

Note: See Sheet No. 3
for list of Standard
Drawings, Index of
Sheets and Line Data.
Scales = As Shown.

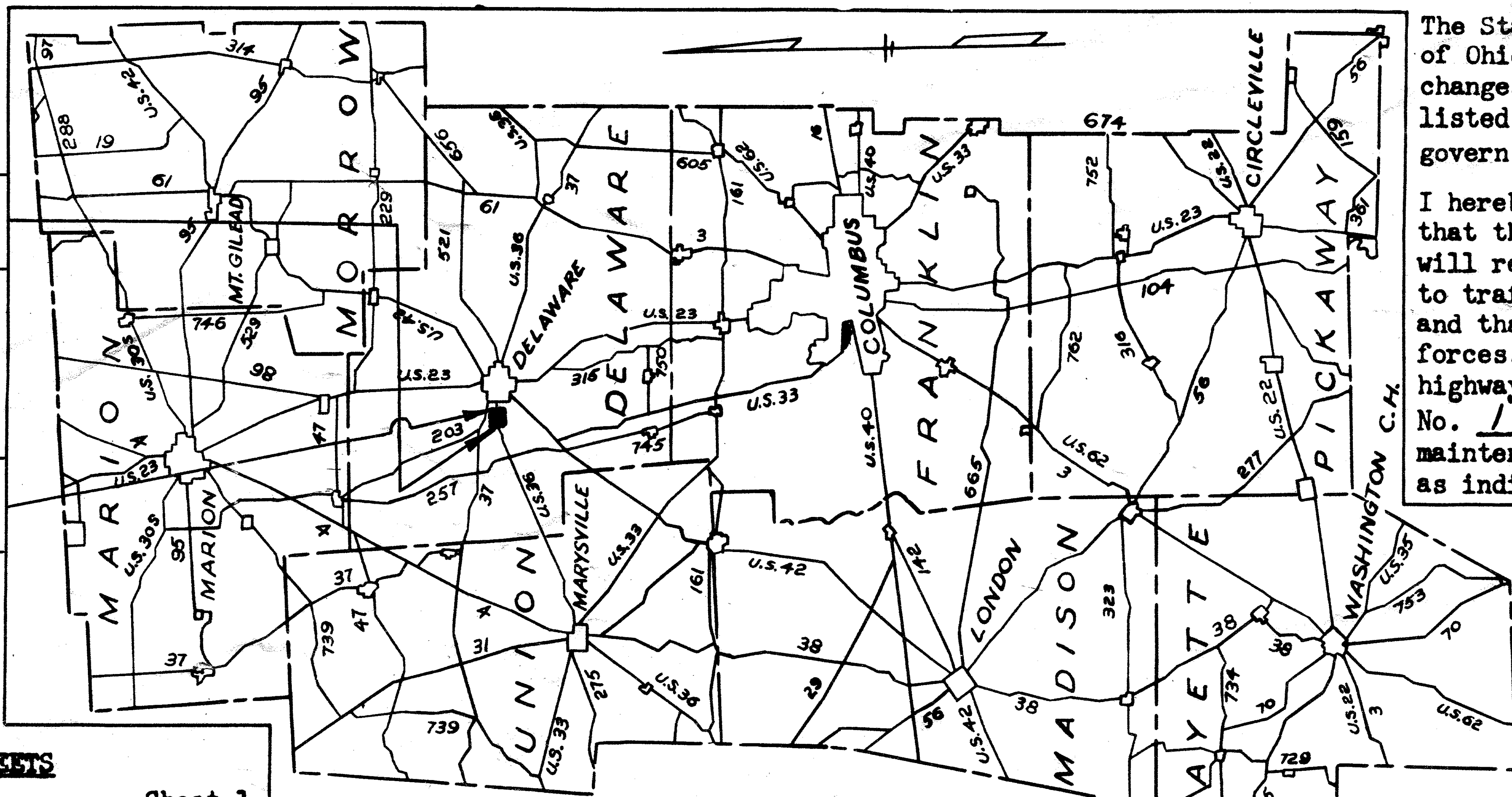
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DEL-36-7.87
DELAWARE COUNTY
DELAWARE TOWNSHIP

1
13

923-56
Inv. 442

Begin Project
Sta. 416+25

End Project
Sta. 421+00



The Standard Specifications of the State of Ohio, Department of Highways, including changes and Supplemental Specifications listed in the plans and proposals, shall govern these improvements.

I hereby approve these plans and declare that the making of these improvements will require the closing of the highways to traffic on Proposals No. _____ and that detours will be provided by State forces. The closing to traffic of the highways will not be required on Proposals No. 1 and provisions for the maintenance and safety of traffic will be as indicated in the proposal.

Approved [Signature]
Division Engineer
Date 8-13-56

Approved [Signature]
Engineer of Maintenance
Date 8-30-56

Approved [Signature]
Dep. Dir. Div. of Operations
Date 8-30-56

Approved [Signature]
First Assistant Director
Date 8-31-56

Approved [Signature]
Director of Highways
Date 9-5-56

INDEX OF SHEETS

Title Sheet Sheet 1
Typical Section and Summaries,
2 to _____ inc.

SUPPLEMENTAL SPECIFICATIONS

B-119 6-30-56
L-209.12 7-17-54

Delivery Point
Delaware

LOCATION PLAN



SCALE IN MILES

PORTION TO BE IMPROVED [Thick black line]

Average Haul
1.6 Miles

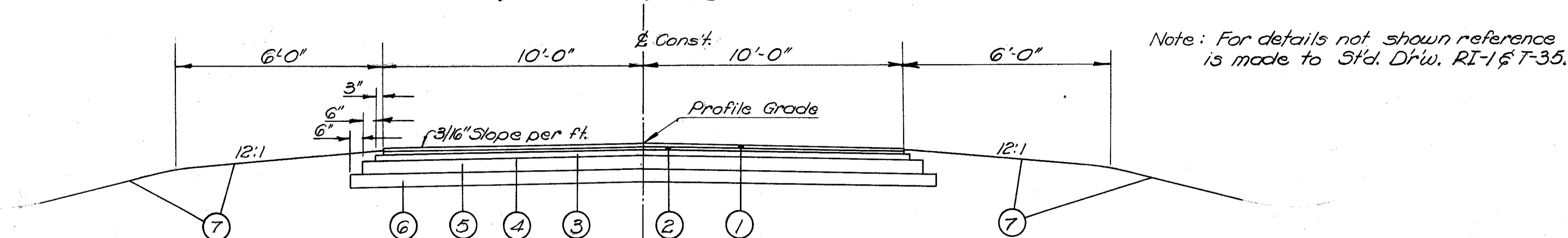
171

[Handwritten initials]

TYPICAL SECTION

TYPE T-35

G-7



Limiting Stations

Sta. 416+25.00 to Sta. 421+00.00	=	475.00 Lin. Ft.
Deduct Station Equation	=	0.19 Lin. Ft.
Total	=	474.81 Lin. Ft.

- | | | | |
|-------------|---|--------------|----------------------------------|
| ① Item T-35 | 1 1/4" Asphaltic Concrete Surface Course Type "A" (70-80) | ⑤ Item B-119 | 6" Crushed Aggregate Base Course |
| ② Item B-35 | 1 1/4" Asphaltic Concrete Leveling Course (70-80) | ⑥ Item I-22 | 6" Subbase |
| ③ Item B-35 | 3" Asphaltic Concrete Base Course (70-80) | ⑦ Item L-9 | Seeding and Protecting. |
| ④ Item T-30 | Bituminous Prime Coat, as per Sec. M-5.2, RC-1 or RC-2 or Sec. M-5.7, RT-2 or RT-3 applied at the rate of 0.35 Gal./Sq. Yd. | | |

UTILITIES~

Any and all work required for removing, relocating and construction of new facilities for private or public utilities will be done by and at the expense of the respective owners unless otherwise noted on the plans.

COMMERICAL FERTILIZER~

All areas to be seeded or sodded shall have commercial fertilizer (10-6-4) applied at the rate of twenty (20) pounds per 1000 sq. ft.

ROUNDING OF CORNERS ON CROSS SECTIONS~

The rounded corners, shown on the typical section, apply to all cross sections even though otherwise shown in these plans.

SPECIAL DITCHES~

Special ditch grades are shown on the cross sections.

PAVED DRIVES~

The drives at Sta. 420+58 and +59 shall be paved with Item B-119. The subgrade under these drives shall be compacted to a depth of six (6) inches to the density requirements in table III, Item E-1. Payment for subgrade compaction under these drives as specified above shall be included in the unit price bid for Item E1 Roadway Excavation.

UTILITIES OWNERSHIP
Northern Ohio Telephone Co.
E. Central Ave.
Delaware, Ohio

Columbus & Southern
Ohio Electric Co.
N. Sandusky Street
Delaware, Ohio

SEEDING AND PROTECTING~

Quantities for seeding are estimated for the soil areas within construction limits as shown on the cross sections and payment shall not be made for seeding beyond these limits. Areas outside construction limits where the Engineer determines that the existing grass areas have been disturbed by construction operations shall be seeded in accordance with Section G-7.09 at the Contractor's expense.

CONNECTING DRAINS~

Existing farm drains that are cut or intercepted by the new drainage system shall be connected to the new drainage system. Connections are to be made where and as directed by the engineer. A quantity of 10' Lin. Ft. of 4" I-3 pipe for roadway drainage has been provided in the General Summary Sheet No. 3.

MAINTAINING TRAFFIC~

The Item of "Maintaining Traffic" shall include furnishing lights, signs, barricades and watchmen necessary to secure the flow of traffic 24 hours daily.

MAIL BOX TURNOUTS~

If feasible mail box turnouts will be combined with drives and the quantities adjusted by the Engineer. Estimated quantity for one (1) turnout = 30.8' Sq. Yds, Carried to Calculations Sheet No. 3.

TRAFFIC~

The Contractor shall, before work is started on this contract, submit to the Director for approval a schedule of operations. Two-way traffic shall be maintained at all times except, while constructing the transition between Stations 415+50 to 416+25 & 421+00 to 421+75 and the intersection with Houck Road, where one-way traffic will be permitted consistent with the requirements of Sec. T-35.23.

During the construction of the east bound lane of proposed pavement, the run-around road shall be built utilizing as much as possible the existing west bound pavement. During the construction of the proposed west bound lane, the run-around road shall be built utilizing as much as possible the proposed east bound pavement. The run-around roads shall be of Item T-10 aggregate and built in accordance with the specifications for Item S-15.

Any excavation which is necessary to construct run-around roads and which is outside the proposed permanent slope shall be replaced in such a manner that the finish slope shall substantially conform with the permanent cross sections. All replaced embankment shall be constructed according to Item E-1.

An estimated quantity of 775 Cu. Yds of S-15 Traffic Compacted Surface Course and 16 Tons of S-15 Calcium Chloride or Calcium Magnesium Chloride has been provided for run-around roads and for "Maintaining Local Traffic" as per Sec. G-4.05 of the Specifications.

DEL-36-7.87

CALCULATIONS

	Deduct for Station Equation	=	0.19 Lin. Ft.
	From Typical Section:		
	Sta. 416+25 to 421+00	=	475 Lin. Ft.
		=	474.81 Lin. Ft.
T-35	Asphaltic Concrete Surface Course, Type "A" (70-80)		
	(474.81 x 20 ÷ 9) 1.25 ÷ 36 (Typical Sec.)	=	36.64 Cu. Yds.
	Add for Intersection, Sta. 417+41.03	=	13.00 Cu. Yds.
	Add for Transitions	=	8.3 Cu. Yds.
	Total T-35	=	57.94 Cu. Yds.
B-35	Asphaltic Concrete Leveling Course		
	(474.81 x 20 ÷ 9) 1.25 ÷ 36 (Typical Sec.)	=	36.64 Cu. Yds.
	Add for Intersection, Sta. 417+41.03	=	20.71 Cu. Yds.
	Add for Transitions	=	2.3 Cu. Yds.
	Total B-35	=	59.65 Cu. Yds.
B-35	Asphaltic Concrete Base Course		
	(474.81 x 20.5 ÷ 9) 3 ÷ 36 (Typical Sec.)	=	90.13 Cu. Yds.
	Add for Transitions	=	2.2 Cu. Yds.
	Total B-35	=	92.33 Cu. Yds.
T-30	Bituminous Prime Coat		
	(474.81 x 20.5 ÷ 9) x 0.35 (Typical Sec.)	=	378.53 Gal.
	Add for Intersection, Sta. 417+41.03	=	135.24 Gal.
	Total T-30	=	513.77 Gal.
B-119	Crushed Aggregate Base Course		
	(474.81 x 21.5 ÷ 9) x 6 ÷ 36	=	189.04 Cu. Yds.
	Add for 6" Thick drive, 420+59, Lt. (71.1) x 6 ÷ 36	=	11.85 Cu. Yds.
	Add for 8" Thick drive, Sta. 420+58 Rt.		
	Add for Mail box turnouts		
	(30.8 + 81.4) 8 ÷ 36	=	24.93 Cu. Yds.
	Add for Intersection, Sta. 417+41.03	=	62.52 Cu. Yds.
	Add for Transitions	=	5.0 Cu. Yds.
	Total B-119	=	293.34 Cu. Yds.
I-22	Subbase		
	(474.81 x 22.5 ÷ 9) 6 ÷ 36	=	197.84 Cu. Yds.
	Add for Intersection, Sta. 417+41.03	=	31.78 Cu. Yds.
	Add for Transition	=	6.4 Cu. Yds.
	Total I-22	=	236.02 Cu. Yds.
E-1	Compacted Subgrade		
	(474.81 x 20 ÷ 9)	=	1055.13 Sq. Yds.
	Add for Intersection	=	400.28 Sq. Yds.
	Total E-1	=	1455.41 Sq. Yds.
E-11	Water		
	Embankment	=	43 Cu. Yds.
	B-119	=	2.93 Cu. Yds.
	I-22	=	236 Cu. Yds.
	Compacted Subgrade	=	576 Cu. Yds.
	Total	=	1148 Cu. Yds.
	1148 x 0.005	=	5.74 M. Gallons

SUPPLEMENTAL PRINTS OF STANDARD DRAWINGS	
I-1, 2, 3, 4, & 5	2-20-45
L-1	4-1-50
L-3	4-1-50
L-3-A	4-1-50
G-707	6-1-56
RI-1	1-3-55
T-35	1-2-56
DR-1	1-3-55

GENERAL SUMMARY			
ITEM	QUANTITY	UNIT	DESCRIPTION
E-1	2334	Cu. Yds.	Excavation, as per plan
E-1	1455	Sq. Yds.	Compacted Subgrade
E-11	6	M. Gal.	Water
L-9	2815	Sq. Yds.	Seeding and Protecting
L-9	0.25	Tons	Commercial Fertilizer
L-10	175	Sq. Yds.	Sodding
S-15	16	Tons	Furnishing and Applying Calcium Chloride or Calcium Magnesium Chloride.
S-15	775	Cu. Yds.	Furnishing and Placing Aggregate for Traffic Bound Surface Course.
S-15	Lump	Lump Sum	Temporary Run-Around Roads, as per plan.
I-1	44	Lin. Ft.	8" Pipe for Driveways M-6.4 (a)
I-3	10	Lin. Ft.	4" Pipe for Roadway Drainage
I-3	56	Lin. Ft.	8" Pipe for Roadway Drainage
I-3	44	Lin. Ft.	8" Pipe for Roadway Drainage under Pavement or Approaches
E-12	116	Lin. Ft.	Pipe Removed 15" and under
T-35	58	Cu. Yds.	Asphaltic Concrete Surface Course, Type "A" (70-80)
B-35	60	Cu. Yds.	Asphaltic Concrete Leveling Course (70-80)
B-35	92	Cu. Yds.	Asphaltic Concrete Base Course (70-80)
T-30	514	Gals.	Bituminous Prime Coat: Sec. M-5.2, RC-1 or RC-2 or Sec. M-5.7, RT-2 or RT-3.
B-119	293	Cu. Yds.	Crushed Aggregate Base Course
I-22	236	Cu. Yds.	Subbase

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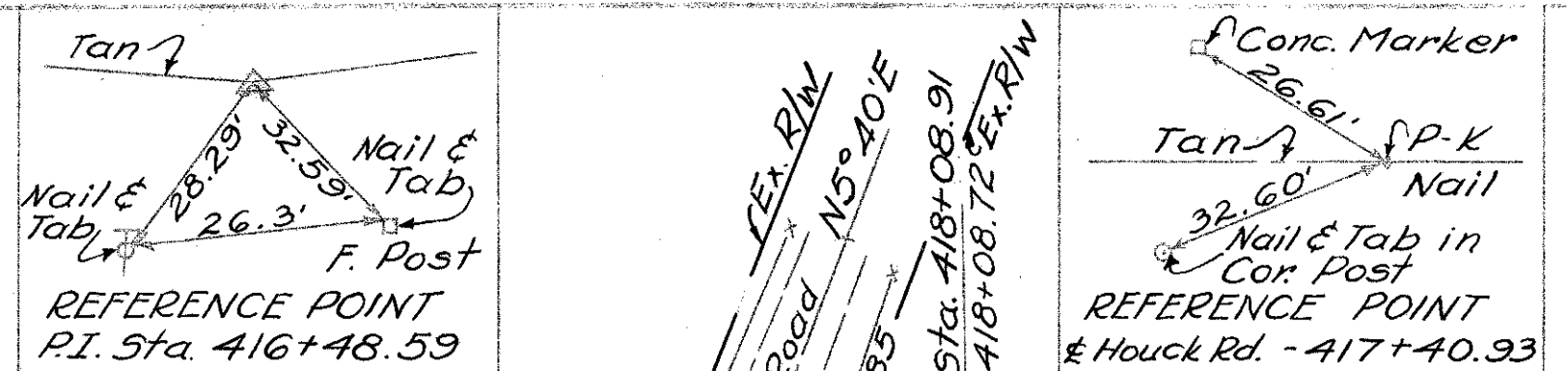
LINE DATA

Begin Project	Sta. 416+25
End Project	Sta. 421+00
Gross Length of Project	= 475.00 Lin. Ft.
Deduct Sta. Equation	= 0.19 Lin. Ft.
Net Length of Project	= 474.81 Lin. Ft. or 0.089 Miles
Begin Work	Sta. 415+25
End Work	Sta. 421+25
Gross Length of Work	= 650.00 Lin. Ft.
Deduct Sta. Equation	= 0.19 Lin. Ft.
Net Length of Work	= 649.81 Lin. Ft. or 0.123 Miles

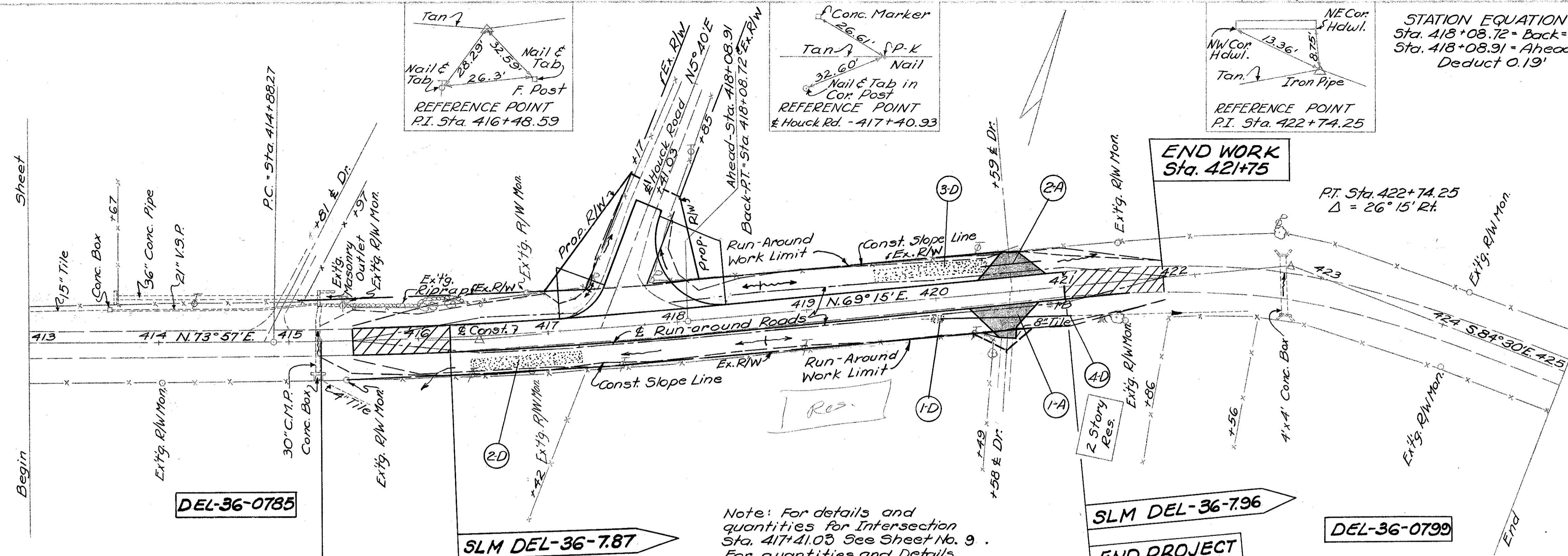
OCT 24 1961
GROUND PHOTOLAB

EARTHWORK
2332-54 = 2278 Cu. Yds Waste

STATION EQUATION
Sta. 413+08.72 = Back =
Sta. 418+08.91 = Ahead =
Deduct 0.19'



REFERENCE POINT
P.I. Sta. 422+74.25



DRIVES & APPROACHES "A"

Ref No	Station	Side	Δ	W	L	A	B	B-119 8"	B-119 6"	I-1 8"
1-A	420+58	Rt	79°	12	25	25	16	81.4		
2-A	420+59	Lt	90°	12	20	20	20		71.1	44
Totals =								*81.4	*71.1	*44

BEGIN WORK Sta. 415+25
BEGIN PROJECT Sta. 416+25

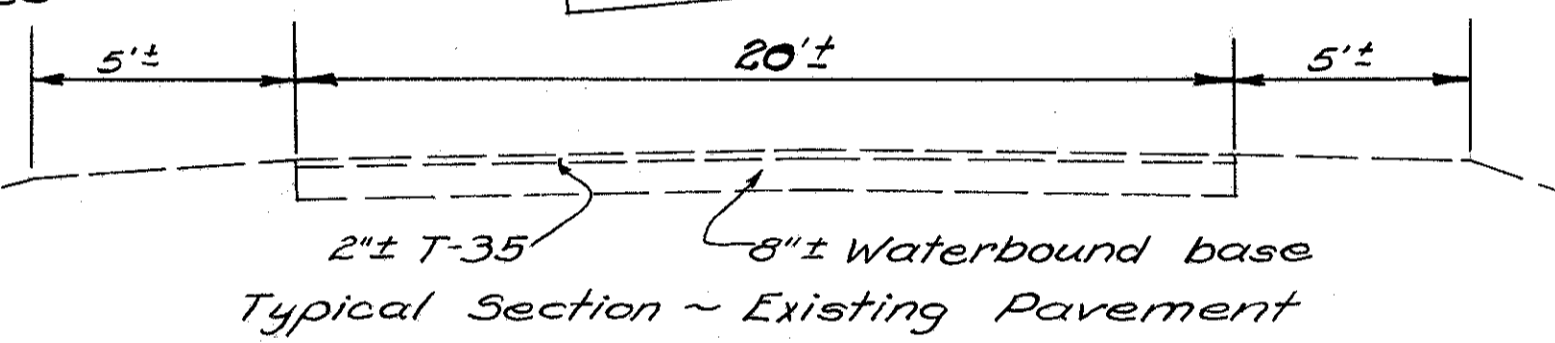
Note: For details and quantities for Intersection Sta. 417+41.03 See Sheet No. 9.
For quantities and details Sta. 415+25 to 416+25 & Sta. 421+00 to 421+75 See Sheet No. 12.

END WORK Sta. 421+75
END PROJECT Sta. 421+00

B.M. Sta. 413+61.5
N.W. cor. of N.W. Headwall, Elev. 933.06

Proposed Curve Data (Construction)
PI = 416+48.59 T = 160.32'
Δ = 4° 42' Lt. L = 320.45'
D = 1° 28' E = 3.29'
R = 3906.53'

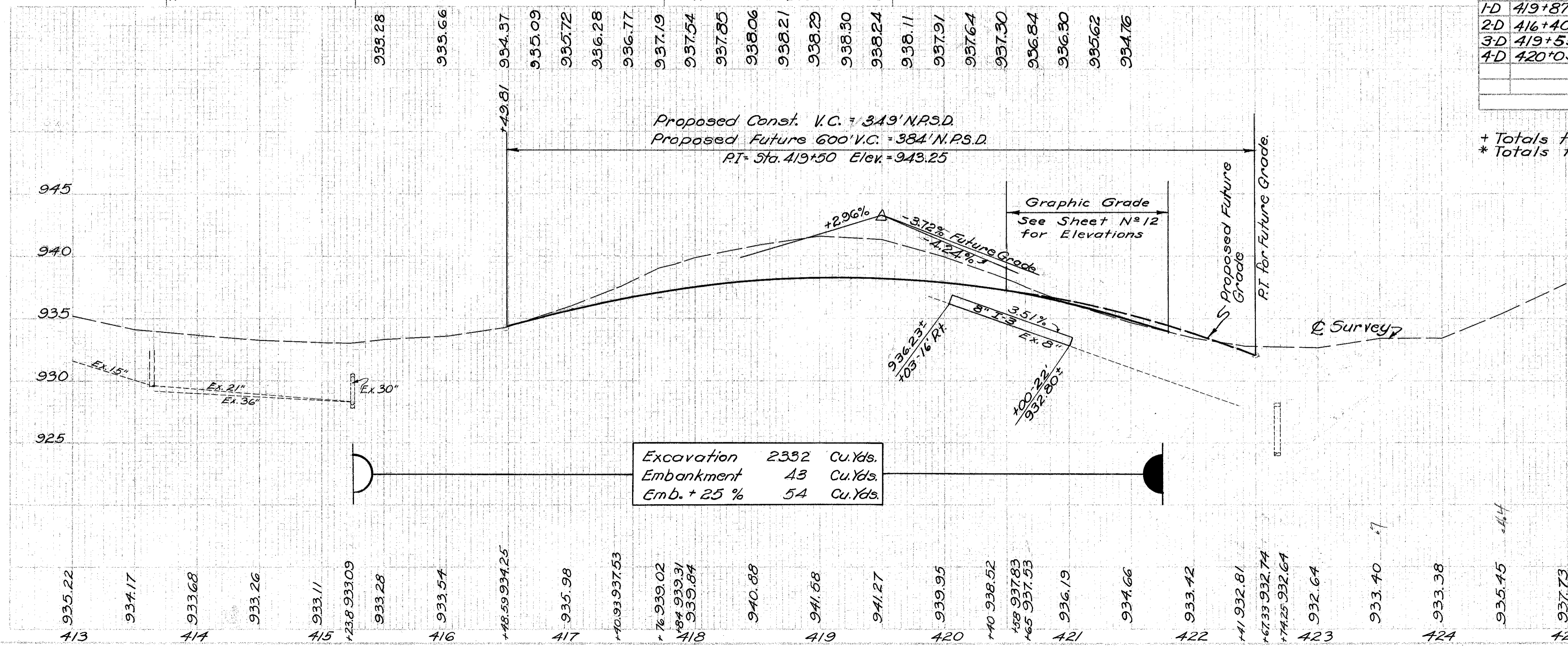
B.M. Top of section marker, Lt. at Houck Rd. Elev. 938.66



DRAINAGE

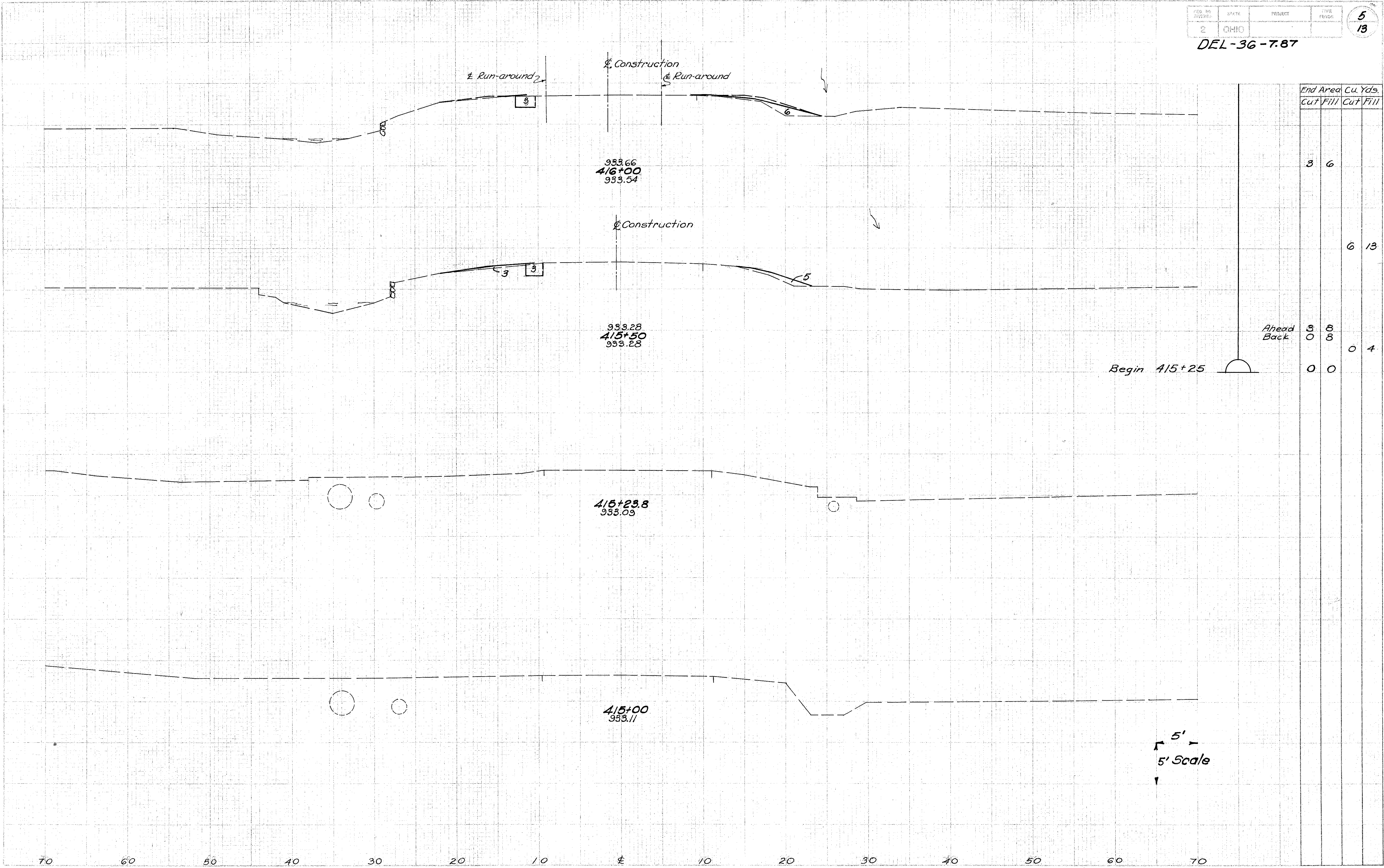
Ref No	Station	Side	E-12 15" Under	L-10 Sod	I-3 8"	I-3 8" pipe under Pavement
1-D	419+87	421+03	Rt.	116		
2-D	416+40	417+25	Rt.		85	
3-D	419+55	420+40	Lt.		85	
4-D	420+03	421+03	Rt.		5	56 44
Totals =			+116	+175	+56	+44

+ Totals to General Summary Sheet No. 3
* Totals to Calculations Sheet No. 3



Excavation 2332 Cu.Yds.
Embankment 43 Cu.Yds.
Emb. + 25% 54 Cu.Yds.

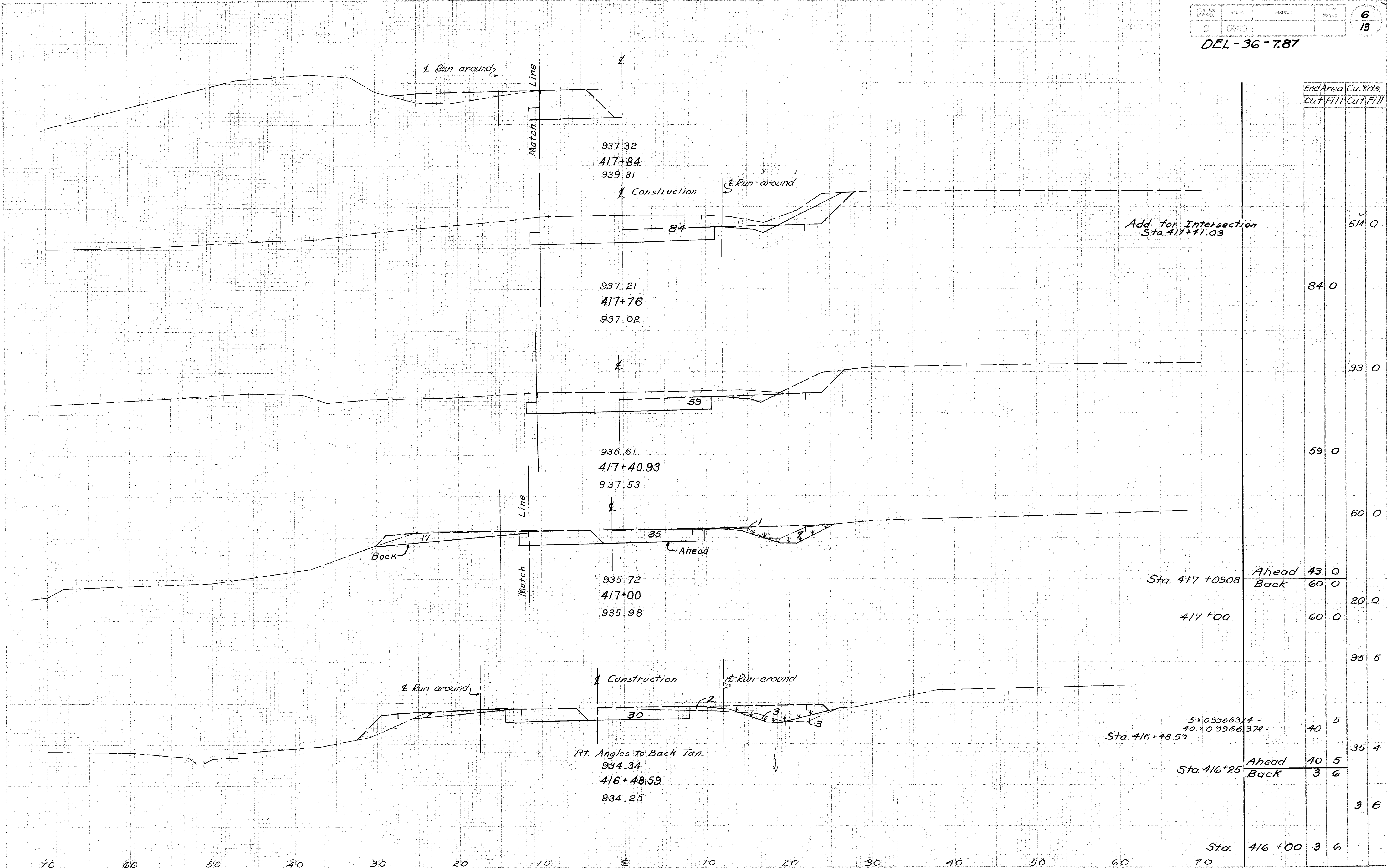
Scale:
Horz. = 1" = 50'
Vert. = 1" = 5'



End Area	Cu. Yds.	
	Cut	Fill
3	6	
	6	13
Ahead	3	8
Back	0	8
		0 4
0	0	

STA. 415+00 To STA. 416+00

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End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
			514 0
84	0		
			93 0
59	0		
			60 0
Ahead	43	0	
Back	60	0	
			20 0
			60 0
			95 5
		40	5
			35 4
Ahead	40	5	
Back	3	6	
			3 6
			3 6
			3 6

Add for Intersection
Sta. 417+71.03

Sta. 417+09.08

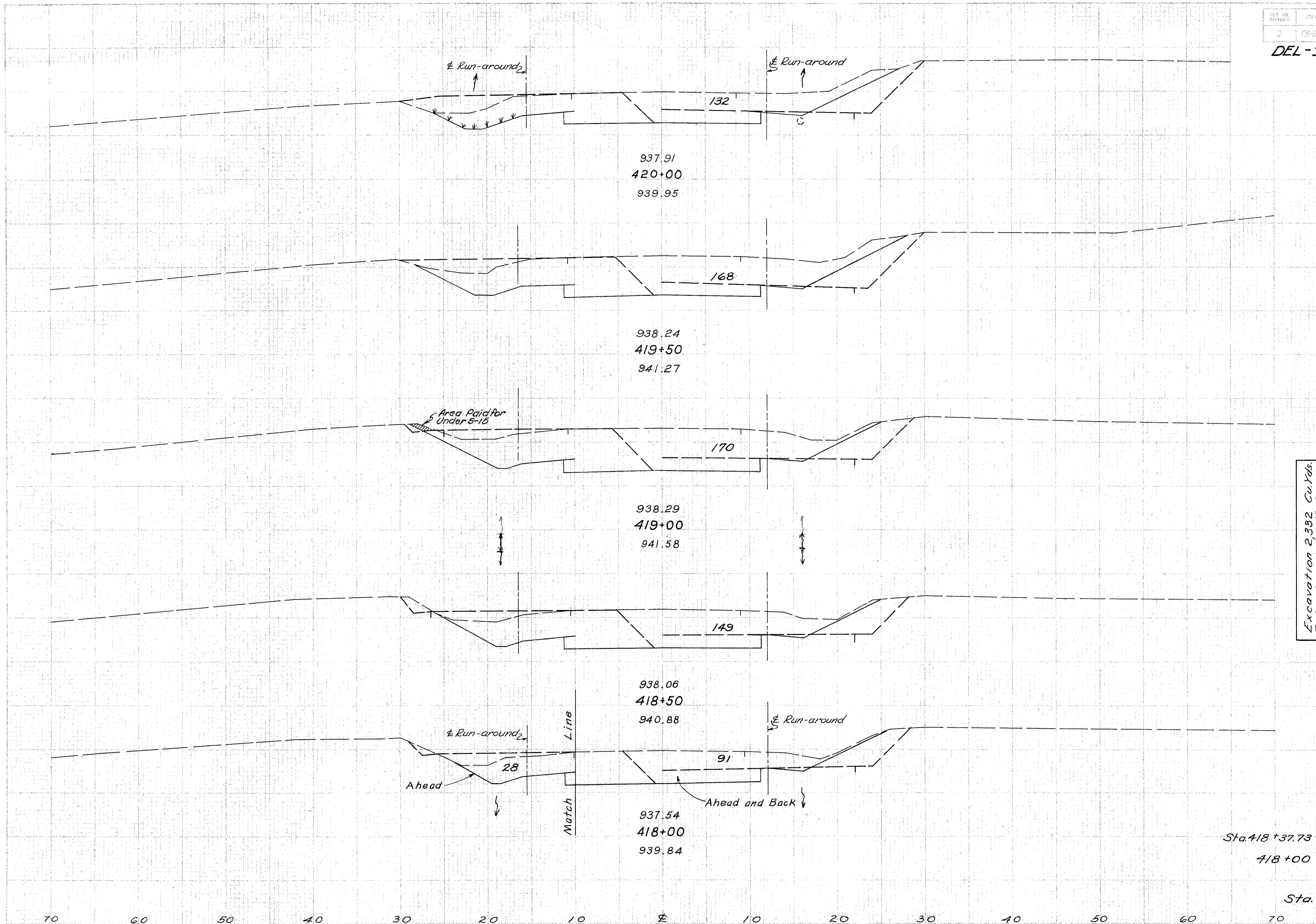
417+00

Sta. 416+48.59
 $5 \times 0.9966374 =$
 $10 \times 0.9966374 =$

Rt. Angles to Back Tan.

Sta. 41 STA. 416+48.59 To STA. 417+84

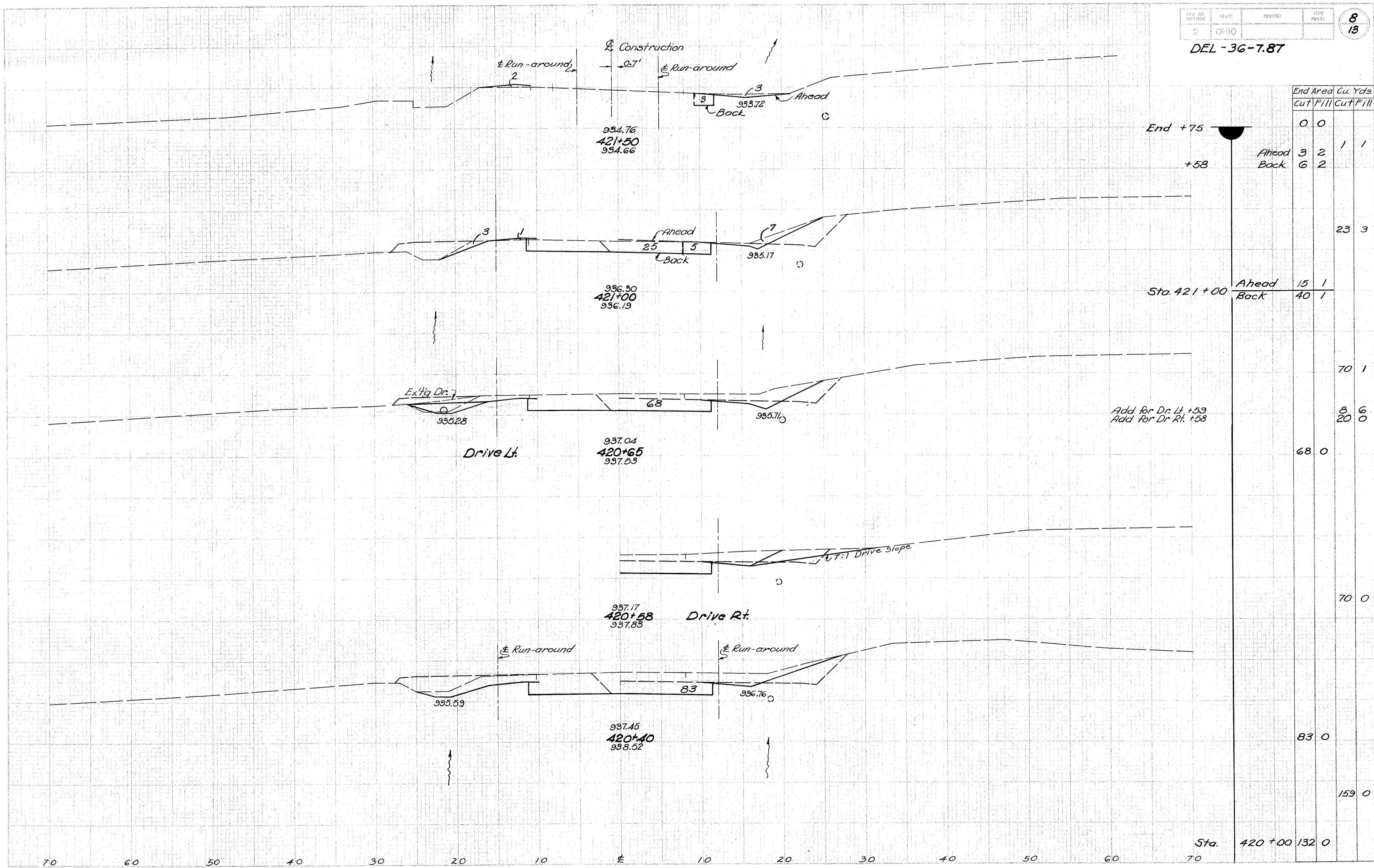
DEL-36 - 7.87



Crd Area		Cu. Yds.	
Cut	Fill	Cut	Fill
132	0		
		278	0
168	0		
		313	0
170	0		
		296	0
149	0		
		61	0
Ahead	119	0	
Back	91	0	127
	91	0	78
Sta. 417+76	84	0	

Excavation 2,332 Cu. Yds.
Embankment 43 Cu. Yds.
Emb. + 2.5%

DEL-36-7.87

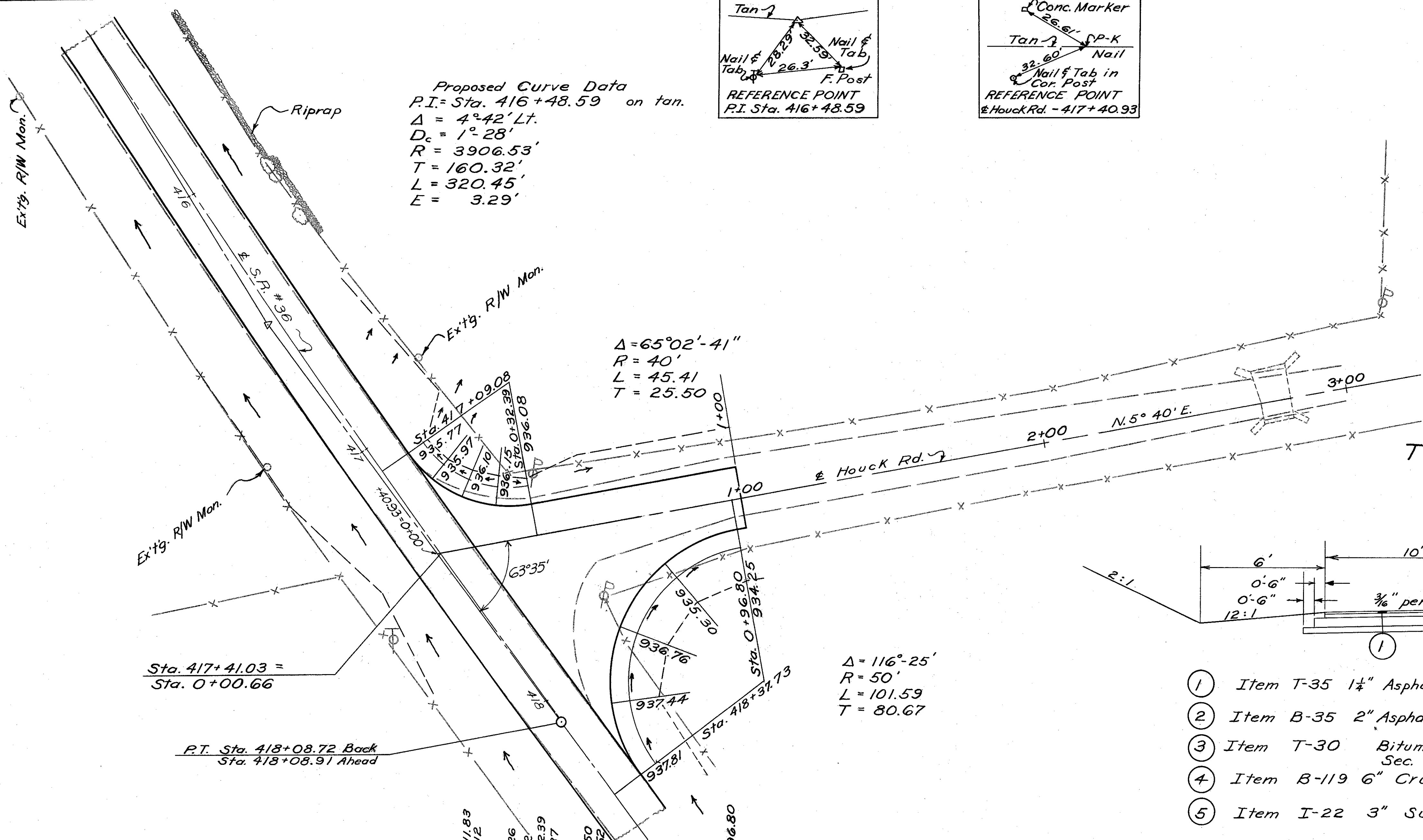
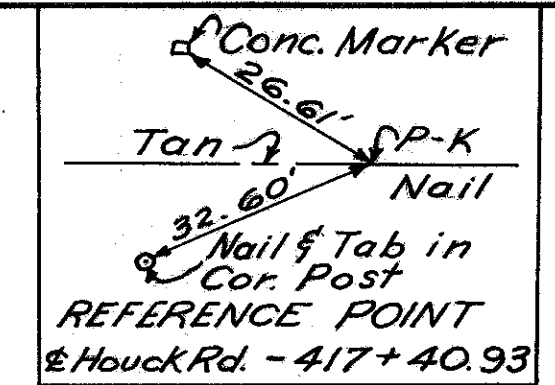
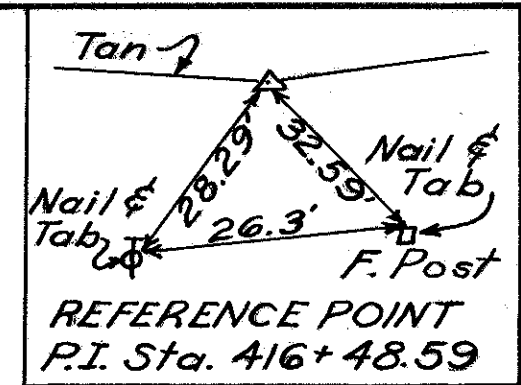


End Area		Cu. Yds	
Cut	Fill	Cut	Fill
0	0		
Ahead 3	Back 2	1	1
6	2		
		23	3
Ahead 15	Back 40	1	1
		70	1
		8	6
		20	0
		68	0
		70	0
		70	0
		83	0
		159	0
Sta. 420+00	132	0	0

STA. 420+40 To STA. 421+50

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Proposed Curve Data
 P.I. = Sta. 416+48.59 on tan.
 $\Delta = 4^{\circ}42' Lt.$
 $D_c = 1^{\circ}28'$
 $R = 3906.53'$
 $T = 160.32'$
 $L = 320.45'$
 $E = 3.29'$



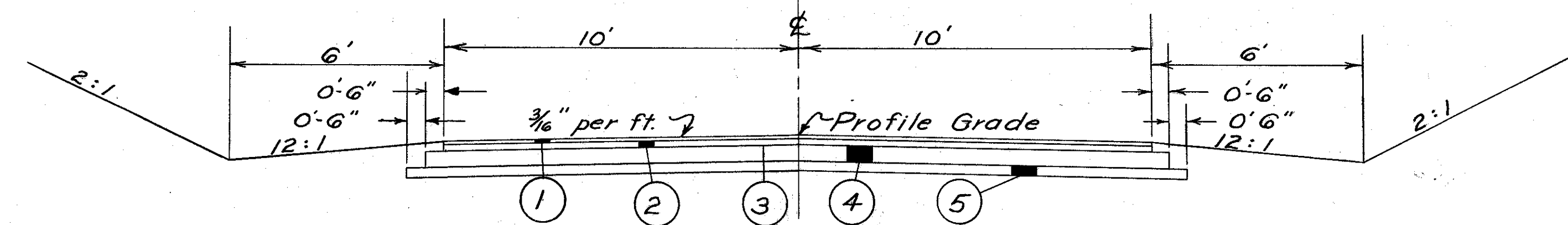
ESTIMATED QUANTITIES

Item	Description	Unit Quantity
T-35	Asphaltic Concrete Surface Course, Type A (70-80)	13.0 Cu. Yds.
B-35	Asphaltic Concrete Leveling Course, (70-80)	20.71 Cu. Yds.
T-30	Bituminous Prime Coat	135.24 Gal.
B-119	Crushed Aggregate Base	62.52 Cu. Yds.
I-22	Subbase	31.78 Cu. Yds.
E-1	Compacted Subgrade	400.28 Sq. Yds.

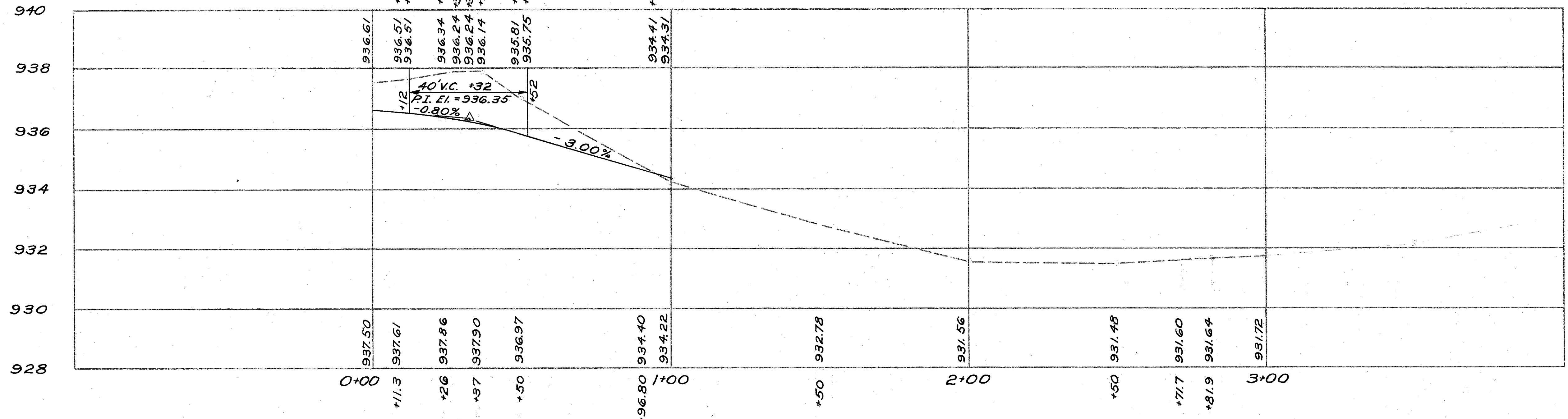
Quantities Carried to Calc. Sheet N=3.

TYPICAL SECTION
TYPE - T-35

Sta. 0+96.80

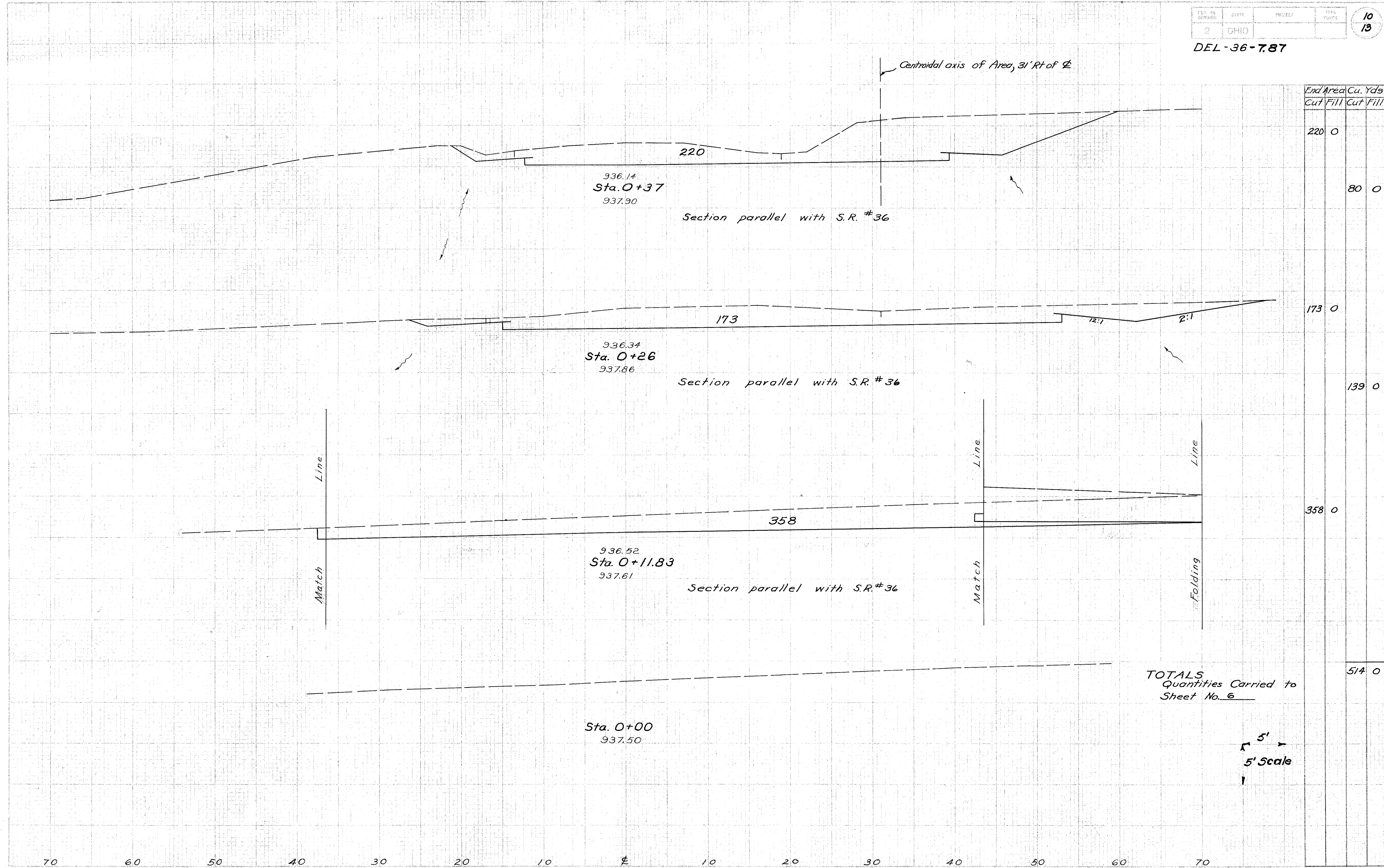


- ① Item T-35 1 1/2" Asphaltic Concrete Surface Course, Type "A" (70-80)
- ② Item B-35 2" Asphaltic Concrete Leveling Course, (70-80)
- ③ Item T-30 Bituminous Prime Coat, Sec. M-5.2, RC-1 or RC-2, or Sec. M-5.7 RT-2 or RT-3, applied at the rate of 0.35 gal. per Sq. Yd.
- ④ Item B-119 6" Crushed Aggregate Base Course
- ⑤ Item I-22 3" Subbase



Scale:
 Horz. 1" = 20'
 Vert. 1" = 2'

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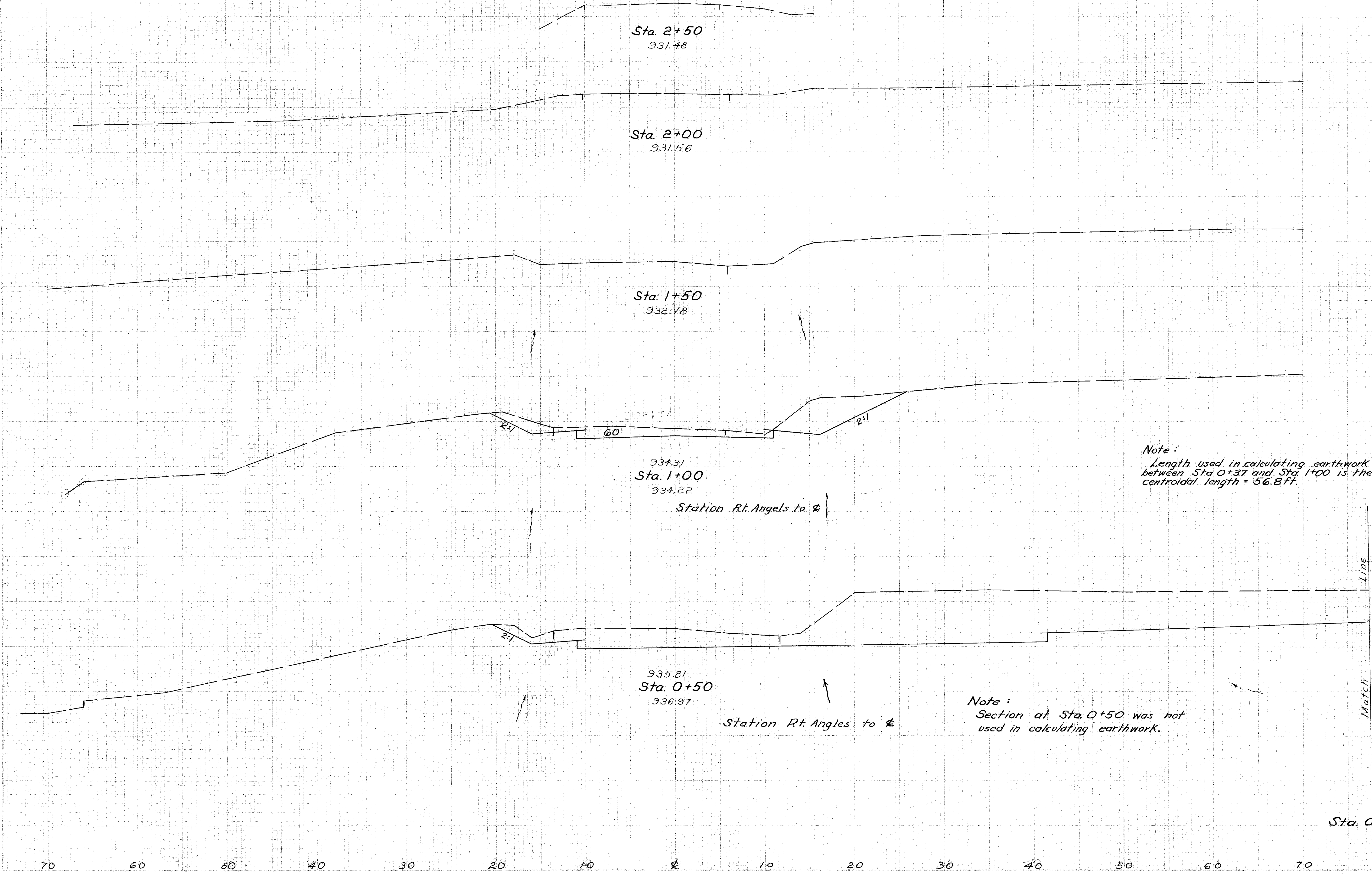


End Area		Cu. Yds	
Cut	Fill	Cut	Fill
220	0		
		80	0
173	0		
		139	0
358	0		
		514	0

TOTALS
Quantities Carried to
Sheet No. 6

X-Sections, Houck Rd. STA. O+00 To STA. O+37

End Area	Cu. Yds.
Cut/Fill	Cut/Fill



Note:
Length used in calculating earthwork between Sta 0+37 and Sta 1+00 is the centroidal length = 56.8ft.

Note:
Section at Sta. 0+50 was not used in calculating earthwork.

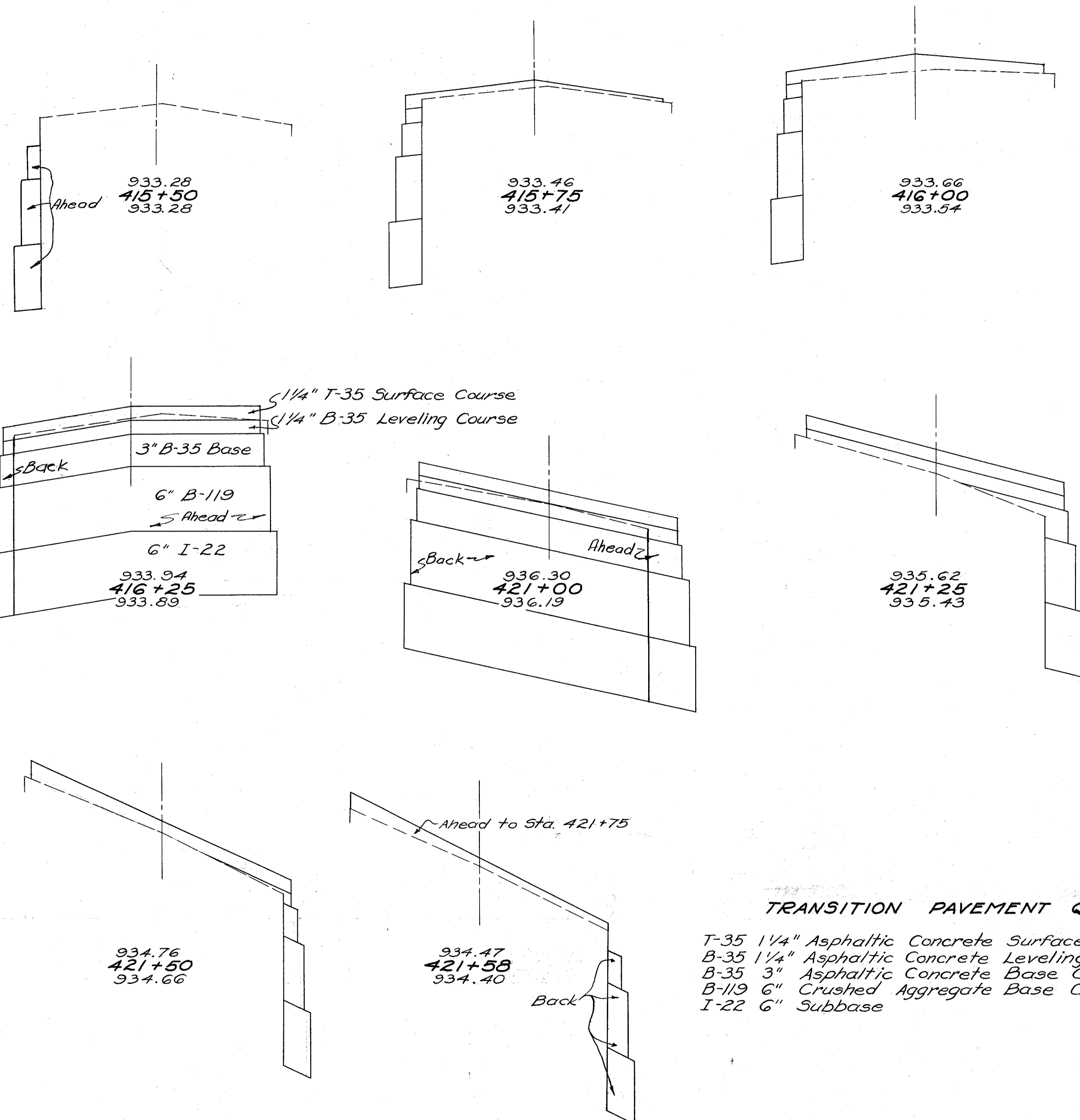
60 0

295 0

Sta. 0+37 220 0

X-Sections, Houck Rd. STA. 0+50 To STA. 2+50

DEL-36-7.87



PC-414+88.27 D.-1°28' Lt. PI Back-418+08.72
PI Ahead-418+08.91
RATE OF SUPERELEVATION - .025'/ft.

ELEVATION LEFT EDGE	DEDUCT FROM PROFILE	STATION	PROFILE ELEVATION	DEDUCT FROM LT. EDGE	ELEVATION RIGHT EDGE
933.17	0.11	415+50	933.28	-0.06	933.11
933.34	.12	+75	933.46	-.03	933.31
933.52	.14	416+00	933.66	+.06	933.58
933.78	.16	+25	933.94	.17	933.95
934.18	0.16	+48.59	934.34	.27	934.45
934.21		+49.81	934.37	.27	934.48
934.22		+50	934.38	.27	934.49
934.93		+75	935.09	.39	935.32
935.56		417+00	935.72	.46	936.02
935.77		+09.08	935.93	.50	936.27
936.12		+25	936.28	.50	936.62
936.45		+41.03	936.61	.50	936.95
936.61		+50	936.77	.50	937.11
937.03		+75	937.19	.46	937.49
937.05		+76	937.21	.46	937.51
937.16		+84	937.32	.44	937.60
937.38		418+00	937.54	.39	937.77
937.49		Back+08.72	937.65	.35	937.84
937.49		Ahead+08.91	937.65	.35	937.84
937.69		+25	937.85	.27	937.96
937.81		+37.73	937.97	.22	938.03
937.90		+50	938.06	.19	938.09
938.05		+75	938.21	.11	938.16
938.13		419+00	938.29	.05	938.18
938.14		+25	938.30	0.00	938.14
938.08		+50	938.24	0.00	938.08
937.95		+75	938.11	0.00	937.95
937.75	0.16	420+00	937.91	0.00	937.75

PAVEMENT TRANSITION
Sta. 420+00 to Sta. 421+50

ELEVATION LEFT EDGE	ADD TO RIGHT EDGE	STATION	PROFILE ELEVATION	DEDUCT FROM PROFILE	ELEVATION RIGHT EDGE
937.75	0.00	420+00	937.91	0.16	937.75
937.53	.05	+25	937.64	.16	937.48
937.39	.10	+40	937.45	.16	937.29
937.30	.16	+50	937.30	.16	937.14
937.18	.17	+58	937.17	.16	937.01
937.08	.20	+65	937.04	.16	936.88
936.94	.26	+75	936.84	.16	936.68
936.52	.44	421+00	936.30	.22	936.08
935.88	.52	+25	935.62	.26	935.36
935.22	0.92	+50	934.76	0.46	934.30