

**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 5 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)
<b>REPORTS</b>			
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
<b>TCRR FDCE v7 DWGS VOLUME 1 (<i>General Sheets and Typical Sections</i>)</b>			
9/15/17	G	1 of 21	TCRR FDCE v7 DWGS VOLUME 1.PDF ( <i>General Sheets and Typical Sections</i> )
<b>TCRR FDCE v7 DWGS VOLUME 2 (<i>Railway Alignment Plan and Profile Sheets</i>)</b>			
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> )
<b>TCRR FDCE v7 DWGS VOLUME 3 (<i>Stations, Maintenance Facilities, and Railway Systems Sheets</i>)</b>			
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> )
<b>TCRR FDCE v7 DWGS VOLUME 4 (<i>Roadway Plan Sheets</i>)</b>			
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**

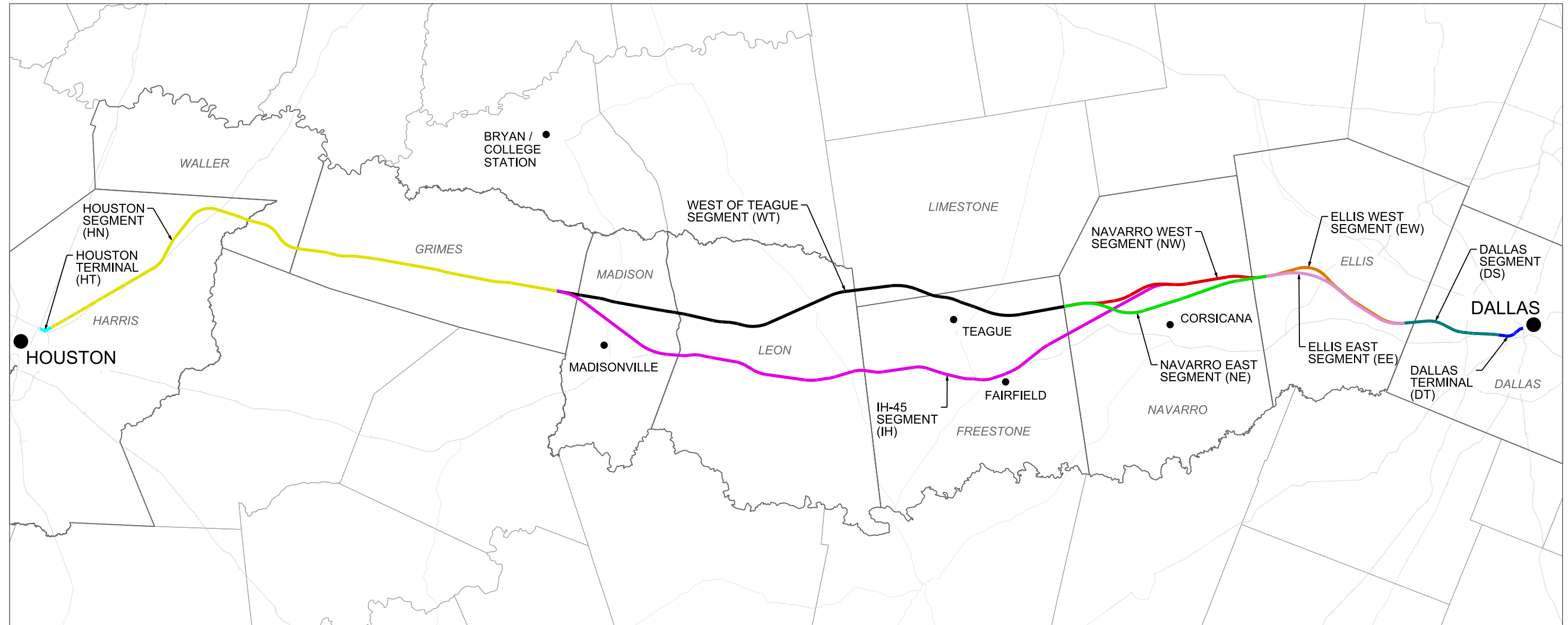
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COVER SHEET



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**

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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 CVL-HN-01101 through CVL-HN-01108-2.

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

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Section 2-2 WEST OF TEAGUE SEGMENT, listing drawings CVL-HN-01181 through CVL-WT-01296.

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

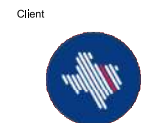
Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, DATE. Design and drawing information.



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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., DRAWING DESCRIPTIONS. Includes sections for 2-4 NAVARRO WEST SEGMENT and 2-5 NAVARRO EAST SEGMENT.

Table with columns: DRAWING NO., DRAWING DESCRIPTIONS. Includes sections for 2-6 ELLIS WEST SEGMENT and 2-7 ELLIS EAST SEGMENT.

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

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.

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, maintenance facilities, and railway systems sheets.

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', and drawing status 'FINAL DRAFT'.

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

PLOT BY: N-YPWICS01S



VOLUME 3 - STATIONS, MAINTENANCE FACILITIES AND RAILWAY SYSTEMS SHEETS

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Includes sections for 3-2 MAINTENANCE FACILITIES, YARDS AND SHOPS and 3-3 RAILWAY SYSTEMS.

VOLUME 4 - ROADWAY PLAN SHEETS

Table with 2 columns: DRAWING NO. and DRAWING DESCRIPTIONS. Includes section for 4-1 HOUSTON SEGMENT with numerous drawing entries.

Table with 2 columns: Drawing ID and Description. Includes sections for WEST OF TEAGUE SEGMENT, IH-45 SEGMENT, and 4-3 IH-45 SEGMENT.

Table with 5 columns: REV, DATE, BY, CHK, APP, DESCRIPTION. Revision table for the drawing.

Table with 2 columns: Field Name and Value. Includes fields for DESIGNED BY, DRAWN BY, CHECKED BY, IN CHARGE, and DATE.

Project information block containing logos for ARUP, FREESE & NICHOLS, and TEXAS CENTRAL, along with drawing title, scale, and job details.

PLOT TIME: 9/25/2017 5:42:37 PM

PLOT BY: MYPWCS01S

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.

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



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Client: Texas Central
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, AEROGIRD, 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.

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>09/15/2017</b>



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

Client  
Drawing Title  
**GENERAL NOTES**

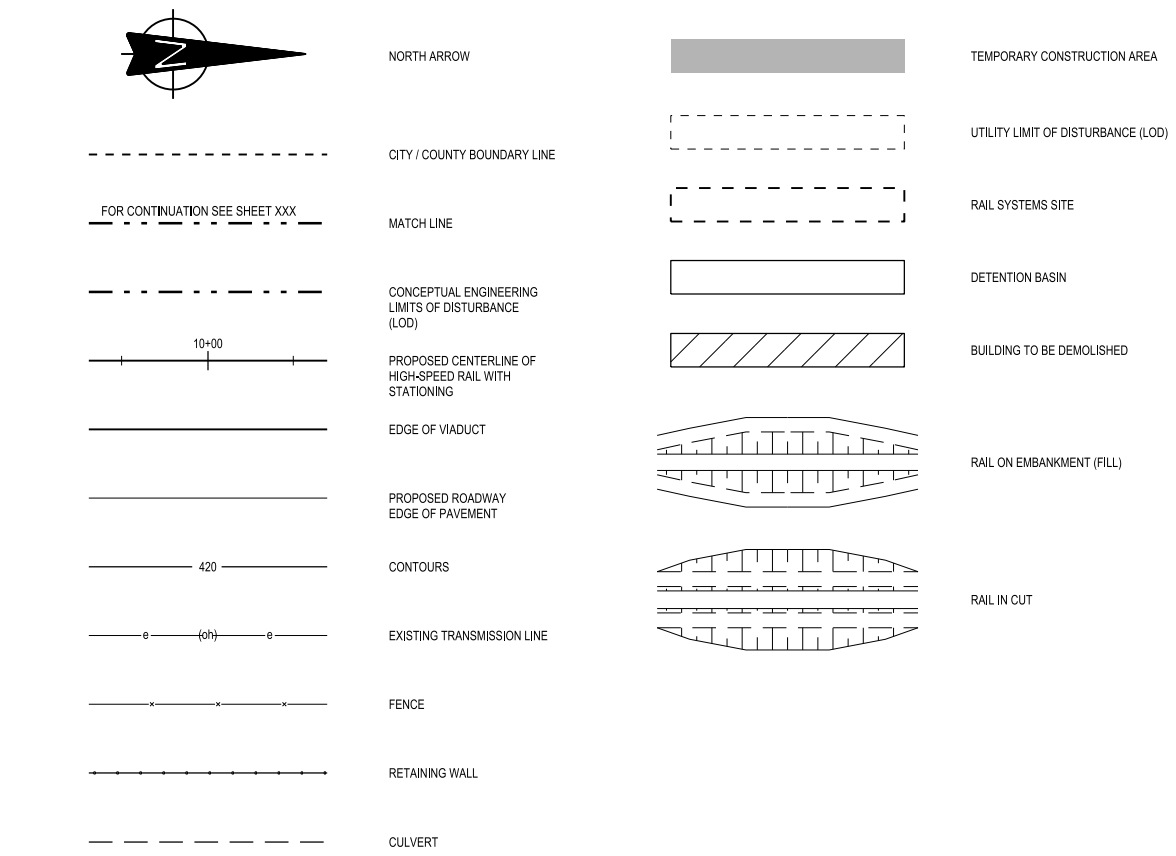
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Job No <b>234180</b>	Drawing No <b>GEN-00-00008</b>	Rev <b>01</b>

**ABBREVIATIONS**

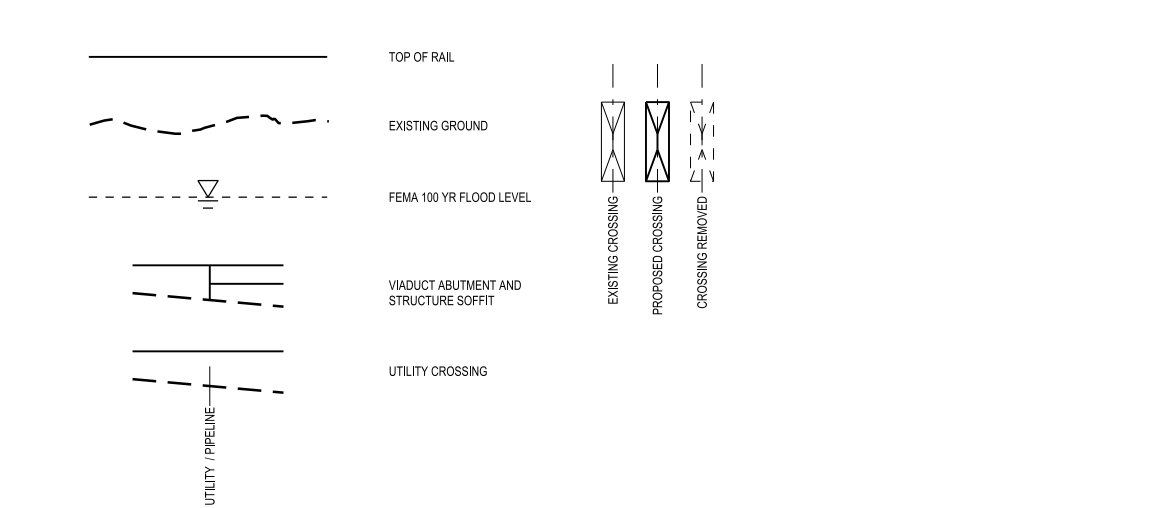
ALT	ALTERNATE ALIGNMENT	TBD	TO BE DETERMINED TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
APPROX	APPROXIMATE	TEMP	TEMPORARY
ATP	AUTOTRANSFORMER POST	TMF	TRAINSET MAINTENANCE FACILITY
AVE	AVENUE	TPSS	TRACTION POWER SUBSTATION
BLVD	BOULEVARD	TS	TANGENT SPIRAL
BNSF	BURLINGTON NORTH SANTE FE RAILROAD	TYP	TYPICAL
BOT	BOTTOM	TOR	TOP OF RAIL
CH	COMMUNICATION HOUSE	US	UNITED STATES, UNITED STATES HIGHWAY
CO RD	COUNTY ROAD	UPRR	UNION PACIFIC RAILROAD
CL	CENTERLINE	VAR	VARIABLE
C	CENTERLINE	VERT, V	VERTICAL
CO	COUNTY	WB	WESTBOUND
CR	COUNTY ROAD	WT	WEST OF TEAGUE
CS	CURVE TO SPIRAL	XING	CROSSING
CVL	CIVIL	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		
EXT			
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		

**LEGEND**

**PLAN**



**PROFILE**



**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.

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>09/15/2017</b>



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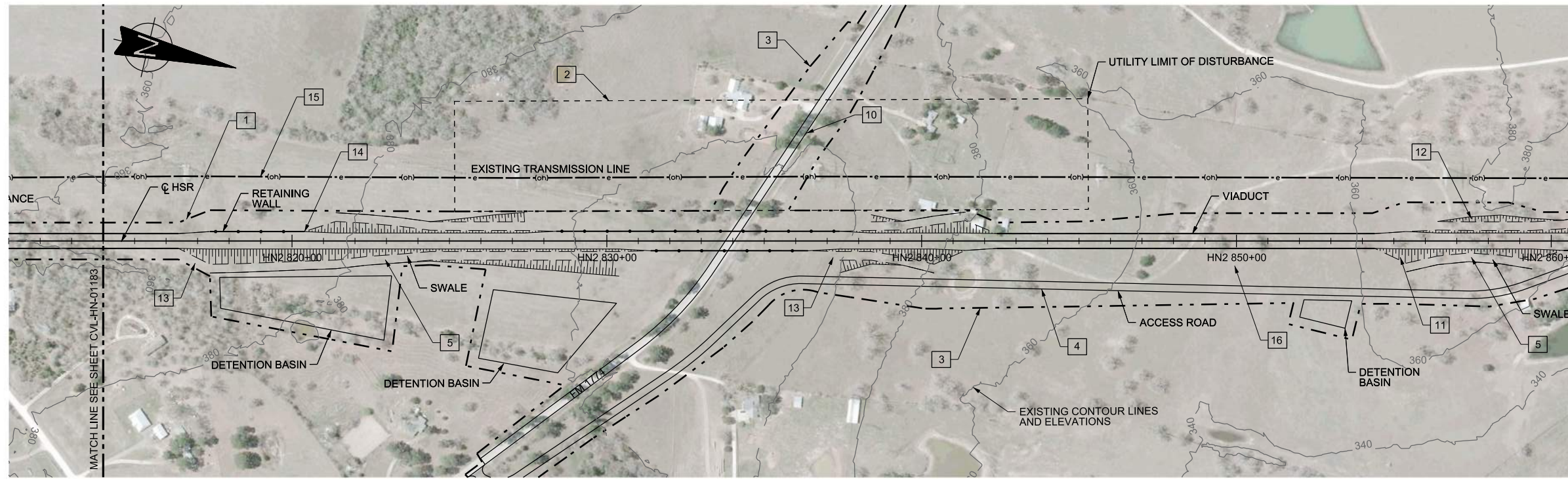
2711 North Haskell Ave., Suite 3300  
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Texas Registered Engineering Firm: F-2144



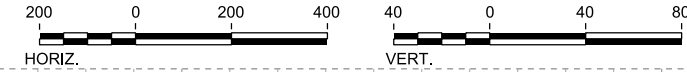
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**GENERAL ABBREVIATIONS AND LEGEND**

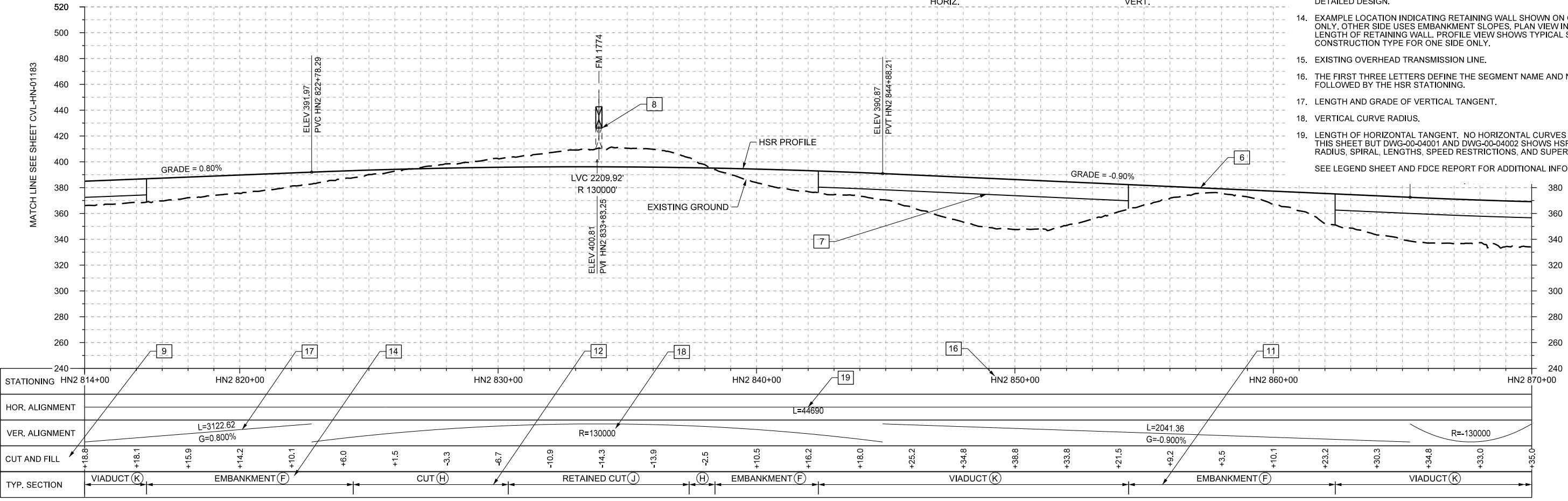
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Drawing Status <b>FINAL DRAFT</b>		
Job No <b>234180</b>	Drawing No <b>GEN-00-00009</b>	Rev <b>01</b>



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 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

REV	DATE	BY	CHK	APP	DESCRIPTION

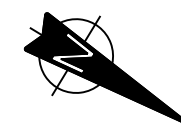
DESIGNED BY <b>J. ENRIQUEZ</b>
DRAWN BY <b>P. TONKIN</b>
CHECKED BY <b>R. BURNS</b>
IN CHARGE <b>C. TAYLOR</b>
DATE <b>09/15/2017</b>

<p>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</p>	<p>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</p>	<p>Client 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215</p>	Drawing Title <b>GENERAL</b>  <b>RAIL ANNOTATION TO CLARIFY DESIGN INTENT</b>	Scale <b>AS SHOWN</b> Drawing Status <b>FINAL DRAFT</b>	Job No <b>234180</b>	Drawing No <b>GEN-00-00010</b>	Rev <b>01</b>
					Arup Texas Inc.		

2-4  
NAVARRO WEST SEGMENT



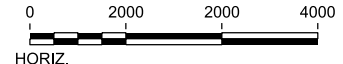
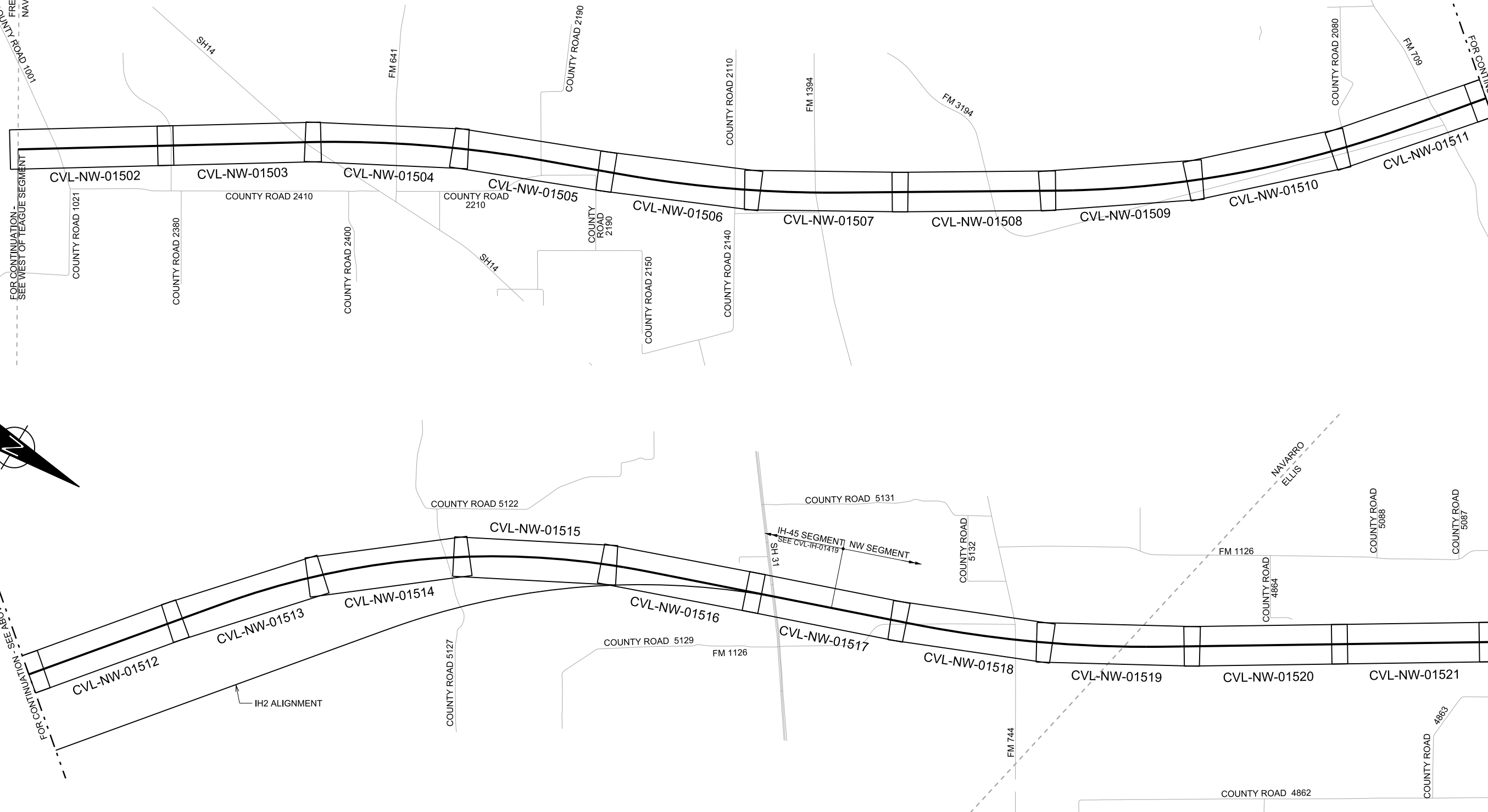
FOR CONTINUATION - SEE WEST OF LEAGUE SEGMENT  
FREESTONE  
NAVARRO  
COUNTY ROAD 1001



FOR CONTINUATION - SEE ABOVE

FOR CONTINUATION - SEE BELOW  
COUNTY ROAD 2080  
FM 709

FOR CONTINUATION - CVL-NW-01501



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**



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Client



**TEXAS CENTRAL**

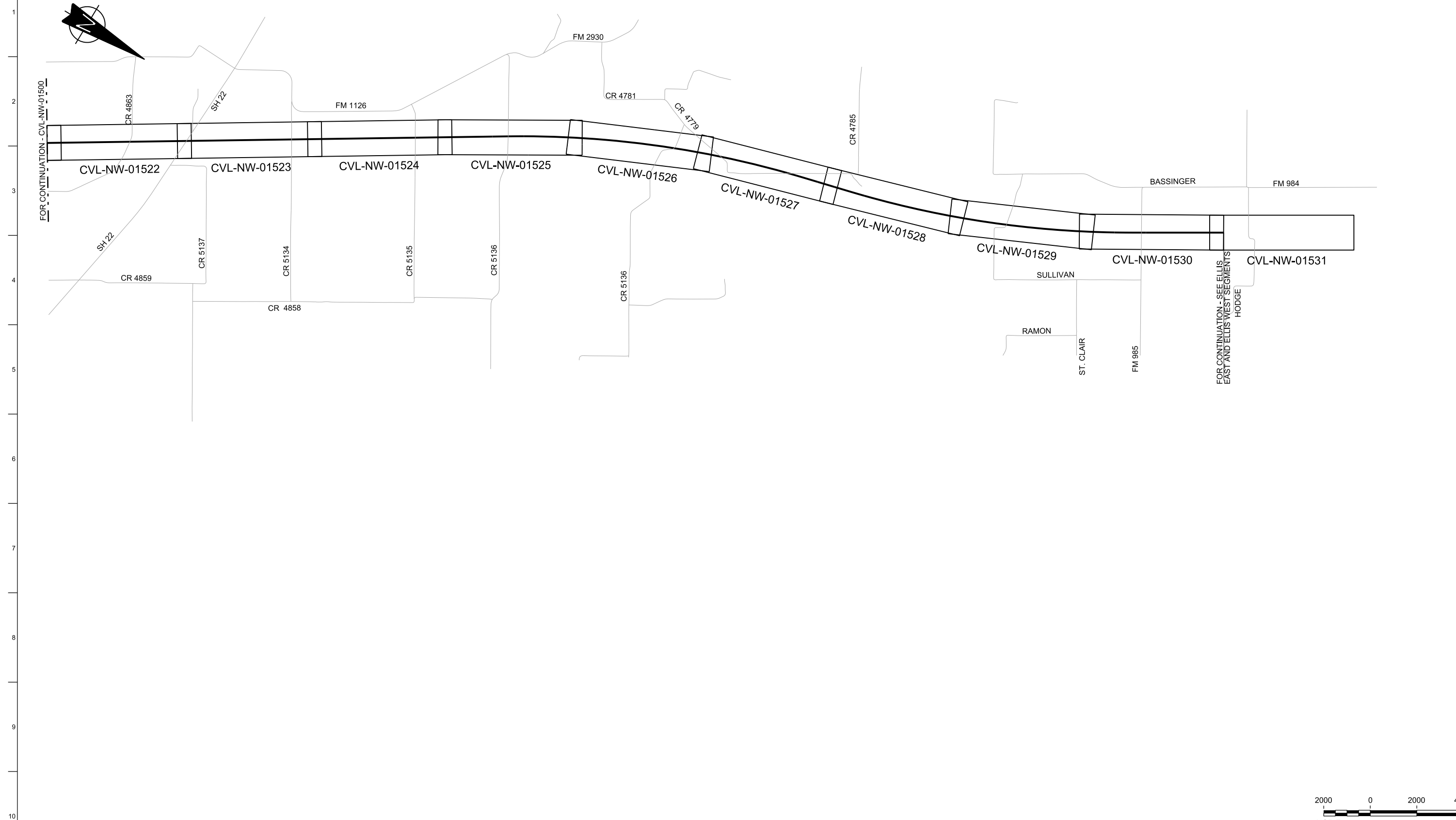
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
KEY MAP - SHEET 1 OF 2  
NW 10+00 TO NW 1130+00**

Scale  
AS SHOWN

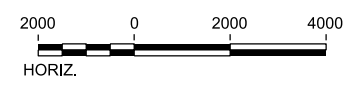
Drawing Status  
**FINAL DRAFT**

Job No 234180	Drawing No CVL-NW-01500	Rev 01
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FOR CONTINUATION - CVL-NW-01500

FOR CONTINUATION - SEE ELLIS EAST AND ELLIS WEST SEGMENTS



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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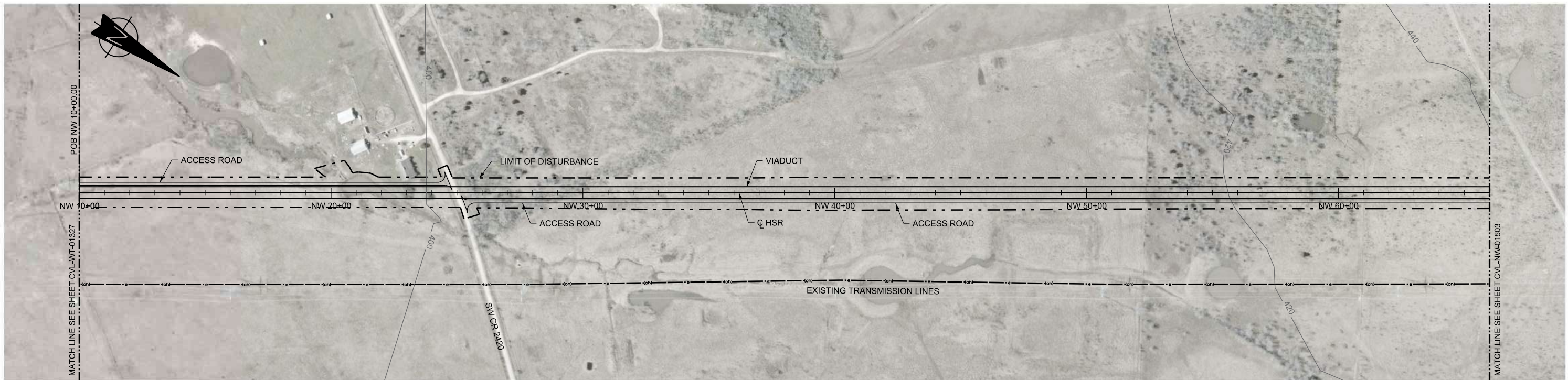
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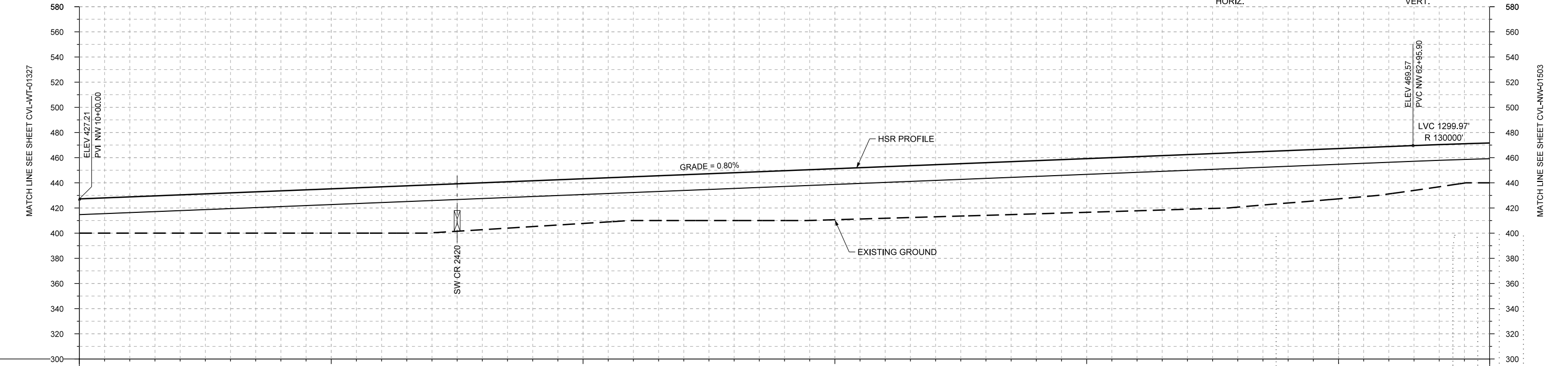
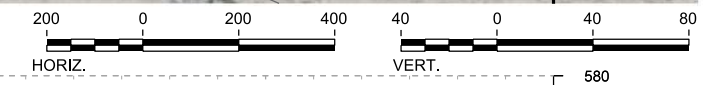
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**NAVARRO WEST SEGMENT  
CIVIL  
KEY MAP - SHEET 2 OF 2  
NW 1130+00 TO NW 1637+08**

Scale AS SHOWN		
Drawing Status FINAL DRAFT		
Job No 234180	Drawing No CVL-NW-01501	Rev 01





PLAN



PROFILE

STATIONING	NW 10+00	NW 20+00	NW 30+00	NW 40+00	NW 50+00	NW 60+00	NW 66+00
HOR. ALIGNMENT	L=10180						
VER. ALIGNMENT	L=5295.90 G=0.800%						
CUT AND FILL	+27.2	+28.8	+30.4	+32.0	+33.6	+35.2	+36.8
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**



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Texas Registered Engineering Firm: F-2144



Client  
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Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 10+00 TO NW 66+00**

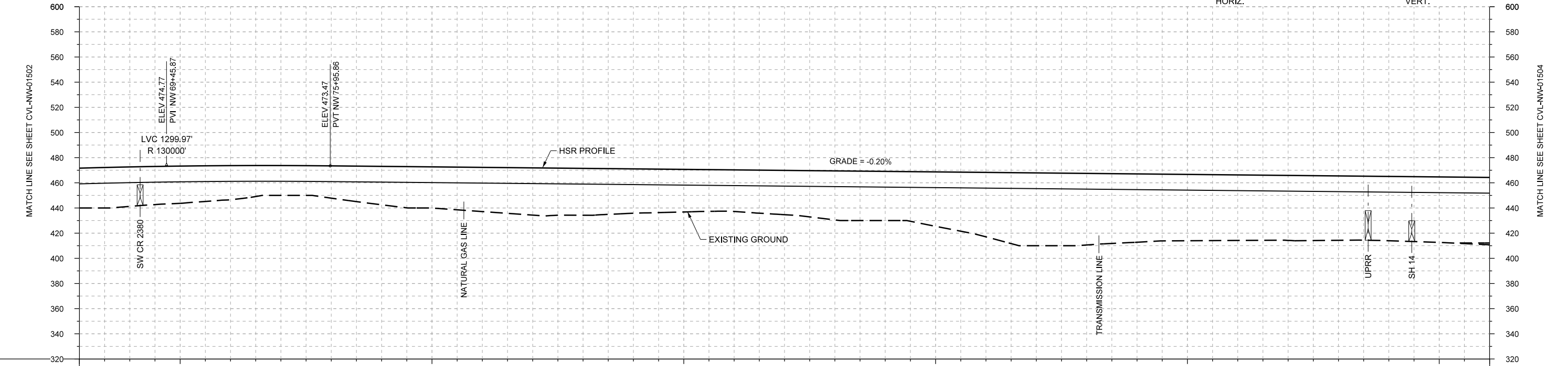
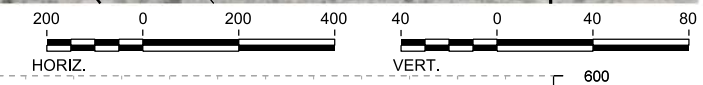
Scale  
AS SHOWN

Drawing Status  
**FINAL DRAFT**

Job No 234180	Drawing No CVL-NW-01502	Rev 01
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PLAN



PROFILE

STATIONING	NW 66+00	NW 70+00	NW 80+00	NW 90+00	NW 100+00	NW 110+00	NW 120+00	NW 122+00																					
HOR. ALIGNMENT	L=10180						L=1350																						
VER. ALIGNMENT	R=130000						L=9853.46 G=-0.200%																						
CUT AND FILL	+31.7	+31.3	+29.6	+27.1	+23.7	+25.7	+30.6	+32.8	+35.2	+37.6	+37.3	+35.3	+33.9	+33.1	+35.3	+39.0	+38.1	+43.3	+51.2	+57.9	+56.9	+54.3	+52.7	+52.1	+51.7	+51.2	+51.1	+52.1	+53.6
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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 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

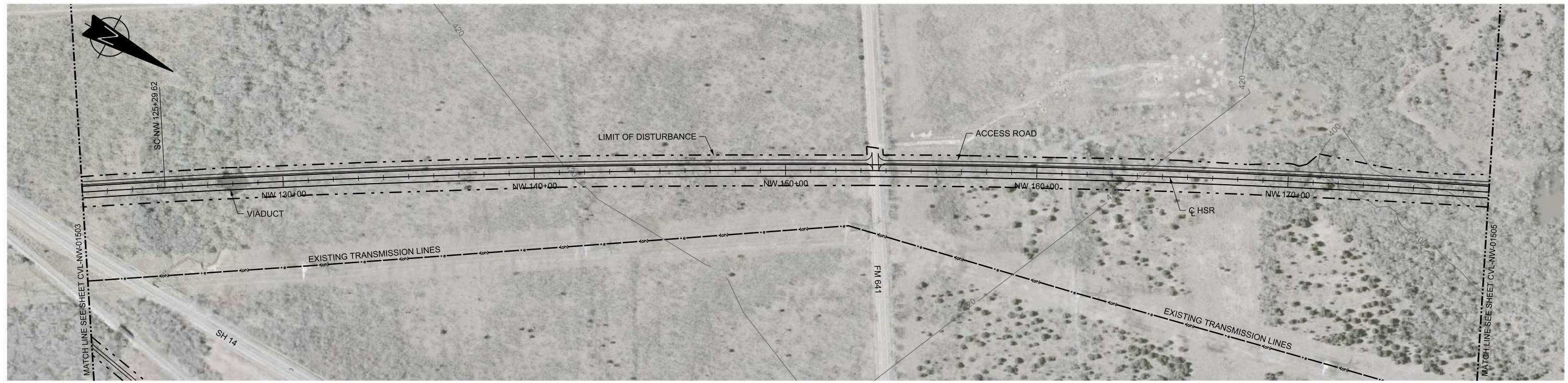
Client  
  
**TEXAS CENTRAL**  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE NW 66+00 TO NW 122+00**

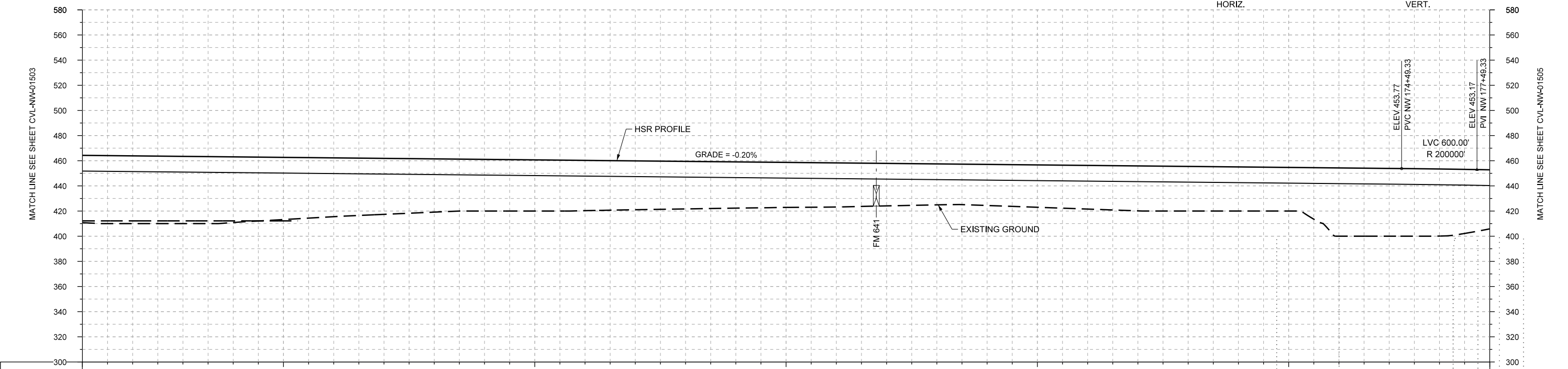
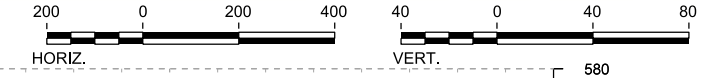
Scale  
**AS SHOWN**

Drawing Status  
**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01503	01



PLAN



PROFILE

STATIONING	NW 122+00	NW 130+00	NW 140+00	NW 150+00	NW 160+00	NW 170+00	NW 178+00	
HOR. ALIGNMENT	L=1350		R=45000 L=7693			L=9853.46 G=-0.200%		
VER. ALIGNMENT							R=200000	
CUT AND FILL	+53.6	+53.9	+53.5	+52.2	+49.5	+46.8	+44.5	
							+42.4	
							+41.1	
							+40.7	
							+40.0	
							+38.9	
							+37.8	
							+36.8	
							+35.8	
							+35.1	
							+33.8	
							+32.6	
							+32.7	
							+33.7	
							+34.7	
							+35.8	
							+35.5	
							+35.1	
							+34.7	
							+54.3	
							+53.9	
							+53.3	
							+47.0	
TYP. SECTION	VIADUCT (K)				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**

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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

Client

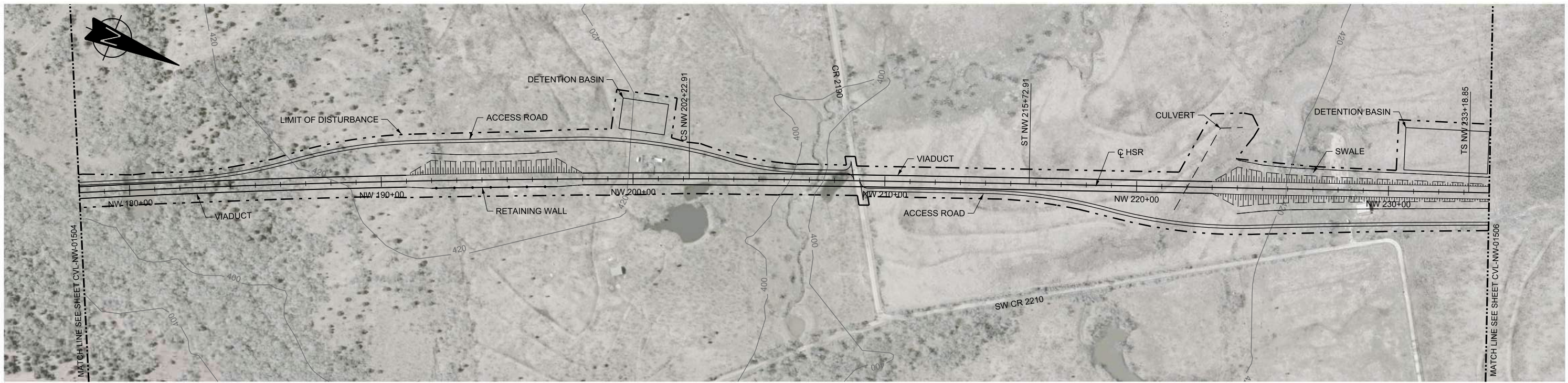
**TEXAS CENTRAL**

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

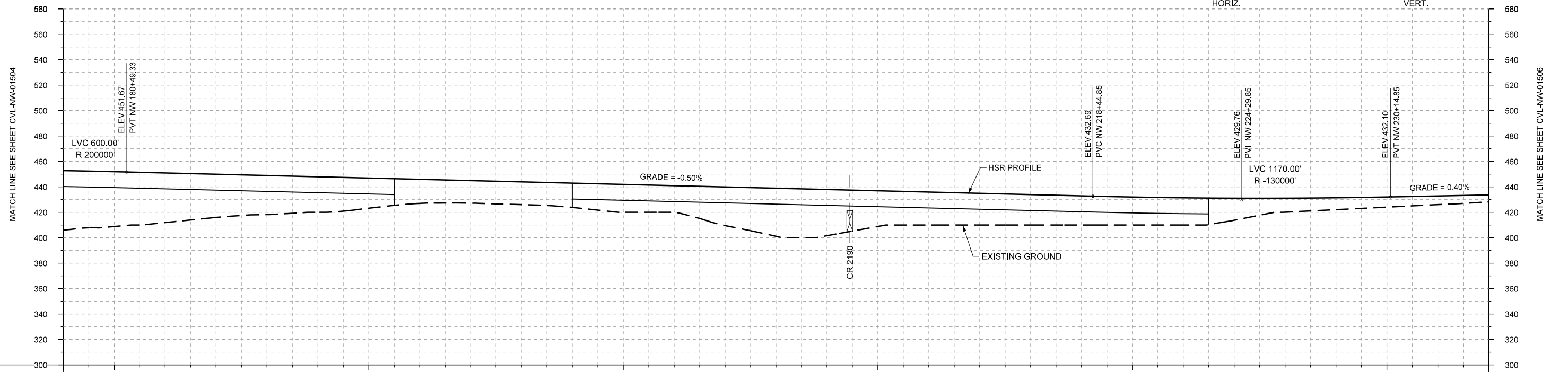
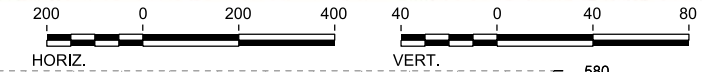
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 122+00 TO NW 178+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01504
Rev	01



PLAN



PROFILE

STATIONING	NW 178+00	NW 180+00	NW 190+00	NW 200+00	NW 210+00	NW 220+00	NW 230+00	NW 234+00																					
HOR. ALIGNMENT			R=45000 L=7693		L=1350		L=1746	L=1350																					
VER. ALIGNMENT	R=200000			L=3795.53 G=-0.500%			R=-130000	L=2155.28 G=0.400%																					
CUT AND FILL	+47.0	+43.1	+39.0	+33.9	+30.7	+27.9	+23.7	+18.9	+17.7	+17.9	+19.1	+21.9	+20.9	+30.4	+37.8	+36.3	+28.0	+25.9	+24.9	+23.9	+22.9	+22.0	+21.4	+17.3	+11.0	+9.3	+7.9	+6.8	+5.4
TYP. SECTION	VIADUCT (E)			EMBANKMENT (A)			VIADUCT (E)			EMBANKMENT (A)																			

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**

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Texas Registered Engineering Firm: F-2144

Client

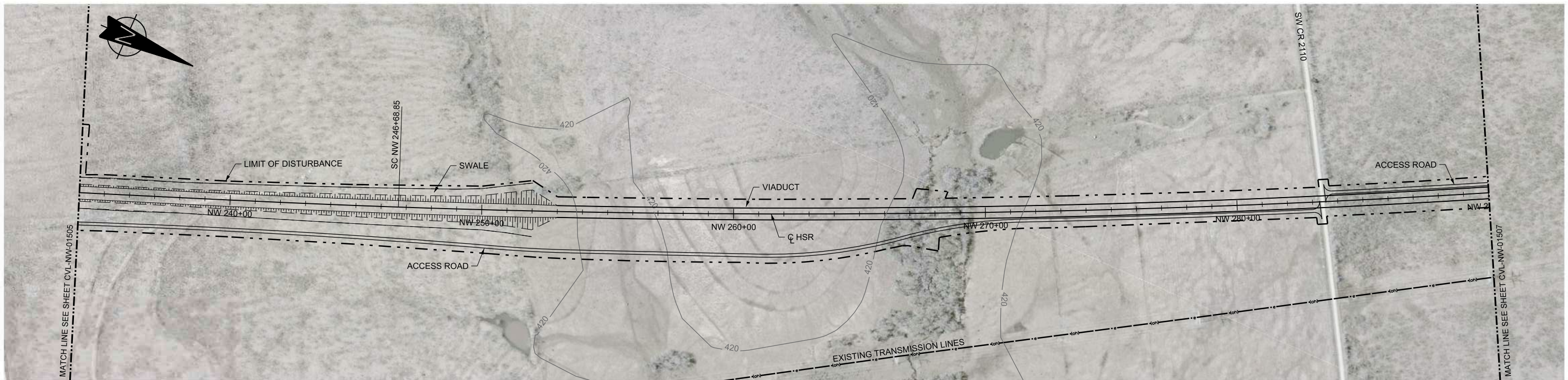
**TEXAS CENTRAL**

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

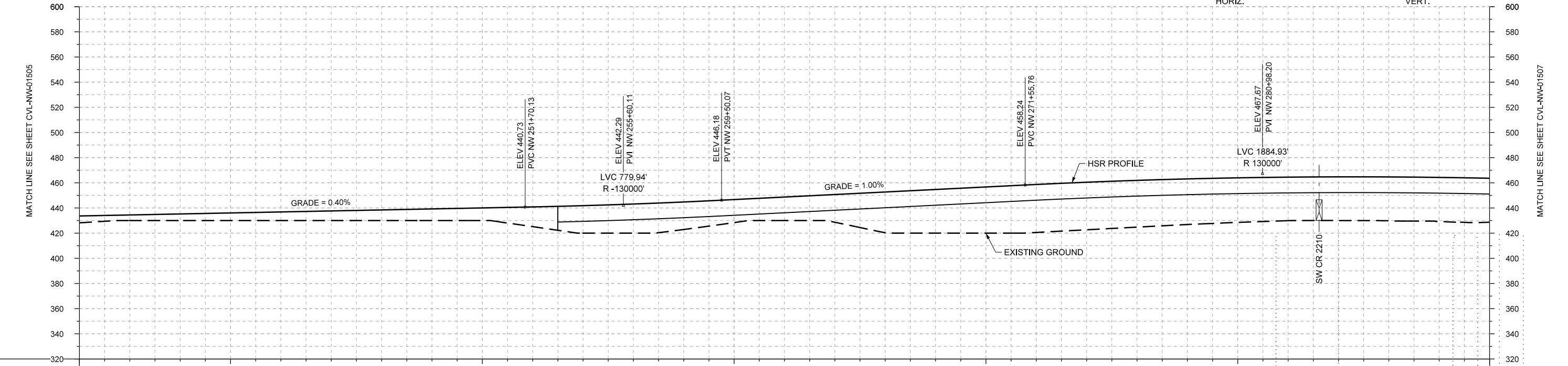
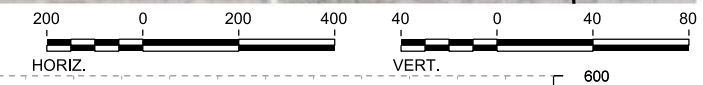
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 178+00 TO NW 234+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01505
Rev	04



PLAN



PROFILE

STATIONING	NW 234+00	NW 240+00	NW 250+00	NW 260+00	NW 270+00	NW 280+00	NW 290+00																					
HOR. ALIGNMENT	L=1350		L=2155.28 G=0.400%		R=45000 L=6964	L=1205.69 G=1.000%																						
VER. ALIGNMENT			R=130000		R=130000																							
CUT AND FILL	+5.4	+4.4	+5.2	+6.0	+6.8	+7.6	+8.4	+9.2	+10.0	+15.6	+21.8	+25.2	+21.9	+18.3	+18.7	+22.1	+32.4	+34.7	+36.7	+38.2	+37.8	+37.1	+36.2	+35.4	+34.6	+34.7	+34.9	+34.9
TYP. SECTION	CUT (C)		EMBANKMENT (A)										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**

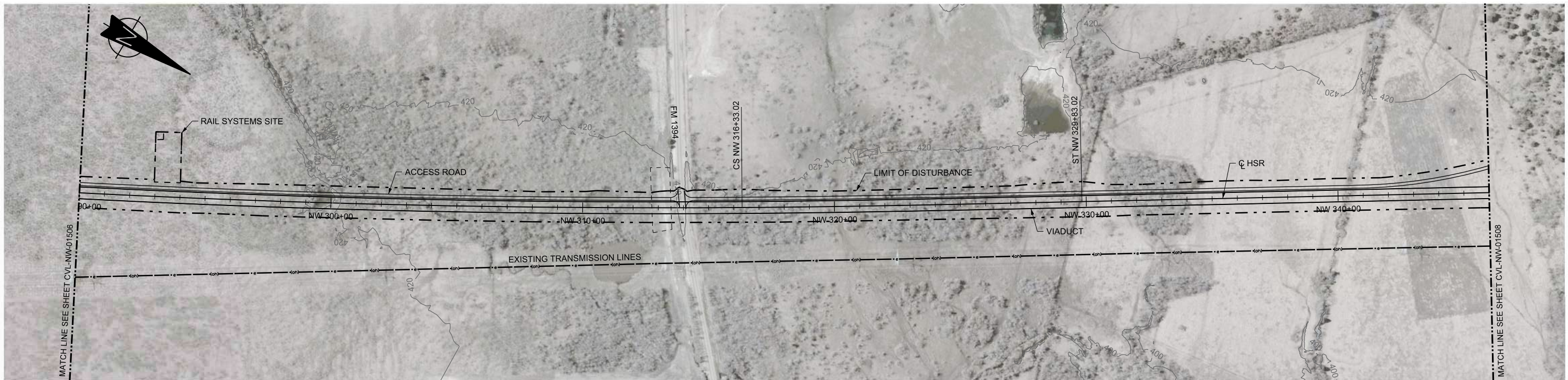
**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
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 Dallas, Texas 75204  
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 www.freese.com  
 Texas Registered Engineering Firm: F-2144

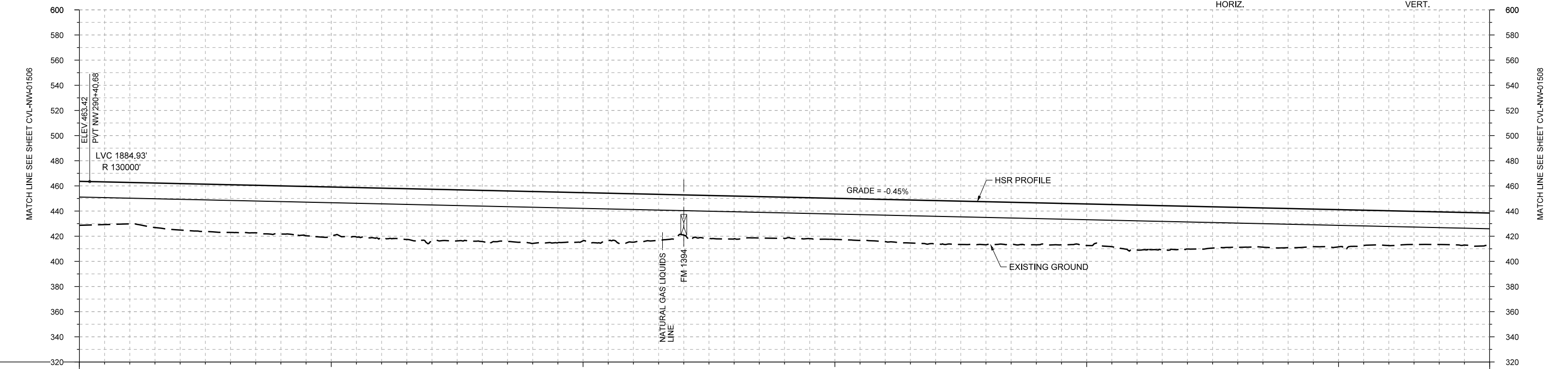
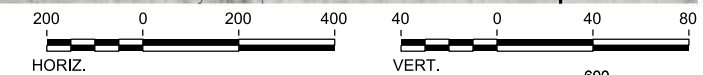
Client  
  
**TEXAS CENTRAL**  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE NW 234+00 TO NW 290+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01506
Rev	01



PLAN



PROFILE

STATIONING	NW 290+00	NW 300+00	NW 310+00	NW 320+00	NW 330+00	NW 340+00	NW 346+00																						
HOR. ALIGNMENT		R=45000 L=6964			L=1350	L=6833																							
VER. ALIGNMENT	R=130000			L=6232.44 G=-0.450%																									
CUT AND FILL	+34.9	+32.9	+36.9	+37.9	+36.3	+39.9	+40.4	+41.0	+40.7	+41.2	+36.3	+36.5	+32.0	+33.9	+32.8	+32.7	+33.6	+34.4	+34.2	+33.4	+33.0	+35.7	+34.0	+31.8	+31.2	+29.6	+27.6	+25.9	+26.2
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**

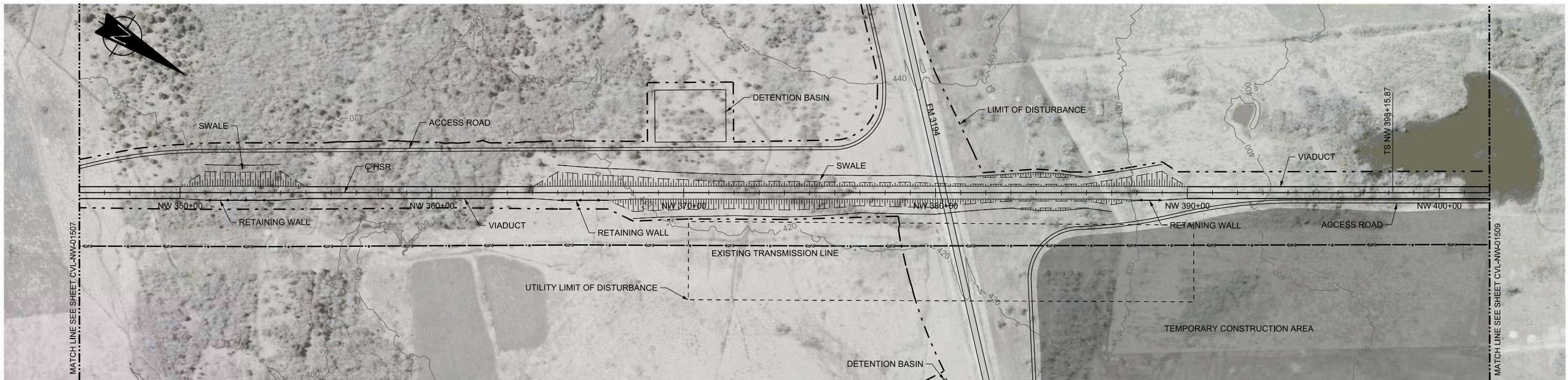
**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
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 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
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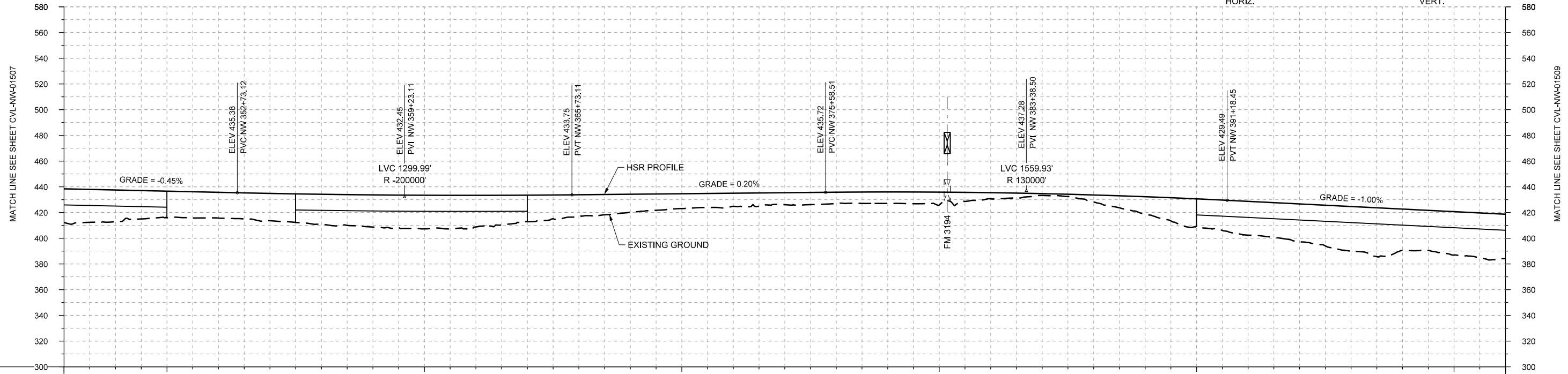
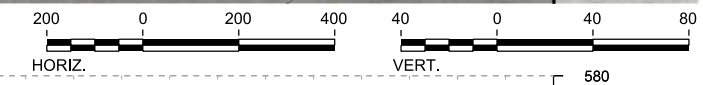
Client  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 NW 290+00 TO NW 346+00**

Scale	AS SHOWN		
Drawing Status	FINAL DRAFT		
Job No	Drawing No	Rev	
234180	CVL-NW-01507	01	



PLAN



PROFILE

STATIONING	NW 346+00	NW 350+00	NW 360+00	NW 370+00	NW 380+00	NW 390+00	NW 400+00	NW 402+00
HOR. ALIGNMENT	L=8833						L=1350	
VER. ALIGNMENT	L=6232.44 G=-0.450%		R=200000		L=985.40 G=0.200%		R=130000	
CUT AND FILL	+26.2	+24.6	+20.7	+20.0	+21.2	+23.5	+25.0	+26.1
TYP. SECTION	VIADUCT (K)		EMBANKMENT (F)		VIADUCT (K)		EMBANKMENT (F)	
	+20.6	+17.1	+14.0	+11.5	+10.2	+9.3	+8.8	+8.9
	+10.0	+4.8	+1.4	+5.3	+13.6	+21.9	+26.3	+29.4
	+35.0	+32.2	+33.8	+34.5				

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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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

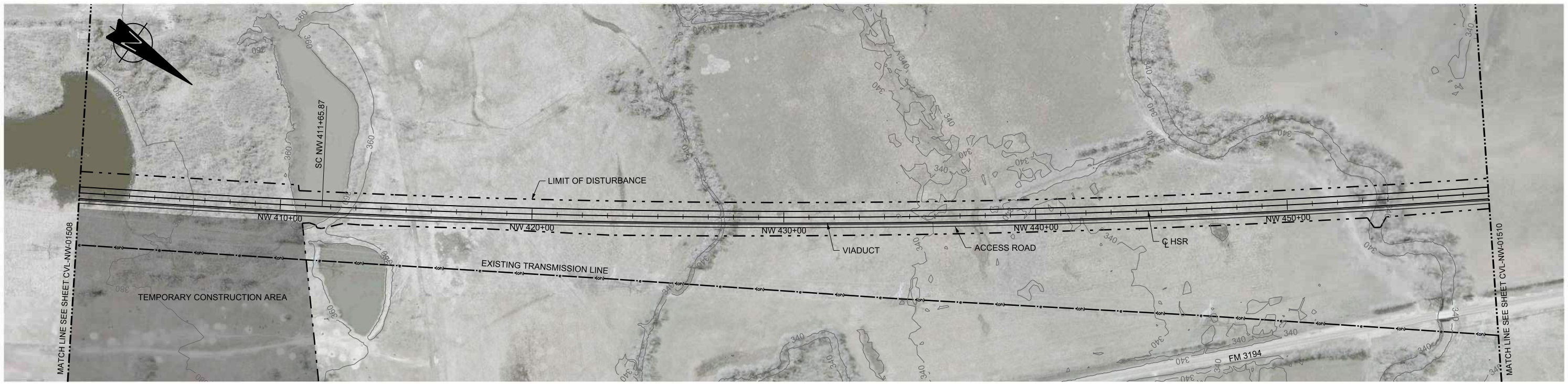
**TEXAS CENTRAL**

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

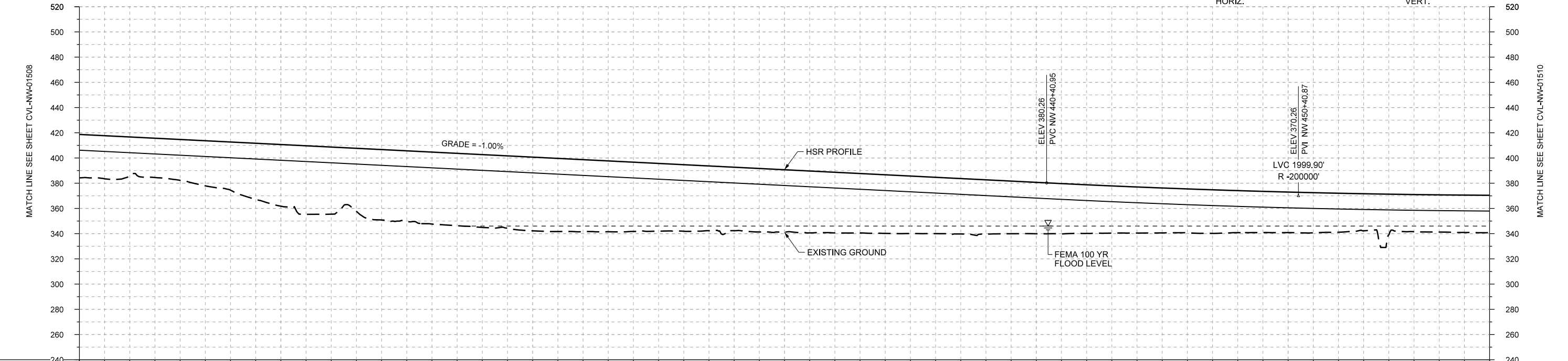
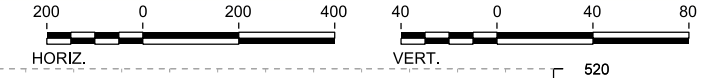
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 346+00 TO NW 402+00**

Scale	AS SHOWN		
Drawing Status	FINAL DRAFT		
Job No	Drawing No	Rev	
234180	CVL-NW-01508	01	



PLAN



PROFILE

STATIONING	NW 402+00	NW 410+00	NW 420+00	NW 430+00	NW 440+00	NW 450+00	NW 458+00																						
HOR. ALIGNMENT	L=1350		R=40000 L=12280			R=200000																							
VER. ALIGNMENT	L=4922.50 G=-1.000%																												
CUT AND FILL	+34.5	+30.2	+32.4	+38.3	+48.9	+53.3	+55.9	+57.1	+57.8	+58.5	+57.1	+55.0	+52.8	+50.4	+49.6	+48.1	+46.5	+44.7	+43.0	+40.8	+38.5	+36.5	+34.9	+33.3	+32.2	+30.9	+32.2	+29.5	+29.7
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**

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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

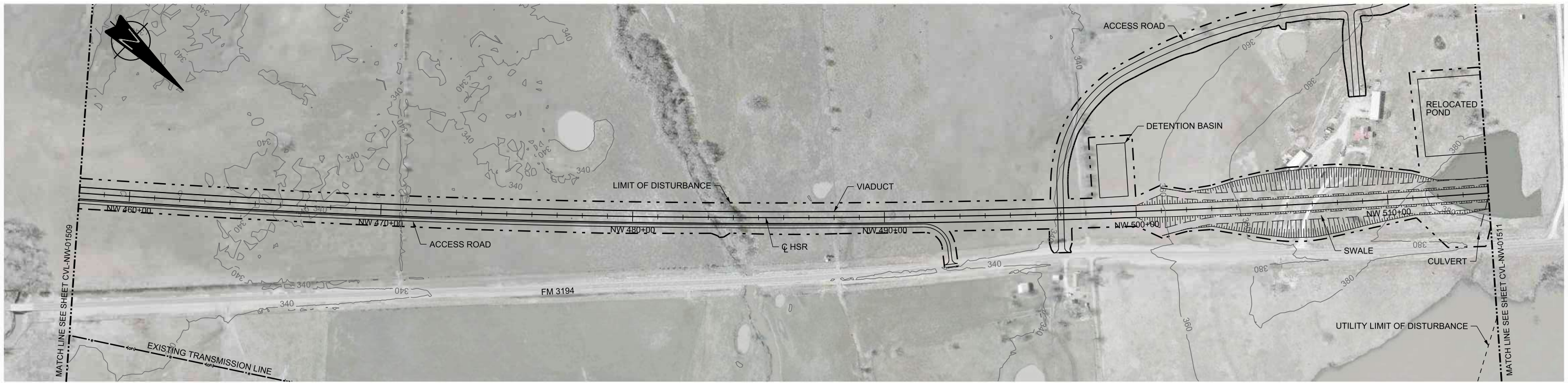
Drawing Title  
**NAVARRO WEST SEGMENT CIVIL**  
**PLAN AND PROFILE**  
**NW 402+00 TO NW 458+00**

Scale  
**AS SHOWN**

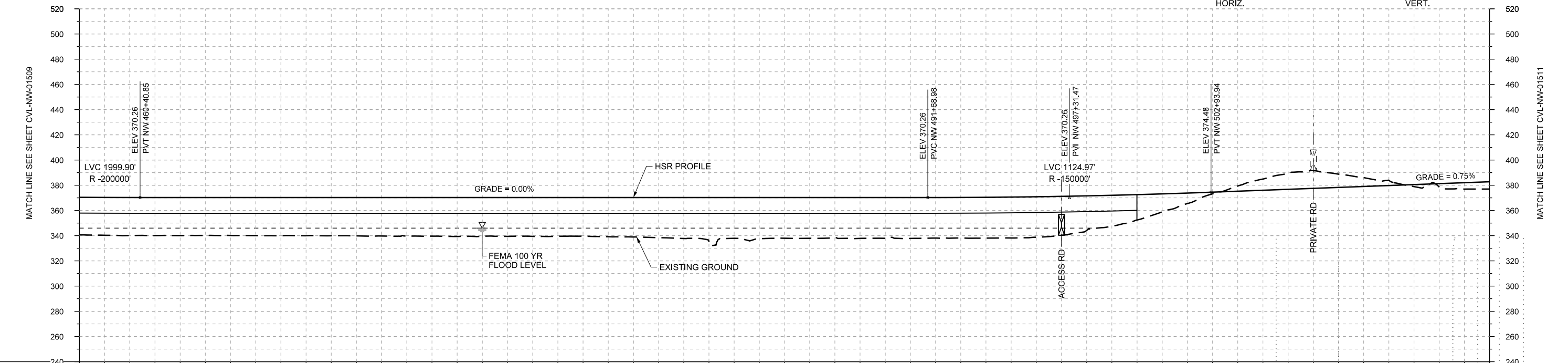
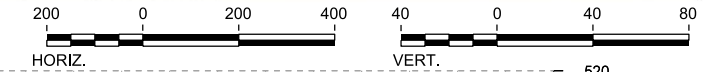
Drawing Status  
**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01509	01





PLAN



PROFILE

STATIONING	NW 458+00	NW 460+00	NW 470+00	NW 480+00	NW 490+00	NW 500+00	NW 510+00	NW 514+00																	
HOR. ALIGNMENT					R=40000 L=12280																				
VER. ALIGNMENT	R=200000		L=3128.13 G=0.000%			R=150000		L=4850.43 G=0.750%																	
CUT AND FILL	+29.7	+30.1	+30.3	+30.1	+30.3	+30.4	+30.6	+30.7	+30.8	+30.9	+30.7	+31.4	+32.6	+32.4	+32.3	+32.1	+27.4	+20.2	+8.4	-4.1	-12.8	-10.5	-4.0	+2.7	+5.8
TYP. SECTION	VIADUCT (E)												EMBANKMENT (A)			CUT (C)			(A)						

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

**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

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

Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 458+00 TO NW 514+00**

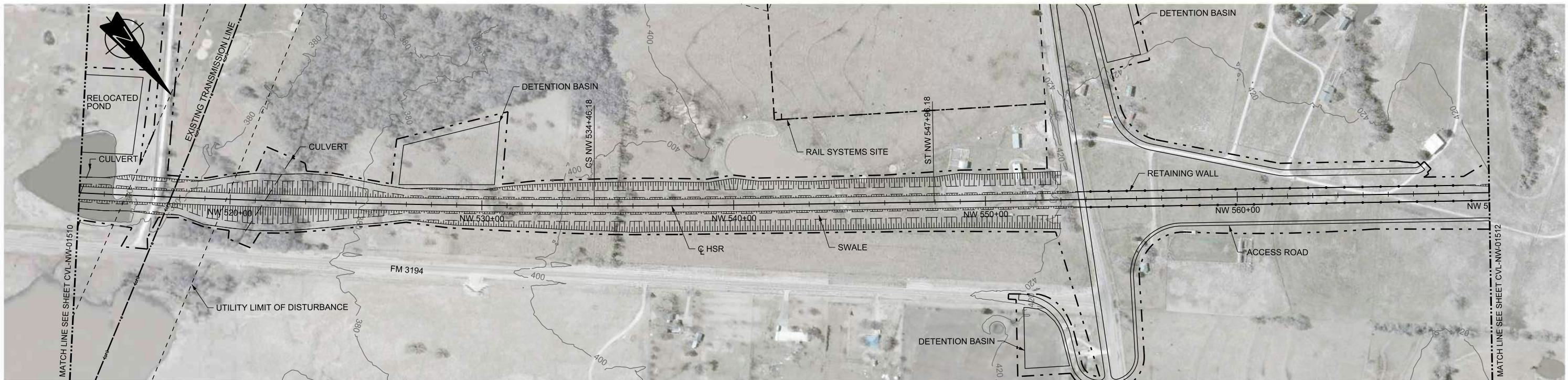
Scale

AS SHOWN

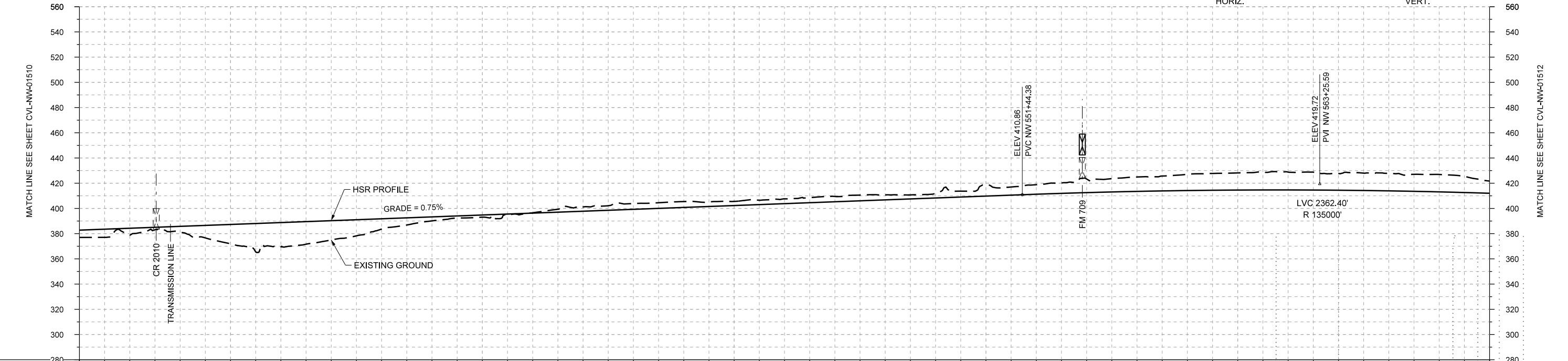
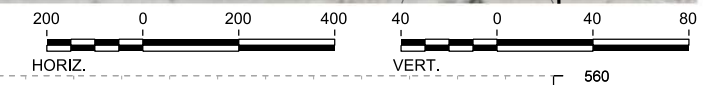
Drawing Status

**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01510	01



PLAN



PROFILE

STATIONING	NW 514+00	NW 520+00	NW 530+00	NW 540+00	NW 550+00	NW 560+00	NW 570+00																						
HOR. ALIGNMENT	R=40000 L=12280		L=1350			L=8796																							
VER. ALIGNMENT	L=4850.43 G=0.750%																												
CUT AND FILL	+5.8	+5.5	+4.7	+15.4	+19.3	+15.2	+8.2	+3.2	+1.7	-0.2	-3.4	-4.6	-4.6	-3.3	-3.8	-4.2	-3.9	-3.5	-9.2	-7.5	-10.8	-11.4	-12.8	-13.6	-14.2	-13.3	-13.9	-13.8	-9.7
TYP. SECTION	CUT (C)		EMBANKMENT (A)				CUT (C)			RETAINED CUT (D)																			

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



Arup Texas, Inc.  
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Texas Registered Engineering Firm: F-1990



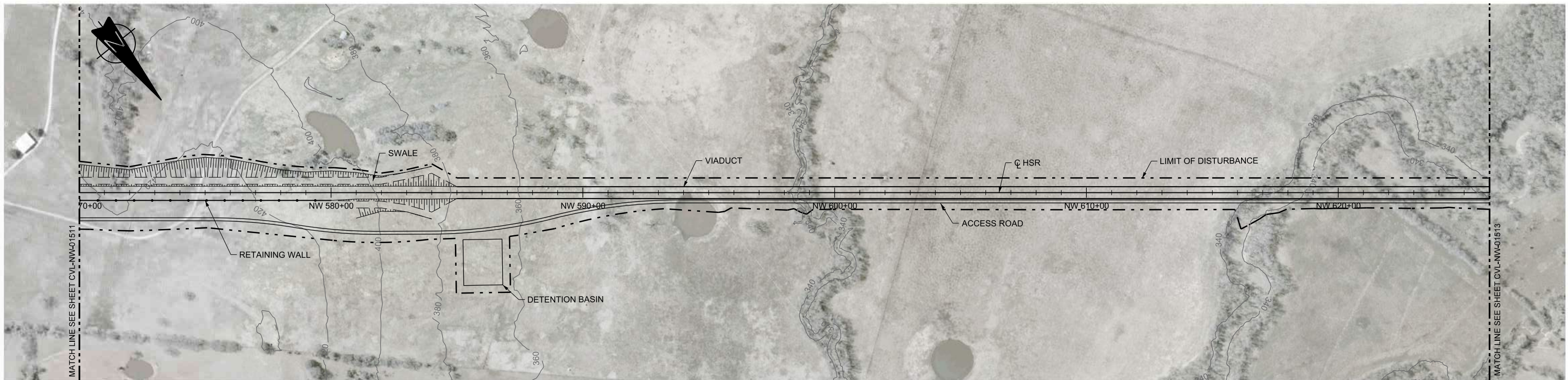
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144



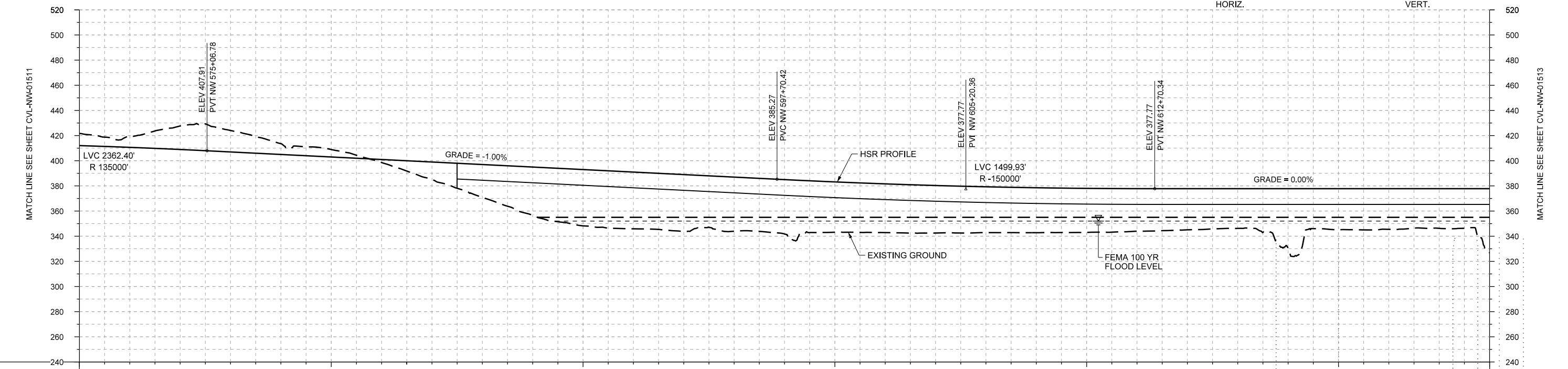
Client  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 514+00 TO NW 570+00

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01511
Rev	01



PLAN



PROFILE

STATIONING	NW 570+00	NW 580+00	NW 590+00	NW 600+00	NW 610+00	NW 620+00	NW 626+00
HOR. ALIGNMENT	L=8796						
VER. ALIGNMENT	R=135000		L=2263.63 G=-1.000%			R=-150000	
CUT AND FILL	-0.7	-8.9	-18.7	-17.0	-8.5	-5.9	+2.5
				+14.0	+26.2	+38.3	+44.8
				+45.1	+45.3	+43.0	+43.2
				+39.9	+38.7	+37.8	+36.5
				+35.7	+35.0	+33.8	+32.7
				+31.6	+47.6	+32.7	+32.3
				+31.6	+31.6	+31.6	+31.6
TYP. SECTION	CUT (C)		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**

Arup Texas, Inc.  
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Houston, Texas 77042 USA  
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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

Client

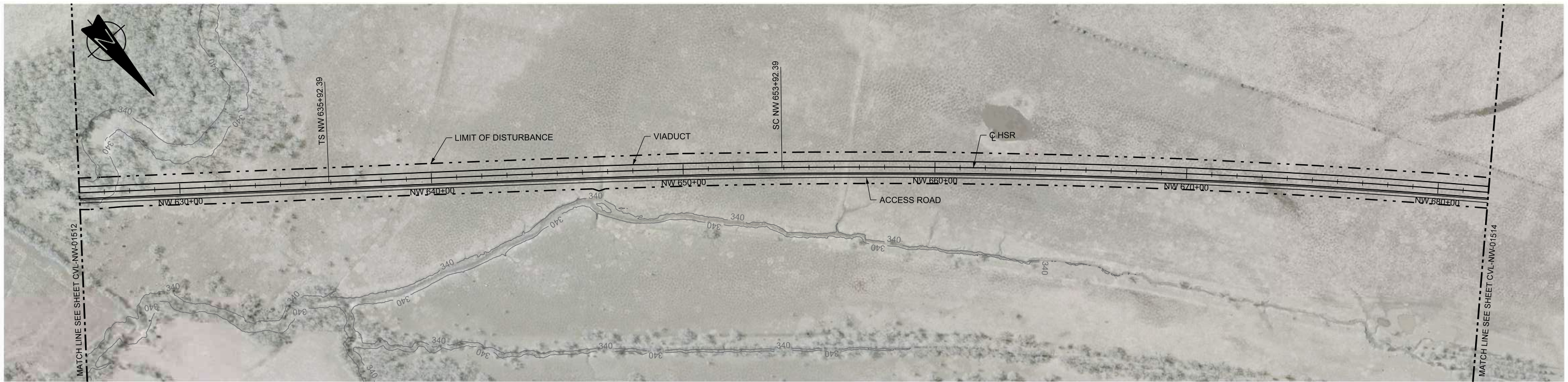
**TEXAS CENTRAL**

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

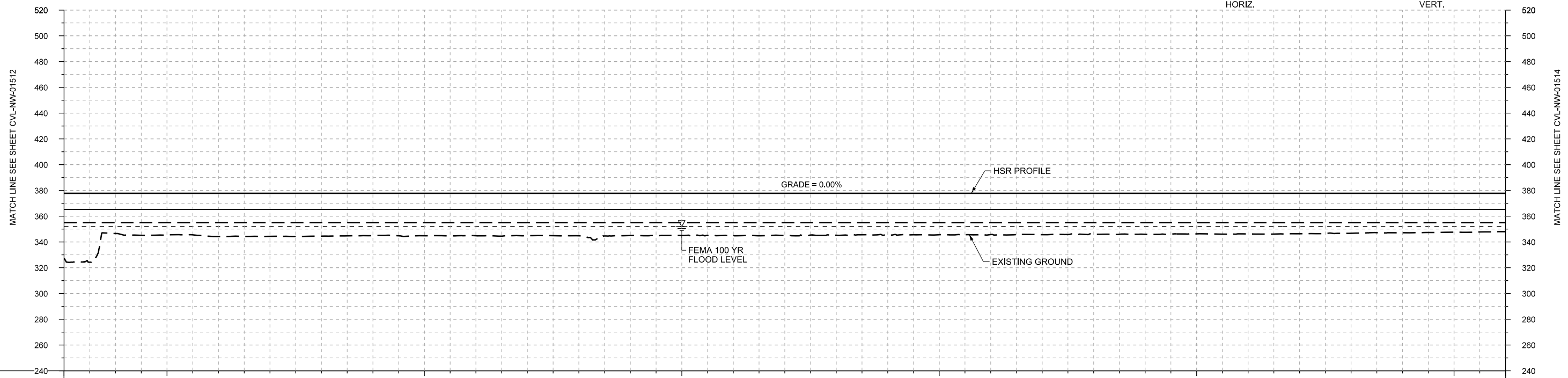
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 570+00 TO NW 626+00**

Scale	AS SHOWN		
Drawing Status	FINAL DRAFT		
Job No	Drawing No	Rev	
234180	CVL-NW-01512	01	



PLAN



PROFILE

STATIONING	NW 626+00	NW 630+00	NW 640+00	NW 650+00	NW 660+00	NW 670+00	NW 680+00	NW 682+00																							
HOR. ALIGNMENT	L=8796		L=1800		L=7879.78		R=30000 L=14564																								
VER. ALIGNMENT	G=0.000%																														
CUT AND FILL	+50.9	+31.3	+32.4	+33.6	+33.4	+33.3	+32.9	+33.0	+33.0	+32.9	+33.0	+32.8	+32.8	+32.8	+32.8	+32.8	+32.8	+32.2	+32.2	+32.1	+32.2	+31.8	+31.9	+31.5	+31.6	+31.6	+31.4	+31.1	+30.6	+30.2	+29.8
TYP. SECTION	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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2711 North Haskell Ave., Suite 3300  
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Texas Registered Engineering Firm: F-2144

Client

**TEXAS CENTRAL**

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

Drawing Title

**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE**  
NW 626+00 TO NW 682+00

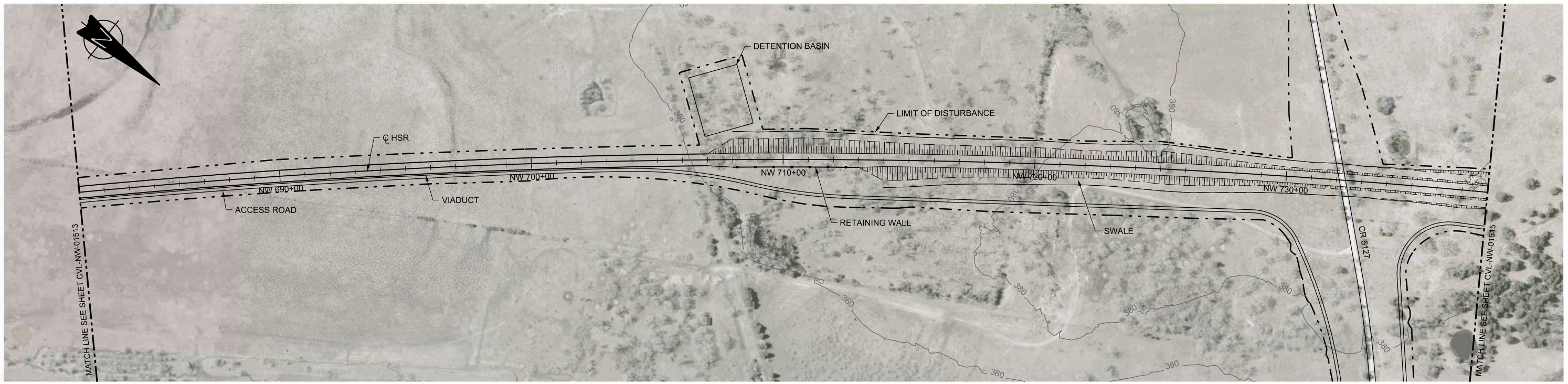
Scale

AS SHOWN

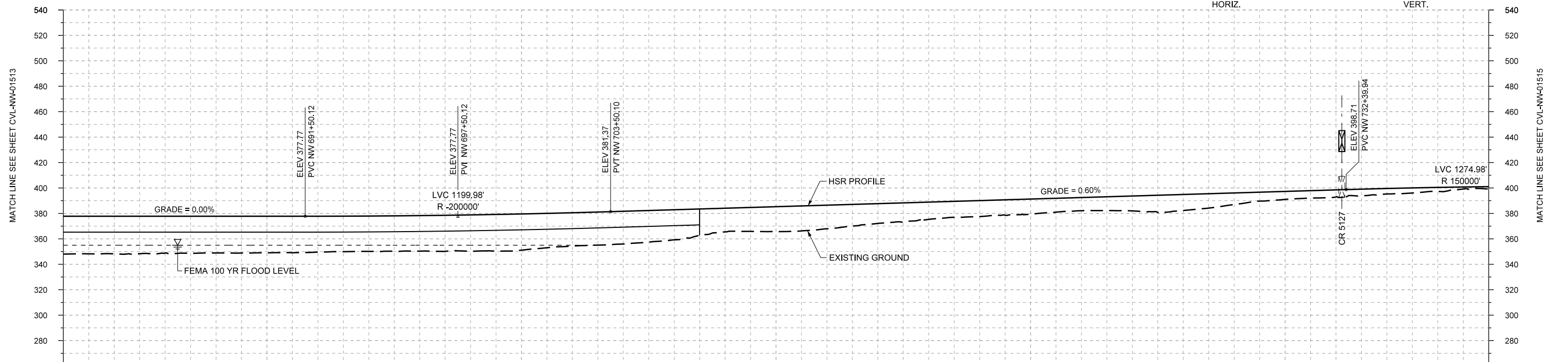
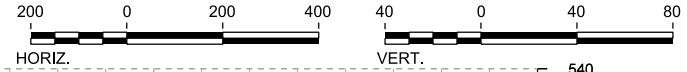
Drawing Status

**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01513	01



PLAN



PROFILE

STATIONING	NW 682+00	NW 690+00	NW 700+00	NW 710+00	NW 720+00	NW 730+00	NW 738+00																					
HOR. ALIGNMENT				R=30000 L=14564																								
VER. ALIGNMENT	L=7879.78 G=0.000%		R=-200000	L=2889.84 G=0.600%		R=150000																						
CUT AND FILL	+29.8	+28.6	+28.9	+28.9	+28.7	+27.8	+28.0	+28.6	+28.5	+26.2	+25.8	+23.7	+18.6	+19.7	+18.6	+15.6	+13.6	+12.6	+11.9	+10.4	+11.7	+12.6	+9.1	+6.3	+5.5	+4.3	+3.1	+1.8
TYP. SECTION	VIADUCT (E)										EMBANKMENT (A)										CUT (C)							

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**

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Texas Registered Engineering Firm: F-2144

Client

**TEXAS CENTRAL**

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

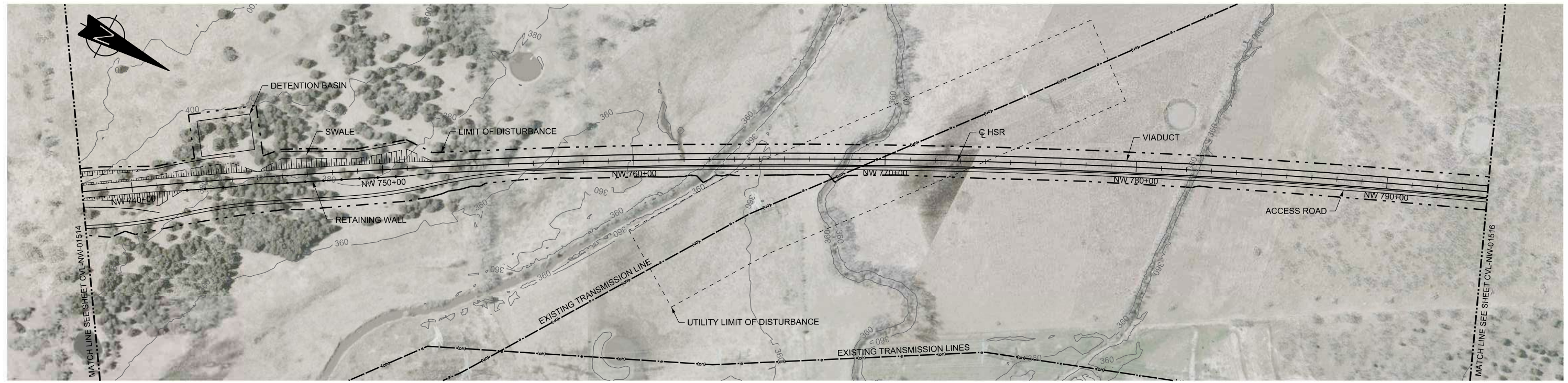
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 682+00 TO NW 738+00**

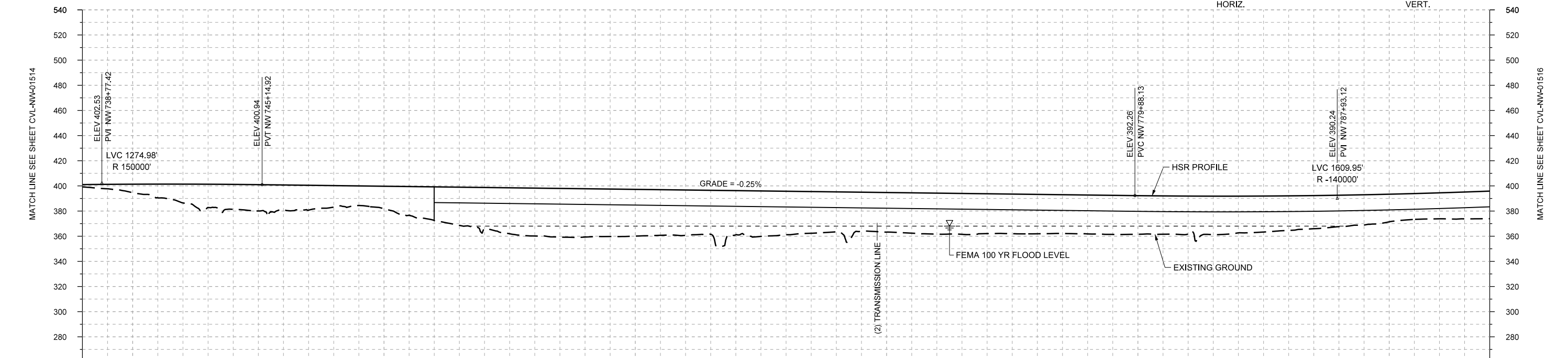
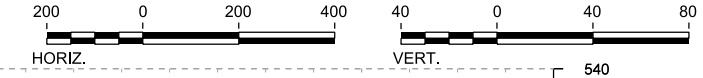
Scale  
AS SHOWN

Drawing Status  
**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01514	01



PLAN



STATIONING	NW 738+00	NW 740+00	NW 750+00	NW 760+00	NW 770+00	NW 780+00	NW 790+00	NW 794+00																					
HOR. ALIGNMENT					R=30000 L=14564																								
VER. ALIGNMENT	R=150000		L=3473.21 G=-0.250%				R=140000																						
CUT AND FILL	+1.8	+6.7	+14.9	+19.8	+19.6	+17.1	+17.9	+26.8	+32.6	+38.1	+38.4	+37.1	+36.1	+35.1	+34.5	+31.7	+31.5	+32.5	+31.6	+31.3	+30.9	+30.8	+29.7	+28.1	+27.5	+25.0	+22.0	+20.7	+21.9
TYP. SECTION	C		EMBANKMENT (A)			VIADUCT (E)			VIADUCT (K)			VIADUCT (E)																	

PROFILE

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

Arup Texas, Inc.  
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Texas Registered Engineering Firm: F-1990

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Dallas, Texas 75204  
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www.freese.com  
Texas Registered Engineering Firm: F-2144

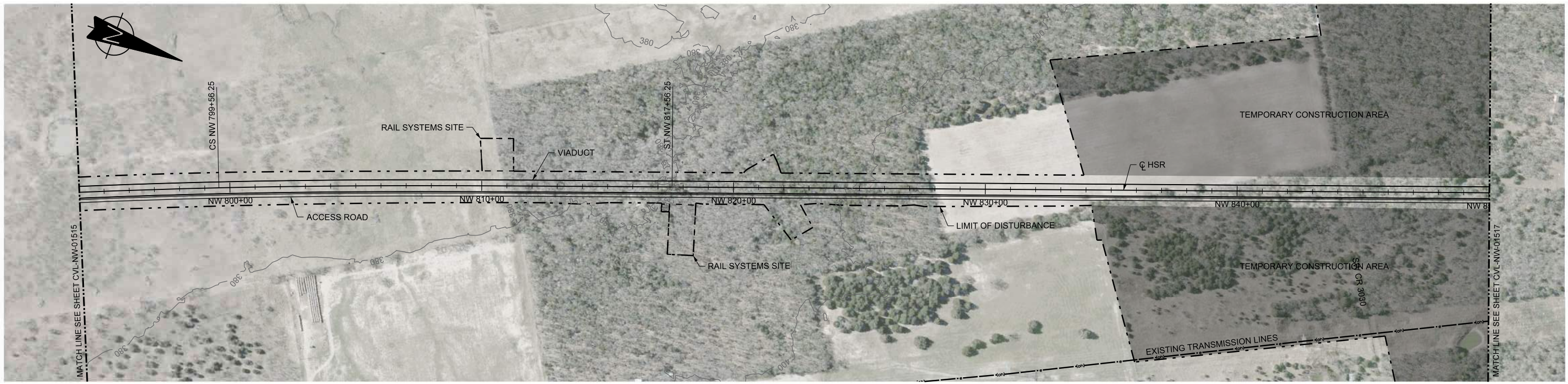
Client  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 738+00 TO NW 794+00**

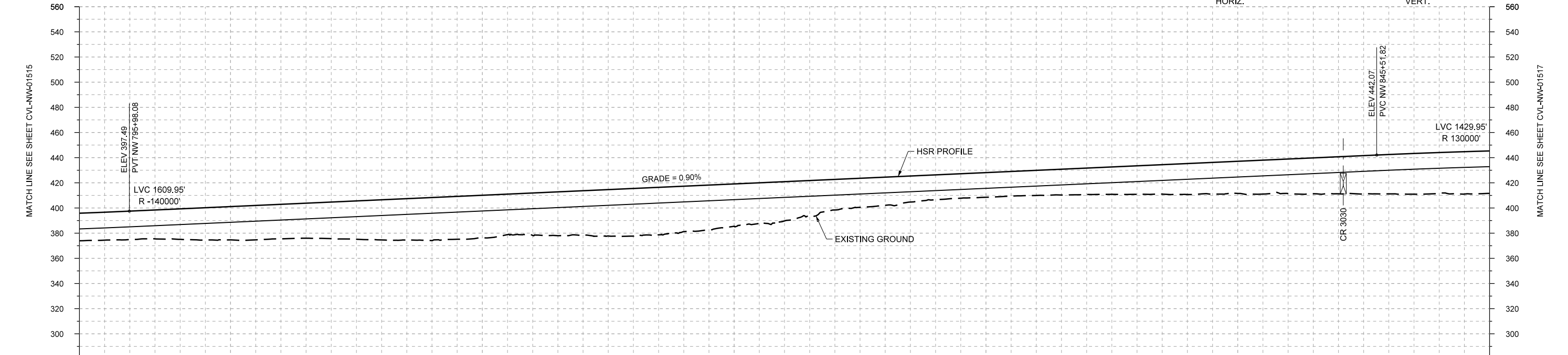
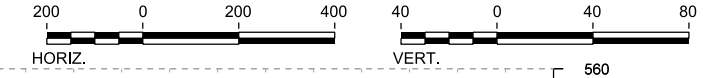
Scale  
AS SHOWN

Drawing Status  
**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01515	01



PLAN



PROFILE

STATIONING	NW 794+00	NW 800+00	NW 810+00	NW 820+00	NW 830+00	NW 840+00	NW 850+00																						
HOR. ALIGNMENT	R=30000 L=1800			L=8646																									
VER. ALIGNMENT	R=140000		L=4953.75 G=0.900%			R=130000																							
CUT AND FILL	+21.9	+22.6	+24.2	+26.4	+27.4	+29.1	+31.9	+34.1	+33.8	+33.7	+35.7	+37.9	+36.1	+33.6	+31.2	+24.3	+22.4	+19.8	+19.6	+20.0	+21.0	+22.6	+24.6	+25.5	+27.4	+29.5	+31.3	+32.2	+33.7
TYP. SECTION	VIADUCT (E)										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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www.freese.com  
Texas Registered Engineering Firm: F-2144

Client

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

Drawing Title

NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 794+00 TO NW 850+00

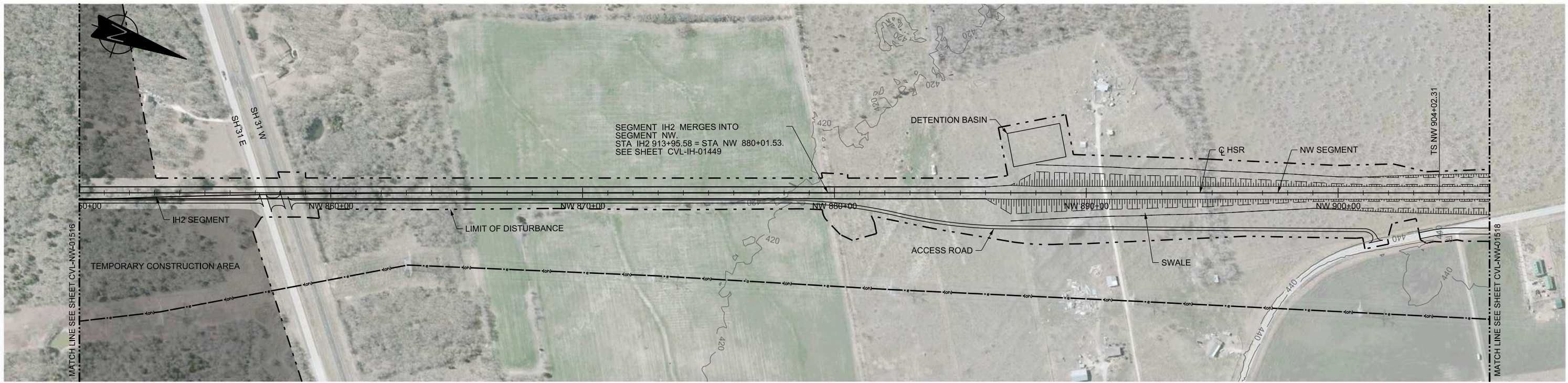
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AS SHOWN

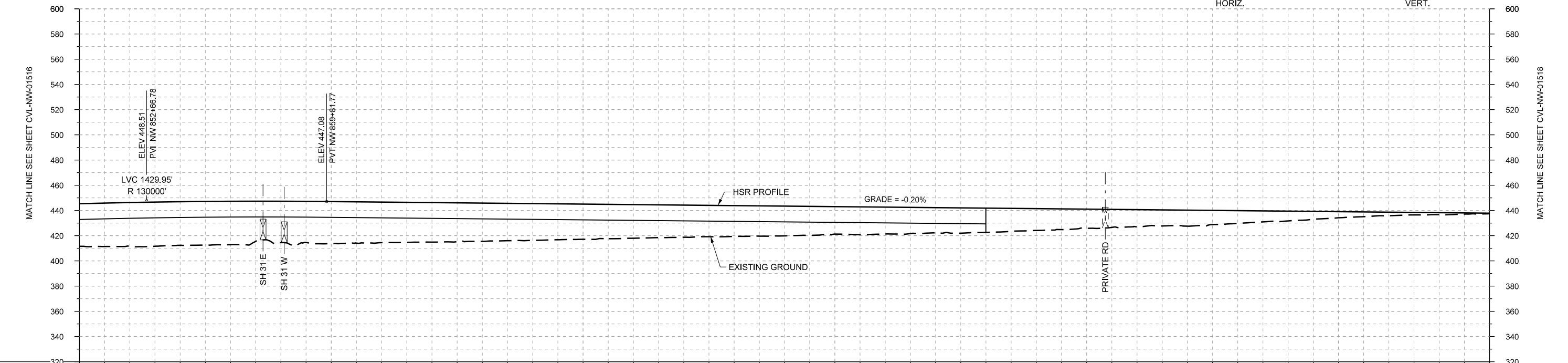
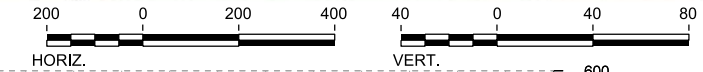
Drawing Status

FINAL DRAFT

Job No	Drawing No	Rev
234180	CVL-NW-01516	01



PLAN



PROFILE

STATIONING	NW 850+00	NW 860+00	NW 870+00	NW 880+00	NW 890+00	NW 900+00	NW 906+00
HOR. ALIGNMENT	L=8646						L=1350
VER. ALIGNMENT	R=130000						L=6632.53 G=-0.200%
CUT AND FILL	+33.7	+34.7	+34.5	+34.5	+32.8	+33.3	+32.1
TYP. SECTION	VIADUCT (K)				EMBANKMENT (F)		CUT (H)

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

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 Texas Registered Engineering Firm: F-1990

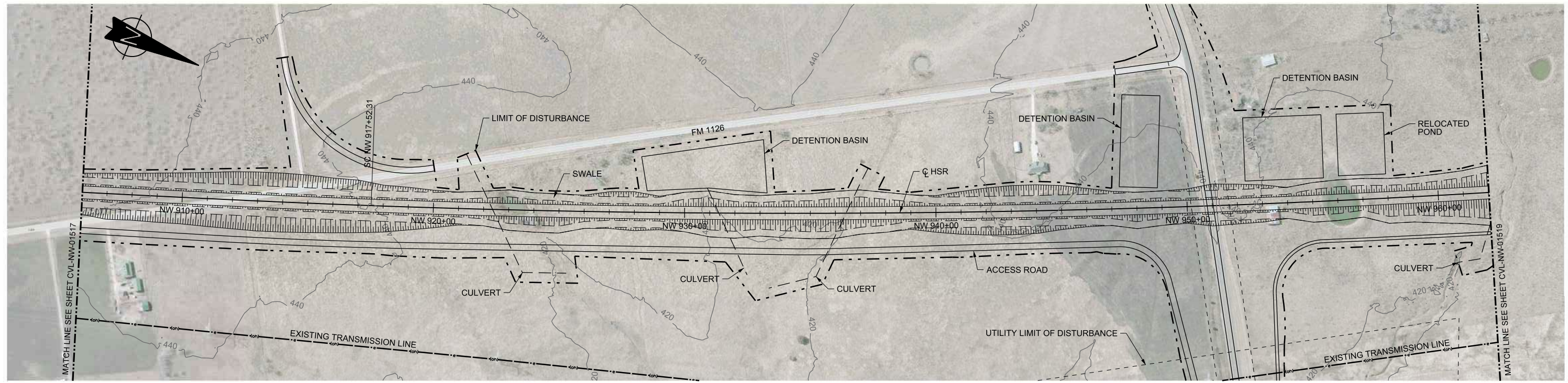
**FREESSE AND NICHOLS**  
 2711 North Haskell Ave., Suite 3300  
 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freese.com  
 Texas Registered Engineering Firm: F-2144

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

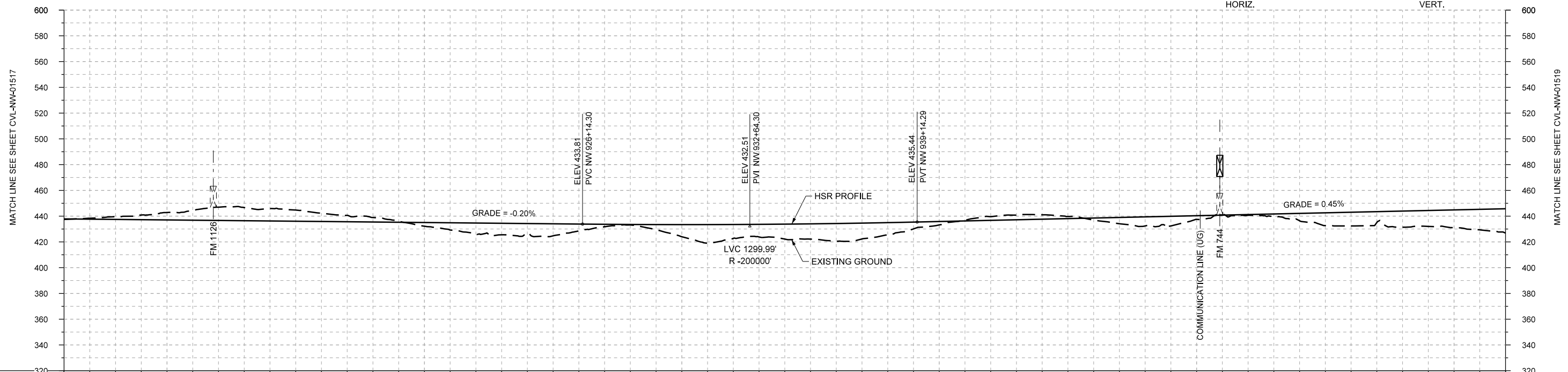
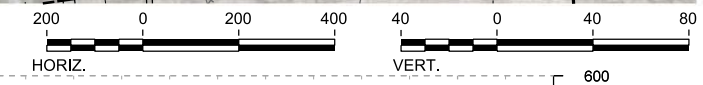
Drawing Title  
**NAVARRO WEST SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 NW 850+00 TO NW 906+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01517
Rev	01





PLAN



PROFILE

STATIONING	NW 906+00	NW 910+00	NW 920+00	NW 930+00	NW 940+00	NW 950+00	NW 960+00	NW 962+00																					
HOR. ALIGNMENT						R=46000 L=8314																							
VER. ALIGNMENT	L=1350		L=6632.53 G=-0.200%			R=200000		L=4827.72 G=0.450%																					
CUT AND FILL	+0.4	-2.2	-5.8	-10.4	-9.6	-6.4	-3.5	+2.8	+8.1	+7.2	+5.3	+0.3	+9.4	+10.8	+11.6	+13.8	+9.6	+2.6	-2.9	-3.5	+1.5	+7.0	+2.8	+0.5	+5.7	+10.6	+12.5	+13.8	+18.9
TYP. SECTION	CUT (H)			EMBANKMENT (F)			CUT (C)	EMBANKMENT (A)			CUT (C)			(A)	CUT (C)	EMBANKMENT (F)													

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**



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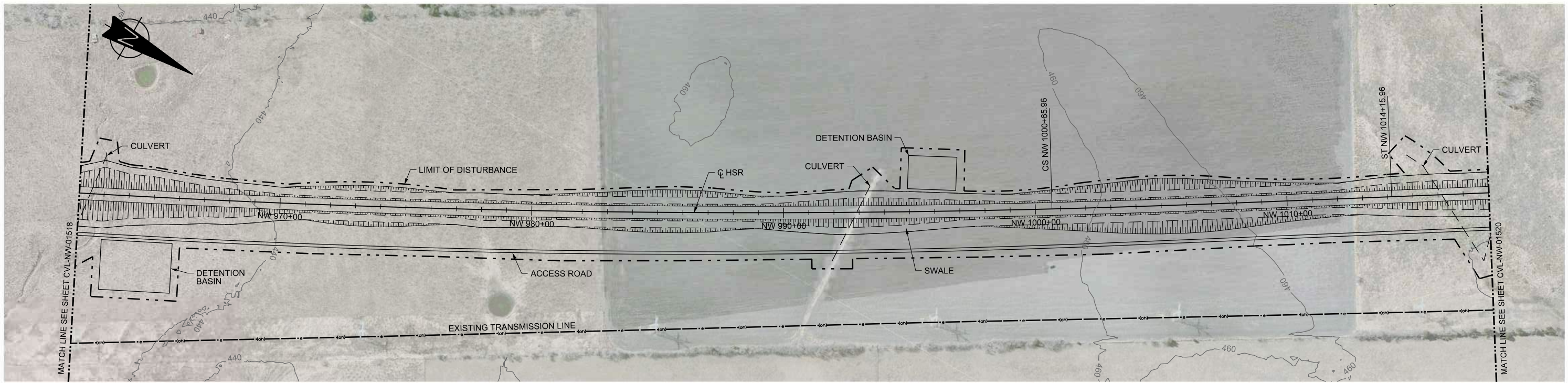
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144



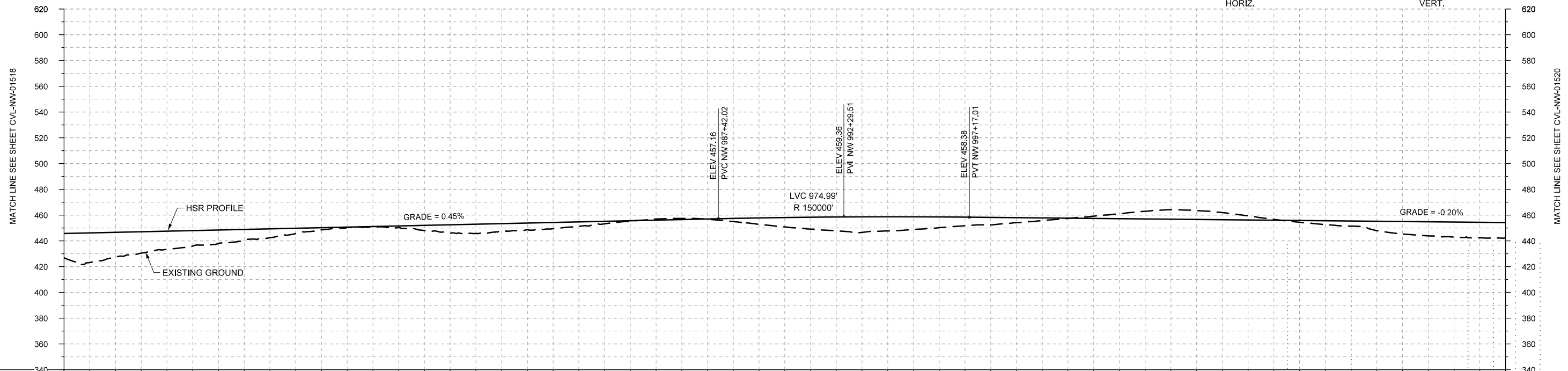
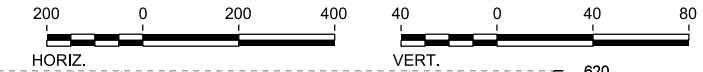
Client  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 906+00 TO NW 962+00**

Scale AS SHOWN	Drawing Status <b>FINAL DRAFT</b>	
Job No 234180	Drawing No CVL-NW-01518	Rev 01



PLAN



PROFILE

STATIONING	NW 962+00	NW 970+00	NW 980+00	NW 990+00	NW 1000+00	NW 1010+00	NW 1018+00																				
HOR. ALIGNMENT			R=46000 L=8314																								
VER. ALIGNMENT	L=4827.72 G=0.450%		R=150000		L=1350 G=-0.200%		L=30423																				
CUT AND FILL	+18.8	+19.3	+14.1	+10.2	+6.8	+1.6	+4.0	+7.2	+5.2	+3.5	+0.3	-0.9	+2.4	+7.3	+10.7	+11.0	+8.4	+5.8	+2.0	-1.8	-6.0	-6.9	-3.3	+1.4	+4.0	+9.6	+11.7
TYP. SECTION	EMBANKMENT (F)				CUT (H)		EMBANKMENT (F)		CUT (H)		EMBANKMENT (F)				CUT (H)				EMBANKMENT (F)								

REV	DATE	BY	CHK	APP	DESCRIPTION

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



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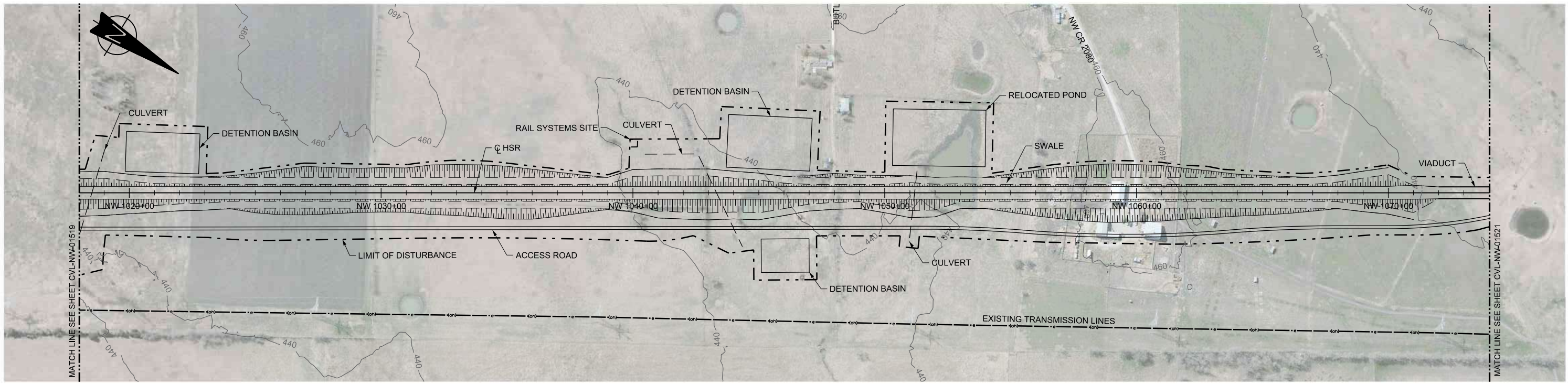
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144



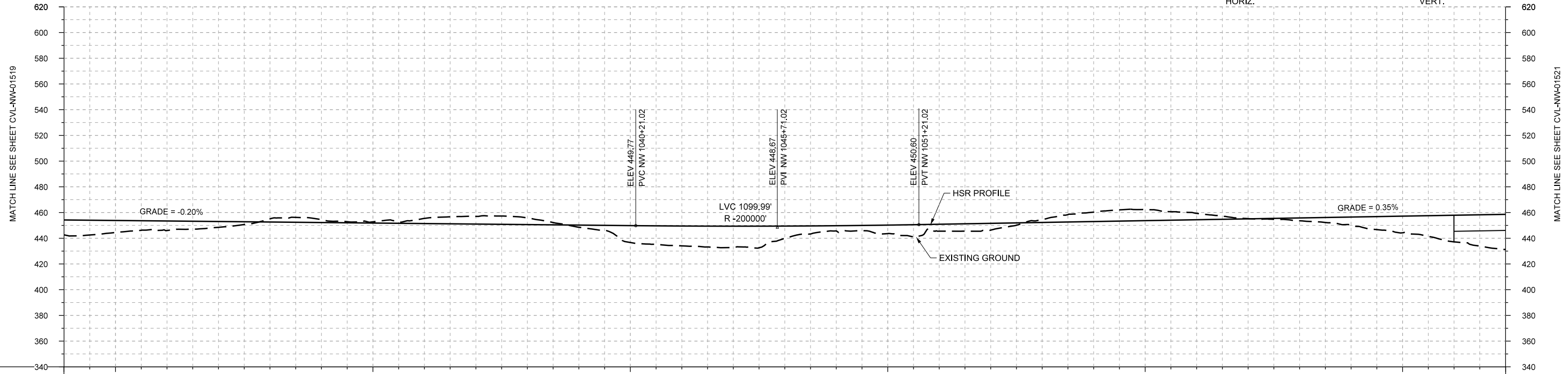
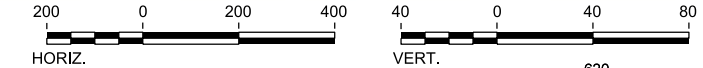
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 962+00 TO NW 1018+00**

Scale AS SHOWN		
Drawing Status <b>FINAL DRAFT</b>		
Job No 234180	Drawing No CVL-NW-01519	Rev 01



PLAN



PROFILE

STATIONING	NW 1018+00	NW 1020+00	NW 1030+00	NW 1040+00	NW 1050+00	NW 1060+00	NW 1070+00	NW 1074+00																					
HOR. ALIGNMENT	L=30423																												
VER. ALIGNMENT	L=4304.01 G=-0.200%				R=200000		L=3647.09 G=0.350%																						
CUT AND FILL	+11.7	+9.3	+7.4	+4.5	-2.5	-2.2	-1.0	-4.0	-6.0	-5.2	+1.6	+13.1	+15.4	+16.4	+9.8	+4.0	+6.6	+5.4	+5.3	-2.2	-7.3	-6.5	-4.9	-0.1	+2.2	+6.5	+13.0	+20.7	+27.4
TYP. SECTION	EMBANKMENT (F)			CUT (H)								EMBANKMENT (F)			CUT (H)			EMBANKMENT (F)			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**



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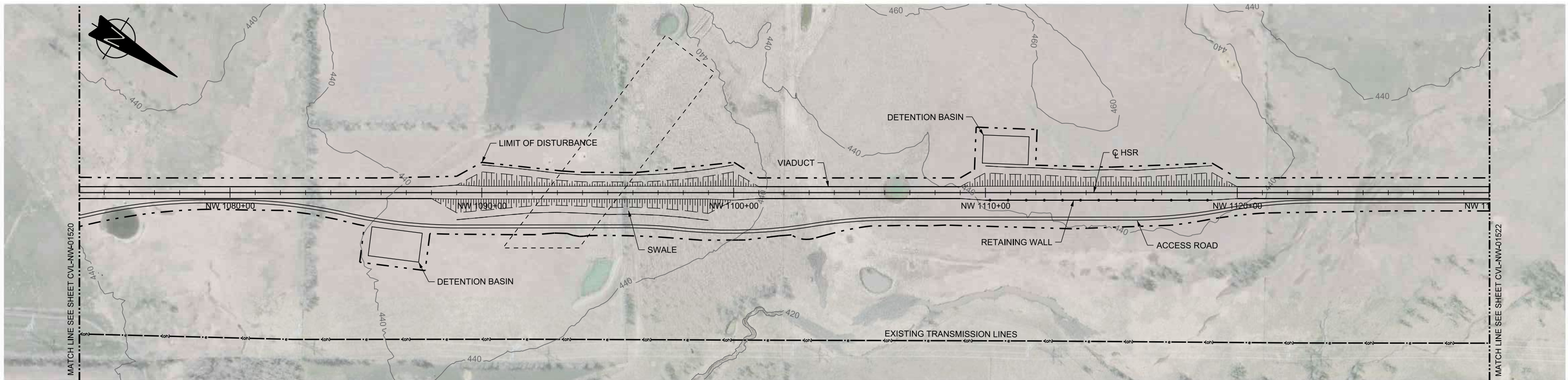
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
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Texas Registered Engineering Firm: F-2144



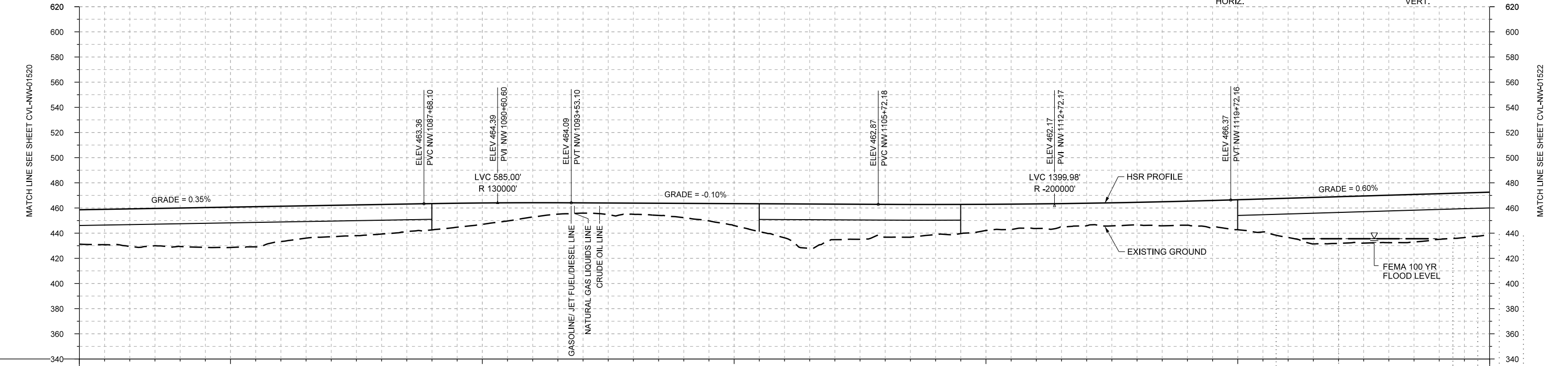
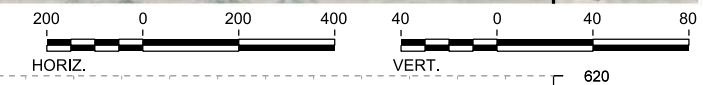
Client  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 1018+00 TO NW 1074+00**

Scale	AS SHOWN		
Drawing Status	PRELIMINARY		
Job No	234180	Drawing No	CVL-NW-01520
Rev			04



PLAN



PROFILE

STATIONING	NW 1074+00	NW 1080+00	NW 1090+00	NW 1100+00	NW 1110+00	NW 1120+00	NW 1130+00
HOR. ALIGNMENT	L=30423						
VER. ALIGNMENT	L=3647.09 G=0.350%		R=130000			L=5582.11 G=0.600%	
CUT AND FILL	+27.4	+30.0	+30.6	+32.1	+28.1	+25.0	+23.5
TYP. SECTION	VIADUCT (E)		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**

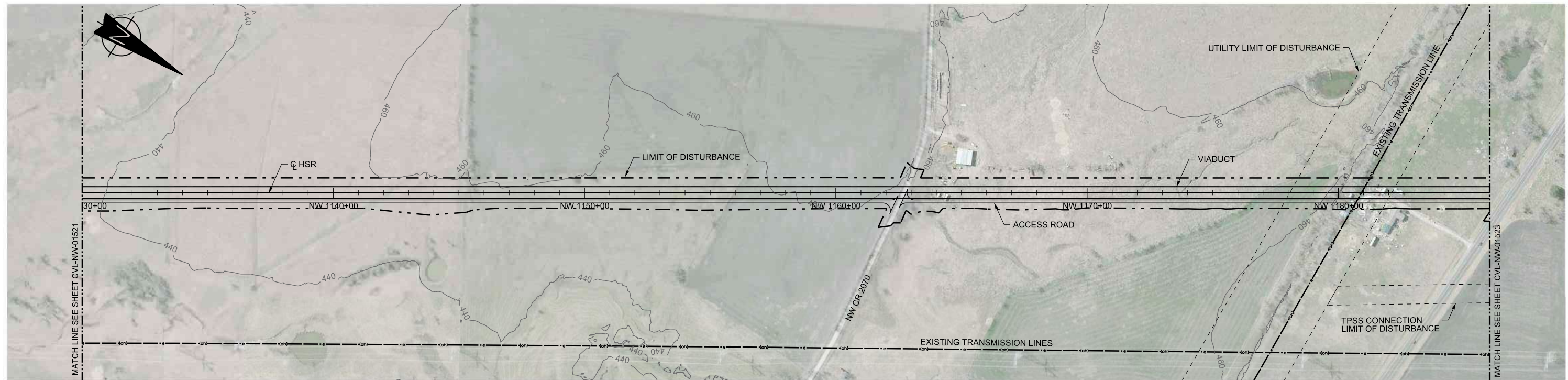
**ARUP**  
 Arup Texas, Inc.  
 10370 Richmond Ave., Suite 475  
 Houston, Texas 77042 USA  
 Tel (713) 783 2787 Fax (713) 343 1467  
 www.arup.com  
 Texas Registered Engineering Firm: F-1990

**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

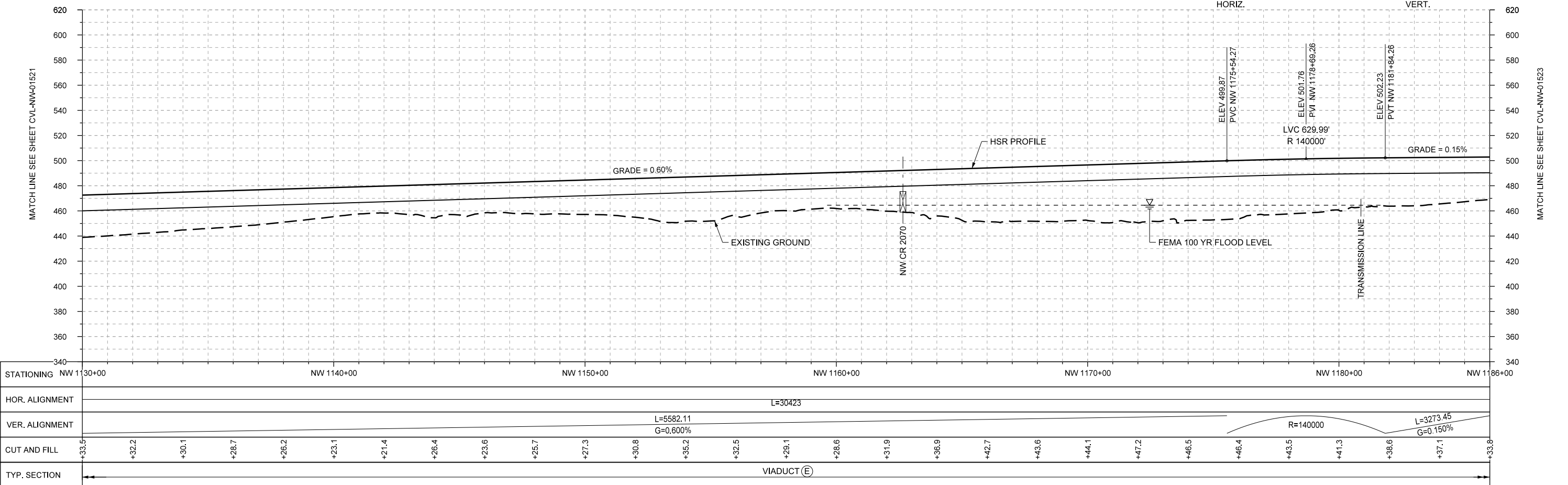
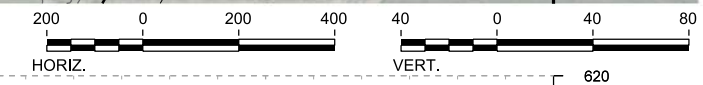
Client  
  
**TEXAS CENTRAL**  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE NW 1074+00 TO NW 1130+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01521
Rev	01



PLAN



PROFILE

STATIONING	NW 1130+00	NW 1140+00	NW 1150+00	NW 1160+00	NW 1170+00	NW 1180+00	NW 1186+00	
HOR. ALIGNMENT	L=30423							
VER. ALIGNMENT	L=5582.11 G=0.600%							
CUT AND FILL	+33.5	+32.2	+30.1	+28.7	+26.2	+23.1	+21.4	
	+26.4	+23.6	+25.7	+27.3	+30.8	+35.2	+32.5	
	+29.1	+28.6	+31.9	+36.9	+42.7	+43.6	+44.1	
	+47.2	+46.5	+48.4	+43.5	+41.3	+38.6	+37.1	
	+33.8	VIADUCT (E)						+33.8

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

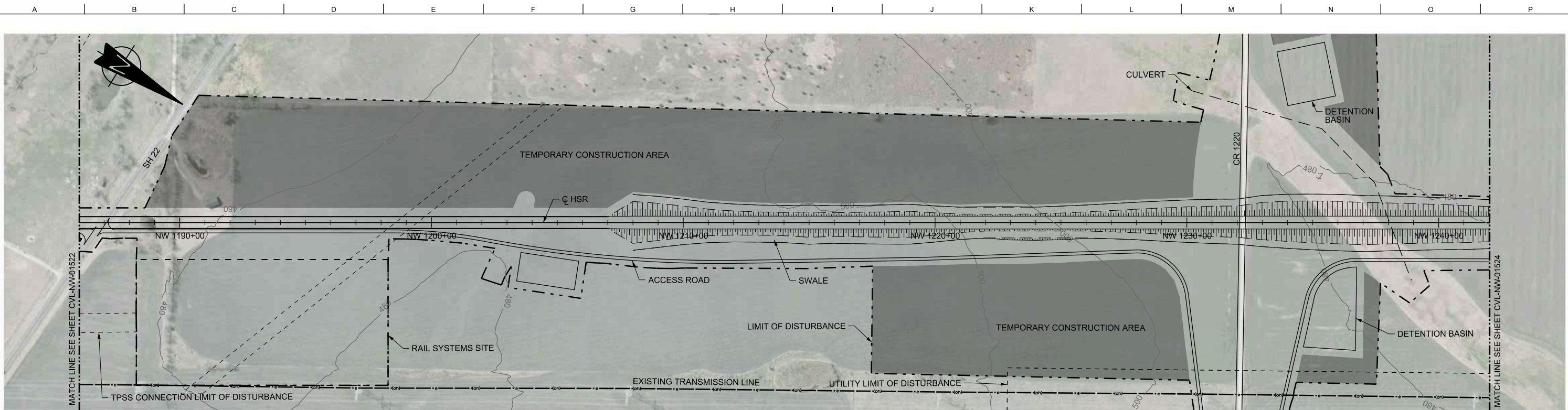
**ARUP**  
 Arup Texas, Inc.  
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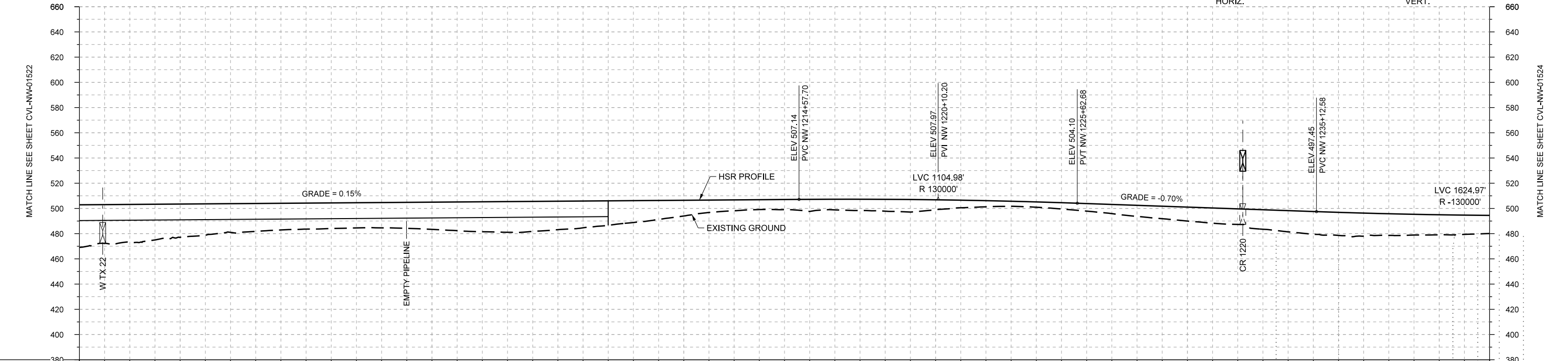
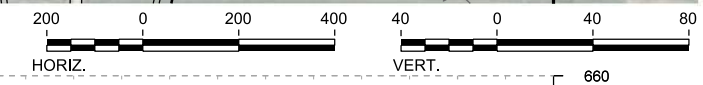
Client  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE**  
 NW 1130+00 TO NW 1186+00

Scale  
 AS SHOWN  
 Drawing Status  
**FINAL DRAFT**  
 Job No 234180 Drawing No CVL-NW-01522 Rev 01



PLAN



PROFILE

STATIONING	NW 1186+00	NW 1190+00	NW 1200+00	NW 1210+00	NW 1220+00	NW 1230+00	NW 1240+00	NW 1242+00																					
HOR. ALIGNMENT	L=30423																												
VER. ALIGNMENT	L=3273.45 G=0.150%				R=130000		L=949.90 G=-0.700%		R=130000																				
CUT AND FILL	+33.8	+29.8	+26.4	+22.8	+21.2	+20.3	+20.1	+21.6	+23.8	+23.8	+21.3	+17.4	+12.5	+8.7	+8.1	+8.5	+9.4	+7.8	+4.8	+4.2	+5.9	+8.7	+11.0	+12.3	+16.8	+18.3	+17.2	+16.0	+14.4
TYP. SECTION	VIADUCT (E)				EMBANKMENT (A)										CUT (C)		EMBANKMENT (A)												

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**



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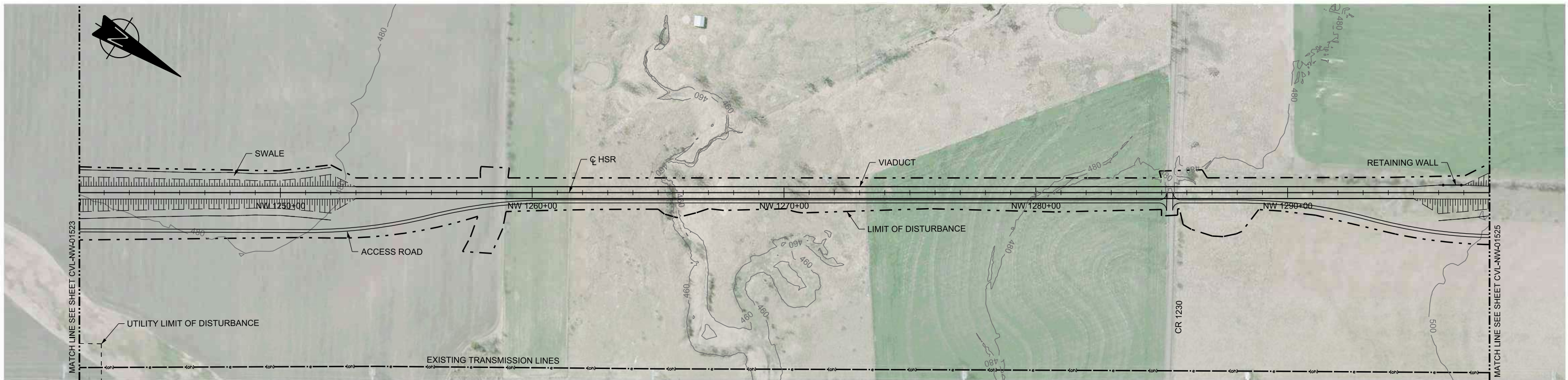
2711 North Haskell Ave., Suite 3300  
Dallas, Texas 75204  
Tel (214) 217 2200 Fax (214) 217 2201  
www.freese.com  
Texas Registered Engineering Firm: F-2144



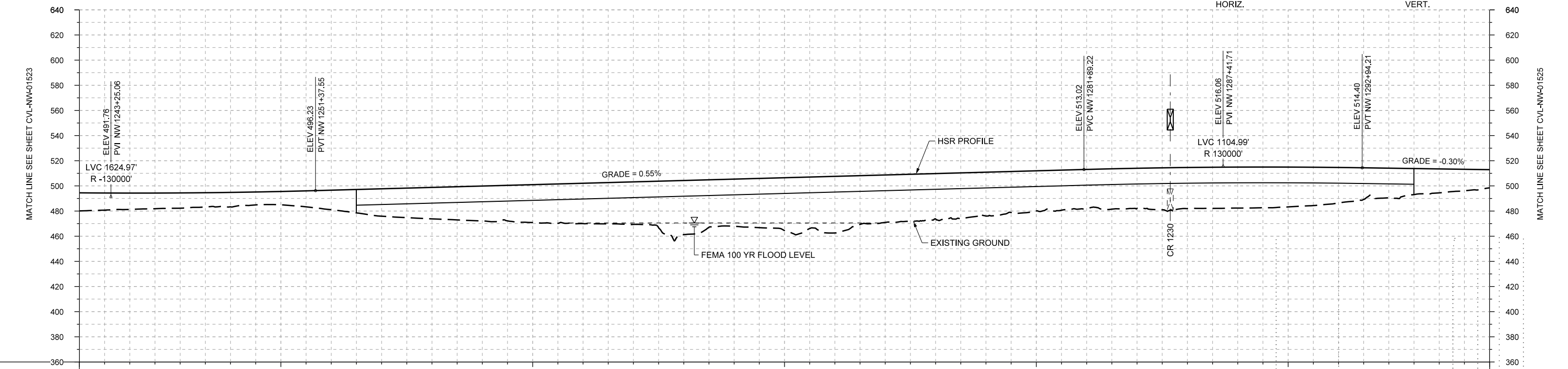
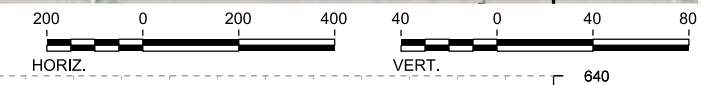
Client  
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 1186+00 TO NW 1242+00**

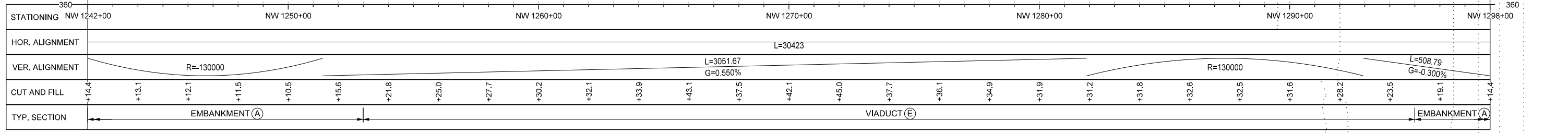
Scale	AS SHOWN		
Drawing Status	FINAL DRAFT		
Job No	Drawing No	Rev	
234180	CVL-NW-01523	01	



PLAN



PROFILE



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**

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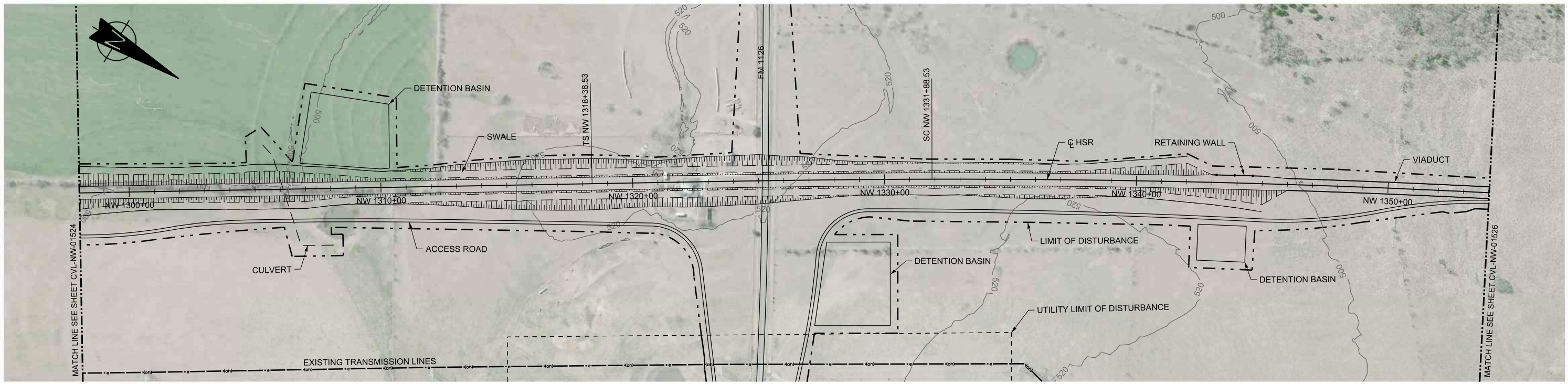
Client

**TEXAS CENTRAL**

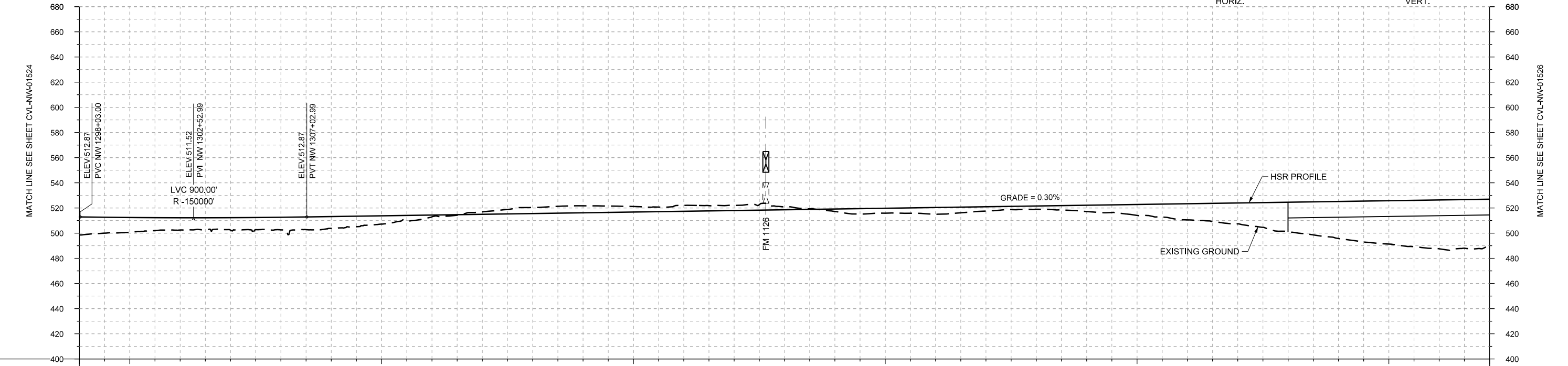
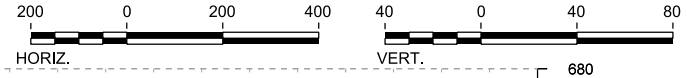
1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE NW 1242+00 TO NW 1298+00**

Scale AS SHOWN		
Drawing Status FINAL DRAFT		
Job No 234180	Drawing No CVL-NW-01524	Rev 01



PLAN



PROFILE

STATIONING	NW 1298+00	NW 1300+00	NW 1310+00	NW 1320+00	NW 1330+00	NW 1340+00	NW 1350+00	NW 1354+00																					
HOR. ALIGNMENT	L=30423			L=1350	R=42000 L=11487																								
VER. ALIGNMENT	R=150000			G=0.300%																									
CUT AND FILL	+14.4	+11.6	+9.7	+9.9	+10.1	+9.4	+6.6	+1.4	-1.9	-4.8	-5.5	-4.4	-4.7	-4.1	-2.2	+2.0	+3.9	+5.4	+3.5	+2.6	+5.0	+8.7	+12.9	+16.6	+23.7	+29.5	+34.5	+36.9	+37.4
TYP. SECTION	EMBANKMENT (A)			CUT (C)			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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Texas Registered Engineering Firm: F-2144

Client

**TEXAS CENTRAL**

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

Drawing Title

**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE NW 1298+00 TO NW 1354+00**

Scale  
AS SHOWN

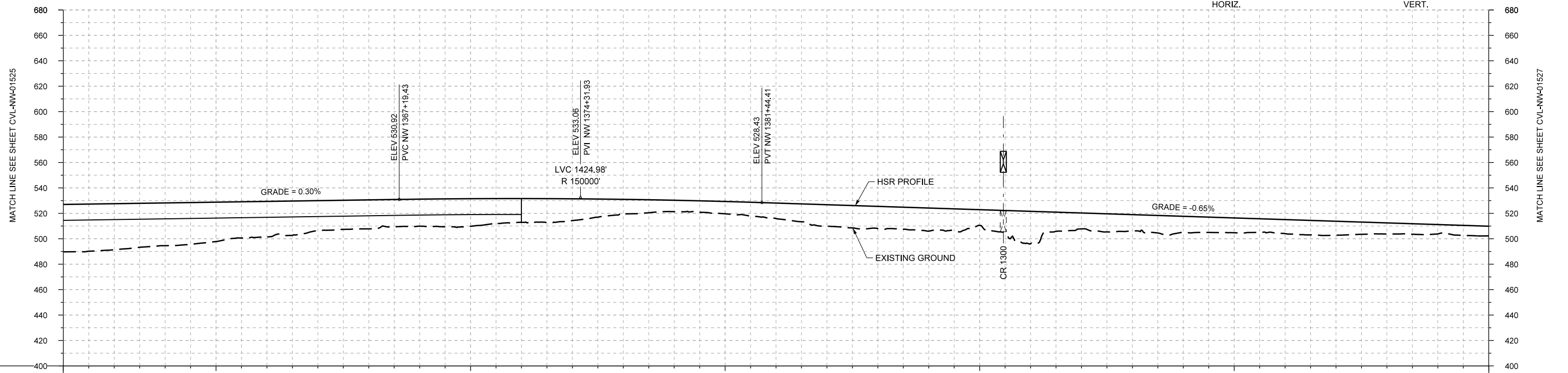
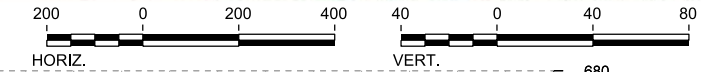
Drawing Status  
**FINAL DRAFT**

Job No	Drawing No	Rev
234180	CVL-NW-01525	01





PLAN



PROFILE

STATIONING	NW 1354+00	NW 1360+00	NW 1370+00	NW 1380+00	NW 1390+00	NW 1400+00	NW 1410+00	
HOR. ALIGNMENT					R=42000 L=11487			
VER. ALIGNMENT	L=6016.44 G=0.300%		R=150000			L=12642.05 G=-0.650%		
CUT AND FILL	+37.4	+36.2	+33.7	+31.0	+28.1	+23.4	+22.8	
TYP. SECTION	VIADUCT (E)				EMBANKMENT (A)			

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

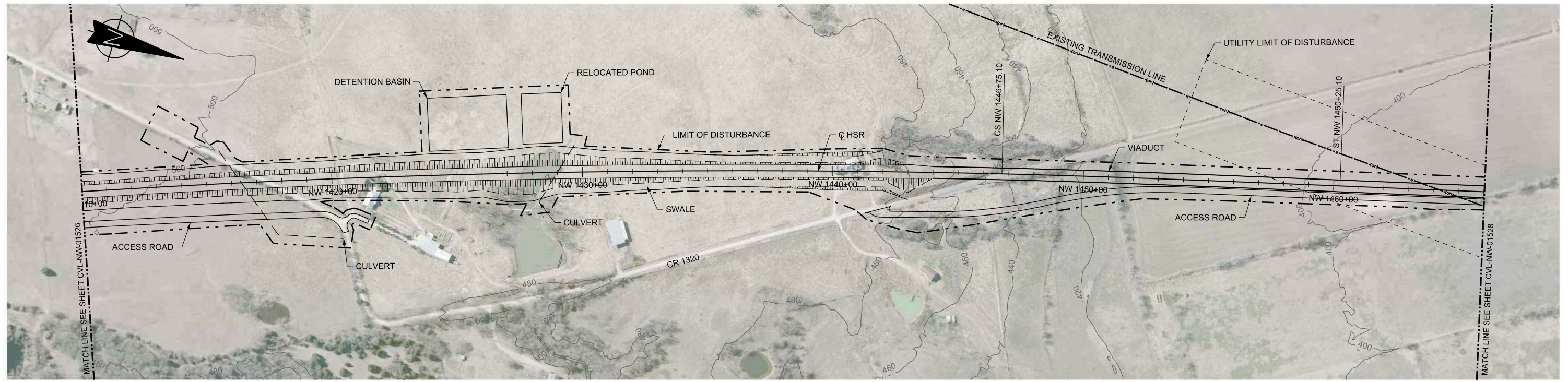
**ARUP**  
 Arup Texas, Inc.  
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 Houston, Texas 77042 USA  
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 Dallas, Texas 75204  
 Tel (214) 217 2200 Fax (214) 217 2201  
 www.freesse.com  
 Texas Registered Engineering Firm: F-2144

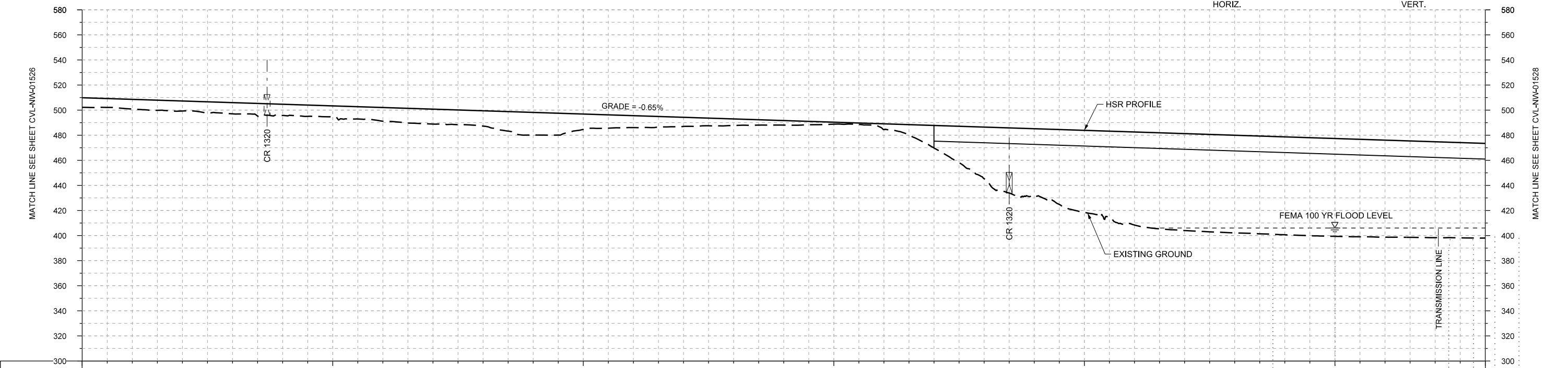
Client  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE**  
 NW 1354+00 TO NW 1410+00

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01526
Rev	01



PLAN



STATIONING	NW 1410+00	NW 1420+00	NW 1430+00	NW 1440+00	NW 1450+00	NW 1460+00	NW 1466+00																						
HOR. ALIGNMENT			R=42000 L=11487			L=1350	L=749																						
VER. ALIGNMENT				L=12642.05 G=-0.650%																									
CUT AND FILL	+7.7	+7.7	+8.0	+9.0	+9.0	+8.7	+10.9	+11.9	+12.3	+18.1	+12.3	+9.5	+7.3	+5.3	+3.6	+1.6	+4.6	+18.0	+41.2	+53.0	+65.5	+74.2	+77.3	+77.9	+78.1	+78.0	+77.4	+76.5	+75.5
TYP. SECTION	EMBANKMENT (A)										CUT (C)			VIADUCT (E)															

PROFILE

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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Texas Registered Engineering Firm: F-2144

Client

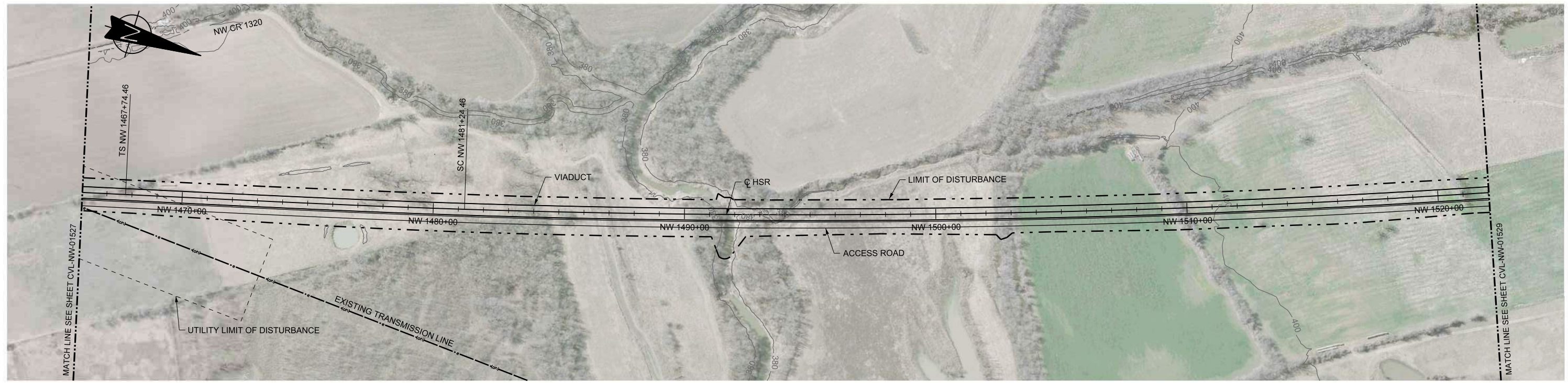
**TEXAS CENTRAL**

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

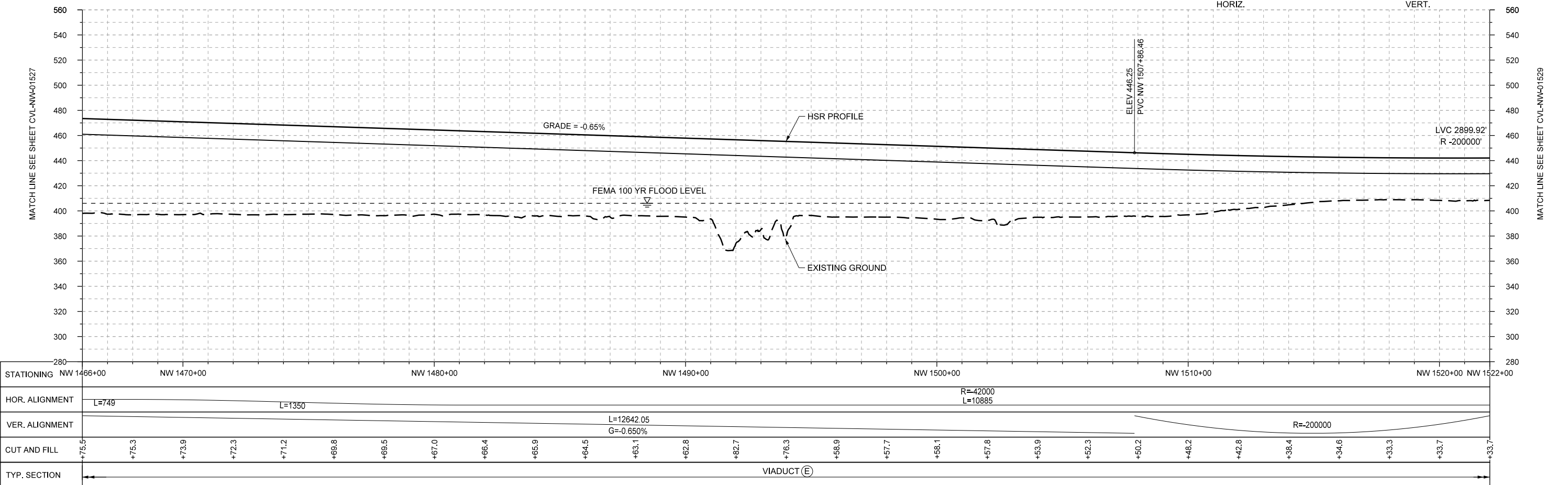
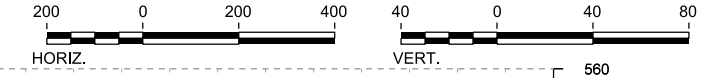
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 1410+00 TO NW 1466+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01527
Rev	01



PLAN



PROFILE

STATIONING	NW 1466+00	NW 1470+00	NW 1480+00	NW 1490+00	NW 1500+00	NW 1510+00	NW 1520+00	NW 1522+00																				
HOR. ALIGNMENT	L=749		L=1350		R=42000 L=10885																							
VER. ALIGNMENT			L=12642.05 G=-0.650%				R=200000																					
CUT AND FILL	+75.5	+75.3	+73.9	+72.3	+71.2	+69.8	+69.5	+67.0	+66.4	+65.9	+64.5	+63.1	+62.8	+82.7	+76.3	+58.9	+57.7	+58.1	+57.8	+53.9	+52.3	+50.2	+48.2	+42.8	+38.4	+34.6	+33.3	+33.7
TYP. SECTION	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

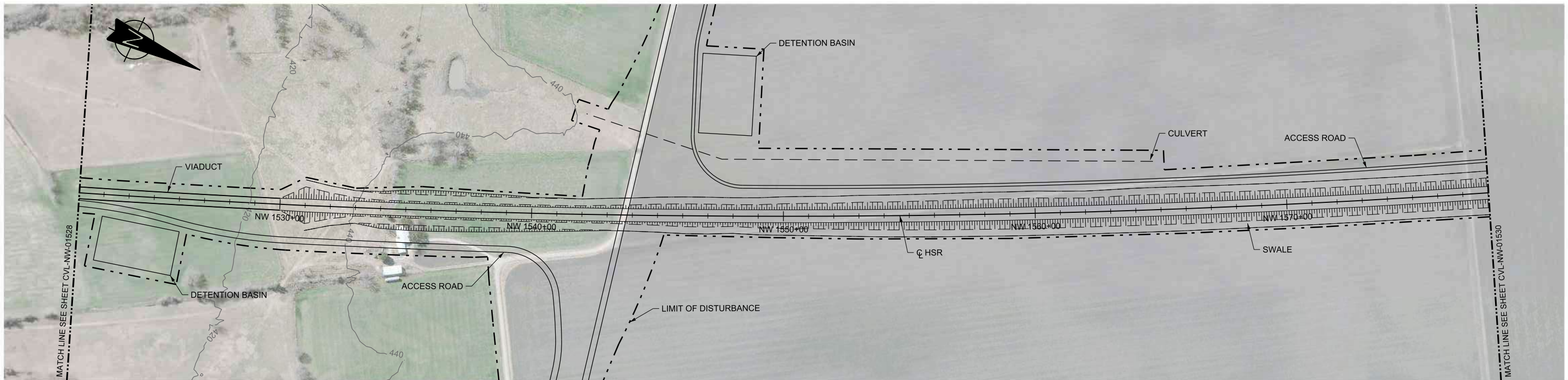
**ARUP**  
 Arup Texas, Inc.  
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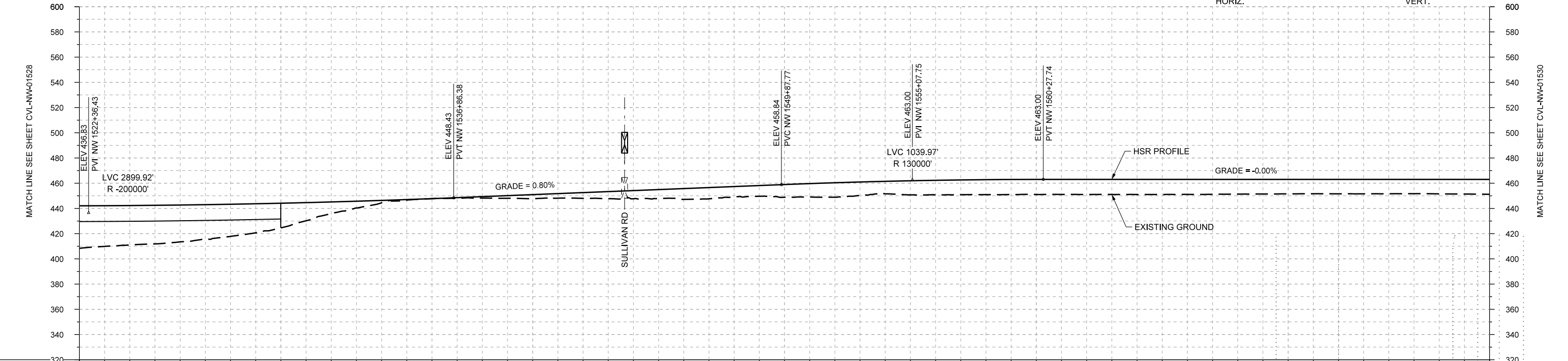
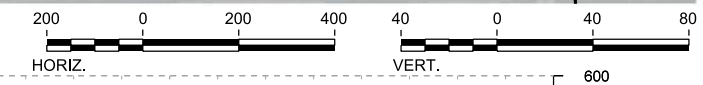
Client  
  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT CIVIL PLAN AND PROFILE**  
 NW 1466+00 TO NW 1522+00

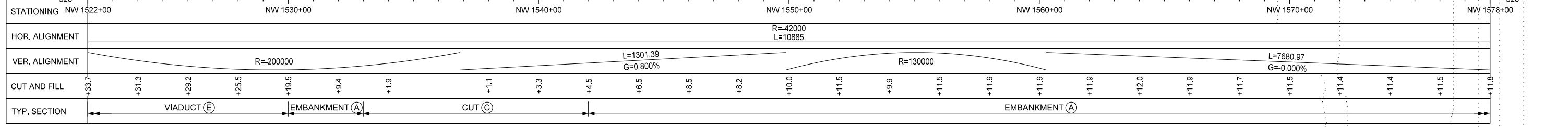
Scale  
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 Drawing Status  
**FINAL DRAFT**  
 Job No: 234180 Drawing No: CVL-NW-01528 Rev: 01



PLAN



PROFILE



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**

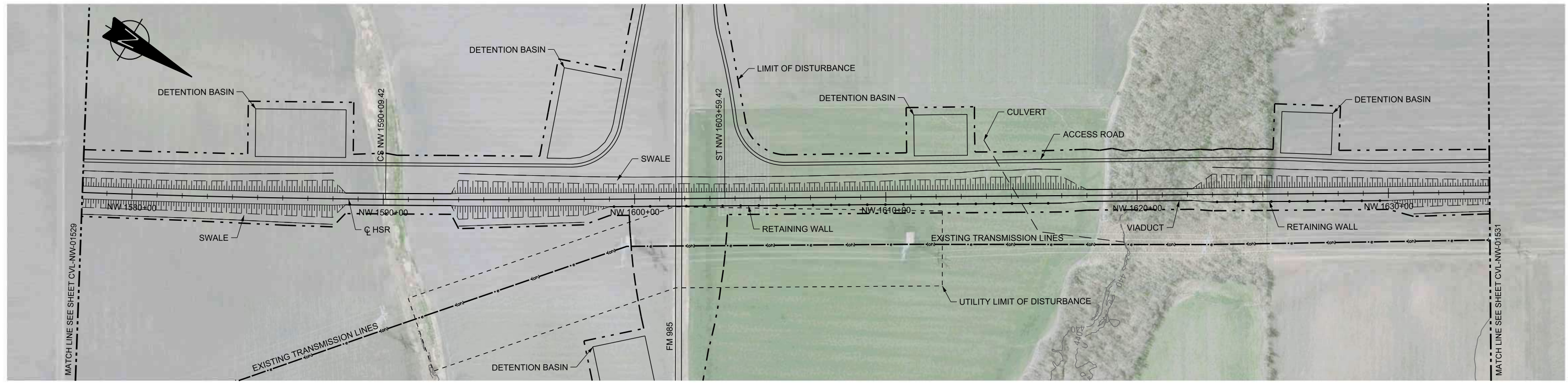
**ARUP**  
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 Texas Registered Engineering Firm: F-2144

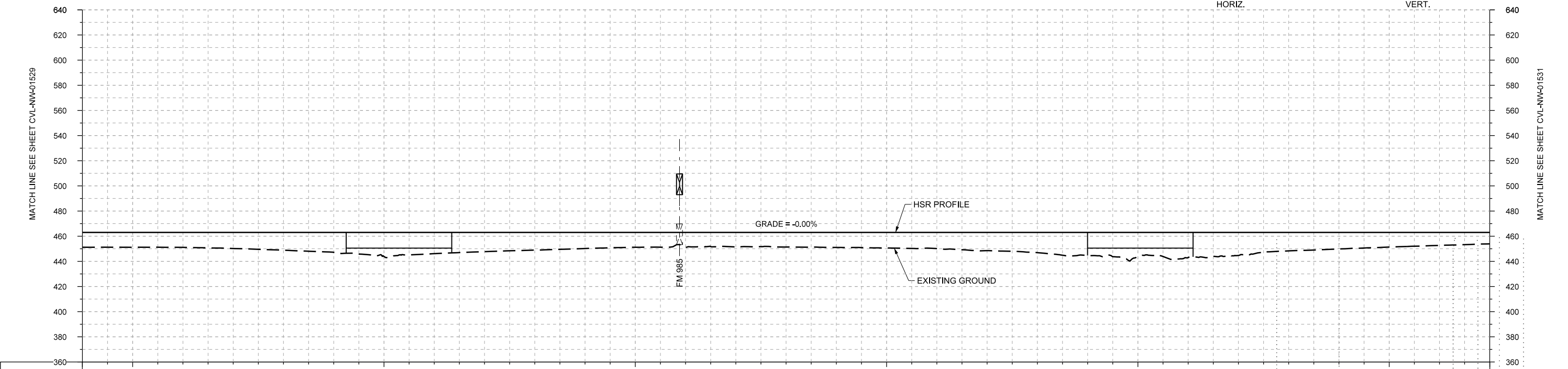
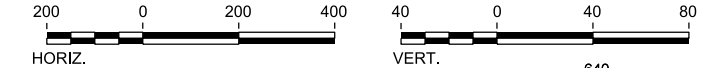
Client  
  
**TEXAS CENTRAL**  
 1409 South Lamar Street, Suite 1022, Dallas, Texas 75215

Drawing Title  
**NAVARRO WEST SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 NW 1522+00 TO NW 1578+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01529
Rev	01



PLAN



STATIONING	NW 1578+00	NW 1580+00		NW 1590+00		NW 1600+00		NW 1610+00		NW 1620+00		NW 1630+00	NW 1634+00																
HOR. ALIGNMENT	R=42000 L=10885		L=1350				L=7680.97 G=-0.000%				L=3349																		
VER. ALIGNMENT																													
CUT AND FILL	+11.8	+11.8	+11.9	+12.8	+14.1	+15.9	+18.1	+16.9	+15.3	+14.1	+12.8	+11.8	+12.0	+11.5	+11.6	+11.9	+12.4	+12.9	+14.5	+16.1	+18.3	+19.1	+20.0	+18.3	+14.7	+13.2	+11.7	+10.3	+9.1
TYP. SECTION	EMBANKMENT (A)				VIADUCT (E)		EMBANKMENT (F)						VIADUCT (K)		EMBANKMENT (F)														

PROFILE

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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Client

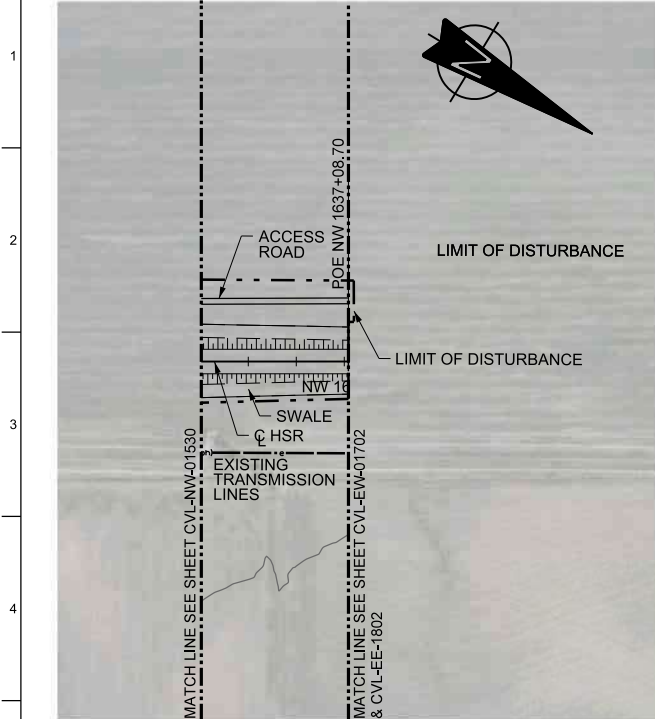
**TEXAS CENTRAL**

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

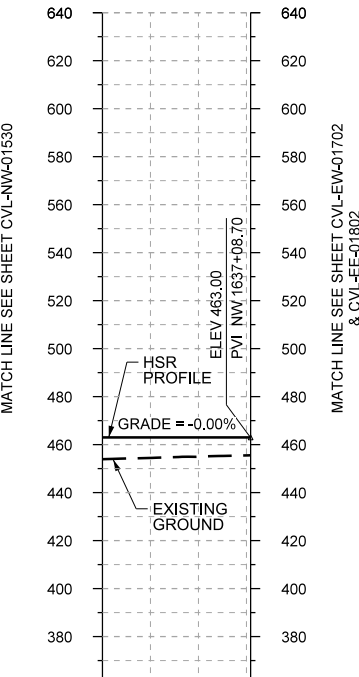
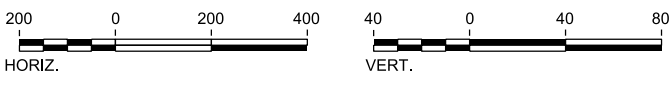
Drawing Title

**NAVARRO WEST SEGMENT  
CIVIL  
PLAN AND PROFILE  
NW 1578+00 TO NW 1634+00**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01530
Rev	01



PLAN



STATIONING	NW 1634+00	NW 1637+09
HOR. ALIGNMENT	L=3349	
VER. ALIGNMENT	L=7680.97 G=-0.000%	
CUT AND FILL	+8.1	+8.0 +7.5
TYP. SECTION	EMBANKMENT (F)	

PROFILE

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



Drawing Title  
**NAVARRO WEST SEGMENT  
 CIVIL  
 PLAN AND PROFILE  
 NW 1634+00 TO NW 1637+09**

Scale	AS SHOWN
Drawing Status	FINAL DRAFT
Job No	234180
Drawing No	CVL-NW-01531
Rev	01