

White Hawk Engineering & Design

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February 20, 2014

TO: Mr. Larry Reser, Chief of Surveys
FROM: Monte D. King, Professional Land Surveyor
SUBJECT: SWO 5028(1) - J/P 30363(04) - Murray County - I-35, Rock Crusher Road Bridge over I-35, 8.3 miles north of the Carter County Line.

HISTORICAL LETTER & WRITTEN REPORT

1. GENERAL

Method of Survey: Field Conventional

Survey began - November 26, 2013
Survey completed - February 20, 2014

Unit of Measurement: U.S. Survey Foot.

2. SURVEY ASSIGNMENT

This survey was assigned to me under EC-1439-F, TO 2. The Survey Special Provisions Dated October 27, 2013 were issued to me by Mr. Larry Reser, Chief of Surveys.

3. PURPOSE OF SURVEY

The purpose of this survey was to obtain adequate information for the design and construction of a new bridge over I-35 on the Rock Crusher Road (Public Road No. 5).

4. SURVEY LIMITS

PUBLIC ROAD NO. 4 (I-35 LT. FRONTAGE ROAD): This survey began at P.C. Sta. 2857+24.47 and extended northerly to P.T. Sta. 2872+26.97 as established under S.W.O. 2649(1) survey and as shown on FAP No. I-35-2(68)052 plans. Centerline Length 0.29 mi.

PUBLIC ROAD NO. 5 (ROCK CRUSHER ROAD): This survey began at P.T. Sta. 18+22.86 and extended easterly to P.O.T. Sta. 33+82.00 as established under S.W.O. 2649(1) Rock Crusher Road Relocation Survey (S.H. 7 Interchange Alignment Book). Centerline length = 0.30 mi.

I-35: This survey began at Sta. 2862+20 and extended north to Sta. 2865+30 as established under SWO 2649(1) survey and shown on FAP No. I-35-2(68)052 plans (length = 0.06 mile).

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5. ALIGNMENT

I-35: The centerline of I-35 was re-established from SWO 2649(1) original monuments found in place at P.I. Stations 2801+80.57 and 2849+72.13 and is along and identical to the centerline of present I-35.

PUBLIC ROAD NO. 4 (I-35 LT. FRONTAGE ROAD): This alignment is along and identical to the centerline of the present I-35 Lt. Frontage Road. Centerline was re-established from the centerline of I-35 as re-established from the SWO 2649(1) original monuments found in place at the P.I. Stations mentioned above. SWO 2649(1) original references along the frontage road were found in place at P.C. Sta. 2857+24.47, P.I. Sta. 2858+96.06 and P.I. Sta. 2870+61.63. All of the distances to the original reference points from the mentioned Centerline points as established, checked within 0.20 feet.

PUBLIC ROAD NO. 5 (ROCK CRUSHER ROAD): This alignment is along and identical to the centerline of the present Rock Crusher Road. Centerline was re-established from the Centerline of I-35 as re-established from the SWO 2649(1) original monuments found in place at the P.I. Stations mentioned above. (1) SWO 2649(1) original reference point was found in place at P.T. Sta. 18+22.86. The distance to this original reference point checked within 0.70 feet.

6. STATIONING

PUBLIC ROAD NO. 5 (ROCK CRUSHER ROAD): Stationing for this survey was taken from the SWO 2649(1) Rock Crusher Road Relocation Survey which is the same as FAP No. I-35-2(68)052 plans stationing. There was an error found in the curve data shown at P.I. Sta. 22+57.46. The delta was 1 minute different than what the bearings show. The curve was recomputed using the delta based on the bearings, which changed the stationing on the curve slightly and the stationing was held continuous from P.T. Sta. 18+22.86.

PUBLIC ROAD NO. 4 (I-35 LT. FRONTAGE ROAD): Stationing for this survey was taken from SWO 2649(1) which is the same as FAP No. I-35-1(15) Plans. The stationing at P.C. Sta. 2857+00.00 was held at the beginning of this survey and carried forward to the intersection with the Rock Crusher Road Survey at which point there is a station equation. The SWO 2649(1) Survey stationing was held at this point and carried forward to the end of the survey.

I-35: Stationing for this survey was taken from SWO 2649(1) which is the same as FAP No. I-35-2(15) plans. 2 of the original I-35 P.I.s were found in place. The I-35 curve in the area of the bridge was computed and shown on this survey by holding the tangent between the original I-35 P.I.s found in place and holding the original SWO 2649(1) curve data.

7. HORIZONTAL CONTROL

- Primary Horizontal Control for this survey is the National Geodetic Survey(s) Oklahoma State Plane Coordinate System of 1983, South Zone taken from the SWO 3908(1) Honey Creek Survey at the intersection of I-35 and US 77 3 miles south of this survey. SWO 3908(1) Primary Control monuments were found in place in the median of US 77 Highway.
- Primary Project Control Points were set near the beginning and end of this survey and consist of #5 rebar stakes 30" in length with plastic caps driven flush with the ground. 2 hour OPUS

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sessions were ran on these control monuments on 2 different days and at different times (morning and evening). 2 hour static GPS sessions were also ran occupying the SWO 3908(1) control monuments and the primary control monuments established on this survey. The 2 solutions checked within less than 0.10 of a foot. The horizontal data derived from the OPUS sessions was held on the primary control points established on this survey.

8. VERTICAL CONTROL

Vertical Control Datum for this survey is NGS NAVD 88. The Vertical Control Datum shown on the SWO 3908(1) Honey Creek survey is NGS NAVD 88 also. The elevations determined from the 2 hour static GPS base line solutions between the SWO 3908(1) control monuments and the Primary Control monuments established on this survey was compared to elevations derived from direct RTK data obtained while occupying the SWO 3908(1) primary control monuments. The elevations were identical. Therefore, the elevations determined from the static base line solutions were held on the Primary Control points on this survey. A conventional level loop was then run between the primary control points establishing bench marks along the project limits.

9. Topography and Digital Terrain Model

Topography and ground points were obtained by the field conventional method utilizing GPS RTK and Total Station observations. Coverage band widths for this survey were as follows:

PUBLIC ROAD NO. 5 (ROCK CRUSHER ROAD):

150' right and left of Survey Centerline from the Beginning of the Survey to the End of Survey. Flow-line profiles were obtained on the cross drains 500 feet up and down stream.

PUBLIC ROAD NO. 4 (I-35 LT. FRONTAGE ROAD):

150' right and left of Survey Centerline from the Beginning of the Survey to the End of Survey.

10. LAND TIES

Land tie information was obtained on 2 sections on this project. Sections 11 and 12, T1S, R1E of the Indian Meridian. Corner locations necessary to determine the E/2 of Section 11 and the W/2 of Section 12 were established. Corner locations established under the original SWO 2649(1) survey were retraced from the survey notes and found or re-established on this survey where possible. All corners of the E/2 of Section 11 and the W/2 of Section 12 are monumented and referenced. Certified Corner Records were prepared for each. Center of Sections were computed only. The West corner of Section 11 and the East corner of Section 12 were also monumented, referenced and recorded also. All property lines within the survey limits were computed and ties shown based on the records and land ties as determined on this survey.

11. EXISTING RIGHT-OF-WAY

- Right-of-Way shown on this survey was taken from the FAP No. I-35-2(68)052 plans. Some of the right-of-way shown on the plans does not correspond with mathematical computations based on centerline (which is identical to plans) and the offsets shown on the plans. All right-of-way shown on this survey where there is a discrepancy, is based on what I interpreted as the intent of the plans.
- Statutory Section Line Right-of-Way for this area is a total of 33 feet.

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