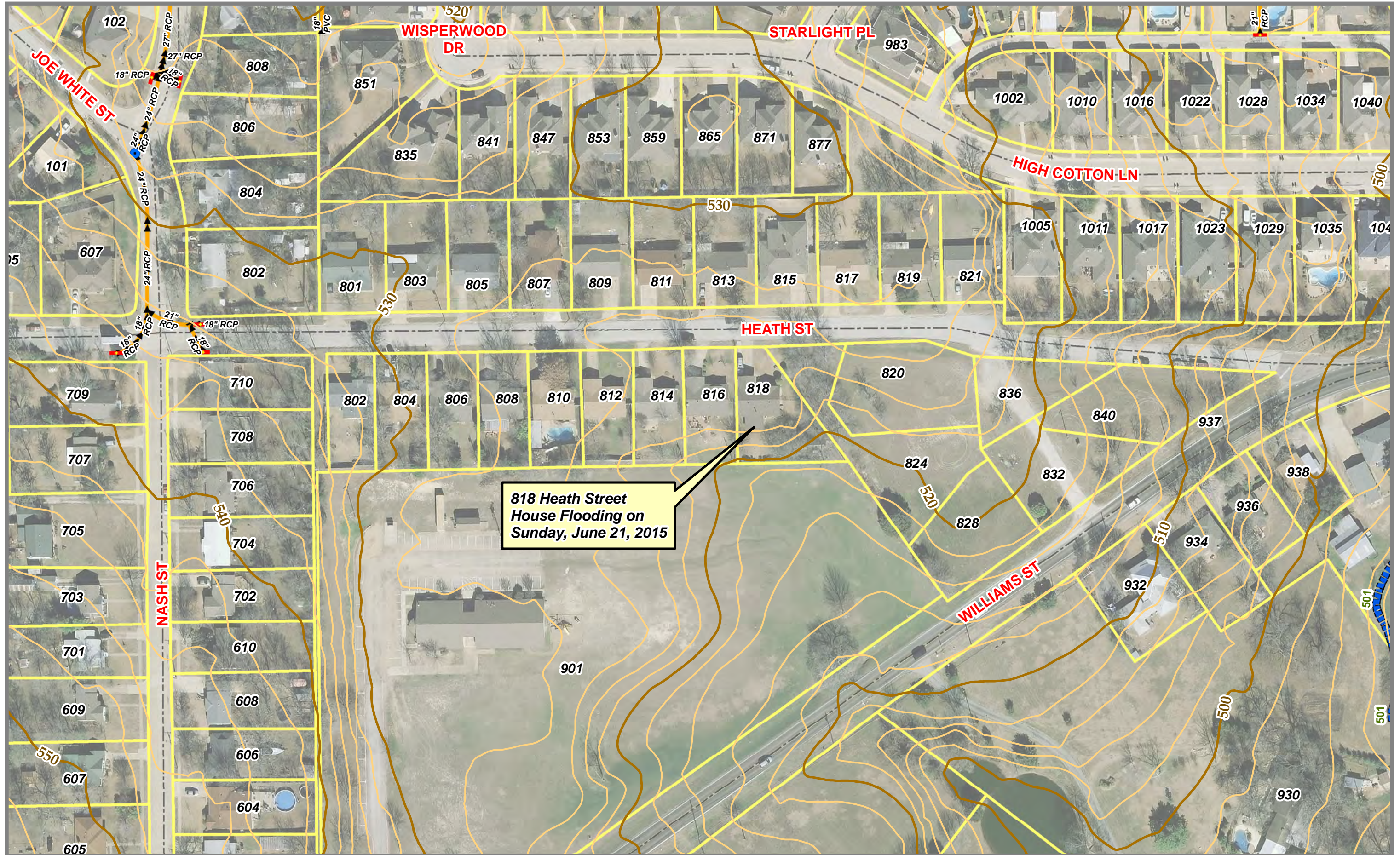


1 inch = 100 feet



Date: 6/24/2015

INLET DESIGN CALCULATIONS

PROJECT NAME CARUTH LAKE, PH. 5 BY N.K.
 LINE NAME N/A DATE 7/8/97

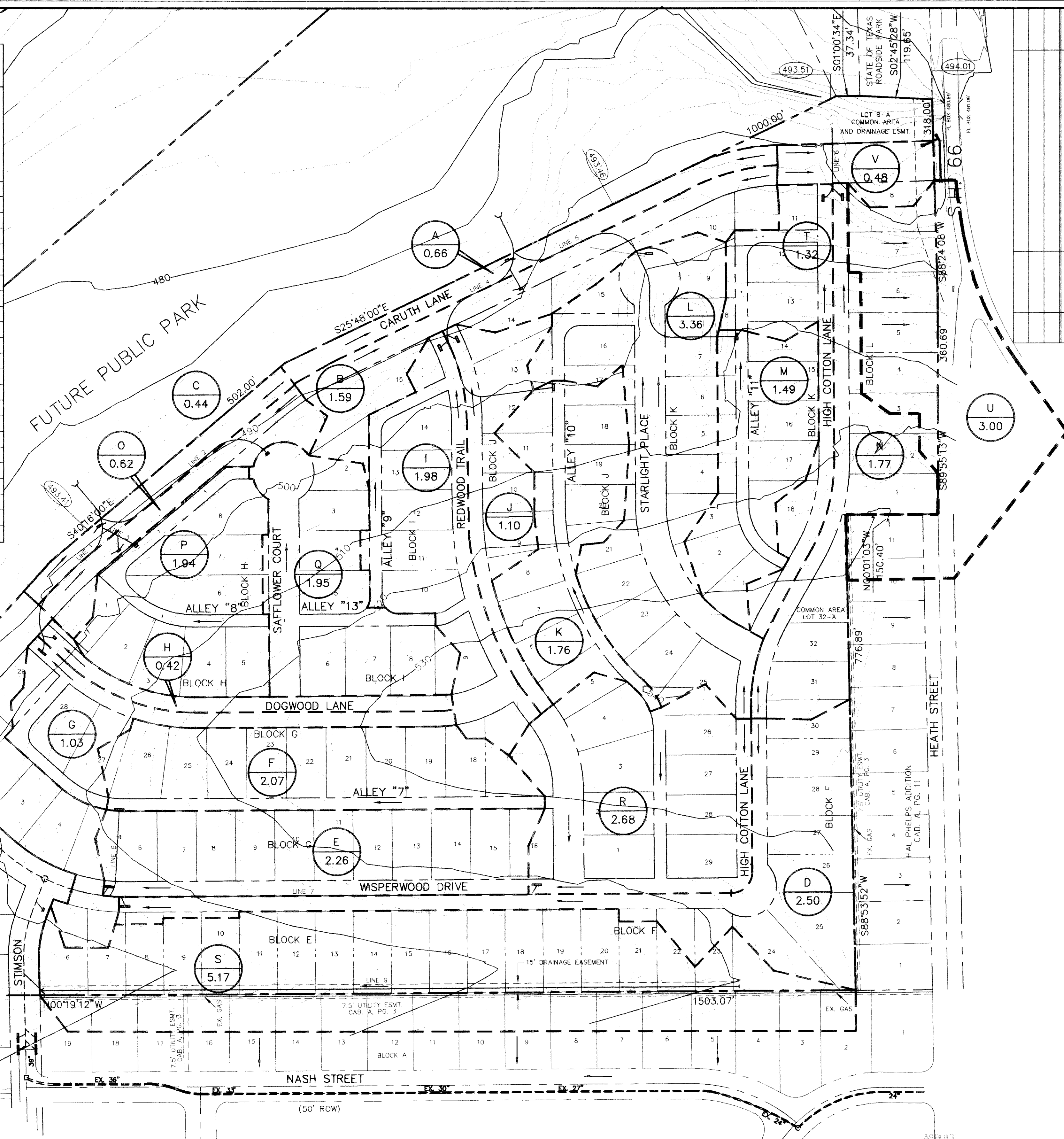
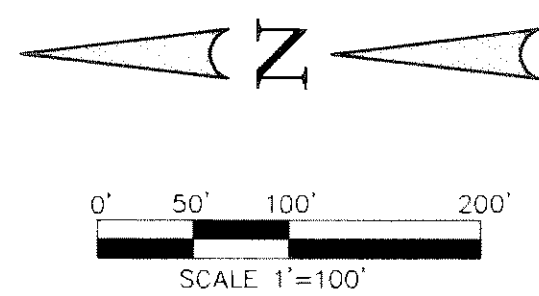
| No. | Location | Design Storm Frequency (yrs.) | AREA RUNOFF Q = C/A | | | | | Carry-Over From Upstream Inlet (c.f.s.) | Total Gutter Flow (c.f.s.) | Gutter Capacity (c.f.s.) | Gutter Slope (ft./100ft.) | Gutter Crown Type | SELECTED INLET | | Carry-Over to Downstream Inlet (c.f.s.) |
|-----|--------------------------------------|-------------------------------|------------------------|-----------------------|-------------------|------------|--------------|---|----------------------------|--------------------------|---------------------------|-------------------|-------------------|------|---|
| | | | Time of Conc. (min.) | Intensity I (in./hr.) | Runoff Coeff. "C" | Area (ac.) | "Q" (c.f.s.) | | | | | | Length "L" (Feet) | Type | |
| A | STA. 29+00 CARUTH LANE (LT.) | 100 | 10 | 9.8 | 0.50 | 0.65 | 3.23 | 0 | 3.23 | SAG | SAG | 7" PARABOLIC | 5' | C.I. | 0 |
| B | STA. 29+00 CARUTH LANE (RT.) | 100 | 10 | 9.8 | 0.50 | 1.59 | 7.79 | 2.90 | 10.69 | SAG | SAG | 7" PARABOLIC | 5' | C.I. | 0 |
| C | STA. 21+03.87 CARUTH LANE (LT.) | 100 | 10 | 9.8 | 0.50 | 0.44 | 2.16 | 0 | 2.16 | SAG | SAG | 7" PARABOLIC | 5' | C.I. | 0 |
| D | STA. 4+43.20 WISPERWOOD DR. (RT.) | 100 | 10 | 9.8 | 0.50 | 2.50 | 12.25 | 0 | 12.25 | 18.57 | 2.48 | 6" PARABOLIC | 15' | C.I. | 1.75 |
| E | STA. 4+26.15 WISPERWOOD DR. (LT.) | 100 | 10 | 9.8 | 0.50 | 2.26 | 11.07 | 1.63 | 12.70 | 16.85 | 2.04 | 6" PARABOLIC | 15' | C.I. | 2.10 |
| F | STA. 3+45.08 ALLEY "7" (RT.) | 100 | 10 | 9.8 | 0.50 | 2.07 | 10.14 | 0 | 10.14 | 14.28 | 3.67 | ALLEY | 15' | C.I. | 1.94 |
| G | STA. 0+55.50 DOGWOOD LANE (RT.) | 100 | 10 | 9.8 | 0.50 | 1.03 | 5.05 | 1.94 | 6.99 | 22.78 | 3.73 | 6" PARABOLIC | 15' | C.I. | 0 |
| H | STA. 0+55.50 DOGWOOD LANE (LT.) | 100 | 10 | 9.8 | 0.50 | 0.42 | 2.06 | 0 | 2.06 | 22.78 | 3.73 | 6" PARABOLIC | 5' | C.I. | 0 |
| I | STA. 9+41.17 REDWOOD TRAIL (LT.) | 100 | 10 | 9.8 | 0.50 | 1.98 | 9.70 | 0 | 9.70 | 12.37 | 1.10 | 6" PARABOLIC | 10' | C.I. | 2.90 |
| J | STA. 9+41.17 REDWOOD TRAIL (RT.) | 100 | 10 | 9.8 | 0.50 | 1.10 | 5.39 | 0 | 5.39 | 12.37 | 1.10 | 6" PARABOLIC | 10' | C.I. | 0 |
| K | STA. 8+72.88 ALLEY "10" (LT.) | 100 | 10 | 9.8 | 0.50 | 1.76 | 8.62 | 0 | 8.62 | 10.82 | 2.11 | ALLEY | 10' | C.I. | 3.22 |
| L | STA. 7+26.31 STARLIGHT PLACE (LT.) | 100 | 10 | 9.8 | 0.50 | 3.36 | 16.46 | 3.22 | 19.68 | SAG | SAG | 6" PARABOLIC | 10' | C.I. | 0 |
| M | STA. 4+94.85 ALLEY "11" (LT.) | 100 | 10 | 9.8 | 0.50 | 1.49 | 7.30 | 0 | 7.30 | 12.91 | 3.0 | ALLEY | 10' | C.I. | 2.25 |
| N | STA. 26+17.12 HIGH COTTON LANE (RT.) | 100 | 10 | 9.8 | 0.50 | 1.77 | 8.67 | 0 | 8.67 | 12.03 | 1.04 | 6" PARABOLIC | 10' | C.I. | 1.77 |
| O | STA. 21+03.87 CARUTH LANE (RT.) | 100 | 10 | 9.8 | 0.50 | 0.62 | 3.04 | 0 | 3.04 | SAG | SAG | 7" PARABOLIC | 5' | C.I. | 0 |
| P | STA. 3+50.51 ALLEY "8" (LT.) | 100 | 10 | 9.8 | 0.50 | 1.94 | 9.51 | 0 | 9.51 | SAG | SAG | ALLEY | 5' | C.I. | 0 |
| Q | STA. 4+23.32 SAFFLOWER COURT (LT.) | 100 | 10 | 9.8 | 0.50 | 1.95 | 9.56 | 0 | 9.56 | SAG | SAG | ALLEY | 5' | C.I. | 0 |
| R | STA. 11+15.45 WISPERWOOD DR. (LT.) | 100 | 10 | 9.8 | 0.50 | 2.68 | 13.13 | 0 | 13.13 | 14.44 | 1.50 | 6" PARABOLIC | 15' | C.I. | 1.63 |
| S | WEST OF WISPERWOOD DR. | 100 | 10 | 9.8 | 0.50 | 5.17 | 25.33 | 0 | 25.33 | - | - | - | - | - | 0 |
| T | STA. 26+17.12 HIGH COTTON LANE (LT.) | 100 | 10 | 9.8 | 0.50 | 1.32 | 6.47 | 2.25 | 8.72 | 12.03 | 1.04 | 6" PARABOLIC | 10' | C.I. | 1.72 |
| U | STA. 36+35.00 CARUTH LANE | 100 | 10 | 9.8 | 0.50 | 3.00 | 14.17 | 0 | 14.17 | N/A | 3.50 | N/A | N/A | N/A | N/A |
| V | STA. 36+08.00 CARUTH LANE | 100 | 10 | 9.8 | 0.50 | 0.48 | 2.35 | 0 | 2.35 | 2.35 | 3.33 | 7" PARABOLIC | 5' | C.I. | 0 |

LEGEND

- AREA DESIGNATION
- AREA IN ACRES
- FLOW ARROWS
- PROPOSED INLETS
- PROPOSED STORM SEWER SYSTEM
- DRAINAGE AREA BOUNDARY
- POWER POLE
- GUY WIRE
- SANITARY SEWER MANHOLE
- EX. INLETS
- EX. STORM SEWER
- 100 YEAR W.S. ELEVATIONS BASED ON FULLY DEVELOPED WATERSHED PER N.W.R.S. STUDY DATED 12-18-97
- EX. CONTOURS

SCALE 1"=100'

REFER TO PLANS PREPARED BY WAI ON CARUTH LAKES PH 4 FOR ADJACENT DRAINAGE AREAS



WADE ADDITION CAB. A, PG. 3

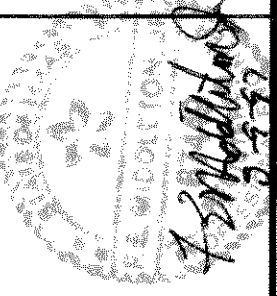
Winkelmann & Associates, Inc. hereby states that this plan to the best of our knowledge is "As Built." Modifications from the originally approved construction documents have been made as per information provided by the contractor. Winkelmann & Associates, Inc. does not certify as to the correctness or quality of construction as no field inspection was performed.
 J.E. Madhala
 WINKELMANN & ASSOCIATES, INC. 10-14-99
 DATE

| | |
|---|--------------------------------------|
| <p>Winkelmann & Associates, Inc. CONSULTING CIVIL ENGINEERS 6744 W. WASHINGTON ST. DALLAS, TEXAS 75240 (214) 981-7000 FAX</p> | |
| No. _____ DATE _____ | No. _____ DATE _____ |
| CARUTH LAKE PHASE FIVE S.S. MOOREY SURVEY, ABSTRACT NO. 146 1/8 SECTION OF TOWNSHIP 10N RANGE 10E, COUNTY OF ROCKWALL, TEXAS LUMBERGUS INVESTMENT CORPORATION 5405 BELLEVUE ROAD, SUITE 200 DALLAS, TEXAS 75240 | |
| DRAINAGE AREA MAP CARUTH LAKE PHASE FIVE | |
| Scale: 1"=100' Date: 07/02/98 Designed By: K.G./N.K. Drawn By: N.K. Checked By: K.G. File: I4633DAM.DWG Project No.: I4633-01(20) | SHEET 2 OF 31 |

BENCHMARK:
 "X" CHISELED IN \odot OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26

BENCHMARK:
 PK NAIL IN \odot OF CARUTH LANE & ALLEY INTERSECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

Winkelmann & Associates, Inc.
 CONSULTING CIVIL ENGINEERS • SURVEYORS
 12808 MILLCREEK ROAD, SUITE 200
 DALLAS, TEXAS 75240
 (214) 462-7900
 (214) 462-7999 FAX



CARUTH LANE PHASE FIVE
 S.S. McCURRY SURVEY, ABSTRACT NO. 146
 M.B. JONES SURVEY, ABSTRACT NO. 122
 CITY OF ROCKWALL, TEXAS
 ROSSWALL COUNTRY, TEXAS
 LUMBERMEN'S INVESTMENT CORPORATION
 5495 BELTLINE ROAD, SUITE 225
 DALLAS, TEXAS 75240

LOT GRADING PLAN

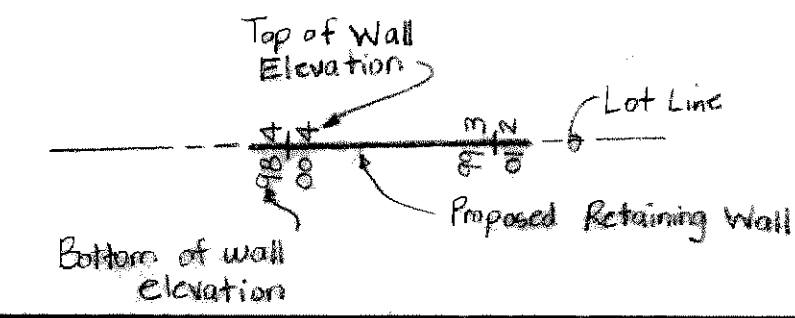
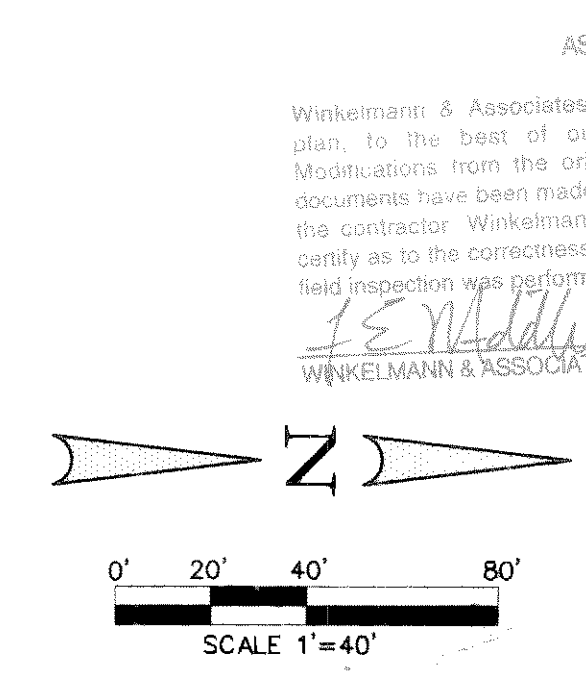
Scale: 1" = 40' Date: 4/24/97
 Designed By: KG
 Drawn By: MK
 Checked By: FEM
 File: 14635L03.DWG
 Project No.: 14635.0120

SHEET
 27
 OF
 31

FP = FINISHED PAD
 FF = FINISHED FLOOR
 ~500~ contours prior to grading

- NOTES:
- REFER TO TREE SURVEY FOR TREE TYPE AND SIZE.
 - APPROXIMATE PAD SIZE: 50'x65'
 - BUILDING SETBACKS:
 A) FRONT YARD - 20'
 B) SIDE YARD - 6'
 C) REAR YARD - 10'
 - ELEVATIONS ARE TO THE NEAREST TENTH. REFER TO PAVING PLANS FOR EXACT PAVING ELEVATIONS.
 - These plans are for fine grading and wall construction only.

The mass grading for this phase is complete. All streets and pads are within D.2 of the elevations shown on this sheet.



ASBUILT
 Winkelmann & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As Built." Modifications from the originally approved construction documents have been made as per information provided by the contractor. Winkelmann & Associates, Inc. does not certify as to the correctness or quality of construction as no field inspection was performed.
J.E. Maddox 10/16/99
 WINKELMANN & ASSOCIATES, INC. DATE



BENCHMARK:
 "X" CHISEL IN C OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26

BENCHMARK:
 PK NAIL IN C OF CARUTH LANE & ALLEY INTERSECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

Winkelmann & Associates, Inc.
 CONSULTING CIVIL ENGINEERS • SURVEYORS
 1500 HILLCREST ROAD, SUITE 200
 DALLAS, TEXAS 75209
 (214) 460-7000 FAX

CARUTH LANE PHASE FIVE
 S.S. MCGURRY SURVEY, ABSTRACT NO. 146
 M.B. JONES SURVEY, ABSTRACT NO. 122
 CITY OF ROCKWELL
 ROCKWALL COUNTY, TEXAS

LUMBERMEN'S INVESTMENT CORPORATION
 5465 BELLEVUE ROAD, SUITE 225
 DALLAS, TEXAS 75240

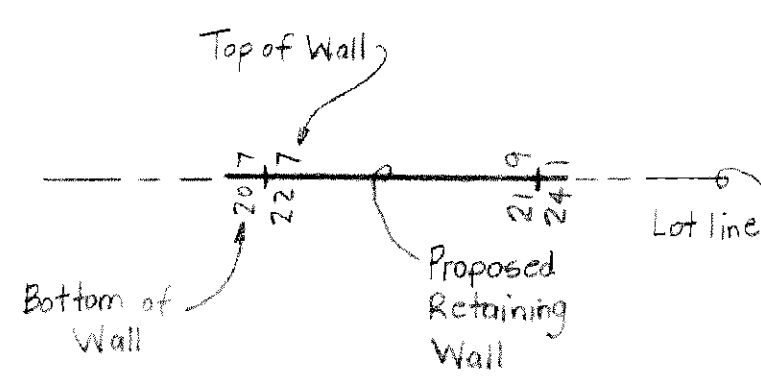
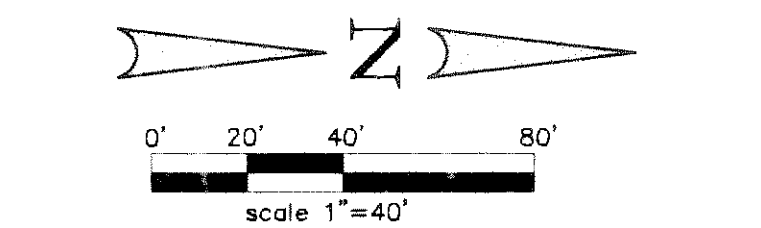
- NOTES:
- REFER TO TREE SURVEY FOR TREE TYPE AND SIZE.
 - APPROXIMATE PAD SIZE: 50'x65'
 - BUILDING SETBACKS:
 A) FRONT YARD - 20'
 B) SIDE YARD - 6'
 C) REAR YARD - 10'
 - ELEVATIONS ARE TO THE NEAREST TENTH. REFER TO PAVING PLANS FOR EXACT PAVING ELEVATIONS.

* 5) These plans are for fine grading and wall construction only.

FP = FINISHED PAD
 FF = FINISHED FLOOR
 ~500~ Contours prior to grading.

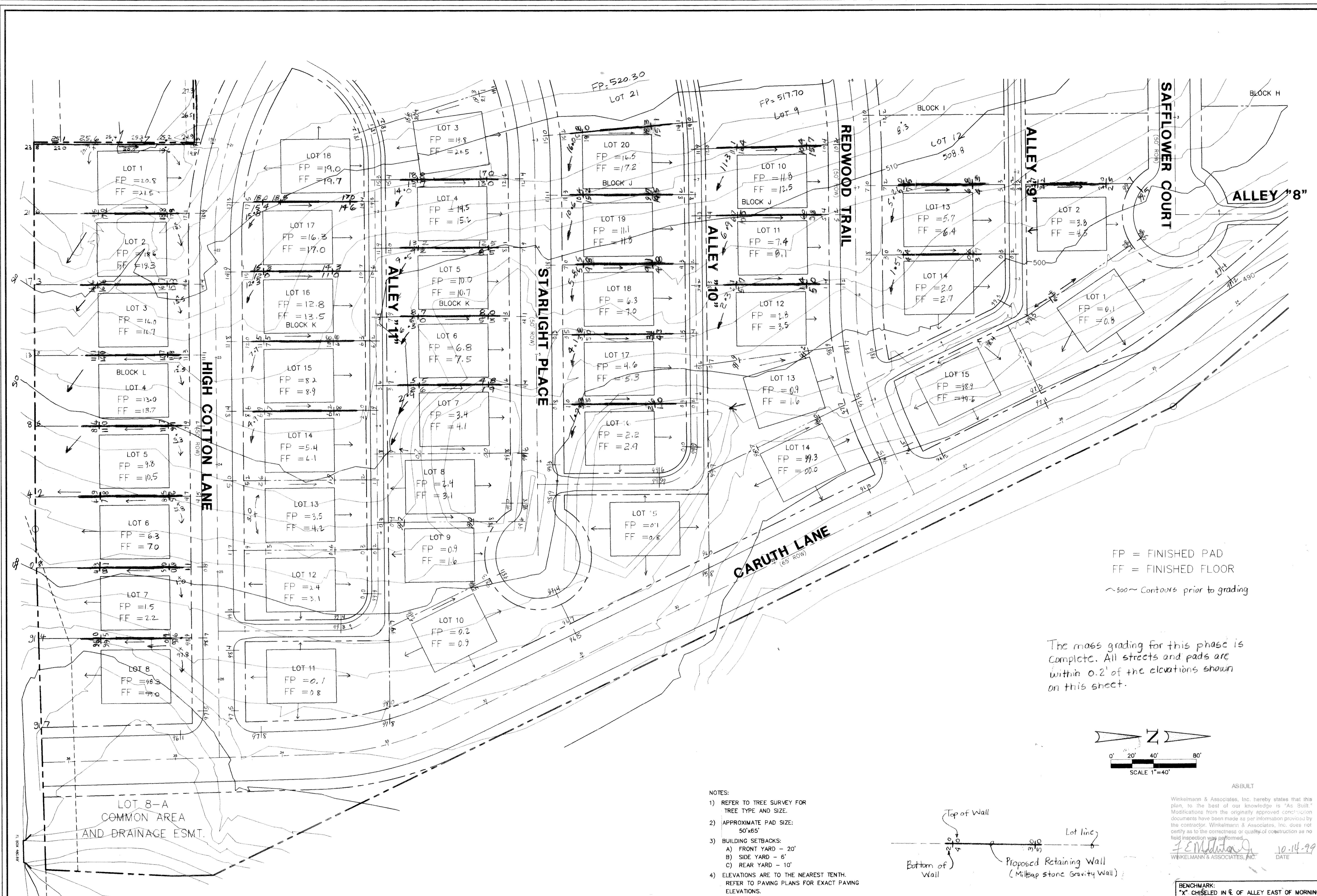
The mass grading for this phase is complete. All streets and pads are within 0.2' of the elevations shown on this sheet.

AS BUILT
 Winkelmann & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As Built." Modifications from the originally approved construction documents have been made as per information provided by the contractor. Winkelmann & Associates, Inc. does not certify as to the correctness or quality of construction as no field inspection was performed.
J.E. Minton 10-14-99
 WINKELMANN & ASSOCIATES, INC. DATE



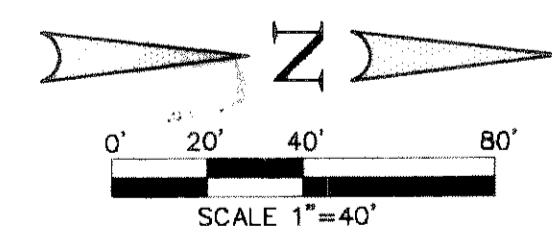
LOT GRADING PLAN

| | |
|-----------------------|---------------|
| Scale: 1" = 40' | Date: 4/24/97 |
| Designed By: KG | |
| Drawn By: MK | |
| Checked By: FEM | |
| File: 14631.G4.DWG | |
| Project No.: 14633.01 | |



FP = FINISHED PAD
 FF = FINISHED FLOOR
 ~500~ Contours prior to grading

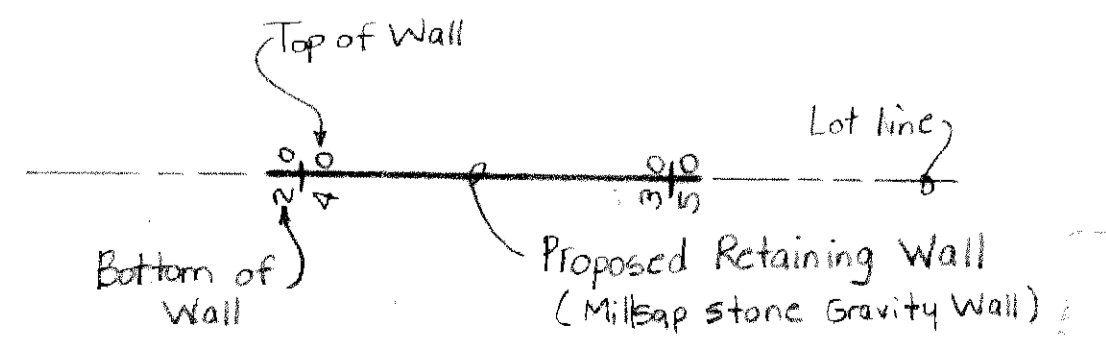
The mass grading for this phase is complete. All streets and pads are within 0.2' of the elevations shown on this sheet.



ASBUILT

- NOTES:
- REFER TO TREE SURVEY FOR TREE TYPE AND SIZE.
 - APPROXIMATE PAD SIZE: 50'x65'
 - BUILDING SETBACKS:
 A) FRONT YARD - 20'
 B) SIDE YARD - 6'
 C) REAR YARD - 10'
 - ELEVATIONS ARE TO THE NEAREST TENTH. REFER TO PAVING PLANS FOR EXACT PAVING ELEVATIONS.

* 5) These plans are for fine grading and wall construction only.



Winkelmann & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As-Built". Modifications from the originally approved construction documents have been made as per information provided by the contractor. Winkelmann & Associates, Inc. does not certify as to the correctness or quality of construction as no field inspection was performed.

JEM
 WINKELMANN & ASSOCIATES, INC.
 10-14-99
 DATE

BENCHMARK:
 "X" CHISELED IN E. OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26

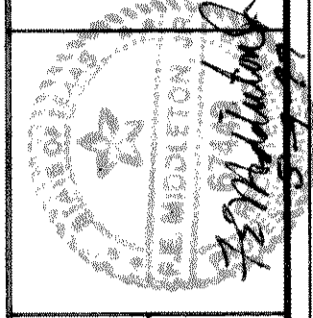
BENCHMARK:
 PK NAIL IN E. OF CARUTH LANE & ALLEY INTERSECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

LOT GRADING PLAN

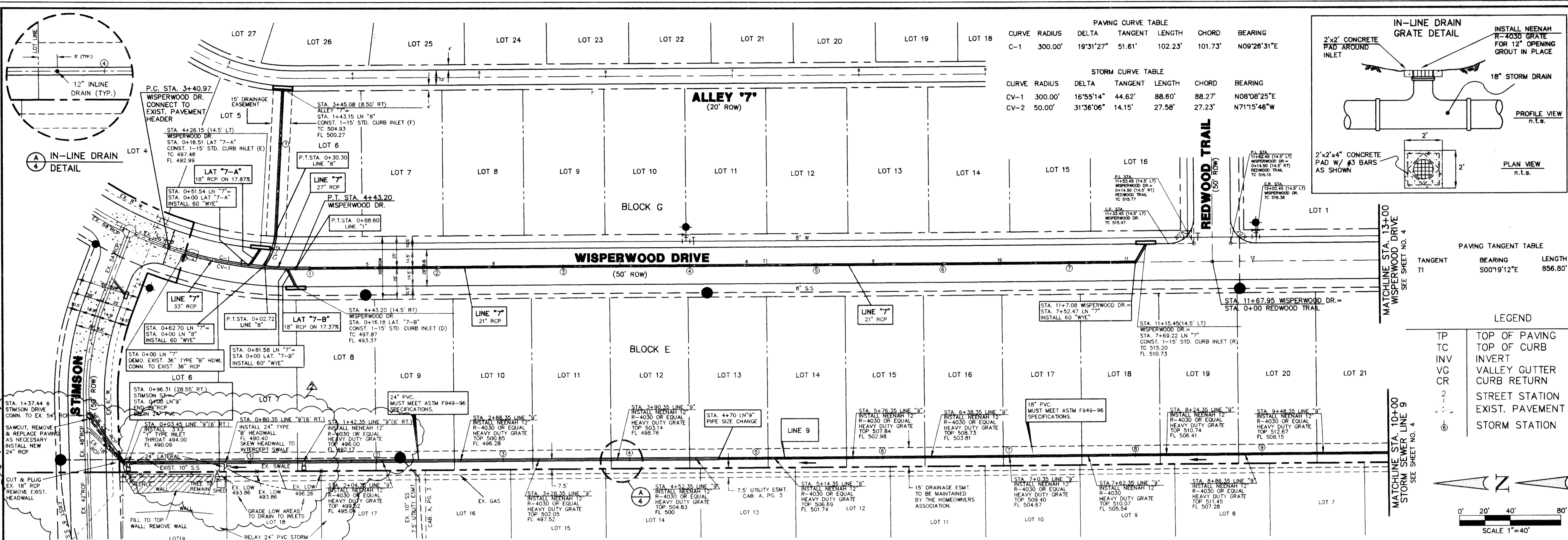
Scale: 1" = 40' Date: 4/25/97
 Designed By: KG
 Drawn By: MK
 Checked By: FEM
 File: 14633.GS.DWG
 Project No.: 14633.01

SHEET
 29
 OF
 31

Winkelmann & Associates, Inc.
 CONSULTING CIVIL ENGINEERS • SURVEYORS
 1300 HILLCREST ROAD, SUITE 200
 DALLAS, TEXAS 75240
 (214) 966-2998 FAX

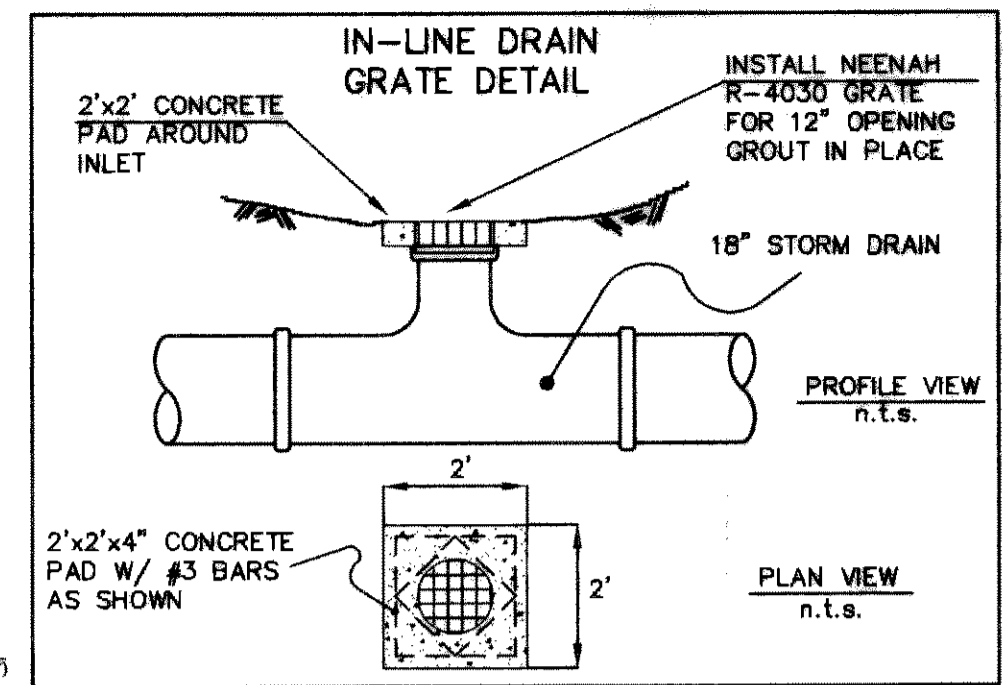


CARUTH LAKE PHASE FIVE
 S.S. MCGURRY SURVEY, ABSTRACT NO. 146
 M.B. JONES & SONS, INC.
 ROCKWALL, TEXAS
 LUMBEREV'S INVESTMENT CORPORATION
 51665 BELTLINE ROAD, SUITE 223
 DALLAS, TEXAS 75240



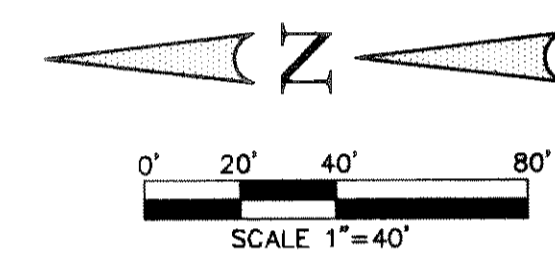
| PAVING CURVE TABLE | | | | | | |
|--------------------|---------|-----------|---------|---------|---------|-------------|
| CURVE | RADIUS | DELTA | TANGENT | LENGTH | CHORD | BEARING |
| C-1 | 300.00' | 19°31'27" | 51.61' | 102.23' | 101.73' | N09°26'31"E |

| STORM CURVE TABLE | | | | | | |
|-------------------|---------|-----------|---------|--------|--------|-------------|
| CURVE | RADIUS | DELTA | TANGENT | LENGTH | CHORD | BEARING |
| CV-1 | 300.00' | 16°55'14" | 44.62' | 88.60' | 88.27' | N08°08'25"E |
| CV-2 | 50.00' | 31°36'06" | 14.15' | 27.58' | 27.23' | N71°15'46"W |



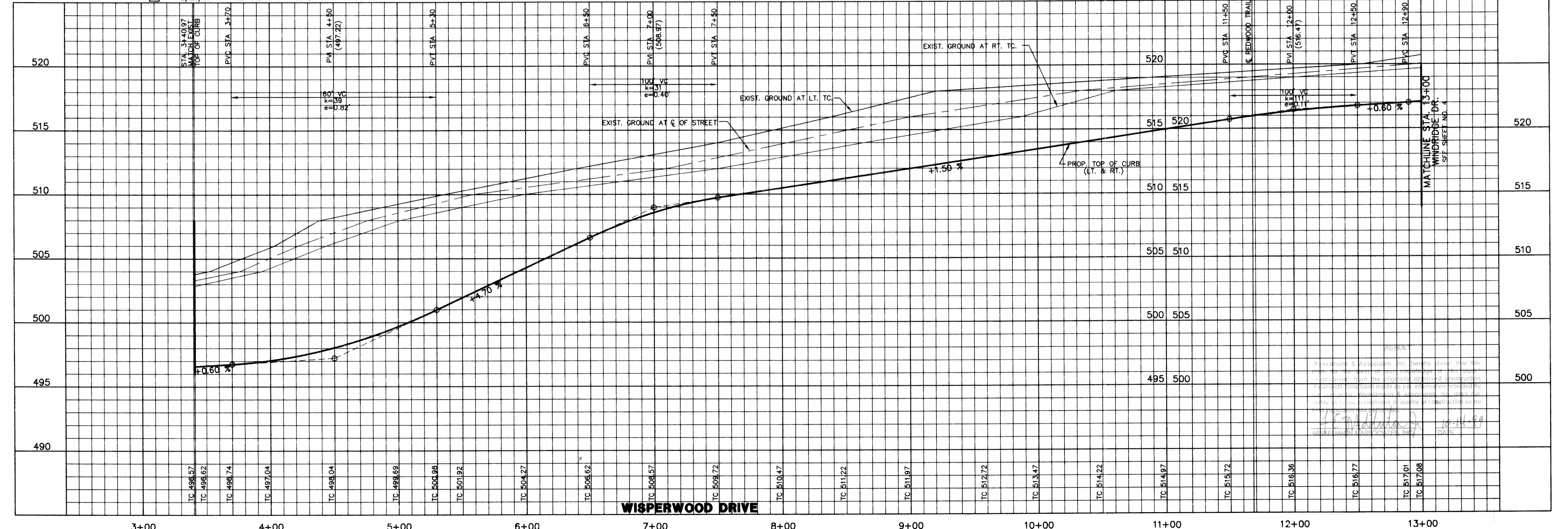
| PAVING TANGENT TABLE | | |
|----------------------|-------------|---------|
| TANGENT | BEARING | LENGTH |
| T1 | S00°19'12"E | 856.80' |

- LEGEND**
- TP TOP OF PAVING
 - TC TOP OF CURB
 - INV INVERT
 - VC VALLEY CUTTER
 - CR CURB RETURN
 - 2 STREET STATION
 - 1 EXIST. PAVEMENT
 - ⊙ STORM STATION



BENCHMARK:
PK NAIL IN E. OF CARUTH LANE & ALLEY INTERSECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.66

BENCHMARK:
"X" CHISELED IN E. OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26



Winkelman & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
12800 Wilshire Road, Suite 200
Dallas, Texas 75249
(972) 482-7900
(972) 482-7900 FAX

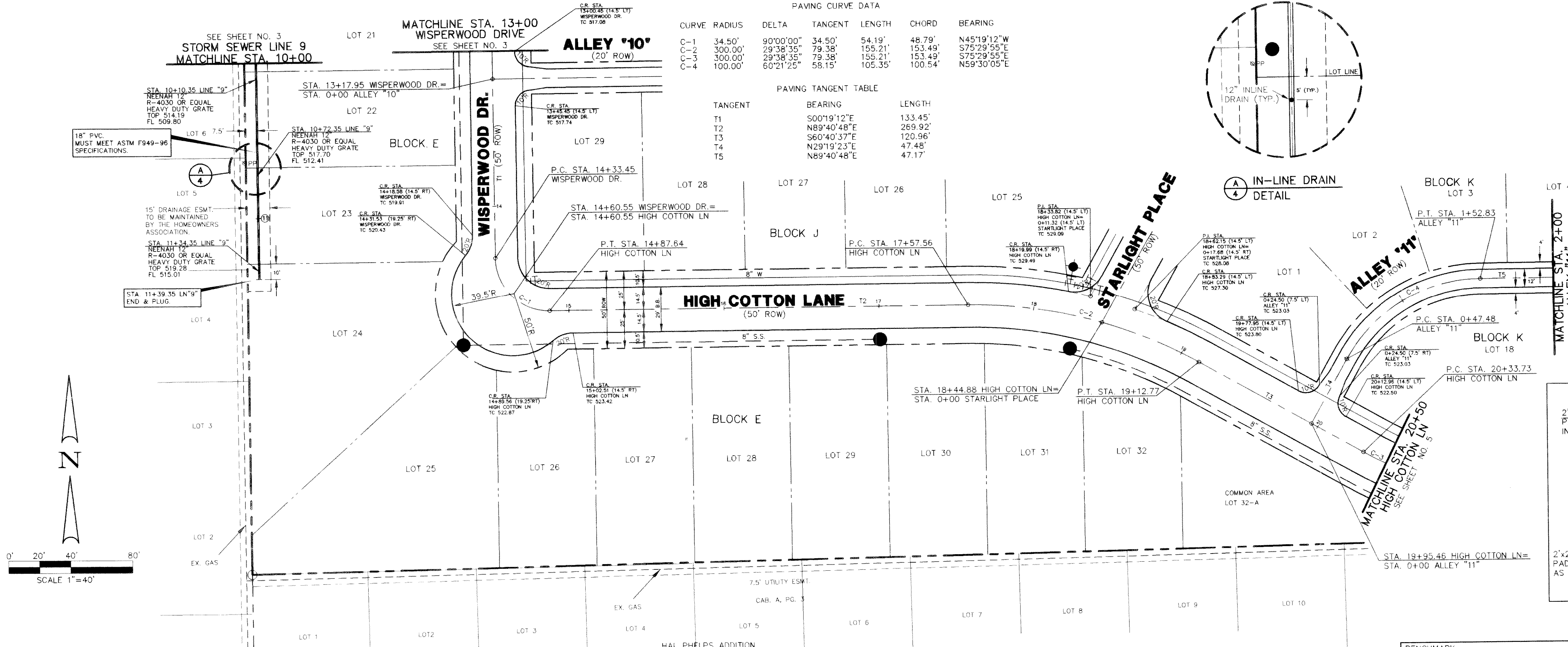


CARUTH LAKE PHASE FIVE NO. 146
S.B. JONES SURVEY, ABSTRACT NO. 122
ROCKWALL COUNTY, TEXAS
LUMBERMAN'S INVESTMENT CORPORATION
5435 BELTLINE ROAD, SUITE 225
DALLAS, TEXAS 75240

PAVING & DRAINAGE PLAN / PAVING PROFILE
WISPERWOOD DR. STA. 3+40.97 TO STA. 13+00
DRAINAGE PLAN LINE '9' STA. 0+00.00
TO STA. 10+00

Scale: 1"=40' Date: 01/02/98
Designed By: RB
Drawn By: MK
Checked By: F.E.M.
File: 14633P39.DWG
Project No.: 14655.01

31

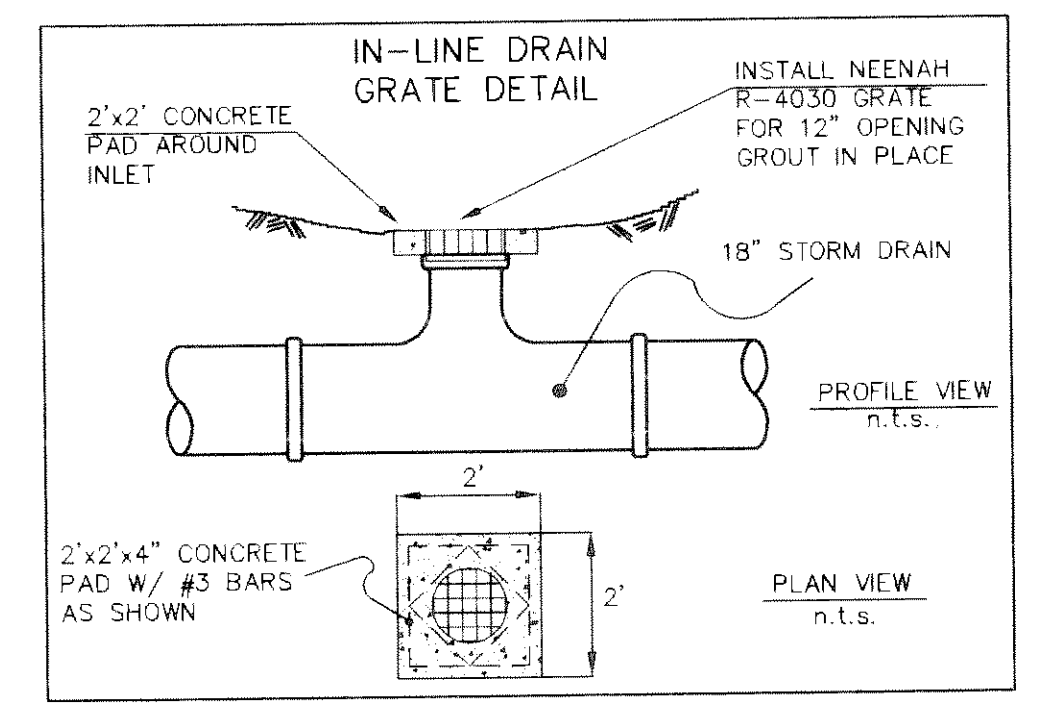


PAVING CURVE DATA

| CURVE | RADIUS | DELTA | TANGENT | LENGTH | CHORD | BEARING |
|-------|---------|-----------|---------|---------|---------|-------------|
| C-1 | 34.50' | 90°00'00" | 34.50' | 54.19' | 48.79' | N45°19'12"W |
| C-2 | 300.00' | 29°38'35" | 79.38' | 155.21' | 153.49' | S75°29'55"E |
| C-3 | 300.00' | 29°38'35" | 79.38' | 155.21' | 153.49' | S75°29'55"E |
| C-4 | 100.00' | 60°21'25" | 58.15' | 105.35' | 100.54' | N59°30'05"E |

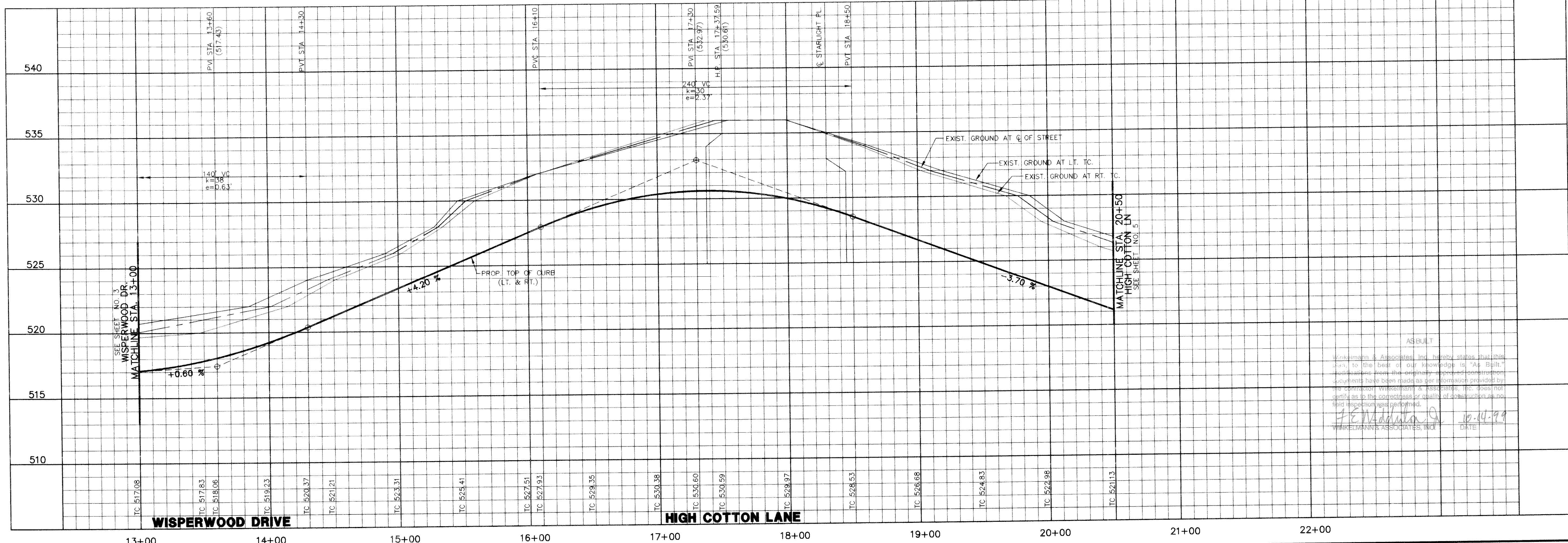
PAVING TANGENT TABLE

| TANGENT | BEARING | LENGTH |
|---------|-------------|---------|
| T1 | S00°19'12"E | 133.45' |
| T2 | N89°40'48"E | 269.92' |
| T3 | S60°40'37"E | 120.96' |
| T4 | N29°19'23"E | 47.48' |
| T5 | N89°40'48"E | 47.17' |



BENCHMARK: PR NAIL IN C OF CARUTH LANE & ALLEY INTERSECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

BENCHMARK: "X" CHISELED IN C OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26



ASBUILT

Winkelmann & Associates, Inc. hereby states that this ASBUILT is based on the best of our knowledge to "As Built" conditions from the original permanent construction documents. Winkelmann & Associates, Inc. does not warrant as to the correctness or quality of construction as no field inspection was performed.

J.E. Madala 10-04-99
WINKELMANN'S ASSOCIATES, INC. DATE

Winkelmann & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
2200 West Loop South, Suite 200
Dallas, Texas 75220 (972) 499-7700 FAX

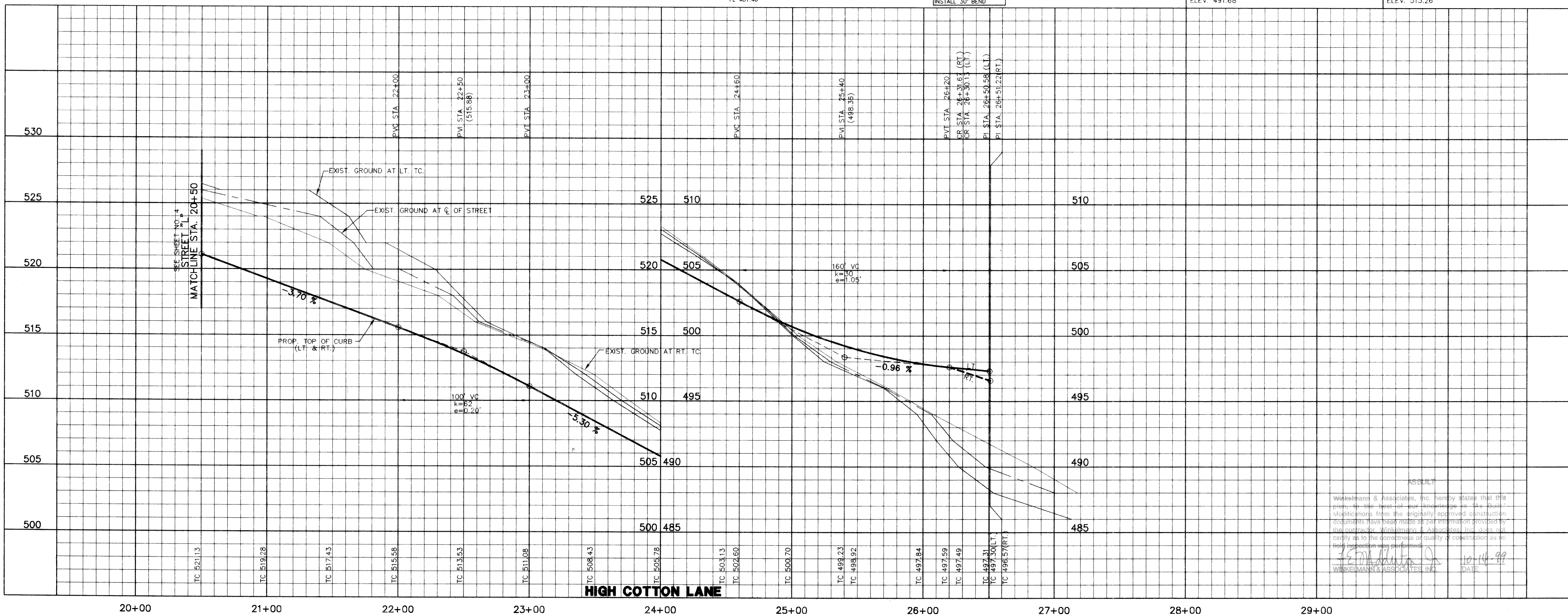
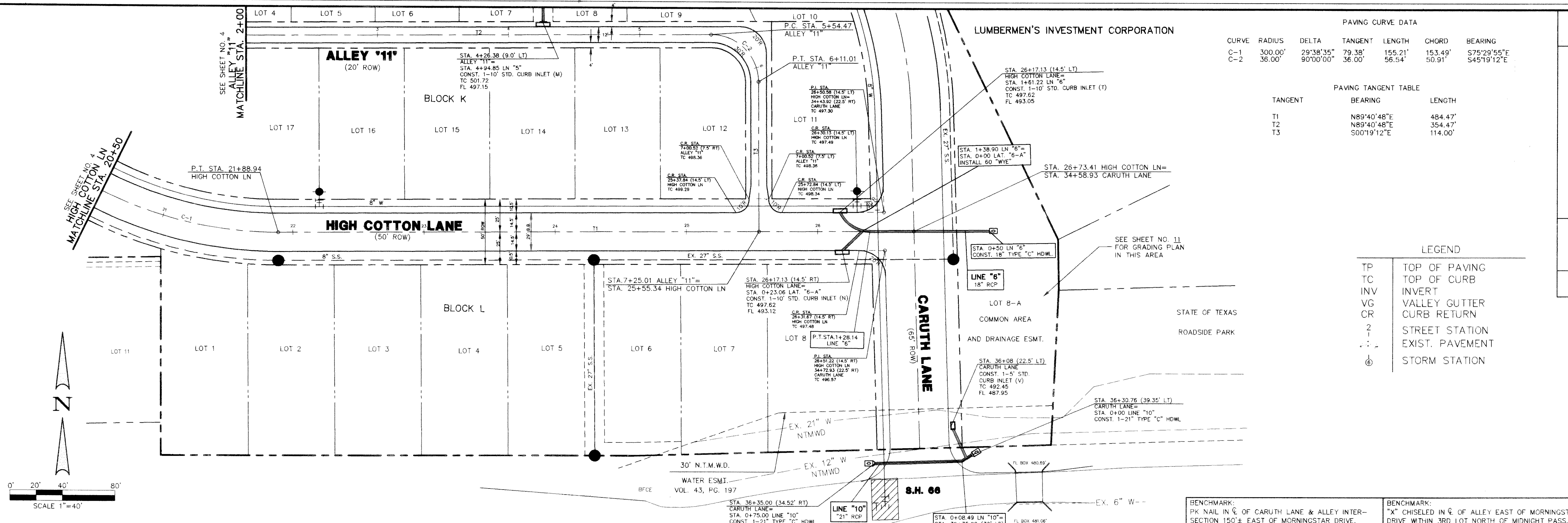
CARUTH LANE PHASE FIVE
S.S. MCCURRY SURVEY, ABSTRACT NO. 146
M.B. JONES SURVEY, ABSTRACT NO. 122
CITY OF ROCKWALL, TEXAS
ROCKWALL COUNTY, TEXAS
LUMBERMEN'S INVESTMENT CORPORATION
5495 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

| NO. | DATE | REVISION | APPROVAL |
|-----|------|----------|----------|
| | | | |

PAVING & DRAINAGE PLAN / PAVING PROFILE
WISPERWOOD DR. STA. 13+00 TO STA. 14+60.55
HIGH COTTON LN. STA. 14+60.55 TO STA. 20+50
ALLEY '11' STA. 0+00 TO STA. 2+00

Scale: 1"=40' Date: 5/26/98
Designed By: JG
Drawn By: MK
Checked By: F.E.M.
File: 14633PRO.DWG
Project No.: 14633-01

SHEET
4
OF
31



Winkelmann & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
15000 Hillcrest Drive, Suite 200
Dallas, Texas 75240
(972) 497-7000

PROJECT INFORMATION

Scale: 1" = 30'
Date: 5/28/98
Designed By: KG
Drawn By: MK
Checked By: F.E.M.
File: 14633P1.DWG
Project No.: 14633.01

PAVING PLAN & PROFILE
HIGH COTTON LN. STA. 20+50 TO STA. 26+73.41
ALLEY '11' STA. 2+00 TO STA. 7+25.01

APPROVALS:

| NO. | DATE | REVISION | APPROVAL |
|-----|------|----------|----------|
| | | | |

SEE SHEET NO. 4
MATCHLINE STA. 2+00

SEE SHEET NO. 11
FOR GRADING PLAN
IN THIS AREA

SEE SHEET NO. 4
MATCHLINE STA. 20+50

SEE SHEET NO. 11
FOR GRADING PLAN
IN THIS AREA

STATE OF TEXAS
ROCKWALL COUNTY, TEXAS

LUMBERMEN'S INVESTMENT CORPORATION
5955 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

S.S. McCURRY SURVEY, ABSTRACT NO. 146
M.B. JONES SURVEY, ABSTRACT NO. 122
ROCKWALL COUNTY, TEXAS

LUMBERMEN'S INVESTMENT CORPORATION
5955 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

ASBESTOS
Winkelmann & Associates, Inc. hereby states that this plan is the best of our knowledge as "As-Built" modifications from the originally approved construction documents have been made as per information provided by the contractor. Winkelmann & Associates, Inc. does not certify as to the correctness or quality of construction as the field inspection was performed.

10-14-99
DATE

BENCHMARK:
PK NAIL IN C OF CARUTH LANE & ALLEY INTER-SECTION 150'± EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 491.68

BENCHMARK:
"X" CHISELED IN C OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26

STORM SEWER CURVE DATA

| CURVE RADIUS | DELTA | TANGENT | LENGTH | BEARING | CHORD |
|--------------|-----------|---------|--------|-------------|--------|
| CV-1 85.00' | 62°37'59" | 51.71' | 82.92' | S78°02'13"E | 88.36' |
| CV-2 750.00' | 06°27'14" | 42.28' | 84.48' | S4°29'37"E | 84.44' |
| CV-3 55.00' | 90°00'00" | 55.00' | 86.39' | N85°16'00"W | 77.78' |
| CV-4 45.00' | 54°50'01" | 23.34' | 43.07' | N12°50'59"W | 41.44' |
| CV-5 60.00' | 90°28'59" | 60.50' | 94.75' | S04°58'19"W | 85.21' |

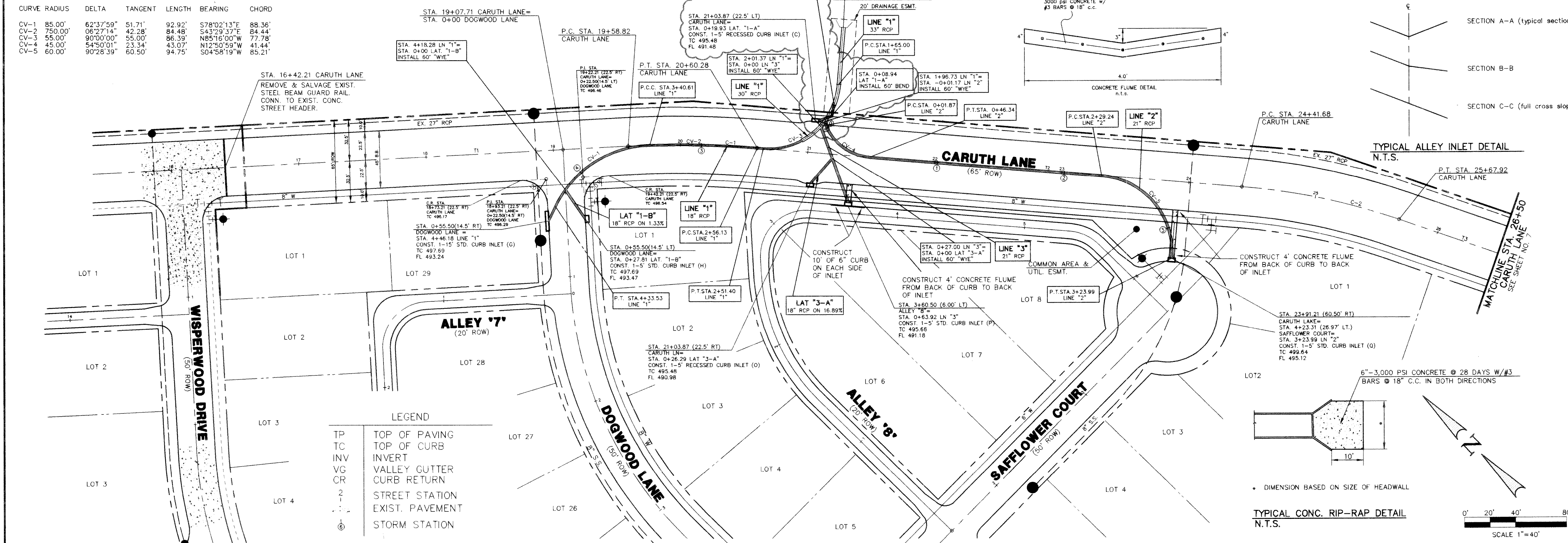
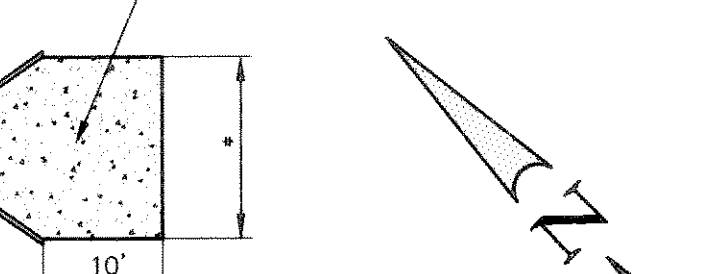
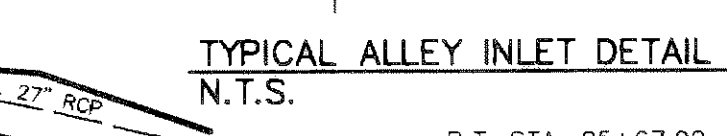
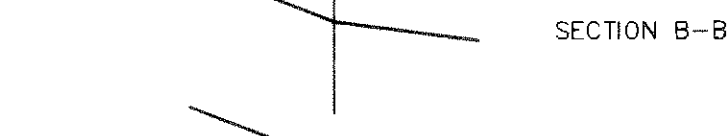
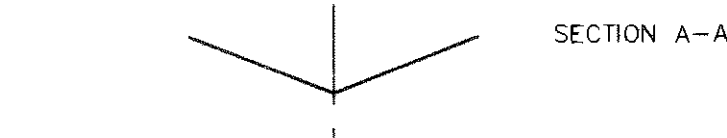
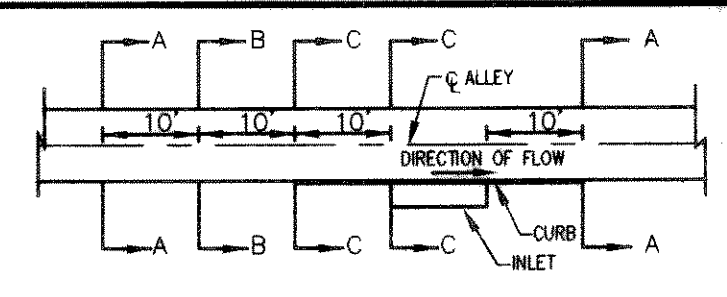
PAVING TANGENT DATA

| TANGENT | BEARING | LENGTH |
|---------|-------------|---------|
| T1 | S48°01'00"E | 316.61' |
| T2 | S40°16'00"E | 381.40' |
| T3 | S25°48'00"E | 82.08' |

LUMBERMEN'S INVESTMENT CORPORATION

PAVING CURVE DATA

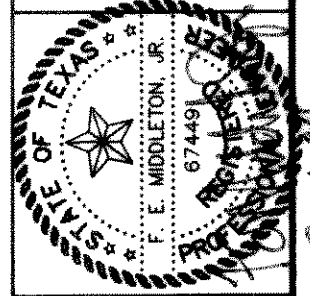
| CURVE | DELTA | RADIUS | TANGENT | LENGTH | BEARING | CHORD |
|-------|-----------|---------|---------|---------|-------------|---------|
| C-1 | 07°45'00" | 750.00' | 50.80' | 101.46' | S44°08'30"E | 101.37' |
| C-2 | 14°28'00" | 500.00' | 63.46' | 126.24' | S33°02'00"E | 125.91' |



LEGEND

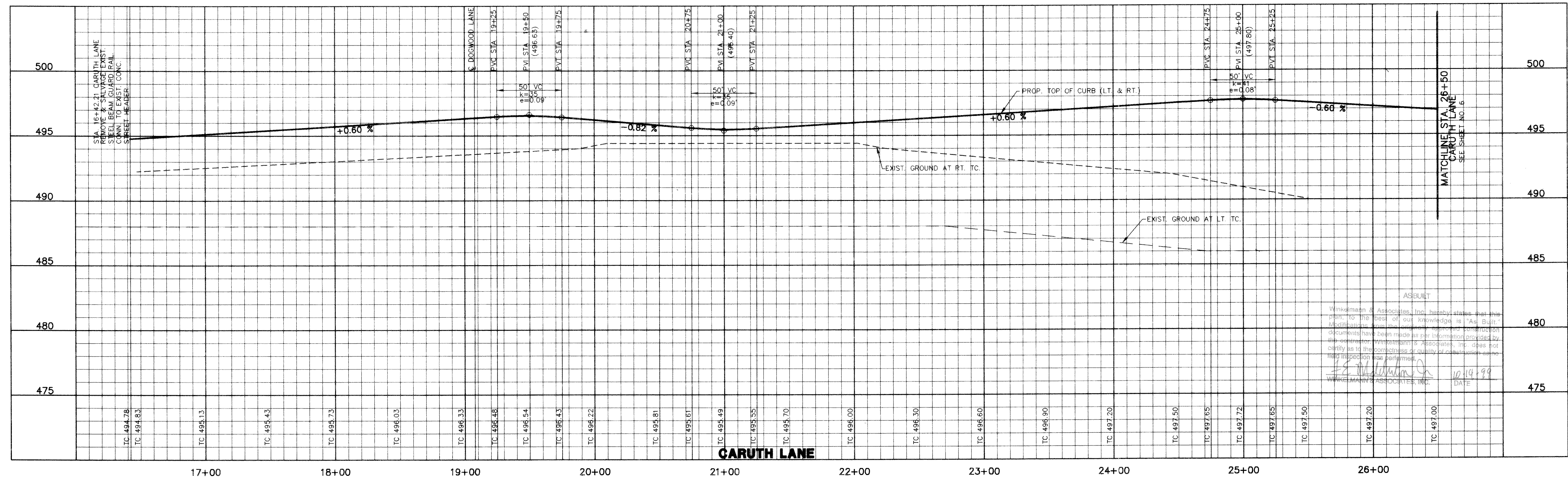
| | |
|-----|-----------------|
| TP | TOP OF PAVING |
| TC | TOP OF CURB |
| INV | INVERT |
| VG | VALLEY GUTTER |
| CR | CURB RETURN |
| 2 | STREET STATION |
| --- | EXIST. PAVEMENT |
| ⊙ | STORM STATION |

Winkelmann & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
1500 West Loop South, Suite 100
Dallas, Texas 75240
(972) 242-2211



CARUTH LAKE PHASE FIVE
S.S. McCURRY SURVEY, ABSTRACT NO. 146
M.B. JONES SURVEY, ABSTRACT NO. 122
ROCKWALL COUNTY, TEXAS
LUMBERMEN'S INVESTMENT CORPORATION
5495 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

PAVING & DRAINAGE PLAN / PAVING PROFILE
CARUTH LANE STA. 16+42.21 TO STA. 26+50

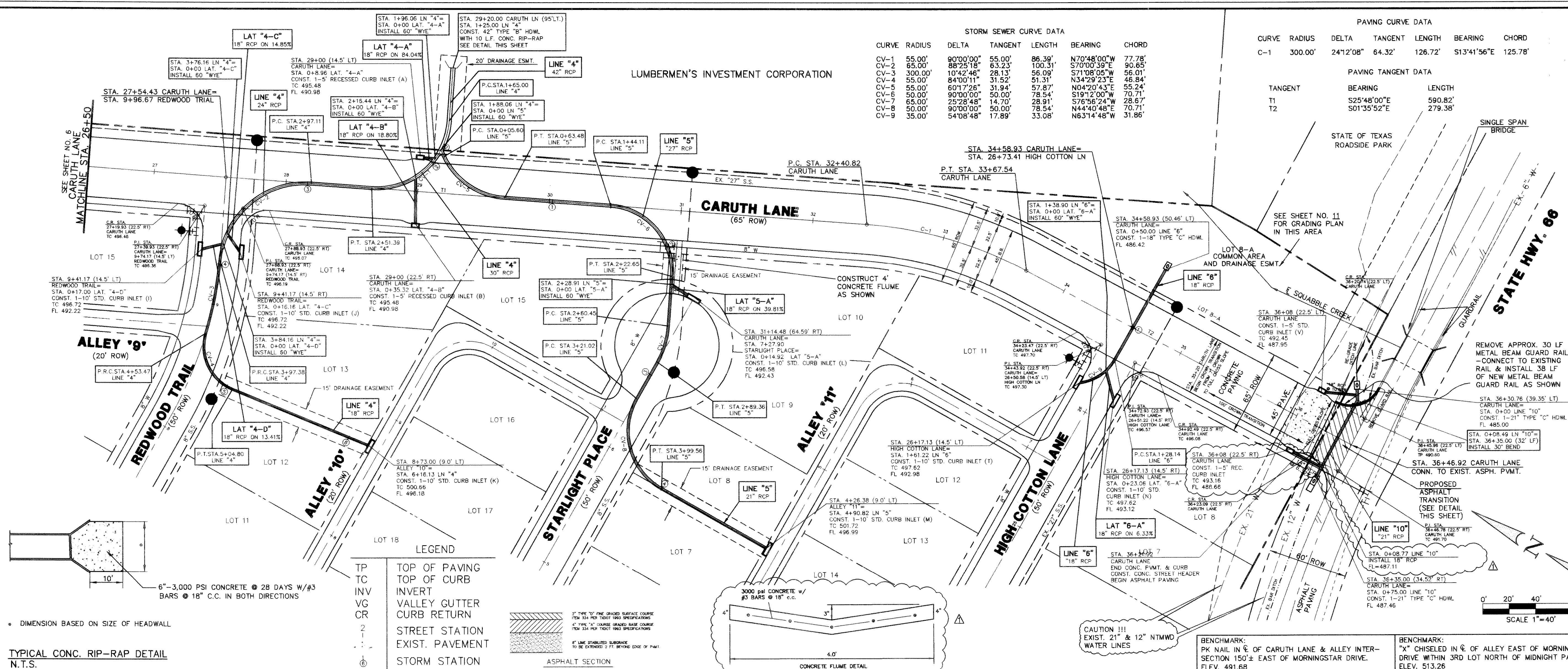


ASBUILT
Winkelmann & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As Built" and does not represent any construction documents. Winkelmann & Associates, Inc. does not certify as to the correctness or quality of construction unless inspection was performed.
WINKELMANN & ASSOCIATES, INC. DATE: 10-19-99

Scale: H: 1"=40' V: 1"=4' Date: 5/28/98
Designed By: RB / RG
Drawn By: MK / XG
Checked By: P.E.M.
File: 14633P32.DWG
Project No.: 14633.01

SHEET
6
OF
31

C:\RUSSELL\146530\33.dwg Thu Jun 03 10:53:25 1999 RUSSELL



STORM SEWER CURVE DATA

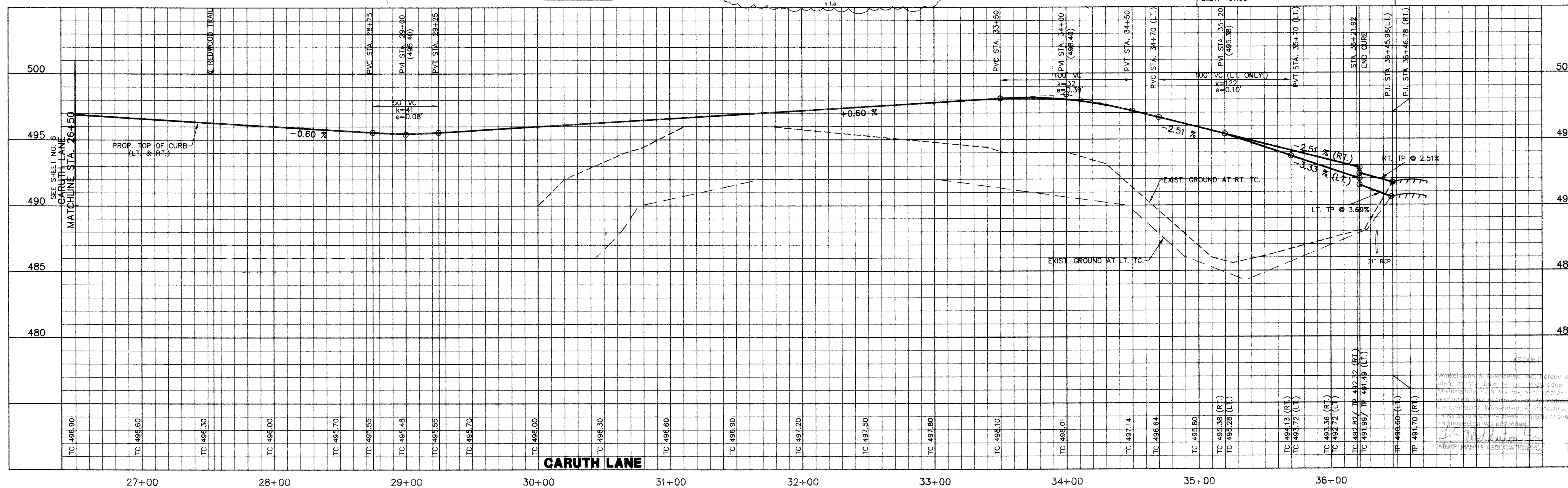
| CURVE | RADIUS | DELTA | TANGENT | LENGTH | BEARING | CHORD |
|-------|---------|-----------|---------|---------|-------------|--------|
| CV-1 | 55.00' | 90°00'00" | 55.00' | 96.39' | N70°48'00"W | 77.78' |
| CV-2 | 65.00' | 88°25'18" | 63.23' | 100.31' | S70°00'35"W | 20.65' |
| CV-3 | 300.00' | 10°42'46" | 28.13' | 56.09' | S71°08'05"W | 56.01' |
| CV-4 | 55.00' | 84°00'11" | 31.52' | 51.31' | N34°29'23"E | 46.84' |
| CV-5 | 55.00' | 60°17'26" | 31.94' | 57.87' | N04°20'43"E | 55.24' |
| CV-6 | 50.00' | 90°00'00" | 50.00' | 78.54' | S19°12'00"W | 70.71' |
| CV-7 | 65.00' | 25°28'48" | 14.70' | 28.91' | S76°56'24"W | 28.67' |
| CV-8 | 50.00' | 90°00'00" | 50.00' | 78.54' | N44°40'48"E | 70.71' |
| CV-9 | 35.00' | 54°08'48" | 17.89' | 33.08' | N63°14'48"W | 31.86' |

PAVING CURVE DATA

| CURVE | RADIUS | DELTA | TANGENT | LENGTH | BEARING | CHORD |
|-------|---------|-----------|---------|---------|-------------|---------|
| C-1 | 300.00' | 24°12'08" | 64.32' | 126.72' | S13°41'56"E | 125.78' |

PAVING TANGENT DATA

| TANGENT | BEARING | LENGTH |
|---------|-------------|---------|
| T1 | S25°48'00"E | 590.82' |
| T2 | S01°35'00"E | 279.38' |



APPROVALS

| NO. | DATE | REVISION | APPROV. |
|--------|------|--------------------------|---------|
| 6/3/99 | | ADDED 5' REC. CURB INLET | |

Winkelmann & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
12000 Wilshire Blvd. Suite 200
Beverly Hills, Texas 75228
(972) 462-0999 FAX

STATE OF TEXAS
COUNTY OF ROCKWALL
CITY OF ROCKWALL

SEE SHEET NO. 11 FOR GRADING PLAN IN THIS AREA

STATE HWY. 66

REMOVE APPROX. 30 LF METAL BEAM GUARD RAIL - CONNECT TO EXISTING RAIL & INSTALL 38 LF OF NEW METAL BEAM GUARD RAIL AS SHOWN

PROPOSED ASPHALT TRANSITION (SEE DETAIL THIS SHEET)

CAUTION!!! EXIST. 21" & 12" NTMWD WATER LINES

BENCHMARK: PK NAIL IN C OF CARUTH LANE & ALLEY INTERSECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

BENCHMARK: "X" CHISELED IN C OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26

SCALE 1"=40'

PAVING & DRAINAGE PLAN / PAVING PROFILE
CARUTH LANE STA. 26+50 TO STA. 36+46.92

Scale: 1"=40' Date: 6/28/99
Designed By: RB
Drawn By: MK
Checked By: J.F.E.M.
File: 146530\33.DWG
Project No.: 146530.01

Winkelmann & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As Built". Modifications from the original approved construction plan to this plan were made by the undersigned. Winkelmann & Associates, Inc. does not warrant or assume any responsibility for the accuracy or quality of construction as no independent verification was performed.

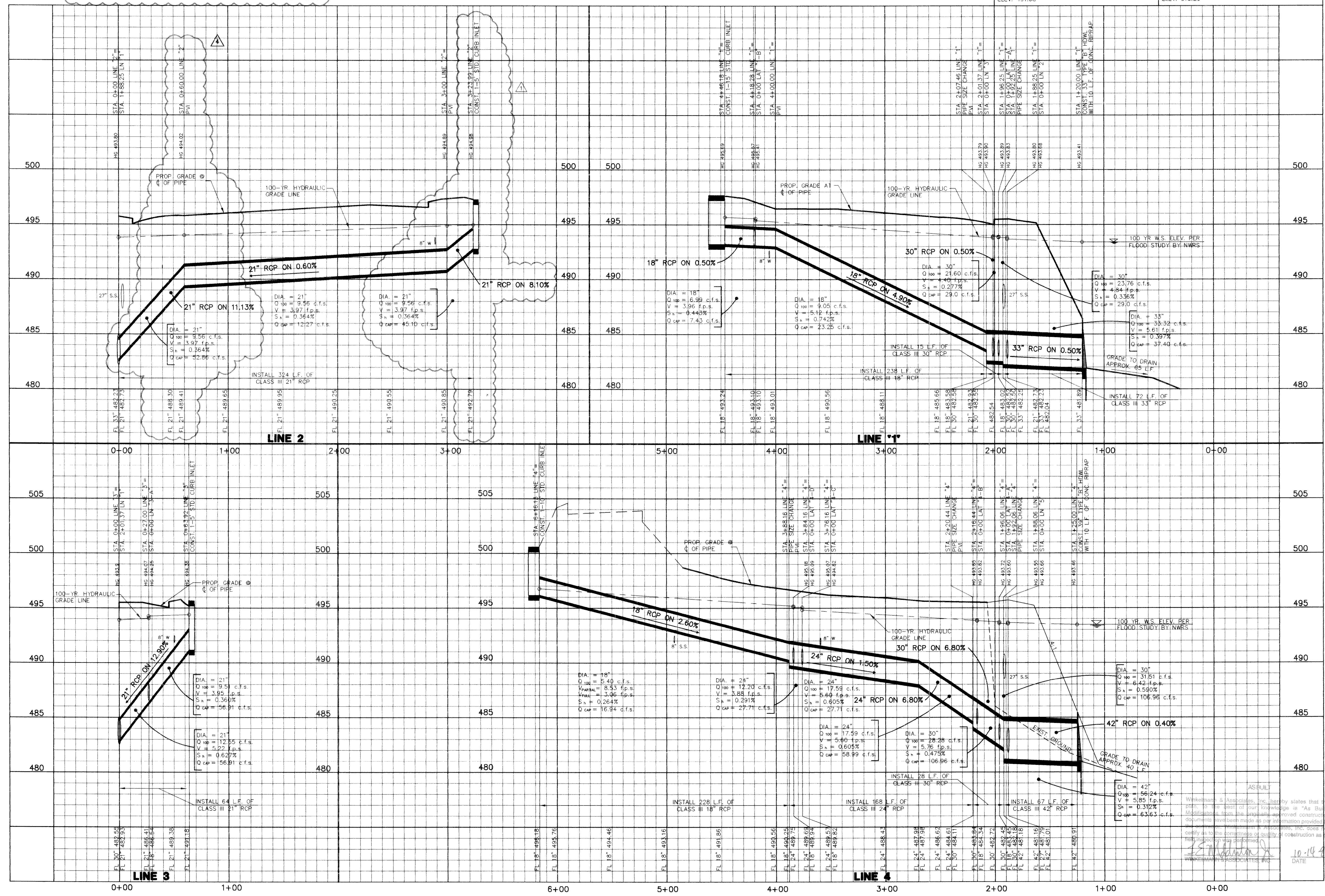
10-19-99
DATE

SHEET 7 OF 31

| | | | |
|---------|------------------------|----------|---------|
| 8/18/98 | FIELD REVISIONS | | |
| 7/23/98 | REVISED LINE 2 PROFILE | | |
| NO. | DATE | REVISION | APPROV. |

BENCHMARK:
PK NAIL IN ☐ OF CARUTH LANE & ALLEY INTER-SECTION 150'± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

BENCHMARK:
"X" CHISELED IN ☐ OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.26



Winkelmann & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
17800 HOLBERT ROAD, SUITE 200
DALLAS, TEXAS 75240
(972) 467-7000 FAX

STATE OF TEXAS
KELVIN F. GOMEZ
REGISTERED PROFESSIONAL ENGINEER
NO. 10880

CARUTH LAKE PHASE FIVE PLOT NO. 146
M.B. JONES SURVEY, ABSTRACT NO. 122
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
LUMBERMAN'S INVESTMENT CORPORATION
5492 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

STORM SEWER PROFILES
LINE 1, LINE 2, LINE 3 & LINE 4

Scale: 1" = 4' V, 1" = 40' H Date: 8/7/98
Designed By: K.G.
Drawn By: MK
Checked By: F.E.M.
File: 146335T5.DWG
Project No.: 14633.01

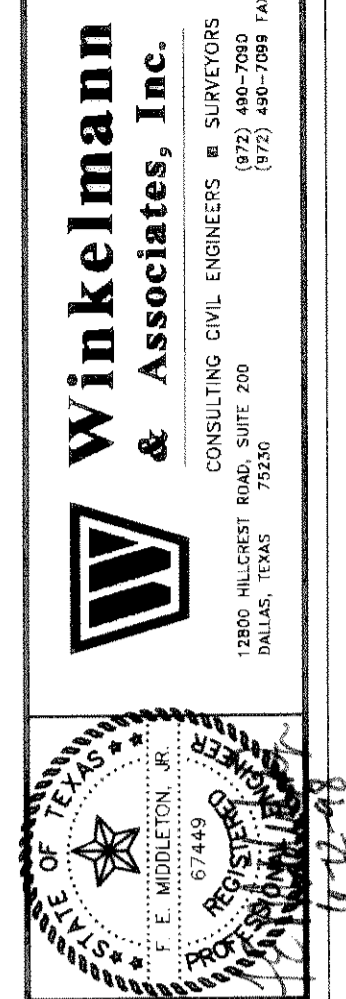
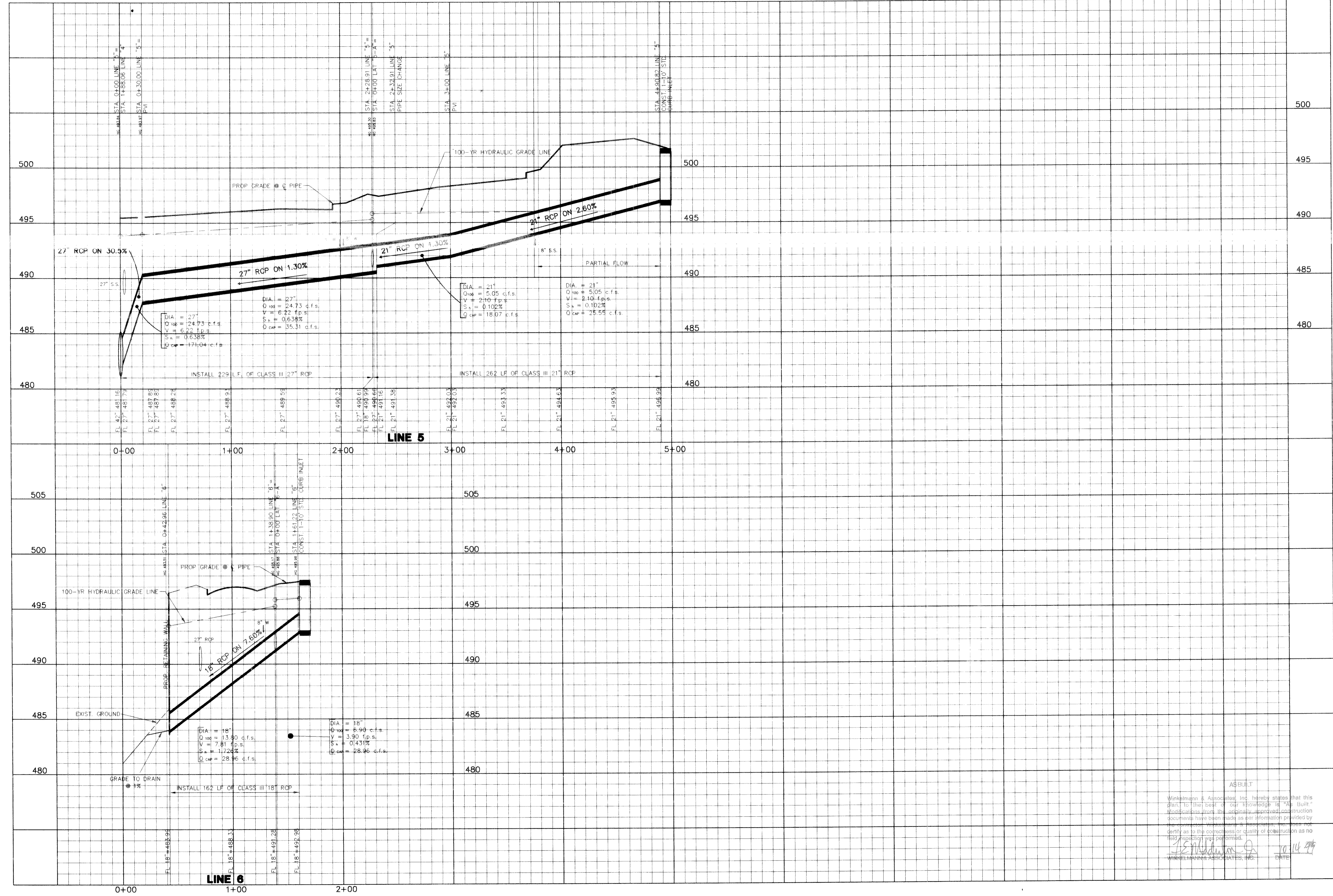
Winkelmann & Associates, Inc. hereby states that this plan is the best of our knowledge as "As Built" Modifications from the previously approved construction documents have been made as per information provided by the Lumberman's Investment Corporation, Inc. does not certify as to the correctness or quality of construction as no field inspection was performed.

10-14-99
DATE

15
31

BENCHMARK:
PK NAIL IN C OF CARUTH LANE & ALLEY INTER-
SECTION 150'± EAST OF MORNINGSTAR DRIVE.
ELEV. 491.68

BENCHMARK:
"X" CHISELED IN C OF ALLEY EAST OF MORNINGSTAR
DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS.
ELEV. 513.26



Winkelman & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
1200 HILLCREST ROAD, SUITE 200
DALLAS, TEXAS 75205
(972) 480-7202
(972) 480-7204 FAX

PROJECT: CARUTH LANE PROJECT
S.S. ARCHITECTURE PROJECT NO. 146
M.B. JONES SURVEY, ABSTRACT NO. 122
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

LUMBERMEN'S INVESTMENT CORPORATION
5445 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

**STORM SEWER PROFILES
LINE 5 & LINE 6**

Scale: 1"=20'
Designed By: K.G./N.K.
Drawn By: N.K.
Checked By: K.G.
File: I4633ST2.DWG
Project No.: I4633.01

ASBUILT

Winkelman & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As Built" modifications from the originally approved construction documents have been made as per information provided by the contractor. Winkelman & Associates, Inc. does not warrant as to the correctness or quality of construction as no field inspection was performed.

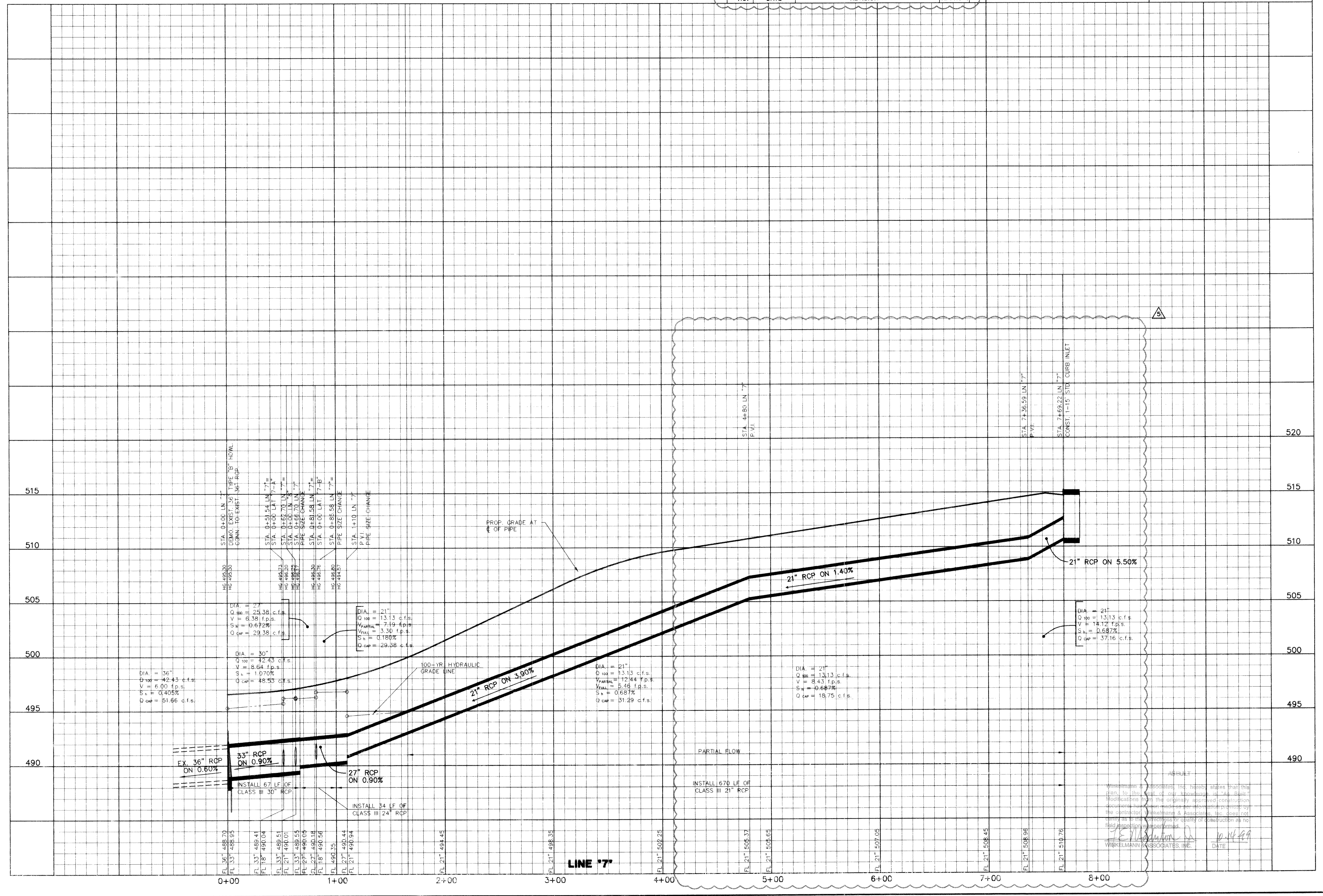
[Signature]
WINKELMAN & ASSOCIATES, INC. DATE: 10/14/99

C:\WORK\14633516 Tue Aug 25 19 51:04 1999

| NO. | DATE | REVISION | APPROV. |
|-----|---------|------------------------------------|---------|
| 5 | 8/25/98 | REVISED LINE 7 PER FIELD REVISIONS | |

BENCHMARK:
PK NAIL IN $\frac{1}{4}$ OF CARUTH LANE & ALLEY INTER-SECTION 150' ± EAST OF MORNINGSTAR DRIVE. ELEV. 491.68

BENCHMARK:
"X" CHISEL IN $\frac{1}{4}$ OF ALLEY EAST OF MORNINGSTAR DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS. ELEV. 513.28



DIA = 36"
Q₁₀₀ = 42.43 c.f.s.
V = 6.00 f.p.s.
S_a = 0.405%
Q_{cap} = 51.66 c.f.s.

DIA = 30"
Q₁₀₀ = 42.43 c.f.s.
V = 8.64 f.p.s.
S_a = 1.070%
Q_{cap} = 48.93 c.f.s.

DIA = 27"
Q₁₀₀ = 13.13 c.f.s.
V = 7.19 f.p.s.
S_a = 3.30 f.p.s.
Q_{cap} = 29.38 c.f.s.

DIA = 21"
Q₁₀₀ = 13.13 c.f.s.
V = 12.44 f.p.s.
S_a = 5.46 f.p.s.
Q_{cap} = 31.29 c.f.s.

DIA = 21"
Q₁₀₀ = 13.13 c.f.s.
V = 8.43 f.p.s.
S_a = 0.687%
Q_{cap} = 18.75 c.f.s.

DIA = 21"
Q₁₀₀ = 13.13 c.f.s.
V = 14.12 f.p.s.
S_a = 0.687%
Q_{cap} = 37.16 c.f.s.

EX. 36" RCP ON 0.60%

33" RCP ON 0.90%

27" RCP ON 0.90%

21" RCP ON 3.90%

21" RCP ON 1.40%

21" RCP ON 5.50%

INSTALL 67 LF OF CLASS III 30" RCP

INSTALL 34 LF OF CLASS III 24" RCP

INSTALL 670 LF OF CLASS III 21" RCP

LINE #7

Winkelman & Associates, Inc. hereby states that this plan to the best of our knowledge is a "Built" Modification from the originally approved construction documents. Winkelman & Associates, Inc. does not warrant the accuracy or quality of construction as no field inspection was performed.

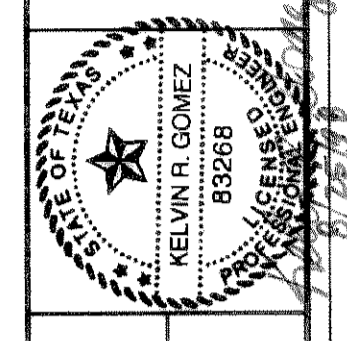
[Signature]
WINKELMANN & ASSOCIATES, INC. DATE: 10-14-99

Scale: 1"=4' Date: 8/25/98
Designed By: K.G.
Drawn By: K.G.
Checked By: W.A.I.
File: 14633516.DWG
Project No.: 14633.01

SHEET 17 OF 31

CARUTH LAKE PHASE FIVE
S.S. MERCURY SURVEY, ABSTRACT NO. 146
M.B. JONES SURVEY, ABSTRACT NO. 122
ROCKWALL COUNTY, TEXAS

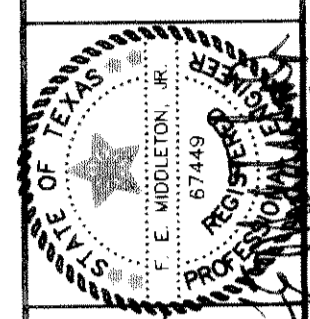
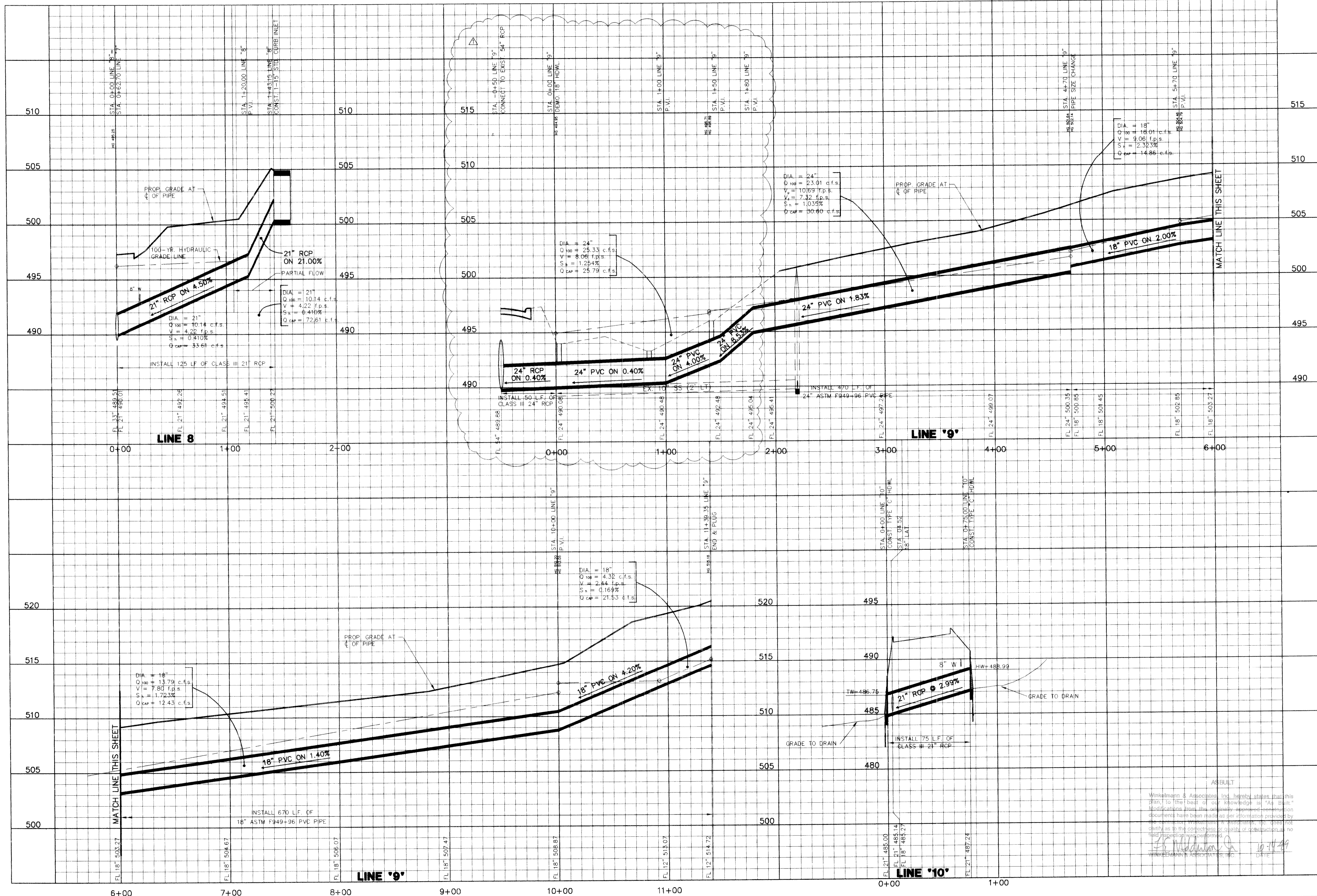
LUMBERMEN'S INVESTMENT CORPORATION
5405 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75246



Winkelman & Associates, Inc.
CONSULTING CIVIL ENGINEERS & SURVEYORS
1400 W. HILL STREET, SUITE 200
DALLAS, TEXAS 75203
(972) 802-7299 FAX

BENCHMARK:
PK NAIL IN C OF CARUTH LANE & ALLEY INTER-
SECTION 150'± EAST OF MORNINGSTAR DRIVE.
ELEV. 491.68

BENCHMARK:
"X" CHISELED IN C OF ALLEY EAST OF MORNINGSTAR
DRIVE WITHIN 3RD LOT NORTH OF MIDNIGHT PASS.
ELEV. 513.26



CARUTH LAKE PRELIMINARY NO. 146
S.E. MOORE SURVEY, ABSTRACT NO. 122
CITY OF ROCKWALL, TEXAS
ROCKWALL COUNTY, TEXAS

LUMBERMEN'S INVESTMENT CORPORATION
5495 BELLEVUE ROAD, SUITE 225
DALLAS, TEXAS 75240

**STORM SEWER PROFILES
LINE 8 & LINE 9**

Scale: 1"=40' Date: 12-19-97
Designed By: K.G.
Drawn By: K.G.
Checked By: F.E.M.
File: 1463351-4.DWG
Project No: 1463351

Winkelmann & Associates, Inc. hereby states that this plan, to the best of our knowledge is "As Built." Modifications from the previously approved construction documents have been made as per information provided by the contractor. Winkelman & Associates, Inc. does not certify as to the correctness or quality of construction unless field inspection was performed.

F. E. Winkelman
WINKELMANN & ASSOCIATES, INC.
DATE: 10-17-99