

Roscommon County Road Commission

James Porath, Commissioner
Justin Wykoff, Commissioner
Clint Stauffer, Commissioner
Brian Vaughn, Commissioner
Scott Eckstorm, Commissioner

820 E. West Branch Road
Prudenville, MI 48651

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NOTICE TO BIDDERS

The Roscommon County Road Commission will receive sealed bids until 2:00 p.m. on January 26, 2023. Bids will be opened for tabulation and review at the Roscommon County Road Commission's regularly scheduled board meeting on January 26, 2023 beginning at 7:00 p.m. Our office is located at 820 E. West Branch Road, Prudenville, MI 48651.

Roscommon County Video & Cleanout of Storm Sewers

Specifications may be obtained by contacting the Roscommon County Road Commission at the above address, by calling (989)-366-0333 ext.1006, emailing Saxtonr@roscommoncrc.com or by going to www.roscommoncrc.com. Please check the website for any inquiries pertaining to this bid document.

Submit bids in a sealed envelope that is clearly marked with the words "**Roscommon County Video & Cleanout of Storm Sewers.**"

The Roscommon County Road Commission reserves the right to reject any or all bids, to waive irregularities in any bid, and to accept the bid deemed to be in the best interest of Roscommon County Road Commission.

ROSCOMMON COUNTY BOARD
OF ROAD COMMISSIONERS

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**Roscommon County Road Commission
General Specification
For
Roscommon County Video & Cleanout of Storm Sewers**

General

The Roscommon County Road Commission is accepting sealed bids for the cleaning and video inspection of storm sewer in two different locations:

- M-55, Houghton Lake, Between Stanley Ave(Approx Sta 1494+00) and approx. Sta 1535+50, Attachment A, **Completion by April 14, 2023**
- Old 76, Saint Helen, Between Kewaune Rd(Sta 60+75) and approx. Sta 136+00, Attachment B, **Completion by August 31, 2023**

The Roscommon County Road Commission Special Provision for Video Inspection of Storm Sewers, the Roscommon County Road Commission Special Provision for Storm Sewer Cleanout, and the MDOT 2020 Standard Specifications for Construction shall be followed.

- Roscommon County Road Commission will perform traffic control of one set up at a time for contractor operations.
- No work in bad weather.(i.e. when the crew will need to perform snow removal duties)

Insurance requirements

The Roscommon County Road Commission requires that a “Certification of Insurance” be on file prior to allowing work within the right-of-way of any road under the jurisdiction of the Road Commission.

The certificate of insurance shall contain or include the following:

1. Board of County Road Commissioners and Roscommon County Road Commission and all employees named as addition insured to all coverage.
2. General liability coverage - \$1,000,000 each occurrence.
3. Automotive liability - \$1,000,000 each occurrence.
4. Worker’s compensation – statutory limits.

M-55, Houghton Lake Bid Price \$ _____ Lump Sum
Old 76, Saint Helen Bid Price \$ _____ Lump Sum

Company Name

Date

Address

Telephone

City, State & Zip

Fax

E-mail Address

Authorized Signature

Printed Name of Authorized Signer

ROSCOMMON COUNTY ROAD COMMISSION

SPECIAL PROVISION
FOR
STORM SEWER CLEANOUT

1 of 1

a. Description. This work consists of removing and collecting silt, solids, and other debris from existing storm sewers, catch basins, spillways, and end sections and disposing of all collected material in accordance with section 205 of the Standard Specifications for Construction.

As directed by the Engineer, storm sewer cleanout may be applied to entire lengths or to portions of the sewers shown on the plans. Portions of storm sewers will be designated if the length requiring cleaning is readily identifiable.

b. Materials. None specified.

c. Construction. The Roscommon County Road Commission will provide maintenance of traffic for one traffic control set up in accordance with section 812 of the Standard Specifications for Construction. Additional closures or maintenance will be the responsibility of the Contractor.

Select a method which ensures removal of all silt, solids and other debris from the storm sewer, resulting in unrestricted flow. Minimize disturbance to the area and contain all removed material in a manner approved by the Engineer.

Repair any damage to the existing drainage system which results from the cleaning operation. Provide soil erosion and sedimentation control measures or restoration items that become necessary due to the method of cleaning selected.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Storm Sewer Cleanout	Lump Sum

Storm Sewer Cleanout includes only storm sewers authorized by the Engineer for cleaning. All costs associated with soil erosion and sedimentation control measures, restoration items, and repair work are considered included in this pay item.

All costs associated with sewer cleanout necessitated by the Contractor's operations will be at no additional cost to the contract.

ROSCOMMON COUNTY ROAD COMMISSION

SPECIAL PROVISION
FOR
VIDEO INSPECTION OF STORM SEWERS

1 of 2

a. Description. This work consists of making a digital video (DVD) record and log of the physical and structural conditions of the existing storm sewers. Ensure the video is professional quality, in color, and provides a clear and accurate visual record of the pipe condition.

Conduct the inspection and furnish three copies of the DVD(s) and written log(s) to the Engineer by the date specified in the bid documents. Ensure any portion of the DVD(s) determined by the Engineer to be unacceptable for the documentation is reinspected. Reinspection may include recleaning of the storm sewers prior to video inspection as directed by the Engineer. All costs associated with the need to reinspect will be at no cost to the contract.

The Contractor is responsible for damage to the existing storm sewers caused by their operation. Costs to repair damage caused by the Contractor's operations, as identified by the Engineer during creation of the DVD(s) and log(s), will be at no cost to the contract.

b. Materials. None specified.

c. Video Inspection. The Roscommon County Road Commission will provide maintenance of traffic for one traffic control set up in accordance with section 812 of the Standard Specifications for Construction. Additional closures or maintenance will be the responsibility of the Contractor.

Conduct video inspection in accordance with subsection 402.03.J of the Standard Specifications for Construction and as described herein. Ensure work is completed at a time approved by the Engineer to coincide with low flow rate periods prior to starting work. Provide the Engineer a minimum notice of at least 3 work days prior to starting work. Obtain approval from the Engineer for pumping, bypassing, and other methods of flow control prior to starting work.

Use video equipment specifically designed for sewer inspection and recording. Ensure video equipment is capable of pan, tilt, and zoom to provide all-around views of storm sewers, and produces high-quality, color recordings in DVD format with date/time stamp and digital annotation capabilities.

Inspect and record storm sewers, in either direction, at a rate not exceeding 30-feet per minute. Stopping may be necessary to properly document the storm sewer's condition. Winches, cable, rewind, and other devices must not obstruct the view or interfere with proper documentation. If the video equipment will not pass through an entire section in one direction, the Contractor must set up the equipment to enter from the opposite direction. If the video equipment fails to pass through from the opposite direction, the inspection may be considered complete at the discretion of the Engineer.

Ensure the video recording displays the date (month, day, and year) and the time (hours, minutes, and seconds). Ensure this information is displayed in upper left-hand corner of the frame. Ensure total storm sewer length, storm sewer size, and locations of sewer defects is displayed on the

upper right-hand corner of the frame.

d. Measurement and Payment. The completed work, as described, will be measured as a lump sum and paid for at the contract price using the following pay item:

Pay Item	Pay Unit
Video Inspection of Storm Sewers.....	Lump Sum

Attachment A

NOTE
All quantities and proposed sewer grades, etc. are derived from old plans W-26-1.
All sewer grades are to be verified by the Engineer prior to beginning construction and revised to fit existing conditions.

Restoration of disturbed earth areas, including but not limited to making Class A Seeding, fertilizer and mulch shall be considered incidental to the sewer items.

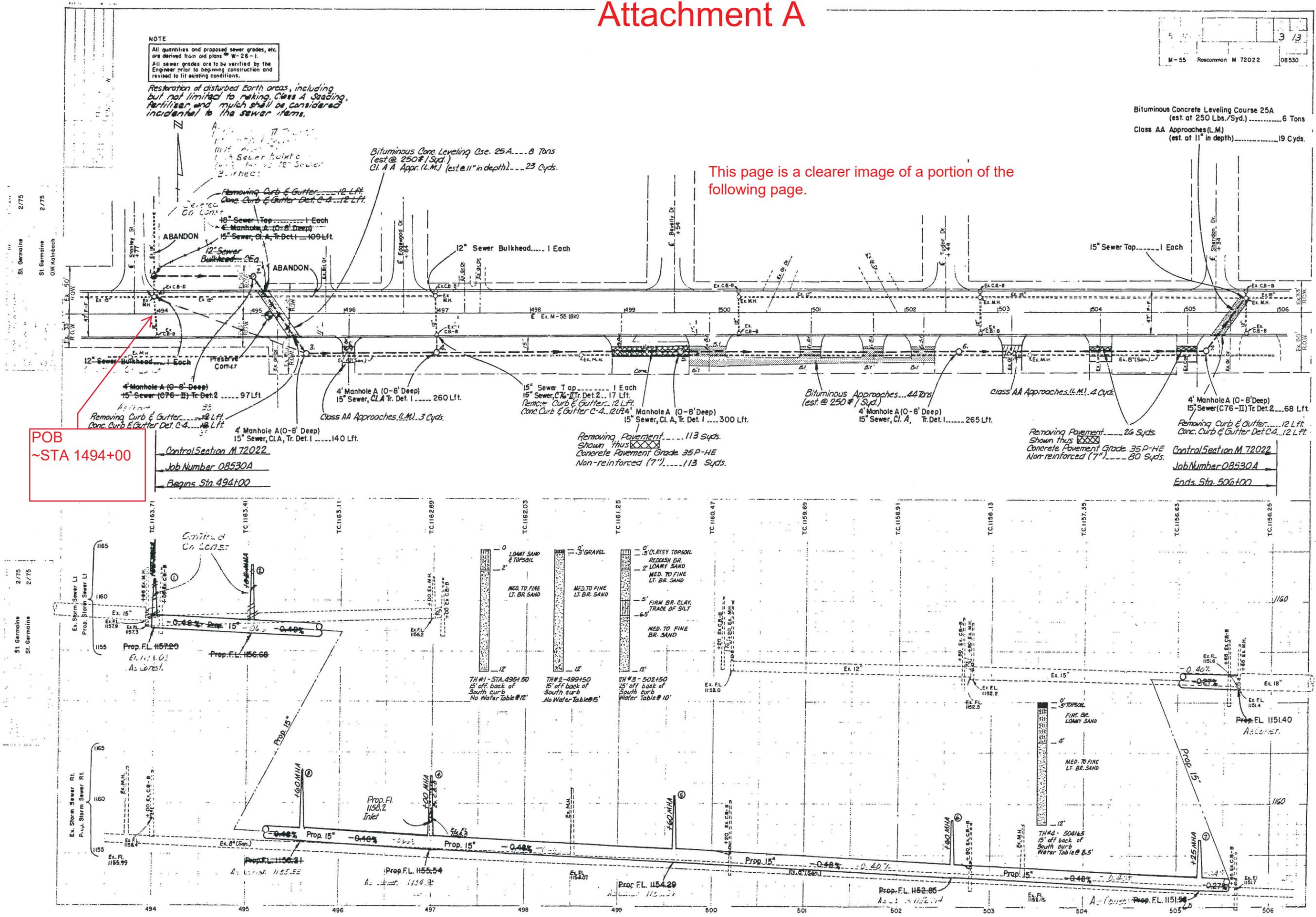
Bituminous Concrete Leveling Course 25A (est. at 250 Lbs./Syd.) 6 Tons
Class AA Approaches (L.M.) (est. at 11" in depth) 19 Cyds.

This page is a clearer image of a portion of the following page.

POB
~STA 1494+00

Control Section M 72022
Job Number 08530A
Begins Sta. 494+00

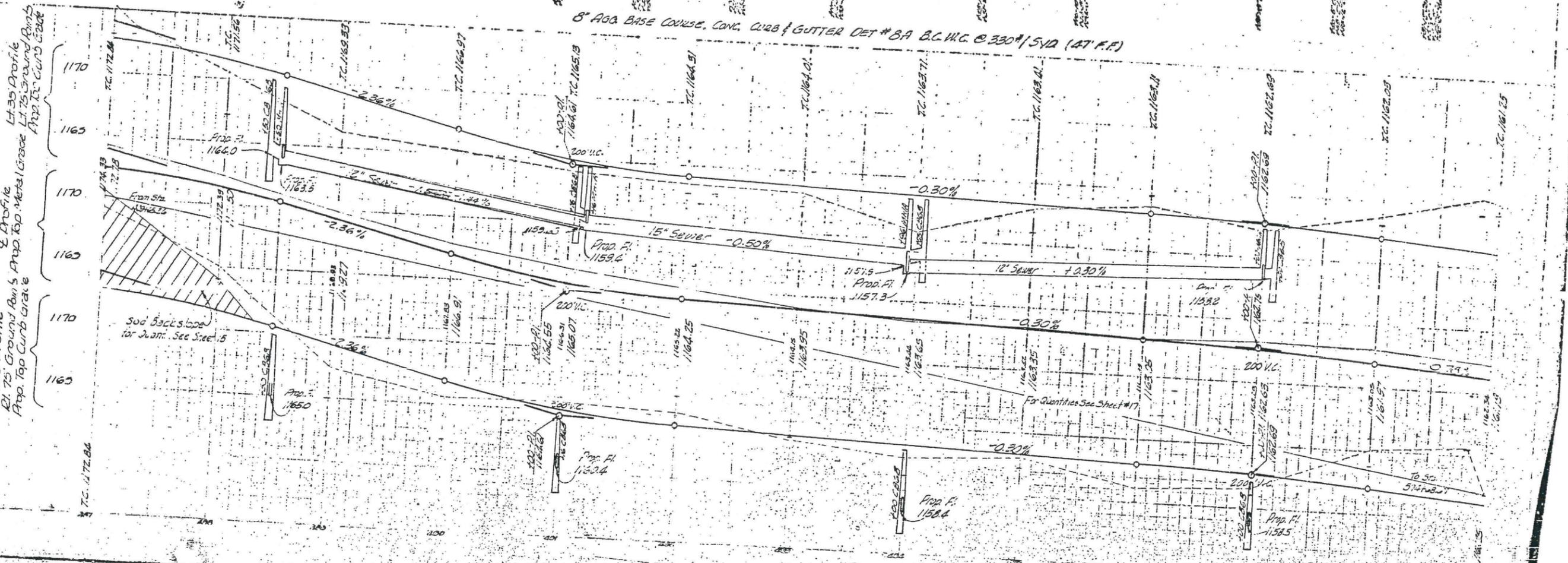
Control Section M 72022
Job Number 08530A
Ends Sta. 506+00



Stanley St

Edgewood Dr

POB
~STA 1494+00



AT 35' Profile
 EL. 75' Ground Rim's Prop. Top Metal Grate LI 75' Ground Rim's Prop. Top Curb Grate
 EL. 75' Profile
 EL. 75' Ground Rim's Prop. Top Metal Grate LI 75' Ground Rim's Prop. Top Curb Grate

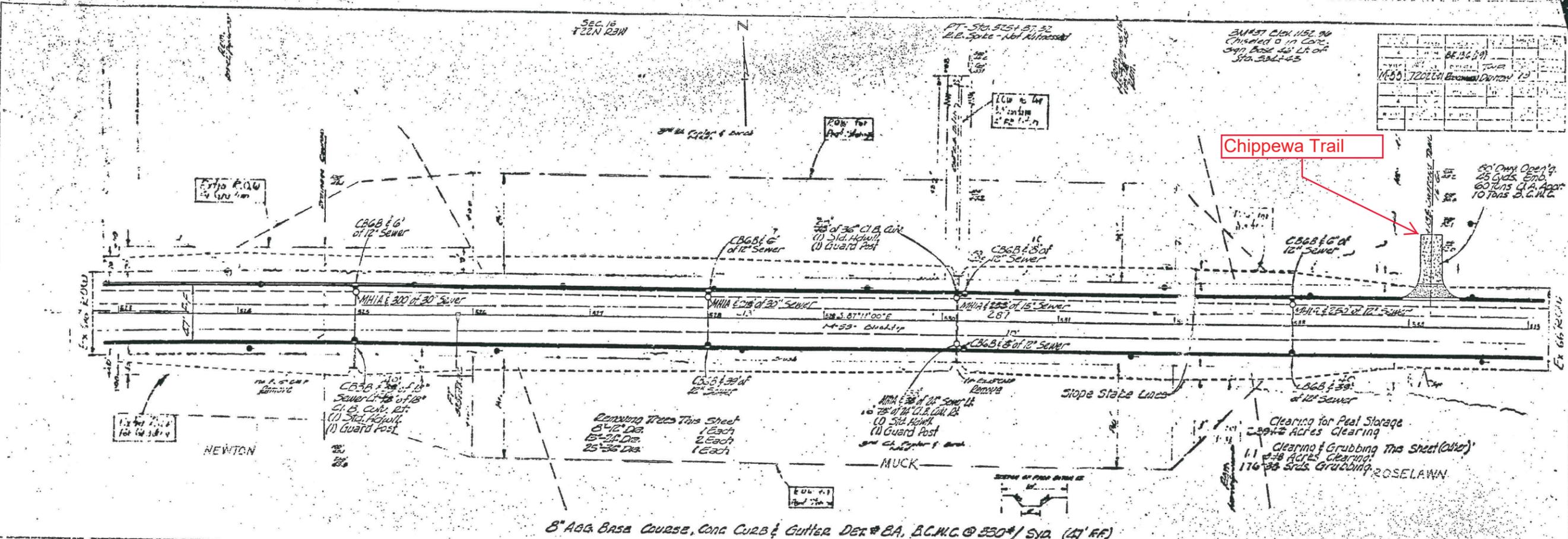
AT 35' Profile
 EL. 75' Ground Rim's Prop. Top Metal Grate LI 75' Ground Rim's Prop. Top Curb Grate

Sod back slope
 for Quant. See Sheet 15

For Quantities See Sheet #17

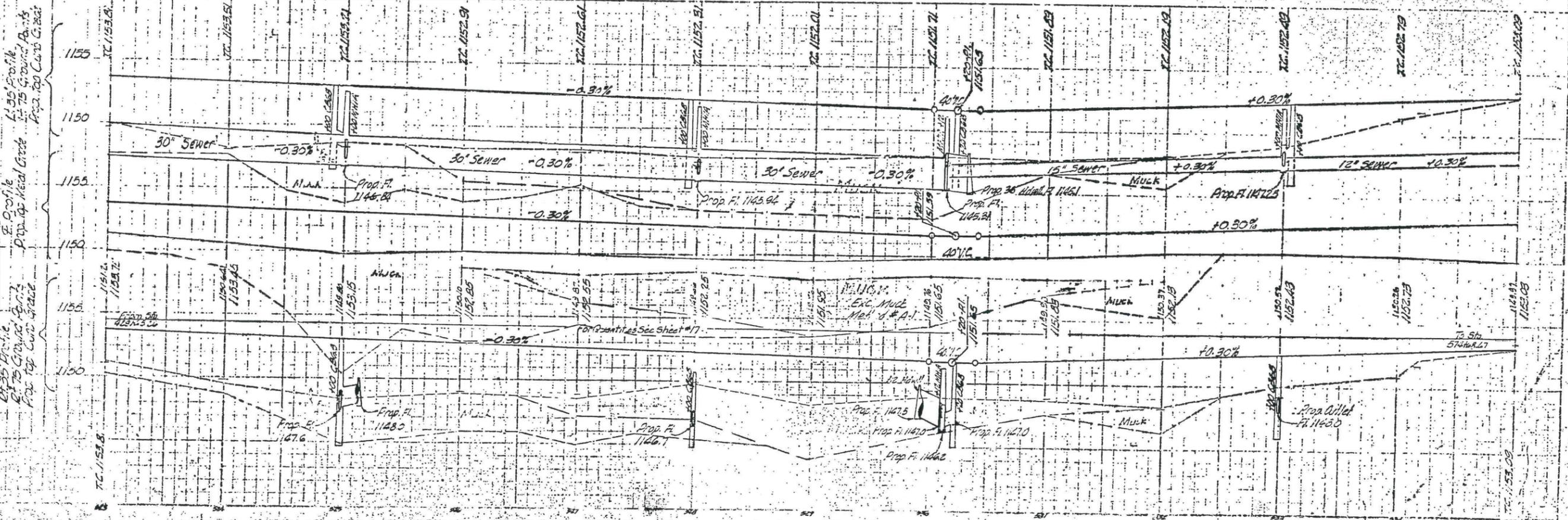
2. SINGER
 1957
 L.A. 5-20-58 Rev. 8-8-58 O.D.
 H. H. 1984

14-30	720201	Revised	1-9
14-30	720201	Revised	1-9
14-30	720201	Revised	1-9
14-30	720201	Revised	1-9



8" AGG BASE COURSE, CONC CURB & GUTTER DER # BA, B.C.M.C @ 330' / SYD (21' FF)

1. STANLEY
 1957
 2. WILSON
 1957
 3. JONES
 1957
 4. SMITH
 1957
 5. BROWN
 1957
 6. GREEN
 1957
 7. WHITE
 1957
 8. BLACK
 1957
 9. GOLD
 1957
 10. SILVER
 1957
 11. BRONZE
 1957
 12. IRON
 1957
 13. STEEL
 1957
 14. COPPER
 1957
 15. ALUMINUM
 1957
 16. ZINC
 1957
 17. LEAD
 1957
 18. TIN
 1957
 19. NICKEL
 1957
 20. CHROME
 1957
 21. SILICON
 1957
 22. BORON
 1957
 23. FLUORINE
 1957
 24. OXYGEN
 1957
 25. NITROGEN
 1957
 26. CARBON
 1957
 27. HYDROGEN
 1957



Attachment B Kewaune Rd.

BM#1-Elev. 1205.81
PK Nail, Nut & BM Tag
in W. root of 12" J. Pine
55' Lt. of Sta. 54+74

Entire Project - For Restoring Sewer Cuts.
Aggregate Base Patching 175 Cyds.
Temporary Patching w/Bit. Mat'l. 75 Tons

POT - Sta. 60+30.42 (M-76) -
Sta. 100+00.00 (Kewaune Rd.)
Due E. - 33.76' - U. Pole
N.55°W. - 71.16' - P. Pole
N.55°E. - 76.62' - T. Pole
PK Nail & Tag

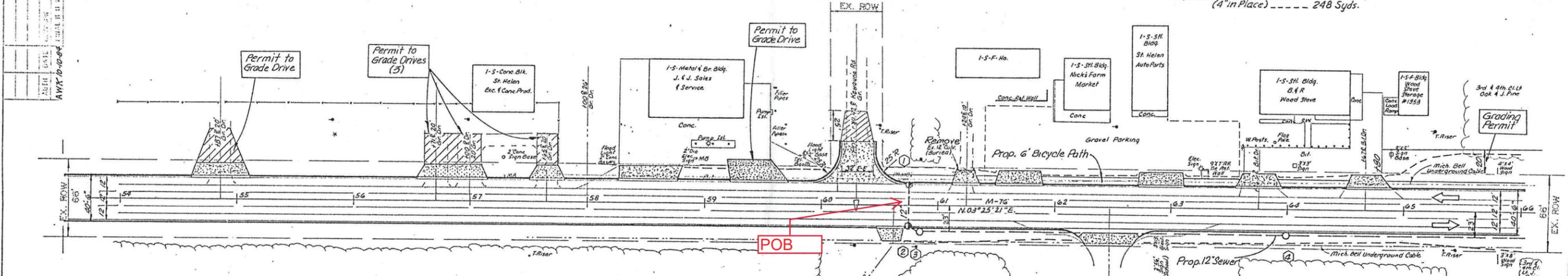
Sec. 27
T.23 N. R.1 W
Richfield Twp.

Bicycle Path This Sheet
Sta. 60+60 to Sta. 66+00
Bituminous Bicycle Path 31 Tons
Aggregate Base - Bituminous
(4" in Place) 248 Syds.

5	MCH	10
OLD M-76	Roscommon	72091 21059

OPERATION	DATE
PRELIMINARY P.L.W. CHECKED	1/8/84
FINAL P.L.W. CHECKED	1/8/84
DESIGNED	1/8/84
CHECKED	1/8/84
DATE	1/8/84
BY	O. Keller
BY	O. Zimbach
BY	O. Keller
BY	O. Kalmbach

OPERATION	DATE
DESIGNED	4-8-84
CHECKED	4-8-84
DATE	4-8-84
BY	O. Myggs
BY	A. McQuiston
BY	A. McQuiston
BY	G. Keller
BY	J. Lurber



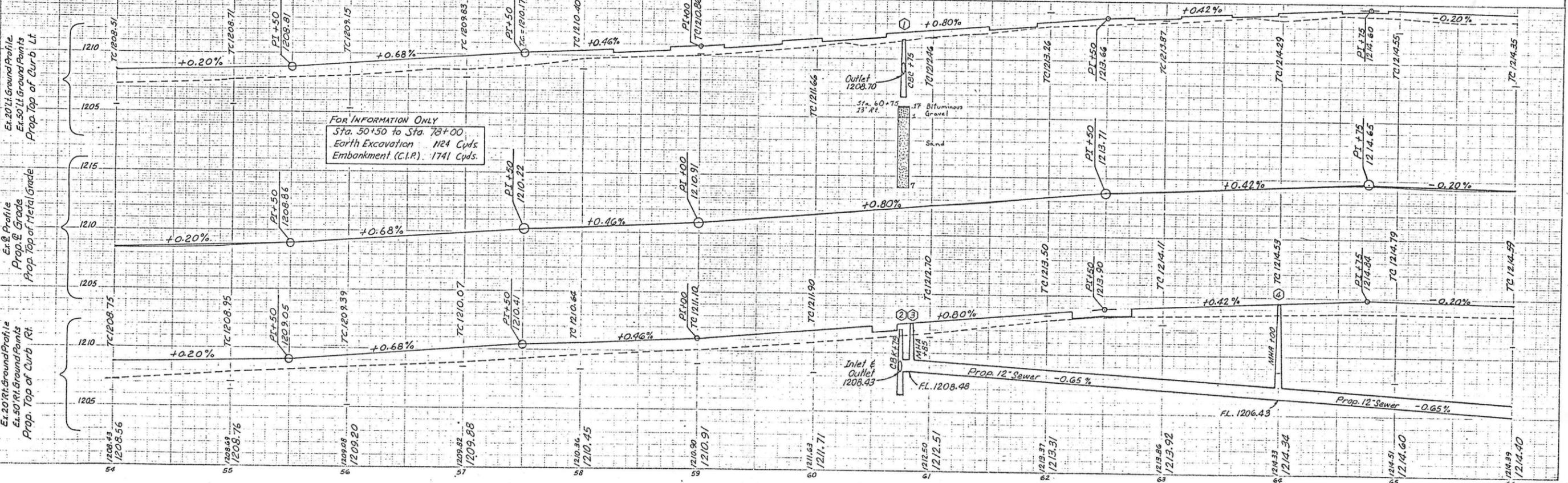
DRAINAGE STRUCTURE NUMBER	STATION	2' DIA. DRAIN STRUCTURE EACH	4' DIA. DRAIN STRUCTURE EACH	12" SEWER TRENCH DET. 2 LIN. FT.	12" SEWER C-76-RT TRENCH DET. 2 LIN. FT.	DRAINAGE STRUCTURE COVERS LBS.
1	60+75 L	CBC		10'	39'	500
2	60+75 R		CBC			500
3	60+85 R		MHA	315'		375
4	64+00 R		MHA		300	375
TOTALS		1	3	325	339	1750

STATION	DRIVE OPENINGS DET. "L" LIN. FT.	DET. "M" LIN. FT.	BITUMINOUS APPROACH @ 220 YST TONS	CLASS AA APPROACH TONS
54+87 Lt.	50'		6	37
56+71 Lt.	60'		7	59
57+65 Lt.	30'		4	30
58+50 Lt.	50'		5	19
59+45 Lt.	50'		10	32
60+30.42 Lt.			17	82
60+62 Rt.	24'		3	10
61+24 Lt.	24'		3	10
61+68 Lt.	40'		5	14
62+47 Rt.		84	6	19
62+92 Lt.	40'		5	14
63+76 Lt.	40'		5	14
64+67 Lt.	40'		5	14
TOTALS			84	354

All Storm Sewer on plans unless noted otherwise

Surfacing Quantities (Sta. 54+00 to Sta. 66+00)
 Bituminous Base Mixture No. 500, 20 C. 616 Tons.
 Bituminous Mixture No. 1100 L, 20 AA. 312 Tons.
 Bituminous Mixture No. 1100 T, 20 AA. 288 Tons.
 Machine Grading - Modified 12 Stas.
 Cold Milling Bituminous Surface 364 Tons

Concrete Curb & Gutter Detail C-4 Rt. Side .. 1116 Lin. Ft.
 Concrete Curb & Gutter Detail D-2 Lt. Side .. 1217 Lin. Ft.



5	11
OLO M-76	72091 21059

POT- Sta. 66+81.54
 N. 80°E-39.89'-14" J. Pine
 S. 30°E-62.39'-13" J. Pine
 S. 80°W-54.51'-14" Oak
 PK Nail

BM#2 - Elev. 1214.84
 PK Nail, Nut & BM Tag
 in SE. root of 14" Oak
 (Cass Griffin sign on
 Tree)-54' Lt. of
 Sta. 66+72

STATION	2 DIA. DRAIN STRUCT.	4 DIA. DRAIN STRUCT.	4 DIA. ADD. DEPTH OF DRAIN STRUCT.	12" SEWER TRENCH DET. 2	15" SEWER TRENCH DET. 2	18" SEWER TRENCH DET. 2	DRAINAGE STRUCTURE COVERS	LBS.	
5	66+75 L.	CBC		40			500		
6	66+90 R.	CBK		12			500		
7	67+00 R.	MHA	2	285			375		
8	69+75 L.	CBC		39			500		
9	69+75 R.	CBK		10			500		
10	69+85 R.	MHA	1		305		375		
11	72+80 L.	CBC		39			500		
12	72+80 R.	CBK		10			500		
13	72+90 R.	MHA		39		320	375		
14	72+00 L.	CBC		39			500		
15	76+00 R.	CBK		10			500		
16	76+10 R.	MHA				270	375		
TOTALS		4	8	3	199	285	320	270	5500

POT- Sta. 73+53.74 (M-76)
 Sta. 10+00.00 (Hiawatha Rd)
 S. 73°W-74.04'-NE Cor. Cona.
 N. 65°W-60.35'-P. Pole
 N. 77°E-76.62'-T. Pole
 PK Nail & Tag

POT- Sta. 73+53.65
 Due E-74.29'-T. Pole
 S. 65°W-83.33'-NE Cor.
 Conc. Slab
 Due W-57.49'-P. Pole
 S. 75°E-89.40'-10" J. Pine
 1/2" Bar in Man. Box

BM#3A - Elev. 1204.976
 RR Spike in East Side
 P. Pole-58' Lt. of
 Sta. 75+56.5

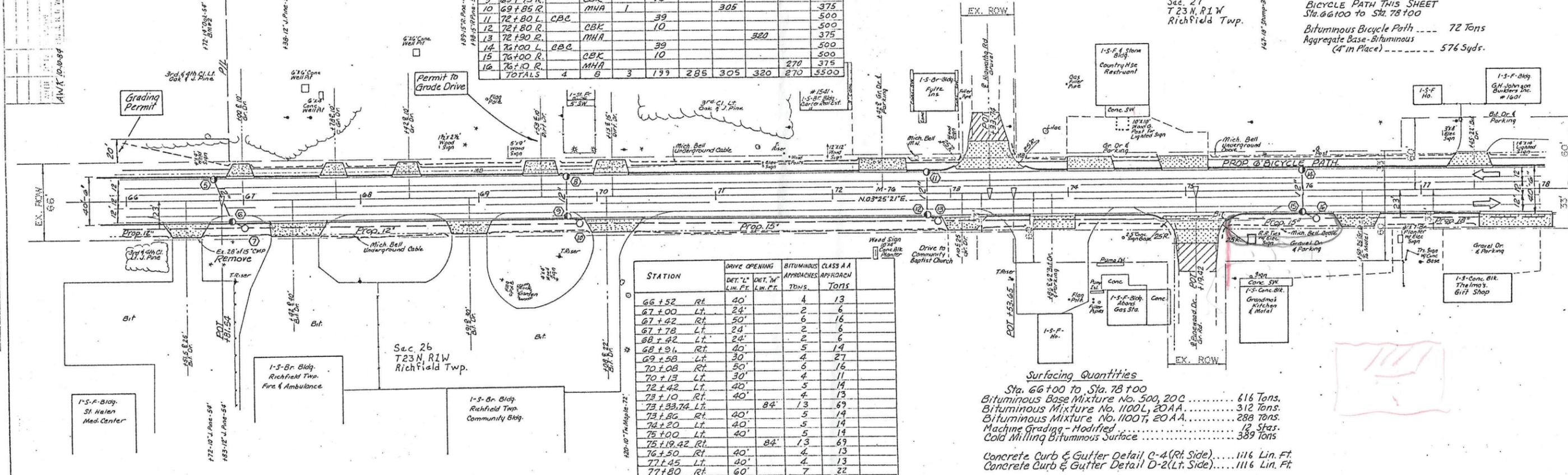
POT- Sta. 75+19.42 (M-76)
 Sta. 10+00.00 (Pinewood Dr)
 S. 55°W-80.21'-NE Cor.
 of Conc. Porch
 N. 50°W-69.95'-P. Pole
 N. 65°E-77.80'-T. Pole
 PK Nail & Tag

Sec. 27
 T. 23 N. R. 1 W
 Richfield Twp.

BICYCLE PATH THIS SHEET
 Sta. 66+00 to Sta. 78+00
 Bituminous Bicycle Path ----- 72 Tons
 Aggregate Base-Bituminous
 (4" in Place) ----- 576 Syds.

OPERATION

1994	Keller
1994	Kalmbach
1994	K. IDE
1994	Keller
1994	Kalmbach
1994	Kalmbach

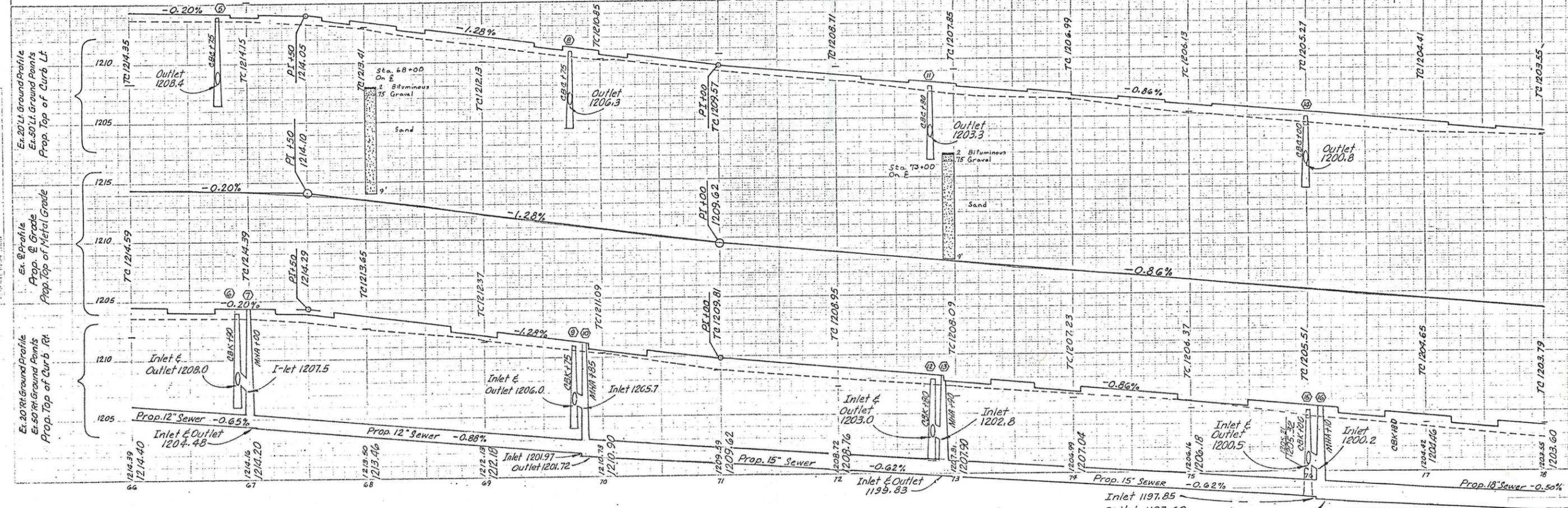


STATION	DRIVE OPENING DET. 'L' LIM. FT.	DRIVE OPENING DET. 'R' LIM. FT.	BITUMINOUS APPROACHES TONS	CLASS A A APPROACH TONS
66+52 Rt.	40'		4	13
67+00 Lt.	24'		2	6
67+42 Rt.	50'		6	16
67+78 Lt.	24'		2	6
68+42 Lt.	24'		2	6
68+91 Rt.	40'		5	14
69+58 Lt.	30'		4	27
70+08 Rt.	50'		6	16
70+13 Lt.	30'		4	11
72+42 Lt.	40'		5	14
73+10 Rt.	40'		4	13
73+33.74 Lt.		84'	1.3	69
73+86 Rt.	40'		5	14
74+20 Lt.	40'		5	14
75+00 Lt.	40'		5	14
75+19.42 Rt.		84'	1.3	69
76+50 Rt.	40'		4	13
77+45 Lt.	40'		4	13
77+80 Rt.	60'		7	22
TOTALS			168	370

Surfacing Quantities
 Sta. 66+00 to Sta. 78+00
 Bituminous Base Mixture No. 500, 20C 616 Tons.
 Bituminous Mixture No. 1100L, 20AA 312 Tons.
 Bituminous Mixture No. 1100T, 20AA 288 Tons.
 Machine Grading - Modified 12 Stas.
 Cold Milling Bituminous Surface 389 Tons
 Concrete Curb & Gutter Detail C-4 (Rt. Side) 1116 Lin. Ft.
 Concrete Curb & Gutter Detail D-2 (Lt. Side) 1116 Lin. Ft.

OPERATION

4-84	Niggans
1984	NES
1984	W. G. Gouster
1984	A. K. Gouster
1984	H. NES
1984	M. NES
1984	D. Keller
1984	J. Lorimer



POT Sta. 78+49.85 (M-76) Sta. 10+00 (Sutherby Rd) N. 60° E - 3' 40" - G. Pole S. 45° W - 53.71' - 13" Oak N. 65° W - 60.48' - P. Pole PK Nail & Tag

POT Sta. 80+30.72 (M-76) Sta. 10+00.00 (Rosedale) N. 75° E - 64.37' - P. Pole N. 70° W - 59.27' - P. Pole N. 40° W - 86.43' - Light Pole PK Nail & Tag

BM # 4A - Elev. 1201.16 RR Spike in E. Side of P. Pole - 67' Lt. of Sta. 83+61

POT Sta. 82+80.32 (M-76) Sta. 10+00.00 (Glenwood) N. 75° E - 57.55' - 11" Oak S. 65° W - 69.59' - P. Pole N. 65° W - 78.19' - N.E. Cor. Bldg. PK Nail & Tag

POT Sta. 83+45.61 (M-76) Sta. 10+00.00 (Poole Dr) N. 55° E - 64.35' - 15" J. Pine S. 75° E - 49.17' - 8" J. Pine S. 45° E - 68.89' - 11" Oak PK Nail & Tag

POT Sta. 85+36.78 (M-76) Sta. 10+00.00 (Woodlawn Dr) N. 40° E - 74.68' - 8" J. Pine N. 85° W - 48.52' - S.E. Cor. Conc. Base (Light) N. 35° W - 69.12' - S.E. Cor. Conc. Base (Sign) PK Nail & Tag

POT Sta. 86+76.67 (M-76) Sta. 10+00.00 (Carter Rd) N. 70° E - 53.19' - P. Pole S. 65° W - 56.08' - N.E. Cor. Conc. Base (Light) N. 60° W - 61.28' - P. Pole R.R. Spike

Sec. 27, T23N, R1W, Richfield Twp.

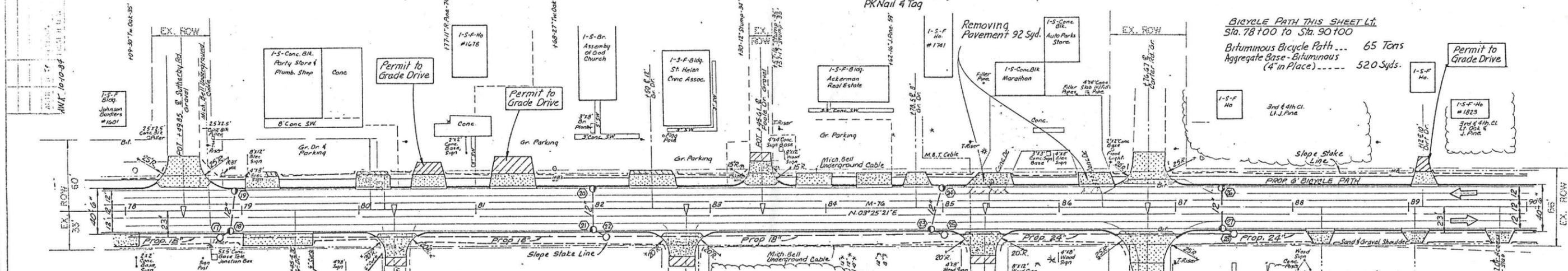
5	12
OLD M-76	Roscommon T2091 21059

OPERATION

1984	O. Keller
1984	O. Kaimbach

OPERATION

4-84	O. Higgins
1984	A. McQuiston
1984	A. McQuiston
1984	J. Lutter
1984	J. Lutter



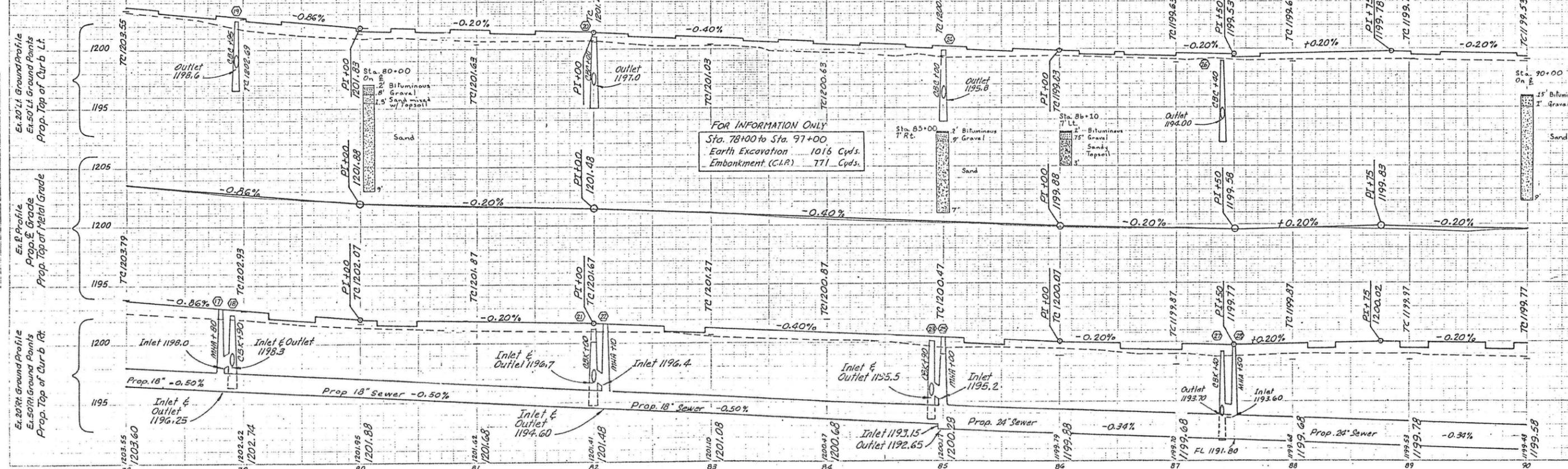
STATION	DRIVE OPENING DET. 'L'	DRIVE OPENING DET. 'M'	BITUMINOUS CLASS AA APPROACHES	CLASS AA APPROACH
	LIN. FT.	LIN. FT.	TONS	TONS
78+49.84 Lt.			13	40
79+16 Lt.	30'	76'	4	11
79+45 Rt.	60'		7	22
80+12 Lt.	30'		4	11
80+30.72 Rt.		60'	6	22
80+60 Lt.	30'		4	21
81+30 Lt.	40'		5	37
82+50 Lt.	40'		5	14
82+80.32 Rt.		62'	6	22
83+45.61 Lt.		50'	6	22
83+90 Lt.	30'		4	11
84+50 Lt.	30'		4	11
84+78 Lt.	24'		2	6
85+37 Rt.		62'	6	22
85+40 Lt.	40'		5	14
85+40 Lt.	40'		5	14
86+37 Lt.	30'		4	11
86+76.67 Lt.		84'	13	40
86+76.67 Rt.		84'	20	45
TOTALS	478	110	382	

STATION	DRIVE OPENING DET. 'L'	DRIVE OPENING DET. 'M'	BITUMINOUS CLASS AA APPROACHES	CLASS AA APPROACH
	LIN. FT.	LIN. FT.	TONS	TONS
88+26 Rt.	24'		2	6
89+05 Rt.	24'		2	6
89+12 Lt.	24'		2	13
89+77 Rt.	24'		2	6
TOTALS			8	31

Surfacing Quantities
 Sta. 78+00 to Sta. 90+00
 Bituminous Base Mixture No. 500, 20C..... 616 Tons.
 Bituminous Mixture No. 1100 L, 20AA..... 312 Tons.
 Bituminous Mixture No. 1100 T, 20AA..... 288 Tons.
 Machine Grading - Modified..... 12 Stas.
 Cold Milling Bituminous Surface..... 390 Tons

Conc. Curb & Gutter Detail C-4 (Rt. Side), 932 Lin. Ft.
 Conc. Curb & Gutter Detail D-2 (Lt. Side), 990 Lin. Ft.

DRAIN STRUCT. NO.	STATION	2' DIA. DRAIN STRUCT.	4' DIA. DRAIN STRUCT.	12" SEWER TRENCH DET. 2	18" SEWER TRENCH DET. 2	24" SEWER TRENCH DET. 2	DRAINAGE STRUCTURE COVERS
		ERCH	ERCH	LIN. FT.	LIN. FT.	LIN. FT.	LBS.
17	78+20R	MHA	CBK	12	330		375
18	78+90R		CBK	12			500
19	78+95L	CBK		40			500
20	82+00L	CBK		37			500
21	82+00R		CBK	10			500
22	82+10R		MHA		290		375
23	84+90R		CBK	12			500
24	85+00L	CBK		40			500
25	85+00R		MHA			250	375
26	87+40L	CBK		39			500
27	87+40R		CBK	10			375
28	87+50R		MHA			370	375
TOTALS		4	8	202	620	560	5500



5	14
Old M-76	Ascension 72091 21059

DATE	BY	OPERATION
1984	O. Kellner	PRELIMINARY PLAN UNPERMITTED
1984	O. Kellner	REVISION

DATE	BY	OPERATION
4-84	O. Wiggins	PLAN REVISION
7-84	A. McQuestion	PLAN REVISION
1-84	A. McQuestion	PLAN REVISION
1-84	A. McQuestion	PLAN REVISION
1-84	A. McQuestion	PLAN REVISION
1-84	A. McQuestion	PLAN REVISION

POT- Sta. 104+35.98 (M-76) = Sta. 10400 (Kenwood Ct.)
 N. 75° E - 53.27' - P. Pole
 S. 70° E - 53.31' - T. Pole
 S. 75° W - 48.45' - NE. Cor. of Conc. S.W. PK Nail & Tag

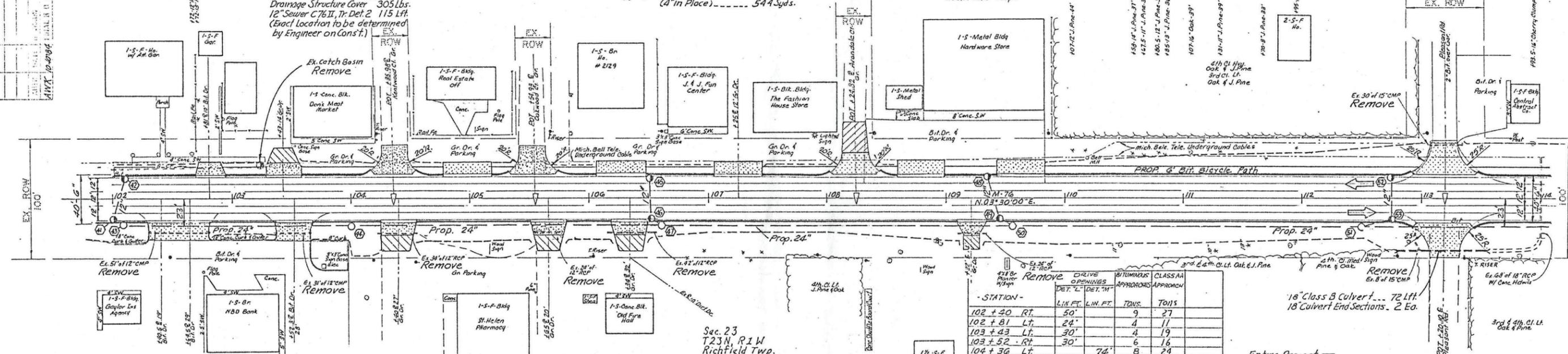
POT- Sta. 105+54.93 (M-76) = Sta. 10500 (Oakwood Ct.)
 S. 85° E - 79.26' - N.W. Cor. Bldg.
 S. 45° E - 52.46' - W. Leg Sign
 N. 65° W - 57.69' - P. Pole
 PK Nail & Tag

POT- Sta. 108+24.82 (M-76) = Sta. 10800 (Avondale Ct.)
 N. 65° E - 58.19' - 15' Oak
 N. 85° E - 51.19' - P. Pole
 S. 50° E - 58.48' - T. Pole
 PK Nail & Tag

BM# 7-Elev. 1194.25
 PK Nail Nut & BM Top in E. Foot of 11' Oak - 40' Rt. of Sta. 110+48

POT- Sta. 113+20.10 (M-76) = Sta. 11300 (Pleasant Rd.)
 N. 80° E - 52.65' - T. Pole
 S. 50° E - 49.87' - 15' Oak
 S. 80° W - 59.14' - P. Pole
 R. R. Spike

BICYCLE PATH THIS SHEET
 Sta. 102+00 To Sta. 114+00 Lt.
 Bituminous Bicycle Path 68 Tons
 Aggregate Base - Bituminous (4" in Place) 544 Syds.



SEWER ITEMS - CONT.		SEWER ITEMS - CONT.		SEWER ITEMS - CONT.		SEWER ITEMS - CONT.		SEWER ITEMS - CONT.							
STATION	DRAIN STRUCT.	2" DIA. DRAIN	4" DIA. DRAIN	12" SEWER TRENCH	24" SEWER TRENCH	DRAINAGE STRUCTURE	COVERS	STATION	DRAIN STRUCT.	2" DIA. DRAIN	4" DIA. DRAIN	12" SEWER TRENCH	24" SEWER TRENCH	DRAINAGE STRUCTURE	COVERS
NO.		EACH	EACH	LIN. FT.	LIN. FT.	LBS.		NO.		EACH	EACH	LIN. FT.	LIN. FT.	LBS.	
41	102+00 R.	CBK	10	500		500		49	109+45 R.	CBK	12	600		600	
42	102+10 L.	CBK	40	500		500		50	109+55 R.	MHA	1	295		375	
43	102+10 R.	MHA		190		375		51	112+50 R.	MHA				235	
44	104+00 R.	MHA		260		375		52	112+75 L.	CBK	39	500		500	
45	106+50 L.	CBK		39		500		53	112+75 R.	CBK	35			500	
46	106+50 R.	CBK		10		500									
47	106+60 R.	MHA		295		375									
48	109+35 L.	CBK		40		500									
								TOTALS		3	10	1	225	1275	5875

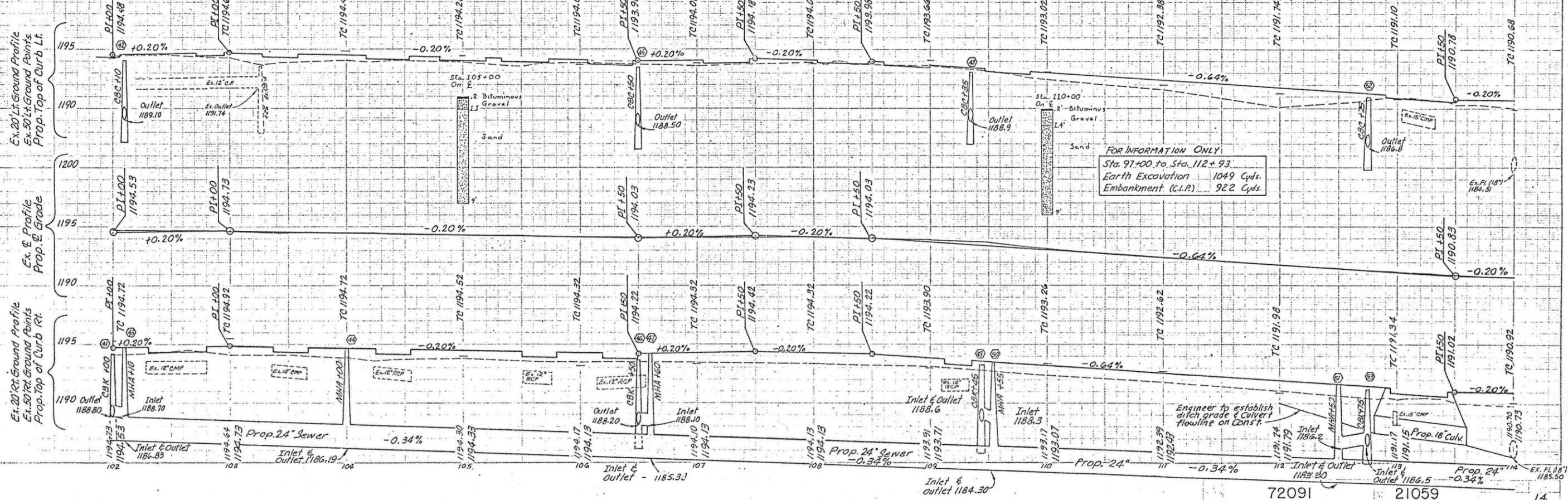
Surfacing Quantities
 Sta. 102+00 to Sta. 114+00
 Bituminous Base Mixture No. 500, 20C 616 Tons.
 Bituminous Mixture No. 1100L, 20 A 312 Tons.
 Bituminous Mixture No. 1100T, 20 A 288 Tons.
 Machine Grading - Modified 12 Stas.
 Cold Milling Bituminous Surface 324 Tons

Concrete Curb & Gutter Detail C-4 (Rt. Side). 1116 Lin. Ft.
 Concrete Curb & Gutter Detail D-2 (Lt. Side). 894 Lin. Ft.

STATION	L.H. FT.	L.H. FT.	TONS	TONS	CLASS A APPROACHES	CLASS A APPROACHES
102+40 RT.	50'		9	27		
102+81 LT.	24'		4	11		
103+43 LT.	30'		4	19		
103+52 RT.	30'		6	16		
104+36 LT.	30'	74'	8	24		
104+40 RT.	30'		4	18		
105+00 RT.	40'		5	14		
105+55 LT.	30'	74'	8	24		
105+65 RT.	30'		4	18		
106+30 LT.	40'		5	14		
106+34 RT.	30'		4	18		
107+25 LT.	40'		5	14		
108+25 LT.	30'	74'	8	43		
108+75 LT.	30'		4	11		
109+22 RT.	24'		2	13		
109+70 LT.	30'		4	11		
113+20.10 RT.		84'	10	30		
113+20.10 LT.		84'	10	30		
TOTALS			390	104	355	

Entire Project -
 Where ROW width is sufficient and sewer is deep, the engineer may elect to place the trunk sewer at 28 to 30 from &.

12" Sewer, C76-II, Tr. Det. 2 75 Lft.



FOR INFORMATION ONLY
 Sta. 97+00 to Sta. 112+93
 Earth Excavation 1049 Cyds.
 Embankment (C.I.P.) 922 Cyds.

Engineer to establish ditch grade & culvert flowline on Const.

AWT 10-10-84	FINAL R.O.W.
AUTH. DATE	NO. REVISION

POI- Sta. 126138.76
N. 82° E - 73.38' G. Pole
S. 73° E - 59.24' 18" Oak
N. 82° W - 55.17' P. Pole
Found 1/2" Pipe in Man. Box

BM#9-Elev. 1177.33
PK Nail, Nut & B.M. Tag
in N. roof of 13" Oak-
78 Lf. of Sta. 130+06

PC- Sta. 130199.99 (M-76)
130199.99 (F-97)
S. 03° 30' W - 1.13' Mon. Box Point
N. 35° E - 61.86' 8" J. Pine
S. 65° W - 45.66' 17" Oak
N. 80° W - 41.26' Cen. Conc. ROW Mon.
PK Nail & Tag

PI- Sta. 136164.17 (M-76)
Sta. 136164.17 (F-97)
S. 20° E - 42.00' Face RR
Cross Buck
S. 80° W - 42.77' P. Pole
N. 70° W - 63.47' d' Poplar
Found Small Boat Spike
in Mon. Box

Curve Data
Δ = 52° 24' 40" Lt.
D = 5° 00' (Chord Def)
R = 1146.28'
T = 564.18'
E = 131.32'
L = 1048.22'
PC = 130199.99
PI = 136164.17
PT = 14148.21

POC- Sta. 137100.00
S. 65° W - 42.69' 6" W. Pine
S. 80° W - 52.19' 12" W. Pine
N. 75° W - 62.26' P. Pole
PK Nail & Flasher 1" N. E

SEWER ITEMS THIS SHEET

DRAIN STRUCT. NO.	STATION	2" DIA. DRAIN STRUCT. EACH	4" DIA. DRAIN STRUCT. EACH	12" SEWER C-76-II TRENCH DET. 2 LIN. FT.	24" SEWER C-76-II TRENCH DET. 2 LIN. FT.	DRAINAGE STRUCTURE COVERS LBS.
64	127+00 L.	CBC		39		500
65	127+00 R.	CBC		10		500
66	127+10 R.	MHA			300	375
67	130+00 L.	CBC		39		500
68	130+00 R.	CBC		10		500
69	130+10 R.	MHA			290	375
70	133+00 R.	CBC		24		500
71	133+00 L.	CBC		39		500
72	133+00 R.	MHA			100	375
TOTALS		3	6	161	690	4125

Sec. 22
T23N, R1W
Richfield Twp.

THIS SHEET

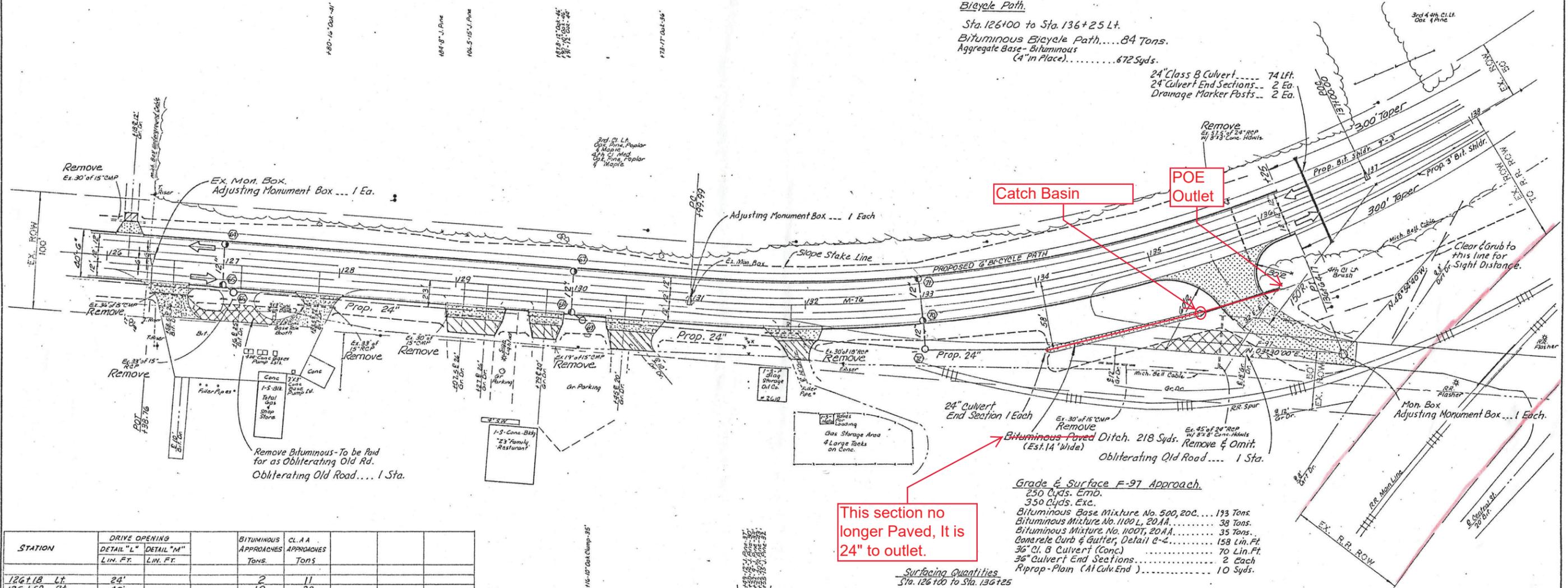
Clearing..... 0.3 Acres.
(Clear Vision Quad.)

Removing Trees. 8" to 18" Dia. 4 Each.
Removing Trees. 19" to 36" Dia. 1 Each.

Bicycle Path.

Sta. 126100 to Sta. 136+25 Lt.
Bituminous Bicycle Path..... 84 Tons.
Aggregate Base- Bituminous
(4" in Place)..... 672 Syds.

24" Class B Culvert..... 74 Lf.
24" Culvert End Sections... 2 Ea.
Drainage Marker Posts... 2 Ea.



Catch Basin

POE Outlet

This section no longer Paved, It is 24" to outlet.

Grade & Surface F-97 Approach.

250 Cyds. Emb.
350 Cyds. Exc.
Bituminous Base Mixture No. 500, 20C..... 193 Tons
Bituminous Mixture No. 1100 L, 20AA..... 38 Tons
Bituminous Mixture No. 1100T, 20AA..... 35 Tons
Concrete Curb & Gutter, Detail C-2..... 158 Lin. Ft.
36" Cl. B Culvert (Conc.)..... 70 Lin. Ft.
36" Culvert End Sections..... 2 Each
Riprap - Plain (At Culv. End)..... 10 Syds.

Surfacing Quantities

Sta. 126100 to Sta. 136+25
Bituminous Base Mixture No. 500, 20C..... 526 Tons
Bituminous Mixture No. 1100 L, 20AA..... 267 Tons
Bituminous Mixture No. 1100 T, 20AA..... 246 Tons
Machine Grading - Modified..... 12 Stas.
Cold Milling Bituminous Surface..... 343 Tons

Concrete Curb & Gutter Detail D-2 (Lt. Side)..... 1025 Lin. Ft.
Concrete Curb & Gutter Detail C-4 (Rt. Side)..... 950 Lin. Ft.

STATION	DRIVE OPENING		BITUMINOUS APPROACHES TONS	CL. A A APPROACHES TONS
	DETAIL "L" LIN. FT.	DETAIL "M" LIN. FT.		
126+18 Lt.	24'		2	11
126+58 Rt.	40'		10	30
127+83 Rt.	40'		10	30
128+90 to 129+40 Rt.	50'		6	40
129+79 Rt.	30'		3	21
130+45 Rt.	50'		6	40
131+79 Rt.	50'		5	29
TOTALS			42	201

Sec. 23
T23N, R1W
Richfield Twp.



DATE	SCALE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET NO.
			21059		16
		72091			

D. Kaimbach 1984

5	MICH.		17
Old M-76	Roscommon	72091	21059

4-84
1984
1984
1984
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1984
1984
1984
1984

O. Wiggins
M. Mess
A. McQuinn
M. W. Johnston
M. Mess
D. Keller
J. Luther

DESIGNED
PLAN PLOTTED
PLAN CHECKED
PORTABLE CHECKED
FINAL CHECKED
DATE OF REVISION
BY

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D. Keller
O. Kaimbach
O. Kaimbach
D. Keller
O. Kaimbach
O. Kaimbach

DESIGNED
FINAL DESIGN CHECKED
FINAL DESIGN CHECKED
DATE OF REVISION
BY

