PLANS SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
PRESENT RIGHT OF WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SLOPE EASEMENT (CONST. LIMITS)

SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame)
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
OR TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN

CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
AERIAL TELEPHONE CABLE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE
CLEANOUT

NOTE SECTION NUMBERS READ FROM THE SOUTH

PIT DATA

PIT NO. _____ Located in _____ Dead Haul _____

PIT NO. _____ Located in _____ Dead Haul _____

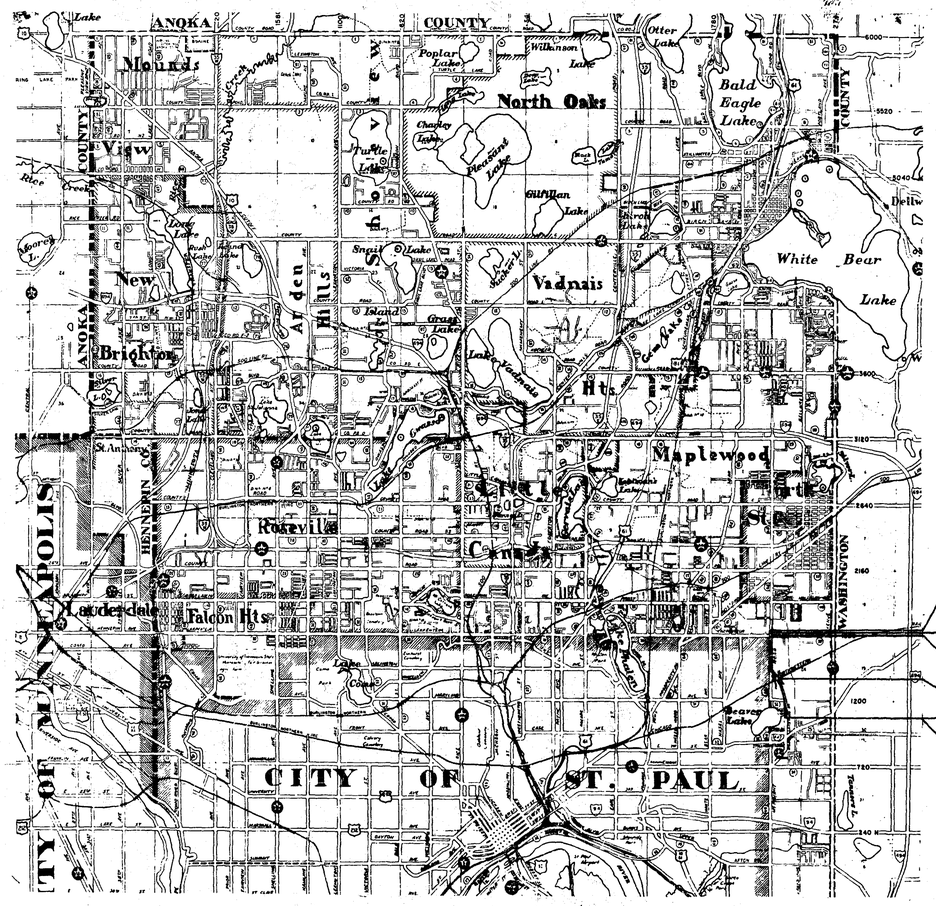
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/2/89

GOVERNING SPECIFICATIONS

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

	FEET	MILES
GROSS LENGTH	7779.49	1.473
BRIDGE LENGTH	188.42	0.036
EXCEPTION	-0-	-0-
NET LENGTH	7779.49	1.473

PLAN 10 30 50 / 20 40
PROFILE HORIZ. 10 30 50 / 20 40
PROFILE VERT. 5 10
CROSS SECTIONS 5 10
LAYOUT MAP 5,280'



DESIGN DESIGNATION

	STILLWATER AVE. TO MARYLAND AVE.	MARYLAND AVE. TO LARPENTEUR AVE.
ADT (CURRENT) 1983 =	5,200	6,900
ADT (FUTURE) 2002 =	8,000	9,900
Σ N18 20 YEAR =	1,113,075	1,773,9[illegible]
DESIGN LOAD =	9 TON	9 TON
STABILOMETER "R" VALUE =	22	22
DESIGN SPEED =	40 M.P.H	40 M.P.H.
% TRUCKS =	5	5

BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE-3.5' HEIGHT OF OBJECT-0.5'

REVISIONS	DATE	BY	REVISIONS	DATE	BY
STATIONING	12-2-86	BJ			
INDEX & SHEET NO'S	12-2-86	BJ			
MAPLEWD. REVISIONS	1-21-87	TL,BJ			
SHEET NO. 2,3,15-18 43,47,53,103-121					

RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN: FOR GRADING, AGGREGATE BASE, BITUMINOUS BASE AND SURFACING, STORM SEWER, CONCRETE CURB AND GUTTER, BITUMINOUS PATH, AND BRIDGE NO. 62543

McKNIGHT ROAD

BETWEEN: BEAVER LAKE AND A POINT 420 FT. NO. OF LARPENTEUR

FROM: A POINT 1615.93 FEET SOUTH OF THE NORTH LINE OF SECTION 25, T 29 N, R 22 W AND 8.5' EAST OF THE WEST LINE OF THE S.E. 1/4 OF THE N.W. 1/4 OF SAID SECTION 25

TO: A POINT 418.54 FEET NORTH OF THE SOUTH LINE OF SECTION 13, T 29 N, R 22 W AND 11.76 FEET EAST OF THE WEST LINE OF SAID SECTION 13

S.P. 62-668-18 MCKNIGHT RD. S.P. 62-668-22 BRIDGE NO. 62543
MAPLEWOOD PROJECT 81-20 UTILITY CONSTRUCTION

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-3	STATEMENT OF ESTIMATED QUANTITIES
4	GENERAL LAYOUT
5-7	TYPICAL SECTIONS
8-11	DRAINAGE CHARTS
12-14	TRAFFIC CONTROL PLAN
15-28	PLANS
29	EROSION CONTROL
30-35	DETAILS, CHARTS, STANDARD PLATES, CONSTRUCTION NOTES
36-40	WALLS
41	WETLAND MITIGATION PLAN
42-102	X-SECTIONS
103-121	MAPLEWOOD PROJECT 81-20
1-21	BRIDGE NO. 62543

THIS PLAN CONTAINS 142 SHEETS
ACCOUNT NO. 47241

END S.P 62-668-18
STA. 6+50.0
TEMPORARY CONST. STA. 4+20.0 TO STA. 6+50.0
MCKNIGHT RD. CONST. ℄ P.O.T. STA. 2+31.46 TO NORTH
MCKNIGHT RD. CONST. ℄ P.O.T. STA. 160+10.95 FROM SOUTH
S.P. 62-668-22 BRIDGE NO. 62543 STA. 118+68.60 TO STA. 121+03.23
TEMPORARY CONST. STA. 86+50.0 TO STA. 87+50.0
BEGIN S.P. 62-668-18
STA. 86+50.0

DESIGN SQUAD [illegible] DATE 5-16-86
DRAWN BY _____ DATE _____
CHECKED BY _____ DATE _____

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5-16-86 REG. NO. 13501 ENGR. Harry K. Feldhaus

RECOMMENDED FOR APPROVAL [illegible] TRAFFIC ENGR. DATE 6-5-86
RECOMMENDED FOR APPROVAL [illegible] ENV. ENGR. DATE 5/14/86
RECOMMENDED FOR APPROVAL [illegible] MAINT. ENGR. DATE 5-16-86
RECOMMENDED FOR APPROVAL [illegible] CONST. ENGR. DATE 6-16-86
RECOMMENDED FOR APPROVAL [illegible] DESIGN ENGR. DATE 5-16-86
RECOMMENDED FOR APPROVAL [illegible] R.O.W. ENGR. DATE 5-18-86
APPROVED [illegible] COORDINATING ENGR. DATE 5-21-86

RECOMMENDED FOR APPROVAL [illegible] COUNTY ENGINEER DATE 6-5-86
APPROVED [illegible] CHAIRMAN OF THE RAMSEY COUNTY BOARD DATE 6/3/86
APPROVED [illegible] CITY OF MAPLEWOOD DATE 5/28/86
APPROVED Donald E. Ngaard CITY OF ST. PAUL DATE 5/28/86

MINNESOTA DEPARTMENT OF TRANSPORTATION
RECOMMENDED FOR APPROVAL [illegible] STATE AID PLANS ENGR DATE 6/12/87
RECOMMENDED FOR APPROVAL [illegible] DISTRICT STATE AID ENGR. DATE 10/22/86
APPROVAL [illegible] STATE AID ENGINEER DATE 6/15/87

27-128

PLAN REVISIONS		
DATE	SHEET NO.	BY
9/16/86	18 & 19 800' V.C.	KH & BJ
10/9/86	19,21,22 & 33 BC TRAFS. BLD REM.	BJ.
12/18/86	PLAN REVISIONS	B.J.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DIVISION ADMINISTRATOR DATE: 27-128

STATEMENT OF ESTIMATED QUANTITIES

S.P. NO. 62-668-18

	UNIT NO.	ITEM	UNIT	NON-PARTICIPATING CITY OF ST. PAUL ESTIMATED QUANTITIES	NON-PARTICIPATING CITY OF ST. PAUL FINAL QUANTITIES	NON-PARTICIPATING MAPLEWOOD ESTIMATED QUANTITIES	NON-PARTICIPATING MAPLEWOOD FINAL QUANTITIES	PARTICIPATING RAMSEY CO. ESTIMATED QUANTITIES	PARTICIPATING RAMSEY CO. FINAL QUANTITIES
	2021.501	MOBILIZATION	L.S.					1	
	2101.502	CLEARING	TREE					168	
	2101.507	GRUBBING	TREE					198	
	2101.501	CLEARING	ACRE					6.4	
	2101.506	GRUBBING	ACRE					6.4	
	2103.501	BUILDING REMOVAL	L.S.					1	
	2104.501	REMOVE PIPE SEWERS	L.F.					179	
	2104.501	REMOVE PIPE CULVERTS	L.F.					206	
	2104.501	REMOVE BITUMINOUS CURB	L.F.					557	
	2104.501	REMOVE CURB & GUTTER	L.F.					118	
	2104.503	REMOVE CONCRETE SIDEWALK	S.F.					128	
	2104.505	REMOVE CONCRETE PAVEMENT	S.Y.					54	
(8)	2104.513	SAWING BITUMINOUS PAVEMENT	L.F.					425	
	2104.521	SALVAGE CHAIN LINK FENCE	L.F.					3973	
	2104.523	SALVAGE CASTINGS	EACH					4	
	2105.501	COMMON EXCAVATION	C.Y.					163570	
	2105.505	MUCK EXCAVATION	C.Y.					73583	
(13)	2105.522	SELECT GRANULAR BORROW (L.V.)	C.Y.					1170	
(13)	2105.522	SELECT GRANULAR BORROW - (L.V.) MOD.	C.Y.					310	
	2105.521	GRANULAR BORROW (L.V.)	C.Y.					122309	
(1)	2105.525	TOPSOIL BORROW (L.V.)	C.Y.					5657	
(2)	2130.501	WATER	M.GAL.					400	
	2211.501	AGGREGATE BASE CLASS 4	TON					31318	
(9)	2211.501	AGGREGATE BASE CLASS 6	TON					19937	
(20)	2211.501	AGGREGATE BASE CLASS 5 (MOD.)	TON					2506	
	2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON					841	
(10)(11)	2331.508	WEARING COURSE MIXTURE (MOD)	TON					256	
(10)(11)	2331.510	BINDER COURSE MIXTURE (MOD.)	TON					4155	
(10)	2331.514	BASE COURSE MIXTURE (MOD.)	TON					11508	
(10)(20)	2331.518	BITUMINOUS MIXTURE FOR PATH WEARING (MOD)	TON					666	
(10)(20)	2331.518	BITUMINOUS MIXTURE FOR PATH BINDER (MOD.)	TON					666	
	2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON					5	
(10)	2341.508	WEARING COURSE MIXTURE (MOD)	TON					86	
	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.					4719	
	2361.504	ASPHALT CEMENT	TON					172	
(10)	2361.508	WEARING COURSE MIXTURE (MOD)	TON					2520	
	2411.507	CONCRETE SURGE BASIN	EACH					1	
(24)	0412.601	CONSTRUCT TIMBER WALL	LUMP SUM					1	
(23)	2411.507	CONCRETE RETAINING WALL 2	EACH					1	
(23)	2411.507	CONCRETE RETAINING WALL 3	EACH					1	
(22)	0412.604	STONE RETAINING WALL	S.F.					454	
(25)	2451.507	GRANULAR BEDDING (L.V.)	C.Y.					20	
(25)	2501.515	12" R.C. PIPE APRONS	EACH					1	
(25)	2501.515	15" R.C. PIPE APRONS	EACH					6	
(25)	2501.515	18" R.C. PIPE APRONS	EACH					1	
(25)	2501.515	21" R.C. PIPE APRONS	EACH					1	
(25)	2501.515	24" R.C. PIPE APRONS	EACH					7	
(25)	2501.515	30" R.C. PIPE APRONS	EACH					2	
(25)	~~2501.515~~	~~36" R.C. PIPE APRONS~~	~~EACH~~					~~1~~	
(25)	0501.602	TRASH GUARD FOR 15" PIPE APRON	EACH					1	
(25)	0501.602	TRASH GUARD FOR 21" PIPE APRON	EACH					1	
(25)	0501.602	TRASH GUARD FOR 24" PIPE APRON	EACH					2	
(25)	0501.602	TRASH GUARD FOR 36" PIPE APRON	EACH					2	
(25)	2503.541	12" R.C. PIPE SEWER DESIGN 3006 CLASS V	L.F.					17	
(25)	2503.541	15" R.C. PIPE SEWER DESIGN 3006 CLASS V	L.F.					3471	
(25)	2503.541	18" R.C. PIPE SEWER DESIGN 3006 CLASS II	L.F.					1159	
(25)	2503.541	18" R.C. PIPE SEWER DESIGN 3006 CLASS IV	L.F.					127	
(25)	2503.541	21" R.C. PIPE SEWER DESIGN 3006 CLASS II	L.F.					711	
(25)	2503.541	24" R.C. PIPE SEWER DESIGN 3006 CLASS V	L.F.					325	
(25)	2503.541	24" R.C. PIPE SEWER DESIGN 3006 CLASS II	L.F.					827	
(25)	2503.541	30" R.C. PIPE SEWER DESIGN 3006 CLASS II	L.F.					141	
~~(18)~~(25)	2506.508	CONSTRUCT MANHOLES DESIGN A OR F	EACH					4	
(25)	2506.508	CONSTRUCT MANHOLES DESIGN 54-4020	EACH					1	
(25)	2506.508	CONSTRUCT MANHOLES DESIGN 66-4020	EACH					1	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN SPECIAL 2	EACH					4	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN LP4-2	EACH					2	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN LP4-3	EACH					5	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN LP4-4	EACH					19	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN LP4-5	EACH					10	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN LP4-6	EACH					6	
(25)	2506.509	CONSTRUCT CATCH BASINS DESIGN LP4-7	EACH					4	
(25)	2502.541	4" PERFORATED PE PIPE DRAIN	L.F.					250	
(25)	2506.511	RECONSTRUCT SURFACE DRAINS	L.F.					2	
(25)	2506.512	RECONSTRUCT CATCH BASINS	L.F.					6	
(25)	2506.521	INSTALL CASTINGS	EACH					3	
(25)	2511.505	HANDPLACED RIPRAP	C.Y.					41.8	
	0331.601	TEMPORARY BITUMINOUS SURFACING	S.Y.					1300	
(25)	2503.521	28" SPAN R.C. PIPE-A SEWER CLASS IIA	L.F.					59	
(25)	2503.541	21" R.C. PIPE SEWER DESIGN 3006 CLASS V	L.F.					59	
(14)	2452.503	TREATED TIMBER PILING DELIVERED	L.F.					3577	
(14)	2452.504	TREATED TIMBER PILING DRIVEN	L.F.					3577	
(21)	2521.501	4" CONCRETE WALK	S.F.					1080	
	2531.501	CONCRETE CURB & GUTTER DESIGN B624	L.F.					16439	
	2531.507	6" CONCRETE DRIVEWAY PAVEMENT	S.Y.					19	
	2535.501	BITUMINOUS CURB	L.F.					806	
	2511.515	GEOTEXTILE FILTER TYPE III	S.Y.					133	
	2554.521	ANCHORAGE ASSEMBLIES - BRIDGE	EACH					4	
	2554.501	TRAFFIC BARRIER DESIGN B 8307	L.F.					300	
	2554.523	TWISTED END TREATMENT	EACH					4	
	0557.603	INSTALL CHAIN LINK FENCE	L.F.					3973	
	0563.601	TRAFFIC CONTROL	L.S.					1	
	0564.603	4" SOLID LINE YELLOW - REM. POLY. PREFORM	L.F.					3500	
	0563.602	TYPE II BARRICADES	UNIT DAY					200	
	0563.602	TYPE III BARRICADES	UNIT DAY					50	
	0563.602	FLASHER TYPE A (LOW INTENSITY)	UNIT DAY					50	
	0563.602	48" X 48" SIGN	UNIT DAY					100	

QUANTITY NOTES

(1) AREAS TO BE TOPSOILED SODDED, AND SEEDED HAVE BEEN INCREASED 10% TO ALLOW FOR ADDITIONAL AREAS ON SLOPES.

(2) FOR DUST CONTROL-AS DIRECTED BY THE ENGINEER.

(3) INCLUDES BITUMINOUS FOR ENTRANCES AND PARKING AREAS.

~~(4) FOR WALL NO. 5~~

~~(5) FOR WALLS NO. 2 AND NO. 3~~

(6) ESTIMATED AT 350 POUNDS PER ACRE.

(7) FOR PAVEMENT AND CURB & GUTTER REMOVAL.

(8) FOR PAVEMENT AND ENTRANCE REMOVAL.

(9) THE CONTRACTOR IS ADVISED THAT HE MAY USE AGGREGATE BASE, CLASS 6 OR, AS AN ALTERNATE, HE MAY USE 100% CRUSHED MATERIAL WHICH MEETS THE REQUIREMENTS FOR CLASS 5.

(10) OIL CONTENT - PERCENT
2331 BASE COURSE MIXTURE 4.8%
2331 BINDER COURSE MIXTURE 4.8% *
2331-2341 WEARING COURSE MIXTURE 6.2% (INCLUDING 4"
2361 WEARING COURSE MIXTURE 6.8% BIT. WALK)
* 5.5% INTERIM WEARING COURSE

(11) FOR ENTRANCES

~~(12) INCLUDES SURFACE DRAINS~~

(13) FOR BRIDGE APPROACH, SELECT GRANULAR MODIFIED SHALL BE SELECT GRANULAR MATERIAL, SPEC. 3149.2B, MODIFIED TO 7% OR LESS PASSING THE NUMBER 200 SIEVE PLACED BY THE CONTRACTOR AFTER COMPLETION OF ABUTMENT AND/OR BRIDGE.

(14) FOR CONCRETE RETAINING WALLS NO.2 & NO.3 (SEE NOTE NO. 23)

(15) INCLUDE PRICE OF VCP & CIP SANITARY SEWER REMOVAL AS REQUIRED, IN PRICE OF OTHER ITEMS.

(16) FOR OUTSIDE DROP INLET

(17) @ BULK SERVICE CORP. APPROX. STA. 118 + 62 MCKNIGHT RD.

(18) @ BULK SERVICE CORP. APPROX STA. 118 + 57 MCKNIGHT RD.

(19) MCKNIGHT RD. STA. 121 + 22 ±

(20) STATE AID NON-PARTICIPATING ITEMS SEE SUMMARY CHART SHEET NO. 35

(21) 675 SQ. FT. STATE AID NON-PARTICIPATING SEE SUMMARY CHART SHEET NO. 35

(22) STONE MASONRY RETAINING WALLS 135+00
WALL NO. 1 - McKNIGHT RD. STA. ~~130+00~~ TO 136+05
WALL NO. 4 - McKNIGHT RD. STA. 148+55 TO 149+55

(23) CONCRETE RETAINING WALLS
WALL NO. 2 - McKNIGHT RD. STA. 139+75 TO 144+65
WALL NO. 3 - McKNIGHT RD. STA. 145+35 TO 147+05

(24) TIMBER RETAINING WALL
WALL NO. 5 - ~~McKNIGHT RD. STA. 134+95 TO 136+04~~ CARPENTEUR AVE. STA. 1+00 TO 2+50

(25) STORM SEWER ITEMS

BASIS FOR ESTIMATED QUANTITIES

AGGREGATE SHOULDERING, CLASS I - (SPEC. 2221)
COMPACTED DRY DENSITY 140 LBS. / CU. FT.
AGGREGATE ASSUMED TO CONTAIN 5.8% MOISTURE IN PIT
BITUMINOUS WEARING, LEVELING, BINDER & BASE COURSES, (SPEC. NO.'S 2331, 2341 & 2361)
BITUMINOUS MIXTURE 110 LBS. / SQ. YD. / IN. OF DEPTH
AGGREGATE BASE, CLASS IV, V MOD. & VI - (SPEC. 2211)
COMPACTED DRY DENSITY 140 LBS. / CU. FT.
AGGREGATE ASSUMED TO CONTAIN 5.8% MOISTURE IN PIT.
BITUMINOUS TACK COAT - (SPEC. 2357)
0.5 GAL. / SQ. YD. - PLACED BETWEEN EACH COURSE.

27-128

REVISIONS	DATE	BY	REVISIONS	DATE	BY
AGGREGATE (STMOD) CLEARING GRUBBING	2-15-86	BJ,ET	ITEM REWORDING	2-15-86	BJ,ET
STONE MASONRY RETAINING WALLS	2-15-86	BJ,ET	SHEET NUMBER	2-15-86	BJ,ET
INSTALL CASTINGS, GRANULAR FILTER	2-15-86	BJ,ET	NOTE CHANGES	10-28-87	TL
QUANTITY NOTES	2-12-86	BJ,ET			
BASIS FOR ESTIMATED QUANTITIES	2-12-86	BJ,ET			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Zabkar

DATE 5-16-88 REG. NO. 13501

ESTIMATED QUANTITIES 27-128

STATEMENT OF ESTIMATED QUANTITIES

S.P. NO. 62-668-18

ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITIES	FINAL QUANTITIES	NON-PARTICIPATING CITY OF ST. PAUL ESTIMATED QUANTITIES	NON-PARTICIPATING CITY OF ST. PAUL FINAL QUANTITIES	NON-PARTICIPATING MAPLEWOOD ESTIMATED QUANTITIES	NON-PARTICIPATING MAPLEWOOD FINAL QUANTITIES	PARTICIPATING RAMSEY CO. ESTIMATED QUANTITIES	PARTICIPATING RAMSEY CO. FINAL QUANTITIES
0563.602	48" X 48" SIGN WITH SUPPORTS	UNIT DAY	100						100	
0564.603	4" SOLID LINE, YELLOW EPOXY	L.F.	14858						14858	
0564.603	4" BROKEN LINE, WHITE EPOXY	L.F.	3714						3714	
2221.501	AGGREGATE SHOULDERING CLASS 1	TON	82						82	
2331.531	TEMPORARY LANE MARKING	ROAD STATION	220						220	
2104.509	REMOVE MANHOLES	EACH	13				11		2	
2104.523	SALVAGE CONCRETE APRONS	EACH	2						2	
2571.501	PINE, AUSTRIAN 4' HI B & B	TREE	1						1	
2571.502	ASH, GREEN 2.5" CAL B & B	TREE	2						2	
2571.502	MAPLE, RED NORTHWOOD 2.5" CAL B & B	TREE	3						3	
2571.502	MAPLE, NORWAY 2.5" CAL B & B	TREE	2						2	
2571.503	MAPLE, AMUR 3' HI BR	TREE	75						75	
0041.606	TRAINEES	HOUR	1500						1500	
2573.502	SILT FENCE, HEAVY DUTY	L.F.	4930						4930	
2575.501	ROADSIDE SEEDING	ACRE	3.2						3.2	
2575.502	SEED MIXTURE 10	LBS	207						207	
(1) 2575.505	SODDING	S.Y.	64926						64926	
2575.511	MULCH MATERIAL TYPE 1	TON	6.4						6.4	
2575.519	DISC. ANCHORING	ACRE	3.2						3.2	
(10),(6) 2575.531	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	TON	2.7						2.7	
	CITY OF MAPLEWOOD PROJECT 81-20									
2104.523	SALVAGE CASTINGS	EACH	11						11	
2506.511	RECONSTRUCT MANHOLES	L.F.	64.4						64.4	
2506.522	ADJUST FRAME & RING CASTINGS	EACH	5						5	
0503.603	48" PRECAST MANHOLE	L.F.	184.3				80.8		103.5	
0503.602	REPAIR BROKEN V.C.P. SEWER	EACH	1				1			
0503.602	8" X 4" PVC WYE	EACH	3						3	
0503.602	CONNECT TO EXISTING SAN. SEWER	EACH	5				3		2	
0503.602	BY-PASS PUMPING FOR SEWER INSTALLATION	EACH	6				2		4	
0503.603	8" OUTSIDE DROP	L.F.	9.2				9.2			
(16) 0503.603	8" DUCTILE IRON PIPE SEWER CL. 52	L.F.	60				60			
(15) 2503.511	8" PVC PIPE SEWER	L.F.	3128				1546		1582	
(15) 2503.511	10" PVC PIPE SEWER	L.F.	604						604	
(17) (18) 0503.603	12" R.C. CASING PIPE CLASS V	L.F.	465				235		230	
(19) 0503.603	30" R.C. CASING PIPE CLASS V	L.F.	230				230			
(15) 2503.511	4" PVC PIPE SEWER	L.F.	190						190	
(15) 2503.511	4" CAST IRON PIPE SEWER	L.F.	617				161		456	
0503.603	ROCK FOR TRENCH STABILIZATION	L.F.	913				563		350	
0503.605	2" POLYSTYRENE INSULATION	S.Y.	192						192	
0504.602	6" GATE VALVE & BOX	EACH	18				17		1	
0504.602	8" GATE VALVE & BOX	EACH	3				3			
0504.602	12" BUTTERFLY VALVE & BOX	EACH	1				1			
0504.602	16" BUTTERFLY VALVE & BOX	EACH	7				7			
0504.602	CONNECT TO EXISTING WATER MAIN	EACH	3				3			
0504.602	HYDRANT	EACH	10				9		1	
0504.602	ADJUST HYDRANT	EACH	1						1	
0504.602	ADJUST VALVE BOX-WATER	EACH	10						10	
0504.602	TEMPORARY WATER SERVICE	EACH	2						2	
2104.521	SALVAGE WATER MAIN	L.F.	617				5		612	
0504.603	30" STEEL CASING PIPE (JACKED)	L.F.	74				74			
0504.603	ROCK FOR TRENCH STABILIZATION	L.F.	400				400			
0504.603	6" WATER MAIN - DUCTILE IRON CL. 53	L.F.	430				412		18	
0504.603	8" WATER MAIN - DUCTILE IRON CL. 52	L.F.	381				153		228	
0504.603	12" WATER MAIN - DUCTILE IRON CL. 52	L.F.	15				15			
0504.603	16" WATER MAIN - DUCTILE IRON CL. 52	L.F.	6341				6191		150	
0504.603	WATER SERVICE TRENCH EXCAVATION	L.F.	320				320			
0504.605	2" POLYSTYRENE INSULATION	S.Y.	23				23			
0504.620	DUCTILE IRON FITTINGS	LB.	21710				20610		1100	

QUANTITY NOTES

(1) AREAS TO BE TOPSOILED, SODDED, AND SEEDED HAVE BEEN INCREASED 10% TO ALLOW FOR ADDITIONAL AREAS ON SLOPES

(2) FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.

(3) INCLUDES BITUMINOUS FOR ENTRANCES AND PARKING AREAS.

~~(4) FOR WALL NO. 5~~

~~(5) FOR WALLS NO. 2 AND NO. 3~~

(6) ESTIMATED AT 350 POUNDS PER ACRE.

(7) FOR PAVEMENT AND CURB & GUTTER REMOVAL.

(8) FOR PAVEMENT AND ENTRANCE REMOVAL.

(9) THE CONTRACTOR IS ADVISED THAT HE MAY USE AGGREGATE BASE, CLASS 6 OR, AS AN ALTERNATE, HE MAY USE 100% CRUSHED MATERIAL WHICH MEETS THE REQUIREMENTS FOR CLASS 5.

(10) OIL CONTENT - PERCENT
2331 BASE COURSE MIXTURE 4.8%
2331 BINDER COURSE MIXTURE 4.8% *
2331-2341 WEARING COURSE MIXTURE 6.2% (INCLUDING 4" 2361 WEARING COURSE MIXTURE 6.8% BIT. WALK)
* 5.5% INTERIM WEARING COURSE

(11) FOR ENTRANCES

~~(12) INCLUDES SURFACE DRAINS~~

(13) FOR BRIDGE APPROACH, SELECT GRANULAR MODIFIED SHALL BE SELECT GRANULAR MATERIAL, SPEC. 3149.2B, MODIFIED TO 7% OR LESS PASSING THE NUMBER 200 SIEVE, TO BE PLACED BY THE CONTRACTOR AFTER COMPLETION OF ABUTMENT AND/OR BRIDGE.

(14) FOR CONCRETE RETAINING WALLS NO.2 & NO.3 (SEE NOTE NO. 23)

(15) INCLUDE PRICE OF VCP & CIP SANITARY SEWER REMOVAL AS REQUIRED AS INCIDENTAL WORK.

(16) FOR OUTSIDE DROP INLET

(17) @ BULK SERVICE CORP. APPROX. STA. 118 + 62 MCKNIGHT RD. 230 L.F.

(18) @ BULK SERVICE CORP. APPROX. STA. 118 + 57 MCKNIGHT RD. 230 L.F.

(19) MCKNIGHT RD. STA. 121 + 22 ±

(20) STATE AID NON-PARTICIPATING ITEMS

REVISED 6/18/87

REVISIONS	DATE	BY	REVISIONS	DATE	BY
REMOVE MANHOLES, SILT FENCE	2-16-86	BJ,ET	UNITS REWORDED	2-16-86	BJ,ET
SEED MIXTURE 48 PRE CAST MANHOLE	2-16-86	BJ,ET	PVC SEWER PIPES & R.C. CASTING PIPES RECLASSIFIED	2-16-86	BJ,ET
SALVAGE CAST IRON WATERMAIN	2-16-86	BJ,ET			
ITEM NUMBERS	2-16-86	BJ,ET	SHEET NUMBER	2-16-86	BJ,ET
ITEMS REWORDED	2-16-86	BJ ET	QUANTITY CHANGES ITEM CHANGE IN RCP-12	2-17-87 6-23	KH,BJ
REMOVE SHRUBS	4-17-87	ET	NOTE CHANGES	10-22-87	T.L.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Harry K. Tolbert

DATE 5-16-86 REG. NO. 13501

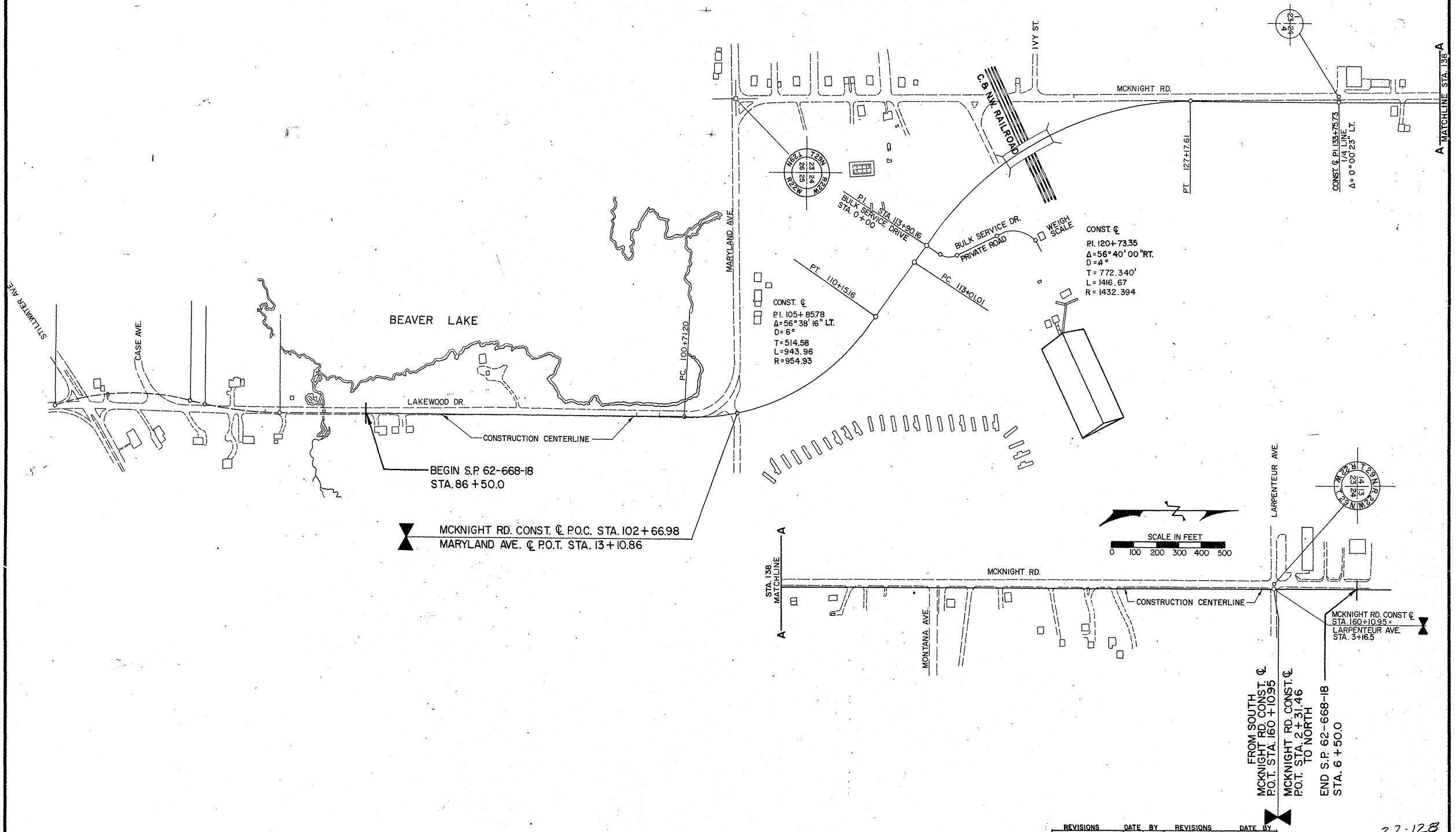
27-128

ESTIMATED QUANTITIES & NOTES

S.P. NO 62-668-18

Sheet No. 3 of 121 Sheets

Fed. Proj. No.



REVISIONS	DATE	BY	REVISIONS	DATE	BY
STATIONING	2-15-86	BJ, SB			

27-128

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Fjelstad

DATE 5-19-86 REG. NO. 13501

PROJECT LAYOUT, EQUATIONS

S.P. NO. 62 – 668-18

Sheet No. 4 of 121 Sheets

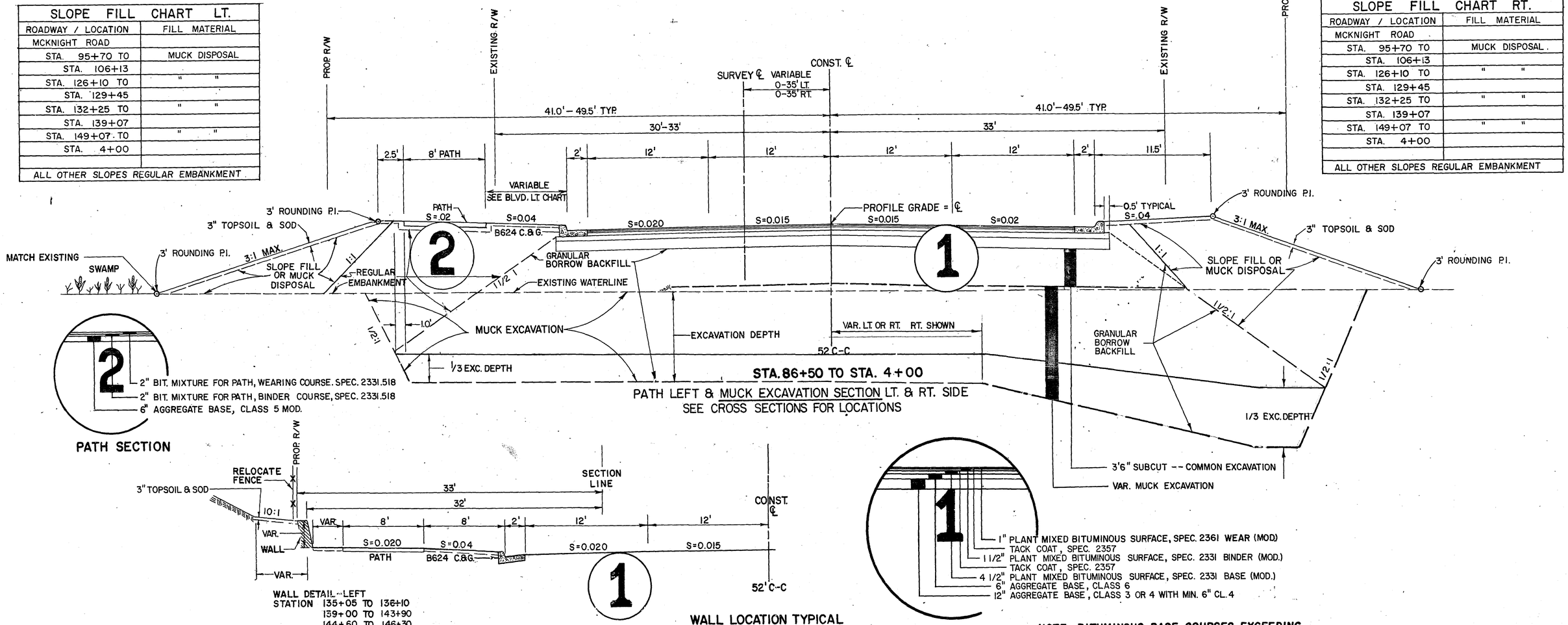
MCKNIGHT ROAD TYPICAL SECTIONS

(STATIONING IS SURVEY)

* SEE WALL DETAIL BELOW

SLOPE FILL CHART LT.	
ROADWAY / LOCATION	FILL MATERIAL
MCKNIGHT ROAD	
STA. 95+70 TO	MUCK DISPOSAL
STA. 106+13	
STA. 126+10 TO	" "
STA. 129+45	
STA. 132+25 TO	" "
STA. 139+07	
STA. 149+07 TO	" "
STA. 4+00	
ALL OTHER SLOPES REGULAR EMBANKMENT	

SLOPE FILL CHART RT.	
ROADWAY / LOCATION	FILL MATERIAL
MCKNIGHT ROAD	
STA. 95+70 TO	MUCK DISPOSAL
STA. 106+13	
STA. 126+10 TO	" "
STA. 129+45	
STA. 132+25 TO	" "
STA. 139+07	
STA. 149+07 TO	" "
STA. 4+00	
ALL OTHER SLOPES REGULAR EMBANKMENT	



STA. 86+50 TO STA. 4+00

PATH LEFT & MUCK EXCAVATION SECTION LT. & RT. SIDE
SEE CROSS SECTIONS FOR LOCATIONS

PATH SECTION

WALL DETAIL--LEFT
STATION 135+05 TO 136+10
139+00 TO 143+90
144+60 TO 146+30
147+80 TO 148+80

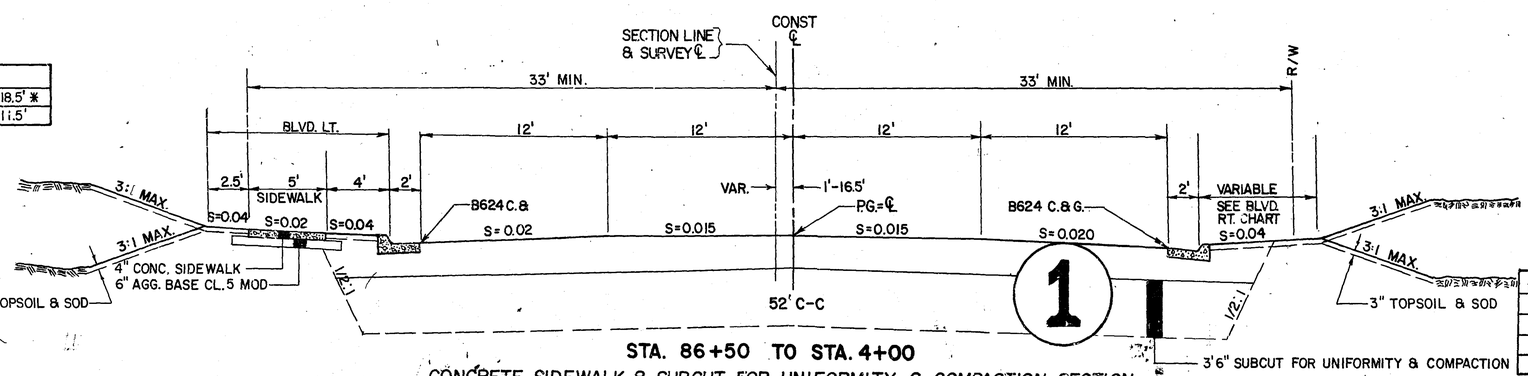
* NOTE MCKNIGHT RD WALL ELEVATIONS ARE TABULATED ELSEWHERE IN THIS PLAN.

WALL LOCATION TYPICAL
STA. 135+05 TO STA 148+75

NOTE: BITUMINOUS BASE COURSES EXCEEDING 2 1/2" IN THICKNESS SHALL BE PLACED IN NOT LESS THAN TWO APPROXIMATELY EQUAL LIFTS.

BLVD. LT.	
STA. 86+50 TO LARPENTEUR	18.5' *
LARPENTEUR TO STA. 4+00	11.5'

* EXCEPT AT WALL LOCATIONS



BLVD. RT.	
STA. 86+50 TO LARPENTEUR	11.5'
LARPENTEUR TO STA. 4+00	7.5'

STA. 86+50 TO STA. 4+00

CONCRETE SIDEWALK & SUBCUT FOR UNIFORMITY & COMPACTION SECTION
SEE CROSS SECTIONS FOR LOCATIONS

REVISIONS	DATE	BY	REVISIONS	DATE	BY
TACK COAT	2-15-96	BJET			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Zoll

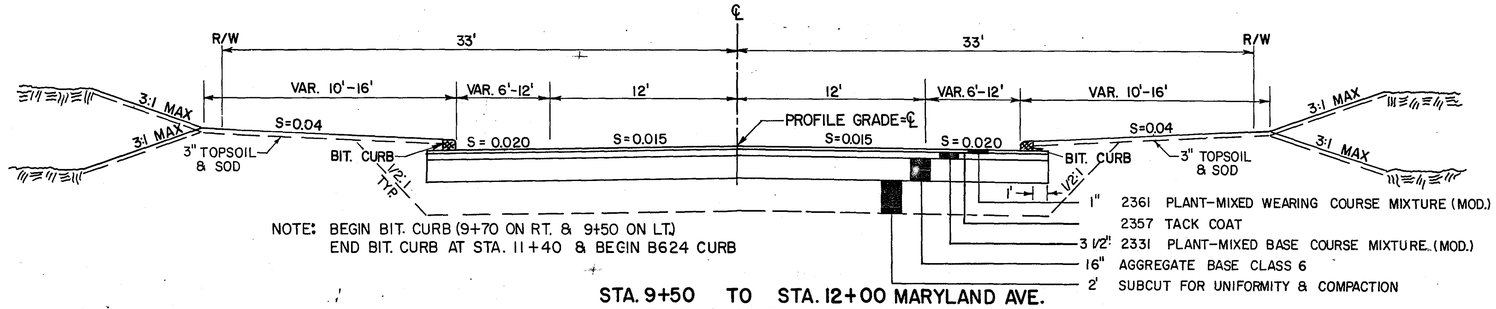
DATE 5-16-96 REG. NO 13501

27-128

TYPICAL SECTIONS

S.P. NO. 62-668-18

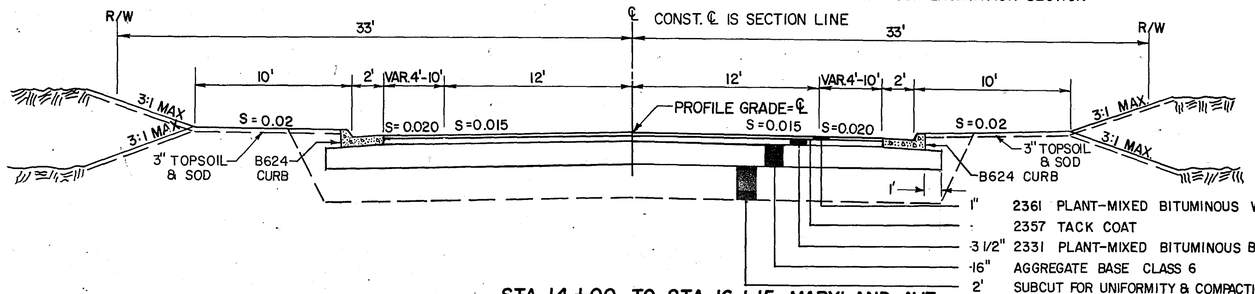
MARYLAND AVE., BULK SERVICE DRIVE & MONTANA AVE. TYPICAL SECTIONS



NOTE: BEGIN BIT. CURB (9+70 ON RT. & 9+50 ON LT.)
END BIT. CURB AT STA. 11+40 & BEGIN B624 CURB

1" 2361 PLANT-MIXED WEARING COURSE MIXTURE (MOD.)
2357 TACK COAT
3 1/2" 2331 PLANT-MIXED BASE COURSE MIXTURE (MOD.)
16" AGGREGATE BASE CLASS 6
2' SUBCUT FOR UNIFORMITY & COMPACTION

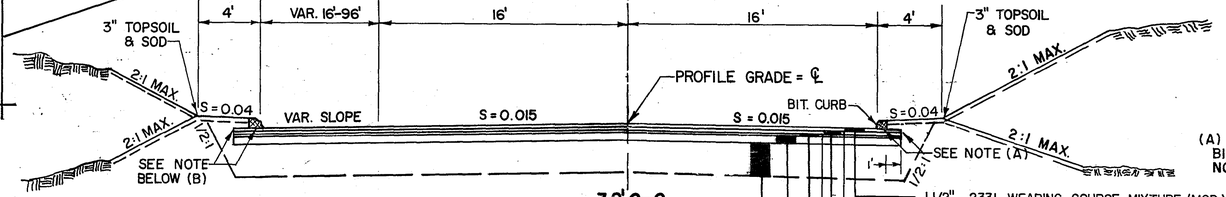
STA. 9+50 TO STA. 12+00 MARYLAND AVE.
SUBCUT FOR UNIFORMITY & COMPACTION SHOWN
MUCK EXCAVATION SECTION -- SEE MCKNIGHT RD. MUCK EXCAVATION SECTION



1" 2361 PLANT-MIXED BITUMINOUS WEARING COURSE MIXTURE (MOD.)
2357 TACK COAT
3 1/2" 2331 PLANT-MIXED BITUMINOUS BASE COURSE MIXTURE (MOD.)
16" AGGREGATE BASE CLASS 6
2' SUBCUT FOR UNIFORMITY & COMPACTION (TO STA. 15+50)

STA. 14+00 TO STA. 16+15 MARYLAND AVE.
SUBCUT SECTION SHOWN
MUCK EXCAVATION SECTION -- SEE MCKNIGHT RD. MUCK EXCAVATION SECTION

NOTE:
SLOPE WILL VARY WITH FINISH GRADE ELEVATIONS @ GUTTER OR PAVEMENT EDGE. SEE ⊗ SYMBOL FOR VARIATIONS ON BULK SERVICE ROAD PLAN.

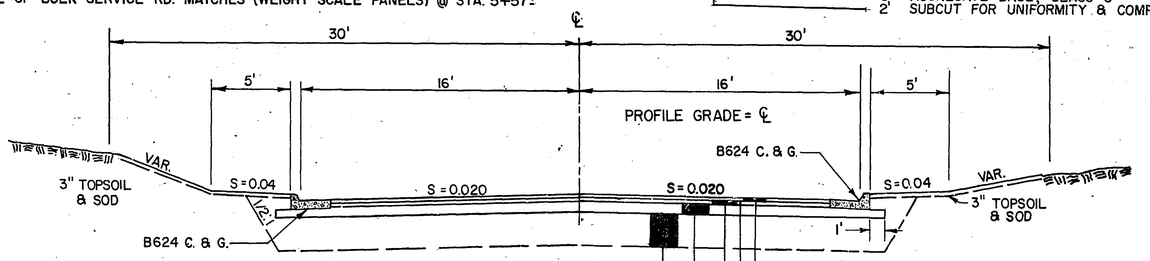


(A) RT. SIDE TYPICAL
BIT. CURB STA. 0+50 — STA. 4+75
NO BIT. CURB STA. 4+75 — STA. 6+11

(B) LT. SIDE TYPICAL
BIT. CURB STA. 0+50 — STA. 3+80
NO BIT. CURB STA. 3+80 — STA. 4+99
MATCH EXISTING STA. 4+99 — STA. 5+57.75
℄ OF BULK SERVICE RD. MATCHES (WEIGHT SCALE PANELS) @ STA. 5+57±

32' C-C BULK SERVICE ROAD

1 1/2" 2331 WEARING COURSE MIXTURE (MOD.)
2357 TACK COAT
1 1/2" 2331 BINDER COURSE MIXTURE (MOD.)
2357 TACK COAT
1" 2331 BASE COURSE MIXTURE (MOD.)
6" AGGREGATE BASE, CLASS 6
2' SUBCUT FOR UNIFORMITY & COMPACTION



1 1/2" 2341 WEARING COURSE MIXTURE (MOD.)
2357 TACK COAT
1 1/2" 2331 BINDER COURSE MIXTURE (MOD.)
8" AGGREGATE BASE CLASS 6
2' SUBCUT FOR UNIFORMITY & COMPACTION

32' C-C MONTANA AVE.
STA. 0+80 TO STA. 1+73 (B624 C. & G.)
STA 1+63 TO STA. 1+73 (TAPER TO S512 C. & G.)

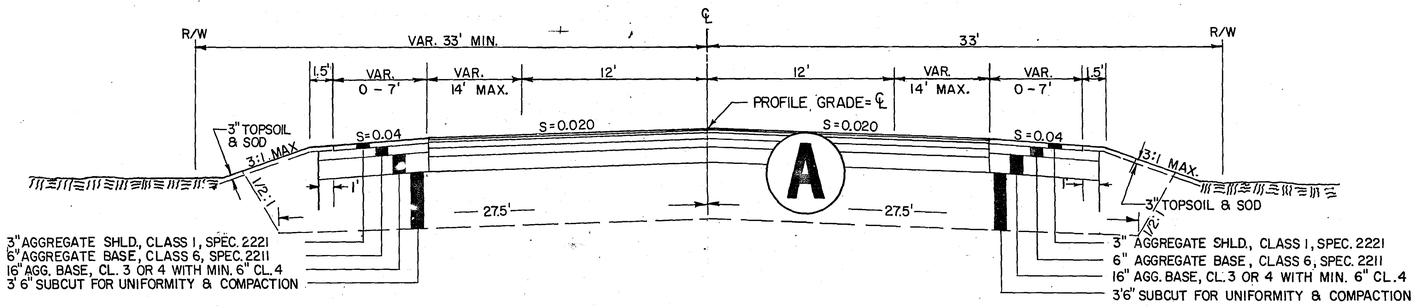
REVISIONS	DATE	BY	REVISIONS	DATE	BY
TACK COAT	2-586	BJ, ET			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Zilliox
DATE 5-16-86 REG. NO. 13501

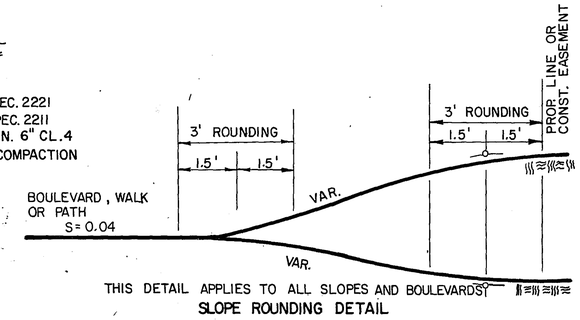
MARYLAND AVE., BULK SERVICE ROAD, MONTANA AVE. 27-128

S.P. NO. 62-668-18 Sheet No. 6 of 121 Sheets

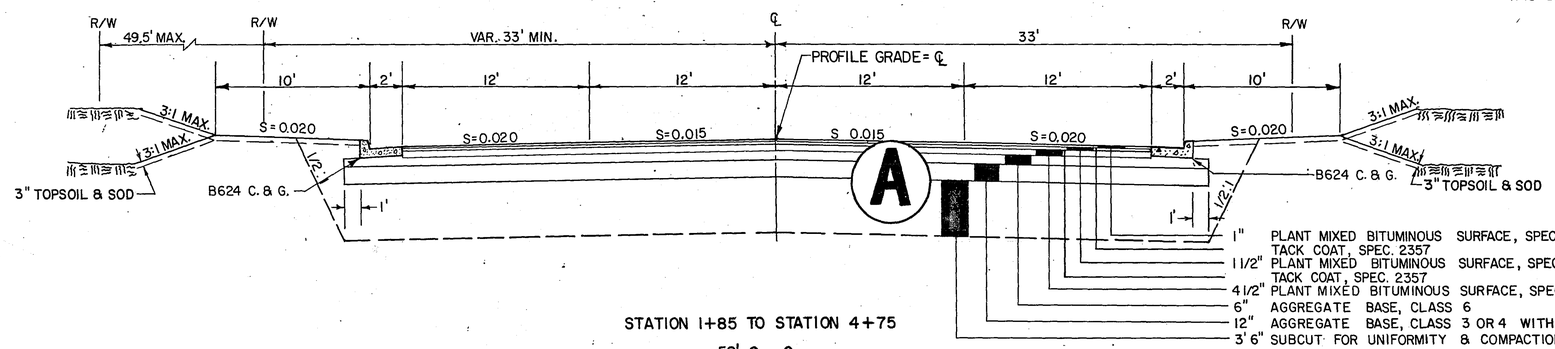
LARPENTEUR AVENUE & IVY STREET TYPICAL SECTIONS



STATION 0+50 TO STATION 1+85
STATION 4+75 TO STATION 7+20
LARPENTEUR AVENUE
SUBCUT SECTION



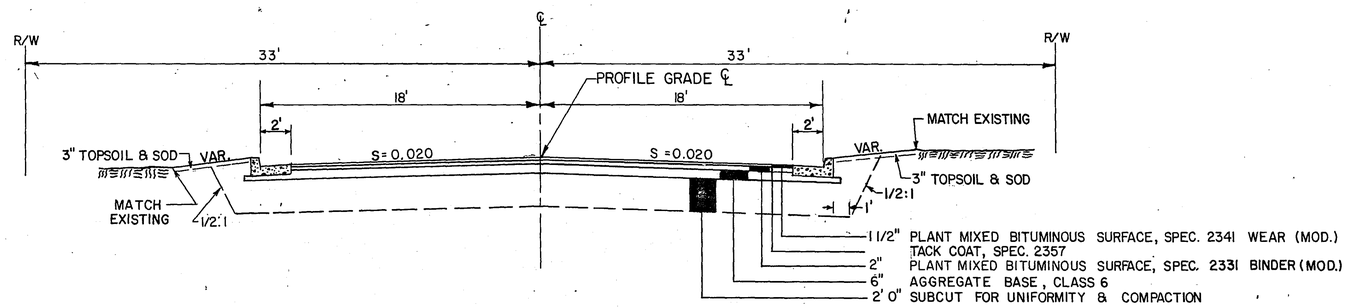
THIS DETAIL APPLIES TO ALL SLOPES AND BOULEVARDS
SLOPE ROUNDING DETAIL



STATION 1+85 TO STATION 4+75

52' C - C

LARPENTEUR AVENUE
SUBCUT SECTION SHOWN
MUCK EXCAVATION SECTION-- SEE MCKNIGHT RD. MUCK EXCAVATION SECTION



STATION 2+10 TO STATION 3+29

IVY STREET

REVISIONS	DATE	BY	REVISIONS	DATE	BY
TACK COAT	2-15-86	BJET			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Zoll

DATE 5-16-86 REG. NO. 13501

LARPENTEUR AVENUE, IVY STREET, TYPICAL SECTIONS

27-128

S.P. NO. 62-668-18

Sheet No. 7 Of 121 Sheets

DRAINAGE CHART

STATION	LOCATION	NO.	TYPE	DESIGN	CONST. HEIGHT LIN. FT.	CASTING ASSEMBLY	ELEVATION: PROFILE	ELEVATION: ORIGNAL GRATE OR RING	ELEVATION: NEW GRATE OR RING	ELEVATION: C.B. or M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONSTRUCT CATCH BASIN OR MANHOLE LIN. FT.	INSTALL CASTING ASSEMBLY	FURNISH AND INSTALL PIPE SEWER: REINFORCED CONCRETE PIPE 12"	15"	18"	21"	24"			CORRUGATED STEEL PIPE 12"	15"	18"			APRON	CLASS	DRAINS TO: STRUCTURE NO.	DRAINS TO: INVERT EL.	REMARKS
				EXISTING STRUCTURES																									
	McKNIGHT RD.																												
80+51	RT 2'	1	MH	SAN			971.02																						(3)
83+14	LT 9'	2	MH	SAN			959.63																						(3)
83+14	LT 69'	3	MH	SAN			959.63																						(3)
86+47	LT 7'	4	MH	SAN			959.52																						(3)
88+55	LT 10'	5	MH	SAN			966.58																						(3)
90+53	LT 9'	6	MH	SAN			970.41																						(3)
93+30	LT 8'	7	MH	SAN			967.57																						(3)
95+16	LT 8'	8	MH	SAN			960.68																						(3)
96+65	LT 9'	9	MH	SAN			956.67																						(3)
99+64	LT 7'	10	MH	SAN			957.60																						(3)
103+39	RT. 36	14A	AP	STORM			968.85																						SALVAGE APRON
102+08	RT 32'	11	AP	STORM			965.00			955.17																		DITCH	SALVAGE APRON
102+35	RT 43'	12	MH	STORM			965.84	964.22		957.57																		11	REMOVE (1)
102+64	RT 14'	13	MH	SAN			966.75																						(3)
102+93	RT 52'	14	MH	STORM			967.66	969.06		961.86																		12	REMOVE (1)
119+03±	RT 75'±	15	CL	SAN			1013.82																						(3)
119+11±	℄ ±	16	CL	SAN			1013.84																						(3)
119+18±	LT 77'±	17	CL	SAN			1013.85																						(3)
123+90	LT 32'	18	MH	SAN			1003.82																						(3)
127+16	RT 5'	19	MH	SAN			994.64																						(3)
130+44	RT 6'	20	MH	SAN			997.01																						(3)
133+76	RT 6'	21	MH	SAN			1000.33																						(3)
137+38	RT 5'±	22	MH	SAN			1011.63																						(3)
140+97	RT 5'±	23	MH	SAN			1027.56																						(3)
142+18	LT 16'	24	MH	SAN			1031.41																						(3)
144+78	LT 15'	25	MH	SAN			1034.77																						(3)
146+79	LT 15'	26	MH	SAN			1032.71																						(3)
146+79	RT 30'	27	MH	SAN			1032.71																						(3)
148+28	RT 36'	28	MH	SAN			1028.57																						(3)
150+20	LT 14	30	MH	SAN			1022.54																						(3)
153+54	LT 14'	31	MH	SAN			1020.08																						(3)
156+86	LT 15'	32	MH	SAN			1020.53																						(3)
159+11	LT 44'	33	MH	N.S.P.			1021.65																						ADJUST BY OTHERS
2+37	LT 12'	34	MH	SAN			1021.25																						(3)
5+66	LT 13'	37	MH	SAN			1018.52																						(3)
6+55	RT 45'	38	SD	STORM			1017.78																						NOT IN PROJECT LIMITS
8+17	RT 44'	39	MH	STORM			1018.09	1016.48		1011.43																			NOT IN PROJECT LIMITS
8+97	LT 10'	40	MH	SAN			1019.38																						NOT IN PROJECT LIMITS

NOTES

EXISTING STRUCTURE LOCATIONS ARE FROM CONSTRUCTION ℄.

(1) SALVAGE CASTING ASSEMBLY. SEE SPECIAL PROVISIONS.
(2) DETERMINE EXACT LOCATION AND ELEVATION IN THE FIELD AS DIRECTED BY THE ENGINEER.
(3) FOR DISPOSITION SEE MAPLEWOOD PROJECT 81-20 HEREWITH.

REVISIONS	DATE	BY	REVISIONS	DATE	BY
CASTING NOTE REMOVAL	2-17-87	KH			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Tidball

DATE 5-16-86 REG. NO 13501

EXISTING DRAINAGE CHART I

27-128

DRAINAGE CHART

STATION	LOCATION	NO.	TYPE	DESIGN	CONST. HEIGHT LIN. FT.	CASTING ASSEMBLY	ELEVATION PROFILE	ELEVATION ORIGNAL GRATE OR RING	ELEVATION NEW GRATE OR RING	ELEVATION C.B. or M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONSTRUCT CATCH BASIN OR MANHOLE L.IN. FT.	INSTALL CASTING ASSEMBLY	FURNISH AND INSTALL PIPE SEWER REINFORCED CONCRETE PIPE 12"	15"	18"	21"	24"			CORRUGATED STEEL PIPE 12"	15"	18"			APRON	CLASS	DRAINS TO STRUCTURE NO.	DRAINS TO INVERT EL.	REMARKS
				EXISTING STRUCTURES																									
	MARYLAND AVE.																												
11+03	℄	41	MH	SAN			968.74	970.74																					(3)
15+15	LT 47'	42	MH	STORM			968.66	972.35		964.75																			OK LEAVE
15+52	LT17'	43	CB	STORM			968.89	967.96	968.56	963.50		3.0	1																(1)-CONVERT TO MH
15+52	RT17'	44	CB	STORM			968.89	967.92	968.56	962.94		3.0	1																(1)-CONVERT TO MH
15+71	℄	45	MH	SAN			969.10																						(3)
	BULK SERVICE RD.																												
4+49±	LT165'±	46	CL	SAN			982.34																						(3)
4+76±	LT111'±	47	CL	SAN			982.00																						(3)
5+63±	LT60'±	48	CL	SAN			982.00																						(3)
	MONTANA AVE.																												
1+55	℄	49	MH	SAN			1035.93	1036.15		1026.60																			(3)
	IVY AVE.																												
2+01	℄	50	MH	SAN			988.68	988.73		982.53																			(3)
2+01	RT 20'	51	CB	STORM			988.68	988.73		986.23																			(4)
2+01	LT 20'	52	CB	STORM			988.68	988.85		986.15																			(4)
3+25±	℄±	53	MH	SAN			985.61	984.89		976.59																			(3)
	LARPENTEUR AVE.																												
6+40	℄	54	MH	SAN.			1022.79																						(3)
4+15±	LT.50±	55	SD	STORM			1020.51	1019±	1021±	1019.00		2.0	1																

NOTES

EXISTING STRUCTURE LOCATIONS ARE FROM CONSTRUCTION ℄.

(1) SALVAGE CASTING ASSEMBLY. SEE SPECIAL PROVISIONS.
(2) DETERMINE EXACT LOCATION AND ELEVATION IN THE FIELD AS DIRECTED BY THE ENGINEER.
(3) FOR DISPOSITION SEE MAPLEWOOD PROJECT 81-20 HEREWITH.
(4) EXISTING--TO BE REMOVED BY OTHERS

DRAINAGE STRUCTURE TABULATION	
ITEM	TOTALS
SALVAGE R.C. PIPE APRON	2 EA.
REMOVE MANHOLES	2 EA.
SALVAGE CASTING ASSEMBLY	4 EA.
INSTALL CASTING ASSEMBLY	3 EA.
RECONSTRUCT SURFACE DRAIN	2 L.F.
RECONSTRUCT CATCH BASIN	6 L.F.

REVISIONS	DATE	BY	REVISIONS	DATE	BY
CASTING NOTE REMOVAL	2-17-87	KH			

EXISTING DRAINAGE CHART II

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Fiddler

DATE 5-16-86 REG. NO. 13501

27-128

MN/DOT.

S.P. NO. 62-668-18

Sheet No. 9 of 121 Sheets

DRAINAGE CHART

STATION	LOCATION	NO.	TYPE	DESIGN	CONST. HEIGHT LIN. FT	CASTING ASSEMBLY	ELEVATION PROFILE	ELEVATION ORIGNAL GRATE OR RING	ELEVATION NEW GRATE OR RING	ELEVATION C.B. or M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONSTRUCT CATCH BASIN OR MANHOLE L.IN. FT.	INSTALL CASTING ASSEMBLY	FURNISH AND INSTALL PIPE SEWER: REINFORCED CONCRETE PIPE 12"	15"	18"	21"	24"	30"	36"	CORRUGATED STEEL PIPE 12"	15"	18"			APRON	CLASS ②	DRAINS TO STRUCTURE NO.	DRAINS TO INVERT EL.	REMARKS
												PROPOSED STRUCTURE																		
McKNIGHT RD.																														
86+53	RT. 30'	100	AP				959.0			954.50																15"				APRON OUTLET
86+87	LT. 30'	101	MH	A-ORF	4.7	A	960.2		959.6	955.39					64													100	954.50	
88+11	LT. 27.5'	102	CB	LP4-5	5.3	C	965.07		965.06	958.50					124													101	955.52	
88+11	RT. 27.5'	103	CB	LP4-6	6.1	C	965.07		965.06	959.26					59													102	958.67	
95+00	LT. 27.5'	104	CB	LP4-2	2.5	C	961.30		961.29	957.25					59													105	956.66	
95+00	RT. 27.5'	105	CB	LP4-3	3.3	C	961.30		961.29	956.50					100													106	953.57	①
96+00	RT. 30'	106	MH	A OR F	4.9	A	958.07		958.19	953.40					139													107	951.95	①
97+45	RT. 52'	107	AP			—	955.75			951.95																15"				APRON OUTLET
97+92	LT. 27.5'	108	CB	LP4-3	3.1	C	955.60		955.59	951.95					59													109	951.36	
97+92	RT. 27.5'	109	CB	LP4-4	3.7	C	955.60		955.59	951.17					19													110	950.92	
97+92	RT. 54.5'	110	AP			—	955.60			950.92																15"				APRON OUTLET
98+48	LT. 68'	111	AP			—	955.83			950.00																12"				APRON OUTLET ①
98+48	RT. 61'	112	AP			—	955.83			950.91									99							36"		111A	950.49	F & I TRASH GUARD ①
③11+95	LT. 25.5'	113	CB	LP4-4	3.6	C	IN INTERSECTION		966.5±	962.50					65													119	961.84	Exact elev. in field
102+49	LT. 54'	113A	CB	LP4-4	3.8	C	966.28		966.1±	962.25					57													119	961.83	Exact elev. in field
102+80	RT. 68±	114	CB	LP4-5	4.8	C	967.38		967.3±	960.61									54									115	959.08	Exact elev. in field
102+31	RT. 76'	115	MH	4020-66	8.5	A	965.72		967.3±	957.00										40								117	955.17	Exact elev. in field. Build over existing.
102+29	RT. 62'	116	CB	LP4-6	6.3	C	965.66		967.6±	960.83					13													115	960.70	Exact elev. in field ①
101+94	RT. 73'	117	AP			—	964.56			955.17																30"				APRON OUTLET ①
105+50	LT. 27.5'	118	CB	LP4-5	5.1	C	975.70		975.69	970.00						234												119	961.86	
103+06	LT. 45.0'	119	MH	4020-54	5.8	A	968.06		967.3±	961.67									93									114	960.74	
108+15	LT. 27.5'	120	CB	LP4-6	5.5	C	984.00		983.99	978.03						250												118	970.18	
111+36	LT. 27.5'	121	CB	LP4-5	5.3	C	994.04		994.0±	988.25					320													120	978.20	
111+36	RT. 27.5'	122	CB	LP4-4	4.3	C	994.04		994.0±	990.15					59													121	989.56	
114+50	RT. 27.5'	123	CB	LP4-5	4.6	C	1003.87		1003.86	998.38					59													124	997.79	
114+50	LT. 27.5'	124	CB	LP4-5	5.0	C	1003.87		1003.86	997.71					314													121	989.48	
117+00	RT. 128'	125	AP	——	——	——	1011.0±		—	980.28																24"		DITCH		APRON OUTLET ①
117+65	LT. 142'	126	AP	——	——	——	1012.36		—	981.14									266							24"	CL.V	125	980.28	①
118+63	RT. 27.5'	127	CB	SP2	5.3	B	1013.24		1012.65	1007.56					406													123	998.46	MATCH BRIDGE APPROACH
118+63	LT. 27.5'	128	CB	SP2	4.7	B	1013.24		1012.65	1008.13					54													127	1007.63	
121+09	RT. 27.5'	129	CB	SP2	5.3	B	1011.95		1011.36	1006.26					334													131	997.02	
121+09	LT. 27.5'	130	CB	SP2	4.7	B	1011.95		1011.36	1006.84					54													129	1006.34	
124+50	RT. 27.5'	131	CB	LP4-7	6.8	C	1001.37		1001.36	994.03					34													133	987.10	TIE ALL PIPE ①
124+50	LT. 27.5'	132	CB	LP4-4	4.3	C	1001.37		1001.36	996.58					59													131	996.03	
124+50	RT. 66'	133	SB	5200		—	1001.37			987.10																				SURGE BASIN & RIPRAP
127+59	RT. 27.5'	134	CB	LP4-7	6.9	C	994.50		994.49	986.62										21								136	986.36	①
127+59	LT. 27.5'	135	CB	LP4-7	6.8	C	994.50		994.49	987.18										59								134	986.79	
127+59	RT. 56.5'	136	AP			—	994.50			986.36																30"				APRON OUTLET
127+59	LT. 56.5'	137	AP			—	994.50			987.61								20								21"		135	987.35	F & I TRASH GUARD ①
131+00	RT. 27.5'	138	CB	LP4-5	4.9	C	997.57		997.56	992.15					59													139	991.56	
131+00	LT. 27.5'	139	CB	LP4-6	5.6	C	997.57		997.56	991.47								341										135	987.25	
134+50	RT. 27.5'	140	CB	LP4-4	4.2	C	1001.29		1001.28	997.22					59													141	996.63	
134+50	LT. 27.5	141	CB	LP4-6	5.6	C	1001.29		1001.28	995.50								350										139	991.64	
135+65	LT. 29.5	141A	MH	A OR F	6.4	A	1004.27		1004.28	998.0						115												141	995.67	
138+00	RT. 27.5'	142	CB	LP4-4	3.6	C	1014.42		1014.41	1010.27					59													143	1009.68	
138+00	LT. 27.5'	143	CB	LP4-4	4.1	C	1014.42		1014.41	1009.59						235												141A	999.50	
141+25	RT. 27.5'	144	CB	LP4-4	3.7	C	1028.58		1028.57	1024.24					59													145	1023.57	
141+25	LT. 27.5'	145	CB	LP4-4	4.5	C	1028.58		1028.57	1023.57						325												143	1009.76	
147+72	RT. 27.5'	146	CB	LP4-6	6.1	C	1030.20		1030.19	1023.60					79													147	1022.85	
148+25	LT. 27.5'	147	CB	LP4-7	7.2	C	1028.67		1028.66	1021.01					300													149	1017.72	
151+25	RT. 27.5'	148	CB	LP4-3	2.9	C	1021.20		1021.19	1017.92								59									V	149	1017.63	
151+25	RT. 45.5'	148A	AP			—	1021.20			1018.60					10											15"		148	1018.09	F & I TRASH GUARD ①
151+25	LT. 27.5'	149	CB	LP4-4	3.5	C	1021.20		1021.19	1017.55									350									151	1016.05	
														PAGE TOTALS	3076	1159	770	862	120	—									

CASTINGS —
A=RING CASTING Mn/DOT NO. 700-7, COVER CASTING Mn/DOT NO. 712 (INCLUDE WITH STRUCTURE, NOT SEPERATE PAY ITEM)
B= INLET FRAME, GRATE & CURB BOX - SEE DETAIL SHEET 32 (INCLUDE WITH STRUCTURE, NOT SEPARATE PAY ITEM)
C= RING CASTING Mn/DOT NO. 790-2 MOD. SEE STD. PL. NO. 4021, COVER CASTING Mn/DOT NO. 712 (INCLUDE WITH STRUCTURE, NOT SEPERATE PAY ITEM)
D= RING CASTING Mn/DOT NO. 700-7, GRATE CASTING Mn/DOT NO. 720 (INCLUDE WITH STRUCTURE, NOT SEPARATE PAY ITEM)

MANHOLES & CATCH BASINS —
LP4-HEIGHT Mn/DOT STD. PL. NO. 4021 AND DETAIL SHEET 32
SPECIAL 2- SEE DETAIL SHEET 32
A OR F, Mn/DOT STD. PL. NO. 4000 OR 4005

NOTES

① CLASS B BEDDING--GRANULAR BEDDING (2451)

② WHEN CLASS DESIGNATION IS NOT SHOWN FURNISH R.C. PIPE IN THE FOLLOWING CLASSES:
15" AND SMALLER - CLASS V
18" AND LARGER — CLASS II

PROPOSED STRUCTURE LOCATIONS TAKEN FROM CONST. ℄
STEPS WILL BE REQUIRED IN ALL STRUCTURES
CASTINGS FOR ALL STRUCTURES ON PROPOSED CHARTS TO BE INCLUDED IN THE PAY ITEMS FOR THOSE STRUCTURES.

③ STATION AND LOCATION ARE OFF MARYLAND AVENUE

TABLE OF MATERIAL QUANTITIES FOR APRONS AT R.C.P. OUTLETS

STATION	LOCATION	DIAMETER OF PIPE	APRON NUMBER	RIPRAP DEPTH	RIPRAP C.Y.	GRANULAR DEPTH	GRANULAR C.Y.	GEOTEXTILE FABRIC SIZE
McKNIGHT ROAD (MAIN LINE)								
86+50	RT. 28.1'	15"	APRON 100	15"	2.9	7.5"	1.4	12 S.Y.
97+45	RT. 52'	15"	APRON 107	15"	2.9	7.5"	1.4	12 S.Y.
97+92	RT. 54.5'	15"	APRON 110	15"	2.9	7.5"	1.4	12 S.Y.
98+48	LT. 68'	36"	APRON 111	(EQUALIZER - NO QUANTITIES)				
98+48	RT. 61'	36"	APRON 112	(EQUALIZER - NO QUANTITIES)				
101+67	RT. 66'	30"	APRON 117	18"	9.9	9.0"	5.0	28 S.Y.
127+59	RT. 56.5'	30"	APRON 136	18"	9.9	9.0"	5.0	28 S.Y.
154+75	RT. 48'	24"	APRON 152	18"	6.9	9.0"	3.5	19 S.Y.
155+74	LT. 62'	24"	APRON 153	(EQUALIZER - NO QUANTITIES)				
155+74	RT. 62'	24"	APRON 154	(EQUALIZER - NO QUANTITIES)				
157+25	RT. 52'	15"	APRON 157	15"	2.9	7.5"	1.4	12 S.Y.
* 124+50	RT. 66	42" WIDTH	S. BASIN 133	18"	3.5	9.0"	1.7	10 S.Y.
SIDESTREETS								
NO SIDESTREET QUANTITIES REQUIRED								
			TOTALS:		41.8		20.8	133 S.Y.

* NOTE: RIPRAP & GRANULAR MATERIAL FOR THE SURGE BASIN HAS BEEN COMPUTED FOR A 15" R.C. PIPE.

TRASH GUARD LOCATION CHART FOR APRONS AT R.C.P. INLETS

STATION	LOCATION	APRON NUMBER	PIPE APRON SIZE 15"	21"	24"	36"
McKNIGHT RD. (MAIN LINE)						
98+48	RT. 61'	112				1
127+59	LT. 56.5'	137		1		
151+25	RT. 45.5'	148A	1			
155+74	LT. 62'	153			1	
155+74	RT. 51.	154			1	
TOTAL:			1	1	2	1

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Feldhaus
DATE 5-12-86 REG. NO. 13501

PROPOSED DRAINAGE CHART I

27-128

DRAINAGE CHART

STATION CONST. ℄	LOCATION	NO.	TYPE	DESIGN	CONST. HEIGHT LIN. FT.	CASTING ASSEMBLY	ELEVATION PROFILE	ELEVATION ORIGNAL GRATE OR RING	ELEVATION NEW GRATE OR RING	ELEVATION C.B. or M.H. INVERT	ADJUST CASTING ASSEMBLY	RECONSTRUCT CATCH BASIN OR MANHOLE LIN. FT.	INSTALL CASTING ASSEMBLY	FURNISH AND INSTALL PIPE SEWER REINFORCED CONCRETE PIPE 12"	15"	18"	21"	24"	30"	36"	18"x 28-1/2"	APRON	CLASS ②	DRAINS TO STRUCTURE NO.	DRAINS TO INVERT EL.	REMARKS
														PROPOSED STRUCTURES												
154+75	RT. 27.5	150	CB	LP4-4	3.5	C	1019.60		1019.59	1015.50								13						152	1015.4 ±	①
154+75	LT. 27.5	151	CB	LP4-3	3.0	C	1019.60		1019.59	1015.97											59		V	150	1015.67	
154+75	RT. 48	152	AP				1019.60		—	1015.4 ±												24"				APRON OUTLET ①
155+74	LT. 62	153	AP				1019.98		—	1015.00								100				24"		154	1015.00	F & I TRASH GUARD ① EQUALIZER
155+74	RT. 51	154	AP				1019.98		—	1015.00								—				24"		153	1015.00	F & I TRASH GUARD ①
157+25	LT. 27.5	155	CB	LP4-4	4.3	C	1020.73		1020.72	1015.90					59									156	1015.61	
157+25	RT. 27.5	156	CB	LP4-5	4.8	C	1020.73		1020.72	1015.45					17									157	1015.34	1
157+25	RT. 52	157	AP				1020.73		—	1015.34												15"				APRON OUTLET ①
98+48	LT. 45	111A	MH	A OR F	5.5	A	955.83		956.2 ±	950.13				17									V	111	950.00	MATCH PATH GRADE
				SIDESTREETS																						
	MARYLAND AVENUE																									
15+52	RT. 21.5	158	CB	LP4-4	3.8	C	968.89		969.00	964.68					8									44	964.60	
15+52	LT. 21.5	161	CB	LP4-4	3.8	C	968.89		969.00	964.68					8									43	964.60	
	BULK SERVICE ROAD																									
3+73	LT. 88	162	AP				985.84		—	980.21								6				24"		163	980.16	
3+74	LT. 81	163	CB	LP4-4	3.9	B	985.80		984.5 ±	980.16								104						164	980.05	
4+00	RT. 19	164	CB	LP4-4	4.0	B	984.50		984.5 ±	980.05								8						165	980.00	
4+00	RT. 30	165	AP				984.50		—	980.00												24"				APRON OUTLET
	IVY AVENUE																									
2+20	LT. 19.5	174	CB	LP4-4	3.8	C	988.02		988.11	983.84						65							IV	175	983.51	
2+78	RT. 19.5	175	CB	LP4-2	2.5	C	986.46		986.55	983.51						62							IV	176	983.17	
3+72	RT. 28	176	AP				984.82		—	983.17												18"				APRON OUTLET
	MONTANA AVENUE																									
	LARPENTEUR AVENUE																									
2+14	RT. 27.5	167	CB	LP4-4	3.7	C	1020.80		1020.79	1016.51					208									170	1015.66	①
2+10	LT. 27.5	168	CB	LP4-3	3.2	C	1020.80		1020.79	1016.82					59									167	1016.59	
3+90	RT. 48	169	AP				1020.65		—	1015.50					36							15"		170	1015.42	①
4+22	RT. 27.5	170	CB	LP4-5	4.9	C	1020.51		1020.50	1015.42								59					V	171	1015.30	①
4+22	LT. 27.5	171	CB	LP4-5	4.9	C	1020.51		1020.50	1015.30									21					55	1015.25	
	PAGE TOTALS													17	395	127	—	290	21	—	59					
	PIPE GRAND TOTALS													17	3471	1286	770	1152	141	—	59					

NOTE: NUMBERS 159, 160, 166, 172, & 173 NOT USED

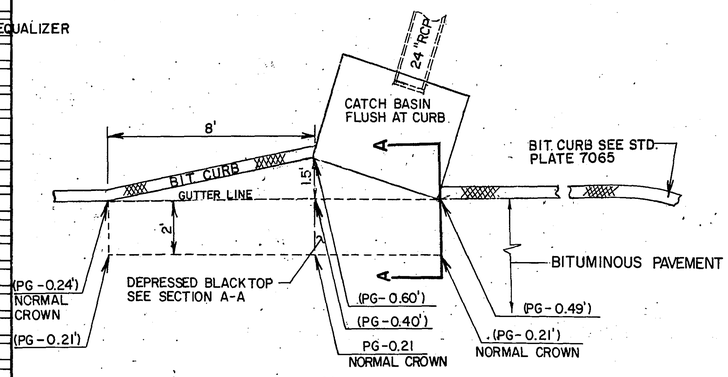
PROPOSED STRUCTURE LOCATIONS TAKEN FROM CONST. ℄.
STEPS WILL BE REQUIRED IN ALL STRUCTURES.
CASTINGS FOR ALL STRUCTURES ON PROPOSED CHARTS TO BE INCLUDED IN THE PAY ITEMS FOR THOSE STRUCTURES.

① CLASS B BEDDING (2451)

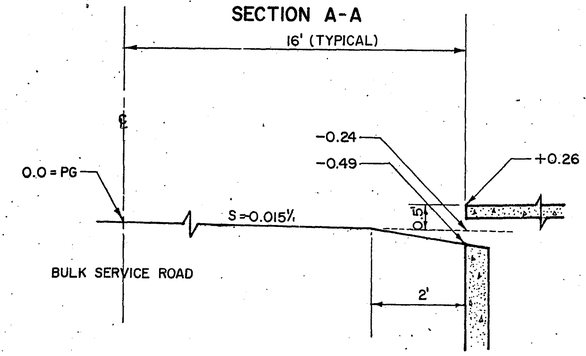
② WHEN CLASS DESIGNATION IS NOT SHOWN
FURNISH R.C. PIPE IN THE FOLLOWING CLASSES:
15" AND SMALLER – CLASS V
18" AND LARGER – CLASS II

BULK SERVICE DRIVE

CURB OPENING CATCH BASIN DESIGN (LP4 MODIFIED)



SECTION A-A



DRAINAGE STRUCTURE TABULATION	
DESIGN	QUANTITY
A OR F	4
SP2	4
LP4-2	2
LP4-3	5
LP4-4	19
LP4-5	10
LP4-6	6
LP4-7	4
SURGE BASIN 5200	1
4020-54"	1
4020-66"	1

R.C.P. APRON CHART	
SIZE	QUANTITY
12"	1
15"	6
18"	1
21"	1
24"	7
30"	2
36"	1

REVISIONS	DATE	BY
CATCH BASIN DETAIL CHANGE	2-18-87	KH

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Harry K. Fullerton

DATE 5-16-86 REG. NO. 13501

CASTING ASSEMBLIES –
A = RING CASTING Mn./DOT NO. 700-7, COVER CASTING Mn./DOT NO. 712 (INCLUDE WITH STRUCTURE, NOT SEPARATE PAY ITEM)
B = INLET FRAME, GRATE & CURB BOX – SEE DETAIL SHEET 32 (INCLUDE WITH STRUCTURE, NOT SEPARATE PAY ITEM)
C = RING CASTING Mn./DOT NO. 790-2 MOD. SEE STD. PL. NO. 4021, COVER CASTING Mn./DOT NO. 712 (INCLUDE WITH STRUCTURE, NOT SEPARATE PAY ITEM)
D = RING CASTING Mn./DOT NO. 700-7, GRATE CASTING Mn./DOT NO. 720 (INCLUDE WITH STRUCTURE, NOT SEPARATE PAY ITEM)

MANHOLES & CATCH BASINS –
LP4 – HEIGHT Mn./DOT STD. PL. NO. 4021 AND DETAIL SHEET 32
SPECIAL 2 – SEE DETAIL SHEET 32
A OR F, Mn./DOT STD. PLATE NO. 4000 OR 4005

PROPOSED DRAINAGE CHART II

27-128

Fed. Proj. No.

QUANTITY	STANDARD SIGN CODES			QUANTITY
4-Post Mt. In Barrels.	R1-1 30"X30" MINIMUM		▲ DRUM WITH ONE STEADY BURN WARNING LIGHT.	115
3-Post Mt.	W3-1 48"X 48" ORANGE			
	W20-1 48"X 48" ORANGE		BARRICADE TYPE III WITH ONE FLASHER (8' MINIMUM)	9
	W20-3, Rt or L 48" X 48" ORANGE W3-1 20 MPH 24" X 24" ORANGE		BARRICADE TYPE III WITH TWO FLASHERS (8' MINIMUM)	4
	W20-6 48"X 48" ORANGE W13-1 20 MPH 24"X 24" ORANGE		● BARRICADE TYPE I WITH ONE STEADY BURN WARNING LIGHT (2' MINIMUM)	
	W6-3 48"X 48" ORANGE			

QUANTITY	STANDARD SIGN CODES	
1-Post Mt.	W20-2 48"X 48" ORANGE	DETOUR 500 FT
9-Post Mt. 3-Barr. Mt.	M4-9, R,L,S 30"X 24" ORANGE	McKNIGHT RD. DETOUR
3-Barr. Mt.	R11-2 48"X 30" BLACK ON WHITE.	ROAD CLOSED
1-Barr. Mt.	R11-4 60"X 30" BLACK ON WHITE.	ROAD CLOSED TO THRU TRAFFIC
3-Barr. Mt.	R11-3 60"X 30" BLACK ON WHITE	ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY

EDGEWATER BLVD.

DETOUR ROUTE

McKNIGHT RD. DETOUR

NO TRUCKS

IVY ST.

SEGMENT D
STA. 120+80 to STA. 159+85

McKNIGHT RD.

C.B.N.W. RAILROAD

RIGHT TURN ONLY

MATCHLINE STA. 138

MARYLAND AVE.

BULK SERVICE INC. PRIVATE ROAD

WEIGH SCALE

BULK SERVICE INC.

BEAVER LAKE

ROAD CLOSED

SEGMENT A
STA. 86+50 to STA. 102+40

SEGMENT B
STA. 9+00 to STA. 16+13

SEGMENT C
STA. 103+00 to STA. 117+50

CONSTRUCTION CENTERLINE

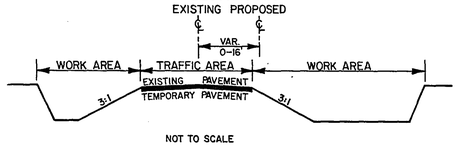
MAINTAIN ACCESS TO SOUTH AT ALL TIMES

BEGIN S.P. 62-668-18
STA. 86+50

ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY

McKNIGHT RD. DETOUR

SECTION AA
EXISTING PROPOSED



NOT TO SCALE

SEE PHASE I TRAFFIC CONTROL NOTE 5

NOTE: MAINTAIN ACCESS TO THE SHOPPING CENTER AT ALL TIMES ON A MINIMUM OF ONE ENTRANCE

LARPENTEUR AVE.

SEGMENT E
STA. 0+50 to STA. 7+30

DETOUR 500 FT

SCALE IN FEET
0 100 200 300 400 500

STA. 138 MATCHLINE

SEGMENT D
STA. 120+80 to STA. 159+85

McKNIGHT RD.

CONSTRUCTION CENTERLINE

MONTANA AVE.

MAINTAIN ACCESS TO EXISTING McKNIGHT ROAD AT ALL TIMES.

T. C. P. WORK AREA –

END S.P. 62-668-18
STA. 6+50

DETOUR ROUTE

T.H. 5 – T.H. 120

PHASE I –
MAJOR CONSTRUCTION ACTIVITIES

1. SEGMENT "A" GRADING COMMENCES.
2. SEGMENT "B" GRADING AND PAVEMENT STRUCTURE COMPLETED.
3. SEGMENT "C" GRADING AND PAVEMENT STRUCTURE COMPLETED PROVIDING HARD SURFACED ACCESS TO BULK SERVICES, INC.
4. SEGMENT "D" GRADING COMMENCES OUTSIDE OF EXISTING ROAD SURFACE.
5. SEGMENT "E" PROVIDES TEMPORARY SURFACING ON NORTH SIDE OF LARPENTEUR AVENUE AS DIRECTED BY ENGINEER. SUBGRADE EXCAVATION AND PLACEMENT OF GRAVEL BASE ON SOUTH SIDE OF LARPENTEUR AVENUE DURING THIS PHASE.

PHASE I – TRAFFIC CONTROL NOTES

1. SEGMENT "A" WILL BE CLOSED TO TRAFFIC (EXCEPT FOR LOCAL ACCESS) FOR A PERIOD NOT TO EXCEED 25 WORKING DAYS (PHASE 1 & 2). THIS CLOSURE SHALL BE COORDINATED WITH SEGMENTS "B" AND "C" CONSTRUCTION.
2. SEGMENT "B" MAY BE CLOSED TO TRAFFIC (EXCEPT FOR LOCAL ACCESS) FOR A PERIOD NOT TO EXCEED 5 WORKING DAYS. SEGMENT "B" SHALL BE OPEN TO TRAFFIC ON A SUITABLE SURFACE PRIOR TO PHASE 2 CLOSING OF MCKNIGHT ROAD.
3. SEGMENT "C" SHALL BE COMPLETED TO A HARD SURFACE PAVEMENT PRIOR TO CLOSING OF THE BULK SERVICES' EXISTING MCKNIGHT ROAD ACCESS.
4. SEGMENT "D" TRAFFIC SHALL BE MAINTAINED ON THE EXISTING SURFACE AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.
5. WHEN SUBGRADE EXCAVATION OR STORM SEWER EXCAVATION APPROACHES THE TRAFFIC AREA WITHIN THE MINIMUM SLOPE AND SHOULDER SHOWN, THE CONTRACTOR SHALL PROVIDE FOR ONE LANE OPERATION WITH FLAGGERS AS DIRECTED BY THE ENGINEER UNTIL THE MINIMUMS ARE RESTORED. COST OF SPECIAL SCHEDULING AND FLAGGERS FOR THIS OR ANY SIMILAR OPERATION WILL BE CONSIDERED INCIDENTAL TO TRAFFIC CONTROL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR. REPEATED REMOVAL OF SUBGRADE MATERIALS DUE TO PHASED CONSTRUCTION IS NECESSARY. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THIS WORK.

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	WJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Paul Kubista

DATE 4-18-86 REG. NO. 12703

27-128

TRAFFIC CONTROL PLAN - PHASE I

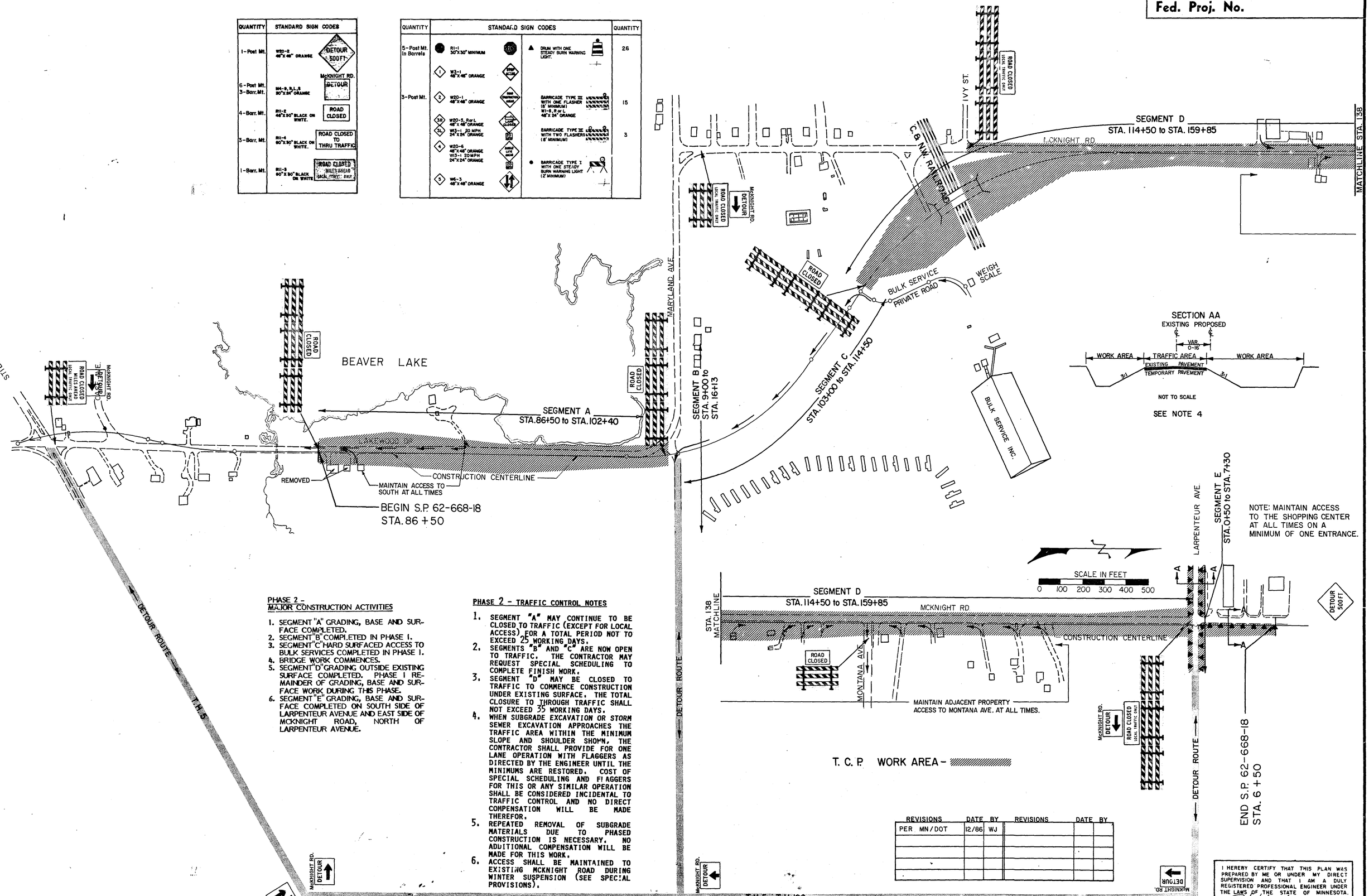
S.P. NO. 62 – 668-18

Sheet No. 12 of 121 Sheets

Fed. Proj. No.

QUANTITY	STANDARD SIGN CODES
1-Post Mt.	W20-2 48"X 48" ORANGE — DETOUR 500FT
6-Post Mt. 3-Barr. Mt.	M4-9, R, L, B 30"X 24" ORANGE — McKNIGHT RD. DETOUR
4-Barr. Mt.	R11-2 48"X 30" BLACK ON WHITE. — ROAD CLOSED
3-Barr. Mt.	R11-4 60"X 30" BLACK ON WHITE. — ROAD CLOSED TO THRU TRAFFIC
1-Barr. Mt.	R11-3 60"X 30" BLACK ON WHITE — ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY

QUANTITY	STANDARD SIGN CODES	QUANTITY
5-Post Mt. In Barrels	R1-1 30"X 30" MINIMUM; DRUM WITH ONE STEADY BURN WARNING LIGHT.	26
	W3-1 48"X 48" ORANGE	
3-Post Mt.	W20-1 48"X 48" ORANGE; BARRICADE TYPE III WITH ONE FLASHER (8' MINIMUM) W1-8, R or L 48"X 24" ORANGE	15
	W20-5, R or L 48"X 48" ORANGE; W13-1 20 MPH 24"X 24" ORANGE; BARRICADE TYPE III WITH TWO FLASHERS (8' MINIMUM)	3
	W20-6 48"X 48" ORANGE W13-1 20 MPH 24"X 24" ORANGE	
	W6-3 48"X 48" ORANGE; BARRICADE TYPE 1 WITH ONE STEADY BURN WARNING LIGHT (2' MINIMUM)	



SECTION AA
EXISTING PROPOSED

NOT TO SCALE

SEE NOTE 4

PHASE 2 - MAJOR CONSTRUCTION ACTIVITIES

1. SEGMENT "A" GRADING, BASE AND SURFACE COMPLETED.
2. SEGMENT "B" COMPLETED IN PHASE 1.
3. SEGMENT "C" HARD SURFACED ACCESS TO BULK SERVICES COMPLETED IN PHASE 1.
4. BRIDGE WORK COMMENCES.
5. SEGMENT "D" GRADING OUTSIDE EXISTING SURFACE COMPLETED. PHASE I REMAINDER OF GRADING, BASE AND SURFACE WORK DURING THIS PHASE.
6. SEGMENT "E" GRADING, BASE AND SURFACE COMPLETED ON SOUTH SIDE OF LARPENTEUR AVENUE AND EAST SIDE OF MCKNIGHT ROAD, NORTH OF LARPENTEUR AVENUE.

PHASE 2 - TRAFFIC CONTROL NOTES

1. SEGMENT "A" MAY CONTINUE TO BE CLOSED TO TRAFFIC (EXCEPT FOR LOCAL ACCESS) FOR A TOTAL PERIOD NOT TO EXCEED 25 WORKING DAYS.
2. SEGMENTS "B" AND "C" ARE NOW OPEN TO TRAFFIC. THE CONTRACTOR MAY REQUEST SPECIAL SCHEDULING TO COMPLETE FINISH WORK.
3. SEGMENT "D" MAY BE CLOSED TO TRAFFIC TO COMMENCE CONSTRUCTION UNDER EXISTING SURFACE. THE TOTAL CLOSURE TO THROUGH TRAFFIC SHALL NOT EXCEED 35 WORKING DAYS.
4. WHEN SUBGRADE EXCAVATION OR STORM SEWER EXCAVATION APPROACHES THE TRAFFIC AREA WITHIN THE MINIMUM SLOPE AND SHOULDER SHOWN, THE CONTRACTOR SHALL PROVIDE FOR ONE LANE OPERATION WITH FLAGGERS AS DIRECTED BY THE ENGINEER UNTIL THE MINIMUMS ARE RESTORED. COST OF SPECIAL SCHEDULING AND FLAGGERS FOR THIS OR ANY SIMILAR OPERATION SHALL BE CONSIDERED INCIDENTAL TO TRAFFIC CONTROL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
5. REPEATED REMOVAL OF SUBGRADE MATERIALS DUE TO PHASED CONSTRUCTION IS NECESSARY. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THIS WORK.
6. ACCESS SHALL BE MAINTAINED TO EXISTING MCKNIGHT ROAD DURING WINTER SUSPENSION (SEE SPECIAL PROVISIONS).

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	WJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 4/8-06 REG. NO 12703

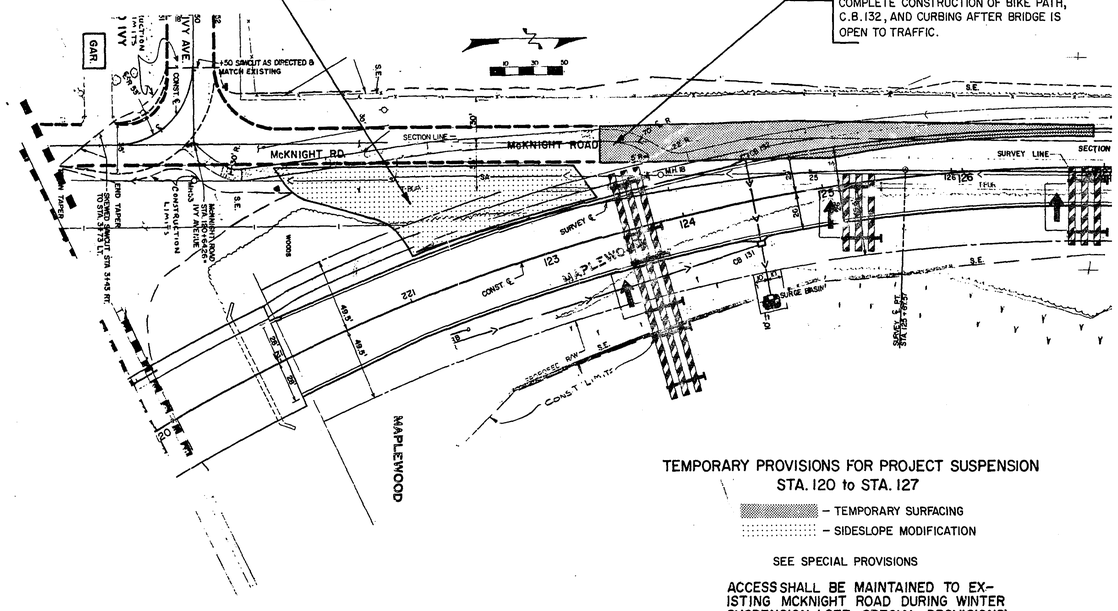
TRAFFIC CONTROL PLAN - PHASE 2

S.P. NO. 62 - 668-18

27-128

Sheet No. 13 of 121 Sheets

Fed. Proj. No.

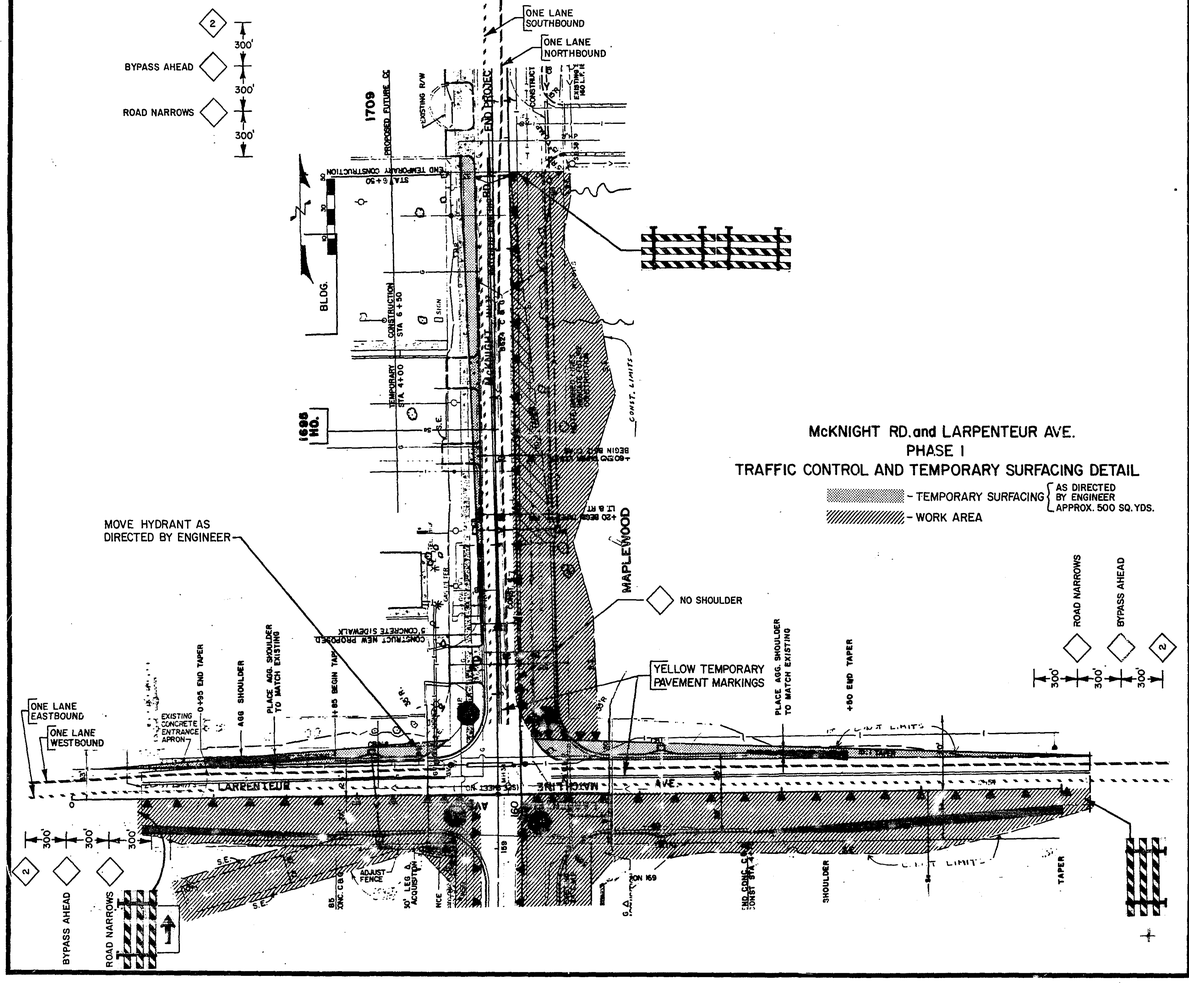


TEMPORARY PROVISIONS FOR PROJECT SUSPENSION
STA. 120 to STA. 127

- TEMPORARY SURFACING
- SIDESLOPE MODIFICATION

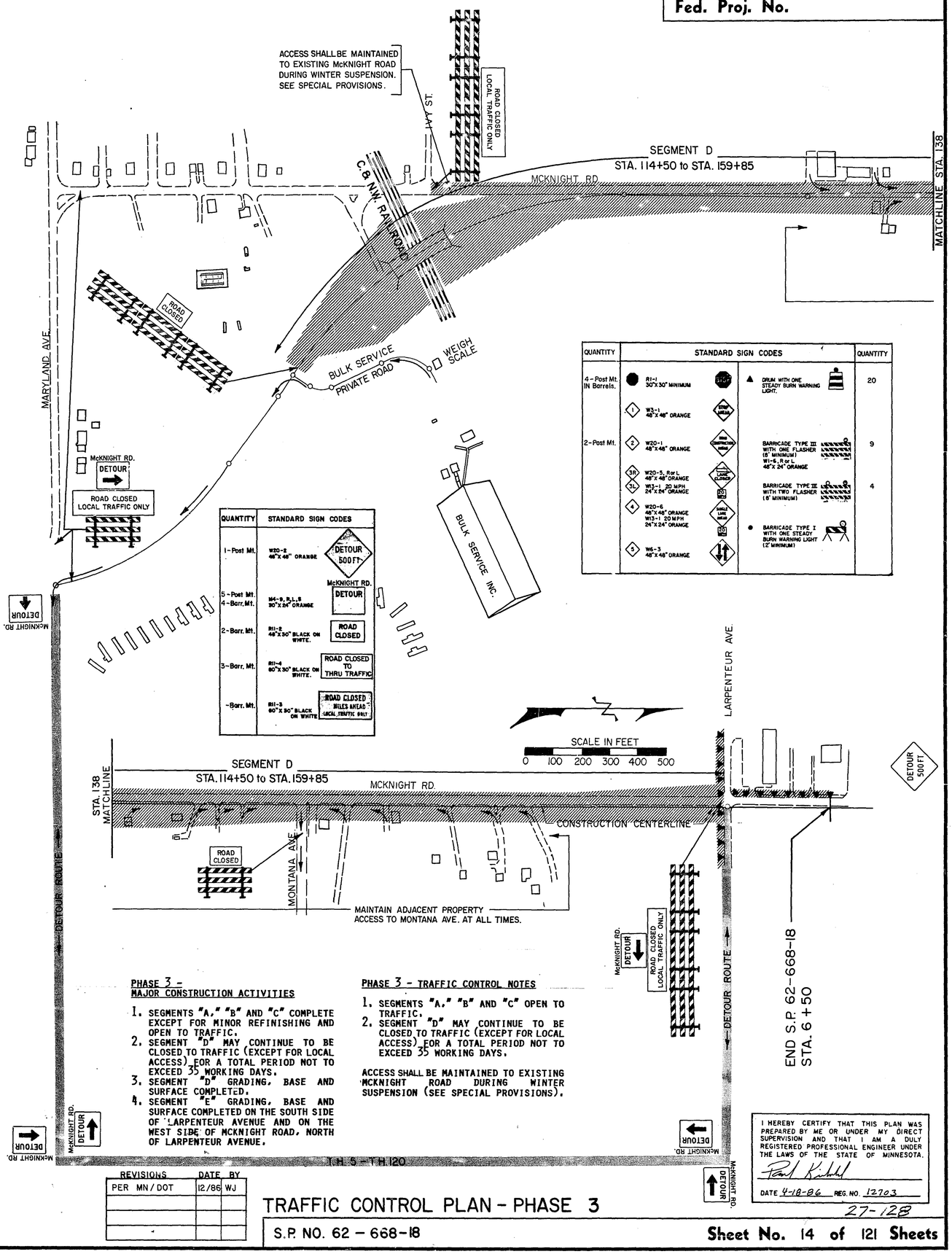
SEE SPECIAL PROVISIONS

ACCESS SHALL BE MAINTAINED TO EXISTING MCKNIGHT ROAD DURING WINTER SUSPENSION (SEE SPECIAL PROVISIONS).



McKNIGHT RD. and LARPENTEUR AVE.
PHASE I
TRAFFIC CONTROL AND TEMPORARY SURFACING DETAIL

- TEMPORARY SURFACING — AS DIRECTED BY ENGINEER, APPROX. 500 SQ. YDS.
- WORK AREA



QUANTITY	STANDARD SIGN CODES		QUANTITY
4 - Post Mt. IN Barrels.	R1-1 30"X30" MINIMUM	DRUM WITH ONE STEADY BURN WARNING LIGHT.	20
2 - Post Mt.	W3-1 48"X48" ORANGE	BARRICADE TYPE III WITH ONE FLASHER (8' MINIMUM) W1-6, R.R.L. 48"X 24" ORANGE	9
	W20-5, R.R.L. 48"X48" ORANGE; W13-1 20 MPH 24"X24" ORANGE	BARRICADE TYPE III WITH TWO FLASHER (8' MINIMUM)	4
	W20-6 48"X48" ORANGE W13-1 20 MPH 24"X24" ORANGE	BARRICADE TYPE I WITH ONE STEADY BURN WARNING LIGHT (2' MINIMUM)	
	W6-3 48"X48" ORANGE		

QUANTITY	STANDARD SIGN CODES
1 - Post Mt.	W20-2 48"X48" ORANGE — DETOUR 500 FT. McKNIGHT RD. DETOUR
5 - Post Mt. 4 - Barr. Mt.	M4-9, R.L.S 30"X24" ORANGE
2 - Barr. Mt.	R1-2 48"X30" BLACK ON WHITE. — ROAD CLOSED
3 - Barr. Mt.	R11-4 60"X30" BLACK ON WHITE. — ROAD CLOSED TO THRU TRAFFIC
- Barr. Mt.	R11-3 60"X30" BLACK ON WHITE — ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY

PHASE 3 -
MAJOR CONSTRUCTION ACTIVITIES

1. SEGMENTS "A," "B" AND "C" COMPLETE EXCEPT FOR MINOR REFINISHING AND OPEN TO TRAFFIC.
2. SEGMENT "D" MAY CONTINUE TO BE CLOSED TO TRAFFIC (EXCEPT FOR LOCAL ACCESS) FOR A TOTAL PERIOD NOT TO EXCEED 35 WORKING DAYS.
3. SEGMENT "D" GRADING, BASE AND SURFACE COMPLETED.
4. SEGMENT "E" GRADING, BASE AND SURFACE COMPLETED ON THE SOUTH SIDE OF LARPENTEUR AVENUE AND ON THE WEST SIDE OF MCKNIGHT ROAD, NORTH OF LARPENTEUR AVENUE.

PHASE 3 - TRAFFIC CONTROL NOTES

1. SEGMENTS "A," "B" AND "C" OPEN TO TRAFFIC.
2. SEGMENT "D" MAY CONTINUE TO BE CLOSED TO TRAFFIC (EXCEPT FOR LOCAL ACCESS) FOR A TOTAL PERIOD NOT TO EXCEED 35 WORKING DAYS.

ACCESS SHALL BE MAINTAINED TO EXISTING MCKNIGHT ROAD DURING WINTER SUSPENSION (SEE SPECIAL PROVISIONS).

REVISIONS	DATE	BY
PER MN/DOT	12/86	WJ

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Paul Kirkeide
DATE 4-18-86 REG. NO. 12703

TRAFFIC CONTROL PLAN - PHASE 3

S.P. NO. 62 - 668-18

27-128

Sheet No. 14 of 121 Sheets

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

℄ CONSTRUCTION
P.I. = 80+99.45
Δ = 10°04'27"
R = 1909.86'
D = 3°
T = 168.34'
L = 335.81'

CONST. P.T. = 82+66.92 =
SURVEY P.T. = 82+51.08

HO. 995

PRIVACY FENCE

STA. 81+00 SURVEY ℄ 38.5' RT. =
STA. 81+00 REVISED SURVEY ℄

CON. ℄ P.T. 82+66.92 =
SURVEY ℄ P.T. 82+51.08

MAPLEWOOD

L.S. 1035

MH3

VAC.

SWAMP

WOODS

PROPOSED FUTURE CONSTRUCTION

BEGIN PROJECT
STA 86+50.0

86+50.0 BEGIN TEMPORARY CONST.

87+50.0 BEGIN PERMANENT CONST.

TEMPORARY CONSTRUCTION
STA. 86+50.0 TO STA. 87+50.0

PERMANENT CONSTRUCTION

WELL

CONSTRUCT
8' BIT. PATH

S.E.

EXISTING R/W

CLOSE

FUTURE 8' PATH

BEGIN 8' PATH

M.H. 101

CB 102

BIT. SHOULDER

EDGE OF
ROADWAY

MATCH TO
EXISTING
ROADWAY

MH 4

SAWCUT BIT

BEGIN 3624 C&G STA. 87+50- LT. & RT.

CONST. ℄

MH5

80
SURVEY LINE

CONST. ℄

LAKEWOOD DR.

MH1

60'
SURVEY LINE

SIXTEENTH LINE, R/W ℄

MH2

G 4" HP

G 3" HP

3" HP

83

84

85

86

87

88

89

BIT. SHOULDER

CONST. LIMITS

LIMITS

APRON 100

RIPRAP

CB 103

NOTE: ~~CLOSED ENTRANCES WILL BE RECONSTRUCTED BASED ON APPROVED DEVELOPMENT PLAN BY MAPLEWOOD~~

S.E.

WOODS

MAPLEWOOD

70 C.F.S.

CONSTRUCTION
LIMITS

CONSTRUCT OPEN DITCH FOR DRAINAGE

HOUSE 1060-1068-1070
RECONSTRUCT ENTRANCES AND GRADE WITHIN SLOPE EASEMENT LIMITS AS DIRECTED BY THE ENGINEER IN THE FIELD. 10/87

HO. 1060

HO. 1068

HO. 1070

STONE WALL

BLOCK WALL

GAR.

GAR.

R/W

NOTE: ~~HOUSES TO BE REMOVED BY OTHERS~~
~~REMOVAL OF WALLS & ENTRANCES FOR THESE 3 HOUSES ARE INCIDENTAL TO COMMON EXCAVATION.~~

HO. 994

HO. 1000

HO. 1012

B.M. #28 ELEV. 1017.07
TOP HYDRANT N.W. COR.
STILLWATER & MCKNIGHT

B.M. #27 ELEV. 957.32
TOP OF S.E. CORNER
LIFT STATION

SILT FENCE

EXISTING 48" CMP
120 L.F. 48" R.C.P. @ 11%

FUTURE STORM SEWER

ASBUILT PLAN
CONFORMING TO
CONST RECORDS
DONE BL
DATE: 2/2/89

LEGEND
TEMPORARY STRUCTURAL SUBCUT SECTION

℄ SURVEY EXISTING

P.C. 80+00
EL. 974.38

6.96%

30' W OF 1/16 LINE

8.5' E. OF 1/16 LINE

EXISTING GRADE

SAN MH 1

260 L.F. 8" PVC

SAN MH 3

SAN MH 2

61 L.F. 12" RCP @ 0.59%

V.C. = 750'
M = 10.1343

EXISTING 48" CMP 948.98
PROPOSED 48" RCP 948.56

P.I. 83+76
EL. 948.28

332 L.F. 15" CMP @ 0.26%

LOW POINT 84+82.89
EL. 957.57

SAN MH 4

M.H. 101

CB 102

CB 103

964.95

965.00

58
58 L.F. 15"
R.C.P. @ 1.0%

TEMPORARY CONSTRUCTION

958.50
65

958.67
75

70
959.28

P.I. 87+50
EL. 962.72

P.C. 89+00
EL. 958.63

PROFILE GRADE = ℄

12" @ 0.31%

APRON 100

INTERIM GRADE

+3.85%

959.60

MATCH
LINE

125
121 L.F. 15" R.C.P. @ 2.4%

955.52 40

955.39 30

68
84 L.F. PLUS APRON
15" RCP @ 1.27%

954.50
36

7.82%

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

SPECIAL DITCH GRADE RT.

975
970
965
960
955
950
945

80
81
82
83
84
85
86
87
88
89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
STATIONING	2-5-86	BJ, SB			
~~Ho. 1060-68-70~~	10/87	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Fahlman

DATE 5-16-89 REG. NO. 13501

27-128

S.P. NO. 62-668-18

Sheet No. ~~15~~ of 121 Sheets

15R

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

MAPLEWOOD
H.O.# 1099

CONSTRUCTION LIMITS
WELL
S.E.
SAVE
CLOSE
8' PATH
EXISTING R/W
7.5'
CONSTRUCT 8' BIT. PATH
BIT. SHOULDER
EDGE OF ROADWAY
LAKEWOOD DRIVE
SIXTEENTH LINE, R/W ℄
CONSTRUCTION ℄ & SURVEY LINE
MH6
MH7
MH8
MH9
Sa
G
3"HP
C.B.104
C.B.105
M.H.106
CB 108
CB 109
AP107
AP 110
RIPRAP
SWAMP
BEAVER LAKE
66'
NOTE: SEE MCKNIGHT ROAD WETLAND MITIGATION PLAN SEE SHEET NO. 41
STA. 96+25-RIGHT SIDE CONSTRUCT NEW ENTRANCE TO R/W AS DIRECTED BY THE ENGINEER IN THE FIELD. 10/87
E. MAGNOLIA AVE.
PROPOSED R/W
SILT FENCE

B.M. #26 ELEV. 982.72
R.R. SPK. SHAFT-ARC LT. POLE
W. SIDE MCKNIGHT HO. #1099

EXISTING GRADE
FI 91+25 EL. 977.16
SAN MH6
+3.85%
-4.24%
PROFILE GRADE = ℄
V.C. = 650'
M=6.573125'
5.58'
SAN MH7
3.5' FOR UNIFORMITY AND COMPACTION
EXISTING SANITARY SEWER

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BL
DATE: 2/2/89

961.29
961.39
59 LF 15" RCP @1.0%
957.25 .39
956.66 .69
956.50 .59
EL. 963.37
EL. 962.23
P.T.+69
P.C.+75
100 LF 15" RCP @ 2.93%
3.22%
956.50 .59
958.27
141
139' LF 15" RCP
953.67 .37
953.40 .30
21.30±
BEGIN MUCK EXCAVATION STA. 95+70±
0.97%
@ 1.30% - APRON
951.93 .30
951.17 .25
3.13%
300 LF 10" VCP @ 0.11%
EL. 950.66
FI STA 7+50
LAKEWOOD DRIVE

SANITARY SEWER PROFILE
STA. 96+65 RIGHT
PROPOSED GRADE
EXISTING GRADE
SAN MH9

19 L.F. 15" RCP @ 100% + APRON
955.44
955.45
59 L.F. 15" RCP @ 1.0%
951.95 .84
951.36 .35
950.92 .83
951.47 .25
APRON 110
V.C. = 550'
M=5.066875

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Thiesen
DATE 5-10-89 REG NO 13501

27-128

S.P NO 62-668-18

Sheet No 16 of 121 Sheets

16R

TOPOGRAPHY	PLOTTED BY / DATE	CHECKED BY / DATE
UTILITIES	PLOTTED BY / DATE	CHECKED BY / DATE
PROFILE	PLOTTED BY / DATE	CHECKED BY / DATE

MCKNIGHT RD. CONST. ℄ P.O.C. STA. 102+66.98
MARYLAND AVE. ℄ P.O.T STA. 13+10.86

SEE WETLAND MITIGATION PLAN

SURVEY LINE
P.I. 105+85.78
Δ=56°38' 16"LT.
D=5°
T=617.50
L=1132.756
R=1145.916
E=155.78

CONST. ℄
P.I. 105+85.78
Δ=56°38' 16"
D=6°
T=514.58
L=943.96
R=954.93
E=129.82
P.C.=100+71.20
P.T.=110+15.16

MAPLEWOOD

PROPOSED R/W

CONST. LIMITS

MATCH LINE STA 12+00 SEE SHEET NO. 25

CONSTRUCT 8' BIT. PATH

8' PATH

SIXTEENTH LINE, R/W ℄ SURVEY LINE

LAKEWOOD DRIVE

APRON III

M.H. 111A

M.H. 110

APRON 112

SURVEY ℄ P.C. STA. 99+68.28

P.C. CONST. ℄ STA. 100+71.20

CB 113A 35'R

CB 113 24'

CB 116

M.H. 119

SURVEY LINE

CONST. ℄ CONSTRUCTED 1994 BY R.C. MAINT. SEE DETAIL

APRON 14A

MAPLEWOOD

CONST. LIMITS

REMOVAL OF BIT. CURB AND BIT. SPILLWAY INCIDENTAL TO COMMON EXCAVATION

.0175 FULL SUPERELEVATION

STA. 13+30.86 MARYLAND AVE. SURVEY ℄

B.M. #24 ELEV. 964.62
R.R. SPK. SHAFT – ARC. LITE POLE
NO. SIDE MARYLAND @ MCKNIGHT

B.M. #25 ELEV. 955.78
R.R. SPK. SHAFT – P.P.
150± SO. OF MARYLAND @ MCKNIGHT

NOTE:
MEDIAN ISLAND RADII 3' TO FACE OF CURB UNLESS OTHERWISE NOTED

SILT FENCE

5 C.F.S.

CONSTRUCTION LIMITS

REMOVE 30" RCP

APRON 117

BUILD M.H. OVER EXISTING 30" R.C.P.

MH 115

MATCH LINE STA 14+00

MARYLAND AVE.

CB 114

MH 13

MH 12

WSU

2" HP G

3" HP G

WOODS

SWAMP

S.E.

SUPERELEVATION TRANSITION

99+31.21

100+99.21

FULL SUPERELEVATION
0.0175 ft. (SEE DETAIL)

REMOVE EXISTING PIPE

955.78

950.00 49.93

950.49 950.13 49.98

950.9 .75

948.94

17 L.F. 12" R.C.P. & APRON @ 0.5%

99 L.F. 24" R.C.P. & APRON @ 0.4%

RESTRICTOR PER MAPLEWOOD DRAINAGE PLAN

13 LF 15" RCP @ 1.00%

967.48

962.22 .78

967.66

960.88 .26

960.62

56.56

957.00

BUILD OVER EXISTING

57 LF 15" RCP @ 73%

967.64

961.83 .84

961.75

118 95 L.F. 24" R.C.P. @ 1.07

960.74 .64

960.10 .34

961.84

961.75

55 L.F. 15" R.C.P @ 1.0%

967.65

962.50 .36

966.65 .46

CB 113

CB 118

975.43

970.18 69.43

970.00 69.33

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

235 L.F. 18" RCP @ 3.62% 3.32%

968.85

967.01

961.86

961.76

END MUCK EXCAVATION STA. 102+80±

54 L.F. 24" RCP @ 2.28% 3.00%

967.64

958.08 58.66

957.57

957.0 56.56

955.17

BUILD OVER EXISTING 401 L.F. 30" R.C.P. & APRON @ 6.85% 3.07%

APRON 117

THE EXACT LOCATION AND ELEVATION OF APRON 117 SHALL BE DETERMINED IN THE FIELD BY THE ENV. ENG.

EL. 959.27

PROFILE GRADE = ℄

EXISTING GRADE

+3.13

-3.13%

5.58

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

EXISTING 36"

350.49

300 LF 10" VCP @ 0.11%

SAN. MH. 101

PT 25

303 LF 10" VCP @ 0.39%

SAN. MH. 15

EXISTING SANITARY SEWER

CB 114 967.69

SD 968.33

965.23

964.63 20 L.F. 15" PVC

Constructed by R.C. MAINTENANCE IN 1994

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.K.
DATE: 2/2/89

REV. APRON 117 – 10/87

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

Larry K. Fjeldahl
DATE 5-16-86 REG. NO. 13501

BEGIN CONST. ℄ STA. 101
SURVEY ℄ STA. 100

NEW McKNIGHT ROAD

98 99 100 101 102 103 104 105 106 107

980 975 970 965 960 955 950

S.P. NO. 62-668-18

Sheet No. ~~17~~ of 121 Sheets

17R

27-128

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

STA. 112+62± - LEFT SIDE
STA. 113+65± - LEFT SIDE
CONSTRUCT NEW ENTRANCES TO R/W AS DIRECTED BY THE ENGINEER IN THE FIELD. 10/87

SCALE 10' 30' 50'

WOODS
S.E.
PATH
CONST. LIMITS
CONST. ℄ P.T. STA. 110+15.16
SURVEY ℄ P.T. STA. 111+01.01
MAPLEWOOD
UNCULTIVATED FIELD
R/W
CONSTRUCT 8' BIT. PATH
MCKNIGHT RD. CONST. ℄ P.I. STA. 113+90.16
BULK SERVICE ROAD P.O.T. STA. 0+00
BEGIN NON-ACCESS LIMITS @ STA. 114+00
SURVEY LINE
CB 120
CB 121
CB 122
CB 123
CB 124
B624 C. & G.
SURVEY ℄
CONSTRUCTION ℄
CONSTRUCT V-GUTTER PAID FOR AS B624 C.& G.
26'
49.5'
107
108
109
110
111
112
113
114
115
116
CONSTRUCTION LIMITS
SILT FENCE
MAPLEWOOD
B.M.# 21 ELEV. 950.12
R.R SPK. SHAFT-ARC LIGHT POLE
S.W. CORNER MCKNIGHT RD. & TILSON AVE.
CONST. LIMITS
UNCULTIVATED FIELD S.E.
END CONC. B624 C&G @ R/W LINE
CONST. ℄ P.C. STA. 113+01.01
NO SUPERELEVATION
30' R.
71'
32'
BULK SERVICE ROAD
PRIVATE ROAD
75' R. ON ℄
CONST. BIT. CURB
SURVEY L P.C. STA. 114+34.24
90°
CB 123 MATCHLINE SEE SHEET 26
BEGIN NON-ACCESS
R/W
15'

FULL SUPERELEVATION 0.0175'/ft (SEE DETAIL)
SUPERELEVATION TRANSITION
109+87.15
111+55.15

CB 121 994.09
CB 122 994.27
1.63%
59 L.F. 15" R.C.P.@1.0%
990.15
989.56 .19
988.25 87.99
CB 120
984.14
977.94
978.20
978.03
77.74
2.53
260 LF 18" RCP @ 3.14%
3.22%
314
5.58'
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
EXISTING GRADE
+3.13%
994.09
989.48
988.25 87.99
317
314 LF 15" RCP @ 2.82% 2.55%
1003.96
59 L.F. 15" R.C.P. @ 1.0%
998.38
997.79 .86
998.46
997.71 .54
SEE DETAIL ABOVE
FILL TO GRADING GRADE
2.08
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
EL. 1007.96
P.C. 115+80

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.E.
DATE: 2/2/89

REVISION	DATE	BY
CORRECT R/W	4-17-87	ET
ENTS.- JAP	10/87	BJ

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Zilka
DATE 5-16-88 REG. NO. 13531

CONST. SURVEY 107 108 109 110 111 112 113 114 115 116

S.P. NO. 62-668-18

Sheet No. 18 of 121 Sheets

18R

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				

STA. 112+62± - LEFT SIDE
STA. 113+65± - LEFT SIDE
CONSTRUCT NEW ENTRANCES TO R/W AS DIRECTED BY THE ENGINEER IN THE FIELD. 10/87

SCALE 10' 30' 50'

WOODS
S.E.
PATH
CONST. LIMITS
CONST. ℄ P.T. STA. 110+15.16
SURVEY ℄ P.T. STA. 111+01.01
MAPLEWOOD
UNCULTIVATED FIELD
R/W
CONSTRUCT 8' BIT. PATH
MCKNIGHT RD. CONST. ℄ P.I. STA. 113+90.16
BULK SERVICE ROAD P.O.T. STA. 0+00
BEGIN NON-ACCESS LIMITS @ STA. 114+00
CB 124
SURVEY ℄
CB 120
CB 121
CB 122
CB 123
B624 C. & G.
CONSTRUCTION ℄
CONSTRUCT V-GUTTER PAID FOR AS B624 C.& G.
107 108 109 110 111 112 113 114 115 116
26' 49.5'
8'
END CONC. B624 C & G @ R/W LINE
30' R.
71'
BULK SERVICE ROAD
PRIVATE ROAD
75' R. ON ℄
CONST. BIT. CURB
SURVEY L P.C. STA. 114+34.24
90°
CB 23 MATCHLINE SEE SHEET 26
15'
BEGIN NON-ACCESS
CONST. ℄ P.C. STA. 113+01.01
CONST. LIMITS
NO SUPERELEVATION
CONSTRUCTION LIMITS
SILT FENCE
B.M. # 21 ELEV. 990 12
R.R SPK. SHAFT - ARC LIGHT POLE
S.W. CORNER MCKNIGHT RD. & TILSON AVE.

FULL SUPERELEVATION 0.0175 ft/ft (SEE DETAIL)
SUPERELEVATION TRANSITION
109+87.15
111+55.15

CB 121 994.09
CB 122 994.27
1.63%
59 L.F. 15" R.C.P. @ 1.0%
989.56 .19
990.15
988.25 87.99

CB 124 1003.96
59 L.F. 15" R.C.P. @ 1.0%
998.38
997.79 .86
CB 123 1003.96
998.46
997.71 .56
SEE DETAIL ABOVE
FILL TO GRADING GRADE
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
EL. 1007.98
P.C. 115+80

EXISTING GRADE
CB 120 984.14
+3.13%
994.09
989.48
988.25 87.99
10.58
314 LF 15" RCP @ 2.82% 2.55%
258 LF 18" RCP @ 3.22% 3.14%
77.94 978.20
978.03 77.74
5.58
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.E.
DATE: 2/2/89

REVISION	DATE	BY
CORRECT R/W	4-17-87	ET
ENTS. - JAP	10/87	BJ

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Zellmer
DATE 5-16-88 REG. NO. 13501

27-138

CONST. SURVEY 107 108 109 110 111 112 113 114 115 116

S.P. NO. 62-668-18

Sheet No. 18 of 121 Sheets

19R

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

CONST. LIMITS

APRON 126
F & L 24" R.C.P.
CL. V WITH
CL. B BEDDING

SERVICE ROAD CLOSE

TAPER BIT. PATH TO MATCH APPROACH PANEL IN 20'.

CONSTRUCT 8' PATH

NON-ACCESS LIMITS

SURVEY LINE

CONST. ℄

+70 BEGIN CURB TAPER

END CURB TAPER AT APPROACH PANEL, SEE SHEET NO. 33 FOR DETAIL.

BRIDGE GUARDRAIL
LENGTH = 125' EACH CORNER.
1) 50' TWISTED END TREATMENT
2) 50' 6'-3" POST SPACING
3) 25' 3'-1½" POST SPACING
4) ANCHORAGE ASSEMBLY (TO BRIDGE)
SEE SHEET NO. 35 FOR DETAIL.

CURB TAPERS TO BE 80' LONG AT ALL FOUR CORNERS OF BRIDGE. SEE SHEET NO. 33 FOR TRANSITION DETAIL.

CHICAGO, SAINT PAUL MINNEAPOLIS AND OMAHA RAILWAY COMPANY

CONTROL POINT
STA. 120+13.30
EL. 1013.13
R.R STA. 2+00

SURVEY LINE
P.I. = 120+52.11
Δ = 56°40' RT.
D = 5°
T = 617.87
L = 1133.33
R = 1145.916
E = 155.96

GRADE TO U.S. TELECOM DRAIN

M.H. 53

CONST. LIMITS

SALVAGE & INSTALL CHAIN LINK FENCE SEE CHART SHEET 35

SAINT PAUL

McKNIGHT ROAD

SECTION LINE

CONSTRUCT 8' PATH

TAPER BIT. PATH TO MATCH APPROACH PANEL IN 20'.

NON-ACCESS LIMITS

CB 130

CB 129

CB 128

CB 127

CB 132

CB 131

M.H. 18

BEGIN CURB TAPER AT END OF APPROACH PANEL, SEE SHEET NO. 33 FOR DETAIL.

CONST. ℄
P.I. 120+73.35
Δ = 56°40'00" RT
D = 4°
T = 772.340'
L = 1416.67'
R = 1432.394
E = 194.95
PC. = 113+01.01
PT. = 127+17.61

+00 END CURB TAPER

NO SUPERELEVATION

SEE WETLAND MITIGATION PLAN SEE SHEET NO. 41

SURGE BASIN 133 AND RIPRAP

SILT FENCE

APRON 125

AP 126

AP 125

266 L.F. 24" R.C.P. CL. V @ ~~0.31~~ 0.25% + 2 APRONS

54 L.F. 15" R.C.P. @ ~~1.00~~% 1.24%

406 L.F. 15" R.C.P. @ ~~2.28~~% 2.19%

55 ~~54~~ L.F. 15" R.C.P. @ 1.00% 0.94%

59 L.F. 15" R.C.P. @ 1.00% 0.78%

~~334~~ 333 L.F. 15" R.C.P @ ~~2.80~~% 2.65%

331 L.F. 8" VCP 1.34%

BRIDGE APPROACH PANEL

PROPOSED BRIDGE 62543
800' VC
M = 7.20'

PROFILE GRADE = ℄

+3.13%

-4.07%

SELECT GRANULAR BORROW

SELECT GRANULAR BORROW MODIFIED

GRADING MATERIAL

PROPOSED 24" R.C.P. CULVERT

EXISTING SURVEY ℄ PROFILE

EXISTING SANITARY SEWER

EXISTING FIBER OPTIC COMM. CABLE

ST. M.H. 53

SAN. M.H. 18

P.I. 119+80 EL. 1020.5

P.T. +80

EL. 1004.22

EL. 1000.22

BEGIN MUCK EXCAVATION STA. 120+70±

T#5 T#4 T#3 T#2 T#1

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY
BRIDGE GUARDRAIL NOTE	2-22-88	BJM
STORM SEWER REV.	2-18-88	BJET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Zilli
DATE 5-16-89 REG NO 13501

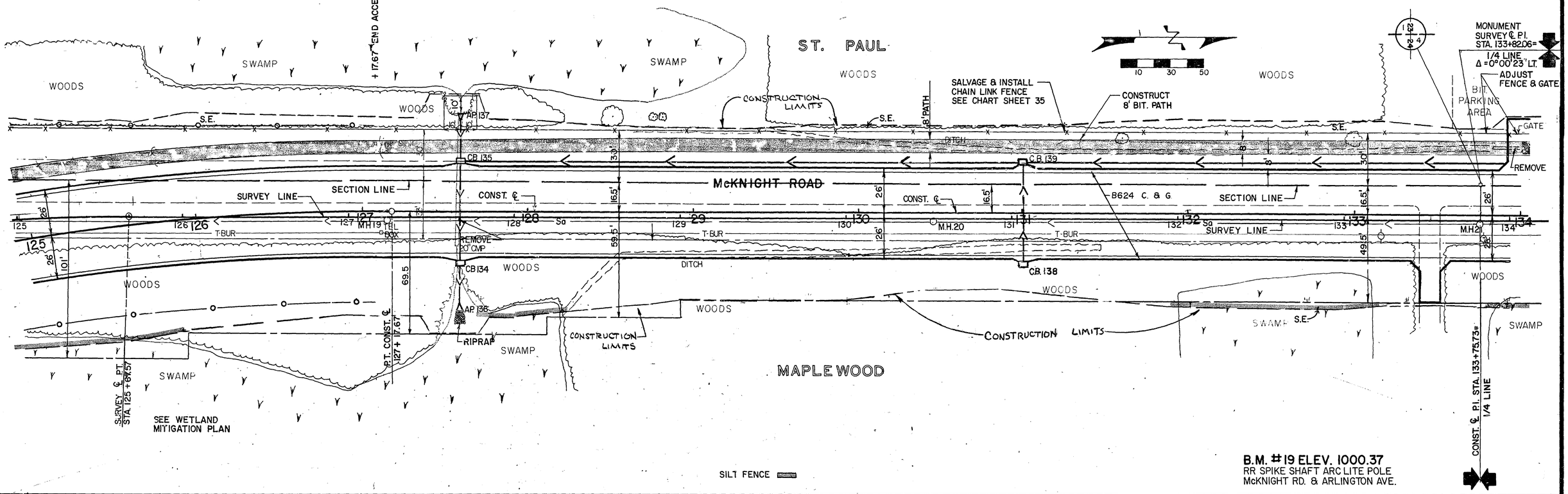
P.C. 124+78

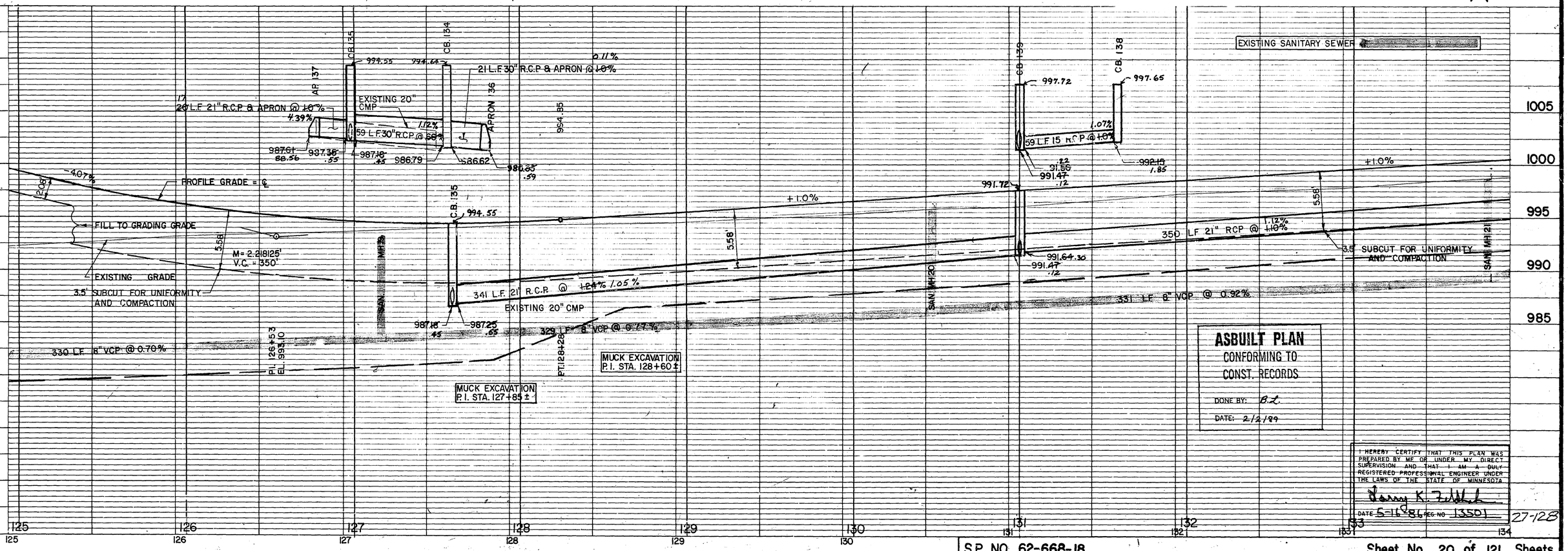
27-128

S.P NO 62-668-18

Sheet No. 19 of 121 Sheets

TOPOGRAPHY	PLOTTED BY	DATE		CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE		CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE		CHECKED BY	DATE





ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
Harry K. Zuhl
DATE 5-16-86 REG. NO 13501

27-128

SP NO. 62-668-18

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

SALVAGE & INSTALL CHAIN LINK FENCE SEE CHART SHEET 35

BEGIN WALL STA. 134+99 CONST. ℄

WALL 1

END WALL STA. 136+04 CONST. ℄

BIT. PARKING AREA

CONSTRUCTION LIMITS

BLDG

ADJUST GATE

GOLF COURSE MAINTENANCE BLDGS

GAR.

CONSTRUCTION LIMITS

ADJUST GATE

GATE

REMOVE C.M.P

C.B. 141

MH 141A

MH 142A

C.B. 143

STA. 137+81.53 FROM SO.
STA. 137+00 TO NORTH.
RT. 10

ST. PAUL

CONSTRUCT 8' BIT. PATH

BEGIN WALL STA. 139+75 CONST. ℄

SALVAGE & INSTALL CHAIN LINK FENCE SEE CHART SHEET 35

CONSTRUCTION LIMITS

WALL 2

SALVAGE & INSTALL CHAIN LINK FENCE AS DIRECTED BY THE ENGINEER SEE CHART SHEET 35

10 30 50

S.E.

SECTION LINE

SURVEY LINE

CONST. ℄

McKNIGHT ROAD

C.B. 145

MH 24

MH 23

C.B. 144

134 135 136 137 138 139 140 141 142

T-BUR

Sa

BIT SPILLWAY

C.B. 140

C.B. 142

M.H. 22

REMOVE C.M.P

WOODS

SWAMP

CONSTRUCTION LIMITS

HO. 1464

BUILDING REMOVAL PART A

CLOSE

BRUSH

MAPLEWOOD

CONST LIMITS

HO. 1506

BUILDING REMOVAL PART B

HO. 1514

BUILDING REMOVAL PART C

CONSTRUCTION LIMITS

GAR.

NOTE: CLOSED ENTRANCES WILL BE RECONSTRUCTED BASED ON APPROVED DEVELOPMENT PLAN BY MAPLEWOOD.

B.M. #18 ELEV. 1022.30
RR SPIKE SHAFT-PP
SE CORNER PROP. #1488 McKNIGHT RD.

SILT FENCE

COTT.

1040 1035 1030 1025 1020 1015 1010 1005 1000 995

CB 141 1001.21 996.63 995.50 .21

CB 140 1001.28 997.22 .08

59 L.F. 15" R.C.P. @ 10% 2.66%

CB 143 1014.36 1009.68 1009.59 .26

CB 142 1014.37 1010.27 .07

59 L.F. 15" R.C.P. @ 10% 0.64%

MH 142A 1010.56

MH 143A 1009.40 1006.30

1005.56

17 L.F. 15" R.C.P. @ 4.35%

STA. 137+81.53 FROM SO.
STA. 137+00 TO NORTH

CB 145 1028.50 1023.65 1023.57 .20

CB 144 1028.50 1024.24 .00

59 L.F. 15" R.C.P. @ 10%

SAN MH 25 1028.50 1023.57 .20

SAN MH 24

245 L.F. 15" R.C.P.

3.5 SUBCUT FOR UNIFORMITY AND COMPACTION

1024.57

+4.91%

325 L.F. 18" R.C.P. @ 4.93%

1014.36 1009.76 1009.59 .26

5.58

EXISTING GRADE @ SURVEY ℄

MH 141A 1007.39

1010.56

1004.30

999.50 .40

998.0

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

360 LF 8" VCP @ 3.84%

115 LF 18" RCP @ 2.61%

995.50 .21

995.67 .51

END MUCK EXCAVATION STA. 136+10±

EXISTING SANITARY SEWER

P.C. + 34 EL 1000.56

P.I. 135+19 EL 1001.75

P.T. + 44

PROFILE GRADE = ℄

250' V.C. M=1.096875

+50 +65

+1.0%

147 235 LF 18" RCP @ 4.19%

4.20%

SAN MH 23

1005.66

1005.56

P.C. + 25

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.R.
DATE: 7/2/84

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Harry K. Zuhlke
DATE 5-16-84 REG. NO. 13501

CONST. 134 135 136 137 138 139 140 141 142
SURVEY 134 135 136 137 137 138 139 140 141 142

27-128

S.P. NO. 62-668-18

Sheet No. 21 of 121 Sheets

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

WALL 2 — Const. Limits — S.E. — END WALL STA. 144+65 CONST. ℄ — CONST. ℄ MCKNIGHT RD. STA. 144+99.88 ℄ MONTANA STA 0+03.50 — BEGIN WALL STA. 145+35 CONST. ℄ — SURVEY LINE TO SOUTH 30/E OF SECTION LINE SURVEY LINE TO NORTH = SECTION LINE — SALVAGE & INSTALL CHAIN LINK FENCE AS DIRECTED BY THE ENGINEER SEE CHART SHEET 35 — END WALL STA. 147+02 — ST. PAUL — WALL 3 — CONSTRUCT 8' BIT PATH — Const Limits — BEGIN WALL STA. 148+55 CONST. ℄ — WALL 4 — END WALL STA. 149+55 CONST. ℄ — CONSTRUCTION LIMITS

10 30 50

SECTION LINE 7 — MH 145A — MH25 — MH26 — McKNIGHT ROAD — CB 147 — CB 149 — MH 30 — SECTION LINE — CONSTR ℄ — SURVEY ℄ — SURVEY LINE — T-BUR — CONST. ℄ — REMOVE CMP — CB 148 — APRON 148 A

143 144 145 146 147 148 149 150 151

MH 27 — CB 146 — MH 28 — S.E. — CLOSE — 25'R — 0+54.5 — 16' — 30' — MONTANA AVE. — MATCH LINE STA. 0+80 SHT. NO. 27

1524 — 1530 — 1540 — 1560 — GAR. — 1550 — WIRE FENCE — MAPLEWOOD

214' — BUILDING REMOVAL PART D — CONST. LIMITS

B.M. #17 ELEV. 1043.67
RR SPIKE SHAFT-ARC LIGHT POLE
EAST SIDE McKNIGHT AVE. HOUSE #1524

EXISTING SANITARY SEWER

EXISTING GRADE SURVEY ℄ — PROFILE GRADE = CONST. ℄ — P.I. 144+25 EL. 1042.63 — MH 145 A 1034.22 — +4.51% — 245 L.F. 15" R.C.P. @ 2.78% — 1030.02 — 5.58' — 800' V.C. M = 8.00' — SAN MH 25 — 3.5' SUBCUT FOR UNIFORMITY AND COMPACTION — SAN M.H. 26 — 1035.0 — 1033.54 — SAN M.H. 27 — 1015.77

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY
STORM SEWER REV. 2-18-86		ET

C.B. 147 — 1028.58 — 78 — 78 L.F. 15" R.C.P. @ +0% — 2:1 SS — 1022.65 — 1021.01 — 20.68 — EL. 1029.67

C.B. 146 — 1030.29 — 1.17% — 1023.60 — 22.79 — EL. 1025.18 — 1028.58 — 1027.51 — 5.58' — 3.49% — C.B. 146 — SAN M.H. 28 — 1021.01 — 20.68 — 3.5' SUBCUT FOR UNIFORMITY AND COMPACTION — 1015.17

200' V.C. M = 0.75' — 1021.15 — -0.49% — 300 L.F. 15" R.C.P. @ +0% 1.14% — 1017.72 — 1017.65 — 1014.37 — EL. 1021.89 — SAN MH 30 — 35 L.F. 8" VCP @ 0.54%

C.B. 49 — 1021.15 — 1017.63 — .35 — C.B. 48 — 1021.18 — 1017.92 — .38 — 55± L.F. 21" R.C.P. @0.5% — APRON 48 A — 1018.60 — 1018.88 17.38 — 10 L.F. 15" R.C.P. @ 2.19% + APRON 4.28% — EL. 1021.26 — 38.14±

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
DATE 5-15-89 REG. NO. 13501

BEGIN MUCK EXCAVATION STA. 150+60±

1050 1045 1040 1035 1030 1025 1020 1015

CONST. SURVEY

27-128

S.P. NO. 62-668-18 — Sheet No. 22 of 121 Sheets

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				

SALVAGE & INSTALL CHAIN LINK FENCE AS DIRECTED BY THE ENGINEER SEE CHART SHEET 35

CONSTRUCTION LIMITS

LOW LAND

ST. PAUL

GREEN

CONST. LIMITS

SALVAGE & INSTALL CHAIN LINK FENCE AS DIRECTED BY THE ENGINEER-SEE CHART SHEET 35

SAND TRAP

SAND TRAP

BIT. PATH

CONSTRUCT 8' BIT. PATH

SAVE ROW TREES

TEE

(SHEET No.28) MATCH LINE STA. 2+50

JACKED 32' CROSSING

EQUATION STA. 159 + 36.1 = STA. 2+31.46

SECTION LINE

McKNIGHT ROAD

SURVEY LINE

LARPENTEUR AVE.

MATCH LINE (SHEET No.29)

EQUATION McKNIGHT RD. CONST. ℄ STA. 160+10.95 = LARPENTEUR AVE STA. 3+16.5

REMOVE CMP

CONST. ℄

REMOVE EXISTING 18"X60' CMP (ABANDONED)

4" PVC - SEE DETAIL, SHEET 32

EXISTING 24" C.M.P

SWAMP

MAPLEWOOD

SEE WETLAND MITIGATION PLAN

CONST. LIMITS

MATCH LINE STA. 3+80 (SHEET No.28)

B.M.#16 ELEV. 1020.74
RR SPIKE SHAFT-ARC LIGHT POLE
EAST SIDE McKNIGHT RD. HOUSE #1600

SILT FENCE

59 L.F. 18"x28 1/2" R.C.P. - ARCH @ 0.5% 0.00%

13 L.F. 24" R.C.P. + APRON @ 0.5% 2.63%

97 L.F. 24" R.C.P. + 2 APRONS @ 0.00%

59 L.F. 15" R.C.P. @ 0.5% 0.54%

15" R.C.P. + APRON @ 0.5% 0.23%

EXISTING SANITARY SEWER

EXISTING GRADE SURVEY ℄

PROFILE GRADE = CONST. ℄

100' V.C. M = 0.12375

350 L.F. 24" R.C.P. @ 0.43%

335 L.F. 8" VCP @ 0.54%

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

333 L.F. 8" VCP @ 0.29%

EXISTING 18" C.M.P. = REMOVE

50' V.C. M = 0.0625

350 L.F. 8" VCP @ 0.51%

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

250 L.F. 4" PVC @ 0.4%

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
DATE 5-16-88 REG. NO. 13501

S.P. NO. 62-668-18

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				

NOTE: ① CONSTRUCT 6" CONCRETE DRIVEWAY PAVEMENT.

P.I. 3+00
Δ 0°58'30" rt.
SURVEY ℄ EQUATION STA. 159+36.1 FROM SOUTH =
STA. 2+31.46 TO NORTH

MATCH LINE STA. 2+50 (SHEET No.28)

REMOVE 24" EXISTING C.M.P.

MATCH LINE STA. 3+80 (SHEET No.28)

SECTION LINE & ℄ SURVEY TO NORTH

LARPENTEUR AVE.

MATCH LINE

160

32' JACKED CROSSING STA. 2+31.46

℄ CONST. BEGIN TAPER

CONST. ℄ EQUATION STA. 160+10.95 FROM SOUTH = STA. 2+31.46 TO NORTH

24" C.M.P.

CONSTRUCT 5' CONCRETE SIDEWALK

REPLACE IN KIND

END B624 CURB & GUTTER WITH 10' TAPER STA. 4+20

END PERMANENT CONSTRUCTION PHASE I

1695 HO.

BLDG.

TEMPORARY STA. 4+20

CONSTRUCTION STA 6+50

STA. 6+50 END TEMPORARY CONSTRUCTION

PROPOSED FUTURE CONSTRUCTION

1709

1755

MAPLEWOOD

EXISTING R/W

FUTURE 5' CONCRETE SIDEWALK

FUTURE CURB & GUTTER

SAWCUT AS DIRECTED

McKNIGHT RD.

MATCH TO EXISTING

END PROJECT STA 6+50

CONST. LIMITS

CONST. ℄

B624 C.&G.

WILLIAMS BROS. PIPELINE

10:1 TAPER

DITCH LIMITS

NOTE: DASHED LINES INDICATE FUTURE CONSTRUCTION

WOODS

CONST. LIMITS

END B624 C.&G. WITH 10' TAPER & BEGIN FULL SECTION

MAPLEWOOD

EXISTING STORM SEWER 160 L.F. 18" R.C.P.

FUTURE STORM SEWER

32' JACKED CROSSING

EASEMENT

SEE TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL DEVICE LAYOUT.

TEMPORARY CONSTRUCTION WILL BE THE SAME STRUCTURAL DESIGN & BASE DEPTH AS PERMANENT CONSTRUCTION

B.M. #15 ELEV. 1023.65
TOP HYDRANT - NW CORNER
McKNIGHT RD. & LARPENTUER AVE.

B.M. #14 ELEV. 1019.49
RR SPIKE SHAFT - ARC LIGHT POLE
WEST SIDE McKNIGHT RD. & McKNIGHT LANE

B.M. #13 ELEV. 1023.72
TOP HYDRANT - WEST SIDE
McKNIGHT RD. HOUSE #1753

LEGEND

TEMPORARY STRUCTURAL SUBCUT SECTION

EL. 1021.30
PROFILE GRADE = ℄
EXISTING GRADE
PROPOSED FUTURE GRADE
-0.83%
2.08'
5.58'
3.5' FOR UNIFORMITY & COMPACTION
ABRUPT CUT
EXISTING 12" D.I.P STEEL CASING
330 LF 8" VCP @ 0.26%
FUTURE STORM SEWER
SAN. MH 34
SAN. MH 37
M.H.
S.O. 38
EL. 1017.31
P.I. 160+10.95
P.I. 2+31.46
EXISTING SANITARY SEWER
C.B.
FUTURE
1011.75
1011.70
V.C. = 75'
M = 0.23'
330 LF 8" VCP @ 0.27%
P.I. 7+50
EL. 1017.0
RC. 1125
EL. 1017.61
FT 1875
MH 39
APR.
C2
FUTURE GRADE
+1.62%
MH 40
329 LF 8" VCP @ 0.30%
1025
1020
1015
1010

REVISIONS	DATE	BY
CONST. LIMITS @ N.W. CORNER OF McKNIGHT & LARPENTEUR	2-16-86	BJ.DM
FUTURE STORM SEWER	2-16-86	BJ.DM

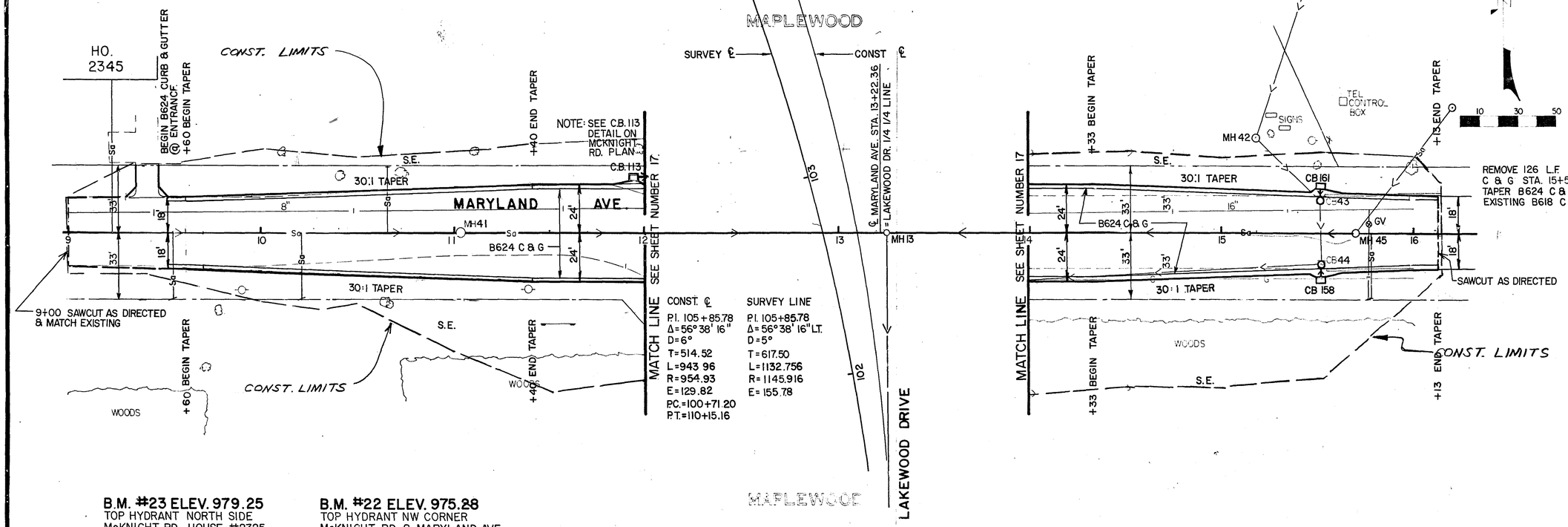
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Harry K. Tuthill
DATE 5-16-86 REG. NO 13501

27-128

S.P. NO. 62-668-18

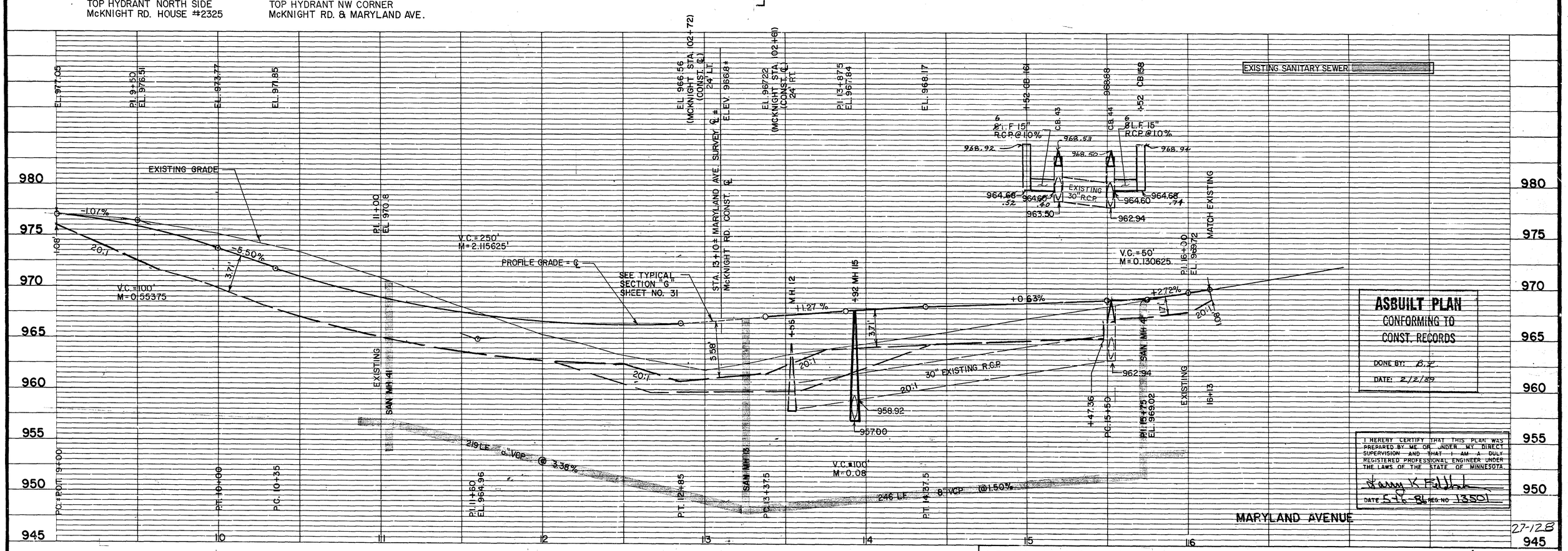
Sheet No. 24 of 121 Sheets

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE



B.M. #23 ELEV. 979.25
TOP HYDRANT NORTH SIDE
McKNIGHT RD. HOUSE #2325

B.M. #22 ELEV. 975.28
TOP HYDRANT NW CORNER
McKNIGHT RD. & MARYLAND AVE.



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.K.
DATE: 2/2/89

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Harry K Fellows
DATE 5-16-89 REG. NO. 13501

MARYLAND AVENUE

27-128

S.P. NO. 62-663-18

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

REVISIONS	DATE	BY	REVISIONS	DATE	BY
DITCH REV.	2-18-86	ET			
CORRECT R/W	4-17-87	ET			

MAPLEWOOD

N 78° 12' 30" E 704.77

CONST. LIMITS

BEGIN NON-ACCESS LIMITS AT STA. 114+00.

BULK SERVICE ROAD "C"

PATH

SURVEY ℄

B624 C.&G.

CONSTRUCTION ℄

CONSTRUCT "V" GUTTER

BEGIN NON-ACCESS LIMITS

SURVEY ℄ STA. 114+34.24

80'R

30'R

BEGIN BIT. CURB LT. & RT.

P.C. STA. 0+71

75' R. ON ℄

P.T. STA. 1+53.35

CONSTLIMITS

P.C. STA. 13+01.01 CONST. ℄

TOP OF SLOPE

BULK SERVICE ROAD

BIT. CURB

CONST. ℄

16'

3

CONST. ℄ P.I. = 1+16.88 Δ = 62° 54' 30" R = 75 D = 45.88 T = 45.88 L = 82.35

15'

STA. 116+50

STA. 117+38

STA. 118+00

WOODS

26'

495'

LEGENDS

X-SECTIONS LOCATIONS OFF MCKNIGHT SURVEY ℄

X-SECTIONS LOCATIONS OFF BULK SERVICE ROAD ℄

SCALE 10' 30' 50'

APRON 125

APRON 162

GRADE TO DRAIN

CB 163

END BIT. CURB @ 3+90 BEGIN RADIUS LT.

92' RADIUS PT.—STA LOCATION 4+15 LT.

CB.164

AP 165

EXISTING BULK SERVICE ENT.—DIRT

CONST. LIMITS

CL. 46

CL. 47

CL. 48

EXISTING 4" CIP

NOTE: OUTSIDE EDGE OF SERVICE ROAD SHALL BE SODDED

NOTE: SYMBOL ⊗ REFERS TO FINISH GRADE (PAVEMENT OR GUTTER)

96.76 95.46 94.16 92.86 91.56 90.26 88.96 88.33 87.70 86.60 85.66 84.88 84.27 83.67 83.17 82.68 82.18 81.59 81.20 981.05 981.20 981.40 982.28 982.67

END CURB +75 RT.

CONST. ℄ P.I. = 4+86.41 R = 125 Δ = 89° 57' 01" T = 126.24 L = 196.24

DITCH

PC STA. 3+61.15

MATCH BIT. EDGE WITH TRANSITION FROM END OF 92' RADIUS.

BIT.

WEIGH SCALE

SCALE BLDG.

RR R/W

PT. STA. 5+57.75

TOE OF SLOPE

EXISTING GRADE

PROFILE GRADE = ℄

PROPOSED EL. 1001.82 CONST. ℄ (MCKNIGHT)

1001.42 1001.42 1000.50 997.62

R.I. 1+00 EL. 999.50

STA. 113+75 MCKNIGHT SURVEY ℄

5.58'

1-26%

20:1

V.C. = 75' M = 0.2250'

P.T. +37.5

R.C. +62.5

2.83'

5.0%

2' SUBCUT FOR UNIFORMITY & COMPACTION

6 LF 24" RCP + APRON @ 0.45%

APRON 125 APRON 162 CB 63

984.55 980.28 980.16.05 980.21

10.5' 10.4' LF 24" RCP @ 0.11% 0.00%

985.07 980.05 980.00

8 LF 24" RCP + APRON @ 0.36%

CB 164 APRON 165

79.70

V.C. = 50' M = 0.31250'

983.25 982.00

0.00%

WEIGH SCALE EL. 982.5

EXISTING GROUND EL. 982.00

2.83'

2' SUBCUT FOR UNIFORMITY & COMPACTION

PROPOSED 24" R.C.P.

R.C. +25 P.I. +50 EL. 982.00 P.T. +75

BULK SERVICE ROAD

1010 1005 1000 995 990 985 980

0 1 2 3 4 5

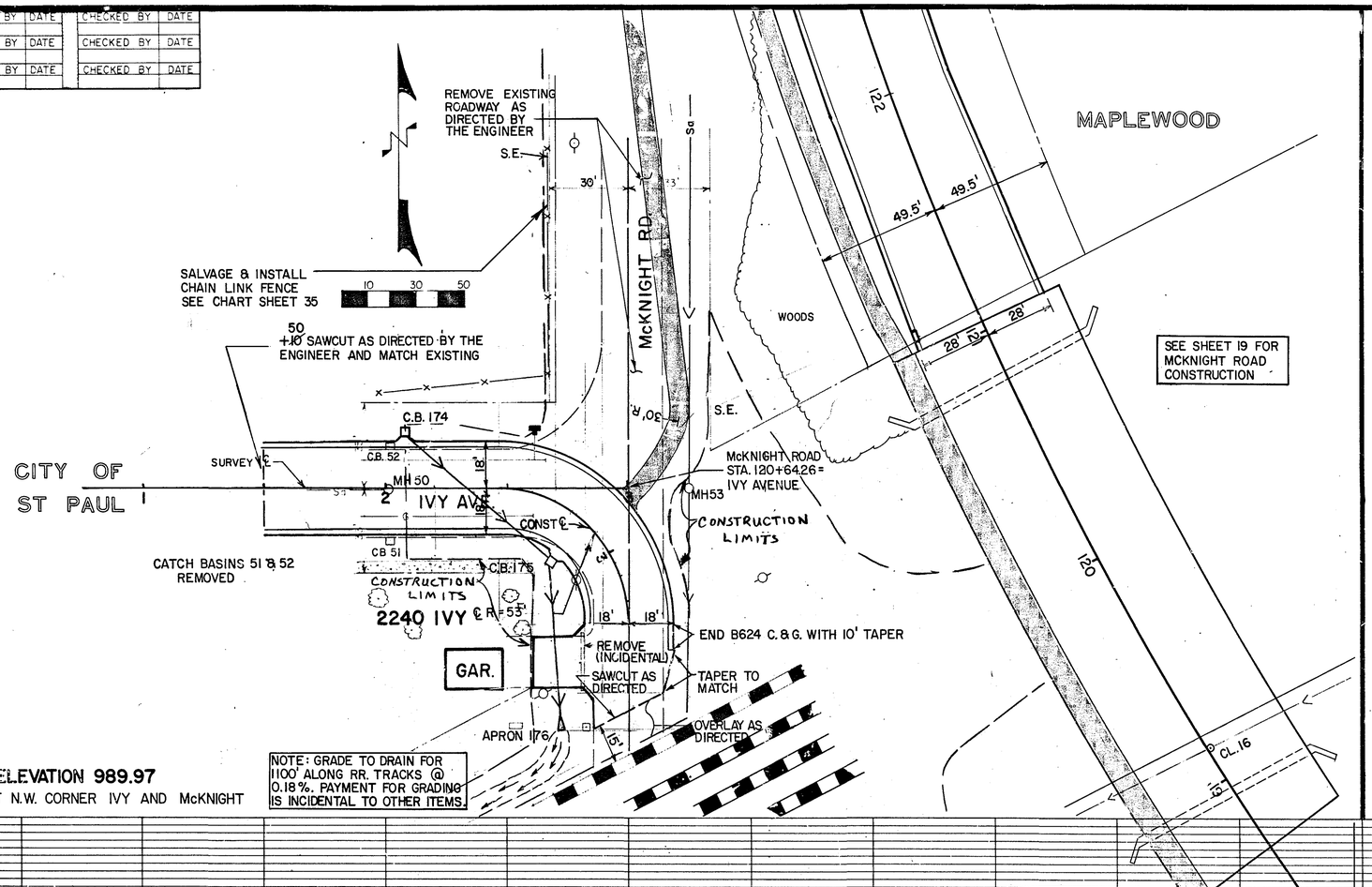
ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barry K. Fiddler
DATE 5-15-86 REG. NO 13501

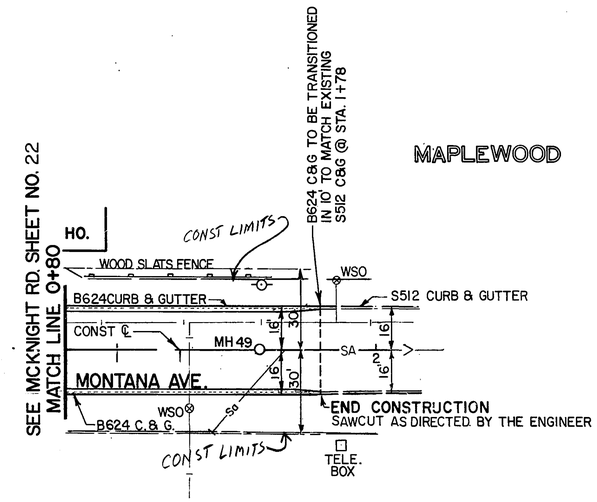
27-128

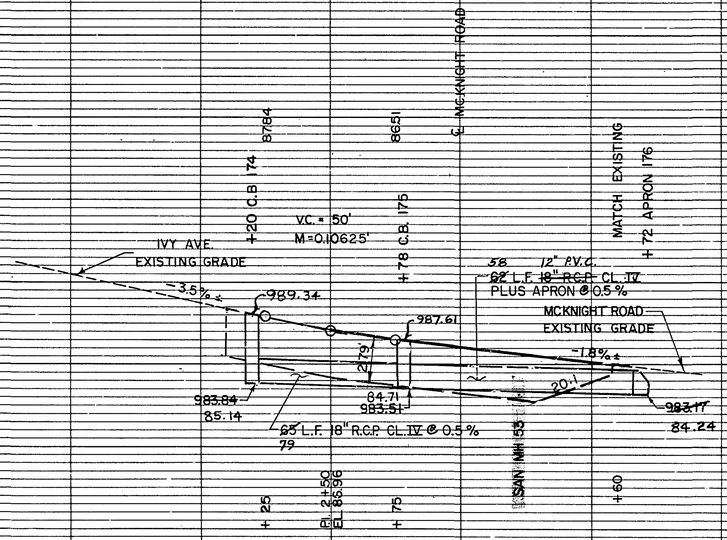
S.P. NO. 62-668-18

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

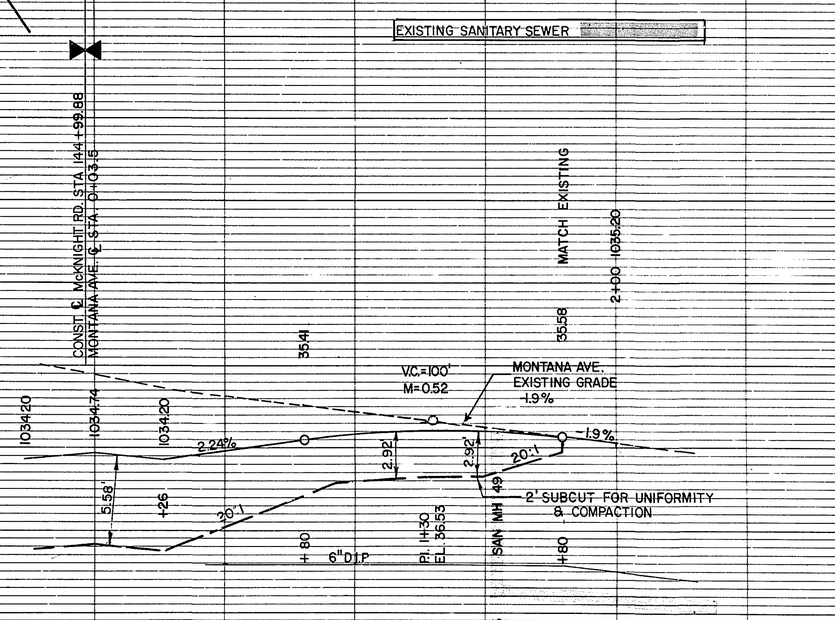


B.M. # 20 ELEVATION 989.97
TOP HYDRANT N.W. CORNER IVY AND McKNIGHT





ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B. L.
DATE: 2/2/89



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Tollefson
DATE 5-15-86 REG. NO 13501

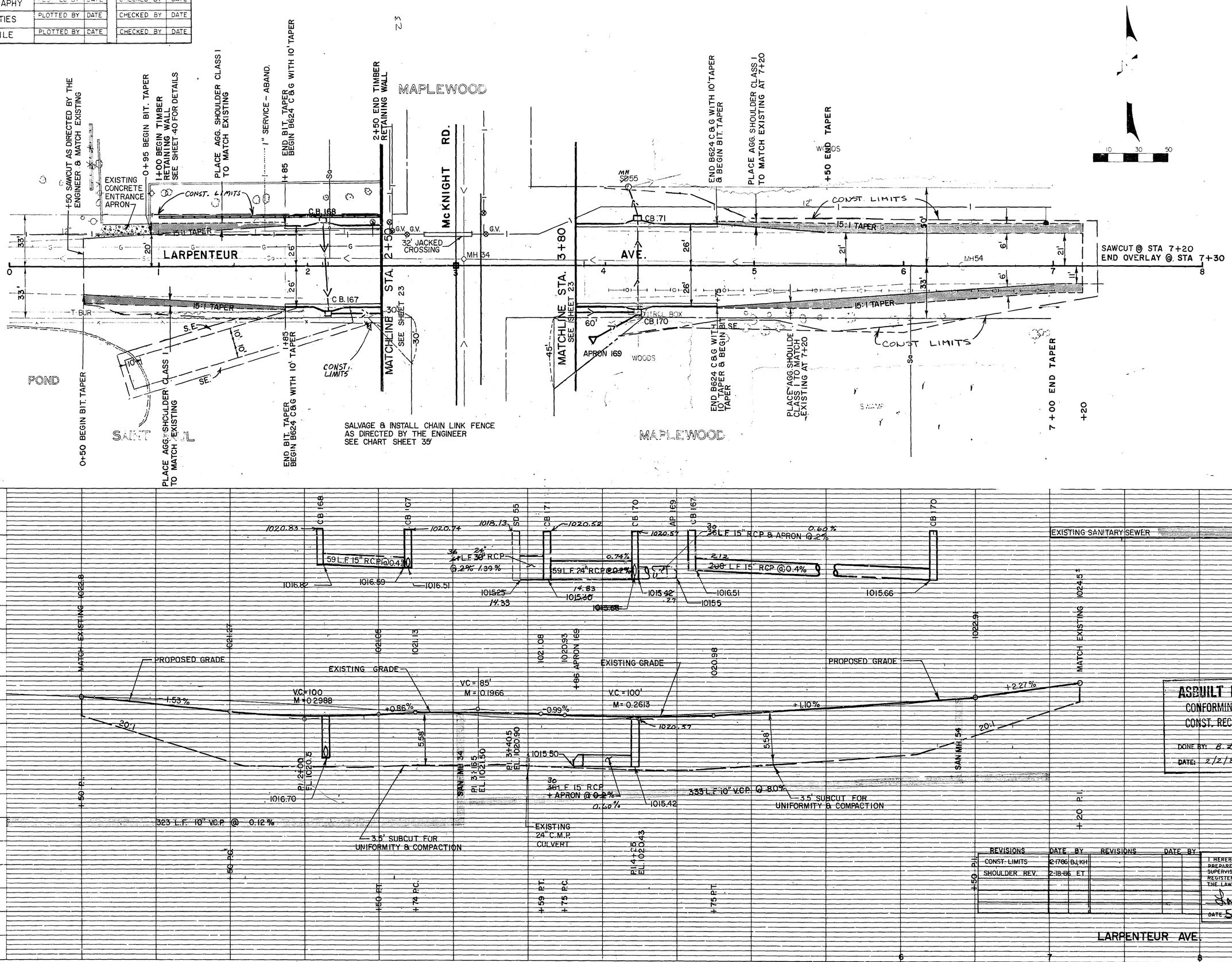
IVY AVE
MONTANA AVE

27-128

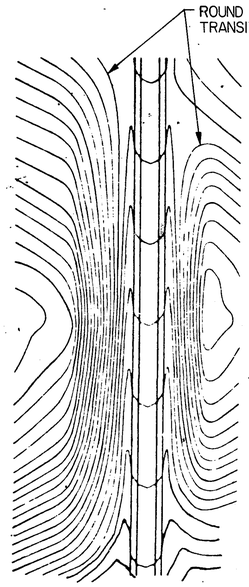
S.P. NO 62-668-18

Sheet No 27 of 121 Sheets

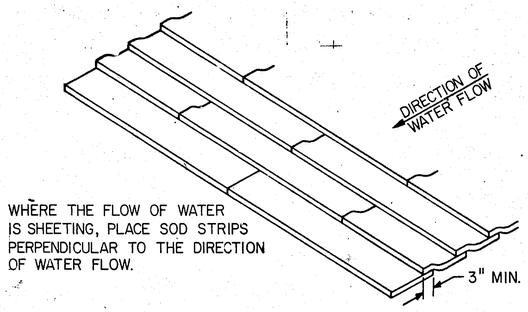
	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				



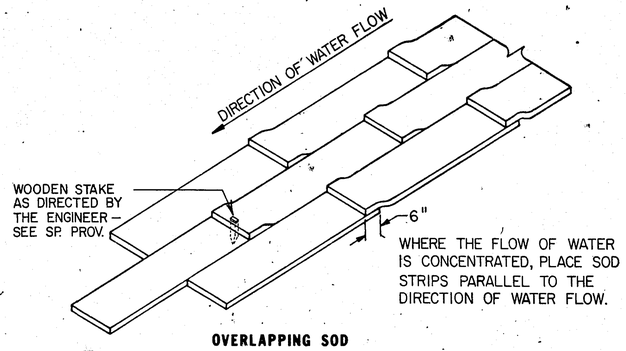
S.P. NO 62-668-18



CONTOURING ROAD CUTS

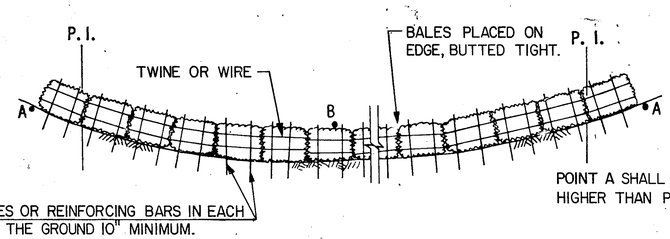


SHINGLING SOD

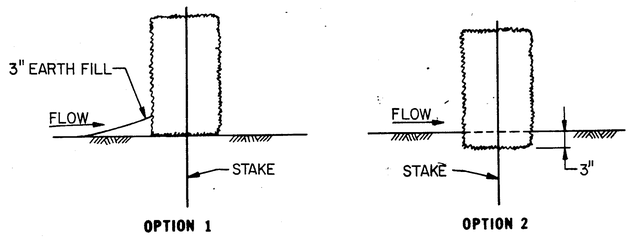


OVERLAPPING SOD

SPECIAL SOD PLACEMENT TECHNIQUES



BALE HAY OR STRAW DITCH CHECK

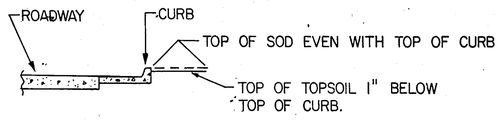


DITCH CHECK SECTIONS

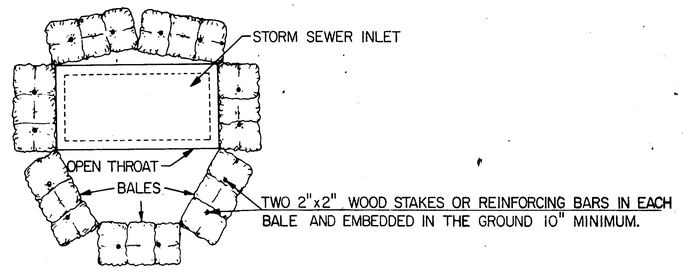
SILT FENCE INSTALLATION

STRUCTURE NUMBER	STATION LOCATION	LOCATION	QUANTITY		STRUCTURE NUMBER	STATION LOCATION	LOCATION	QUANTITY
AP 100	84+38	RT. 56'	21'		CB 138	131+00	RT. 27.5'	18'
CB 101	84+83	RT. 27.5'	18'		CB 139	131+00	LT. 27.5'	"
CB 102	88+11	LT. 27.5'	"		CB 140	134+50	RT. 27.5'	"
CB 103	88+11	RT. 27.5'	"		CB 141	134+50	LT. 27.5'	"
CB 104	95+00	LT. 27.5'	"		CB 142	138+00	RT. 27.5'	"
CB 105	95+00	RT. 27.5'	"		CB 143	138+00	LT. 27.5'	"
AP 107	97+45	RT. 52'	21'		CB 144	141+25	RT. 27.5'	"
CB 108	97+92	LT. 27.5'	18'		CB 145	141+25	LT. 27.5'	"
AP 110	97+92	RT. 54.5'	21'		CB 146	148+25	RT. 27.5'	"
AP 111	98+48	LT. 68'	"		CB 147	148+25	LT. 27.5'	"
AP 112	98+48	RT. 61'	"		CB 150	154+75	RT. 27.5'	"
CB 113	103+22	LT. 95'	18'		CB 151	154+75	LT. 27.5'	"
CB 114	102+84	RT. 45'	"		AP 153	155+74	LT. 62'	21'
CB 116	102+29	RT. 62'	"		AP 154	155+74	RT. 62'	"
CB 118	105+50	LT. 27.5'	"		CB 155	157+25	LT. 27.5'	18'
CB 120	108+15	LT. 27.5'	"		CB 156	157+25	RT. 27.5'	"
CB 121	111+36	LT. 27.5'	"		AP 157	157+25	RT. 52'	21'
CB 122	111+36	RT. 27.5'	"		CB 158	15+52	RT 21.5'	18'
CB 123	114+50	RT. 27.5'	"		CB 161	15+52	LT. 21.5'	"
CB 124	114+50	LT. 27.5'	"		AP 162	3+85	LT. 32'	21'
CB 127	118+63	RT. 27.5'	"		AP 165	4+00	RT. 30'	"
CB 128	118+63	LT. 27.5'	"		AP 166	0+91	RT. 66'	"
CB 129	121+09	RT. 27.5'	"		CB 167	2+15	RT. 27.5'	18'
CB 130	121+09	LT. 27.5'	"		CB 168	2+15	LT. 27.5'	"
CB 131	124+50	RT. 27.5'	"		CB 170	4+15	RT. 27.5'	"
CB 132	124+50	LT. 27.5'	"		CB 171	4+15	LT. 27.5'	"
CB 134	127+59	RT. 27.5'	"		SD 38	6+55	RT. 45'	25'
CB 135	127+59	LT. 27.5'	"		SB 133	124+50	RT. 66'	42'
AP 136	127+59	RT. 56.5'	21'					
AP 137	127+59	LT. 56.5'	"					
STATION LOCATION					STATION LOCATION			
94+65 to 98+27		LT.	419'		131+91 to 133+13		RT.	135'
97+58 to 97+80		RT.	24'		133+82 to 135+00		RT.	125'
98+01 to 98+27		RT.	38'		154+05 to 154+64		RT.	66'
98+47 to 101+10		RT.	281'		154+80 to 155+64		LT.	92'
98+47 to 101+30		LT.	300'		154+85 to 155+64		RT.	88'
122+35 to 124+40		RT.	213'		155+85 to 156+32		LT.	51'
124+60 to 125+65		RT.	114'		155+85 to 157+15		RT.	143'
127+69 to 128+22		RT.	60'		157+35 to 159+65		RT.	267'
					WETLAND MITIGATION AREA			1400'
							TOTAL:	4930'

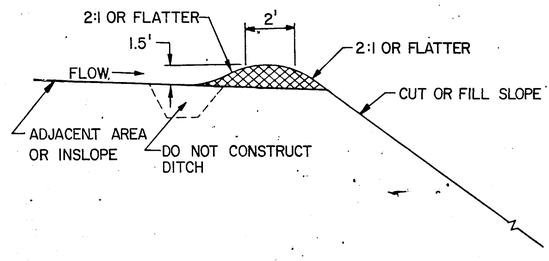
SILT FENCE LOCATIONS MAY BE SUBJECT TO CHANGE AS DETERMINED BY THE ENGINEER IN THE FIELD.



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



BALE DIVERSION TO PROTECT STORM SEWER INLETS



TEMPORARY OR PERMANENT SLOPE PROTECTION DIKE

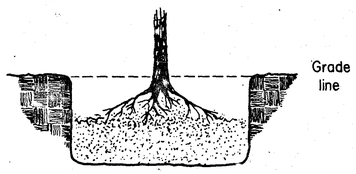
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 1-30-05 REG. NO 13501

27-128

EROSION CONTROL

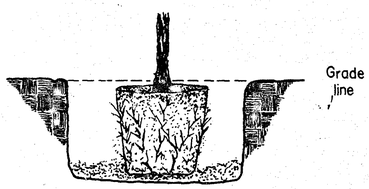
Fed. Proj. No.

STANDARD PLANTING DETAILS



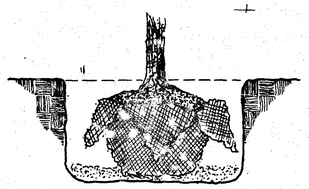
BARE ROOT

1. Place and tamp enough planting soil into hole so that the plant can be placed at proper depth.
2. Set plant at grade and with roots evenly distributed.
3. Complete planting operations, plumb plant and water thoroughly.



POT / CONTAINER

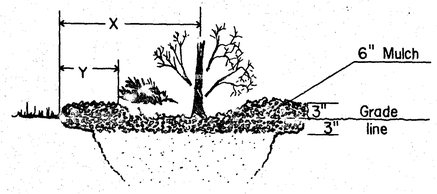
1. Place and tamp enough planting soil into hole so that plant can be set at proper depth.
2. Remove pot or container and roughen sides of root ball with a stick or something sharp to expose root ends.
3. Set plant into hole and complete planting operations, plumb plant and water thoroughly.



B & B

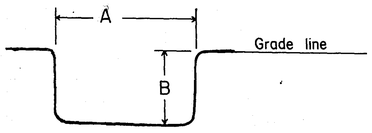
1. Place and tamp enough planting soil into hole so that plant can be set at proper depth, if needed.
2. Set plant into hole and remove cords and burlap to expose top of ball.
3. Complete planting operations, plumb plant and water thoroughly.

PLANTING DETAILS



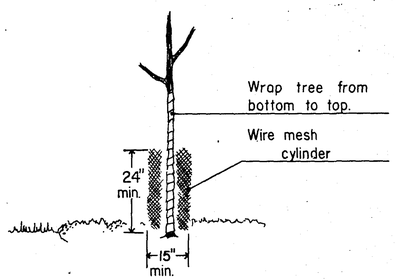
Type of plant	X (center of plant to the mulch line)	Y (outer edge of widest branches to the mulch line)
Evergreen trees & shrubs.		1' minimum.
Shade trees & Half trees.	2.5' minimum.	
Deciduous shrubs	1.5' minimum.	
Vines & Ground covers	9" minimum. or __"minimum.	

MULCHING DETAIL

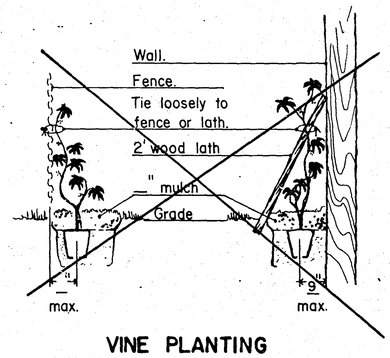


Minimum hole size A x B	Type plant	Size range
62" x 28"	B&B Shade tree.	over 3" cal. thru 4" cal.
48" x 21"	B&B Shade tree.	up to 3" cal.
	B.R. Shade tree.	over 2" cal.
	Evergreen tree.	up to 8' hi.
36" x 18"	Evergreen shrub.	over 30" spread.
	B.R. Shade tree.	up to 2" cal.
	Deciduous shrubs. (B.R.)	over 5' hi.
	B.R. Half tree.	over 8' hi. (1" cal.)
30" x 18"	Evergreen shrub.	up to 30" spread.
	B.R. Half tree.	up to 8' hi.
	Deciduous shrub. (B.R.)	up to 5' hi.
24" x 18"	Container / Potted	up to 5 gallon.
12" x 12"	Vine / Ground cover (potted)	up to 1 gallon.

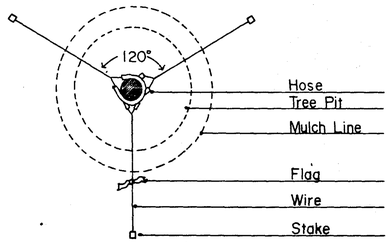
MINIMUM HOLE SIZE

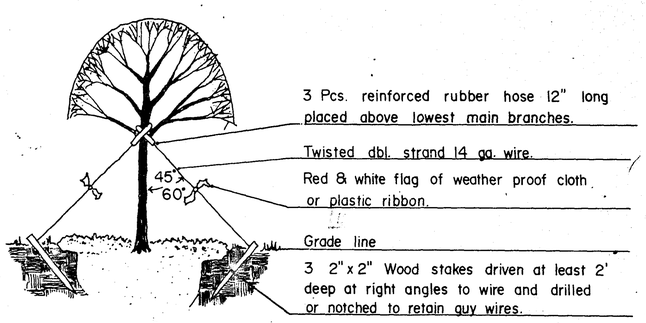


PROTECTION DETAIL

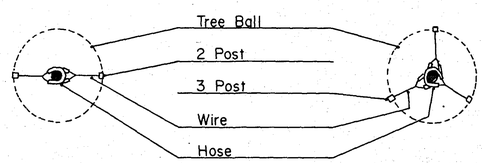


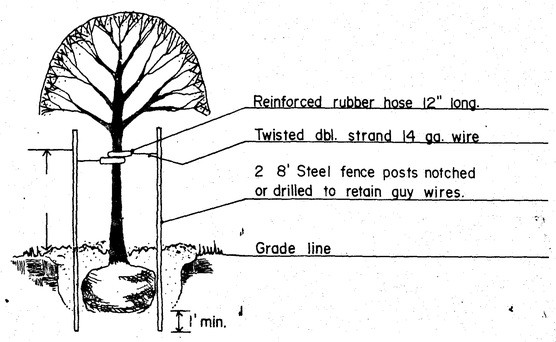
VINE PLANTING





STAKING AND GUYING (NORMAL AREA)





STAKING AND GUYING (RESTRICTED AREA)

GENERAL NOTES

Planting Soil: Mn/Dot 2571.2C1, Mn/Dot 2571.3D, Mn/Dot 3877.2B

Fertilizer: Mn/Dot 2571.2C3, Mn/Dot 3881

Mulch Material: Mn/Dot 2571.2C4, Mn/Dot 2571.3H, Mn/Dot 3882

Guying: Mn/Dot 2571.3J (Normal area)

Wrapping: Mn/Dot 2571.2D3, Mn/Dot 2571.3J

Rodent protection: Mn/Dot 2571.2D1 and special provisions, Mn/Dot 2571.3J

Mass plantings: ~~Plant spacings of ' or less shall be mass excavated and spacings of ' or less shall be continuously mulched.~~

SEE PLANT INSTALLATION CHART SHEET 33

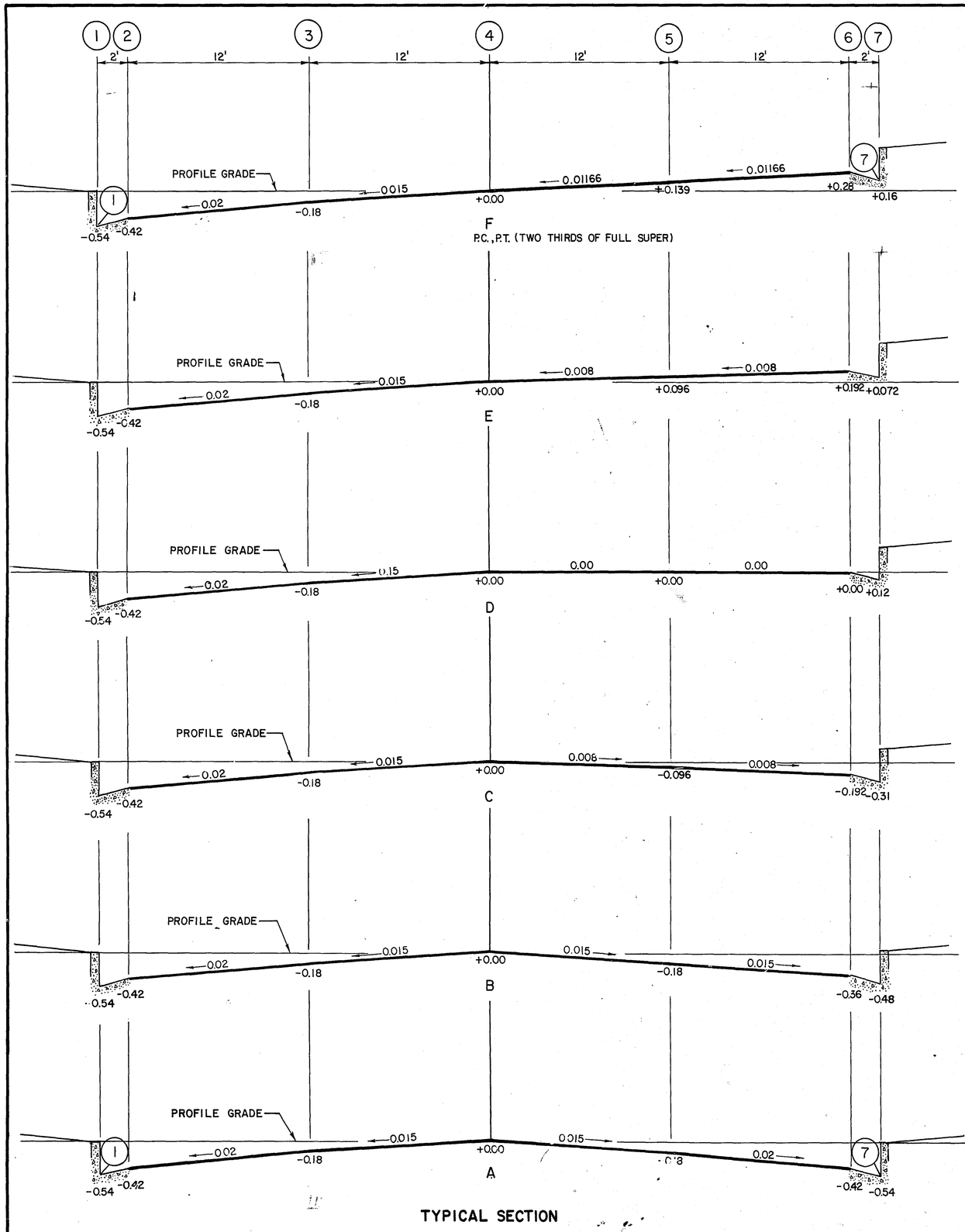
REVISIONS	DATE	BY
REMOVE VINE PLANTING DETAIL	4-17-87	ET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Feldhaus
DATE 5-18-87 REG. NO. 13501

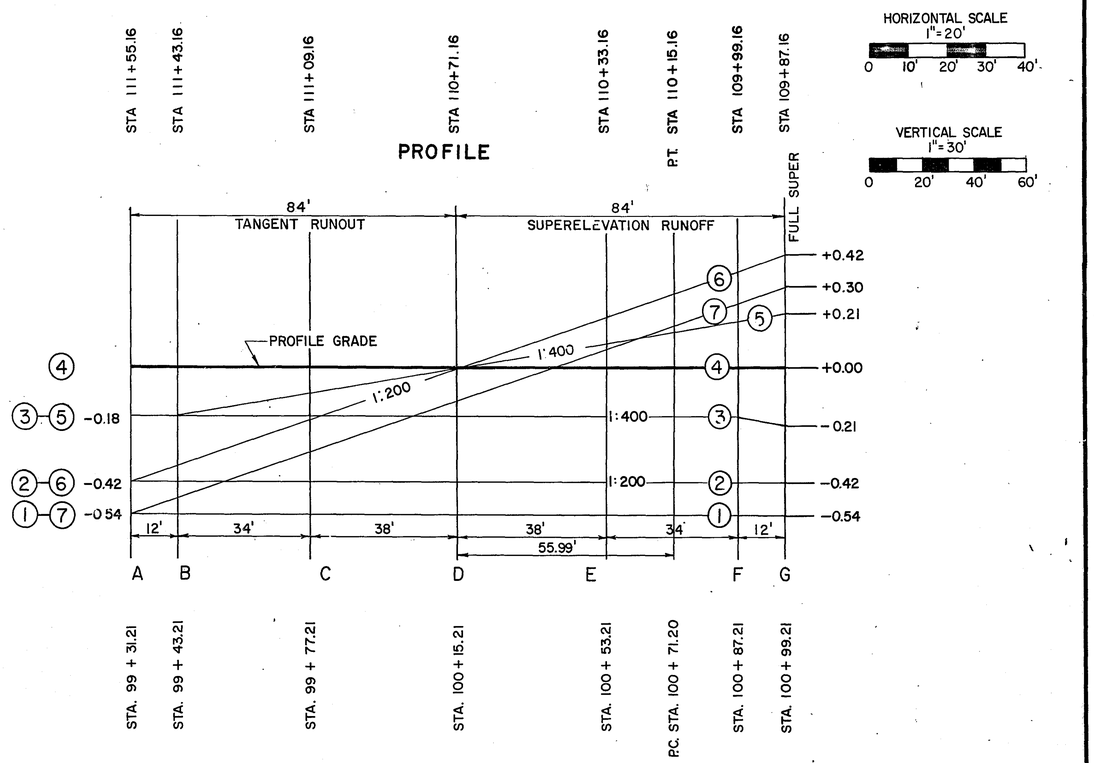
LANDSCAPING DETAILS 27-28

State Proj. No. 62-668-18

Sheet No. 30 **of** 121 **Sheets**

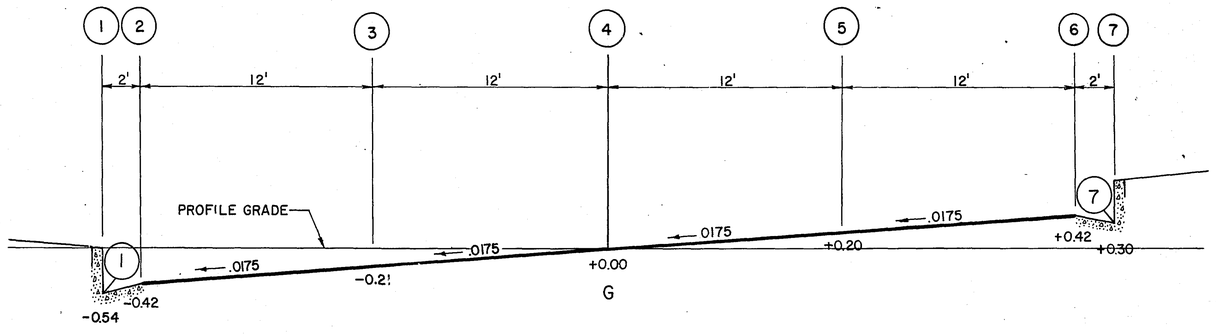


TYPICAL SECTION



HORIZONTAL SCALE
1"=20'
0 10' 20' 30' 40'

VERTICAL SCALE
1"=30'
0 20' 40' 60'



TYPICAL SECTION

SUPERELEVATION DETAILS
MCKNIGHT ROAD

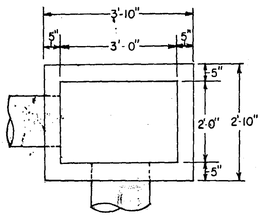
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K. Zoll
DATE 5-16-86 REG. NO. 13501

27-128

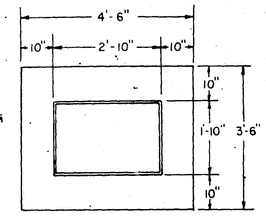
S.P. NO. 62-668-18

Sheet No. 31 of 121 Sheets

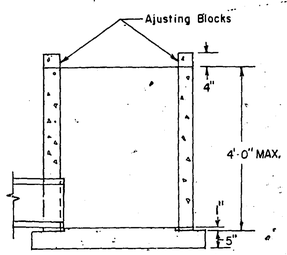
CATCH BASIN - DESIGN SPECIAL 2



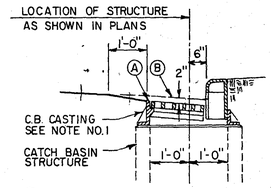
CATCH BASIN PLAN



BASE SLAB PLAN



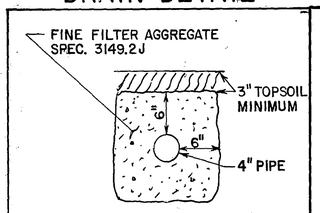
SECTIONAL VIEW
CATCH BASIN & BASE SLAB



Ⓐ ELEVATION OF STRUCTURE COMPUTED AT THIS LOCATION.
Ⓑ NORMAL GUTTER GRADE.

INSTALLATION DETAIL

SUBSURFACE DRAIN DETAIL



NOTES

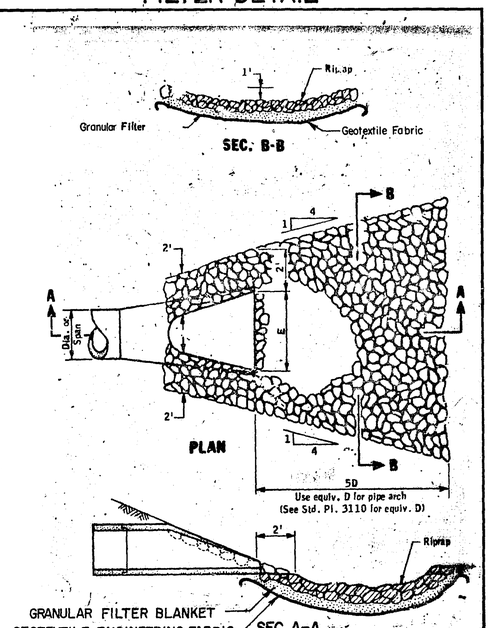
PIPE SHALL BE 4" POLYETHYLENE CORRUGATED PERFORATED PIPE DRAIN WRAPPED WITH GEOTEXTILE FABRIC TYPE I (SPEC. 3733.1)

THE PIPE NEED ONLY BE IMBEDDED IN THE FILTER AGGREGATE FOR THE FIRST 80' (STA. 152+25 - 153+05)

INSTALL CORRUGATED STEEL OVERSLEEVE WITH RODENT GUARD AT PIPE OUTLET.

PAYMENT SHALL BE MADE AS ITEM NO. 2502.541 " 4" POLYETHYLENE CORRUGATED PERFORATED PIPE DRAIN," AND SHALL INCLUDE PLACEMENT OF FILTER AGGREGATE, RODENT GUARD, AND GEOTEXTILE FABRIC.

RIPRAP & GRANULAR FILTER DETAIL



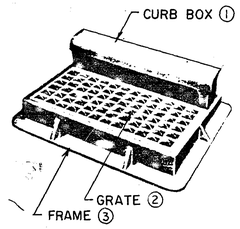
NOTES

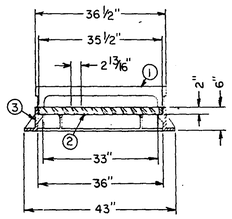
1. GRANULAR FILTER SHALL BE INCIDENTAL TO RIPRAP.
2. GEOTEXTILE FILTER FABRIC SHALL BE FURNISHED & INSTALLED PER SPEC. 2511.515 & 3733 FOR TYPE III GEOTEXTILES. NO SEAMS SHALL BE PERMITTED.
3. SEE PROPOSED DRAINAGE CHART SHEET NO. 10 FOR TABLE OF MATERIAL QUANTITIES FOR APRONS AT R.C.P. OUTLETS.

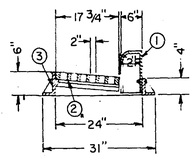
CASTING ASSEMBLY
(FOR DESIGN SPECIAL 2 CATCH BASIN)

NOTES:

1. MATERIALS: CAST GRAY IRON, CLASS 30, MN/DOT SPEC. REFERENCE 3321.
2. CURB BOX HEIGHT SHALL BE ADJUSTABLE 6" TO 9".
3. SEE CATCH BASIN - DESIGN SPECIAL 2 DETAIL FOR CASTING INSTALLATION DETAIL.

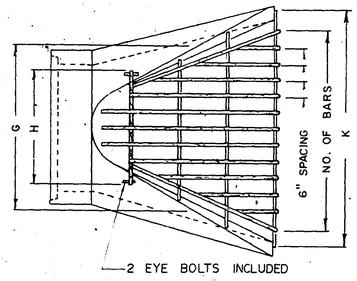


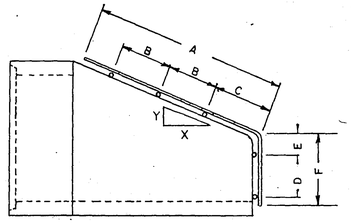




TRASH GUARD (GALVANIZED)
(FOR CONCRETE APRON)

3/4" BARS FOR TRANSVERSE AND EDGE REINFORCEMENT



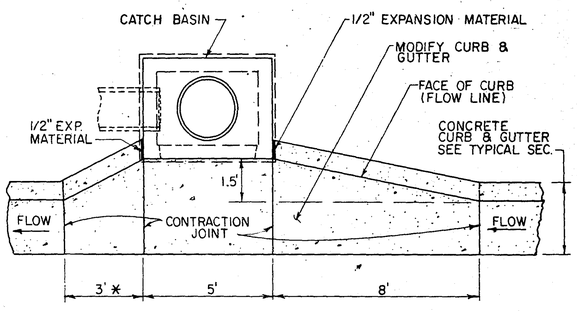


1/2" BARS FOR LONGITUDINAL INTERIOR BARS, WELD EACH INTERSECTION.

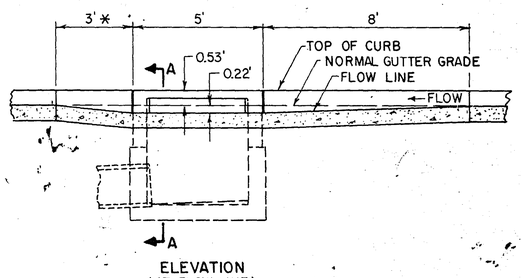
CONTRACTOR SHALL FURNISH SUITABLE LOCKING DEVICE APPROVED BY ENGINEER.

SIZE	NO. OF BARS	SLOPE	A	B	C	D	E	F	G	H	K
12"	5	3 to 1	24	10	10	5	2	8	24		30
15"	6	"	24	10	10	6	2	10	26		34
18"	7	"	24	10	10	6	3	12	28		40
21"	8	"	36	16	16	7	3	12	34		50
24"	9	"	44	20	20	10	4	16	36		52
27"	10	"	50	23	23	10	4	16	38		58
30"	11	"	56	26	26	12	4	18	42		64
36"	13	"	64	30	30	12	4	18	48		76
42"	15	"	68	32	32	16	8	26	60		88
48"	16	"	76	36	36	14	10	28	62		92
54"	17	24 to 1	76	36	36	10	12	32	68		96

CURB OPENING CATCH BASIN - DESIGN LP INSTALLATION DETAIL



PLAN VIEW



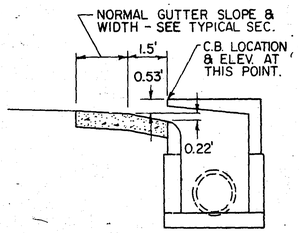
ELEVATION
(AT FLOW LINE)

NOTES:

1. * DIMENSION SHALL BE 8' WHEN STRUCTURE INSTALLED AT LOW POINT IN GRADE
2. CATCH BASIN - DESIGN LP - SEE MN/DOT STD. PL. NO. 4021.
3. TOP OF CATCH BASIN SHALL BE INSTALLED AT SAME SLOPE AS BLVD. GRADES AND TOP OF CURB GRADE EACH SIDE OF STRUCTURE.
4. ELEVATION OF STRUCTURE IS COMPUTED AT LOCATION SHOWN IN SEC. A-A AT ℄ OF C.B. OPENING.

NOTES:

1. CASTING ASSEMBLY - SEE DETAIL THIS SHEET.
2. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED.
3. ALTERNATE CAST-IN-PLACE BASE SLAB CAN BE USED.
4. INSTALL AS PER MN./DOT STD. PLATE NO. 7111 & DETAIL THIS SHEET.
5. REINFORCING; SINGLE LINE STEEL WIRE FABRIC.
   WALL= W3.5 x W3.0 HAVING A AREA OF NOT LESS THAN .21 SQ. IN. PER FOOT OF HEIGHT.
   BASE= W4.0 x W4.0 HAVING A AREA OF NOT LESS THAN .16 SQ. IN. PER FOOT OF HEIGHT.
6. ALTERNATE CONSTRUCTION—THE CATCH BASIN MAY BE CONSTRUCTED OF BLOCKS OR BRICK CONFORMING TO THE REQUIREMENTS OF MN/DOT SPEC. 2506 AND AS DIRECTED BY ENGINEER.



SECTION A-A

REVISIONS	DATE	BY	REVISIONS	DATE	BY
RIPRAP & GRANULAR FILTER NOTES	2-2-06	BJ, KH			
SUBSURFACE DRAIN NOTES	2-2-06	BJ, KH			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Larry K Fullhart
DATE 5-16-06 REG. NO 13501

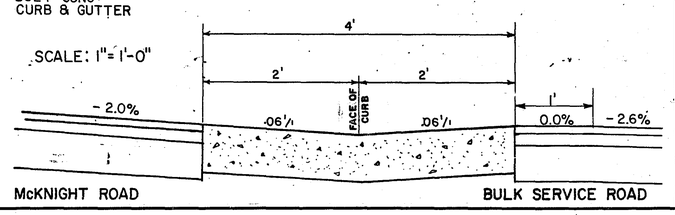
DETAILS

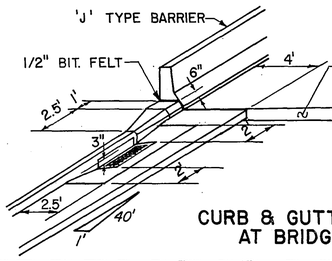
27-128

TYPE "V" DETAIL

CONCRETE GUTTER DELINEATOR AT BULK SERVICE DRIVE
(RT. SIDE ONLY)
STA. 113+42 TO 114+35 (RT. 24' TO 28')

NOTE: PAYMENT SHALL BE MADE AS B624 CONC. CURB & GUTTER





NOTES

1. CATCH BASIN INSTALLATION PER DETAIL SHEET NO. 32 EXCEPT AS MODIFIED BELOW: CATCH BASIN NO.'S 127, 128, 129, 130 SHALL CONSTRUCTED WITH A 3" SUMP FROM THE NORMAL GUTTER GRADE TO THE FLOW LINE OF CASTING.
2. TRANSITION CROSS SLOPES FROM TYPICAL ROADWAY SLOPES TO MATCH BRIDGE APPROACH PANEL.
3. PAYMENT FOR C & G SHALL BE MADE AS ITEM # 2531.501 B624 C & G AND PAID FOR BY THE L.F.

CURB & GUTTER TRANSITION AT BRIDGE NO. 62543

PLANT INSTALLATION CHART

STATION	LOCATION LT.	LOCATION RT.	DESCRIPTION	QTY.	
87+00		40'	GREEN ASH	1	
87+50		40'	AUSTRIAN PINE	1	
87+70		40'	RED MAPLE	1	
90+85 TO 92+00		50'	AMUR MAPLE	20	(1)
93+10 TO 93+70		50'	AMUR MAPLE	10	(1)
94+15		60'	NORWAY MAPLE	1	
~~94+30 TO 94+50~~		~~60'~~	~~DOGWOOD~~	~~3~~	~~(1)~~
94+80		60'	NORWAY MAPLE	1	
~~94+75 - 95+40~~	~~50'-65'~~		~~DOGWOOD~~	~~11~~	~~(1)~~
95+40 - 96+10		50'-55'	AMUR MAPLE	12	(1)
~~95+50 - 96+15~~	~~60'-65'~~		~~DOGWOOD~~	~~11~~	~~(1)~~
~~96+35 - 97+00~~	~~55'-60'~~		~~DOGWOOD~~	~~11~~	~~(1)~~
~~98+65 - 99+35~~	~~55'-65'~~		~~DOGWOOD~~	~~12~~	~~(1)~~
99+00 - 101+00		40'	AMUR MAPLE	33	(1)
~~99+75 - 100+00~~	~~55'~~		~~DOGWOOD~~	~~4~~	~~(1)~~
~~106+80 - 107+00~~		~~45' 50'~~	~~SUMAC~~	~~3~~	~~(1)~~
108+05		45'	GREEN ASH	1	
~~108+35 - 108+95~~	~~50'-55'~~		~~SUMAC~~	~~10~~	~~(1)~~
~~134+95 - 136+05~~	~~(3)~~		~~BOSTON IVY~~	~~22~~	~~(2)~~
139+10		45'	RED MAPLE	1	
139+85		45'	RED MAPLE	1	
~~139+75 - 144+60~~	~~(3)~~		~~BOSTON IVY~~	~~97~~	~~(2)~~
~~145+15 - 147+00~~	~~(3)~~		~~BOSTON IVY~~	~~37~~	~~(2)~~
~~148+75 - 149+45~~	~~(3)~~		~~BOSTON IVY~~	~~14~~	~~(2)~~
~~155+10 - 155+35~~		~~45'~~	~~DOGWOOD~~	~~4~~	~~(1)~~
~~156+40 - 156+70~~		~~45'~~	~~DOGWOOD~~	~~5~~	~~(1)~~
~~157+90 - 158+10~~		~~45'~~	~~DOGWOOD~~	~~3~~	~~(1)~~
~~158+40 - 158+85~~		~~45'~~	~~DOGWOOD~~	~~8~~	~~(1)~~

NOTES

(1) PLANT AT 6' SPACING
(2) PLANT AT 5' SPACING
(3) AT BASE OF WALL

NOTE: EXACT LOCATIONS TO BE DETERMINE BY THE ENGINEER IN THE FIELD.

TOTALS

AUSTRIAN PINE	1
GREEN ASH	2
NORWAY MAPLE	2
RED MAPLE	3
AMUR MAPLE	75
DOGWOOD	72
SUMAC	13
BOSTON IVY	170

SEE SHEET 30 FOR LANDSCAPING DETAILS

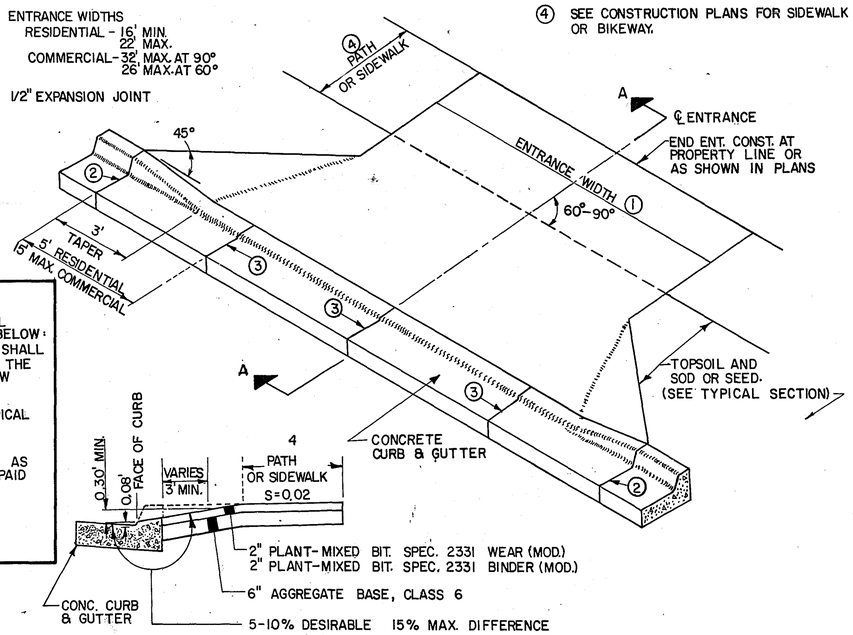
BITUMINOUS ENTRANCE DETAIL

① ENTRANCE WIDTHS
RESIDENTIAL - 16' MIN.
22' MAX.
COMMERCIAL - 32' MAX. AT 90°
26' MAX. AT 60°

② 1/2" EXPANSION JOINT

③ PLACE JOINTS AS REQUIRED FOR CONC. CURB & GUTTER CONSTRUCTION.

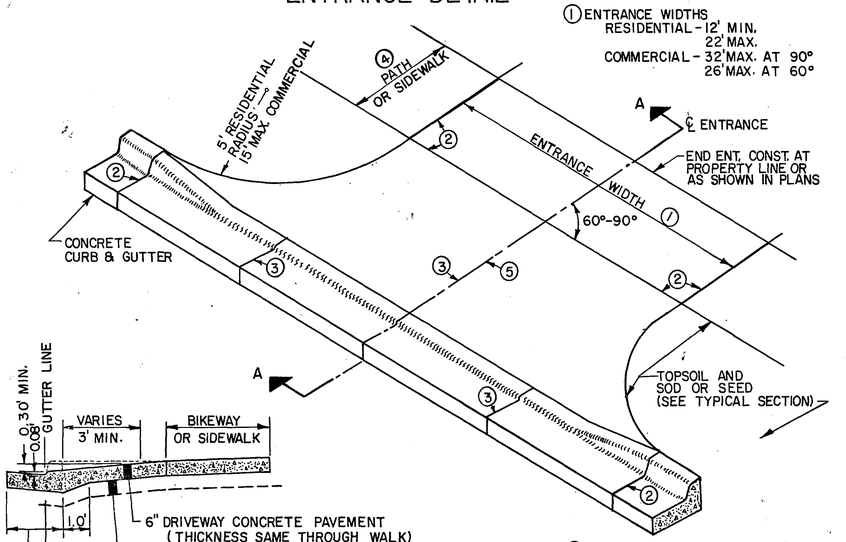
④ SEE CONSTRUCTION PLANS FOR SIDEWALK OR BIKEWAY.



SECTION A-A TYPICAL

CONCRETE ENTRANCE DETAIL

① ENTRANCE WIDTHS
RESIDENTIAL - 12' MIN.
22' MAX.
COMMERCIAL - 32' MAX. AT 90°
26' MAX. AT 60°



SECTION A-A TYPICAL

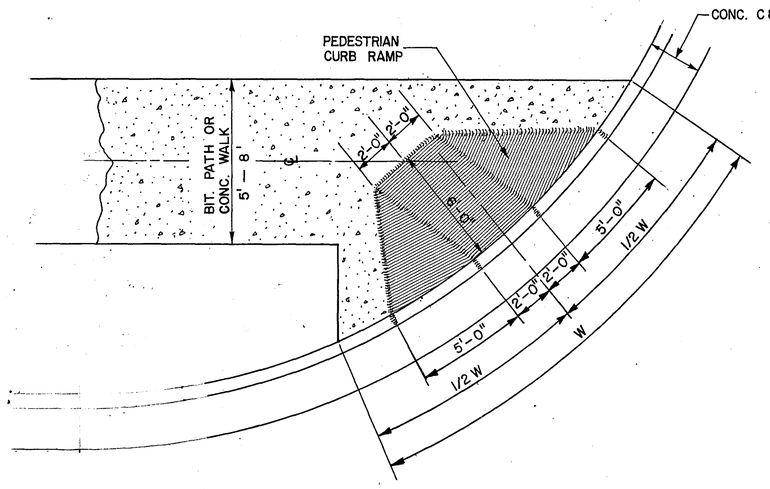
② 1/2" EXPANSION JOINT

③ PLACE JOINTS AS REQUIRED FOR CONCRETE CONSTRUCTION

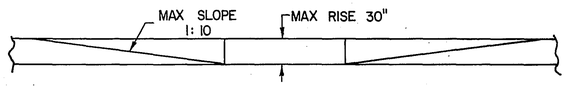
④ SEE CONSTRUCTION PLANS FOR SIDEWALK OR BIKEWAY

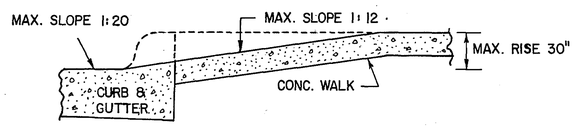
⑤ CONCRETE ENTRANCES: CONTRACTION JOINT REQUIRED IF WIDTH EXCEEDS 16'

PEDESTRIAN CURB RAMP PLACEMENT



TYPICAL PLACEMENT AT FLARED WALK- SEE PLANS





REVISIONS	DATE	BY
PLANTING CHART CHANGES	4-17-87	ET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Barry K. Fillbach
DATE 5-16-88 REG. NO. 13501

DETAILS, CHARTS 27-128

S.P. NO. 62-668-18

Sheet No. 33 of 121 Sheets

CLEAR & GRUB CHART

STATION (CONST. ℄)	LOCATION OFF CONST. ℄ LT.	RT.	DESCRIPTION	STATION (CONST. ℄)	LOCATION OFF CONST ℄ LT.	RT.	DESCRIPTION
87+16	51		8" APPLE	141+89		54	4" PINE
87+24		56	PEAR	141+97		54	5" CEDAR
88+45		28	6" PINE	141+99		23	6" POPLAR
88+87	45		6" PINE	142+06		23	4" POPLAR
89+13		47	4" COTTONWOOD	142+32		23	6" POPLAR
89+73		40	5" COTTONWOOD	142+39		23	TWIN 5" POPLAR
89+90	77		6" LOCUST	142+49		23	6" POPLAR
89+90	51		10" BIRCH	142+97		25	STUMP
90+36	45		7" PINE	142+98		24	8" ELM
90+57	74		PYRAMIDAL ARBOR.	143+10		33	STUMP
91+18	49		10" MAPLE	143+10		55	4" ELM
91+30	67		10" BIRCH	143+15		25	12" CEDAR
91+60	60		6" CEDAR	143+16		51	ARBORVITAE
91+82	48		10" MAPLE	143+27		50	4" PINE
92+38	35		6" PINE	143+47		33	7" MAPLE
92+44	42		8" PINE	143+47		74	6" ELM
92+75	47		24" STUMP	143+51		36	20" OAK
97+52		31	5" WILLOW	143+57		45	24" OAK
97+60		31	5-4" WILLOWS	143+63		38	18" OAK
98+84	49		4" ASH	143+65		52	TWIN 4",6" OAK
98+94	48		4" ASH	143+74		31	TWIN 5" OAK
98+99	47		4" ELM	143+79		33	8" OAK
99+59	46		4" BOX ELDER	143+91		27	20" OAK
103+37	98		4" MAPLE	145+07	53		28" ELM
108+50		7	5" ASH	145+46		18	10" PINE
108+60	5		5" ASH	146+03		51	10" MAPLE
108+70	14		4" ELM	146+28		34	15" MAPLE
108+74	9		TWIN 4" ASH	146+84		16	22" COTTONWOOD
109+09	55		TRIPLE 4" ASH	147+09		26	5" ASH
118+55		33	TWIN 4" WILLOW	148+15		29	12" ASH
119+30	75		QUAD. 4" C.WOOD	148+30		20	4" PINE
				149+12		36	4" PINE
				149+33	51		34" COTTONWOOD
131+60	43		8" POPLAR	149+52	52		30" COTTONWOOD
132+99	44		20" CEDAR	149+73	52		28" COTTONWOOD
135+94		24	24" ELM	150+88		16	STUMP
136+75		50	24" BOX ELDER	150+90		17	STUMP
136+75		78	24" BOX ELDER	152+28		15	STUMP
136+87		38	4" ELM	152+38	52		4" ELM
136+93		50	6" MAPLE	152+40		27	6" PINE
136+93		76	5" MAPLE	152+42		44	4" PINE
137+40		25	8" BOX ELDER	152+62		41	11" PINE
137+43		20	12" COTTONWOOD	152+81		16	TWIN 20" MAPLE
137+46		25	STUMP	153+73		18	STUMP
137+63		23	2-4" BOX ELDER	153+78		42	12" OAK
137+65		23	2-6" BOX ELDER	153+90		32	20" OAK
137+67		53	12" ELM	153+99		32	TWIN 12" OAK
137+70		17	15" STUMP	153+99		49	10" OAK
137+76		18	STUMP	154+09		36	STUMP
138+05		16	4-4" ASH	154+13		41	20" OAK
138+22		25	TWIN 10" ELM	154+18		24	STUMP
138+33		16	4" ASH	154+23		18	STUMP
138+49		28	TWIN 4" OAK	154+40		23	2 STUMPS
138+63		35	5" ELM	154+48		38	20" OAK
138+67		42	10" ELM	154+55		28	20" OAK
140+38		37	22" OAK	154+59		24	STUMP
140+45		25	5" OAK	156+49		22	STUMP
140+59		21	5" CEDAR	156+55	55		14" OAK
140+60		60	14" OAK	156+67		24	3 STUMPS
140+62		35	TWIN 10" OAK	157+13		17	STUMP
140+68		55	7" PINE	157+19		34	STUMP
140+74		22	8" CEDAR	157+26		41	STUMP
140+77		22	8" CEDAR	157+28		24	STUMP
140+82		40	24" OAK	157+40		26	STUMP
140+84		20	4" OAK	157+45		26	STUMP
140+89		21	10" CEDAR	157+50		28	STUMP
140+95		24	STUMP	157+51		28	STUMP
141+14		55	14" OAK	157+62		29	STUMP
141+18		24	15" OAK	157+69		35	STUMP
141+19		15	8" STUMP	157+77		18	STUMP
141+27		35	15" OAK	157+86		29	STUMP
141+30		16	6" STUMP	146+09	34		
141+30		25	4" CEDAR	146+47	56		TW. POPLAR
141+35		46	10" ELM	146+88		22	STUMP
141+41		11	5 STUMPS	3+80		35	QUAD 7" BOX ELDER
141+63		61	4" PINE	3+96		33	4" BOX ELDER
141+68		46	28" OAK	4+79		35	20" OAK
141+70		37	18" OAK	5+03		19	4" OAK
				MARYLAND			
115+92	7		6" PINE	10+11	40		8" POPLAR
135+98		58	STUMP	10+41	28		14" MAPLE
136+96		98	7" PINE	10+65	34		ARBORVITAE
136+98		103	7" PINE	10+73	30		14" COTTONWOOD
137+00		88	20" COTTONWOOD	11+11	40		4" COTTONWOOD
137+06		19	STUMP	16+00	32		4" MAPLE
137+10		19	STUMP				
137+11		24	STUMP	LARPENTEUR			
138+68		34	5" APPLE				
				4+99		33	12" MAPLE
140+18	55						
141+05		39	14" ELM	5+24		29	18" BOX ELDER
142+07	61		STUMP	5+33		34	9" OAK
142+57	60		STUMP	5+65		32	26" BOX ELDER
143+68		16	STUMP	5+94		35	3-7" MAPLE
143+73		6	STUMP				
CLEAR TOTALS:							168
GRUB TOTALS:							198

UTILITIES CHART

STATION	LOCATION	ITEM INPLACE	REMARKS
86+47	LT. 7'	SAN.M.H.	
87+02	LT. 34'	POWER POLE	
87+23	RT. 25'	POWER POLE	
87+86	RT. 20'	POWER POLE	
88+55	LT. 10'	SAN.M.H.	
88+80	LT. 34'	POWER POLE	
90+51	LT. 34'	POWER POLE	
90+53	LT. 9'	SAN.M.H.	
92+17	LT. 34'	POWER POLE	
93+30	LT. 8'	SAN.M.H.	
93+91	LT. 34'	POWER POLE	
95+11	LT. 8'	SAN.M.H.	
95+63	LT. 33'	POWER POLE	
96+65	LT. 9'	SAN.M.H.	
97+43	LT. 33'	POWER POLE	
99+17	LT. 32'	POWER POLE	
99+64	LT. 7'	SAN.M.H.	
100+82	LT. 30'	POWER POLE	
102+64	RT. 14'	SAN.M.H.	
102+81	LT. 18'	WSO.	
102+84	LT. 4'	TELE. M.H.	
102+87	LT. 11'	WSO.	
102+90	LT. 16'	WSO.	
119+59	LT. 89'	POWER POLE	RAILROAD AREA
120+39	LT. 95'	POWER POLE	" "
120+41	RT. 39'	POWER POLE	" "
120+49	RT. 61'	POWER POLE	" "
120+52	LT. 124'	POWER POLE	" "
120+53	LT. 32'	POWER POLE	" "
127+12	RT. 9'	TELE. BOX	
127+13	RT. 6'	M.H.	
133+17	RT. 12'	GUY POLE	
133+78	RT. 10'	POWER POLE	
135+09	LT. 38'	POWER POLE	
135+50	RT. 9'	POWER POLE	
137+12	RT. 13'	POWER POLE	
137+36	RT. 6'	POWER POLE	
138+76	RT. 12'	POWER POLE	
140+48	RT. 12'	POWER POLE	
142+04	RT. 12'	POWER POLE	
142+18	LT. 16'	SAN. M.H.	

WOODS CLEARING IDENTIFICATION CHART

LOCATION OFF CONST. ℄	FROM STA.	TO STA.	LT.	RT.	ACREAGE AMT
McKNIGHT MAINLINE	101+02	102+24		X	.14
McKNIGHT MAINLINE	106+00	107+55	X		.10
McKNIGHT MAINLINE	115+75	118+50	X	X	.89
McKNIGHT MAINLINE	120+80	135+85	X	X	1.77
McKNIGHT MAINLINE	5+50	6+35		X	.08
MARYLAND AVE.	14+00	16+00		X	.13
MARYLAND AVE.	11+07	12+10		X	.03
LARPENTEUR AVE.	4+00	4+59		X	.01
WETLAND MITIGATION AREA					3.2
				TOTAL:	6.4

THE FOLLOWING STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY ON THIS PROJECT

STANDARD PLATES

0004A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000K	REINFORCED CONCRETE PIPE
3006F	GASKET JOINT FOR R.C. PIPE
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133B	RIPRAP AT R.C.P. OUTLETS
3145E	CONCRETE PIPE TIES
4000I	MANHOLE OR CATCH BASIN
4005K	MANHOLE OR CATCH BASIN
4010G	CONC. SHORT CONE & ADJUSTING RING
4011D	PRECAST CONC. BASE
4016C	CURB OPENING CATCH BASIN
4020E	MANHOLE OR CATCH BASIN
4021C	PRECAST CURB OPENING CATCH BASIN
4101C	RING CASTING FOR MANHOLE OR CATCH BASIN
4108E	MANHOLE ADJUSTING RINGS
4110D	COVER CASTING FOR MANHOLE
4180H	MANHOLE OR CATCH BASIN STEP
5200B	REINFORCED CONCRETE SURGE BASIN
7065C	BITUMINOUS CURB
7100F	CONC. CURB & GUTTERS
8000I	STANDARD BARRICADES
8003B	BREAKAWAY SIGN SUPPORT (PLASTIC)
8307N	STEEL PLATE BEAM GUARDRAIL
8317D	GUARDRAIL ANCHORAGE ASSEMBLY FOR BRIDGES
8318C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES & BCT'S
9102C	SODDING AT PIPE CULVERT ENDS

BITUMINOUS SAWCUT TABULATION

STATION	QUANTITY	ROAD
86 + 50	43 L.F.	MCKNIGHT
6 + 50	25 L.F.	MCKNIGHT
9 + 00	36 L.F.	MARYLAND
16 + 13	36 L.F.	MARYLAND
2 + 10	34 L.F.	IVY
3+57 LT. – 3+71 RT.	32 L.F.	IVY
3+45 LT. 40'	20 L.F.	IVY
0 + 50	36 L.F.	LARPENTEUR
7+30 RT.– 7+00	45 L.F.	LARPENTEUR
1 + 73	34 L.F.	MONTANA
134+00 LT. 56'	40 L.F.	MCKNIGHT
136+20 LT. 56'	20 L.F.	MCKNIGHT
3+20 LT. 49'	24 L.F.	MCKNIGHT

TOTAL: 425 L.F.

REVISIONS	DATE	BY	REVISIONS	DATE	BY
CLEAR & GRUB CHART	2-15-86	BJ, KH			
WOODS CLEARING IDENTIFICATION CHART	2-15-86	BJ, KH			
STANDARD DETAIL PLATES	2-15-86	BJ, SB			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Harry K. Tibbetts

DATE _____ REG. NO. _____

CHARTS

27-128

S.P. NO. 62-668-18

Sheet No. 34 of 121 Sheets

MCKNIGHT ROAD (FHASE I)

REMOVALS

STATION	LOCATION	REMOVE CONCRETE C. & G. L.F.	REMOVE PIPE L.F.	REMOVE BIT. CURB L.F.	SALVAGE CHAIN LINK FENCE [4] L.F.	CONCRETE PAVEMENT S.Y.	CONCRETE SIDEWALK S.F.
MARYLAND							
12+15 - 13+51	LT.			147			
3+01 - 13+62	RT.			75			
13+59 - 13+93	RT.		34' R.C.P.				
15+54 - 16+13	RT. & LT.	118					
MONTANA							
0 +08 - 1 + 78	LT.			170			
0 +08 - 1 + 73	RT.			165			
I							
MCKNIGHT							
127 + 57	LT. 53'-RT.20		73' C.M.P.				
102 - 103+40	RT. 30'-50'		145' R.C.P.				
155+58	LT. 48'-RT.12		60' C.M.P.				
159+73 - 2+65	RT. 34'		73' C.M.P.				
HO. 1464						54	64
HO. 1524							44
HO. 1530							20
IVY AVE. TO 136+25					1493		
136+25 TO 159+80	LT.				2355		
LARPENTEUR							
1+50± TO 2+70 ±	RT.				125		
TOTALS:		118	SEE *BELOW	557	3973	54	128

NOTE: PAYMENT FOR REMOVAL OF ENTRANCE CULVERTS WILL BE INCIDENTAL TO THE COSTS OF OTHER ITEMS.

* { REMOVE PIPE SEWERS — 179 LF
REMOVE PIPE CULVERTS (METAL) — 206 LF

[4] SALVAGE PEDESTRIAN GATE SHALL BE PAID FOR AS SALVAGE CHAIN LINK FENCE.

NEW CURB & GUTTER INSTALLATION CHART

LOCATION	FROM STA.	TO STA.	LT.	RT.	B624 CURB LEFT	B624 CURB RIGHT	V- GUTTER	BIT. CURB
MCKNIGHT	87 + 50	89 +00	26'	26'	156'	156'		
"	89 +00	94 +89	26'	26'	589'	589'		
"	94+89	98 +02	26'	26'	313'	313'		
"	98 +02	102 + 68	26'		522'			
"	98 +02	102 +26		26'		469'		
"	102 +68	107 +00	26'		437'			
"	102 +26	107 +00		26'		470'		
MEDIAN	102 + 96	103 +29	26'-54'		100'			
MCKNIGHT	107+00	116 + 00	26'	26'	900'	900'		
"								
"	116 +00	118 +69	26'	26'	230'	230'		
"	121 +04	125+65	26'	26'	461'	461'		
"	125+65	134+00	26'	26'	835'	835'		
"	134+00	142+70	26'	26'	870'	870'		
"	142+70	151 + 80	26'	26'	910'	860'		
"	151 + 80	160+10.95	26'	26'	916'	916'		
"	*160+10.95	4+00	26'	26'	167'	167'		
MARYLAND	9+52	11+40	18'-24'		188			
"	9+52	11+40		18'-24'		188		
"	11+40	12+00	24'	24'	60'	60'		
"	14+00	15+54	24'-20'	24'-20'	154'	154'		
"	15+54	16+13	20'-18'	20'-18'	59' ①	59' ①		
IVY	2+10	3+39	18'	18'	158'	97'		
MONTANA	0+80	1+80	16'	16'	150'	150'		
BULK SERVICE	0+52	4 + 75		16'				421'
"	0+52	4+33	16'					385'
LARPENTEUR	1 + 85	2+50	26'	26'	65'	65'		
"	3+80	4+75	26'	26'	95'	95'		
TOTALS:					8335	8104		806'

* EQUATION: MCKNIGHT RD. CONST. ℄ STA. 160+10.95 = LARPENTEUR AVE. STA. 3+16.5

① REPLACEMENT OF EXISTING

CONCRETE SIDEWALK CONSTRUCTION CHART

STATION TO STATION	LENGTH	WIDTH	ESTIMATED QUANTITY
MCKNIGHT RD. SIDEWALK - NON PARTICIPATING			
STA. 2+60 TO STA. 4+20	135'	5'	675 SQ. FT.
AGG. BASE CL. 5 (MOD)			31 TON
@ MARYLAND AVE. INTERSECTION MEDIAN - PARTICIPATING			
** STA. 102+00±	30'	27'	405 SQ. FT.
SIDEWALK TOTALS:			1080 SQ. FT.

** MEDIAN WILL BE PAID FOR AS ITEM 2521.501 "4" CONCRETE WALK".

INSTALLATION CHART

STATION	LOCATION	TRAFFIC BARRIER L.F.	INSTALL C-L FENCE ADJUST ①③④	INSTALL C-L FENCE RELOCATE ②③④	TWISTED END TREATMENT	ANCHORAGE ASSEMBLY
MCKNIGHT						
AT BRIDGE	LT. & RT.	300			4	4
IVY AVE TO 136+25	LT.		1493			
136+25 TO 159+00	LT.			2355		
LARPENTEUR						
1+50 TO 2+70	RT.		125			
TOTALS:		300	1618	2355	4	4

① NEW VERTICAL LOCATION ONLY.
② NEW VERTICAL & HORIZONTAL LOCATION.
③ ALL GOLF COURSE FENCE TAKEN DOWN SHALL BE INSTALLED AT THE END OF EACH WORKSHIFT.
④ GATE INSTALLATION SHALL BE PAID FOR AS INSTALL CHAIN LINK FENCE.

BITUMINOUS PATH CONSTRUCTION - NON PARTICIP.

STATION TO STATION	SPEC. 2331 MIXTURE (MOD.) BINDER TONS	WEAR TONS	BIT. MATL. TONS	6" AGG BASE CL 5 (MOD.) TONS
MCKNIGHT ROAD PATH				
87 +50± TO 89 + 00 ②	14	14	1.53	52
89 +00 TO 98 + 00 ②	84	84	9.20	312
98 +00 TO MARYLAND ②	41	41	4.48	152
MARYLAND TO 107 + 00 ②	33	33	3.58	123
107 + 00 TO 116 + 00 ②	84	84	9.20	312
116 + 00 TO BRIDGE ②	25	25	2.75	93
BRIDGE TO 123+ 80 ②	25	25	2.78	93
IVY AVE. TO 123+ 80 ①	32	32	3.52	119
123+ 80 TO 125+ 00 ②	11	11	1.23	41
125 + 00 TO 134+ 00 ①	84	84	9.20	312
134 + 00 TO 142+ 70 ①	81	81	8.89	301
142 + 70 TO 151 + 80 ①	85	85	9.30	316
151 +80 TO LARPENTEUR ①	67	67	7.36	249
PATH TOTALS:	666	666	73.02	2475
① CITY OF ST. PAUL	349	349	38.27	1297
② CITY OF MAPLEWOOD	317	317	34.75	1128

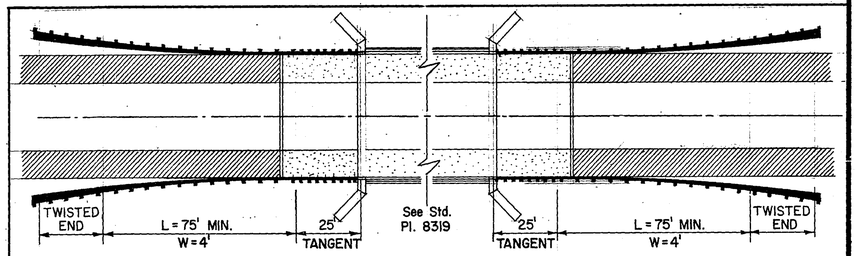
REVISIONS	DATE	BY
BRIDGE DETAIL	2-16-86	BJ, SB
BITUMINOUS PATH CONST. - NON PARTICIP.	2-16-86	BJ, SB
NEW CURB & GUTTER INSTALLATION CHART	2-16-86	BJ, SB
CONCRETE SIDEWALK CONSTRUCTION CHART	2-16-86	BJ, SB

REVISIONS	DATE	BY

Fed. Proj. No.

CONSTRUCTION NOTES

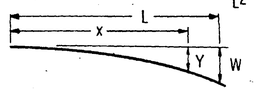
1. PROVIDE DRAINAGE OUTLETS FOR ALL SUBCUTS DURING CONSTRUCTION. DITCHES SHOULD BE DEEPER THAN SUBCUT TO PROVIDE OUTLET DRAINAGE.
2. TAPER ENDS OF SUBCUTS TO A 20:1 SLOPE UNLESS OTHERWISE RECOMMENDED.
3. WHERE THE PROPOSED SUBCUT IS LOCATED UNDER IN-PLACE BASE AND BITUMINOUS SURFACING OR CONCRETE PAVEMENT, THE ENDS OF THE SUBCUT SHALL BE VERTICAL FOR THE DEPTH OF THE BITUMINOUS OR CONCRETE PAVEMENT AND 2:1 IN AGGREGATE BASE.
4. STRIP TOPSOIL FROM ALL AREAS TO BE DISTURBED BY CONSTRUCTION AND STOCKPILE (IF PRACTICAL) FOR REPLACEMENT LATER AS SLOPE DRESSING.
5. PROVIDE FOR REMOVAL AND DISPOSAL OF (OUTSIDE THE CONSTRUCTION ZONE) ANY INPLACE SURFACING AND STRUCTURES THAT WILL INTERFERE WITH CONSTRUCTION.
6. FROM A SOILS STANDPOINT, TRAFFIC SHOULD BE MAINTAINED NO CLOSER THAN AN IMAGINARY 2:1 LINE, DRAWN FROM THE BOTTOM OF ANY SUB-GRADE CORRECTION, INTERSECTING THE SURFACE.
7. THE SPECIFIED DENSITY METHOD SHALL BE USED FOR THE UPPER 2.5' OF THE SUBGRADE ON THIS PROJECT. USE ORDINARY COMPACTION ELSEWHERE.
8. THE CONTRACTOR SHALL OBTAIN FROM THE UTILITY COMPANIES THE EXACT LOCATION OF ANY UNDERGROUND UTILITIES WHICH HE MAY ENCOUNTER IN THE PERFORMANCE OF HIS WORK.
9. TOP OF "GRADING GRADE" IS DEFINED AS THE TOP OF THE EMBANKMENT MATERIAL OR THE BOTTOM OF THE AGGREGATE BASE COURSE.
10. UNSUITABLE GRADING MATERIAL SHALL CONSIST OF TOPSOIL, OTHER ORGANIC SOIL AND DEBRIS.
11. NO PENETRATION PRIME WILL BE REQUIRED ON THIS PROJECT.
12. PROVIDE A TACK COAT, SPEC. 2357.2A, BETWEEN BITUMINOUS COURSES.
13. TAPER ENDS OF GRANULAR BORROW BACKFILL TO A 20:1 SLOPE.
14. WATERMAIN BETWEEN STATION 102 + 75 (MARYLAND AVE) & STATION 160 + 50 (LARPENTEUR AVE.) IS PROPOSED 16" S.D.D.I.P. WATERMAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. DETAIL PLANS FOR THIS WATERMAIN ARE CONTAINED ELSEWHERE IN THIS PLAN. (SHEETS 103-121)



TWO-WAY BRIDGE

OFFSET FORMULA

Offsets Based On Formula $Y = W \frac{x^2}{L^2}$



Y = Intermediate Offsets X = Intermediate Distances
W = With of Final Offset L = Total Length of Flare

GENERAL NOTES:

All guardrail posts shall be 6' 3" c. to c. except post spacing shall be 3'-1½" for 25' tangent at each corner of bridge. Use 12 gauge plate beam with stiffener plates.

The required L length and W offset shall be determined in the field by the Engineer.

See Road Design Manual Fig C 5-291.566 for offset charts.

The latest approved Standard Plates shall apply 8307, 8316, 8317, 8319.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Fiddler

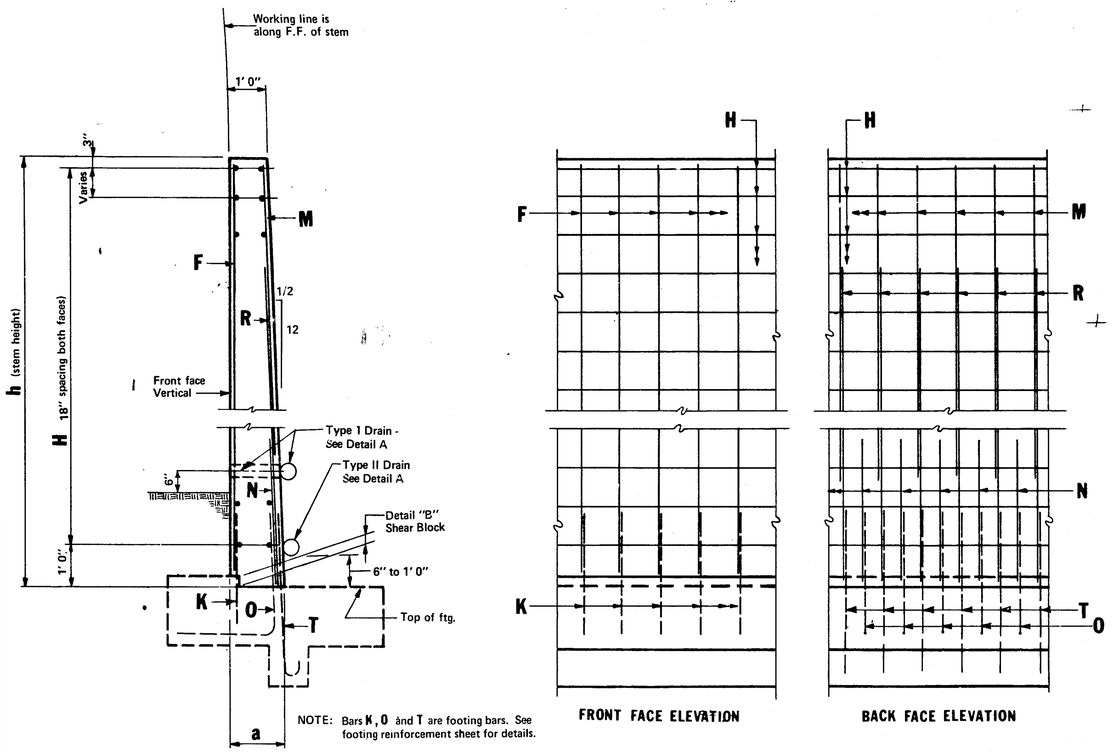
DATE 5-16-86 REG. NO. 13501

MISC. DETAILS, CHARTS

27-128

State Proj. No. 62-668-18

Sheet No. 35 **of** 121 **Sheets**



NOTE: Bars **K, O** and **T** are footing bars. See footing reinforcement sheet for details.

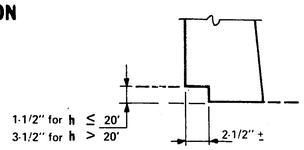
STEM ELEVATION

TYPICAL SECTION THRU STEM

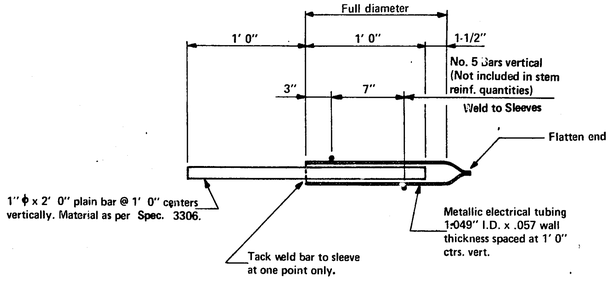
(1) The smallest "C" dimension bar to be placed at the top of wall and increases downward with wall depth.

(2) Use "J" Bars and 4 additional "F" Bars at dowel joints. These bars are not included in quantities per lineal foot of stem. (See stem joint detail)

(3) Weight includes "J" bars and four "F" bars per stem joint.

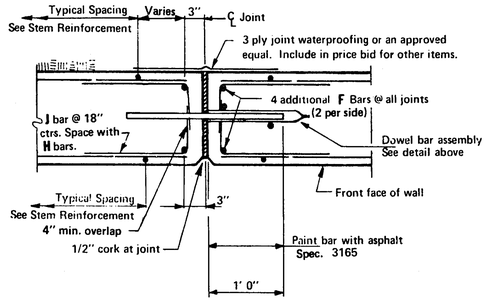


DETAIL B



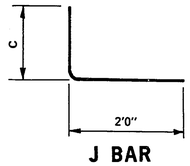
DOWEL BAR ASSEMBLY

Material and placing to be included in price bid for other items



Cork shall comply with Spec. 3702. Secure cork with 2-1/2" long 11 ga. copper nails about 18" ctrs. Cork and nails included in price bid for other items.

TYPICAL SECTION THRU STEM JOINT



J BAR

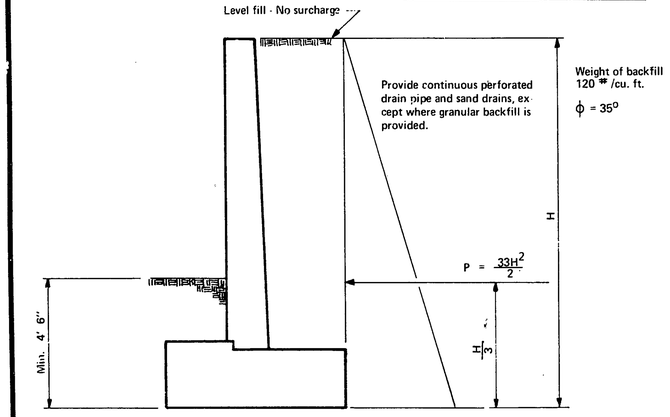
APPROVED Feb. 27, 1980

Director
OFFICE OF ENGINEERING STANDARDS

Fed. Proj. No.

A.A.S.H.T.O. DESIGN SPECIFICATIONS

fc = 1600 p.s.i. n = 8 Concrete
fs = 24,000 p.s.i. Reinforcement



DRAINAGE: For Type II drainage provide drainage through stem every 200' ± 50' with appropriate outlet. Contact Materials Engineering Section for recommendations on the type of drainage system required.

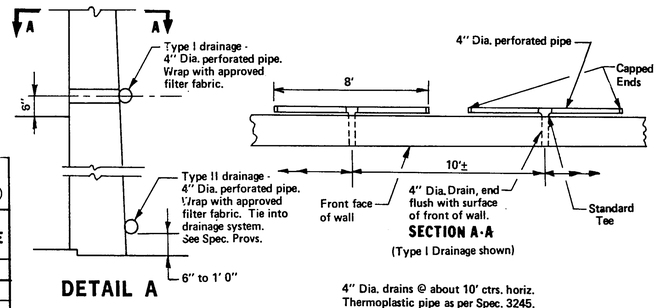
SPREAD FTGS: If soil studies indicate that the inplace soils below the footing cannot support the base pressures shown this design shall not be used.

PILE FTGS: Lateral resistance is equal to horizontal component of battered piles plus bending reistance of:
6.0K per pile for timber with a vertical load of 24 tons.
7.5K per pile for timber with a vertical load of 30 tons.
9.0K per pile for cast-in-place with a vertical load of 40 tons.
13.0K per pile for cast-in-place with a vertical load of 60 tons.
12.0K per pile for steel with a vertical load of 55 tons.

If soil studies indicate that material in place below footing cannot offer the lateral resistance required this design shall not be used.

DESIGN CRITERIA

STEM GEOMETRICS		STEM REINFORCEMENT BARS																								QUANTITIES / LIN. FT. OF STEM (2)	
h	a	J (BARS) (1) (2)						F (2) (VERTICAL)			H (HORIZONTAL)			M (VERTICAL)			N (VERTICAL)			R (VERTICAL)					REINF.	CONCRETE
				C																							
HT.	WIDTH	SIZE	LENGTH	7"	10"	13"	16"	TOTAL WEIGHT (3)	SIZE	LENGTH	SPAC.	SIZE	NO.	MAX. SP.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.			POUND	CU. YDS.
5'	1' 2-1/2"	6	2' + C	16				74.6	4	4' 8"	12"	5	8	18"	4	4' 10"	14 1/2"									14.1	.203
6	1 3	6	2' + C	20				92.7	4	5 8	12	5	10	18	4	5 10	14-1/2									17.4	.249
7	1 3-1/2	6	2' + C	20				95.4	4	6 8	12	5	10	18	4	6 10	14-1/2									18.7	.296
8	1 4	6	2' + C	20	4			115.1	4	7 8	12	5	12	18	4	7 10	14-1/2									22.0	.345
9	1 4-1/2	6	2' + C	20	8			134.8	4	8 8	12	5	14	18	4	8 10	14-1/2									25.3	.395
10	1 5	6	2' + C	20	8			137.5	4	9 8	12	5	14	18	4	9 10	14-1/2									26.5	.446
11	1 5-1/2	6	2' + C	20	12			157.2	4	10 8	12	5	16	18	4	10 10	14-1/2									29.8	.500
12	1 6	6	2' + C	20	16			176.9	4	11 8	12	5	18	18	5	11 10	14-1/2									36 8	.555
13	1 6-1/2	6	2' + C	20	16			179.5	4	12 8	12	5	18	18	5	12 0	14-1/2				5	5' 0"	14-1/2"			41.9	.611
14	1 7	6	2' + C	20	20			199.2	4	13 8	12	5	20	18	5	12 0	14-1/2				6	5 0	14 1/2			46.6	.669
15	1 7-1/2	6	2' + C	20	24			218.9	4	14 8	12	5	22	18	5	12 0	14-1/2				7	5 0	14 1/2			51.6	.728
16	1 8	6	2' + C	20	24			221.6	4	15 8	12	5	22	18	5	12 0	14-1/2				7	6 0	14-1/2			53.9	.789
17	1 8-1/2	6	2' + C	20	28			241.3	4	16 8	12	5	24	18	5	12 0	14-1/2				8	7 0	14 1/2			62.0	.851
18	1 9	6	2' + C	20	32			261.0	4	17 8	12	5	26	18	5	12 0	13				8	8 0	13			72.2	.916
19	1 9-1/2	6	2' + C	20	32			263.7	4	18 8	12	5	26	18	5	12 0	13	6	7' 0"	13"	6	9 0	13			74.6	.981
20	1 10	6	2' + C	20	32	4		284.9	4	19 8	12	5	28	18	5	12 0	13	7	0 0	13	6	10 0	13			87.8	1.049
21	1 10-1/2	6	2' + C	20	32	8		305.6	4	20 6	12	5	30	18	5	12 0	13	7	7 0	13	7	11 0	13			90.5	1.116
22	1 11	6	2' + C	20	32	8		308.3	4	21 6	12	5	30	18	5	12 0	13	7	8 0	13	7	12 0	13			94.9	1.186
23	1 11-1/2	6	2' + C	20	32	12		329.5	4	22 6	12	5	32	18	5	12 0	13	8	9 0	13	7	13 0	13			106.7	1.257
24	2 0	6	2' + C	20	32	16		350.7	4	23 6	12	5	34	18	5	12 0	13	8	10 0	13	7	14 0	13			113.8	1.331
25	2 0-1/2	6	2' + C	20	32	16		353.3	4	24 6	12	5	34	18	5	12 0	13	8	9 0	13	8	15 0	13			122.5	1.406
26	2 1	6	2' + C	20	32	20		374.6	4	25 6	12	5	36	18	5	12 0	14-1/2	9	10 0	14-1/2	9	16 0	14-1/2			138.1	1.482
27	2 1-1/2	6	2' + C	20	32	24		395.7	4	26 6	12	5	36	18	5	12 0	14-1/2	10	10 0	14-1/2	9	17 0	14-1/2			151.1	1.560
28	2 2	6	2' + C	20	32	24		398.4	4	27 6	12	5	38	18	5	12 0	13	10	11 0	13	9	18 0	13			169.7	1.639
29	2 2-1/2	6	2' + C	20	32	28		419.6	4	28 6	12	5	40	18	5	12 0	12	10	11 0	12	9	19 0	12			185.2	1.720
30'	2' 3"	6	2' + C	20	32	32		440.8	4	29 6"	12"	5	42	18"	5	12 0"	11"	10	11' 0"	11"	9	20' 0"	11"			203.3	1.803



DETAIL A

SECTION A-A
(Type I Drainage shown)

4" Dia. drains @ about 10' ctrs. horiz. Thermoplastic pipe as per Spec. 3245.

STEM NOTES

1. Maximum spacing of stem joints (panels) is 32 feet. Use dowel assemblies at all joints. No reinf. thru joint.
2. Concrete in stems to be Concrete Mix No. 3Y43.
3. Reinforcement bars shall be deformed billet steel bars conforming to ASTM A615 Grade 60.
4. Bar lap at authorized splices: 36 diameters for No. 4 to No. 7 bars and 40 diameters for No. 8 to No. 11 bars except as noted.
5. All reinforcement bars to have a 2" minimum cover. When 1" or less rustication is used, move front face reinf. bars in to maintain 2" cover. For rustication over 1" in depth, increase stem width to depth of rustication to maintain minimum reinforcement cover.
6. Edges of concrete on all exposed joints and top of stem wall shall be formed with 1/2" vee unless otherwise noted.
7. Construction to be in accordance with Spec. 2411 except as noted.
8. When stem heights vary by less than four feet in any panel, the rebars shall be sized and spaced for the maximum height in the panel.
9. When stem heights at the ends of any panel differ by more than four feet, but less than eight feet, the panel shall be divided into two approximately equal parts (or on some other logical basis) for rebar design. The bars for each portion of the panel shall be sized and spaced for the maximum stem height in that portion.
10. When stem heights vary by more than eight feet, the panel shall be divided into 3 parts for rebar design. The maximum stem height in each portion shall be used for determining rebar sizing and spacing in that portion.
11. When stem heights are five feet or less, the rebars shall be sized and spaced as required for h = 5 feet.
12. Vertical bars F and M in stems or varying heights and transverse bars O, P, and Q in footings of varying widths shall vary in length in accordance with the dimensions of the structure.

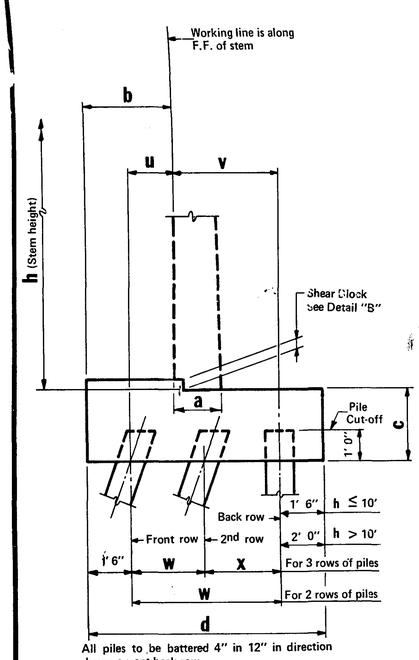
RETAINING WALL - LEVEL FILL

(STEM DETAILS) 27-128

State Proj. No. 62-668-18

Sheet No. 36 of 121 **Sheets**

Fed. Proj. No.

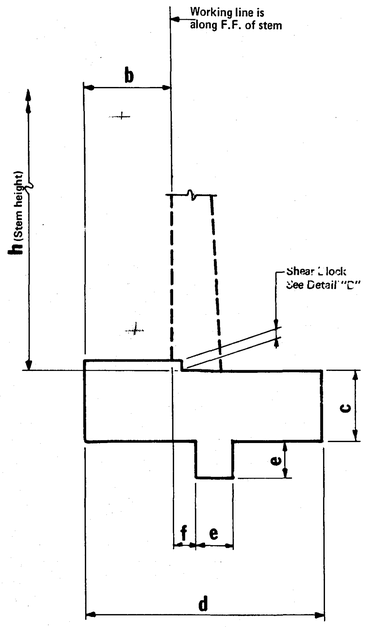


All piles to be battered 4" in 12" in direction shown except back row.

TYPICAL SECTION THRU PILE FOOTING

PILE FOOTING GEOMETRICS

h	a	b	c	d	u	v
HT.	WIDTH	OFFSET	DEPTH	WIDTH	OFFSET	OFFSET
5'	1' 2-1/2"	1' 3-1/2"	1' 11"	4' 0"	− 2-1/2"	1' 2-1/2"
6	1 3	1 5-1/2	2 0	4 5	− 0-1/2	1 5-1/2
7	1 3-1/2	1 7-1/2	2 0	4 10	+1-1/2	1 8-1/2
8	1 4	1 9-1/2	2 1	5 3	+3-1/2	1 11-1/2
9	1 4-1/2	1 11-1/2	2 1	5 8	5-1/2	2 2-1/2
10	1 5	2 1-1/2	2 2	6 1	7-1/2	2 5-1/2
11	1 5-1/2	2 3-1/2	2 2	6 6	9-1/2	2 2-1/2
12	1 6	2 5-1/2	2 3	6 11	11-1/2	2 5-1/2
13	1 6-1/2	2 7-1/2	2 3	7 4	1 1-1/2	2 8-1/2
14	1 7	2 9-1/2	2 4	7 9	1 3-1/2	2 11-1/2
15	1 7-1/2	2 11-1/2	2 4	8 2	1 5-1/2	3 2-1/2
16	1 8	3 1-1/2	2 5	8 7	1 7-1/2	3 5-1/2
17	1 8-1/2	3 3-1/2	2 5	9 0	1 9-1/2	3 8-1/2
18	1 9	3 5-1/2	2 6	9 5	1 11-1/2	3 11-1/2
19	1 9-1/2	3 7-1/2	2 6	9 10	2 1-1/2	4 2-1/2
20	1 10	3 9-1/2	2 7	10 3	2 3-1/2	4 5-1/2
21	1 10-1/2	3 11-1/2	2 7	10 8	2 5-1/2	4 8-1/2
22	1 11	4 1-1/2	2 8	11 1	2 7-1/2	4 11-1/2
23	1 11-1/2	4 3-1/2	2 8	11 6	2 9-1/2	5 2-1/2
24	2 0	4 5-1/2	2 9	11 11	2 11-1/2	5 5-1/2
25	2 0-1/2	4 7-1/2	2 9	12 4	3 1-1/2	5 8-1/2
26	2 1	4 9-1/2	2 10	12 9	3 3-1/2	5 11-1/2
27	2 1-1/2	4 11-1/2	2 10	13 2	3 5-1/2	6 2-1/2
28	2 2	5 1-1/2	2 11	13 7	3 7-1/2	6 5-1/2
29	2 2-1/2	5 3-1/2	2 11	14 0	3 9-1/2	6 8-1/2
30	2' 3"	5' 5-1/2"	3' 0"	14' 5"	3' 11-1/2"	6' 11-1/2"



TYPICAL SECTION THRU SPREAD FOOTING

SPREAD FOOTING GEOMETRICS

h	b	c	d	e	f	BASE PRESSURE (KIPS/SQ. FT.)		QTY./LIN. FT. OF FOOTING
HT.	OFFSET	DEPTH	WIDTH	BLOCK	OFFSET	AT TOE	AT HEEL	CONCRETE CU. YDS.
5'	9-1/2"	1' 2"	3' 0"	1' 0"	0' 9-1/2"	1.35	0.27	.172
6	11-1/2	1 3	3 6-1/2	1 0	10	1.50	.28	.207
7	1 1-1/2	1 3	4 1	1 0	10-1/2	1.65	.29	.233
8	1 3-1/2	1 4	4 7-1/2	1 0	11	1.82	.30	.273
9	1 5-1/2	1 4	5 2	1 0	11-1/2	2.00	.32	.300
10	1 7-1/2	1 5	5 8-1/2	1 0	1 0	2.15	.34	.346
11	1 9-1/2	1 5	6 3	1 0	1 0-1/2	2.30	.37	.375
12	1 11-1/2	1 6	6 9-1/2	1 0	1 1	2.46	.39	.425
13	2 1-1/2	1 6	7 4	1 0	1 1-1/2	2.61	.41	.456
14	2 3-1/2	1 7	7 10-1/2	1 2	1 2	2.77	.43	.524
15	2 5-1/2	1 7	8 5	1 2	1 2-1/2	2.94	.48	.557
16	2 7-1/2	1 8	8 11-1/2	1 2	1 3	3.09	.51	.617
17	2 9-1/2	1 8	9 6	1 2	1 3-1/2	3.23	.54	.652
18	2 11-1/2	1 9	10 0-1/2	1 2	1 4	3.39	.57	.717
19	3 1-1/2	1 9	10 7	1 2	1 4-1/2	3.54	.60	.753
20	3 3-1/2	1 10	11 1-1/2	1 2	1 5	3.68	.63	.823
21	3 5-1/2	1 10	11 8	1 2	1 5-1/2	3.82	.68	.883
22	3 7-1/2	1 11	12 2-1/2	1 4	1 6	4.00	.71	.976
23	3 9-1/2	1 11	12 9	1 4	1 6-1/2	4.12	.74	1.016
24	3 11-1/2	2 0	13 3-1/2	1 4	1 7	4.25	.78	1.097
25	4 1-1/2	2 0	13 10	1 4	1 7-1/2	4.35	.80	1.139
26	4 3-1/2	2 1	14 4-1/2	1 4	1 8	4.50	.87	1.225
27	4 5-1/2	2 1	14 11	1 4	1 8-1/2	4.64	.92	1.269
28	4 7-1/2	2 2	15 5-1/2	1 4	1 9	4.77	.96	1.361
29	4 9-1/2	2 2	16 0	1 4	1 9-1/2	4.88	1.00	1.406
30	4' 11-1/2"	2' 3"	16' 6-1/2"	1' 4"	1' 10"	5.00	1.03	1.502

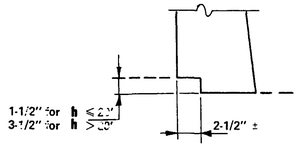
FOOTING NOTES

1. Construction joints infooting are permissable. Construction joints shall be located a min. of 2' away from stem joints. A keyway is required.
2. Pile spacing is at bottom of footing.
3. Pile spacing shown is based on a design loading of:
   - 24 tons per pile - timber piling
   - 30 tons per pile - timber piling

   See Spec. 2452.3E1
4. Concrete in footings to be Concrete Mix No. 1A 43
5. Eliminate shear key on spread footing where footing is 6" or more into rock.
6. Where sound very hard rock is encountered the footing shall be keyed into rock as directed by the Engineer.
7. Reinforcement bars shall be deformed Billet Steel bars conforming to ASTM A615 Grade 60.
8. Bar lap at authorized splices. 36 diameters for No. 4 to No. 7 bars and 40 diameters for No. 8 to No. 11 bars.
9. All reinforcement bars to have a 3" minimum cover unless noted otherwise. When rustication is used, move front face vertical dowel K in to maintain 2" cover. For rustication over 1" in depth increase stem width to depth of rustication to maintain reinforcement cover.
10. Maximum longitudinal slope on bottom of footing shall be 10 to 1. Steps shall be used for steeper slopes.

    Pile per foot quantities listed are approximate figures.

    Footing reinforcement to continue through joints.



DETAIL B

PILE SPACING — TIMBER PILE SPACING DESIGN LOAD 24 TONS/PILE

(See Spec. 3471 for diameter of piles)

h	TRANSVERSE		LONGITUDINAL ROW			QTY./LIN. FT. OF FOOTING	
HT.	W	X	FRONT ROW	2nd ROW	BACK ROW	PILES NO.	CONCRETE CU. YDS.
5'	1' 0"		12' 0"		12' 0"	.167	.291
6	1 5		11 1		12 0	.173	.336
7	1 10		10 2		12 0	.181	.367
8	2 3		9 3		12 0	.192	.415
9	2 8		8 4		12 0	.203	.448
10	3 1		7 5		12 0	.218	.500
11	3 0		6 10		12 0	.230	.534
12	3 5		6 3		12 0	.243	.590
13	3 10		5 8		12 0	.260	.625
14	4 3		5 1		12 0	.280	.685
15	4 8		4 6		12 0	.306	.722
16	5 1		4 2		12 0	.323	.785
17	5 6		3 10		12 0	.344	.823
18	5 11		3 6		12 0	.369	.890
19	6 4		3 2		12 0	.399	.930
20	6 4		3 7		12 0	.493	1.001
21	7 2		3 6		12 0	.517	1.067
22	7 7		3 5		12 0	.546	1.143
23	3 0	5 0	3 4	5 0	12 0	.583	1.186
24	3 0	5 5	3 3	4 1	12 0	.636	1.266
25	3 0	5 10	3 3	3 3	12 0	.699	1.310
26	3 0	6 3	3 1	3 1	11 0	.740	1.394
27	3 0	6 8	2 11	3 0	10 0	.776	1.439
28	3 0	7 1	2 9	2 10	9 0	.828	1.527
29	3 0	7 6	2 7	2 9	8 0	.876	1.574
30	3' 0"	7' 11"	2' 6"	2' 8"	7' 0"	.918	1.665

PILE SPACING — TIMBER PILE SPACING DESIGN LOAD 30 TONS/PILE

(See Spec. 3471 for diameter of piles)

h	TRANSVERSE		LONGITUDINAL ROW			QTY./LIN. FT. OF FOOTING	
HT.	W	X	FRONT ROW	2nd ROW	BACK ROW	PILES NO.	CONCRETE CU. YDS.
5'	1' 0"		12' 0"		12' 0"	.167	.291
6	1 5		12 0		12 0	.167	.336
7	1 10		12 0		12 0	.167	.367
8	2 3		11 9		12 0	.168	.415
9	2 8		10 9		12 0	.176	.448
10	3 1		9 9		12 0	.186	.500
11	3 0		8 10		12 0	.197	.534
12	3 5		7 11		12 0	.210	.590
13	3 10		7 0		12 0	.226	.625
14	4 3		6 5		12 0	.239	.685
15	4 8		5 10		12 0	.255	.722
16	5 1		5 3		12 0	.274	.785
17	5 6		4 8		12 0	.298	.823
18	5 11		4 3		11 8	.321	.890
19	6 4		3 11		11 0	.346	.930
20	6 9		3 8		10 4	.370	1.001
21	7 2		3 5		9 9	.395	1.067
22	7 7		3 2		9 0	.427	1.143
23	3 0	5' 0"	4 2	6' 3"	12 0	.483	1.186
24	3 0	5 5	4 1	5 1	12 0	.525	1.266
25	3 0	5 10	4 1	4 1	12 0	.573	1.310
26	3 0	6 3	3 10	3 10	12 0	.605	1.394
27	3 0	6 8	3 8	3 9	12 0	.623	1.439
28	3 0	7 1	3 5	3 7	11 3	.661	1.527
29	3 0	7 6	3 3	3 5	10 0	.700	1.574
30	3' 0"	7' 11"	3' 1"	3' 4"	8' 9"	.739	1.665

RETAINING WALL - LEVEL FILL

(FOOTING DETAIL-SPREAD FOOTING & TIMBER PILING)

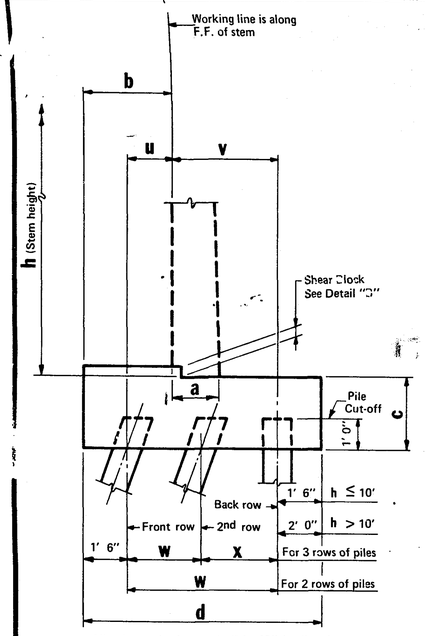
27-128

Feb. 27, 1980

State Proj. No. 62-668-18

Sheet No. 37 of 121 Sheets

Fed. Proj. No.



All piles to be battered 4" in 12" in direction shown except back row.

TYPICAL SECTION THRU PILE FOOTING

PILE FOOTING GEOMETRICS

h	a	b	c①	c②	c③	d	u	v
HT.	WIDTH	OFFSET	DEPTH	DEPTH	DEPTH	WIDTH	OFFSET	OFFSET
5'	1' 2-1/2"	1' 3-1/2"	1' 11"	2' 2"	2' 5"	4' 0"	– 2-1/2"	1' 2-1/2"
6	1 3	1 5-1/2	2 0	2 2	2 5	4 5	– 0-1/2	1 5-1/2
7	1 3-1/2	1 7-1/2	2 0	2 2	2 5	4 10	+ 1-1/2	1 8-1/2
8	1 4	1 9-1/2	2 1	2 2	2 5	5 3	+ 3-1/2	1 11-1/2
9	1 4-1/2	1 11-1/2	2 1	2 2	2 5	5 8	5-1/2	2 2-1/2
10	1 5	2 1-1/2	2 2	2 2	2 5	6 1	7-1/2	2 5-1/2
11	1 5-1/2	2 3-1/2	2 2	2 2	2 5	6 6	9-1/2	2 2-1/2
12	1 6	2 5-1/2	2 3	2 3	2 5	6 11	11-1/2	2 5-1/2
13	1 6-1/2	2 7-1/2	2 3	2 3	2 5	7 4	1 1-1/2	2 8-1/2
14	1 7	2 9-1/2	2 4	2 4	2 5	7 9	1 3-1/2	2 11-1/2
15	1 7-1/2	2 11-1/2	2 4	2 4	2 5	8 2	1 5-1/2	3 2-1/2
16	1 8	3 1-1/2	2 5	2 5	2 5	8 7	1 7-1/2	3 5-1/2
17	1 8-1/2	3 3-1/2	2 5	2 5	2 5	9 0	1 9-1/2	3 8-1/2
18	1 9	3 5-1/2	2 6	2 6	2 6	9 5	1 11-1/2	3 11-1/2
19	1 9-1/2	3 7-1/2	2 6	2 6	2 6	9 10	2 1-1/2	4 2-1/2
20	1 10	3 9-1/2	2 7	2 7	2 7	10 3	2 3-1/2	4 5-1/2
21	1 10-1/2	3 11-1/2	2 7	2 7	2 7	10 8	2 5-1/2	4 8-1/2
22	1 11	4 1-1/2	2 8	2 8	2 8	11 1	2 7-1/2	4 11-1/2
23	1 11-1/2	4 3-1/2	2 8	2 8	2 8	11 6	2 9-1/2	5 2-1/2
24	2 0	4 5-1/2	2 9	2 9	2 9	11 11	2 11-1/2	5 5-1/2
25	2 0-1/2	4 7-1/2	2 9	2 9	2 9	12 4	3 1-1/2	5 8-1/2
26	2 1	4 9-1/2	2 10	2 10	2 10	12 9	3 3-1/2	5 11-1/2
27	2 1-1/2	4 11-1/2	2 10	2 10	2 10	13 2	3 5-1/2	6 2-1/2
28	2 2	5 1-1/2	2 11	2 11	2 11	13 7	3 7-1/2	6 5-1/2
29	2 2-1/2	5 3-1/2	2 11	2 11	2 11	14 0	3 9-1/2	6 8-1/2
30'	2' 3"	5' 5-1/2"	3' 0"	3' 0"	3' 0"	14' 5"	3' 11-1/2"	6' 11-1/2"

① For Design Load 40 Tons/Pile

② For Design Load 50 Tons/Pile

③ For Design Load 55 Tons/Pile and 60 Tons/Pile

h	PILE SPACING TRANSVERSE W	PILE SPACING TRANSVERSE X	PILE SPACING LONGITUDINAL ROW FRONT ROW	PILE SPACING LONGITUDINAL ROW 2nd ROW	PILE SPACING LONGITUDINAL ROW BACK ROW	QTY./LIN. FT. OF FOOTING PILES NO.	QTY./LIN. FT. OF FOOTING CONCRETE CU. YDS.
5'	1' 0"		12' 0"		12' 0"	0.167	.291
6	1 5		12 0		12 0	.167	.336
7	1 10		12 0		12 0	.167	.367
8	2 3		12 0		12 0	.167	.415
9	2 8		12 0		12 0	.167	.448
10	3 1		12 0		12 0	.167	.500
11	3 0		11 6		12 0	.170	.534
12	3 5		10 6		12 0	.179	.590
13	3 10		9 6		12 0	.189	.625
14	4 3		8 6		12 0	.201	.685
15	4 8		7 7		12 0	.215	.722
16	5 1		7 0		12 0	.226	.785
17	5 6		6 5		12 0	.239	.823
18	5 11		5 10		12 0	.255	.890
19	6 4		5 4		12 0	.271	.930
20	6 9		4 10		12 0	.290	1.001
21	7 2		4 7		12 0	.301	1.067
22	7 7		4 3		12 0	.319	1.143
23	8 0		3 11		11 4	.344	1.186
24	8 5		3 7		10 6	.374	1.266
25	3 0	5' 10"	4 2	12' 0"	12 0	.407	1.310
26	3 0	6 3	4 2	10 6	12 0	.419	1.394
27	3 0	6 8	4 3	8 11	12 0	.431	1.439
28	3 0	7 1	4 3	7 5	12 0	.454	1.527
29	3 0	7 6	4 4	5 10	12 0	.486	1.574
30'	3' 0"	7' 11"	4' 4"	4' 4"	12' 0"	.545	1.665

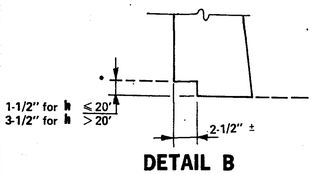
CAST-IN-PLACE CONCRETE PILE SPACING
DESIGN LOAD 40 TONS/PILE
(12" nominal diameter piles as per Spec. 3371.
For fabrication and driving see Special Provisions)

FOOTING NOTES

1. Construction joints infooting are permissable. Construction joints shall be located a min. of 2' away from stem joints. A keyway is required.
2. Pile spacing is at bottom of footing.
3. Pile spacing shown is based on a design loading of:

   40 tons per pile - cast-in-place concrete piling
   50 tons per pile - cast-in-place concrete piling
   60 tons per pile - cast-in-place concrete piling
   55 tons per pile - steel piling

   See Spec. 2452.3E1
4. Concrete in footings to be Concrete Mix No. 1A 43
5. Eliminate shear key on spread footing where footing is 6" or more into rock.
6. Where sound very hard rock is encountered the footing shall be keyed into rock as directed by the Engineer.
7. Reinforcement bars shall be deformed Billet Steel bars conforming to ASTM A615 Grade 60.
8. Bar lap at authorized splices: 36 diameters for No. 4 to No. 7 bars and 40 diameters for No. 8 to No. 11 bars.
9. All reinforcement bars to have a 3" minimum cover unless noted otherwise. When rustication is used, move front face vertical dowel in to maintain 2" cover. For rustication over 1" in depth increase stem width to depth of rustication to maintain reinforcement cover.
10. Maximum longitudinal slope on bottom of footing shall be 10 to 1. Steps shall be used for steeper slopes.
11. Pile per foot quantities listed are approximate figures.
12. Footing reinforcement to continue through joints.



DETAIL B

h	PILE SPACING TRANSVERSE W	PILE SPACING TRANSVERSE X	PILE SPACING LONGITUDINAL ROW FRONT ROW	PILE SPACING LONGITUDINAL ROW 2nd ROW	PILE SPACING LONGITUDINAL ROW BACK ROW	QTY./LIN. FT. OF FOOTING PILES NO.	QTY./LIN. FT. OF FOOTING CONCRETE CU. YDS.
5	1' 0"		12' 0"		12' 0"	.167	.328
6	1 5		12 0		12 0	.167	.362
7	1 10		12 0		12 0	.167	.396
8	2 3		12 0		12 0	.167	.431
9	2 8		12 0		12 0	.167	.465
10	3 1		12 0		12 0	.167	.500
11	3 0		12 0		12 0	.167	.534
12	3 5		12 0		12 0	.167	.590
13	3 10		11 9		12 0	.168	.625
14	4 3		10 6		12 0	.179	.685
15	4 8		9 6		12 0	.189	.722
16	5 1		8 10		12 0	.197	.785
17	5 6		8 2		12 0	.206	.823
18	5 11		7 6		12 0	.217	.890
19	6 4		6 10		12 0	.230	.930
20	6 9		6 1		12 0	.248	1.001
21	7 2		5 8		12 0	.260	1.067
22	7 7		5 3		12 0	.274	1.143
23	8 0		4 11		12 0	.287	1.186
24	8 5		4 7		12 0	.302	1.266
25	3 0	5' 10"	5 2	11' 2"	12 0	.366	1.310
26	3 0	6 3	4 10	10 8	12 0	.384	1.394
27	3 0	6 8	4 8	10 3	12 0	.395	1.439
28	3 0	7 1	4 4	9 10	12 0	.416	1.527
29	3 0	7 6	4 2	9 6	12 0	.429	1.574
30	3' 0"	7' 11"	3' 11"	9' 2"	12' 0"	.448	1.665

CAST-IN-PLACE CONCRETE PILE SPACING
DESIGN LOAD 50 TONS/PILE
(12" nominal diameter piles as per Spec. 3371
for fabrication and driving see Special Provisions)

h	PILE SPACING TRANSVERSE W	PILE SPACING TRANSVERSE X	PILE SPACING LONGITUDINAL ROW FRONT ROW	PILE SPACING LONGITUDINAL ROW 2nd ROW	PILE SPACING LONGITUDINAL ROW BACK ROW	QTY./LIN. FT. OF FOOTING PILES NO.	QTY./LIN. FT. OF FOOTING CONCRETE CU. YDS.
5'	1' 0"		12' 0"		12' 0"	.167	.365
6	1 5		12 0		12 0	.167	.403
7	1 10		12 0		12 0	.167	.441
8	2 3		12 0		12 0	.167	.479
9	2 8		12 0		12 0	.167	.517
10	3 1		12 0		12 0	.167	.555
11	3 0		12 0		12 0	.167	.593
12	3 5		12 0		12 0	.167	.631
13	3 10		12 0		12 0	.167	.669
14	4 3		12 0		12 0	.167	.708
15	4 8		11 6		12 0	.170	.746
16	5 1		10 8		12 0	.177	.784
17	5 6		9 10		12 0	.185	.823
18	5 11		9 0		12 0	.194	.890
19	6 4		8 2		12 0	.206	.930
20	6 9		7 4		12 0	.220	1.001
21	7 2		6 10		12 0	.230	1.067
22	7 7		6 4		12 0	.241	1.143
23	8 0		5 11		12 0	.252	1.186
24	8 5		5 5		12 0	.268	1.266
25	8 10		5 0		12 0	.283	1.310
26	3 0	6' 3"	5 9	12' 0"	12 0	.341	1.394
27	3 0	6 8	5 5	12 0	12 0	.351	1.439
28	3 0	8 6½	5 3	11 10	12 0	.358	1.527
29	3 0	9 0	5 0	11 4	12 0	.372	1.574
30'	3' 0"	9' 5½"	4' 9"	10' 8"	12' 0"	.388	1.665

CAST-IN-PLACE CONCRETE PILE SPACING
DESIGN LOAD 60 TONS/PILE
(12" nominal diameter piles as per Spec. 3371.
For fabrication and driving see Special Provisions)

h	PILE SPACING TRANSVERSE W	PILE SPACING TRANSVERSE X	PILE SPACING LONGITUDINAL ROW FRONT ROW	PILE SPACING LONGITUDINAL ROW 2nd ROW	PILE SPACING LONGITUDINAL ROW BACK ROW	QTY./LIN. FT. OF FOOTING PILES NO.	QTY./LIN. FT. OF FOOTING CONCRETE CU. YDS.
5'	1' 0"		12' 0"		12' 0"	.167	.365
6	1 5		12 0		12 0	.167	.403
7	1 10		12 0		12 0	.167	.441
8	2 3		12 0		12 0	.167	.479
9	2 8		12 0		12 0	.167	.517
10	3 1		12 0		12 0	.167	.555
11	3 0		12 0		12 0	.167	.593
12	3 5		12 0		12 0	.167	.631
13	3 10		12 0		12 0	.167	.669
14	4 3		11 9		12 0	.168	.708
15	4 8		10 6		12 0	.178	.746
16	5 1		9 9		12 0	.186	.784
17	5 6		9 0		12 0	.194	.823
18	5 11		8 3		12 0	.205	.890
19	6 4		7 6		12 0	.217	.930
20	6 9		6 9		12 0	.232	1.001
21	7 2		6 3		12 0	.243	1.067
22	7 7		5 10		12 0	.255	1.143
23	8 0		5 5		12 0	.268	1.186
24	8 5		5 0		12 0	.283	1.266
25	3 0	5' 10"	5 8	12' 0"	12 0	.343	1.310
26	3 0	6 3	5 4	11 8	12 0	.357	1.394
27	3 0	6 8	5 1	11 3	12 0	.369	1.439
28	3 0	7 1	4 10	10 10	12 0	.383	1.527
29	3 0	7 6	4 7	10 5	12 0	.397	1.574
30'	3' 0"	7' 11"	4' 4"	10' 0"	12' 0"	.414	1.665

STEEL PILE SPACING
DESIGN LOAD 55 TONS/PILE
(10 HP42 piles as per Spec. 3372)

RETAINING WALL - LEVEL FILL

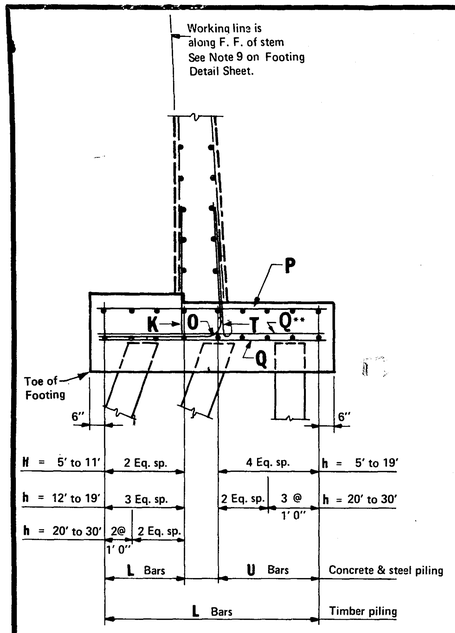
(FOOTING DETAIL - CAST IN PLACE & STEEL PILES) 27-128

Feb. 27, 1980

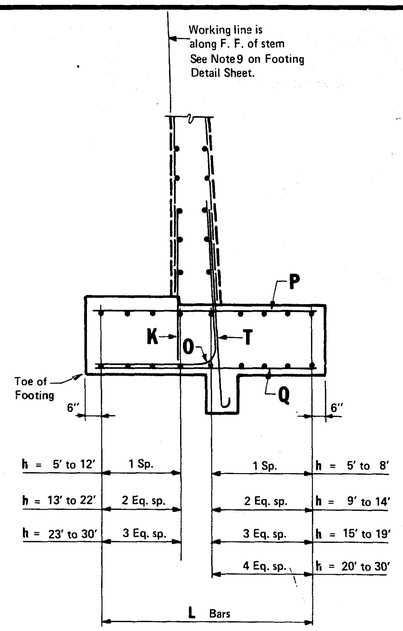
State Proj. No. 62-668-18

Sheet No. 38 of 121 Sheets

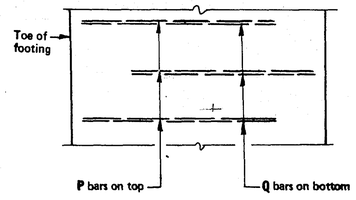
Fed. Proj. No.



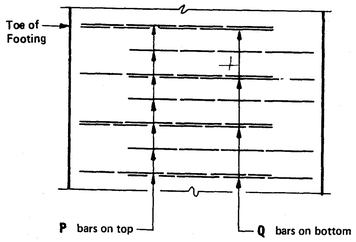
TYPICAL SECTION THRU PILE FOOTING



TYPICAL SECTION THRU SPREAD FOOTING



CASE 1



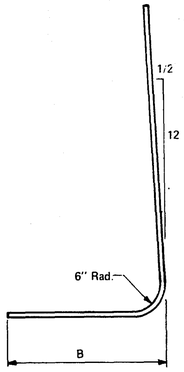
CASE 2

PART FOOTING PLAN

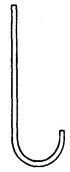
(SHOWING STAGGERED P AND Q BARS ONLY)

TYPE OF FOOTING	CASE 1	CASE 2
TIMBER PILING	h : 5' to 22'	h : 23' to 30'
CONCRETE PILING	h : 5' to 24'	h : 25' to 30'
STEEL PILING	h : 5' to 24'	h : 25' to 30'
SPREAD	h : 5' to 18'	h : 19' to 30'

P bars and Q bars are spaced according to wall heights



BAR O



BAR T*

* Hook bars in Spread Footing from bar size #8 and up.

SPREAD FOOTING REINFORCEMENT BARS

h	K (FRONT DOWELS)			L (LONGIT.)		O (TOE)				P (TRANSVERSE)			Q (TRANSVERSE)			T (BACK DOWELS)			WEIGHT /LIN. FT. OF WALL
HT.	SIZE	LENGTH	SPAC.	SIZE	NO.	SIZE	LENGTH	SPAC.	B	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	POUNDS
5'	#4	3' 0"	12"	#5	8					#4	2' 6"	14 1/2"	#4	2' 6"	14-1/2"	#4	3' 5"	14-1/2"	15.35
6	4	3 0	12	5	8					4	2 11	14-1/2	4	2 11	14-1/2	4	3 6	14-1/2	15.86
7	4	3 0	12	5	8					4	3 4	14-1/2	4	3 4	14 1/2	4	3 6	14-1/2	16.32
8	4	3 0	12	5	8					4	3 9	14-1/2	4	3 9	14-1/2	4	3 7	14-1/2	16.83
9	4	3 0	12	5	10					4	4 2	14-1/2	4	4 2	14-1/2	4	3 7	14-1/2	19.45
10	4	3 0	12	5	10					4	4 7	14-1/2	4	4 7	14-1/2	5	4 1	14-1/2	21.46
11	4	3 0	12	5	10					5	5 0	14-1/2	4	5 0	14-1/2	5	4 1	14-1/2	23.47
12	4	3 0	12	5	10	#4	5' 7"	14-1/2"	3' 1"	5	5 5	14-1/2	4	5 5	14-1/2	4	3 9	14-1/2	25.69
13	4	3 0	12	5	12	5	6 3	14-1/2	3 3	6	5 10	14-1/2	4	5 10	14 1/2	4	3 9	14-1/2	32.89
14	4	3 0	12	5	12	5	6 6	14-1/2	3 6	6	6 3	14-1/2	4	6 3	14-1/2	5	4 5	14-1/2	35.69
15	4	3 0	12	5	14	6	7 1	14 1/2	3 8	7	6 8	14-1/2	4	6 8	14-1/2	5	4 5	14-1/2	44.71
16	5	4 0	12	5	14	6	7 4	14 1/2	3 11	7	7 1	14 1/2	4	7 1	14 1/2	6	4 10	14-1/2	50.41
17	5	4 0	12	5	14	7	8 0	14-1/2	4 1	8	7 6	14 1/2	4	7 6	14 1/2	6	4 10	14-1/2	59.64
18	5	4 0	12	5	14	7	8 3	13	4 4	8	7 11	13	4	7 11	13	6	4 11	13	66.16
19	5	4 0	12	5	14	7	8 6	13	4 6	6	8 4	6 1/2	4	8 4	13	7	5 4	13	73.73
20	5	4 0	12	5	16	8	9 5	13	4 11	7	8 9	6 1/2	4	8 9	13	7	5 5	13	93.40
21	5	4 0	12	5	16	8	9 8	13	5 2	7	9 2	6 1/2	5	9 2	13	8	7 0	13	106.06
22	5	4 0	12	5	16	9	10 5	13	5 4	7	9 7	6 1/2	5	9 7	13	8	7 3	13	117.51
23	5	4 0	12	5	18	9	10 8	13	5 7	8	10 0	6 1/2	5	10 0	13	9	8 1	13	141.49
24	5	4 0	12	5	18	10	11 4	13	5 9	8	10 5	6 1/2	5	10 5	13	9	8 2	13	155.75
25	5	4 0	12	5	18	10	11 7	13	6 0	8	10 10	6 1/2	5	10 10	13	10	8 9	13	168.72
26	5	4 0	12	5	18	11	12 4	14 1/2	6 2	9	11 3	7	5	11 3	14-1/2	11	9 6	14 1/2	195.01
27	5	4 0	12	5	18	11	12 7	14 1/2	6 5	10	11 9	7	5	11 8	14 1/2	11	9 6	14 1/2	216.96
28	5	4 0	12	5	18	11	12 10	13	6 7	10	12 1	6 1/2	5	12 1	13	11	9 7	13	241.29
29	5	4 0	12	5	18	11	13 1	12	6 7	10	12 6	6	5	12 6	12	11	9 7	12	264.77
30'	#5	4' 0"	12"	#5	18	#11	13' 4"	11"	6' 10"	#9	12' 11"	5 1/2"	#5	12' 11"	11"	#11	9' 8"	11"	267.55

USE WITH SPREAD FOOTING ONLY

PILE FOOTING REINFORCEMENT BARS

h	K (FRONT DOWELS)			O (TOE)				T (BACK DOWELS)			L (LONGIT.)		P (TRANSVERSE)			Q (TRANSVERSE)			WEIGHT /LIN. FT. OF WALL
HT.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	B	SIZE	LENGTH	SPAC.	SIZE	NO.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	POUNDS
5'	#4	3' 0"	12"					#4	3' 5"	14-1/2"	#5	16	#4	3' 0"	14 1/2"	#4	3' 0"	14-1/2"	23.90
6	4	3 0	12					4	3 5	14 1/2	5	16	4	3 4	14-1/2	4	3 4	14-1/2	24.27
7	4	3 0	12					4	3 5	14 1/2	5	16	4	3 8	14-1/2	4	3 8	14 1/2	24.64
8	4	3 0	12					4	3 5	14 1/2	5	16	4	4 0	14-1/2	4	4 0	14-1/2	25.01
9	4	3 0	12	#4	5' 8"	14 1/2"	2' 11"	4	3 5	14 1/2	5	16	4	4 4	14-1/2	4	4 4	14 1/2	28.51
10	4	3 0	12	4	5 11	14 1/2	3 2	5	3 11	14-1/2	5	16	4	4 8	14-1/2	4	4 8	14-1/2	30.51
11	4	3 0	12	4	6 1	14 1/2	3 4	5	3 11	14 1/2	5	16	4	5 0	14-1/2	5	5 0	14 1/2	32.52
12	4	3 0	12	4	6 4	14 1/2	3 7	4	3 5	14-1/2	5	18	4	5 4	14-1/2	5	5 4	14 1/2	33.73
13	4	3 0	12	5	6 11	14 1/2	3 9	4	3 5	14 1/2	5	18	5	5 8	14-1/2	5	5 8	14 1/2	38.43
14	4	3 0	12	5	7 2	14 1/2	4 0	5	3 11	14 1/2	5	18	5	6 0	14-1/2	5	6 0	14 1/2	40.72
15	4	3 0	12	6	7 8	14 1/2	4 2	5	3 11	14 1/2	5	18	6	6 4	14-1/2	5	6 4	14 1/2	47.04
16	5	4 0	12	6	7 11	14 1/2	4 5	6	4 4	14 1/2	5	18	6	6 8	14-1/2	6	6 8	14 1/2	54.76
17	5	4 0	12	7	8 6	14 1/2	4 7	6	4 4	14-1/2	5	18	7	7 0	14-1/2	5	7 0	14 1/2	60.62
18	5	4 0	12	7	8 10	13	4 10	6	4 5	13	5	18	7	7 3	13	5	7 3	13	66.39
19	5	4 0	12	7	9 0	13	5 0	7	5 0	13	5	18	7	7 6	13	6	7 6	13	73.91
20	5	4 0	12	8	10 0	13	5 3	7	5 1	13	5	22	7	7 9	13	5	7 9	13	83.44
21	5	4 0	12	8	10 2	13	5	8	5 10	13	5	22	8	8 0	13	6	8 0	13	97.36
22	5	4 0	12	9	11 0	13	5 8	8	5 11	13	5	22	8	8 3	13	6	8 3	13	107.99
23	5	4 0	12	9	11 2	13	5 10	9	6 9	13	5	22	6	8 6	6 1/2	4	8 6	13	112.17
24	5	4 0	12	10	11 11	13	6 1	#9	6 10	13	5	22	7	8 9	6 1/2	4	8 9	13	134.32
25	5	4 0	12	10	12 1	13	6 3	10	7 5	13	5	22	7	9 0	6 1/2	4	9 0	13	144.09
26	5	4 0	12	11	12 11	14 1/2	6 6	11	8 2	14-1/2	5	22	8	9 3	7	4	9 3	14-1/2	167.34
27	5	4 0	12	11	13 1	14 1/2	6 8	11	8 2	14-1/2	5	22	8	9 6	7	4	9 6	14 1/2	169.33
28	5	4 0	12	11	13 5	13	6 11	11	8 3	13	5	22	8	9 9	6-1/2	6	9 9	13	194.97
29	5	4 0	12	11	13 7	12	7 1	11	8 3	12	5	22	8	10 0	6	6	10 0	12	211.54
30'	#5	4' 0"	12"	#11	13' 11"	11"	7' 4"	#11	8' 4"	11"	#5	22	#8	10' 3"	5 1/2"	#5	10' 3"	11"	227.47

USE WITH ALL PILING

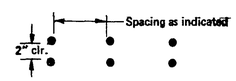
h	L (LONGIT.)		P (TRANSVERSE)			Q① (TRANSVERSE)			Q② (TRANSVERSE)			U (LONGIT.)		① WEIGHT /LIN. FT. OF WALL	② WEIGHT /LIN. FT. OF WALL
HT.	SIZE	NO.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	SIZE	NO.	POUNDS	POUNDS
5'	#5	6	#4	3' 0"	14-1/2"	#4	3' 0"	14 1/2"	#4	3' 0"	14 1/2"	#6	10	28.49	28.49
6	5	6	4	3 4	14-1/2	4	3 4	14 1/2	4	3 4	14 1/2	6	10	28.86	28.86
7	5	6	4	3 8	14-1/2	4	3 8	14 1/2	4	3 8	14 1/2	6	10	29.23	29.23
8	5	6	4	4 0	14-1/2	4	4 0	14 1/2	5	4 0	14 1/2	6	10	29.60	30.84
9	5	6	4	4 4	14-1/2	6	4 4	14 1/2	7	4 4	14 1/2	6	10	36.09	38.04
10	5	6	4	4 8	14-1/2	7	4 8	14 1/2	8	4 8	14 1/2	6	10	40.42	42.84
11	5	6	4	5 0	14-1/2	8	5 0	14-1/2	8	5 0	14-1/2	6	10	43.85	43.85
12	5	8	4	5 4	14-1/2	8	5 4	14 1/2	9	5 4	14-1/2	6	10	45,50	48.73
13	5	8	5	5 8	14-1/2	8	5 8	14-1/2	9	5 8	14-1/2	6	10	50,65	54.08
14	5	8	5	6 0	14-1/2	8	6 0	14 1/2	9	6 0	14-1/2	6	10	53.39	57.01
15	5	8	6	6 4	14-1/2	8	6 4	14 1/2	9	6 4	14-1/2	6	10	60.17	63.99
16	5	8	6	6 8	14-1/2	8	6 8	14-1/2	9	6 8	14-1/2	6	10	65.80	69.83
17	5	8	7	7 0	14-1/2	9	7 0	14-1/2	10	7 0	14-1/2	6	10	78.87	84.10
18	5	8	7	7 3	13	9	7 3	13	10	7 3	13	6	10	86.76	92.80
19	5	8	7	7 6	13	10	7 6	13	11	7 6	13	6	10	97.89	104.88
20	5	10	7	7 9	13	10	7 9	13	11	7 9	13	6	12	112.26	119.49
21	5	10	8	8 0	13	11	8 0	13	11	8 0	13	6	12	131.01	131.01
22	5	10	8	8 3	13	11	8 3	13	11	8 3	13	6	12	142.52	142.52
23	5	10	9	8 6	13	9	8 6	13	10	8 6	13	6	12	142.20	149.29
24	5	10	9	8 9	13	8	8 9	13	10	8 9	13	6	12	150.43	163.62
25	5	10	7	9 0	6 1/2	10	9 0	13	11	9 0	13	6	12	179.80	188.19
26	5	10	8	9 3	7	9	9 3	14-1/2	8	9 3	7-1/4	6	12	193.78	208.63
27	5	10	8	9 6	7	9	9 6	14-1/2	10	9 6	7-1/4	6	12	196.36	237.31
28	5	10	8	9 9	6-1/2	9	9 9	13	10	9 9	13 **	6	12	217.56	264.41
29	5	10	8	10 0	6	9	10 0	12	10	10 0	12 **	6	12	270.03	288.09
30'	#5	10	#8	10' 3"	5 1/2"	#9	10' 3"	11"	#10	10' 3"	11"**	#6	12	297.36	317.56

USE WITH CONCRETE PILING ONLY

① For Design Load 50 Tons/Pile

② For Design Load 60 Tons/Pile

** Place two layers of bars as shown



h	L (LONGIT.)		P (TRANSVERSE)			Q (TRANSVERSE)			U (LONGIT.)		WEIGHT /LIN. FT. OF WALL	h
	SIZE	NO.	SIZE	LENGTH	SPAC.	SIZE	LENGTH	SPAC.	SIZE	NO.	POUNDS	HT.
5'	#6	6	#4	3' 0"	14-1/2"	#4	3' 0"	14 1/2"	#7	10	36.67	5'
6	6	6	4	3 4	14-1/2	4	3 4	14 1/2	7	10	37.03	6
7	6	6	4	3 8	14-1/2	4	3 8	14-1/2	7	10	37.40	7
8	6	6	4	4 0	14-1/2	4	4 0	14 1/2	7	10	37.77	8
9	6	6	4	4 4	14 1/2	5	4 4	14 1/2"	7	10	42.62	9
10	6	6	4	4 8	14-1/2	7	4 8	14 1/2	7	10	48.59	10
11	6	6	4	5 0	14 1/2	7	5 0	14-1/2	7	10	49.43	11
12	6	6	4	5 4	14 1/2	8	5 4	14 1/2	7	10	54.59	12
13	6	8	5	5 8	14-1/2	8	5 8	14-1/2	7	10	59.75	13
14	6	8	5	6 0	14-1/2	9	6 0	14 1/2	7	10	66.11	14
15	6	8	6	6 4	14-1/2	9	6 4	14 1/2	7	10	73.08	15
16	6	8	6	6 8	14-1/2	7	6 8	14 1/2	7	10	71.44	16
17	6	8	7	7 0	14-1/2	6	7 0	14 1/2	7	10	76.96	17
18	6	8	7	7 3	13	7	7 3	13	7	10	86.77	18
19	6	8	7	7 6	13	7	7 6	13	7	10	91.34	19
20	6	10	7	7 9	13	6	7 9	13	7	12	103.32	20
21	6	10	8	8 0	13	6	8 0	13	7	12	113.96	21
22	6	10	8	8 3	13	6	8 3	13	7	12	124.59	22
23	6	10	9	8 6	13	6	8 6	13	7	12	138.41	23
24	6	10	9	8 9	13	6	8 9	13	7	12	152.09	24
25	6	10	7	9 0	6-1/2	4	9 0	13	7	12	160.70	25
26	6	10	8	9 3	7	4	9 3	14-1/2	7	12	183.95	26
27	6	10	8	9 6	7	6	9 6	14-1/2	7	12	192.52	27
28	6	10	8	9 9	6-1/2	7	9 9	13	7	12	216.45	28
29	6	10	8	10 0	6	7	10 0	12	7	12	233.57	29
30'	#6	10	#8	10' 3"	5 1/2"	#6	10' 3"	11"	#7	12	249.21	30'

USE WITH STEEL PILING ONLY

USE WITH TIMBER PILING ONLY

NOTE:
Reinforcement quantities for pile footings include bars K, O & T

RETAINING WALL - LEVEL FILL

(FOOTING REINFORCEMENT)

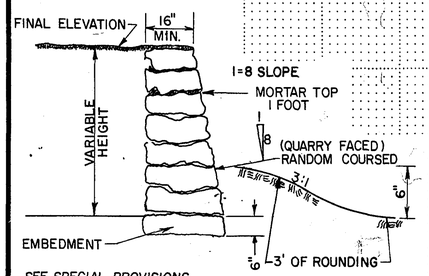
27-128

Feb. 27, 1980

State Proj. No. 82-668-18

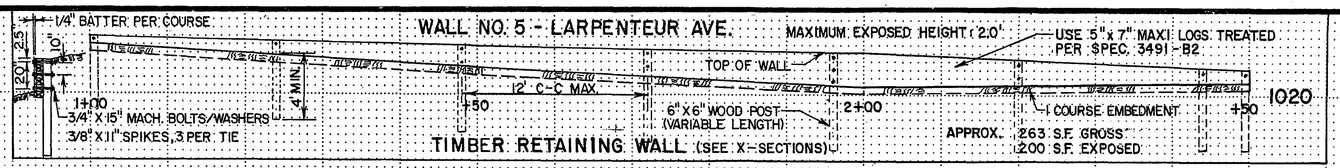
Sheet No. 39 of 121 Sheets

RETAINING WALL DETAIL & NOTES WALLS 1 & 4



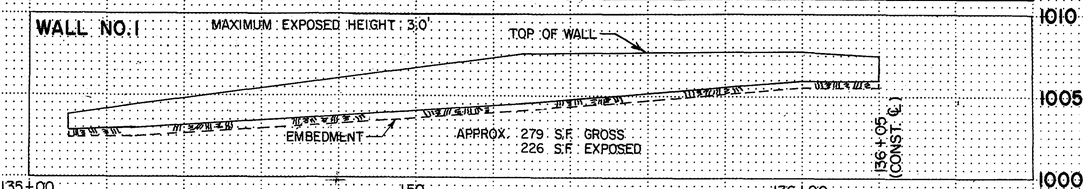
SEE SPECIAL PROVISIONS
BACK FACE SHALL BE VERTICAL
COURSES OF STONE SHALL BE HORIZONTAL
ALL STONES SHALL BE THE FULL THICKNESS OF THE WALL

WALL NO. 5 - LARPENTEUR AVE.

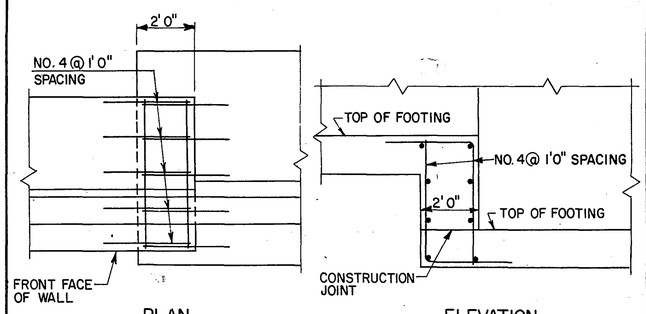


TIMBER RETAINING WALL (SEE X-SECTIONS)

WALL NO. 1

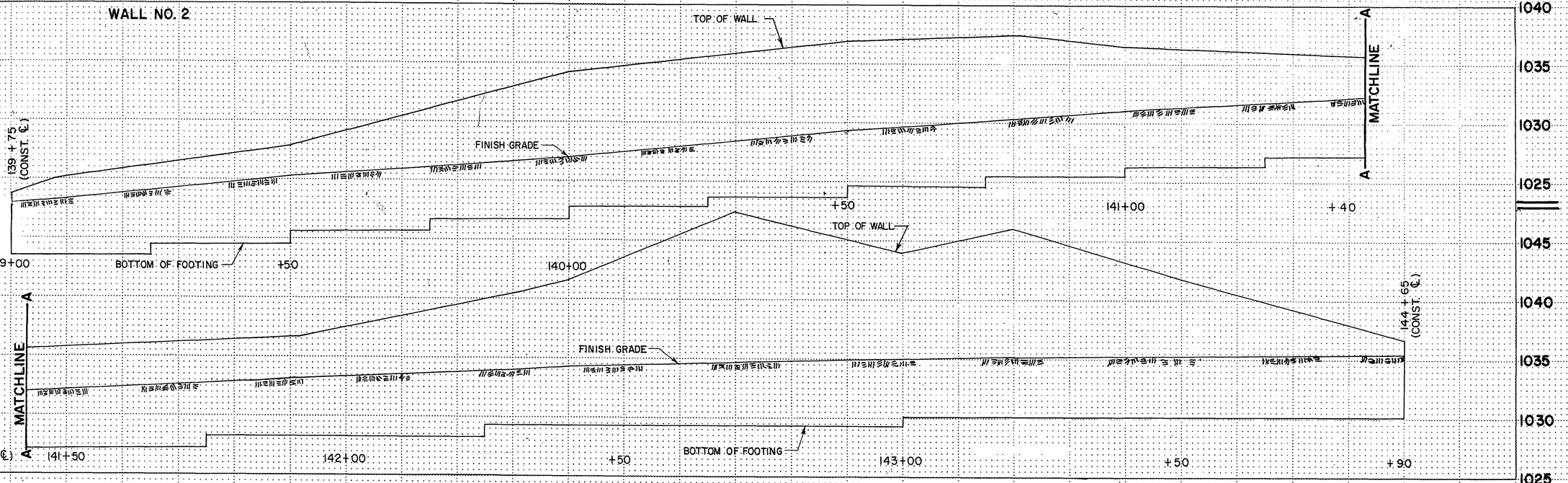


Fed. Proj. No.

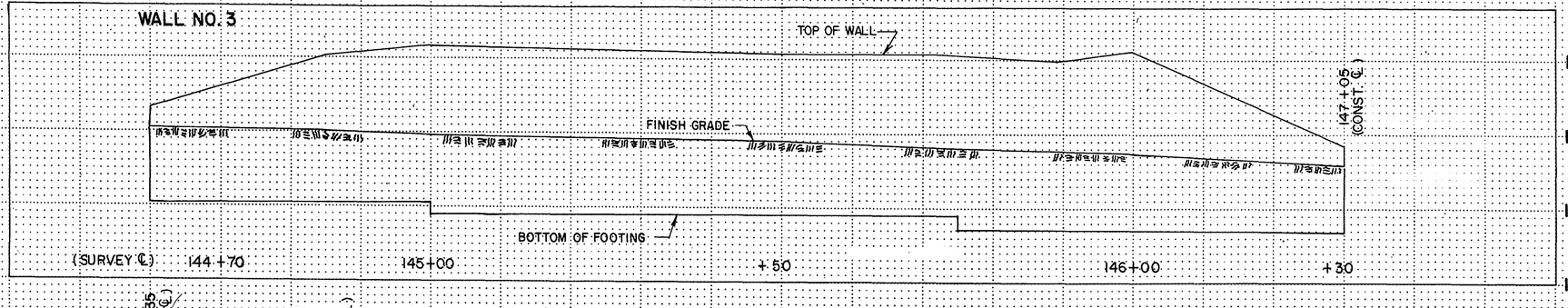


TYPICAL STEP DETAIL AT CHANGE IN FOOTING ELEVATION
WALLS 2 & 3

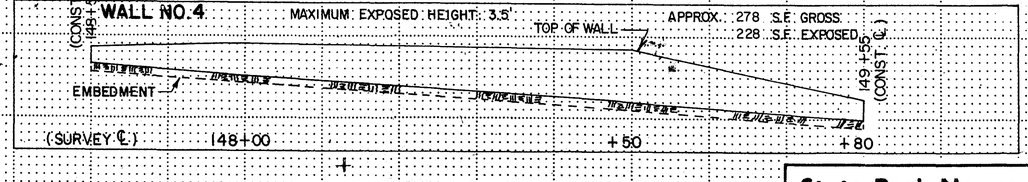
WALL NO. 2



WALL NO. 3



WALL NO. 4



NOTES: WALLS 2 & 3

- SEE SPECIAL PROVISIONS.
- PERFORM STANDARD PENETRATION TESTS AND FURNISH EVALUATION OF FOUNDATION TYPE.
- INCLUDE PRICE OF THIS WORK IN OTHER ITEMS.
- CONSTRUCT PILE FOUNDATION IF ABOVE EVALUATION DETERMINES PILE FOUNDATIONS ARE NECESSARY AND AS DIRECTED BY THE ENGINEER.
- WALL CONSTRUCTION SHALL INCLUDE A 4" WIDE BRICK LEDGE FORMED AND POURED MONOLITHICALLY WITH THE STEM LOCATED AT THE FINISH GRADE. PROVIDE SHOP DRAWINGS THUS AT TIME OF CONTRACT AWARD.

HORIZONTAL SCALE: 0 5' 10'

VERTICAL SCALE: 0 1' 3' 5'

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Fieldhaus

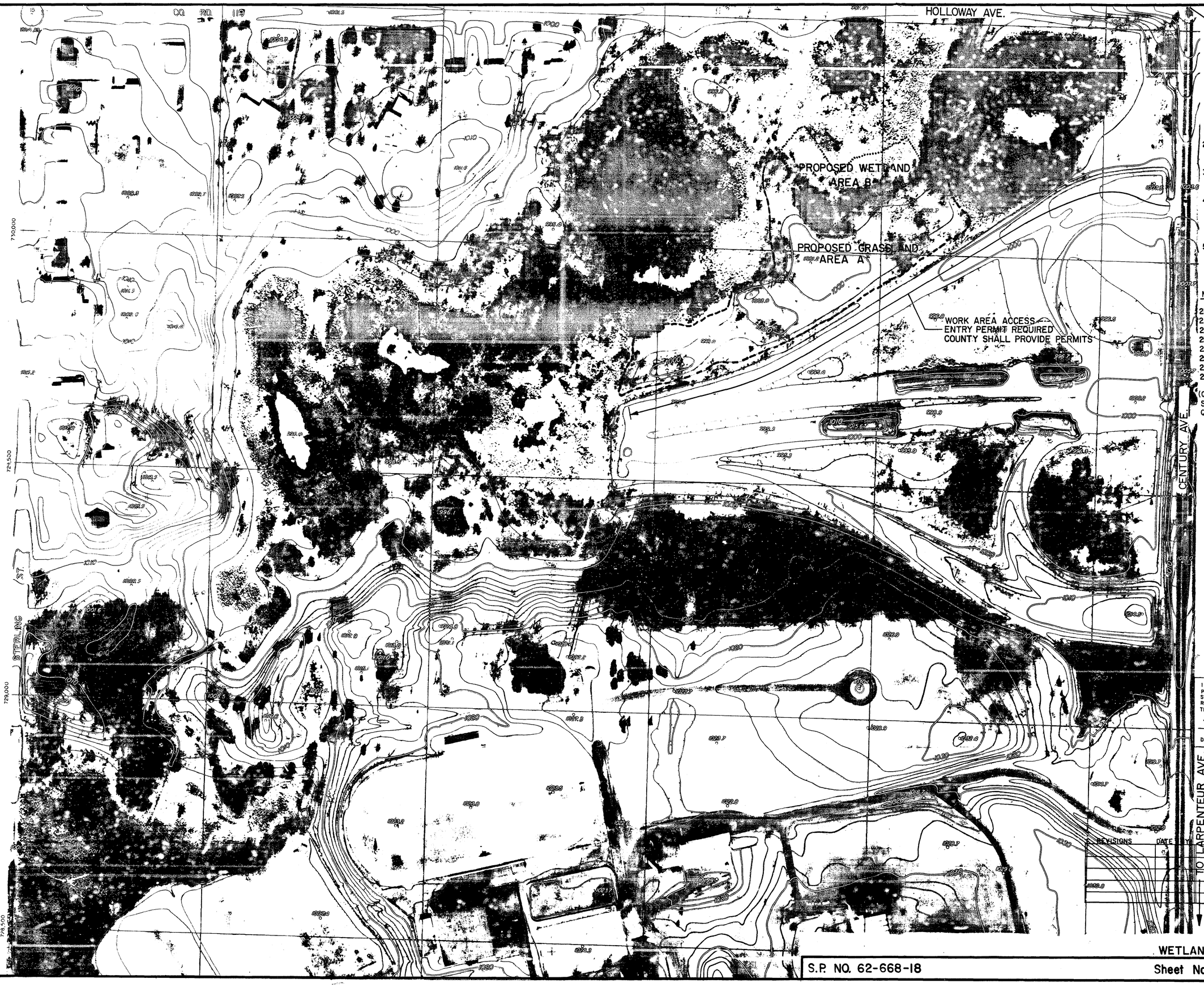
DATE 5-15-86 REG. NO 13501

MCKNIGHT ROAD WALL ELEVATIONS 27-128

State Proj. No. 62-668-18

Sheet No. 40 of 121 Sheets

COPY EQUIPMENT FORM #1 7508D



APPROX. SCALE
0' 100' 200'

WETLAND MITIGATION CONSTRUCTION NOTES

1) CLEAR & GRUB (ACRE BASIS) 3.2 ACRES – AREA A.
2) CONSTRUCT MUCK EXCAVATION AS INDICATED. 0.75 ACRES – AREA B.
3) STOCKPILE MUCK EXCAVATION MATERIAL FOR DRYING ADJACENT TO AREA B.
4) SPREAD DRIED MATERIAL FROM MUCK EXCAVATION UNIFORMLY OVER AREA A- INCLUDE THIS WORK IN PRICE OF OTHER ITEMS.
5) CONSTRUCT TURF ESTABLISHMENT ITEMS – AREA A.

SUMMARY OF QUANTITIES MCKNIGHT WETLAND MITIGATION

2101.501	CLEARING	3.2 Ac.
2101.506	GRUBBING	3.2 Ac.
2105.505	MUCK EXCAVATION	3700 CY
2573.502	SILT FENCE, HD	1400 L.F.
2575.501	ROADSIDE SEEDING	3.2 Ac.
2575.502	SEED MIX. NO. 10	207 Lbs.
2575.511	MULCH, TYPE 1	6.4 Ton
2575.519	DISC ANCHORING	3.2 Ac.

(QUANTITIES INCLUDED IN STATEMENT OF ESTIMATED QUANTITIES, SHEETS 3 & 4)

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Zilliox

DATE 5-15-86 REG. NO 13501

REVISIONS	DATE	BY
SEED MIXTURE	12-2-86	BJ,DM
PERMITS	12-2-86	BJ,DM

27-128

WETLAND MITIGATION PLAN

S.P. NO. 62-668-18

Sheet No. 41 of 121 Sheets



13-18 / 14

N

APPROX. SCALE
0' 100' 200'

WETLAND MITIGATION CONSTRUCTION NOTES

1) CLEAR & GRUB (ACRE BASIS) 3.2 ACRES – AREA A.
2) CONSTRUCT MUCK EXCAVATION AS INDICATED. 0.75 ACRES – AREA B.
3) STOCKPILE MUCK EXCAVATION MATERIAL FOR DRYING ADJACENT TO AREA B.
4) SPREAD DRIED MATERIAL FROM MUCK EXCAVATION UNIFORMLY OVER AREA A – INCLUDE THIS WORK IN PRICE OF OTHER ITEMS.
5) CONSTRUCT TURF ESTABLISHMENT ITEMS – AREA A.

SUMMARY OF QUANTITIES
MCKNIGHT WETLAND MITIGATION

2101.501	CLEARING	3.2 Ac.
2101.506	GRUBBING	3.2 Ac.
2105.505	MUCK EXCAVATION	3700 CY.
2573.502	SILT FENCE, HD	1400 L.F.
2575.501	ROADSIDE SEEDING	3.2 Ac.
2575.502	SEED MIX. NO. 10	207 Lbs.
2575.511	MULCH, TYPE I	6.4 Ton
2575.519	DISC ANCHORING	3.2 Ac.

(QUANTITIES INCLUDED IN STATEMENT OF ESTIMATED QUANTITIES, SHEETS 3 & 4)

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Larry K. Fiddler

DATE 5-15-86 REG. NO 13501

REVISIONS	DATE	BY
SEED MIXTURE	2-12-86	BJDM
PERMITS	2-12-86	BJDM

27-128

WETLAND MITIGATION PLAN

S.P. NO. 62-668-18

Sheet No. 41 of 121 Sheets

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRANULAR BORROW
590	381	–	–	–

EXISTING R/W — SIXTEENTH LINE — STATION–ELEVATION — EXISTING R/W — PROPOSED R/W

℄ +46 958.5

SAN. M.H.

FUTURE CONST.

FUTURE 8" WATERMAIN

SPECIAL DITCH GRADE–RT.

+50 BEGIN ABRUPT SUBCUT
BEGIN TEMP: CONSTRUCTION
MATCH EXISTING

EXISTING R/W — SIXTEENTH LINE — EXISTING R/W — PROPOSED R/W

86+00 957.00
958.56

FUTURE 8" WATERMAIN

EXISTING R/W — SIXTEENTH LINE — EXISTING R/W — PROPOSED R/W

85+00 955.70
957.60

SWAMP

958.07

FUTURE 8" WATERMAIN

SPECIAL DITCH GRADE–RT.

EXISTING R/W — SIXTEENTH LINE — EXISTING R/W — PROPOSED R/W

84+00 955.40

SWAMP

FUTURE 8" WATER MAIN

EXISTING R/W — SIXTEENTH LINE — EXISTING R/W — PROPOSED R/W

CONST. 958.85
83+50 ℄ 955.20
8.5'

FUTURE CONST.

FUTURE 8" WATERMAIN

SURVEY ℄

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota:
Danny K. Talbot
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR

STATION—ELEVATION

Fed. Proj. No.

+93 968.3 — ℄ SURVEY ℄ 964.38 — CONST. ℄

RECONSTRUCT ENTRANCE AND GRADE WITHIN SLOPE LIMITS AS DIRECTED BY ENGINEER IN FIELD — PROPOSED R/W — EXISTING R/W — ℄ ENT Rt CONCRETE (CLOSE) — HOUSE — SLOPE LIMIT 102'RT

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW

10"V.C.P.

PROPOSED 15" R.C.P.

FUTURE 8" WATERMAIN

+76 966.8

EXISTING R/W — ℄ ENT Rt CONCRETE (CLOSE) — PROPOSED R/W — RECONSTRUCT ENTRANCE AND GRADE WITHIN SLOPE LIMITS AS DIRECTED BY ENGINEER IN FIELD. — SLOPE LIMIT 102'RT

STA. 87+50
BEGIN PERMANENT CONSTRUCTION

963.72

10"VCP +20 962.4

961.56 TEMP. GRADE

EXISTING R/W — PROPOSED R/W — FUTURE 8" WATERMAIN — EXISTING WALL — 6:1 — FUTURE GRADE

8"VCP +18 962.3

961.49 TEMPORARY CONST.
961.60 FUTURE GRADE

EXISTING R/W — FUTURE 8" WATERMAIN — PROPOSED R/W — 6:1 — FUTURE GRADE

FUTURE 8" WATERMAIN

8"V.C.P. — SIXTEENTH LINE — 87+00 961.1

960.79 TEMPORARY CONST.
961.0 FUTURE CONST.

EXISTING R/W — PROPOSED R/W — CONST. ℄ — 6:1 — FUTURE GRADE

FUTURE 8" WATERMAIN

8"V.C.P.

86+72 959.6

959.71 TEMPORARY CONST.
960.30 FUTURE GRADE

EXISTING R/W — (CLOSE) ℄ ENT Rt CONCRETE — RECONSTRUCT ENTRANCE AND GRADE WITHIN SLOPE LIMITS AS DIRECTED BY ENGINEER IN FIELD — PROPOSED R/W — SLOPE LIMIT 108'RT

SIXTEENTH LINE — CONST. ℄ — 8.5' — GARAGE — FUTURE GRADE

PROPOSED 15" R.C.P. — FUTURE 8" WATERMAIN

BEGIN TEMPORARY CONST. STA. 86+50
8"V.C.P. MATCH EXISTING SURVEY ℄

2504 772 — — —

AS BUILT PLAN CONFORMING TO CONST. RECORDS
DONE BY: BL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fildahl
Date 5-16-86 Reg. No. 13501

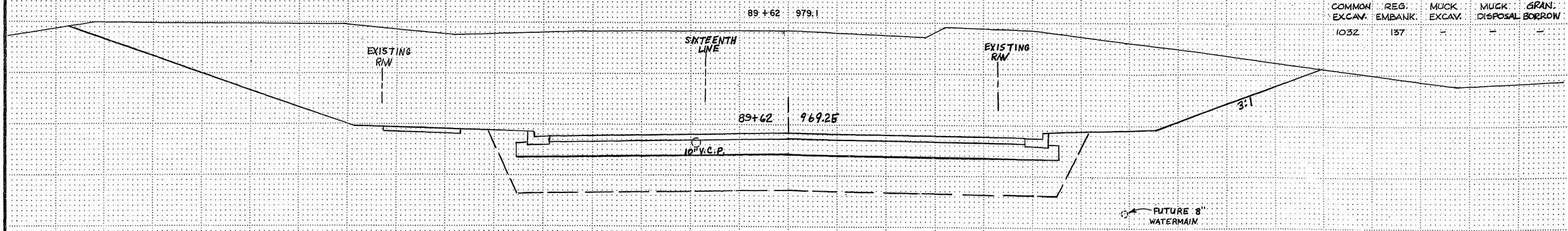
State Proj. No. 62-668-18 — Sheet No. 43 of 121 Sheets

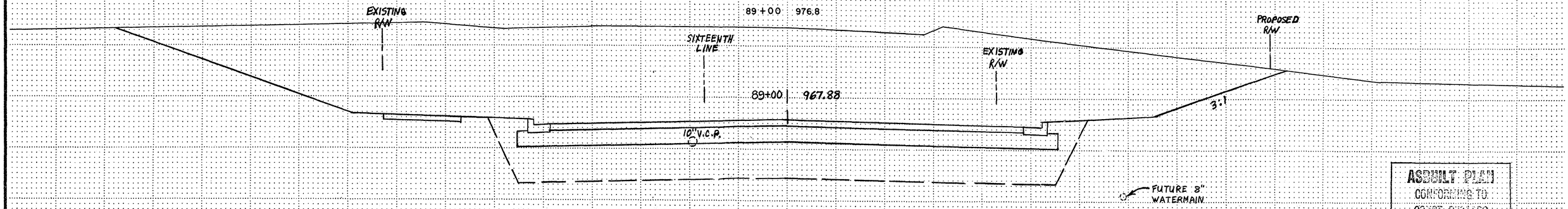
27-128

REORDER BY NUMBER 07548
COPYRIGHTED MATERIAL

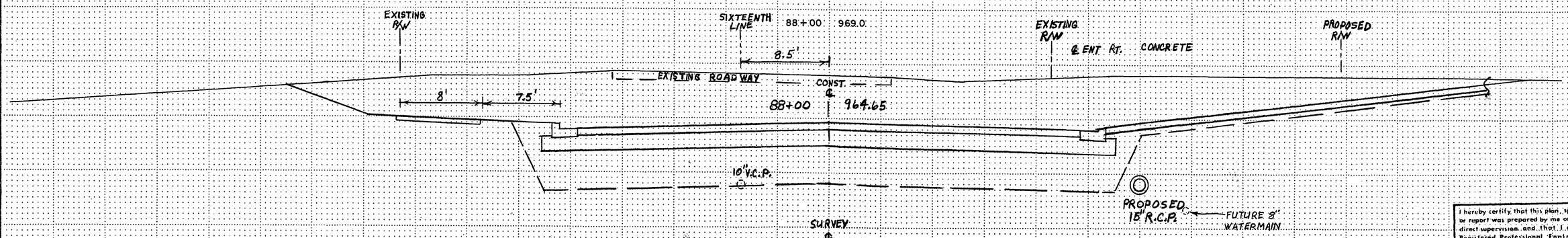
Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
1032	137	–	–	–
2282	473	–	–	–
3969	763	–	–	–





ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/89



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fuldner
Date 5-16-86 Reg. No. 13501

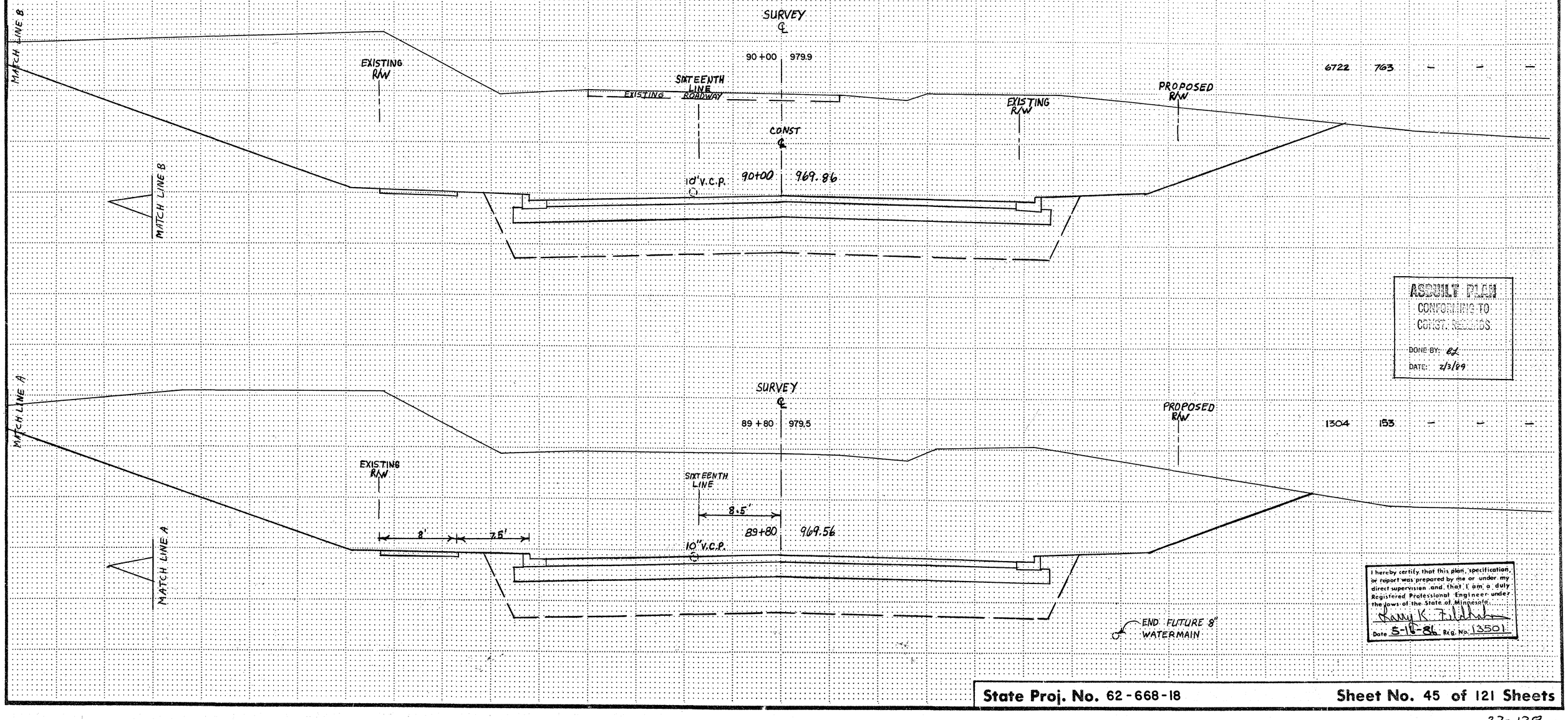
State Proj. No. 62-668-18 **Sheet No. 44 of 121 Sheets**

COPY EQUIPMENT FORM #1 76080

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
6722	763	–	–	–
1304	153	–	–	–



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: EK
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fuldner
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18 **Sheet No.** 45 of 121 Sheets

COPY EQUIPMENT FORM #1 75080

STATION–ELEVATION

℄

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
3428	991	–	–	–
4011	763	–	–	–
4380	763	–	–	–
5694	763	–	–	–

EXISTING R/W — SIXTEENTH LINE — 94+00 970.0 — EXISTING R/W — PROPOSED R/W

EXISTING ROADWAY

965.34

10" V.C.P.

EDGE OF ENTRANCE

EXISTING R/W — SIXTEENTH LINE — 93+00 974.5 CONST. ℄ — EXISTING R/W — PROPOSED R/W

968.34

10" V.C.P.

MATCH LINE A — MATCH LINE 4

EXISTING R/W — SIXTEENTH LINE — +91 974.8 CONST. ℄

℄ ENTRANCE

968.55

EXISTING R/W — (OPEN SPACE) ℄ ENT ⏊ CLOSE — SIXTEENTH LINE — 92+00 978.3 — EXISTING R/W — PROPOSED R/W

970.09

10" V.C.P.

EXISTING R/W — SIXTEENTH LINE — 91+00 CONST. ℄ 980.5 — EXISTING R/W — PROPOSED R/W

EXISTING ROADWAY

10" V.C.P. 970.60

SURVEY ℄

AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Zeldenrust
Date 5-10-84 Reg. No. 13501

State Proj. No. 62-668-18

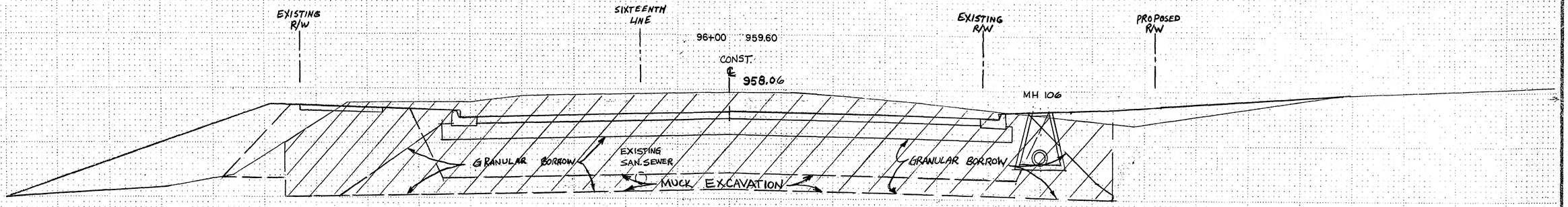
SURVEY ℄

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
1350	1667	1713	450	1915

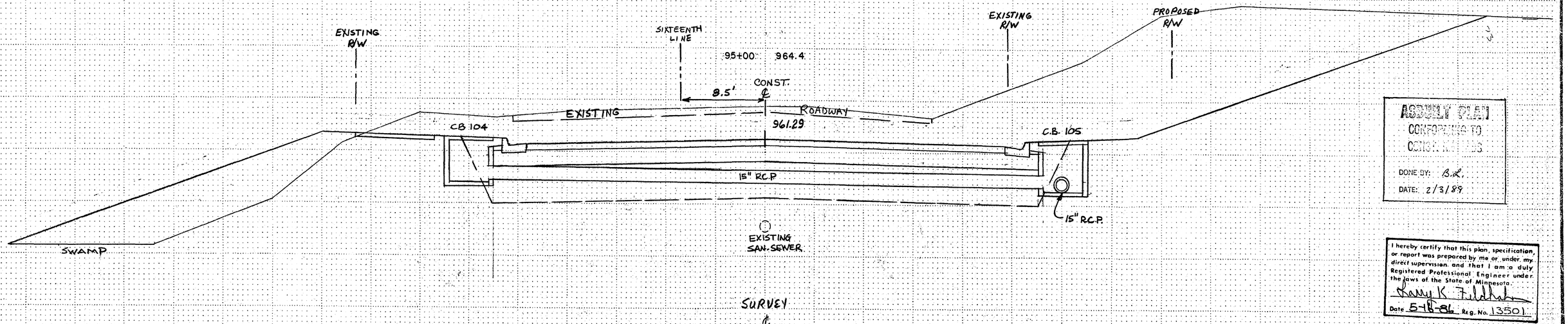
STA. 96+25±

CONSTRUCT NEW ENTRANCE TO R/W AS DIRECTED BY THE ENGINEER.



BEGIN MUCK EXCAVATION
STA. 95+70±
SURVEY ℄

2339	1267	146	58	192



SURVEY ℄

ASBUILT PLAN
CONFORMING TO CONSTRUCTION
DONE BY: B.L.
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fiedler
Date 5-18-84 Reg. No. 13501

State Proj. No. 62-668-18 Sheet No. 47 of 121 Sheets

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
680	1993	3669	1089	4478
437	2200	4193	922	4589
685	1841	3572	591	3596
948	1673	2465	413	2450

401+00 ℄ 955.1
SIXTEENTH LINE
CONST. ℄ 961.63
SURVEY ℄
EXISTING R/W
PROPOSED R/W
EXISTING 10" V.C.P.
958.52
PROPOSED 10" P.V.C.
100+00 954.5
CONST. & SURVEY ℄
STA. 99+31 BEGIN TANGENT RUNOUT
PROPOSED 10" P.V.C.
CONST. & SURVEY ℄
99+00 953.9
956.40
SWAMP
PROPOSED 10" P.V.C.
EXTRA
EXTRA
CONST. & SURVEY ℄
98+00 954.0
955.62
MUCK DISPOSAL
SWAMP
EXISTING 10" V.C.P.
SIXTEENTH LINE
EXISTING R/W
PROPOSED 10" P.V.C.
EXISTING R/W
PROPOSED R/W
EXTRA
97+00 956.3
CONST. ℄ 956.17
EXTRA
8.5'
EXISTING ROADWAY
PROPOSED 15" R.C.P.
PROVIDE SUITABLE BASE FOR STORM SEWER OUTLET
GRANULAR BORROW
EXISTING 10" VCP
MUCK EXC.
SURVEY ℄
GRANULAR BORROW
PROPOSED 10" PVC.
EXTRA

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Harry K. Fullerton
Date 5-18-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 48 of 121 Sheets

27-128

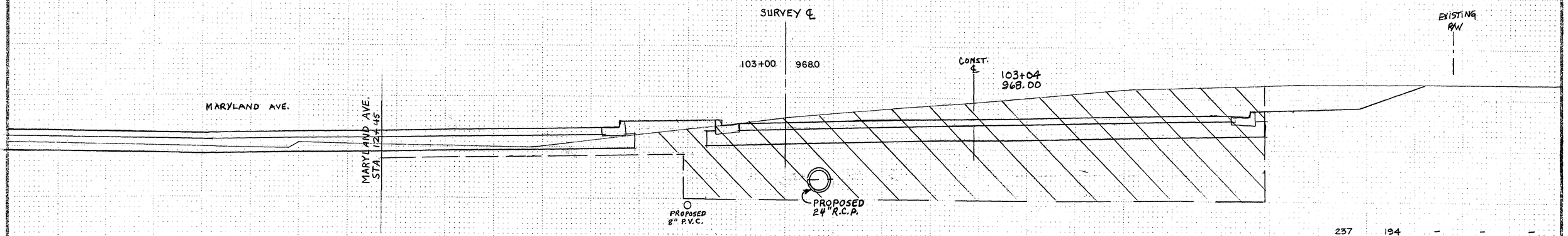
COPY EQUIPMENT FORM #1

Fed. Proj. No.

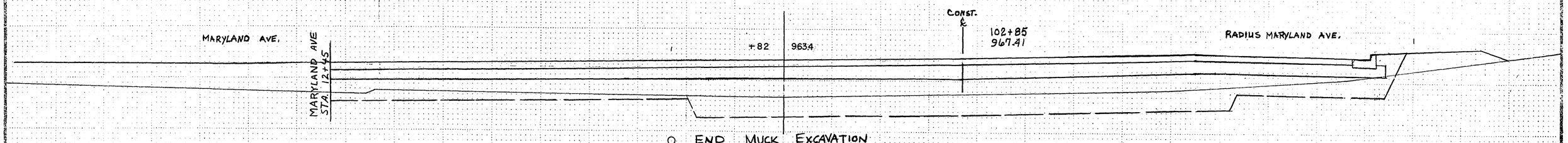
STATION-ELEVATION

℄

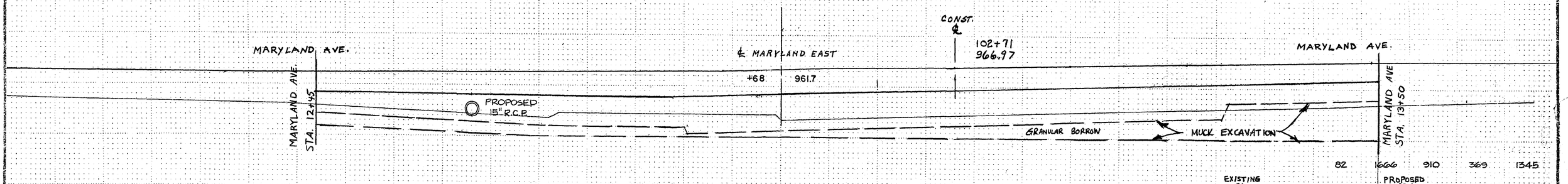
COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
741	279	–	–	–



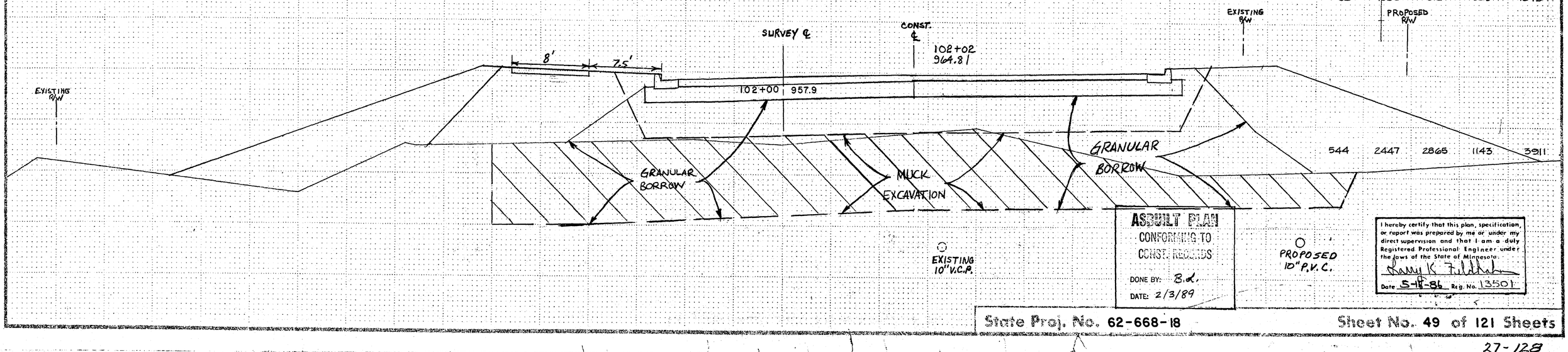
237	194	–	–	–



50	197	40	–	53



82	1666	910	369	1345



544	2447	2865	1143	3911

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/3/89

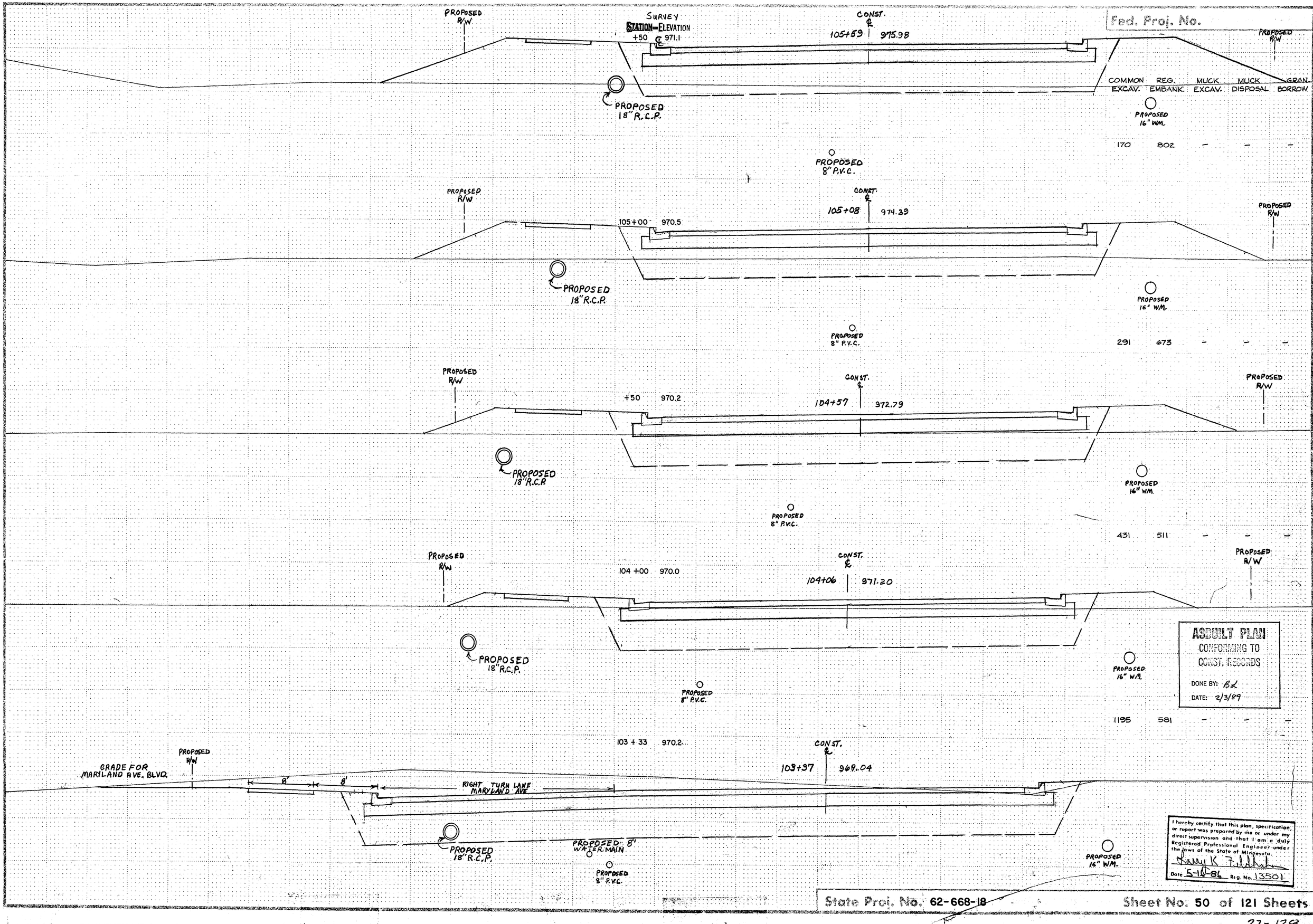
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiddelke
Date 5-15-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 49 of 121 Sheets

27-128

Fed. Proj. No.



COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN BORROW
170	802	–	–	–
291	673	–	–	–
431	511	–	–	–
1195	581	–	–	–

AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fullhart
Date 5-10-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 50 of 121 Sheets

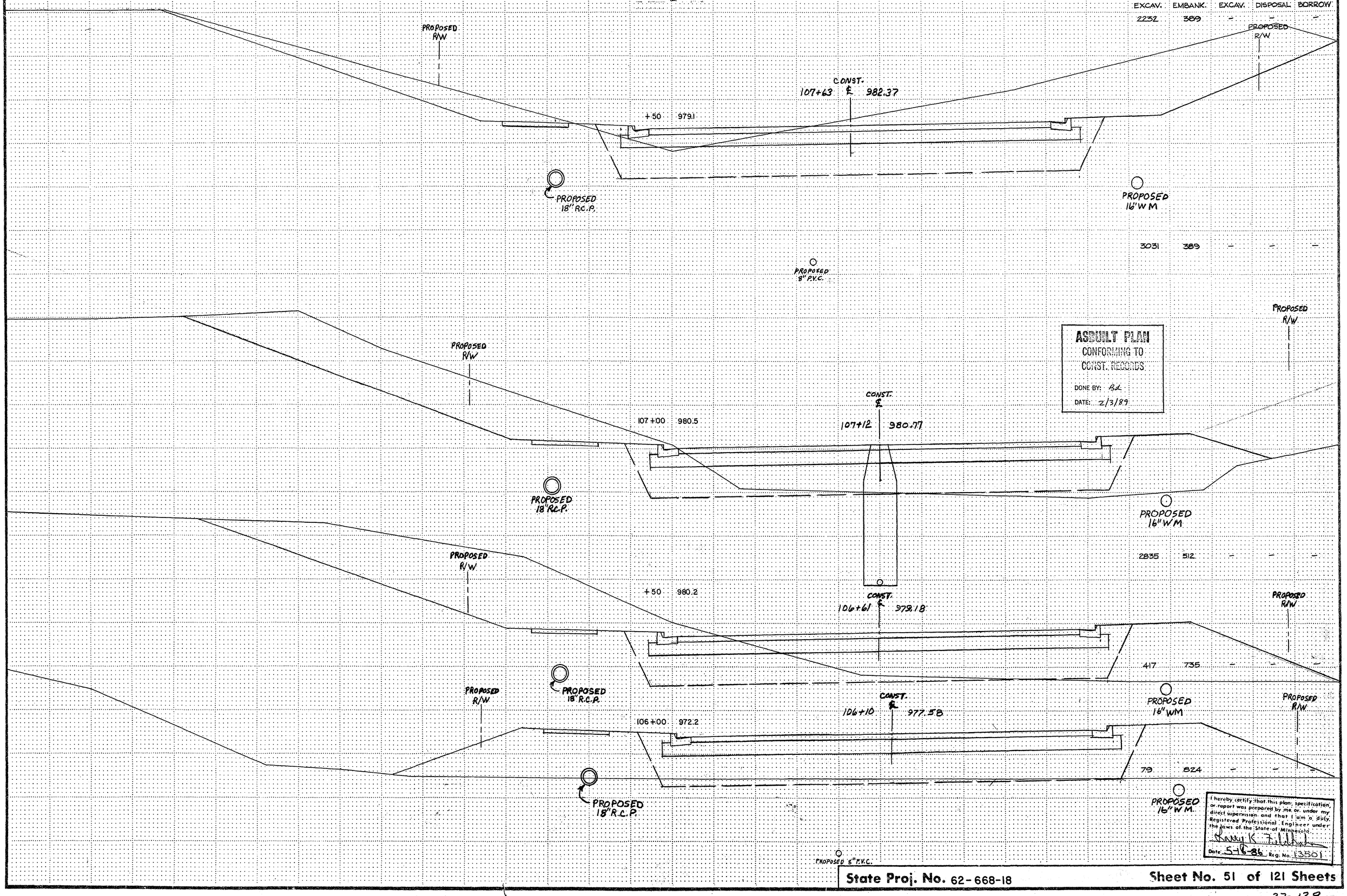
27-128

STATION–ELEVATION

℄

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
2232	389	–	–	–
3031	389	–	–	–
2835	512	–	–	–
417	735	–	–	–
79	824	–	–	–



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: BL

DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me, or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Danny K. Fullhart

Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 51 of 121 Sheets

27-128

COPY EQUIPMENT FORM # 70080

STATION–ELEVATION

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN BORROW
1345	837	–	–	–
2125	771	–	–	–
1736	389	–	–	–
2694	389	–	–	–

PROPOSED R/W

℄

111+01.04 992.7

111+18 | 993.48

PROPOSED 15"R.C.P.

PROPOSED 16"WM

110+00 991.4

110+17 990.32

PROPOSED 15"R.C.P.

PROPOSED 16"WM

109+00 991.4

109+16 987.16

PROPOSED 15"R.C.P.

+50 993.9

PROPOSED 16"WM

108+65 985.56

PROPOSED 15"R.C.P.

108+00 990.6

PROPOSED 16"WM

CONST. ℄

108+14 983.97

CB120

PROPOSED 18"R.C.P.

SURVEY ℄

PROPOSED 16"WM

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BK
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

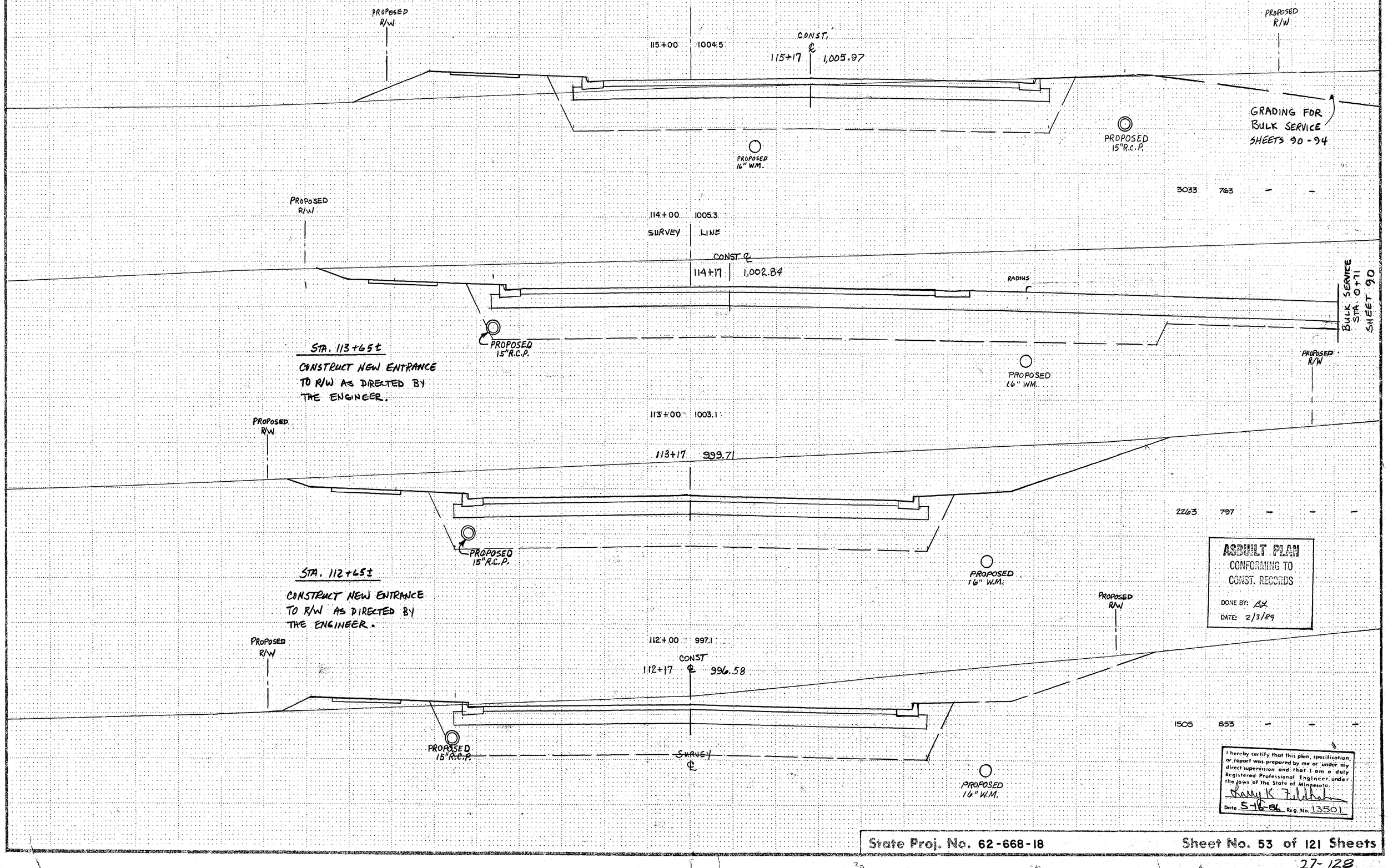
Sheet No. 52 of 121 Sheets

27-128

Fed. Proj. No.

STATION-ELEVATION

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
2530	937	–	–	–
3033	763	–	–	–
2263	797	–	–	–
1505	853	–	–	–



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BK
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fildahl
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 53 of 121 Sheets

27-128

COPY EQUIPMENT FORM #3

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
–	13,193	–	–	–
3	12,190	–	–	–
382	3819	–	–	–
1566	2071	–	–	–

CONST ℄
117+44 | 1011.90

3:1

PROPOSED R/W

SURVEY ℄

PROPOSED 15"R.C.P.

PROPOSED R/W

MATCH LINE A
SEE SHEET NO. 94

MATCH LINE A

CONST LIMITS
92'± SURVEY ℄

117+31 | 979.5

PROPOSED 24"R.C.P.

MATCH LINE A

CONST. ℄
116+65 | 1010.32

VAR.

+50 | 1001.7

PROPOSED 15"R.C.P.

PROPOSED R/W

MATCH LINE B
SEE SHEET NO. 93

PROPOSED 16" WM.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Danny K. Fildahn

Date 5-17-96 Reg. No. 13501

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/99

PROPOSED R/W

CONST ℄
116+16 | 1009.05

PROPOSED R/W

VAR.

16+00 | 1001.9

SURVEY ℄

PROPOSED 15"R.C.P.

PROPOSED 16" WM

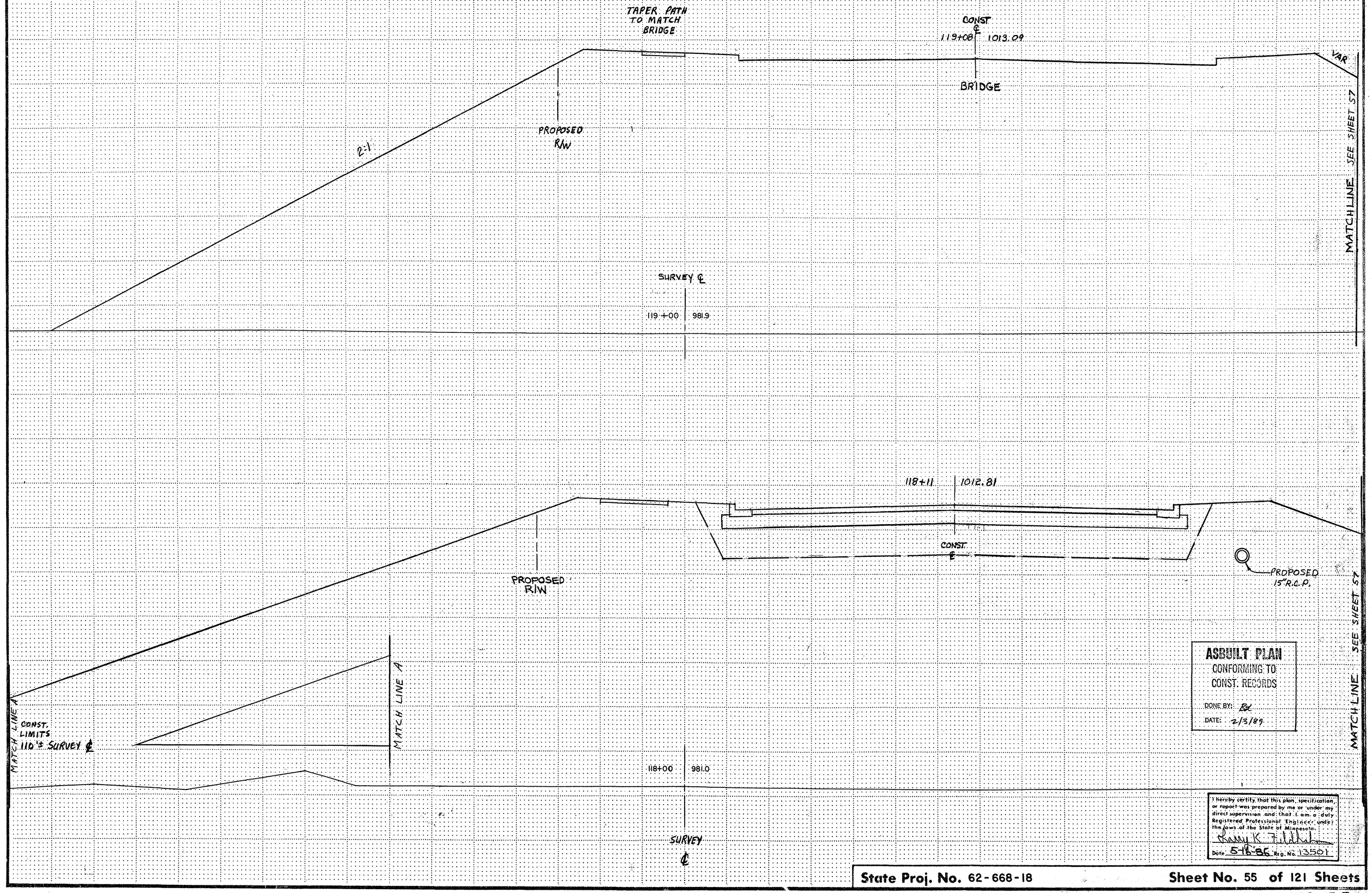
COPY EQUIPMENT FORM #1 75080

State Proj. No. 62-668-18

Sheet No. 54 of 121 Sheets

27-128

Fed. Proj. No.



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Harry K. Fiddick
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

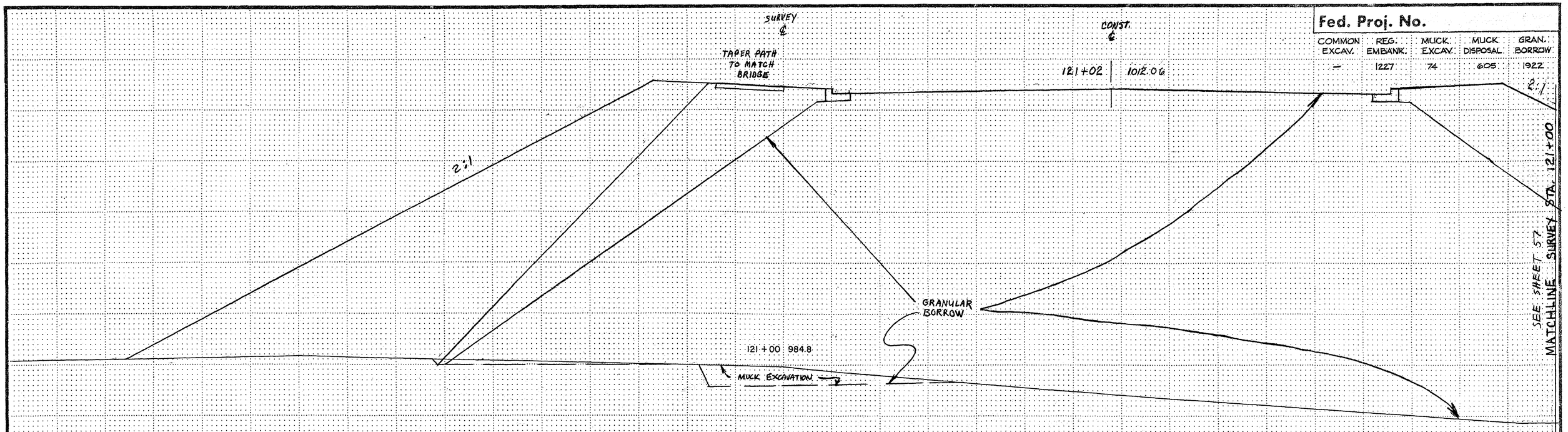
Sheet No. 55 **of** 121 **Sheets**

27-128

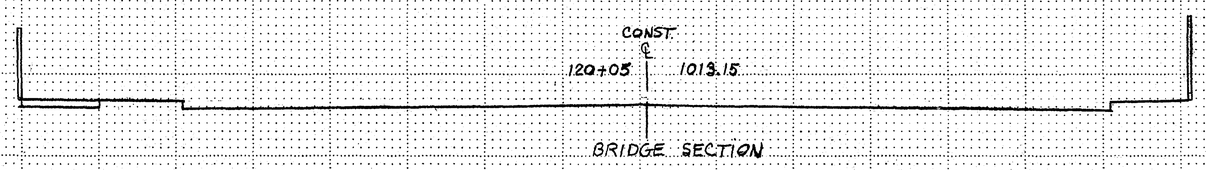
COPY EQUIPMENT FORM #1 15080

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
–	1227	74	605	1922
–	133	41	729	2103



BEGIN MUCK EXCAVATION
@ STA. 120+64 ±
SURVEY ℄



120+00 984.3

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Zilliahus
Date: 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

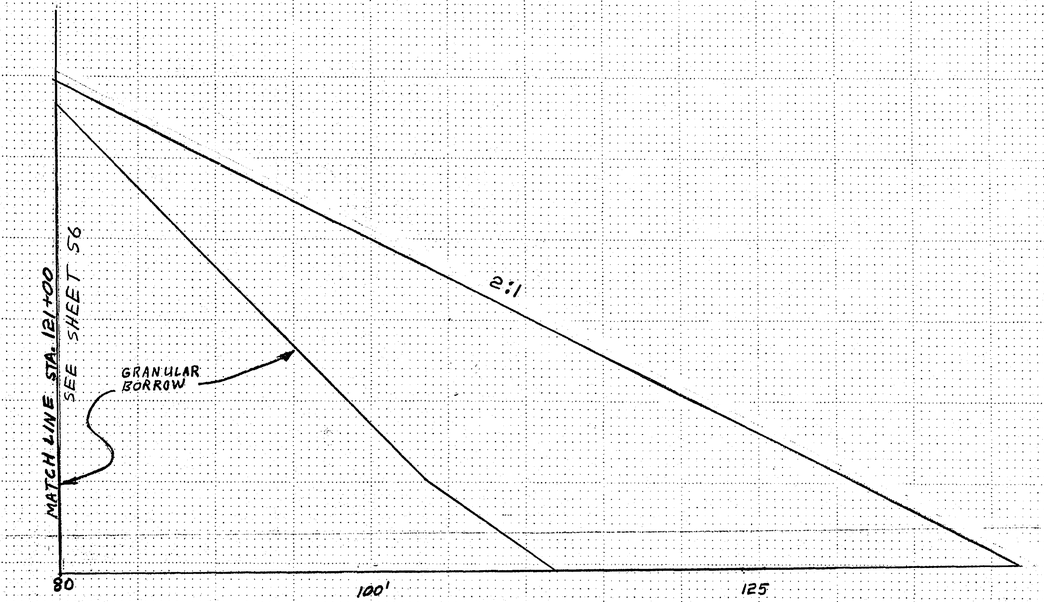
Sheet No. 56 of 121 Sheets

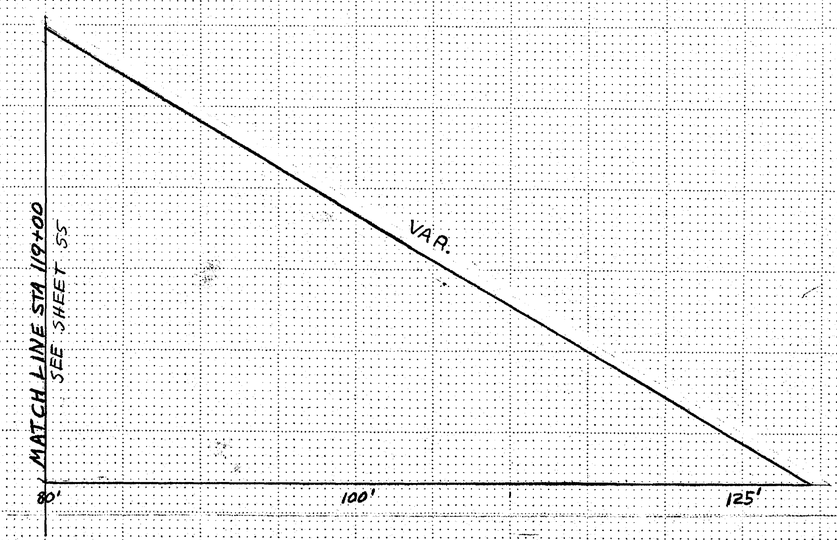
27-128

COPY EQUIPMENT FORM #: 25080

Fed. Proj. No.







AS-BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Barry K. Fullhart
Date 5-11-86 Reg. No. 13501

State Proj. No. 62-668-18

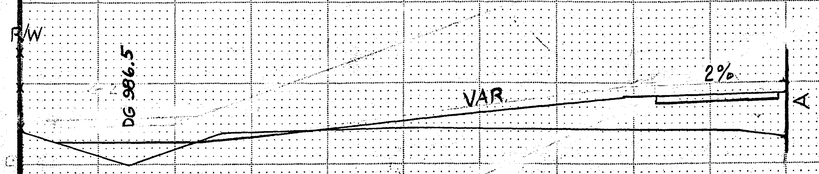
Sheet No. 57 of 121 Sheets

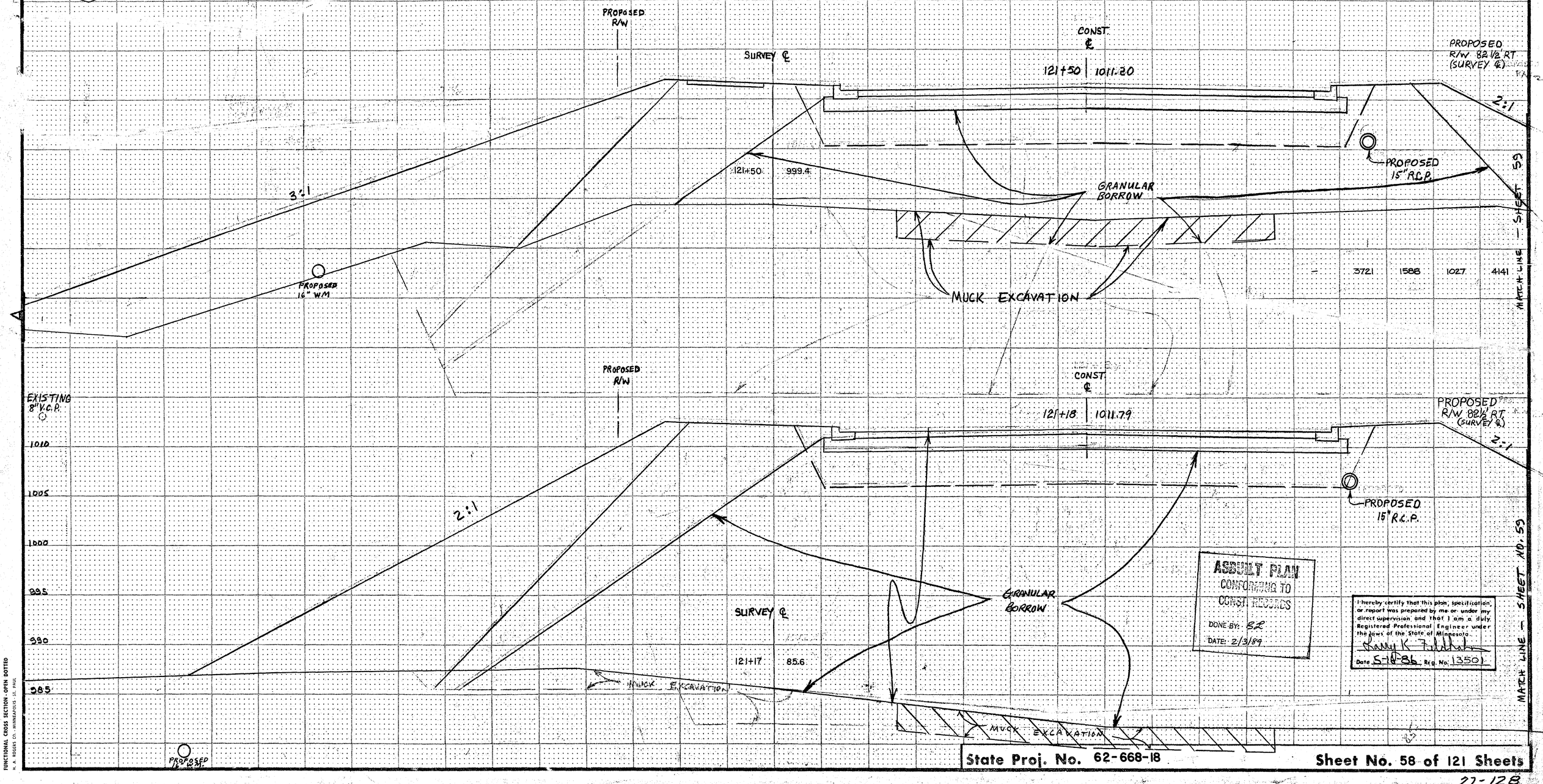
27-128

COPY EQUIPMENT FORM #1

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
–	3609	5475	1683	6243
–	3721	1588	1027	4141





ASBUILT PLAN
CONFORMING TO
CONST RECORDS
DONE BY: SZ
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Danny K Zulkoski
Date 5-18-89 Reg. No. 13501

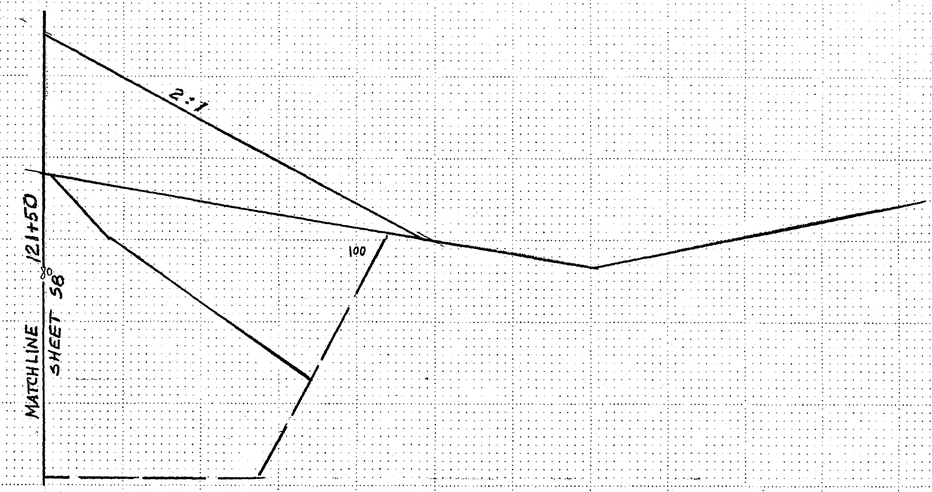
FUNCTIONAL CROSS SECTION - OPEN DOTTED
M. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL

State Proj. No. 62-668-18 **Sheet No. 58 of 121 Sheets**

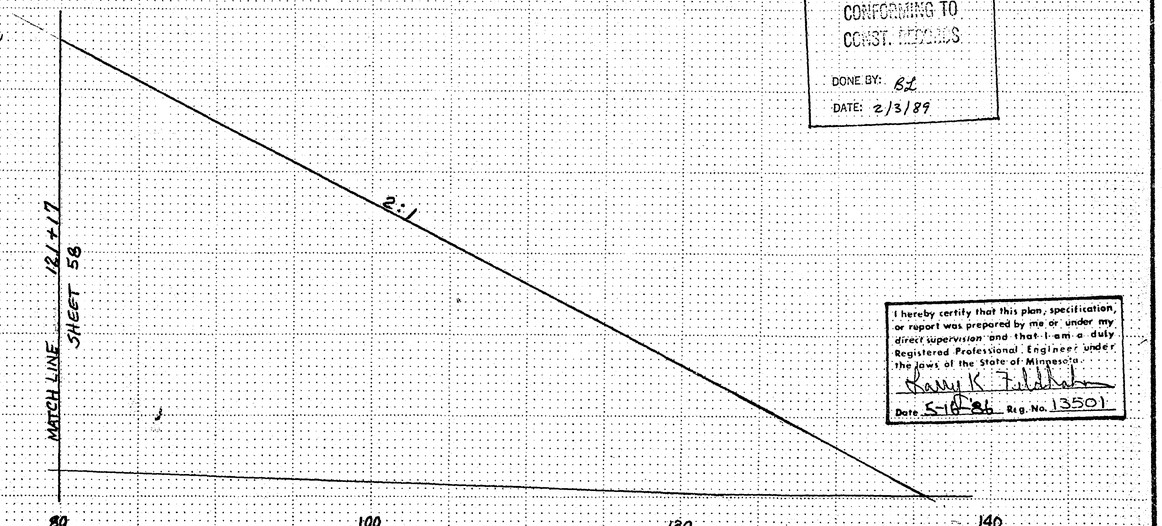
27-128

Fed. Proj. No.

STA. 121+50



STA. 121+17



ASBUILT PLAN
CONFORMING TO
CONST. REVISIONS
DONE BY: BL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fullerton
Date 5-18-89 Reg. No. 13501

State Proj. No. 62-668-18 Sheet No. 59 of 121 Sheets

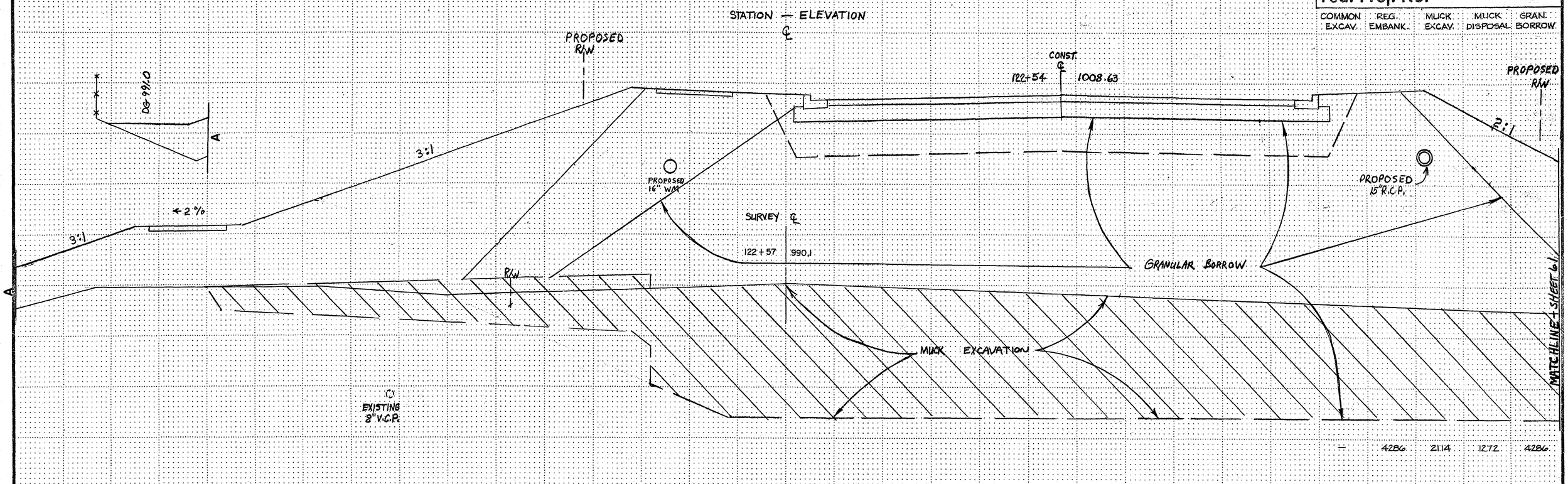
27-128

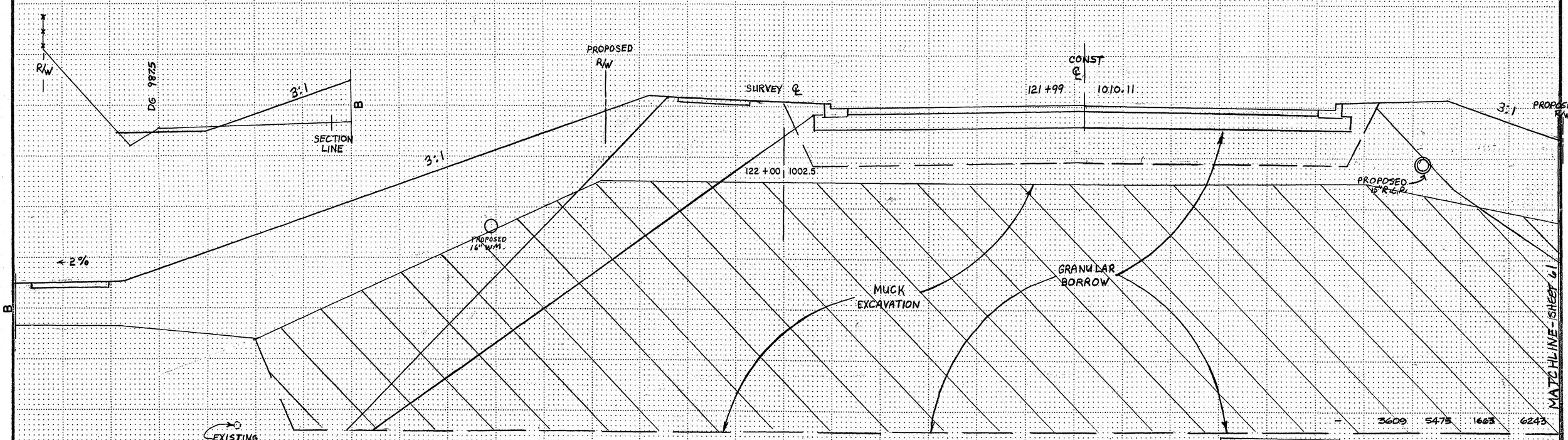
COPY EQUIPMENT FORM #1

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
—	4286	2114	1272	4286

STATION — ELEVATION





—	3609	5475	1683	6243

AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Danny K Fiddelke
Date 5-10-89 Reg. No. 13501

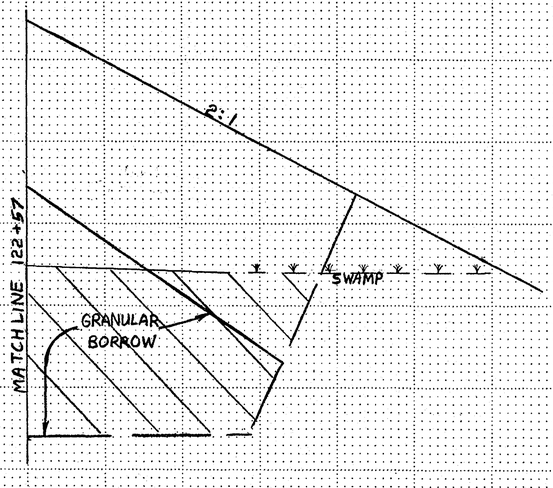
State Proj. No. 62-668-18 **Sheet No.** 60 **of** 121 **Sheets**

27-128

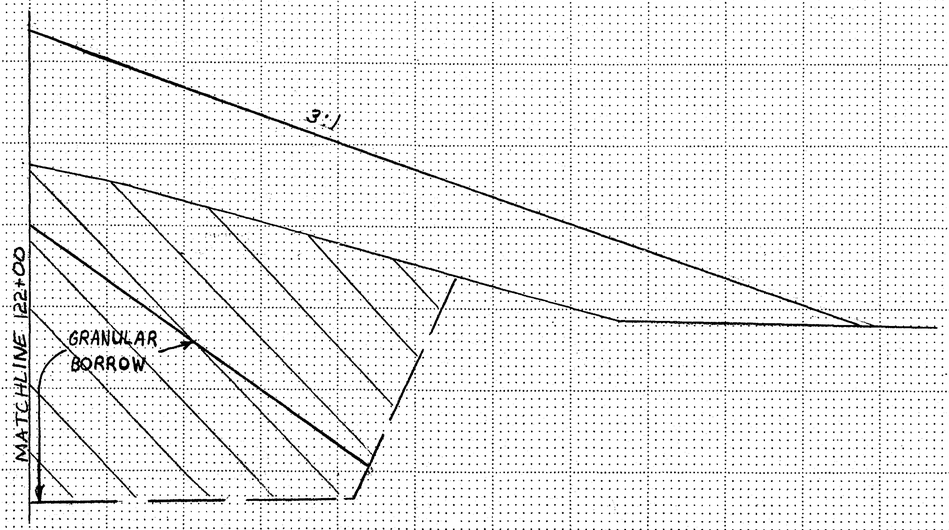
COPY EQUIPMENT FORM #1 75080

Fed. Proj. No.

STA. 122+57



STA. 122+00



AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: RL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Tillitson
Date 5-18-86 Reg. No. 13501

State Proj. No. 62-668-18

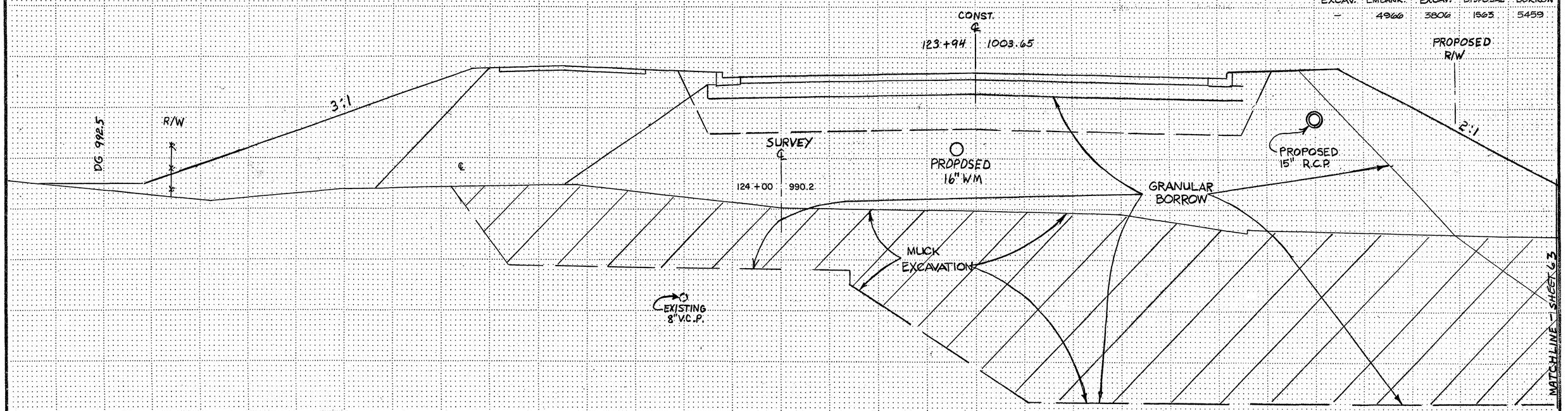
Sheet No. 61 of 121 Sheets

27-128

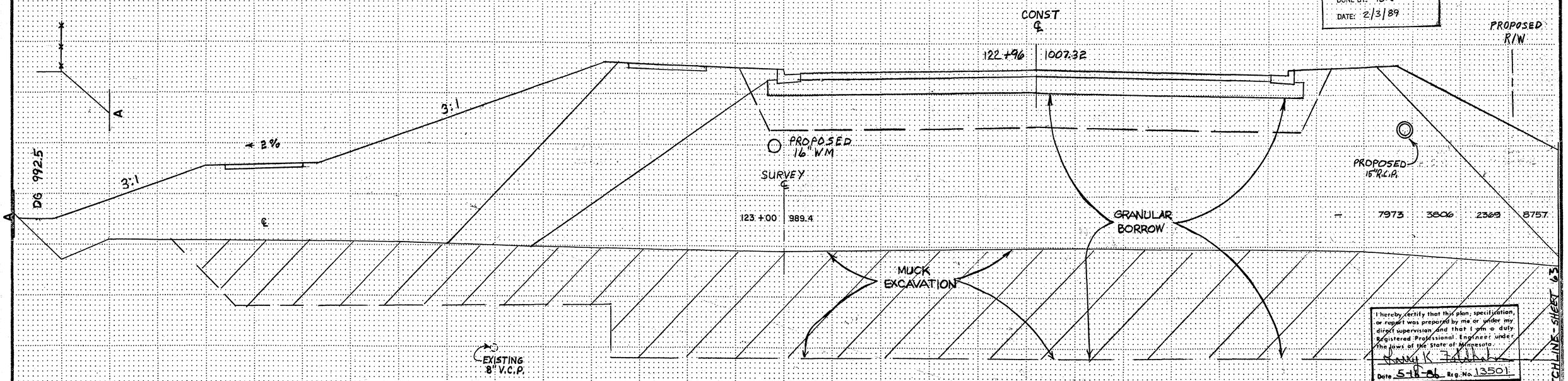
COPY EQUIPMENT FORM #1 73080

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
–	4966	3806	1563	5459



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/89



–	7973	3806	2369	8757

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 5-18-89 Reg. No. 13501

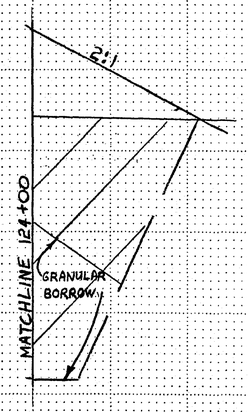
State Proj. No. 62-668-18 **Sheet No.** 62 **of** 121 **Sheets**

27-128

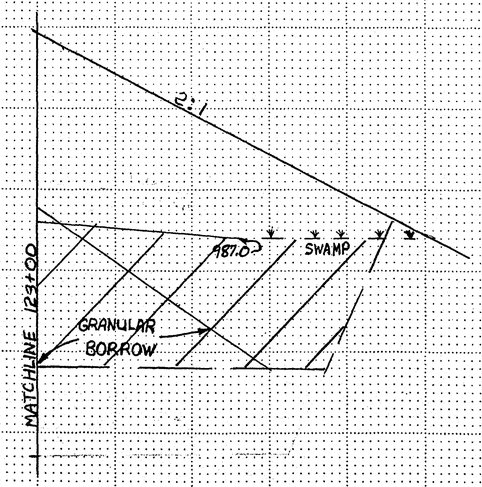
COPY EQUIPMENT FORM #1 15080

Fed. Proj. No.

STA 124+00



STA 123+00



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-18-84 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 63 of 121 Sheets

27-128

COPY EQUIPMENT FORM #: 73080

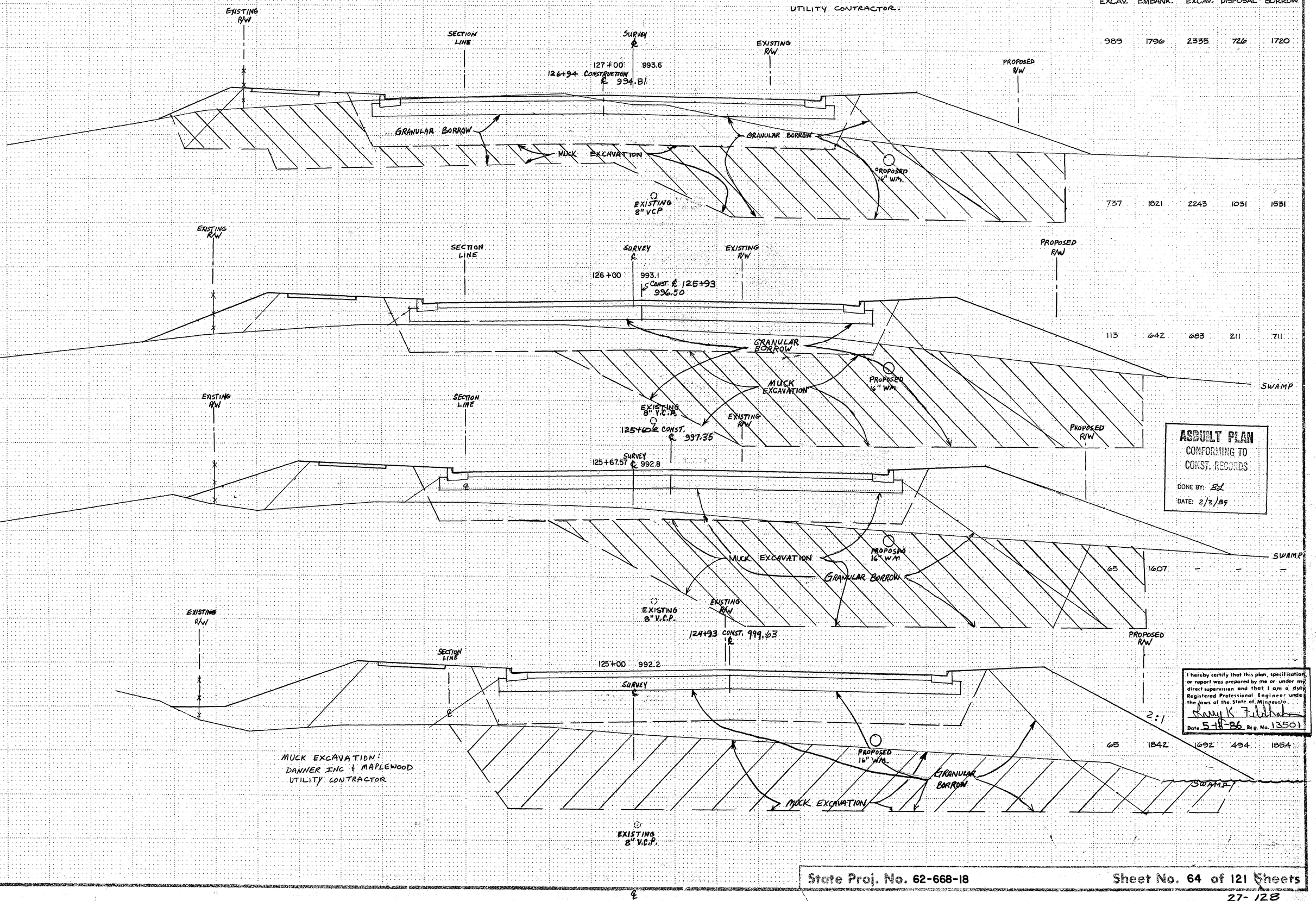
STATION–ELEVATION

℄

MUCK EXCAVATION:
DANNER INC. & MAPLEWOOD
UTILITY CONTRACTOR.

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
989	1796	2335	726	1720
737	1821	2243	1031	1531
113	642	683	211	711
65	1607	–	–	–
65	1842	1692	494	1854



MUCK EXCAVATION:
DANNER INC & MAPLEWOOD
UTILITY CONTRACTOR

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BdL
DATE: 2/3/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fullhart
Date 5-18-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 64 of 121 Sheets

27-128

COPY EQUIPMENT FORM #1

Fed. Proj. No.

STATION-ELEVATION

℄

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
381	683	636	158	763
525	808	861	158	1025
970	1413	1528	296	1826
1017	1616	1998	446	2252

EXISTING R/W

SECTION LINE

130+31 CONST. ℄ SURVEY ℄ +57 995.9

997.07

PROPOSED 21"R.C.P.

MUCK EXCAVATION

EXISTING 8"V.C.P.

PROPOSED 16" W.M.

EXISTING R/W

SECTION LINE

129+94 CONST. ℄ SURVEY ℄ 130+00 995.3

996.50

PROPOSED 21"R.C.P.

MUCK EXCAVATION

EXISTING 8" V.C.P.

PROPOSED 16" W.M.

EXISTING R/W

EXISTING R/W

SECTION LINE

128+94 CONST. ℄ SURVEY ℄ 129+00 994.5

995.50

PROPOSED 21"R.C.P.

MUCK EXCAVATION

EXISTING 8" V.C.P.

PROPOSED 16" W.M.

EXISTING R/W

EXISTING R/W

SECTION LINE

127+94 CONST. ℄ 994.89 SURVEY ℄ 128+00 994.2

PROPOSED 21"R.C.P.

GRANULAR BORROW

MUCK EXCAVATION

GRANULAR BORROW

SWAMP

EXISTING 8" V.C.P.

PROPOSED 16" W.M.

PROPOSED R/W

ASBUILT PLAN
CONFORMING TO
CONSTRUCTION

DONE BY: BR
DATE: 2/8/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Larry K. Zilliox

Date 5-10-89 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 65 of 121 Sheets

27-128

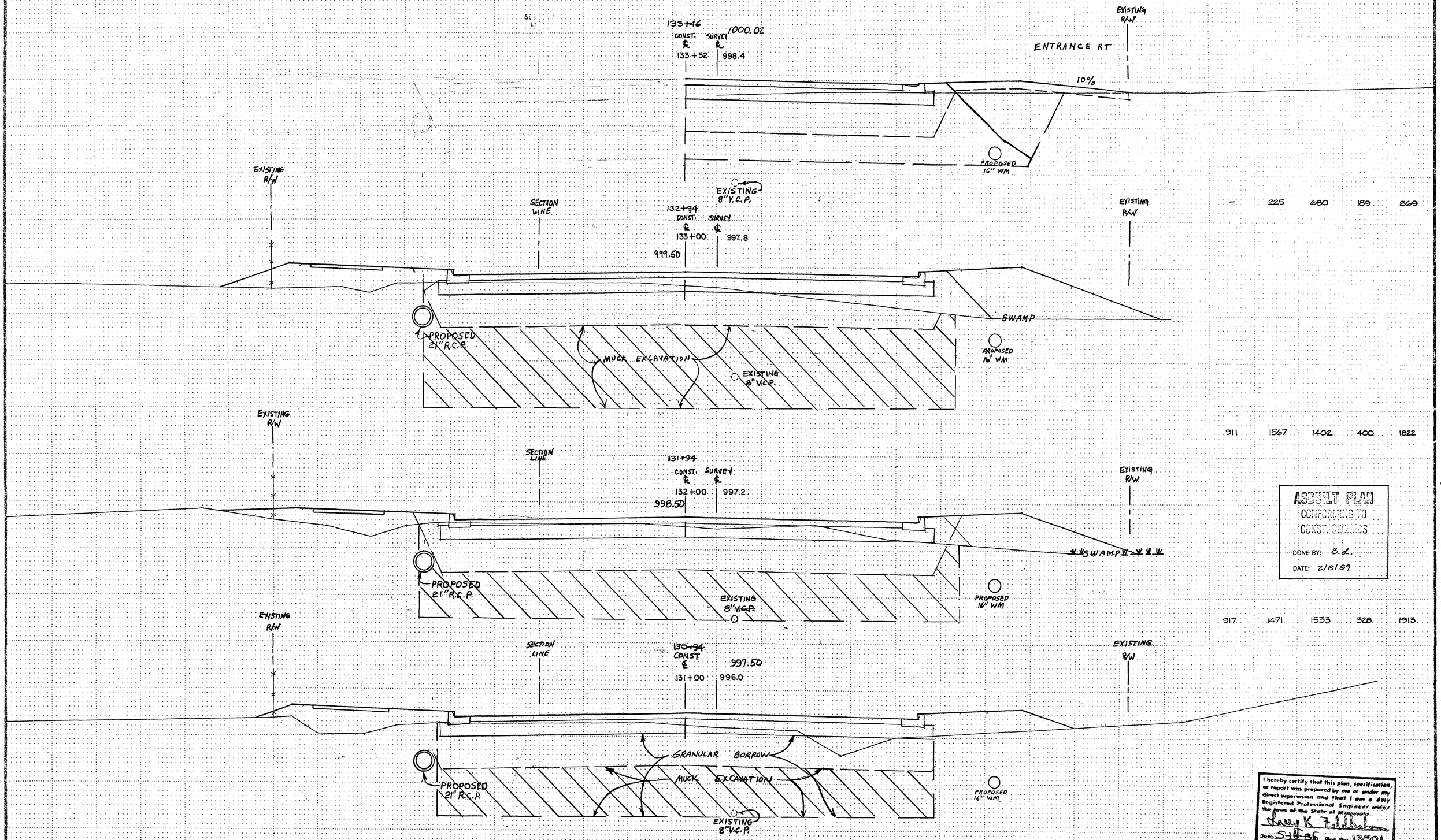
DO NOT DISTURB FORM #1

Fed. Proj. No.

STATION-ELEVATION

℄

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
854	1316	661	156	831
–	225	680	189	869
911	1567	1402	400	1822
917	1471	1533	328	1913



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/8/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date: 5-10-85 Reg. No. 13501

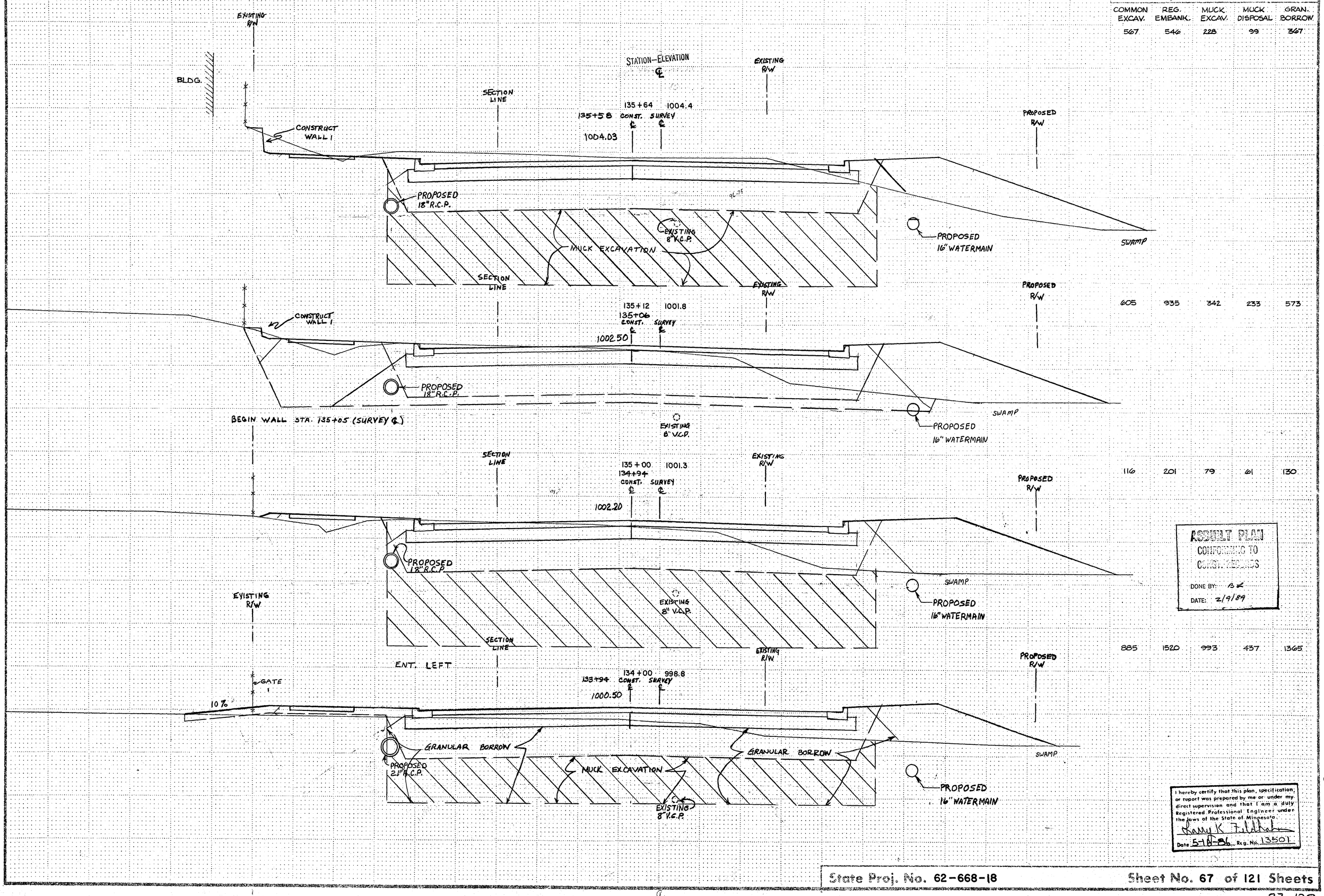
State Proj. No. 62-668-18

Sheet No. 66 of 121 Sheets

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
567	546	228	99	367
605	935	342	233	573
116	201	79	61	130
885	1520	993	437	1365



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-8-86 Reg. No. 13501

State Proj. No. 62-668-18 Sheet No. 67 of 121 Sheets

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
1256	635	–	–	–

STATION–ELEVATION

℄

EXISTING R/W

FENCE

SECTION LINE

137+00 1011.0

CONST. SURVEY ℄

1009.65

EXISTING R/W

PROPOSED R/W

PROPOSED 18" R.C.P.

EXISTING 8" V.C.P.

MUCK EXCAVATION

PROPOSED 16" WATERMAIN

EXISTING R/W

PROPOSED R/W

136+70 1009.7

136+64 CONST. SURVEY ℄

1008.29

ENT

CLOSE ENTRANCE

EXISTING 8" V.C.P.

PROPOSED 16" WATERMAIN

EXISTING R/W

ENT

SECTION LINE

136+26 1008.0

136+20 CONST. SURVEY ℄ ℄

1006.35

GATE

11%

END MUCK EXCAVATION @ STA. 136+26 ± SURVEY ℄

1654 956 309 63 504

PROPOSED 18" R.C.P.

EXISTING 8" V.C.P.

EXISTING R/W

END WALL 1 STA. 136+10 (SURVEY ℄)

PROPOSED R/W

BLDG

EXISTING FENCE

CONSTRUCT WALL

SECTION LINE

136+00 1006.5

135+94 CONST. SURVEY ℄ ℄

1005.31

PROPOSED 18" R.C.P.

MUCK EXCAVATION

GRANULAR BORROW

EXISTING 8" V.C.P.

PROPOSED 16" WATERMAIN

AS BUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BL
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiedler
Date 5-19-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 68 of 121 Sheets

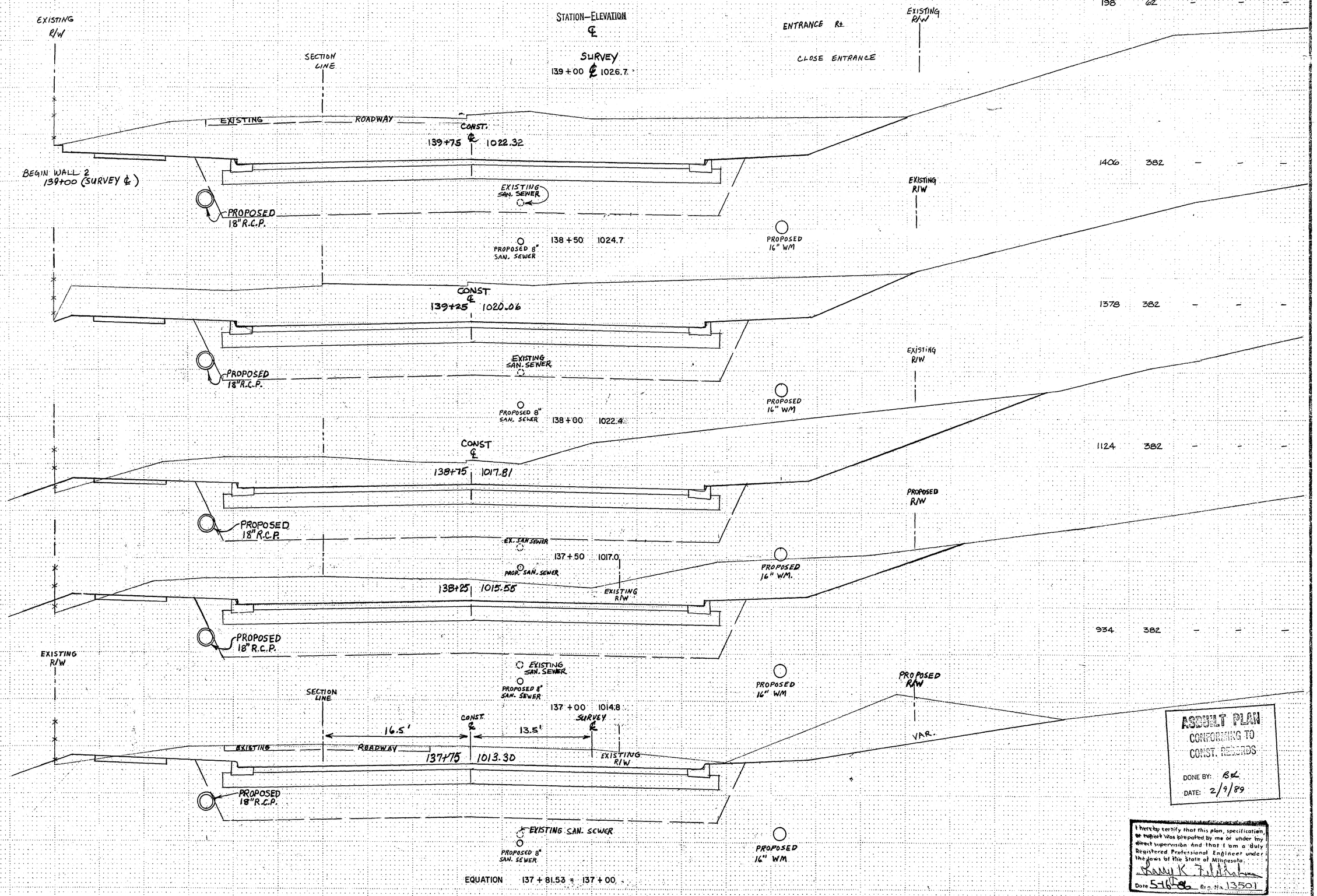
27-128

CCPA EQUIPMENT FORM 41

Fed. Proj. No.

S.E.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
198	62	–	–	–
1406	382	–	–	–
1378	382	–	–	–
1124	382	–	–	–
934	382	–	–	–



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Zilliox
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 69 of 121 Sheets

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
800	145	–	–	–
1189	237	–	–	–
1711	382	–	–	–
1719	382	–	–	–
1235	321	–	–	–

SURVEY
STATION—ELEVATION
℄

S.E.

EXISTING R/W

SECTION LINE

EXISTING R/W

ENT. Rt.
(CLOSE ENTRANCE)

PROPOSED R/W

140+81 1038.1

CONST. ℄
141+56 1029.62

PROPOSED 8" SAN. SEWER
140+50 1037.6

PROPOSED 16" W/M

141+25 1028.58

C.B. 145

C.B. 144

CONSTRUCT WALL 2

PROPOSED 15" R.C.P.

PROPOSED 18" R.C.P.

EXISTING R/W

PROPOSED 8" SAN. SEWER
140+00 1035.2

PROPOSED 16" WM

PROPOSED R/W

140+75 1026.70

EXISTING SAN. SEWER

PROPOSED 18" R.C.P.

EXISTING R/W

PROPOSED 16" WM

139+50 1031.5

3:1

140+25 1024.57

EXISTING SAN. SEWER

PROPOSED 18" R.C.P.

EXISTING R/W

SURVEY ℄

S.E.

SECTION LINE

PROPOSED 8" SAN SEWER

16.5'

13.5'

139+08 1027.10

PROPOSED 16" WM

CONST. ℄
139+83 1022.68

5.58'

EXISTING 8" V.C.P.

PROPOSED 18" R.C.P.

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS.
DONE BY: BL
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fullhart
Date 5-19-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 70 of 121 Sheets

27-128

COPY EQUIPMENT FROM MT

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
368	69	–	–	–
1511	306	–	–	–
290	62	–	–	–
1434	306	–	–	–
1683	252	–	–	–

Survey

STATION–ELEVATION

℄

S.E.

EXISTING R/W

SECTION LINE

142+31 1040.6 EXISTING R/W

ENT. Rt. (CLOSE ENTRANCE)

PROPOSED R/W

CONST. ℄

143+06 1033.30

EXISTING SAN. SEWER

1038.2

141+91 1038.2

PROPOSED 8" P.V.C.

PROPOSED 16" WATERMAIN

142+66 1032.54

EXISTING SAN. SEWER

CONSTRUCT WALL 2

PROPOSED 8" SAN. SEWER

141+83 1037.8

PROPOSED 16" W/M

142+58 1032.36

EXISTING SAN. SEWER

PROPOSED 8" SAN. SEWER

141+23 1038.7

PROPOSED 16" W/M

ENT. Rt. (CLOSE ENTRANCE)

-4%

142+18 1031.41

EXISTING SAN. SEWER

EXISTING R/W

SECTION LINE

S.E.

-4%

PROPOSED 8" SAN. SEWER

141+00 1037.7 EXISTING R/W

SURVEY ℄

16.5'

13.5'

PROPOSED 16" W/M

PROPOSED R/W

HO.

3:1

CONST. ℄

141+75 1030.21

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BJL
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Larry K. Fiddelke

Date 5-1-86 Reg. No. 13501

State Proj. No. 62-668-18

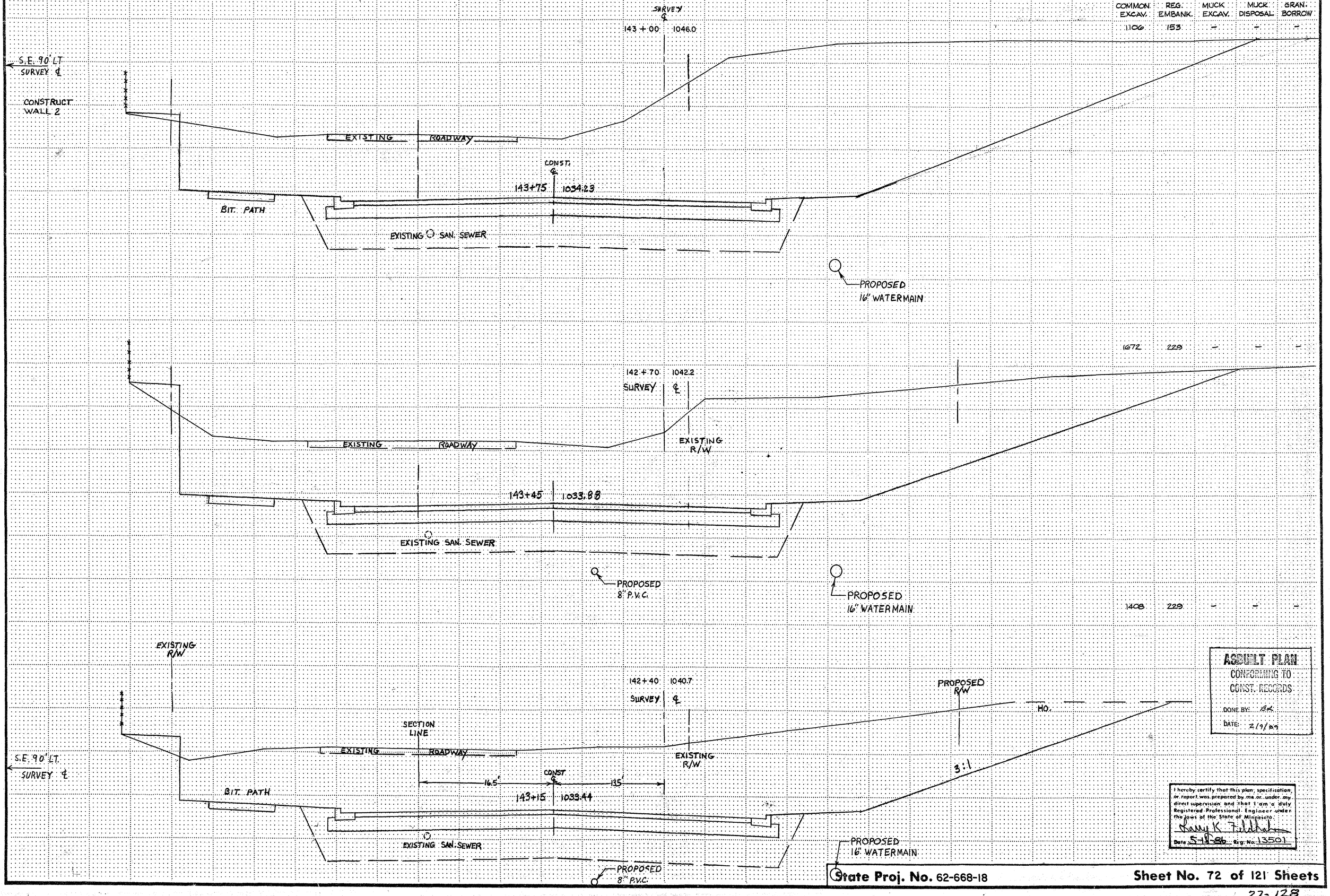
Sheet No. 71 of 121 Sheets

27-128

COPY EQUIPMENT FICHE #1

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
1106	153	–	–	–
1672	229	–	–	–
1408	229	–	–	–



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BK
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fildahl
Date 5-12-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 72 of 121 Sheets

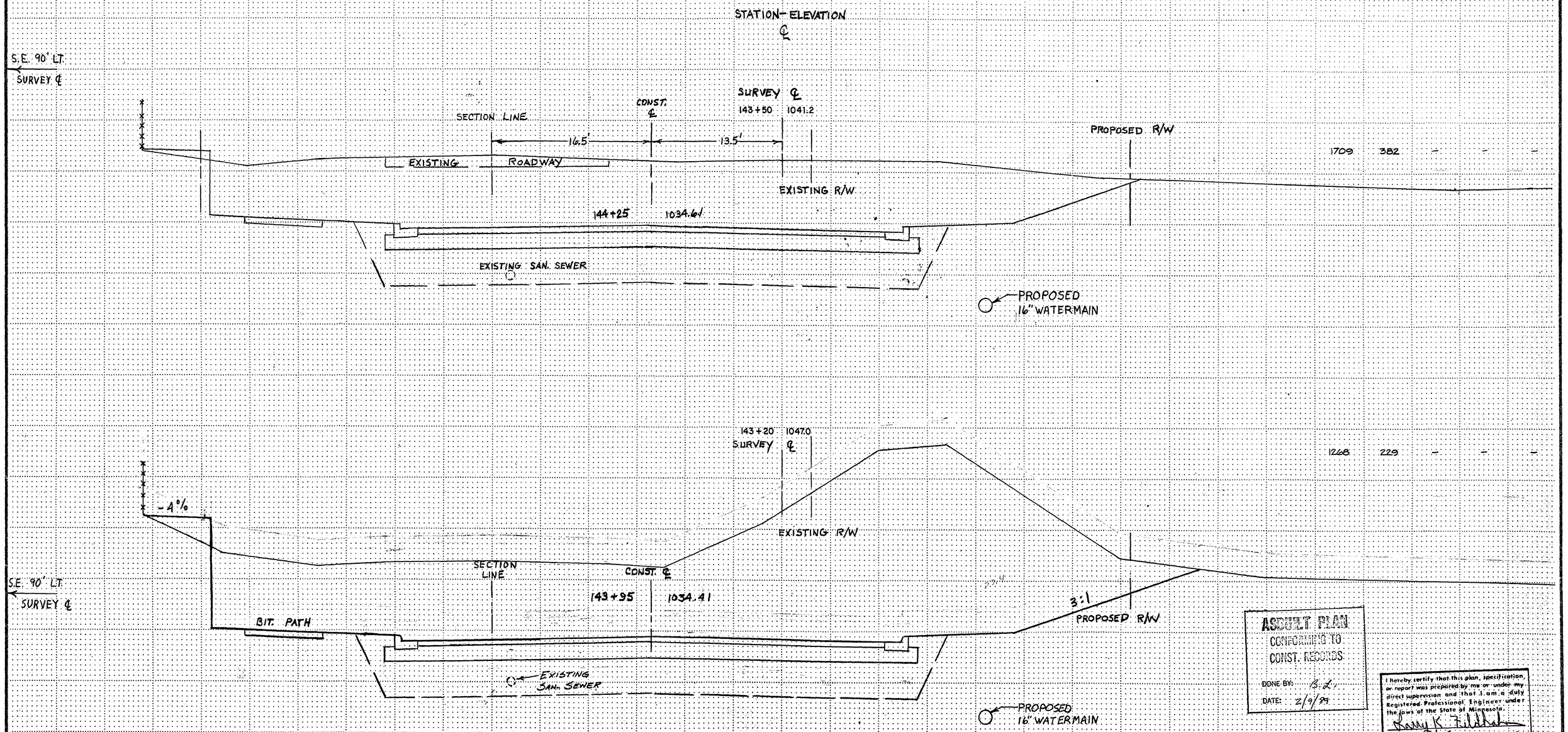
27-128

COPY EQUIPMENT FORM #1 3080

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
1709	382	–	–	–
1268	229	–	–	–

STATION – ELEVATION



AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiddler
Date 5-16-89 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 73 of 121 Sheets

27-128

COPY EQUIPMENT FORM #1 15080

SURVEY LINE @ 145+00 IS SAME AS SECTION LINE

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
1254	382	–	–	–
408	115	–	–	–
1025	268	–	–	–
785	191	–	–	–
812	191	–	–	–

EXISTING R/W
SURVEY ℄
SECTION LINE
EXISTING R/W
S.E.
145+00 1038.1
CONST. ℄
16.5
EXISTING ROADWAY
145+75 1034.25
STATION ELEVATION ℄
PROPOSED R/W
EXISTING SAN. SEWER
PROPOSED 16" WATERMAIN

EXISTING R/W
SECTION LINE
SURVEY ℄
CONST. ℄
144+85 1039.0
EXISTING R/W
ENT. RT. CLOSE
S.E.
-4%
16.5
135
EXISTING ROADWAY
145+60 1034.39
HO.
BEGIN WALL 3
STA. 143+60 (SURVEY ℄)
S.E.
EXISTING SAN. SEWER
PROPOSED 16" WATERMAIN

144+50 1039.2
VAR
145+25 1034.62
0+50 MONTANA AVE. SHEET 97
EXISTING SAN. SEWER
PROPOSED 16" WATERMAIN

144+25 1039.2
℄ MONTANA AV
S.E. 81.2' LT.
SURVEY ℄
VAR
145+00 1034.71
0+50 MONTANA AVE SHEET 97
EXISTING R/W
EXISTING SAN. SEWER
PROPOSED R/W
PROPOSED 16" WATERMAIN

SECTION LINE
144+00 1040.8
EXISTING R/W
SURVEY ℄
EXISTING ROADWAY
CONST. ℄
S.E. 87.5' LT.
SURVEY ℄
VAR
144+75 1034.74
16.5
13.5
0+50 MONTANA AVE. SHEET 97
EXISTING SAN. SEWER
PROPOSED 16" WATERMAIN

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fillebrown
Date 5-18-81 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 74 of 121 Sheets

COPY EQUIPMENT FORM #1

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
656	479	–	–	–
468	224	–	–	–
203	77	–	–	–
406	130	–	–	–
575	176	–	–	–

END WALL 3
STA. 146+30 (SURVEY ℄)

CONSTRUCT WALL 3

STATION–ELEVATION

S.E.

EXISTING R/W

℄ SECTION SURVEY LINE

146+27 1034.05

147+02 1032.19 CONST ℄

16.5

EXISTING ROADWAY

EXISTING SAN. SEWER

PROPOSED 16" WATERMAIN

EXISTING R/W

PROPOSED R/W

146+00 1034.98

196+75 1032.76

EXISTING SAN. SEWER

SAN. MH. 27

EXISTING SAN. SEWER

PROPOSED 16" WATERMAIN

145+90 1035.3

146+65 1032.95

ENT RT

EXISTING SAN. SEWER

EXISTING SAN. SEWER

145+73 1035.7

146+48 1033.26

PROPOSED 16" WATERMAIN

EXISTING R/W

EXISTING SAN. SEWER

SECTION & SURVEY ℄

EXISTING R/W

PROPOSED 16" WATERMAIN

PROPOSED R/W

-4%

S.E.

145+50 1036.40

146+25 1033.63 CONST ℄

16.5

EXISTING ROADWAY

3:1

EXISTING SAN. SEWER

PROPOSED 16" WATERMAIN

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-15-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 75 of 121 Sheets

27-128

COPY EQUIPMENT MODEL 41

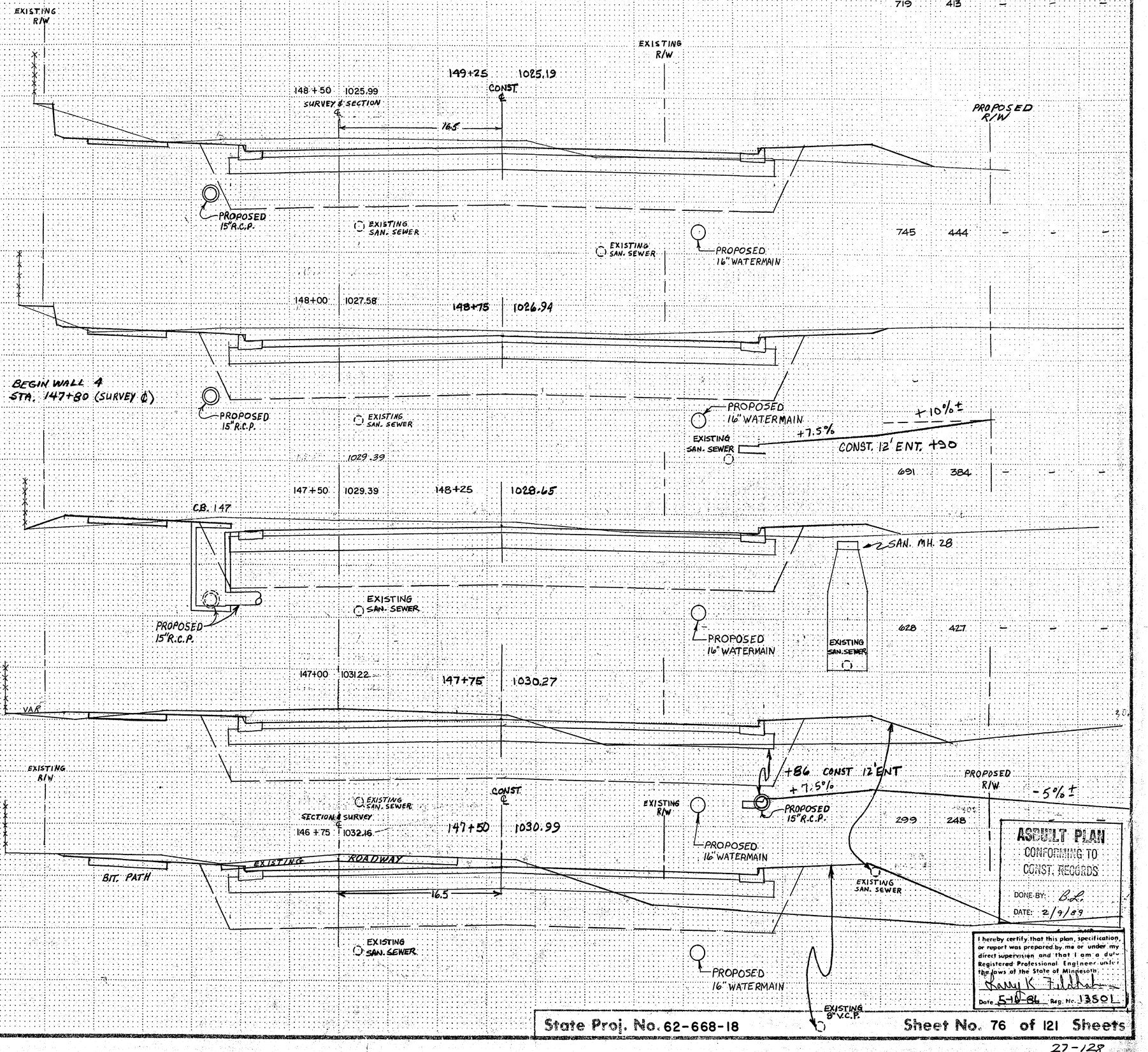
END WALL NO. 4
STA. 148+80 (SURVEY ℄)

BEGIN WALL 4
STA. 147+80 (SURVEY ℄)

STATION—ELEVATION
℄

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
719	413	–	–	–
745	444	–	–	–
691	384	–	–	–
628	427	–	–	–
299	248	–	–	–



AS-BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-10-84 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 76 of 121 Sheets

27-128

COPY EQUIPMENT FORM #1

Fed. Proj. No.

STATION–ELEVATION

℄

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
590	664	371	130	491

151+00 1021.06 — SURVEY SECTION LINE — 16.5 — 151+75 1020.96 CONST ℄ — ENT. RT.

EXISTING R/W — EXISTING R/W — PROPOSED R/W

+7.5% — +1.0%±

PROPOSED 24" R.C.P.

EXISTING 8" V.C.P.

MUCK EXCAVATION

PROPOSED 16" WATERMAIN

559	685	369	131	469

150+50 1021.44 — 151+25 1021.20

C.B. 149 — C.B. 148 — AP. 148A — 1018.60

PROPOSED 21" R.C.P.

PROPOSED 15" R.C.P.

EXISTING 8" V.C.P.

10 L.F. 15" R.C.P. APRON

PROPOSED 16" WATERMAIN

496	714	333	148	461

150+00 1022.04 — 150+75 1021.63

PROPOSED 15" R.C.P.

GRANULAR BORROW

MUCK EXCAVATION

EXISTING 8" V.C.P.

BEGIN MUCK EXCAVATION @ STA. 149+86 ± SURVEY ℄

PROPOSED 16" WATERMAIN

572	458	51	22	75

ENT. Rt.

150+27 1022.40

149+52 1023.20

+4% — -10%

PROPOSED 15" R.C.P.

EXISTING 8" V.C.P.

PROPOSED 16" WATERMAIN

695	429	—	—	—

EXISTING R/W

149+00 1024.52 SECTION SURVEY LINE — 16.5 — 149+75 1023.62 CONST ℄ — EXIST. R/W — PROPOSED R/W

PROPOSED 15" R.C.P.

EXISTING SAN. SEWER

PROPOSED 16" WATERMAIN

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fullerton
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 77 of 121 Sheets

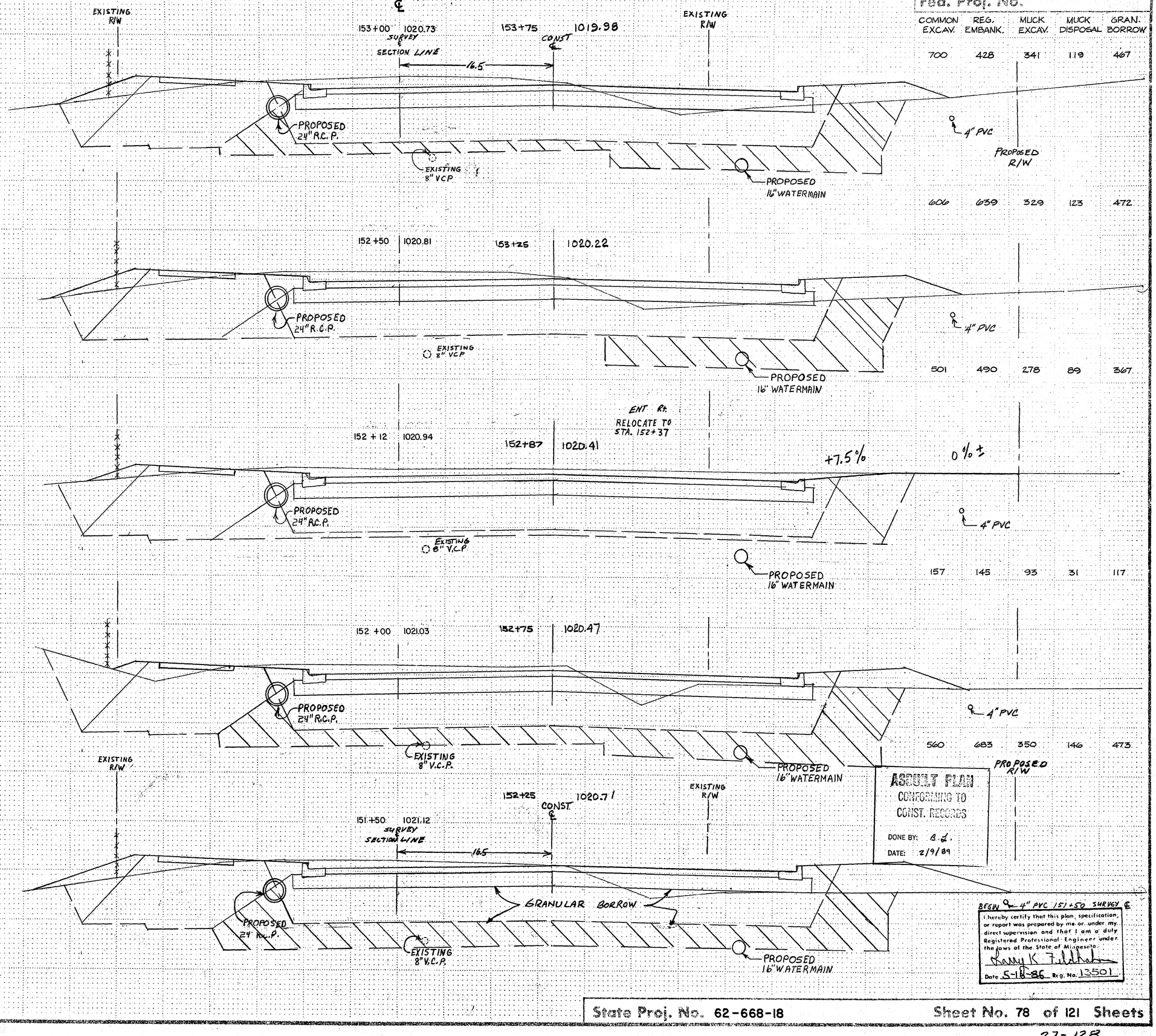
27-128

Fed. Proj. No.

STATION–ELEVATION

℄

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
700	428	341	119	467
606	639	329	123	472
501	490	278	89	367
157	145	93	31	117
560	683	350	146	473



AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Larry K Fuldner

Date 5-18-86 Reg. No. 13501

State Proj. No. 62-668-18

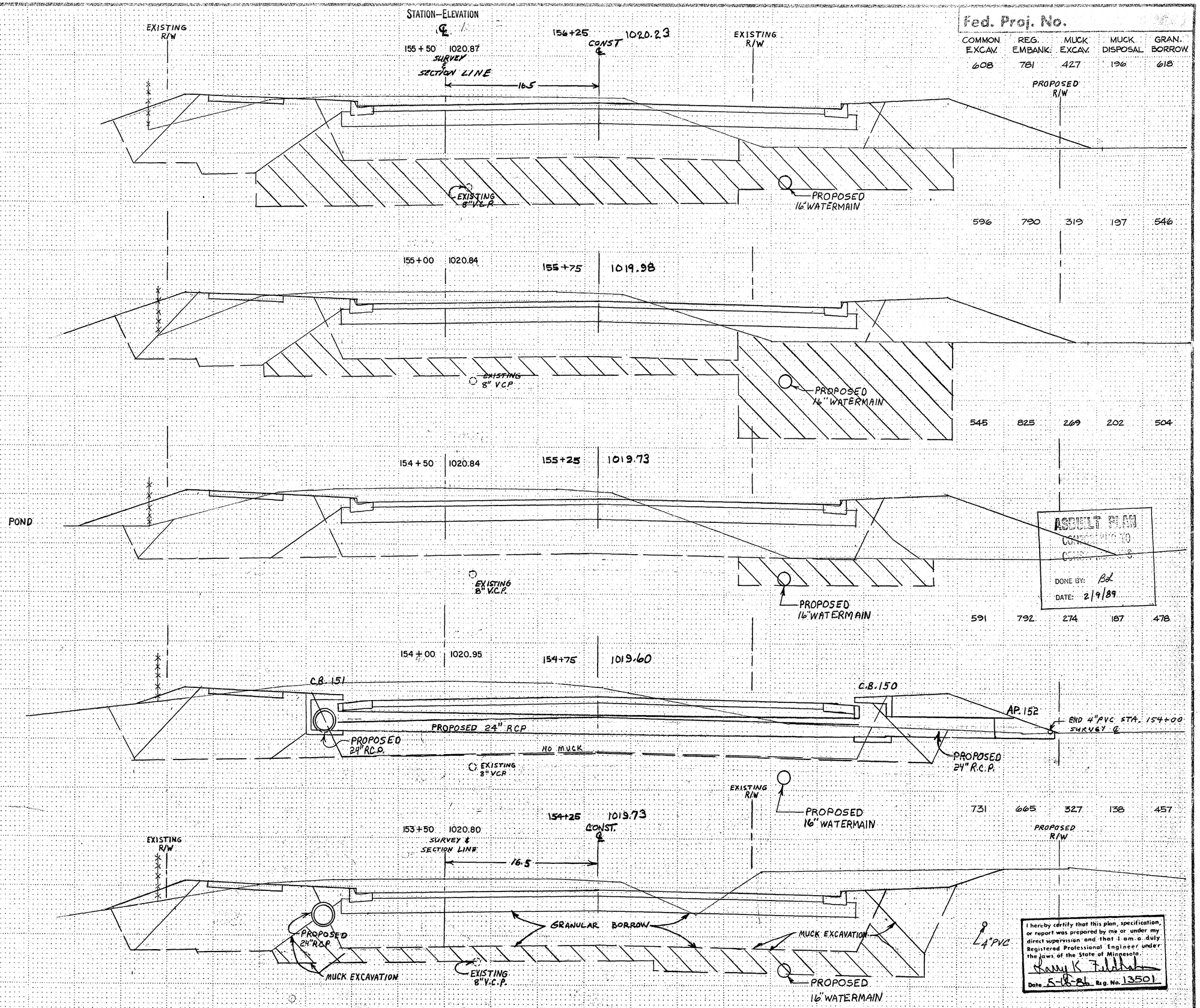
Sheet No. 78 of 121 Sheets

27-128

STATION—ELEVATION

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
608	781	427	196	618
596	730	319	197	546
545	825	269	202	504
591	792	274	187	478
731	665	327	138	457



ASBUILT PLAN
CONFORMING TO
CONSTRUCTION
DONE BY: BL
DATE: 2/9/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fullerton
Date 5-16-89 Reg. No. 13501

State Proj. No. 62-668-18 Sheet No. 79 of 121 Sheets

27-128

CAM-I EQUIPMENT FORM #1

Fed. Proj. No.

STATION–ELEVATION

EXISTING R/W

158+00 1021.06
SURVEY & SECTION LINE

165

158+75 1021.48
CONST. ℄

EXISTING R/W

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
419	894	717	242	942

PROPOSED R/W

EXISTING 8" VCP

PROPOSED 16" WATERMAIN

450	864	631	256	839

157+50 1021.22

158+25 1021.23

EXISTING 8" VCP

PROPOSED 16" WATERMAIN

521	802	595	221	763

157+00 1021.26

157+75 1020.98

EXISTING 8" V.C.P

PROPOSED 16" WATERMAIN

603	791	559	199	714

156+50 1021.39

157+25 1020.73

C.B 155

C.B. 156

PROPOSED 15" R.C.P.

PROPOSED 15" RCP

AP. 157

EXISTING 8" V.C.P.

PROPOSED 16" WATERMAIN

621	783	507	203	665

EXISTING R/W

156+00 1021.41
SURVEY & SECTION LINE

16.5

156+75 1020.48
CONST. ℄

EXISTING R/W

PROPOSED R/W

GRANULAR BORROW

MUCK EXCAVATION

GRANULAR BORROW

EXISTING 8" V.C.P.

PROPOSED 16" WATERMAIN

AS BUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BZ
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiddahn
Date 5-16-85 Reg. No. 13501

State Proj. No. 62 - 668-18

Sheet No. 80 of 121 Sheets

27-128

STATION–ELEVATION

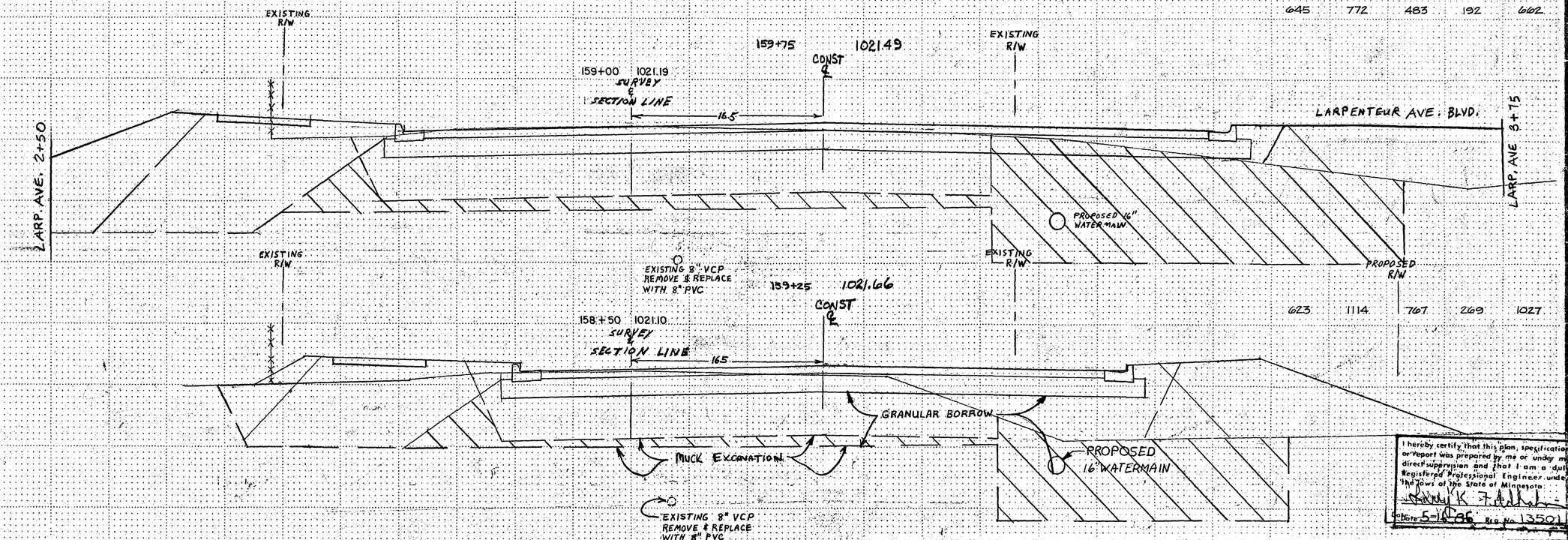
℄

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
645	772	483	192	662
623	1114	767	269	1027

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/10/89

STA. 159+36.1 = ℄ LARPENTEUR
(SEE NEXT SHEET)



I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18

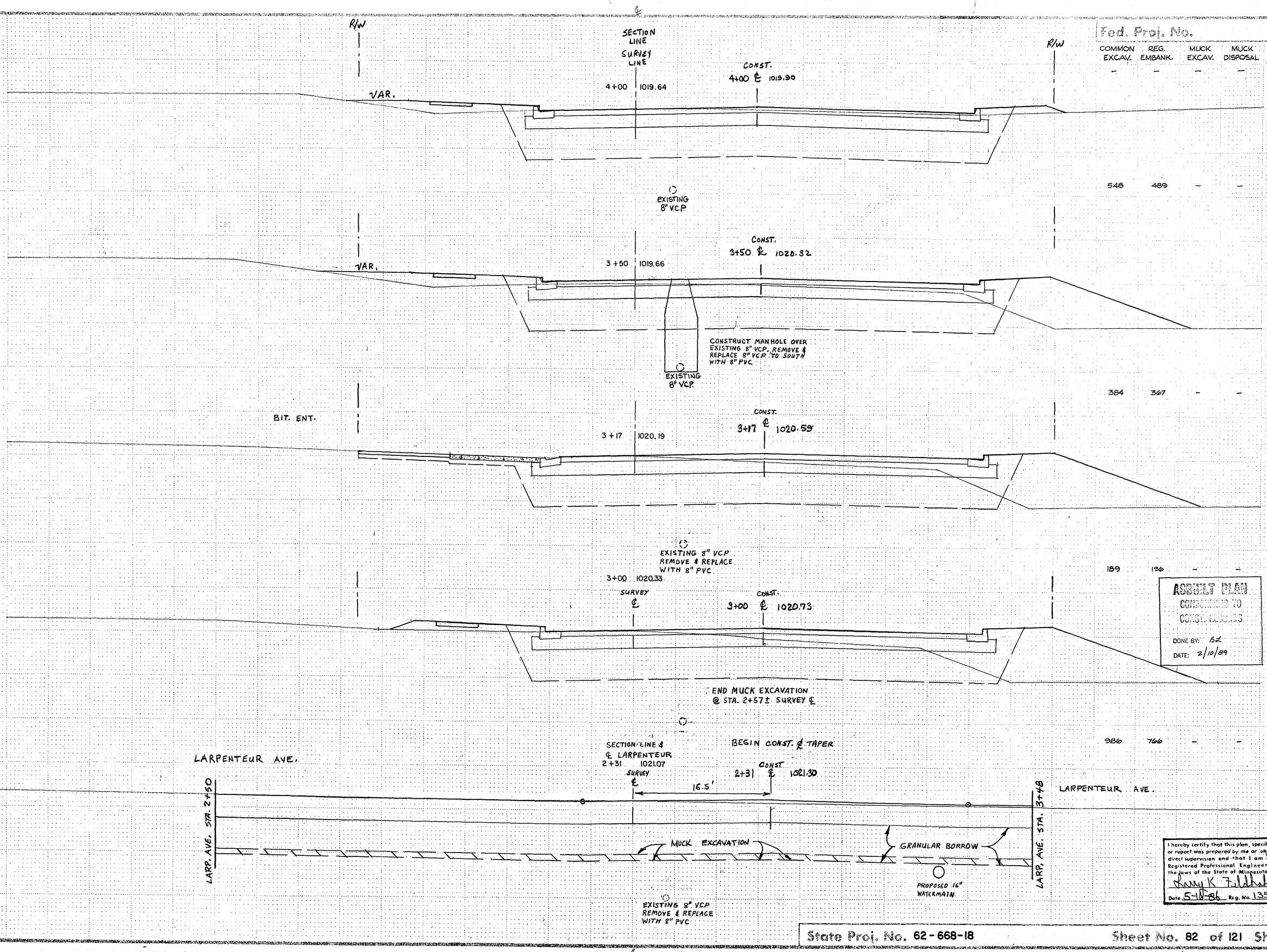
Sheet No. 81 of 121 Sheets

27-128

COPY EQUIPMENT FORM #1

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
–	–	–	–	–
548	489	–	–	–
384	367	–	–	–
189	196	–	–	–
986	766	–	–	–



AS-BUILT PLAN
CONFORMED TO CONST. RECORDS
DONE BY: BZ
DATE: 2/10/89

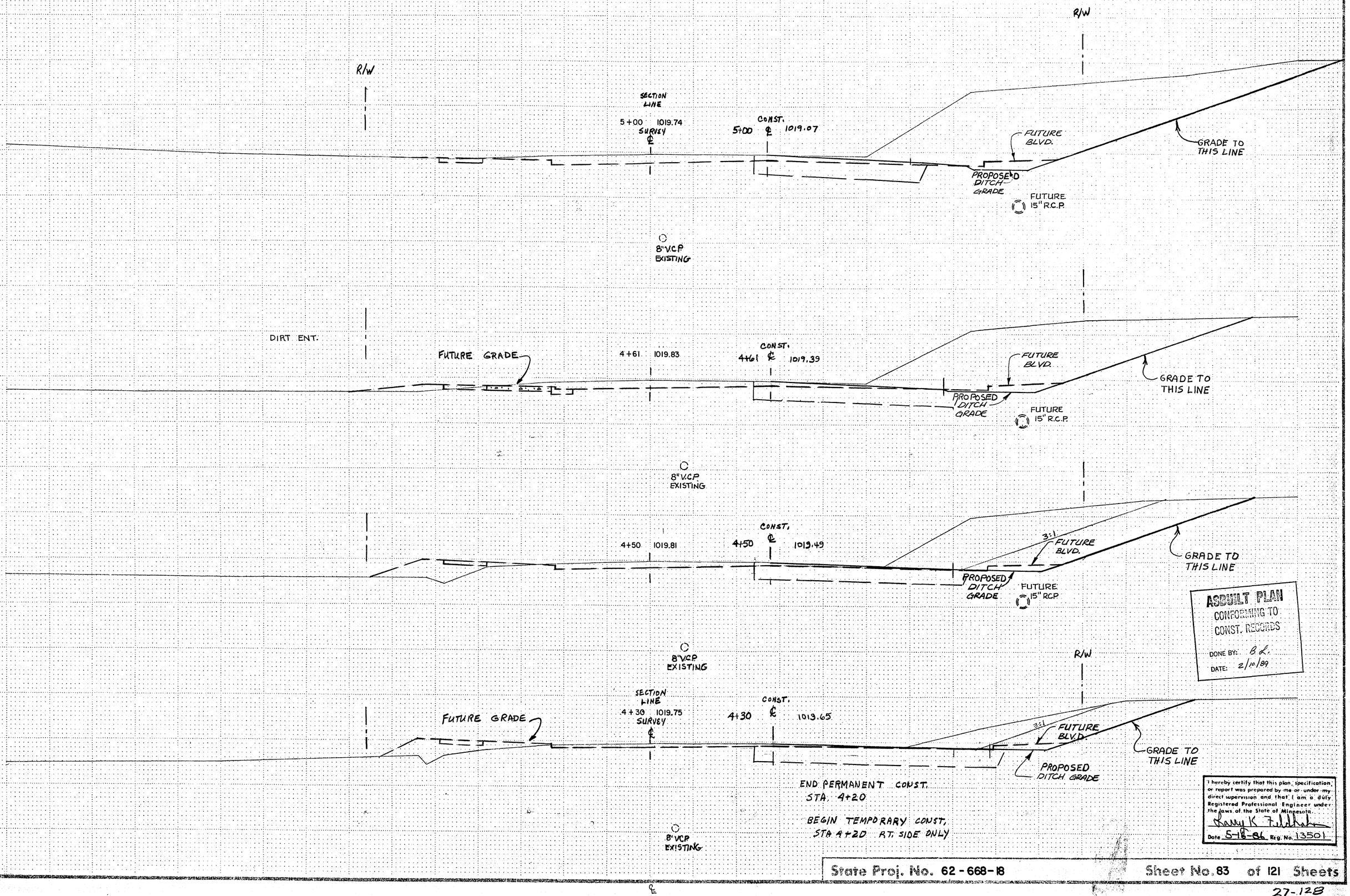
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Harry K. Tildahl
Date 5-10-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 82 of 121 Sheets

27-128

Fed. Proj. No.



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Danny K Fuldahn
Date 5-16-86 Reg. No. 13501

State Proj. No. 62-668-18 Sheet No. 83 of 121 Sheets

27-128

COPY EQUIPMENT FORM A1

Fed. Proj. No.

R/W

SECTION LINE & SURVEY ℄

CONST. ℄

6+35 1018.48

6+35 1017.95

FUTURE BLVD.

PROPOSED DITCH GRADE

FUTURE 15" R.C.P.

GRADE TO THIS LINE

8" V.C.P EXISTING

6+00 1018.87

CONST. ℄

6+00 1018.24

FUTURE BLVD.

PROPOSED DITCH GRADE

FUTURE 15" R.C.P.

GRADE TO THIS LINE

8" V.C.P EXISTING

5+75 1019.21

CONST. ℄

5+75 1018.45

FUTURE BLVD.

PROPOSED DITCH GRADE

FUTURE 15" R.C.P.

GRADE TO THIS LINE

8" V.C.P EXISTING

5+50 1019.44

CONST. ℄

5+50 1018.66

FUTURE BLVD.

PROPOSED DITCH GRADE

FUTURE 15" R.C.P.

GRADE TO THIS LINE

8" V.C.P EXISTING

R/W

BIT. ENT.

FUTURE GRADE

SECTION LINE SURVEY ℄

5+18 1019.65

CONST. ℄

5+18 1018.92

FUTURE BLVD.

PROPOSED DITCH GRADE

FUTURE 15" R.C.P.

GRADE TO THIS LINE

8" V.C.P. EXISTING

℄

ASBUILT PLAN
CONFORMING TO CONST. RECORDS

DONE BY: BL

DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Larry K Fullerton

Date 5-18-84 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 84 of 121 Sheets

27-128

OLSTY EQUIPMENT FORM #1

Fed. Proj. No.

STATION - ELEVATION

R/W

SURVEY ℄ 7+71 1017.83

SECTION LINE

CONST. ℄ 7+71 1017.38

BIT. ENT.

FUTURE CONST.

R/W

BIT. ENT.

7+23 1017.70

CONST. ℄ 7+23 1017.24

FUTURE CONST.

CONST. ℄ 7+00 1017.79

7+00 1017.41

FUTURE CONST.

BIT. ENT.

6+76 1018.05

SURVEY ℄

CONST. ℄ 6+76 1017.61

BIT. ENT.

FUTURE CONST.

8" V.C.P. EXISTING

FUTURE CONSTRUCTION

STA. 6+50 TO NORTH

R/W

SECTION LINE

FUTURE GRADE

6+50 1018.30

SURVEY ℄

CONST. ℄ 6+50 1017.83

R/W

FUTURE CONST.

END PROJECT
S.P. 62-668-18
STA. 6+50

FUTURE 15" R.C.P.

8" V.C.P. EXISTING

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: BL

DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Larry K Fiddick

Date 5-19-86 Reg. No. 13501

State Proj. No. 62-668-18 Sheet No. 85 of 121 Sheets

℄

27-128

COPY ECONOMENT FORM #1

R/W

+50 73.29
CONST. ℄ 71.06

R/W

+30 74.14
72.12
EXISTING 8" VCP SAN. SEWER

EXISTING 8" VCP SAN. SEWER

10+00 75.13
73.77

BEGIN 30:1 CURB TAPER 9+60
BEGIN B624 C&G STA 9+52±

BEGIN 30:1 CURB TAPER 9+60
BEGIN B624 C&G STA. 9+52±

BIT. ENT.

+41 76.61
976.24
0.0%
EXISTING 8" VCP SAN. SEWER

R/W

9+00 977.05
CONST. ℄

R/W

EXISTING 8" VCP SAN. SEWER

BEGIN CONSTRUCTION AT STA. 9+00±

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
594	359	–	–	–
231	133	–	–	–
325	190	–	–	–
414	278	–	–	–
112	100	–	–	–

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Randy K Fuhlbohm
Date 5-10-88 Reg. No. 13501

MARYLAND AVENUE

State Proj. No. 62-668-18

Sheet No. 86 of 121 Sheets

27-128

FUNCTIONAL CROSS SECTION - OPEN DOTTED
H. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL

Fed. Proj. No.

CONST. ℄

+45 63.45 66.27

PROPOSED 15" R.C.P.

MUCK EXCAVATION

EXISTING 8" VCP SAN. SEWER

+25 64.41 966.29

GRANULAR BORROW

MUCK EXCAVATION

PROPOSED 15" R.C.P.

BEGIN MUCK EXCAVATION @ STA. 12+07± SURVEY ℄

EXISTING 8" VCP SAN. SEWER

12+00 65.29 966.46

PROPOSED 15" R.C.P.

EXISTING 8" VCP SAN. SEWER

+50 68.03 967.31

END 30:1 CURB TAPERS STA. 11+40

11+00 970.90

EXISTING 8" VCP SAN. SEWER

968.85

CONST. ℄

EXISTING 8" VCP SAN. SEWER

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
340	253	–	–	–
204	239	89	–	172
182	239	82	–	63
436	414	–	–	–
575	381	–	–	–

AS-BUILT PLAN CONFORMING TO CONST. RECORDS

DONE BY: BL

DATE: 2/10/09

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Harry K Fieldhaus

Date 5-17-85 Reg. No. 13501

MARYLAND AVENUE

State Proj. No. 62-668-18

Sheet No. 87 of 121 Sheets

27-128

FUNCTIONAL CROSS SECTION - OPEN DITCH
H. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
204	581	–	–	–
128	719	135	–	164
140	1231	383	–	648

CONST. ℄

68.25

+50 65.69

EXISTING 30"R.C.P.

END MUCK EXCAVATION @ STA. 14+39± SURVEY ℄

BEGIN 30:1 CURB TAPERS STA. 14+33

14+00 64.55

EXISTING 8" V.C.P. 67.89

GRANULAR BORROW

MUCK EXCAVATION

EXISTING 30"R.C.P.

67.37

+50 63.39

BLVD. McKNIGHT ROAD

EXISTING 8" VCP SAN. SEWER

GRANULAR BORROW

MUCK EXCAVATION

PROPOSED 15" R.C.P.

McKNIGHT ROAD STA. 101+85

N.E. RADIUS McKNIGHT RD.

EXISTING 8" VCP 67.10

+28 62.67

PROPOSED McKNIGHT RD.

PROPOSED 15" R.C.P.

AS-BUILT PLAN CONFORMING TO CONSTRUCTION CHANGES

DONE BY: BZ

DATE: 2/10/89

CONST. ℄

66.75

EXISTING 8" VCP

13+00 961.88

PROPOSED McKNIGHT RD.

PROPOSED 15" R.C.P.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Larry K. Fiddler

Date 5-18-86 Reg. No. 13501

EXISTING 8" V.C.P.

MARYLAND AVENUE

State Proj. No. 62-668-18

Sheet No. 88 of 121 Sheets

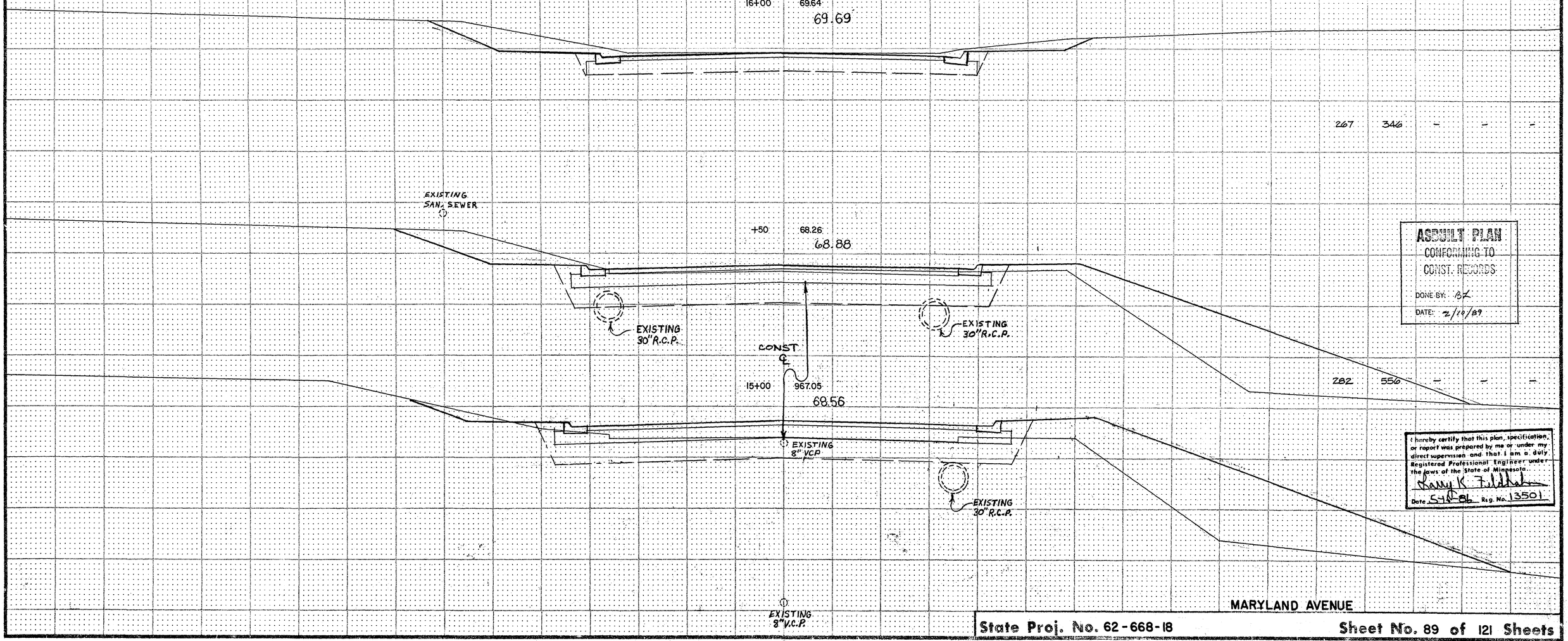
27-128

FUNCTIONAL CROSS SECTION - OPEN DOTTED
H. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
267	346	–	–	–
282	550	–	–	–

STA. 16+13
MATCH EXISTING - END 30:1 TAPERS



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BZ
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiddelke
Date 5-4-89 Reg. No. 13501

MARYLAND AVENUE

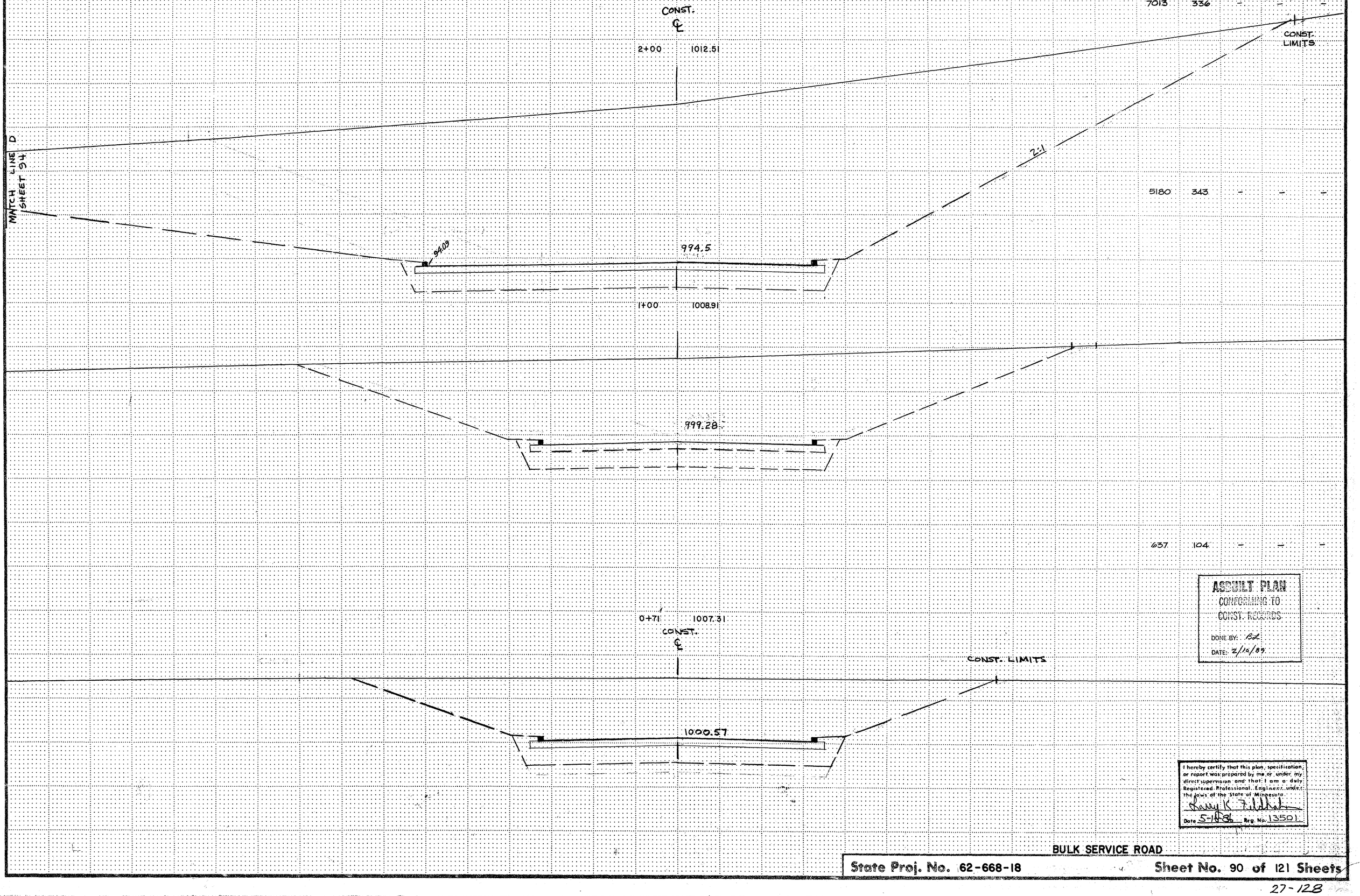
State Proj. No. 62-668-18 Sheet No. 89 of 121 Sheets

FUNCTIONAL CROSS SECTION - OPEN DOTTED
M. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
7013	336	–	–	–
5180	343	–	–	–
637	104	–	–	–



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BAL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Fiddelke
Date 5-1-88 Reg. No. 13501

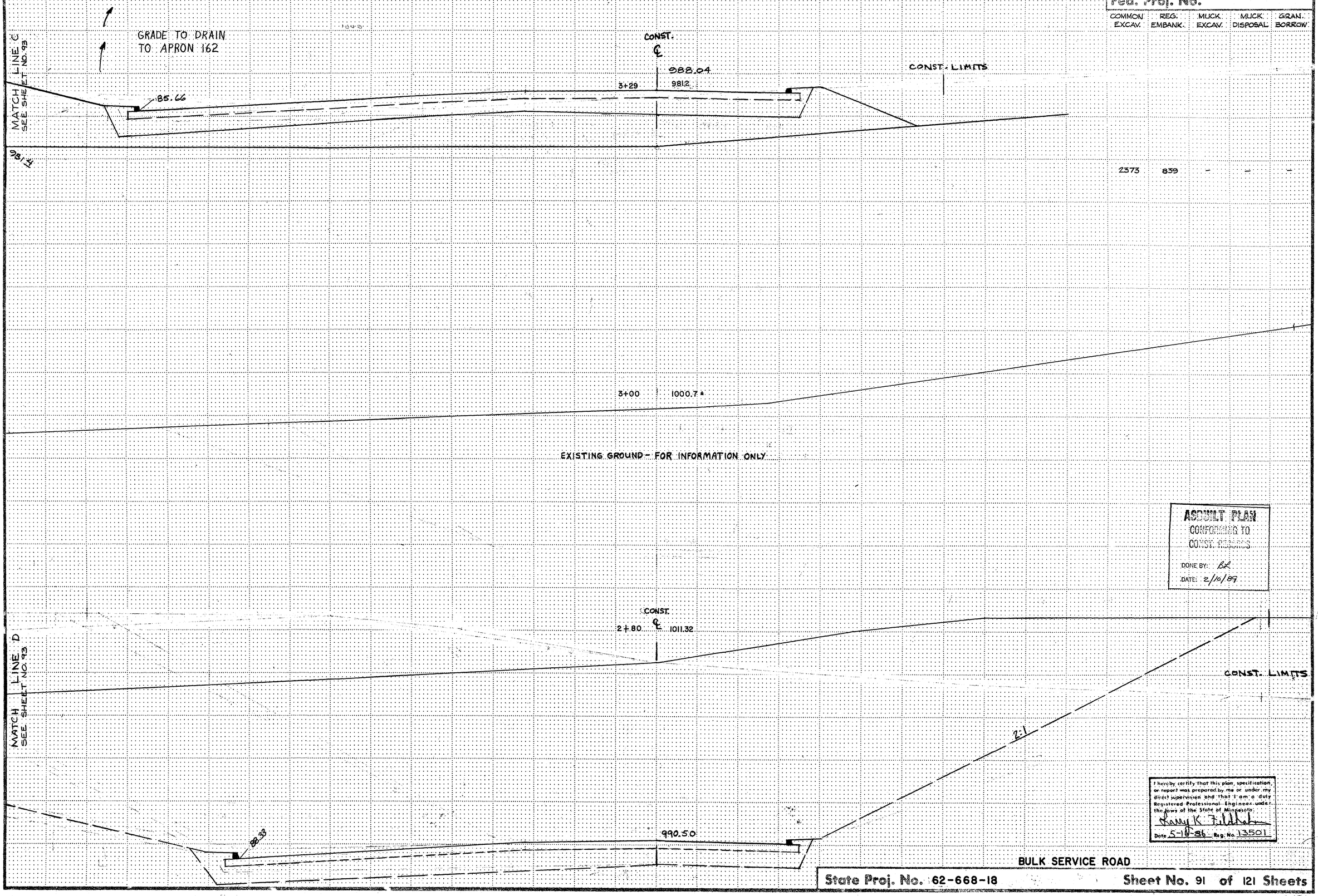
BULK SERVICE ROAD

State Proj. No. 62-668-18 Sheet No. 90 of 121 Sheets

27-128

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
2373	839	–	–	–



AS-BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BR
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiddler
Date 5-18-86 Reg. No. 13501

BULK SERVICE ROAD

State Proj. No. 62-668-18 Sheet No. 91 of 121 Sheets

1708

Bulk Service

27-128

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07548

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07548

DRAWING NUMBER
170 C

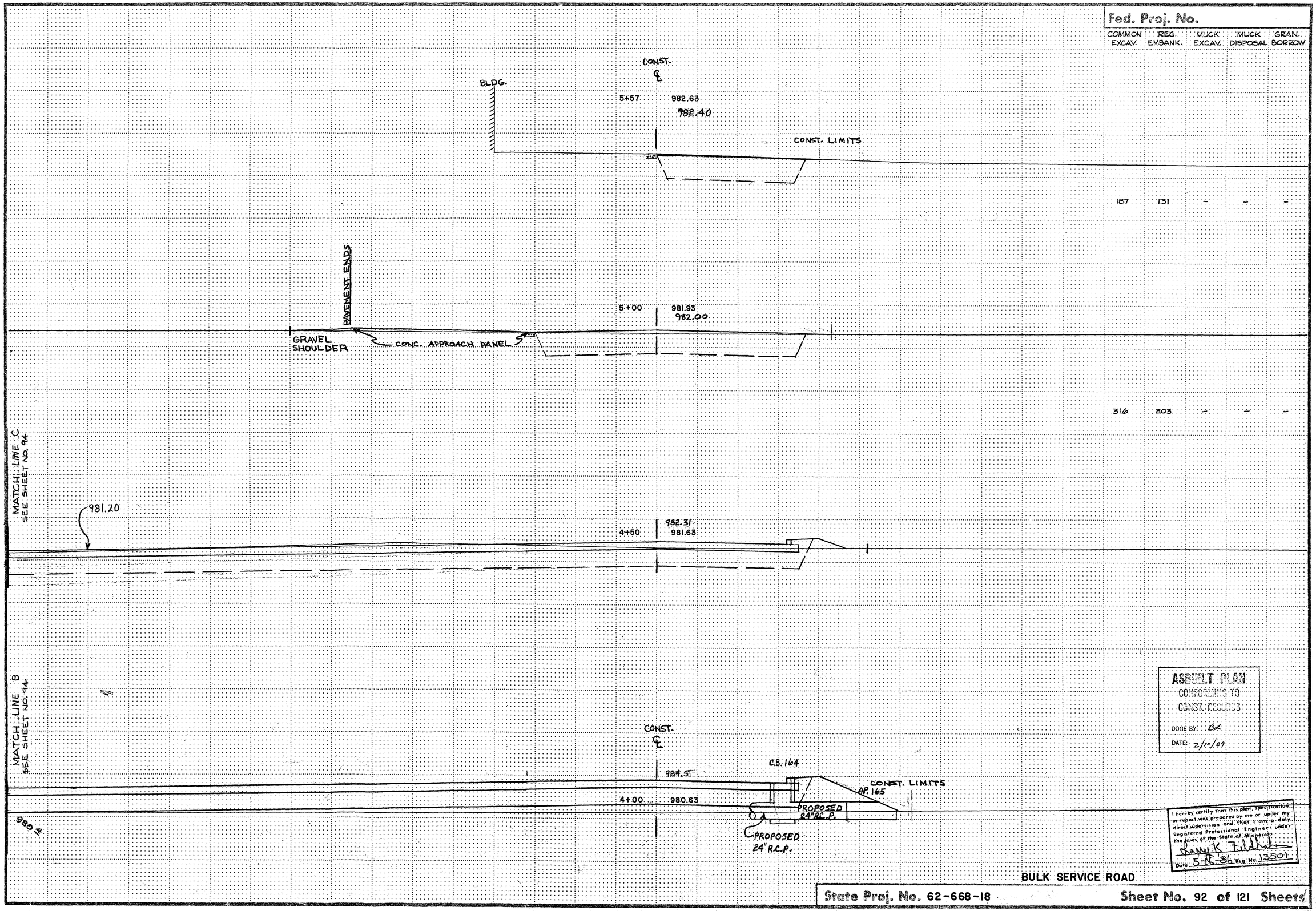
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07548

DRAWING NUMBER
Bulk. Service

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07548

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
187	131	–	–	–
316	303	–	–	–



ASPHALT PLAN
CONFORMING TO
CONST. RECORDS
DODIE BY: BR
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-12-86 Reg. No. 13501

BULK SERVICE ROAD

State Proj. No. 62-668-18

Sheet No. 92 of 121 Sheets

27-128

DRAWING

PLAN HOLD DISPOSITION HEREWITH

DRAWING NUMBER

DRAWING NUMBER

DRAWING NUMBER

NUMBER

Fed. Proj. No.

McKNIGHT RD.
STA. 116+50 RT. 80'

MATCH LINE B
SEE SHEET NO. 54

STA. 3+29

MATCH LINE C
SEE SHEET NO. 91

150' L.T.

McKNIGHT RD.
STA. 116+00 RT. 80'
(SHEET No. 54)

STA. 2+80

SEE SHEET NO. 91 MATCH LINE D

100' R

2+80

AS-BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Harry K Fuldahl
Date 5-18-86 Reg. No. 13501

BULK SERVICE ROAD EXTENSIONS

State Proj. No. 62-668-18 Sheet No. 93 of 121 Sheets

COPY EQUIPMENT FORM # 75080

DRAWING NUMBER
170 E

27-128

DRAWING

PLAN HOLD CORPORATION

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA

DRAWING NUMBER

170 D

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA

NUMBER

IRVINE CALIFORNIA

COPY EQUIPMENT FORM # 15000

Fed. Proj. No.

130' LT

98.00

2+00

SEE SHEET NO. 90
MATCH LINE D

SEE SHEET NO. 92
MATCH LINE C

McKNIGHT STA. 117+39 RT. 80'

MATCH LINE A
SEE SHEET NO. 54

3:1

120' LT

98.05

(PAVEMENT OR GUTTER)

4+50

SEE SHEET NO. 92
MATCH LINE B

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BK
DATE: 2/10/89

GRADE TO
DRAIN
TO APRON 162

I hereby certify, that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Gary K Tillotson
Date 5-18-84 Reg. No. 13501

(PAVEMENT OR GUTTER)

98.57

98.43

4+00

SEE SHEET NO. 92
MATCH LINE B

BULK SERVICE ROAD EXTENSIONS

State Proj. No. 62-668-18

Sheet No. 94 of 121 Sheets

27-128

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE CALIFORNIA
REORDER BY NUMBER 07SAR

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE CALIFORNIA
REORDER BY NUMBER 07SAR

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE CALIFORNIA
REORDER BY NUMBER 07SAR

DRAWING NUMBER
171

PLAN HOLD CORPORATION • IRVINE CALIFORNIA
REORDER BY NUMBER 07SAR

COPY FOOTPRINT FORM #1

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN BORROW
72	44	–	–	–
36	27	–	–	–
50	40	–	–	–
75	60	–	–	–

SURVEY ℄
CONST. ℄
2+89 | 986.01
2+99 | 986.26
REMOVE EXISTING PAVEMENT AND GRADE AS DIRECTED
CONST. ℄
2+82 | 986.06
2+88 | 986.28
INSIDE RADIUS GUTTER
RECONSTRUCT BIT. DRIVEWAY
CONST. ℄
2+70 | 986.21
2+73 | 986.61
RADIUS AT C.B. 175
BEGIN CONSTRUCTION AT ± STA. 2+10
C.B.
2+00 | 988.71
C.B.
1+50 | 990.46

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-16-86 Reg. No. 13501

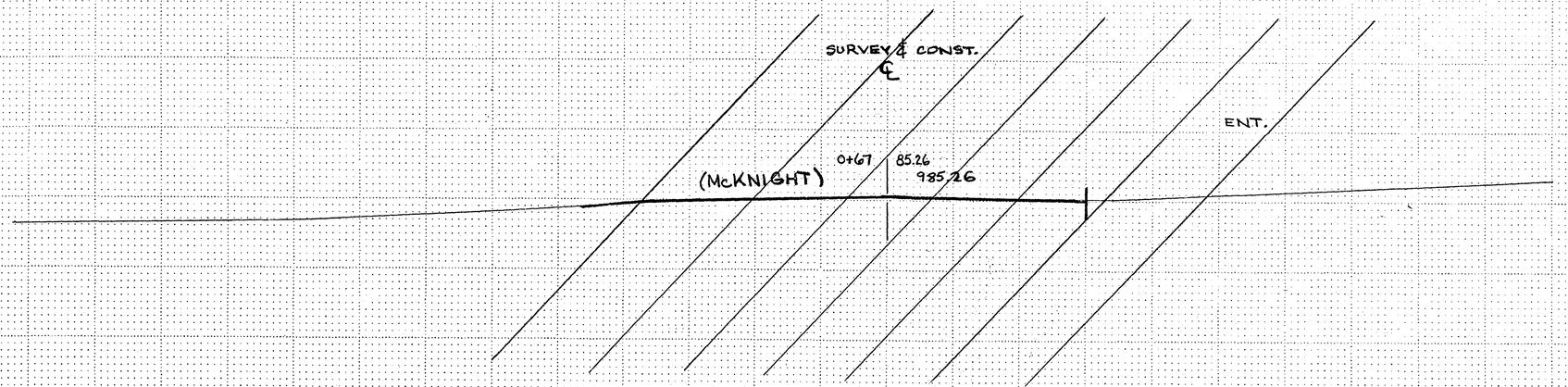
IVY AVENUE

State Proj. No. 62-668-18 Sheet No. 95 of 121 Sheets

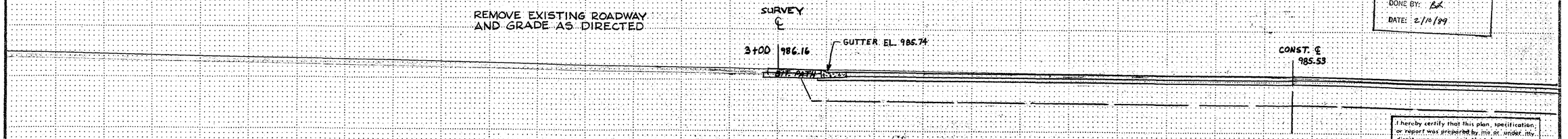
27-128

DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
DRAWING NUMBER 172
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
COPY EQUIPMENT FORM #1

Fed. Proj. No.



REMOVE EXISTING ROADWAY AND GRADE AS DIRECTED



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fuldner
Date 5-18-86 Reg. No. 13501

IVY AVENUE

State Proj. No. 62-668-18 Sheet No. 96 of 121 Sheets

27-128

DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER D7549
POSITION EDGE OF PRINT ON THIS LINE
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER D7549
POSITION EDGE OF PRINT ON THIS LINE
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER D7549
POSITION EDGE OF PRINT ON THIS LINE
DRAWING NUMBER 112
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER D7549
POSITION EDGE OF PRINT ON THIS LINE
COPY EQUIPMENT FORM #1

STATION–ELEVATION

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Fed. Proj. No. –

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
–	–	–	–	–
20	37	–	–	–
312	137	–	–	–
535	199	–	–	–

CONST. ℄

2+00 1035.20

END CONSTRUCTION STA. 1+80
MATCH EXISTING

EXISTING SAN. SEWER

FENCE

R/W

1035.96

1+50 1036.12

R/W

FENCE

VAR.

1+00 1037.09

1035.78

VAR.

CONST. ℄

0+50 1038.02

VAR.

1034.78

VAR.

McKNIGHT ROAD
STA. 144+00
34' (SURVEY ℄ RT.)

AS BUILT PLAN
CONFORMING TO
CONST. REVISIONS
DONE BY: BK
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K. Fiddler
Date 5-18-86 Reg. No. 13501

MONTANA AVENUE

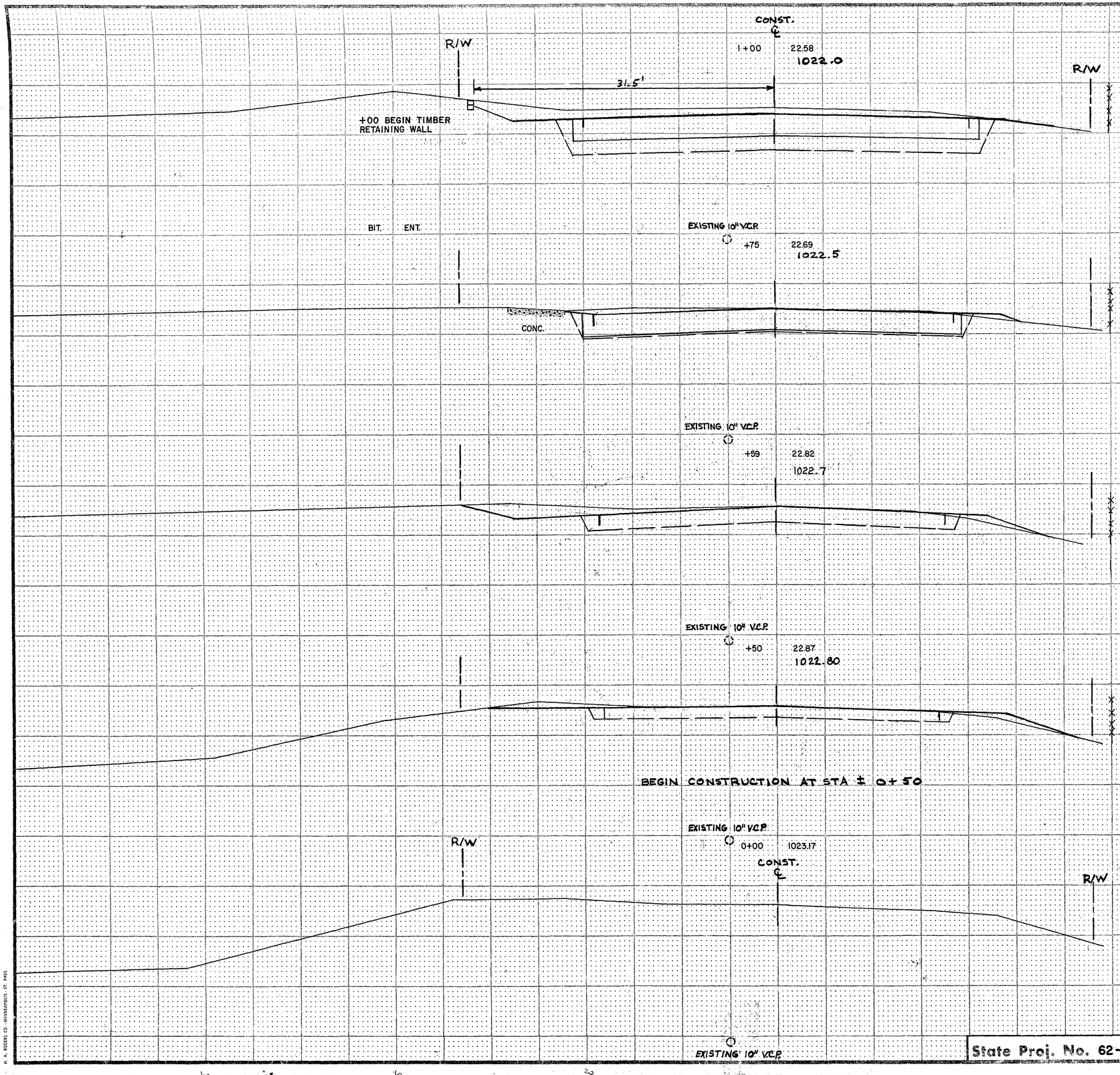
State Proj. No. 62-668-18 Sheet No. 97 of 121 Sheets

MONTANA

STATION–ELEVATION

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07341
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07341
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07341
DRAWING NUMBER 174



Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
516	236	–	–	–
142	40	–	–	–
57	6	–	–	–
22	2	–	–	–
42	5	–	–	–

PROPOSED 15" R.C.P.

AS-BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-9-86 Reg. No. 13501

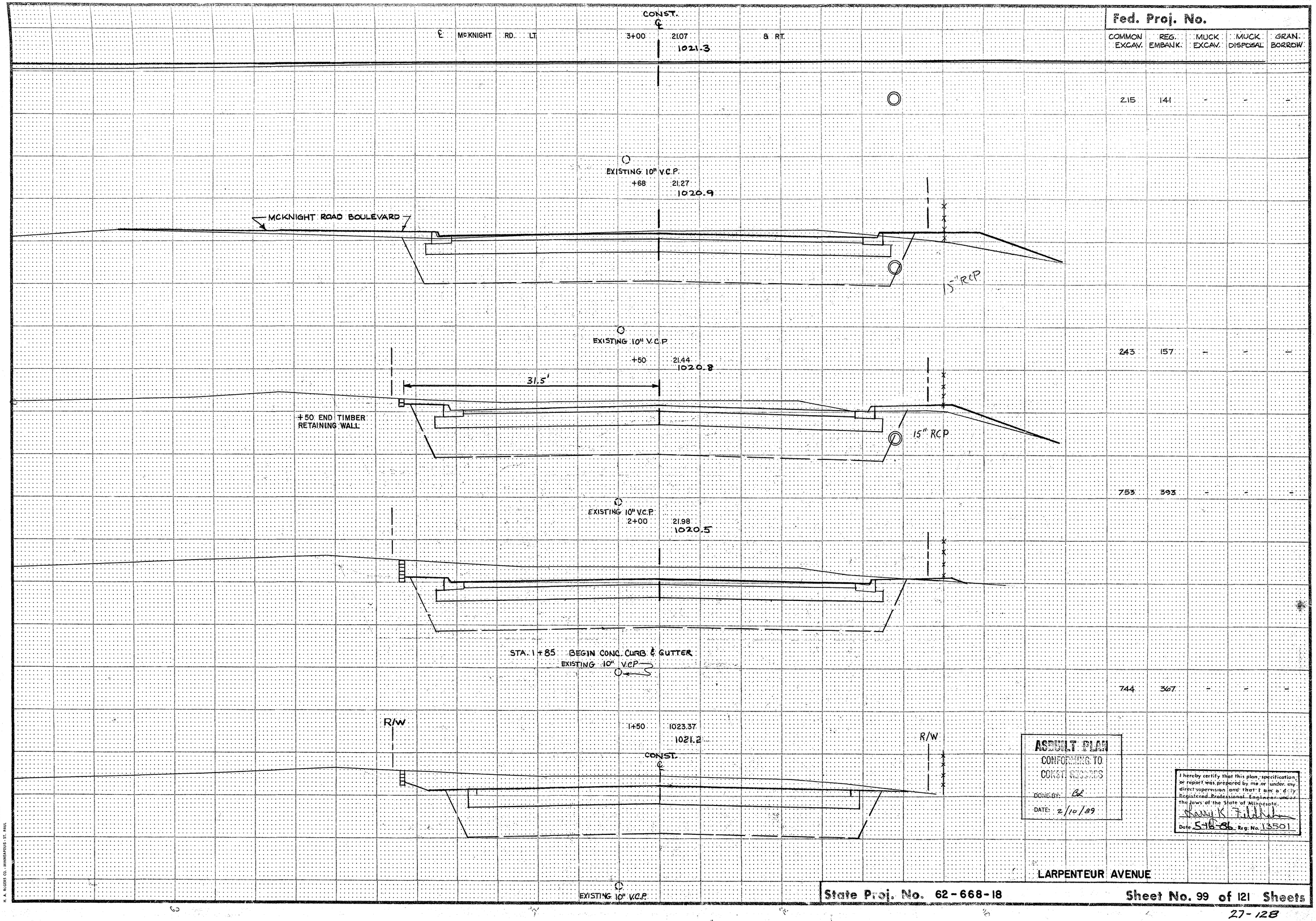
LARPENTEUR AVENUE

State Proj. No. 62-668-18 Sheet No. 98 of 121 Sheets

FUNCTIONAL CROSS SECTION - OPEN DITCH
H. A. ROADS TO MINNESOTA ST. PAUL

DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR
DRAWING NUMBER
178
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR

FUNCTIONAL CROSS SECTION - OPEN DOTTED
H. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL



Fed. Proj. No.				
COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
215	141	–	–	–
243	157	–	–	–
753	393	–	–	–
744	367	–	–	–

AS BUILT PLAN
CONFORMING TO CONSTRUCTION RECORDS
DONE BY: BL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Danny K. Fillhart
Date 5-16-86 Reg. No. 13501

LARPENTEUR AVENUE

State Proj. No. 62-668-18

Sheet No. 99 of 121 Sheets

27-128

DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07542
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07542
DRAWING NUMBER
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07542
DRAWING NUMBER
176
PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07542

FUNCTIONAL CROSS SECTION - OPEN DOTTED
M. A. ROCKET CO. - MINNEAPOLIS - ST. PAUL

R/W

CONST. ℄

+50 20.90
1020.71

EXISTING 10" V.C.P

4+00 20.55
1020.57

EXISTING 10" V.C.P

+48 20.57
1020.84

EXISTING 10" V.C.P

+35 20.65
1020.97

McKNIGHT ROAD

EXISTING 10" V.C.P

CONST. ℄

3+21 1020.81
1021.22

McKNIGHT ROAD

CONNECT TO EXISTING 12" D.I.P

PROPOSED 16" D.I.P WATER MAIN

EXISTING 10" V.C.P

R/W

PROPOSED R/W

15" R.C.P

McKNIGHT ROAD

McKNIGHT ROAD

15" R.C.P

LARPENTEUR AVENUE

Fed. Proj. No.				
COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
598	417	–	–	–
599	470	–	–	–
738	649	–	–	–
108	99	–	–	–

AS-BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BL
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Larry K Tillotson
Date: 5-18-86 Reg. No. 13501

State Proj. No. 62-668-18

Sheet No. 100 of 121 Sheets

27-128

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR

DRAWING NUMBER

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR

DRAWING NUMBER
177

PLAN HOLD CORPORATION • IRVINE, CALIFORNIA
REORDER BY NUMBER 07SAR

FUNCTIONAL CROSS SECTION - OPEN DITCH
N. A. ROGERS CO. - MINNEAPOLIS - ST. PAUL

Fed. Proj. No.

COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
203	95	–	–	–
546	322	–	–	–
550	390	–	–	–
567	393	–	–	–

CONST. ℄

+50 22.91
1022.91

R/W

AGGREGATE SHOULDER

R/W

EXISTING 10" V.C.P.

BEGIN 20:1 SUBCUT TAPER STA. 6+10
END FULL WIDTH SUBCUT STA. 6+10

6+00 22.13
1022.36

3:1

EXISTING 10" V.C.P.

+50 21.69
1021.81

3:1

EXISTING 10" V.C.P.

CONST. ℄

5+00 1021.30
1021.26

R/W

R/W

3:1

EXISTING 10" V.C.P.

END CONCRETE CURB & GUTTER STA. 4+75
BEGIN BITUMINOUS TAPERS

AS-BUILT PLAN
CONFORMING TO
CONSTRUCTION RECORDS
DONE BY: BK
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 5-4-86 Reg. No. 13507

LARPENTEUR AVENUE

State Proj. No. 62-668-18

Sheet No. 101 of 121 Sheets

27-128

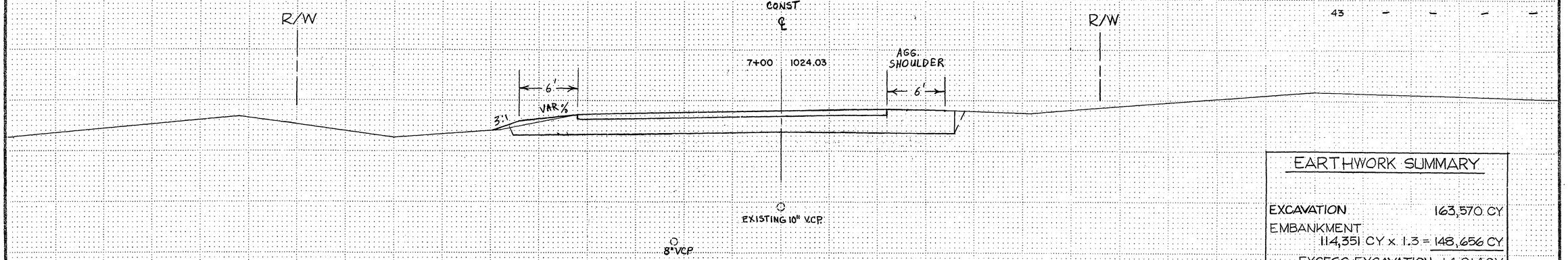
DRAWING NUMBER

DRAWING NUMBER

DRAWING NUMBER

DRAWING NUMBER 1114

END BIT. OVERLAY STA. 7+30 ±
SAWCUT BITUMINOUS STA. 7+20



Fed. Proj. No.

	COMMON EXCAV.	REG. EMBANK.	MUCK EXCAV.	MUCK DISPOSAL	GRAN. BORROW
43	–	–	–	–	–
104	30	–	–	–	–

EARTHWORK SUMMARY

EXCAVATION 163,570 CY

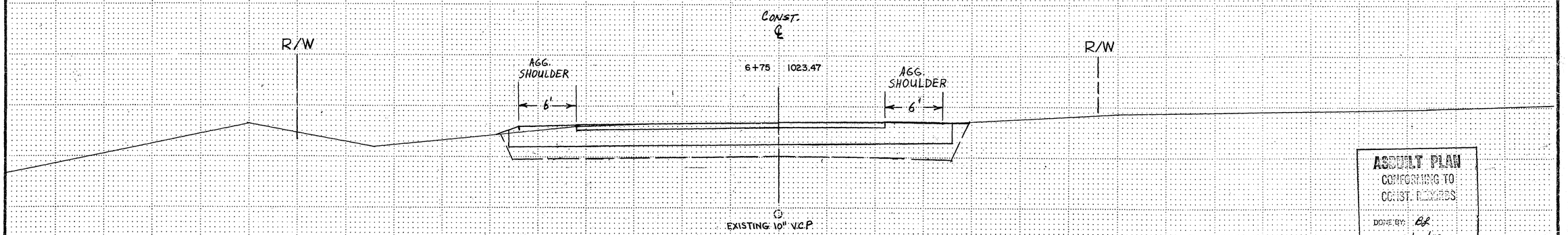
EMBANKMENT
114,351 CY x 1.3 = 148,656 CY

EXCESS EXCAVATION 14,914 CY

MUCK EXCAVATION 73,583 CY

MUCK DISPOSAL
25,041 CY x 2.0 = 50,082 CY

EXCESS MUCK EXC. 23,501 CY



AS BUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: BE
DATE: 2/10/89

I hereby certify that this plan, specification, or report was prepared by me, or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date _____ Reg. No. 13501

LARPENTEUR AVENUE

State Proj. No. 62-668-18 Sheet No. 102 of 121 Sheets

27-128

MAPLEWOOD PROJECT 81-20 SUMMARY CHART

	UNIT NO.	ITEM	UNIT	ESTIMATED QUANTITIES	SHEET 107		SHEET 108		SHEET 109		SHEET 110		SHEET 111		SHEET 112		SHEET 113		SHEET 114		SHEET 115		SHEET 116		SHEET 117		SHEET 118		SHEET 119		SHEET 120		SHEET 121		PROJ. TOTAL MAPLEWOOD 81-20	PROJ. TOTAL RAMSEY CO. 62-668-18
		CITY OF MAPLEWOOD PROJECT 81-20			MPLWD STATION 80 - STATION 89	RAM. CO.	MPLWD STATION 89 - STATION 98	RAM. CO.	MPLWD STATION 98 - STATION 107	RAM. CO.	MPLWD STATION 107 - STATION 116	RAM. CO.	MPLWD STATION 116 - STATION 125	RAM. CO.	MPLWD STATION 125 - STATION 134	RAM. CO.	MPLWD STATION 134 - STATION 143	RAM. CO.	MPLWD. STATION 143 - STATION 152	RAM. CO.	MPLWD STATION 152 - STATION 160	RAM. CO.	MPLWD STATION 2 - STATION 11	RAM. CO.	MPLWD. MARYLAND AVE.	RAM. CO.	MPLWD BULK SERVICE ROAD	RAM. CO.	MPLWD IVY AVE. & MONTANA AVE.	RAM. CO.	MPLWD LARPENTEUR AVE.	RAM. CO.	MPLWD STA. 118-120± (BRIDGE)	RAM. CO.		
	2104.509	REMOVE MANHOLES	EACH	11		1		4		2								2		2														11
	2506.521	INSTALL CASTINGS	EACH	~~11~~ 13									2			~~3~~ 5		1		1		2		1										13
	2104.523	SALVAGE CASTINGS	EACH	11		1		4		2								2		2														11
	2506.511	RECONSTRUCT MANHOLES	L.F.	~~64.4~~ 61.5									~~13.4~~ ~~22.5~~			~~22.5~~ ~~16.5~~		4.0		4.0		7.5		4.1		6.0								~~64.4~~ 61.5
	2506.522	ADJUST FRAME & RING CASTINGS	EACH	5					~~37.1~~											2				1						1				5
	0506.603	48" PRECAST MANHOLE	L.F.	~~184.3~~ ~~152.5~~		6.5		10.9	~~27.0~~	46.9	33.5				~~11.2~~		~~8.2~~	9.1		8.2		~~11.5~~		~~10.4~~										~~80.8~~ 70.9	~~103.5~~ 81.6
	0503.602	REPAIR BROKEN V.C.P. SEWER	EACH	1																										1				1	
	0503.602	8" X 4" PVC WYE	EACH	3														2		1														3	
(22)	0503.602	TAP INTO EXISTING SAN. SEWER	EACH	~~5~~ 3		1									~~2~~					1	1													~~3~~ 1	2
	0503.602	BY-PASS PUMPING FOR SEWER INSTALLATION	EACH	~~6~~ 3								+	+								+	+	1	1						1				2	~~4~~ 1
	0503.603	8" OUTSIDE DROP	L.F.	9.2					9.2																									9.2	
(15)	2503.654	8" DUCTILE IRON PIPE SEWER CL. 52	L.F.	60					60																									60	
(20)	(14) 2503.511	8" PVC PIPE SEWER	L.F.	~~2176~~ 1859					493		756				~~44~~		~~44~~	537		73		~~111~~		~~118~~										~~1337~~ 1249	~~939~~ 610
(23) ~~(20)~~	(14) 2503.511	8" PVC PIPE SEWER	L.F.	~~952~~ 291									~~438~~			~~223~~									209	82								209	~~743~~ 82
(20)	(14) 2503.511	10" PVC PIPE SEWER	L.F.	604				135		469																								604	
~~(17)~~	~~0503.603~~	~~12" R.C. CASING PIPE CL. V~~	~~L.F.~~	~~235~~																											~~235~~		~~235~~	
~~(18)~~	~~0503.603~~	~~30" R.C. CASING PIPE CL. V~~	~~L.F.~~	~~230~~																								~~230~~					~~230~~	
(17)	0503.603	15" R.C. CASING PIPE CL. V	L.F.	305																											305		305	
(14)	(20) 2503.511	4" PVC PIPE SEWER	L.F.	190														90		100														190
(14)	(19) 2503.511	4" CAST IRON PIPE SEWER	L.F.	~~617~~ 169		61									~~98~~			45			63											~~305~~	~~350~~	~~161~~ 63	~~456~~ 106
	0503.603	ROCK FOR TRENCH STABILIZATION	L.F.	~~913~~ 305											~~98~~														~~230~~			~~235~~	~~350~~	~~563~~ 305	~~350~~
~~(16)~~	~~0503.603~~	~~12" R.C. CASING PIPE CLASS V~~	~~L.F.~~	~~230~~																												~~230~~		~~230~~
	0503.605	2" POLYSTYRENE INSULATION	S.Y.	192		192																												192	
	0504.602	6" GATE VALVE & BOX	EACH	~~18~~ 20					~~2~~ 3		6		2		1		~~2~~ 1		2		1		1		1	1	1						1		17	+ 3
	0504.602	8" GATE VALVE & BOX	EACH	3					1								1								1									3	
	0504.602	12" BUTTERFLY VALVE & BOX	EACH	1											+										-								1	+	1
	0504.602	16" BUTTERFLY VALVE & BOX	EACH	~~7~~ 8					1		1		1				1		1		1		1								1				~~7~~ 8	
	0504.602	CONNECT TO EXISTING WATER MAIN	EACH	~~3~~ 4													1		1				1								1				~~3~~ 4	
	0504.602	HYDRANT	EACH	10							2		1		1		2		1		1				1	1								9	1
	0504.602	ADJUST HYDRANT	EACH	1																1															1
	0504.602	ADJUST VALVE BOX-WATER	EACH	~~10~~ 7															2				~~5~~ 3			1				1					~~10~~ 7
	0504.602	TEMPORARY WATER SERVICE	EACH	~~2~~ 3																					2										~~2~~ 3
	2104.521	SALVAGE WATER MAIN	L.F.	~~617~~ 802						242													5	25		370						160		5	~~612~~ 797
	0503.603	30" STEEL CASING PIPE (JACKED)	L.F.	74									74																					74	
	0504.603	ROCK FOR TRENCH STABILIZATION	L.F.	400									400																					400	
	0504.603	6" WATER MAIN - DUCTILE IRON CL. 53	L.F.	~~430~~ 610					107 ~~93~~		361 ~~209~~		21		5		~~10~~ 5		48		10		15	10	18								10		~~412~~ 567	~~18~~ 43
	0504.603	8" WATER MAIN - DUCTILE IRON CL. 52	L.F.	381					138								15								228									153	228
	0504.603	12" WATER MAIN - DUCTILE IRON CL. 52	L.F.	~~15~~ 165											~~15~~								15										150	~~15~~	165
	0504.603	16" WATER MAIN - DUCTILE IRON CL. 52	L.F.	6341					487		937		978		894		880		902		908		20		150						185			6191	150
	0504.603	WATER SERVICE TRENCH EXCAVATION	L.F.	~~320~~ 315							5		~~5~~ 10		~~40~~		~~45~~ 50		~~145~~ ~~135~~		90		15												~~320~~ 300	15
	0504.605	2" POLYSTYRENE INSULATION	S.Y.	23					8		15																								23	
	0504.620	DUCTILE IRON FITTINGS	LB.	~~21570~~ ~~21710~~					~~2880~~ ~~2265~~		3705		~~4800~~ ~~4895~~		~~1900~~ ~~2575~~		~~1630~~ ~~1675~~		~~2445~~ ~~2436~~		1970		915	325	175	1100							325		~~19820~~ ~~20018~~	~~1750~~ ~~1100~~

UTILITY NOTES

(14) INCLUDE PRICE OF VCP & CIP SANITARY SEWER REMOVAL AS REQUIRED, IN PRICE OF OTHER ITEMS.

(15) FOR OUTSIDE DROP INLET.

~~(16) AT BULK SERVICE CORP. APPROX. STA. 118+62 MCKNIGHT RD.~~

(17) AT BULK SERVICE CORP. APPROX. STA. 118 ~~+57~~ 21 MCKNIGHT RD.

(18) MCKNIGHT RD. STA. 121+22±

(19) EXTRA HEAVY

(20) SDR 35

(21) 10"

(22) 4"

(23) SDR 26

REVISIONS	DATE	BY	REVISIONS	DATE	BY
CHART REITEMIZED	2-17-86	BJ,ET			
REVISED	1-21-87	DM			
8"RCP - 12"RCP	2-17-87	KH			
QUANTITY REVISION	10-5-87	T.L.			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Charles ARO

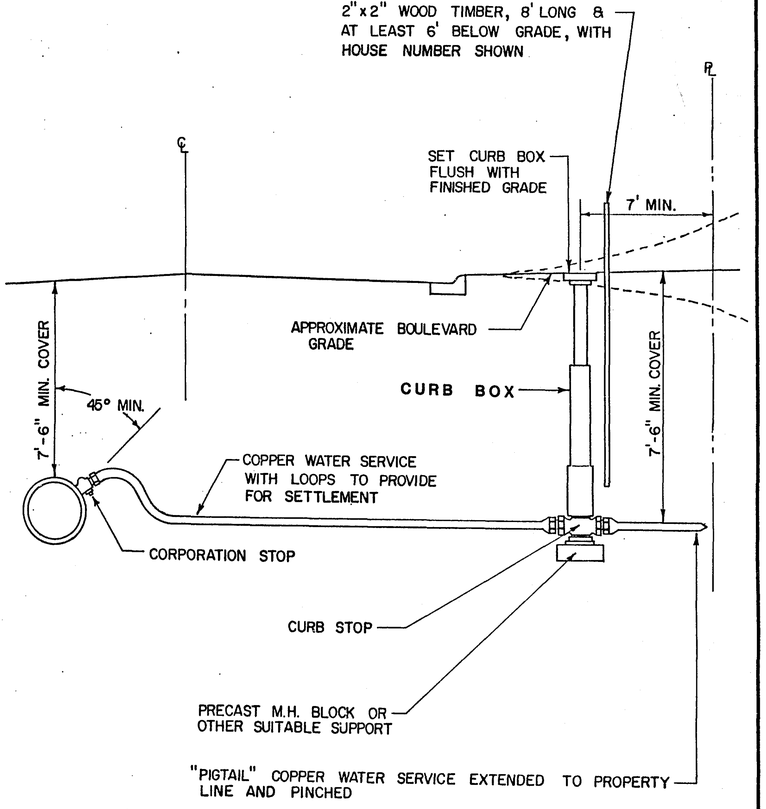
DATE 5/22/86 REG. NO. 16230

UTILITY SUMMARY

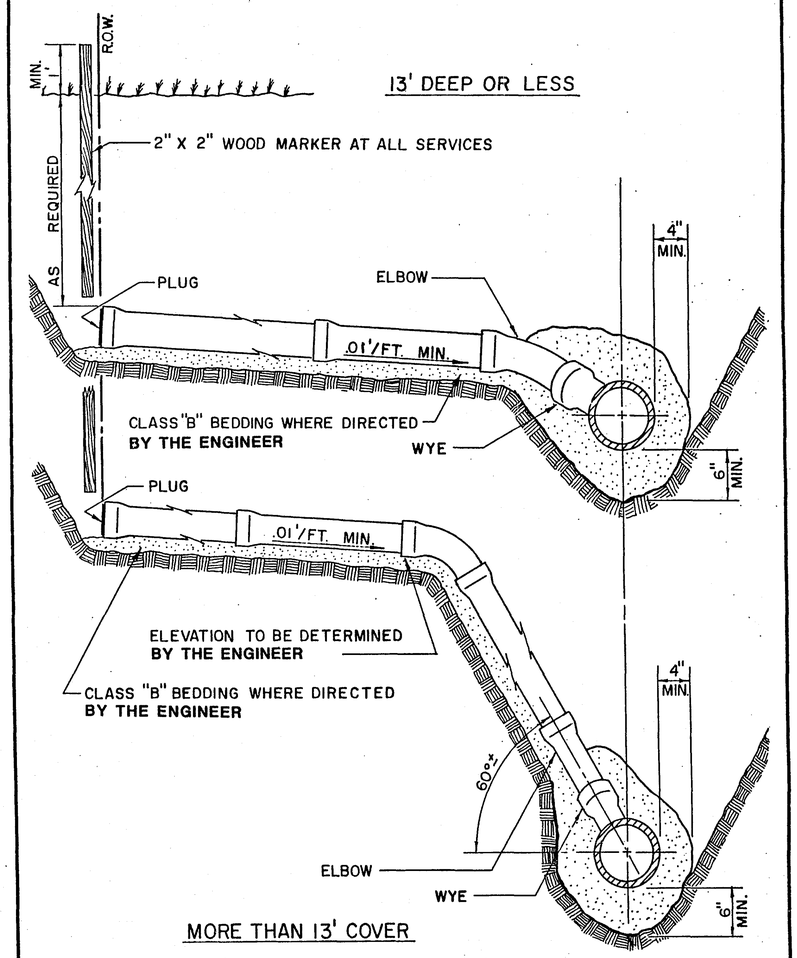
MAPLEWOOD PROJ. 81-20 SP 62-668-18 Sheet No. ~~103~~ 121 of 121 Sheets

103 R 27-128

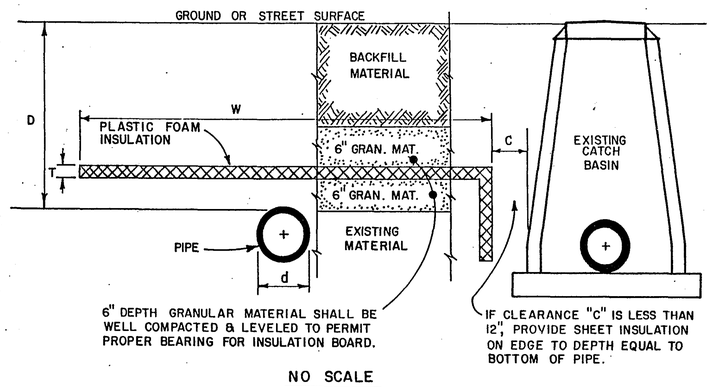
Fed. Proj. No.



MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE
ASTM REFERENCE	RESIDENTIAL WATER SERVICE CONNECTION	PAGE
ST PAUL WTR REFERENCE		
REVISION		



MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE 5-79
ASTM REFERENCE	SANITARY SEWER SERVICE	PAGE 410
ST PAUL WTR REFERENCE		
REVISION 4-86		



NO SCALE

REQUIREMENTS FOR WIDTH AND THICKNESS OF PLASTIC FOAM INSULATION PLACED 6" ABOVE TOP OF PIPE FOR VARIOUS PIPE DEPTHS.

"D" DEPTH TO TOP OF PIPE	"W" COMPUTE WIDTH OF INSULATION REQUIRED	"T" THICKNESS OF INSULATION REQUIRED
2 ft. TO 3ft.	d + 15 ft. = _____	4 in.
3ft. TO 4ft.	d + 13 ft. = _____	3 in.
4 ft. TO 5ft.	d + 11 ft. = _____	3 in.
5 ft. TO 6ft.	d + 6 ft. = _____	2 in.
6ft. TO 7ft.	d + 4 ft. = _____	2 in.
7ft. (ASSUMED FROST LINE)		0

d = DIAMETER OF PIPE TO NEAREST FOOT

INSULATION SHALL BE OF 1" OR 2" THICK BOARDS OF EXTRUDED OR EXPANDED POLYSTYRENE INSULATION BOARD SPECIFICALLY DESIGNED FOR USE IN UNDERGROUND CONSTRUCTION AND HAVING A MINIMUM COMPRESSIVE STRENGTH OF 35 P.S.I. SPECIAL NOTE IS TO BE TAKEN THAT THIS TYPE IS DIFFERENT THAN THE TYPE USED IN ORDINARY BUILDING CONSTRUCTION. THE INSULATION BOARD SHALL COMPLY WITH THE REQUIREMENTS OF 3760. **SAMPLING SHALL BE AS DIRECTED BY THE ENGINEER.**

FROST PROTECTION OF SANITARY SEWER

MnDOT REFERENCE 3760	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE 7-81
ASTM REFERENCE	FROST PROTECTION DETAIL	PAGE 430
ST PAUL WTR REFERENCE		
REVISION		

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Charles Adl

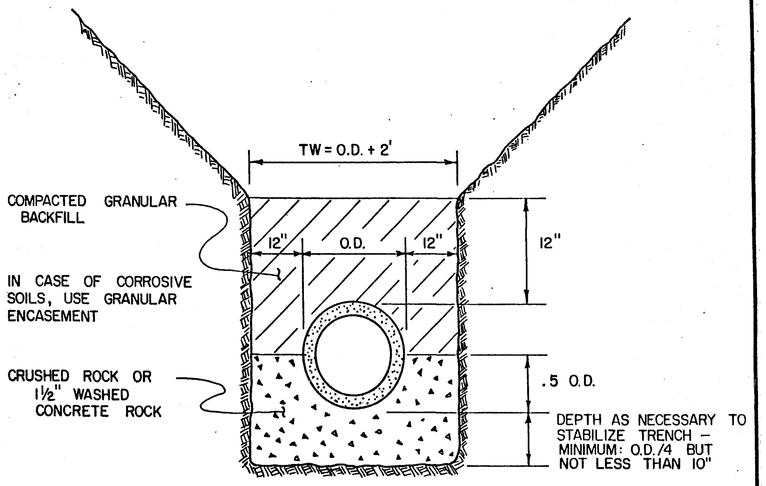
DATE 5-22-86 REG. NO. 16230

SANITARY SEWER DETAILS

State Proj. No. 62-668-18 MAPLEWOOD PROJ. NO. 81-20 **Sheet No.** 104A **of** 121 **Sheets**

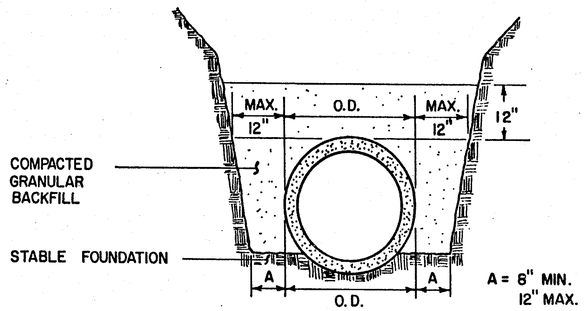
27-128

Fed. Proj. No.



SPECIAL FOUNDATION DETAIL FOR THE STABILIZING OR DEWATERING OF A TRENCH

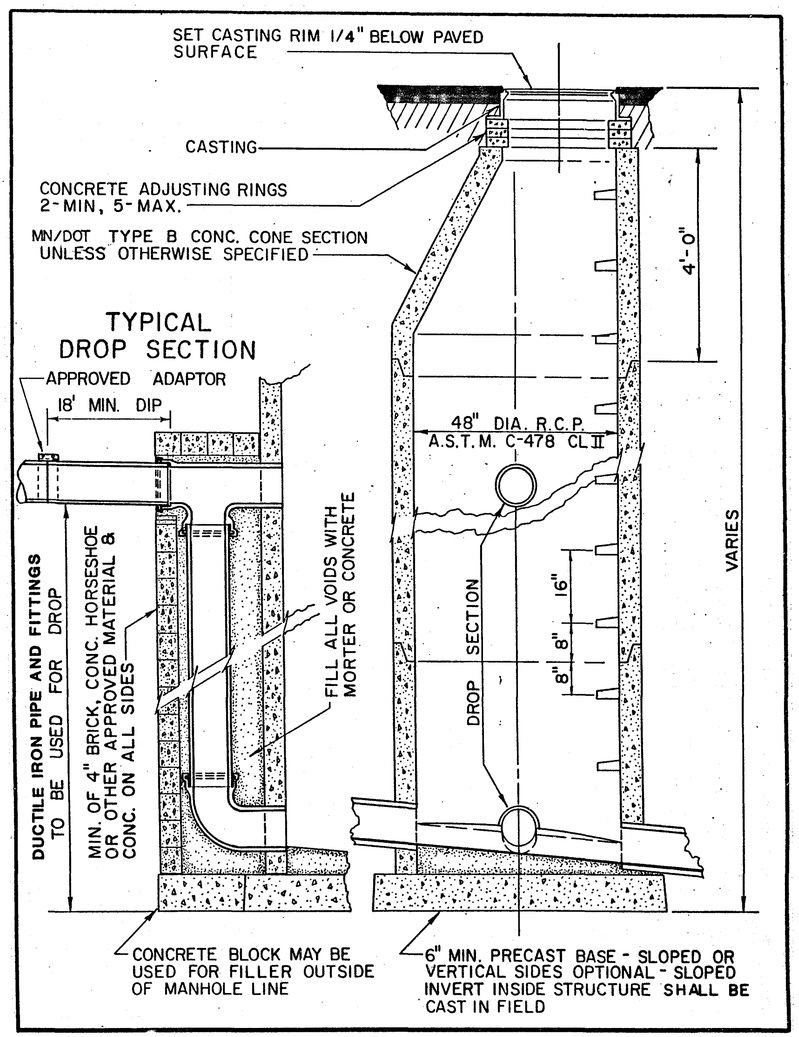
MnDOT REFERENCE ASTM REFERENCE ST PAUL WTR REFERENCE REVISION	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT PIPE BEDDING DETAIL	DATE 4-82 PAGE 440



FLEXIBLE PIPE REQUIRES A SELECT GRANULAR FILL.

GRANULAR MATERIAL BEDDING METHOD

MnDOT REFERENCE ASTM REFERENCE ST PAUL WTR REFERENCE REVISION	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT PIPE BEDDING DETAIL	DATE 4-82 PAGE 450



MnDOT REFERENCE ASTM REFERENCE ST PAUL WTR REFERENCE REVISION	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT SANITARY SEWER MANHOLE	DATE 5-79 PAGE 400

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Charles Adl

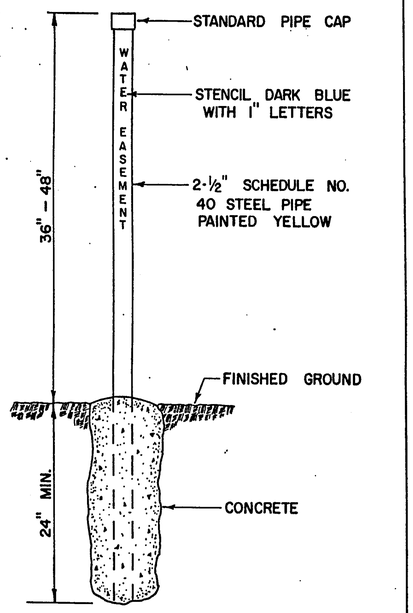
DATE 5-22-86 REG. NO. 16230

SANITARY SEWER DETAILS

State Proj. No. 62-668-18 MAPLEWOOD PROJ. NO. 81-20 Sheet No. 104 of 121 Sheets

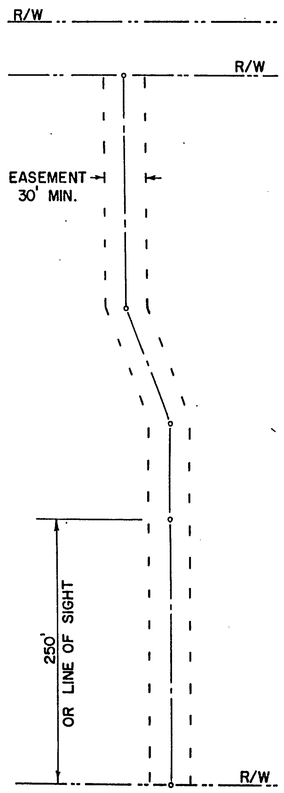
27-128

Fed. Proj. No.



MARKER DETAIL

NOTE: THE HEIGHT, MATERIAL, AND COLOR OF THE MARKER MAY BE ADJUSTED BY THE ENGINEER AS FIELD CONDITIONS REQUIRE. HOWEVER, THE MINIMUM HEIGHT ABOVE GROUND LEVEL SHALL BE 36".



TYPICAL LOCATION

○ DENOTES REQUIRED MARKERS

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	PLATE
ASTM REFERENCE	WATER EASEMENT IDENTIFICATION AND MARKER DETAIL	PAGE
ST PAUL WTR REFERENCE		
REVISION 4-82		

FEET OF RESTRAINED OR TIED PIPE REQUIRED ON EACH SIDE OF THE BEND

NOTE: (1) Table based on sand excavation for silt increase 50%
(2) If Polyethylene wrapping is used increase value by 100%

N.R. = Not Recommended

Pipe Size	4' Cover				6' Cover				8' Cover			
	Bend Sizes				Bend Sizes				Bend Sizes			
	22½°	45°	67½°	90°	22½°	45°	67½°	90°	22½°	45°	67½°	90°
3"	N.R.	N.R.	N.R.	N.R.	1'	3'	4'	8'	1'	2'	3'	4'
4"	N.R.	N.R.	N.R.	N.R.	2'	4'	5'	13'	1'	3'	4'	5'
6"	N.R.	N.R.	N.R.	N.R.	3'	6'	8'	9'	2'	4'	5'	6'
8"	N.R.	N.R.	N.R.	N.R.	4'	7'	9'	11'	3'	5'	7'	9'
12"	N.R.	N.R.	N.R.	N.R.	6'	10'	14'	17'	5'	8'	10'	12'
16"	N.R.	N.R.	N.R.	N.R.	7'	13'	18'	21'	6'	10'	14'	17'
20"	12'	22'	30'	37'	9'	15'	22'	27'	7'	12'	17'	20'
24"	14'	25'	37'	43'	10'	18'	26'	30'	N.R.	N.R.	N.R.	N.R.
30"	17'	30'	45'	52'	12'	21'	30'	37'	N.R.	N.R.	N.R.	N.R.
36"	19'	35'	50'	61'	14'	25'	35'	43'	N.R.	N.R.	N.R.	N.R.
42"	22'	39'	56'	69'	16'	28'	40'	49'	N.R.	N.R.	N.R.	N.R.
48"	24'	43'	63'	77'	18'	31'	45'	55'	N.R.	N.R.	N.R.	N.R.

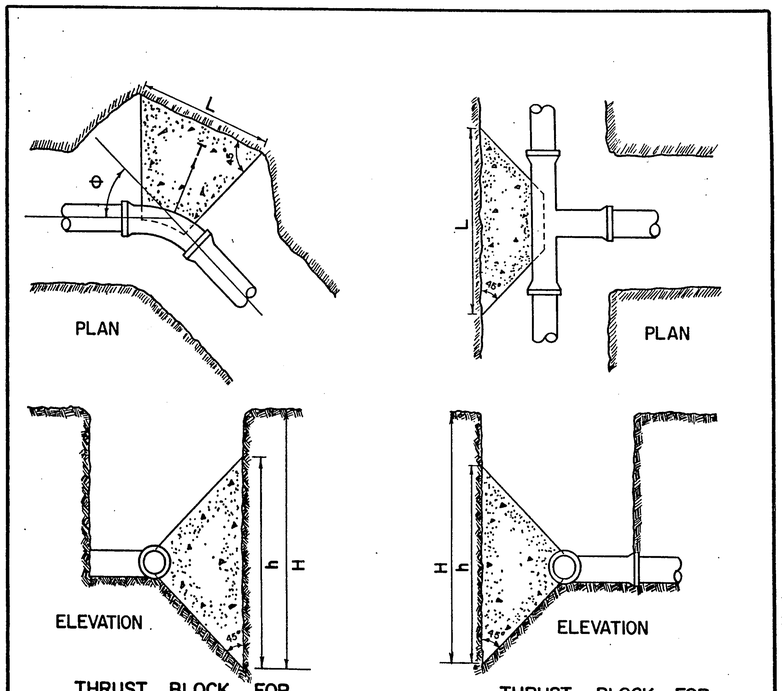
The table was determined from the following formula printed in the 1975 fall issue of "Cast Iron Pipe News" published by the Cast Iron Research Association.

$$L \text{ (restrained length)} = \frac{S_f K P A}{KFs + DPp}$$

Sf = Safety factor (1.25)
P = Max. Pressure (150 p.s.i.)
A = Pipe Cross-section area (in^2)
Fs = Conduit frictional resistance neglecting bell resistance (p.l.f.)
D = Conduit outside diameter (ft.)
Pp = Passive soil pressure (p.s.f.)
$K = \frac{4 \tan (\text{friction angle})}{2}$

NOTE: When concrete pipe is used higher strength pipe may be necessary adjacent to bends if thrust blocks are not used.

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE
ASTM REFERENCE	TIED PIPE TABLES	PAGE
ST PAUL WTR REFERENCE		
REVISION 6-77		



THRUST BLOCK FOR HORIZONTAL BEND

THRUST BLOCK FOR TEE OR PLUG

SIZE OF THRUST BLOCK REQUIRED SHALL BE DETERMINED BY THE FOLLOWING FORMULA:

$$A_B = \frac{T \text{ (F.S.)}}{\text{ALLOWABLE SOIL PRESSURE (\#/SQ.FT.)}}$$

$$A_B = \frac{2 P A_P \sin \tfrac{1}{2}\theta \text{ (F.S)}}{\text{ALLOWABLE SOIL PRESSURE (\#/SQ.FT.)}}$$

A_B = Area Block $Ft.^2$
T = Thrust Lbs.
P = Normal Design Test Pressure (Use 150 PSI)
D = Outside Diameter Of Pipe
A_P = Inside Pipe Area πr^2, $in.^2$
F.S = 1.5 (Safety Factor)
θ = Angle of the Bend
$h \leq \frac{H}{2}$ & $h \geq D$

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE
ASTM REFERENCE	TYPICAL THRUST BLOCK DESIGN	PAGE
ST PAUL WTR REFERENCE		
REVISION 6-85		

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86				

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Ronald Nad

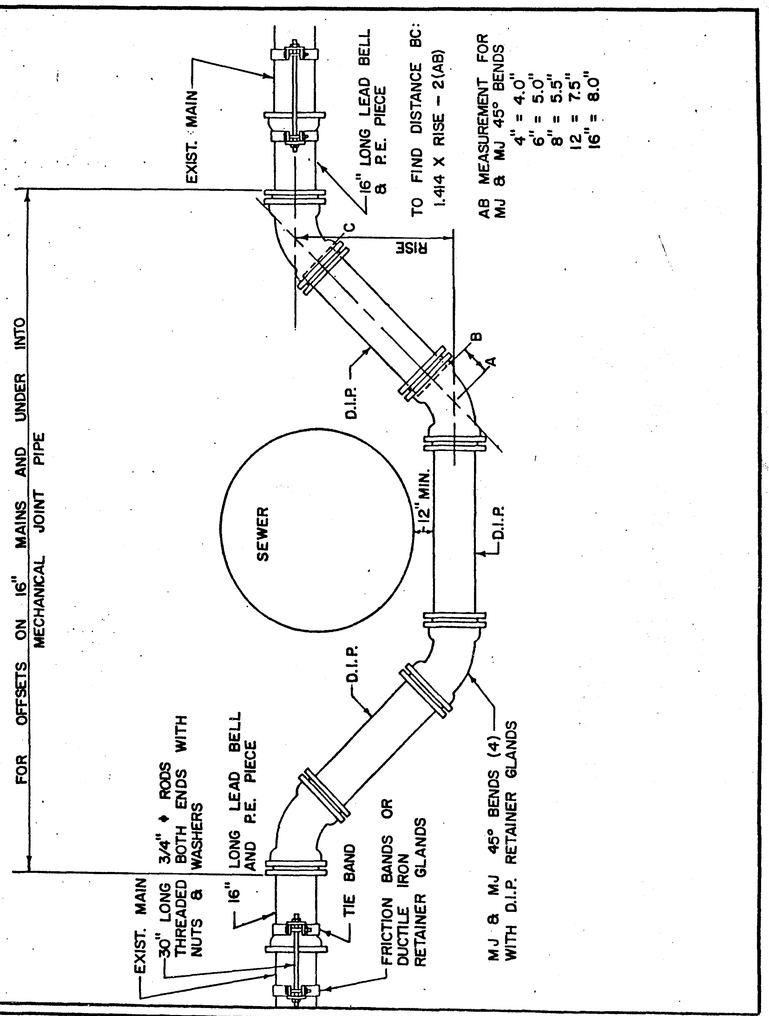
DATE 5-22-86 REG. NO. 16230

WATER MAIN DETAILS

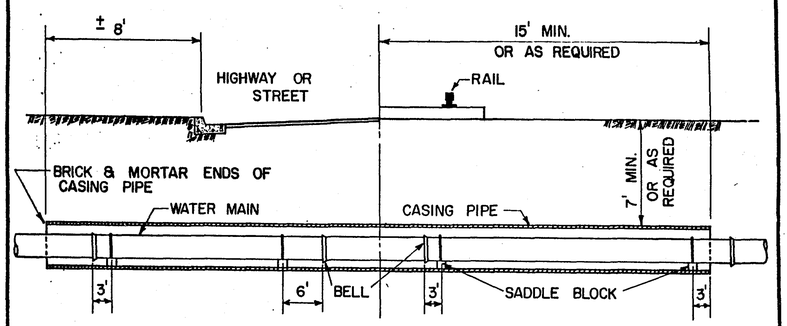
State Proj. No. 62-668-18 MAPLEWOOD PROJ. NO. 81-20 **Sheet No.** 105 **of** 121 **Sheets**

27-128

Fed. Proj. No.



MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	PLATE
ASTM REFERENCE	OFFSET DETAIL DEFLECTION GREATER THAN 18"	PAGE
ST PAUL WTR REFERENCE		
REVISION 2-81 6-85		



PROFILE VIEW

TYPICAL HIGHWAY OR STREET CROSSING

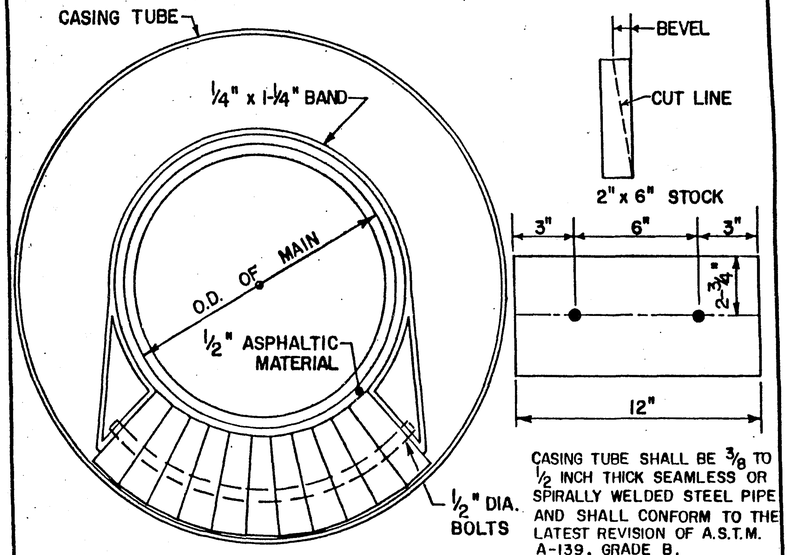
TYPICAL RAILROAD CROSSING

SIZE OF WATER MAIN	CASING PRESTRESSED CONC. MAIN	PIPE MECH. JOINT	SIZE PUSH ON JOINT
6"	—	18"	24"
8"	—	20"	24"
12"	—	24"	24"
16"	30"	30"	30"
20"	36"	36"	36"
24"	42"	42"	42"
30"	48"	48"	48"
36"	54"	54"	54"
42"	60"	60"	—
48"	66"	66"	—

GENERAL NOTES:

1- CASING PIPE SHALL BE REINFORCED CONCRETE PIPE OR STEEL PIPE.
2- WATER MAIN SHALL BE EITHER PRESTRESSED CONCRETE OR DUCTILE IRON PIPE.
3- PROVIDE CATHODIC PROTECTION AS NECESSARY.
4- STEEL CASING PIPE COATING AS PER A.S.T.M. SPECIFICATION A-139, GRADE "B" RED MILL OR THE INSIDE & OUTSIDE OF PIPE SHALL BE COAL TAR ENAMEL COATED AS PER A.W.W.A. C-203-78.
5- SADDLES REQUIRED ON DUCTILE IRON MAIN WITH RETAINER GLANDS AND ON CONCRETE MAIN WITH RESTRAINED JOINTS.
6- ENDS OF CASING PIPE SHALL BE SEALED WITH BRICK AND MORTAR. (SAND SHALL NOT BE USED).

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE
ASTM REFERENCE	TYPICAL CASING PIPE & WATER MAIN INSTALLATION	PAGE
ST PAUL WTR REFERENCE		
REVISION 4-81		



CASING TUBE SHALL BE 3/8 TO 1/2 INCH THICK SEAMLESS OR SPIRALLY WELDED STEEL PIPE AND SHALL CONFORM TO THE LATEST REVISION OF A.S.T.M. A-139, GRADE B.

SIZE OF MAIN	TYPE OF MAIN	SIZE OF CASING	TYPE OF CASING	SIZE OF TIMBER	BEVEL DIMENSION	NO. REQ'D. PER SHIM
16"	SJDIP	30"	STEEL	2" x 6"	5/8"	14

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	PLATE
ASTM REFERENCE	SADDLE BLOCK FOR CASING	PAGE
ST PAUL WTR REFERENCE		
REVISION 1-87		

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

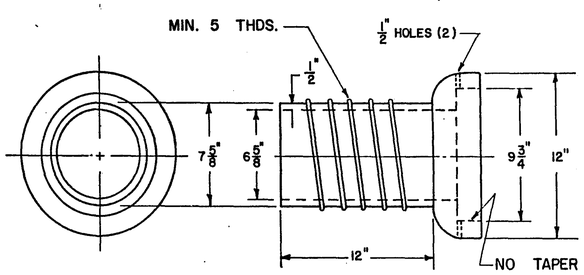
DATE 5-22-86 REG. NO. 16230

WATER MAIN DETAILS

State Proj. No. 62-668-18 MAPLEWOOD PROJ. NO. 81-20 Sheet No. 105A of 121 Sheets

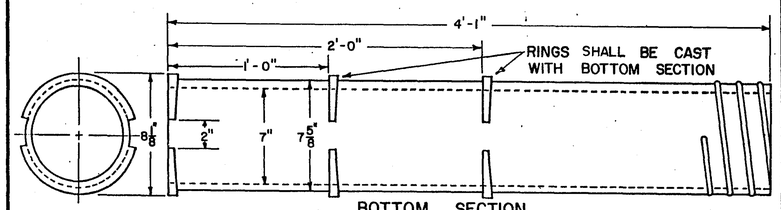
27-128

Fed. Proj. No.



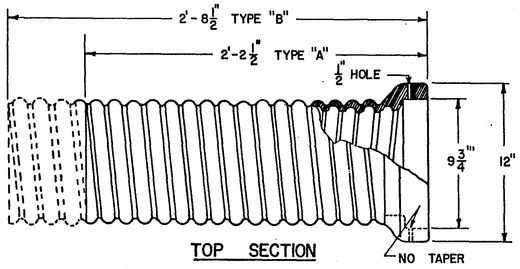
FOR 7" VALVE BOX

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT		DATE
ASTM REFERENCE			
ST PAUL WTR REFERENCE	**INSIDE VALVE BOX EXTENSION**		PAGE
REVISION 2-81			



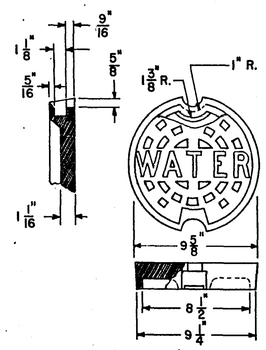
BOTTOM SECTION

WEIGHT = 75 LBS.



TYPE	WT.
A	75 LBS.
B	92 LBS.

TOP SECTION

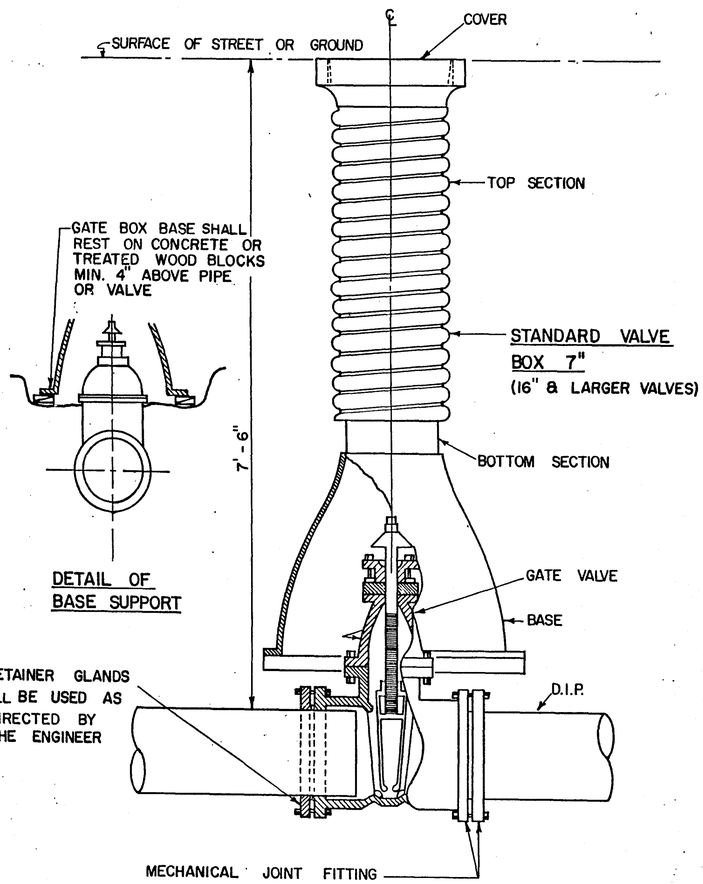


PAVING COVER

STD. WT. = 20 LBS.

ST. PAUL PATTERN 7" VALVE BOX FOR 16" & LARGER VALVES

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT		DATE
ASTM REFERENCE			
ST PAUL WTR REFERENCE	**STANDARD VALVE BOX**		PAGE
REVISION 2-81			



DETAIL OF BASE SUPPORT

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT		DATE
ASTM REFERENCE			
ST PAUL WTR REFERENCE	**GATE VALVE & BOX INSTALLATION**		PAGE
REVISION 2-81			

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Charles Hall

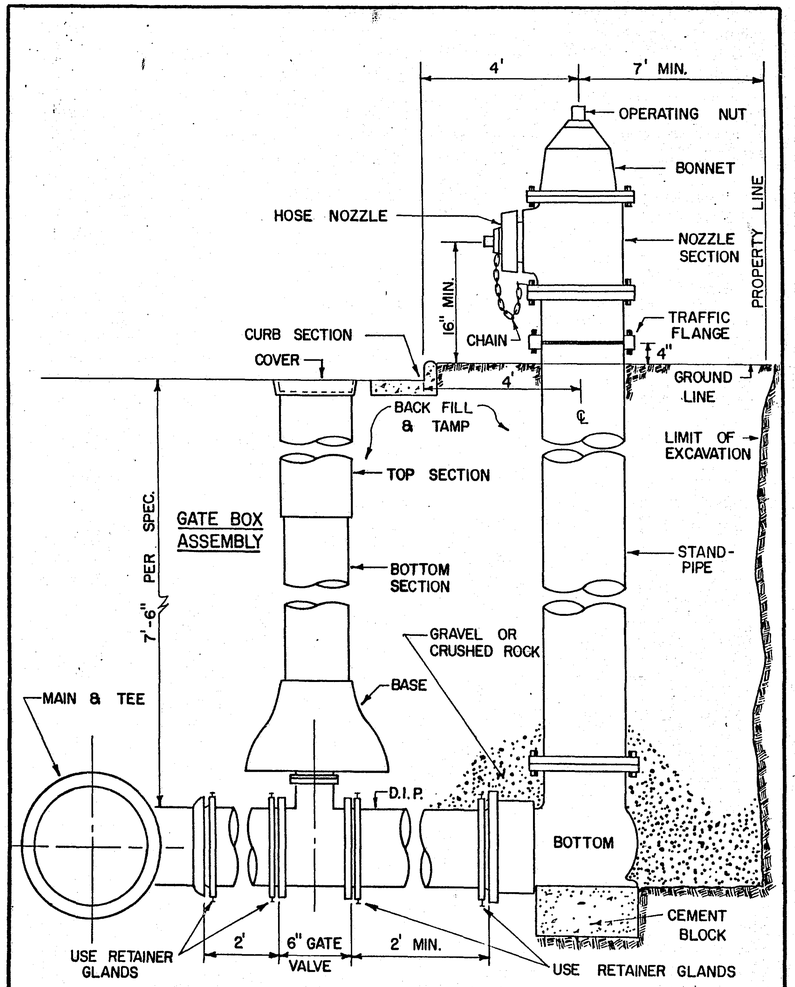
DATE 5-22-86 REG. NO. 16230

WATER MAIN DETAILS

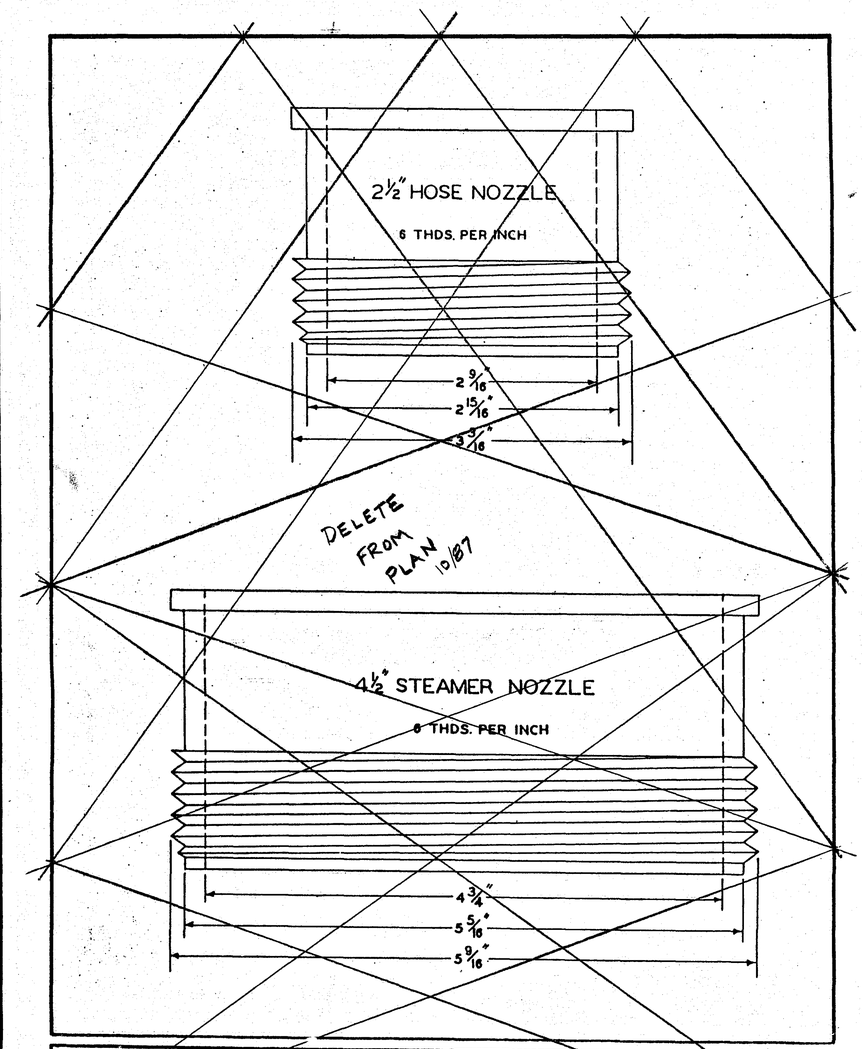
State Proj. No. 62-668-18 MAPLEWOOD PROJ. NO. 81-20 **Sheet No.** 106 **of** 121 **Sheets**

27-128

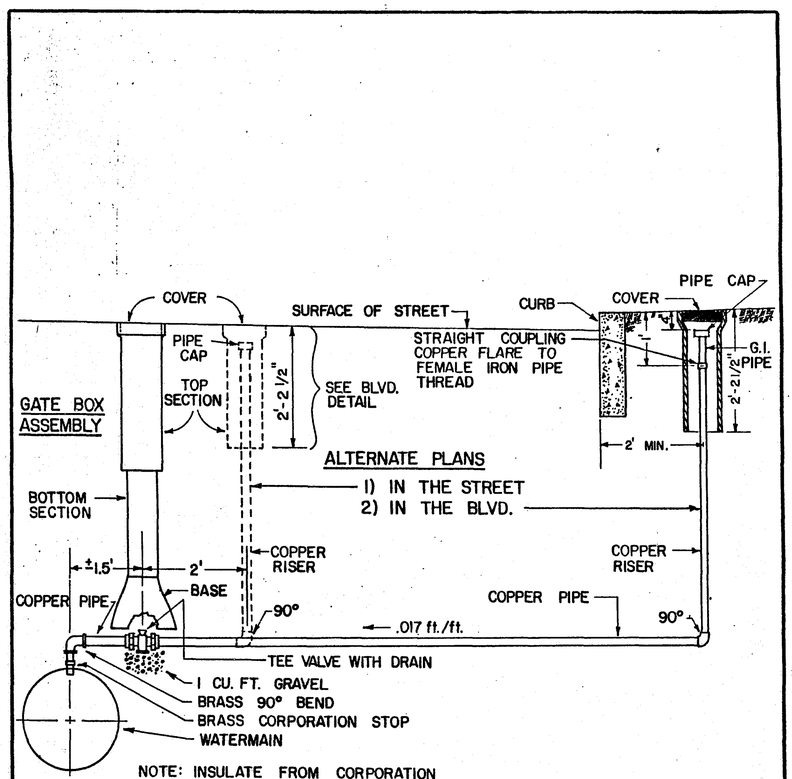
Fed. Proj. No.



MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE
ASTM REFERENCE		
ST PAUL WTR REFERENCE	FIRE HYDRANT INSTALLATION	PAGE
REVISION 2-81		



MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	PLATE
ASTM REFERENCE		
ST PAUL WTR REFERENCE	STANDARD HOSE & STEAMER NOZZLES	PAGE
REVISION		



NOTE: INSULATE FROM CORPORATION THROUGH VALVE IF LESS THAN 7.5' OF COVER

SIZE MAIN	AIR VENT OUTLET
6" - 8"	1"
12"	1-1/2"
16"	1-1/2"
20"	1-1/2"
24"	2"
30"	2"
36"	2"

MnDOT REFERENCE	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT	DATE
ASTM REFERENCE		
ST PAUL WTR REFERENCE	TYPICAL AIR VENT INSTALLATION	PAGE
REVISION 5-82		

REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER MN/DOT	12/86	BJ			
DELETE NOZZLES	10/87	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Charles ARO

DATE 5/22/86 REG. NO. 16230

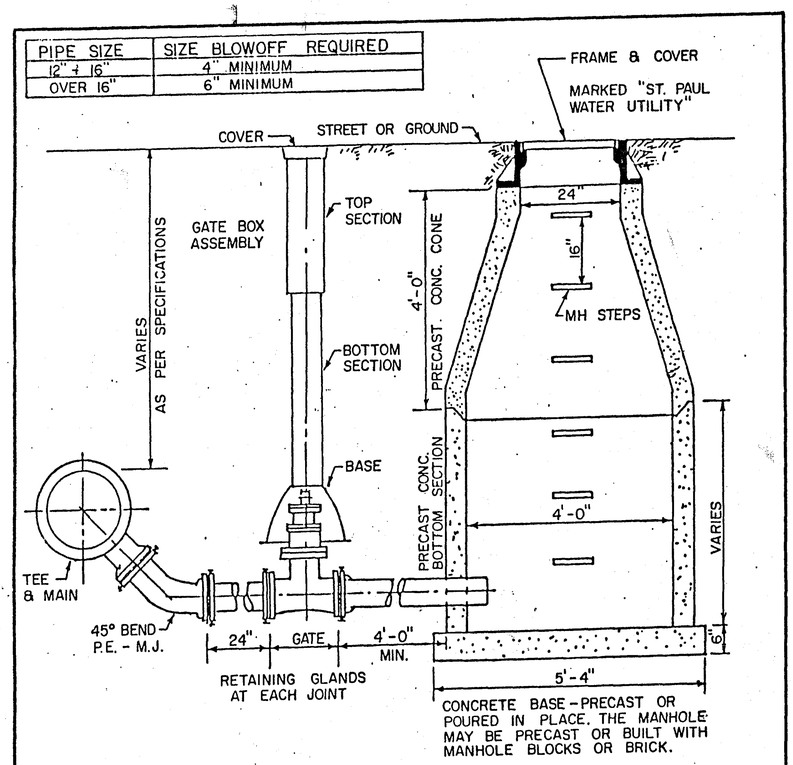
WATER MAIN DETAILS

State Proj. No. 62-668-18 MAPLEWOOD PROJ. NO. 81-20 Sheet No. ~~106A~~ of 121 Sheets

106AR

27-128

PIPE SIZE	SIZE BLOWOFF REQUIRED
12" & 16"	4" MINIMUM
OVER 16"	6" MINIMUM



NOTE: IF A BLOWOFF MANHOLE IS ELIMINATED THE FOLLOWING CONDITIONS SHALL BE MET:

1. THE BLOWOFF PIPE MAY BE VENTED TO THE OPEN AIR & THE BLOWOFF MANHOLE ELIMINATED IF CONDITIONS PERMIT.
2. THE BLOWOFF PIPE MUST NOT BE UNDER WATER.
3. A MINIMUM OF 10 FT. OF PIPE IS TO BE USED BEYOND THE BLOWOFF CONTROL VALVE.
4. USE M.J. DUCTILE IRON PIPE WITH PLUG OR CAP ON OPEN END OF PIPE. FASTEN SECURELY WITH 2 BOLTS.

NOTE: VALVE MAY BE INSTALLED IN MANHOLE WITHOUT USING GATE VALVE BOX

MnDOT REFERENCE ASTM REFERENCE NEENAH REFERENCE ST PAUL WTR REFERENCE REVISION	CITY OF MAPLEWOOD ENGINEERING DEPARTMENT BLOWOFF DETAIL FOR 12" C.I. OR D.I. PIPE & LARGER	PLATE PAGE

WATER MAIN DETAILS

State Proj. No. 62-658-18 MAPLEWOOD PROJ. NO. 81-20 Sheet 106B R. of 121 Sheets

27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				

℄ CONSTRUCTION
P.I. = 80+99.45
Δ = 10°04'27"
R = 1909.86'
D = 3°
T = 168.34'
L = 335.81'

CONST. P.T. = 82+66.92 =
SURVEY P.T. = 82+51.08

HO. 995

PRIVACY FENCE

STA. 81+00 SURVEY ℄ 38.5' RT. =
STA. 81+00 REVISED SURVEY ℄

PROPOSED R/W

MAPLEWOOD

L.S. 1035

MH3

EXISTING R/W

VAC

CON. ℄ P.T. 82+66.92 =
SURVEY ℄ P.T. 82+51.08

FUTURE 8' PATH

PROPOSED FUTURE CONSTRUCTION

TEMPORARY CONSTRUCTION
STA. 86+50 TO STA. 87+50

PERMANENT CONSTRUCTION

BEGIN TEMPORARY CONST. 86+50

BEGIN PERMANENT CONST. 87+50

SURVEY LINE

CONST ℄

LAKEWOOD DR.

MH1

MH2 SIXTEENTH LINE, R/W ℄

SURVEY LINE

G 4"HP

G 3"HP

3" HP

EDGE OF ROADWAY

BIT. SHOULDER

BEGIN PROJECT
STA. 86+50

MATCH TO EXISTING ROADWAY

SAWCUT BIT.

MH4

CONST. LIMITS

APRON 100

FUTURE 8" WATER MAIN

CONSTRUCTION LIMITS

CONSTRUCT OPEN DITCH FOR DRAINAGE

70 CES

HO. 994

HO. 1000

HO. 1012

B.M. #28 ELEV. 1017.07
TOP HYDRANT N.W. COR.
STILLWATER & MCKNIGHT

B.M. #27 ELEV. 957.32
TOP OF S.E. CORNER
LIFT STATION

SILT FENCE

WELL

CONSTRUCT 8' BIT. PATH

BEGIN 8' PATH

CONSTRUCT SAN. M.H. OVER EXISTING 8" VCP (RAM. CO.)

CB 102

MH 101

REMOVE SAN. M.H. 5 AND SALVAGE CASTING (RAM. CO.RT.)

MH5

BIT. SHOULDER

EDGE OF ROADWAY

CLOSE

CONST ℄

BIT. SHOULDER

CB 103

EXISTING R/W

NOTE: CLOSED ENTRANCES WILL BE RECONSTRUCTED BASED ON APPROVED DEVELOPMENT PLAN BY MAPLEWOOD

HO. 1060

HO. 1068

HO. 1070

STONE WALL

BLOCK WALL

S.E.

GAR.

GAR.

R/W

REPLACE SEWER SERVICE @ HO. 1070
CORE TAP STA. 87+95 – INV. = 958.0±
R. STA. 88+05 – INV. = 959.0±
F & I. 61 L.F. 4" EHCISP (53')
F & I. 65 L.F. x 12" WIDE x 2" INS.
F & I. 94 L.F. x 10" WIDE x 2" INS.
(RAM. CO.)

NOTE: HOUSES TO BE REMOVED BY OTHERS
REMOVAL OF WALLS & ENTRANCES FOR THESE 3 HOUSES ARE INCIDENTAL TO COMMON EXCAVATION.

2" THICK RIGID INSULATION

EXISTING 48" CMP
120 L.F. 48" R.C.P. @ 1.1 %

FUTURE STORM SEWER

V.C. = 750'
M = 10.1343

61 LF 12" RCP @ 0.59%

SAN MH 3

SAN MH 2

SAN MH 1

SAN MH 12

P.C. 80+00
EL. 974.38

6.96%

30' W. OF 1/16 LINE

8.5' E. OF 1/16 LINE

EXISTING GRADE

260 L.F. 6" PVC

EXISTING SANITARY SEWER

EXISTING 48" CMP 948.98
PROPOSED 48" RCP 948.56

P.I. 83+75
EL. 948.28

532 L.F. 15" CMP @ 0.26%

LOW POINT 84+82.89
EL. 956.57

FUTURE GRADE

MATCH LINE

AP 100

INTERIM GRADE

12" @ 0.31%

P.I. 87+50
EL. 962.72

M.H. 101

+3.85%

P.C. 88+00
EL. 964.65

CB 102

REMOVE SAN. M.H.

PROFILE GRADE = ℄

REMOVE SAN. SEWER

SAN MH 4

SAN MH 5

T. COVER 87+50

T. COVER 87+80

124 L.F. 15" R.C.P. @ 2.4%

955.52

955.39

68 L.F. PLUS APRON
15" RCP @ 1.2 %

954.50

+2.4%

EXISTING 8" VCP

SPECIAL DITCH GRADE RT.

FUTURE 8" WATER MAIN

F & I. INSULATION (SEE ABOVE)

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

STA. 88+00 LT. 9'
BUILD M.H. OVER EXISTING 8" VCP
T.C. = 964.51
INV. = 958.1± (EXISTING)

DO NOT DISTURB SANITARY SEWER FROM M.H. 4 TO STA. 88+00

LEGEND

TEMPORARY STRUCTURAL SUBCUT SECTION

59 L.F. 15" R.C.P. @ 1.0%

CB 102

CB 103

℄ SURVEY EXISTING

TEMPORARY CONSTRUCTION

958.50

958.67

959.26

975
970
965
960
955
950
945

80 81 82 83 84 85 86 87 88 89

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/12/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
			S.P. NUMBER 2586		BJ, ET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16330

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No. 107 of 121 Sheets

27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				

MAPLEWOOD
HO.# 1099

CONSTRUCTION LIMITS

WELL

S.E.

CLOSE

8' PATH

EXISTING R/W

BIT. SHOULDER

SIXTEENTH LINE, R/W ℄

REMOVE SAN. SEWER

REMOVE SAN. M.H. 6 AND SALVAGE CASTING

MH6

EDGE OF ROADWAY

REMOVE SAN. SEWER

CONSTRUCTION ℄ & SURVEY LINE

LAKEWOOD DRIVE

MH7

PLUG SAN. SEWER

REMOVE SAN. M.H. 7 AND SALVAGE CASTING

ABANDON SAN. SEWER

CONSTRUCT 8' BIT. PATH

BEAVER LAKE

66'

NOTE: SEE MCKNIGHT ROAD WETLAND MITIGATION PLAN

C.B. 104

MH8

REMOVE SAN. M.H. 8 AND SALVAGE CASTING

ABANDON SAN. SEWER

PLUG SAN. SEWER

MH9

EDGE OF ROADWAY

REMOVE SAN. M.H. 9 AND SALVAGE CASTING

REMOVE SAN. SEWER

CB 108

C.B. 105

M.H. 106

PROP. 10" PVC

CB 109

STA. 96+65 RT. 31'
CONSTRUCT SAN. M.H.

AP. 107

AP. 110

E. MAGNOLIA AVE.

FUTURE 8" WATER MAIN

PROPOSED R/W

MAPLEWOOD

CONSTRUCTION LIMITS

SILT FENCE

① ALL PLUGS ARE INCLUDED IN THE PRICE OF OTHER ITEMS.

B.M. #26 ELEV. 982.72
R.R. SPK. SHAFT - ARC LT. POLE
W. SIDE MCKNIGHT HO. #1099

EXISTING GRADE

PI 91+25
EL. 977.15

SAN. MH 6

REMOVE SAN. MH 6

+3.85%

REMOVE SAN. SEWER

PROFILE GRADE = ℄

5.58

V.C. = 650'
M = 6.57.3125'

-4.24%

REMOVE SAN. MH 7

SAN. MH 7

5.58

3.5' FOR UNIFORMITY AND COMPACTION

PLUG AS DIRECTED ①

ABANDON SAN. SEWER

FUTURE 8" WATER MAIN

EXISTING SANITARY SEWER

C.B. 104

C.B. 105

59 LF 15" RCP @ 1.0%

957.25

956.66

956.50

EL. 963.37

EL. 962.31

100 LF 15" RCP @ 2.93%

956.50

REMOVE SAN. MH8

PLUG AS DIRECTED ①

SAN. MH 8

P.C. 1+75.00

P.T. 1+56

953.57

953.40

20:1

PLUG AS DIRECTED ①

ABANDON SAN. SEWER

LAKEWOOD DRIVE

SANITARY SEWER PROFILE
STA. 96+65 RIGHT

PROPOSED GRADE

REMOVE SAN. MH 9

SAN. MH 9

EXISTING GRADE
STA. 96+65 RT. 31'
NEW M.H. IN BLVD.
BUILD OVER EX. 10" VCP
INV. = ~~946.09~~ E (EXISTING) ~~45.92~~
INV. 946.20 N .00
T.C. = ~~956.84~~ .92

REMOVE

EXISTING 10" VCP TO REMAIN

19 L.F. 15" RCP @ 1.76% + APRON

CB 108

59 LF 15" RCP @ 1.0%

APRON 110

951.95

951.36

950.92

V.C. = 550'
M = 5.06875

CONSTRUCT SAN. MH SEE INSET

139 LF 15" RCP @ 1.00%

+3.13%

REMOVE SAN. MH9

APRON 107

CB 109

951.95

951.36

RAMSEY CO. 135 L.F. - 10" PVC - SDR 35 @ 0.35%

300 L.F. - 10" VCP @ 0.11%

REMOVE SAN. SEWER

PLUG AS DIRECTED ①

EL. 950.66

R.I. 6+74.00

89 90 91 92 93 94 95 96 97 98

980 975 970 965 960 955 960 955 950 965 960 955 950 945 960 955 950 945

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-15-86	BJ, ET			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

R Richards PE

DATE 5/22/86 REG. NO. 16230

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.E.
DATE: 2/2/89

MAPLEWOOD PROJECT 81-20 SP 62-668-18

Sheet No. 108 of 121 Sheets

27-128

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

NOTE: SEE SHEET NO. 117 FOR
SAN. SEWER QUANTITIES
STA. 12+80 TO STA. 15+71 AND
WATER MAIN QUANTITIES
STA. 9+75 TO STA. 12+00
AND STA. 14+00 TO STA. 15+45

MAPLEWOOD

MCKNIGHT RD. CONST. ℄ P.O.C. STA. 102+66.98
MARYLAND AVE. ℄ P.O.T STA. 13+10.86

SEE WETLAND MITIGATION PLAN

CONST. ℄
P.I. 105+85.78
Δ=56°38' 16"
D=6°
T=514.52
L=943.96
R=954.93
E=129.82
P.C.=100+71.20
P.T.=110+15.16

SURVEY LINE
P.I. 105+85.78
Δ=56°38' 16"LT.
D=5°
T=617.50
L=1132.756
R=1145.916
E=155.78

10 30 50

STA. 105+12 LT. 37' INSTALL 64 SF
2" THICK RIGID INSULATION

STA. 105+02 LT. 50' F & I.
50 L.F. 8" PVC SDR35 @ 0.50%
(MPLWD)
CONSTRUCT
8' BIT. PATH

CONSTRUCT
SANITARY SEWER
MANHOLE STA. 107+05

SIXTEENTH LINE, R/W ℄
SURVEY LINE
LAKEWOOD DRIVE
PROP ℄
3" HP G
10" PVC
APRON 112
20'
PROPOSED R/W
CONSTRUCTION LIMITS
CONST. LIMITS
S.E.
APRON III
M.H. 111A
SURVEY ℄ P.C. STA. 98+66.28
P.C. CONST. ℄ STA. 100+71.20
REMOVE SANITARY MH 10 AND SALVAGE CASTING
MH10
SALVAGE 10 L.F. 6" C.I.P.
SALVAGE 151 L.F. 8" C.I.P.
SALVAGE 131 L.F. 16" D.I.P.
(RAM. CO.)
CONSTRUCT SANITARY SEWER MANHOLE STA. 99+65 RT. 31'
98+74
SEE MARYLAND AVE. SHEET 117 FOR UTILITY WORK- STA. 9+00 to STA. 16+00
REMOVAL INCIDENTAL TO EXCAVATION
REMOVE SANITARY MH13 AND SALVAGE CASTING MH13
STA. 102+97 F. & I.
1 EA. 16"x16" TEE @ 33' LT.
1 EA. 16"x8" REDUCER - WEST
1 EA. 16" 11 1/4° BEND - NORTH
1 EA. 36" BUTTERFLY VALVE - NORTH
REMOVE 30" RCP
CONSTRUCT SANITARY SEWER MH STA. 13+62
BUILD M.H. OVER EXISTING 30" R.C.P.
STA. 13+84 F & I
1 EA. 16" 45° BEND @ 37' LT.
966.09
MATCH LINE STA. 14+00
MATCH LINE STA. 12+00
CB 113
CITY OF MAPLEWOOD UTILITY EASEMENT
PROPOSED R/W
CONST. LIMITS
CONSTRUCT SANITARY SEWER MANHOLE STA. 12+80 ℄
60" 8' D.I.P. SS
PROP 8" PVC
SURVEY LINE
CONST. ℄
STA. 103+00 F & I 1 EACH
8" GATE VALVE @ 22' LT.
APRON 14A
STA. 103+10 F & I TYPICAL BLOWOFF
1 EA. 16"x6" TEE
1 EA. 6"x 45° BEND
1 EA. 36" GATE VALVE
1 EA. 24" BUTTERFLY VALVE
1 EA. 48" PRECAST MANHOLE
MH 25 ELEV. 964.62
R.R. SPK. SHAFT - ARC. LITE POLE
NO. SIDE MARYLAND @ MCKNIGHT
CITY OF MAPLEWOOD UTILITY EASEMENT
CB 114
CB 116
CB 118
MH 115
MH 119
INV. 962.45
CB 118
PROP 8" PVC
CONSTRUCT SANITARY SEWER MANHOLE STA. 104+82 ℄
3' TYPICAL
PROPOSED R/W
STA. 105+12 F & I.
1 EA. 16" X 6" CROSS
2 EA. 6" GATE VALVES
2 EA. 6" TAPPED PLUG
99 LF-6" DIP
(MPLWD)
STA. 104+92 RT. 50' F & I.
50 L.F. 8" PVC SDR35 @ 0.50%
(MPLWD)
OVAL OF BIT. CURB AND SPILLWAY INCIDENTAL COMMON EXCAVATION
.0175 FULL SUPERELEVATION
2" THICK RIGID INSULATION
SILT FENCE
NOTE: NEW WATER MAIN THIS SHEET BY CITY OF MAPLEWOOD. SALVAGES BY RAMSEY COUNTY.

NOTE:
MEDIAN ISLAND RADII 3' TO FACE OF CURB UNLESS OTHERWISE NOTED
B.M.# 25 ELEV. 955.78
R.R. SPK. SHAFT - PP
150'± SO. OF MARYLAND
@ MCKNIGHT

SUPERELEVATION TRANSITION
99+31.21
100+99.21
FULL SUPERELEVATION
0.0175 ft. (SEE DETAIL)

17 L.F 12" R.C.P. @ APRON
REMOVE EXISTING PIPE
950.49
950.40
950.91
948.94
99 L.F 24" R.C.P. & APRON @ 0.4 %

NOTE: WATER MAIN BETWEEN STA. 102 + 75 (MARYLAND AVE.) & STA. 160 + 50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT RD. PROVIDE 7.0' MINUMUM COVER OVER 16" WATER MAIN & 7.5' MINIMUM COVER OVER 8" W.M.

13 LF 15" RCP @ 1.00%
57 L.F. R.C.P @ .73%
961.83
961.75
93 L.F. 24" R.C.P @ 1.0%
65 L.F. 15" R.C.P @ 1.0%
962.50
960.83
960.7
960.61
960.74
961.67
961.84
957.00
BUILD OVER EXISTING
12" C.M.P & APRON
968.85
967.01
+3.13%
7.0' MIN. COVER
250 L.F. 18" R.C.P @ 3.14%
970.18
970.00
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
234 L.F. 18" R.C.P @ 3.52%
16" D.I.P. WATER MAIN
220 L.F. 8" PVC SDR35 @ 1.00% — MPLWD.
222
T.C.=980.55
INV.=964.36 S
INV.=964.46 N
T.C.=973.57
INV.=962.06 S .23
INV.=962.16 N .33
INV.=962.28 E & W .37
215 L.F. 8" PVC SDR35 @ 1.62% — MPLWD.
206
EL 959.27
PROFILE GRADE = ℄
EXISTING GRADE
+3.13
54 L.F. 24" R.C.P @ 2.28%
30" R.C.P. + APRON
12" R.C.P.
959.08
957.57
45° BEND TO MARYLAND EAST
955.17
BUILD OVER EXISTING 40 L.F. 30" R.C.P. & APRON @ 3.91%
961.86
961.76
960.61
REMOVE SANITARY MANHOLE 13 AND EXISTING VCP. SEE SHEET 117 FOR MARYLAND AVE. CONSTRUCTION
D.I. 12
D.I. 13
D.I. 14
M.H. 14
M.H. 119
M.H. 12
SAN. M.H. 12
APRON 14A
APRON 117
PT. 1+25
EXISTING 36"
REMOVE SANITARY MANHOLE 10 ℄
M.H. 111A
950.49
309
300
304 L.F. 10" PVC SDR35 @ 0.35% — RAM. CO.
303 L.F. 10" VCP @ 0.35%
292
REMOVE EXISTING VCP
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
EXISTING SANITARY SEWER
98+74
T.C.=957.79 58.24
INV.=947.34 N .24
INV.=947.24 S .14
ABANDON PLUG AS DIRECTED STA. 13+62 ℄
BUILD MH OVER EXISTING 8" VCP
T.C.=967.44 .36
INV.=948.40 S .26
INV.=948.48 E (EXISTING)
INV.=948.50 W
CONSTRUCT 9.15' L.F. 8" OUTSIDE DROP
STA. 12+80 ℄
T.C.=966.55 .44
INV.=949.44 W .04
INV.=949.36 E .00
INV.=949.45 N .04
INV.=958.60 N .04
80 L.F. 8" D.I.P. CL.52 MAKE SUITABLE CONNECTION TO 8" PVC

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-0-86	BJ, ET			
REVISED	1-21-87	ET			
MPLWD. REVISION	10/87	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.J.
DATE: 2/2/89

980 975 970 965 960 955 950

98 99 100 101 102 103 104 105 106 107

BEGIN CONST. ℄ STA. 101
SURVEY ℄ STA. 101

NEW McKNIGHT ROAD

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No. ~~109~~ 109R of 121 Sheets

27-128

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

SCALE 10' 30' 50'

WOODS

S.E.

PATH

CONST. LIMITS

SURVEY LINE

CB120

INV. 971.45

STA. 109+45 LT. 41' INSTALL 64 SF 2" THICK RIGID INSULATION

CONST. ℄ P.T. STA. 110+15.16

SURVEY ℄ P.T. STA. 111+01.04

MAPLEWOOD

UNCULTIVATED FIELD

PROPOSED R/W

CONSTRUCT 8' BIT. PATH

STA. 113+50 LT. 26'- INSTALL 64 SF 2" THICK RIGID INSULATION

CONST. LIMITS

INV. 983.10

MCKNIGHT RD. CONST. ℄ P.I. STA. 113+90.16
BULK SERVICE ROAD P.O.T. STA. 0+00

STA. 116 + 15 LT. 63' F & I.
1 EA. – 16" 22 1/2° BEND

SEE SHEET 111 FOR CONTINUATION OF UTILITY WORK.

STA. 116 + 00 LT. 54' F & I
1 EA. – 16" 11 1/4° BEND

STA. 115+72 LT. 40' F & I
5LF WATER SERVICE TRENCH EXC. (MPLWD)

STA. 115+67 LT. 38' F & I
1 EA. 16" BUTTERFLY VALVE

PROPOSED R/W

CB 124

B624 C. & G.

SURVEY ℄

STA. 113+40 LT. 50' F & I
50± LF 8" PVC SDR 35 @ 0.50% (MPLWD)

CONSTRUCT V-GUTTER PAID FOR AS B624 C. & G.

STA. 113+11 ℄ CONSTRUCT SAN. M.H.

CONSTRUCTION ℄

CB 123

STA. 114+20 RT. F & I.
1 EA. – 16" 22 1/2° BEND

STA. 115+68 LT. 35'± F & I.
1 EA. – 16"X 6" TEE
1 EA. – 6" GATE VALVE
1 EA. – 6" HYDRANT
6 LF – 6" D.I.P.

STA. 115+80 LT. 42' F & I
1 EA. 16" 45° BEND

PROPOSED R/W

STA. 109+34 LT. F. & I.
50 LF 8" PVC SDR 35 @ 0.50% (MPLWD)

PROP. 8" PVC CONSTRUCTION ℄

CB120

CB 121

CB 122

B624 C. & G.

STA. 109+30 RT. F & I.
50 LF 8" PVC SDR 35 @ 0.50% (MPLWD)

STA. 109+27 ℄ CONSTRUCT SAN. M.H.

STA. 109+20 RT. 30' F & I.
1 EA. 16" x 6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
5 LF 6" DIP

3' TYPICAL

CONSTRUCTION LIMITS

INV. 971.45

PROPOSED R/W

STA. 109+45 RT. F. & I.
1 EA. 16" x 6" CROSS
2 EA. 6" GATE VALVE
2 EA. 6" TAPPED PLUG
99 LF 6" DIP

SILT FENCE

MAPLEWOOD

B.M.# 21 ELEV. 990 12
R.R SPK. SHAFT – ARC LIGHT POLE
S.W. CORNER MCKNIGHT RD. & TILSON AVE.

UNCULTIVATED FIELD S.E.

END CONC. B624 C & G @ R/W LINE

STA. 113+50 RT. F. & I.
1 EA. 16" X 6" CROSS
2 EA. 6" GATE VALVE
2 EA. 6" TAPPED PLUG
99 LF 6" DIP

CONST. ℄ P.C. STA. 113+01.01

CONST. LIMITS

BULK SERVICE ROAD PRIVATE ROAD

75' R. ON ℄

SURVEY L.P.C. STA. 114+34.24

CB 123 MATCHLINE SEE SHEET NO. 118

2" THICK RIGID INSULATION

NO SUPERELEVATION

FULL SUPERELEVATION 0.0175'/ft (SEE DETAIL)

SUPERELEVATION TRANSITION

109+87.15

111+55.15

NOTE: WATER MAIN BETWEEN STA. 102 +75 (MARYLAND AVE) & STA. 160 +50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. PROVIDE 7.0' MINIMUM COVER OVER 16" WATER MAIN.

222 214 LF 8" PVC SDR 35 @ 3.00% – MPLWD.

EXISTING GRADE

CB 120

CB 121

CB 122

CB 124

CB 123

59 L.F. 15" R.C.P @ 1.0%

989.56

988.25

990.15

997.79

998.38

PROPOSED 16" DIP WM

ST. PAUL WATER UTILITY WILL CONSTRUCT AIR VENT

FILL TO GRADING GRADE

413 L.F. 15" R.C.P @ 2.54%

998.46

997.71

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

SEE DETAIL ABOVE

16" DIP WATER MAIN

PC 116+05

EL. 1008.76

+3.13%

314 LF. 15" RCP @ 2.52%

989.48

988.25

7.0' MINIMUM COVER

320 LF 15" RCP @ 3.14%

978.20

978.03

250 LF 18" RCP @ 3.14%

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

T.C. = 987.50 .38 e.
INV. = 971.06 S
INV. = 971.16 N
INV. = 971.20 E & W

SEE INSET ABOVE

386 385 LF 8" PVC SDR 35 @ 3.00% – MPLWD.

T.C. = 999.52 .43
982.53 INV. = 982.71 S
982.63 INV. = 982.81 W

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-15-88	BJ, ET			
NOTE REWORDING	2-15-88	BJ, ET			
REVISED	1-21-87	ET			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

CONST. SURVEY 107 108 109 110 111 112 113 114 115 116

MAPLEWOOD PROJ. 81-20. SP 62-638-18

Sheet No. 110 of 121 Sheets

27-128

STA. 117+44 LT. 152' F & I
1 EA. 16" 11 1/4° BEND
BEGIN ROCK BEDDING

NOTE: CONTRACTOR SHALL MAINTAIN 7.0' MINIMUM COVER ON 16" WATER MAIN, AS APPROVED BY THE ENGINEER AND THE ST. PAUL WATER UTILITY. SEE CROSS SECTIONS FOR EXACT LOCATION AND DEPTH

CONST. LIMITS

APRON 126
F & I 24" R.C.P.
CL. V WITH CL. B BEDDING

STA. 117+61 LT. 163 F & I
1 EA. - 16" 45° BEND

STA. 117+62 LT. 163' F & I
1 EA-16"X6" TEE
1 EA-6" GATE VALVE
1 EA-6" HYDRANT
6 L.F.-6" DIP

CITY OF MAPLEWOOD UTILITY EASEMENT

SERVICE ROAD CLOSE

15" R.C.P. CL. V CASING PIPE

TAPER PIKE TRAIL BETWEEN END OF APPROACH PANEL AND END OF BRIDGE.

SEE SHEET 121 FOR UTILITY WORK IN THIS AREA.

NOTE
CHANGE ALIGNMENT AS SHOWN ON SHEETS 118 & 121

END CURB TAPER AT APPROACH PANEL

+70 BEGIN CURB TAPER

BRIDGE GUARDRAIL
LENGTH = 125' EACH CORNER.
1) 50' TWISTED END TREATMENT
2) 50' 6'-3" POST SPACING
3) 25' 3'-1½" POST SPACING

TAPER CURB LINE: TAPER 26' TO BE 80' LONG ALL FOUR CORNERS OF BRIDGE.

80' DUE TO U.S. SPRINT CABLE
74 L.F. 30" STEEL CASING, JACKED

STA. 119+20 LT. 136' F & I
1 E. 1 EA-16" X 6" TEE
1 EA-6" GATE VALVE
15 L.F.-6" DIP
12" R.C.P. CASING PIPE
4" EHGISP SAN. SEWER

CAPPED PLUG

END ROCK BEDDING

BEGIN ROCK BEDDING

CITY OF MAPLEWOOD UTILITY EASEMENT

STA. 120+53 LT. 130' F & I
1 EA. 16" 22 1/2° BEND

END ROCK BEDDING

STA. 121+18 LT. 96' F & I
1 EA. 16" 11 1/4° BEND
45°

CONTROL POINT
STA. 120+13.30
EL. 1013.13
R.R. STA. 2+00

CHICAGO, SAINT PAUL MINNEAPOLIS AND OMAHA RAILWAY COMPANY

SEE SHEET 119 FOR UTILITY WORK IN THIS AREA.

30" R.C.P. CL. V CASING PIPE

SURVEY LINE
PI 120+52.11
Δ = 56°40' RT.
D = 5°
T = 617.87
L = 1133.33
R = 1145.916
E = 155.96

RECONSTRUCT SAN. M.H. 53

INVERT EL. 966.79

NOTE: CONTRACTOR TO PROVIDE BYPASS PUMPING FOR SAN. SEWER INSTALLATION FROM M.H. 53 TO M.H. 19 - RAMSEY CO.

CONST. LIMITS

SAINT PAUL

ADJUST FENCE

SECTION LINE

STA. 122+50 LT. 41' F & I.
1 EA. 16" 11¼° BEND
1 EA. 16" 22½° BEND

RECONSTRUCT SANITARY MH 18A (200' N. of C IVY AVE. = STA. 122+57 ± LT. 65' ±)

CONSTRUCT 8' BIT. PATH

STA. 121+50 LT. 81' F & I
1 EA. - 16" 11 1/4° BEND
1 EA. 16" 22½° BEND

STA. 122+60 LT. 38' F & I.
EA - 16" BUTTERFLY VALVE

EXISTING SANITARY SEWER - CITY OF MAPLEWOOD

RECONSTRUCT SANITARY MH 18

STA. 122+00 LT. 60' F & I.
1 EA. 16" 11¼° BEND

STA. 122+55 LT 40'
0.5 L.F. WATER SERVICE TRENCH EXCAVATION (MPLWD)

SURVEY ℄

CONST. ℄

BEGIN CURB TAPER AT END OF APPROACH PANEL

+00 END CURB TAPER

MAPLEWOOD

CB 132

CB 131

CONST. ℄
PI. 120+73.35
Δ=56° 40' 00" RT.
D = 4°
T = 772.340'
L = 1416.67

CITY OF MAPLEWOOD UTILITY EASEMENT

CONST. LIMITS

PROPOSED R/W

SURGE BASIN 133

SEE WETLAND MITIGATION PLAN

INVERT EL. 966.16

SILT FENCE

NOTE: WATER MAIN BETWEEN STA. 102 + 75 (MARYLAND AVE) & STA. 160 + 50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. PROVIDE 7.0' MINIMUM COVER OVER 16" DIP WATER MAIN

ST. PAUL WATER UTILITY WILL CONSTRUCT AIR VENTS

7.0' MIN. COVER

341 L.F. 15" RCP @ 2.96 %

-4.07%

RECONSTRUCT SANITARY MH 18
17.5 L.F.

RECONSTRUCT SANITARY MH 18A
13.4 L.F.
(987.7 ± to 1001.1 ±)
(T.C. ± 1000 ALONG SURVEY ℄ PROFILE

16" D.I.P. WATER MAIN

997.03
994.03

59 L.F. 15" R.C.P. @ 1.00%

997.62

54 L.F. 15" R.C.P. @ 1.00%

1007.73
1007.19
1007.11

BRIDGE APPROACH

P.I. 119+80
EL. 1020.5

PROPOSED BRIDGE 62543
750' VC
M = 6.750'

+3.13%

PROFILE GRADE = ℄

GRADING GRADE

413 L.F. 15" R.C.P. @ 2.54%

266 L.F. 24" R.C.P. CL. V @ 0.31 % + 2 APRONS

981.14
980.28
1009.57
1009.03
1008.95
1008.95

SOUTH BOTTOM ELEVATION OF ABUTMENT 1002.18

NORTH BOTTOM ELEVATION OF ABUTMENT 1001.16

100..11

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: BJ
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-5-86	BJ,ET			
REVISED	1-21-87	KH			
REVISED	1-23-87	ET			
8" RCP-12" RCP	2-18-87	KH			
MPLWD REVISIONS 10/87 BJ					

WATER MAIN PROFILE

NOTE: SEE STD. PLAN SHEET NO. 5-297.229 FOR ①④&⑤

PROPOSED 24" R.C.P. CULVERT

EXISTING SURVEY ℄ PROFILE

EXISTING SANITARY SEWER

7.0' MIN. COVER

6" RCP CASING

30" STEEL CASING

EXISTING FIBER OPTIC COMM. CABLE

16" DIP WATER MAIN

T#5 T#4 T#3 T#2 T#1

RECONSTRUCT SAN. MH 53
T.C. = 985.25 ±
EXACT ELEV. IN FIELD - 5.0 L.F.

INV. 976.38 N

REMOVE EXISTING 8" VCP
INSTALL 331 L.F. 8" PVC SDR 26 @ 1.34% - RAMSEY CO.

REMOVE EXISTING 8" VCP
INSTALL 107 L.F. 8" PVC SDR 26 @ 0.70%

T.C. = 1003.76
INV. = 980.84 N & S

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

NOTE: SEE STD. PLAN SHEET NO. 5-297.229 FOR ①④&⑤

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No 111 of 121 Sheets

111R

27-128

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

NOTE: ALL WATER SERVICES WILL BE INSTALLED BY THE CITY OF ST. PAUL WATER UTILITY

ST. PAUL

MAPLEWOOD

McKNIGHT ROAD

STA. 128+00 RT. 59.5' F & I
54 LF 4" EH CISP, CORE
TAP & ROCK STABILIZATION
(MPLWD)

25 LF WATER SERVICE
TRENCH EXCAVATION
(SERVICE BY OTHERS)

STA. 129+75 RT. 49.5' F & I
44 LF 4" EH CISP, CORE
TAP & ROCK STABILIZATION
(MPLWD)

15 LF WATER SERVICE
TRENCH EXCAVATION
(SERVICE BY OTHERS)

ADJUST FENCE

CONSTRUCT 8' BIT. PATH

McKNIGHT RD. CONST. ℄ P.I. STA. 131+96.00
FUTURE ROAD POT. STA. 0+00.00

CONSTRUCT SAN MH

MONUMENT
SURVEY ℄ P.I.
STA. 133+82.06=
1/4 LINE
Δ = 0°00'23" LT.

RELOCATE FENCE & GATE

BIT PARKING AREA

GATE

CONSTRUCTION LIMITS

SECTION LINE

SURVEY LINE

CONST. ℄

EXISTING SAN. SEWER — MH 19A

RECONSTRUCT SAN. MH 19-A

RECONSTRUCT SAN. M.H. 19

REMOVE 3.5' 20" CMP

AP 137

AP 136

CB 135

CB 139

CB 138

MH 20A

RECONSTRUCT SAN. MH 20 A

M.H. 20 RECONSTRUCT SAN. M.H. 20

B624 C. & G

RECONSTRUCT SAN. MH 21 A

M.H. 21 RECONSTRUCT SAN. M.H. 21

12' ENTRY STA. 133+96

T-BUR

DITCH

10' TYPICAL

7' TYPICAL

PROPOSED R/W

SILT FENCE

SEE WETLAND MITIGATION PLAN

SURVEY ℄ P.T. STA. 125+67.57

P.T. CONST. ℄ 127+17.67

STA. 127+59 F & I.
4 EA. 16" ₹ 45° BENDS

STA. 127+70 RT. 30' F & I.
1 EA. 16" X 6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
5 LF 6" DIP

CONSTRUCTION LIMITS
STA. 131+96 RT. 5.5' TO 49.5' F & I
44 LF 8" PVC @ 0.5% (MPLWD)

INV. 987.50 ±

STA. 132+06 RT. 50' F & I
1 EA. 16" X 12" TEE
1 EA. 12" BUTTERFLY VALVE
1 EA. 12" TAPPED PLUG
15 LF 12" DIP

EXISTING SAN. SEWER

EXISTING

CONST. ℄ P.I. STA. 133+75.73=
1/4 LINE
25' SS EASEMENT

B.M. # 19 ELEV. 1000.37
RR SPIKE SHAFT ARC LITE POLE
McKNIGHT RD. & ARLINGTON AVE.

EXISTING SANITARY SEWER

20 L.F 21" R.C.P & APRON @ 1.0%

EXISTING 20" CMP

59 L.F 30" R.C.P @ .66%

21 L.F 30" R.C.P & APRON @ 1.0%

987.61 — 987.35 — 987.18 — 986.79 — 986.36

16" DIP PROPOSED

994.85

RAM. CO. RECONSTRUCT MH 19 A
T.C.=996.17, 3.8 L.F.

RAM. CO. RECONSTRUCT M.H.
T.C. - 994.53
6.7 L.F.

RAM. CO. RECONSTRUCT MH 20 A
T.C. 996.54
2.1 L.F.

RAM. CO. RECONSTRUCT M. H.
T.C. - 996.82-92
4.7 L.F.
4.8

59 L.F 15" R.C.P @ 1.0%

991.56 — 991.47 — 992.15

CONST. OVER EXISTING V&P
NEW SS MH (MPLWD)
T.C. - 998.41
INV. - 987.17 S (EXISTING)
987.21 N (EXISTING)
987.28 E (NEW)

RAM. CO. RECONSTRUCT MH 21 A
T.C. 1000.38
5.9 L.F.

RAM. CO. RECONSTRUCT M.H.
T.C. - 1000.23
5.9 L.F.

FILL TO GRADING GRADE

EXISTING GRADE

PROFILE GRADE = ℄

M = 2.200625°
V.C. = 350'

4.07%

2.08'

5.58'

7.0' MIN. COVER

7.0' MIN COVER

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

16" D.I.P. WATER MAIN

16" D.I.P.

34 L.F 21" R.C.P @ 1.24%

EXISTING 20" CMP

987.18 — 987.25

REMOVE EXISTING 8" V.C.P.
INSTALL 223 L.F 8" PVC S.D.R. 23 @ 0.70% RAM. CO.

340 L.F V.C.P @ 0.70%

Pt. 128+28
EL. 998.10

EXISTING SAN. SEWER TO REMAIN IN PLACE — PROTECT

350 L.F 21" R.C.P @ 1.10%

331 L.F 8" V&P @ 0.92%

EXISTING SANITARY SEWER TO REMAIN IN PLACE — PROTECT

7.0' MIN COVER

5.58'

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

16" D.I.P. WATER MAIN

WM 50' DEPTH TRANSITION

350 L.F 16" D.I.P @ 0.16%

400 L.F 16" D.I.P @ 0.16%

NOTE: WATER MAIN BETWEEN STA. 102 + 75 (MARYLAND AVE.) & STA. 160 + 50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF McKNIGHT ROAD. PROVIDE 7.0' MIN. COVER OVER 16" D.I.P. WATER MAIN. PROVIDE 7.5' MIN. COVER WHERE DOMESTIC SERVICES ARE LOCATED.

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.S.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	12-5-86				
REVISED	1-21-87	ET			
MPLWD. REVISIONS	10/19/87	TL			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 5/22/86 REG. NO. 16230

CONST. 125 126 127 128 129 130 131 132 133
SURVEY 125 126 127 128 129 130 131 132 133 134

MAPLEWOOD PROJECT 81-20 SP 62-668-18

Sheet No. 112 of 121 Sheets

112R 27-128

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

NOTE: ALL WATER SERVICES WILL BE INSTALLED BY THE CITY OF ST. PAUL WATER UTILITY

~~STA. 135+36 RT. 5.5' TO 49.5' F & I.~~
~~44 L.F. 8" PVC @ 0.50%~~

~~STA. 135+46 RT. 66' F & I.~~
~~1 EA. 16" x 8" TEE~~
~~1 EA. 8" GATE VALVE~~
~~1 EA. 8" TAPPED PLUG~~
~~15 L.F. 8" DIP~~

~~STA. 135+49 RT. 34.5' F & I.~~
~~1 EA. 16" BUTTERFLY VALVE~~

STA. 137+81.53 FROM SO.
STA. 137+00 TO NORTH.
RT. 10'

STA. 139+75 CONST. ℄

BEGIN WALL STA. 134+99 CONST. ℄

END WALL STA. 136+04 CONST. ℄

WALL 1

WALL 2

ST. PAUL

McKNIGHT ROAD

℄ NEBRASKA AVE.
STA. 138+64±

BIT PARKING AREA

ADJUST FENCE

CONSTRUCTION LIMITS

BLDG

ADJUST GATE

GOLF COURSE MAINTENANCE BLDGS

GAR.

RELOCATE FENCE

CONSTRUCT 8' BIT. PATH

REMOVE SAN. M.H. 24 AND SALVAGE CASTING

C.B. 141

MH 141A

C.B. 143

C.B. 145

SECTION LINE

SURVEY LINE

CONST. ℄

EXISTING 8" V.C.P. SAN. SEWER TO 136 REMAIN IN PLACE

STA. 137+37 RT. 5'
RECONSTRUCT SAN. M.H. 22

M.H. 22

PROP. 8" PVC

STA. 140+37 RT. 5'
REMOVE SAN. M.H. 23
SALVAGE CASTING
CONSTRUCT M.H.

MH 23

PROPOSED 8" P.V.C.

MH 24

REMOVE SAN. SEWER SERVICE

CONST. SAN. MH.

BIT SPILLWAY

REMOVE C.M.P.

C.B. 140

C.B. 142

C.B. 144

CLOSE

136+00 RT.
44 L.F. 4" P.V.C.

192+20 RT.
45 L.F. 4" P.V.C.

CONSTRUCT ENTRANCES AS DIRECTED BY THE ENGINEER IN THE FIELD.

SWAMP

INV. 995.40

33' PROP. ADDITIONAL R/W

HO. 1464

HO. 1506

HO. 1514

SIDEWALK

S.E.

MAPLEWOOD

--131.24'--

30'R

PLUG

~~STA. 135+45 to 135+50 RT. 34.5' (MPLWD)~~
~~5 LF WATER SERVICE TRENCH EXCAVATION~~
STA. 135+52 RT. 34.5' F & I
1 EA. 16" BUTTERFLY VALVE

25' SANITARY SEWER EASEMENT

STA. 136+01 RT. F & I.
~~44.5~~ 45 L.F. 4" E.H.C.I.S.P.
ONTO EXISTING WYE
(RAM. CO.)

15 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

~~55~~ 34.5'
STA. 135+80 RT. ~~30'~~ F. & I.
1 EA. 16" x 6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
5 L.F. 6" D.I.P.

B.M. #18 ELEV. 1022.30
RR SPIKE SHAFT - PR
SE CORNER PROP. #1488 McKNIGHT RD.

60' R/W

32' F-F

SLOPE EASEMENT

STA. 138+75 RT. 34.5' F & I
1 EA. 16" x 8" TEE
1 EA. 8" GATE VALVE
1 EA. CONNECT TO EXISTING WM
15 LF 8" D.I.P.
SALVAGE EXISTING 8" PLUG

TRANSITION FROM B624 C&G TO EXISTING D412 C&G AS DIRECTED

STA. 140+63 RT. F & I.
45 L.F. 4" P.V.C. + WYE
(RAM. CO.)

15 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 141+33 RT. F & I.
~~45~~ 43 L.F. 4" P.V.C. + WYE
(RAM. CO.)

15 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

CONSTRUCTION LIMITS

NOTE: CLOSED ENTRANCES WILL BE RECONSTRUCTED BASED ON APPROVED DEVELOPMENT PLAN BY MAPLEWOOD.

~~STA. 140+56 RT. 30' F & I.~~
~~1 EA. 16" x 6" TEE~~
~~1 EA. 6" GATE VALVE~~
~~1 EA. 6" HYDRANT~~
~~5 L.F. 6" D.I.P.~~

SILT FENCE

NOTE: WATER MAIN BETWEEN STA. 102+75 (MARYLAND AVE.) & STA. 160+50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. PROVIDE 7.0' MINIMUM COVER OVER 16" D.I.P. WATERMAIN. PROVIDE 7.5' COVER WHERE DOMESTIC SERVICES ARE LOCATED.

CONSTRUCT OVER EXISTING 8" V.C.P.
NEW SS MH (MPLWD.)
~~T.C. = 1003.24~~
~~INV. = 995.00 S (EXIST.)~~
~~995.15 N (EXIST.)~~
~~995.18 E (NEW)~~

ST. PAUL WATER UTILITY WILL CONSTRUCT AIR VENT

250' V.C.
M=1,096,875

PROFILE GRADE = ℄

EXISTING GRADE @ SURVEY ℄

7.5' MIN. COVER

7.0 MIN. COVER

115 L.F. 16" RCP @ 2.03%

235 L.F. 18" RCP @ 4.29%

360 L.F. 8" PVC SDR 35 @ 4.44%

59 L.F. 15" R.C.P. @ 1.0%
996.63
996.54
997.22

59 L.F. 15" R.C.P. @ 1.0%
1009.68
1009.59
1010.27

59 L.F. 15" R.C.P. @ 1.0%
1023.65
1023.57
1024.24

REMOVE SAN. MH.

REMOVE

REMOVE EXISTING SAN. SEWER

RECONSTRUCT M.H. 22
T.C. - 1011.44
4.0 L.F.
1011.25

7' MIN. COVER

1009.76
1009.59

REMOVE SAN. SEWER

360 L.F. 8" PVC SDR 35 @ 4.32% - RAM CO.

325 L.F. 18" R.C.P. @ 4.25%

16" D.I.P WATER MAIN

+4.5%

1024.57

7.5' MIN. COVER

5.58

1023.57

127 ~~207~~ L.F. 8" PVC SDR 35 @ 2.85% - RAM. CO.
29.9%
T.C. - ~~1027.46~~ 1027.76
INV. - 1018.60N
INV. - 1018.50S

INV. - 1002.95 N
INV. - 1002.78 S (EXISTING)

WM 50' DEPTH TRANSITION

7.0' COVER

7.5' COVER

P.C. + 25

+1.0%

7.5' MIN. COVER

115 L.F. 16" RCP @ 2.03%

998.50
998.17
998.0

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

EXISTING 8" V.C.P. SAN. SEWER TO REMAIN IN PLACE - PROTECT

EXISTING SANITARY SEWER

P.C. + 94
EL. 1000.50
EL. 1001.15
P.I. 135+91
P.C. + 50
+65
+50

1007.39

STA. 137+81.53 FROM SO.
STA. 137+00 TO NORTH

(RAM. CO.)

1040 1035 1030 1025 1020 1015 1010 1005 1000 995

CONST. SURVEY 134 135 136 137 138 139 140 141 142

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.J.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-5-86	BJ, ET			
NOTE REWORDING	2-5-86	BJ, ET			
REVISED	1-21-87	DM			
MPLWD. REVISIONS	10-87	BJ			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No ~~113~~ of 121 Sheets

113R

27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	CATE	CHECKED BY	DATE

WATER SERVICES WILL BE INSTALLED BY CITY OF ST. PAUL WATER UTILITY.

ST. PAUL

WALL 2 | WALL 3 | WALL 4

CONSTRUCTION LIMITS

END WALL STA. 144+65 CONST. ℄

CONST. ℄ McKNIGHT RD STA. 144+39.88
℄ MONTANA STA 0+03.50

BEGIN WALL STA. 145+35 CONST. ℄

SURVEY LINE TO SOUTH 30' OF SECTION LINE
SURVEY LINE TO NORTH = SECTION LINE

END WALL STA. 147+02

CONSTRUCT 8' BIT PATH

CONST. LIMITS

BEGIN WALL STA. 148+55 CONST. ℄

END WALL STA. 149+55 CONST. ℄

CONSTR. TION LIMITS

RELOCATE FENCE

+70 | +80

SECTION LINE

CONSTRUCT SAN. SEWER M.H. STA. 143+47 RT. 5'

REMOVE SAN. SEWER

REMOVE SAN. M.H. 25 SALVAGE CASTING

PLUG AS DIRECTED

ABANDON EXISTING 145 SAN. SEWER

PLUG AS DIRECTED

REMOVE SAN. M.H. 26 SALVAGE CASTING

McKNIGHT ROAD

ABANDON EXISTING SAN. SEWER

PLUG SAN. SEWER PIPE

RECONSTRUCT SAN. M.H. 30

EXISTING 8" SAN. SEWER TO REMAIN IN PLACE PROTECT

ABANDON SAN. SERVICE

STA. 148+28 RT. 34' ADJUST SAN. M.H. 28

STA. 144+97.8 145+03 RT. 34.5' F.&I. 2 EA. AIR VENT

STA. 146+00 RT. F.&I. 1 EA. 11 1/4° BEND

PLUG

MH 27 ADJUST SAN. M.H. 27

CB 146

STA. 147+27 EXISTING SAN. SEWER SERVICE - PROTECT

CB 147

CB 148

CB 149

APRON 148 A

CONST. ℄

REMOVE CMP

SURVEY LINE

142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151

T-BUR

25° TYP.

CLOSE

10' TYPICAL

33' PROP. R/W

1524

1530

1540

1560

1580

EXISTING SAN. SEWER SERVICE

STA. 145+30 RT. F.&I. 1 EA. 11 1/4° BEND

1-ADJUST HYDRANT
2-ADJUST VALVE BOX (RAM. CO.)

4" CORE TAP INTO 8" P.V.C. (RAM. CO.)

STA. 146+32 RT. F.&I. 55 L.F. 4" P.V.C. + CLEANOUT

PAYMENT FOR CLEANOUT SHALL BE AS G.F. OF 4" P.V.C. (RAM. CO.)

STA. 146+14 RT. 30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 147+17 RT. 30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 148+56 EXISTING SAN. SEWER SERVICE - PROTECT

STA. 148+38 RT. 20' F.&I.
1 EA. 16"X6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" TAPPED PLUG
30 L.F. 6" D.I.P.

STA. 148+46 30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 149+56 RT. 20' F.&I.
1 EA. 16"X6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
10 L.F. 6" D.I.P.

STA. 149+98 30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 150+08 EXISTING SAN. SEWER - PROTECT

WIRE FENCE

GAR.

1540

STA. 143+38 RT. F.&I. 45 L.F. 4" P.V.C. + WYE (RAM. CO.)

15 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

B.M. #17 ELEV. 1043.67
RR SPIKE SHAFT-ARC LIGHT POLE
EAST SIDE McKNIGHT RD. HOUSE #1524

MATCH LINE STA. 0+80
SHT. NO. 119

MONTANA AVE.

144+70
STA. 145+00 RT. 34.5' F.&I.
1 EA. 16" BUTTERFLY VALVE

STA. 144+65 TO 144+75 RT. 34.5'
10 L.F. WATER SERVICE TRENCH EXCAVATION

STA. 145+10 RT. 34.5' F.&I.
1 EA. 16"X6" TEE
8 L.F. 6" D.I.P.
1 EA. CONNECT TO EX. WM
1 EA. 6" X 6" OFFSET

REMOVE & SALVAGE EXISTING 6" PLUG

NOTE: WATER MAIN BETWEEN STA. 102+75 (MARYLAND AVE.) & STA. 160+50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF McKNIGHT ROAD. PROVIDE 7.0' MINIMUM COVER OVER 16" DIP. PROVIDE 7.5' COVER WHERE DOMESTIC SERVICES ARE LOCATED

① ALL SEWER PLUGS ARE INCLUDED IN THE PRICE OF OTHER ITEMS

EXISTING GRADE SURVEY ℄

P.I. 144+25 EL. 1042.63

PROFILE GRADE = CONST. ℄

CONSTRUCT SANITARY MH (143+47)

ST. PAUL WATER UTILITY WILL CONSTRUCT AIR VENTS

REMOVE SAN. MH 25

+4.51%

REMOVE SAN. SEWER

7.5' MIN. COVER

5.58'

800' V.C. M = 8.00

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

16" D.I.P. WATER MAIN

73 L.F. 8" PVC SDR 35 @ 2.86% RAM. CO.

T.C. - 1033.82
INV. - 1025.75 S .48

1023.69

TOP WM = 1027.30

7.5' COVER

WATER MAIN TRANSITION 7.5' TO 6.5' COVER

HIGH POINT 6.5' COVER

TOP WM = 1028.00

6.5' COVER

WATER MAIN TRANSITION 6.5' TO 7.5' COVER

TOP WM = 1026.15

7.5' COVER

ADJUST SAN. M.H. 27 T.C. - 1033.0

1035.0

1033.54

REMOVE SAN. M.H. 26

SAN M.H. 26

5.58'

PLUG AS DIRECTED ①

ABANDON

PLUG AS DIRECTED ①

SAN. MH 27

CONNECT TO EXISTING 6" WATERMAIN

1015.77

ABANDON SAN. SEWER

SAN. MH 28

EXISTING SAN. SEWER TO REMAIN IN PLACE PROTECT

1015.17

ADJUST SAN. M.H. 28 T.C. - 1028.85

1028.67

1027.51

3.49%

C.B. 146

5.58'

1021.01

3.5' SUBCUT FOR UNIFORMITY AND COMPACTION

300 L.F. 15" R.C.P. @ 10%

7.5' MIN. COVER

PLUG AS DIRECTED ①

1014.37

79 L.F. 15" R.C.P. @ 1.0%

1022.85

1023.60

1021.01

C.B. 147

C.B. 146

TOP WM 1022.27

PROPOSED 16" DIP WATER MAIN

1025.18

59 L.F. 21" R.C.P. @ 0.5%

1017.63

1017.92

1018.50

1018.09

10 L.F. 15" R.C.P. @ 3.19 % + APRON

C.B. 149

C.B. 148

APRON 148 A

PROPOSED 16" DIP WATER MAIN

TOP WM 1013.36

1021.20

200' V.C. M = 0.75'

RAMSEY CO. RECONSTRUCT SAN. M.H. 30. T.C. - 1022.30 4.0 L.F.

-0.49%

1017.12

1017.55

335 L.F. 8" VCP @ 0.54%

EXISTING SAN. SEWER TO REMAIN IN PLACE - PROTECT

EXISTING SANITARY SEWER

HIGH POINT 6.5' COVER

1050 | 1045 | 1040 | 1035 | 1030 | 1025 | 1020 | 1015

CONST. SURVEY

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-5-86	BJ, ET			
NOTE REWORDING	2-5-86	BJ, ET			
REVISED	1-21-87	KH			
MPLEW REVISION	10/6/87	T.L.			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 5/22/86 REG. NO. 16230

MAPLEWOOD PROJ. 81-20 SP 62-662-18

Sheet No. 114 of 121 Sheets

114R 27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

ST. PAUL

MAPLEWOOD

McKNIGHT ROAD

LARPENTEUR AVE.

CONSTRUCTION LIMITS

LOW LAND

RELOCATE FENCE

RECONSTRUCT SAN. MH. 31
INSTALL CASTING

EXISTING 8" V.C.P. TO REMAIN IN PLACE - PROTECT

CONST. ℄

SECTION LINE

SURVEY LINE

REMOVE CMP

EXISTING 18"X60' CMP (ABANDONED)

CONSTRUCT 8' BIT. PATH

BIT. PATH

SAND TRAP

GREEN

SWAMP

RECONSTRUCT SAN. M.H. 32

CONSTRUCT SAN. M.H.

8" P.V.C. SAN. SEWER

EXISTING 24" C.M.P.

NOTE: CONTRACTOR SHALL PROVIDE BY PASS PUMPING FOR SAN. SEWER INSTALLATION. RAM. 60.

RELOCATE FENCE

30'X30' LEG Δ PROPOSED R/W ACQUISITION

45'X60' LEG Δ PROPOSED R/W ACQUISITION

CONST. LIMITS

33' PROP. R/W

FOR WATERMAIN PROFILE SEE SHEET 120

(SHEET No. 120) MATCH LINE STA. 2+50

MATCH LINE STA. 3+80 (SHEET No. 120)

MATCH LINE (SHEET No. 121)

32' JACKED CASING

EQUATION
STA. 159 + 36.1 =
STA. 2+31.46

EQUATION
McKNIGHT RD. CONST. ℄
STA. 160+10.95 =
LARPENTEUR AVE STA. 3+16.5

STA. 159+91 RT. 1' F & I
1 EA. 16"X16" TEE

STA. 159+75 RT. 1.5' F & I
1 EA. 16" 22 1/2° BEND

STA. 159+33 RT. 20' F & I
1 EA. 16" 22 1/2° BEND

STA. 152+18 RT. F & I.
1 EA. BUTTERFLY VALVE

STA. 151+97 RT.
EX. SEW. SERVICE (PROTECT)
30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 152+66 RT.
EX. SEW. SERVICE (PROTECT)
30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 153+85 RT. F & I
20 L.F. 4" E.H.C.I.S.P. + CORE TAP P.V.C. (MPLWD)
30 L.F. WATER SERVICE TRENCH EXCAVATION (SERVICE BY OTHERS)

STA. 154+25 RT. 20' F. & I.
1 EA. - 16"x 6" TEE
1 EA. - 6" GATE VALVE
1 EA. - 6" HYDRANT
10 LF 6" DIP LEAD

B.M. #16 ELEV. 1020.74
RR SPIKE SHAFT - ARC LIGHT POLE
EAST SIDE McKNIGHT RD. HOUSE #1600

SEE WETLAND MITIGATION PLAN

NOTE: WATER MAIN BETWEEN STA. 102 + 75 (MARYLAND AVE.) & STA. 160 + 50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. PROVIDE 7.0' MINIMUM COVER OVER 16" DIP. PROVIDE 7.5' COVER WHERE DOMESTIC SERVICES ARE LOCATED.

EXISTING SANITARY SEWER

59 L.F. 18"x 28" R.C.P. @ 0.5%
13 L.F. 24" R.C.P. + APRON @ 0.5%
100 L.F. 24" R.C.P. + 2 APRONS @ 0.00%
59 L.F. 15" R.C.P. @ 0.5%
17 L.F. 15" R.C.P. + APRON @ 0.5%

1015.97 · 1015.67 · 1015.50 · 1015.4± · 1015.00 · 1015.00 · 1015.90 · 1015.61 · 1015.45 · 1015.34

PROPOSED 16" D.I.P. TOP WM = 1012.26
PROPOSED 16" D.I.P. TOP WM = 1012.89
PROPOSED 16" D.I.P. TOP WM = 1013.39

EXISTING GRADE SURVEY ℄
PROFILE GRADE = CONST. ℄
RECONSTRUCT SAN. MH. 31
3.5 L.F., T.C. - 1019.9
100' V.C
M = 0.12375
0.49%
7.5' MIN. COVER
350 L.F. 24" R.C.P. @ 0.43%
1016.05 · 1015.97
EL. 1009.72
EL. 1009.73
PI. 154+75 EL. 1009.48
PC 154+25
PT 155+25
LOW POINT 7.5' COVER
100' WM DEPTH TRANSITION
7.5' COVER
70' COVER
EXISTING 18" C.M.P. (ABANDONED)
333 L.F. 8" V.C.P. @ 0.25%
EXISTING 8" V.C.P. TO REMAIN IN PLACE - PROTECT
15" D.I.P.
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
448 L.F. 8" V.C.P. @ 0.54%
RECONSTRUCT SAN. M.H. 32
T.C. - 1020.30
4.0 L.F.
+0.50%
1012.3
1015.62
PROPOSED 16" D.I.P. WATER MAIN
380 L.F. 8" V.C.P. @ 0.51%
CONSTRUCT SAN. M.H.
EL. 1021.61
PI. 159+25 EL. 1021.73
EL. 1021.30
-0.5%
50' V.C.
M = 0.0625
MIN. 7' COVER
ADJUST SAN. M.H. 34
3.5' SUBCUT FOR UNIFORMITY AND COMPACTION
EX. 12" DIP
111 L.F. 8" PVC SDR 35 @ 0.40% RAM. 60.
T.C. -
INV. E = 1011.27 EXISTING
INV. W = 1009.27 EXISTING
INV. N = 1009.87
INV. S = 1009.50
PT 159+50
7' COVER
160+10.95

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY
S.P NUMBER	2-5-86	BJ,ET
NOTE REWORDING	2-5-86	BJ,ET
REVISED	1-21-87	ET
MAPLEWD REVISION NO. 1		

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

CONST. SURVEY 151 · 152 · 153 · 154 · 155 · 156 · 157 · 158 · 159 · 160

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No. ~~115~~ of 121 Sheets

115R

27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES				
PROFILE				

NOTE: ① CONSTRUCT 6" CONCRETE DRIVEWAY PAVEMENT.

P.I. 3+00
Δ 0°58'30" rt.
SURVEY ℄ EQUATION
STA. 159+36.1
FROM SOUTH+
STA. 2+31.46
TO NORTH
(MAPLEWOOD)
REMOVE & SALVAGE
12" X 8" CROSS
8" X 6" REDUCER (N.)
12" PLUG (S.)
5' LOOP WM
SECTION LINE &
℄ SURVEY
TO NORTH

MATCH LINE STA 2+50

EXISTING 10" S.S.
EXISTING 12" D.I.P. W.M.
(RAM. CO.)
2+51.5 LT. 60° F & I
1 EA. 12" X 6" TEE
1 EA. 6" GATE VALVE
15 L.F. 12" DIP
15 L.F. 6" DIP
15 L.F. WATER SERVICE
(2" SERVICE BY OTHERS)
(SHEET NO. 120)
RELAY SERVICES AT PROPER COVER TO THE R/W LINE
CONSTRUCT NEW PROPOSED 5' CONCRETE SIDEWALK
STA. 4+20 END PERMANENT CONSTRUCTION PHASE I
STA. 6+50 END TEMPORARY CONSTRUCTION
1695 HO.
BLDG.
1709
1755
MAPLEWOOD
TEMPORARY CONSTRUCTION STA. 4+20
CONSTRUCTION STA. 6+50
PROPOSED FUTURE CONSTRUCTION
EXISTING R/W
CONST. LIMITS
ADJUST VALVE BOX (3 EA.)
REMOVE & SALVAGE
25 L.F. CIP W/M
DISCONNECT AT GATE VALVE
CB 158
McKNIGHT M.H. 37
MATCH TO EXISTING RD
B624 C & G
END PROJECT STA 6+50
REMOVE EXISTING 13" X 17" ARCH C.M.P.
REMOVE EXISTING 8" VCP
CONSTRUCT SANITARY MH 4 OVER EXISTING STA. 3+50 LT. 10'
1 EA. 13 L.F. 8" P.V.C.
ADJUST VALVE BOX (2 EA.)
RECONSTRUCT SAN. MH 34
WILLIAMS BROS. PIPELINE
10:1 TAPER
CONSTRUCT "V" GUTTER
32' JACKED CROSSING
STA. 2+31.46
CONST. ℄ BEGIN TAPER
24" C.M.P.
CB 159
CONST. ℄ EQUATION
STA. 160+10.95
FROM SOUTH+
STA. 2+31.46
TO NORTH
CONTRACTOR SHALL PROVIDE BY-PASS PUMPING FOR SANITARY SEWER INSTALLATION - RAM. CO.
+20 BEGIN TAPER LT. & RT.
+60 END TAPER LT. & RT. BEGIN B612 CURB
NOTE: DASHED LINES INDICATE FUTURE CONSTRUCTION
WOODS
M.H. 160
SD. 38
EXISTING STORM SEWER 160 L.F. 18" R.C.P.
M.H. 39
EXISTING R/W
EASEMENT
CONST. LIMITS

MATCH LINE STA. 3+80
2+51.5 RT. I F & I (SHEET No. 120)
1 EA. 16" X 12" CROSS
1 EA. 16" X 6" REDUCER (N.)
1 EA. 16" BUTTERFLY VALVE (3' S. OF CROSS)
1 EA. CONNECT TO EXISTING WATER MAIN

SEE TRAFFIC CONTROL PLAN FOR BARRICADE LAYOUT

MAPLEWOOD
NOTE: CB. 158, C.B. 159 & M.H. 160 WITH NEW LEAD CONNECTING INTO S.D. 38 SHALL BE DONE UNDER THIS CONTRACT

TEMPORARY CONSTRUCTION SHALL BE THE SAME STRUCTURAL DESIGN & BASE DEPTH AS PERMANENT CONSTRUCTION

B.M. #15 ELEV. 1023.65
TOP HYDRANT - NW CORNER
McKNIGHT RD. & LARPENTUER AVE.

B.M. #14 ELEV. 1019.49
RR SPIKE SHAFT - ARC LIGHT POLE
WEST SIDE McKNIGHT RD. & McKNIGHT LANE

B.M. #13 ELEV. 1023.72
TOP HYDRANT - WEST SIDE
McKNIGHT RD. HOUSE #1753

LEGEND
TEMPORARY STRUCTURAL SUBCUT SECTION

RECONSTRUCT SAN. MH 34
4.1 LF TC 1021.10
CONSTRUCT SAN. MH
TOP 16" DIP = 1014.5±
CONNECT TO EXISTING WATER MAIN
EXISTING GRADE
3.5' FOR UNIFORMITY & COMPACTION
ABRUPT CUT
EXISTING 12" D.I.P. STEEL CASING
5 LF 8" PVC SDR 35 @ 6.40% INV. = 1009.57 N. TC = 1021.10 ± RAM. CO.
INV. = 1008.86 ± TC = 1020.14 ±
EXISTING SANITARY SEWER
ELL. 1021.90
PROFILE GRADE = ℄
C.B. 158
C.B. 159
59' 15" RCP @ 1.0%
1015.93
1015.34
2.08'
PROPOSED FUTURE GRADE
-0.83 %
235 L.F. 15" R.C.P. @ 1.0%
1015.13
1015.21
SAN. MH 33
M.H. 160
S.D. 38
20 L.F. 18" R.C.P. @ 1.0%
1012.91
1012.74
1012.54
1011.75
C.B.
80' 15" RCP @ 1.0%
1014.27
1013.67
APR.
1012.70
M.H.
1011.70
1011.87
94' LT 15" RCP @ 0.86% + APRON
58' 15" RCP @ 10%
1017.62
1016.86
V.C. = 75'
M = 0.25'
FUTURE GRADE
+1.62%
MH
MH 40
319' 15" RCP @ 10%
T016.86
SAN. MH 40
1013.68
330 LF 8" VCP @ 0.27%
329 LF 8" VCP @ 0.30%
P.C. +12.5
ELL. 1017.31
P.T. +87.5
ELL. 1017.61
P.T. +50
ELL. 1017.0

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-5-86	B.L.E.T.			
NOTE REWORDING	2-5-86	B.L.E.T.			
REVISED	1-21-87	D.M.			
MAPLEWD REVISIONS	10-9-87	T.L.			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No ~~116~~ of 121 Sheets

116 R 27-128

TOPOGRAPHY	PLOTTED BY DATE	CHECKED BY DATE
UTILITIES	PLOTTED BY DATE	CHECKED BY DATE
PROFILE	PLOTTED BY DATE	CHECKED BY DATE

CONTRACTOR SHALL PROVIDE TEMPORARY WATER SERVICE TO HOMES ON MARYLAND AVE. BETWEEN MCKNIGHT ROAD AND LAKEWOOD DRIVE – RAM. CO.

STA. 11+85 LT. 38 F. & I.
1 EA. 8" X 6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
10 L.F. 6" D.I.P.
(MPLWD)

HO. 2345

CONST. LIMITS

CURB AT ENTRANCE

CITY OF MAPLEWOOD UTILITY EASEMENT

STA. 11+80 LT. 38' F. & I.
1 EA. 8" 22 1/2° BEND

EXISTING SAN. SEWER SERVICE W/10' RISER – PROTECT

STA. 9+75 ± LT. 18'
BEGIN 8" WATER MAIN RECONSTRUCTION @ NEAREST JOINT

EXISTING SAN. SEWER S.E. SERVICE W/6' RISER – PROTECT

BEGIN +60

+40 TAPER

+40 END TAPER

30:1 TAPER

MARYLAND AVE.

STA. 11+30 LT. 18' F. & I.
1 EA. 8" 22 1/2° BEND

STA. 9+78 ± LT 18' F. & I.
1 EA. 8" GATE VALVE
(3' EAST OF CONNECTION)
(MPLWD)

B624 C & G
RECONSTRUCT SAN. M.H. 41 – 6.0 L.F.

9+00 SAWCUT AS DIRECTED & MATCH EXISTING

EXISTING SAN. SEWER SERVICE W/8' RISER – PROTECT

EXISTING SAN. SEWER SERVICE W/8" RISER S.E. PROTECT

+60 BEGIN TAPER

CONST LIMITS

SURVEY ℄ — CONST ℄

℄ MARYLAND AVE. STA. 13+22.36 = ℄ LAKEWOOD DR. 1/4 1/4 LINE

MATCH LINE

SEE SHEET NUMBER 109

SEE SHEET NUMBER 102

LAKEWOOD DRIVE

CONST. ℄	SURVEY LINE
P.I. 105+85.78	P.I. 105+85.78
Δ=56°38' 16"	Δ=56°38' 16"LT.
D=6°	D=5°
T=514.52	T=617.50
L=943 96	L=1132.756
R=954.93	R=1145.916
E=129.82	E= 155.78
P.C.=100+71.20	
P.T.=110+15.16	

CONTRACTOR SHALL PROVIDE TEMPORARY WATER SERVICE TO BEAVER LAKE ESTATES. – RAM. CO.

STA. 14+15 LT. 10' F. & I.
1 EA. 16" X 6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
18 L.F. 6" D.I.P.
(RAM. CO.)

CITY OF MAPLEWOOD UTILITY EASEMENT

ESMT. LINE

+33 BEGIN TAPER

STA. 15+42 ± LT. 10'
INSTALL SALVAGED 16" BUTTERFLY VALVE WITH NEW GASKETS (3' WEST OF CONNECTION)

STA. 15+45 ± LT.
END WATER MAIN RECONSTRUCTION @ NEAREST JOINT

+13 END TAPER

ADJUST VALVE BOX
RAM. CO.

REMOVE 126 L.F. B618 CONC. C & G STA. 15+50 TO STA 16+13
TAPER B624 C & G TO MATCH EXISTING B618 C & G IN 15'

S.E.

30:1 TAPER

CB 161

B624 C & G

STA. 14+10 LT. 10' F. & I.
1 EA. 16" X 45° BEND
(RAM. CO.)

CB 158

ADJUST SAN. M.H. 45 – RAM. CO.

SAWCUT AS DIRECTED

EXISTING 6" ABS SEWER SERVICE – PROTECT

EXISTING 1 1/2" WATER SERVICE – PROTECT

CONTRACTOR SHALL PROVIDE BYPASS PUMPING FOR SANITARY SEWER INSTALLATION – MPLWD.

REMOVE EXISTING 8" V.C.P. & CONSTRUCT 8" P.V.C.

CONST LIMITS

SEE MCKNIGHT RD. SHEET NO. 109 FOR ADDITIONAL UTILITY WORK IN THIS AREA

ALL WATER MAIN THIS SHEET PAID FOR BY RAMSEY COUNTY

B.M. #23 ELEV. 979.25
TOP HYDRANT NORTH SIDE
McKNIGHT RD. HOUSE #2325

B.M. #22 ELEV. 975.28
TOP HYDRANT NW CORNER
McKNIGHT RD. & MARYLAND AVE.

EXISTING SANITARY SEWER

EL. 977.05 — P.I. 9+50 EL. 976.51 — EL. 973.77 — EL. 971.85

EXISTING GRADE

-1.07%

-5.50%

20:1

3.71'

V.C.=100'
M=0.55375

SALVAGE 225 L.F. 8" CIP WATER MAIN

EXISTING 8" C.I.P. WATER

7.5' MIN. COVER

EXISTING SAN. MH 41

RAM. CO
RECONSTRUCT SAN. M.H. 41
6.0 L.F. – INSTALL CASTING
T.C. = 968.72

P.I. 11+00 EL. 970.8

11+30 BEND

TOP WM = 960.0
7.5' COVER

V.C.=250'
M=2.115625'

11+85 HYDRANT

TOP WM = 959.7
8.1' COVER

PROFILE GRADE = ℄

12+45 LOW POINT

STORM SEWER TOP W.M=958.5
BOT. OF 18"=952.0
7.5' COVER

SEE TYPICAL SECTION "G" SHEET NO. 28

12+75 – CROSS 8" D.I.P. SANITARY SEWER

INV. S.S.=959.25
TOP W.M.=959.0
CLEARANCE = 0.25'

EL 966.56 (MCKNIGHT STA. 102+72) (CONST. ℄) 24' LT.

STA. 13+10± MARYLAND AVE. STA. 102+61 McKNIGHT RD. CONST. ℄

ELEV. 966.84

TOP 8"=960.95
TOP 16"=960.72

13+38 6"X 16" TEE

CONTRACTOR SHALL PROVIDE BYPASS PUMPING FOR SEWER INSTALLATION – RAM. CO.

P.I. 13+87.5 EL. 967.84

EL. 968.7

+52 CB 161

+52 CONVERT TO M.H.

8 L.F. 15" R.C.P @ 1.0%

964.68 — 964.60 — 963.50

EXIST. CB 43

EXISTING 30" R.C.P.

+52 CB 158

+52 CONVERT TO M.H.

8 L.F. 15" R.C.P @ 1.0%

964.60 — 964.68 — 962.94

EXIST. CB 44

V.C.=50'
M=0.123125

16+00 963.72

MATCH EXISTING

ADJUST SAN. MH 45 – T.C. = 969.01±
RAM. CO.

+2.72%

1.71'

20'

-8.01%

+0.63%

+1.27 %

+92 MH 115

MH 12

+56

5.58'

3.71'

7' MIN. COVER

20:1

SALVAGE 145 L.F. 16" DIP WATER MAIN

30" EXISTING R.C.P.

6" D.I.P. WATER MAIN

962.94

EXISTING 16" D.I.P. WATER MAIN

958.92

16" 45° BEND TO NW

95700

STA. 13+62 ℄
INV. = 948.40 S.26
INV. = 948.50 W
V.C. = INV. = 948.48 E (EXISTING)
M=0.0℄ = 967.44.36

NOTE: PROVIDE 7' MINIMUM COVER OVER 16" D.I.P. WATER MAIN

+47.36

P.C. 15+50

P.I. 15+75 EL. 969.02

SAN. MH 46

EXISTING

16+13

WARP TO MATCH EXISTING GRADE AS SPECIFIED

INV. = 951.63 W (EXISTING)

EXISTING 219 L.F. 8" VCP @ 3.38%

STA. 12+80 ℄
BUILD OVER EXISTING 8" V.C.P.
T.C. = 966.35.44
INV. = 949.44± W (EXISTING)
INV. = 949.35 E. ∞
INV. = 949.45 N. ∞
INV. = 958.60 N. ∞

P.I. 11+60 EL. 964.96

P.C. 10+35

P.T. 10+00

P.C. = P.O.T. 9+00

REMOVE M.H. 13

SAN. MH 13

+37.5

P.T. 82 L.F. 8" PVC SDR 26 @ 1.05%
RAM. CO.

REMOVE EXISTING 8" VCP BETWEEN NEW MANHOLES

EXISTING 246 L.F. 8" VCP @ 1.50%

209 L.F. 8" PVC SDR 26 @ 1.50% – MPLWD.

REMOVE EXISTING 8" VCP

MAYLAND AVENUE

980 975 970 965 960 955 950 945

10 11 12 13 14 15 16

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-586	BJ.ET			
NOTE REWORDING	2-586	BJ.ET			
REVISED	1-21-87	KH			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

MAPLEWOOD PROJ. 81-20 SP 62-668 — Sheet No. 117 of 121 Sheets

27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

MAPLEWOOD

NOTE: UTILITY WORK SHOWN ON MCKNIGHT ROAD PLAN SHEET NO. 110

N 78° 12' 30" E 704.77

STA. 113+75 0-2.90

CONST. LIMITS

BEGIN NON-ACCESS LIMITS AT STA. 114+00.

PATH

SURVEY ℄ BULK SERVICE ENT.

SURVEY ℄

CONSTRUCTION ℄

B624 C&G.

B624 C&G.

CONSTRUCT "V" GUTTER

30' R

BEGIN BIT. CURB LT. & RT.

P.C. STA. 0+71

SURVEY ℄ STA. 114+34.24

80' R

75' R. ON ℄

P.T. STA. 1+53.35

PROPOSED R/W

15'

BULK SERVICE ROAD

CONST. ℄ P.C. STA. 113+10.01

CONST. ℄ P.I.= 1+16.88 Δ= 82° 54' 30" R= 75 D= 45.86 T= 45.88 L= 82.35

BIT. CURB

16'

CONST. ℄

S.E.

CONST. LIMITS

NOTE: WATER MAIN BETWEEN STA. 102+75 (MARYLAND AVE.) & STA. 160+50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. PROVIDE 7.0' MINIMUM COVER OVER 16" WATER MAIN & 7.5' MINIMUM OVER 8" W.M.

PROPOSED EL. 1001.82 CONST. ℄ (MCKNIGHT)

1001.42
1001.42

1000.50

PI. 1+00 EL. 999.50

997.62

EXISTING GRADE

PROFILE GRADE = ℄

-2.6%

5.58'

20:1

V.C. = 75' M = 0.2250'

-5.0%

2.83'

2' SUBCUT FOR UNIFORMITY & COMPACTION

STA. 113+75 McKNIGHT SURVEY ℄

P.C. +62.5

P.T. +37.5

1010
1005
1000
995
990
985
980

0 1 2 3

15" R.C.P. CL. V CASING PIPE

15" R.C.P. CL. V CASING PIPE

SEE SHEET NO. 121 FOR UTILITY DETAILS

SCALE 10' 30' 50'

~~12" R.C.P. CL. V CASING PIPE~~

12" R.C.P. CL. V CASING PIPE 4" EHCISP SAN. SEWER

~~CL 46 TO REMAIN IN PLACE~~

APRON 172

APRON 162

CB. 163

FUTURE MH.

EXISTING BULK SERVICE ENT.— DIRT

CONST. LIM.

CL. 46

NOTE: OUTSIDE EDGE OF SERVICE ROAD SHALL BE SODDED.

NOTE: SYMBOL ⊗ REFERS TO FINISH GRADE ELEV. PTS. INDICATING GRADE BREAKS WHERE WATER WILL DRAIN.

981.05⊗

FUTURE 8" PVC.

⊙ 92' RADIUS PT.—STA. LOCATION 4+15 LT. 4

981.20⊗

CB. 164

AP 165

981.40⊗

EXISTING 4" CIP

CL. 47

RC. STA. 3+61.5

CONST. ℄ P.I.= 4+86.41 Δ= 89° 57' 07" R= 125 D= 45.90' T= 124.90 L= 196.24

END CURB +75 RT.

982.28⊗

982.67⊗

MATCH BIT. EL. & WITH TRANSITION FROM END OF 92' RADIUS

BIT.

FUTURE MH.

90'

PT. STA. 5+57.75

SCALE

WEIGH SCALE

SCALE BLDG.

CL. 48

RRT R/W

BIT.

CB 163

APRON 172

APRON 162

CB 164

APRON 165

6 LF 24" RCP + APRON @ 0.45%

97 LF 24" RCP @ 0.11%

8 LF 24" RCP + APRON @ 0.36%

980.28

980.16

980.21

V.C. = 50' M = 0.31250'

980.05

980.00

963.25

982.00

0.00%

WEIGH SCALE EL. 982.5

PROPOSED 24" R.C.P.

2.83'

EXISTING GROUND EL. 982.00

2' SUBCUT FOR UNIFORMITY & COMPACTION

R.C. +25

P.I. 4+50 EL. 982.00

R.T. +75

BULK SERVICE ROAD

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.L.
DATE: 2/2/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	2-6-86	BJ, ET			
NOTE REWORDING	2-6-86	BJ, ET			
8"RCP-12" RCP	2-6-87	KH			
MPLEWD. REVISION	10-9-87	TL			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 5/22/86 REG. NO. 16230

MAPLEWOOD PROJ. 81-20 SP. 62-668-18 Sheet No. ~~118~~ of 121 Sheets

118R 27-128

	PLOTTED BY	DATE	CHECKED BY	DATE
TOPOGRAPHY				
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

REMOVE EXISTING ROADWAY AS DIRECTED

ADJUST FENCE

+50 SAWCUT AS DIRECTED & MATCH EXISTING

McKNIGHT RD.

CITY OF ST PAUL

SURVEY ℄

MH 50

IVY AVE.

CB 52

CB 51

CONST. ℄

CONSTRUCTION LIMITS

2240 IVY

GAR.

CITY OF MAPLEWOOD UTILITY EASEMENT

MAPLEWOOD

INVERT EL. 966.16

F.C.I.
30" R.C. PIPE CASING CLASS V
230 LF + ROCK STABILIZATION
MPLWD

WOODS

INVERT EL. 965.79

MH 53

McKNIGHT ROAD
15' 15' CLASS V
IVY AVENUE
CONSTRUCTION LIMITS

CITY OF MARLEWOOD UTILITY EASEMENT

END TAPER

SKEW 3+43 RT. TO STA. 3+43 RT.

30" STEEL CASING JACKED

RUN TAPER

CL. 16

B.M. # 20 ELEVATION 989.97
TOP HYDRANT N.W. CORNER IVY AND McKNIGHT

NOTE: WATER MAIN BETWEEN STA. 102 + 75 (MARYLAND AVE.) & STA. 160 + 50 (LARPENTEUR AVE.) IS PROPOSED 16" S.J.D.I.P. WATER MAIN ALONG PROPOSED ALIGNMENT OF MCKNIGHT ROAD. PROVIDE 7.0' COVER OVER 16" D.I.P. WATER MAIN

SEE MCKNIGHT RD. SHEET NO. 114
MATCH LINE 0+80

MAPLEWOOD

HO.

CONST LIMITS

B624 C&G TO BE TRANSITIONED IN 10' TO MATCH EXISTING S512 C&G @ STA. 1+73

WOOD SLATS FENCE

WSO

B624 CURB & GUTTER

S512 CURB & GUTTER

CONST ℄

MH 49

SA

MONTANA AVE.

END CONSTRUCTION

ADJUST VALVE BOX

CONST LIMITS

TELE. BOX

ADJUST SANITARY MH. 49

EXISTING PROFILE OVER PIPE

Removed from plans 10/87

230 L.F. 30" R.C. PIPE CASING CL. V @ 0.19 %

965.79

966.16

MCKNIGHT ROAD EXISTING GRADE

-1.8% ±

PROPOSED GRADE ℄

2' SUBCUT FOR UNIFORMITY & COMPACTION

IVY AVE. EXISTING GRADE

-3.5% ±

V.C. = 50'
M=0.10625'

2.79'

20:1

SAN MH 49

8764

8651

℄ McKNIGHT ROAD

Pl. 2+50 EL. 986.96

+25

+75

IVY AVE.

EXISTING SANITARY SEWER

CONST ℄ McKNIGHT RD. STA. 1444+99.88
MONTANA AVE. ℄ STA. 0+03.5

1034.74

1034.20

5.56'

+26

2.24%

3541

3558

2+00 1035.20

V.C.=100'
M=0.52

MONTANA AVE. EXISTING GRADE

-1.9%

ADJUST SAN. MH. 49
T.C. = 1035.92

-1.9%

2.92'

2.92'

20:1

2' SUBCUT FOR UNIFORMITY & COMPACTION

+80

6" D.I.P.

Pl. 1+30
EL. 35.53

SAN MH 49

+80

+55

MONTANA AVE.

1000
995
990
985
980
975

1040
1035
1030
1025
1020

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.K.
DATE: 2/3/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
R.C. PIPE CASING	2-16-88	BJ SB			
S.P. NUMBER	2-16-88	BJ ET			
REVISED	1-21-87	DM			
MPLEWD REVISION'S 10-98		T.L.			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

IVY AVE.
MONTANA AVE.

MAPLEWOOD PROJ. 81-20 SP 62-668-18

Sheet No. ~~119~~ of 121 Sheets

119R 27-128

TOPOGRAPHY	PLOTTED BY DATE	CHECKED BY DATE
UTILITIES	PLOTTED BY DATE	CHECKED BY DATE
PROFILE	PLOTTED BY DATE	CHECKED BY DATE

STA. 2+44 F & I (RAM. CO.)
10 L.F. REMOVE & SALVAGE HYDRANT, VALVE & ASSB'LY
1 EA. 12" X 6" TEE
1 EA. 6" GATE VALVE
1 EA. 6" HYDRANT
10 L.F. 6" D.I.P

NOTE: CONTRACTOR SHALL PROVIDE TEMPORARY WATER SERVICE TO STRIP CENTER AT THE NORTHWEST CORNER OF McKNIGHT ROAD AND LARPENTEUR AVENUE-RAM. CO.

POND

POND ELEV. 1014.10 MARCH, 81

STA. 2+44 ~~1 EA. ADJUST VALVE BOX (RAM. CO.)~~

EXISTING 12" D.I.P W.M.

+50 SAWCUT AS DIRECTED & MATCH EXISTING

EXISTING CONCRETE ENTRANCE APRON

0+95 END TAPER

BIT. SHOULDER

PLACE AGG. SHOULDER TO MATCH EXISTING

1" SERVICE - ABAND.

1+85 BEGIN TAPER

STA. 2+15 EXISTING SEWER SERVICE & CLEANOUT - PROTECT

CB 168

STA. 1+00 LT. 20' F & I
1 EA. 12" BUTTERFLY VALVE
150 L.F. 12" C.I.P. W.M.

REMOVE & SALVAGE 3"

32' JACKED CROSSING

McKNIGHT RD.

WILLIAMS BROS. PIPELINE

NOTE: CONTRACTOR SHALL PROVIDE BY PASS PUMPING FOR SAN. SEWER REPAIR.-(MPLWD)

SD 55

EXISTING 12" D.I.P WATERMAIN

CB 171

PLACE BIT. SHOULDER TO MATCH EXISTING

+50 END TAPER

15:1 TAPER

LARPENTEUR AVE.

SHEET NO. 115 STA. 2+50

SHEET NO. 115 STA. 3+80

MH 54

ADJUST MH. 54

SAWCUT @ STA 7+20
END OVERLAY @ STA 7+30

STA. 1+85
END WATER MAIN DEFLECTION

EXIST. 16" D.I.P WATERMAIN

CB 167

STA. 2+58 LT. 5'
REPAIR BROKEN SAN. SEWER 10" V.C.P. (MPLWD.)

CB 170

STA. 0+65
BEGIN 16" WATER MAIN DEFLECTION
REMOVE & SALVAGE PLUG
1 EA. CONNECT TO EXISTING WATER MAIN
1 EA. 16" BUTTERFLY VALVE @ 0+68 (MPLWD)

APRON 166

ADJUST FENCE

APRON 169

30' X 30' LEG Δ PROPOSED R/W ACQUISITION

45' X 60' PROPOSED R/W ACQUISITION

END CONC. C&G CONST STA 4+75

BIT. SHOULDER

7+00 END TAPER

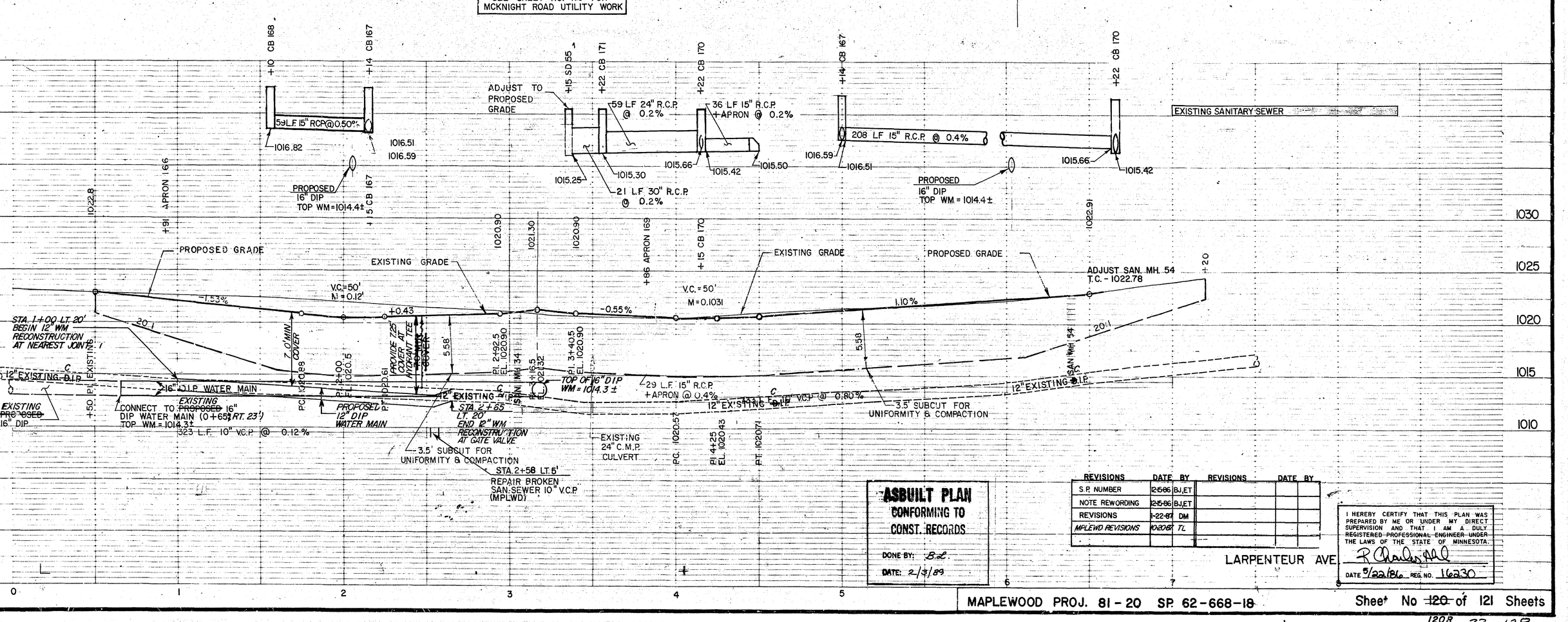
+20

STA. 1+85 BEGIN CONC. C&G

SEE MATCHLINE SHEET NO. 113

SEE MATCHLINE SHEET NO. 117

SEE SHEET NO. 115 FOR McKNIGHT ROAD UTILITY WORK



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: B.E.
DATE: 2/3/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	12-5-86	BJ,ET			
NOTE REWORDING	2-5-86	BJ,ET			
REVISIONS	1-22-87	DM			
MPLEWD REVISIONS	10-20-87	TL			

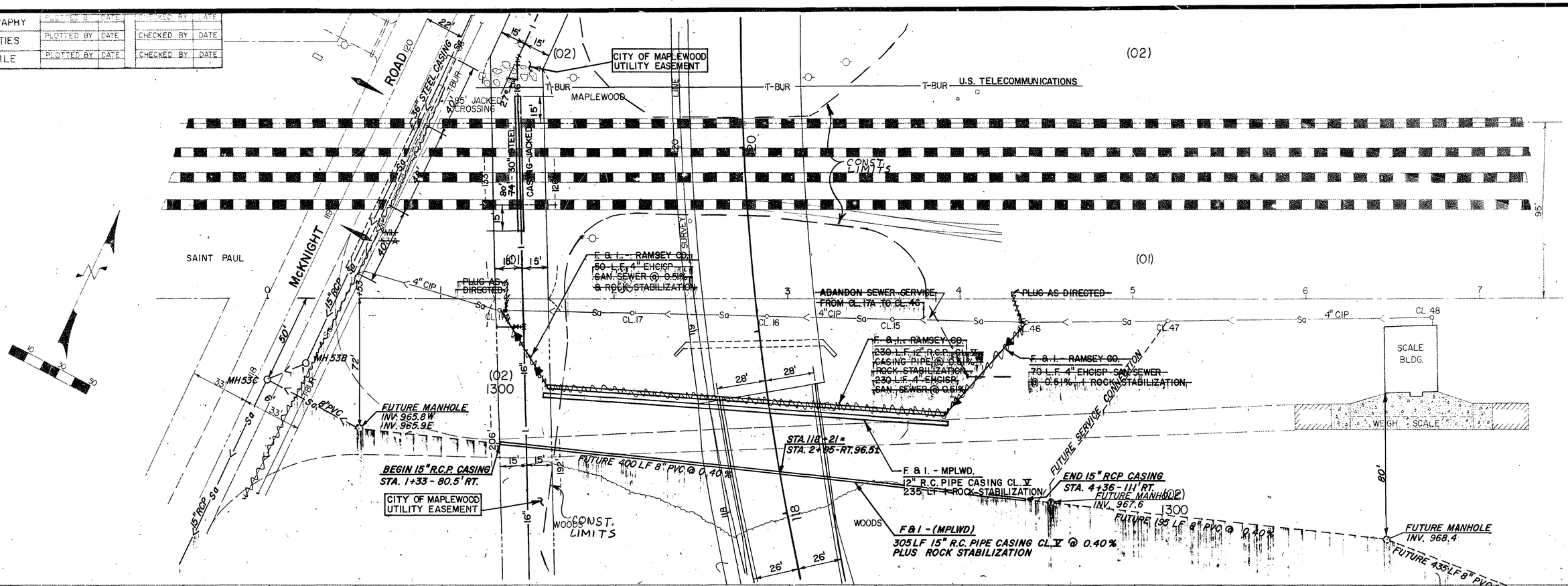
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16230

MAPLEWOOD PROJ. 81-20 SP. 62-668-18

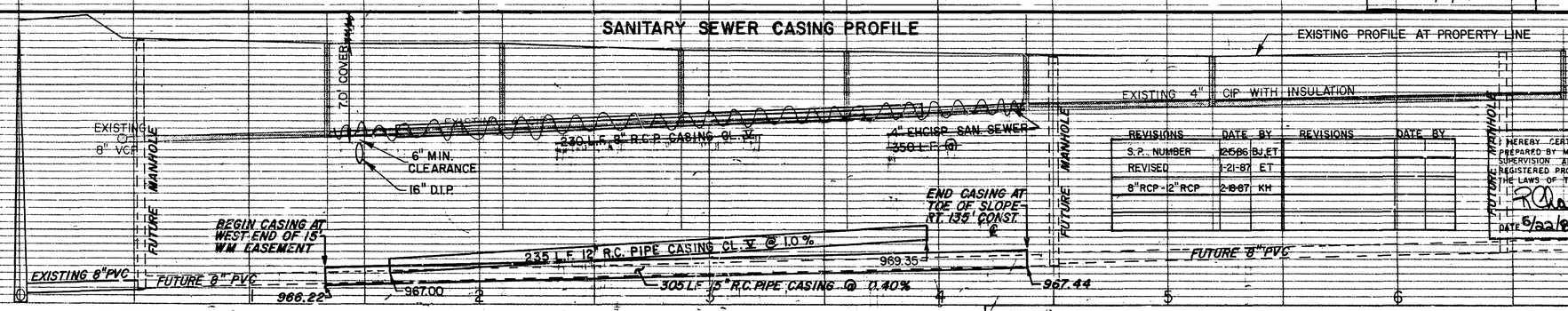
Sheet No ~~120~~ of 121 Sheets

120R 27-128

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE



SANITARY SEWER CASING PROFILE



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: B.L.
DATE: 2/3/89

REVISIONS	DATE	BY	REVISIONS	DATE	BY
S.P. NUMBER	1256	BJET			
REVISED	1-21-87	ET			
8"RCP-12"RCP	2-18-87	KH			

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 5/22/86 REG. NO. 16830

MAPLEWOOD PROJ. 81-20 SP 62-668-18 Sheet No. ~~121~~ 121B of 121 Sheets

27-128