



**TRE Higher Speed Rail Support**  
**Feasibility of Exclusive Third HrSR Track**  
**in TRE Corridor**  
Conceptual Design Report  
September 2014

Prepared by URS Corporation



Prepared for Dallas Area Rapid Transit  
General Planning Consultant Managed by URS Corporation

Document Revision Record

Project/Report Name: TRE Higher Speed Rail Support/Feasibility of Exclusive Third HrSR Track in TRE Corridor	URS Project Number: 25338734.00001
PM: Chad Allen	PIC: Brian Piascik

Revision Number:	Date:
Version 1	8/25/2014
Version 2	9/11/2014
Version 3	9/12/2014

Originator:	Chad Allen	Date: 5/15/2012
	URS Corporation	
Comments by:	Name, Firm	Date:
	DART	8/26/2014
	DART	9/3/2014
Task Manager Approval:		Date:
Verified/Approved by:		Date:

Distribution	Name	Title	Firm



## TABLE OF CONTENTS

INTRODUCTION .....	1
TRE EXISTING CONDITIONS .....	1
DESIGN CONSTRAINTS .....	3
HRSR CONCEPTS .....	6
CONCEPTUAL ROUGH ORDER OF MAGNITUDE CAPITAL COST ESTIMATE .....	8
OPERATIONAL CONSIDERATIONS .....	9
APPENDIX A: INVENTORY .....	A-1
APPENDIX B: STATIONS .....	B-1
APPENDIX C: EXISTING CONDITIONS .....	C-1
APPENDIX D: HORIZONTAL ALIGNMENT SCHEMATICS .....	D-1
APPENDIX E: PROPOSED ALIGNMENT EXHIBITS .....	E-1
APPENDIX F: CONCEPTUAL CAPITAL COSTS ESTIMATE.....	F-1

## INTRODUCTION

The purpose of this memorandum is to document the effort of assessing the feasibility of placing an exclusive “third” track in the Trinity Railway Express (TRE) Corridor to accommodate Higher Speed Rail (HrSR) between Dallas and Fort Worth. HrSR would require speeds up to 110 mph. The third track would service HrSR, AMTRAK and some express TRE service. HrSR would include three stations: Dallas Union Station, Centreport / DFW Station (Fort Worth) and either Fort Worth Intermodal Transportation Center (ITC) or Texas & Pacific (T&P) Station.

## TRE EXISTING CONDITIONS

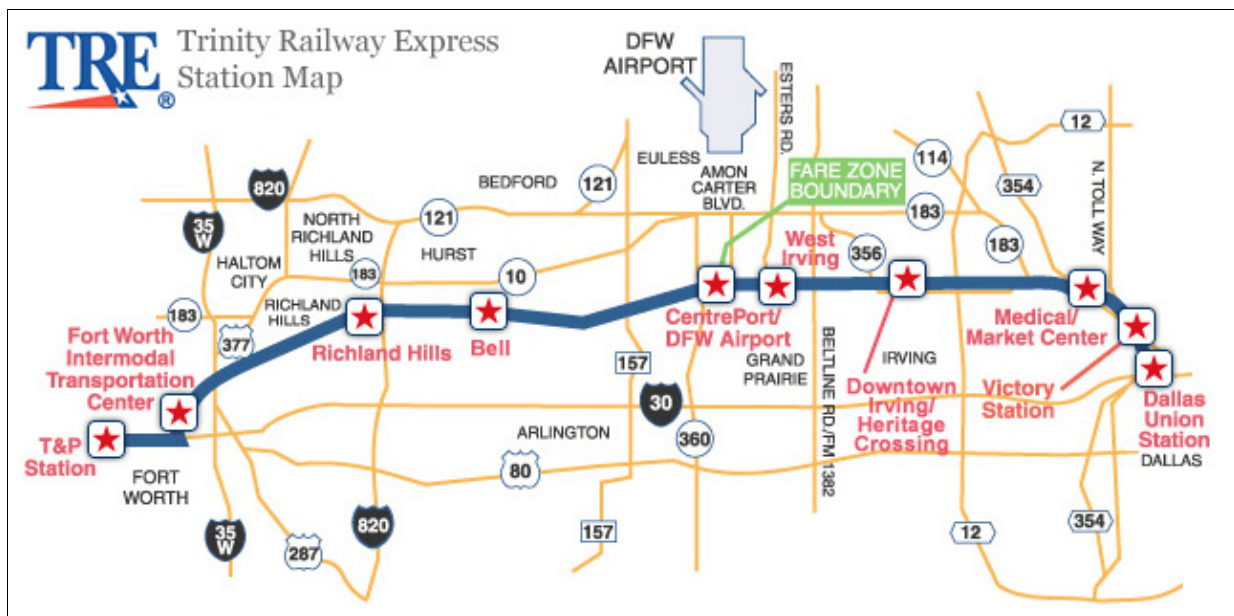
The TRE runs approximately 33.8 miles of commuter rail between Fort Worth and Dallas. The alignment runs north of IH30 and south of Hwy 183 until it crosses and runs along the north side of IH35E into downtown Dallas, as shown in **Figure 1**.

Several appendices support this memorandum, including: Inventory, Stations, and Existing Conditions. The exhibits identify the locations of single track and double track; at-grade and grade separated crossings; bridges; stations; major yards and junctions; and some design constraints, along with a detailed inventory of existing conditions.

### Existing Tracks

The TRE alignment consists of both double track and single track sections. Of the 33.8 mile corridor approximately 18.4 miles are double tracked. Approximately 11.1 miles of the double tracks are in Dallas County and the remaining 7.3 miles in Tarrant County. With the exception of Bell Station, all other stations are double tracked.

**Figure 1: TRE Alignment and Stations**



Source: trinityrailwayexpress.org, 2014

Stations

There are 10 stations along the TRE alignment, five in Tarrant County and five in Dallas County, as shown in **Figure 1**. Aerial photo exhibits of each station are provided in **Appendix B – Stations**. Each station offers a variety of features including parking, bus or light rail connections, staffed customer information, Kiss 'n' Ride passenger drop off/pick up areas and shuttle services, as detailed in **Table 1**.

**Table 1: TRE Station Features**

Stations	Features
T&P Station	Parking, The T Bus
Intermodal Transportation Center (ITC) Station	Customer Info, Kiss'n'Ride, The T Bus, Amtrak, Taxi, Greyhound, Rental Car
Richland Hills Station	Parking, Kiss'n'Ride, The T Bus
Bell Station	Parking
Centreport / DFW Station	Parking, Kiss'n'Ride, The T Bus, DART Bus, DFW Shuttle
West Irving Station	Parking, Kiss'n'Ride, DART Bus
Downtown South Irving Station	Parking, Customer Info, Kiss'n'Ride, DART Bus
Medical-Market Center	Kiss'n'Ride, UT Southwest Shuttle
Victory Station	DART Bus, DART Light Rail
Dallas Union Station	Customer Info, DART Bus, DART Light Rail, Amtrak

**Source: URS, 2014**

Street Crossings

Throughout the corridor, the TRE alignment has 67 street crossings. Of these, 29 are at-grade crossings, 25 are bridged grade separated overpasses and the remaining 13 are grade separated underpasses. A full detailed list of the street crossings, MP locations, type of crossing and number of tracks at the crossing are in **Appendix A – Inventory**.

Bridges

Bridges are used on this corridor for street, highway, trails, flood zones, creeks and rivers crossings. The 39 bridges include single track, double track, multiple track and side-by-side single track bridges. Three of these bridges include a trestle portion of the structure. A full detailed list of bridges is in **Appendix A– Inventory**.

Water Crossings

The TRE corridor includes two major river crossings, the Trinity River in Fort Worth and the Elm Fork of the Trinity River in Dallas. There are also 17 creek crossings. A full detailed list of water crossings is in **Appendix A– Inventory**.

Junctions

There are three major junctions along the TRE corridor. The first is the 6<sup>th</sup> Street Junction just east of downtown Fort Worth on the west side of IH35W. The second is the Irving Junction located between O'Connor Boulevard and Britain Road. The third is the North Junction in the southeast corner of the Woodall Rodgers and IH35E intersection prior to Union Station.

Yards

There are three major yards along the TRE Corridor. The first is the Sylvania Yard in Fort Worth between Riverside Road and Beach Street. The second is the Irving Yard located between Valley View Road and Hwy 161. The third one is the Mockingbird Yard in Dallas between Norwood Drive and Mockingbird Lane.

### Spurs and Sidings

Spurs and sidings are located throughout the TRE corridor at several locations. A full detailed list of spurs and sidings is in **Appendix A– Inventory**.

## **DESIGN CONSTRAINTS**

The design constraints related to adding a third track along the TRE corridor and providing higher speed rail service include structural obstacles, width of existing right-of-way (ROW), amount of at-grade crossings, and the locations of yards and stations.

### Structural Obstacles

Three of the more significant structural obstacles occur in downtown Fort Worth. As illustrated in **Figure 2**, just north of the ITC the existing double tracks of the TRE go through an existing historic building. Substantial design was done at this location to minimize vibrations and enhanced barrier protection for this structure, making it difficult to add a third track.

**Figure 2: 8<sup>th</sup> Street Historic Building**



Source: URS, 2014

Just north of the historic building is the 7<sup>th</sup> Street railroad underpass. **Figure 3** illustrates the U-Wall underpass, in a curve, for the existing double track. Widening of the walls and lengthening of the bridge would be required to accommodate a third track.

**Figure 3: 7<sup>th</sup> Street Railroad Underpass**



Source: URS, 2014

Shortly after this underpass to the north, the existing double track reduces to a single track before heading through “The Hole in the Wall”, as illustrated in **Figure 4**. “The Hole in the Wall” is a three-level interchange with the TRE tracks at the bottom traveling under existing railroad tracks and HWY 80 at the top. The existing opening can currently only accommodate a single track.

**Figure 4: “The Hole in the Wall”**



Source: URS, 2014

The other structural obstacle is located in Irving at the intersection of the TRE, Irving Boulevard and MacArthur Boulevard, as illustrated in **Figure 5**. MacArthur Boulevard and the TRE are an at-grade crossing. Irving Boulevard is grade separated and crosses over the TRE and MacArthur Boulevard at an angle. The TRE tracks run closely parallel to Rock Island Road. The TRE is single track at this location. A second track could be placed to the north of the existing track with at-grade modifications of MacArthur



Boulevard and the addition of retaining walls underneath Irving Boulevard; however, a third track could not be accommodated with this method.

**Figure 5: Irving Blvd and MacArthur Blvd.**



**Source: URS, 2014**

Width of ROW

Although the ROW varies throughout the corridor, it can accommodate a double track the entire length at the current design speeds. In downtown Fort Worth and Dallas, speeds are reduced, partially to navigate the tight curves necessary in these areas.

In order to accommodate a third track and the 125 MPH and 110 MPH concepts, additional ROW is required at several locations as shown in **Table 2**. These locations do not include downtown Fort Worth and Dallas. For this study, due to the constraints, it is assumed that existing tracks will be used in these areas and no additional ROW will be required.

**Table 2: Additional ROW Required**

ADDITIONAL ROW REQUIRED			
Location (Near) / Reason	Reason	125MPH HrSR Concept	110 MPH HrSR Concept
Jukdins St.	Larger Curve	5.22 ac	N/A*
IH820	Larger Curve	9.12 ac	N/A*
Trinity Blvd. / Mosier Valley Rd.	Larger Curve	1.71 ac	1.71 ac
Norwood Dr.	3rd Track	4.81 ac	4.81 ac
Inwood Rd.	Larger Curve	4.54 ac	0.12 ac
<b>TOTAL</b>		<b>25.40 ac</b>	<b>6.64 ac</b>

\*Speeds reduced to stay within existing ROW

**Source: URS, 2014**

At-Grade Crossings

Per AREMA requirements, speeds greater than 110 MPH must be grade separated. For the 125 MPH concept, this requires that 27 existing at-grade crossings between downtown Fort Worth and Dallas become grade separated. For the 110 MPH concept, the majority of the existing at-grade crossings will require intersection modifications, but can stay at-grade. Only seven existing at-grade crossings will become grade separated.

**Feature Locations**

Features along the TRE Corridor include stations, yards, junctions and sidings. The addition of a third track requires consideration and navigation around or over these features. As shown in **Table 3**, from west to east, these features oscillate between the north and south side of the corridor. In order to minimize additional ROW take or substantial reconstruction, the proposed HrSR tracks “fly over” the existing TRE tracks seven times in the corridor.

**Table 3: Feature Locations**

Features - West to East	Side of Track
T&P Station	South
ITC	North
6th Street Junction	North
Sylvania Yard	North
Richland Hills Station	South
Norwood Siding	North
Bell Station	North
Centreport Station	North
Irving Yard	North
West Irving Station	North
South Irving Station	South
Irving Junction	North
Mockingbird Yard	South
Medical-Market Station	South
Victory Station	North
North Junction	North
Union Station	North

Source: URS, 2014

**HrSR CONCEPTS**

Two HrSR concepts have been developed so far as part of this initial assessment, a 125 MPH maximum speed concept and a 110 MPH maximum speed concept. Both concepts assume use of the existing TRE tracks and no new exclusive third track west of N. South Freeway in Fort Worth and south of Victory Station in Dallas. Between those locations, both concepts are generally the same regarding the horizontal alignment and location within the corridor either on the north side or the south side of the existing TRE tracks. The concepts differ horizontally around curves and vertically at street crossings in order to achieve greater speeds and maintain grade separation for the 125 MPH concept.

The general horizontal location of the proposed HrSR concepts and proposed grade separations for both concepts are shown on the exhibits in **Appendix D – Horizontal Alignment Schematics**. More detailed aerial photo exhibits showing the proposed alignment for both concepts along with proposed horizontal curves, ROW acquisition requirements, feature modifications and fly-over locations are located in **Appendix E – Proposed Alignment Exhibits**. **Appendix C – Existing Conditions** is provided to demonstrate the current alignment and corridor conditions.

### Horizontal Alignment – Both Concepts

The HrSR alignment begins in Fort Worth at the ITC and follows the existing TRE tracks north and east beyond 6<sup>th</sup> Street Junction and N. South Freeway. At this point, a new exclusive third track is proposed on the north side of the existing TRE tracks. It is assumed future double tracking of the TRE system will occur on the south side of the existing tracks in this area. A future TRE double track was assumed to be a distance of 15' from the existing TRE track, while the HrSR was assumed to be a distance of 25' from either the existing or future TRE track, depending on the location.

The HrSR alignment continues east on the exclusive track and passes through a curve to the left near Judkins Street. The HrSR track for the 125 MPH concept leaves the ROW at this curve in order to be constructed along a larger horizontal radius and achieve a higher speed. Additional ROW is required in this area for the 125 MPH concept. The HrSR track for the 110 MPH concept stays inside the existing ROW and follows a curve similar to the existing curve which has a 90 MPH maximum speed.

After the Judkins Street curve, the HrSR alignment passes through Sylvania Yard. Existing track modifications are expected to be required at Sylvania Yard for both concepts.

East of Sylvania Yard, the HrSR alignment continues through a curve to the right located just east of North Beach Street. In order to construct curves with larger radii for both concepts, the existing TRE single track in this area is anticipated to be realigned around the curve to follow the HrSR tracks. No additional ROW appears to be required to construct the larger radii curves in this area.

The HrSR track continues east along the north side of the corridor through Richland Hills Station and beyond IH820 where it enters a curve to the right. The HrSR tracks for the 125 MPH concept leave the ROW at this curve in order to be constructed along a larger horizontal radius and achieve a higher speed. Additional ROW is required in this area for the 125 MPH concept. Also, the existing TRE single track in this area is anticipated to be realigned around the curve to follow the 125 MPH HrSR track. The HrSR track for the 110 MPH concept stays inside the existing ROW and follows a curve similar to the existing curve which has a 90 MPH design speed, requiring the HrSR to reduce speed through this curve.

The HrSR alignment continues east on the north side of the corridor toward Norwood Drive where both concepts are proposed to fly over an existing siding track and then to Bell Station where both concepts are proposed to pass through the station area on aerial structure.

Continuing east, the HrSR alignment enters a curve to the left after passing Trinity Boulevard / Mosier Valley Road. Larger radii horizontal curves are proposed for both concepts in this area and both concepts require ROW acquisition to achieve the greater speeds.

After Mosier Valley Road, the HrSR alignment crosses Highway 157. East of Highway 157, it flies over the existing TRE tracks and crosses to the southern side of the railroad corridor on the south side of the existing TRE tracks in this area for both concepts.

The HrSR alignment continues east on the south side of the corridor toward Highway 360 through a curve to the right that is currently designed for 125 MPH and then Centreport/DFW Station. A new platform for the HrSR concepts is proposed at Centreport/DFW Station.



From the Centreport/DFW Station, the HrSR leaves Tarrant County and enters Dallas County continuing on the south side of the corridor past the Irving Yard and West Irving Station at which point both HrSR concepts fly over the existing TRE tracks to the northern side.

The HrSR alignment 110 MPH concept continues on an aerial structure along the Rock Island Bridge and transitions to an at-grade section under Irving Boulevard. The 125 MPH concept also remains aerial along the Rock Island Bridge and continues aerial over Irving Boulevard. Both concepts continue east on the northern side of the corridor and fly over the Irving Junction at O'Connor Boulevard.

After Irving Junction, the HrSR alignment continues on the north past Mockingbird Yard and all the way to IH35. A small section of ROW is required for both concepts along a narrow section of existing ROW just west of Mockingbird Station.

As the HrSR alignment crosses IH35E heading east, both concepts are proposed to fly over the existing single track to the southern side of the corridor and enter a curve to the right. Larger radii horizontal curves are proposed for both concepts in this area and both concepts require ROW acquisition to achieve the greater speeds.

Continuing east and starting to head south, the HrSR alignment concepts will require station modifications at the Medical Market Center Station before heading towards Market Center Boulevard.

The HrSR alignment will continue on the south side of the TRE tracks until it reaches the tight ROW constraints near Oak Lawn Avenue where the HrSR tracks will be stacked over existing tracks. Both concepts will return to the south side for a short distance before again being stacked over existing tracks at Victory Station.

South of Victory Station and north of Continental Avenue the HrSR alignment connects back to the existing TRE tracks and runs through the North Junction and terminating at Union Station.

#### Vertical Alignment – Both Concepts

The vertical alignments for the HrSR alignment differ for the 110 MPH and 125 MPH concepts. The 110 MPH concept allows for at-grade crossing, minimizing grade separated crossings and aerial structures. The 125 MPH concept does not allow at-grade crossings and grade separates all intersections.

## **CONCEPTUAL ROUGH ORDER OF MAGNITUDE CAPITAL COST ESTIMATE**

A conceptual rough order of magnitude capital cost estimate was determined for both the 125MPH HrSR and 110MPH HrSR concepts in **Appendix F – Conceptual Capital Cost Estimate**. Since both routes have the same basic route length, the differences were a few major components, as summarized in **Table 4**.

**Table 4: Major Cost Components**

MAJOR COST COMPONENTS		
Description	125MPH HrSR Concept	110MPH HrSR Concept
HSR Single Track At-Grade	\$ 45,002,100.00	\$ 74,166,950.00
TRE Single Track At-Grade	\$ 3,856,600.00	\$ 886,600.00
HSR Single Track Retained Fill 2-Wall	\$ 59,500,000.00	\$ 33,250,000.00
HSR Single Track Bridged (22')	\$ 243,736,000.00	\$ 129,460,000.00
HSR Single Track Bridged (44')	\$ 5,200,000.00	\$ -
Crossings	\$ -	\$ 35,000,000.00
Right-of-Way	\$ 17,800,287.26	\$ 241,779.47

Source: URS, 2014

The 125MPH HrSR concept has more aerial structures and ROW while the 110MPH HrSR concept has more at-grade track and street crossing improvements. The Overall Costs and Per Mile Costs are calculated after including the remaining components, Professional Services, Contingency and Environmental Allowances, as shown in **Table 5**.

**Table 5: Overall Costs**

OVERALL COSTS		
	125MPH HrSR Concept	110MPH HrSR Concept
Total Project Cost	\$ 1,169,017,505.92	\$ 988,353,395.03
Per Mile Cost	\$ 37,301,132.93	\$ 31,536,483.57

Source: URS, 2014

## OPERATIONAL CONSIDERATIONS

Along the TRE corridor, travel times and average speeds were calculated from engineered distances and constrained speeds for three alignment alternatives, two of which are described above. A third concept would have straightened the alignment along two additional 90 mph curves at Riverside Dr. in Fort Worth and just east of I-820 in Hurst in order to accommodate the 110 mph target. As shown in **Table 6** below, this resulted in a travel time savings of less than 15 seconds and was not considered to be worth the additional ROW cost associated with these two improvements. All alternatives assume a 90 second dwell time at Centreport Station. The minor differences in distance (less than 200 feet) are due to locations where the 125MPH HrSR Concept is slightly straighter. A disproportionate amount of the travel time occurs in the downtown portions of the alignment where physical constraints can cap the speed to between 15 and 40 mph. As shown below, the difference between the 110 and 125 mph concepts is approximately two minutes.

**Table 6: Travel Times**

TRE Corridor HrSR with Acela Vehicle	Union to Centreport	Dwell at Centreport	Centreport to ITC	Total (min)
<b>Engineered to 125 between Hole in the Wall and Victory Station area (125MPH HrSR Concept)</b>				
Distance (miles)	16.50	0	17.22	<b>33.72</b>
Average Speed (mph)	100.7	N/A	97.4	<b>92.2</b>
Travel Time (min)	9.8	1.5	10.6	<b>21.9</b>
<b>Engineered to 110 between Hole in the Wall and Victory Station area (Precluded Concept)</b>				
Distance (miles)	16.50	0	17.22	<b>33.72</b>
Average Speed (mph)	92.7	N/A	89.0	<b>85.0</b>
Travel Time (min)	10.7	1.5	11.6	<b>23.8</b>
<b>Engineered to 110 between SW Hurst and Victory Station area* (110MPH HrSR Concept)</b>				
Distance (miles)	16.50	0	17.24	<b>33.74</b>
Average Speed (mph)	92.7	N/A	87.8	<b>84.5</b>
Travel Time (min)	10.7	1.5	11.8	<b>24.0</b>

\*Track outside of downtown areas is engineered to accommodate speeds up to 110 mph except at Riverside Dr. in Fort Worth and just east of I-820 in Hurst. At these two locations, speeds would decrease to 90 mph in order to avoid additional ROW acquisition.

For comparison, an initial estimate of travel times along the I-30 corridor ranges from 15 minutes at 200 mph maximum speeds to just under 19 minutes at 125 mph. Both estimates are based on a rough distance (not engineered) of 15.9 miles from Dallas Union Station to the Ballpark in Arlington and 14.9 miles from the Ballpark to the Fort Worth Intermodal Transit Center (ITC). Both assume a similar 90 second dwell time at the midpoint station at Ballpark. Unlike the estimates above for the TRE Corridor, these figures take a best case scenario approach, assuming straight-line distances and no speed constraints due to curvature, intersections, or nearby land uses. These best-case travel time estimates along I-30, when compared with the more rigorous estimates along the TRE corridor, can be taken to represent the maximum possible travel time benefit.

# APPENDIX A INVENTORY

Streets	MP Location	At-Grade Crossings	Grade Separated Crossings		Notes	Proposed Crossings	
			Overpass	Underpass		125 MPH	110 MPH
Jennings Ave	610.5		X		double tracked		
Main St	610.7		X		double tracked		
Lancaster Ave	611		X		single tracked		
E 8th St	611.49	X			double tracked		
7th St	611.57	X			double tracked		
US 280				X	single tracked		
IH 35W				X	single tracked		
N South FWY			X		single tracked		
Sylvania Ave	612.8		X		single tracked	At-Grade Overpass	At-Grade Overpass
Judkins St	612.9	X			single tracked	Aerial Overpass	At-Grade
Galvez Ave	613.13	X			single tracked	Aerial Overpass	At-Grade
Riverside Dr	613.17	X			single tracked	Aerial Overpass	At-Grade
4th St	613.6			X	starts to become double tracked	At-Grade Underpass	At-Grade Underpass
Beach St	614.15	X			double tracked	Aerial Overpass	Aerial Overpass
Haltom Rd	615.17	X			single tracked	Aerial Overpass	At-Grade
Elliott Reeder Rd	615.47	X			single tracked	Aerial Overpass	At-Grade
Carson St	616.23	X			single tracked	Aerial Overpass	At-Grade
Minnis Dr	617.1	X			single tracked	Aerial Overpass	At-Grade
Midway RD	617.57		X		single tracked	At-Grade Overpass	At-Grade Overpass
Handley Ederville RD	618.53	X			double tracked	Aerial Overpass	At-Grade
I-820 SB	619.1			X	single tracked	At-Grade Underpass	At-Grade Underpass
I-820 NB	619.2			X	single tracked	At-Grade Underpass	At-Grade Underpass
Precinct Line Rd	620.67	X			single tracked	Aerial Overpass	At-Grade
Norwood Dr	621.73	X			double tracked	Aerial Overpass	Aerial Overpass
Bell Helicopter Private Road	622.2			X	double tracked	At-Grade Underpass	At-Grade Underpass
Bell Spur	622.43	X			single tracked	Aerial Overpass	Aerial Overpass
Trinity Blvd	623.3			X	single tracked	At-Grade Underpass	At-Grade Underpass
Mosier Valley RD	625.57	X			single tracked	Aerial Overpass	At-Grade
N Collins St / HWY 157	625.79		X		double tracked	At-Grade Overpass	At-Grade Overpass
Calloway Cemetery Rd	626.3	X			double tracked	Aerial Overpass	Aerial Overpass
S Main St	626.8		X		double tracked (also crosses creek)	At-Grade Overpass	At-Grade Overpass
Tarrant Main St	627.2	X			double tracked	At-Grade	At-Grade
HWY 360	628.24		X		single tracked	At-Grade Overpass	At-Grade Overpass
Trinity Blvd	629.5			X	double tracked	At-Grade Underpass	At-Grade Underpass
Valley View Ln	629.9	X			single tracked	Aerial Overpass	At-Grade
Norma Station Way	630.2	X			double tracked. Prior to Irving Yard	Aerial Overpass	At-Grade
HWY 161	630.6			X	Becomes two tracked after 161	At-Grade Underpass	At-Grade Underpass
Gilbert Rd	631.53	X			double tracked	Aerial Overpass	Aerial Overpass
Belt Line RD	632.1		X		double tracked	Aerial Overpass	Aerial Overpass
S Briery RD	632.2		X		double tracked	Aerial Overpass	Aerial Overpass
N Story RD	633		X		double tracked	Aerial Overpass	Aerial Overpass
Irby Ln	633.53	X			double tracked	Aerial Overpass	At-Grade
S Rogers RD	633.8	X			single tracked	Aerial Overpass	At-Grade
W Irving Blvd	634			X	single tracked	Aerial Overpass	At-Grade Underpass
Macarthur Blvd	633.98	X			single tracked (under Irving Blvd)	Aerial Overpass	At-Grade
N Sowers Rd	634.3		X		single tracked	Aerial Overpass	At-Grade Overpass
N O'Connor Blvd	634.5		X		double tracked	Aerial Overpass	At-Grade Overpass
Britain RD	635.02	X			double tracked (3rd freight track)	Aerial Overpass	Aerial Overpass
S Nursery RD	635.47	X			double tracked (3rd freight track)	Aerial Overpass	At-Grade
N Irving Heights Dr	636	X			double tracked	Aerial Overpass	At-Grade
Loop 12	636.3			X	double tracked	At-Grade Underpass	At-Grade Underpass
N Wildwood Dr	636.5	X			double tracked	Aerial Overpass	At-Grade
Regal Row	637.5		X		double tracked	At-Grade Overpass	At-Grade Overpass
Norwood Dr	638.1	X			double tracked (3rd freight track)	Aerial Overpass	At-Grade
West Mockingbird Ln	637.6		X		3 tracked	At-Grade Overpass	At-Grade Overpass
Stemmons Fwy			X		single tracked	At-Grade Overpass	At-Grade Overpass
Inwood RD	640.4		X		becomes 2 tracked after Inwood Rd	At-Grade Overpass	At-Grade Overpass
Medical District RD	641.2		X		double tracked	At-Grade Overpass	At-Grade Overpass
Market Center Blvd	641.66	X			double tracked	Aerial Overpass	At-Grade
Oak Lawn Ave	642.5		X		double tracked	At-Grade Overpass	At-Grade Overpass
North Dallas Tollway Ramps	642.7			X	double tracked	At-Grade Underpass	At-Grade Underpass
HI Lane & Victory Ave	643		X		double tracked	At-Grade Overpass	At-Grade Overpass
Lamar St	643.7		X		double tracked		
Continental Ave			X		double tracked		
HWY 366 Woodall Rogers FWY	643.7			X	double tracked		
Elm/Main / Commerce	644.1		X		double tracked		
Reunion Blvd W	644.2		X		double tracked		

Stations	MP Location
T&P Station	610.5
Intermodal Transportation Center (ITC) Station	611.4
Richland Hills Station	618.3
Bell Station	622.6
Centreport / DFW Station	628.5
West Irving Station	631.4
South Irving Station	634.8
Medical-Market Center	641.1
Victory Station	643.3
Dallas Union Station	644.3

Water Crossings	MP Location
Trinity River	610.4
Little Fossil Creek	616.4
Unnamed Creek	
Big Fossil Creek	620
Unnamed Creek	
Calloway Branch	
Walkers Creek	
Mesquite Creek	
Sulphur Branch	
Hurricane Creek	625.2
Unnamed Creek	
Bear Creek	630.8
Delaware Creek	
Unnamed Creek	
Elm Fork Trinity River	637
Unnamed Creek	
Knights Creek	640.3
Cedar Branch Creek	641.8
Turtle Creek	642.6

Bridges	MP Location	Type	Notes
Jennings Ave		double tracked bridge	
Main St		double tracked bridge	
Lancaster Ave		single tracked bridge	
N. South Fwy		single tracked bridge	
Trinity River	612.44	single tracked bridge	Partial trestle bridge
Sylvania		single tracked bridge	
Little Fossil Creek	616.43	single tracked bridge	
Unnamed Creek	616.9	single tracked bridge	
Midway / Big Fossil Creek	617.37	single tracked bridge	
Unnamed Creek		single tracked bridge	
Calloway Branch Creek	620.4	single tracked bridge	
Walker Branch Creek	620.6	single tracked bridge	
Mesquite Creek	621.06	single tracked bridge	
Sulphur Branch Creek		single tracked bridge	
Hurricane Creek		single tracked bridge	
Collins St / HWY 157	625.79	double tracked bridge	
Main St / Unnamed Creek	626.3	double tracked bridge	
US 360	628.24	single tracked bridge	
Drainage Channel		2 - single tracked bridges	
Bear Creek	630.84	single tracked bridge	
Rock Island		double tracked bridge	
Sowers Rd / Delaware Creek		single tracked bridge	
Unnamed Creek		double tracked bridge	
Elm Fork Trinity River	637	2 - single tracked bridges	One track parial trestle bridge
Regal Row		double tracked bridge	
Mockingbird Lane		triple tracked bridge	
IH35E		single tracked bridge	
Unnamed Creek		single tracked bridge	Partial trestle bridge
Knights Branch Creek		single tracked bridge	
Inwood Rd		single tracked bridge	
Medical District Dr		2 - single tracked bridges	
Cedar Branch Creek		2 - single tracked bridges	
Oak Lawn Ave		double tracked bridge	
Turtle Creek		double tracked bridge	
Victory Ave		double tracked bridge	
Lamar St		double tracked bridge	
Continental Ave		double tracked bridge	
Elm St/ Main St/ Commerce St		multiplied tracked bridge	
Reunion Blvd		double tracked bridge	



Inventory List

Junctions	MP Location
6th Street Junction	611.9
Irving Junction	
North Junction	643.9

Yards	MP Location
Sylvania Yard	613.45
Irving Yard	
Mockingbird Yard	

Spurs	Notes
N Beach St	big bldg after beach st
Precinct Line Rd	bldg after Calloway Branch
Calloway Cemetery Rd	before S Main St
Tarrant Main St	after Tarrant Main St
N Britain Rd	Shortly after Britain Rd
Regal Row	Between Regal Row and Norwood Rd
Norwood Rd	Right after Norwood Rd
W Mockingbird Ln	Right after Mockingbird In

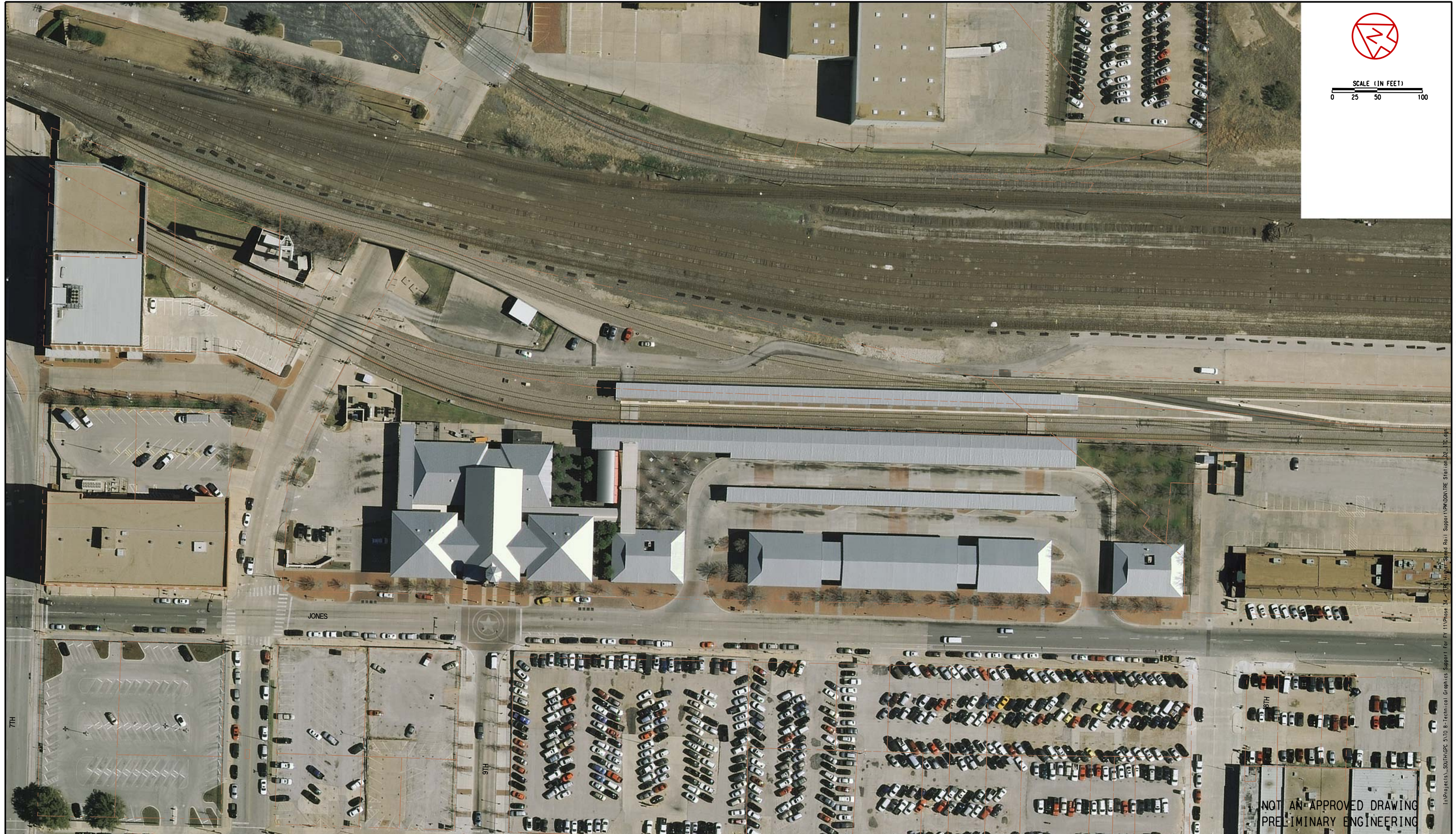
## APPENDIX B STATIONS







eric\_candres\_181  
4400LELES  
9/11/2014



SCALE (IN FEET)  
0 25 50 100

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

INTERMODAL TRANSPORTATION CENTER  
 STATION  
 SHEET 2 OF 10

CONTRACT	DWG No.	REV
----------	---------	-----

NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING





SCALE (IN FEET)  
0 25 50 100

121

HANDLEY EBERVILLE

NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

I:\Projects\...SOUTHGPC 5110 8 - Technical Graphics Support for FY 11\Phase 34 - THE Higher Speed Rail Support\PM\GN\THE Station\_03\_Richland.dgn

eric\_canales\_181  
4400LEES  
9/11/2014

I:\Projects\...SOUTHGPC 5110 8 - Technical Graphics Support for FY 11\Phase 34 - THE Higher Speed Rail Support\PM\GN\THE Station\_03\_Richland.dgn

IN-PROGRESS

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162  
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**  
1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

DART PROJECT



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
TN CHARGE	C. ALLEN
DATE	SEP 11 2014

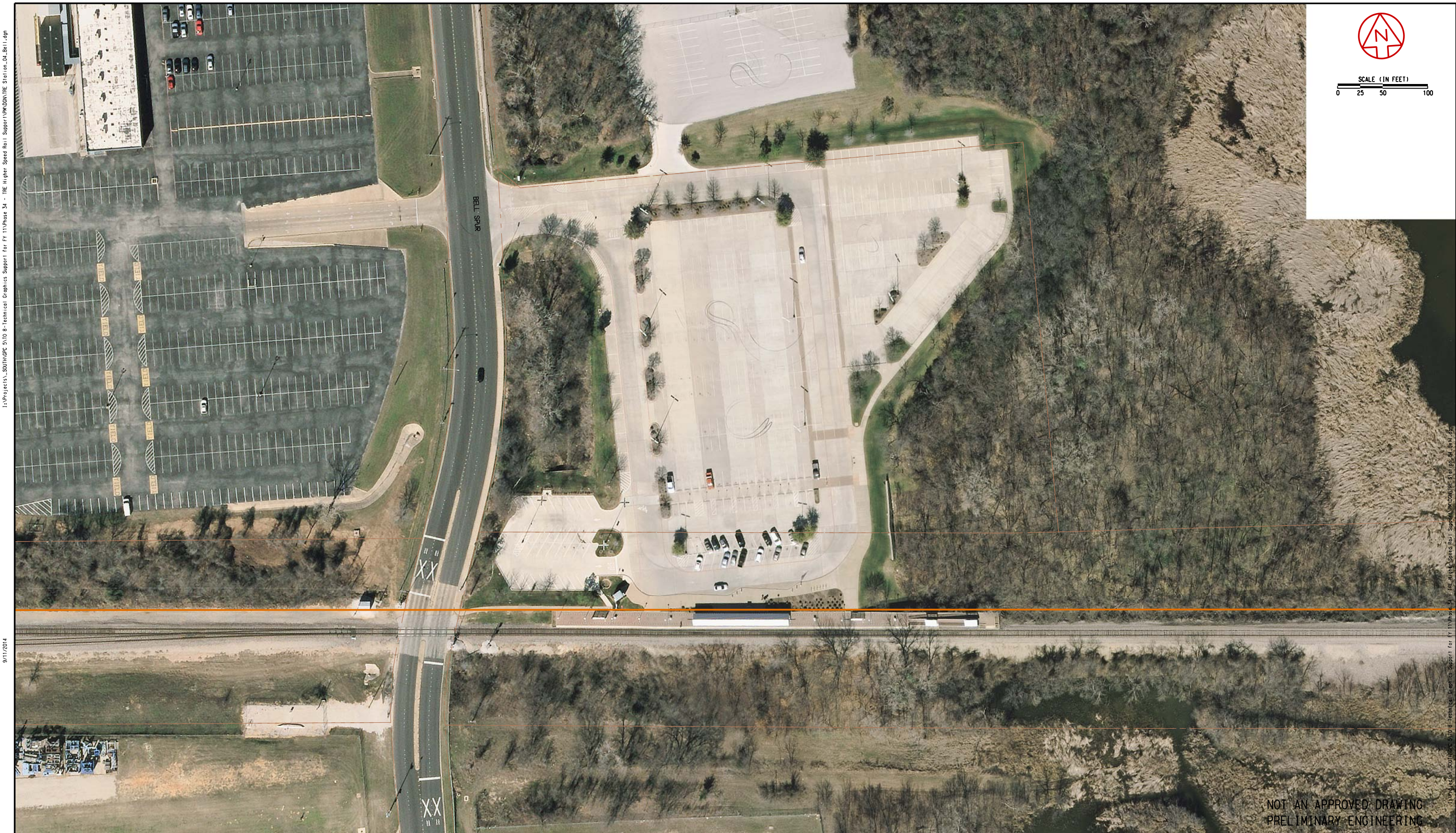
TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS

RICHLAND HILLS  
STATION  
SHEET 3 OF 10

CONTRACT	DWG No.	REV
----------	---------	-----

REV	△	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP





SCALE (IN FEET)  
0 25 50 100

I:\Projects\SouthMPC 510 8 Technical Graphics Support for FY 11\Phase 34 - The High Speed Rail Support\PM\DWG\TRR Station\_04\_Bell.dgn

eric\_cano (s...18)  
44MODELS  
9/11/2014

I:\Projects\SouthMPC 510 8 Technical Graphics Support for FY 11\Phase 34 - The High Speed Rail Support\PM\DWG\TRR Station\_04\_Bell.dgn

NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS**

BELL  
STATION  
SHEET 4 OF 10

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED  
FOR THE PURPOSE OF REVIEW UNDER THE  
AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162  
IT IS NOT TO BE USED FOR CONSTRUCTION,  
BIDDING, OR PERMIT PURPOSES.



**URS**  
1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

CONTRACT	DWG No.	REV
----------	---------	-----

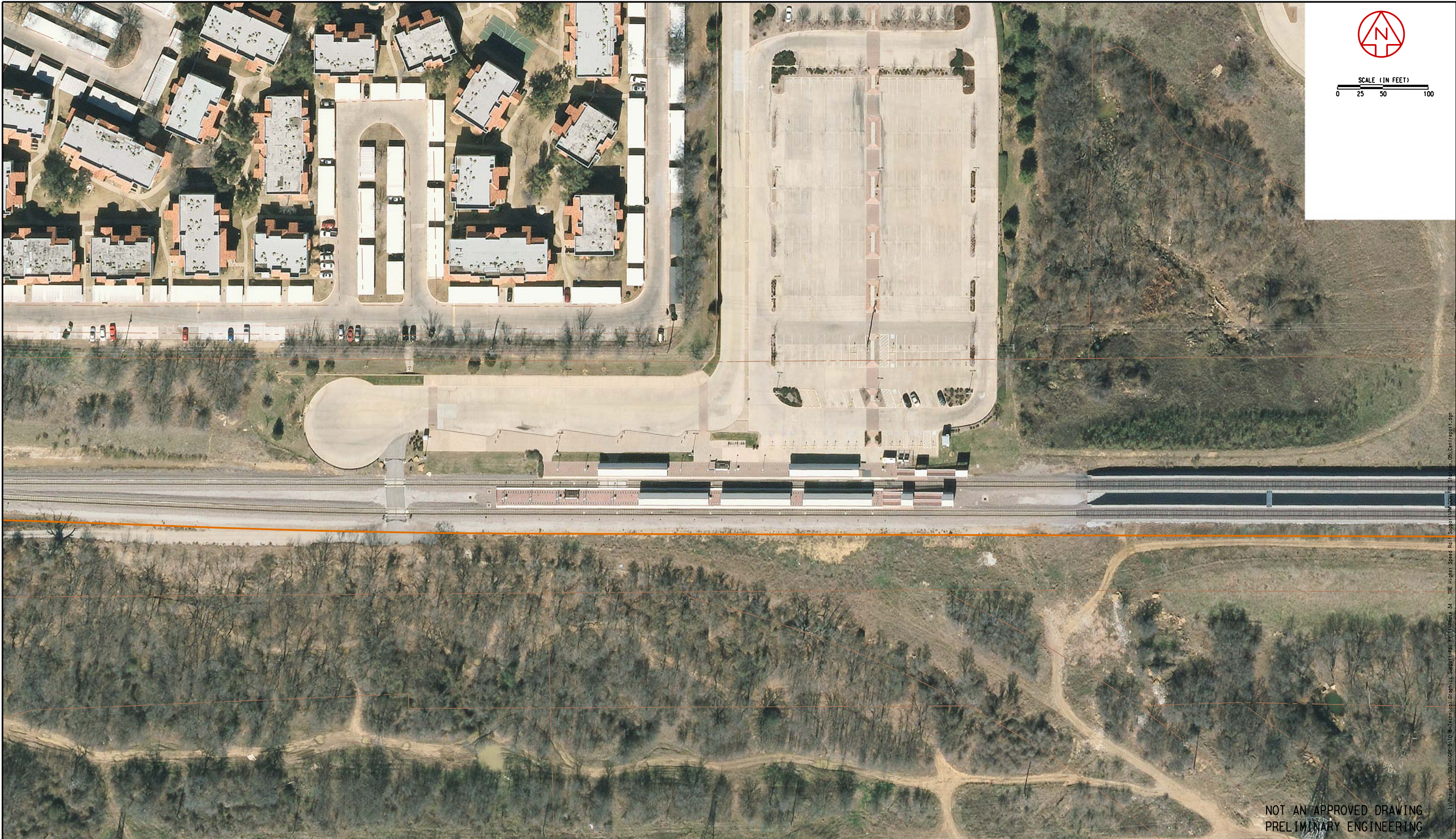


I:\Projects\...SOUTHGPC 510 8 - Technical Graphics Support for FY 11 Phase 34 - THE Higher Speed Rail Support\PM\Drawn\THE Station\_05\_Centreport.dgn

eric\_canales\_181  
 4400LEES  
 9/11/2014



SCALE (IN FEET)  
 0 25 50 100



NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP



**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014


URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
TN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

**CENTREPORT  
 STATION  
 SHEET 5 OF 10**

CONTRACT	DWG No.	REV





SCALE (IN FEET)  
0 25 50 100



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS

WEST IRVING  
STATION  
SHEET 6 OF 10

IN-PROGRESS

THIS DOCUMENT IS RELEASED  
FOR THE PURPOSE OF REVIEW UNDER THE  
AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162  
IT IS NOT TO BE USED FOR CONSTRUCTION,  
BIDDING, OR PERMIT PURPOSES.



1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

DART PROJECT



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

CONTRACT	DWG No.	REV
----------	---------	-----

REV	△	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

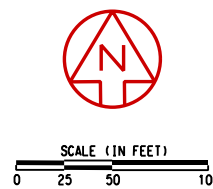
I:\Projects\SouthGOC 5\TD 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MP\GDN\TRC Station\_06\_WIrvng.dgn  
eric\_cano.es\_18  
#MODEL\$  
9/11/2014

I:\Projects\SouthGOC 5\TD 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MP\GDN\TRC Station\_06\_WIrvng.dgn



I:\Projects\SouthMDC SATO B-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MDC\THE Station\_07\_SIrving.dgn

eric\_cad@es\_181  
44MODELS  
9/11/2014



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**URS**  
 1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**goc<sup>5</sup>**

**DART PROJECT**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

**SOUTH IRVING  
 STATION  
 SHEET 7 OF 10**

CONTRACT	DWG No.	REV
----------	---------	-----















## APPENDIX C

### EXISTING CONDITIONS

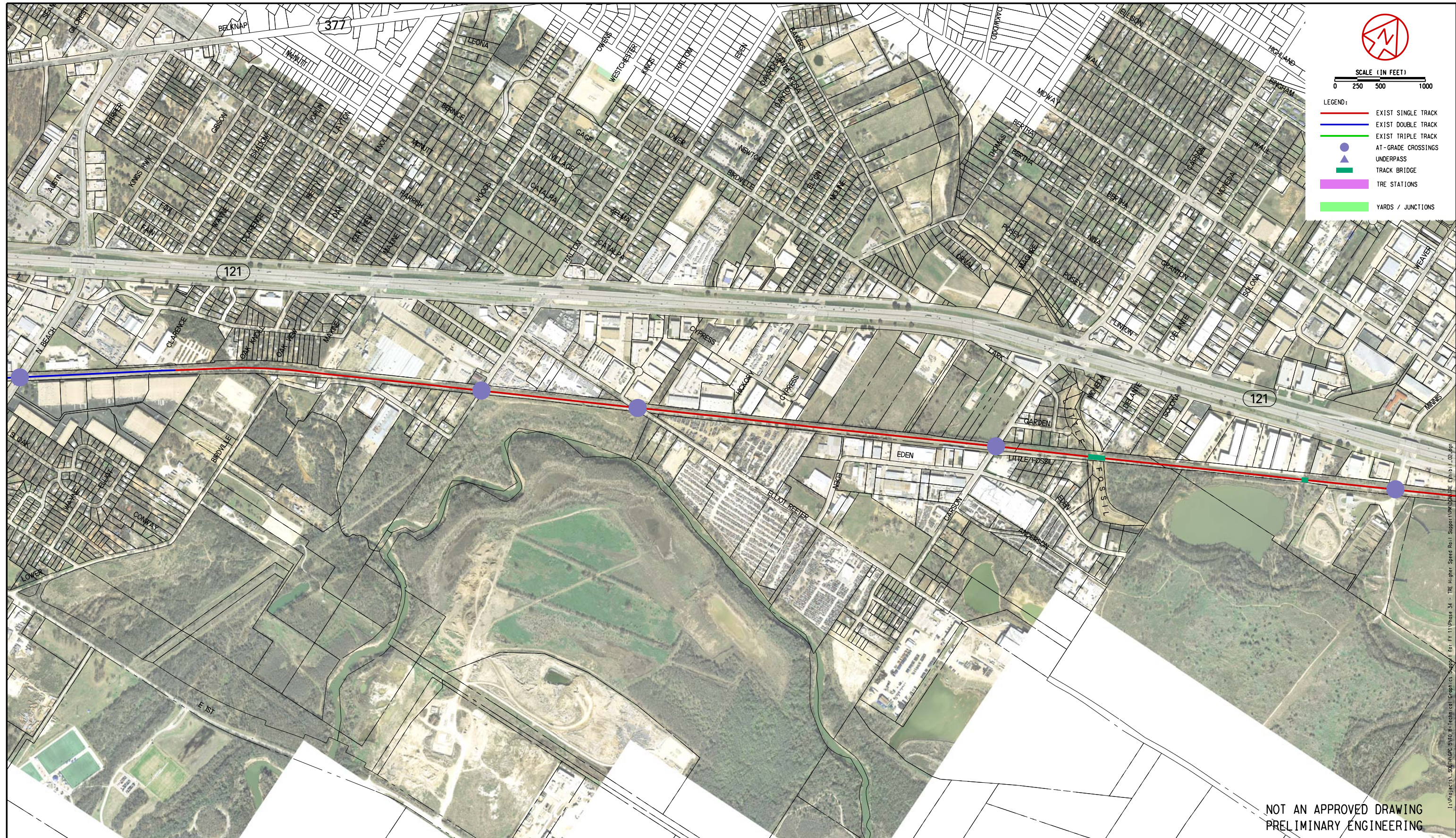






eric\_canales\_181  
 9/11/2014

I:\Projects\Southgate\510 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\Map\GDTRE Exhibit\_02.dgn



NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

**EXHIBIT 2  
 EXISTING CONDITIONS  
 SHEET 2 OF 11**

CONTRACT	DWG No.	REV



I:\Projects\SouthGOC 510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MP\GDT\THE Exhibit\_03.dgn

eric\_canales\_181  
 4500ELES  
 9/11/2014



REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc<sup>5</sup>**

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

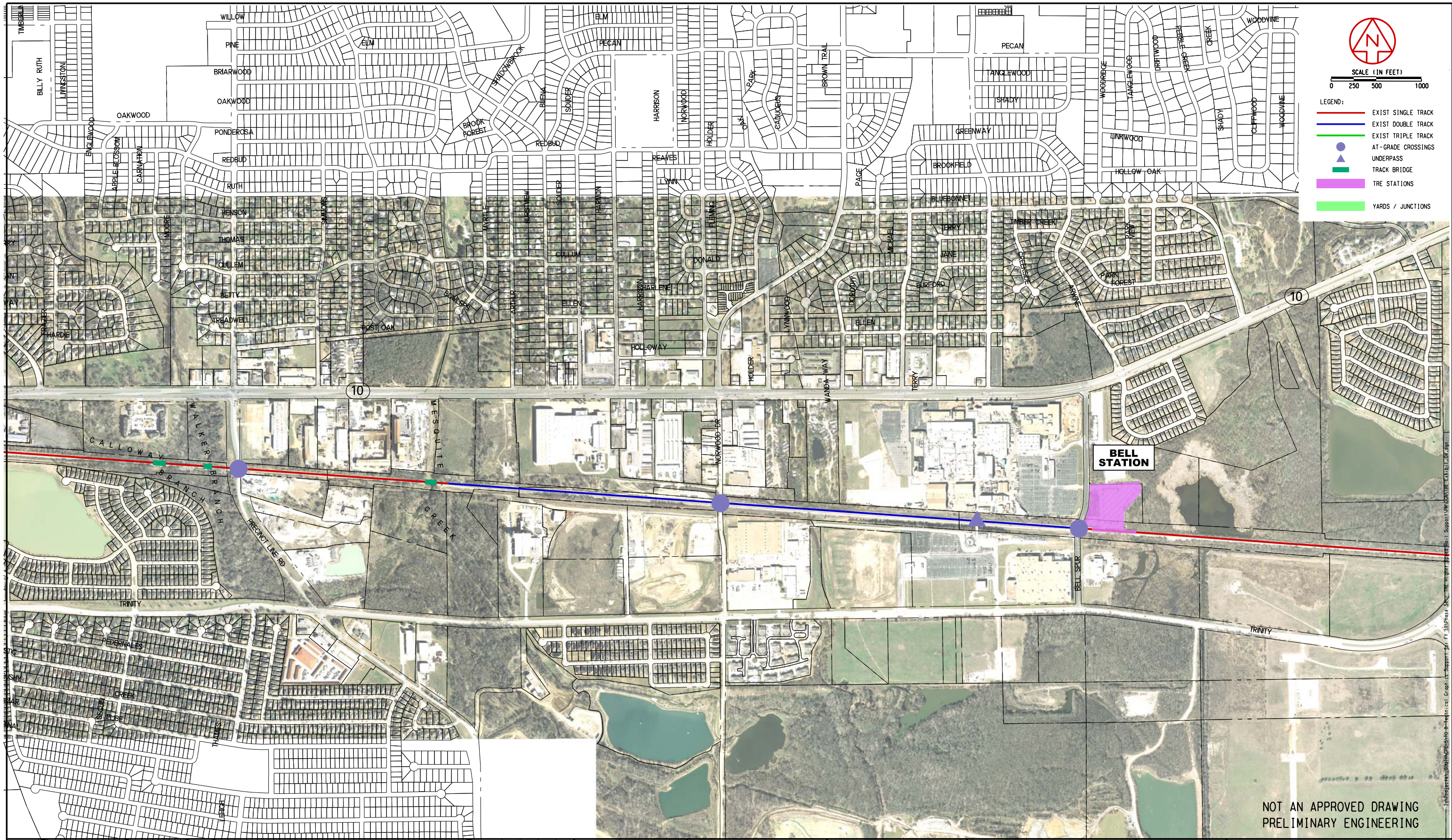
**EXHIBIT 3  
 EXISTING CONDITIONS  
 SHEET 3 OF 11**

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\Southgate\510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PM\ON\THE Exhibit\_04.dgn

eric\_canales\_181  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - ▲ TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

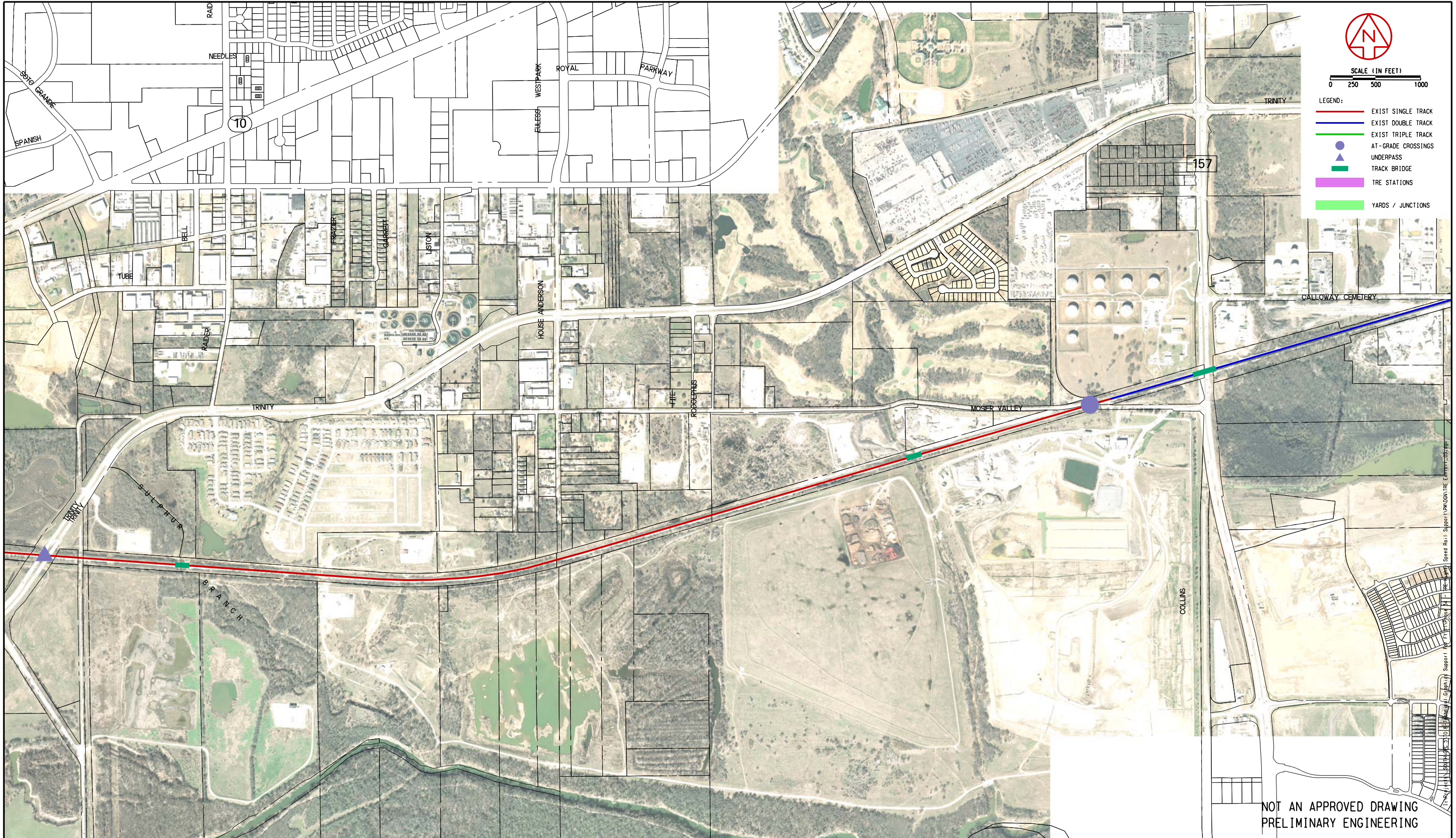
**EXHIBIT 4  
 EXISTING CONDITIONS  
 SHEET 4 OF 11**

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\...SOUTHGDC S\10 B-Technical Graphics Support for FY 11\Phase 34 - THE Higher Speed Rail Support\PM\CONTR Exhibit\_1\_05.dgn

eric\_candias\_181  
#MODELS  
9/11/2014



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**URS**

1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS**

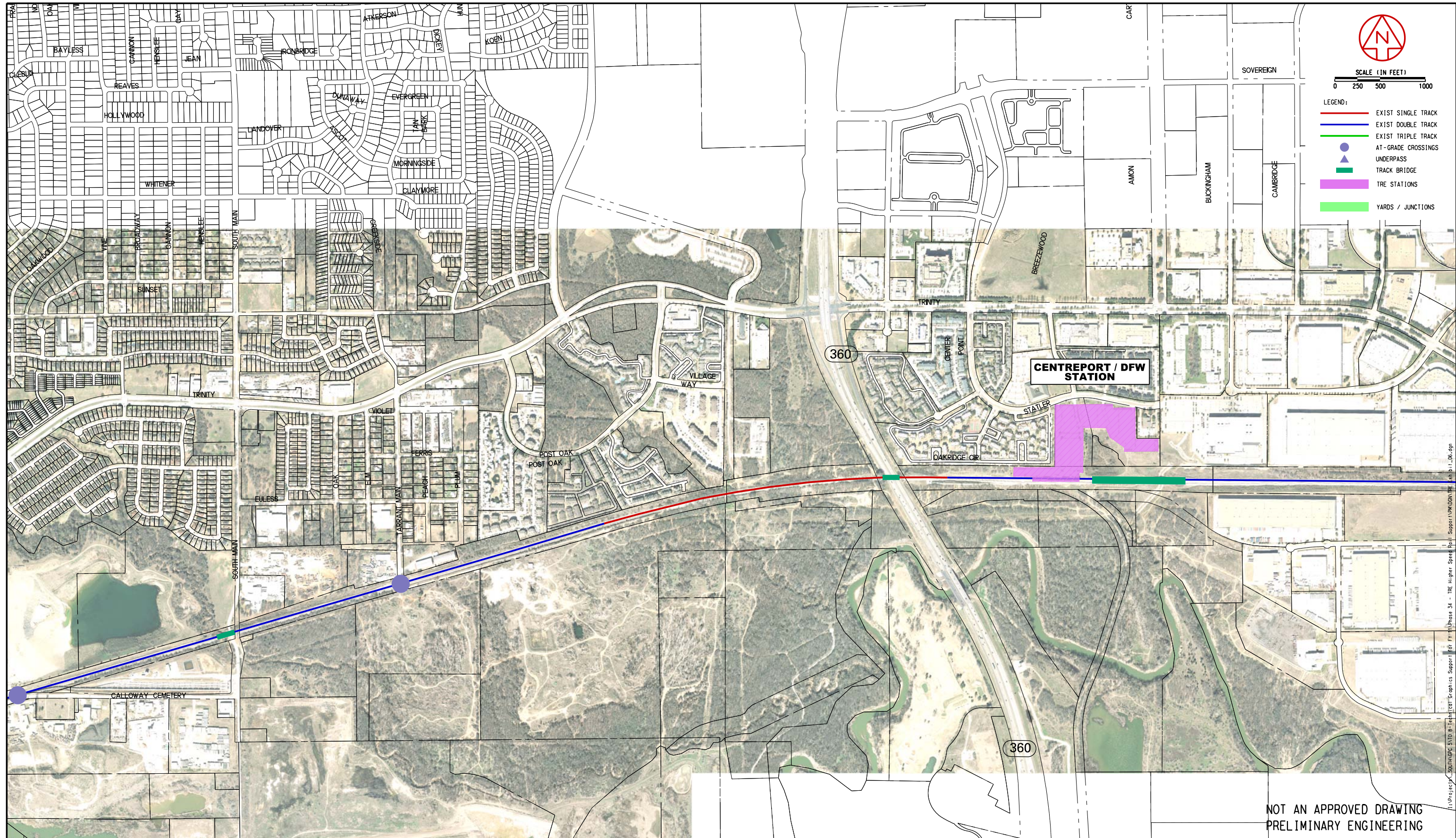
EXHIBIT 5  
EXISTING CONDITIONS  
SHEET 5 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthDPC STD 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PMOD\THE Exhibit\_06.dgn

eric\_canales\_181  
 9/11/2014



NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc<sup>5</sup>**

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

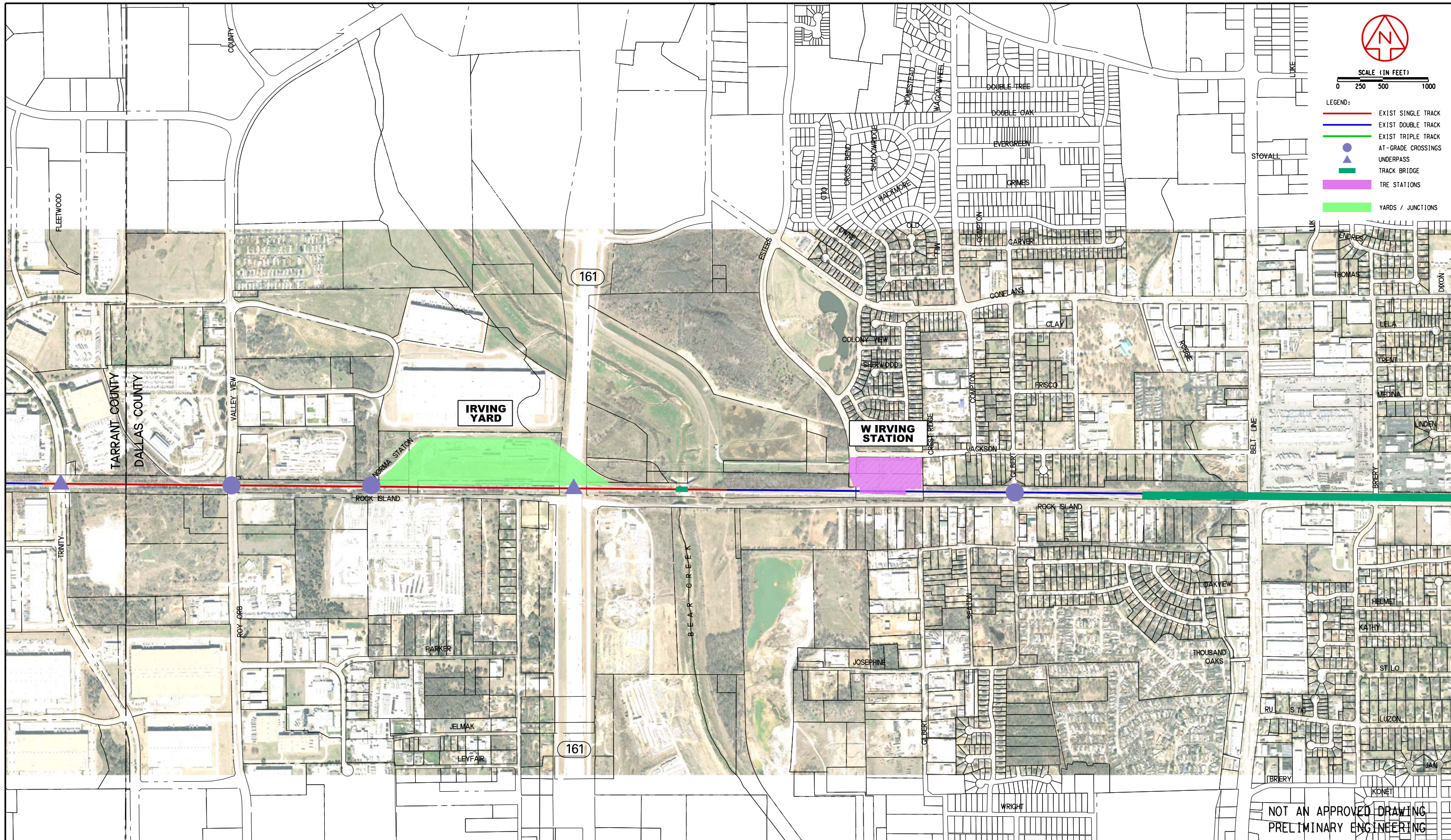
SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

**EXHIBIT 6  
 EXISTING CONDITIONS  
 SHEET 6 OF 11**

CONTRACT	DWG No.	REV
----------	---------	-----





NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup>

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

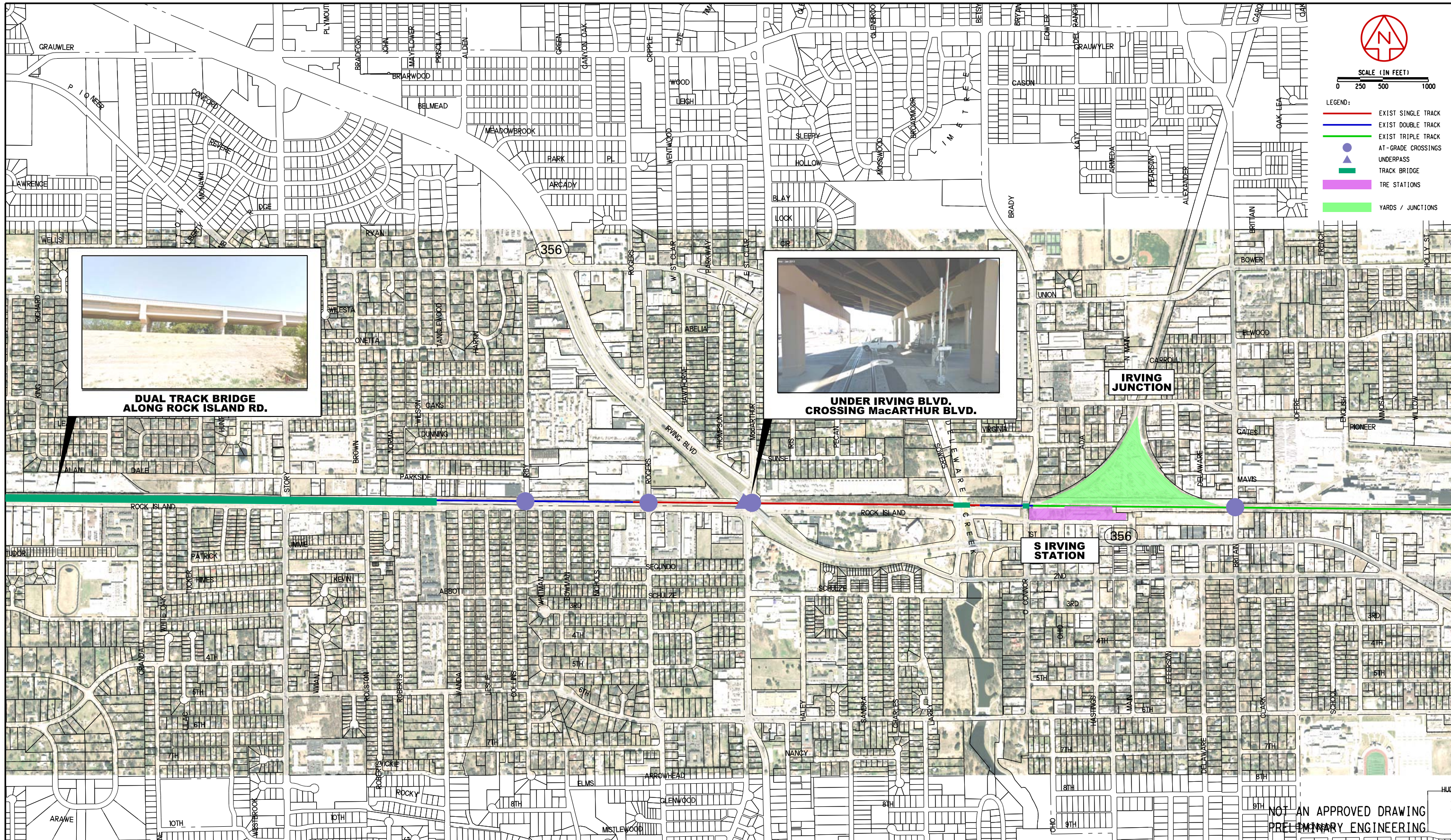
SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

**EXHIBIT 7  
 EXISTING CONDITIONS  
 SHEET 7 OF 11**

CONTRACT	DWG No.	REV
----------	---------	-----





SCALE (IN FEET)  
0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS

NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup>

**URS**

1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS**

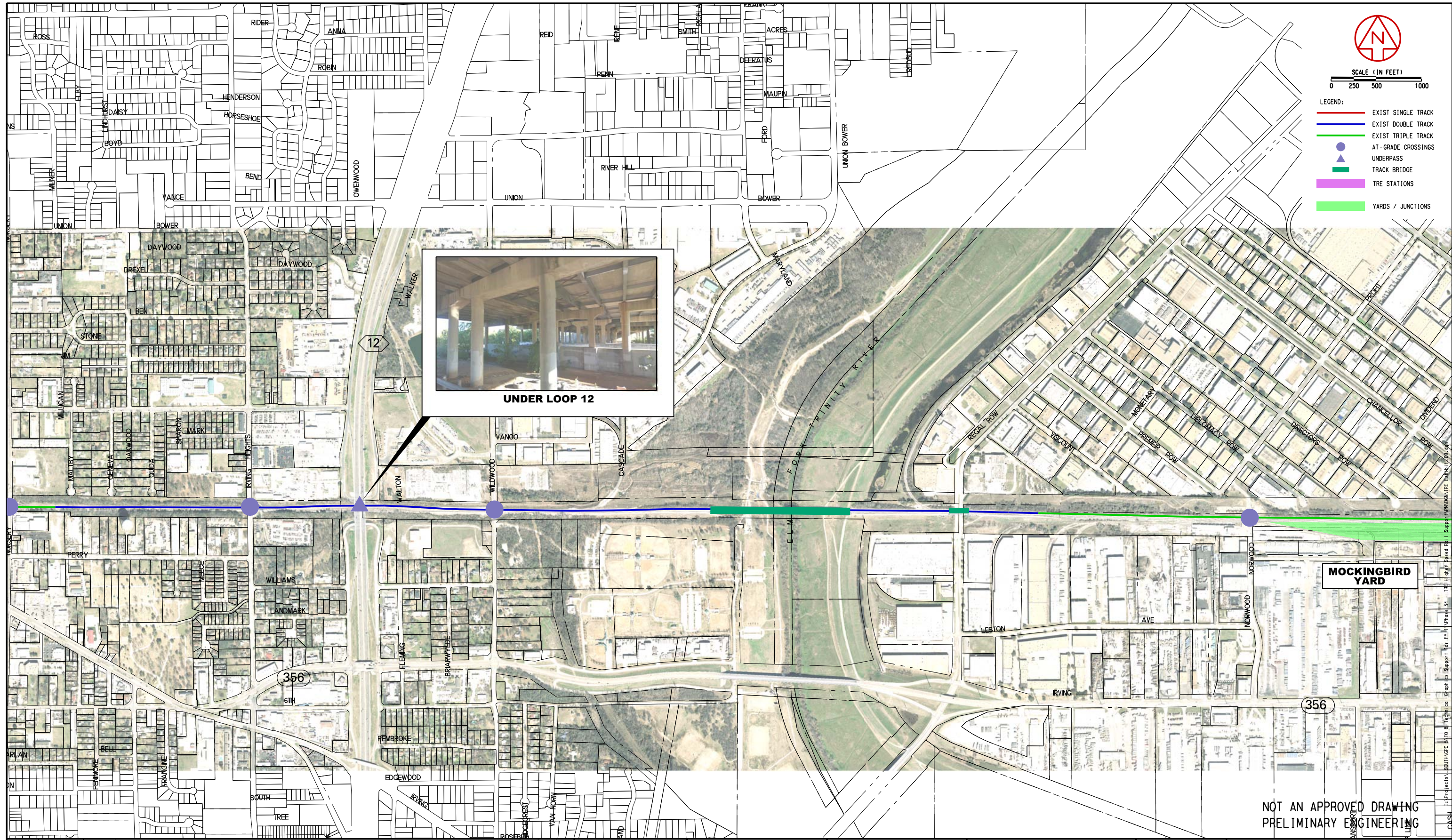
**EXHIBIT 8  
EXISTING CONDITIONS  
SHEET 8 OF 11**

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthDPC S110 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MP\GATRE Exhibit\_09.dgn

eric\_candias\_181  
 4800LEB  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - ▲ TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS



UNDER LOOP 12

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

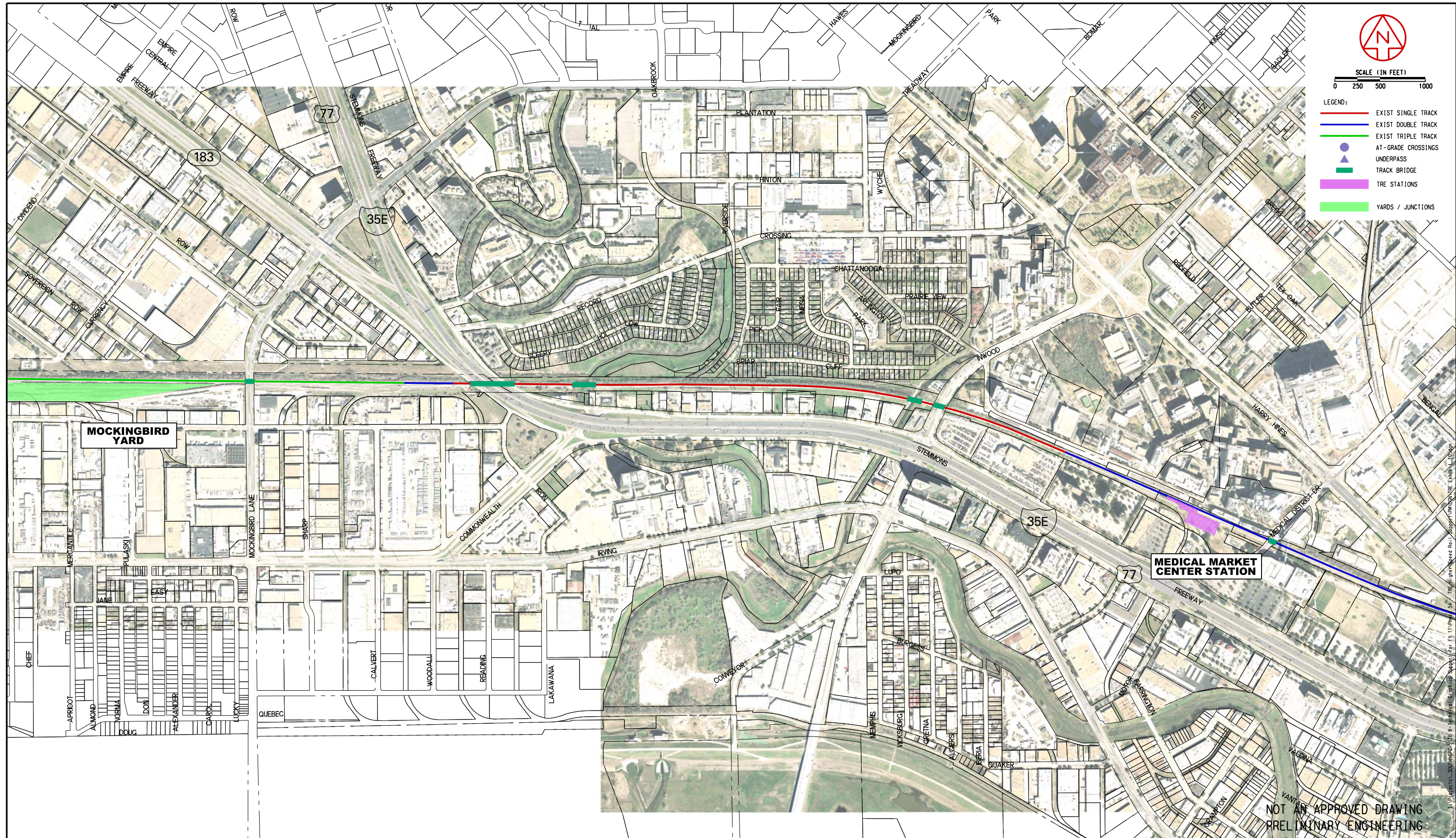
EXHIBIT 9  
 EXISTING CONDITIONS  
 SHEET 9 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



eric\_canales\_181  
 9/11/2014

I:\Projects\10-2014\10-2014-08-Technical Graphics Support for FY 11\Phase 3 - The Higher Speed Rail Support\PMON\THE Exhibit\_10.dgn



NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc<sup>5</sup>**

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

**EXHIBIT 10  
 EXISTING CONDITIONS  
 SHEET 10 OF 11**

CONTRACT	DWG No.	REV
----------	---------	-----



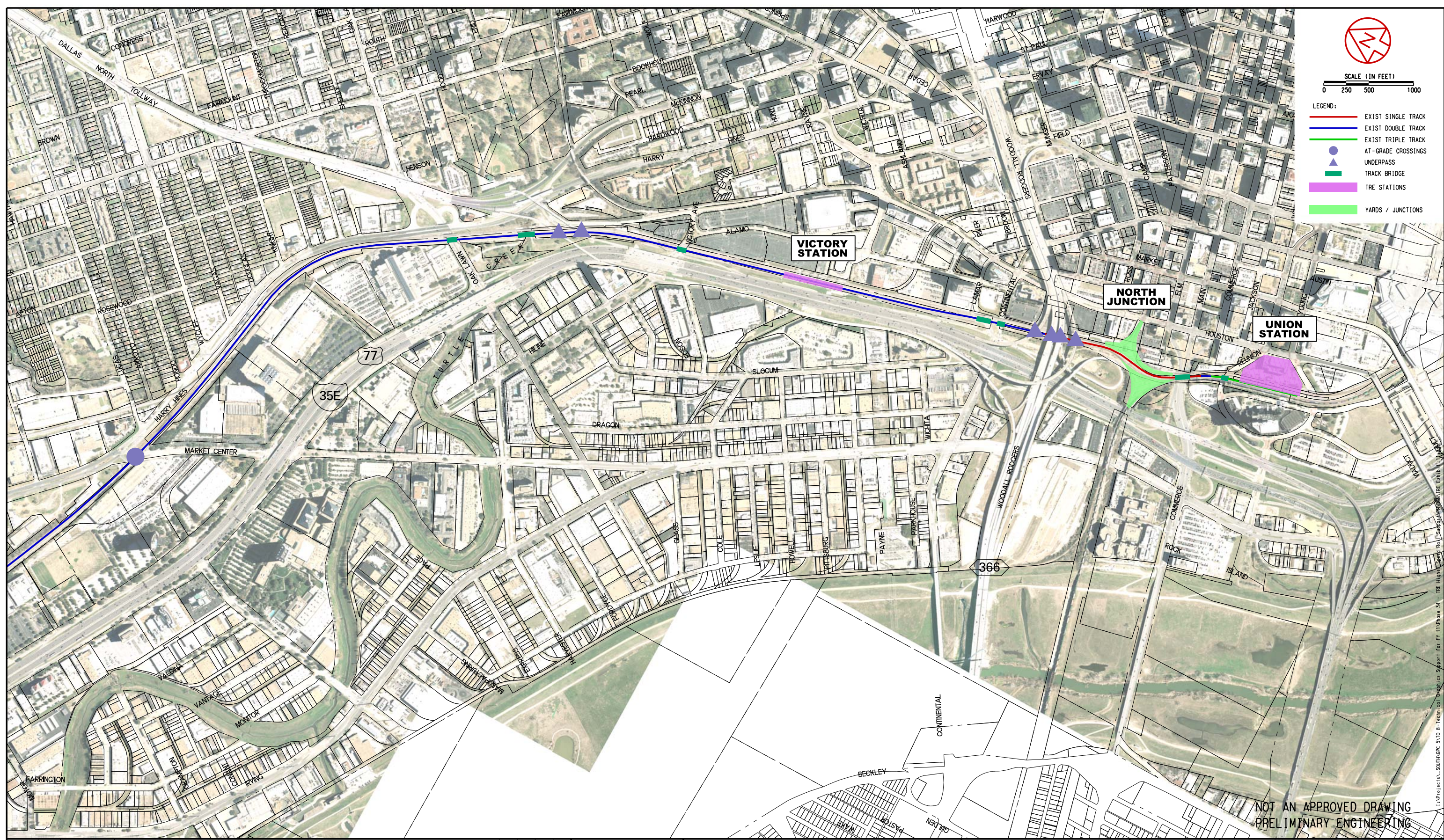
I:\Projects\SouthGPC 510 8-Technical Graphics Support For FY 11\Phase 34 - The Higher Speed Rail Support\PM\GN\THE Exhibit 11.dgn

eric\_canales\_181  
9/11/2014



SCALE (IN FEET)  
0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - ▲ TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS**

EXHIBIT 11  
EXISTING CONDITIONS  
SHEET 11 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



## APPENDIX D

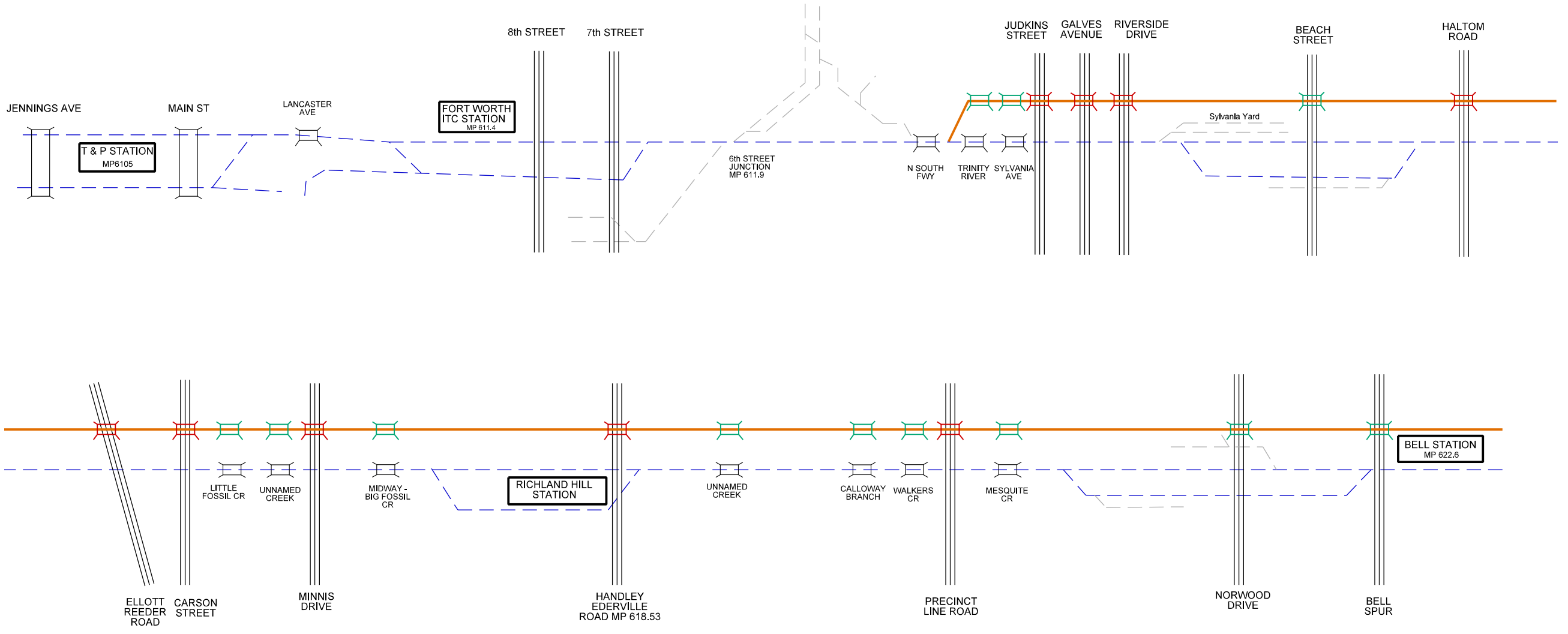
### HORIZONTAL ALIGNMENT SCHEMATICS

I:\Projects\...SOUTH\GOC 5\10 8-Technical Graphics Support For FY 11\Phase 34 - TR High Speed Rail Support\PM\GDR\TR Timetable.dgn

I:\Projects\...SOUTH\GOC 5\10 8-Technical Graphics Support For FY 11\Phase 34 - TR High Speed Rail Support\PM\GDR\TR Timetable.dgn

LEGEND:

- EXIST TRK TRACKS
- OTHER TRACKS
- HIGHER SPEED RAIL
- TRK AT-GRADE CROSSINGS
- TRK BRIDGE
- HSR BRIDGE (BOTH 110mph & 125mph)
- HSR BRIDGE (@ 125mph ONLY)



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP


**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014


URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

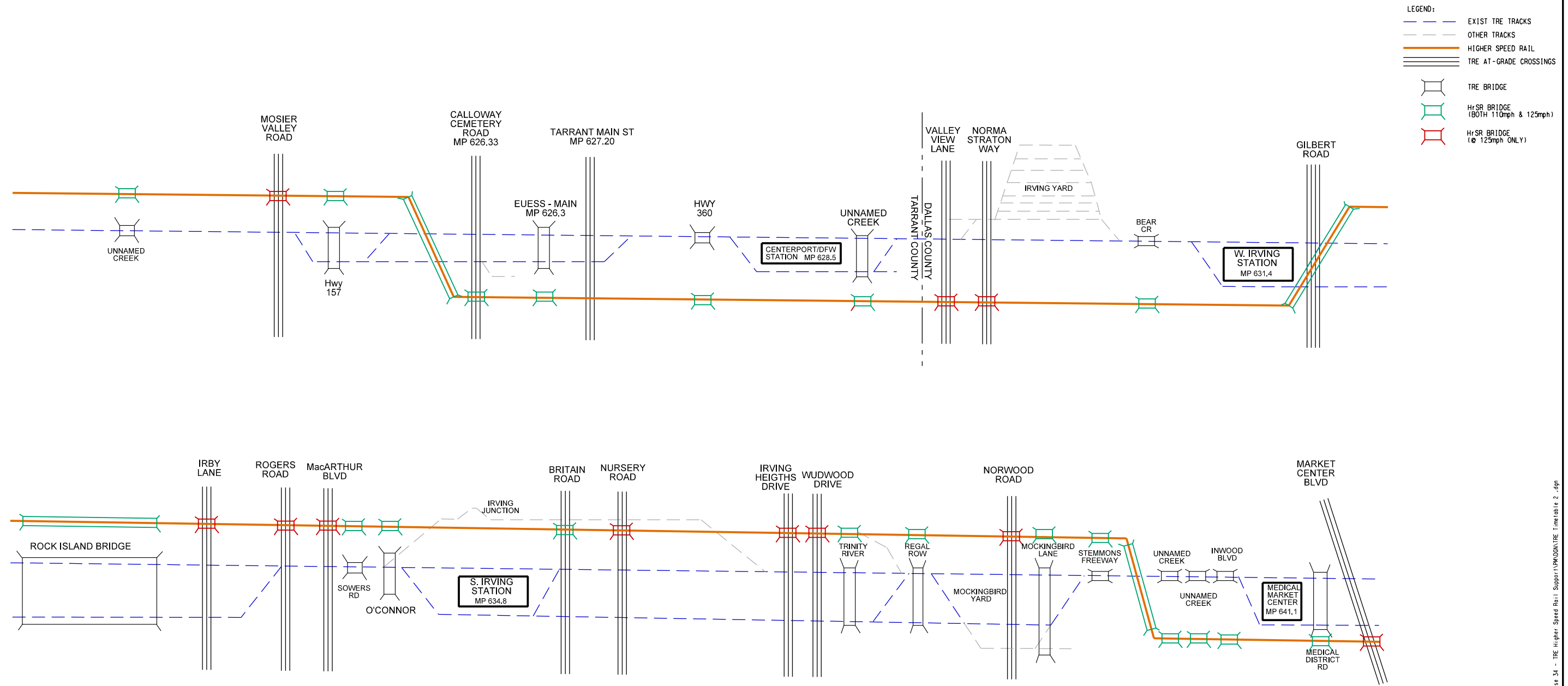
SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

HORIZONTAL ALIGNMENT SCHEMATIC

SHEET 1 OF 3

CONTRACT	DWG No.	REV
----------	---------	-----



LEGEND:

	EXIST TRK TRACKS
	OTHER TRACKS
	HIGHER SPEED RAIL
	TRK AT-GRADE CROSSINGS
	TRK BRIDGE
	Hr SR BRIDGE (BOTH 110mph & 125mph)
	Hr SR BRIDGE (125mph ONLY)

NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup>

**URS**

1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009








SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

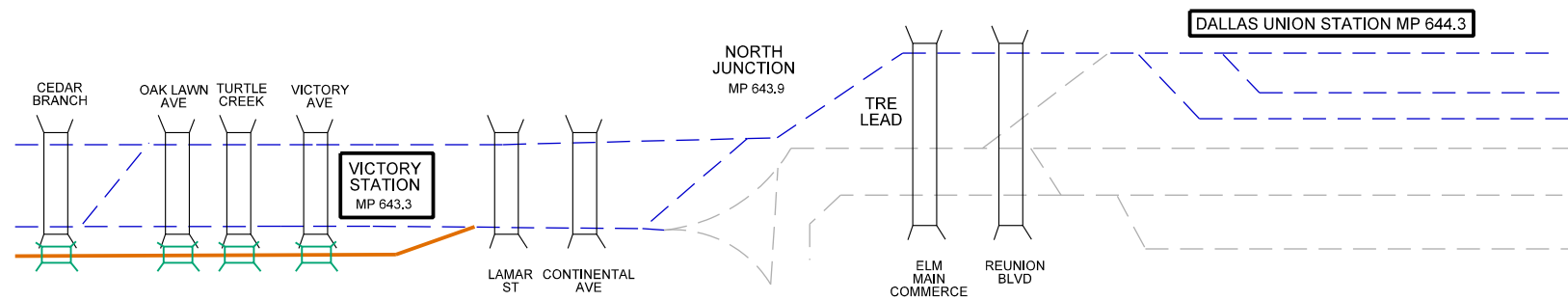
**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS**

HORIZONTAL ALIGNMENT  
SCHEMATIC  
SHEET 2 OF 3

CONTRACT	DWG No.	REV
----------	---------	-----

LEGEND:


-  EXIST TRE TRACKS
-  OTHER TRACKS
-  HIGHER SPEED RAIL
-  TRE AT-GRADE CROSSINGS
-  TRE BRIDGE
-  HRSR BRIDGE (BOTH 110mph & 125mph)
-  HRSR BRIDGE (125mph ONLY)



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING


REV	△	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**  
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162  
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**  
1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	E. CANALES
DESIGNED	E. CANALES
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS  
HORIZONTAL ALIGNMENT  
SCHEMATIC  
SHEET 3 OF 3**

CONTRACT	DWG No.	REV
----------	---------	-----

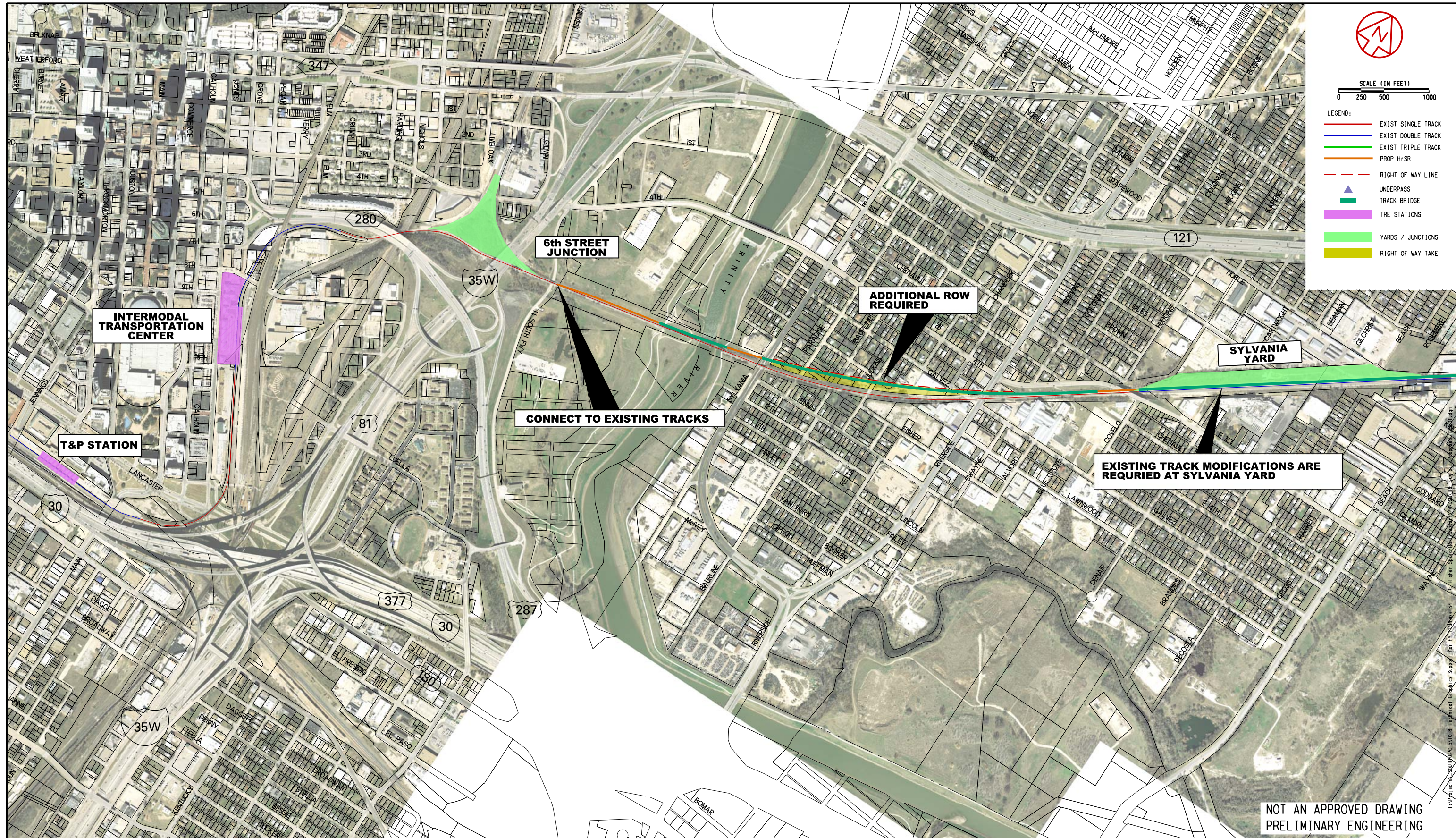
## **APPENDIX E**

### **PROPOSED ALIGNMENT EXHIBITS**

**CONCEPT 1**  
**125 MPH**



I:\Projects\SouthMPC\_SVT08\_Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MPGN\THE Exhibit\_Proposed\_125 01.dgn  
 9/11/2014  
 4:00:05 PM  
 4:00:05 PM



REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**  
 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

  
© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 1 OF 11

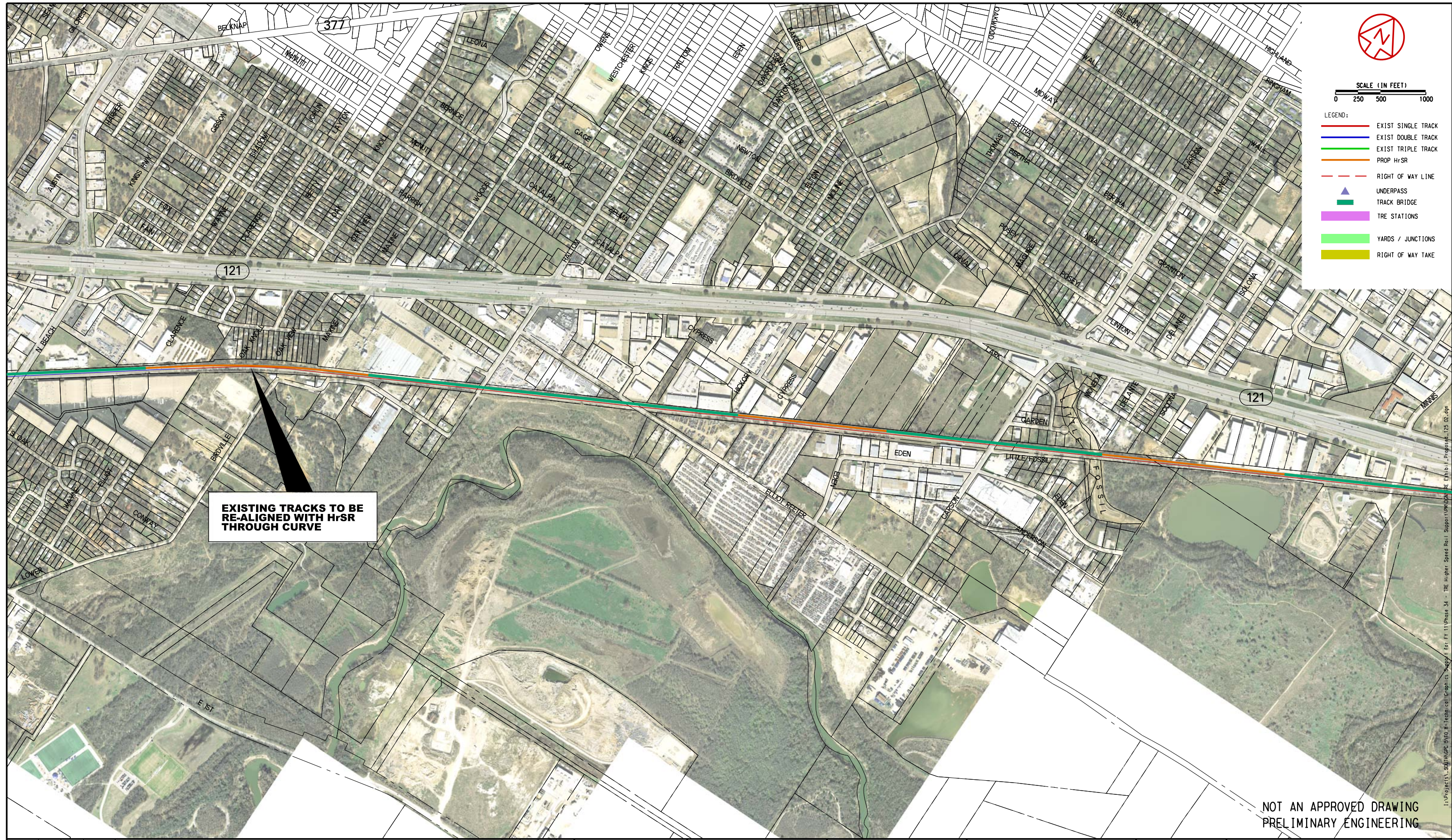
CONTRACT	DWG No.	REV
----------	---------	-----





SCALE (IN FEET)  
0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HRSR
  - RIGHT OF WAY LINE
  - UNDERPASS
  - TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE



**EXISTING TRACKS TO BE  
REALIGNED WITH HRSR  
THROUGH CURVE**

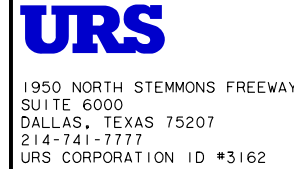
NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**DART PROJECT**

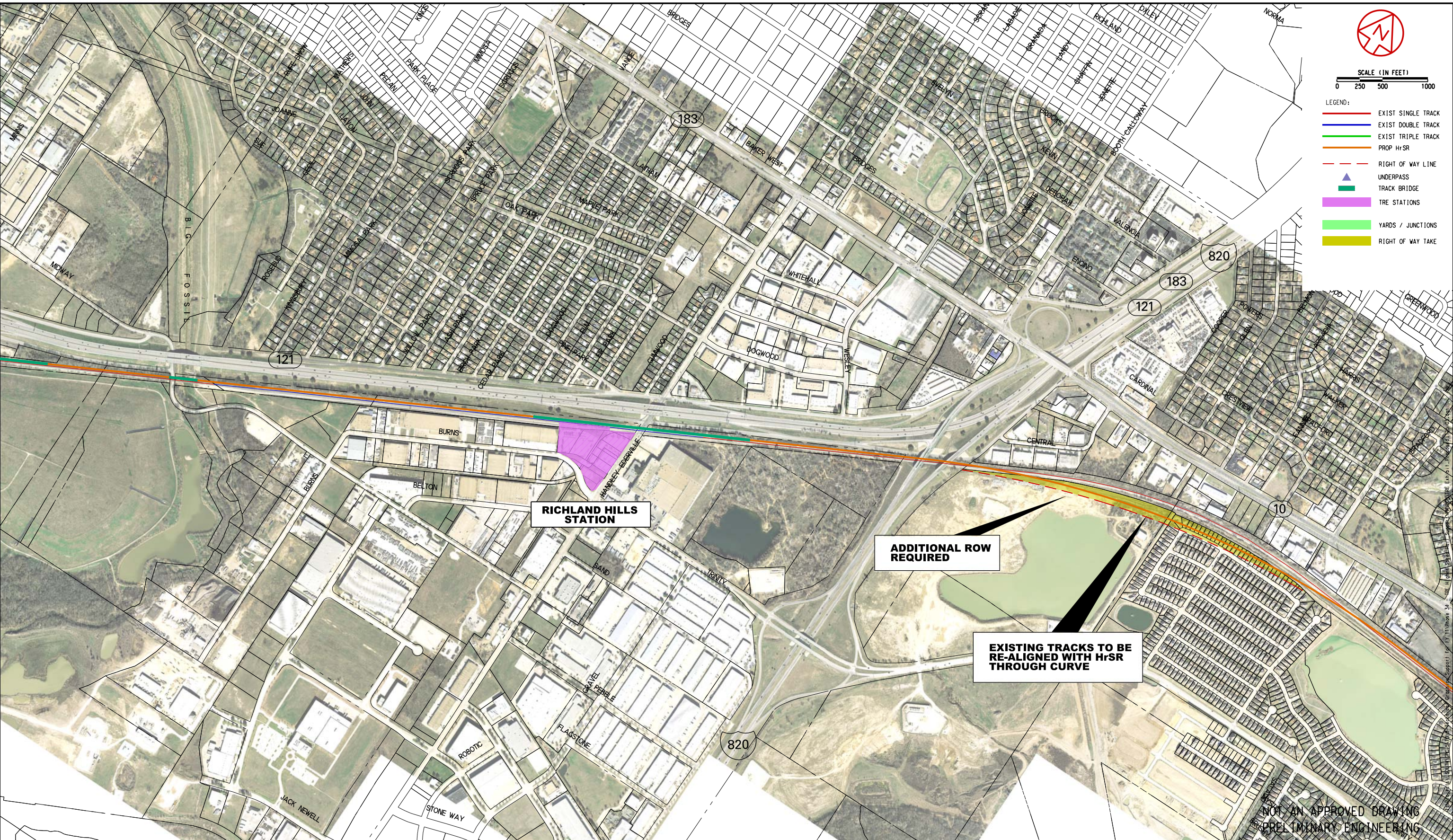


© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

<b>TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS</b>	
<b>PROPOSED ALIGNMENT CONCEPT 1 (125 MPH) SHEET 2 OF 11</b>	
CONTRACT	DWG No.





SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - - - RIGHT OF WAY LINE
  - UNDERPASS
  - TRACK BRIDGE
  - TRK STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**RICHLAND HILLS STATION**

**ADDITIONAL ROW REQUIRED**

**EXISTING TRACKS TO BE RE-ALIGNMENT WITH HrSR THROUGH CURVE**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

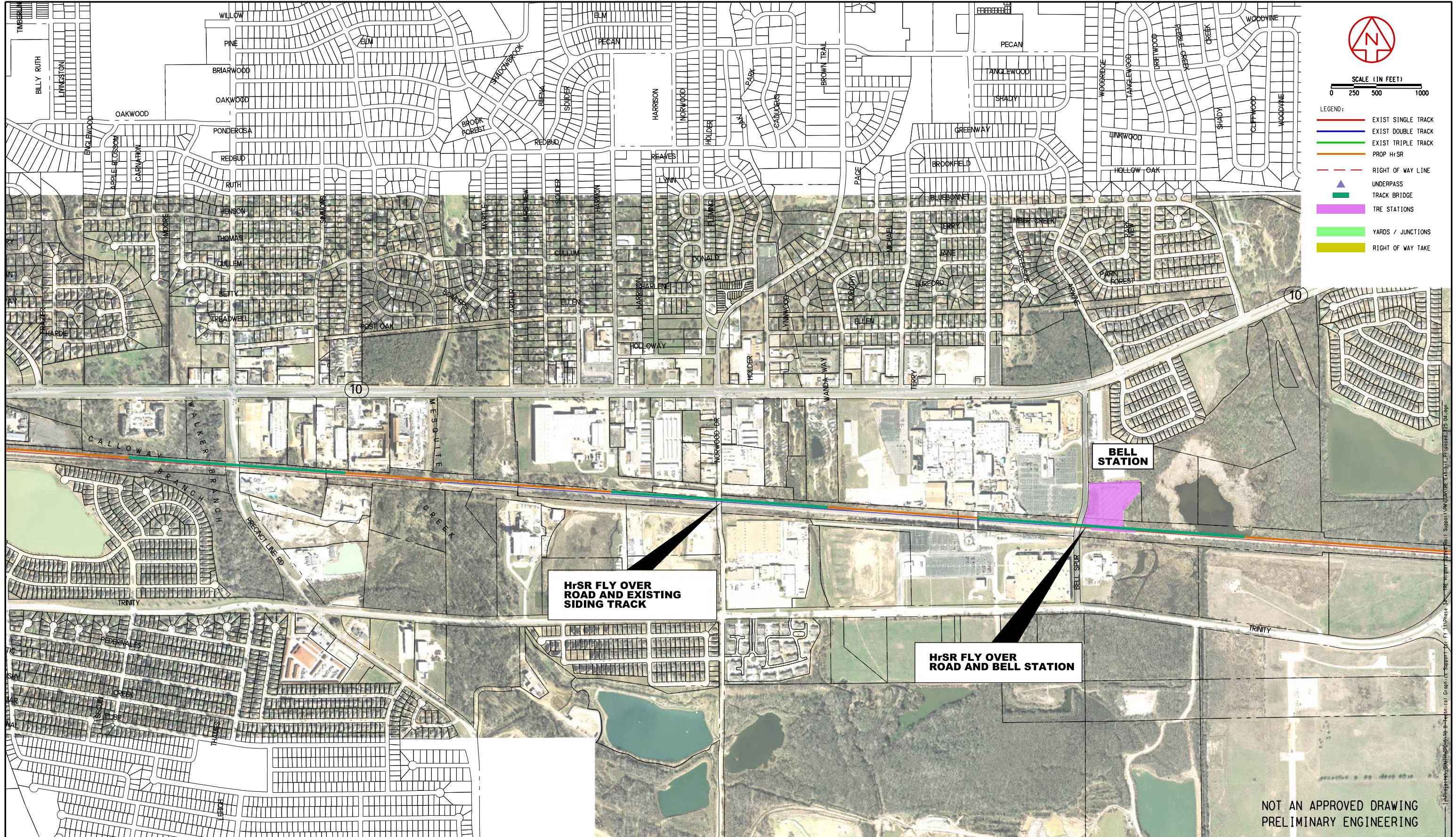
**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 3 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP





NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup>

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

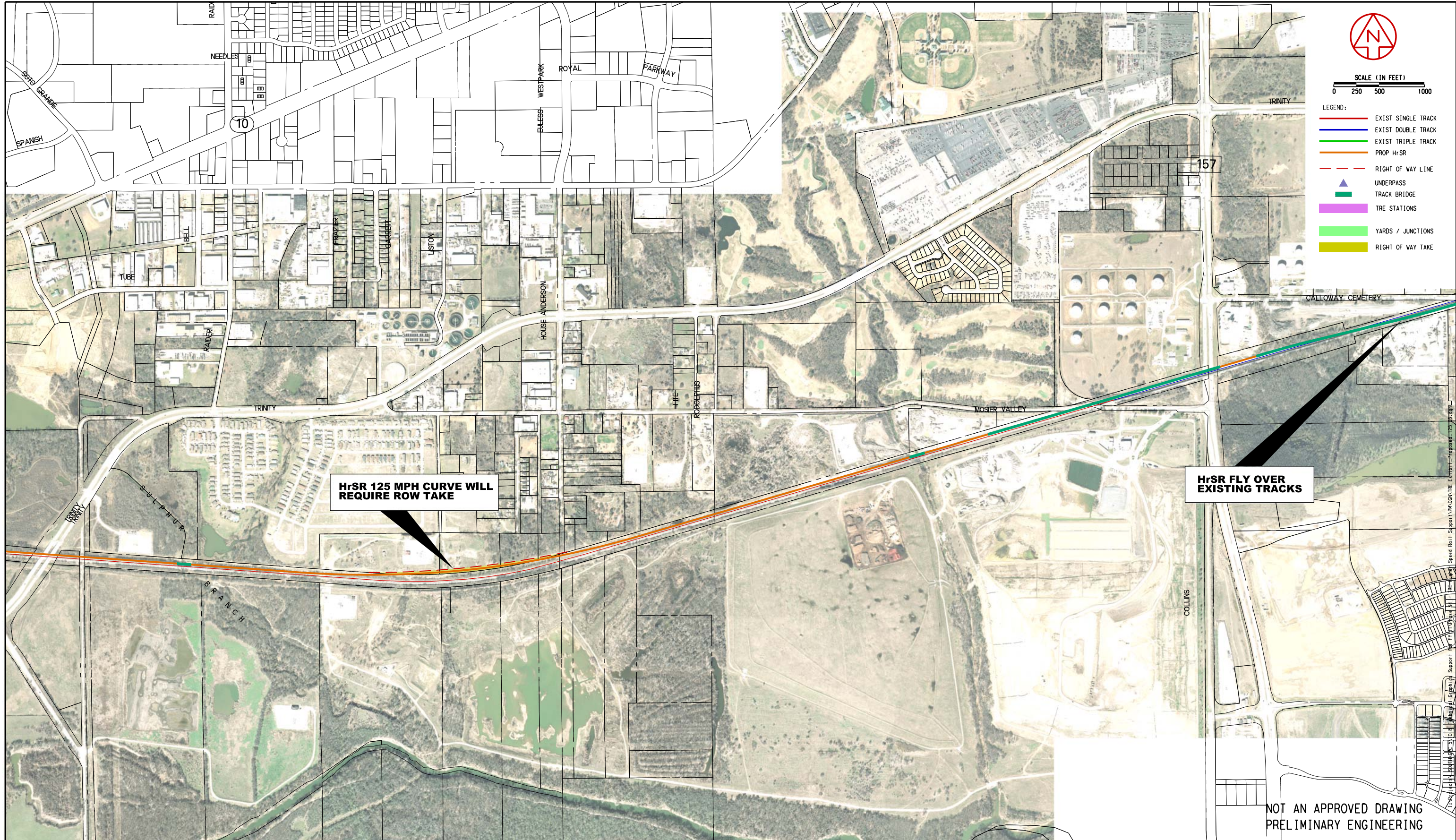
PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 4 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthGOC 5\10 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PM\GON\THE Exhibit\_1\_Proposed\_125 05.dgn

eric\_candless\_181  
 44000LES  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - - - RIGHT OF WAY LINE
  - ▲ UNDERPASS
  - TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**HrSR 125 MPH CURVE WILL REQUIRE ROW TAKE**

**HrSR FLY OVER EXISTING TRACKS**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc<sup>5</sup>**

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 5 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----





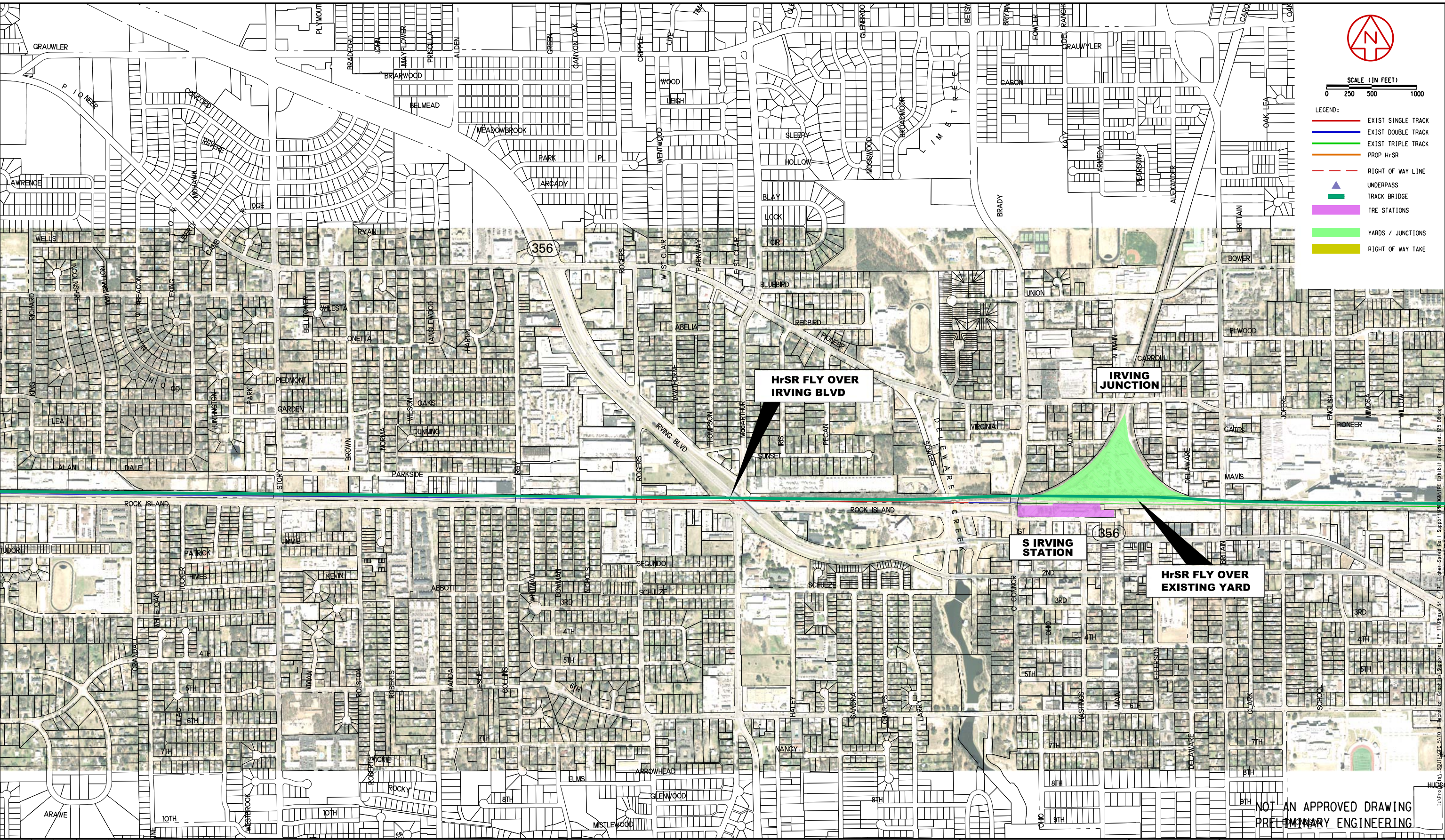






I:\Projects\SouthDPC 510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PMOD\THE Exhibit\_Proposed\_125 08.dgn

eric\_candias\_181  
 9/11/2014



NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup>

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

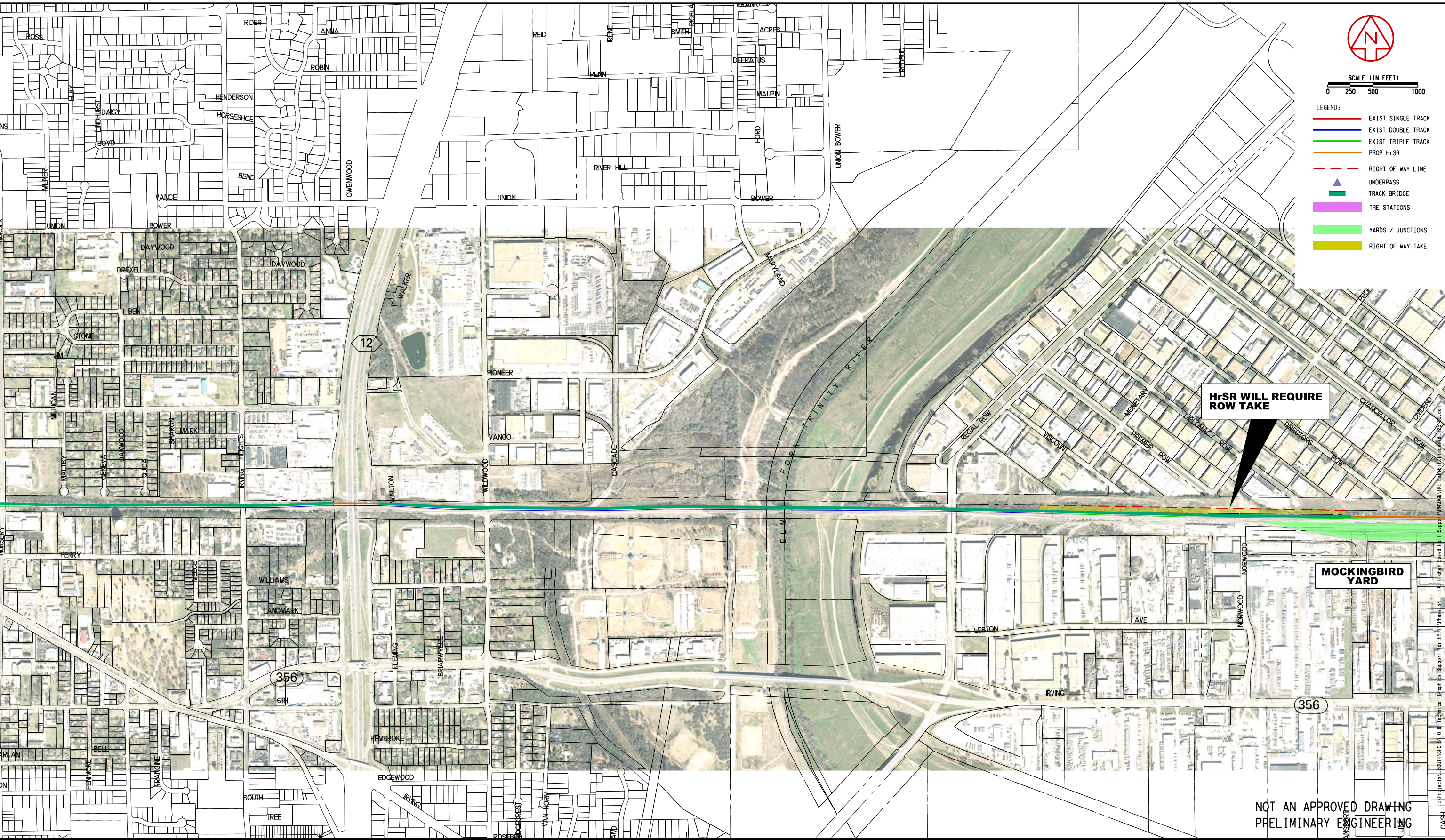
SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 8 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----





SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HR SR
  - - - RIGHT OF WAY LINE
  - ▲ UNDERPASS
  - ▲ TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**HrSR WILL REQUIRE ROW TAKE**

**MOCKINGBIRD YARD**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 9 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----

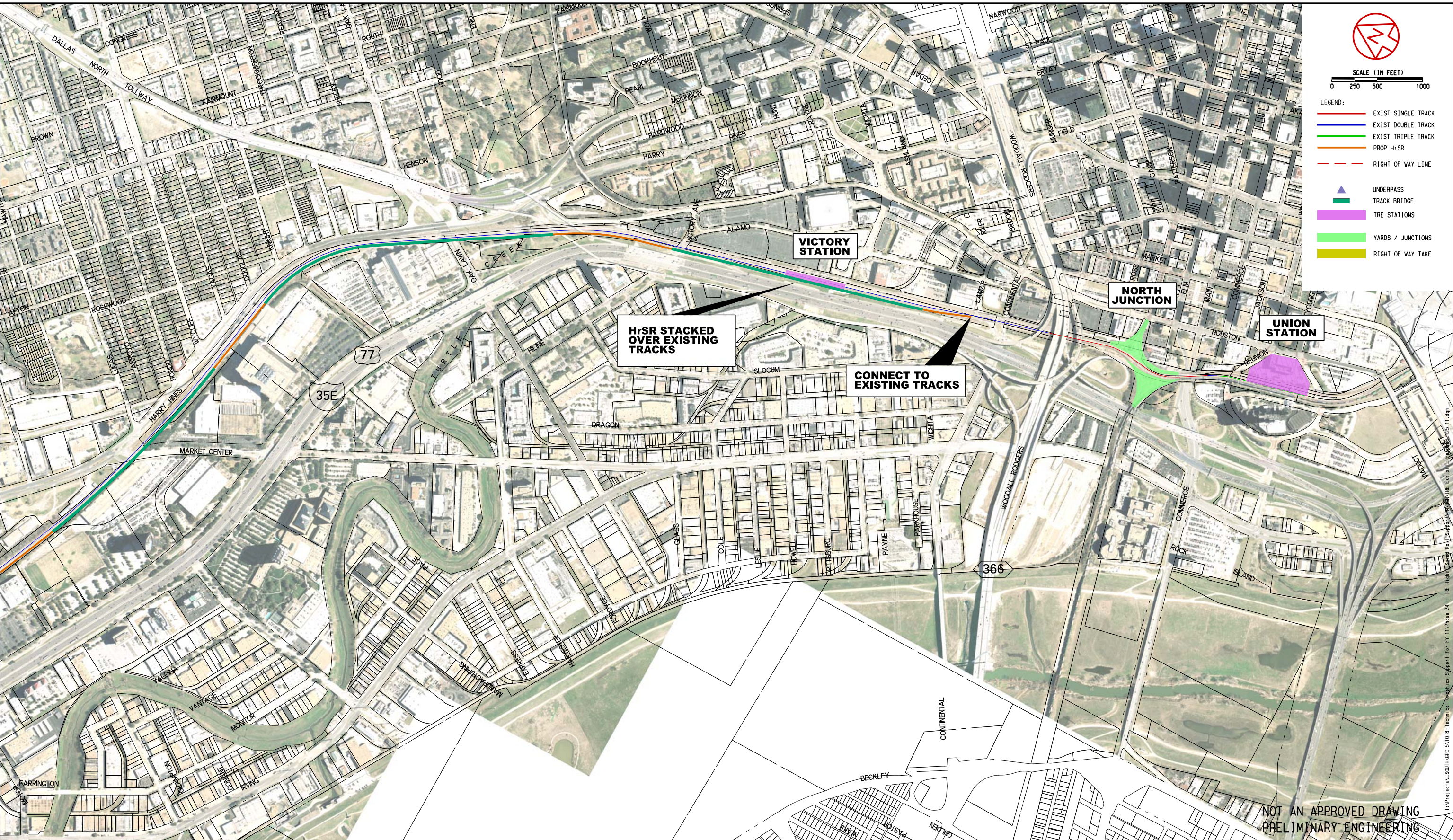






I:\Projects\South\GDC 510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PM\GDC\THE Exhibit\_125 11.dgn  
 9/11/2014

eric\_candias\_181  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - RIGHT OF WAY LINE
  - ▲ UNDERPASS
  - ▲ TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**HrSR STACKED OVER EXISTING TRACKS**

**CONNECT TO EXISTING TRACKS**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 1 (125 MPH)  
 SHEET 11 OF 11

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

CONTRACT	DWG No.	REV
----------	---------	-----

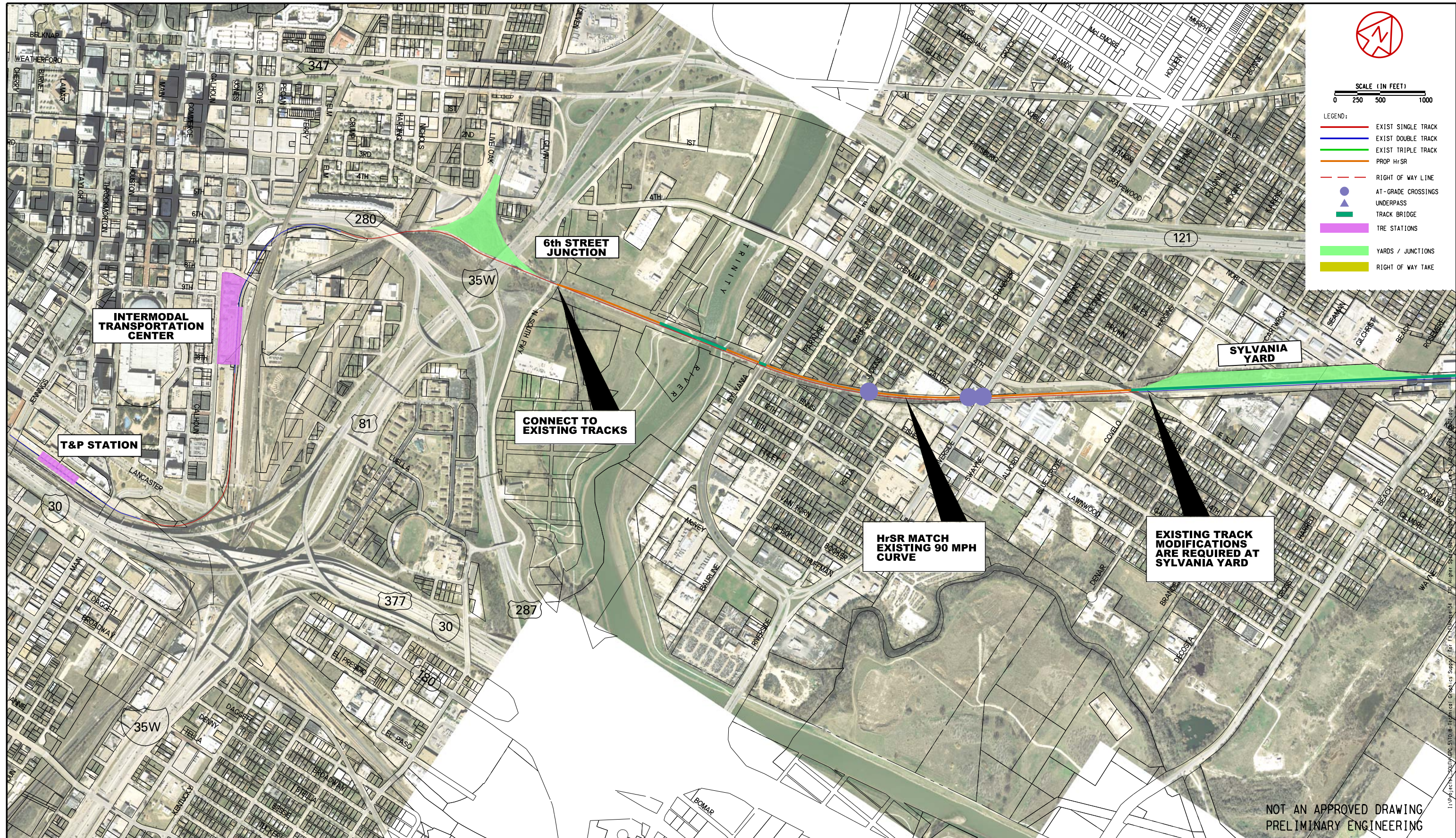


**CONCEPT 2**  
**110 MPH**



I:\Projects\SouthMPC\_S1D 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\MPD\THE Exhibit\_Proposed\_110 01.dgn

eric\_candias\_181  
9/11/2014



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup>

**URS**

1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

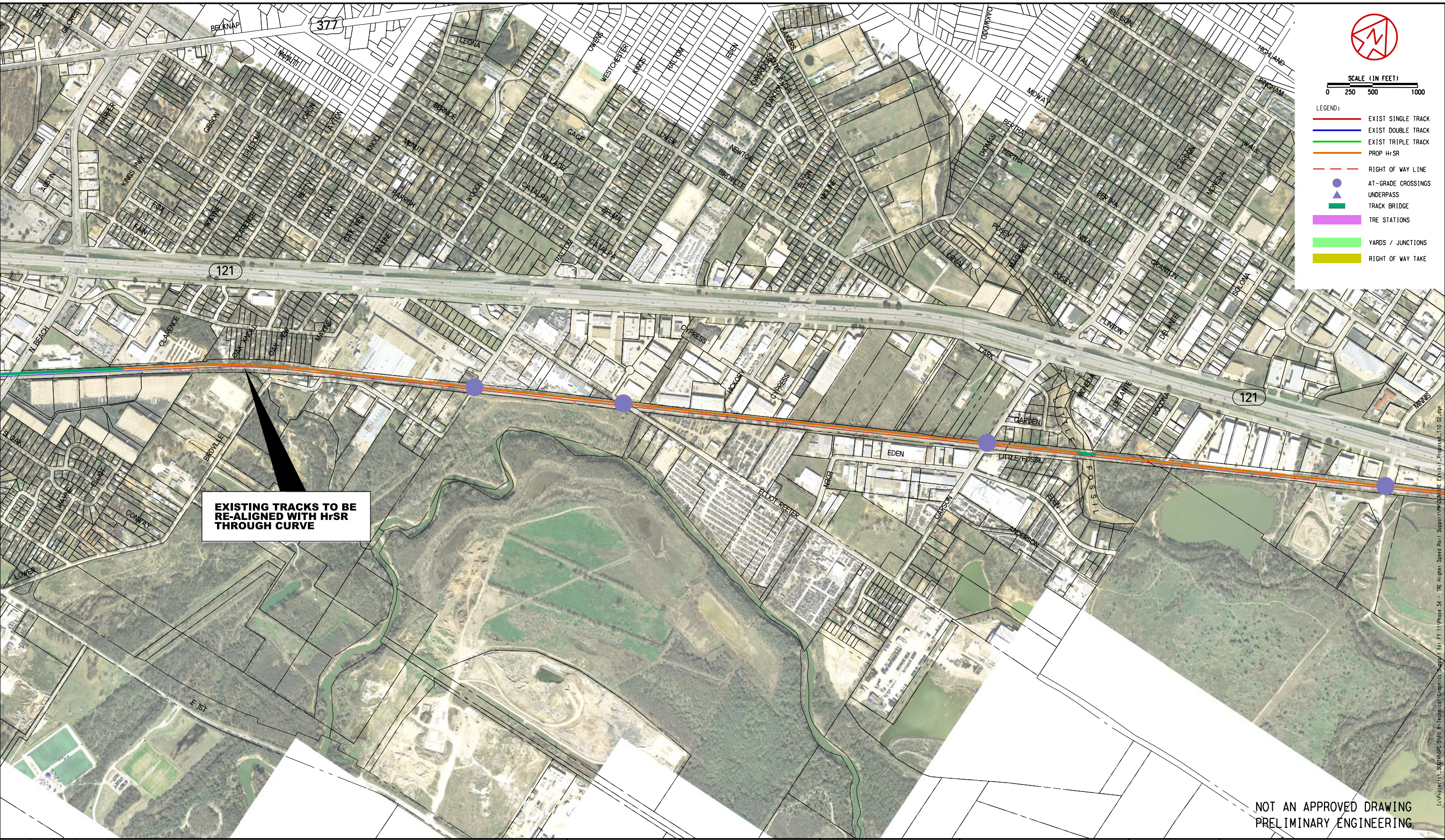
PROPOSED ALIGNMENT  
CONCEPT 2 (110 MPH)  
SHEET 1 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\...SOUTHGPC 5110 8 - Technical Graphics Support for FY 11\Phase 34 - THE Higher Speed Rail Support\HOMON\THE Exhibit\_Proposed\_110 02.dgn

eric\_candless\_181  
 #MODELS  
 9/11/2014



**EXISTING TRACKS TO BE RE-ALIGNED WITH HRSR THROUGH CURVE**



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HRSR
  - - - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - ▭ TRACK BRIDGE
  - ▭ TRE STATIONS
  - ▭ YARDS / JUNCTIONS
  - ▭ RIGHT OF WAY TAKE

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 2 OF 11

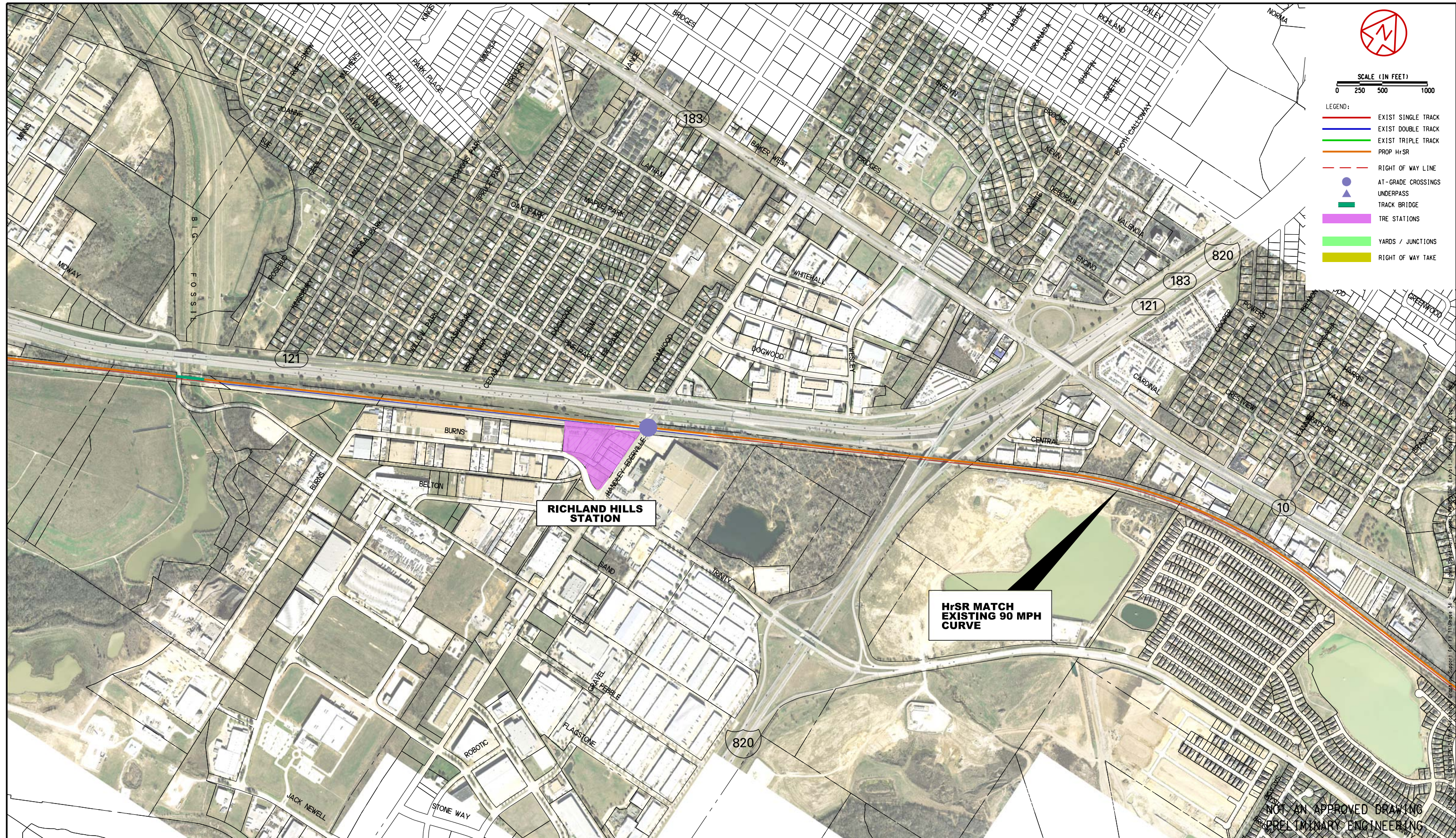
REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthGOC SATO 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PM\GDA\THE Exhibit\_Proposed\_110 03.dgn

eric\_candias\_181  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HSR
  - - - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**RICHLAND HILLS STATION**

**HrSR MATCH  
 EXISTING 90 MPH  
 CURVE**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

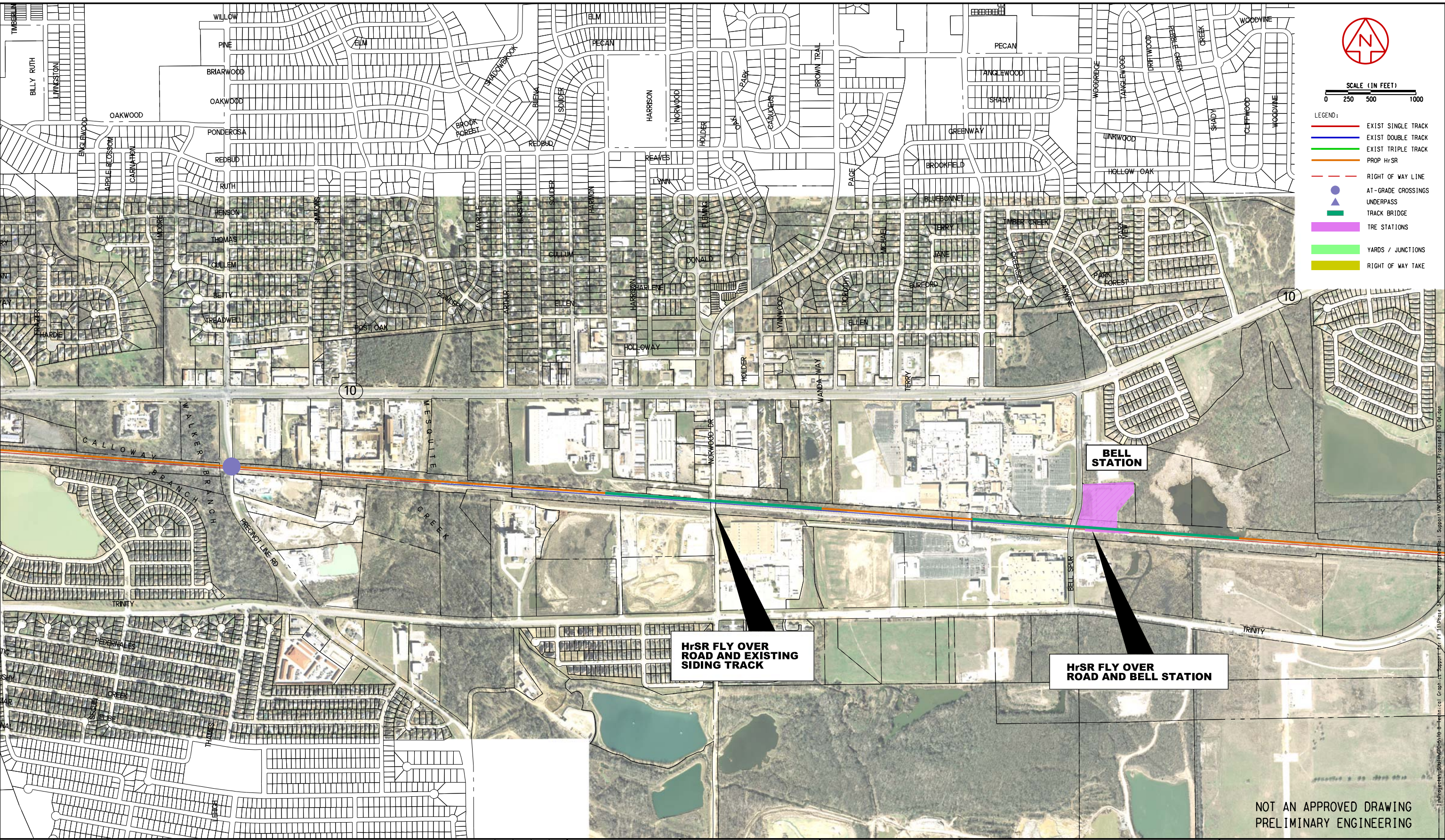
PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 3 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\Southgate\510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\Map\GATRE Exhibit\_1\_Proposed\_110 04.dgn

eric\_cand (s...)  
 4800LEES  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - - - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**HrSR FLY OVER ROAD AND EXISTING SIDING TRACK**

**HrSR FLY OVER ROAD AND BELL STATION**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

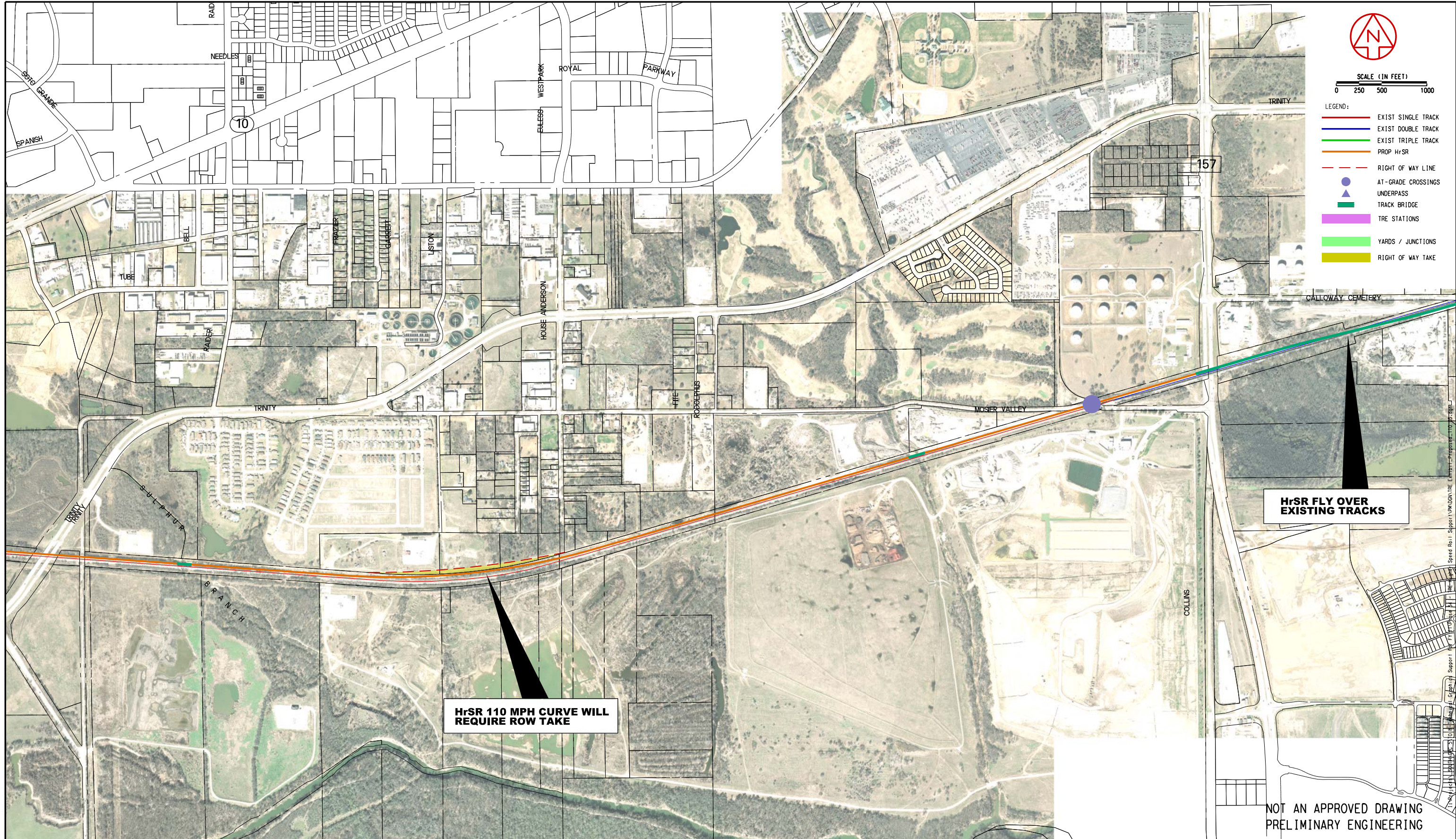
**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 4 OF 11

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

CONTRACT	DWG No.	REV
----------	---------	-----





- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - UNDERPASS
  - TRACK BRIDGE
  - TRAIL STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

HrSR 110 MPH CURVE WILL REQUIRE ROW TAKE

HrSR FLY OVER EXISTING TRACKS

NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

IN-PROGRESS

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162  
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

DART PROJECT



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS

PROPOSED ALIGNMENT  
CONCEPT 2 (110 MPH)  
SHEET 5 OF 11

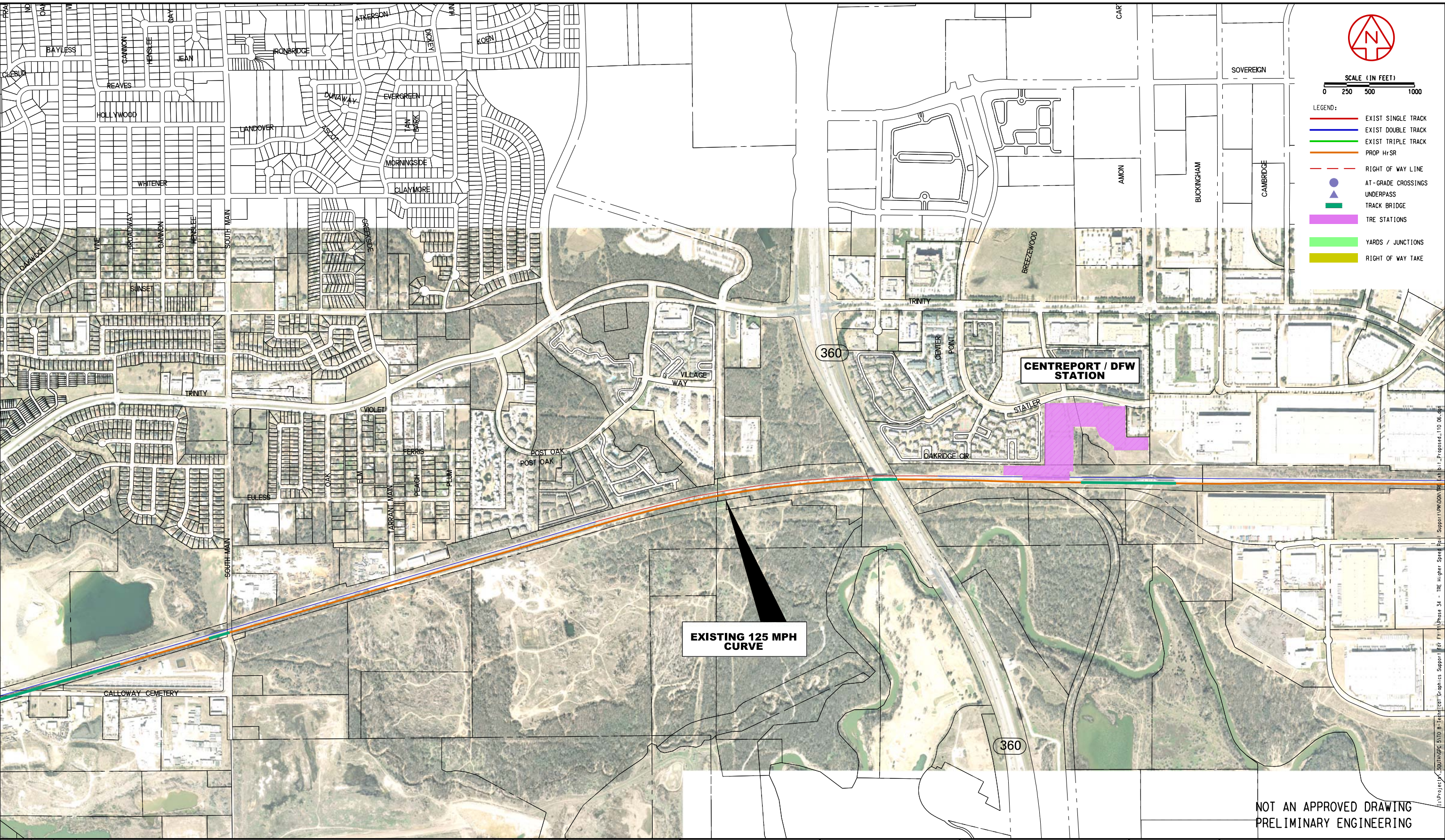
REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\South\GOC 510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PMON\THE Exhibit\_Proposed\_110 06.dgn

eric\_candras\_181  
4400ELES  
9/11/2014



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

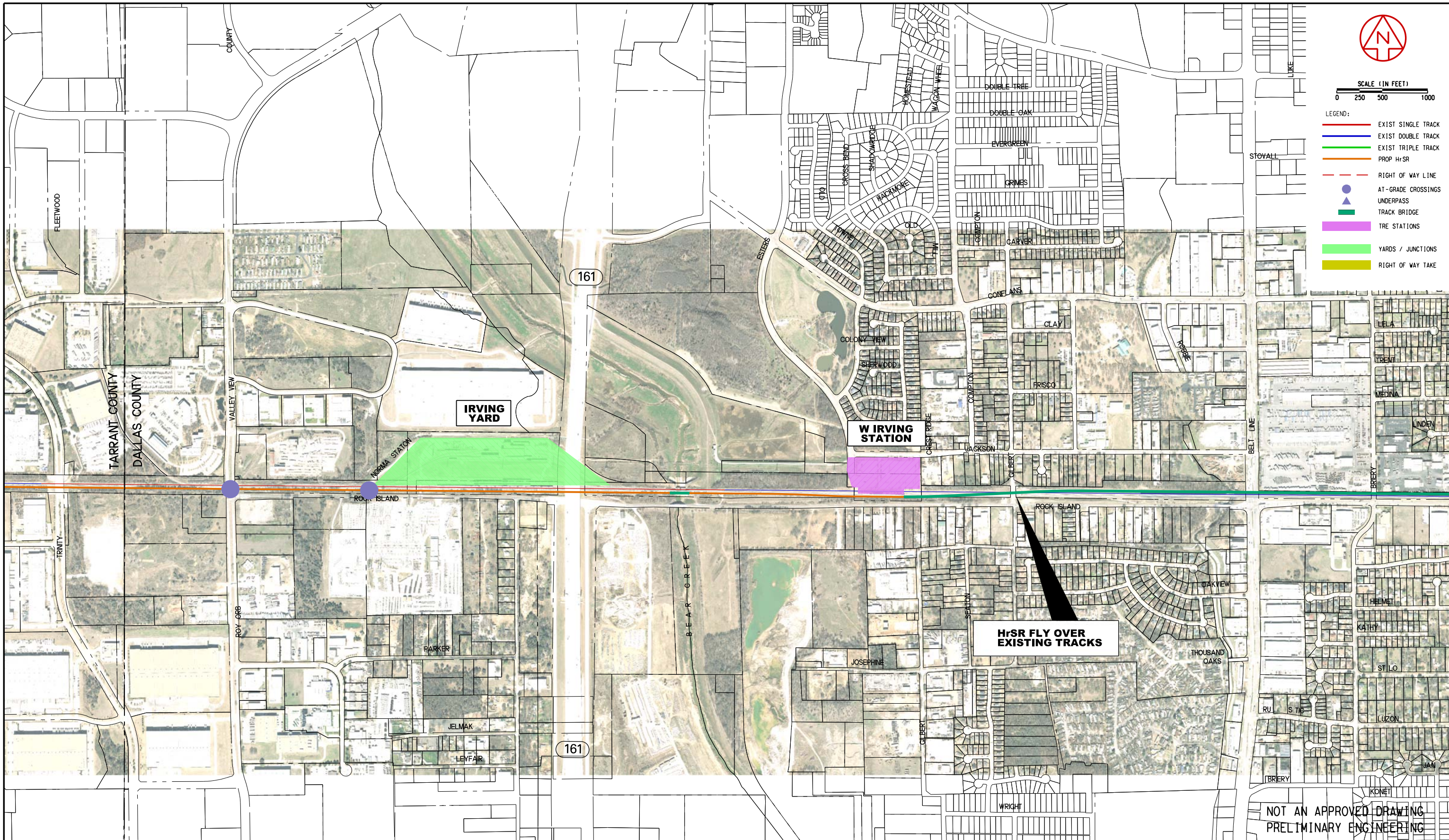
SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 6 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----





SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**URS**  
 1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

© DART, all rights reserved, 1987-2009

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 7 OF 11

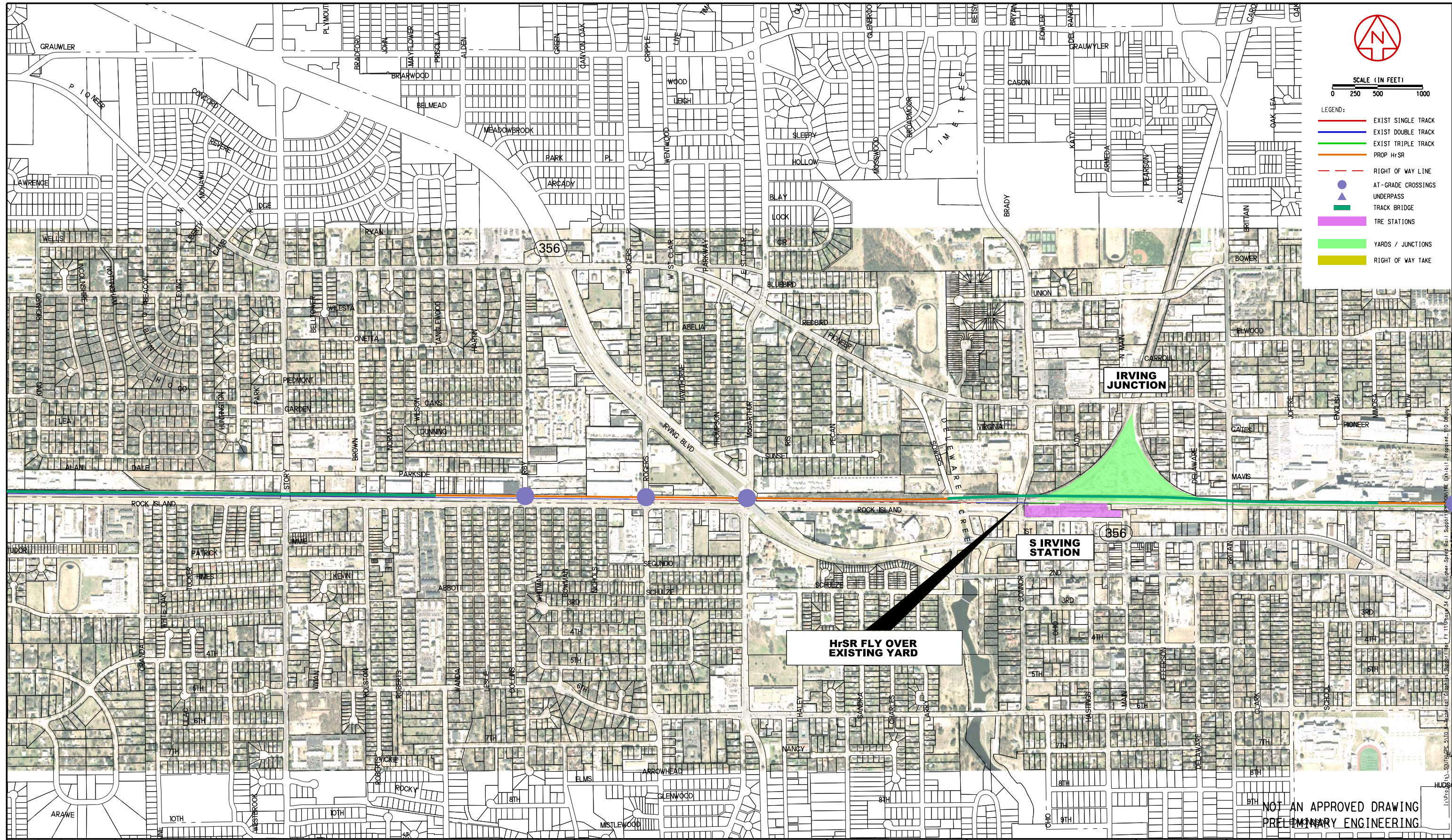
SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthDPC 5110 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PMOD\THE Exhibit\_Proposed\_110 08.dgn

eric\_candias\_181  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP H/SR
  - - - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - TRACK BRIDGE
  - THE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:

CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014

URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**

**DART**

© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS CONSTRAINTS ANALYSIS**

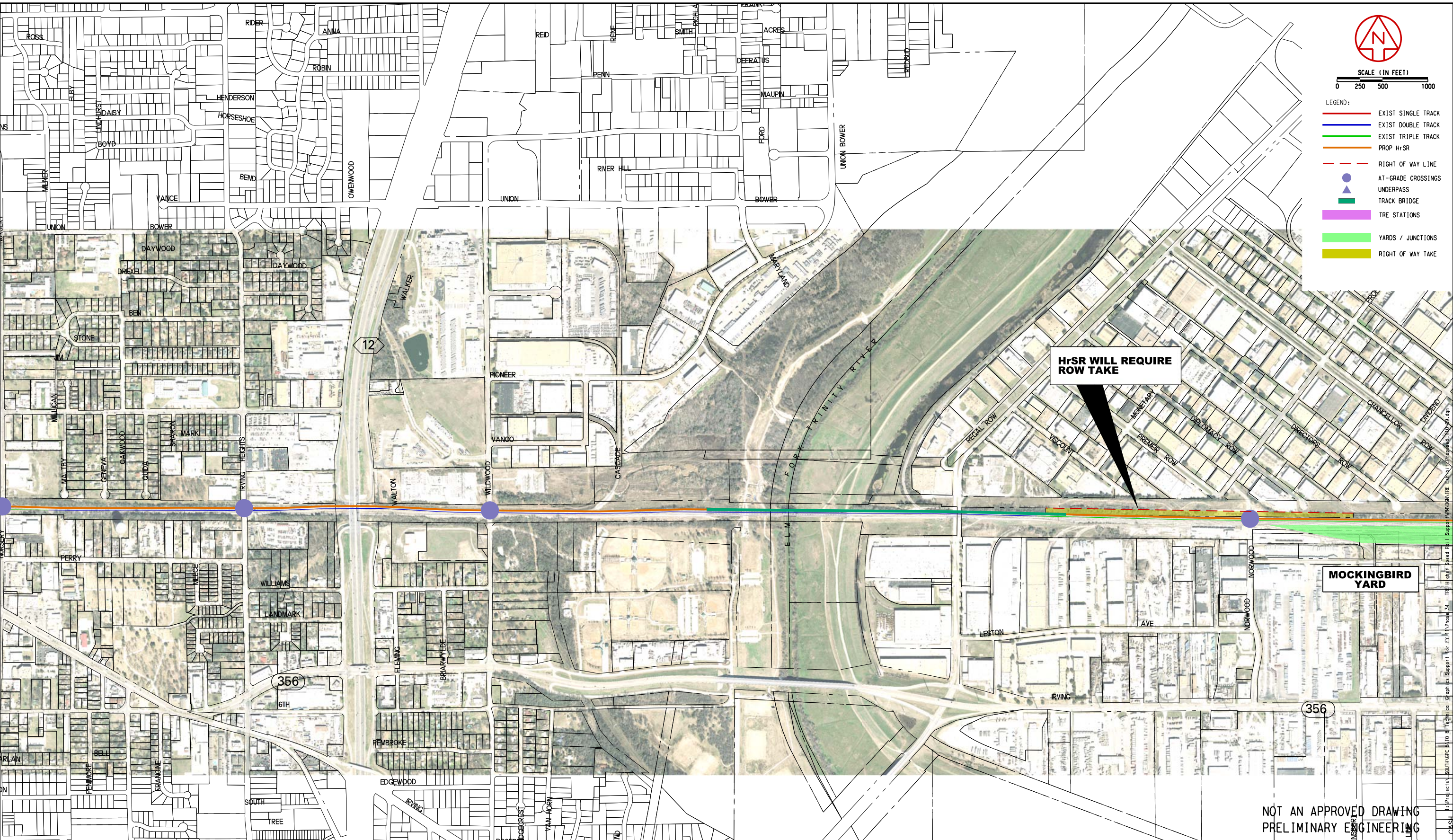
PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 8 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthGOC S110 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\Map\GDTRE Exhibit\_1\_Proposed\_110 09.dgn

eric\_candias\_181  
 9/11/2014



SCALE (IN FEET)  
 0 250 500 1000

- LEGEND:
- EXIST SINGLE TRACK
  - EXIST DOUBLE TRACK
  - EXIST TRIPLE TRACK
  - PROP HrSR
  - - - RIGHT OF WAY LINE
  - AT-GRADE CROSSINGS
  - ▲ UNDERPASS
  - ▲ TRACK BRIDGE
  - TRE STATIONS
  - YARDS / JUNCTIONS
  - RIGHT OF WAY TAKE

**HrSR WILL REQUIRE ROW TAKE**

**MOCKINGBIRD YARD**

NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.



**URS**

1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**



© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**

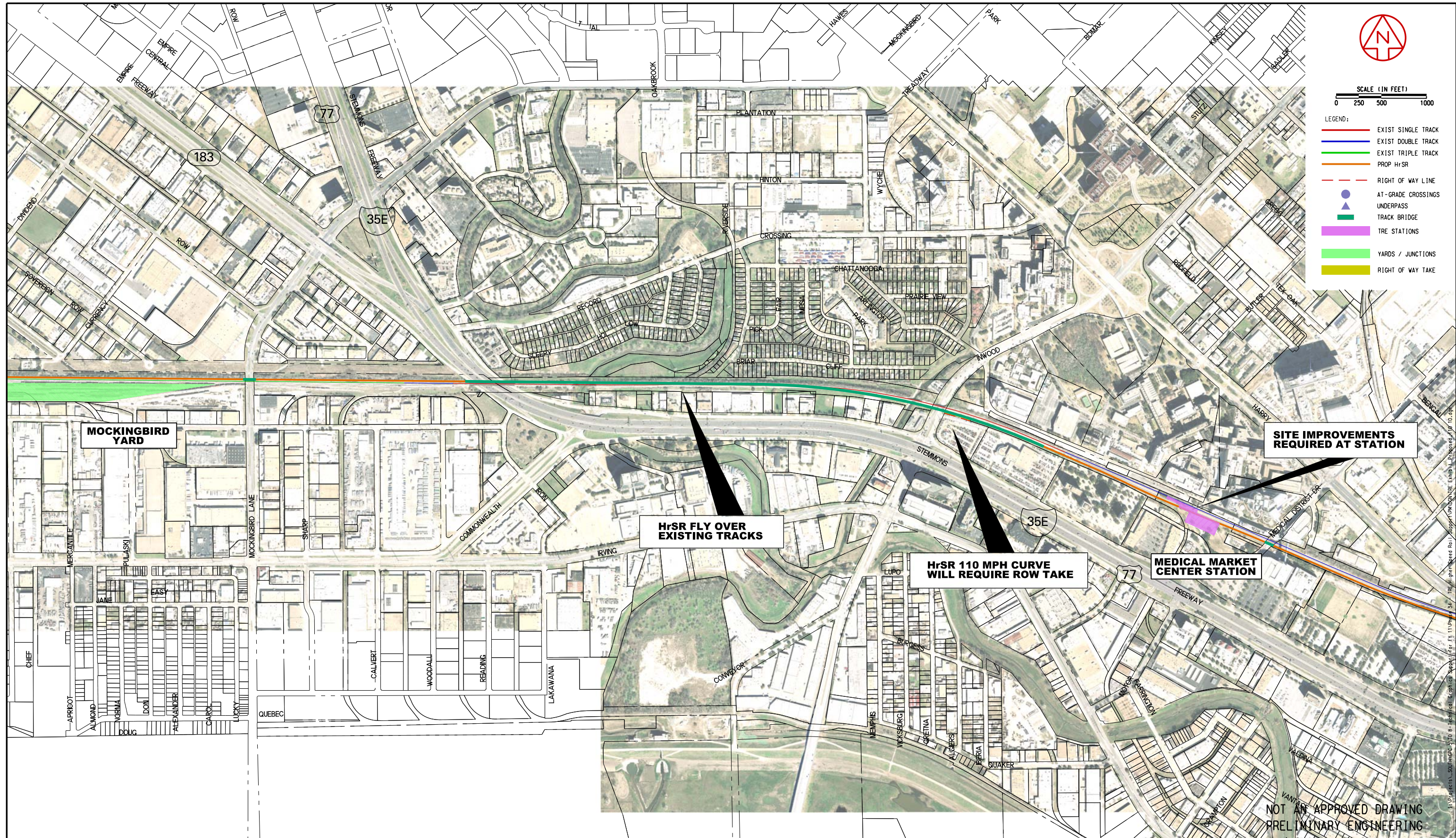
PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 9 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\Southgate\310 8 - Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\PMON\THE Exhibit\_Proposed\_110 10.dgn

eric\_cadles\_181  
9/11/2014



NOT AN APPROVED DRAWING  
PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**  
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
CHAD ANTHONY ALLEN, P.E. NO. 88427  
ON 09/11/2014  
URS CORPORATION ID # 3162  
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup> **URS**  
1950 NORTH STEMMONS FREEWAY  
SUITE 6000  
DALLAS, TEXAS 75207  
214-741-7777  
URS CORPORATION ID #3162

**DART PROJECT**  
**DART**  
© DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

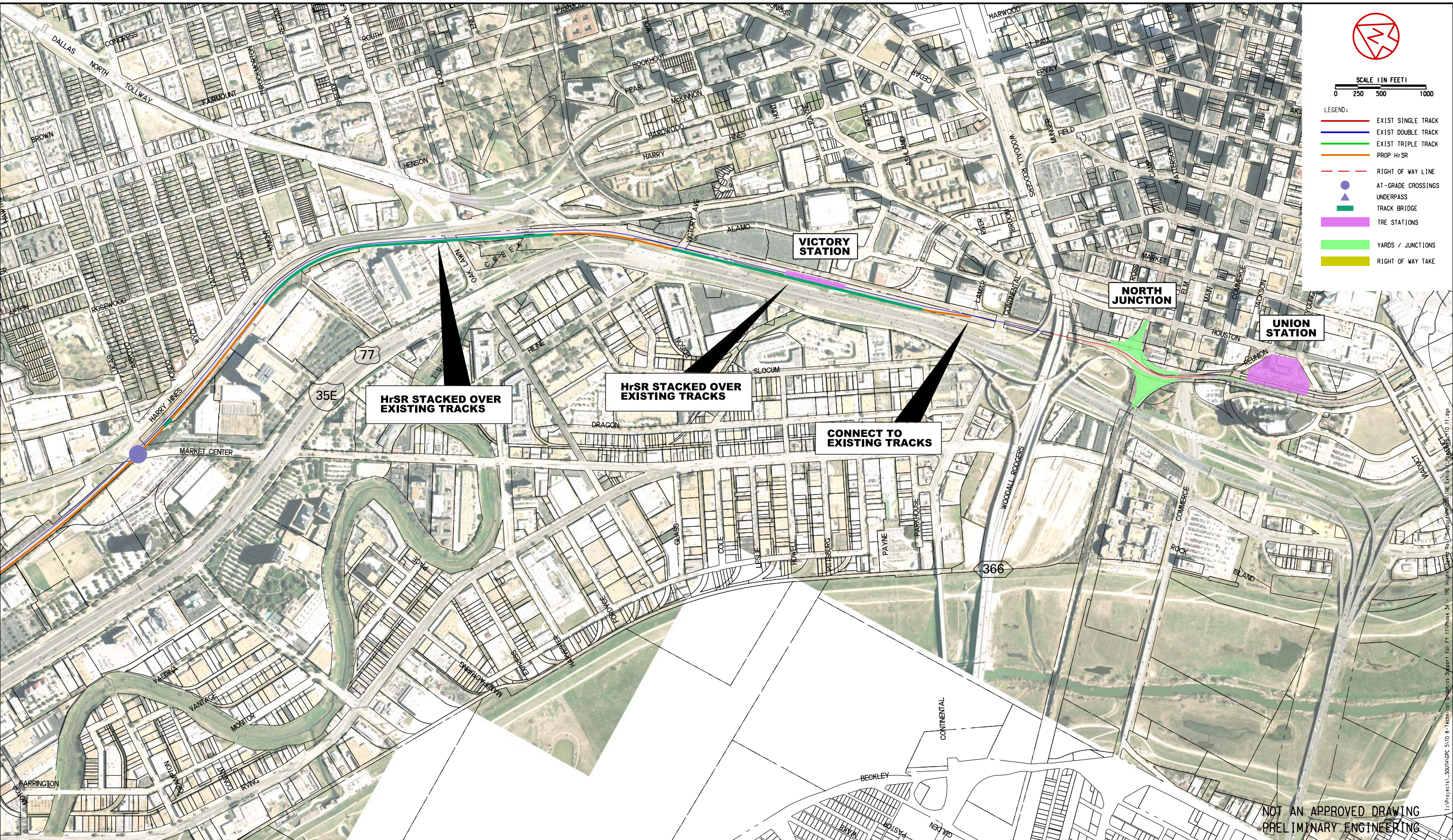
**TRINITY RAILWAY EXPRESS  
CONSTRAINTS ANALYSIS**  
PROPOSED ALIGNMENT  
CONCEPT 2 (110 MPH)  
SHEET 10 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



I:\Projects\SouthHPC 510 8-Technical Graphics Support for FY 11\Phase 34 - The Higher Speed Rail Support\HPC\THE Exhibit\_11.dgn  
 9/11/2014

eric\_candias\_181  
 9/11/2014




NOT AN APPROVED DRAWING  
 PRELIMINARY ENGINEERING

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

**IN-PROGRESS**  
 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:  
 CHAD ANTHONY ALLEN, P.E. NO. 88427  
 ON 09/11/2014  
 URS CORPORATION ID # 3162  
 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

**goc**<sup>5</sup> **URS**  
 1950 NORTH STEMMONS FREEWAY  
 SUITE 6000  
 DALLAS, TEXAS 75207  
 214-741-7777  
 URS CORPORATION ID #3162

**DART PROJECT**  
  
 © DART, all rights reserved, 1987-2009

SCALE	AS SHOWN
DRAWN	D. KING
DESIGNED	D. KRUCIAK
CHECKED	C. ALLEN
IN CHARGE	C. ALLEN
DATE	SEP 11 2014

**TRINITY RAILWAY EXPRESS  
 CONSTRAINTS ANALYSIS**  
 PROPOSED ALIGNMENT  
 CONCEPT 2 (110 MPH)  
 SHEET 11 OF 11

CONTRACT	DWG No.	REV
----------	---------	-----



## **APPENDIX F**

### **CONCEPTUAL CAPITAL COSTS ESTIMATE**



**DART - HrSR TRE Corridor**

**Conceptual Capital Cost Estimate  
September 11, 2014**

Description	HrSR Option 1 (125mph)	HrSR Option 2 (110mph)
	31.34 Miles New HSR	31.34 Miles New HSR
	Summary Total	Summary Total
HrSR Single Track At-Grade	\$ 45,002,100.00	\$ 74,166,950.00
TRE Single Track At-Grade	\$ 3,856,600.00	\$ 886,600.00
HrSR Single Track Retained Fill 2-Wall	\$ 59,500,000.00	\$ 33,250,000.00
HrSR Single Track Bridged (22')	\$ 243,736,000.00	\$ 129,460,000.00
HrSR Single Track Bridged (44')	\$ 5,200,000.00	\$ -
Crossings	\$ -	\$ 35,000,000.00
Stations	\$ 10,100,000.00	\$ 10,100,000.00
Demo/Clearing	\$ 1,654,680.00	\$ 1,654,680.00
Utilities	\$ 41,367,000.00	\$ 41,367,000.00
Special Conditions	\$ 350,000.00	\$ 350,000.00
Signal System	\$ 165,468,000.00	\$ 165,468,000.00
Communications	\$ 26,474,880.00	\$ 26,474,880.00
Fare Collection	\$ 100,000.00	\$ 100,000.00
Subtotal Basic Civil/Systems	\$ 602,809,260.00	\$ 518,278,110.00
Allocated Contingency (30%)	\$ 180,842,778.00	\$ 155,483,433.00
<b>Basic Civil/Systems Subtotal</b>	<b>\$ 783,652,038.00</b>	<b>\$ 673,761,543.00</b>
Right-of-Way	\$ 17,800,287.26	\$ 241,779.47
Professional Services (Basic Civil/Systems) (32%)	\$ 250,768,652.16	\$ 215,603,693.76
<b>Project Subtotal</b>	<b>\$ 1,052,220,977.42</b>	<b>\$ 889,607,016.23</b>
Unallocated Contingency (10%)	\$ 105,222,097.74	\$ 88,960,701.62
Environmental Allowance (1%)	\$ 11,574,430.75	\$ 9,785,677.18
Finance Charges		\$ -
<b>Total Project Cost</b>	<b>\$ 1,169,017,505.92</b>	<b>\$ 988,353,395.03</b>
<b>Per Mile Cost</b>	<b>\$ 37,301,132.93</b>	<b>\$ 31,536,483.57</b>