

1. TITLE SHEET
2. TYPICAL SHEET
- 3-4. QUANTITY SHEETS
5. ITEM DETAIL AND DRAINAGE SHEET
- 6-7. TIE SHEETS
- 8-9. RIGHT OF WAY SHEETS
- 10-11. BLANK
12. EROSION PREVENTION & SEDIMENT CONTROL DETAILS
13. CONSTRUCTION APPROACH SIGNING SHEET
14. INTERSECTION LAYOUT SHEET
15. TRAFFIC SIGNS AND PAVEMENT MARKINGS
16. SIGNAL LAYOUT SHEET
17. TRAFFIC SIGNAL NOTES
18. GENERAL NOTES SHEET
- 19-20. TRAFFIC SIGN SUMMARY SHEETS
21. MAST ARM CANTILEVER WITH LIGHTING/FOOTING DETAIL SHEET
- 22-23. MAST ARM CROSS SECTION SHEETS
- 24-29. CROSS SECTION SHEETS

STANDARDS

B-71	07/08/05
C-1	01/03/00
C-2A	10/14/05
C-3A	09/01/04
C-3B	09/01/04
D-6	06/01/94
D-8	01/03/00
D-15	06/01/94
D-20	03/03/03
E-100	01/02/04
E-101	05/30/03
E-102	06/30/03
E-106	03/01/04
E-107	06/30/03
E-107A	08/08/95
E-108	08/18/95
E-110	08/08/95
E-120	08/08/95
E-121	08/08/95
E-123	03/16/04
E-136A	08/08/95
E-138	05/30/03
E-140	08/30/96
E-141	09/20/95
E-142	09/20/95
E-143	06/15/04
E-144	03/29/99
E-145A	12/23/94
E-150	05/01/04
E-152	05/01/04
E-160	05/20/99
E-170	11/04/99
E-171A	08/09/95
E-171B	08/09/95
E-171C	08/09/95
E-172	08/09/95
E-173	08/09/95
E-175	11/17/93
E-191	02/01/99
E-192	10/12/00
E-193	08/18/95

STATE OF VERMONT AGENCY OF TRANSPORTATION

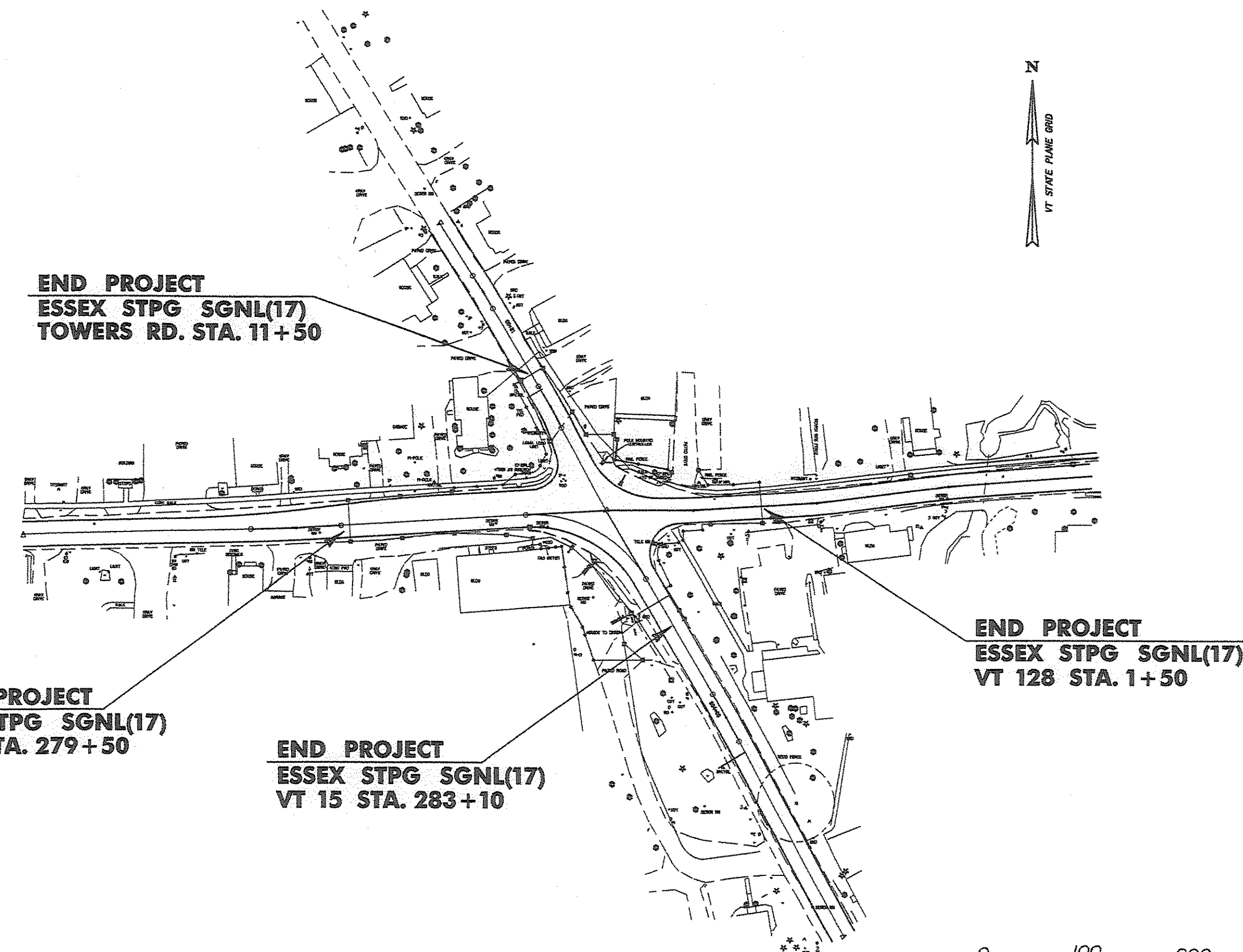
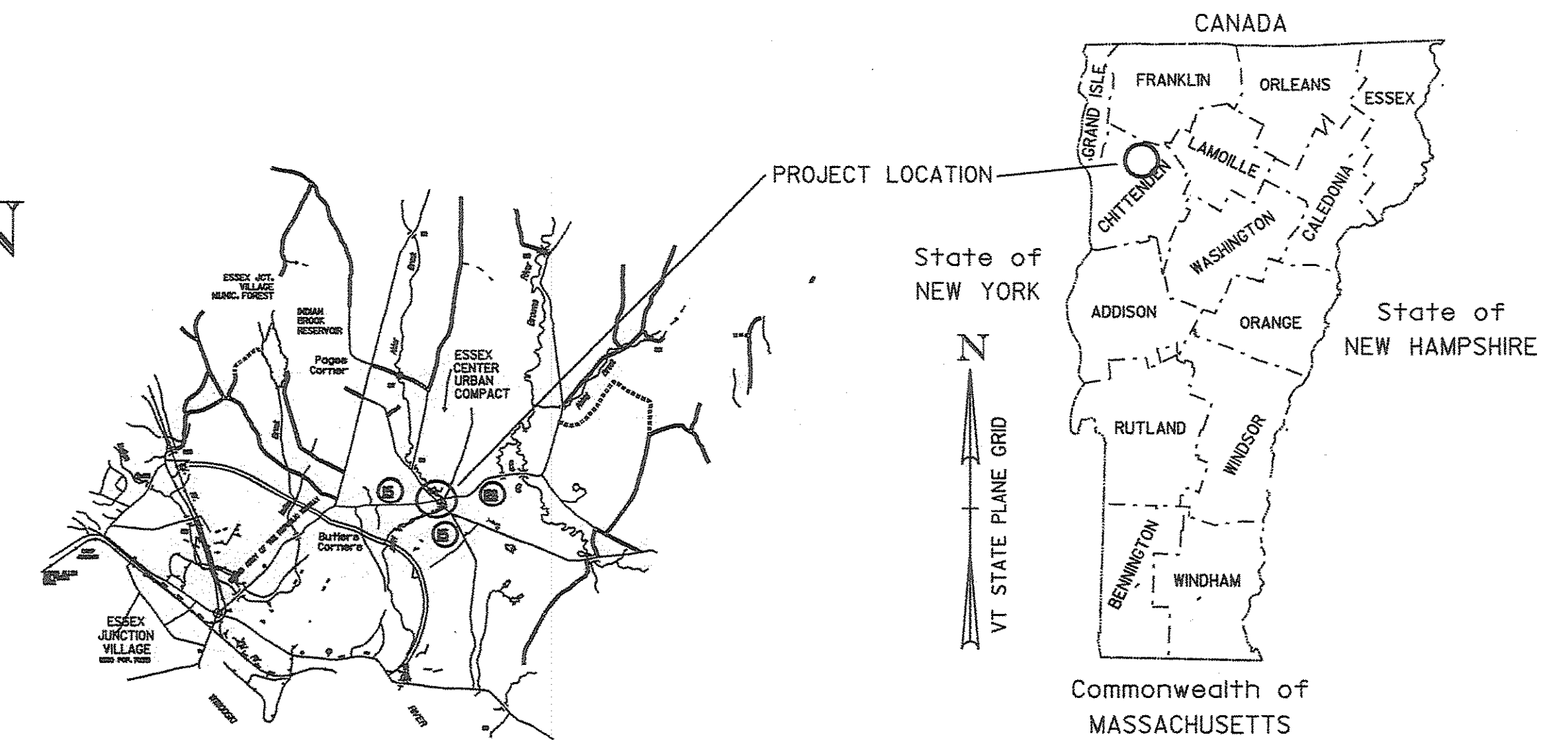


PROPOSED IMPROVEMENT TOWN OF ESSEX COUNTY OF CHITTENDEN INTERSECTION OF VT 15 & VT 128

TOWN OF ESSEX, VT 15 AT THE INTERSECTION OF VT 128
& TOWERS RD. (MM 5.34).

LENGTH OF ROADWAY - VT 15 360 FT .068 MILES
LENGTH OF ROADWAY - VT 128 150 FT .028 MILES
LENGTH OF ROADWAY - TOWER RD. 150 FT .028 MILES
TOTAL LENGTH OF ROADWAY 660 FT .124 MILES

WORK UNDER THIS PROJECT INCLUDES INSTALLING A NEW TRAFFIC SIGNAL SYSTEM, UPGRADING PEDESTRIAN CROSSINGS, NEW SIGNS, PAVING, AND PAVEMENT MARKINGS TO INCREASE CAPACITY AND IMPROVE SAFETY.



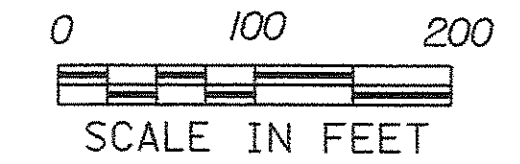
TRAFFIC DATA		
DESIGN YEAR	1999	2004
ADT	9725	10300
DHW	1045	1100
%T	3	2
%D	77	77
DESIGN SPEED	35	35

RECORD PLANS	
CONTRACTOR:	PIKE INDUSTRIES, INC. - BERLIN, VT
RESIDENT ENGINEER:	GREG WILCOX
CONSTRUCTION BEGAN:	APRIL 23, 2007
CONSTRUCTION COMPLETE:	OCTOBER 29, 2007
RECORD PLANS BY:	GREG WILCOX, N. GARBACIK
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	<i>Greg Wilcox</i> RESIDENT ENGINEER
DATE:	9/8/09
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	

CONVENTIONAL SYMBOLS	
COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	
POINT OF ACCESS	
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : L. ORVIS
SURVEYED DATE : 10/98

DATUM
VERTICAL ASSUMED
HORIZONTAL ASSUMED



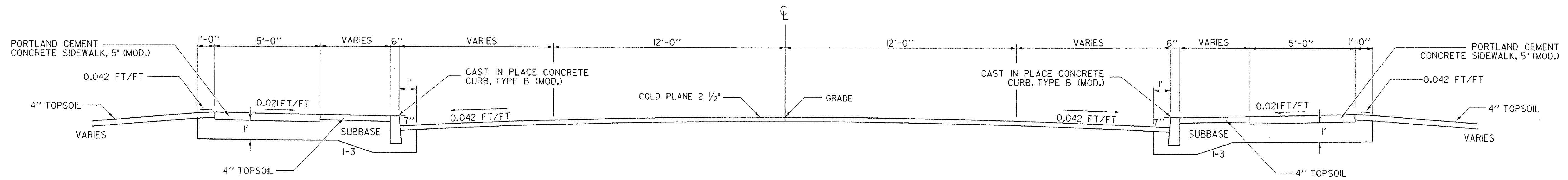
THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROJECT DEVELOPMENT.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROJECT DEVELOPMENT	
APPROVED <i>Richard Johnson</i>	DATE 10/23/09
PROJECT MANAGER : BRUCE T. NYQUIST	
PROJECT NAME :	ESSEX
PROJECT NUMBER :	STPG SGNL (17)
SHEET 1 OF 29 SHEETS	

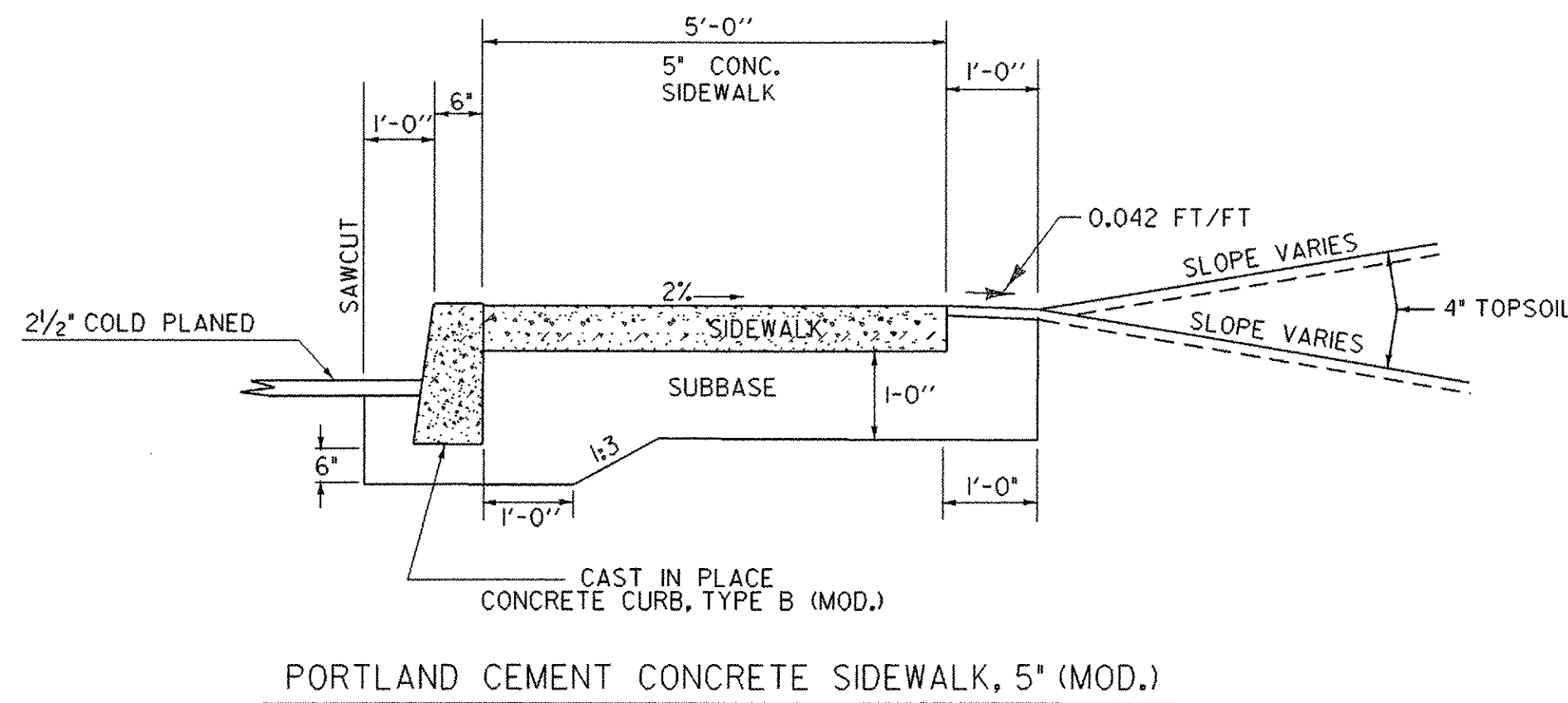
TYPICAL SECTION

NOTE:
FINISHED GRADE TO MATCH EXISTING GRADE
AFTER COLD-PLANING AND NEW PAVEMENT.

2" BITUMINOUS CONCRETE PAVEMENT, TYPE III, WEARING COURSE
1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE IV, LEVELING COURSE



VT ROUTE 15 - SECTION



SEEDING FORMULA URBAN AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
42.5	34.0	CREeping RED FESCUE	98	85
10.0	8.0	PERENNIAL RYE GRASS	95	90
42.5	34.0	KENTUCKY BLUE GRASS	85	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.00	80.0			

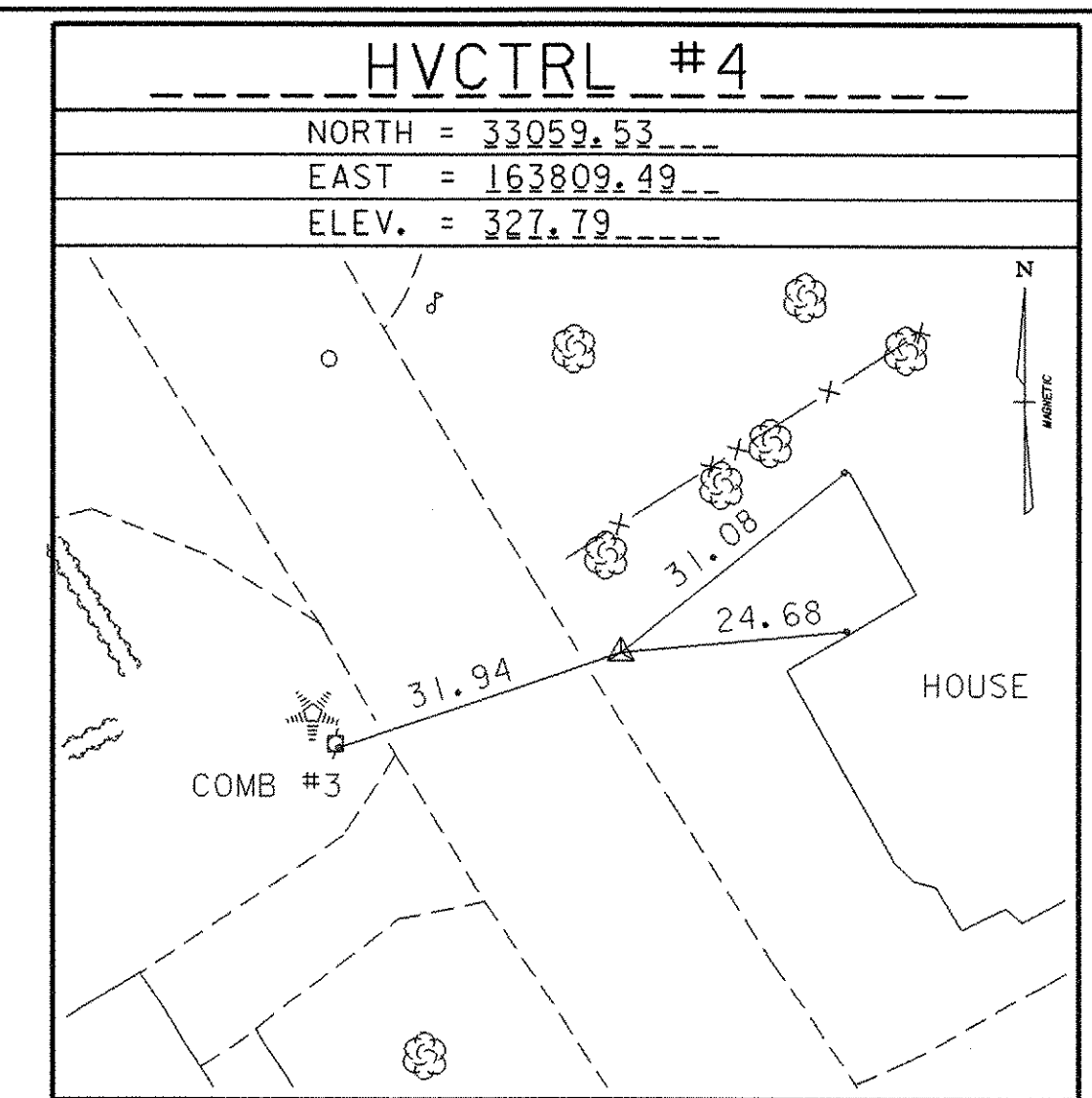
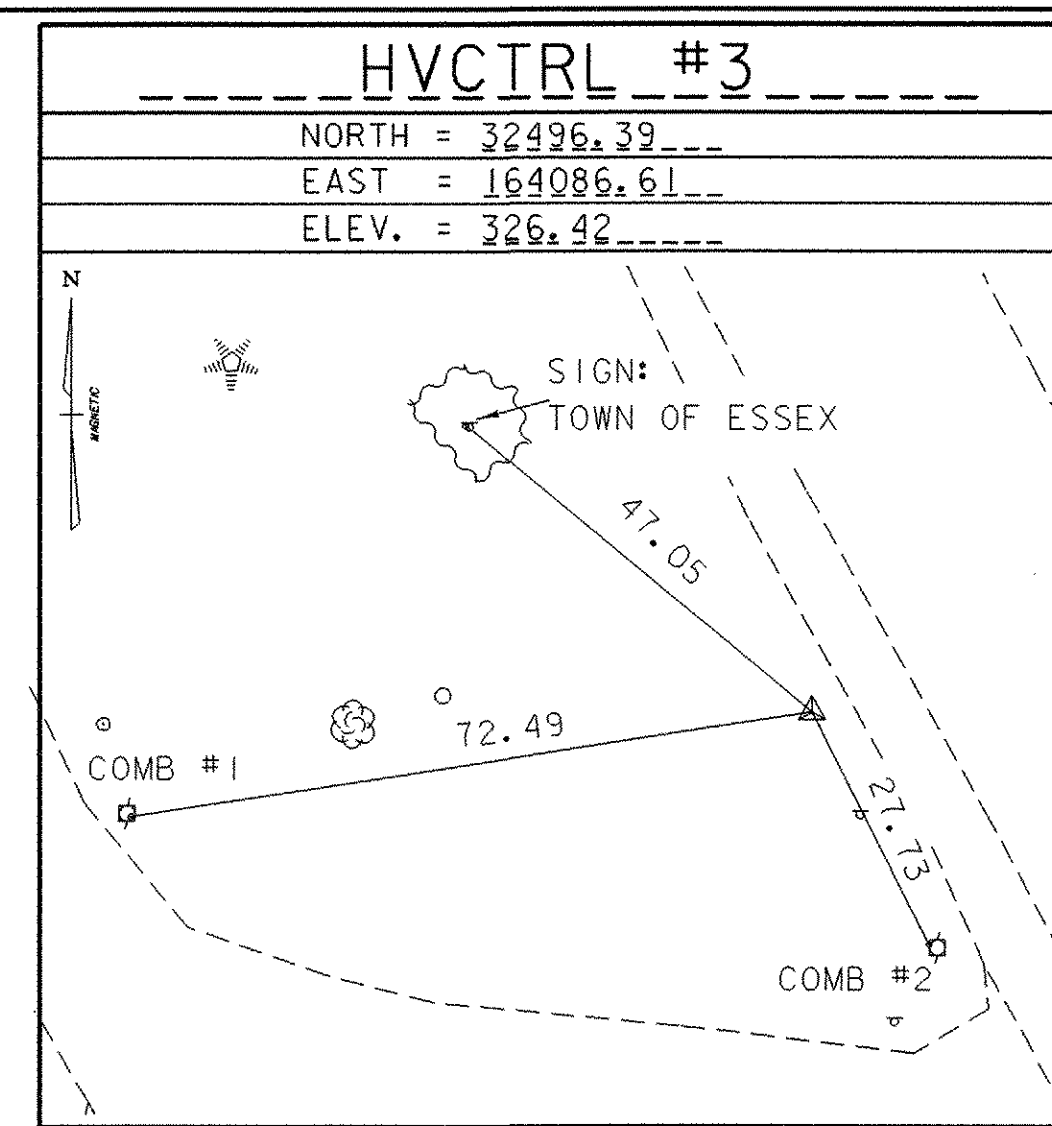
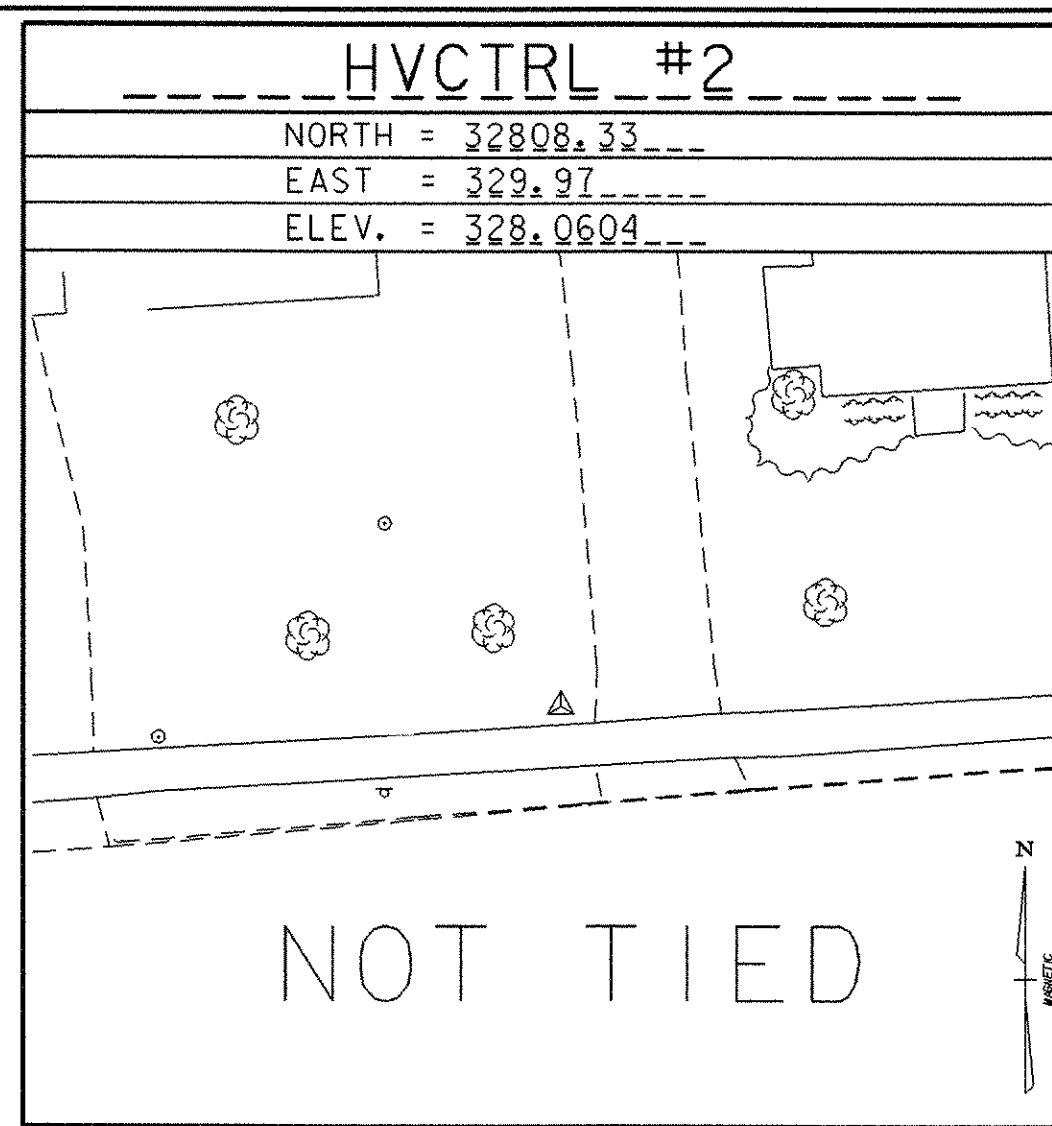
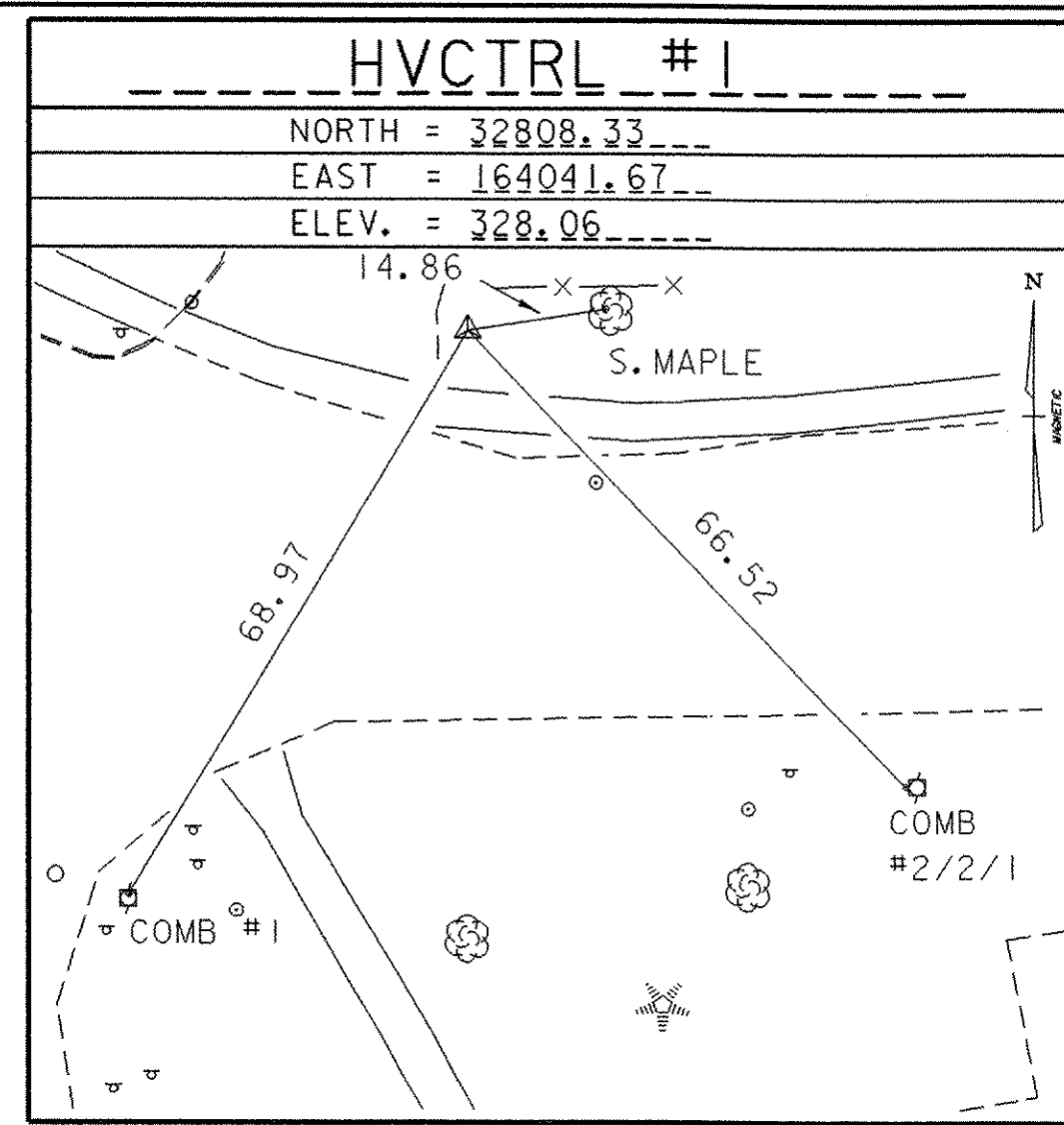
GENERAL NOTES

- SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.
- FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
- AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B - 5.
- TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.015 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

PROJECT NAME: ESSEX
 PROJECT NUMBER: STPG_SGNL(17)
 FILE NAME: 96b182/tb182wck.dgn/tb182typ.l PLOT DATE: 16-NOV-2006
 PROJECT LEADER: B.NYQUIST DRAWN BY: B.MCAVOY
 DESIGNED BY: B.MCAVOY CHECKED BY: B.NYQUIST
 SHEET 2 OF 29

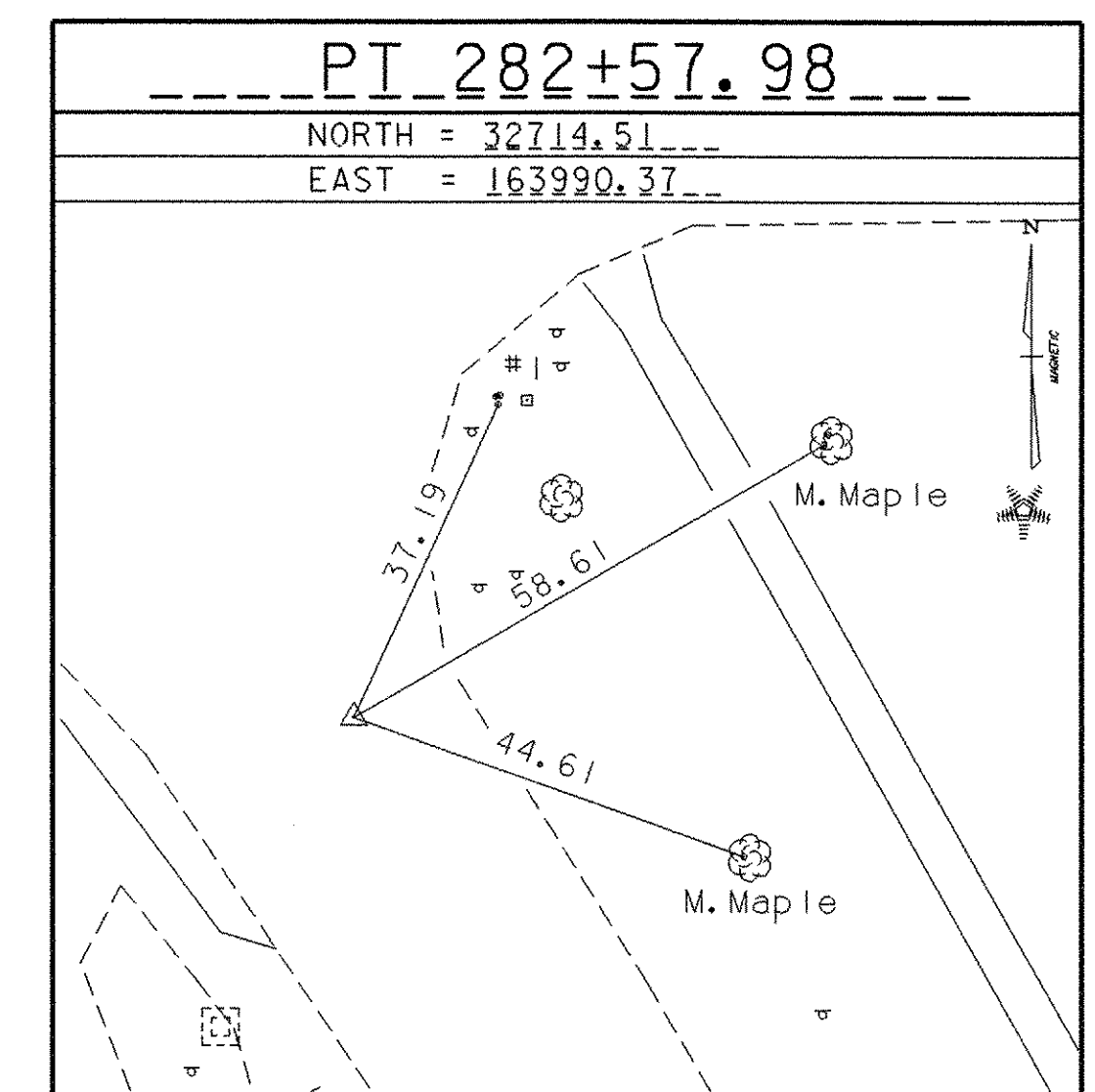
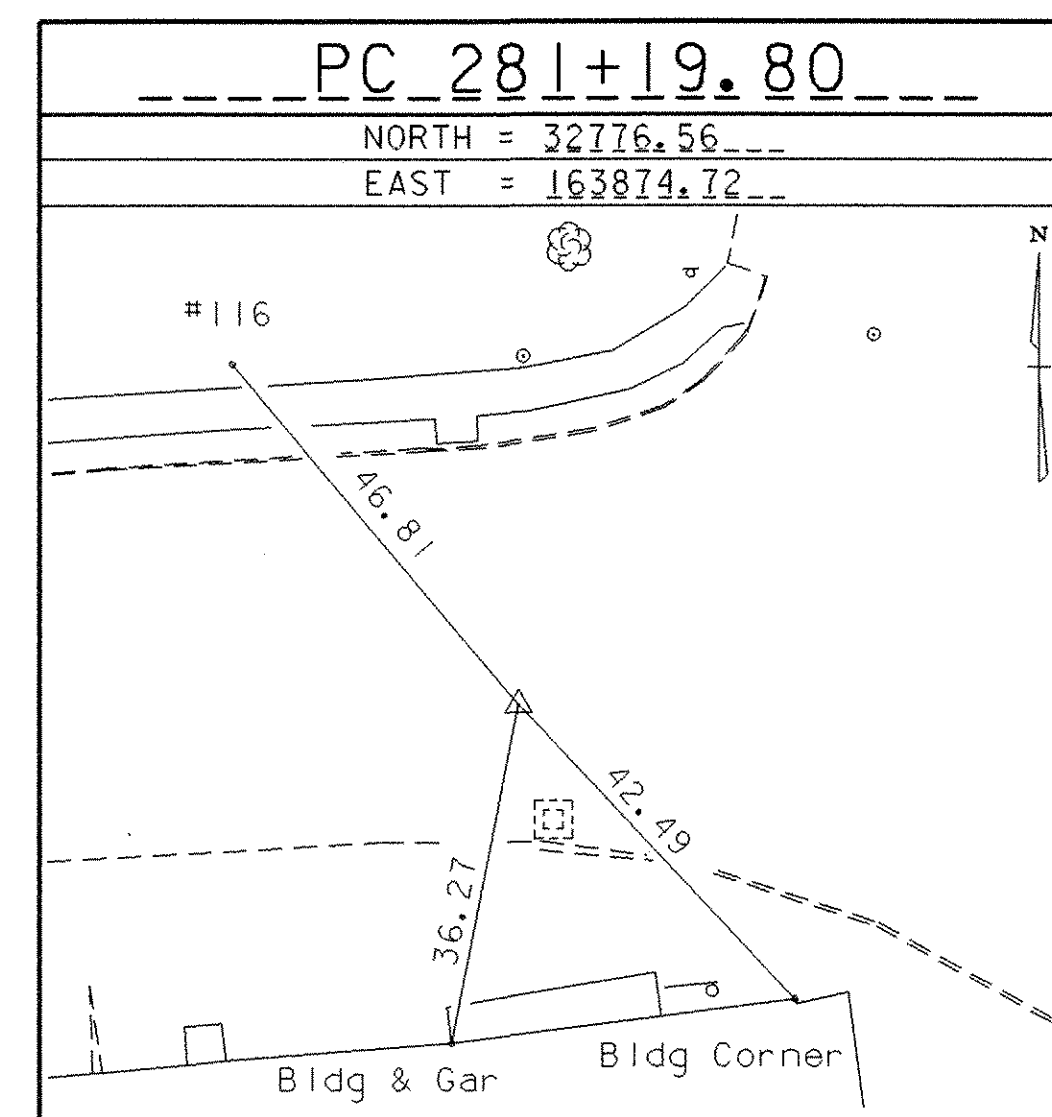
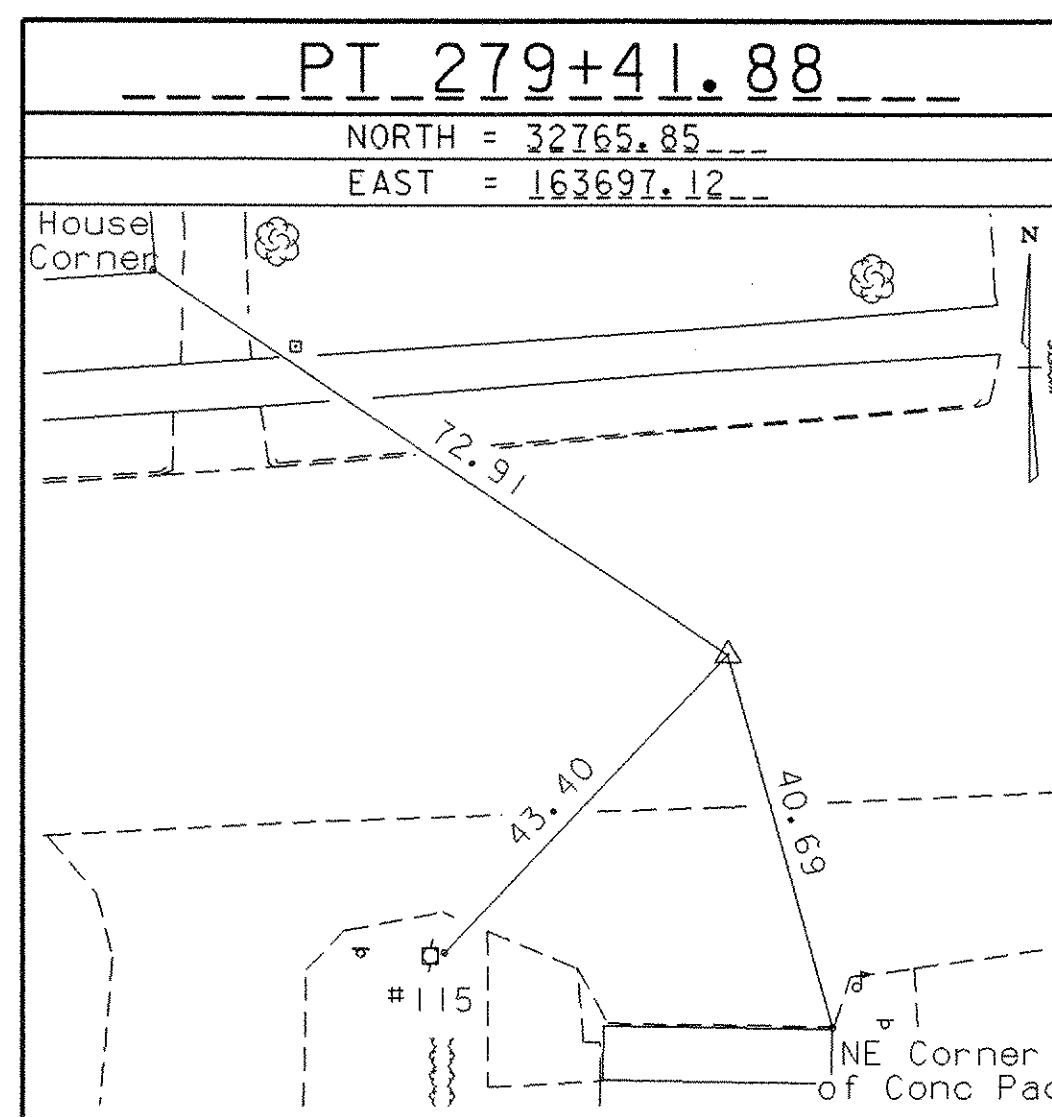
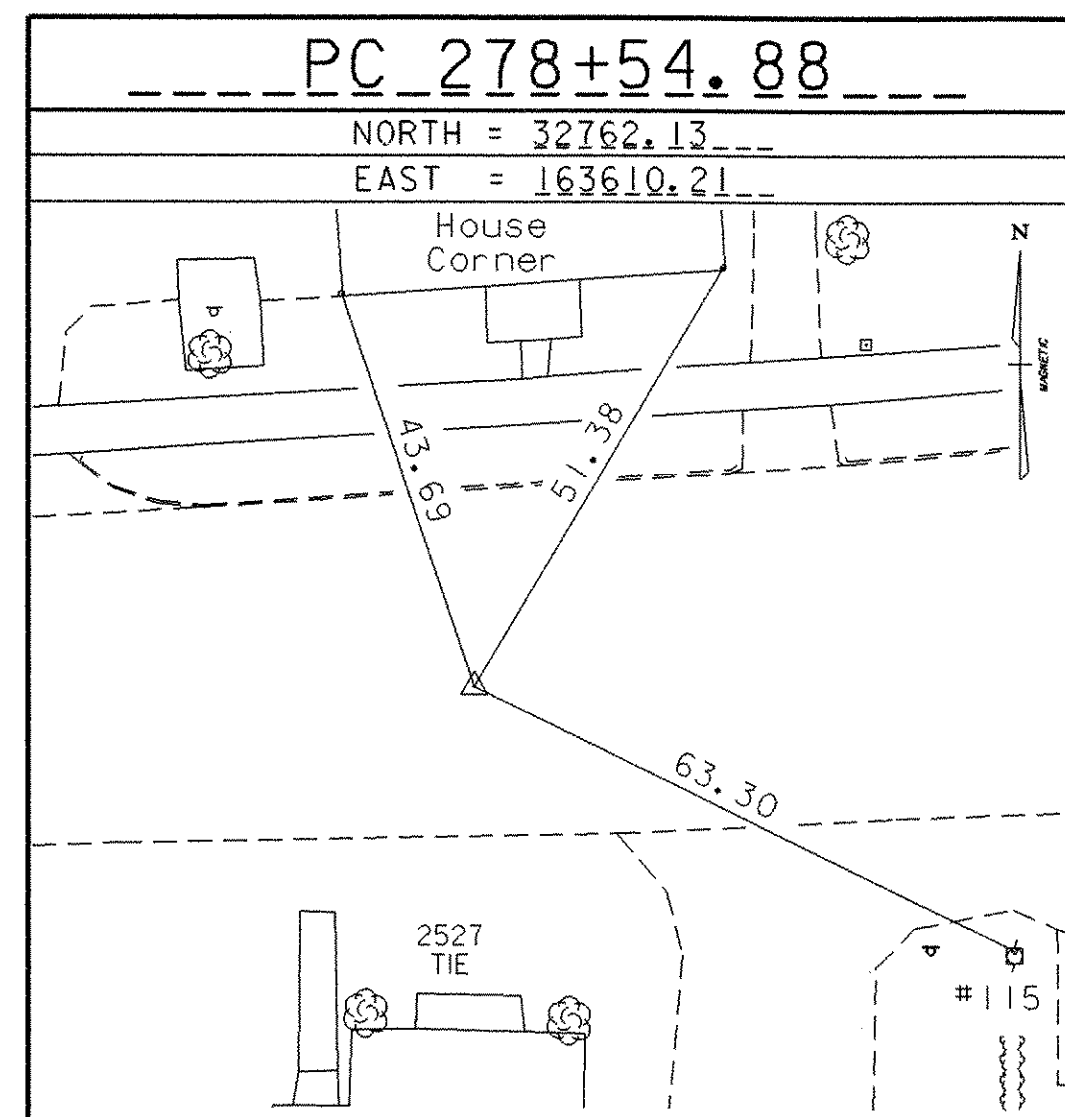
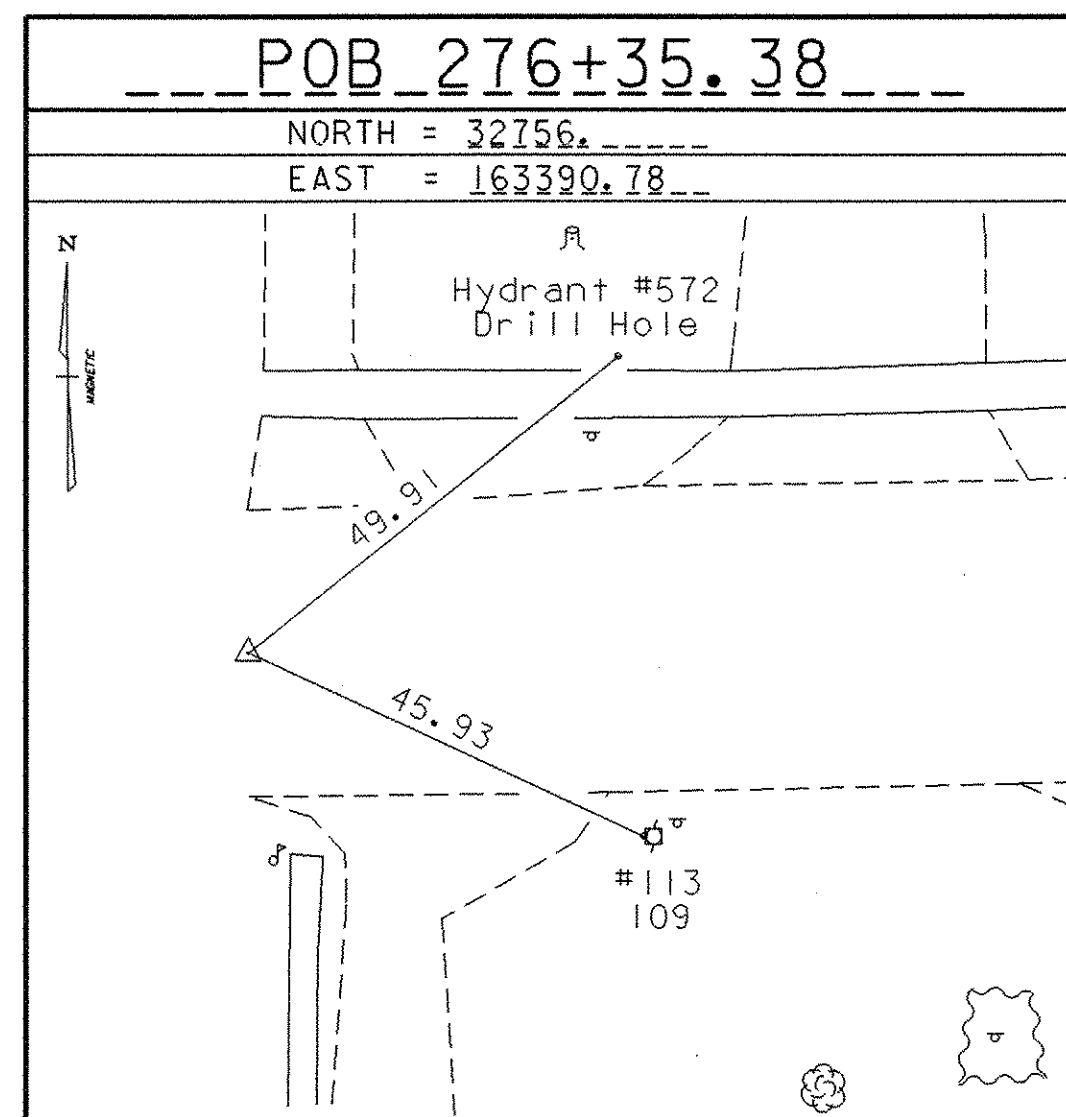
NO GPS CONTROL
CONTROL ASSUMED

TRAVERSE TIES

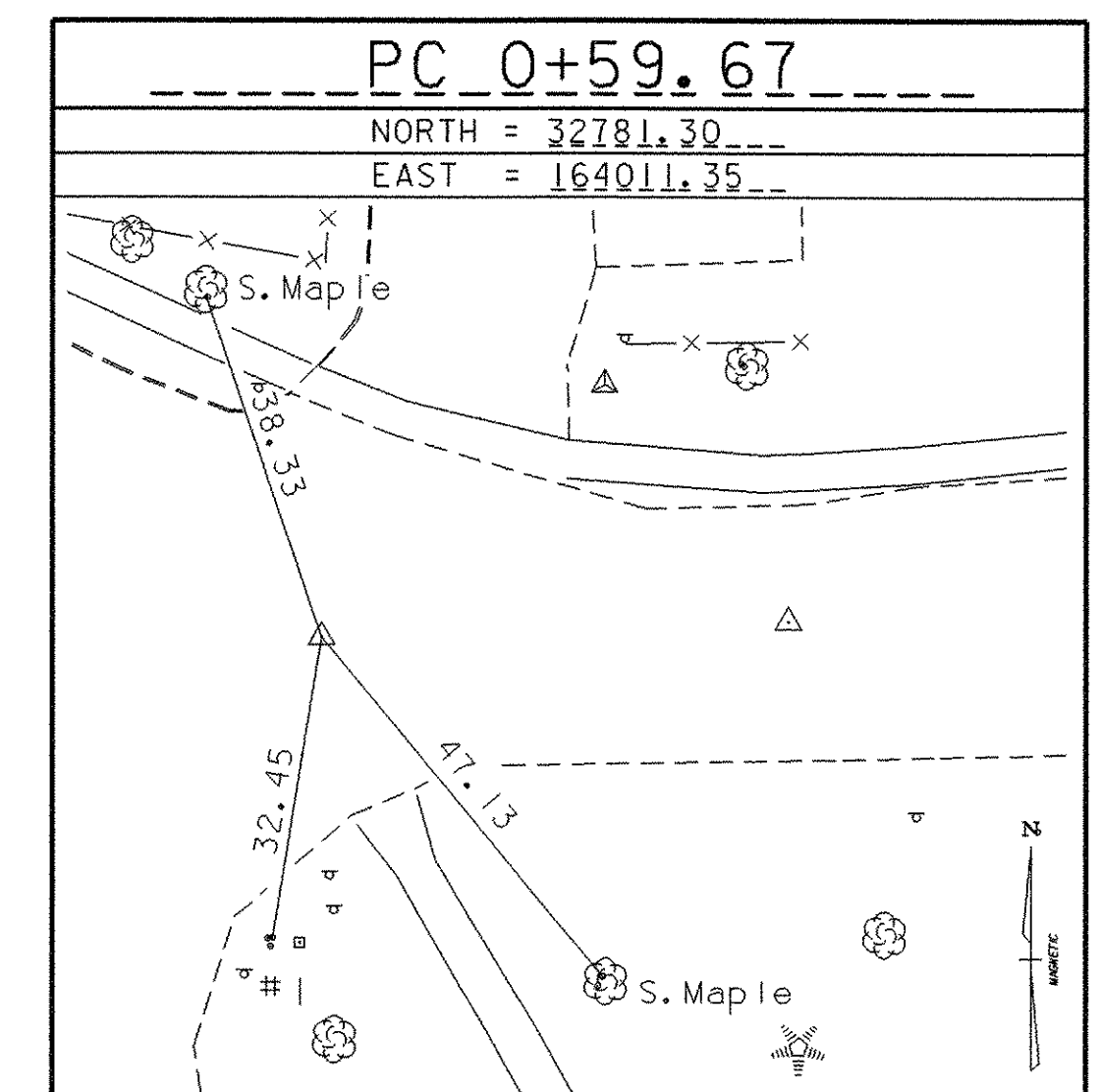
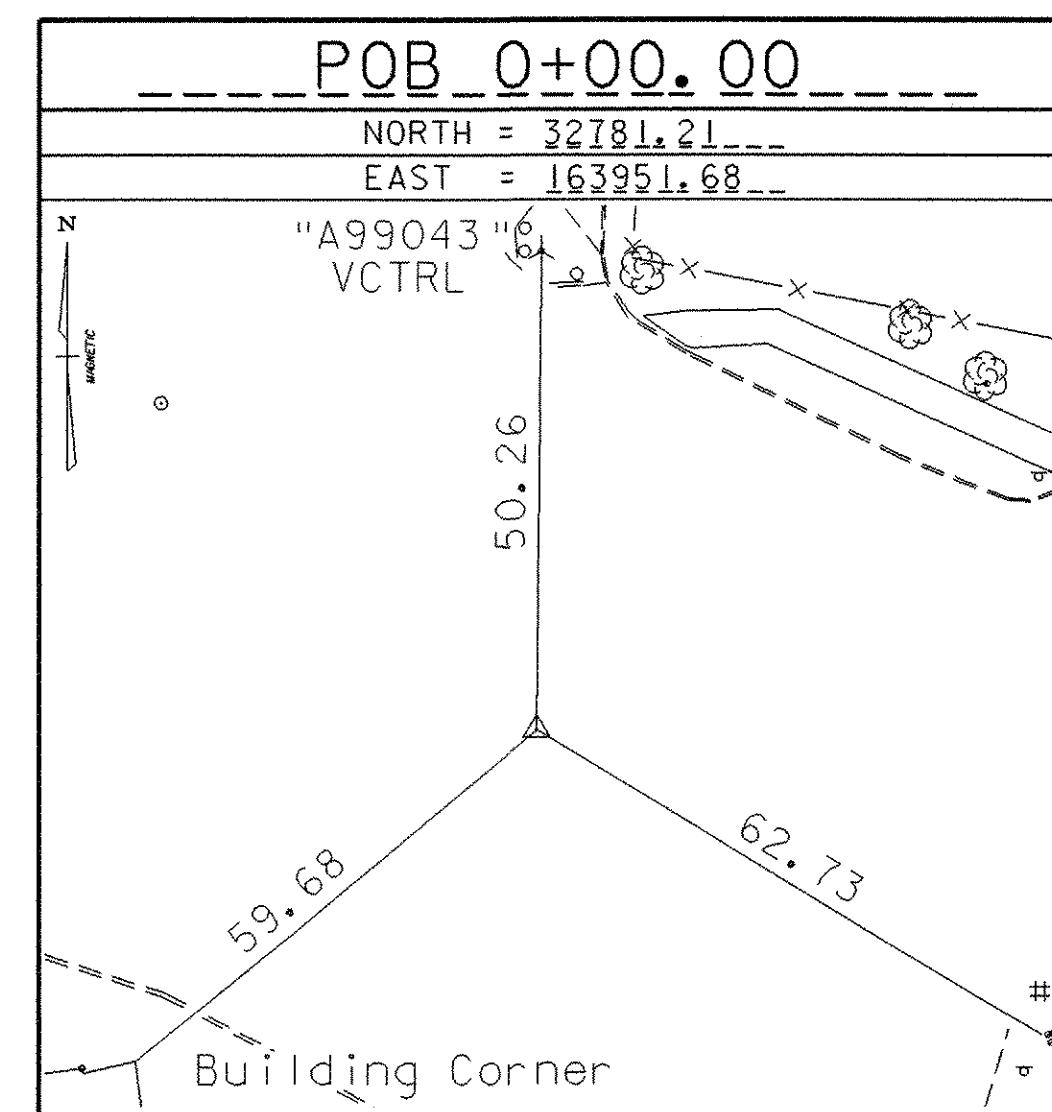
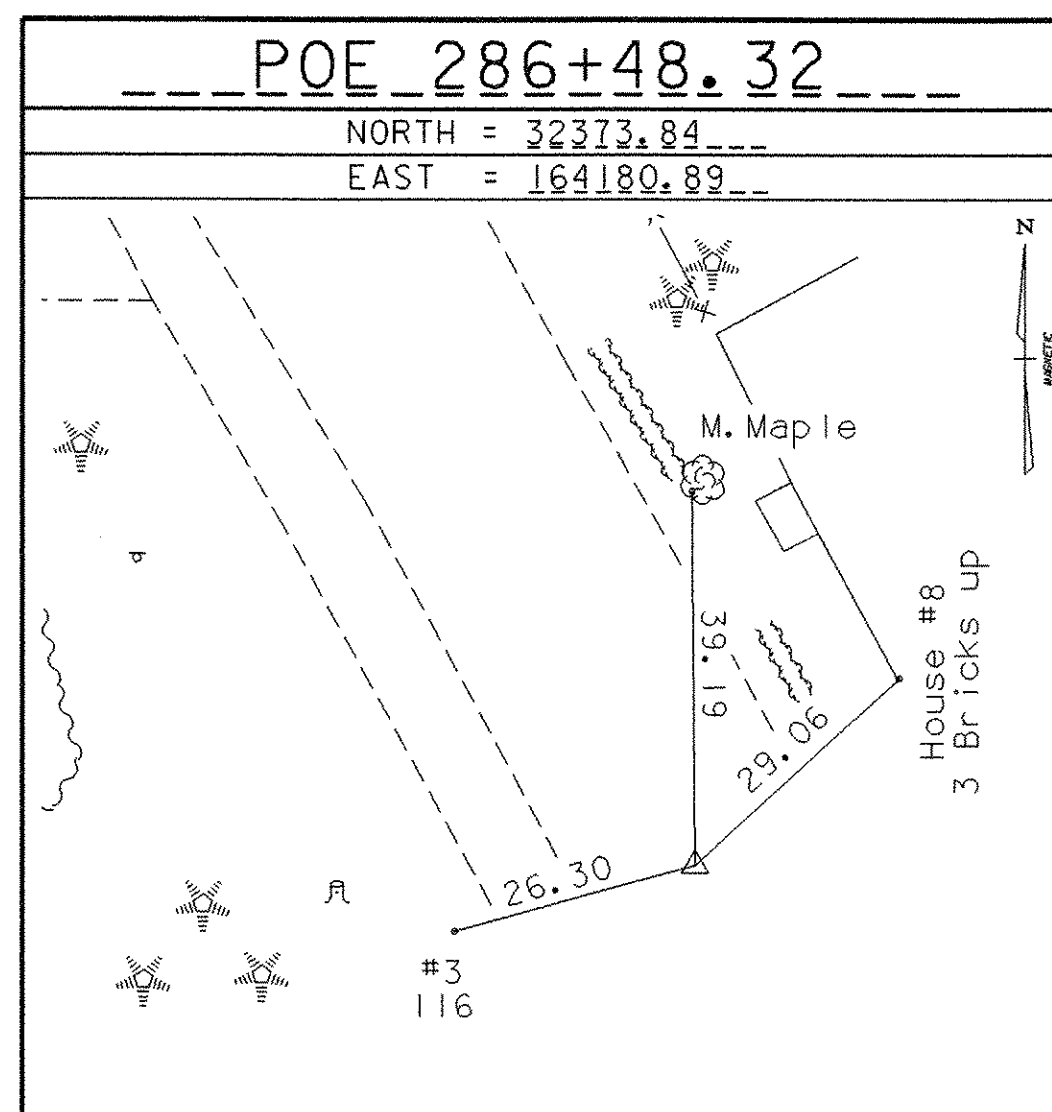
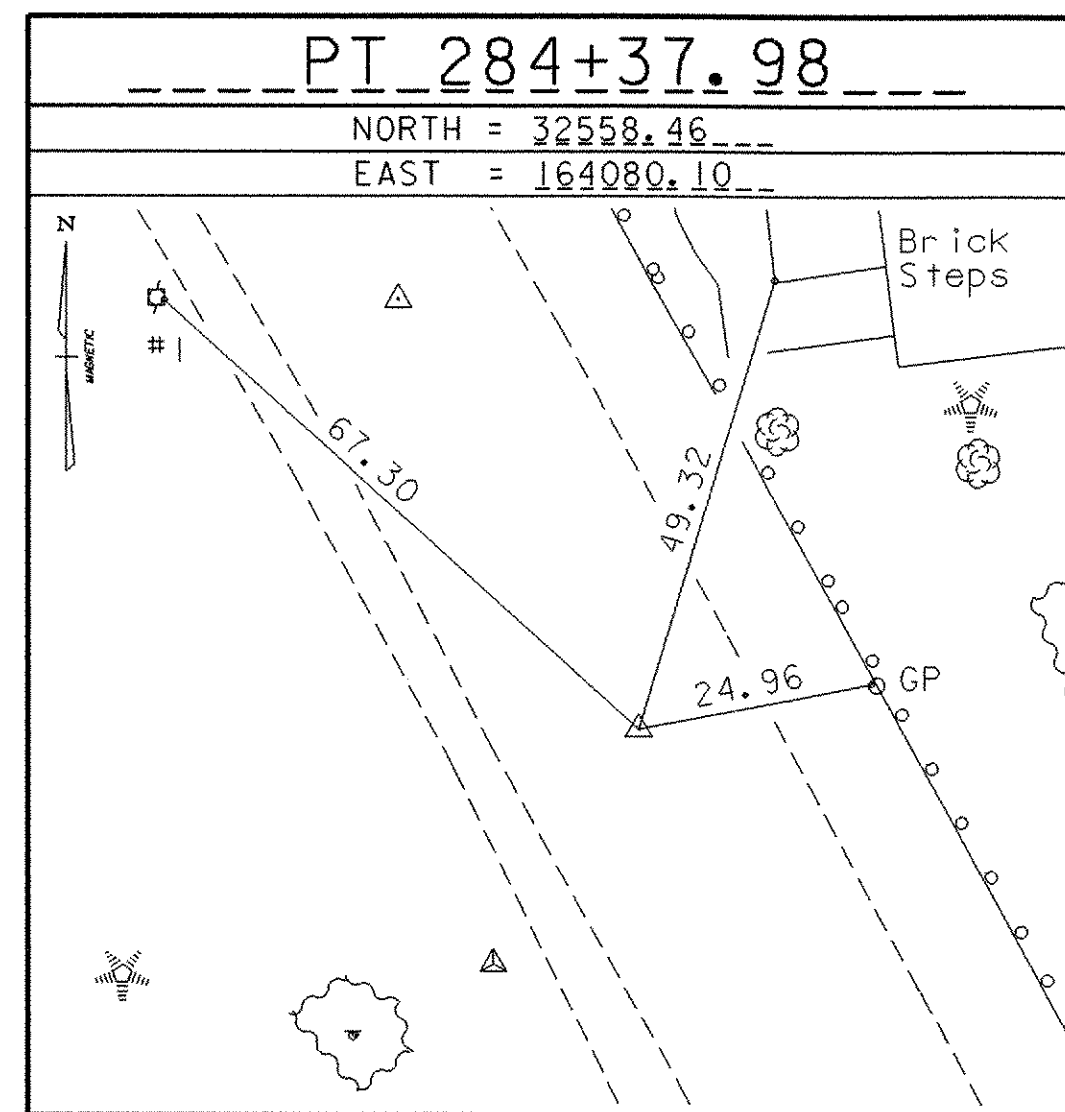
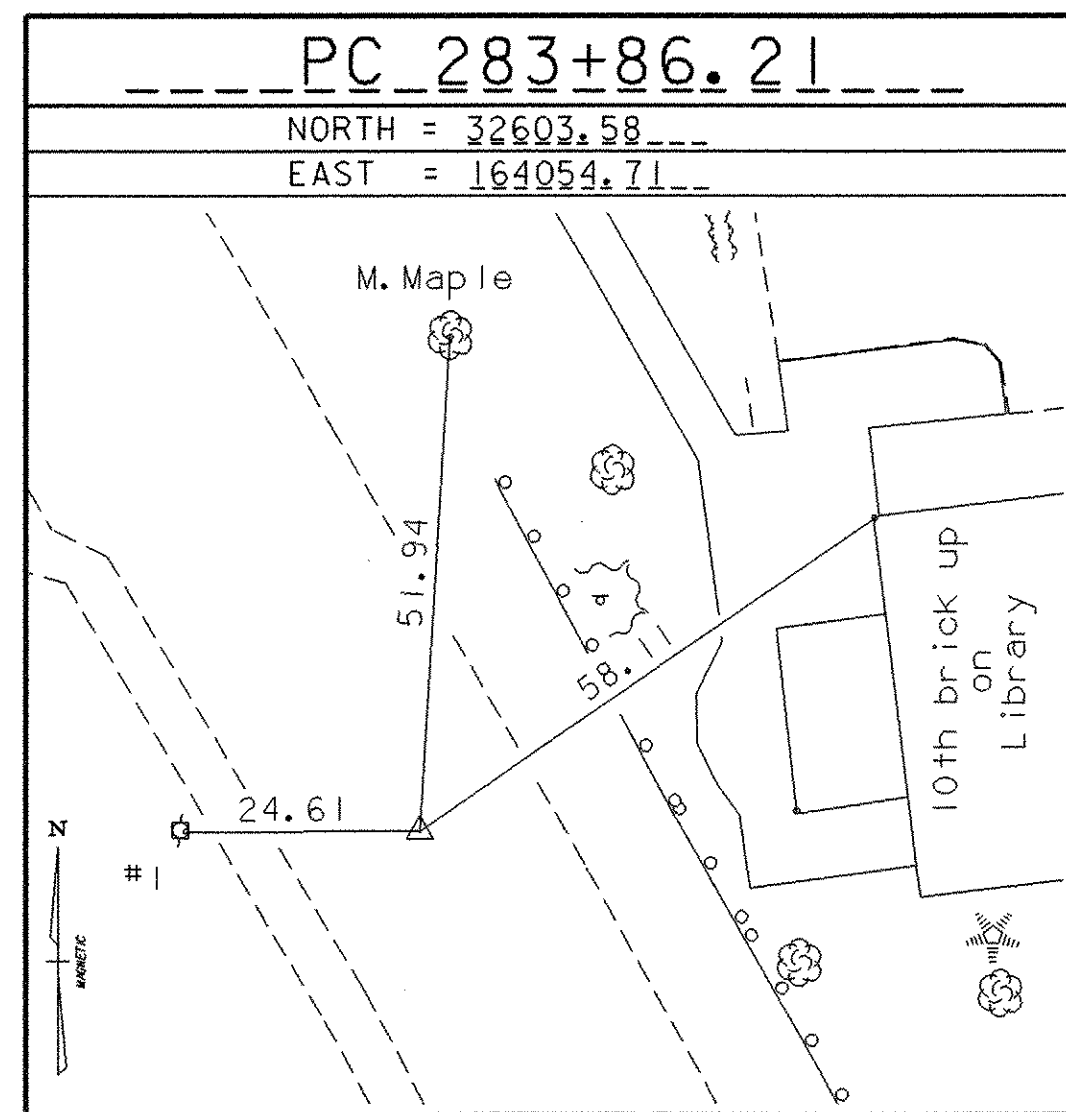


* MAIN TRAVERSE COMPLETED: DEC. 18, 2000 BY L.ORVIS PC & J.HULETT

ALIGNMENT TIES



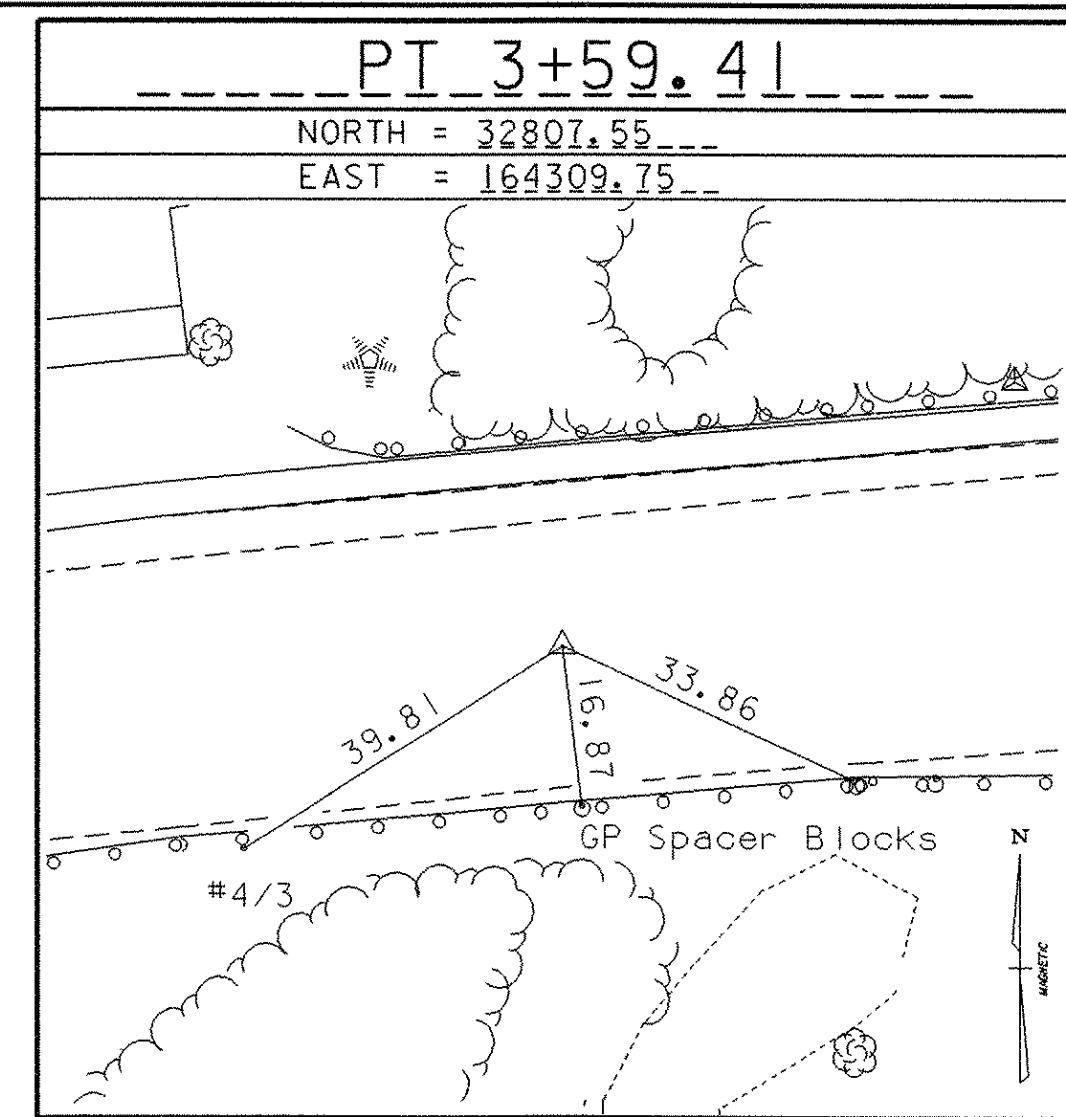
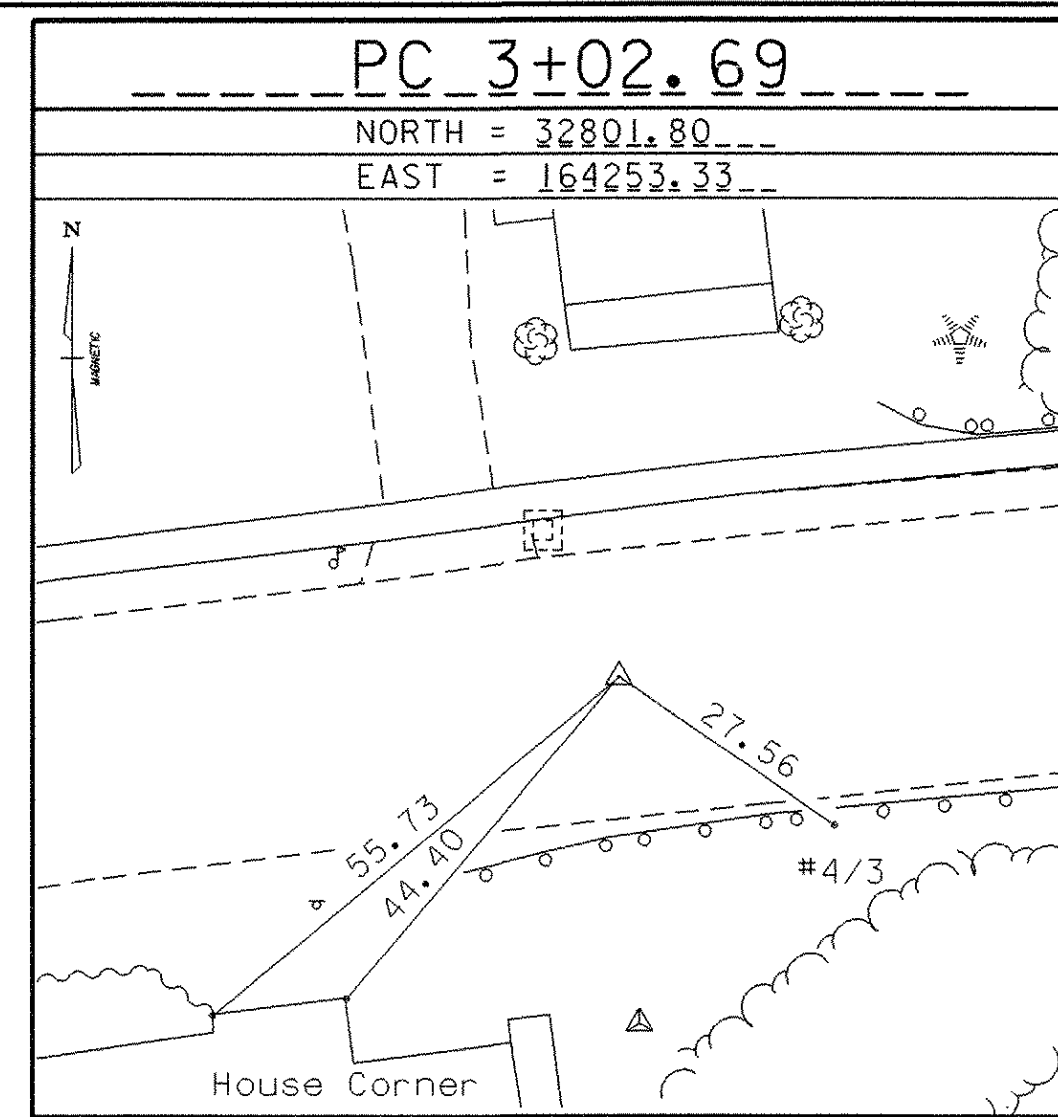
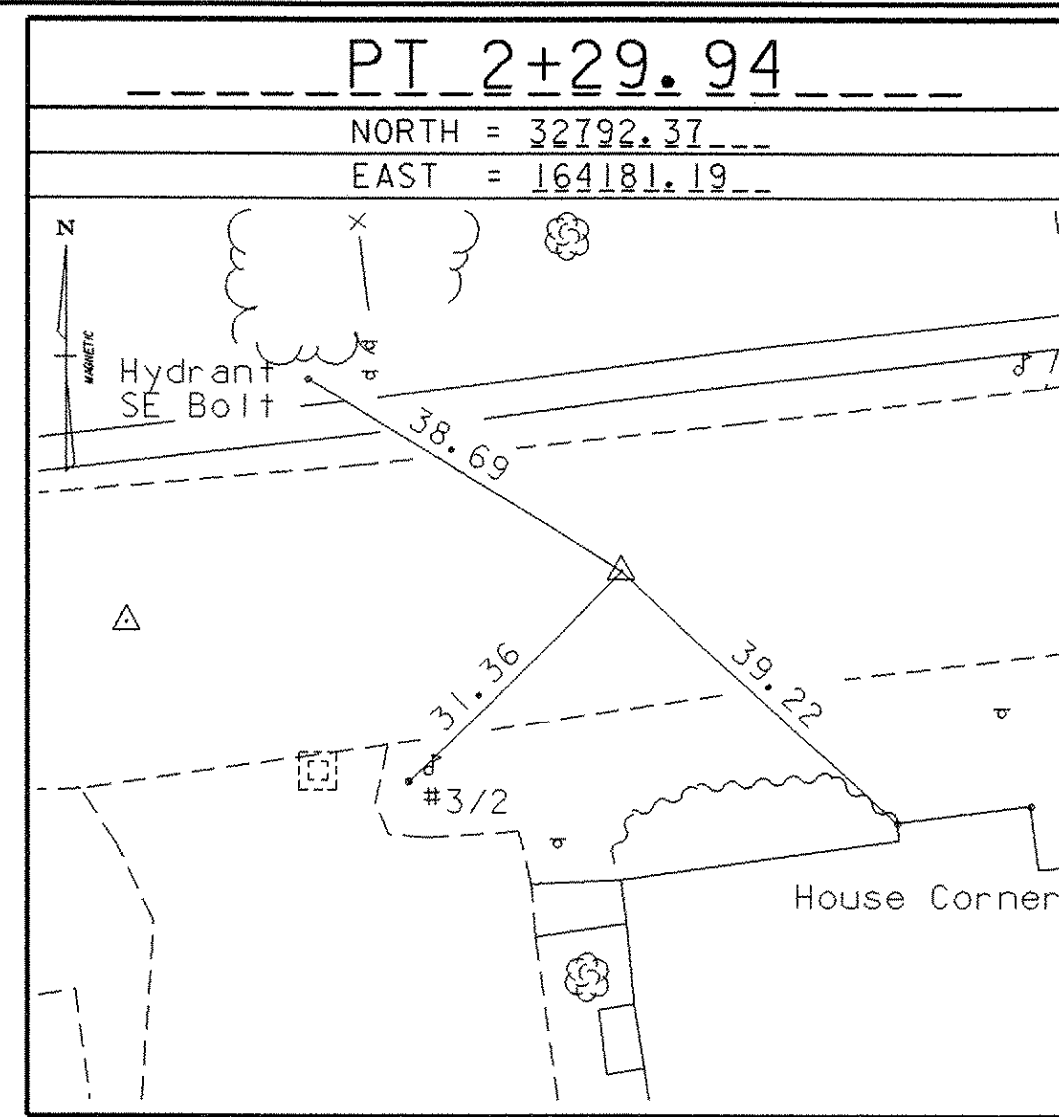
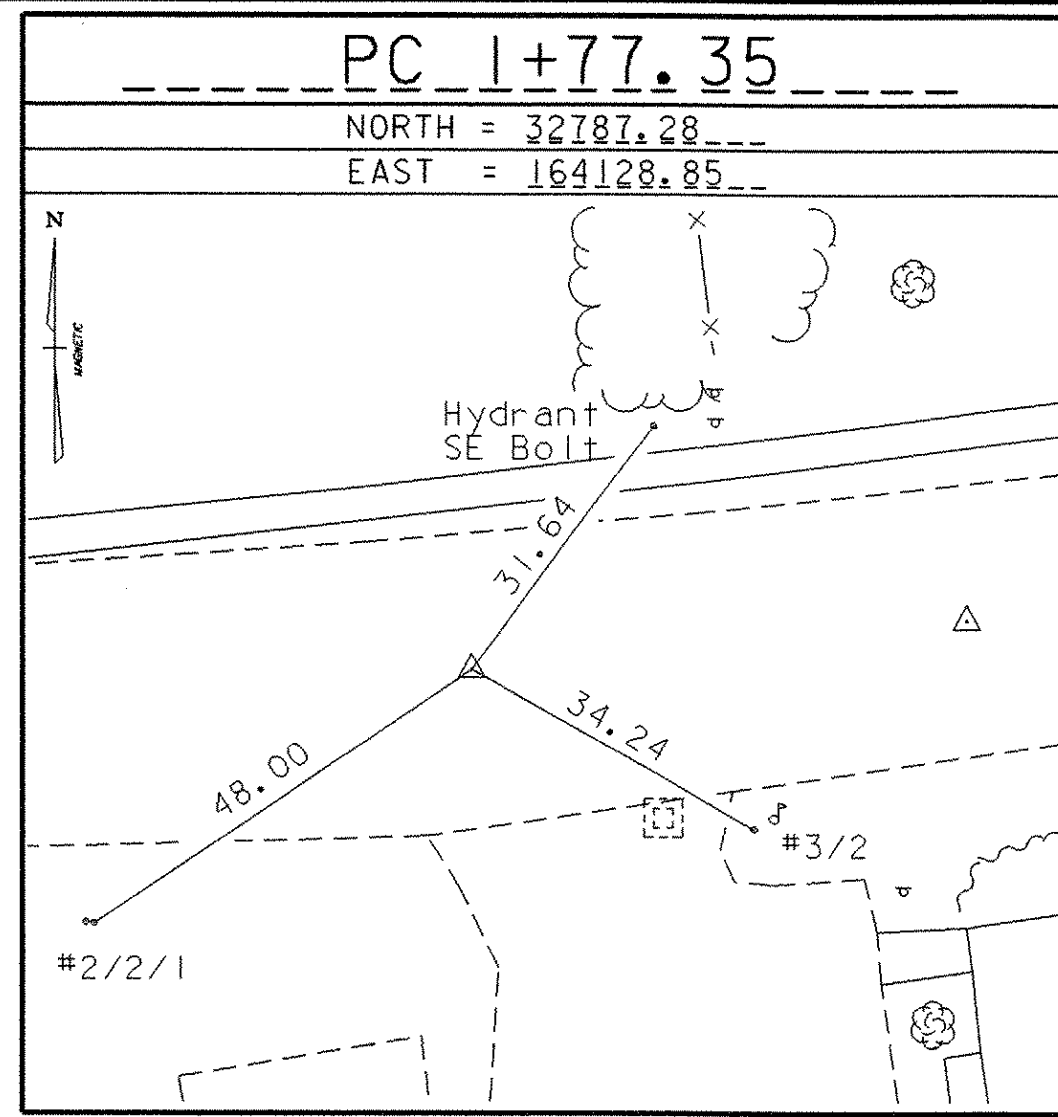
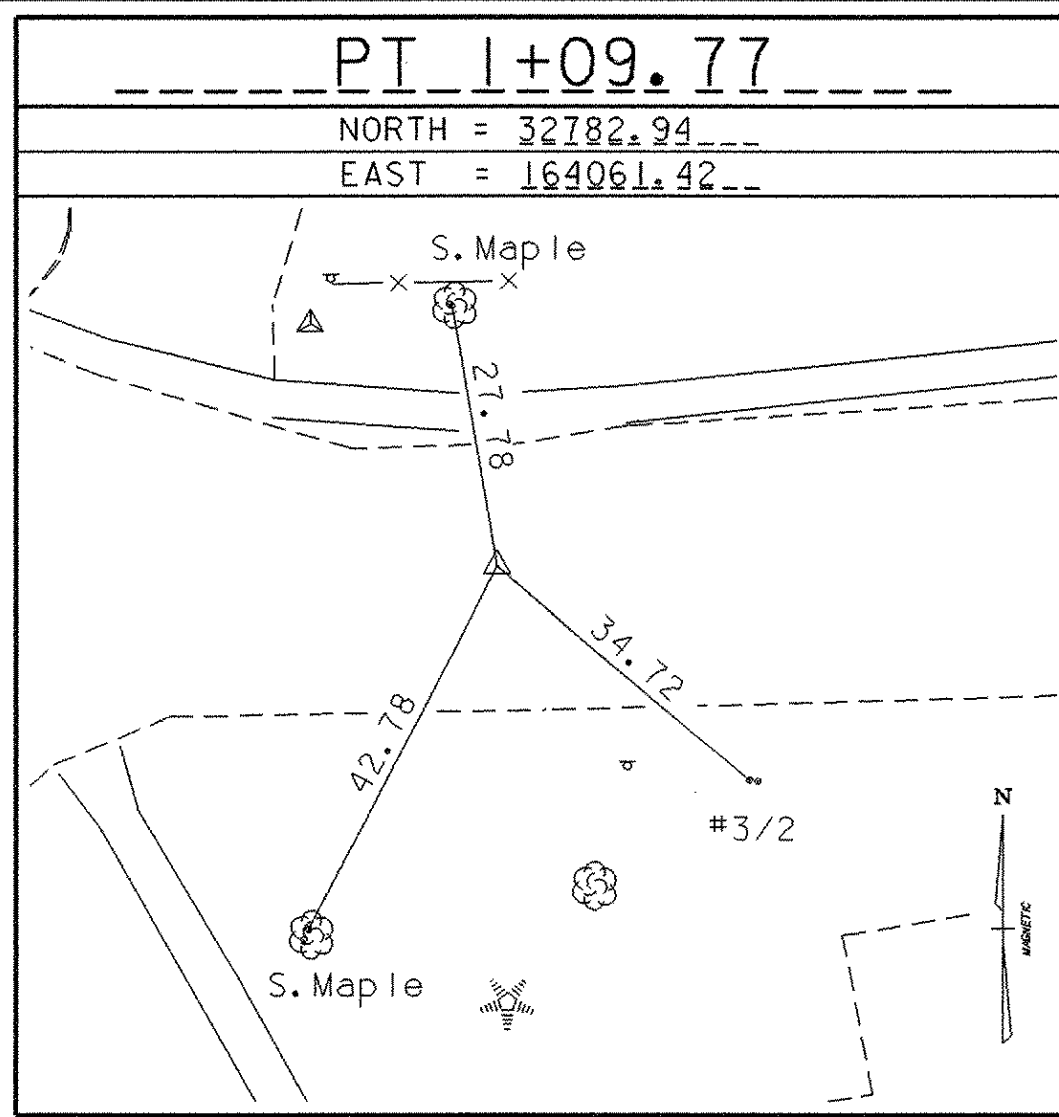
ALIGNMENT TIES



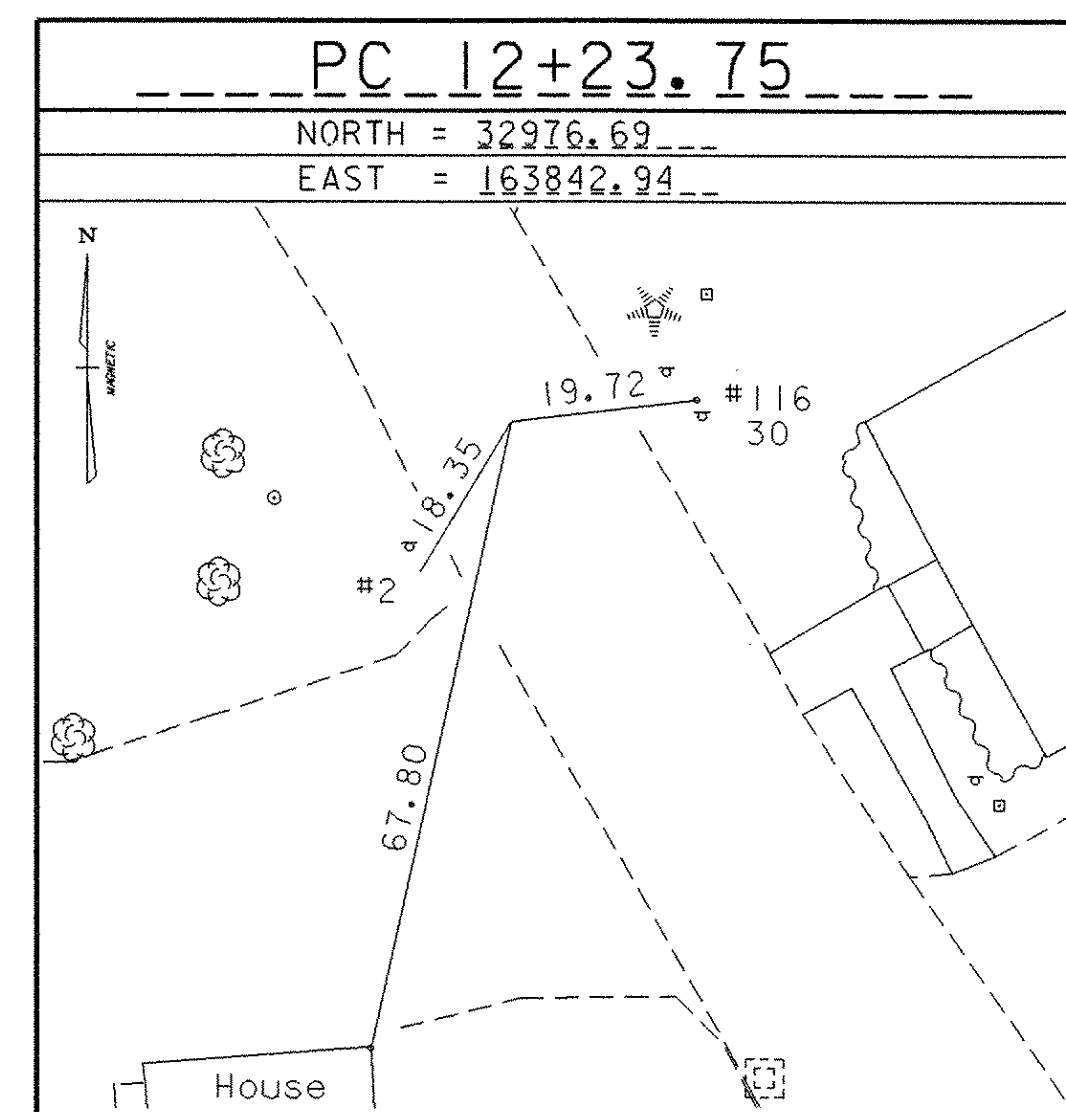
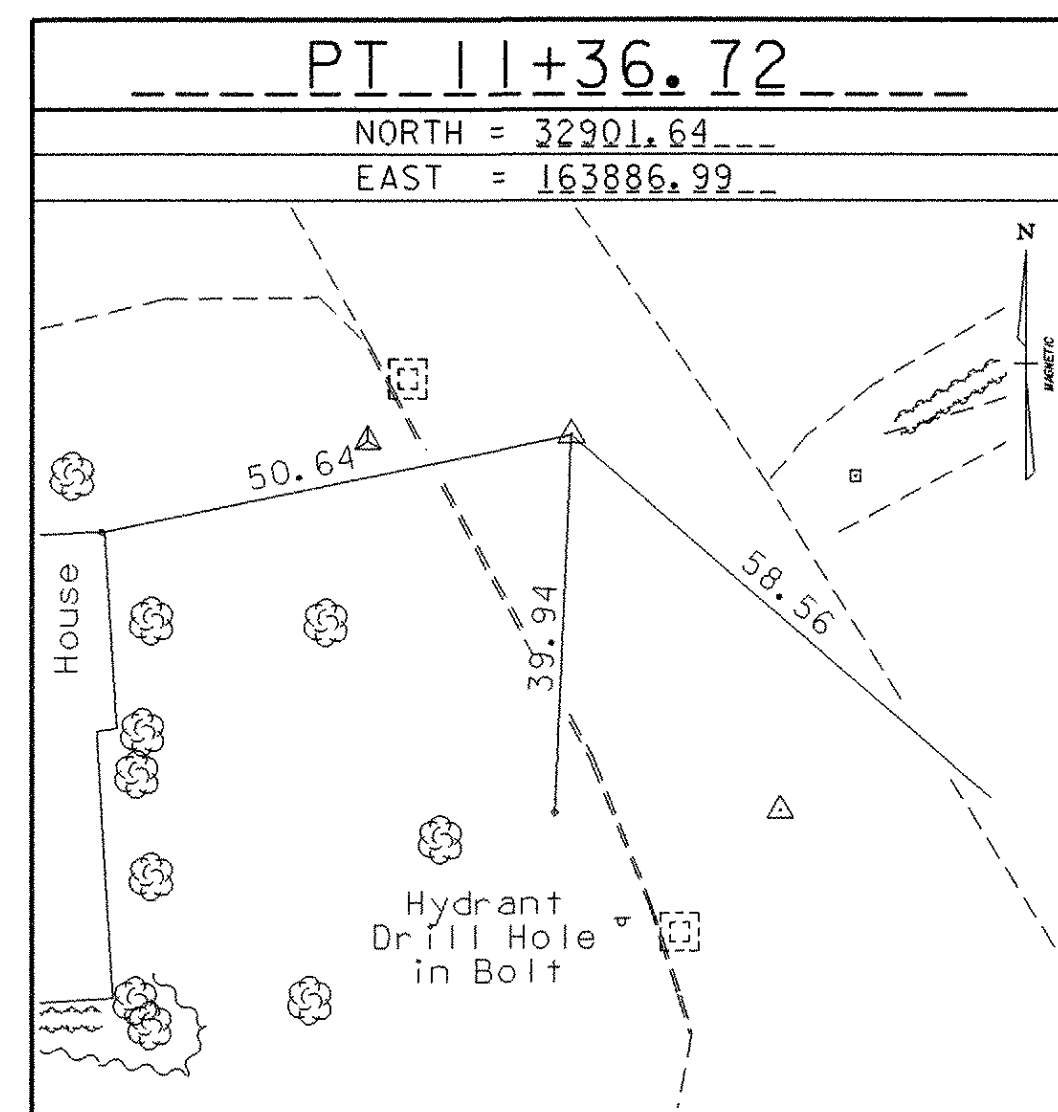
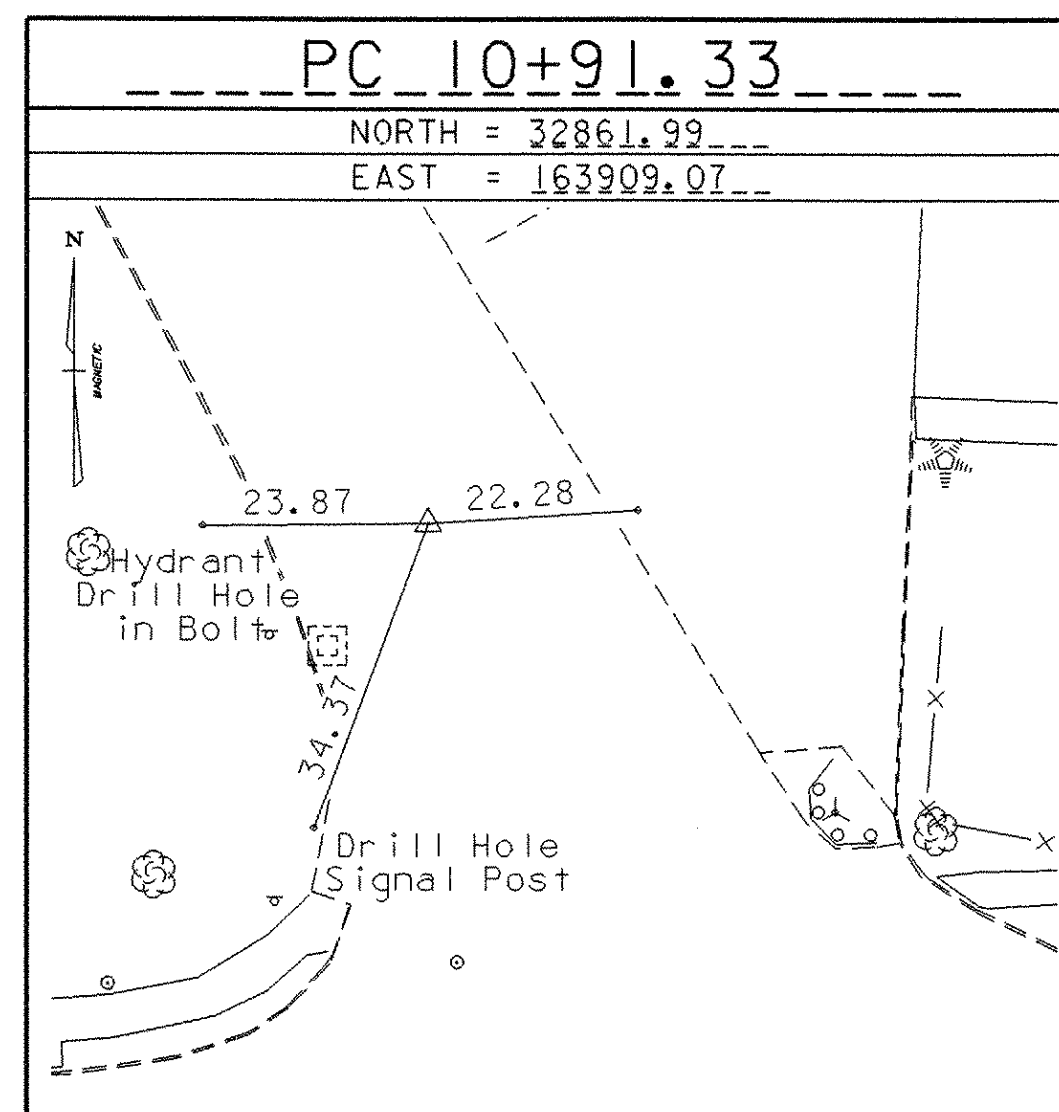
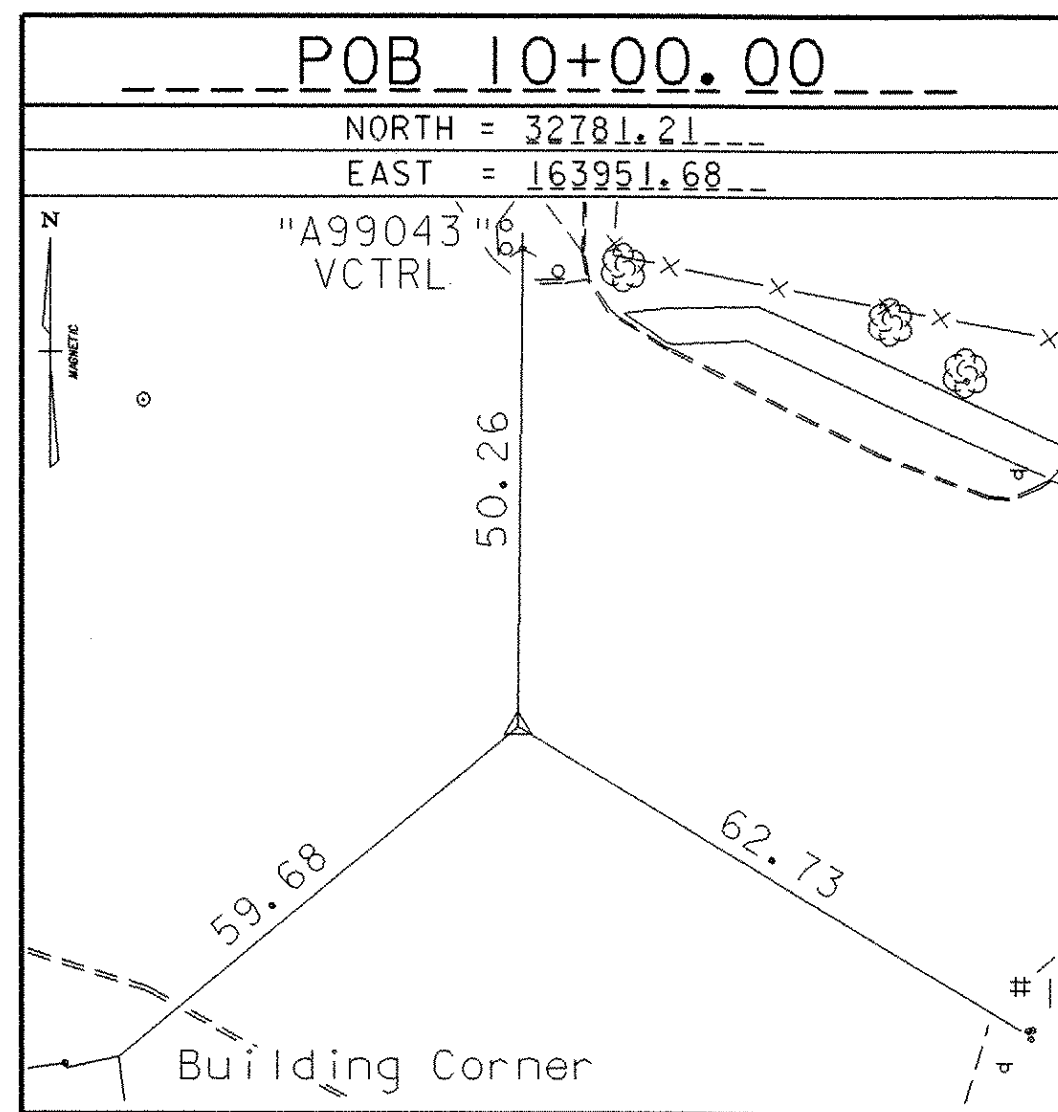
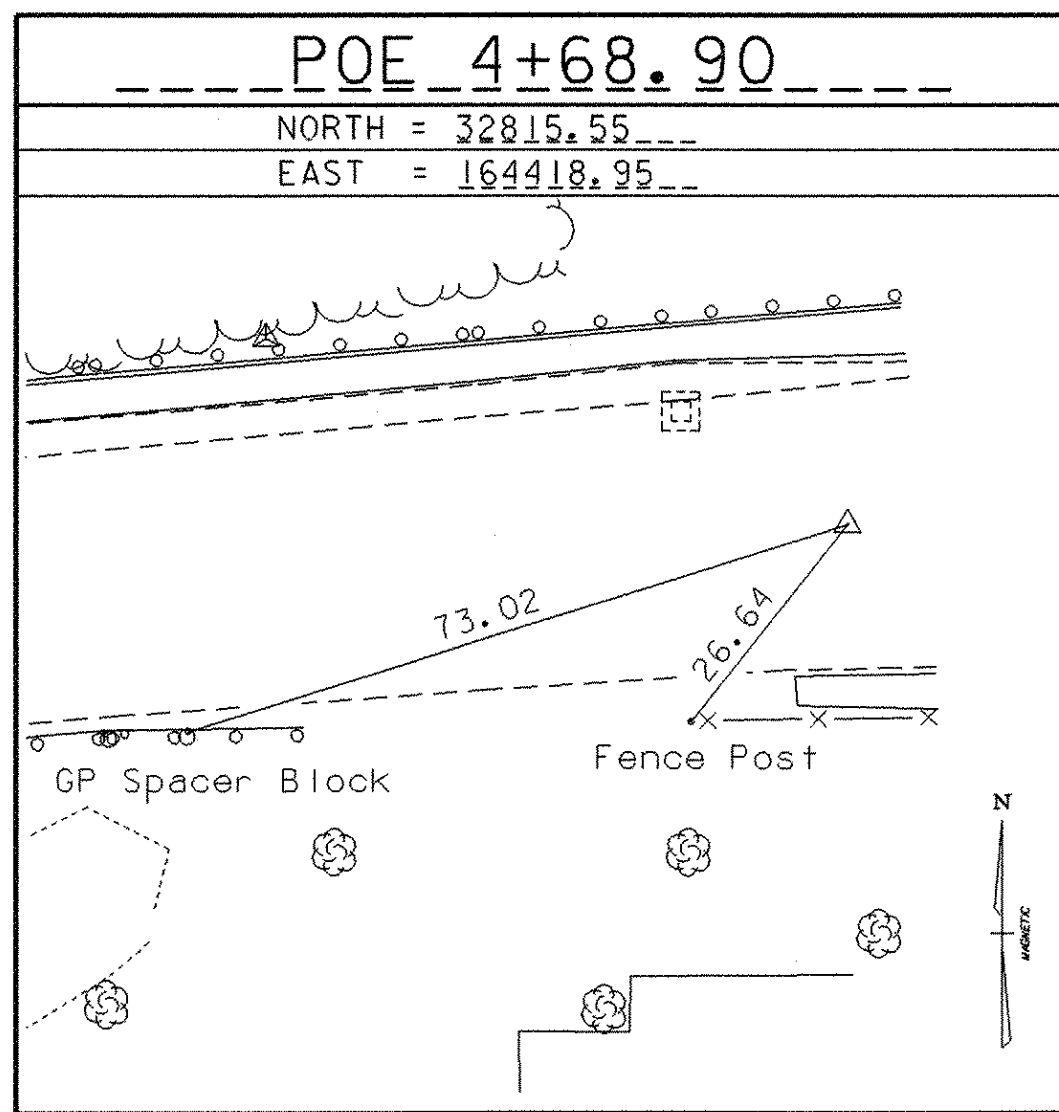
DATUM
VERTICAL ASSUMED
HORIZONTAL ASSUMED
ADJUSTMENT NONE

PROJECT NAME: ESSEX
PROJECT NUMBER: SIPG_SGNL (17)
FILE NAME: 96b182\survey\296b18211.dwg PLOT DATE: 16-NOV-2006
PROJECT LEADER: B. NYQUIST DRAWN BY: B. Bullock
DESIGNED BY: R. BULLOCK CHECKED BY: R. BULLOCK
tb182+11 SHEET 6 OF 29

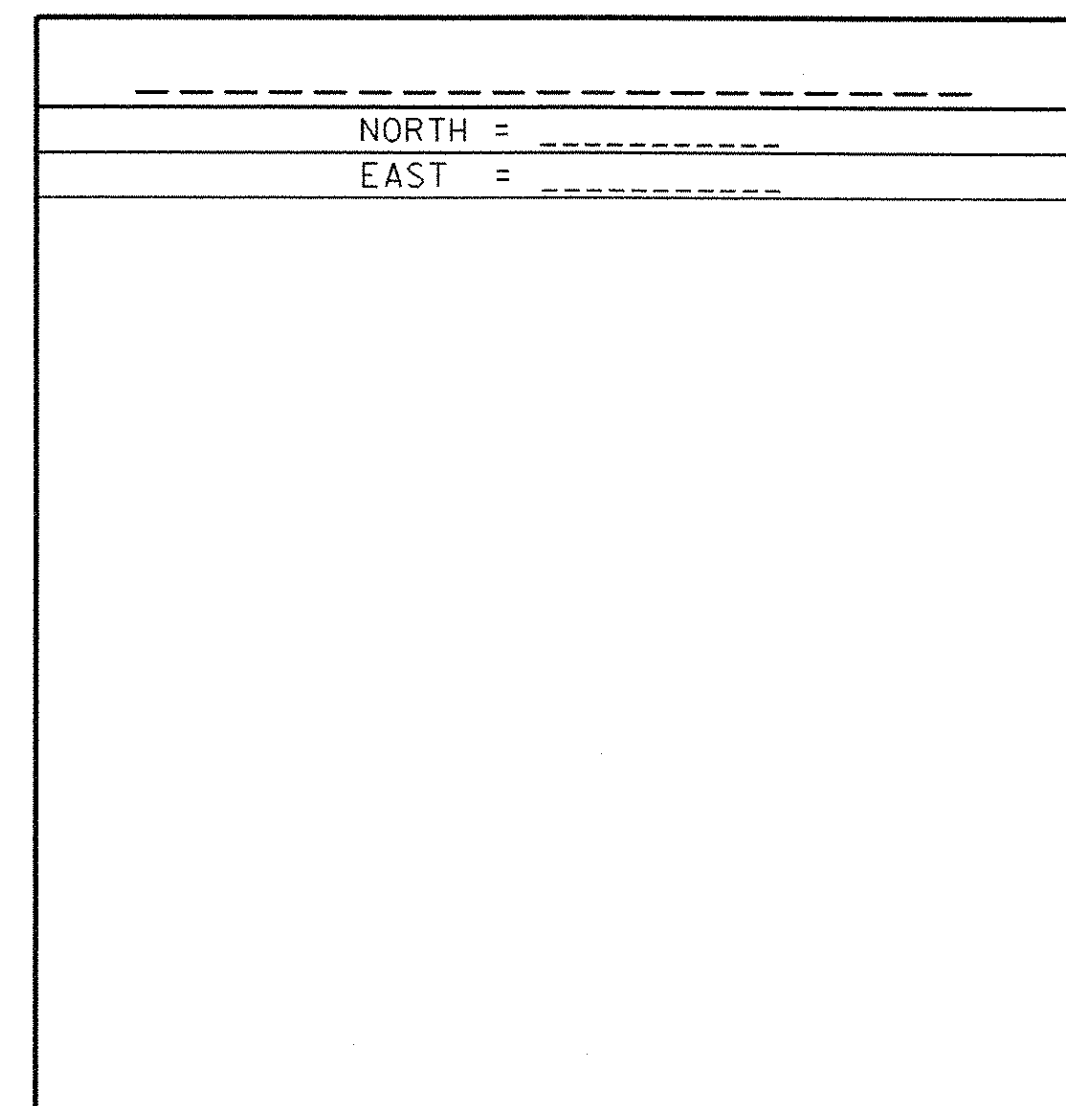
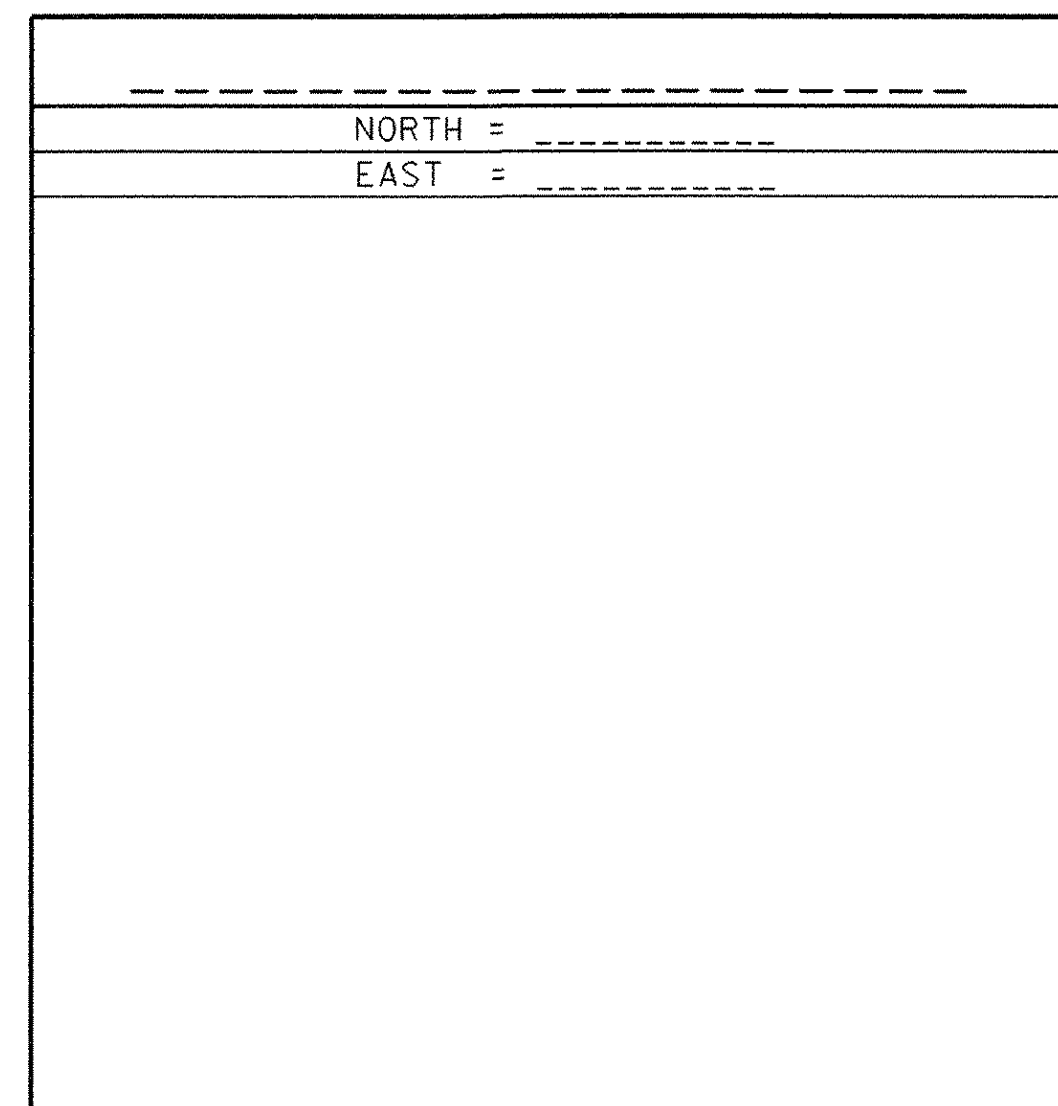
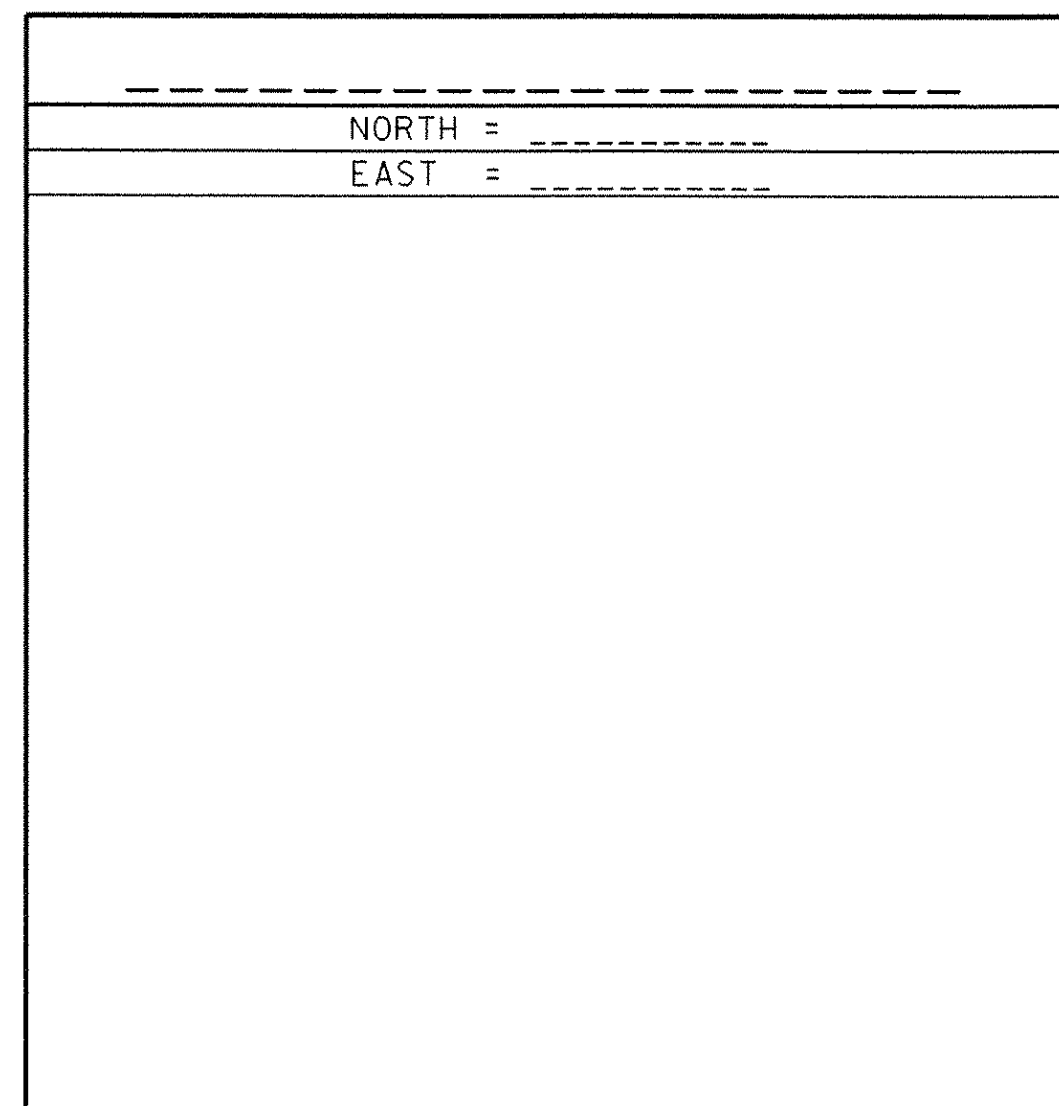
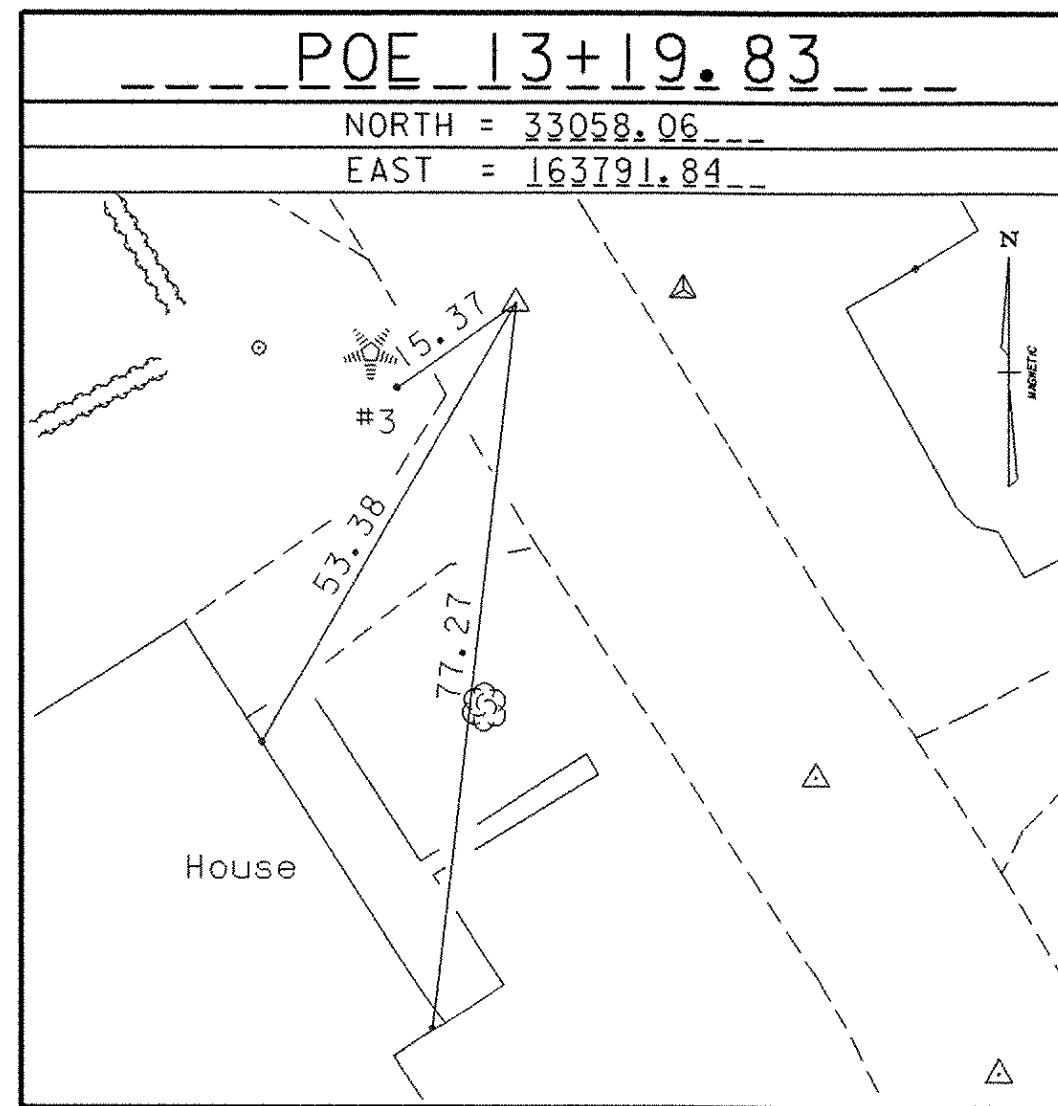
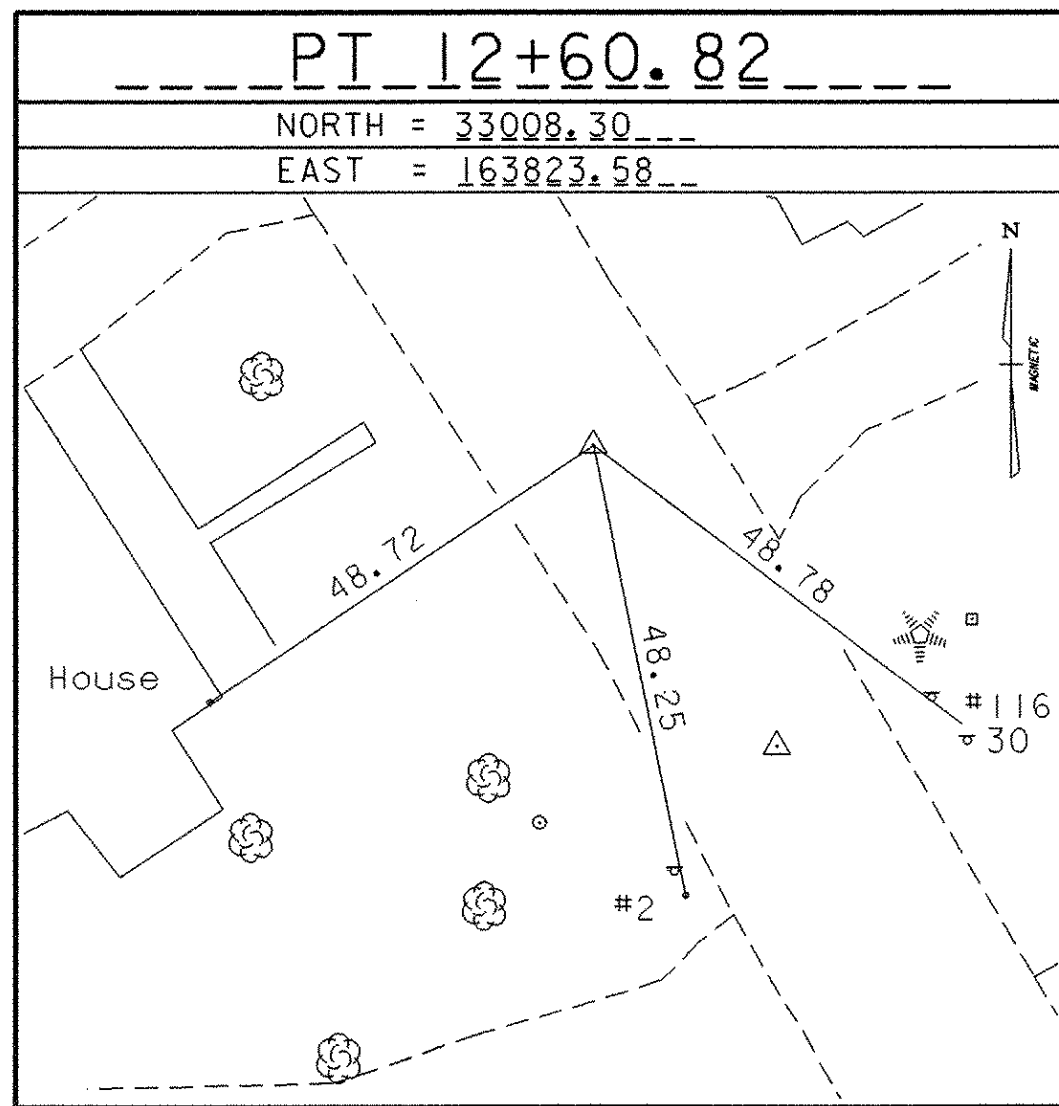
ALIGNMENT TIES



ALIGNMENT TIES



ALIGNMENT TIES



DATUM
 VERTICAL ASSUMED
 HORIZONTAL ASSUMED
 ADJUSTMENT NONE

NO GPS CONTROL POINT: CONTROL WAS ASSUMED

PROJECT NAME: ESSEX
 PROJECT NUMBER: SIPC_SGNL (17)
 FILE NAME: 96b182\src\y07\96b1821.dgn PLOT DATE: 16-NOV-2006
 PROJECT LEADER: B. NYQUIST DRAWN BY: R. Bullock
 DESIGNED BY: R. BULLOCK CHECKED BY: R. BULLOCK
tb182112.1 SHEET 7 OF 29

RIGHT - OF - WAY DETAIL SHEET

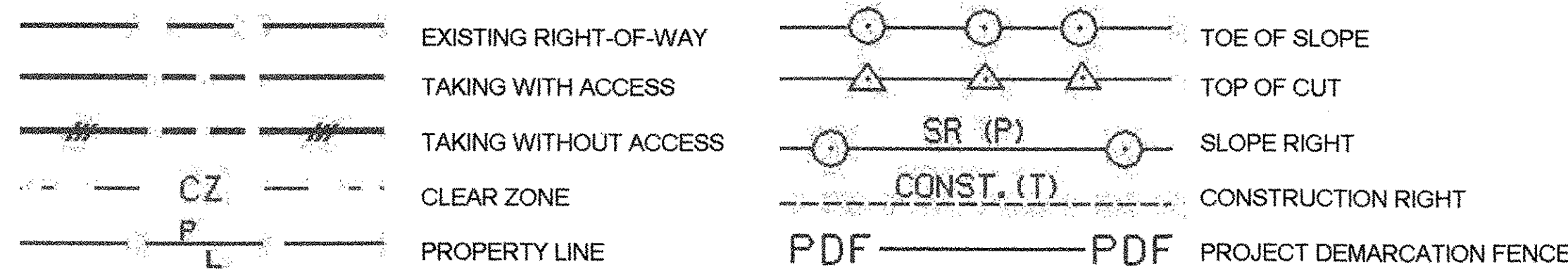
TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE AREA±	REMAINDER AREA±	RIGHT			RECORDING DATA				REMARKS	
							TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK		PAGE
1A	COTA, HENRY C. & SHIRLEY W.	5	VT15 281+19.80 LT. VT15 281+07 LT. VT15 281+26 LT. TH710 10+73 LT.	VT15 281+49.64 LT. VT15 281+24 LT.	450 SF		SLOPE LANDSCAPE SLOPE	(T) (T) (T)	48 SF 39 SF			ESSEX			TRIM 10" MAPLE AS NEEDED
1B		5	VT15 278+97.32 LT.	VT15 281+87.84 LT.	0.23A		ALL R.T. & I.								VT. RTE. 15 & TH710 HWY. EASE.; 9890 SF±
2A	RUSSELL, JOHN A. & LYNN A.	5	TH710 10+75.00 RT. TH710 10+60 RT. VT128 0+91 LT. VT128 0+65 LT. VT128 0+77 LT. TH710 10+71 RT. VT 128 0+91 LT.	VT128 1+00.00 LT. TH710 10+71 RT. VT128 1+50 LT.	1280 SF		INSTALL SLOPE INSTALL DRIVE SLOPE INSTALL	(T) (T) (T) (T) (T) (T)	107 SF 193 SF 690 SF			ESSEX			CONCRETE CURB CONCRETE CURB 24' WIDE MM 0001 CONCRETE CURB
2B		5	TH710 10+75.00 RT.	VT128 2+05.95 RT.	0.15A		ALL R.T. & I.								VT. RTE. 128 & TH710 HWY. EASE.; 6430 SF±
3A	KATHERINE S. REYNOLDS, TRUSTEE OF THE KATHERINE S. REYNOLDS FAMILY TRUST AND THE RAYMOND H. REYNOLDS FAMILY TRUST	5	VT15 281+19.80 RT. VT15 281+23 RT.	VT15 281+61.65 RT. VT15 281+62 RT.	110 SF		SLOPE	(T)	90 SF			ESSEX			PAVED
3B		5	VT15 279+13.02 LT.	VT15 281+58.87 RT.	0.17A		ALL R.T. & I.								VT. RTE. 15 HWY. EASE.; 7500 SF±
4A	TOWN OF ESSEX	5	VT15 281+58.87 RT. VT15 281+61.65 RT. VT15 282+54 RT. VT15 283+16 RT.	VT15 283+86.21 RT. VT15 283.23 6 RT. VT15 283+51 RT.	950 SF		SLOPE INSTALL & MAINTAIN DRIVE	(T) (P) (T)	0.10A	QCD	04/10/06	ESSEX	683	461-462	SLOPE AND PAVE; 4,260 SF± PIPES AND DRAIN INLET 26" WIDE MM 0534
4B		5	VT15 281+49.80 LT.	VT15 283+86.21 LT.	0.36A		ALL R.T. & I.								VT. RTE. 15 & 128 HWY. EASE.; 15,680 SF±
4C		5	TH710 10+75.00 LT.	TH710 10+28.26 RT.	1650 SF		ALL R.T. & I.								TH710 HWY. EASE.
5	GREEN MOUNTAIN POWER CORPORATION														UTILITY
6	VERMONT GAS SYSTEMS, INC.														UTILITY
7	ADELPHIA CABLE COMMUNICATIONS														UTILITY
8	VERIZON NEW ENGLAND, INC.														UTILITY
	MAINTENANCE AGREEMENT ZONE	5	TH 710 10+18 CL	TH710 10+75 CL											LENGTH =57'

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	4	PARCEL NO. 2 RUSSELL. ADD ENDING STATION OF TH 710 10+71 RT.; 107 S.F.± FOR INSTALL (T). PER C.O. 9452 MADE BY: JB APPROVED BY: RD	05/15/06

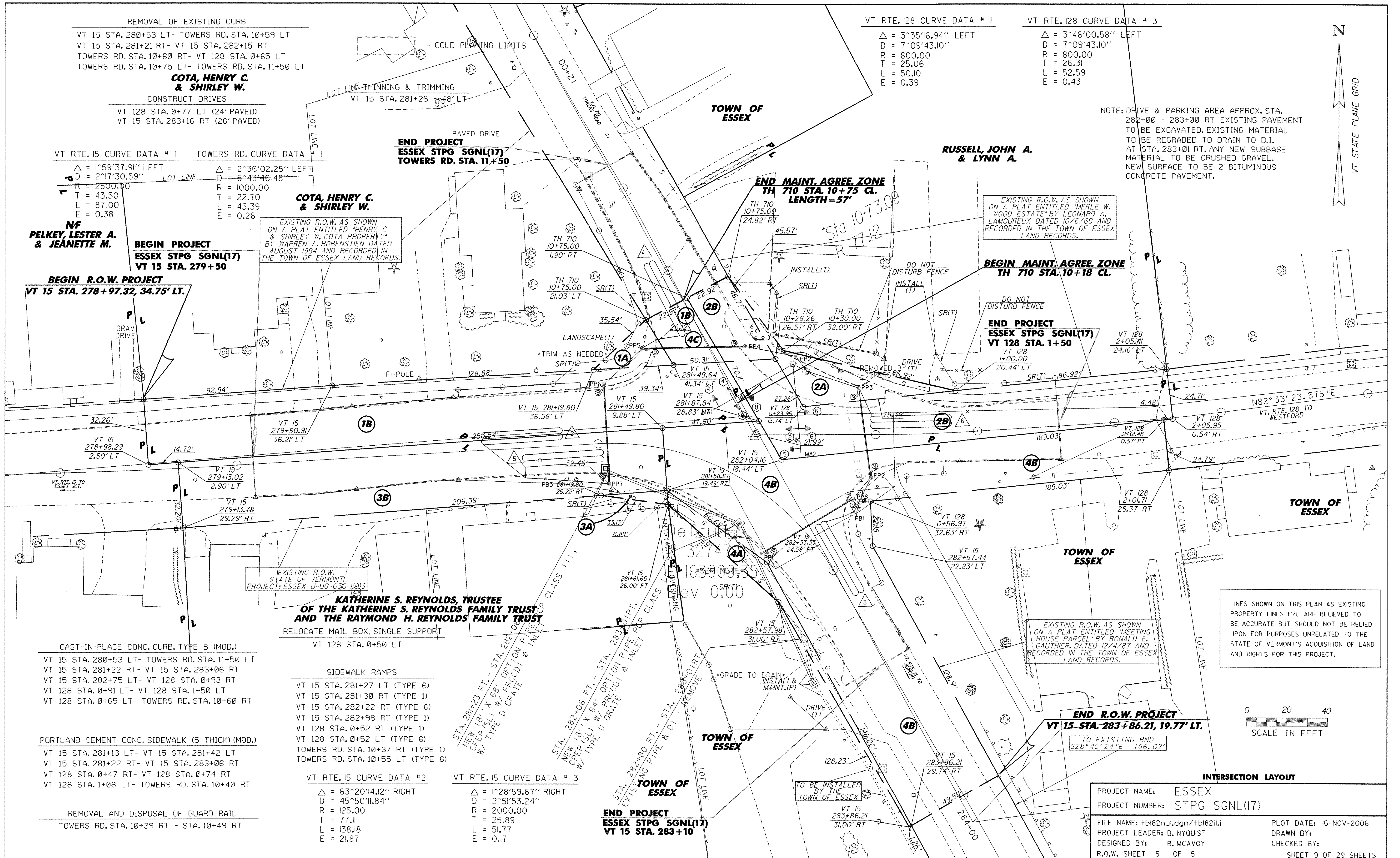
PLAN LEGEND



APPROVED: ROGER P. DUMAS DATE: 03-18-05
CHIEF, PLANS & TITLES

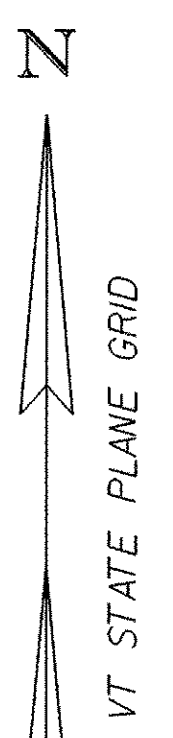
PLOT DATE 05/22/06

PROJECT NAME: **ESSEX**
PROJECT NUMBER: **STPG SGNL(17)**
FILE NAME: **96b182dot.xls** PLOT DATE:
PROJECT LEADER: **B. NYQUIST** DRAWN BY: **G. FUNK**
DESIGNED BY: **B. MCAVOY** CHECKED BY: **E. PIERCE**
R.O.W. SHEET 4 OF 5 SHEETS SHEET **8** OF **29**



VT RTE. 128 CURVE DATA # 1	VT RTE. 128 CURVE DATA # 3
$\Delta = 3^{\circ}35'16.94''$ LEFT	$\Delta = 3^{\circ}46'00.58''$ LEFT
$D = 7^{\circ}09'43.10''$	$D = 7^{\circ}09'43.10''$
$R = 800.00$	$R = 800.00$
$T = 25.06$	$T = 26.31$
$L = 50.10$	$L = 52.59$
$E = 0.39$	$E = 0.43$

NOTE: DRIVE & PARKING AREA APPROX. STA. 282+00 - 283+00 RT EXISTING PAVEMENT TO BE EXCAVATED. EXISTING MATERIAL TO BE REGRADED TO DRAIN TO D.I. AT STA. 283+01 RT. ANY NEW SUBBASE MATERIAL TO BE CRUSHED GRAVEL. NEW SURFACE TO BE 2" BITUMINOUS CONCRETE PAVEMENT.



REMOVAL OF EXISTING CURB
 VT 15 STA. 280+53 LT- TOWERS RD. STA. 10+59 LT
 VT 15 STA. 281+21 RT- VT 15 STA. 282+15 RT
 TOWERS RD. STA. 10+60 RT- VT 128 STA. 0+65 LT
 TOWERS RD. STA. 10+75 LT- TOWERS RD. STA. 11+50 LT
COTA, HENRY C. & SHIRLEY W.
 CONSTRUCT DRIVES
 VT 128 STA. 0+77 LT (24' PAVED)
 VT 15 STA. 283+16 RT (26' PAVED)

VT RTE. 15 CURVE DATA # 1	TOWERS RD. CURVE DATA # 1
$\Delta = 1^{\circ}59'37.91''$ LEFT	$\Delta = 2^{\circ}36'02.25''$ LEFT
$D = 2^{\circ}17'30.59''$	$D = 5^{\circ}43'46.48''$
$R = 2500.00$	$R = 1000.00$
$T = 43.50$	$T = 22.70$
$L = 87.00$	$L = 45.39$
$E = 0.38$	$E = 0.26$

NF PELKEY, LESTER A. & JEANETTE M.
BEGIN PROJECT ESSEX STPG SGNL(17) VT 15 STA. 279+50
BEGIN R.O.W. PROJECT VT 15 STA. 278+97.32, 34.75' LT.

COTA, HENRY C. & SHIRLEY W.
 EXISTING R.O.W. AS SHOWN ON A PLAT ENTITLED "HENRY C. & SHIRLEY W. COTA PROPERTY" BY WARREN A. ROBSTENIEN DATED AUGUST 1994 AND RECORDED IN THE TOWN OF ESSEX LAND RECORDS.

RUSSELL, JOHN A. & LYNN A.

EXISTING R.O.W. AS SHOWN ON A PLAT ENTITLED "MERLE W. WOOD ESTATE" BY LEONARD A. LAMOUREUX DATED 10/6/69 AND RECORDED IN THE TOWN OF ESSEX LAND RECORDS.

BEGIN MAINT. AGREE. ZONE TH 710 STA. 10+18 CL.

END PROJECT ESSEX STPG SGNL(17) VT 128 STA. 1+50

CAST-IN-PLACE CONC. CURB, TYPE B (MOD.)
 VT 15 STA. 280+53 LT- TOWERS RD. STA. 11+50 LT
 VT 15 STA. 281+22 RT- VT 15 STA. 283+06 RT
 VT 15 STA. 282+75 LT- VT 128 STA. 0+93 RT
 VT 128 STA. 0+91 LT- VT 128 STA. 1+50 LT
 VT 128 STA. 0+65 LT- TOWERS RD. STA. 10+60 RT

SIDEWALK RAMPS
 VT 15 STA. 281+27 LT (TYPE 6)
 VT 15 STA. 281+30 RT (TYPE 1)
 VT 15 STA. 282+22 RT (TYPE 6)
 VT 15 STA. 282+98 RT (TYPE 1)
 VT 128 STA. 0+52 RT (TYPE 1)
 VT 128 STA. 0+52 LT (TYPE 6)
 TOWERS RD. STA. 10+37 RT (TYPE 1)
 TOWERS RD. STA. 10+55 LT (TYPE 6)

PORTLAND CEMENT CONC. SIDEWALK (5' THICK) (MOD.)
 VT 15 STA. 281+13 LT- VT 15 STA. 281+42 LT
 VT 15 STA. 281+22 RT- VT 15 STA. 283+06 RT
 VT 128 STA. 0+47 RT- VT 128 STA. 0+74 RT
 VT 128 STA. 1+08 LT- TOWERS RD. STA. 10+40 RT

REMOVAL AND DISPOSAL OF GUARD RAIL
 TOWERS RD. STA. 10+39 RT - STA. 10+49 RT

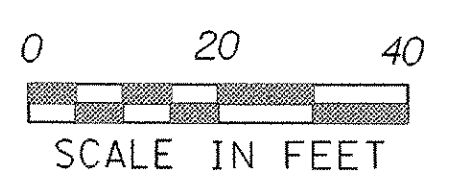
VT RTE. 15 CURVE DATA # 2	VT RTE. 15 CURVE DATA # 3
$\Delta = 63^{\circ}20'14.12''$ RIGHT	$\Delta = 1^{\circ}28'59.67''$ RIGHT
$D = 45^{\circ}50'11.84''$	$D = 2^{\circ}51'53.24''$
$R = 125.00$	$R = 2000.00$
$T = 77.11$	$T = 25.89$
$L = 138.18$	$L = 51.77$
$E = 21.87$	$E = 0.17$

VT RTE. 15 CURVE DATA # 3	VT RTE. 15 CURVE DATA # 4
$\Delta = 1^{\circ}28'59.67''$ RIGHT	$\Delta = 1^{\circ}28'59.67''$ RIGHT
$D = 2^{\circ}51'53.24''$	$D = 2^{\circ}51'53.24''$
$R = 2000.00$	$R = 2000.00$
$T = 25.89$	$T = 25.89$
$L = 51.77$	$L = 51.77$
$E = 0.17$	$E = 0.17$

END PROJECT ESSEX STPG SGNL(17) VT 15 STA. 283+10

EXISTING R.O.W. AS SHOWN ON A PLAT ENTITLED "MEETING HOUSE PARCEL" BY RONALD E. GAUTHIER, DATED 12/4/87 AND RECORDED IN THE TOWN OF ESSEX LAND RECORDS.

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.



END R.O.W. PROJECT VT 15 STA. 283+86.21, 19.77' LT.

INTERSECTION LAYOUT	
PROJECT NAME:	ESSEX
PROJECT NUMBER:	STPG SGNL(17)
FILE NAME:	tlb82nul.dgn/tlb821.l
PROJECT LEADER:	B. NYQUIST
DESIGNED BY:	B. MCAVOY
R.O.W. SHEET	5 OF 5
PLOT DATE:	16-NOV-2006
DRAWN BY:	
CHECKED BY:	
SHEET 9 OF 29 SHEETS	

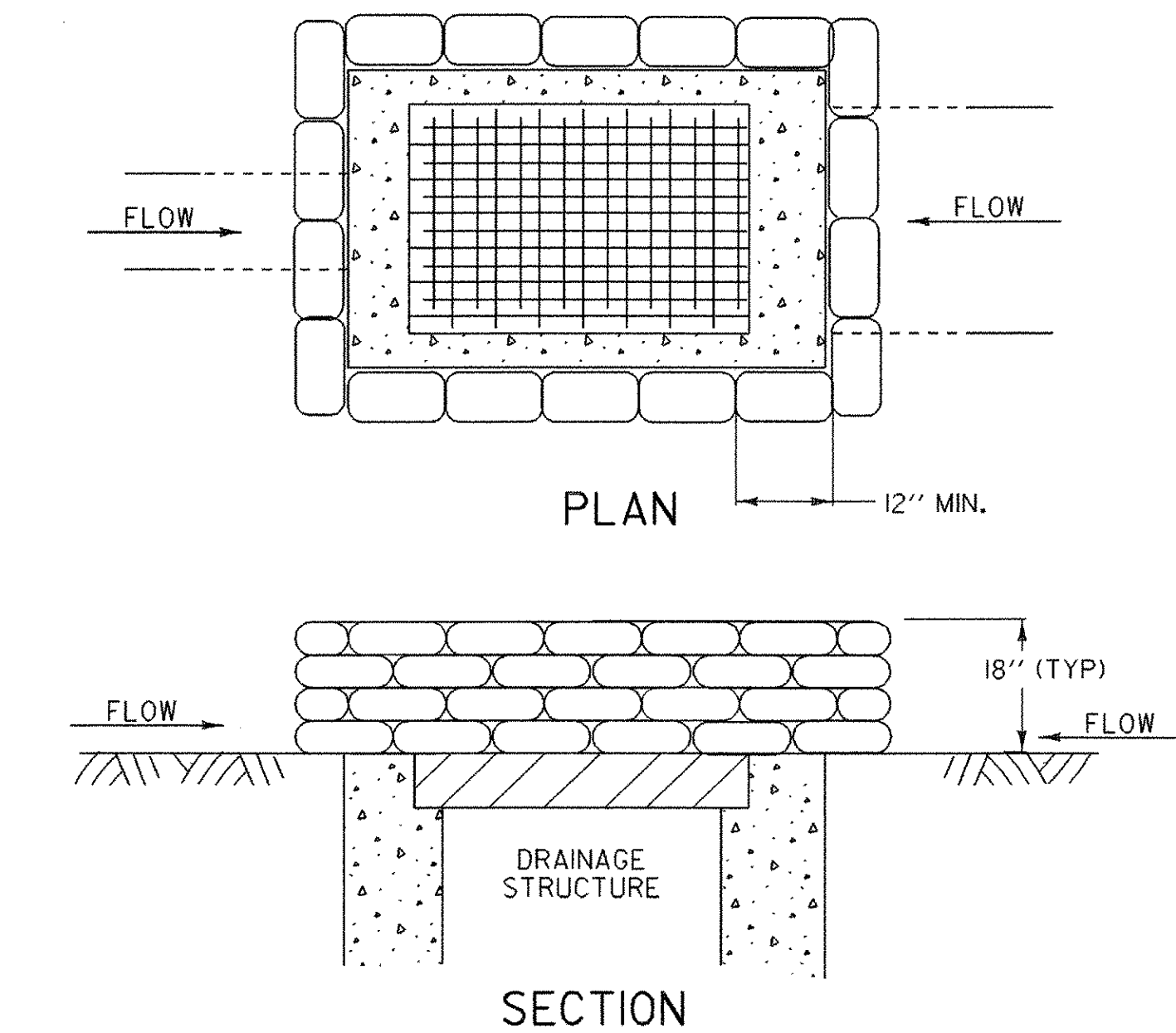
DROP INLET PROTECTION

APPLICATION NOTES:

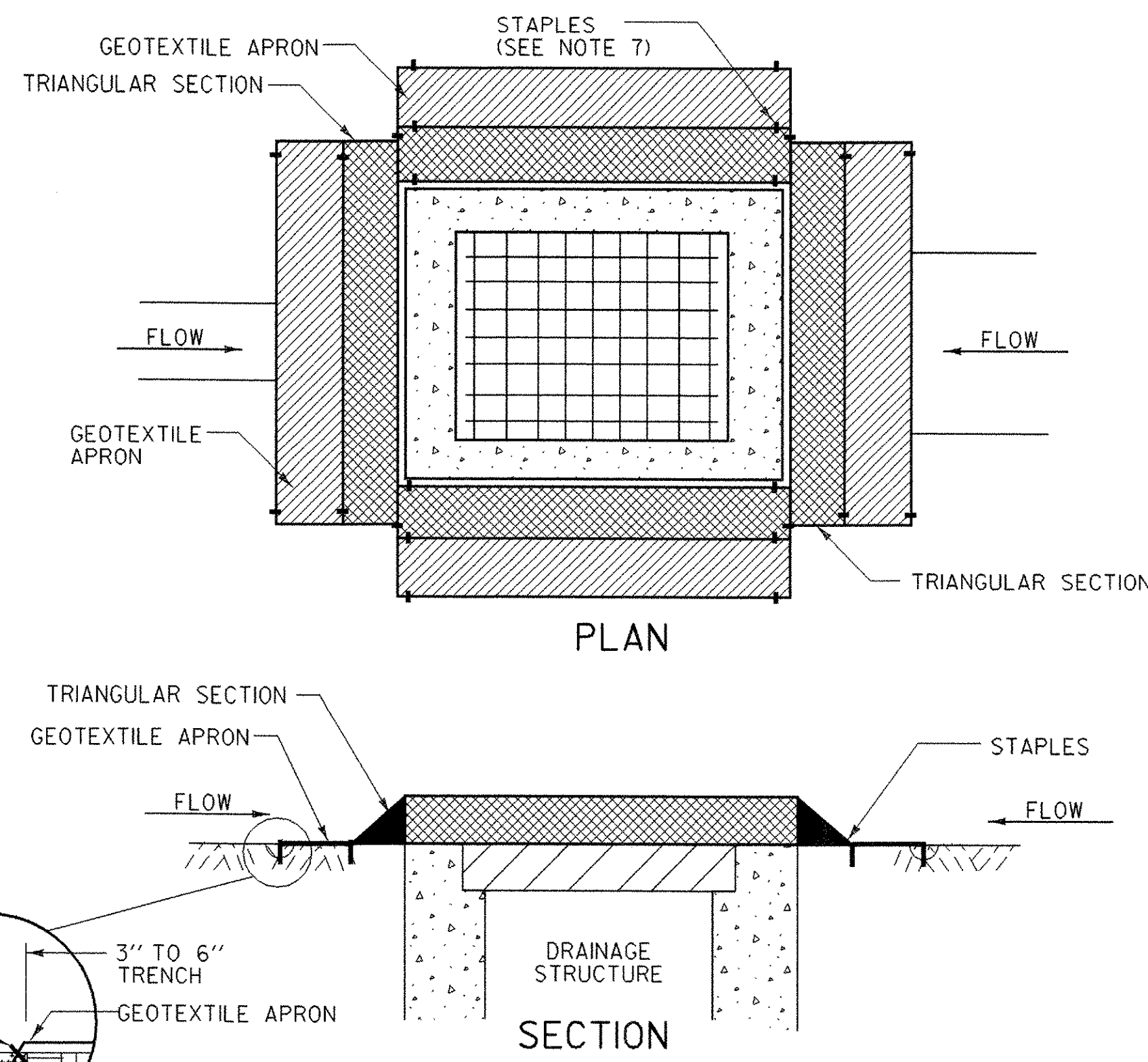
- A. THE PRIMARY PURPOSE OF DRAINAGE STRUCTURE INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM BY PONDING WATER WHICH ALLOWS SEDIMENT TO FALL OUT OF SUSPENSION.
- B. THESE EXAMPLES OF DROP INLET PROTECTION ARE NOT INTENDED FOR USE ON GRADES. ON GRADE THEY MAY CAUSE WATER TO BYPASS THE STRUCTURE, CREATING ADDITIONAL EROSION OR FLOODING.
- C. POSSIBLE MODIFICATIONS FOR USE ON GRADE INCLUDE ADDING A BERM DOWNSTREAM OF THE INLET TO CREATE PONDING. CHECK DAMS MAY ALSO BE USED UPSTREAM OF THE INLET TO SLOW VELOCITIES.
- D. PREFABRICATED DROP INLET PROTECTION SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

GENERAL NOTES:

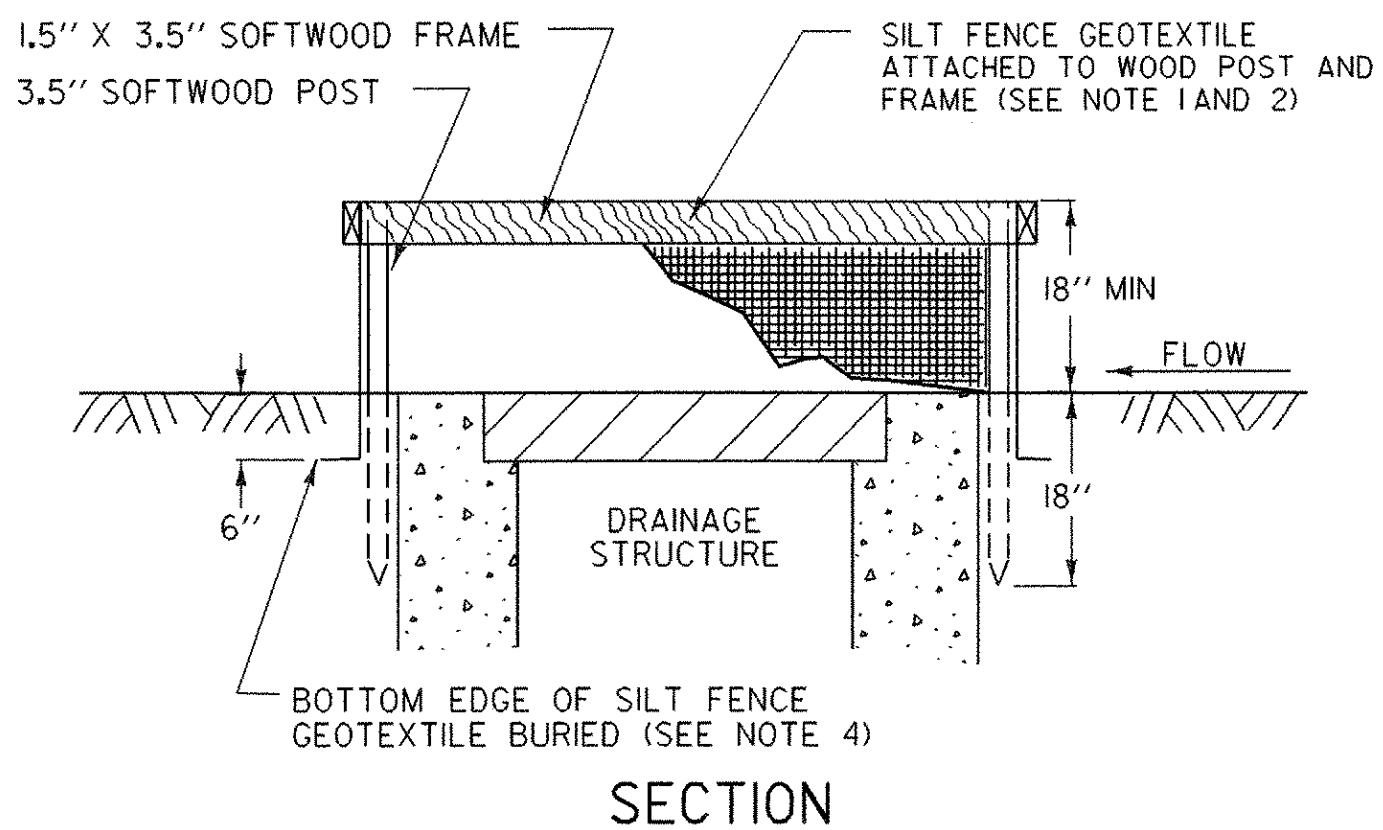
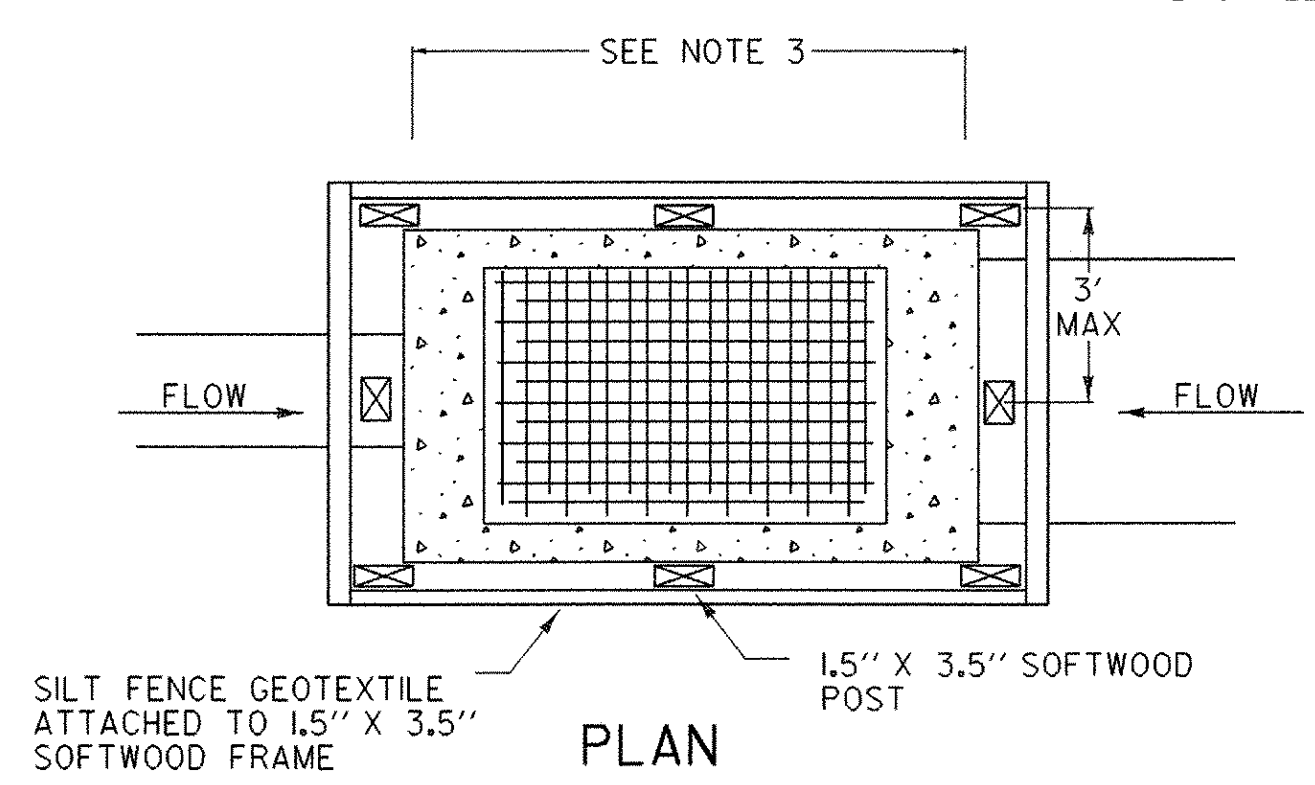
1. THE TOP OF THE INLET PROTECTION SHALL BE SET AT THE MAXIMUM DESIRED WATER LEVEL, BASED ON FIELD LOCATION AND CONDITIONS.
2. SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO ELIMINATE JOINTS.
3. SPACE SILT FENCE POSTS EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 3 FEET. DRIVE POSTS A MINIMUM OF 18 INCHES INTO GROUND. WIRE MESH MAY BE REQUIRED BEHIND GEOTEXTILE TO PROVIDE SUPPORT.
4. SILT FENCE GEOTEXTILE SHALL BE EMBEDDED A MINIMUM OF 6 INCHES AND BACKFILLED. GEOTEXTILE SHALL BE SECURELY FASTENED TO POSTS AND FRAME.
5. GRAVEL BAGS SHALL BE FILLED WITH CLEAN STONE, RATHER THAN SAND, TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM IF BAGS ARE DAMAGED DURING USE.
6. GRAVEL BAGS SHALL BE INDIVIDUALLY TIED, DOUBLE BAGGED AND INVERSELY INSERTED. GRAVEL BAGS SHALL LAP THE JOINTS BETWEEN THE BAGS IN THE LAYER BELOW.
7. SECURE THE ENDS OF THE APRON FOR THE PREFABRICATED DRAINAGE STRUCTURE INLET PROTECTION WITH STAPLES AS DETAILED IN THE PLAN VIEW OR AS RECOMMENDED BY THE MANUFACTURERS LITERATURE.
8. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
9. MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
10. PAYMENT OF INLET PROTECTION SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS OR UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM.
11. PAYMENT FOR MONITORING INLET PROTECTION SHALL BE MADE UNDER THE MONITORING EROSION & SEDIMENT CONTROL PLAN ITEM.
12. PAYMENT FOR MAINTAINING INLET PROTECTION SHALL BE MADE UNDER THE FIELD MAINTENANCE OF EROSION & SEDIMENT CONTROL PLAN ITEM, UNLESS MAINTENANCE IS REQUIRED DUE TO POOR INSTALLATION PRACTICES.



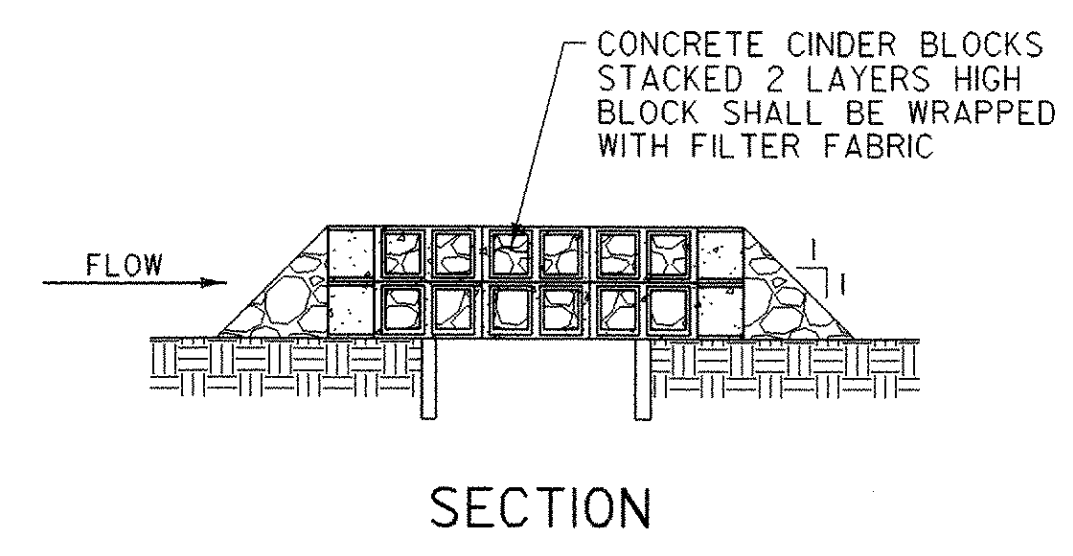
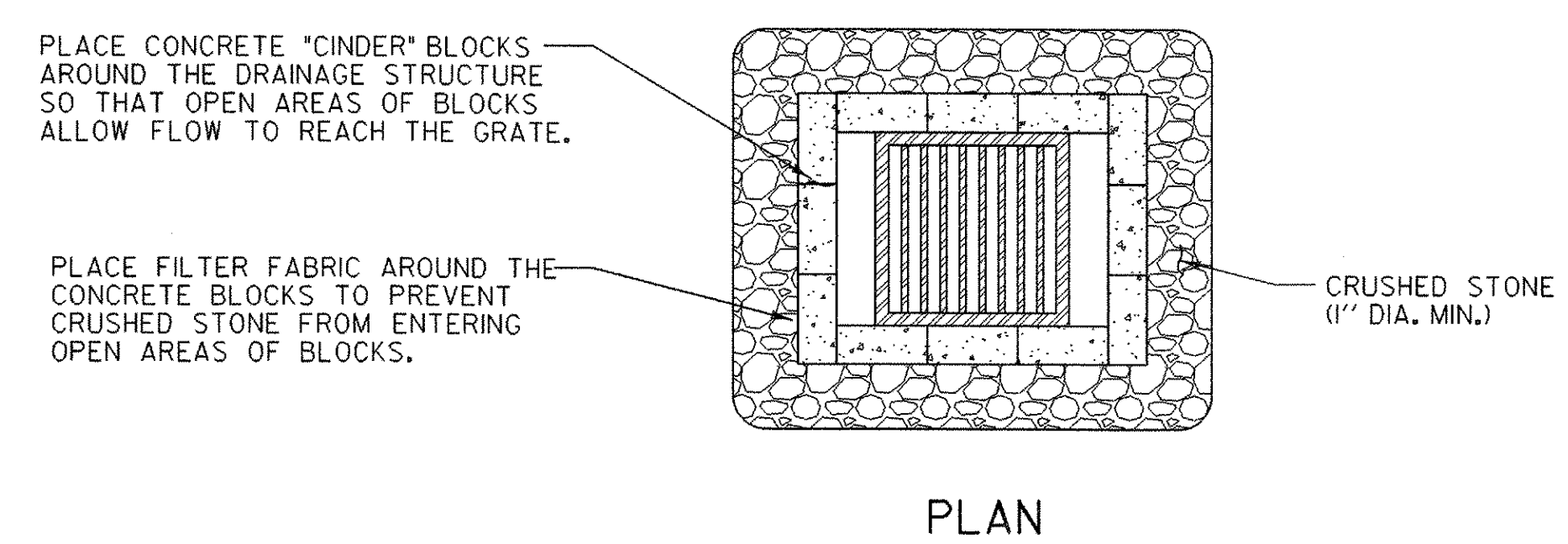
GRAVEL BAG DROP INLET PROTECTION



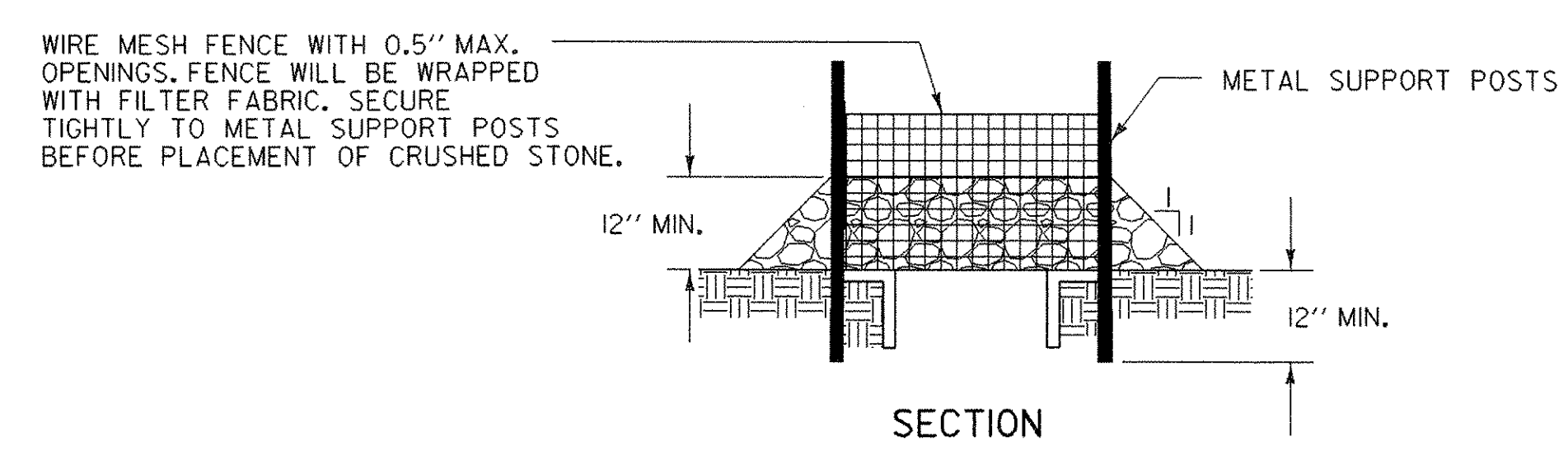
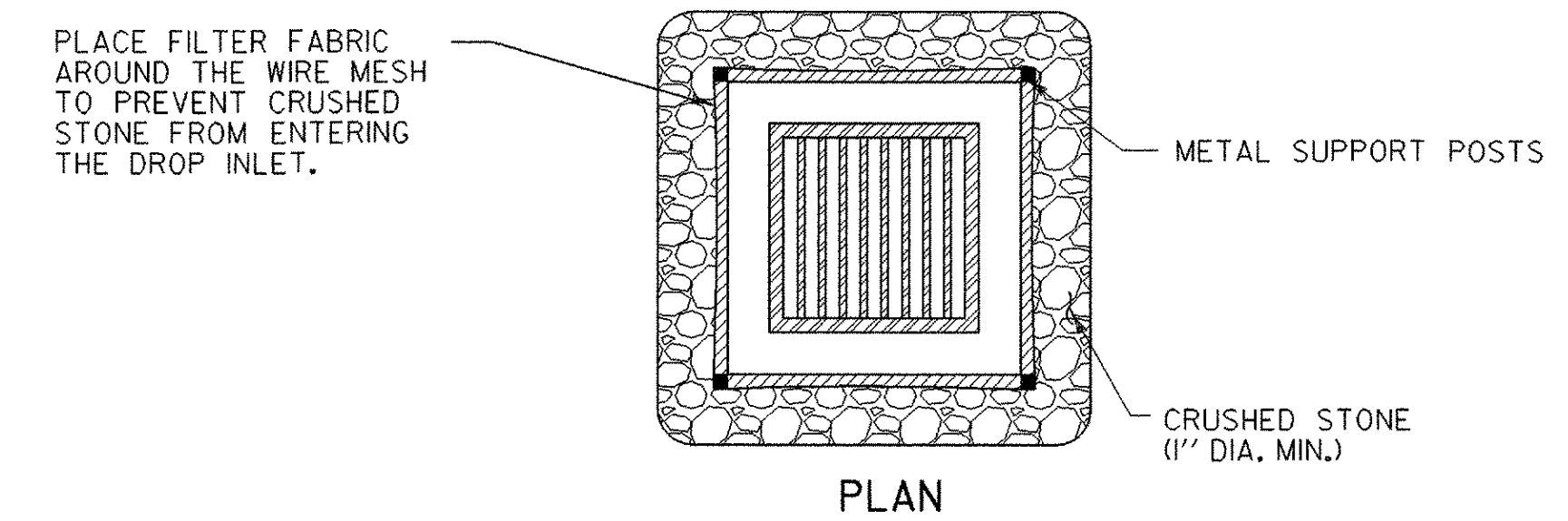
PREFABRICATED DROP INLET PROTECTION



SILT FENCE DROP INLET PROTECTION



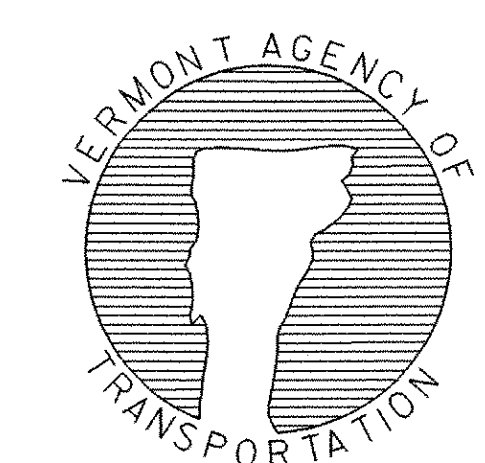
ROCK BARRIER DROP INLET PROTECTION
TEMPORARY PAVED AREAS



ROCK BARRIER INLET PROTECTION
TEMPORARY UNPAVED AREAS

REVISIONS AND CORRECTIONS
MAY 18, 2004 N. GARBACIK

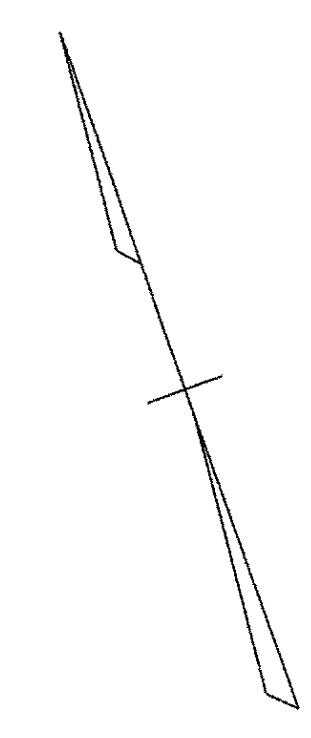
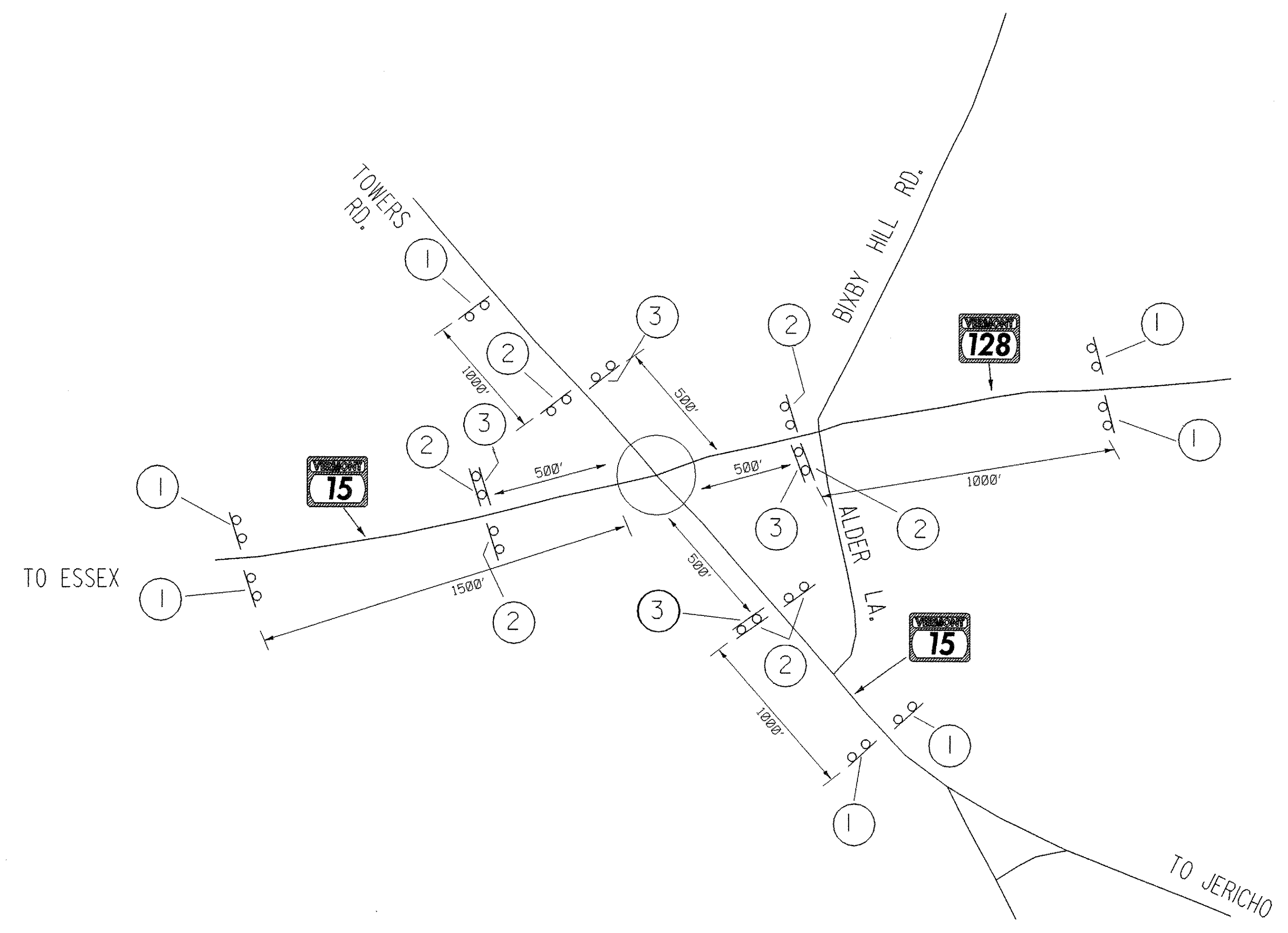
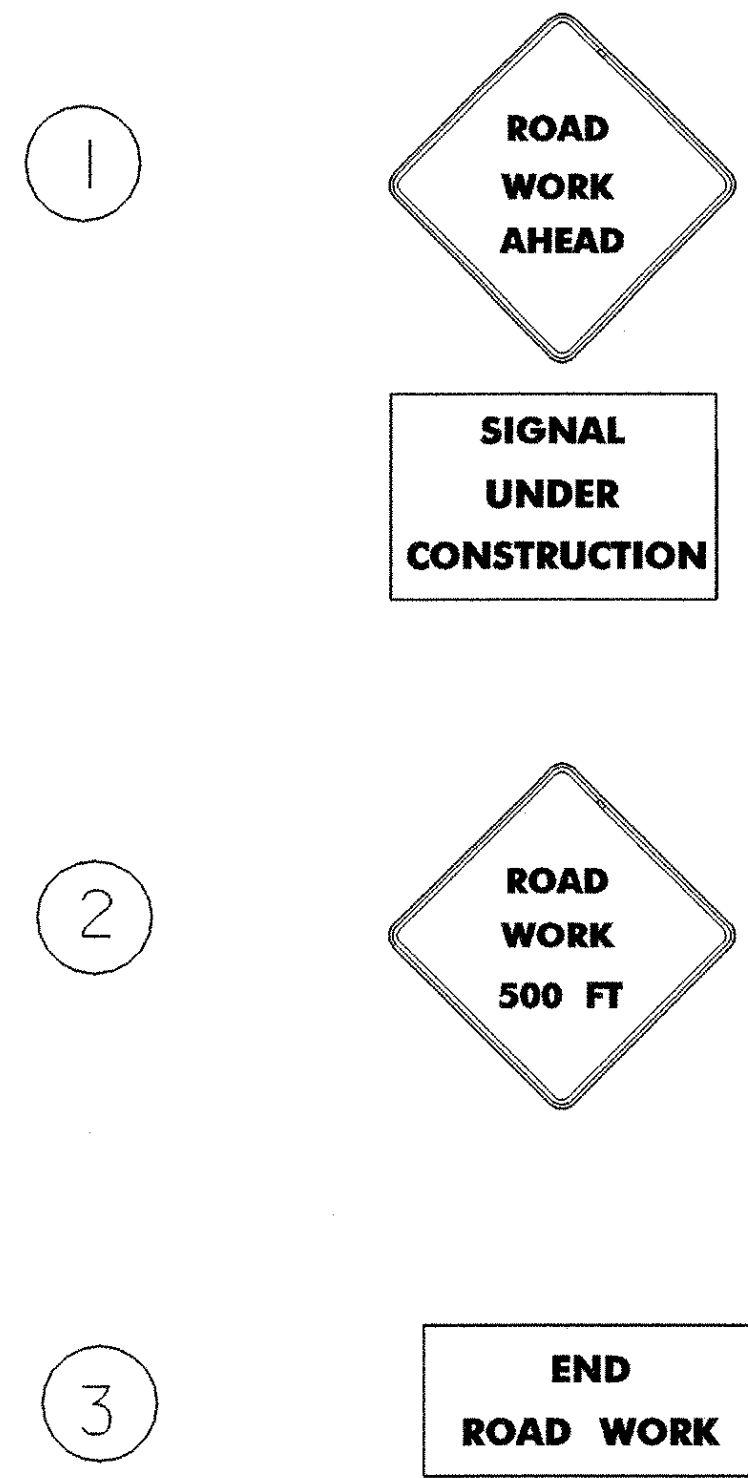
EROSION PREVENTION & SEDIMENT CONTROL DETAILS DROP INLET PROTECTION



DETAIL
EPSC-3

PROJECT NAME: <u>ESSEX</u>	
PROJECT NUMBER: <u>STPG SGNL (17)</u>	
FILE NAME: <u>traf/96b182/tb182nu1.dgn</u>	PLOT DATE: <u>16-NOV-2006</u>
PROJECT LEADER: <u>B. NYQUIST</u>	DRAWN BY: <u>B. MCAVOY</u>
DESIGNED BY: <u>B. MCAVOY</u>	CHECKED BY: <u>B. NYQUIST</u>
<u>tb182ec.i</u>	SHEET <u>12</u> OF <u>23</u>

CONSTRUCTION APPROACH SIGNS



TRAFFIC CONTROL NOTES

1. DURING CONSTRUCTION A MINIMUM OF TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
2. NO WORK SHALL BE DONE WITHIN THE HIGHWAY R.O.W. WITHOUT THE APPROPRIATE CONSTRUCTION SIGNING IN PLACE AS SHOWN ON STD E-100 AND THIS SHEET.
3. TRAFFIC CONTROL SIGNING AND CHANNELIZING DEVICES SHALL BE IN ACCORDANCE WITH STANDARD DRAWINGS E-100, 101, 102, 106, 107A, 110, AND THE 2003 MUTCD.
4. CONSTRUCTION APPROACH SIGNING SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PERIOD. THE 'SIGNAL UNDER CONSTRUCTION' SIGNS ARE NOT NECESSARY UNTIL SIGNAL WORK STARTS. WHEN THEY ARE INSTALLED, THEY SHOULD REMAIN UNTIL COMPLETION OF THE PROJECT. OTHER SIGNING SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE.
5. VARIATIONS IN THE SIGNING PACKAGES MAY BE DICTATED BY UNIQUE GEOMETRY AND/OR TRAFFIC CONDITIONS.
6. IF APPLICABLE, COORDINATE CONSTRUCTION SIGNING WITH OTHER CONSTRUCTION PROJECTS SO AS NOT TO DUPLICATE OR CONTRADICT OTHER SIGNING.
7. PAYMENT FOR TRAFFIC CONTROL WILL BE MADE UNDER CONTRACT ITEM 641.10.
8. SIGNS SHALL NOT INTERFERE WITH OR OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.

NOT TO SCALE

CONSTRUCTION APPROACH SIGNING SHEET

PROJECT NAME:	ESSEX
PROJECT NUMBER:	SIPG_SGNL (17)
FILE NAME: 96b182/1b182dwl.dgn/1b18200d.i	PLOT DATE: 16-NOV-2006
PROJECT LEADER: B.NYQUIST	DRAWN BY: B.MCAVOY
DESIGNED BY: B.MCAVOY	CHECKED BY: B.NYQUIST
SHEET 13 OF 29	

REMOVAL OF EXISTING CURB

VT 15 STA. 280+53 LT- TOWERS RD. STA. 10+59 LT
 VT 15 STA. 281+21 RT- VT 15 STA. 282+15 RT
 TOWERS RD. STA. 10+60 RT- VT 128 STA. 0+65 LT
 TOWERS RD. STA. 10+75 LT- TOWERS RD. STA. 11+50 LT

CONSTRUCT DRIVES

VT 128 STA. 0+77 LT (24' PAVED)
 VT 15 STA. 283+16 RT (26' PAVED)

VT RTE. 15 CURVE DATA # 1

$\Delta = 1^{\circ}59'37.91''$ LEFT
 $D = 2717'30.59''$
 $R = 2500.00$
 $T = 43.50$
 $L = 87.00$
 $E = 0.38$

TOWERS RD. CURVE DATA # 1

$\Delta = 2^{\circ}36'02.25''$ LEFT
 $D = 5^{\circ}43'46.48''$
 $R = 1000.00$
 $T = 22.70$
 $L = 45.39$
 $E = 0.26$

BEGIN PROJECT
ESSEX STPG SGNL(17)
VT 15 STA. 279+50
279+38

THINNING & TRIMMING
 VT 15 STA. 281+26 - 48' LT

END PROJECT
ESSEX STPG SGNL(17)
TOWERS RD. STA. 11+50

END PROJECT
ESSEX STPG SGNL(17)
VT 128 STA. 1+50

END PROJECT
ESSEX STPG SGNL(17)
VT 15 STA. 283+10
283+38

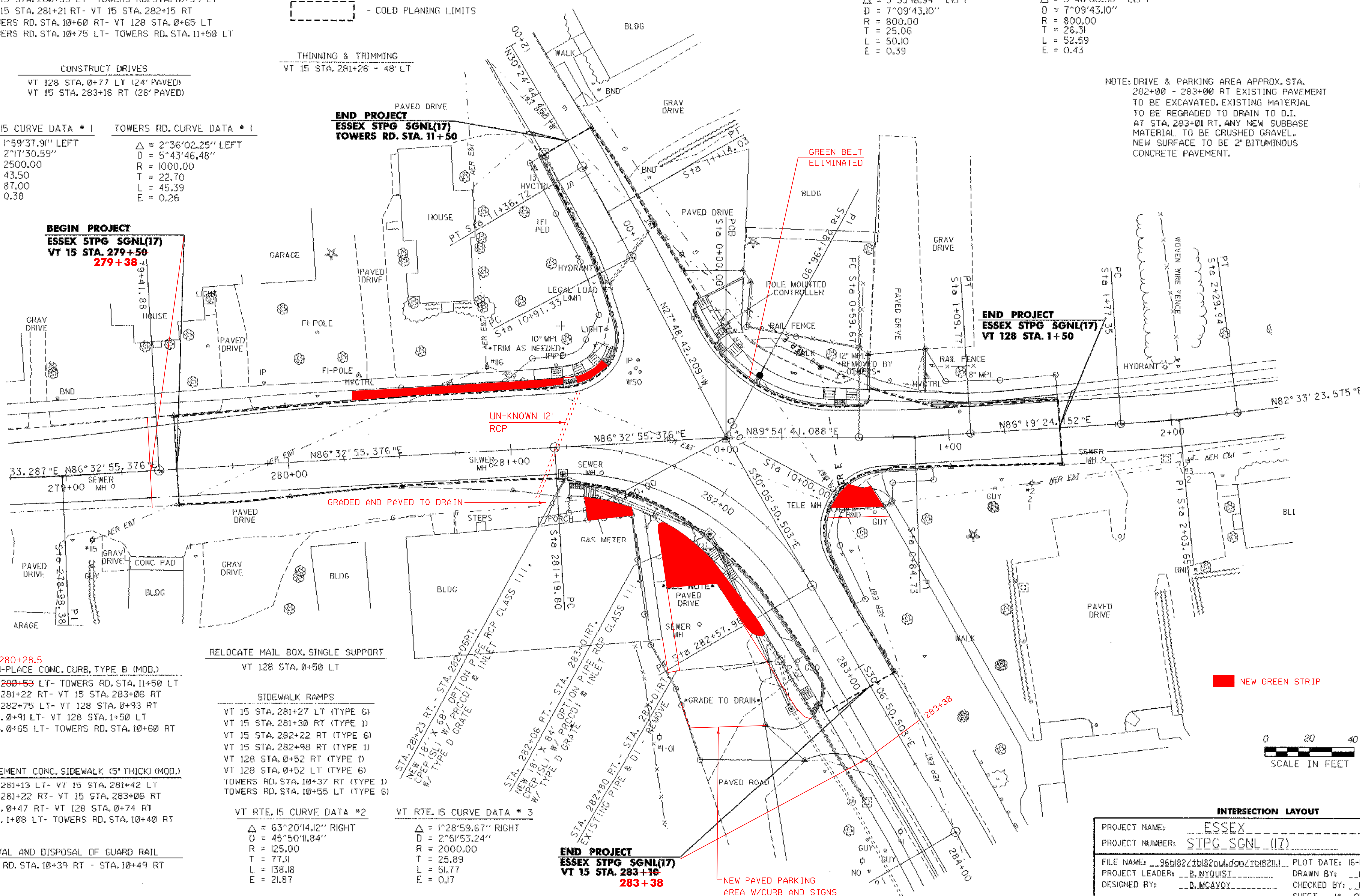
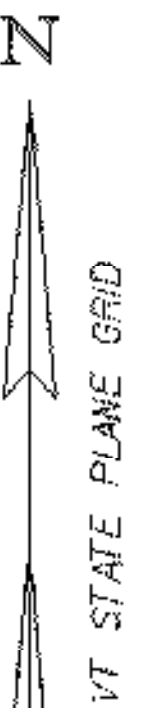
VT RTE. 128 CURVE DATA # 1

$\Delta = 3^{\circ}35'16.94''$ LEFT
 $D = 7^{\circ}09'43.10''$
 $R = 800.00$
 $T = 25.06$
 $L = 50.10$
 $E = 0.39$

VT RTE. 128 CURVE DATA # 3

$\Delta = 3^{\circ}46'00.58''$ LEFT
 $D = 7^{\circ}09'43.10''$
 $R = 800.00$
 $T = 26.31$
 $L = 52.59$
 $E = 0.43$

NOTE: DRIVE & PARKING AREA APPROX. STA. 282+00 - 283+00 RT EXISTING PAVEMENT TO BE EXCAVATED. EXISTING MATERIAL TO BE REGRADED TO DRAIN TO D.I. AT STA. 283+01 RT. ANY NEW SUBBASE MATERIAL TO BE CRUSHED GRAVEL. NEW SURFACE TO BE 2" BITUMINOUS CONCRETE PAVEMENT.



280+28.5
 CAST-IN-PLACE CONC. CURB, TYPE B (MOD.)

VT 15 STA. 280+53 LT- TOWERS RD. STA. 11+50 LT
 VT 15 STA. 281+22 RT- VT 15 STA. 283+06 RT
 VT 15 STA. 282+75 LT- VT 128 STA. 0+93 RT
 VT 128 STA. 0+91 LT- VT 128 STA. 1+50 LT
 VT 128 STA. 0+65 LT- TOWERS RD. STA. 10+60 RT

PORTLAND CEMENT CONC. SIDEWALK (5" THICK) (MOD.)

VT 15 STA. 281+13 LT- VT 15 STA. 281+42 LT
 VT 15 STA. 281+22 RT- VT 15 STA. 283+06 RT
 VT 128 STA. 0+47 RT- VT 128 STA. 0+74 RT
 VT 128 STA. 1+08 LT- TOWERS RD. STA. 10+40 RT

REMOVAL AND DISPOSAL OF GUARD RAIL

TOWERS RD. STA. 10+39 RT - STA. 10+49 RT

RELOCATE MAIL BOX, SINGLE SUPPORT
 VT 128 STA. 0+50 LT

SIDEWALK RAMPS

VT 15 STA. 281+27 LT (TYPE 6)
 VT 15 STA. 281+30 RT (TYPE 1)
 VT 15 STA. 282+22 RT (TYPE 6)
 VT 15 STA. 282+98 RT (TYPE 1)
 VT 128 STA. 0+52 RT (TYPE 1)
 VT 128 STA. 0+52 LT (TYPE 6)
 TOWERS RD. STA. 10+37 RT (TYPE 1)
 TOWERS RD. STA. 10+55 LT (TYPE 6)

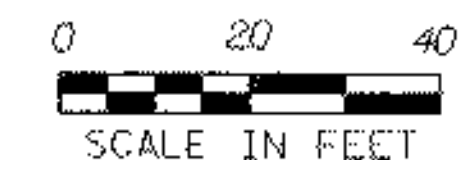
VT RTE. 15 CURVE DATA # 2

$\Delta = 63^{\circ}20'14.12''$ RIGHT
 $D = 45^{\circ}50'11.84''$
 $R = 125.00$
 $T = 77.11$
 $L = 138.18$
 $E = 21.87$

VT RTE. 15 CURVE DATA # 3

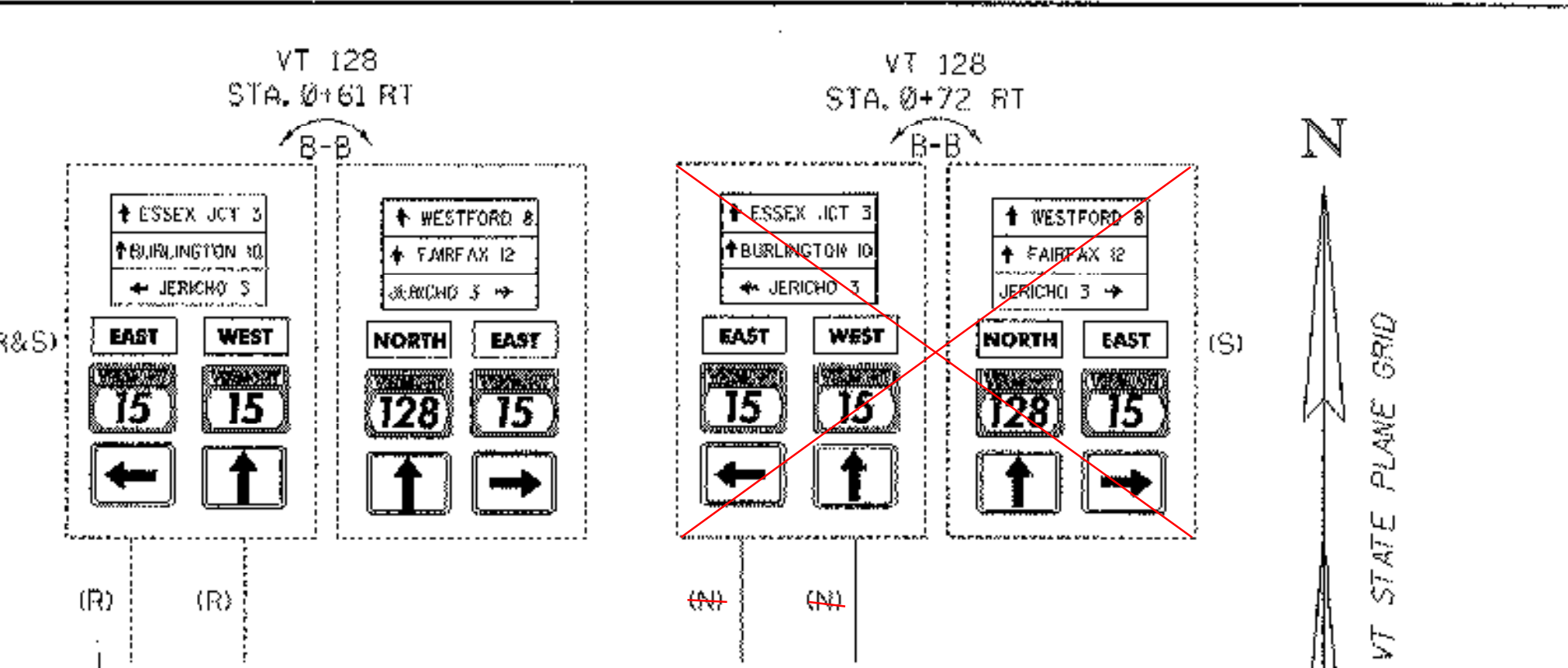
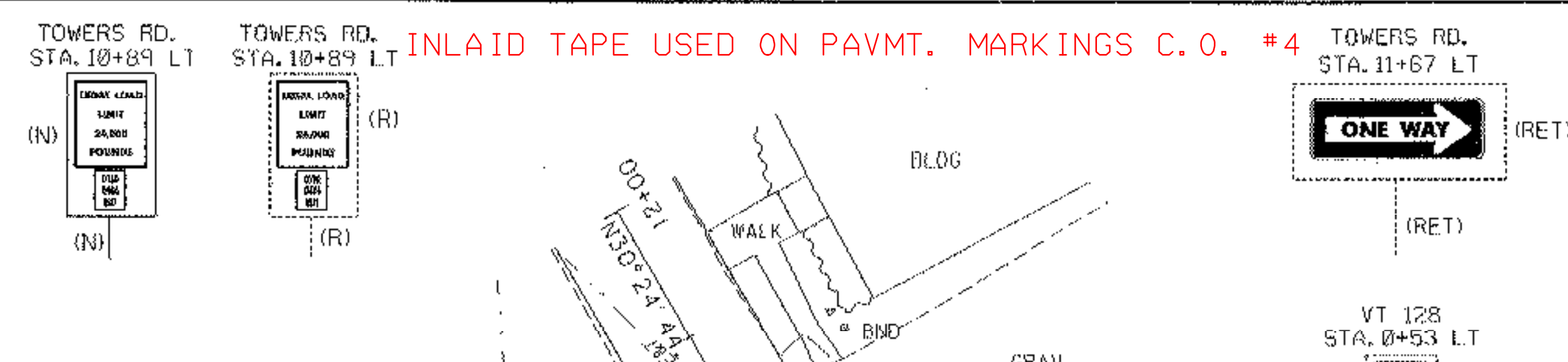
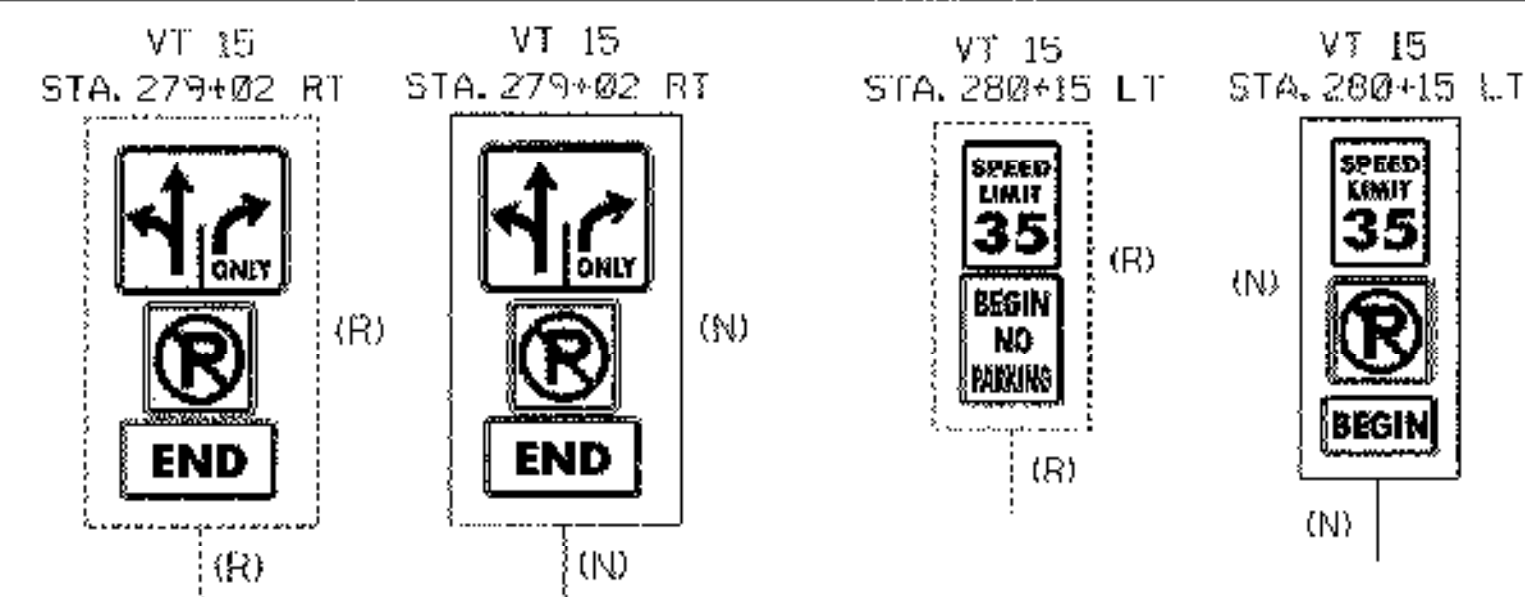
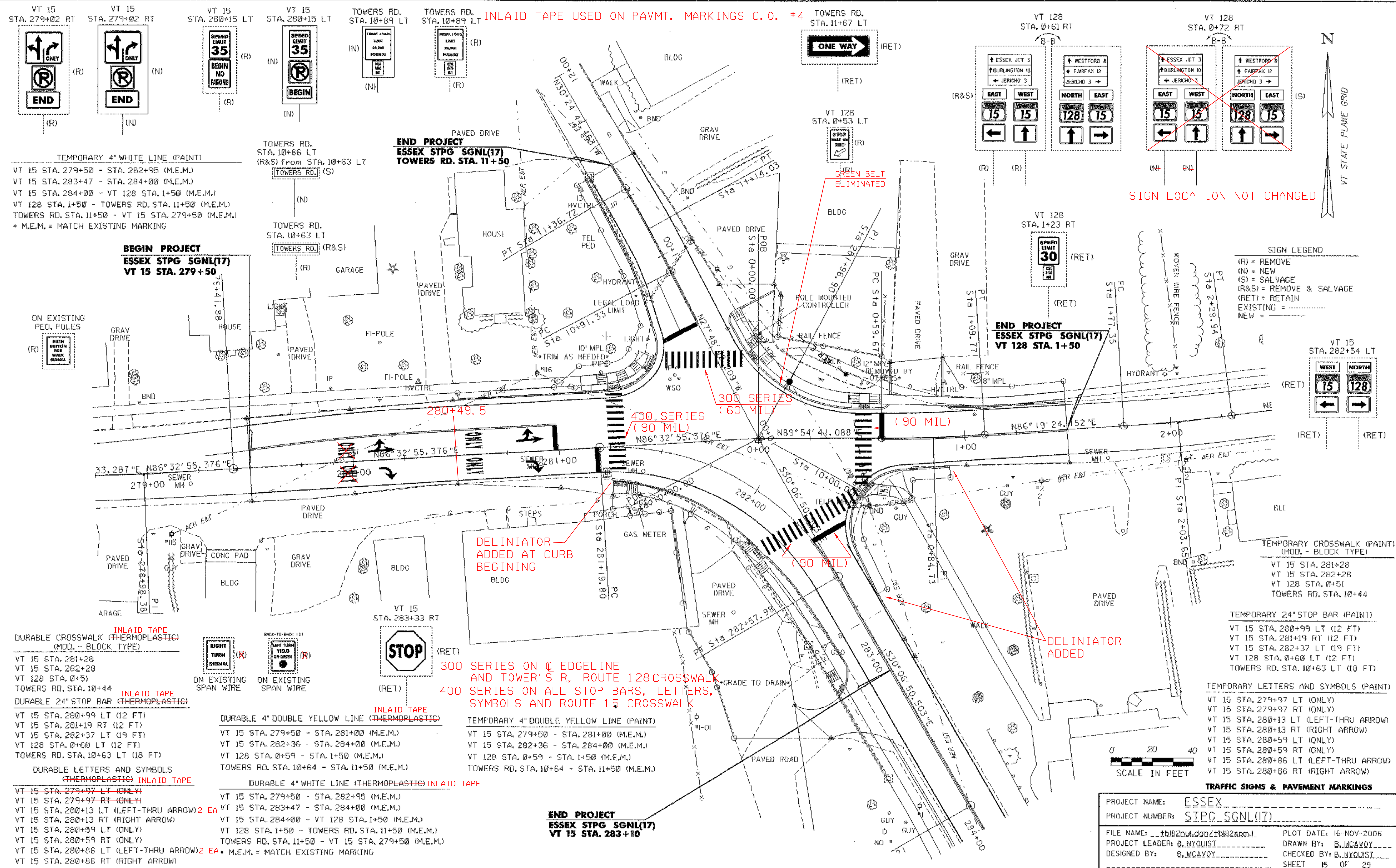
$\Delta = 1^{\circ}28'59.67''$ RIGHT
 $D = 2^{\circ}51'53.24''$
 $R = 2000.00$
 $T = 25.89$
 $L = 51.77$
 $E = 0.17$

NEW GREEN STRIP



INTERSECTION LAYOUT

PROJECT NAME:	ESSEX
PROJECT NUMBER:	STPG_SGNL (17)
FILE NAME:	196b18221b182006d9021b182111
PROJECT LEADER:	B. NYQUIST
DESIGNED BY:	B. MCAVOY
PLOT DATE:	16-NOV-2006
DRAWN BY:	B. MCAVOY
CHECKED BY:	B. NYQUIST
SHEET	19 OF 29



TEMPORARY 4" WHITE LINE (PAINT)
 VT 15 STA. 279+50 - STA. 282+95 (M.E.M.)
 VT 15 STA. 283+47 - STA. 284+00 (M.E.M.)
 VT 15 STA. 284+00 - VT 128 STA. 1+50 (M.E.M.)
 VT 128 STA. 1+50 - TOWERS RD. STA. 11+50 (M.E.M.)
 TOWERS RD. STA. 11+50 - VT 15 STA. 279+50 (M.E.M.)
 * M.E.M. = MATCH EXISTING MARKING

BEGIN PROJECT
ESSEX STPG SGNL(17)
VT 15 STA. 279+50

END PROJECT
ESSEX STPG SGNL(17)
TOWERS RD. STA. 11+50

END PROJECT
ESSEX STPG SGNL(17)
VT 128 STA. 1+50

SIGN LEGEND
 (R) = REMOVE
 (N) = NEW
 (S) = SALVAGE
 (R&S) = REMOVE & SALVAGE
 (RET) = RETAIN
 EXISTING =
 NEW =

ON EXISTING PED. POLES
 (R)

VT 15 STA. 282+54 LT
 (RET)

INLAID TAPE
DURABLE CROSSWALK (THERMOPLASTIC)
 (MOD. - BLOCK TYPE)
 VT 15 STA. 281+20
 VT 15 STA. 282+20
 VT 128 STA. 0+51
 TOWERS RD. STA. 10+44

INLAID TAPE
DURABLE 24" STOP BAR (THERMOPLASTIC)
 VT 15 STA. 280+99 LT (12 FT)
 VT 15 STA. 281+19 RT (12 FT)
 VT 15 STA. 282+37 LT (19 FT)
 VT 128 STA. 0+60 LT (12 FT)
 TOWERS RD. STA. 10+63 LT (18 FT)

DURABLE LETTERS AND SYMBOLS
 (THERMOPLASTIC) **INLAID TAPE**
 VT 15 STA. 279+97 LT (ONLY)
 VT 15 STA. 279+97 RT (ONLY)
 VT 15 STA. 280+13 LT (LEFT-THRU ARROW) 2 EA
 VT 15 STA. 280+13 RT (RIGHT ARROW)
 VT 15 STA. 280+59 LT (ONLY)
 VT 15 STA. 280+59 RT (ONLY)
 VT 15 STA. 280+86 LT (LEFT-THRU ARROW) 2 EA
 VT 15 STA. 280+86 RT (RIGHT ARROW)

INLAID TAPE
DURABLE 4" DOUBLE YELLOW LINE (THERMOPLASTIC)
 VT 15 STA. 279+50 - STA. 281+00 (M.E.M.)
 VT 15 STA. 282+36 - STA. 284+00 (M.E.M.)
 VT 128 STA. 0+59 - STA. 1+50 (M.E.M.)
 TOWERS RD. STA. 10+64 - STA. 11+50 (M.E.M.)

INLAID TAPE
DURABLE 4" WHITE LINE (THERMOPLASTIC)
 VT 15 STA. 279+50 - STA. 282+95 (M.E.M.)
 VT 15 STA. 283+47 - STA. 284+00 (M.E.M.)
 VT 15 STA. 284+00 - VT 128 STA. 1+50 (M.E.M.)
 VT 128 STA. 1+50 - TOWERS RD. STA. 11+50 (M.E.M.)
 TOWERS RD. STA. 11+50 - VT 15 STA. 279+50 (M.E.M.)
 * M.E.M. = MATCH EXISTING MARKING

300 SERIES ON Q EDGELINE AND TOWER'S R, ROUTE 128 CROSSWALK
400 SERIES ON ALL STOP BARS, LETTERS, SYMBOLS AND ROUTE 15 CROSSWALK

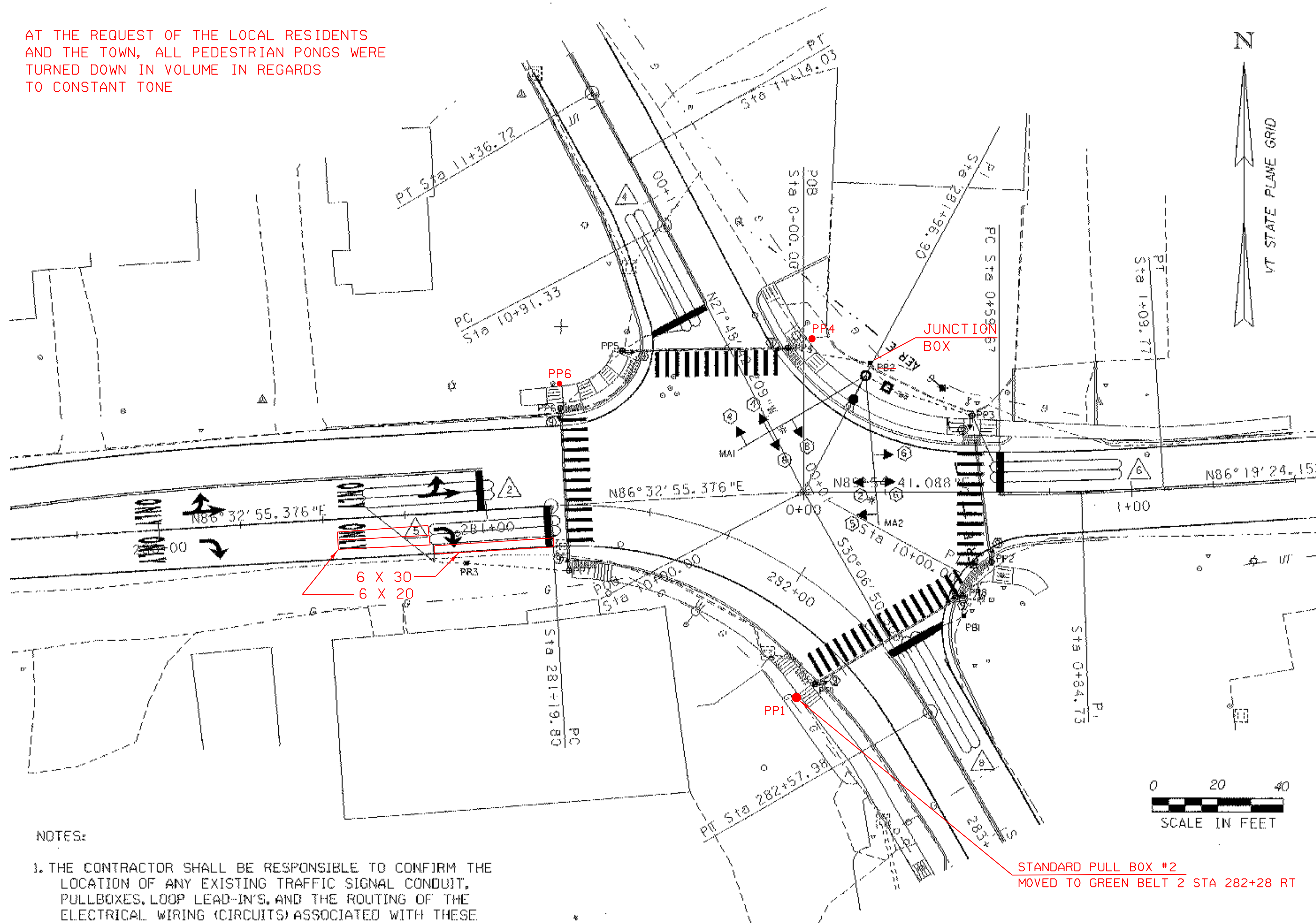
TEMPORARY 4" DOUBLE YELLOW LINE (PAINT)
 VT 15 STA. 279+50 - STA. 281+00 (M.E.M.)
 VT 15 STA. 282+36 - STA. 284+00 (M.E.M.)
 VT 128 STA. 0+59 - STA. 1+50 (M.E.M.)
 TOWERS RD. STA. 10+64 - STA. 11+50 (M.E.M.)

END PROJECT
ESSEX STPG SGNL(17)
VT 15 STA. 283+10



PROJECT NAME:	ESSEX STPG SGNL(17)
PROJECT NUMBER:	STPG SGNL(17)
FILE NAME:	tb182nvt.dwg
PROJECT LEADER:	B. NYQUIST
DESIGNED BY:	B. MCAYDY
PLOT DATE:	16-NOV-2006
DRAWN BY:	B. MCAYDY
CHECKED BY:	B. NYQUIST
SHEET	15 OF 29

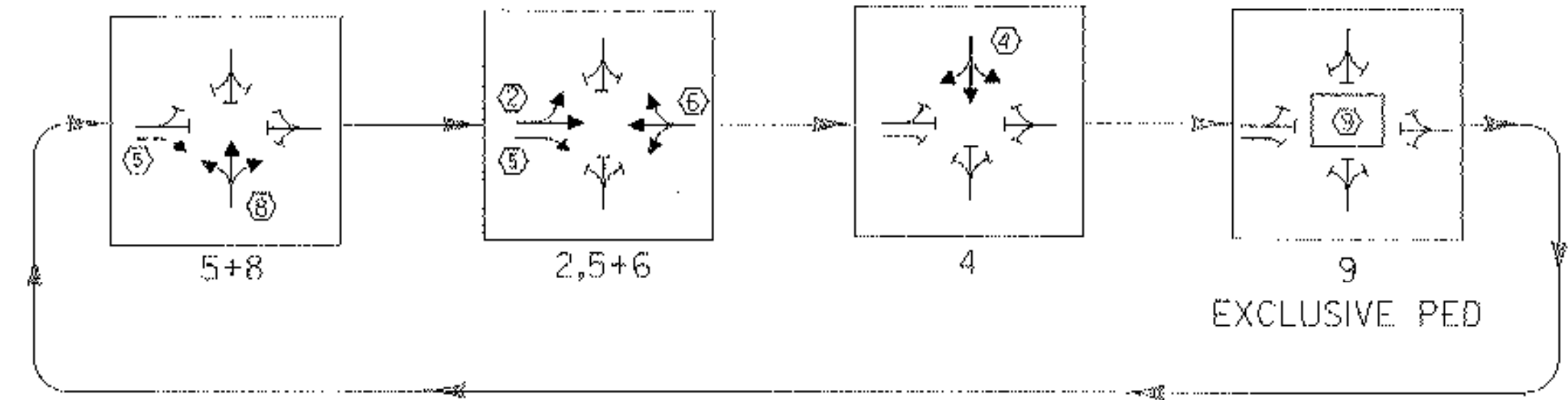
AT THE REQUEST OF THE LOCAL RESIDENTS AND THE TOWN, ALL PEDESTRIAN PONGS WERE TURNED DOWN IN VOLUME IN REGARDS TO CONSTANT TONE



VEHICLE DETECTOR LOOPS											
LOOP NO.	LANE	CALL Ø	SIZE	TYPE & NO. TURNS	DELAY OR PRESENCE	INDUCTANCE CALC.	INDUCTANCE ACT.	RESISTANCE CALC.	RESISTANCE ACT.	LEAKAGE TO GROUND	LOCKING MEMORY
2	EB	2	6x40	QUAD-2	PRESENCE	397	347	1.33	1.72	0	NON LOCK
5	EB RT	2	6x40	QUAD-2	PRESENCE	392	367	1.26	1.19	0	NON LOCK
4	SB	4	6x40	QUAD-2	PRESENCE	365	150	0.91	1.12	0	NON LOCK
6	WB	4	6x40	QUAD-2	PRESENCE	348	415	0.69	0.94	0	NON LOCK
8	NB	8	6x40	QUAD-2	PRESENCE	363	371	0.88	1.22	0	NON LOCK

*- INDUCTANCE IN MICROHENRIES
 *- RESISTANCE IN OHMS (@77 DEGREES FAHRENHEIT)
 -- LOCATION OF SEWER MANHOLE CHANGED LOOP LAYOUT. USED 6 X 30 & 6 X 20, 12' BETWEEN

PHASING DIAGRAM



VEHICLE LOOP DETECTORS

#2	280+63 - 281+03	6.0' LT
#4	10+59 - 10+99	6.8' LT
#5	280+82 - 281+22	6.0' RT
#6	0+57 - 0+97	6.0' LT
#8	282+34 - 282+74	6.0' RT

SIGNAL POLE
 0+19.0 34.7' LT

NOTE: TRAFFIC ITEMS LISTED ARE APPROX. LOCATIONS AND MAY BE CHANGED BY THE RESIDENT ENGINEER IN THE FIELD.

PULLBOXES

PB1	282+41.1	24.8' LT
PB2	0+20.4	38.8' LT
PB3	280+92.9	15.6' RT

PEDESTRIAN SIGNAL POLES

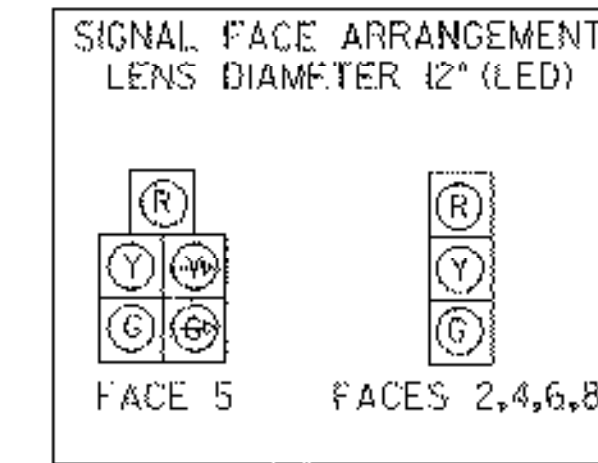
PP1	282+27.2	23.0' RT
PP2	0+57.3	21.1' RT
PP3	0+51.4	22.8' LT
PP4	10+40.6	16.1' RT
PP5	10+63.3	29.1' LT
PP6	281+24.4	29.2' LT
PP7	281+24.2	19.7' RT
PP8	282+37.1	28.3' LT

CONTROLLER

0+25.5 31.3' LT

STANCHION

0+30.4 28.8' LT



NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM THE LOCATION OF ANY EXISTING TRAFFIC SIGNAL CONDUIT, PULLBOXES, LOOP LEAD-INS, AND THE ROUTING OF THE ELECTRICAL WIRING (CIRCUITS) ASSOCIATED WITH THESE ITEMS. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO "TRAFFIC SIGNAL" ITEM 678.15.
2. ALL EXISTING SIGNAL EQUIPMENT IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF. REMOVAL OF EQUIPMENT SHALL INCLUDE REMOVAL OF CONCRETE BASES AND BACKFILL OF HOLES. REMOVAL TO BE PAID INCIDENTAL TO "TRAFFIC SIGNAL" ITEM 678.15.
3. CALL DIG SAFE PRIOR TO PERFORMING ANY EXCAVATION WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM THE ACTUAL LOCATION OF THE EXISTING UNDERGROUND FACILITIES PRIOR TO EXCAVATING. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. A NEW UTILITY POLE WILL BE INSTALLED BY GREEN MOUNTAIN POWER AT VT 128 STA. 0+42.31' LT. THE APPROX. AERIAL UTILITY RELOCATION ROUTES ARE SHOWN ON SHEET #14. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. THE CONTRACTOR SHALL CONDUCT A BORING AT THE MAST ARM FOUNDATION LOCATION PRIOR TO ANY DESIGN WORK BEING PERFORMED. TO BE PAID INCIDENTAL TO "TRAFFIC SIGNAL" ITEM 678.15.

PP1, PP4, PP6 MOVED BEHIND THE SIDEWALK @ THE REQUEST OF DISTRICT 5

STANDARD PULL BOX #2 MOVED TO GREEN BELT 2 STA 282+28 RT

CONTROLLER TIMING CHART

LOCAL PROGRAMMING	PHASE								
	1	2	3	4	5	6	7	8	9
MINIMUM GREEN		8.0		8.0	5.0	8.0		8.0	
EXTENSION CHANGED TO 4 SEC.		2.0		2.0	2.0	2.0		2.0	
YELLOW CLEARANCE		4.0		4.0	4.0	4.0		4.0	
ALL RED CLEARANCE		2.0		2.0	2.0	2.0		2.0	
MAX. GREEN I (AM PEAK)		12.0		11.0	24.0	12.0		24.0	
MAX. GREEN II (OFF PEAK)		16.0		16.0	18.0	16.0		18.0	
MAX. GREEN III (PM PEAK)		17.0		16.0	17.0	17.0		17.0	
WALK (MAN)									5.0
FLASH DON'T WALK (HAND)									14.0

PRE-EMPTION SHALL BE USED AT THIS INTERSECTION. SEE NOTE #A3 ON THE TRAFFIC SIGNAL NOTES SHEET FOR MORE INFORMATION.

WEEKDAY TIMINGS

AM PEAK PERIOD	6:00 AM - 9:00 AM
OFF PEAK PERIOD	9:00 AM - 3:00 PM
	6:00 PM - 6:00 AM
PM PEAK PERIOD	3:00 PM - 6:00 PM
NO FLASH PERIOD	

PREEMPTION TIMINGS

DIRECTION	PREEMPTOR	
	1	2
HOLD PHASE	8	2+5
DET. LOCK	YES	YES
DURATION TIME	10	10
MIN. GREEN	4	4
HOLD GREEN	12	12
HOLD YELLOW	4.0	4.0
HOLD RED	2.0	2.0
RELEASE PHASE	5+8	5+8

EXISTING	NEW	LEGEND
□	■	UTILITY POLE
○	●	LUMINAIRE
○	●	LIGHT OR WOOD POLE
○	○	STRAIN POLE
□	■	CONTROLLER CABINET
□	■	PULLBOX/JUNCTION BOX
○	○	SIGNAL HEAD
—	—	CONDUIT
○	○	VEHICLE LOOPS
○	○	PEDESTAL POST
□	□	STANCHION
—	—	SWEEP
*	*	PRE-EMPTION

SIGNAL LAYOUT SHEET

PROJECT NAME: ESSEX
 PROJECT NUMBER: STPG SGNL(17)
 FILE NAME: 96b182/tb182tr2.dgn/tb182tr.f.i PLOT DATE: 16-NOV-2006
 PROJECT LEADER: B. NYQUIST DRAWN BY: B. MCAVOY
 DESIGNED BY: B. MCAVOY CHECKED BY: B. NYQUIST
 SHEET 16 OF 29

TRAFFIC SIGNAL NOTES

A. NEW EQUIPMENT

- ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED ON CANTILEVER ARMS AND SHALL BE BLACK POLYCARBONATE. ALL LENSES SHALL BE LED'S WITH A VISIBLE BEAM SPREAD OF EIGHTY DEGREES OFF-AXIS. ALL SIGNAL HEADS SHALL INCLUDE DISCONNECT HANGERS (WHERE NEEDED), AND BACKPLATES SHALL BE INCLUDED AS SPECIFIED ON THE PLANS.
- THE CONTROLLER SHALL BE ECONOLITE BRAND, MODEL ASC/3-2100 (TS-2 TYPE 2). THE GROUND MOUNTED CABINET SHALL BE TYPE P44 WITH A BASE EXTENSION.
- THE FIRE PREEMPTION SYSTEM SHALL BE A STROBECOM II 2140 SYSTEM, MANUFACTURED BY TOMAR ELECTRONICS, INC., OR APPROVED EQUAL, OPERATING IN THE ENCODED MODE. THE SYSTEM SHALL INCLUDE ALL NECESSARY INTERFACE BOARDS, WIRING, DETECTORS, AND CONFIRMATION LIGHTS. EMITTERS AND OTHER VEHICLE MOUNTED EQUIPMENT TO BE PURCHASED SEPARATELY BY THE TOWN.
- A DISCONNECT BREAKER FOR EACH CIRCUIT SHALL BE INSTALLED IN A RAINPROOF (NEMA 3R) LOCKED CABINET ON A STANCHION. CONSIDER USING OPTION #2 ON STD. E-175.
- THE CABINET SHALL BE EQUIPPED WITH A PULL-OUT SHELF CAPABLE OF SUPPORTING A LAPTOP COMPUTER.

B. SIGNAL OPERATION

- SWITCH-OVER FROM EXISTING TO REPLACEMENT SIGNALS SHALL NOT BE DONE DURING PEAK TRAFFIC PERIODS. UNIFORMED TRAFFIC OFFICERS SHALL CONTROL TRAFFIC DURING SWITCH-OVER.
- THE SIGNAL SHALL DWELL ON THE VT 15 MOVEMENT (PHASES 8 & 5 OVERLAP).
- THE VT 15 PHASE (8 & 5 OVERLAP) SHALL BE USED FOR THE START-UP PHASE FOLLOWING A FLASH OPERATION. ALL PHASES WILL START ON ALL RED INDICATION FOR FIVE SECONDS.

C. JUNCTION /PULL BOXES

- JUNCTION/PULL BOXES ARE DETAILED ON STD E-173. MINIMUM JUNCTION BOX SIZE SHALL BE 18' X 12', OR LARGER AS REQUIRED BY THE ELECTRICAL CODE.
- THE LOGO ON PULLBOXES/JUNCTION BOXES SHALL BE "SIGNAL".

D. TRAFFIC SIGNAL CONDUIT

- ALL TRAFFIC SIGNAL CONDUIT SHALL BE PVC.
- MINIMUM CONDUIT SIZE SHALL BE:
1-1/2" FOR INTERCONNECT CABLE AND LOOP WIRE.
2" FOR SHIELDED LEAD-IN CABLE, SIGNAL CABLE, POWER CABLE AND ALL OTHERS, UNLESS SPECIFIED OTHERWISE ON THE PLANS.
SEE CHART ON STD E-172 FOR DESIGN VALUES.
- THE OPEN CUT FOR BITUMINOUS CONCRETE PAVEMENT REQUIRED TO PLACE THE 6" PVC ELECTRICAL CONDUIT SLEEVE SHALL BE PERFORMED USING THE VERMONT STANDARD SHEET D-20. A SAWCUT SHALL BE PERFORMED IN THE EXISTING PAVEMENT SURFACE PRIOR TO EXCAVATION. PAYMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 406.25. THE BITUMINOUS CONCRETE PAVEMENT SHALL BE PLACED SUBSEQUENT TO THE INSTALLATION OF THE 6" PVC ELECTRICAL SLEEVE AND BACKFILL WILL BE UNDER ITEM 406.25. THE NEW PAVEMENT TO MATCH EXISTING PAVEMENT SURFACE.
- WHEN CONDUIT IS PLACED BELOW THE ROADWAY OR ACROSS SIDE ROADS, IT SHALL BE PLACED IN A PVC ELECTRICAL CONDUIT SLEEVE, SIZE AS SHOWN ON THE PLANS (6" MINIMUM).

E. STREET LIGHTING

- THE MAST ARM POLE SHALL HAVE A 250 WATT HIGH PRESSURE SODIUM LUMINAIRE AS SHOWN ON THE PLANS, INSTALLED WITH A 34' +/- MOUNTING HEIGHT ABOVE THE EDGE OF PAVEMENT WITH 15' ARM. THE LUMINAIRE SHALL HAVE THE MEDIUM CUTOFF DISTRIBUTION. ARM ORIENTATION IS SHOWN ON SHEET 16.
- PAYMENT IS INCIDENTAL TO ITEM #678.15

F. VEHICLE LOOP DETECTORS

- SEE STANDARD E-172. LOOPS SHALL EXTEND 5 FEET AHEAD OF STOP BAR UNLESS OTHERWISE NOTED ON THE PLANS.
- LOOP DETECTORS SHALL BE INSTALLED AND TESTED PRIOR TO THE PLACEMENT OF THE TOP COURSE OF PAVEMENT.

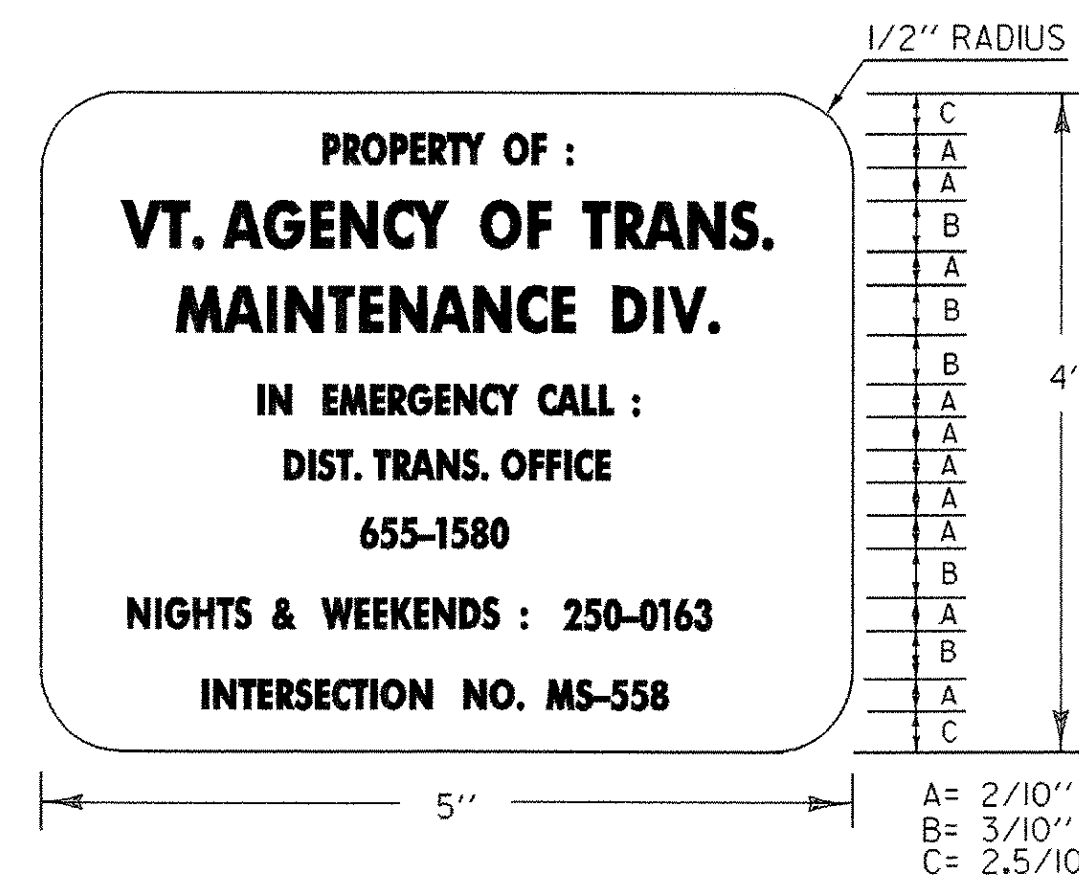
G. GENERAL

- THE CONTRACTOR SHALL ACQUIRE ALL NECESSARY PERMITS AND MAKE ALL NECESSARY ARRANGEMENTS WITH THE UTILITY COMPANY TO PROVIDE A PERMANENT POWER SUPPLY TO THE SIGNAL AND STREET LIGHTING EQUIPMENT. IF APPLICABLE, THE ROUTING OF POWER TO THE INTERSECTION SHALL BE SUCH THAT THE STATE HAS FULL RESPONSIBILITY FROM THE TRANSFORMER THROUGH THE SIGNAL. NO INTERVENING OWNERSHIP/RESPONSIBILITY SHALL BE ALLOWED.
- AN ID PLAQUE AS DETAILED ON THIS SHEET SHALL BE AFFIXED TO THE CONTROLLER CABINET.

H. REMOVAL OF EXISTING EQUIPMENT

- EXISTING SIGNAL EQUIPMENT SHALL BE REMOVED AND RETURNED BY THE CONTRACTOR TO THE DISTRICT 5 GARAGE AT 5 BARNES AVE. IN COLCHESTER WITHIN 48 HOURS OF REMOVAL. CONTACT STEVE GUYETTE AT 655-1580 WITH ANY QUESTIONS. PAYMENT IS INCIDENTAL TO ITEM # 678.15.

CONTROLLER IDENTIFICATION PLAQUE



LEGEND: - BLACK (NON-REFL.) - STAMPED PRIOR TO PAINTING
BACKGROUND: NATURAL ALUMINUM OR BRASS SURFACE

NOTES:

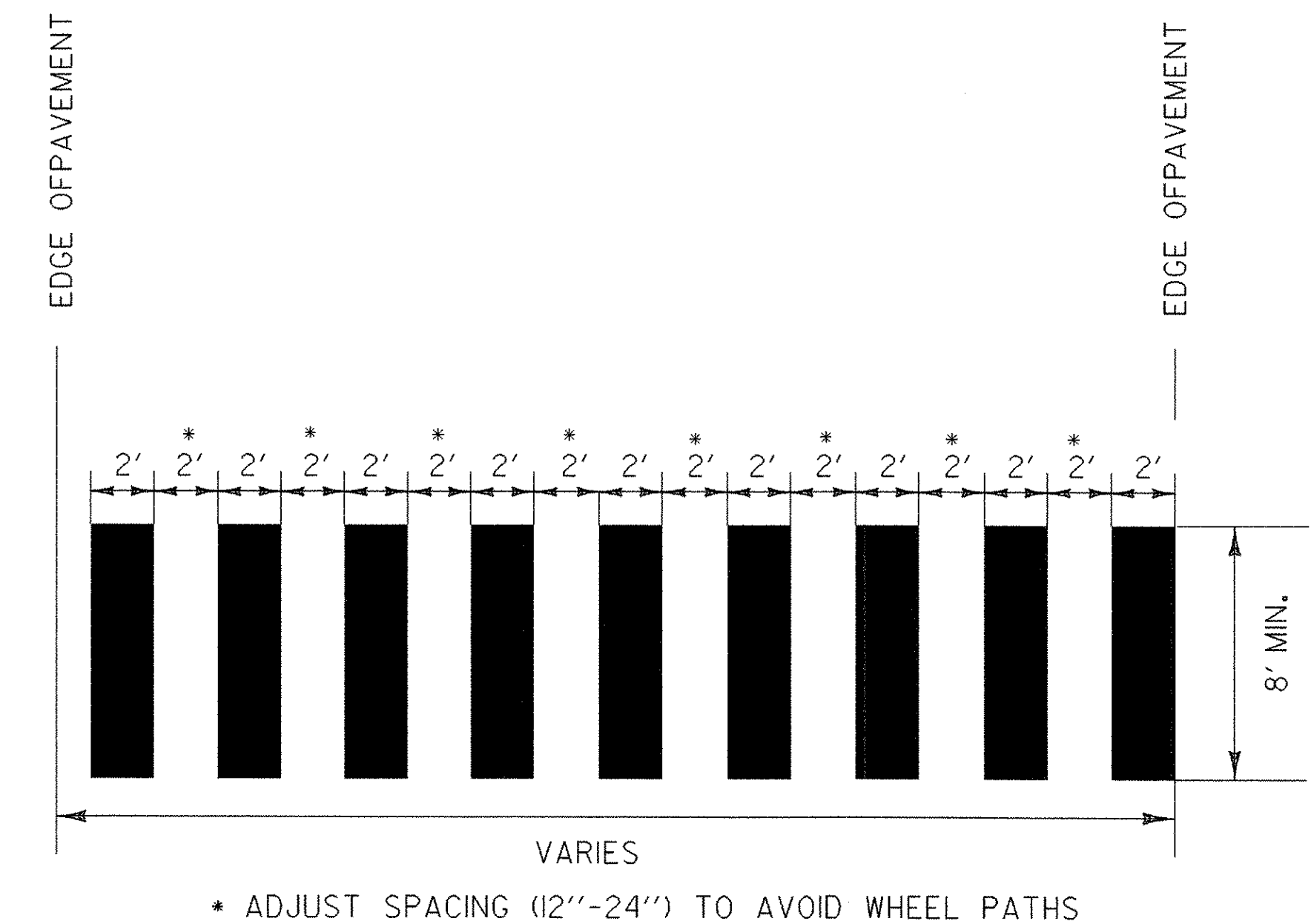
- THE PLAQUE SHALL BE MOUNTED ON ALL TRAFFIC SIGNAL CONTROLLER CABINETS. IT SHALL BE FASTENED TO THE CONTROLLER CABINET IN SUCH A MANNER AS TO BE NOT EASILY REMOVED, SUCH AS WELDED, RIVETED OR BOLTED WITH VANDAL PROOF BOLTS.
- THE LETTERS SHALL BE PUNCHED OR STAMPED, SUCH STAMPING SHALL PENETRATE AT LEAST 1/2 THE BASE MATERIAL THICKNESS.
- THE BASE MATERIAL FOR THE PLAQUE SHALL BE BRASS OR ALUMINUM WITH A MINIMUM THICKNESS OF 0.100 INCHES.

LIST OF MAJOR EQUIPMENT

EQUIPMENT ITEM - 678.15	QUANTITY
MAST ARM POLES W/CANTILEVER ARMS	1
POWER DROP STANCHION	1
NEW 12" TRAFFIC SIGNAL HEADS W/ TUNNEL VISORS, MOUNTING HARDWARE	
A. ONE-WAY 5-SEC.	1
B. ONE-WAY 3-SEC.	7
INTERSECTION CONTROLLER/CABINET	1
LUMINAIRE & BRACKET ARM (EACH)	1
ACCESSIBLE PEDESTRIAN SIGNALS	8
TOMAR PRE-EMPTION SYSTEM	1
REMOVAL OF EXISTING SIGNAL SYSTEM	1

NOTE: BACKPLATES TO BE INSTALLED ON ALL HEADS.

LOCATION	WIRED CONDUIT		ELECTRICAL CONDUIT SLEEVE	DESCRIPTION
	1-1/2"	2"	6"	
LOOPS 2&5 - PB3 - PP7 - PP6 - PP5 - PP4 - PB2 - CONTROLLER	244'			LOOPS 2 & 5
LOOP 4 - PP5	149'			LOOP 4
LOOP 8 - PBI - PP2 - PP3 - CONTROLLER	119'			LOOP 8
LOOP 6 - PP3	16'			LOOP 6
STANCHION - CONTROLLER		12'		POWER
MAP - CONTROLLER		14'		POWER
PPI - PP8 - PP2 - PP3 - CONTROLLER		137'		POWER
PP7 - PP6 - PP5 - PP4 - PB2-CONTROLLER		190'		POWER
PPI-PP2			51'	UTL. SLEEVE
PP2-PP3			42'	UTL. SLEEVE
PP4-PP5			50'	UTL. SLEEVE
PP6-PP7			50'	UTL. SLEEVE
SUBTOTALS	393'	353'	193'	
ROUNDING	7'	22'	7'	
TOTALS	400'	375'	200'	



* ADJUST SPACING (12"-24") TO AVOID WHEEL PATHS

BLOCK PATTERN CROSSWALK DETAIL

TRAFFIC SIGNAL NOTES	PROJECT:	PROJECT NO.:
		ESSEX
	DESIGN FILE NAME: /traf/96bl82/tbl82nul.dgn IPARM FILE NAME: /traf/96bl82/tbl82not.i SURVEYED BY: SQUAD LEADER: B. NYQUIST	PLOT DATE: 16-NOV-2006 SURVEY DATE: DRAWN BY: B. MCAVOY SHEET: 17 OF 29

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2001, WITH CURRENT MODIFICATIONS.
2. OVERHEAD SIGN/SIGNAL SUPPORTS SHALL CONFORM TO AASHTO'S PUBLICATION ENTITLED "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", DATED 2001 OR ITS LATEST REVISION.
3. ADDITIONAL DESIGN CRITERIA ARE AS FOLLOWS:
 - CONCRETE $f_c = 1400$ PSI $f'_c = 3500$ PSI
 - REINFORCING $f_s = 24000$ PSI (GRADE 60)
 - FOOTING SOIL PRESSURE : 3000 PSF (MAXIMUM)
 - WIND LOAD AND ICE LOAD PER AASHTO "STANDARD SPECIFICATIONS"
4. ANCHOR BOLTS

FOUR STAINLESS STEEL ANCHOR BOLTS WITH TWO HEXAGON NUTS, ONE WASHER AND ONE LOCK WASHER PER BOLT SHALL BE FURNISHED WITH EACH POLE. ANCHOR BOLT PLATES, WHEN USED, SHALL ALSO BE STAINLESS STEEL. SEE SUB-SECTION 714.09.
5. FLANGE BOLTS

ALL FLANGE BOLTS AND HEX NUTS SHALL BE HIGH STRENGTH STEEL AND SHALL CONFORM TO ASTM A325. THE FLANGE BOLTS SHALL BE CAPABLE OF RESISTING 133% OF THE FULL DESIGN STRESS OF THE TUBE AT ITS YIELD STRENGTH STRESS.
6. HORIZONTAL AND VERTICAL MEMBERS

STEEL TUBES SHALL BE FORMED AND WELDED WITH ONE CONTINUOUS LONGITUDINAL WELD ONLY. AFTER FORMING AND WELDING THEY SHALL BE COLD ROLLED TO ENSURE UNIFORMITY OF SIZE AND SMOOTHNESS OF WELD. THEY SHALL HAVE A MINIMUM YIELD STRENGTH OF 55,000 PSI. THERE SHALL BE NO TRANSVERSE WELDING EXCEPT AT THE FLANGE CONNECTIONS AND POLE BASE PLATES, WHERE THE TUBES SHALL TELESCOPE THE FLANGES AND PLATES AND BE CONTINUOUSLY WELDED BOTH SIDES INSIDE AND OUT TO WITHSTAND THE FULL TRANSFER OF THE BENDING STRENGTH TO THE BOLTS. OPTIONALLY, THE MEMBERS MAY BE A SERIES OF TWO OR THREE DIFFERENT DIAMETER PIPES WELDED TOGETHER.
7. GALVANIZING

ALL STEEL COMPONENTS, EXCEPT CONCRETE REINFORCING AND STAINLESS STEEL HARDWARE, ARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. THE ASSEMBLIES SHALL BE DESIGNED AND FABRICATED TO PERMIT GALVANIZING ON ALL INTERIOR AND EXTERIOR SURFACES AND SHALL BE FREE OF POCKETS AND OTHER STRUCTURAL OBSTRUCTIONS THAT WILL NOT PERMIT PROPER DEPOSITION OF ZINC COATING. GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A123 AND A153.
8. WELDING
 - A. ALL DESIGN DETAILS, WORKMANSHIP, PROCEDURES AND INSPECTION SHALL CONFORM WITH SUPPLEMENTAL SPECIFICATION 506 SECTION 506.10.
 - B. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL(S) BEING WELDED.
9. FOOTINGS
 - A. FOOTINGS SHALL BE DESIGNED TO RESIST LOADS EQUAL TO, OR GREATER THAN, THE MAXIMUM LOADS THAT THE POLE IS DESIGNED FOR.
 - B. THREE TYPES OF FOUNDATIONS, AS OUTLINED IN AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2) SECTION 1.8.2 (C) SHALL BE ALLOWED.
 1. DRILLED SHAFTS
 2. SPREAD FOOTINGS
 3. PILES.
 - C. DRILLED SHAFT FOOTINGS SHALL BE POURED IN DRILLED SHAFTS AGAINST UNDISTURBED MATERIAL. THE TOP TWO FEET OF SOIL SHALL BE NEGLECTED FOR DESIGN PURPOSES. THE MAXIMUM FOOTING DIAMETER SHALL BE THREE FEET AND THE MAXIMUM DEPTH SHALL BE TWELVE FEET. IF THESE LIMITS ARE EXCEEDED OR IF THE SOIL IS NOT CAPABLE OF A BEARING PRESSURE OF 3000 PSF, A SPREAD FOOTING SHALL BE USED.
 - D. AS AN ALTERNATIVE TO THE DRILLED HOLES, FOOTINGS MAY BE POURED IN EXCAVATED HOLES USING THE PROPER FORMS, WHICH MUST BE REMOVED. THE EXCAVATED HOLES SHALL BE AT LEAST TWO FEET CLEAR OF THE FOOTING SIDES AND ONE FOOT DEEPER THAN THE FOOTING. CARE SHALL BE TAKEN TO AVOID EXCAVATING AROUND THE TOP OF THE FOOTING. THE BACKFILL MATERIAL SHALL BE COMPACTED AS DESCRIBED IN SUB-SECTION 204.12. DESIGN LIMITS AS FOR AUGERED FOOTING APPLY.
 - E. WHEN THE DESIGN DEPTH OF A FOOTING CANNOT BE OBTAINED DUE TO UNFORSEEN FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OBTAIN A REVISED FOOTING DETAIL FROM THE ENGINEER.
 - F. ANY BACKFILL PLACED ADJACENT TO THE FOOTING SHALL BE GRANULAR MATERIAL MEETING THE REQUIREMENTS FOR GRANULAR BACKFILL FOR STRUCTURES, SUB-SECTION 704.08. CONCRETE FOR FOOTING SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE, CLASS B, SECTION 501, STRUCTURAL CONCRETE. GROUT MATERIAL SHALL BE NON-SHRINKING MORTAR CONFORMING TO SUB-SECTION 707.03 (MORTAR TYPE IV).
 - G. SIGNALS/SIGNS SHALL BE INSTALLED AND LEVELED AND POLES SHALL BE PLUMB PRIOR TO PLACING GROUT UNDER POLE BASE.
10. SHOP DRAWINGS (6 COPIES OF EACH) SHALL BE SUBMITTED TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, ROADWAY, TRAFFIC, AND SAFETY ENGINEER FOR APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION:
 - A. DETAILED DRAWING OF EACH COMPONENT OF THE STRUCTURE.
 - B. MATERIAL SPECIFICATION FOR EACH COMPONENT OF THE STRUCTURE, EITHER BY COMPLETE SPECIFICATION OR REFERENCE TO APPLICABLE ASTM STANDARDS.
 - C. NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER, AND STRUCTURE STATIONING (TO BE INCLUDED ON EACH SHEET).
 - D. DETAILS FOR LOCATION OF SIGNS/SIGNALS AND ATTACHMENT HARDWARE FOR THE SUPPORT STRUCTURE.
 - E. ALL ELEVATIONS AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS.
 - F. DEAD LOAD DEFLECTION AND CAMBER INFORMATION.
 - G. WELDING DETAILS AND PROCEDURES ARE REQUIRED FOR ALL WELDS. PROCEDURES SHALL BE SUBMITTED FOR APPROVAL WITH REFERENCE TO EACH WELD IDENTIFIED ON THE SHOP DRAWINGS. (SEE SUB-SECTION 506.10)
11. EACH OVERHEAD TRAFFIC SIGNAL/SIGN SUPPORT SHALL BE GROUNDED. THE GROUND SHALL CONSIST OF:
 - A) AN INTERNAL GROUND LUG OPPOSITE THE HAND HOLE.
 - B) A #6 (MIN.) SOFT DRAWN COPPER GROUNDING ELECTRODE CONDUCTOR.
 - C) A 5/8" X 8" (MIN.) COPPER CLAD GROUNDING ELECTRODE. THE RESISTANCE TO GROUND SHALL BE 25 OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES MAY BE REQUIRED (MINIMUM SPACING SHALL BE 6').

WHEN A POWER SERVICE, METER AND DISCONNECT ARE ATTACHED TO A POLE, THERE SHALL BE A CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE METER AND DISCONNECT WHICH MAY RUN INTERNAL TO THE UPRIGHT, THROUGH THE 1/2" FLEXIBLE TUBING IN THE CONCRETE BASE TO THE REQUIRED GROUNDING ELECTRODE(S). THE GROUNDING ELECTRODE CONDUCTOR FROM THE POLE GROUNDING LUG, CONTROLLER CABINET AND/OR LUMINAIRE MAY ATTACH TO THIS CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT. THE CONTRACTOR SHALL PERFORM A RESISTANCE TO GROUND TEST ON THE CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT AND PROVIDE A WRITTEN STATEMENT TO THE AREA ELECTRICAL INSPECTOR THAT THE GROUNDING ELECTRODE CONDUCTOR IS CONTINUOUS FROM THE SERVICE METER AND DISCONNECT AND THE RESISTANCE TO GROUND IS 25 OHMS OR LESS.
12. THE COST OF SIGNAL/SIGN SUPPORTS, INCLUDING ALL HARDWARE, SIGN BRACKETS, FOOTINGS AND LUMINAIRE ARMS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 677.12, 677.13 OR 678.15, WHICHEVER IS APPLICABLE. THESE COMPONENTS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTIONS 677, 678, AND 679.
13. HORIZONTAL MEMBERS SHALL BE CAMBERED AND THE VERTICAL POLES BACKRAKED (WHERE APPLICABLE) TO THE ANTICIPATED DEAD LOAD DEFLECTION PLUS THE CAMBER, IF ANY, SPECIFIED ON THE PLANS.
14. AN EQUIVALENT ALTERNATE DESIGN MAY BE SUBSTITUTED FOR THE DETAILS AND MATERIALS SHOWN.
15. THE DETAILS OF DESIGN FOR THE STRUCTURE AND FOOTINGS ARE TO BE SUPPLIED BY THE CONTRACTOR AND/OR BY THE MANUFACTURER. THE STRUCTURE SHALL BE DESIGNED TO RESIST THE MAXIMUM LOADING AS OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2). ALL DETAILS OF THE STRUCTURE AND THE FOOTING SHALL BE CHECKED AND STAMPED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF VERMONT PRIOR TO SUBMITTAL OF THE SHOP DRAWINGS TO THE VERMONT AGENCY OF TRANSPORTATION.
16. IN ADDITION TO THE SHOP DRAWINGS OUTLINED IN NOTE 10 THE CONTRACTOR SHALL SUBMIT ALL DESIGN CALCULATIONS TO THE VERMONT AGENCY OF TRANSPORTATION, TRAFFIC DESIGN ENGINEER SHOWING THE FOLLOWING INFORMATION FOR EACH OF THE VERTICAL AND HORIZONTAL COMPONENTS OF THE STRUCTURE AND FOOTING:
 - A. THE DESIGN AXIAL AND SHEAR FORCES AND BENDING AND TORSIONAL MOMENTS.
 - B. THE DESIGN AXIAL, BENDING AND SHEAR STRESSES AND THE COMBINED STRESS RATIO.
 - C. VIBRATION AND FATIGUE CALCULATIONS AS SET FORTH IN SECTION 9 OF THE AASHTO PUBLICATION REFERENCED IN NOTE 2.
 - D. THE ALLOWABLE AXIAL, BENDING, AND SHEAR STRESSES.
 - E. ITEMS A,B,D - SHALL BE SHOWN FOR EACH OF THE GROUP LOADINGS (I, II, III) AND FOR THE BASIC WIND LOAD APPLIED TO THE TWO CASES OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2) SECTION 1.2.5 (D)(4).
 - F. FAILURE TO SUPPLY THE PROPER DESIGN INFORMATION SHALL BE CAUSE FOR REJECTION OF THE STRUCTURE.
 - G. A MINIMUM OF FOUR (4) WEEKS SHALL BE REQUIRED FOR REVIEW BY THE VERMONT AGENCY OF TRANSPORTATION, TRAFFIC SECTION.
17. THE CONTRACTOR/MANUFACTURER SHALL BE RESPONSIBLE FOR COMPLETION OF THE STRUCTURE AND FOOTING DATA ON THE DETAIL SHEET(S).
18. FOR INSTALLATIONS WHERE BOTH "EXISTING" AND "FUTURE" CONDITIONS ARE SHOWN, THE SUPPORTS SHALL BE DESIGNED FOR THE MORE SEVERE OF THE TWO LOADING CONDITIONS. THE INFORMATION OUTLINED IN NOTE 16 ABOVE SHALL BE PROVIDED FOR BOTH THE LOADING CONDITIONS.
19. THE TRAFFIC SIGNALS SHALL BE MOUNTED TO THE ARM OR POLE USING A FIXED MOUNT SYSTEM AS SHOWN ON STANDARD E-171C, UNLESS OTHERWISE NOTED ON THE CROSS SECTION SHEET.
20. BASE PLATES SHALL BE STAMPED WITH THE VERTICAL POLE DIAMETER, HEIGHT, YIELD STRENGTH, GAUGE AND THE HORIZONTAL MEMBER DIAMETER, LENGTH, YIELD STRENGTH, GAUGE. ALTERNATELY, THE INFORMATION MAY BE STAMPED ON A METAL TAG RIVETED TO THE POLE NEAR THE HANDHOLE.

GENERAL NOTES SHEET

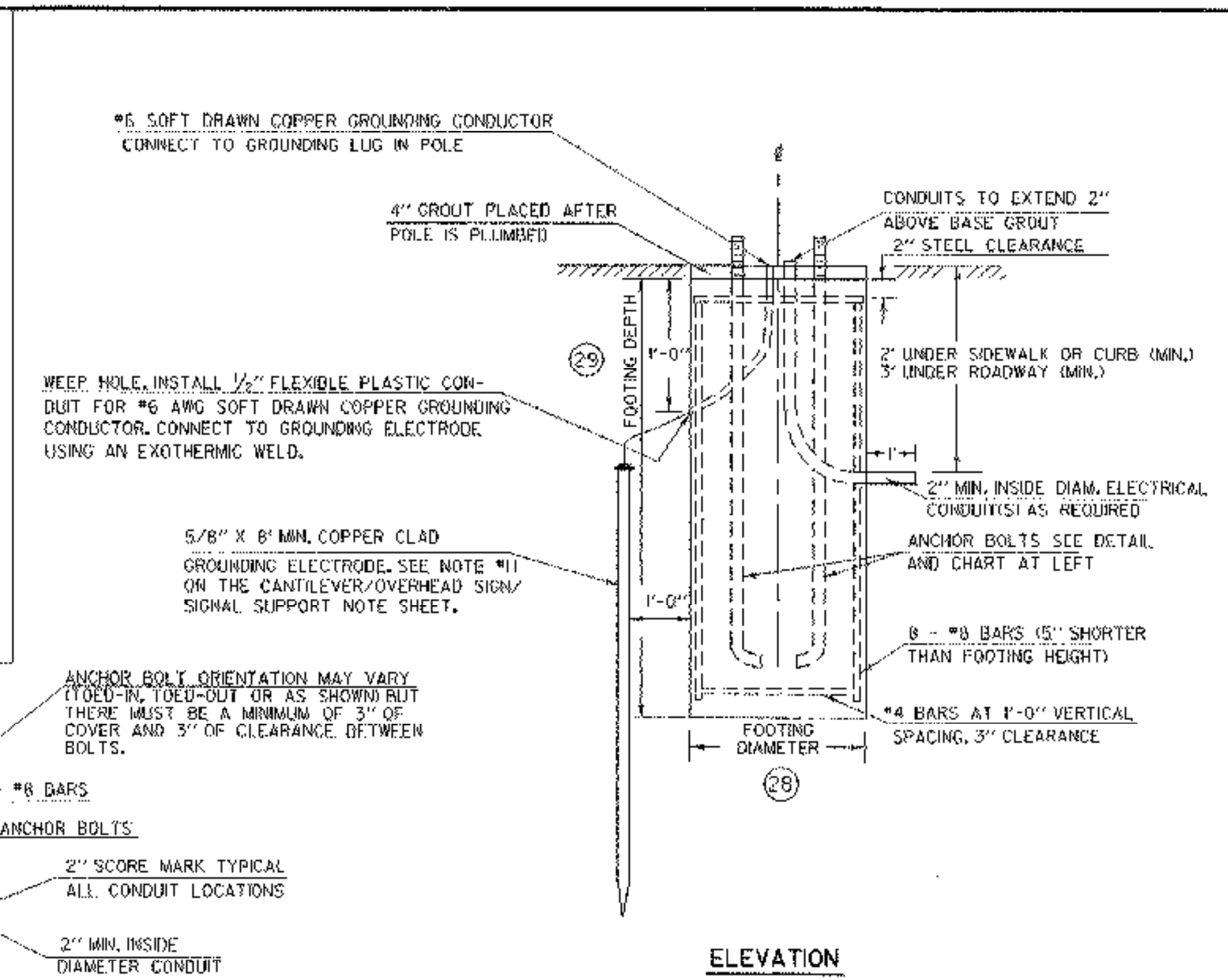
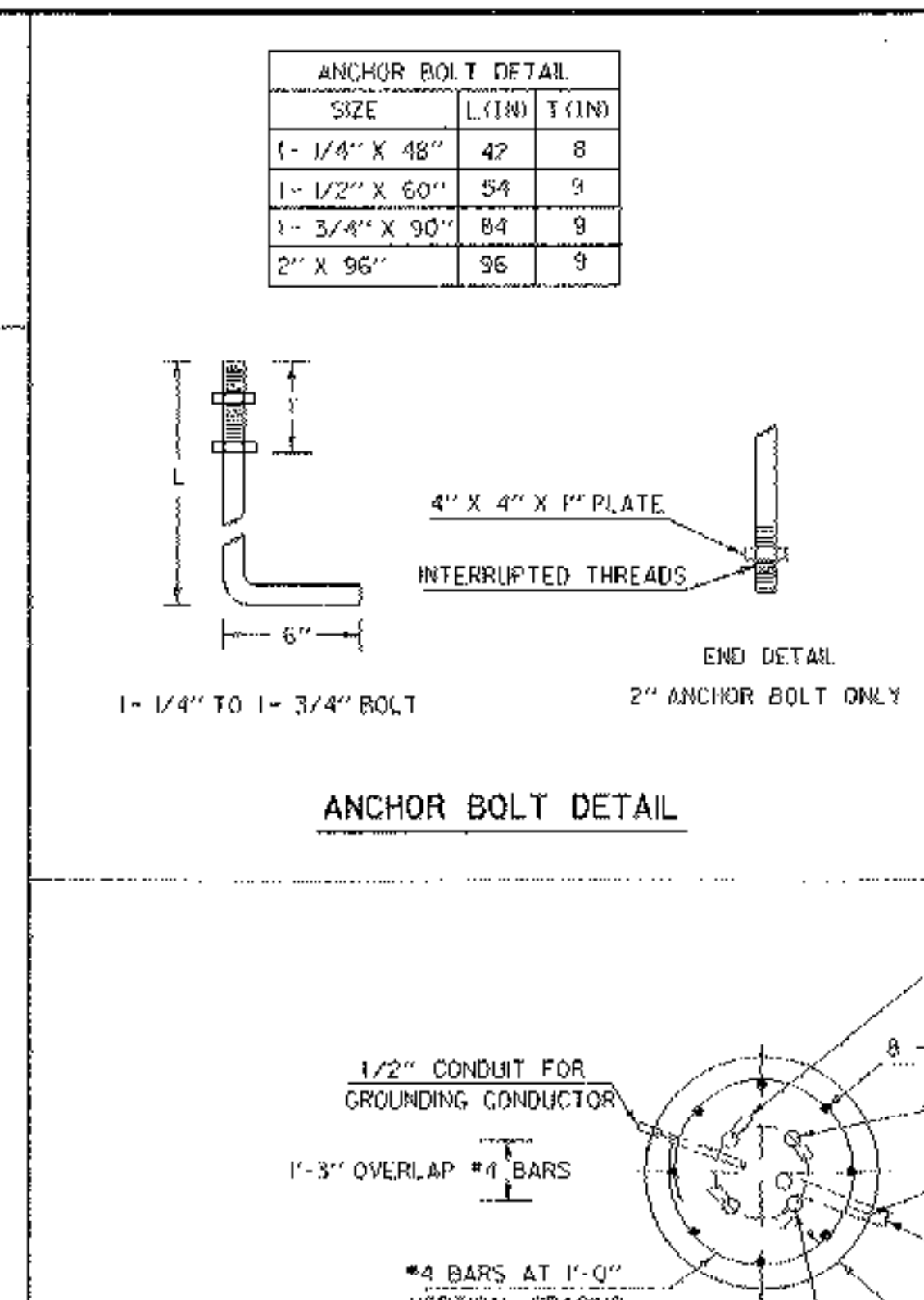
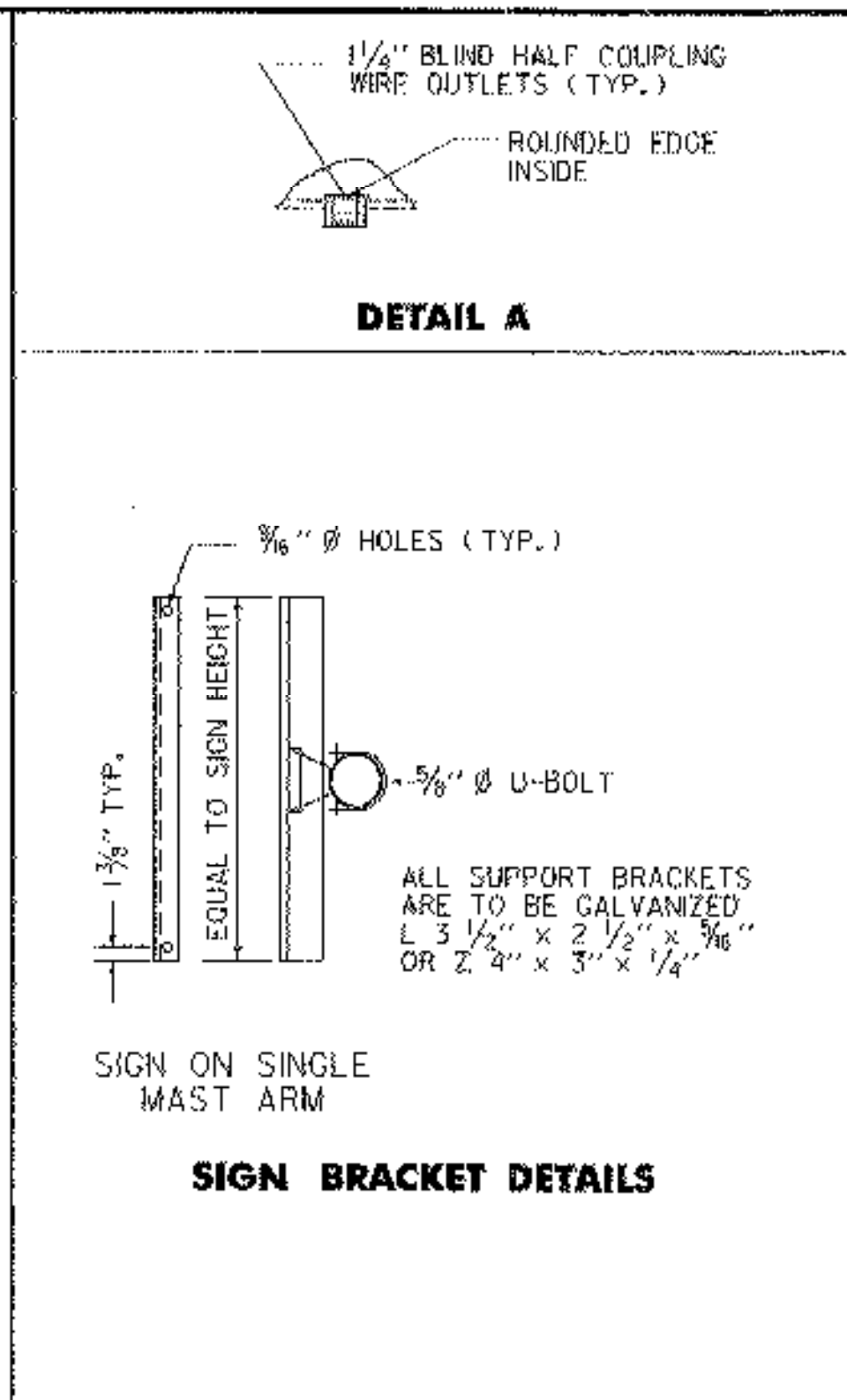
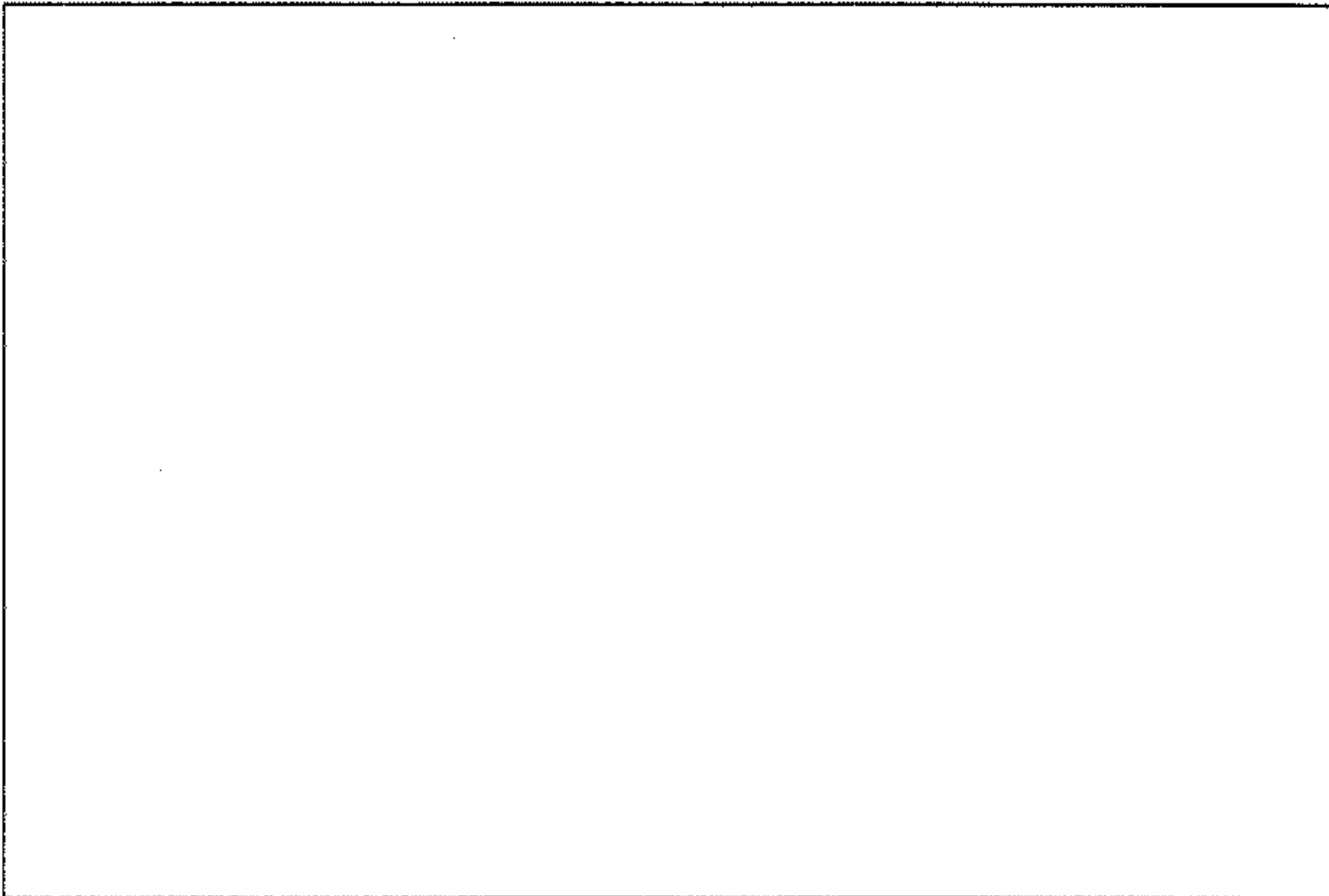
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PREPARED BY <u>BRM</u> DATE <u>11/2003</u> CHECKED BY <u>BTN</u> DATE _____ DESIGN SUPERVISOR <u>BTN</u> DATE _____ PROJ.	ESSEX STPG SGNL (17)
SHEET 18 OF 29 SHEETS	

TRAFFIC SIGN SUMMARY SHEET 1

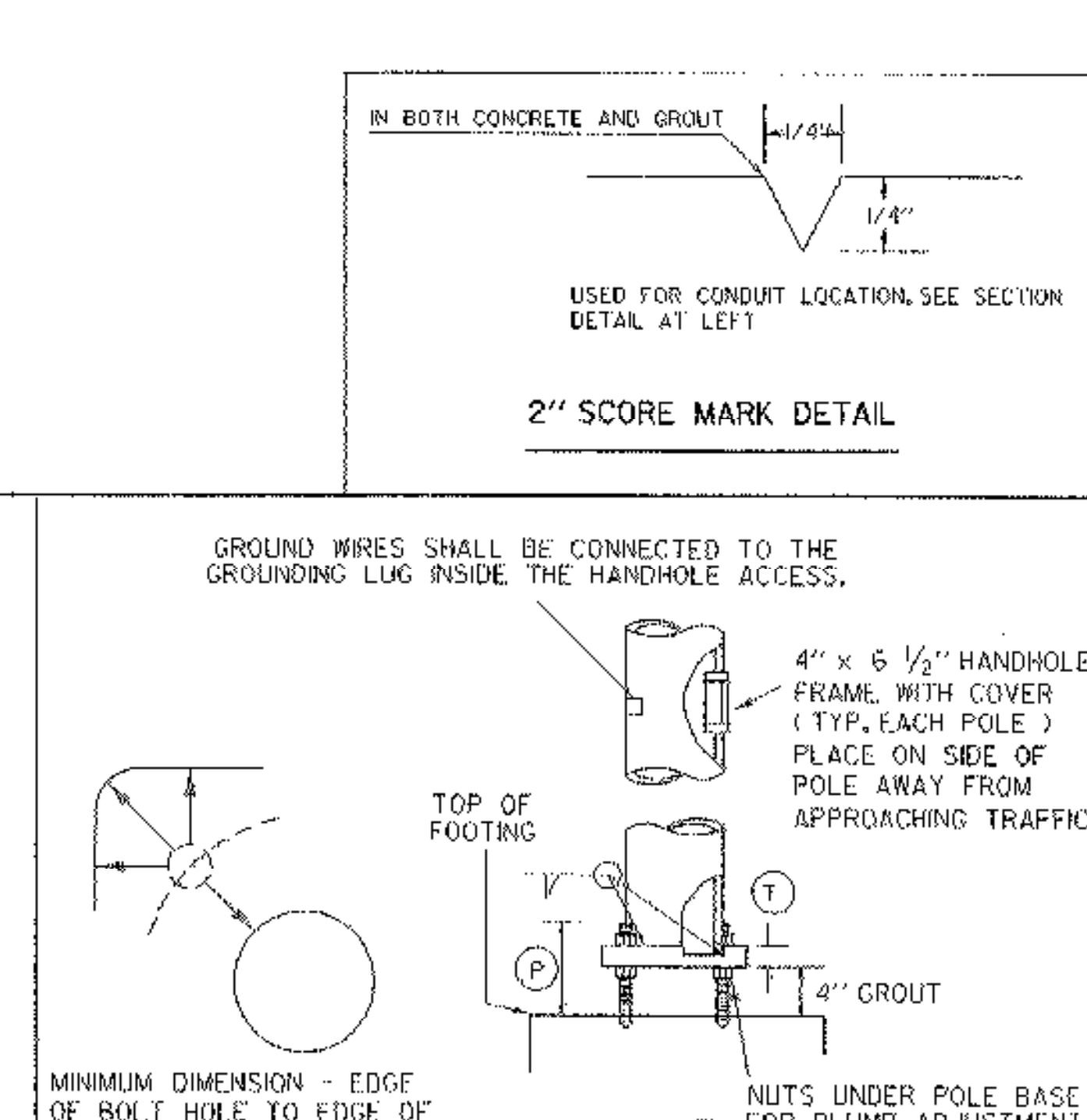
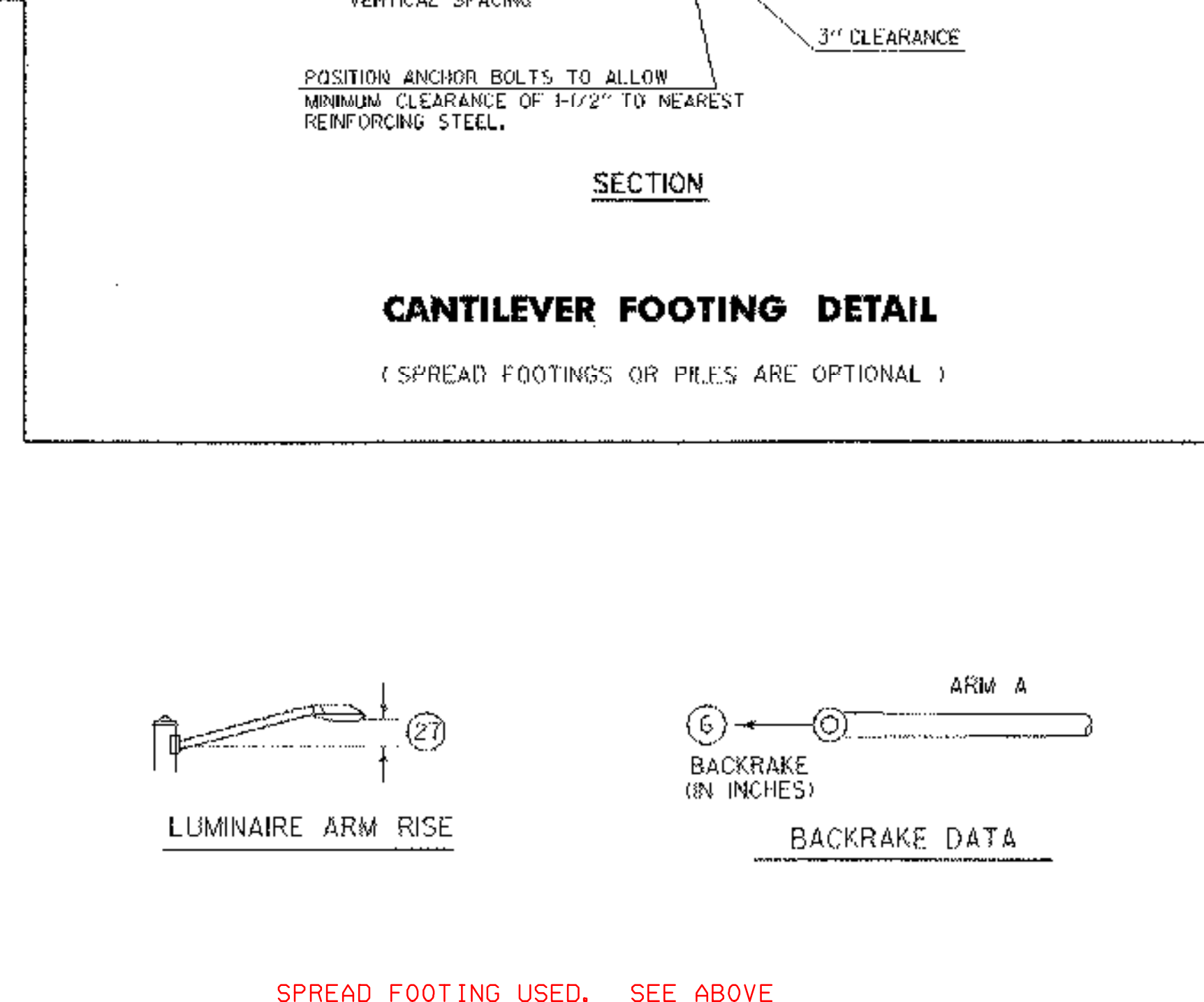
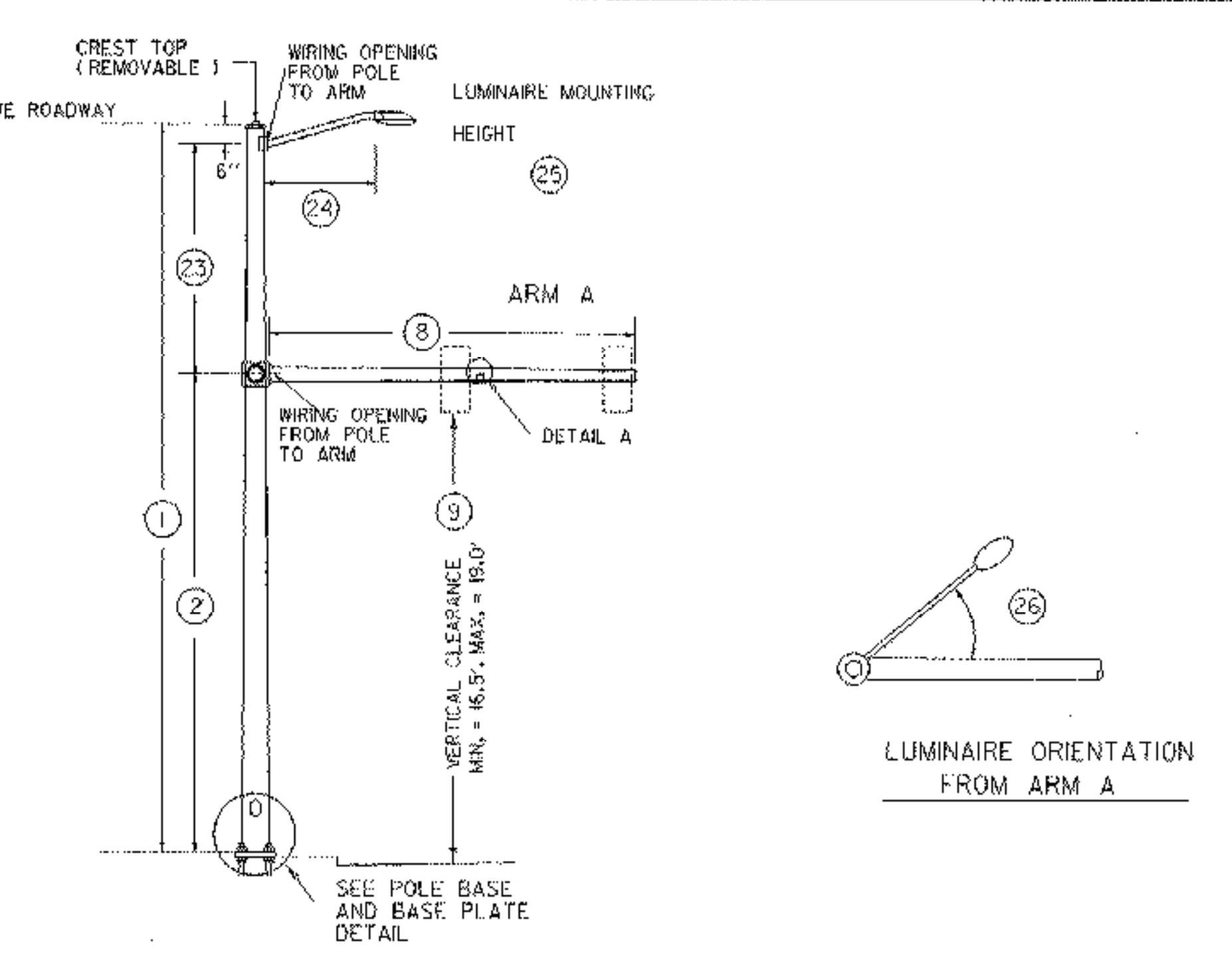
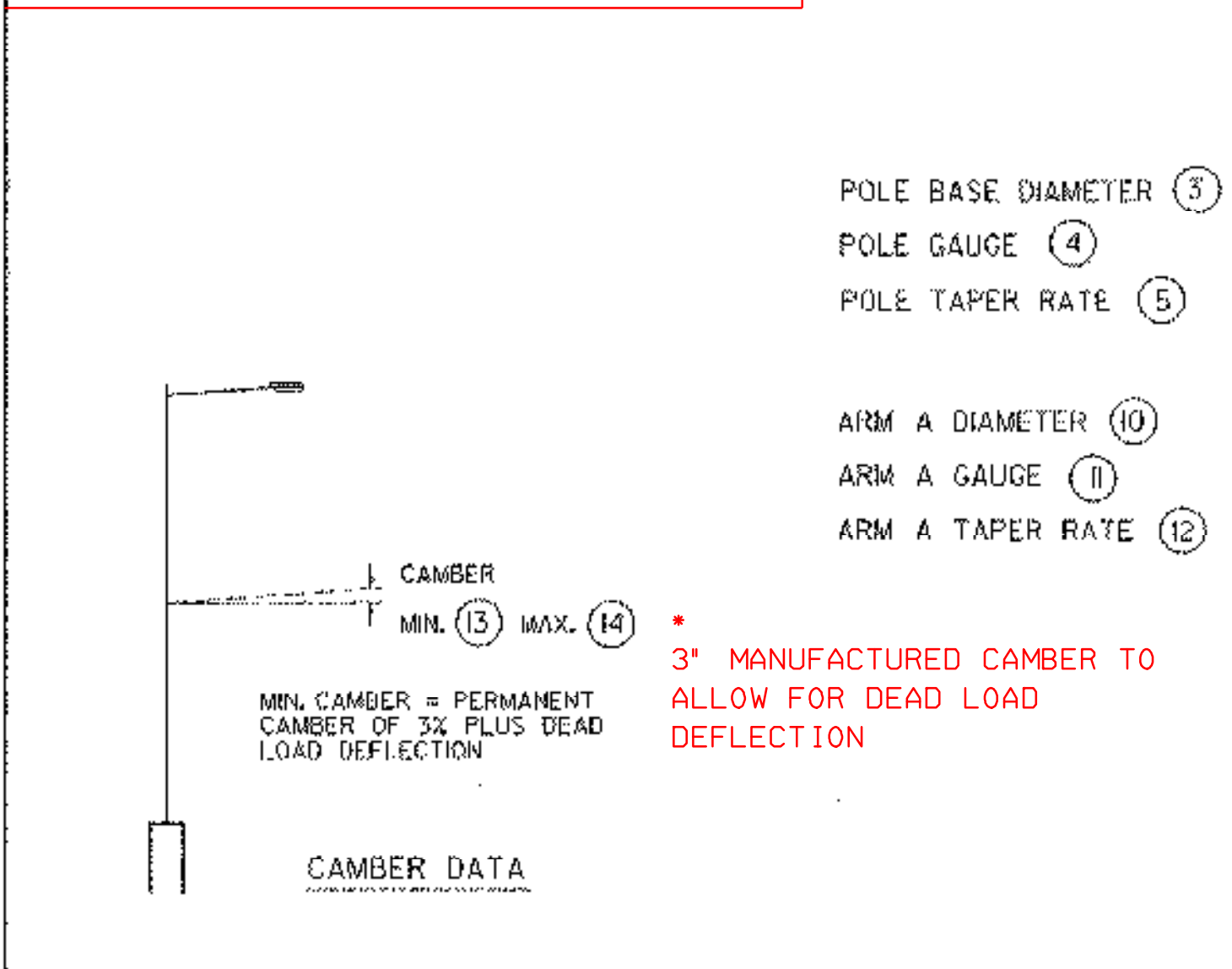
MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS		NEW & SALVAGED SIGNS				EXIST POST RETAIN	NO. OF POSTS	NEW SIGN POSTS																REMARKS	SIGN DETAIL		
		E	A	WIDTH (in)	HEIGHT (in)	"A"	"B"			SALV SIGN	SALV TIS	FLANGED CHANNEL			SQUARE STEEL (in)			TUBULAR ALUMINUM (in)			TUBULAR STEEL (in)				W-SHAPE STEEL		DETAIL ON SHEET NUMBER	STD. SHEET NUMBER	
												1.2	2.0	3.0	1.75	2.0	2.5	3.0	4.0	4.0 MOD.	3.0	3.5	4.0	5.0	FTG. SIZE				WEIGHT
VT 15 279+02 RT		1		24	30	5.0			1		X		X		X												SIGN ID CODE VR-922	E-145A	
		1		24	24	4.0																					SIGN ID CODE R8-3A	E-143	
		1		24	12	2.0																					SIGN ID CODE M4-6	E-140	
VT 15 280+15 LT		1		24	30	5.0			1		X		X		X												SIGN ID CODE R2-1	E-142	
		1		24	24	4.0																					SIGN ID CODE R8-3A	E-143	
		1		24	12	2.0																					SIGN ID CODE M4-11	E-140	
VT 128 0+61 RT NOT MOVED TO 0+72 RT									2		X		X		X												SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
VT 128 0+61 RT NOT MOVED TO 0+72 RT																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
																											SALVAGED SIGNS TO BE MOUNTED ON NEW POST.		
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."										FT	FT	FT	FT	FT	FT	EA	LB	LB	LB	LB	LB	LB	EA	EA	LB				
TOTALS										22.0	26.92				60	60													

PROJECT NAME: ESSEX
 PROJECT NUMBER: STPG SGNL(17)
 FILE NAME: /96b182/1b182nu1.dgn/1b182ssl.f PLOT DATE: 16-NOV-2006
 PROJECT LEADER: B. NYQUIST DRAWN BY: B. MCAVOY
 DESIGNED BY: B. MCAVOY CHECKED BY: B. NYQUIST
 SHEET 19 OF 29



FOUNDATION DIMENSIONS - SPREAD FOOTING

D = 3' - 0" LONG 12-#6
 H = 3' - 6" TOP 11-#5
 T = 1' - 6" BOTTOM 11-#5 CLASS B
 W = 8' - 0"



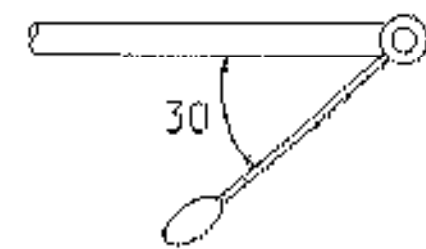
STRUCTURE DIMENSIONS

POLE	POLE DATA						ARM DATA								LIGHTING DATA					FOOTING DATA		BASE PLATE / BOLT DATA					
	1	2	3	4	5	6	8	9	10	11	12	13	14	23	24	25	26	27	28	29	BC	F	S	T	P	ANCHOR BOLT SIZE	
MA1	35'	19'		0.250	0.14	3'	45'	18'	0.250 0.1793		0.14	*	*	16.0'	15.0'	38.5'	30'	3.5'			21	14 7/8	21	1 1/4	6	1-1/2" X 60	
MA2	35'	20.5'				3'	45'	19'	0.250 0.1793		0.14			14.5'													
					IN/FT						IN/FT																

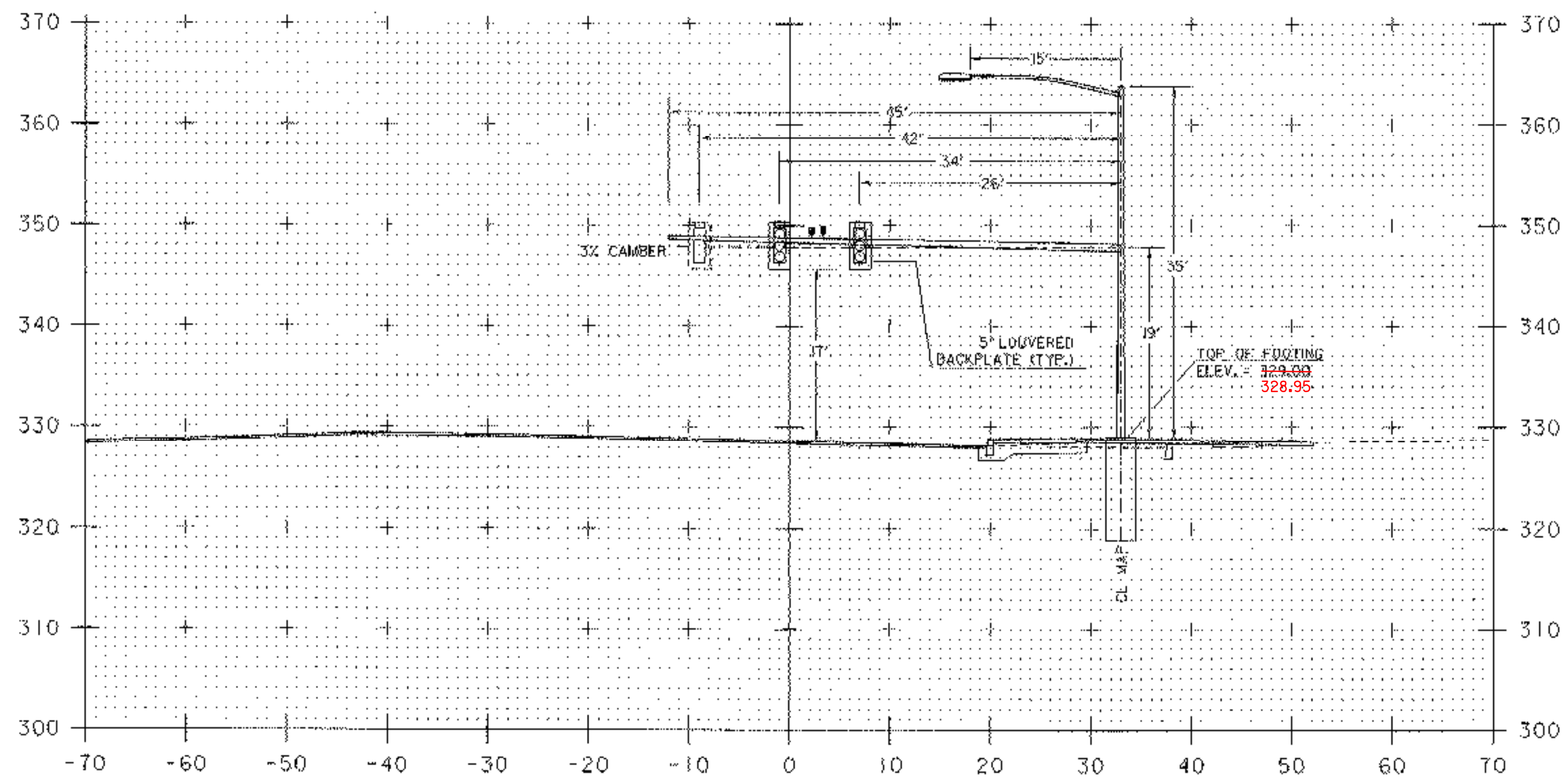
NOTE: DETAILS NOT TO SCALE

MAST ARM CANTILEVER WITH LIGHTING / FOOTING DETAIL SHEET

PREPARED BY BTM DATE _____
 CHECKED BY BTM DATE _____
 DESIGN SUPERVISOR BTM DATE _____
 PROJ. **ESSEX**
STPG SGNL (17)



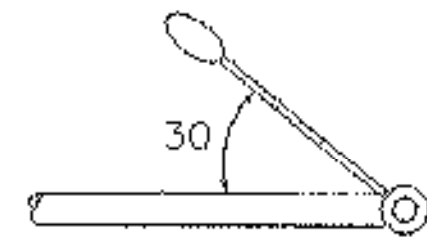
LUMINAIRE ORIENTATION FROM MAI



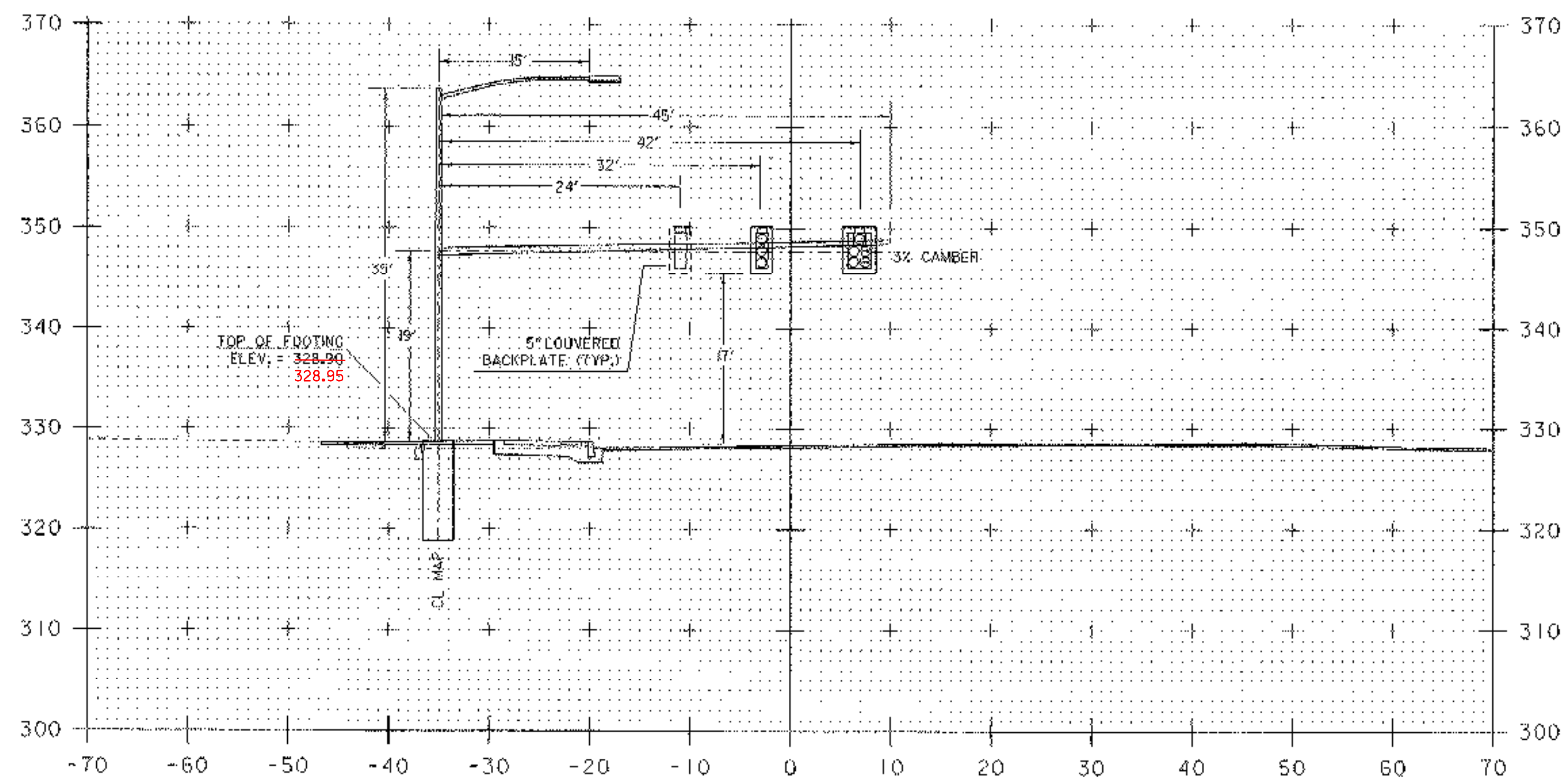
10+21

VT 15
LOOKING NORTH

PROJECT NAME:	ESSEX		
PROJECT NUMBER:	STPG SGNL (17)		
FILE NAME:	96b82/1b82wrk.dgn/1b82mol	PLOT DATE:	16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY:	B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY:	B. NYQUIST
		SHEET	22 OF 29



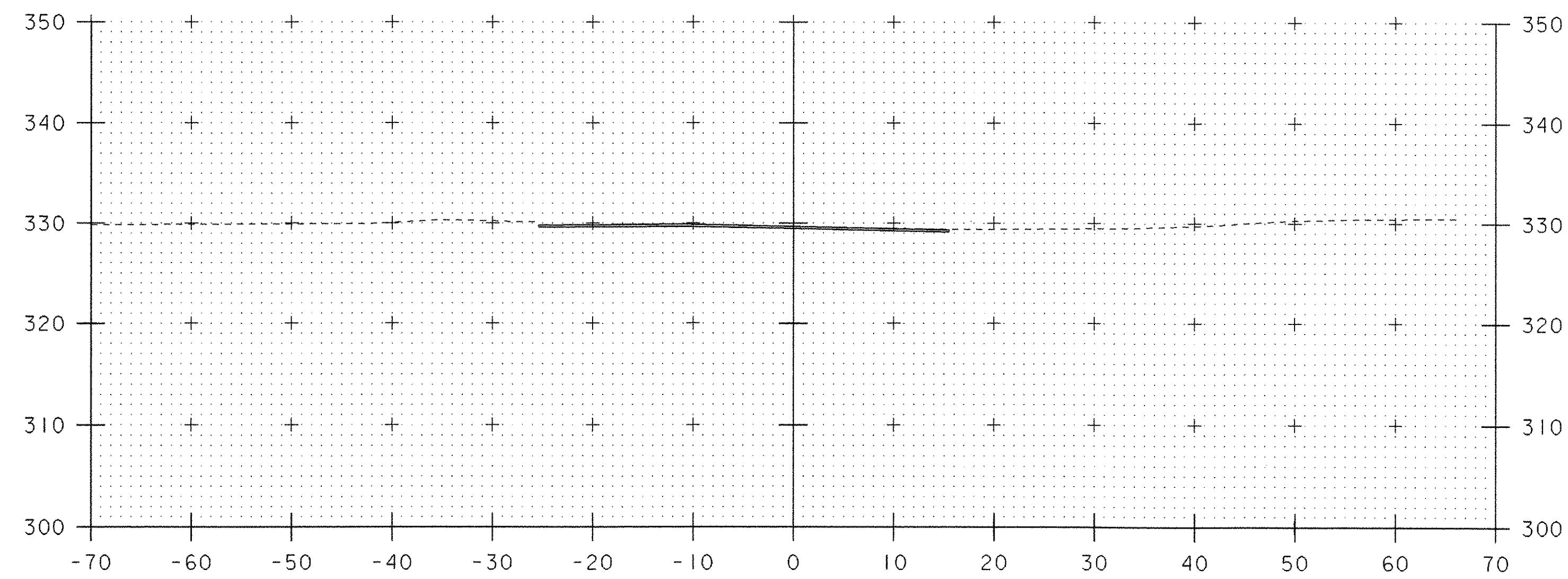
LUMINAIRE ORIENTATION
FROM MA2



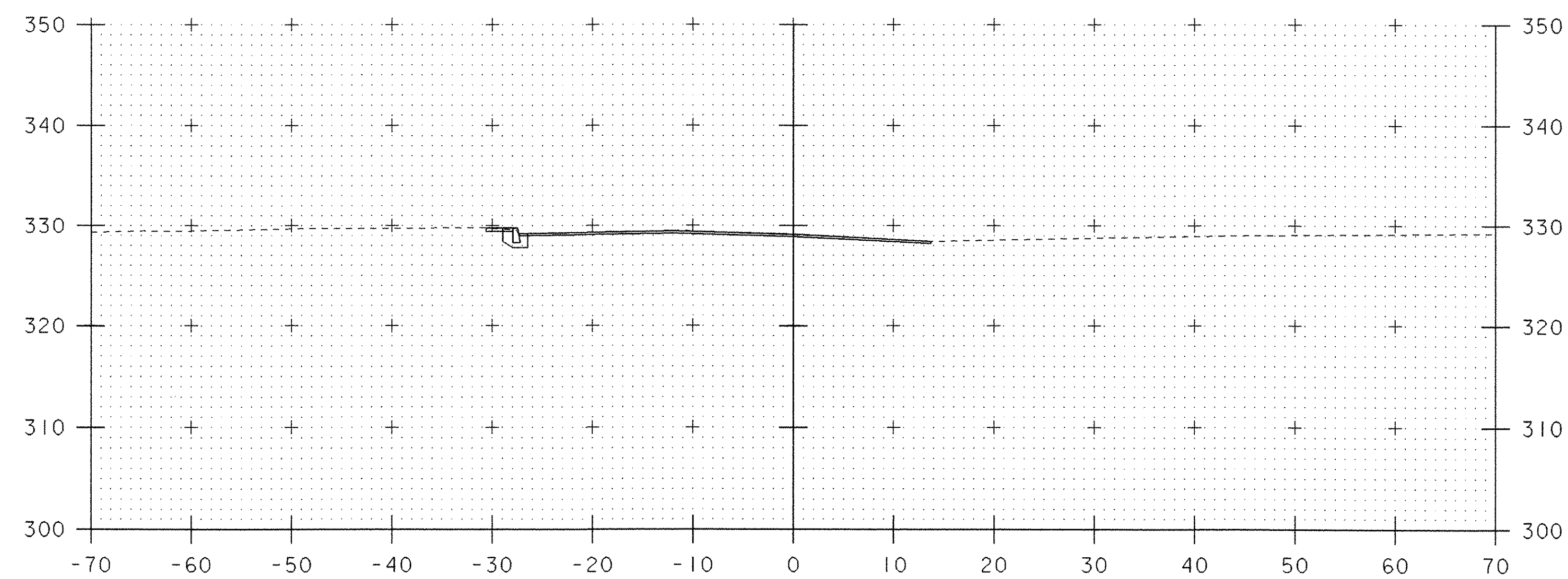
0+22

VT 15
LOOKING EAST

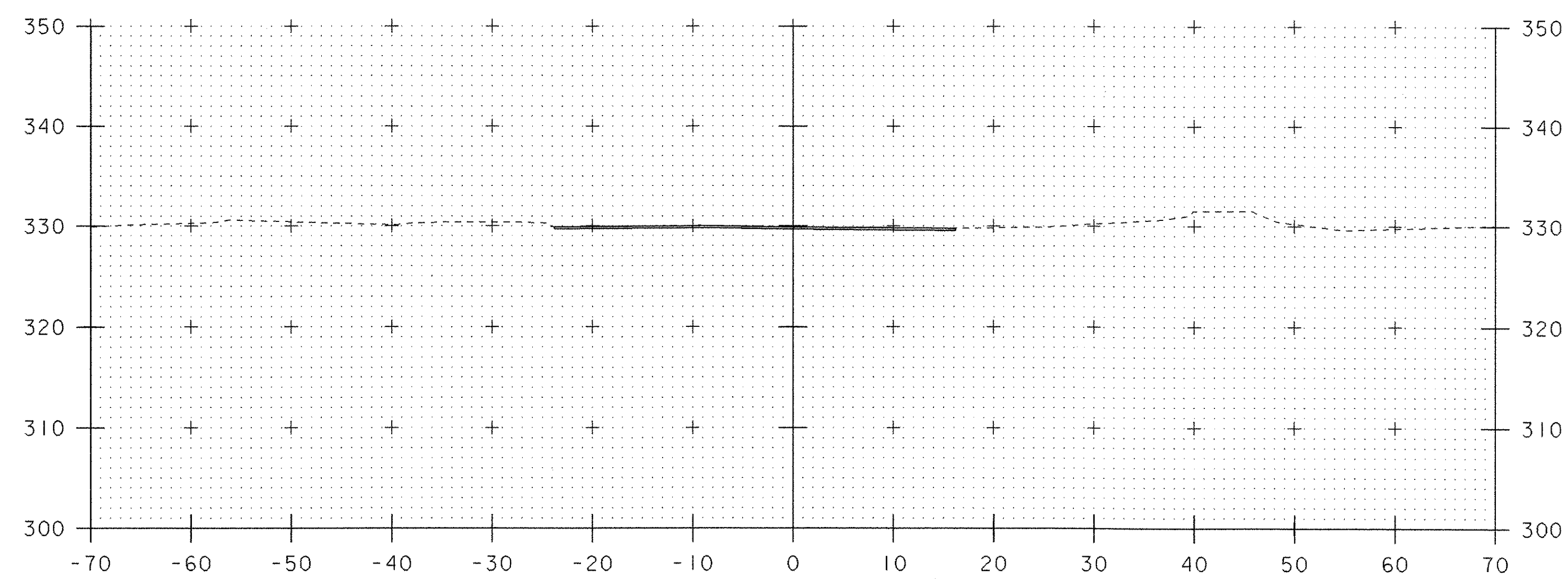
PROJECT NAME:	ESSEX		
PROJECT NUMBER:	STPG SGNL (17)		
FILE NAME:	96b182/tb182wrk.dgn/tb182ma21	PLOT DATE:	16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY:	B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY:	B. NYQUIST
		SHEET	23 OF 29



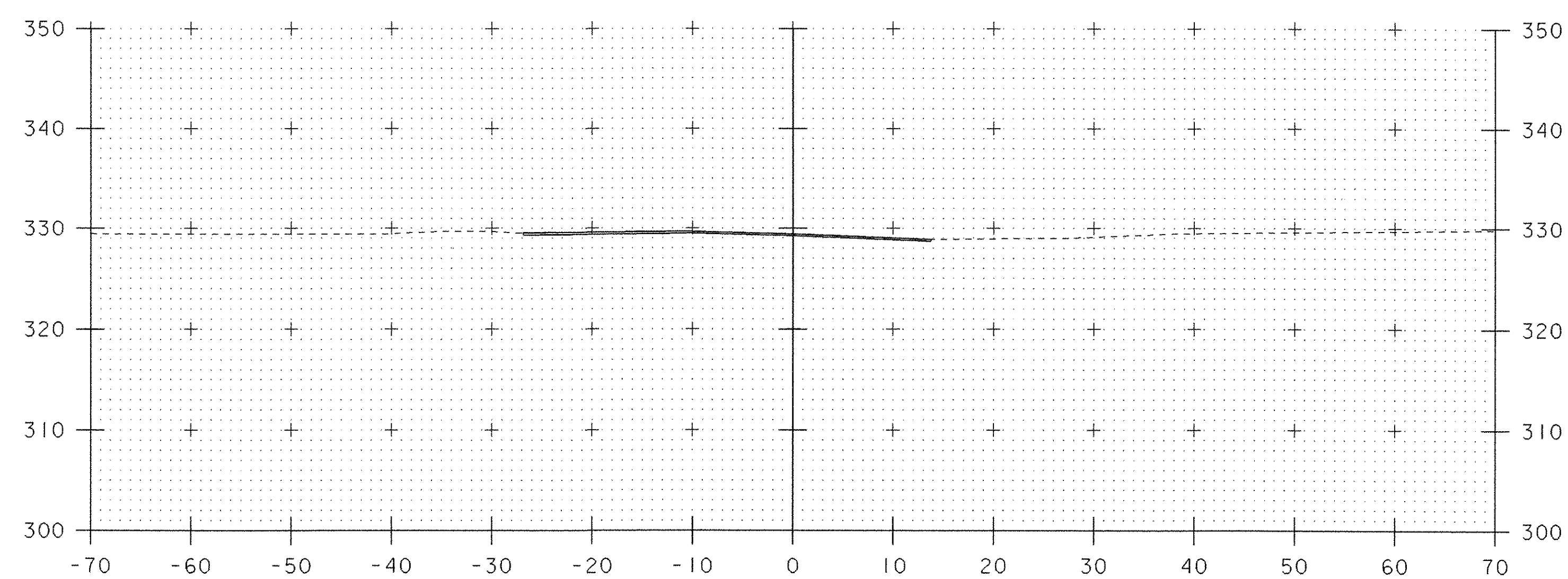
280+00



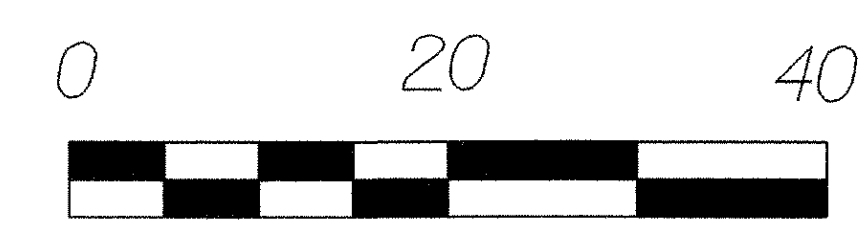
281+00



279+50

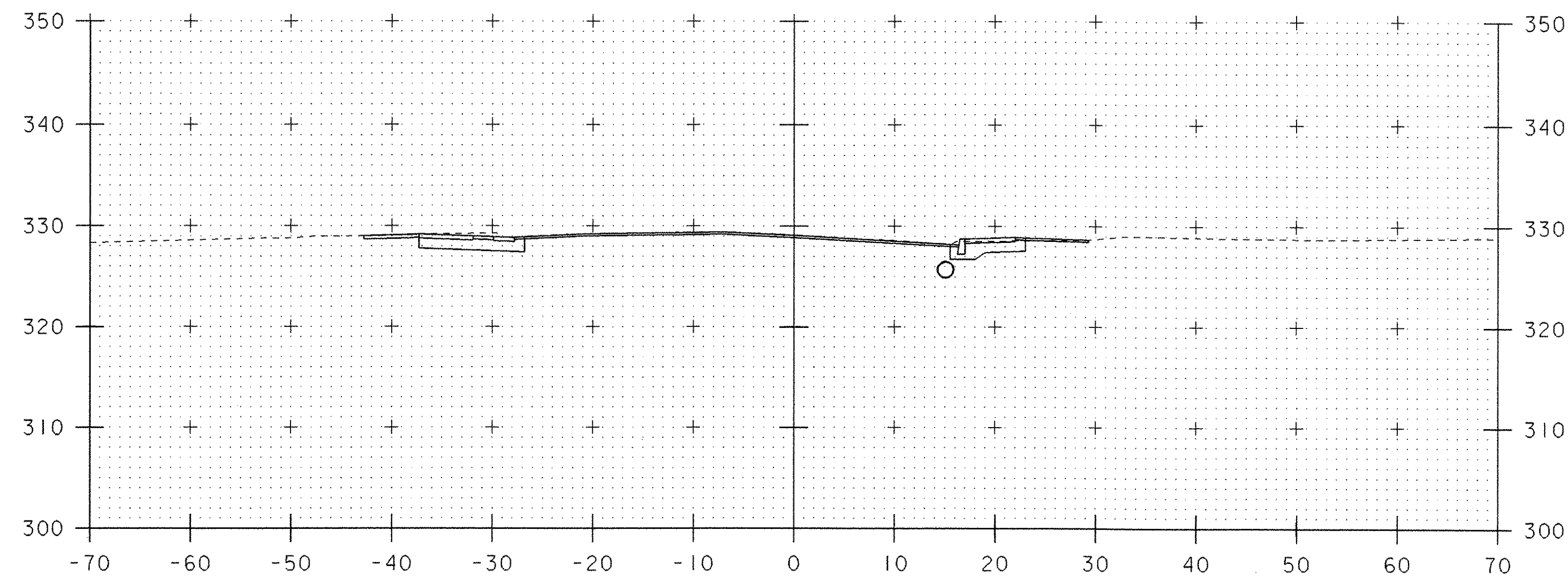


280+50

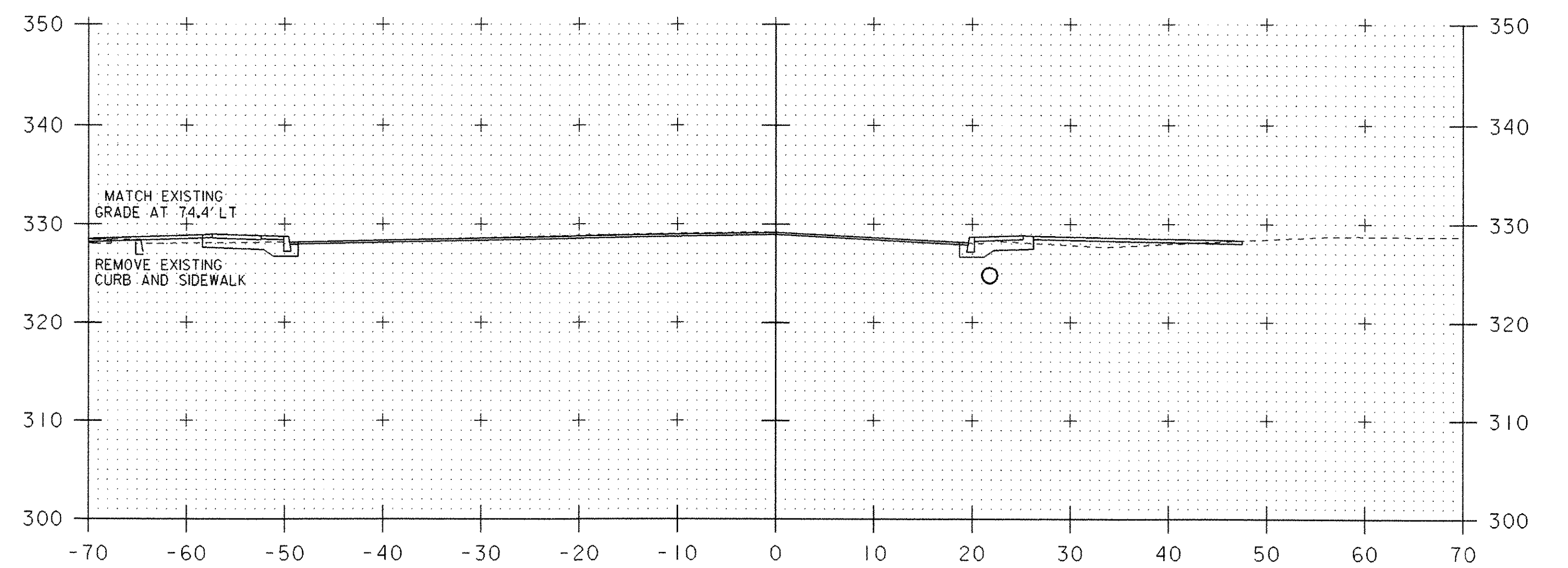


SCALE
IN FEET
HORIZ & VERT

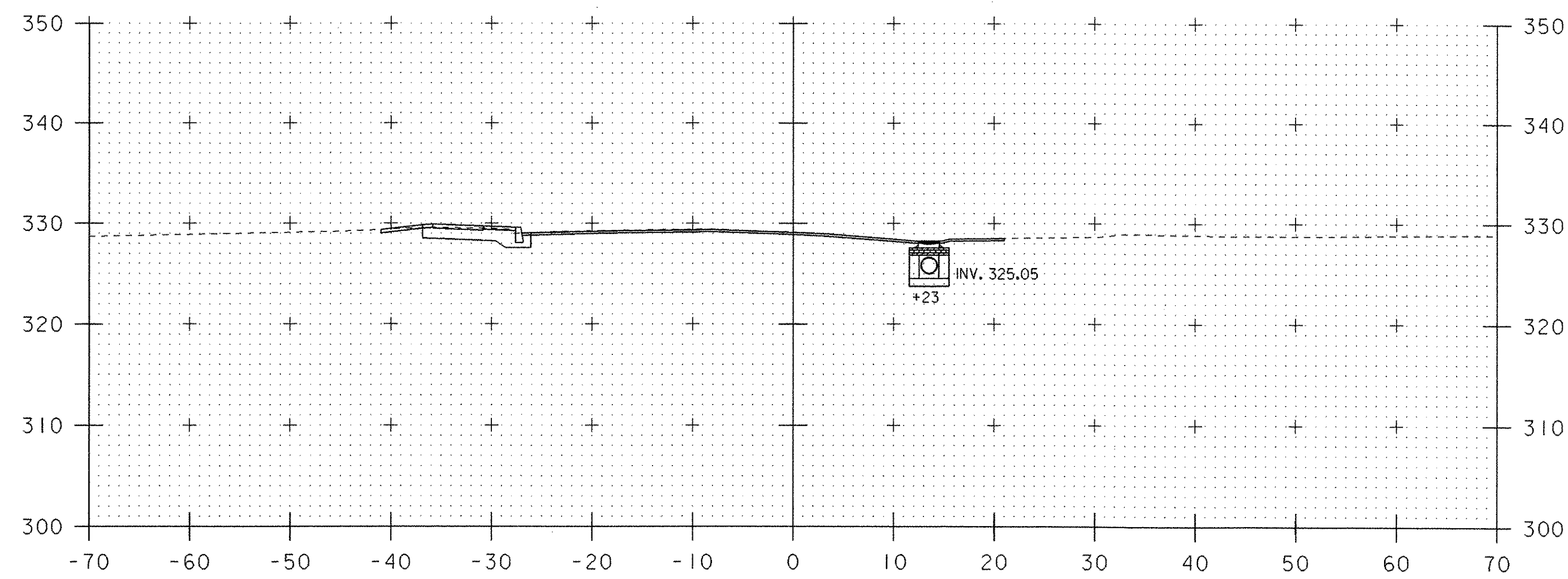
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PROJECT NUMBER:	STPG_SGNL (17)	
FILE NAME:	96bi82/tb182wrk.dgn/tb182xsl.t	PLOT DATE: 16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY: B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY: B. NYQUIST
		SHEET 24 OF 29



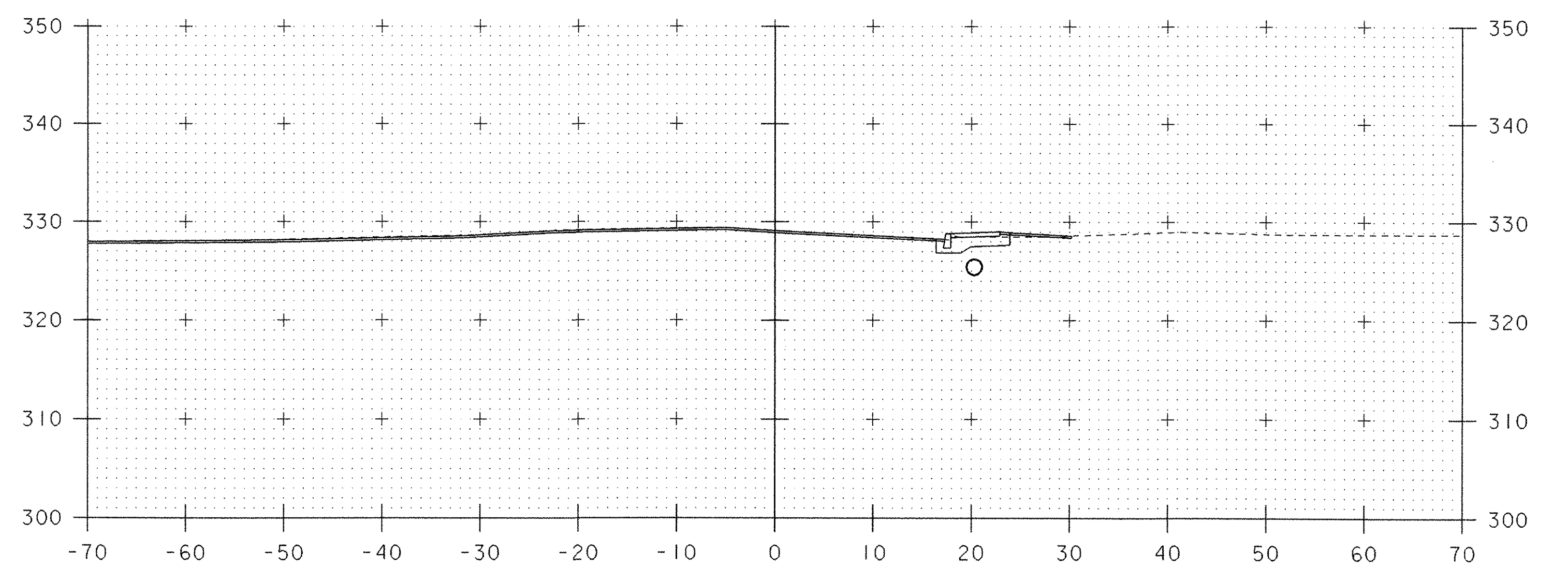
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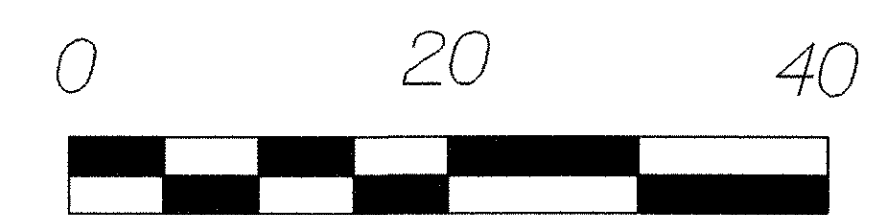
281+89



281+23

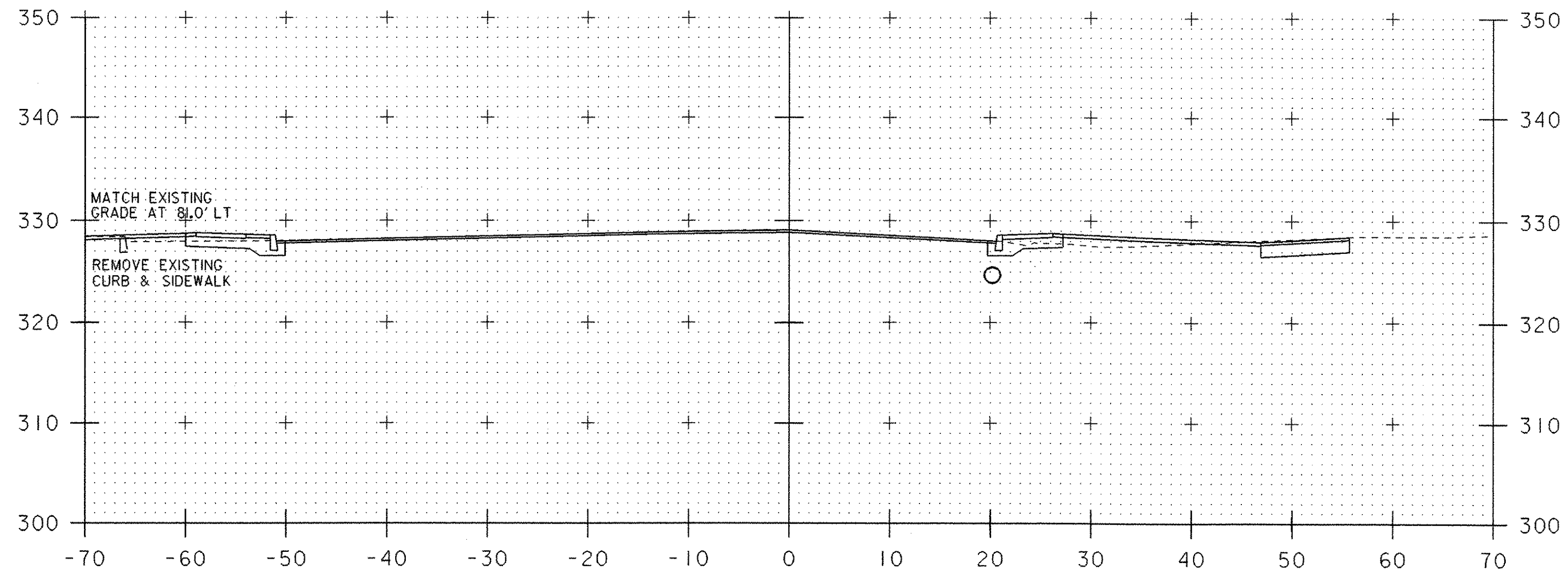


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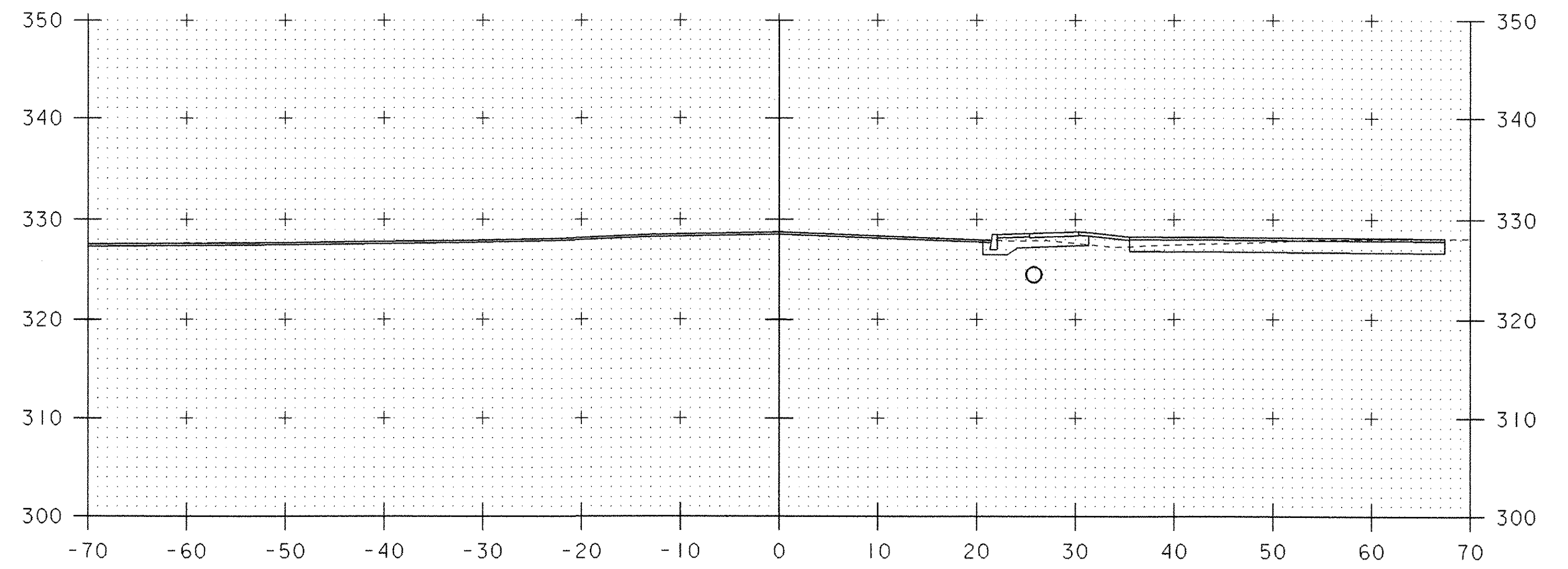


SCALE
IN FEET
HORIZ & VERT

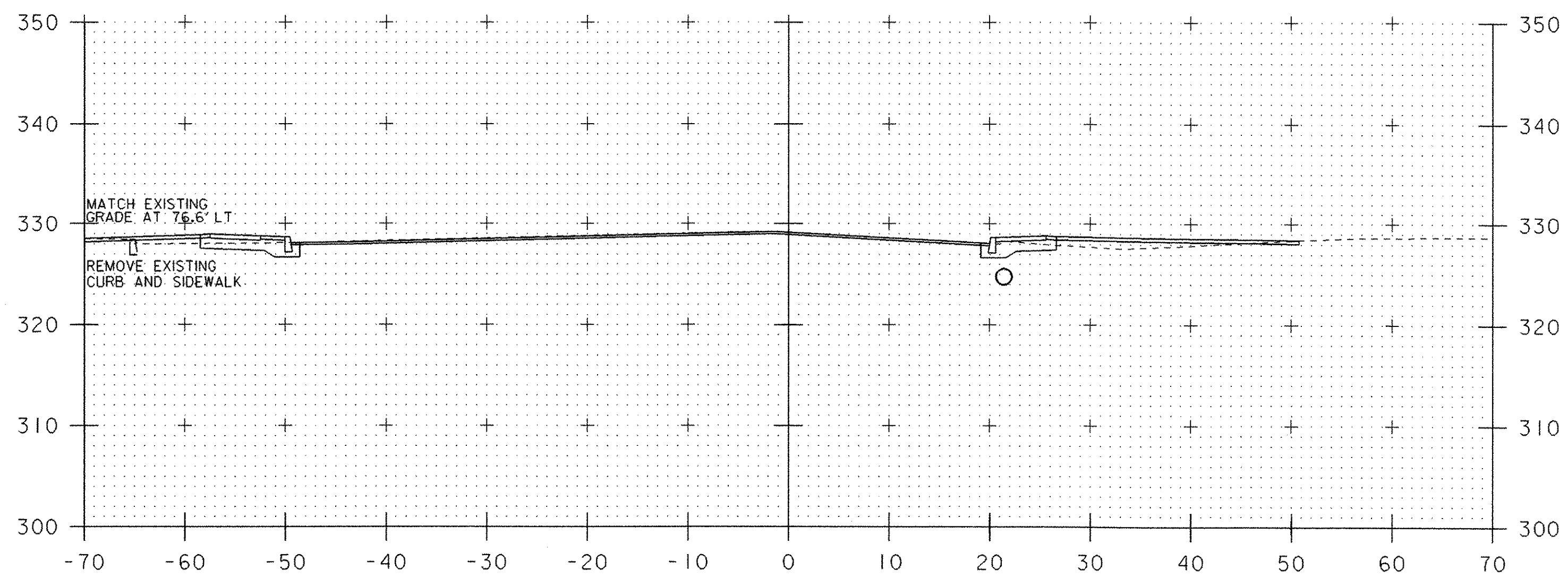
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PROJECT NUMBER:	STPG_SGNL (17)		
FILE NAME:	96b182/1b182wrk.dgn/1b182xs2.1	PLOT DATE:	16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY:	B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY:	B. NYQUIST
		SHEET	25 OF 29



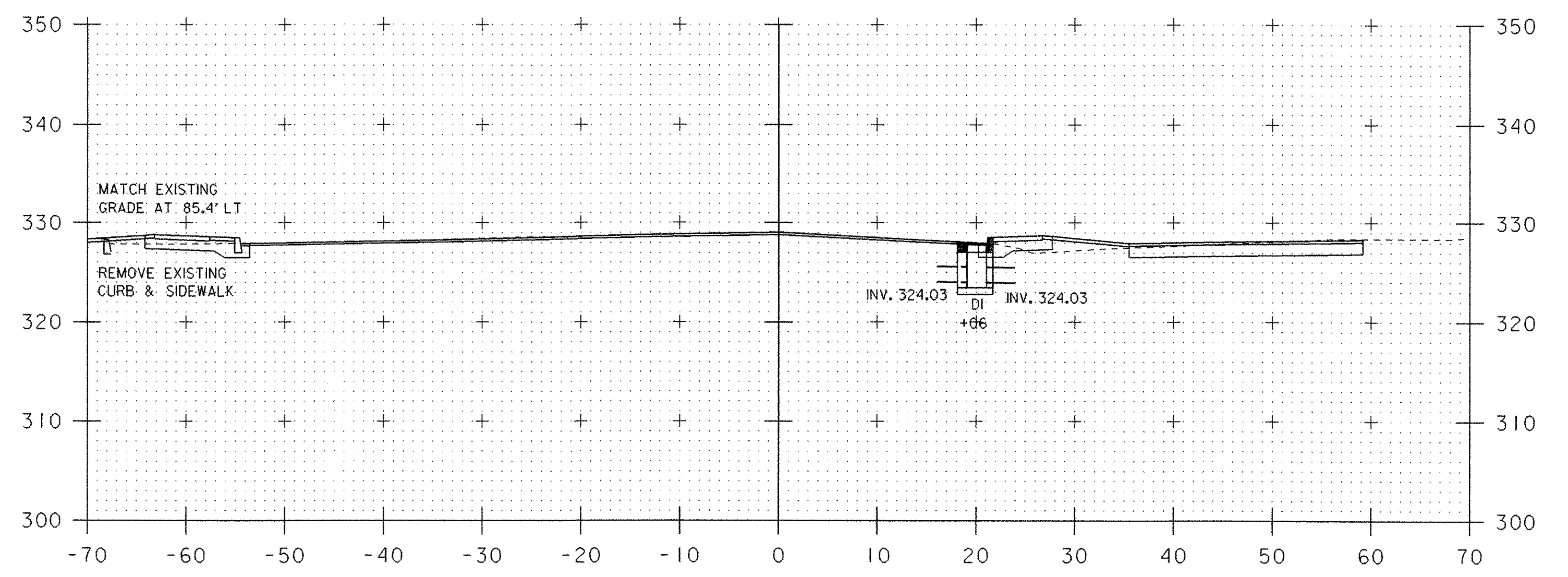
282+00



282+25



281+93

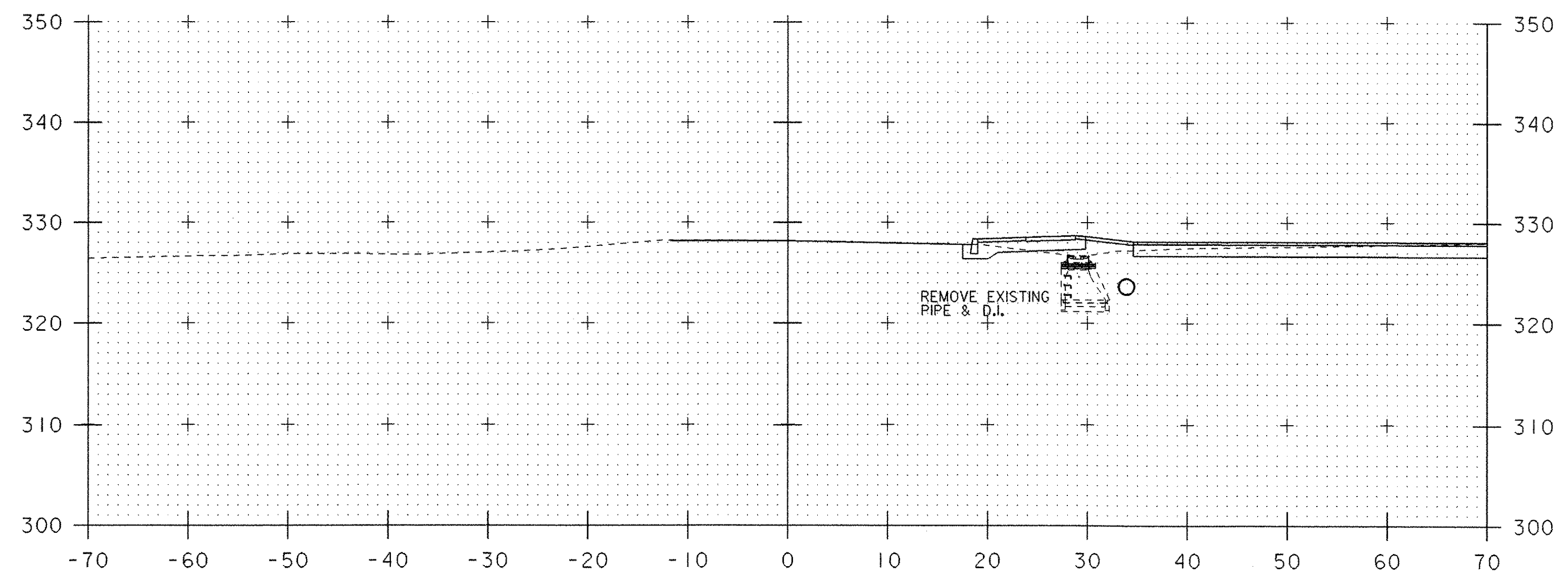


282+06

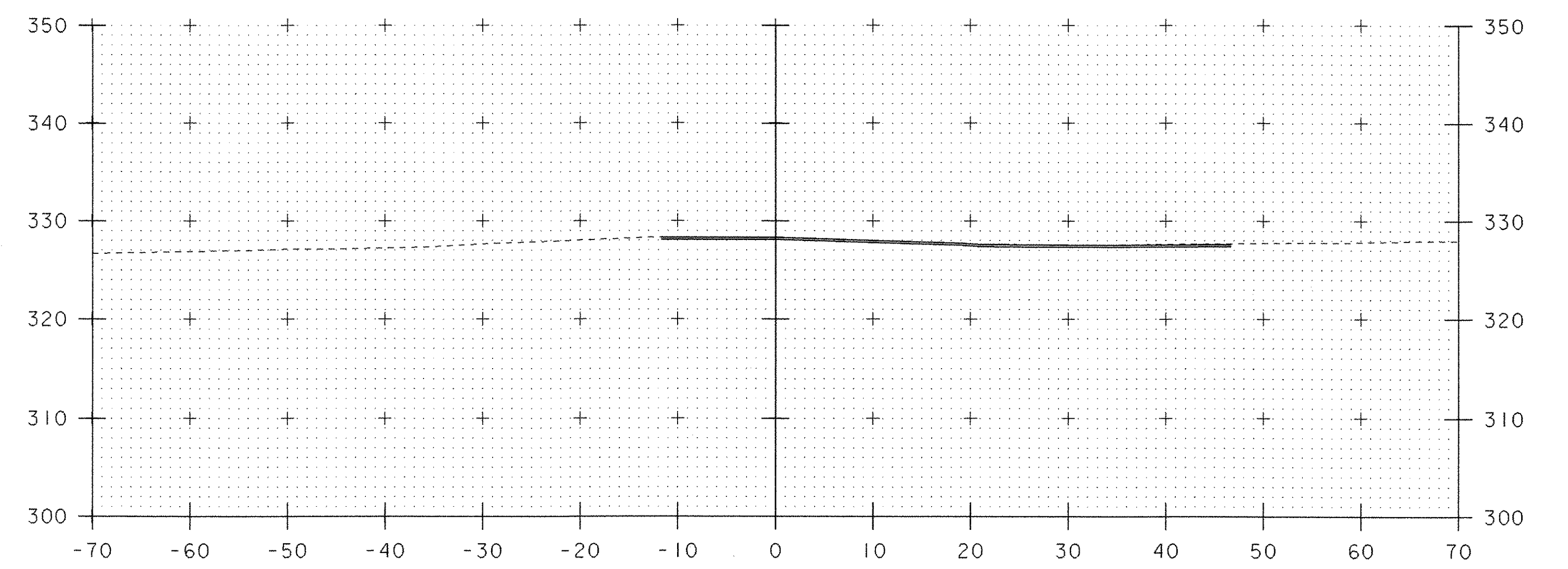


SCALE
IN FEET
HORIZ & VERT

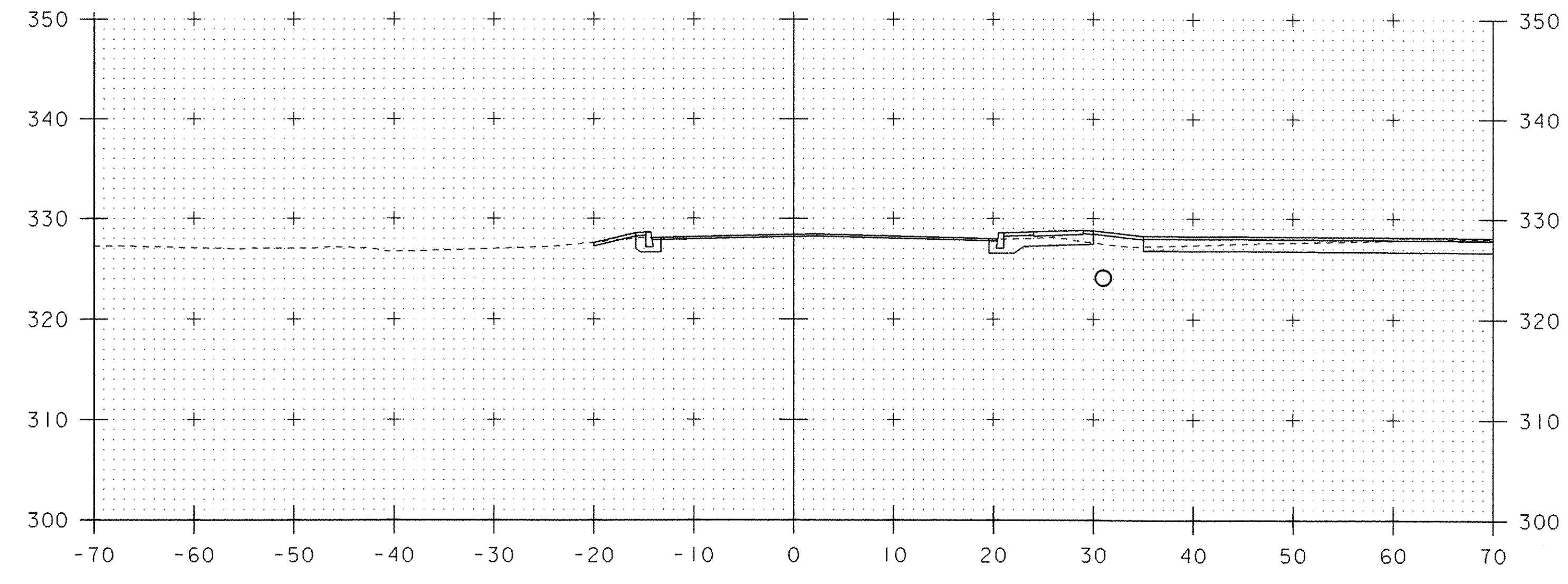
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PROJECT NUMBER:	STPG SGNL (17)		
FILE NAME:	96bl82/tbl82wrk.dgn/tbl82xs3.l	PLOT DATE:	16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY:	B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY:	B. NYQUIST
		SHEET	26 OF 29



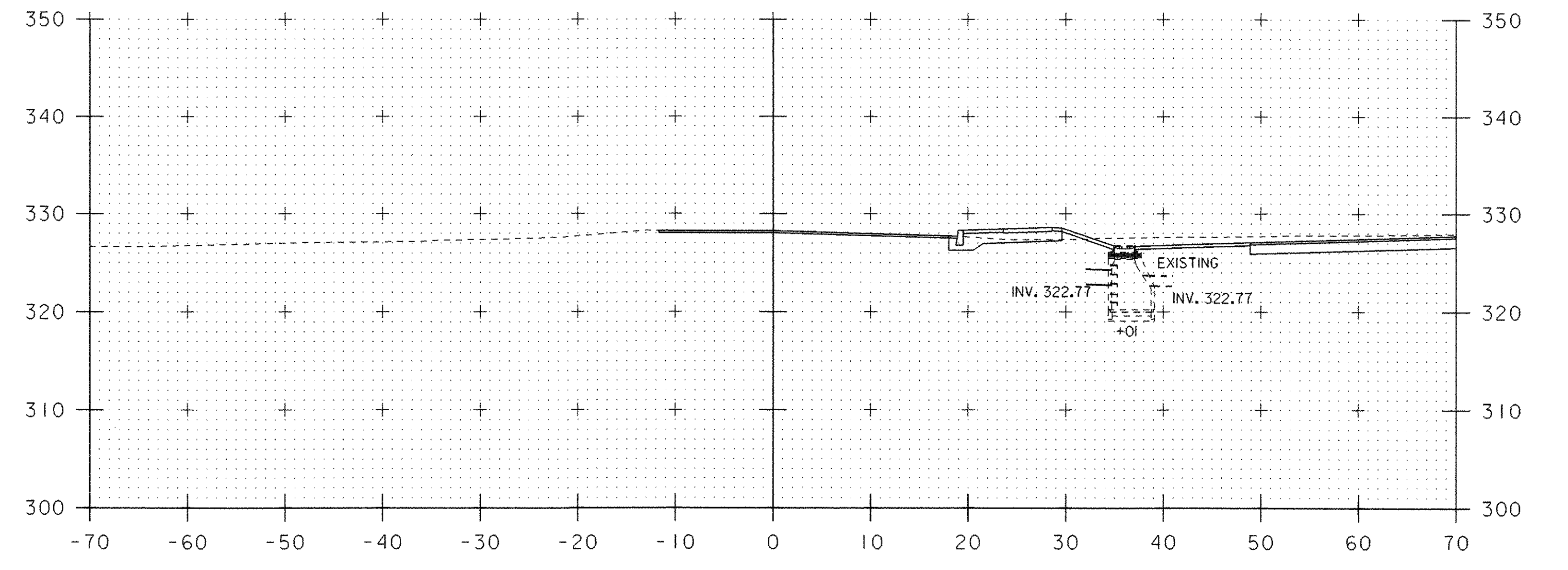
282+80



283+10



282+50

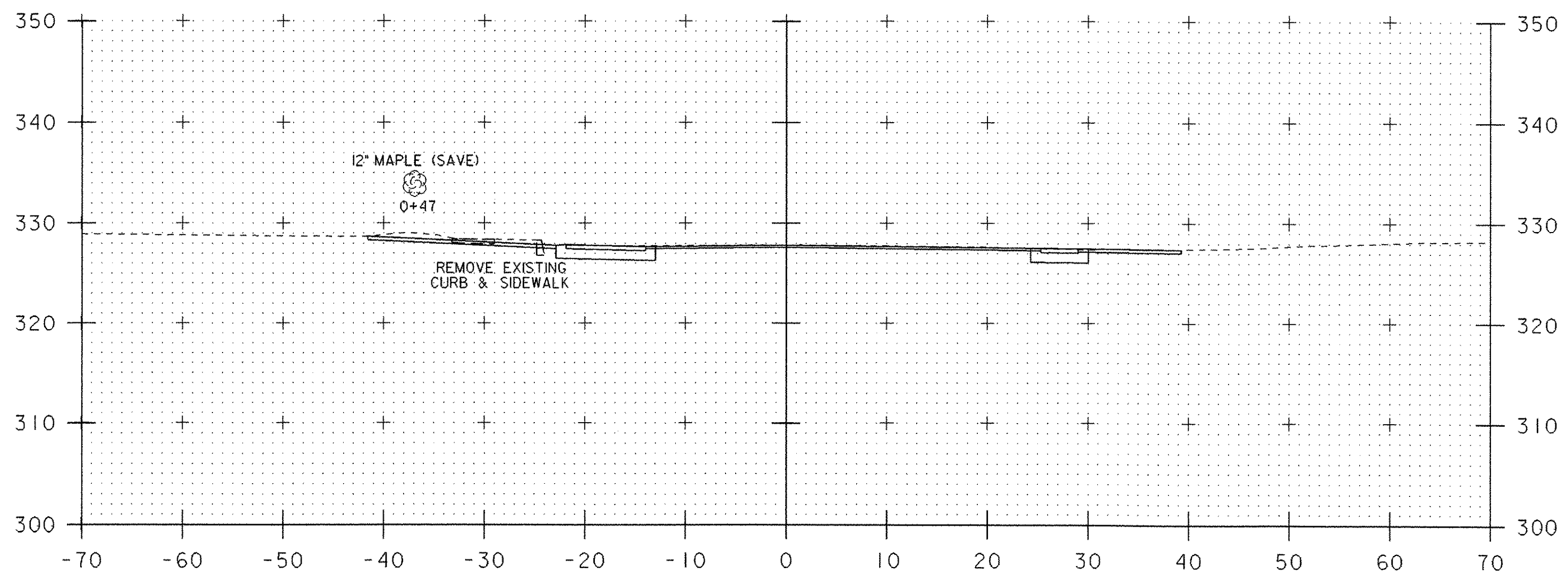


283+00

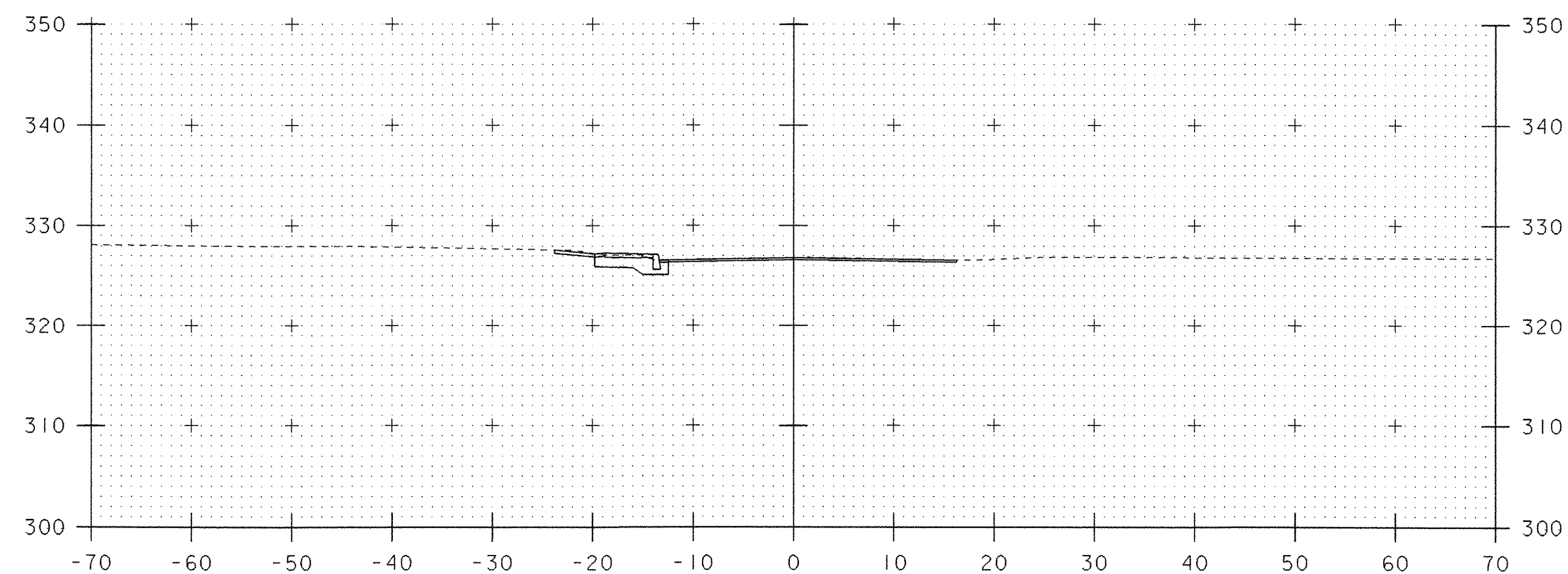


SCALE
IN FEET
HORIZ & VERT

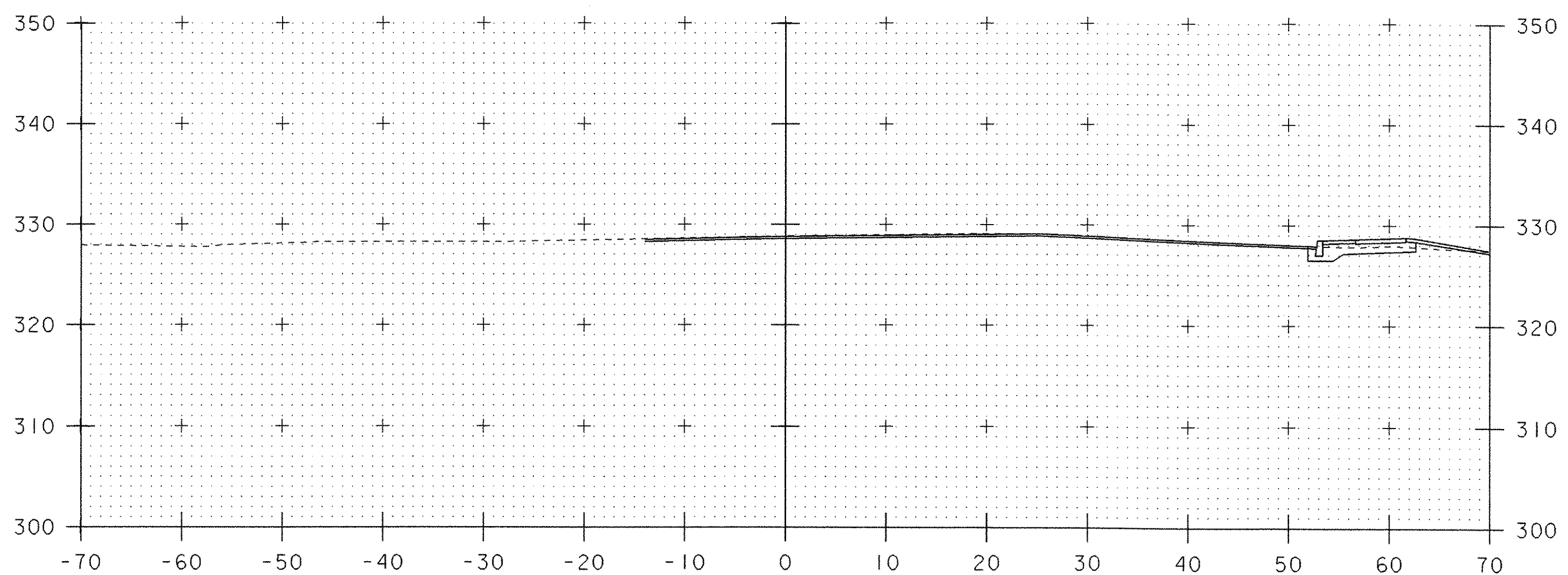
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PROJECT NUMBER:	STPG SGNL (17)		
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PROJECT LEADER:	B. NYQUIST	DRAWN BY:	B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY:	B. NYQUIST
		SHEET	27 OF 29



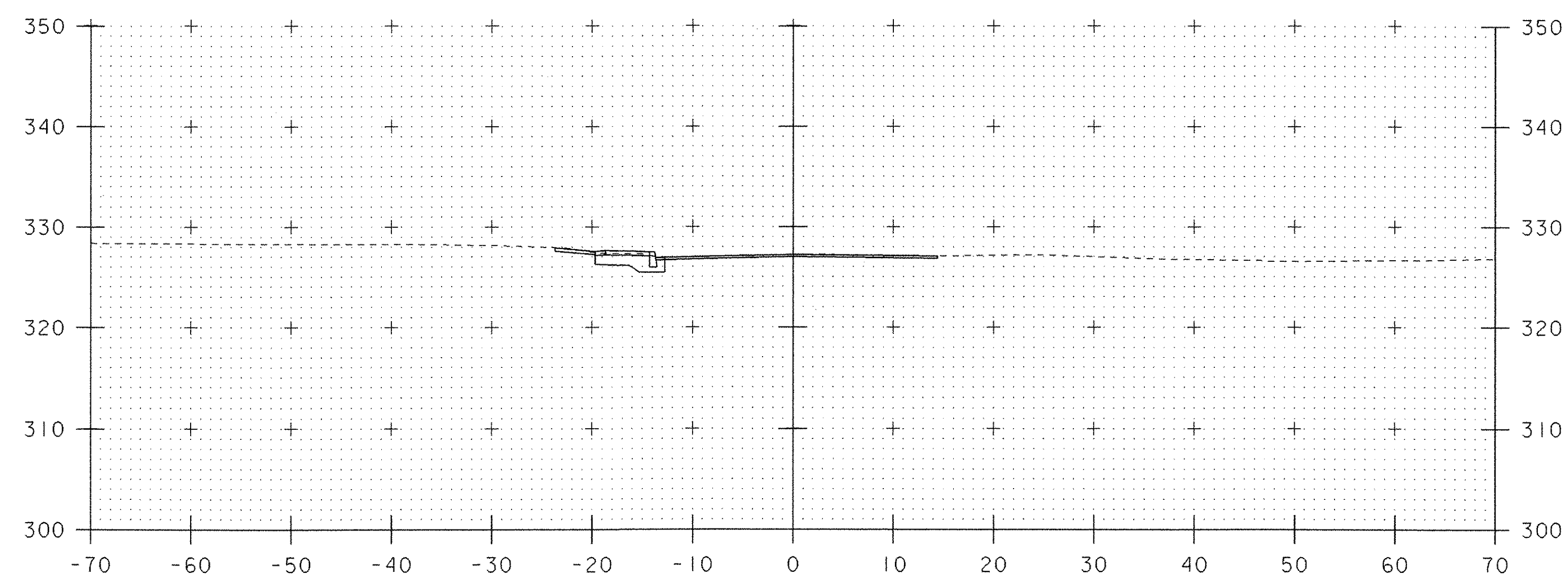
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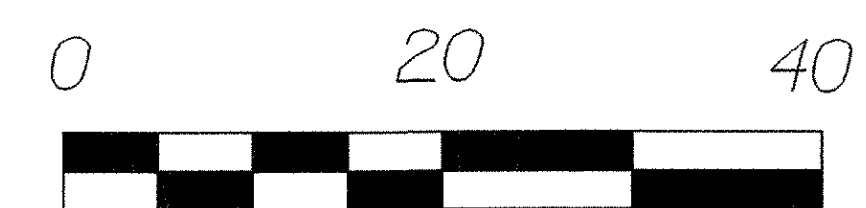
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0+00

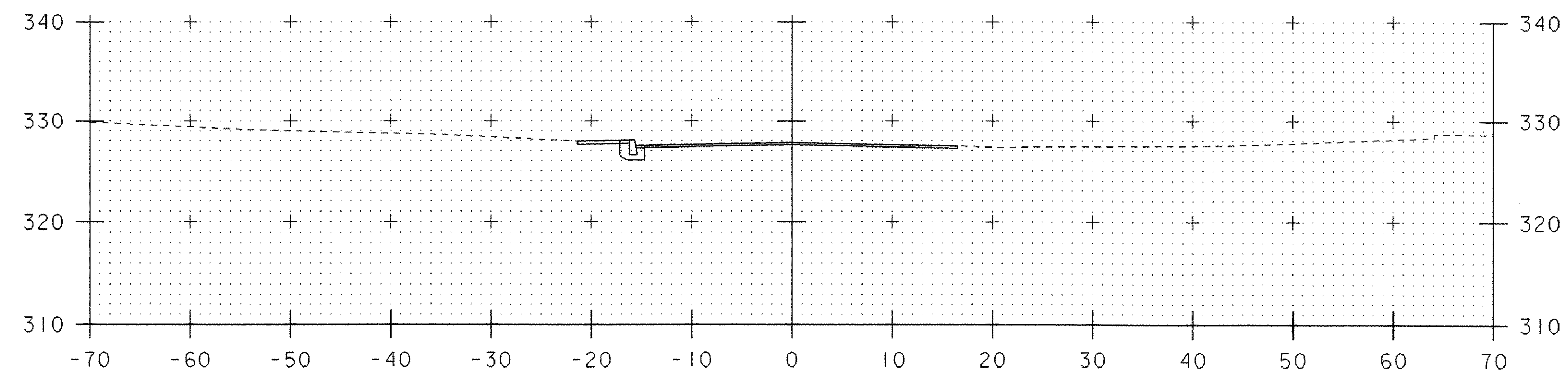


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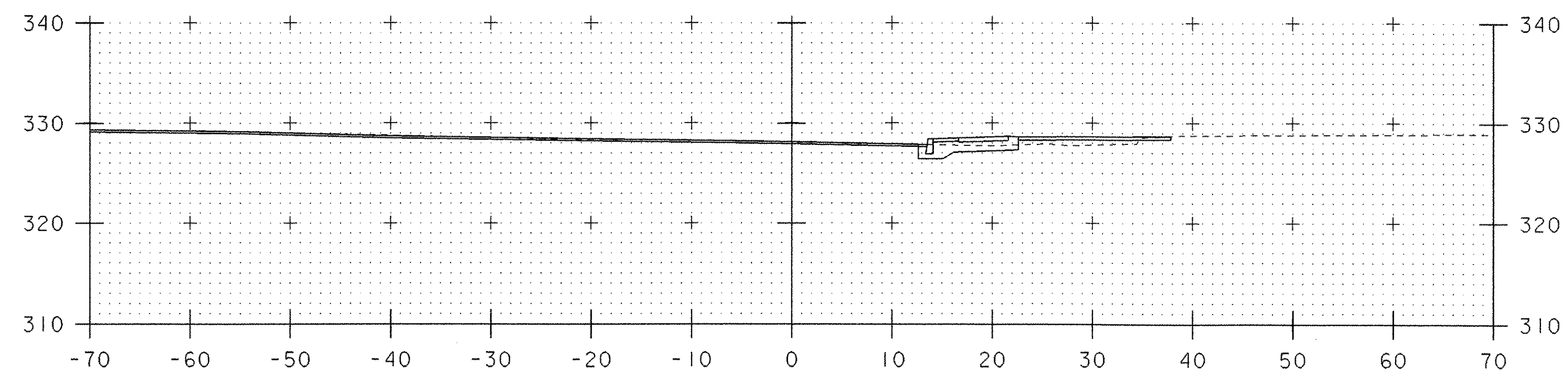


SCALE
IN FEET
HORIZ & VERT

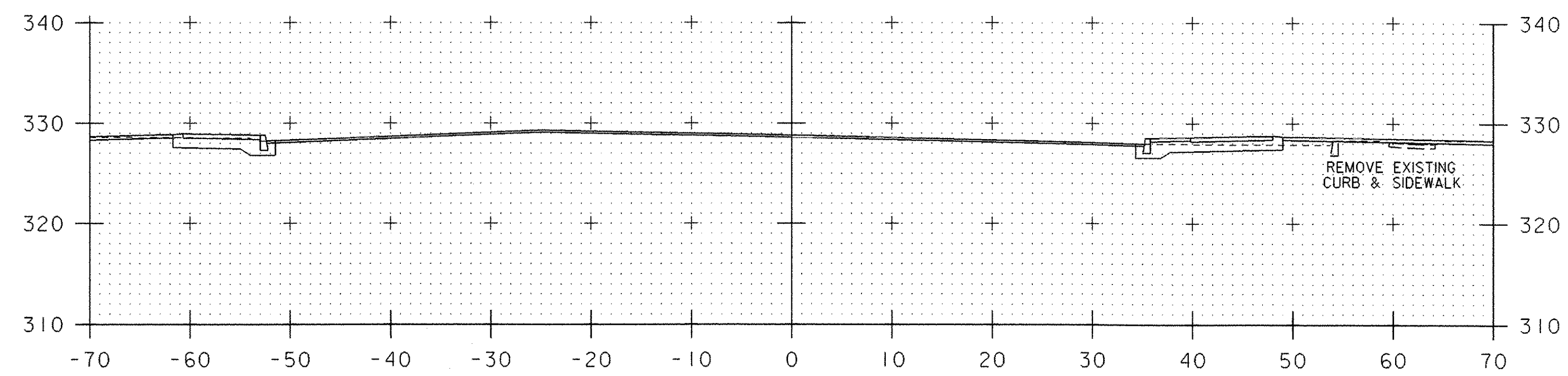
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PROJECT NUMBER:	SIPG SGNL (17)	
FILE NAME:	96b182/tb182wrk.dgn/tb182xs5.j	PLOT DATE: 16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY: B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY: B. NYQUIST
	SHEET	28 OF 29



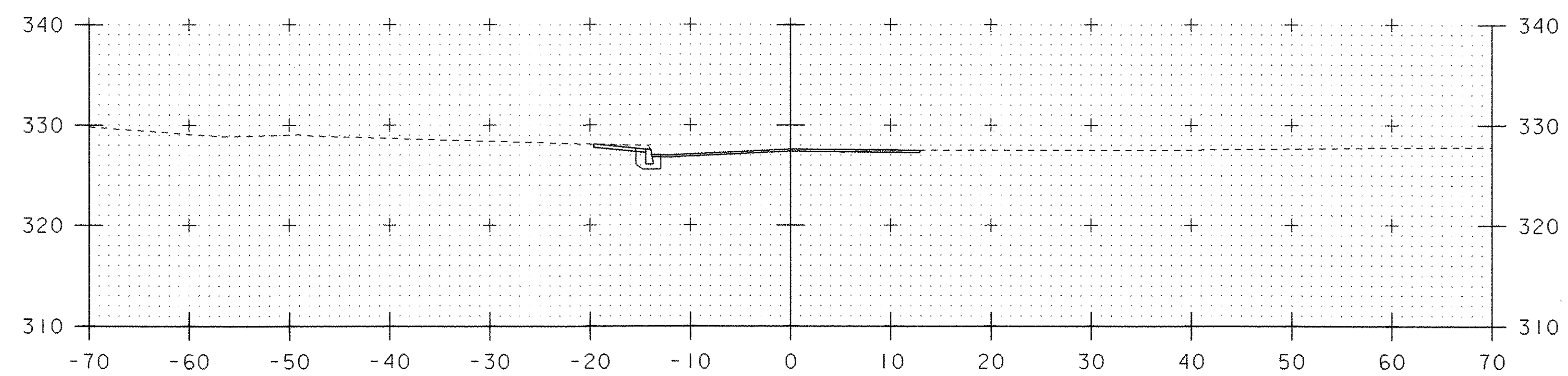
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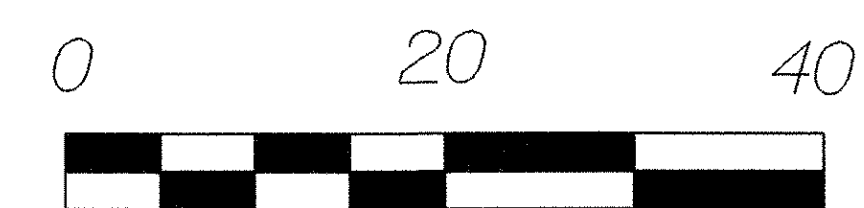
10+50



10+00

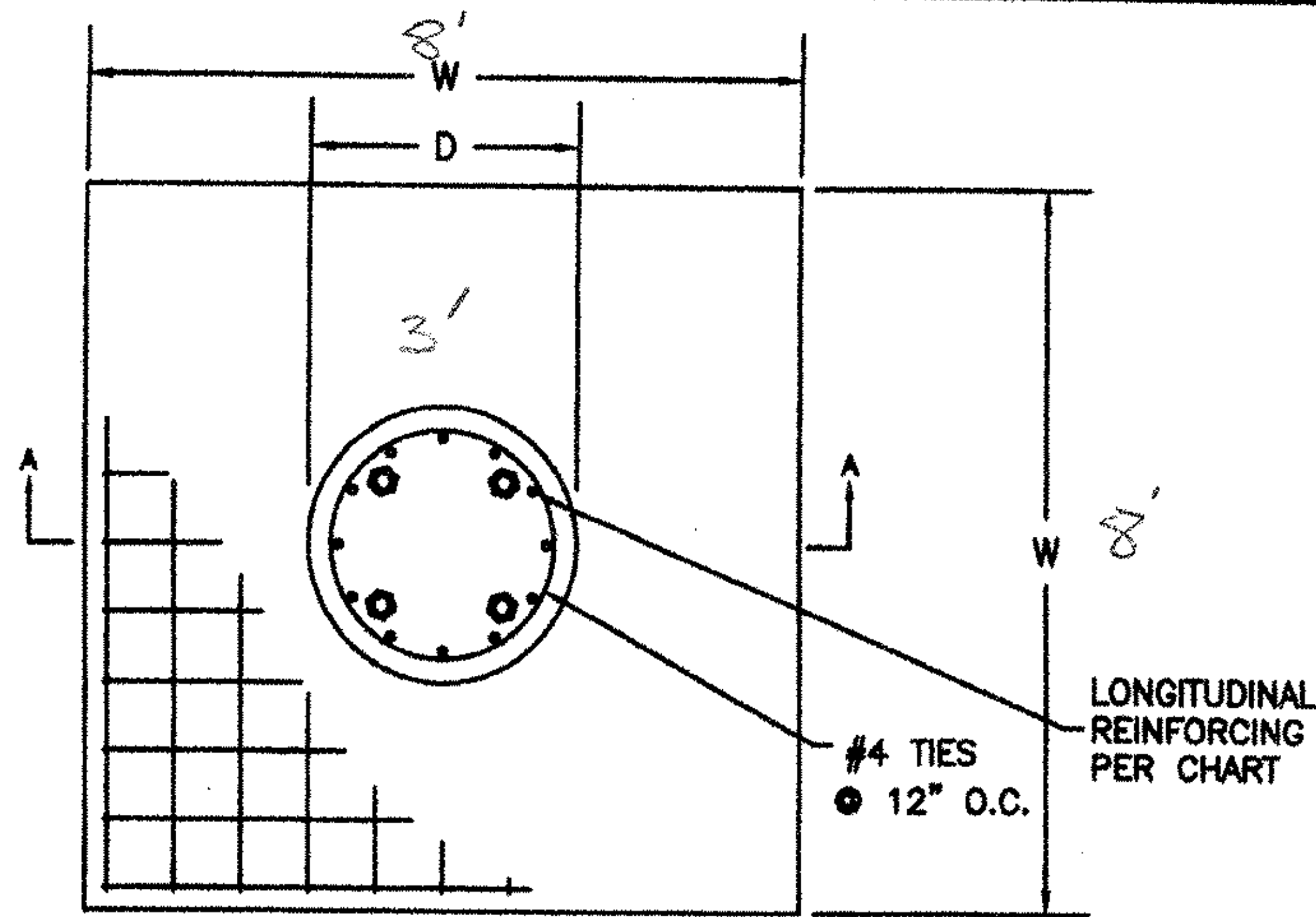


11+50

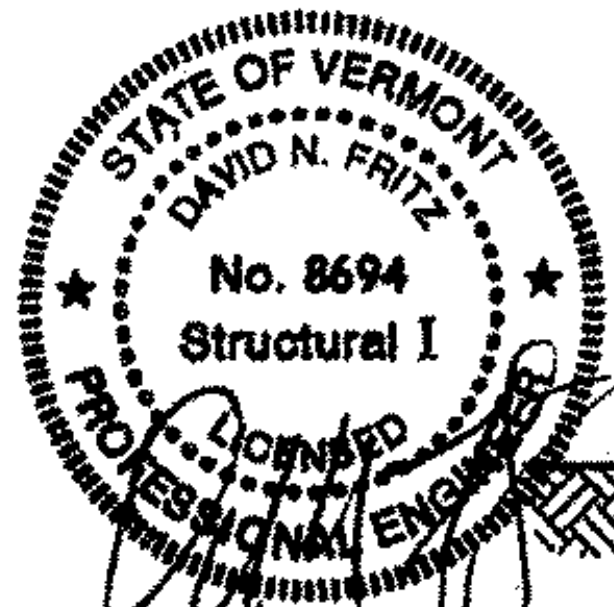


SCALE
IN FEET
HORIZ & VERT

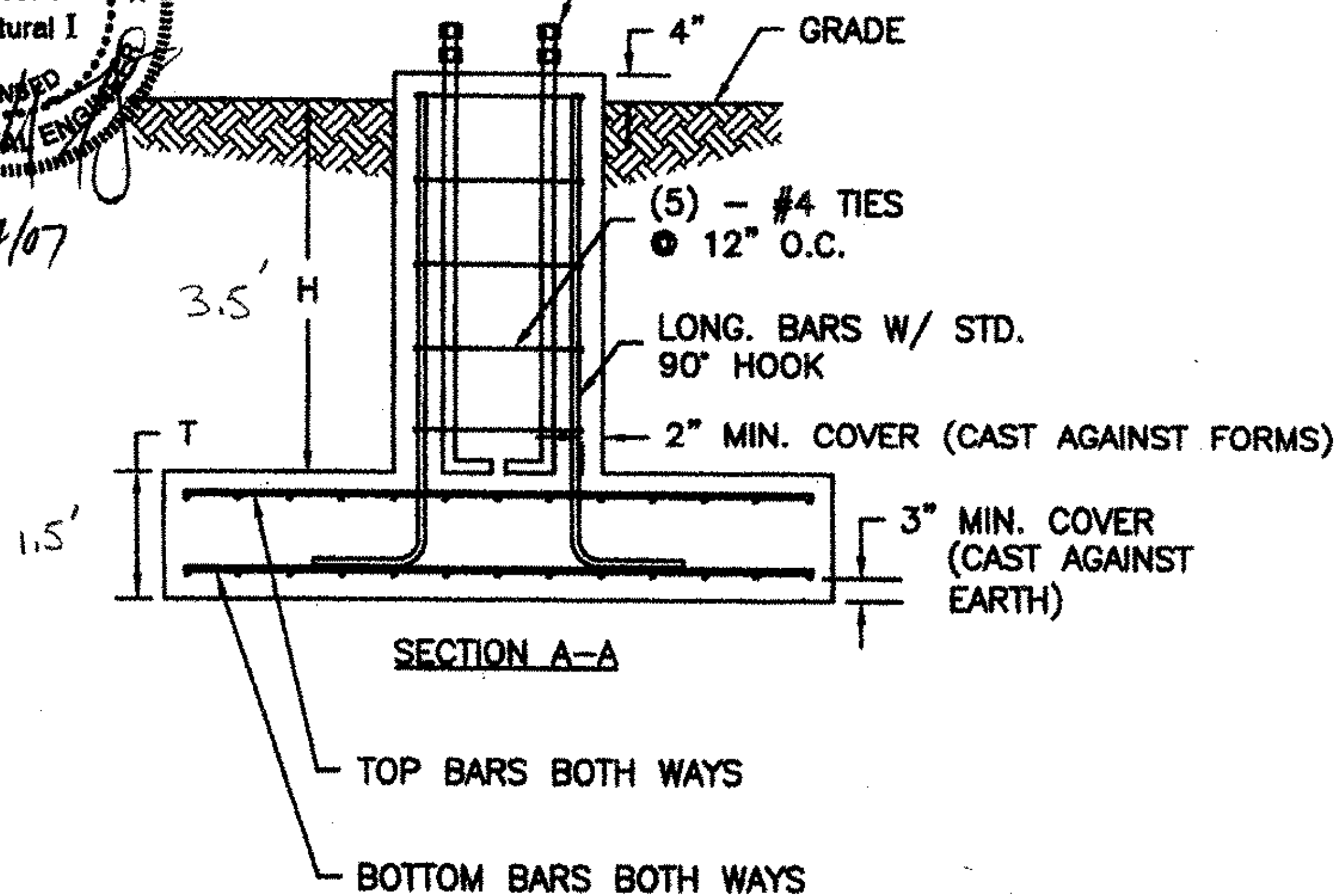
PROJECT NAME:	ESSEX		
PROJECT NUMBER:	STPG SGNL (17)		
FILE NAME:	96b182/1b182wrk.dgn/1b182xs6.i	PLOT DATE:	16-NOV-2006
PROJECT LEADER:	B. NYQUIST	DRAWN BY:	B. MCAVOY
DESIGNED BY:	B. MCAVOY	CHECKED BY:	B. NYQUIST
		SHEET	29 OF 29



PLAN VIEW (4) - "L" BEND ANCHOR BOLTS, SIZE AND PLACEMENT PER POLE DRAWING.



3/14/07

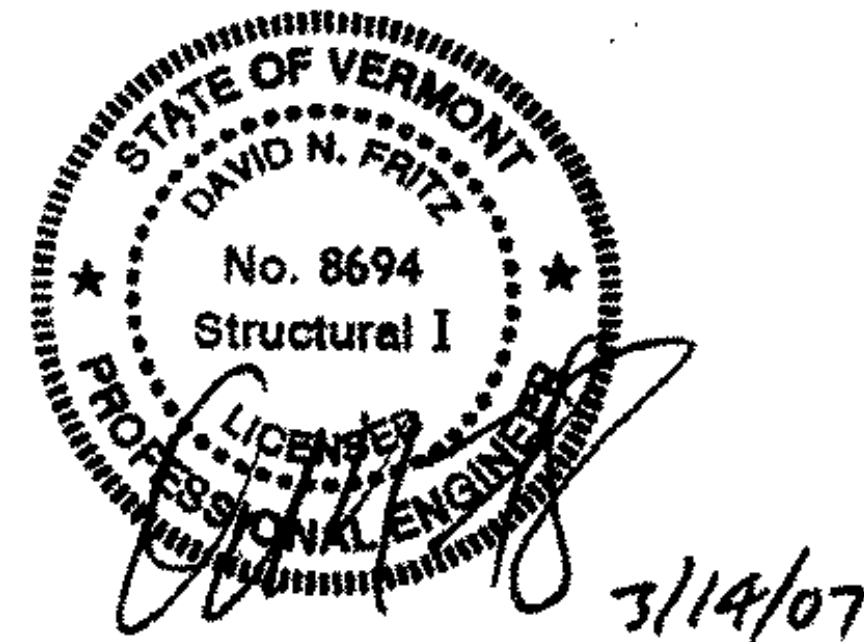


TRAFFIC SIGNAL POLE FOUNDATION DESIGN
 ROUTE 15 & 128, ESSEX, VERMONT
 ESSEX STPG SGNL (17)
 DRAWING NO. 031407

NOTES:

1. FOUNDATION IS BASED ON SOIL BEARING CAPACITY OF 3,000 PSF.
2. NON-SLOPING LEVEL GROUND SURFACE
3. IF ACTUAL SITE CONDITIONS VARY FROM ABOVE INFORMATION, FOUNDATION REDESIGN IS REQUIRED.
4. MIN. CONCRETE COMPRESSIVE STRENGTH OF 3,500 PSI @ 28 DAYS.
REINFORCING: ASTM A615 GR. 60.
5. FOUNDATION SHALL BE CAST AGAINST UNDISTURBED SOIL AND BACKFILLED WITH WELL COMPACTED GRANULAR MATERIAL.
6. IF REQUIRED, INSTALL CONDUIT PER OWNER SPECIFICATIONS.

POLE ID	D	H	T	W	LONG.	TOP	BOTTOM
TWIN 45' ARMS	3'-0"	3'-6"	1'-6"	8'-0"	12-#6	11-#5	11-#5



TRAFFIC SIGNAL POLE FOUNDATION DESIGN
ROUTE 15 & 128, ESSEX, VERMONT
ESSEX STPG SGNL (17)
DRAWING NO. 031407

ESSEX, VERMONT
 ESSEX STPG SGNL (17)
 ROUTE 15 & 128

Spread Footing Analysis - 2001 AASHTO SPECIFICATIONS

Drawing No. 031407

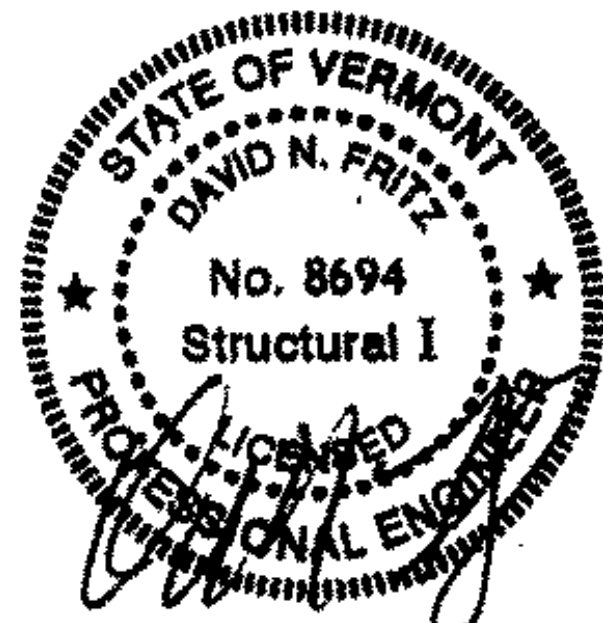
TWIN 45' ARMS	
Structure ID	50914-B444-Y1
Fx - Shear (lbs)	2170
Fy - Axial (lbs)	3389
Fz - Shear (lbs)	2170
Mx - Moment (ft-lbs)	58148
My - Torsion (ft-lbs)	54108
Mz - Moment (ft-lbs)	58148

Soil Unit Wt (pcf)	110
Soil Friction Coef.	0.4
Conc. Unit Wt (pcf)	150
Concrete Strength (psi)	3500
Reinforcing Yield (psi)	60000

Pedestal Diameter (ft)	3.00
Pedestal Height (ft)	3.50
Footing Thickness (ft)	1.50
X - Footing Width (ft)	8.00
Z - Footing Width (ft)	8.00

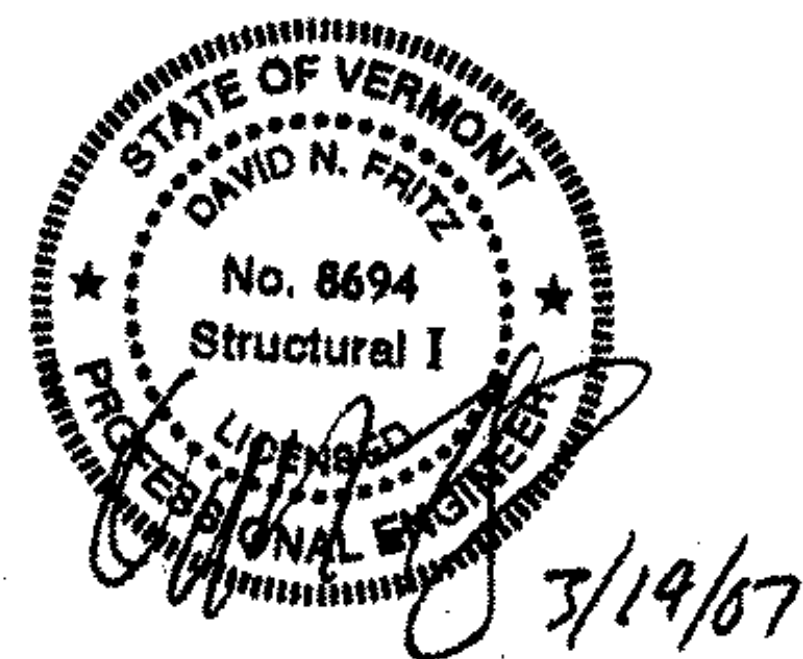
Check O.T. & Sliding:	
Pedestal Wt. (lb)	3711
Footing Wt. (lb)	14400
Soil Wt. (lb)	21919
Pole Wt. (lb)	3389
Total Wt. (lb)	43399

X - Factor of Safety (O.T.)	2.52
Z - Factor of Safety (O.T.)	2.52
Factor of Safety (Sliding)	5.66



3/19/07

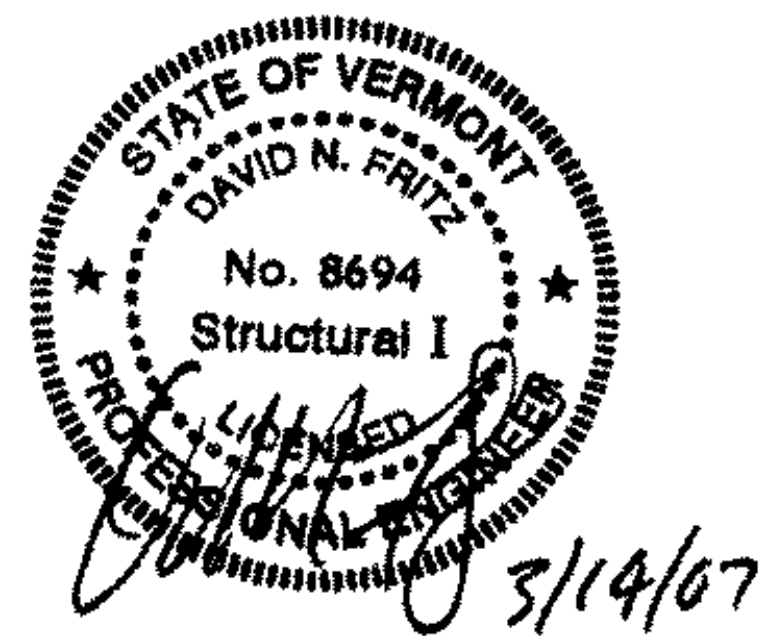
TWIN 45' ARMS	
Structure ID	60914-B444-Y1
Check Bearing Capacity:	
X - Moment about toe (ft-lbs)	68998
Z - Moment about toe (ft-lbs)	68998
Area (sf)	64
X - Section Modulus (cf)	85.3
Z - Section Modulus (cf)	85.3
X - Eccentricity (ft)	1.590
Z - Eccentricity (ft)	1.590
Senario 1 - No Tension:	
Qa (psf)	678
Qb (psf)	2295
Qc (psf)	678
Qd (psf)	-939
Senario 2 - Corner Tension:	
Zero Pressure Angle (radians)	0.7854
H1 (ft) - SELECT VALUE	6.881
X - Leg (ft)	9.731
Z - Leg (ft)	9.731
H2 (ft)	1.224
H3 (ft)	1.224
L1 (ft)	13.762
L2 (ft)	2.448
L3 (ft)	2.448
Load Offset (ft)	3.473
Moment of Inertia (ft ⁴)	372.89
Qa (psf)	495
Qb (psf)	2781
Qc (psf)	495
Psoil (lbs)	43397
Papplied (lbs)	43399
% Difference	0.00
X - Q at face of pedestal (psf)	2067
Z - Q at face of pedestal (psf)	2067
Mx at face of pedestal (pos.)	75477
Mz at face of pedestal (pos.)	75477
Mx at face of pedestal (neg.)	15250
Mz at face of pedestal (neg.)	15250



TWIN 45' ARMS	
Structure ID	50914-B444-Y1
X - Top Slab Reinforcing:	
Load Factor	1.3
Mu (k-in)	238
phi	0.9
Mn (k-in)	264.3333333
Bar Diameter (in)	0.625
Cover	2
d (in)	15.06
Rn (ksi)	0.0121
m	20.17
p - reinforcing ratio required	0.0002
p - s+t	0.0018
p min (1.33 x p)	0.0003
p bal	0.0249
p max	0.0187
p required	0.0018
As - (in ²) - Top Bars	3.11
Number of Bars - Top	10.1

X - Bottom Slab Reinforcing:	
Mu (k-in)	1177
phi	0.9
Mn (k-in)	1308
Bar Diameter (in)	0.625
Cover	3
d (in)	14.06
Rn (ksi)	0.0689
m	20.17
p - reinforcing ratio required	0.0012
p - s+t	0.0018
p min (1.33 x p)	0.0015
p bal	0.0249
p max	0.0187
p required	0.0018
As - (in ²) - Top Bars	3.11
Number of Bars - Top	10.1

Concrete Pedestal Design:	
Load Factor	1.3
Strength Reduction Factor	0.7
Mu (k-in)	1116
Concrete Strength (psi)	3500
Reinforcing Steel Yield (psi)	60000
Concrete Cover (in)	2
Shear Reinf. Dia. (in)	0.5
Tension Reinf. Dia. (in)	0.75
No. of Bars	12
e (in)	331.17
As (in ²)	5.30
Ag (in ²)	1017.88
m	20.17
D (in)	36.00
Ds (in)	30.25
p - reinforcement ratio	0.0052
phi*Pn (lbs)	6403
Pu (lbs)	4380



QTY.	U.M.C. DESIGN NUMBER	POLE TUBE SIZE	MAST ARM DATA		LUMINAIRE SPREAD		ARM CONNECTION DATA						BASE CONNECTION DATA						A.BOLT SIZE	
			MTG. HGT.	SPREAD	TUBE SIZE	ORIENT	JOINT LENGTH	H	W	Y	X	APT	PPT	BOLT #	G	B.C.	SQ	F	P	T
1	50914-B444-Y1	3E-16.0x11.52x32'-0"	19'-0"	45'-0"	7E-12.0x8.96x21'-9" 11E-9.48x5.98x25'-0"	180°	21	16	20	12	17	1/4	1	1/4	21	21	14 7/8	6	1 1/4	1 1/2x5x6

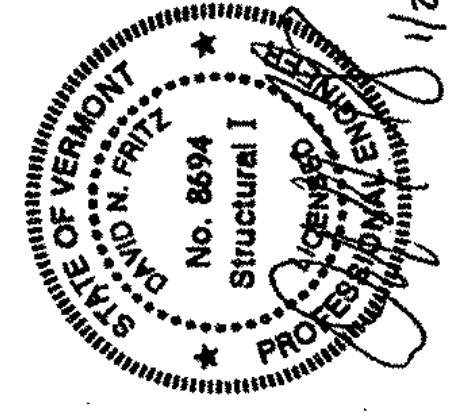
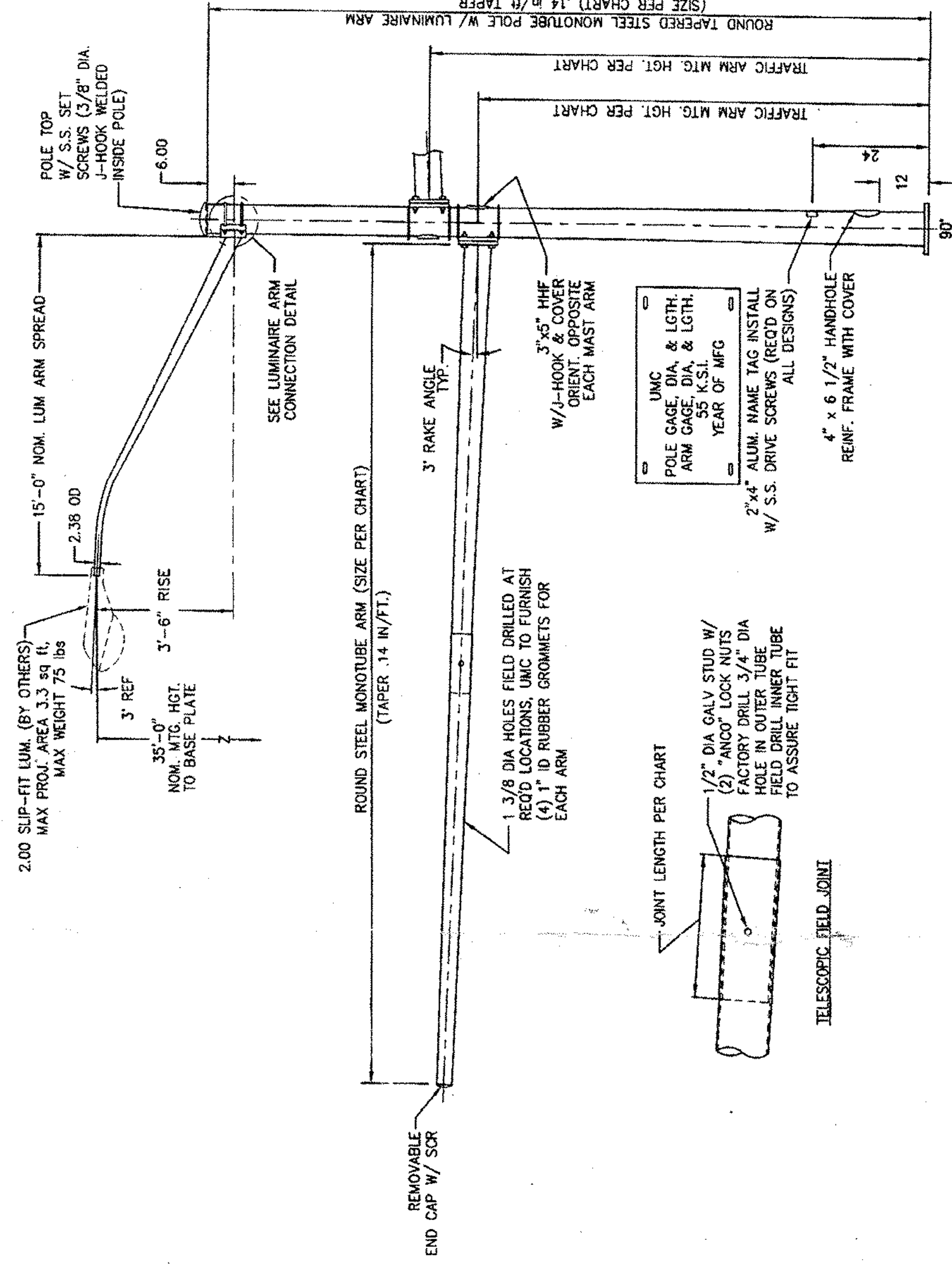
7 GAGE = 1793
 3 GAGE = 2590
 E = .14 IN/FT

DESIGN CRITERIA:

- DESIGNED IN ACCORDANCE WITH 2001 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, INCLUDING 2003 INTERSECTION SIGNS, INCLUDING A NATURAL WIND & TRUCK GUSTS @ 35 MPH. NO CONSIDERATION FOR GALLOPING OR VORTEX SHEDDING.
- THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.
- ANCHOR BOLT ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT ENGAGEMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
- PER AASHTO THE MINIMUM LENGTH OF ANY TELESCOPIC FIELD JOINT SHALL BE 1.5 TIMES THE INSIDE DIAMETER OF THE END OF THE FEMALE SECTION.
- ARMS HAVE 3" MANUF. CAMBER TO ALLOW FOR DEAD LOAD DEFLECTION.

NOTE: UNITS ARE IN INCHES (in) UNLESS OTHERWISE SPECIFIED.

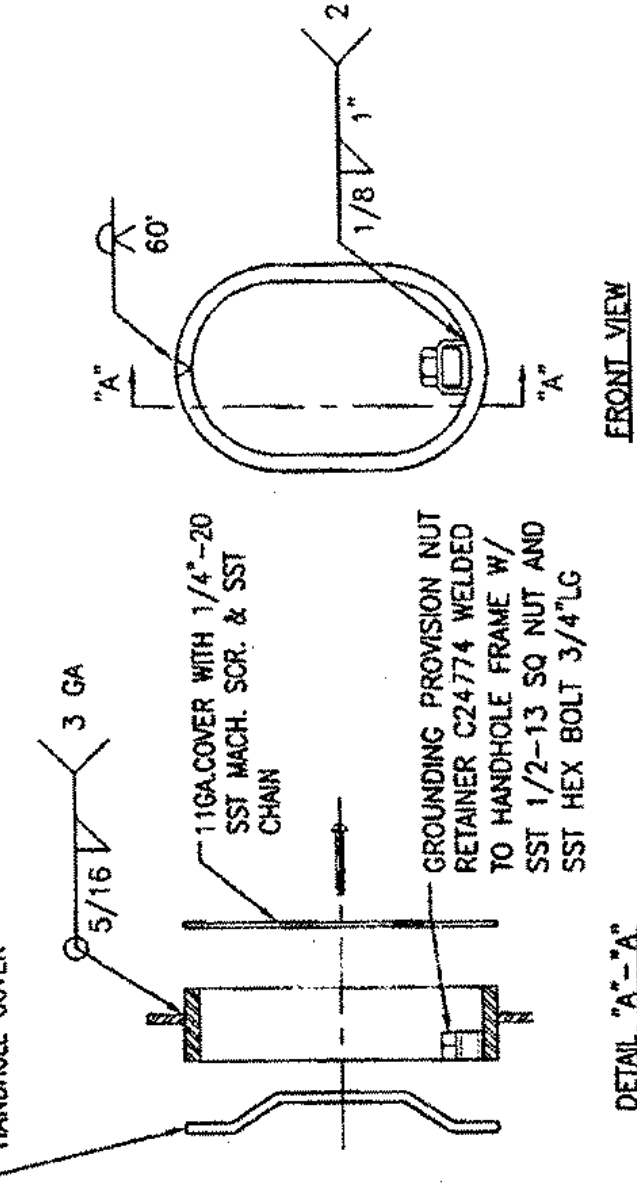
	MATERIAL SPECIFICATION
MONOTUBES	ASTM-A505 OR A
PLATE	ASTM-A36
PIPE	ASTM-A501
HANDHOLE FRAME	ASTM-A529 GR. 50 (PREFERRED) or ASTM-A572 GR. 50 or ASTM-A709 GR. 50
ANCHOR BOLTS	SS1 A276 1/4" TYPE 304
HANDHOLE COVER	ASTM A1011 GR. 50
POLE TOP WELD MATERIAL	ASTM A1011 GR. 50 OR B209
S.S. HARDWARE	AISI-300 SERIES
ARM CONN. BOLTS	ASTM-A325
ARM CONN. NUTS	ASTM-A563 GR. DH
FLAT WASHERS	ASTM-A306
STUDS	ASTM-A563 GR. A
"ANCO" LOCK NUTS	H.D. GALV. ASTM-A123
STRUCTURE FINISH	PER UMS 1006 (POWDER COAT FINISH)
HARDWARE FINISH	H.D. GALV. ASTM-A153



STATE:	VERMONT	REV / SUP :	17295-1	REV	DESCRIPTION	DATE	REV BY	DATE
PROJECT NAME:	ESSEX, VT	STEEL TRAFFIC CONTROL STRUCTURES						
DESIGNED BY:	AJO	CHECKED BY:	AJO	DATE:	1/26/07	SCALE:	NTS	50914-B202
REVISION	R0	50914-B444						1 OF 2

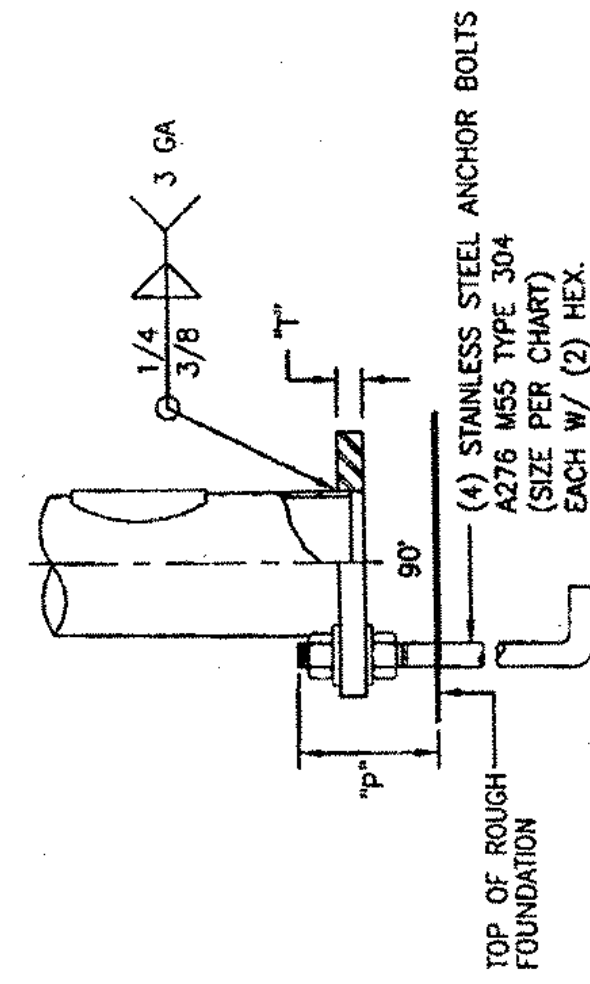
035

1/4" THK. BACK-UP BAR TO SECURE HANDLE COVER



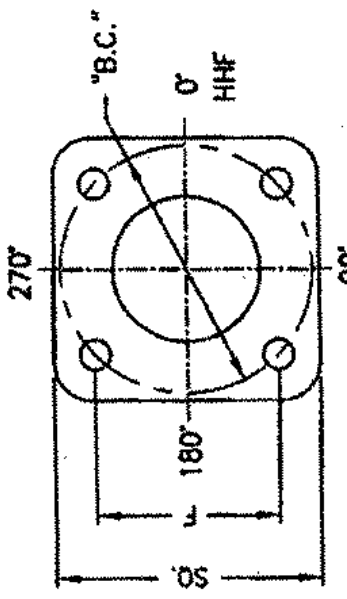
DETAIL "A"-A' FRONT VIEW

4" x 6 1/2" HANDLE FRAME DETAIL



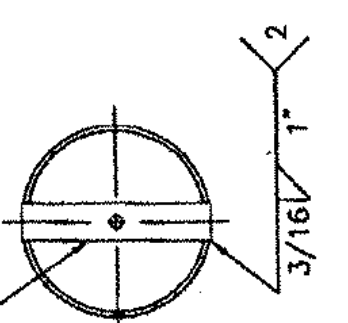
BASE CONNECTION DETAIL

TOP OF ROUGH FOUNDATION



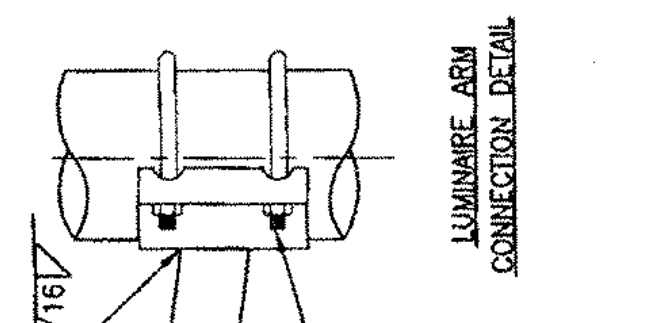
BASE DETAIL
SIZE PER CHART ON SHEET 1

1/4" x 1 BAR W/ THREADED HOLE FOR ARM CAP BOLT

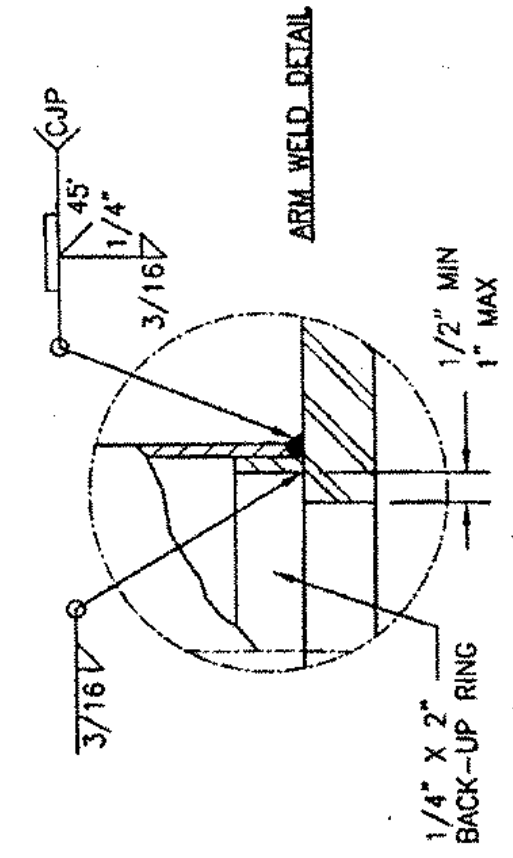


ARM END CAP MOUNTING DETAIL

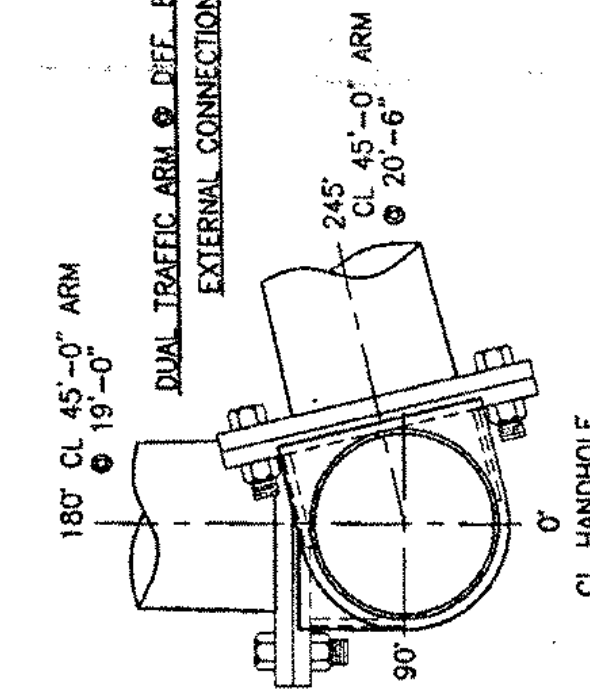
(2) 3/16"x6" STEEL CLAMPS (BRS SERIES REF) WITH (2) 5/8" DIA. U-BOLTS & (4) HEX. NUTS EACH CLAMP. (4) 1/2" DIA. HOLES IN TOP ARM CLAMP. (4) 1/2" DIA. HOLES IN POLE. U.I.M. TO FURN. 1" I.D. GROMMET



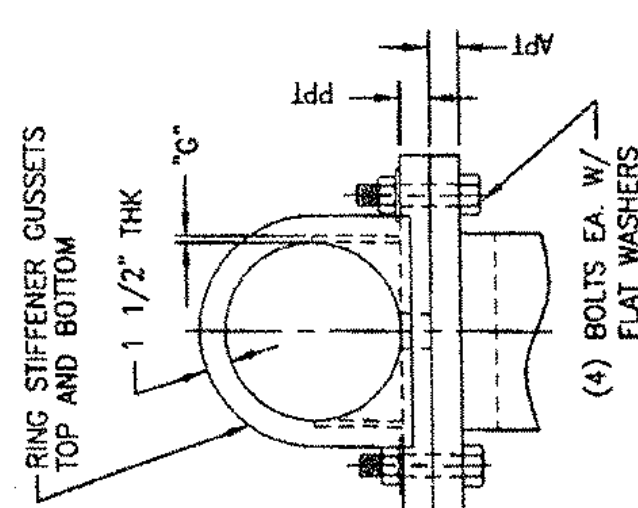
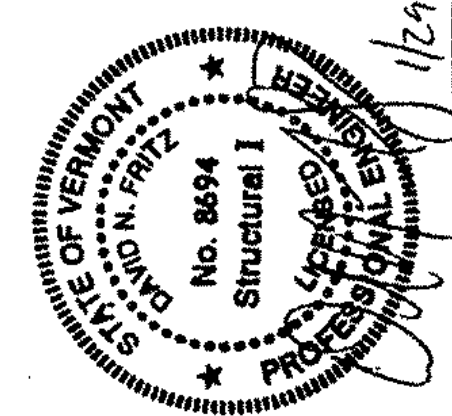
LUMINAIRE ARM CONNECTION DETAIL



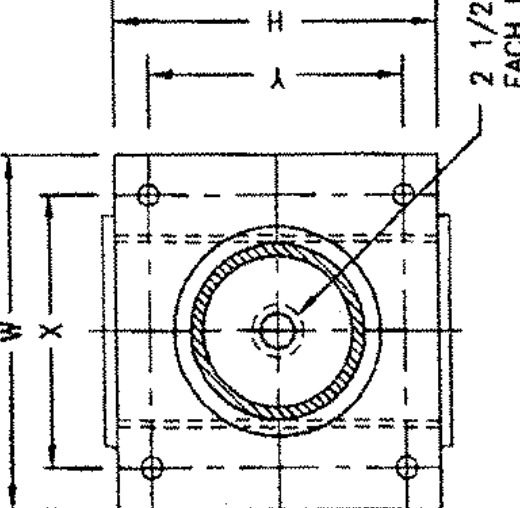
ARM WELD DETAIL



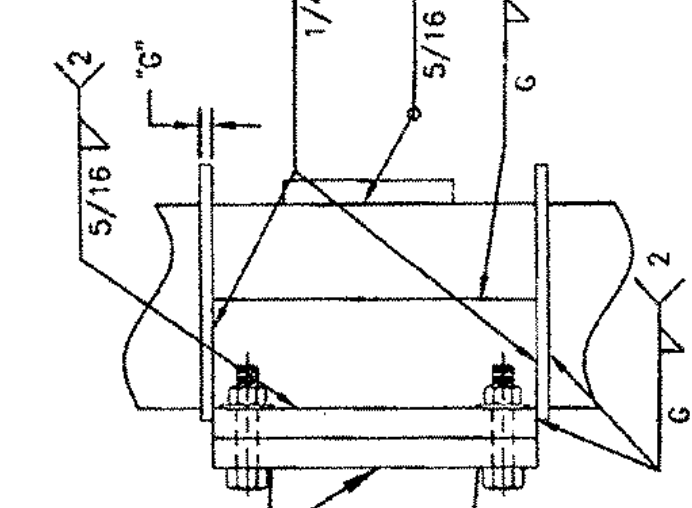
CL HANDHOLE



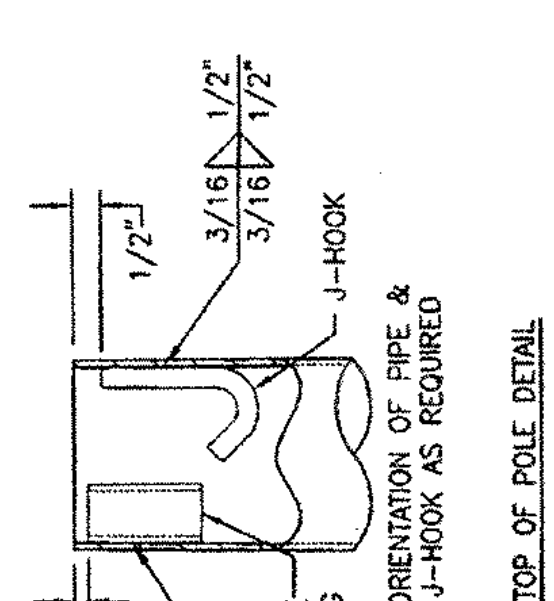
(4) BOLTS EA. W/ FLAT WASHERS



FLANGE DETAIL



SEE WELD DETAIL



TOP OF POLE DETAIL

STATE: VERMONT	REV	DESCRIPTION	DATE	INT BY/CHK BY
PROJECT NAME: ESSEX, VT	REV / SW / 17295-1	REVISIONS		
STEEL TRAFFIC CONTROL STRUCTURES ESSEX, VERMONT (ROUTE 15 & 128)				
DESIGNED BY	CHECKED BY	DATE	SCALE	ENG REF
AJO	AJO	1/26/07	NTS	50914-B002
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50914-B444				RO
				2 OF 2



Union Metal Corporation

036

Specification: UMS-1006	Page 1 of 1
Revision Date: 9.22.06	Rev: 0
Created By: Scott J. Thor	
Revised By:	
Approved By: Scott J. Thor	



UMC POWDER COATING SPECIFICATION

1.1. Blasting

1.1.1. All threads shall be protected from damage during blasting process

1.1.2. Preparation-Steel

1.1.2.1. Blast to SSPC-SP6.

1.1.3. Preparation-Aluminum and Galvanized

1.1.3.1. Blast to SSPC-SP7.

1.2. Powder Coating

1.2.1. Powder finish 3-5 mil both inside and outside of poles and all surfaces of parts with Tiger Drylac Super Durable Series 38.

1.3. Powder Baking

1.3.1. Bake part per powder manufacturer's recommendations.

1.3.2. Galvanized parts shall be pre-baked to ensure all gasses are released from the galvanized surface before powder coating after which the top coat shall be applied.

1.4. Final Inspection

1.4.1. All products shall receive a final inspection before packaging.

1.4.2. A mil thickness of 3-5 shall be verified and documented.

Order	UMC 17295
Project	Essex, VT – Routes 15 & 128
Color #	
Date	1/30/07
PO	Signals RYG # 1214