

# SURVEY DATA SHEETS

## McCLAIN COUNTY

### I-35

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				
DESCRIPTION		REVISIONS		DATE	

**SURVEY CONTROL DATA**

1. POSITIONAL CONTROL:
- A. POSITIONAL CONTROL FOR THIS SURVEY IS THE NGS OKLAHOMA STATE PLANE COORDINATE SYSTEM, NAD83 (2011), LAMBERT PROJECTION (NORTH ZONE).
- B. ACCURACY - THE POSITIONAL CONTROLS FOR THIS SURVEY MEETS OR EXCEEDS THE FOLLOWING ACCURACY CRITERIA:
1. NETWORK ACCURACY: 0.10 FOOT
  2. LOCAL ACCURACY: 0.05 FOOT

2. BEARINGS:
- THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE NGS OKLAHOMA STATE PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL. THE ANGLE OF VARIANCE BETWEEN GRID NORTH (GN) AND THE ASTRONOMICAL TRUE NORTH (TN) IS DEPICTED DIAGRAMMATICALLY.

3. VERTICAL CONTROLS:
- A. LEVEL DATUM IS NAVD 88 (Geoid 12b).
- B. ACCURACY - VERTICAL CONTROL FOR THIS SURVEY MEETS OR EXCEEDS THE FOLLOWING ACCURACY CRITERIA:
1. NETWORK ACCURACY: 0.10 FOOT
  2. LOCAL ACCURACY: 0.02 FOOT

SURVEY BEGAN: November 17, 2021  
 SURVEY COMPLETED: March 3, 2022

**SURVEY CREW MEMBERS:**

Eric Shane King,	Professional Land Surveyor
Randall Richard Payne,	Professional Land Surveyor
Geoffrey Tucker,	Project Surveyor
Jason Scott,	Survey CADD Technician
Todd Voight,	Survey CADD Technician
Thomas Creecy,	Survey Crew Chief
Johnathan Conaway,	Survey Crew Chief
Aiden Hicks,	Survey Technician
Gavin Jones,	Survey Technician
Heather King,	Survey Technician
Andrew Mayhue,	Title Specialist

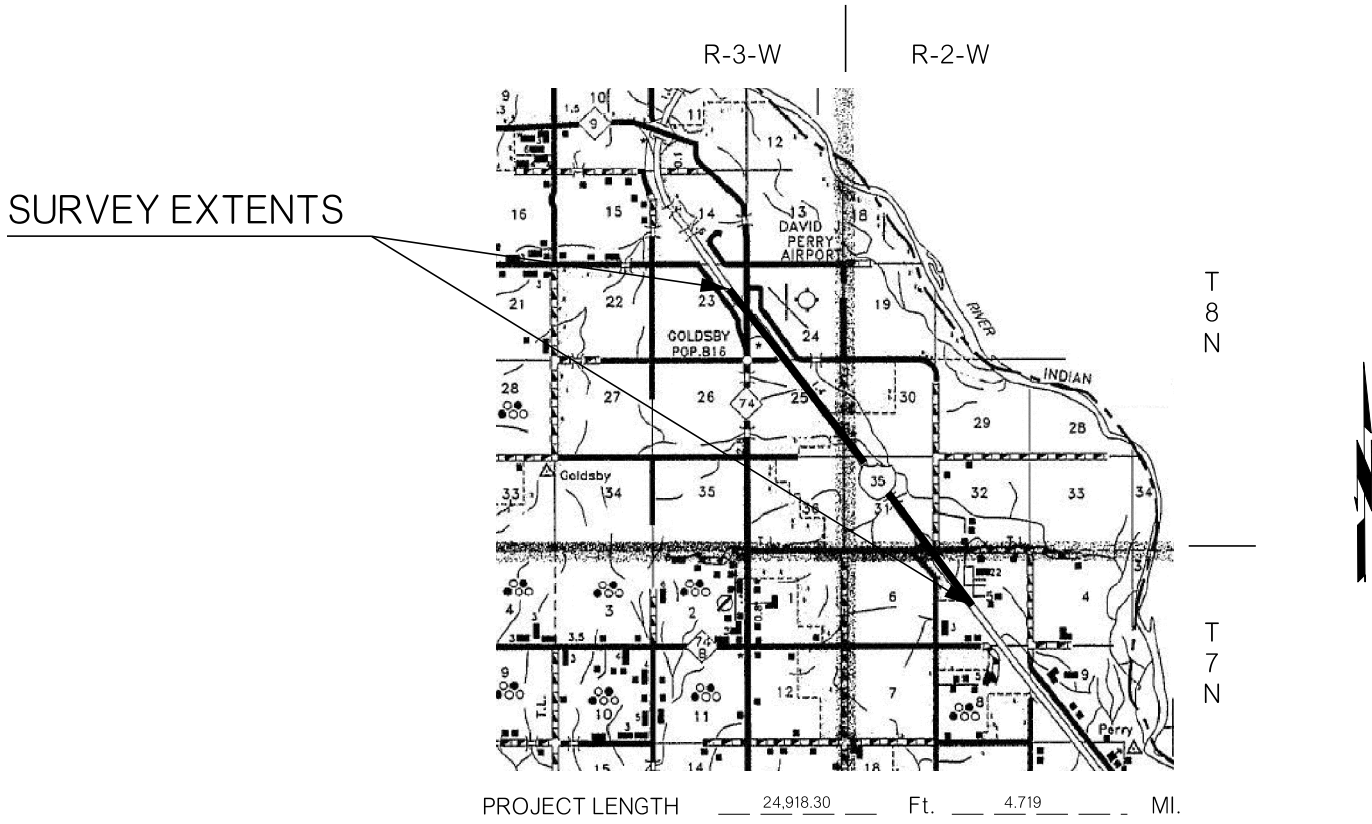
**EQUIPMENT:**  
 CARLSON BRx7 GPS  
 GEOMAX ZENITH 35 GPS  
 GEOMAX ZOOM 90 ROBOTIC TOTAL STATION  
 GEOMAX DIGITAL LEVEL  
 CARLSON DATA COLLECTORS

**SCALES**

1" = 50' TOWN
1" = 100'
1" = 500'

SWO 5560(1)  
 STATE JOB NO. 35589(04)

**PROJECT LOCATION**



PROJECT LENGTH 24,918.30 Ft. 4.719 MI.

BEGINNING STATION : 632+33.30  
 ENDING STATION : 881+51.60

**INDEX OF SURVEY SHEETS**

S001:	TITLE SHEET
S002-S010:	SURVEY REPORTS
S011-S020:	SURVEY DATA SHEETS

\*CALL BEFORE YOU DIG\*  
 THE NEW NATIONAL LOCATE NUMBER  
 \*\*811\*\*

*Utility Company Owner's List*

ONG - Lee Ann Pulliam	405-552-1835
OEC - Kalton Howry	405-217-6623
Windstream	405-228-2530
Goldsby Water Authority - Ronny Nelson	405-288-6697
Centurylink / Level 3 / IXC	800-441-0223
Hill Oil Company	405-273-8046
DCP Midstream	405-288-2387
Western Farmers Electric	405-247-3351
Trace Fiber Networks	844-499-5656

**STATE OF OKLAHOMA  
 DEPARTMENT OF TRANSPORTATION**

SWO 5560(1) Job/Piece 35589(04) Engr. Contract No. 2321H

**LAND SURVEYOR'S CERTIFICATION**

I hereby certify that all land and property sub-division distances, angles, corners, and monumentation made or used in conjunction with this survey and depicted or recorded herein or hereon were recovered, established or re-established in substantial conformity with:

- Applicable instructions contained in the U.S. Government Bureau of Land Management publication "Manual of Survey Instruction",
- Its supplement, "Restoration of Lost or Obliterated Corners and Sub-division of Sections",
- "Oklahoma Minimum Standards for the Practice of Land Surveying" as adopted by the State Board of Licensure for Professional Engineers and Land Surveyors; and
- Sound land surveying practices;

including a thorough search, study, analysis and consideration of all existing records and field evidence.

I further certify that all survey monuments depicted exist and that all land survey work was done by me or under my direct supervision and that it is true, accurate and correct to the best of my knowledge and belief.

Dated this 3<sup>rd</sup> day of March, 2022.

Land Surveyor Eric Shane King (seal)  
 Signature



Eric Shane King  
 Printed Name

Oklahoma Licensed Land Surveyor No. 1542

Certificate of Authorization No. 5954



THIS SURVEY MEETS THE OKLAHOMA MINIMUM STANDARDS FOR THE PRACTICE OF LAND SURVEYING AS ADOPTED BY THE OKLAHOMA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS, NOVEMBER 1, 2020.



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SPECIFICATIONS FOR SURVEYS FOR PRIMARY AND SECONDARY HIGHWAYS DATED JANUARY 2018 GOVERN.

OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION			
PLS	ESK		<b>SURVEY DATA SHEET</b>
DRAWN	ESK		
CHECKED	HLK		
APPROVED	ESK		
CREW	WHITEHAWK		
SWO <u>5560(1)</u>		PROJECT NO. <u>35589(04)</u>	SHEET NO. <u>S001</u>

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	



**White Hawk Engineering & Design, LLC#**  
 2204 S. Eastern Avenue Moore, OK 73160 (405) 735-6096

March 3, 2022

To: Mr. Kyle King, PLS, Chief of Surveys

From: Eric Shane King, PLS

Subject: SWO 5560(1) - JP 35589(04) - I-35 - McClain County  
 From 1 mile South of Ladd Road, extend North 4.15 miles to the SH-74 Interchange

**HISTORICAL LETTER AND WRITTEN REPORT**

1. **General:**

Method of Survey: Combined Aerial LIDAR and Field Conventional  
 Unit of Measurement: U.S. Survey Foot

Survey Began: November 17, 2021  
 Survey Completed: March 3, 2022

Previous Surveys and Plans pertinent to this project:

- SWO 2036(1)
- SWO 4748(1)
- SWO 4892(1)
- SWO 5415(1)
- FAP No. I-35-2(0)098 Plans
- FAP No. I-35-2(9)104 Plans
- FAP No. NHPPI-3500(074)PM Plans
- FAP No. NHPPI-0035(297)SS Plans

2. **Assignment of Survey:**

This survey was assigned to White Hawk via CI-2321H Task Order 3.

3. **Survey Limits:**

This survey begins 1 mile South of SWO 4748(1) POT Sta. 5029+59.67 at Ladd Road and extends North to SWO 4892(1) BOP Sta. 820+00.00, also being SWO 5415(1) BOP Sta. 881+51.60. The width of the survey is everything within Present Right-of-Way.

4. **Alignment:**

- The Centerline of Survey is along the centerline of I-35/US-77 as shown on SWO 2036(1) Survey and FAP No. I-35-2(0)098/ FAP No. I-35-2(9)104 plans.
- No remaining evidence was found of centerline points or references as shown on SWO 2036(1) Survey within the project limits. The beginning tangent was held between the split of structure at plans Sta. 1065+00 and tied to the intersection of SWO 4748(1) centerline and NS-312 section line. The centerline of SWO 4748(1) was held as the second tangent between NS-312 section line and EW-130.5 ¼ section line. The third tangent was tied to the intersection of SWO 4892(1) centerline and EW-129 section line. The centerline of SWO 4892(1) was held as the ending tangent and ties exactly with the beginning tangent of SWO 5415(1).
- The centerline of Ladd Road was taken from SWO 4748(1). The centerline of SH-74 was taken from SWO 4892(1). Ramp alignments were taken from the existing surveys and/or calculated from pertinent plans.

5. **Stationing:**

Stationing was taken from SWO 5415(1) Survey at BOP Sta. 881+51.60, being the EOP of this survey. This stationing was carried back, without equation to the Beginning of Survey.

SWO 5560(1) - I-35 - McClain County  
 Historical Letter and Written Report  
 Page 2 of 3

6. **Horizontal Control:**

- Horizontal control for this survey is NAD 83(2011) Oklahoma State Plane, South Zone, taken from SWO 4748(1) and 4892(1) surveys using monuments M-44-726, M-44-727, M-44-729, M-44-730, M-44-858 and M-44-859.
- Secondary control for this survey was established using GPS RTK methods, following accepted ODOT Survey Division methods and techniques.

7. **Vertical Control:**

- Vertical control for this survey is NGS, NAVD 88 Level Datum, taken from SWO 4748(1) and SWO 4892(1) surveys. Direct differential leveling was obtained between the existing surveys with remaining monuments held as noted in the check levels list.
- A "BENCHMARKS AND CHECK LEVELS" list has been placed in the submitted Design file and has been submitted with this survey, showing the benchmark number, the differences of each run between benchmarks, and the elevation and full description of each benchmark.

8. **Topography:**

Topography for this survey was obtained utilizing Aerial LIDAR provided by a consultant of ODOT Survey Division via CI 2333B TO1. Additional data was obtained within obscured areas by conventional methods and combined with the aerial data provided.

9. **Digital Terrain Model:**

- Breakline data for this project was obtained utilizing Aerial LIDAR and conventional methods as described above. The combined LIDAR and conventional data has been used to create the Final Terrain Model of the entire project.
- OSSDA testing was performed on the submitted terrain model, utilizing 55 randomly collected points. The points were collected using GPS RTK methods from two separate base locations, and the results of the test have been submitted as "SWO5560\_OSSDA.pdf"

10. **Land Ties:**

Land tie information was not required for this project. Land lines shown were taken from SWO 4748(1) and SWO 4892(1) Surveys for calculation of Present Right-of-Way only.

11. **Property Ties:**

Property divisions were not required for this project.

12. **Existing Right-of-Way:**

- The Statutory Section Line Right-of-Way for this area is a total of 33 feet.
- Existing Right of Way for this survey was taken from records obtained from ODOT Right-of-Way Division and compared to FAP No. I-35-2(0)098/ FAP No. I-35-2(9)104 Plans.

13. **Potential Environment Contamination:**

There were no potential contamination sites found within the limits of this survey.

14. **Utilities:**

Overhead and underground utility data has been obtained by field conventional methods and has been placed in the submitted design file and on the submitted "Public and Privately Owned Utilities List." Call Okie was contacted for the utility providers list, but they will not mark any lines in the field for design survey projects. GIS data was obtained from companies willing to provide such and combined with visible utility features and markings found.

15. **Drainage:**

Drainage information was not required for this project.

SWO 5560(1) - I-35 - McClain County  
 Historical Letter and Written Report  
 Page 3 of 3

16. **Submission of Survey Data:**

- All digital survey data has been submitted via the FTP site, and a complete listing of all data files created and used in conjunction with this survey has been placed in the FTP project folder as "SWO5560\_Index.pdf".
- In addition to the digital survey data, PDF copies of the following information have also been submitted:
  - o Historical Letter and Written Report of Survey
  - o ODOT Form SD-7 - Public and Privately Owned Utilities List
  - o ODOT Form SD-41 - Surveyor Certification
  - o Benchmarks and Check Levels List
  - o Alignment and Coordinate Geometry List
  - o OSSDA Field Form

*ESK*  
 Eric Shane King,  
 Professional Land Surveyor

PLS	ESK		OKLAHOMA DEPARTMENT OF TRANSPORTATION		
DRAWN	ESK		SURVEY DIVISION		
CHECKED	HLK		<b>SURVEY DATA SHEET</b>		
APPROVED	ESK				
CREW	WHITEHAWK	SWO 5560(1)	PROJECT NO. 35589(04)	SHEET NO. S002	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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DESCRIPTION		REVISIONS		DATE	

Alignment name: A001  
 Alignment description: CLS I-35  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 300)	632+33.30	645396.72603	2138213.62367
HPI( 301)	677+73.12	648995.94325	2135446.74820
Tangential Direction:	N37°33'03.80"W		
Tangential Length:	4539.8199		

Element: Linear			
HPI( 301)	677+73.12	648995.94325	2135446.74820
HPI( 302)	718+23.90	652205.72546	2132975.69614
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	4050.7777		

Element: Linear			
HPI( 302)	718+23.90	652205.72546	2132975.69614
HPI( 303)	817+92.45	660106.57516	2126897.16167
Tangential Direction:	N37°34'22.64"W		
Tangential Length:	9968.5509		

Element: Linear			
HPI( 303)	817+92.45	660106.57516	2126897.16167
END( 304)	881+51.60	665145.97332	2123018.59780
Tangential Direction:	N37°35'01.02"W		
Tangential Length:	6359.1502		

Alignment name: A002 CLS LADD RD  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 328)	100+00.00	649572.18647	2133495.32547
END( 9001)	119+48.46	649585.52204	2135443.74453
Tangential Direction:	N89°36'28.28"E		
Tangential Length:	1948.4647		

Alignment name: A003 BL LADD AVE  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Circular			
PC( 321)	675+13.08	648679.04773	2135450.20595
HPI( )	675+63.62	648729.58481	2135449.89102
CC( )		648678.11303	2135300.20886
PT( 322)	676+10.57	648769.62749	2135419.05794
Radius:	150.0000		
Delta:	37°14'21.987" Left		
Degree of Curvature(Arc):	38°11'49.870"		
Length:	97.4926		
Tangent:	50.5381		
Chord:	95.7857		
Middle Ordinate:	7.8512		
External:	8.2849		
Tangent Direction:	N00°21'25.32"W		
Radial Direction:	N89°38'34.68"E		
Chord Direction:	N18°58'36.31"W		
Radial Direction:	N52°24'12.70"E		
Tangent Direction:	N37°35'47.30"W		

Element: Linear			
PT( 322)	676+10.57	648769.62749	2135419.05794
PC( 323)	683+59.84	649363.33573	2134961.99142
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	749.2658		

Element: Circular			
PC( 323)	683+59.84	649363.33573	2134961.99142
HPI( )	684+34.23	649422.28127	2134916.60727
CC( )		649271.82663	2134843.13821
PT( 324)	684+97.96	649421.82380	2134842.21580
Radius:	150.0000		
Delta:	52°45'30.426" Left		
Degree of Curvature(Arc):	38°11'49.870"		
Length:	138.1213		
Tangent:	74.3929		
Chord:	133.2931		
Middle Ordinate:	15.6191		
External:	17.4345		
Tangent Direction:	N37°35'37.99"W		
Radial Direction:	N52°24'22.01"E		
Chord Direction:	N63°58'23.20"W		
Radial Direction:	N00°21'08.41"W		
Tangent Direction:	S89°38'51.59"W		

Element: Linear			
PT( 324)	684+97.96	649421.82380	2134842.21580
PC( 325)	688+68.57	649419.52536	2134471.60913
Tangential Direction:	S89°38'40.80"W		
Tangential Length:	370.6138		

Element: Circular			
PC( 325)	688+68.57	649419.52536	2134471.60913
HPI( )	689+35.81	649419.10905	2134404.37563
CC( )		649519.52345	2134470.98993
PT( 327)	689+86.96	649481.21461	2134378.61877
Radius:	100.0000		
Delta:	67°49'46.771" Right		
Degree of Curvature(Arc):	57°17'44.806"		
Length:	118.3851		
Tangent:	67.2348		
Chord:	111.5920		
Middle Ordinate:	17.0132		
External:	20.5011		
Tangent Direction:	S89°38'42.81"W		
Radial Direction:	N00°21'17.19"W		
Chord Direction:	N56°26'23.80"W		
Radial Direction:	N67°28'29.58"E		
Tangent Direction:	N22°31'30.42"W		

Element: Linear			
PT( 326)	689+86.96	649481.21461	2134378.61877
END( 327)	690+91.69	649577.95736	2134338.49810
Tangential Direction:	N22°31'28.27"W		
Tangential Length:	104.7322		

Alignment name: A004 BL RAMP A  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 343)	695+03.35	650401.11585	2134435.64810
HPI( 344)	708+33.35	651454.99010	2133624.32260
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	1330.0000		

Element: Linear			
PT( 326)	689+86.96	649481.21461	2134378.61877
END( 327)	690+91.69	649577.95736	2134338.49810
Tangential Direction:	N22°31'28.27"W		
Tangential Length:	104.7322		

Alignment name: A005 BL RAMP B  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 343)	695+03.35	650401.11585	2134435.64810
HPI( 344)	708+33.35	651454.99010	2133624.32260
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	1330.0000		

Element: Linear			
HPI( 344)	708+33.35	651454.99010	2133624.32260
END( 345)	711+33.59	651685.38594	2133431.80816
Tangential Direction:	N39°52'53.39"W		
Tangential Length:	300.2400		

Element: Linear			
HPI( 344)	708+33.35	651454.99010	2133624.32260
END( 345)	711+33.59	651685.38594	2133431.80816
Tangential Direction:	N39°52'53.39"W		
Tangential Length:	300.2400		

Alignment name: A006 BL RAMP E  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 340)	695+06.46	650335.25789	2134345.00374
HPI( 341)	700+16.46	650739.37509	2134033.89396
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	510.0000		

Element: Linear			
HPI( 341)	700+16.46	650739.37509	2134033.89396
END( 342)	703+16.70	650984.41139	2133860.39679
Tangential Direction:	N35°18'01.01"W		
Tangential Length:	300.2400		

Element: Linear			
HPI( 341)	700+16.46	650739.37509	2134033.89396
END( 342)	703+16.70	650984.41139	2133860.39679
Tangential Direction:	N35°18'01.01"W		
Tangential Length:	300.2400		

Alignment name: A006 BL RAMP E  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 305)	682+03.14	649363.71777	2135219.14529
HPI( 306)	685+03.38	649608.75400	2135045.64810
Tangential Direction:	N35°18'01.05"W		
Tangential Length:	300.2400		

Element: Linear			
HPI( 306)	685+03.38	649608.75400	2135045.64810
HPI( 307)	685+13.69	649616.92191	2135039.36011
Tangential Direction:	N37°35'25.97"W		
Tangential Length:	10.3079		

Element: Linear			
HPI( 307)	685+13.69	649616.92191	2135039.36011
END( 308)	690+53.38	650044.56664	2134710.13765
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	539.6920		

Alignment name: A007 BL RAMP F  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 329)	673+43.14	648628.58348	2135674.03182
HPI( 330)	676+43.38	648858.97932	2135481.51737
Tangential Direction:	N39°52'53.40"W		
Tangential Length:	300.2400		

Element: Linear			
HPI( 330)	676+43.38	648858.97932	2135481.51737
HPI( 331)	690+53.38	649976.24451	2134621.39033
Tangential Direction:	N37°35'27.20"W		
Tangential Length:	1410.0000		

Alignment name: A008 RAMP A  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Linear			
START( 311)	683+91.02	650017.05250	2135440.86845
PC( 315)	683+98.52	650017.00456	2135433.36537
Tangential Direction:	S89°38'02.04"W		
Tangential Length:	7.5032		

Element: Circular			
PC( 315)	683+98.52	650017.00456	2135433.36537
HPI( )	684+88.05	650016.43250	2135343.83770
CC( )		650366.99741	2135431.12900
PT( 316)	685+73.82	650058.91989	2135265.03192
Radius:	350.0000		
Delta:	28°41'49.229" Right		
Degree of Curvature(Arc):	16°22'12.802"		
Length:	175.3000		
Tangent:	89.5295		
Chord:	173.4735		
Middle Ordinate:	10.9178		
External:	11.2693		
Tangent Direction:	S89°38'02.04"W		
Radial Direction:	N00°21'57.96"W		
Chord Direction:	N76°01'03.35"W		
Radial Direction:	N28°19'51.27"E		
Tangent Direction:	N61°40'08.73"W		

Element: Linear			
PT( 316)	685+73.82	650058.91989	2135265.03192
PC( 312)	689+99.15	650260.76654	2134890.64599
Tangential Direction:	N61°40'08.73"W		
Tangential Length:	425.3315		

Element: Linear			
PT( 316)	685+73.82	650058.91989	2135265.03192
PC( 312)	689+99.15	650260.76654	2134890.64599
Tangential Direction:	N61°40'08.73"W		
Tangential Length:	425.3315		

Element: Linear			
PT( 316)	685+73.82	650058.91989	2135265.03192
PC( 312)	689+99.15	650260.76654	2134890.64599
Tangential Direction:	N61°40'08.73"W		
Tangential Length:	425.3315		

Element: Circular			
PC( 312)	689+99.15		

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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Chord: 268.3094  
 Middle Ordinate: 31.6672  
 External: 35.4043  
 Tangent Direction: S89°16'51.86"W  
 Radial Direction: N00°43'08.14"W  
 Chord Direction: N64°09'21.16"E  
 Radial Direction: N52°24'25.81"E  
 Tangent Direction: N37°35'34.19"W

Tangent Direction: N00°22'54.70"W  
 Radial Direction: N89°37'05.30"E  
 Chord Direction: N31°01'31.71"W  
 Radial Direction: N28°19'51.27"E  
 Tangent Direction: N61°40'08.73"W

Length: 321.5769  
 Tangent: 178.1860  
 Chord: 306.4008  
 Middle Ordinate: 42.0666  
 External: 48.9273  
 Tangent Direction: N37°35'01.02"W  
 Radial Direction: N52°24'58.98"E  
 Chord Direction: N68°17'31.02"W  
 Radial Direction: N09°00'01.02"W  
 Tangent Direction: S80°59'58.98"W

Alignment name: A009 RAMP B  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear	STATION	NORTHING	EASTING
START( 337)	687+20.53	649578.04033	2134350.61543
PC( 338)	689+36.65	649794.15060	2134349.13631
Tangential Direction:	N00°23'31.72"W		
Tangential Length:	216.1153		

Element: Circular	STATION	NORTHING	EASTING
PC( 338)	689+36.65	649794.15060	2134349.13631
HPI( )	690+02.54	649860.03846	2134348.68535
CC( )	690+02.54	649797.57268	2134849.12460
PT( 339)	690+67.67	649923.79383	2134365.31862
Radius:	500.0000		
Delta:	15°00'51.214" Right		
Degree of Curvature(Arc):	11°27'32.961" Right		
Length:	131.0238		
Tangent:	65.8894		
Chord:	130.6493		
Middle Ordinate:	4.2857		
External:	4.3227		
Tangent Direction:	N00°23'31.72"W		
Radial Direction:	N89°36'28.28"E		
Chord Direction:	N07°06'53.89"E		
Radial Direction:	S75°22'40.50"E		
Tangent Direction:	N14°37'19.50"E		

Element: Linear	STATION	NORTHING	EASTING
PT( 339)	690+67.67	649923.79383	2134365.31862
PC( 335)	692+33.10	650083.86047	2134407.07874
Tangential Direction:	N14°37'19.50"E		
Tangential Length:	165.4244		

Element: Circular	STATION	NORTHING	EASTING
PC( 335)	692+33.10	650083.86047	2134407.07874
HPI( )	693+00.09	650226.09790	2134444.18181
CC( )	693+00.09	650159.58255	2134116.79239
PT( 336)	695+06.46	650342.57964	2134354.51506
Radius:	300.0000		
Delta:	52°12'31.636" Left		
Degree of Curvature(Arc):	19°05'54.935" Left		
Length:	273.3646		
Tangent:	146.9970		
Chord:	264.0048		
Middle Ordinate:	30.6018		
External:	34.0780		
Tangent Direction:	N14°37'11.96"E		
Radial Direction:	S75°22'48.04"E		
Chord Direction:	N11°29'03.86"W		
Radial Direction:	N52°24'40.32"E		
Tangent Direction:	N37°35'19.68"W		

Alignment name: A010 RAMP C  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear	STATION	NORTHING	EASTING
START( 317)	682+93.93	649852.62617	2135429.96406
PC( 318)	683+09.18	649867.87749	2135429.86241
Tangential Direction:	N00°22'54.70"W		
Tangential Length:	15.2517		

Element: Circular	STATION	NORTHING	EASTING
PC( 318)	683+09.18	649867.87749	2135429.86241
HPI( )	683+98.04	649956.73946	2135429.27016
CC( )	683+98.04	649866.87779	2135279.86574
PT( 319)	684+69.63	649998.91101	2135351.05021
Radius:	150.0000		
Delta:	61°17'14.032" Left		
Degree of Curvature(Arc):	38°11'49.871" Left		
Length:	160.4496		
Tangent:	88.8639		
Chord:	152.9089		
Middle Ordinate:	20.9469		
External:	24.3468		

Element: Linear	STATION	NORTHING	EASTING
PT( 319)	684+69.63	649998.91101	2135351.05021
END( 320)	685+73.82	650048.35724	2135259.33716
Tangential Direction:	N61°40'08.73"W		
Tangential Length:	104.1932		

Alignment name: A011 RAMP E  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Circular	STATION	NORTHING	EASTING
PC( 309)	690+53.38	650037.24450	2134700.62650
HPI( )	693+53.27	650274.90127	2134517.72152
CC( )	693+53.27	650128.73004	2134819.49784
PT( 310)	693+85.48	650278.71789	2134817.58884
Radius:	150.0000		
Delta:	126°51'11.991" Right		
Degree of Curvature(Arc):	38°11'49.869" Right		
Length:	332.1012		
Tangent:	299.8916		
Chord:	268.3088		
Middle Ordinate:	82.8986		
External:	185.3132		
Tangent Direction:	N37°34'57.12"W		
Radial Direction:	N52°25'02.88"E		
Chord Direction:	N25°50'38.87"E		
Radial Direction:	S00°43'45.13"E		
Tangent Direction:	N89°16'14.87"E		

Alignment name: A012 RAMP F  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Circular	STATION	NORTHING	EASTING
PC( 333)	690+53.38	649983.56659	2134630.90138
HPI( )	693+59.37	650225.99953	2134444.20791
CC( )	693+59.37	649892.04636	2134512.05675
PT( 334)	693+87.88	649929.93393	2134366.92049
Radius:	150.0000		
Delta:	127°46'13.018" Left		
Degree of Curvature(Arc):	38°11'49.869" Left		
Length:	334.5018		
Tangent:	305.9872		
Chord:	269.3740		
Middle Ordinate:	83.9742		
External:	190.7758		
Tangent Direction:	N37°35'57.32"W		
Radial Direction:	N52°24'02.68"E		
Chord Direction:	S78°30'56.17"W		
Radial Direction:	N75°22'10.34"W		
Tangent Direction:	S14°37'49.66"W		

Alignment name: A013 CLS SH-74  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear	STATION	NORTHING	EASTING
START( 346)	787+26.59	661145.40684	2124905.29320
HPI( 347)	803+16.67	662735.45359	2124894.55456
Tangential Direction:	N00°23'13.02"W		
Tangential Length:	1590.0830		

Element: Linear	STATION	NORTHING	EASTING
HPI( 347)	803+16.67	662735.45359	2124894.55456
END( 348)	820+00.00	664418.74573	2124883.18853
Tangential Direction:	N00°23'12.73"W		
Tangential Length:	1683.3305		

Alignment name: A014 LINE C  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Circular	STATION	NORTHING	EASTING
PC( 352)	836+10.74	661523.71851	2125757.24628
HPI( )	837+88.93	661664.92450	2125648.56733
CC( )	837+88.93	661340.74293	2125519.50706
PT( 353)	839+32.32	661637.04920	2125472.57525
Radius:	300.0000		
Delta:	61°25'00.000" Left		
Degree of Curvature(Arc):	19°05'54.935" Left		

Element: Linear	STATION	NORTHING	EASTING
PT( 353)	839+32.32	661637.04920	2125472.57525
PC( 354)	843+37.42	661573.67567	2125072.46337
Tangential Direction:	S80°59'58.98"W		
Tangential Length:	405.0996		

Element: Circular	STATION	NORTHING	EASTING
PC( 354)	843+37.42	661573.67567	2125072.46337
HPI( )	845+09.47	661546.75936	2124902.52590
CC( )	845+09.47	661376.13816	2125103.75125
PT( 355)	846+21.59	661374.70786	2124903.75636
Radius:	200.0000		
Delta:	81°24'34.095" Left		
Degree of Curvature(Arc):	28°38'52.403" Left		
Length:	284.1727		
Tangent:	172.0559		
Chord:	260.8644		
Middle Ordinate:	48.3839		
External:	63.8242		
Tangent Direction:	S80°59'58.98"W		
Radial Direction:	N09°00'01.02"W		
Chord Direction:	S40°17'41.93"W		
Radial Direction:	S89°35'24.88"W		
Tangent Direction:	S00°24'35.12"E		

Alignment name: A015 RAMP C  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear	STATION	NORTHING	EASTING
START( 359)	834+13.66	661587.92954	2124902.30455
PC( 360)	836+81.44	661606.59272	2125169.43296
Tangential Direction:	N86°00'12.49"E		
Tangential Length:	267.7796		

Element: Circular	STATION	NORTHING	EASTING
PC( 360)	836+81.44	661606.59272	2125169.43296
HPI( )	841+79.26	661641.28870	2125666.04056
CC( )	841+79.26	661872.94345	2125150.82410
PT( 357)	842+57.36	662035.79171	2125362.41201
Radius:	267.0000		
Delta:	123°35'13.504" Left		
Degree of Curvature(Arc):	21°27'32.736" Left		
Length:	575.9194		
Tangent:	497.8182		
Chord:	470.5876		
Middle Ordinate:	140.8024		
External:	297.8999		
Tangent Direction:	N86°00'12.49"E		
Radial Direction:	S03°59'47.51"E		
Chord Direction:	N24°12'35.73"E		
Radial Direction:	N52°24'58.98"E		
Tangent Direction:	N37°35'01.02"W		

Element: Linear	STATION	NORTHING	EASTING
PT( 357)	842+57.36	662035.79171	2125362.41201
END( 356)	849+51.61	662585.96283	2124938.97379
Tangential Direction:	N37°35'01.02"W		
Tangential Length:	694.2537		

Alignment name: A016 W SERVICE RD  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear	STATION	NORTHING	EASTING
START( 361)	836+22.54	661188.49215	2124889.31238
PC( 362)	838+73.03	661425.65941	2124808.70885
Tangential Direction:	N18°46'14.93"W		
Tangential Length:	250.4900		

Element: Circular	STATION	NORTHING	EASTING
PC( 362)	838+73.03	661425.65941	2124808.70885
HPI( )	839+21.61	661471.64850	2124793.07902
CC( )	839+21.61	661522.19445	2125092.75283
PT( 363)	839+69.34	661520.21994	2124792.75933

PLS	ESK		OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	ESK		
CHECKED	HLK		
APPROVED	ESK		
CREW	WHITEHAWK		
SWO 5560(1)			PROJECT NO. 35589(04)
			SHEET NO. S004

SURVEY DATA SHEET

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

Radius: 300.0000  
 Delta: 18°23'37.351" Right  
 Degree of Curvature(Arc): 19°05'54.935"  
 Length: 96.3092  
 Tangent: 48.5725  
 Chord: 95.8962  
 Middle Ordinate: 3.8565  
 External: 3.9067  
 Tangent Direction: N18°46'14.93"W  
 Radial Direction: N71°13'45.07"E  
 Chord Direction: N09°34'26.26"W  
 Radial Direction: N89°37'22.42"E  
 Tangent Direction: N00°22'37.58"W

Element: Linear  
 PT( 363) 839+69.34 661520.21994 2124792.75933  
 PC( 364) 850+18.76 662569.60750 2124785.67212  
 Tangential Direction: N00°23'13.02"W  
 Tangential Length: 1049.4115

Element: Circular  
 PC( 364) 850+18.76 662569.60750 2124785.67212  
 HPI( ) 851+19.71 662670.55664 2124784.99034  
 CC( ) 662567.58145 2124485.67896  
 PT( 365) 852+13.52 662750.55702 2124723.41818  
 Radius: 300.0000  
 Delta: 37°11'48.000" Left  
 Degree of Curvature(Arc): 19°05'54.935"  
 Length: 194.7613  
 Tangent: 100.9514  
 Chord: 191.3590  
 Middle Ordinate: 15.6667  
 External: 16.5299  
 Tangent Direction: N00°23'13.02"W  
 Radial Direction: N89°36'46.98"E  
 Chord Direction: N18°59'07.02"W  
 Radial Direction: N52°24'58.98"E  
 Tangent Direction: N37°35'01.02"W

Element: Linear  
 PT( 365) 852+13.52 662750.55702 2124723.41818  
 EMD( 370) 865+00.00 663770.04858 2123938.76828  
 Tangential Direction: N37°35'01.02"W  
 Tangential Length: 1286.4830

Alignment name: A017 LINE B  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Circular  
 PC( 366) 856+89.34 663127.62728 2124433.20672  
 HPI( ) 857+36.52 663165.02200 2124404.42593  
 CC( ) 663249.61100 2124591.69953  
 PRC( 367) 857+82.02 663211.33782 2124395.39578  
 Radius: 200.0000  
 Delta: 26°33'04.000" Right  
 Degree of Curvature(Arc): 28°38'52.403"  
 Length: 92.6809  
 Tangent: 47.1879  
 Chord: 91.8538  
 Middle Ordinate: 5.3446  
 External: 5.4914  
 Tangent Direction: N37°35'01.02"W  
 Radial Direction: N52°24'58.98"E  
 Chord Direction: N24°18'29.02"W  
 Radial Direction: N78°58'02.98"E  
 Tangent Direction: N11°01'57.02"W

Element: Circular  
 PRC( 367) 857+82.02 663211.33782 2124395.39578  
 HPI( ) 858+20.54 663249.15132 2124388.02331  
 CC( ) 663173.06465 2124199.09202  
 PT( 368) 858+58.14 663281.52039 2124367.13176  
 Radius: 200.0000  
 Delta: 21°48'23.000" Left  
 Degree of Curvature(Arc): 28°38'52.403"  
 Length: 76.1187  
 Tangent: 38.5255  
 Chord: 75.6601  
 Middle Ordinate: 3.6104  
 External: 3.6767  
 Tangent Direction: N11°01'57.02"W  
 Radial Direction: N78°58'02.98"E  
 Chord Direction: N21°56'08.52"W  
 Radial Direction: N57°09'39.98"E  
 Tangent Direction: N32°50'20.02"W

Element: Linear  
 PT( 368) 858+58.14 663281.52039 2124367.13176  
 END( 369) 863+59.85 663703.05767 2124895.06433  
 Tangential Direction: N32°50'20.02"W  
 Tangential Length: 501.7114

Alignment name: A018 RAMP D  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear  
 START( 358) 821+51.60 660366.79207 2126646.41072  
 END( 371) 837+51.60 661634.73460 2125670.54099  
 Tangential Direction: N37°35'01.02"W  
 Tangential Length: 1600.0000

Alignment name: A019 RAMP B  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear  
 START( 383) 851+51.60 662792.97781 2124880.05211  
 PC( 382) 859+44.27 663421.14080 2124396.58757  
 Tangential Direction: N37°35'01.02"W  
 Tangential Length: 792.6706

Element: Circular  
 PC( 382) 859+44.27 663421.14080 2124396.58757  
 HPI( ) 864+82.10 663847.35152 2124068.55474  
 CC( ) 663583.98918 2124608.17530  
 PT( 381) 865+37.01 663850.98303 2124606.37248  
 Radius: 266.9999  
 Delta: 127°11'48.430" Right  
 Degree of Curvature(Arc): 21°27'32.755"  
 Length: 592.7406  
 Tangent: 537.8300  
 Chord: 478.3033  
 Middle Ordinate: 148.2757  
 External: 333.4583  
 Tangent Direction: N37°35'01.17"W  
 Radial Direction: N52°24'58.83"E  
 Chord Direction: N26°00'53.04"E  
 Radial Direction: S00°23'12.74"E  
 Tangent Direction: N89°36'47.26"E

Element: Linear  
 PT( 381) 865+37.01 663850.98298 2124606.37248  
 PC( 380) 866+25.50 663851.58051 2124694.85716  
 Tangential Direction: N89°36'47.13"E  
 Tangential Length: 88.4867

Element: Circular  
 PC( 380) 866+25.50 663851.58051 2124694.85716  
 HPI( ) 866+83.69 663851.97347 2124753.04602  
 CC( ) 663684.58445 2124695.98491  
 PT( 379) 867+37.48 663816.12057 2124798.87905  
 Radius: 166.9999  
 Delta: 38°25'16.386" Right  
 Degree of Curvature(Arc): 34°18'31.955"  
 Length: 111.9862  
 Tangent: 58.1902  
 Chord: 109.8998  
 Middle Ordinate: 9.2993  
 External: 9.8477  
 Tangent Direction: N89°36'47.09"E  
 Radial Direction: S00°23'12.91"E  
 Chord Direction: S71°10'34.72"E  
 Radial Direction: S38°02'03.47"W  
 Tangent Direction: S51°57'56.53"E

Alignment name: A020 S EXIT  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Circular  
 PC( 377) 200+00.00 663617.84674 2124888.68948  
 HPI( ) 201+20.58 663738.41401 2124886.77978  
 CC( ) 663613.52323 2124615.72824  
 PT( 378) 202+27.09 663818.20449 2124796.37186  
 Radius: 272.9955  
 Delta: 47°39'43.910" Left  
 Degree of Curvature(Arc): 20°59'16.126"  
 Length: 227.0946  
 Tangent: 120.5824  
 Chord: 220.6032

Middle Ordinate: 23.2755  
 External: 25.4449  
 Tangent Direction: N00°54'26.81"W  
 Radial Direction: N89°05'33.19"E  
 Chord Direction: N24°44'18.77"W  
 Radial Direction: N41°25'49.28"E  
 Tangent Direction: N48°34'10.72"W

Alignment name: A021 S ENT  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Linear  
 START( 377) 300+00.00 663617.84674 2124888.68948  
 PC( 384) 300+37.24 663655.07790 2124888.09950  
 Tangential Direction: N00°54'28.32"W  
 Tangential Length: 37.2358

Element: Circular  
 PC( 384) 300+37.24 663655.07790 2124888.09950  
 HPI( ) 300+73.98 663691.81673 2124887.51731  
 CC( ) 663650.75233 2124615.13377  
 PRC( 385) 301+10.28 663727.09429 2124877.24234  
 Radius: 273.0000  
 Delta: 15°19'51.259" Left  
 Degree of Curvature(Arc): 20°59'14.874"  
 Length: 73.0479  
 Tangent: 36.7434  
 Chord: 72.8302  
 Middle Ordinate: 2.4396  
 External: 2.4616  
 Tangent Direction: N00°54'28.32"W  
 Radial Direction: N89°05'31.68"E  
 Chord Direction: N08°34'23.95"W  
 Radial Direction: N73°45'40.42"E  
 Tangent Direction: N16°14'19.58"W

Element: Circular  
 PRC( 385) 301+10.28 663727.09429 2124877.24234  
 HPI( ) 301+69.31 663783.76563 2124860.73620  
 CC( ) 663773.79431 2125037.57982  
 PT( 386) 302+23.76 663838.22227 2124883.50829  
 Radius: 167.0000  
 Delta: 38°55'55.010" Right  
 Degree of Curvature(Arc): 34°18'31.860"  
 Length: 113.4749  
 Tangent: 59.0262  
 Chord: 111.3045  
 Middle Ordinate: 9.5458  
 External: 10.1245  
 Tangent Direction: N16°14'19.58"W  
 Radial Direction: N73°45'40.42"E  
 Chord Direction: N03°13'37.93"E  
 Radial Direction: S67°18'24.57"E  
 Tangent Direction: N22°41'35.43"E

Alignment name: A022 N ENT  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

Element: Circular  
 PC( 387) 700+00.44 664051.80185 2124886.11729  
 HPI( ) 701+04.42 663955.82247 2124887.06687  
 CC( ) 664050.14971 2124719.12546  
 PT( 388) 701+82.67 663906.68870 2124804.61194  
 Radius: 167.0000  
 Delta: 59°46'36.117" Right  
 Degree of Curvature(Arc): 34°18'31.860"  
 Length: 174.2311  
 Tangent: 95.9841  
 Chord: 166.4360  
 Middle Ordinate: 22.2113  
 External: 25.6186  
 Tangent Direction: S00°34'00.63"E  
 Radial Direction: S89°25'59.37"W  
 Chord Direction: S29°19'17.43"W  
 Radial Direction: N30°47'24.51"W  
 Tangent Direction: S59°12'35.49"W

Element: Circular  
 PC( 389) 857+14.94 663900.30576 2124795.95480  
 HPI( ) 857+78.60 663857.69871 2124748.65648

Alignment name: A023 RAMP A  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

PLS	ESK	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ESK	SURVEY DIVISION
CHECKED	HLK	SURVEY DATA SHEET
APPROVED	ESK	
CREW	WHITEHAWK	SWO 5560(1) PROJECT NO. 35589(04) SHEET NO. S005

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

CC( )  
 PT( 390) 858+36.58 664024.38558 2124684.18183  
 663857.38757 2124684.99806  
 Radius: 167.0000  
 Delta: 41°43'58.666" Right  
 Degree of Curvature(Arc): 34°18'31.860"  
 Length: 121.6391  
 Tangent: 63.6592  
 Chord: 118.9679  
 Middle Ordinate: 10.9530  
 External: 11.7218  
 Tangent Direction: S47°59'13.19"W  
 Radial Direction: N42°00'46.81"W  
 Chord Direction: S68°51'12.52"W  
 Radial Direction: N00°16'48.15"W  
 Tangent Direction: S89°43'11.85"W

Element: Linear  
 PT( 390) 858+36.58 663857.38757 2124684.99806  
 PC( 391) 859+29.46 663856.93357 2124592.11150  
 Tangential Direction: S89°43'11.85"W  
 Tangential Length: 92.8877

Element: Circular  
 PC( 391) 859+29.46 663856.93357 2124592.11150  
 HPI( ) 859+71.41 663856.72855 2124550.16526  
 CC( ) 663589.93676 2124593.41649  
 PT( 392) 860+12.68 663843.67104 2124510.30262  
 Radius: 267.0000  
 Delta: 17°51'24.565" Left  
 Degree of Curvature(Arc): 21°27'32.736"  
 Length: 83.2133  
 Tangent: 41.9467  
 Chord: 82.8769  
 Middle Ordinate: 3.2352  
 External: 3.2749  
 Tangent Direction: S89°43'11.85"W  
 Radial Direction: N00°16'48.15"W  
 Chord Direction: S80°47'29.57"W  
 Radial Direction: N18°08'12.71"W  
 Tangent Direction: S71°51'47.29"W

Element: Linear  
 PT( 392) 860+12.68 663843.67104 2124510.30262  
 PC( 393) 861+92.66 663787.64404 2124339.26053  
 Tangential Direction: S71°51'47.29"W  
 Tangential Length: 179.9845

Element: Circular  
 PC( 393) 861+92.66 663787.64404 2124339.26053  
 HPI( ) 863+81.54 663728.84702 2124159.76202  
 CC( ) 664041.37831 2124256.14665  
 PT( 394) 865+21.44 663878.53005 2124044.55874  
 Radius: 267.0000  
 Delta: 70°33'11.694" Right  
 Degree of Curvature(Arc): 21°27'32.736"  
 Length: 328.7802  
 Tangent: 188.8830  
 Chord: 308.3981  
 Middle Ordinate: 49.0283  
 External: 60.0563  
 Tangent Direction: S71°51'47.29"W  
 Radial Direction: N18°08'12.71"W  
 Chord Direction: N72°51'36.86"W  
 Radial Direction: N52°24'58.98"E  
 Tangent Direction: N37°35'01.02"W

Element: Linear  
 PT( 394) 865+21.44 663878.53005 2124044.55874  
 END( 395) 880+51.60 665091.12365 2123111.28822  
 Tangential Direction: N37°35'01.02"W  
 Tangential Length: 1530.1559

Alignment name: A024 N EXIT  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Circular			
PC( 396)	600+23.43	664036.80371	2124886.26567
HPI( )	600+65.23	663995.00504	2124886.67921
CC( )		664034.10290	2124613.27903
PRC( 397)	601+06.39	663954.99764	2124874.56691
Radius:	273.0000		
Delta:	17°24'38.166" Right		
Degree of Curvature(Arc):	20°59'14.874"		
Length:	82.9571		
Tangent:	41.8007		

Chord: 82.6383  
 Middle Ordinate: 3.1450  
 External: 3.1816  
 Tangent Direction: S00°34'00.63"E  
 Radial Direction: S89°25'59.37"W  
 Chord Direction: S08°08'18.46"W  
 Radial Direction: N73°09'22.46"W  
 Tangent Direction: S16°50'37.54"W

Element: Circular  
 PRC( 397) 601+06.39 663954.99764 2124874.56691  
 HPI( ) 601+44.30 663918.71064 2124863.58098  
 CC( ) 663928.33945 2124962.61997  
 PT( 398) 601+78.31 663885.21937 2124881.35092  
 Radius: 92.0000  
 Delta: 44°47'36.533" Left

Degree of Curvature(Arc): 62°16'40.876"  
 Length: 71.9250  
 Tangent: 37.9135  
 Chord: 70.1073  
 Middle Ordinate: 6.9398  
 External: 7.5060  
 Tangent Direction: S16°50'37.54"W  
 Radial Direction: N73°09'22.46"W  
 Chord Direction: S05°33'10.73"E  
 Radial Direction: S62°03'01.01"W  
 Tangent Direction: S27°56'58.99"E

Alignment name: A025 ROUNDABOUT  
 Alignment style: Alignment\SURVEY\ALIGNMENT\CENTERLINE

	STATION	NORTHING	EASTING
Element: Circular			
PC( 379)	0+00.00	663816.12057	2124798.87905
HPI( )			
CC( 400)		663859.44106	2124832.76616
PCC( 399)	1+72.79	663902.76154	2124866.65328
Radius:	55.0000		
Delta:	180°00'00.000" Left		
Degree of Curvature(Arc):	104°10'26.869"		
Length:	172.7876		
Tangent:	5.1509E+10		
Chord:	110.0000		
Middle Ordinate:	55.0000		
External:	5.1509E+10		
Tangent Direction:	S51°57'57.53"E		
Radial Direction:	S38°02'02.47"W		
Chord Direction:	N38°02'02.47"E		
Radial Direction:	N38°02'02.47"E		
Tangent Direction:	N51°57'57.53"W		

Element: Circular  
 PCC( 399) 1+72.79 663902.76154 2124866.65327  
 CC( 400) 663859.44106 2124832.76616  
 PT( 379) 3+45.58 663816.12058 2124798.87906  
 Radius: 55.0000  
 Delta: 180°00'00.000" Left  
 Degree of Curvature(Arc): 104°10'26.920"  
 Length: 172.7876  
 Tangent: 0.0000  
 Chord: 110.0000  
 Middle Ordinate: 0.0000  
 External: 0.0000  
 Tangent Direction: N51°57'57.53"W  
 Radial Direction: N38°02'02.47"E  
 Chord Direction: S38°02'02.47"W  
 Radial Direction: S38°02'02.47"W  
 Tangent Direction: S51°57'57.53"E

PLS	ESK		OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	ESK		
CHECKED	HLK		
APPROVED	ESK		
CREW	WHITEHAWK		
SWO 5560(1)			PROJECT NO. 35589(04)
			SHEET NO. S006

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

SWO 5560(1) COORDINATE POINT LIST J/P 35589(04)

PT#	NORTHING	EASTING	ELEVATION	PT#	NORTHING	EASTING	ELEVATION
101	645357.73700	2138363.52700	1131.734	309	650037.24450	2134700.62650	
102	645657.13500	2138109.13300	1138.643	310	650278.71789	2134817.58884	
103	646302.34500	2137639.34700	1145.742	311	650017.05250	2135440.86845	
104	646959.78700	2137106.14300	1140.167	312	650260.76654	2134890.64599	
105	647676.83300	2136315.68500	1109.240	313	650276.83079	2134667.61121	
106	648056.93500	2136079.40300	1105.806	314	650393.79338	2134426.13721	
107	648499.80600	2135960.10600	1112.010	315	650017.00456	2135433.36537	
108	648977.46400	2135333.03200	1132.651	316	650058.91989	2135265.03192	
109	649601.56200	2134786.45200	1145.622	317	649852.62617	2135429.96406	
110	649941.84500	2134843.68200	1118.508	318	649867.87749	2135429.86241	
111	650584.76100	2134341.64000	1137.430	319	649998.91101	2135351.05021	
112	650917.61400	2133842.36500	1141.240	320	650048.35724	2135259.33716	
113	651113.10600	2133715.20100	1134.756	321	648679.04773	2135450.20595	
114	651638.81900	2133531.79300	1131.960	322	648769.62749	2135419.05794	
115	652075.09700	2132983.77500	1110.745	323	649363.33573	2134961.99142	
116	652519.91400	2132806.42700	1107.125	324	649421.82380	2134842.21580	
117	653137.46200	2132380.65500	1121.562	325	649419.52536	2134471.60913	
118	653742.08800	2131914.47500	1124.353	326	649481.21461	2134378.61877	
119	654317.03000	2131448.56100	1115.134	327	649577.95736	2134338.49810	
120	654918.94300	2130992.85200	1112.261	328	649572.18647	2133495.32547	
121	655152.56700	2130606.86300	1112.047	329	648628.58348	2135674.03182	
122	655509.90000	2130335.82400	1113.373	330	648858.97932	2135481.51737	
123	655812.06400	2130130.81500	1120.249	331	649976.24451	2134621.39033	
124	656365.79600	2129653.19200	1124.666	332	649582.45223	2134995.22404	
125	656826.04100	2129307.89600	1139.396	333	649983.56659	2134630.90138	
126	657360.61100	2128911.71500	1141.006	334	649929.93393	2134366.92049	
127	657748.79900	2128585.68100	1146.147	335	650083.86047	2134407.07874	
128	658147.52500	2128271.02400	1145.556	336	650342.57964	2134354.51506	
129	658820.81000	2127981.37700	1132.965	337	649578.04033	2134350.61543	
130	659332.40900	2127619.02100	1137.438	338	649794.15060	2134349.13631	
131	659810.24400	2127250.92200	1150.002	339	649923.79383	2134365.31862	
132	660293.53700	2126933.39800	1153.151	340	650335.25789	2134345.00374	
133	660805.53100	2126478.33300	1154.703	341	650739.37509	2134033.89396	
134	661438.39600	2125987.22800	1157.556	342	650984.41139	2133860.39679	
135	662058.66000	2125481.48300	1163.282	343	650401.11585	2134435.64810	
136	662096.44000	2124940.00300	1166.270	344	651454.99010	2133624.32260	
137	665275.44400	2124777.04200	1170.720	345	651685.38594	2133431.80816	
300	645396.72603	2138213.62367		346	661145.40684	2124905.29320	
301	648995.94325	2135446.74820		347	662735.45359	2124894.55456	
302	652205.72546	2132975.69614		348	664418.74573	2124883.18853	
303	660106.57516	2126897.16167		349	647712.09366	2136433.69945	
304	665145.97332	2123018.59780		350	649102.58735	2135364.64820	
305	649363.71777	2135219.14529		351	653692.68110	2131831.70385	
306	649608.75400	2135045.64810		352	661523.71851	2125757.24628	
307	649616.92191	2135039.36011		353	661637.04920	2125472.57525	
308	650044.56664	2134710.13765		354	661573.67567	2125072.46337	

SWO 5560(1) COORDINATE POINT LIST J/P 35589(04)

PT#	NORTHING	EASTING	ELEVATION	PT#	NORTHING	EASTING	ELEVATION
355	661374.70786	2124903.75636		7600	645335.77922	2138134.34261	
356	662585.96283	2124938.97379		7601	647263.92273	2136904.36155	
357	662035.79171	2125362.41201		7602	646950.73275	2136892.85730	
358	660366.79207	2126646.41072		7603	646950.06351	2136783.37427	
359	661587.92954	2124902.30455		7604	647309.55765	2136881.89335	
360	661606.59272	2125169.43296		7605	647094.21989	2136782.55247	
361	661188.49215	2124889.31238		7606	647564.78229	2136395.58390	
362	661425.65941	2124808.70885		7607	647497.89125	2136472.23266	
363	661520.21994	2124792.75933		7608	648776.12963	2135464.36829	
364	662569.60750	2124785.67212		7609	648520.20701	2135465.67212	
365	662750.55702	2124723.41818		7610	649543.78363	2134123.76792	
366	663127.62728	2124433.20672		7611	649539.48704	2134123.79045	
367	663211.33782	2124395.39578		7612	649095.01479	2135521.91915	
368	663281.52039	2124367.13176		7613	649049.32759	2135544.45622	
369	663703.05767	2124095.06433		7614	649172.54272	2135462.34872	
370	663770.04858	2123938.76828		7615	649490.57648	2135460.72885	
371	661634.73460	2125670.54099		7616	645457.67284	2138292.90472	
372	662708.31417	2124894.73785		7617	648520.00235	2135432.67274	
373	655911.89825	2130124.34471		7618	648565.41892	2135432.44136	
374	657814.08438	2128660.89402		7619	648678.79847	2135410.20672	
375	660708.17444	2126434.14185		7620	648745.22363	2135387.36485	
376	662134.60982	2125336.28839		7621	649338.93330	2134930.29723	
377	663617.84674	2124888.68948		7622	649381.82456	2134842.46178	
378	663818.20449	2124796.37186		7623	649379.52613	2134471.85681	
379	663816.12058	2124798.87906		7624	649465.89173	2134341.67030	
380	663851.58051	2124694.85716		7625	649514.34010	2134321.57803	
381	663850.98298	2124606.37248		7627	649539.48704	2134123.79045	
382	663421.14080	2124396.58757		7628	649559.43384	2134042.89575	
383	662792.97781	2124880.05211		7629	650384.51321	2135422.09279	
384	663655.07790	2124888.09950		7630	650216.75960	2135389.71011	
385	663727.09429	2124877.24234		7631	650128.04828	2135242.17233	
386	663838.22227	2124883.50829		7632	650335.31490	2134857.73347	
387	664051.18018	2124886.11729		7633	650332.82639	2134666.90856	
388	663906.68870	2124804.61194		7634	650427.95595	2134470.50971	
389	663900.30576	2124795.95480		7635	651121.24992	2133936.78106	
390	663857.38757	2124684.99806		7636	651261.50167	2133955.00921	
391	663856.93357	2124592.11150		7637	651320.93907	2133909.25130	
392	663843.67104	2124510.30262		7638	651259.93715	2133830.01264	
393	663787.64404	2124339.26053		7639	650820.93389	2133915.57744	
394	663878.53005	2124044.55874		7640	650887.98342	2133838.71913	
395	665091.12365	2123111.28822		7641	652256.04783	2132785.57577	
396	664036.80371	2124886.26567		7642	652204.76300	2132785.91200	
397	663954.99764	2124874.56691		7643	652256.04783	2132785.57577	
398	663885.21937	2124881.35092		7644	654815.60088	2131093.95390	
399	663902.76154	2124866.65327		7645	652285.01183	2133078.71881	
400	663859.44106	2124832.76616		7646	652132.53804	2132880.59828	

SWO 5560(1) COORDINATE POINT LIST J/P 35589(04)

PT#	NORTHING	EASTING	ELEVATION	PT#	NORTHING	EASTING	ELEVATION
7694	661486.51347	2125708.90597		7694	661486.51347	2125708.90597	
7695	661576.80026	2125482.11805		7695	661576.80026	2125482.11805	
7696	661513.42673	2125082.00618		7696	661513.42673	2125082.00618	
7697	661375.14410	2124964.75480		7697	661375.14410	2124964.75480	
7698	661320.06234	2124954.11477		7698	661320.06234	2124954.11477	
7699	661145.74334	2124955.29206		7699	661145.74334	2124955.29206	
7700	661164.66889	2124855.16197		7700	661164.66889	2124855.16197	
7701	661412.78808	2124770.83631		7701	661412.78808	2124770.83631	
7702	661519.94980	2124752.76024		7702	661519.94980	2124752.76024	
7703	662567.77436	2124745.68359		7703	662567.77436	2124745.68359	
7704	662829.48694	2124599.57557		7704	662829.48694	2124599.57557	
7705	663225.68621	2124294.64149		7705	663225.68621	2124294.64149	
7706	663271.40860	2124272.07020		7706	663271.40860	2124272.07020	
7707	665054.48553	2122899.72819		7707	665054.48553	2122899.72819	
7708	660125.85977	2127285.04351		7708	660125.85977	2127285.04351	
7709	660124.80465	2127138.04792		7709	660124.80465	2127138.04792	
7710	660147.83974	2127048.46201		7710	660147.83974	2127048.46201	
7711	660167.61569	2127007.91779		7711	660167.61569	2127007.91779	
7712	660308.93581	2126899.15101		7712	660308.93581	2126899.15101	
7713	660423.24179	2126842.72279		7713	660423.		

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	OKLA.				
DESCRIPTION		REVISIONS		DATE	

CHECK LEVELS					BENCH MARK LIST		NAVD 88 DATUM	
SWO 5560(1)	BM NO.	RUN 1	RUN2	MEAN DIFF.	ADJ. DIFF.	PUBLISHED ELEV.	ADJ. ELEV.	BM DESCRIPTION
	M-44-726					1135.810		#6 REBAR EST. UNDER SWO 4748(1) SURVEY STA. 654+81.5 9.5' LT.
	TO	4.357	4.357	4.357	4.357			
	BM 4					1140.167		"X" ON SE CORNER EAST HEADWALL STA. 651+47.5 74.6' RT.
	TO	5.574	5.575	5.575	5.575			
	BM 3					1145.742		#6 REBAR STA. 643+01.3 96.7' RT.
	TO	-7.101	-7.097	-7.099	-7.099			
	BM 2					1138.643		"X" ON C/L EAST HEADWALL STA. 635+03.4 75.9' RT.
	TO	-6.908	-6.909	-6.909	-6.909			
	BM 1					1131.734		#6 REBAR STA. 631+11.0 95.1' RT.
	M-44-726					1135.810		#6 REBAR EST. UNDER SWO 4748(1) SURVEY STA. 654+81.5 9.5' LT.
	TO	-26.614	-26.615	-26.615	-26.570			
	BM 5					1109.240		#6 REBAR STA. 661+97.7 115.1' LT. = BM1 ON SWO 4748(1)
	TO	-3.431	-3.431	-3.431	-3.435			
	BM 6					1105.806		"X" ON SOUTH WING OF WEST HEADWALL STA. 666+43.1 70.7' LT.
	TO	6.208	6.208	6.208	6.204			
	BM 7					1112.010		#6 REBAR STA. 670+66.9 104.6' RT. = BM2 ON SWO 4748(1)
	TO	20.650	20.650	20.650	20.641			
	BM 8					1132.651		"X" ON TOP CENTER OF RETAINING WALL STA. 678+27.8 101.4' LT.
	TO	12.982	12.978	12.980	12.971			
	BM 9					1145.622		"X" ON WEST END NORTH BRIDGE PARAPET STA. 686+53.8 153.8' LT.
	TO	-27.105	-27.105	-27.105	-27.114			
	BM 10					1118.508		"X" ON C/L EAST HEADWALL STA. 688+90.5 99.2' RT.
	TO	18.931	18.931	18.931	18.922			
	BM 11					1137.430		#6 REBAR STA. 697+06.2 = BM6 ON SWO 4748(1)
	TO	3.822	3.823	3.823	3.810			
	BM 12					1141.240		#6 REBAR STA. 702+74.5 = BM7 ON SWO 4748(1)

CHECK LEVELS					BENCH MARK LIST		NAVD 88 DATUM	
SWO 5560(1)	BM NO.	RUN 1	RUN2	MEAN DIFF.	ADJ. DIFF.	PUBLISHED ELEV.	ADJ. ELEV.	BM DESCRIPTION
	BM 24					1124.666		#6 REBAR STA. 771+47.0 96.7' LT.
	TO	14.726	14.727	14.727	14.730			
	BM 25					1139.396		#6 REBAR STA. 777+22.4 89.7' LT.
	TO	1.605	1.607	1.606	1.610			
	BM 26					1141.006		"X" ON NORTH EDGE CONC. INLET COVER STA. 783+87.6 77.7' LT.
	TO	5.137	5.138	5.138	5.141			
	BM 27					1146.147		80d SPIKE IN POWER POLE STA. 788+94.1 99.4' LT.
	TO	-0.594	-0.595	-0.595	-0.591			
	BM 28					1145.556		80d SPIKE IN POWER POLE STA. 794+02.0 105.7' LT.
	TO	-12.584	-12.585	-12.585	-12.591			
	BM 29					1132.965		"X" ON C/L EAST HEADWALL STA. 801+12.3 75.3' RT.
	TO	4.470	4.469	4.470	4.473			
	BM 30					1137.438		80d SPIKE IN POWER POLE STA. 807+38.7 100.1' RT.
	TO	12.560	12.561	12.561	12.564			
	BM 31					1150.002		80d SPIKE IN POWER POLE STA. 813+41.9 99.7' RT.
	TO	3.144	3.146	3.145	3.149			
	BM 32					1153.151		"X" ON SOUTH END CURB RADIUS STA. 819+18.5 142.7' RT.
	TO	1.549	1.547	1.548	1.552			
	BM 33					1154.703		#6 REBAR STA. 826+01.8 94.4' RT.
	TO	2.849	2.851	2.850	2.854			
	BM 34					1157.556		#6 REBAR STA. 834+02.9 91.2' RT.
	TO	5.722	5.723	5.723	5.726			
	BM 35					1163.282		"X" ON SOUTH END EAST HEADWALL STA. 842+02.9 68.7' RT.
	TO	2.983	2.985	2.984	2.988			
	BM 36					1166.270	1166.270	NE COR EAST HDWL STA. 845+63.1 337.3' LT. = BM2 ON SWO 4892(1)
	TO	7.779	7.780	7.780	7.780			
	M-44-859					1174.050	1174.050	#4 REBAR W/CAP EST. UNDER SWO 4892(1) STA. 840+92.4 909.1' LT.

CHECK LEVELS					BENCH MARK LIST		NAVD 88 DATUM	
SWO 5560(1)	BM NO.	RUN 1	RUN2	MEAN DIFF.	ADJ. DIFF.	PUBLISHED ELEV.	ADJ. ELEV.	BM DESCRIPTION
	BM 12					1141.240		#6 REBAR STA. 702+74.5 = BM7 ON SWO 4748(1)
	TO	-6.480	-6.480	-6.480	-6.485			
	BM 13					1134.756		"X" ON NE CORNER CONC. INLET STA. 705+07.0 80.5' LT.
	TO	-2.793	-2.789	-2.791	-2.796			
	BM 14					1131.960		#6 REBAR STA. 710+35.5 94.8' RT. = BM8 ON SWO 4748(1)
	TO	-21.244	-21.242	-21.243	-21.216			
	BM 15					1110.745		"X" ON NE CORNER CONC. INLET STA. 717+15.5 73.3' LT.
	TO	2.603	2.603	2.603	2.630			
	M-44-730					1113.375		#6 REBAR EST. UNDER SWO 4748(1) SURVEY STA. 718+11.2 102.2' LT.
	TO	-6.250	-6.257	-6.254	-6.250			
	BM 16					1107.125		"X" ON NORTH WING OF EAST HEADWALL 721+76.1 57.4' RT.
	TO	14.433	14.433	14.433	14.437			
	BM 17					1121.562		#6 REBAR STA. 729+25.2 96.5' RT.
	TO	2.786	2.789	2.788	2.791			
	BM 18					1124.353		#6 REBAR STA. 736+88.7 95.7' RT.
	TO	-9.222	-9.223	-9.223	-9.219			
	BM 19					1115.134		"X" ON C/L EAST HEADWALL STA. 744+28.5 77.8' RT.
	TO	-2.876	-2.878	-2.877	-2.873			
	BM 20					1112.261		"X" ON C/L EAST HEADWALL STA. 751+83.4 82.9' RT.
	TO	-0.217	-0.217	-0.217	-0.213			
	BM 21					1112.047		"X" ON NORTH END EAST HEADWALL STA. 756+03.9 80.6' LT.
	TO	1.322	1.322	1.322	1.326			
	BM 22					1113.373		"X" ON C/L WEST HEADWALL STA. 760+52.4 77.5' LT.
	TO	6.872	6.874	6.873	6.877			
	BM 23					1120.249		"X" ON NORTH WING OF WEST HEADWALL STA. 764+16.9 55.7' LT.
	TO	4.413	4.413	4.413	4.417			
	BM 24					1124.666		#6 REBAR STA. 771+47.0 96.7' LT.

CHECK LEVELS					BENCH MARK LIST		NAVD 88 DATUM	
SWO 5560(1)	BM NO.	RUN 1	RUN2	MEAN DIFF.	ADJ. DIFF.	PUBLISHED ELEV.	ADJ. ELEV.	BM DESCRIPTION
	BM 36					1166.270	1166.270	NE COR EAST HDWL STA. 845+63.1 337.3' LT. = BM2 ON SWO 4892(1)
	TO	1.557	1.541	1.549	1.550			
	M-44-858					1167.820	1167.820	#4 REBAR W/CAP EST. UNDER SWO 4892(1) STA. 861+05.9 911.9' RT.
	TO	2.886	2.896	2.891	2.900			
	BM 37					1170.720	1170.720	NE COR. BOTTOM STEP STA. 871+82.7 1472.5' RT. = BM1 ON SWO 4892(1)

PLS	ESK		OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	ESK		
CHECKED	HLK		
APPROVED	ESK		
CREW	WHITEHAWK		
SWO 5560(1)			PROJECT NO. 35589(04)
			SHEET NO. S008



STATE OF OKLAHOMA S.D. FORM NO. 11  
 DEPARTMENT OF HIGHWAYS DEPARTMENT OF HIGHWAYS  
 SURVEY DIVISION SURVEY DIVISION  
 POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY McCLAIN STATION NUMBER M-44-726 SWO 4748(1) DATE 11-01-13

TYPE OF MONUMENT #8 REBAR MONUMENT SET FOR VERT. & HORZ. CONTROL

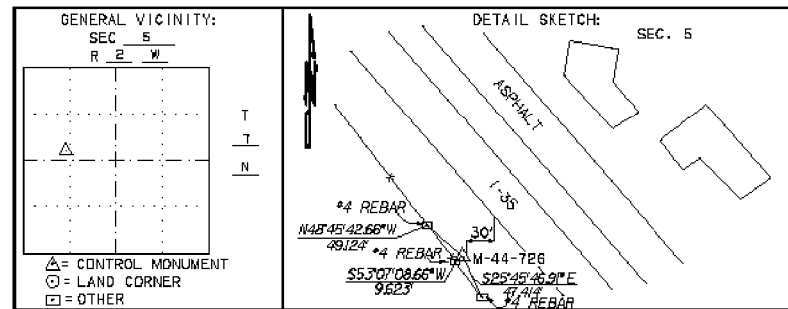
METHOD ESTABLISHED: TRILATERATION X, TRIANGULATION   , TRAVERS   , OTHER (SPECIFY)     
BPS STATIC OBSERVATIONS WITH A FULLY CONSTRAINED C.D.R.S LEAST SQUARES ADJUSTMENT

HEIGHT OF INSTRUMENT ABOVE MONUMENT:    FEET, TYPE OF WITNESS POST NONE

WRITTEN DESCRIPTION OF LOCATION: FROM THE INTERSECTION OF INTERSTATE 35 SOUTH AND 260TH STREET (LADD ROAD), GO SOUTHEAST ALONG INTERSTATE 35 FOR APPROXIMATELY 3,034.00 FEET TO STATION ON RIGHT, 90.00 FEET PERPENDICULAR WEST OF THE CENTERLINE OF INTERSTATE 35, 10.00 FEET EAST OF THE RIGHT OF WAY FENCE.

GEOID MODEL: 12A OBSERVED BY: JUSTIN LEE TALCOTT, PLS 1646

COORDINATE SYSTEM: <input type="checkbox"/> NADA3(93) <input type="checkbox"/> OHD, <input checked="" type="checkbox"/> OTHER (SPECIFY) NAD83(2011) EPOCH(2010.00)	
GRID DATA:	COORDINATES (FEET)
SOUTH ZONE	X <u>2,136,771.8673</u>
ACCURACY:	Y <u>647,123.9900</u>
SECOND ORDER	
GEODETTIC DATA	
POSITION	
ANGLE OF VARIANCE (Ø)	LATITUDE <u>35°06'36.7282"</u> NORTH
<u>00°19'25"</u>	LONGITUDE <u>97°26'14.6030"</u> WEST
ELEVATION	
ELLIP. HT. = 1,049.51'	
ORTHO. HT. = 1,136.81'	
SOURCE <u>NAVD88</u>	
ACCURACY: <u>3RD</u> ORDER	



STATE OF OKLAHOMA S.D. FORM NO. 11  
 DEPARTMENT OF HIGHWAYS DEPARTMENT OF HIGHWAYS  
 SURVEY DIVISION SURVEY DIVISION  
 POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY McCLAIN STATION NUMBER M-44-727 SWO 4748(1) DATE 11-01-13

TYPE OF MONUMENT #8 REBAR MONUMENT SET FOR VERT. & HORZ. CONTROL

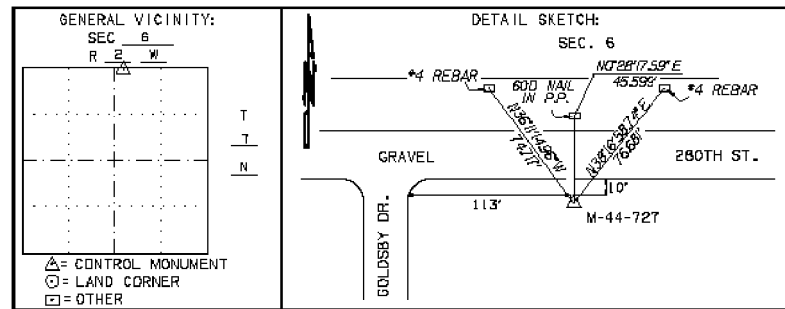
METHOD ESTABLISHED: TRILATERATION X, TRIANGULATION   , TRAVERS   , OTHER (SPECIFY)     
BPS STATIC OBSERVATIONS WITH A FULLY CONSTRAINED C.D.R.S LEAST SQUARES ADJUSTMENT

HEIGHT OF INSTRUMENT ABOVE MONUMENT:    FEET, TYPE OF WITNESS POST NONE

WRITTEN DESCRIPTION OF LOCATION: FROM THE INTERSECTION OF INTERSTATE 35 SOUTH AND 260TH STREET (LADD ROAD), GO WEST ALONG 260TH STREET (LADD ROAD) FOR APPROXIMATELY 1,732.00 FEET TO STATION ON THE LEFT. STATION IS APPROXIMATELY 23.00 FEET SOUTH OF THE CENTERLINE OF 260TH STREET.

GEOID MODEL: 12A OBSERVED BY: JUSTIN LEE TALCOTT, PLS 1646

COORDINATE SYSTEM: <input type="checkbox"/> NADA3(93) <input type="checkbox"/> OHD, <input checked="" type="checkbox"/> OTHER (SPECIFY) NAD83(2011) EPOCH(2010.00)	
GRID DATA:	COORDINATES (FEET)
SOUTH ZONE	X <u>2,133,260.6012</u>
ACCURACY:	Y <u>649,549.6073</u>
SECOND ORDER	
GEODETTIC DATA	
POSITION	
ANGLE OF VARIANCE (Ø)	LATITUDE <u>35°07'00.9105"</u> NORTH
<u>00°19'01"</u>	LONGITUDE <u>97°26'56.7039"</u> WEST
ELEVATION	
ELLIP. HT. = 1,052.32'	
ORTHO. HT. = 1,136.66'	
SOURCE <u>NAVD88</u>	
ACCURACY: <u>3RD</u> ORDER	



STATE OF OKLAHOMA S.D. FORM NO. 11  
 DEPARTMENT OF HIGHWAYS DEPARTMENT OF HIGHWAYS  
 SURVEY DIVISION SURVEY DIVISION  
 POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY McCLAIN STATION NUMBER M-44-729 SWO 4748(1) DATE 11-01-13

TYPE OF MONUMENT #8 REBAR MONUMENT SET FOR VERT. & HORZ. CONTROL

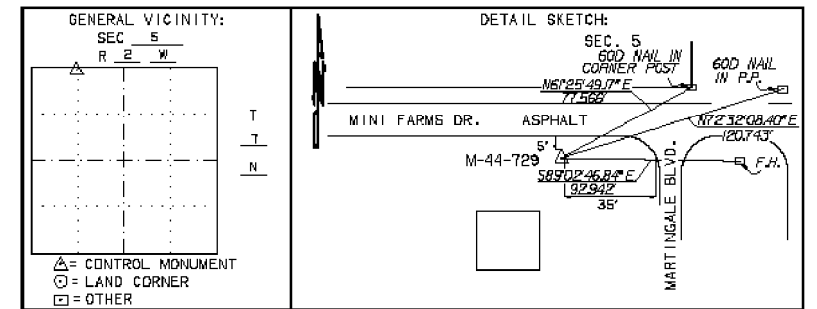
METHOD ESTABLISHED: TRILATERATION X, TRIANGULATION   , TRAVERS   , OTHER (SPECIFY)     
BPS STATIC OBSERVATIONS WITH A FULLY CONSTRAINED C.D.R.S LEAST SQUARES ADJUSTMENT

HEIGHT OF INSTRUMENT ABOVE MONUMENT:    FEET, TYPE OF WITNESS POST NONE

WRITTEN DESCRIPTION OF LOCATION: FROM THE INTERSECTION OF INTERSTATE 35 SOUTH AND 260TH STREET (LADD ROAD), GO EAST ALONG 260TH STREET FOR APPROXIMATELY 1,753.00 FEET TO THE STATION ON THE RIGHT, APPROXIMATELY 15.00 FEET SOUTH OF THE CENTERLINE OF 260TH STREET.

GEOID MODEL: 12A OBSERVED BY: JUSTIN LEE TALCOTT, PLS 1646

COORDINATE SYSTEM: <input type="checkbox"/> NADA3(93) <input type="checkbox"/> OHD, <input checked="" type="checkbox"/> OTHER (SPECIFY) NAD83(2011) EPOCH(2010.00)	
GRID DATA:	COORDINATES (FEET)
SOUTH ZONE	X <u>2,136,746.2692</u>
ACCURACY:	Y <u>649,577.4445</u>
SECOND ORDER	
GEODETTIC DATA	
POSITION	
ANGLE OF VARIANCE (Ø)	LATITUDE <u>35°07'01.9957"</u> NORTH
<u>00°19'25"</u>	LONGITUDE <u>97°26'14.7444"</u> WEST
ELEVATION	
ELLIP. HT. = 1,008.25'	
ORTHO. HT. = 1,094.59'	
SOURCE <u>NAVD88</u>	
ACCURACY: <u>3RD</u> ORDER	



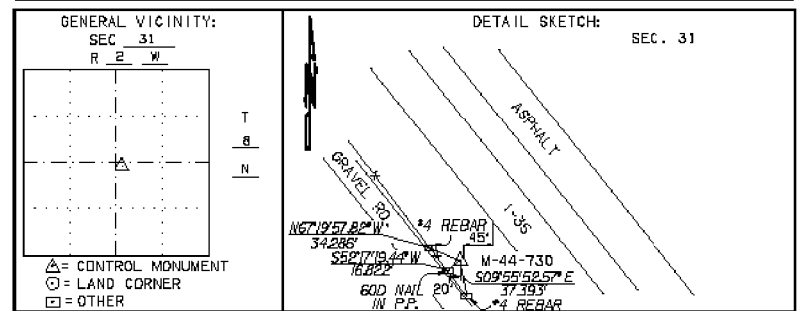
STATE OF OKLAHOMA S.D. FORM NO. 11  
 DEPARTMENT OF HIGHWAYS DEPARTMENT OF HIGHWAYS  
 SURVEY DIVISION SURVEY DIVISION  
 POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY McCLAIN STATION NUMBER M-44-730 SWQ 4748(1) DATE 11-01-13  
 TYPE OF MONUMENT #6 REBAR MONUMENT SET FOR VERT. & HORZ. CONTROL  
 METHOD ESTABLISHED: TRILATERATION X, TRIANGULATION   , TRAVERS   , OTHER (SPECIFY)     
BPS STATIC OBSERVATIONS WITH A FULLY CONSTRAINED C.O.R.S LEAST SQUARES ADJUSTMENT  
 HEIGHT OF INSTRUMENT ABOVE MONUMENT:    FEET, TYPE OF WITNESS POST   NONE

WRITTEN DESCRIPTION OF LOCATION: FROM THE INTERSECTION OF INTERSTATE 35 SOUTH AND 280TH STREET (LADD ROAD), GO NORTHWEST ALONG INTERSTATE 35 FOR APPROXIMATELY 3,290.00 FEET TO THE STATION ON THE LEFT, APPROXIMATELY 101.00 FEET WEST OF THE CENTERLINE OF INTERSTATE 35.

GEOID MODEL: 12A OBSERVED BY: JUSTIN LEE TALCOTT, PLS 1646

COORDINATE SYSTEM: <input type="checkbox"/> NAD83(93) <input type="checkbox"/> OHD, <input checked="" type="checkbox"/> OTHER (SPECIFY) <u>NAD83(2011)EPOCH(2010.00)</u>	
GRID DATA:	COORDINATES (FEET)
SOUTH ZONE	X <u>2,132,802.4986</u>
ACCURACY:	Y <u>652,133.3068</u>
SECOND ORDER	
GEODETTIC POSITION	
POSITION	ELEVATION
ANGLE OF VARIANCE (Ø)	LATITUDE <u>35°07'26.4841"</u> NORTH
	LONGITUDE <u>97°27'00.6451"</u> WEST
	ELLIP. HT. = <u>1,026.99'</u>
	ORTH. HT. = <u>1,113.38'</u>
	SOURCE <u>NAVD88</u>
	ACCURACY: <u>3RD</u> ORDER



STATE OF OKLAHOMA S.D. FORM NO. 11  
 DEPARTMENT OF HIGHWAYS DEPARTMENT OF HIGHWAYS  
 SURVEY DIVISION SURVEY DIVISION  
 POSITION AND DESCRIPTION OF SURVEY MONUMENTS

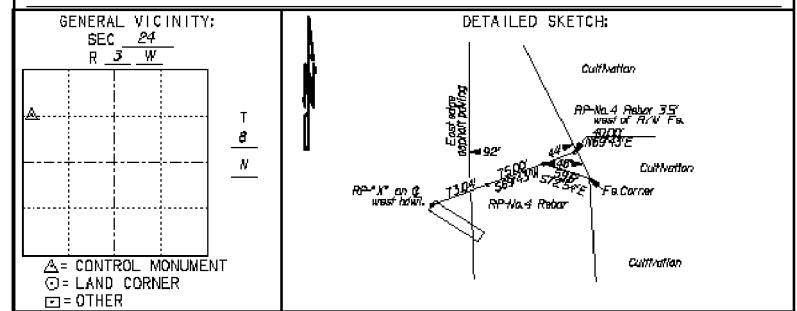
COUNTY McClain Monument Number M-44-858 SWQ 4892(1) DATE 12/15/20  
 TYPE OF MONUMENT No. 4 Rebar/w cap ODOT PLS1663 MONUMENT SET FOR Primary Control  
 WRITTEN DESCRIPTION OF LOCATION: This monument is located approx. 0.25 mi. north of SH 74 and I-35 Int. and approximately 92' east of the east edge of SH 74 and approx. 44' west of existing R/W fence. central is set approx. 3-4' below ground surface

ESTABLISHED BY: Shawn Smith, PLS

COORDINATE SYSTEM: <u>NAD83(2011) (2010.0000)</u> ZONE: <u>South</u>	
COORDINATES (FEET) X	Y
<u>21249883472</u>	<u>6640810062</u>

GEODETTIC POSITION	
LATITUDE <u>35°08'25.06918"</u> NORTH	
LONGITUDE <u>97°28'35.36447"</u> WEST	
ELLIPSOIDAL HEIGHT <u>329.593m</u>	
METHOD USED TO ESTABLISHED: <u>Static GPS</u>	
SOURCE: <u>OPUS Solution</u>	

ORTHOMETRIC HEIGHT	
<u>1167.82</u> FEET	GEOID MODEL: <u>Geoid18</u> GEOID SEPRATION: <u>-86.4803</u> FEET
METHOD USED TO ESTABLISHED: <u>Static GPS</u>	
SOURCE: <u>Differential leveling</u>	



STATE OF OKLAHOMA S.D. FORM NO. 11  
 DEPARTMENT OF HIGHWAYS DEPARTMENT OF HIGHWAYS  
 SURVEY DIVISION SURVEY DIVISION  
 POSITION AND DESCRIPTION OF SURVEY MONUMENTS

COUNTY McClain Monument Number M-44-859 SWQ 4892(1) DATE 12/15/20  
 TYPE OF MONUMENT No. 4 Rebar/w cap ODOT PLS1663 MONUMENT SET FOR Primary Control  
 WRITTEN DESCRIPTION OF LOCATION: This monument is located approx. 0.25 mi. south of SH 74 and I-35 Int. and approximately 102' west of the west edge of SH 74 and approx. 5' west of existing top road elope. central is set approx. 3-4' below ground surface

ESTABLISHED BY: Shawn Smith, PLS

COORDINATE SYSTEM: <u>NAD83(2011) (2010.0000)</u> ZONE: <u>South</u>	
COORDINATES (FEET) X	Y
<u>21247739312</u>	<u>6613747189</u>

GEODETTIC POSITION	
LATITUDE <u>35°08'58.31371"</u> NORTH	
LONGITUDE <u>97°28'38.12270"</u> WEST	
ELLIPSOIDAL HEIGHT <u>331.514m</u>	
METHOD USED TO ESTABLISHED: <u>Static GPS</u>	
SOURCE: <u>OPUS Solution</u>	

ORTHOMETRIC HEIGHT	
<u>1174.05</u> FEET	GEOID MODEL: <u>Geoid18</u> GEOID SEPRATION: <u>-86.408</u> FEET
METHOD USED TO ESTABLISHED: <u>Static GPS</u>	
SOURCE: <u>Differential leveling</u>	

