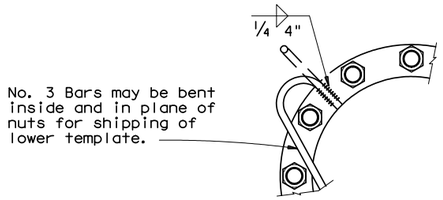
Texas Department of Transportation
Book 2 - Technical Provisions

IH 35E Managed Lanes Project

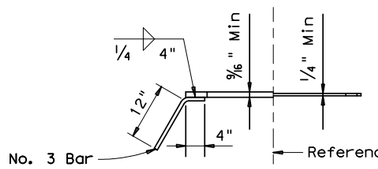
Attachment 17-1

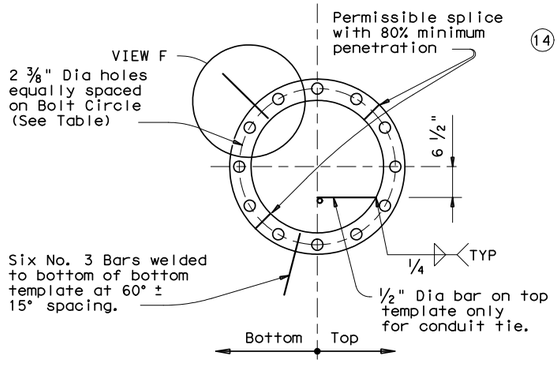
Tolling and ITS Exhibits

LEVELS DISPLAYED 1 2 3 ACC:

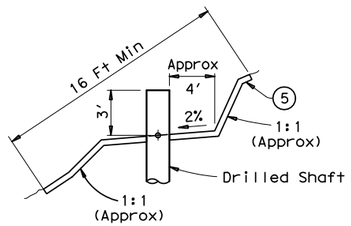


VIEW F

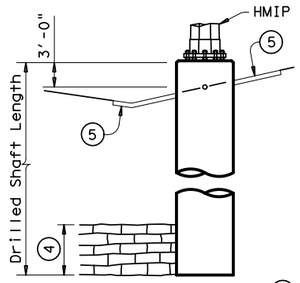




ANCHOR BOLT TEMPLATES

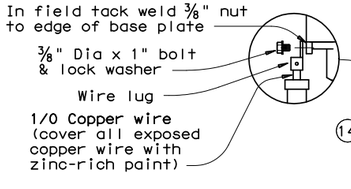


RIPRAP ON SLOPES



(5) Match slope of finished ground if slope is less than approx 4 to 1. For steeper slopes, bench to provide work area with approx 2 % slope around pole base. Other configurations may be shown elsewhere on the plans.

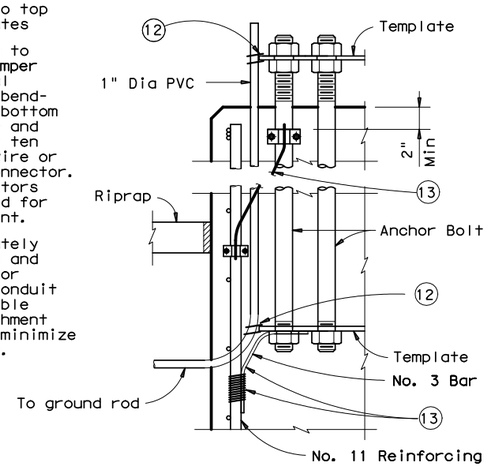
(4) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.



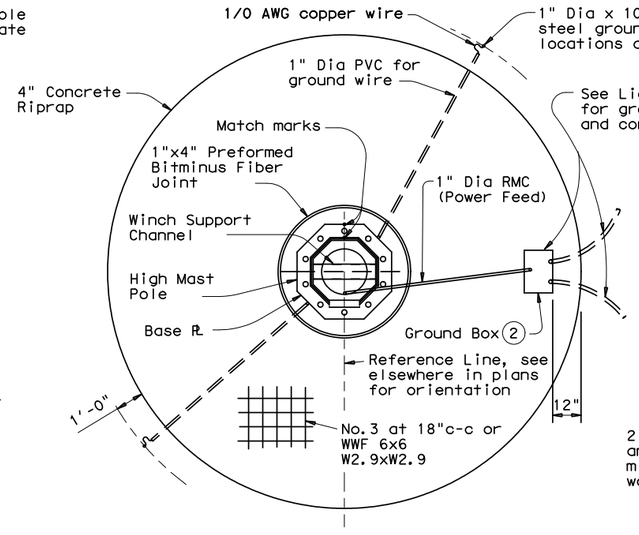
(12) Wire 1" Dia PVC to top and bottom templates

(13) Bond anchor bolts to rebar with 1/0 jumper and two mechanical connectors or by bending No. 3 bar on bottom template as shown and wire tightly with ten turns of No. 10 wire or one mechanical connector. Mechanical connectors shall be UL listed for concrete encasement.

(14) Cut PVC approximately 1" above concrete and install bell and/or bushing. Align conduit as close as possible to point of attachment to base plate to minimize bends in 1/0 wire.

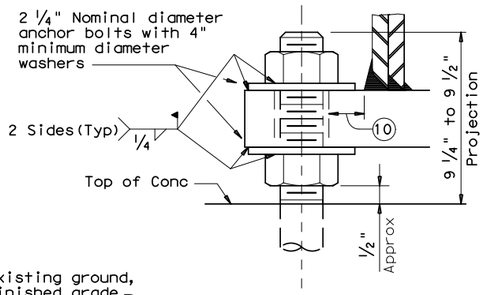


LIGHTNING PROTECTION SYSTEM



(2) Place ground box cover flush with riprap.

(10) If, due to tolerances in fabrication, the anchor bolt hole to ground sleeve weld is less than approx 7/8", clipped 1/2" thick washers shall be supplied at those



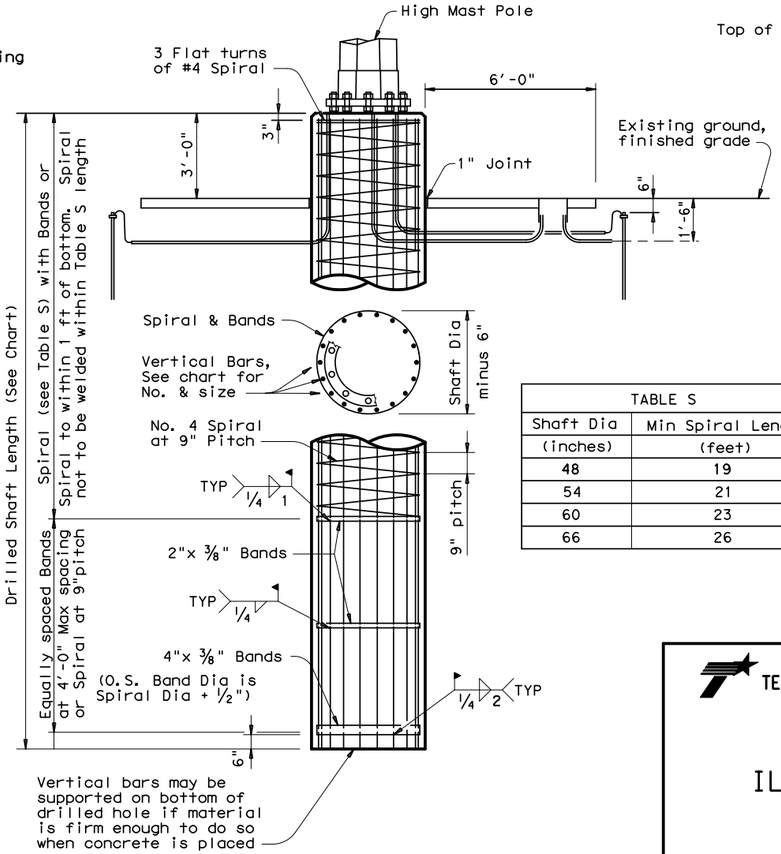
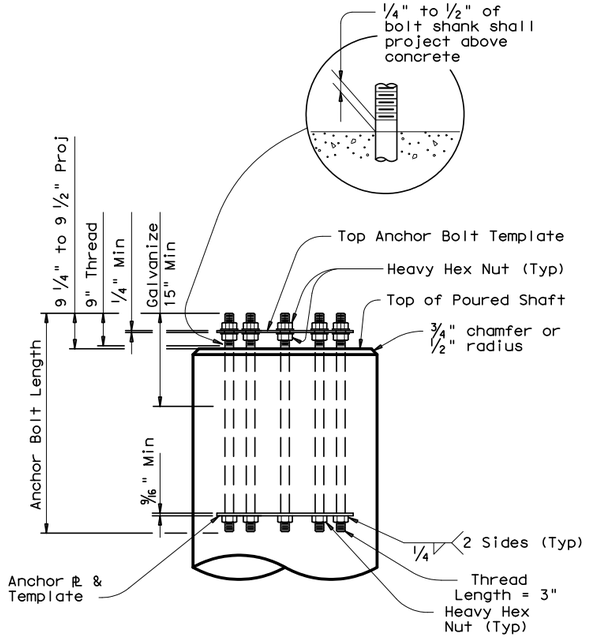


TABLE S	
Shaft Dia	Min Spiral Length
(inches)	(feet)
48	19
54	21
60	23
66	26

DRILLED SHAFT FOUNDATION DETAIL



ANCHOR BOLT ASSEMBLY

(See Anchor Bolt Table for number of bolts required)

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

HIGH MAST ILLUMINATION POLE FOUNDATIONS

SHEET 1 OF 2 HMIF(1)-98

DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	MEG NO.:

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
11-97	TEXAS	6	CM ( )	124
5-98 ~ Anchor Bolt Circle Dia	COUNTY		CONTROL SECTION JOB	HIGHWAY
	DALLAS		0442 02 143	IH 35E

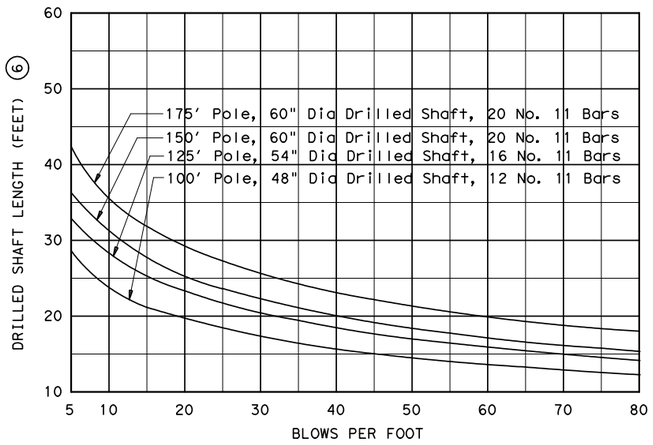
78A

LEVELS DISPLAYED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

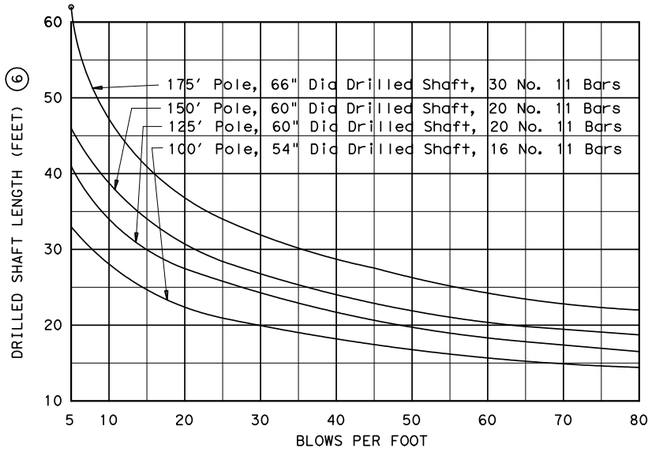
ACC:

⑥ Includes normal 3 Ft exposure. Shafts with more than 3 Ft exposure must have additional length.



80 MPH POLES

Do not extrapolate below 5 Blows/Ft. A special design will be required for soil less than 5 Blows/Ft.



100 MPH POLES

Do not extrapolate below 5 Blows/Ft. A special design will be required for soil less than 5 Blows/Ft.

TEXAS CONE PENETROMETER TEST TABLES

NOTE: Use average "N" value over the top third of the embedded shaft. Ignore the top 2′ of soil.

ANCHOR BOLT TABLE

	Pole Height	Bolt Diameter	Bolt Length	Bolt Templates O D	Bolt Templates I D	No. of Bolts	Bolt Cir Dia
	(feet)	(inches)	(feet)	(inches)	(inches)	~	(inches)
80 MPH DESIGNS	8 SIDED POLE						
	175	2.25	4.83	45.5	36.5	16	41
	150	2.25	4.83	42.5	33.5	12	38
	125	2.25	4.83	39.5	30.5	8	35
	100	2.25	4.83	35.5	26.5	6	31
	12 SIDED POLE						
	175	2.25	4.83	48.5	39.5	12	44
	150	2.25	4.83	45.5	36.5	10	41
	125	2.25	4.83	40.5	31.5	8	36
	100	2.25	4.83	36.5	27.5	6	32
100 MPH DESIGNS	8 SIDED POLE						
	175	2.25	4.83	50.5	41.5	20	46
	150	2.25	4.83	47.5	38.5	16	43
	125	2.25	4.83	43.5	34.5	12	39
	100	2.25	4.83	38.5	29.5	10	34
	12 SIDED POLE						
	175	2.25	4.83	50.5	41.5	16	46
	150	2.25	4.83	48.5	39.5	12	44
	125	2.25	4.83	44.5	35.5	10	40
	100	2.25	4.83	40.5	31.5	6	36

MISCELLANEOUS QUANTITIES - ONE HMIF

Shaft Diameter	(in)	⑦	48	54	60
Concrete Riprap	(CY)		2.33	2.44	2.56
Reinforcing	(Lbs)	⑧	94	99	103
Ground Box	(ea)		1	1	1
R O W Marker	(ea)	⑨	1	1	1

⑦ See elsewhere on plans for length of Drilled Shaft required.
⑧ For Contractors information only.
⑨ Designated elsewhere on plans if required.

GENERAL NOTES:

Unless otherwise noted, the welded steel bands may be replaced with spiral as shown on the foundation details.

Anchor bolts shall be placed in foundation so there are always two bolts on reference line.

Drilled shaft lengths as determined from the foundation design chart or other acceptable methods are to be as shown elsewhere on the plans.

ODSR may not be used for HMIF drilled shafts.

Concrete for drilled shafts shall be Class C.

Repair welded areas with zinc-rich paint.

All Anchor Bolts, Nuts and Washers shall be galvanized in accordance with Item 445, "Galvanizing".

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

HIGH MAST ILLUMINATION POLE FOUNDATIONS

SHEET 2 OF 2 HMIF(2)-98

DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	MEG NO.:

REVISIONS
5-98 ~ Anchor Bolt Circle Dia

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
TEXAS	6	CM ( )	125

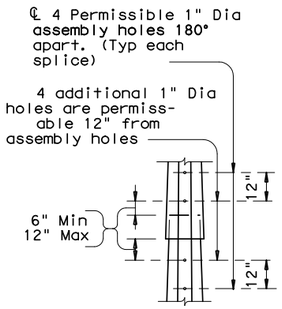
COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DALLAS	0442	02	143	IH 35E

78B

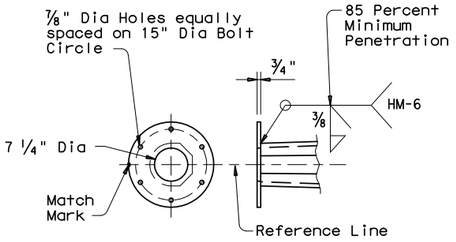
LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

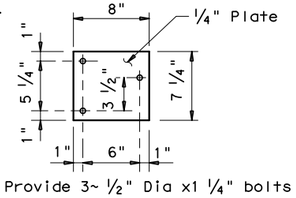
(LV=1,2 for English; 1,3 for Metric)



SPLICE DETAIL

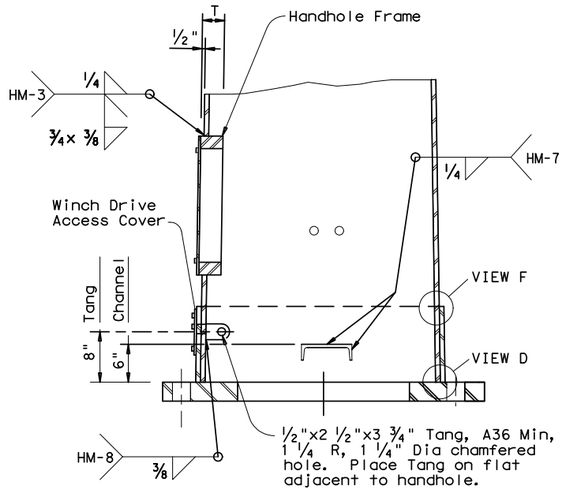


VIEW C

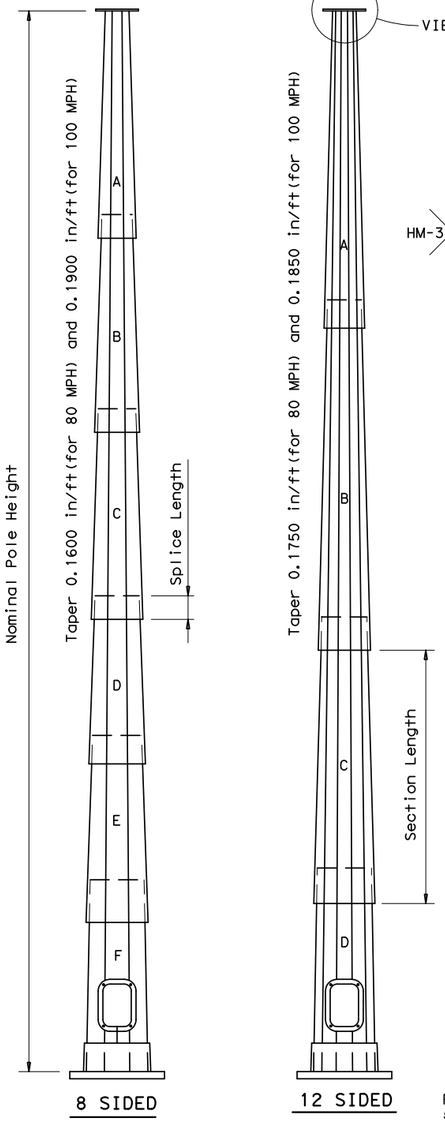


Provide 3~ ½" Dia x1 ¼" bolts

WINCH DRIVE ACCESS COVER



SECTION B-B

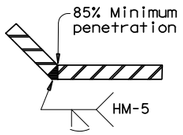


POLE ELEVATIONS

(Showing 175 Ft Poles)

STANDARD WELD

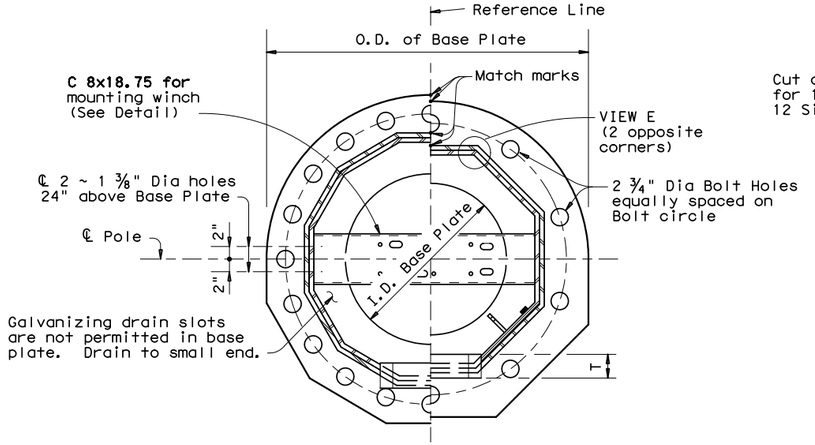
OPTIONAL WELD STEP 1
(a) Prepare Shaft and ground sleeve.
(b) Weld shaft to base plate, chip and grind flush (1/8 " max radius.)



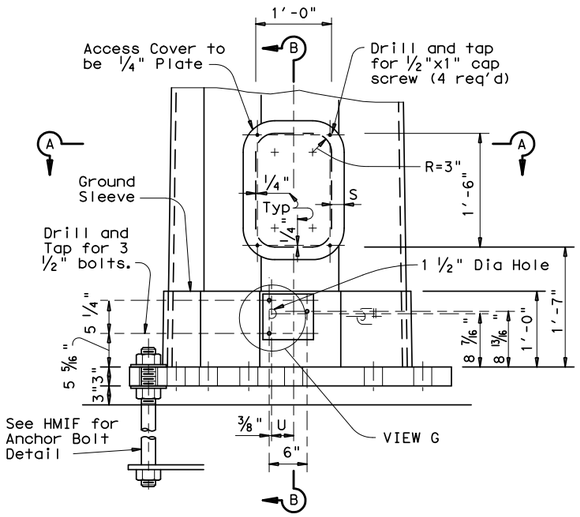
Ground sleeve to be same thickness as lower pole section, except shall not be less than 0.375 inch

Provide 100% penetration in outer sections at splices and at base plates for 1.5 pole diameters plus 6". Also provide 100% penetration for ground sleeve seam welds.

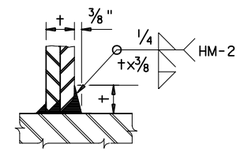
VIEW E



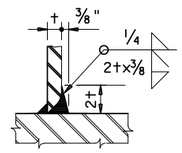
SECTION A-A



ELEV OF POLE BASE

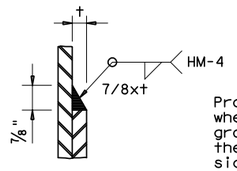


OPTIONAL WELD STEP 2
(c) Position ground sleeve.
(d) Weld to base plate with tapered reinforcement.

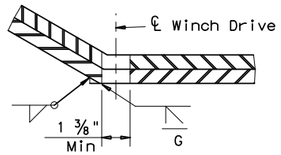


NO GROUND SLEEVE
(Testing required)

VIEWS D

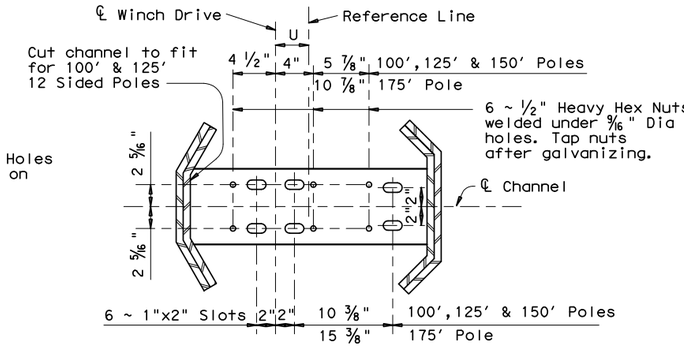


VIEW F

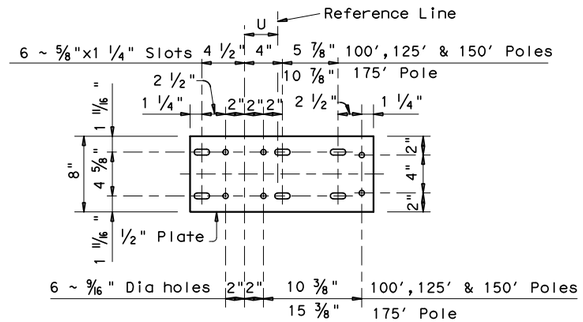


Provide welded and ground filler or cover plate where winch drive conflicts with bend line in ground sleeve for the 8 sided, 80 mph, 100′ pole, the 12 sided, 100 mph, 100′ pole, and the 12 sided, 80 mph, 175′, 125′ and 100′ poles.

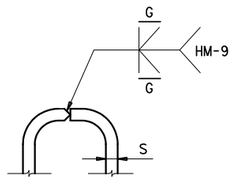
VIEW G



WINCH MOUNTING CHANNEL



WINCH MOUNTING PLATE



A bent and welded handhole frame is permissable. Heating, bending, and finish grinding must be approved with the HM-9 weld procedure.

OPTIONAL HANDHOLE FRAME

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

HIGH MAST ILLUMINATION POLES
100′ - 125′ - 150′ - 175′

SHEET 1 OF 2 HMIP(1)-98

DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	NEG NO.:

REVISIONS
11-97
5-98 ~ Anchor Bolt Circle Dia

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
TEXAS	6	CM	( )	126

COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DALLAS	0442	02	143	IH 35E

77A

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

(LV=1,2 for English; 1,3 for Metric)

TABLE OF VARIABLE POLE DIMENSIONS

	Ht (ft)	Section	8 SIDED POLE Diameter (Inches) Bottom	Top	Thickness (inches)	Length (feet)	Splice (inches)	12 SIDED POLE Diameter (Inches) Bottom	Top	Thickness (inches)	Length (feet)	Splice (inches)
80 MPH DESIGNS	175	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.92	25	24.858	15.817	.313	51.67	36
		C	22.250	16.583	.375	35.42	32	32.625	23.583	.313	51.67	48
		D	25.375	20.948	.438	27.67	36	36.250	31.175	.375	29.00	~
		E	28.375	23.895	.500	28.00	41					
		F	31.250	26.703	.500	28.42	~					
	150	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.92	25	24.858	15.817	.313	51.67	36
		C	22.250	16.583	.375	35.42	32	32.625	23.583	.313	51.67	~
		D	25.375	20.948	.438	27.67	36					
		E	28.375	23.895	.500	28.00	~					
	125	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.92	25	24.858	15.817	.313	51.67	36
		C	22.250	16.583	.375	35.67	32	28.250	23.583	.313	26.67	~
		D	25.375	20.948	.438	27.67	~					
	100	A	13.083	7.750	.250	33.33	19	16.792	7.750	.250	51.67	24
		B	17.792	12.205	.375	34.67	25	24.625	15.817	.313	50.33	~
		C	22.250	16.583	.375	35.67	~					
100 MPH DESIGNS	175	A	14.208	7.875	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.747	16.173	.438	51.75	37
		C	25.250	18.473	.438	35.67	36	33.750	24.176	.438	51.75	49
		D	29.000	23.680	.500	28.00	42	37.375	31.995	.500	29.08	~
		E	32.625	27.210	.563	28.50	47					
		F	36.125	30.631	.563	28.92	~					
	150	A	14.208	7.875	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.747	16.173	.438	51.75	37
		C	25.250	18.473	.438	35.67	36	33.750	24.176	.438	51.75	~
		D	29.00	23.680	.500	28.00	42					
		E	32.625	27.210	.563	28.50	~					
	125	A	14.208	7.785	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.747	16.173	.438	51.75	37
		C	25.250	18.473	.438	35.67	36	29.125	24.176	,438	26.75	~
		D	29.00	23.680	.500	28.00	~					
	100	A	14.208	7,875	.313	33.33	20	17.433	7.875	.375	51.67	25
		B	19.792	13.142	.375	35.00	28	25.500	16.173	.375	50.42	~
		C	25.250	18.473	.438	35.67	~					

Diameters are measured across the flats.

TABLE OF VARIABLE BASE DIMENSIONS

	Ht (ft)	O.D. (inches)	I.D. (inches)	Bolt Cir (inches)	No. Bolts	S (inches)	T (inches)	U (inches)
	8 SIDED POLE							
80 MPH DESIGNS	175′	47	22	41	16	2.00	3.75	4.50
	150′	44	18	38	12	2.00	4.00	3.50
	125′	41	16	35	8	2.00	4.50	3.50
	100′	37	14	31	6	2.00	5.00	3.50
	12 SIDED POLE							
	175′	50	24	44	12	1.75	3.50	3.50
	150′	47	22	41	10	1.75	3.50	2.50
	125′	42	18	36	8	1.75	3.75	2.50
	100′	38	13	32	6	1.75	4.00	2.50
	8 SIDED POLE							
100 MPH DESIGNS	175′	52	27	46	20	1.75	3.50	4.50
	150′	49	23	43	16	1.75	4.00	3.50
	125′	45	21	39	12	1.75	4.50	3.50
	100′	40	17	34	10	1.75	4.50	3.50
	12 SIDED POLE							
	175′	52	27	46	16	1.75	3.25	3.50
	150′	50	25	44	12	1.75	3.50	2.50
	125′	46	22	40	10	1.75	3.75	2.50
	100′	42	19	36	6	1.75	4.00	2.50

NOTE: Base Plate may be round or with 8 or 12 equal segments matching the pole.

GENERAL NOTES:

Design conforms to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals and Interim Revisions thereto. The Design Wind Speed is 80 mph or 100 mph.

The required design height and wind speed shall be as shown elsewhere in the plans.

Each pole section, top flange plate and base plate shall be permanently marked on the reference line. The required mark locations are shown on the baseplate, top plate, and foundation plan details. These marks shall be used in pole assembly and erection alignment. The reference line and anchor bolt orientation shall be parallel to roadway centerline unless otherwise shown on Lighting Layouts.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

HIGH MAST ILLUMINATION POLES
100′ - 125′ - 150′ - 175′

SHEET 2 OF 2 HMIP(2)-98

DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	MEG NO.:

REVISIONS
5-98 ~ Anchor Bolt Circle Dia

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
TEXAS	6	CM ( )	127

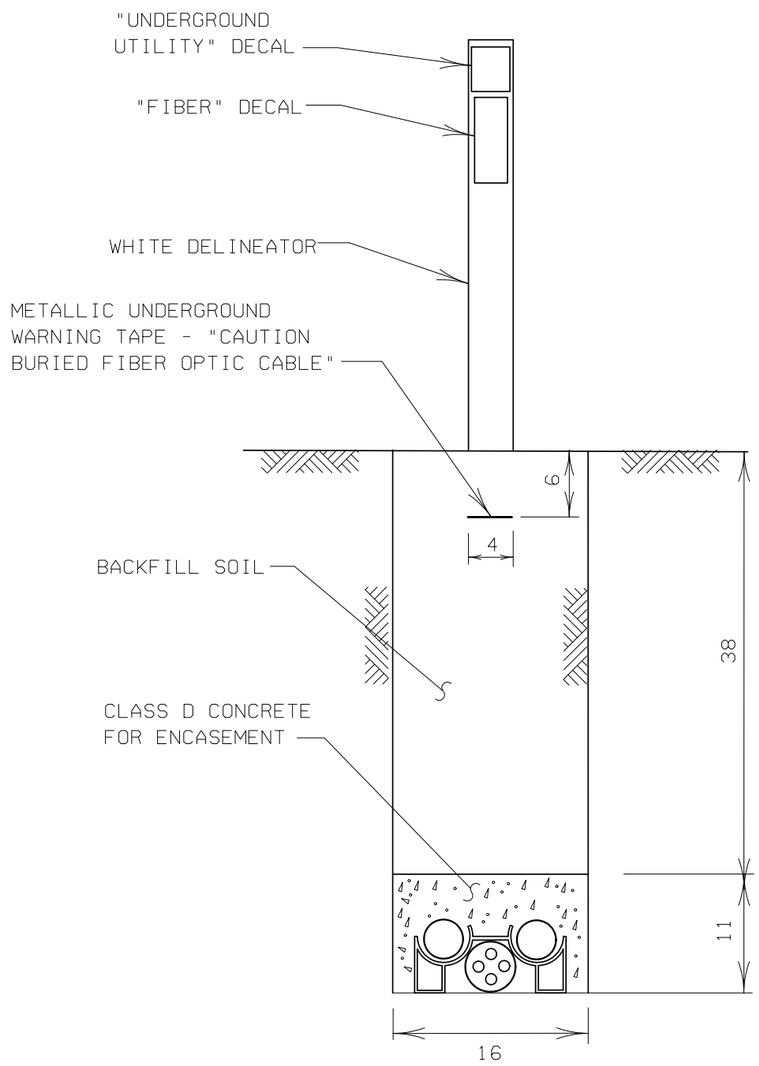
COUNTY	CONTROL	SECTION	JOB	HIGHWAY
DALLAS	0442	02	143	IH 35E

77B

FMPO

TYPICAL CONDUIT CROSS SECTION

2 - 3 IN. PVC AND 1 - 4 IN. PVC MULTIDUCT (CONCRETE ENCASED), AND



ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE NOTED

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

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_____ ,P.E.
Signature of Registrant & Date

LEVELS

1	2	3	4	5	6	7
8		10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49
50	51	52	53	54	55	56
57	58	59	60	61	62	63

Texas Department of Transportation

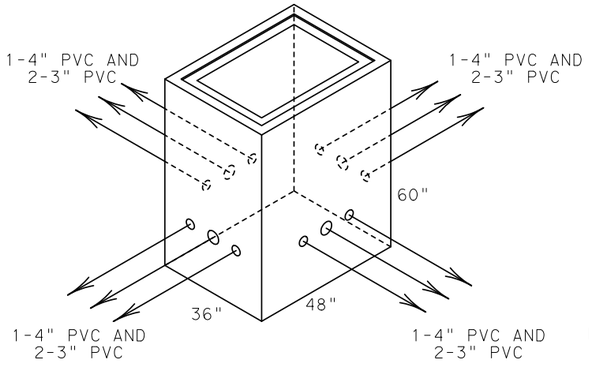
"ITS" MISCELLANEOUS ITEMS SHEET

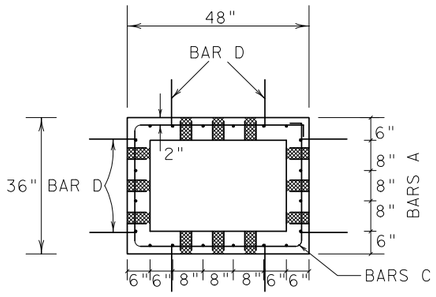
SHEET 2 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM	( )	IH 35E
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DK	TEXAS	DALLAS	DALLAS	112
CHECK	CONTROL	SECTION	JOB	
RNG	0442	02	143	
CHECK				

"ITS" GROUND BOX TYPE 1

(MIN. INSIDE DIMENSIONS OF 2 FT X 3 FT)

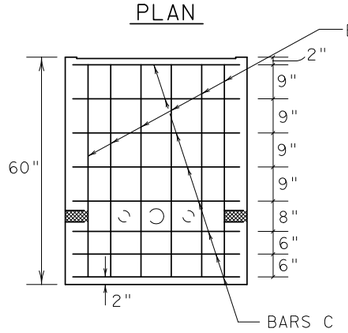




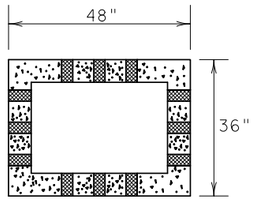
BARS A

NOTE: BAR SPACING IS THE SAME ON OPPOSING SIDES.

PLAN

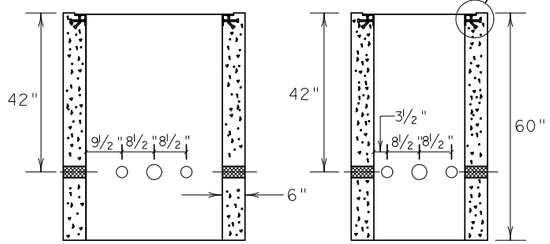


ELEVATION



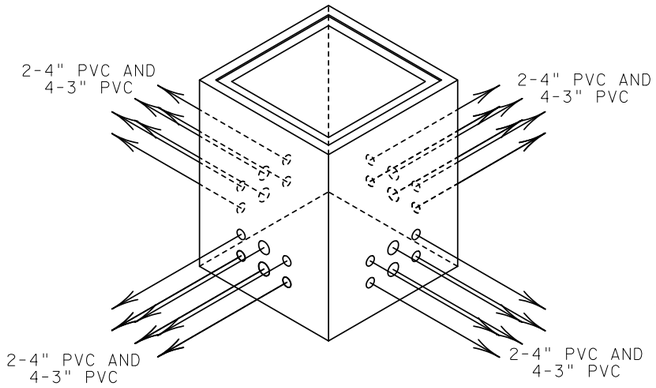
▨ - ADAPTER FOR PVC CONDUIT. (REQUIRED CONDUIT SIZES ARE AS SHOWN ABOVE.)

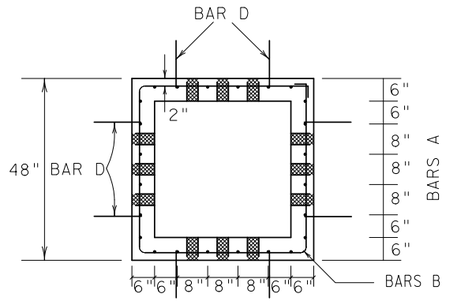
SEE DETAIL B LOCATED ON SHEET 2 OF 2.



"ITS" GROUND BOX TYPE 2

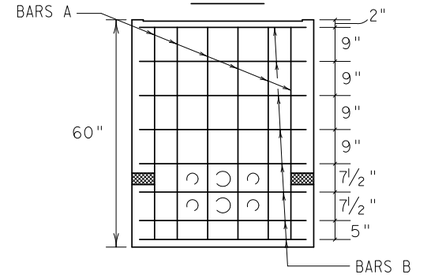
(MIN. INSIDE DIMENSIONS OF 3 FT X 3 FT)



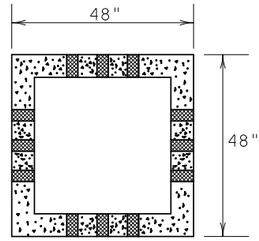


NOTE: BAR SPACING IS THE SAME ON ALL SIDES

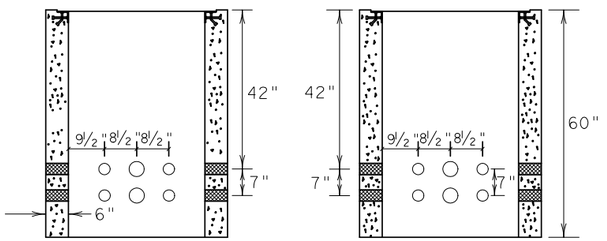
PLAN



ELEVATION



▨ - ADAPTER FOR PVC CONDUIT. (REQUIRED CONDUIT SIZES ARE AS SHOWN ABOVE.)



NOTES:

1. CONCRETE FOR "ITS" GROUND BOXES SHALL BE CLASS A.
2. ADAPTERS FOR THE PVC CONDUITS ARE PLACED SYMETRICALLY ABOUT THE CENTERLINE OF THE BOX AT THE DEPTHS SHOWN, UNLESS OTHERWISE NOTED.
3. ADAPTERS SHALL BE APPROPRIATELY SIZED FOR THE CONDUITS INDICATED ON THIS DRAWING. THE ADAPTERS SHALL PROVIDE AN AIR TIGHT AND WATER TIGHT CONNECTION.
4. "ITS" GROUND BOX BOTTOMS SHALL BE LEFT OPEN.
5. ALL "ITS" GROUND BOXES SHALL BE PROVIDED WITH A SECURABLE, TAMPER-PROOF LID. SEE "ITS" GROUND BOX LID DETAIL.
6. ALL "ITS" GROUND BOXES ARE TO BE INSTALLED ON A 24-INCH BASE OF CRUSHED STONE WHICH EXTENDS 6 INCHES IN ALL DIRECTIONS FROM THE PERIMETER OF THE BOX. THE CRUSHED STONE WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 624, GROUND BOXES.
7. SEE SHEET 2 OF 2 FOR BAR BENDING DETAILS AND FOR REINFORCING STEEL AND CONCRETE CHART.
8. FOR GROUND BOX APRON DETAIL SEE STANDARD SHEET ED (3)-03.
9. STEEL COVERS SHALL BE GROUNDED AS DESCRIBED IN THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
10. FOR DETAILS OF THE TYPE D GROUND BOX SEE STANDARD SHEET ED(3)-03.
11. ADAPTERS THAT DO NOT HAVE CONDUITS ATTACHED SHALL BE CAPPED AND SEALED.

STATE OF TEXAS
RAJESH N. GURNANI
86265
REGISTERED PROFESSIONAL ENGINEER

Signature ,P.E. Date

Texas Department of Transportation

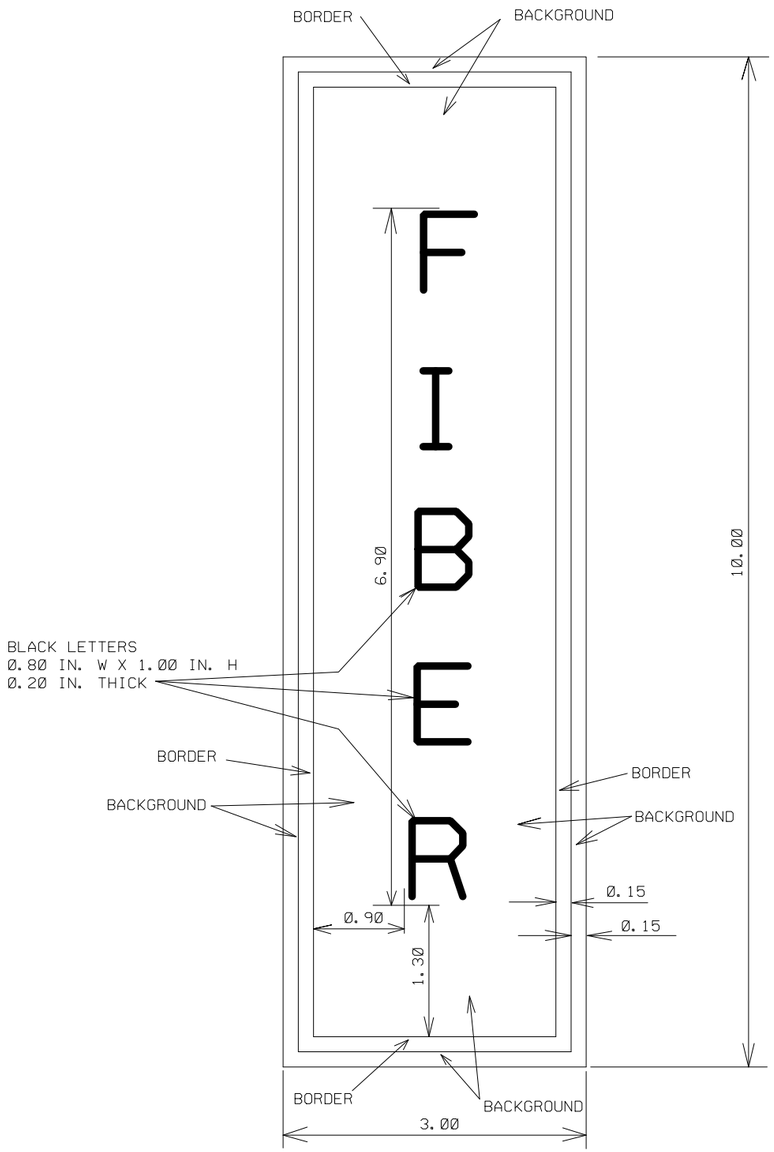
"ITS" GROUND BOX DETAILS

SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK	6	CM	( )	IH 35E
GRAPHICS: DK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: RNG	TEXAS	DALLAS	DALLAS	
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

FMPO

FMPO

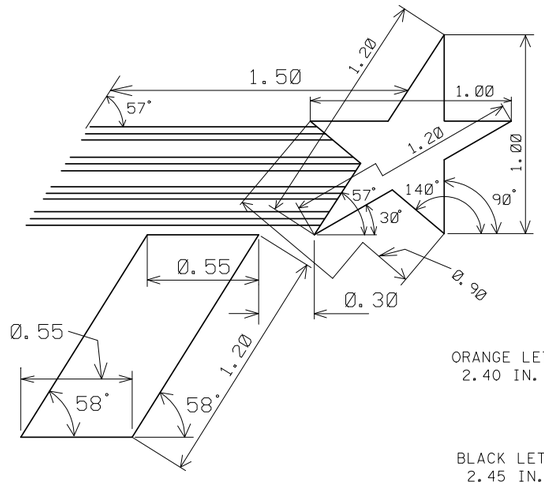


BORDER - BLACK
BACKGROUND - ORANGE REFLECTIVE

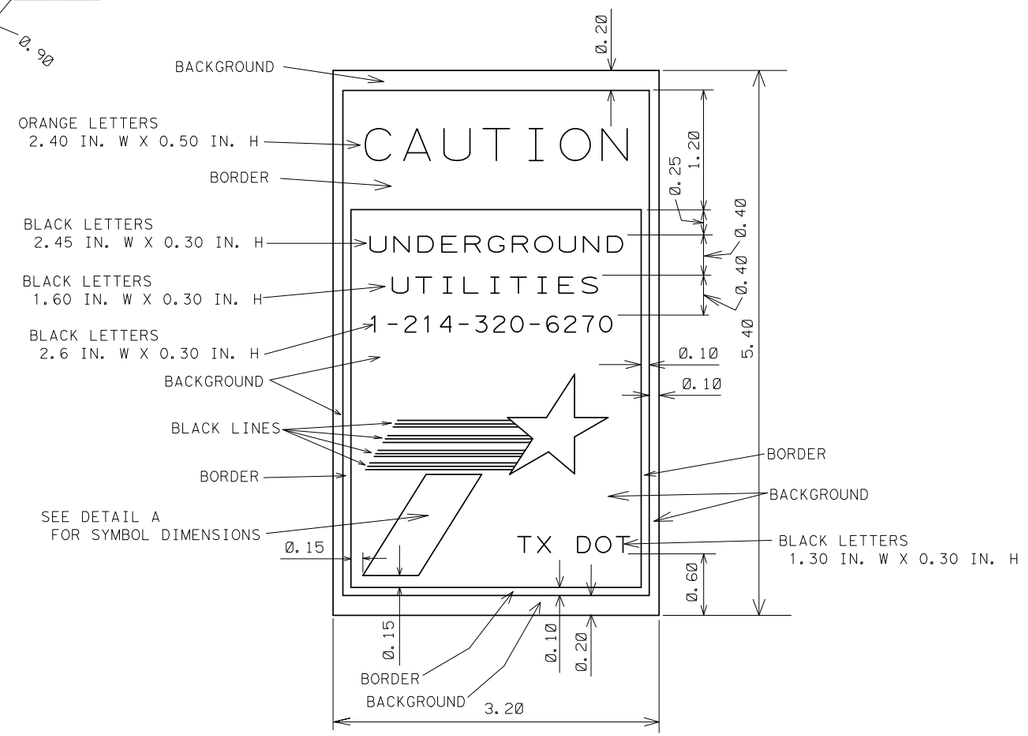
"FIBER" DECAL DETAIL

LEVELS

1	2	3	4	5	6	7
8		10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49
50	51	52	53	54	55	56
57	58	59	60	61	62	63



DETAIL A



BORDER - BLACK
SYMBOL - BLACK
BACKGROUND - ORANGE REFLECTIVE

"UNDERGROUND UTILITIES" DECAL DETAIL

ALL DIMENSIONS ARE IN INCHES
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STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

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,P.E.
Signature of Registrant & Date

Texas Department of Transportation
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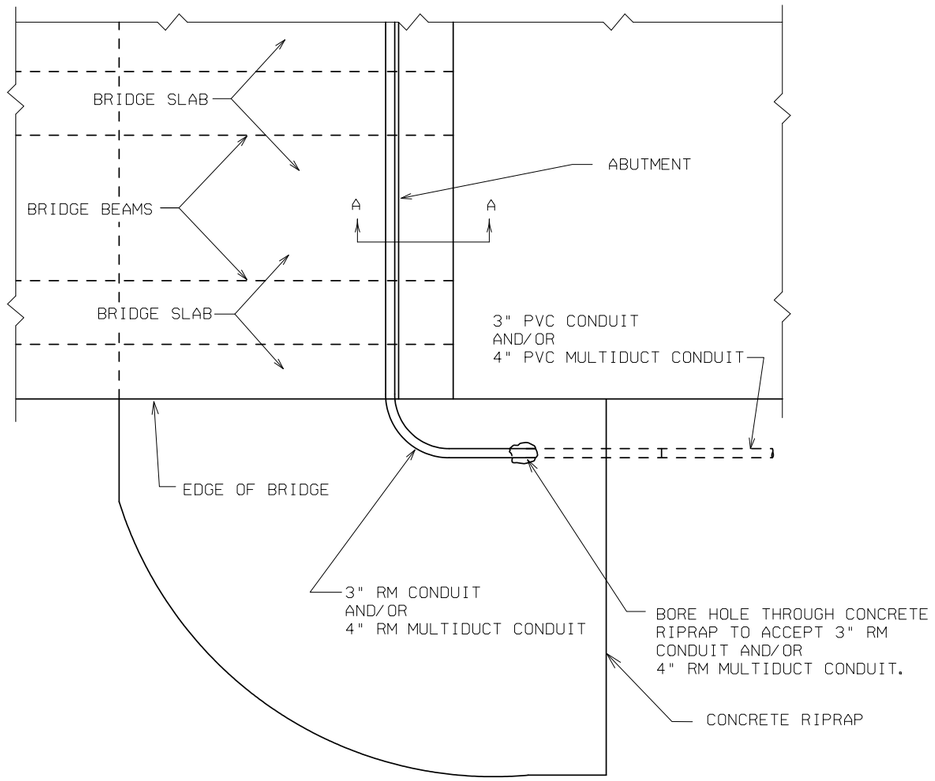
"ITS" MISCELLANEOUS ITEMS SHEET

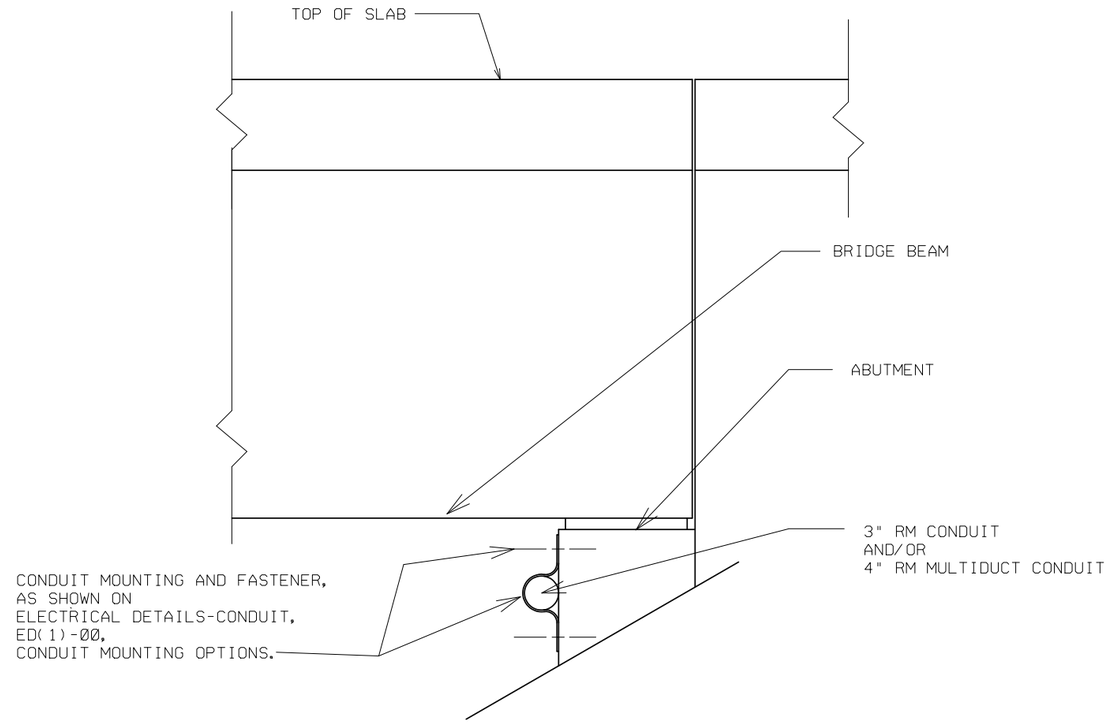
SHEET 1 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM	( )	IH 35E
GRAPHICS: DK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: RNG	TEXAS	DALLAS	DALLAS	111
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

DESIGN | FED.RD. DIV.NO. | FEDERAL AID PROJECT NO. | HIGHWAY NO.

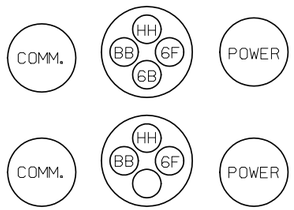


TYPICAL ATTACHMENT OF CONDUIT TO BRIDGE ABUTMENT

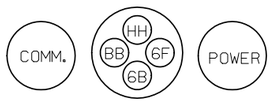


SECTION A - A

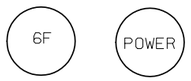
2-4" MULTIDUCT CONDUIT
AND
4-3" PVC CONDUIT



1-4" MULTIDUCT CONDUIT
AND
2-3" PVC CONDUIT



2-3" PVC CONDUITS



TYPICAL CONDUIT FILL DETAILS

LEGEND

- HH - SINGLEMODE HUB TO HUB FIBER
- BB - SINGLEMODE BACKBONE FIBER
- 6F - 6-STRAND SINGLEMODE FIBER
- 6B - #6 AWG BARE (FOR TRACE)
- COMM. - COMMUNICATIONS (COMM CABLE, TELEPHONE AND TWISTED PAIR)

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED
PROFESSIONAL ENGINEER

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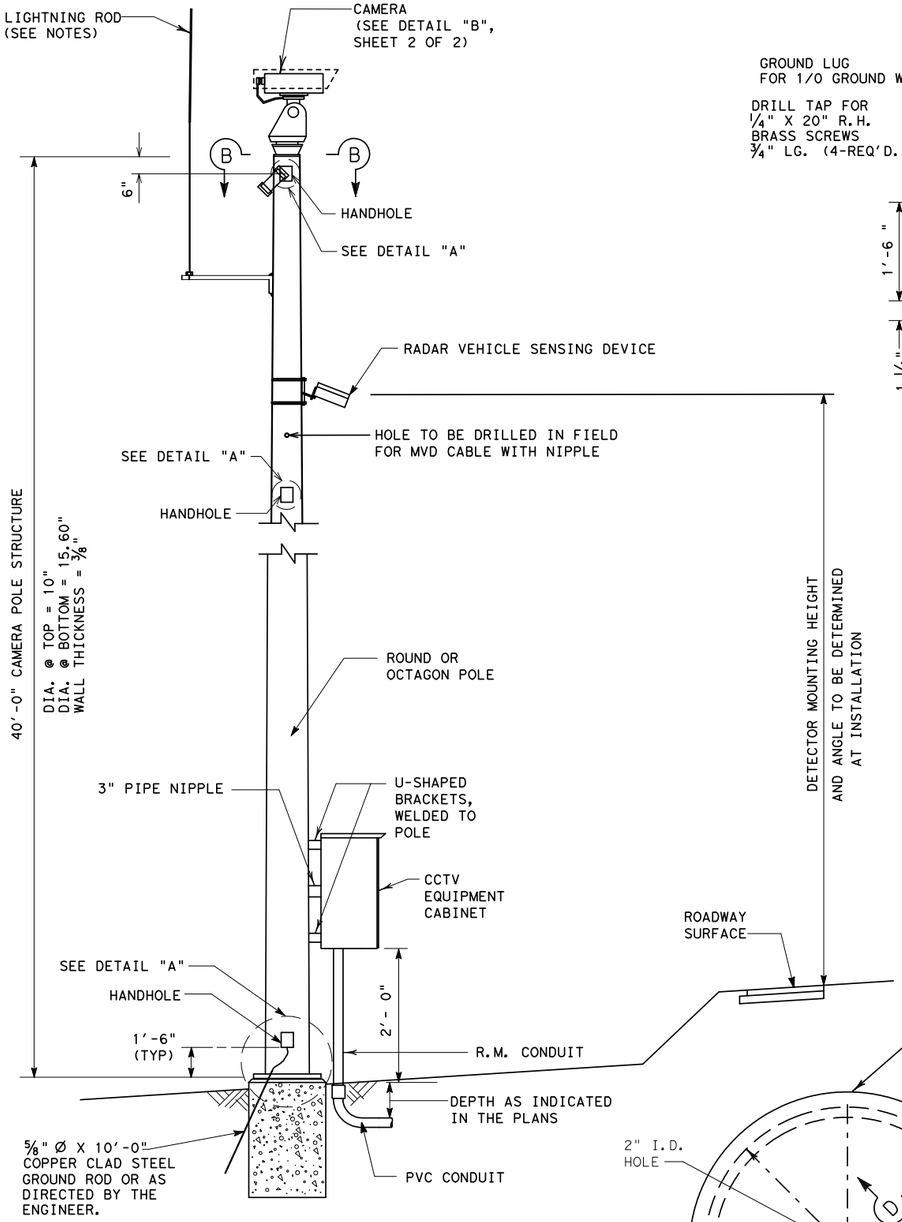
_____,P.E.
Signature of Registrant & Date

Texas Department of Transportation

"ITS" MISCELLANEOUS DETAILS SHEET

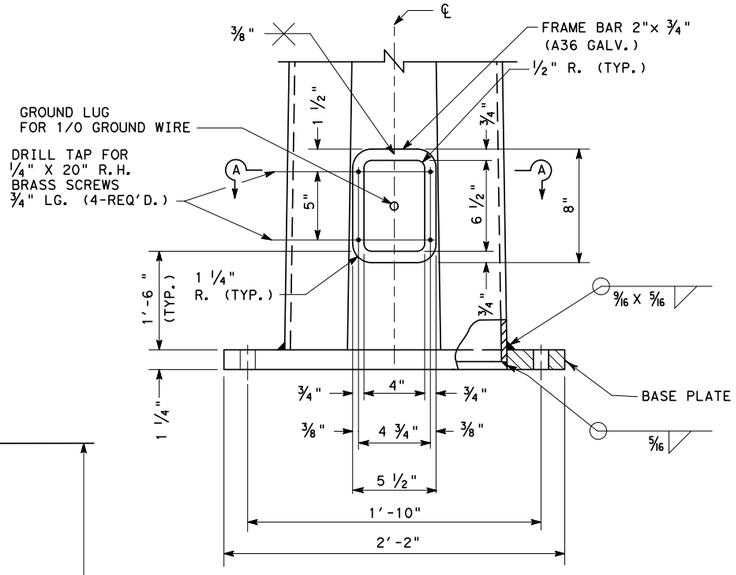
SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM	( )	IH 35E
GRAPHICS: DK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: RNG	TEXAS	DALLAS	DALLAS	113
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

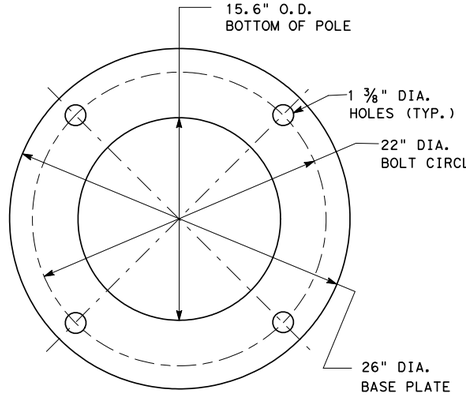


NOTE: SEE "ITS" PLAN SHEETS FOR NUMBER, TYPE AND SIZE OF CONDUIT.
THE CONTRACTOR SHALL PERFORM A SITE SURVEY TO DETERMINE WHICH SIDE OF THE CAMERA POLE, THE CCTV EQUIPMENT CABINET, AND THE LIGHTNING ROD SUPPORT BAR SHALL BE MOUNTED.
THE CAMERA POLE SHALL BE MOUNTED SO THAT THE CCTV EQUIPMENT CABINET SHALL FACE THE HIGH SIDE OF THE GROUND SLOPE.
THE LIGHTNING ROD SUPPORT BAR SHALL BE MOUNTED ON THE SIDE OF THE POLE, AWAY FROM TRAFFIC.

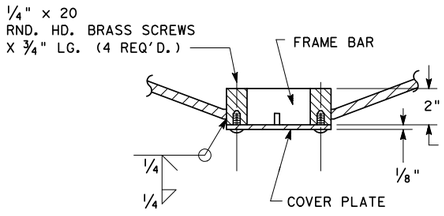
TYPICAL CAMERA POLE ELEVATION



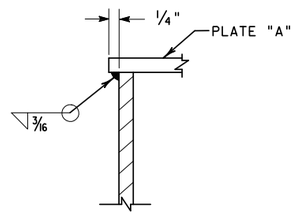
DETAIL A



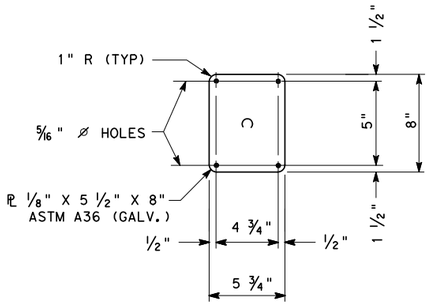
BASE PLATE PLAN



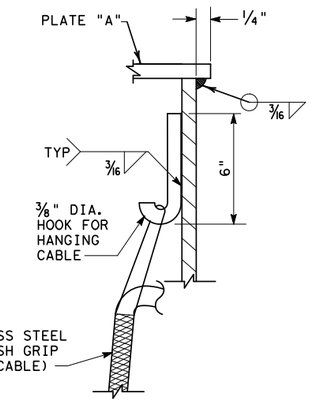
SECTION A-A



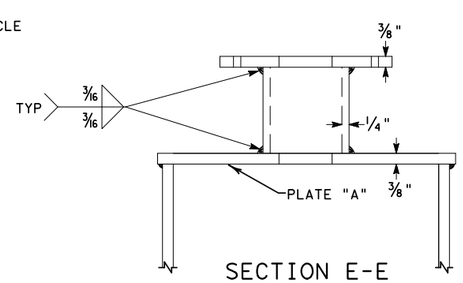
SECTION C-C



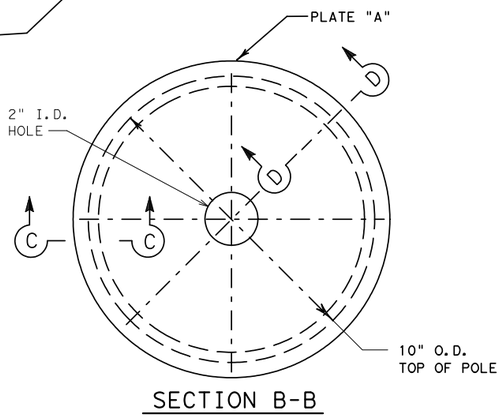
COVER PLATE DETAIL
(FOR HANDHOLE)
(A36 GALV.)



SECTION D-D



SECTION E-E



SECTION B-B

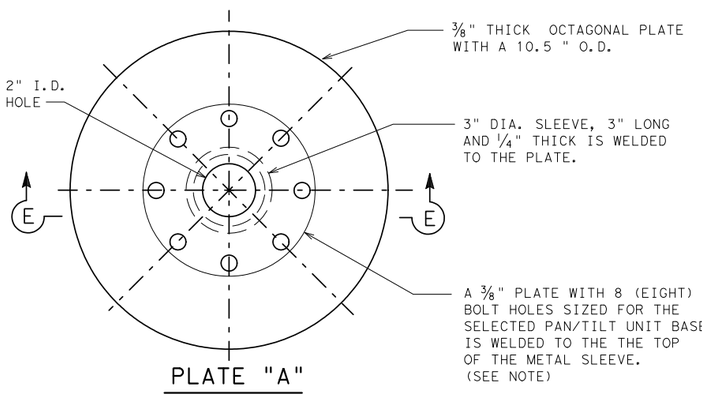


PLATE "A"

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

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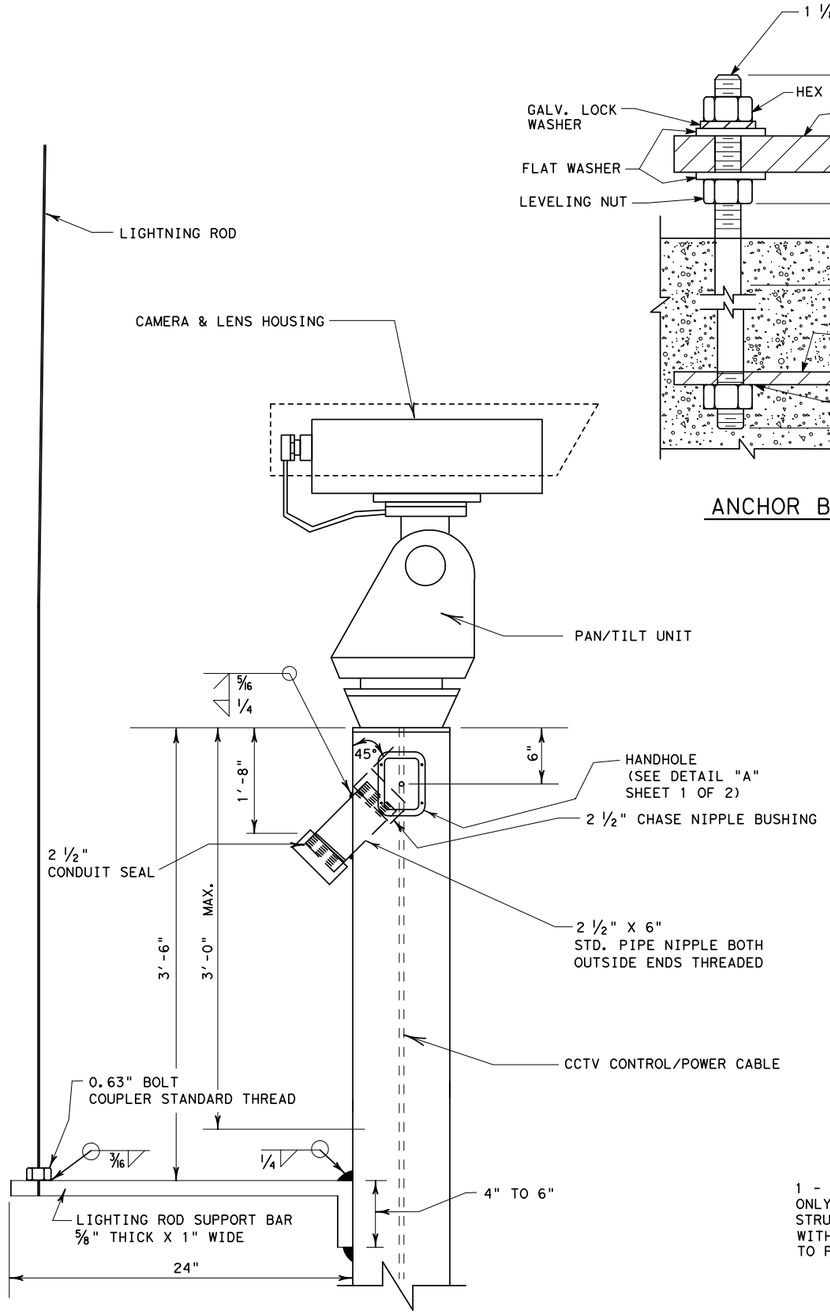
_____, P.E.
Signature of Registrant & Date

Texas Department of Transportation

CCTV CAMERA AND RVSD INSTALLATION DETAILS

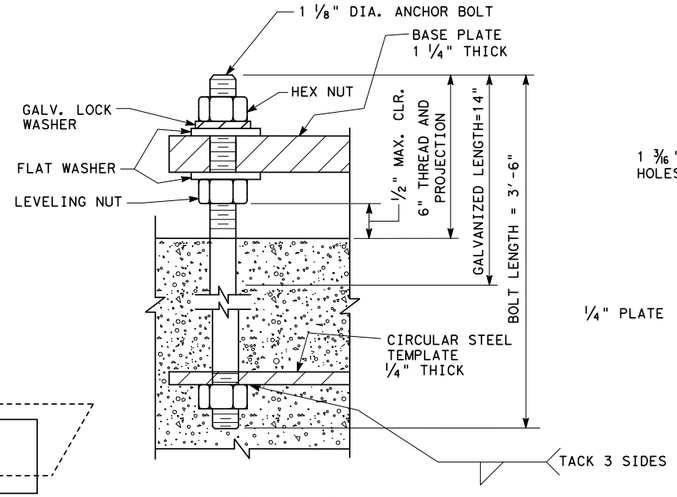
SHEET 1 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM	( )	IH 35E
GRAPHICS: DK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: RNG	TEXAS	DALLAS	DALLAS	102
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

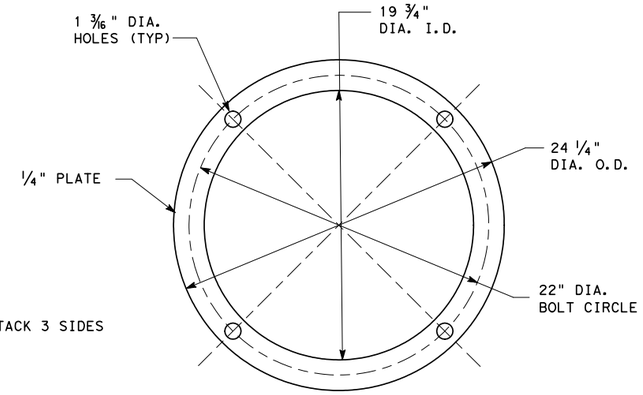


THE 2 1/2" STD. PIPE NIPPLE AND LIGHTNING ROD SUPPORT BAR SHALL BE MOUNTED PLUS OR MINUS 1 DEGREE HORIZONTAL DEFLECTION ON THE SAME SIDE OF THE POLE.

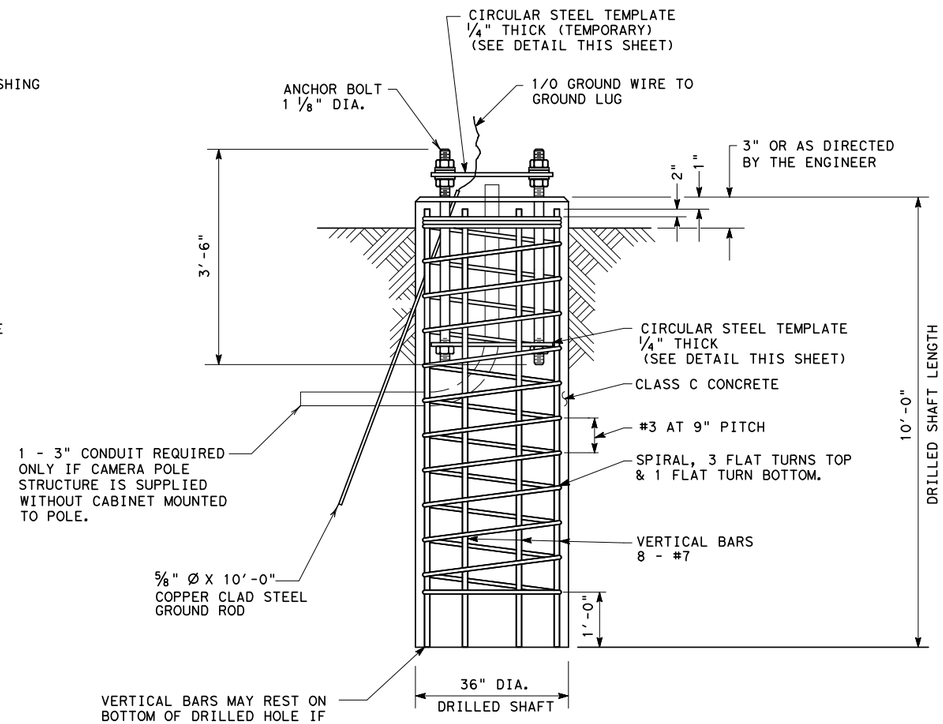
DETAIL B
TYPICAL



ANCHOR BOLT DETAIL



TOP AND BOTTOM
CIRCULAR STEEL TEMPLATE



FOUNDATION DETAILS
ELEVATION

NOTES:

DESIGN CONFORMS TO 1975 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. DESIGN WIND SPEED EQUALS 80 MPH PLUS A 1.3 GUST FACTOR.
STRUCTURAL STEEL FOR THE POLE SHALL CONFORM TO ASTM A595 GR A OR ASTM 570 GR50 OR ASTM A607 GR50 OR ASTM A572 GR50 OR A36M50.
STRUCTURAL STEEL FOR PLATES SHALL CONFORM TO ASTM A36 OR A572 GR50 OR A595 GR A OR A36M5D.
FABRICATION AND WELDING OF STRUCTURES SHALL BE IN ACCORDANCE WITH ITEM "STEEL STRUCTURES". THE FABRICATOR SHALL SUBMIT PROPOSED WELDING PROCEDURES WITH THE SHOP DRAWINGS. THE SHOP DRAWINGS, WHEN SUBMITTED, SHALL INCLUDE THE WELDING PROCEDURE NUMBER ASSIGNED BY THE DIVISION OF MATERIALS AND TEST OF THE TEXAS DEPARTMENT OF TRANSPORTATION. THIS WELDING PROCEDURE NUMBER SHALL BE PLACED ADJACENT TO THE APPROPRIATE WELDING SYMBOL.
ANCHOR BOLTS SHALL CONFORM TO A-193 B7. NUTS FOR ANCHOR BOLTS SHALL BE HEAVY HEX AND CONFORM TO ASTM A-194 GR 2H. THE TOP 14 INCHES OF THE ANCHOR BOLT AND NUTS AND WASHERS SHALL BE GALVANIZED. UNLESS OTHERWISE NOTED, ALL PARTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
REINFORCING STEEL SHALL CONFORM TO ITEM 440.
ALL REINFORCING STEEL SHALL BE MINIMUM GRADE 60.
CONCRETE SHALL BE CLASS C.
THE CONTRACTOR SHALL FIELD VERIFY ALL ANCHOR BOLT MEASUREMENTS PRIOR TO FABRICATION OF BASE PLATES.
THE CONTRACTOR SHALL CLEAN ALL ABRASIONS AND FIELD WELDS WITH A WIRE BRUSH AND SHALL APPLY TWO COATS OF ZINC RICH PAINT TO THE UNGALVANIZED AREAS OF THE STRUCTURE.
THE CONTRACTOR SHALL HANG ALL CABLING INSIDE CAMERA POLE STRUCTURE WITH STAINLESS STEEL WIRE MESH GRIPS.

BOLT POSITIONING IN THE TOP PLATE FOR THE PAN/TILT BASE WILL BE DETERMINED IN THE FIELD. THE 8 (EIGHT) BOLT HOLES REQUIRED WILL ALLOW POSITIONING OF THE LIMIT SWITCH SO THAT THE CAMERA BLIND ZONE IS PROPERLY LOCATED. THE ENGINEER WILL DETERMINE THE CAMERA'S BLIND ZONE AT EACH LOCATION.

A LIGHTNING ROD SHALL BE PROVIDED ON THE POLE AND SHALL MEET THE FOLLOWING REQUIREMENTS.
A. POSITION - IN CENTER OF LEAST UTILIZED FIELD OF VIEW.
B. HEIGHT - CAMERA EQUIPMENT TO BE WITHIN 30 DEGREE PROTECTIVE ZONE TERMINAL.
C. CONDUCTIVITY - EQUIVALENT TO #6 AWG COPPER CONDUCTOR.
D. CLEARANCE - 24" TO CLOSEST CAMERA APPROACH.
E. BONDING - POLE-LIGHTNING ROD TO BE WELDED OR EQUIVALENT CLAMPING.
F. CONFIGURATION - MAXIMUM RADIUS BENDS TO BE EMPLOYED.
G. STRUCTURE - WITHSTAND ENVIRONMENT WITHOUT VIBRATION.

THE CONTRACTOR SHALL FURNISH ALL MATERIALS NECESSARY TO INSTALL THE CCTV CAMERA POLE. SUCH WORK SHALL BE PAID FOR UNDER THE ITEM "CAMERA POLE STRUCTURE WITH CABINET."

THE CAMERA POLE SHALL BE FABRICATED AS EITHER A ROUND OR OCTAGONAL TUBE.

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Rajesh N. Gurnani, P.E. 86265, on

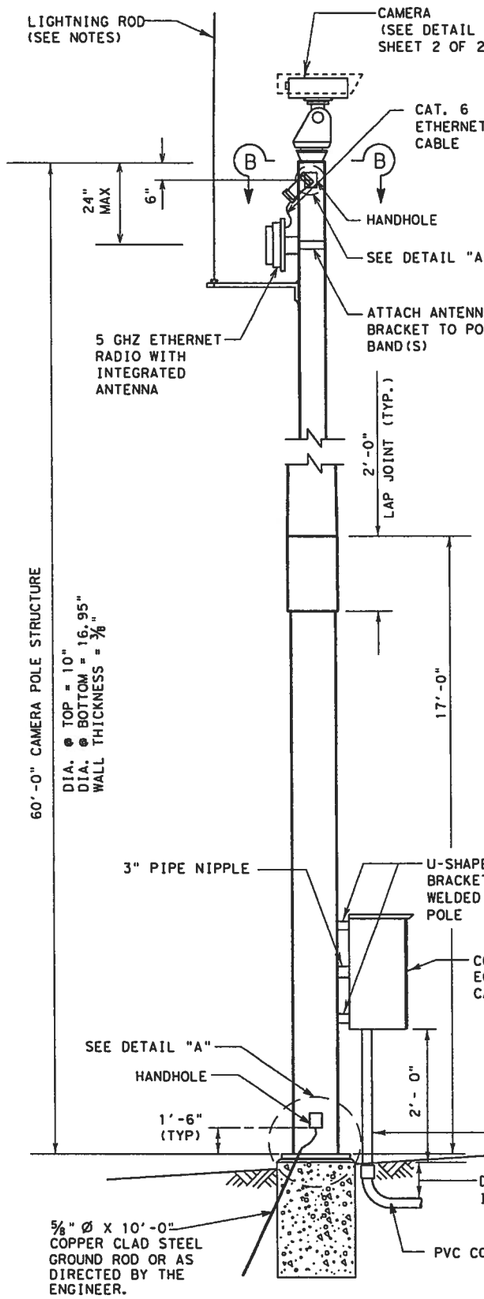
, P.E.
Signature of Registrant & Date

Texas Department of Transportation

CCTV CAMERA AND RVSD INSTALLATION DETAILS

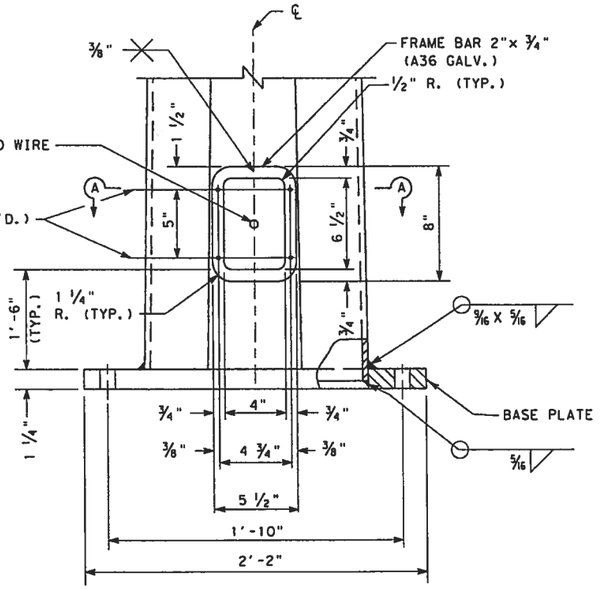
SHEET 2 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM	( )	IH 35E
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DK	TEXAS	DALLAS	DALLAS	103
CHECK	CONTROL	SECTION	JOB	
RNG	0442	02	143	
CHECK				

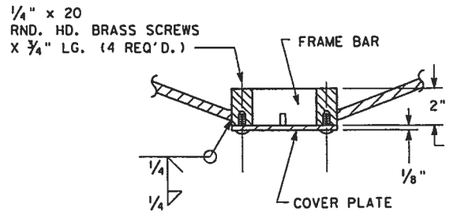


TYPICAL CAMERA POLE ELEVATION

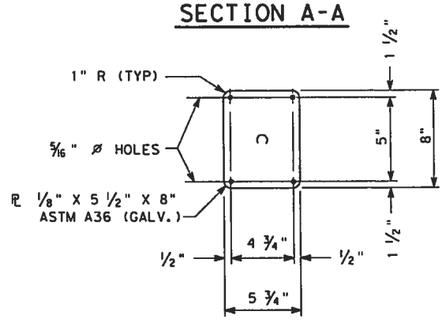
NOTE: SEE "ITS" PLAN SHEETS FOR NUMBER, TYPE AND SIZE OF CONDUIT.
THE CONTRACTOR SHALL PERFORM A SITE SURVEY TO DETERMINE WHICH SIDE OF THE CAMERA POLE, THE CCTV EQUIPMENT CABINET, AND THE LIGHTNING ROD SUPPORT BAR SHALL BE MOUNTED.
THE CAMERA POLE SHALL BE MOUNTED SO THAT THE CCTV EQUIPMENT CABINET SHALL FACE THE HIGH SIDE OF THE GROUND SLOPE.
THE LIGHTNING ROD SUPPORT BAR SHALL BE MOUNTED ON THE SIDE OF THE POLE, AWAY FROM TRAFFIC.



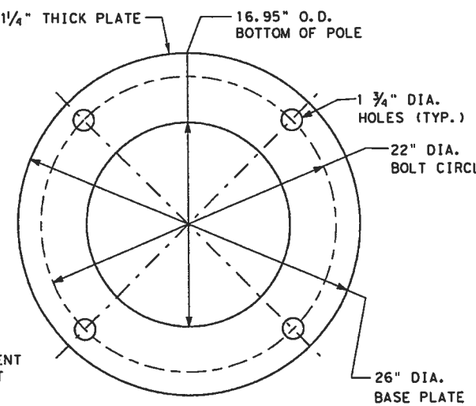
DETAIL "A"



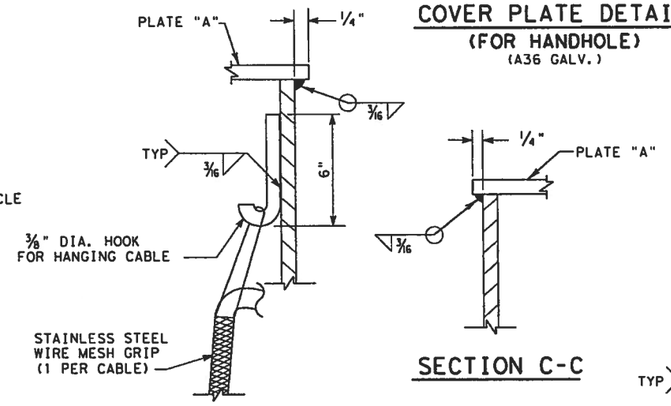
SECTION A-A



COVER PLATE DETAIL
(FOR HANDHOLE)
(A36 GALV.)

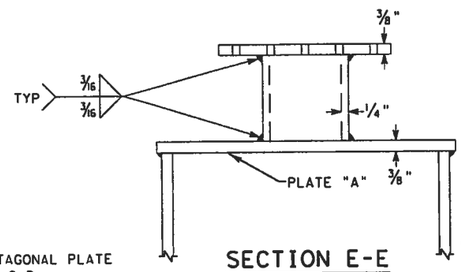


BASE PLATE PLAN

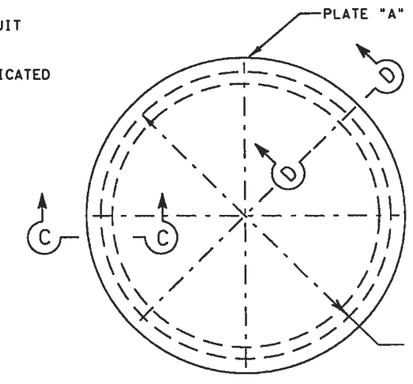


SECTION D-D

SECTION C-C



SECTION E-E



SECTION B-B

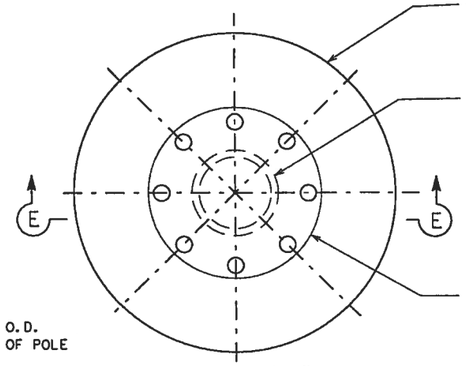


PLATE "A"

NOTES:

DESIGN CONFORMS TO 1975 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. DESIGN WIND SPEED EQUALS 80 MPH PLUS A 1.3 GUST FACTOR.
STRUCTURAL STEEL FOR THE POLE SHALL CONFORM TO ASTM A595 GR A OR ASTM 570 GR50 OR ASTM A607 GR50 OR ASTM A572 GR50 OR A36M50.
STRUCTURAL STEEL FOR PLATES SHALL CONFORM TO ASTM A36 OR A572 GR50 OR A595 GR A OR A36M5D.
FABRICATION AND WELDING OF STRUCTURES SHALL BE IN ACCORDANCE WITH ITEM "STEEL STRUCTURES". THE FABRICATOR SHALL SUBMIT PROPOSED WELDING PROCEDURES WITH THE SHOP DRAWINGS. THE SHOP DRAWINGS, WHEN SUBMITTED, SHALL INCLUDE THE WELDING PROCEDURE NUMBER ASSIGNED BY THE DIVISION OF MATERIALS AND TEST OF THE TEXAS DEPARTMENT OF TRANSPORTATION. THIS WELDING PROCEDURE NUMBER SHALL BE PLACED ADJACENT TO THE APPROPRIATE WELDING SYMBOL.
ANCHOR BOLTS SHALL CONFORM TO A-193 B7. NUTS FOR ANCHOR BOLTS SHALL BE HEAVY HEX AND CONFORM TO ASTM A-194 GR 2H. THE TOP 14 INCHES OF THE ANCHOR BOLT AND NUTS AND WASHERS SHALL BE GALVANIZED. UNLESS OTHERWISE NOTED, ALL PARTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS.
REINFORCING STEEL SHALL CONFORM TO ITEM 440.
ALL REINFORCING STEEL SHALL BE MINIMUM GRADE 60.
CONCRETE SHALL BE CLASS C.
THE CONTRACTOR SHALL FIELD VERIFY ALL ANCHOR BOLT MEASUREMENTS PRIOR TO FABRICATION OF BASE PLATES.
THE CONTRACTOR SHALL CLEAN ALL ABRASIONS AND FIELD WELDS WITH A WIRE BRUSH AND SHALL APPLY TWO COATS OF ZINC RICH PAINT TO THE UNGALVANIZED AREAS OF THE STRUCTURE.
THE CONTRACTOR SHALL HANG ALL CABLING INSIDE CAMERA POLE STRUCTURE WITH STAINLESS STEEL WIRE MESH GRIPS.

A LIGHTNING ROD SHALL BE PROVIDED ON THE POLE AND SHALL MEET THE FOLLOWING REQUIREMENTS.
A. POSITION - IN CENTER OF LEAST UTILIZED FIELD OF VIEW.
B. HEIGHT - CAMERA EQUIPMENT TO BE WITHIN 30 DEGREE PROTECTIVE ZONE TERMINAL.
C. CONDUCTIVITY - EQUIVALENT TO #6 AWG COPPER CONDUCTOR.
D. CLEARANCE - 24" TO CLOSEST CAMERA APPROACH.
E. BONDING - POLE-LIGHTNING ROD TO BE WELDED OR EQUIVALENT CLAMPING.
F. CONFIGURATION - MAXIMUM RADIUS BENDS TO BE EMPLOYED.
G. STRUCTURE - WITHSTAND ENVIRONMENT WITHOUT VIBRATION.

THE CONTRACTOR SHALL FURNISH ALL MATERIALS NECESSARY TO INSTALL THE CCTV CAMERA POLE. SUCH WORK SHALL BE PAID FOR UNDER THE ITEM "CAMERA POLE STRUCTURE WITH CABINET."

THE CAMERA POLE SHALL BE FABRICATED AS EITHER A ROUND OR OCTAGONAL TUBE.

1/13/12

STATE OF TEXAS
ALAN P. McNEIL
69951
REGISTERED PROFESSIONAL ENGINEER

Alan P. McNeil

Texas Department of Transportation

60 FT. CCTV CAMERA POLE INSTALLATION DETAILS

SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK	6	(SEE TITLE SHEET)		IH 45
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
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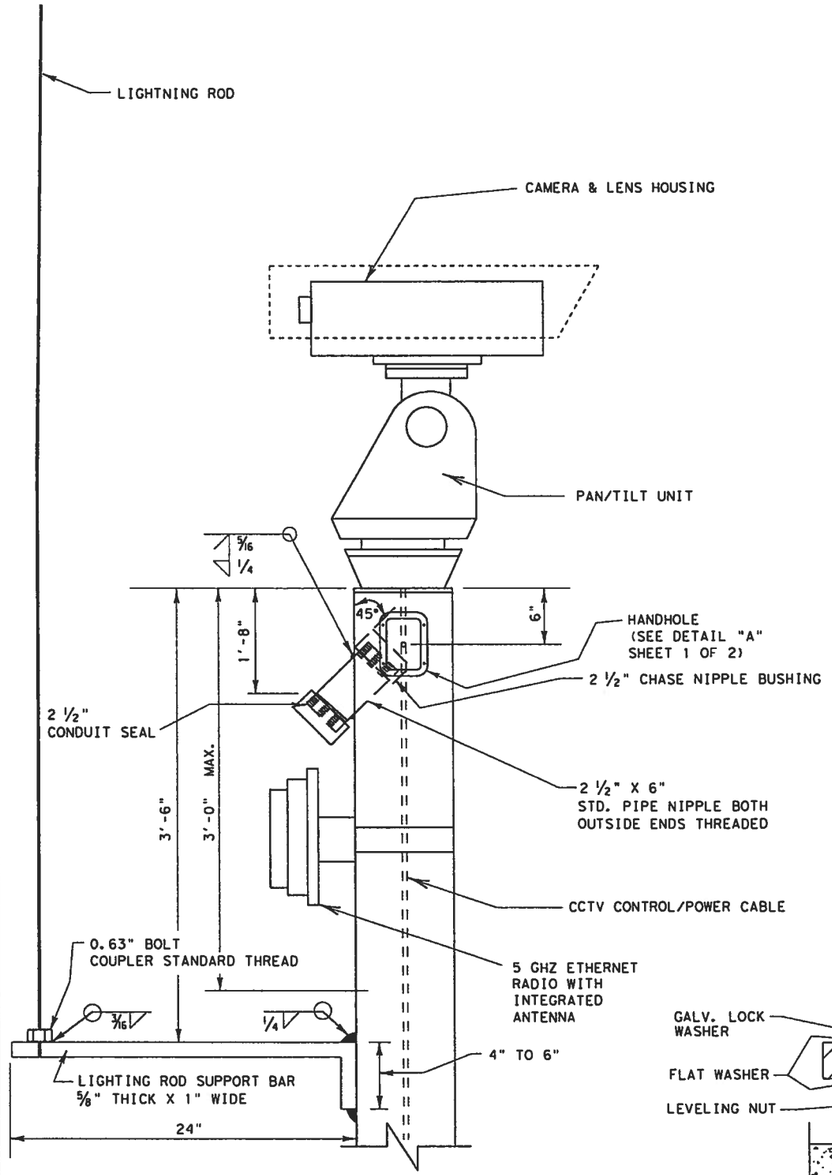
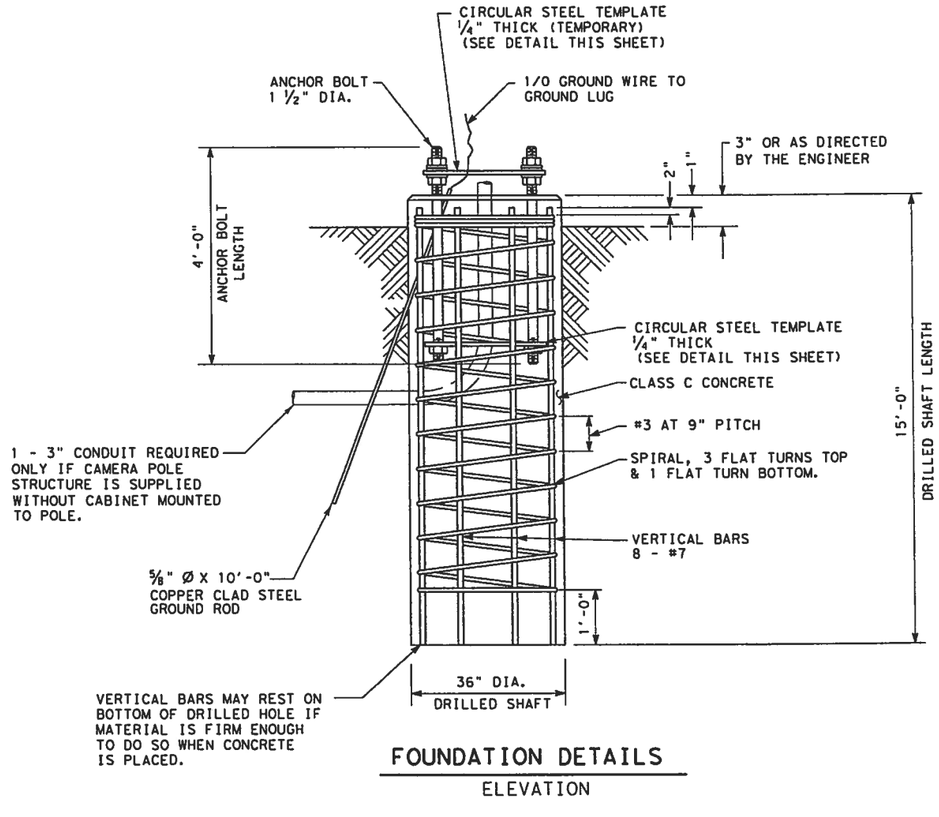
CHECK	CONTROL	SECTION	JOB	
RAC	0092	14	079	
CHECK				
APM				

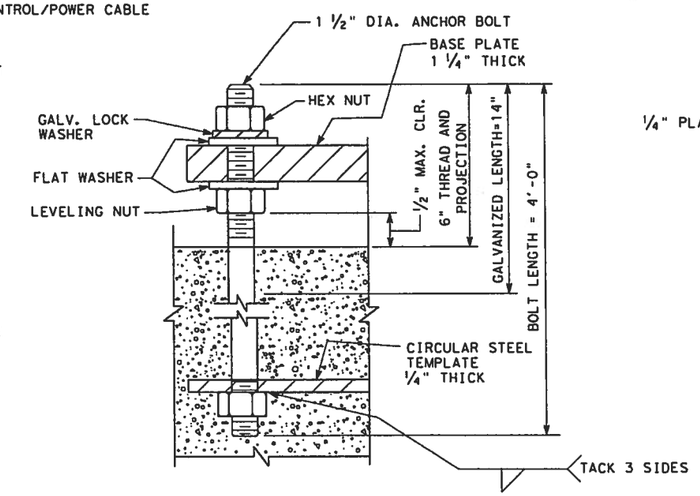


THE 2 ½" STD. PIPE NIPPLE AND LIGHTNING ROD SUPPORT BAR SHALL BE MOUNTED PLUS OR MINUS 1 DEGREE HORIZONTAL DEFLECTION ON THE SAME SIDE OF THE POLE.

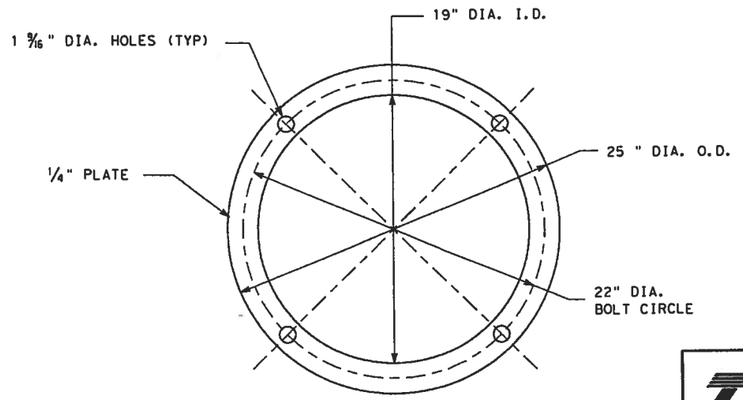
DETAIL B
TYPICAL



FOUNDATION DETAILS
ELEVATION



ANCHOR BOLT DETAIL



TOP AND BOTTOM
CIRCULAR STEEL TEMPLATE

1/13/12

STATE OF TEXAS
ALAN P. McNEIL
69951
REGISTERED
PROFESSIONAL ENGINEER

Alan P. McNeil

Texas Department of Transportation
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60 FT. CCTV CAMERA POLE INSTALLATION DETAILS

SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK	6	(SEE TITLE SHEET)		IH 4
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
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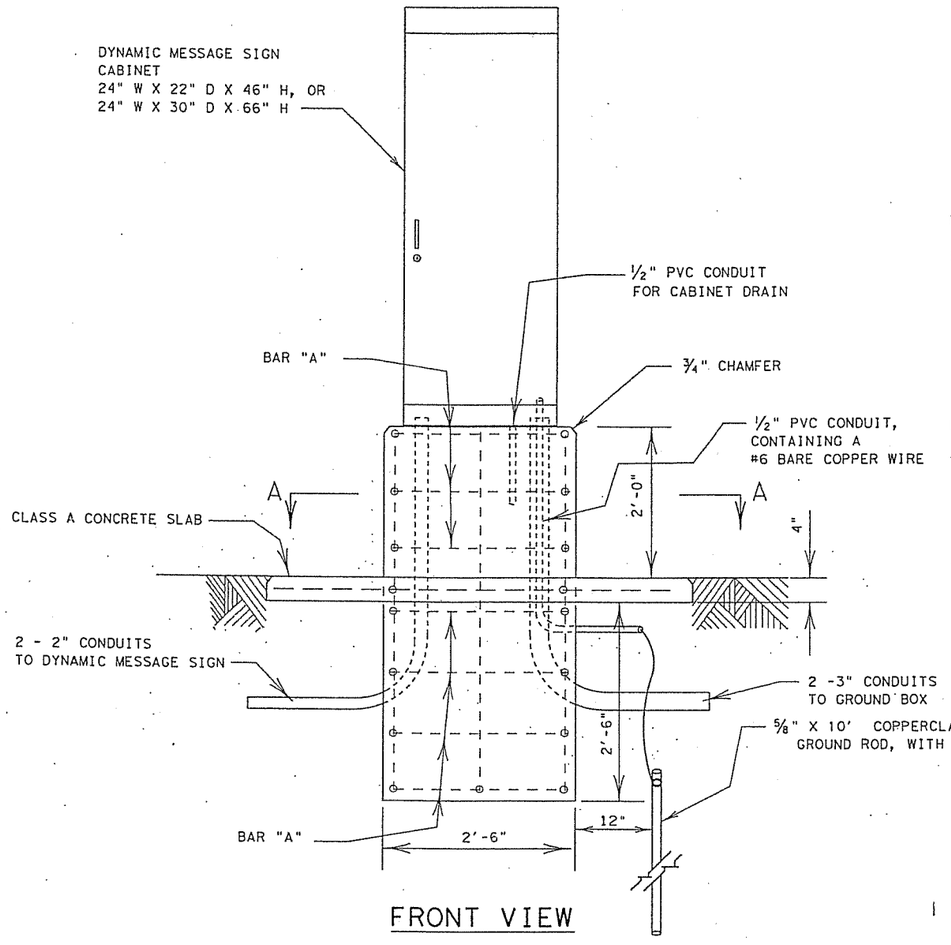
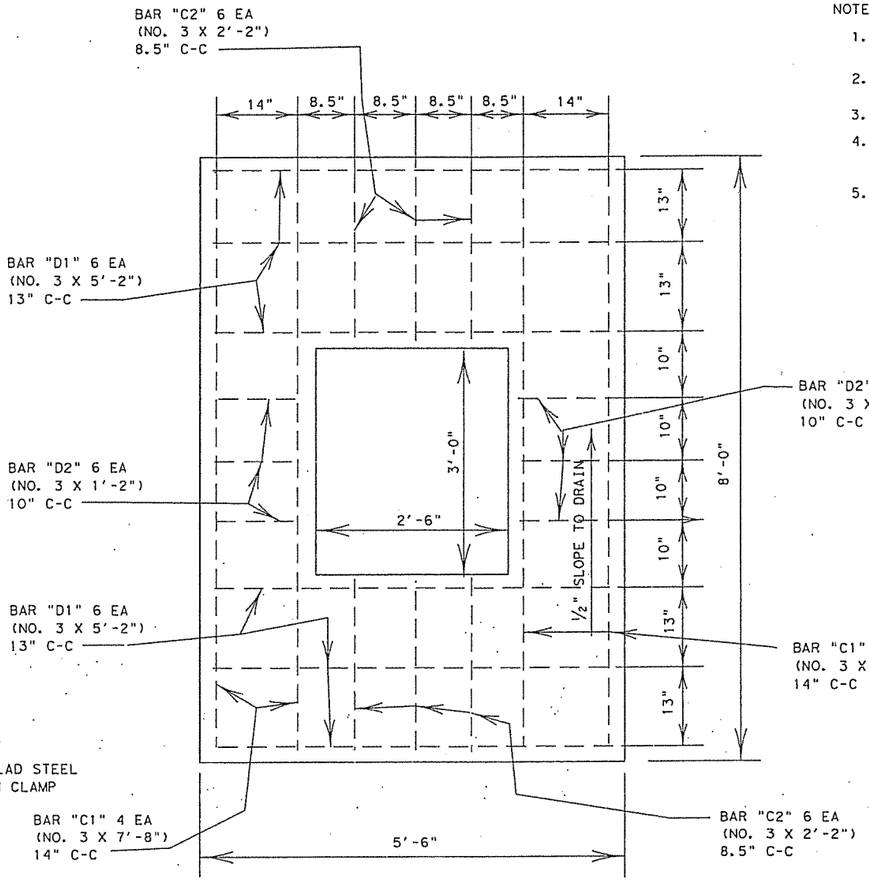
CHECK	CONTROL	SECTION	JOB	52
RAC	0092	14	079	
CHECK				
APM				



FRONT VIEW



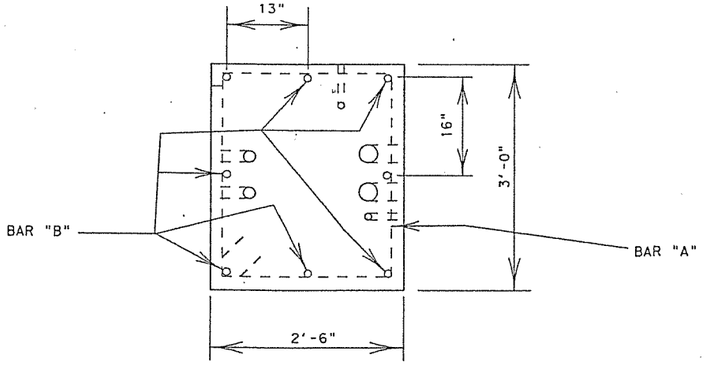
SLAB

NOTES:

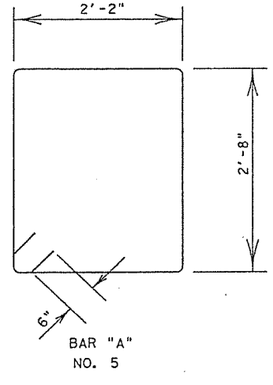
1. DETAILS OF ANCHOR BOLT PATTERN TO BE FURNISHED BY THE CABINET MANUFACTURER.
2. DIMENSIONS SHOWN FOR CONCRETE BASE WILL BE SUBJECT TO MODIFICATION TO FIT REQUIRED CABINET TYPE.
3. ALL CONCRETE WILL BE CLASS "A".
4. THE CONTRACTOR IS TO SET THE CABINET FOUNDATION LEVEL WITH THE GROUND SURFACE, OR AS APPROVED BY THE ENGINEER.
5. THE CONTRACTOR WILL FURNISH ANY ADDITIONAL CONCRETE WHICH MAY BE NECESSARY TO STABILIZE FOUNDATION AT UNUSUAL LOCATIONS.

BAR	NO. BARS	SIZE	LENGTH	SPACING
A	7	NO. 5	10'-8"	9" C-C
B	8	NO. 5	4'-6"	VARIES
C1	4	NO. 3	7'-8"	14" C-C
C2	6	NO. 3	2'-2"	8.5" C-C
D1	6	NO. 3	5'-2"	13" C-C
D2	6	NO. 3	1'-2"	10" C-C

PROVIDE 2" MIN. COVER FOR TOP OR SIDES



SECTION A-A



NOT TO SCALE

STATE OF TEXAS
RAJESH N. GURNANI
86265
REGISTERED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Rajesh N. Gurnani P.E. 86265, on

05/01/07

Signature of Registrant & Date, P.E.

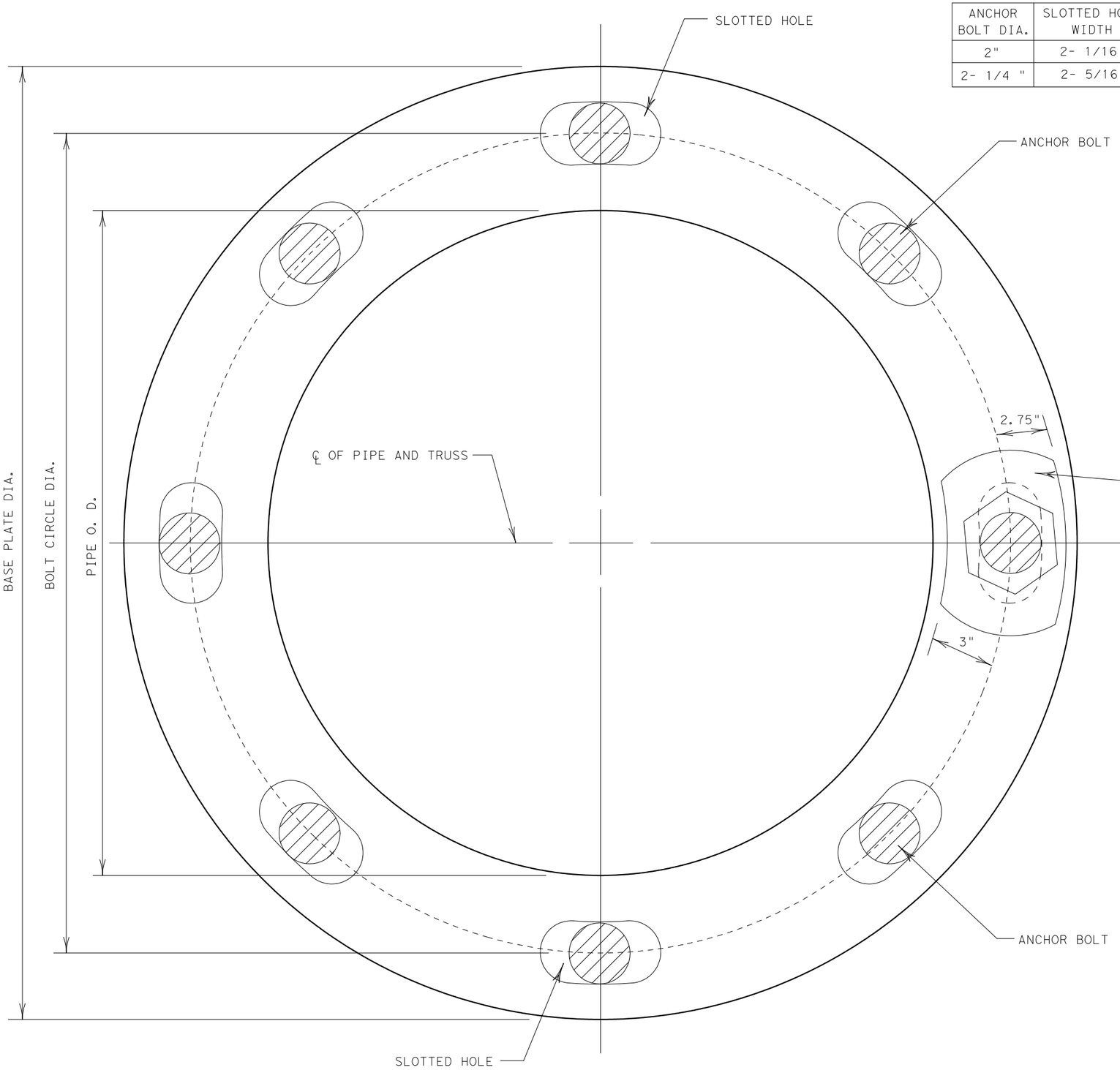
Texas Department of Transportation

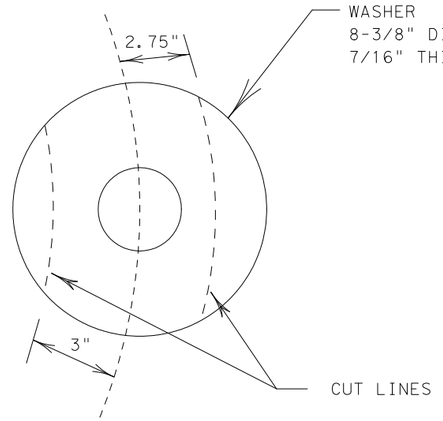
DYNAMIC MESSAGE SIGN CABINET FOUNDATION DETAIL SHEET

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
MF	6	CM 2007 (520)		LOOP 12
GRAPHICS MF	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	DALLAS	138A
CHECK	CONTROL	SECTION	JOB	
	0581	02	114	

IH30 DMS BASE PLATE.DGN

ANCHOR BOLT DIA.	SLOTTED HOLE WIDTH	SLOTTED HOLE LENGTH
2"	2- 1/16 "	5-7/16"
2- 1/4 "	2- 5/16 "	5-7/16"





WASHER DETAILS

EACH WASHER SHALL BE CONSTRUCTED OF A SINGLE PIECE OF THE SAME STRUCTURAL GRADE MATERIAL AS THE BASE PLATE. WASHER SHALL BE PLACED ON THE TOP AND BOTTOM OF THE BASE PLATE ON EACH ANCHOR BOLT.

NOTES:

WASHER SHALL COVER THE SLOTTED HOLE AT ALL TIMES, NO MATTER THE POSITION OF THE TOWER PIPE.
THE SLOTTED HOLES SHOULD BE CONCENTRIC TO THE BOLT CIRCLE.
THE ROTATION ALLOWED WILL BE ABOUT 3 DEGREES EACH WAY FROM SLOT CENTER.

STATE OF TEXAS
RAJESH N. GURNANI
86265
REGISTERED PROFESSIONAL ENGINEER

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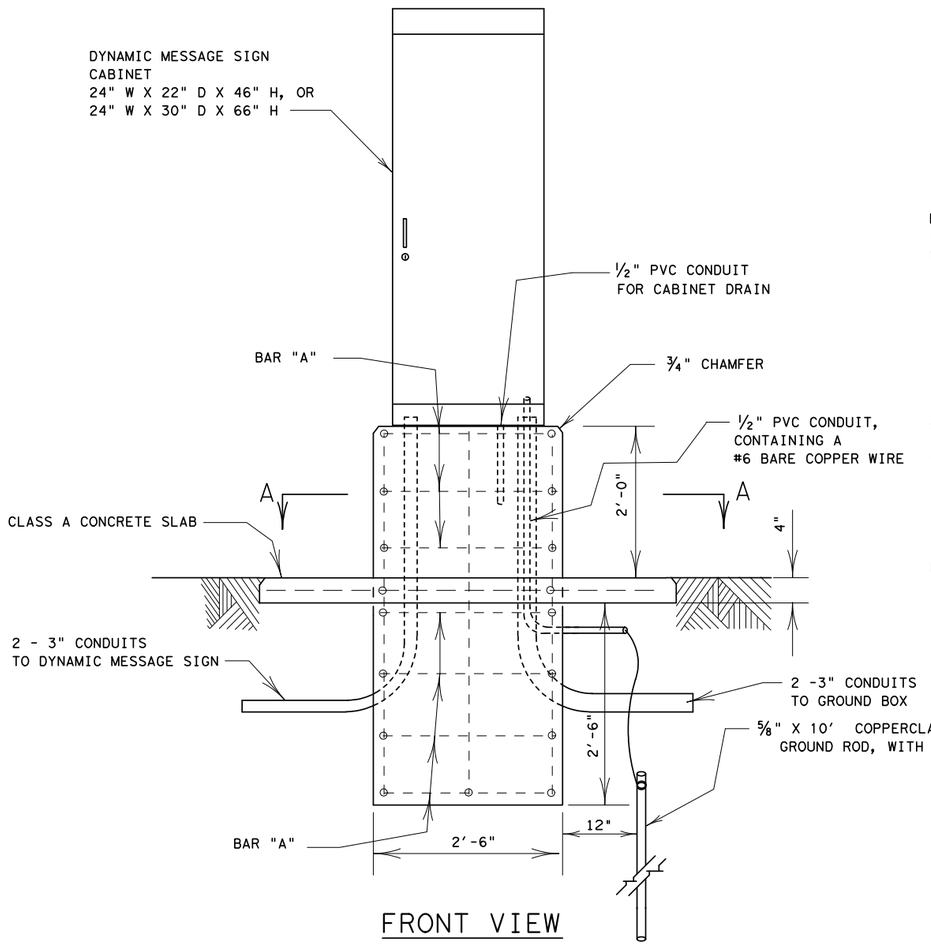
,P.E.
Signature of Registrant & Date

Texas Department of Transportation

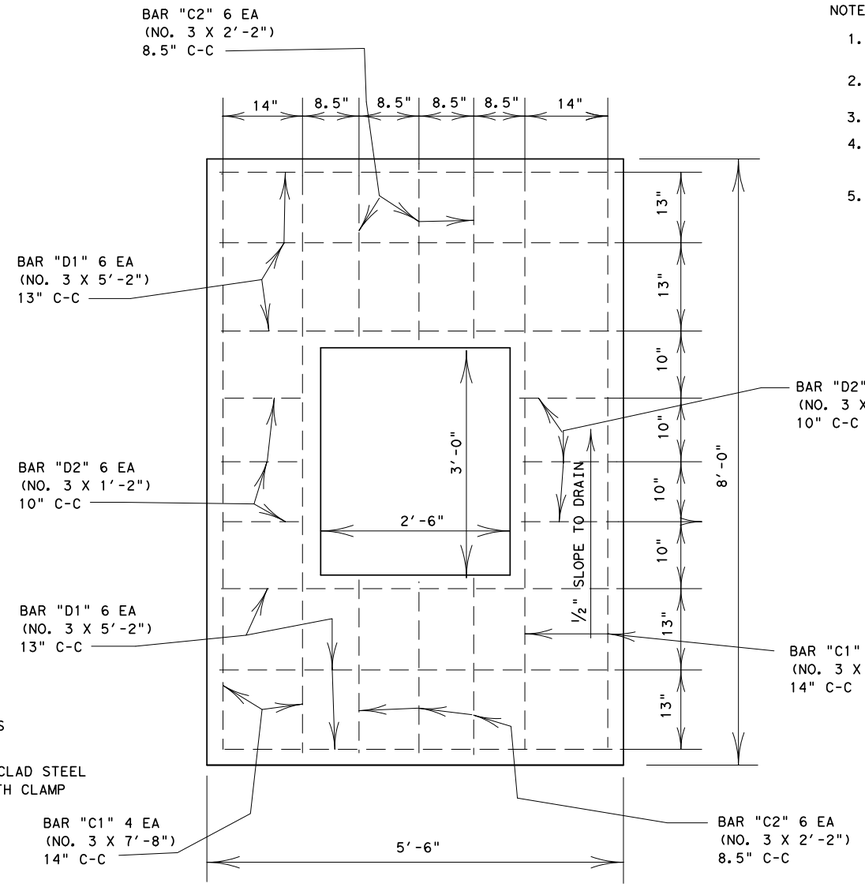
BASE PLATE SLOTTED HOLE AND BOLT DIAGRAM

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM ( )		IH 35E
GRAPHICS: DK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK: RNG	TEXAS	DALLAS	DALLAS	100
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

U:\ENGDATA\LOOP 12\ITS STANDARDS\LOOP 12 DMS CABINETA.DGN



FRONT VIEW



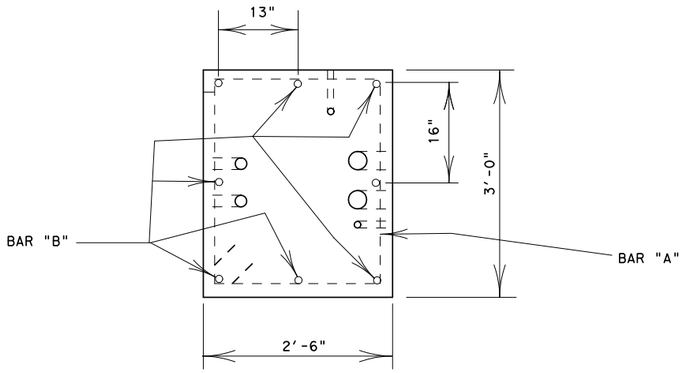
SLAB

NOTES:

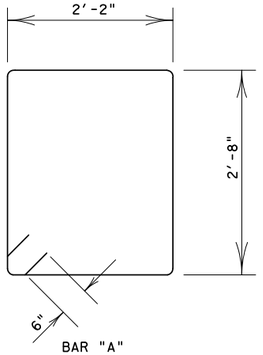
1. DETAILS OF ANCHOR BOLT PATTERN TO BE FURNISHED BY THE CABINET MANUFACTURER.
2. DIMENSIONS SHOWN FOR CONCRETE BASE WILL BE SUBJECT TO MODIFICATION TO FIT REQUIRED CABINET TYPE.
3. ALL CONCRETE WILL BE CLASS "A".
4. THE CONTRACTOR IS TO SET THE CABINET FOUNDATION LEVEL WITH THE GROUND SURFACE, OR AS APPROVED BY THE ENGINEER.
5. THE CONTRACTOR WILL FURNISH ANY ADDITIONAL CONCRETE WHICH MAY BE NECESSARY TO STABILIZE FOUNDATION AT UNUSUAL LOCATIONS.

BAR	NO. BARS	SIZE	LENGTH	SPACING
A	7	NO. 5	10'-8"	9" C-C
B	8	NO. 5	4'-6"	VARIES
C1	4	NO. 3	7'-8"	14" C-C
C2	6	NO. 3	2'-2"	8.5" C-C
D1	6	NO. 3	5'-2"	13" C-C
D2	6	NO. 3	1'-2"	10" C-C

PROVIDE 2" MIN. COVER FOR TOP OR SIDES



SECTION A-A



NOT TO SCALE

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_____, P.E.
Signature of Registrant & Date

Texas Department of Transportation

DYNAMIC MESSAGE SIGN CABINET FOUNDATION DETAIL SHEET

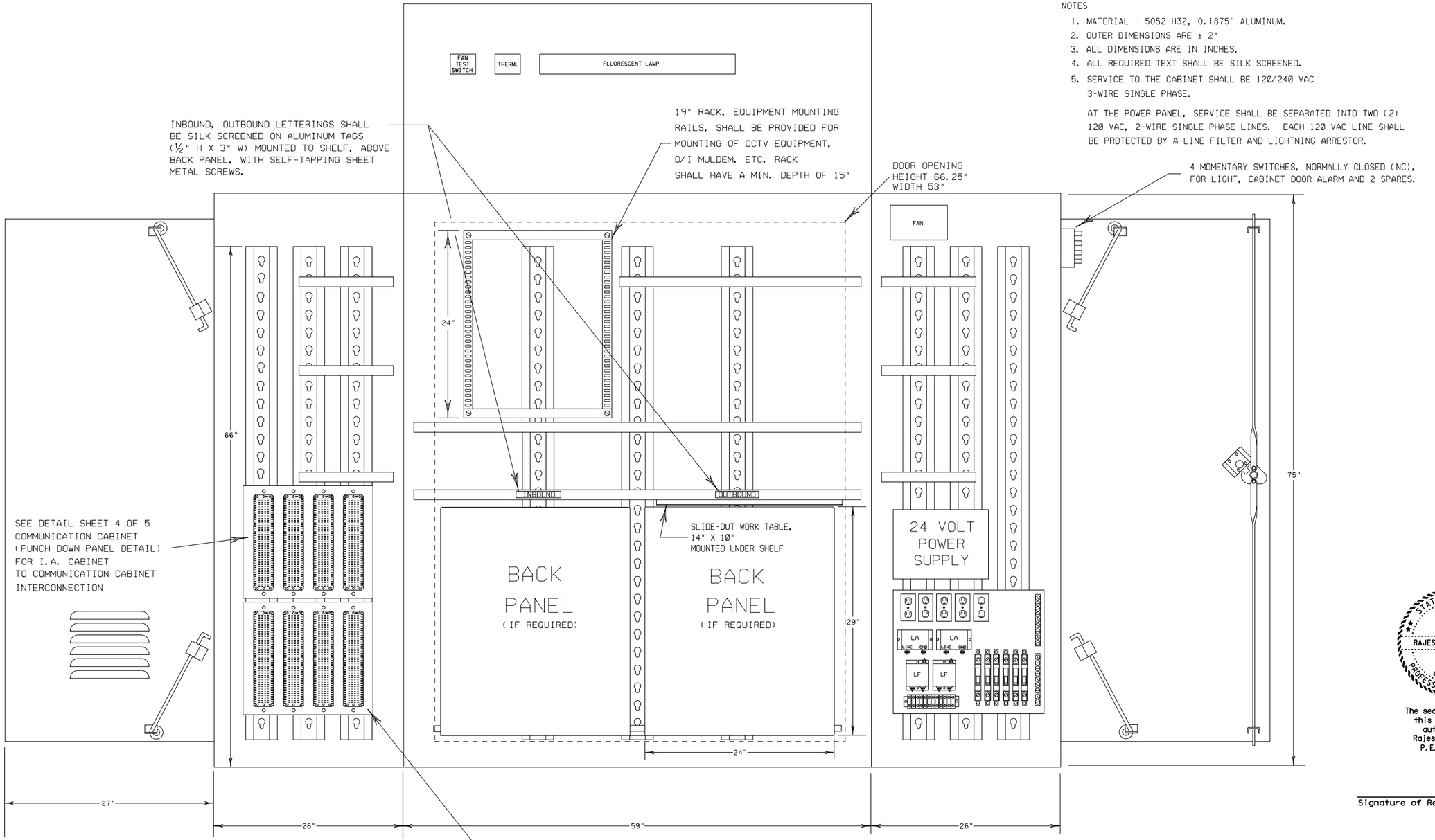
DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
DK/LMT	6	CM	( )	IH 35E
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DK	TEXAS	DALLAS	DALLAS	101
CHECK	CONTROL	SECTION	JOB	
RNG	0442	02	143	
CHECK				

USER ID

NOTES

1. MATERIAL - 5052-H32, 0.1875" ALUMINUM.
2. OUTER DIMENSIONS ARE ± 2"
3. ALL DIMENSIONS ARE IN INCHES.
4. ALL REQUIRED TEXT SHALL BE SILK SCREENED.
5. SERVICE TO THE CABINET SHALL BE 120/240 VAC 3-WIRE SINGLE PHASE.

   AT THE POWER PANEL, SERVICE SHALL BE SEPARATED INTO TWO (2) 120 VAC, 2-WIRE SINGLE PHASE LINES. EACH 120 VAC LINE SHALL BE PROTECTED BY A LINE FILTER AND LIGHTNING ARRESTOR.



COMMUNICATION CABINET (EXPLODED DETAIL)

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

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_____, P.E.
Signature of Registrant & Date

Texas Department of Transportation

COMMUNICATION CABINET DETAILS

SCALE: N/A SHEET 2 OF 5

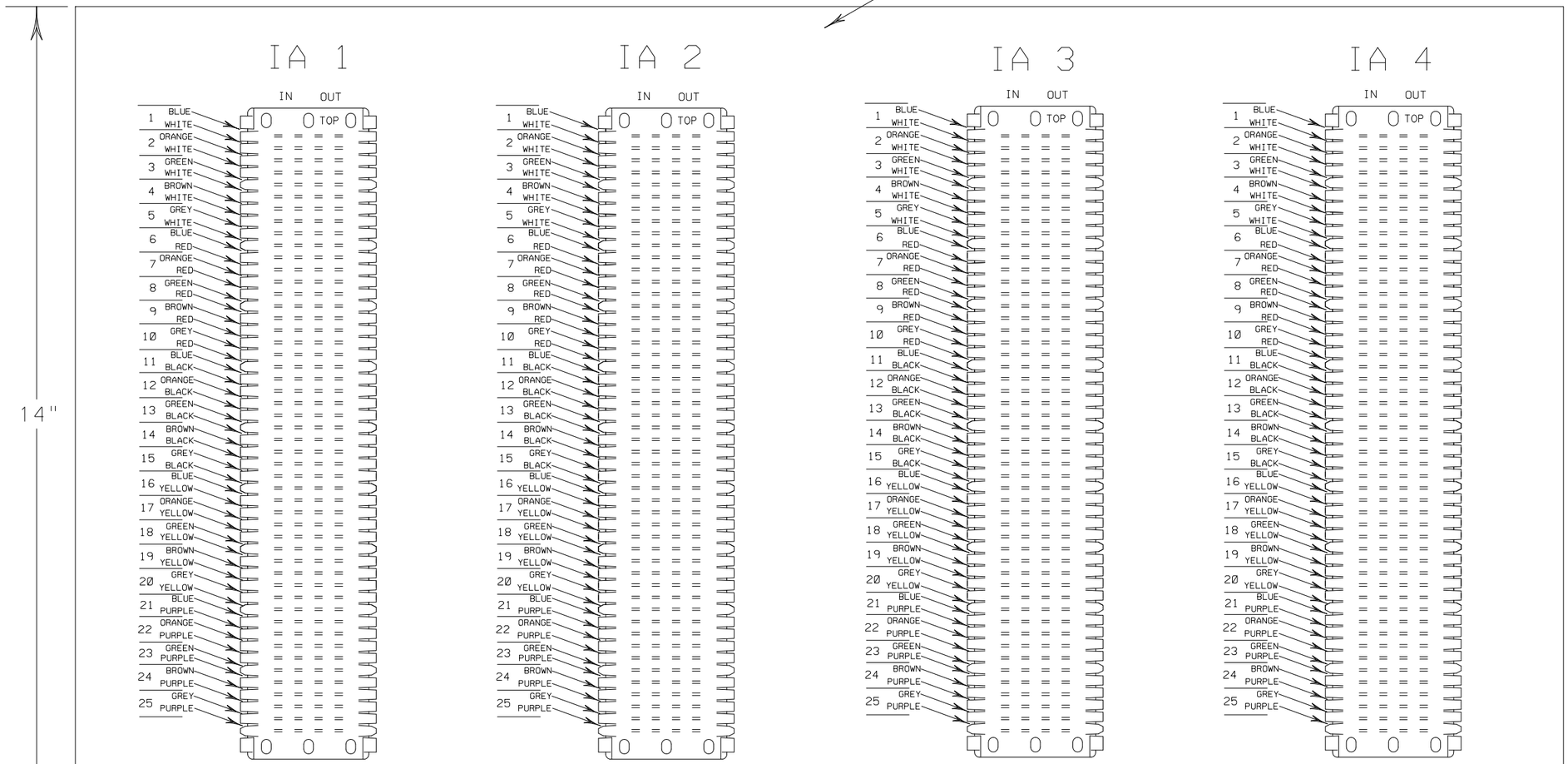
DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	(See Title Sheet)		IH 35E
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK RNG	TEXAS	DALLAS	DALLAS	105
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

TEMPLATED REVISED: 10-23-02

DATE:$DATE$

USER ID

0.125" (3 mm) ALUMINUM



LS

|1 2|
|3 4|
|5 • 6|
|7 8|
|9 10|
|11 12|

			IDENT	LS1	LS2	LS3	LS4	LS5	LS6	LS7	LS8
			LANE	1	2	3	4	5	6	123 Y ↘	456 Y ↘
IN	RED X	6		TB5-4A	TB5-8A	TB5-12A	TB5-16A	TB5-20A	TB5-24A	TB5-11A	TB5-23A
IN	YEL ↙	8		TB5-2A	TB5-6A	TB5-10A	TB5-14A	TB5-18A	TB5-22A	TB5-7A	TB5-19A
IN	GRN ↓	10		TB5-1A	TB5-5A	TB5-9A	TB5-13A	TB5-17A	TB5-21A	TB5-3A	TB5-15A
OUT	RED X	3		TB9-4	TB9-8	TB9-12	TB10-4	T10-8	TB10-12	TB9-11	TB10-11
OUT	YEL ↙	5		TB9-2	TB9-6	TB9-10	TB10-2	T10-6	TB10-10	TB9-7	TB10-7
OUT	GRN ↓	7		TB9-1	TB9-5	TB9-9	TB10-1	T10-5	TB10-9	TB9-3	TB10-3
PWR	+24VDC	9		•	•	•	•	•	•	•	•TB8-1A
PWR	CHAS GND	2		•	•	•	•	•	•	•	•TB8-22
PWR	I20 VAC	1		•	•	•	•TB8-16	•	•	•	•TB8-16A

LOAD SWITCH CONNECTIONS

NOTE
1. ALL REQUIRED TEXT SHALL BE SILK SCREENED.

COMMUNICATION CABINET
(PUNCH DOWN PANEL DETAIL)

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Rajesh N. Gurnani, P.E. 86265, on

_____, P.E.
Signature of Registrant & Date

Texas Department of Transportation

COMMUNICATION CABINET DETAILS

SCALE: N/A SHEET 3 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	(See Title Sheet)		IH 35E
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK RNG	TEXAS	DALLAS	DALLAS	106
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

TEMPLATED REVISED: 10-23-02

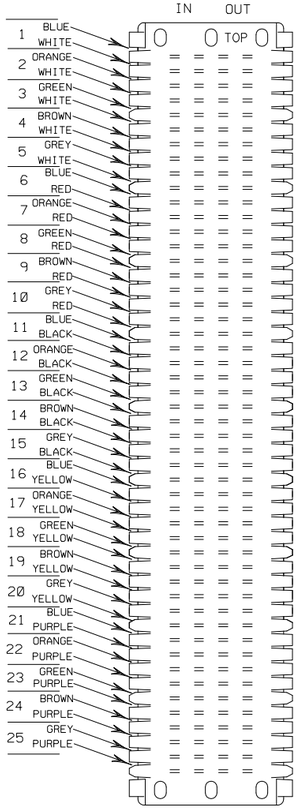
DATE:$DATE$

0.125" (3 mm) ALUMINUM

14"

16"

IA 5



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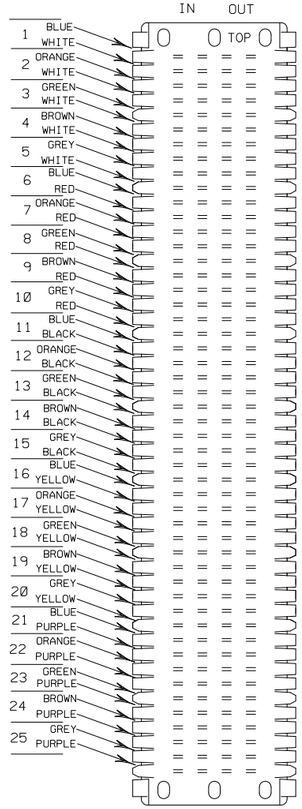
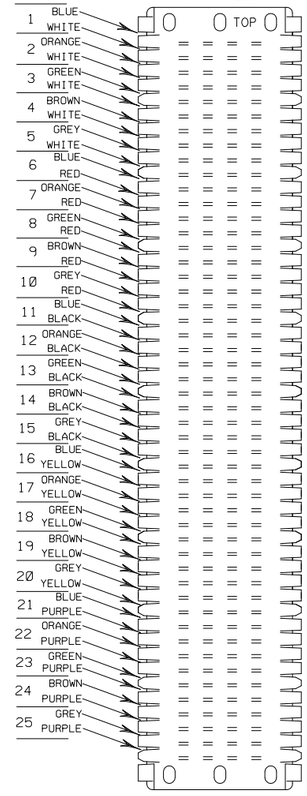


AUX 1



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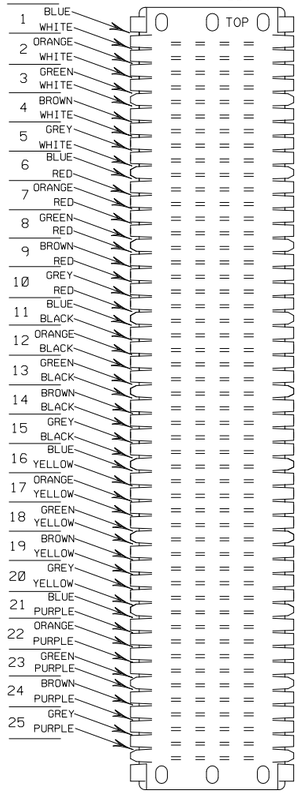

STATE OF TEXAS
RAJESH N. GURNANI
86265
LICENSED PROFESSIONAL ENGINEER

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COMMUNICATION CABINET
(PUNCH DOWN PANEL DETAIL)

NOTE
1. ALL REQUIRED TEXT SHALL BE SILK SCREENED.

TEMPLATED REVISED: 10-23-02

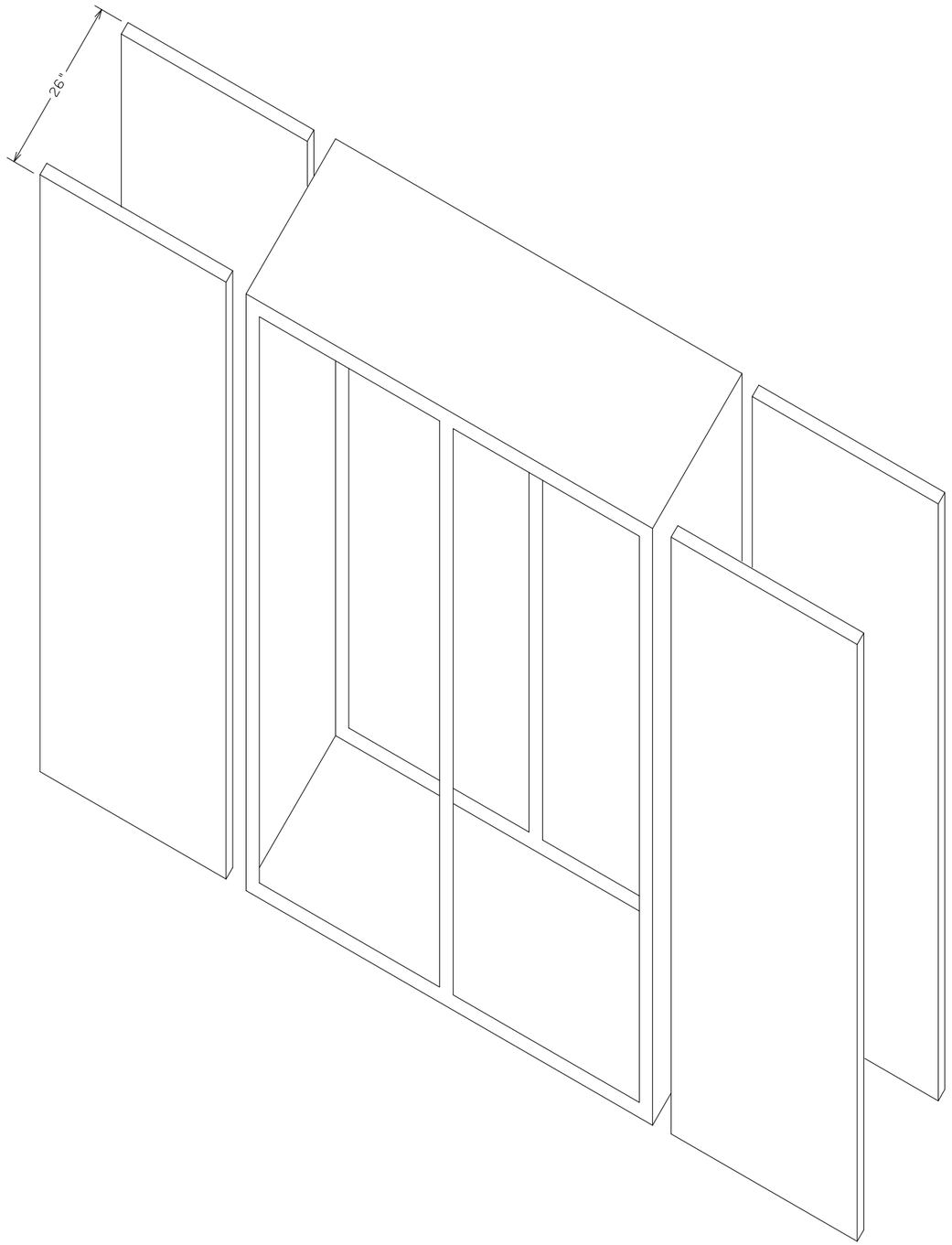
Texas Department of Transportation

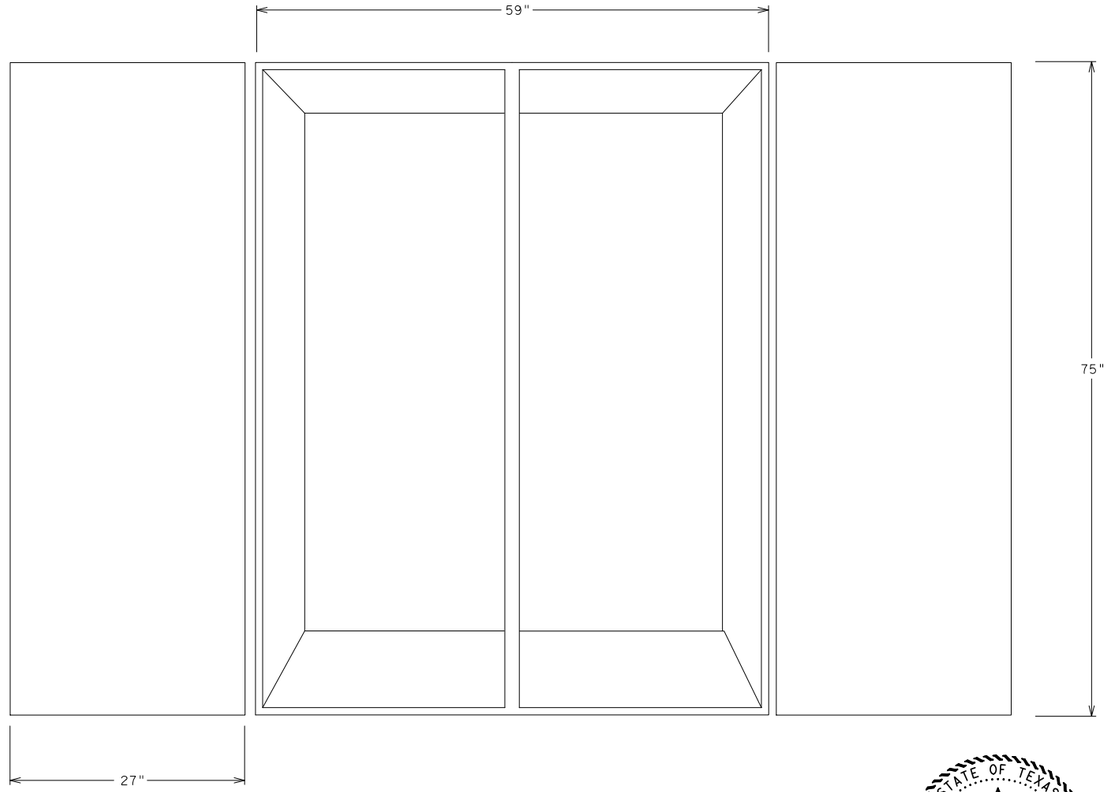
COMMUNICATION CABINET DETAILS

SCALE: N/A SHEET 4 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	(See Title Sheet)		IH 35E
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK RNG	TEXAS	DALLAS	DALLAS	107
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

USER ID





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COMMUNICATION CABINET

SHOWING FRONT & BACK DOUBLE DOORS

TEMPLATED REVISED: 10-23-02

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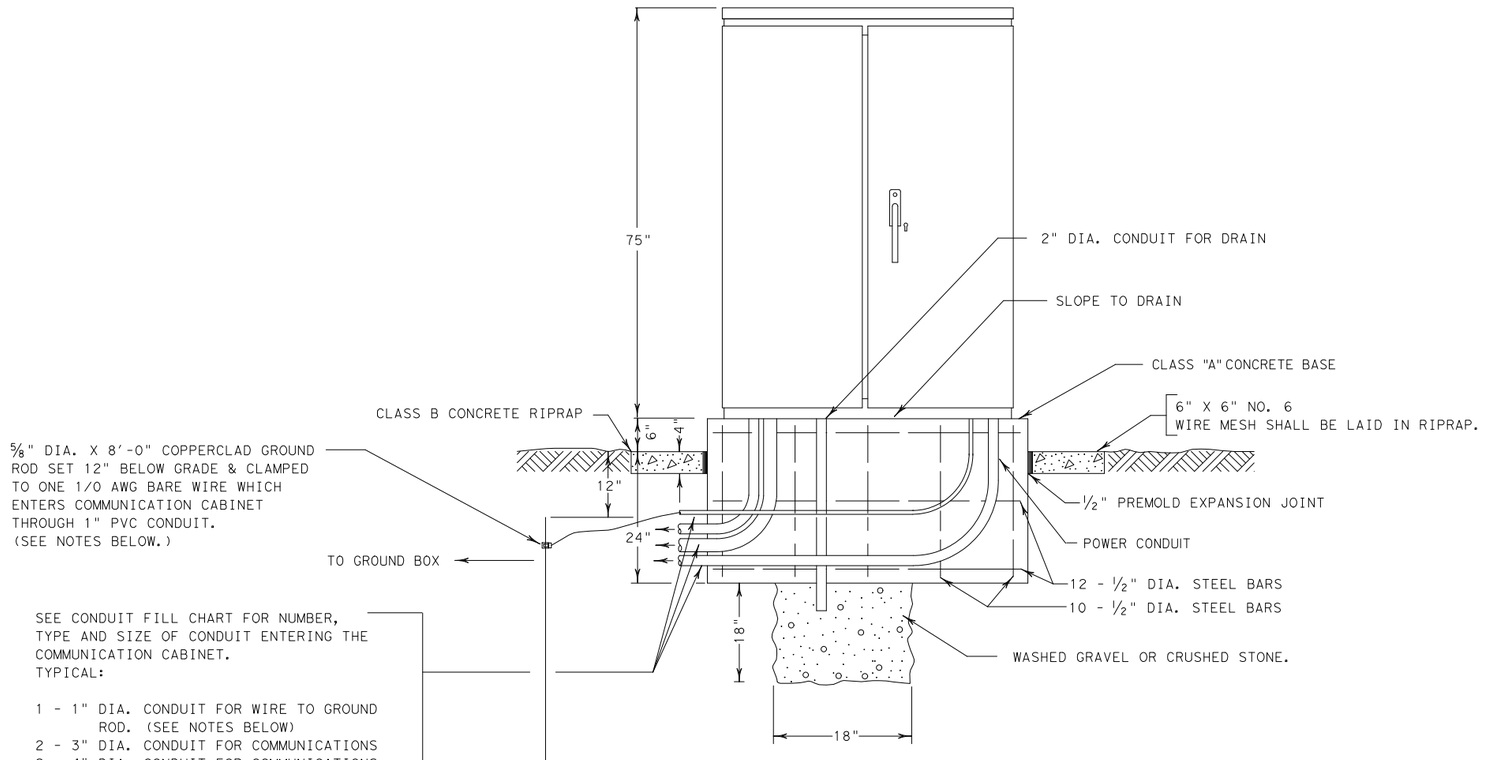
COMMUNICATION CABINET DETAILS

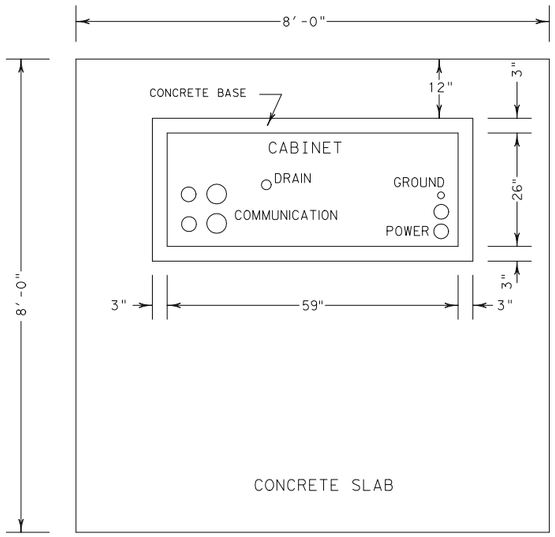
SCALE: N/A SHEET 5 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	(See Title Sheet)		IH 35E
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK RNG	TEXAS	DALLAS	DALLAS	108
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

DATE:$DATE$



ELEVATION OF COMMUNICATION CABINET FOUNDATION



SPACING OF COMMUNICATION CABINET ON CONCRETE SLAB

NOTES:

CABINET AND BASE DIMENSIONS AND DETAILS ARE SHOWN AS EXAMPLES ONLY. CABINETS OF ANY MANUFACTURER WHICH COMPLY WITH THE SPECIFICATIONS SHALL BE DEEMED ACCEPTABLE. CONCRETE BASE DIMENSIONS AND CABINET BOLT SPACING SHALL ACCOMMODATE THE CABINET USED. THE ANCHOR BOLTS SHALL BE PLACED ON THE INSIDE OF THE CABINET.

THE COMMUNICATION CABINET SHALL NOT HAVE A FLOOR.

THE CONTRACTOR SHALL USE CLEAR SILICONE SEALANT AROUND THE INSIDE AND OUTSIDE OF THE COMMUNICATION CABINET BASE.

THE FURNISHING AND INSTALLING OF 1" PVC CONDUIT, GROUND ROD, 1/O AWG GROUND WIRE, GROUND ROD CLAMP, AND ALL OTHERS MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE GROUNDING OF THE COMMUNICATION CABINET AS PER NEC SHALL BE SUBSIDIARY TO THIS ITEM.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING CABINET OF APPROPRIATE DESIGN, AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT, SUCH THAT THE CABINET SHALL BE LEVEL WHEN MOUNTED ON THE FOUNDATION. THE FOUNDATION DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PLACEMENT.

CIRCUIT BREAKERS 2, 5, AND 6 SHALL BE SERVICED BY LINE 1 (120 VAC, 2 WIRE SINGLE PHASE) FROM THE POWER PANEL. CIRCUIT BREAKERS 1, 3, AND 4 SHALL BE SERVICED BY LINE 2 FROM THE POWER PANEL.

COMMUNICATION CABINET

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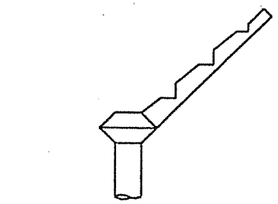
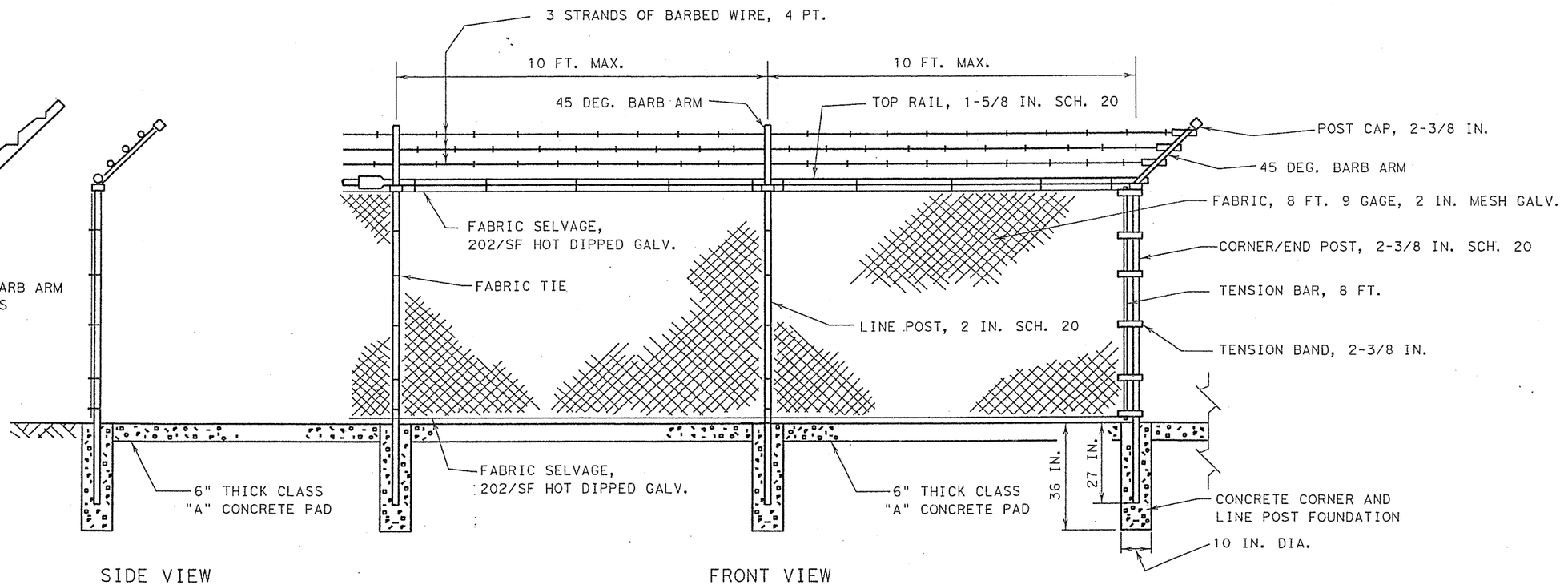
COMMUNICATION CABINET DETAILS

SCALE: N/A SHEET 1 OF 5

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
	6	(See Title Sheet)		IH 35E
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK RNG	TEXAS	DALLAS	DALLAS	104
CHECK	CONTROL	SECTION	JOB	
	0442	02	143	

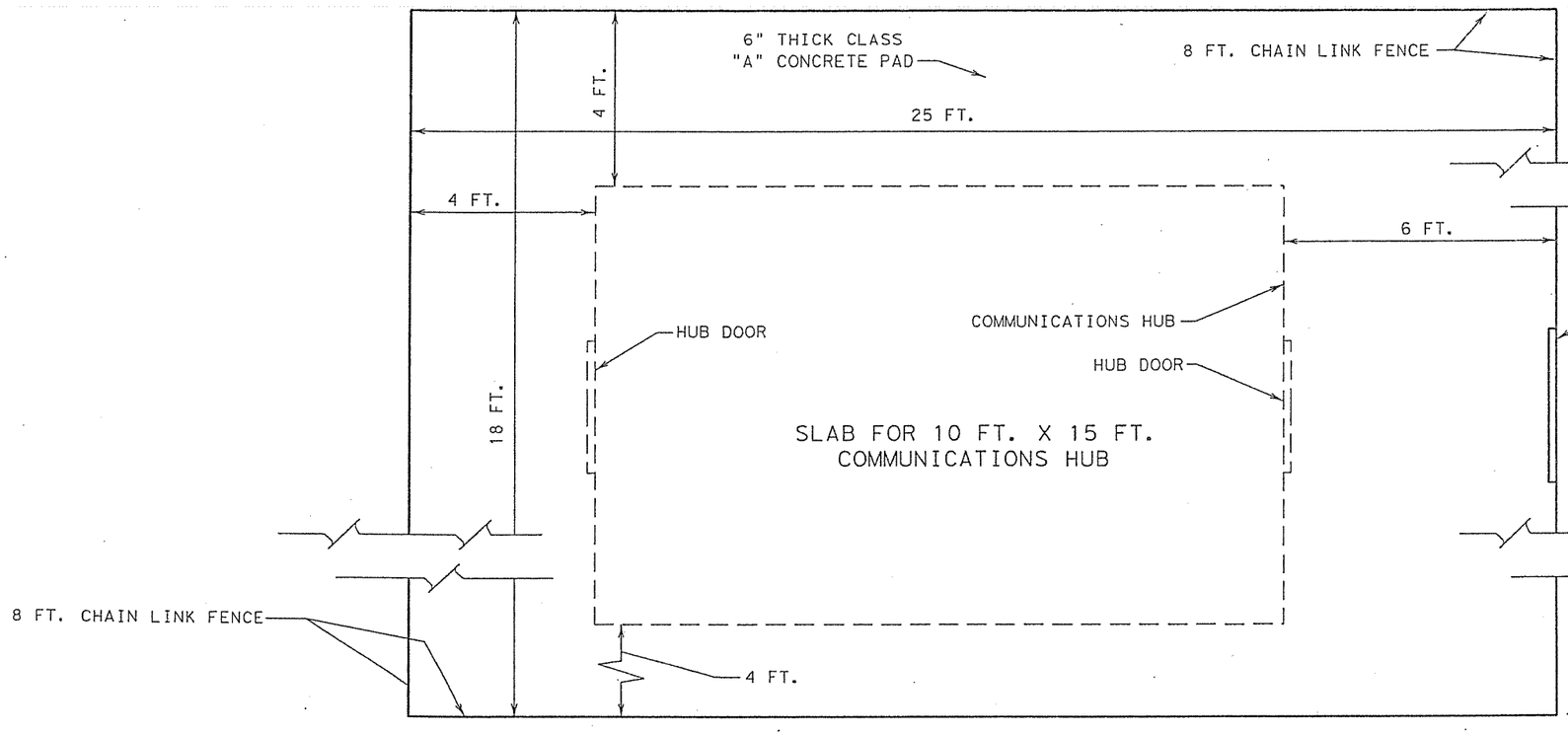


45 DEG. CORNER BARB ARM
ON ALL POSTS



SIDE VIEW

FRONT VIEW



NOTES

FENCE SHALL BE TOPPED WITH 3 STRAND BARBED WIRE.

ALL POSTS SHALL BE GALVANIZED.

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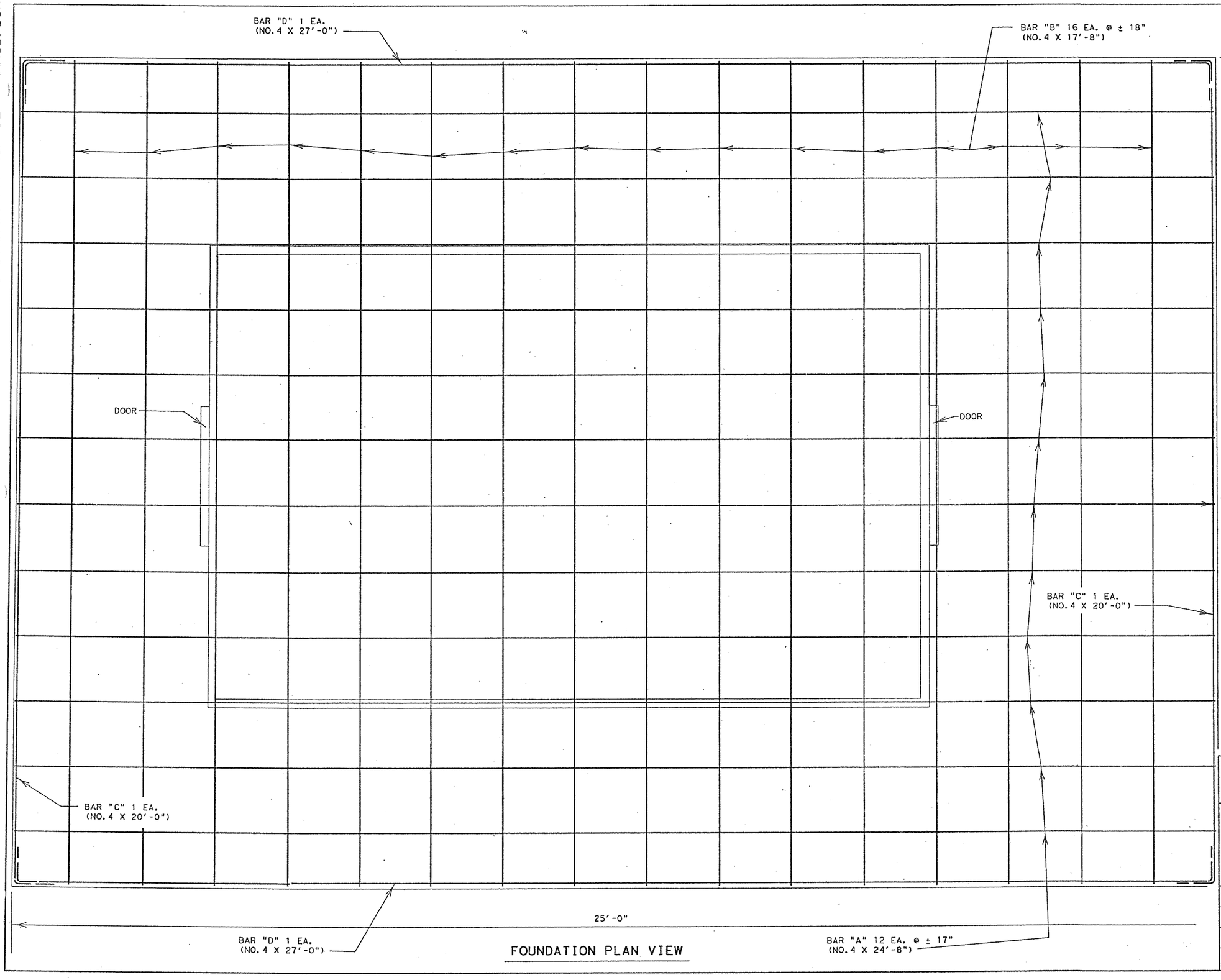
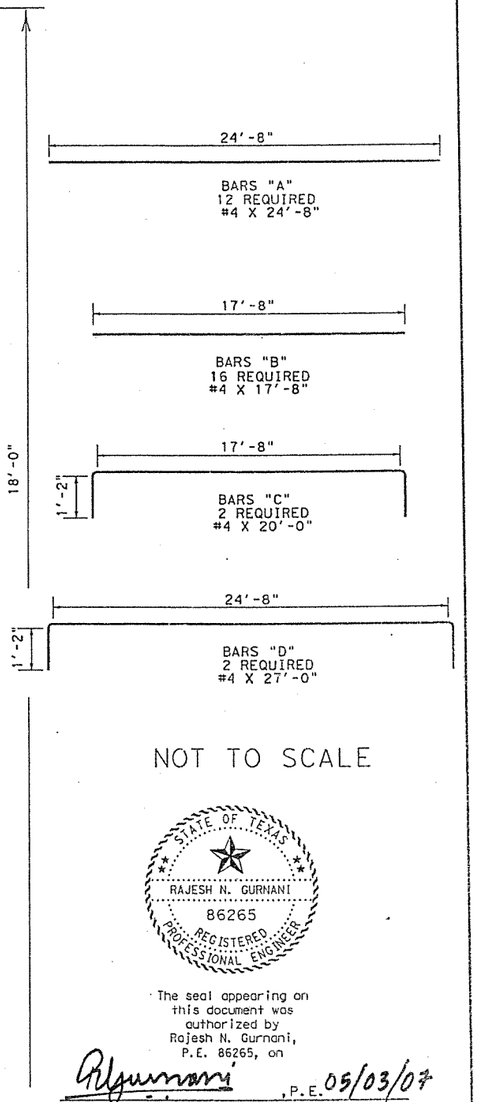
SATELLITE COMMUNICATIONS HUB (10 FT. X 15 FT.) 8 FT. CHAIN LINK FENCE

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
M F	6	CM 2007 (520)		LOOP 12
GRAPHICS M F	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	DALLAS	138
CHECK	CONTROL	SECTION	JOB	
	0581	02	114	

U:\ENGDATA\LOOP 12\ITS STANDARDS\LOOP 12" MHUB.DGN



FOUNDATION PLAN VIEW



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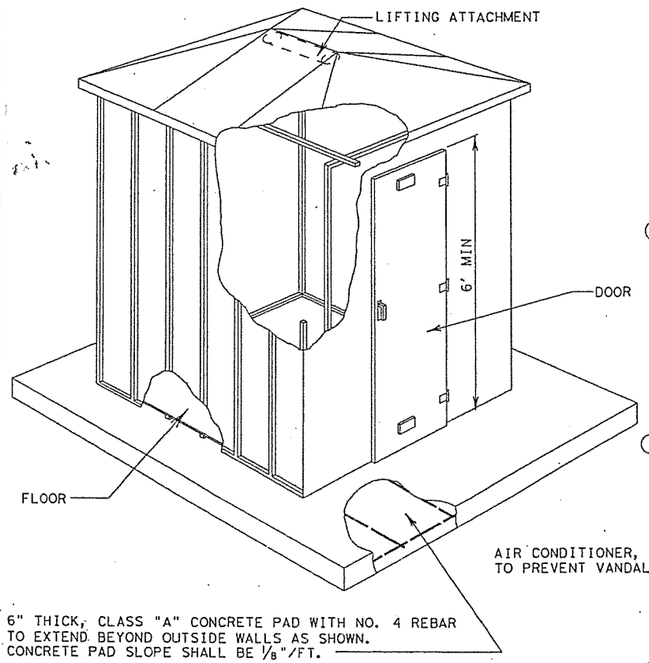
SATELLITE COMMUNICATIONS HUB (10 FT. X 15 FT.) AND FOUNDATION DETAILS

SHEET 2 OF 2

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
M F	6	CM 2007 (620)		LOOP 12
GRAPHICS M F	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	DALLAS	137
CHECK	CONTROL	SECTION	JOB	
	0581	02	114	



6" THICK, CLASS "A" CONCRETE PAD WITH NO. 4 REBAR TO EXTEND BEYOND OUTSIDE WALLS AS SHOWN. CONCRETE PAD SLOPE SHALL BE $\frac{1}{8}$"/FT.

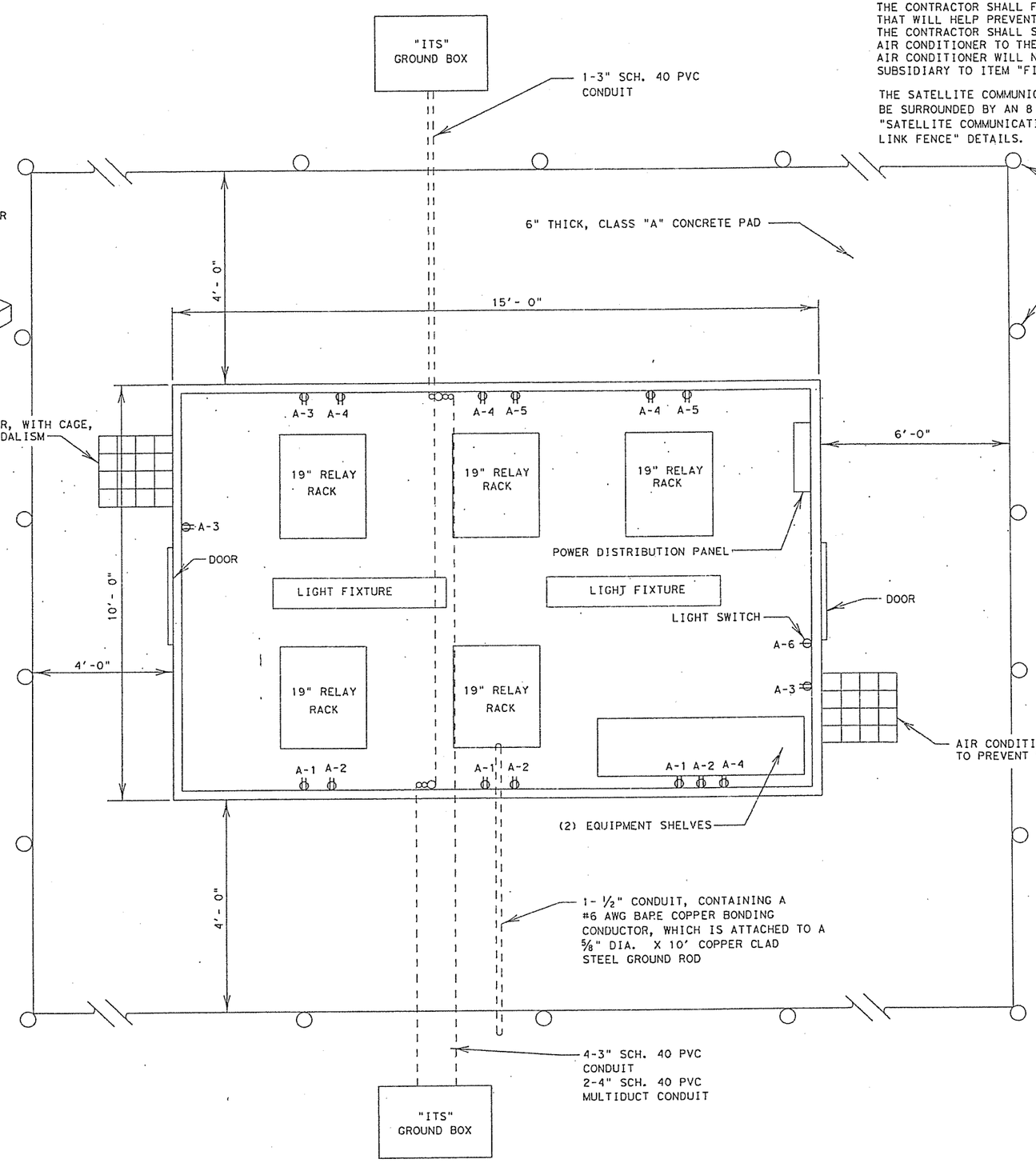
PERSPECTIVE VIEW

TYPICAL EQUIPMENT IN
SATELLITE COMMUNICATIONS HUB (10 FT. X 15 FT.)

10/100 ETHERNET SWITCH
FO COLOR VIDEO AND DATA RECEIVERS
FIBER OPTIC INTERCONNECT HOUSING
MPEG-II VIDEO ENCODERS
MPEG-II VIDEO DECODER
CCTV CENTRAL EQUIPMENT
FIBER OPTIC MODEMS
TERMINAL SERVERS
WORKSTATION

BRANCH BREAKERS:

A-1	30	AMP ONE POLE
A-2	30	AMP ONE POLE
A-3	20	AMP ONE POLE
A-4	30	AMP ONE POLE
A-5	20	AMP ONE POLE
A-6	15	AMP ONE POLE



BUILDING PLAN VIEW

NOTES: THE FOUNDATION WILL BE INSTALLED ON A DIRT SURFACE.

ANCHOR BUILDING TO CONCRETE PAD WITH ¾" BOLTS, SET IN THE CONCRETE PAD.

THE CONTRACTOR SHALL FURNISH AND INSTALL TWO 15,000 BTU AIR CONDITIONERS THAT WILL HELP PREVENT HEAT RELATED FAILURE TO THE EQUIPMENT. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE ATTACHMENT OF THE AIR CONDITIONER TO THE BUILDING FOR APPROVAL BY THE ENGINEER. THIS AIR CONDITIONER WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM "FIBER COMMUNICATIONS HUB (10' X 15')".

THE SATELLITE COMMUNICATIONS HUB (10 FT. X 15 FT.) WILL BE SURROUNDED BY AN 8 FT. CHAIN LINK FENCE, SEE "SATELLITE COMMUNICATIONS HUB (10 FT. X 15 FT.) 8 FT. CHAIN LINK FENCE" DETAILS.

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REGISTERED PROFESSIONAL ENGINEER

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Texas Department of Transportation

SATELLITE COMMUNICATIONS HUB (10 FT. X 15 FT.) AND FOUNDATION DETAILS

SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
M F	6	CM 2007 (520)		LOOP 12
GRAPHICS M F	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	DALLAS	136
CHECK	CONTROL	SECTION	JOB	
	0581	02	114	