"AS BUILT"

7/19

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1564-5-71	F 011(7)	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED

GRANDVIEW — MASON ROAD

U.S.H. 63
BAYFIELD COUNTY

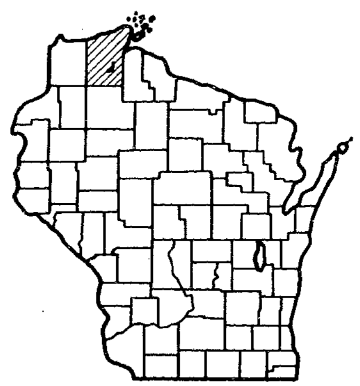
STATE PROJECT NUMBER
1564-5-71

Scales
- Plan 1 in. = 100 ft.
- Profile Hor. 1 in. = 100 ft. Vert. 1 in. = 10 ft.
- Cross Sections Hor. 1 in. = 5' Vert. 1 in. = 5'

Index of Sheets

Sheet No.	1	Title
Sheet No.	2	Typical Cross Sections
Sheet No.	3	Estimate of Quantities
Sheet No.	3A	Miscellaneous Quantities
Sheet No.	—	Right of Way Plat
Sheet No.	5 — 5.4	Plan and Profile
Sheet No.	6 — 6.5	Standard Details
Sheet No.	—	Structure Plans
Sheet No.	—	Computer Earthwork Data
Sheet No.	9 — 9.14	Cross Sections

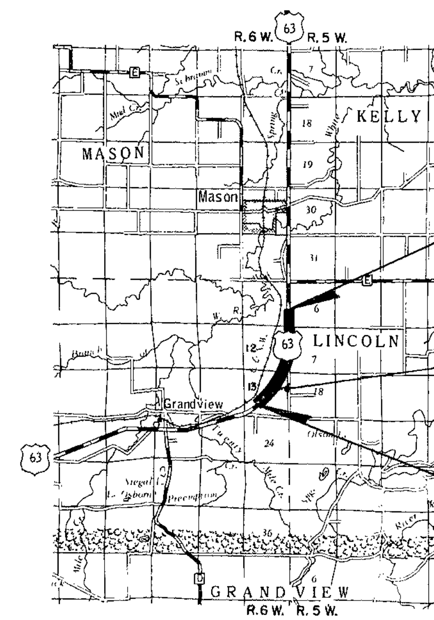
TOTAL SHEETS = 30



Design Designation

A.D.T. (1980)	= 1240
A.D.T. (2000)	= 1990
D.H.V.	= 292
D.	= 65%
T.	= 10.6%

GN



END PROJECT 1564-5-71
STA. 645+68
N. 453,200 (± 200')
E. 1,734,800 (± 200')
APPROX. 1600' N. & 200' W. OF THE SE. COR. OF SEC. 1, T. 45 N., R. 6 W.

EQUATION
STA. 559+16.40 =
STA. 560+85.22

BEGIN PROJECT 1564-5-71
STA. 534+00
N. 443,000 (± 200')
E. 1,731,300 (± 200')
APPROX. 1600' N. & 1400' E. OF THE SW. COR. OF SEC. 13, T. 45 N., R. 6 W.

Conventional Signs

- County Line
- Township or Range Line
- Section Line
- New Right of Way Line
- Present Right of Way Line
- Wire Fence (type)
- Corporate or City Limits
- Property Line P.L.
- Traveled Way or P.E.
- Railroads
- Base or Survey Line
- Caution Symbol (combustible fluids under pressure) CAUTION
- Culverts in Place
- Culverts Required
- Drop Inlet
- Power Pole
- Telephone or Telegraph Pole
- Right of Way Markers
- Reference Stake for Hubs Only +61.7 / 25.9
- Marsh
- Hedge
- Trees
- Ground Elevation Datum Line
- Grade Elevation Datum Line

Layout
Scale 0 1 2 MI.

Total Net Length of Centerline = 2.083 Mi. RURAL

NOTE:
ALL COORDINATES SHOWN ARE SCALED FROM U.S.G.S. QUADRANGLE MAP MASON, WISC. AND GRANDVIEW, WISC. FOR IDENTIFICATION ONLY.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SURVEYOR	R.O.L.	DISTRICT CHECKER	L.L.H.
DESIGNER	R.H.W.	C.O. CHECKER	J.R.T.
DISTRICT SUPERVISOR	G.L.M.	C.O. COORDINATOR	JDW

Approved:
DATE 9-12-79 Donald H Jorgensen — DISTRICT TRANSPORTATION DIRECTOR

Approved:
DATE 10-16-79 D. L. Strand — CHIEF DESIGN ENGINEER

Approved:
DATE 10/17/79 E. J. Burkit — DIRECTOR OF DEVELOPMENT

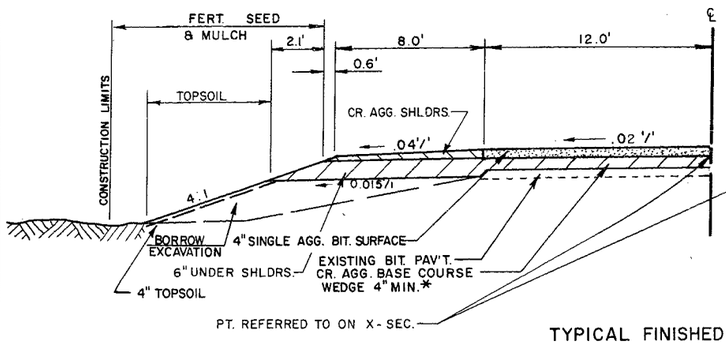
U S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5 WISCONSIN DIVISON

Approved:
DATE ______ ______ DIVISION ENGINEER

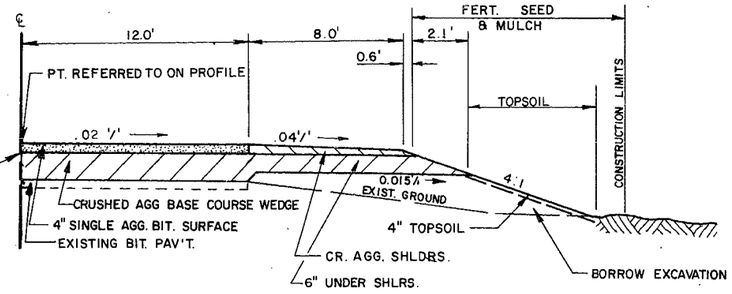
STATE PROJECT NUMBER	SHEET NO.
1564 - 5 - 71	2
TYPICAL SECTIONS & DETAILS FOR USH 63	

RI 11/15/79

WHEN GRAVEL WEDGE IS LESS THAN "6"



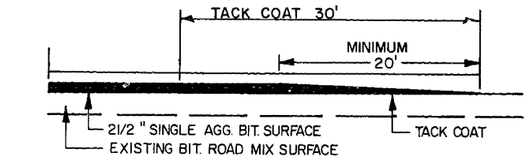
WHEN GRAVEL WEDGE EXCEEDS "6"



TYPICAL FINISHED HALF SECTIONS FOR GRADING & CR. AGG. WEDGE

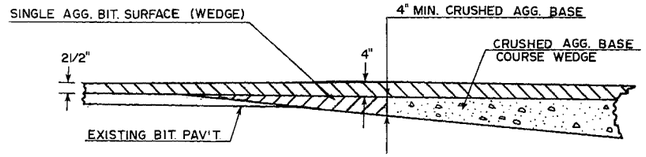
STA. 573+00 - 582+00
583+00 - 593+00
608+00 - 625+00
638+00 - 645+ 68

*SEE GRAVEL WEDGE DETAIL WHEN 4" OF CRUSHED AGGREGATE BASE COURSE CAN NOT BE MAINTAINED

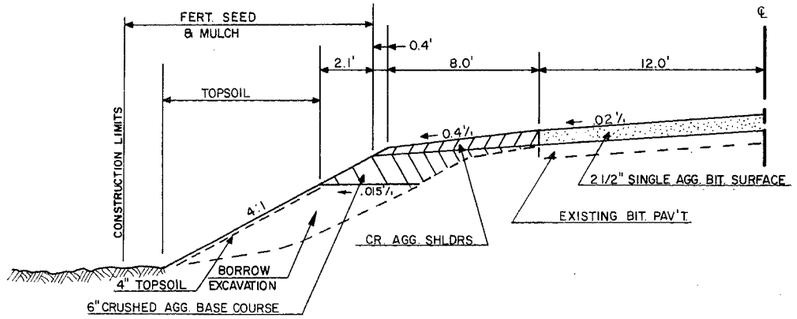


FEATHERING DETAIL

STA. 534+00
645+68

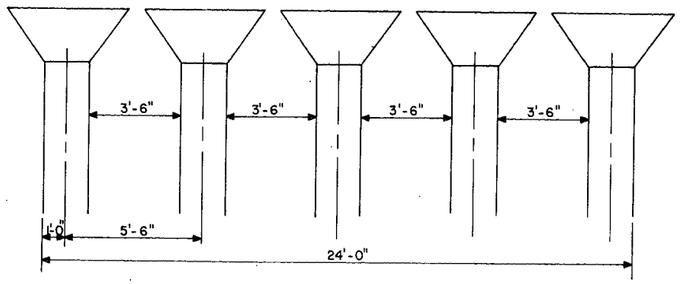


CR. AGG. WEDGE DETAIL



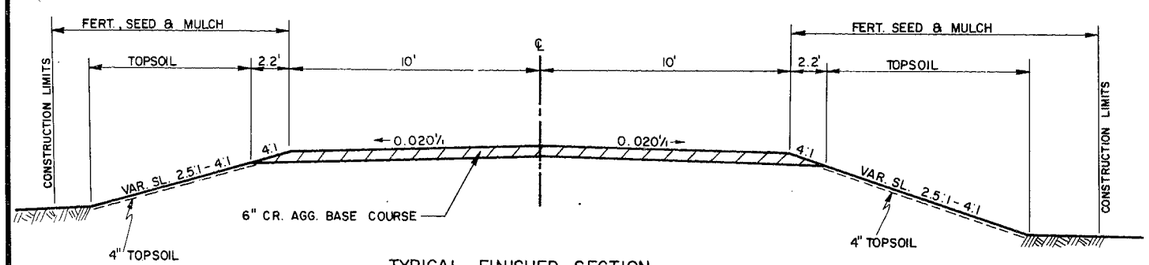
TYPICAL FINISHED HALF SECTION FOR RESURFACING

STA. 534+00 - 573+00
582+00 - 583+00
593+00 - 608+00
625+00 - 638+00



SPACING DETAIL FOR 24" X 18" CMPA

STA. 620+00



TYPICAL FINISHED SECTION FOR SIDE ROAD

GENERAL NOTES

WHEN THE QUANTITY OF THE ITEMS OF BASE OR SURFACE COURSE IS MEASURED FOR PAYMENT BY THE TON THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

ALL DISTURBED AREA WITHIN THE RIGHT OF WAY, EXCLUDING THE PAVED SURFACE AND THE SHOULDERS SHALL BE FERTILIZED, SEEDED AND MULCHED.

SALVAGED TOPSOIL OR TOPSOIL SHALL BE PLACED ON SLOPES FROM SUBGRADE SHOULDER TO SLOPE INTERCEPT, TO AN APPROXIMATE THICKNESS OF 4 INCHES AT THE TIME OF PLACEMENT.

FILL SLOPES SHALL BE ROUNDED 5 FEET BEYOND THE SLOPE INTERCEPT OR TO THE RIGHT OF WAY LIMITS, WHICHEVER COMES FIRST.

UNDERCUT SHALL ONLY BE MADE AT LOCATIONS APPROVED AND STAKED BY THE ENGINEER.

UNLESS OTHERWISE SHOWN, ALL INTERSECTIONS SHALL BE TYPE "C".

SIDE ROAD AND PRIVATE ENTRANCE FILL SLOPES SHALL BE 4:1 OR FLATTER FOR A DISTANCE OF 35 FEET FROM EDGE OF PAVEMENT OF THE MAIN ROADWAY IF R/W PERMITS.

THE EXACT LOCATIONS & LIMITS FOR NEW DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SEED MIXTURE NO. 1 APPLIED AT THE RATE OF 11/2 POUNDS PER 1000 SQUARE FEET WAS USED IN COMPUTING QUANTITIES.

TACK COATING SHALL BE CONSIDERED INCIDENTAL TO THE ITEM OF SINGLE AGGREGATE BITUMINOUS SURFACE.

STANDARD DETAIL DRAWINGS

TYPICAL INSTALLATION OF EROSION BALES.....8E8-1
APRON ENDWALLS FOR CULVERT PIPE AND ARCH PIPE.....8F1-8
LAYOUT DETAIL FOR GRADE AT SIDE ROAD INTERSECTIONS....9A1-3
CLASS "A" STEEL PLATE BEAM GUARD AND STEEL PLATE BEAM GUARD MEDIAN.....14B2-4a&b
CONSTRUCTION BARRICADES AND STANDARD SIGNS.....15C1-5

GRADING, BASE, & SINGLE AGG. BIT. SURFACE

ESTIMATE OF QUANTITIES

STATE PROJECT NUMBER	SHEET NO.
1564-5-71	3

STATION TO STATION	NET LENGTH OF CENTER LINE	CLEARING		UNCLASSIFIED EXCAVATION	BORROW EXCAVATION	PREPARATION OF FOUNDATION FOR BITUMINOUS PAVING PROJECT 1564-5-71	FINISHING ROADWAY PROJECT 1564-5-71	CRUSHED AGGREGATE BASE COURSE	BASE PATCHING	SINGLE AGGREGATE BITUMINOUS SURFACE	BITUMINOUS MATERIAL FOR SURFACE COURSE	CULVERT PIPE CLASS III 24-INCH	APRON ENDWALLS FOR CULVERT PIPE 24-INCH	CORRUGATED METAL PIPE ARCH 24"X18"	METAL APRON ENDWALLS FOR PIPE ARCH 24"X18"	ANCHORAGES FOR STEEL PLATE BEAM GUARD	STEEL PLATE BEAM GUARD CLASS A	SALVAGED GUARD FENCE, STEEL BEAM	MAINTENANCE AND REPAIR OF HAUL ROADS PROJECT 1564-5-71	MOBILIZATION PROJECT 1564-5-71	CALCIUM CHLORIDE SURFACE TREATMENT	TOPSOIL	MULCHING
ITEM NO. / UNIT	LIN FT.	20101 STA.		20503 C.Y.	20801 C.Y.	21103 L.S.	21302 L.S.	30404 TON	30801 S.Y.	40601 TON	40602 TON	52005 L.F.	52063 EACH	52137 L.F.	52163 EACH	61406 EACH	61408 L.F.	61416 L.F.	61803 L.S.	61912 L.S.	62301 TON	62501 S.Y.	62702 S.Y.
534+00 - 645+68	10,997.08	103		50	15,258	1	1	16,563	54	6,190	370	128	4	320	10	2	4	254	1	1	17.5	23,275	41,316
PLAN TOTAL	10,997.08	103		50	15,258	1	1	16,563	54	6,190	370	128	4	320	10	2	4	254	*1	1	17.5	23,275	41,316

* NO FEDERAL PARTICIPATION

EROSION BALES	FERTILIZER	SEEDING	SODDING	FIELD OFFICE TYPE B	FIELD LABRATORY	TRAFFIC CONTROL PROJECT 1564-5-71
62810 EACH	62901 CWT.	63002 LB.	63101 S.Y.	64202 L.S.	64210 L.S.	64303 L.S.
25	31.4	617	25	1	1	1
25	31.4	617	25	1	1	1

DETAIL SUMMARY OF MISCELLANEOUS QUANTITIES

STATE PROJECT NUMBER	SHEET NO.
1564 -5- 71	3A

CLEARING

STATION	TO	STATION	STA.
534+00		554+00	20
562+00		645+67	83
	PROJECT TOTAL		103

ANCHORAGE FOR STEEL PLATE BEAM GUARD

STATION	LOCATION	EACH
644+41.5	LT.	1
644+41.5	RT.	1
	PROJECT TOTAL	2

CROSS DRAINS

STATION	LOCATION	DIA. IN.	LENGTH L.F.	TYPE	RCCP CLASS	THICKNESS STEEL	THICKNESS ALUM.	A.E.W. EACH
538+16	℄	24	64	CP	III	0.064	0.075	2
600+94	℄	24	64	CP	III	0.064	0.075	2
620+00	℄	24X18 5 PIPES-	64 EACH	PA	III	0.064	0.075	10

SALVAGED GUARD FENCE STEEL BEAM

STATION	TO	STATION	L.F.
644+41.5		645+68.5 LT.	127
644+41.5		645+68.5 RT.	127
		PROJECT TOTAL	254

SINGLE AGGREGATE BITUMINOUS SURFACE

STATION	TO	STATION		TONS
534+00		559+16	WEDGING	369
534+00		559+16	SURFACE	923
560+85		573+00	WEDGING	179
560+85		573+00	SURFACE	446
573+00		574+00	WEDGING	30
573+00		582+00	SURFACE	528
582+00		583+00	WEDGING	15
582+00		583+00	SURFACE	37
583+00		593+00	SURFACE	587
591+50		592+50	WEDGING	30
593+00		608+00	WEDGING	220
593+00		608+00	SURFACE	550
608+00		609+00	WEDGING	30
608+00		625+00	SURFACE	997
624+00		625+00	WEDGING	30
625+00		638+00	WEDGING	191
625+00		638+00	SURFACE	477
635+00		639+00	WEDGING	30
638+00		645+68	SURFACE	451
645+00		645+68	WEDGING	30
S.R. RT.		640+50		40
		PROJECT TOTAL		6190

CRUSHED AGGREGATE BASE COURSE

STATION	TO	STATION	LOCATION	TONS
534+00		573+00	UNDER SHLDS	2144
534+00		573+00	SHLDS	1183
573+00		582+00	UNDER SHLDS	700
573+00		582+00	WEDGING	1550
573+00		582+00	SHLDS	263
582+00		583+00	UNDER SHLDS	46
582+00		583+00	SHLDS	24
583+00		593+00	UNDER SHLDS	778
583+00		593+00	WEDGING	1686
583+00		593+00	SHLDS	292
593+00		608+00	UNDER SHLDS	737
593+00		608+00	SHLDS	360
608+00		625+00	UNDER SHLDS	1323
608+00		625+00	WEDGING	2493
608+00		625+00	SHLDS	497
625+00		638+00	UNDER SHLDS	447
625+00		638+00	SHLDS	351
638+00		645+00	UNDER SHLDS	599
638+00		645+00	WEDGING	800
638+00		645+00	SHLDS	223
S.R. RT.	STA. 640+50			42
P.E.'S.				25
			PROJECT TOTAL	16,563

UNCLASSIFIED EXCAVATION

STATION	TO	STATION	C.Y.
573+00		645+68	50
CLEANING DITCHES			
	PROJECT TOTAL		50

STEEL PLATE BEAM GUARD CLASS A

STATION	LOCATION	L.F.
644+41.5	LT.	2
644+41.5	RT.	2
	PROJECT TOTAL	4*

*USED TO ATTACH SALVAGED GUARD FENCE, STEEL BEAM TO NEW ANCHORAGES

BASE PATCHING

STATION	S.Y.
538+16	27
600+94	27
PROJECT TOTAL	54

SEEDING

LOCATION	LB.
ROADWAY	558
BORROW PIT	59
PROJECT TOTAL	617

FERTILIZER

LOCATION	CWT.
ROADWAY	26.0
BORROW PIT	5.4
PROJECT TOTAL	31.4

SODDING

STATION	S.Y.
UNDISTRIBUTED	25
PROJECT TOTAL	25

EROSION BALES

STATION	EACH
UNDISTRIBUTED	25
PROJECT TOTAL	25

CALCIUM CHLORIDE SURFACE TREATMENT

STATION	TO	STATION	TONS
573+00		582+00	3.5
583+00		593+00	4.0
608+00		625+00	6.5
638+00		645+00	3.5
	PROJECT TOTAL		17.5

STATE PROJECT NUMBER	SHEET NO.
1564-5-71	5

ORIGIN OF LEVELS
PERMANENT BENCH MARK M42 LINE I
NATIONAL GEODETIC SURVEY
ELEV. 908.538

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	535+25	20" W. PINE 80' RT.	918.73

GN

C S N.W. RY.

N. 62°54' E.

P.C. 534+64.02

OUTLET DITCH

550
545
540
535
530

100'

50'

P.E.

P.I. 547+73.22 BK.
547+76.02 AHD.
Δ = 49°39'51" Lt.
D = 5°11'30"
T = 1003.20
L = 2477.33
E = 280.24
R = 2829.42
S.E. = .044'

NET ℄ LENGTH STA. 534+00 TO STA. 550+00 = 1600 LIN. FT.

RESURFACE →

BEGIN PROJECT 1564-5-71
STA. 534+00

STA. 538+16
REMOVE 1-24"X50' R.C.C.P.
1-24" C.P. CLASS III REQ'D

+00

940
930
920
910

27.9 | 26.7 | 25.4 | 24.1 | 23.8 | 22.8 | 21.7 | 20.9 | 20.3 | 19.7 | 19.2 | 19.0 | 18.3 | 18.7 | 18.8 | 19.2 | 19.3 | 19.3 | 19.3 | 19.3 | 19.2 | 19.0 | 18.9

530 1 2 3 4 535 6 7 8 9 540 1 2 3 4 545 6 7 8 9 550 1

+25

Catalog No. 2330-0142

STATE PROJECT NUMBER	SHEET NO.
1564 - 5 - 71	5.1

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
2	560+70	8" POPLAR 75' RT.	916.68
3	583+95	8" POPLAR 40' LT.	915.34

OUTLET DITCH

EQUATION

P.T.C. 559+16.40
P.T.T. 560+85.22

N.13°14'E.

1/16 LINE
561+35

SEC. LINE
574+15

NET ℄ LENGTH STA. 550+00 TO STA. 580+00 = 2831.18 LIN. FT.

RESURFACE | GRAVEL WEDGE

-0.014%

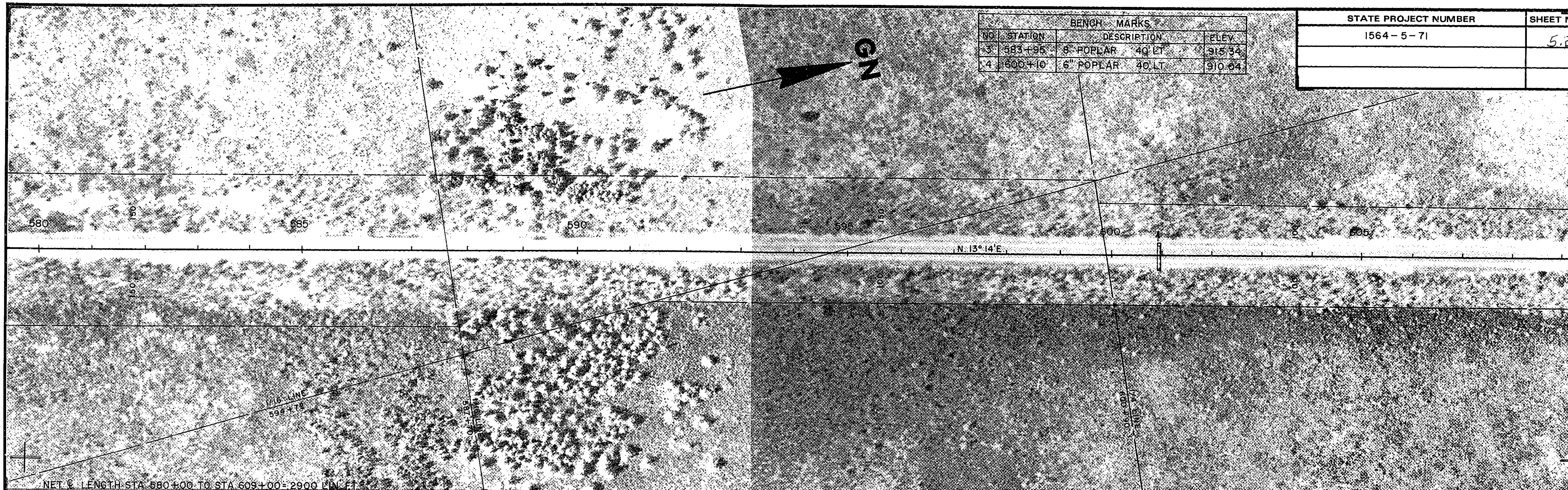
550	555	560	565	570	575	580
19.0	18.9	19.0	18.9	19.0	19.1	18.5
18.3	17.9	17.8	17.0	17.0	16.9	16.6
16.5	16.5	16.8	16.4	16.4	16.1	16.1
16.0 16.21	15.3 16.20	14.8 16.18	14.3 16.17	14.0 16.15	15.2 16.14	14.3 16.12
15.3 16.11	15.4 16.09					

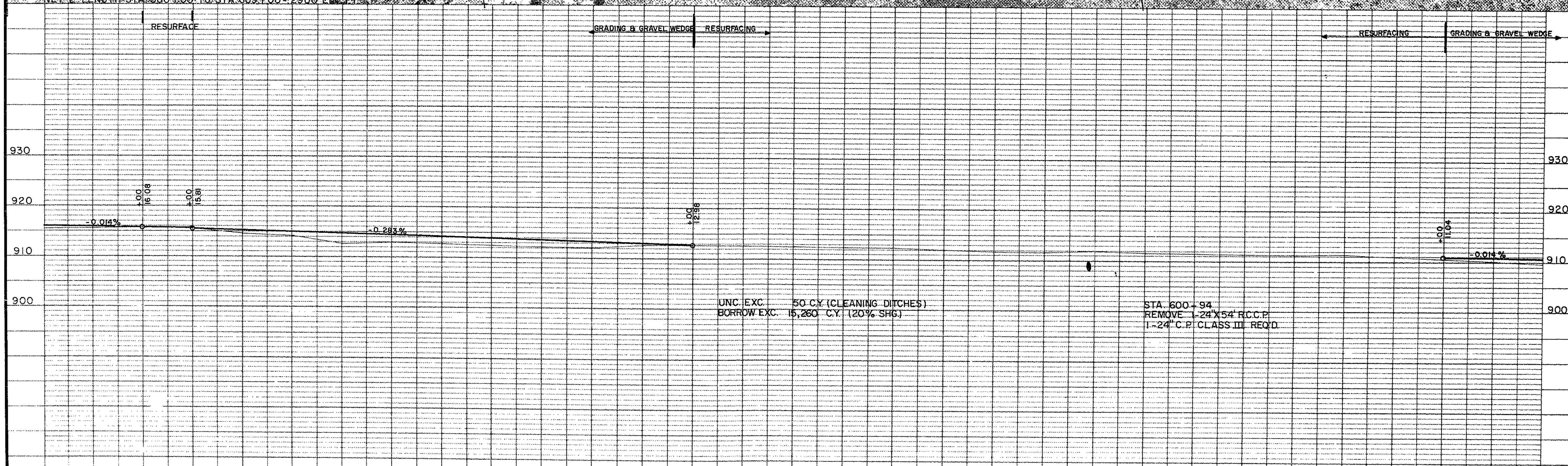
Cat No. 2130 D142
Catalog No. 2130-D142

13/19

STATE PROJECT NUMBER	SHEET NO.
1564 – 5 – 71	5.2

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
3	583+95	8" POPLAR 40' LT.	915.34
4	600+10	6" POPLAR 40' LT.	910.64

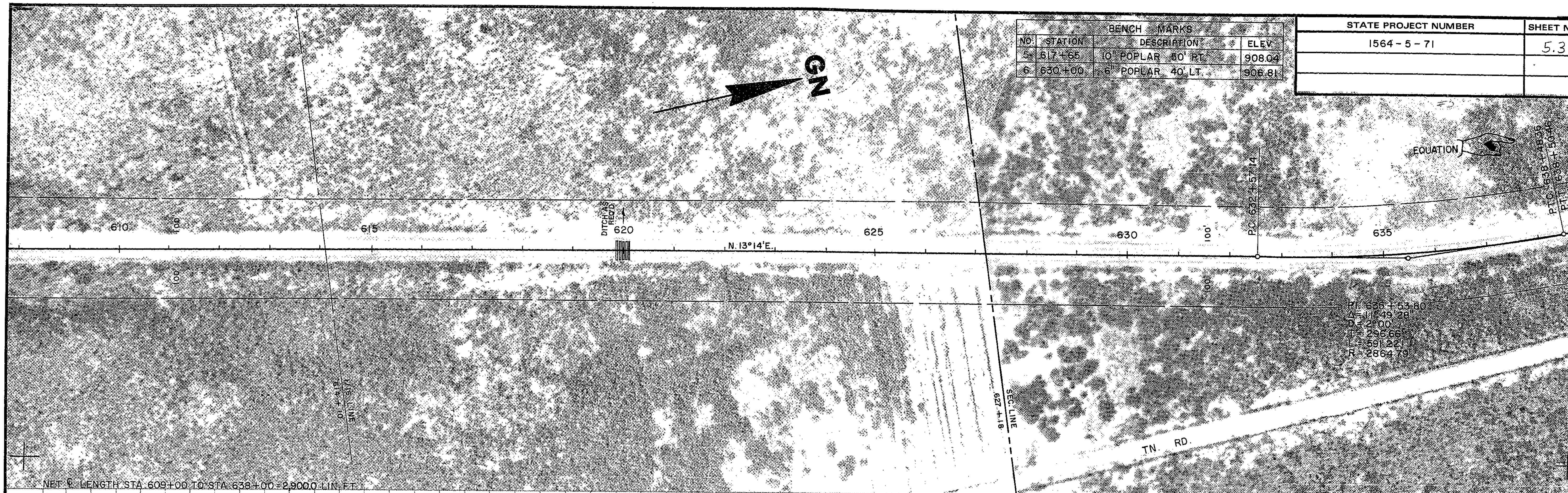


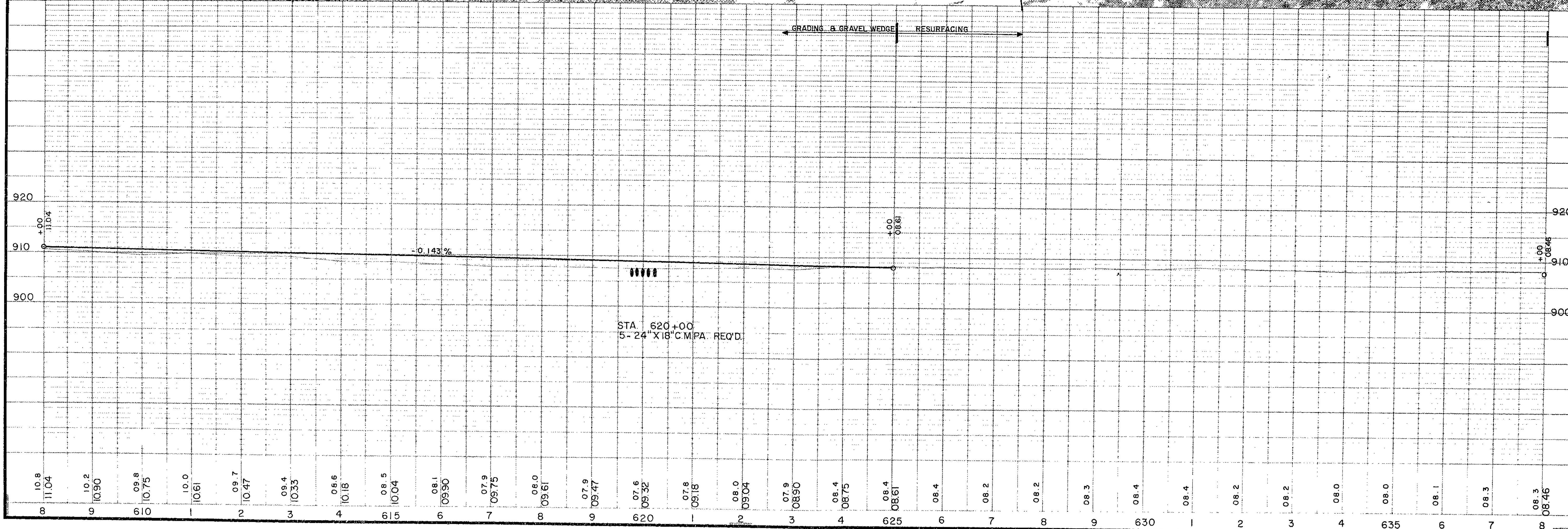


15.3	15.4	15.8	15.6	14.6	14.2	12.7	13.0	12.8	12.6	12.2	12.2	12.7	12.8	12.7	12.5	12.5	12.4	12.1	11.9	11.7	12.0	11.7	11.6	11.4	11.5	11.5	11.0	10.8	10.2	09.8
16.11	16.09	16.08	15.81	15.52	15.23	14.95	14.67	14.39	14.11	13.83	13.54	13.26	12.98															11.04	10.90	10.75
580	1	2	3	4	585	6	7	8	9	590	1	2	3	4	595	6	7	8	9	600	1	2	3	4	605	6	7	8	9	610

STATE PROJECT NUMBER	SHEET NO.
1564 - 5 - 71	5.3

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
5	617+65	10" POPLAR 50' RT.	908.04
6	630+00	6" POPLAR 40' LT.	906.81



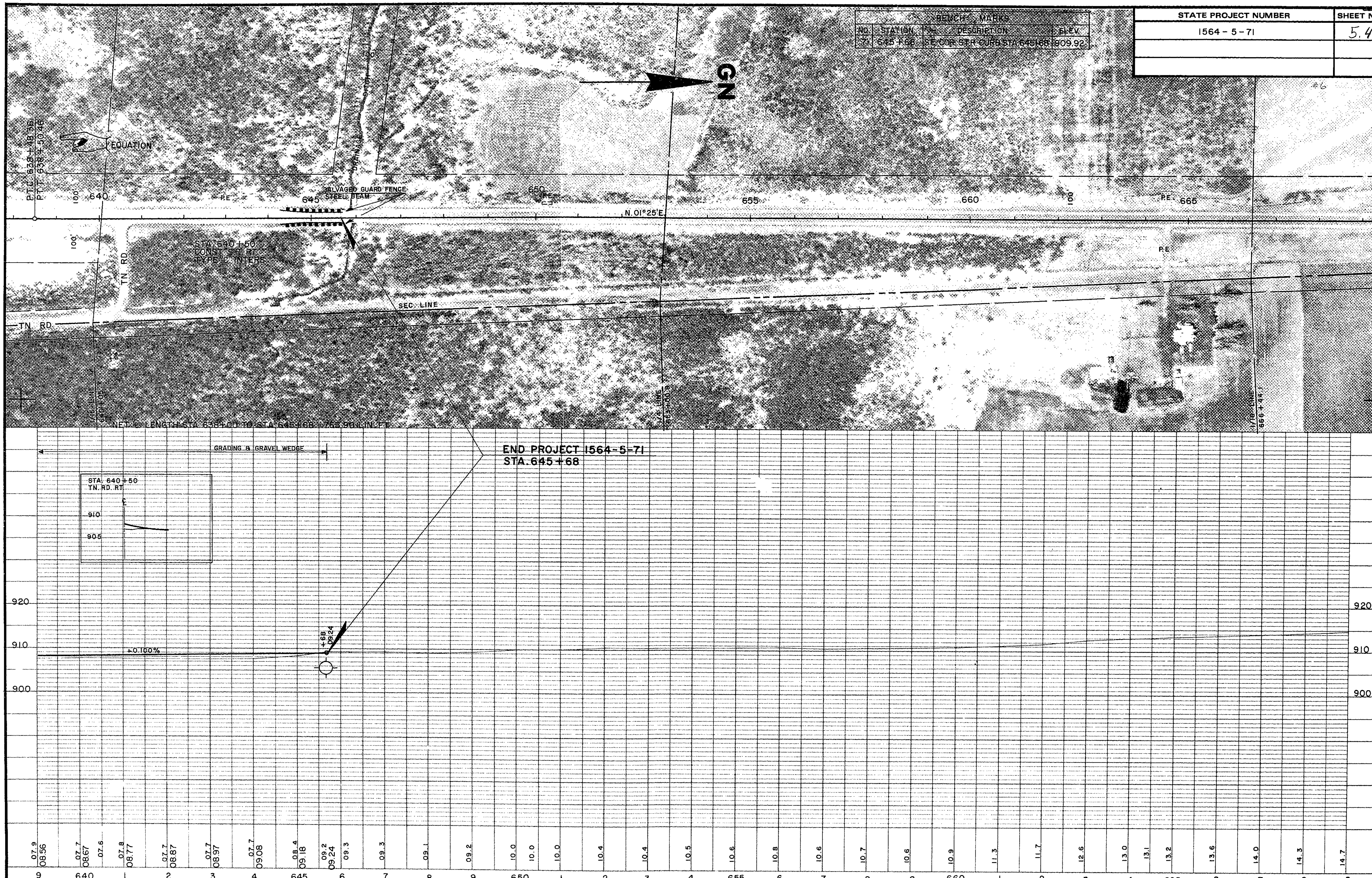


Catalog No. 2130-D142

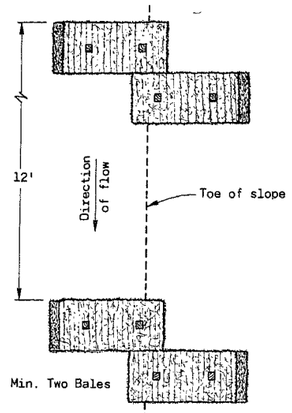
STATE PROJECT NUMBER	SHEET NO.
1564 - 5 - 71	5.4

BENCH MARKS

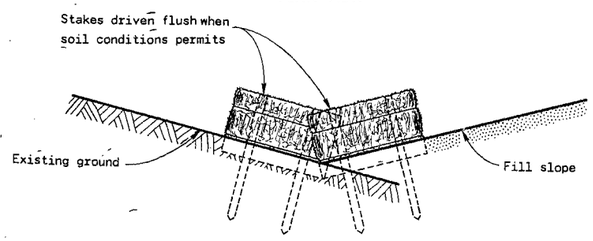
NO.	STATION	DESCRIPTION	ELEV.
7	645 + 68	SE COR STR CURB STA 645+68	909.92



Catalog No. 2130-D142

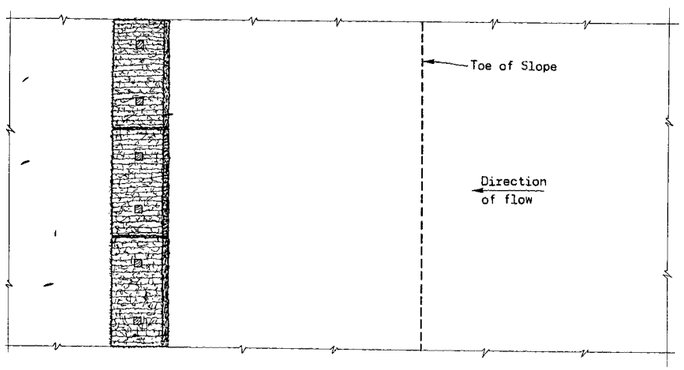


PLAN VIEW

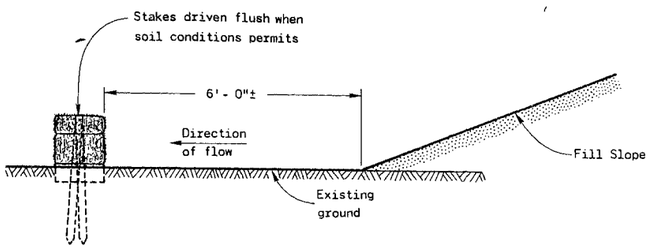


FRONT ELEVATION

WHEN EXISTING GROUND SLOPES TOWARD FILL SLOPE



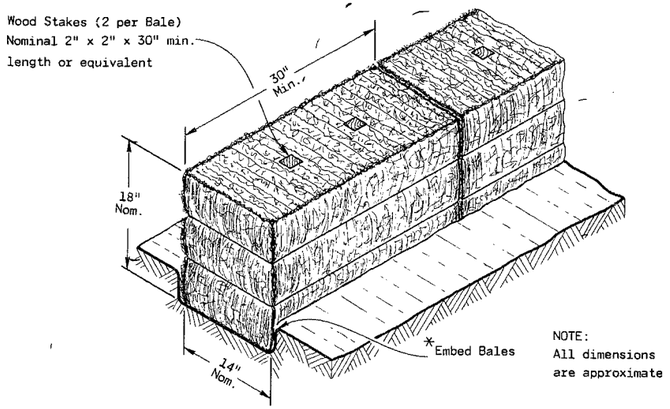
PLAN VIEW



FRONT ELEVATION

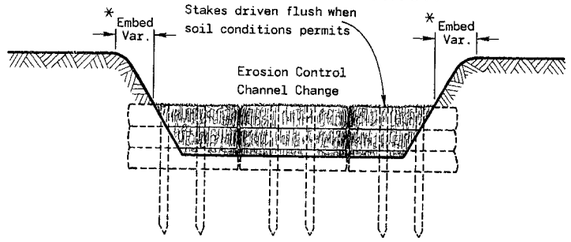
EROSION BALES AT TOE OF SLOPE

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

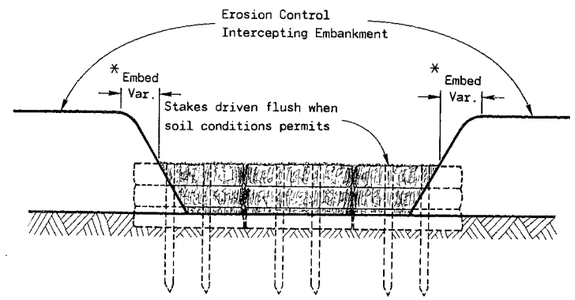


NOTE:
All dimensions are approximate

DETAIL OF EROSION BALE INSTALLATION

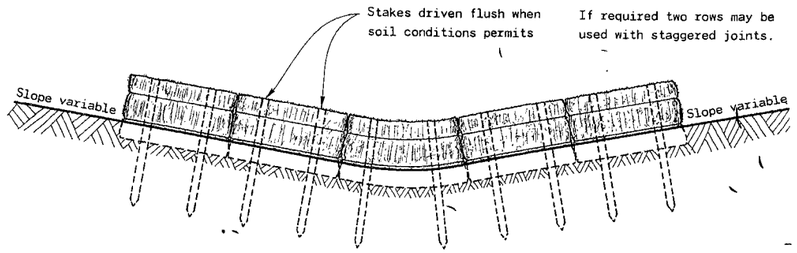


EROSION CONTROL CHANNEL CHANGE



EROSION CONTROL INTERCEPTING EMBANKMENT

PLAN VIEW



FRONT ELEVATION

EROSION BALES ACROSS DITCH BOTTOM

GENERAL NOTES

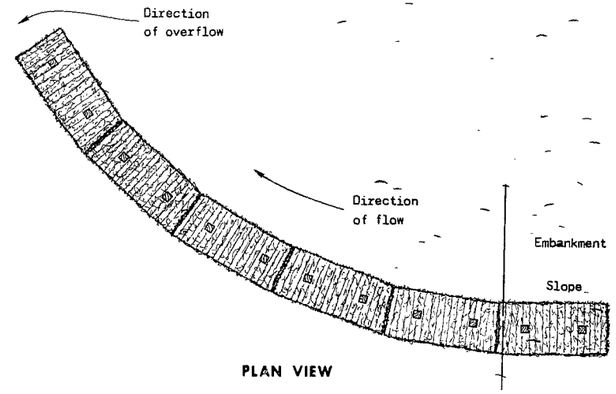
Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Bales shall be placed end to end or overlapping at right angles to the direction of flow and far enough up the sides of the ditch to prevent eroding around ends.

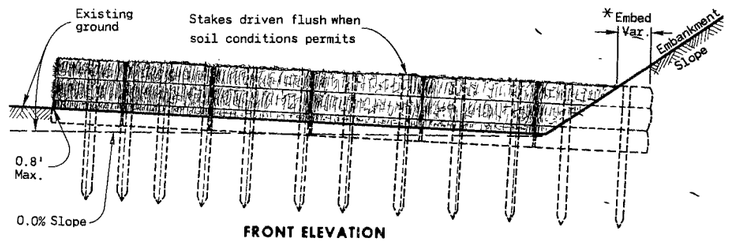
Bales shall be placed with twine or tie wires parallel to the ground.

Stakes to be battered in opposite directions.

* As determined by the Engineer.



PLAN VIEW



FRONT ELEVATION

EROSION BALES AT TOE OF SLOPE

TYPICAL INSTALLATIONS OF EROSION BALES

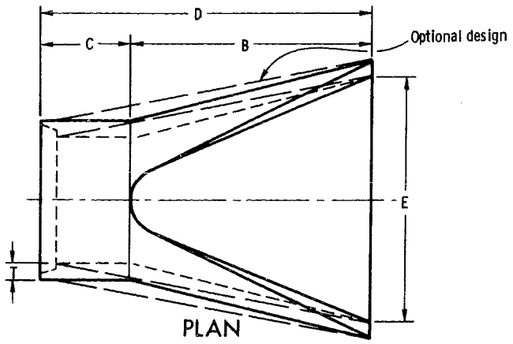
State of Wisconsin
Department of Transportation
Division of Highways

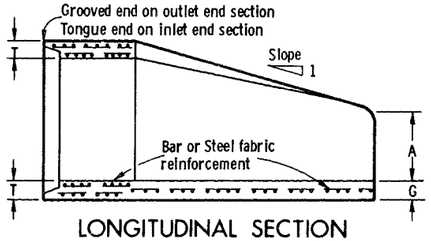
RECOMMENDED FOR APPROVAL:
10/14/75 DATE — CHIEF of FACILITIES DEVELOPMENT

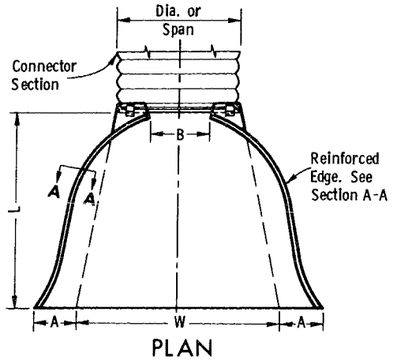
APPROVED
10/16/75 DATE — STATE HIGHWAY ENGINEER

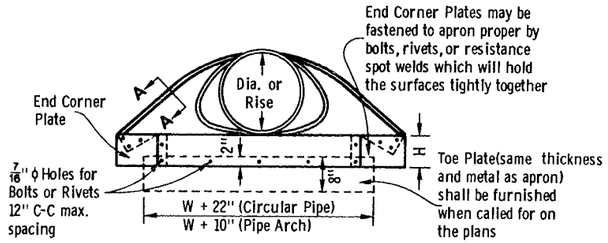
S.D.D. 8E8-1

S.D.D. 8E8-1

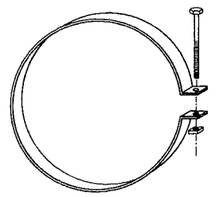






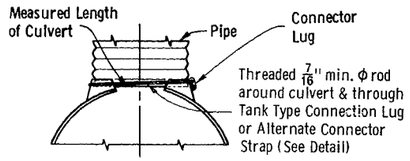


1" Wide, 12 Ga. galvanized (0.109" thick) strap with standard 6" x $\frac{1}{2}$" band bolt and nut



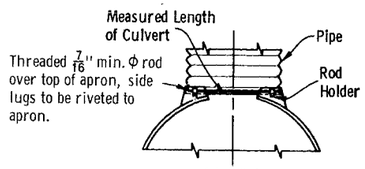
Alternate for Type 1 Connection

END SECTION CONNECTOR STRAP



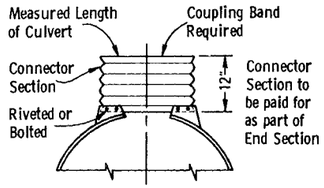
TYPE 1

For 12" thru 24" only (Circular Pipe)



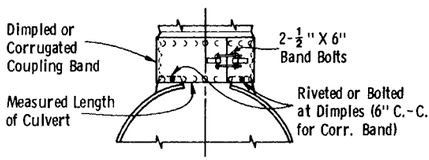
TYPE 2

For 30" and 36" only (Circular Pipe)
For 17" X 13" thru 57" X 38" only (Pipe Arch)



TYPE 3

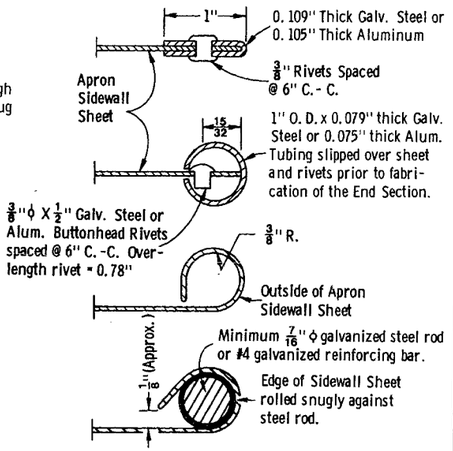
For 42" thru 84" only (Circular Pipe)
For 64" X 43" & 71" X 47" (Pipe Arch)



TYPE 5

Alternate for
All sizes Corrugated Circular Pipe and Pipe Arch

NOTE: Dimpled Band fits over Outside of Endwall, and Corr. Band fits Inside Endwall. Dimpled Band may be used with Helically Corrugated Pipe



SECTION A-A

GENERAL NOTES

Details of construction, materials, and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Variations of the dimensions and designs shown hereon will be permitted providing equivilent capacity and structural integrity are attained, and prior approval of the Engineer is obtained.

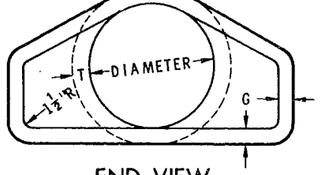
Concrete culvert endwalls may not be used with galvanized steel or aluminum culvert pipe or vice versa.

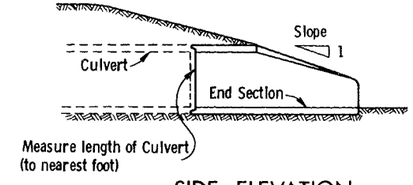
Galvanized steel or aluminum endwalls shall normally be installed on culvert pipe of the same metal. The use of galvanized steel endwalls on aluminum pipes is permitted, provided the two metals at the joint interface are kept separated by a suitable insulating material approximately $\frac{1}{16}$" thick or greater. Such material would be an asphalt impregnated fabric, a sheet plastic, a rubber gasket or other nondegradable material of substantial strength.

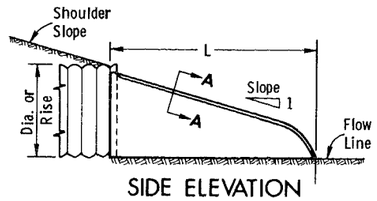
When two or more pipe arches with apron endwalls are to be laid adjacent to each other, they shall be separated by the following amount.

Pipes: Total width of apron endwall less the diameter of pipe plus 6 inches.

Pipe Arches: Total width of apron endwall less the span dimension of the pipe arch plus 6 inches.







DIA.	APPROX. WEIGHT/ SECTION	T	A	B	C	D	E	G	APPROX. SLOPE
12"	530	2"	4"	24"	48 7/8"	72 7/8"	24"	2"	3 to 1
15"	740	2 1/4"	6"	27"	46"	73"	30"	2 1/4"	↑
18"	990	2 1/2"	9"	27"	46"	73"	36"	2 1/2"	↑
21"	1,280	2 3/4"	9"	36"	37 1/2"	73 1/2"	42"	2 3/4"	↑
24"	1,520	3"	9 1/2"	43 1/2"	30"	73 1/2"	48"	3"	↑
27"	1,930	3 1/4"	10 1/2"	49 1/2"	24"	73 1/2"	54"	3 1/4"	↑
30"	2,190	3 1/2"	12"	54"	19 3/4"	73 3/4"	60"	3 1/2"	↑
36"	4,100	4"	15"	63"	34 3/4"	97 3/4"	72"	4"	↑
42"	5,380	4 1/2"	21"	63"	35"	98"	78"	4 1/2"	↓
48"	6,550	5"	24"	72"	26"	98"	84"	5"	3 to 1
54"	8,040	5 1/2"	27"	65"	**33 1/4" - *35"	**98 1/4" - *100"	90"	5"	2 2/3 to 1
60"	8,730	6"	**30" - *35"	60"	39"	99"	96"	5"	2 to 1
66"	10,630	6 1/2"	**24" - *30"	**72" - *78"	**21" - *27"	↑	102"	5 1/2"	↑
72"	12,520	7"	**24" - *36"	78"	21"	↓	108"	6"	↓
78"	14,430	7 1/2"	**24" - *36"	78"	21"	99"	114"	6 1/2"	2 to 1
84"	18,160	8"	36"	90 1/2"	21"	111 1/2"	120"	6 1/2"	1 1/2 to 1

** Minimum
* Maximum

REINFORCED CONCRETE APRON ENDWALLS

D PIPE DIAM.	MIN. METAL THICKNESS	MIN. ALUM. THICKNESS	DIMENSIONS A ± 1"	B MAX.	H ± 1"	L ± 1 1/2"	W ± 2"	APPROX. SLOPE
12"	0.064	0.060	6"	6"	6"	21"	24"	2 1/2 to 1
15"	↑	↑	7"	8"	↑	26"	30"	↑
18"	↓	↓	8"	10"	↓	31"	36"	↑
21"	↑	0.060	9"	12"	↑	36"	42"	↑
24"	0.064	0.075	10"	13"	6"	41"	48"	↑
30"	0.079	0.075	12"	16"	8"	51"	60"	↑
36"	0.079	0.105	14"	19"	9"	60"	72"	↓
42"	0.109	↑	16"	22"	11"	69"	84"	2 1/2 to 1
48"	↑	↓	18"	27"	12"	78"	90"	2 1/4 to 1
54"	↑	0.105	↑	30"	↑	84"	102"	2 to 1
60"	↑	NA	↑	33"	↑	87"	114"	1 3/4 to 1
66"	↑	↑	↑	36"	↑	87"	120"	1 1/2 to 1
72"	↑	↑	↑	39"	↑	87"	126"	1 1/3 to 1
78"	↓	↓	↓	42"	↓	87"	132"	1 1/4 to 1
84"	0.109	NA	18"	45"	12"	87"	138"	1 1/6 to 1

NOTE: All splices to be lap riveted or bolted

METAL OR ALUMINUM APRON ENDWALLS FOR CIRCULAR PIPES

PIPE – ARCH DIMENSIONS SPAN	RISE	MIN. METAL THICK.	DIMENSIONS A ± 1"	B MAX.	H ± 1"	L ± 1 1/2"	W ± 2"	APPROX. SLOPE
17"	13"	0.064	7"	9"	6"	19"	30"	2 1/2 to 1
21"	15"	↑	7"	10"	↑	23"	36"	↑
24"	18"	↓	8"	12"	↓	28"	42"	↑
28"	20"	0.064	9"	14"	↑	32"	48"	↑
35"	24"	0.079	10"	16"	6"	39"	60"	↑
42"	29"	0.079	12"	18"	8"	46"	75"	↑
49"	33"	0.109	13"	21"	9"	53"	85"	↓
57"	38"	↑	18"	26"	12"	63"	90"	2 1/2 to 1
64"	43"	↑	18"	30"	12"	70"	102"	2 1/4 to 1
71"	47"	↑	18"	33"	12"	77"	114"	2 1/4 to 1
77"	52"	↓	18"	36"	12"	77"	126"	2 to 1
83"	57"	0.109	18"	39"	12"	77"	138"	2 to 1

NOTE: All splices to be lap riveted or bolted

METAL APRON ENDWALLS FOR PIPE ARCHES

CONNECTION DETAILS

CIRCULAR PIPE

For Circumferentially Corrugated Pipe use Endwall Connection Details 1, 2, 3, or 5 as applicable.

For Helically Corrugated Pipe use Endwall Connection Details 1, 2 or 5.

For Helically Corrugated Pipes with two Circumferential Corrugations at each end use Endwall Connection Details 1, 2, or 3

PIPE ARCH

Use Endwall Connection Details 2, 3, or 5 as applicable.

APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

State of Wisconsin
Department of Transportation
Division of Highways

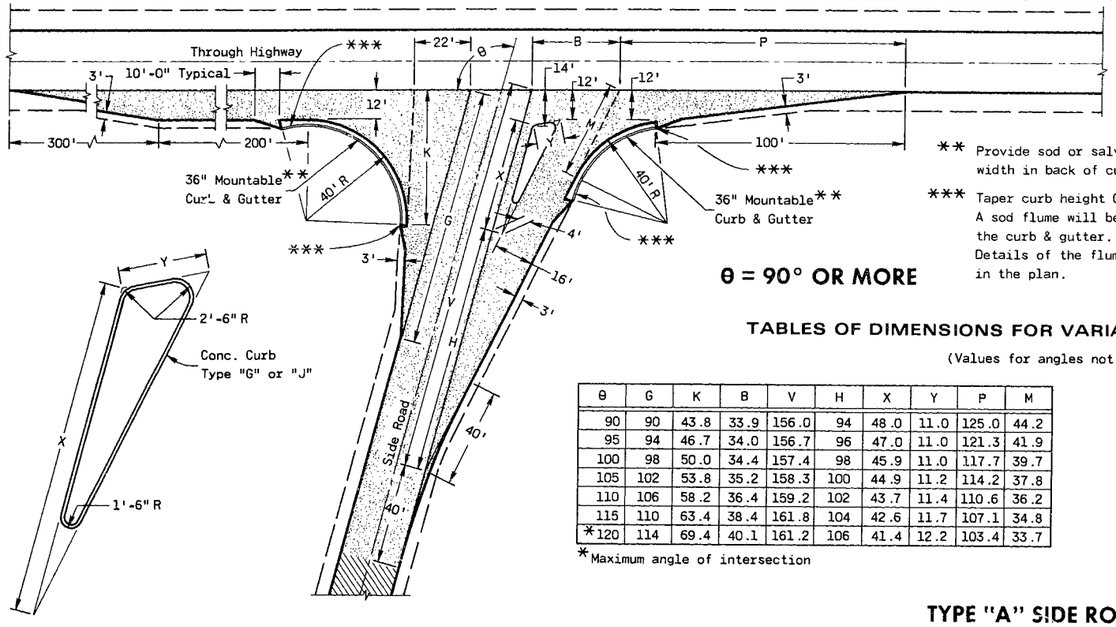
APPROVED 7-14-78 DATE — STANDARDS DEVELOPMENT ENGINEER

APPROVED 7-17-78 DATE — CHIEF BUREAU OF TECH. SERVICES

FHWA

S.D.D. 8 F 1-8

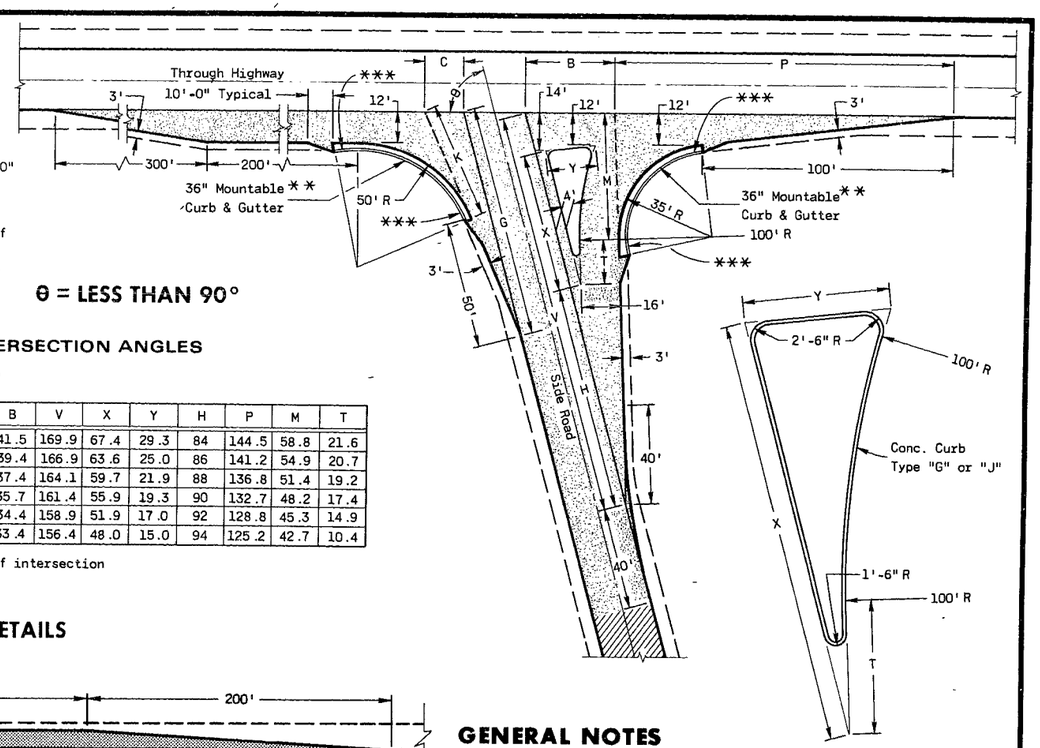
S.D.D. 8 F 1-8



θ = 90° OR MORE

** Provide sod or salvaged topsoil & seed to a 3'-0" width in back of curb & gutter sections.

*** Taper curb height 0" to 6" in 10'-0". A sod flume will be required at discharge end of the curb & gutter. Details of the flume(s) will be shown elsewhere in the plan.



θ = LESS THAN 90°

TABLES OF DIMENSIONS FOR VARIABLE SIDE ROAD INTERSECTION ANGLES

(Values for angles not shown shall be interpolated)

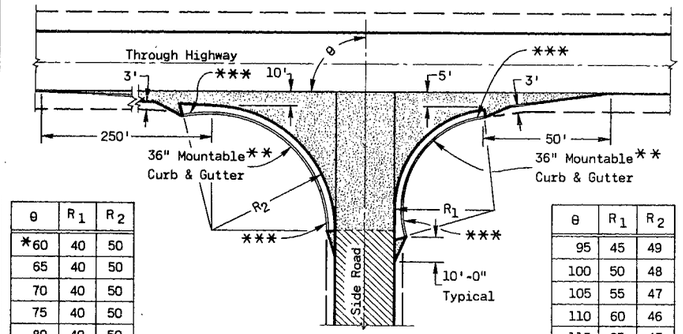
θ	G	K	B	V	H	X	Y	P	M
90	90	43.8	33.9	156.0	94	48.0	11.0	125.0	44.2
95	94	46.7	34.0	156.7	96	47.0	11.0	121.3	41.9
100	98	50.0	34.4	157.4	98	45.9	11.0	117.7	39.7
105	102	53.8	35.2	158.3	100	44.9	11.2	114.2	37.8
110	106	58.2	36.4	159.2	102	43.7	11.4	110.6	36.2
115	110	63.4	38.4	161.8	104	42.6	11.7	107.1	34.8
*120	114	69.4	40.1	161.2	106	41.4	12.2	103.4	33.7

*Maximum angle of intersection

θ	C	G	K	B	V	X	Y	H	P	M	T
*60	19.7	76.3	38.6	41.5	169.9	67.4	29.3	84	144.5	58.8	21.6
65	17.8	82.6	40.6	39.4	166.9	63.6	25.0	86	141.2	54.9	20.7
70	15.8	87.2	43.1	37.4	164.1	59.7	21.9	88	136.8	51.4	19.2
75	15.7	90.9	45.6	35.7	161.4	55.9	19.3	90	132.7	48.2	17.4
80	15.9	94.9	48.3	34.4	158.9	51.9	17.0	92	128.8	45.3	14.9
85	16.2	99.3	51.4	33.4	156.4	48.0	15.0	94	125.2	42.7	10.4

*Desirable minimum angle of intersection

TYPE "A" SIDE ROAD INTERSECTION DETAILS



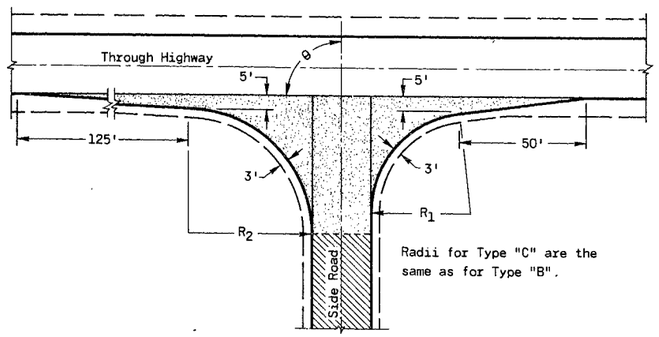
θ	R_1	R_2
*60	40	50
65	40	50
70	40	50
75	40	50
80	40	50
85	40	50
90	40	50

*Min. Angle of Intersection

θ	R_1	R_2
95	45	49
100	50	48
105	55	47
110	60	46
115	65	45
*120	70	44

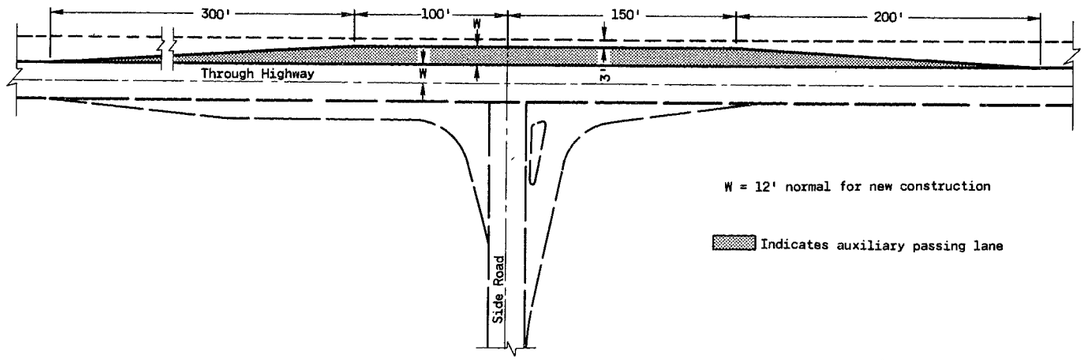
*Max. Angle of Intersection

TYPE "B" SIDE ROAD INTERSECTION DETAILS



Radii for Type "C" are the same as for Type "B".

TYPE "C" SIDE ROAD INTERSECTION DETAILS



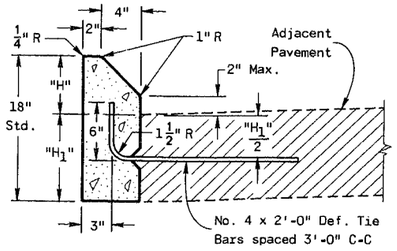
W = 12' normal for new construction

Indicates auxiliary passing lane

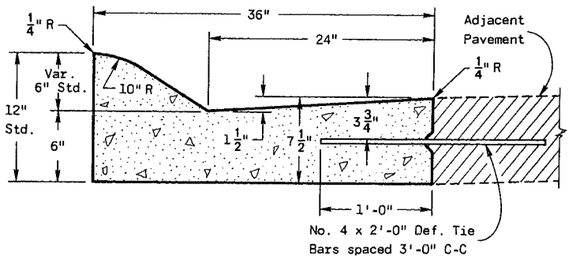
PASSING LANE DETAIL

"H"= 6" Max. and 4" Min. and shall be 6" unless otherwise shown on the plans.

"H_1"= Same as adjacent pavement thickness for rigid pavement and 12" for non-rigid pavement (Tie Bars omitted).



TYPE "G" (INCLUDING TIE BARS) TYPE "J" (EXCLUDING TIE BARS)



TYPE "A" (INCLUDING TIE BARS) TYPE "D" (EXCLUDING TIE BARS)

MOUNTABLE CONCRETE CURB

MOUNTABLE CONCRETE CURB & GUTTER 36"

GENERAL NOTES

Designs may be used interchangeably in combination or separately for any one complete intersection depending upon intersection angle and surfacing of each approach roadway.

Details on this drawing are for minimum design only, and not applicable to special conditions, as shown elsewhere on the plans.

SIDE ROAD SURFACING NOTE

If the side road is not presently paved, pavement shall be placed to the limits shown. In the case where the construction limits are beyond the paving limits, gravel or crushed stone surfacing shall be placed between the paving limits and construction limits.

If the side road is presently paved, new pavement shall be placed to the limits of design as shown and beyond, if necessary, to meet existing pavement.

If the side road is the construction project, the intersection surfacing shall be the same as for the project.

New Pavement

Existing Surface

LAYOUT DETAILS FOR AT-GRADE SIDE ROAD INTERSECTIONS

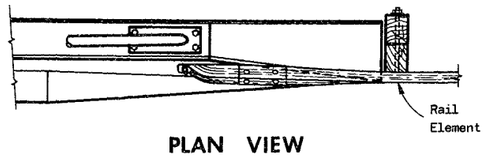
State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL
9-10-76 DATE — CHIEF of FACILITIES DEVELOPMENT

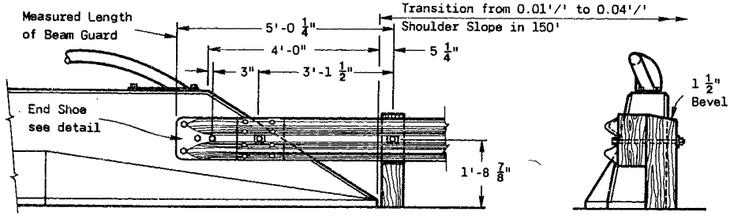
APPROVED
9-10-76 DATE — STATE HIGHWAY ENGINEER

S. D. D. 9A 1-3

S. D. D. 9A 1-3



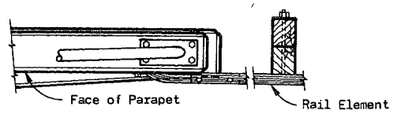
PLAN VIEW



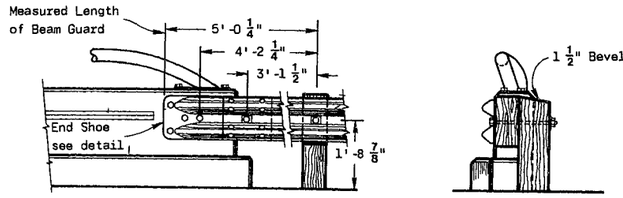
FRONT ELEVATION END ELEVATION

STRUCTURE MOUNTING DETAIL

SLOPING TYPE PARAPET WALL



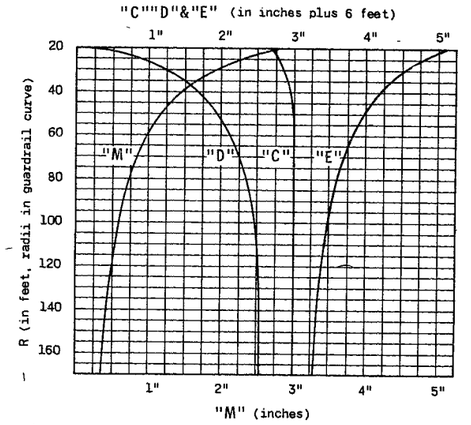
PLAN VIEW

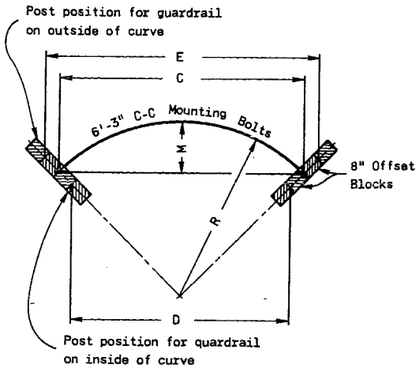


FRONT ELEVATION END ELEVATION

STRUCTURE MOUNTING DETAIL

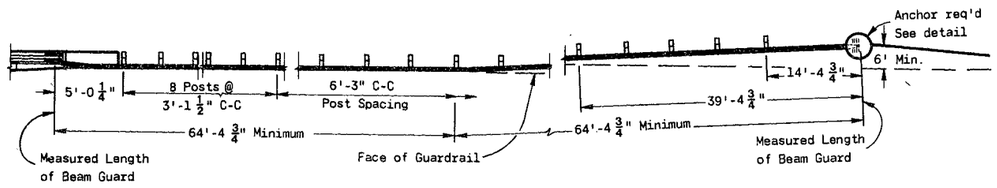
VERTICAL TYPE PAPAPET WALL



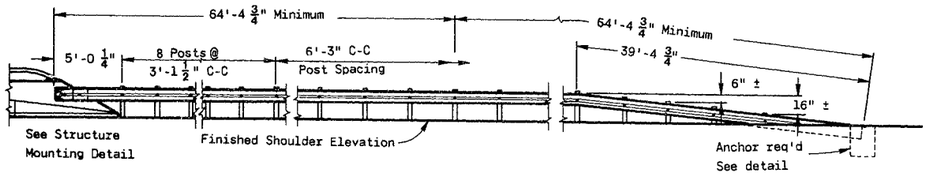


CHORD LENGTHS FOR POST SPACING AND MIDDLE ORDINATES FOR BEAM CURVING

CURVE DATA FOR POST SPACING AND BEAM CURVING

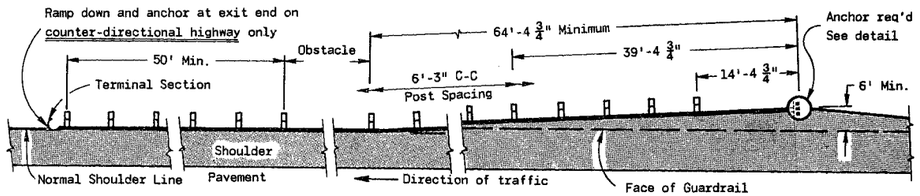


PLAN VIEW



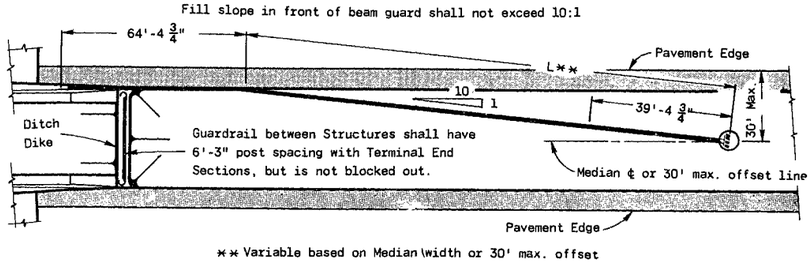
FRONT ELEVATION

TYPICAL INSTALLATION AT STRUCTURES



PLAN VIEW

TYPICAL INSTALLATION AT LOCATIONS OTHER THAN STRUCTURES



** Variable based on Median width or 30' max. offset

PLAN VIEW

MEDIAN PROTECTION

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

The exact location of the beginning and end of each Guardrail installation shall be as shown on the plans or as directed by the Engineer.

Square anchor alternates will be permitted. Square anchors shall be a minimun of 24 inches x 24 inches.

The shoulder widening to accommodate the anchored end of the guardrail shall be accomplished at the rate of widening not to exceed 15 to 1.

Upon approval of the Engineer, the 6 foot anchor offset may be reduced to nothing for replacement installations where existing conditions will not permit the desirable offset. However, when no offset greater than or equal to 3 feet can be provided, the minimum length of guardrail in advance of an obstacle (obstacle to anchor) shall be 150 feet.

The minimum clearance from the front face of guardrail to obstacle shall be 3 feet unless otherwise shown on contract plans. When clearance is less than 3 feet post spacing shall be reduced to 3 feet - 1 1/2 inches C.C.

The "Post Footing Details At Piers" shall be used when guardrail posts are over structure footings and less than 3 feet - 6 inches of earth is provided over the top of the footing.

NOTE:
THIS STANDARD DETAIL DRAWING CONSISTS OF TWO PLATES, AND BOTH PLATES ARE REQUIRED WHEN THIS STANDARD IS CALLED FOR IN THE PLANS.

CLASS "A"
STEEL PLATE BEAM GUARD &
STEEL PLATE BEAM MEDIAN GUARD

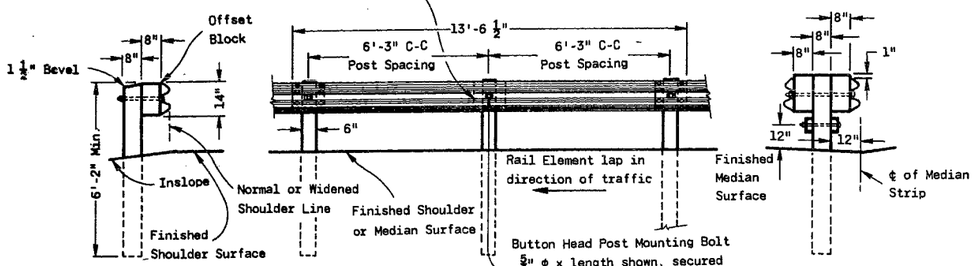
State of Wisconsin
Department of Transportation
Division of Highways

S.D.D. 14 B 2-4a

S.D.D. 14 B 2-4a

One foot long section of rail element, with a $\frac{3}{4}$" slotted hole for mounting, shall be placed behind the continuous rail element at the intermediate posts.

Sawed and treated timber posts and offset blocks shall be furnished and placed in accordance with Standard Specifacations. Posts shall be 6" x 8" x 6'-6" and have 6" x 8" x 14" offset blocks.



END ELEVATION

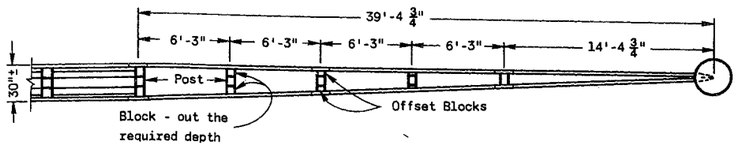
FRONT ELEVATION

END ELEVATION

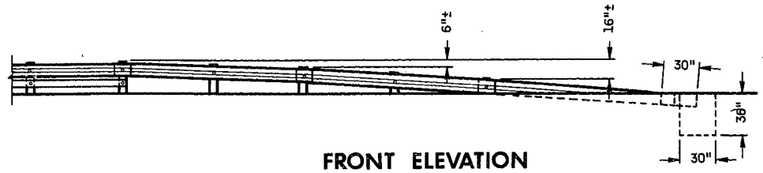
STEEL PLATE BEAM GUARD

STEEL PLATE BEAM MEDIAN GUARD

STEEL PLATE BEAM GUARD OR STEEL PLATE BEAM MEDIAN GUARD



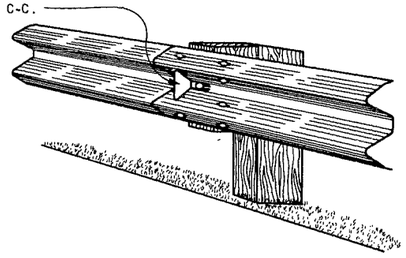
PLAN VIEW



FRONT ELEVATION

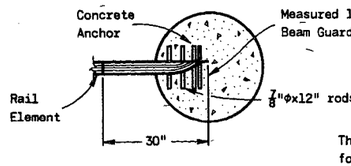
NOTE: (DIVIDED HIGHWAYS) Reflector spacing shall be 50' C-C on installations less than 200' long, with a minimum of 3 reflecters on any installation. For installations 200' or longer, spacing shall be 100' C-C.

(COUNTER-DIRECTIONAL HIGHWAYS) Reflector spacing shall be 25' C-C on installations less than 200' long, with a minimum of 6 reflectors on any installation, and every other reflectorized surface shall be reversed. For installations 200' or longer, spacing shall be 50' C-C.

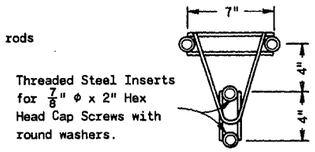


TYPICAL INSTALLATION

ANCHOR DETAIL FOR DOUBLE RAIL ELEMENT INSTALLATION

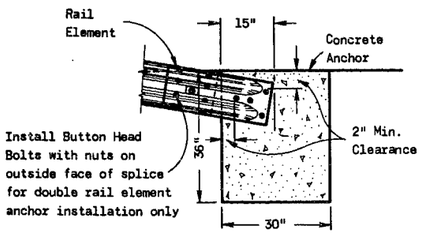


PLAN VIEW



Threaded Steel Inserts for ⅞" ϕ x 2" Hex Head Cap Screws with round washers.

PLAN VIEW

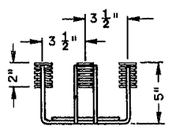


Install Button Head Bolts with nuts on outside face of splice for double rail element anchor installation only

SECTION VIEW

ANCHOR DETAIL

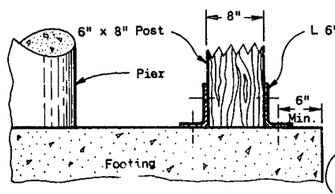
SINGLE RAIL ELEMENT INSTALLATION



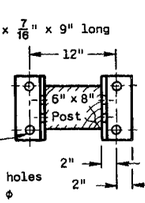
ELEVATION

4 BOLT INSERT ASSEMBLY

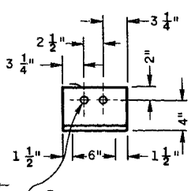
NOTE: Installation of 4 Bolt Insert Assembly (with Cap Screws inserted) to be part of Bridge Contract.



SECTION VIEW

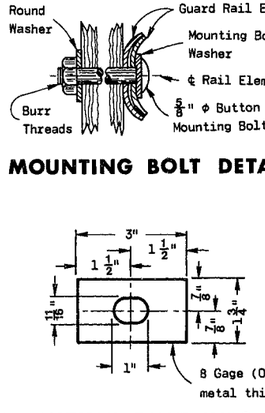


PLAN VIEW

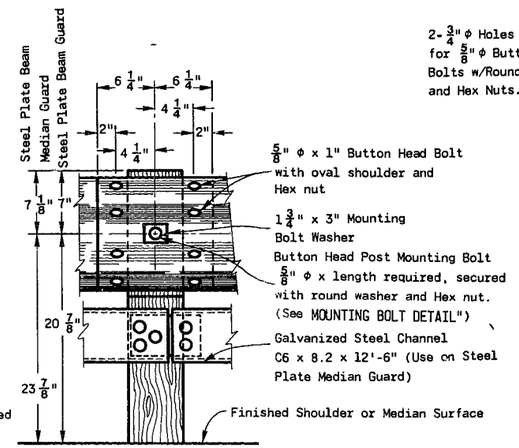


ELEVATION

POST FOOTING DETAIL AT PIERS



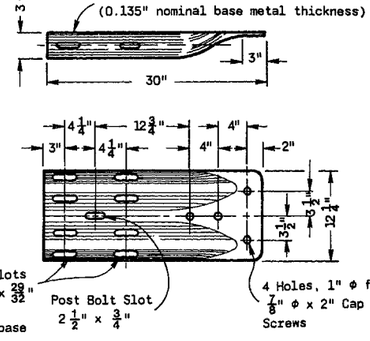
SECTION THRU RAIL ELEMENT



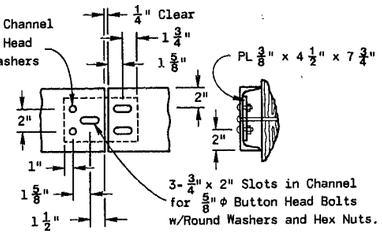
RAIL ELEMENT SPLICING AND POST MOUNTING DETAIL

MOUNTING BOLT DETAIL

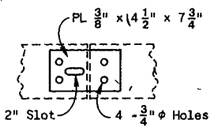
MOUNTING BOLT WASHER



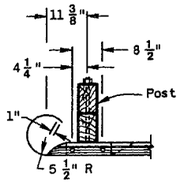
END SHOE DETAIL



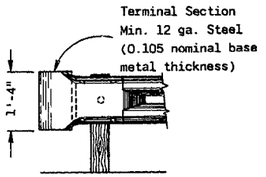
RUB RAIL SPLICE DETAIL



SPLICE PLATE



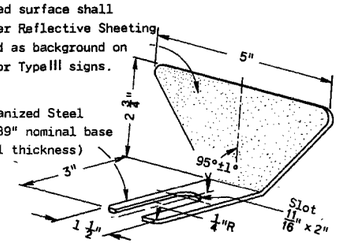
PLAN VIEW



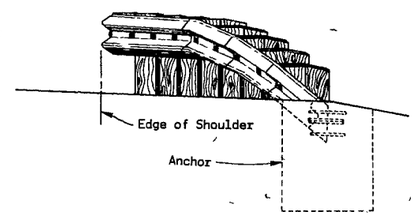
FRONT ELEVATION

TERMINAL SECTION DETAILS

The reflectorized surface shall consist of Silver Reflective Sheeting of the type used as background on TypeI, TypeII, or TypeIII signs.



REFLECTOR DETAIL



TYPICAL TERMINAL END ELEVATION

NOTE:
THIS STANDARD DETAIL DRAWING CONSISTS OF TWO PLATES. AND BOTH PLATES ARE REQUIRED WHEN THIS STANDARD IS CALLED FOR IN THE PLANS.

CLASS "A"
STEEL PLATE BEAM GUARD & STEEL PLATE BEAM MEDIAN GUARD

State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL
5-7-76 DATE — CHIEF of FACILITIES DEVELOPMENT

APPROVED
5-11-76 DATE — STATE HIGHWAY ENGINEER

S.D.D. 14 B 2-4b

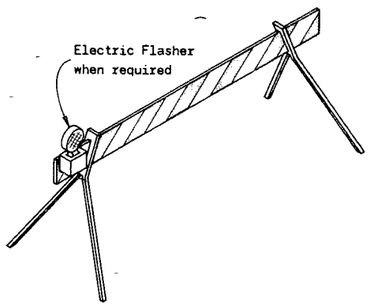
S.D.D. 14 B 2-4b

TABLE OF BARRICADE CHARACTERISTICS

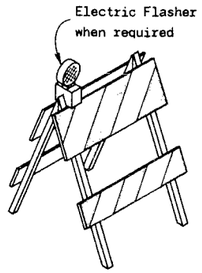
BARRICADE TYPE	I	II	III
Height	3' Minimum		5' Minimum
* Rail Width	8" Minimum to 12" Maximum		
Rail Length	2' Minimum to variable Maximum		
** Stripe Width	6" at 45° Angle		
Stripe Colors	Reflectorized Orange & White		

* Nominal dimensions when barricade is constructed of lumber.

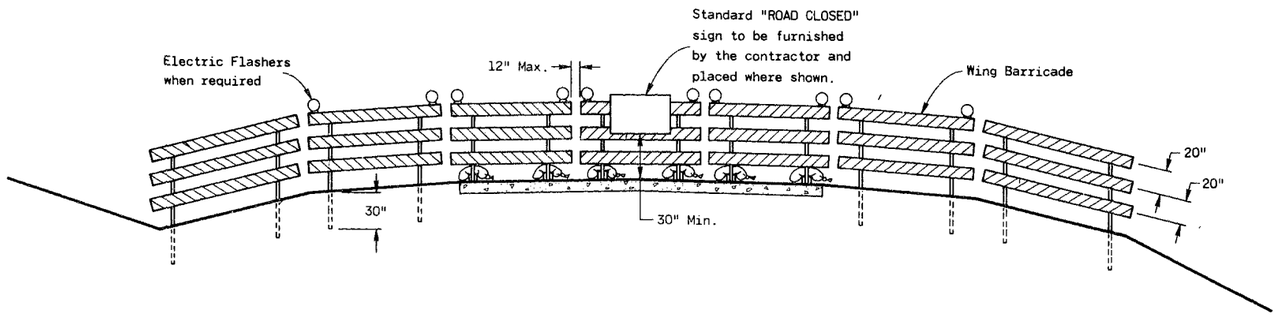
** May be 4" for rail lengths less than 3'.



TYPICAL TYPE I BARRICADE



TYPICAL TYPE II BARRICADE



TYPICAL INSTALLATION SHOWING TYPE III BARRICADE

CONSTRUCTION BARRICADES

R11-2

48" x 30"

Black Lettering on Reflective
White Background
Letter Series "D"
Letter height 8"

W20-3

48" x 48"

Black Lettering on Reflective
Orange Background
Letter Series "D"
Letter height 7"

STANDARD SIGNS-TYPE II

GENERAL NOTES

The contractor shall furnish, erect and maintain Barricades and Signs. Details regarding location, spacing, dimensions, fabrication, material, sign lettering, lighting devices and color of Barricades and Signs shall conform to this drawing, the Wisconsin Manual on Uniform Traffic Control Devices, the Standard Specifications, Special Provisions and/or plans.

Type III Barricades and Signs shall be erected at the termini of projects and at other road or street locations where it is necessary to control or eliminate public access to the con - struction area.

Type I and II Barricades shall be used on projects when traffic is to be maintained through the construction area.

The actual field location of barricade installations and advance signs shall be as directed by the Engineer.

Each barricade shall have the name and telephone number of a person responsible for 24 hour emergency service printed in letters at least $^{3}/_{4}$ inch in height.

CONSTRUCTION BARRICADES & STANDARD SIGNS

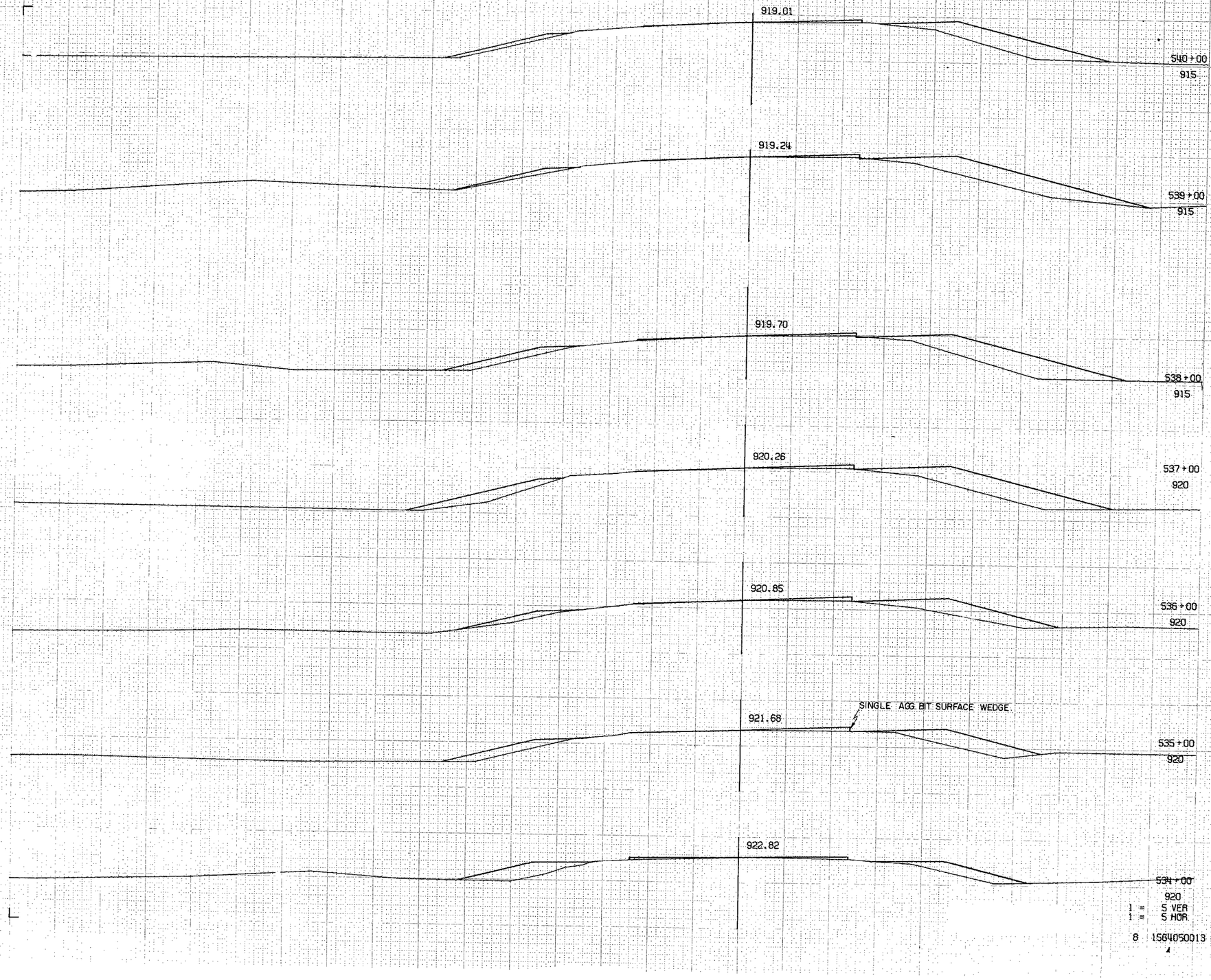
State of Wisconsin
Department of Transportation
Division of Highways

APPROVED 10-1-76 DATE — CHIEF of FACILITIES DEVELOPMENT

APPROVED 10-1-76 DATE — STATE HIGHWAY ENGINEER

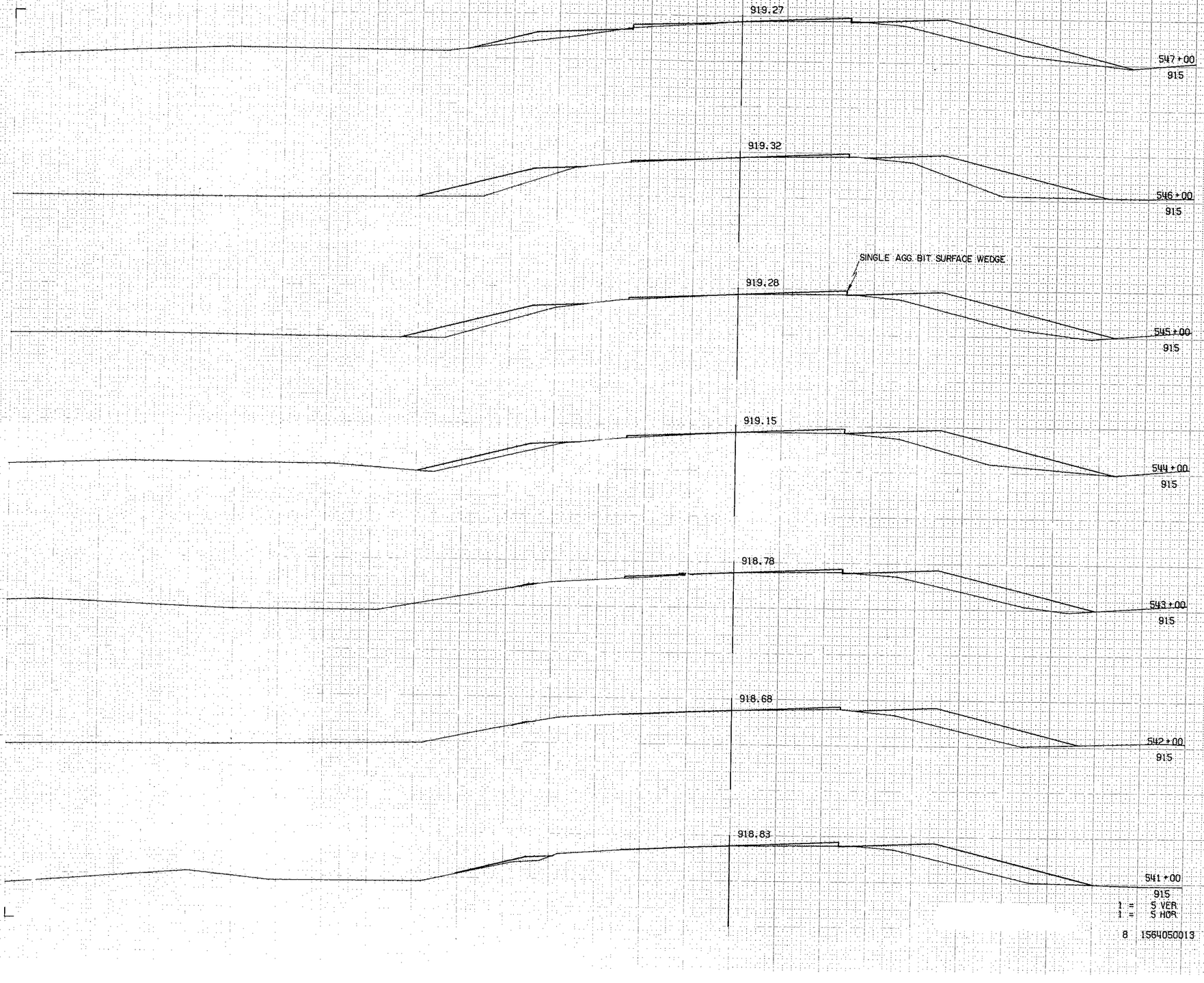
S.D.D. 15C1-5

S.D.D. 15C1-5



STATE PROJECT NUMBER	SHEET NUMBER
1564 - 5 - 71	9

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
534			
535			109
536			113
537			152
538			91
539			172
540			143

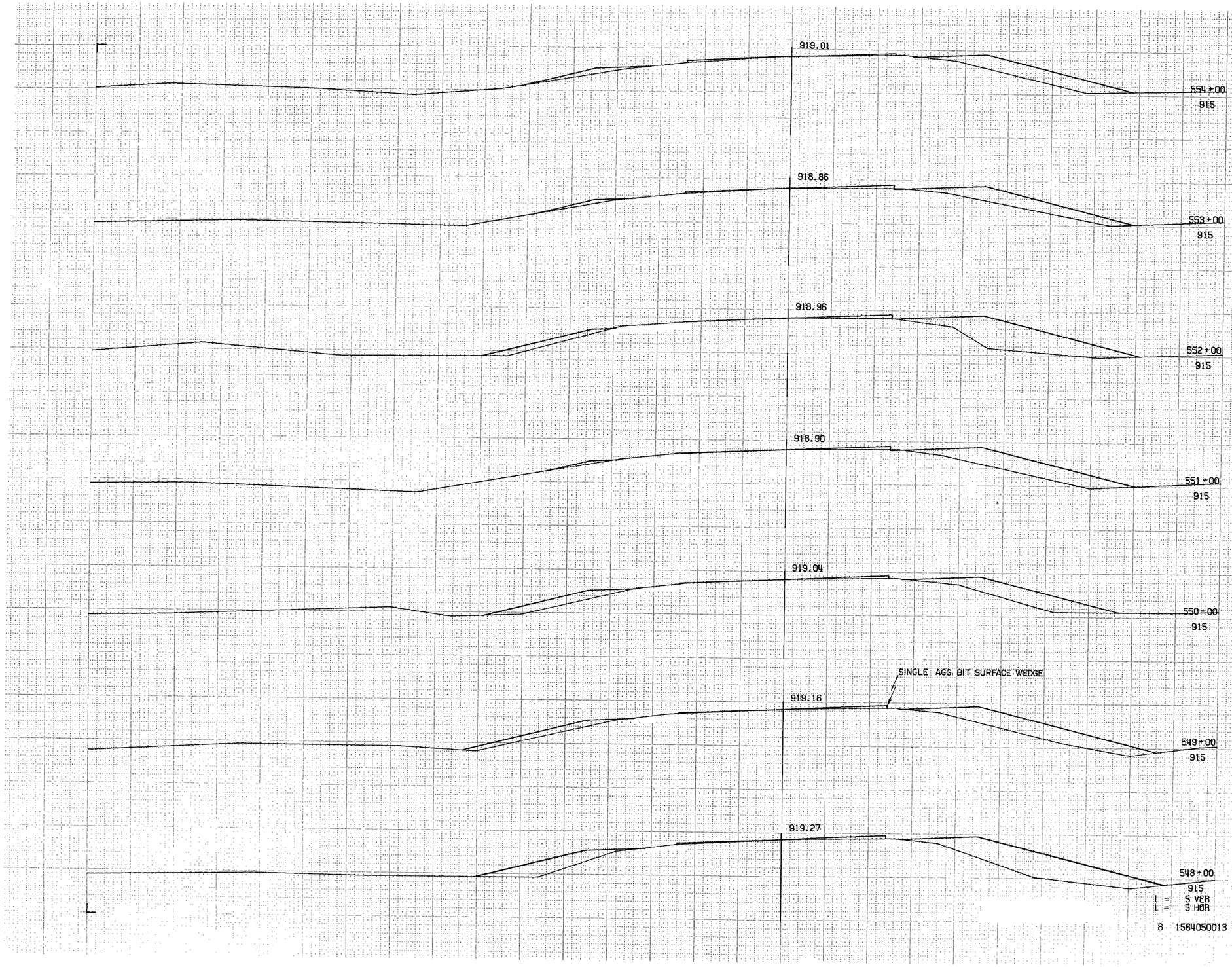


STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	91

STATION	DISTANCE	YARDAGE EXCAVATION	YARDAGE FILL
540			
541			128
542			122
543			122
544			157
545			200
546			217
547			198

1 = 5 VER
1 = 5 HOR

8 1564050013



STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.2

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
547			222
548			224
549			165
550			144
551			178
552			167
553			120
554			

STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	93

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
554			159
555			180
556			165
557			183
558			181
559			163
EQUATION			
562			69
563			

916.99

563+00

915

916.96

562+00

915

917.83

559+00

915

917.88

558+00

915

918.25

557+00

915

SINGLE AGG. BIT SURFACE WEDGE

918.47

556+00

915

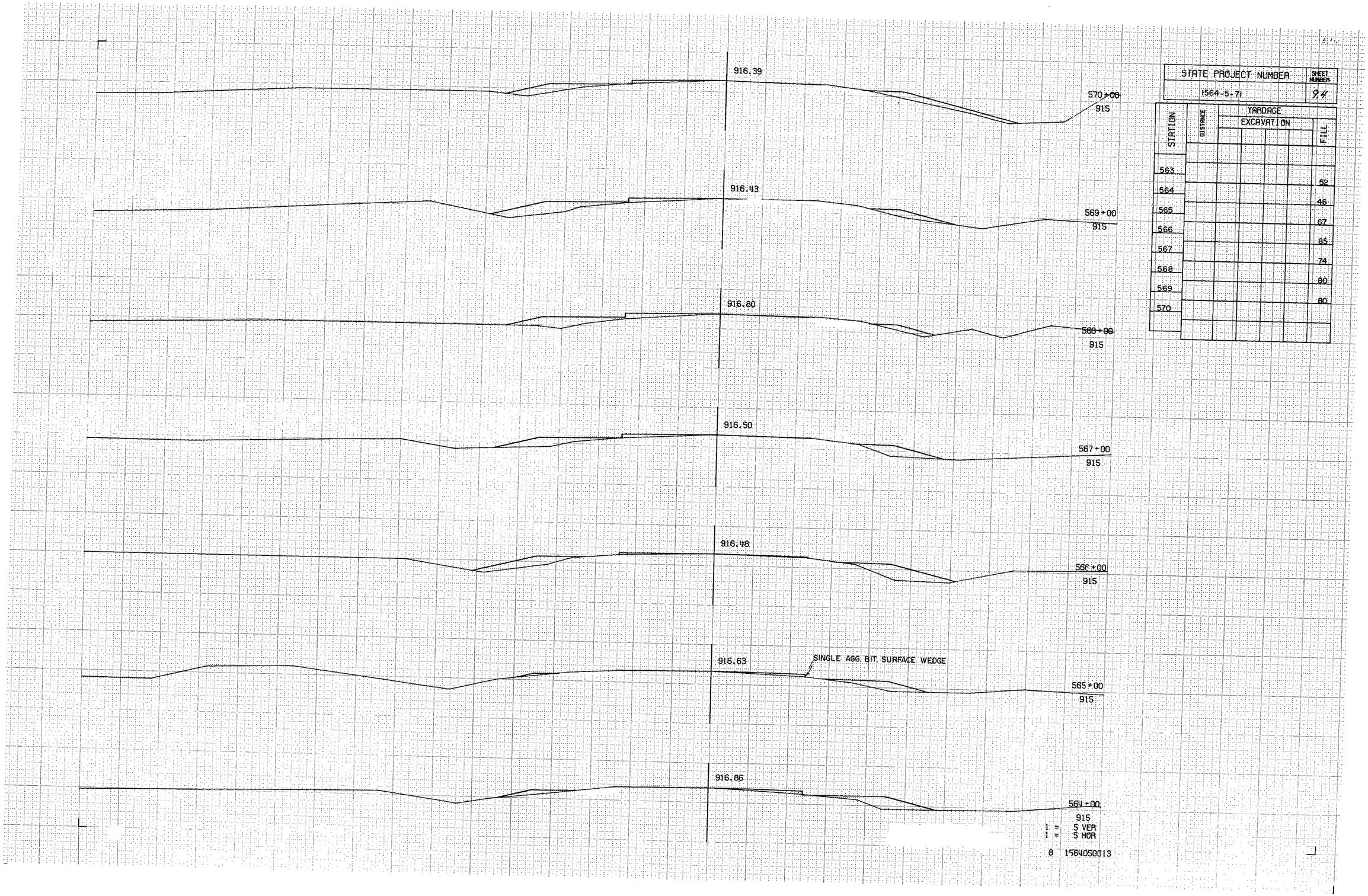
919.09

555+00

915

1 = 5 VER
1 = 5 HOR

8 1564050013



STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	24

STATION	DISTANCE	YARDAGE EXCAVATION	YARDAGE FILL
563			
564			52
565			46
566			67
567			85
568			74
569			80
570			80

1 = 5 VER
1 = 5 HOR

8 1564050013

STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.5

915.82

577+00
915

915.84

576+00
915

CR. AGG. BASE COURSE

915.85

575+00
915

915.87

574+00
915

573+00
920

915.88

916.12

572+00
915

SINGLE AGG. BIT. SURFACE WEDGE

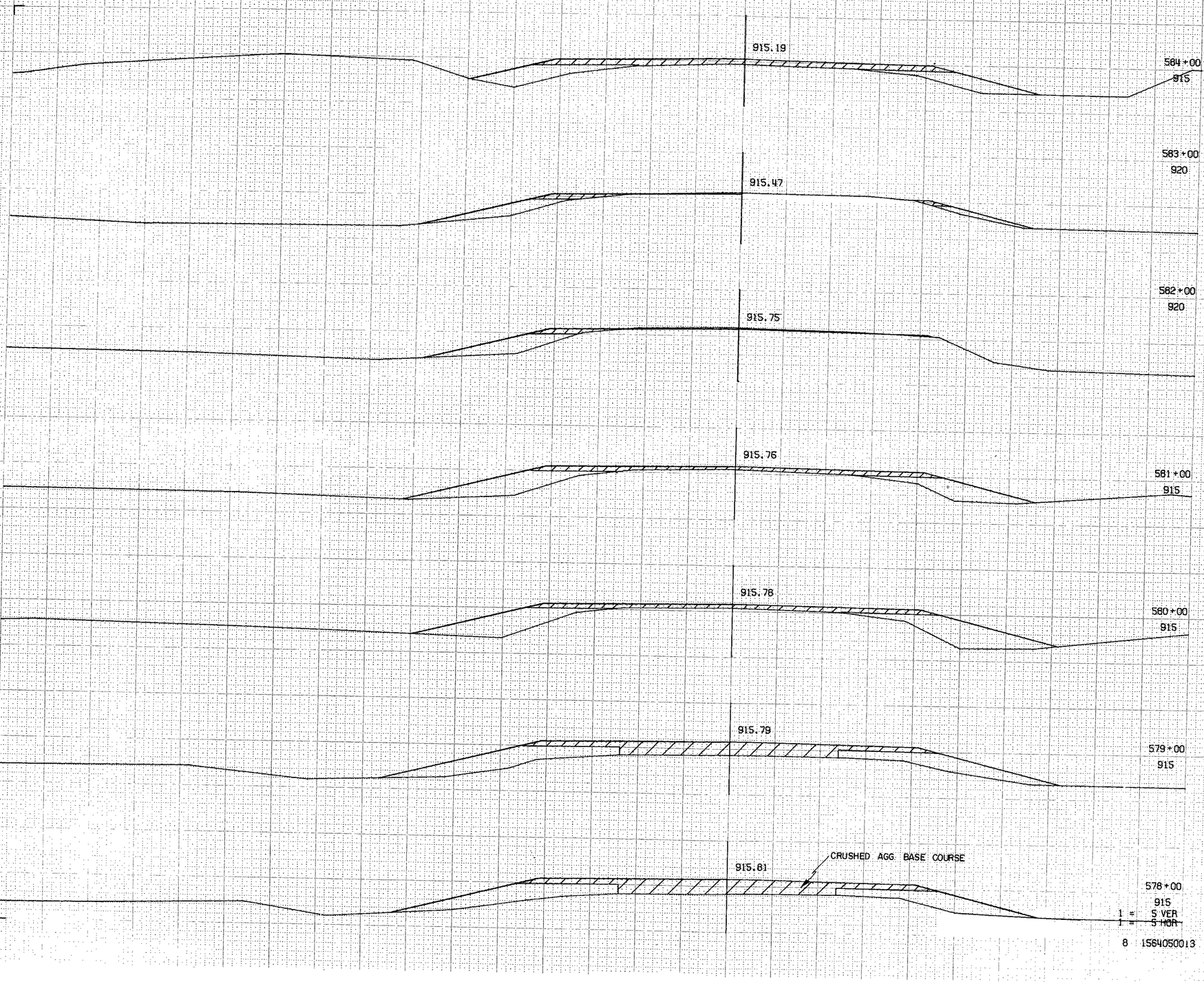
916.11

571+00
915

1 " = 5 VER
1 " = 5 HOR

8 1564050013

STATION	DISTANCE	YARDAGE EXCAVATION	YARDAGE FILL
570			72
571			57
572			57
573			106
574			148
575			200
576			230
577			

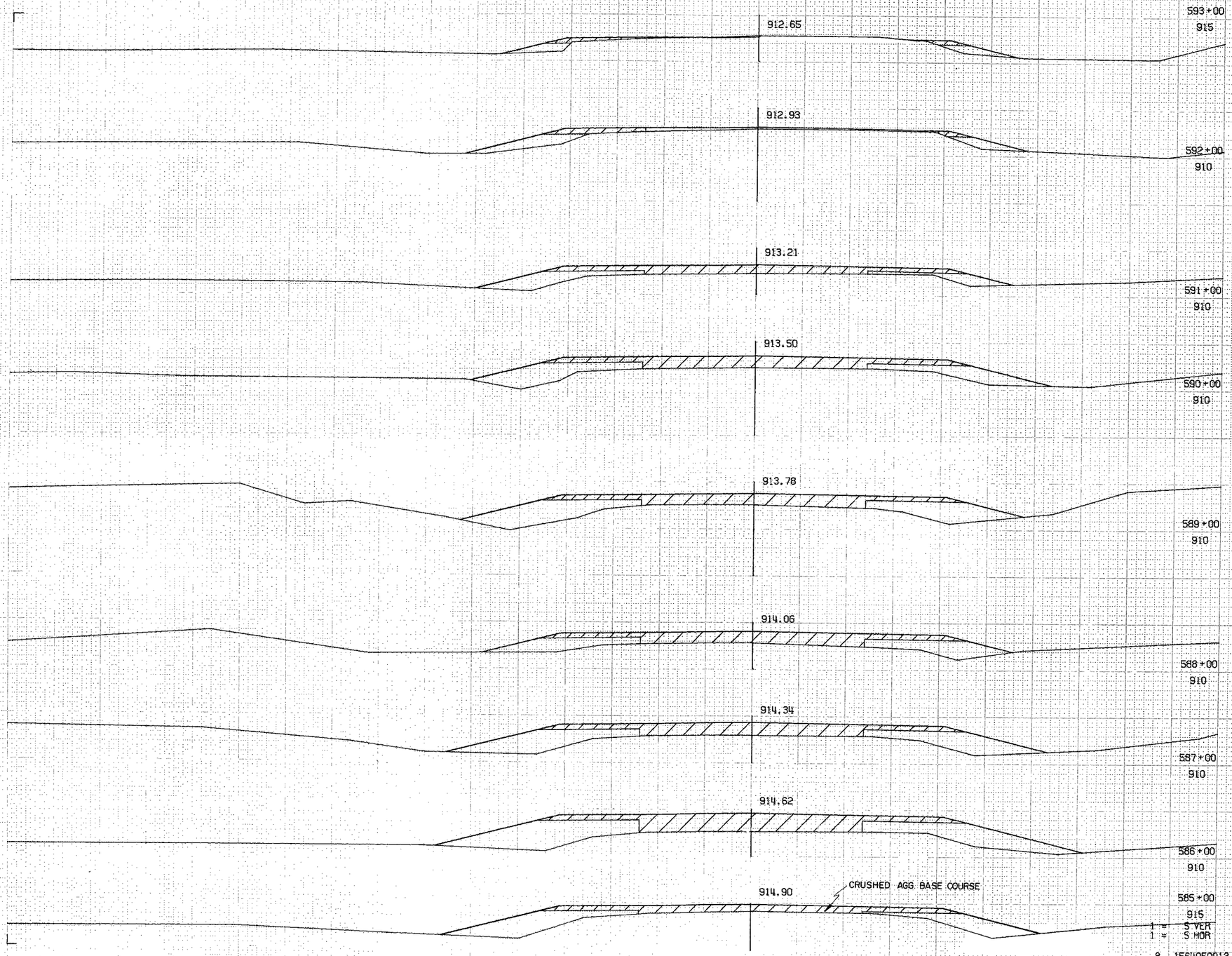


STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.6

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
577			
578			221
579			219
580			230
581			200
582			105
583			80
584			91

1 = 5 VER
1 = 5 HOR

8 1564050013



STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.7

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
584			146
585			214
586			236
587			163
588			165
589			180
590			123
591			67
592			41
593			

1 = S VER
1 = S HOR

8 1564050013

STATE PROJECT NUMBER	SHEET NUMBER
1564 - 5 - 71	9 8

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
593			43
594			43
595			52
596			61
597			67
598			39
599			44
600			

911.70
600+00
910

911.69
599+00
910

912.08
598+00
910

912.35
597+00
910

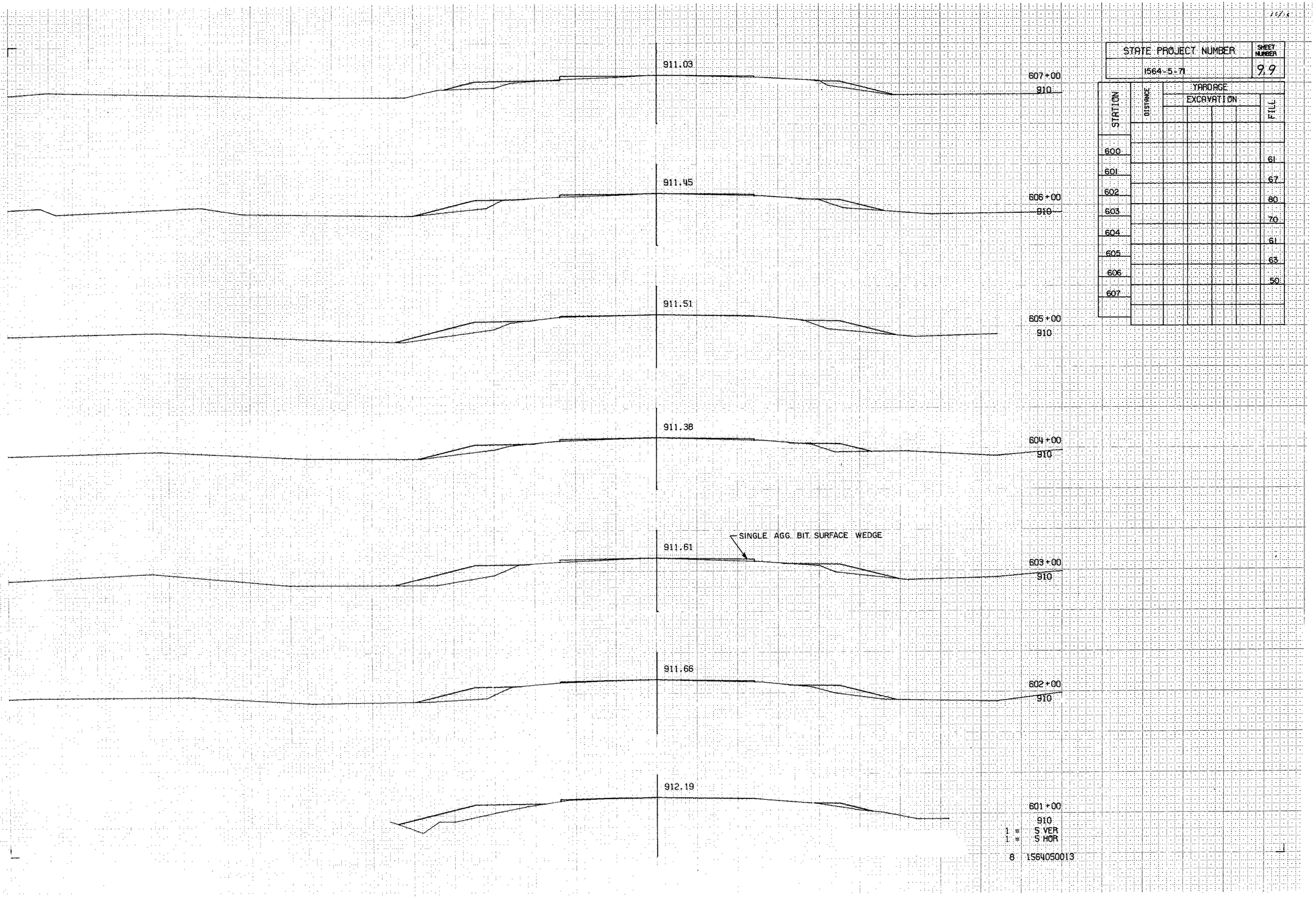
912.47
596+00
910

912.46
595+00
910

SINGLE AGG BIT SURFACE WEDGE
912.65
594+00
910

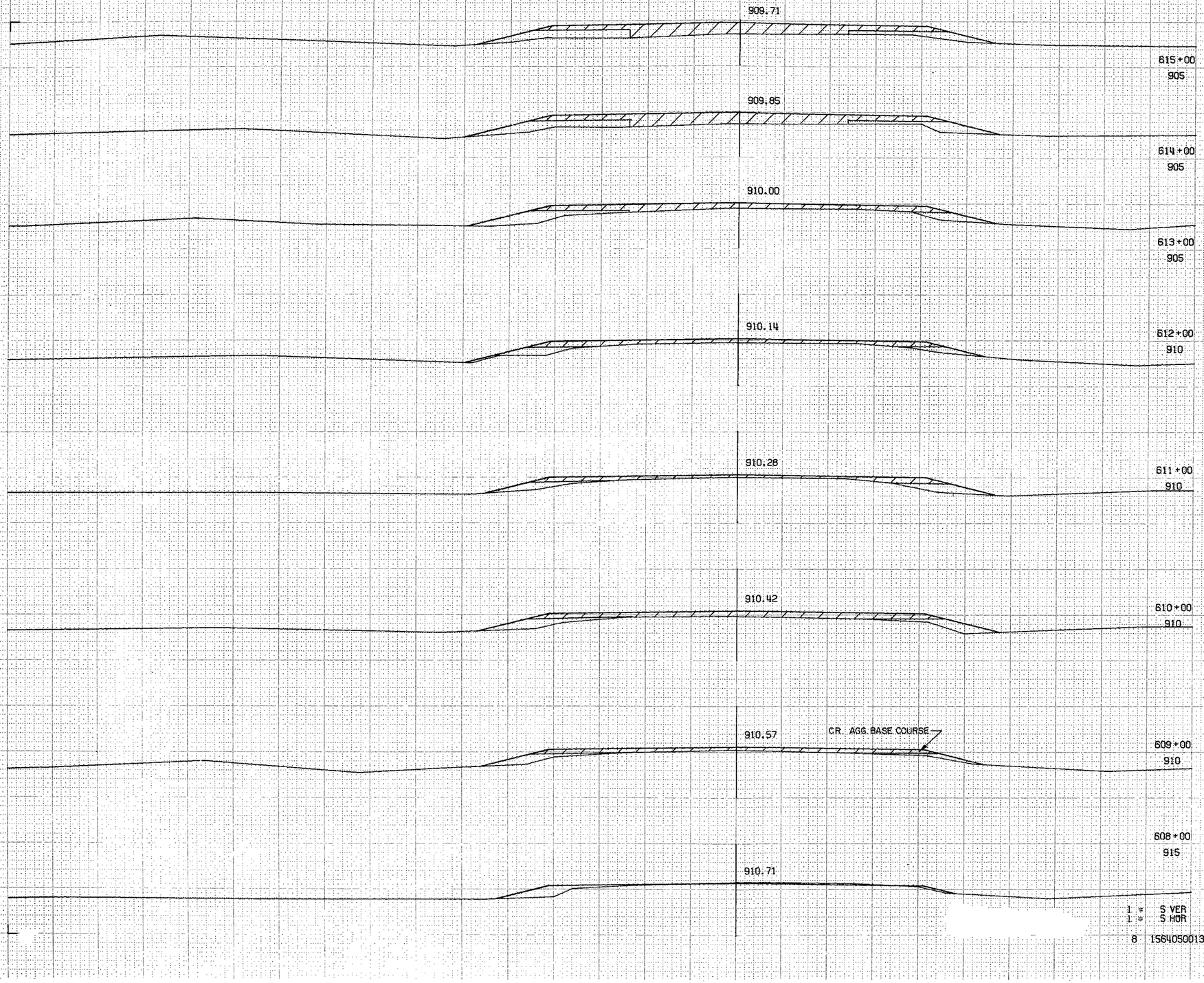
1 " = 5 VER
1 " = 5 HOR

8 1564050013



STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.9

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
600			61
601			67
602			80
603			70
604			61
605			63
606			50
607			

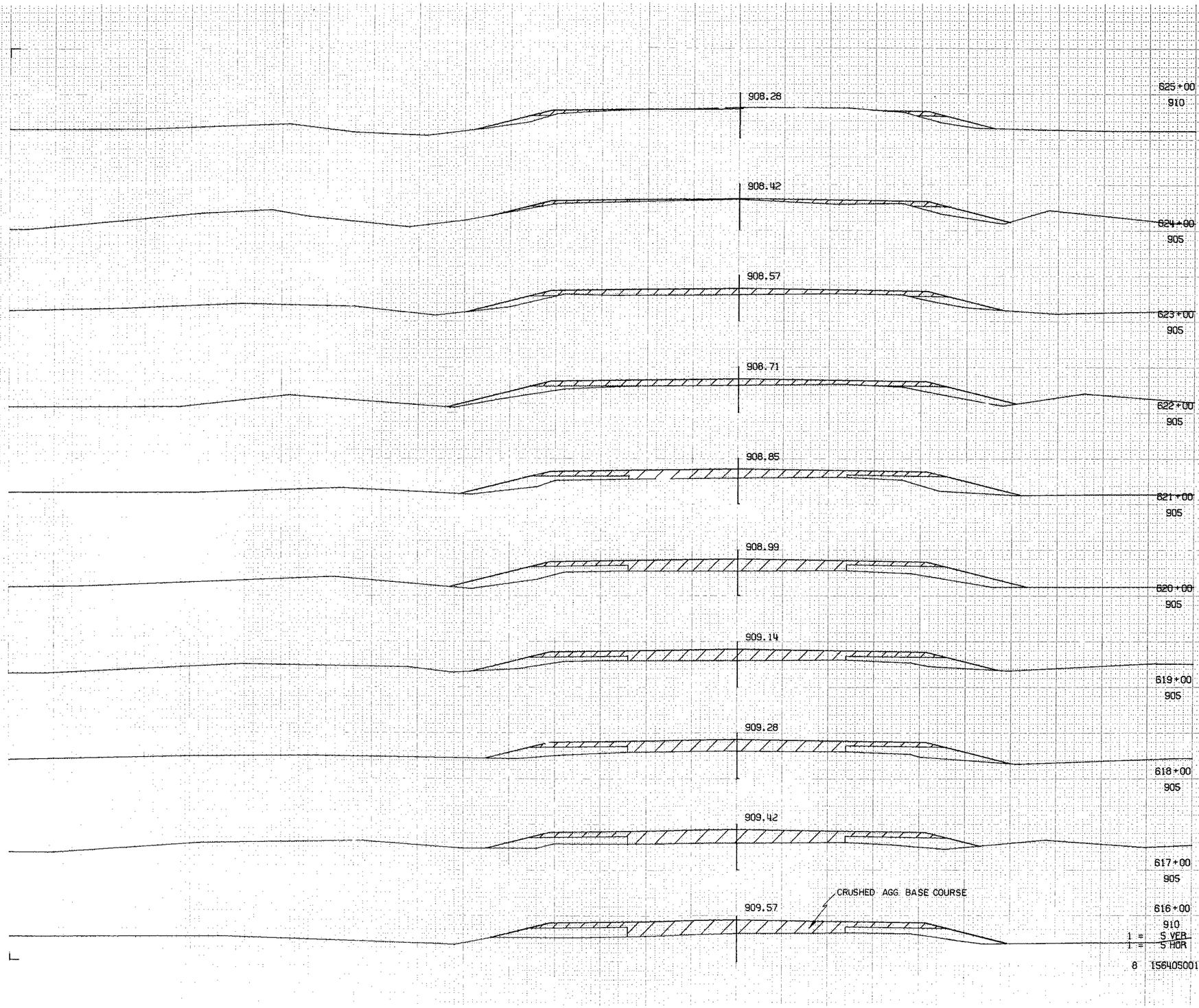


STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.10

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
607			39
608			30
609			45
610			50
611			39
612			54
613			80
614			85
615			

1 = 5 VER
1 = 5 HOR

8 15640050013



STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.11

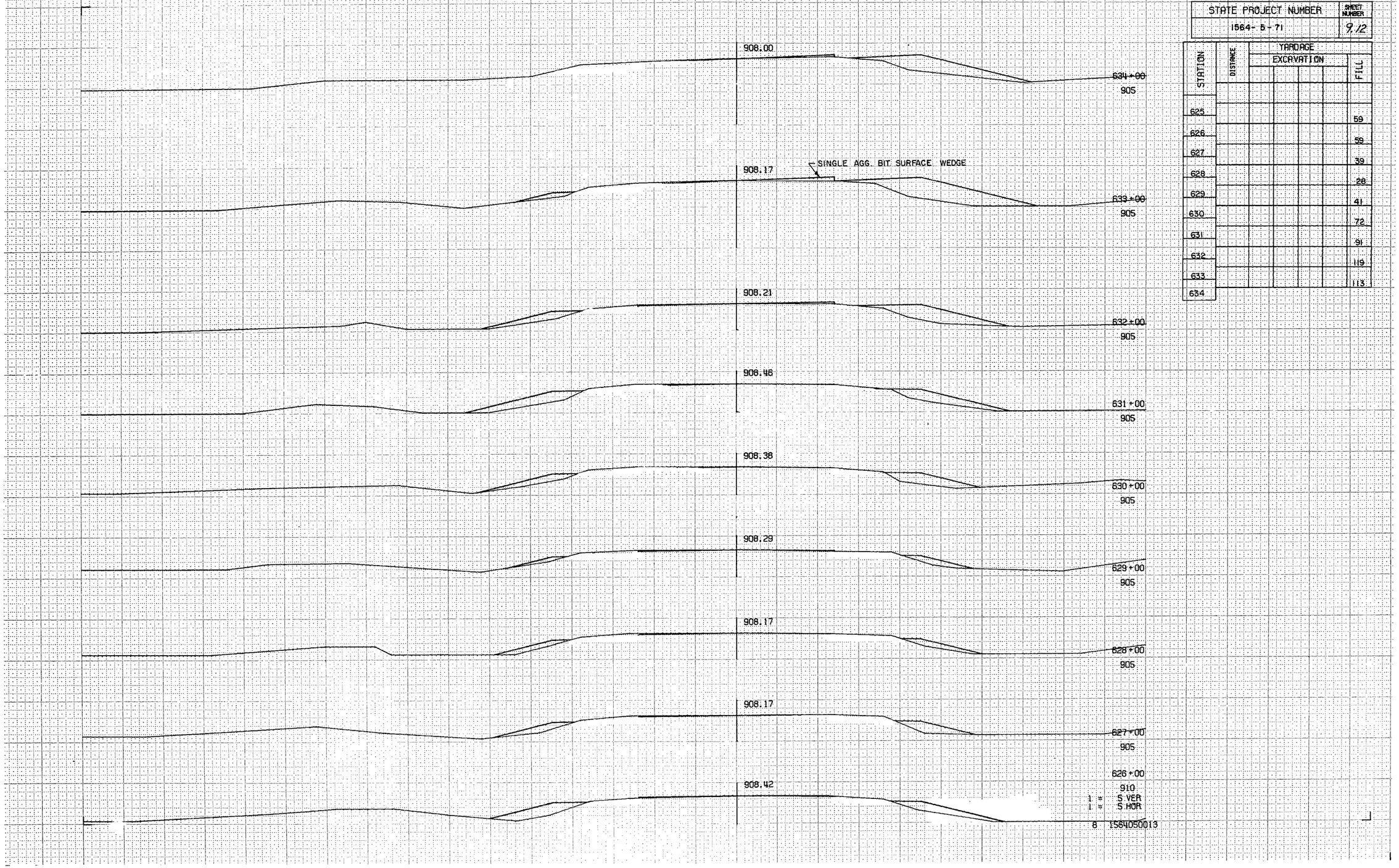
STATION	DISTANCE	YARDAGE EXCAVATION	FILL
615			90
616			96
617			96
618			88
619			101
620			11
621			80
622			48
623			24
624			20
625			

1 = 5 VER
1 = 5 HOR

8 1564050013

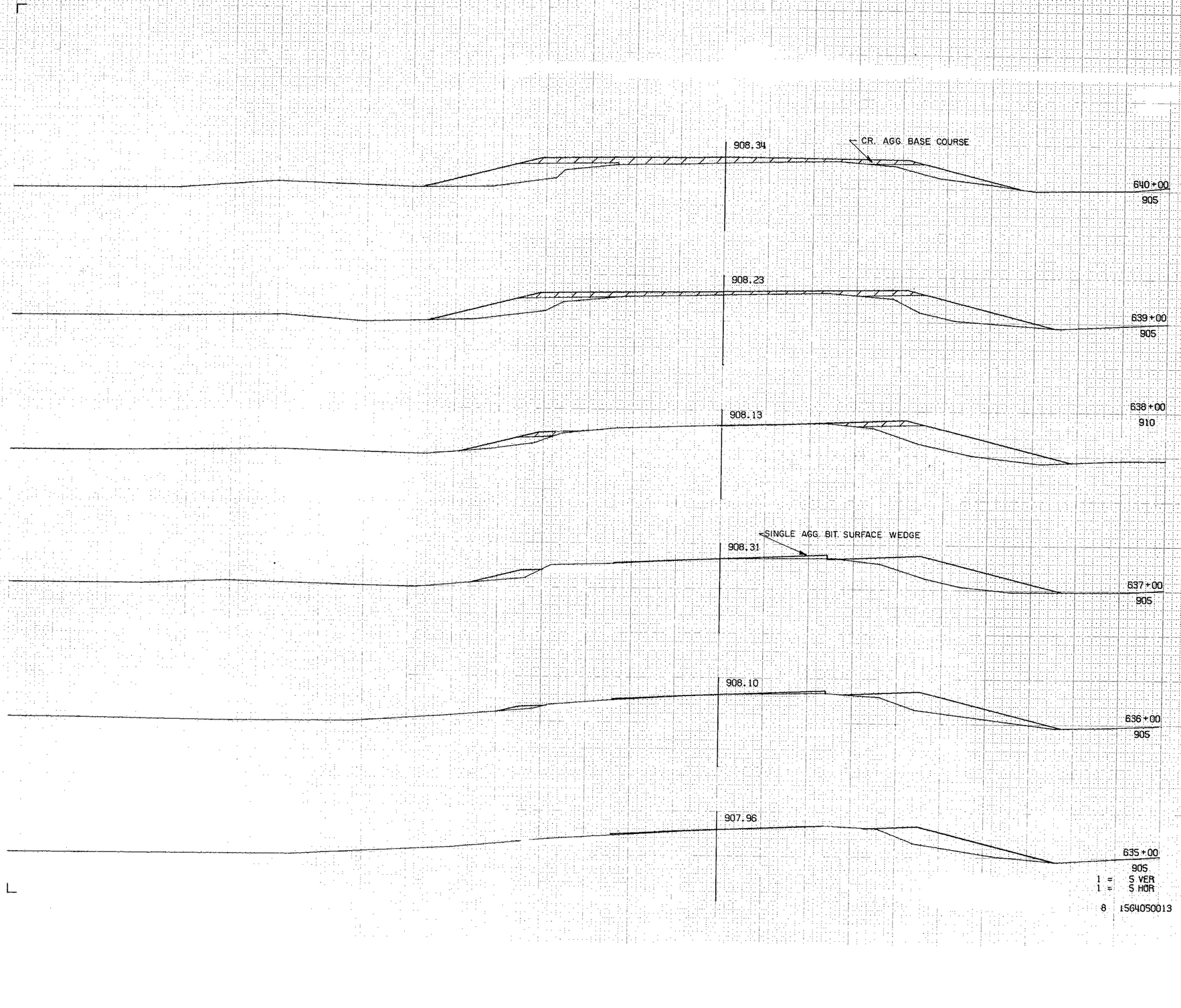
STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9 /2

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
625			
626			59
627			59
628			39
629			28
630			41
631			72
632			91
633			119
634			113



STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9/13

STATION	DISTANCE	TAROAGE EXCAVATION	FILL
634			
			85
635			94
636			128
637			159
638			163
639			145
640			



1 = 5 VER
1 = 5 HOR

8 1564050013

STATE PROJECT NUMBER	SHEET NUMBER
1564-5-71	9.14

STATION	DISTANCE	YARDAGE EXCAVATION	FILL
640			
641			74
642			159
643			189
644			208
645			308
+67			237

1" = 5' VER
1" = 5' HOR

8 1564050013