Draft
Environmental Assessment

IH 20 Frontage Road Project, Dallas District

Project limits: From Lawson Road to East of CR 138 (Wilson Road)

CSJ Numbers: 0095-14-027, 0095-13-038, 0495-01-071

Dallas and Kaufman Counties, Texas

October 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PROJECT DESCRIPTION 2

2.1 Existing Facility 2
2.2 Proposed Facility 2

3.0 PURPOSE AND NEED 4

3.1 Need 4
3.2 Supporting Facts and/or Data 4
3.3 Purpose 6

4.0 ALTERNATIVES 7

4.1 Build Alternative 7
4.2 No Build Alternative 7
4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration 7

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 9

5.1 Right-Of-Way/Displacements 9
5.2 Land Use 10
5.3 Farmlands 10
5.4 Utilities/Emergency Services 11
5.5 Bicycle and Pedestrian Facilities 11
5.6 Community Impacts 12
5.6.1 Environmental Justice 13
5.6.2 Limited English Proficiency 13
5.7 Visual/Aesthetic Impacts 14
5.8 Cultural Resources 14
5.8.1 Archeology 15
5.8.2 Historic Properties 16
5.9 DOT Act Section 4(f), Land and Water Conservation Fund Act Section 6(f), and Parks and Wildlife Code Chapter 26 16
5.10 Water Resources 17
5.10.1 Clean Water Act Section 404 17
5.10.2 Clean Water Act Section 401 23
5.10.3 Executive Order 11990 Wetlands 23
5.10.4 Rivers and Harbors Act 24
5.10.5 Clean Water Act Section 303(d) 24
5.10.6 Clean Water Act Section 402 25
5.10.7 Floodplains 26
5.10.8 Wild and Scenic Rivers 27
5.10.9 Coastal Barrier Resources 27
5.10.10 Coastal Zone Management 27
5.10.11 Edwards Aquifer 27
5.10.12 International Boundary and Water Commission 27
5.10.13 Drinking Water Systems 27
5.11 Biological Resources 28
5.11.1 Texas Parks and Wildlife Coordination 28
5.11.2 Impacts to Vegetation 28
5.11.3 Executive Order 13112 on Invasive Species 30

5.11.4 Executive Memorandum on Environmentally and Economically Beneficial Landscaping . 31
5.11.5 Impacts to Wildlife 31
5.11.6 Migratory Bird Protection 32
5.11.7 Fish and Wildlife Coordination Act 32
5.11.8 Bald and Golden Eagle Protection Act 33
5.11.9 Magnuson-Stevens Fishery Conservation Management Act 33
5.11.10 Marine Mammal Protection Act 33
5.11.11 Threatened, Endangered, and Candidate Species 33
5.12 Air Quality 35
5.13 Hazardous Materials 37
5.14 Traffic Noise 39
5.15 Induced Growth 40
5.16 Cumulative Impacts 41
5.17 Construction Phase Impacts 43
6.0 AGENCY COORDINATION 46
7.0 PUBLIC INVOLVEMENT 47
8.0 POST-ENVIRONMENTAL CLEARANCE ACTIVITIES AND CONTRACTOR COMMUNICATIONS 48
8.1 Post-Environmental Clearance Activities 48
8.2 Contractor Communications 53
9.0 CONCLUSION 54
10.0 REFERENCES 55
11.0 APPENDICES 56

TABLES

TABLE 3-1: ANNUAL AVERAGE DAILY TRAFFIC ALONG IH 20 4
TABLE 5-1: PROJECT SURFACE WATERS 18
TABLE 5-2: IMPAIRED ASSESSMENT UNIT 25
TABLE 5-3: PROJECT AREA VEGETATION 29
TABLE 5-4: CONGESTION MITIGATION STRATEGIES 36

APPENDICES

Appendix A: Project Location Map
Appendix B: Project Photos
Appendix C: Schematics
Appendix D: Typical Sections
Appendix E: Plan and Program Excerpts
Appendix F: Resource-Specific Maps
Appendix G: Resources Agency Coordination

List of Abbreviations and Acronyms

AADT	Annual Average Daily Traffic
ACM	Asbestos-Containing Materials
ACT	Antiquities Code of Texas
APE	Area of Potential Effects
AOI	Area of Influence
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMP	Congestion Management Process
CO	Carbon Monoxide
CR	County Road
CWA	Clean Water Act
EA	Environmental Assessment
EJ	Environmental Justice
EMST	Ecological Mapping Systems of Texas
ENV-HMM	TxDOT ENV Division Hazardous Materials Management
EO	Executive Order
EPA	Environmental Protection Agency
EPIC	Environmental Permits, Issues, and Commitments
ESA	Endangered Species Act
ETC	Estimated Time of Completion
ETJ	Extraterritorial Jurisdiction
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Farm-to-Market Road
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
FWCA	Fish and Wildlife Coordination Act
HMIE	Hazardous Materials Impact Evaluation
HSM	Highway Safety Manual
IH	Interstate Highway
ISA	Initial Site Assessment
LCP	Lead-Containing Paint
LEP	Limited English Proficiency
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MSAT	Mobile Source Air Toxics
MS4	Municipal Separate Storm Sewer System
MTP	Metropolitan Transportation Plan
MVMT	Million Vehicle Miles Traveled
NAAQS	National Ambient Air Quality Standards
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act of 1969
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOI	Notice of Intent
NOT	Notice of Termination
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTMWD	North Texas Municipal Water District
NWI	National Wetlands Inventory
NWP	Nationwide Permit
PCN	Pre-construction Notification
PM	Particulate Matter

PS&E	Plans, Specifications, and Estimates
PSL	Project Specific Locations
PST	Petroleum Storage Tank
ROW	Right-of-Way
RSA	Resource Study Area
SAL	State Antiquities Landmark
SGCN	Species of Greatest Conservation Need
SH	State Highway
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SP	Spur
SW3P	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TCAP	Texas Conservation Action Plan
TDM	Transportation Demand Management
TERP	Texas Emissions Reduction Plan
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TMDL	Total Maximum Daily Loads
TPDES	Texas Pollutant Discharge Elimination System
TP&P	Transportation Planning and Programming Division
TPWD	Texas Parks and Wildlife Department
TSM	Transportation System Management
TSSWCB	Texas State Soil and Water Conservation Board
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
US	United States Highway
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VPD	Vehicles Per Day

1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) proposes various improvements to Interstate Highway (IH) 20 from Lawson Road in Dallas County to just east of County Road (CR) 138 (Wilson Road) in Kaufman County, Texas. The proposed improvements would include constructing continuous one-way frontage road lanes in each direction, reconfiguring the ramps from a "diamond" configuration to an "X" configuration at each interchange, and adding auxiliary lanes on the mainlanes. The project length is approximately 20.39 miles long. **Appendix A** shows the project location in relation to Dallas and Kaufman Counties and the cities of Dallas, Forney, and Terrell. **Appendix B** contains photographs of the project area.

The purpose of this environmental assessment (EA) is to study the potential environmental consequences of the proposed project and determine whether such consequences warrant preparation of an Environmental Impact Statement. Because the proposed project would be funded in part by the Federal Highway Administration (FHWA), this EA complies with FHWA's National Environmental Policy Act (NEPA) regulations as well as relevant TxDOT rules for environmental review of projects and guidance for conducting NEPA studies on behalf of FHWA. The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S. Code (U.S.C.) 327 and a Memorandum of Understanding (MOU) dated December 16, 2014, and executed by FHWA and TxDOT.

This draft EA will be made available for public review and TxDOT will consider any comments submitted during the public comment period. Once the comment period is over, TxDOT will prepare a final EA. If TxDOT determines that there are no significant adverse effects, it will prepare and sign a Finding of No Significant Impact (FONSI), which will be made available to the public.

2.0 PROJECT DESCRIPTION

2.1 Existing Facility

In Texas, IH 20 extends from Waskom in east Texas (20 miles west of Shreveport, Louisiana) to its confluence with IH 10 in west Texas. It traverses Dallas/Fort Worth, Abilene, and Midland/Odessa. The proposed project is located just east of Dallas.

Within the project limits, existing IH 20 has four to six, 12-foot wide mainlanes (two to three lanes in each direction) with 4 to 6-foot wide inside shoulders and 10-foot wide outside shoulders, separated by a 40 to 82-foot wide grassy median. There are no frontage roads, bike lanes, or sidewalks within most of the project limits, as the existing frontage road ends just east of Lawson Road. The existing right-of-way (ROW) in the project area varies from 375 to 550 feet in width and totals approximately 1,290 acres. **Appendix D** includes typical sections of the existing roadway.

2.2 Proposed Facility

The proposed improvements to IH 20 would add continuous one-way frontage roads in both the eastbound and westbound directions from Lawson Road to CR 138 (Wilson Road). The frontage roads would consist of a 12-foot wide inside lane, a 14-foot wide shared outside lane, a 4-foot wide inside shoulder and a 2-foot wide outside shoulder. A minimum 5-foot wide sidewalk would be included along the eastbound and westbound frontage roads behind the back of curb. Proposed auxiliary lanes on the mainlanes would be 12 feet wide. The proposed project would also include the reconstruction of the mainlanes to accommodate cross street improvements, and the construction, relocation, or modification of 43 ramps. The project proposes to replace, remove, or widen/extend 36 bridges and bridge class culverts. The project limits encompass the entire length of the project in which construction would take place and account for transitions into the existing IH 20 facility. The proposed project would require approximately 85.9 acres of additional ROW and approximately 3.8 acres of permanent easement (drainage easement). A schematic (plan view) of the proposed improvements is included in **Appendix C** and proposed typical sections are included in **Appendix D**.

A section of the proposed frontage roads between IH 20 and Spur (SP) 557 was previously cleared with a Categorical Exclusion in December 2013 under CSJs 0095-14-020 and 0495-01-066. This section of frontage roads included southbound SP 557 from Farm-to-Market Road (FM) 148 to IH 20 and along westbound IH 20 from FM 148 to SP 557. The section of frontage road along westbound IH 20 has already been constructed. The section of frontage road along eastbound SP 557 has not yet been constructed. The design of the southbound SP 557 frontage road schematic has been updated in the proposed IH 20 schematic to include minor modifications to the entrance ramp at the southbound SP 557 connection to IH 20 in order to include two through lanes on the southbound SP 557 connection to IH 20.

Federal regulations [23 Code of Federal Regulations (CFR) 771.111(f)(1)] require that federally funded transportation projects have logical termini. Simply stated, this means that a project must have rational beginning and ending points. Those points may not be created simply to avoid proper analysis of environmental impacts. The western limit of the proposed IH 20 project is Lawson Road. Existing frontage roads along IH 20 terminate approximately 0.8 mile east of Lawson Road at Lumley Road. The eastern limit of the proposed project is CR 138 (Wilson Road). This end point was chosen as a logical terminus because CR 138 is a major traffic generator.

Federal regulations [23 CFR 771.111(f)(2)] require that a project have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area. This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other project being built. As proposed, the IH 20 project addresses specific transportation needs identified within the project limits. Specifically, the proposed project would improve local access and circulation and traffic operation when compared to existing conditions. The mobility and connectivity benefits of the proposed IH 20 project stand-alone. Realization of these benefits is not dependent upon other projects/future actions; thus, the proposed project passes the test of independent utility. Further, because the project would stand alone and is not dependent upon other (future) improvements to properly function, it would not compel further expenditure of funds. For this reason, it cannot and does not irretrievably commit future federal funds.

Federal law [23 CFR 771.111(f)(3)] prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements. This means that a project must not dictate or restrict any future roadway alternatives. As proposed, the IH 20 project would in no way limit consideration of improvements, or alternatives for construction of such improvements, in adjoining sections of IH 20. For this reason, the proposed project does not foreclose consideration of alternatives for other reasonably foreseeable transportation improvements.

The estimated cost of the proposed IH 20 project is $570.7 million. The project would be financed with a combination of state and federal financing. The proposed project is included in the North Central Texas Council of Government's (NCTCOG) fiscally-constrained 2045 Metropolitan Transportation Plan (MTP) and the 2019–2022 Transportation Improvement Program (TIP), as amended A copy of the applicable pages from the MTP and TIP are included in **Appendix E**.

3.0 PURPOSE AND NEED

3.1 Need

The project is needed to address local policies and because design deficiencies along IH 20 between Lawson Road and CR 138 creates conflicts between local and regional traffic, resulting in congestion, reduced mobility, and safety issues along the corridor.

3.2 Supporting Facts and/or Data

Congestion and Mobility

IH 20 is the main highway connecting Longview, Tyler, Marshall, and Shreveport to the Dallas-Fort Worth metroplex. In the project area, IH 20 serves as a major freeway for both through-trips and commuters traveling to and from Dallas. The proposed project extends through part of Mesquite, Mesquite extraterritorial jurisdiction (ETJ), Forney ETJ, Talty and its ETJ, and Terrell and its ETJ, within Dallas and Kaufman counties.

According to the TxDOT Transportation Planning and Programming Division (TP&P) traffic projections from August 2018, the annual average daily traffic (AADT) along IH 20 within the project limits is anticipated to increase by approximately 40 percent between years 2025 and 2045. **Table 3-1** lists the traffic data for each segment of the IH 20 corridor.

Table 3-1: Annual Average Daily Traffic along IH 20

Limits	2025 AADT	2045 AADT	Percent Increase
Lawson Road to Spur 557	57,100	79,800	39.8%
Spur 557 to CR 138 (Wilson Road)	76,900	107,600	39.9%

According to the U.S. Census Bureau, the population of some jurisdictions within the project area grew significantly between 1990 and 2017. Kaufman County grew by roughly 120 percent and Talty grew by over 80 percent. Other jurisdictions grew at a more modest pace, including the population in Mesquite, Terrell, and Dallas County, which grew by 42 percent, 36.1 percent, and 37.7 percent, respectively, between 1990 and 2017. According to population projections from the Texas Water Development Board (TWDB), continued significant growth is anticipated in the project area. The population of Mesquite and Dallas County are expected to grow by 45.2 percent and 44.8 percent, respectively, between 2010 and 2015. The population of Talty and Kaufman County are projected to nearly double at 181.8 percent and 196.9 percent, respectively, and Terrell's population is projected to quadruple at 460 percent.

These projections indicate that cities that are closer to the Dallas area, such as Mesquite, will start to be built out and its population growth will start to slow down. Cities that are further from Dallas,

such as Terrell, are expected to experience higher growth rates. The infrastructure within the project area needs to be able to accommodate this projected population increase in order to maintain mobility for local and through travelers.

Design Deficiencies

The project limits of IH 20 was constructed as a rural interstate in the 1950's as part of the Interstate System, and roadway design standards have improved since its initial design and construction. Design deficiencies within the project limits include deficient ramp acceleration and deceleration lengths, limited incident management options, and lack of other modal options. The design of the supporting interchanges and street network is not capable of meeting the design year demands due to the lack of frontage roads and existing configuration of the entrance and exit ramps. Improvements to all interchanges in conjunction with the addition of one-way frontage roads, the relocation of the entrance and exit ramps, and the inclusion of bicycle and pedestrian accommodations would be needed to better serve the current and future development in the area by reducing congestion and improving safety and mobility.

Safety

Over the five-year period (2012–2016), 563 crashes were reported within the project limits. Of those, 492 occurred along the mainlanes; 35 occurred along the frontage roads; and 29 occurred on the ramps. The TxDOT five-year average crash rate for urban interstate facilities reported 122.21 crashes per 100 million vehicle miles traveled (100MVMT). The entire length of IH 20 within the project limits had a five-year average crash rate of 43.26 crashes per 100MVMT, which is 65 percent lower than the five-year statewide average crash rate. The five-year average crash rate for incapacitating injuries within the project limits is 4.24, which is below the statewide average rate of 6.81 for the same period. The five-year average fatality rate within the project limits was 1.85, which exceeds the statewide average rate of 1.42 for the same period.

As reported in the **Interstate Access Justification Report** (available for review at the TxDOT Dallas District office), in addition to examining historical crash data, it is now possible using the methods presented in the 2014 Supplement to the Highway Safety Manual (HSM) to predict future crashes for interstate highways and ramps. For this project, a comparative predictive HSM analysis was conducted to assess the potential safety benefits of the proposed freeway and ramp improvements compared to the current No Build condition. The results of the predictive crash analysis show the total crashes between the No Build and Build scenario is predicted to decrease by approximately 5 percent.

The current configuration of the IH 20 facility results in potential safety and incident management issues in the corridor. In order to access other parts of the project area between intersections for short trips (i.e., from Malloy Bridge Road to FM 741), local traffic must use the IH 20 mainlanes because there are no frontage roads. This results in mingling of local and through traffic that could create conflicts. In the case of a vehicle collision or stalled vehicle on the mainlanes, there is no

relief route for travelers to take. Currently, IH 20 travelers would have to wait until the incident is cleared or take local roads north or south to another east/west roadway (e.g., United States Highway (US) 80 or US 175), thus adding considerable time to their trip. Therefore, continuous frontage roads are needed throughout the project limits to reduce conflicts between local and through traffic, and to enhance incident management effectively.

Local Planning

The current configuration of cross street connections within the project area is inconsistent with local planning efforts. One objective listed in the Kaufman County Transportation Plan (August 2016) is to promote the design and implementation of continuous frontage roads along major highways, including IH 20, within the county. This will enhance and improve access to employment and activity destinations within Kaufman and neighboring counties.

3.3 Purpose

The purpose of the proposed project is to address local policies, improve mobility, accommodate future traffic demand, enhance access, and improve safety along IH 20 between Lawson Road and CR 138.

4.0 ALTERNATIVES

The alternatives identification and evaluation process conducted for the proposed project, described in **Section 4.3** (below), resulted in the narrowing of the field of alternatives down to two alternatives: the Build Alternative and the No Build Alternative. These two alternatives are evaluated in detail in **Section 5.0** of this EA.

4.1 Build Alternative

The Build Alternative, described in **Section 2.2**, satisfies the project purpose and need. The addition of frontage roads would improve mobility in the rapidly growing area between east Dallas and Terrell. Frontage roads would also improve safety by offering an alternative route to the frequent merging on IH 20. The proposed modifications in access are justified based on the travel demand needs within the project limits and would overall improve local access, circulation, and traffic operation when compared to existing conditions. Because the Build Alternative satisfies the project's purpose and need, it is the recommended alternative.

4.2 No Build Alternative

Under the No Build Alternative, the proposed improvements to IH 20 would not be constructed. The No Build Alternative would not require the conversion of approximately 85.9 acres from existing land uses to transportation use (ROW) nor would other project-related impacts occur. The No Build Alternative would not enhance mobility or improve safety within the corridor. Consequently, the anticipated benefits of the proposed project would not be realized and conditions in the IH 20 corridor would continue to deteriorate and pose safety and operational concerns. For this reason, the No Build Alternative does not meet the purpose and need for the proposed improvements (described in **Section 3.0**) and is not the recommended alternative.

Although the No Build Alternative fails to meet the project's purpose and need and is not the recommended alternative, it was carried forward (per the requirements of NEPA) as the baseline for comparison. The No Build Alternative is evaluated in this EA along with the Build Alternative.

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

An alternatives analysis was performed to evaluate four preliminary alternatives, including a No Build Alternative and the Build Alternative. The following two alternatives were considered but eliminated from further consideration:

- Transportation System Management (TSM) - This alternative seeks to mitigate traffic congestion by identifying operational improvements. TSM improvements often improve traffic flow and safety by incorporating better-coordinated system management and operation.

- Transportation Demand Management (TDM) – this alternative focuses on reducing the number of vehicular demands and single occupancy vehicle trips on the roadway by offering alternatives to driving alone.

The preliminary alternatives were evaluated based on their ability to satisfy the project's purpose and need. The TSM Alternative and the TDM Alternative failed to satisfy the project purpose and need; thus, these alternatives were eliminated from further study.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In support of this EA, the following technical reports were prepared:

- Scope Development Tool
- Community Impacts Assessment Technical Report Form
- Archeological Survey Report
- Historic Resources Survey Report
- Water Resources Technical Report
- Biological Evaluation Form and Tier I Site Assessment Form
- Air Quality Technical Report
- Hazardous Materials Initial Site Assessment
- Traffic Noise Technical Report
- Indirect Impacts Technical Report
- Cumulative Impacts Technical Report
- Public Meeting Summary

These technical reports and form are incorporated by reference in this EA. Copies of the technical reports are on file and available for review at the TxDOT-Dallas District, 4777 E. Hwy 80, Mesquite, TX, 75150-6643.

For purposes of environmental study, project-related effects are categorized as direct, indirect and cumulative. Direct effects are defined as those impacts which are caused by the action and occur at the same time and place. Indirect effects, while being reasonably foreseeable, are also caused by the action, but occur later in time or are farther removed in distance. Encroachment-alteration effects are a type of indirect impact, removed from the proposed project in both time and distance, and defined as those impacts that alter the behavior and function of the physical environment. Other indirect effects pertain primarily to induced growth. Cumulative effects result from the incremental impacts of an action when considered together with other past, present and reasonably foreseeable future actions regardless of who takes the other actions. This section (**Section 5.0**) addresses direct, indirect (encroachment-alteration and induced growth) and cumulative effects that would result from the proposed IH 20 project.

5.1 Right-Of-Way/Displacements

Build Alternative: The Build Alternative would require the acquisition of approximately 85.9 acres of new (additional) ROW, none of which has been previously acquired through early acquisition. The additional ROW would be necessary to accommodate the additional pavement width, side slope grading, existing terrain, cross drainage structures, utilities, and to maintain property access and improve the roadway geometrics and safety. The additional ROW would be acquired from 132 parcels.

The additional ROW would result in the displacement of four single-family residences, one commercial property (a vacant parcel slated for development as an auto-related business), and a community meeting center for the Heartland subdivision (see the **Project Resource Map** in **Appendix F**).

All ROW acquisition would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1979, as amended.

No Build Alternative: Under the No Build Alternative, no project-related ROW would be acquired; thus, no project-related displacements would occur.

5.2 Land Use

The western-most portion of the proposed project is located in the city of Mesquite in Dallas County. Eastward, the project goes through the town of Talty and the city of Terrell in Kaufman County. The project terminates southeast of the city of Terrell. Land use immediately adjacent to IH 20 includes predominantly agricultural and scattered rural. Higher density suburban developments are also located adjacent to the roadway in Mesquite, Terrell, and the Heartland master-planned subdivision.

Build Alternative: Increased development along the IH 20 corridor can be anticipated as a result of the project and increased mobility and access. Commercial businesses are likely to locate along the new frontage roads. It is also possible that continued residential development could occur in the corridor as a result of the project. Land use on the acquired parcels would change from residential, open space, or commercial to transportation use.

No Build Alternative: Under the No Build Alternative, the additional ROW would not be obtained and there would be no project-related land use impacts.

5.3 Farmlands

The Farmland Protection Policy Act (FPPA) seeks to preserve the agricultural use of soils that are particularly productive. The Natural Resources Conservation Service (NRCS) implements the FPPA through regulations and by classifying soil series in terms of suitability for farming. According to NRCS, approximately 70.3 acres of areas classified as prime farmland are included within the proposed ROW and permanent drainage easements.

Build Alternative: In compliance with FPPA regulations, the portion of the proposed project area that is not already committed to urban land use (i.e., the 1,290 acres of existing ROW), was evaluated using the Farmland Conversion Impact Rating Form for Corridor Type Projects (NRCS-CPA-106) for the proposed 89.7 acres of new ROW/easements. The total corridor assessment of impacts totaled 39 points, which is below the 60-point threshold that requires further consideration

for protection of farmland. Based on the results of the farmland analysis and scoring, no further consideration for the protection of farmland is required by the FPPA regulations.

No Build Alternative: Under the No Build Alternative, no transportation-related impacts to prime farmland would occur. Undeveloped lands currently used for agriculture would likely continue to be used for crop production or pasture unless the property owner pursues urban site development.

5.4 Utilities/Emergency Services

Build Alternative: The proposed project would require the adjustment or relocation of underground and/or overhead utilities. At the current phase of project development, the locations of utilities potentially requiring adjustment or relocation have not yet been identified. Impacted utilities would be identified during the final design phase. At that time, coordination with utility owners and service providers would occur and relocation/adjustment plans would be developed. Utility relocations and adjustments would be accomplished with the minimal practical disruption in service to utility customers.

Kaufman County is served by CareFlite for emergency medical services in the county. Mesquite Fire Department serves the western portion of the project area in Dallas County. Emergency room services are available in Forney, which is approximately 4 miles north of IH 20. Emergency response times would decrease as a result of the proposed project, as frontage roads would add access to areas that don't currently have direct access to IH 20. Although project-related delays would be anticipated during construction, every reasonable effort would be made to minimize delays. Further, TxDOT would proactively communicate with emergency service providers throughout the duration of construction; thus, ensuring emergency service providers have accurate, up-to-date information concerning lane closures and construction activities that could impact response times.

No Build Alternative: Under the No Build Alternative there would be no project-related impacts to utilities. Emergency response would continue to service the area.

5.5 Bicycle and Pedestrian Facilities

Build Alternative: Currently, there are only pedestrian facilities (sidewalks) located within planned communities and neighborhoods in the towns along IH 20. The proposed project would add 5-foot wide sidewalks along eastbound and westbound frontage roads. Designated bike lanes do not currently exist in the project area. The proposed IH 20 frontage roads would include a 14-foot wide shared outside lane to accommodate bicyclists.

No Build Alternative: Under the No Build Alternative, there would be no project-related impacts and improvements to bicycle/pedestrian facilities would not occur.

5.6 Community Impacts

The proposed project is located within the cities of Mesquite, Talty, and Terrell, and their respective ETJs in Dallas and Kaufman counties, Texas as well as the master-planned subdivision of Heartland. The study area for the community assessment includes properties adjacent to the proposed project and neighborhoods in which the main ingress and egress is IH 20. Twenty-two community facilities were identified within the study area and consist of two cemeteries, four education facilities, two sports facilities, two parks, nine places of worship, a police department, a town hall, and a thrift store. Socioeconomic and demographic information about the affected communities is found in the **Community Impact Assessment Technical Report Form**, available for review at the TxDOT Dallas District office.

Build Alternative: Potential displacements that would occur as a result of the proposed project consist of four residential, one commercial (future), and one other property (Heartland Hall). The commercial displacement is considered a future displacement as the business does not currently exist, but is planned. The planned business, however, would not offer a unique service in the area. The residential displacements would have an impact as comparable housing does not exist within the vicinity of the project area near the existing housing. The commercial and other displacement would not have an impact on the community as a whole. Proposed ROW acquisition would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Substantial impacts to the community are not anticipated as a result of the proposed displacements.

Existing residents and businesses adjacent to the project area are currently separated by IH 20; therefore, the proposed project would not create a new separation. While the proposed project is widening the separation created by the existing roadway, overall access and connectivity would be improved by allowing better access and faster travel times to/from communities along IH 20. The only exception would be for the neighborhoods and businesses north and south of IH 20 along Helms Trail. The proposed project would eliminate the Helms Trail overpass which would eliminate direct access from residential areas south of IH 20 to reach the rest of the town of Talty that is located north of IH 20. These travelers would need to travel farther west or east along FM 2932 or FM 1641 in order to reach these businesses. This would disrupt community cohesion in Talty.

The proposed project would overall improve access and mobility for users along IH 20 and for the surrounding communities. Currently, many travelers need to travel out of the way in order to access IH 20 since many cross streets do not have direct access to the interstate. The reconfiguration of ramps from a rural "diamond" pattern to an urban "X" pattern would provide more direct access because much of the traffic would no longer be required to travel through the intersections to reach their destinations. The urban "X" configuration also allows for longer weaving distances on the frontage roads, thereby increasing safety. The addition of sidewalks and the 14-foot wide shared outside lane of the frontage roads would allow pedestrians and bicyclists to travel along the corridor safely and access properties along the corridor where they currently are unable to. Some

businesses and neighborhoods in the area that are currently accessed by two-way frontage roads would be impacted as travelers would lose direct access to these areas and alternate routes would need to be taken. There would also be some businesses affected by the conversion of the ramp configuration; however, no businesses would lose access in a manner that would prevent them from continuing to operate. The proposed roadway would ultimately provide drivers, pedestrians, and cyclists a more efficient route to access cross streets and adjacent properties in the project area. Therefore, negative impacts to access and travel patterns for communities in the project area resulting from the implementation of the proposed project are not anticipated. Information about project displacements and access/travel pattern modifications is found in the **Community Impact Assessment Technical Report Form**, available for review at the TxDOT Dallas District office.

No Build Alternative: Under the No Build Alternative, there would be no IH 20 project-related impacts to communities and the displacements would not occur. The communities in the project area would continue to have increased traffic which, in turn, would result in reduced mobility and safety in the project area.

5.6.1 Environmental Justice

There are 36 predominately minority Census blocks within the study area. These populations are therefore considered environmental justice (EJ) populations. No Census blocks in the study area have a median income below the Department of Health and Human Services poverty level. Potential direct impacts to the EJ populations were analyzed to ensure these groups would not be adversely or disproportionately affected by the Build Alternative.

Build Alternative: The proposed project would not disproportionately and adversely affect EJ populations. None of the six displacements would occur in predominately minority and/or low-income areas. While the proposed project could impact community cohesion in some areas along IH 20, the minority Census blocks would not be affected more than non-minority Census blocks. No disproportionately high and adverse impacts on minority populations are anticipated as a result of the proposed project and there are no low-income populations within the study area. The proposed roadway improvements would benefit the community as a whole, including EJ populations. Information about EJ populations is found in the **Community Impact Assessment Technical Report Form**, available for review at the TxDOT Dallas District office.

No Build Alternative: No IH 20 project-related impacts to minority or low-income populations would occur under the No Build Alternative as the proposed project would not be constructed.

5.6.2 Limited English Proficiency

Executive Order (EO) 13166, “Improving Access to Services for Persons with Limited English Proficiency,” requires federal agencies to examine the services they provide, identify any need for services to those with Limited English Proficiency (LEP), and develop and implement a system to

provide those services so that LEP persons can have meaningful access to them. Based on data from the 2017 American Community Survey, block groups located within and adjacent to the project area have an LEP population ranging from approximately one to 30 percent. Spanish speakers make up the largest portion of the LEP population with 6.9 percent. Other LEP populations are Indo-European (0.7 percent), Asian and Pacific Islander (0.3%), and Other (0.3%). Within the proposed project limits, while most signs were in English, some signs were observed in Spanish.

To comply with EO 13166 and to ensure full and fair public participation for the proposed project, newspaper advertisements for the public meeting held in September 2017 were published in both English and Spanish in The Dallas Morning News and Al Dia. Comment forms were also made available in English and Spanish, and a project team member was available at the public meeting to accommodate the communication needs of individuals speaking Spanish. No requests for assistance in another language other than English were requested. A public hearing is planned for fall 2019 and notices and comment forms will be made available in English and Spanish. Notices will be published in the Spanish language newspaper Al Dia. Spanish speaking team members will be present upon request and an interpreter will be provided to accommodate LEP individuals upon request.

5.7 Visual/Aesthetic Impacts

IH 20 is an existing, well established interstate highway. The project is located within a growing suburban area east of Dallas. With little exception, vegetation in the existing ROW consists of maintained grass with little tree cover. Outside of the existing ROW is primarily pasture and riparian vegetation corridors. IH 20 is a dominant visual feature in the project area.

Build Alternative: The proposed project would follow the existing alignment of IH 20. The primary changes to the visual environment in the project corridor consist of the addition of the two lane frontage roads on each side of IH 20. Since the proposed project would be along an existing roadway corridor, the visual and aesthetic impacts would be negligible.

No Build Alternative: The No Build Alternative would not result in IH 20 project-related visual impacts along the corridor as the proposed improvements would not be constructed.

5.8 Cultural Resources

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries, and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, NEPA and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. In addition, state laws such as the Antiquities Code of Texas (ACT) apply to these projects. Compliance with these laws often requires consultation with the Texas Historical

Commission (THC)/Texas State Historic Preservation Officer (SHPO) and/or federally recognized tribes to determine the project's effects on cultural resources. The evaluation of impacts to cultural resources has been conducted in accordance with the Programmatic Agreement among the FHWA, TxDOT, the SHPO and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings. Review and coordination of this project followed approved procedures for compliance with federal and state laws.

5.8.1 Archeology

An intensive pedestrian survey was conducted for the project in the moderate to high probability areas that have avoided significant ground disturbances identified within the Area of Potential Effects (APE). The purpose of the archeological survey was to ensure compliance with Section 106 of the NHPA, as amended, and the ACT. An inventory of archeological resources (as defined by Code of Federal Regulations, Title 36, Section 800.4 [36 CFR 800.4]) was conducted within the proposed project area to identify and evaluate any identified resources for their eligibility for inclusion in the National Register of Historic Places (NRHP), as per Section 106 (36 CFR Part 800), or for designation as State Antiquities Landmarks (SAL) under the ACT and Texas Administrative Code, Title 13, Chapter 26 (13 TAC 26).

Build Alternative: The intensive archeological survey included shovel testing and backhoe trenching under Texas Antiquities Permit Number 8869. Fourteen high probability units were selected for survey within the 20.39-mile corridor. Due to significant flooding in portions of the APE, the survey effort was conducted on two separate occasions. The initial survey effort was conducted May 2–24, 2019, in which four new archeological sites were recorded: Sites 41KF183, 41KF184, 41KF185 and 41KF186. Additionally, five previously recorded sites were revisited and two isolated finds were recorded. None of these sites were recommended for further work within the APE and were also recommended not eligible for listing to the NRHP or as a SAL. The SHPO concurred with this determination on June 20, 2019 (see **Appendix G**). A follow-up survey was conducted July 25 and 26, 2019, resulting in negative shovel and backhoe trenching tests. Results of this survey effort are currently being coordinated with the SHPO. The **Archeological Background Study Report, Antiquities Permit Application for Archeology, THC Permit**, and **Archeological Survey Report** prepared for the proposed project are available at the TxDOT Dallas District office.

Coordination with federally recognized Native American tribes was initiated on January 6, 2017, with a 30-day review period ending on February 6, 2017. No response was received from the federally recognized Native American tribes. The coordination letter is included in **Appendix G**.

In the event that cultural resources are encountered during construction, TxDOT would immediately initiate cultural resource discovery procedures. All work in the vicinity of the discovery would cease until a specialist from TxDOT and/or the THC could arrive on site and assess the discovery's significance and the need, if any, for additional investigation.

No Build Alternative: As construction of the proposed IH 20 project would not occur, there would be no project-related impacts on archeological resources associated with the No Build Alternative.

5.8.2 Historic Properties

In compliance with the Programmatic Agreement for Transportation Undertakings, as executed among FHWA, TxDOT, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation, an historic resource survey was conducted for the proposed IH 20 project.

Build Alternative: Project historians surveyed the project APE in April 2019 and documented 30 properties with historic-age resources within the project area. Following evaluation of the properties, project historians recommend that none of the properties are eligible for listing in the NRHP. The **Historic Project Coordination Request Form, Historic Research Design**, and **Historic Resources Survey Report** prepared for the proposed project are available at the TxDOT Dallas District office.

Pursuant to Stipulation IX, Appendix 6 "Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)" of the Section 106 PA and the MOU, TxDOT historians determined that there is no effect to historic, non-archeological properties in the APE. Individual project coordination with SHPO was not required (see **Appendix G** for the clearance memo).

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to historic resources.

5.9 DOT Act Section 4(f), Land and Water Conservation Fund Act Section 6(f), and Parks and Wildlife Code Chapter 26

The proposed project would not require the use of, nor substantially impair the purposes of, any publicly-owned land from a public park, recreational area, wildlife and waterfowl refuge lands, or historic sites of national, state, or local significance; therefore, a Section 4(f) Evaluation is not required. Kings Creek Park is located adjacent to the project area on the south side of IH 20 east of SH 34. No ROW or easements would be required from Kings Creek Park; therefore, no impacts would occur. Kings Creek Park was also evaluated for traffic noise levels, and it was determined that noise impacts would not occur within the park's activity areas.

Section 6(f) of the Land and Water Conservation Fund Act requires that recreational facilities receiving U.S. Department of Interior funding from the Land and Water Conservation Fund Act as allocated by the Texas Parks and Wildlife Department (TPWD) may not be converted to non-recreational uses unless approval is received from TPWD and the National Park Service. There are no Section 6(f) resources in the proposed project area.

Chapter 26 of the Texas Parks and Wildlife Code includes provisions similar to the federal Section 4(f) regulation, including requiring a finding that there is no feasible and prudent alternative to the use or taking of the protected land, that the project includes all reasonable planning to minimize harm and that a public hearing be held prior to the approval of the use of land from these publicly-owned park properties. There are no Chapter 26 resources in the proposed project area.

5.10 Water Resources

Water resources occurring in the project area were researched by desktop review of web resources from the United States Geological Survey (USGS) National Hydrography Dataset (NHD) and 7.5-minute topographic data for the Seagoville, Forney South, Terrell South, and Elmo quadrangles, Texas Commission on Environmental Quality (TCEQ), TWDB, Federal Emergency Management Agency (FEMA), United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, Texas State Soil and Water Conservation Board (TSSWCB), and aerial photography. Desktop mapping of water resources was performed using Geographic Information System mapping, utilizing spatial data obtained from USGS, FEMA, TSSWCB, and USFWS.

5.10.1 Clean Water Act Section 404

Pursuant to Section 404 of the Clean Water Act (CWA), an investigation was conducted to identify potential jurisdictional waters of the U.S., including wetlands, within the project area. Field reconnaissance conducted on April 2–4, 2019 identified potentially jurisdictional waters of the U.S. that could be impacted by the proposed project. A total of 79 surface water features were found in the project area. They include 42 jurisdictional creeks/rivers (East Fork Trinity River and five of its tributaries, a tributary to South Mesquite Creek, Mustang Creek and two of its tributaries, Buffalo Creek, Big Brushy Creek and five of its tributaries, Little Brushy Creek and four of its tributaries, Terry Creek, Bachelor Creek and four of its tributaries, Kings Creek and four of its tributaries, Eagans Creek and three of its tributaries, a tributary to Anthony Branch, and four other unnamed creeks), six impoundments (four of which are potentially jurisdictional), and 31 wetlands (28 of which are potentially jurisdictional). Detailed information can be found in the **Water Resources Technical Report** prepared for the proposed project, available at the TxDOT Dallas District office.

Build Alternative: The proposed project would result in approximately 1.84 acres (3,973.86 linear feet) of permanent impacts to water features, of which 1.75 acres (3,906.36 linear feet) are likely jurisdictional waters of the U.S. The placement of temporary or permanent dredge or fill material into potentially jurisdictional waters of the U.S. would be authorized under Nationwide Permit (NWP) 14 and NWP 25, with a Pre-Construction Notification (PCN). **Table 5-1** identifies the 79 jurisdictional features and anticipated impacts at each. More details are provided in the **Water Resources Technical Report**.

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to wetlands and waters of the U.S.

Table 5-1: Project Surface Waters

Feature ID	Feature Name	Closest Station Number	Delineated Area (Acres/Linear Feet)	Existing Structure	Proposed Work or Structure	Potential Permanent Impacts (Acres/Linear Feet)	Potentially Jurisdictional	Permit	PCN Required
1	Unnamed Tributary to South Mesquite Creek	390+00	0.00 ac/ 15.93 lf	None	Roadway Fill	<0.01 ac/ 15.93 lf	Yes	NWP 14	No
2	Unnamed Tributary to East Fork Trinity River	415+00	0.09 ac/ 531.84 lf	Mainlane Bridge	Frontage Road Bridge	<0.01 ac/ 9.00 lf	Yes	NWP 25	No
3	Wetland	452+00	0.30 ac	None	Exit Ramp	0.12 ac	Yes	NWP 14	Yes
4	Wetland	455+00	0.12 ac	Mainlane Bridge	None	0 ac	Yes	None	No
5	Unnamed Tributary to East Fork Trinity River*	455+00	0.13 ac/ 137.69 lf	Mainlane Bridge	None	0 ac/ 0 lf	Yes	None	No
6	Wetland	457+00	0.09 ac	None	None	0 ac	Yes	None	No
7	Wetland	460+00	0.38 ac	None	None	0 ac	Yes	None	No
8	Wetland	467+00	0.03 ac	None	Frontage Road Side Slopes	<0.01 ac	Yes	NWP 14	Yes
9	Wetland	480+00	0.34 ac	None	Frontage Road Side Slopes	0.26 ac	Yes	NWP 14	Yes
10	Wetland	485+00	1.83 ac	None	Frontage Road Bridge	0.26 ac	Yes	NWP 14	Yes
11	Wetland	487+00	0.03 ac	None	None	0 ac	Yes	None	No
12	Impoundment	487+00	0.04 ac	None	None	0 ac	Yes	None	No
13	East Fork Trinity River	495+00	0.64 ac/ 788.56 lf	None	Frontage Road Bridge	<0.01 ac/ 36.00 lf	Yes	NWP 25	No
14	Wetland	505+00	0.42 ac	None	None	0 ac	Yes	None	No
15	Unnamed Tributary to East Fork Trinity River	517+00	0.55 ac/ 911.70 lf	Mainlane Bridge	Frontage Road Bridge	<0.01 ac/ 54.00 lf	Yes	NWP 25	No
16	Unnamed Tributary to East Fork Trinity River*	520+00	0.04 ac/ 744.23 lf	None	None	0 ac/ 0 lf	Yes	None	No
17	Impoundment	525+00	0.08 ac	None	Frontage Road	0.08 ac	Yes	NWP 14	No
18	Wetland	530+00	0.78 ac	None	None	0 ac	Yes	None	No

Feature ID	Feature Name	Closest Station Number	Delineated Area (Acres/Linear Feet)	Existing Structure	Proposed Work or Structure	Potential Permanent Impacts (Acres/Linear Feet)	Potentially Jurisdictional	Permit	PCN Required
19	Unnamed Tributary to East Fork Trinity River*	530+00	0.66 ac/ 751.69 lf	Mainlane Bridge	Frontage Road Bridge	<0.01 ac/ 9.00 lf	Yes	NWP 25	No
20	Unnamed Stream	570+00	0.22 ac/ 838.04 lf	Mainlane Culvert	Mainlane and Frontage Road Culvert	0.04 ac/ 506.82 lf	Yes	NWP 14	Yes
21	Wetland	578+00	0.01 ac**	None	None	0 ac	Yes	None	No
22	Unnamed Stream*	583+00	0.01 ac/ 195.80 lf	Exit Ramp Culvert	Frontage Road Culvert	0 ac 0 lf	Yes	None	No
23	Unnamed Tributary to Mustang Creek	634+00	0.01 ac/ 26.45 lf	None	Frontage Road	0.01 ac/ 24.72 lf	Yes	NWP 14	No
24	Unnamed Tributary to Mustang Creek*	651+00	0.08 ac/ 119.04 lf	None	Frontage Road Culvert	0.03 ac/ 41.89 lf	No	None	No
25	Mustang Creek	680+00	0.42 ac/ 1259.44 lf	Mainlane and Frontage Road Bridge	Frontage Road Bridge Extension	0.05 ac/ 94.86 lf	Yes	NWP 14 NWP 25	Yes
26	Impoundment	706+00	0.03 ac**	None	Frontage Road Tie-in	<0.01 ac	No	None	No
27	Wetland	685+00	0.01 ac	None	None	0 ac	Yes	None	No
28	Unnamed Stream	767+00	0.14 ac/ 579.93 lf	Mainlane Culvert	Frontage Road Culvert	0.04 ac/ 259.34 lf	Yes	NWP 14	No
29	Unnamed Stream*	770+00	0.02 ac/ 455.46 lf	None	Frontage Road	0.02 ac/ 445.46 lf	Yes	NWP 14	Yes
30	Wetland	810+00	0.36 ac	None	Frontage Road	0.15 ac	Yes	NWP 14	Yes
31	Buffalo Creek	814+00	0.14 ac/ 610.33 lf	Mainlane Culvert	Frontage Road Culvert & Side Slopes	0.01 ac 122.77 lf	Yes	NWP 14	Yes
32	Wetland	931+00	0.04 ac	None	Frontage Road Culvert	0.02 ac	Yes	NWP 14	Yes
33	Wetland	934+00	0.05 ac	None	Frontage Road Culvert	0.02 ac	Yes	NWP 14	Yes
34	Wetland	965+00	0.99 ac	Mainlane Bridge	Frontage Road Bridge	0.15 ac	Yes	NWP 14	Yes
35	Unnamed Tributary to Big Brushy Creek*	969+00	0.10 ac/ 739.78 lf	None	None	0 ac/ 0 lf	Yes	None	No
36	Unnamed Tributary to Big Brushy Creek	972+00	0.05 ac/ 231.59 lf	Mainlane Bridge	Frontage Road Bridge	0 ac/ 0 lf	Yes	None	No
37	Wetland	980+00	0.15 ac	None	Frontage Road Side Slopes	<0.01 ac	Yes	NWP 14	Yes

Feature ID	Feature Name	Closest Station Number	Delineated Area (Acres/Linear Feet)	Existing Structure	Proposed Work or Structure	Potential Permanent Impacts (Acres/Linear Feet)	Potentially Jurisdictional	Permit	PCN Required
38	Big Brushy Creek	984+00	0.16 ac/ 501.50 lf	Mainlane Bridge	Frontage Road Bridge	<0.01 ac/ 9.00 lf	Yes	NWP 25	No
39	Wetland	988+00	0.17 ac	Mainlane Bridge	Frontage Road Bridge	0.01 ac	Yes	NWP 25	Yes
40	Unnamed Tributary to Big Brushy Creek*	988+00	0.22 ac/ 377.76 lf	Mainlane Bridge	Frontage Road Bridge	0.01 ac 94.73 lf	Yes	NWP 25	No
41	Impoundment	988+00	0.08 ac	Mainlane Bridge	None	0 ac	Yes	None	No
42	Unnamed Tributary to Big Brushy Creek*	990+00	0.10 ac/ 504.74 lf	Mainlane Bridge	Frontage Road Bridge	0 ac/ 0 lf	Yes	None	No
43	Unnamed Tributary to Big Brushy Creek*	1006+00	0.08 ac/ 141.94 lf	None	Frontage Road and Frontage Road Culvert	0.06 ac/ 125.07 lf	Yes	NWP 14	No
44	Terry Creek	1030+00	0.27 ac/ 1030.28 lf	Mainlane Bridge	Frontage Road Bridge	0 ac/ 0 lf	Yes	None	No
45	Wetland	1044+00	0.04 ac	None	Frontage Road	0.02 ac	Yes	NWP 14	Yes
46	Wetland	1100+00	0.05 ac	None	Frontage Road Culvert	0.01 ac	No	None	No
47	Wetland	1101+00	0.01 ac	None	None	0 ac	No	None	No
48	Impoundment	1101+00	0.06 ac	None	None	0 ac	No	None	No
49	Unnamed Tributary to Little Brushy Creek	1104+00	0.01 ac/ 137.96 lf	Mainlane Culvert	Frontage Road Culvert	<0.01 ac/ 2.05 lf	Yes	NWP 14	No
50	Little Brushy Creek	1130+00	0.26 ac/ 1285.14 lf	Surface Road Bridge, Mainlane Bridge	Frontage Road Culvert & Bridge	0.26 ac/ 1,285.14 lf	Yes	NWP 14	Yes
51	Wetland	1130+00	0.02 ac	None	Frontage Road Culvert	0.01 ac	Yes	NWP 14	Yes
52	Unnamed Tributary to Little Brushy Creek*	1131+00	0.09 ac/ 311.71 lf	None	Frontage Road & Culvert	0.03 ac/ 185.60 lf	Yes	NWP 14	Yes
53	Wetland	1132+00	0.03 ac	None	None	0 ac	Yes	None	No
54	Unnamed Tributary to Little Brushy Creek	1159+00	0.04 ac/ 261.90 lf**	None	Frontage Road Culvert	<0.01 ac/ 28.40 lf	Yes	NWP 14	No
55	Wetland	1160+00	0.04 ac	None	Frontage Road Exit	0.04 ac	Yes	NWP 14	Yes

Feature ID	Feature Name	Closest Station Number	Delineated Area (Acres/Linear Feet)	Existing Structure	Proposed Work or Structure	Potential Permanent Impacts (Acres/Linear Feet)	Potentially Jurisdictional	Permit	PCN Required
56	Unnamed Tributary to Little Brushy Creek	1172+00	0.01 ac/ 77.37 lf**	None	Frontage Road Culvert	<0.01 ac/ 77.37 lf	Yes	NWP 14	No
57	Unnamed Tributary to Bachelor Creek	1200+00	0.01 ac/ 25.61 lf	None	Frontage Road	0.01 ac/ 25.61 lf	No	None	No
58	Unnamed Tributary to Bachelor Creek*	1210+00	0.10 ac/ 1041.26 lf	Local Road Culvert	Extend Culvert	<0.01 ac/ 72.90 lf	Yes	NWP 14	No
59	Unnamed Tributary to Bachelor Creek*	1222+00	0.15 ac/ 655.81 lf	Mainlane Culvert	Extend Culvert	0 ac/ 0 lf	Yes	None	No
60	Wetland	1223+00	0.10 ac	None	Frontage Road Culvert	0.03 ac	Yes	NWP 14	Yes
61	Bachelor Creek	1230+00	1.38 ac/ 1530.03 lf	Mainlane & Local Road Bridge	Frontage Road Bridge	0.03 ac/ 57.96 lf	Yes	NWP 14/ NWP 25	No
62	Wetland	1232+00	0.25 ac	Mainlane Bridge	None	0 ac	Yes	None	No
63	Unnamed Tributary to Bachelor Creek	1236+00	0.01 ac/ 39.91 lf	None	None	0 ac/ 0 lf	No	None	No
64	Unnamed Tributary to Kings Creek	815+00	0.24 ac/ 1350.20 lf	None	Frontage Road Culvert	0.02 ac/ 132.14 lf	Yes	NWP 14	Yes
65	Unnamed Tributary to Kings Creek	845+00	0.27 ac/ 987.03 lf	Mainlane Culvert	Frontage Road Culvert	0.05 ac/ 125.46 lf	Yes	NWP 14	Yes
66	Unnamed Tributary to Kings Creek	864+00	0.35 ac/ 363.62 lf	Mainlane Bridge	Frontage Road Bridge	<0.01 ac/ 18.00 lf	Yes	NWP 14/ NWP 25	No
67	Unnamed Tributary to Kings Creek*	866+00	0.01 ac/ 42.04 lf	None	None	0 ac/ 0 lf	Yes	None	No
68	Kings Creek	869+00	0.07 ac/ 453.42 lf	Mainlane Bridge	Frontage Road Bridge	0 ac/ 0 lf	Yes	None	No
69	Wetland	870+00	0.03 ac	None	None	0 ac	Yes	None	No
70	Impoundment	874+00	0.01 ac	None	None	0 ac	Yes	None	No
71	Unnamed Tributary to Eagans Creek*	875+00	0.09 ac/ 327.46 lf	None	Frontage Road Bridge	0 ac/ 0 lf	Yes	None	No
72	Eagans Creek	877+00	0.38 ac/ 1329.38 lf	Mainlane Bridge	Frontage Road & Bridge	<0.01 ac/ 46.97 lf	Yes	NWP 14	No
73	Wetland	878+00	0.01 ac	None	Frontage Road Bridge	0.01 ac	Yes	NWP 14	Yes
74	Wetland	885+00	0.01 ac	None	None	0 ac	Yes	None	No
75	Unnamed Tributary to Eagans Creek	898+00	0.15 ac/ 639.70 lf	Mainlane & Frontage Road Culvert	Frontage Road Culvert	0.02 ac/ 77.64 lf	Yes	NWP 14	No

Feature ID	Feature Name	Closest Station Number	Delineated Area (Acres/Linear Feet)	Existing Structure	Proposed Work or Structure	Potential Permanent Impacts (Acres/Linear Feet)	Potentially Jurisdictional	Permit	PCN Required
76	Unnamed Tributary to Eagans Creek	910+00	0.10 ac/ 436.37 lf	Mainlane Culvert	None	0 ac/ 0 lf	Yes	None	No
77	Wetland	910+00	0.04 ac	None	Frontage Road Culvert	0.02 ac	Yes	NWP 14	Yes
78	Wetland	955+00	0.23 ac	None	Frontage Road	0.03 ac	No	None	Yes
79	Unnamed Tributary to Anthony Branch	972+00	0.01 ac/ 3.16 lf	Mainlane Culvert	None	0 ac/ 0 lf	Yes	None	No
		TOTALS	**14.63 ac/ 22,586.94 lf**	–	–	**1.84 ac 3,973.86 lf**	–	–	–

*Not shown on the USGS topographic map

**Right-of-Entry not granted at parcel; area calculated from aerial images

5.10.2 Clean Water Act Section 401

Build Alternative: General Condition 25 of the NWP Program requires applicants using NWP 14 and 25 to comply with Section 401 of the CWA. Compliance with Section 401 requires the use of best management practices (BMPs) to manage water quality on construction sites. General Condition 12 also requires applicants using NWP 14 and 25 to use appropriate soil erosion and sedimentation controls.

Section 401 Water Quality Certification would be required for the proposed project. The Section 401 Certification requirements for NWP 14 and 25 would be met by implementing a Storm Water Pollution Prevention Plan (SW3P). The SW3P would include at least one BMP from the Tier I 401 Water Quality Certification Conditions for NWPs as published by the TCEQ. These BMPs would address each of the following categories:

- Category I Erosion Control would be addressed by using permanent seeding/sodding.
- Category II Post-Construction Total Suspended Solids Control would be addressed by installing vegetative filter strips.
- Category III Sedimentation Control would be addressed by installing silt fences.

Other approved methods would be substituted if necessary, using one of the BMPs from the identical category.

The potential for project-related encroachment-alteration effects on water quality would be mitigated through temporary and permanent (post-construction) BMPs as described above. Water resources could receive an increased amount of sediment if storm water were released from the project area despite the use of BMPs. To minimize the potential for adverse impacts, BMPs would be regularly inspected and proactively maintained.

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to water quality.

5.10.3 Executive Order 11990 Wetlands

EO 11990 Protection of Wetlands (42 Federal Register 26961, May 24, 1977) provides the requirement “to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.”

Build Alternative: Based on the current design analysis, there are no practicable alternatives to construction in wetlands. The wetlands would incur permanent and

temporary impacts due to construction activities associated with bridges, culverts, and drainage improvements. Without these activities, water would not flow between the bridge columns or through the culverts appropriately and could result in negatively affecting the integrity of the proposed structure. As the project progresses through the Plans, Specifications, and Estimates (PS&E) stage, a more detailed drainage study would occur which may reduce the potential impacts to the wetlands.

The proposed action includes all practicable measures to minimize harm to wetlands. Impacts on wetlands would be minimized by keeping the construction footprint as small as possible while enabling construction that meets all requirements for the proposed project's implementation. The construction contractor would be required to avoid and minimize unnecessary impacts on wetlands during construction and BMPs would be implemented.

When taking economic, environmental, and other pertinent factors into consideration, impacts to the wetlands cannot be completely avoided based on the current design. However, impacts to the wetlands would be minimized to the greatest extent practicable and permitted through the appropriate Section 404 permit. Further information is provided in the **Water Resources Technical Report** available for review at the TxDOT Dallas District office.

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to wetlands.

5.10.4 Rivers and Harbors Act

The Rivers and Harbors Act of 1899 generally prohibits the construction of structures over or in navigable waters of the U.S. without Congressional approval, which has been delegated to the United States Coast Guard (USCG). The Rivers and Harbors Act of 1899 also prohibits excavation or fill within navigable waters of the U.S. without the approval of the United States Army Corps of Engineers (USACE). Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on any Section 9/10 waters, as defined by the Rivers and Harbors Act of 1899.

5.10.5 Clean Water Act Section 303(d)

According to the 2014 Texas Integrated Report - Texas 303(d) List (Category 5) and the 2014 Index of All Impaired Water, the project crosses an impaired waterbody – Segment 0819 of the East Fork Trinity River. The impaired waterbody is detailed in **Table 5-2**. This segment is impaired due to chloride, sulfate, and total dissolved solids levels.

Table 5-2: Impaired Assessment Unit

Watershed	Segment Name	Segment Number	Assessment Unit Number
North Mesquite Creek - East Fork Trinity River	East Fork Trinity River	0819	0819_01

Build Alternative: To date, TCEQ has not required (through either a total maximum daily load (TMDL) or the review of projects under the MOU) additional control measures, beyond those already required by the Construction General Permit (CGP), to mitigate the potential impact of road construction on impaired waters. Therefore, compliance with the project's CGP, along with coordination under the TCEQ MOU for certain transportation projects, collectively meets the need to address impaired waters during the environmental review process. As required by the CGP, the project and associated activities will be implemented, operated, and maintained using BMPs to control the discharge of pollutants from the project site.

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to impaired waterways.

5.10.6 Clean Water Act Section 402

Build Alternative: This project would include five or more acres of earth disturbance. TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) CGP. A SW3P would be implemented, and a construction site notice would be posted at the construction site. A Notice of Intent (NOI) and a Notice of Termination (NOT) would be required. The proposed project is located partially within the boundaries of the City of Mesquite's Municipal Separate Storm Sewer System (MS4) Phase I permit. Compliance with applicable MS4 regulations would be required within Mesquite city limits. No MS4 permit is required within the cities of Talty and Terrell.

Since TPDES CGP authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the project. The TxDOT Project Development Process Manual and the PS&E Preparation Manual require a SW3P be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of intent or site notice) be completed, posted, and submitted to the TCEQ and the MS4 operator. It also requires that projects be inspected to ensure compliance with the CGP.

The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the "Required

Specification Checklists" require Special Provision 506-003 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SWP3, and to complete the appropriate authorization documents.

No Build Alternative: Under the No Build Alternative, there would be no earth disturbance and compliance with the TPDES CGP and coordination with the MS4 operator would not be required.

5.10.7 Floodplains

Build Alternative: As detailed in the **Water Resources Technical Report**, portions of the proposed project are located within a FEMA designated 100-year floodplain. The hydraulic design for this project would be in accordance with current FHWA and TxDOT design policies. The facility would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing damage to the facility, stream, or other property. The proposed project would not increase the base flood elevation to a level that would violate applicable floodplain regulations and ordinances. Coordination with the local Floodplain Administrator would be required.

This project is subject to and will comply with federal EO 11988 on Floodplain Management. The department implements this EO on a programmatic basis through its Hydraulic Design Manual. Adherence to the TxDOT Hydraulic Design Manual ensures that this project will not result in a "significant encroachment" as defined by FHWA's rules implementing EO 11988 at 23 CFR 650-105(q).

Since the proposed project crosses floodplains, the following is provided:

1) Avoiding and minimizing floodplain crossings were considered during design of the Build Alternative. The proposed project must be located in floodplains because in order to avoid floodplains, a significant realignment of IH 20 would be required, resulting in much higher ROW and project costs, as well as potential residential and commercial displacements. Additionally, no longitudinal encroachments on the floodplain would occur.
2) The only alternative considered during the course of project development that would avoid encroachments on floodplains was the No Build Alternative, which does not satisfy the purpose and need for the proposed project.
3) The proposed project would conform to state and local floodplain protection standards.

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to floodplains.

5.10.8 Wild and Scenic Rivers

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: No designated Wild and Scenic Rivers are located within project area.)

5.10.9 Coastal Barrier Resources

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: Project area is not located in a coastal area.)

5.10.10 Coastal Zone Management

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: Project area is not located in a coastal area.)

5.10.11 Edwards Aquifer

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: Project area is not located within boundaries of any Edwards Aquifer zone.)

5.10.12 International Boundary and Water Commission

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: Project area is not located along the international boundary with Mexico.)

5.10.13 Drinking Water Systems

Build Alternative: The cities of Mesquite, Forney, Terrell, and the town of Talty are served by the North Texas Municipal Water District (NTMWD). The NTMWD relies on surface water sources from Lavon Lake and other local lakes for drinking water. The TWDB does not identify any water wells within the project area. In accordance with TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (Item 103, Disposal of Wells), any drinking water wells would need to be properly removed and disposed of during construction of the project.

No Build Alternative: Because the proposed IH 20 improvements would not be constructed, the No Build Alternative would not result in project-related impacts to the drinking water systems.

5.11 Biological Resources

For information regarding biological resources refer to the **Tier I Site Assessment** and **Biological Evaluation Form** available at the TxDOT Dallas District office.

5.11.1 Texas Parks and Wildlife Coordination

Coordination with TWPD for the project was triggered by the following:

- impacts to vegetation exceeding the thresholds outlined in the 2013 MOU (see **Section 5.11.2**);
- the presence of suitable habitat for several state listed species and species of greatest conservation need (SGCN) within the project area (see **Section 5.11.11**);
- adverse impacts to remnant vegetation (i.e., SGCN plant species listed in the Texas Conservation Action Plan [TCAP]; see **Section 5.11.11**);
- the project would require a Section 404 NWP with PCN (see **Section 5.10.1**); and,
- the project would include more than 200 linear feet of stream channel impacts at a single and complete crossing (see **Section 5.10.1**).

Early coordination with TPWD was initiated for the project on May 31, 2019. Coordination is on-going.

5.11.2 Impacts to Vegetation

The Tier I Site Assessment Form, prepared for this proposed project, describes 27 different vegetation communities that were mapped within the project area by TPWD's Ecological Mapping Systems of Texas (EMST). These are shown below on **Table 5-3**.

Table 5-3: Project Area Vegetation

Ecoregion	MOU Vegetation Type	Common Name	EMST Mapped Acreage	MOU Acreage	Field-Verified Acreage
Texas Blackland Prairies	Agriculture	Row Crops	25.22	25.66	35.10
		Barren	0.37		
		Grass Farm	0.07		
	Disturbed Prairie	Native Invasive: Deciduous Woodland	8.57	12.73	30.26
		Native Invasive: Mesquite Shrubland	3.99		
		Native Invasive: Juniper Shrubland	0.16		
	Post Oak Savanna	Post Oak Savanna: Post Oak Motte and Woodland	2.09	33.50	0.00
		Post Oak Savanna: Savanna Grassland	31.41		
	Riparian	Central Texas: Riparian Hardwood Forest	1.26	97.39	61.42
		Central Texas: Riparian Herbaceous Vegetation	1.11		
		Swamp	0.49		
		Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest	1.84		
		Pineywoods: Bottomland Temporarily Flooded Hardwood Forest	0.13		
		Pineywoods: Bottomland Herbaceous Wetland	6.44		
		Pineywoods: Small Stream and Riparian Herbaceous Wetland	1.02		
		Pineywoods: Bottomland Deciduous Successional Shrubland	0.48		
		Marsh	0.64		
		Pineywoods: Small Stream and Riparian Deciduous Successional Shrubland	0.91		
		Central Texas: Riparian Deciduous Shrubland	0.36		
		Central Texas: Floodplain Hardwood Forest	51.47		
		Central Texas: Floodplain Herbaceous Vegetation	25.82		
		Central Texas: Floodplain Evergreen Shrubland	1.62		
		Central Texas: Floodplain Deciduous Shrubland	3.81		
	Tallgrass Prairie, Grassland	Blackland Prairie: Disturbance or Tame Grassland	238.87	238.87	9.86
	Urban	Urban High Intensity	472.26	980.96	1252.35
		Urban Low Intensity	508.70		
	Open Water	Open Water	0.00	0.00	0.30
		Totals	**1380.11**	**1380.11**	**1380.11**

EMST – Ecological Mapping Systems of Texas

As detailed in §2.206 of the 2013 MOU, coordination with the TPWD is required for projects based on certain triggers, including the disturbance of habitat in an area equal to or greater than the area of disturbance indicated in the Threshold Table Programmatic Agreement. Vegetation within the proposed project falls into seven MOU vegetation types: Agriculture; Disturbed Prairie; Post Oak Savanna; Riparian; Tallgrass Prairie, Grassland; Urban; and Open Water. The Threshold Table Programmatic Agreement sets a disturbance threshold of 10.0 acres for Agriculture; 3.0 acres for Disturbed Prairie; 2.0 acres for Post Oak Savanna; 0.1 acre for Riparian; and 2.0 acres for Tallgrass Prairie, Grassland. No thresholds have been established for Urban vegetation or Open Water.

Build Alternative: Vegetation impacts quantified in **Table 5-3** show that the proposed project would exceed the threshold for four MOU vegetation types: Agriculture, Disturbed Prairie, Riparian, and Tallgrass Prairie, Grassland. Confirmed through email, TxDOT initiated Early Coordination with TPWD on May 31, 2019 in accordance with provisions of the 2013 MOU. Coordination with TPWD is on-going.

Impacts to vegetation would be avoided or minimized by limiting disturbance to only that which is necessary to construct the proposed project. The removal of native vegetation, particularly mature native trees and shrubs, would be avoided to the greatest extent practicable. A native and locally-adapted seed mix would be used in the landscaping and re-vegetation of disturbed areas.

No Build Alternative: If the No Build Alternative were implemented, the proposed project would not be constructed. No effects to vegetation related to the construction of the IH 20 improvements would occur. Existing land use and activities, including routine mowing, would continue to periodically affect vegetation communities.

5.11.3 Executive Order 13112 on Invasive Species

Build Alternative: This project is subject to and will comply with federal EO 13112 on Invasive Species. The department implements this EO on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual. In compliance with EO 13112, a native and locally-adapted seed mix would be used in the landscaping and re-vegetation of disturbed areas.

No Build Alternative: If the No Build Alternative were implemented, the proposed project would not be constructed; thus, the provisions of EO 13112 would not be triggered.

5.11.4 Executive Memorandum on Environmentally and Economically Beneficial Landscaping

Build Alternative: This project is subject to and will comply with the federal Executive Memorandum on Environmentally and Economically Beneficial Landscaping, effective April 26, 1994. The department implements this Executive Memorandum on a programmatic basis through its Roadside Vegetation Management Manual and Landscape and Aesthetics Design Manual. With the exception of reseeding of disturbed areas, landscaping is not currently planned for the proposed project. A native and locally-adapted seed mix would be used.

No Build Alternative: If the No Build Alternative were implemented, the proposed project would not be constructed; thus, the provisions of the Executive Memorandum would not be triggered.

5.11.5 Impacts to Wildlife

Within the urban areas along IH 20 near Mesquite, south Forney, Talty, and Terrell, native vegetation/natural habitat is minimal and wildlife is limited to those species adapted to an urban environment. Within the rural areas along the corridor, native vegetation/natural habitat is present and consists generally of riparian areas, and tallgrass prairie, which is desirable habitat for a variety of wildlife. A perennial stream, the East Fork Trinity River, is also within the project corridor and is surrounded by riparian habitat and forested wetlands. The rural areas and the area surrounding the East Fork Trinity River provide suitable habitat for several state listed species and SGCN (see **Section 5.11.11**).

Build Alternative: The proposed project would result in vegetation clearing along the existing and proposed ROW and proposed drainage easements, including the riparian vegetation and forested wetlands around the East Fork Trinity River. This clearing activity would remove habitat for wildlife and would directly impact suitable habitat for state listed species. Adjacent areas are similar in vegetative composition and are in close proximity to the construction limits which allow wildlife to relocate to nearby parcels. Revegetation would occur within the disturbed areas and clearing of trees and shrubs would be avoided to the extent possible.

No Build Alternative: Under the No Build Alternative, the proposed IH 20 improvements would not be constructed; thus, there would be no project-related impacts to wildlife.

5.11.6 Migratory Bird Protection

The Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to kill, capture, collect, possess, buy, sell, trade or transport any migratory bird, nest or egg in part or in whole, without a federal permit issued in accordance with the Act's policies and regulations. Migratory bird nests were observed during the March 2019 field investigations, mainly under the existing overpasses and bridges located throughout the project corridor. Suitable habitat for state listed birds and SGCN birds was also observed, although no specific individuals of any given species were observed during the March 2019 field investigations.

Build Alternative: This project will comply with applicable provisions of the MBTA and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64, Birds. It is the department's policy to avoid removal and destruction of active bird nests except through federal or state approved options. In addition, it is the department's policy to, where appropriate and practicable to: 1) use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction, and 2) schedule construction activities outside the typical nesting season. Migratory birds may arrive in the project area to breed during construction of the proposed project. Appropriate measures would be taken to avoid adverse impacts on migratory birds; thus, migratory birds protected under the MBTA would not be impacted by the Build Alternative. Specific BMPs implemented to protect state listed species and SGCN are outlined in Section 8.0.

No Build Alternative: Under the No Build Alternative, the proposed IH 20 improvements would not be constructed; thus, there would be no project-related impacts to migratory birds.

5.11.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) of 1958 requires that federal agencies obtain comments from USFWS and TPWD whenever a project involves impounding, diverting, or deepening a stream channel or other body of water.

Build Alternative: The proposed project would impact waters of the U.S., including wetlands, and a Section 404 permit would be required. The project would be covered by a NWP 14 and NWP 25 with PCN, with mitigation requirements.

No Build Alternative: The No Build Alternative would not impact any stream or water features; therefore, it would not be subject to regulation under the FWCA.

5.11.8 Bald and Golden Eagle Protection Act

Build Alternative: The project area does not contain potential habitat for Bald or Golden Eagles; therefore, no impacts to these species would occur.

No Build Alternative: Under the No Build Alternative, the proposed IH 20 improvements would not be constructed; thus, there would be no project-related impacts to Bald or Golden Eagles.

5.11.9 Magnuson-Stevens Fishery Conservation Management Act

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: Project is not located in a coastal area.)

5.11.10 Marine Mammal Protection Act

Based on a project scoping analysis, it was determined that neither the Build Alternative nor the No Build Alternative would have an impact on this resource category or subject matter. (NOTE: Project is not located in a coastal area.)

5.11.11 Threatened, Endangered, and Candidate Species

Federally Listed Species

The Endangered Species Act of 1973 (ESA) Section 7 requires federally listed threatened, endangered, or candidate species and the ecosystems upon which they rely to be conserved to the extent possible. A USFWS Official Species List, dated October 8, 2019 was generated for the project area to identify those federally listed species that may occur or have suitable habitat within the project corridor. The list identified five federally listed threatened, endangered, or candidate species that could potentially occur within the project corridor. These species include the Least Tern (*Sterna antillarum*), Whooping Crane (*Grus Americana*), Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), and Golden-cheeked Warbler (*Dendroica chrysoparia*). As detailed in the Biological Evaluation Form, desktop analysis and field investigations conducted in March 2019 indicate that suitable habitat for federally listed threatened, endangered, or candidate species does not occur in the project area.

Build Alternative: Because there is no suitable habitat for any federally listed threatened, endangered, or candidate species within the project area, a determination of “no effect” has been made for all federally listed species.

No Build Alternative: Under the No Build Alternative, the proposed IH 20 project would not occur; therefore, there would be no project-related effects on any federally listed threatened, endangered, or candidate species.

State-Listed Species

Desktop analysis and field investigations conducted in March 2019, indicate that suitable habitat for six threatened species exists within the project area. The species consist of: Wood Stork (*Mycteria americana*), Lousiana pigtoe (*Pleurobema ridellii*), Texas heelsplitter (*Potamilus amphichaenus*), Texas pigtoe (*Fusconaia askewi*), alligator snapping turtle (*Macrochelys temminckii*), and timber rattlesnake (*Crotalus horridus*).

Build Alternative: Six state-listed species may be impacted by the proposed project because suitable habitat for these species occurs within the project area. In accordance with the BMP Programmatic Agreement between TxDOT and TPWD, BMPs have been identified and will be implemented to avoid and minimize impacts to these species. The BMPs are further discussed in **Section 8.0.**

No Build Alternative: Under the No Build Alternative, the proposed IH 20 project would not occur; therefore, there would be no project-related impacts on any state-listed threatened or endangered species.

Species of Greatest Conservation Need

Those species included on TPWD's county list, but which have no federal or state regulatory status are classified as SGCN. Potentially suitable habitat for eight SGCN exists within the proposed project area: Henslow's Sparrow *(Ammodramus leucocephalus*), Western Burrowing Owl (Athene *cunicularia hypugaea*), plains spotted skunk (*Spilogale putorius interrupta*), southern crawfish frog (*Lithobates areolatus areolatus*), Texas garter snake (*Thamnophis sirtalis annectens*), plateau milkvine (*Matelea edwardsensis*), Texas milk vetch (*Astragalus reflexus*), and tree dodder (*Cuscuta exaltata*).

Build Alternative: Native animals or plants designated as a SGCN are generally those that are declining or rare and in need of attention to recover or to prevent the need to list under state or federal regulation. Lists of SGCN were developed through expert consultation and public feedback. Ranks are based on multiple criteria including range extent, known occurrences, abundance, and threats. It should be noted that none of these species is currently afforded regulatory protection.

In accordance with the BMP Programmatic Agreement between TxDOT and TPWD, BMPs have been identified and will be implemented to avoid and minimize impacts to these species. The BMPs are further discussed in **Section 8.0.**

No Build Alternative: Under the No Build Alternative, the proposed IH 20 project would not occur; therefore, there would be no project-related impacts on SGCN.

5.12 Air Quality

For information regarding air quality refer to the **Air Quality Technical Report** available at the TxDOT Dallas District office.

Build Alternative:

Transportation Conformity

This project is located in Dallas and Kaufman counties, part the Dallas-Fort Worth area that has been designated by the Environmental Protection Agency (EPA) as a serious nonattainment area for the 2008 ozone and marginal nonattainment for the 2015 ozone National Ambient Air Quality Standards (NAAQS); therefore, the transportation conformity rules apply. Conformity for older standards is satisfied by conformity to the more stringent 2008 and 2015 ozone NAAQS.

Both the 2045 Metropolitan Transportation Plan (MTP) and the 2019-2022 Transportation Improvement Program (TIP) were initially found to conform to the TCEQ State Implementation Plan (SIP) by FHWA and FTA on November 21, 2018 and September 28, 2018, respectively; however, the proposed project is not consistent with this conformity determination, because CSJs 0095-14-027 and 0495-01-071 and are not listed in the MTP Non-Regionally Significant Arterial table. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP.

Hot-Spot Analysis

The proposed project is not located within a carbon monoxide (CO) or particulate matter (PM) nonattainment or maintenance area; therefore, a project level hot-spot analysis is not required.

Traffic Air Quality Analysis

Traffic data for the estimated time of completion (ETC) year of 2031 and design year of 2045 is 63,132 vehicles per day (vpd) and 79,800 vpd, respectively for Section 1 (from Lawson Road to Spur 557). Traffic data for the ETC year of 2031 and design year of 2045 is 85,053 vpd and 107,600 vpd, respectively for Section 2 (from Spur 557 to CR 138). A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that the CO standard would ever be exceeded as a result of any project with an AADT below 140,000 vpd. The AADT projections for the project do not exceed 140,000 vpd; therefore, a Traffic Air Quality Analysis was not required.

Mobile Source Air Toxics

A qualitative mobile source air toxics (MSAT) assessment has been conducted relative to the Build and No Build Alternative. As documented in the technical report, all project alternatives may result in increased exposure to MSAT emissions in certain locations although the concentrations and duration of exposure are uncertain. Because of this uncertainty, the health effects from these emissions cannot be estimated. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

Congestion Management Process

The proposed project is adding single-occupant vehicle capacity and is a project with FHWA/FTA involvement; therefore, a Congestion Management Process (CMP) analysis is required. The proposed project is within the Dallas-Fort Worth Transportation Management Area (TMA).

A CMP analysis was prepared in accordance to the TxDOT's Standards Operating Procedure for Complying with CMP Requirements and Standard Operating Procedures for Preparing Air Quality Statements. Committed congestion reduction strategies and operational improvements within the study boundary would consist of the addition of frontage roads, shared use lanes, and sidewalks. Individual projects are listed in **Table 5-4**.

Table 5-4: Congestion Mitigation Strategies

Street/Name	City	County	Project Type	Year of Implementation
Spur 557 From FM 148 to IH 20	Terrell	Kaufman	New Location Two Frontage Road Eastbound Only	2020

Construction Air Emissions

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel powered construction equipment and vehicles.

The potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other

local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: https://www.tceq.texas.gov/airquality/terp.

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements, it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

No Build Alternative: The No Build Alternative would result in gradually increasing vehicle miles travelled as traffic volumes increase and traffic congestion worsens within the existing roadway system over time. Actual and predicted trends in both criteria pollutant and MSAT emissions would be expected to continue in the future, regardless of the alternative chosen.

5.13 Hazardous Materials

In June 2019, a **Hazardous Materials Initial Site Assessment (ISA)** and **Hazardous Materials Project Impact Evaluation (HMIE)** was completed to summarize potential hazardous materials within and adjacent to the project corridor. The ISA included a site reconnaissance and environmental regulatory database search for the project area. The ISA was completed to identify sites or facilities that might pose a potential for hazardous materials impacts to the proposed project.

Build Alternative: Based on an evaluation of the sites identified in the environmental regulatory database search, five regulatory sites were determined to be a moderate risk to the project. No high risk sites were identified. The moderate environmental risk sites are shown on the **Project Resource Map** in **Appendix F**. Below is a summary of the moderate risk sites:

1. TA Travel Center, 1700 Wilson Rd., Terrell (HazMat ID 1). This is an active truck stop and gas station located at the southwest corner of CR 138 (Wilson Road) and IH 20. There are active underground petroleum storage tanks (PSTs) at this site and there have been three releases of fuel reported since 1998. Groundwater at the site has been impacted by diesel fuel. In October 2009 TCEQ issued an enforcement order for failure to prevent discharge of regulated substance into water, failure to provide corrosion protection to the underground storage tank (UST) system, failure to monitor USTs for releases, and failure to provide release detection on system piping, among others. No ROW acquisition is proposed from this property. Due to environmental records associated with this facility and location of the tank hold in relation to project improvements, this facility was considered to be a moderate environmental risk.

2. Valero, 1703 Highway 34 S, Terrell (HazMat ID 2). This is an active gas station located at the southeast corner of State Highway (SH) 34 and IH 20. Active underground PSTs are located on site. There have been two releases of fuel reported since 2003. Groundwater at the site has been impacted by diesel and gasoline. No ROW acquisition is proposed from this location; however, bridge pilings are to be sunk for the proposed SH 34 bridge over IH 20 approximately 450 feet northwest of this location. Based on the regulatory information and location of the tank hold in relation to the project improvements, this facility was considered to be a moderate environmental risk.
3. Formerly Shoes Country Stop (currently vacant lot), 1706 SH 34 S, Terrell (HazMat ID 3). The site is currently a vacant lot located at the southwest corner of SH 34 and IH 20. Five underground PSTs are reported as removed. Two underground PSTs are listed as temporarily out of service and empty since 2009. A gasoline release was reported in 1998. Groundwater was reported as being impacted. Monitoring continued through at least 2001. No apparent threats or impacts to receptors are reported. Historical aerial imagery shows that the structures and the pumps were removed from the facility by 2016; however, the tanks remain in place as well as the fuel lines and the tank hold is shown as intact in current aerial imagery. No ROW acquisition is proposed from this property. Due to regulatory information and proximity of this site in relation to the project improvements, this facility was considered to be a moderate environmental risk.
4. IH 20 Exxon, 311 E. Interstate 20, Terrell (HazMat ID 11). This facility is located at the northeast corner of IH 20 and SH 34. The facility is an active gas station utilizing five underground PSTs. The tank hold is approx. 25 feet northeast of the project area. No releases have been reported for the facility. The facility received several violations in 2011 related to failure to monitor the tanks and systems for releases, among others. The violations are reported as resolved in 2017. ROW acquisition is proposed from this property which may displace the pump island/canopy. Work activity adjacent to this facility would consist of frontage road improvements. Although there are no reported releases for the facility, the potential displacement of the pump island/canopy as well as the types of prior violations made this facility a moderate environmental risk.
5. Circle K Store, 1700 Highway 34 S, Terrell (HazMat ID 19). This facility is located at the southwest corner of IH 20 and SH 34. The facility is an active gas station utilizing three underground PSTs all installed in 1999. The tank hold is situated approx. 35 feet southwest of the project area. Two releases have been reported since 2004, one of which impacted groundwater with no apparent threats or impacts to receptors. In February 2019, the facility received two violations which were for failure to conduct an investigation of a suspected release and failure to monitor the tanks for releases. Although no ROW is proposed from this property, based on the prior releases,

possible current release, and proximity of the facility to project improvements, this site was considered a moderate environmental risk.

Further investigation was performed on the moderate risk sites in June 2019 by TxDOT ENV Division Hazardous Materials Management (ENV-HMM). ENV-HMM determined that since only minimal surficial work is being performed near the sites, their potential to impact the project is low. It was further stated that TxDOT ROW Division would remove any underground fuel tanks at the time of property acquisition and contaminant confirmation sampling would be performed.

The proposed project would also include the demolition of buildings and bridge structures. Asbestos-containing materials (ACM) and lead-containing paint (LCP) may be present in the structures. Asbestos and LCP inspections, notification, and removal, as applicable, would be addressed prior to demolition in accordance with regulatory requirements. Detailed information about the hazardous materials evaluation conducted for the project can be found in the **ISA** and **HMIE** available for review at the TxDOT Dallas District office.

No Build Alternative: As construction of the proposed IH 20 improvements would not occur, there would be no project-related hazardous material impacts associated with the No Build Alternative.

5.14 Traffic Noise

A traffic noise analysis was conducted for the proposed project in accordance with TxDOT's (FHWA approved) 2011 Guidelines for Analysis and Abatement of Highway Traffic Noise. Details on the traffic noise analysis can be found in the **Traffic Noise Technical Report** available for review at the TxDOT Dallas District office.

Build Alternative: Predicted traffic noise levels are included in the Traffic Noise Technical Report and receiver locations have been included in **Appendix F**. Based on the modeled noise analysis, there are 15 projected noise impacts within the corridor. Barrier analyses were conducted, and results indicated that a barrier would be feasible and reasonable for one of the impacted receivers that represents the Meadowview Townhomes complex on the north side of IH 20, east of FM 2578. The barrier would be 14 feet in height and 461 feet in length and would benefit 10 receivers, at a total cost of $116,172 or $11,617 per benefitted receiver. The final decision to construct the proposed noise barrier would not be made until completion of the project design, utility evaluation and polling of adjacent property owners.

A copy of this traffic noise analysis would be made available to local officials to ensure, to the maximum extent possible, future developments are planned, designed and programmed in a manner that would avoid traffic noise impacts. On the date of approval of this document (Date of Public Knowledge), TxDOT is no longer responsible for providing noise abatement for new development adjacent to the proposed project.

No Build Alternative: The proposed project would not be constructed under the No Build Alternative. Traffic noise levels at modelled receiver locations would be expected to increase due to the increase in traffic volumes that would occur over time.

5.15 Induced Growth

The Council on Environmental Quality (CEQ) defines indirect effects as those "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR Section 1508.8).

Build Alternative: An analysis of indirect impacts was conducted that followed the processes outlined in TxDOT's Indirect Impacts Analysis Guidance. The Area of Influence (AOI) for the proposed project encompasses the entire Build Alternative and adjacent areas where development or accelerated rates of development could potentially occur. The AOI is approximately 20.6 square miles (13,185 acres) in Dallas and Kaufman counties and intersects three municipalities, Mesquite, Talty, and Terrell.

Results of the analysis indicates that the proposed project could induce growth in the AOI. This analysis included correspondence with local planning and engineering professionals, and elected officials within the AOI. Those individuals that responded did expect the proposed project to induce development in their jurisdictions, particularly commercial development near interchanges and along the proposed frontage roads. The addition of frontage roads and proposed ramp configurations would allow for access to planned development and increase the likelihood that development, particularly commercial development, would occur along the corridor. Induced growth impacts to vegetation/wildlife habitat and water resources could be experienced, however, these impacts could be minimized/mitigated using BMPs. Therefore, induced growth impacts to these resources are considered unsubstantial.

Encroachment-alteration effects may occur to vegetation/wildlife habitat and water resources, including floodplains, Section 303(d) impaired waters, and waters of the U.S. as a

result of the proposed project. The potential for project-related encroachment-alteration effects on waters of the U.S. and water quality could occur during construction, which has the highest likelihood of creating pollutants and sediment if storm water runoff enters surface water features prior to being treated. Build-up of sediment could also reduce the water storage capacity of the floodplain. Temporary (construction phase) and permanent (post-construction) BMPs, would minimize the potential for encroachment-alteration effects to vegetation/wildlife habitat and water resources.

The **Indirect Impacts Analysis Technical Report** provides a detailed discussion of the indirect effects analysis and is available for review at the TxDOT Dallas District office.

No Build Alternative: As construction of the proposed IH 20 improvements would not occur, there would be no project-induced growth under the No Build Alternative.

5.16 Cumulative Impacts

The CEQ defines cumulative impacts as those which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

Build Alternative: An analysis of cumulative impacts, as presented in the **Cumulative Impacts Analysis Technical Report**, was conducted that followed the processes outlined in TxDOT's Cumulative Impacts Analysis Guidance. Cumulative impacts to ecological resources (vegetation/wildlife habitat, threatened, endangered, candidate, and SGCN species), and water resources (water quality, floodplains, and waters of the U.S.) were analyzed because the resources are in poor and/or declining health. Resource Study Areas (RSAs) were developed for these resources, which included a Water Resources RSA and nine separate Ecological Resources RSAs. The temporal context for the analysis was established from the year 1980 (estimated time of IH 20 construction) to the year 2045 (design year).

Ecological Resources

Foreseeable cumulative impacts to ecological resources may include the fragmentation or complete loss of natural vegetation, wildlife, or threatened and endangered species habitat resulting from development within the Ecological Resources RSAs. Habitat for five of the six state listed threatened species (Louisiana pigtoe, Texas pigtoe, Texas heelsplitter, alligator snapping turtle, and timber rattlesnake) and two SGCNs (Texas garter snake and tree dodder) are located within Ecological Resources RSA 5 (100-Year Floodplain), Ecological Resources RSA 6 (Riparian MOU), and Ecological Resources RSA 9 (Wooded areas within

Riparian MOU). Though there would be direct impacts to these habitats for the improvements to IH 20, minimal indirect or cumulative impacts are anticipated as these habitats would most likely be avoided from future development as previous trends depict such areas have been avoided since development of the project area started in the early 1980s. Habitats for two of the seven remaining species (Southern crawfish frog and plains spotted skunk) are located within Ecological Resources RSAs that have an overlap of Riparian MOU and one or more habitats and include two additional SGCNs; therefore, those species may relocate to riparian areas which are anticipated to have minimal development or cumulative impacts. These habitats that would be subject to minimal cumulative impacts represent 80,128.4 acres of the combined 360,979.3 acres of all Ecological Resources RSAs.

Three of the remaining five species (Henslow's Sparrow, Wood Stork, and Western Burrowing Owl) with potential habitat in the Ecological Resources RSAs are bird species which could relocate outside of the RSAs. The remaining two species are SGCN plant species (plateau milkvine and Texas milk vetch). These five species (Henslow's Sparrow, Wood Stork, Western Burrowing Owl, plateau milkvine and Texas milk vetch) would be subject to cumulative impacts and a total of 201,159.9 acres of potential habitat for these species is located within Ecological Resources RSAs 1, 2, 7, and 8.

Future impacts to ecological resources would be assessed and addressed for each individual project that might involve federal funds, including TxDOT projects. Other privately funded land development projects would not be expected to prepare publicly available environmental documentation. The only exception would be developments that were required to meet federal requirements such as Section 404 permitting through the USACE and adherence with the ESA. Such federal requirements would allow for regulation on threatened and endangered species for privately funded projects. Continued development in the project area is expected and will likely result in the conversion of vegetation, wildlife habitat, and potential threatened and endangered species habitat on undeveloped land to residential, commercial, and light industrial uses.

Water Resources

The potential for cumulative impacts to water resources may result from direct and indirect impacts on numerous parcels of land (consecutively or simultaneously) within the Water Resources RSA. Induced growth and development pressures may increase erosion and sedimentation in addition to increasing drainage needs related to commercial and residential development as well as additional transportation infrastructure and infrastructure improvements related to subsurface utilities (i.e., water distribution lines, wastewater collection lines, fire protection lines, electrical/fiber optic or cable utilities, natural gas utilities, etc.). Historic and recent aerial photographs illustrate that development

within the 100-year floodplain and areas adjacent to waterways has been avoided, for the most part, and streams follow historic courses. Site visits and aerial photographs depict large developments have incorporated detention basins and other water quality BMPs in design plans. Future development is anticipated to follow past and present trends and avoid major waterways and floodplains as additional coordination and/or mitigation with local, state, and federal agencies may be necessary.

Readily available planning resources depicts there is approximately 1,419.6 stream miles, 16,562.0 acres of water resources (wetlands, rivers, lakes/ponds, etc.), and 80,124.4 acres of the 100-year floodplain within the Water Resources RSA; therefore, future impacts to water resources is anticipated. Potential future impacts to water resources would be mitigated through water quality certifications implemented and regulated by the TCEQ. Impacts to jurisdictional waters would be documented, coordinated, and permitted through the USACE for both public and private entities, as necessary, and the USACE would require consideration of compensatory mitigation, as applicable. Construction within a floodplain would require coordination with the floodplain administrator and the appropriate floodplain mitigation would need to be installed. Although potential cumulative impacts to water resources is anticipated current local, state, and federal laws and regulations would require coordination, certification, and potential mitigation prior to any impacts; therefore, cumulative impacts to water resources would be minimal within the Water Resources RSA.

The **Cumulative Impacts Analysis Technical Report** provides a detailed discussion of the indirect effects analysis and is available for review at the TxDOT Dallas District office.

No Build Alternative: As construction of the proposed IH 20 improvements would not occur, there would be no cumulative impacts under the No Build Alternative.

5.17 Construction Phase Impacts

Construction-phase impacts are temporary (short-term; only occurring during actual construction) and potentially encompass a range of issues.

Construction Noise

Build Alternative: Noise associated with the construction of the proposed project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize

construction noise through abatement measures such as work hour controls and proper maintenance of muffler systems.

Fugitive Dust and Air Pollution

Build Alternative: During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction related emissions of MSAT are diesel PM from diesel powered construction equipment and vehicles. The potential impacts of PM emissions would be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The TERP provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions.

Considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project would have any substantial impact on air quality in the area.

Light Pollution

Build Alternative: Construction normally occurs during daylight hours; however, construction could occur during the night-time hours to minimize impacts to the traveling public during the daylight hours. Due to the close proximity of businesses and residents to the project, if construction were to occur during the night-time hours, it would be of short duration. Construction during the night-time hours would follow any local policies and ordinances established for construction activities, such as light limitations.

Vibration Impacts

Build Alternative: Construction activities would be limited to the proposed project footprint. Vibration from construction equipment would be of short duration; however, excessive vibration from construction is not anticipated.

Temporary Lane, Road or Bridge Closures

Build Alternative: During the construction phase, traffic would follow the existing traffic patterns. Traffic control plans would be prepared and implemented in coordination with the cities and the counties. Construction that would require cross street closures would be scheduled so only one crossing in an area is affected at one time. Where detours are required, clear and visible signage for an alternative route would be displayed. Work on IH 20 would be phased in such a manner to allow the roadway to remain open during construction. Access to businesses and residences would be maintained at all times and no detours are anticipated. However, in the event that road closures or detours are required, county and local public safety officials would be notified of the proposed road closures or

detours. Detour timing and necessary rerouting of emergency vehicles would be coordinated with the proper local agencies. Motorists would be inconvenienced during construction of the project due to lane and cross-street closures; however, these closures would be of short duration and alternate routes would be provided.

Residents and businesses in the immediate construction area would be notified in advance of proposed construction activity using a variety of techniques, including signage, electronic media, community newspapers, and other techniques. The proposed project would not restrict access to any existing public or community services, businesses, commercial areas, or employment centers.

Construction-Phase Water Quality Impacts

Build Alternative: A NWP 14 and NWP 25 would be used for impacts to jurisdictional waters in the project area. During the construction phase, appropriate measures would be taken to maintain normal downstream flows to the maximum extent practicable. Construction activities would require compliance with the State of Texas Water Quality Certification Program. The 401 Certification requirements would be met by implementing BMPs from the TCEQ 401 Water Quality Certification Conditions for NWPs. Construction equipment, spoil material, supplies, forms, and buildings shall not be placed or stored in the floodway during construction activities. Any item that may be transported by flood flows shall not be stored within the floodway. Any work within jurisdictional areas would be coordinated with USACE and permitted, as necessary.

Construction-Phase Biological Impacts

Build Alternative: Temporary impacts to natural resources due to construction could result from the implementation of the proposed project. These include disturbances to wildlife and vegetative communities. Implementation of the Build Alternative would involve the removal of grasses, shrubs and trees during the construction phase, affecting the natural, erosion-inhibiting ground cover and resulting in the loss of habitat for both resident and migratory species. Disturbed areas would be restored, reseeded and re-contoured as necessary according to TxDOT specifications, making these effects largely temporary.

No Build Alternative: Under the No Build Alternative, construction would not occur and would not result in noise, dust or light pollution; impacts associated with physical construction activity, temporary lane, road closures; and other traffic disruptions associated with construction.

6.0 AGENCY COORDINATION

This section identifies all coordination with agencies outside TxDOT that are required to be conducted for the Build Alternative. The list below identifies the agencies requiring coordination and the status of efforts to coordinate the proposed project.

- SHPO (see Section 5.8): archeological coordination related to the project is on-going. Coordination with the THC/SHPO regarding historic resources was not required. THC coordination, as well as the ENV clearance memo for historic resources, is included in **Appendix G**
- Tribal Coordination: coordination with federally recognized Native American tribes was initiated on January 6, 2017, with a 30-day review period ending on February 6, 2017. No response was received from the federally recognized Native American tribes. The coordination letter is included in **Appendix G**.
- FEMA (see Section 5.10): the proposed project includes work within a FEMA designated 100-year floodplain; therefore, coordination with the local floodplain administrator would be required.
- TPWD (see Section 5.11): early coordination with TPWD regarding potential effects to natural resources is on-going.
- TCEQ: per the TxDOT-TCEQ MOU, TCEQ will be afforded the opportunity to review and comment on the Draft EA. TxDOT will provide TCEQ with a Notice of Availability (NOA) notifying them that the environmental documents are available for review.

7.0 PUBLIC INVOLVEMENT

Stakeholder Meetings

Four stakeholder workgroup meetings were held in association with the proposed project. One meeting was held at the Town of Talty on September 6, 2017. Three meetings were held via telephone on March 8, 11, and 14, 2019. The purpose of these meetings was to provide information on the proposed project, gather feedback on the schematic design, and discuss project updates with local cities and other stakeholders within the project corridor.

Public Meeting

A public meeting was held on September 12, 2017. The purpose of the public meeting was to discuss and receive public comments on the proposed project. Representatives from TxDOT and project consultants were available to answer questions about the proposed project improvements. The meeting was held from 6 p.m. to 8 p.m. in an open house format with no formal presentation at the Forney High School Cafeteria, located at 1800 College Avenue, Forney, Texas. Approximately 93 individuals attended the meeting. A total of 22 comments were submitted within the 15-day comment period which ended on September 27, 2017. The comments submitted were regarding design or engineering (ramp locations, drainage, driveways), property impacts, noise, access, and accommodations for future planned roadway projects. Several individuals expressed their support for the proposed project and requested that the project be accelerated.

Public Hearing

A public hearing for the proposed project is planned following approval of this draft EA. The NOA of the Draft EA will be published in both English and Spanish in various newspapers that serve the project area, and will also be available online at www.txdot.gov and www.keepitmovingdallas.com.

A notice of impending construction would be provided to owners of adjoining property and affected local governments and public officials. The notice may be provided via a sign or signs posted in the ROW, mailed notice, printed notice distributed by hand, or notice via website when the recipient has previously been informed of the relevant website address. This notice would be provided after the environmental decision (i.e. FONSI), but before earthmoving or other activities requiring the use of heavy equipment begin.

8.0 POST-ENVIRONMENTAL CLEARANCE ACTIVITIES AND CONTRACTOR COMMUNICATIONS

8.1 Post-Environmental Clearance Activities

Activities to be completed after environmental clearance are listed and discussed as follows:

1. Noise: A traffic noise barrier is proposed to abate traffic noise. In accordance with TxDOT Guidelines for Analysis and Abatement of Roadway Traffic Noise, polling of adjacent property owners will take place to determine whether or not property owners desire the noise barrier. Additionally, a traffic noise workshop will be held to provide information on the proposed noise barrier to adjacent property owners. The traffic noise workshop would be held after the public hearing. If the barrier status changes, additional notification will be made to affected property owners to discuss change. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.
2. Utilities: Utility relocations would be required throughout the corridor. Utility agreements and notice to owners would be required for this project prior to construction.
3. Section 404: The proposed project would require a NWP 14 and a NWP 25 with a PCN. The PCN will be obtained before construction. The proposed project would comply with all general conditions of the NWP.
4. Section 401: The Section 401 Certification requirements for NWP 14 and 25 would be met by implementing a SW3P. The SW3P would include at least one BMP for erosion control, sediment control, and post-construction TSS control from the Tier 1 401 Water Quality Certification Conditions for NWPs as published by the TCEQ.
5. Section 402: Project contractor will comply with the CGP, SW3P, and complete the appropriate authorization documents.
6. Wetlands: Minimize impacts to wetlands during construction by keeping the construction footprint as small as possible while enabling construction that meets all requirements for the proposed project's implementation. BMPs would be implemented during construction.
7. Floodplains: Notification and coordination with the local floodplain administrator is required because the project is within the 100-year floodplain. This coordination will be completed prior to the start of construction.
8. Invasive Species: Preserve native vegetation to the extent practical. The contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193,

506, 730, 751, & 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

9. Migratory Birds: Before construction use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction and, schedule construction activities outside the typical nesting season to the extent practicable.
10. Threatened, Endangered, and Candidate Species: The proposed project would not affect any federally listed species and would not impact state-listed endangered species but may impact state-listed threatened species. The project may also impact SGCNs. To mitigate the potential impacts to state threatened species and SGCNs, the following BMPs will be implemented, per the 2013 MOU (2017 Revision):

    For the Henslow's Sparrow, Western Burrowing Owl, Wood Stork and all other migratory birds, the following Bird BMPs and MBTA guidelines, as present as a Special Note on the PS&E Environmental Permits, Issues, and Commitments (EPIC) sheet, would be implemented:

    - Prior to construction, perform daytime surveys for nests including under bridges and in culverts to determine if they are active before removal. Nests that are active should not be disturbed.
    - Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season;
    - Avoid removal of unoccupied, inactive nests, as practicable;
    - Prevent the establishment of active nests during the nesting season in TxDOT owned and operated facilities and structures proposed for replacement or repair;
    - Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.
    - In the event that migratory birds are encountered on-site during project construction, TxDOT will take all appropriate actions to prevent the take of migratory birds, their active nests, eggs, or young by the use of proper phasing of the project or other appropriate actions to include:
        - No active migratory bird nests (nests containing eggs and/or young) will be removed or destroyed at any time of the year.
        - No colonial nests (swallows, for example) on or in structures will be removed until all nests in the colony become inactive.
        - Measures, to the extent practicable, will be used to prevent or discourage migratory birds from building nests within portions of the project area planned for construction.
        - Inactive nests will be removed from the project area to minimize the potential for reuse by migratory birds.

    - Construction or demolition activities will be scheduled outside the typical nesting season (February 15 to October 1), and will comply with the previously listed prohibitive provisions of the MBTA, which apply year-round.
- The Migratory Bird Treaty Act of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a Federal permit issued in accordance within the Act's policies and regulations. The contractor would remove all old migratory bird nests from any structure where work would be done from October 1 to February 15. In addition, the contractor would be prepared to prevent migratory birds from building nest(s) between February 15 and October 1. In the event that migratory birds are encountered on-site during project construction, efforts to avoid adverse impacts on protected birds, active nests, eggs, and/or young would be observed.

For the Lousiana pigtoe, Texas heelsplitter, and Texas pigtoe, the following Freshwater Mussel BMPs would apply:

- When work is in the water; survey project footprints for state listed species where appropriate habitat exists.
- When work is in the water and mussels are discovered during surveys; relocate state listed and SGCN mussels under TPWD authorization and implement Water Quality BMPs.
- When work is adjacent to the water; Water Quality BMPs implemented as part of the SW3P for a CGP or any conditions of the 401 water quality certification for the project will be implemented. No TPWD Coordination required.

For the alligator snapping turtle and southern crawfish frog, the following Aquatic Reptile and Amphibian BMPs would apply:

- Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
- Minimize impacts to wetland habitats, including isolated ephemeral pools; also minimize impacts to temporary and permanent open water features, including depressions, and riverine habitats.
- Minimize the use of equipment in streams and riparian areas during construction; when possible, equipment access should be from banks, bridge decks, or paved road surfaces.
- When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossings.
- Maintain hydrologic regime and connections between wetlands and other aquatic features.

- Use barrier fencing to direct animal movements away from construction activities and areas of potential wildlife-vehicle collisions in construction areas directly adjacent, or that may directly impact, potential habitat for the turtle.
- Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible due to site conditions, using erosion control blankets or mats that contain no netting, or only contain loosely woven natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
- Project specific locations (PSLs) proposed within state-owned ROW should be located in uplands away from aquatic features.
- When work is directly adjacent to the water, minimize impacts to shoreline basking sites (e.g., downed trees, sand bars, exposed bedrock) and overwinter sites (e.g., brush and debris piles, crayfish burrows) where feasible.
- Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter, which may be refugia for aquatic reptiles, where feasible.
- If gutters and curbs are part of the roadway design, where feasible install gutters that do not include the side box inlet and include sloped (i.e. mountable) curbs to allow small animals to leave the roadway. If this modification to the entire curb system is not possible, install sections of sloped curb on either side of the storm water drain for several feet to allow small animals to leave the roadway. Priority areas for these design recommendations are those with nearby wetlands or other aquatic features.
- For sections of roadway adjacent to wetlands or other aquatic features, install wildlife barriers that prevent climbing. Barriers should terminate at culvert openings in order to funnel animals under the road. The barriers should be of the same length as the adjacent feature of 80-feet long in each direction, or whichever is the lesser of the two.
- For culvert extensions and culvert replacement/installation, incorporate measures to funnel animals toward culverts such as concrete wingwalls and barrier walls with overhangs.
- When riprap or other bank stabilization devices are necessary, their placement should not impede the movement of terrestrial or aquatic wildlife through the water feature. Where feasible, biotechnical streambank stabilization methods using live native vegetation or a combination of vegetative and structural materials should be used.

For the plains spotted skunk, the following BMP would be implemented:

- Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered, and to avoid unnecessary impacts to dens.

For the Texas garter snake and timber rattlesnake, the following Terrestrial Reptile BMPs would apply:

- Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible due to site conditions, utilize erosion control blankets or mats that contain no netting or contain loosely woven, natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
- For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Visually inspect excavation areas for trapped wildlife prior to backfilling.
- Inform contractors that if reptiles are found on project site allow species to safely leave the project area.
- Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible.
- Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.

For the Plateau milkvine, Texas milk vetch, and tree dodder, the following Vegetation BMPs would apply:

- In accordance with EO 13112 on Invasive Species, seeding and replanting with TxDOT-approved seed mixes containing native species would be done were possible. Soil disturbance would be minimized in the ROW in order to minimize invasive species establishment.

11. Detours: County and local public safety officials would be notified of any road closures or detours during construction. Detour timing and necessary rerouting of emergency vehicles would be coordinated with the proper local agencies during construction.
12. Air Quality: Implement fugitive dust control measures contained in standard specifications to minimize potential impacts of PM emissions during construction.
13. Hazardous Materials: Five sites were considered moderate environmental risks. Additional investigations on the five moderate risk sites was performed and it was determined that their potential to impact the project would be low. Any unanticipated hazardous materials encountered during construction would be handled according to the applicable federal, state and local regulations per TxDOT Standard Specification.
14. Hazardous Materials for Bridge Structures: Bridge structures being demolished or renovated will need to be assessed and mitigated for ACM and LCP, as needed, prior to the construction process according to Standard Specification Item 6.10 (and applicable Provisions), and the TxDOT guidance document: Guidance for Handling Asbestos in Construction Projects, dated January 26, 2007.

15. Public Involvement: Before construction, a notice of impending construction will be provided to owners of adjoining property and affected local governments and public officials.

8.2 Contractor Communications

1. Archeological Resources: If unanticipated archaeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archaeological staff will be contacted to initiate post-review discovery procedures.
2. Wetlands: The construction contractor would be required to avoid and minimize unnecessary impacts on wetlands during construction.
3. Construction (TPDES): The contractor shall comply with the CGP and SW3P; complete, post and submit notice of intent and notice of termination to TCEQ and the MS4 operator; and inspect the project to ensure compliance with the CGP.
4. Drinking Water Systems: If any unknown wells are encountered during construction activities, they would need to be properly plugged in accordance with state statutes.
5. Hazardous Materials: The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. All construction materials used for the proposed project would be removed as soon as the work schedules permit. The contractor would initiate early regulatory agency coordination during project development.
6. Vegetation: The contractor would avoid and minimize disturbance of vegetation and soils. All disturbed areas would be revegetated, according to TxDOT specifications, as soon as it becomes practicable. In accordance with EO 13112 on Invasive Species, the Executive Memorandum on Beneficial Landscaping, and the 1999 FHWA guidance on invasive species, all revegetation would, to the extent practicable, use only native species. Furthermore, BMPs would be used to control and prevent the spread of invasive species.
7. Migratory Birds: The contractor would take all appropriate actions to prevent the take of migratory birds, their active nests, eggs or young by the use of proper phasing of the project or other appropriate actions. Refer to **Section 8.1** for applicable BMPs.
8. Air Quality: The TERP provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions.
9. Threatened, Endangered, and Candidate Species: If any species on Dallas or Kaufman County threatened and endangered species list is sighted in the project area during construction, construction would stop and the contractor would notify the TxDOT Area Engineer. Refer to **Section 8.1** for applicable BMPs.

9.0 CONCLUSION

The Build Alternative, described in **Section 2.2**, satisfies the project purpose and need by addressing local policies, improving mobility and safety, and enhancing access within the corridor. Because the Build Alternative satisfies the project's purpose and need, it is the recommended alternative.

Implementation of the proposed project would not result in a significant impact on the human or natural environment. Therefore, a finding of no significant impact is recommended.

10.0 REFERENCES

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11.0 APPENDICES

IH 20 Project

From Lawson Road to East of CR 138 (Wilson Road)

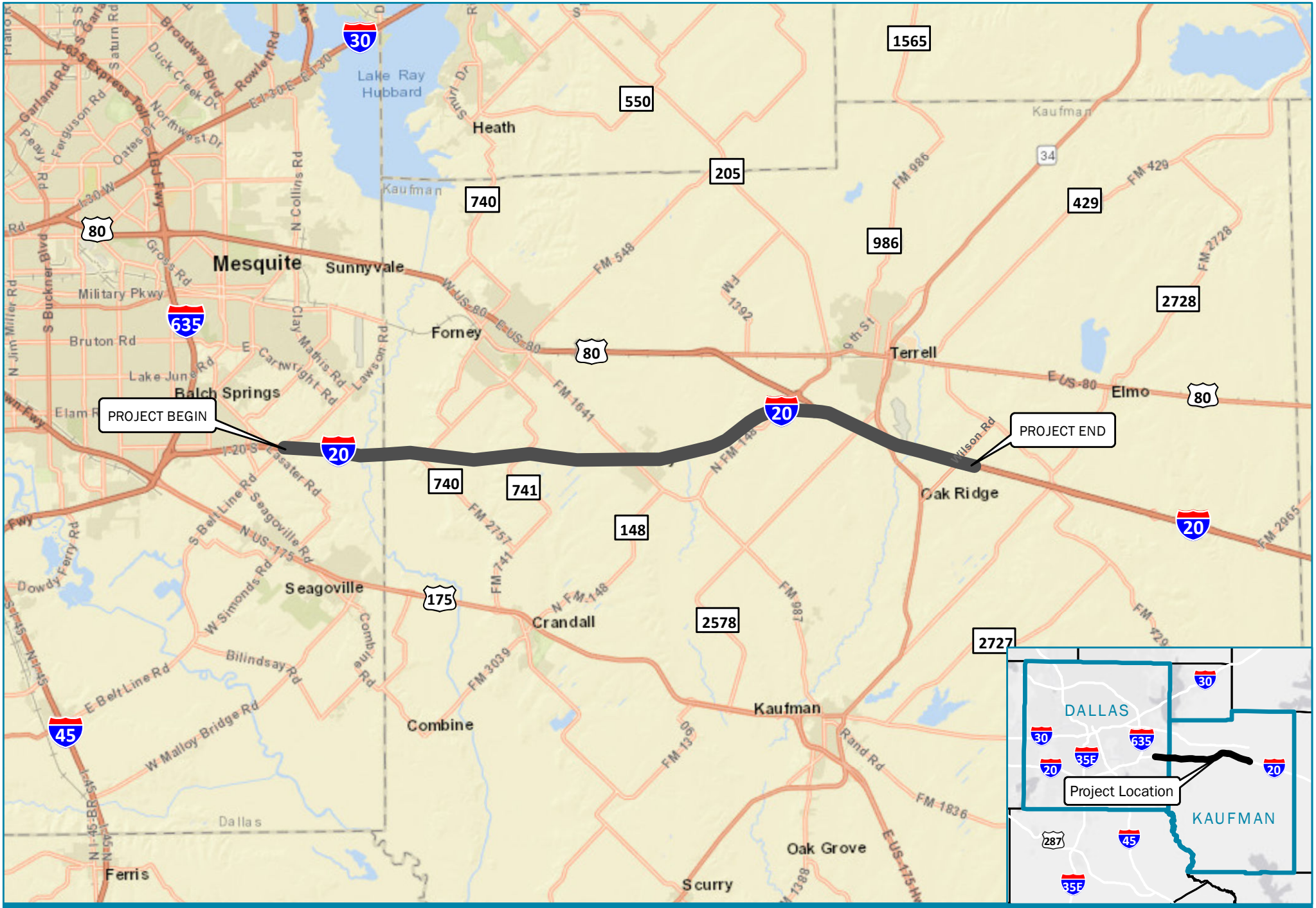
Dallas and Kaufman Counties, Texas

CSJs: 0095-14-027, 0095-13-038, 0495-01-071

Draft Environmental Assessment

Appendix	Description	Number of Pages
A	Project Location Map	1
B	Project Photos	12
C	Schematics	30
D	Typical Sections	6
E	Plan and Program Excerpts	3
F	Resource-specific Maps	7
G	Resources Agency Coordination	6

APPENDIX A
PROJECT LOCATION MAP



Project Location Map

IH 20 from Lawson Road to East of County Road 138 (Wilson Road)
Dallas and Kaufman Counties | CSJs: 0095-14-027, 0095-13-038, 0495-01-071

APPENDIX B
PROJECT PHOTOS



Photograph 1: View of IH 20 at Lawson Road, facing east. Taken Feb 2019.



Photograph 2: View of Lawson Road and IH 20 eastbound. Taken Feb 2019.



Photograph 3: View of southeast corner of IH 20 EB and Lumley Road intersection, facing northeast. Taken Feb 2019.



Photograph 4: View of bridge at East Fork Trinity River, facing northeast. Taken Feb 2019.



Photograph 5: View of bridge at East Fork Trinity River, facing northwest. Taken Feb 2019.



Photograph 6: View of southeast corner of IH 20 eastbound frontage and FM 740 intersection, facing northeast. Taken Feb 2019.



Photograph 7: View of gated structure south of IH 20 on CR 256, facing west. Taken Feb 2019.



Photograph 8: View of residential structure south of IH 20 on CR 256, facing east. Taken Feb 2019.



Photograph 9: View of Map ID 8, S&Z Food Store (currently Shell/Subway) located at the northeast corner of the IH 20 westbound frontage and CR 211 (Helms Trail) intersection, facing east. This facility is considered to be a low environmental risk. Taken Feb 2019.



Photograph 10: View of Map ID 9, Tiger Mart 22 located at the southeast corner of the IH 20 eastbound frontage and FM 1641 intersection, facing northeast. This facility is considered to be a low environmental risk. Taken Feb 2019.



Photograph 11: View of northeast corner of IH 20 westbound frontage and FM 1641 intersection, facing southwest. Taken Feb 2019.



Photograph 12: View of IH 20 eastbound, facing east. Taken Feb 2019.



Photograph 13: View of northwest corner of IH 20 westbound frontage and CR 305 intersection, facing east. Taken Feb 2019.



Photograph 14: View of CR 305 north of IH 20 westbound frontage, facing southeast. Taken Feb 2019.



Photograph 15: View of northeast corner of IH 20 westbound frontage and FM 148 intersection, facing west. Taken Feb 2019.



Photograph 16: View of Map ID 5, Buc-ees located at the northeast corner of the IH 20 westbound frontage and FM 148 intersection, facing southwest. This facility is considered to be a low environmental risk. Taken Feb 2019.



Photograph 17: View of Map ID 19, Circle K located at the southwest corner of the IH 20 eastbound frontage and SH 34 intersection, facing northwest. This facility is considered to be a low environmental risk. Taken Feb 2019.



Photograph 18: View of Map ID 2, Valero Corner Store located at the southeast corner of the IH 20 eastbound frontage and SH 34 intersection, facing northeast. This facility is considered to be a low environmental risk. Taken Feb 2019.



Photograph 19: View of northwest corner of IH 20 westbound frontage and SH 34 intersection, facing west. Taken Feb 2019.



Photograph 20: View of Map ID 10, Grab N Go (currently Shell/Subway), and Map IDs 6 and 21, Quik Trip, both located at the northeast corner of the IH 20 eastbound frontage and SH 34 intersection, facing east. Both of these facilities are considered to be low environmental risks. Taken Feb 2019.



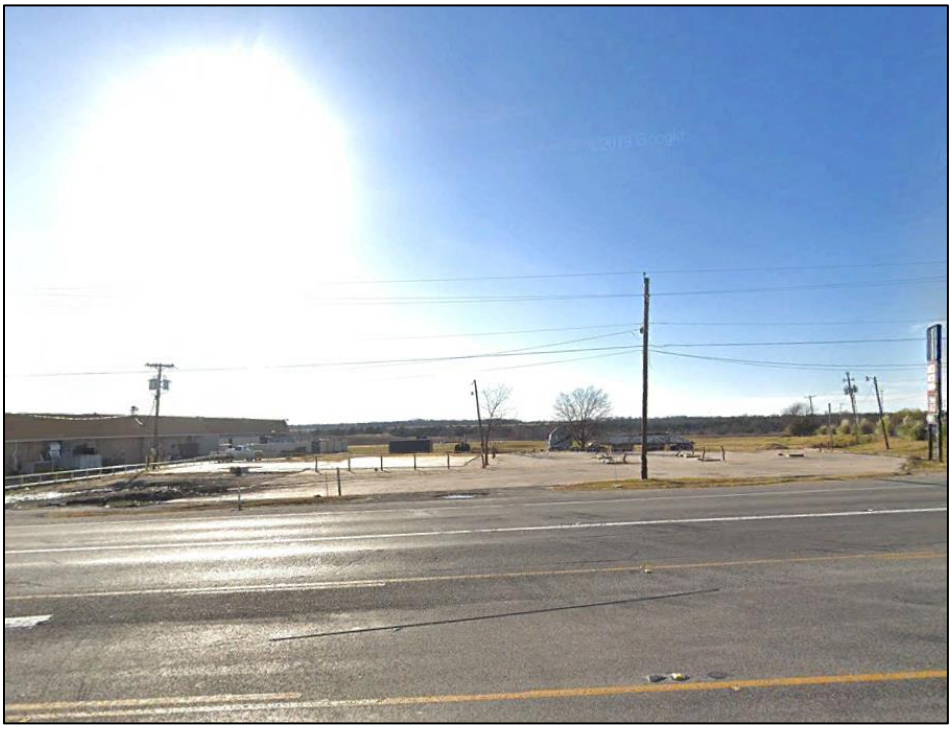
Photograph 21: View of southeast corner of IH 20 eastbound frontage and CR 138 intersection, facing east. Taken Feb 2019.



Photograph 22: View of Map ID 1, Travel CTS America (currently TA Travel Center) located at the southwest corner of the IH 20 eastbound frontage and CR 138 intersection, facing west. This facility is considered to be a low environmental risk. Taken Feb 2019.



Photograph 23: View of IH 20 eastbound at project terminus, facing west. Taken Feb 2019.



Photograph 24: A view of the former location of Map ID 3, Shoes Country Stop. This is an LPST site and two PSTs are still in place at the site. No ROW acquisition is proposed at this property. This facility is considered to be a low environmental risk.



Photograph 25: A view of Map ID 11, I 20 Exxon, located at the northwest corner of the IH 20 westbound frontage and SH 34 intersection This facility is considered to be a low environmental risk.

APPENDIX C
SCHEMATICS

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.

Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038

CSJ: 0095-14-027

CSJ: 0495-01-071

Dallas and Kaufman Counties

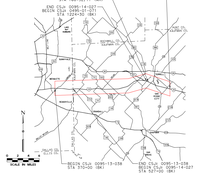
Project Length: 20.390 Miles

Functional Class

Mainlane • Interstate

Frontage Road • Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'

Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER
THE DIRECT SUPERVISION OF:

JASON R. RICHTER | 114058 | P.E. NUMBER

ALEXANDER S. KEMP | 135213 | P.E. NUMBER

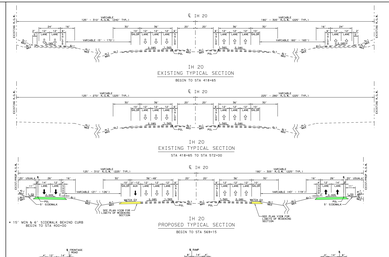
8/6/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 1 OF 30

100% PS&E/ENVIRONMENTAL SUBJECT TO CHANGE

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

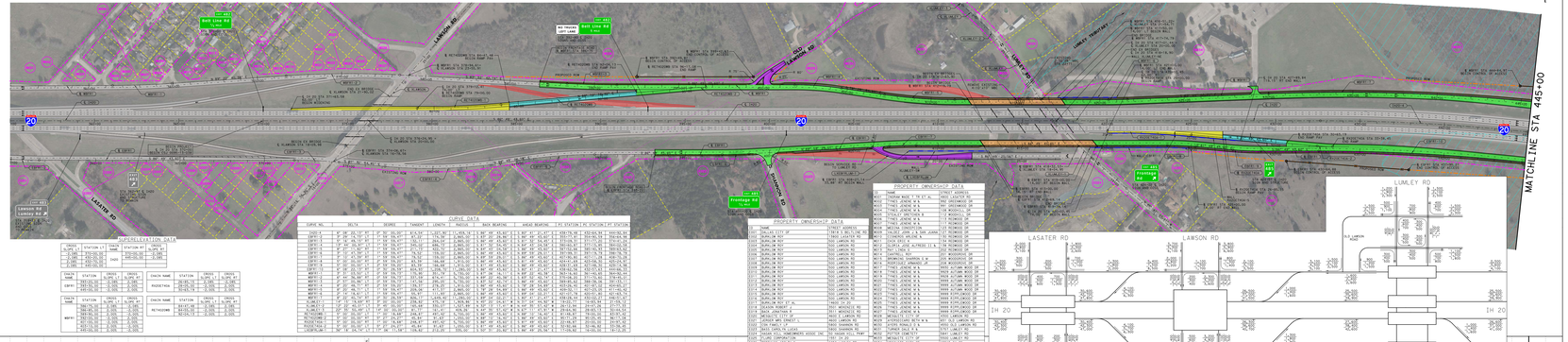


LEGEND

- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- RAILROADS
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT AS NOTED. TOPOGRAPHY, AERIAL SURVEYS PHOTOGED IN AUGUST 2016 AND FIELD SURVEY.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA FROM 2016 AERIAL SURVEY.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE RECONSTRUCTED AS REQUIRED DUE TO CHANGE IN FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. WALL ALIGNMENTS ARE TO FACE OF WALL UNLESS NOTED OTHERWISE.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED MAINLANES RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE 'C' UNLESS NOTED OTHERWISE.
10. 10-APPROXIMATE 100 YEAR FLOODPLAIN LIMITS SHOWN ON SCHEMATIC ARE BASED ON FEMA MAPS: 48113C0430J, 48113C0435J, 48113C0440J, 48113C0445J, 48257C0310G, 48257C0320G, 48257C0315G, AND 48257C0330G.
11. CONVENTIONAL ROADWAY SIGNAL HEAD STANDS ARE NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE OF THE PROJECT.
12. ORTHOPHOTO SHOWN IS FOR REFERENCE ONLY. ALL DESIGNS WILL BE DEVELOPED AT THE PS&E PHASE.



CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	RADIAL BEARING	AHEAD BEARING	PI-IH STATION	PT STATION
C001-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 80° 49' 45.96" E	S 90° 21' 51.67" E	1751+76.96	1755+84.96
C002-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 21' 51.67" E	S 80° 53' 45.96" E	1755+84.96	1759+92.96
C003-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 80° 53' 45.96" E	S 90° 25' 51.67" E	1759+92.96	1764+00.96
C004-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 25' 51.67" E	S 80° 57' 45.96" E	1764+00.96	1768+08.96
C005-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 80° 57' 45.96" E	S 90° 29' 51.67" E	1768+08.96	1772+16.96
C006-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 29' 51.67" E	S 81° 01' 45.96" E	1772+16.96	1776+24.96
C007-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 01' 45.96" E	S 90° 33' 51.67" E	1776+24.96	1780+32.96
C008-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 33' 51.67" E	S 81° 05' 45.96" E	1780+32.96	1784+40.96
C009-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 05' 45.96" E	S 90° 37' 51.67" E	1784+40.96	1788+48.96
C010-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 37' 51.67" E	S 81° 09' 45.96" E	1788+48.96	1792+56.96
C011-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 09' 45.96" E	S 90° 41' 51.67" E	1792+56.96	1796+64.96
C012-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 41' 51.67" E	S 81° 13' 45.96" E	1796+64.96	1800+72.96
C013-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 13' 45.96" E	S 90° 45' 51.67" E	1800+72.96	1804+80.96
C014-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 45' 51.67" E	S 81° 17' 45.96" E	1804+80.96	1808+88.96
C015-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 17' 45.96" E	S 90° 49' 51.67" E	1808+88.96	1812+96.96
C016-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 49' 51.67" E	S 81° 21' 45.96" E	1812+96.96	1817+04.96
C017-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 21' 45.96" E	S 90° 53' 51.67" E	1817+04.96	1821+12.96
C018-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 53' 51.67" E	S 81° 25' 45.96" E	1821+12.96	1825+20.96
C019-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 25' 45.96" E	S 90° 57' 51.67" E	1825+20.96	1829+28.96
C020-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 90° 57' 51.67" E	S 81° 29' 45.96" E	1829+28.96	1833+36.96
C021-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 29' 45.96" E	S 91° 01' 51.67" E	1833+36.96	1837+44.96
C022-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 01' 51.67" E	S 81° 33' 45.96" E	1837+44.96	1841+52.96
C023-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 33' 45.96" E	S 91° 05' 51.67" E	1841+52.96	1845+60.96
C024-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 05' 51.67" E	S 81° 37' 45.96" E	1845+60.96	1849+68.96
C025-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 37' 45.96" E	S 91° 09' 51.67" E	1849+68.96	1853+76.96
C026-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 09' 51.67" E	S 81° 41' 45.96" E	1853+76.96	1857+84.96
C027-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 41' 45.96" E	S 91° 13' 51.67" E	1857+84.96	1861+92.96
C028-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 13' 51.67" E	S 81° 45' 45.96" E	1861+92.96	1866+00.96
C029-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 45' 45.96" E	S 91° 17' 51.67" E	1866+00.96	1870+08.96
C030-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 17' 51.67" E	S 81° 49' 45.96" E	1870+08.96	1874+16.96
C031-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 49' 45.96" E	S 91° 21' 51.67" E	1874+16.96	1878+24.96
C032-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 21' 51.67" E	S 81° 53' 45.96" E	1878+24.96	1882+32.96
C033-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 53' 45.96" E	S 91° 25' 51.67" E	1882+32.96	1886+40.96
C034-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 25' 51.67" E	S 81° 57' 45.96" E	1886+40.96	1890+48.96
C035-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 81° 57' 45.96" E	S 91° 29' 51.67" E	1890+48.96	1894+56.96
C036-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 29' 51.67" E	S 82° 01' 45.96" E	1894+56.96	1898+64.96
C037-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 01' 45.96" E	S 91° 33' 51.67" E	1898+64.96	1902+72.96
C038-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 33' 51.67" E	S 82° 05' 45.96" E	1902+72.96	1906+80.96
C039-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 05' 45.96" E	S 91° 37' 51.67" E	1906+80.96	1910+88.96
C040-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 37' 51.67" E	S 82° 09' 45.96" E	1910+88.96	1914+96.96
C041-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 09' 45.96" E	S 91° 41' 51.67" E	1914+96.96	1919+04.96
C042-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 41' 51.67" E	S 82° 13' 45.96" E	1919+04.96	1923+12.96
C043-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 13' 45.96" E	S 91° 45' 51.67" E	1923+12.96	1927+20.96
C044-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 45' 51.67" E	S 82° 17' 45.96" E	1927+20.96	1931+28.96
C045-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 17' 45.96" E	S 91° 49' 51.67" E	1931+28.96	1935+36.96
C046-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 49' 51.67" E	S 82° 21' 45.96" E	1935+36.96	1939+44.96
C047-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 21' 45.96" E	S 91° 53' 51.67" E	1939+44.96	1943+52.96
C048-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 53' 51.67" E	S 82° 25' 45.96" E	1943+52.96	1947+60.96
C049-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 25' 45.96" E	S 91° 57' 51.67" E	1947+60.96	1951+68.96
C050-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 91° 57' 51.67" E	S 82° 29' 45.96" E	1951+68.96	1955+76.96
C051-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 29' 45.96" E	S 92° 01' 51.67" E	1955+76.96	1959+84.96
C052-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 01' 51.67" E	S 82° 33' 45.96" E	1959+84.96	1963+92.96
C053-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 33' 45.96" E	S 92° 05' 51.67" E	1963+92.96	1968+00.96
C054-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 05' 51.67" E	S 82° 37' 45.96" E	1968+00.96	1972+08.96
C055-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 37' 45.96" E	S 92° 09' 51.67" E	1972+08.96	1976+16.96
C056-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 09' 51.67" E	S 82° 41' 45.96" E	1976+16.96	1980+24.96
C057-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 41' 45.96" E	S 92° 13' 51.67" E	1980+24.96	1984+32.96
C058-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 13' 51.67" E	S 82° 45' 45.96" E	1984+32.96	1988+40.96
C059-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 45' 45.96" E	S 92° 17' 51.67" E	1988+40.96	1992+48.96
C060-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 17' 51.67" E	S 82° 49' 45.96" E	1992+48.96	1996+56.96
C061-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 49' 45.96" E	S 92° 21' 51.67" E	1996+56.96	2000+64.96
C062-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 21' 51.67" E	S 82° 53' 45.96" E	2000+64.96	2004+72.96
C063-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 53' 45.96" E	S 92° 25' 51.67" E	2004+72.96	2008+80.96
C064-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 25' 51.67" E	S 82° 57' 45.96" E	2008+80.96	2012+88.96
C065-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 82° 57' 45.96" E	S 92° 29' 51.67" E	2012+88.96	2016+96.96
C066-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 29' 51.67" E	S 83° 01' 45.96" E	2016+96.96	2021+04.96
C067-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 01' 45.96" E	S 92° 33' 51.67" E	2021+04.96	2025+12.96
C068-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 33' 51.67" E	S 83° 05' 45.96" E	2025+12.96	2029+20.96
C069-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 05' 45.96" E	S 92° 37' 51.67" E	2029+20.96	2033+28.96
C070-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 37' 51.67" E	S 83° 09' 45.96" E	2033+28.96	2037+36.96
C071-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 09' 45.96" E	S 92° 41' 51.67" E	2037+36.96	2041+44.96
C072-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 41' 51.67" E	S 83° 13' 45.96" E	2041+44.96	2045+52.96
C073-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 13' 45.96" E	S 92° 45' 51.67" E	2045+52.96	2049+60.96
C074-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 45' 51.67" E	S 83° 17' 45.96" E	2049+60.96	2053+68.96
C075-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 17' 45.96" E	S 92° 49' 51.67" E	2053+68.96	2057+76.96
C076-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 49' 51.67" E	S 83° 21' 45.96" E	2057+76.96	2061+84.96
C077-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 21' 45.96" E	S 92° 53' 51.67" E	2061+84.96	2065+92.96
C078-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 53' 51.67" E	S 83° 25' 45.96" E	2065+92.96	2070+00.96
C079-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 25' 45.96" E	S 92° 57' 51.67" E	2070+00.96	2074+08.96
C080-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 92° 57' 51.67" E	S 83° 29' 45.96" E	2074+08.96	2078+16.96
C081-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 29' 45.96" E	S 93° 01' 51.67" E	2078+16.96	2082+24.96
C082-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 01' 51.67" E	S 83° 33' 45.96" E	2082+24.96	2086+32.96
C083-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 33' 45.96" E	S 93° 05' 51.67" E	2086+32.96	2090+40.96
C084-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 05' 51.67" E	S 83° 37' 45.96" E	2090+40.96	2094+48.96
C085-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 37' 45.96" E	S 93° 09' 51.67" E	2094+48.96	2098+56.96
C086-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 09' 51.67" E	S 83° 41' 45.96" E	2098+56.96	2102+64.96
C087-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 41' 45.96" E	S 93° 13' 51.67" E	2102+64.96	2106+72.96
C088-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 13' 51.67" E	S 83° 45' 45.96" E	2106+72.96	2110+80.96
C089-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 45' 45.96" E	S 93° 17' 51.67" E	2110+80.96	2114+88.96
C090-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 17' 51.67" E	S 83° 49' 45.96" E	2114+88.96	2118+96.96
C091-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 49' 45.96" E	S 93° 21' 51.67" E	2118+96.96	2123+04.96
C092-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 21' 51.67" E	S 83° 53' 45.96" E	2123+04.96	2127+12.96
C093-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 53' 45.96" E	S 93° 25' 51.67" E	2127+12.96	2131+20.96
C094-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 25' 51.67" E	S 83° 57' 45.96" E	2131+20.96	2135+28.96
C095-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 83° 57' 45.96" E	S 93° 29' 51.67" E	2135+28.96	2139+36.96
C096-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 29' 51.67" E	S 84° 01' 45.96" E	2139+36.96	2143+44.96
C097-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 01' 45.96" E	S 93° 33' 51.67" E	2143+44.96	2147+52.96
C098-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 33' 51.67" E	S 84° 05' 45.96" E	2147+52.96	2151+60.96
C099-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 05' 45.96" E	S 93° 37' 51.67" E	2151+60.96	2155+68.96
C100-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 37' 51.67" E	S 84° 09' 45.96" E	2155+68.96	2159+76.96
C101-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 09' 45.96" E	S 93° 41' 51.67" E	2159+76.96	2163+84.96
C102-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 41' 51.67" E	S 84° 13' 45.96" E	2163+84.96	2167+92.96
C103-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 13' 45.96" E	S 93° 45' 51.67" E	2167+92.96	2172+00.96
C104-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 45' 51.67" E	S 84° 17' 45.96" E	2172+00.96	2176+08.96
C105-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 17' 45.96" E	S 93° 49' 51.67" E	2176+08.96	2180+16.96
C106-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 49' 51.67" E	S 84° 21' 45.96" E	2180+16.96	2184+24.96
C107-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 21' 45.96" E	S 93° 53' 51.67" E	2184+24.96	2188+32.96
C108-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 53' 51.67" E	S 84° 25' 45.96" E	2188+32.96	2192+40.96
C109-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 25' 45.96" E	S 93° 57' 51.67" E	2192+40.96	2196+48.96
C110-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 93° 57' 51.67" E	S 84° 29' 45.96" E	2196+48.96	2200+56.96
C111-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 29' 45.96" E	S 94° 01' 51.67" E	2200+56.96	2204+64.96
C112-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 01' 51.67" E	S 84° 33' 45.96" E	2204+64.96	2208+72.96
C113-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 33' 45.96" E	S 94° 05' 51.67" E	2208+72.96	2212+80.96
C114-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 05' 51.67" E	S 84° 37' 45.96" E	2212+80.96	2216+88.96
C115-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 37' 45.96" E	S 94° 09' 51.67" E	2216+88.96	2220+96.96
C116-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 09' 51.67" E	S 84° 41' 45.96" E	2220+96.96	2225+04.96
C117-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 41' 45.96" E	S 94° 13' 51.67" E	2225+04.96	2229+12.96
C118-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 13' 51.67" E	S 84° 45' 45.96" E	2229+12.96	2233+20.96
C119-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 45' 45.96" E	S 94° 17' 51.67" E	2233+20.96	2237+28.96
C120-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 17' 51.67" E	S 84° 49' 45.96" E	2237+28.96	2241+36.96
C121-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 49' 45.96" E	S 94° 21' 51.67" E	2241+36.96	2245+44.96
C122-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 21' 51.67" E	S 84° 53' 45.96" E	2245+44.96	2249+52.96
C123-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 53' 45.96" E	S 94° 25' 51.67" E	2249+52.96	2253+60.96
C124-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 25' 51.67" E	S 84° 57' 45.96" E	2253+60.96	2257+68.96
C125-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 84° 57' 45.96" E	S 94° 29' 51.67" E	2257+68.96	2261+76.96
C126-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 29' 51.67" E	S 85° 01' 45.96" E	2261+76.96	2265+84.96
C127-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 85° 01' 45.96" E	S 94° 33' 51.67" E	2265+84.96	2269+92.96
C128-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 33' 51.67" E	S 85° 05' 45.96" E	2269+92.96	2274+00.96
C129-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 85° 05' 45.96" E	S 94° 37' 51.67" E	2274+00.96	2278+08.96
C130-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 37' 51.67" E	S 85° 09' 45.96" E	2278+08.96	2282+16.96
C131-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 85° 09' 45.96" E	S 94° 41' 51.67" E	2282+16.96	2286+24.96
C132-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 41' 51.67" E	S 85° 13' 45.96" E	2286+24.96	2290+32.96
C133-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 85° 13' 45.96" E	S 94° 45' 51.67" E	2290+32.96	2294+40.96
C134-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 45' 51.67" E	S 85° 17' 45.96" E	2294+40.96	2298+48.96
C135-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 85° 17' 45.96" E	S 94° 49' 51.67" E	2298+48.96	2302+56.96
C136-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605.00'	S 94° 49' 51.67" E	S 85° 21' 45.96" E	2302+56.96	2306+64.96
C137-0	9° 28' 05.71"	9° 28' 05.71"	204.16'	408.10'	605

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

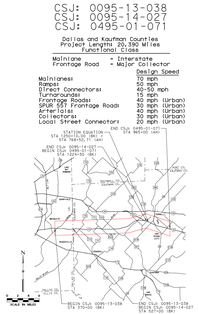
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Cross Streets	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT TO BE USED UNDER THE DIRECT SUPERVISION OF:

JASON R. BUCHTER | 114058
NAME | P.E. NUMBER

ALEXANDER S. KEMP | 135016
NAME | P.E. NUMBER

8/6/2019
DATE OF SEAL

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100%
PRELIMINARY
SUBJECT TO CHANGE

ROLL 2 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

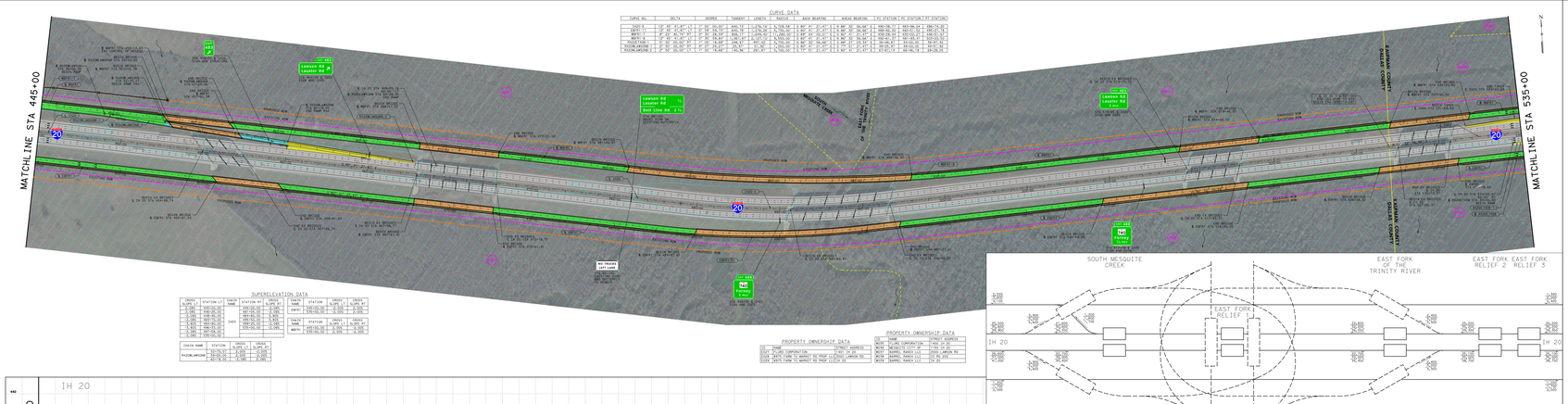


LEGEND

- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- PROPOSED ACCESS
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- EXISTING ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT FOR LIMITED LOCATION. AERIAL SURVEY PROVIDED IN AUGUST 2016 BY AERIAL SURVEYS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORIENTATION INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA AND AERIAL SURVEY.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED AT EXISTING LOCATIONS WITH NO CHANGE, FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS DOORS, LIMITS ARE DETERMINED PER TXDOT STANDARD SPECIFICATIONS.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR AS NOTED UNLESS NOTED OTHERWISE.
7. ALL DIMENSIONS SHOWN ARE HORIZONTAL UNLESS NOTED OTHERWISE.
8. ALL ROTATION AXIS OF ROTATION IS ABOUT THE PGL.
9. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RIGHT-OF-WAY RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
10. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE 57 UNLESS NOTED OTHERWISE.
11. 2% APPROXIMATE 100 YEAR FLOODPLAIN LIMITS ARE BASED ON FEMA FLOOD INSURANCE RATE MAPS: 48113C0435K, 48113C0445K, 48257C0435J, 48257C0440J, 48257C0445J, 48257C0455J, 48257C0460J, AND 48257C0465J.
12. CONVENTIONAL EQUIPMENT STORAGE SHALL BE STORED AND NOT SHOWN AND WILL BE DETERMINED BY THE CONTRACTOR DURING THE PROJECT.
13. PROPOSED SIGNAGE SHOWN IS FOR REFERENCE ONLY AND WILL BE DEVELOPED AT THE PS&E PHASE.


MATCHLINE STA 445+00
MATCHLINE STA 535+00
IH 20
Lawson Rd
Leader Rd
Exit Line Rd
Lawson Rd
Leader Rd
Exit Line Rd
Lawson Rd
Leader Rd
Exit Line Rd
Lawson Rd
Leader Rd
Exit Line Rd
SOUTH MESQUITE CREEK
EAST FORK OF THE TRINITY RIVER
EAST FORK EAST FORK RELIEF 2
RELIEF 3
EAST FORK RELIEF
KAUFMAN COUNTY
DALLAS COUNTY
KAUFMAN COUNTY
DALLAS COUNTY
PROPOSED ROW
EXISTING ROW
PROPOSED ROW
EXISTING ROW
PROPOSED ROW
EXISTING ROW

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

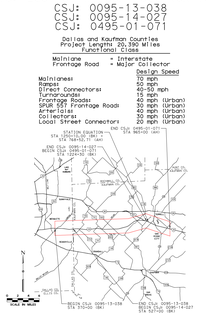
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

Mainlanes	Design Speed
Ramps	70 mph
Direct Connectors	50 mph
Turnarounds	45 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	40 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT FOR CONSTRUCTION UNDER THE DIRECT SUPERVISION OF:

JASON R. BOOHER — 114558 — 8/6/2019 — P.E. NUMBER — DATE

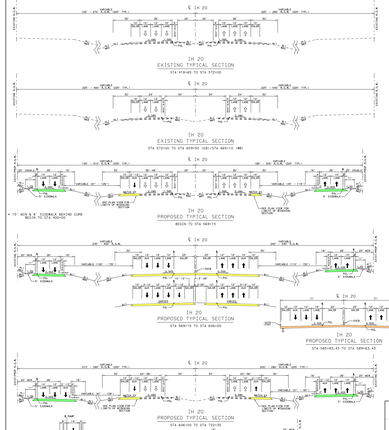
ALEXANDER S. KEMP — 135016 — 8/6/2019 — P.E. NUMBER — DATE

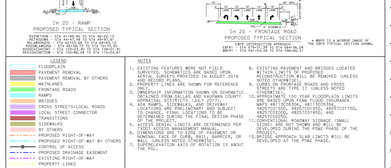
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 3 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

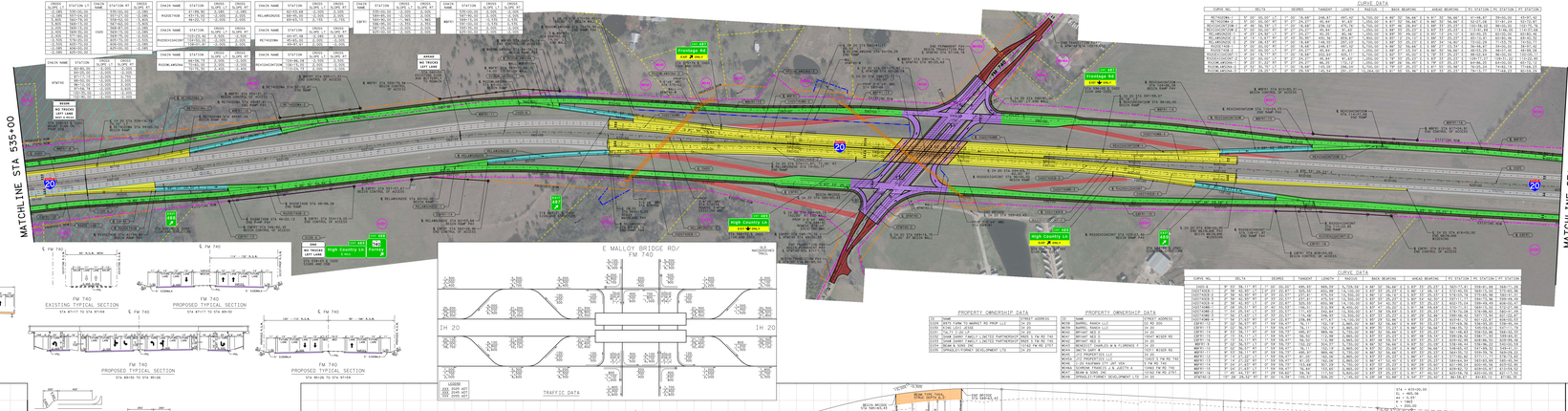
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400





NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT FOR THE LOCATION OF AERIAL SURVEYS PHOTOED IN AUGUST 2016.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA FROM 2016 AERIAL.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED AS NECESSARY TO CONFORM TO CHANGE IN/NO LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS AND TYPES OF PAVEMENT, OR SIDEWALKS ARE SUBJECT TO CHANGE IN THE FINAL DESIGN.
7. ALL CURVES NOTED HORIZONTALLY ARE CIRCULAR UNLESS NOTED OTHERWISE.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE C1 UNLESS NOTED OTHERWISE.
10. 10-APPROXIMATE 100 YEAR FLOODPLAIN LIMITS ARE BASED ON FEMA FLOOD INSURANCE RATE MAPS: 48113C0435J, 48113C0440J, 48113C0445J, 48113C0455J, 48257C0035G, 48257C0040G, 48257C0045G, AND 48257C0050G.
11. ALL CONFLICTING ROADWAY SIGNAGE (SMALL SIGNS) ARE NOT SHOWN AND WILL BE ADJUSTED AS NECESSARY DURING THE FINAL DESIGN PHASE.
12. PROPOSED DRAINAGE SLAB AND TYPE C INLETS WILL BE DEVELOPED AT THE FINAL DESIGN PHASE.



Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
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Mainlane • Interstate
Frontage Road • Major Collector

Mainlanes	Design Speed
Ramps	70 mph
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Turnarounds	45 mph
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Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)

Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT FOR CONSTRUCTION UNDER THE DIRECT SUPERVISION OF:

JASON R. BOOHER — 114558 — 8/6/2019 — P.E. NUMBER — DATE

ALEXANDER S. KEMP — 135016 — 8/6/2019 — P.E. NUMBER — DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 3 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation
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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20,390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	40 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER
THE DIRECT SUPERVISION OF:

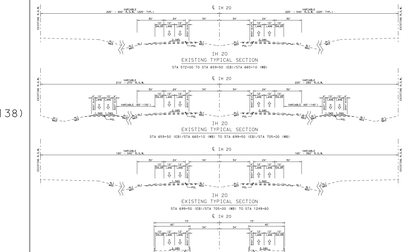
JASON R. RICHTER | 114018
NAME | P.E. NUMBER
ALEXANDER S. KELLY | 135216
NAME | P.E. NUMBER
8/6/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 4 OF 30

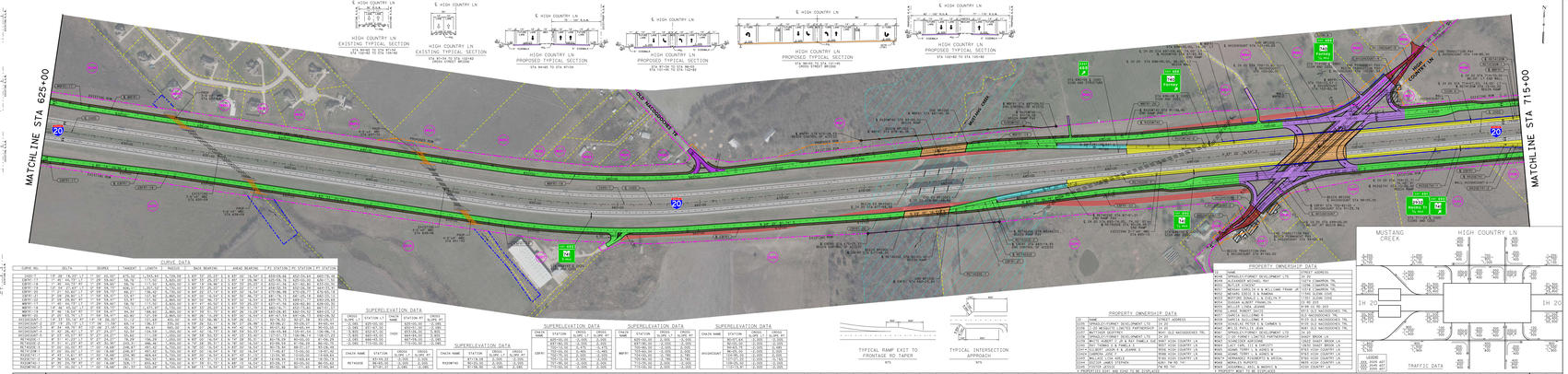
100% PRELIMINARY SUBJECT TO CHANGE

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



LEGEND
- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- ROW LINES
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- PROPOSED RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES
1. EXISTING FEATURES WERE NOT FIELD VERIFIED. EXISTING INFORMATION FROM AERIAL SURVEYS PROVIDED IN AUGUST 2016 BY AERIAL SURVEYS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA FROM 2016 AERIAL.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED OR RECONSTRUCTED AS NEEDED TO CHANGE GRADE LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR AS NOTED. ALL CURB RADII ARE 30' UNLESS NOTED OTHERWISE.
7. ALL ROTATION AXIS OF ROTATION IS ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE 57 UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS ARE BASED ON THE FOLLOWING FEMA MAPS: 48113C0435J, 48113C0430J, 48113C0415J, 48113C0410J, 48257C0170G, 48257C0290G, 48257C0185G, AND 48257C0195G.
11. CONVENTIONAL ROADWAY SIGNAGE AND PAVEMENT STENCILS ARE NOT SHOWN AND WILL BE DEVELOPED AT THE PS&E PHASE.
12. PROJECT WORK ZONE TRAFFIC CONTROL WILL BE DEVELOPED AT THE PS&E PHASE.


MATCHLINE STA 625+00
MATCHLINE STA 715+00
IH 20
HIGH COUNTRY LN
EXISTING TYPICAL SECTION
STA 839+00 TO STA 849+10
HIGH COUNTRY LN
EXISTING TYPICAL SECTION
STA 849+10 TO STA 859+00
HIGH COUNTRY LN
PROPOSED TYPICAL SECTION
STA 849+10 TO STA 859+00
HIGH COUNTRY LN
PROPOSED TYPICAL SECTION
STA 859+00 TO STA 864+50
HIGH COUNTRY LN
PROPOSED TYPICAL SECTION
STA 864+50 TO STA 869+00
OLD MESQUITE TR
MUSTANG CREEK
CONNIE LN
SPUR 557
FRONTAGE RD
EXIST RT
PROP RT
EXIST LT
PROP LT
EXIST RT
PROP RT
EXIST LT
PROP LT
EXIST RT
PROP RT
EXIST LT
PROP LT

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20
DESIGN SCHEMATIC
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To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
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Mainlane • Interstate
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	Design Speed
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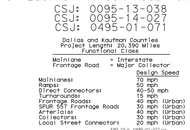
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	40 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. RICHTER — 114558 — DATE — P.E. NUMBER

ALEXANDER S. KEMP — 135016 — DATE — P.E. NUMBER

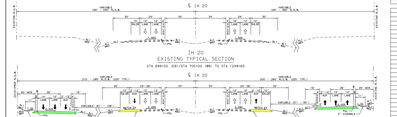
8/6/2019

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 5 OF 30

100% PS&E INTEGRITY SUBJECT TO CHANGE

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



LEGEND

- FLOOD PLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- MEDIAN
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- LIMITED ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT FOR LIMITED LOCATION AERIAL SURVEYS PHOTOGRAPHED IN AUGUST 2016 AND FIELD SURVEY.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA DATED 2016.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED OR RECONSTRUCTED AS NECESSARY TO CHANGE, ETIMS LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. ALL DIMENSIONS AND TIES ARE APPROXIMATE OR NOMINAL UNLESS NOTED OTHERWISE.
7. ALL ROTATIONS ARE ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED MAINLANE RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE C1 UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS ARE BASED ON FEMA FLOOD INSURANCE RATE MAPS: 48113C0435K, 48113C0440K, 48113C0445K, 48113C0455K, 48113C0460K, 48257C0055J, 48257C0060J, AND 48257C0065J.
11. ALL CONSTRUCTION, CONCRETE TRAFFIC SIGNAL AND NOT SHOWN AND WILL BE INCIDENTAL TO THE PROJECT.
12. PROJECT PROPOSED SUBGRADE WILL BE DEVELOPED AT THE PGL/PROFILE.

CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	BACK BEARING	AHEAD BEARING	P.I. STATION	P.C. STATION	P.T. STATION
C1(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C2(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C3(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C4(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C5(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C6(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C7(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C8(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C9(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C10(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C11(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C12(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C13(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C14(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C15(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C16(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C17(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C18(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C19(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C20(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C21(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C22(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C23(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C24(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C25(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C26(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C27(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C28(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C29(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C30(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C31(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C32(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C33(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C34(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C35(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C36(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C37(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C38(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C39(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C40(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C41(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C42(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C43(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C44(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C45(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C46(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C47(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C48(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C49(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C50(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C51(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C52(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C53(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C54(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C55(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C56(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C57(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C58(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C59(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C60(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C61(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C62(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C63(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C64(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C65(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C66(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C67(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C68(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C69(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C70(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C71(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C72(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C73(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C74(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C75(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C76(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C77(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C78(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C79(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C80(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C81(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C82(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C83(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C84(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C85(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C86(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C87(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C88(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C89(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C90(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C91(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C92(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C93(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C94(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C95(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C96(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C97(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C98(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C99(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87
C100(EB)	0° 29' 25.00"	0° 29' 25.00"	429.36'	858.71'	11,700.00'	N 89° 29' 56.74" E	N 89° 00' 31.74" E	1764+52.77	1760+06.16	1768+64.87

PROPERTY OWNERSHIP DATA

ID	NAME	PARCEL NO.
1	DUDLEY, JAMES STEPHEN	4067 FM 741 TRL
2	DUDLEY, JAMES STEPHEN	4067 FM 741 TRL
3	DUDLEY, JAMES STEPHEN	4067 FM 741 TRL
4	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
5	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
6	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
7	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
8	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
9	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
10	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
11	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
12	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
13	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
14	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
15	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
16	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
17	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
18	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
19	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
20	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
21	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
22	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
23	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
24	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
25	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
26	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
27	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
28	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
29	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
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53	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
54	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
55	TEXAS TRANSMISSION CORP	4067 FM 741 TRL
56

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainline - Interstate
Frontage Road - Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT TO BE USED UNDER THE DIRECT SUPERVISION OF:

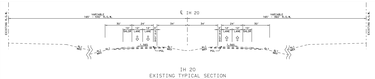
JASON R. ROCHER — 114208 — P.E. NUMBER
ALEXANDER S. KEMP — 130213 — P.E. NUMBER
8/6/2019 — DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

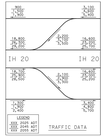
ROLL 6 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400









SUPERELEVATION DATA

CROSS SLOPE (-)	STATION LT	CROSS SLOPE (+)	STATION RT
-1.50%	805+00.00		805+00.00
-1.50%	807+00.00		807+00.00
-4.50%	817+00.00	CURB	817+00.00
-4.50%	827+00.00		827+00.00
-1.50%	829+00.00		829+00.00

CNCTR NAME	STATION	CROSS SLOPE	CROSS SLOPE
RAMP/EXIT	814+00.00	-1.50%	-1.50%
	11+76.55	-4.50%	-4.50%
RETAINTURN	11+76.55	-4.50%	-4.50%
	12+76.55	-1.50%	-1.50%

CNCTR NAME	STATION	CROSS SLOPE	CROSS SLOPE
RAMP/EXIT	844+00.00	-1.50%	-1.50%
	845+00.00	-4.50%	-4.50%
RETAINTURN	845+00.00	-4.50%	-4.50%
	846+00.00	-1.50%	-1.50%

CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	P.I. STATION	BACK BEARING	AHEAD BEARING	P.C. STATION	P.T. STATION
C1	4° 49' 29"	4° 17' 29"	29.79'	59.51'	401.68'	9+79.79	S 85° 25' 26" E	S 89° 59' 03" E	9+20.00	9+79.51
C2	1° 37' 22"	0° 57' 49"	14.19'	28.38'	1,985.92'	11+76.55	S 89° 59' 03" E	S 88° 21' 41" E	11+62.36	11+90.74
C3	1° 37' 22"	0° 57' 49"	14.19'	28.38'	1,985.92'	12+76.55	S 88° 21' 41" E	S 86° 44' 19" E	12+62.36	12+90.74
C4	1° 37' 22"	0° 57' 49"	14.19'	28.38'	1,985.92'	13+76.55	S 86° 44' 19" E	S 85° 06' 57" E	13+62.36	13+90.74
RETAINTURN	90° 00' 00"	14° 19' 26"	398.51'	785.40'	400.00'	15+76.55	S 85° 06' 57" E	S 04° 53' 03" W	11+76.55	15+62.36
RETAINTURN	90° 00' 00"	14° 19' 26"	398.51'	785.40'	400.00'	16+76.55	S 04° 53' 03" W	S 85° 06' 57" E	15+62.36	16+76.55
RAMP/EXIT	1° 37' 22"	0° 57' 49"	14.19'	28.38'	1,985.92'	17+76.55	S 85° 06' 57" E	S 86° 44' 19" E	17+62.36	17+90.74
RAMP/EXIT	1° 37' 22"	0° 57' 49"	14.19'	28.38'	1,985.92'	18+76.55	S 86° 44' 19" E	S 88° 21' 41" E	18+62.36	18+90.74
RAMP/EXIT	4° 49' 29"	4° 17' 29"	29.79'	59.51'	401.68'	19+79.79	S 88° 21' 41" E	S 85° 25' 26" E	19+20.00	19+79.51

PROPERTY OWNERSHIP DATA

ID	NAME	PROJECT ASSETS
1234	MR PHOENIX JOE & N KAREN	PARCEL 99 & 99-1E
5678	CITY OF DALLAS, A MUNICIPAL CORP	PARCEL 99-1E
9012	MAXWELL, DAVID	PARCEL 99
3456	JONES, DAVID	PARCEL 99
7890	TEXAS UTILITIES & DIRECT METER	PARCEL 99
1357	MARKET PROPERTIES, INC	PARCEL 99

PROPERTY OWNERSHIP DATA

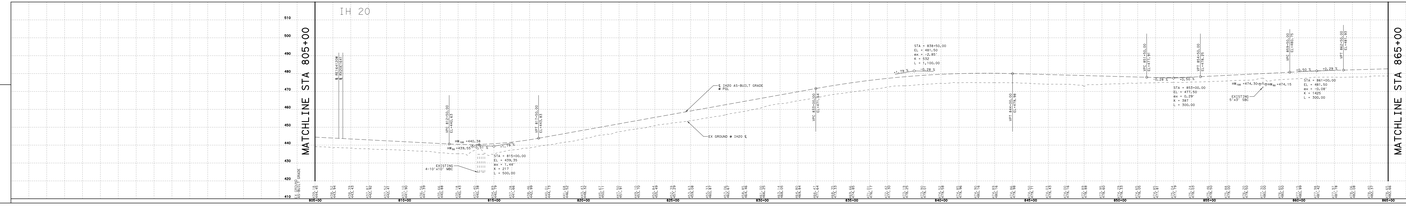
ID	NAME	PROJECT ASSETS
2468	VILLAS TRAIL ASSOCIATION, INC	PARCEL 99 & 99-1E
9753	MR PHOENIX JOE & KAREN, JAMES & SUE	PARCEL 99
8642	SMALLS, WILLIE A	PARCEL 99

LEGEND

- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- DRIVEWAYS
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT AS NOTED. TOPOGRAPHY, AERIAL SURVEYS PHOTOED IN AUGUST 2016 BY AERIAL SURVEYS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA DATED 2015 AND 2016.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS SHOWN ON SCHEMATIC ARE PRELIMINARY AND SUBJECT TO CHANGE. FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. ALL ROADWAY NOTES SCHEMATIC.
8. WALL ELEVATION AXIS OF ROTATION IS ABOUT THE TOP.
9. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
10. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE II UNLESS NOTED OTHERWISE.
11. TO APPROXIMATE THE YEAR FLOODPLAIN LIMITS FOR THE 100-YEAR FLOOD, USE THE FOLLOWING MAPS: 48113C0415H, 48113C0420H, 48113C0430H, 48113C0435H, 48257C0310G, 48257C0315G, 48257C0320G, 48257C0330G, AND 48257C0335G.
12. ALL CONVENTIONAL ROADWAY SIGNAGE SHALL BE SIGNED AND NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE.
13. PROJECT WILL BE DESIGNED TO BE FINE TUNED AT THE PS&E PHASE.
14. ALL ROADWAY SIGNAGE SHALL BE DESIGNED AT THE PS&E PHASE.


IH 20
MATCHLINE STA 805+00
MATCHLINE STA 865+00
STA = 805+00.00
EL = 481.50
RW = 12.00'
L = 500.00
STA = 865+00.00
EL = 471.50
RW = 12.00'
L = 500.00
2.00% AS-BUILT GRADE
-5% GRADE @ 1%SD %
EXISTING ROW
EXISTING ROW
EXISTING ROW

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

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Project Length: 20,390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

Mainlanes	Design Speed
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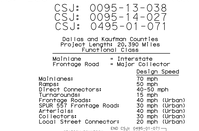
Ramps	50 mph
Direct Connectors	30 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Cross Streets	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

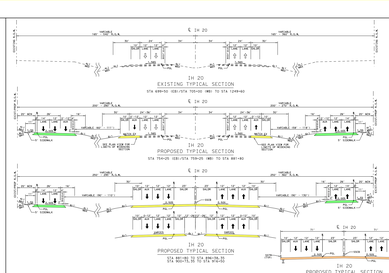
AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:
JASON R. RICHTER | 114058 | DATE | P.E. NUMBER
ALEXANDER S. KEMP | 135016 | DATE | P.E. NUMBER
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 7 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

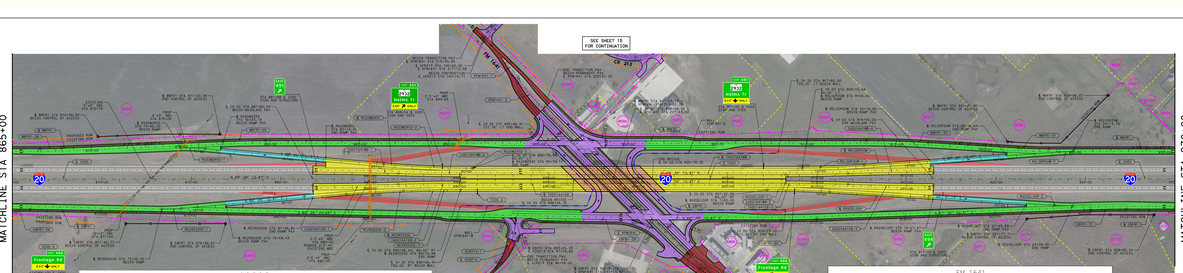
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400





LEGEND
- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- MEDIAN
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES
1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT AS NOTED IN THE SURVEY NARRATIVE. AERIAL SURVEY PERFORMED IN AUGUST 2016 BY AERIAL SURVEYS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA DATED 2016 AND 2017.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED OR RECONSTRUCTED AS NECESSARY TO CHANGE LOCATIONS TO BE CONSISTENT WITH THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. WALL ELEVATION AXIS OF ROTATION IS ABOUT THE TOP.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE C1 UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS ARE BASED ON FEMA FLOOD INSURANCE RATE MAPS 48113C0510J, 48113C0530J, 48113C0535J, 48113C0540J, 48113C0545J, 48257C0510G, 48257C0530G, 48257C0535G, AND 48257C0540G.
11. CONVENTIONAL ROADWAY SIGNAGE (SMALL) SIGNS ARE NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE.
12. PROJECT SPECIFIC LOCATIONS (PSL) WILL BE DEVELOPED AT THE PS&E PHASE.



CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	BACK BEARING	AHEAD BEARING	PT STATION	PC STATION
CURVE#1	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 89° 30' 0.0" E	N 88° 30' 0.0" E	889+87.50	889+12.50
CURVE#2	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 88° 30' 0.0" E	N 87° 30' 0.0" E	890+62.50	889+87.50
CURVE#3	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 87° 30' 0.0" E	N 86° 30' 0.0" E	891+37.50	891+62.50
CURVE#4	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 86° 30' 0.0" E	N 85° 30' 0.0" E	892+12.50	891+37.50
CURVE#5	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 85° 30' 0.0" E	N 84° 30' 0.0" E	892+87.50	892+12.50
CURVE#6	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 84° 30' 0.0" E	N 83° 30' 0.0" E	893+62.50	893+87.50
CURVE#7	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 83° 30' 0.0" E	N 82° 30' 0.0" E	894+37.50	894+62.50
CURVE#8	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 82° 30' 0.0" E	N 81° 30' 0.0" E	895+12.50	894+37.50
CURVE#9	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 81° 30' 0.0" E	N 80° 30' 0.0" E	895+87.50	895+12.50
CURVE#10	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 80° 30' 0.0" E	N 79° 30' 0.0" E	896+62.50	896+87.50
CURVE#11	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 79° 30' 0.0" E	N 78° 30' 0.0" E	897+37.50	897+62.50
CURVE#12	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 78° 30' 0.0" E	N 77° 30' 0.0" E	898+12.50	897+37.50
CURVE#13	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 77° 30' 0.0" E	N 76° 30' 0.0" E	898+87.50	898+12.50
CURVE#14	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 76° 30' 0.0" E	N 75° 30' 0.0" E	899+62.50	899+87.50
CURVE#15	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 75° 30' 0.0" E	N 74° 30' 0.0" E	900+37.50	900+62.50
CURVE#16	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 74° 30' 0.0" E	N 73° 30' 0.0" E	901+12.50	900+37.50
CURVE#17	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 73° 30' 0.0" E	N 72° 30' 0.0" E	901+87.50	901+12.50
CURVE#18	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 72° 30' 0.0" E	N 71° 30' 0.0" E	902+62.50	902+87.50
CURVE#19	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 71° 30' 0.0" E	N 70° 30' 0.0" E	903+37.50	903+62.50
CURVE#20	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 70° 30' 0.0" E	N 69° 30' 0.0" E	904+12.50	903+37.50
CURVE#21	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 69° 30' 0.0" E	N 68° 30' 0.0" E	904+87.50	904+12.50
CURVE#22	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 68° 30' 0.0" E	N 67° 30' 0.0" E	905+62.50	905+87.50
CURVE#23	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 67° 30' 0.0" E	N 66° 30' 0.0" E	906+37.50	906+62.50
CURVE#24	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 66° 30' 0.0" E	N 65° 30' 0.0" E	907+12.50	906+37.50
CURVE#25	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 65° 30' 0.0" E	N 64° 30' 0.0" E	907+87.50	907+12.50
CURVE#26	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 64° 30' 0.0" E	N 63° 30' 0.0" E	908+62.50	908+87.50
CURVE#27	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 63° 30' 0.0" E	N 62° 30' 0.0" E	909+37.50	909+62.50
CURVE#28	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 62° 30' 0.0" E	N 61° 30' 0.0" E	910+12.50	909+37.50
CURVE#29	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 61° 30' 0.0" E	N 60° 30' 0.0" E	910+87.50	910+12.50
CURVE#30	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 60° 30' 0.0" E	N 59° 30' 0.0" E	911+62.50	911+87.50
CURVE#31	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 59° 30' 0.0" E	N 58° 30' 0.0" E	912+37.50	912+62.50
CURVE#32	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 58° 30' 0.0" E	N 57° 30' 0.0" E	913+12.50	912+37.50
CURVE#33	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 57° 30' 0.0" E	N 56° 30' 0.0" E	913+87.50	913+12.50
CURVE#34	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 56° 30' 0.0" E	N 55° 30' 0.0" E	914+62.50	914+87.50
CURVE#35	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 55° 30' 0.0" E	N 54° 30' 0.0" E	915+37.50	915+62.50
CURVE#36	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 54° 30' 0.0" E	N 53° 30' 0.0" E	916+12.50	915+37.50
CURVE#37	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 53° 30' 0.0" E	N 52° 30' 0.0" E	916+87.50	916+12.50
CURVE#38	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 52° 30' 0.0" E	N 51° 30' 0.0" E	917+62.50	917+87.50
CURVE#39	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 51° 30' 0.0" E	N 50° 30' 0.0" E	918+37.50	918+62.50
CURVE#40	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 50° 30' 0.0" E	N 49° 30' 0.0" E	919+12.50	918+37.50
CURVE#41	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 49° 30' 0.0" E	N 48° 30' 0.0" E	919+87.50	919+12.50
CURVE#42	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 48° 30' 0.0" E	N 47° 30' 0.0" E	920+62.50	920+87.50
CURVE#43	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 47° 30' 0.0" E	N 46° 30' 0.0" E	921+37.50	921+62.50
CURVE#44	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 46° 30' 0.0" E	N 45° 30' 0.0" E	922+12.50	921+37.50
CURVE#45	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 45° 30' 0.0" E	N 44° 30' 0.0" E	922+87.50	922+12.50
CURVE#46	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 44° 30' 0.0" E	N 43° 30' 0.0" E	923+62.50	923+87.50
CURVE#47	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 43° 30' 0.0" E	N 42° 30' 0.0" E	924+37.50	924+62.50
CURVE#48	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 42° 30' 0.0" E	N 41° 30' 0.0" E	925+12.50	924+37.50
CURVE#49	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 41° 30' 0.0" E	N 40° 30' 0.0" E	925+87.50	925+12.50
CURVE#50	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 40° 30' 0.0" E	N 39° 30' 0.0" E	926+62.50	926+87.50
CURVE#51	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 39° 30' 0.0" E	N 38° 30' 0.0" E	927+37.50	927+62.50
CURVE#52	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 38° 30' 0.0" E	N 37° 30' 0.0" E	928+12.50	927+37.50
CURVE#53	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 37° 30' 0.0" E	N 36° 30' 0.0" E	928+87.50	928+12.50
CURVE#54	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 36° 30' 0.0" E	N 35° 30' 0.0" E	929+62.50	929+87.50
CURVE#55	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 35° 30' 0.0" E	N 34° 30' 0.0" E	930+37.50	930+62.50
CURVE#56	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 34° 30' 0.0" E	N 33° 30' 0.0" E	931+12.50	930+37.50
CURVE#57	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 33° 30' 0.0" E	N 32° 30' 0.0" E	931+87.50	931+12.50
CURVE#58	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 32° 30' 0.0" E	N 31° 30' 0.0" E	932+62.50	932+87.50
CURVE#59	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 31° 30' 0.0" E	N 30° 30' 0.0" E	933+37.50	933+62.50
CURVE#60	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 30° 30' 0.0" E	N 29° 30' 0.0" E	934+12.50	933+37.50
CURVE#61	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 29° 30' 0.0" E	N 28° 30' 0.0" E	934+87.50	934+12.50
CURVE#62	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 28° 30' 0.0" E	N 27° 30' 0.0" E	935+62.50	935+87.50
CURVE#63	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 27° 30' 0.0" E	N 26° 30' 0.0" E	936+37.50	936+62.50
CURVE#64	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 26° 30' 0.0" E	N 25° 30' 0.0" E	937+12.50	936+37.50
CURVE#65	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 25° 30' 0.0" E	N 24° 30' 0.0" E	937+87.50	937+12.50
CURVE#66	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 24° 30' 0.0" E	N 23° 30' 0.0" E	938+62.50	938+87.50
CURVE#67	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 23° 30' 0.0" E	N 22° 30' 0.0" E	939+37.50	939+62.50
CURVE#68	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 22° 30' 0.0" E	N 21° 30' 0.0" E	940+12.50	939+37.50
CURVE#69	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 21° 30' 0.0" E	N 20° 30' 0.0" E	940+87.50	940+12.50
CURVE#70	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 20° 30' 0.0" E	N 19° 30' 0.0" E	941+62.50	941+87.50
CURVE#71	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 19° 30' 0.0" E	N 18° 30' 0.0" E	942+37.50	942+62.50
CURVE#72	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 18° 30' 0.0" E	N 17° 30' 0.0" E	943+12.50	942+37.50
CURVE#73	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 17° 30' 0.0" E	N 16° 30' 0.0" E	943+87.50	943+12.50
CURVE#74	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 16° 30' 0.0" E	N 15° 30' 0.0" E	944+62.50	944+87.50
CURVE#75	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 15° 30' 0.0" E	N 14° 30' 0.0" E	945+37.50	945+62.50
CURVE#76	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 14° 30' 0.0" E	N 13° 30' 0.0" E	946+12.50	945+37.50
CURVE#77	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 13° 30' 0.0" E	N 12° 30' 0.0" E	946+87.50	946+12.50
CURVE#78	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 12° 30' 0.0" E	N 11° 30' 0.0" E	947+62.50	947+87.50
CURVE#79	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 11° 30' 0.0" E	N 10° 30' 0.0" E	948+37.50	948+62.50
CURVE#80	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 10° 30' 0.0" E	N 9° 30' 0.0" E	949+12.50	948+37.50
CURVE#81	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 9° 30' 0.0" E	N 8° 30' 0.0" E	949+87.50	949+12.50
CURVE#82	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 8° 30' 0.0" E	N 7° 30' 0.0" E	950+62.50	950+87.50
CURVE#83	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 7° 30' 0.0" E	N 6° 30' 0.0" E	951+37.50	951+62.50
CURVE#84	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 6° 30' 0.0" E	N 5° 30' 0.0" E	952+12.50	951+37.50
CURVE#85	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 5° 30' 0.0" E	N 4° 30' 0.0" E	952+87.50	952+12.50
CURVE#86	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 4° 30' 0.0" E	N 3° 30' 0.0" E	953+62.50	953+87.50
CURVE#87	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 3° 30' 0.0" E	N 2° 30' 0.0" E	954+37.50	954+62.50
CURVE#88	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 2° 30' 0.0" E	N 1° 30' 0.0" E	955+12.50	954+37.50
CURVE#89	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 1° 30' 0.0" E	N 0° 30' 0.0" E	955+87.50	955+12.50
CURVE#90	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 0° 30' 0.0" E	N 0° 30' 0.0" W	956+62.50	956+87.50
CURVE#91	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 0° 30' 0.0" W	N 1° 30' 0.0" W	957+37.50	957+62.50
CURVE#92	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 1° 30' 0.0" W	N 2° 30' 0.0" W	958+12.50	957+37.50
CURVE#93	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 2° 30' 0.0" W	N 3° 30' 0.0" W	958+87.50	958+12.50
CURVE#94	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 3° 30' 0.0" W	N 4° 30' 0.0" W	959+62.50	959+87.50
CURVE#95	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 4° 30' 0.0" W	N 5° 30' 0.0" W	960+37.50	960+62.50
CURVE#96	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 5° 30' 0.0" W	N 6° 30' 0.0" W	961+12.50	960+37.50
CURVE#97	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 6° 30' 0.0" W	N 7° 30' 0.0" W	961+87.50	961+12.50
CURVE#98	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 7° 30' 0.0" W	N 8° 30' 0.0" W	962+62.50	962+87.50
CURVE#99	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 8° 30' 0.0" W	N 9° 30' 0.0" W	963+37.50	963+62.50
CURVE#100	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 9° 30' 0.0" W	N 10° 30' 0.0" W	964+12.50	963+37.50
CURVE#101	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 10° 30' 0.0" W	N 11° 30' 0.0" W	964+87.50	964+12.50
CURVE#102	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 11° 30' 0.0" W	N 12° 30' 0.0" W	965+62.50	965+87.50
CURVE#103	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 12° 30' 0.0" W	N 13° 30' 0.0" W	966+37.50	966+62.50
CURVE#104	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 13° 30' 0.0" W	N 14° 30' 0.0" W	967+12.50	966+37.50
CURVE#105	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 14° 30' 0.0" W	N 15° 30' 0.0" W	967+87.50	967+12.50
CURVE#106	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 15° 30' 0.0" W	N 16° 30' 0.0" W	968+62.50	968+87.50
CURVE#107	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 16° 30' 0.0" W	N 17° 30' 0.0" W	969+37.50	969+62.50
CURVE#108	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 17° 30' 0.0" W	N 18° 30' 0.0" W	970+12.50	969+37.50
CURVE#109	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 18° 30' 0.0" W	N 19° 30' 0.0" W	970+87.50	970+12.50
CURVE#110	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 19° 30' 0.0" W	N 20° 30' 0.0" W	971+62.50	971+87.50
CURVE#111	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 20° 30' 0.0" W	N 21° 30' 0.0" W	972+37.50	972+62.50
CURVE#112	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 21° 30' 0.0" W	N 22° 30' 0.0" W	973+12.50	972+37.50
CURVE#113	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 22° 30' 0.0" W	N 23° 30' 0.0" W	973+87.50	973+12.50
CURVE#114	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 23° 30' 0.0" W	N 24° 30' 0.0" W	974+62.50	974+87.50
CURVE#115	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 24° 30' 0.0" W	N 25° 30' 0.0" W	975+37.50	975+62.50
CURVE#116	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 25° 30' 0.0" W	N 26° 30' 0.0" W	976+12.50	975+37.50
CURVE#117	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 26° 30' 0.0" W	N 27° 30' 0.0" W	976+87.50	976+12.50
CURVE#118	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 27° 30' 0.0" W	N 28° 30' 0.0" W	977+62.50	977+87.50
CURVE#119	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 28° 30' 0.0" W	N 29° 30' 0.0" W	978+37.50	978+62.50
CURVE#120	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 29° 30' 0.0" W	N 30° 30' 0.0" W	979+12.50	978+37.50
CURVE#121	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 30° 30' 0.0" W	N 31° 30' 0.0" W	979+87.50	979+12.50
CURVE#122	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 31° 30' 0.0" W	N 32° 30' 0.0" W	980+62.50	980+87.50
CURVE#123	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 32° 30' 0.0" W	N 33° 30' 0.0" W	981+37.50	981+62.50
CURVE#124	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 33° 30' 0.0" W	N 34° 30' 0.0" W	982+12.50	981+37.50
CURVE#125	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 34° 30' 0.0" W	N 35° 30' 0.0" W	982+87.50	982+12.50
CURVE#126	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 35° 30' 0.0" W	N 36° 30' 0.0" W	983+62.50	983+87.50
CURVE#127	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 36° 30' 0.0" W	N 37° 30' 0.0" W	984+37.50	984+62.50
CURVE#128	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 37° 30' 0.0" W	N 38° 30' 0.0" W	985+12.50	984+37.50
CURVE#129	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 38° 30' 0.0" W	N 39° 30' 0.0" W	985+87.50	985+12.50
CURVE#130	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 39° 30' 0.0" W	N 40° 30' 0.0" W	986+62.50	986+87.50
CURVE#131	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 40° 30' 0.0" W	N 41° 30' 0.0" W	987+37.50	987+62.50
CURVE#132	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 41° 30' 0.0" W	N 42° 30' 0.0" W	988+12.50	987+37.50
CURVE#133	1° 00' 0.0"	0° 45' 0.0"	87.50	175.00	7639.44	N 42°

Texas Department of Transportation
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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

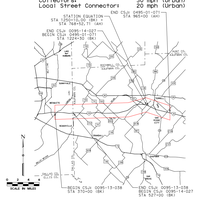
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20,390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	40 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT TO BE USED UNDER THE DIRECT SUPERVISION OF:
JASON R. RICHTER | 114558 | DATE | P.E. NUMBER
ALEXANDER S. KEMP | 135216 | DATE | P.E. NUMBER
8/6/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

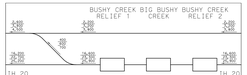
100% PRELIMINARY SUBJECT TO CHANGE

ROLL 8 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

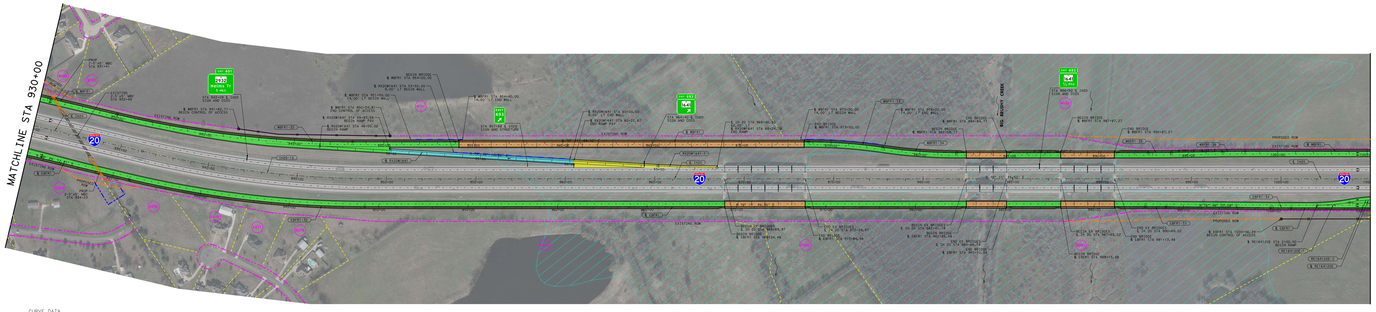






LEGEND
- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- WATERLINES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- RAILROADS
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES
1. EXISTING FEATURES WERE NOT FIELD VERIFIED. BASED ON LIDAR AND ORTHO AERIAL SURVEY PROVIDED IN AUGUST 2016.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA DATED 2015 AND 2016.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED AS NECESSARY DUE TO CHANGE IN/ADJ LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. ALL ROTATION AXIS OF ROTATION IS ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RIGHT-OF-WAY/EASEMENTS/ROW WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE C1 UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS TO BE REVISED BY OTHERS PER FEMA LOMR 18-06-0879P, 481193C0430J, 481193C0435J, 481193C0440J, 481193C0445J, 481193C0455J, 48257C0310G, 48257C0315G, 48257C0320G, 48257C0330G, 48257C0335G, AND 48257C0340G.
11. CONVENTIONAL ROADWAY STORAGE SIGNAL LENGTHS ARE NOT SHOWN AND WILL BE DETERMINED BY TRAFFIC DURING THE FINAL DESIGN PHASE OF THE PROJECT.
12. PROJECT SCHEMATIC SUBJECT TO CHANGE AS DEVELOPED AT THE PRELIMINARY PHASE.



CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	DEGREE METHOD	CHORD BEARING	CHORD DISTANCE	POINT OF CURVATURE (POC)	POINT OF TANGENCY (POT)
CURVE-1	19° 19' 29.44"	1° 7' 30"	292.00'	569.01'	1,526.74'	3° 45' 00"	S 84°39'26.74"	566.05.74'	668+51.51'	674+20.52'
CURVE-2	19° 19' 29.44"	1° 7' 30"	292.00'	569.01'	1,526.74'	3° 45' 00"	S 84°39'26.74"	566.05.74'	668+51.51'	674+20.52'
CURVE-3	2° 43' 21.68"	0° 19' 59.4"	63.70'	127.40'	4,865.00'	1° 10' 00"	S 85°39'41.18"	127.39.18'	674+20.52'	675+47.92'
CURVE-4	2° 43' 21.68"	0° 19' 59.4"	63.70'	127.40'	4,865.00'	1° 10' 00"	S 85°39'41.18"	127.39.18'	674+20.52'	675+47.92'
CURVE-5	0° 31' 00.00"	0° 19' 59.4"	21.50'	43.00'	4,865.00'	1° 10' 00"	S 84°23'11.18"	43.00.18'	675+47.92'	675+90.92'
CURVE-6	0° 31' 00.00"	0° 19' 59.4"	21.50'	43.00'	4,865.00'	1° 10' 00"	S 84°23'11.18"	43.00.18'	675+47.92'	675+90.92'
CURVE-7	1° 20' 00.00"	0° 19' 59.4"	50.00'	100.00'	4,775.00'	1° 10' 00"	S 84°15'41.18"	100.00.18'	675+90.92'	676+90.92'
CURVE-8	1° 20' 00.00"	0° 19' 59.4"	50.00'	100.00'	4,775.00'	1° 10' 00"	S 84°15'41.18"	100.00.18'	675+90.92'	676+90.92'
CURVE-9	1° 20' 00.00"	0° 19' 59.4"	50.00'	100.00'	4,775.00'	1° 10' 00"	S 84°15'41.18"	100.00.18'	675+90.92'	676+90.92'
CURVE-10	1° 20' 00.00"	0° 19' 59.4"	50.00'	100.00'	4,775.00'	1° 10' 00"	S 84°15'41.18"	100.00.18'	675+90.92'	676+90.92'
RAMP-CURVE-1	1° 20' 00.00"	0° 19' 59.4"	50.00'	100.00'	4,775.00'	1° 10' 00"	S 84°15'41.18"	100.00.18'	675+90.92'	676+90.92'

PROPERTY OWNERSHIP DATA

ID	OWNER
0276-1	0 & J BUILDING LLC
0276-2	0 & J BUILDING LLC
0276-3	1 & 1 PROPERTIES, L.P. & SONA TRUST
0276-4	1 & 1 PROPERTIES, L.P.
0276-5	2LUCKY ROLAND E JR & KELLY A
0276-6	2LUCKY ROLAND E JR & KELLY A
0276-7	3 KEYS ROBERT A JR
0276-8	3 KEYS ROBERT A JR
0276-9	3M DEPOT LIMITED PARTNERSHIP
0276-10	3M DEPOT LIMITED PARTNERSHIP

PROPERTY OWNERSHIP DATA

ID	OWNER
0276-11	3M DEPOT LIMITED PARTNERSHIP
0276-12	3M DEPOT LIMITED PARTNERSHIP
0276-13	3M DEPOT LIMITED PARTNERSHIP
0276-14	3M DEPOT LIMITED PARTNERSHIP
0276-15	3M DEPOT LIMITED PARTNERSHIP
0276-16	3M DEPOT LIMITED PARTNERSHIP
0276-17	3M DEPOT LIMITED PARTNERSHIP
0276-18	3M DEPOT LIMITED PARTNERSHIP
0276-19	3M DEPOT LIMITED PARTNERSHIP
0276-20	3M DEPOT LIMITED PARTNERSHIP

SUPERELEVATION DATA

CROSS SECTION	STATION L/T	STATION RT	CROSS SLOPE
1	937+00.00	937+00.00	-1.50%
1	937+00.00	937+00.00	-1.50%
1	937+00.00	937+00.00	-1.50%
1	937+00.00	937+00.00	-1.50%
1	937+00.00	937+00.00	-1.50%
1	937+00.00	937+00.00	-1.50%
1	937+00.00	937+00.00	-1.50%

CROSS SECTION	STATION	CROSS SLOPE
1	937+00.00	-1.50%
2	938

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	55 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. ROCHTER 114058
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

ALEXANDER S. KEMP 135016
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

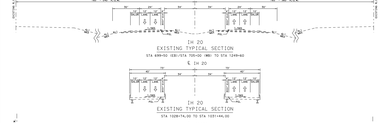
8/6/2019
DATE

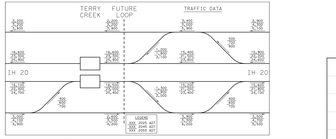
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 9 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

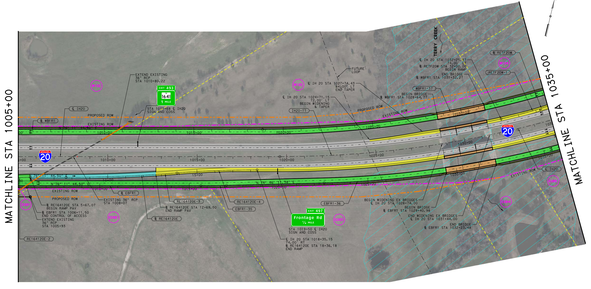
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400





LEGEND
- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- PROPOSED ROW
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES
1. EXISTING FEATURES WERE NOT FIELD VERIFIED. SOURCE OF EXISTING INFORMATION: AERIAL SURVEY PERFORMED IN AUGUST 2016 BY TEXAS AERIAL MAPPING.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. OWNERSHIP INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY TAX ROLLS AND TXDOT RECORDS.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED AS REQUIRED BY TXDOT STANDARDS. CHANGE ITEMS LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. ALL ELEVATION AXIS OF ROTATION IS ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED OUTSIDE OF THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS OTHERWISE NOTED.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE II UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS SHOWN ON SCHEMATIC OBTAINED FROM FEMA MAPS: 48113C0315L, 48113C0320L, 48113C0330L, 48113C0335L, 48113C0340L, 48257C0310G, 48257C0315G, AND 48257C0320G.
11. CONVENTIONAL SIGNAGE (SMALL) SIGNS ARE NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE OF THE PROJECT.
12. ALL PAVEMENT MARKINGS SHOWN ARE FOR GRAPHICAL REPRESENTATION ONLY. PLANS WILL BE DEVELOPED AT THE PS&E PHASE.


MATCHLINE STA 1005+00
MATCHLINE STA 1035+00
IH 20
EXIT ONLY
Frontage Rd
EXIT ONLY
Frontage Rd
EXIT ONLY
Frontage Rd

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20,390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

Mainlanes	Design Speed
Ramps	70 mph
Direct Connectors	50 mph
Turnarounds	45 mph
Frontage Roads	15 mph
SPUR 557 Frontage Roads	40 mph (Urban)
Arterials	30 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	40 mph (Urban)
	30 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

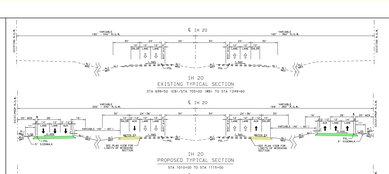
JASON R. BOOKER — 114058 — DATE
ALEXANDER S. KEMP — 135016 — DATE
8/6/2019

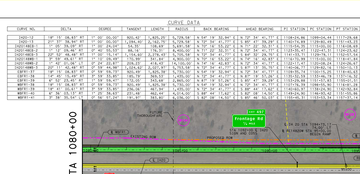
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% SUBJECT TO CHANGE

ROLL 10 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



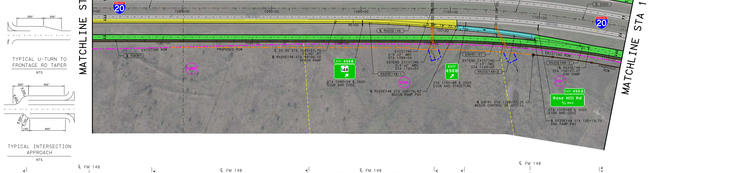


LEGEND

- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- WATERLINES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- MAINLANES
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED. TOPOGRAPHY WAS FROM AERIAL SURVEYS PERFORMED IN AUGUST 2016 AND PROVIDED IN AUGUST 2019.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORIENTATION INFORMATION SHOWN ON SCHEMATICS OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA AND AERIAL MAPS.
4. ADA RAMPS, CROSSWALKS AND DRIVEWAYS WILL BE ADJUSTED AS NECESSARY TO ACCOMMODATE ANY LOCATION CHANGE. FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. ALL ROADWAY SECTIONS ARE SHOWN LOOKING AHEAD. UNLESS NOTED OTHERWISE, THE ROTATION AXIS OF ROTATION IS ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED ROADWAY RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE C1 UNLESS NOTED OTHERWISE.
10. TO APPROXIMATE THE 100 YEAR FLOODPLAIN LIMITS FOR THIS SCHEMATIC, THE FOLLOWING FEMA MAPS WERE UTILIZED: 48257C0020J, 48257C0040J, 48257C0045J, 48257C0060J, 48257C0065J, AND 48257C0070J.
11. CONVENTIONAL ROADWAY SIGNS (SMALL SIGNS) ARE NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE.
12. PROJECT INFORMATION TO BE PROVIDED AT PUBLIC INVOLVEMENT MEETINGS WILL BE DEVELOPED AT THE PS&E PHASE.


IH 20
MATCHLINE STA 1080+00
MATCHLINE STA 1110+00
PROPOSED MAINLANE
PROPOSED FRONTAGE RD
EXISTING ROW
PROPOSED ROW
EXISTING MAINLANE
EXISTING FRONTAGE RD
PROPOSED RAMP
EXISTING RAMP
PROPOSED BRIDGE
EXISTING BRIDGE
PROPOSED RETAINING WALL
EXISTING RETAINING WALL
PROPOSED SIDEWALK
EXISTING SIDEWALK
PROPOSED DRAINAGE EASEMENT
EXISTING DRAINAGE EASEMENT
PROPOSED ROW BY OTHERS
EXISTING ROW BY OTHERS
PROPERTY LINES
PROPOSED CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
PROPOSED WATERLINE
EXISTING WATERLINE
PROPOSED WATERLINE BY OTHERS
EXISTING WATERLINE BY OTHERS
PROPOSED FLOODPLAIN
EXISTING FLOODPLAIN
PROPOSED WETLANDS
EXISTING WETLANDS
PROPOSED WATERLINES
EXISTING WATERLINES
PROPOSED WATERLINES BY OTHERS
EXISTING WATERLINES BY OTHERS
PROPOSED FLOODPLAINS
EXISTING FLOODPLAINS

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	40 mph (Urban)
Arterials	40 mph (Urban)
Ramp Meters	20 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. BOOKER — 114558
DATE — P.E. NUMBER

ALEXANDER S. KEMP — 135019
DATE — P.E. NUMBER

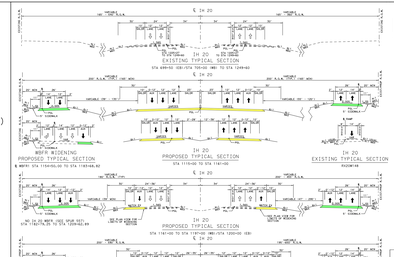
8/6/2019

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PS&E SUBJECT TO CHANGE

ROLL 11 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

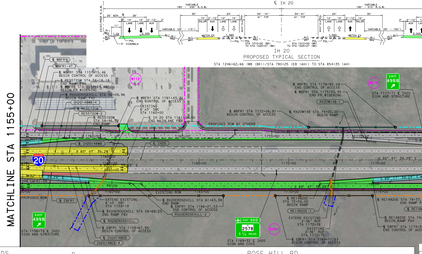


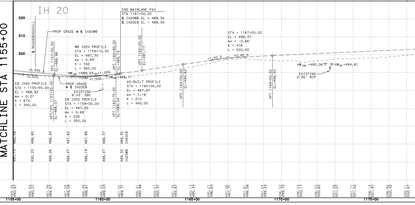
NOTES

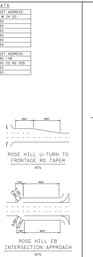
1. EXISTING FEATURES WERE NOT FIELD VERIFIED. BASED ON AERIAL INTERPRETATION. AERIAL SURVEY PHOTOGRAPHY IN AUGUST 2016 BY AERIAL SURVEYS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. UNOFFICIAL INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA AND TXDOT GIS.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE CONSTRUCTED AS NECESSARY DUE TO CHANGE IN TIE LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR AS NOTED UNLESS NOTED OTHERWISE.
7. WALL LOCATIONS NOTED SCHEMATICALLY.
8. ALL ROTATION AXIS OF ROTATION IS ABOUT THE PGL.
9. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RIGHT-OF-WAY RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
10. CURBS ON FRONTAGE ROADS AND CROSS STREETS TYPE ST-10 UNLESS NOTED OTHERWISE.
11. 1% APPROXIMATE 100 YEAR FLOODPLAIN LIMITS PER FEMA FLOOD INSURANCE RATE MAPS (FIRM) 48257C0415J, 48257C0420J, 48257C0430J, 48257C0435J, 48257C0440J, 48257C0455J, 48257C0460J, AND 48257C0465J.
12. ALL APPROVED UTILITIES WILL BE RELOCATED BY THE UTILITY OWNER (SMALL SIGNS ARE NOT SHOWN AND WILL BE RELOCATED BY THE CONTRACTOR).
13. PROJECT SCHEDULE: THE PROJECT WILL BE DEVELOPED AT THE PS&E PHASE.

LEGEND

- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- WATERLINES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- RAILROAD
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS







Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	40 mph (Urban)
Arterials	40 mph (Urban)
Ramp Meters	20 mph (Urban)
Local Street Connectors	20 mph (Urban)

Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. BOOKER — 114558
DATE — P.E. NUMBER

ALEXANDER S. KEMP — 135019
DATE — P.E. NUMBER

8/6/2019

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PS&E SUBJECT TO CHANGE

ROLL 11 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

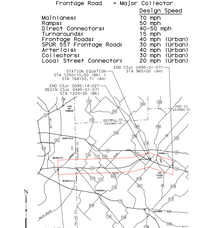
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane • Interstate
Frontage Road • Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	50 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT TO BE USED UNDER THE DIRECT SUPERVISION OF:

JASON R. BOOKER | 114508 | DATE | P.E. NUMBER
ALEXANDER S. KEMP | 135016 | DATE | P.E. NUMBER

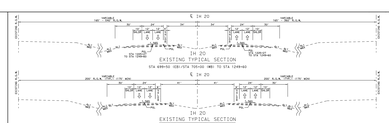
8/6/2019

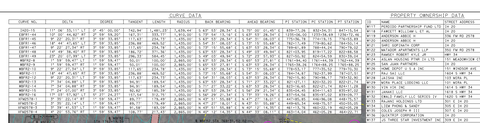
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PS&E INTEGRITY SUBJECT TO CHANGE

ROLL 12 OF 30

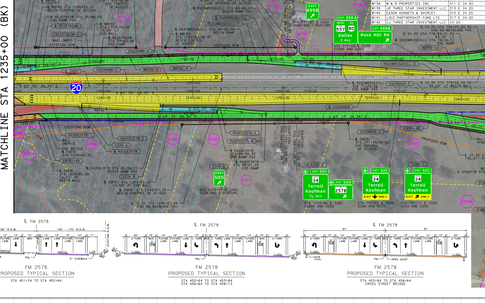
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

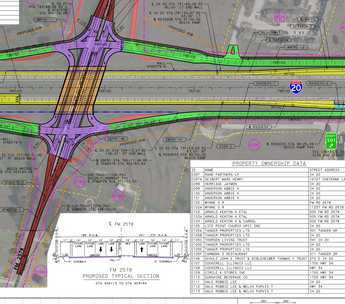


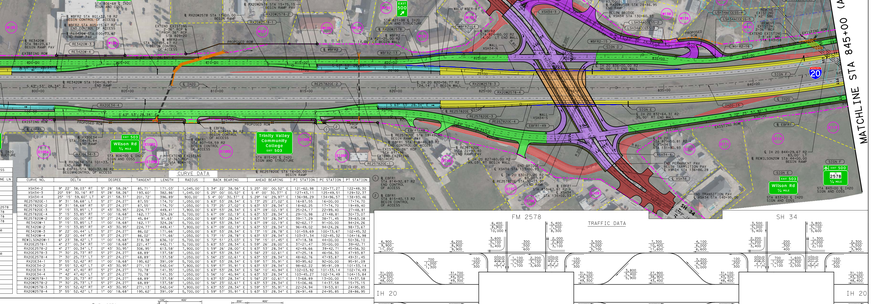


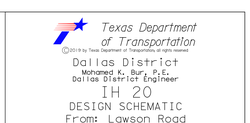
NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT FOR THE LOCATION AERIAL SURVEYS PERFORMED IN AUGUST 2016.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA DATED 2016.
4. ADA RAMPS, CURB RAMPS, AND DRIVEWAYS WILL BE DESIGNED AND CONSTRUCTED TO CONFORM, WHEN LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THIS PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. ALL PROPOSED RETAINING WALLS ARE SHOWN OFFSET FROM THE PROPOSED R.O.W. LINE, UNLESS NOTED OTHERWISE.
7. ALL ROTATIONS ACCS OF ROTATION IS ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED R.O.W. TO BE RECONSTRUCTED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE C1 UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS SHOWN ON SCHEMATIC ARE FROM FEMA MAPS: 48113C0435J, 48113C0440J, 48113C0445J, 48113C0455J, 48257C0435G, 48257C0440G, 48257C0455G, AND 48257C0460G.
11. CONVENTIONAL PAVEMENT MARKINGS AND SIGNS ARE NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE OF THE PROJECT.
12. PROPOSED DRAINAGE SYSTEM SHOWN WILL BE DEVELOPED AT THE PS&E PHASE.









Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT TO BE USED UNDER THE DIRECT SUPERVISION OF:

JASON R. BOOKER | 114508 | DATE | P.E. NUMBER
ALEXANDER S. KEMP | 135016 | DATE | P.E. NUMBER

8/6/2019

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PS&E INTEGRITY SUBJECT TO CHANGE

ROLL 12 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

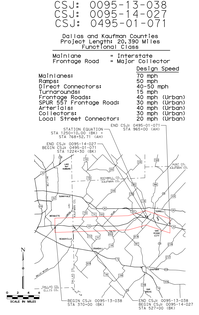
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC NOT TO BE USED UNDER THE DIRECT SUPERVISION OF:

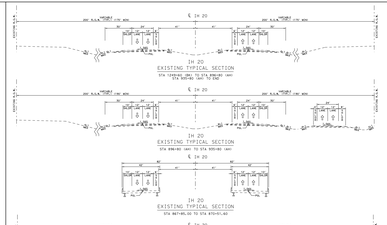
JASON R. BOOKER — 114508 — P.E. NUMBER
ALEXANDER S. KEMP — 135213 — P.E. NUMBER
8/6/2019 — DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 13 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



LEGEND
- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- WATERLINES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- RAILROADS
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

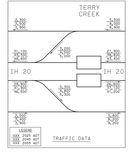
NOTES
1. EXISTING FEATURES WERE NOT FIELD VERIFIED EXCEPT AS NOTED IN THE SURVEY NARRATIVE. AERIAL SURVEY PERFORMED IN AUGUST 2016 BY AERIAL SURVEYS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. UNDERGROUND INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS AND FIELD VISITS.
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAYS WILL BE RECONSTRUCTED AS NECESSARY DUE TO CHANGE, FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR BACK OF CURB UNLESS NOTED OTHERWISE.
7. ALL ELEVATION AXIS OF ROTATION IS ABOUT THE MAIN
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS NOTED OTHERWISE.
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE II UNLESS NOTED OTHERWISE.
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS SHOWN ON SCHEMATIC OBTAINED FROM FEMA MAPS: 48113C0435K, 48113C0445K, 48113C0455K, 48257C0435J, 48257C0445J, 48257C0455J, AND 48257C0465J.
11. CONVENTIONAL ROADWAY SIGNAGE SHALL BE USED. SIGNS ARE NOT SHOWN AND WILL BE DESIGNED AT THE FINAL DESIGN PHASE OF THE PROJECT.
12. PROJECT SCHEMATIC SUBMITTAL WILL BE DEVELOPED AT THE FINAL DESIGN PHASE.

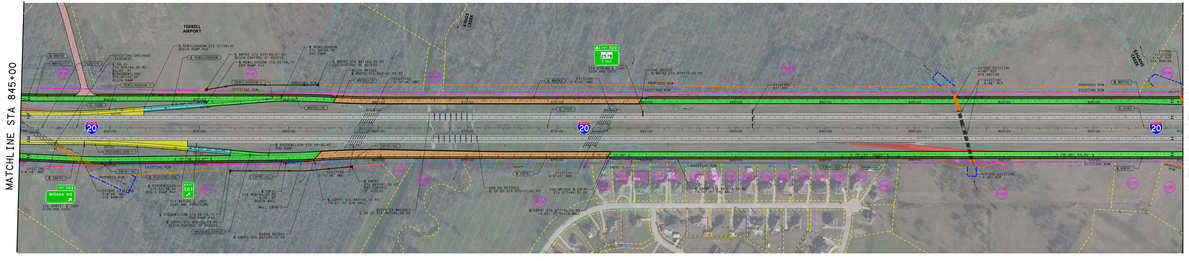
PROPERTY OWNERSHIP DATA

ID	NAME	STREET ADDRESS
1	TERRELL ENERGY STAR INVESTMENTS LLC	1001 E INDUSTRIAL BLVD
2	CITY OF TERRELL	201 E NASH ST
3	TEXAS ELECTRIC COOPERATIVES	1201 E INDUSTRIAL BLVD
4	ONCOR ELECTRIC DELIVERY COMPANY	1601 E INDUSTRIAL BLVD
5	TERRELL ECONOMIC DEVELOPMENT	1001 E INDUSTRIAL BLVD

ID	NAME	STREET ADDRESS
1	TERRELL ENERGY STAR INVESTMENTS LLC	1001 E INDUSTRIAL BLVD
2	CITY OF TERRELL	201 E NASH ST
3	TEXAS ELECTRIC COOPERATIVES	1201 E INDUSTRIAL BLVD
4	ONCOR ELECTRIC DELIVERY COMPANY	1601 E INDUSTRIAL BLVD
5	TERRELL ECONOMIC DEVELOPMENT	1001 E INDUSTRIAL BLVD

ID	NAME	STREET ADDRESS
1216	DAVID ROBBIE LEE & MELVA PURSLEY	124 JOHN DR
1217	ONCOR ELECTRIC DELIVERY COMPANY	1601 E INDUSTRIAL BLVD
1218	ONCOR ELECTRIC DELIVERY COMPANY	1601 E INDUSTRIAL BLVD
1219	SPARK AREA	81 KING CREEK DR
1220	MARTINEZ ARTURO & MELISSA	1609 KING CREEK DR
1221	RAMIREZ M A JUAN & MARIA	1613 KING CREEK DR
1222	SILVA RODRIGO A	1617 KING CREEK DR
1223	SILVA CLARA A & ALEXIA D	1621 KING CREEK DR
1224	SILVA CLARA A & ALEXIA D & RAY	1625 KING CREEK DR
1225	HALL MICHAEL A & ROBIN J	1629 KING CREEK DR
1226	LUEVANO JOSE	1633 KING CREEK DR
1227	LUEVANO JOSE	1637 KING CREEK DR
1228	WALKER BARBARA	1641 KING CREEK DR
1229	LUEVANO JOSE & ANGEL L	1645 KING CREEK DR
1230	LUEVANO JOSE	1649 KING CREEK DR
1231	HOWER BOBBY	1653 KING CREEK DR
1232	TERRELL PLASTICS & DIESETTE A	1657 KING CREEK DR
1233	TERRELL PLASTICS & DIESETTE	1661 KING CREEK DR
1234	WILLIAMS TIMOTHY W & DONNA L	1665 KING CREEK DR
1235	LUEVANO JOSE	1669 KING CREEK DR
1236	SILVA R	1673 KING CREEK DR
1274	TERRAMAR 4 OWNS LLC	124 JOHN DR
1275	UNIVERSITY OF COLLEGE	124 JOHN DR





CURVE DATA

CURVE NO.	DELTA	RADIUS	TANGENT	LENGTH	RADIUS	BACK BEARING	AHEAD BEARING	PT. STATION	PI'C STATION	PT. STATION
CURVE 1	11° 28' 25.11"	2° 45' 00.00"	1014.84'	1401.03'	2,078.98'	S 58° 51' 26.76" E	S 70° 19' 51.87" E	1910+71.86	1924+73.76	1931+72.89
CURVE 2	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 70° 19' 51.87" E	S 72° 49' 04.87" E	1931+72.89	1934+62.85	1937+62.85
CURVE 3	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 72° 49' 04.87" E	S 75° 18' 17.88" E	1937+62.85	1940+52.81	1943+52.81
CURVE 4	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 75° 18' 17.88" E	S 77° 47' 30.89" E	1943+52.81	1946+42.77	1949+42.77
CURVE 5	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 77° 47' 30.89" E	S 80° 16' 43.89" E	1949+42.77	1952+32.73	1955+32.73
CURVE 6	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 80° 16' 43.89" E	S 82° 45' 56.90" E	1955+32.73	1958+22.69	1961+22.69
CURVE 7	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 82° 45' 56.90" E	S 85° 15' 09.91" E	1961+22.69	1964+12.65	1967+12.65
CURVE 8	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 85° 15' 09.91" E	S 87° 44' 22.91" E	1967+12.65	1970+02.61	1973+02.61
CURVE 9	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 87° 44' 22.91" E	S 90° 13' 35.92" E	1973+02.61	1975+92.57	1978+92.57
CURVE 10	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 90° 13' 35.92" E	S 92° 42' 48.93" E	1978+92.57	1981+82.53	1984+82.53
CURVE 11	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 92° 42' 48.93" E	S 95° 12' 01.93" E	1984+82.53	1987+72.49	1990+72.49
CURVE 12	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 95° 12' 01.93" E	S 97° 41' 14.94" E	1990+72.49	1993+62.45	1996+62.45
CURVE 13	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 97° 41' 14.94" E	S 100° 10' 27.95" E	1996+62.45	1999+52.41	2002+52.41
CURVE 14	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 100° 10' 27.95" E	S 102° 39' 40.96" E	2002+52.41	2005+42.37	2008+42.37
CURVE 15	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 102° 39' 40.96" E	S 105° 08' 53.96" E	2008+42.37	2011+32.33	2014+32.33
CURVE 16	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 105° 08' 53.96" E	S 107° 38' 06.97" E	2014+32.33	2017+22.29	2020+22.29
CURVE 17	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 107° 38' 06.97" E	S 110° 07' 19.98" E	2020+22.29	2023+12.25	2026+12.25
CURVE 18	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 110° 07' 19.98" E	S 112° 36' 32.98" E	2026+12.25	2029+02.21	2032+02.21
CURVE 19	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 112° 36' 32.98" E	S 115° 05' 45.99" E	2032+02.21	2034+92.17	2037+92.17
CURVE 20	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 115° 05' 45.99" E	S 117° 34' 59.00" E	2037+92.17	2040+82.13	2043+82.13
CURVE 21	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 117° 34' 59.00" E	S 120° 04' 12.01" E	2043+82.13	2046+72.09	2049+72.09
CURVE 22	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 120° 04' 12.01" E	S 122° 33' 25.01" E	2049+72.09	2052+62.05	2055+62.05
CURVE 23	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 122° 33' 25.01" E	S 125° 02' 38.02" E	2055+62.05	2058+52.01	2061+52.01
CURVE 24	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 125° 02' 38.02" E	S 127° 31' 51.03" E	2061+52.01	2064+41.97	2067+41.97
CURVE 25	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 127° 31' 51.03" E	S 130° 01' 04.04" E	2067+41.97	2070+31.93	2073+31.93
CURVE 26	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 130° 01' 04.04" E	S 132° 30' 17.04" E	2073+31.93	2076+21.89	2079+21.89
CURVE 27	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 132° 30' 17.04" E	S 134° 59' 30.05" E	2079+21.89	2082+11.85	2085+11.85
CURVE 28	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 134° 59' 30.05" E	S 137° 28' 43.06" E	2085+11.85	2088+01.81	2091+01.81
CURVE 29	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 137° 28' 43.06" E	S 139° 57' 56.07" E	2091+01.81	2093+91.77	2096+91.77
CURVE 30	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 139° 57' 56.07" E	S 142° 27' 09.08" E	2096+91.77	2099+81.73	2102+81.73
CURVE 31	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 142° 27' 09.08" E	S 144° 56' 22.08" E	2102+81.73	2105+71.69	2108+71.69
CURVE 32	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 144° 56' 22.08" E	S 147° 25' 35.09" E	2108+71.69	2111+61.65	2114+61.65
CURVE 33	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 147° 25' 35.09" E	S 149° 54' 48.10" E	2114+61.65	2117+51.61	2120+51.61
CURVE 34	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 149° 54' 48.10" E	S 152° 24' 01.11" E	2120+51.61	2123+41.57	2126+41.57
CURVE 35	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 152° 24' 01.11" E	S 154° 53' 14.12" E	2126+41.57	2129+31.53	2132+31.53
CURVE 36	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 154° 53' 14.12" E	S 157° 22' 27.13" E	2132+31.53	2135+21.49	2138+21.49
CURVE 37	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 157° 22' 27.13" E	S 159° 51' 40.13" E	2138+21.49	2141+11.45	2144+11.45
CURVE 38	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 159° 51' 40.13" E	S 162° 20' 53.14" E	2144+11.45	2147+01.41	2150+01.41
CURVE 39	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 162° 20' 53.14" E	S 164° 50' 06.15" E	2150+01.41	2152+91.37	2155+91.37
CURVE 40	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 164° 50' 06.15" E	S 167° 19' 19.16" E	2155+91.37	2158+81.33	2161+81.33
CURVE 41	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 167° 19' 19.16" E	S 169° 48' 32.16" E	2161+81.33	2164+71.29	2167+71.29
CURVE 42	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 169° 48' 32.16" E	S 172° 17' 45.17" E	2167+71.29	2170+61.25	2173+61.25
CURVE 43	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 172° 17' 45.17" E	S 174° 46' 58.18" E	2173+61.25	2176+51.21	2179+51.21
CURVE 44	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 174° 46' 58.18" E	S 177° 16' 11.19" E	2179+51.21	2182+41.17	2185+41.17
CURVE 45	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 177° 16' 11.19" E	S 179° 45' 24.20" E	2185+41.17	2188+31.13	2191+31.13
CURVE 46	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 179° 45' 24.20" E	S 182° 14' 37.21" E	2191+31.13	2194+21.09	2197+21.09
CURVE 47	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 182° 14' 37.21" E	S 184° 43' 50.22" E	2197+21.09	2200+11.05	2203+11.05
CURVE 48	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 184° 43' 50.22" E	S 187° 13' 03.23" E	2203+11.05	2206+01.01	2209+01.01
CURVE 49	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 187° 13' 03.23" E	S 189° 42' 16.24" E	2209+01.01	2211+90.97	2214+90.97
CURVE 50	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 189° 42' 16.24" E	S 192° 11' 29.25" E	2214+90.97	2217+80.93	2220+80.93
CURVE 51	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 192° 11' 29.25" E	S 194° 40' 42.25" E	2220+80.93	2223+70.89	2226+70.89
CURVE 52	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 194° 40' 42.25" E	S 197° 09' 55.26" E	2226+70.89	2229+60.85	2232+60.85
CURVE 53	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 197° 09' 55.26" E	S 199° 39' 08.27" E	2232+60.85	2235+50.81	2238+50.81
CURVE 54	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 199° 39' 08.27" E	S 202° 08' 21.28" E	2238+50.81	2241+40.77	2244+40.77
CURVE 55	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 202° 08' 21.28" E	S 204° 37' 34.29" E	2244+40.77	2247+30.73	2250+30.73
CURVE 56	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 204° 37' 34.29" E	S 207° 06' 47.30" E	2250+30.73	2253+20.69	2256+20.69
CURVE 57	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 207° 06' 47.30" E	S 209° 36' 00.31" E	2256+20.69	2259+10.65	2262+10.65
CURVE 58	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 209° 36' 00.31" E	S 212° 05' 13.32" E	2262+10.65	2265+00.61	2268+00.61
CURVE 59	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 212° 05' 13.32" E	S 214° 34' 26.33" E	2268+00.61	2270+90.57	2273+90.57
CURVE 60	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 214° 34' 26.33" E	S 217° 03' 39.34" E	2273+90.57	2276+80.53	2279+80.53
CURVE 61	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 217° 03' 39.34" E	S 219° 32' 52.35" E	2279+80.53	2282+70.49	2285+70.49
CURVE 62	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 219° 32' 52.35" E	S 222° 02' 05.36" E	2285+70.49	2288+60.45	2291+60.45
CURVE 63	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 222° 02' 05.36" E	S 224° 31' 18.37" E	2291+60.45	2294+50.41	2297+50.41
CURVE 64	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 224° 31' 18.37" E	S 227° 00' 31.38" E	2297+50.41	2300+40.37	2303+40.37
CURVE 65	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 227° 00' 31.38" E	S 229° 29' 44.39" E	2303+40.37	2306+30.33	2309+30.33
CURVE 66	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 229° 29' 44.39" E	S 231° 58' 57.40" E	2309+30.33	2312+20.29	2315+20.29
CURVE 67	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 231° 58' 57.40" E	S 234° 28' 10.41" E	2315+20.29	2318+10.25	2321+10.25
CURVE 68	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 234° 28' 10.41" E	S 236° 57' 23.42" E	2321+10.25	2324+00.21	2327+00.21
CURVE 69	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 236° 57' 23.42" E	S 239° 26' 36.43" E	2327+00.21	2329+90.17	2332+90.17
CURVE 70	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 239° 26' 36.43" E	S 241° 55' 49.44" E	2332+90.17	2335+80.13	2338+80.13
CURVE 71	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 241° 55' 49.44" E	S 244° 25' 02.45" E	2338+80.13	2341+70.09	2344+70.09
CURVE 72	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 244° 25' 02.45" E	S 246° 54' 15.46" E	2344+70.09	2347+60.05	2350+60.05
CURVE 73	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 246° 54' 15.46" E	S 249° 23' 28.47" E	2350+60.05	2353+50.01	2356+50.01
CURVE 74	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 249° 23' 28.47" E	S 251° 52' 41.48" E	2356+50.01	2359+39.97	2362+39.97
CURVE 75	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 251° 52' 41.48" E	S 254° 21' 54.49" E	2362+39.97	2365+29.93	2368+29.93
CURVE 76	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 254° 21' 54.49" E	S 256° 51' 07.50" E	2368+29.93	2371+19.89	2374+19.89
CURVE 77	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 256° 51' 07.50" E	S 259° 20' 20.51" E	2374+19.89	2377+09.85	2380+09.85
CURVE 78	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 259° 20' 20.51" E	S 261° 49' 33.52" E	2380+09.85	2382+99.81	2385+99.81
CURVE 79	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 261° 49' 33.52" E	S 264° 18' 46.53" E	2385+99.81	2388+89.77	2391+89.77
CURVE 80	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 264° 18' 46.53" E	S 266° 47' 59.54" E	2391+89.77	2394+79.73	2397+79.73
CURVE 81	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 266° 47' 59.54" E	S 269° 17' 12.55" E	2397+79.73	2400+69.69	2403+69.69
CURVE 82	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 269° 17' 12.55" E	S 271° 46' 25.56" E	2403+69.69	2406+59.65	2409+59.65
CURVE 83	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 271° 46' 25.56" E	S 274° 15' 38.57" E	2409+59.65	2412+49.61	2415+49.61
CURVE 84	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 274° 15' 38.57" E	S 276° 44' 51.58" E	2415+49.61	2418+39.57	2421+39.57
CURVE 85	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 276° 44' 51.58" E	S 279° 14' 04.59" E	2421+39.57	2424+29.53	2427+29.53
CURVE 86	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 279° 14' 04.59" E	S 281° 43' 17.60" E	2427+29.53	2430+19.49	2433+19.49
CURVE 87	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 281° 43' 17.60" E	S 284° 12' 30.61" E	2433+19.49	2436+09.45	2439+09.45
CURVE 88	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 284° 12' 30.61" E	S 286° 41' 43.62" E	2439+09.45	2441+99.41	2444+99.41
CURVE 89	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 286° 41' 43.62" E	S 289° 10' 56.63" E	2444+99.41	2447+89.37	2450+89.37
CURVE 90	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 289° 10' 56.63" E	S 291° 40' 09.64" E	2450+89.37	2453+79.33	2456+79.33
CURVE 91	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 291° 40' 09.64" E	S 294° 09' 22.65" E	2456+79.33	2459+69.29	2462+69.29
CURVE 92	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 294° 09' 22.65" E	S 296° 38' 35.66" E	2462+69.29	2465+59.25	2468+59.25
CURVE 93	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 296° 38' 35.66" E	S 299° 07' 48.67" E	2468+59.25	2471+49.21	2474+49.21
CURVE 94	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 299° 07' 48.67" E	S 301° 37' 01.68" E	2474+49.21	2477+39.17	2480+39.17
CURVE 95	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 301° 37' 01.68" E	S 304° 06' 14.69" E	2480+39.17	2483+29.13	2486+29.13
CURVE 96	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 304° 06' 14.69" E	S 306° 35' 27.70" E	2486+29.13	2489+19.09	2492+19.09
CURVE 97	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 306° 35' 27.70" E	S 309° 04' 40.71" E	2492+19.09	2495+09.05	2498+09.05
CURVE 98	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 309° 04' 40.71" E	S 311° 33' 53.72" E	2498+09.05	2500+99.01	2503+99.01
CURVE 99	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 311° 33' 53.72" E	S 314° 03' 06.73" E	2503+99.01	2506+88.97	2509+88.97
CURVE 100	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 314° 03' 06.73" E	S 316° 32' 19.74" E	2509+88.97	2512+78.93	2515+78.93
CURVE 101	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 316° 32' 19.74" E	S 319° 01' 32.75" E	2515+78.93	2518+68.89	2521+68.89
CURVE 102	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 319° 01' 32.75" E	S 321° 30' 45.76" E	2521+68.89	2524+58.85	2527+58.85
CURVE 103	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 321° 30' 45.76" E	S 323° 59' 58.77" E	2527+58.85	2530+48.81	2533+48.81
CURVE 104	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 323° 59' 58.77" E	S 326° 29' 11.78" E	2533+48.81	2536+38.77	2539+38.77
CURVE 105	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 326° 29' 11.78" E	S 328° 58' 24.79" E	2539+38.77	2542+28.73	2545+28.73
CURVE 106	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 328° 58' 24.79" E	S 331° 27' 37.80" E	2545+28.73	2548+18.69	2551+18.69
CURVE 107	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'	7,639.44'	S 331° 27' 37.80" E	S 333° 56' 50.81" E	2551+18.69	2554+08.65	2557+08.65
CURVE 108	2° 29' 13.01"	0° 45' 00.00"	145.00'	289.96'

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

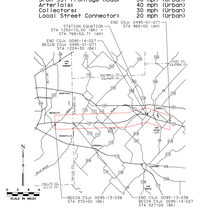
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	45 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

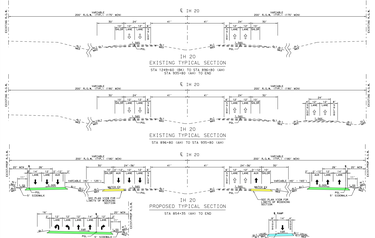
PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:
JASON R. BUCHER — 114018 — P.E. NUMBER
ALEXANDER S. KUNG — 135216 — P.E. NUMBER
8/6/2019 — DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 14 OF 30

100% PRELIMINARY SUBJECT TO CHANGE

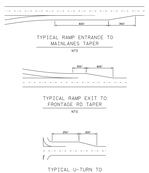
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

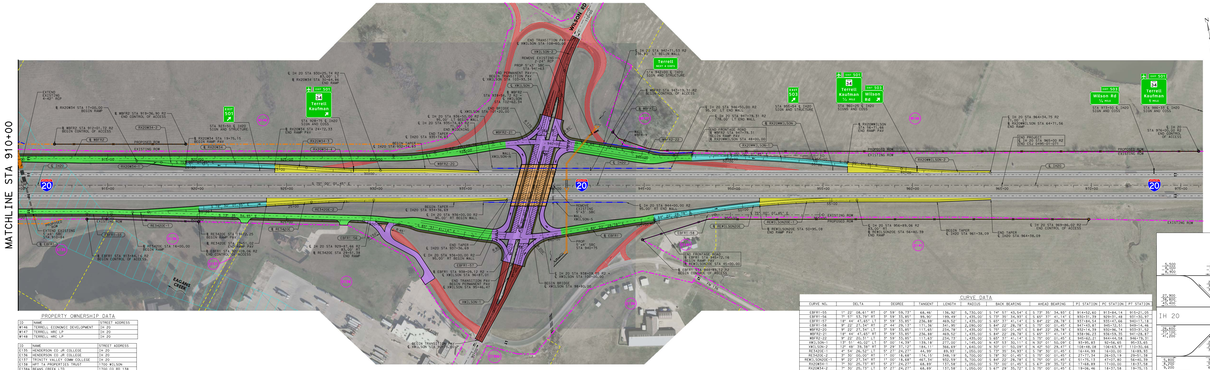




NOTES

1. EXISTING FEATURES WERE NOT FIELD VERIFIED AND ARE BASED ON AERIAL MAPPING AERIAL SURVEYS PROVIDED IN AUGUST 2016 BY TEXAS MAPPING.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. ORTHOPHOTO INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY GIS DATA DATED 2015 AND 2016.
4. ADA RAMPS, CURBS, AND DRIVEWAYS WILL BE CONSTRUCTED AS REQUIRED BY FIELD CONDITIONS. FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS POINTS, LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS AND TYPICAL SECTIONS OF PAVEMENT, OR BRIDGE STRUCTURES ARE PRELIMINARY ONLY.
7. WALL LOCATIONS NOTED SCHEMATICALLY.
8. ALL ELEVATION AXIS OF ROTATION IS ABOUT THE PGL.
9. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN THE PROPOSED RECONSTRUCTION WILL BE REMOVED UNLESS OTHERWISE NOTED.
10. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE 2 UNLESS NOTED OTHERWISE.
11. 10-APPROACH/50 YEAR FLOODPLAIN LIMITS ARE BASED ON THE FOLLOWING EFFECTIVE FIRM PANELS: 48113C0415J, 48113C0420J, 48113C0430J, 48113C0435J, 48113C0440J, 48257C0310J, 48257C0315J, 48257C0320J, 48257C0330J, AND 48257C0335J.
12. CONVENTIONAL ROADWAY SIGNAGE (SMALL SIGNS) ARE NOT SHOWN AND WILL BE DESIGNED AT THE PS&E PHASE OF THE PROJECT.
13. PROPOSED SIGNAL LOCATIONS SHOWN ON THIS SCHEMATIC ARE PRELIMINARY AND WILL BE DEVELOPED AT THE PS&E PHASE.





PROPERTY OWNERSHIP DATA

PARCEL	OWNER	STREET ADDRESS
RT-01	TEXHOMA DEVELOPMENT LTD	IH 20
RT-02	TEXHOMA, MIC LP	IH 20
RT-03	TEXHOMA, MIC LP	IH 20

PARCEL	OWNER	STREET ADDRESS
ES-01	TRUSTEES OF JR COLLEGE	IH 20
ES-02	TRUSTEES OF JR COLLEGE	IH 20
ES-03	TRUSTEES OF JR COLLEGE	IH 20
ES-04	TEXAS VALLEY COMM COLLEGE	IH 20
ES-05	TEXAS VALLEY COMM COLLEGE	1200 WILSON RD
ES-06	TEXAS TRACK LTD	1200 WILSON RD
ES-07	TEXAS TRACK LTD	1200 WILSON RD
ES-08	TEXAS TRACK LTD	1200 WILSON RD

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road
To: East of Wilson Road (CR 138)

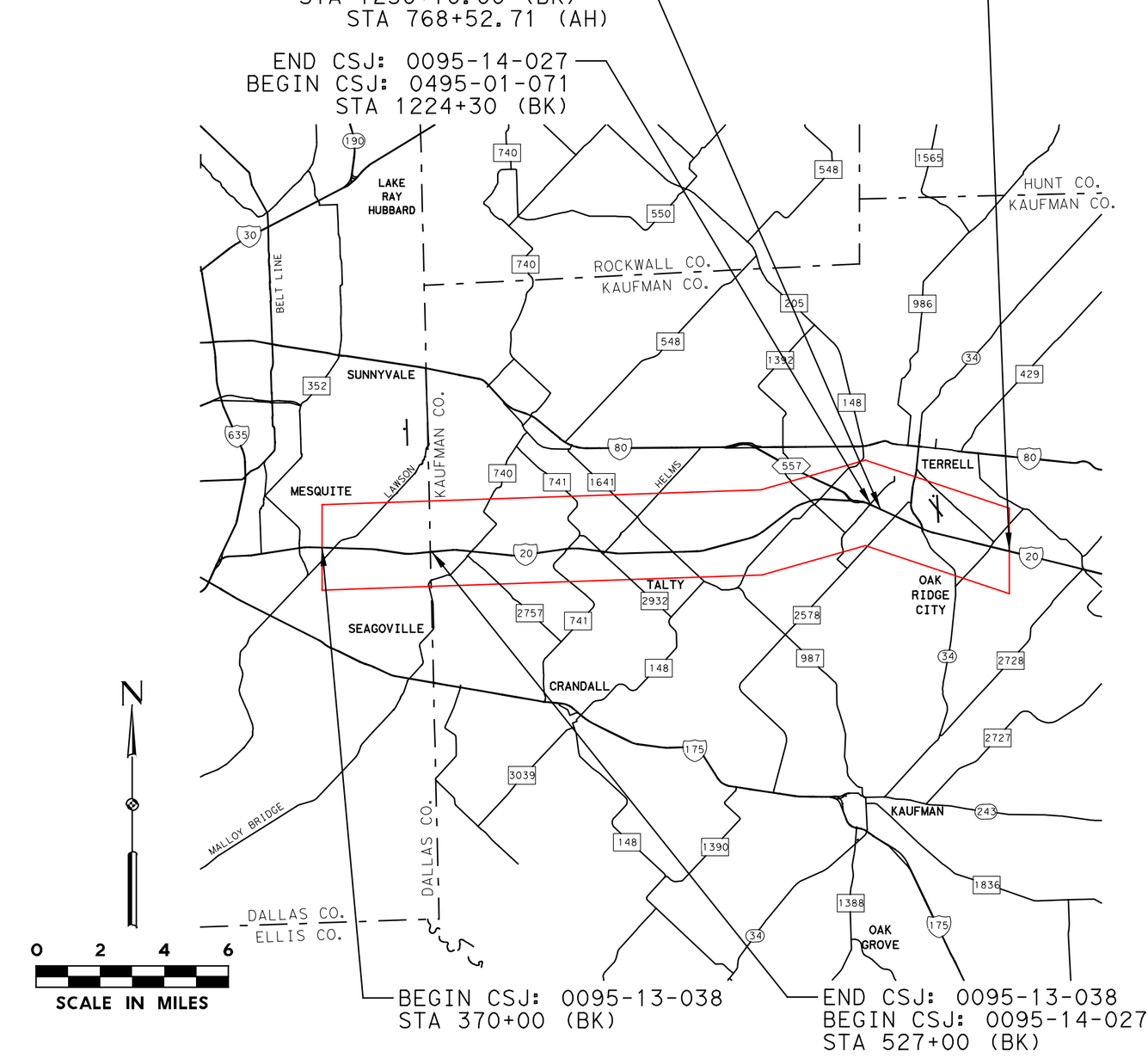
CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles

Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 557 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connector:	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS

SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:

NAME	P.E. NUMBER
JASON A. RICHTER	114508
ALEXANDER S. KEMP	133019

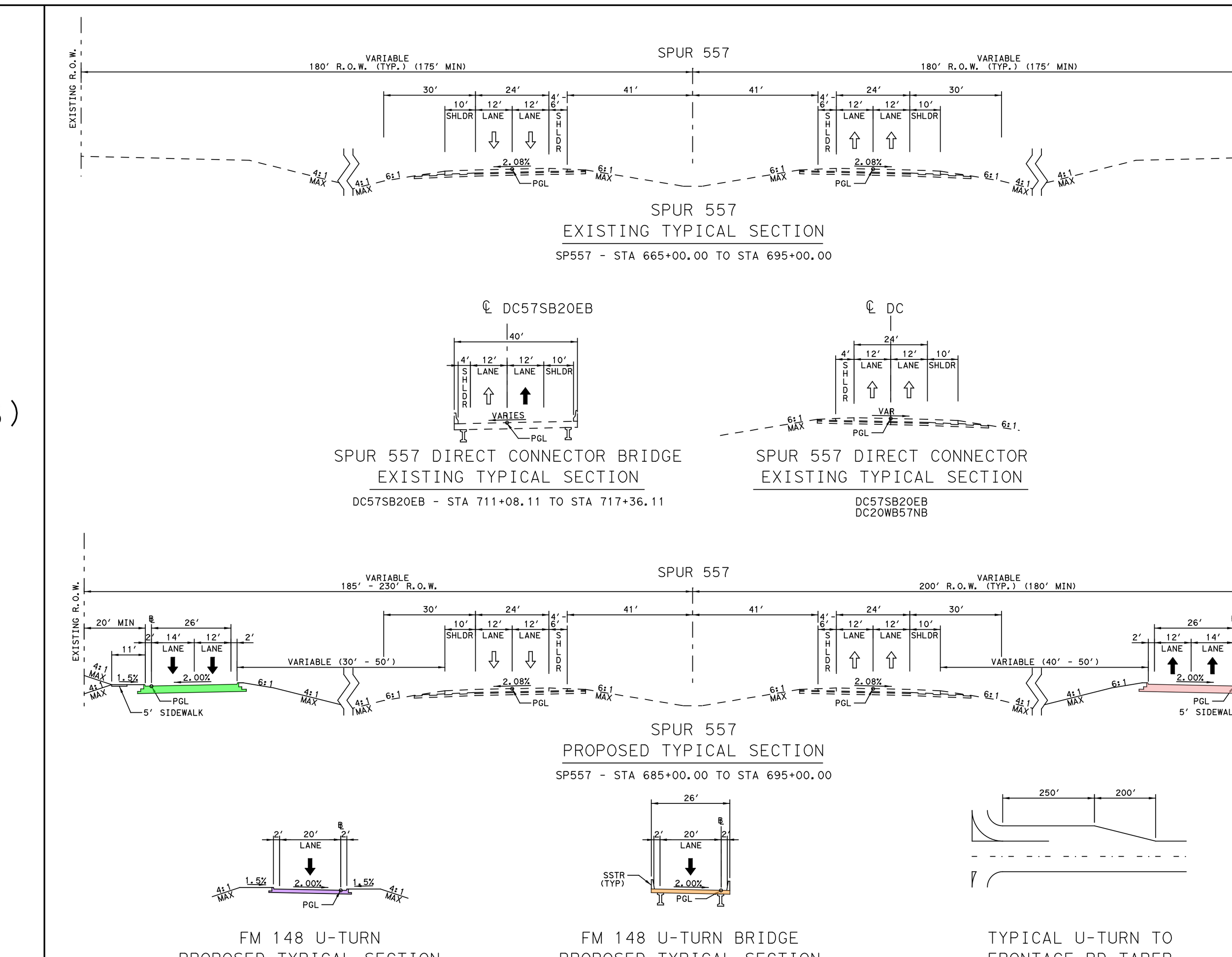
9/4/2019
DATE

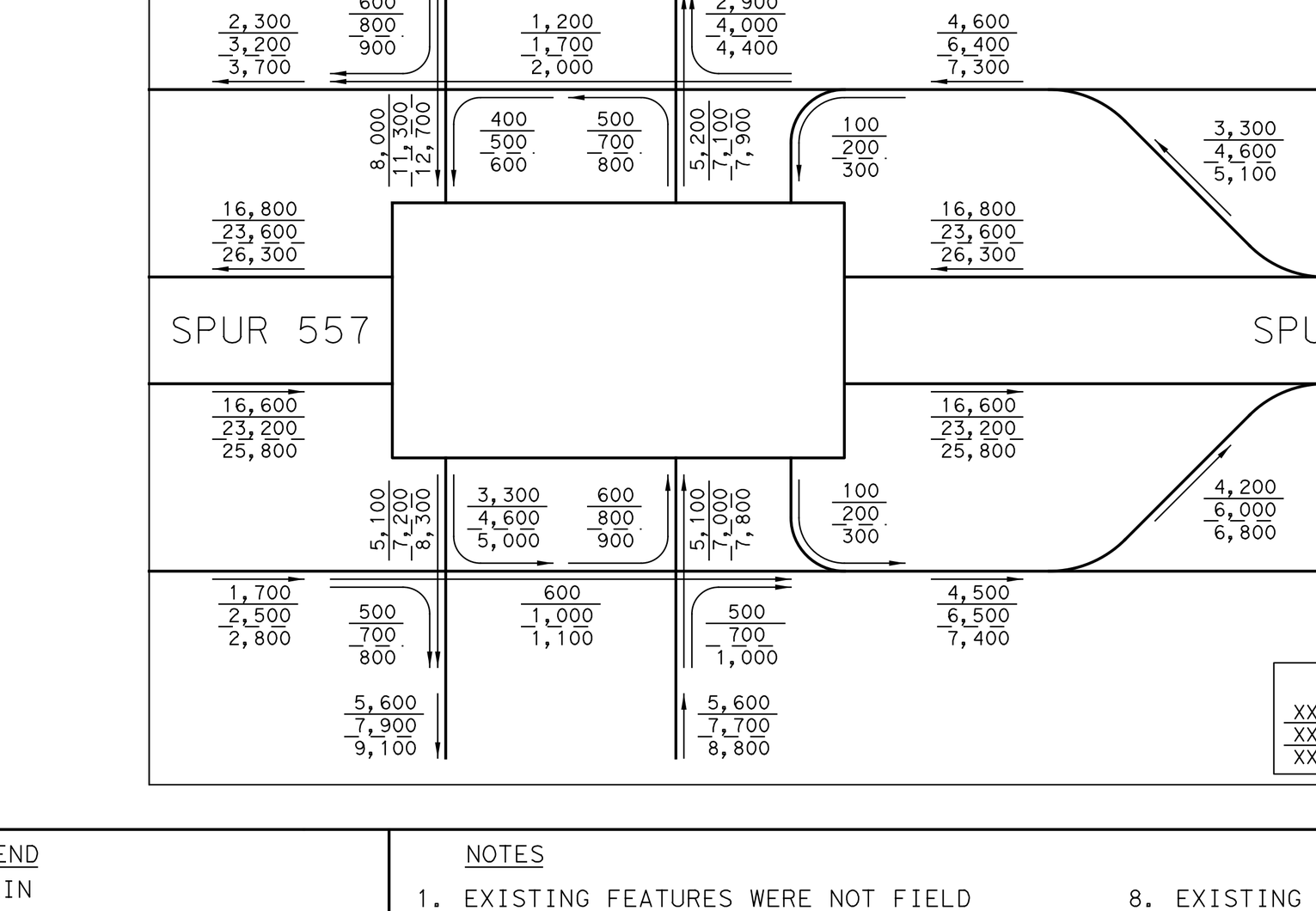
100% PRELIMINARY, SUBJECT TO CHANGE

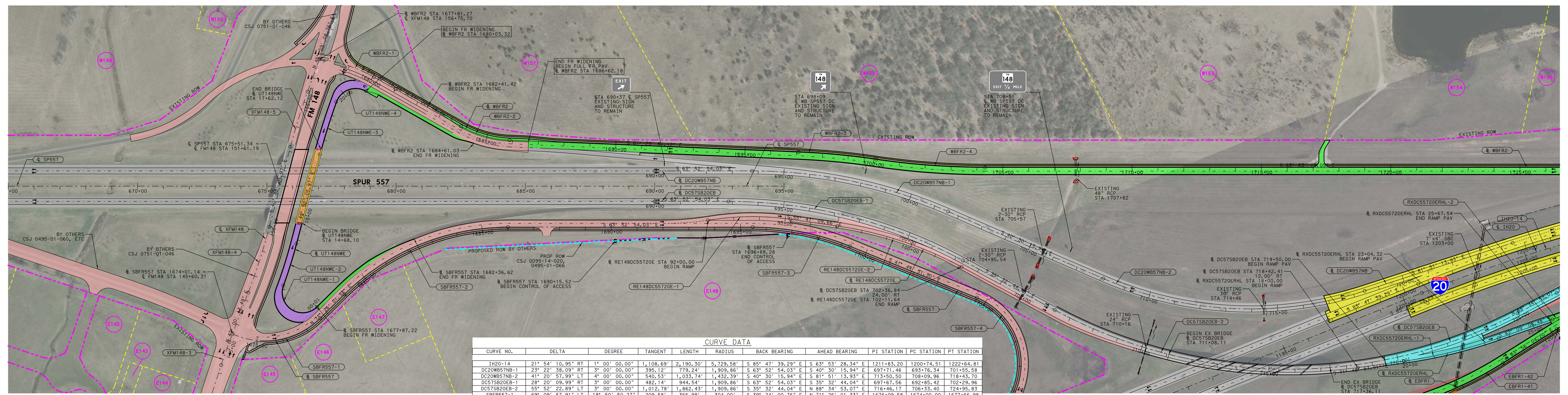
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 15 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400







CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	BACK BEARING	AHEAD BEARING	PI STATION	PC STATION	PT STATION
IH20-14	21° 54' 10.95" RT	1° 00' 00.00"	1,108.69'	2,190.30'	5,729.58'	S 85° 47' 39.29" E	S 63° 53' 28.34" E	1211+83.20	1200+74.51	1222+64.81
DC20WB57NB-1	23° 22' 38.09" RT	3° 00' 00.00"	395.12'	779.24'	1,909.86'	S 63° 52' 54.03" E	S 40° 30' 15.94" E	697+71.46	693+76.34	701+55.58
DC20WB57NB-2	41° 20' 57.99" LT	4° 00' 00.00"	540.53'	1,033.74'	1,432.39'	S 40° 30' 15.94" E	S 81° 51' 13.93" E	713+50.50	708+09.96	718+43.70
DC57SB20EB-1	28° 20' 09.99" RT	3° 00' 00.00"	482.14'	944.54'	1,909.86'	S 63° 52' 54.03" E	S 35° 32' 44.04" E	697+67.56	692+85.42	702+29.96
DC57SB20EB-2	55° 52' 22.89" LT	3° 00' 00.00"	1,012.78'	1,862.43'	1,909.86'	S 35° 32' 44.04" E	N 88° 34' 53.07" E	716+46.17	706+33.40	724+95.83
SBFR557-1	69° 09' 57.91" LT	18° 50' 50.27"	209.58'	366.98'	304.00'	S 39° 24' 00.76" E	N 71° 26' 01.33" E	1676+09.58	1674+00.00	1677+66.98
SBFR557-2	44° 41' 04.63" RT	6° 21' 58.31"	369.89'	701.90'	900.00'	N 71° 26' 01.33" E	S 63° 52' 54.03" E	1682+68.18	1678+98.28	1686+00.19
SBFR557-3	22° 08' 02.73" RT	5° 43' 46.48"	195.59'	386.31'	1,000.00'	S 63° 52' 54.03" E	S 41° 44' 51.30" E	1697+42.58	1695+46.99	1699+33.30
SBFR557-4	135° 58' 01.27" RT	20° 45' 33.63"	682.56'	654.97'	276.00'	S 41° 44' 51.30" E	N 85° 46' 50.03" W	1711+45.17	1704+62.61	1711+17.58
WBFR2-1	10° 41' 01.35" RT	10° 11' 41.92"	52.55'	104.79'	562.00'	S 45° 03' 20.21" E	S 34° 22' 18.86" E	1679+52.55	1679+00.00	1680+04.79
WBFR2-2	27° 07' 32.26" LT	13° 42' 25.65"	100.84'	197.89'	418.00'	S 34° 22' 18.86" E	S 61° 29' 51.12" E	1684+91.91	1683+91.07	1685+88.97
WBFR2-3	6° 03' 02.15" RT	1° 59' 59.47"	151.42'	302.55'	2,865.00'	S 61° 29' 51.12" E	S 55° 26' 48.96" E	1698+58.51	1697+07.10	1700+09.65
WBFR2-4	8° 26' 30.09" LT	1° 59' 59.47"	211.44'	422.12'	2,865.00'	S 55° 26' 48.96" E	S 63° 53' 19.05" E	1702+21.09	1700+09.65	1704+31.77
XFM148-3	2° 51' 16.36" RT	2° 59' 59.20"	47.59'	95.16'	1,910.00'	N 44° 08' 57.13" E	N 47° 00' 13.49" E	144+79.34	144+31.75	145+26.91
XFM148-4	6° 08' 07.53" LT	2° 17' 30.59"	133.98'	267.71'	2,500.00'	N 47° 00' 13.49" E	N 40° 52' 05.97" E	148+65.12	147+31.14	149+98.85
XFM148-5	5° 07' 02.79" RT	2° 17' 30.59"	111.72'	223.29'	2,500.00'	N 40° 52' 05.97" E	N 45° 59' 08.76" E	154+30.39	153+18.67	155+41.96
RE148DC55720E-1	17° 29' 44.89" RT	5° 27' 24.27"	161.57'	320.63'	1,050.00'	S 73° 16' 54.55" E	S 55° 47' 09.66" E	93+61.57	92+00.00	95+20.63
RE148DC55720E-2	20° 14' 25.63" RT	3° 58' 43.94"	257.03'	508.70'	1,440.00'	S 55° 47' 09.66" E	S 35° 32' 44.04" E	99+59.97	97+02.94	102+11.64
RXDC55720ERHL-1	11° 20' 08.57" LT	2° 59' 59.20"	189.56'	377.88'	1,910.00'	S 71° 48' 57.91" E	S 83° 09' 06.48" E	21+69.21	19+79.65	23+57.54
RXDC55720ERHL-2	6° 41' 44.96" LT	5° 27' 24.27"	61.42'	122.71'	1,050.00'	S 83° 09' 06.48" E	S 89° 50' 51.43" E	26+40.19	25+78.76	27+01.47
UT148NWE-1	154° 39' 16.45" RT	71° 37' 11.01"	355.78'	215.94'	80.00'	S 71° 26' 01.33" W	N 46° 05' 17.78" E	13+55.78	10+00.00	12+15.94
UT148NWE-2	5° 13' 11.82" LT	3° 05' 07.42"	84.65'	169.18'	1,857.00'	N 46° 05' 17.78" E	N 40° 52' 05.97" E	13+00.59	12+15.94	13+85.12
UT148NWE-3	5° 08' 08.08" RT	2° 24' 15.68"	106.87'	213.59'	2,383.00'	N 40° 52' 05.97" E	N 46° 00' 14.05" E	18+48.64	17+41.77	19+55.37
UT148NWE-4	99° 37' 27.10" RT	71° 37' 11.01"	94.71'	139.10'	80.00'	N 46° 00' 14.05" E	S 34° 22' 18.86" E	20+50.07	19+55.37	20+94.47

SUPERELEVATION DATA

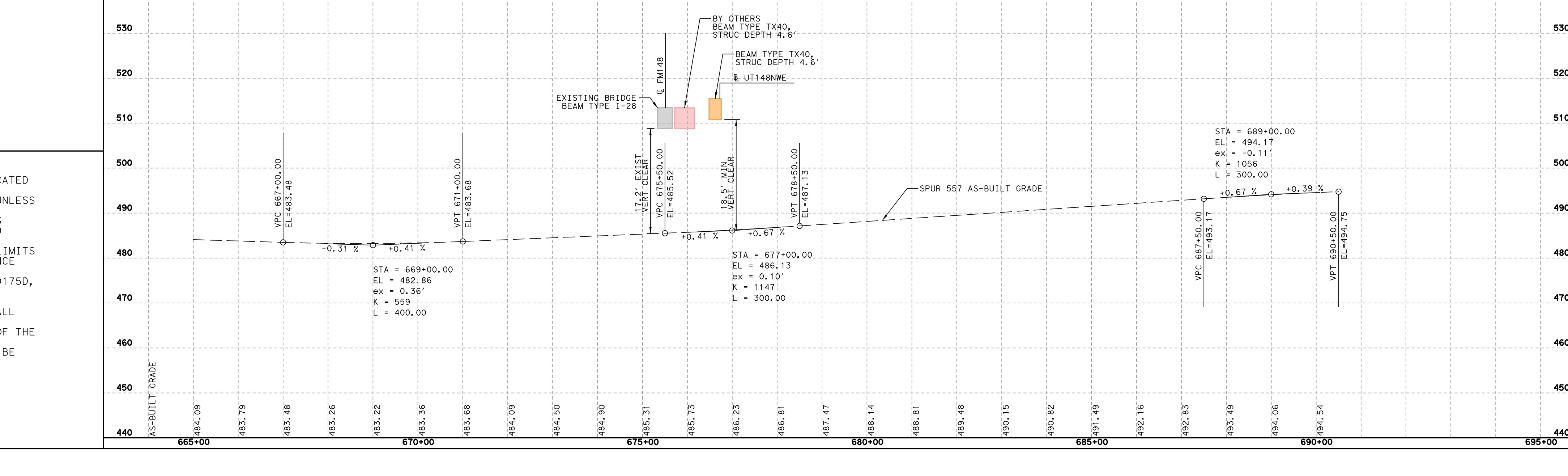
CHAIN NAME	STATION	CROSS SLOPE LT	CROSS SLOPE RT
WBFR2	1686+62.18	-2.00%	2.00%
	1727+00.00	-2.00%	2.00%

PROPERTY OWNERSHIP DATA

ID	NAME	STREET ADDRESS
E142	TERRELL 80/20 LTD	IH 20
E143	NOORANI ABDUL RASHID & DAR ENTERPRISES LLC	FM RD 148
E144	MANJI SULTANALI & FAIRSHARE ENTERPRISES LAND LLC	FM RD 148
E145	HALLE PROPERTIES LLC	FM RD 148
E146	TERRELL MARKET CENTER LTD	FM RD 148
E147	TERFIS LLC	FM RD 148
E148	BAYLOR HEALTH CARE SYSTEMS	IH 20

PROPERTY OWNERSHIP DATA

ID	NAME	STREET ADDRESS
W149	TERRELL ECONOMIC DEVELOPMENT	IH 20
W150	ALMO INVESTMENT LTD	1100 FM RD 148
W151	FULSON TERRELL PARTNERS LP	FM RD 148
W152	FULSON TERRELL PARTNERS LP	IH 20
W153	SPUR557TERRELL	IH 20
W154	SPUR557TERRELL	IH 20
W155	SPUR557TERRELL	IH 20



LEGEND

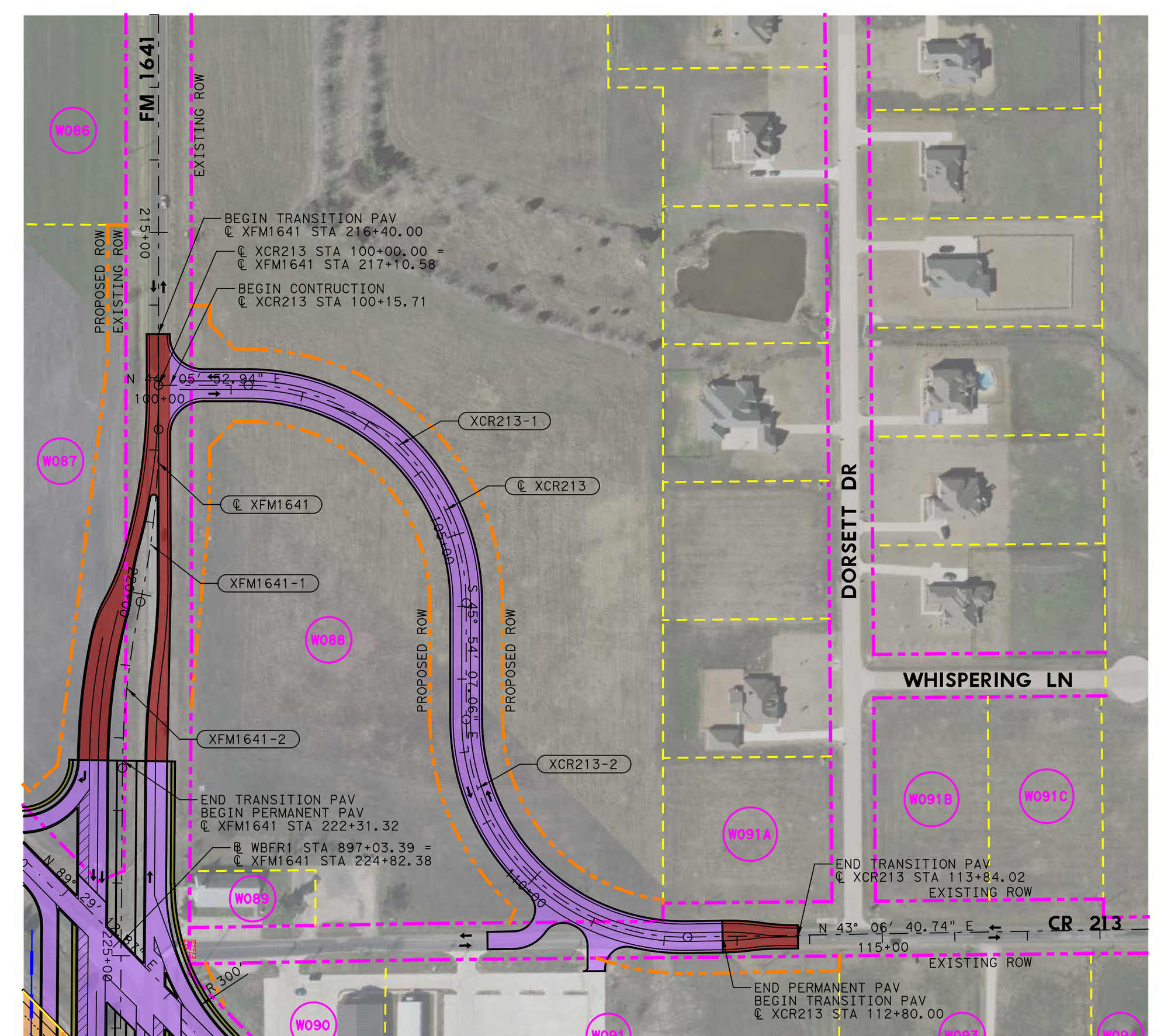
- FLOODPLAIN
- PAVEMENT REMOVAL
- PAVEMENT REMOVAL BY OTHERS
- MAINLANES
- FRONTAGE ROADS
- RAMPS
- BRIDGES
- CROSS STREETS/LOCAL ROADS
- LOCAL STREET CONNECTOR
- TRANSITIONS
- SIDEWALKS
- BY OTHERS
- PROPOSED RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY BY OTHERS
- CONTROL OF ACCESS
- PROPOSED DRAINAGE EASEMENT
- EXISTING RIGHT-OF-WAY
- PROPERTY LINES
- RETAINING WALLS

NOTES

1. EXISTING FEATURES WERE NOT FIELD SURVEYED. SCHEMATICS ARE BASED UPON AERIAL SURVEYS PROVIDED IN AUGUST 2016 AND RECORD PLANS.
2. PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY.
3. OWNERSHIP INFORMATION SHOWN ON SCHEMATIC OBTAINED FROM DALLAS AND KAUFMAN COUNTY APPRAISAL DISTRICTS (JULY 2017).
4. ADA RAMPS, SIDEWALKS, AND DRIVEWAY LOCATIONS ARE PRELIMINARY AND SUBJECT TO CHANGE. FINAL LOCATIONS TO BE DETERMINED DURING THE FINAL DESIGN PHASE OF THE PROJECT.
5. ACCESS DENIAL LIMITS ARE DETERMINED PER TXDOT ACCESS MANAGEMENT MANUAL.
6. DIMENSIONS ARE TO EDGE OF PAVEMENT OR NOMINAL FACE OF CURB, RAIL, BARRIER, OR WALL (UNLESS NOTED OTHERWISE).
7. SUPERELEVATION AXIS OF ROTATION IS ABOUT THE PGL.
8. EXISTING PAVEMENT AND BRIDGES LOCATED WITHIN LIMITS OF PROPOSED RECONSTRUCTION WILL BE REMOVED (UNLESS NOTED OTHERWISE).
9. CURBS ON FRONTAGE ROADS AND CROSS STREETS ARE TYPE II (UNLESS NOTED OTHERWISE).
10. APPROXIMATE 100 YEAR FLOODPLAIN LIMITS ARE BASED UPON FEMA FLOOD INSURANCE MAPS 48113C0530K, 48113C0535K, 48257C0150D, 48257C0155D, 48257C0175D, 48257C0200D, 48257C0185D, AND 48257C0225D.
11. CONVENTIONAL ROADWAY SIGNAGE (SMALL SIGNS) ARE NOT SHOWN AND WILL BE DEVELOPED DURING THE PS&E PHASE OF THE PROJECT.
12. BRIDGE APPROACH SLAB LIMITS WILL BE DEVELOPED AT THE PS&E PHASE.

CURVE DATA

CURVE NO.	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	BACK BEARING	AHEAD BEARING	PI STATION	PC STATION	PT STATION
XCR213-1	90° 00' 00.00" RT	19° 05' 54.94"	300.00'	471.24'	300.00'	N 44° 05' 52.94" E	S 45° 54' 07.06" E	104+23.79	101+23.79	105+95.02
XCR213-2	90° 59' 12.20" LT	19° 05' 54.94"	305.21'	476.41'	300.00'	S 45° 54' 07.06" E	N 43° 06' 40.74" E	110+60.73	107+55.52	112+31.92
XFM1641-1	11° 58' 38.10" RT	5° 00' 14.39"	120.11'	239.35'	1,145.00'	S 45° 54' 07.06" E	S 33° 55' 28.96" E	218+91.50	217+71.38	220+10.74
XFM1641-2	11° 32' 56.99" LT	5° 00' 14.39"	115.79'	230.80'	1,145.00'	S 33° 55' 28.96" E	S 45° 28' 25.95" E	221+26.53	220+10.74	222+41.54

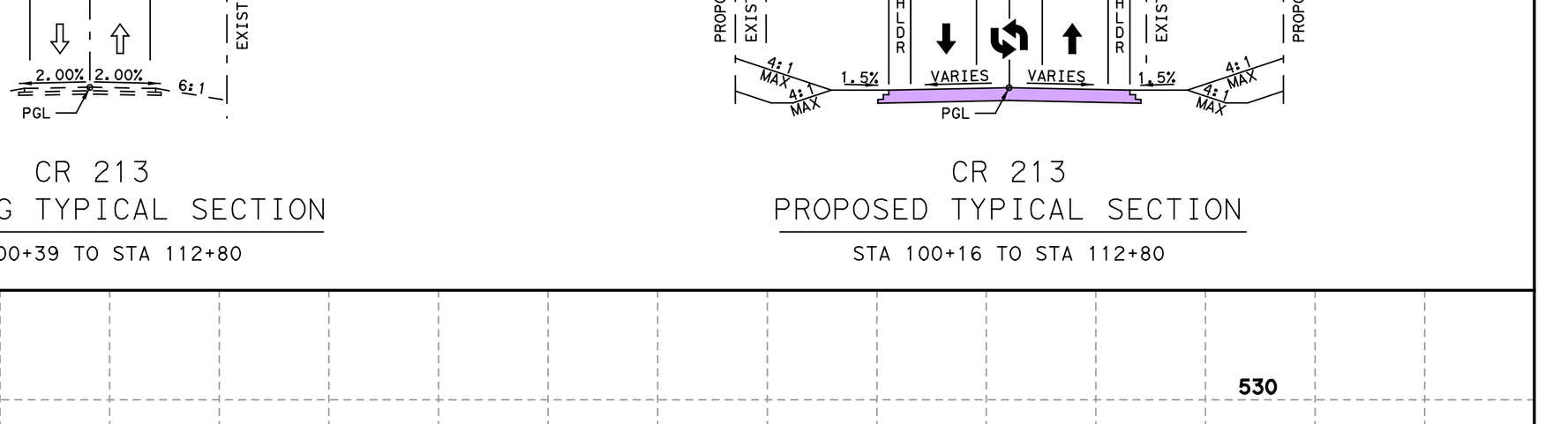


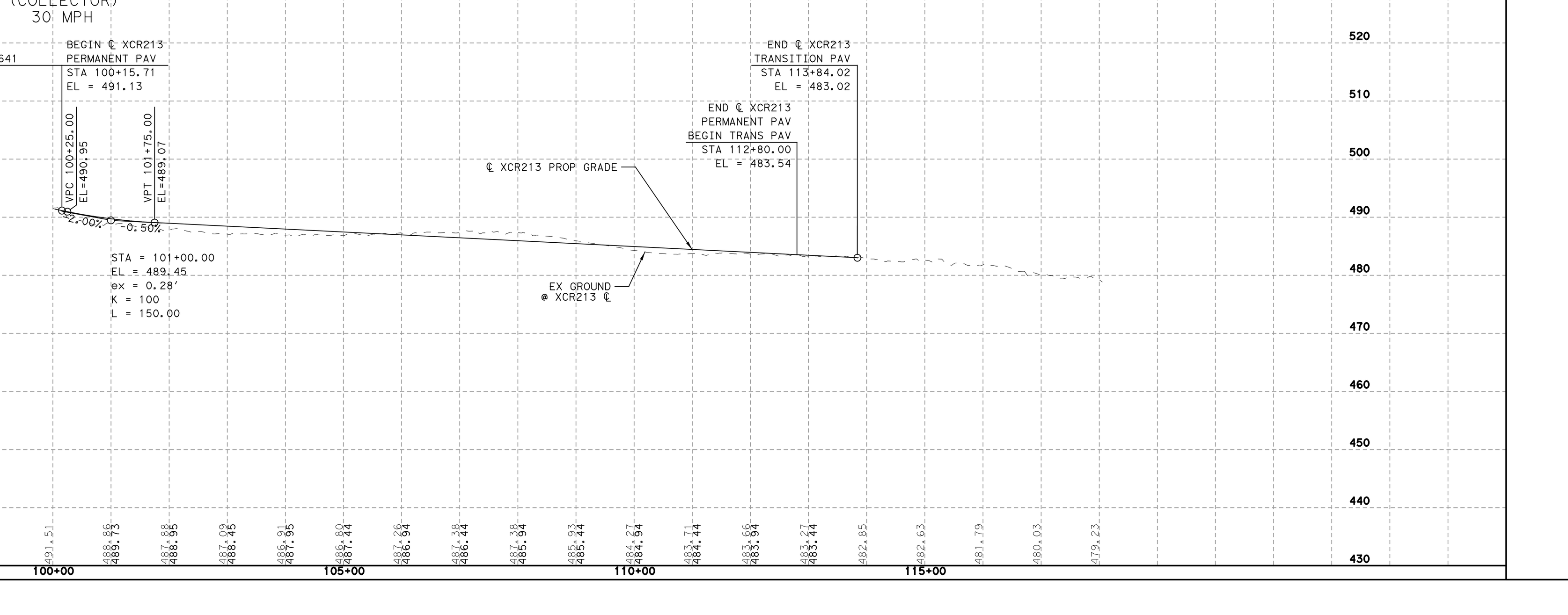
SUPERELEVATION DATA

CHAIN NAME	STATION	CROSS SLOPE LT	CROSS SLOPE RT
XCR213	100+15.71	0.00%	0.00%
	101+50.00	2.00%	-2.00%
	105+85.00	2.00%	-2.00%
	106+45.00	-2.00%	-2.00%
	107+05.00	-2.00%	-2.00%
	107+65.00	-2.00%	2.00%
	112+20.00	-2.00%	2.00%
	112+80.00	-2.00%	-2.00%
	113+84.04	-2.00%	-2.00%

PROPERTY OWNERSHIP DATA

ID	NAME	STREET ADDRESS
W087	WHALEY HELEN M	IH 20
W088	GMC LLC	FM RD 1641
W089	ST MARTIN CATHOLIC CHURCH	9772 FM RD 1641
W090	ST MARTIN CATHOLIC CHURCH	9470 CO RD 213
W091	ROMAN CATHOLIC DIOCESE DALLAS	CO RD 213
W091A	LANEY COREY R & CARLA F	10011 DORSETT DR
W091B	SHAW AARON P & CHARMAINE G	11000 WHISPERING LN
W091C	MORETT BRYAN C & CARLA	11022 WHISPERING LN
W093	CROSSROADS BIBLE CHURCH	9664 CO RD 213
W094	STEPHENS PATRICIA ANN	CO RD 213





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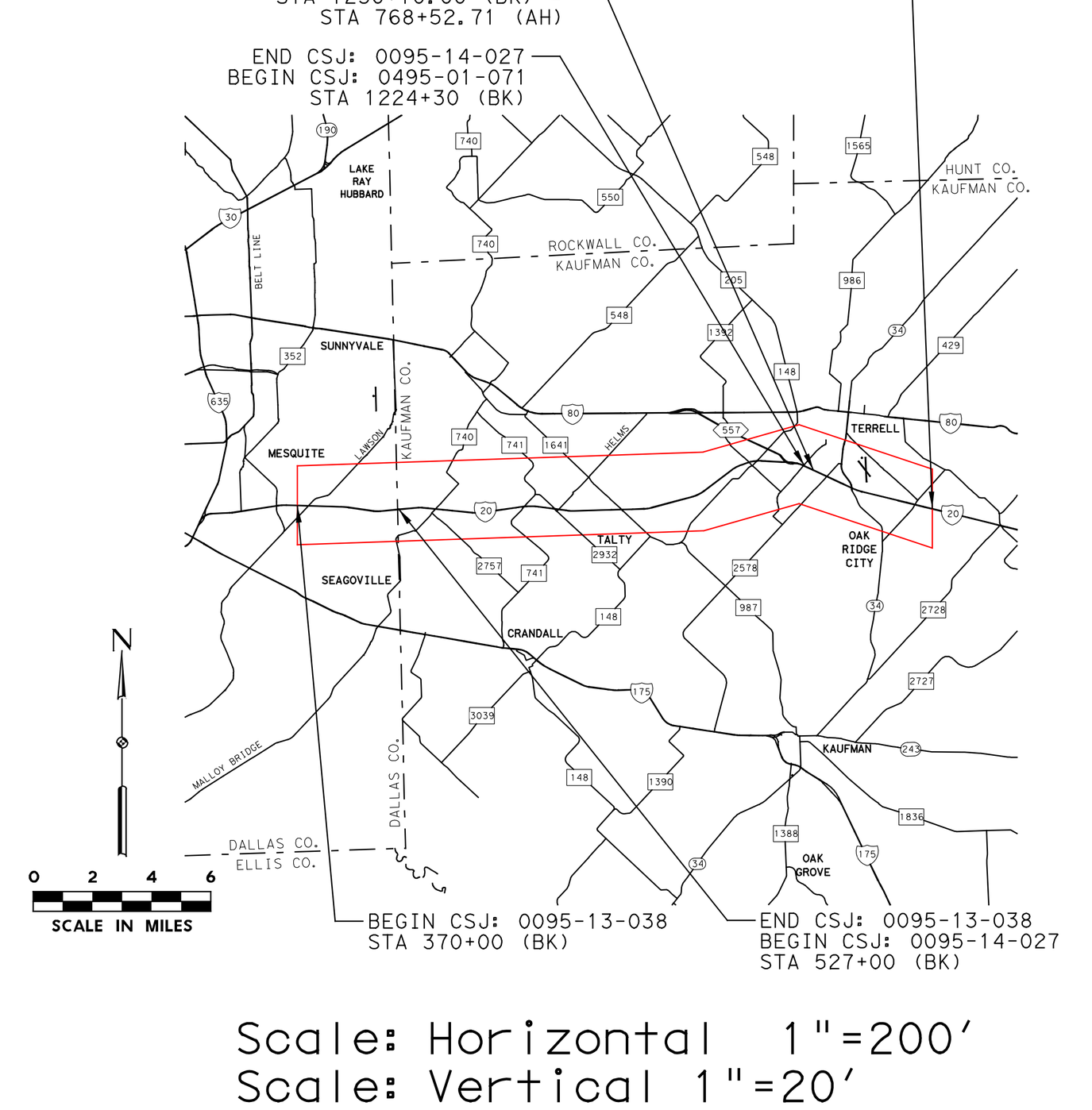
SPUR 557 Frontage Road: 30 mph (Urban)
Arterials: 40 mph (Urban)
Collectors: 30 mph (Urban)
Local Street Connector: 20 mph (Urban)



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Scale: Vertical 1"=20'
AUGUST 2019
PRELIMINARY SUBJECT TO REVISIONS
SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:
JASON A. RICHTER 114508
ALEXANDER S. KEMP 133019
9/4/2019 DATE
100% PRELIMINARY, SUBJECT TO CHANGE
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
ROLL 15 OF 30
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation
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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road
To: East of Wilson Road (CR 138)

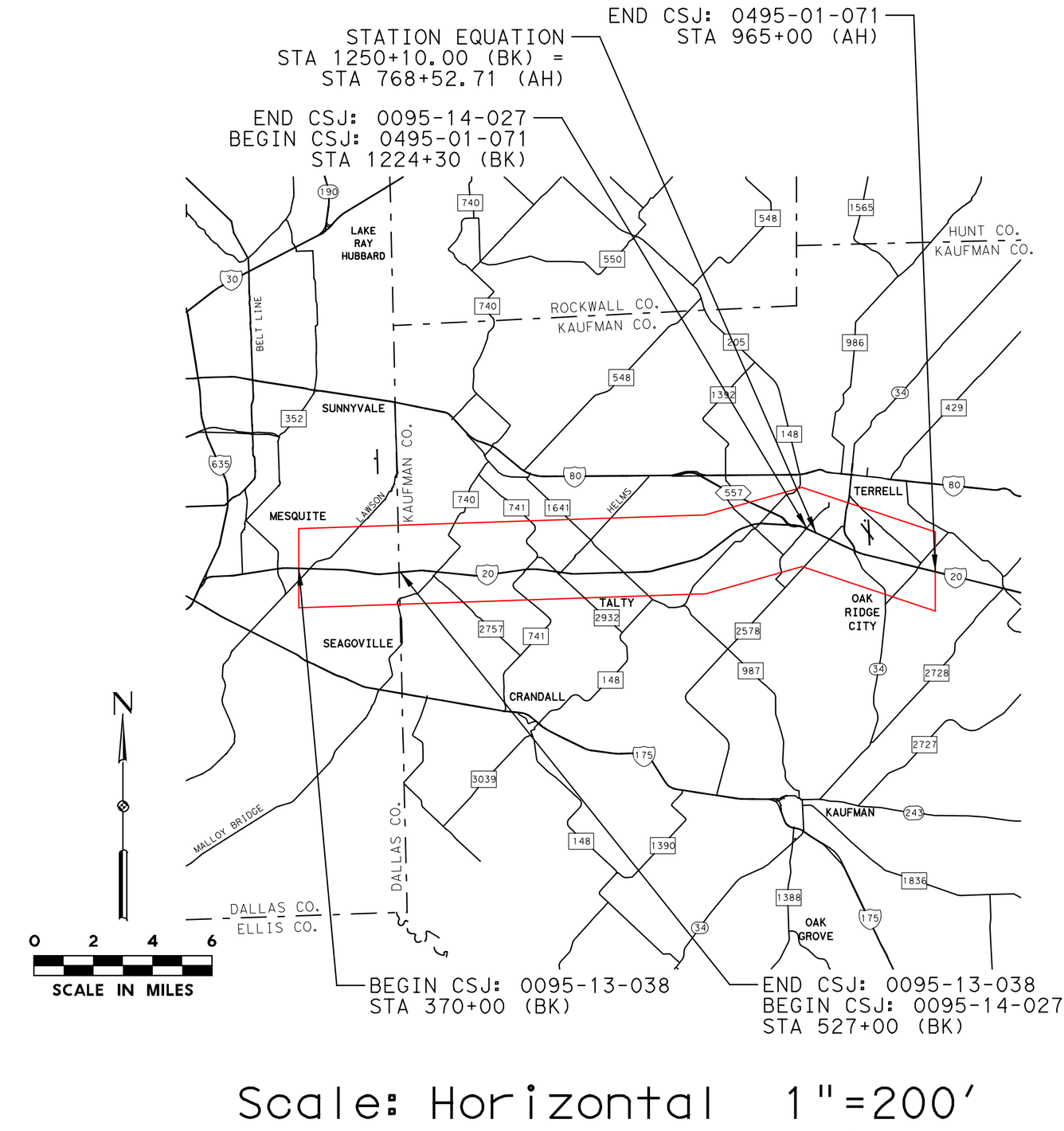
CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles

Functional Class

Mainlane	= Interstate
Frontage Road	= Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 557 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connector:	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS

SCHEMATIC PREPARED BY OR UNDER
THE DIRECT SUPERVISION OF:

NAME	P.E. NUMBER
JASON A. RICHTER	114508
ALEXANDER S. KEMP	133019

9/4/2019
DATE

100%
PRELIMINARY,
SUBJECT TO CHANGE

NOT INTENDED FOR CONSTRUCTION,
BIDDING, OR PERMIT PURPOSES

ROLL 16 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation
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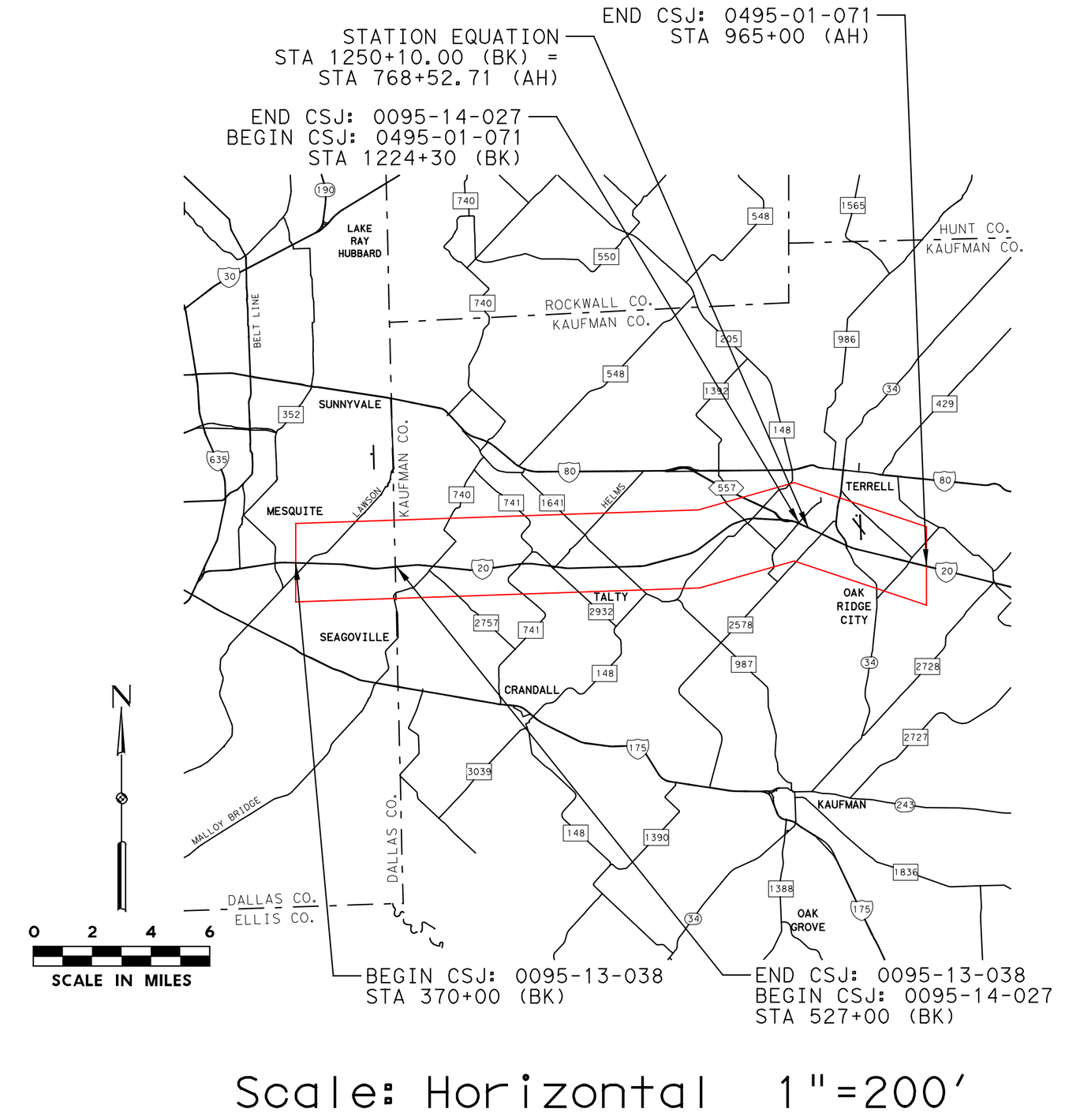
Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)
CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071
Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class
Mainlane = Interstate
Frontage Road = Major Collector
Design Speed
Mainlanes: 70 mph
Ramps: 50 mph
Direct Connectors: 40-50 mph
Turnarounds: 15 mph
Frontage Roads: 40 mph (Urban)
SPUR 557 Frontage Road: 30 mph (Urban)
Arterials: 40 mph (Urban)
Collectors: 30 mph (Urban)
Local Street Connector: 20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'
AUGUST 2019
PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED BY OR UNDER
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JASON A. RICHTER 114508
ALEXANDER S. KEMP 133019
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Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

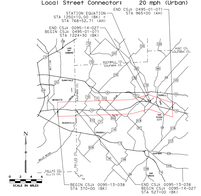
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Direct Connectors	50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



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AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS

SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

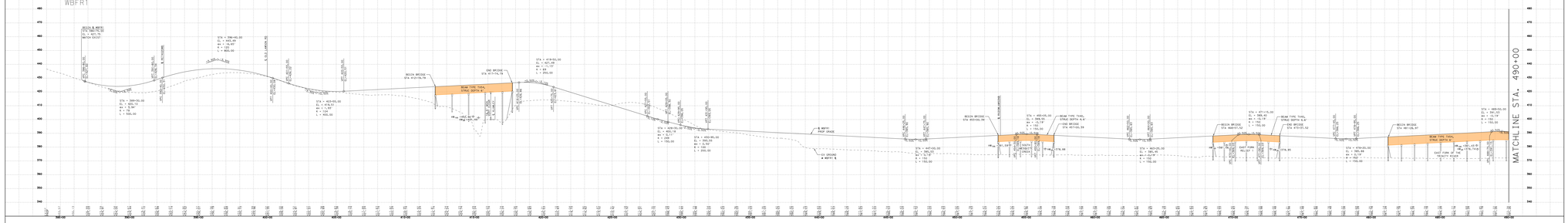
JASON R. RISCHER — 142108 — P.E. NUMBER
ALEXANDER S. KEMP — 133213 — P.E. NUMBER
SIGNATURE
8/6/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PRELIMINARY SUBJECT TO CHANGE

ROLL 17 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

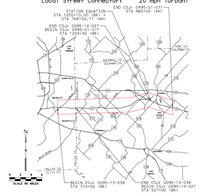
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	30 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER
THE DIRECT SUPERVISION OF:

JASON R. RISCHER — 140108
NAME — P.E. NUMBER

ALEXANDER S. KEMP — 133213
NAME — P.E. NUMBER

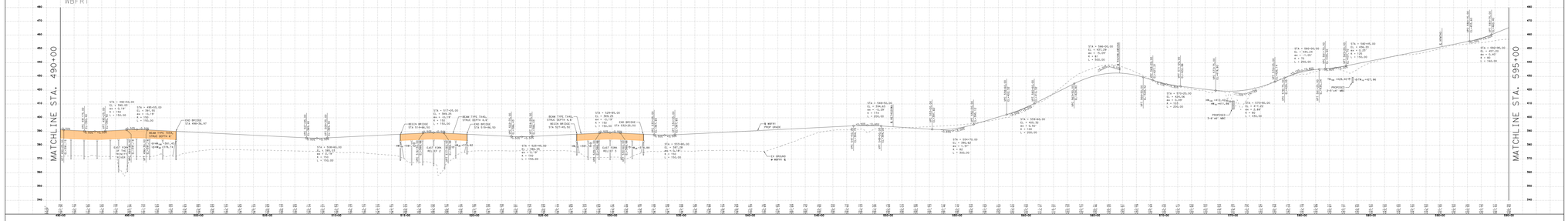
9/4/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

100% PRELIMINARY SUBJECT TO CHANGE

ROLL 18 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400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MATCHLINE STA. 595+00
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w = -0.18'
R = 150
L = 150.00
STA = 490+50.00
EL = 381.30
w = -0.18'
R = 150
L = 150.00
END BRIDGE
STA 491+25.97
BEGIN BRIDGE
STA 505+46.97
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
EAST FORK
RELIEF 1
STA = 517+00.00
EL = 384.80
w = -0.18'
R = 150
L = 150.00
STA = 517+50.00
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L = 150.00
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END BRIDGE
STA 519+46.50
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END BRIDGE
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L = 150.00
STA = 595+00.00
EL = 384.80
w = -0.18'
R = 150
L = 150.00
BEGIN BRIDGE
STA 505+46.97
END BRIDGE
STA 491+25.97
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
EAST FORK
RELIEF 1
BEGIN BRIDGE
STA 517+76.03
END BRIDGE
STA 519+46.50
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
BEGIN BRIDGE
STA 530+76.50
END BRIDGE
STA 532+46.50
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
EAST FORK
RELIEF 2
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
BEGIN BRIDGE
STA 556+96.50
END BRIDGE
STA 557+46.50
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
EAST FORK
RELIEF 3
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
BEGIN BRIDGE
STA 577+96.50
END BRIDGE
STA 578+46.50
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
EAST FORK
RELIEF 4
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
BEGIN BRIDGE
STA 598+96.50
END BRIDGE
STA 599+46.50
BEAM TYPE (TxDOT)
STRUC DEPTH: 6'-9"
EAST FORK
RELIEF

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

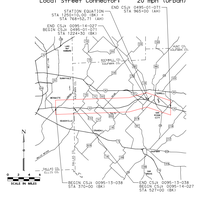
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane - Interstate
Frontage Road - Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	30 - 50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Road	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	30 mph (Urban)
Local Street Connectors	20 mph (Urban)



AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS

SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. RISCHTER — 142408 — P.E. NUMBER

ALEXANDER S. KEMP — 133213 — P.E. NUMBER

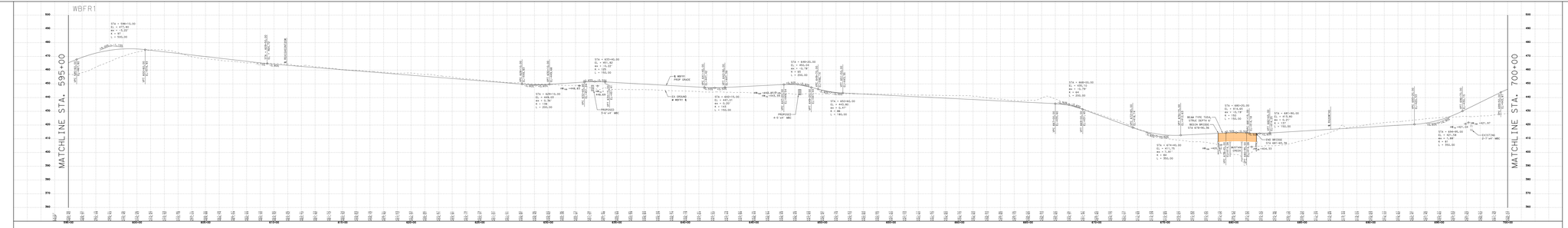
9/4/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

100% PRELIMINARY SUBJECT TO CHANGE

ROLL 19 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400


WBFR1
MATCHLINE STA. 595+00
MATCHLINE STA. 700+00
STA = 1384+70.00
EL = 471.80
ex = 1.50'
s = 6%
L = 500.00
PVI STA 1384+70.00
PVI ELEV 471.80
PVC STA 1379+70.00
PVC ELEV 471.80
PVT STA 1389+70.00
PVT ELEV 471.80
STA = 1389+70.00
EL = 471.80
ex = 1.50'
s = 0%
L = 200.00
STA = 1391+70.00
EL = 469.20
ex = 1.50'
s = -13%
L = 200.00
PVI STA 1391+70.00
PVI ELEV 469.20
PVC STA 1390+70.00
PVC ELEV 469.20
PVT STA 1392+70.00
PVT ELEV 469.20
STA = 1433+40.00
EL = 443.39
ex = 1.50'
s = -13.00'
L = 1340.00
PVI STA 1433+40.00
PVI ELEV 443.39
PVC STA 1420+70.00
PVC ELEV 460.48
PVT STA 1446+10.00
PVT ELEV 443.39
STA = 1435+70.00
EL = 448.28
ex = 1.50'
s = -13%
L = 200.00
PROPOSED
12'x4' MBC
6 BSFF1
PROP GRADE
EX GROUND
@ BSFF1 E
STA = 1442+15.00
EL = 443.39
ex = 1.50'
s = 0%
L = 1150.00
STA = 1449+25.00
EL = 456.50
ex = 1.50'
s = 6%
L = 200.00
STA = 1450+65.00
EL = 465.91
ex = 1.50'
s = 3.47'
L = 180.00
PROPOSED
4-5'x5' MBC
STA = 1460+05.00
EL = 470.72
ex = 1.50'
s = 6%
L = 500.00
STA = 1474+45.00
EL = 461.11
ex = 1.50'
s = 0%
L = 350.00
ROW TYPE 70FA
STA 1474+45.00 (BK)
STA 1474+96.78
BEGIN BRIDGE
STA 1475+46.78
STA = 1484+25.00
EL = 454.65
ex = 1.50'
s = 0%
L = 150.00
END BRIDGE
STA 1487+46.78
STA = 1487+90.00
EL = 473.60
ex = 1.50'
s = 6%
L = 150.00
STA = 1494+45.00
EL = 461.94
ex = 1.50'
s = 6%
L = 350.00
STA = 1497+95.00
EL = 482.91
ex = 1.50'
s = 6%
L = 350.00
STA = 1501+45.00
EL = 461.94
ex = 1.50'
s = 6%
L = 350.00
STA = 1504+95.00
EL = 482.91
ex = 1.50'
s = 6%
L = 350.00
STA = 1508+45.00
EL = 461.94
ex = 1.50'
s = 6%
L = 350.00
STA = 1511+95.00
EL = 482.91
ex = 1.50'
s = 6%
L = 350.00
STA =

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length 20.390 Miles
Functional Class

Mainlane - Interstate
Frontage Road - Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 561 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connectors:	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:

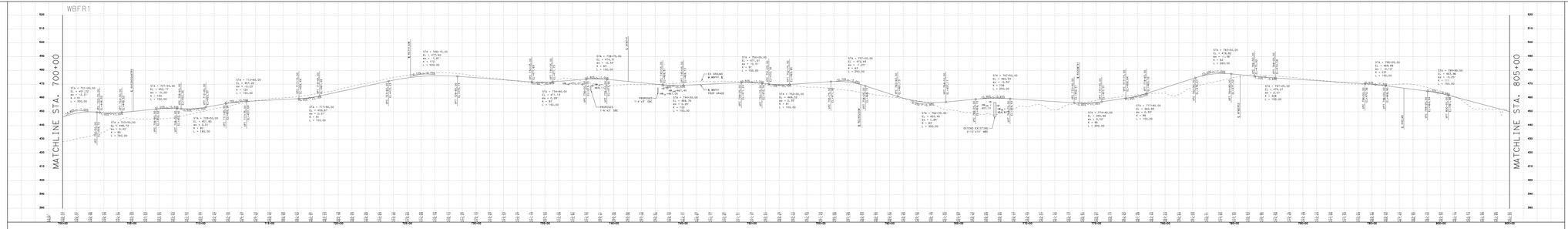
JASON A. RICHTER 114608 P.E. NUMBER
NAME
ALEXANDER S. KOMP 133019 P.E. NUMBER
NAME
9/4/2019
DATE

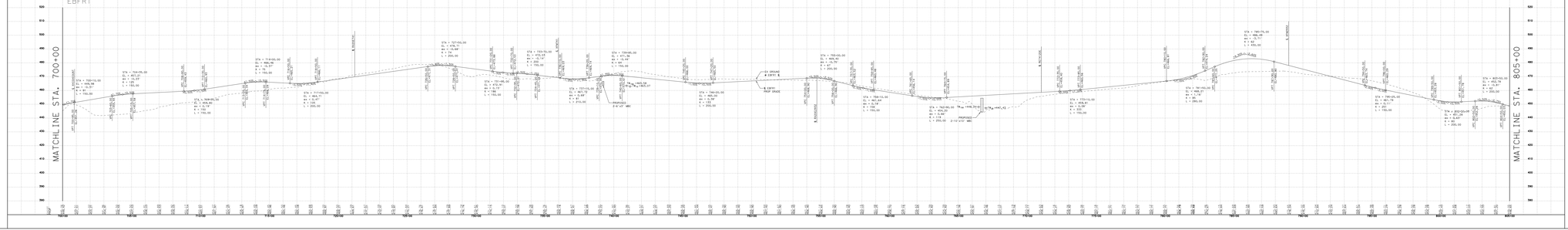
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PRELIMINARY, SUBJECT TO CHANGE

ROLL 20 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400





Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length 20.390 Miles
Functional Class

Mainlane - Interstate
Frontage Road - Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 561 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connectors:	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:

JASON A. RICHTER 114608 P.E. NUMBER
NAME
ALEXANDER S. KOMP 133019 P.E. NUMBER
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9/4/2019
DATE

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HDR
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Dallas, Texas 75248
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Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

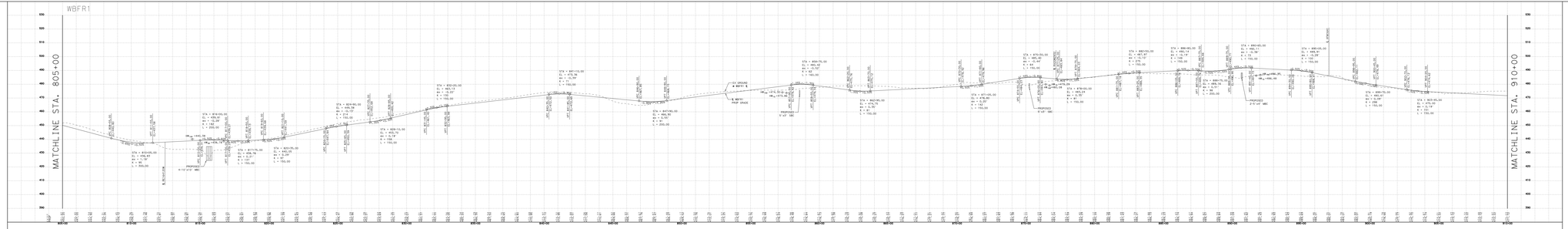
JASON R. RICHTER — 114008 — P.E. NUMBER
ALEXANDER S. KEMP — 133013 — P.E. NUMBER
SIGNATURE
8/4/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PRELIMINARY SUBJECT TO CHANGE

ROLL 21 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

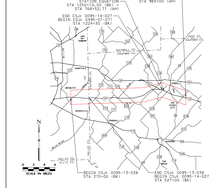
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	30 mph (Urban)



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Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. RICHTER — 114008 — P.E. NUMBER
ALEXANDER S. KEMP — 133013 — P.E. NUMBER
SIGNATURE
8/4/2019
DATE

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ROLL 21 OF 30

HDR
Firm Registration No. F-754
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Dallas, Texas 75248
972.960.4400

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

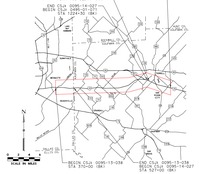
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20,390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	15 - 50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS

SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. RISCHER — 142108 — P.E. NUMBER
NAME

ALEXANDER S. KEMP — 139213 — P.E. NUMBER
NAME

9/4/2019
DATE

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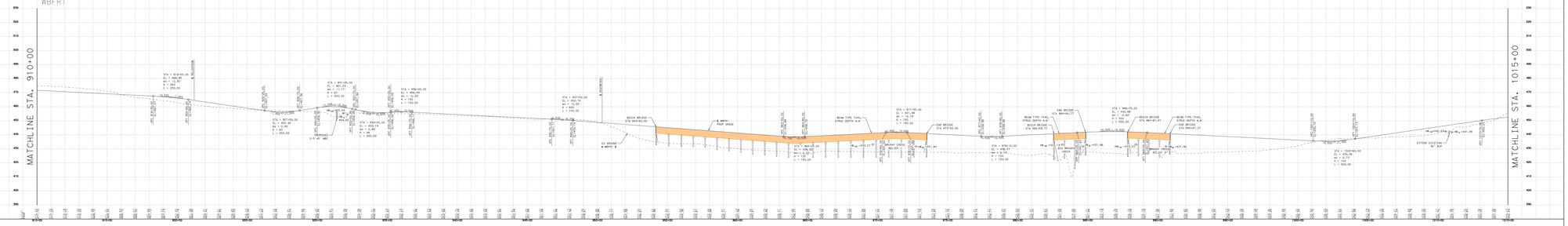
ROLL 22 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400



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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

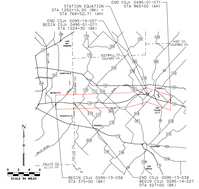
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	30 to 50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. RISCHER — 142458 — DATE — P.E. NUMBER
ALEXANDER S. KEMP — 135013 — DATE — P.E. NUMBER
8/6/2019

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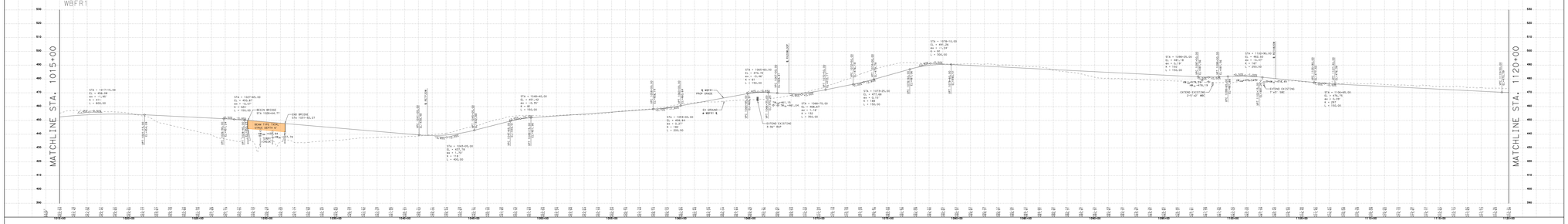
ROLL 23 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400


WBFR1
MATCHLINE STA. 1015+00
MATCHLINE STA. 1120+00
STA = 1217+75.00
EL = 456.08
w = 11.99'
K = 411
L = 805.00
STA = 1227+85.00
EL = 462.87
w = 15.07'
K = 211
L = 755.00
BEGIN BRIDGE
STA 1231+82.77
BEAM TYPE TX54
SPAN LENGTH = 141.90'
Beam 1
SKEW = 0.00
STA = 1231+82.77
STA = 1241+45.00
EL = 465.74
w = 15.23'
K = 118
L = 400.00
STA = 1248+45.00
EL = 461.42
w = 14.35'
K = 211
L = 755.00
STA = 1259+55.00
EL = 456.94
w = 15.07'
K = 211
L = 755.00
STA = 1269+90.00
EL = 461.76
w = 15.07'
K = 132
L = 755.00
STA = 1280+45.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1291+25.00
EL = 461.76
w = 15.07'
K = 132
L = 755.00
STA = 1298+15.00
EL = 461.26
w = 11.99'
K = 411
L = 565.00
STA = 1298+25.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
EXTEND EXISTING 8'-0" MBC
STA = 1306+45.00
EL = 462.33
w = 15.47'
K = 211
L = 755.00
EXTEND EXISTING 7'-6" SBC
STA = 1316+45.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
EBFR1
STA = 1157+75.00
EL = 456.08
w = 11.99'
K = 411
L = 355.00
STA = 1163+45.00
EL = 464.72
w = 15.07'
K = 211
L = 755.00
STA = 1173+90.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
BEGIN BRIDGE
STA 1180+40.98
END BRIDGE
STA 1183+62.87
BEAM TYPE TX54
SPAN LENGTH = 141.90'
Beam 1
SKEW = 0.00
STA = 1183+62.87
STA = 1194+45.00
EL = 465.74
w = 15.23'
K = 118
L = 755.00
STA = 1204+55.00
EL = 461.42
w = 14.35'
K = 211
L = 755.00
STA = 1215+15.00
EL = 456.94
w = 15.07'
K = 211
L = 755.00
STA = 1225+50.00
EL = 461.76
w = 15.07'
K = 132
L = 755.00
STA = 1236+05.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1246+95.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1257+55.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1263+60.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1274+70.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1284+55.00
EL = 465.21
w = 15.07'
K = 211
L = 755.00
STA = 1295+15.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1301+20.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1312+30.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1322+95.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1333+95.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1344+55.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1350+60.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1361+70.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1372+30.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1383+30.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1393+90.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1399+95.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1411+05.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1421+65.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1432+65.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1443+25.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1449+30.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1460+40.00
EL = 461.76
w = 15.07'
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STA = 1471+00.00
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w = 14.35'
K = 211
L = 755.00
STA = 1482+00.00
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w = 15.07'
K = 211
L = 755.00
STA = 1492+60.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1498+65.00
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w = 15.07'
K = 132
L = 755.00
STA = 1509+75.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1520+35.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1531+35.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1541+95.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1548+00.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1559+10.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1569+70.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1580+70.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1591+30.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1597+35.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1608+45.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1619+05.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1630+05.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1640+65.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1646+70.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1657+80.00
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w = 15.07'
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STA = 1668+40.00
EL = 461.32
w = 14.35'
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L = 755.00
STA = 1679+40.00
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w = 15.07'
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STA = 1690+00.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1696+05.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1707+15.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1717+75.00
EL = 461.32
w = 14.35'
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L = 755.00
STA = 1728+75.00
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w = 15.07'
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L = 755.00
STA = 1739+35.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1745+40.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1756+50.00
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w = 15.07'
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L = 755.00
STA = 1767+10.00
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STA = 1778+10.00
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w = 15.07'
K = 211
L = 755.00
STA = 1788+70.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1794+75.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1805+85.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1816+45.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1827+45.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1838+05.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1844+10.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1855+20.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1865+80.00
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w = 14.35'
K = 211
L = 755.00
STA = 1876+80.00
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w = 15.07'
K = 211
L = 755.00
STA = 1887+40.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1893+45.00
EL = 461.19
w = 15.07'
K = 132
L = 755.00
STA = 1904+55.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 1915+15.00
EL = 461.32
w = 14.35'
K = 211
L = 755.00
STA = 1926+15.00
EL = 465.36
w = 15.07'
K = 211
L = 755.00
STA = 1936+75.00
EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 1942+80.00
EL = 461.19
w = 15.07'
K = 132
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K = 211
L = 755.00
STA = 4097+55.00
EL = 465.36
w = 15.07'
K = 211
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STA = 4108+15.00
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w = 11.99'
K = 411
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w = 14.35'
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L = 755.00
STA = 4146+90.00
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EL = 461.26
w = 11.99'
K = 411
L = 405.00
STA = 4163+55.00
EL = 461.19
w = 15.07'
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L = 755.00
STA = 4174+65.00
EL = 461.76
w = 15.07'
K = 211
L = 755.00
STA = 4185+25.00
EL = 461.32
w = 14.35'
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STA = 4206+85.00
EL = 461.26
w = 11.99'
K = 411
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STA = 4212+90.00
EL = 461.19
w = 15.07'
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w = 15.07'
K = 211
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STA = 4234+60.00
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STA = 4256+20.00
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STA = 4766+85.00
EL

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

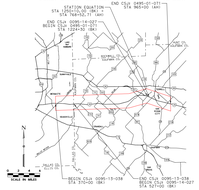
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 561 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connectors:	20 mph (Urban)



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Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:

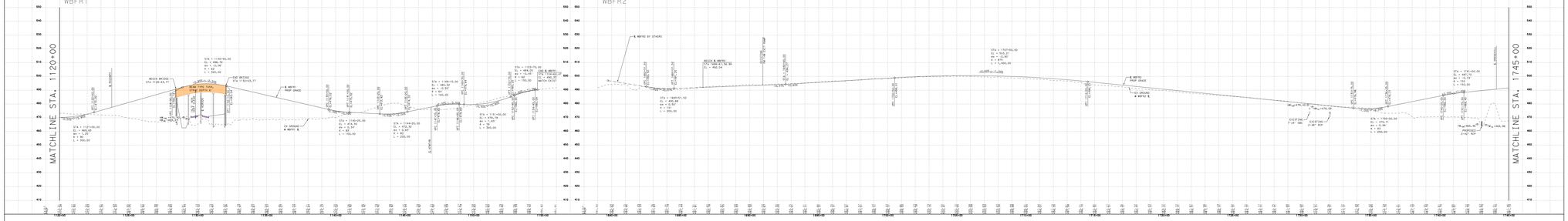
JASON A. RICHTER — 114508 — P.E. NUMBER
NAME
ALEXANDER S. KEMP — 133019 — P.E. NUMBER
NAME
9/4/2019
DATE

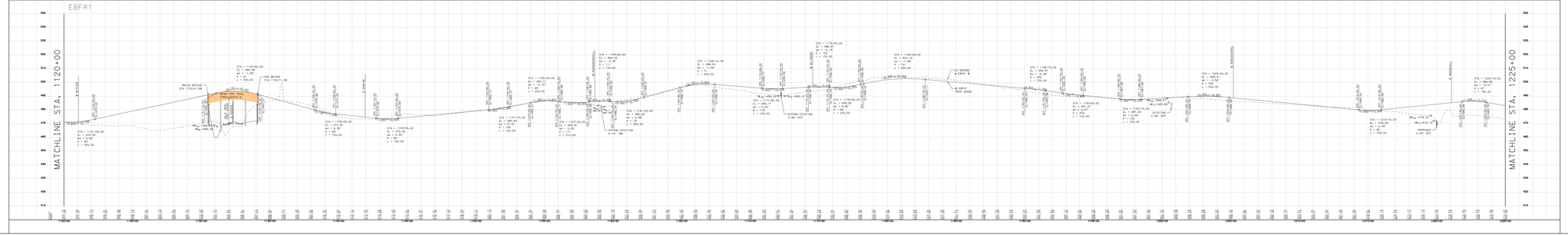
100% PRELIMINARY SUBJECT TO CHANGE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 24 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400





Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

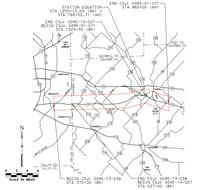
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 561 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connectors:	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED BY OR UNDER THE DIRECT SUPERVISION OF:

JASON A. RICHTER — 114508 — P.E. NUMBER
NAME
ALEXANDER S. KEMP — 133019 — P.E. NUMBER
NAME
9/4/2019
DATE

100% PRELIMINARY SUBJECT TO CHANGE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

ROLL 24 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

Texas Department of Transportation

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

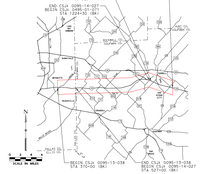
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	15 - 50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Road	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

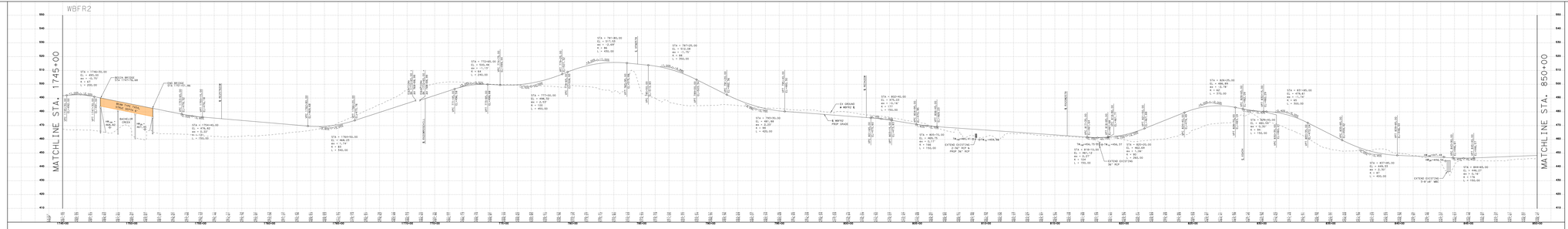
JASON R. RICHTER — 114008 — P.E. NUMBER
ALEXANDER L. KEMP — 133013 — P.E. NUMBER
SIGNATURE
8/6/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

100% PRELIMINARY SUBJECT TO CHANGE

ROLL 25 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400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MATCHLINE STA. 850+00
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BEGIN MAINLANE OVER THRU LANES
BEGIN 1304+00.00
STA 1304+00.00
BACKLINE (WBFR)
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K = 83
L = 345.00
STA = 1772+45.00
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L = 245.00
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STA = 1781+00.00
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ex = 11.50*
K = 61
L = 455.00
STA = 1787+45.00
EL = 505.46
ex = 11.50*
K = 61
L = 245.00
STA = 1790+45.00
EL = 505.46
ex = 11.50*
K = 100
L = 150.00
STA = 1792+45.00
EL = 494.00
ex = 0.00
K = 83
L = 455.00
STA = 1797+00.00
EL = 517.50
ex = 11.50*
K = 61
L = 455.00
STA = 1803+45.00
EL = 505.46
ex = 11.50*
K = 61
L = 245.00
STA = 1806+45.00
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ex = 11.50*
K = 100
L = 150.00
STA = 1808+45.00
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K = 83
L = 455.00
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STA = 1840+45.00
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STA = 1845+00.00
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L = 455.00
STA = 1851+45.00
EL = 505.46
ex = 11.50*
K = 61
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STA = 1867+45.00
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K = 100
L = 150.00
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ex = 11.50*
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K = 61
L = 245.00
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L = 150.00
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STA = 1931+45.00
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STA = 3262+

Texas Department of Transportation

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Road	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



Scale: Horizontal 1"=200'
Scale: Vertical 1"=20'

AUGUST 2019

PRELIMINARY
SUBJECT TO REVISIONS

SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

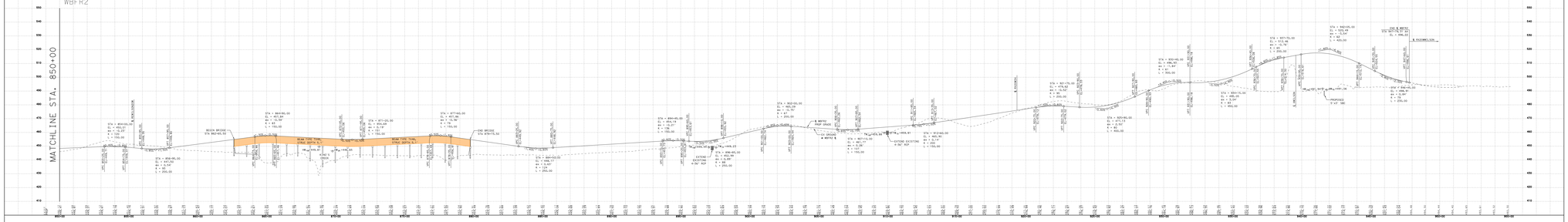
JASON R. RICHTER — 114008 — P.E. NUMBER
ALEXANDER L. KEMP — 133213 — P.E. NUMBER
SIGNATURE
8/6/2019
DATE

NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

100% PRELIMINARY SUBJECT TO CHANGE

ROLL 26 OF 30

HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400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L = 255.00
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EL = 443.57
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L = 700.00
STA = 1012+45.00
EL = 443.57
K = 167
L = 255.00
STA = 1012+45.00
EL = 443.57
K =

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Dallas District
Mohamed K. Bur, P.E.
Dallas District Engineer

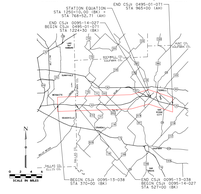
IH 20
DESIGN SCHEMATIC
From: Lawson Road
To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

Dallas and Kaufman Counties
Project Length: 20.390 Miles
Functional Class

Mainlane = Interstate
Frontage Road = Major Collector

	Design Speed
Mainlanes	70 mph
Ramps	50 mph
Ramp Connectors	30 - 50 mph
Turnarounds	15 mph
Frontage Roads	40 mph (Urban)
SPUR 557 Frontage Roads	30 mph (Urban)
Arterials	40 mph (Urban)
Collectors	40 mph (Urban)
Local Street Connectors	20 mph (Urban)



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AUGUST 2019

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SUBJECT TO REVISIONS
SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. BUCHTA — 114508 — TEXAS
NAME — P.E. NUMBER

ALEXANDER L. KEMP — 139213 — TEXAS
NAME — P.E. NUMBER

9/4/2019
DATE

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HDR
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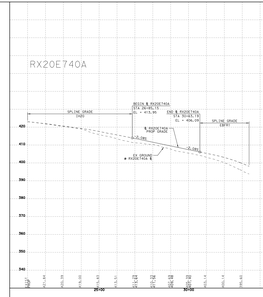
RX20E740A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EX. GROUND @ RIGHTTURN R.
EX. GROUND @ RIGHTTURN R.
SPLINE GRADE (SAG)
SPLINE GRADE (SAG)
BEGIN R. RIGHTTURN
STA 1370+00.75
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END R. RIGHTTURN
EL = 406.68

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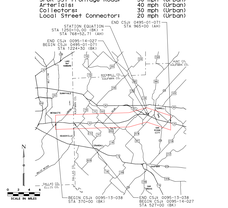
Functional Class

Mainlane - Interstate
Frontage Road - Major Collector

	Design Speed
Mainlanes:	70 mph
Ramps:	50 mph
Direct Connectors:	40-50 mph
Turnarounds:	15 mph
Frontage Roads:	40 mph (Urban)
SPUR 561 Frontage Road:	30 mph (Urban)
Arterials:	40 mph (Urban)
Collectors:	30 mph (Urban)
Local Street Connectors:	20 mph (Urban)



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ALEXANDER S. KEMP 133019
NAME P.E. NUMBER
9/4/2019
DATE

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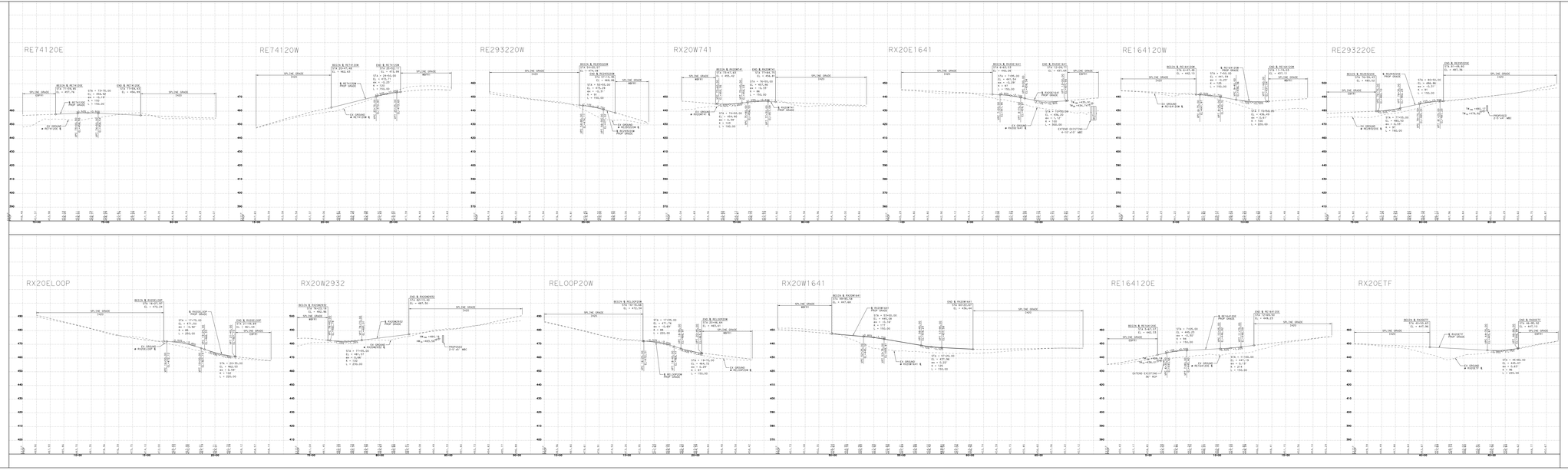

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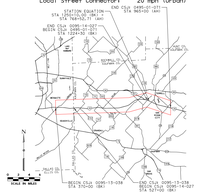

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ALEXANDER L. KEMP — 133213 — P.E. NUMBER
NAME
8/6/2019
DATE

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Firm Registration No. F-754
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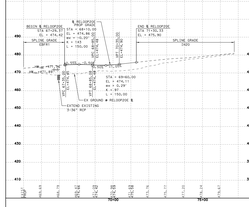
Dallas, Texas 75248
972.960.4400

RELOOP20E



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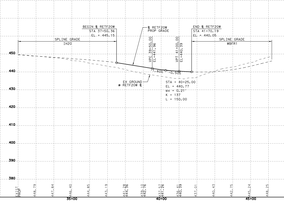

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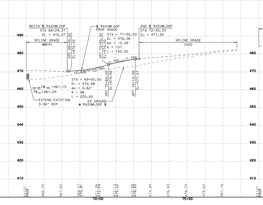

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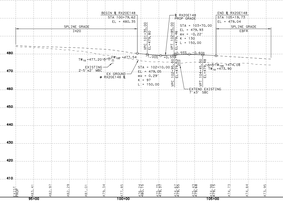

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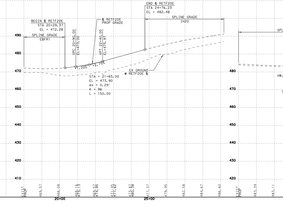

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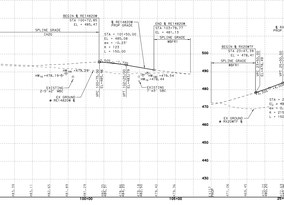

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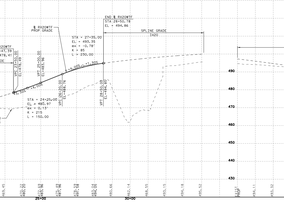

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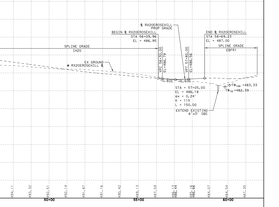

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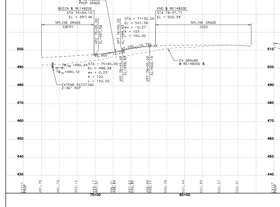

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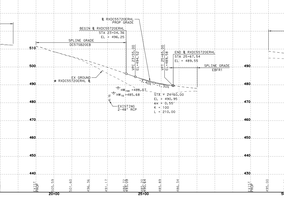

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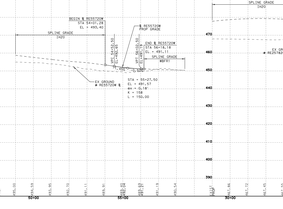

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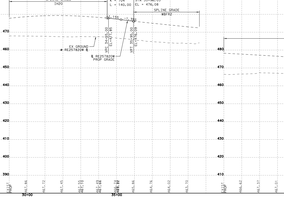

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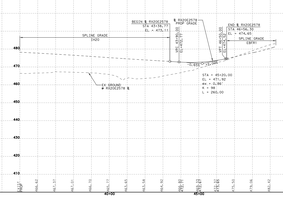

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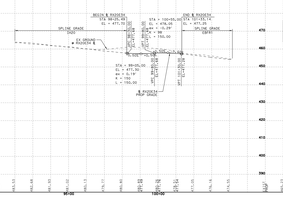

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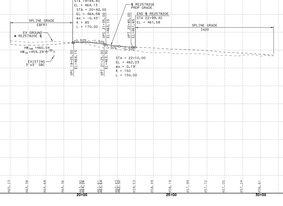

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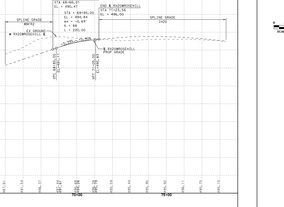

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Dallas District

Mohamed K. Bur, P.E.
Dallas District Engineer

IH 20

DESIGN SCHEMATIC

From: Lawson Road

To: East of Wilson Road (CR 138)

CSJ: 0095-13-038
CSJ: 0095-14-027
CSJ: 0495-01-071

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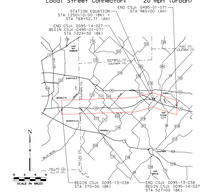

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SCHEMATIC PREPARED UNDER THE DIRECT SUPERVISION OF:

JASON R. RISCHER — 114508 — P.E. NUMBER
ALEXANDER L. KEMP — 133213 — P.E. NUMBER
NAME
8/6/2019
DATE

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ROLL 29 OF 30

HDR
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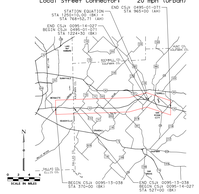

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ALEXANDER L. KEMP — 142613 — P.E. NUMBER
8/6/2019 — DATE

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ROLL 30 OF 30

HDR
Firm Registration No. F-754
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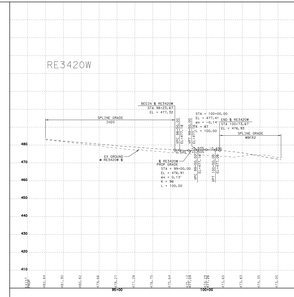
RE3420W



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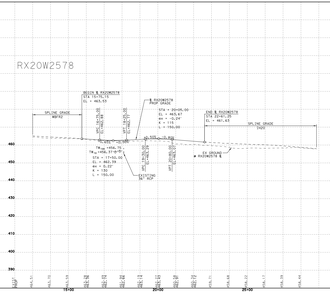

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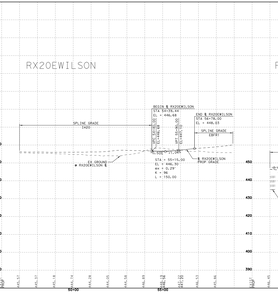

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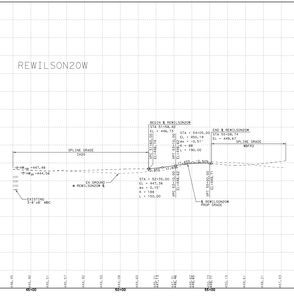

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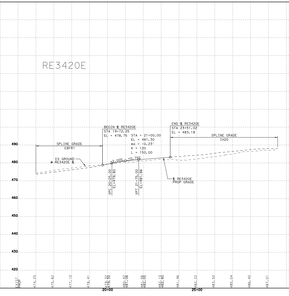

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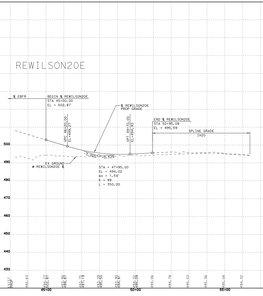

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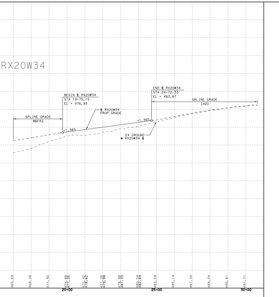

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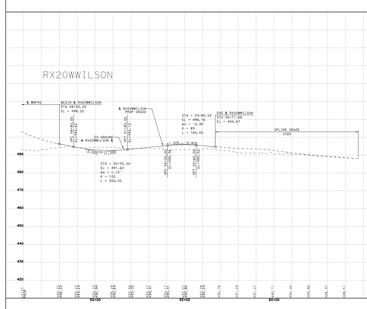

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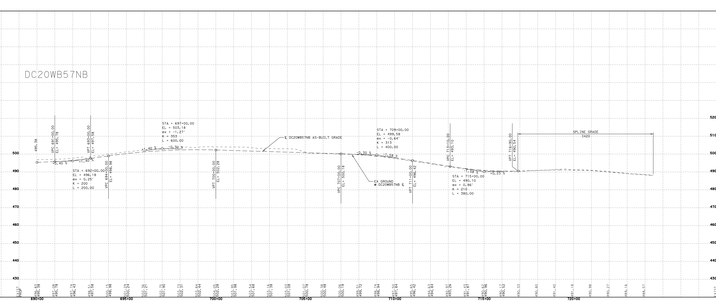
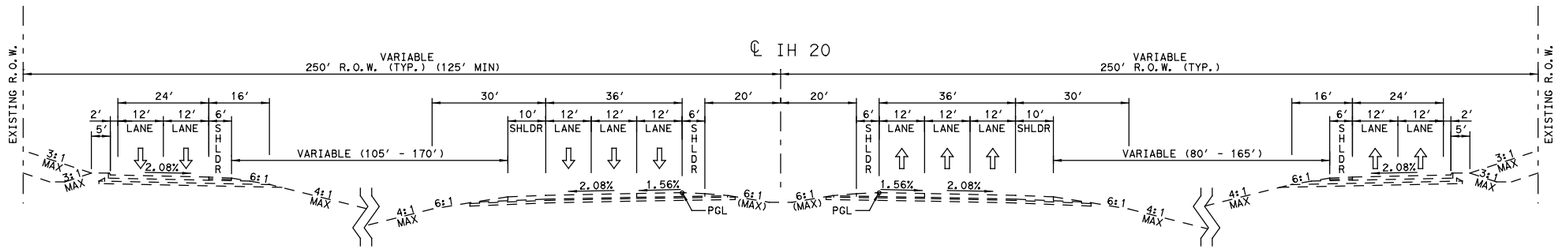


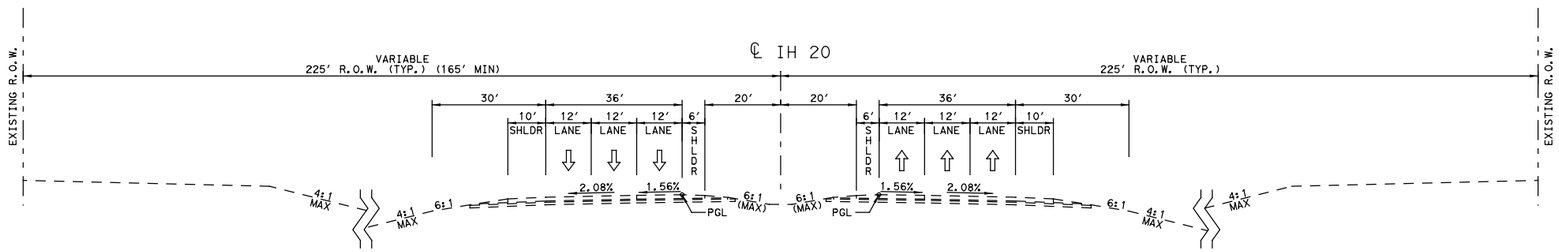
APPENDIX D
TYPICAL SECTIONS

CONCEPTUAL



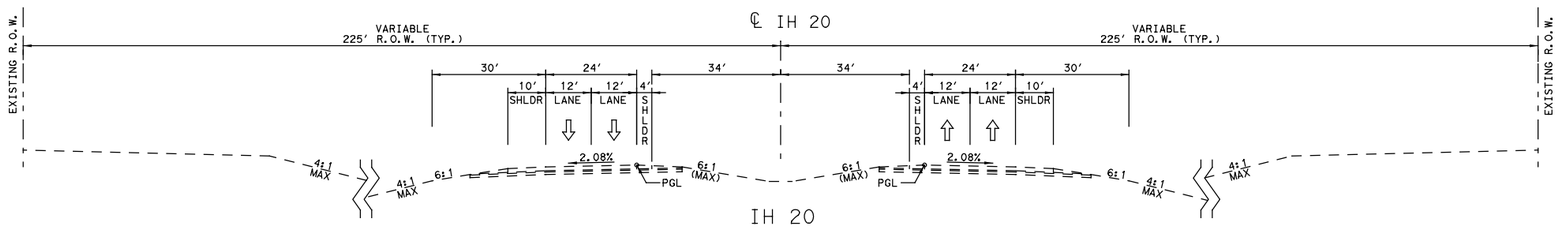
IH 20
EXISTING TYPICAL SECTION

BEGIN TO STA 418+65



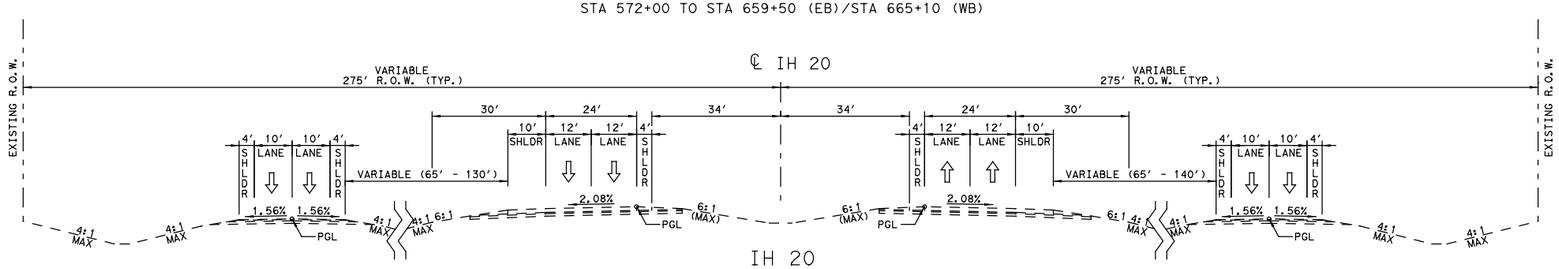
IH 20
EXISTING TYPICAL SECTION

STA 418+65 TO STA 572+00



IH 20
EXISTING TYPICAL SECTION

STA 572+00 TO STA 659+50 (EB)/STA 665+10 (WB)



IH 20
EXISTING TYPICAL SECTION

STA 659+50 (EB)/STA 665+10 (WB) TO STA 699+50 (EB)/STA 705+00 (WB)

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: TXDOT.tbl
USER: AKEMP DATE: 4/19/2018 TIME: 11:9:35 AM SCALE: 1:40
FILE: \

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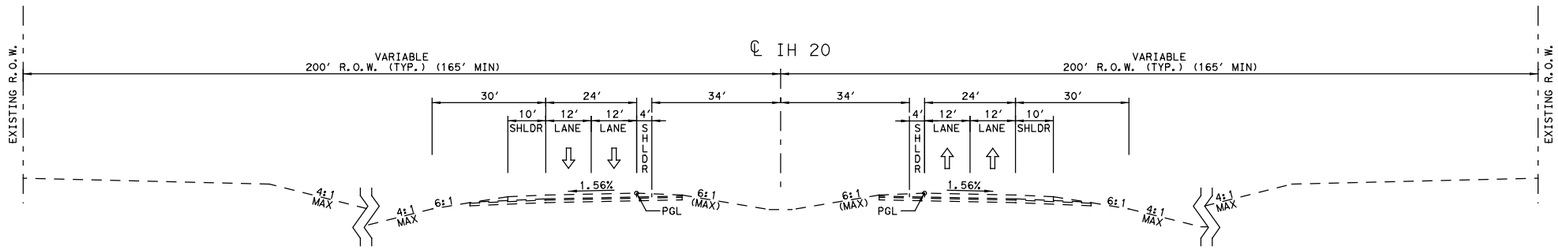
FIGURE 1-2
EXISTING TYPICAL SECTIONS

SHEET 1 OF 2

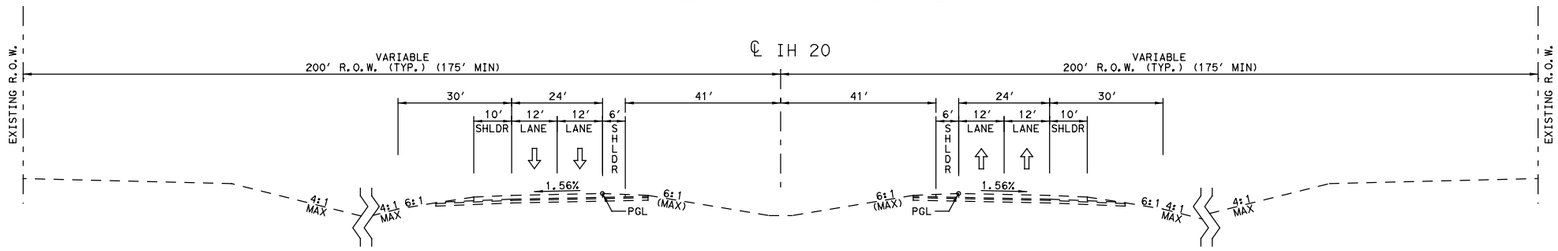
FED.RD. DIV.NO.	FEDERAL PROJECT NO.		HIGHWAY NO.
6			IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS	DAL & KAUF	
CONTROL	SECTION	JOB	
0095	14	027, ETC.	

CONCEPTUAL



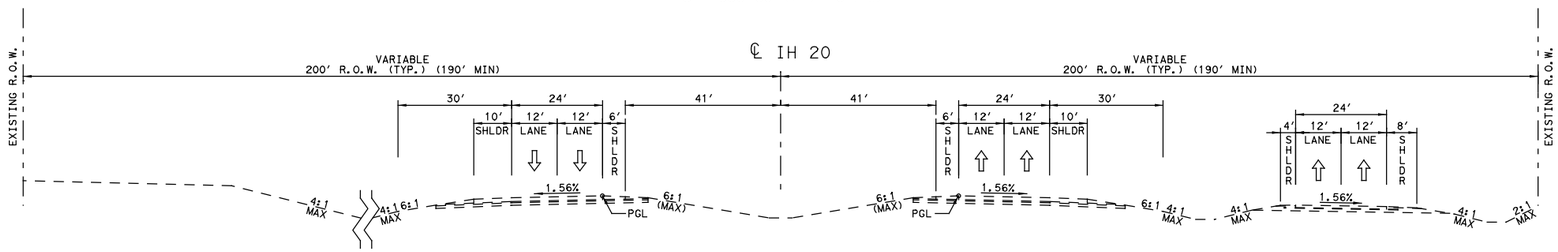
IH 20
EXISTING TYPICAL SECTION

STA 699+50 (EB)/STA 705+00 (WB) TO STA 1249+60



IH 20
EXISTING TYPICAL SECTION

STA 1249+60 (BK) TO STA 896+80 (AH)
STA 935+80 (AH) TO END



IH 20
EXISTING TYPICAL SECTION

STA 896+80 (AH) TO STA 935+80 (AH)

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: AKEMP
FILE: \
DATE: 4/19/2018
TIME: 11:9:37 AM
PENTABLE: TXDOT.tbl
SCALE: 1:40

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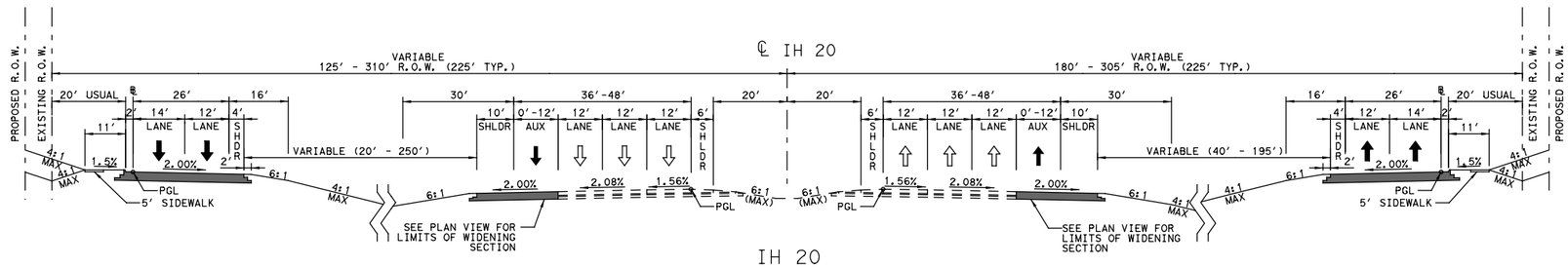
FIGURE 1-2
EXISTING TYPICAL SECTIONS

SHEET 2 OF 2

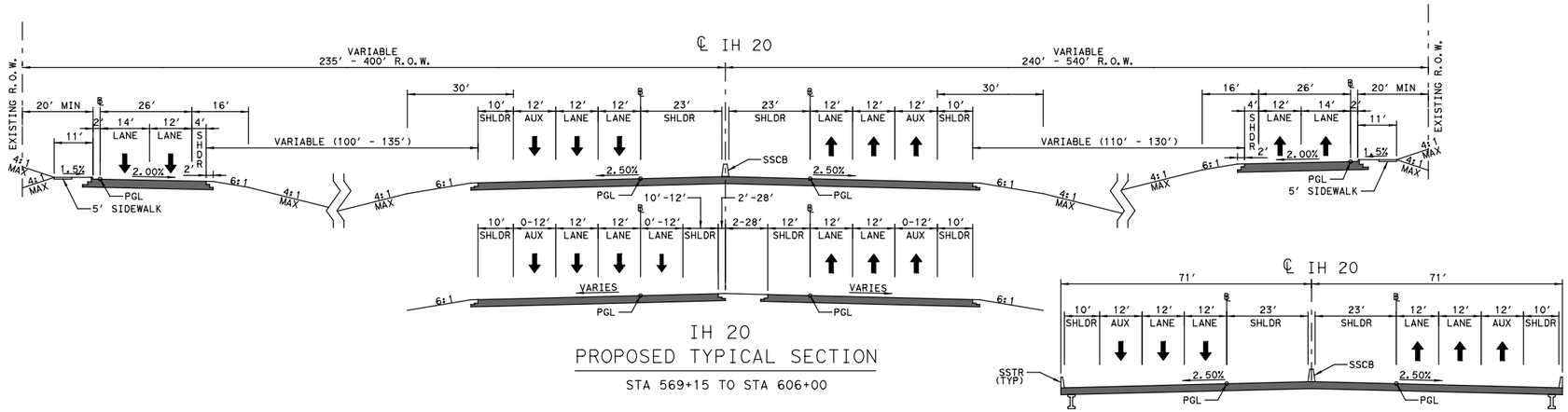
FED.RD. DIV.NO.	FEDERAL PROJECT NO.		HIGHWAY NO.
6			IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS	DAL & KAUF	
CONTROL	SECTION	JOB	
0095	14	027, ETC.	

CONCEPTUAL



IH 20
PROPOSED TYPICAL SECTION

BEGIN TO STA 569+15

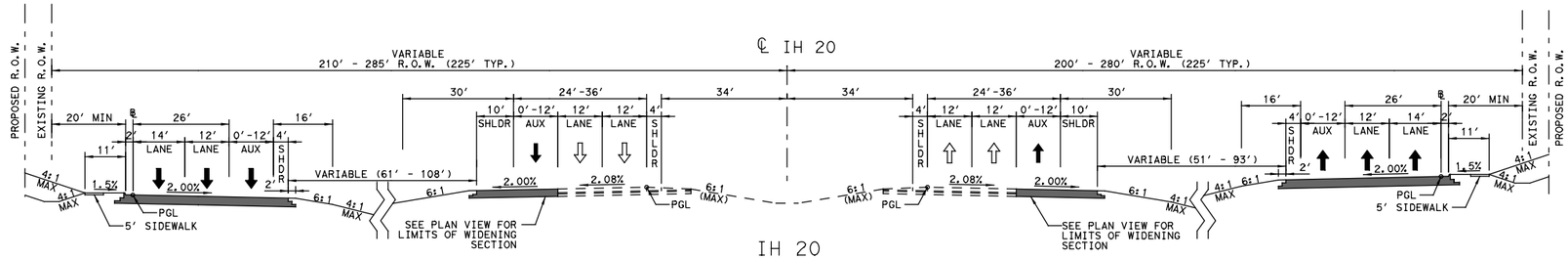


IH 20
PROPOSED TYPICAL SECTION

STA 569+15 TO STA 606+00

IH 20
PROPOSED TYPICAL SECTION

STA 585+83.43 TO STA 589+63.43



IH 20
PROPOSED TYPICAL SECTION

STA 606+00 TO STA 722+35

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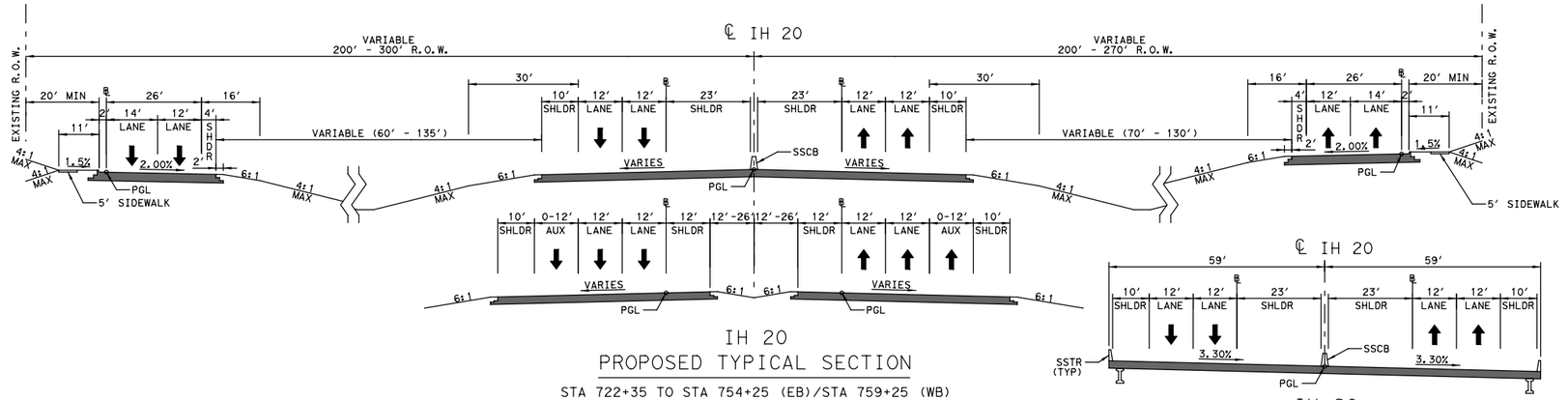
FIGURE 2-1
PROPOSED TYPICAL SECTIONS

SHEET 1 OF 4

FED.RD. DIV.NO.	FEDERAL PROJECT NO.		HIGHWAY NO.
6			IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS	DAL & KAUF	
CONTROL	SECTION	JOB	
0095	14	027, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: AKEMP
FILE: \
DATE: 12/17/2018
TIME: 9:00:12 AM
PENTABLE: TXDOT.tbl
SCALE: 1:40

CONCEPTUAL

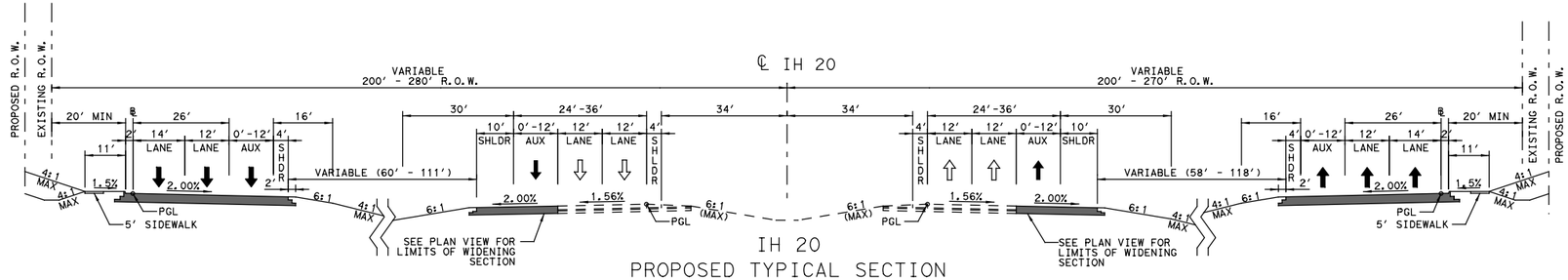


IH 20
PROPOSED TYPICAL SECTION

STA 722+35 TO STA 754+25 (EB)/STA 759+25 (WB)

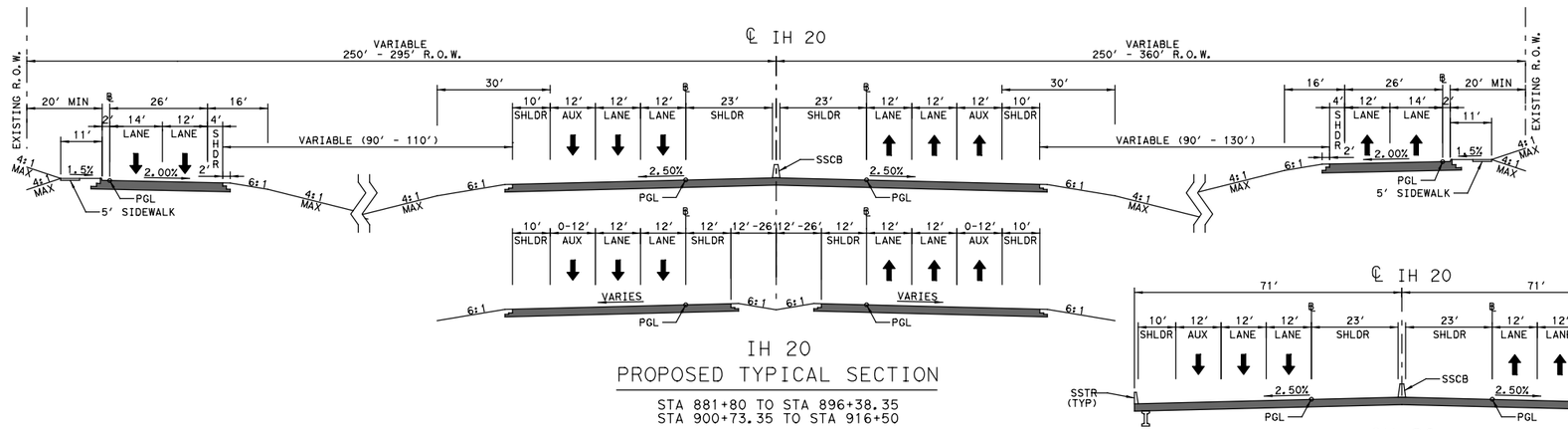
IH 20
PROPOSED TYPICAL SECTION

STA 735+38.89 TO STA 740+38.89



IH 20
PROPOSED TYPICAL SECTION

STA 754+25 (EB)/STA 759+25 (WB) TO STA 881+80



IH 20
PROPOSED TYPICAL SECTION

STA 881+80 TO STA 896+38.35
STA 900+73.35 TO STA 916+50

IH 20
PROPOSED TYPICAL SECTION

STA 896+38.35 TO STA 900+73.35

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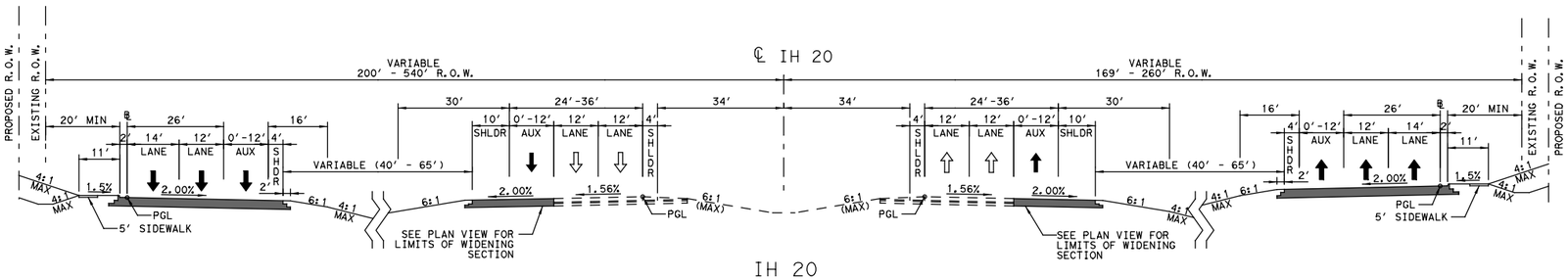
FIGURE 2-1
PROPOSED TYPICAL SECTIONS

SHEET 2 OF 4

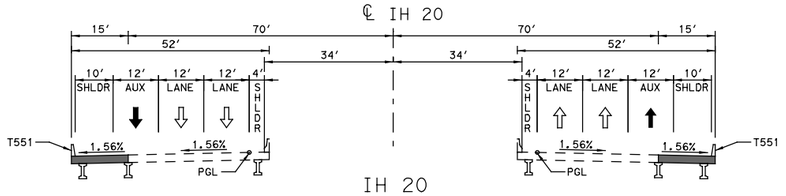
FED.RD. DIV.NO.	FEDERAL PROJECT NO.		HIGHWAY NO.
6			IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS	DAL & KAUF	
CONTROL	SECTION	JOB	
0095	14	027, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: TXDOT.tbl
USER: AKEMP DATE: 12/17/2018 TIME: 9:00:4 AM SCALE: 1:40
FILE: \

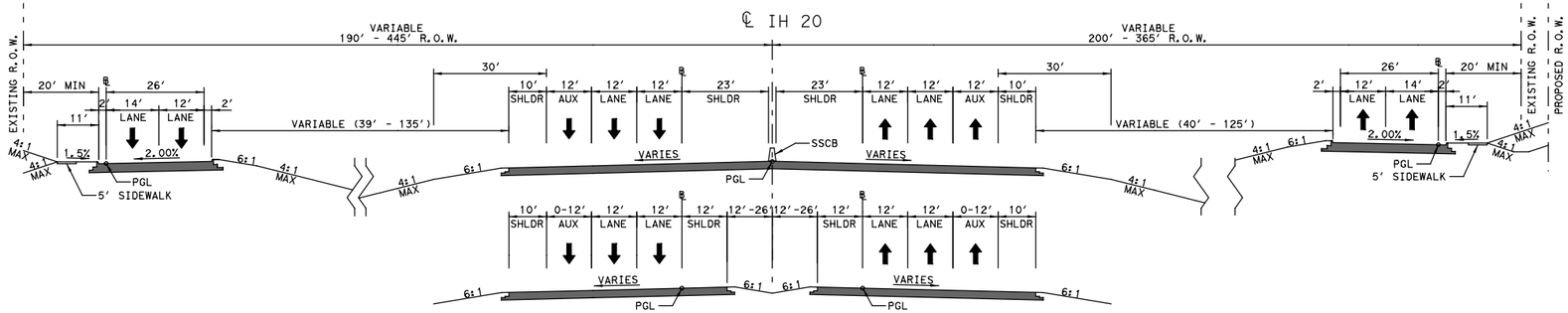
CONCEPTUAL



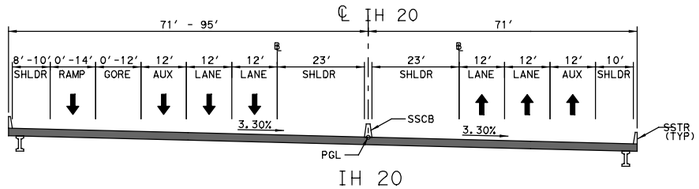
IH 20
PROPOSED TYPICAL SECTION
STA 916+50 TO STA 1115+00



IH 20
PROPOSED TYPICAL SECTION
STA 1028+74.00 TO STA 1031+44.00



IH 20
PROPOSED TYPICAL SECTION
STA 1115+00 TO STA 1161+00



IH 20
PROPOSED TYPICAL SECTION
STA 1129+17.03 TO STA 1132+77.03
STA 1142+06.05 TO STA 1146+25.05

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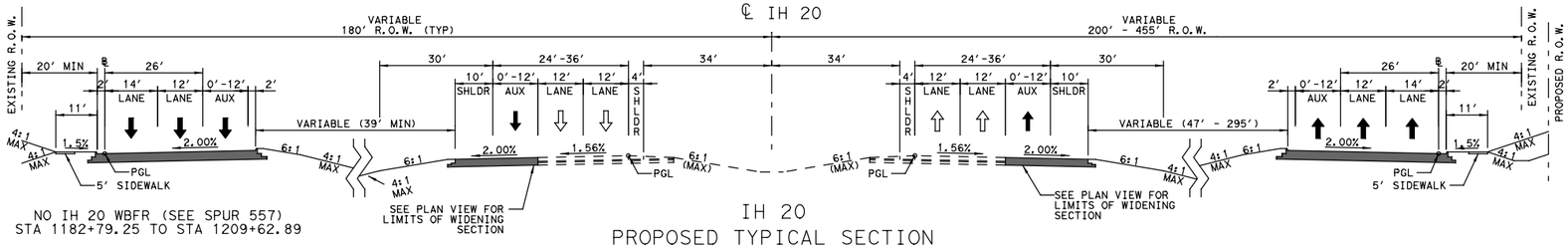
FIGURE 2-1
PROPOSED TYPICAL SECTIONS

SHEET 3 OF 4

FED.RD. DIV.NO.	FEDERAL PROJECT NO.		HIGHWAY NO.
6			IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS	DAL & KAUF	
CONTROL	SECTION	JOB	
0095	14	027, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: AKEWP
FILE: \
DATE: 12/17/2018
TIME: 9:00:17 AM
PENTABLE: TXDOT.tbl
SCALE: 1:40

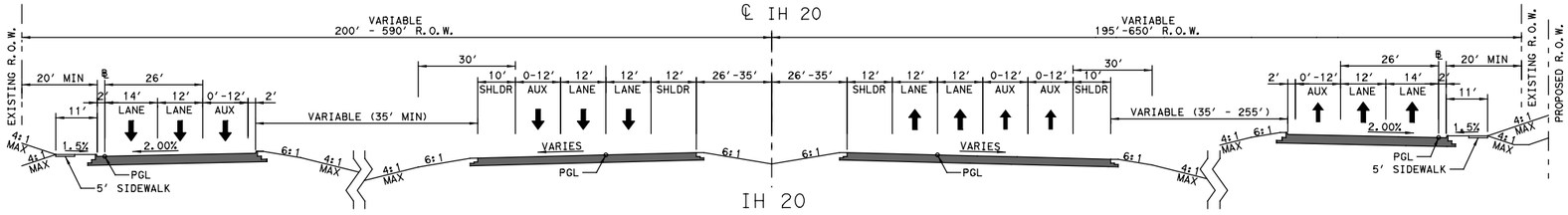
CONCEPTUAL



NO IH 20 WBFR (SEE SPUR 557)
STA 1182+79.25 TO STA 1209+62.89

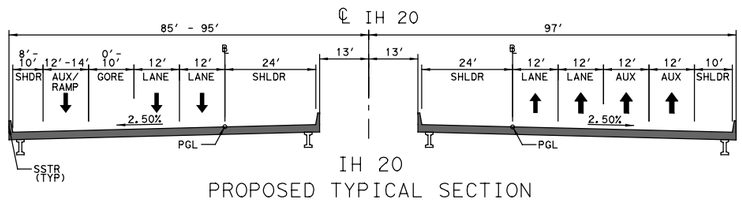
IH 20
PROPOSED TYPICAL SECTION

STA 1161+00 TO STA 1197+00 (WB)/STA 1200+00 (EB)



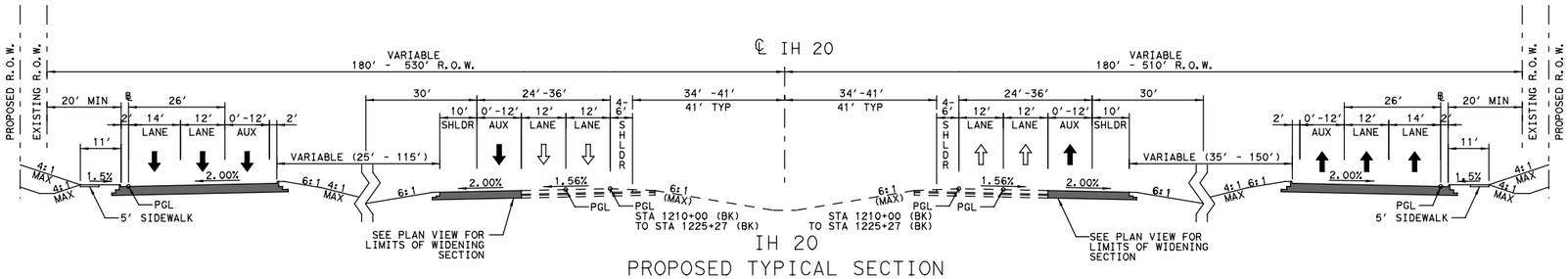
IH 20
PROPOSED TYPICAL SECTION

STA 1197+00 (WB)/STA 1200+00 (EB) TO STA 1230+55.37
STA 1234+30.37 TO STA 1246+62.66 (WB (BK))/STA 780+25 (EB (AH))



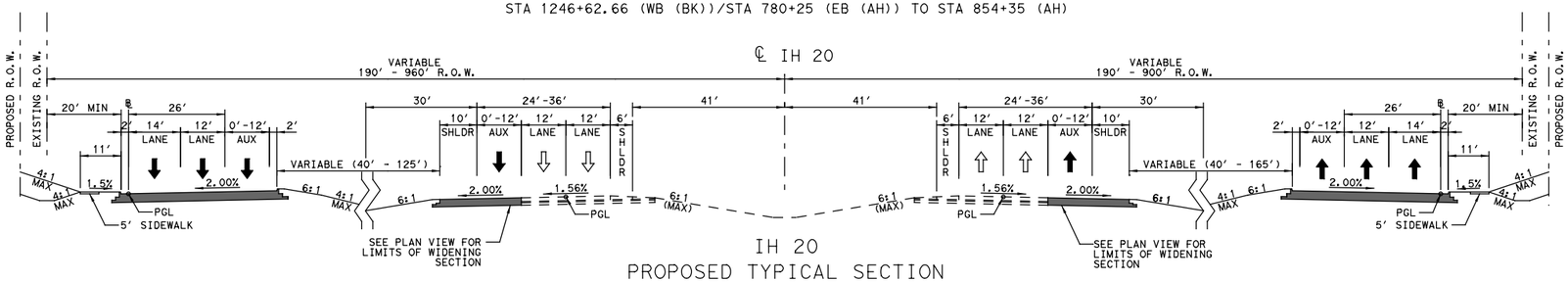
IH 20
PROPOSED TYPICAL SECTION

STA 1230+55.37 TO STA 1234+30.37



IH 20
PROPOSED TYPICAL SECTION

STA 1246+62.66 (WB (BK))/STA 780+25 (EB (AH)) TO STA 854+35 (AH)



IH 20
PROPOSED TYPICAL SECTION

STA 854+35 (AH) TO END

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FIGURE 2-1
PROPOSED TYPICAL SECTIONS

SHEET 4 OF 4

FED.RD. DIV.NO.	FEDERAL PROJECT NO.		HIGHWAY NO.
6			IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS	DAL & KAUF	
CONTROL	SECTION	JOB	
0095	14	027, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg PENTABLE: TXDOT.tbl
USER: AKEWP DATE: 12/17/2018 TIME: 9:00:9 AM SCALE:1:40
FILE: \

APPENDIX E
PLAN AND PROGRAM EXCERPTS

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DALLAS	0095-10-033	US 80	E,R	MESQUITE	TXDOT-DALLAS

LIMITS FROM: IH 30
REV DATE: 07/2018
LIMITS TO: EAST OF TOWN EAST BLVD
MPO PROJECT ID: 53108
TIP DESCRIPTION: RECONSTRUCT AND WIDEN 4 TO 6 MAIN LANES, RECONSTRUCT AND WIDEN 2/6 CONTINUOUS FRONTAGE ROADS TO 4/8 CONTINUOUS FRONTAGE ROADS
MTP REFERENCE: FT1-32.10.1
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DALLAS	0095-13-038	IH 20	E,R	MESQUITE	TXDOT-DALLAS

LIMITS FROM: LAWSON ROAD
REV DATE: 07/2018
LIMITS TO: KAUFMAN COUNTY LINE
MPO PROJECT ID: 55232
TIP DESCRIPTION: ADD 0 TO 4 LANE CONTINUOUS FRONTAGE ROADS
MTP REFERENCE: NRSA1-30.90.2
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	KAUFMAN	0095-14-027	IH 20	E,R	VARIOUS	TXDOT-DALLAS

LIMITS FROM: DALLAS COUNTY LINE
REV DATE: 07/2018
LIMITS TO: SP 557
MPO PROJECT ID: 55219
TIP DESCRIPTION: ADD 0 TO 4 CONTINUOUS FRONTAGE ROADS
MTP REFERENCE: AO1-30.100.1, AO1-30.100.2
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	COLLIN	0135-03-046	US 380	E,R	PRINCETON	TXDOT-DALLAS

LIMITS FROM: AIRPORT ROAD
REV DATE: 07/2018
LIMITS TO: 4TH STREET
MPO PROJECT ID: 55233
TIP DESCRIPTION: WIDEN 4 LANE ROADWAY TO 6 LANE DIVIDED
MTP REFERENCE: RSA1-2.225.660
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	COLLIN	0135-04-033	US 380	E,R	PRINCETON	TXDOT-DALLAS

LIMITS FROM: 4TH STREET
REV DATE: 07/2018
LIMITS TO: CR 458
MPO PROJECT ID: 55234
TIP DESCRIPTION: WIDEN 4 LANE ROADWAY TO 6 LANES DIVIDED
MTP REFERENCE: RSA1-2.225.660
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DENTON	0195-02-074	IH 35	E,R	VARIOUS	TXDOT-DALLAS

LIMITS FROM: US 77 (NORTH OF DENTON)
REV DATE: 07/2018
LIMITS TO: COOKE COUNTY LINE
MPO PROJECT ID: 55197
TIP DESCRIPTION: RECONSTRUCT AND WIDEN 4 TO 6 LANE RURAL FREEWAY WITH RAMP MODIFICATIONS AND RECONSTRUCT 4 TO 4/6 LANE FRONTAGE ROADS
MTP REFERENCE: FT1-3.10.1, FT1-3.20.1
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DENTON	0195-03-087	IH 35	E,R	DENTON	TXDOT-DALLAS

LIMITS FROM: US 380
REV DATE: 07/2018
LIMITS TO: US 77 NORTH OF DENTON
MPO PROJECT ID: 55198
TIP DESCRIPTION: RECONSTRUCT AND WIDEN 4 TO 6 LANE RURAL FREEWAY WITH RAMP MODIFICATIONS AND 4 LANE TO 4/6 LANE FRONTAGE ROADS
MTP REFERENCE: FT1-3.20.1, FT1-3.20.2
REMARKS:
Project History:

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	DENTON	0196-01-108	IH 35E	E,R	VARIOUS	TXDOT-DALLAS

LIMITS FROM: TURBEVILLE RD
REV DATE: 07/2018
LIMITS TO: US 77
MPO PROJECT ID: 25033.1
TIP DESCRIPTION: RECONSTRUCT EXISTING 6/8 INTERIM GP LANES TO 8 GP LANES; RECONSTRUCT AND CONVERT 2 INTERIM REVERSIBLE TO 4 CONCURRENT MANAGED LANES
MTP REFERENCE: FT1-7.10.3, FT1-7.10.4, FT1-7.10.5
REMARKS:
Project History: PART OF REGIONAL 10 YEAR PLAN

DISTRICT	COUNTY	CSJ	HWY	PHASE	CITY	PROJECT SPONSOR
DALLAS	COLLIN	0364-04-049	SS 399	E,R	MCKINNEY	TXDOT-DALLAS
LIMITS FROM:	AT SH 5					REV DATE: 07/2018
LIMITS TO:						MPO PROJECT ID: 55156
TIP DESCRIPTION:	CONSTRUCT GRADE SEPARATION					MTP REFERENCE: TSMO2-001
REMARKS:						
						Project History:

DALLAS	DALLAS	0442-02-159	IH 35E	C,E,R	DALLAS	TXDOT-DALLAS
LIMITS FROM:	US 67					REV DATE: 07/2018
LIMITS TO:	LAURELAND DR					MPO PROJECT ID: 55094
TIP DESCRIPTION:	CONSTRUCT 0 TO 1 REVERSIBLE EXPRESS LANE					MTP REFERENCE: FT1-7.90.1; FT1-7.90.2
REMARKS:						
						Project History: 10-YEAR PLAN PROJECT

DALLAS	ROCKWALL	0451-01-053	SH 205	E	ROCKWALL	TXDOT-DALLAS
LIMITS FROM:	SOUTH OF FM 548					REV DATE: 07/2018
LIMITS TO:	JCT SH 205/JOHN KING (S. GOLIAD ST)					MPO PROJECT ID: 55071
TIP DESCRIPTION:	WIDEN 2 LANE RURAL HIGHWAY TO 4 LANE DIVIDED (6 LANE ULTIMATE)					MTP REFERENCE: RSA1-1.715.500; RSA1-1.715.525
REMARKS:						
						Project History:

DALLAS	KAUFMAN	0451-02-028	SH 205	E	TERRELL	TXDOT-DALLAS
LIMITS FROM:	SOUTH OF FM 548					REV DATE: 07/2018
LIMITS TO:	US 80					MPO PROJECT ID: 55072
TIP DESCRIPTION:	WIDEN 2 LANE RURAL HIGHWAY TO 4 LANE DIVIDED (6 LANE ULTIMATE)					MTP REFERENCE: RSA1-1.715.525; RSA1-1.715.550
REMARKS:						
						Project History:

DALLAS	ROCKWALL	0451-05-901	SH 205	C,E,R	ROCKWALL	TXDOT-DALLAS
LIMITS FROM:	JCT SH 205/JOHN KING (S GOLIAD ST)					REV DATE: 07/2018
LIMITS TO:	JCT SH 205/JOHN KING (N GOLIAD ST)					MPO PROJECT ID: 13038
TIP DESCRIPTION:	WIDEN 4 TO 6 LANE DIVIDED URBAN ROADWAY					MTP REFERENCE: RSA1-1.720.300, RSA1-1.720.350
REMARKS:						
						Project History: RELATED TO TIP 55071/CSJ 0451-01-053 AND TIP 55074/CSJ 0451-04-021; 10 YEAR PLAN PROJECT

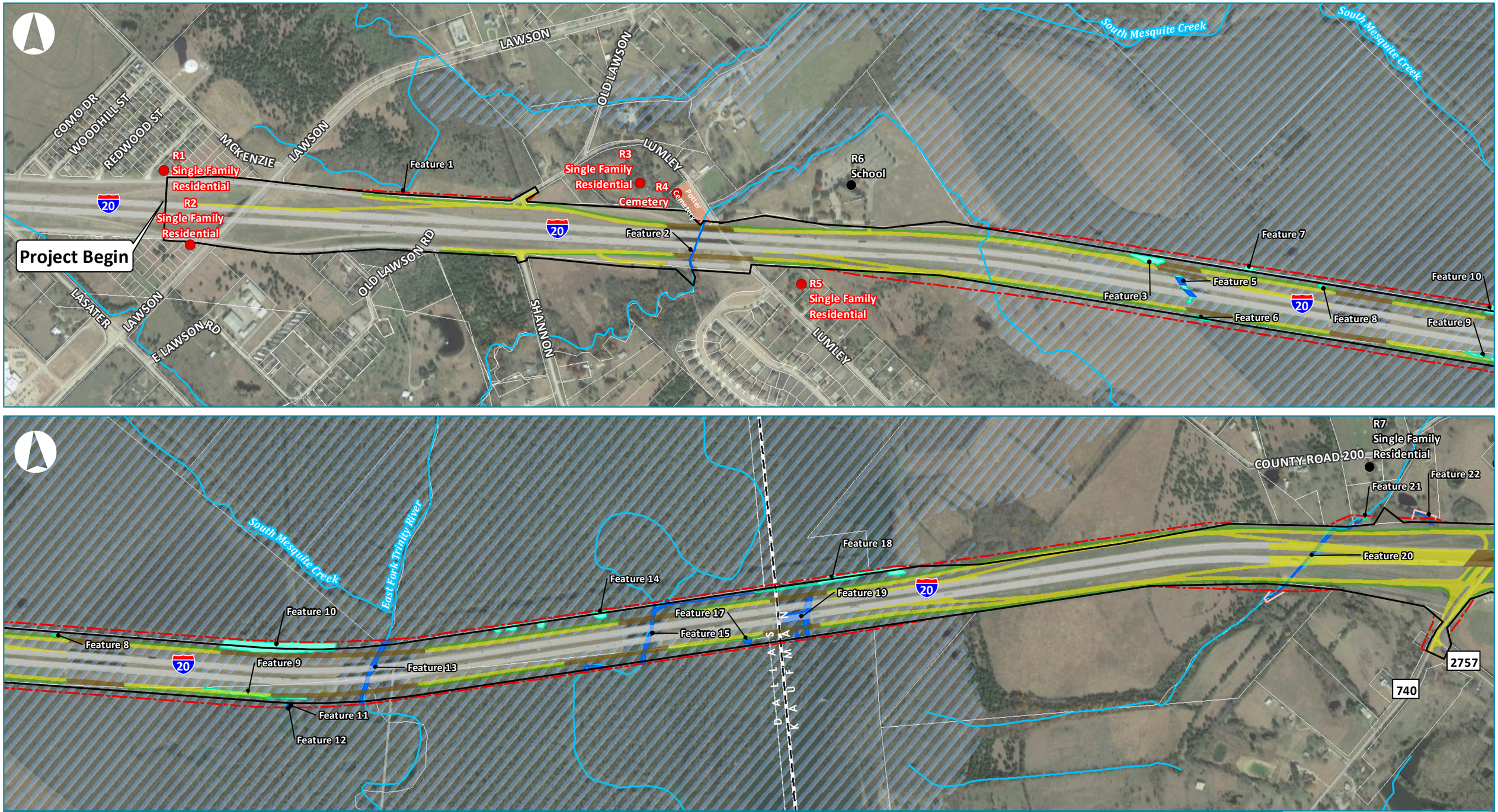
DALLAS	KAUFMAN	0495-01-064	SP 557	C,E	TERRELL	TERRELL
LIMITS FROM:	AT LAS LOMAS PARKWAY (CR 305)					REV DATE: 07/2018
LIMITS TO:						MPO PROJECT ID: 53138.2
TIP DESCRIPTION:	CONSTRUCT PHASE 1 (4-LANES) OF ULTIMATE 8 LANE BRIDGE PLUS CONNECTIONS TO LAS LOMAS PARKWAY					MTP REFERENCE: NRSA1-DAL-104
REMARKS:	LOCAL CONTRIBUTION PAID FOR BY CITY OF TERRELL AND KAUFMAN CO					
						Project History:

DALLAS	KAUFMAN	0495-01-065	SP 557	C,E	TERRELL	TERRELL
LIMITS FROM:	AT LAS LOMAS PARKWAY (CR 305)					REV DATE: 07/2018
LIMITS TO:						MPO PROJECT ID: 83262
TIP DESCRIPTION:	CONSTRUCT PHASE 2 (FINAL 4-LANES) OF ULTIMATE 8 LANE BRIDGE PLUS CONNECTIONS TO LAS LOMAS PARKWAY					MTP REFERENCE: NRSA1-DAL-105
REMARKS:	LOCAL CONTRIBUTION PAID FOR BY CITY OF TERRELL					
						Project History:

DALLAS	KAUFMAN	0495-01-071	IH 20	E,R	TERRELL	TXDOT-DALLAS
LIMITS FROM:	SP 557					REV DATE: 07/2018
LIMITS TO:	EAST OF CR 138 (WILSON RD)					MPO PROJECT ID: 55220
TIP DESCRIPTION:	ADD 0 TO 4 CONTINUOUS FRONTAGE ROADS					MTP REFERENCE: AO1-30.110.1
REMARKS:						
						Project History:

PHASE: C=CONSTRUCTION, E = ENGINEERING, R = ROW, T = TRANSFER

APPENDIX F
RESOURCE-SPECIFIC MAPS



PROJECT RESOURCE MAP

Interstate Highway 20
From Lawson Road
To East of County Road 138 (Wilson Road)
CSJs: 0095-14-027, 0095-13-038, 0495-01-071

Dallas and Kaufman Counties

- Existing ROW
- Proposed ROW
- Drainage Easement
- Proposed Pavement
- Proposed Structure
- Proposed Sidewalk
- Existing Pavement
- Proposed Displacement
- Place of Worship
- Educational Facility
- Cemetery
- Park
- Parcel
- County Boundary
- Creek or Stream (NHD)
- Delineated Creek/Impoundment
- Delineated Wetland
- 100 Year Floodplain (FEMA)
- Proposed Noise Barrier

Representative Noise Receiver
- Benefitted Receiver
- Impacted Receiver
- Non-Impacted Receiver

Hazardous Materials Site
- Low/No Environmental Risk
- Moderate Risk

Hazardous Materials Area
- Low/No Environmental Risk
- Moderate Environmental Risk

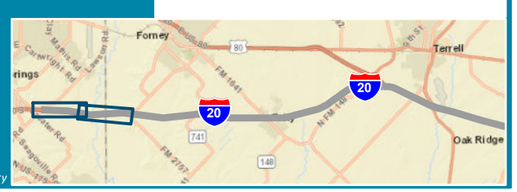
1 inch = 750 feet

Feet

0 375 750

Basemap: Google Imagery

MAP SHEET 1 OF 5



COUNTY ROAD 200
R8
Single Family
Residential
740
Feature 22
COUNTY ROAD 5085
COUNTY ROAD 5084
COUNTY ROAD 5086
COUNTY ROAD 203
Mustang Creek
Feature 25
R10
Single Family
Residential
R11
Single Family
Residential
SHADY BROOK LN
R12
Single Family
Residential
OLD NACOGDOCHES TRL
Feature 27
HIGH COUNTRY LN
20
R9
RV Park
Feature 23
Feature 24
740
2757
741
R15
Church
Pentecostals
of Forney
Gospel Light
Baptist
Church
R14
Church
2932
R13
Single Family
Residential
COUNTY ROAD 256
Feature 26
Feature 28
Feature 29
HazMat ID 8
Feature 31
Buffalo Creek
Feature 30
R12
Single Family
Residential
741
2932
COUNTY ROAD 4871
COUNTY ROAD 4863
COUNTY ROAD 4859

PROJECT RESOURCE MAP

Interstate Highway 20
From Lawson Road
To East of County Road 138 (Wilson Road)
CSJs: 0095-14-027, 0095-13-038, 0495-01-071

Dallas and Kaufman Counties

- Existing ROW
- Proposed ROW
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- Proposed Structure
- Proposed Sidewalk
- Existing Pavement
- Proposed Displacement
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- 100 Year Floodplain (FEMA)
- Proposed Noise Barrier

Representative Noise Receiver
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- Impacted Receiver
- Non-Impacted Receiver

Hazardous Materials Site
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- Moderate Risk

Hazardous Materials Area
- Low/No Environmental Risk
- Moderate Environmental Risk

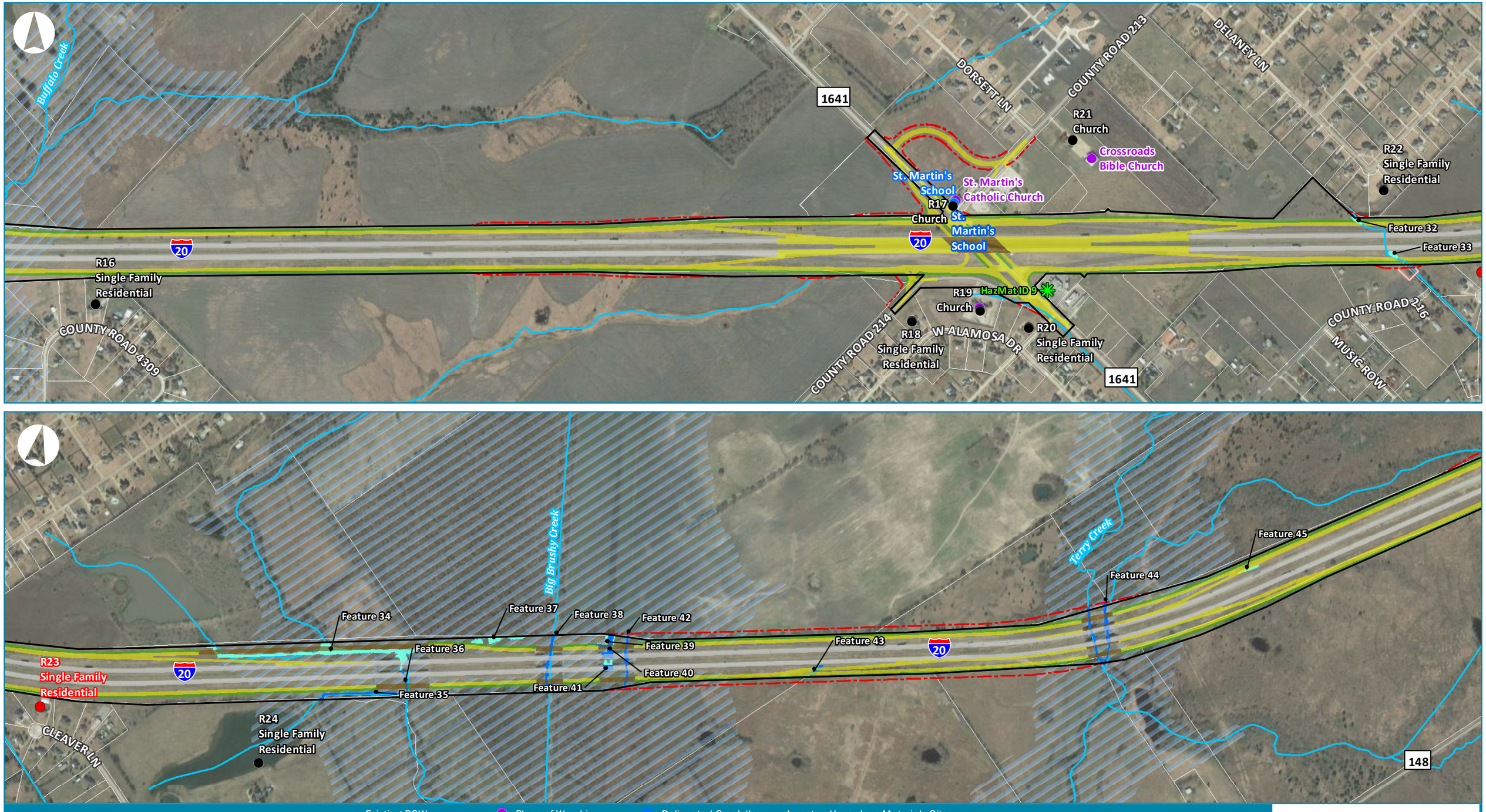
1 inch = 750 feet

Feet
0 375 750

Basemap: Google Imagery

MAP SHEET 2 OF 5





PROJECT RESOURCE MAP

Interstate Highway 20
From Lawson Road
To East of County Road 138 (Wilson Road)
CSJs: 0095-14-027, 0095-13-038, 0495-01-071

Dallas and Kaufman Counties

- Existing ROW
- Proposed ROW
- Drainage Easement
- Proposed Pavement
- Proposed Structure
- Proposed Sidewalk
- Existing Pavement
- Proposed Displacement
- Place of Worship
- Educational Facility
- Cemetery
- Park
- Parcel
- County Boundary
- Creek or Stream (NHD)
- Delineated Creek/Impoundment
- Delineated Wetland
- 100 Year Floodplain (FEMA)
- Proposed Noise Barrier

Representative Noise Receiver
- Benefitted Receiver
- Impacted Receiver
- Non-Impacted Receiver

Hazardous Materials Site
- Low/No Environmental Risk
- Moderate Risk

Hazardous Materials Area
- Low/No Environmental Risk
- Moderate Environmental Risk

1 inch = 750 feet

Feet
0 375 750

Basemap: Google Imagery

MAP SHEET 3 OF 5



R25
Single Family
Residential

R26
RV Park

Feature 47
Feature 48
Feature 49
Feature 46
Feature 51
Feature 52
Feature 53
Feature 50
Feature 55
Feature 54
Feature 56

20
148
557
COUNTY ROAD 305
HazMat ID 5
Little Brushy Creek

R27
Single Family
Residential

Feature 60
Feature 58
Feature 59
Feature 61
Feature 62
Feature 63
Feature 57

ROSE HILL
MEADOWVIEW CT
FRONTAGE RD
TANGER DR

R28
Single Family
Residential

R29
Single Family
Residential

2578

COUNTY ROAD 304
Bachelor Creek

PROJECT RESOURCE MAP

Interstate Highway 20
From Lawson Road
To East of County Road 138 (Wilson Road)
CSJs: 0095-14-027, 0095-13-038, 0495-01-071

Dallas and Kaufman Counties

- Existing ROW
- Proposed ROW
- Drainage Easement
- Proposed Pavement
- Proposed Structure
- Proposed Sidewalk
- Existing Pavement
- Proposed Displacement
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- 100 Year Floodplain (FEMA)
- Proposed Noise Barrier

Representative Noise Receiver
- Benefitted Receiver
- Impacted Receiver
- Non-Impacted Receiver

Hazardous Materials Site
- Low/No Environmental Risk
- Moderate Risk

Hazardous Materials Area
- Low/No Environmental Risk
- Moderate Environmental Risk

1 inch = 750 feet

Feet
0 375 750

Basemap: Google Imagery

MAP SHEET 4 OF 5



PROJECT RESOURCE MAP

Interstate Highway 20
From Lawson Road
To East of County Road 138 (Wilson Road)
CSJs: 0095-14-027, 0095-13-038, 0495-01-071

Dallas and Kaufman Counties

- Existing ROW
- Proposed ROW
- Drainage Easement
- Proposed Pavement
- Proposed Structure
- Proposed Sidewalk
- Existing Pavement
- Proposed Displacement
- Place of Worship
- Educational Facility
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Hazardous Materials Site
- Low/No Environmental Risk
- Moderate Risk

Hazardous Materials Area
- Low/No Environmental Risk
- Moderate Environmental Risk

1 inch = 750 feet
Feet
0 375 750

Basemap: Google Imagery

MAP SHEET 5 OF 5



APPENDIX G
RESOURCES AGENCY COORDINATION

Texas Department of Transportation

125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

June 17, 2019

Section 106/Antiquities Code of Texas: Archeological Review (Permit #8869)
IH 20: Lawson Road – East of County Road 138 (aka Wilson Road)
Dallas District; Dallas & Kaufman Counties (0095-14-027)

Ms. Patricia A. Mercado-Allinger
Division Director/State Archeologist
Archeology Division
Texas Historical Commission
PO Box 12276
Austin, TX 78711-2276

Dear Ms. Mercado-Allinger:

The proposed project will be undertaken with Federal funding. In accordance with Section 106 (and the Programmatic Agreement among the Texas Department of Transportation [TxDOT], the Texas State Historical Preservation Officer [TSHPO], the Federal Highway Administration [FHWA], and the Advisory Council on Historic Preservation) and the Antiquities Code of Texas (and the Memorandum of Understanding between the Texas Historical Commission [THC] and TxDOT), this letter initiates consultation for the proposed undertaking.

The following proposed project would improve Interstate Highway (IH) 20 in Dallas and Kaufman Counties, Texas in TxDOT's Dallas District. TxDOT proposes various improvements to IH 20 from Lawson Road in Dallas County to east of County Road (CR) 138 (Wilson Road) in Kaufman County, Texas. The proposed improvements would include constructing continuous one-way frontage road lanes in each direction, reconfiguring the ramps from a "diamond" configuration to an "X" configuration at each interchange, and adding auxiliary lanes on the mainlanes. The project length is approximately 20.39 miles long. Within the project limits, existing IH 20 has four to six, 12 foot wide mainlanes (two to three lanes in each direction) with 4 to 6 foot wide inside shoulders and 10 foot wide outside shoulders, separated by a 40 to 82 foot wide grassy median. There are no frontage roads, bike lanes, or sidewalks within most of the project limits, as the existing frontage road ends just east of Lawson Road. The existing right-of-way (ROW) in the project area varies from 375 to 550 feet in width and totals approximately

1,280 acres. The proposed improvements to IH 20 would add continuous one-way frontage roads in both the eastbound and westbound directions from Lawson Road to CR 138 (Wilson Road). The frontage roads would consist of a 12 foot wide inside lane, a 14 foot wide shared outside lane, a 4 foot wide inside shoulder and a 2 foot wide outside shoulder. A minimum 5 foot wide sidewalk would be included along the eastbound and westbound frontage roads behind the back of curb. Proposed auxiliary lanes on the mainlanes would be 12 feet wide. The proposed project would also include the reconstruction of the mainlanes to accommodate cross street improvements, and the construction, relocation, or modification of 43 ramps. The proposed project would require approximately 121.5 acres of additional ROW and approximately 3.8 acres of permanent easement (drainage easement). The Area of Potential Effect (APE) is defined as the horizontal footprint of the proposed project and the vertical depth of construction impacts. This includes the project length, the amount of existing ROW, proposed new ROW, easements and the depth of construction impacts (approximately 5 feet usual and 100 feet maximum).

Archeologists from AmaTerra Environmental, Inc., on behalf of TxDOT, conducted an intensive survey of the APE. Work was conducted May 2–24, 2019 by a team of five archeologists and consisted of a 100 percent intensive pedestrian survey and backhoe trenching within select locations of the project APE, resulting in the excavation of 474 shovel tests and 11 backhoe trenches. Fourteen high probability units were selected for survey within the 20.39-mile corridor. Four new archeological sites were recorded Sites 41KF183, 41KF184, 41KF185 and 41KF186. None of these sites are recommended for further work within the APE and are also recommended not eligible for listing to the National Register of Historic Places (NRHP) or as a State Antiquities Landmark. In addition to the four newly identified sites, five previously recorded sites were revisited and two Isolated Finds (IF1 and IF2) were recorded. The revisited sites, IFs and newly recorded sites have no data potential within the APE and therefore are recommended for no further work to complete Section 106 and ACT requirements. The survey team found most of the project area to be heavily impacted by development and roadway disturbance. This report recommends that further work is warranted for Unit 2, along the East Fork Trinity River, prior to construction to assess its potential for buried archaeological deposits, as this section of the APE was entirely inundated by continuous rain and flooding at the time of survey. No artifacts were collected as part of this project. All notes and field records will be curated at the Texas Archeological Research Laboratory in Austin, Texas. TxDOT agrees with their findings. Based on the above information, ***TxDOT recommends that the archeological inventory is adequate and complete. TxDOT recommends that proposed project, thus far, would have No Effect on any eligible archeological sites of any kind, no further archeological investigations are needed for the portion of the APE that has been inventoried, the surveyed parcels within the APE were found to be relatively disturbed and sterile within the APE, and the surveyed portion of the proposed project should be allowed to proceed to construction. TxDOT further recommends that the remainder of the archeological inventory (along the East Fork of the Trinity River) be deferred until that time that access is possible. No construction should be allowed in this area and once the survey is complete, the entire draft report shall be coordinated with your office.***

Please find attached for your review and comments the archeological contractor's draft survey report; *Intensive Archeological Survey, IH 20 from Lawson Road to East of CR 138 (Wilson Road), Dallas and Kaufman Counties, Texas. Dallas District.* If you have no objections to the recommendations made or any comments on this report and find it acceptable, please sign below to indicate your concurrence and stamp the draft cover as acceptable.

Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

Sincerely,

Allen C. Bettis Jr.
Archeological Studies Program
Environmental Affairs Division

Attachment
cc w/o attachments: Maura Hogan: AmaTerra Environmental, Inc. – Austin
Christine Polito, Dallas District Office
ACB PA File

William A. Martin 6/20/19

Concurrence by: Date:
for Mark S. Wolfe, State Historic Preservation Officer

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

DRAFT REPORT
ACCEPTABLE
by
for Mark Wolfe
Executive Director, THC
Date 6/20/19
Track#

Texas Department of Transportation

Archeological Survey

IH20 from Lawson Road to East of CR 138 (Wilson Road) Dallas and Kaufman Counties, Texas. Dallas District.

CSJ 0095-13-038, 0095-14-027 and 0495-01-071

Maura Hogan, Principal Investigator; Antiquities Permit No. 8869
June 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Texas Department of Transportation
125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

January 6, 2017

RE: Early Coordination for Sec. 106 Consultation

To: The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by the Federal Highway Administration (FHWA) and TxDOT.

The purpose of this letter is to include more detailed information about TxDOT's consultation program. The documents include information on the **TxDOT Early Tribal Coordination Tool** and a table of the projects and nearby archeological sites, if any, that the **TxDOT Early Tribal Coordination Tool** map depicts. This letter provides more detail about both the **TxDOT Early Tribal Coordination Tool** and the table.

TxDOT Early Coordination Tool

The first attachment contains the link, log in information and directions for the **TxDOT Early Tribal Coordination Tool**. This web-based map depicts hundreds of both minor and major TxDOT projects within your area of interest and any known archeological sites within a kilometer of each project. Each project's provisional area of effects (APE) is defined in the tool as the area within 500 feet of a roadway segment. As TxDOT develops detailed plans for each project and finalizes the APE, this provisional APE in most cases will likely be refined to a smaller area. Archeological sites do occur in proximity to some of the projects, and new sites may be discovered through further investigations. Archeological sites that qualify for inclusion in the National Register of Historic Properties are, however, rare. TxDOT thus expects that most of these projects will have no effect on archeological historic properties. All of the depicted projects have been or will be reviewed by the Environmental Affairs' Archeology Branch to verify that the projects will have no effect.

****YOU MAY COMMENT AT ANY TIME DURING THIS EARLY COORDINATION PROCESS AND USE OF THE TOOL DOES NOT PRECLUDE THE ABSENTEE SHAWNEE TRIBE OF OKLAHOMA FROM ENTERING INTO CONSULTATION PER SEC. 106 OF THE NATIONAL HISTORIC PRESERVATION ACT (NHPA).**

We will continue to send you consultation letters on any project whose area of potential effects includes Native American sites and on all major projects. Major projects:

- include border crossing facility construction, conversion of non-freeways to freeways, new location non-freeways, new location freeways, widening non-freeways, and widening freeways; and
- Require new right-of-way.

Major projects would cause more than 100 cubic yards of ground disturbance to previously-undisturbed areas, and such projects may affect areas that have not been previously surveyed for cultural resources.

For minor projects, TxDOT will conduct investigations of the final APE. These investigations will comprise review of available background information and, in some cases, field studies. TxDOT will not provide further information about such minor projects unless these investigations reveal the presence of a site.

Table of Projects and Sites

The second attachment contains a table of the projects and any sites within the 500-foot APE of each project. As previously noted, sites may have already been identified within this provisional APE. The table lists, as a separate row, each site found within 500 feet of a project. For projects where multiple sites have been found within the provisional APE, the same project will be listed multiple times in the table. Projects for which no known sites occur within 500 feet will be listed only once. The table can be sorted in various ways, such as by County, project status, and let date.

If you have any questions about these tools or would like to consult on any of the projects listed, please contact Laura Cruzada at 512/416-2638, laura.cruzada@txdot.gov. When replying to this correspondence by US Mail, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Thank you for your attention to this matter.

Sincerely,



Scott Pletka, Deputy Section Director
Environmental Affairs Division