

**Dallas to Houston High-Speed Rail
Draft Environmental Impact Statement**

**Appendix G:
Dallas to Houston High-Speed Rail
Passenger Service from Houston to Dallas
Final Draft Conceptual Engineering
Plans and Details
Set 8 of 21**



**TEXAS
CENTRAL**

Transmittal

| | | | |
|---------|--|------------|-------------------|
| To | Megan Inman, AECOM | Date | November 17, 2017 |
| Copies | FRA: K. Wright AECOM: J. Smiley TCRR: A. Greer File: HOU TCR | TRA Number | 00211 |
| From | Christopher Taylor, Arup | | |
| Subject | FINAL DRAFT CONCEPTUAL ENGINEERING DESIGN DOCUMENTATION – FDCE v7 Transmittal Final Version for Publication with Draft Environmental Impact Statement (DEIS) FDCE for Public Release | | |

We Are Sending You: ENTER DOCUMENT TYPE CODE(S) ONLY

| Date of Document | DEIS Appendix | Set # of # | Title of Document or Drawing Title |
|---|---------------|------------|---|
| 11/17/17 | - | - | 234180-AFN-TRA-00211 FDCEv7.PDF (this transmittal) |
| REPORTS | | | |
| 9/15/17 | F | 1 of 2 | TCRR FDCE v7 REPORT.PDF (<i>Final Draft Conceptual Engineering Report v7 – Project Definition for publication with Draft EIS</i>) |
| 9/15/17 | F | 2 of 2 | TCRR CONSTRUCTABILITY v4 REPORT.PDF |
| TCRR FDCE v7 DWGS VOLUME 1 (<i>General Sheets and Typical Sections</i>) | | | |
| 9/15/17 | G | 1 of 21 | TCRR FDCE v7 DWGS VOLUME 1.PDF (<i>General Sheets and Typical Sections</i>) |
| TCRR FDCE v7 DWGS VOLUME 2 (<i>Railway Alignment Plan and Profile Sheets</i>) | | | |
| 9/15/17 | G | 2 of 21 | TCRR FDCE v7 DWGS VOLUME 2-1.PDF (<i>Houston Segment</i>) |
| 9/15/17 | G | 3 of 21 | TCRR FDCE v7 DWGS VOLUME 2-2.PDF (<i>West of Teague Segment</i>) |
| 9/15/17 | G | 4 of 21 | TCRR FDCE v7 DWGS VOLUME 2-3.PDF (<i>IH-45 Segment</i>) |
| 9/15/17 | G | 5 of 21 | TCRR FDCE v7 DWGS VOLUME 2-4.PDF (<i>Navarro West Segment</i>) |
| 9/15/17 | G | 6 of 21 | TCRR FDCE v7 DWGS VOLUME 2-5.PDF (<i>Navarro East Segment</i>) |
| 9/15/17 | G | 7 of 21 | TCRR FDCE v7 DWGS VOLUME 2-6.PDF (<i>Ellis West Segment</i>) |
| 9/15/17 | G | 8 of 21 | TCRR FDCE v7 DWGS VOLUME 2-7.PDF (<i>Ellis East Segment</i>) |
| 9/15/17 | G | 9 of 21 | TCRR FDCE v7 DWGS VOLUME 2-8.PDF (<i>Dallas Segment</i>) |
| TCRR FDCE v7 DWGS VOLUME 3 (<i>Stations, Maintenance Facilities, and Railway Systems Sheets</i>) | | | |
| 9/15/17 | G | 10 of 21 | TCRR FDCE v7 DWGS VOLUME 3-1.PDF (<i>Stations</i>) |
| 9/15/17 | G | 11 of 21 | TCRR FDCE v7 DWGS VOLUME 3-2.PDF (<i>Maintenance Facilities, Yards and Shops</i>) |
| 9/15/17 | G | 12 of 21 | TCRR FDCE v7 DWGS VOLUME 3-3.PDF (<i>Rail Systems</i>) |
| TCRR FDCE v7 DWGS VOLUME 4 (<i>Roadway Plan Sheets</i>) | | | |
| 9/15/17 | G | 13 of 21 | TCRR FDCE v7 DWGS VOLUME 4-1.PDF (<i>Houston Segment</i>) |
| 9/15/17 | G | 14 of 21 | TCRR FDCE v7 DWGS VOLUME 4-2.PDF (<i>West of Teague Segment</i>) |
| 9/15/17 | G | 15 of 21 | TCRR FDCE v7 DWGS VOLUME 4-3.PDF (<i>IH-45 Segment</i>) |
| 9/15/17 | G | 16 of 21 | TCRR FDCE v7 DWGS VOLUME 4-4.PDF (<i>Navarro West Segment</i>) |
| 9/15/17 | G | 17 of 21 | TCRR FDCE v7 DWGS VOLUME 4-5.PDF (<i>Navarro East Segment</i>) |

| Document Format | Date of Document | Number of Copies | Title of Document or Drawing Title |
|--|------------------|------------------|--|
| 9/15/17 | G | 18 of 21 | TCRR FDCE v7 DWGS VOLUME 4-6.PDF (<i>Ellis West Segment</i>) |
| 9/15/17 | G | 19 of 21 | TCRR FDCE v7 DWGS VOLUME 4-7.PDF (<i>Ellis East Segment</i>) |
| 9/15/17 | G | 20 of 21 | TCRR FDCE v7 DWGS VOLUME 4-8.PDF (<i>Dallas Segment</i>) |
| TCRR FDCE v7 DWGS VOLUME 5 (<i>Wildlife Crossing Sheets</i>) | | | |
| 9/15/17 | G | 21 of 21 | TCRR FDCE v7 DWGS VOLUME 5.PDF (<i>Wildlife Crossing Sheets</i>) |

These are transmitted as checked below:

- Deliverable For Information As requested For your use
 For approval For Review and Comment Return Other: Publication with DEIS

REMARKS:

The files transmitted herewith represent a final submittal of the Final Draft Conceptual Engineering (FDCE) design report and drawings for the Dallas to Houston High-Speed Rail Project. This v7 submittal of the FDCE report is intended for distribution on the FRA website with the Draft EIS (DEIS) for public review.



Delivered VIA Outlook Email Hand Delivery Courier PMS Notification USPS

PREPARED BY: Christopher Taylor **Date:** November 17, 2017

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE.



**TEXAS
CENTRAL**



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

**FINAL DRAFT
CONCEPTUAL ENGINEERING PLANS AND DETAILS**
VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

SEPTEMBER 15, 2017



U.S. Department of Transportation
Federal Railroad Administration

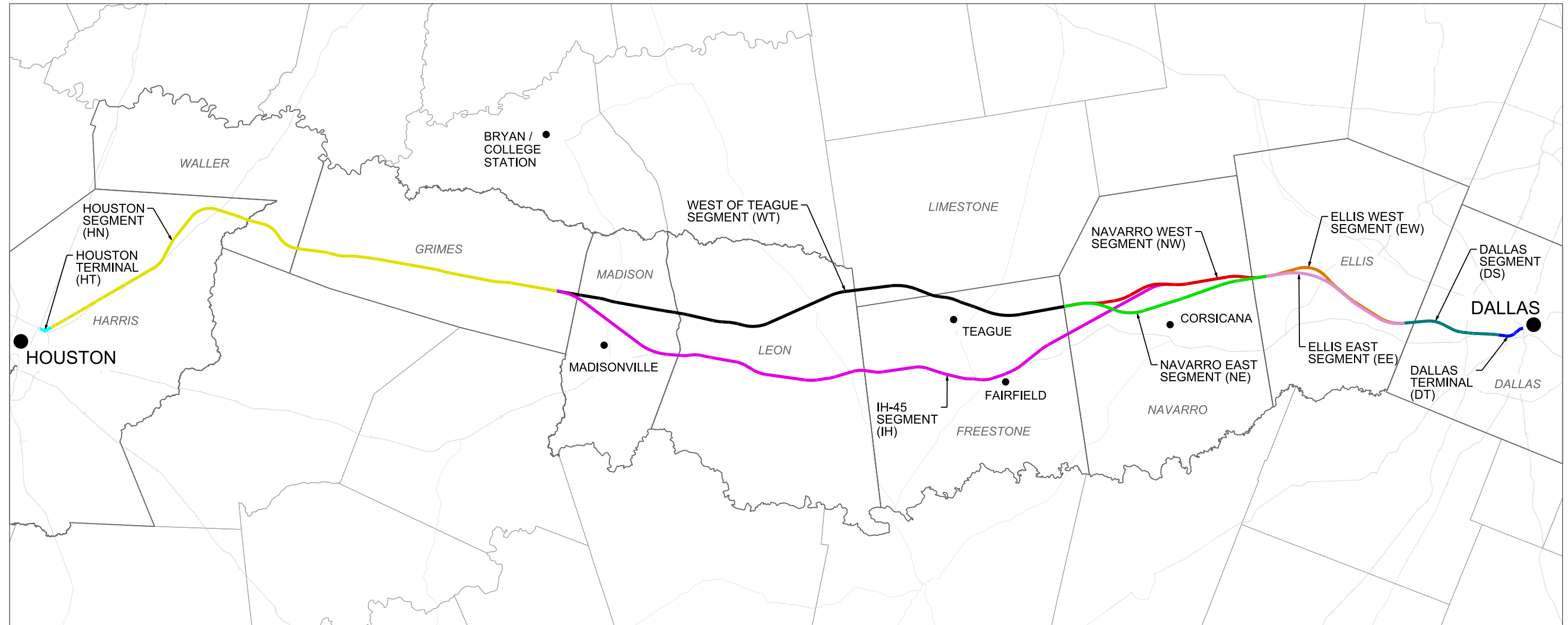
ARUP

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COVER SHEET



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

NOTES:
 1. REFER TO FDCE v5 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
09/15/2017

ARUP

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Client

TEXAS CENTRAL

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

Drawing Title

GENERAL LOCATION PLAN

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|------------------|----------------------------|-----------|
| Job No 234180 | Drawing No GEN-00-00002 | Rev 01 |
|------------------|----------------------------|-----------|

VOLUME 1 - GENERAL SHEETS & TYPICAL SECTIONS

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

VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-1 HOUSTON SEGMENT, listing drawings from CVL-HN-01101 to CVL-HN-01108-2.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-2 WEST OF TEAGUE SEGMENT, listing drawings from CVL-HN-01107-3 to CVL-HN-01180.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-2 WEST OF TEAGUE SEGMENT, listing drawings from CVL-WT-01250 to CVL-WT-01296.

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

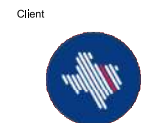
Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Design and drawing information.



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Client Drawing Title Scale NO SCALE Drawing Status FINAL DRAFT Job No 234180 Drawing No GEN-00-00003 Rev 01

GENERAL INDEX SHEET 1 OF 5

VOLUME 2 - RAILWAY ALIGNMENT PLAN AND PROFILE SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections for 2-2 WEST OF TEAGUE SEGMENT and 2-3 IH-45 SEGMENT.

Table with columns: Drawing No., Description. Lists various drawing numbers and their corresponding descriptions for segments like IH-45 SEGMENT and NAVARRO WEST SEGMENT.

Table with columns: Drawing No., Description. Lists various drawing numbers and their corresponding descriptions for segments like NAVARRO WEST SEGMENT and ELLIS WEST 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.

Project information block including logos for ARUP, FREESE & NICHOLS, TEXAS CENTRAL, drawing title 'GENERAL INDEX SHEET 2 OF 5', scale 'NO SCALE', and drawing status 'FINAL DRAFT'.

PLOT TIME: 9/27/2017 10:20:31 AM

PLOT BY: M-YPWICS01S

HOUSTON SEGMENT - CIVIL - KEY MAP - Sheet 2 of 4 - HN1 1024+00 TO HN1 2082+00

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for segments 2-6, 2-7, and 2-8.

VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawing numbers and descriptions for stations and maintenance facilities.

Table with columns: Drawing ID, Description. Lists drawing numbers and descriptions for various station options, industrial stations, and maintenance facilities.

Table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Includes a revision table and a design information table with fields for Designer, Drawn, Checked, In Charge, and Date.

Project information block containing logos for ARUP, FREESE & NICHOLS, and TEXAS CENTRAL. Includes drawing title 'GENERAL INDEX SHEET 3 OF 5', scale 'NO SCALE', drawing status 'FINAL DRAFT', and job/drawing numbers.

PLOT TIME: 9/25/2017 5:41:24 PM

VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Contains drawing entries for maintenance facilities and railway systems.

VOLUME 4 - ROADWAY PLAN SHEETS

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Contains drawing entries for roadway plan sheets, including Houston Segment drawings.

Table with 2 columns: Drawing ID and Description. Contains drawing entries for Houston Segment, West of Teague Segment, and IH-45 Segment.

Table with 6 columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Used for revision tracking.

Table with 2 columns: Field Name and Value. Contains design and drawing information like 'DESIGNED BY D. THOMPSON'.



Table with 3 columns: Drawing Title, Scale, and Job No. Contains 'GENERAL INDEX SHEET 4 OF 5', 'NO SCALE', and '234180'.

VOLUME 4 - ROADWAY PLAN SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 1H-45 SEGMENT and 4-4 NAVARRO WEST SEGMENT.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 4-5 NAVARRO EAST SEGMENT, 4-6 ELLIS WEST SEGMENT, 4-7 ELLIS EAST SEGMENT, and 4-8 DALLAS SEGMENT.

VOLUME 5 - WILDLIFE CROSSING SHEETS

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Lists drawings 5-1 WILDLIFE CROSSING TYPICAL SECTIONS.

Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION.

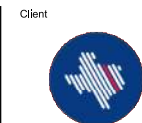
Design information table with fields: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE.



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

Drawing Title

GENERAL INDEX SHEET 5 OF 5

Scale NO SCALE

Drawing Status

FINAL DRAFT

Job No 234180

Drawing No GEN-00-00007

Rev 01

GENERAL NOTES:

- 1. THESE DRAWINGS ACCOMPANY FINAL DRAFT CONCEPTUAL ENGINEERING REPORT (FDCE) V7 REPORT DATED SEPTEMBER 15, 2017.
- 2. DRAWING SET INCLUDES FIVE (5) VOLUMES.
- 3. CONCEPTUAL ENGINEERING WAS DEVELOPED TO IDENTIFY PROJECT LIMIT OF DISTURBANCE (LOD), OR "PROJECT FOOTPRINT". CONCEPTUAL ENGINEERING DRAWINGS AND FDCE 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 DRAWINGS 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, AEROGRIID, 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, 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), 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.
- 2. LOD USED FOR EIS ANALYSIS FOOTPRINT.

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, 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 (TMFS).

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 MAPS.
- 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-00-03036 FOR TYPICAL ROADWAY CROSS SECTIONS.
- 7. ROADWAY REMOVALS ARE NOT SHOWN ON RAIL PLAN AND PROFILE SHEETS, REFER TO ROADWAY PLAN SHEETS IN VOLUME 3 FOR ALL 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 CROSSING DO NOT REPRESENT THE PROPOSED ROADWAY ELEVATION, BUT RATHER THE MINIMUM HEIGHT REQUIRED FOR CLEARANCES, INCLUDING ALLOWANCES FOR ROADWAY STRUCTURAL ELEMENTS. SEE FDCE 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 REQUIRED THE APPROPRIATE APPROVAL FROM TXDOT.

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 FDCE 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 ONLY AND ARE BASED ON INFORMATION RECEIVED, AS DOCUMENTED IN THE FINAL DRAFT 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 FDCE 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 LANDOWNER NEGOTIATIONS WILL BE REQUIRED TO DETERMINE LAND OWNER 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-00-02005, 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 FDCE 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-00-01002.
- 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.

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| DESIGNED BY D. THOMPSON |
| DRAWN BY D. THOMPSON |
| CHECKED BY R. BURNS |
| IN CHARGE C. TAYLOR |
| DATE 09/15/2017 |



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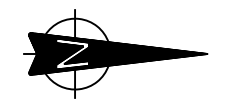
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| | GENERAL NOTES | NO SCALE |
| | | Drawing Status |
| | | FINAL DRAFT |
| Job No | Drawing No | Rev |
| 234180 | GEN-00-00008 | 01 |

ABBREVIATIONS

LEGEND

| | | | |
|------------|---|---------|--|
| ALT | ALTERNATE ALIGNMENT | TBD | TO BE DETERMINED TEXAS COMMISSION ON ENVIRONMENTAL QUALITY |
| APPROX | APPROXIMATE | TCEQ | TEMPORARY TRAINSET MAINTENANCE FACILITY |
| ATP | AUTOTRANSFORMER POST | TEMP | TEMPORARY TRACTION POWER SUBSTATION |
| AVE | AVENUE | TMF | TANGENT SPIRAL |
| BLVD | BOULEVARD | TPSS | TYPICAL |
| BNSF | BURLINGTON NORTH SANTE FE RAILROAD | TS | TOP OF RAIL |
| BOT | BOTTOM | TYP | |
| | | TOR | |
| CH | COMMUNICATION HOUSE | US | UNITED STATES, UNITED STATES HIGHWAY |
| CO RD | COUNTY ROAD | UPRR | UNION PACIFIC RAILROAD |
| CL | CENTERLINE | | |
| C | CENTERLINE | VAR | VARIABLE |
| CO | COUNTY | VERT, V | VERTICAL |
| CR | COUNTY ROAD | WB | WESTBOUND |
| CS | CURVE TO SPIRAL | WT | WEST OF TEAGUE |
| CVL | CIVIL | XING | CROSSING |
| | | YR | YEAR |
| DIA | DIAMETER | | |
| DIST | DISTANCE, DISTRICT | | |
| DR | DRIVE | | |
| DRG | DRAWING | | |
| DS | DALLAS SEGMENT | | |
| DSN | DALLAS SEGMENT NORTH | | |
| DSS | DALLAS SEGMENT SOUTH | | |
| DT | DALLAS TERMINUS SEGMENT | | |
| DWY | DRIVEWAY | | |
| Ea | ACTUAL SUPERELEVATION | | |
| EE | ELLIS EAST SEGMENT | | |
| ELECT | ELECTRIC | | |
| ELEV | ELEVATION | | |
| EMB | EMBANKMENT | | |
| ENGR | ENGINEER | | |
| EPA | ENVIRONMENTAL PROTECTION AGENCY | | |
| Eu | UNBALANCED SUPERELEVATION | | |
| EW | ELLIS WEST SEGMENT | | |
| EXIST, EX. | EXISTING 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 | | |
| | | | |
| 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 | | |
| | | | |
| 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 | | |
| | | | |
| SC | SPIRAL CURVE | | |
| SH | STATE HIGHWAY | | |
| SO | SIDING OFF | | |
| SP | SECTIONING POST | | |
| SSH | SUB-SIGNAL HOUSE | | |
| SSP | SUB-SECTIONING POST | | |
| ST | STREET, SPIRAL TO TANGENT | | |
| STA | STATION | | |
| STD | STANDARD | | |
| SYM | SYMMETRICAL | | |

PLAN



--- CITY / COUNTY BOUNDARY LINE

--- MATCH LINE

--- CONCEPTUAL ENGINEERING LIMITS OF DISTURBANCE (LOD)

10+00

--- EDGE OF VIADUCT

--- PROPOSED ROADWAY EDGE OF PAVEMENT

420

--- EXISTING TRANSMISSION LINE

--- FENCE

--- RETAINING WALL

--- CULVERT

PROFILE

--- TOP OF RAIL

--- EXISTING GROUND

--- FEMA 100 YR FLOOD LEVEL

--- VIADUCT ABUTMENT AND STRUCTURE SOFFIT

--- UTILITY CROSSING

UTILITY / PIPELINE

NORTH ARROW

CITY / COUNTY BOUNDARY LINE

MATCH LINE

CONCEPTUAL ENGINEERING LIMITS OF DISTURBANCE (LOD)

PROPOSED CENTERLINE OF HIGH-SPEED RAIL WITH STATIONING

EDGE OF VIADUCT

PROPOSED ROADWAY EDGE OF PAVEMENT

CONTOURS

EXISTING TRANSMISSION LINE

FENCE

RETAINING WALL

CULVERT

TOP OF RAIL

EXISTING GROUND

FEMA 100 YR FLOOD LEVEL

VIADUCT ABUTMENT AND STRUCTURE SOFFIT

UTILITY CROSSING

TEMPORARY CONSTRUCTION AREA

UTILITY LIMIT OF DISTURBANCE (LOD)

RAIL SYSTEMS SITE

DETENTION BASIN

BUILDING TO BE DEMOLISHED

RAIL ON EMBANKMENT (FILL)

RAIL IN CUT

EXISTING CROSSING

PROPOSED CROSSING

CROSSING REMOVED

NOTE:

1. FOR ADDITIONAL DETAIL REGARDING INFORMATION SHOWN ON DRAWINGS, SEE RAIL ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00010. SEE ROAD ANNOTATION TO CLARIFY DESIGN INTENT, DRAWING GEN-00-00011.

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|-------------|-------------|
| DESIGNED BY | D. THOMPSON |
| DRAWN BY | D. THOMPSON |
| CHECKED BY | R. BURNS |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |



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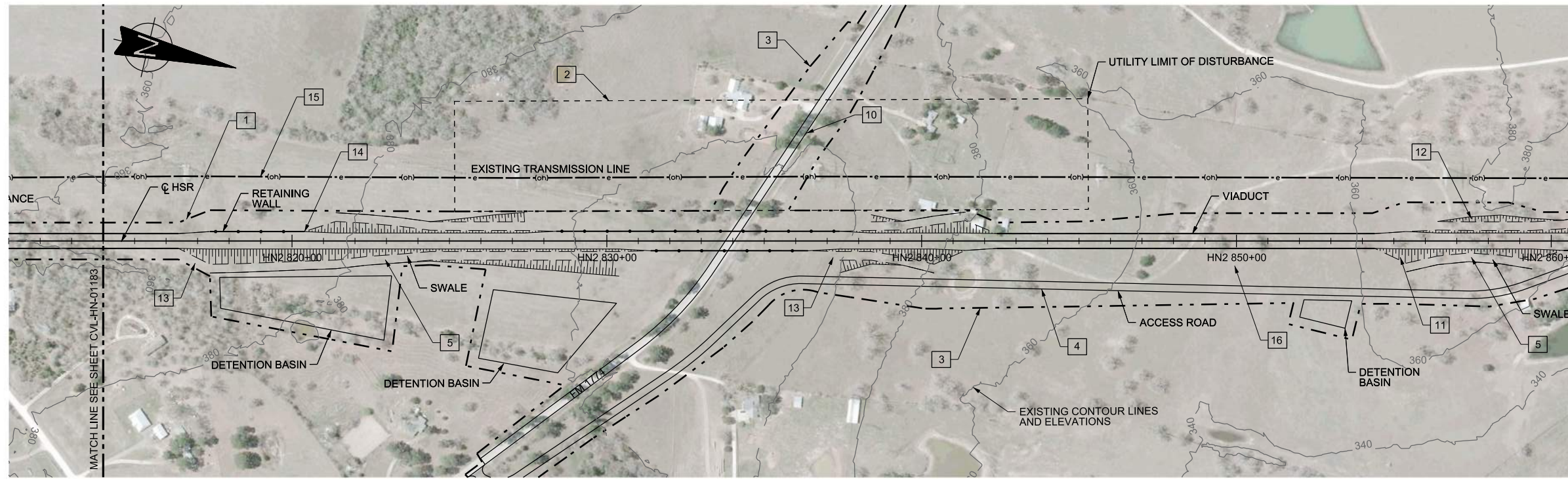
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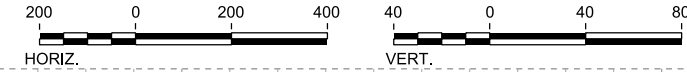
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Drawing Title
GENERAL ABBREVIATIONS AND LEGEND

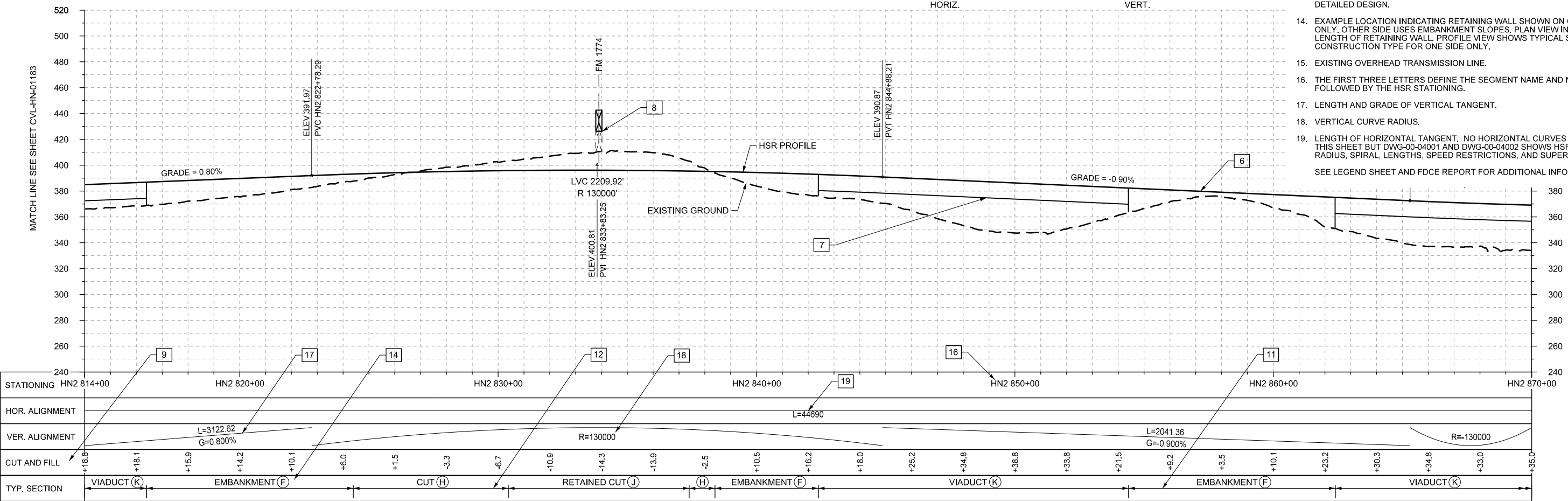
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| Scale | NO SCALE |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | GEN-00-00009 |
| Rev | 01 |



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 INDICATING GRADE SEPARATION BETWEEN RAIL AND ROADWAY ALIGNMENT. CLEARANCE BOX SHOWS APPROXIMATE SPACE OCCUPIED BY EXISTING OR PROPOSED ROADWAYS OR FREIGHT RAIL LINES. FOR DETAILS ON REQUIRED CLEARANCES REFER TO FDCE 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.
 - 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. SEE LEGEND SHEET AND FDCE REPORT FOR ADDITIONAL INFORMATION.



PROFILE

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DESIGNED BY
J. ENRIQUEZ

DRAWN BY
P. TONKIN

CHECKED BY
R. BURNS

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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TEXAS CENTRAL

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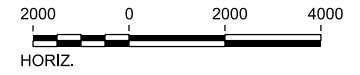
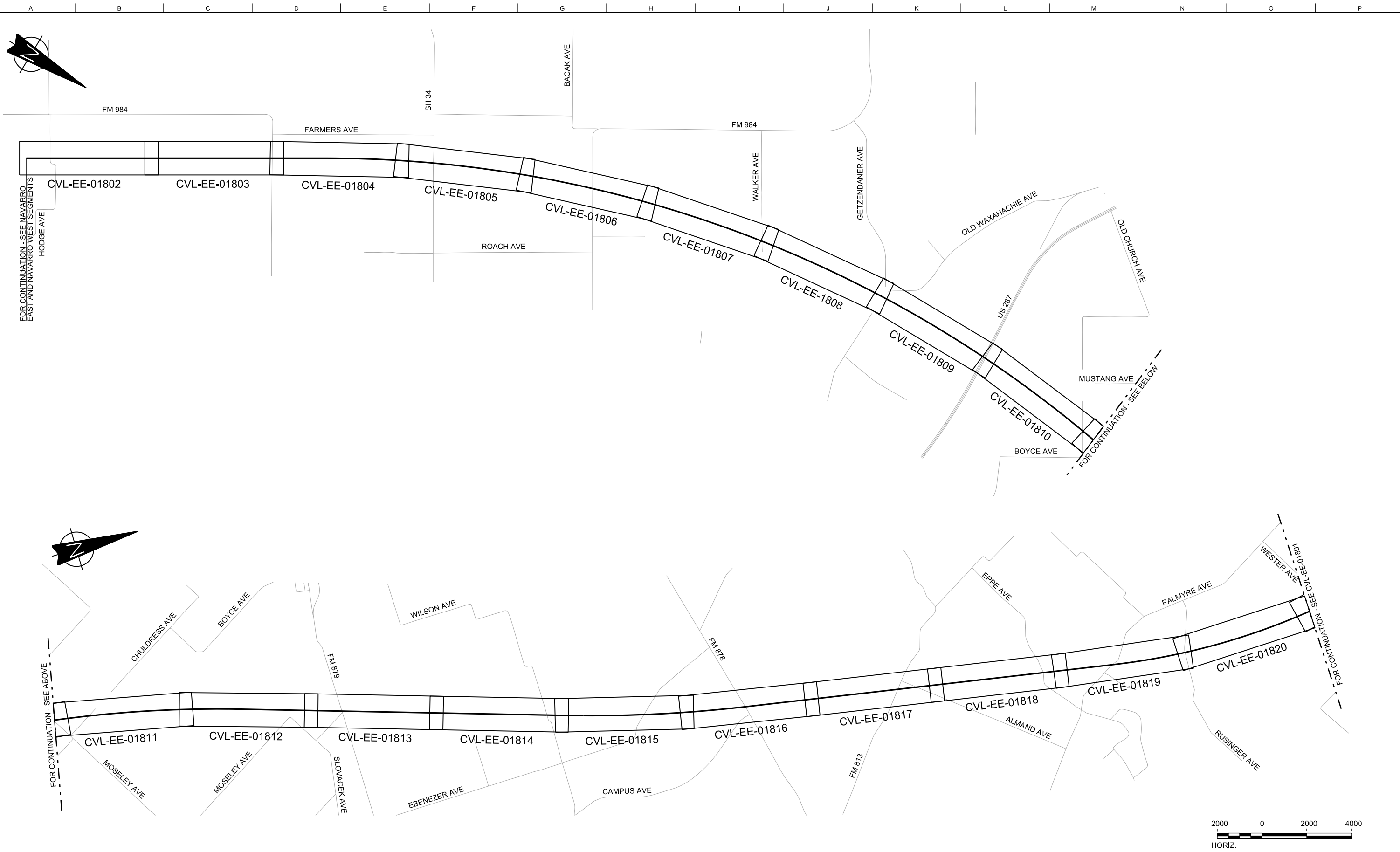
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GENERAL

RAIL ANNOTATION TO CLARIFY DESIGN INTENT

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| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | GEN-00-00010 | 01 | |

2-7
ELLIS EAST SEGMENT



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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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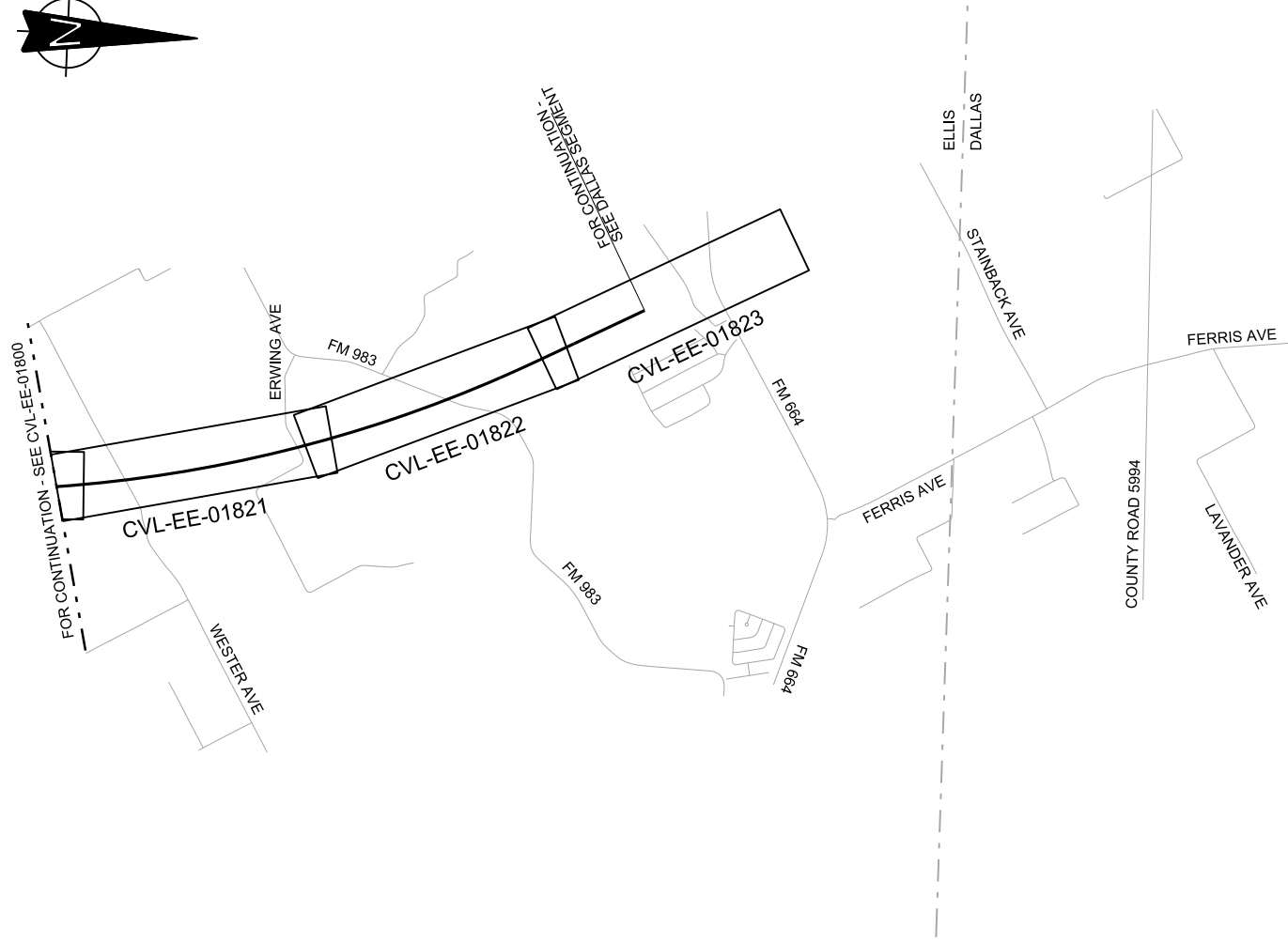
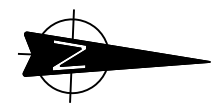
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
KEY MAP - SHEET 1 OF 2
EE 10+00 TO EE 1074+00**

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No 234180 | Drawing No CVL-EE-01800 | Rev 01 |
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| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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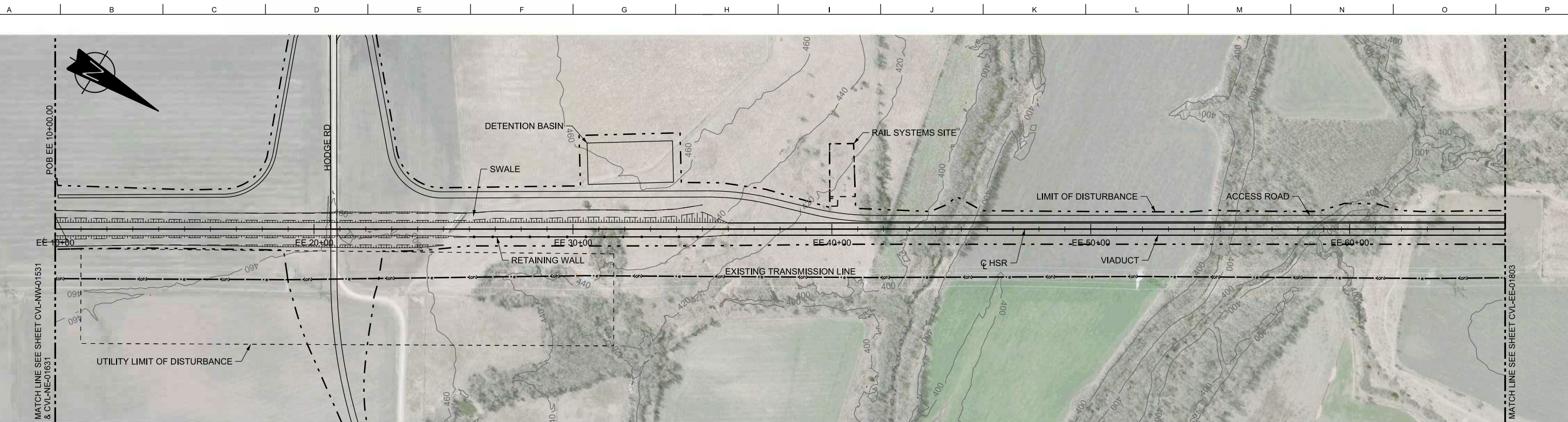
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
KEY MAP - SHEET 2 OF 2
EE 1074+00 TO EE 1208+15**

Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| Job No | Drawing No | Rev |
|--------|--------------|-----|
| 234180 | CVL-EE-01801 | 01 |



PLAN



PROFILE

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| STATIONING | EE 10+00 | EE 20+00 | EE 30+00 | EE 40+00 | EE 50+00 | EE 60+00 | EE 66+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12852 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=8177.11 G=0.000% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +7.5 | +6.6 | +5.7 | +6.1 | +4.5 | +4.1 | +3.3 | +3.3 | +6.7 | +10.2 | +10.9 | +11.9 | +15.5 | +30.2 | +41.9 | +52.5 | +60.5 | +66.6 | +62.5 | +62.2 | +61.4 | +60.8 | +60.5 | +60.0 | +60.3 | +60.5 | +52.4 | +47.1 | +51.2 |
| TYP. SECTION | EMBANKMENT (F) | | | | CUT (H) | | (G) | EMBANKMENT (F) | | | | VIADUCT (K) | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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

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

Client

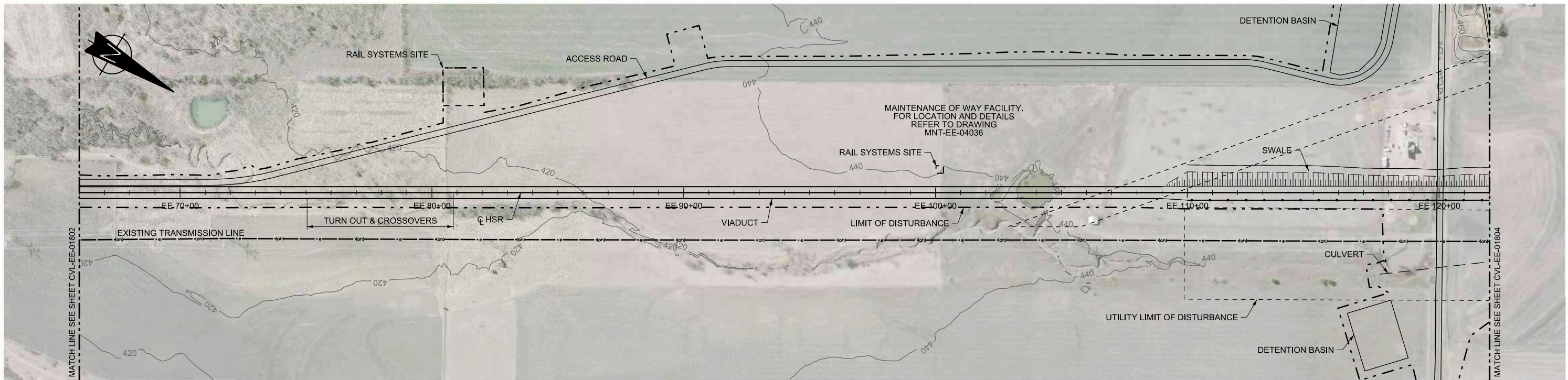
TEXAS CENTRAL

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

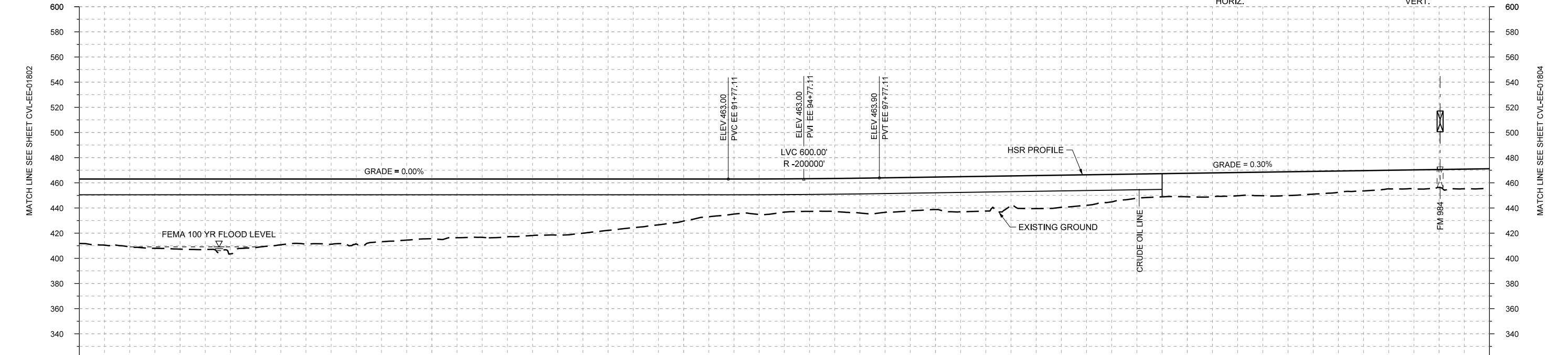
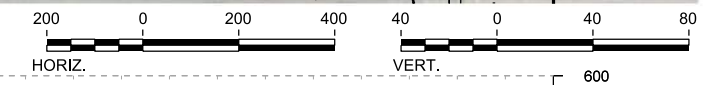
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 10+00 TO EE 66+00**

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-EE-01802 | 01 | |



PLAN



PROFILE

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|----------------|-----------------------|----------|----------|----------|-----------|-----------|------------------------|-----------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 66+00 | EE 70+00 | EE 80+00 | EE 90+00 | EE 100+00 | EE 110+00 | EE 120+00 | EE 122+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12852 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=8177.11 G=0.000% | | | | R=200000 | | L=11836.45 G=0.300% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +51.2 | +53.9 | +55.7 | +59.5 | +52.2 | +51.8 | +49.8 | +47.4 | +46.3 | +44.9 | +43.1 | +36.7 | +33.4 | +27.8 | +26.4 | +26.3 | +27.4 | +25.9 | +27.6 | +26.3 | +24.3 | +19.2 | +18.7 | +18.5 | +18.9 | +17.0 | +14.8 | +14.3 | +15.9 |
| TYP. SECTION | VIADUCT (K) | | | | | | | | | | | | EMBANKMENT (F) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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| | | | | | |
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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

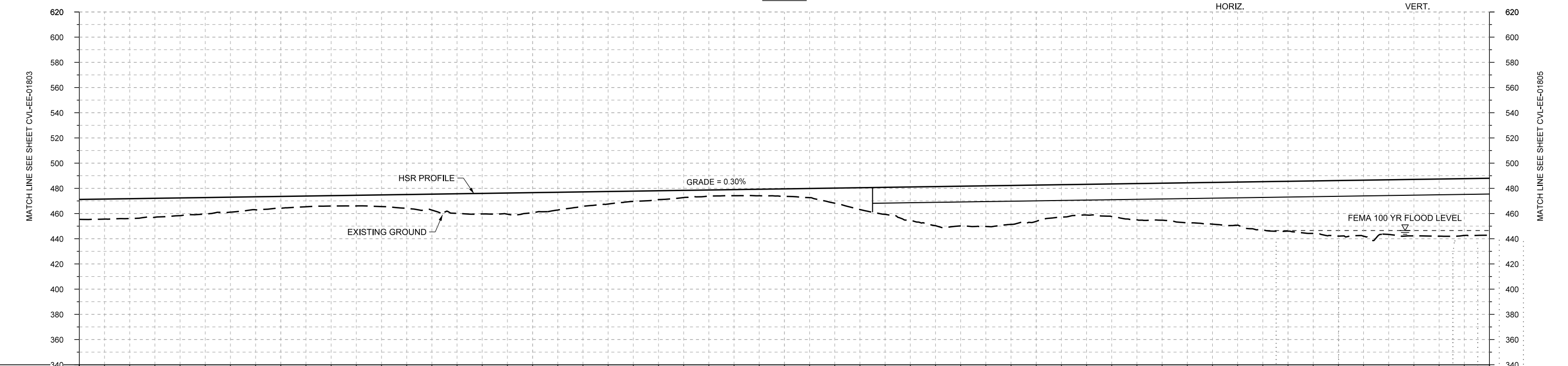
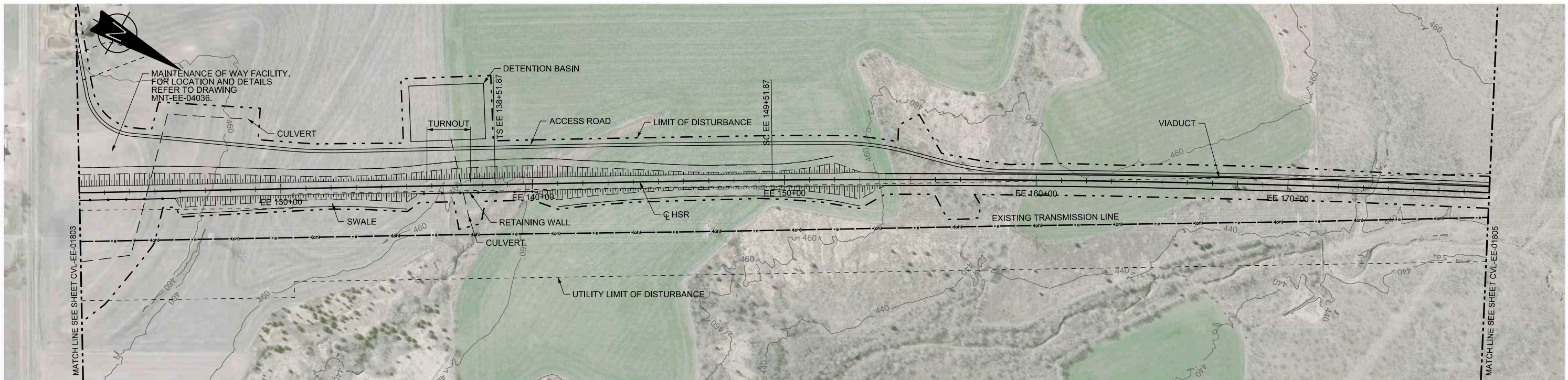
FREESSE AND NICHOLS
 2711 North Haskell Ave., Suite 3300
 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title
ELLIS EAST SEGMENT CIVIL PLAN AND PROFILE EE 66+00 TO EE 122+00

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-EE-01803 | 01 | |



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|----------------|------------------------|-----------|-----------|-----------|--------------------|-----------|-----------|-------|-------|-------|-------|------|------|------|------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 122+00 | EE 130+00 | EE 140+00 | EE 150+00 | EE 160+00 | EE 170+00 | EE 178+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=12852 | | L=1100 | | R=53000 L=43904 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=11836.45 G=0.300% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +15.9 | +15.8 | +14.1 | +11.9 | +8.2 | +8.2 | +9.3 | +12.7 | +16.3 | +18.0 | +11.5 | +8.2 | +5.7 | +4.9 | +6.0 | +12.0 | +21.5 | +31.1 | +32.3 | +28.8 | +24.4 | +28.8 | +31.8 | +34.3 | +39.6 | +44.2 | +43.4 | +45.4 | +45.2 |
| TYP. SECTION | EMBANKMENT (F) | | | | | | | | | | | | | | | VIADUCT (K) | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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|-------------|------------|
| DESIGNED BY | F. DAGRIN |
| DRAWN BY | R. GIBBINS |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |



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



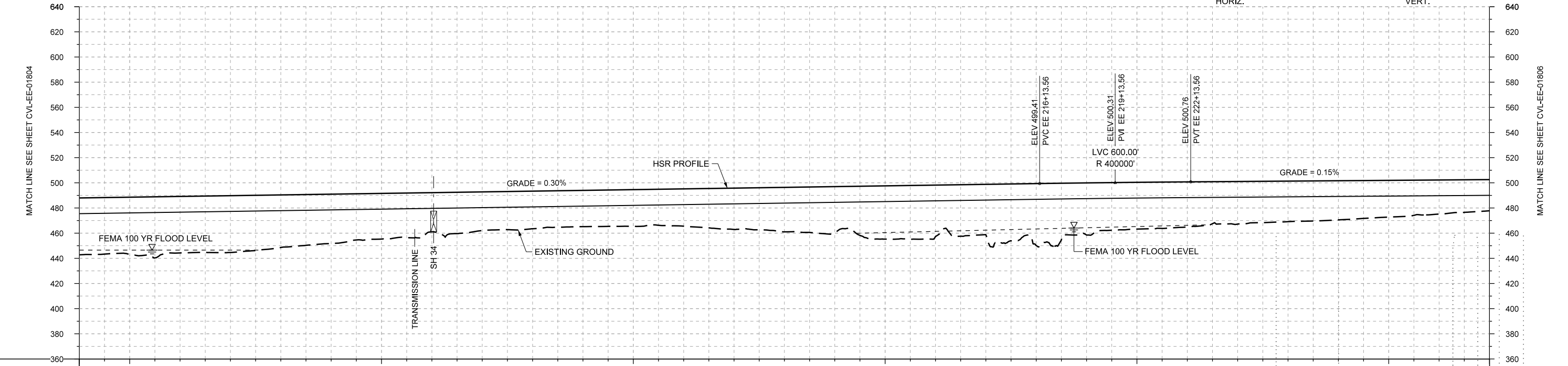
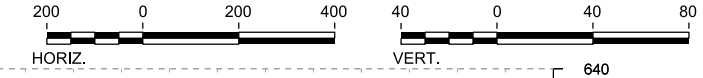
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 122+00 TO EE 178+00

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-EE-01804 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| STATIONING | EE 178+00 | EE 180+00 | EE 190+00 | EE 200+00 | EE 210+00 | EE 220+00 | EE 230+00 | EE 234+00 |
| HOR. ALIGNMENT | R=53000 L=43904 | | | | | | | |
| VER. ALIGNMENT | L=11836.45 G=0.300% | | | | | | | |
| CUT AND FILL | +45.2 | +45.4 | +44.9 | +45.2 | +41.8 | +39.3 | +36.3 | +31.2 |
| TYP. SECTION | VIADUCT (K) | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |
| | | | | | |
| | | | | | |

DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
 Arup Texas, Inc.
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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

Client

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

Drawing Title
ELLIS EAST SEGMENT CIVIL PLAN AND PROFILE EE 178+00 TO EE 234+00

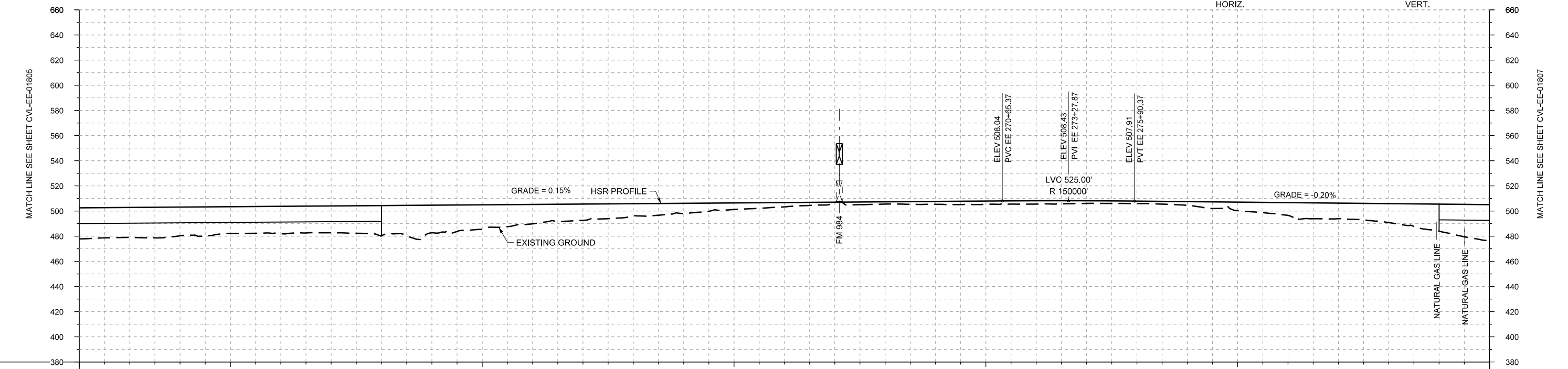
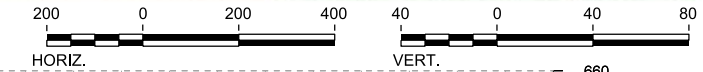
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01805 | 01 |



PLAN



PROFILE

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|----------------|-----------------------|-----------|----------------|-----------|-----------|-----------|-----------|----------------|--|-------------|
| STATIONING | EE 234+00 | EE 240+00 | EE 250+00 | EE 260+00 | EE 270+00 | EE 280+00 | EE 290+00 | | | |
| HOR. ALIGNMENT | R=53000 L=43904 | | | | | | | | | |
| VER. ALIGNMENT | L=4851.81 G=0.150% | | | | | | | | | |
| CUT AND FILL | +24.7 | +23.8 | +22.8 | +21.2 | +21.7 | +21.3 | +24.0 | | | |
| TYP. SECTION | VIADUCT (E) | | EMBANKMENT (A) | | | CUT (C) | | EMBANKMENT (A) | | VIADUCT (E) |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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

Client

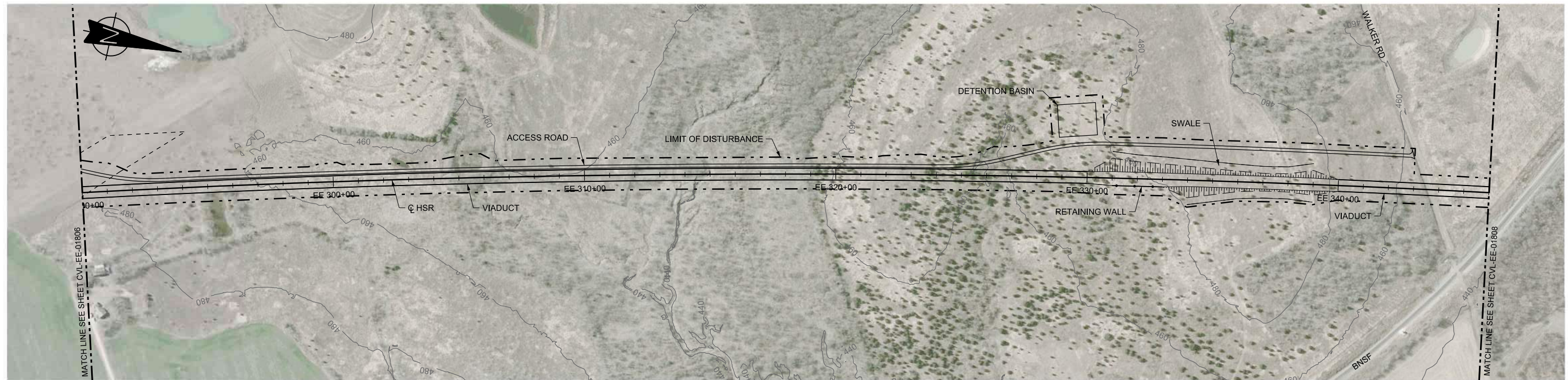
TEXAS CENTRAL

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

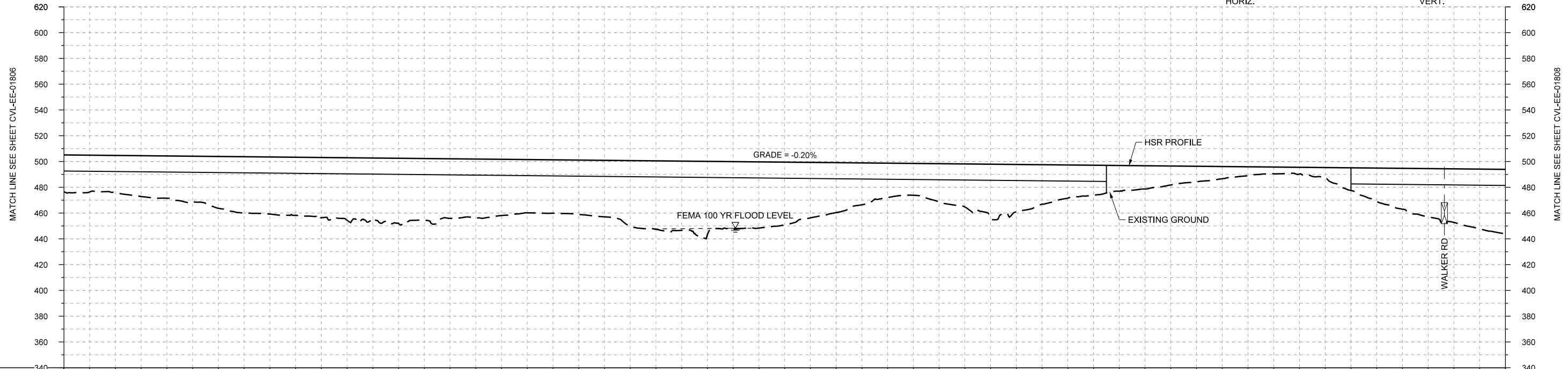
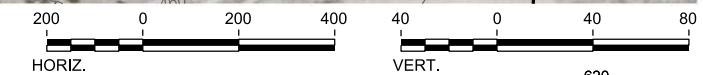
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 234+00 TO EE 290+00**

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|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-EE-01806 | 01 | |



PLAN



PROFILE

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|----------------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| STATIONING | EE 290+00 | EE 300+00 | EE 310+00 | EE 320+00 | EE 330+00 | EE 340+00 | EE 346+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=53000 L=43904 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=7432.18 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +28.8 | +29.1 | +32.8 | +40.2 | +44.3 | +46.8 | +49.2 | +48.1 | +45.8 | +41.3 | +42.2 | +50.9 | +53.7 | +51.9 | +46.7 | +38.8 | +26.7 | +29.7 | +41.2 | +30.5 | +23.3 | +18.1 | +12.1 | +7.0 | +5.3 | +17.6 | +31.7 | +41.6 | +50.0 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | EMBANKMENT (A) | | | | | | VIADUCT (E) | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
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|-------------|------------|
| DESIGNED BY | F. DAGRIN |
| DRAWN BY | R. GIBBINS |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |



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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



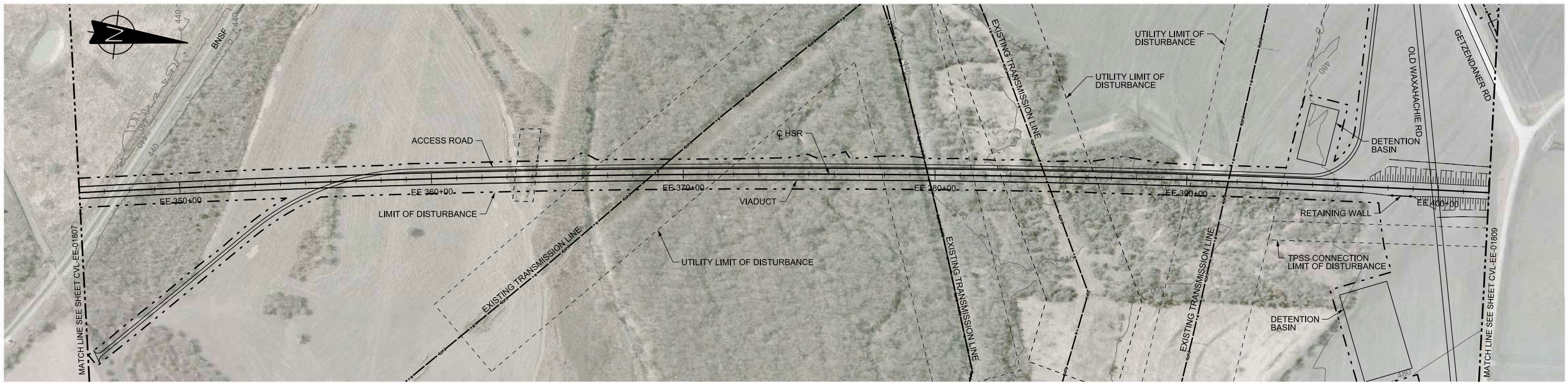
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



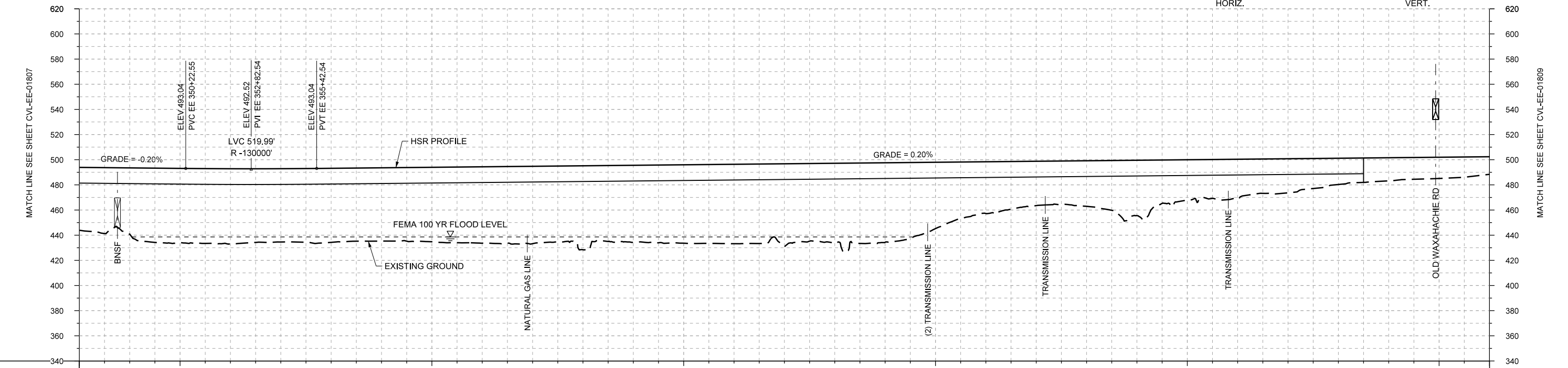
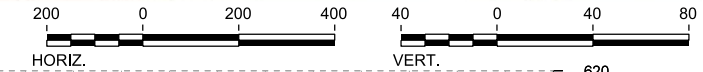
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 290+00 TO EE 346+00**

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-EE-01807 |
| Rev | 01 |



PLAN



PROFILE

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| STATIONING | EE 346+00 | EE 350+00 | EE 360+00 | EE 370+00 | EE 380+00 | EE 390+00 | EE 400+00 | EE 402+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | | | | | R=53000 L=43904 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=7432.18 G=-0.200% | | R=130000 | | L=7344.96 G=0.200% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +50.0 | +52.6 | +59.1 | +59.6 | +56.2 | +56.9 | +58.3 | +59.2 | +60.8 | +61.6 | +66.8 | +61.3 | +62.4 | +63.2 | +66.5 | +62.8 | +63.3 | +52.8 | +41.1 | +33.3 | +36.3 | +44.1 | +32.0 | +31.3 | +27.1 | +20.9 | +18.4 | +16.9 | +14.0 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | EMBANKMENT (F) | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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|-------------|------------|
| DESIGNED BY | F. DAGRIN |
| DRAWN BY | R. GIBBINS |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

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

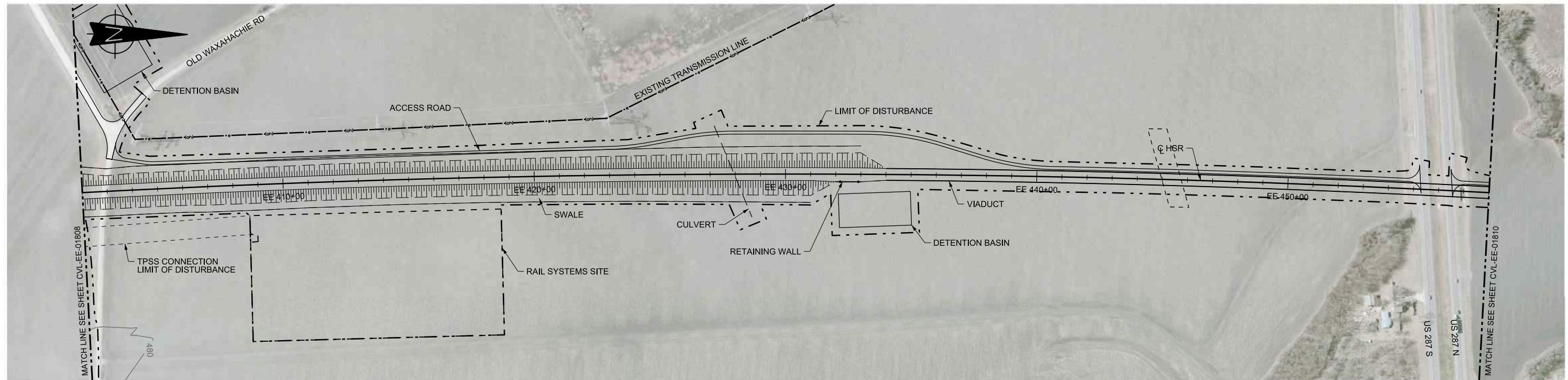
FREES NICHOLS
 2711 North Haskell Ave., Suite 3300
 Dallas, Texas 75204
 Tel (214) 217 2200 Fax (214) 217 2201
 www.freese.com
 Texas Registered Engineering Firm: F-2144

Client

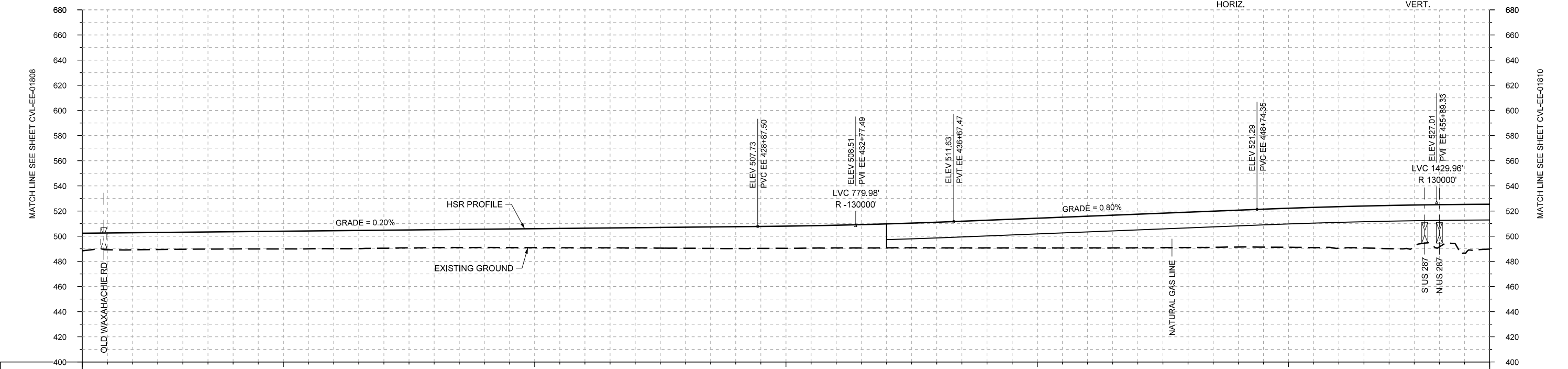
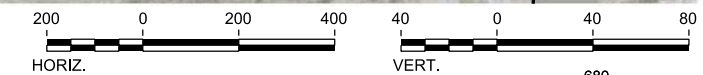
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
ELLIS EAST SEGMENT CIVIL PLAN AND PROFILE EE 346+00 TO EE 402+00

Scale
 AS SHOWN
 Drawing Status
FINAL DRAFT
 Job No: 234180 Drawing No: CVL-EE-01808 Rev: 01



PLAN



PROFILE

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|----------------|-----------------------|-----------|-----------|----------------|-----------|-----------------------|-----------|
| STATIONING | EE 402+00 | EE 410+00 | EE 420+00 | EE 430+00 | EE 440+00 | EE 450+00 | EE 458+00 |
| HOR. ALIGNMENT | R=53000 L=43904 | | | | | | |
| VER. ALIGNMENT | L=7344.96 G=0.200% | | | R=-130000 | | L=1206.88 G=0.800% | |
| CUT AND FILL | +14.0 | +13.6 | +13.6 | +13.7 | +14.1 | +14.3 | +14.4 |
| TYP. SECTION | EMBANKMENT (F) | | | EMBANKMENT (A) | | VIADUCT (E) | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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

Client

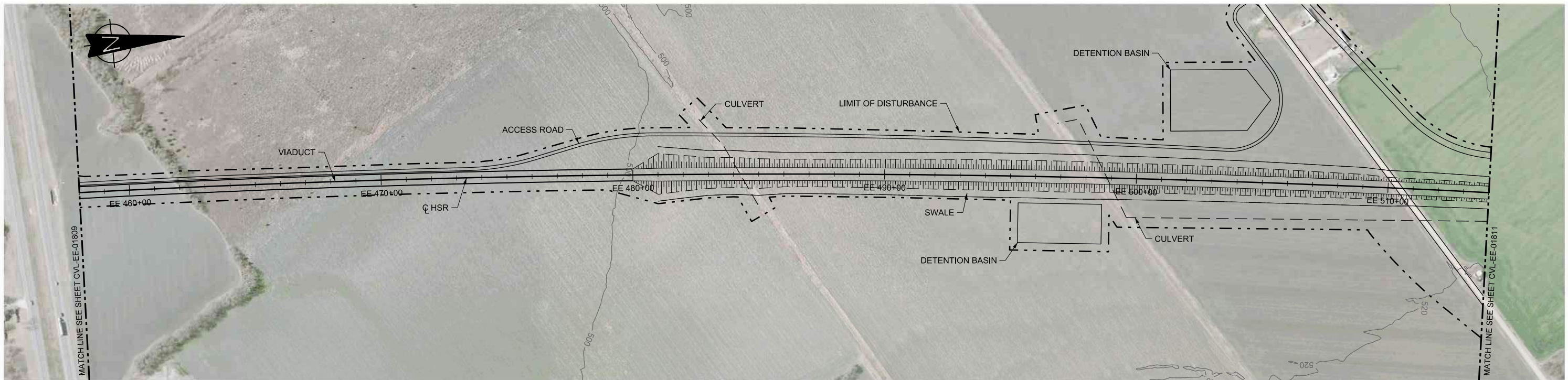
TEXAS CENTRAL
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
ELLIS EAST SEGMENT CIVIL PLAN AND PROFILE EE 402+00 TO EE 458+00

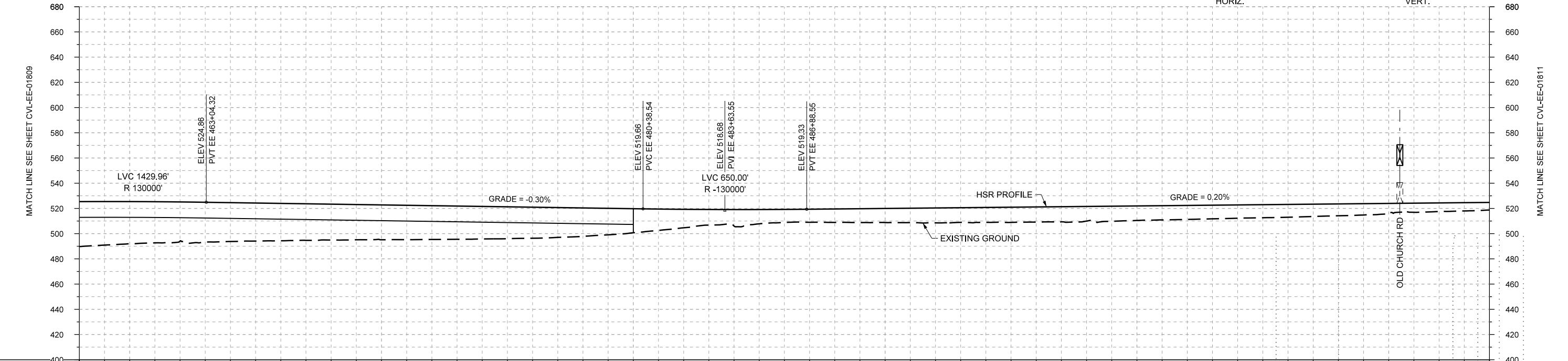
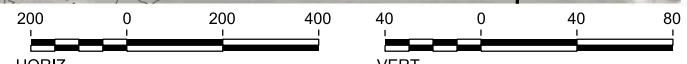
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01809 | 01 |



PLAN



PROFILE

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|----------------|--------------------|-----------|------------------------|-----------|----------------|-----------|-----------|-----------|
| STATIONING | EE 458+00 | EE 460+00 | EE 470+00 | EE 480+00 | EE 490+00 | EE 500+00 | EE 510+00 | EE 514+00 |
| HOR. ALIGNMENT | R=53000 L=43904 | | | | | | | |
| VER. ALIGNMENT | R=130000 | | L=1734.23 G=-0.300% | | | R=130000 | | |
| CUT AND FILL | +35.7 | +33.4 | +31.0 | +30.8 | +29.6 | +28.4 | +27.7 | +26.8 |
| TYP. SECTION | VIADUCT (E) | | | | EMBANKMENT (A) | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |
| | | | | | |
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-1990

FREESSE 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

Client

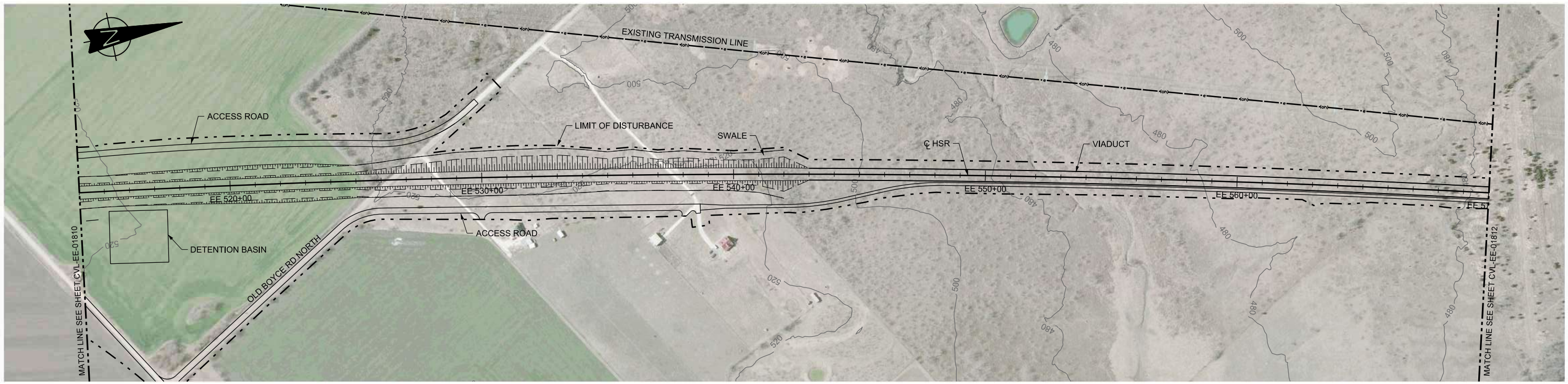
TEXAS CENTRAL

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

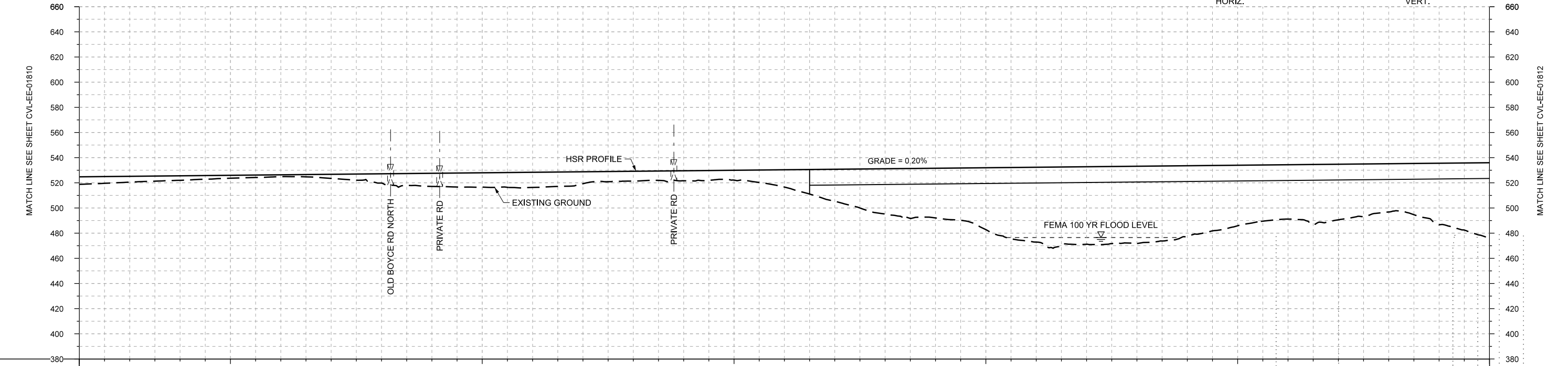
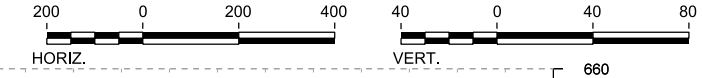
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 458+00 TO EE 514+00**

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-EE-01810 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|------------------------|-----------|-----------|-----------|-----------|----------------|-----------|-------|-------|-------|-------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 514+00 | EE 520+00 | EE 530+00 | EE 540+00 | EE 550+00 | EE 560+00 | EE 570+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=53000 L=43904 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=13825.57 G=0.200% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +6.0 | +4.7 | +3.6 | +2.3 | +1.5 | +3.3 | +7.4 | +10.5 | +11.4 | +12.1 | +9.5 | +7.9 | +8.0 | +7.8 | +13.8 | +25.5 | +36.0 | +39.5 | +49.2 | +59.5 | +61.6 | +61.5 | +56.2 | +48.1 | +43.2 | +44.2 | +38.4 | +49.0 | +60.1 |
| TYP. SECTION | (A) | | CUT (C) | | | EMBANKMENT (A) | | | | | VIADUCT (K) | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

Arup Texas, Inc.
10370 Richmond Ave., Suite 475
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
www.freese.com
Texas Registered Engineering Firm: F-2144

Client

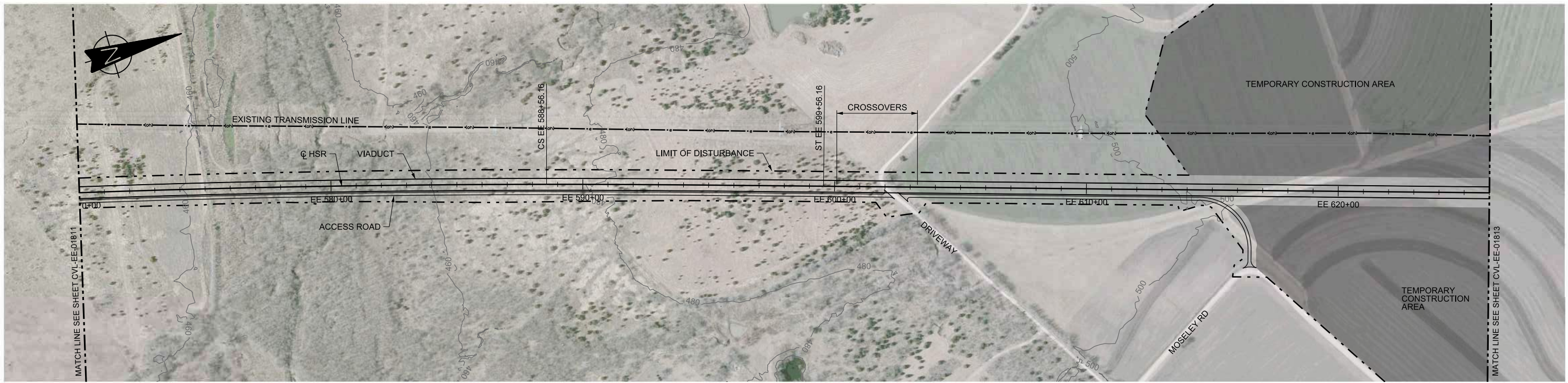
TEXAS CENTRAL

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

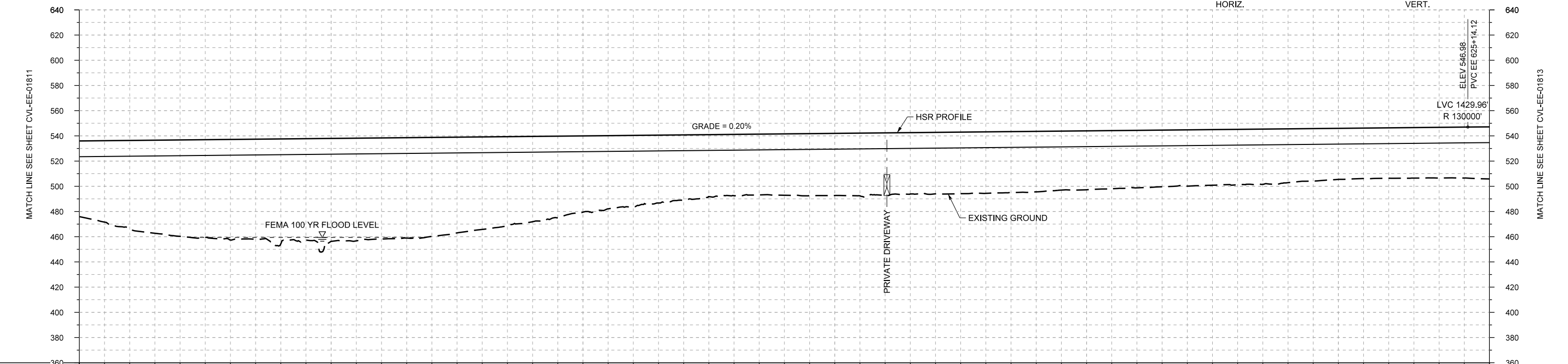
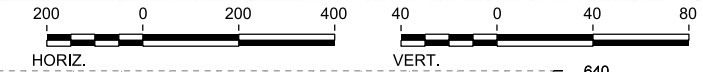
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 514+00 TO EE 570+00**

| | |
|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-EE-01811 |
| Rev | 01 |



PLAN



PROFILE

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| STATIONING | EE 570+00 | EE 580+00 | EE 590+00 | EE 600+00 | EE 610+00 | EE 620+00 | EE 626+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=53000 L=43904 | | L=1100 | | L=13168 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=13825.57 G=0.200% | | | | R=130000 | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +60.1 | +70.1 | +76.5 | +79.8 | +83.3 | +81.7 | +80.2 | +78.6 | +73.4 | +67.7 | +60.5 | +56.5 | +51.8 | +48.7 | +46.7 | +49.3 | +49.6 | +48.8 | +48.8 | +48.0 | +46.7 | +45.6 | +44.7 | +44.1 | +42.7 | +40.5 | +40.0 | +40.3 | +41.3 |
| TYP. SECTION | VIADUCT (K) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-------------|------------|
| DESIGNED BY | F. DAGRIN |
| DRAWN BY | R. GIBBINS |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
| | | | | | |

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

Client

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

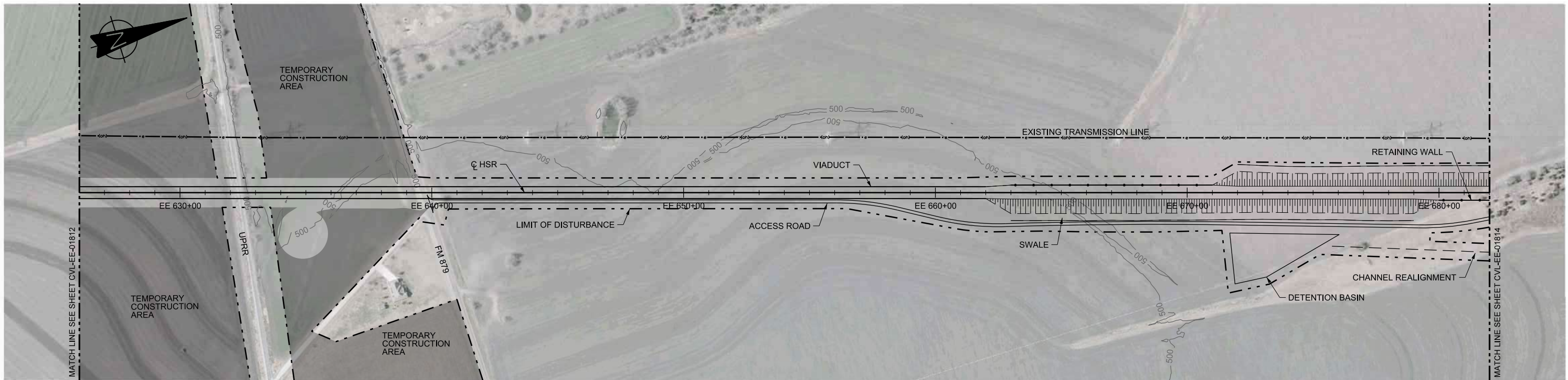
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 570+00 TO EE 626+00**

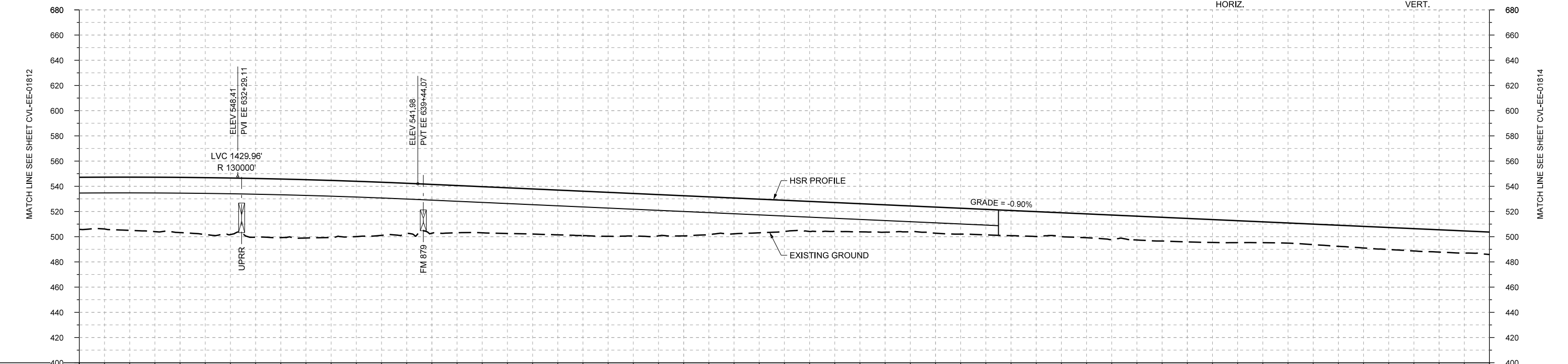
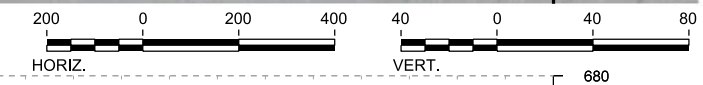
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01812 | 01 |



PLAN



PROFILE

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|----------------|-------------|-----------|-----------|-----------|----------------|-----------|-----------|-----------|
| STATIONING | EE 626+00 | EE 630+00 | EE 640+00 | EE 650+00 | EE 660+00 | EE 670+00 | EE 680+00 | EE 682+00 |
| HOR. ALIGNMENT | L=13168 | | | | | | | |
| VER. ALIGNMENT | R=130000 | | | | | | | |
| CUT AND FILL | +41.3 | +42.2 | +43.8 | +44.8 | +46.5 | +45.3 | +42.2 | +38.7 |
| TYP. SECTION | VIADUCT (K) | | | | EMBANKMENT (F) | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



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www.arup.com
Texas Registered Engineering Firm: F-1990



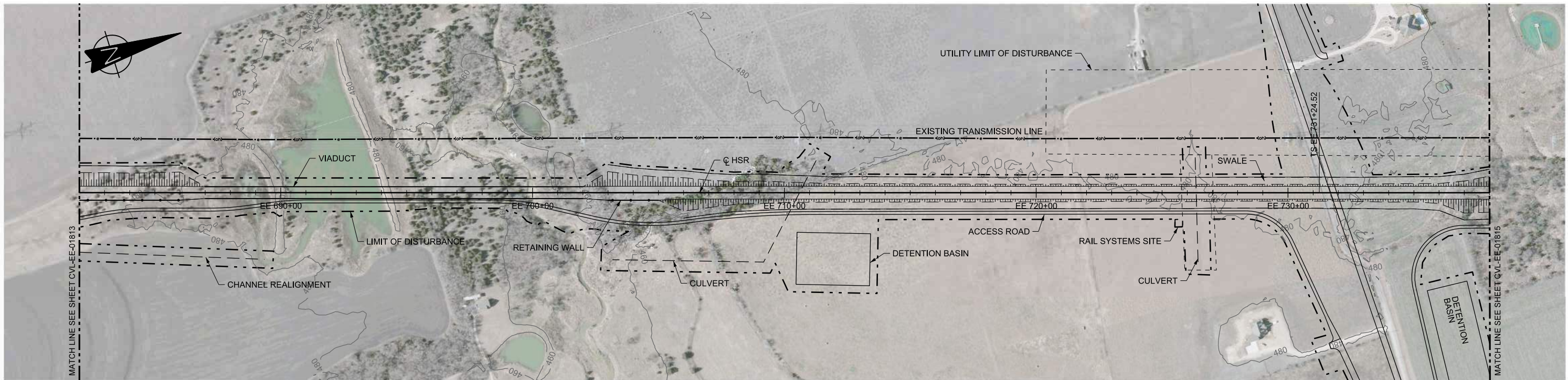
2711 North Haskell Ave., Suite 3300
Dallas, Texas 75204
Tel (214) 217 2200 Fax (214) 217 2201
www.freese.com
Texas Registered Engineering Firm: F-2144



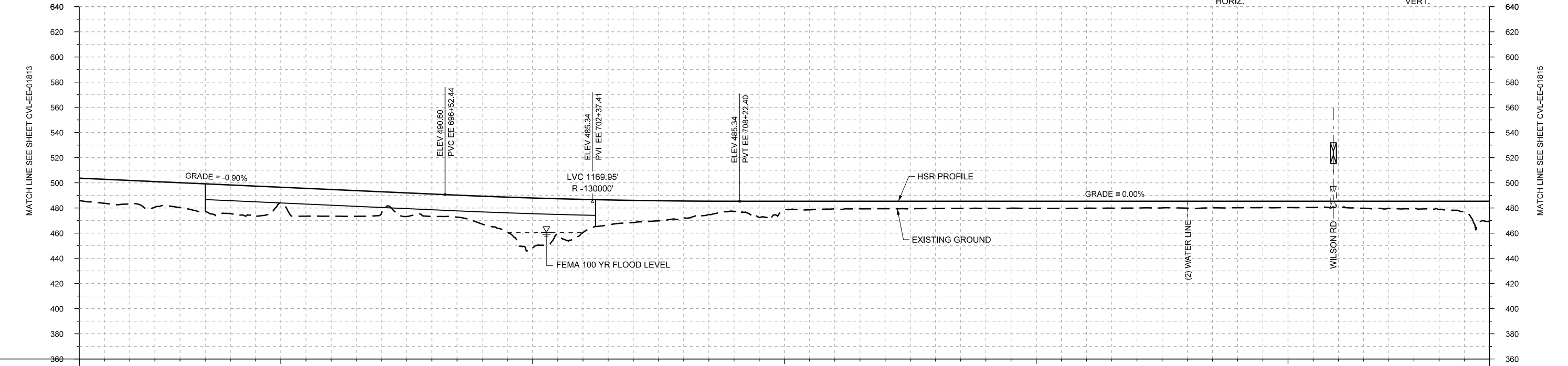
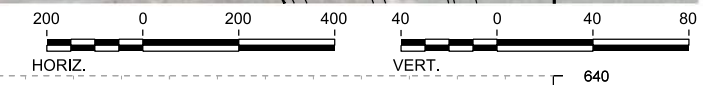
Client
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 626+00 TO EE 682+00**

| | | | |
|----------------|-------------|------------|--------------|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | 234180 | Drawing No | CVL-EE-01813 |
| Rev | | | 01 |



PLAN



PROFILE

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|----------------|------------------------|-----------|-----------|-------------|-----------------------|-----------|-----------|----------------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| STATIONING | EE 682+00 | EE 690+00 | EE 700+00 | EE 710+00 | EE 720+00 | EE 730+00 | EE 738+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=13168 | | | | L=1650 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=5708.37 G=-0.900% | | | | L=6947.58 G=0.000% | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +17.8 | +18.6 | +19.8 | +22.8 | +12.4 | +21.3 | +17.1 | +17.8 | +22.2 | +39.8 | +26.3 | +17.6 | +13.7 | +8.0 | +7.2 | +6.0 | +5.9 | +5.8 | +5.6 | +5.6 | +5.5 | +5.4 | +5.4 | +5.1 | +5.0 | +4.9 | +5.7 | +6.4 | +6.4 |
| TYP. SECTION | EMBANKMENT (F) | | | VIADUCT (K) | | | | EMBANKMENT (F) | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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

Client

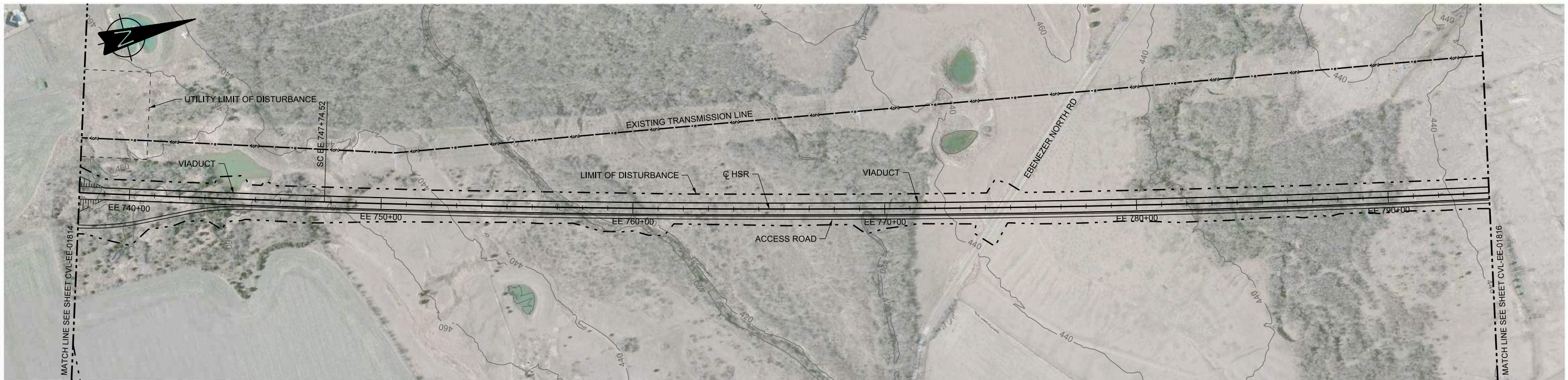
TEXAS CENTRAL

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

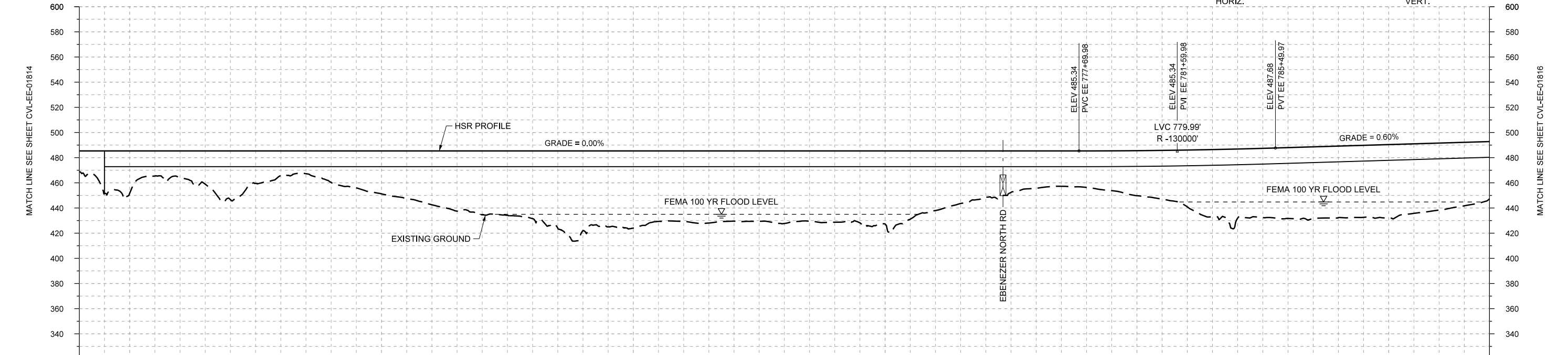
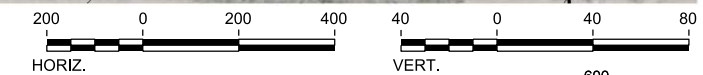
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 682+00 TO EE 738+00**

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|----------------|--------------|
| Scale | AS SHOWN |
| Drawing Status | FINAL DRAFT |
| Job No | 234180 |
| Drawing No | CVL-EE-01814 |
| Rev | 01 |



PLAN



PROFILE

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|----------------|-----------------------|-----------|-------------|-----------|--------------------|-----------|-----------|-----------------------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 738+00 | EE 740+00 | EE 750+00 | EE 760+00 | EE 770+00 | EE 780+00 | EE 790+00 | EE 794+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=1650 | | | | R=-60000 L=6342 | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=6947.58 G=0.000% | | | | R=-130000 | | | L=4561.62 G=0.600% | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +16.4 | +33.6 | +21.1 | +38.7 | +19.4 | +25.0 | +34.1 | +42.8 | +50.7 | +53.8 | +63.3 | +61.3 | +58.0 | +58.8 | +57.6 | +58.6 | +58.1 | +47.3 | +36.7 | +29.7 | +29.0 | +35.7 | +45.2 | +55.0 | +56.3 | +56.8 | +58.5 | +53.2 | +45.5 |
| TYP. SECTION | (F) | | VIADUCT (K) | | | | | | | | | | VIADUCT (E) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP
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Texas Registered Engineering Firm: F-2144

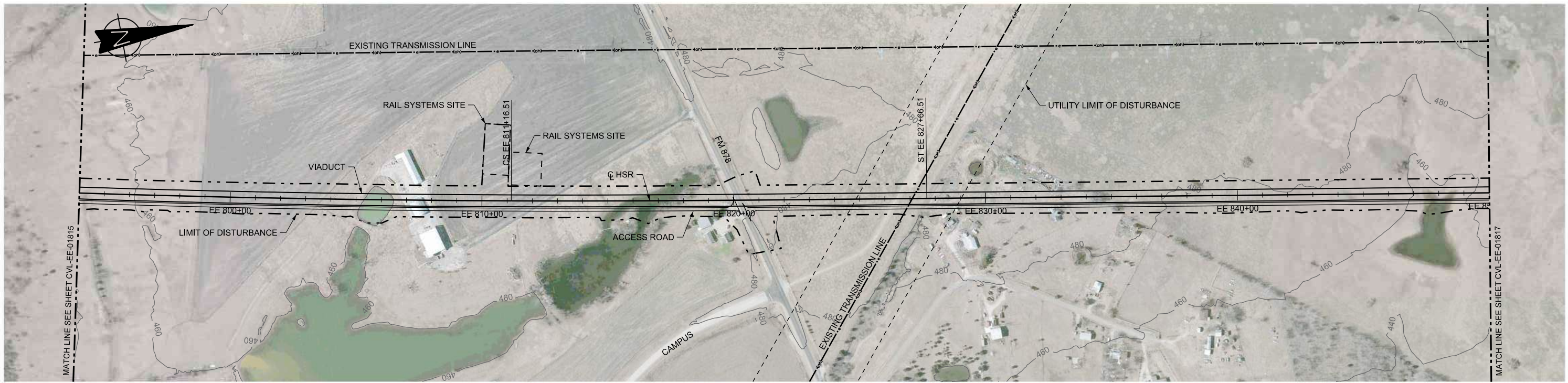
Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
ELLIS EAST SEGMENT CIVIL PLAN AND PROFILE EE 738+00 TO EE 794+00

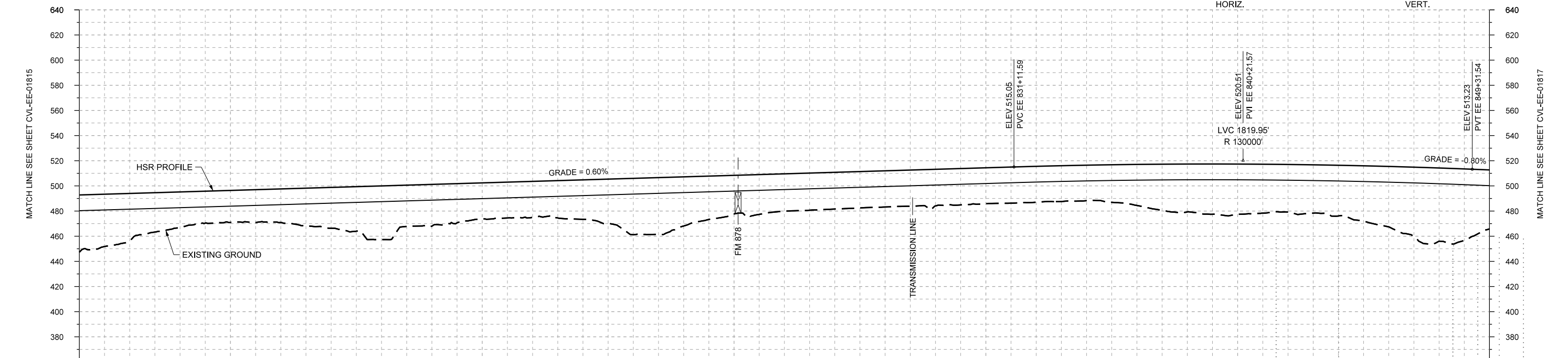
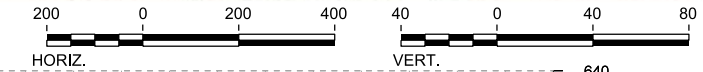
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01815 | 01 |



PLAN



PROFILE

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|----------------|-------------------|-----------|-----------|-----------------------|---------------------|-----------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 794+00 | EE 800+00 | EE 810+00 | EE 820+00 | EE 830+00 | EE 840+00 | EE 850+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | | | | L=1650 | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | R=60000 L=6342 | | | L=4561.62 G=0.600% | L=14932 R=130000 | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +45.5 | +36.0 | +26.5 | +26.4 | +26.6 | +32.5 | +42.7 | +33.2 | +28.6 | +28.7 | +31.4 | +44.8 | +39.1 | +30.7 | +29.8 | +29.2 | +28.8 | +29.1 | +28.6 | +28.5 | +28.2 | +32.7 | +38.1 | +39.9 | +37.8 | +40.3 | +48.1 | +58.2 | +46.9 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

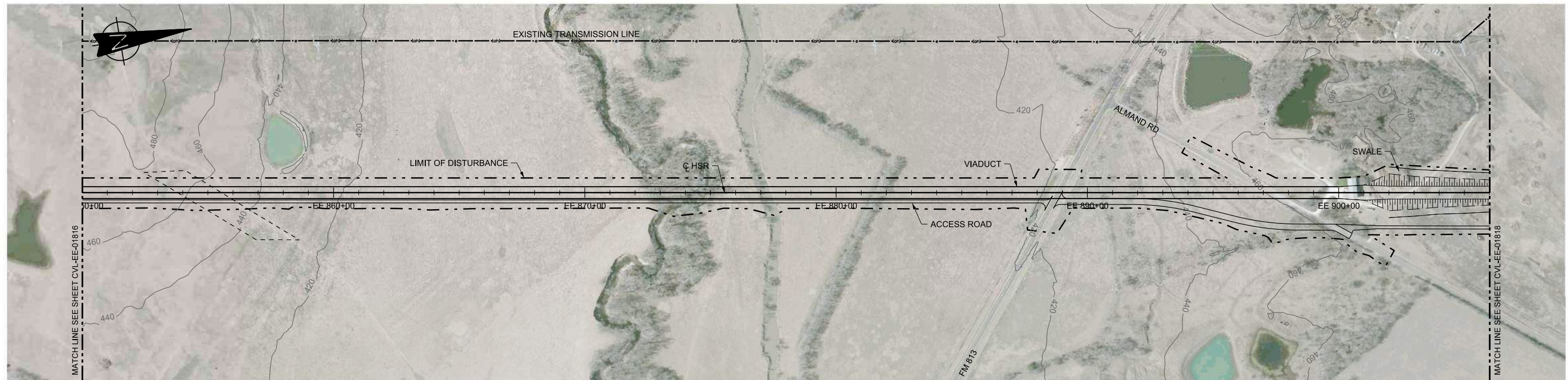
Client
TEXAS CENTRAL
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title
ELLIS EAST SEGMENT CIVIL PLAN AND PROFILE EE 794+00 TO EE 850+00

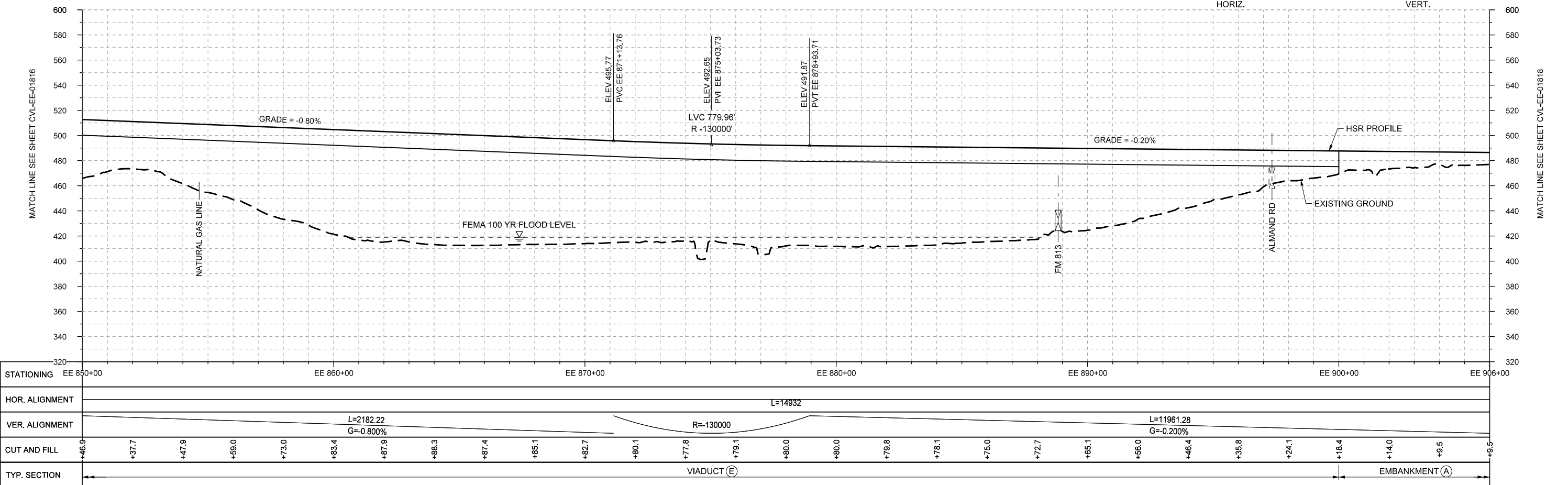
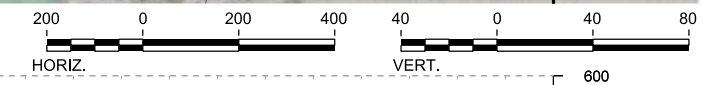
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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|-------------------------|-----------------------------------|------------------|
| Job No 234180 | Drawing No CVL-EE-01816 | Rev 01 |
|-------------------------|-----------------------------------|------------------|



PLAN



PROFILE

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|----------------|------------------------|-----------|-----------|-----------|-----------|-------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| STATIONING | EE 850+00 | EE 860+00 | EE 870+00 | EE 880+00 | EE 890+00 | EE 900+00 | EE 906+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=14932 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=2182.22 G=-0.800% | | | R=-130000 | | L=11961.28 G=-0.200% | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +46.9 | +37.7 | +47.9 | +59.0 | +73.0 | +83.4 | +87.9 | +88.3 | +87.4 | +85.1 | +82.7 | +80.1 | +77.8 | +79.1 | +80.0 | +80.0 | +79.8 | +78.1 | +76.0 | +72.7 | +65.1 | +66.0 | +46.4 | +35.8 | +24.1 | +18.4 | +14.0 | +9.5 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | | | | | EMBANKMENT (A) | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

ARUP

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Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

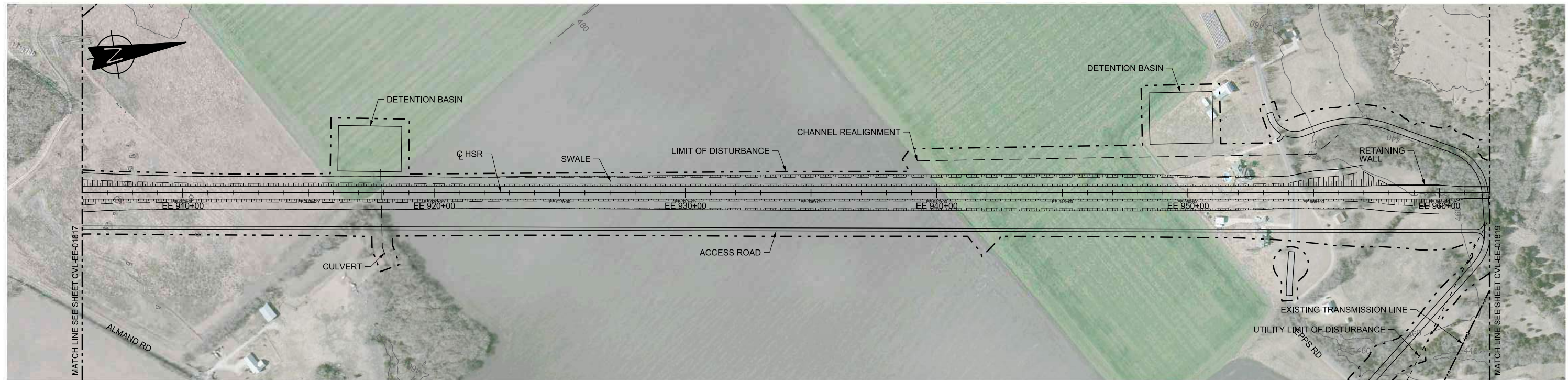
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 850+00 TO EE 906+00**

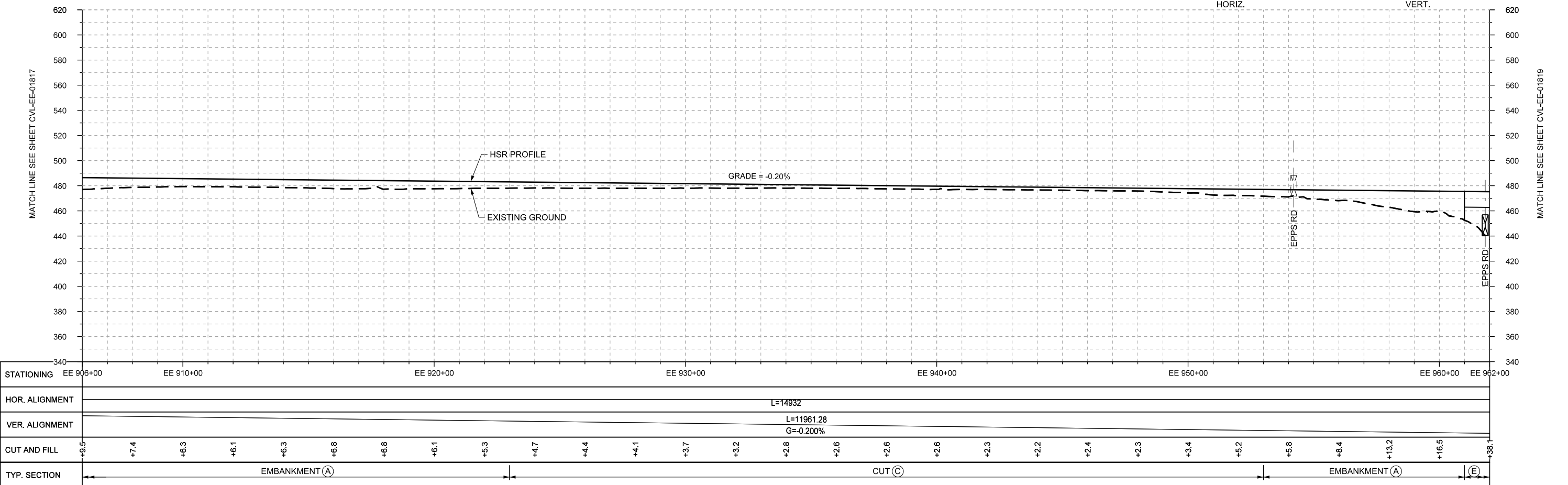
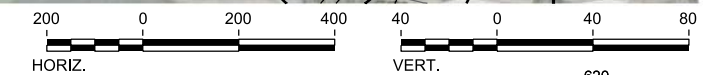
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

| | | |
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| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01817 | 01 |



PLAN



PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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

Client

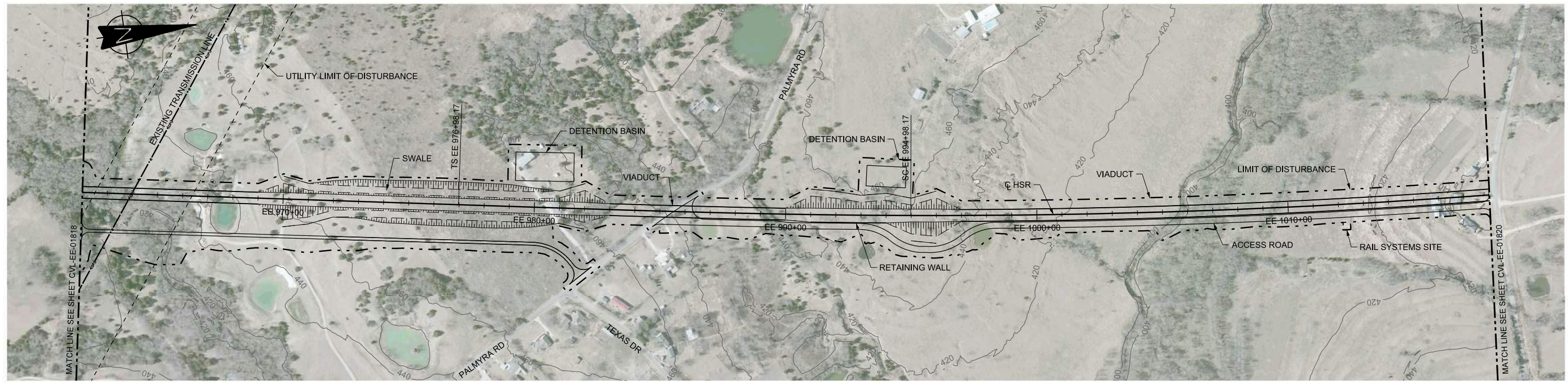
TEXAS CENTRAL

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

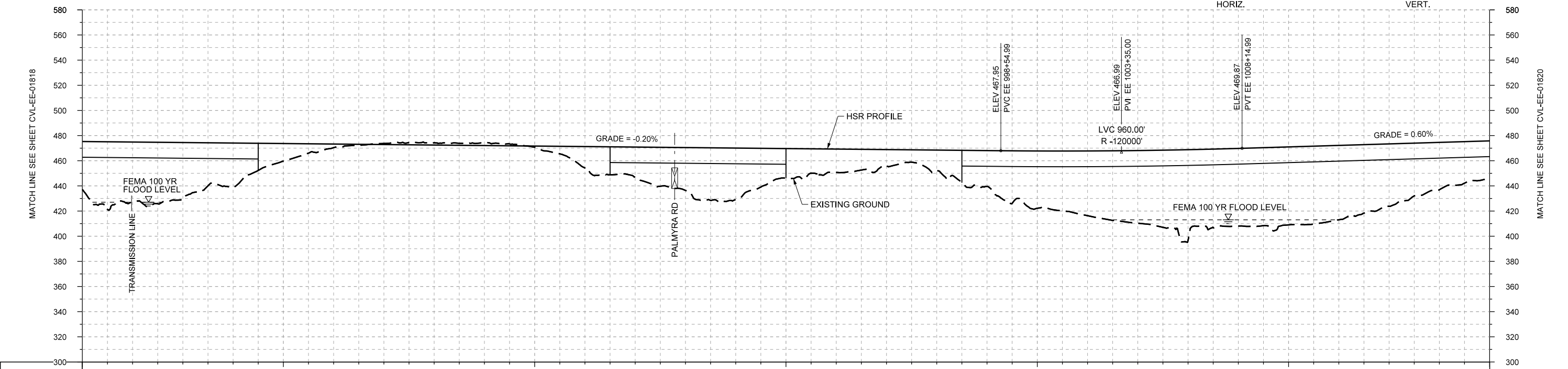
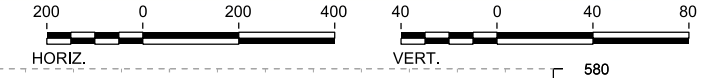
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
STA. 90896+00 TO 90952+00**

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| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-EE-01818 | Rev 01 |



PLAN



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|----------------|-------------|-----------|-------------------------|-----------|------------|------------------------------------|------------|------|------|-------------|-------|----------------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 962+00 | EE 970+00 | EE 980+00 | EE 990+00 | EE 1000+00 | EE 1010+00 | EE 1018+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | L=14932 | | L=1800 | | | R=-30000 L=17781 | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | | | L=11961.28 G=-0.200% | | | R=-120000 L=6838.94 G=0.600% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +38.1 | +47.7 | +45.1 | +35.4 | +13.9 | +2.9 | -0.8 | -1.8 | -1.8 | +0.9 | +17.0 | +24.0 | +34.1 | +40.9 | +23.5 | +18.6 | +13.0 | +16.4 | +28.6 | +45.5 | +51.5 | +57.8 | +72.0 | +61.7 | +62.0 | +59.1 | +49.6 | +37.7 | +29.9 |
| TYP. SECTION | VIADUCT (E) | | EMBANKMENT (A) | | CUT (C) | | | (A) | | VIADUCT (E) | | EMBANKMENT (A) | | | VIADUCT (E) | | | | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

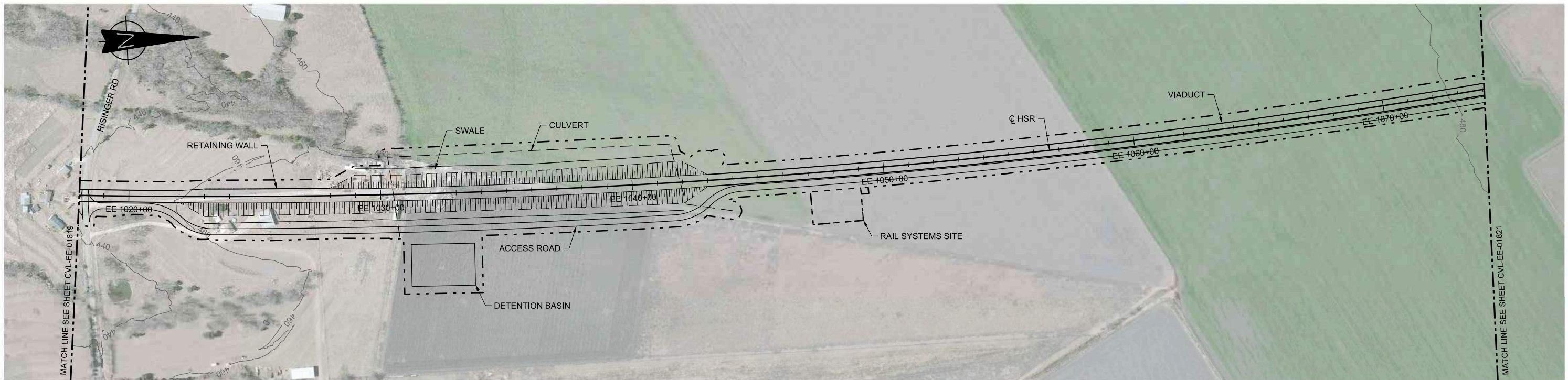
TEXAS CENTRAL

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

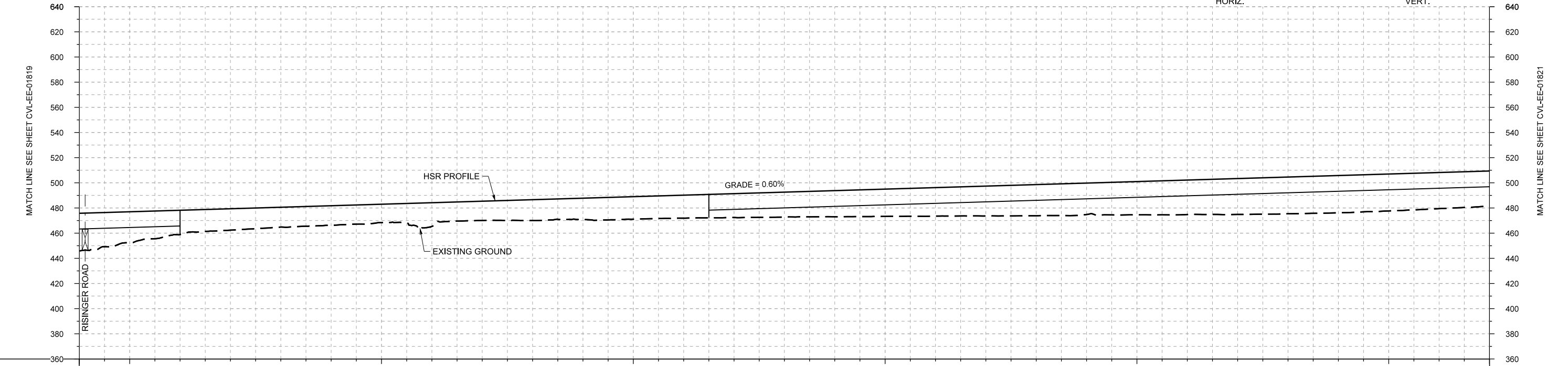
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 962+00 TO EE 1018+00**

| | | | |
|----------------|--------------|-----|--|
| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-EE-01819 | 01 | |



PLAN



PROFILE

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|----------------|-----------------------|------------|----------------|------------|------------|------------|------------|------------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 1018+00 | EE 1020+00 | EE 1030+00 | EE 1040+00 | EE 1050+00 | EE 1060+00 | EE 1070+00 | EE 1074+00 | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=30000 L=17781 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=6838.94 G=0.600% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +23.9 | +24.6 | +19.3 | +17.0 | +15.8 | +15.5 | +14.6 | +18.9 | +15.3 | +18.6 | +17.0 | +17.9 | +18.3 | +19.0 | +19.9 | +20.8 | +21.7 | +22.7 | +23.8 | +24.8 | +25.0 | +26.5 | +27.4 | +28.5 | +29.2 | +29.6 | +29.3 | +28.7 | +27.9 |
| TYP. SECTION | VIADUCT (E) | | EMBANKMENT (A) | | | | | | | | | | VIADUCT (E) | | | | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

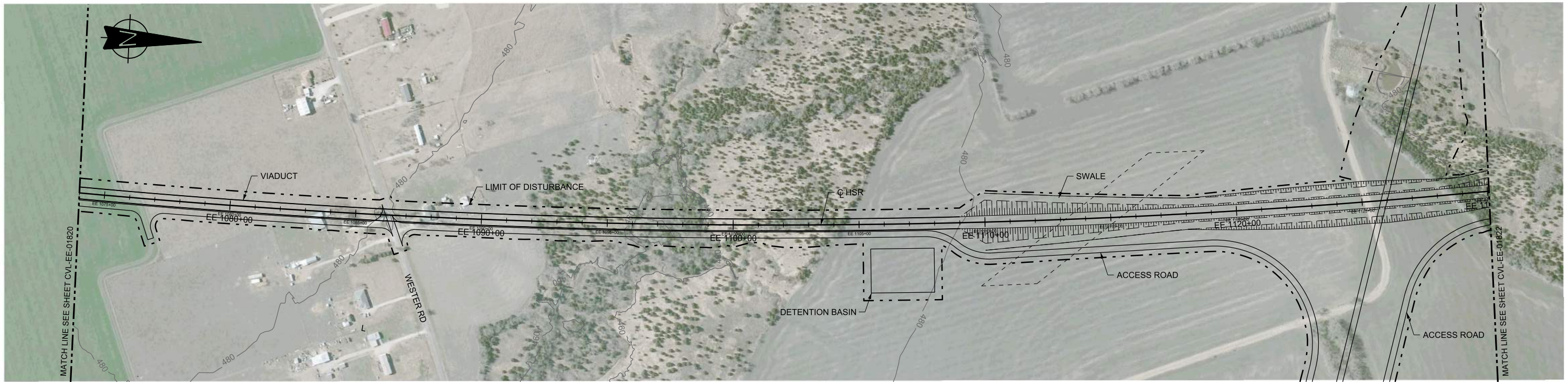
TEXAS CENTRAL

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

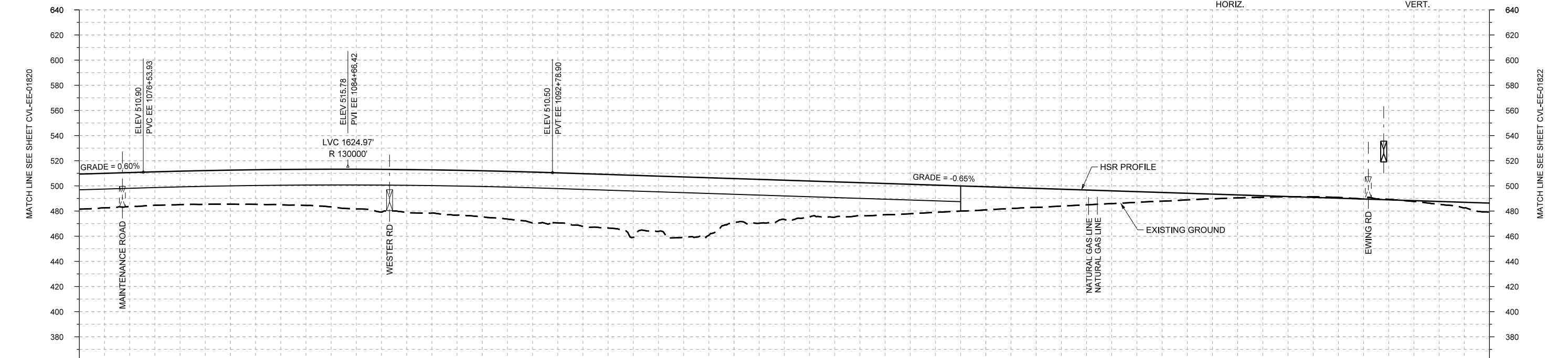
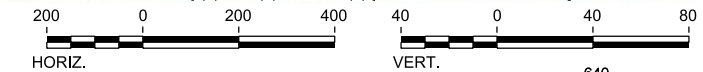
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 1018+00 TO EE 1074+00**

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| Scale | AS SHOWN | | |
| Drawing Status | FINAL DRAFT | | |
| Job No | Drawing No | Rev | |
| 234180 | CVL-EE-01820 | 01 | |



PLAN



PROFILE

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|----------------|-----------------------|------------|------------|------------|------------|------------------------|------------|-------|-------|-------|----------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| STATIONING | EE 1074+00 | EE 1080+00 | EE 1090+00 | EE 1100+00 | EE 1110+00 | EE 1120+00 | EE 1130+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=30000 L=17781 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=6838.94 G=0.600% | | R=130000 | | | L=5505.22 G=-0.650% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +27.9 | +27.0 | +26.6 | +27.0 | +28.0 | +29.9 | +34.0 | +34.3 | +36.6 | +40.6 | +41.9 | +46.3 | +47.9 | +34.8 | +31.2 | +28.1 | +24.8 | +21.7 | +18.4 | +15.1 | +11.8 | +8.5 | +5.2 | +2.3 | +0.1 | -0.6 | -0.4 | +2.3 | +7.3 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | EMBANKMENT (A) | | | | | CUT (C) | | | | | | | | | | | | | |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017

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Texas Registered Engineering Firm: F-2144

Client

TEXAS CENTRAL

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

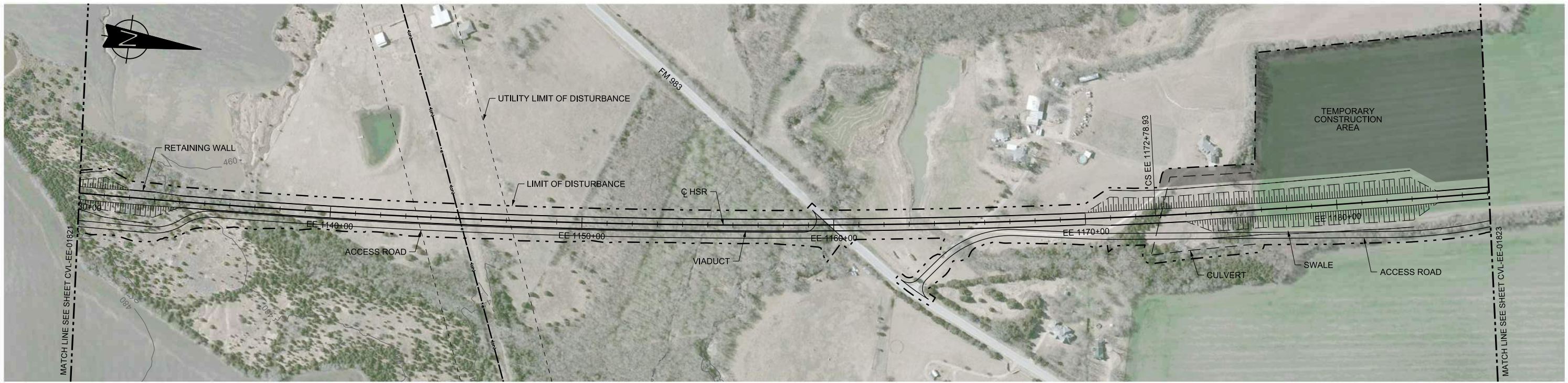
Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 1074+00 TO EE 1130+00**

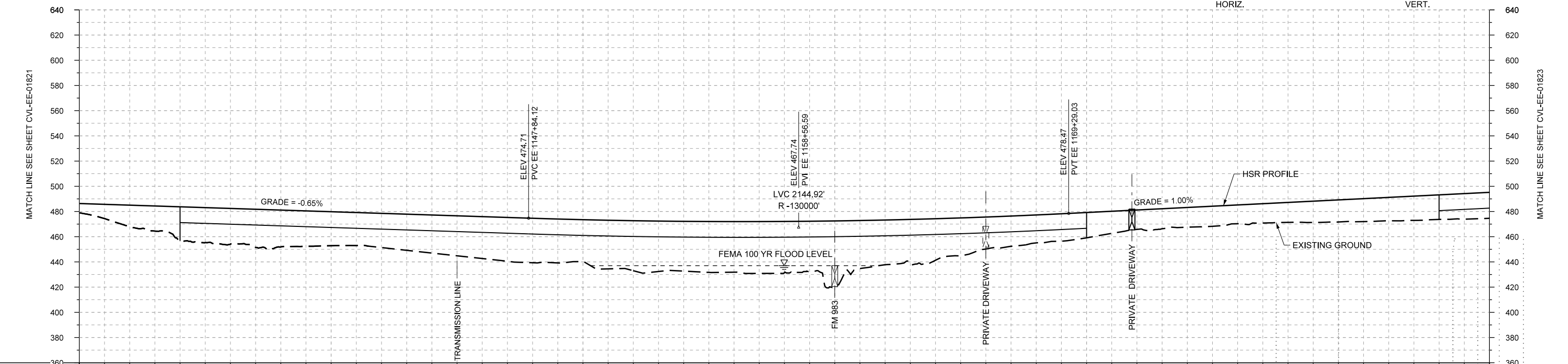
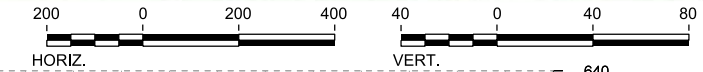
Scale
AS SHOWN

Drawing Status
FINAL DRAFT

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|--------|--------------|-----|
| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01821 | 01 |



PLAN



PROFILE

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|----------------|------------------------|------------|------------|-------------|------------|-----------------------|------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 1130+00 | EE 1140+00 | EE 1150+00 | EE 1160+00 | EE 1170+00 | EE 1180+00 | EE 1186+00 | | | | | | | | | | | | | | | | | | | | | | |
| HOR. ALIGNMENT | R=30000 L=17781 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VER. ALIGNMENT | L=5505.22 G=-0.650% | | | R=130000 | | L=3885.94 G=1.000% | | | | | | | | | | | | | | | | | | | | | | | |
| CUT AND FILL | +7.3 | +16.9 | +27.0 | +28.3 | +29.2 | +27.0 | +27.1 | +30.2 | +33.2 | +35.3 | +33.2 | +39.7 | +39.5 | +40.2 | +40.5 | +52.0 | +35.4 | +33.0 | +25.4 | +22.1 | +20.1 | +15.4 | +15.7 | +14.9 | +15.8 | +17.5 | +18.6 | +19.5 | +20.6 |
| TYP. SECTION | EMBANKMENT (A) | | | VIADUCT (E) | | | | | | | | | | EMBANKMENT (A) | | | VIADUCT (E) | | | | | | | | | | | | |

| | |
|-------------|------------|
| DESIGNED BY | F. DAGRIN |
| DRAWN BY | R. GIBBINS |
| CHECKED BY | K. SEYMOUR |
| IN CHARGE | C. TAYLOR |
| DATE | 09/15/2017 |

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 1130+00 TO EE 1186+00**

Scale

AS SHOWN

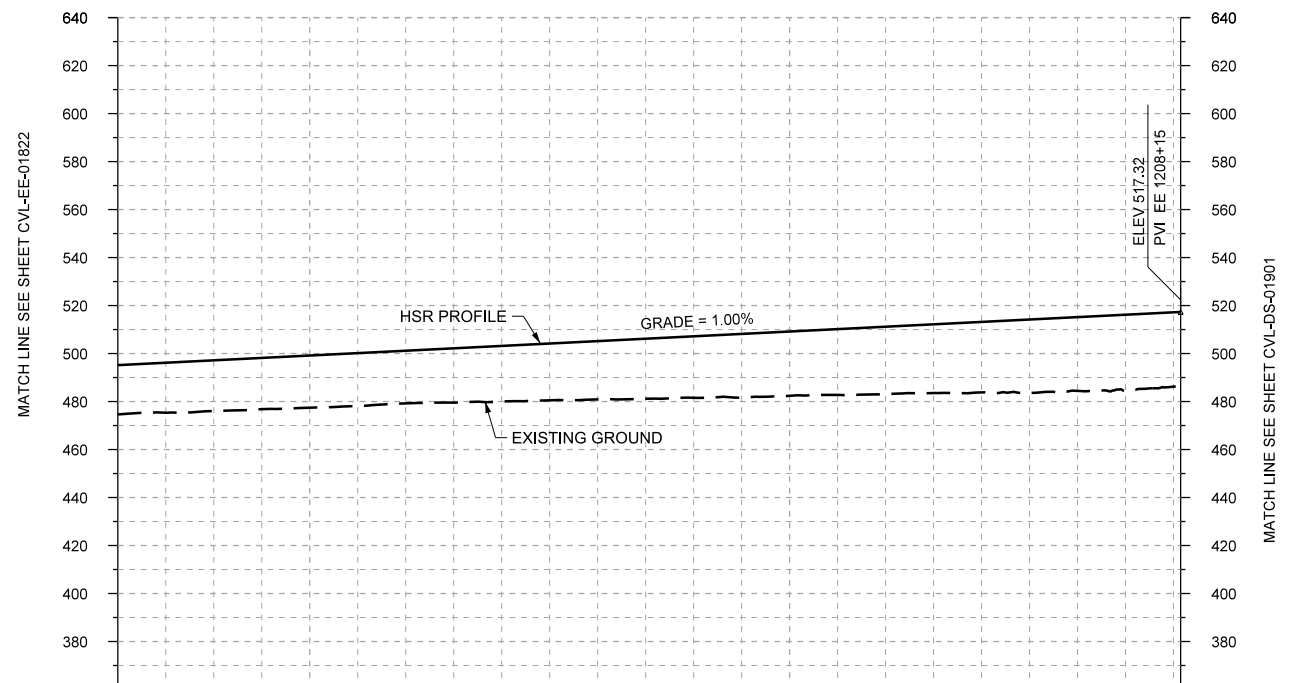
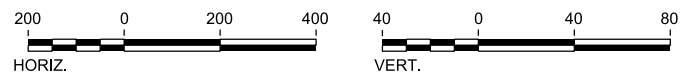
Drawing Status

FINAL DRAFT

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| Job No | Drawing No | Rev |
| 234180 | CVL-EE-01822 | 01 |



PLAN



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|----------------|-----------------------|------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| STATIONING | EE 1186+00 | EE 1190+00 | EE 1200+00 | EE 1208+15 | | | | | | | | |
| HOR. ALIGNMENT | L=1800 | | L=1736 | | | | | | | | | |
| VER. ALIGNMENT | L=3885.94 G=1.000% | | | | | | | | | | | |
| CUT AND FILL | +20.6 | +21.1 | +21.8 | +22.0 | +23.2 | +24.3 | +25.6 | +26.8 | +28.1 | +29.4 | +30.8 | +31.0 |
| TYP. SECTION | VIADUCT (E) | | | | | | | | | | | |

PROFILE

| REV | DATE | BY | CHK | APP | DESCRIPTION |
|-----|------|----|-----|-----|-------------|
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| | | | | | |
| | | | | | |

DESIGNED BY
F. DAGRIN

DRAWN BY
R. GIBBINS

CHECKED BY
K. SEYMOUR

IN CHARGE
C. TAYLOR

DATE
09/15/2017



Drawing Title
**ELLIS EAST SEGMENT
CIVIL
PLAN AND PROFILE
EE 1186+00 TO EE 1208+15**

| | | |
|-------------------------------|----------------------------|-----------|
| Scale AS SHOWN | | |
| Drawing Status FINAL DRAFT | | |
| Job No 234180 | Drawing No CVL-EE-01823 | Rev 01 |