2 520+00	IH2 530+00	IH2 540+00
HOR. ALIGNMENT	L=7873			
VER. ALIGNMENT	L=1425.57 G=-0.114%		R=500000	L=795.53 G=0.000%
CUT AND FILL	+32.0	+32.5	+32.4	+29.7
	+26.2	+30.4	+30.5	+31.0
	+27.5	+25.1	+25.6	+26.7
	+25.0	+25.7		
TYP. SECTION	VIADUCT (K)			

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	D. PETRIN
DRAWN BY	J. BORGHESI
CHECKED BY	T. WAGNER
IN CHARGE	C. TAYLOR
DATE	02/25/2019

**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
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**FREESSE & NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
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DALLAS TO HOUSTON HIGH-SPEED RAIL  
 FINAL CONCEPTUAL ENGINEERING  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**IH (45) SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 IH2 514+00 TO IH2 540+81**

Scale	AS SHOWN
Drawing Status	FINAL
Job No	234180
Drawing No	CVL-IH-01442
Rev	01