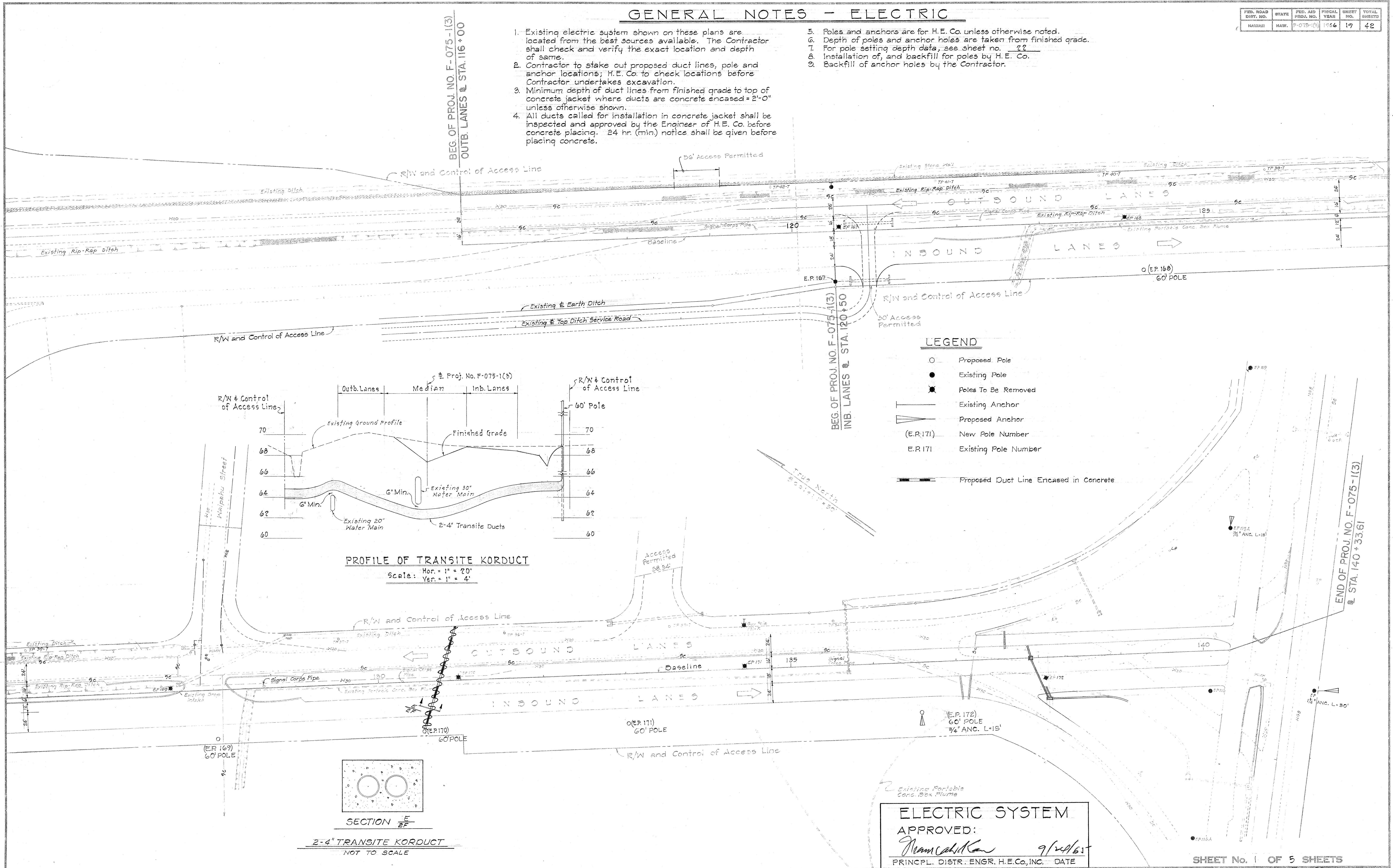


GENERAL NOTES - ELECTRIC

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-075-1(3)	1946	19	42

- Existing electric system shown on these plans are located from the best sources available. The Contractor shall check and verify the exact location and depth of same.
- Contractor to stake out proposed duct lines, pole and anchor locations; H.E. Co. to check locations before Contractor undertakes excavation.
- Minimum depth of duct lines from finished grade to top of concrete jacket where ducts are concrete encased = 2'-0" unless otherwise shown.
- All ducts called for installation in concrete jacket shall be inspected and approved by the Engineer of H.E. Co. before concrete placing. 24 hr. (min.) notice shall be given before placing concrete.

- Poles and anchors are for H.E. Co. unless otherwise noted.
- Depth of poles and anchor holes are taken from finished grade.
- For pole setting depth data, see sheet no. 22
- Installation of, and backfill for poles by H.E. Co.
- Backfill of anchor holes by the Contractor.

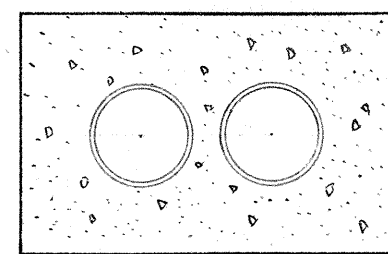
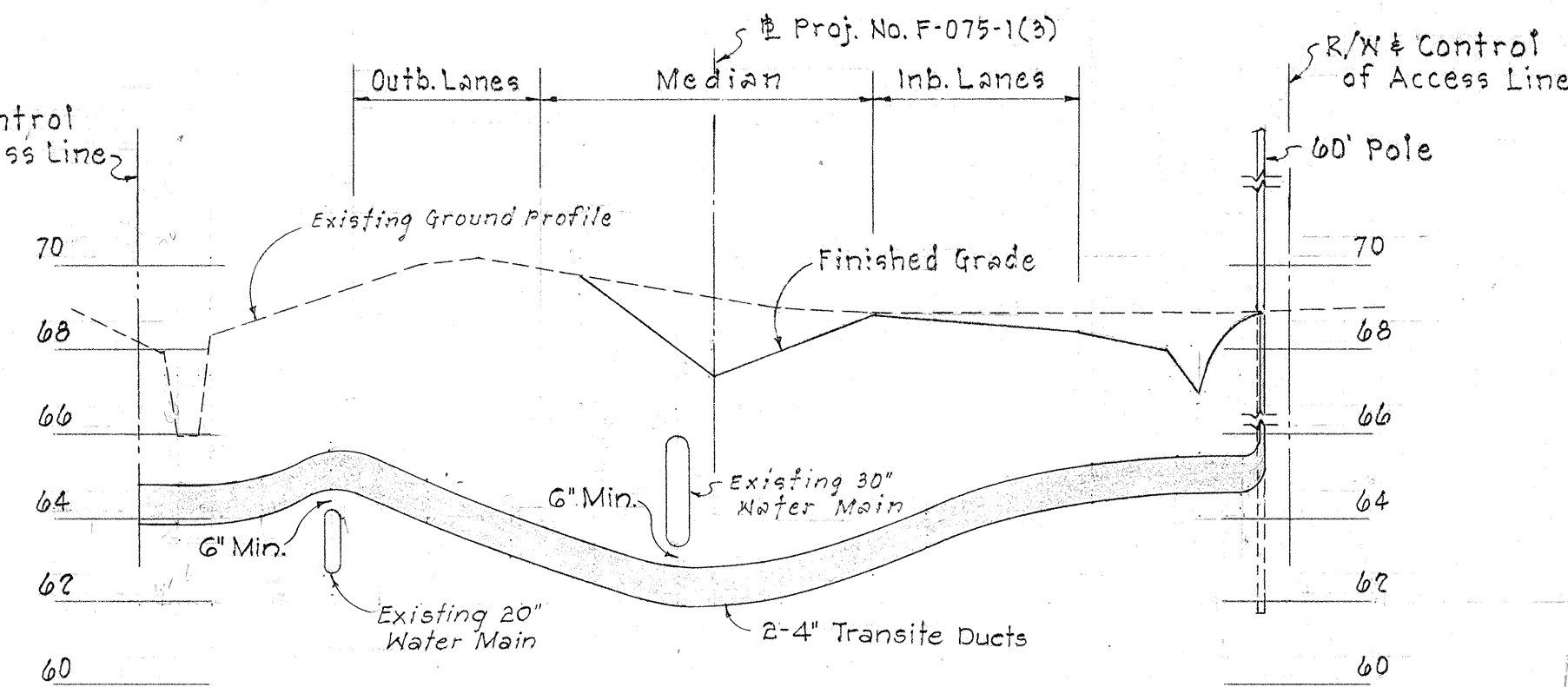


LEGEND

- Proposed Pole
- Existing Pole
- ✖ Poles To Be Removed
- Existing Anchor
- Proposed Anchor
- (E.P.171) New Pole Number
- E.P.171 Existing Pole Number
- Proposed Duct Line Encased in Concrete

PROFILE OF TRANSITE KORDUCT

Scale: Hor. = 1" = 20'
Ver. = 1" = 4'



SECTION E/F

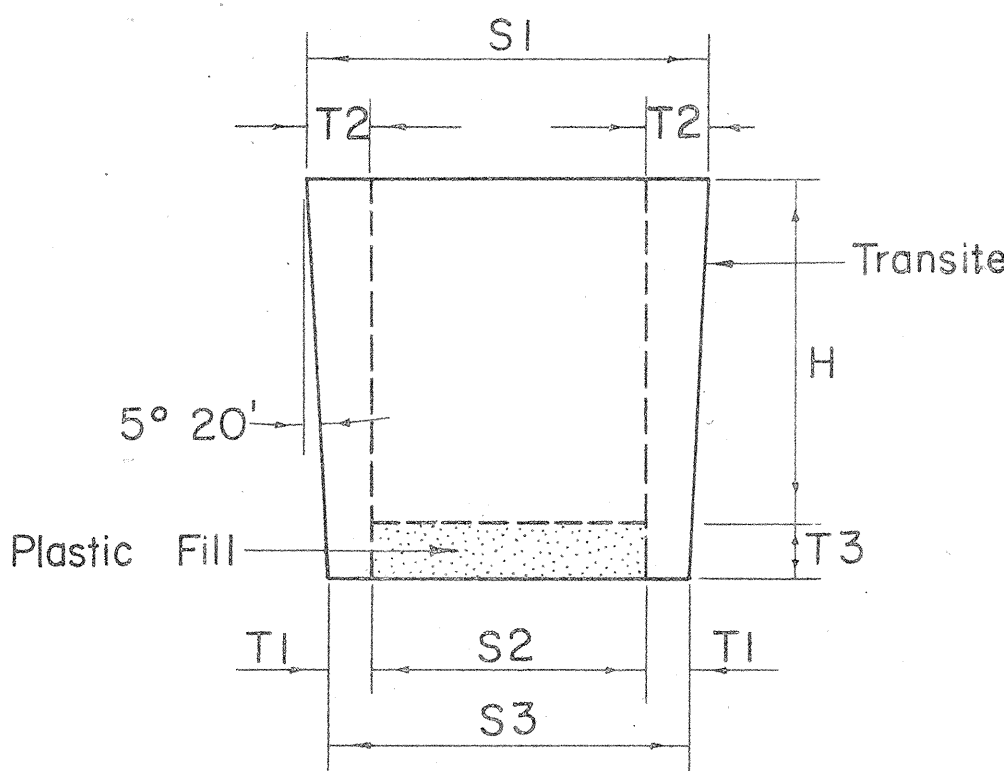
2-4" TRANSITE KORDUCT
NOT TO SCALE

ELECTRIC SYSTEM

APPROVED:

Manuel K... 9/24/65
PRINCL. DISTR. ENGR. H.E.CO., INC. DATE

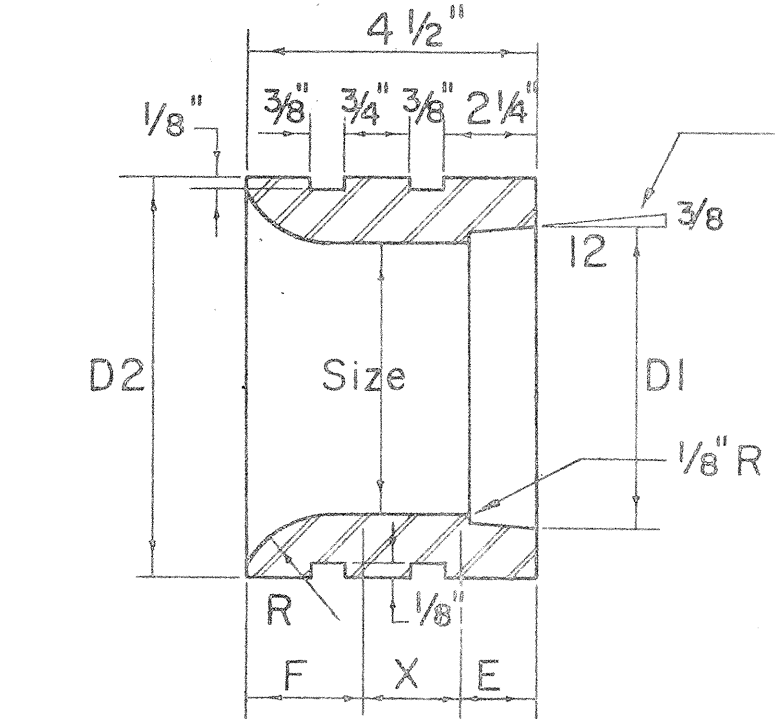
SHEET No. 1 OF 5 SHEETS



PLUGS FOR TRANSITE KORDUCTS

Not to Scale

SIZE	H	S1	S2	S3	T1	T2	T3
3"	4"	3 3/8"	2"	2 5/8"	5 1/16"	11 1/16"	3 3/4"
4"	4 1/2"	4 27/64"	2 3/4"	3 37/64"	13 3/32"	27 3/32"	3 3/4"
4 1/2"	4 1/2"	4 59/64"	3"	4 5/64"	35 3/64"	31 3/32"	3 3/4"
5"	4 1/2"	5 27/64"	3 1/2"	4 37/64"	35 3/64"	31 3/32"	3 3/4"



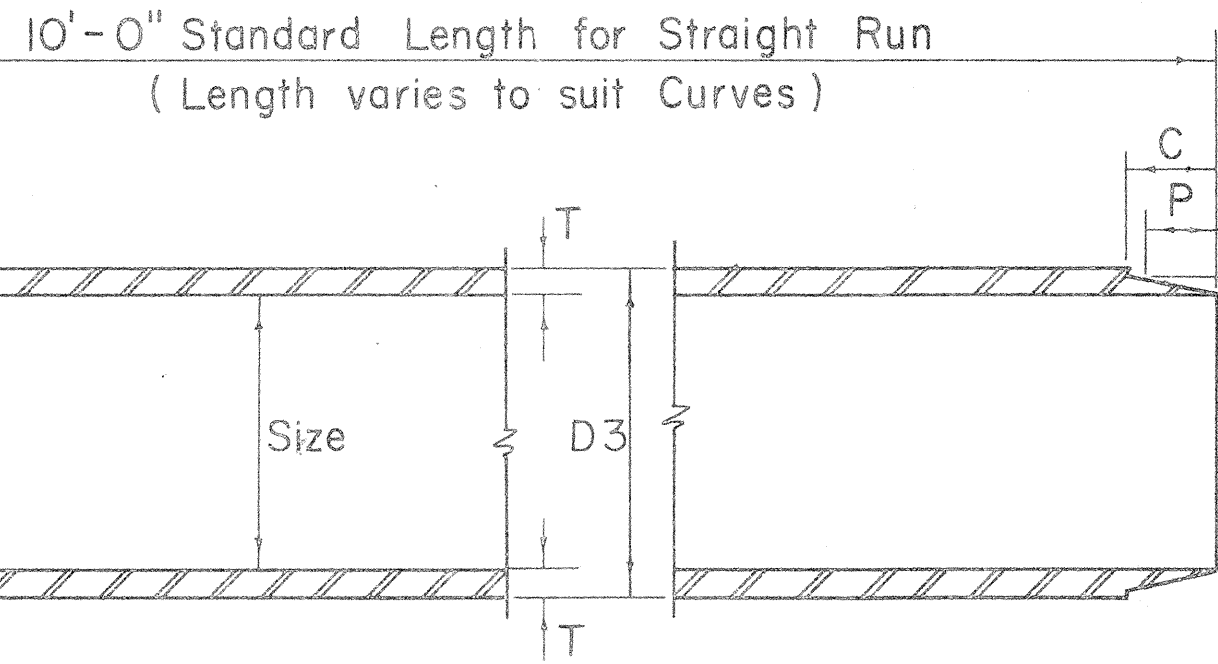
JUNIOR END BELLS

Not to Scale

SIZE	D1	D2	F	X	E	R
3"	3 25/64"	4 1/2"	1 11/32"	1 29/32"	1 1/4"	1 3/4"
4"	4 25/64"	5 3/4"	1 9/16"	1 9/16"	1 3/8"	2"
4 1/2"	4 57/64"	6 1/4"	1 9/16"	1 9/16"	1 3/8"	2"
5"	5 29/64"	7"	1 9/16"	1 7/16"	1 1/2"	2"

Note "X"

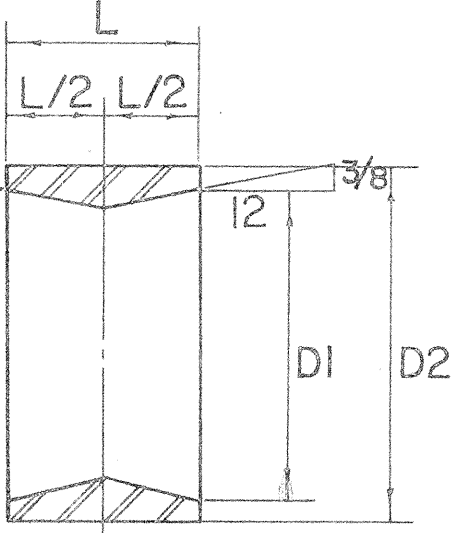
- Provide one set of Spacers
 (a) 10 Ft. straight run for 4 Ducts high or less.
 (b) 5 Ft. straight run for 5 Ducts high or more.



TRANSITE KORDUCTS

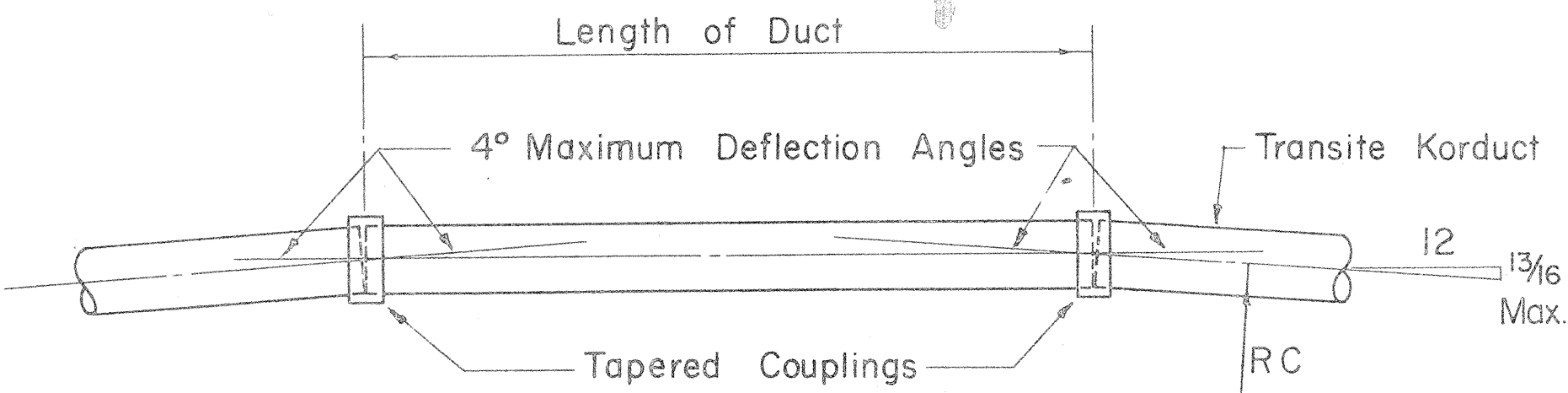
Not to Scale

SIZE	D1	D3	C	P	T
3"	3 25/64"	3 35/64"	1 1/8"	7 7/8"	17 1/64"
4"	4 25/64"	4 35/64"	1 1/4"	1"	17 1/64"
4 1/2"	4 57/64"	5 3/64"	1 1/4"	1"	17 1/64"
5"	5 29/64"	5 39/64"	1 1/8"	1 1/8"	19 1/64"



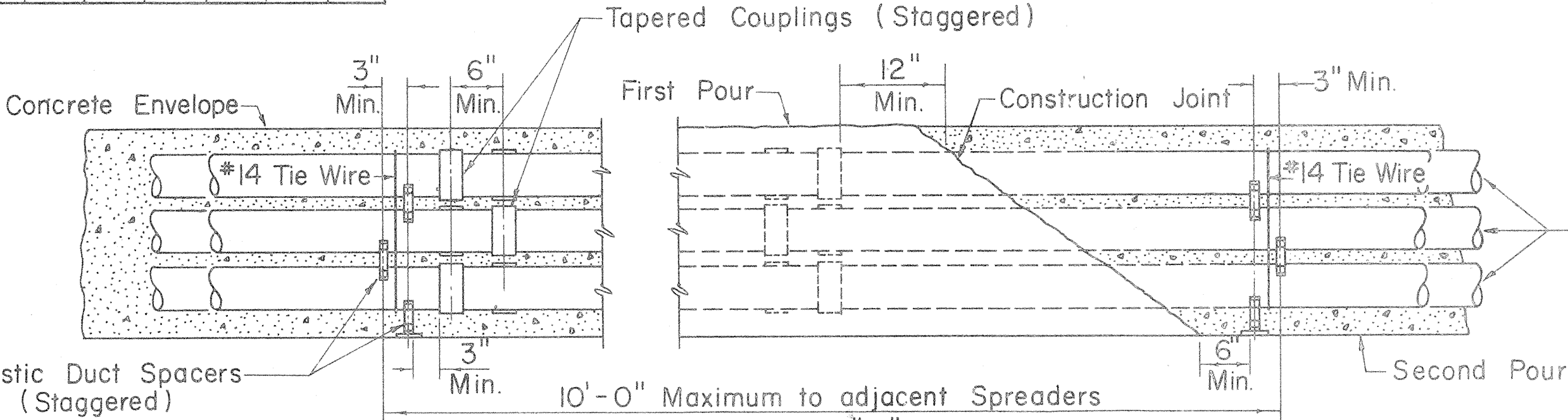
TAPERED COUPLINGS

Not to Scale



METHOD OF FORMING CURVES

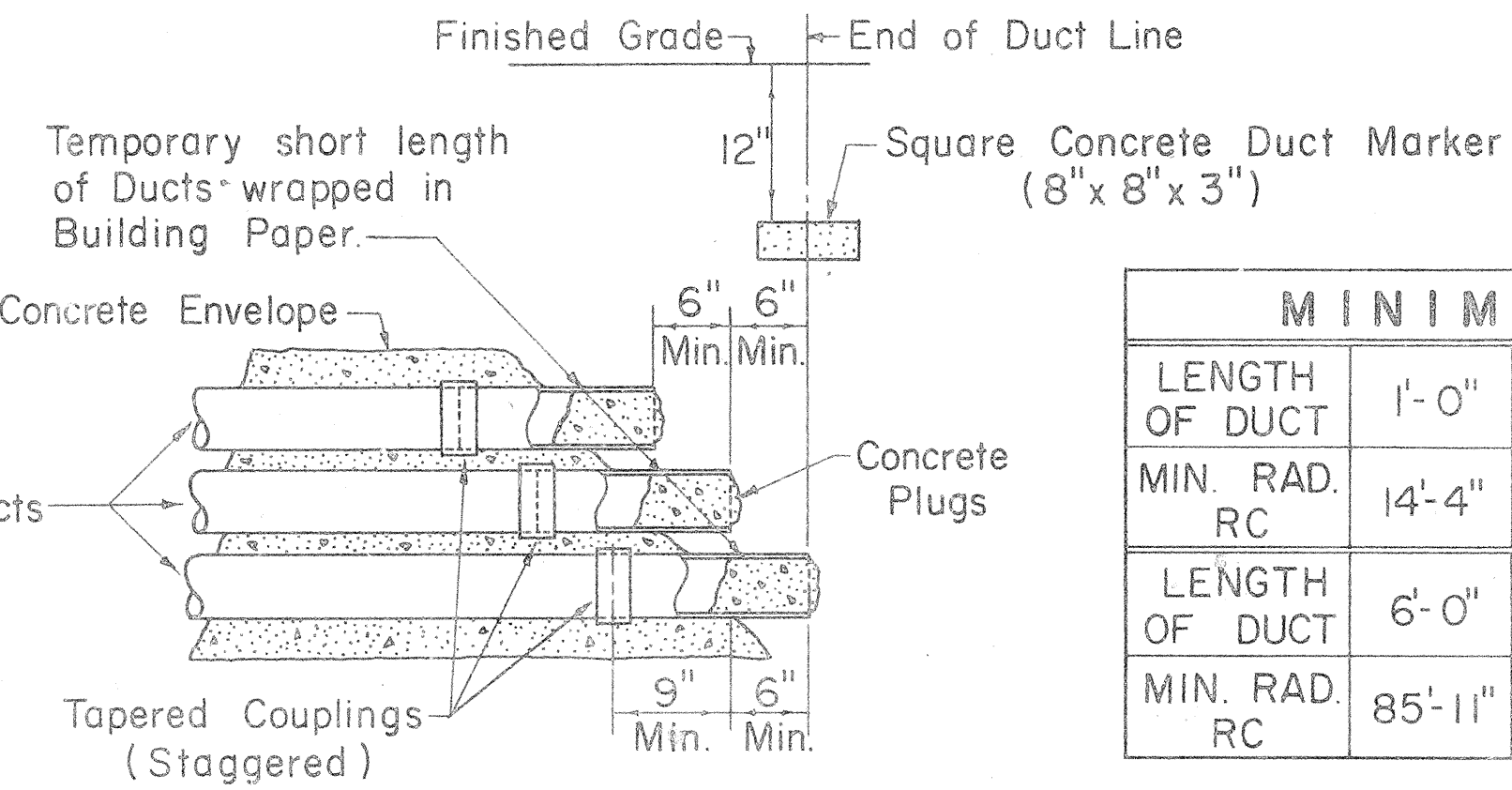
Not to Scale



TYPICAL DUCT ENVELOPE ELEVATION

(6 WAY DUCT LINE SHOWN)

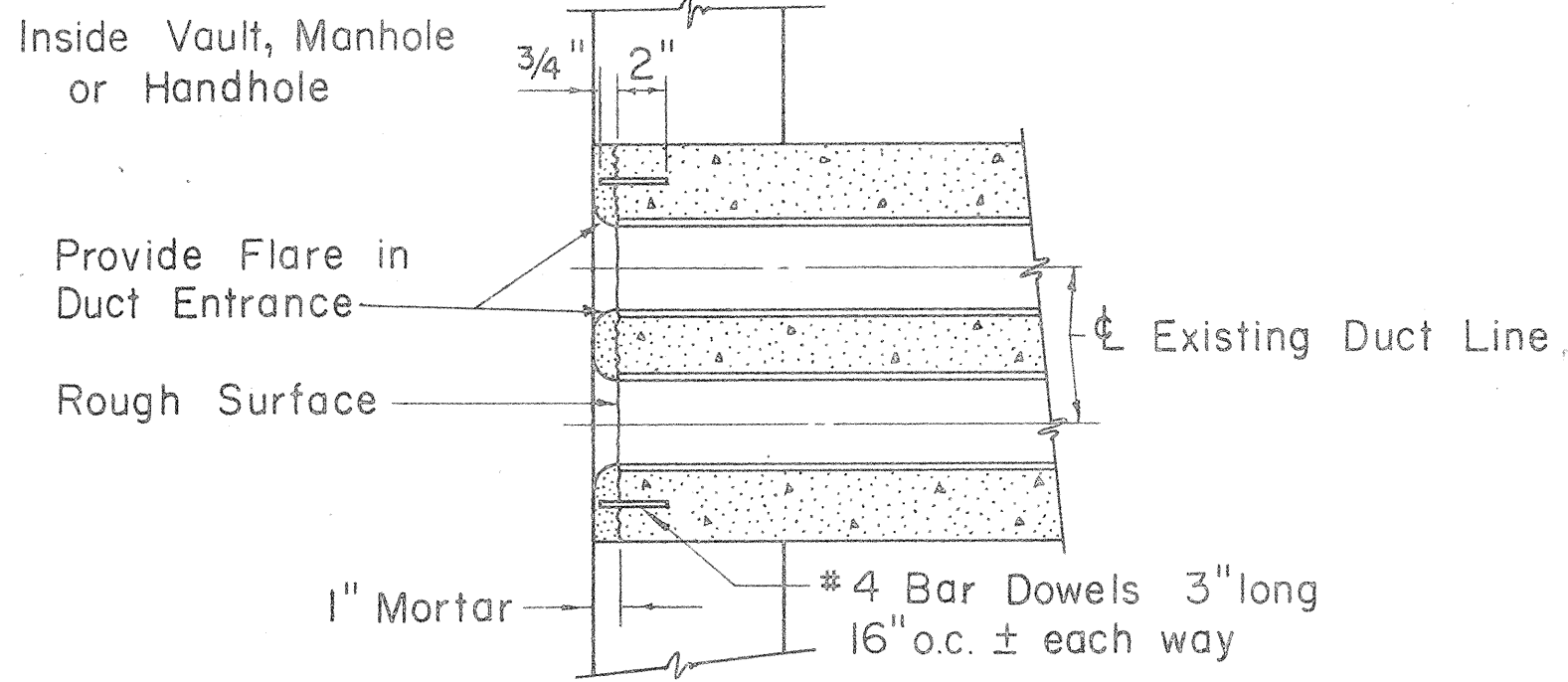
Not to Scale



TYPICAL STUB OUT DETAIL

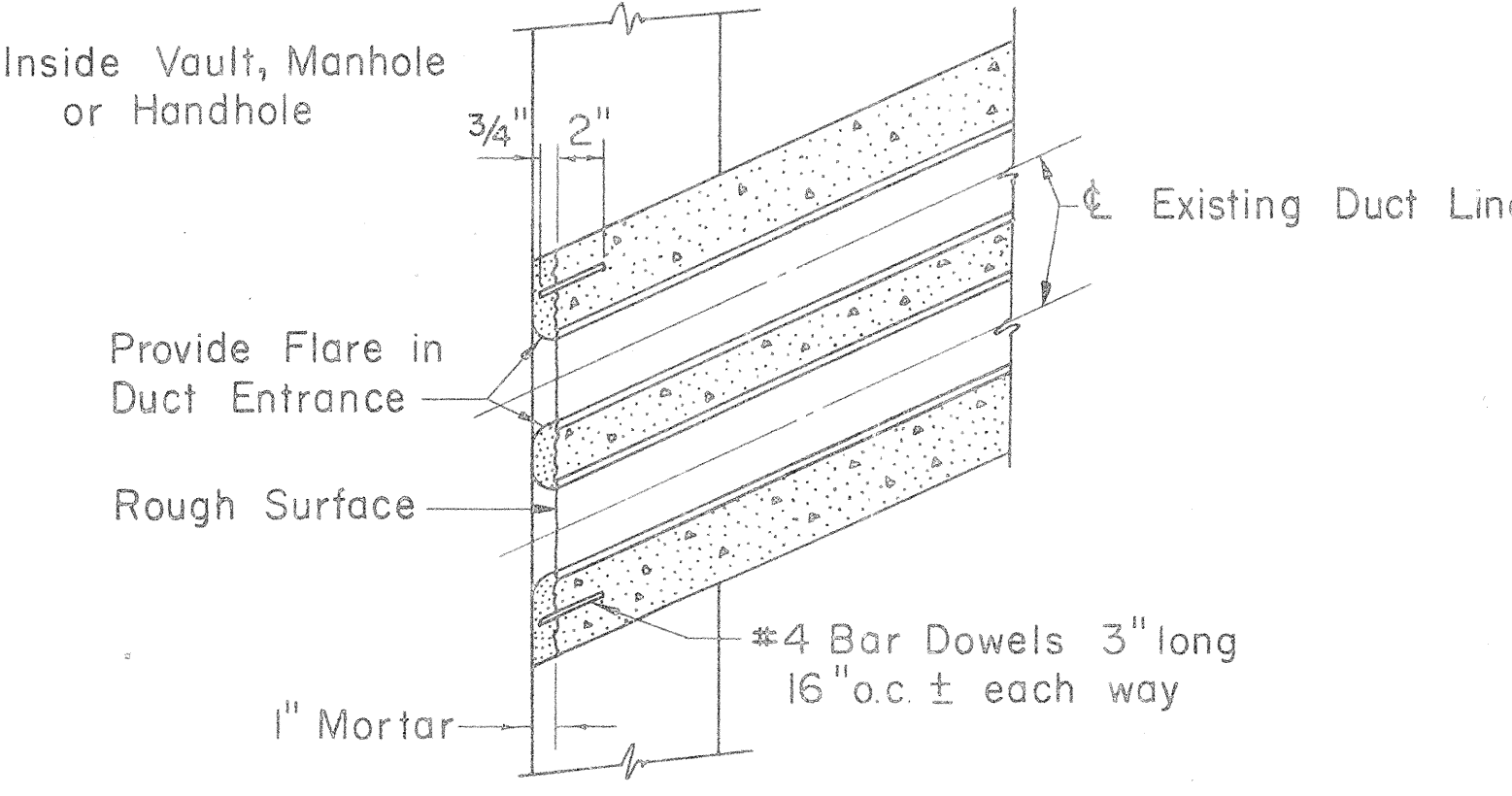
Not to Scale

	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
LENGTH OF DUCT	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
MIN. RAD. RC	14'-4"	21'-6"	28'-8"	35'-10"	42'-11"	50'-1"	57'-3"	64'-5"	71'-7"	78'-9"
LENGTH OF DUCT	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	
MIN. RAD. RC	85'-11"	93'-1"	100'-3"	107'-5"	114'-7"	121'-8"	128'-10"	136'-0"	143'-2"	



DUCT LINE ENTRANCE AT EXISTING DUCT LINE

Scale: 1 1/2" = 1'-0"



DUCT LINE DIAGONAL ENTRANCE

Scale: 1 1/2" = 1'-0"

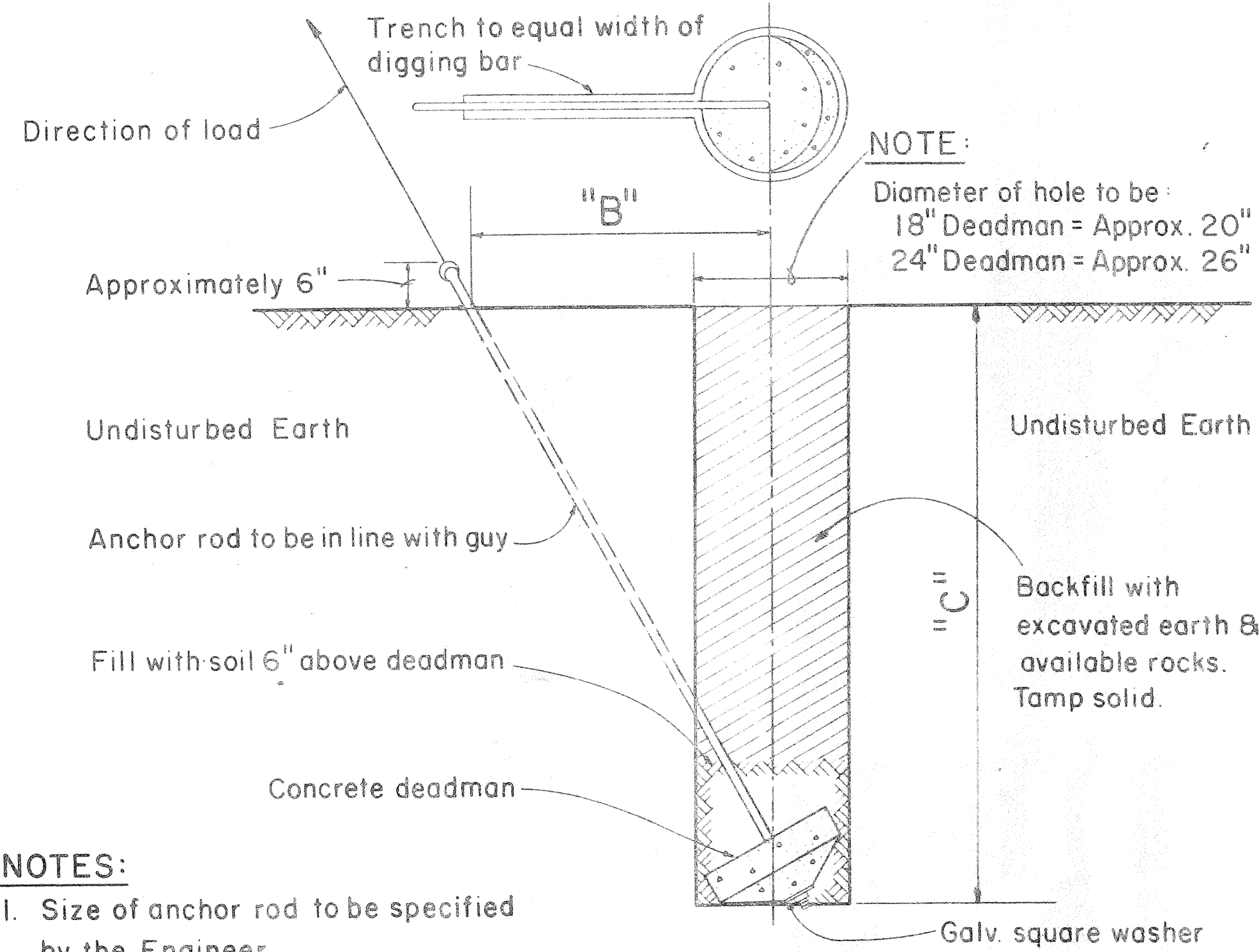
HECo., Inc. Drawing Number
18585 SHEET No. 2 OF 2 SHEETS

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

CONSTRUCTION STANDARDS
 TRANSITE KORDUCTS
 UNDERGROUND DUCT LINES

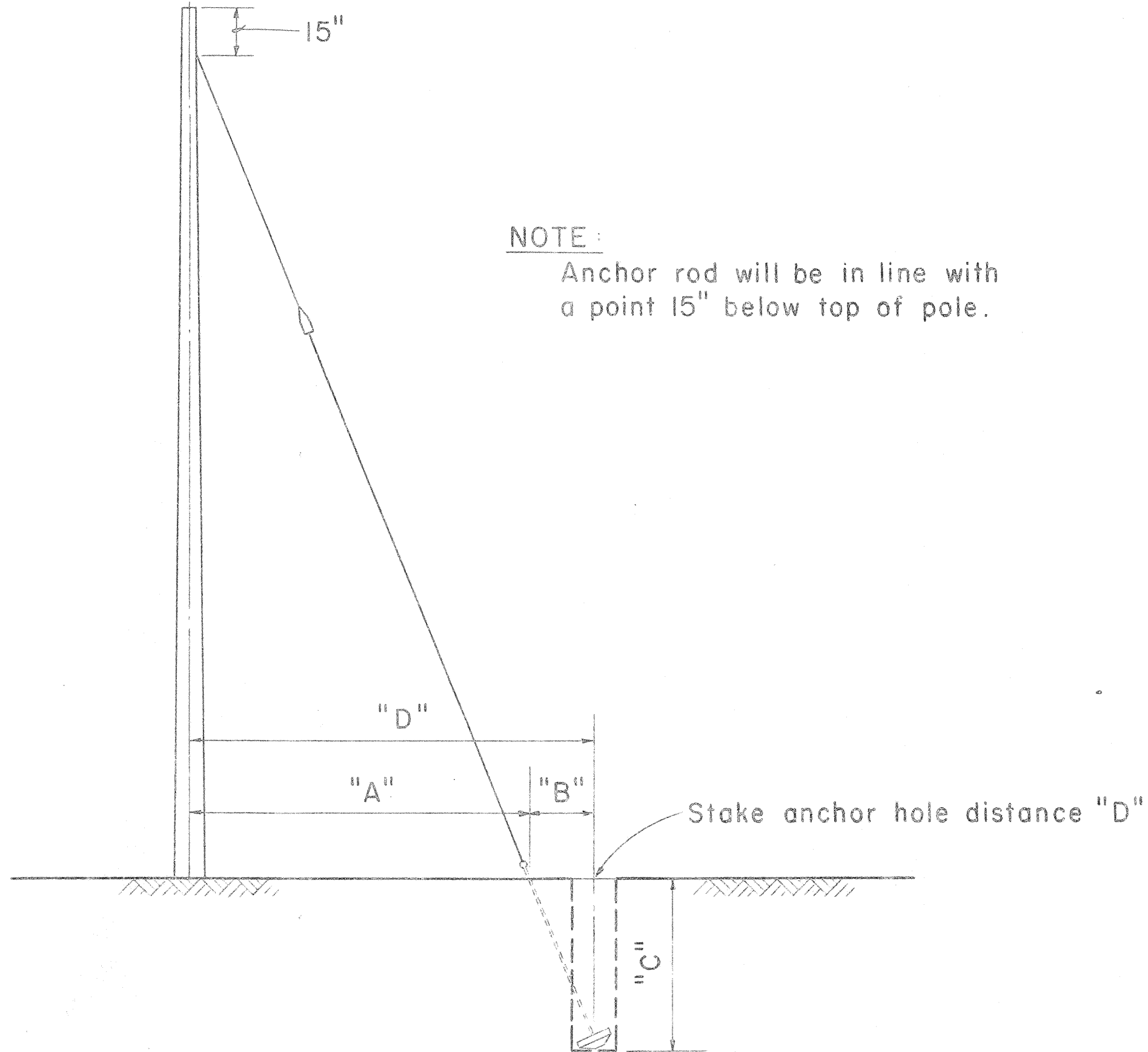
Scales: As Noted Date



- NOTES:
1. Size of anchor rod to be specified by the Engineer
 2. Use Anchoring Data.

GUY ANCHOR DEADMAN

Scale: $\frac{3}{4}" = 1' - 0"$



Not to Scale

FOR 25', & 30' POLES WITH 8'-0" ANCHOR RODS				
"A"	"B"	"C"	"D" = ("A" + "B")	
LEAD-ANCHOR ROD TO C.O.F. POLE	ANCHOR ROD TO C.O.F. HOLE	VERTICAL DEPTH 18" D.M. 24" D.M.	TOTAL DISTANCE POLE TO HOLE	
5'-0"	1'-8"	7'-1"	7'-4"	6'-8"
10'-0"	3'-0"	6'-7"	7'-0"	13'-0"
15'-0"	4'-0"	6'-1"	6'-6"	19'-0"
20'-0"	4'-8"	5'-6"	5'-10"	24'-8"
25'-0"	5'-2"	4'-11"	5'-4"	30'-2"

FOR 35' THRU 70' POLES WITH 8'-0" ANCHOR RODS				
5'-0"	1'-0"	7'-3"	7'-4"	6'-0"
10'-0"	1'-11"	7'-1"	7'-3"	11'-11"
15'-0"	2'-8"	6'-9"	7'-1"	17'-8"
20'-0"	3'-3"	6'-6"	6'-10"	23'-3"
25'-0"	3'-10"	6'-2"	6'-7"	28'-10"

FOR 40' THRU 70' POLES WITH 1 1/4" x 10'-0" ANCHOR RODS				
5'-0"	1'-7"		9'-4"	6'-7"
10'-0"	3'-0"		9'-0"	13'-0"
15'-0"	4'-2"		8'-6"	19'-2"
20'-0"	5'-3"		7'-11"	25'-3"
25'-0"	6'-2"		7'-3"	31'-2"

D. M. = Deadman

TABLE 2 ANCHOR ROD - ANCHOR SLUG - SQUARE WASHER COMBINATION

H.E. CODE NO.	ANCHOR ROD	WORKING TENSION 1/2 ULT (LBS.)	H.E. CODE NO.	CONC. ANC. (IN.)	H.E. CODE NO.	WASHER SIZE	QTY.
617	5/8" x 8'-0" Steel	8,000	518	18	2320	4" x 4" x 3/16"	2
615	5/8" x 8'-0" Cu Cov Stl	9,250	518	18	**	3" x 3" x 1/8"	2
618	3/4" x 8'-0" Steel	11,500	518	18	2330	6" x 6" x 3/8"	1
619	1" x 8'-0" Steel	18,000	524	24	2331	6" x 6" x 1/2"	1
616	1" x 8'-0" Cu Cov Stl	22,500	524	24	**	4" x 4" x 3/16"	2
613	1 1/4" x 10'-0" Steel	29,000	524	24	2330	6" x 6" x 3/8"	2

** Use bronze square washers included in anchor rod assembly on copper covered steel (Cu Cov Stl) anchor rods.

ANCHORING DATA

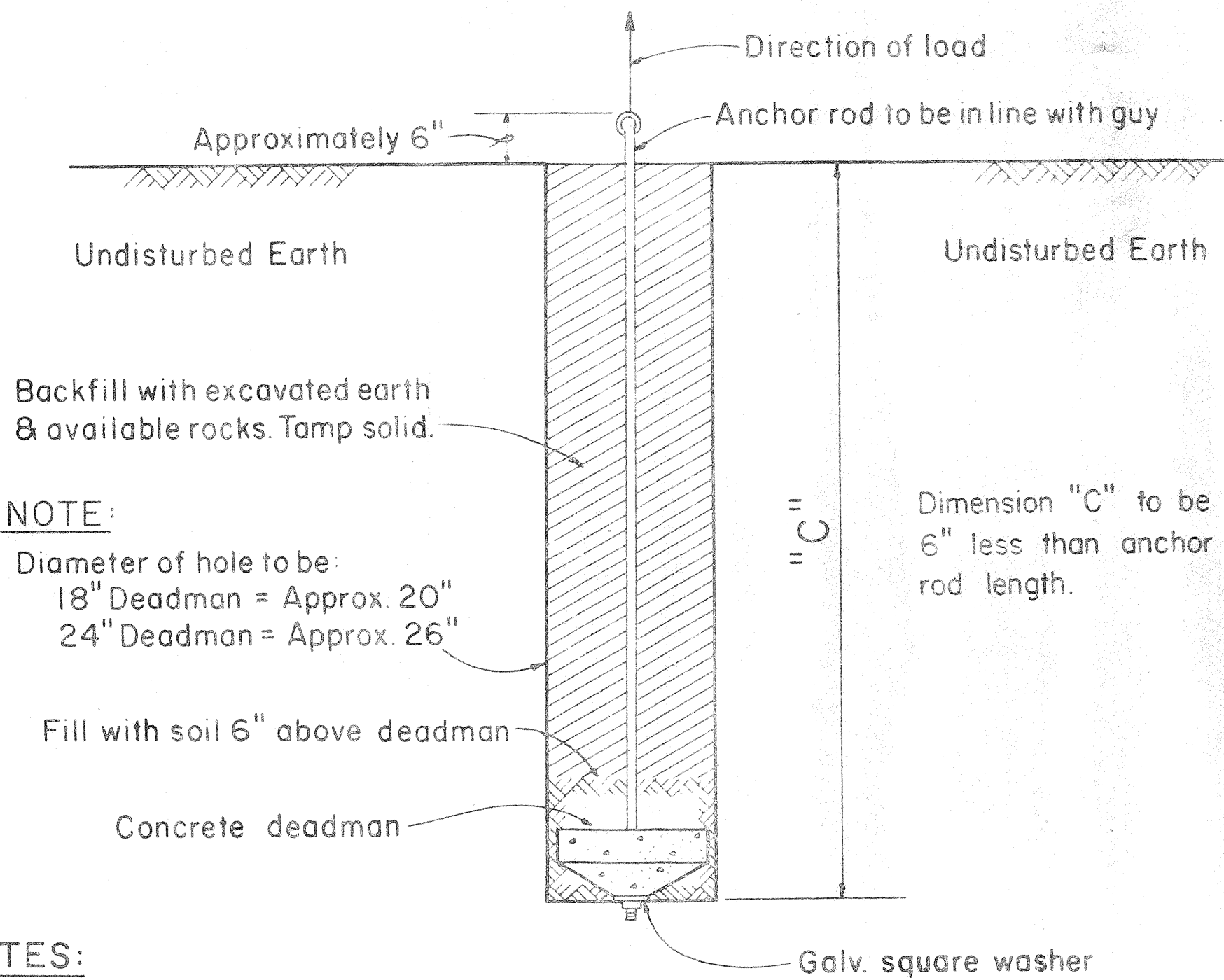
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
H.E. Co. AND H.T. Co.
ANCHOR DETAILS AND
ANCHORING DATA

Scales: As Noted

Date

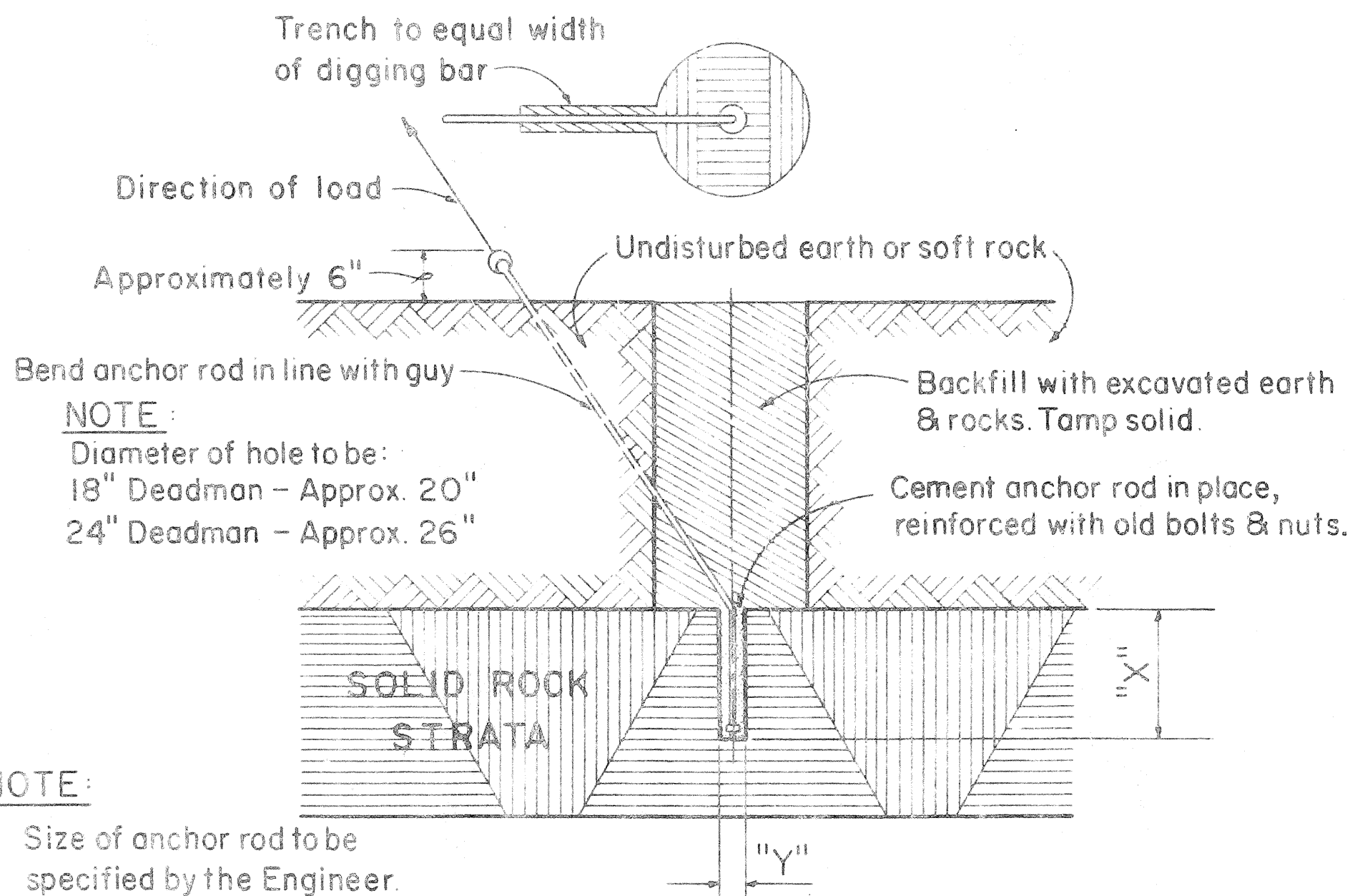
SHEET No. 4 OF 5 SHEETS



- NOTES:
1. Size of anchor rod to be specified by the Engineer.
 2. Use Anchoring Data.

SIDE - WALK ANCHOR

Scale: $\frac{3}{4}" = 1' - 0"$



- NOTE:
1. Size of anchor rod to be specified by the Engineer.
 2. "X" Should not be less than 24".
If "X" is less than 24" complete hole & install anchor.
 3. "Y" 5/8" Anchor rod drill 2" hole
3/4" Anchor rod drill 2" hole
1" Anchor rod drill 2 1/2" hole
1 1/4" Anchor rod drill 3" hole
 4. Use Anchoring Data.

ROCK ANCHOR

Not to Scale

CREOSOTED DOUGLAS FIR & YELLOW PINE POLE DATA									
LENGTH IN FEET	CLASS	APPROX. MINIMUM DIMENSIONS (INCHES)				AVERAGE WEIGHT (LBS.)	POLE SETTING DEPTH (FT.)		BREAKING LOAD 2'-0" BELOW TOP OF POLE (LBS.)
		AT TOP		6' FROM BUTT			DOUGLAS FIR	IN SOIL	
		DIA.	CIR.	DIA.	CIR.				
25	5	6.04	19	8.26	26	525	4.5	3	1900
30	3	7.32	23	10.32	32.5	810	5	3.5	3000
	5	6.04	19	8.90	28	600	5	3.5	1900
35	2	7.96	25	12.23	37.5	1260	5	3.5	3700
	5	6.04	19	9.55	30	770	5	3.5	1900
40	3	7.32	23	11.77	37	1320	5.5	3.5	3000
45	2	7.96	25	13.20	41.5	1845	6	4	3700
	3	7.32	23	12.25	38.5	1575	6	4	3000
50	2	7.96	25	13.70	43	2150	6.5	4	3700
	3	7.32	23	12.70	40	1850	6.5	4	3000
55	1	8.59	27	15.11	47.5	2860	7	4.5	4500
	2	7.96	25	14.15	44.5	2475	7	4.5	3700
	3	7.32	23	13.20	41.5	2145	7	4.5	3000
60	1	8.59	27	15.75	49.5	3360	7	4.5	4500
	2	7.96	25	14.62	46	2820	7	4.5	3700
65	1	8.59	27	16.20	51	3835	7.5	5	4500
	2	7.96	25	15.11	47.5	3250	7.5	5	3700
70	1	8.59	27	16.70	52.5	4340	7.5	5	4500
	2	7.96	25	15.60	49	3640	7.5	5	3700
75	1	8.59	27	17.20	54	4800	8	5.5	4500
	2	7.96	25	16.05	50.5	4050	8	5.5	3700
80	1	8.59	27	17.50	55	5240	8	6	4500
	2	7.96	25	16.40	51.5	4400	8	6	3700
85	1	8.59	27	18.00	56.5	5780	8.5	6.5	4500
	2	7.96	25	16.88	53	4930	8.5	6.5	3700
90	1	8.59	27	18.30	57.5	6300	8.5	6.5	4500
	2	7.96	25	17.20	54	5400	8.5	6.5	3700

NOTE:
The ultimate fiber stress for creosoted Southern Yellow Pine & Douglas Fir is 7,400 Lbs. per square inch.
Weights are for untreated poles. Add 5% as estimate of added weight of creosote treatment.

REFERENCES:
American Standards Association 05.4-1941, 05.6-1945.
Standard Handbook for Electrical Engineers, Eighth Edition
H. E. Co. Specification for Poles.

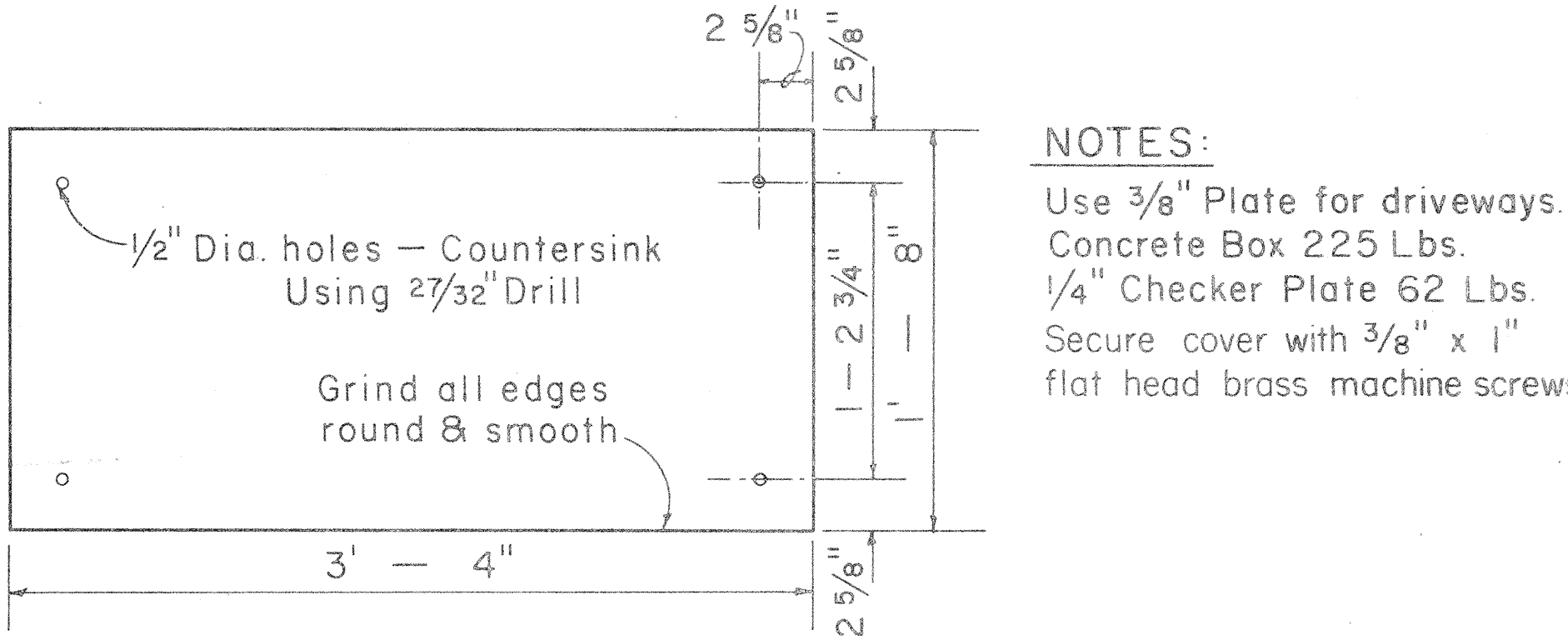
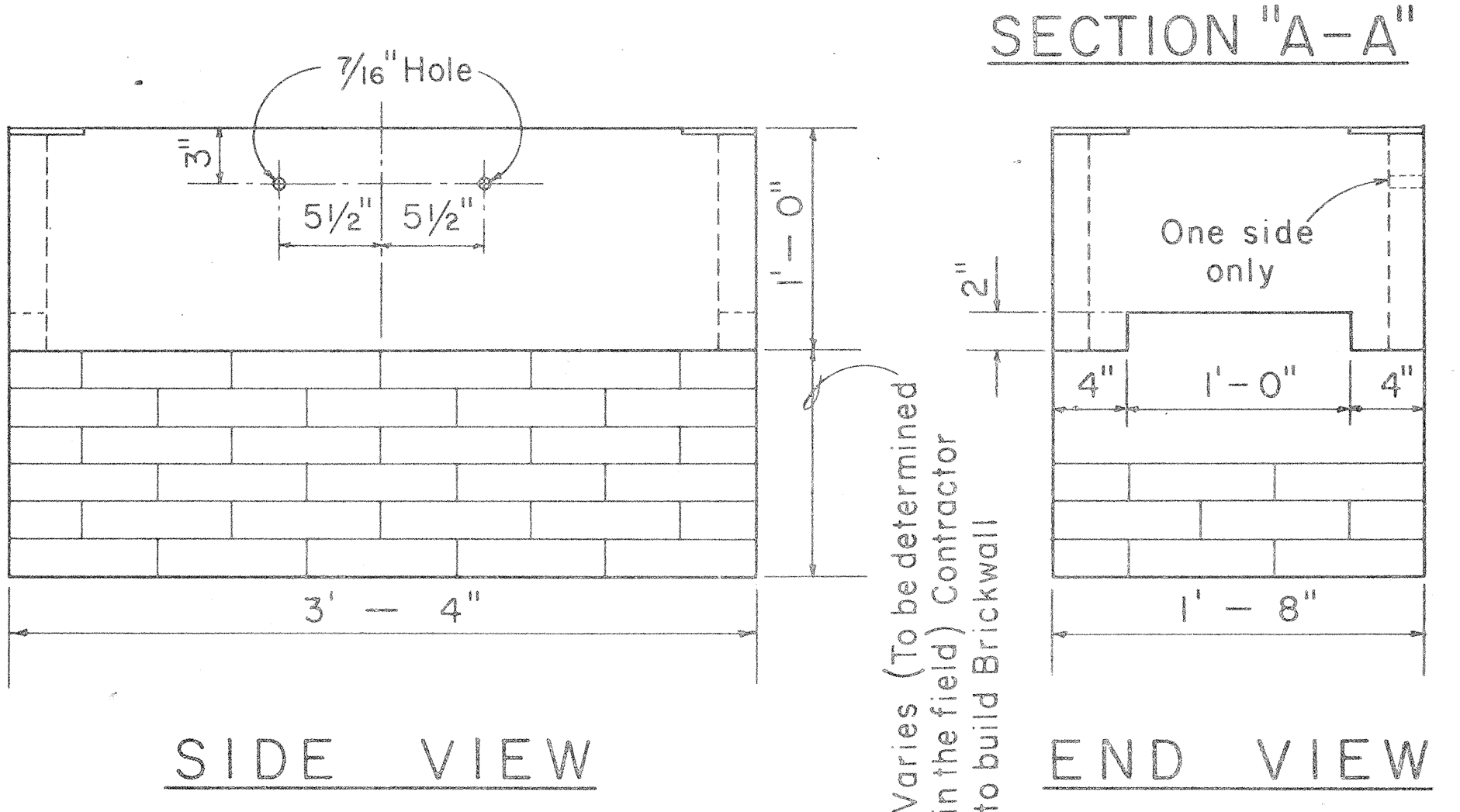
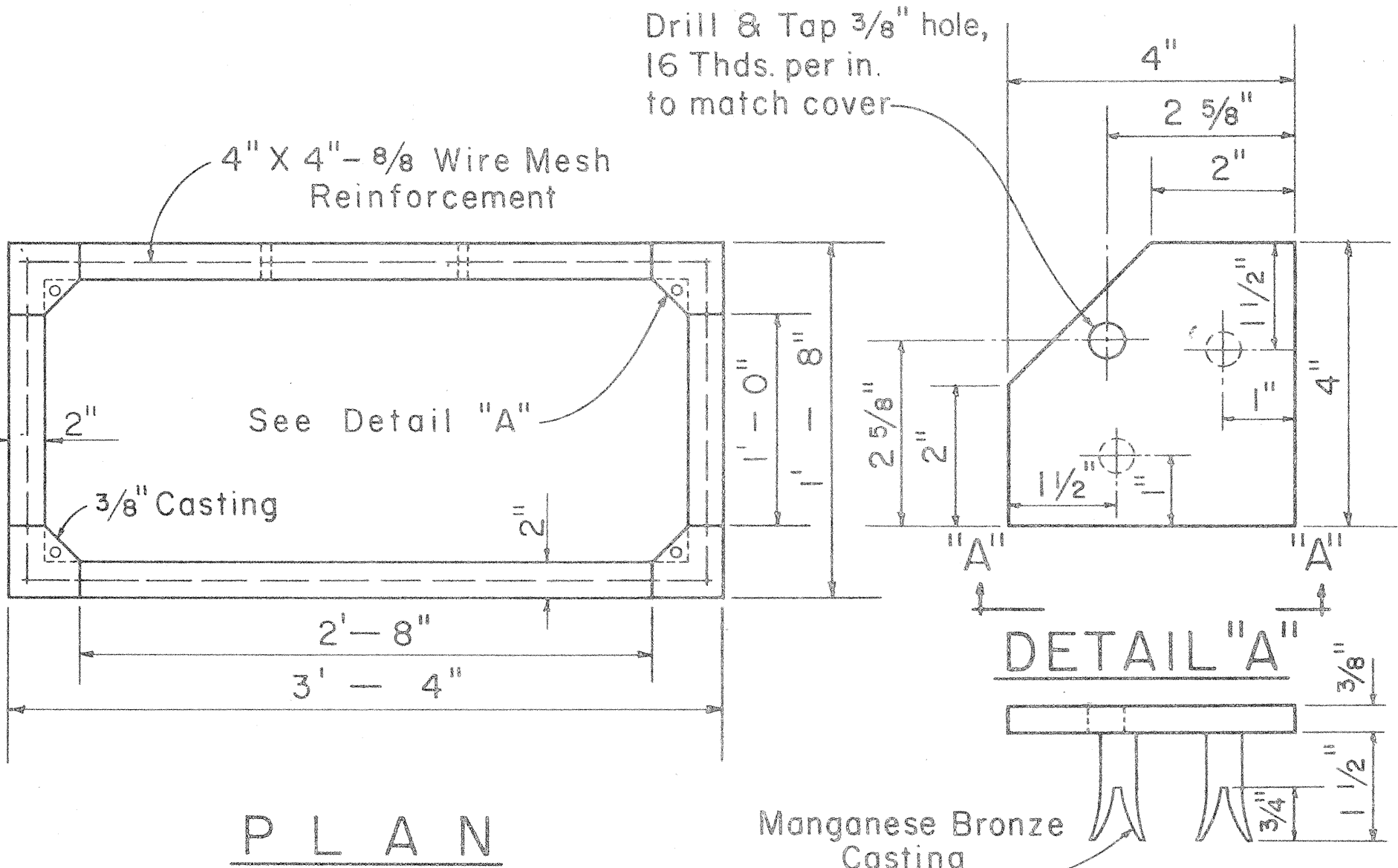
WOOD POLE DATA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
H.E. Co. AND H.T. Co.
SERVICE BOX DETAILS
AND WOOD POLE DATA

Scales: As Noted
Date

SHEET NO. 5 OF 5 SHEETS

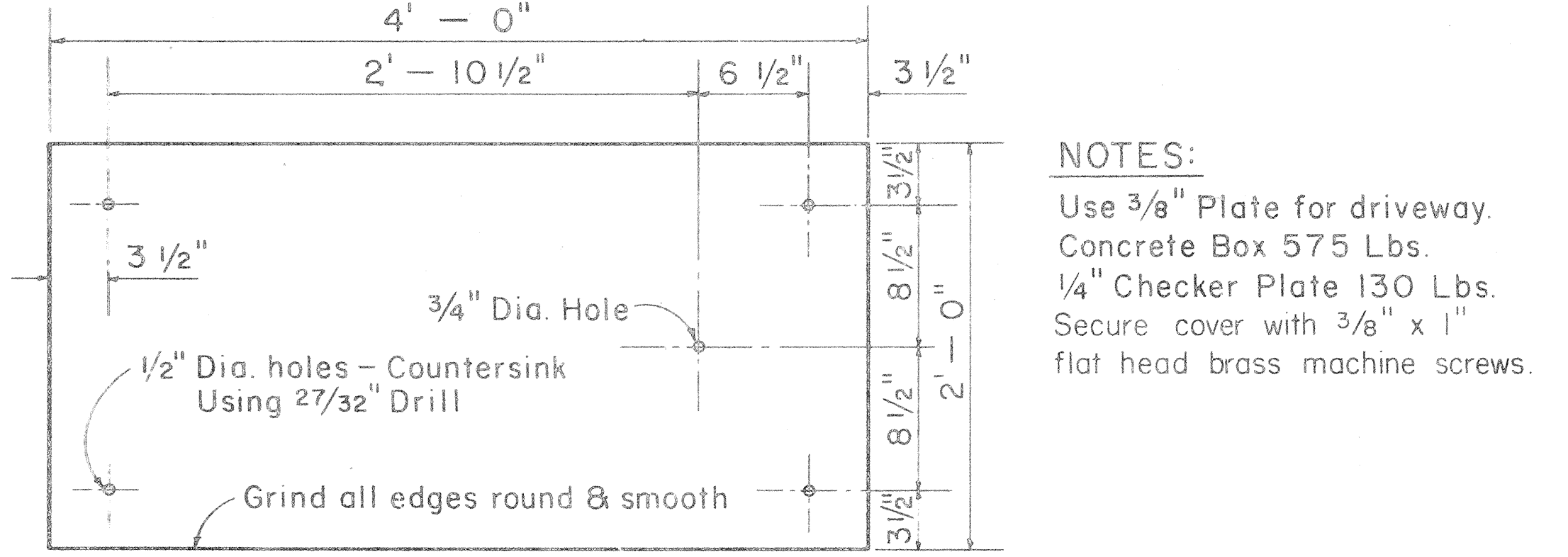
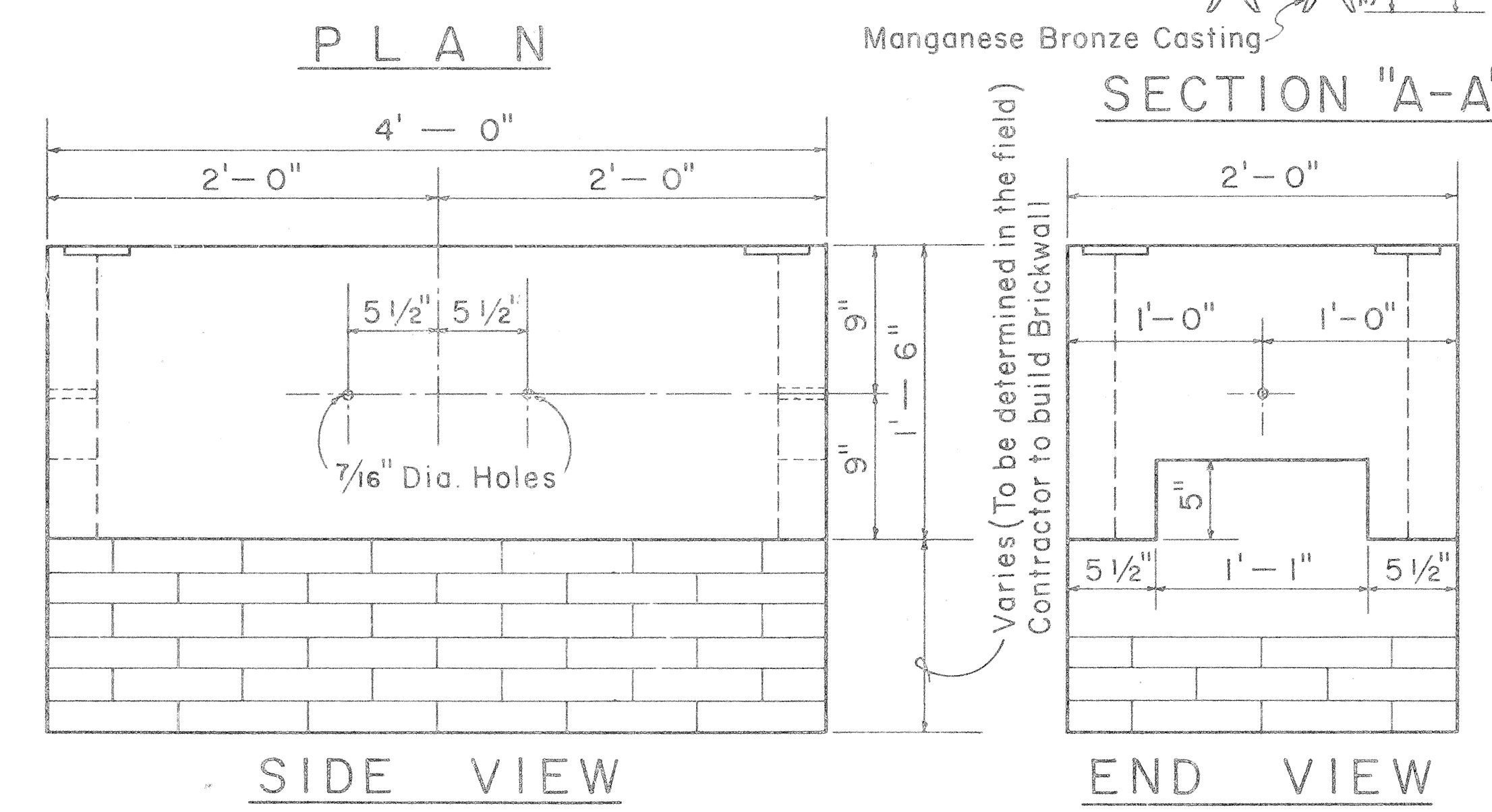
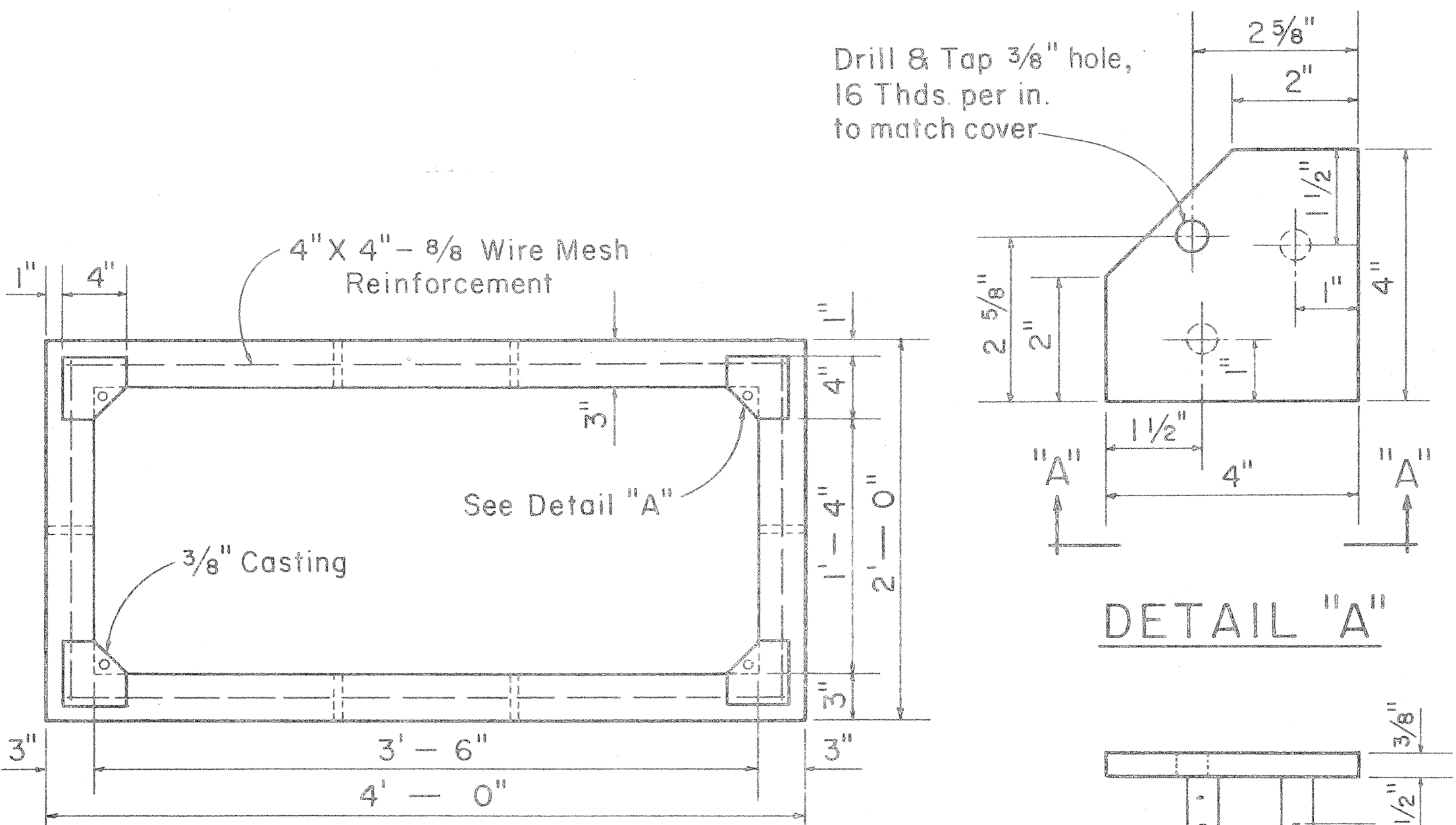


1/4" CHECKER PLATE COVER
(Hot dip galvanize checkered plate after drilling, countersinking, and grinding edge)

1'-4" X 3'-0" CONCRETE SERVICE BOX

Scale: 1 1/2" = 1'-0"

OII250



1/4" CHECKER PLATE COVER
(Hot dip galvanize checkered plate after drilling, countersinking, and grinding edge)

1'-6" X 3'-6" CONCRETE SERVICE BOX

Scale: 1 1/2" = 1'-0"

OII255

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
CHECKED BY: _____
ORIGINAL PLAN: _____
NOTE BOOK: _____
No. _____