FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

1/35

S.H. (I.C.H.) No 555 SEC. C-2
LORAIN CO.

STATE OF OHIO

DEPARTMENT OF HIGHWAYS

CLEVELAND - LORAIN ROAD

S.H. (I.C.H.) NO. 555 SEC. C-2 PET. NO. 6889.

LORAIN COUNTY

AVON VILLAGE MAR. 1930

The Standard Specifications of the STATE OF OHIO, Department of Highways in force on date of contract will govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that right of way has been provided

Approved _____ Resident District Deputy Director.
Date: 3-19-30

Approved _____ Resident Division Deputy Director
Date: 3-26-30

Approved _____ Chief Engineer Bureau of Construction
Date: 4/9/30

Approved _____ Chief Engineer Bureau of Maintenance
Date: _____

Approved _____ Chief Engineer Bureau of Bridges
Date: 4-5-30

Approved _____ Chief Engineer First Assistant Director
Date: _____

Approved _____ State Highway Director
Date: _____

CONVENTIONAL SIGNS.

- State line
- County line
- Township line
- Section line
- Property line not fenced
- Center line
- City or Village line
- Fence
- Telephone or Telegraph
- Steam railroad
- Electric line
- Guard rail
- Drain pipe old
- Drain pipe new

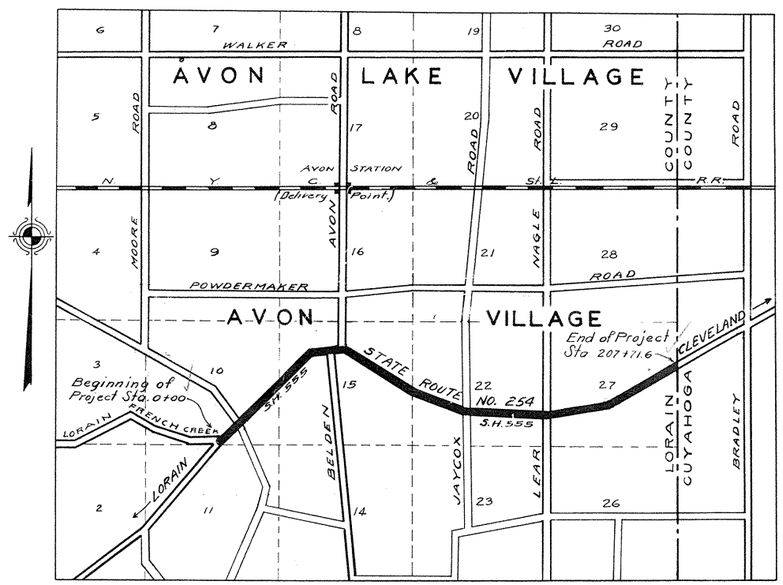
We, the Commissioners of Lorain County hereby approve these plans and certify that the right of way 66 feet wide is available for the construction, maintenance and repair of the above highway.

_____

_____

_____

Date: _____ County Commissioners.



LOCATION PLAN

SCALE OF MILES

0 1/4 1/2 3/4 1 2 3

PORTION TO BE IMPROVED
DETOURS SHOWN THUS
IMPROVED ROADS

Scales	
Plan	1" = 100'
Profile (Vertical)	1" = 10'
Profile (Horizontal)	1" = 100'
Cross Sections	1" = 5'

Index of Sheets	P.
Title Page	1
Typical Cross Section	2
Plans and Profile	3 - 9
Cross Sections	10 - 26
Structural Plans	27 - 33
Summary Sheet	33 - 35

Supplemental Prints of Structural Standards
Drawings No 95, 98, 100, 143, 300, 305, SC-A, SR-A.

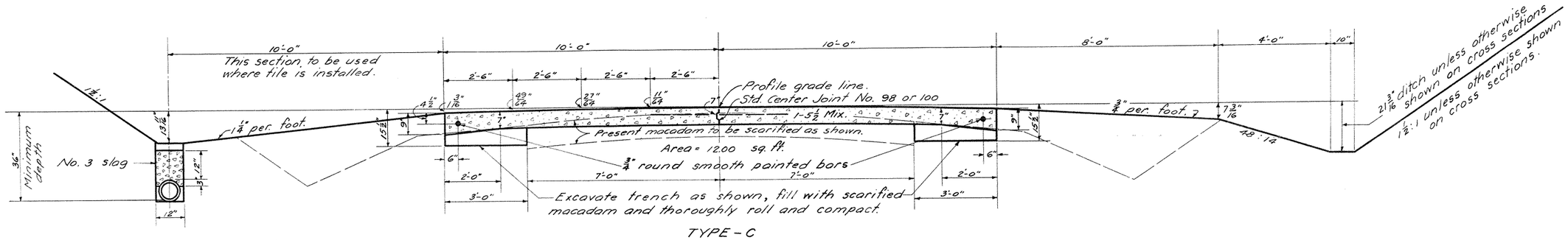
Checked R.W. Van Atta 4-11-'30

FED. RD DIST. NO	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

S.H. (I.C.H.) No. 555 LORAIN

SEC. C-2 CO.

2/35



Note: See Std. Construction Drawing No. 143 for detail of fill when not using tile.

TYPE - C
TYPICAL - SECTION
Sta. 0+00 to sta. 207+71.6

Contraction joints as per. drawing No. 95 to be placed at 40 foot intervals as per. specifications.

Longitudinal joints as per drawing No. 98 or 100

The pavement shall be laid in two longitudinal sections with a joint at the crown as indicated.

The contractor shall maintain traffic on one half the road while the other half is being built and shall provide adequate protection to the pavement against traffic.

Also provide necessary flagmen and watchmen day and night. (24 hours) during entire course of construction. All of same to be included in the unit price bid for "Erecting and maintaining lights, signs, barricades, flagmen and watchmen."

The contractor also to furnish temporary bridges at intersecting roads and driveways under above item.

All excavated materials shall be so distributed along the road as to make the shoulders the minimum widths shown on the cross sections. All excess excavated materials shall be used to uniformly widen the shoulders on the fills on both sides as directed. The shoulders, slopes, and ditches shall be cut and trimmed to the dimensions shown on the cross sections.

All present guard rail necessary to be moved shall be taken down and neatly stored by the contractor.

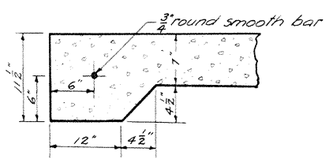
The above to be included in the unit price bid for excavation.

The pavement on all curves will be superelevated and on all curves where the degree of curvature is 5° or more will be widened. See tables on "Profile Sheets."

Note:-

Borrow excavation to be obtained from adjacent excess or waste excavation sections and from surplus excavation of tile drains.

Note: The aggregate for the pavement or concrete for this project will be proportioned by the weight method as approved by the "Director."



4½" x 12" CONCRETE HEADER

FED. RD. DIST. NO.	STATE	FED AID PROJECT	FISCAL YEAR
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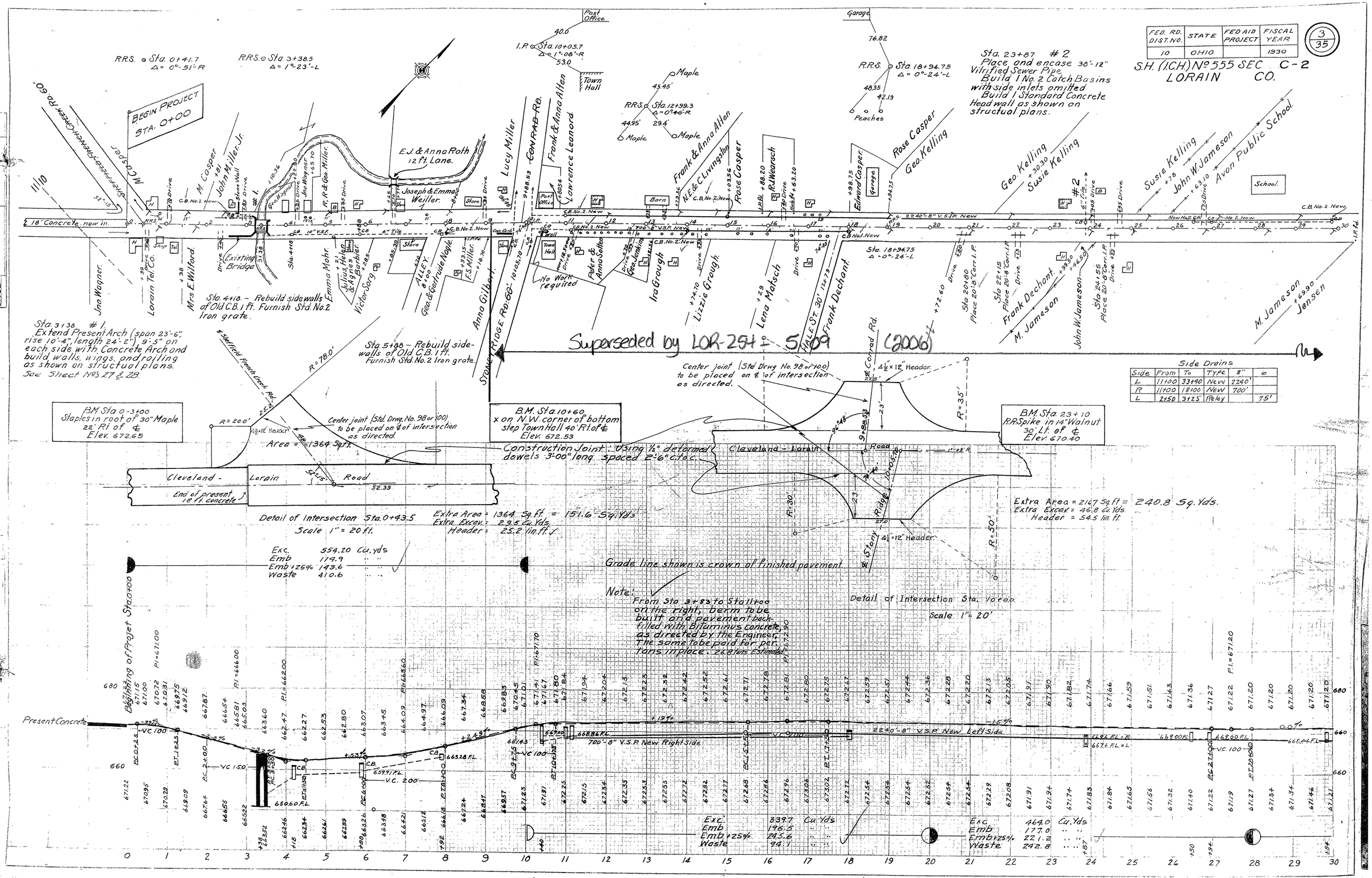
LORAIN CO.



Side Drains

Side	From	To	Type	8"	6"
L	11+00	33+90	New	2240'	
R	11+00	18+00	New	700'	
L	2+50	3+25	Relay		75'

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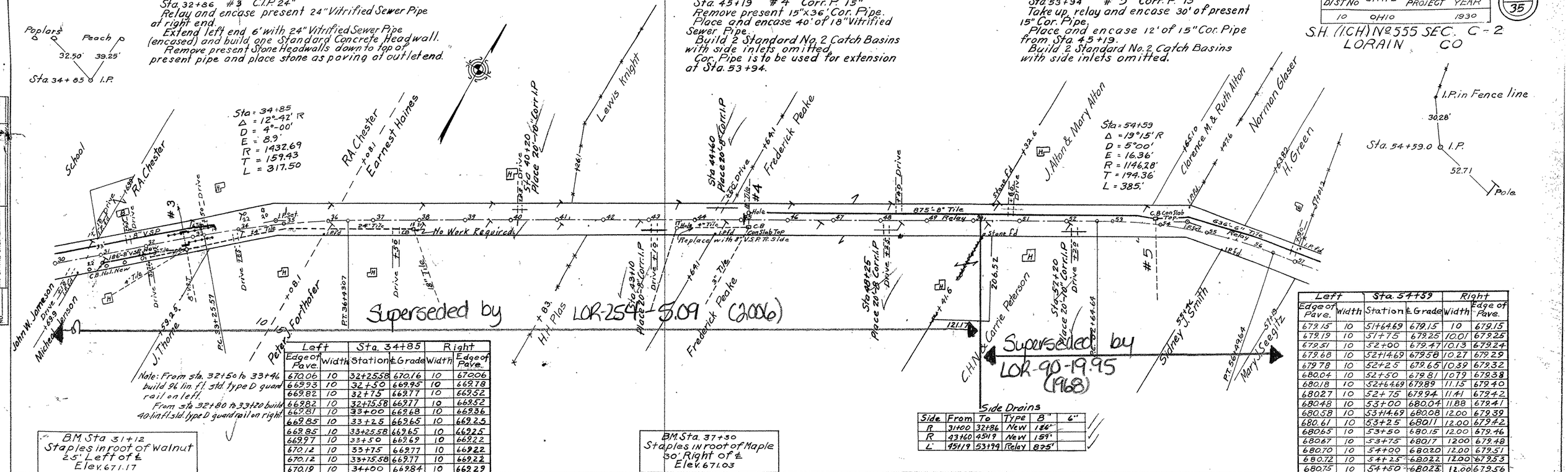
S.H. (1.CH) No 555 SEC. C-2
LORAIN CO

Sta. 32+86 #3 C.I.P. 24"
Relay and encase present 24" Vitrified Sewer Pipe at right end.
Extend left end 6' with 24" Vitrified Sewer Pipe (encased) and build one Standard Concrete Headwall.
Remove present Stone Headwalls down to top of present pipe and place stone as paving at outlet end.

Sta. 45+19 #4 Corr. P. 15"
Remove present 15"x36' Cor. Pipe.
Place and encase 40' of 18" Vitrified Sewer Pipe.
Build 2 Standard No. 2 Catch Basins with side inlets omitted.
Cor. Pipe is to be used for extension at Sta. 53+94.

Sta. 53+94 #5 Corr. P. 15"
Take up, relay and encase 30' of present 15" Cor. Pipe.
Place and encase 12' of 15" Cor. Pipe from Sta. 45+19.
Build 2 Standard No. 2 Catch Basins with side inlets omitted.



Note: From sta. 32+50 to 33+46 build 96 lin. ft. std. type D guard rail on left.
From sta. 32+80 to 33+20 build 40 lin. ft. std. type D guard rail on right.

BM Sta 31+12
Staples in root of Walnut
25' Left of ℄
Elev. 671.17

BM Sta. 37+50
Staples in root of Maple
30' Right of ℄
Elev. 671.03

Side	From	To	Type	8"	6"
R	31+00	32+86	New	186'	
R	43+60	45+19	New	159'	
L	45+19	53+94	Relay	875'	

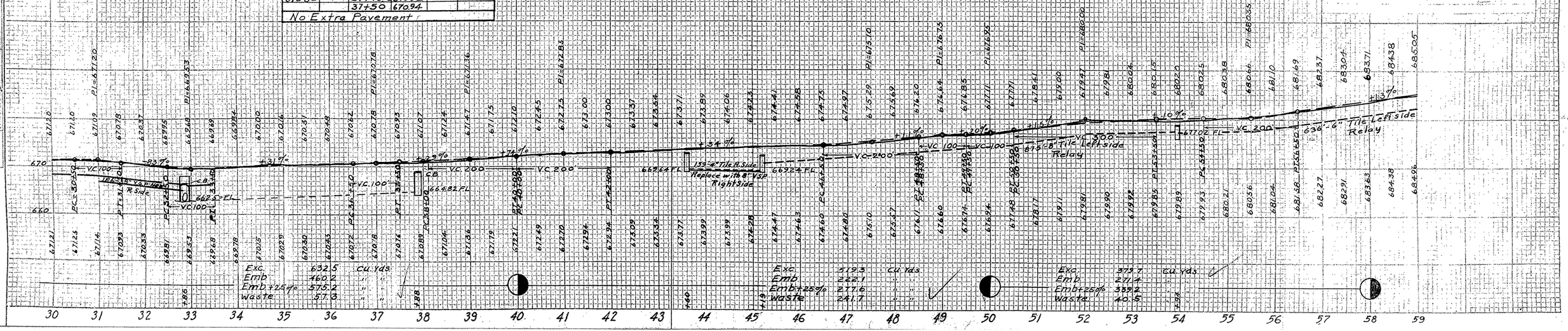
Side Drains

Left Edge of Pave.	Width	Sta. 34+85 Station	℄ Grade	Right Width	Right Edge of Pave.
670.06	10	32+25.58	670.16	10	670.06
669.93	10	32+50	669.95	10	669.78
669.82	10	32+75	669.77	10	669.52
669.82	10	32+75.58	669.77	10	669.52
669.81	10	33+00	669.68	10	669.36
669.85	10	33+25	669.65	10	669.25
669.85	10	33+25.58	669.65	10	669.25
669.97	10	33+50	669.69	10	669.22
670.12	10	33+75	669.77	10	669.22
670.12	10	33+75.58	669.77	10	669.22
670.19	10	34+00	669.84	10	669.29
670.27	10	34+25	669.92	10	669.37
670.35	10	34+50	670.00	10	669.45
670.43	10	34+75	670.08	10	669.53
670.46	10	34+85	670.11	10	669.56
670.51	10	35+00	670.16	10	669.61
670.59	10	35+25	670.24	10	669.69
670.66	10	35+50	670.31	10	669.76
670.74	10	35+75	670.39	10	669.84
670.80	10	35+93.08	670.45	10	669.90
670.80	10	36+00	670.47	10	669.94
670.81	10	36+25	670.55	10	670.10
670.80	10	36+43.08	670.60	10	670.20
670.80	10	36+50	670.62	10	670.24
670.81	10	36+75	670.70	10	670.40
670.81	10	36+93.08	670.76	10	670.51
670.81	10	37+00	670.78	10	670.55
670.82	10	37+25	670.86	10	670.71
670.82	10	37+43.08	670.92	10	670.82
		37+50	670.94		

No Extra Pavement

Left Edge of Pave.	Width	Sta. 54+59 Station	℄ Grade	Right Width	Right Edge of Pave.
679.15	10	51+64.69	679.15	10	679.15
679.19	10	51+75	679.25	10.01	679.26
679.51	10	52+00	679.47	10.13	679.24
679.68	10	52+14.69	679.58	10.27	679.29
679.78	10	52+25	679.65	10.39	679.32
680.04	10	52+50	679.81	10.79	679.38
680.18	10	52+64.69	679.89	11.15	679.40
680.27	10	52+75	679.94	11.41	679.42
680.48	10	53+00	680.04	11.88	679.41
680.58	10	53+14.69	680.08	12.00	679.39
680.61	10	53+25	680.11	12.00	679.42
680.65	10	53+50	680.15	12.00	679.46
680.67	10	53+75	680.17	12.00	679.48
680.70	10	54+00	680.20	12.00	679.51
680.72	10	54+25	680.22	12.00	679.53
680.75	10	54+50	680.25	12.00	679.56
680.76	10	54+59	680.26	12.00	679.57
680.79	10	54+75	680.29	12.00	679.60
680.88	10	55+00	680.38	12.00	679.69
680.99	10	55+25	680.49	12.00	679.80
681.16	10	55+50	680.66	12.00	679.97
681.35	10	55+75	680.85	12.00	680.16
681.60	10	55+99.68	681.10	12.00	680.41
681.60	10	56+00	681.10	12.00	680.41
681.76	10	56+25	681.37	11.73	680.79
681.98	10	56+49.69	681.69	11.15	681.20
681.98	10	56+50	681.69	11.15	681.20
682.21	10	56+75	682.02	10.61	681.63
682.47	10	56+99.69	682.37	10.27	682.08
682.47	10	57+00	682.37	10.27	682.08
682.70	10	57+25	682.70	10.07	682.51
682.94	10	57+49.69	683.04	10	682.94

Extra Pavement = 89.3 Sq. Yds.



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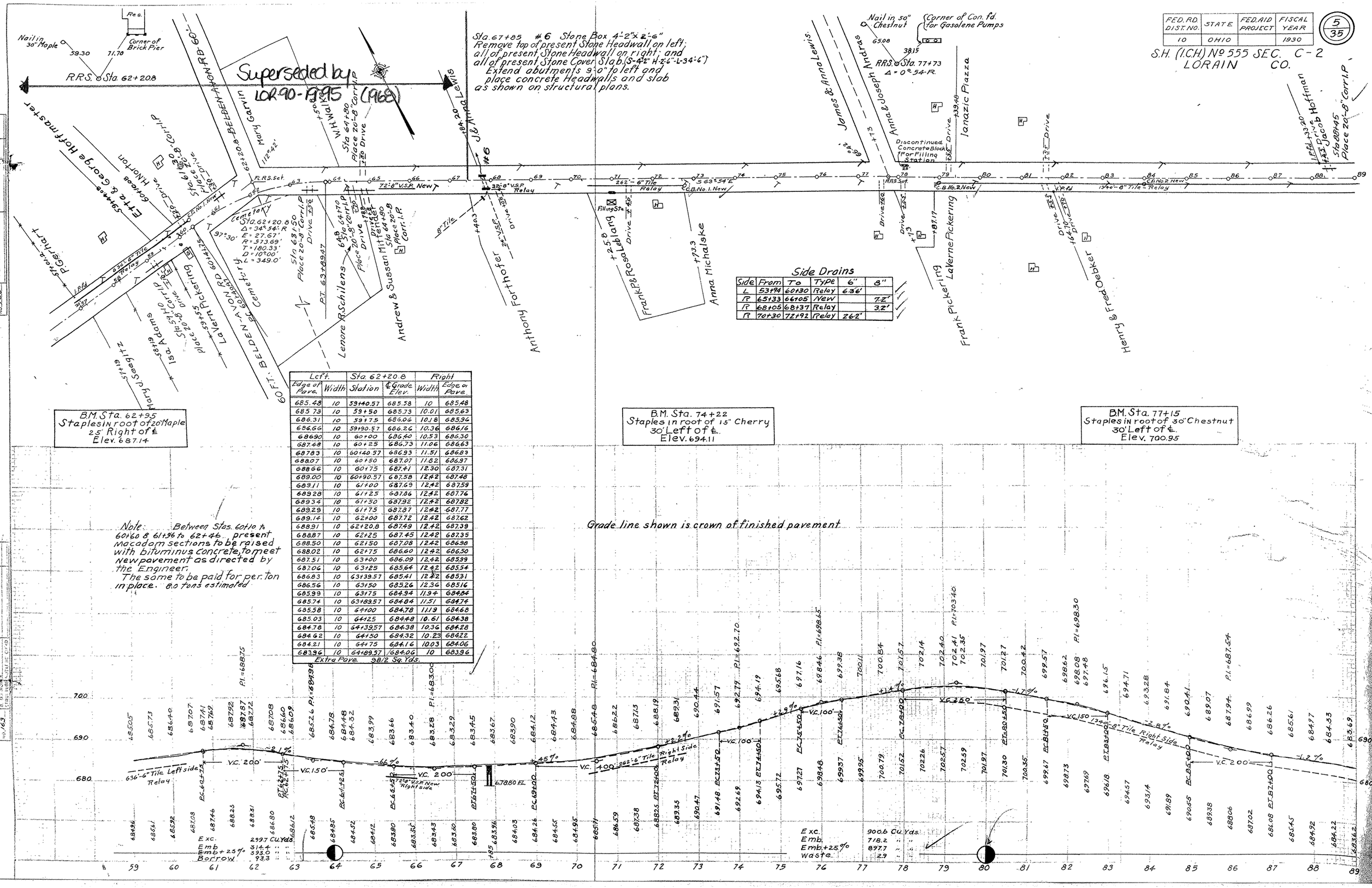
S.H. (I.C.H.) No 555 SEC. C-2
LORAIN CO.



Left. Edge of Pave.	Width	Sta. 62+20.8 Station	℄ Grade Elev.	Right Width	Right Edge of Pave.
685.48	10	59+40.57	685.58	10	685.48
685.73	10	59+50	685.73	10.01	685.63
686.31	10	59+75	686.06	10.18	685.96
686.66	10	59+90.57	686.26	10.36	686.16
686.90	10	60+00	686.40	10.53	686.30
687.48	10	60+25	686.73	11.06	686.63
687.83	10	60+40.57	686.93	11.51	686.83
688.07	10	60+50	687.07	11.82	686.97
688.66	10	60+75	687.41	12.30	687.31
689.00	10	60+90.57	687.58	12.42	687.48
689.11	10	61+00	687.69	12.42	687.59
689.28	10	61+25	687.86	12.42	687.76
689.34	10	61+50	687.92	12.42	687.82
689.29	10	61+75	687.87	12.42	687.77
689.14	10	62+00	687.72	12.42	687.62
688.91	10	62+20.8	687.49	12.42	687.39
688.87	10	62+25	687.45	12.42	687.35
688.50	10	62+50	687.08	12.42	686.98
688.02	10	62+75	686.60	12.42	686.50
687.51	10	63+00	686.09	12.42	685.99
687.06	10	63+25	685.64	12.42	685.54
686.83	10	63+39.57	685.41	12.42	685.31
686.56	10	63+50	685.26	12.36	685.16
685.99	10	63+75	684.94	11.94	684.84
685.74	10	63+89.57	684.84	11.51	684.74
685.58	10	64+00	684.78	11.19	684.68
685.03	10	64+25	684.48	10.61	684.38
684.78	10	64+39.57	684.38	10.36	684.28
684.62	10	64+50	684.32	10.23	684.22
684.21	10	64+75	684.16	10.03	684.06
683.96	10	64+89.57	684.06	10	683.96

Extra Pave. 98.2 Sq. Yds.

FED. RD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
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SH (ICH) No 555 SEC C-2
LORAIN CO.

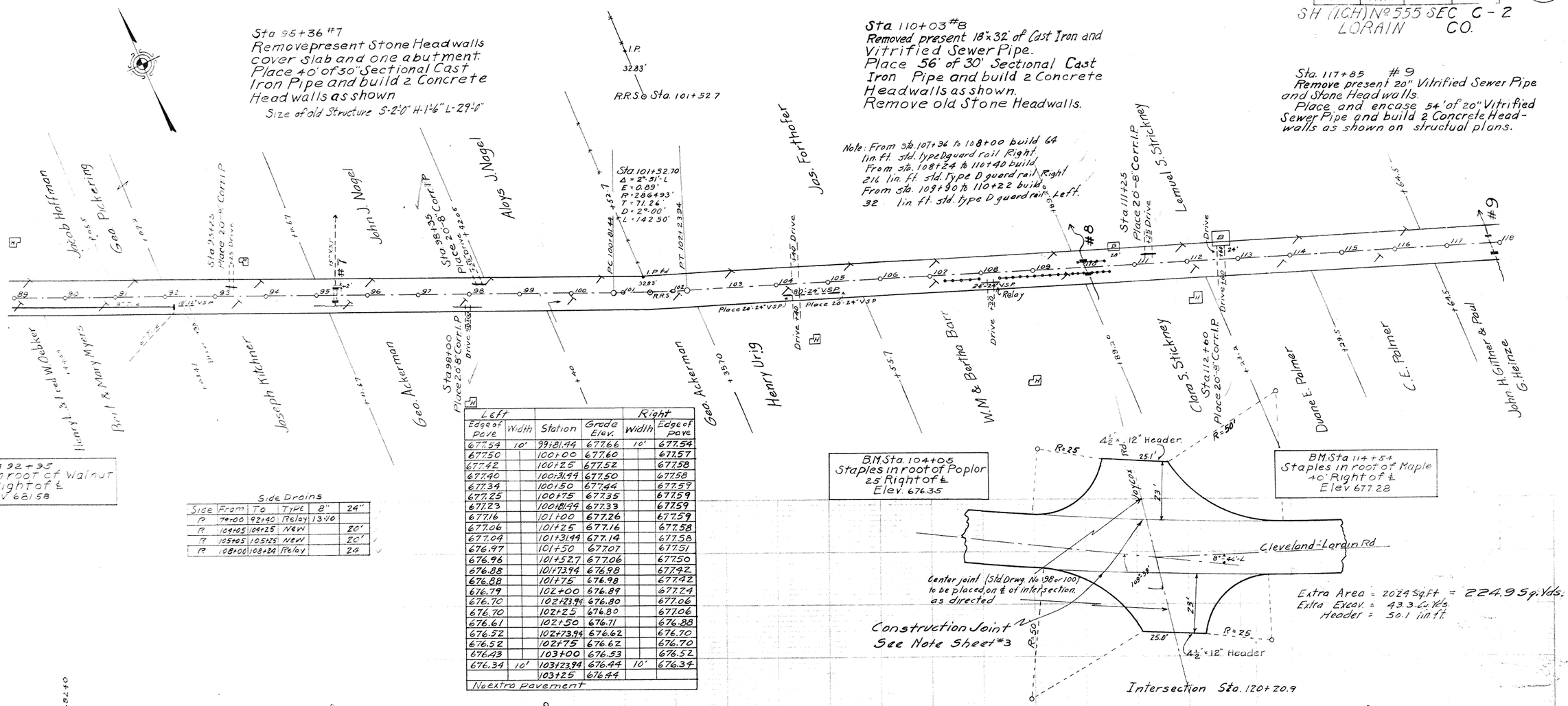
6/35

Sta 95+36 #7
Remove present Stone Headwalls cover slab and one abutment. Place 40' of 30" Sectional Cast Iron Pipe and build 2 Concrete Head walls as shown
Size of old Structure 5'-2'-0" H-1'-6" L-29'-0"

Sta 110+03 #8
Removed present 18"x32' of Cast Iron and Vitrified Sewer Pipe.
Place 56' of 30" Sectional Cast Iron Pipe and build 2 Concrete Headwalls as shown.
Remove old Stone Headwalls.

Sta. 117+85 #9
Remove present 20" Vitrified Sewer Pipe and Stone Headwalls.
Place and encase 54' of 20" Vitrified Sewer Pipe and build 2 Concrete Head-walls as shown on structual plans.

Note: From sta. 107+36 to 108+00 build 64 lin. ft. std. type D guard rail Right.
From sta. 108+24 to 110+40 build 216 lin. ft. std. type D guard rail Right
From sta. 109+90 to 110+22 build 32 lin. ft. std. type D guard rail Left.



BM Sta 92+35
Staples in root of Walnut
35' Right of ℄
Elev 681.58

BM Sta. 104+05
Staples in root of Poplor
25' Right of ℄
Elev. 676.35

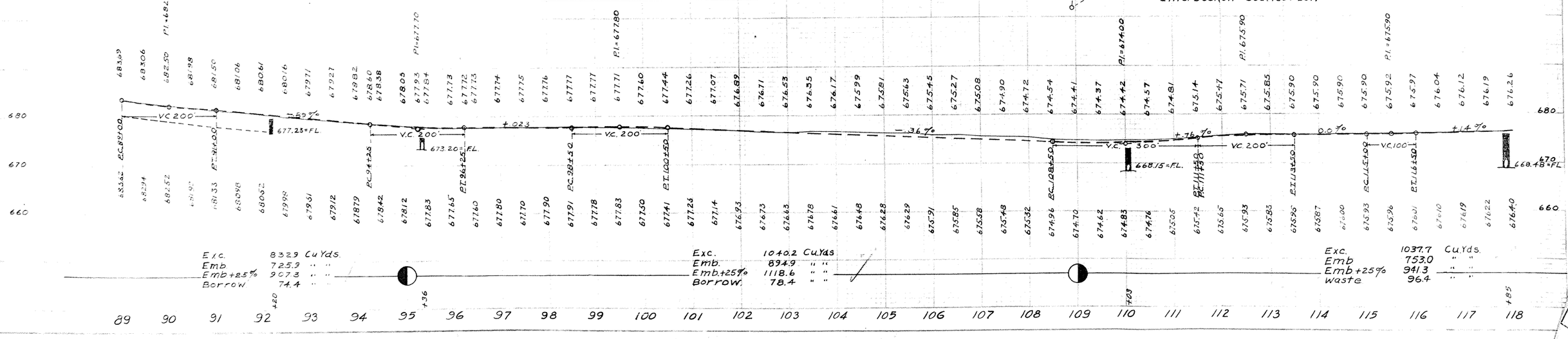
BM Sta 114+54
Staples in root of Maple
40' Right of ℄
Elev 677.28

Side Drains

Side	From	To	Type	8"	24"
R	79+00	92+40	Relay	13.40	
R	104+05	104+25	New		20'
R	105+05	105+25	New		20'
R	108+00	108+24	Relay		24

Left Edge of Pave	Width	Station	Grade Elev.	Right Width	Right Edge of Pave
677.54	10'	99+81.44	677.66	10'	677.54
677.50		100+00	677.60		677.57
677.42		100+25	677.52		677.58
677.40		100+31.44	677.50		677.58
677.34		100+50	677.44		677.59
677.25		100+75	677.35		677.59
677.23		100+81.44	677.33		677.59
677.16		101+00	677.26		677.59
677.06		101+25	677.16		677.58
677.04		101+31.44	677.14		677.58
676.97		101+50	677.07		677.51
676.96		101+52.7	677.06		677.50
676.88		101+73.94	676.98		677.42
676.88		101+75	676.98		677.42
676.79		102+00	676.89		677.24
676.70		102+23.94	676.80		677.06
676.70		102+25	676.80		677.06
676.61		102+50	676.71		676.88
676.52		102+73.94	676.62		676.70
676.52		102+75	676.62		676.70
676.43		103+00	676.53		676.52
676.34	10'	103+23.94	676.44	10'	676.34
		103+25	676.44		
No extra pavement					

Extra Area = 2024 Sq.ft = 224.9 Sq.Yds.
Extra Excav. = 43.3 Cu.Yds.
Header = 50.1 lin.ft.



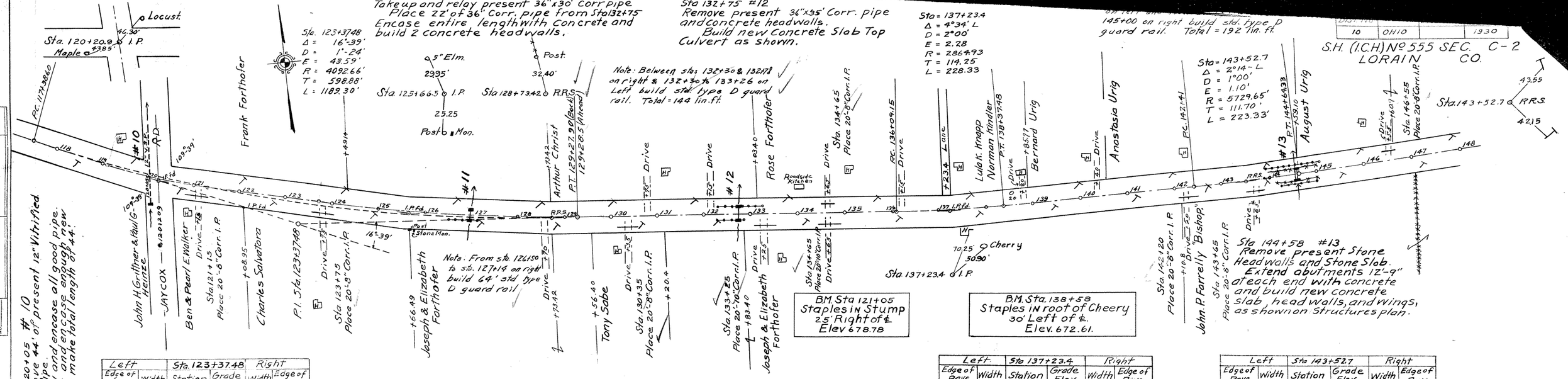
NOTE BOOK No. 168 | ALIGNMENT CHECKED | RT. OF WAY CHECKED

NOTE BOOK No. 163 | GRADES CHECKED | B.M. NOTED | STRUCTURE NOTAT NO CHECKED

HIGHWAY PLAN - PROFILE PLATE 1
THE M. DOLE CO. COLUMBUS, OHIO

10	OH10		1930

S.H. (I.C.H) No 555 SEC. C-2
LORAIN CO.



Left Edge of Pave.	Width	Sta. 123+37.48 Station	Grade Elev	Right Width	Edge of Pave
675.93	10'	116+38.60	676.03	10'	675.93
675.92		116+50	676.04		675.95
675.93		116+75	676.08		676.03
675.92		117+00	676.11		676.10
675.92		117+25	676.15		676.17
675.92		117+38.6	676.17		676.21
675.93		117+50	676.19		676.25
676.93		117+75	676.23		676.32
676.93		117+88.6	676.25		676.36
676.95		118+00	676.27		676.38
676.03		118+50	676.35		676.46
676.14		119+00	676.46		676.57
676.26		119+50	676.58		676.69
676.42		120+00	676.74		676.85
676.59		120+50	676.91		677.02
676.80		121+00	677.12		677.23
677.02		121+50	677.34		677.45
677.24		122+00	677.56		677.67
677.45		122+50	677.77		677.88
677.56		123+00	677.88		677.99
677.50		123+50	677.82		677.93
677.23		124+00	677.55		677.65
676.79		124+50	677.11		677.22
676.23		125+00	676.57		676.68
675.71		125+50	676.03		676.14
675.17	10	126+00	675.49	10'	675.60
674.74		126+50	675.06		675.17
674.37		127+00	674.89		675.00

Left Edge of Pave.	Width	Continued Station	Grade Elev.	Right Width	Edge of Pave.
674.65		127+50	674.97		675.08
674.96		128+00	675.28		675.39
675.26		128+50	675.58		675.69
675.31		128+77.89	675.63		675.74
675.28		129+00	675.60		675.65
675.26		129+25	675.51		675.56
675.26		129+27.89	675.50		675.54
675.24		129+50	675.45		675.46
674.93		129+75	675.11		675.08
674.67		130+00	674.81		674.75
674.33	10'	130+25	674.44	10'	674.34
674.29		130+27.89	674.39		674.29

No extra pavement

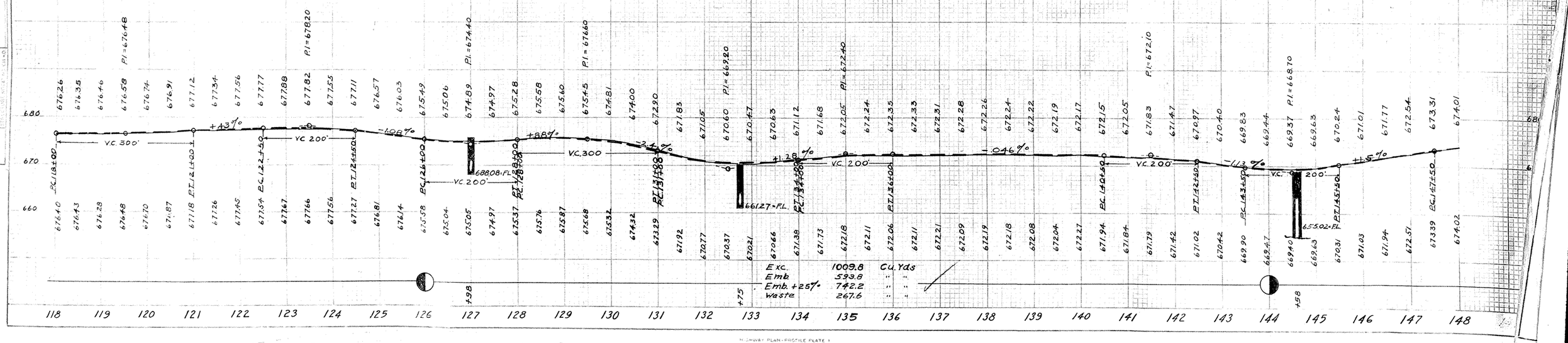
Grade line shown is crown of finished pavement.

Left Edge of Pave	Width	Sta 137+23.4 Station	Grade Elev.	Right Width	Edge of Pave
671.96	10'	135+09.16	672.06	10'	671.96
672.05		135+25	672.15		672.10
672.14		135+50	672.24		672.28
672.16		135+59.15	672.26		672.34
672.2		135+75	672.30		672.43
672.25		136+00	672.35		672.57
672.24		136+09.15	672.34		672.60
672.24		136+25	672.34		672.65
672.23		136+50	672.33		672.73
672.23		136+59.15	672.33		672.77
672.22		136+75	672.32		672.76
672.21		137+00	672.31		672.75
672.20		137+23.4	672.30		672.74
672.19		137+25	672.29		672.73
672.18		137+50	672.28		672.72
672.17		137+75	672.27		672.71
672.17		137+81.48	672.27		672.71
672.16		138+00	672.26		672.65
672.15		138+25	672.25		672.55
672.15		138+37.48	672.25		672.51
672.14		138+50	672.24		672.45
672.13		138+75	672.23		672.35
672.13		138+87.48	672.23		672.21
672.12		139+00	672.22		672.25
672.11		139+25	672.21		672.15
672.10	10'	139+37.48	672.20	10'	672.10
		139+50	672.19		

No extra pavement

Left Edge of Pave	Width	Sta 143+52.7 Station	Grade Elev.	Right Width	Edge of Pave.
671.78	10'	141+41	671.88	10'	671.78
671.73		141+50	671.83		671.75
671.57		141+75	671.67		671.65
671.44		141+91	671.54		671.56
671.37		142+00	671.47		671.51
671.14		142+25	671.24		671.34
670.97		142+41	671.07		671.21
670.87		142+50	670.97		671.13
670.58		142+75	670.68		670.90
670.40		142+91	670.56		670.76
670.30		143+00	670.40		670.66
670.02		143+25	670.12		670.38
669.73		143+50	669.83		670.09
669.70		143+52.7	669.80		670.06
669.49		143+75	669.59		669.85
669.34		144+00	669.44		669.70
669.29		144+19.33	669.39		669.65
669.26		144+25	669.36		669.59
669.27		144+50	669.37		669.54
669.32		144+69.33	669.42		669.56
669.36		144+75	669.46		669.57
669.53		145+00	669.63		669.68
669.68		145+14.33	669.78		669.80
669.79		145+25	669.89		669.88
670.14		145+50	670.24		670.17
670.63	10'	145+69.33	670.73	10'	670.63
		146+00	671.01		

No extra pavement

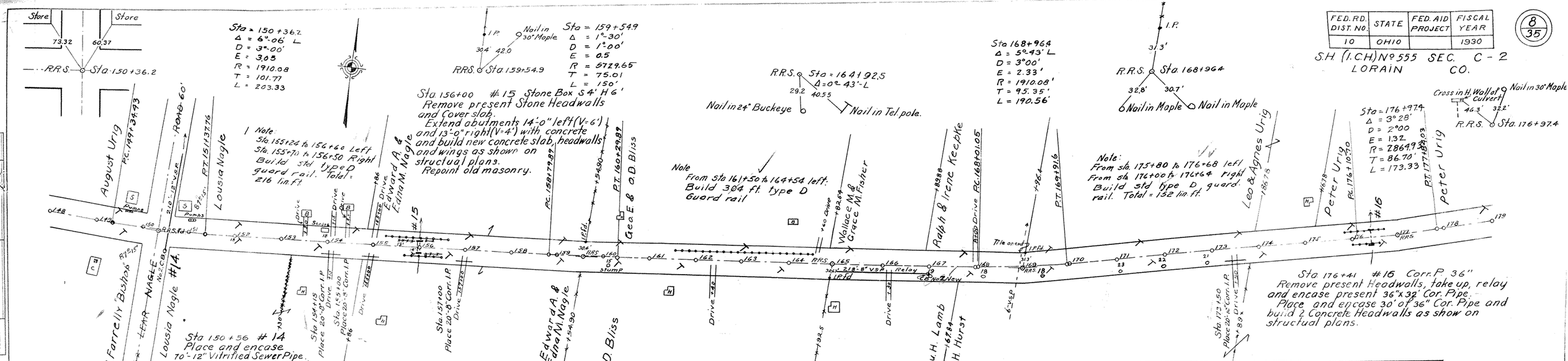


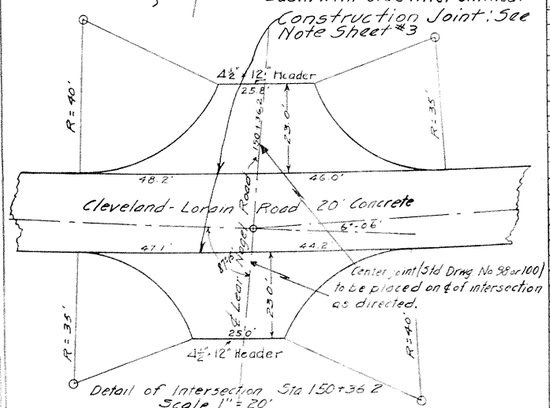
HIGHWAY PLAN-PROFILE PLATE 1

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

8/35

S.H. (I.C.H.) No 555 SEC. C-2
LORAIN CO.





Detail of Intersection Sta 150+36.2
Scale 1" = 20'
Extra Area = 2068.2 sq. ft. = 229.8 Sq. Yds
" Excav. = 40.2 Cu. Yds.
Header = 50.8 lin. ft.

Left Edge of Pave.	Width	Sta. 150+36.2 Station	℄ Grade Elev.	Right Width	Edge of Pave.
	10	148+25	674.33	10	
674.31		148+34.43	674.41		674.31
674.43		148+50	674.56		674.50
674.60		148+75	674.79		674.79
674.63		148+84.43	674.85		674.81
674.71		149+00	674.96		675.02
674.80		149+25	675.11		675.23
674.86		149+34.43	675.14		675.28
674.85		149+50	675.22		675.40
674.90		149+75	675.33		675.57
674.92		149+84.43	675.38		675.64
675.03		150+00	675.49		675.75
675.22		150+25	675.68		675.94
675.32		150+36.20	675.78		676.04
675.45		150+50	675.91		676.17
675.73		150+75	676.19		676.45
675.89		150+87.76	676.35		676.61
676.09		151+00	676.51		676.74
676.45		151+25	676.81		676.98
676.58		151+37.76	676.92		677.06
676.73		151+50	677.03		677.14
676.93		151+75	677.18		677.22
676.99		151+87.76	677.21		677.23
677.04		152+00	677.22		677.21
677.11		152+25	677.23		677.16
677.09		152+37.76	677.19		677.09
	10	152+50	677.11	10	

No extra Pavement.

Left Edge of Pave.	Width	Sta. 159+54.90 Station	℄ Grade Elev.	Right Width	Edge of Pave.
	10	157+50	672.76	10	
672.75		157+79.89	672.85		672.75
673.14		158+00	673.24		673.18
673.38		158+25	673.48		673.49
673.44		158+29.89	673.54		673.56
673.63		158+50	673.73		673.79
673.86		158+75	673.96		674.09
673.90		158+79.89	674.00		674.14
674.07		159+00	674.17		674.35
674.26		159+25	674.36		674.61
674.29		159+29.89	674.39		674.65
674.42		159+50	674.52		674.78
674.47		159+54.90	674.57		674.83
674.68		159+75	674.78		675.04
674.68		159+79.89	674.78		675.04
674.68		160+00	674.78		675.00
674.77		160+25	674.87		675.02
674.78		160+29.89	674.88		675.02
674.84		160+50	674.94		675.03
674.90		160+75	675.00		675.03
674.91		160+79.89	675.01		675.03
674.96		161+00	675.06		675.03
675.02		161+25	675.12		675.03
675.03		161+29.89	675.13		675.03
	10	161+50	675.18	10	

No extra Pavement.

Side Drains

Side	From	To	Type	8"
R	164+82	167+00	Relay	218'

Left Edge of Pave.	Width	Sta. 168+96.4 Station	℄ Grade Elev.	Right Width	Edge of Pave.
	10	167+00	677.55	10	
677.54		167+01.05	677.55		677.54
677.58		167+25	677.73		677.69
677.60		167+50	677.92		677.84
677.60		167+51.05	677.92		677.84
677.69		167+75	677.96		678.04
677.72		168+00	678.05		678.19
677.72		168+01.05	678.05		678.19
677.75		168+25	678.14		678.24
677.78		168+50	678.24		678.50
677.78		168+51.05	678.24		678.50
677.86		168+75	678.32		678.58
677.91		168+96.40	678.37		678.63
677.94		169+00	678.40		678.66
678.03		169+25	678.49		678.75
678.09		169+41.61	678.55		678.81
678.14		169+50	678.58		678.82
678.28		169+75	678.66		678.84
678.37		169+91.61	678.71		678.85
678.43		170+00	678.75		678.87
678.57		170+25	678.83		678.89
678.66		170+41.61	678.88		678.90
678.72		170+50	678.92		678.92
678.86		170+75	679.00		678.94
678.95		170+91.61	679.05		678.95
	10	171+00	679.09	10	

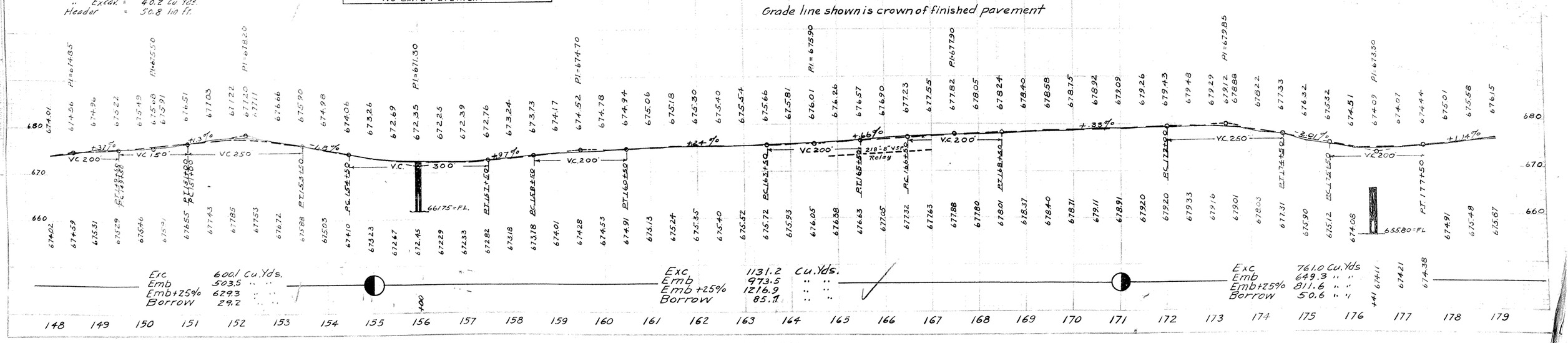
No extra Pavement.

Left Edge of Pave.	Width	Sta. 176+97.4 Station	℄ Grade Elev.	Right Width	Edge of Pave.
	10	175+00	676.32	10	
676.42		175+10.70	676.52		676.42
676.72		175+25	675.82		676.77
675.22		175+50	675.32		676.36
675.04		175+60.70	675.14		675.22
674.76		175+75	674.86		674.99
674.41		176+00	674.51		674.73
674.30		176+10.70	674.40		674.66
674.14		176+25	674.24		674.55
673.99		176+50	674.09		674.49
673.97		176+60.70	674.07		674.51
673.93		176+75	674.03		674.47
673.96		176+97.40	674.06		674.50
673.97		177+00	674.07		674.51
674.11		177+25	674.21		674.64
674.19		177+34.03	674.29		674.73
674.34		177+50	674.44		674.82
674.62		177+75	674.72		675.01
674.72		177+84.03	674.82		675.08
674.91		178+00	675.01		675.21
675.19		178+25	675.29		675.40
675.29		178+34.03	675.39		675.47
675.48		178+50	675.58		675.60
675.76		178+75	675.86		675.79
675.86		178+84.03	675.94		675.86
	10	179+00	676.15	10	

No extra Pavement.

BM. Sta. 150+75	BM. Sta. 163+40
X on step at Store 60 Left of ℄ Elev. 676.75	Staples in root of Elm 30' Right of ℄ Elev. 676.47

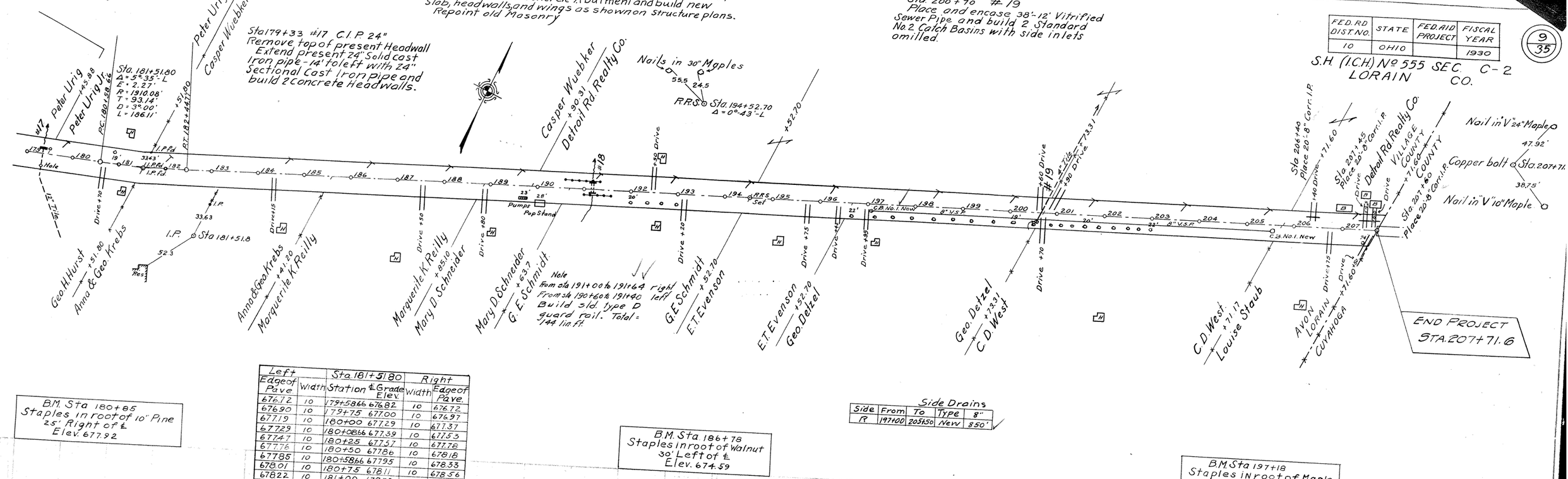
Grade line shown is crown of finished pavement



FED. RD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

9/35

S.H. (I.C.H.) No 555 SEC. C-2
LORAIN CO.



B.M. Sta 180+85
Staples in root of 10" Pine
25' Right of ℄
Elev. 677.92

B.M. Sta 186+78
Staples in root of Walnut
30' Left of ℄
Elev. 674.59

B.M. Sta 197+18
Staples in root of Maple
25' Right of ℄
Elev. 679.43

Left Edge of Pave	Width	Sta. 181+51.80 Station	℄ Grade Elev.	Right Width	Right Edge of Pave
676.72	10	179+58.66	676.82	10	676.72
676.90	10	179+75	677.00	10	676.97
677.19	10	180+00	677.29	10	677.37
677.29	10	180+08.66	677.39	10	677.53
677.47	10	180+25	677.57	10	677.78
677.76	10	180+50	677.86	10	678.18
677.85	10	180+58.66	677.95	10	678.33
678.01	10	180+75	678.11	10	678.56
678.22	10	181+00	678.32	10	678.88
678.27	10	181+08.66	678.37	10	678.99
678.35	10	181+25	678.45	10	679.07
678.44	10	181+50	678.54	10	679.16
678.44	10	181+51.80	678.54	10	679.16
678.47	10	181+75	678.57	10	679.19
678.45	10	181+94.77	678.55	10	679.17
678.44	10	182+00	678.54	10	679.14
678.35	10	182+25	678.45	10	678.92
678.24	10	182+44.77	678.34	10	678.72
678.21	10	182+50	678.31	10	678.67
678.06	10	182+75	678.16	10	678.39
677.94	10	182+94.77	678.04	10	678.18
677.91	10	183+00	678.01	10	678.13
677.75	10	183+25	677.85	10	677.84
677.61	10	183+44.77	677.71	10	677.61
		183+50	672.69		
No extra Pavement.					

Side Drains

Side	From	To	Type	
R	197+00	205+50	New	8" 850'

Grade line shown is crown of finished pavement.

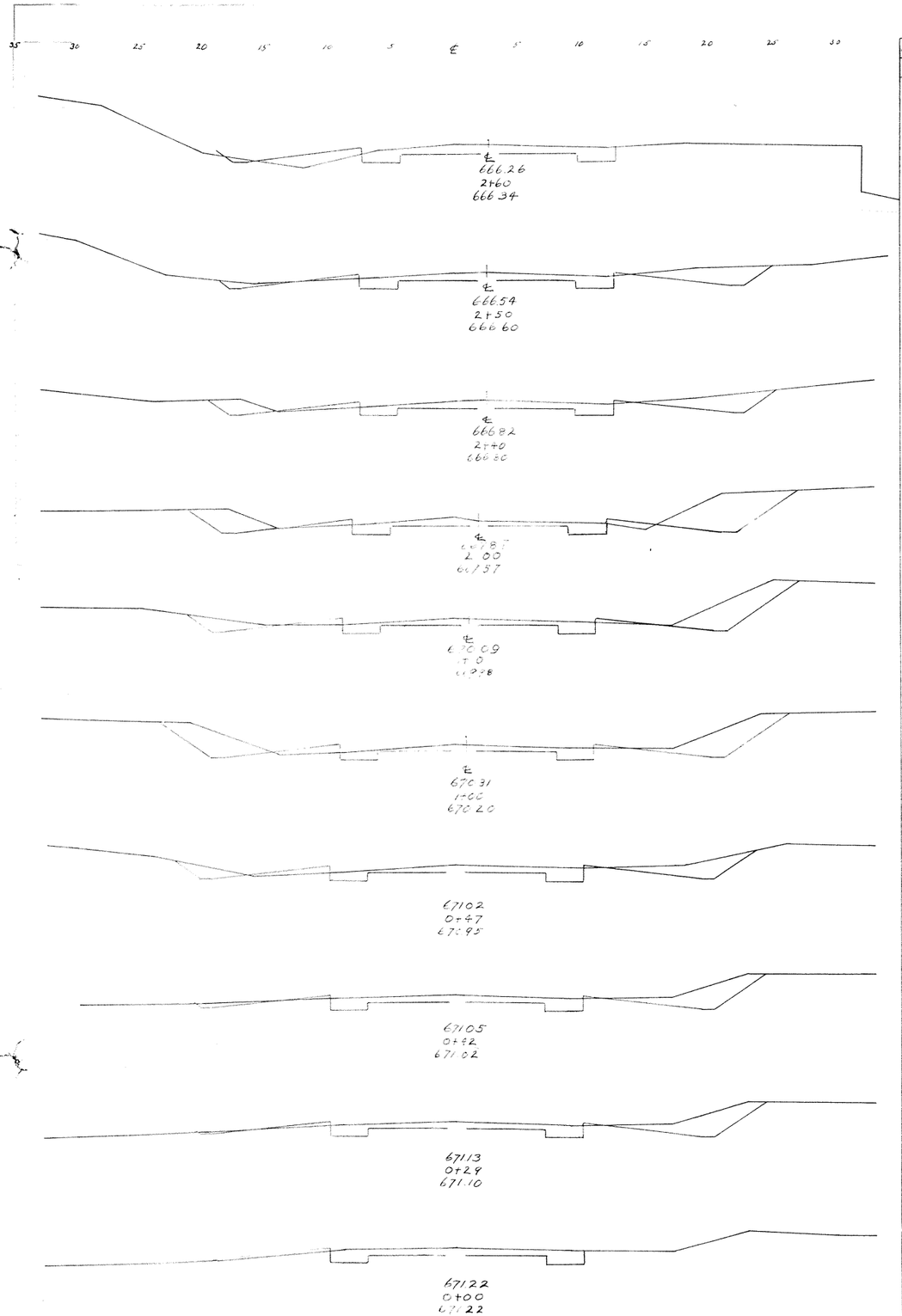
Exc. 541.6 Cu. Yds.
Emb 352.4 " "
Emb + 25% 440.5 " "
Waste 101.1 " "

Exc. 899.8 Cu. Yds.
Emb 618.3 " "
Emb + 25% 773.6 " "
Waste 126.2 " "

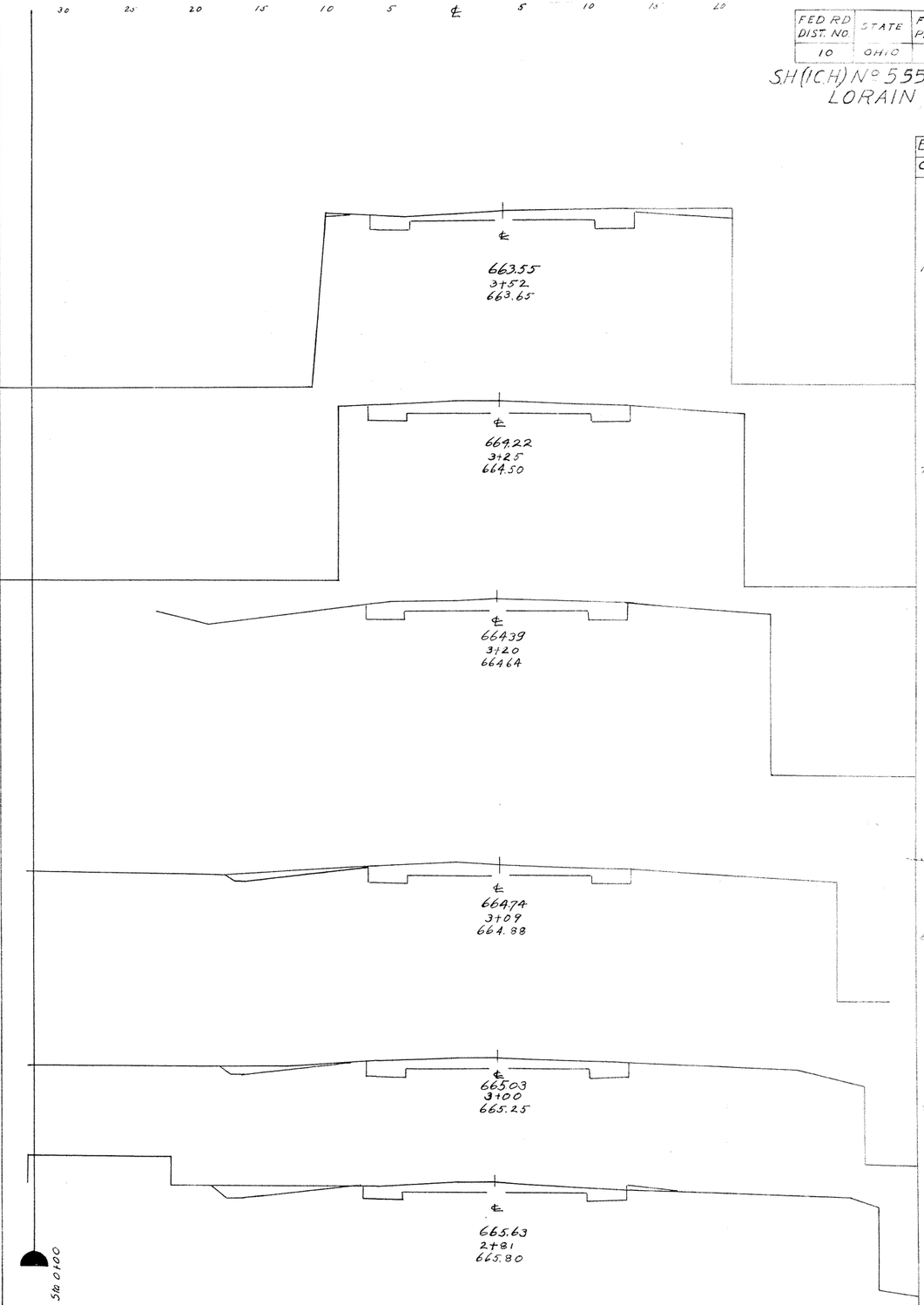
FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

10/35

SH(1CH) No 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		5.6	3.1
5.9	5		
		4.1	1.2
16.5	1.0		
		6.5	0.5
18.7	1.5		
		31.0	4.6
23.2	4.7		
		79.8	9.1
24.7	0.8		
		9.9	0.6
29.1	2.3		
		47.5	3.7
19.9	1.5		
		2.5	1.6
17.9	0.3		
		8.3	0.1
16.7	0.2		
		12.5	0.1
6.5	0.0		



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		1.8	0.0
10.5	0.0		
		8.9	0.0
7.1	0.0		
		1.3	0.0
7.0	0.0		
		3.2	0.3
8.7	1.7		
		3.0	0.3
7.5	0.0		
		6.3	0.9
8.5	2.5		

	Cu. Yds.
EXC.	554.2
EMB.	114.9
EMB. 12%	143.6
WASTE	410.6

FED. RD DIST. NO	STATE	FED AID PROJECT	FISCAL YEAR
10	OHIO		1930

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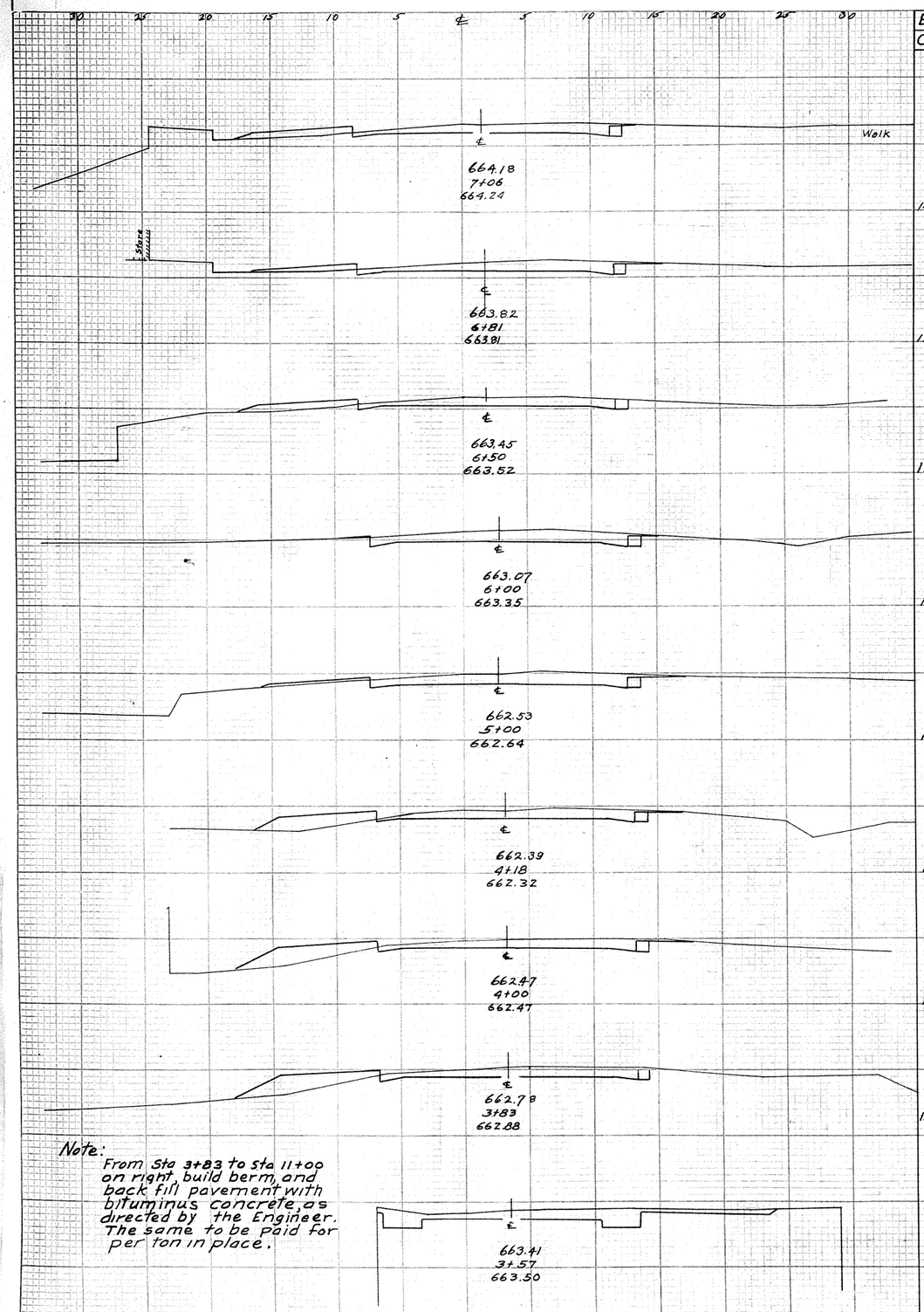
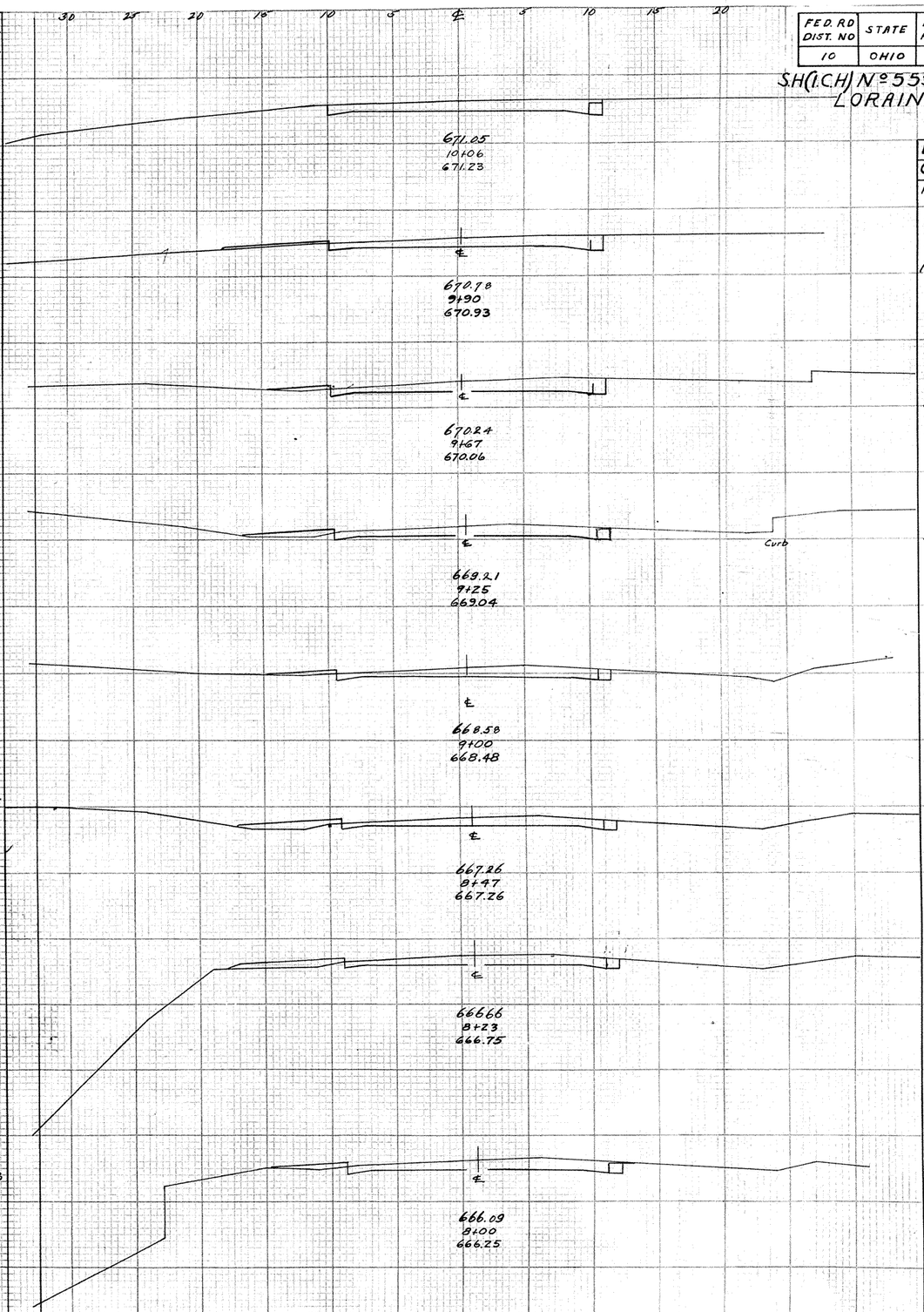
S.H.(I.C.H.) No. 555 SEC C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
		53.8	10.4
14.6	4.0		
		12.5	3.2
12.4	3.0		
		14.1	4.4
12.2	4.7		
		27.7	4.3
17.7	0.0		
		60.2	5.6
14.8	3.0		
		39.2	20.5
11.0	10.5		
		7.7	7.1
12.2	11.0		
		8.1	6.9
13.6	11.0		
		11.3	5.3
9.9	0.0		

Note:
From Sta 3+83 to Sta 11+00 on right, build berm, and back fill pavement with bituminus concrete, as directed by the Engineer. The same to be paid for per ton in place.



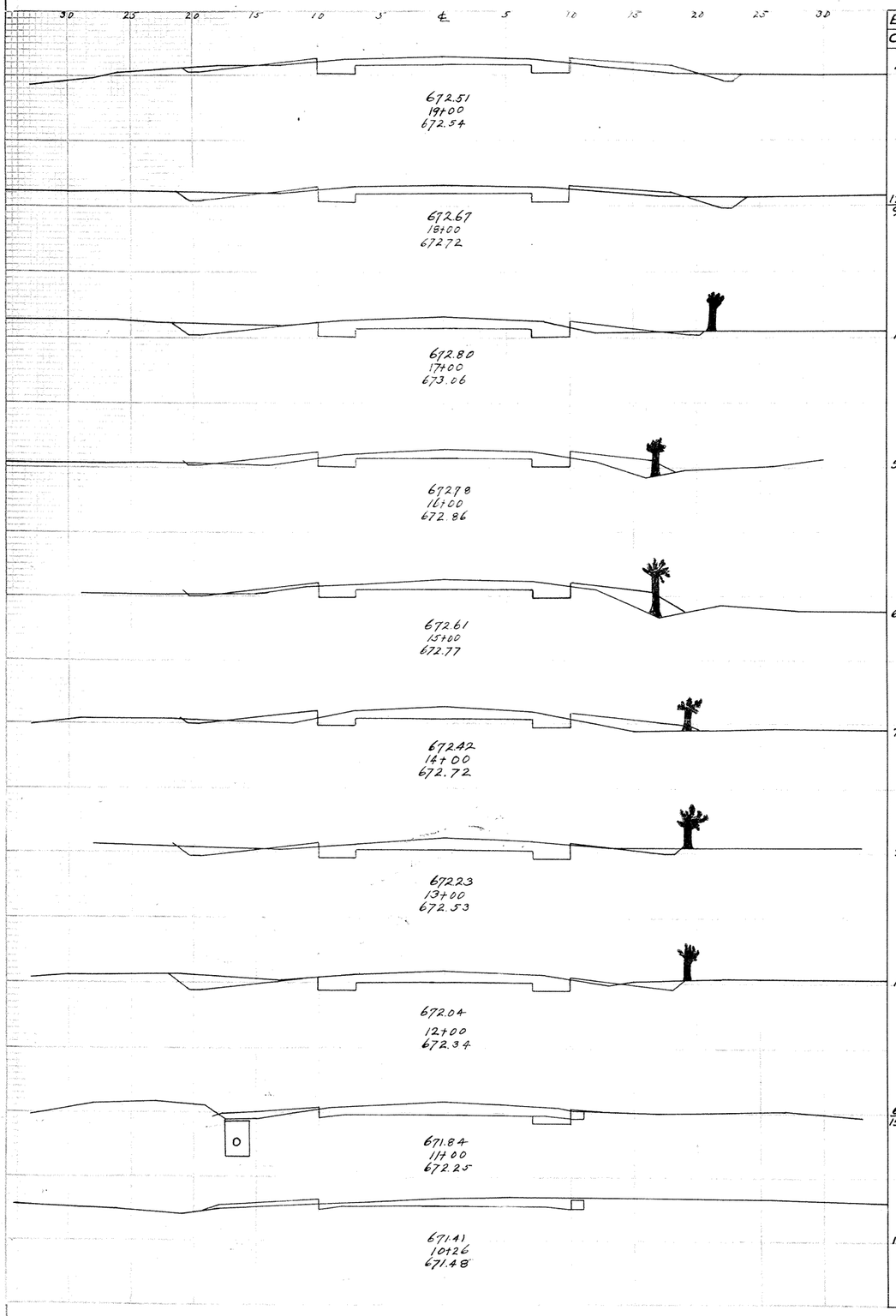
End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
17.0	0.0		
		9.9	0.0
16.6	0.0		
		11.4	0.9
10.2	2.2		
		15.1	5.1
9.3	4.5		
		8.4	3.4
8.8	3.0		
		19.4	6.3
11.0	3.5		
		10.7	3.1
13.1	3.5		
		12.5	2.3
16.3	2.0		

Sta 10+06

FED. RD DIST. NO	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

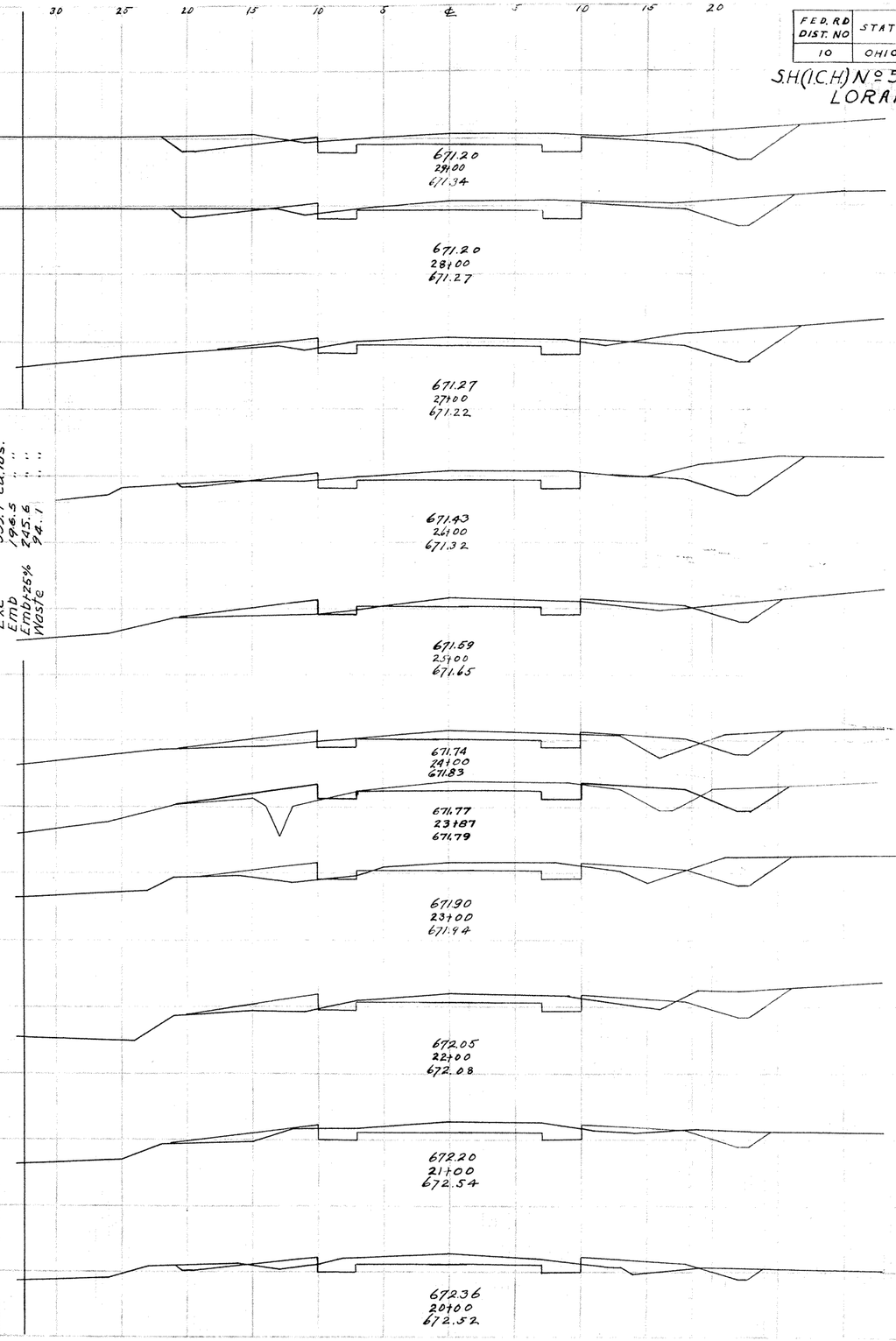
12/35

S.H.(I.C.H.) No 555 SEC C-2
LORAIN CO



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
7.5	6.5		
		36.3	19.4
12.1 / 9.9	4.0 / 2.5		
		38.9	11.1
11.1	3.5		
		30.7	26.3
5.5	10.7		
		21.9	36.5
6.3	9.0		
		25.0	35.2
7.2	10.0		
		31.7	21.7
9.9	1.7		
		40.7	4.3
12.1	0.6		
		34.9	5.7
6.5 / 15.5	2.5		
		37.7	7.5
12.0	3.0		
		10.7	1.0

Exc 339.7 Cu. Yds.
Emb 196.5 " "
Emb. 125% 245.6 " "
Waste 94.1 " "



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
28.2	0.7		
		94.6	3.6
22.9	1.2		
		80.4	7.8
20.5	3.0		
		74.8	12.4
19.9	3.7		
		55.2	22.0
9.9	8.7		
		40.6	28.9
12.0	7.4		
		5.8	5.1
12.2	14.0		
		45.6	35.4
16.1	8.0		
		60.2	29.1
16.4	7.7		
		57.0	17.4
14.4	1.7		
		44.4	18.9
9.6	8.5		
		31.7	27.8

Cu Yds
Exc 464.0 " "
Emb 177.0 " "
Emb. 125% 221.2 " "
Waste 242.8 " "

Sta 28+00

Sta 20+00

NOTE BOOK NO. | TRACE | AREAS CHECKED

Area Checked

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

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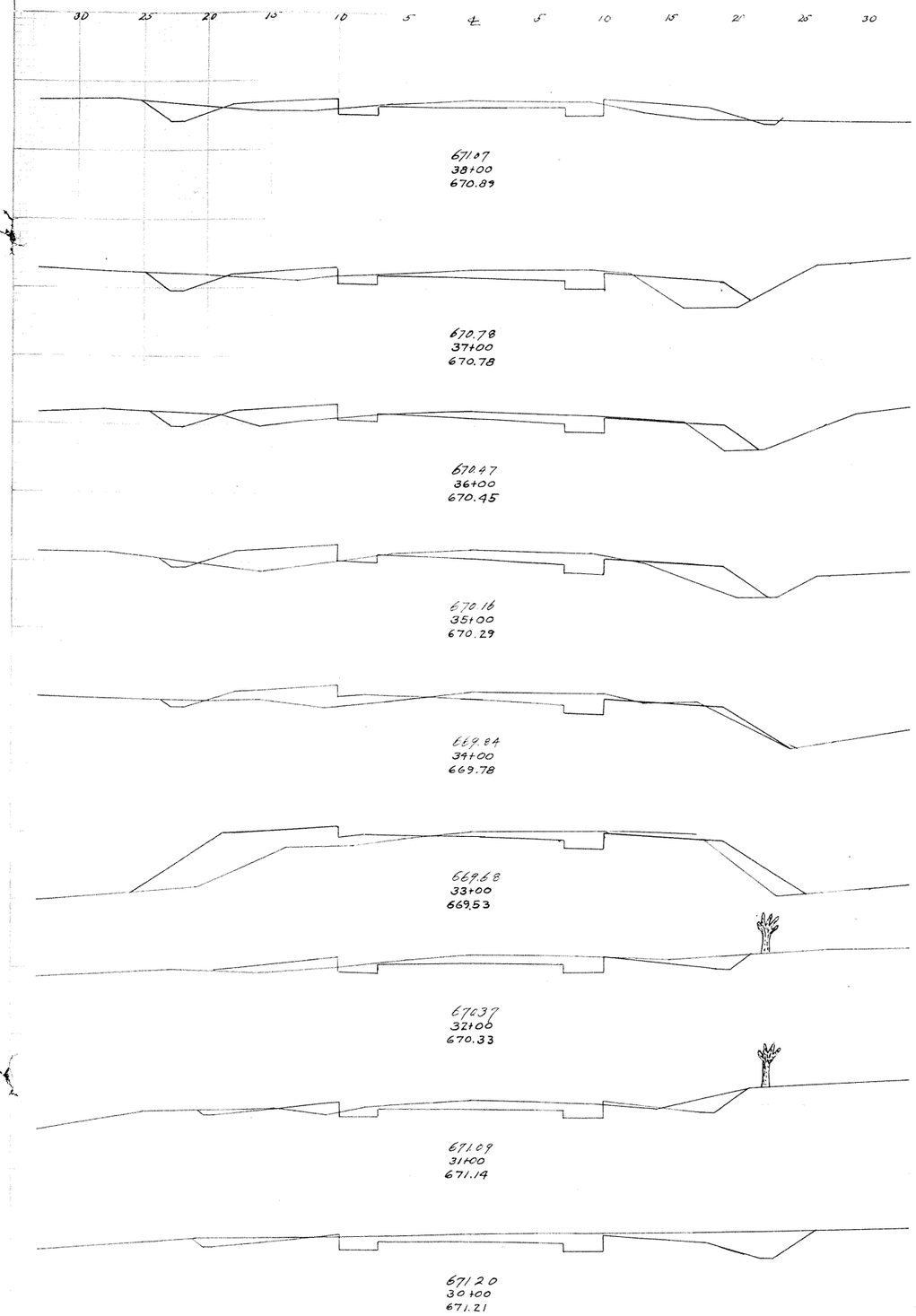
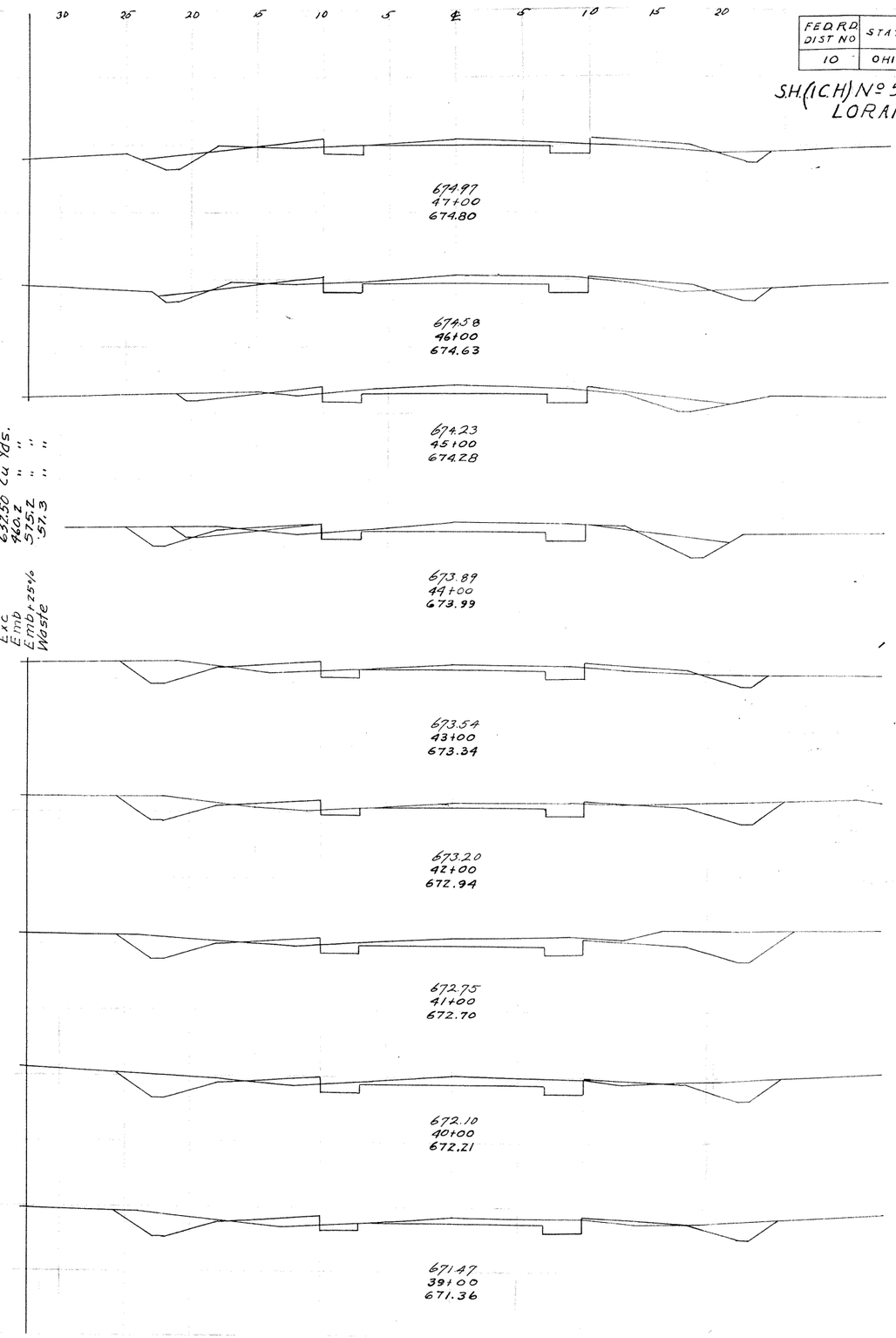
S.H. (I.C.H.) No 555 SEC C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
15.2	8.2		
		49.4	46.7
11.5	17.0		
		42.6	54.1
11.5	12.2		
		37.2	55.1
8.6	17.5		
		25.7	65.6
5.0	17.9		
		18.1	101.7
4.8	37.0		
		27.4	75.4
10.0	3.7		
		39.3	13.1
11.2	3.4		
		65.6	6.7
24.2	0.2		
		97.0	1.7

632.50 Cu Yds.
460.2 " " "
575.2 " " "
57.3 " " "

Exc
Emb
Emb+25%
Waste



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
11.2	4.5		
		35.7	20.2
8.1	6.4		
		26.7	25.2
6.3	7.2		
		30.2	27.6
10.0 / 13.2	7.7 / 8.9		
		53.5	25.6
15.7	4.9		
		63.7	19.4
18.7	5.6		
		83.1	16.3
26.2	3.2		
		87.2	10.6
20.9	2.5		
		73.3	13.0
18.7	4.5		
		62.8	23.5

519.30 Cu. Yds.
222.1 " " "
277.6 " " "
241.7 " " "

Exc
Emb
Emb+25%
Waste

Sta 20+00

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

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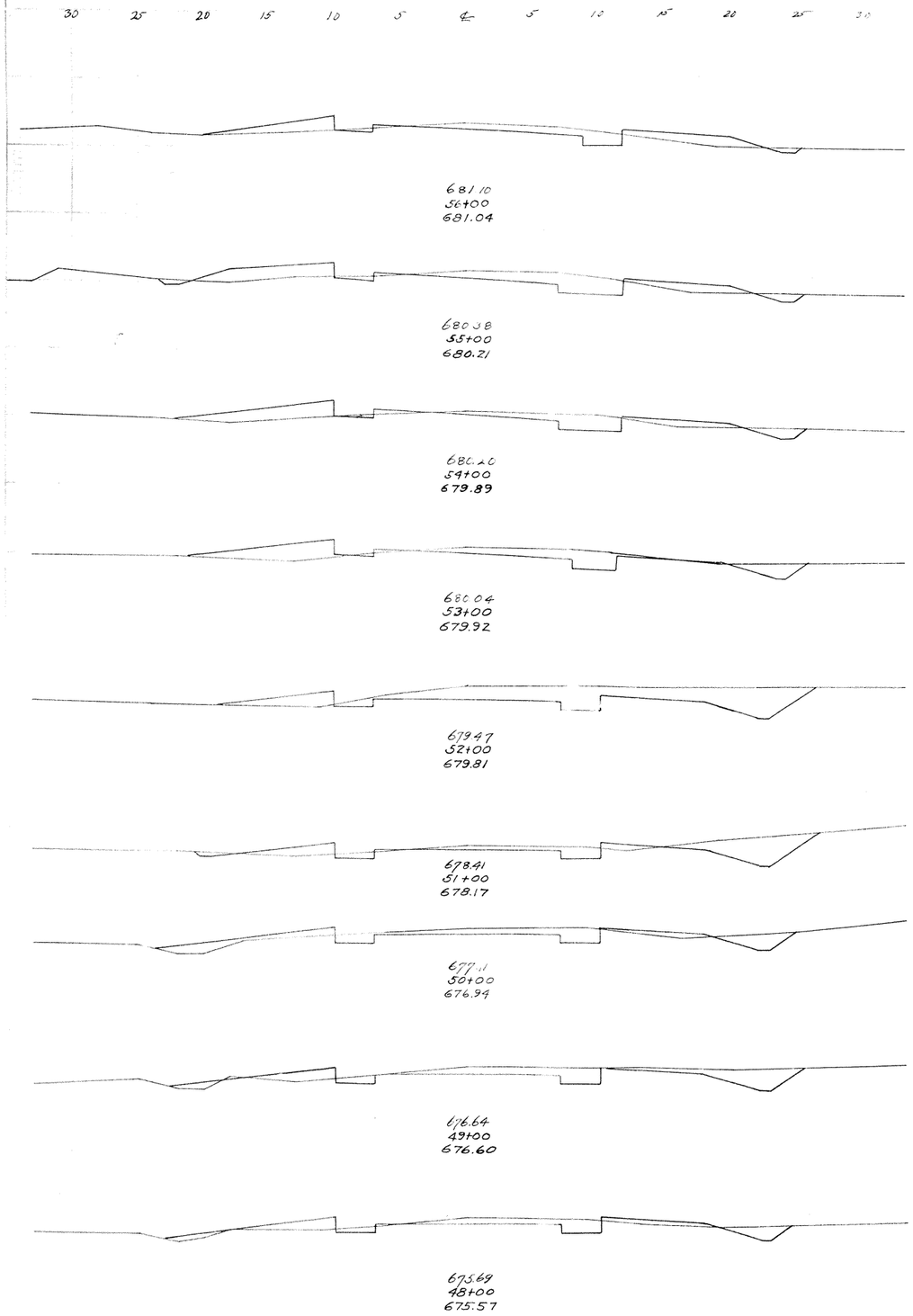
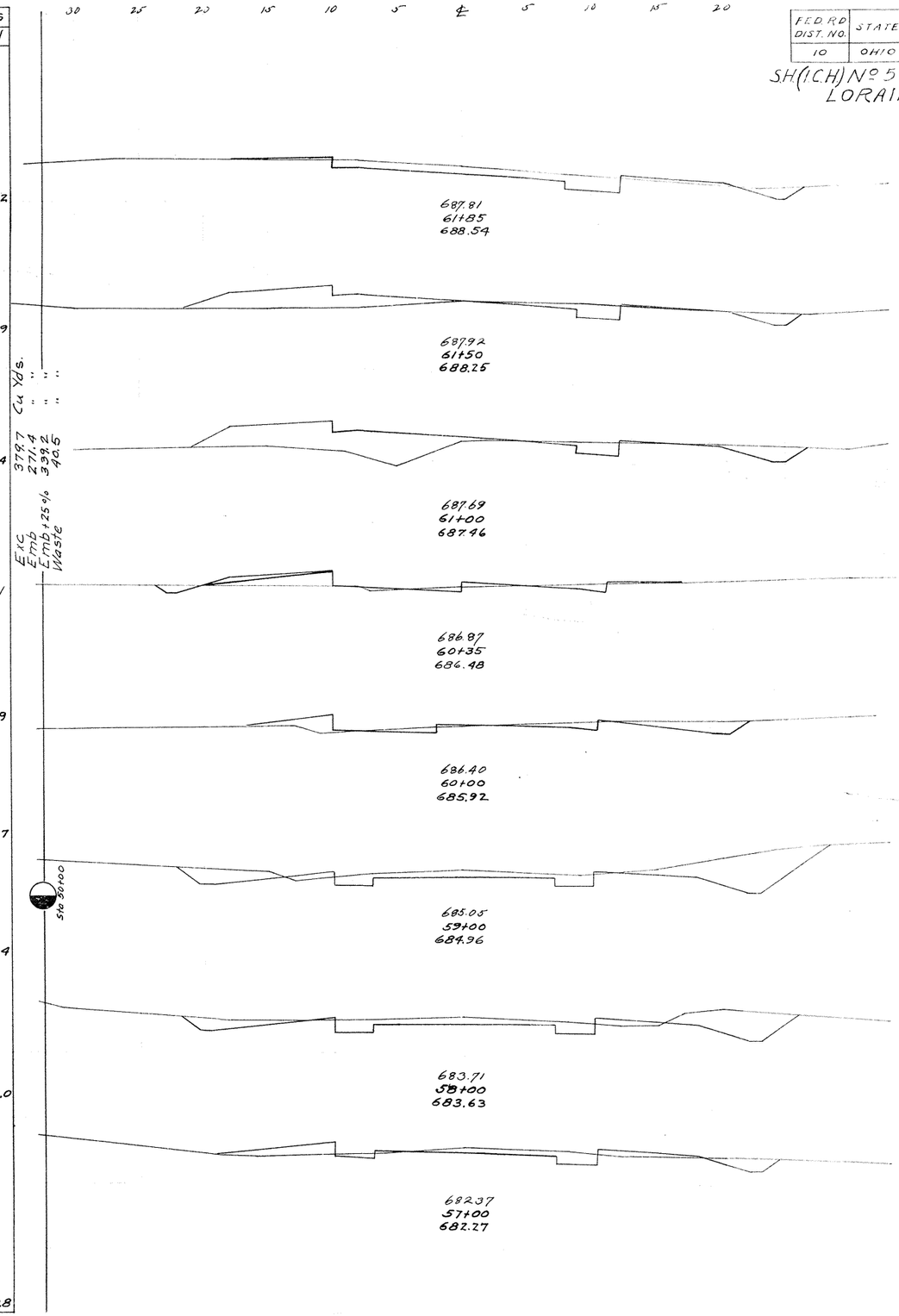
SH(I.C.H) Nº 555 SEC C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
5.4	10.7		
		27.2	45.2
9.3	13.7		
		32.4	48.9
8.2	12.7		
		32.2	39.4
9.2	8.6		
		68.7	26.1
27.9	5.5		
		82.0	20.9
16.4	5.8		
		47.4	33.7
9.2	12.4		
		46.3	34.4
15.8	6.2		
		50.7	23.0
11.6	6.2		
		42.2	19.8

Cu Yds.
Exc 379.7
Emb 271.4
Emb +25% 339.2
Waste 40.5



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
7.7	0.5		
		9.1	14.7
6.4	21.2		
		19.3	52.8
14.5	35.8		
		20.0	53.2
2.1 / 0.6	8.4 / 6.4		
		5.2	6.9
7.4	4.2		
		84.6	9.6
38.3	1.0		
		123.3	7.0
28.3	2.8		
		66.1	21.3
7.4	8.7		
		23.7	35.9

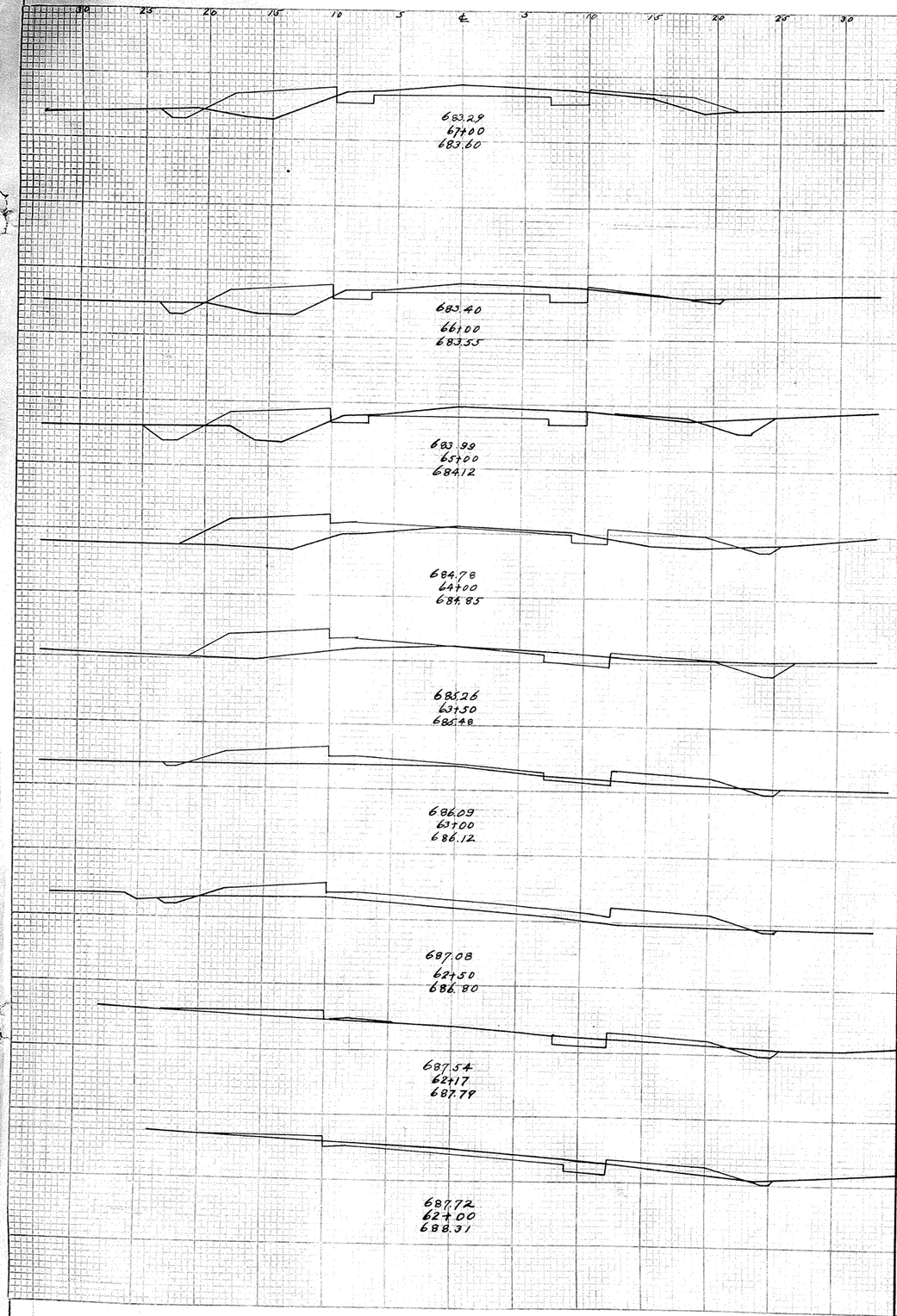
Cu. Yds.
Exc 299.7
Emb 314.4
Emb +25% 393.0
Borrow 93.3

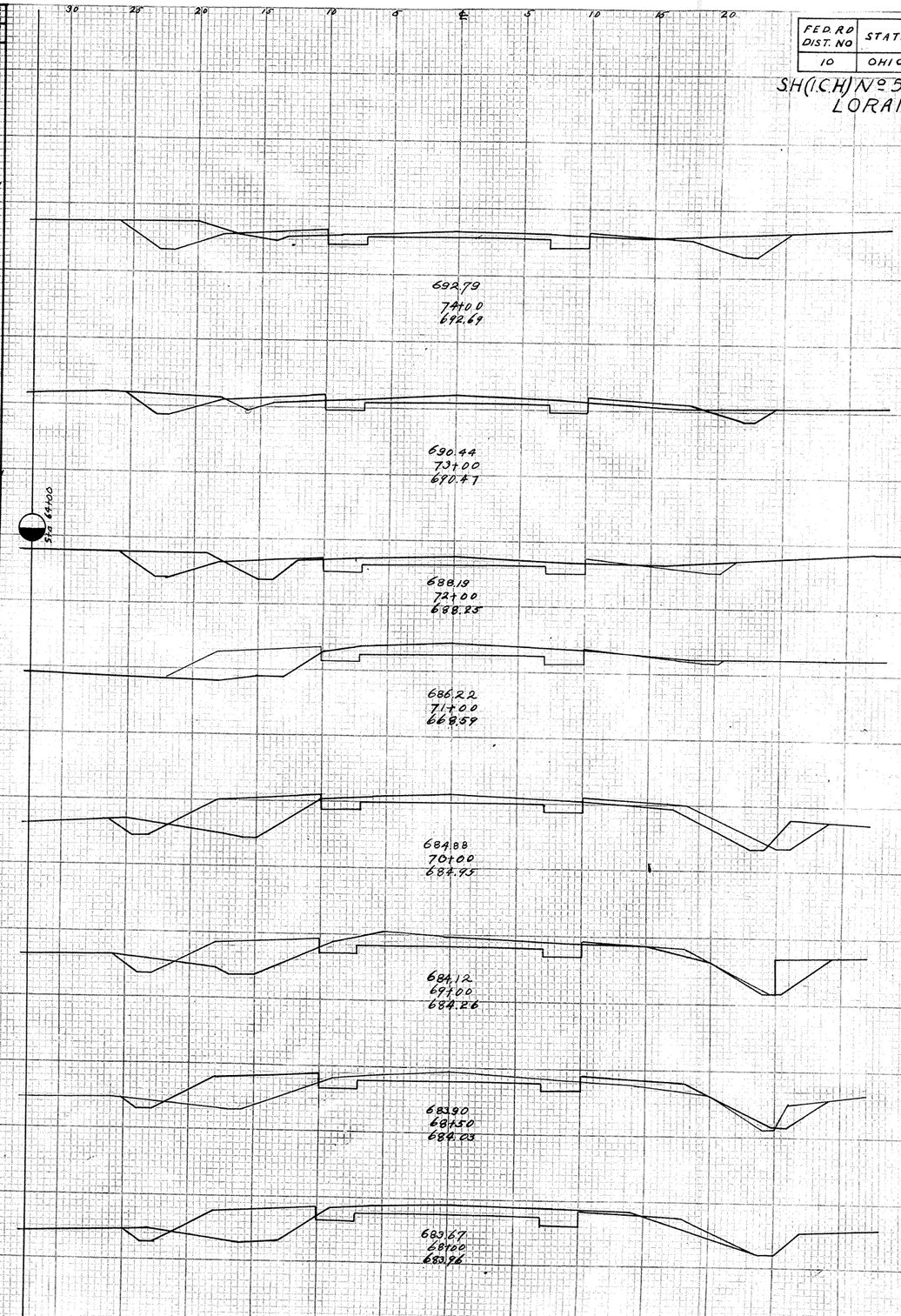
Sta 58+00

FED. RD DIST. NO	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

15/35

SH(I.C.H) No. 555 SEC C-2
LORAIN CO.





End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
6.4	20.2		
		25.6	68.7
7.9	16.9		
		37.2	61.7
12.7	16.4		
		28.9	96.5
2.9	35.7		
		10.7	55.4
8.7	24.2		
		11.3	43.6
3.5	22.9		
		4.0	47.8
0.8	28.7		
		3.5	19.9
5.0	4.0		
		5.6	2.4
3.3	3.5		
		3.1	1.1

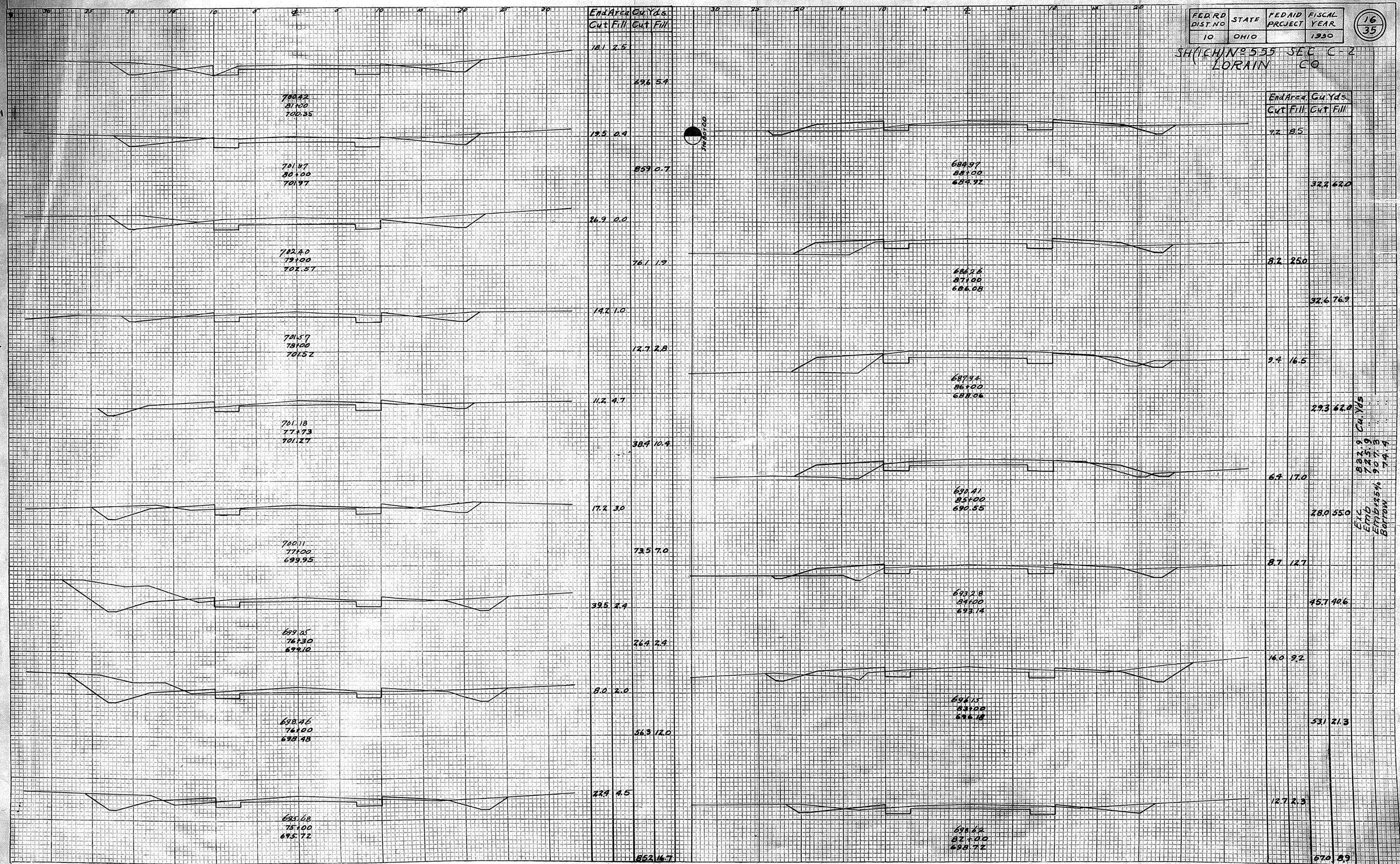
End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
23.6	4.5		
		69.8	21.7
19.1	7.2		
		62.4	24.8
19.6	6.2		
		50.2	46.3
7.5	18.8		
		40.6	88.5
14.9	29.0		
		58.1	90.4
17.0	19.8		
		24.7	40.7
9.7	24.2		
		18.2	44.1
10.0	23.5		
		30.4	80.9

Cu. Yds
Exc. 9006
Emb 718.7
Emb 125% 897.7
Waste 2.9

FED. RD DIST. NO	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

16/35

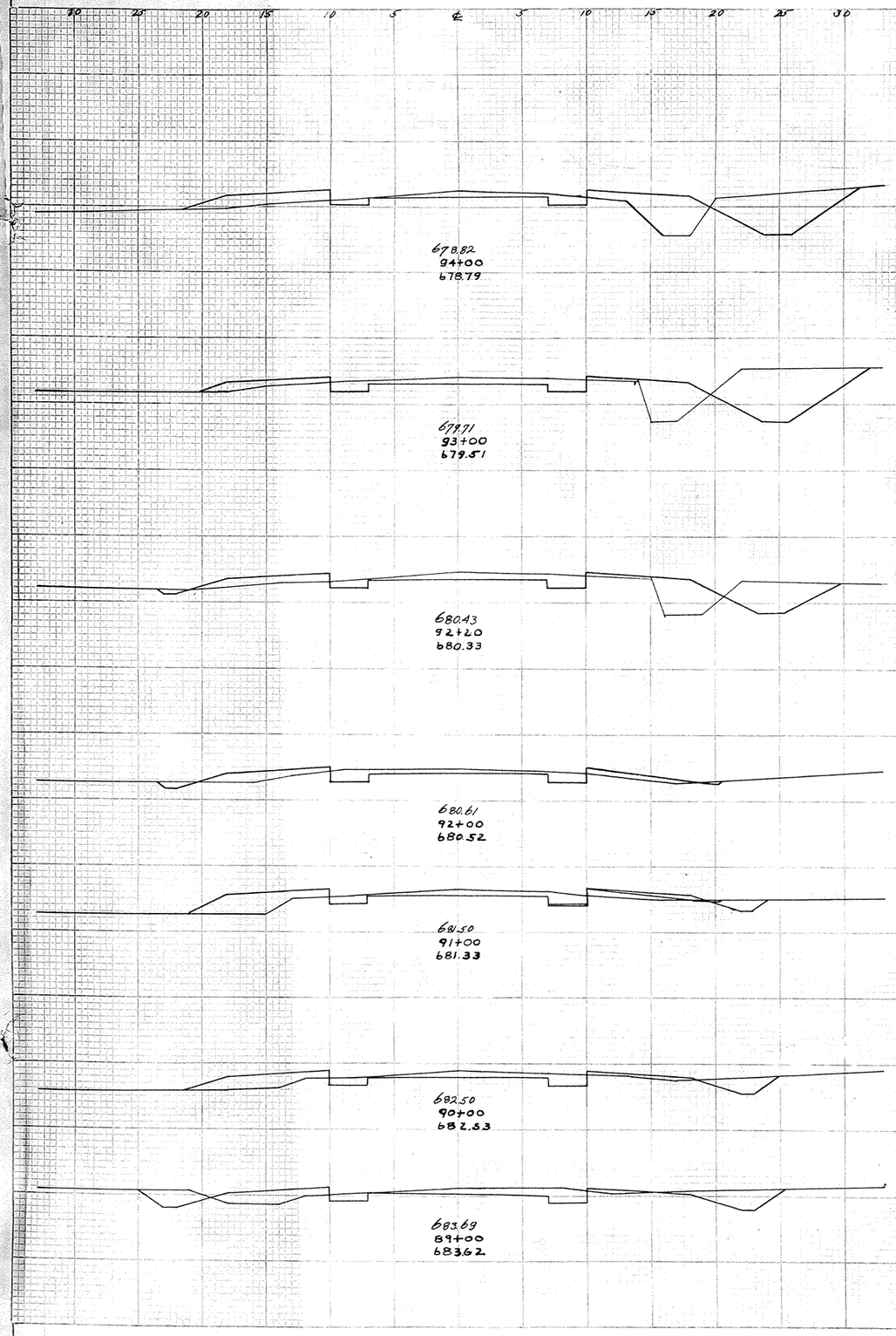
SH(1CH) No 555 SEC C-2
LORAIN CO.



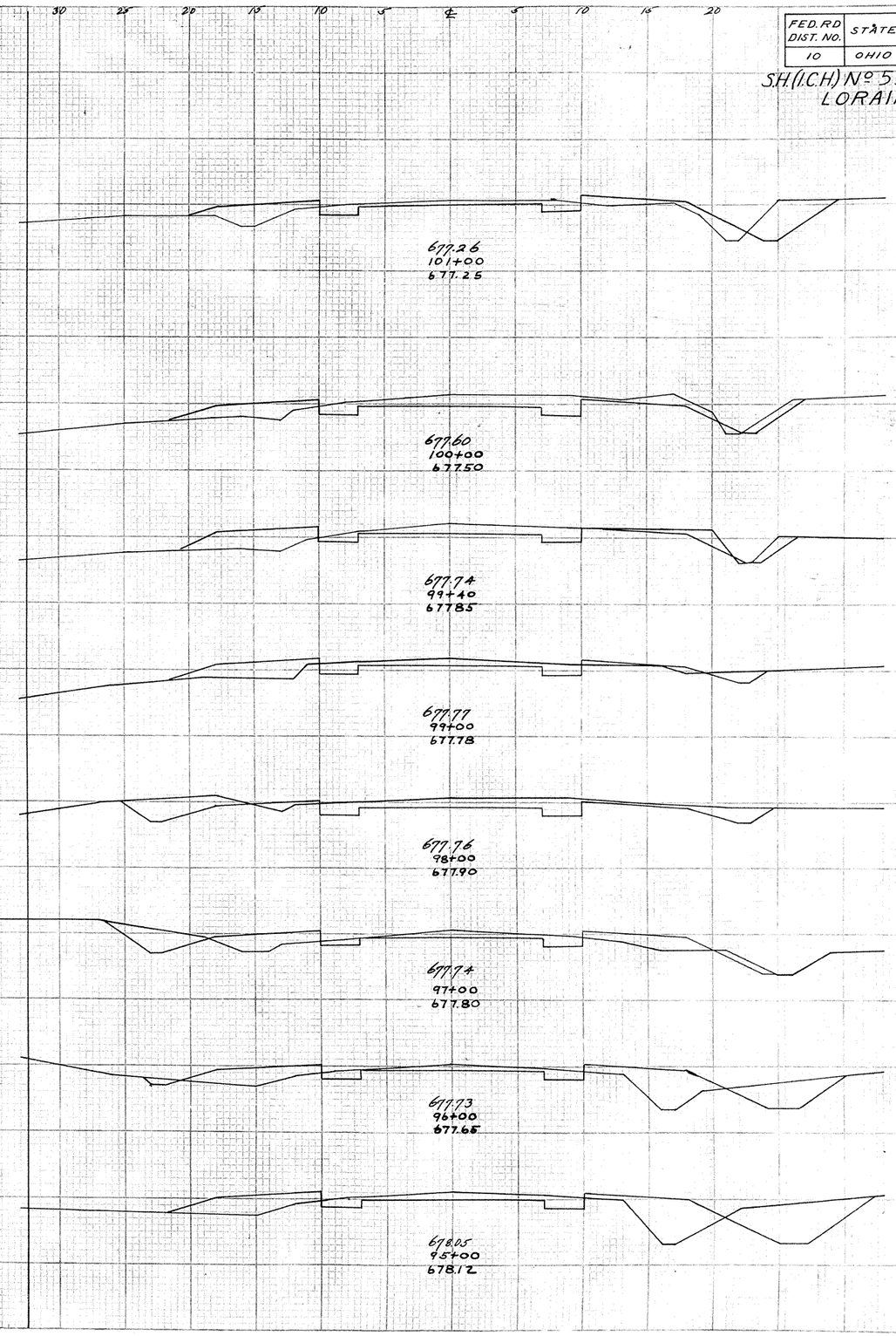
FED. RD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

17/35

S.H. (I.C.H.) No. 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
27.8	24.2		
		119.8	77.6
36.9	17.7		
		85.3	51.3
20.6	16.9		
		11.2	9.9
7.4	7.6		
		31.3	47.6
5.0 / 7.2	13.5 / 15.7		
		31.5	48.0
10.2	10.2		
		53.3	33.1
18.6	7.7		
		51.5	30.6



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
14.7	17.0		
		52.4	49.3
13.6	9.6		
		27.2	24.8
10.9	12.7		
		14.7	16.4
8.9	9.4		
		61.5	19.3
24.3	1.0		
		71.9	29.6
14.5	15.0		
		55.0	75.0
15.2	25.5		
		78.1	98.1
27.0	27.5		
		101.5	95.7

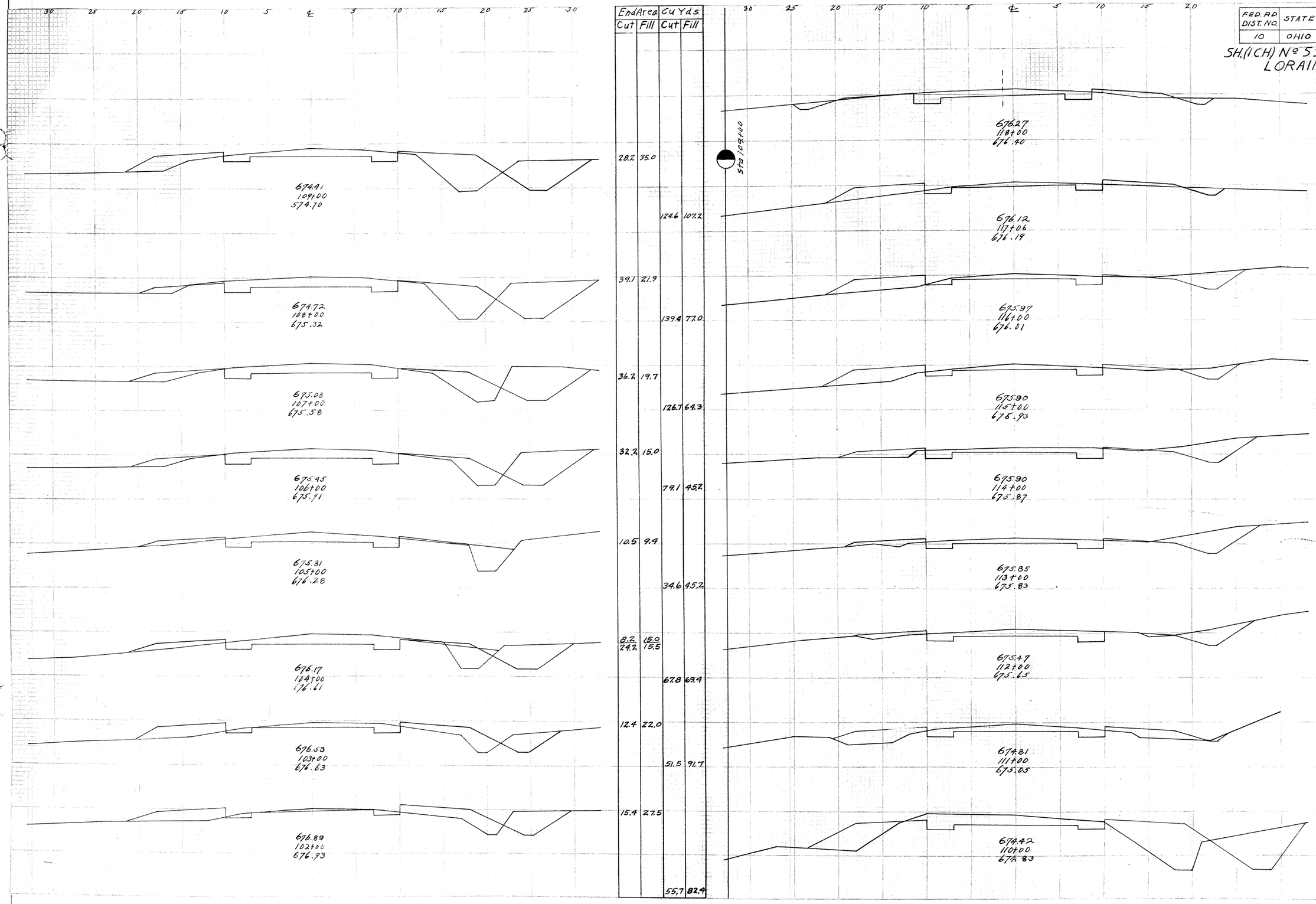
Cu. Yds
Exc. 1090.2
Emb. 894.9
Emb. 25% 1118.6
Borrow. 78.4

Sta 95+00

FED. RD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

18/35

SH. (1CH) Nº 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
28.2	35.0		
		124.6	107.2
39.1	21.9		
		139.4	77.0
36.2	19.7		
		126.7	69.3
32.2	15.0		
		79.1	45.2
10.5	9.4		
		34.6	45.2
8.2 / 24.2	15.0 / 15.5		
		67.8	69.4
12.4	22.0		
		51.5	91.7
15.4	27.5		
		55.7	82.4

End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
13.3	4.5		
		39.6	30.9
8.1	12.2		
		40.7	45.7
13.9	12.5		
		43.7	52.8
9.7	16.0		
		57.6	41.7
2.4	6.5		
		78.9	22.6
21.2	5.7		
		73.3	18.9
18.4	4.5		
		46.5	42.0
6.7	18.2		
		83.1	126.3
38.2	50.0		
		123.0	157.4

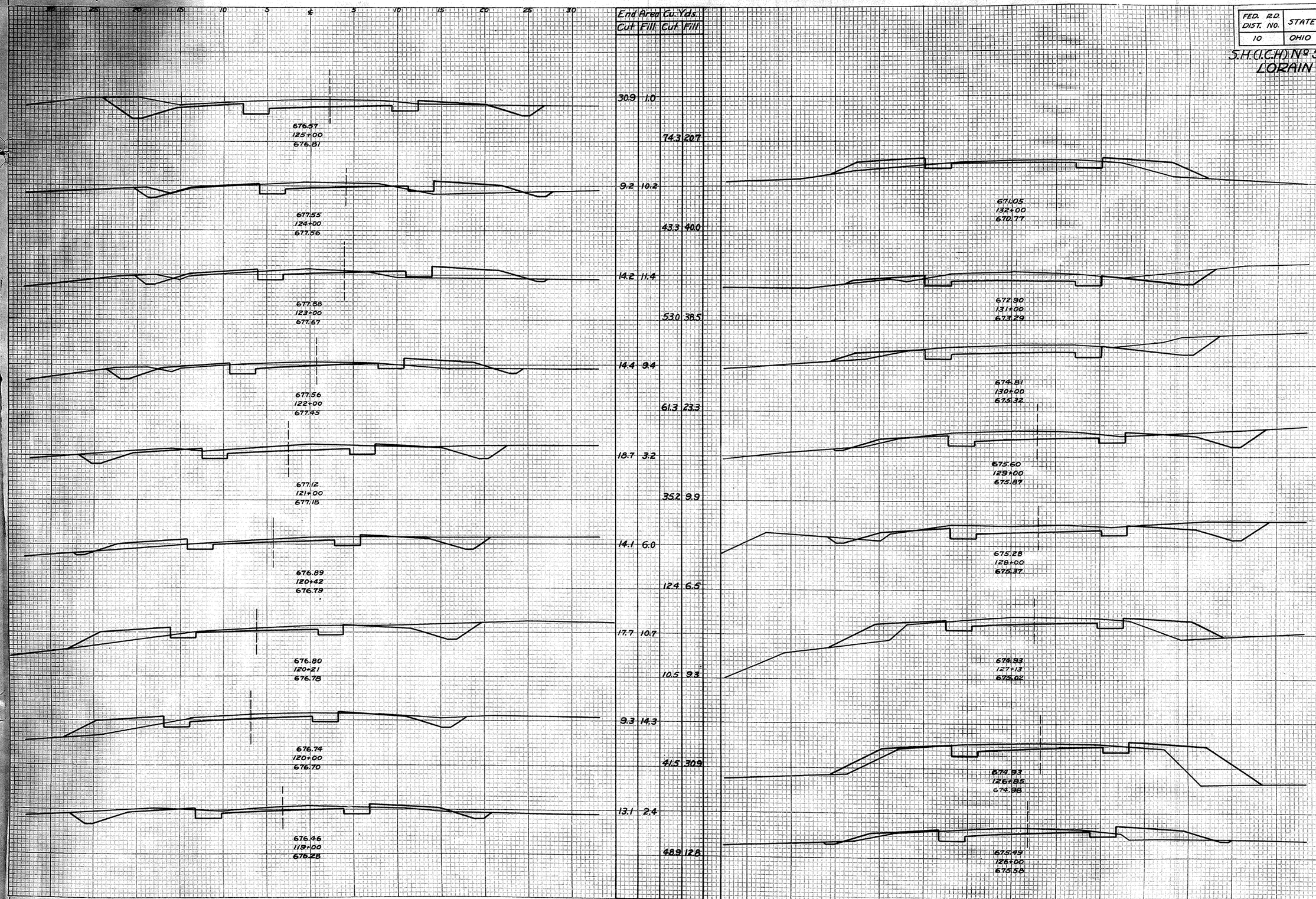
Cu. Yds
1037.7
753.0
94.3
96.4

Exc.
Emb
Emb +25%
Waste

FED. R.D. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

19/35

S.H. (I.C.H.) No 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
30.9	1.0		
		74.3	20.7
9.2	10.2		
		43.3	40.0
14.2	11.4		
		53.0	38.5
14.4	9.4		
		61.3	23.3
18.7	3.2		
		35.2	9.9
14.1	6.0		
		12.4	6.5
17.7	10.7		
		10.5	9.3
9.3	14.3		
		41.5	30.9
13.1	2.4		
		48.9	12.8

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
4.0	16.4		
		38.0	35.0
15.5	3.7		
		94.8	14.3
35.7	4.0		
		103.9	8.5
20.4	0.6		
		83.0	5.7
24.4	2.5		
		50.5	45.4
7.0	25.7		
		7.9	30.1
8.2	32.4		
		24.6	68.8
7.4	11.3		
		70.9	22.8

Exc. 1003.8 Cu. Yds.
Emb. 1592.2 Cu. Yds.
Emb. + 25% - 742.2 Cu. Yds.
Waste - 267.6 Cu. Yds.

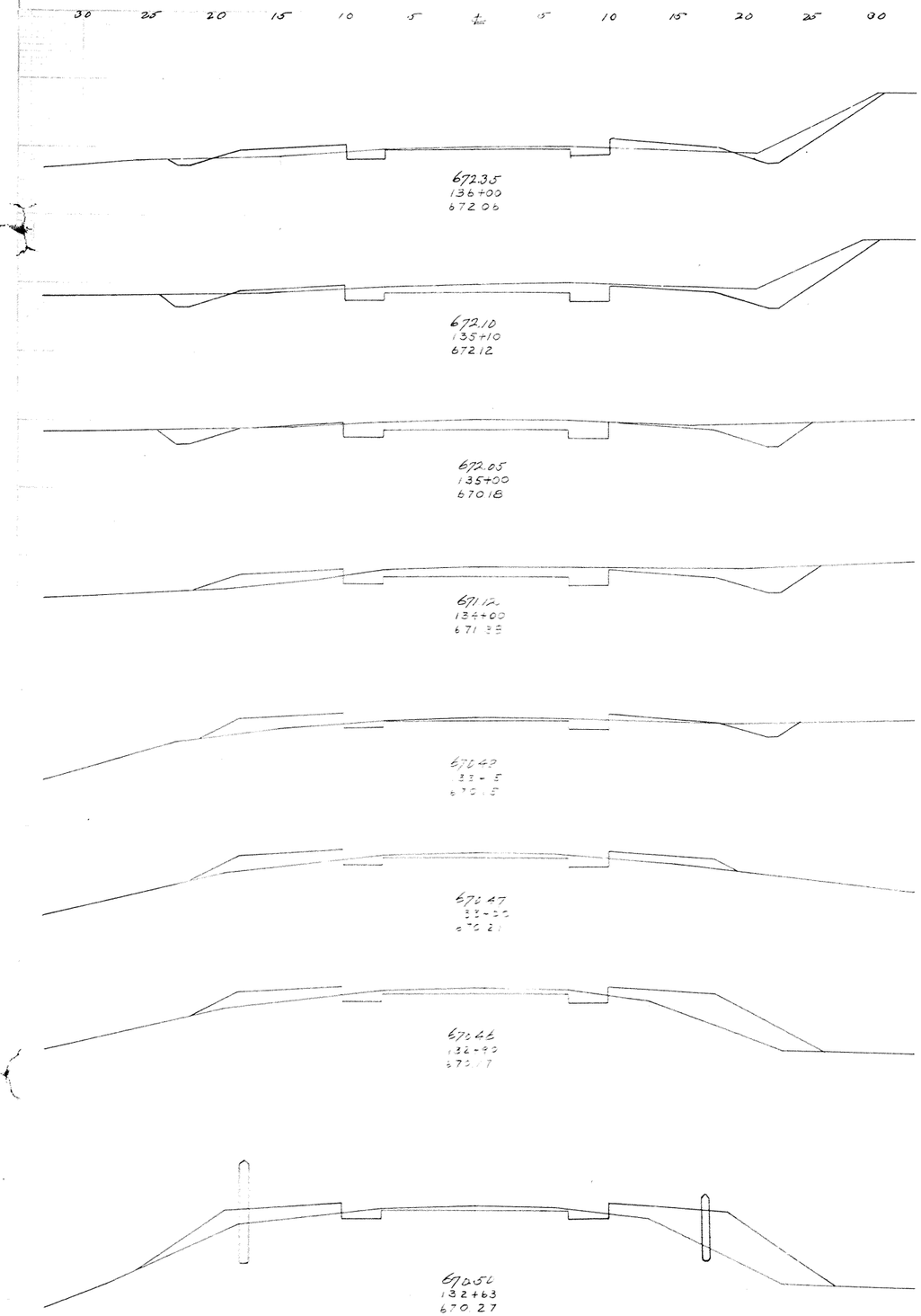
Sta. 126+00

PLATE 2 - CROSS SECTION

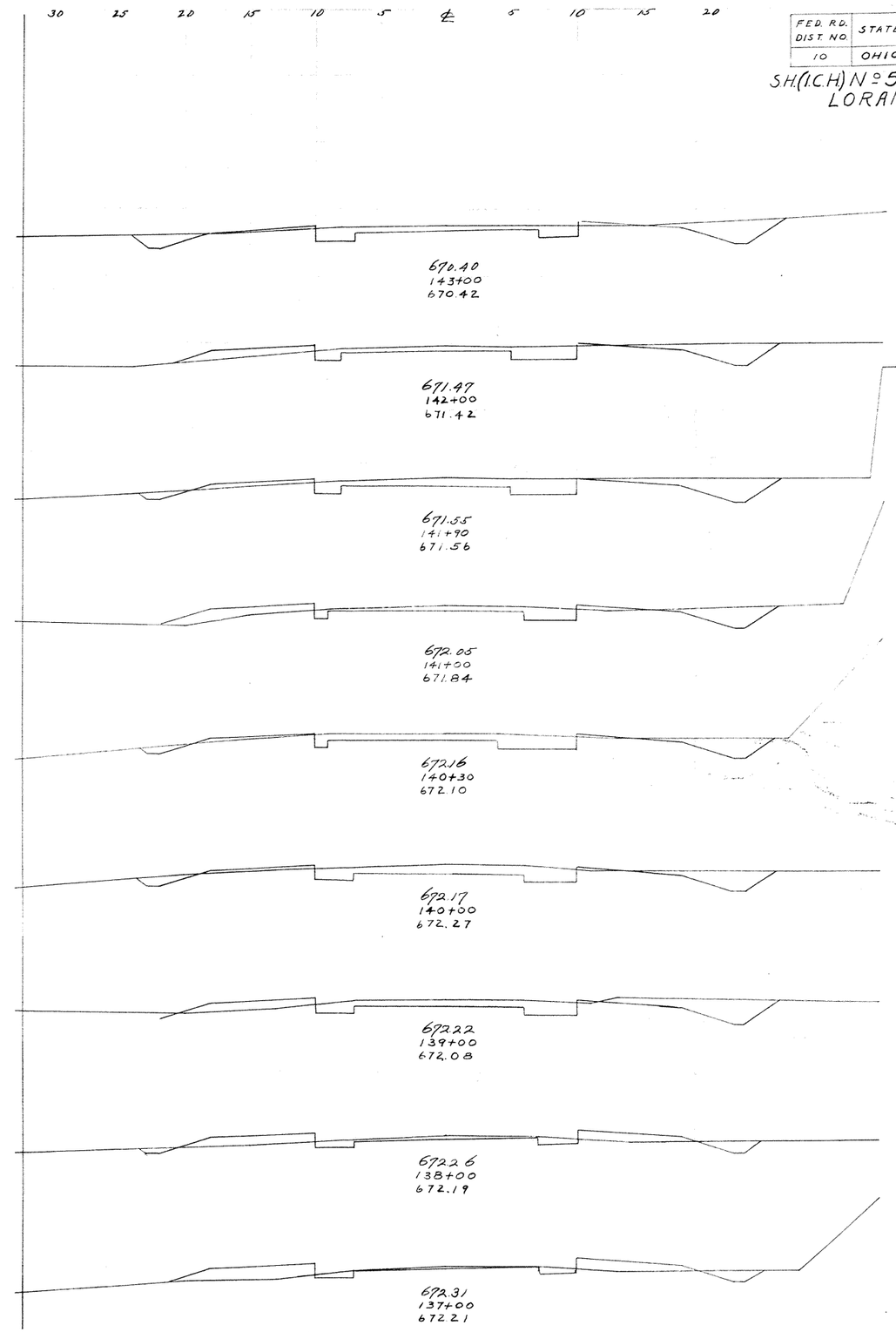
FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

20/35

S.H.(I.C.H.) No 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
15.5	11.4		
		68.7	2.3
25.7	2.5		
		8.3	0.8
18.9	2.0		
		71.9	17.6
13.9	7.5		
		43.7	29.4
7.9	11.2		
		3.2	7.5
3.7	16.0		
		1.4	8.8
4.0	31.9		
		3.4	39.3
2.9	46.7		
		8.0	73.6

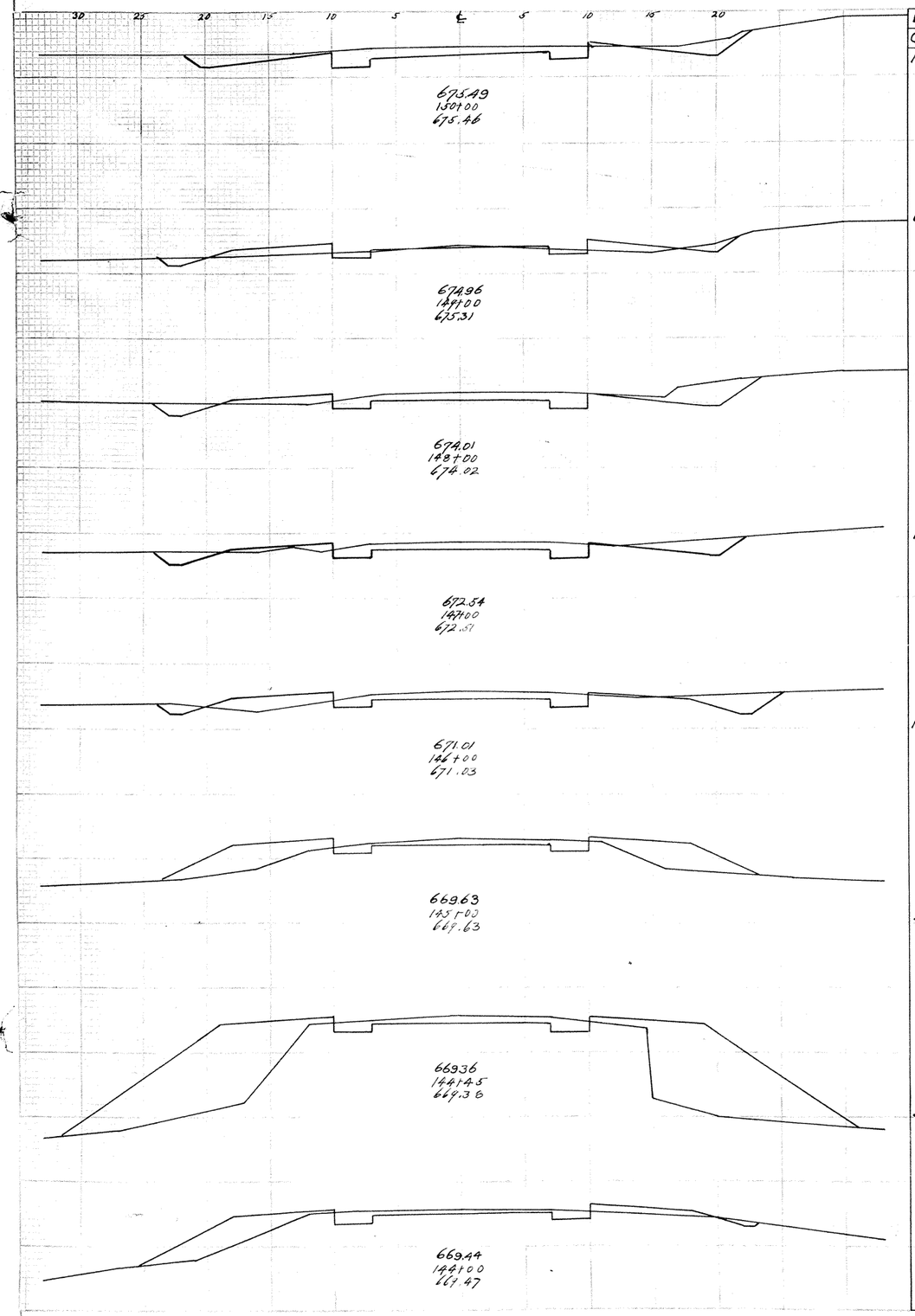


End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
18.9	1.5		
		62.0	12.8
15.1	5.4		
		6.0	1.6
17.3	3.4		
		46.8	19.5
10.8	8.3		
		36.2	14.5
17.1	2.9		
		18.4	2.7
16.1	1.9		
		68.9	12.4
21.1	4.8		
		51.9	20.0
6.9	6.0		
		23.7	36.5
5.9	13.7		
		39.6	46.5

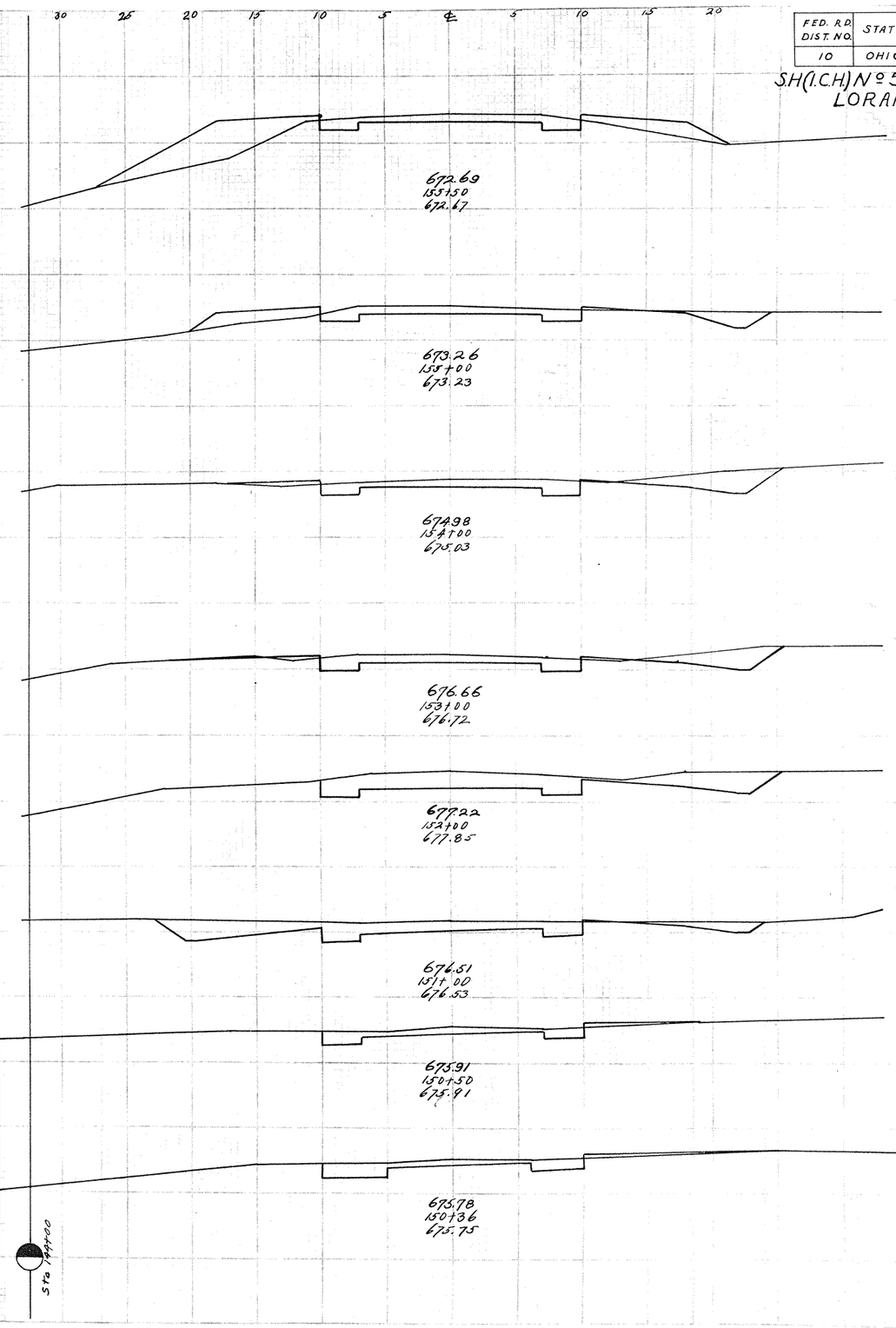
FED. RD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

21/35

S.H.(I.C.H.) No 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
19.2	0.3		
		48.3	14.8
6.9	7.7		
		44.1	22.8
16.9	4.6		
		59.3	14.1
15.1	3.0		
		53.3	21.3
13.7	8.5		
		33.5	77.8
4.9	33.5		
		8.4	187.0
3.8	150.2		
		8.1	192.0
5.9	20.2		
		45.0	40.2



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
5.7	34.2		
		15.3	39.5
10.9	8.5		
		56.3	17.6
19.5	1.0		
		66.7	3.9
16.5	1.1		
		74.4	2.0
23.7	0.0		
		94.3	0.0
27.2	0.0		
		30.4	0.0
5.7	0.0		
		3.9	0.0
9.5	0.0		
		19.1	0.2

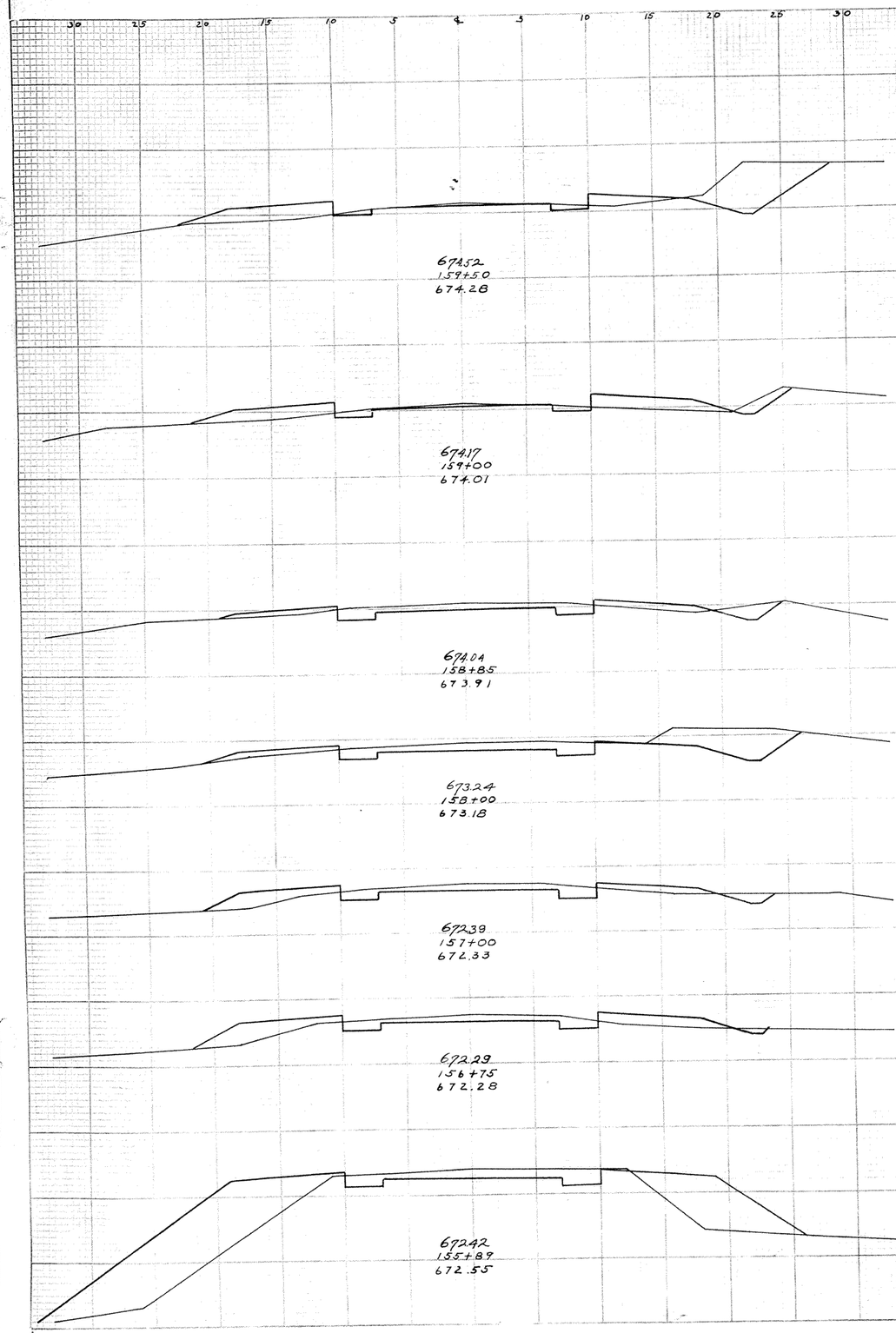
	Cu. Yds
Exc	600.1
Emb	503.5
Emb + 25%	629.3
Borrow	29.2

AREAS CHECKED

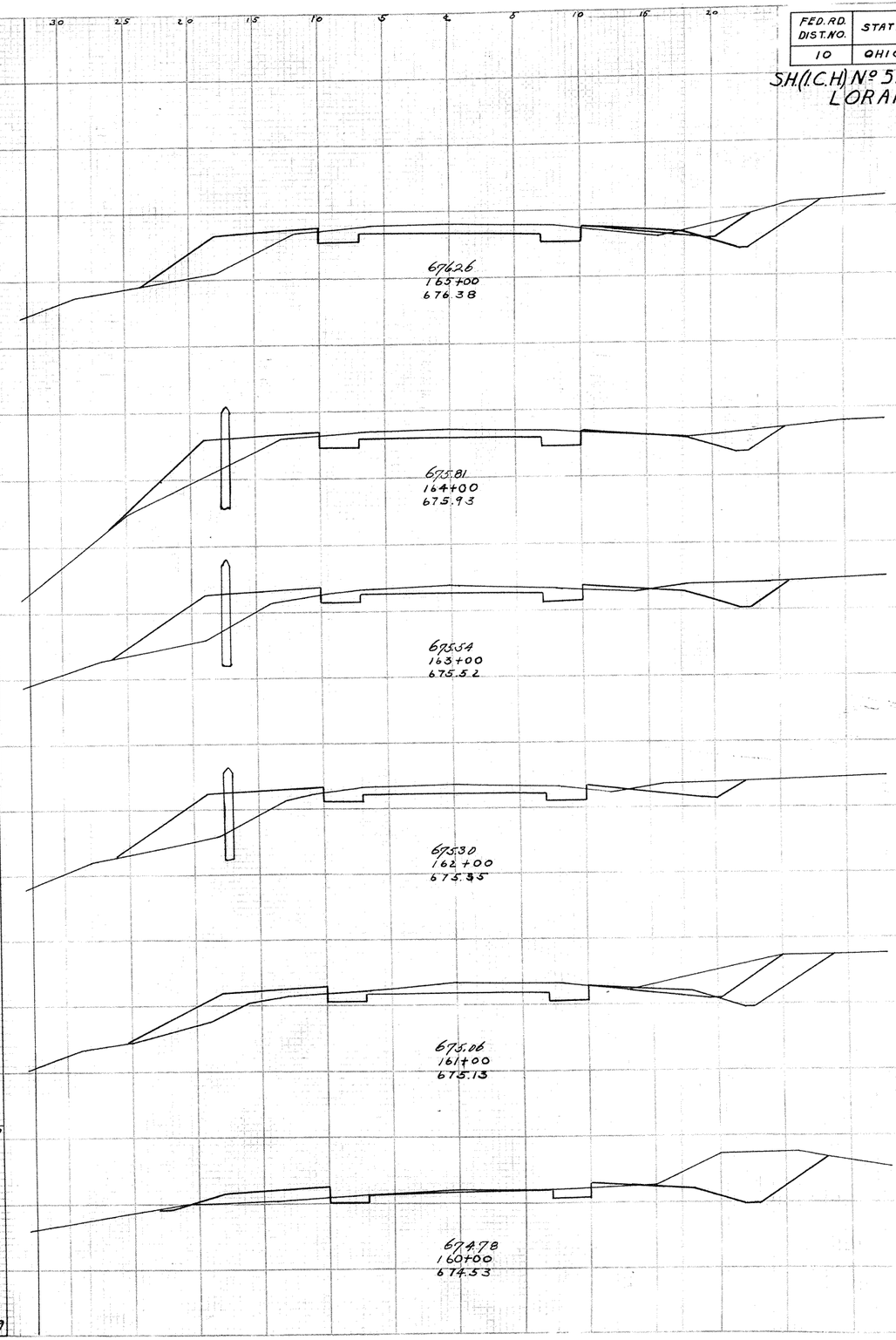
FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

22
35

S.H. (I.C.H.) Nº 555 SEC. C-2
LORAIN CO.



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	23.9	12.2		
			27.4	25.6
	5.7	15.5		
			4.7	6.1
	11.2	6.7		
			56.8	15.5
	29.9	3.2		
			60.7	28.0
	7.9	11.9		
			6.5	12.9
	6.2	16.0		
			20.9	193.5
	6.9	105.5		
			9.1	100.9



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	17.7 18.7	11.7 23.7		
			59.4	76.3
	13.4	17.5		
			55.6	79.6
	16.6	25.5		
			55.6	98.0
	13.4	27.4		
			61.3	74.8
	19.7 31.4	13.0		
			136.1	37.4
	42.1	7.2		
			61.1	17.9

1131.2 Cu Yds
973.3 " "
121.6 " "
8.5 " "

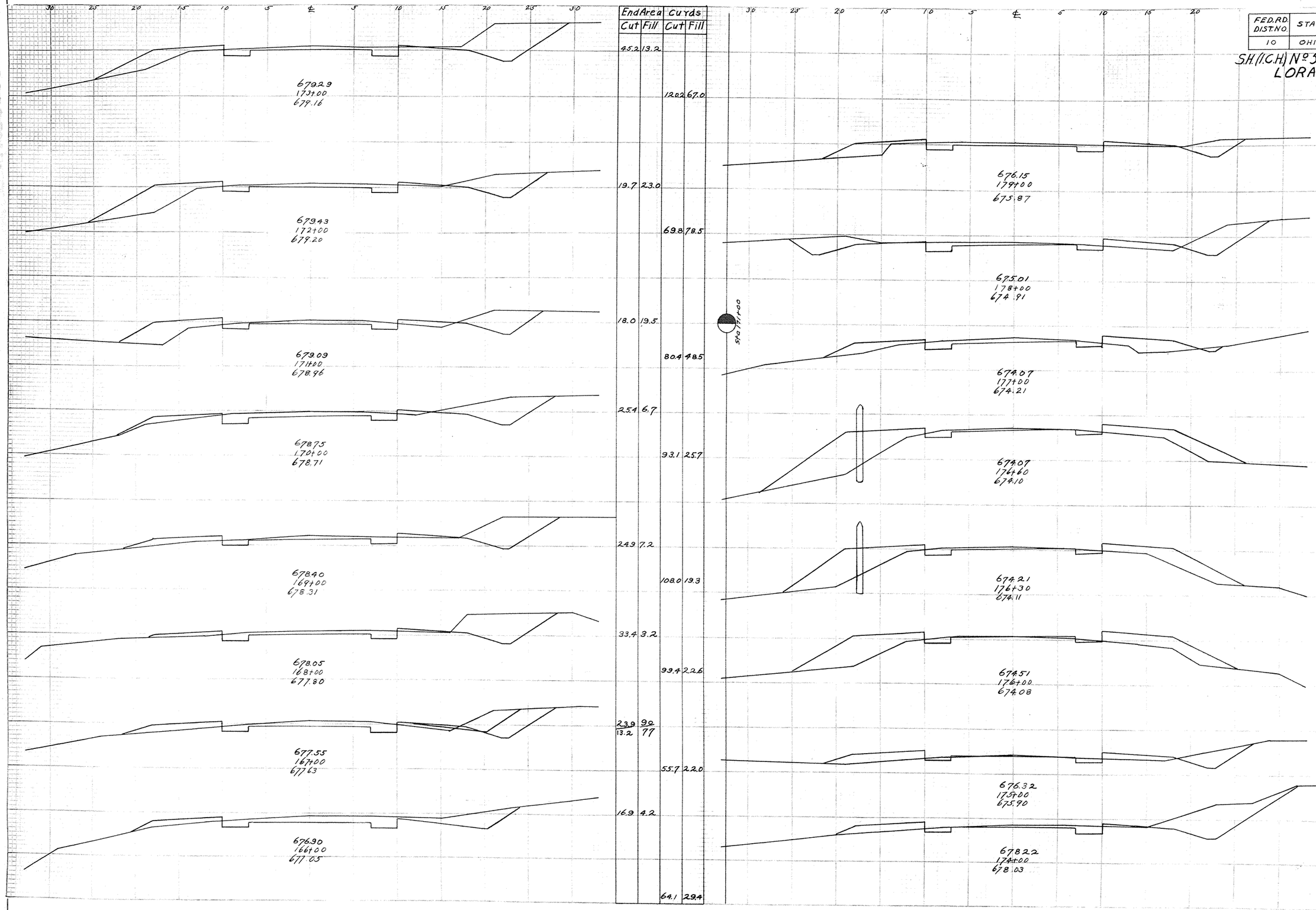
Exc.
Emb.
Emb+25%
Borrow.

PLATE 2 - CROSS SECTION
THE H. COLE CO. COLUMBUS, OHIO

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

23/35

S.H. (I.C.H.) No 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
45.2	13.2		
		120.2	67.0
19.7	23.0		
		69.8	78.5
18.0	19.5		
		80.4	48.5
25.4	6.7		
		93.1	25.7
24.9	7.2		
		108.0	19.3
33.4	3.2		
		99.4	22.6
23.9 / 13.2	90 / 77		
		55.7	22.0
16.9	4.2		
		64.1	29.4

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
12.7	11.0		
		82.6	32.2
31.9	6.4		
		68.1	46.5
4.9	18.7		
		6.7	57.5
4.2	59.0		
		4.5	60.0
3.9	49.0		
		3.7	50.6
2.7	44.1		
		27.4	105.6
12.1	12.9		
		84.3	38.1
32.4	7.7		
		145.6	38.7

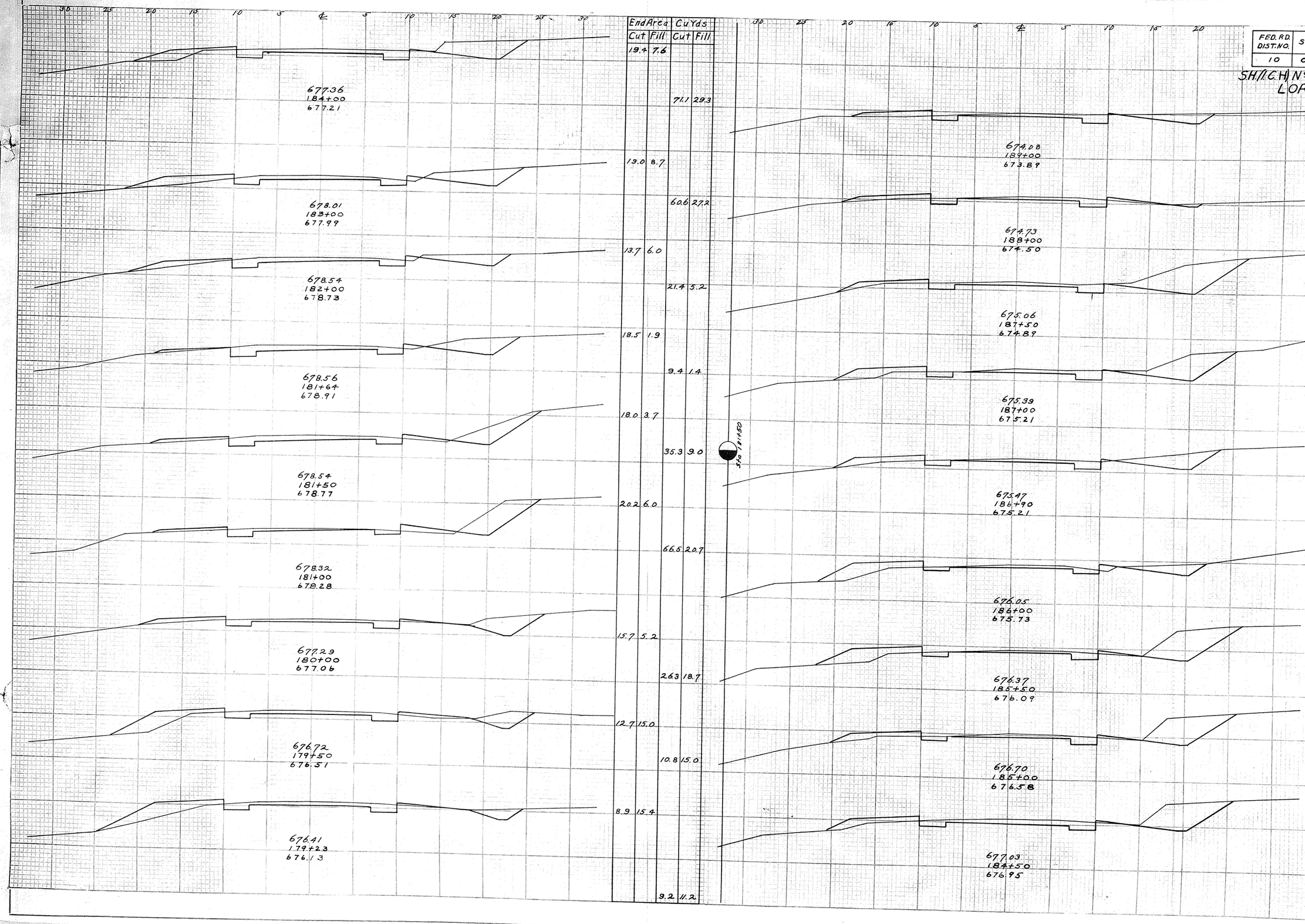
Exc. 761.0 cu. yds.
Emb. 649.3 " " "
Emb. 25% 811.6 " " "
Borrow. 50.6 " " "

PLATE 7 - CROSS SECTION

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

24
35

SH. I.C.H. No. 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
19.4	7.6		
		71.1	29.3
19.0	8.7		
		60.6	27.2
13.7	6.0		
		21.4	5.2
18.5	1.9		
		9.4	1.4
18.0	3.7		
		35.3	9.0
20.2	6.0		
		66.5	20.7
15.7	5.2		
		26.3	18.7
12.7	15.0		
		10.8	15.0
8.9	15.4		
		9.2	11.2

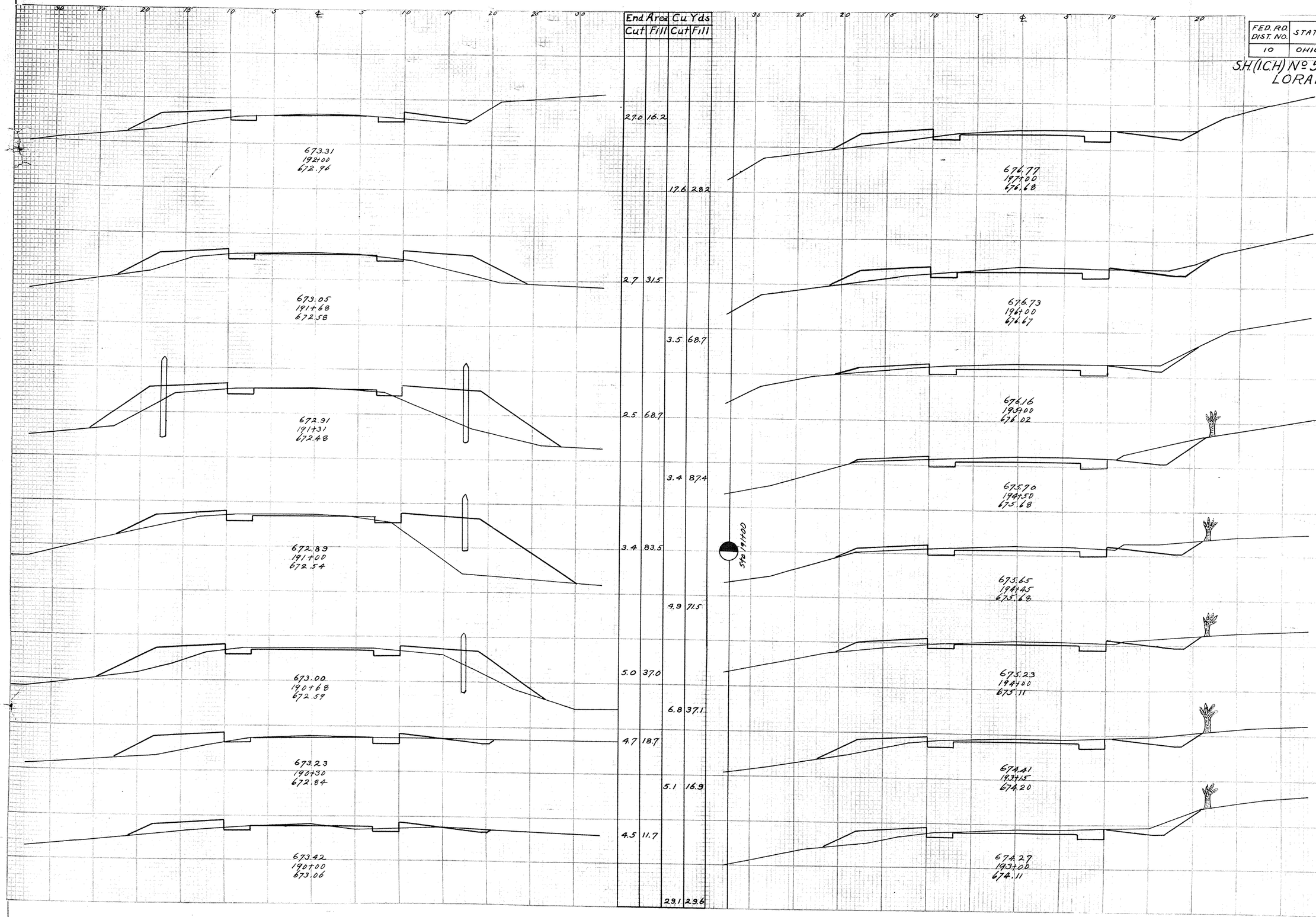
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
11.2	4.3		
		30.7	18.1
5.4	5.5		
		33.2	8.8
30.5	4.0		
		49.7	10.6
23.2	7.5		
		7.3	2.7
16.2	7.2		
		43.2	31.0
9.7	11.9		
		34.1	22.0
27.2	11.9		
		47.8	16.5
24.4	6.0		
		45.9	11.7
25.2	6.7		
		41.3	12.8

Exc. 541.6 cu. yds.
Emb. 352.4
Emb. + 25% 440.5
Waste. 101.1

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

25/35

S.H.(I.C.H.) No. 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
27.0	16.2		
		17.6	28.2
2.7	31.5		
		3.5	68.7
2.5	68.7		
		3.4	87.4
3.4	83.5		
		4.9	71.5
5.0	37.0		
		6.8	37.1
4.7	18.7		
		5.1	16.9
4.5	11.7		
		29.1	29.6

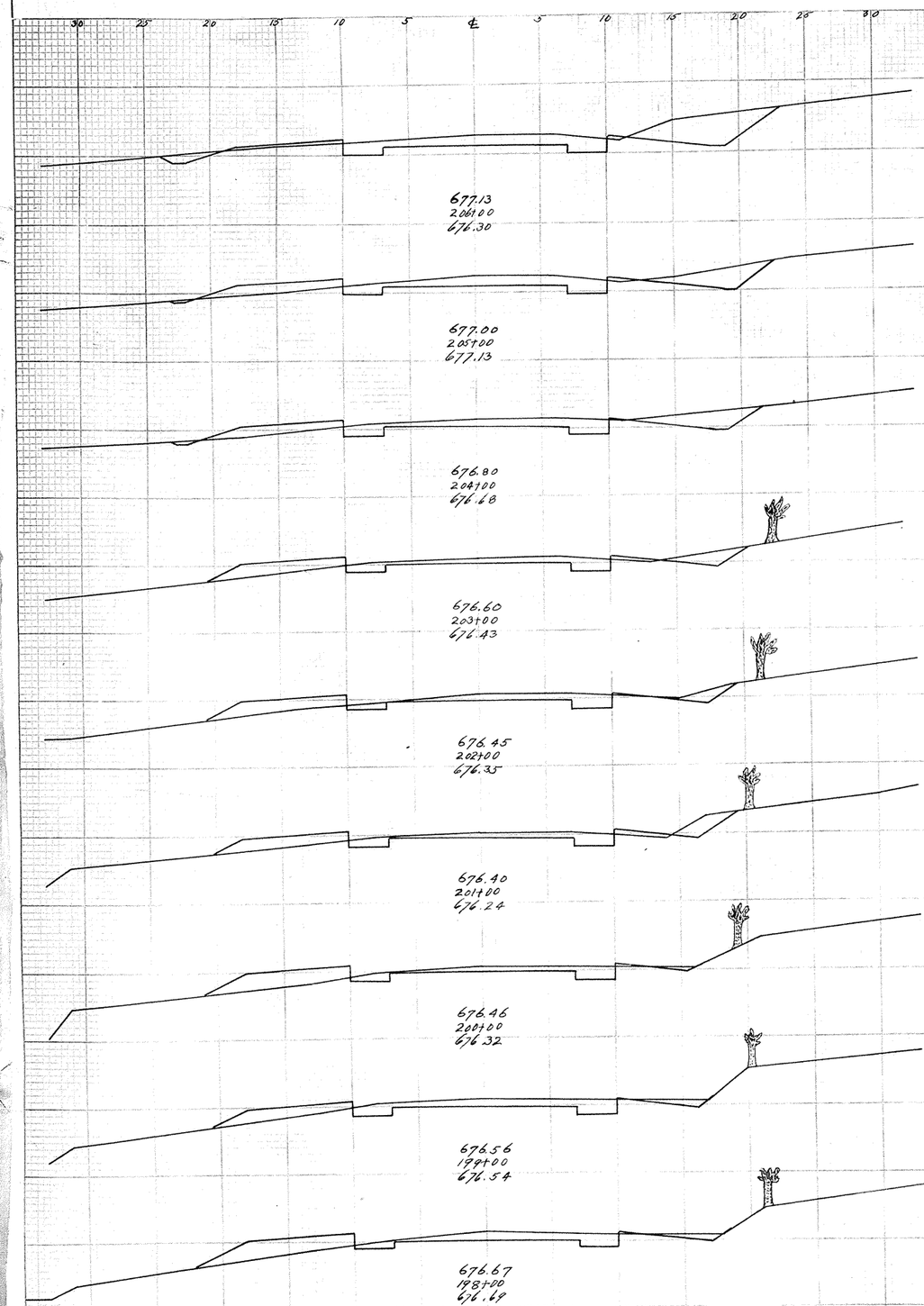
End Area Cut	End Area Fill	Cu Yds Cut	Cu Yds Fill
10.0	10.0		
		36.9	37.0
3.9	10.0		
		37.6	25.4
10.4	3.7		
		25.4	5.9
17.1	2.7		
		2.8	0.7
13.6	4.7		
		20.4	10.2
10.9	7.5		
		37.3	29.2
12.8	11.0		
		6.8	6.3
11.9	11.7		
		72.0	51.7

Cu. Yds.
Exc. 899.8
Emb. 628.9
Emb. 25% 773.6
Waste 126.2

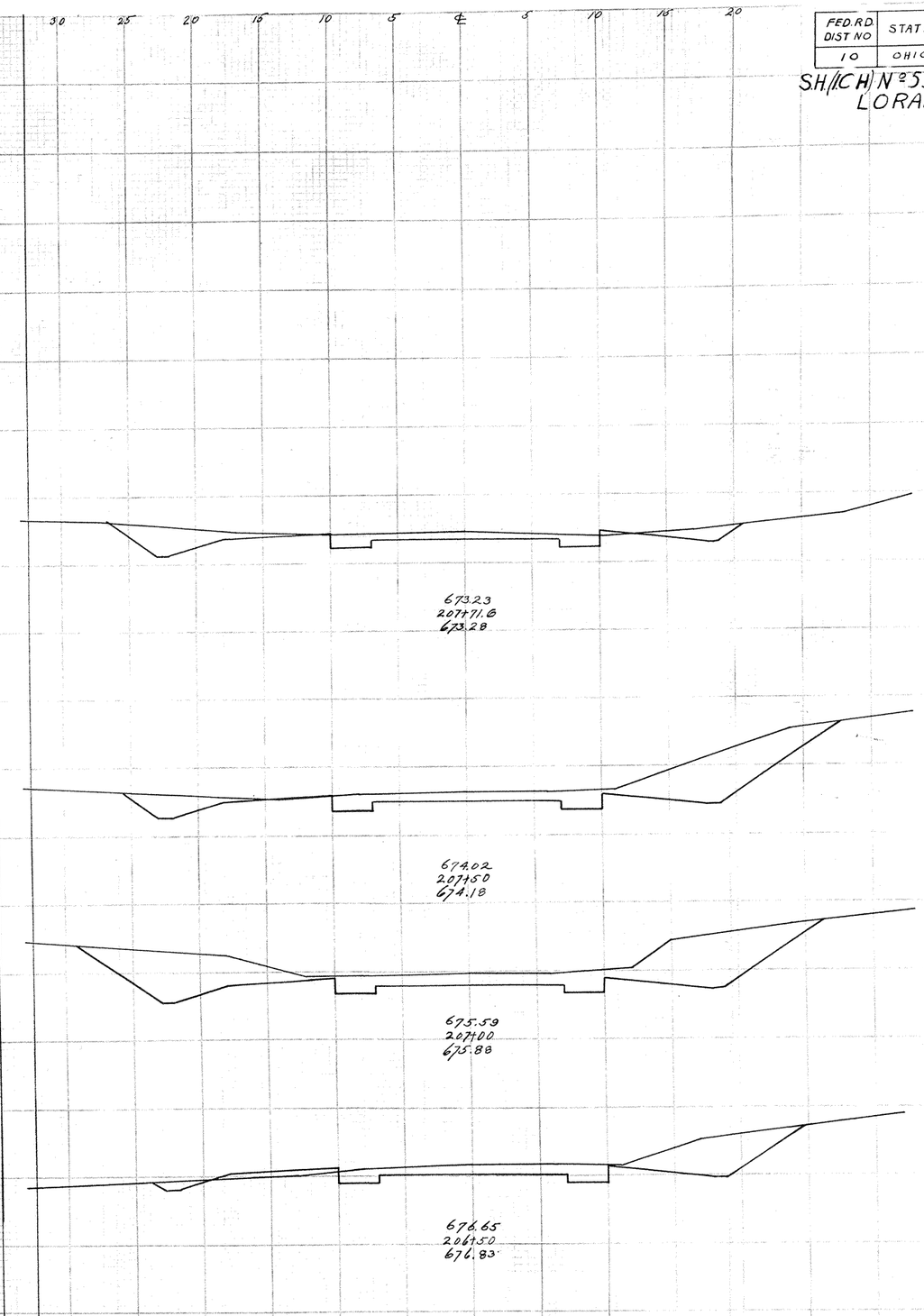
FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		1930

26/35

SH. (CH) Nº 555 SEC. C-2
LORAIN CO.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
25.7	1.3		
		73.5	14.1
14.0	6.3		
		53.1	21.9
14.7	5.5		
		44.3	24.4
9.2	7.7		
		30.4	28.5
7.2	7.7		
		28.0	29.1
7.9	8.0		
		23.9	34.6
5.0	10.7		
		23.9	33.7
7.9	7.5		
		26.1	34.8
6.2	11.3		
		32.0	39.4



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
24.1	0.3		
		30.9	0.1
51.7	0.0		
		119.7	0.0
77.6	0.0		
		100.2	3.2
30.6	3.5		
		52.1	4.4

STA 207+71.6

PLATE 1 - CROSS SECTION

FED. RD. DIST. Nº	STATE	FED. AID. PROJECT	FISCAL YEAR
10	OHIO		

27/35

S.H. (I.C.H) 555 SEC. C-2

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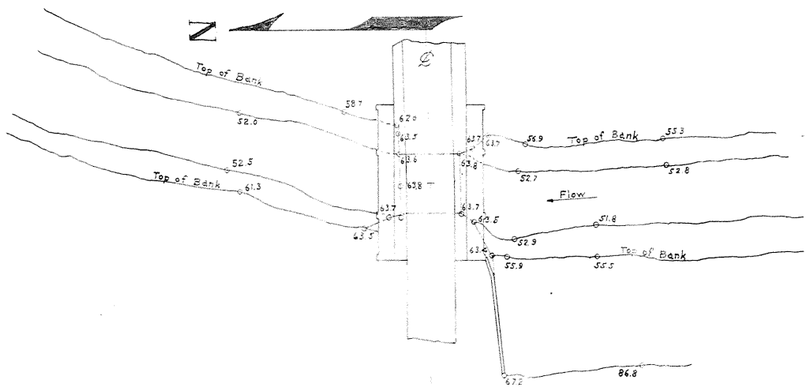
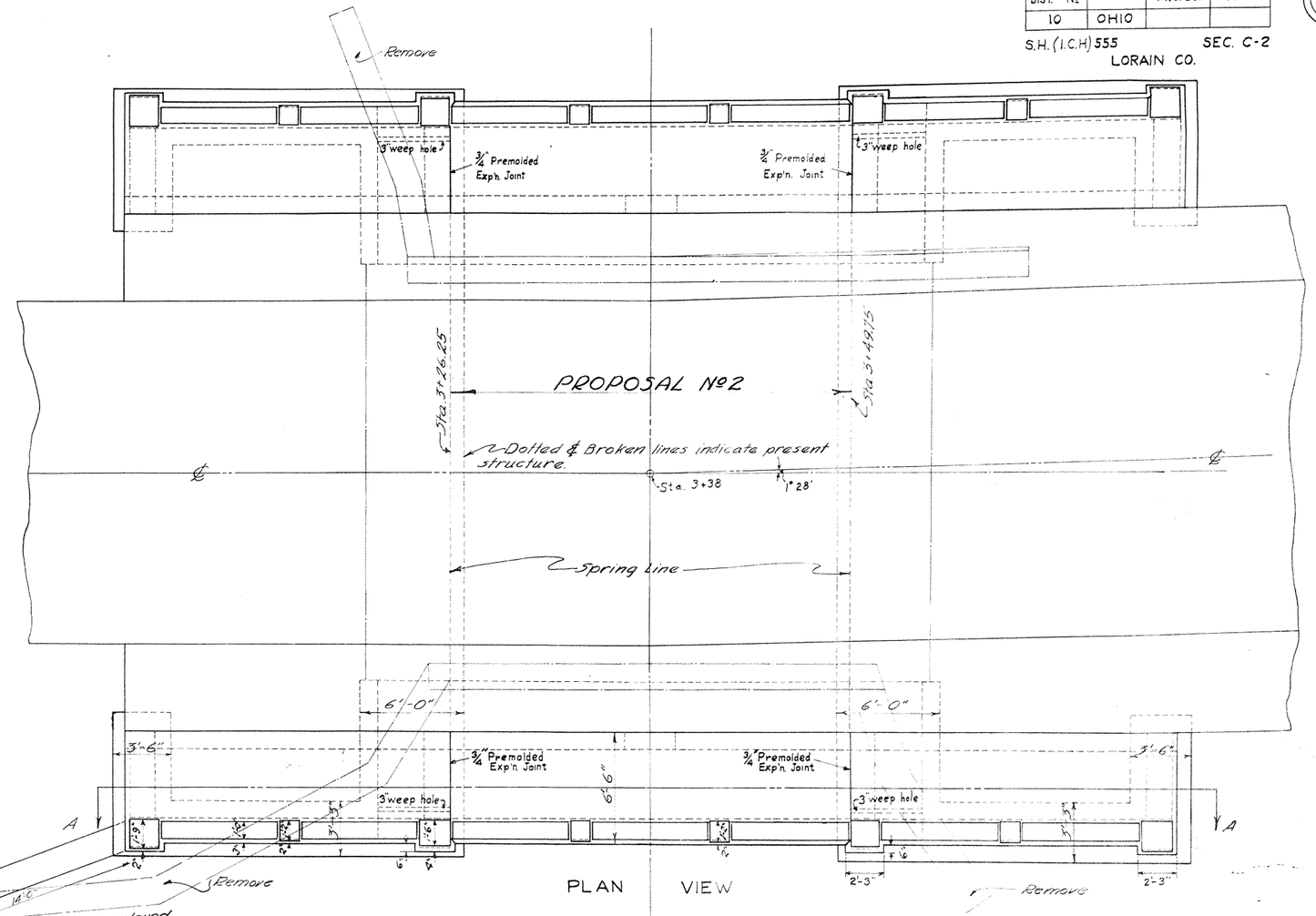


STREAM LOCATION

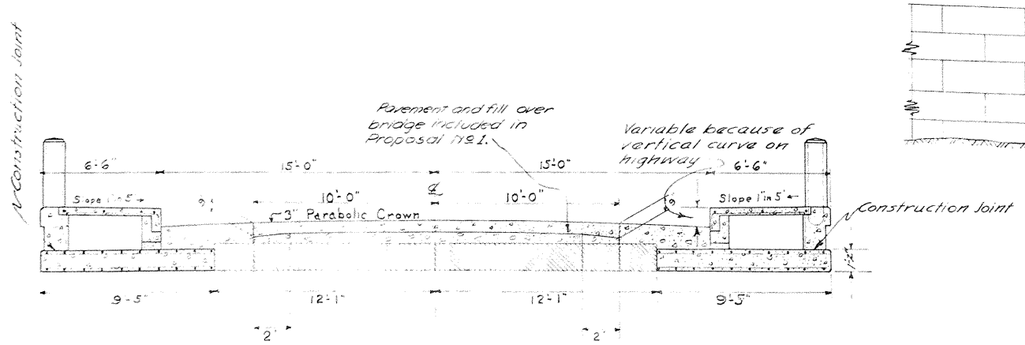
NOTE
That portion of existing wing walls and retaining walls which interfer with the construction of new work shall be removed. Payment for same included with earth excavation.

PROPOSAL Nº 2
(Sta. 3+26.25 to Sta 3+49.75)
ESTIMATED QUANTITIES

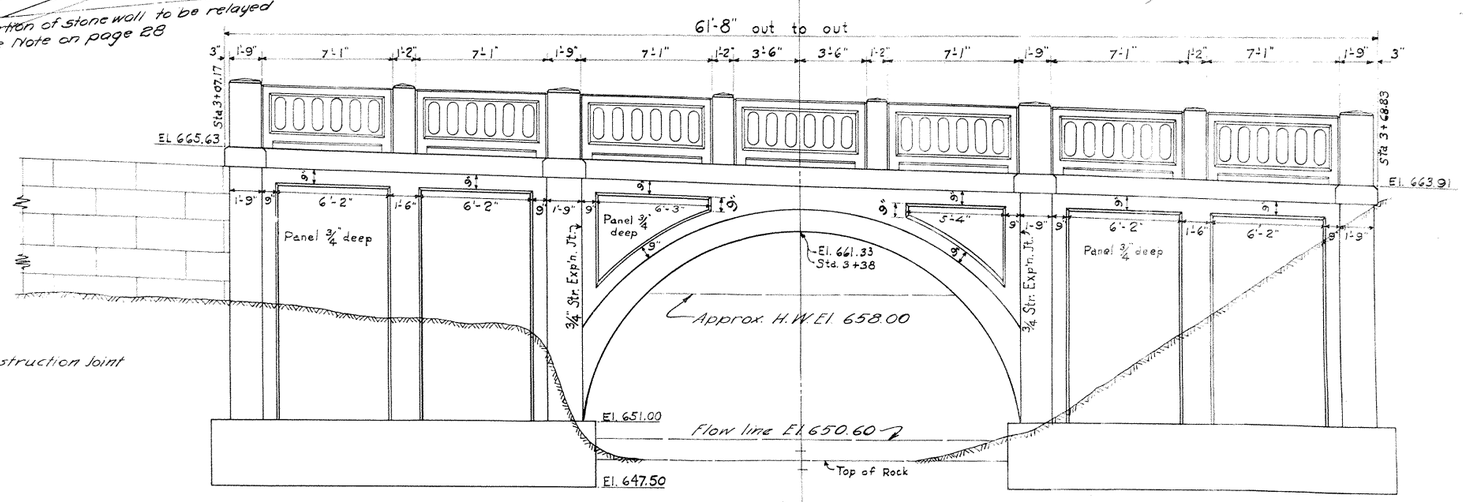
Earth Excavation - (Including Back Fill)	400	Cu. yds.
Rock Excavation	30	Cu. yds.
1:5¼ Concrete - (Footers)	62½	Cu. yds.
1:5¼ Concrete - (Abutments, walls and Spandrels)	114⅙	Cu. yds.
1:5¼ Concrete - (Arch Rings)	22⅚	Cu. yds.
Type SR-3-b Concrete Railing	122⅔	Lin. ft.
Reinforcing Steel	10035	Lbs.
24 oz. Copper Exp. Joint 12" wide	38	Lin. ft.
¾" Premolded Expansion Joint Filler	65	Sq. ft.
Type "A" Waterproofing	42	Sq. yds.
Type "B" Waterproofing	62	Sq. yds.
Stone Masonry Relaid	4	Cu. yds.
Stone Masonry Repointed	820	Sq. ft.
Special Rubbed Finish	110	Sq. yds.
Cofferdams & Pumping	Lump Sum	



PLAN VIEW



CROSS SECTION AT CENTER OF SPAN



SIDE ELEVATION

Sheet 1 of 2 Sheets.

Nº 1 Sta. 3+38

Dr. by WF
Tr. by RB
Ck. by MKE 4/58

FED. RD. DIST. №	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

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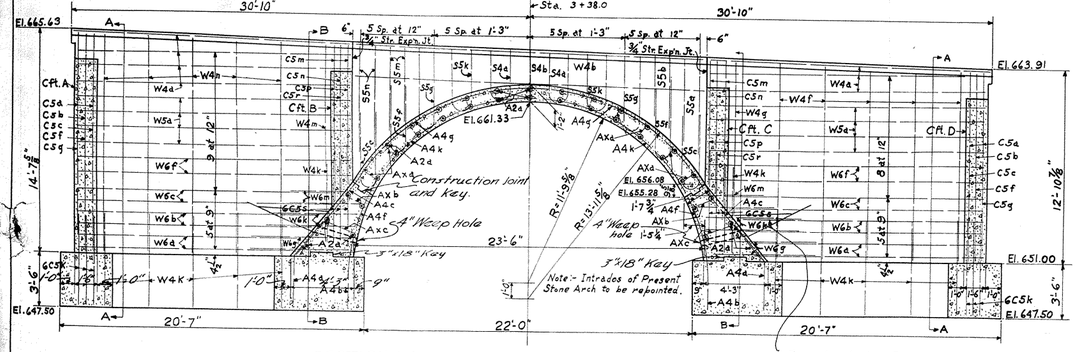
28/35

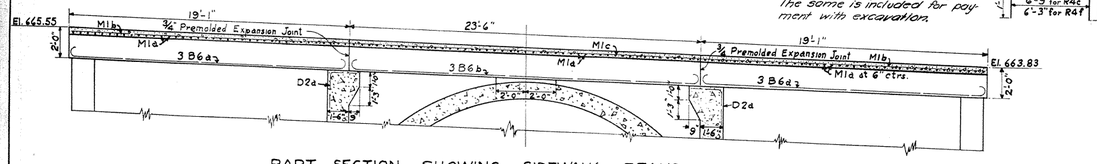
No horizontal construction joints other than those shown will be permitted. Vertical construction joints necessary for construction allowed only by special permission of the Engineer. All construction plans in abutments above low water elevation shall be sealed on back with Type B waterproofing.



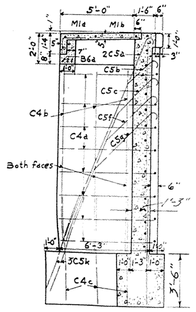
SECTION A-A SHOWING ARCH AND WALL STEEL

French drains full length of new arch barrel and wings. The same is included for payment with excavation.

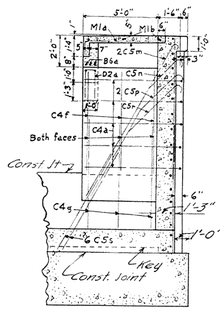
Mark	a	b	c	R
S5c	1'-0"	4'-5½"	1'-7"	6"
S5f	1'-0"	4'-2½"	1'-7	6"
S5g	1'-0"	4'-8½"	1'-7"	6"
S5k	1'-3"	3'-3¼"	1'-11½"	7½"
S4a	1'-3"	2'-9½"	1'-11½"	7½"
R4a	10"	4'-2⅝"	1'-3⅝"	5"
R4b	1'-6"	4'-2⅜"	2'-4½"	9"
R6a	7"	4'-0½"	11"	3½"



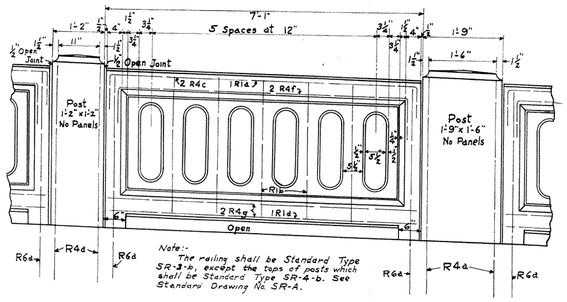
PART SECTION SHOWING SIDEWALK BEAMS



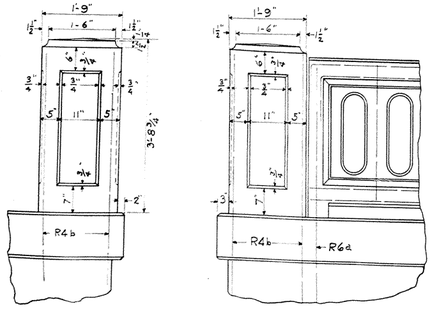
SECTION A-A



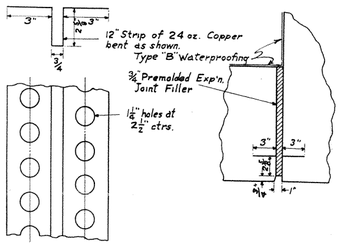
SECTION B-B



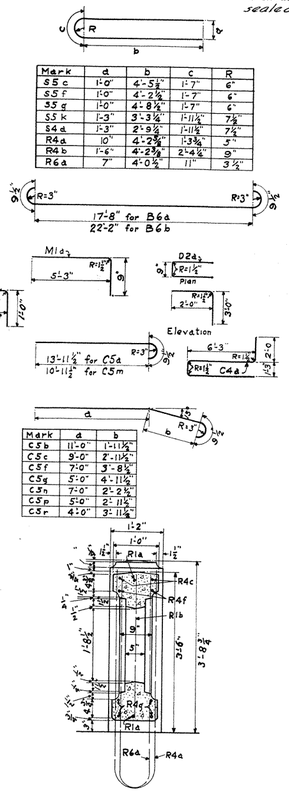
DETAILS OF RAILING PANELS AND INTERMEDIATE POSTS



DETAILS OF END POSTS



DETAILS OF STRUCTURAL EXPANSION JOINT



Mark	a	b
C5b	11'-0"	1'-11½"
C5c	9'-0"	2'-11½"
C5f	7'-0"	3'-8½"
C5g	5'-0"	4'-11½"
C5m	7'-0"	2'-2½"
C5p	5'-0"	2'-11½"
C5r	4'-0"	3'-11½"

Reinforcing Steel List

Mark	Size	Length	Number	Weight	Kind	Spacing	Location
A4a	⅝" ø	5'-9"	40	240	Str.	12"	Arch Dowels
A4b	⅝" ø	5'-6"	40	229	Str.	12"	" "
A4c	⅝" ø	9'-0"	40	375	Str.	12"	" Rings
A4f	⅝" ø	7'-0"	40	292	Str.	12"	" "
A4g	⅝" ø	14'-9"	40	615	Str.	12"	" "
A4k	⅝" ø	14'-0"	40	584	Str.	12"	" "
A2a	½" ø	9'-3"	72	445	Str.	24"	" " Spacers
AXa	¼" ø	2'-0"	78	26	Str.	4.5"	" " Tie Bars
AXb	¼" ø	2'-3"	12	5	Str.	4.5"	" " " "
AXc	¼" ø	3'-0"	12	6	Str.	4.5"	" " " "
W6a	⅞" ø	15'-0"	8	245	Str.	9"	Horizontal Bars in Wings
W6b	⅞" ø	16'-0"	8	262	Str.	9"	" " " "
W6c	⅞" ø	17'-0"	8	278	Str.	9"	" " " "
W6f	⅞" ø	18'-6"	8	303	Str.	9"	" " " "
W6g	⅞" ø	7'-0"	8	114	Str.	9"	" Wing Dowels
W6k	⅞" ø	6'-6"	8	106	Str.	9"	" " "
W6m	⅞" ø	6'-0"	8	98	Str.	9"	" " "
W5a	⅝" ø	18'-6"	16	445	Str.	12"	Horizontal Bars in Wings
W4a	⅝" ø	18'-6"	14	270	Str.	12"	" " " "
W4b	⅝" ø	23'-3"	4	97	Str.	24"	" " Spandrels
W4f	⅝" ø	12'-9"	10	133	Str.	36"	Vertical Bars in Wings
W4g	⅝" ø	10'-3"	2	21	Str.	36"	" " " "
W4k	⅝" ø	5'-6"	24	138	Str.	36"	" Dowels in Wings
W4m	⅝" ø	11'-3"	2	23	Str.	36"	" Bars in Wings
W4n	⅝" ø	14'-0"	10	146	Str.	36"	" " " "
S5a	¾" ø	6'-3"	4	38	Str.	12"	Spandrel Walls
S5b	¾" ø	4'-9"	4	29	Str.	12"	" "
S5c	¾" ø	10'-6"	4	63	Bent	12"	" "
S5f	¾" ø	10'-0"	4	60	Bent	12"	" "
S5g	¾" ø	11'-0"	4	66	Bent	12"	" "
S5k	¾" ø	8'-6"	4	51	Bent	15"	" "
S5m	¾" ø	5'-3"	4	32	Str.	12"	" "
S5n	¾" ø	7'-0"	4	42	Str.	12"	" "
S4a	⅝" ø	7'-6"	4	31	Bent	15"	" "
S4b	⅝" ø	3'-3"	2	7	Str.	18"	" "
B6a	⅞" ø	19'-3"	12	473	Bent	3½"	Sidewalk Beams
B6b	⅞" ø	23'-9"	6	291	Bent	3½"	" "
M1a	⅜" ø	6'-0"	246	555	Bent	6"	" Slab
M1b	⅜" ø	18'-9"	12	85	Str.	36"	" " Spacers
M1c	⅜" ø	23'-3"	6	52	Str.	36"	" " "
D2a	½" ø	10'-9"	4	29	Bent	9"	" Beam Brackets
C5a	¾" ø	14'-9"	8	177	Bent	6"	Counterforts - A & D
C5b	¾" ø	13'-9"	4	83	Bent	6"	" " " "
C5c	¾" ø	12'-9"	4	77	Bent	6"	" " " "
C5f	¾" ø	11'-6"	4	69	Bent	6"	" " " "
C5g	¾" ø	10'-9"	4	65	Bent	6"	" " " "
C5k	¾" ø	7'-0"	24	252	Str.	6"	" " " "
C5m	¾" ø	11'-9"	8	141	Bent	6"	" B & C
C5n	¾" ø	10'-0"	4	60	Bent	6"	" " " "
C5p	¾" ø	8'-9"	8	105	Bent	6"	" " " "
C5r	¾" ø	8'-9"	4	53	Bent	6"	" " " "
C5s	¾" ø	8'-0"	24	288	Str.	6"	" " " "
C4a	⅝" ø	9'-6"	52	515	Bent	18"	" A-B-C & D
C4b	⅝" ø	11'-0"	24	275	Str.	27"	" A & D
C4c	⅝" ø	6'-0"	24	150	Str.	27"	" " "
C4f	⅝" ø	6'-0"	24	150	Str.	27"	" B & C
C4g	⅝" ø	7'-0"	24	175	Str.	27"	" " "
R4a	⅞" ø	9'-9"	24	*	Bent	Shown	Railing - Intermediate Posts
R4b	⅞" ø	10'-9"	8	*	Bent	"	" - End Posts
R4c	⅞" ø	8'-9"	28	*	Bent	"	" - Panels
R4f	⅞" ø	8'-3"	28	*	Bent	"	" "
R4g	⅞" ø	6'-9"	56	*	Str.	"	" "
R6a	⅞" ø	9'-0"	28	*	Bent	"	" "
R1a	⅜" ø	6'-9"	28	*	Str.	"	" "
R1b	⅜" ø	3'-0"	70	*	Str.	"	" "
Total Weight = 10035 Lbs.							

General Notes:-

All concrete shall be 1:5½ mix.

All exposed edges shall be beveled ¾" unless otherwise shown.

The railing, curb, end of arch barrel, wing and spandrel walls down to 1' below the finished ground line are to receive a Special Rubbed Finnish.

The top of the arch ring, and the inside of the spandrel and wing walls are to be waterproofed with Type "A" Waterproofing.

A strip of Type "B" Waterproofing 36" wide is to be placed over the construction joints, over the backs of the structural expansion joints, and over the joint between the concrete extensions and the present stone arch.

⅜" Structural Expansion Joints as shown in the detail shall be placed at the four corners of the arch span. They shall extend from the top of the arch barrel to the top of the coping.

¾" Premolded Expansion Joint Filler shall be placed thru' the sidewalk and sidewalk beams at the four locations shown.

Footers for the arch extensions are to extend at least 1'-6" into solid rock. No forms are to be used on the footers to the top of the rock but entire excavation is to be filled with concrete. Care is to be taken that the back of footers rests against undisturbed solid rock.

Tops of present spandrel walls are to be removed down to the center line elevation of the extrados. Present wings are to be removed and a portion of the present stone retaining wall is to be relaid as shown on the plan. The removal of the old masonry is included for payment with the excavation.

3" Weep holes are to be placed at the locations shown. French Drains are to extend full length of the wings. Weep holes and French Drains are included for payment with the excavation.

Bars marked thus (*) in the bar list are included for payment in the price per lineal foot of Concrete Railing.

Arch extension designed for H-15 Loading.

PROPOSAL № 2

Sheet 2 of 2 Sheets

№ 1 Sta. 3+38

Checked C.V.F.

Reviewed

Dr. by W.E.

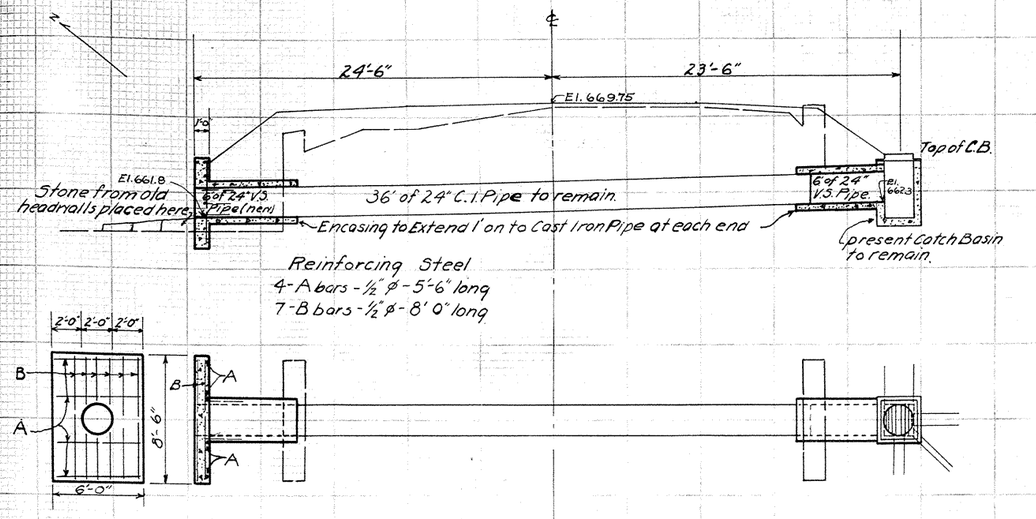
Tr. by D.R.

FED. RD. DIST. Nº	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

29/35

S.H. (I.C.H.) 555 SEC. C-2

LORAIN CO.



CULVERT DATA

Type - Cast Iron & Vitrified Sewer Pipe

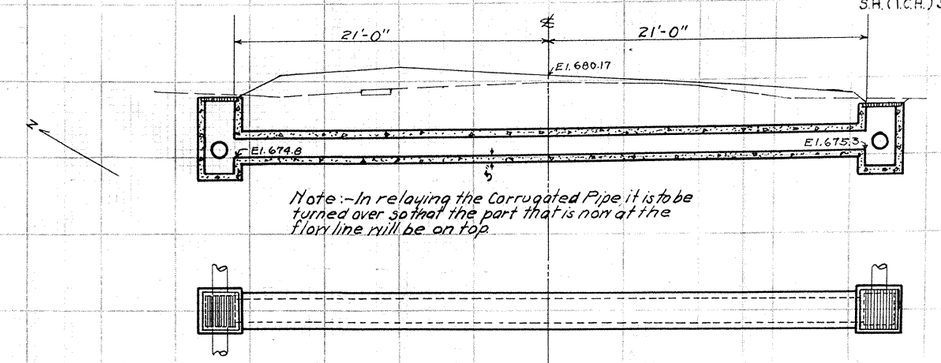
Size - 24" x 47'

Work Required - Relay and encase present 24" Vitrified Sewer Pipe at right end.
Extend left end 6' with 24" Vitrified Sewer Pipe (Encased) and build 1 Standard Concrete Headwall.
Remove Present Stone Headwalls down to top of present pipe and place stone as paving at outlet end.

ESTIMATED QUANTITIES

Excavation	6	CuYds
1:5½ Concrete - (Headwall)	1⅜	CuYds
1:8 Concrete - (Encasing)	2⅝	CuYds
Reinforcing Steel	52	Lbs
24" Vitrified Sewer Pipe - (Relaid)	6	Lin Ft
24" Vitrified Sewer Pipe - (New)	6	Lin Ft
Removing Old Masonry	4	CuYds

No 3 Sta 32+86



CULVERT DATA

Type - Corrugated Pipe

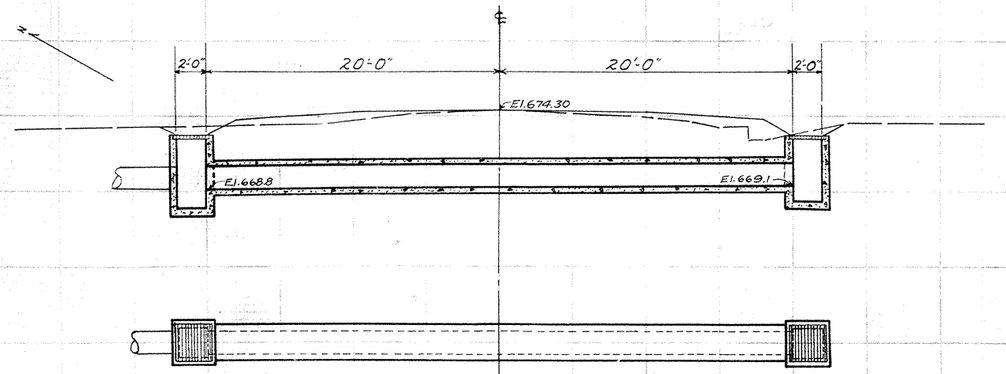
Size - 15" x 42'

Work Required - Take up, relay, and encase 30' of present 15" Corrugated Pipe.
Place and encase 12' of 15" Corrugated Pipe from Sta 45+19
Build 2 Standard No 2 Catch Basins with Side Inlets omitted.

ESTIMATED QUANTITIES

Excavation	40	CuYds
1:8 Concrete (Encasing)	5⅜	CuYds
No. 2 Catch Basins	2	
15" Corrugated Pipe (Relaid)	42	Lin Ft
Removing 15" Corrugated Pipe	30	Lin Ft

No 5 Sta 53+94



CULVERT DATA

Type - Vitrified Sewer Pipe.

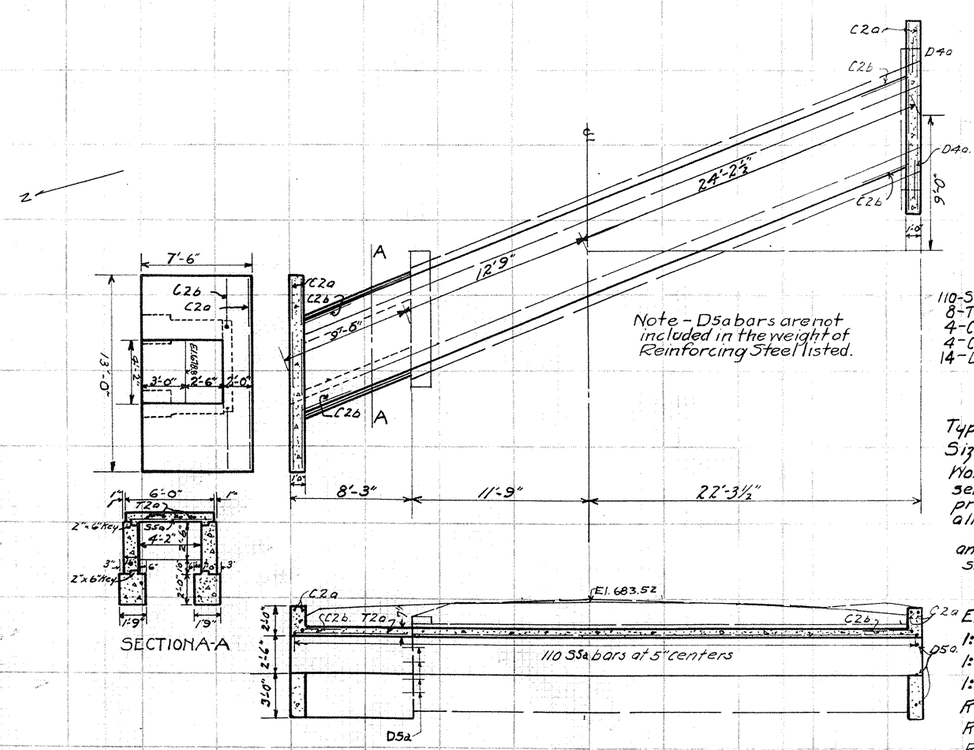
Size - 18" x 40'

Work Required - Remove present 15" x 36' Corrugated Pipe.
Place and encase 40' of 18" Vitrified Sewer Pipe.
Build 2 Standard No 2 Catch Basins with Side Inlets omitted.
Corrugated Pipe is to be used for extension at Sta 53+94.

ESTIMATED QUANTITIES

Excavation	35	CuYds
1:8 Concrete - (Encasing)	6⅝	CuYds
18" Vitrified Sewer Pipe	40	Lin Ft
No 2 Catch Basins	2	
Removing 15" Corrugated Pipe	36	Lin Ft

No 4 Sta 45+19



Note - D5a bars are not included in the weight of Reinforcing Steel listed.

Reinforcing Steel

110 - S4a bars - 5/8 ø - 5'-9" long Spcd 5" ctrs
8 - T2a bars - 1/2 ø - 24'-6" long Spcd 12" ctrs
4 - C2a bars - 1/2 ø - 12'-6" long Spcd as shown
4 - C2b bars - 1/2 ø - 8'-0" long Spcd as shown
14 - D5a bars - 3/4" ø - 2'-0" long Spcd as shown

CULVERT DATA

Type - Concrete Slab Top

Size - S = 4'-2" H = 2'-6" L = 45'-11½"

Work Required - Remove top of present Stone Headwall on left; all of present Stone Headwall on right; and all of present Stone Cover Slab.
Extend abutments 9'-0" to left and place concrete Headwalls and slab as shown.
Repoint Old Masonry.

ESTIMATED QUANTITIES

Excavation	20	CuYds
1:6½ Concrete (Footers)	2¾	CuYds
1:5½ Concrete - (Walls)	8¼	CuYds
1:5½ Concrete - (Slab)	5⅞	CuYds
Reinforcing Steel	865	Lbs
Removing Old Masonry	12	CuYds
Repointing Old Masonry	185	Sq Ft
Dowels - (3/4" ø x 24" D5a)	14	Pcs.

No 6 Sta 67+85

DRAWN by W.F.
TRACED by C.E.P.

FED. RD. DIST. Nº	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

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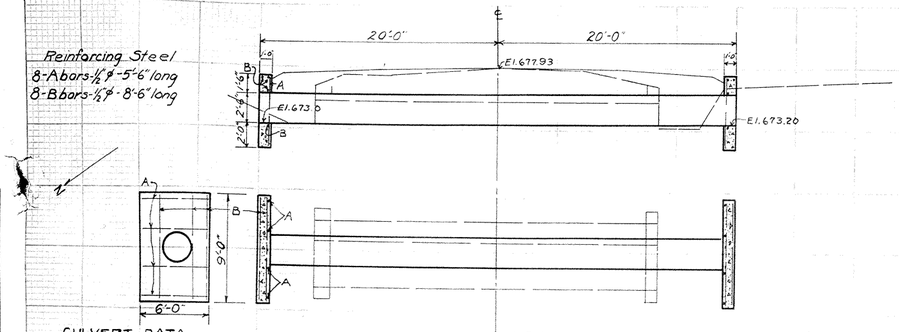
S.H. (I.C.H.) 555 SEC. C-2

LORAIN CO.

Reinforcing Steel
8-A bars-½" ϕ-5'-6" long
8-B bars-½" ϕ-8'-6" long

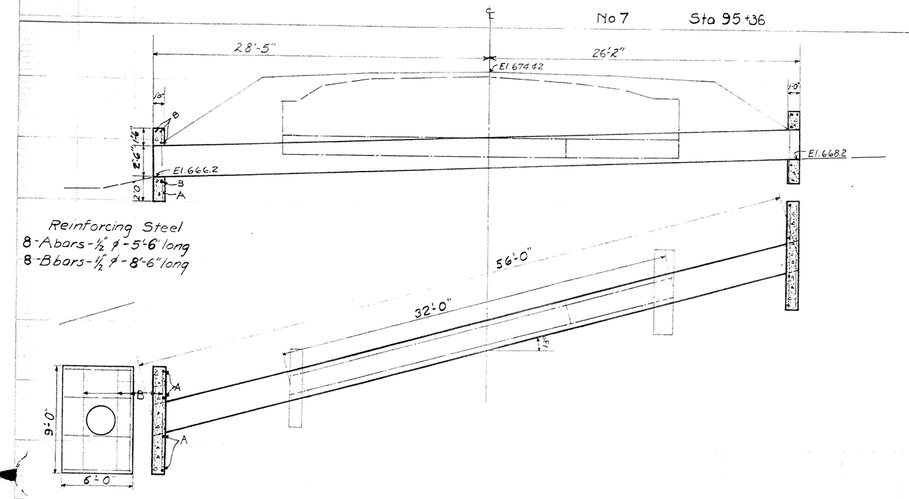


CULVERT DATA
Type - Cast Iron Pipe
Size - 30" x 40'
Work Required - Remove present Stone Headwalls, cover slab and one abutment (S: 2:1, H: 1'-6", L: 29'-0")
Place 40' of 30" Sectional Cast Iron Pipe and build 2 Concrete Headwalls as shown

ESTIMATED QUANTITIES

Excavation	18 Cu Yds
1:5½ Concrete	3.9 Cu Yds
Reinforcing Steel	75 Lbs
30" Sectional Cast Iron Pipe - 40 Lin Ft	
Removing Old Masonry	11 Cu Yds

No 7 Sta 95+36



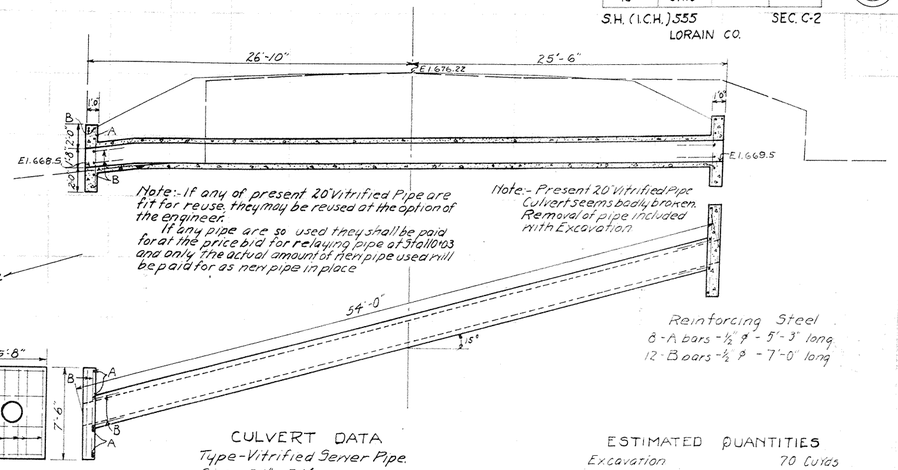
Reinforcing Steel
8-A bars-½" ϕ-5'-6" long
8-B bars-½" ϕ-8'-6" long

CULVERT DATA
Type - Cast Iron Pipe
Size - 30" x 56'
Work Required - Remove present 18" x 32' of Vitrified and Cast Iron Pipe.
Place 56' of 30" Sectional Cast Iron Pipe and build 2 Concrete Headwalls as shown
Remove old Stone Headwalls.

ESTIMATED QUANTITIES

Excavation	60 Cu Yds
1:5½ Concrete (Headwalls)	3.8 Cu Yds
30" Sectional Cast Iron Pipe	56 Lin. ft.
Reinforcing Steel	75 Lbs
18" Vitrified Sewer Pipe and Cast Iron Pipe (removed)	32 Lin Ft
Removing Old Masonry	5 Cu Yds

No 8 Sta 110+03



Note:- If any of present 20" Vitrified Pipe are fit for reuse, they may be reused at the option of the engineer.
If any pipe are so used they shall be paid for at the price bid for relaying pipe at Stn 110+03 and only the actual amount of new pipe used will be paid for as new pipe in place.

Note - Present 20" Vitrified Pipe Culvert seems badly broken. Removal of pipe included with Excavation.

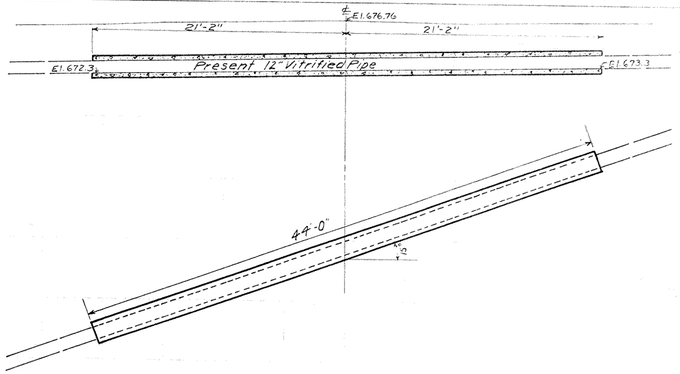
Reinforcing Steel
8-A bars-½" ϕ-5'-3" long
12-B bars-½" ϕ-7'-0" long

CULVERT DATA
Type - Vitrified Sewer Pipe
Size - 20" x 54'
Work Required - Remove present 20" Vitrified Sewer Pipe and Stone Headwalls.
Place and encase - 54' of 20" Vitrified Sewer Pipe and build 2 Concrete Headwalls as shown

ESTIMATED QUANTITIES

Excavation	70 Cu Yds
1:5½ Concrete	3.9 Cu Yds
Reinforcing Steel	85 Lbs
20" Vitrified Sewer Pipe (New)	54 Lin Ft
Removing Old Masonry	6 Cu Yds
1:8 Concrete (Encasing)	8.9 Cu Yds

No 9 Sta 117+85



CULVERT DATA
Type - Vitrified Sewer Pipe.
Size - 12" x 44'
Work Required; - Remove 44' of present 12" Vitrified Sewer pipe.
Relay only that are fit for reuse and replace remainder with new 12" Vitrified sewer pipe.
Encase both new and relaid pipe with concrete.

ESTIMATED QUANTITIES

Excavation	20 Cu Yds
1:8 Concrete - (Encasing)	4.8 Cu Yds
12" Vitrified Sewer Pipe (New)	24 Lin Ft
12" Vitrified Sewer Pipe - (Relaid)	20 Lin Ft

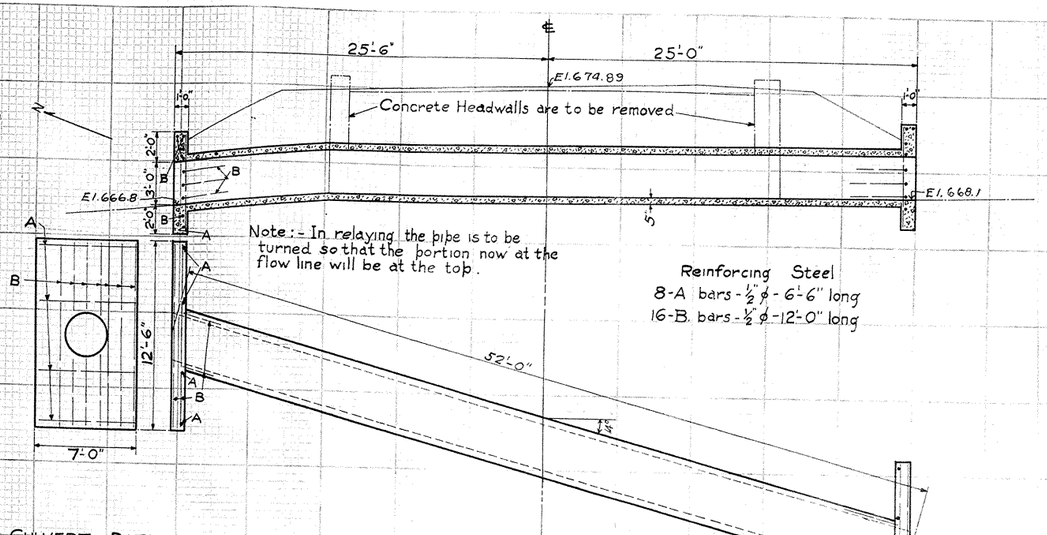
No 10 Sta 120+05

DRAWN by WF
TRACED by CEP

FED. RD. DIST. Nº	STATE	FED. AID. PROJECT	FISCAL YEAR
10	OHIO		

S.H. (I.C.H.) 555 LORAIN CO. SEC. C-2

31/35



CULVERT DATA

Type - Corrugated Pipe

Size - 36" x 52'

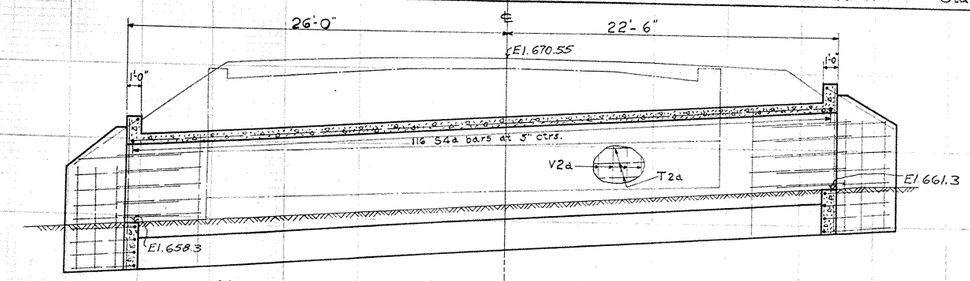
Work Required - Take up and relay present 36" x 30' Corrugated Pipe. Place 22' of 36" Corrugated Pipe from Sta. 132+75

Encase entire length with concrete and build 2 Concrete Headwalls as shown.

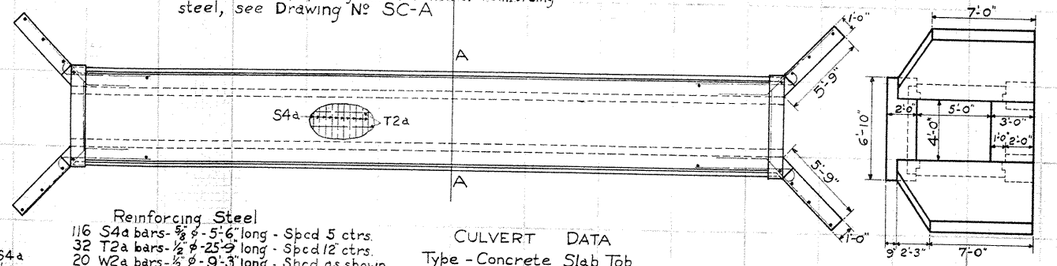
ESTIMATED QUANTITIES

Excavation	60	Cu. yds.
1:5½ Concrete (Headwalls)	58	Cu. yds.
1:8 Concrete (Encasing)	16.4	Cu. yds.
Reinforcing Steel	165	Lbs.
36" Corrugated Pipe (Relaid)	52	Lin. ft.
Removing Old Masonry	12	Cu. yds.

Nº 11 Sta 126+98

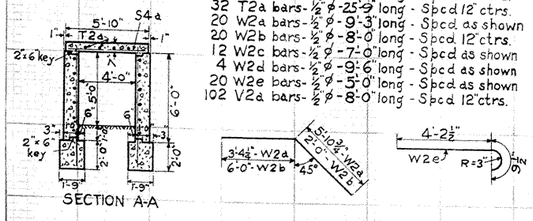


Note - For size, spacing and location of reinforcing steel, see Drawing Nº SC-A



Reinforcing Steel

116 S4a bars - 5/8" ϕ - 5'-6" long	Spcd 5" ctrs.
32 T2a bars - 1/2" ϕ - 25'-9" long	Spcd 12" ctrs.
20 W2a bars - 1/2" ϕ - 9'-3" long	Spcd as shown
20 W2b bars - 1/2" ϕ - 8'-0" long	Spcd 12" ctrs.
12 W2c bars - 1/2" ϕ - 7'-0" long	Spcd as shown
4 W2d bars - 1/2" ϕ - 9'-6" long	Spcd as shown
20 W2e bars - 1/2" ϕ - 5'-0" long	Spcd as shown
102 V2a bars - 1/2" ϕ - 8'-0" long	Spcd 12" ctrs.



SECTION A-A

CULVERT DATA

Type - Concrete Slab Top

Size - S=4'-0" V=5'-0" L=48'-6"

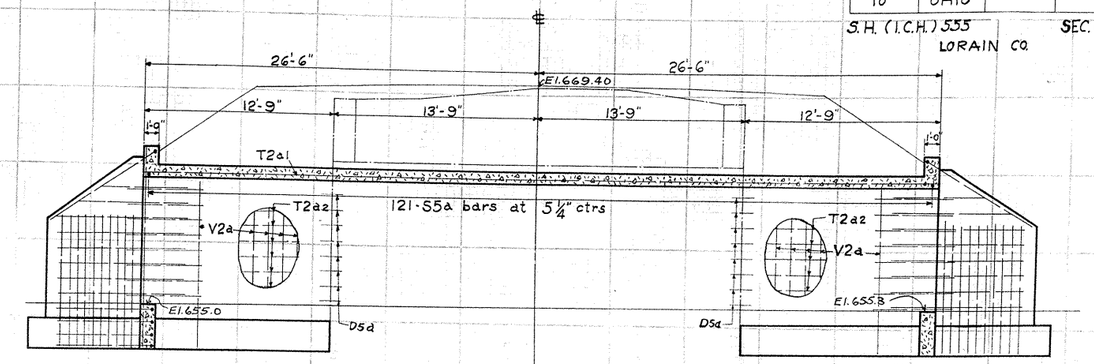
Work Required - Remove present 36" x 35" Corrugated Pipe and Concrete Headwalls - (Pipe to be relaid at Sta 126+98)

Build new Concrete Slab Top Culvert as shown.

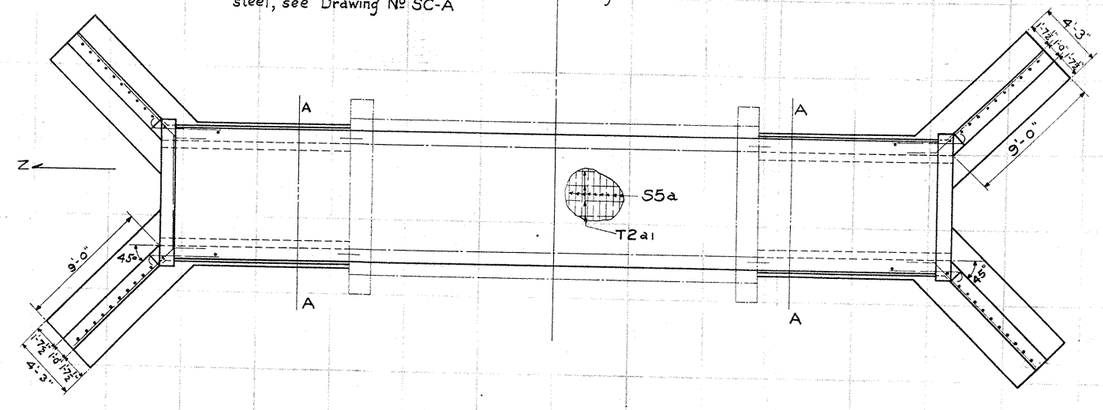
ESTIMATED QUANTITIES

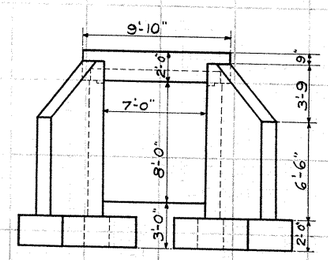
Excavation	125	Cu. yds.
1:6½ Concrete (Footers)	13.1	Cu. yds.
1:5½ Concrete (Walls)	27.8	Cu. yds.
1:5½ Concrete (Slab)	7.8	Cu. yds.
Reinforcing Steel	2115	Lbs.
Removing 36" Corrugated Pipe	35	Lin. ft.
Removing Old Masonry	18	Cu. yds.

Nº 12 Sta 132+75

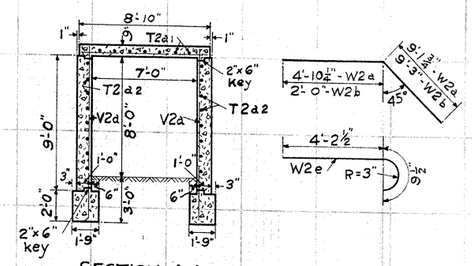


Note:- For size, spacing and location of reinforcing steel, see Drawing Nº SC-A





END ELEVATION



SECTION A-A

Reinforcing Steel

121 - S5a bars - 3/4" ϕ - 8'-6" long	Spcd 5¼" ctrs.
14 - T2a1 bars - 1/2" ϕ - 28'-0" long	Spcd 12" ctrs.
20 - W2a bars - 1/2" ϕ - 14'-0" long	Spcd as shown
32 - W2b bars - 1/2" ϕ - 11'-3" long	Spcd 12" ctrs.
40 - W2c bars - 1/2" ϕ - 8'-6" long	Spcd 9" ctrs.
4 - W2d bars - 1/2" ϕ - 12'-6" long	Spcd as shown
32 - W2e bars - 1/2" ϕ - 5'-0" long	Spcd as shown
56 - V2a bars - 1/2" ϕ - 11'-0" long	Spcd 12" ctrs.
36 - T2a2 bars - 1/2" ϕ - 12'-6" long	Spcd 12" ctrs.
32 - D5a bars 3/4" ϕ - 2'-0" long	Spcd as shown

Note - D5a bars are not included in the weight of Reinforcing Steel listed

CULVERT DATA

Type - Concrete Slab Top

Size - S=7'-0" V=8'-0" L=53'-0"

Work Required - Remove present Stone Headwalls and Stone Slab

Extend abutments 12'-9" at each end with concrete and build new concrete slab, headwalls and wings as shown.

Repoint old Masonry.

ESTIMATED QUANTITIES

Excavation	170	Cu. yds.
1:6½ Concrete (Footers)	18.2	Cu. yds.
1:5½ Concrete (Walls)	27.6	Cu. yds.
1:5½ Concrete (Slab)	15.6	Cu. yds.
Reinforcing Steel	3320	Lbs.
Removing Old Masonry	20	Cu. yds.
Repointing Old Masonry	440	Sq. ft.
Dowels - (3/4" ϕ x 24" - D5a)	32	Pcs.

Nº 13 Sta 144+58

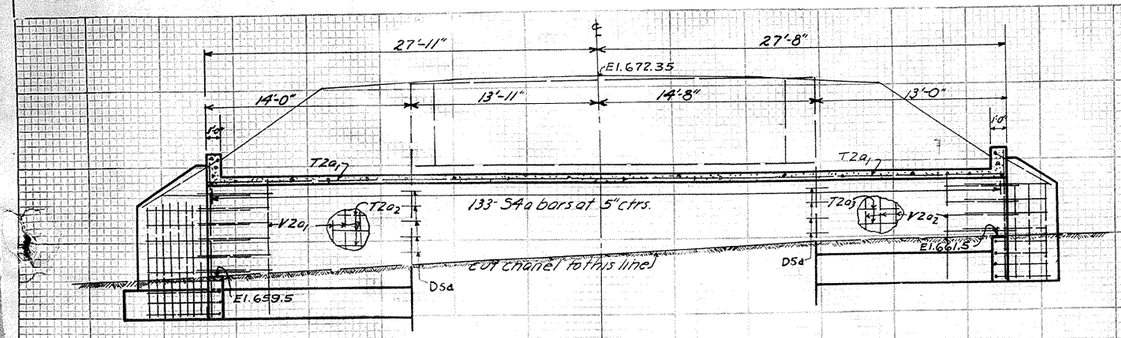
Dr. by W.

FED. RD. DIST. Nº	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

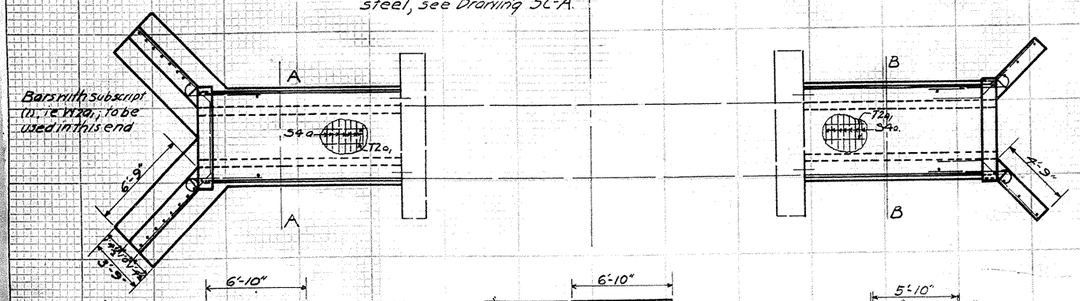
32/35

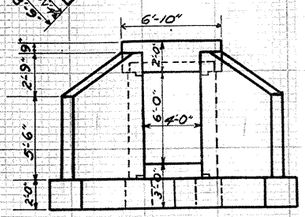
S.H. (I.C.H) 555 SEC. C-2

LORAIN CO.

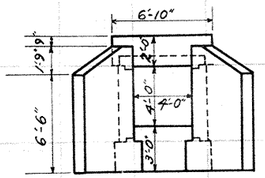


Note - For sizes, spacing and location of reinforcing steel, see Drawing SC-A.

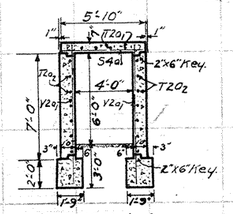




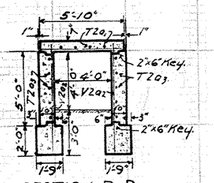
LEFT END ELEVATION



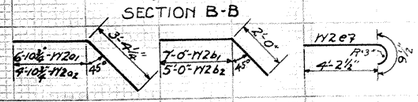
RIGHT END ELEVATION



SECTION A-A



SECTION B-B



Reinforcing Steel

133 - S4a bars	⅜" ϕ - 5'-6" long	Spcd 5" ctrs.
8 - T2a1 bars	-½" ϕ - 29'-3" long	Spcd 12" ctrs.
14 - T2a2 bars	-½" ϕ - 13'-6" long	Spcd 12" ctrs.
10 - T2a3 bars	-½" ϕ - 12'-6" long	Spcd 12 ctrs.
10 - V2a1 bars	-½" ϕ - 10'-3" long	Spcd as shown.
10 - V2a2 bars	-½" ϕ - 8'-3" long	Spcd as shown.
12 - V2a1 bars	-½" ϕ - 9'-0" long	Spcd as shown.
8 - V2b2 bars	-½" ϕ - 7'-0" long	Spcd as shown.
16 - V2c1 bars	-½" ϕ - 7'-6" long	Spcd 9" ctrs.
6 - V2c2 bars	-½" ϕ - 6'-6" long	Spcd as shown.
2 - V2d1 bars	-½" ϕ - 10'-6" long	Spcd as shown.
2 - V2d2 bars	-½" ϕ - 8'-6" long	Spcd as shown.
20 - V2e bars	-½" ϕ - 5'-0" long	Spcd 12" ctrs.
16 - V2a1 bars	-½" ϕ - 9'-0" long	Spcd 12" ctrs.
15 - V2a2 bars	-½" ϕ - 7'-0" long	Spcd 12" ctrs.
18 - D5a bars	-¾" ϕ - 2'-0" long	Spcd. as shown.

Note - D5a bars are not included in the weight of Reinforcing Steel listed

CULVERT DATA

Type - Concrete Slab Top.

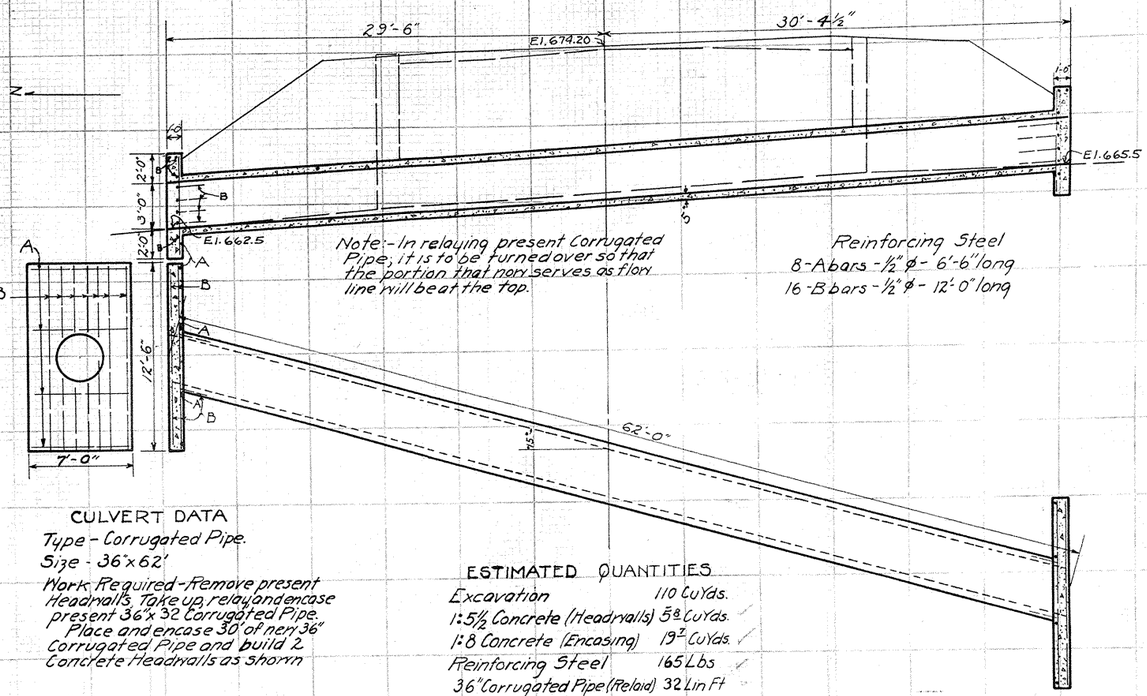
Size - S=4'-0" V=6'-0" B=4'-0" L=55'-7"

Work Required - Remove present Stone Headwalls and Cover Slab. Extend abutments 14'-0" left (V=6') and 13'-0" right (V=4') with concrete and build new concrete slab, headwalls, and wings as shown. Repoint Old masonry.

ESTIMATED QUANTITIES

Excavation.	105 CuYds.
1:6½ Concrete (Footers)	11.0 CuYds.
1:5½ Concrete - (Walls)	17.5 CuYds.
1:5½ Concrete - (Slab)	8.7 CuYds.
Reinforcing Steel	1880 Lbs.
Removing Old Masonry	23 CuYds.
Repointing Old Masonry	257 SqFt.
Dowels - (¾" ϕ x 24" - D5a)	18 Pcs.

No 15 Sta 156+00



Note - In relaying present Corrugated Pipe, it is to be turned over so that the portion that now serves as flow line will be at the top.

Reinforcing Steel

8 - A bars - ½" ϕ - 6'-6" long

16 - B bars - ½" ϕ - 12'-0" long

CULVERT DATA

Type - Corrugated Pipe.

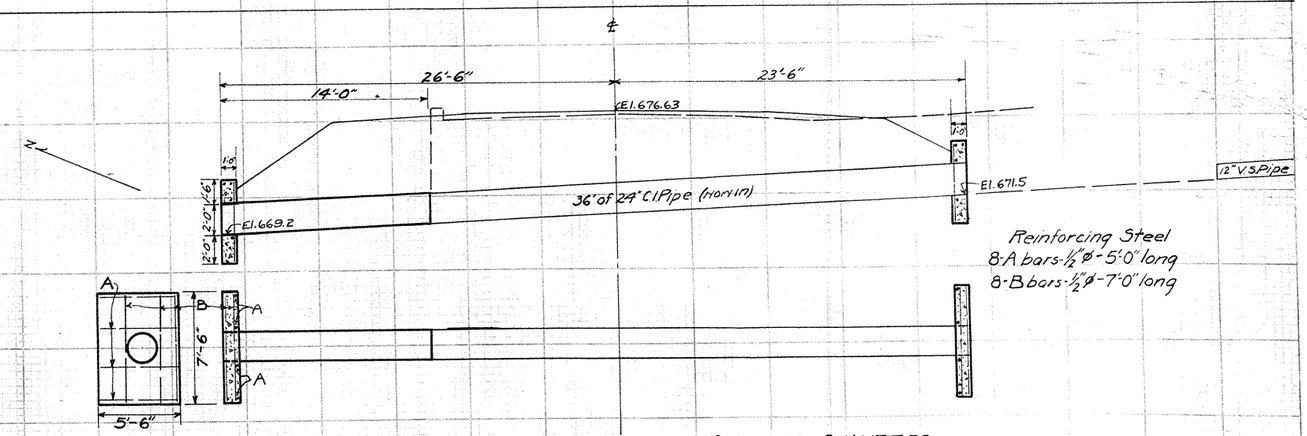
Size - 36" x 62'

Work Required - Remove present Headwalls. Take up, relay and encase present 36" x 32' Corrugated Pipe. Place and encase 30' of new 36" Corrugated Pipe and build 2 Concrete Headwalls as shown

ESTIMATED QUANTITIES

Excavation	110 CuYds.
1:5½ Concrete (Headwalls)	5.8 CuYds.
1:8 Concrete (Encasing)	19.2 CuYds.
Reinforcing Steel	165 Lbs
36" Corrugated Pipe (Reload)	32 Lin Ft
36" Corrugated Pipe (New)	30 Lin Ft
Removing Old Masonry	7 CuYds

No 16 Sta 176+41



Reinforcing Steel

8 - A bars - ½" ϕ - 5'-0" long

8 - B bars - ½" ϕ - 7'-0" long

CULVERT DATA

Type - Cast Iron Pipe

Size - 24" x 50'

Work Required - Remove top of present Headwall. Extend present 24" Solid Cast Iron Pipe - 14' to left with 24" Sectional Cast Iron Pipe and build 2 Concrete Headwalls

ESTIMATED QUANTITIES

Excavation.	3 CuYds
1:5½ Concrete (Headwalls)	2.8 CuYds
Reinforcing Steel	65 Lbs
24" Sectional Cast Iron Pipe	14 Lin Ft
Removing Old Masonry	2 CuYds

No. 17 Sta 179+33

DRAWN BY W.F.

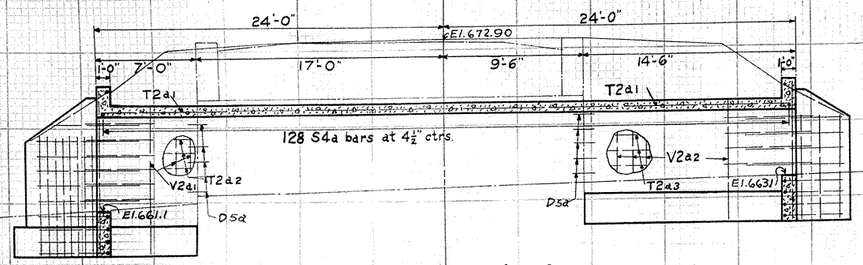
TRACED BY C.E.P.

FED. RD. DIST. Nº	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

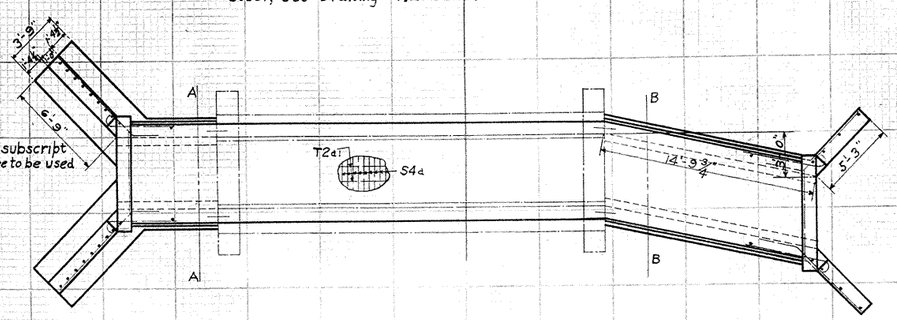
33/35

S.H. (I.C.H) 555 SEC. C-2

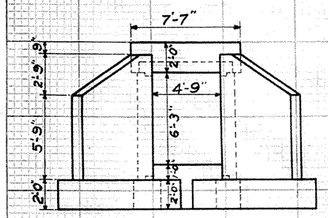
LORAIN CO.



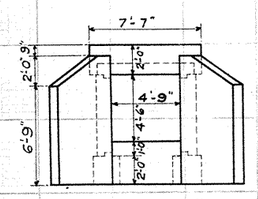
Note :- For size, location, and spacing of reinforcing steel, see Drawing No. SC-A



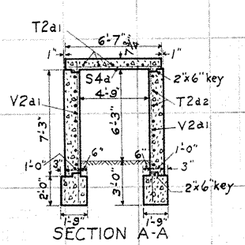
Note - Bars with subscript (1); i.e.-W2a1; are to be used in this end.



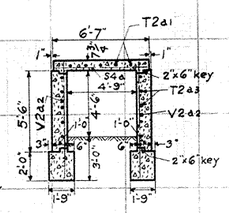
LEFT END ELEVATION



RIGHT END ELEVATION



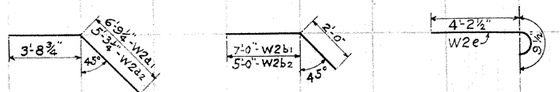
SECTION A-A



SECTION B-B

Reinforcing Steel

128 - S4a	bars - ⅝" ø - 6'-3"	long -	Spcd 4½"	ctrs.
10 - T2a1	bars - ½" ø - 25'-0"	long -	Spcd 12"	ctrs.
14 - T2a2	bars - ½" ø - 6'-6"	long -	Spcd 12"	ctrs.
10 - T2a3	bars - ½" ø - 14'-3"	long -	Spcd 12"	ctrs.
10 - W2a1	bars - ½" ø - 10'-6"	long -	Spcd as shown.	
10 - W2a2	bars - ½" ø - 9'-0"	long -	Spcd as shown.	
12 - W2b1	bars - ½" ø - 9'-0"	long -	Spcd 12"	ctrs.
8 - W2b2	bars - ½" ø - 7'-6"	long -	Spcd 12"	ctrs.
16 - W2c1	bars - ½" ø - 7'-6"	long -	Spcd 9"	ctrs.
6 - W2c2	bars - ½" ø - 6'-9"	long -	Spcd as shown.	
2 - W2d1	bars - ½" ø - 10'-9"	long -	Spcd as shown.	
2 - W2d2	bars - ½" ø - 9'-0"	long -	Spcd as shown.	
20 - W2e	bars - ½" ø - 5'-0"	long -	Spcd 12"	ctrs.
16 - V2a1	bars - ½" ø - 9'-3"	long -	Spcd 12"	ctrs.
32 - V2a2	bars - ½" ø - 7'-6"	long -	Spcd 12"	ctrs.
32 - D5a	bars - ¾" ø - 2'-0"	long -	Spcd as shown	



Note - D5a bars are not included in the weight of Reinforcing Steel listed

CULVERT DATA

Type - Concrete Slab Top

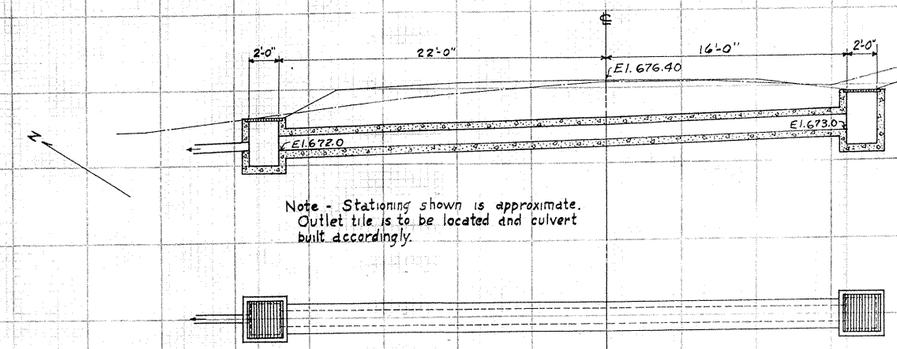
Size - S-4'-9" V-4'-6" & 6'-3" L-48'

Work Required - Remove present Stone Headwalls and Cover Slab Extend present abutments 7'-0" Left and 14'-9¾" Right with new Concrete Abutments and build new slab, headwalls, and wings as shown. Repoint old masonry.

ESTIMATED QUANTITIES

Excavation	65 Cu. yds.
1:6½ Concrete - (Footers)	9 Cu. yds.
1:5½ Concrete - (Walls)	16 Cu. yds.
1:5½ Concrete - (Slab)	9 Cu. yds.
Reinforcing Steel	1865 Lbs.
Removing Old Masonry	14 Cu. yds.
Repointing Old Masonry	250 Sq. ft.
Dowels - (¾"ø x 24" D5a)	32 Pcs.

Nº 18 Sta. 191+18



Note - Stationing shown is approximate. Outlet tile is to be located and culvert built accordingly.

CULVERT DATA

Type - Vitrified Sewer Pipe

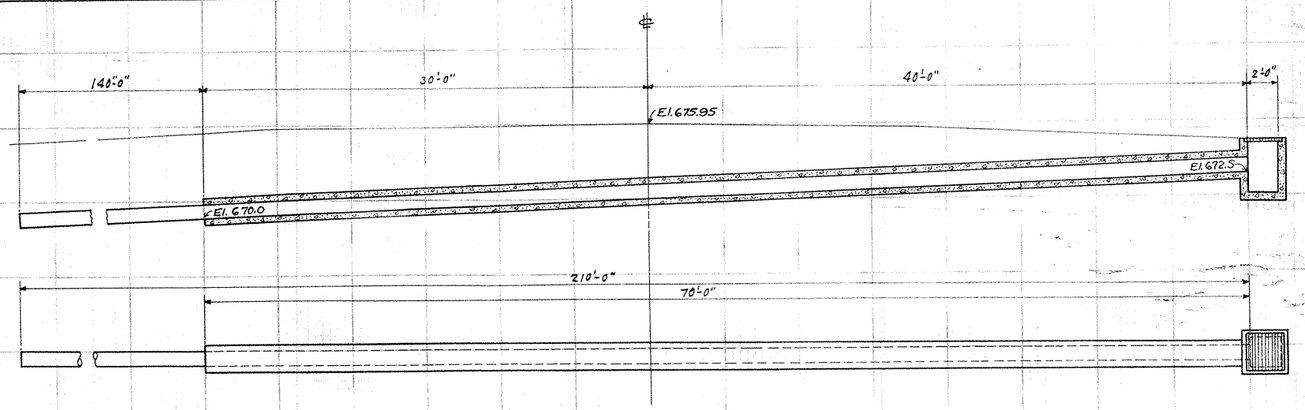
Size - 12" x 38'

Work Required - Place and encase 38' of 12" Vitrified Sewer Pipe and build 2 Standard Nº 2 Catch Basins with Side Inlets omitted

ESTIMATED QUANTITIES

Excavation	25 Cu. yds.
1:8 Concrete	3 Cu. yds.
12" Vitrified Sewer Pipe	38 Lin. ft.
Nº 2 Catch Basins	2

Nº 19 Sta. 200+70



CULVERT DATA

Type - Vitrified Sewer Pipe

Size - 12" x 210'

Work Required - Place and encase 70' of 12" Vitrified Sewer Pipe. Place 140' of 12" Vitrified Sewer Pipe, not encased. Build 1 Standard Nº 2 Catch Basin with side inlets omitted.

ESTIMATED QUANTITIES

Excavation	175 Cu. yds.
1:8 Concrete	7 Cu. yds.
12" Vitrified Sewer Pipe	210 Lin. ft.
Nº 2 Catch Basins	1

Nº 14 Sta. 150+56

Dr. by V.V.
Tr. by R.B.

FED. RD. DIST NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

S.H. (I.C.H.) 555 SEC. C-2
LORAIN CO.

SUMMARY OF STRUCTURE QUANTITIES

STRUCTURES 20' AND UNDER

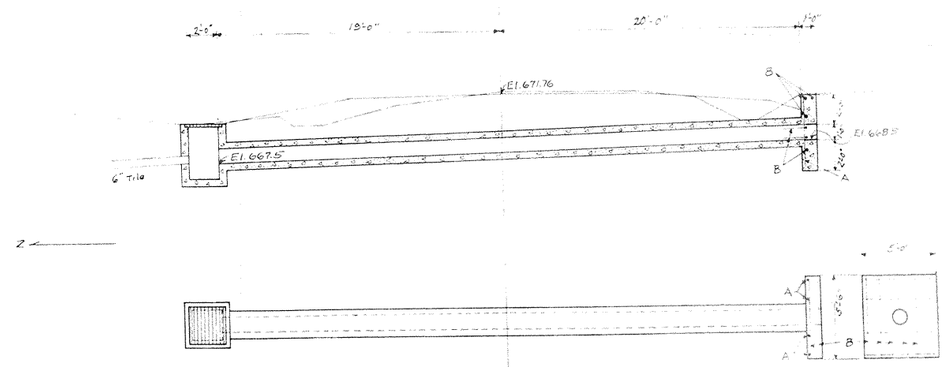
Nº	Station	Size	Length	Excavation	Concrete 1:5½ Walls	Concrete 1:5½ Slab	Concrete 1:6½ Footers	Concrete 1:8 Encasing	Reinforcing Steel	Sectional Cast Iron Pipe 24"	Sectional Cast Iron Pipe 30"	Vitrified Sewer Pipe New 12"	Vitrified Sewer Pipe New 18"	Vitrified Sewer Pipe New 20"	Vitrified Sewer Pipe New 24"	Vitrified Sewer Pipe Relaid 12"	Vitrified Sewer Pipe Relaid 24"	Pipe Removed 15"	Pipe Removed 18"	Pipe Removed 36"	Corrugated Pipe Relaid 15"	Corrugated Pipe Relaid 36"	Corrugated Pipe New 36"	Nº 2 Catch Basins Pcs	Removing Old Masonry	Repointing Old Masonry	
				Cu.yds.	Cu. yds	Cu. yds	Cu. yds	Cu. yds	Lbs.	Lin. ft.	Lin. ft	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Pcs	Cu. yds.	Sq. ft.	
2	23+87	12"	40'	33	1^{8}			4^{2}	32			40												1			Place and encase 38' of 12" V.S.P. Build 1 Concrete Headwall and build 1 Standard Nº 2 Catch Basin with side inlets omitted.
3	32+86	24"	47'	6	1^{8}			2^{5}	52						6		6								4		Relay and encase present 24" V.S.P. at right end. Extend left end 6' with 24" V.S.P. encased, and build 1 Std. Conc. Headwall. Remove present stone headwalls as shown.
4	45+19	18"	40'	35				6^{8}					40					36						2			Remove present 15"x36' Corrugated Pipe. Place and encase 40' of 18" V.S.P. Build 2 Std. Nº 2 Catch Basins with side inlets omitted.
5	53+94	15"	42'	40				5^{8}										30			42			2			Take up, relay and encase 30' of present 15" Corrugated Pipe. Place and encase 12' of 15" Corr. Pipe from Sta. 45+19. Build 2 Nº 2 Catch Basins with side inlets omitted.
6	67+85	S=4'-2" H=2'-6"	45'-11½"	20	8^{4}	5^{7}	2^{3}		865															14	12	185	Remove present stone headwalls and cover slab. Extend abutments 9' to left and place concrete Headwalls and Slab as shown. Repoint old masonry.
7	95+36	30"	40'	18	3^{6}				75		40														11		Remove present stone headwalls, cover slab and abutments. Place 40' of 30" Sec. C.I.P. and build 2 Concrete Headwalls as shown.
8	110+03	30"	56'	60	3^{6}				75		56								32						5		Remove present stone headwalls and 18"x32' Vitrified and Cast Iron Pipe. Place 56' of 30" Sectional Cast Iron Pipe and build 2 Concrete Headwalls as shown.
9	117+85	20"	54'	70	3^{0}			8^{0}	85					54											6		Remove present 20" V.S.P. and Stone Headwalls. Place and encase 54' of 20" V.S.P. and build 2 Concrete Headwalls as shown.
10	120+05	12"	44'	20				4^{8}				24				20											Remove 44' of present 12" V.S.P. Relay pipe fit for reuse. Replace remainder with new 12" V.S.P. Encase all pipe.
11	126+98	36"	52'	60	5^{8}			16^{4}	165													52			12		Take up and relay present 36"x30' Corr. Pipe. Place 22' of 36" Corr. Pipe from Sta. 132+75. Encase all pipe and build 2 Concrete Headwalls as shown.
12	132+75	S=4'-0" V=5'-0"	48'-6"	125	27^{8}	7^{8}	13^{1}		2115											35					18		Remove present 36"x35' Corrugated Pipe. Build new Concrete Slab Top Culvert as shown.
13	144+58	S=7'-0" V=8'-0"	53'	170	27^{6}	15^{6}	18^{2}		3320															32	20	440	Remove present Stone Headwalls and Slab. Extend abutments and build new slab, headwalls, and wings with concrete as shown. Repoint old masonry.
14	150+56	12"	210'	175				7^{6}				210													1		Place and encase 70' of 12" V.S.P. Place 140' of 12" V.S.P. (not encased) Build 1 Std. Nº 2 Catch Basin with side inlets omitted.
15	156+00	S=4'-0" V=(4'-0" / 4'-0")	55'-7"	105	17^{5}	8^{7}	11^{0}		1880															18	23	257	Remove present stone headwalls and slab. Extend abutments 14' left and 13' right and build new slab, headwalls, and wings with concrete as shown.
16	176+41	36"	62'	110	5^{8}			19^{7}	165													32	30		7		Remove present Headwalls. Take up, relay and encase present 36"x32' Corr. Pipe. Place and encase 30' of new 36" Corr. Pipe and build 2 Conc. Headwalls as shown.
17	179+33	24"	50'	3	2^{8}				65	14															2		Remove top of present headwalls. Extend present 24" Solid C.I.P. 14' to left with 24" Sectional C.I.P. and build 2 Concrete Headwalls.
18	191+18	S=4'-9" V=(5'-0" / 4'-3")	48'	65	16^{4}	9^{4}	9^{4}		1865															32	14	250	Remove present Stone Headwalls and Slab. Extend abutments and build new slab, headwalls, and wings with concrete as shown. Repoint old masonry.
19	200+70	12"	38'	25				3^{9}				38												2			Place and encase 38' of 12" V.S.P. and build 2 Std. Nº 2 Catch Basins with side inlets omitted.
			TOTALS	1,140	125	47^{2}	54^{0}	79^{3}	10759	14	96	312	40	54	6	20	6	66	32	35	42	84	30	96	8	134	1,132	

PROPOSAL Nº 2 (Sta. 3+26.25 to Sta. 3+49.75)

STRUCTURES OVER 20 FEET

Nº	Station	Size	Length	Excavation Earth Borrow	Excavation Rock	1:5½ Concrete Footers	1:5½ Concrete Walls	Arch Rings	Reinforcing Steel	Concrete Rail Type SR-3-b	Expansion Joint Exp. Jt. Filler	¾" Structural Expn. Jt. Filler	Waterproofing Type A	Waterproofing Type B	Stone Masonry Relaid	Stone Masonry Repointed	Special Rubbed Finish	Cofferdams & Pumping
				Cu. yds	Cu. yds	Cu. yds	Cu. yds	Cu. yds	Lbs.	Lin. ft	Lin. ft	Sq. ft	Sq. yds	Sq. yds	Cu. yds	Sq. ft.	Sq. yds	
1	3+38	Arch Span 23'-6"	43'	400	30	23^{5}	1^{6}	22^{5}	10035	122^{3}	38	65	142	62	14	820	110	Lump Sum

Note - Nº 1 Sta. 3+38
Excess excavation, Stone Arch, Span 23'-6", Rise 16'-4", length 43'-0", on each side with Concrete Arch and Cu. Yd. Wing Walls, as shown on structure plans.



Reinforcing Steel
4 - A bars - ½" ø - 4'-6" long
6 - B bars - ½" ø - 5'-6" long

Note -
Removal of present 6" tile is to be included for payment with item "Excavation."

CULVERT DATA

Type: Vitrified Sewer Pipe
Size: 12"x 40'
Work Required - Place and encase 38' of 12" Vitrified Sewer pipe and build 1 Standard Concrete Headwall. Build 1 Nº 2 Catch Basin with side inlets omitted.

ESTIMATED QUANTITIES

Excavation	33	Cu. yds.
1:5½ Concrete - Headwall	1^{0}	Cu. yds.
1:8 Concrete - Encasing	4^{8}	Cu. yds.
Reinforcing Steel	32	Lbs.
Nº 2 Catch Basin	1	
12" Vitrified Sewer Pipe	40	Lin. Ft.

Nº 2 Sta. 23+87

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR
10	OHIO		

35
35

S.H. (I.C.H.) 555 SEC. C-2
LORAIN CO.

SUMMARY OF QUANTITIES

SIDE DRAINS

Side	From	To	Type	6"	8"	24"
L	2+50	3+25	Relay	75'		
L	11+00	33+40	New		2240'	
R	11+00	18+00	New		700'	
R	31+00	32+86	New		186'	
R	43+60	45+19	New		159'	
L	45+19	53+94	Relay		875'	
L	53+94	60+30	Relay	636'		
R	65+33	66+05	New		72'	
R	68+05	68+37	Relay		32'	
R	70+30	72+92	Relay	262'		
R	79+00	92+40	Relay		1340'	
R	104+05	104+25	New			20'
R	105+05	105+25	New			20'
R	108+00	108+24	Relay			24'
R	164+82	167+00	Relay		218'	
R	197+00	205+50	New		850'	
Totals V.S.P. New					4207'	40'
Totals V.S.P. Relaid				973'	2465'	24'

GUARD RAIL

Side	From	To	Length
L	32+50	33+46	96'
R	32+80	33+20	40'
R	108+24	110+40	216'
L	109+90	110+22	32'
R	126+50	127+14	64'
R	132+30	132+78	48'
L	132+30	133+26	96'
L	143+91	145+03	112'
R	144+20	145+00	80'
L	155+24	156+60	136'
R	155+70	156+50	80'
L	161+50	164+54	304'
L	175+80	176+68	88'
R	176+00	176+64	64'
L	190+60	191+40	80'
R	191+00	191+64	64'
R	107+36	108+00	64'
Total			1664'

PAVEMENT LENGTH

Beginning of project Sta. 0+00
End of project Sta. 207+71.6
GROSS LENGTH = 20,771.6 Lin ft.
Sta 129 to Sta 130 Deduction (Short Sta.) : 0.6 Lin ft
NET LENGTH = 20,771.0 Lin ft.

PRIVATE DRIVES

Side	Sta.	8"x20' Corr. Pipe	10"x20' Corr. Pipe
R	20+80	1	
R	22+15	1	
R	24+55	1	
L	40+20		1
R	43+10	1	
L	44+60	1	
R	48+25	1	
R	52+20		1
R	59+10	1	
L	61+30	1	
R	63+50	1	
R	64+70	1	
R&L	64+80	2	
L	88+45	1	
L	93+25	1	
R	98+00	1	
L	98+35	1	
L	111+25	1	
R	112+60	1	
R	121+15	1	
R	123+75	1	
R	130+35	1	
R	133+25		1
R	134+65		1
L	134+65	1	
R	142+20	1	
R	143+65	1	
L	146+55	1	
R	154+15	1	
R	155+00	1	
R	157+00	1	
R	173+50		1
L	206+40	1	
L	207+45	1	
L	207+60	1	
Totals		31	5

BITUMINOUS CONCRETE

From	To	For	Tons
3+83	11+00	Special Berm	26.8
60+10	60+60	Intersection	4.0
61+96	62+46	Intersection	4.0
Total			34.8

MACADAM SCARIFIED

From	To	Length	Sq. Yds.
0+00	3+70	370.0'	575.6
10+63	207+71.6	19708.0'*	30657.0
Totals		20078.0'	31232.6

* 0.6' lin ft deducted for short sta. 129+27.9 to 129+28.5

EXTRA PAVEMENT

Sta	For	Sq. Yds.
0+43.5	Intersection	151.6
10+00	"	240.8
54+59	Curve	89.3
62+20.9	"	98.2
120+20.9	Intersection	224.9
150+36.2	"	229.8
Total		1034.6

INTERSECTIONS

Sta.	Area Sq. Ft.	Excav. Cu. Yds.	Conc. Sq. Yds.	Header lin. ft.
0+43.5	1364	29.5	151.6	25.2
10+00	2167	46.8	240.8	54.5
120+20.9	2024	43.3	224.7	50.1
150+36.2	2068	40.2	229.8	50.8
Totals		159.8	844.9	180.6

0+00 to 207+71.6	7"-9" 1-5½ Concrete Pavement 20771.0 × 20 ÷ 9 = Extra Pavt. (See table this sheet) = Total Amount	46157.8 1034.6	47192.4 Sq. Yds.
	Macadam Scarified and Reshaped 370.0 × 14 (width present pavement) ÷ 9 = 19708.6 × 14 (" " ") ÷ 9 = Total Amount	575.6 Sq. Yds. 30657.0 Sq. Yds.	31232.6 Sq. Yds.
	Excavation Unclassified From table of Excav. & Emb. From table of Intersections Total Amount	11944.0 Cu. Yds. 159.8 Cu. Yds.	12103.8 Cu. Yds.
3+83 to 11+00 60+10 to 62+46	Bituminous Concrete Placed For Backfilling along pavt. edge & making special berm For raising intersection to meet new pavement Total Amount	26.8 Tons 8.0 Tons	34.8 Tons
0+00 to 207+71.6	Finishing Shoulders, Slopes & Ditches 20771.0 (Net length) × 1 =	20771.0 lin. ft.	20771.0 lin. ft.
	V.S.P. Side Drains New 8" V.S.P. Furnished & placed including excav. & slag covering 24" V.S.P. " " " " " " " "	4207 lin. ft. 40 lin. ft.	4207 lin. ft. 40 lin. ft.
	V.S.P. Side Drains Relaid 6" V.S.P. Removed, cleaned, & relaid including excav. & slag covering 8" V.S.P. " " " " " " " " 24" V.S.P. " " " " " " " "	973 lin. ft. 2465 lin. ft. 24 lin. ft.	973 lin. ft. 2465 lin. ft. 24 lin. ft.
	Catch Basins Std. No. 1 catch basins Std. No. 2 " " with side inlets omitted Special Catch basins rebuilt & No. 2 Std. grates furnished	6 12 2	6 12 2
	Corrugated Iron Pipe Driveways 8" x 20' Corrugated iron pipe furnished & placed 10" x 20' " " " " "	31 pcs. 5 pcs.	620 lin. ft. 100 lin. ft.
	Guard Rail Standard type D guard rail	1664 lin. ft.	1664 lin. ft.
	1-5½ Concrete Header 4½" x 12" Concrete Header	180.6 lin. ft.	180.6 lin. ft.

CU. YDS OF EXCAV. & EMB.

From	To	Excav.	Emb.	Emb. + 25%	Waste	Borrow
0+00	10+06	554.2	114.9	143.6	410.6	
10+06	20+00	339.7	196.5	245.6	94.1	
20+00	28+00	464.0	177.0	221.2	242.8	
28+00	40+00	632.5	460.2	575.2	57.3	
40+00	50+00	519.3	222.1	277.6	241.7	
50+00	58+00	379.7	271.4	339.2	40.5	
58+00	64+00	299.7	314.4	393.0		93.3
64+00	80+00	900.6	718.2	897.7	2.9	
80+00	95+00	832.9	725.9	907.3		74.4
95+00	109+00	1040.2	894.9	1118.6		78.4
109+00	126+00	1037.7	753.0	941.3	96.4	
126+00	144+00	1009.8	593.8	742.2	267.6	
144+00	155+00	600.1	503.5	629.3		29.2
155+00	171+00	1131.2	973.5	1216.9		85.7
171+00	181+50	761.0	649.3	811.6		50.6
181+50	191+00	541.6	352.4	440.5	101.1	
191+00	207+71.6	899.8	618.9	773.6	126.2	
Totals		11,944.0	8533.9	10,674.4	1681.2	411.6

Note:- Borrow excavation to be obtained from adjacent excess or waste excavation sections and from surplus excavation of tile drains.

CATCH BASINS

Side	Sta.	New Std. #1	New Std. #2	Spec. C.B.	Remarks
L	2+64		1		Remove old C.B. Build new Std #2 C.B.
R	4+18			1	Rebuild sidewalls for 1 ft. Furnish Std #2 Grate
R	5+88			1	" " " " " " " "
R	7+92		1		Remove old C.B. Build new Std #2 C.B.
L	11+15		1		Remove old C.B. 5/10/99 Build New Sta 11+15
R	11+33		1		" " " " 11+15 " " " 11+33
R	18+00	1			
L	26+50		1		
L	26+94		1		
L	29+84		1		
R	14+00		1		
L	15+00		1		
R	31+00	1			
L	60+30	1			
R	72+92	1			
R	79+00		1		
R	84+00		1		
R	167+00		1		
R	197+00	1			
R	205+50	1			
Totals		6	12	2	