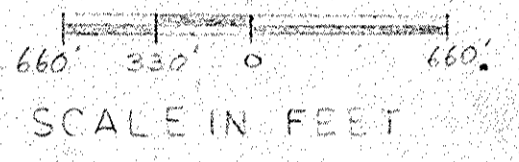


DRAINAGE AREA 262
 LAND USE - GENERAL FARMING
 SOIL TYPE - TALEDO, M. T. R., DALBURY
 LAND SLOPE - 0-2%
 DESIGN COEFFICIENT - Q_b CURVE
 TYPE DRAINAGE - SURFACE & TILE

CONSTRUCTION DATA

STATION	GRADE %	BOTTOM WIDTH	SIDE SLOPE	NET YARDS	AVERAGE DEPTH
28+34	.06	3'	1 1/2:1	1467	4.5
32+65	.06	4'	1 1/2:1	205	3.5

- LEGEND** Done
- PROPOSED IMPROVEMENT
 - HIGHWAYS
 - PROPERTY LINE
 - WATERSHED
 - SECTION CENTER
 - ACRES IN WATERSHED
 - GAS LINE
 - ACRES OWNED
 - QUISNO DITCH OVER RUN
- BENCH MARK DESCRIPTION**
- BM#1 SPIKE IN N. SIDE OF POWER POLE S. SIDE DARR HOPFINGER RD. 2800' E. OF MULCAHY RD. M.S.L. ELEV. 581.12
 - BM#2 TOP OF N.W. CORNER OF CONCRETE LID OF CATCH BASIN LOC. APPROX. 2100' S. OF MULCAHY RD. M.S.L. ELEV. 576.54
 - BM#3 X CHISELED N.W. CORNER OF CONCRETE BLOCK CATCH BASIN S. SIDE DARR HOPFINGER RD. 1300' E. MULCAHY RD. M.S.L. ELEV. 576.81
 - BM#4 X CHISELED TOP OF HEAD WALL S.E. CORNER OF INTERSECTION OF DARR HOPFINGER & MULCAHY RD. M.S.L. ELEV. 576.56
 - BM#5 X CHISELED IN CENTER OF E. HEADWALL APPROX. 600' N. E. SIDE OF WILDLIFE AREA RD. BY PUMP STATION. M.S.L. ELEV. 576.37



SPECIFICATIONS

- EXCAVATION:**
 - BOTTOM WIDTH: THE BOTTOM SHALL BE THREE (3) FEET BETWEEN STA. 0+00 TO STA. 28+34 AND FOUR (4) FEET TO STA. 32+65.
 - BANK SLOPES: THE DITCH BANKS ARE TO BE CONSTRUCTED TO AT LEAST 1 1/2 FOOT HORIZONTAL TO 1 FOOT VERTICAL.
 - ALIGNMENT: THE CENTERLINE OF THE IMPROVEMENT SHALL BE APPROXIMATELY THE CENTERLINE OF EXISTING DITCH DO NOT DISTURB SLOPES ON THE ROAD SIDE OF THE IMPROVEMENT.
 - TOTAL EXCAVATION: THE TOTAL EXCAVATION CONSISTS OF 1672 CUBIC YARDS OF EARTH OVER 3,865 LINEAL FEET OF DITCH.
 - EXCESS YARDAGE: NO EXTRA COMPENSATION WILL BE PAID FOR SUCH EXCAVATION IN EXCESS OF YARDAGE HEREIN ESTIMATED. THE CONTRACTOR SHOULD VIEW THE PROPOSED WORK TO HIS OWN SATISFACTION.
- CLEARING:** ALL TREES AND BRUSH WHICH WOULD INTERFERE WITH THE EXCAVATION MUST BE CLEARED FROM THE DITCH RIGHT-OF-WAY AHEAD OF EXCAVATION AND BE DISPOSED OF BY BURNING OR REMOVED FROM RIGHT-OF-WAY.
- BERM WIDTH:** UNLESS OTHERWISE NOTED THE BERMS WILL HAVE THE FOLLOWING WIDTHS. FOUR (4) FEET WIDE FOR DITCHES UP TO FOUR (4) FOOT DEPTH; SIX (6) FEET WIDE FOR FOUR TO SIX FOOT DEPTH AND TEN (10) FEET WIDE FOR DITCHES OVER SIX FEET IN DEPTH.
- SPOIL BANKS:** EXCAVATED MATERIAL SHOULD BE DEPOSITED AND SPREAD ALONG ONE OR BOTH SIDES OF DITCH, EXCEPT WHERE USED FOR LEVELS. SLOPE OF SPOIL AFTER SPREADING SHOULD BE 3:1 ON CHANNEL SIDE AND 4:1 ON FIELD SIDE. HEIGHT OF SPOIL NOT TO EXCEED ONE FOOT ABOVE AVERAGE GROUND.
- TILE OUTLETS:** LANDOWNERS SHALL PROTECT THEIR TILE OUTLETS WITH A SECTION OF CONTINUOUS RIBBED PIPE AND RODENT GUARD.
- SURFACE WATER OUTLETS:** WHERE A SURFACE DITCH ENTERS MAIN DITCH AT A HIGHER ELEVATION PROTECTION FROM EROSION SHOULD BE PROVIDED FOR WITH A SUITABLE STRUCTURE SEE YOUR SOIL CONSERVATION SERVICE FOR ASSISTANCE.
- DITCH BANK SEEDING:** THE DITCH BANKS WILL BE SEEDING AFTER EACH DAY'S WORK TO A TALL FESCUE AT THE RATE OF 25 LBS. PER ACRE. A MINIMUM OF 500 LBS. OF 10-10-10 FERTILIZER OR EQUIVALENT BE APPLIED 1/2 ACRE OF DITCH BANK.

HYDRAULIC CALCULATIONS

CHANNEL FLOW $V = 1.485 R^{2/3} S^{1/2}$
 MINIMUM SIDE SLOPE 1 1/2:1
 MAXIMUM VELOCITY 5 FPS.
 BANK FULL OR 10 YR. FREQUENCY.

HEADLOSS IN CULVERTS
 $H = \frac{V^2}{2g} (1 + KE + KPL)$

REACH TO STA.	0+00	28+34	32+65
DRAINAGE AREA	140	262	262
Q_b -FLOW (C.F.S.)	23.5	44	44
$S^{1/2}$.0245	.0245	.0245
SLOPE (S.F.T./ FT.)	.0006	.0006	.0006
$Q/S^{1/2} = KD$	959	1800	1800
KD-VALUE USED	959	878	878
SIDE SLOPE	1 1/2:1	1 1/2:1	1 1/2:1
BOTTOM WIDTH	3'	4'	4'
DEPTH - FT.	2.8	3.5	3.5
"N"	.04	.04	.04
AREA - SQ. FT.	20.16	323.9	323.9
VELOCITY - C.F.S.	1.17	1.36	1.36

STATION	4+74	15+08
DRAINAGE AREA	85	95
Q _b FLOW (C.F.S.)	14.3	16
DIAMETER (IN.)	24"	24"
TYPE	R/C	R/C
N	.013	.013
LENGTH (FT.)	40'	40'
X-SECTIONAL AREA (SQ. FT.)	3.14	3.14
KP	.012	.012
KPL	.48	.48
KE	.5	.5
VELOCITY (F.F.S.)	4.55	5.10
HEAD LOSS FT.	.64	.80

LOCATION - S. 1/4 OF N.W. 1/4 OF SEC. 9 S.E. 1/4 OF N.E. 1/4 OF SEC. 8 R. 16 E. T6N. BAY TWP. OTTAWA COUNTY, OHIO.

SURVEYED - D. SOMMER E. CAMPBELL D. COPER 1-13-67

REFERENCE FIELD NOTES ON FILE IN OTTAWA SOIL & WATER CONSERVATION DISTRICT OFFICE.

VIII CULVERTS:

EXISTING CULVERTS WILL BE CLEANED AND INVERTS (FLOWLINE) LOWERED TO CORRESPOND TO THE PROPOSED GRADE AS INDICATED ON PLAN.
 STA. - 9+74 TO 10+28 54 FT. 14' REMOVED W. END
 STA. - 15+22 TO 15+48 26 FT. 14' ADDED TO E. END

THIS DITCH PLAN HAS BEEN APPROVED BY
John G. Papcun 4/11/67
 OTTAWA COUNTY ENGINEER DATE

ENGINEERING JOB CLASS III
 DITCH PLAN GROUP # 26
 SEAMAN DITCH
 BAY TWP. OTTAWA, COUNTY

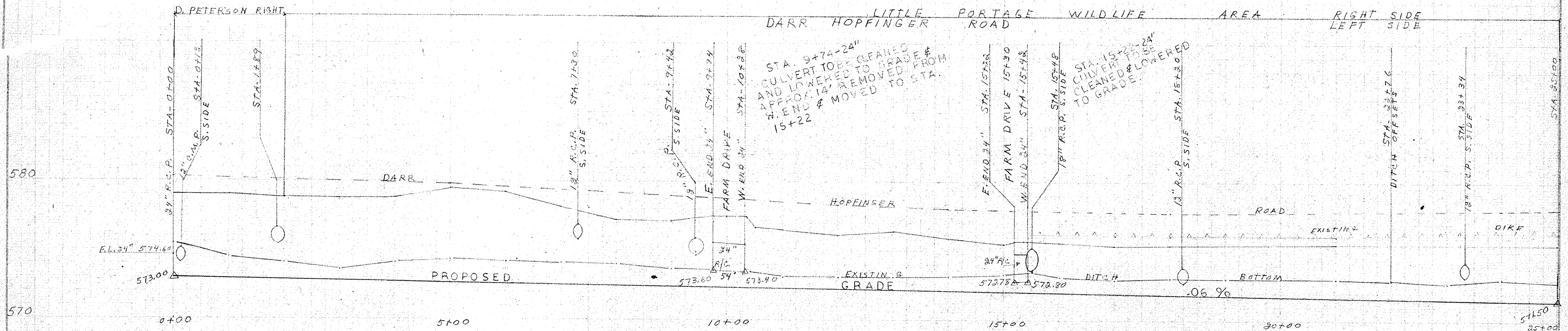
U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Designed by DONALD ORLER Date 1/15/67
 Drawn by Richard A. Nagel Title Civil Engineer
 Checked by Ed. Coyle Date 2/2/67 Title PE 31762
 Sheet No. 1 of 3 Drawing No. 011-1-82-67-42

BM#1 STA. 0+35
 SPIKE N. SIDE POWER POLE
 S. SIDE DARR HOPFINGER RD.
 M.S.L. ELEV. 551.12

BM#2 (SAME AS BM#2 MILITARY)
 STA. 7+30
 TOP OF NW CORNER CONCRETE
 LID OF CATCH BASIN
 M.S.L. ELEV. 578.54

BM#3 STA. 15+22
 X ON NW CORNER CATCH
 BASIN S. SIDE DARR HOPFINGER
 ROAD.
 M.S.L. ELEV. 576.81



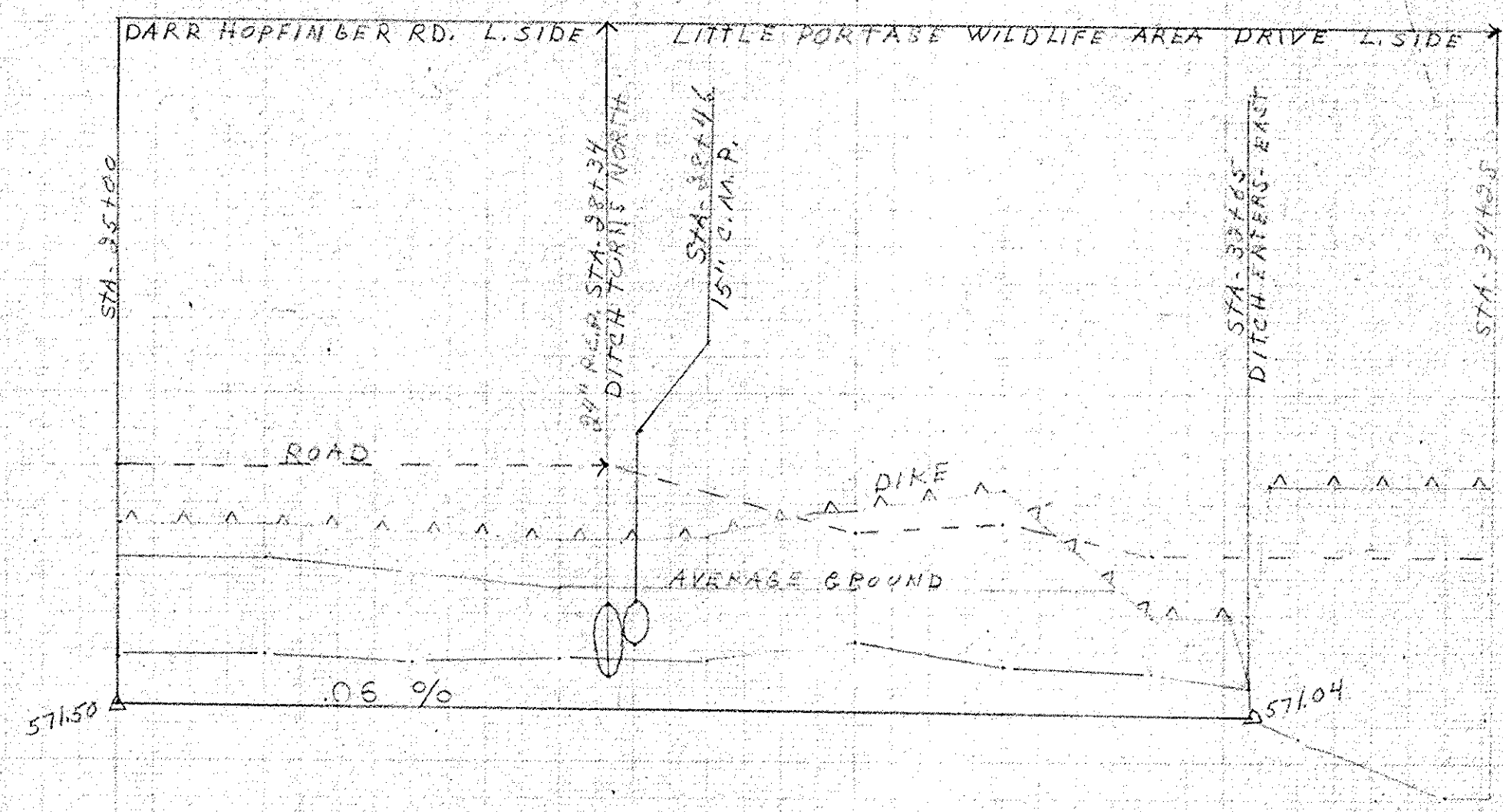
STA. 9+74-24"
 CULVERT TO BE CLEANED
 AND LOWERED TO GRADE #
 APPROX. 14" REMOVED FROM
 2. END # MOVED TO STA.
 15+22

STA. 15+25-24"
 CULVERT TO BE
 CLEANED & LOWERED
 TO GRADE

BM#4 STA. 28+34
 X CHISELED TOP HEADWALL
 S.E. CORNER INTERSECTION
 DARR HOPFINGER-MULCAHY RD.
 M.S.L. ELEV. 576.56

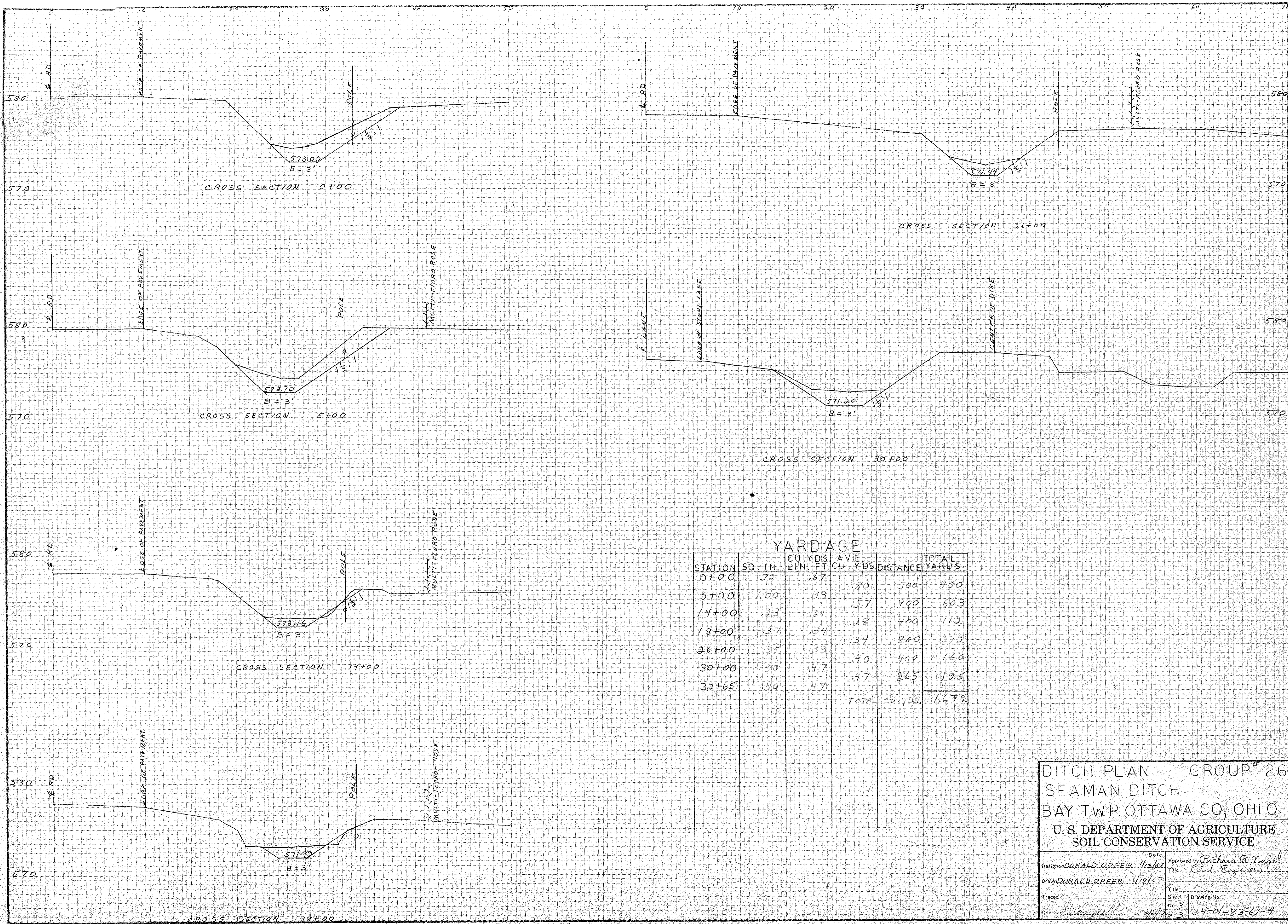
BM#5 STA. 34+28
 X CHISELED CENTER E. HEAD-
 WALL E. SIDE LANE FOR
 WILDLIFE AREA
 M.S.L. ELEV. 576.37

ELEVATION IN FEET
 (MEAN SEA LEVEL)



PROFILE GROUP DITCH # 26

DITCH PLAN - GROUP #26	
SEAMAN DITCH	
BAY TWP. OTTAWA CO, OHIO.	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed DONALD GREER 1/19/67	Date 1/19/67
Drawn DONALD GREER 1/19/67	Approved by Richard R. Nagel Civil Engineer
Traced	Title
Checked	No. 3
	Sheet 3
	Drawing No. 34-01-83-61-4



DITCH PLAN GROUP # 26
 SEAMAN DITCH
 BAY TWP. OTTAWA CO, OHIO
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Date 11/19/67
 Designed DONALD O'FEER
 Drawn DONALD O'FEER
 Checked Campbell
 Approved by Richard R. Nagel
 Title Civil Engineer
 Sheet No. 3 of 3
 Drawing No. 34-01-83-67-4