LARPENTEUR AVE

S.P. 62-630-42

MINN.PROJ.NO. STPF 6297(082)

MINNESOTA DEPARTMENT OF TRANSPORTATION

RAMSEY COUNTY

DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE, CONCRETE SURFACING, STORM SEWER, CONCRETE CURB & GUTTER, CONCRETE SIDEWALK, UTILITY IMPROVEMENTS, AND TRAFFIC SIGNAL IMPROVEMENTS.

LARPENTEUR AVE., C.S.A.H. 30

S.P. 62-630-42 & S.P. 124-020-03

BETWEEN: MALVERN ST. AND 97 m E. OF CLEVELAND AVE. (C.S.A.H. 46)

BEGINNING: AT A POINT 291.00 m EAST OF THE SOUTHWEST CORNER OF SECTION 17; TOWNSHIP 29N; RANGE 23W

ENDING: AT A POINT 97.21 m EAST OF THE SOUTHWEST CORNER OF SECTION 16; TOWNSHIP 29N; RANGE 23W

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2–4	ESTIMATED QUANTITIES
5	INDEX OF TABULATIONS–STANDARD PLATES–CONSTRUCTION NOTES
6–7	TYPICAL SECTIONS
8–11	CHARTS
12–13	EXISTING STRUCTURE CHARTS
14–14A	PROPOSED STORM SEWER CHART
15	ENTRANCE, SILT FENCE & CURB TRANSITION DETAILS
16	STORM SEWER & P.E. PIPE DETAILS
17	SURVEY MONUMENT & PEDESTRIAN CURB RAMP DETAIL
18–20	PRECAST BLOCK WALLS
21	GASPERRE POND
22	ALIGNMENT SHEET
23–25	CONCRETE PAVING & JOINT DETAILS
26–27	CONCRETE PAVING LAYOUT
27A	SPECIAL SIDEWALK & CROSSWALK PAVING DETAILS
28–31	UTILITY PLANS
32–35	LARPENTEUR AVE. PLAN & PROFILE
36	U of M GOLF COURSE OUTLET
36A	FULHAM ST. PLAN AND PROFILE
37	EUSTIS AVE. PLAN & PROFILE
38	EUSTIS AVE. HEAD WALL DETAILS
39–72	X–SECTIONS – LARPENTEUR AVE.
73–75	X–SECTIONS – EUSTIS AVE.
76–81	LARPENTEUR AVE. STORM SEWER PROFILES
82–83	GOLF COURSE STORM SEWER X–SECTIONS
84	SIGN POSTS DETAILS
85–86	SIGN & STRIPING LAYOUT
87–100	TRAFFIC SIGNALS A (EUSTIS AVE.) & B (CLEVELAND AVE.)
101–110	TRAFFIC CONTROL PLANS
110A–110I	TUNNEL PLANS & ESTIMATED QUANTITIES (BOX CULVERT)

THIS PLAN CONTAINS 122 SHEETS

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.

Katherine Jacobsen REG. NO. 21864 DATE 11/21/96

RECOMMENDED FOR APPROVAL Paul Kirk COUNTY ENGINEER DATE 11/21/96

APPROVED _____ CHAIR OF THE RAMSEY COUNTY BOARD DATE _____

APPROVED _____ CITY OF LAUDERDALE DATE 11/21/96

APPROVED Sam Hunt CITY OF FALCON HEIGHTS DATE 11/25/96

APPROVED _____ DATE _____

APPROVED _____ DATE _____

MINNESOTA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL _____ FOR STATE AID DIVISION DATE 1-15-97

RECOMMENDED FOR APPROVAL Ann M. Cope for METRO ASSN'T. DIV ENGR.–STATE AID DATE 12-2-96

RECOMMENDED FOR APPROVAL _____ DATE _____

APPROVED Hans Reihl for STATE AID ENGINEER DATE 1-15-97

28-157

SCALES IN METERS

PLAN	0 10 20 30 / 5 15 25	GROSS LENGTH 1.416 km
PROFILE HORIZ.	0 10 20 30 / 5 15 25	BRIDGE LENGTH ----
PROFILE VERT.	0 2 6 / 1 3	EXCEPTIONS ----
INDEX	0 500 1000 / 250 750	NET LENGTH 1.416 km

RAMSEY COUNTY

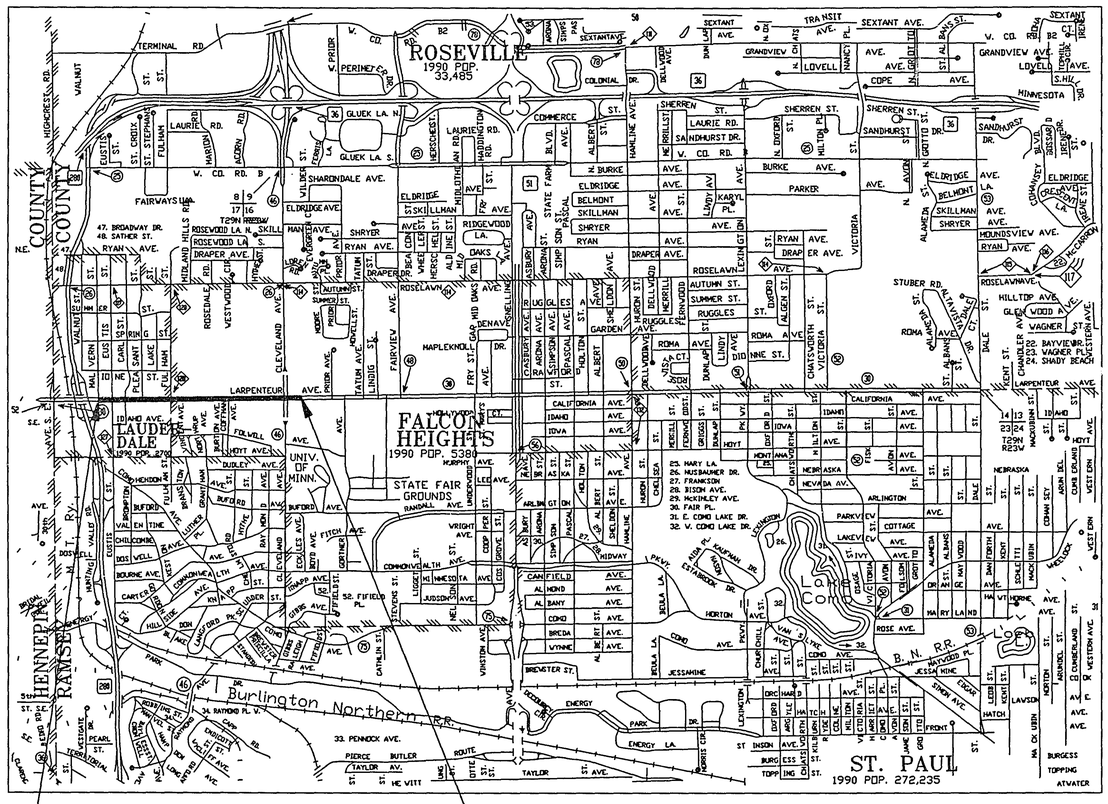
PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
EXISTING RIGHT OF WAY LINE
PROPOSED RIGHT OF WAY LINE
PROPERTY LINE
CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY
RIVER OF CREEK
CULVERT
GUARDRAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
STONE WALL
HEDGE
RAILROAD CROSSING SIGN
CROSSING GATE
MEANDER CORNER
SLOPE EASEMENT (CONST. LIMITS)
MARSH
DECIDUOUS TREE
CONIFEROUS TREE
WOODS
CATCH BASIN
BRIDGE
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE OR METAL)
WOODEN HUB

UTILITY SYMBOLS

UTILITY POLE
GUY OR ANCHOR
STREET LIGHT
TELEPHONE PEDESTAL
GAS MAIN
WATER MAIN
TELEPHONE VAULT
ELECTRIC VAULT
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
SEWER (SANITARY OR STORM)
SEWER MANHOLE
GATE VALVE
CONTROLLER CABINET
EXISTING HYDRANT
BURIED TELEPHONE CABLE

FOR PLANS AND UTILITIES SYMBOLS SEE MN/DOT TECHNICAL MANUAL.



BEGIN S.P. 62-630-42
STA. 0+291

END S.P. 62-630-42
STA. 1+707

DESIGN SQUAD B.J.,D.H.,T.L.,D.M.,A.K. DATE 6/1996

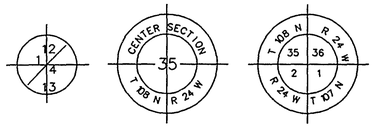
DRAWN BY D.H.,T.L.,A.K.,K.L. DATE 6/1996

CHECKED BY B.J.,K.J. DATE 5/1996

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

–GOVERNING SPECIFICATIONS–

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.



DESIGN DESIGNATION

	T.H.280 to 30 m E of PLEASANT ST	30 m E of PLEASANT ST to 97 m E of CLEVELAND
PRESENT ADT (1996)	14,300	16,500
PROJECTED ADT (2016)	17,160	19,800
FUNCTIONAL CLASS	HIGH DENSITY ARTERIAL	HIGH DENSITY ARTERIAL
TRAFFIC LANES	4	4
PARKING LANES	0	0
DESIGN SPEED	50 km/h	60 km/h
STABILOMETER "R" VALUE (240 psi)	60	60
DESIGN LOAD	9t	9t
CESALS	2,205,000	1,373,000

BASED ON STOPPING DISTANCE
HEIGHT OF EYE: 1070 millimeter
HEIGHT OF OBJECT: 150 millimeters

PLAN REVISIONS

DATE	SHEET NO. & DESCRIPTION	BY

ramsey county metro

S.P. No. 62-630-42 Sheet No. 1 of 110 Sheets

G:DWGS\LARP\TITLE\ 11/13/96

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	80% FEDERAL 20% CSAH (GROUP 1)		80% FEDERAL 15% LAUDERDALE, 5% CSAH (GROUP 2)		100% LAUDERDALE (GROUP 3)		80% FEDERAL 15% FALCON HEIGHTS, 5% CSAH (GROUP 4)		100% FALCON HEIGHTS (GROUP 5)		STORM SEWER (GROUP 6)	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
		2021.501	MOBILIZATION	LS	1		0.82				0.05		0.01		0.03		0.09	
B	5	2101.501	CLEARING	ha	0.1												0.1	
B		2101.502	CLEARING	TREE	36		36											
B	5	2101.506	GRUBBING	ha	0.1												0.1	
B		2101.507	GRUBBING	TREE	36		36											
J		2104.501	REMOVE CHAIN LINK FENCE	m	249		249											
P	1	2104.501	REMOVE PIPE SEWERS	m	748		748											
D	2	2104.501	REMOVE CURB & GUTTER	m	554		554											
J	9	2104.501	REMOVE RETAINING WALL	m	117		117											
D		2104.503	REMOVE CONCRETE MEDIAN	m^2	1581		1581											
D	2	2104.503	REMOVE CONCRETE SIDEWALK	m^2	178		178											
D	3,8	2104.503	REMOVE CONCRETE PAVEMENT	m^2	22 315		22 315											
H	3	2104.503	REMOVE BITUMINOUS PAVEMENT	m^2	8074		8074											
S		2104.509	REMOVE MANHOLE OR CATCH BASIN	EACH	13		13											
M		2104.509	REMOVE VALVE & BOX	EACH	6						6							
C	10	2104.511	SAWING CONCRETE PAVEMENT	m	117		117											
I		2104.513	SAWING BITUMINOUS PAVEMENT	m	698		698											
L	17	2104.521	SALVAGE FENCE	m	174		174											
L		2104.521	SALVAGE CHAIN LINK FENCE	m	93		93											
L		2104.521	SALVAGE WOOD RAIL FENCE	m	32		32											
L	18	2104.523	SALVAGE VEHICULAR GATE	EACH	1		1											
S		2104.523	SALVAGE CASTING	EACH	14		14											
	11	2104.523	SALVAGE SIGN TYPE SPECIAL	EACH	65		65											
		0104.601	SALVAGE IRRIGATION EQUIPMENT	LS	1		1											
Y	22	2105.501	COMMON EXCAVATION	m^3	30 684(P)		30 684(P)											
Y	5,22	2105.515	UNCLASSIFIED EXCAVATION	m^3	730												730	
Y		2105.522	SELECT GRANULAR BORROW (LV)	m^3	31 797		31 797											
		2105.525	TOPSOIL BORROW (LV)	m^3	974		974											
	24	0123.601	TRACTOR MOUNTED BACKHOE	HOUR	50		50											
	4	2130.501	WATER	m^3	378		378											
E	19	2211.503	AGGREGATE BASE (CV) CLASS 6	m^3	7910(P)		7495(P)				43*(P)				372**(P)			
A		2301.502	CONCRETE PAVEMENT STANDARD WIDTH 200 mm	m^2	20 126		20 126											
A		2301.503	CONCRETE PAVEMENT IRREGULAR WIDTH 200 mm	m^2	7481		7481											
		2301.513	STRUCTURAL CONCRETE – HIGH EARLY	m^3	5521		5521											
		2301.529	REINFORCEMENT BARS (EPOXY COATED)	kg	6527		6527											
		2301.538	DOWEL BAR	EACH	19,500		19,500											
		0301.604	PERMANENT TERMINAL HEADER	m	19.8		19.8											
G	12	2340.508	TYPE 31 WEARING COURSE MIXTURE	t	271		271											
G	13	2340.508	TYPE 41 WEARING COURSE MIXTURE	t	258		258											
G	14	2340.510	TYPE 31 BINDER COURSE MIXTURE	t	659		659											
		2340.518	TYPE 31 BITUMINOUS MIXTURE FOR PATCHING	t	418		418											
G	15	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	LITER	1016		1016											
		2411.507	CONCRETE HEADWALL	EACH	1												1	
		0411.603	CONCRETE BLOCK RETAINING WALL	m^2	561		561											
AA		0412.602	RELOCATE MAIL BOX	EACH	3		3											
BB		0501.602	TRASH GUARD FOR 375 mm PIPE APRON	EACH	2												2	
BB		0501.602	TRASH GUARD FOR 525 mm PIPE APRON	EACH	1												1	
BB		0501.602	TRASH GUARD FOR 750 mm PIPE APRON	EACH	1												1	
BB		2501.515	375 mm RC PIPE APRON	EACH	2												2	
BB		2501.515	525 mm RC PIPE APRON	EACH	1												1	
BB		2501.515	750 mm RC PIPE APRON	EACH	1												1	
Q		2502.541	100 mm PERF PE PIPE DRAIN	m	2792		2792											

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 LAWS OF THE STATE OF MINNESOTA.

Daniel F. Sohn

REG. NO. 20452 DATE 1/14/97

REVISED 01/14/97

* 80% FEDERAL, 20% LAUDERDALE
** 80% FEDERAL, 20% FALCON HEIGHTS

ESTIMATED QUANTITIES

28-157

S.P. 62-630-42

G:\DWGS\LARP\CHART1 01/14/97

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	80% FEDERAL 20% CSAH (GROUP 1)		80% FEDERAL 15% LAUDERDALE, 5% CSAH (GROUP 2)		100% LAUDERDALE (GROUP 3)		80% FEDERAL 15% FALCON HEIGHTS, 5% CSAH (GROUP 4)		100% FALCON HEIGHTS (GROUP 5)		STORM SEWER (GROUP 6)	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
BB		2503.541	375 mm RCP SEWER DES 3006 CL V	m	607.3												607.3	
BB		2503.541	450 mm RCP SEWER DES 3006 CL V	m	410.8												410.8	
BB		2503.541	525 mm RCP SEWER DES 3006 CL III	m	44.7												44.7	
BB		2503.541	600 mm RCP SEWER DES 3006 CL III	m	46.3												46.3	
BB		2503.541	750 mm RCP SEWER DES 3006 CL V	m	346.3												346.3	
BB		2503.541	825 mm RCP SEWER DES 3006 CL IV	m	35.3												35.3	
BB		2503.541	900 mm RCP SEWER DES 3006 CL III	m	170.7												170.7	
U		2503.511	150 mm PVC PIPE SEWER	m	224						224							
U	7	0503.602	RECONNECT TO EXISTING SANITARY SEWER SERVICE	EACH	12						12							
U	7	0503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	12						12							
CC		0504.602	HYDRANT	EACH	7						7							
	22	0504.602	AIR RELEASE VALVE AND TEE	EACH	1						1							
	23	0504.602	LOWER WATERMAIN	EACH	5						5							
O		0504.602	150 mm GATE VALVE & BOX	EACH	9						9							
O		0504.602	CONNECT TO EXISTING WATERMAIN	EACH	9						9							
M		0504.602	ADJUST VALVE BOX	EACH	20		20											
N		0504.602	ADJUST CURB BOX	EACH	16		16											
O		0504.602	200 mm GATE VALVE & BOX	EACH	5						5							
O		0504.602	300 mm GATE VALVE & BOX	EACH	2						2							
K		0504.602	ADJUST HYDRANT	EACH	1		1											
K		0504.602	RELOCATE HYDRANT & VALVE	EACH	8		8											
N		0504.603	WATER SERVICE TRENCH EXCAVATION	m	38						38							
O		0504.603	150 mm WATER MAIN D.I.P. CL 52	m	101						101							
O		0504.603	200 mm WATER MAIN D.I.P. CL 52	m	496						496							
O		0504.603	300 mm WATER MAIN D.I.P. CL 52	m	426						426							
R		0504.605	100 mm POLYSTYRENE INSULATION	m^2	71.5		71.5											
		0504.620	DUCTILE IRON FITTINGS	kg	1000						1000							
BB		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN A OR F	EACH	50												49	
BB		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DESIGN C OR G	EACH	10												8	
BB		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DES 1350-4020	EACH	5												5	
BB		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DES 1650-4020	EACH	1												1	
BB		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DES 1800-4020	EACH	1												1	
	5	2506.502	CONSTRUCT DRAINAGE STRUCTURE, DESIGN SPECIAL1	EACH	1												1	
	7,25	0506.602	CONSTRUCT CONTROL STRUCTURE	EACH	2		2											
S		2506.516	CASTING ASSEMBLY	EACH	2		2											
S		0506.603	RECONSTRUCT SANITARY MANHOLES	m	4.6		4.6											
S		2506.521	INSTALL CASTING	EACH	4		4											
S		2506.522	ADJUST FRAME & RING CASTING	EACH	22		22											
S	16	2511.501	RANDOM RIPRAP CLASS IV	m^3	24.4												24.4	
	5	2511.515	GEOTEXTILE FILTER TYPE SPECIAL	m^2	350												350	
		0521.602	50 mm CONCRETE CROSSWALK	m^2	184										184			
A		2521.501	100 mm CONCRETE WALK	m^2	3025		1736				261*				1028**			
A		2521.501	100 mm CONCRETE WALK SPECIAL	m^2	1231										1231			
A		2531.501	CONC CURB & GUTTER DES B624	m	3839		1672		519				1648					
A		2531.501	CONC CURB & GUTTER DES B612	m	816		816											
A	20	2531.507	200mm CONCRETE DRIVEWAY PAVEMENT	m^2	446		446											

* 80% FEDERAL, 20% LAUDERDALE
** 80% FEDERAL, 20% FALCON HEIGHTS

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 LAWS OF THE STATE OF MINNESOTA.

Daniel F. Sohn

REG. NO. 20452 DATE 1/14/97

ESTIMATED QUANTITIES

REVISED 01/14/97

28-157

S.P. 62-630-42

G:\DWGS\LARP\CHART1 01/14/97

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES	80% FEDERAL 20% CSAH (GROUP 1)		80% FEDERAL 15% LAUDERDALE, 5% CSAH (GROUP 2)		100% LAUDERDALE (GROUP 3)		80% FEDERAL 15% FALCON HEIGHTS, 5% CSAH (GROUP 4)		100% FALCON HEIGHTS (GROUP 5)		STORM SEWER (GROUP 6)	
							ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
	21	0531.602	CONCRETE MEDIAN NOSE - SPECIAL	EACH	17		17											
		0531.602	PEDESTRIAN CURB RAMP	EACH	35		35											
L	6,18	0557.602	INSTALL VEHICULAR GATE	EACH	1		1											
F	6	0564.602	RELOCATE SIGN	EACH	5		5											
L	6	0557.603	INSTALL WOOD RAIL FENCE	m	32		32											
L	6,17	0557.603	INSTALL FENCE	m	174		174											
L	6	0557.603	INSTALL CHAIN LINK FENCE	m	93		93											
X	6	2557.501	WIRE FENCE DESIGN 1.2 m-9322	m	179		179											
X	6	2557.501	WIRE FENCE DESIGN 1.8 m-9322	m	280		280											
X	6	2557.523	METAL BRACE ASSEMBLY (CH LINK FE)	EACH	31		31											
X	6	2557.527	ELECTRICAL GROUND	EACH	17		17											
X	6	2557.516	PEDESTRIAN GATE	EACH	1		1											
X	6	2557.517	VEHICULAR GATE-SINGLE	EACH	1		1											
X	6	2557.517	VEHICULAR GATE-DOUBLE	EACH	1		1											
		0563.601	TRAFFIC CONTROL	LS.	1		0.82				0.05		0.01		0.03		0.09	
		0563.602	FLASHER TYPE A (LOW INTENSITY)	UN/DAY	200		200											
		0563.602	TYPE III BARRICADES	UN/DAY	100		100											
		0564.602	PAVEMENT MESSAGE (LEFT ARROW) EPOXY	EACH	13		13											
		0564.603	100 mm SOLID LINE WHITE-EPOXY	m	1990		1990											
		0564.603	100 mm SOLID LINE YELLOW-EPOXY	m	2150		2150											
		0564.603	100 mm BROKEN LINE WHITE-EPOXY	m	480		480											
		0564.603	100 mm BROKEN LINE YELLOW-EPOXY	m	40		40											
		0564.604	CROSSWALK MARKING-EPOXY	m^2	156		156											
		2564.531	SIGN PANELS TYPE C	m^2	39.6		39.6											
		2564.531	SIGN PANELS TYPE D	m^2	9.2		9.2											
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM A	SIG SYS	1		1											
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM B	SIG SYS	1		1											
		0565.601	EMERGENCY VEHICLE PRE EMPTION SYSTEM A	LS	1						1							
		0565.601	EMERGENCY VEHICLE PRE EMPTION SYSTEM B	LS	1										1			
Z		2573.502	SILT FENCE, TYPE HEAVY DUTY	m	631		631											
		2575.505	SODDING TYPE LAWN	m^2	13 343		12 993										350	
		2575.532	COMMERCIAL FERT ANALYSIS 10-20-20	kg	523		523											

SEE SHEET 110A FOR
ESTIMATED QUANTITIES FOR TUNNEL

SEE QUANTITY NOTES AND INDEX TO
TABULATION CHARTS SHEET NO. 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 LAWS OF THE STATE OF MINNESOTA.

Daniel E. Sohn

REG. NO. 20452 DATE 1/14/97

REVISED 01/14/97

ESTIMATED QUANTITIES

28-157

G:\DWGS\LARP\CHART1 01/14/97

BASIS FOR ESTIMATED QUANTITIES

2211.501 – AGGREGATE BASE – 2242.54kg PER m3
2340.XXX – BITUMINOUS MIXTURES – 59.67kg/m2 PER 25mm THICKNESS
2357.502 – BITUMINOUS MATERIAL FOR TACK COAT ESTIMATED AT 0.23 LITRE PER m2 PER APPLICATION
2575.531 – FERTILIZER 392kg / ha

QUANTITY NOTES

1. SHALL INCLUDE APRONS
2. REMOVE TO NEAREST JOINT
3. ALL PAVEMENT REGARDLESS OF THICKNESS
4. FOR DUST CONTROL
5. GASPARRE POND
6. LOCATIONS TO BE DETERMINED BY ENGINEER
7. SEE SPECIAL PROVISIONS
8. INCLUDES CONCRETE ENTRANCES
9. REMOVE FLAGSTONE WALL INCLUDING CONCRETE STEPS
10. SAWCUT SHALL BE FULL DEPTH
11. SALVAGE TRAFFIC SIGNS AS DIRECTED BY ENGINEER
12. ENTRANCES–224t ; BIKE PATH–11t
13. SIDESTREETS–15t
14. ENTRANCES–224t ; BIKE PATH–11t ; SIDESTREETS–24t
15. ENTRANCES–432 L, BIKE PATH–27 L, SIDESTREETS–29 L
16. SEE SHEETS 14, 14A, AND 23
17. HIGH TENSILE WIRE FENCE
18. DOUBLE GATE
19. RECYCLED, SEE SPECIAL PROVISIONS
20. PAVEMENT SHALL BE HIGH EARLY
21. 13 – STANDARD PLATE 7113, 4 – STANDARD PLATE 7109
22. 50 mm
23. 4 – 200 mm, 1 – 300 mm
24. TO BE USED FOR UTILITY LOCATION
25. SURVEY MONUMENT MANHOLE – SEE DETAIL SHEET 17

INDEX OF TABULATION CHARTS

SHEET NO.	CHART	DESCRIPTION
8	A	CONCRETE QUANTITIES
9	B	CLEAR & GRUB
8	C	SAWCUT CONCRETE
8	D	REMOVE CONC. PAVEMENT, C&G, SIDEWALK
9	E	AGGREGATE BASE, CL.6
11	F	RELOCATE SIGNS
8	G	BITUMINOUS QUANTITIES
9	H	REMOVE BITUMINOUS PAVEMENT
9	I	SAWCUT BITUMINOUS PAVEMENT
11	J	MISCELLANEOUS REMOVALS
10	K	HYDRANTS – ADJUSTS & RELOCATES
11	L	SALVAGE & INSTALL FENCE
10	M	GATE VALVE ADJUST & REMOVE
10	N	WATER SERVICES EXISTING
10	O	WATERMAIN, GATEVALVES, HYDRANTS,
11	P	REMOVE STORM SEWER
10	Q	100mm PE PERFORATTED PIPE
10	R	100 mm POLYSTRENE INSULATION
12	S	EXISTING STRUCTURES
13	T	EXISTING STRUCTURES (EUSTIS ST)
13	U	REPLACE EXISTING SEWER SERVICES
13	V	BENCH MARK CHART
9	W	EXISTING POWER POLES
11	X	F & I CHAIN LINK FENCE
9	Y	EARTHWORK SUMMARY
13	Z	SILT FENCE
11	AA	RELOCATE MAILBOX
14,15	BB	PROPOSED DRAINAGE CHART
10	CC	HYDRANT FURNISH & INSTALL
84	DD	SIGN PANELS TYPE C
100	EE	SIGN PANELS TYPE D

CONSTRUCTION NOTES

UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.

CONTRACTOR SHALL NOTIFY PROPERTY OWNERS 72 HOURS IN ADVANCE OF DISRUPTION TO SANITARY SEWER AND WATERMAIN SERVICES.

CONTRACTOR SHALL MINIMIZE INTERRUPTION OF SANITARY SEWER AND WATER SERVICE TO ADJACENT PROPERTIES. ANY PROPERTY OUT OF SERVICE LONGER THAN 8 HOURS MUST BE PROVIDED WITH TEMPORARY SERVICE.

NEW SANITARY SEWER AND WATER SERVICE LOCATIONS ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE CITY PRIOR TO CONSTRUCTION. SERVICE LOCATIONS MAY BE ADJUSTED AS REQUESTED BY THE CITY AND AS APPROVED BY THE ENGINEER.

ANY DEWATERING AND OR ANY USE OF TRENCH BOX, SHEETING, SHORING OR OTHER METHODS OR MEANS OF CONSTRUCTION NECESSARY TO COMPLETE CONSTRUCTION WITHIN THE CONSTRUCTION LIMITS OR SLOPE EASEMENTS SHOWN WILL BE CONSIDERED TO BE INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.

PROVIDE FOR REMOVAL AND DISPOSAL (OUTSIDE THE CONSTRUCTION ZONE) OF ALL INPLACE STRUCTURES THAT WILL INTERFERE WITH CONSTRUCTION. DISPOSAL OF ITEMS REMOVED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE REQUIRLMENTS OF 2104.3C3.

EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3 AND 2105.3D

SODDING QUANTITIES ALONG ROADWAY SLOPES ARE BASED ON SODDING LIMITS FROM THE BACK OF THE CURB TO THE CONSTRUCTION LIMITS.

COMPACTION OF GRADING ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SPEC. 2105.3F2 " QUALITY COMPACTION METHOD".

WHEN EXCAVATING ADJACENT TO INPLACE PAVEMENT, NO MATERIAL SHALL BE REMOVED FROM INSIDE AN APPROXIMATE 1/2:1 SLOPED LINE DRAWN DOWNWARD AND OUTWARD FROM THE BOTTOM OF THE INPLACE PAVEMENT.

WHEN CONNECTION TO EXISTING BITUMINOUS PAVEMENT IS REQUIRED, THE EDGE OF EXISTING PAVEMENT SHALL BE CUT TO A NEAT LINE PRIOR TO CONSTRUCTING ASPHALT SURFACING.

STABILIZING AGGREGATE SHALL BE APPLIED IF NECESSARY TO ACHIEVE SATISFACTORY SURFACE STABILITY AS DETERMINED BY THE ENGINEER. THE MATERIAL SHALL SATISFY THE REQUIREMENTS OF SECTION 3149.2C AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 2105.3G OF THE STANDARD SPECIFICATIONS.

USE TACK COAT BETWEEN ALL BITUMINOUS LIFTS.
COMPACTION OF ALL BITUMINOUS ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE "ORDINARY COMPACTION METHOD".

WATER, GAS, ELECTRIC,TELEPHONE, SEWER, AND T.V. CABLE LINES SHOWN ON THE DRAWINGS AND CROSS–SECTIONS ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION, BUT MAY NOT REFLECT ACTUAL LOCATIONS OR ELEVATIONS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCITON WHICH MAY BE AFFECTED BY A UTILITY CONFLICT. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE OWNERS OF ALL KNOWN UTILITIES BEFORE STARTING ANY OPERATIONS AFFECTING THOSE PROPERTIES, OR BEGINNING EXCAVATION IN THE VICINITY OF THOSE PROPERTIES. THE CONTRACTORS ATTENTION IS DIRECTED TO SECTION 1507 IN THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 1 FOOT BETWEEN CROSSING OF EXISTING MINOR WATER LINES AND PROPOSED STORM SEWER LINES. WHERE CONFLICTS OCCUR, THE WATER LINE SHALL BE RELOCATED WHERE DIRECTED BY THE ENGINEER. METHOD OF COMPENSATION IS COVERED UNDER THE SPECIAL PROVISIONS.

ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN INCIDENTAL WORK FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE.

PEDESTRIAN CURB RAMPS SHALL BE INSTALLED IN ALL STREET RADII. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. RAMPS SHALL BE PER STANDARD PLATE 7036 AND AS MODIFIED BY THE DETAIL IN THIS PLAN.

STANDARD DETAIL PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
1070 K	REINFORCED PANEL OVER CULVERTS
M1103 J	TYPICAL DOWEL BAR ASSEMBLY
1141 D	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION
M1150 P	CONSTRUCTION OF HEADER JOINTS
M3000 L	REINFORCED CONCRETE PIPE
M3006 G	GASKET JOINT FOR REINFORCED CONCRETE PIPE
M3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
M3133 B	RIPRAP AT RCP OUTLETS
M3145E	**CONCRETE PIPE TIES (U BOLT OR EYE BOLT)**
M4000 J	MANHOLE OR CATCH BASIN DESIGN A
M4002 F	MANHOLE OR CATCH BASIN DESIGN C
M4005 L	MANHOLE OR CATCH BASIN DESIGN F
M4006 L	MANHOLE OR CATCH BASIN DESIGN G AND H
M4010 H	CONCRETE SHORT CONE AND ADJUSTING RING
M4011 E	PRECAST CONCRETE BASE
M4020 G	MANHOLE OR CATCH BASIN COVER FOR USE WITH OR WITHOUT TRAFFIC LOADS
M4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
M4110 E	COVER CASTING FOR MANHOLE
M4129 C	CATCH BASIN FRAME CASTING
M4140 D	SPECIAL GRATE CASTING FOR CATCH BASIN
4151 B	GRATE CASTING FOR CATCH BASIN
M4160 D	CURB BOX CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
M7000 E	INTEGRANT CURBS
M7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
M7036 D	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED
M7100 G	CONCRETE CURB & GUTTER
7109 C	MEDIAN NOSE AND ISLAND
M7111 J	INSTALLATION OF CATCH BASIN CASTINGS
M7112 C	INSTALLATION & REINFORCEMENT OF CATCH BASINS AND MANHOLES
M7113 A	CONCRETE APPROACH NOSE DETAIL
M8000 I	STANDARD BARRICADES
8110 C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
8117 F	PRECAST CONCRETE HANDHOLE
M8120 K	POLE FOUNDATION (PA85)
M8121 D	TRANSFORMER BASE WITH POLE BASE PLATE
M8123 D	POLE AND MAST ARM (FOR ALL POLE TYPES)
8124 D	MAST ARM SIGNAL HEAD MOUNTS
M8126 F	POLE FOUNDATION (PA90 AND PA100)
8130 D	SAW CUT LOOP DETECTORS
M9102 D	TURF ESTABLISHMENT AREAS
M9322 J	CHAIN LINK FENCE

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 LAWS OF THE STATE OF MINNESOTA.

Daniel F. Sohn

REG. NO. 20452 DATE 1/14/97

REVISED 01/14/97

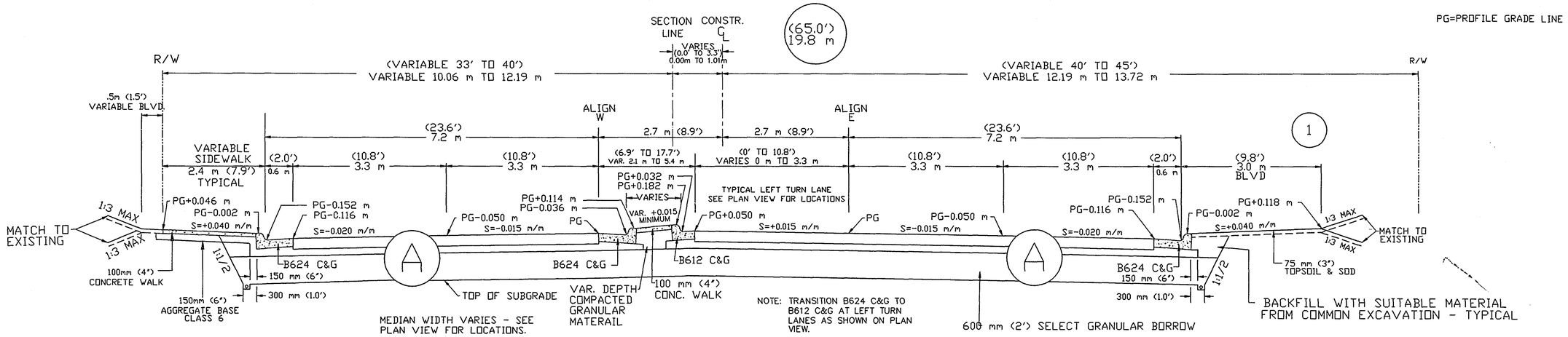
INDEX OF TABULATIONS
CONSTRUCTION NOTES
STANDARD DETAIL PLATES
QUANTITY NOTES

28-157

S.P. 62–630–42

G:\DWGS\LARP\CHART1 01/14/97

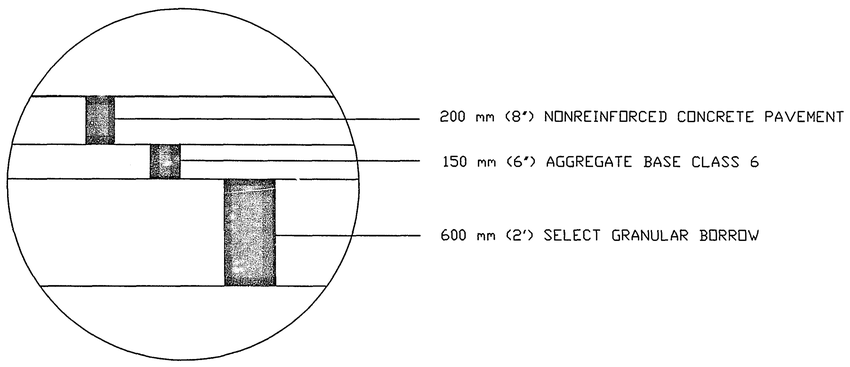
PG=PROFILE GRADE LINE

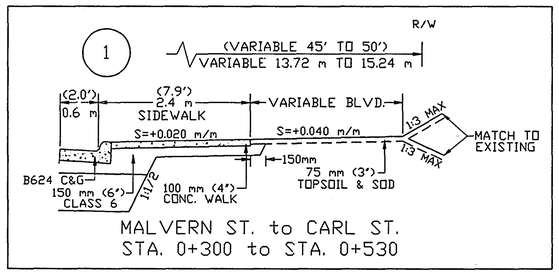


NOTE: A 0.5 m CLEAR ZONE IS REQUIRED FROM FACE OF CURB TO ANY FIXED OBJECT

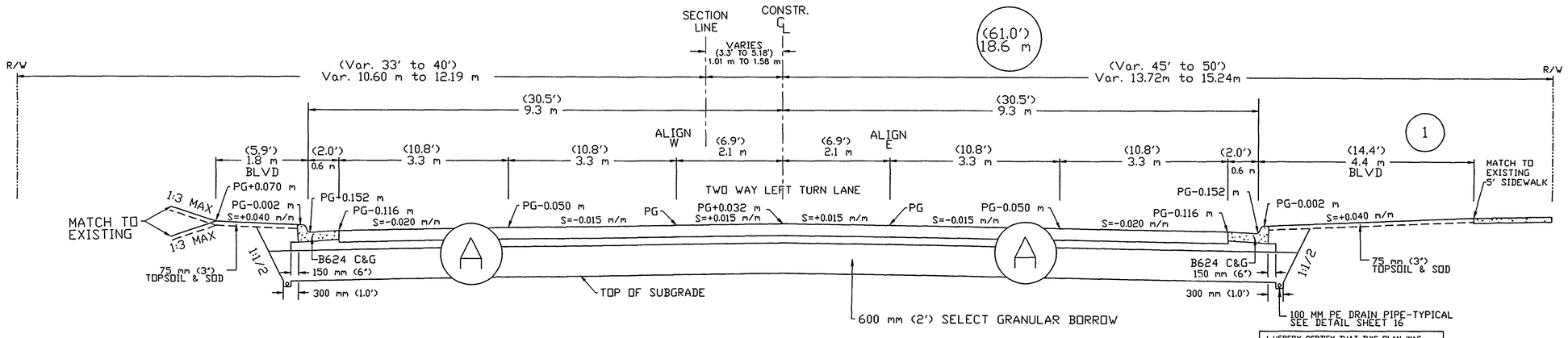
MALVERN ST. to 25 m EAST OF EUSTIS AVE.
STA. 0+300 to STA. 0+437

DETAIL A





MALVERN ST. to CARL ST.
STA. 0+300 to STA. 0+530



25 m EAST OF EUSTIS AVE. to PLEASANT ST.
STA. 0+437 to STA. 0+606

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jarabek

REG. NO. 21864 DATE 11/21/96

ramsey county metric

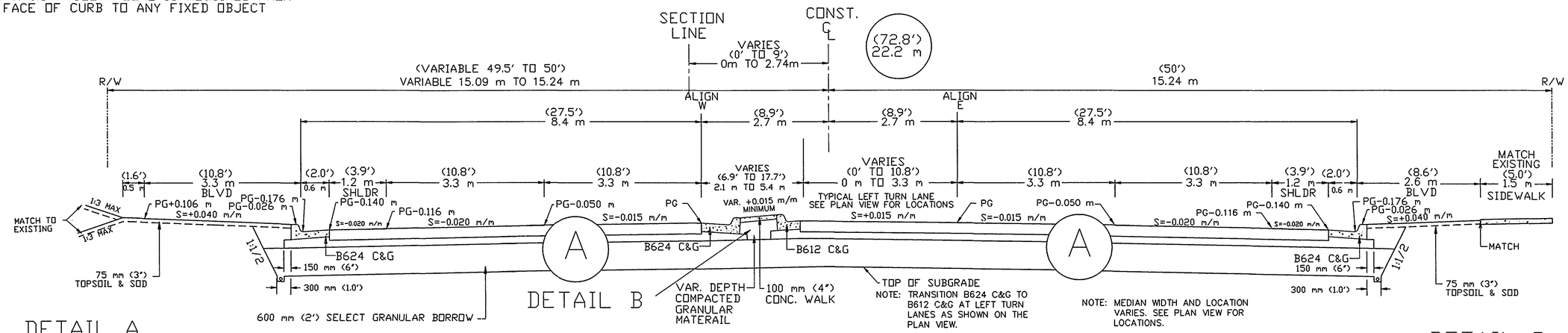
28-157

TYPICAL SECTIONS

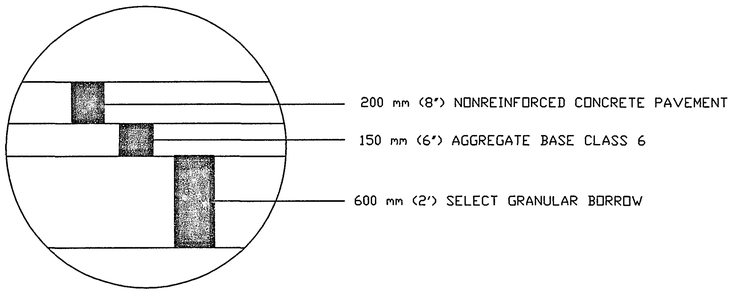
G:\DWGS\LARP\TYPICAL1 10/22/96

PG=PROFILE GRADE LINE

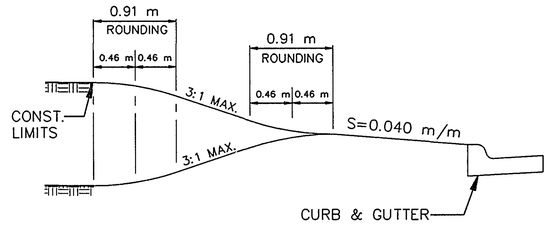
NOTE: A 0.5 m CLEAR ZONE IS REQUIRED FROM FACE OF CURB TO ANY FIXED OBJECT



DETAIL A

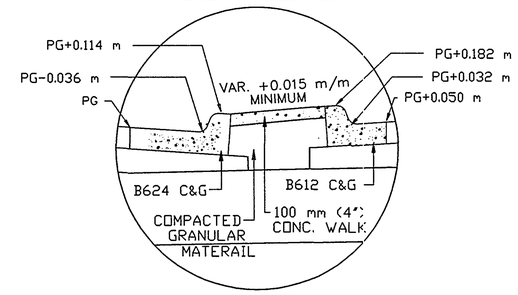


PLEASANT AVE. TO FULHAM ST.
STA. 0+606 to STA. 0+805



SLOPE ROUNDING DETAIL

DETAIL B

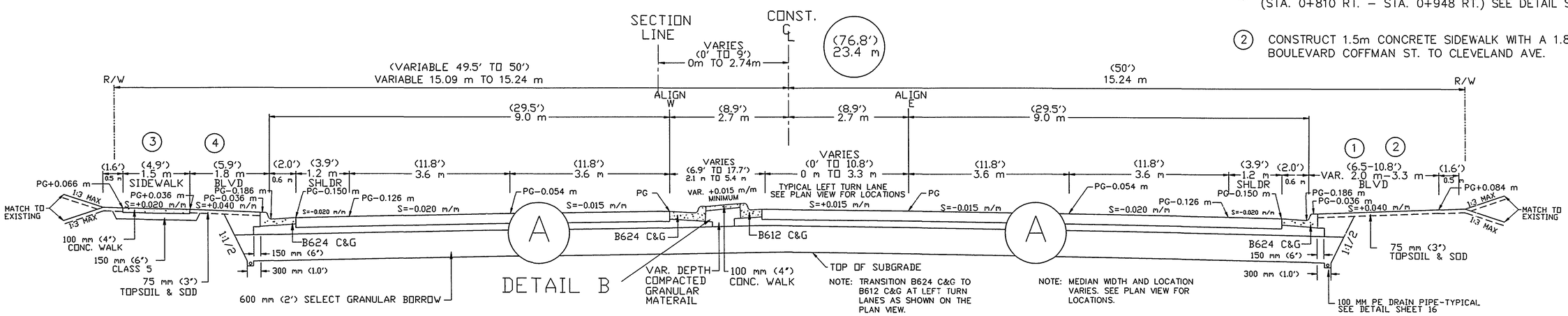


NORTH SIDE SIDEWALK EXCEPTION – 1.8 m (5.9') BLVD.

FROM COFFMAN STREET TO CLEVELAND AVENUE (STA. 1+220 TO STA. 1+608)

(1) CONSTRUCT PRECAST BLOCK RETAINING WALL #1 (STA. 0+810 RT. – STA. 0+948 RT.) SEE DETAIL SHEET #18

(2) CONSTRUCT 1.5m CONCRETE SIDEWALK WITH A 1.8m BOULEVARD COFFMAN ST. TO CLEVELAND AVE.



FULHAM ST. TO CLEVELAND AVE.
STA. 0+805 to STA. 1+635

(3) CONSTRUCT PRECAST BLOCK RETAINING WALL #2 (STA. 0+840 LT. – STA. 0+945 LT.) & WALL #3 (STA. 0+975 LT. – STA.1+062 LT.) SEE DETAIL SHEET #19 & #20

(4) CONSTRUCT 1.5m CONCRETE SIDEWALK WITH 1.8m BOULEVARD FULHAM ST. TO COFFMAN ST.

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jasschke

REG. NO. 21864 DATE 11/21/96

ramsey county metro

28-157 TYPICAL SECTIONS

S.P. 62-630-42

G:\DWGS\LARP\TYPICAL1 10/22/96

S

EXISTING STRUCTURES CHART

STATION	LOCATION CONST. ℄	NUMBER	TYPE	DESIGN	PROFILE ELEVATION	ORIG. GRATE ELEVATION	NEW GRATE ELEVATION	CB/MH INVERT ELEVATION	ADJUST CASTING	RECONST CB/MH m	INSTALL CASTING	F&I CASTING	REMARKS
0+263.3	LT. 8.8	CB 1530	CB	STORM	-----	288.135	-----	285.790	-----				O.K. – OUTSIDE CONST. LIMITS
0+265.5	RT. 9.1	CB 1529	CB	STORM	-----	288.260	-----	285.610	-----				O.K. – OUTSIDE CONST. LIMITS
0+272.5	LT. 8.8	CB 1531	CB	STORM	-----	288.515	-----	286.810	-----				O.K. – OUTSIDE CONST. LIMITS
0+296.9	LT. 3.3	MH 1532	VAULT	ELEC	-----	289.570	-----	287.010	-----				O.K. – OUTSIDE CONST. LIMITS
0+302.7	RT. 6.4	MH 1533	MH	SAN	289.739	289.675	289.660	286.660	–0.015				
0+359.6	LT. 6.9	MH XXXX	MH	SAN	XXX.XXX	XXX.XXX	-----	XXX.XXX	-----				REMOVE / SALVAGE CASTING–VERIFY LOCATION IN FIELD
0+398.4	LT. 4.9	MH 1542	VAULT	ELEC	292.243	292.180	292.191	289.805	0.011				N.S.P.
0+398.4	RT. 33.5	MH 1537	VAULT	ELEC	292.242	290.530	-----	288.245	-----				O.K. – OUTSIDE CONST. LIMITS
0+401.7	RT. 5.2	MH 1534	MH	SAN	292.322	292.205	292.266	289.310	0.061				
0+408.4	LT. 11.0	CB 1540	CB	STORM	-----	292.175	-----	290.255	-----			A–8	RECONSTRUCT AS MH / SALVAGE CASTING
0+408.7	RT. 60.3	AP 1539	AP	STORM	292.490	-----	-----	288.135	-----				O.K. – OUTSIDE CONST. LIMITS
0+409.0	LT. 20.4	MH 1541	MH	STORM	292.497	292.745	-----	291.680	-----				O.K. – OUTSIDE CONST. LIMITS
0+409.3	RT. 31.4	AP 1538	AP	STORM	292.504	-----	-----	290.735	-----				O.K. – OUTSIDE CONST. LIMITS
0+409.6	RT. 8.2	MH 1535	MH	STORM	292.512	292.360	292.396	289.985	0.036				
0+415.1	RT. 8.2	CB 1536	CB	STORM	292.639	292.475	292.539	290.100	-----			A–8	SALVAGE CASTING/CONVRT TO MH F&I 700–8&716
0+418.2	RT. 83.6	MH 1536A	MH	SAN	292.707	290.31	-----	287.84	-----				O.K. – OUTSIDE CONST. LIMITS
0+442.0	LT. 7.2	MH XXXX	MH	SAN	XXX.XXX	XXX.XXX	-----	XXX.XXX	-----				REMOVE / SALVAGE CASTING–VERIFY LOCATION IN FIELD
0+466.8	LT. 5.5	MH 1543	VAULT	ELEC	293.399	293.085	293.338	290.465	0.253				N.S.P.
0+481.3	RT. 4.6	MH 1544	MH	SAN	293.572	293.500	293.524	289.935	0.024				
0+495.0	LT. 8.2	CB 1546	CB	STORM	-----	293.615	-----	291.910	-----				REMOVE / SALVAGE CASTING
0+495.0	RT. 8.2	CB 1545	CB	STORM	-----	293.610	-----	291.690	-----				REMOVE / SALVAGE CASTING
0+574.5	RT. 23.5	SD 1552	SD	STORM	294.685	292.380	-----	290.855	-----				O.K. – OUTSIDE CONST. LIMITS
0+579.1	LT. 8.2	CB 1547	CB	STORM	-----	294.640	-----	292.660	-----				REMOVE/SALVAGE CASTING
0+580.3	LT. 7.7	MH XXXX	MH	SAN	XXX.XXX	XXX.XXX	-----	XXX.XXX	-----				REMOVE / SALVAGE CASTING–VERIFY LOCATION IN FIELD
0+588.3	RT. 23.5	AP 1547A	AP	STORM	294.863	-----	-----	292.470	-----				O.K. – OUTSIDE CONST. LIMITS
0+593.4	RT. 24.7	LS 1553	LS	STORM	294.931	294.085	-----	-----	-----				O.K. – OUTSIDE CONST. LIMITS
0+606.5	RT. 4.6	MH 1550	MH	SAN	295.106	295.045	295.058	289.635	0.013				
0+609.3	LT. 6.7	MH 1548	VAULT	ELEC	295.143	295.050	295.065	292.612	0.015				N.S.P.
0+612.3	RT. 3.6	MH 1551	VAULT	ELEC	295.183	295.155	295.161	292.565	0.006				N.S.P.
0+618.4	LT. 17.7	MH 1600	MH	SAN	295.264	296.105	-----	292.995	-----				O.K. – OUTSIDE CONST. LIMITS
0+623.0	RT. 23.5	AP 1601A	AP	STORM	295.326	-----	-----	292.880	-----				O.K. – OUTSIDE CONST. LIMITS
0+620.3	LT 11.9	AP 1601	AP	STORM	-----	-----	-----	294.560	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL
0+625.1	LT 12.5	AP 1602	AP	STORM	-----	-----	-----	294.665	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL
0+747.7	RT. 2.7	MH 1554	VAULT	ELEC	296.547	296.530	296.547	293.725	0.017				N.S.P.
0+896.7	RT. 2.4	MH 1603	VAULT	ELEC	297.353	297.370	297.358	294.780	–0.012				N.S.P.
0+961.3	LT. 11.6	MH 1604	MH	SAN	297.460	297.540	297.310	295.435	-----	1.18	1		RECONSTRUCT WITH 1.22 m TYPE B ECCENTRIC CONE
0+985.0	RT. 19.8	SD 1604A	SD	STORM	-----	295.400	-----	294.300	-----				REMOVE / SALVAGE CASTING
0+998.8	RT. 15.4	AP 1606	AP	STORM	-----	-----	-----	295.630	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL–CHART P
0+999.4	LT. 14.3	AP 1605	AP	STORM	-----	-----	-----	295.850	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL–CHART P
1+043.0	LT. 12.2	MH 1609	MH	SAN	297.388	297.540	297.372	295.040	-----	1.41	1		RECONSTRUCT WITH 1.22 m TYPE B ECCENTRIC CONE
1+046.1	RT. 2.4	MH 1610	VAULT	ELEC	297.404	297.780	297.408	295.130	–0.372				N.S.P.
1+097.3	RT. 13.7	CB 1610A	CB	STORM	-----	297.185	-----	295.540	-----				REMOVE / SALVAGE CASTING
1+097.3	RT. 16.1	AP 1611A	AP	STORM	-----	-----	-----	296.390	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL CHART P
1+135.1	LT. 11.9	MH 1611	MH	SAN	297.855	297.945	297.971	294.655	-----	1.55	1		RECONSTRUCT WITH 1.22 m TYPE B ECCENTRIC CONE
1+192.0	RT. 11.2	MH 2100	MH	STORM	-----	297.941	297.947	295.762	0.006				
1+195.7	RT. 2.4	MH 1612	VAULT	ELEC	298.302	298.222	298.301	295.782	0.08				N.S.P.
1+205.5	RT. 10.4	MH 1613	MH	STORM	298.373	298.165	298.237	295.605	0.08				REMOVE WIERS – INCIDENTAL TO STORM SEWER
1+221.6	LT. 14.3	AP 1615A	AP	STORM	-----	-----	-----	296.690	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL–CHART P
1+221.6	RT. 9.4	MH 1615	MH	STORM	-----	298.200	-----	295.975	-----				REMOVE / SALVAGE CASTING
1+222.2	RT. 22.5	MH 1614	MH	STORM	-----	298.215	-----	296.175	-----				O.K. – OUTSIDE CONST. LIMITS
1+222.5	RT. 16.8	LS 1617	LS	SAN	298.480	298.260	298.152	-----	–0.108				GRADE TO MATCH EXISTING CASTING
1+226.8	LT. 11.9	MH 1618	MH	SAN	298.500	298.205	298.474	294.395	-----	0.50	1		RECONSTRUCT WITH 1.22 m TYPE B ECCENTRIC CONE
1+264.9	LT. 13.4	AP 1619	AP	STORM	-----	-----	-----	297.090	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL–CHART P
1+306.4	RT. 10.0	SD 1620	SD	STORM	-----	298.465	-----	296.255	-----				REMOVE / SALVAGE CASTING
1+317.6	RT. 17.1	MH 1621	MH	SAN	298.452	298.670	298.694	294.525	0.024				
1+319.5	LT. 13.4	CB 1622	CB	STORM	-----	298.100	-----	297.065	-----				REMOVE / SALVAGE CASTING
1+345.1	RT. 3.3	MH 1623	VAULT	ELEC	298.738	298.840	298.719	296.370	–0.121				N.S.P.
1+364.9	LT. 15.2	AP 1625	AP	STORM	-----	-----	-----	297.315	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL–CHART P
1+397.0	RT. 3.3			VAULT									
1+495.9	RT. 4.6	MH 1624	VAULT	ELEC	299.731	299.810	299.702	297.310	–0.108				N.S.P.
1+500.5	RT. 17.1	MH 1626	MH	SAN	299.681	299.550	299.826	295.250	0.276				
1+594.7	RT. 12.2	AP 1629	AP	STORM	-----	-----	-----	297.795	-----				REMOVAL INCLUDED WITH m OF PIPE REMOVAL–CHART P
1+595.0	LT. 14.9	SD 1627	SD	STORM	-----	298.740	-----	298.130	-----				REMOVE/SALVAGE CASTING
1+598.1	LT. 54.9	CB 1678	CB	STORM	298.940	298.630	-----	297.410	-----				O.K. – OUTSIDE CONST. LIMITS
1+604.5	LT. 22.9	MH 1680	VAULT	TELE	298.973	297.710	-----	295.815	-----				O.K. – OUTSIDE CONST. LIMITS
1+605.4	LT. 4.6	MH 1628	VAULT	TELE	298.979	298.940	298.94	297.325	+0.000				
1+605.4	LT. 25.0	MH 1679	VAULT	TELE	298.977	298.715	-----	295.820	-----				O.K. – OUTSIDE CONST. LIMITS
1+619.4	LT. 54.5	CB 1677	CB	STORM	298.904	298.665	-----	297.020	-----				O.K. – OUTSIDE CONST. LIMITS
1+645.0	RT. 5.2	MH 1630	VAULT	ELEC	298.570	298.505	298.530	295.760	+0.025				N.S.P.
1+711.7	RT. 18.3	MH 1631	MH	WATER	297.980	296.970	-----	295.325	-----				OUTSIDE PROJECT LIMITS

SUMMARY

REMOVE MH/CBASIN 13 EACH
SALVAGE CASTING ASSEMBLY 14 EACH
F & I CASTING ASSEMBLY 2 EACH
ADJUST CASTING ASSEMBLY 22 EACH
(11 NSP–7 SAN–3 STORM–1 TEL)
RECONSTRUCT MH/CB 4.64 m
INSTALL CASTING ASSEMBLY 4 EACH

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jaeckle

REG. NO. 21869 DATE 11/21/96

EXISTING STRUCTURES CHART

28-157

ramsey county metric

S.P. 62–630–42

G:\DWGS\LARP\CHART1 11/8/96

T

EXISTING STRUCTURES CHART

STATION OFF EUSTIS C/L	LOCATION	NUMBER	TYPE	DESIGN	PROFILE ELEVATION	ORIG. GRATE ELEVATION	NEW GRATE ELEVATION	CB/MH INVERT ELEVATION	ADJUST CASTING	RECONST CB/MH m	INSTALL CASTING	REMARKS
-0+008.0	RT. 0.0	MH 2102	MH	SAN	-----	270.414	-----	265.293	OK			OUTSIDE CONSTRUCTION LIMITS
0+015.1	LT. 34.1	MH 2101	MH	STORM	-----	270.328	-----	267.829	OK			OUTSIDE CONSTRUCTION LIMITS
0+015.7	RT. 6.9	MH 2104	MH	SAN	-----	271.18	-----	267.736	OK			OUTSIDE CONSTRUCTION LIMITS
0+016.1	RT. 3.6	MH 2103	MH	STORM	-----	271.041	-----	267.536	OK			OUTSIDE CONSTRUCTION LIMITS
0+100.1	RT. 6.8	MH 2105	MH	SAN	-----	272.898	-----	269.850	OK			OUTSIDE CONSTRUCTION LIMITS
0+101.9	RT. 8.7	MH 2106	SD	STORM	-----	272.786	-----	270.805	OK			OUTSIDE CONSTRUCTION LIMITS
0+105.8	RT. 8.4	MH 2107	SD	STORM	-----	272.832	-----	270.973	OK			OUTSIDE CONSTRUCTION LIMITS
0+105.9	RT. 19.9	MH 2108	SD	STORM	-----	273.151	-----	272.023	OK			OUTSIDE CONSTRUCTION LIMITS
0+160.3	RT. 7.2	MH 2109	MH	SAN	-----	274.405	-----	270.991	OK			OUTSIDE CONSTRUCTION LIMITS
0+164.2	RT. 23.2	CB 2110	CB	STORM	-----	273.968	-----	274.840	OK			OUTSIDE CONSTRUCTION LIMITS
0+164.3	RT. 24.7	CB 2111	CB	STORM	-----	273.918	-----	-----	OK			OUTSIDE CONSTRUCTION LIMITS
0+176.7	RT. 7.5	MH 2112	MH	SAN	-----	274.591	-----	271.299	OK			OUTSIDE CONSTRUCTION LIMITS
GASPERRE POND			MH	STORM				283.450				REMOVE MANHOLE

V

BENCH MARK CHART

STATION/LOCATION	ELEVATION	FINAL ELEVATION	DATE
DISC SE CORNER BRIDGE OVER HWY 280	287.271		
DISC SE CORNER BRIDGE OVER MN.TRANSFER R/R	286.734		
TOP HYD. NW CORNER LARP. & MALVERN	290.310		
SW CORNER BOTTOM STEP HO. # 2439	291.036		
TOP HYD. SW CORNER LARP. & EUSTIS	292.676		
NW CORNER CONCRETE BASE S.A. SIGN	292.670		
NW CORNER BOTTOM STEP APT. # 2384	294.056		
TOP HYD. SW CORNER LARP. & CARL	294.303		
SW CORNER BOTTOM STEP HO. # 2371	295.181		
TOP HYD. NW CORNER LARP. & PLEASENT	295.806		
TOP STATE DISC NE CORNER LARP. & FULHAM	297.504		
TOP HYD. NE CORNER BOLSTAD CLUBHOUSE ENT.	298.211		
TOP HYD. SW CORNER LARP. & COFFMAN	298.747		
TOP HYD. STATION 1+290.3 RT 9.7	299.293		
TOP HYD. STATION 1+474.0 RT 10.4	300.436		
STATE POINT "A" SE CORNER LARP. & CLEVELAND	298.037		
STATE POINT "B" 100m± OF CLEVELAND S. SIDE	297.440		

U

REPLACE EXISTING SEWER SERVICES

STATION	LOCATION	HOUSE NUMBER	F&I 150 mm PVC PIPE	CONNECT TO EXISTING SERVICE	CONNECT TO EXISTING MAIN
0+322.0	LT	2443	20 m	1	1
0+334.1	LT	2439	20 m	1	1
0+343.9	LT	2433	20 m	1	1
0+354.5	LT	2421	20 m	1	1
0+433.2	LT	2409	18 m	1	1
0+459.6	LT	2405	18 m	1	1
0+523.4	LT	2391	18 m	1	1
0+533.5	LT	2387	18 m	1	1
0+538.6	LT	2383	18 m	1	1
0+553.8	LT	2379	18 m	1	1
0+564.8	LT	2375	18 m	1	1
0+577.6	LT	2371	18 m	1	1
			224 m	12 EACH	12 EACH

Z

SILT FENCE HEAVY DUTY

STATION TO STATION	RT-LT	m
STA. 0+415 TO 0+445	RT. 12 m±	30 m
STA. 0+805 TO 1+035	RT. 20 m±	230 m
STA. 0+970 TO 1+000	LT. 20 m±	30 m
STA. 1+065 TO 1+110	RT. 20 m±	45 m
STA. 1+170 TO 1+210	LT. 21 m±	40 m
STA. 1+410 TO 1+455	RT. 16 m±	45 m
STA. 1+470 TO 1+515	RT. 16 m±	45 m
STA. 1+630 TO 1+707	LT. 20 m±	77 m
STA. 1+630 TO 1+707	RT. 17 m±	77 m
STRUCTURE	RT-LT	m
CB @ STA 1+005	LT. 17 m±	3 m
CB @ STA 1+053	LT. 17 m±	3 m
CB @ STA 1+205	LT. 18 m±	3 m
CB @ STA 1+350	LT. 18 m±	3 m
TOTAL		631 m

SILT FENCE SHALL BE INSTALLED PER DETAIL ON SHEET 15. PAYMENT SHALL BE IN ACCORDANCE WITH SPEC. REFERENCE 2573 EXCEPT AS MODIFIED IN SPECIAL PROVISIONS.

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jaeschke

REG. NO. 21869 DATE 11/21/96

G:\DWGS\LARP\CHART1 10/22/96

ramsey county metric

EXISTING STRUCTURES CHART

28-157 T U V Z

S.P. 62-630-42

BB

PROPOSED DRAINAGE CHART–PART 1

STATION	LOCATION ALIGN E	STRUCTURE NO.	TYPE	DESIGN	CONST. HEIGHT LIN. m	CASTING ASSEMBLY	ELEVATION PROFILE GRADE	ELEVATION NEW GRATE OR RING	ELEVATION C.B. OR M.H. INVERT	FURNISH AND INSTALL PIPE SEWER REINFORCED CONCRETE PIPE 375mm	450mm	525mm	600mm	750mm	825mm	900mm	CLASS	DRAINS TO STRUCTURE NO.	DRAINS TO INVERT ELEV.	REMARKS
0+394.5	LT. 20.66	101	CB	C OR G	0.30	B–2	292.15	292.10	291.75	13.0							V	102	291.70	
0+407.5	LT. 20.66	102	CB	C OR G	1.00	B–2	292.46	292.35	291.3±								V	1540	290.26	
NUMBER NOT USED		103																		
0+420.0	LT. 12.3	104	CB	C OR G	1.10	B–2	292.76	292.61	291.46	11.4							V	1540	291.4	
0+420.0	RT. 6.9	105	CB	A OR F	1.26	B–2	292.76	292.61	291.30	5.2							V	1536	291.25	
0+495.0	LT. 11.1	105A	CB	A OR F	1.63	B–2	293.73	293.59	291.91	1.5							V	105B	291.69	MAKE SUITABLE FIELD CONNECTION TO EXISTING RCP
0+495.0	RT. 6.9	105B	CB	4020–1800	1.97	B–2	293.73	293.71	291.69	1.5							V	1536	290.10	MAKE SUITABLE FIELD CONNECTION TO EXISTING RCP
0+580.4	LT. 11.1	106	CB	A OR F	1.77	B–2	294.76	294.62	292.66				1.5*				V	112	291.55	MAKE SUITABLE FIELD CONNECTION TO EXISTING RCP
0+625.2	LT. 15.29	107	MH	A OR F	4.88	A–8	298.35	298.26	293.38	4.2							V	108	293.29	BUILD OVER EXISTING
0+621.4	LT. 13.5	108	CB	A OR F	1.78	B–2	295.30	295.12	293.29	11.7							V	109	293.16	
0+621.4	LT. 1.8	109	CB	A OR F	1.91	B–2	295.30	295.12	293.16	1.5							V	110	293.13	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 1
0+621.4	LT. 0.3	110	CB	A OR F	2.05	B–2	295.30	295.23	293.13	5.2							V	110A	293.00	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 2
0+621.4	RT. 4.95	110A	MH	A OR F	2.05	A–8	295.30	295.10	293.00				44.8				III	112	292.55	
0+621.4	RT. 8.1	111	CB	A OR F	1.32	B–2	295.30	295.14	293.77	3.2							V	110A	293.74	
0+576.6	RT. 6.9	112	CB	A OR F	2.61	B–2	294.71	295.16	292.55									1552	290.86	BUILD OVER EXISTING
0+720.0	LT. 13.5	113	CB	A OR F	2.26	B–2	296.34	296.13	293.82	18.5							V	113A	293.60	
0+720.0	RT. 4.95	113A	MH	A OR F	2.48	A–8	296.34	296.13	293.60	98.7							V	110A	293.00	
0+720.0	RT. 8.1	114	CB	A OR F	1.43	B–2	296.34	296.13	294.65	3.2							V	113A	294.62	
0+814.88	LT. 95.85	115	AP	375mm	---	---		----	295.60	1.8							V	116	295.47	EXACT LOCATION IN FIELD. F & I TRASH GUARD
0+811.26	LT. 95.85	116	MH	A OR F	2.13	A–8	297.03	297.6±	295.47	73.3							V	118	295.10	
0+798.14	LT. 22.46	117	CB	C OR G	1.47	B–2	296.93	297.02	295.50	13.3							V	118	295.10	
0+811.46	LT. 22.46	118	CB	A OR F	1.81	B–2	297.03	296.96	295.10	9.0							V	119	295.06	
0+811.46	LT. 13.5	119	MH	A OR F	1.75	A–8	297.03	296.81	295.06	18.6							V	120	294.98	
0+830.06	LT. 14.1	120	CB	A OR F	1.78	B–2	297.14	296.81	294.98	9.0							V	121	294.93	
0+830.06	LT. 5.1	121	CB	A OR F	2.16	B–2	297.14	297.14	294.93	10.5							V	123	294.88	
0+830.06	LT. 0.3	122	CB	C OR G	0.59	B–2	297.14	297.14	296.50	4.8							V	121	296.45	
0+830.06	RT. 5.4	123	MH	A OR F	2.17	A–8	297.14	297.05	294.88	77.7							V	126	294.49	
0+830.06	RT. 8.7	124	CB	A OR F	1.31	B–2	297.14	296.81	295.45	3.3							V	123	295.43	
0+907.71	LT. 14.1	125	CB	A OR F	2.34	B–2	297.39	297.39	295.00	19.8							V	126	294.80	
0+907.71	RT. 5.4	126	MH	A OR F	2.90	A–8	297.39	297.39	294.49		77.3						V	128	294.10	
0+907.71	RT. 8.7	127	CB	A OR F	1.80	B–2	297.39	297.39	295.54	3.3							V	126	295.50	
0+985.0	RT. 5.4	128	MH	4020–1350	5.05	A–8	297.34	297.25	292.20						11.9		IV	129	292.15	
0+985.0	RT. 17.3	129	SD	A OR F	5.13	M–8	297.34	297.28	292.15					148.7			V	130	290.40	
0+849.8	RT. 79.15	130	AP	750 mm	---	---	297.21	----	290.40											F&I TRASH GUARD, 7.6 m^3 RIPRAP CLASS IV
1+051.21	LT. 19.70	131	CB	C OR G	1.55	M–8	297.43	297.25	295.70	42.8							V	132	295.57	
1+008.43	LT. 19.70	132	CB	C OR G	0.89	M–8	297.23	296.46	295.57		5.6						V	133	295.55	
1+008.43	LT. 14.1	133	CB	A OR F	1.86	B–2	297.23	297.06	295.15			9.0					III	134	295.13	
1+008.43	LT. 5.1	134	CB	A OR F	1.98	B–2	297.23	297.16	295.13			2.4					III	135	295.11	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 3
1+008.43	LT. 2.7	135	CB	A OR F	2.05	B–2	297.23	297.21	295.11			8.1					III	136	295.07	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 4
1+008.43	RT. 5.40	136	MH	4020–1350	4.87	A–8	297.23	297.14	292.27						23.4		IV	128	292.20	
1+008.43	RT. 8.7	137	CB	A OR F	1.49	B–2	297.23	297.06	295.52	3.3							V	136	295.50	
1+097.42	RT. 5.4	138	MH	4020–1650	5.12	A–8	297.67	297.58	292.46					89.0			V	136	292.27	
1+097.42	RT. 15.22	139	AP	375 mm	---	---	297.67	----	295.36	9.8							V	138	295.31	F&I TRASH GUARD
1+125.02	LT. 14.1	140	CB	A OR F	1.84	B–2	297.81	297.64	295.75	19.5							V	141	295.45	
1+125.02	RT. 5.4	141	MH	4020–1350	5.20	A–8	297.81	297.72	292.52					27.6			V	138	292.46	
1+125.02	RT. 8.7	142	CB	A OR F	2.16	B–2	297.81	297.64	295.48	3.3							V	141	295.45	
1+200.00	RT. 5.4	141A	MH	A OR F	5.56	A–8	298.33	298.24	292.68					75.0			V	141	292.52	
1+205.63	LT. 21.32	143	CB	C OR G	1.25	M–8	298.37	297.10	295.85	27.3							V	141A	295.85	
1+205.63	RT. 7.72	1613	MH	EXISTING			298.37	298.28	295.61					6.0			V	141A	295.82	MAKE SUITABLE CONNECTIONS/REMOVE WEIR BOARDS
1+266.00	LT. 14.1	144	CB	A OR F	1.59	B–2	298.17	298.00	296.36	12.0							V	145	296.25	
1+266.00	LT. 2.1	145	CB	A OR F	1.85	B–2	298.17	298.15	296.25	5.7							V	147	296.16	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 5
1+266.00	LT. 0.3	146	CB	A OR F	1.83	B–2	298.17	298.10	297.90	1.8							V	145	297.88	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 6
1+266.00	RT. 5.4	147	MH	4020–1350	1.92	A–8	298.17	298.08	296.16		60.4						V	1613	295.85	
1+266.00	RT. 8.7	148	CB	A OR F	1.76	B–2	298.17	298.00	296.19	3.3							V	147	296.16	

CASTING ASSEMBLIES – INCLUDE CASTING IN UNIT PRICE BID FOR STRUCTURE BY THE EACH. SPEC. REFERENCE 2506.4 A.

A–8: RING CASTING NO. 700–8; MN/DOT STANDARD PLATE M4101C
COVER CASTING NO. 716; MN/DOT STANDARD PLATE M4110E

B–2: RING CASTING NO. 802A; MN/DOT STANDARD PLATE M4129G
GRATE CASTING NO. 811; MN/DOT STANDARD PLATE M4151B
CURB BOX NO. 823; MN/DOT STANDARD PLATE M4160D

M–8: RING CASTING NO. 700–8; MN/DOT STANDARD PLATE M4101C
COVER CASTING NO. 721; MN/DOT STANDARD PLATE M4140D

STRUCTURE DESIGN

DESIGN A–MN/DOT STANDARD PLATE M4000J
DESIGN F–MN/DOT STANDARD PLATE M4005L
DESIGN C–MN/DOT STANDARD PLATE M4002F
DESIGN G–MN/DOT STANDARD PLATE M4006L
DESIGN 4020–XX–MN/DOT STANDARD PLATE 4020

* ARCH PIPE – 600 mm EQUIVALENT

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 LAWS OF THE STATE OF MINNESOTA.

Daniel F. Sohn

REG. NO. 20452 DATE 1/14/97

NOTES

1. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE IS #109 LT. 2.06 m.
2. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE IS #110 LT. 0.04 m.
3. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE IS #134 LT. 5.36 m.
4. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE IS #135 LT. 2.44 m.
5. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE IS #145 LT. 2.36 m.
6. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE IS #146 LT. 0.04 m.

REVISED 01/14/97

PROPOSED STRUCTURES CHART

28-157

G:\DWGS\LARP\DRAINPRO 01/14/97

BB

PROPOSED DRAINAGE CHART–PART 2

STATION	LOCATION ALIGN E	STRUCTURE NO.	TYPE	DESIGN	CONST. HEIGHT LIN. m	CASTING ASSEMBLY	ELEVATION			FURNISH AND INSTALL PIPE SEWER REINFORCED CONCRETE PIPE							CLASS	DRAINS TO		REMARKS
							PROFILE GRADE	NEW GRATE OR RING	C.B. OR M.H. INVERT	375mm	450mm	525mm	600mm	750mm	825mm	900mm		STRUCTURE NO.	INVERT ELEV.	
1350.33	LT. 20.5	149	CB	C OR G	1.16	M–8	298.77	297.90	296.74	6.4							V	150	296.70	
1354.02	LT. 14.1	150	CB	A OR F	1.97	B–2	298.89	298.72	296.70		12.0						V	151	296.64	
1354.02	LT. 2.1	151	CB	C OR G	1.38	B–2	298.89	298.07	296.64		1.8						V	152	296.62	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 7
1354.02	LT. 0.3	152	CB	A OR F	2.15	B–2	298.89	298.02	296.62		5.7						V	153	296.59	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 8
1354.02	RT. 5.4	153	MH	4020–1350	2.21	A–8	298.89	298.80	296.59		88.0						V	147	296.16	
1354.02	RT. 8.7	154	CB	A OR F	2.05	B–2	298.89	298.72	296.62	3.3							V	153	296.59	
1+515.00	LT. 14.1	155	CB	A OR F	1.62	B–2	299.52	299.35	297.68	19.5							V	156	297.51	
1+515.00	RT. 5.40	156	MH	A OR F	2.03	A–8	299.52	299.43	297.40		75.0						V	161	296.63	
1+515.00	RT. 8.7	157	CB	A OR F	1.79	B–2	299.52	299.35	297.54	3.3							V	156	297.51	
1+590.00	LT. 14.1	158	CB	A OR F	1.90	B–2	298.95	298.78	296.83	9.0							V	159	296.73	
1+590.00	LT. 5.1	159	CB	A OR F	2.10	B–2	298.95	298.88	296.73	1.8							V	160	296.70	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 9
1+590.00	LT. 3.3	160	CB	A OR F	2.18	B–2	298.95	298.93	296.70	8.7							V	161	296.63	FURNISH TYPE B ECCENTRIC CONE–SEE NOTE 10
1+590.00	RT. 5.4	161	MH	A OR F	2.23	A–8	298.95	298.86	296.63		85.0						V	163	295.65	
1+590.00	RT. 8.7	162	CB	A OR F	1.53	B–2	298.95	298.78	297.20	3.3							V	161	296.63	PROVIDE TEMP. PVC OUTLET. SEE DETAIL SHEET 16
1+675.00	RT. 5.4	163	MH	A OR F	---	A–8	298.00	297.91	-----											
EUSTIS STREET																				
0+170.63	RT. 9.4	164	HW		0.06	---		272.67	272.61							15.5	III	165	272.42	CONSTRUCT HEADWALL–SEE HEADWALL DETAIL SHEET
0+170.63	LT. 6.1	165	MH	A OR F	1.99	A–8		274.41	272.42							82.5	III	165A	270.60	
0+089.00	LT. 6.1	165A	MH	A OR F	2.83	A–8		272.75	269.92							72.7	III	166	267.70	
0+016.33	LT. 6.1	166	MH	A OR F	3.22	A–8		270.92	267.70											BUILD MH OVER EXISTING PIPE
GASPERRE POND																				
		167	MH	SPECIAL 1				285.70	283.45			25.2					III			
		168	APRON	525 mm					281.11											F & I TRASH GUARD, 4.3 m^3 RIPRAP CLASS IV
									TOTAL	607.3m	410.8m	44.7m	46.3m*	346.3m	35.3m	170.7m				

*INCLUDES 1.5 m 600 mm RC ARCH PIPE EQUIVALENT

CASTING ASSEMBLIES – INCLUDE CASTING IN UNIT PRICE BID FOR STRUCTURE BY THE EACH. SPEC. REFERENCE 2506.4 A.

A–8: RING CASTING NO. 700–8; MN/DOT STANDARD PLATE M4101C
COVER CASTING NO. 716; MN/DOT STANDARD PLATE M4110E

B–2: RING CASTING NO. 802A; MN/DOT STANDARD PLATE M4129G
GRATE CASTING NO. 811; MN/DOT STANDARD PLATE M4151B
CURB BOX NO. 823; MN/DOT STANDARD PLATE M4160D

A–8: RING CASTING NO. 700–8; MN/DOT STANDARD PLATE M4101C
COVER CASTING NO. 721; MN/DOT STANDARD PLATE M4140D

STRUCTURE DESIGN

DESIGN A–MN/DOT STANDARD PLATE M4000J
DESIGN F–MN/DOT STANDARD PLATE M4005L

DESIGN C–MN/DOT STANDARD PLATE M4002F
DESIGN G–MN/DOT STANDARD PLATE M4006L

DESIGN 4020–XX–MN/DOT STANDARD PLATE M4020

NOTES

7. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE #151 IS LT. 2.36 m.
8. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE #152 IS LT. 0.04 m.
9. LOCATION GIVEN IS FOR CASTING; ℄ STRUCTURE #159 IS LT. 5.36 m.
10. LOCATION GIVEN IS FOR CASTING; LC STRUCTURE #160 IS LT. 3.04 m.

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 LAWS OF THE STATE OF MINNESOTA.

Daniel F. Sohn

REG. NO. 20452 DATE 2/14/97

REVISED 01/14/97

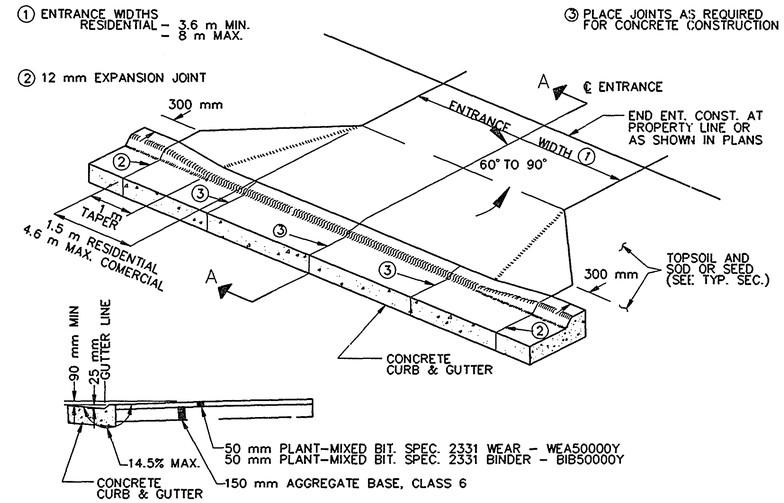
PROPOSED STRUCTURES CHART

28-157

S.P. 62–630–42

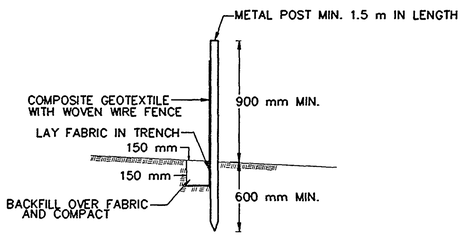
G:\DWGS\LARP\DRAIN2 01/14/97

RESIDENTIAL BITUMINOUS ENTRANCE DETAIL



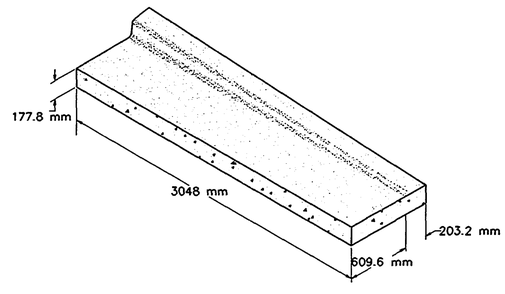
SECTION A–A

HEAVY DUTY SILT FENCE INSTALLATION



SILT FENCE SHALL BE INSTALLED WITH WOVEN WIRE BACKING AND METAL POST. INSTALLATION SHALL BE IN ACCORDANCE WITH SPEC. REFERENCE 2573 & 3886. PAYMENT SHALL BE MADE AS ITEM 0573, AS MODIFIED IN THE SPECIAL PROVISIONS.

TRANSITION B624 VERTICAL TAPER



FOR OTHER DIMENSIONS SEE STD. PLATE NO. M7100

TO BE INSTALLED ON STDE STREETS WHERE NO CURB & GUTTER EXISTS

LOCATIONS:

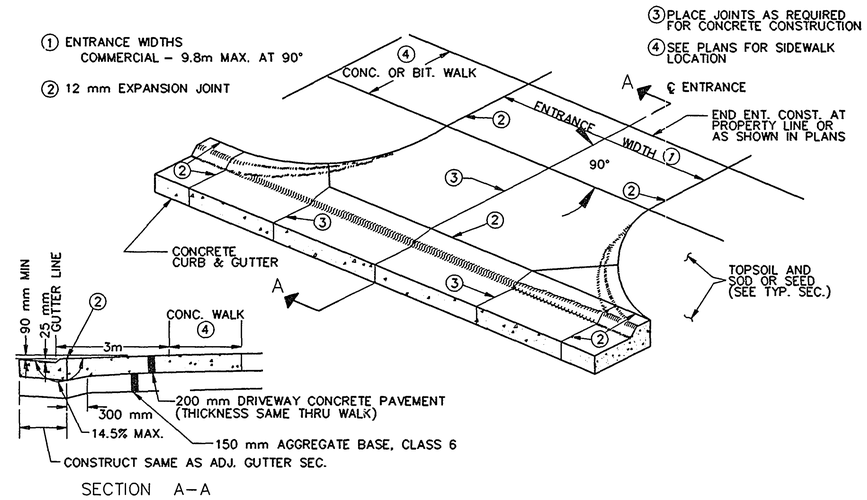
CARL STREET NORTH
CARL STREET SOUTH
PLEASANT STREET
FULHAM STREET
COMMERCIAL ENTRANCES @ STA. 0+970 LT., 1+030 LT., & 1+465 RT.

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Fosselbe

REG. NO. 21864 DATE 11/21/96

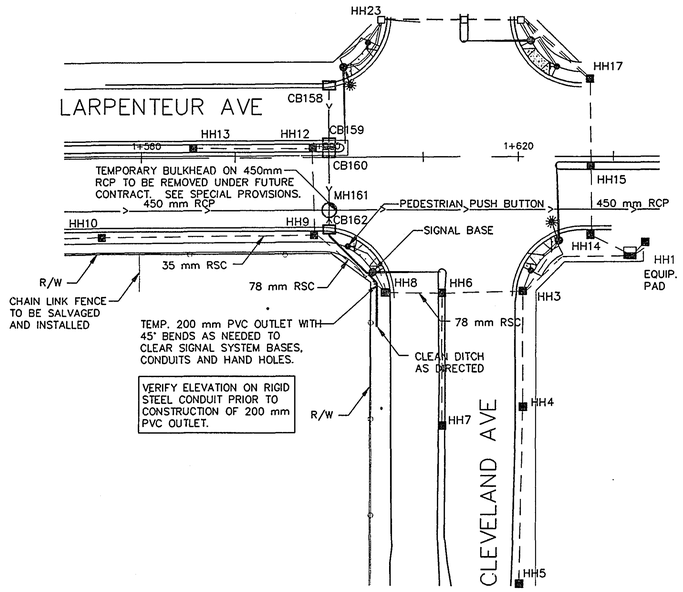
COMMERCIAL CONCRETE ENTRANCE DETAIL



SECTION A–A

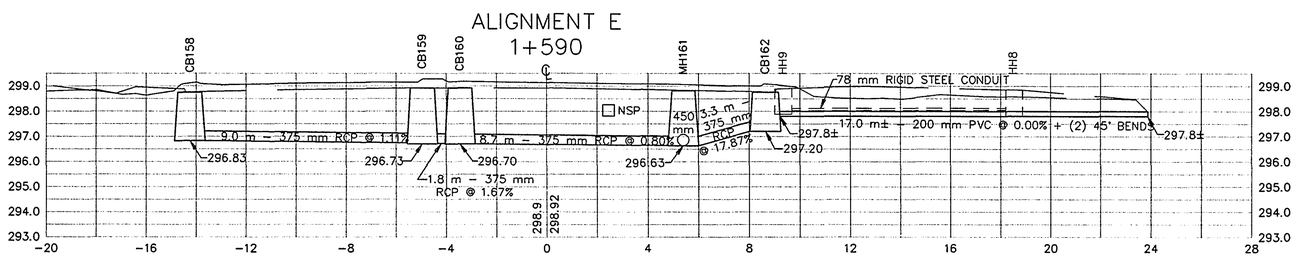
28-157

G:\DWGS\LARP\DET-MET 11/8/96

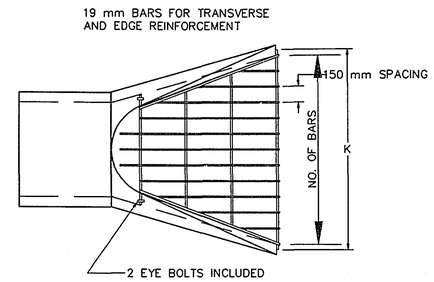


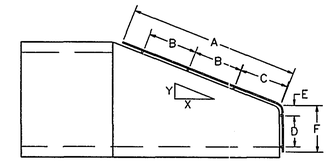
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date _____ Reg. No. _____



TEMPORARY STORM SEWER OUTLET CB 162





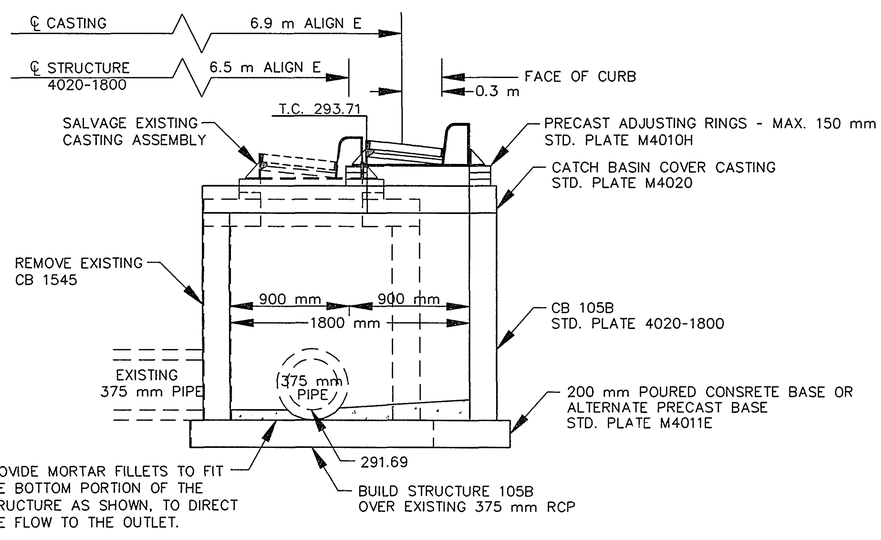
12 mm BARS FOR LONGITUDINAL INTERIOR BARS, WELD EACH INTERSECTION.

CONTRACTOR SHALL FURNISH SUITABLE LOCKING DEVICE APPROVED BY ENGINEER.

SIZE	NO. OF BARS	X–Y SLOPE	A	B	C	D	E	F	K
300 mm	5	3:1	610 mm	180 mm	150 mm	75 mm	25 mm	125 mm	660 mm
375 mm	6	3:1	610 mm	180 mm	150 mm	150 mm	50 mm	255 mm	860 mm
450 mm	7	3:1	610 mm	180 mm	150 mm	150 mm	75 mm	305 mm	1015 mm
525 mm	8	3:1	915 mm	280 mm	255 mm	180 mm	75 mm	305 mm	1270 mm
600 mm	9	3:1	1115 mm	355 mm	305 mm	255 mm	100 mm	410 mm	1320 mm
675 mm	10	3:1	1270 mm	410 mm	360 mm	255 mm	100 mm	410 mm	1475 mm
750 mm	11	3:1	1420 mm	460 mm	410 mm	305 mm	100 mm	460 mm	1625 mm
900 mm	13	3:1	1625 mm	510 mm	510 mm	305 mm	100 mm	460 mm	1930 mm
1050 mm	15	3:1	1730 mm	560 mm	510 mm	360 mm	205 mm	660 mm	2235 mm
1200 mm	16	3:1	1930 mm	610 mm	610 mm	410 mm	255 mm	710 mm	2335 mm
1350 mm	17	2.4:1	1930 mm	610 mm	610 mm	410 mm	305 mm	810 mm	2440 mm

TRASH GUARD (GALVANIZED)

(FOR CONCRETE APRON)



CATCH BASIN 105B

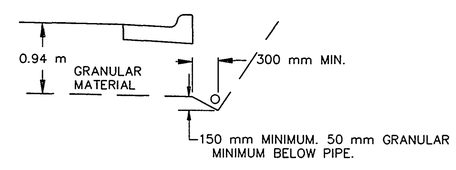
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

Katherine Jaeckle

REG. NO. 21864 DATE 11/21/96

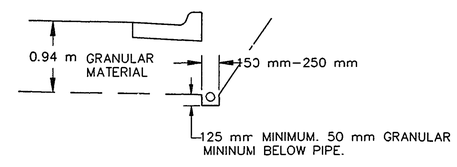
100 mm LONGITUDINAL P.E. PIPE DETAIL
(SUBCUT DRAINAGE)

100 mm PERFORATED P.E. PIPE DRAIN WITH 3733 TYPE 1 GEOTEXTILE WRAP SHALL BE INSTALLED PER SPEC. REFERENCE NO. 2502



OPTION NO. 1

100 mm PERFORATED P.E. PIPE DRAIN WITH 3733 TYPE 1 GEOTEXTILE WRAP SHALL BE INSTALLED PER SPEC. REFERENCE NO. 2502



OPTION NO. 2

50 mm MIN. GRANULAR AT ALL POINTS BELOW PIPE

NOTE: PAYMENT SHALL INCLUDE ALL WORK AND MATERIALS REQUIRED TO CONNECT TO CATCH BASINS.

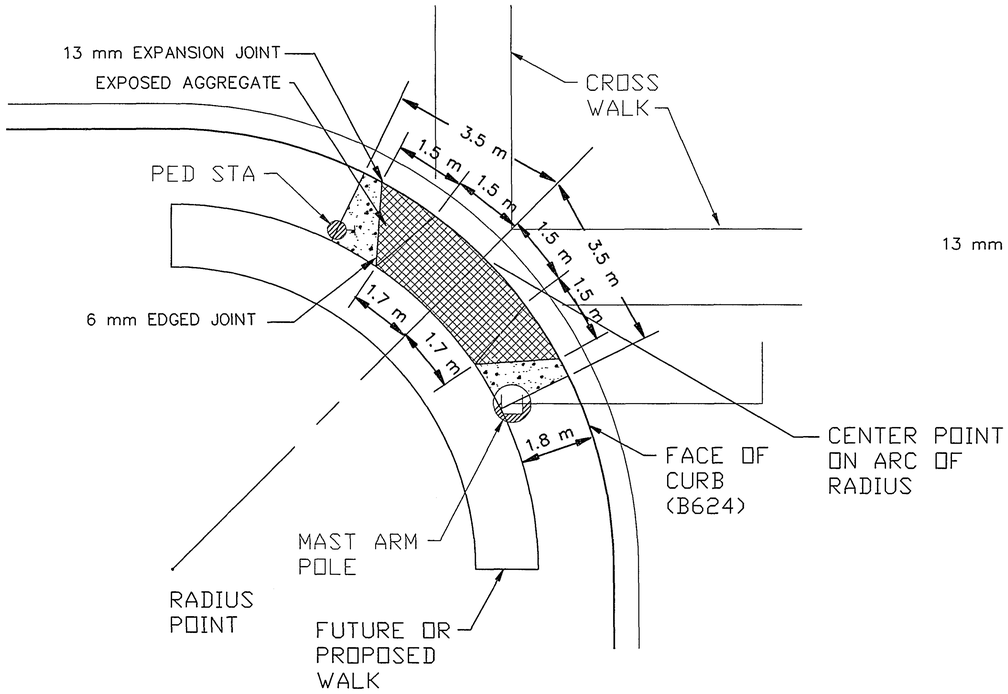
100 mm P.E. PIPE SHALL BE INSTALLED BEHIND ALL PRECAST BLOCK WALLS - SEE WALL DETAILS AND CHART Q FOR LOCATIONS.

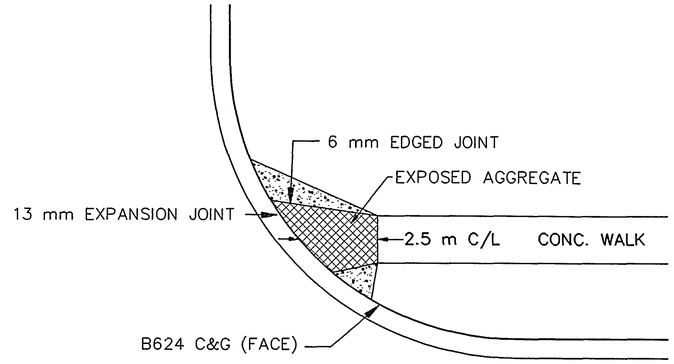
28-157

STORM SEWER DETAILS

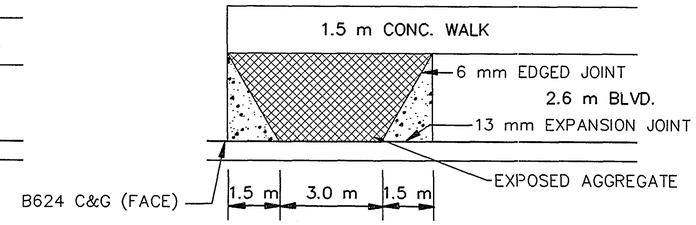
G:\DWGS\LARP\DET-MET 10/22/96

PEDESTRIAN CURB RAMP DETAIL



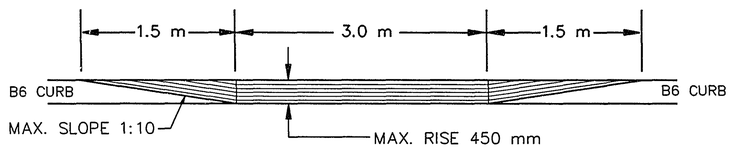


STATION 0+812 RT.
STATION 1+225 LT.
STATION 1+290 RT.
STATION 1+290 LT.

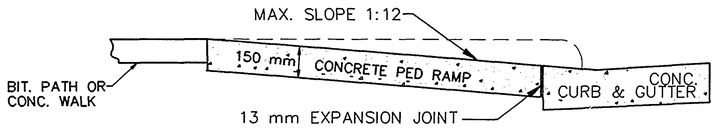


NOTES:

SEE SHEET 27A FOR COLORED PEDESTRIAN RAMP DETAILS AND LOCATIONS
CONSTRUCT PEDESTRIAN CURB RAMPS AT ALL STREET RADII AND ENTRANCES AS INDICATED IN THE PLANS.
DESIGN OF INDIVIDUAL RAMPS SHALL BE AS SHOWN AT EACH LOCATION.
PAYMENT SHALL BE MADE AS ITEM 0531.602, BY THE EACH.
ADJACENT CONC. WALK SHALL BE PAID FOR AS 100 mm CONC. WALK, BY THE m2



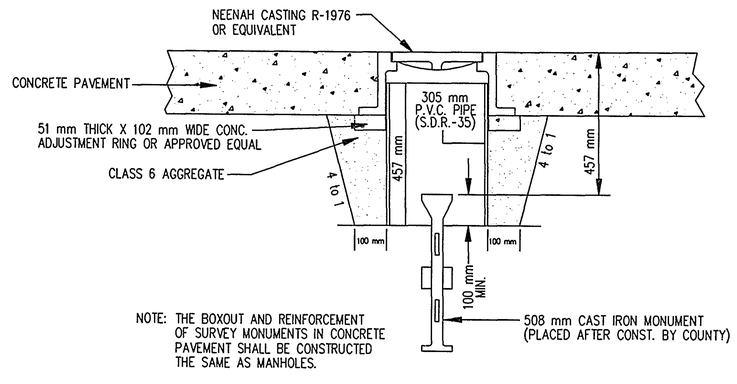
TYPICAL RAMP ELEVATION



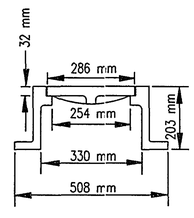
TYPICAL RAMP PROFILE

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 LAWS OF THE STATE OF MINNESOTA.
Katherine Jaschke
REG. NO. 21864 DATE 11/21/96

SURVEY MONUMENT MANHOLE
(FOR CONCRETE PAVEMENT) - METRIC



NOTE: THE BOXOUT AND REINFORCEMENT OF SURVEY MONUMENTS IN CONCRETE PAVEMENT SHALL BE CONSTRUCTED THE SAME AS MANHOLES.



NEENAH CASTING R-1976 OR EQUIVALENT

WEIGHT = 43.2 kg

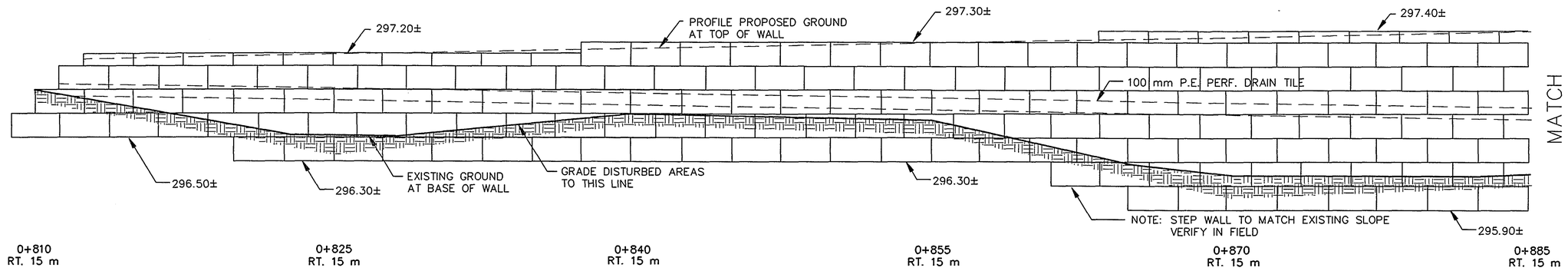
CASTING ASSEMBLY

NOTE: PAYMENT SHALL BE MADE AS ITEM 0506.602 CONSTRUCT CONTROL STRUCTURE, BY THE EACH, WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK AND MATERIALS REQUIRED.

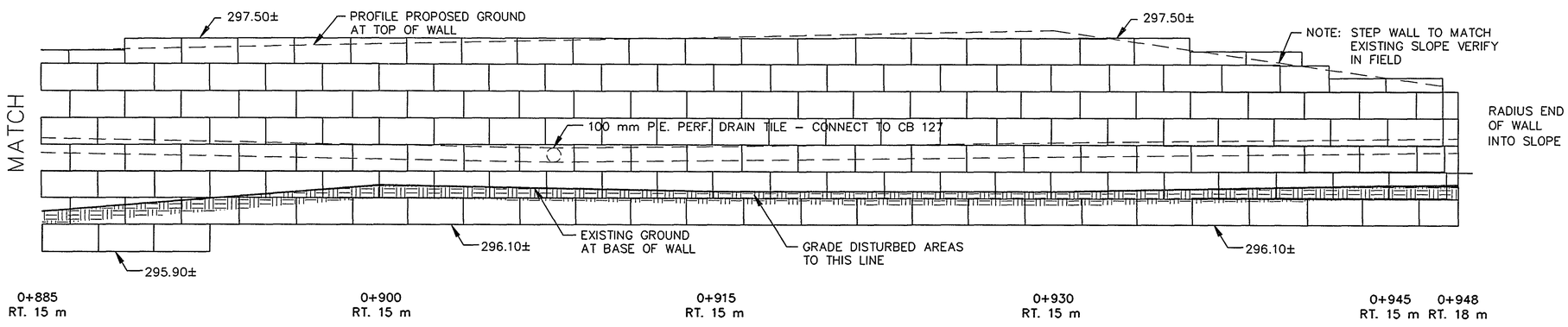
28-157

G:\DWGS\LARP\DET-MET 11/12/96

WALL 1
STA. 0+810 TO STA. 0+948 RT. 15 m
NOT TO SCALE



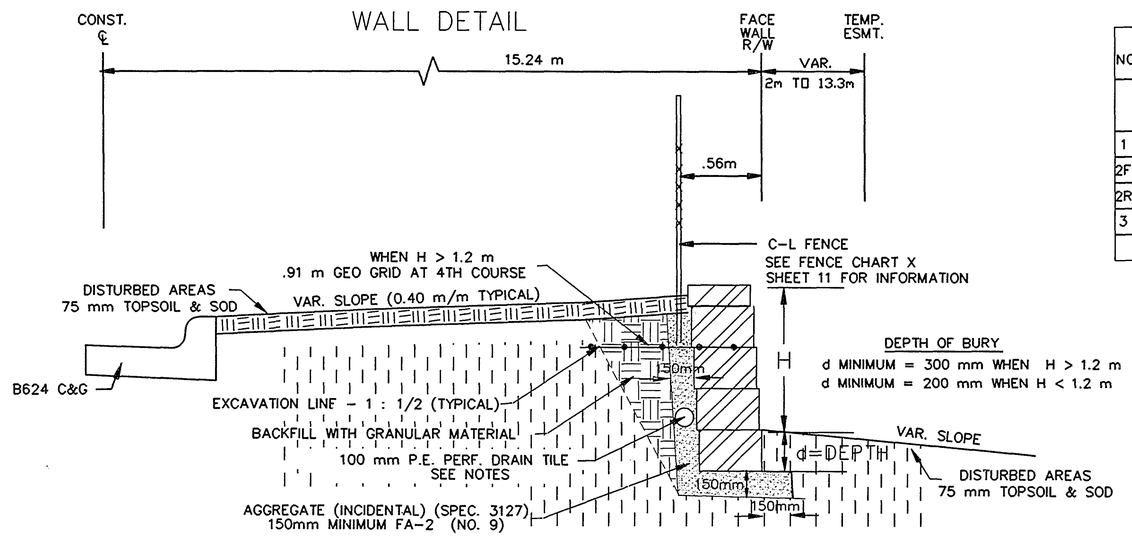
WALL 1
NOT TO SCALE



DRAIN TILE NOTES

- FURNISH & INSTALL 100 mm (4") P.E. PERFORATED DRAIN TILE BEHIND ALL WALLS PER. MANUFACTURES RECOMMENDATION.
- OUTLET ALL 100 mm P.E. DRAIN TILE IN STORM SEWER SYSTEMS AT LOCATIONS IDENTIFIED IN THE PLANS. THE UPSTREAM ENDS OF CRAIN TILE SHALL BE CAPPED.
- 100mm DRAIN TILE SHALL BE PAID FOR BY THE LINEAR METER WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK AND MATERIALS REQUIRED IN THE PERFORMANCE OF THIS WORK.

WALL DETAIL



WALL CHART
LOCATION IS FROM ALIGNMENT B – CONSTRUCTION C.L.

NO.	BEGIN WALL LOCATION STATION	END WALL LOCATION STATION	HIGH ELEVATION TOP OF WALL	LOW ELEVATION BOTTOM OF WALL	REMARKS	ESTIMATE m2 GROSS
1	0+810 RT.	0+948 RT.	297.55±	295.90±		181
2F	0+840 LT.	0+945 LT.	298.15±	297.05±	FRONT WALL	150
2R	0+840 LT.	0+945 LT.	299.05±	297.90±	REAR WALL	95
3	1+065 LT.	0+975 LT.	297.55±	296.05±		135
					TOTAL	561

WALL NOTES

- BLOCKS SHALL BE NOMINAL 204 mm H X 457 mm W X 305 mm D AND HAVE ROCK FACE (OR APPROVED EQUAL).
- BLOCKS SHALL BE 22.68 kg MINIMUM
- CAP UNITS SHALL BE USED ON TOP COURSE OF WALL.
- CAP UNITS MAY BE EITHER 102 mm OR 204 mm IN HIEGHT.
- GEOTEXTILE GRID SHALL BE INSTALLED PER MANUFACTURES SPECIFICATION
- PLACE 75 mm TOPSOIL & SOD IN DISTURBED AREAS.
- GRADE TO ELEVATIONS INDICATED.
- PAYMENT SHALL BE MADE BY m2 OF GROSS FACE.

FENCE NOTES

- FURNISH & INSTALL 1.22 m (4') CHAIN LINK FENCE AT WALLS #1 & #3. FENCE SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO BACK OF WALL. EXACT DISTANCE SHALL BE DETERMINED IN THE FIELD.

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 LAWS OF THE STATE OF MINNESOTA.
Katherine Jarchow
REG. NO. 21864 DATE 11/21/96

NOT TO SCALE

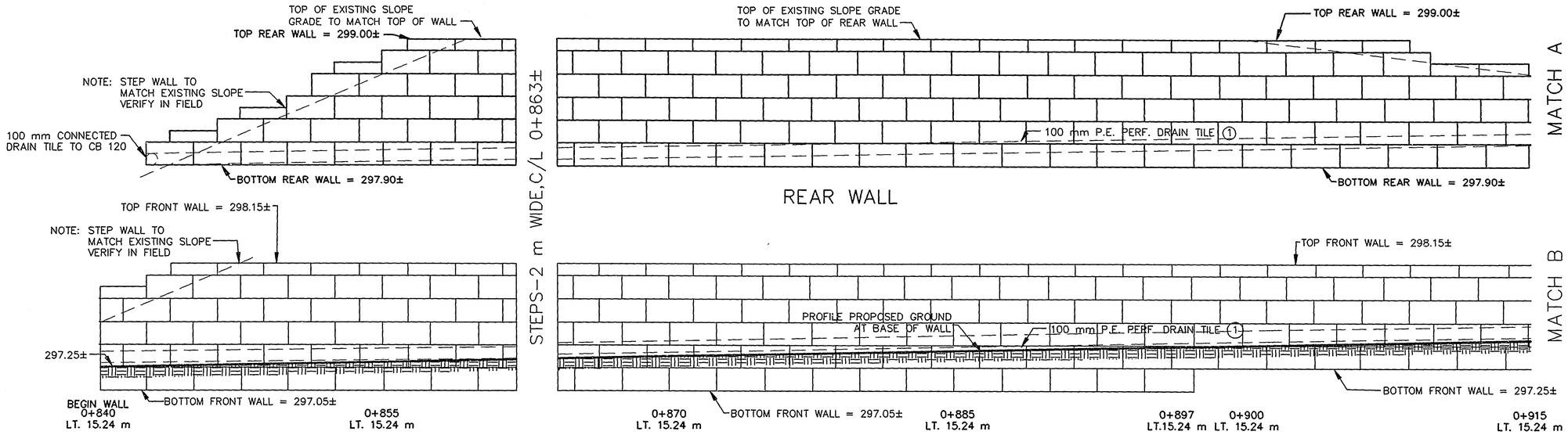
WALL 1
PRECAST BLOCK WALLS

28-157

S.P. 62-630-42

G:\DWGS\LARP\WALLS 11/12/96

WALL 2
STA. 0+840 TO STA. 0+945 LT. 15.24m



NOTES:

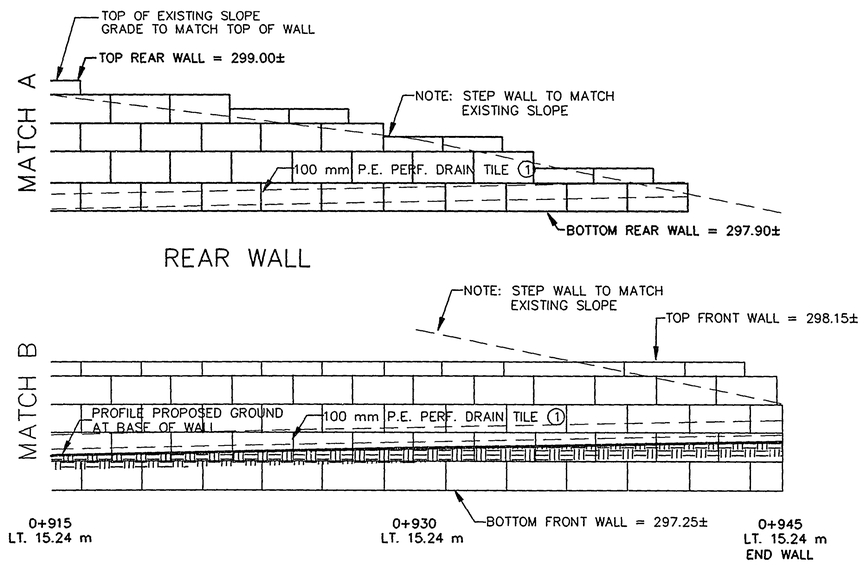
1. PERFORATED DRAIN TILE FOR REAR WALL SHALL BE CONNECTED TO DRAIN TILE FOR FRONT WALL. THIS SYSTEM SHALL BE CONNECTED TO THE PROPOSED DRAINAGE SYSTEM AS APPROVED BY THE ENGINEER IN THE FIELD. PAYMENT FOR THIS WORK WILL BE MADE @ UNIT PRICE PER METER OF 100 mm PERFERATED DRAIN TILE. SEE SPECIAL PROVISIONS.

   THE UPSTREAM ENDS OF DRAIN TILE SHALL BE CAPPED.

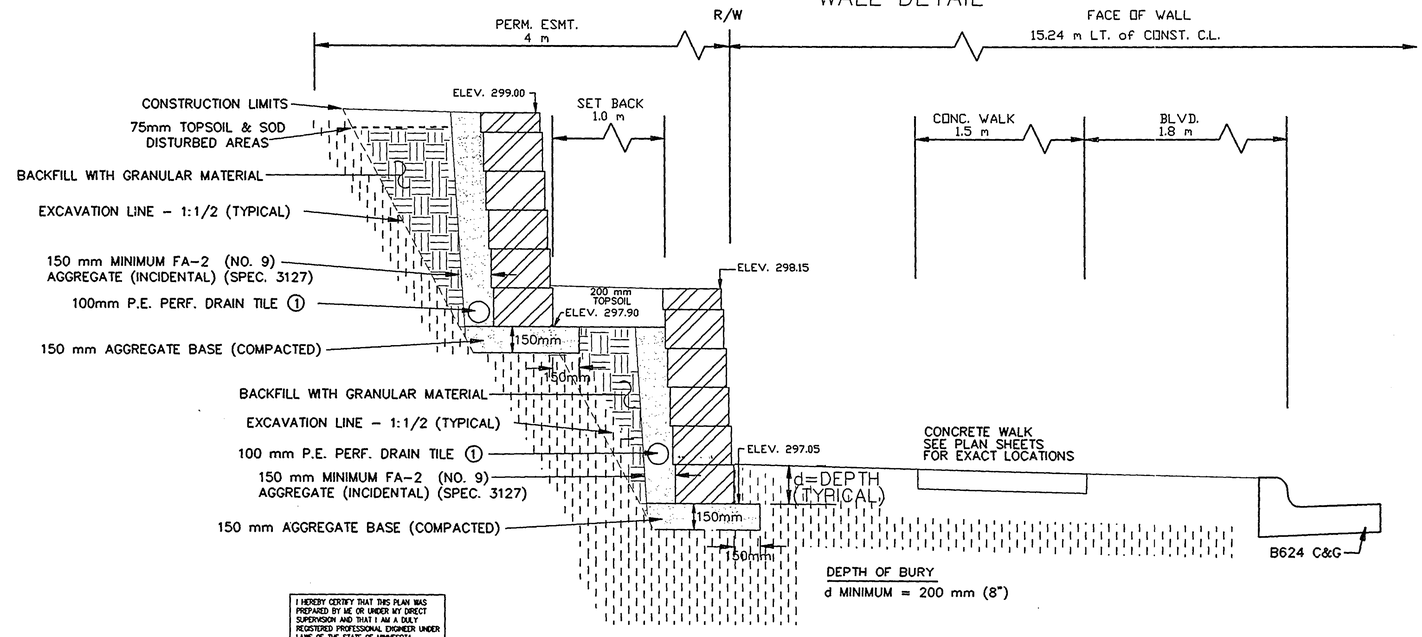
2. THE EXISTING SPRINKLER SYSTEM IN THIS AREA WILL BE IDENTIFIED BY THE OWNER AND SHALL BE SALVAGED BY THE CONTRACTOR AS DIRECTED,SEE SPECIAL PROVISIONS.

3. NO CHAIN LINK FENCE TO BE INSTALLED WITH THESE WALLS.

4. CONSTRUCT PRECAST STEPS PER MANUFACTURES SPECS. PAYMENT SHALL BE INCLUDED IN PRICE BID FOR PRECAST BLOCK WALL BY THE SQUARE METER.



WALL DETAIL



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 LAWS OF THE STATE OF MINNESOTA.

Katherine Josephs

REG. NO. 21864 DATE 11/12/96

NOT TO SCALE

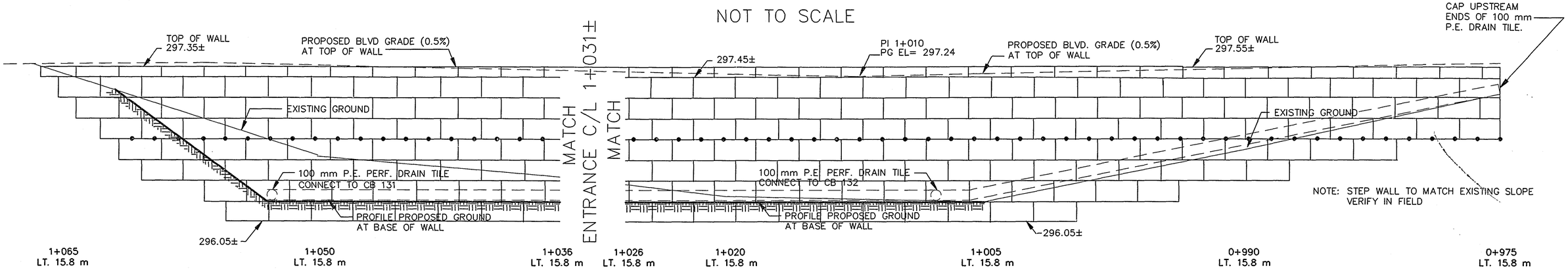
WALL 2
PRECAST BLOCK WALLS

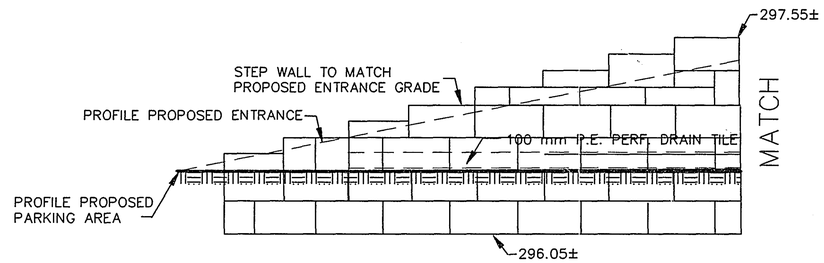
G:\DWGS\LARP\WALLS 11/12/96

28-157

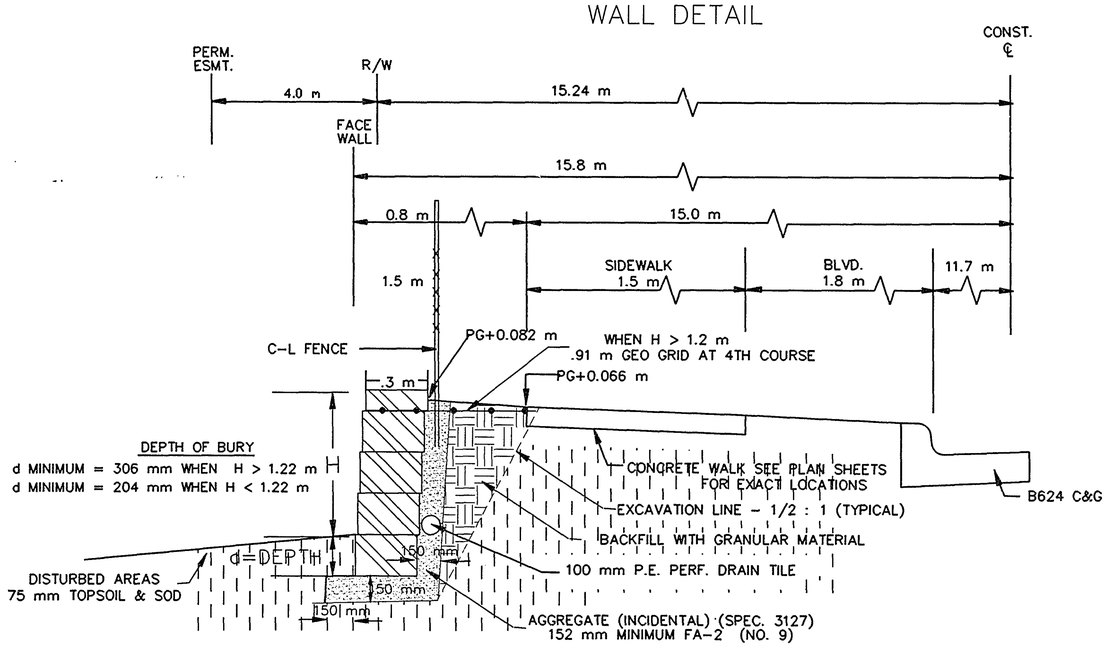
S.P. 62-630-42

WALL 3
0+975 TO 1+065 LT. 15.8m
NOT TO SCALE





WALL DETAIL



ENT. WALLS STA. 1+026
STA. 1+036

ENTRANCE WALLS SHALL BE CONSTRUCTED WITH A 3 METER RADIUS

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jarabek

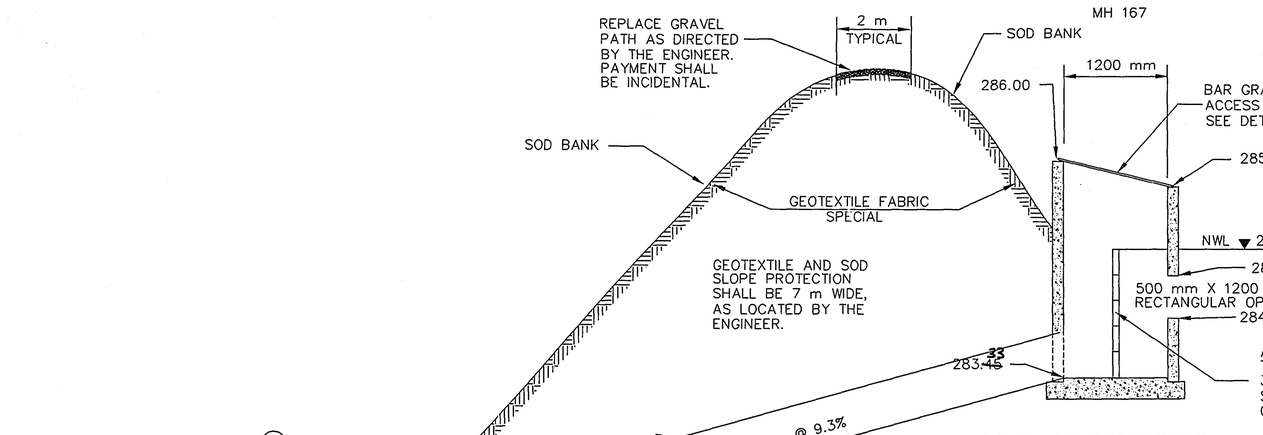
REG. NO. 21864 DATE 11/21/96

NOT TO SCALE

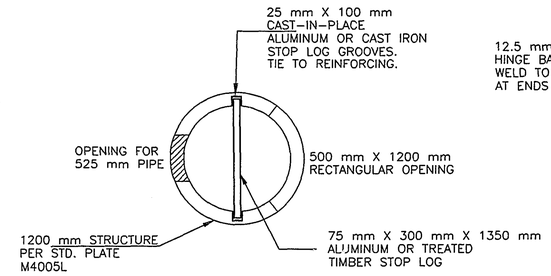
WALL 3
PRECAST BLOCK WALLS

G:\DWGS\LARP\WALLS 11/12/96

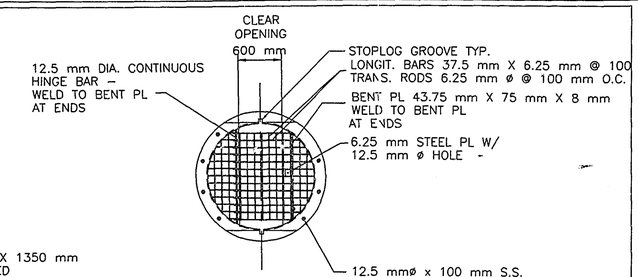
28-157



DRAINAGE STRUCTURE
DESIGN SPECIAL 1 DETAIL
NOT TO SCALE



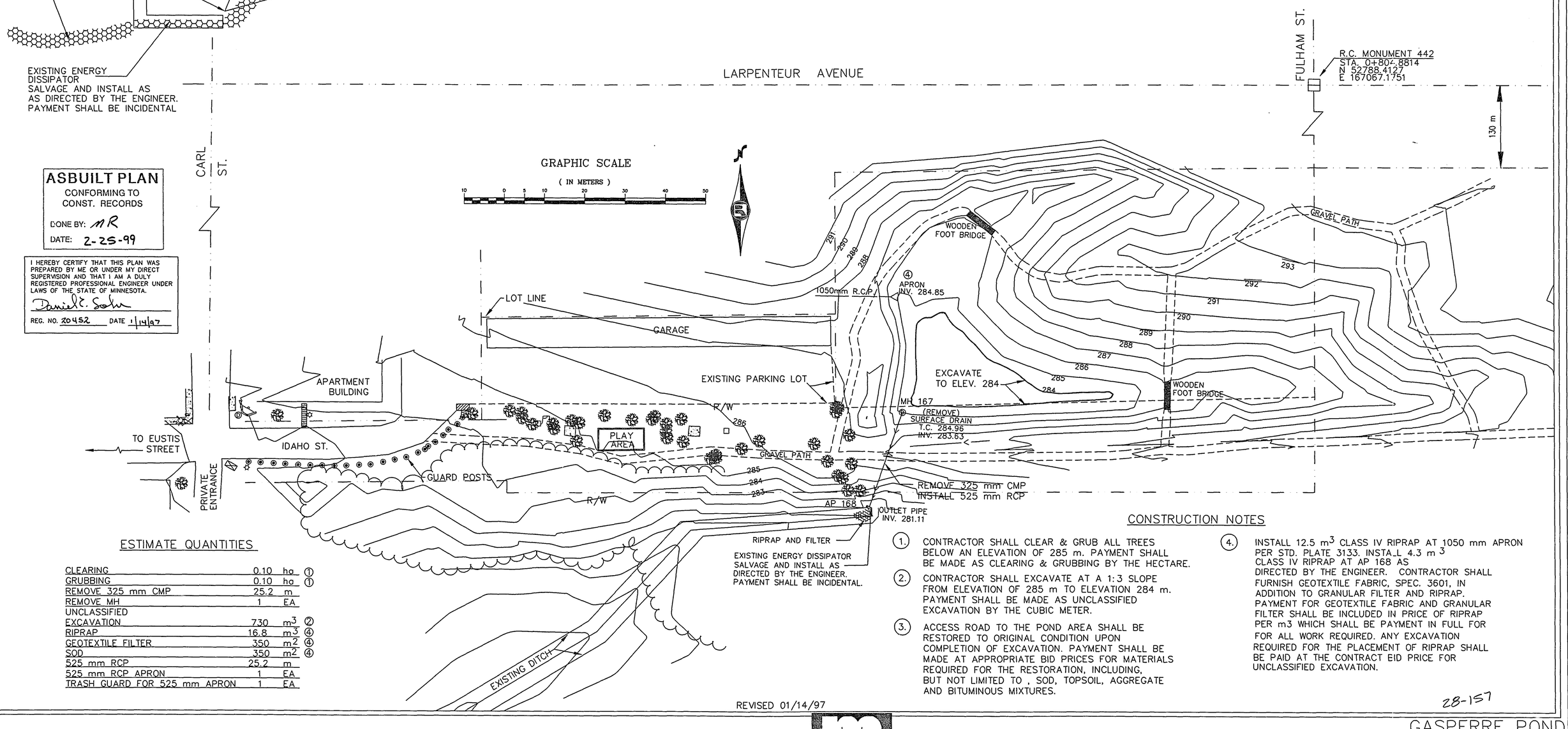
STOP LOG GROOVE
NOT TO SCALE



GRATE DETAIL
NOT TO SCALE

CONSTRUCTION NOTES:

1. GRIND EXPOSED FIELD AND SHOP WELDS SMOOTH AND FLUSH WITH ADJACENT FINISHED SURFACES.
2. AFTER FABRICATION GALVANIZE STRUCTURAL SHAPES AND MISCELLANEOUS ITEMS IN ACCORDANCE WITH ASTM A123. ALL ANCHOR BOLTS SHALL BE STAINLESS STEEL KWIK BOLTS BY HILTI, CORP. OR EQUAL UNLESS NOTED.
3. REPAIR DAMAGED OR SCRATCHED GALVANIZED COATINGS. CLEAN BY HAND TOOL, POWERTOOL, OR BRUSH OFF BLAST. SOLVENT CLEAN DAMAGED AREA WITH A WASH PRIMER, 1 COAT, 4 MIL DRY FILM THICKNESS. APPLY 3 COATS OF ORGANIC ZINC PAINT WITH A MINIMUM DRY FILM THICKNESS OF 3 MILS PER COAT.



ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

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 LAWS OF THE STATE OF MINNESOTA.
Daniel C. Sohn
REG. NO. 20452 DATE 1/14/97

ESTIMATE QUANTITIES

CLEARING	0.10	ha	1
GRUBBING	0.10	ha	1
REMOVE 325 mm CMP	25.2	m	
REMOVE MH	1	EA	
UNCLASSIFIED EXCAVATION	730	m^3	2
RIPRAP	16.8	m^3	4
GEOTEXTILE FILTER	350	m^2	4
SOD	350	m^2	4
525 mm RCP	25.2	m	
525 mm RCP APRON	1	EA	
TRASH GUARD FOR 525 mm APRON	1	EA	

CONSTRUCTION NOTES

1. CONTRACTOR SHALL CLEAR & GRUB ALL TREES BELOW AN ELEVATION OF 285 m. PAYMENT SHALL BE MADE AS CLEARING & GRUBBING BY THE HECTARE.
2. CONTRACTOR SHALL EXCAVATE AT A 1:3 SLOPE FROM ELEVATION OF 285 m TO ELEVATION 284 m. PAYMENT SHALL BE MADE AS UNCLASSIFIED EXCAVATION BY THE CUBIC METER.
3. ACCESS ROAD TO THE POND AREA SHALL BE RESTORED TO ORIGINAL CONDITION UPON COMPLETION OF EXCAVATION. PAYMENT SHALL BE MADE AT APPROPRIATE BID PRICES FOR MATERIALS REQUIRED FOR THE RESTORATION, INCLUDING, BUT NOT LIMITED TO , SOD, TOPSOIL, AGGREGATE AND BITUMINOUS MIXTURES.
4. INSTALL 12.5 m^3 CLASS IV RIPRAP AT 1050 mm APRON PER STD. PLATE 3133. INSTALL 4.3 m^3 CLASS IV RIPRAP AT AP 168 AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL FURNISH GEOTEXTILE FABRIC, SPEC. 3601, IN ADDITION TO GRANULAR FILTER AND RIPRAP. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER SHALL BE INCLUDED IN PRICE OF RIPRAP PER m3 WHICH SHALL BE PAYMENT IN FULL FOR FOR ALL WORK REQUIRED. ANY EXCAVATION REQUIRED FOR THE PLACEMENT OF RIPRAP SHALL BE PAID AT THE CONTRACT EID PRICE FOR UNCLASSIFIED EXCAVATION.

28-157

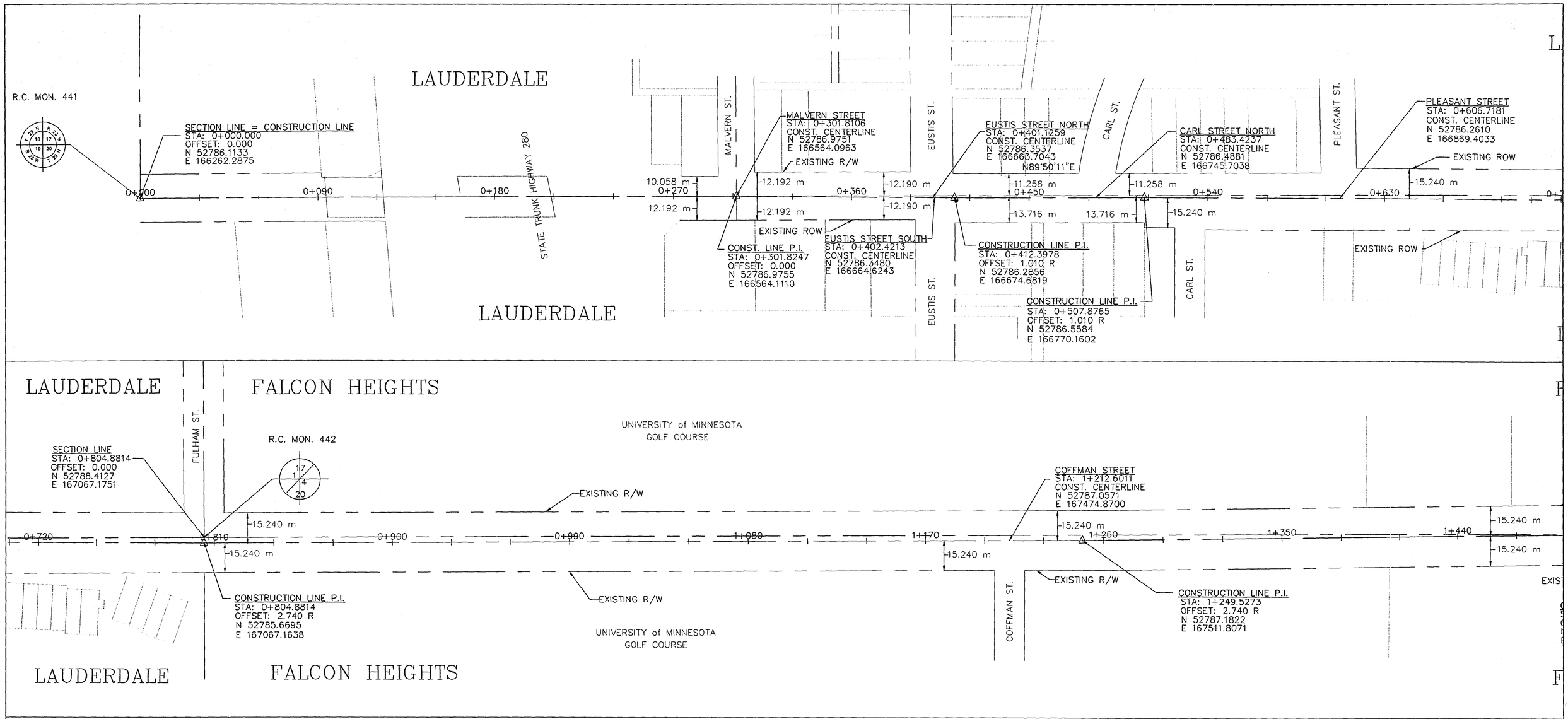
REVISED 01/14/97

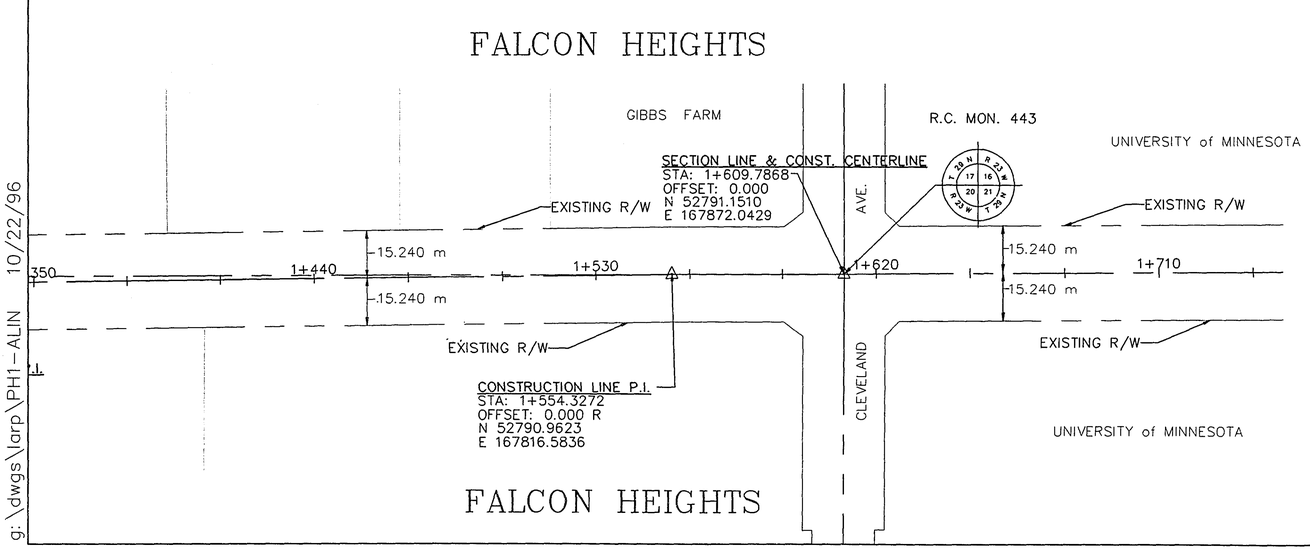
G:\DWGS\LARP\GASPOND 01/14/97

GASPERRE POND

S.P. 62-630-42

SHEET NO. 21 OF 110 SHEETS





GRAPHIC SCALE

(IN METERS)

20 0 10 20 40 60 80 100

△ RAMSEY COUNTY MONUMENTS 441, 442, AND 443, AS PUBLISHED IN THE "RAMSEY COUNTY PUBLIC WORKS LAND SURVEY DIVISION NORTH AMERICAN DATUM OF 1983 COORDINATES."

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jaeklke

REG. NO. 21864 DATE 11/21/96

ALIGNMENT CHART – CONSTRUCTION C.L.

STATION	DISTANCE	BEARING	NORTHING	EASTING
0+000.0000			52786.1133	166262.2875
	301.8247 m	N89°50'11"E		
0+301.8247			52786.9755	166564.1110
	110.5731 m	S89°38'33"E		
0+412.3978			52786.2856	166674.6819
	95.4787 m	N89°50'11"E		
0+507.8765			52786.5584	166770.1602
	297.0049 m	S89°49'43"E		
0+804.8814			52785.6695	167067.1638
	444.6459 m	N89°48'18"E		
1+249.5273			52787.1822	167511.8071
	304.7999 m	N89°17'22"E		
1+554.3272			52790.9623	167816.5836
	55.4596 m	N89°48'18"E		
1+609.7868			52791.1510	167872.0429

MONUMENT CHART

NUMBER	STATION	NORTHING	EASTING
441	0+000.0000	52786.1133	166262.2875
442	0+804.8814	52788.4127	167067.1751
443	1+609.7868	52791.1510	167872.0429

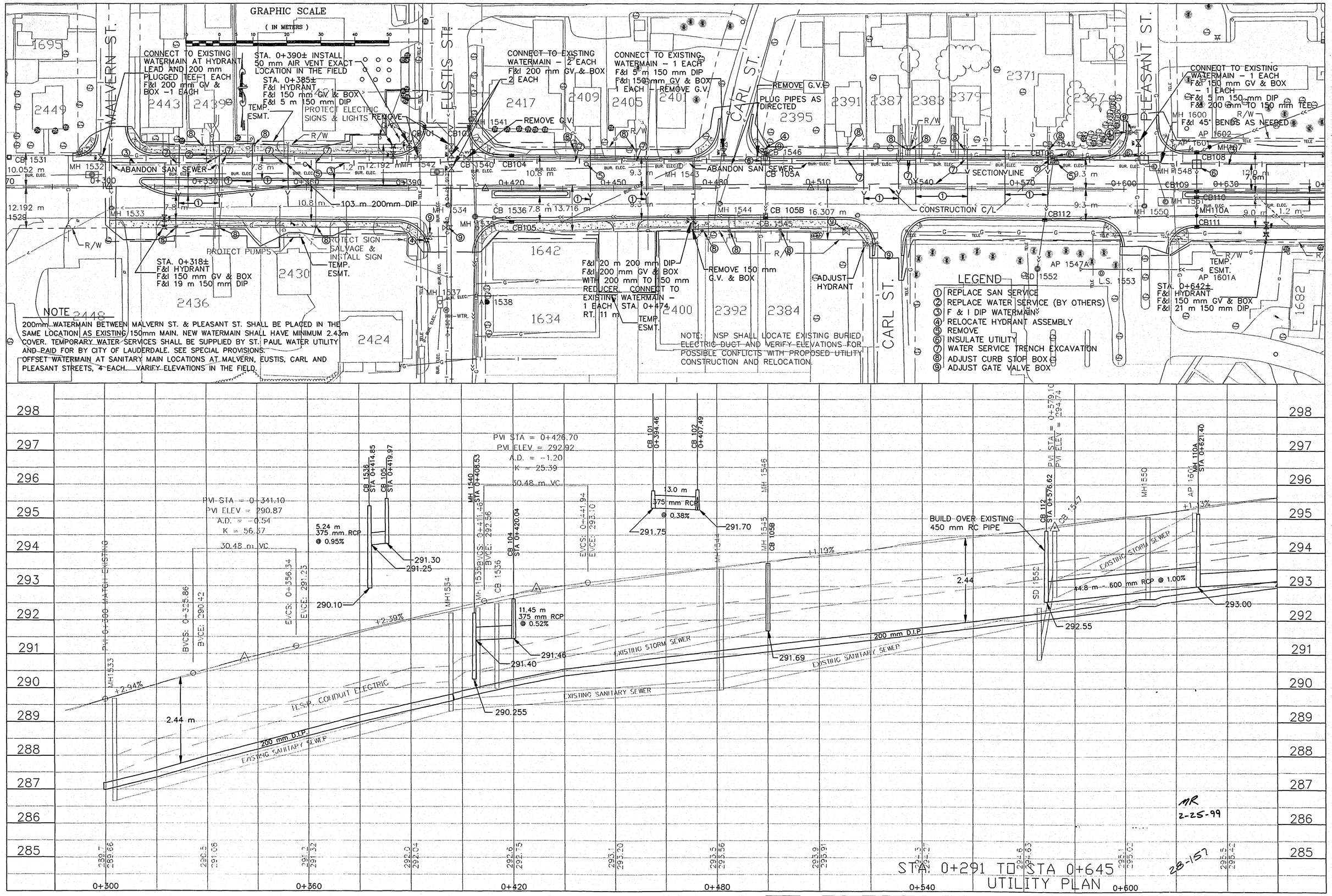
28-157 ALIGNMENT

S.P. 62-630-42 SHEET NO. 22 OF 110 SHEETS

g:\dwgs\larp\PH1-ALIN 10/22/96

NO SHEET

#23 — #27



Certified By Katherine Jaeckle Reg. No. 21864 11/21/96

S.P. 62-630-42

SHEET NO. 28 OF 110 SHEETS

G:\DWGS\LARP\W1-PIPES 11/08/96

GRAPHIC SCALE
(IN METERS)

CONNECT TO EXISTING WATERMAIN AT HYDRANT LEAD AND 200 mm PLUGGED TEE - 1 EACH F&I 200 mm GV & BOX - 1 EACH

STA. 0+390± INSTALL 50 mm AIR VENT EXACT LOCATION IN THE FIELD

STA. 0+385± F&I HYDRANT F&I 150 mm GV & BOX F&I 5 m 150 mm DIP

TEMP. ESMT.

PROJECT ELECTRIC SIGNS & LIGHTS REMOVE

CONNECT TO EXISTING WATERMAIN - 2 EACH F&I 200 mm GV & BOX 2 EACH

REMOVE G.V.

CONNECT TO EXISTING WATERMAIN - 1 EACH F&I 5 m 150 mm DIP F&I 150 mm GV & BOX 1 EACH - REMOVE G.V.

REMOVE G.V.

PLUG PIPES AS DIRECTED

CONNECT TO EXISTING WATERMAIN - 1 EACH F&I 150 mm GV & BOX - 1 EACH F&I 5 m 150 mm DIP F&I 200 mm TO 150 mm TEE F&I 45° BENDS AS NEEDED

ABANDON SAN SEWER

CONSTRUCT MH.

103 m 200mm DIP

20" C.I.P. WM

ABANDON SAN SEWER

SECTION LINE

CONSTRUCTION C/L

STA. 0+318± F&I HYDRANT F&I 150 mm GV & BOX F&I 19 m 150 mm DIP

PROJECT SIGN SALVAGE & INSTALL SIGN

TEMP. ESMT.

F&I 20 m 200 mm DIP F&I 200 mm GV & BOX WITH 200 mm TO 150 mm REDUCER. CONNECT TO EXISTING WATERMAIN - 1 EACH STA. 0+474 RT. 11 m

TEMP. ESMT.

REMOVE 150 mm G.V. & BOX

ADJUST HYDRANT

STA. 0+642± F&I HYDRANT F&I 150 mm GV & BOX F&I 21 m 150 mm DIP

TEMP. ESMT.

NOTE

200mm WATERMAIN BETWEEN MALVERN ST. & PLEASANT ST. SHALL BE PLACED IN THE SAME LOCATION AS EXISTING 150mm MAIN. NEW WATERMAIN SHALL HAVE MINIMUM 2.43m COVER. TEMPORARY WATER SERVICES SHALL BE SUPPLIED BY ST. PAUL WATER UTILITY AND PAID FOR BY CITY OF LAUDERDALE. SEE SPECIAL PROVISIONS.
OFFSET WATERMAIN AT SANITARY MAIN LOCATIONS AT MALVERN, EUSTIS, CARL AND PLEASANT STREETS, 4 EACH. VARIFY ELEVATIONS IN THE FIELD.

NOTE: NSP SHALL LOCATE EXISTING BURIED ELECTRIC DUCT AND VERIFY ELEVATIONS FOR POSSIBLE CONFLICTS WITH PROPOSED UTILITY CONSTRUCTION AND RELOCATION.

LEGEND
1. REPLACE SAN SERVICE
2. REPLACE WATER SERVICE (BY OTHERS)
3. F & I DIP WATERMAIN
4. RELOCATE HYDRANT ASSEMBLY
5. REMOVE
6. INSULATE UTILITY
7. WATER SERVICE TRENCH EXCAVATION
8. ADJUST CURB STOP BOX
9. ADJUST GATE VALVE BOX

Supplemental Agreement
Laperteur Ave.
Lauderdale Sanitary Sewer

5.24 m 375 mm RCP @ 0.95%

291.30
291.25
290.10

11.45 m 375 mm RCP @ 0.52%

291.46
291.40

13.0 m 375 mm RCP @ 0.38%

291.75
291.70

291.69

BUILD OVER EXISTING 450 mm RC PIPE

2.44

44.8 m - 600 mm RCP @ 1.00%

293.00
292.55

REMOVE M.H. 1534 & CONSTRUCT NEW M.H.

CONSTRUCT M.H. SANITARY

N.S.P. CONDUIT ELECTRIC CONFLICT

290.255

CONSTRUCT OUTSIDE DROP

2.44 m

200 mm D.I.P.

43 m± 300 mm P.V.C.

CONTRACTOR SHALL COORDINATE WORK IN THIS AREA WITH ST. PAUL WATER UTILITY TO PROTECT INPLACE WATERMAIN.

CONTRACTOR SHALL EXCAVATE AT EXISTING M.H. 1534 TO DETERMINE CONFLICT.

DEPTH OF NEW M.H., THE EXACT LENGTH OF 300 mm P.V.C. AND LOCATION OF THE DOWN STREAM M.H. SHALL BE DETERMINED IN THE FIELD.

CONSTRUCT OUTSIDE DROP ON NEW M.H. @ EUSTIS ST.

REVISED 2-14-97 B.J.

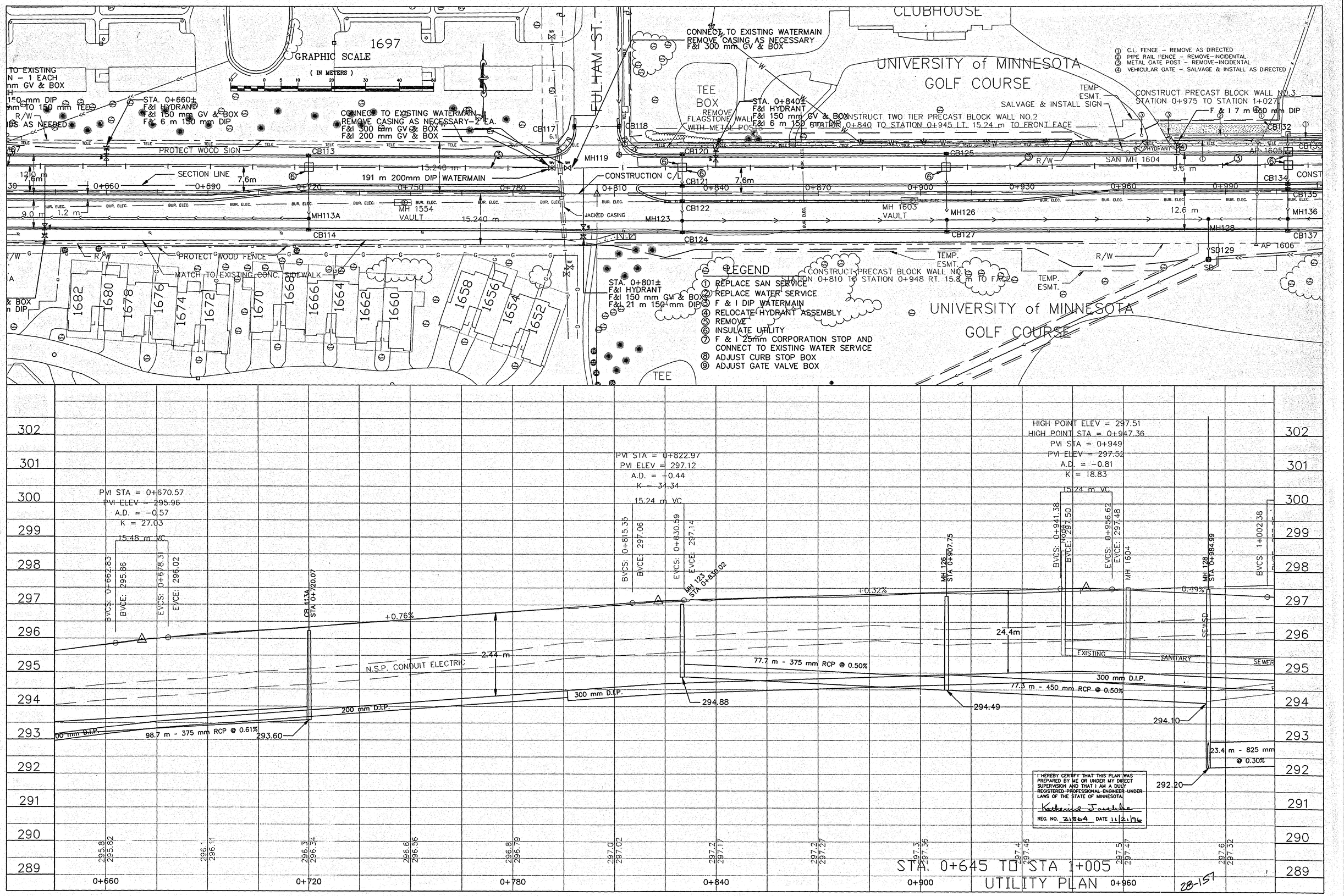
STA. 0+291 TO STA 0+645
UTILITY PLAN

28-157

Certified By Katherine Jaeckhe Reg. No. 21864 11/21/96

S.P. 62-630-42

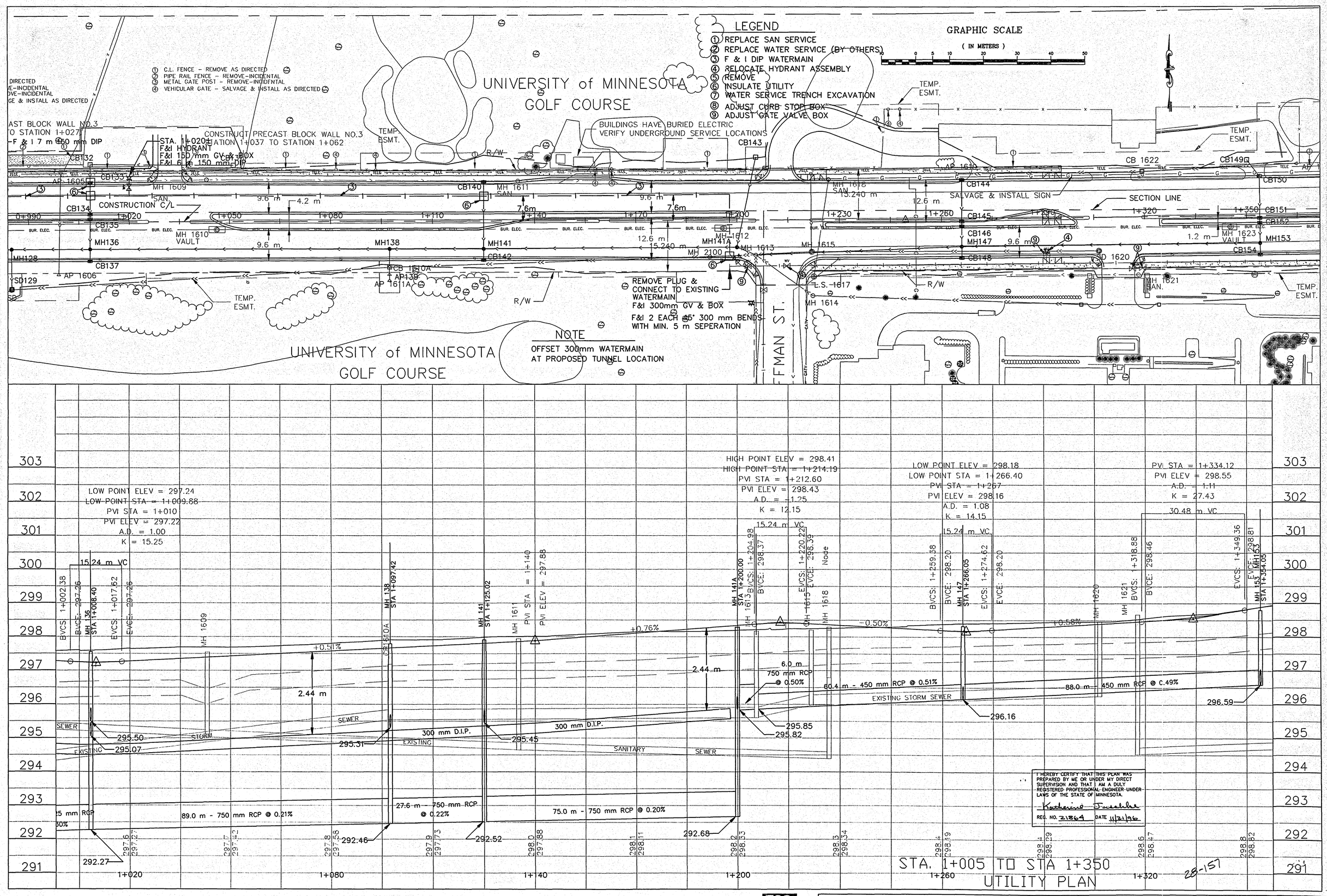
SHEET NO. 28A OF 110 SHEETS



S.P. 62-630-42

SHEET NO. 29 OF 110 SHEETS

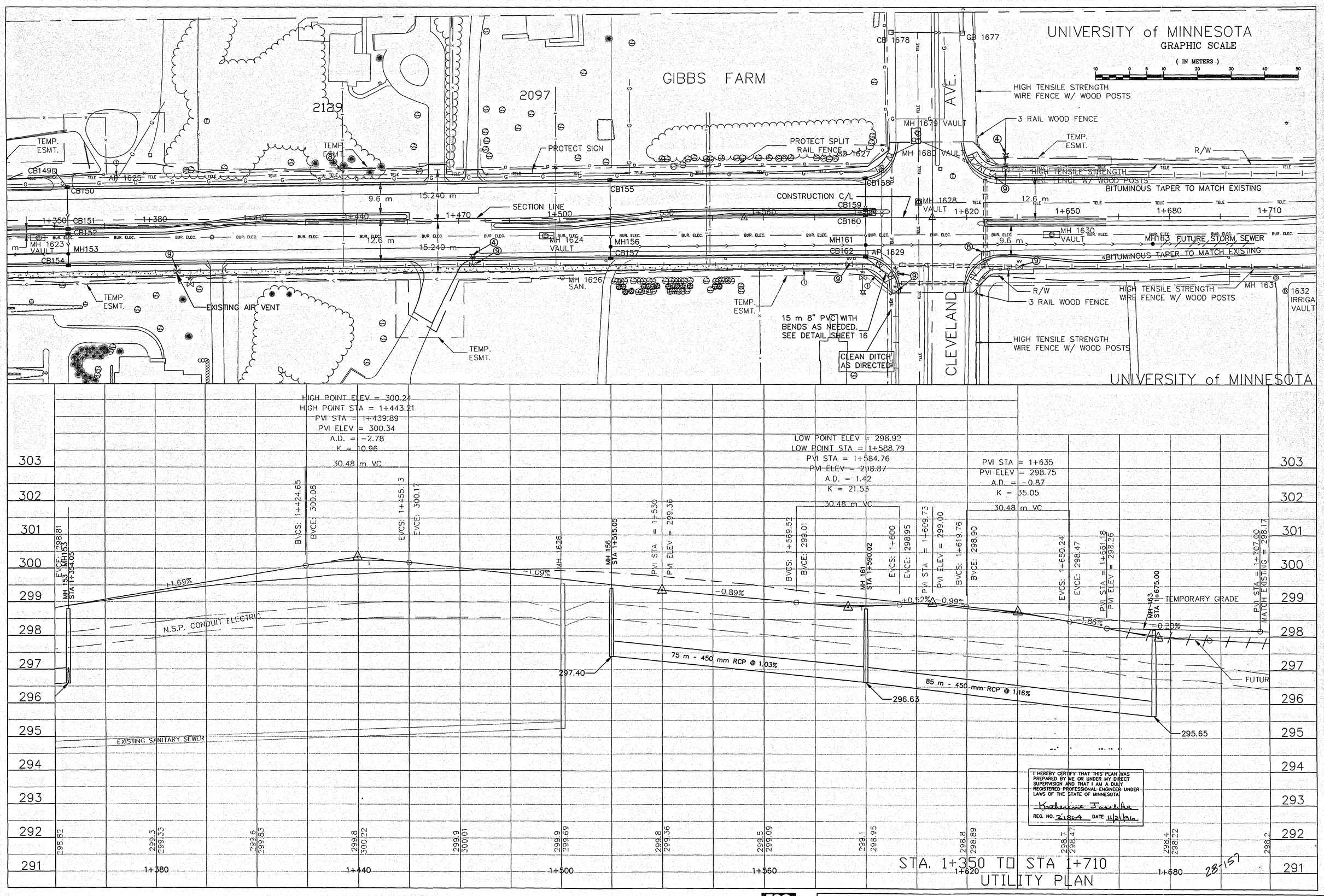
G:\DWGS\LARP\W1-PIPES 10/22/96

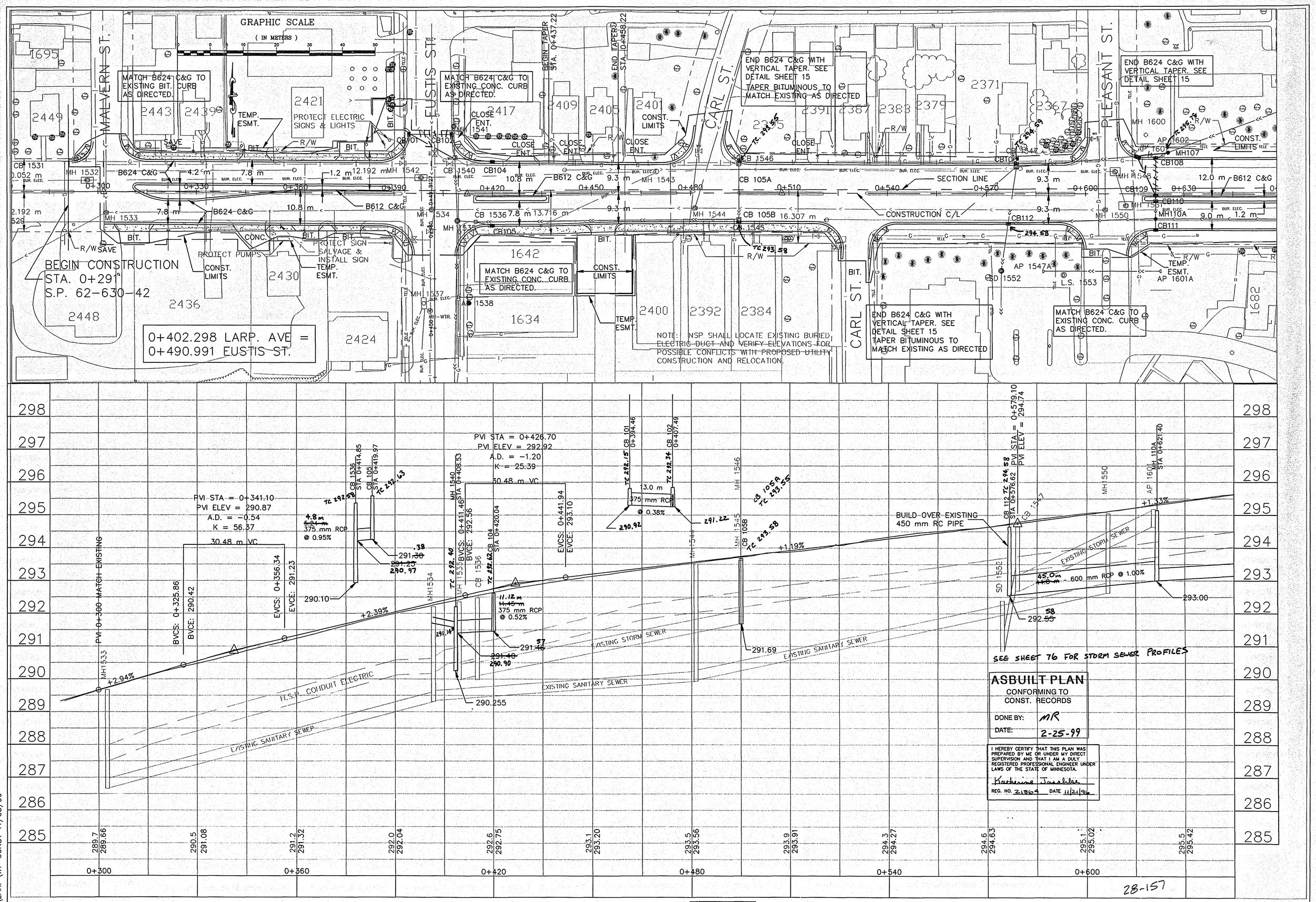


S.P. 62-630-42

SHEET NO. 30 OF 110 SHEETS

G:\DWGS\LARP\W1-PIPES 10/22/96


UNIVERSITY of MINNESOTA
GRAPHIC SCALE
(IN METERS)
GIBBS FARM
2129
2097
CLEVELAND AVE.
TEMP. ESMT.
PROTECT SIGN
PROTECT SPLIT RAIL FENCE
SECTION LINE
CONSTRUCTION C/L
HIGH TENSILE STRENGTH WIRE FENCE W/ WOOD POSTS
3 RAIL WOOD FENCE
BITUMINOUS TAPER TO MATCH EXISTING
MH 163 FUTURE STORM SEWER
EXISTING AIR VENT
15 m 8" PVC WITH BENDS AS NEEDED. SEE DETAIL SHEET 16
CLEAN DITCH AS DIRECTED
R/W
CB149
CB150
CB151
CB152
CB153
CB154
CB155
CB156
CB157
CB158
CB159
CB160
CB161
CB162
CB 1678
CB 1677
MH 1623 VAULT
MH 1624 VAULT
MH 1626 SAN.
MH 1629 VAULT
MH 1628 VAULT
MH 1630 VAULT
MH 1631
1632 IRRIGA VAULT
AP 1625
AP 1627
AP 1629
1+350
1+380
1+410
1+440
1+470
1+500
1+530
1+560
1+620
1+650
1+680
1+710
9.6 m
12.6 m
15.240 m
HIGH POINT ELEV = 300.24
HIGH POINT STA = 1+443.21
PVI STA = 1+439.89
PVI ELEV = 300.34
A.D. = -2.78
K = 10.96
30.48 m VC
LOW POINT ELEV = 298.92
LOW POINT STA = 1+588.79
PVI STA = 1+584.76
PVI ELEV = 298.87
A.D. = 1.42
K = 21.53
30.48 m VC
PVI STA = 1+635
PVI ELEV = 298.75
A.D. = -0.87
K = 35.05
30.48 m VC
BVCS: 1+424.65
BVCE: 300.08
EVCS: 1+455.13
EVCE: 300.17
EVCE: 298.81
MH 153
STA 1+354.05
MH 156
STA 1+515.05
PVI STA = 1+530
PVI ELEV = 299.36
BVCS: 1+589.52
BVCE: 299.01
MH 161
STA 1+590.02
EVCS: 1+600
EVCE: 298.95
PVI STA = 1+609.73
PVI ELEV = 299.00
BVCS: 1+619.76
BVCE: 298.90
EVCS: 1+650.24
EVCE: 298.47
PVI STA = 1+661.18
PVI ELEV = 298.26
MH 163
STA 1+675.00
PVI STA = 1+707.00
MATCH EXISTING = 298.17
+1.69%
-1.09%
-0.89%
+0.52%
-0.99%
-1.86%
-0.20%
TEMPORARY GRADE
N.S.P. CONDUIT ELECTRIC
EXISTING SANITARY SEWER
75 m - 450 mm RCP @ 1.03%
85 m - 450 mm RCP @ 1.16%
297.40
296.63
295.65
FUTUR
303
302
301
300
299
298
297
296
295
294
293
292
291
295.82
299.3
299.33
299.6
299.83
299.8
300.22
299.9
299.69
299.8
299.36
299.5
299.09
299.1
298.95
298.8
298.89
298.7
298.47
298.4
298.22
298.2
1+380
1+440
1+500
1+560
1+620
1+680
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 LAWS OF THE STATE OF MINNESOTA
REG. NO. 21864 DATE 11/2/96
STA. 1+350 TO STA 1+710
UTILITY PLAN
28-157
S.P. 62-630-42
SHEET NO. 31 OF 110 SHEETS
G:\DWGS\LARP\W1-PIPES 10/22/96

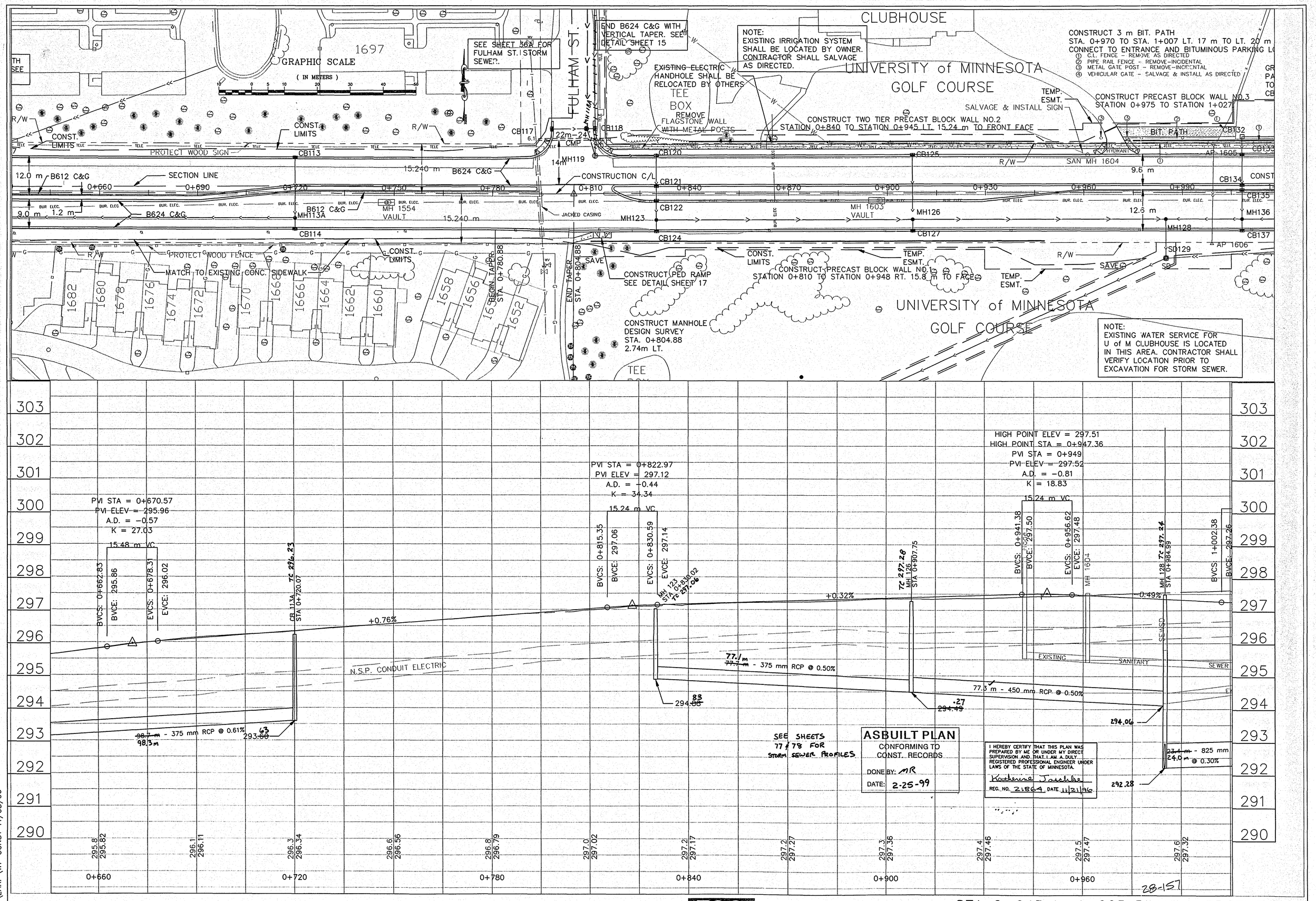


STA 0+291 to 0+645 PLAN & PROFILE

S.P. 62-630-42

SHEET NO. 32 OF 110 SHEETS

G:\DWGS\LARP\W1-CONST 11/08/96

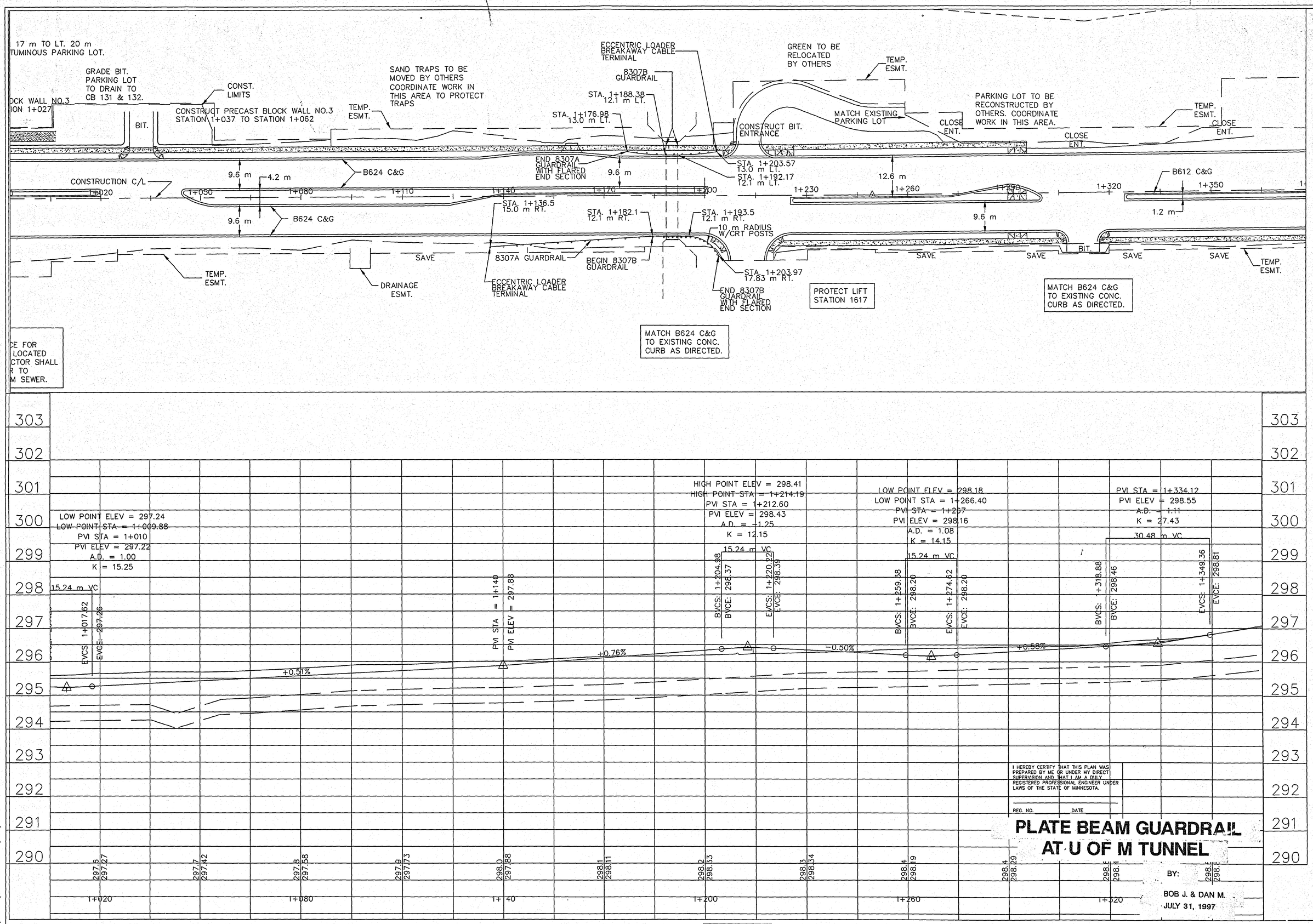


STA 0+645 to 1+005 PLAN & PROFILE

S.P. 62-630-42

SHEET NO. 33 OF 110 SHEETS

G:\DWGS\LARP\W1-CONST 11/08/96



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 LAWS OF THE STATE OF MINNESOTA.

REG. NO. DATE

PLATE BEAM GUARDRAIL AT U OF M TUNNEL

BY: BOB J. & DAN M.
JULY 31, 1997

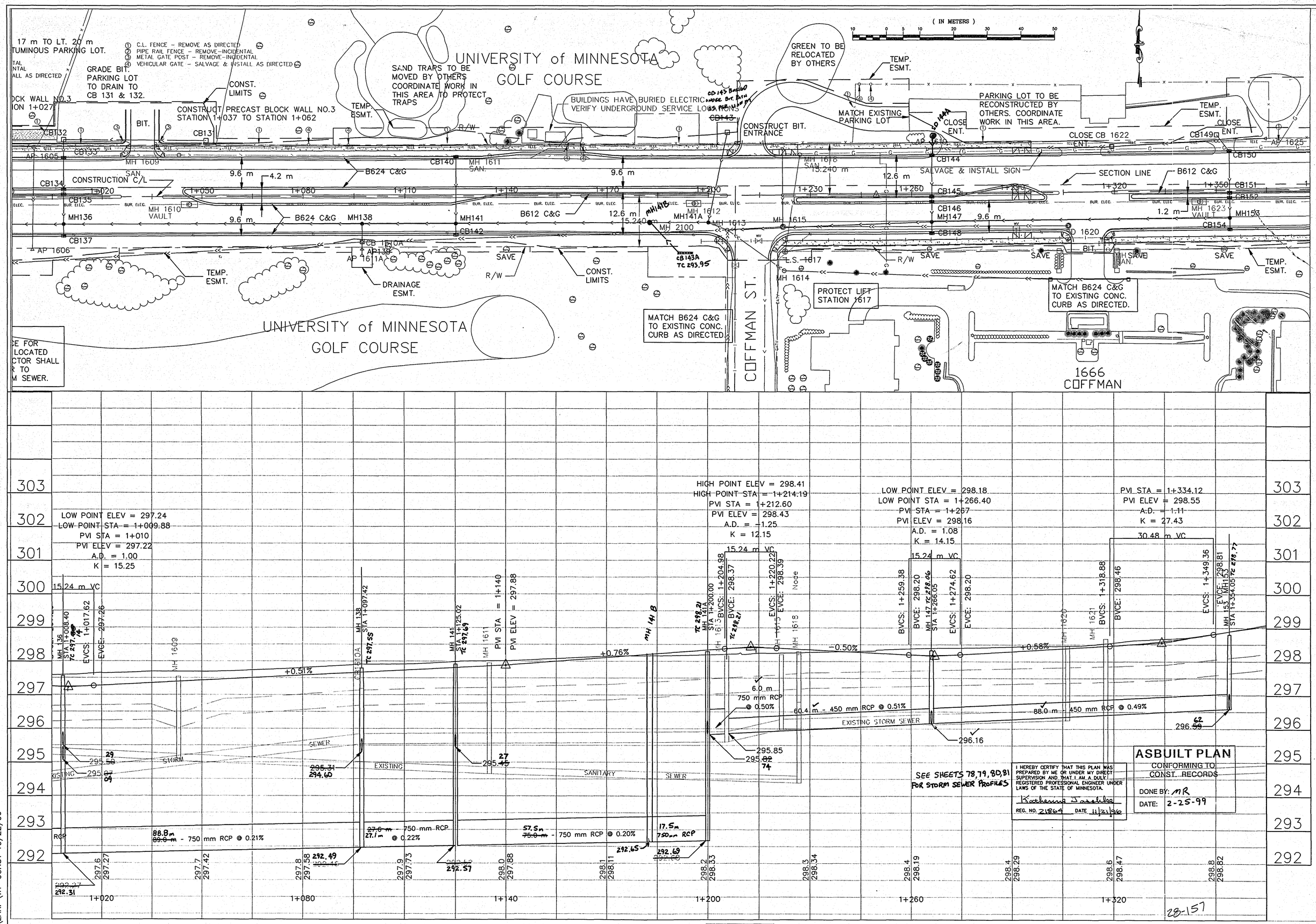
28-157

STA 0+645 to 1+005 PLAN & PROFILE

S.P. 62-630-42

SHEET NO. 33A OF 110 SHEETS

G:\DWGS\LARP\W1-CONST 11/08/96

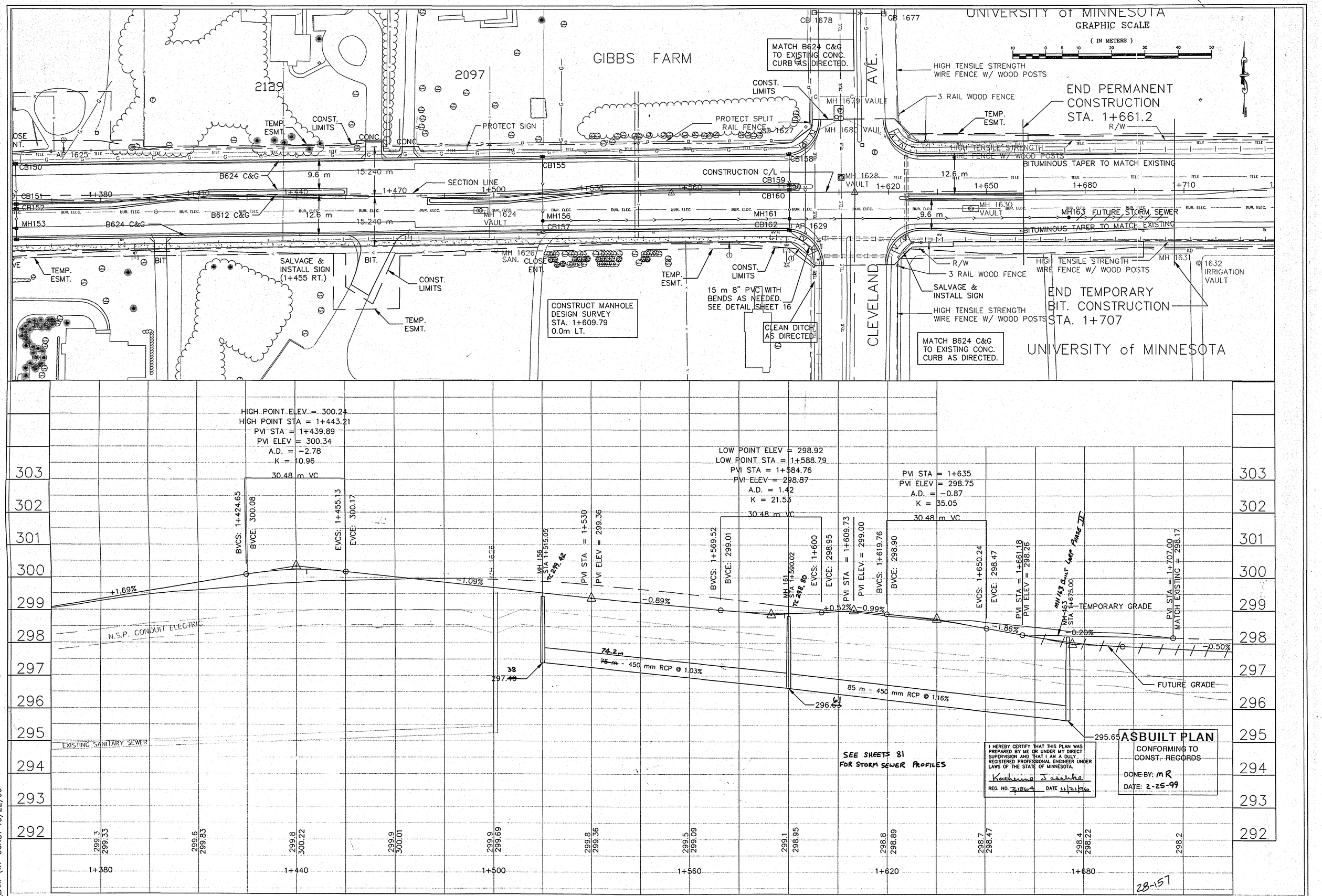


STA 1+005 to 1+350 PLAN & PROFILE

S.P. 62–630–42

SHEET NO. 34 OF 110 SHEETS

G:\DWGS\LARP\WI–CONST 10/22/96

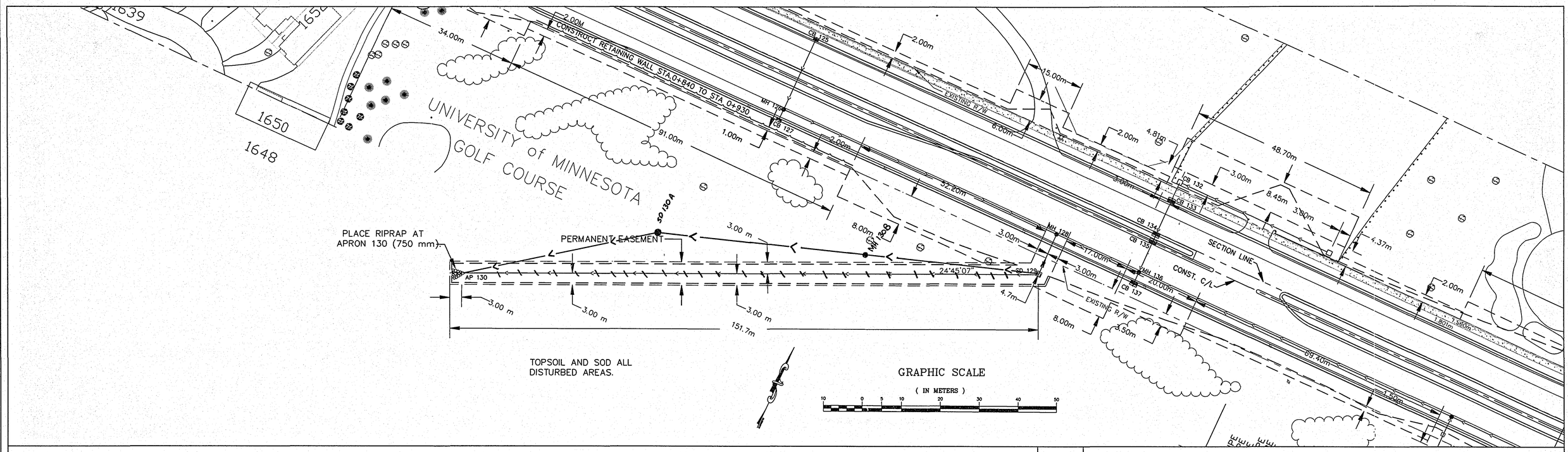


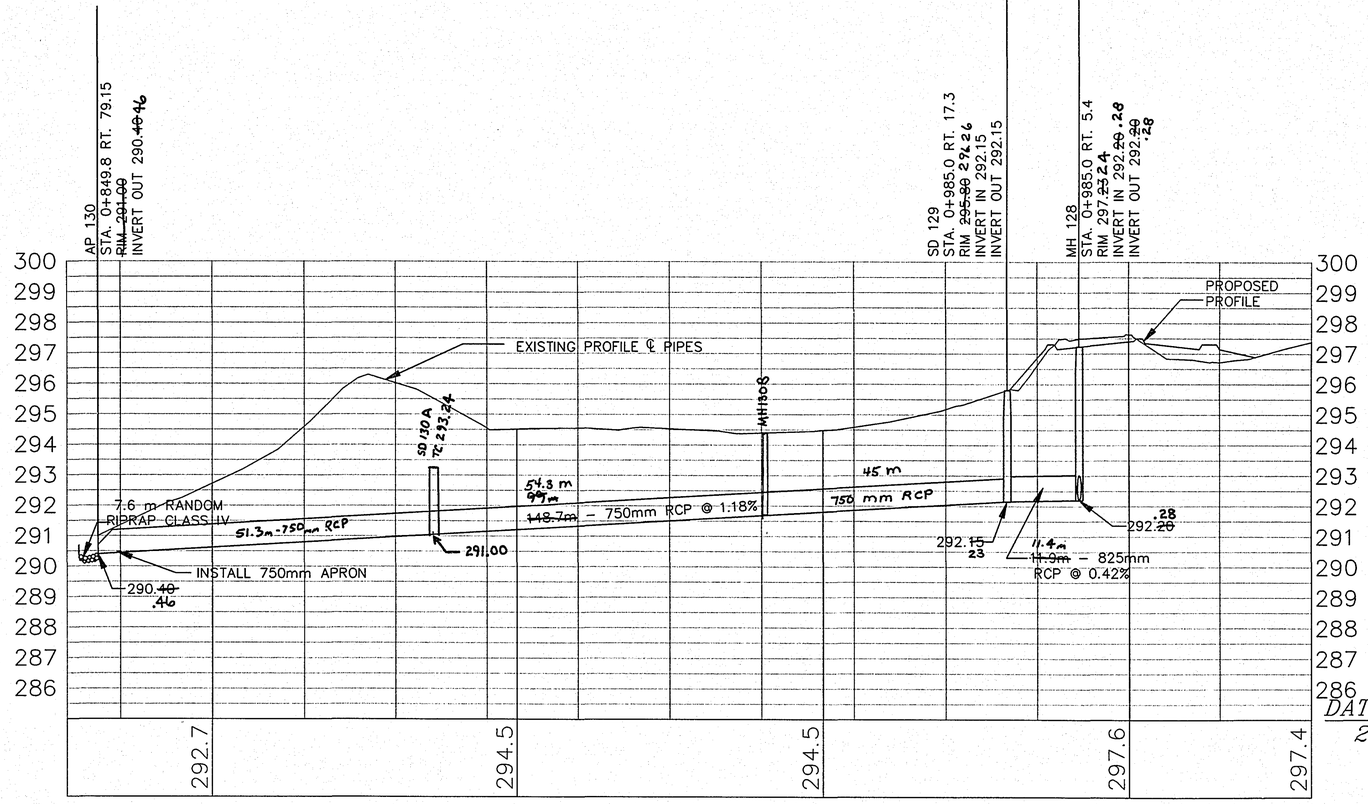
STA 1+350 to 1+710 PLAN & PROFILE

S.P. 62-630-42

SHEET NO. 35 OF 110 SHEETS

G:\DWGS\LARP\W1-CONST 10/22/96





DATUM ELEV
285.000

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

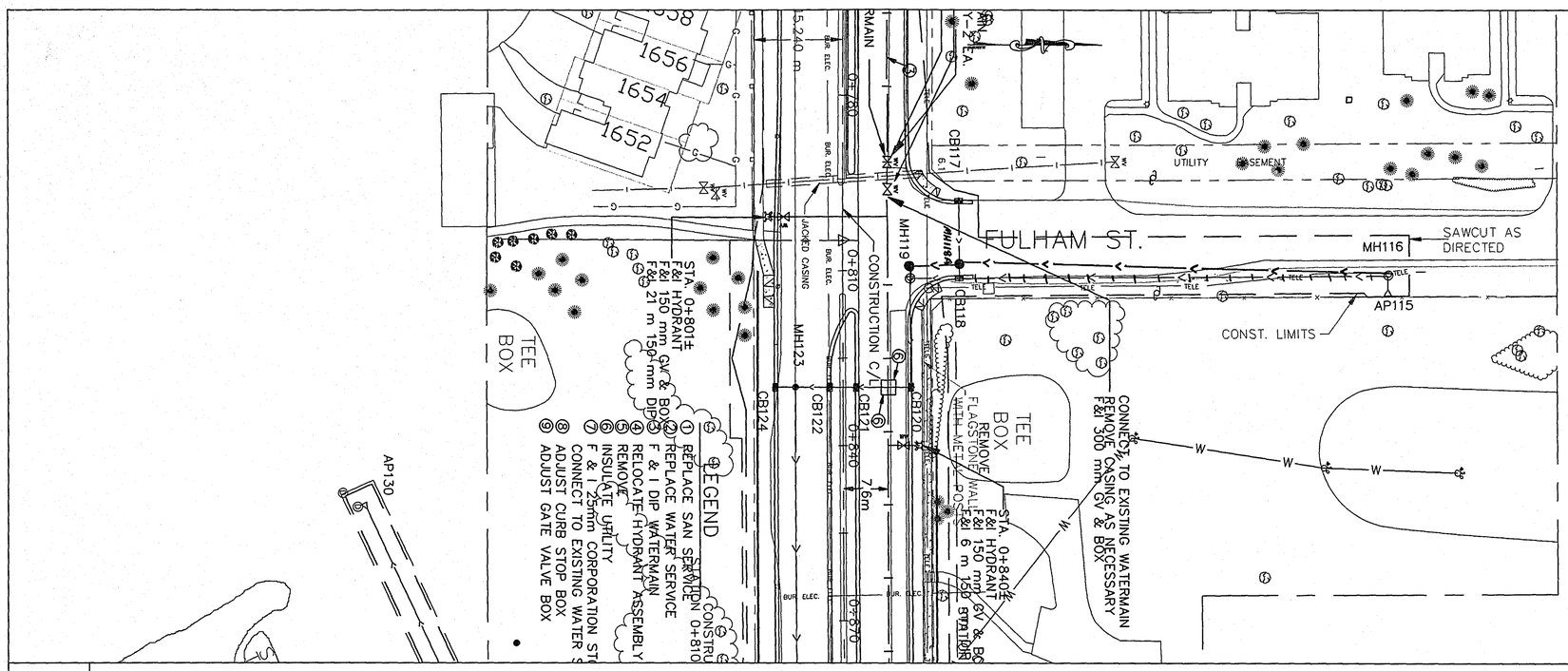
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.
Katherine Jaeschke
REG. NO. 21864 DATE 11/21/96

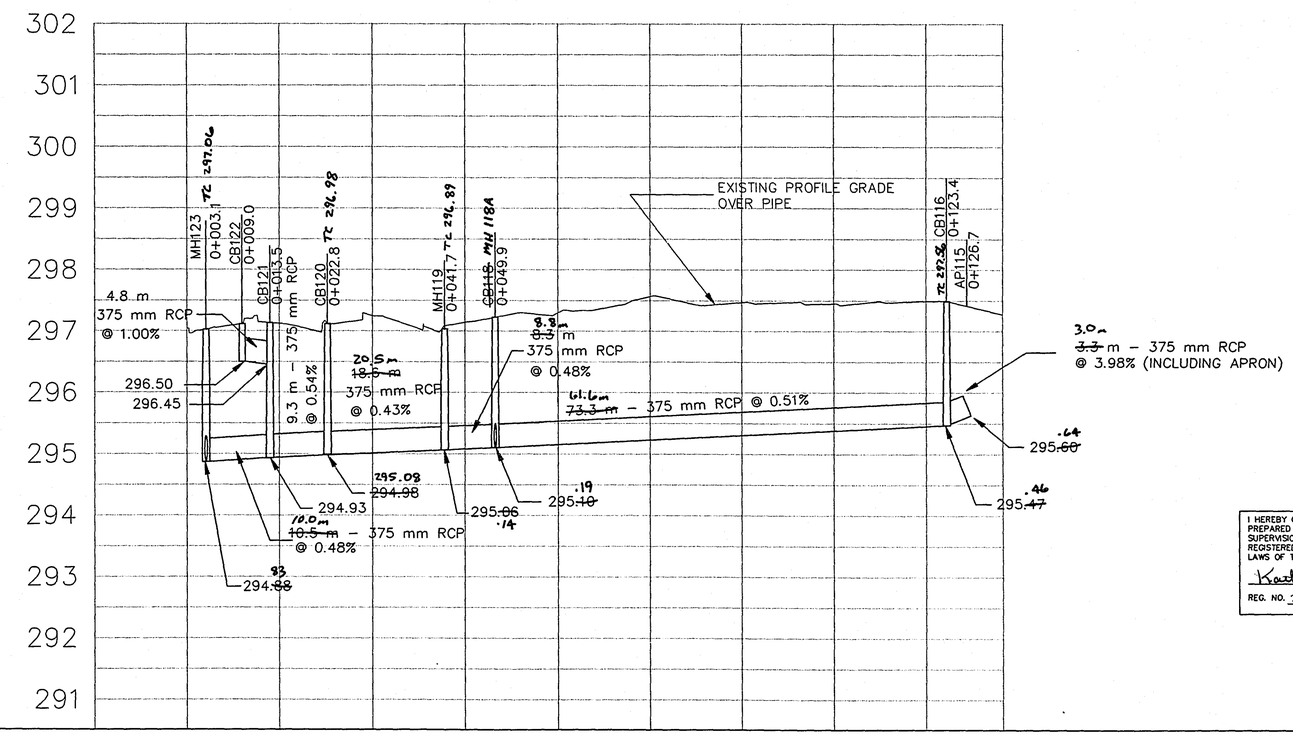
28-157

U OF M GOLF COURSE OUTLET
REVISED 9/24/96

S.P. 62-630-42 SHEET NO. 36 OF 110 SHEETS

G:\DWGS\LARP\GOLFSTRM 10/22/96





28-157

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jaeschke

REG. NO. 21864 DATE 11/21/96

ASBUILT PLAN
CONFORMING TO CONST. RECORDS

DONE BY: MR

DATE: 2-26-99

FULHAM STREET
STORM SEWER

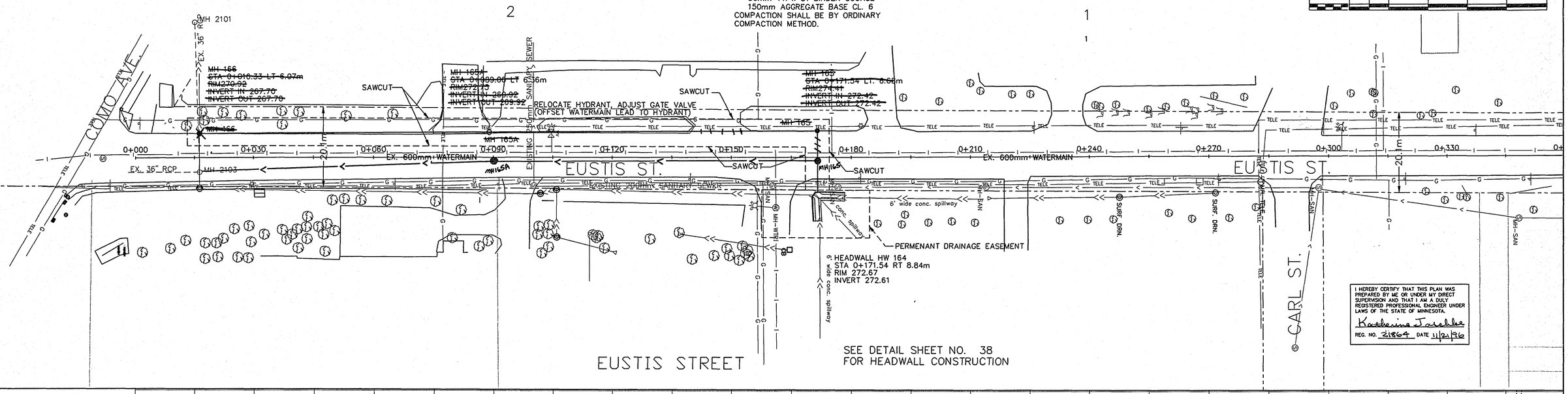
G:\DWGS\LARP\W1-PIPES 10/22/96

S.P. 62-630-42

CONSTRUCTION NOTES

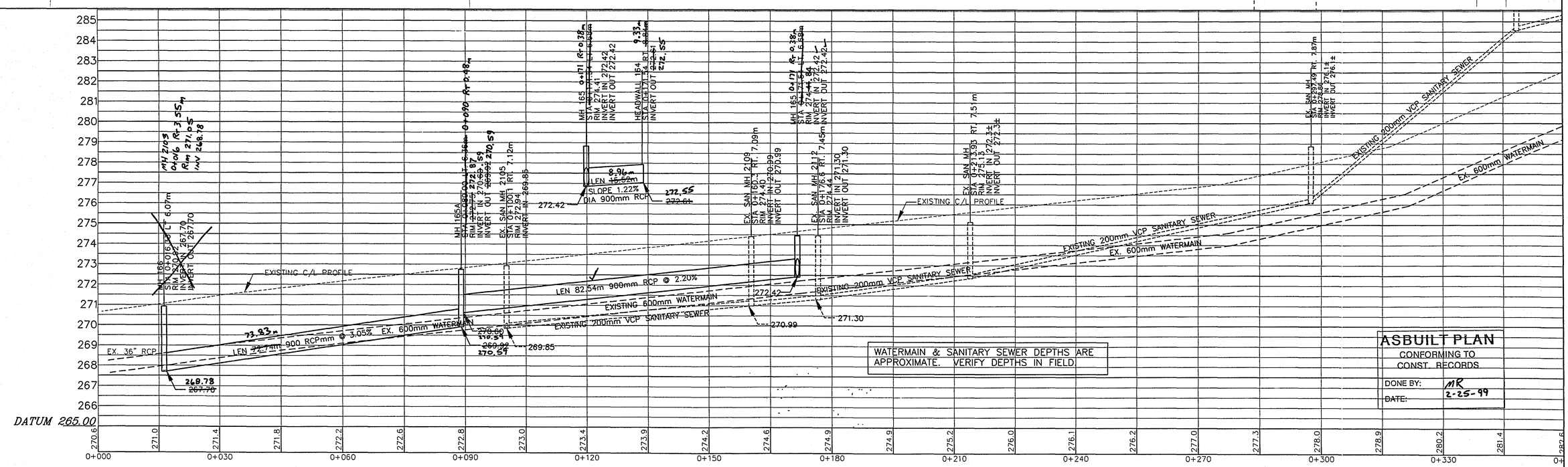
CONTRACTOR SHALL SAWCUT AND REMOVE BITUMINOUS ROADWAY FOR STORM SEWER CONSTRUCTION. RESTORATION SHALL BE:
37.51mm TYPE 41 WEARING COURSE
37.51mm TYPE 31 BINDER COURSE
150mm AGGREGATE BASE CL. 6
0.61m SELECT GRANULAR BORROW
ENTRANCES SHALL BE RESTORED WITH:
50mm TYPE 41 WEARING COURSE
50mm TYPW 31 BINDER COURSE
150mm AGGREGATE BASE CL. 6
COMPACTION SHALL BE BY ORDINARY COMPACTION METHOD.

GRAPHIC SCALE
(IN METERS)



SEE DETAIL SHEET NO. 38 FOR HEADWALL CONSTRUCTION

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 LAWS OF THE STATE OF MINNESOTA.
Katherine Jarolke
REG. NO. 21864 DATE 11/21/96



WATERMAIN & SANITARY SEWER DEPTHS ARE APPROXIMATE. VERIFY DEPTHS IN FIELD

ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

28-157 EUSTIS STREET

S.P. 62-630-42

SHEET NO. 37 OF 110 SHEETS

G:\DWGS\LARP\EUSPLAN 11/8/96

CONSTRUCTION NOTES

CONCRETE HEADWALL

- HORIZONTAL REINFORCEMENT BARS SHALL BE NO. 13M'S AT 0.2286m ON CENTER.
- VERTICAL REINFORCEMENT BARS SHALL BE NO. 13M'S AT 0.2286m ON CENTER.
- REINFORCMENT BARS SHALL BE INSTALLED WITH 0.05m CLEARANCE FROM EDGES.

REINFORCEMENT SHALL MEET THE REQUIREMENTS OF MN/DOT SPECIFICATON 2472 AND 3301.

- REINFORCEMENT BARS SHALL BE INCLUDED IN THE PRICE BID FOR THE HEADWALL AS A COMPLETE UNIT AND NO ADDITIONAL COMPENSATION SHALL BE PAID FOR THE WORK OR MATERIALS REQUIRED.
- CONCRETE MIX SHALL BE 3Y43.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL GRADE AS DIRECTED BY THE ENGINEER.
- CONCRETE FINISH ON HEADWALL SHALL BE VERTICAL RANDOM STRIATED PANEL DESIGN PER MN/DOT STANDARD PLAN 5-297.624.

PAYMENT

- PAYMENT FOR THE HEADWALL SHALL BE MADE AS ITEM 2411507, CONCRETE HEADWALL, BY THE EACH, WHICH SHALL BE PAYMENT IN FULL FOR ALL WORK AND MATERIALS REQUIRED, INCLUDING, BUT NOT LIMITED TO, CHAIN LINK FENCE, TRASH SCREENS, CONCRETE SPILLWAY, CONCRETE MIX, REINFORCEMENT BARS, GRANULAR MATERIAL, EXCAVATION, AND GRADING. ITEMS FOR TURF RESTORATION SHALL BE MEASURED AND PAID FOR BY APPROPRIATE BID ITEMS FOR TOP SOIL AND SOD.

TRASH SCREENS

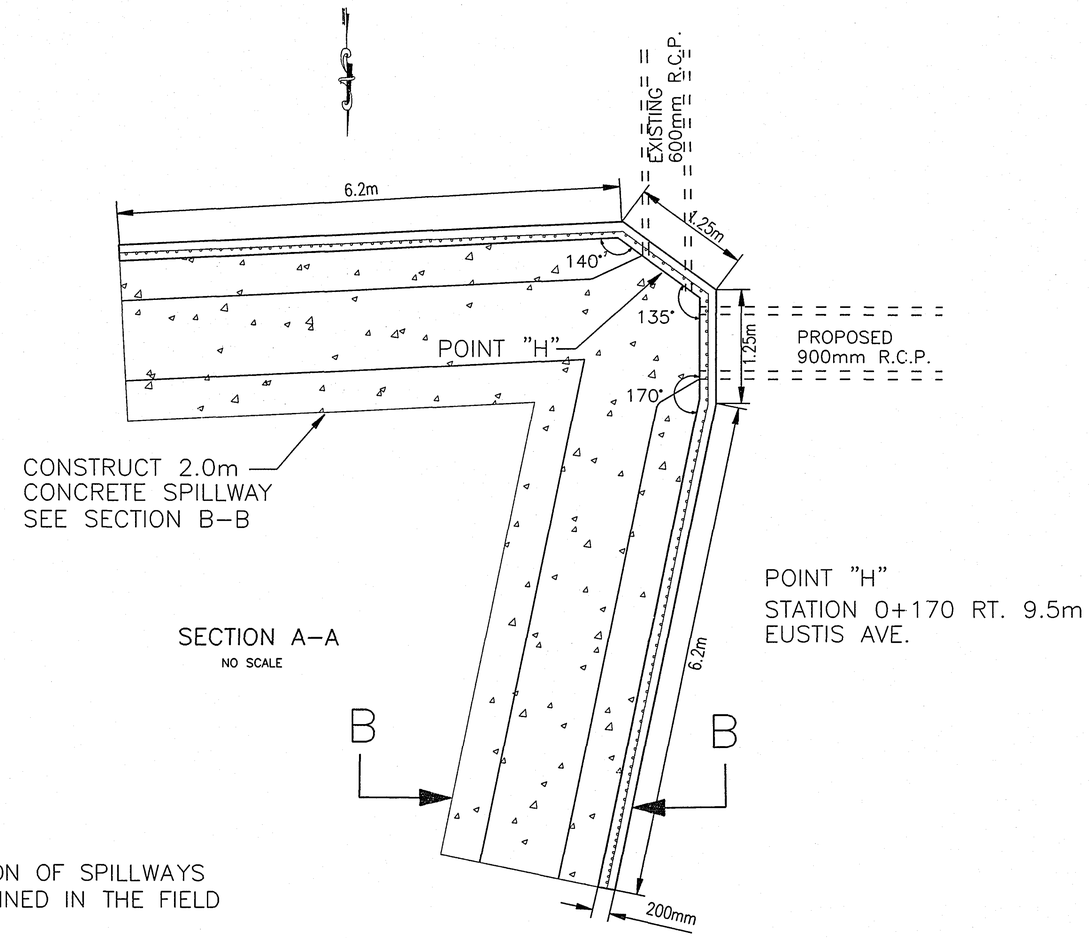
- TRASH SCREENS SHALL BE FABRICATED FOR BOTH THE 600mm & 900mm OUTLETS.
- TRASH SCREENS SHALL CONSIST OF 12.5mm BARS WELDED ON 125mm x 50mm FLAT STEEL OUTER CAGE ASSEMBLY.
- BARS SHALL BE 100mm CENTER TO CENTER BOTH HORIZONTAL AND VERTICAL.
- TRASH SCREEN SHALL BE OF A INSIDE WIDTH EQUAL TO PIPE DIAMETER + 2t MINIMUM, AND SHALL BE ANCHORED IN PLACE BE MEANS OF 12.5mm x 100mm LENGTH BOLTS WITH NUTS AND WASHERS.
- GALVANIZE ALL HARDWARE AS PER SPEC. 3392.

CHAIN LINK FENCE

- A 1.22m CHAIN LINK FENCE SHALL BE INSTALLED ALONG TOP OF WALL.
- CHAIN LINK FENCE SHALL BE IN ACCORDANCE WITH MN/DOT SPEC. 2557, STD. PLATE M9322, AND MN/DOT PLAN 5-297.623.
- THE FENCE SHALL CONTAIN TOP AND BOTTOM RAILS AND BE EQUIPED WITH METAL BRACES AND ELECTRICAL GROUNDS AS REQUIRED.
- ANCHOR BOLTS SHALL BE DRILLED AND ACCURATELY SET AND FIXED WITH PORTLAND CEMENT GROUT COMPLETLY FILLING THE HOLES.

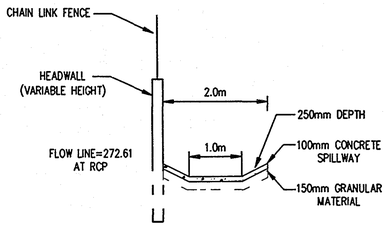
CONCRETE SPILLWAY

- CONCRETE MIX SHALL BE 3Y43.
- SLOPE ON SPILLWAY SHALL BE DETERMINED IN THE FIELD TO MATCH EXISTING GROUND.
- THE JOINT BETWEEN HEADWALL AND SPILLWAY SHALL BE FILLED WITH APPROVED GROUT MATERIAL.

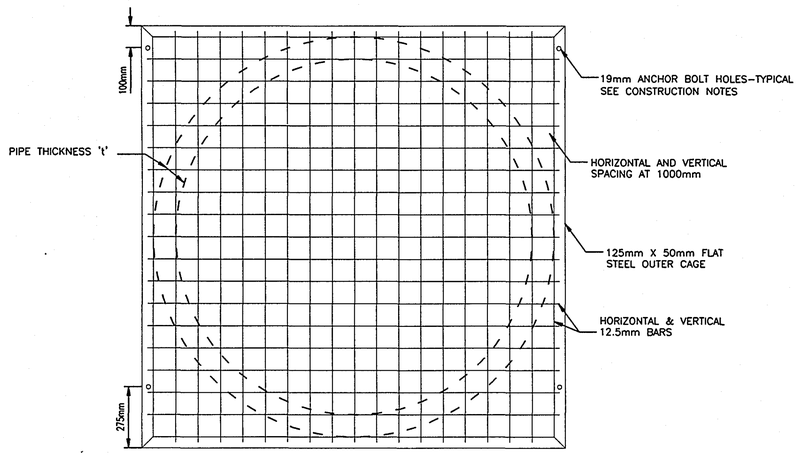


SECTION A-A
NO SCALE

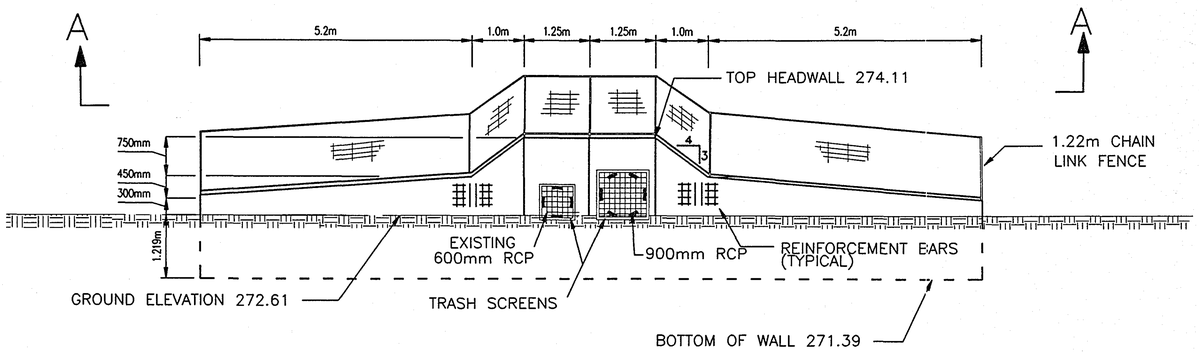
NOTE:
EXACT LOCATION OF SPILLWAYS TO BE DETERMINED IN THE FIELD



SECTION B-B
CONCRETE SPILLWAY
NO SCALE



TRASH SCREEN DETAIL
NO SCALE



HEADWALL DETAIL
NO SCALE

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 LAWS OF THE STATE OF MINNESOTA.

Katherine Jaeschke

REG. NO. 21864 DATE 11/21/96

EUSTIS AVE. HEADWALL

28-157

ramsey county metric

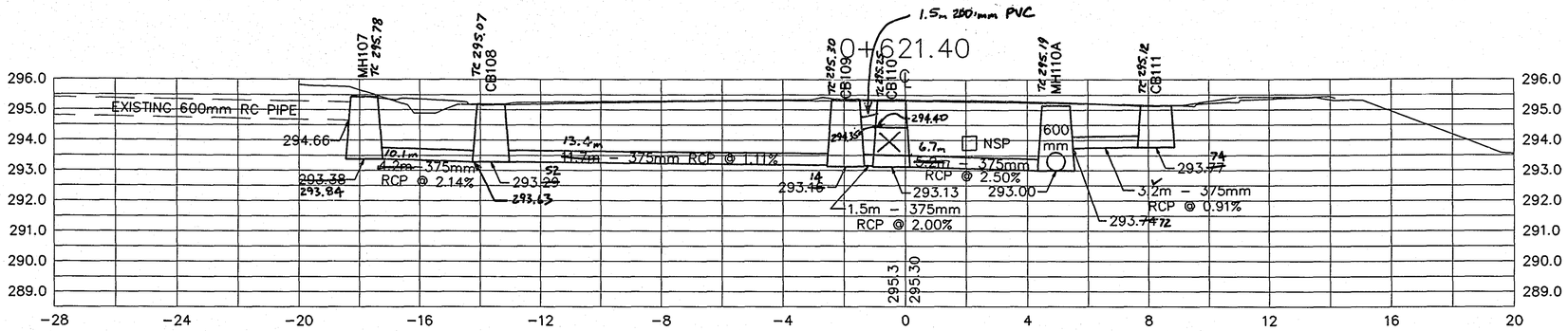
S.P. 62-630-42

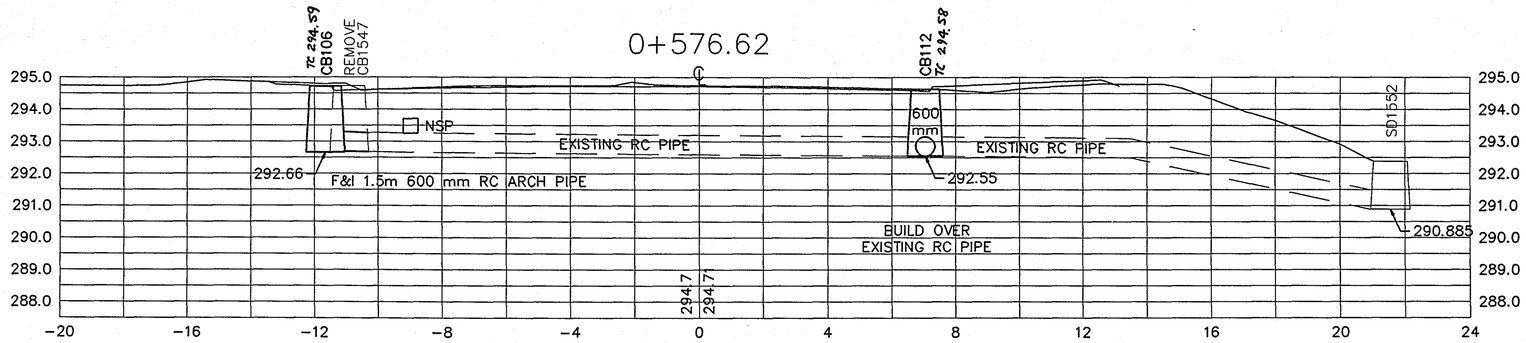
SHEET NO. 38 OF 110 SHEETS

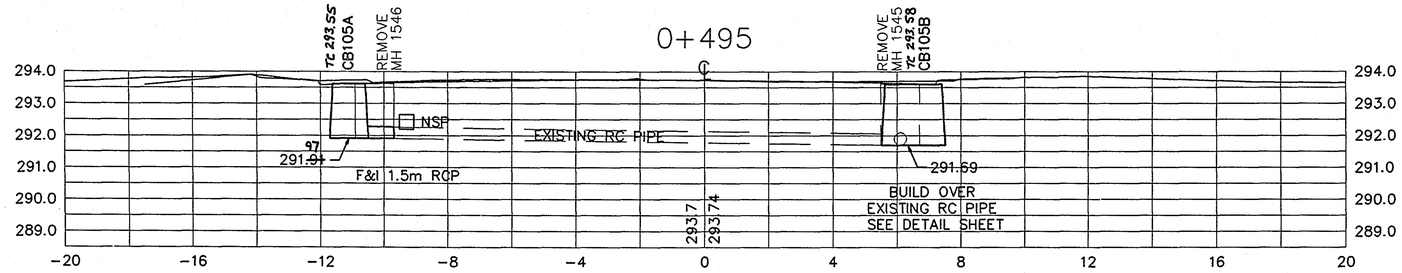
G:\DWGS\LARP\HEADWALL 11/8/96

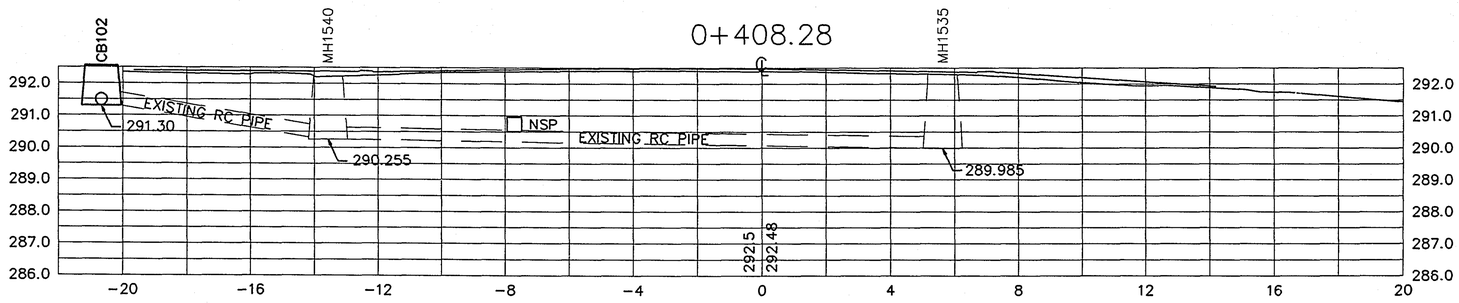
NO SHEET

#39 — #75









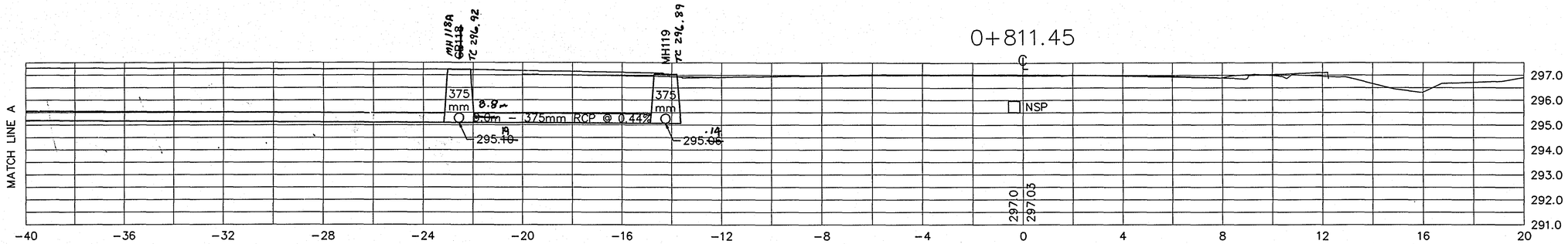
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

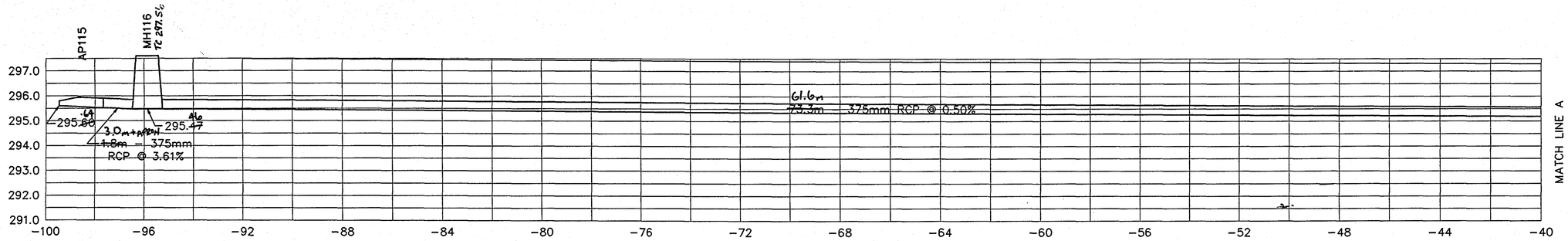
28-157

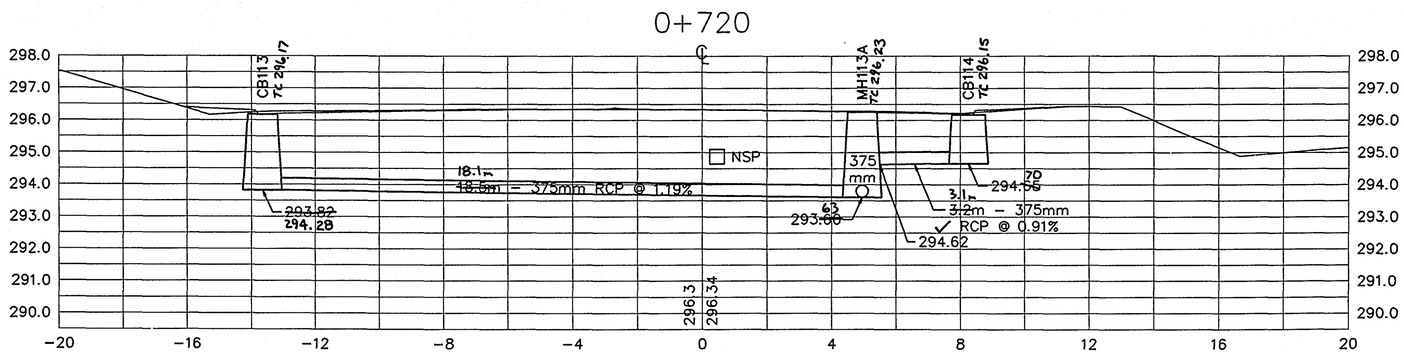
STORM SEWER PROFILE

S.P. 62-630-42 SHEET 76 OF 110 SHEETS

G:\DWGS\LARP\STMXSECT 11/08/96







ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

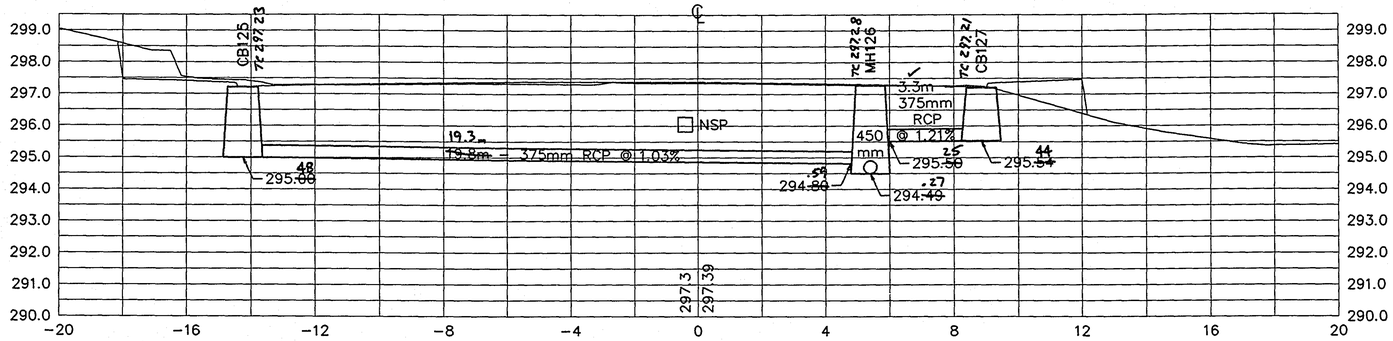
28-157

STORM SEWER PROFILE

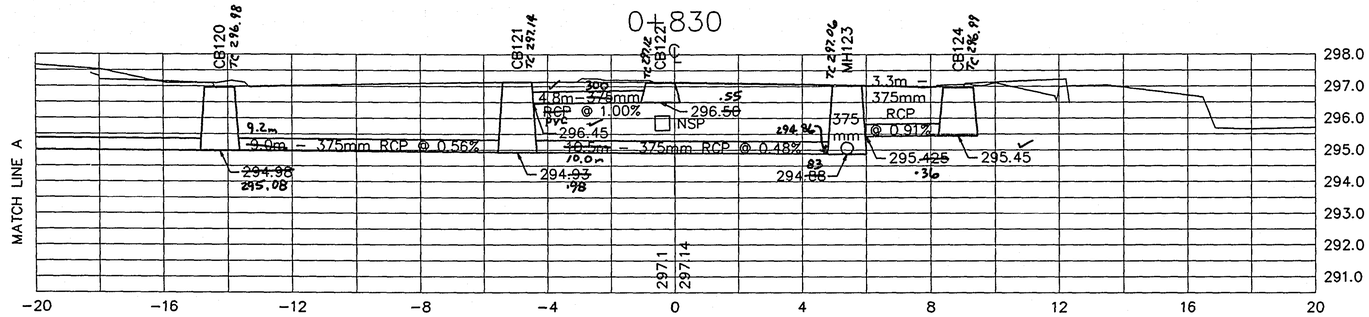
S.P. 62-630-42 SHEET 77 OF 110 SHEETS

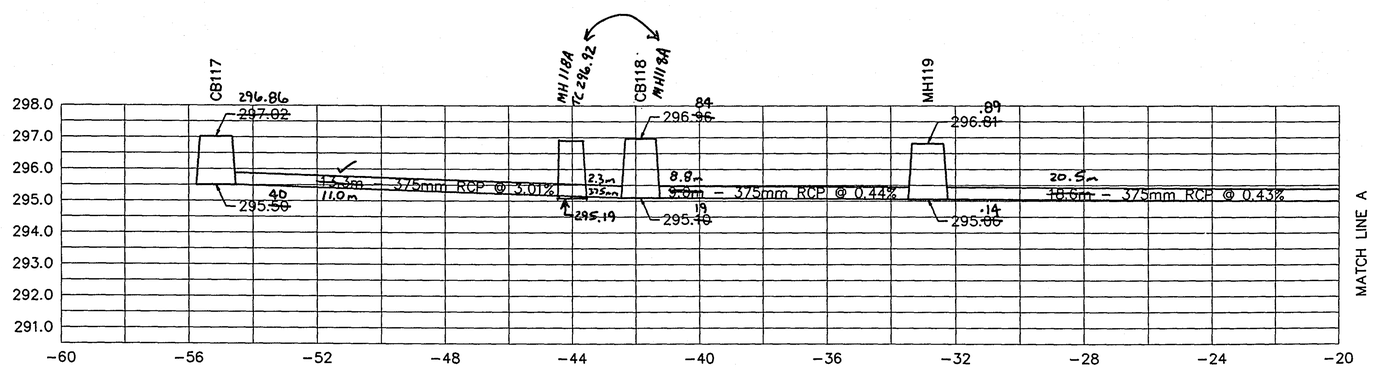
G:\DWGS\LARP\STMXSECT 7/31/96

0+907.73



0+830





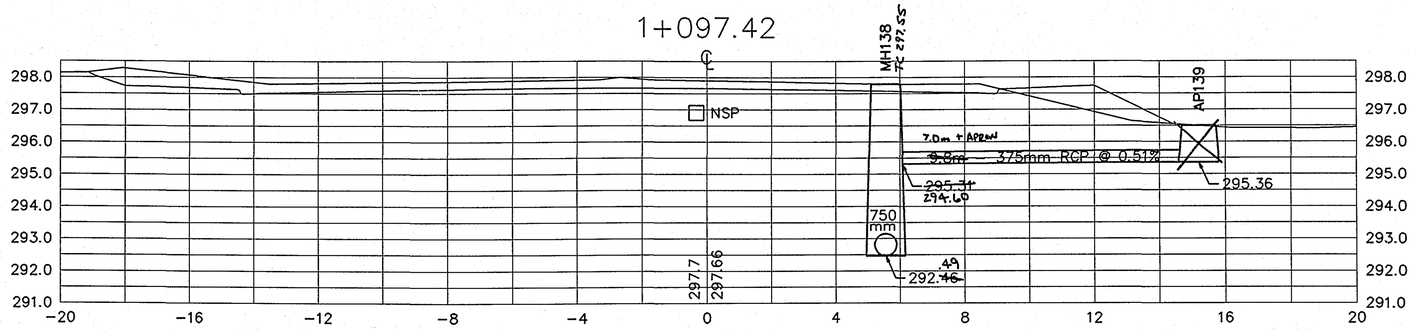
G:\DWGS\LARP\STMXSECT 7/31/96

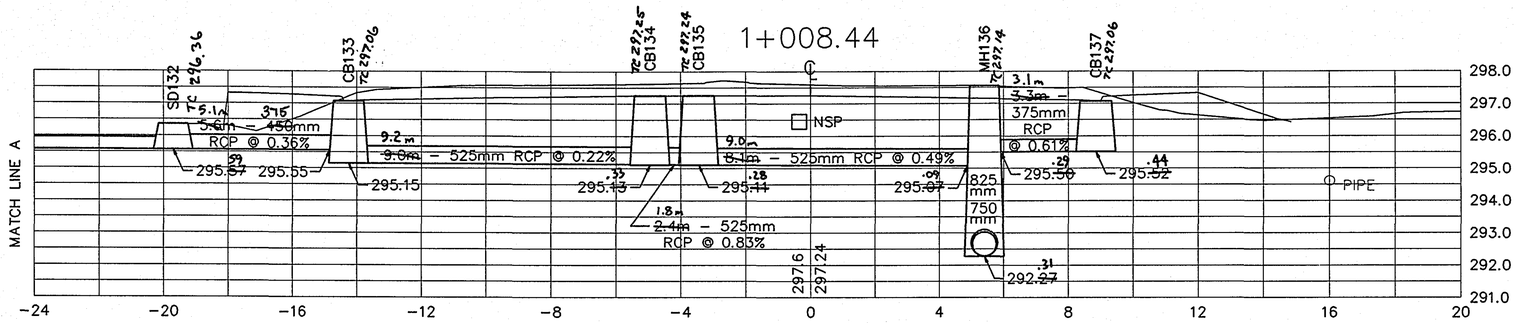
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: MR
DATE: 2-25-99

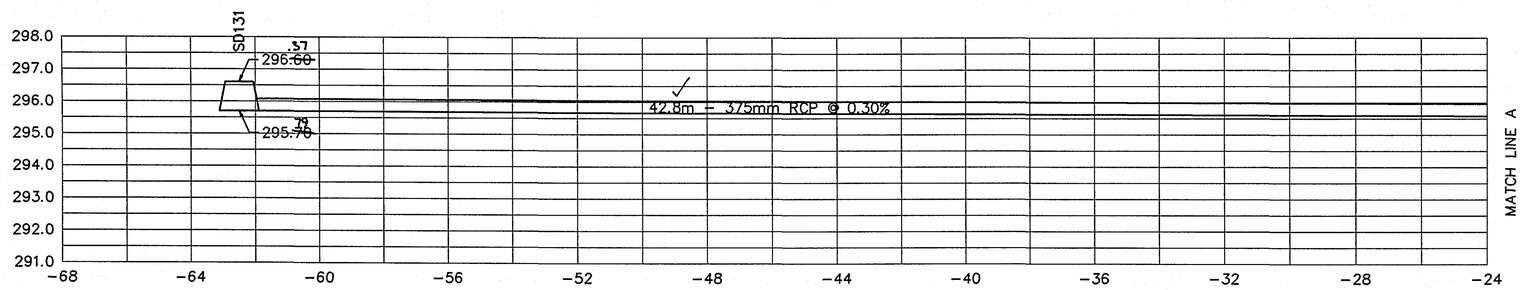
28-157

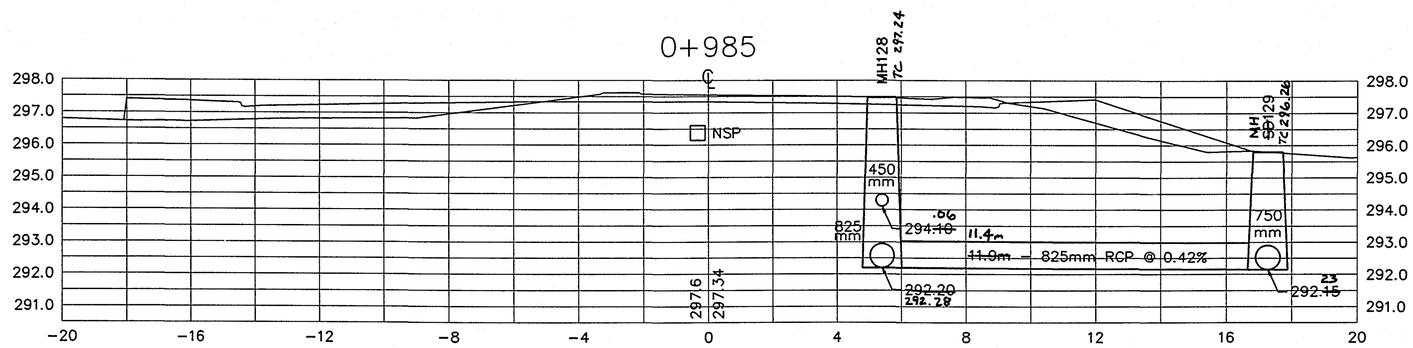
STORM SEWER PROFILE

S.P. 62-630-42 SHEET 78 OF 110 SHEETS









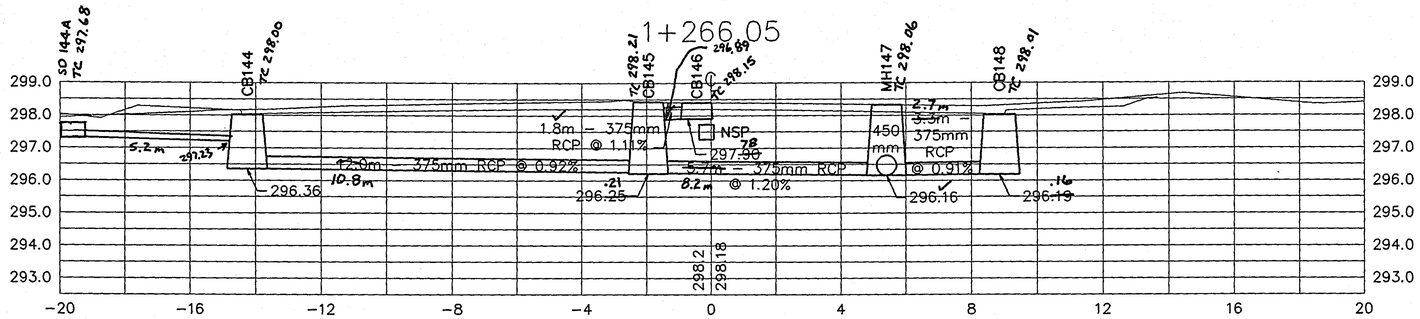
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: MR
DATE: 2-26-99

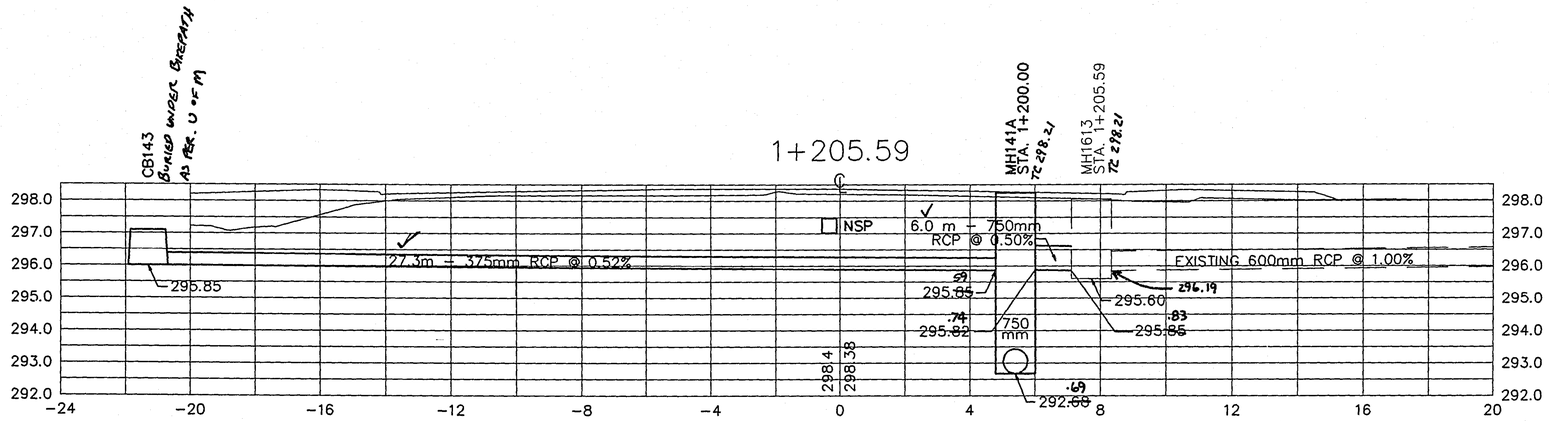
28-157

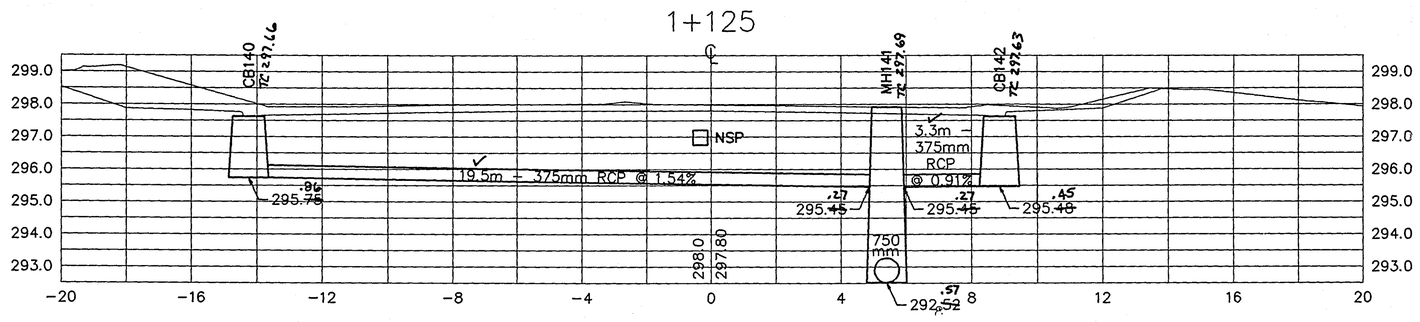
STORM SEWER PROFILE

S.P. 62-630-42 SHEET 79 OF 110 SHEETS

G:\DWGS\LARP\STMXSECT 8/23/96







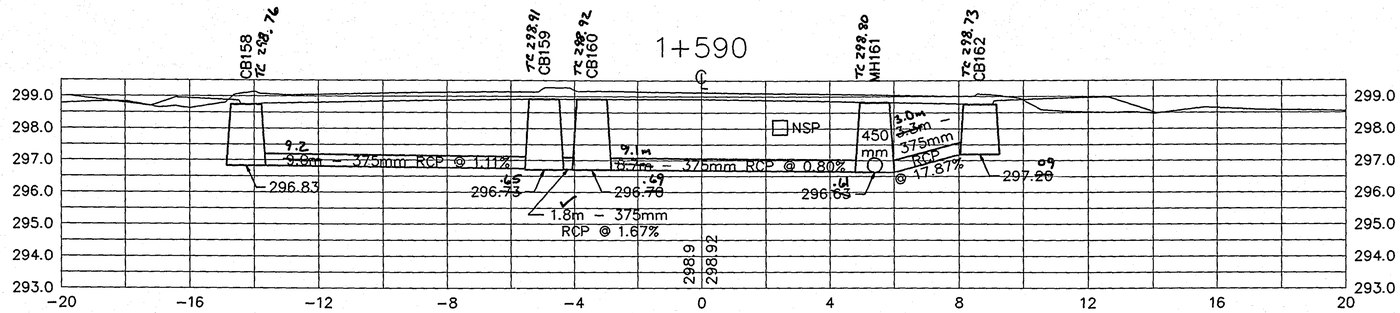
G:\DWGS\LARP\STMXSECT 11/13/96

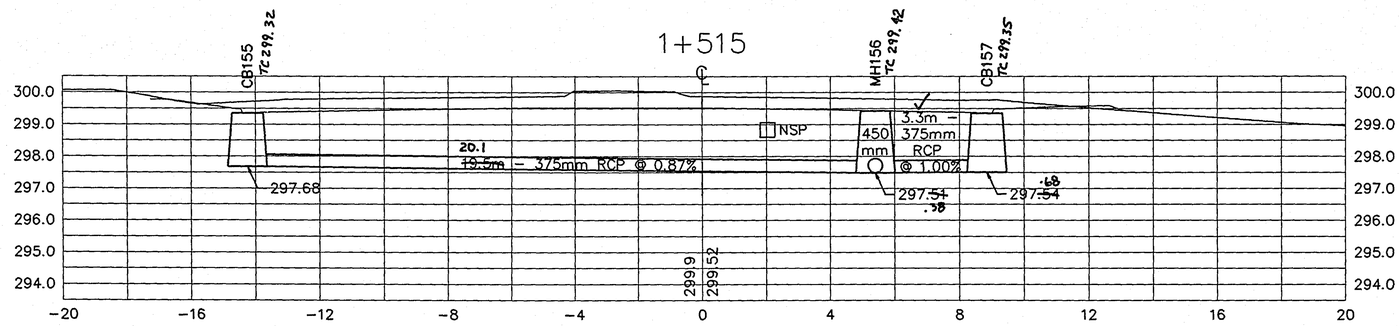
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: MR
DATE: 2-26-99

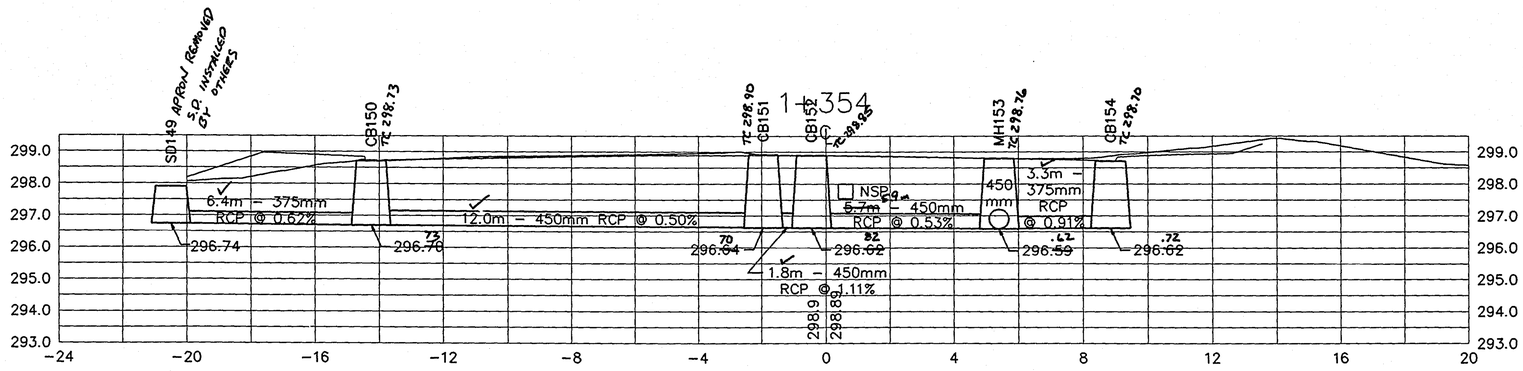
28-157

STORM SEWER PROFILE

S.P. 62-630-42 SHEET 80 OF 110 SHEETS







ASBUILT PLAN
CONFORMING TO CONST. RECORDS
DONE BY: MR
DATE: 2-26-99

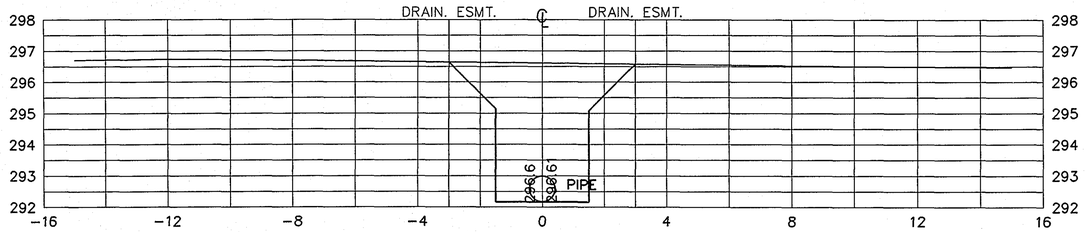
28-157

STORM SEWER PROFILE

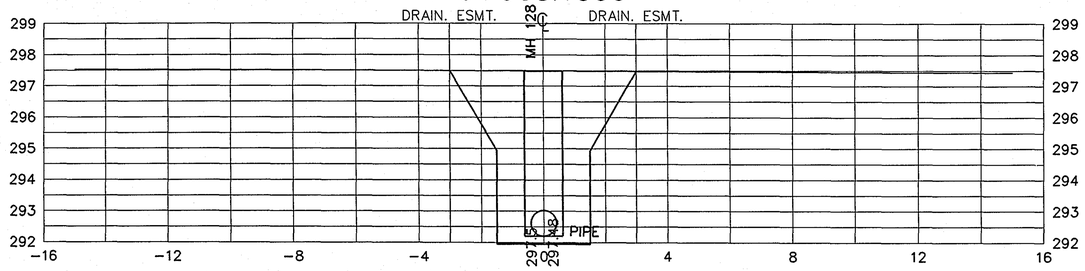
S.P. 62-630-42 SHEET 81 OF 110 SHEETS

G:\DWGS\LARP\STMXSECT 7/31/96

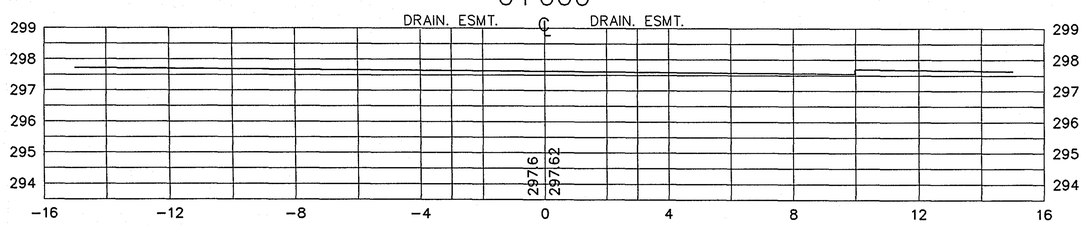
0+015



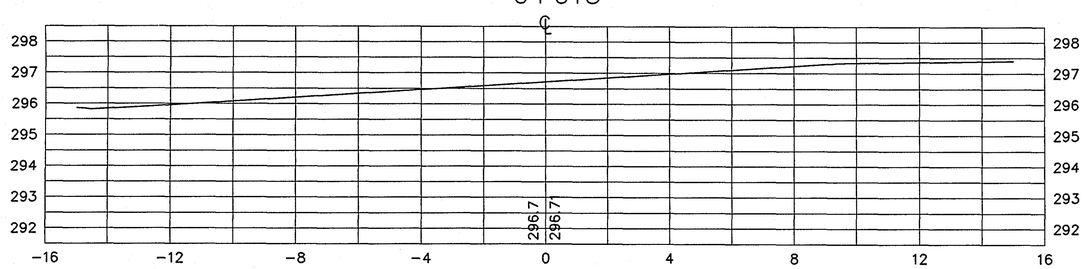
0+008.1000



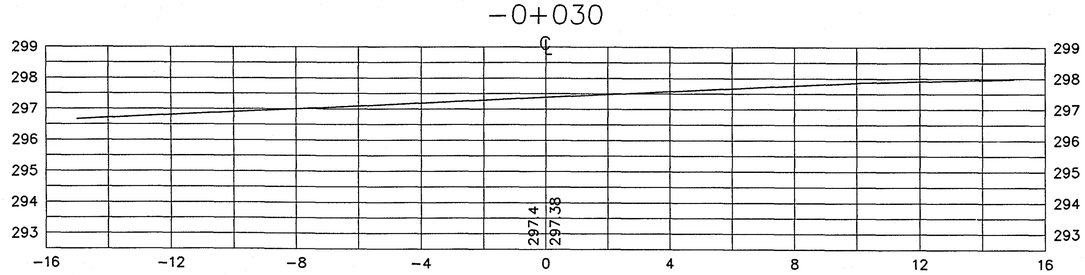
0+000



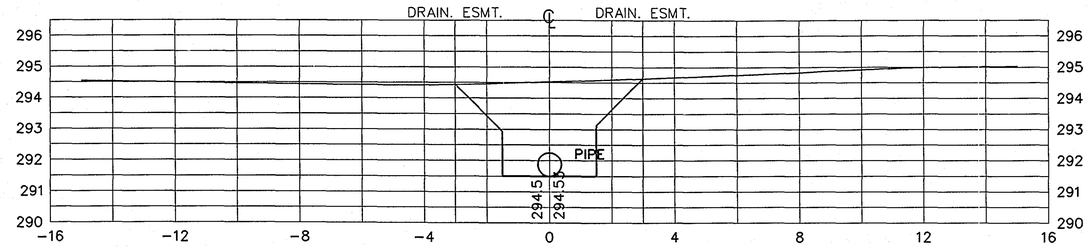
−0+015



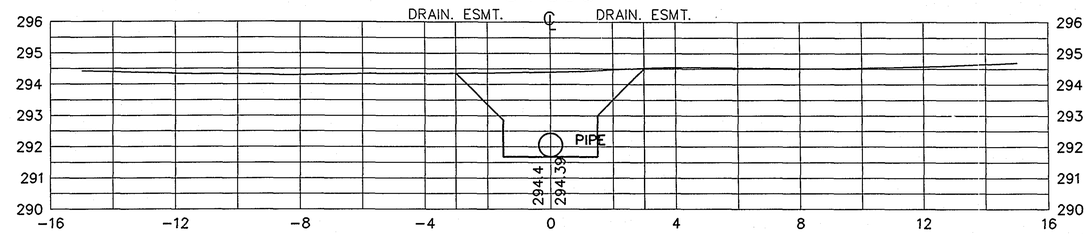
−0+030



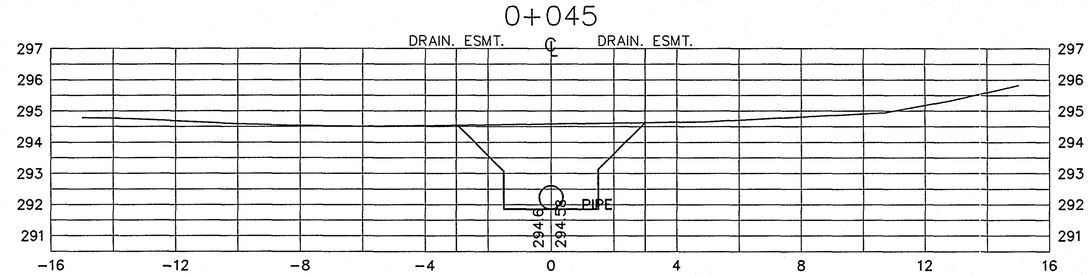
0+075



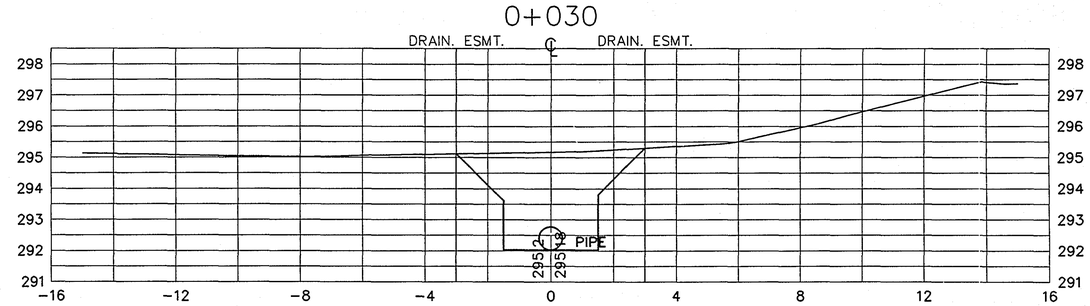
0+060



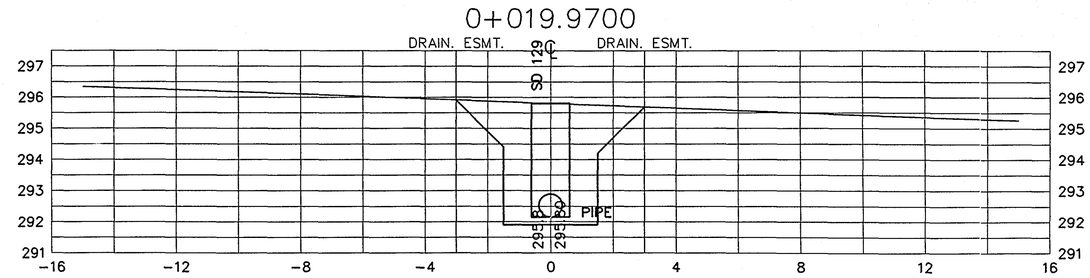
0+045



0+030



0+019.9700



U OF M GOLF COURSE

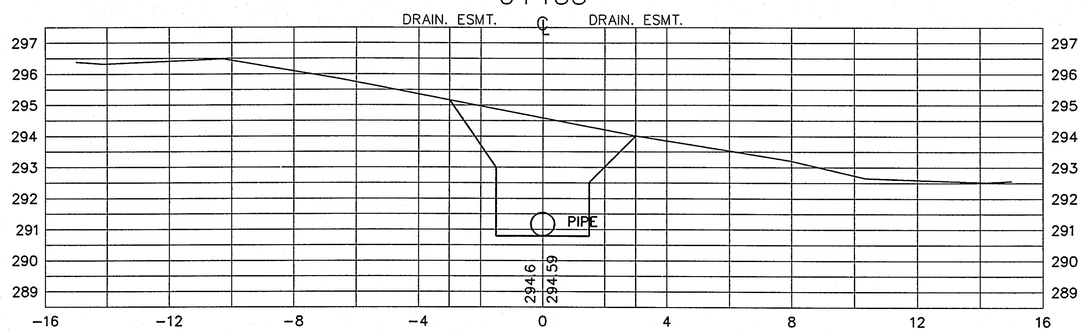
28-157

G:\DWGS\LARP\XSECTUM 9/3/96

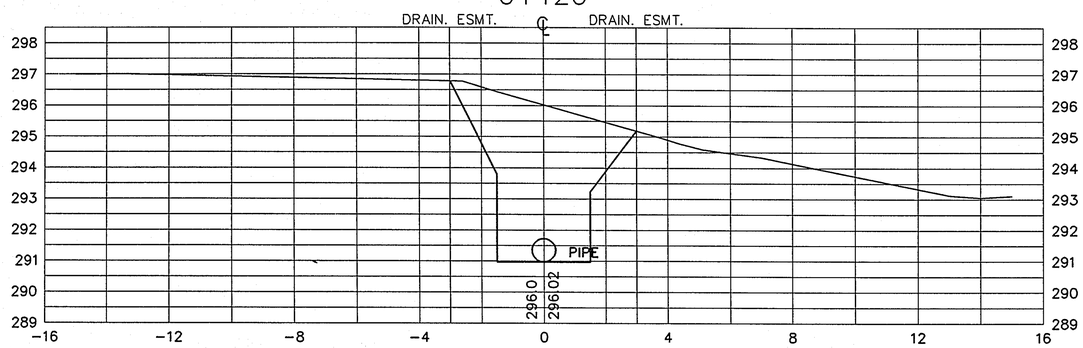
ramsey county metric

S.P. 62-630-42

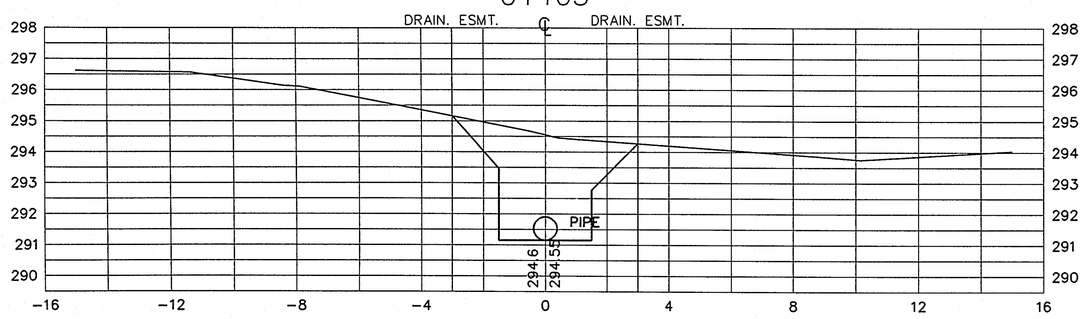
0+135



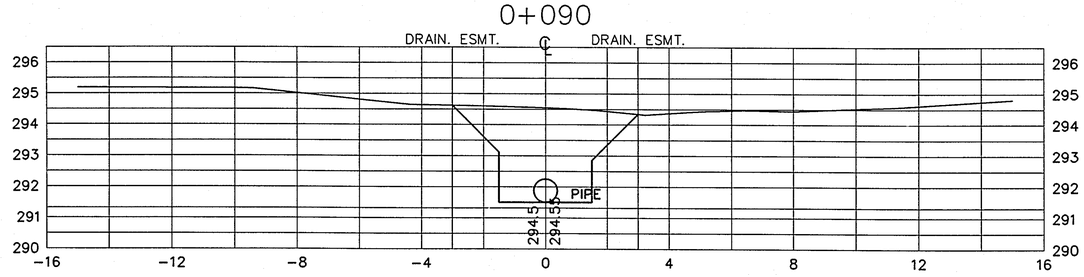
0+120



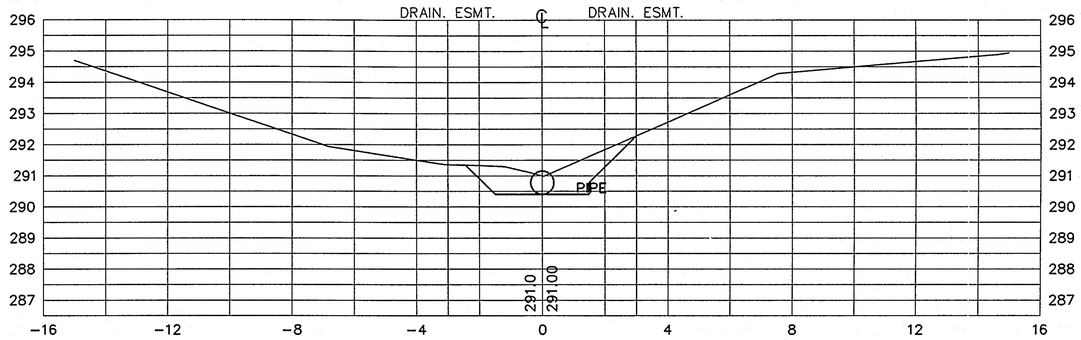
0+105



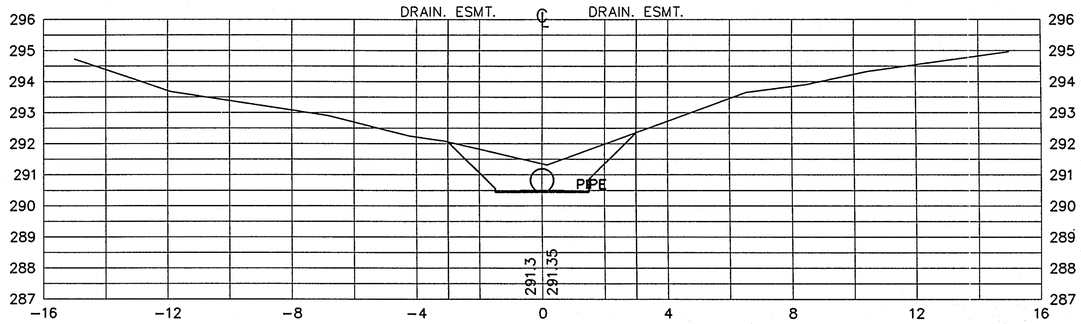
0+090



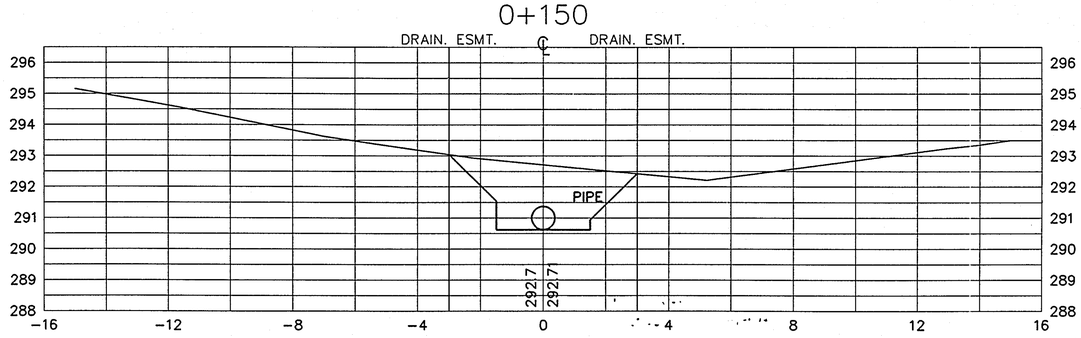
0+168.6700



0+165



0+150



U OF M GOLF COURSE

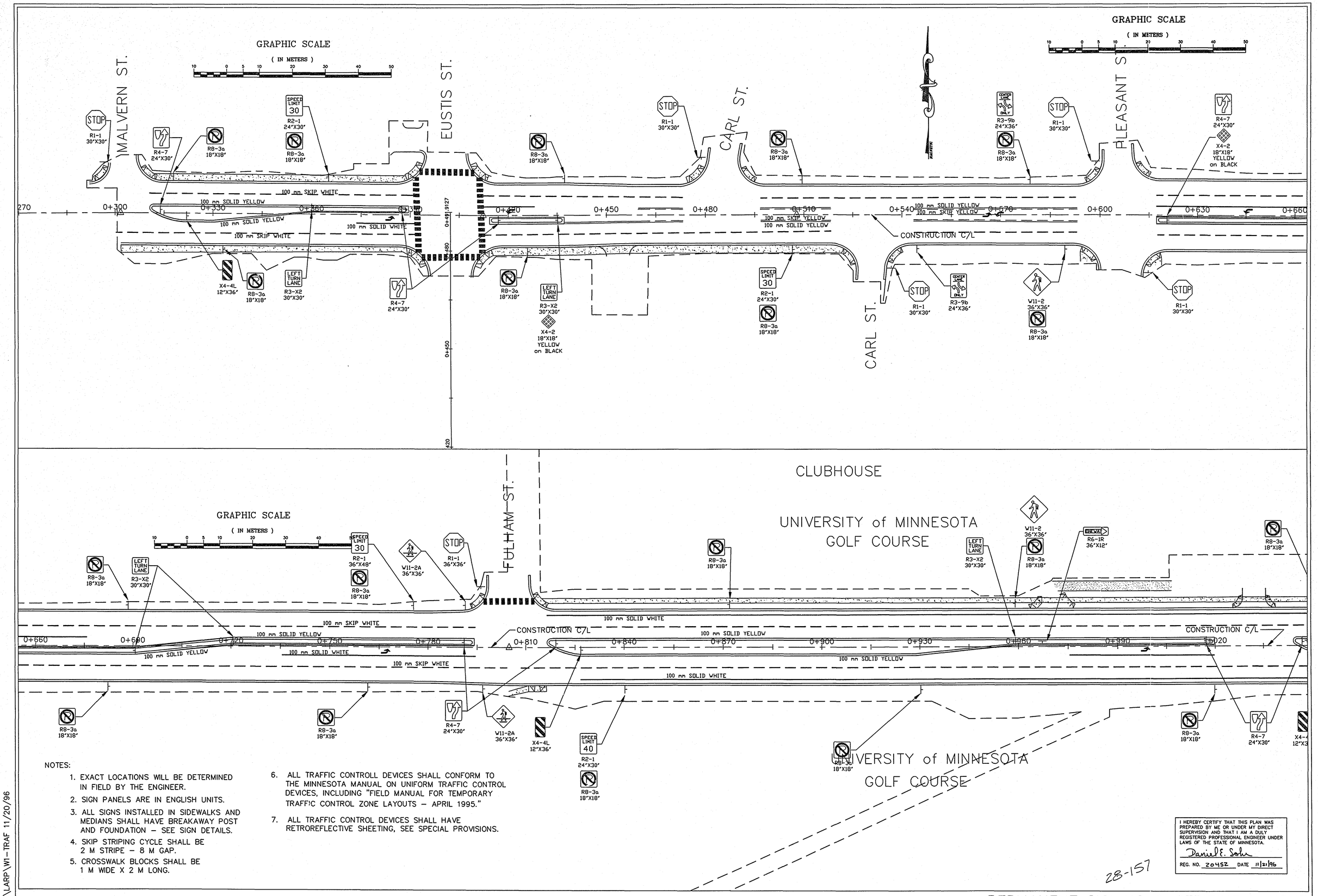
28-157

ramsey county metric

S.P. 62-630-42

SHEET NO. 83 OF 110 SHEETS

G:\DWGS\LARP\XSECTUM 9/3/96



NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN FIELD BY THE ENGINEER.
2. SIGN PANELS ARE IN ENGLISH UNITS.
3. ALL SIGNS INSTALLED IN SIDEWALKS AND MEDIANS SHALL HAVE BREAKAWAY POST AND FOUNDATION – SEE SIGN DETAILS.
4. SKIP STRIPING CYCLE SHALL BE 2 M STRIPE – 8 M GAP.
5. CROSSWALK BLOCKS SHALL BE 1 M WIDE X 2 M LONG.
6. ALL TRAFFIC CONTROLL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS – APRIL 1995."
7. ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETROREFLECTIVE SHEETING, SEE SPECIAL PROVISIONS.

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 LAWS OF THE STATE OF MINNESOTA.

Daniel E. Sohn

REG. NO. 20452 DATE 11/21/96

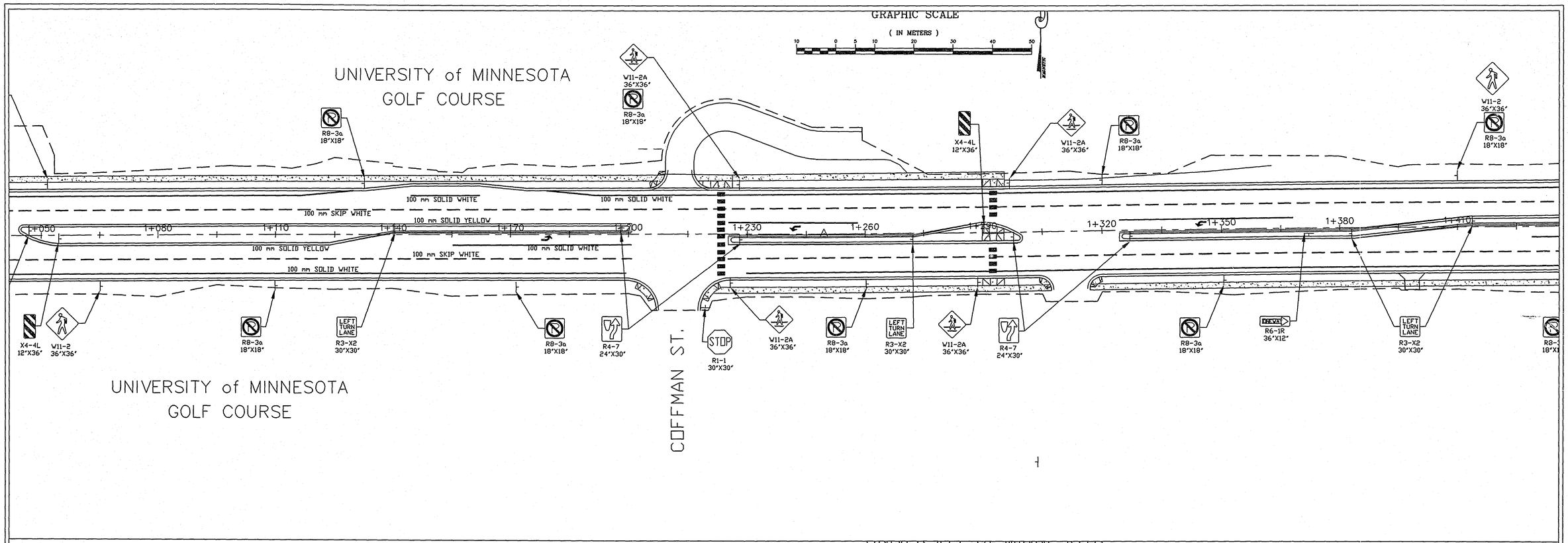
28-157

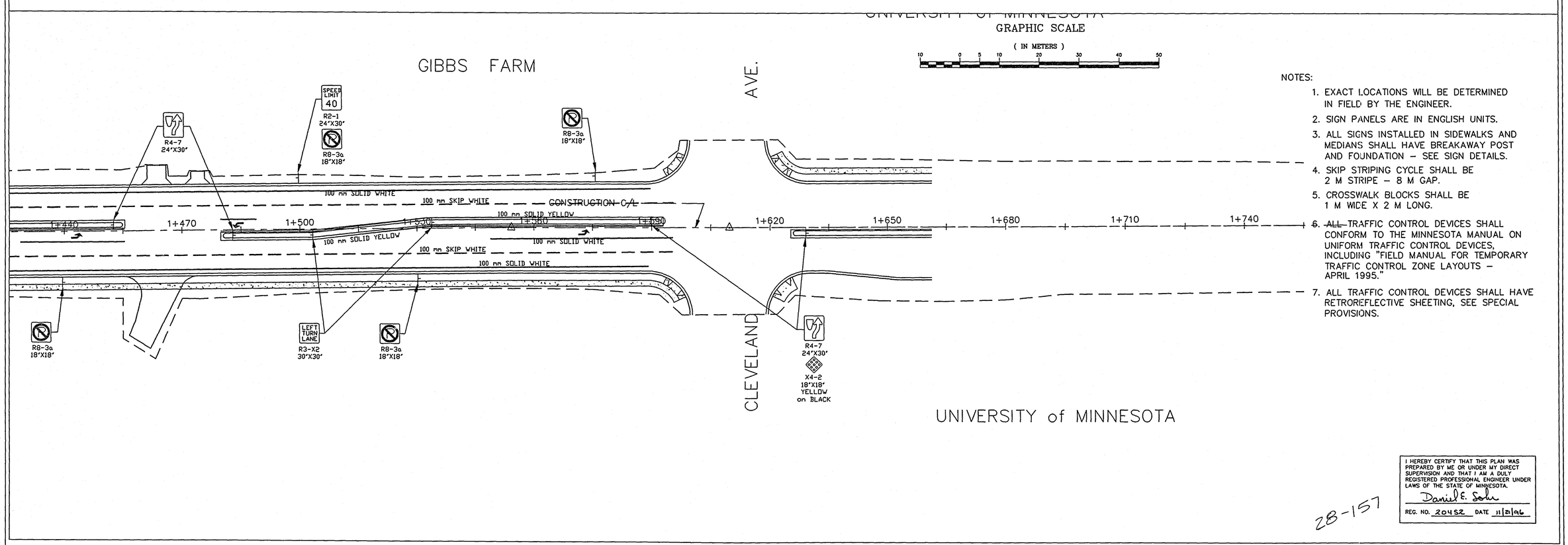
G:\DWGS\LARP\W1-TRAF 11/20/96

PERMANENT SIGNING & STRIPING LAYOUT

S.P. 62-630-42

SHEET NO. 85 OF 110 SHEETS





NOTES:

1. EXACT LOCATIONS WILL BE DETERMINED IN FIELD BY THE ENGINEER.
2. SIGN PANELS ARE IN ENGLISH UNITS.
3. ALL SIGNS INSTALLED IN SIDEWALKS AND MEDIANS SHALL HAVE BREAKAWAY POST AND FOUNDATION – SEE SIGN DETAILS.
4. SKIP STRIPING CYCLE SHALL BE 2 M STRIPE – 8 M GAP.
5. CROSSWALK BLOCKS SHALL BE 1 M WIDE X 2 M LONG.
6. ~~ALL~~ TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS – APRIL 1995."
7. ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETROREFLECTIVE SHEETING, SEE SPECIAL PROVISIONS.

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 LAWS OF THE STATE OF MINNESOTA.

Daniel E. Sohn

REG. NO. 20452 DATE 11/20/96

28-157

PERMANENT SIGNING & STRIPING LAYOUT

S.P. 62-630-42

SHEET NO. 86 OF 110 SHEETS

G:\DWGS\LARP\W1-TRAF 11/20/96

NO SHEET

#87—109

STATEMENT OF ESTIMATED QUANTITIES

CHART	NOTE	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	100% NON-PARTICIPATING ESTIMATED QUANTITIES	100% NON-PARTICIPATING FINAL QUANTITIES
		0411.603	MODULAR BLOCK RETAINING WALL	m^2	167	167	
	1	0504.603	300 mm DIP WATER MAIN CL52	m	60	60	
		0506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL	EACH	1	1	
		2104.501	REMOVE SEWER PIPE (SANITARY)	m	91	91	
	2	2105.501	COMMON EXCAVATION (EV)	m^3	1193	1193	
		2211.503	AGGREGATE BASE (CV) CLASS 5	m^3	11	11	
		2340.508	TYPE 31 WEARING COURSE MIXTURE	t	17.4	17.4	
		2412.511	3050 mm x 2440 mm (10'x8') PC CONC. BOX CULVERT	m	29.32	29.32	
		2451.513	FINE FILTER AGGREGATE (CV)	m^3	251	251	
		2503.511	250 mm PVC PIPE SEWER	m	98	98	
		2503.541	375 mm RC PIPE SEWER DES 3006 CL V	m	12	12	
		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DESIGN A OR F	EACH	1	1	
		2506.502	CONSTRUCT DRAINAGE STRUCTURE, DES 4020 - 1350	EACH	1	1	
		2545.501	ELECTRIC LIGHTING SYSTEM	LUMP SUM	1	1	
		2557.501	WIRE FENCE DESIGN 1.2 m - 9322	m	59	59	
		2575.505	SODDING TYPE LAWN	m^2	730	730	

① ADDITIONAL QUANTITIES RESULTING FROM INSTALLATION OF PEDESTRIAN TUNNEL.

② EXCAVATION LIMITS ONLY INCLUDE EXCAVATION NOT COVERED UNDER SPECIFICATION FOR MODULAR BLOCK RETAINING WALL (0411) AND THE PRECAST CONCRETE BOX CULVERT (2412). INCLUDED IN THE ESTIMATE IS THE EXCAVATION AND GRADING REQUIRED FOR THE LAYOUT OF THE CART PATH AND ITS SIDESLOPES. IT ALSO INDCLUDES THE ADDITIONAL 0.5 METER EXCAVATION ASSOCIATED WITH THE PLACEMENT OF FINE FILTER AGGREGATE (2541.513) BELOW ELEVATION 295 m THROUGHOUT THE CART PATH APPROACHES.

PROPOSED SANITARY SEWER STRUCTURE CHART

STATION	LOCATION ALIGNMENT	STRUCTURE NO.	TYPE	DESIGN	CONST. HEIGHT LIN. m	CASTING ASSEMBLY	ELEVATION PROFILE GRADE	ELEVATION NEW GRATE OR RING	ELEVATION C.B. OR M.H. INVERT	FURNISH AND INSTALL PIPE 250 mm PVC	DRAINS TO STRUCTURE NO.	DRAINS TO INVERT EL.	REMARKS
1+135.10	LT. 11.9	1611	MH	SAN	3.20	TYPE B	297.855	297.945	294.655	58 m	MH 1611A	294.500	EXISTING
1+190.25	LT. 28.0	1611A	MH	SAN	1.60	TYPE B	---	296.098	294.500	40 m	MH 1618	294.390	PROPOSED
1+226.80	LT. 11.9	1618	MH	SAN	4.10	TYPE B	298.500	298.474	294.395	---	LS 1617	UNCHANGED	EXISTING

PROPOSED DRAINAGE CHART

STATION	LOCATION	STRUCTURE NO.	TYPE	DESIGN	CONST. HEIGHT LIN. m	CASTING ASSEMBLY	ELEVATION PROFILE GRADE	ELEVATION NEW GRATE OR RING	ELEVATION C.B. OR M.H. INVERT	FURNISH AND INSTALL PIPE SEWER REINFORCED CONCRETE PIPE 375 mm	DRAINS TO STRUCTURE NO.	DRAINS TO INVERT EL.	REMARKS
1+190.25	RT. 14.0	143A	CB	SPECIAL	0.80	S-1*	---	293.970	293.170	12 m	MH 141B	292.870	
1+181.65	RT. 5.4	141B	MH	4020-1350	5.20	A-8	298.190	298.000	292.640	---	MH 141	292.520	

*NEENAH GRATE R-4938-A

INDEX

SHEET NO.	DESCRIPTION
110A	TITLE SHEET/ESTIMATED QUANTITIES
110B	PLAN AND PROFILE
110C	TYPICAL SECTIONS
110D	SOIL BORINGS
110E	MODULAR BLOCK RETAINING WALL
110F	MODULAR BLOCK RETAINING WALL DETAILS
110G	BARREL DETAILS
110H	BOX CULVERT AND DRAIN DETAILS
110I	EASEMENTS

THIS PLAN CONTAINS 9 SHEETS

28-157

CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 15913 26 NOV 1996

S.P. 62-630-42

PARSONS BRINCKERHOFF Minneapolis, MN

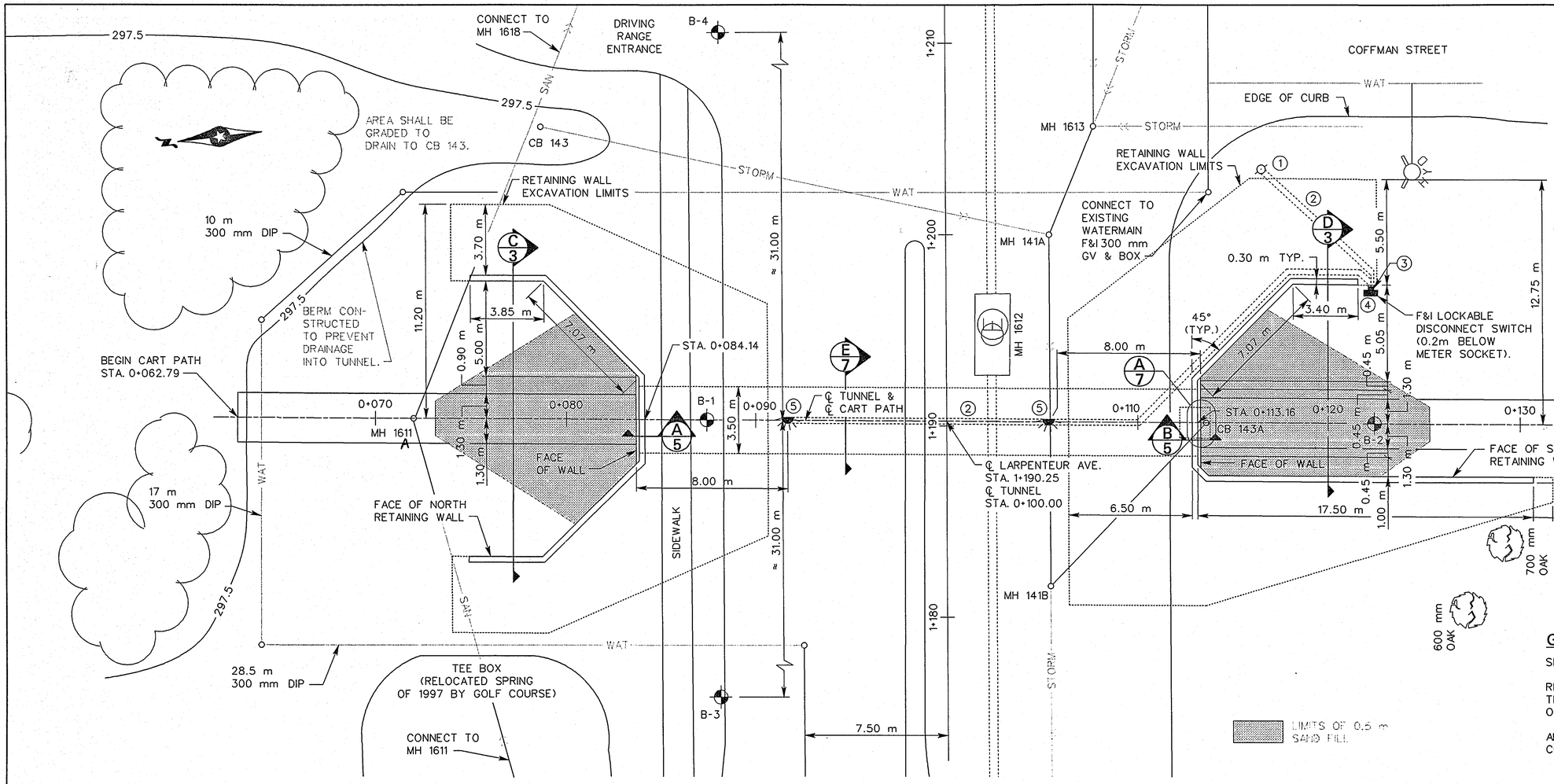
TITLE: TITLE SHEET ESTIMATED QUANTITIES

DES: EWA	DR: PLJ	APPROVED:
CHK: SNB	CHK: TWA	

Sheet No. 110A of 110 Sheets

BRIDGE NO. 62J06

FILENAME: c:\project\19011\task_2\dgn\lttitle.dgn
PRF_NAME: C:\650USTND\LTTITLE.PRF
DATE: 11/26/96
TIME: 13:28:11



NOTES:

1. SOURCE OF POWER (RELOCATED N.S.P. POLE) F&I 1" R.S.C. RISER & WEATHER HEAD WITH 1-3/C #12 TO A POINT 1.0m BELOW N.S.P. LINES. CONTRACTOR SHALL LEAVE SUFFICIENT 3/C #12 CABLE (2.0m MIN.) FOR CONNECTION TO N.S.P. WIRES (TO BE DONE BY N.S.P. PERSONNEL).
2. 1" R.S.C. WITH 1-3/C #12.
3. 2.5m TREATED WOOD POST (150 mm x 150 mm) (EMBEDDED 1.0m).
4. F&I METER SOCKET (FLUSH WITH TOP OF POST).
5. 100W CEILING-MOUNTED TUNNEL LIGHT FIXTURE WITH VANDALISM GUARD CAGE.

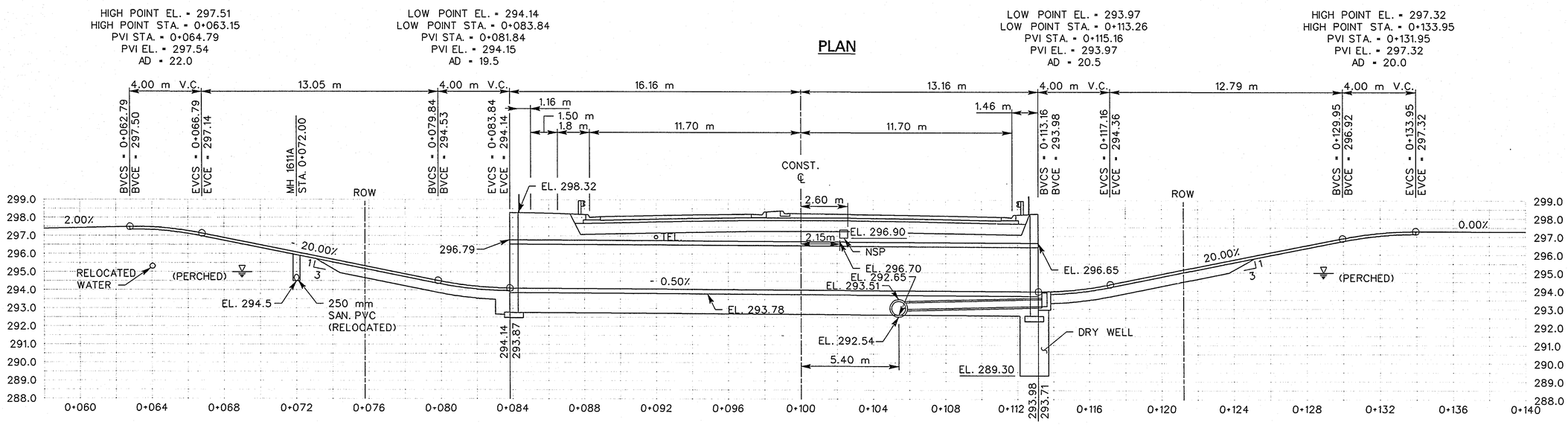
GENERAL NOTES:

SEE SHEET 110H FOR BORING LOGS.

RETAINING WALL BENDS MAY BE CONSTRUCTED WITH A TIGHT RADIUS (1 m MINIMUM) AT THE CONTRACTORS OPTION.

ALL WATERMAINS SHALL HAVE A MINIMUM OF 2 m OF COVER.

PLAN



1+190.25
℄ OF TUNNEL

PROFILE

28-157

CERTIFIED BY Laura M. Amundson PROFESSIONAL ENGINEER REG. NO. 15913 26 Nov 1996

S.P. 62-630-42

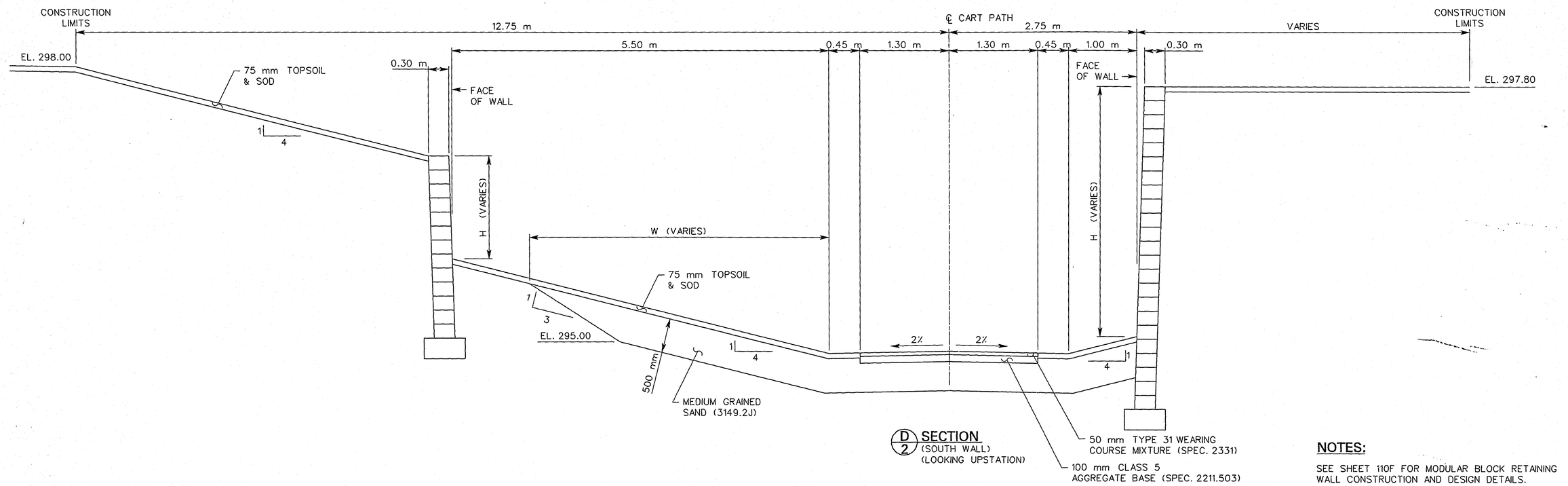
PARSONS BRINCKERHOFF Minneapolis, MN

TITLE: PLAN AND PROFILE

DES: EWA	DR: PLJ	APPROVED:	BRIDGE NO.
CHK: LMA	CHK: LMA		62J06

Sheet No. 110B of 110 Sheets

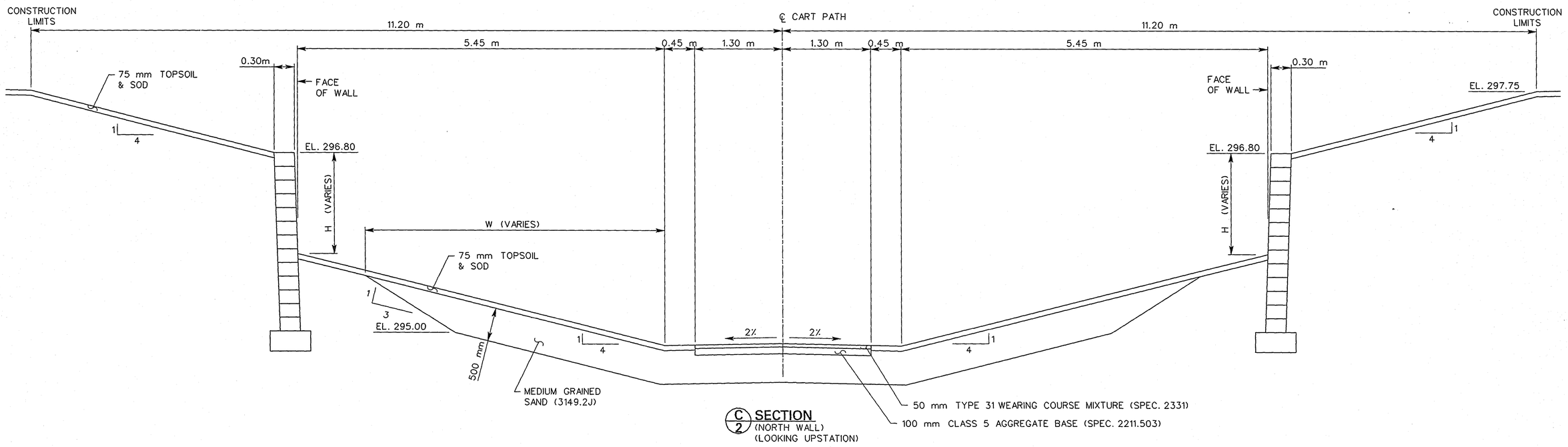
FILENAME: c:\project\19011\task_2\dgn\ltplnpro.dgn
PRF_NAME: C:\650USTND\LTPLNPRO.PRF
DATE: 11/26/96
TIME: 13:18:34



D/2 SECTION
(SOUTH WALL)
(LOOKING UPSTATION)

NOTES:

SEE SHEET 110F FOR MODULAR BLOCK RETAINING WALL CONSTRUCTION AND DESIGN DETAILS.



C/2 SECTION
(NORTH WALL)
(LOOKING UPSTATION)

28-157

CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 15913 26 Nov 1996

S.P. 62-630-42

PARSONS BRINCKERHOFF Minneapolis, MN

TITLE: TYPICAL SECTIONS

DES: EWA	DR: PLJ	APPROVED:	BRIDGE NO.
CHK: LMA	CHK: SNB		62J06

Sheet No. 110C of 110 Sheets

FILENAME: c:\project\19011\task_2\dgn\ltxsecs.dgn
PRF_NAME: C:\650USTND\LTXSECS.PRF
DATE: 11/26/96
TIME: 13:49:41

BORING B-1

Elevation	Description	Blows
298	SURFACE	
	BITUMINOUS PAVEMENT (FILL)	
	BASE, MOSTLY BROWN SAND WITH SILT AND GRAVEL (FILL)	12
	FILL, MOSTLY SAND WITH SILT AND A LITTLE GRAVEL, BROWN (MAY BE BASE) (FILL)	8
297	FILL, MIXTURE OF CLAYEY SAND AND SANDY LEAN CLAY, A LITTLE GRAVEL, BROWN AND DARK BROWN (FILL)	
	SANDY LEAN CLAY, DARK GRAY TO DARK BROWN, MEDIUM (CL) (TOPSOIL OR FILL)	4
296	SANDY LEAN CLAY WITH A LITTLE GRAVEL, BROWN AND GRAY MOTTLED, SOFT TO MEDIUM (CL) (WEATHERED TILL OR MIXED ALLUVIUM)	5
295	SANDY LEAN CLAY WITH A LITTLE GRAVEL, BROWN MOTTLED, SOFT (CL) (TILL OR MIXED ALLUVIUM)	4
	▽	3
294	LEAN CLAY, BROWN MOTTLED, SOFT (CL) (FINE ALLUVIUM)	
	SILT, LIGHT GRAY AND BROWN MOTTLED, VERY LOOSE (ML) (FINE ALLUVIUM)	4
293	SILTY CLAY, BROWNISH GRAY, MEDIUM (CL-ML) (FINE ALLUVIUM)	5
	SILT, GRAYISH BROWN, MEDIUM DENSE (ML) (FINE ALLUVIUM)	
292	SAND WITH SILT AND GRAVEL, MEDIUM GRAINED, BROWN, WATERBEARING, MEDIUM DENSE (SP-SM) (COARSE ALLUVIUM)	29
	SILTY GRAVEL, A FEW COBBLES, BROWN, WATERBEARING, DENSE (GM) (COARSE ALLUVIUM)	50/0.6
291		
290		
289		
288		

BORING B-2

Elevation	Description	Blows
	SURFACE	
	FILL, MOSTLY LEAN CLAY WITH ROOTS, BLACK (FILL)	14
	FILL, MIXTURE OF LEAN CLAY AND SILTY SAND, A LITTLE GRAVEL, DARK BROWN, BROWN AND BLACK (FILL)	8
296	LEAN CLAY WITH SAND, BROWN AND GRAY MOTTLED, MEDIUM (CL) (MIXED ALLUVIUM OR WEATHERED TILL)	8
	SANDY LEAN CLAY WITH A LITTLE GRAVEL, BROWN, A LITTLE LIGHT GRAY MOTTLED, MEDIUM (CL) (MIXED ALLUVIUM OR TILL)	5
295	SILT, LIGHT GRAY AND BROWN MOTTLED, WET, LOOSE (ML) (FINE ALLUVIUM)	5
294	SILTY CLAY, LIGHT GRAY AND BROWN MOTTLED, MEDIUM TO STIFF (CL-ML) (FINE ALLUVIUM)	6
293	GRAVEL WITH SILT, APPARENT COBBLES, BROWN, DENSE (GW-GM) (COARSE ALLUVIUM)	57
	▽	
	GRAVELLY SILTY SAND, APPARENT COBBLES, BROWN, DENSE (SM/GM) (COARSE ALLUVIUM)	69
291	CLAYEY SAND WITH A LITTLE GRAVEL, GRAY, STIFF (SC/CL) (TILL)	13
290	SILTY SAND, FINE GRAINED, BROWN, MOIST, DENSE, LENSES OF SILTY CLAY (SM) (COARSE ALLUVIUM)	43
289	GRAVELLY SAND WITH SILT, FINE TO MEDIUM GRAINED, BROWN, MOIST, DENSE, A FEW LENSES OF SILTY CLAY (SP-SM) (COARSE ALLUVIUM)	31

BORING B-3

Elevation	Description	Blows
	SURFACE	
297	NO SAMPLES TAKEN	
296	SANDY LEAN CLAY WITH A LITTLE GRAVEL, GRAY AND BROWN MOTTLED, MEDIUM (CL) (MIXED ALLUVIUM OR WEATHERED TILL)	6
295	▽	5
294	LEAN CLAY, BROWN AND GRAY MOTTLED, MEDIUM (CL) (FINE ALLUVIUM)	
293	SILTY CLAY, LIGHT GRAY, A LITTLE BROWN MOTTLED, MEDIUM (CL-ML) (FINE ALLUVIUM)	6
292	GRAVELLY SILTY SAND, MEDIUM GRAINED, BROWN, WET, DENSE (SM/GM) (COARSE ALLUVIUM)	30
290		13
289	SANDY LEAN CLAY WITH A LITTLE GRAVEL, GRAYISH BROWN TO GRAY, STIFF (CL) (TILL)	12

BORING B-4

Elevation	Description	Blows
	SURFACE	
297	NO SAMPLES TAKEN	
296	FILL, MIXTURE OF SILTY SAND AND LEAN CLAY, DARK BROWN, BROWN AND BLACK (FILL)	5
295		4
294	SANDY LEAN CLAY WITH A LITTLE GRAVEL, BROWN AND GRAY MOTTLED, SOFT, A FEW LENSES OF LIGHT GRAY SILTY CLAY (CL) (MIXED ALLUVIUM OR WEATHERED TILL)	
293	SILTY CLAY, LIGHT GRAY AND BROWN MOTTLED (CL-ML) (FINE ALLUVIUM)	12
	▽	
292	SANDY LEAN CLAY WITH A LITTLE GRAVEL, BROWN TO GRAYISH BROWN, STIFF (CL) (TILL)	13
291		
290		
289		
288		

NOTE:

BORINGS TAKEN 9/6/96 AND 10/1/96 WITH A STANDARD 140 lB HAMMER WITH A 30 INCH DROP.

28-151

FILENAME: c:\project\19011\task_2\dgn\ltboring.dgn
PRF_NAME: C:\650USTND\LTBORING.PRF
DATE: 11/26/96
TIME: 12:32:02

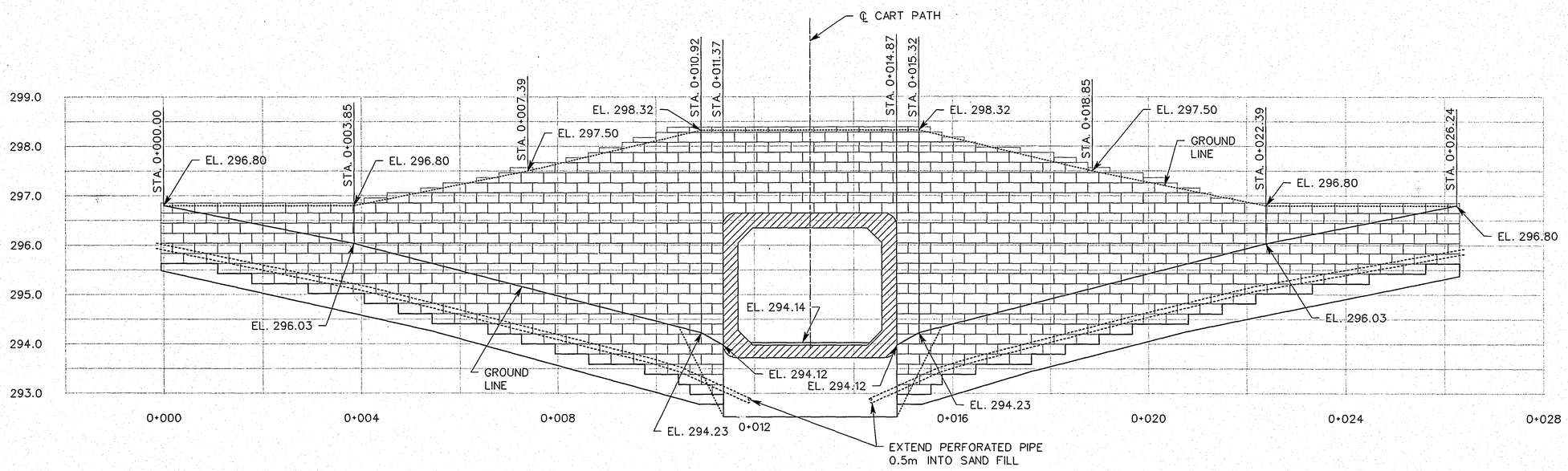
S.P. 62-630-42

PARSONS BRINCKERHOFF
Minneapolis, MN

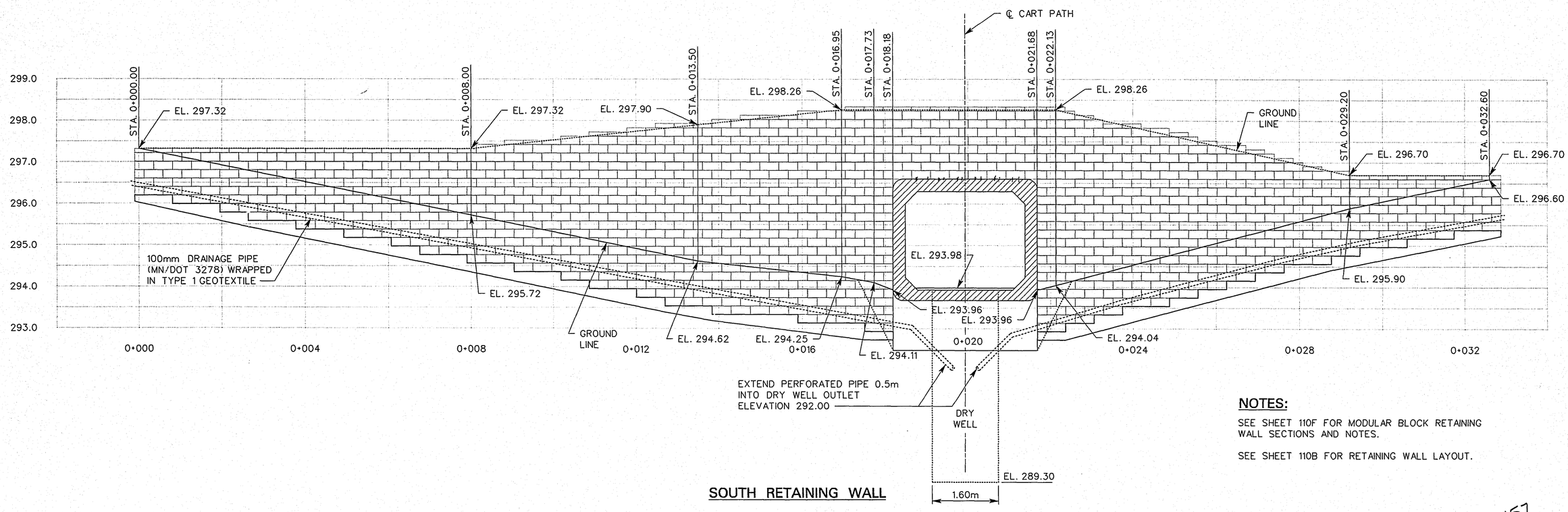
TITLE: SOIL BORING

DES: AET	DR: EAL	APPROVED:
CHK:	CHK: LMA	
Sheet No. 110D of 110 Sheets		

BRIDGE NO. 62J06



NORTH RETAINING WALL



SOUTH RETAINING WALL

NOTES:

SEE SHEET 110F FOR MODULAR BLOCK RETAINING WALL SECTIONS AND NOTES.

SEE SHEET 110B FOR RETAINING WALL LAYOUT.

28-157

CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 15913 26 NOV 1996

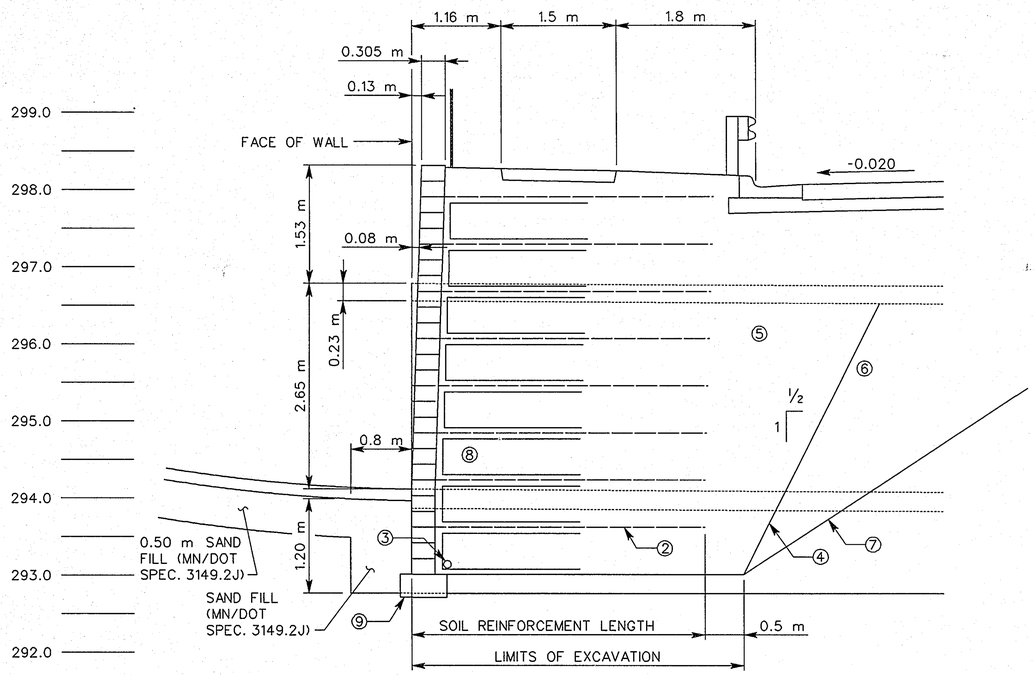
S.P. 62-630-42

PARSONS BRINCKERHOFF Minneapolis, MN

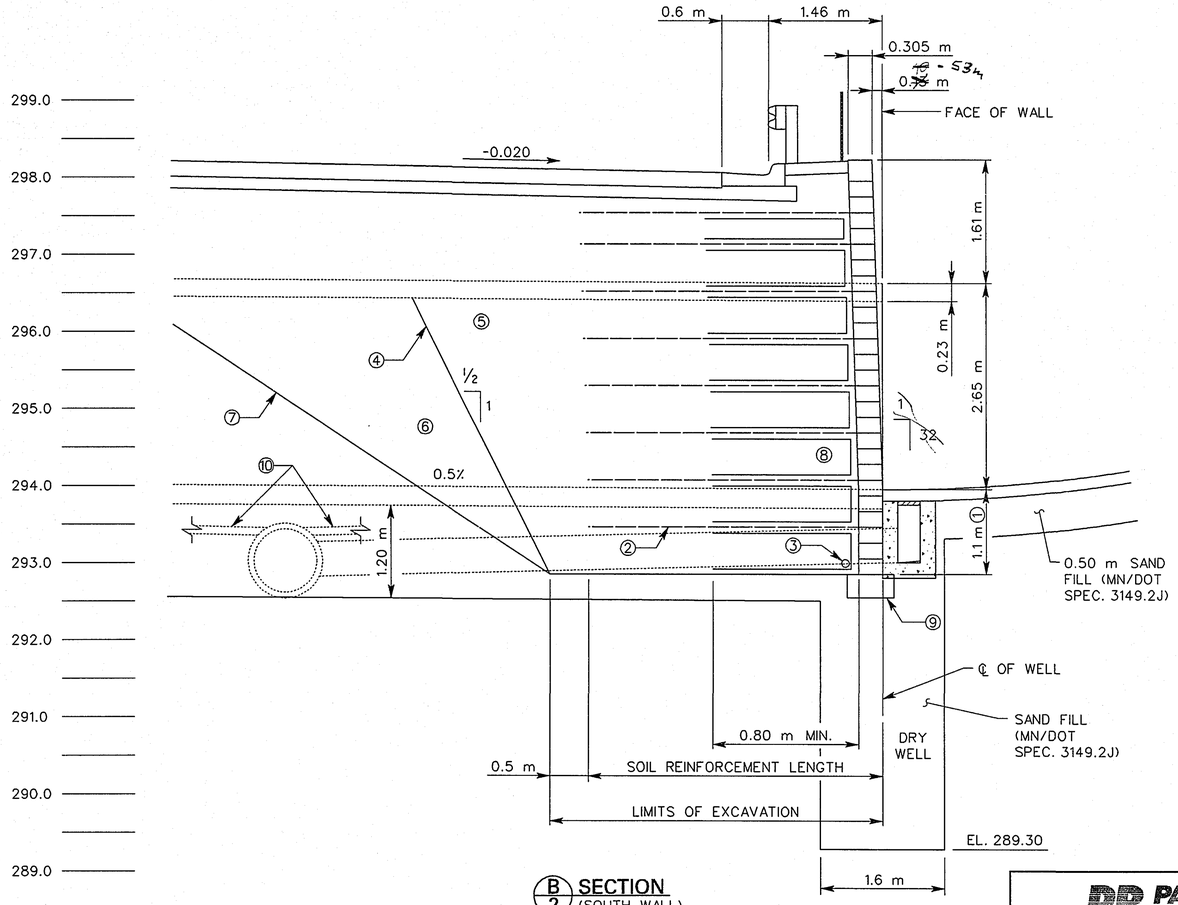
TITLE: MODULAR BLOCK RETAINING WALL

DES: EWA	DR: PLJ	APPROVED:	BRIDGE NO.
CHK: LMA	CHK: LMA		62J06
Sheet No. 110E of 110 Sheets			

FILENAME: c:\project\19011\task_2\dgn\ltwallel.dgn
PRF_NAME: C:\650USTND\LTWALLEL.PRF
DATE: 11/26/96
TIME: 13:39:43



A/2 SECTION (NORTH WALL)



B/2 SECTION (SOUTH WALL)

S.P. 62–630–42

FENCE NOTES:

FURNISH & INSTALL 1.22m (4') CHAIN LINK FENCE AT BOTH WALLS. FENCE SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO BACK OF WALL. EXACT DISTANCE SHALL BE DETERMINED IN THE FIELD.

DRY WELL NOTES:

DEPTH OF DRY WELL MAY NEED TO BE ADJUSTED IN THE FIELD, PENDING ACTUAL SITE OBSERVATION.

AFTER EXCAVATION HAS BEEN BACKFILLED WITH SAND, A TIME DELAY MUST FOLLOW TO ALLOW SEEPAGE TO OCCUR, AND JUDGE WHETHER ADDITIONAL SIZE, NUMBER OF PENETRATIONS AND/OR ALTERNATIVES ARE NEEDED. THE EXCAVATION AND SEEPAGE MONITORING SHOULD BE DONE BY THE PROJECT ENGINEER DURING CONSTRUCTION.

MEDIUM GRAINED (SP) SAND WITH LESS THAN 5% BY WEIGHT PASSING THE #200 SIEVE AND LESS THAN 40% BY WEIGHT PASSING THE #40 SIEVE SHALL BE USED. THE SAND SHALL BE COMPACTED IN LIFTS TO A MINIMUM OF 95% OF THE STANDARD PROCTOR DENSITY (ASTM 0698) (MN/DOT SPEC. 3149.2J)

SUBSURFACE EXPLORATION AND GEOTECHNICAL REPORTS DATED SEPTEMBER 7 AND OCTOBER 4, 1996 FROM AET SHOULD BE CONSULTED FOR ADDITIONAL BACKGROUND INFORMATION.

WALL NOTES:

BLOCKS SHALL BE NOMINAL 204mm H x 457mm W x 305mm D AND HAVE ROCK FACE (OR APPROVED EQUAL).

CAP UNITS SHALL BE USED ON TOP COURSE OF WALL.

CAP UNITS MAY BE EITHER 102mm OR 204mm IN HEIGHT.

PLACE 75mm TOPSOIL & SOD IN DISTURBED AREAS.

GRADE TO ELEVATIONS INDICATED.

THE WALL SHALL BE DESIGNED AND THE DETAILED DRAWINGS PREPARED BY A PROFESSIONAL ENGINEER EXPIERENCED IN RETAINING WALL DESIGN WHO IS REGISTERED IN THE STATE OF MINNESOTA. THE DESIGN COMPUTATIONS AND THE PLANS SHALL BE CERTIFIED BY THE ENGINEER AND SUBMITTED TO THE OWNER FOR THEIR REVIEW AND PERMANENT RECORD. THE DESIGN SHALL BE PER AASHTO AND THE MN/DOT ROADWAY DESIGN MANUAL EXCEPT AS NOTED.

THE DETAILED DRAWINGS SHALL CONTAIN ALL THE NECESSARY INFORMATION FOR THE CONSTRUCTION OF THE WALL. INCLUDED SHALL BE A TYPICAL SECTION DETAILING EXCAVATION LIMITS, GEOTEXTILE LOCATIONS, BLOCK EMBEDMENTS, LEVELING PAD DIMENSIONS, BACKFILL, ETC. INCLUDE AS MANY SECTIONS AND OTHER VIEWS NECESSARY FOR THE CONSTRUCTION AND INSPECTION OF THE WALL. THE INFORMATION ON EMBEDMENT, GEOTEXTILE LOCATIONS, AND GEOTEXTILE LENGTHS AS THEY RELATE TO WALL HEIGHTS MAY BE SHOWN IN TABULAR FORM. ALSO INCLUDED SHALL BE THE PERTINENT INFORMATION ON THE INDIVIDUAL BLOCKS AND THE GEOTEXTILE MATERIAL.

ALL PLANS SHEETS SHALL CLEARLY IDENTIFY THE NAME OF THE RESPONSIBLE ENGINEERING FIRM AND THE NAME OF THE PERSON CERTIFYING THE PLAN. EACH SHEET SHALL BE CERTIFIED.

① THE MINIMUM DEPTH OF BLOCK EMBEDMENT SHALL BE 1.1 m MEASURED PERPENDICULAR TO THE SLOPE UNLESS A DETAILED ANALYSIS SHOWS A GREATER DEPTH IS REQUIRED (AASHTO 5.8)

② THE MINIMUM REINFORCEMENT LENGTH SHALL BE 70 PERCENT OF THE TOTAL WALL HEIGHT UNLESS A DETAILED ANALYSIS SHOWS A LONGER LENGTH IS REQUIRED (MIN. 2.4 m) (AASHTO 5.8). GEOTEXTILE VERTICAL SPACING TO BE DETERMINED BY DETAILED ANALYSIS.

③ 100 mm DRAINAGE PIPE, (MN/DOT 3245), WRAPPED IN TYPE 1 GEOTEXTILE, (MN/DOT 3733). THE PROJECT ENGINEER HAS THE OPTION OF HAVING ADDITIONAL DRAINS PLACED TO INTERCEPT ANY WATER-BEARING SOIL STRATA DISCOVERED DURING CONSTRUCTION.

④ CONSTRUCTION LIMITS OF STRUCTURE EXCAVATION.

⑤ BACKFILL TO MEET 3149.2B MODIFIED TO 10% OR LESS PASSING THE 0.075 mm (#200) SIEVE. IN ADDITION, 100% MUST PASS THE 50 mm (2") SIEVE. COMPACTION TO BE IN ACCORDANCE WITH 2451.3D.

⑥ ANY SUITABLE BACKFILL. COMPACTION TO BE IN ACCORDANCE WITH 2105.3P2. QUALITY COMPACTION.

⑦ SLOPE DETERMINED BY IN-SITU SOILS AND/OR OSHA REGULATIONS. ANY EXCAVATION BEYOND "LIMITS OF EXCAVATION" SHALL BE AT THE CONTRACTOR'S EXPENSE.

⑧ TYPE 1 GEOTEXTILE TO BE PLACED ON BACK SIDE OF FACING BLOCKS AS SHOWN.

⑨ THE LEVELING PAD SHALL BE EITHER UNREINFORCED CONCRETE OR COMPACTED AGGREGATE. THE THICKNESS SHALL BE AS DETERMINED BY ANALYSIS BUT IN NO CASE SHALL BE LESS THAN 150 mm (6 INCHES).

⑩ 100 mm DRAINAGE PIPE (MN/DOT 3245) WRAPPED IN TYPE 1 GEOTEXTILE (MN/DOT 3733). DAYLIGHTING INTO STORM SEWER SYSTEM. CENTER UNDER BOX CULVERT. 7.0 m LENGTH EITHER SIDE.

A FENCE IS REQUIRED ALONG THE TOP OF THE WALL, THE WALL SHALL BE DESIGNED TO INCLUDE THE ADDITIONAL LOADING.

WHEN THE LONGITUDINAL SLOPE OF THE FOOTING IS GREATER THAN 10:1, THE FOOTING MAY BE STEPPED.

UTILITIES SHALL BE LOCATED OUTSIDE THE "PAY LIMITS OF EXCAVATION." ANY UTILITIES NEEDING TO BE LOCATED WITHIN THIS AREA SHALL BE INSTALLED AS THE WALL IS BEING CONSTRUCTED. ONCE THE GEOTEXTILE LAYERS ARE INSTALLED, NEITHER THE GEOTEXTILE NOR THE UTILITY SHALL BE DISTURBED AT ANY TIME. ANY FUTURE MAINTENANCE ON THE UTILITY WILL REQUIRE DISMANTLING THE WALL.

SHOW SLOPE AND/OR SURCHARGE LOADING ON FILL BEING RETAINED.

THE UPSTREAM ENDS OF DRAINTILE SHALL BE CAPPED.

28-157

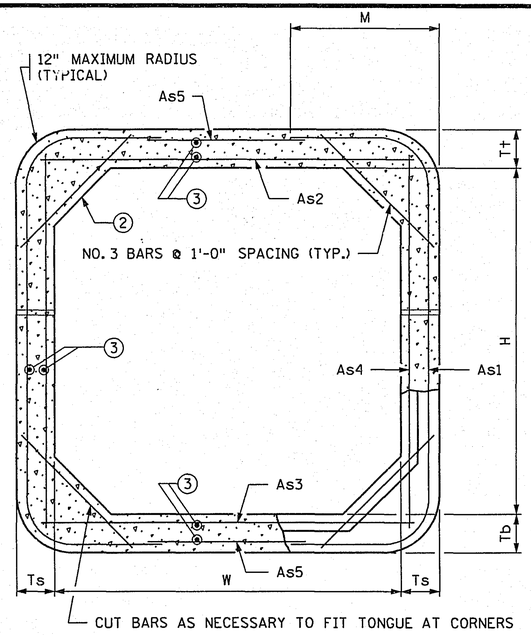
CERTIFIED BY Laurel M. Lundeen PROFESSIONAL ENGINEER REG. NO. 15913 26 Nov 1996

PARSONS BRINCKERHOFF Minneapolis, MN

TITLE: MODULAR BLOCK RETAINING WALL DETAILS

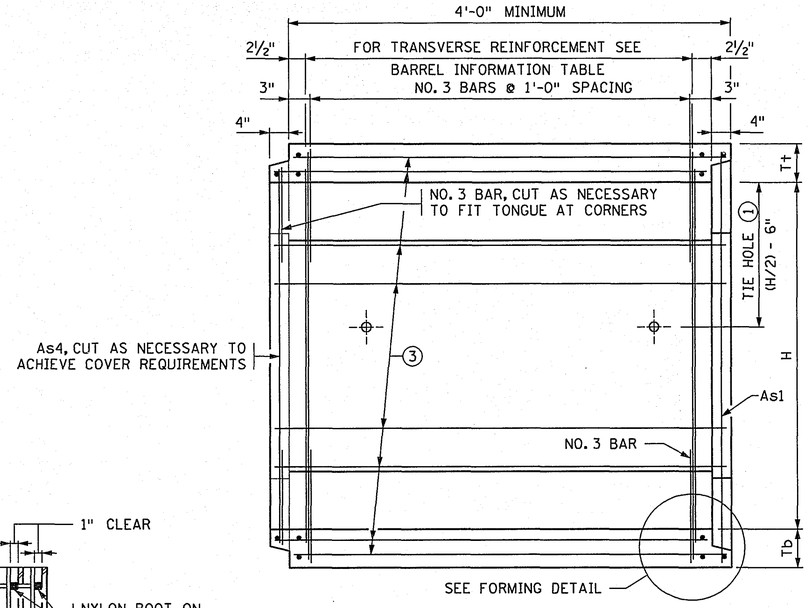
DES: EWA	DR: PLJ	APPROVED:	BRIDGE NO.
CHK: LMA	CHK: SNB		62J06
Sheet No. 110F of 110 Sheets			

FILENAME: c:\project\19011\task_2\dgn\ltdetail.dgn
PRF_NAME: C:\650USTND\LTDETAIL.PRF
DATE: 11/26/96
TIME: 13:06:39



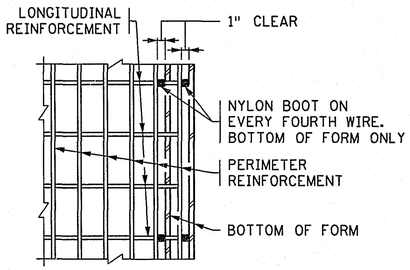
TRANSVERSE BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

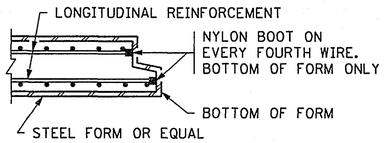


LONGITUDINAL BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

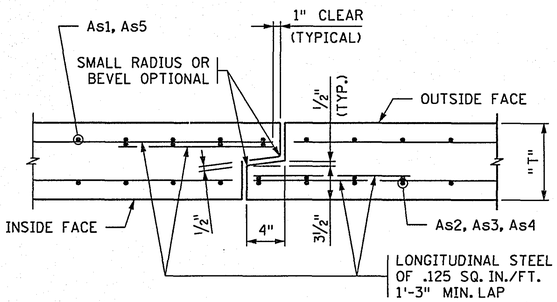


PLAN

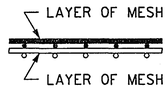


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1½" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM MESH SIZE SHALL BE ½" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6 AND 8 FT. WIDTHS - 6 TO 12 INCHES
10 FT WIDTH - 10 TO 12 INCHES
12 FT WIDTH - 12 INCHES

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

NOTE:
ALL DIMENSIONS IN ENGLISH.

BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT										
											As1			As2		As3		As4		As5	
					W (FT.)	H (FT.)	T† (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)
STA. 1+191	10' x 8'	2	5000	2'-8'	10	8	9	10	8	4460	0.48	13'-9"	2'-9"	0.90	10'-8"	0.74	10'-8"	0.20	8'-8"	0.06	7'-9"

28-157

APPROVED: AUGUST 10, 1995
STATE BRIDGE ENGINEER

CERTIFIED BY Laura L. Lundson
PROFESSIONAL ENGINEER
REG. NO. 15913 26 NOV 1996

State Proj. No. 62-630-42

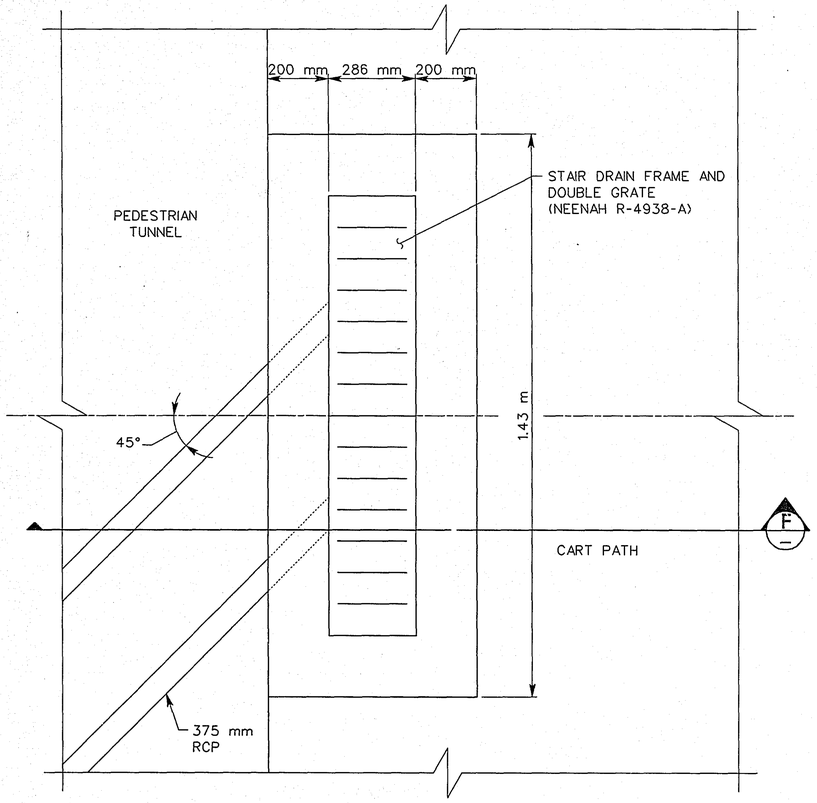
FIG. 5-395.101

TITLE: BARREL DETAILS

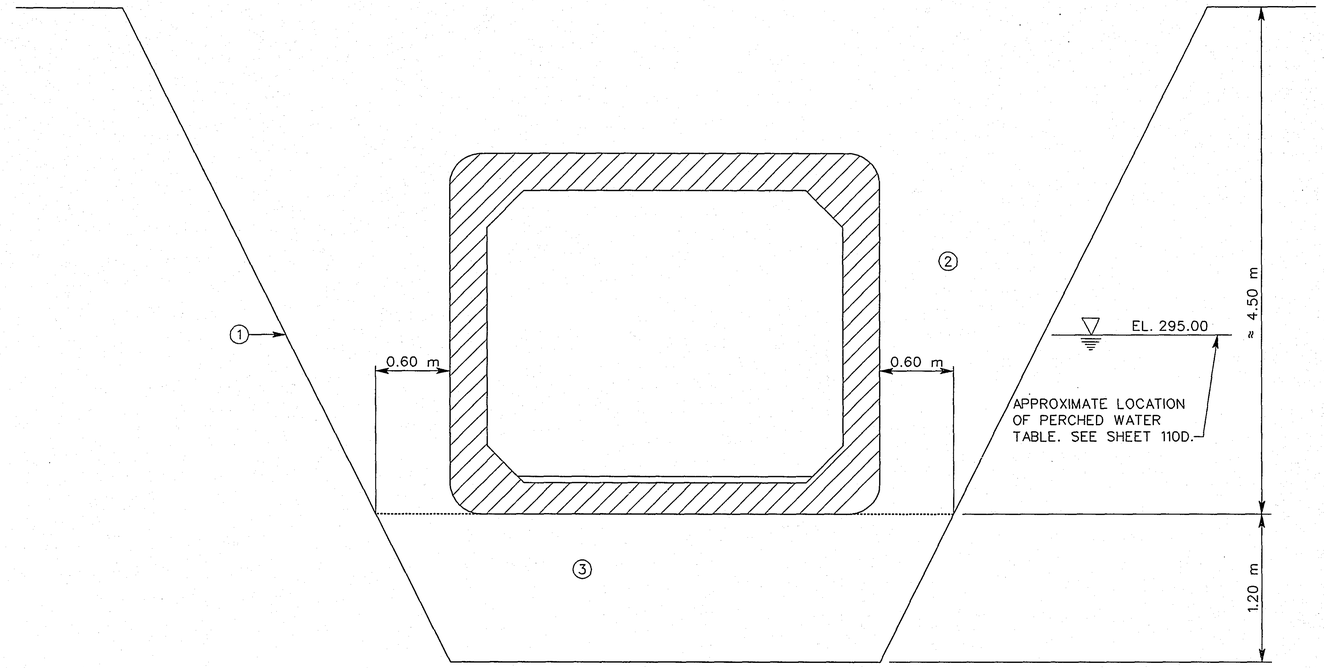
DES: DR: APPROVED:
CHK: CHK:

SHEET NO. 110G OF 110 SHEETS

BRIDGE NO. 62J06



A DETAIL
CB 143A
14B

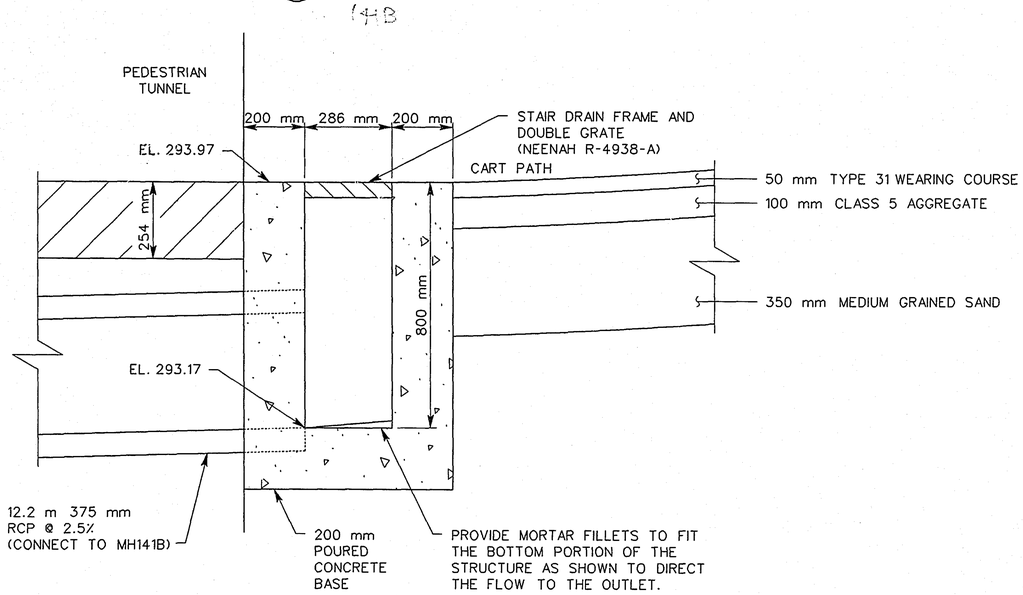


BOX CULVERT EXCAVATION DETAILS (TYPICAL)

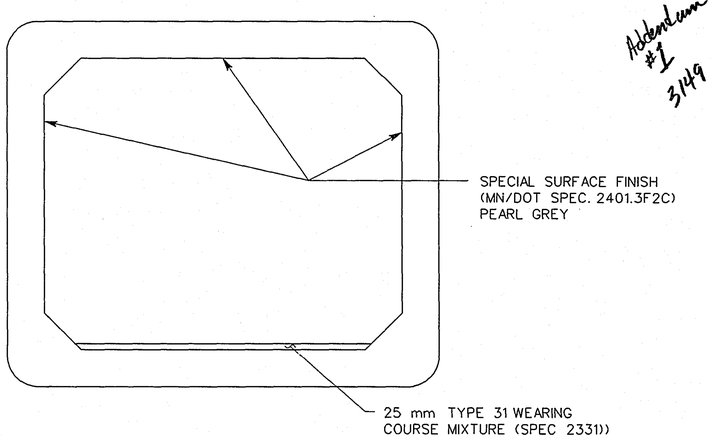
NOTES:

1. EXCAVATION OF SIDE SLOPES IN ACCORDANCE WITH OSHA 24CF4, PART 1926, SUBPART P, "EXCAVATION AND TRENCHES".
2. BACKFILL SOILS, SELECT GRANULAR BORROW (MN/DOT SPEC. 3149.2B2), SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR DENSITY (ASTM D698). SOILS PLACED IN THE UPPER 1 METER SUBGRADE ZONE BELOW PAVEMENTS SHOULD HAVE AN INCREASED COMPACTION LEVEL OF 100% OF THE STANDARD PROCTOR DENSITY.
3. FILL MATERIAL (MEDIUM GRAINED (SP) SAND) (MN/DOT SPEC. 3149.2B) TO CONTAIN AT A MINIMUM 5% BY WEIGHT PASSING THE #200 SIEVE AND LESS THAN 40% BY WEIGHT PASSING THE #40 SIEVE. SAND IS TO BE COMPACTED IN LIFTS TO A MINIMUM OF 95% OF THE STANDARD PROCTOR DENSITY (ASTM D698).
4. DEWATERING OF AREA THROUGH THE USE OF A "DRY WELL" IS REQUIRED PRIOR TO CONSTRUCTION. SEE SHEET 110D.

Addendum #1 3149.2B



F SECTION
CB 143A



E SECTION
2

28-157

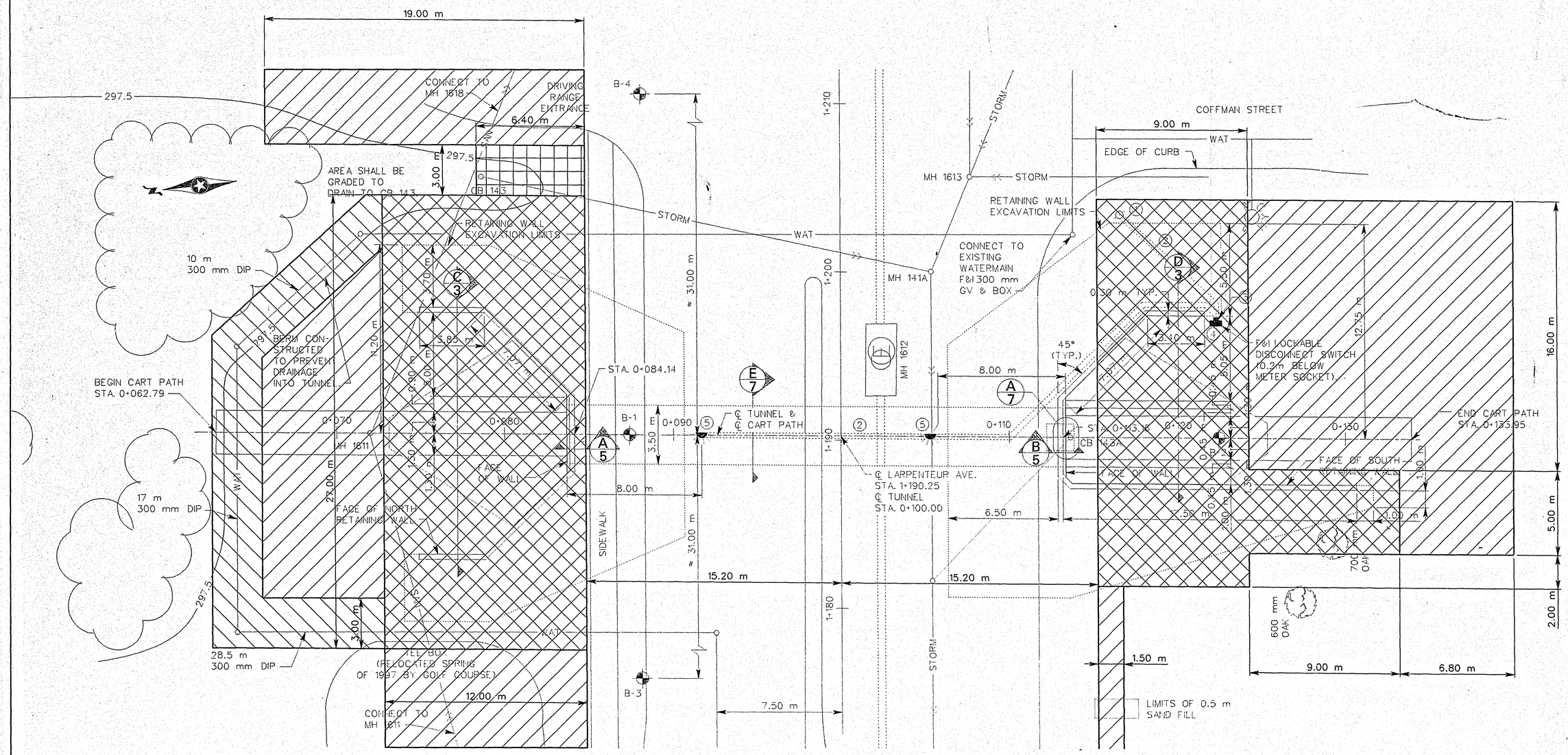
CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 15913 26 NOV 1996

S.P. 62–630–42

PARSONS BRINCKERHOFF
Minneapolis, MN

TITLE:	DES: EWA	DR: PLJ	APPROVED:	BRIDGE NO.
BOX CULVERT AND DRAIN DETAILS	CHK: LMA	CHK: SNB		62J06
	Sheet No. 110H of 110 Sheets			

FILENAME: c:\project\19011\task_2\dgn\ltdet2.dgn
PRF_NAME: C:\650USTND\LTDET2.PRF
DATE: 11/26/96
TIME: 12:56:48



PERMANENT HIGHWAY EASEMENT

TEMPORARY SLOPE EASEMENT

DRAINAGE EASEMENT

UTILITY EASEMENT

PLAN

28-157

CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 15913 26 NOV 1996

S.P. 62-630-42

PARSONS BRINCKERHOFF Minneapolis, MN

TITLE: EASEMENTS

DES: EWA	DR: PLJ	APPROVED:	BRIDGE NO.
CHK: LMA	CHK: SNB		62J06
Sheet No. 110I of 110 Sheets			

FILENAME: c:\project\19011\task_2\dgn\ltdet3.dgn
PRF_NAME: C:\650USTND\LTDET3.PRF
DATE: 11/26/96
TIME: 12:58:36