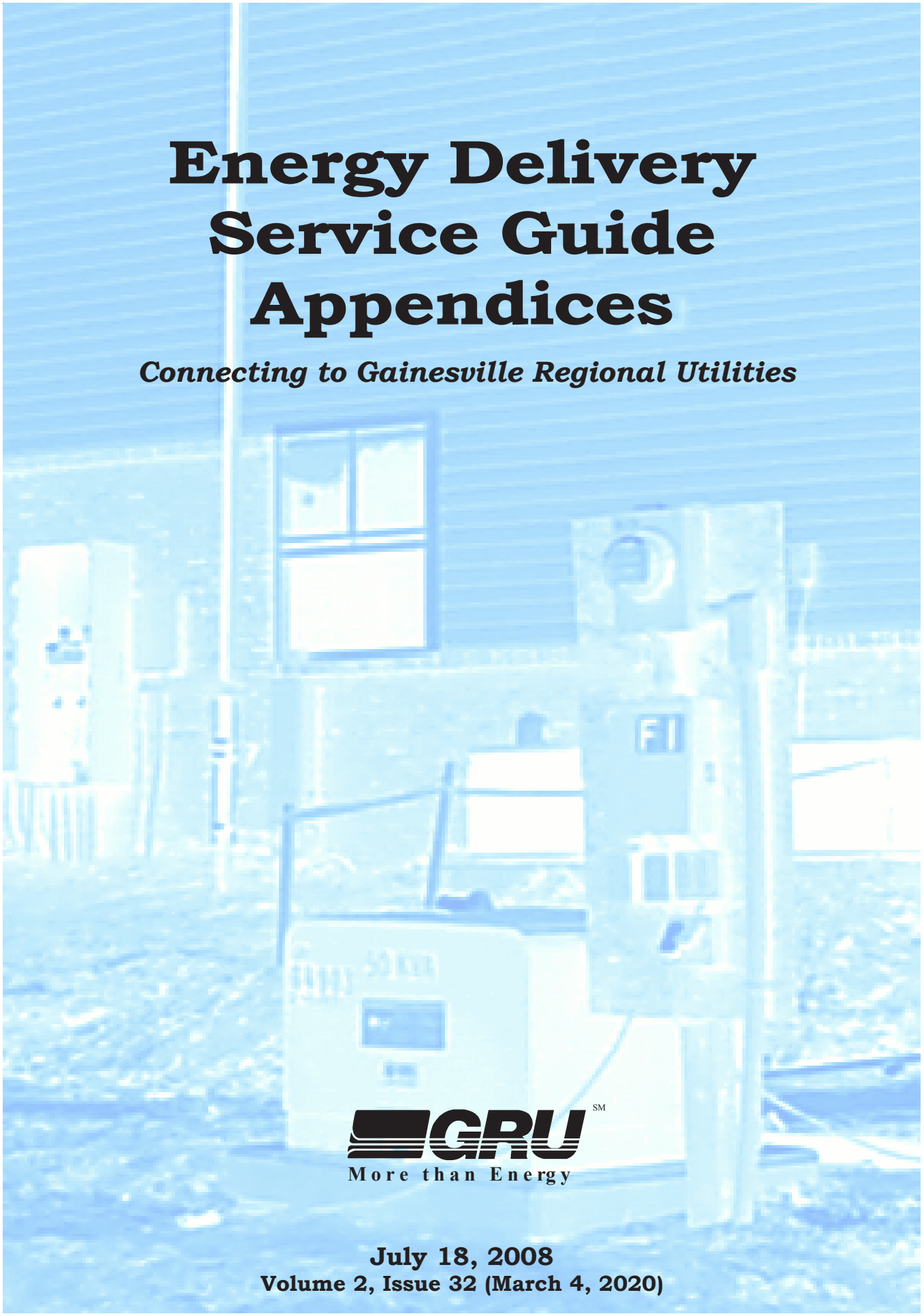
Energy Delivery Service Guide Appendices

Connecting to Gainesville Regional Utilities



GRU℠

More than Energy

July 18, 2008

Volume 2, Issue 32 (March 4, 2020)

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♦

A reference guide
for planning and designing
electric and gas installations
to be served by GRU.

- **Architects**
- **Contractors**
- **Customers**
- **Developers**
- **Electricians**
- **Engineers**

Supersedes Energy Delivery Service Guide Appendices
dated July 2, 2008
REV.
Volume 2, Issue 32 March 4, 2020)

The Contractor/Developer is responsible for verifying approved materials listed in this Energy Delivery Service Guide Appendices before construction.

TABLE OF CONTENTS

THIS MANUAL IS NOW ON THE GRU WEB SITE
SEE PAGE ii FOR INSTRUCTIONS.

How to Look Up the
Energy Delivery Service Guides
on The GRU Web Site

The Gainesville Regional Utilities (GRU) Energy Delivery Service Guide and Appendixes, issued by Energy Delivery Standards, may be viewed and printed from the following Web Site:

http://www.gru.com

Below are the steps for access the GRU Web Site and the Energy Delivery Service Guides.

Steps To View Web Site from you browser:

Step 1) Type in: www.gru.com - this is the GRU Web Site
Step 2) Go to the Title Bar drop down menu "Work with GRU" - select
Step 3) Under "Work with GRU Links" (left hand side of the web page) choose "Construction & Development" , and then choose "Energy Delivery Services Guide" this will take you to a new page.

How to Look Up the
Energy Delivery Service Guides
on The GRU Web Site, cont.

Step 4) At the bottom of this page are the links to the "Energy Delivery Service Guide" documents.

* Step 5) "Energy Delivery Service Guide (pdf)" will open up the text document.

* Step 6) "Energy Delivery Service Guide Appendixes (pdf)" will open up the document that contains materials, construction drawings and other information.

* Note: If the file does not appear and no error message is indicated refresh your screen using the F5 key and/or **check to make sure your "Pop-Up" blocker is disabled**. The pages at this location are in PDF (Acrobat Reader) file format and can be printed for your files.

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APPENDIX - A
CONDUIT SPECIFICATIONS

The Contractor/Developer is responsible for verifying approved materials listed in this Energy Delivery Service Guide Appendices before construction.

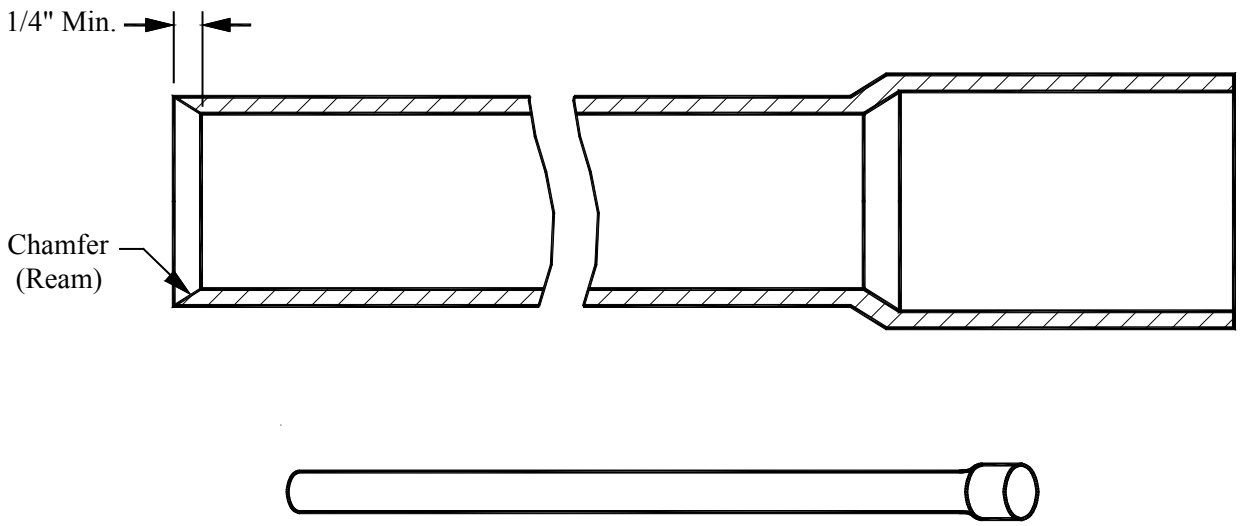
Note:

All customer or contractor/developer furnished and installed materials, conduit, concrete equipment foundations, and related civil infrastructure must be inspected and approved by qualified GRU personnel. If the materials and/or workmanship do not meet GRU Specifications the deficiencies must be corrected, at the customer or developers expense, before GRU can provide service to that customer or developer.

Approved manufacturers and their catalog numbers can be viewed on the GRU Web Site. See Appendix - W, in this guide for instructions on how to "Look-Up" information on the GRU Web Site.

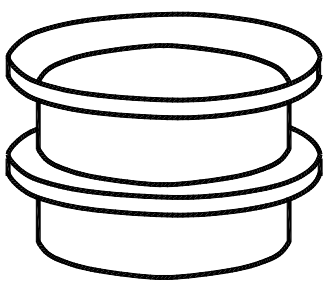
Please note revised information in this guide will be printed in "*Italics*".

PVC CONDUIT
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



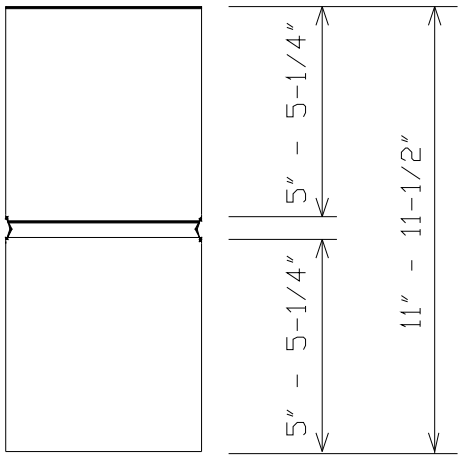
Description		GRU Stock Code
PVC SCHEDULE 40 CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH NEMA TC2-2003, TC6, TC8, UL 651 (UL APPROVAL **NOT REQUIRED) CONDUIT SIZES 2" THRU 6" SHALL BE CHAMFERED (OR REAM) ON NON-BELL END.**		
10' LENGTHS, W/ LONG INTEGRAL BELL		
SIZE:	3/4" (U. L, LISTED)	622427
	1" (U. L. LISTED)	433101
	1 - 1/2"	256765
	2"	826782
	2 - 1/2"	382507
	3"	699896
	4"	524573
	6"	380288

PVC CONDUIT BELL END
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

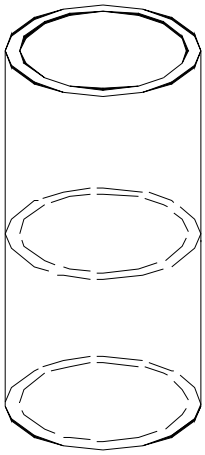


Description		GRU Stock Code
PVC CONDUIT BELL END FITTING FOR USE ON SCHEDULE 40 PVC CONDUIT		
SIZE:	1"	767581
	1-1/2"	632538
	2"	185574
	3"	041386
	4"	286109
	6"	840017

PVC CONDUIT COUPLING (LONG)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



6" COUPLING
(FABRICATED DESIGN)

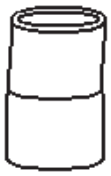


2", 3", AND 4" COUPLING
(MOLDED DESIGN)

Description		GRU Stock Code
PVC CONDUIT COUPLING (LONG), FOR USE ON SCHEDULE 40 PVC CONDUIT.		
SIZE:	2"	810835
	3"	810789
	4"	810738
	6"	810681

* NOTE:
THIS COUPLING IS FABRICATED NOT MOLDED, (FABRICATED COUPLINGS ARE SEAMLESS).

PVC CONDUIT COUPLING 5 DEGREE
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

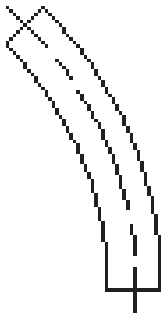


2", 4", & 6"

6"

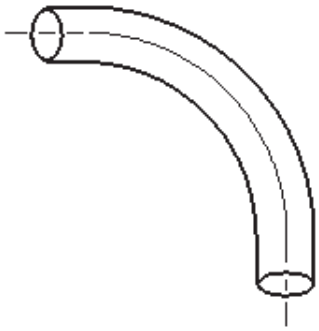
Description		GRU Stock Code
5 DEGREE PVC CONDUIT COUPLING FOR USE ON SCHEDULE 40 PVC CONDUIT.		
SIZE:	2" (BELL TO SLIP)	368407
	4" (BELL TO SLIP)	368458
	6" (BELL TO SLIP)	368504
	6" (BELL TO BELL)	368555

45 DEGREE PVC CONDUIT ELBOW
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

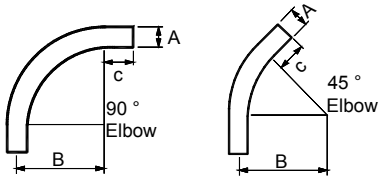


Description		GRU Stock Code
ELBOW PVC CONDUIT FITTINGS FOR USE ON SCHEDULE 40 PVC CONDUIT.		
45 DEGREE ELBOW - STANDARD RADIUS, PLAIN END		
SIZE:	2"	262056
	2-1/2"	261858
	4"	262102
	6"	262153

90 DEGREE PVC CONDUIT ELBOW
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



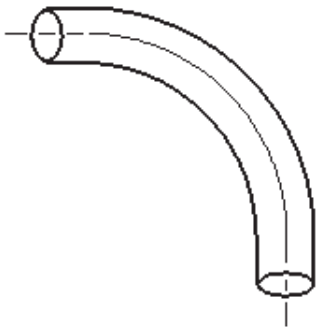
Standard Radius Elbow Dimensions



Size	A	B Min. (Radius)	C Min.
1/2"	0.840	4"	1-1/2"
3/4"	1.060	4-1/2"	1-1/2"
1"	1.315	5-3/4"	1-7/8"
1-1/4"	1.650	7-1/4"	2"
1-1/2"	1.900	8-1/4"	2"
2"	2.375	9-1/2"	2"
2-1/2"	2.875	10-1/2"	3"
3"	3.500	13"	3-1/8"
3-1/2"	4.00	15"	3-1/4"
4"	4.500	16"	3-3/16"
5"	5.563	24"	3-5/8"
6"	6.625	30"	3-3/4"

Description	**GRU Stock Code**
PVC CONDUIT FITTINGS FOR USE ON SCHEDULE 40 PVC CONDUIT. (STANDARD RADIUS EXCEPT WHERE NOTED.)	
SIZES:	
3/4"	808016
1"	613525
1-1/2" - 24" RADIUS	454001
1-1/2" - 30" RADIUS	382655
1-1/2" - 36" RADIUS	534242
2" - STANDARD RADIUS	373354
2" - 36" RADIUS	021997

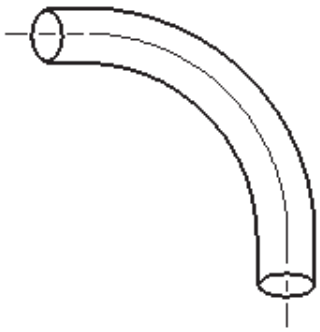
90 DEGREE PVC CONDUIT ELBOW
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description		GRU Stock Code
PVC CONDUIT FITTINGS FOR USE ON SCHEDULE 40 PVC CONDUIT. (STANDARD RADIUS EXCEPT WHERE NOTED.)		
SIZES:	2-1/2" - 30" RADUS	382604
	2-1/2" - 36" RADIUS	382558
	3" - 36" RADIUS	310158
	** 4" - 24" RADIUS*	277959

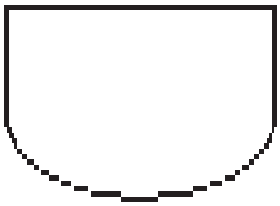
* NOTE:
THIS ELBOW SHALL BE USED FOR SPECIAL SECONDARY APPLICATIONS ONLY. CONTACT GRU ENERGY DELIVERY ENGINEERING.

90 DEGREE PVC CONDUIT ELBOW
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



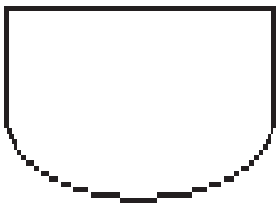
Description		GRU Stock Code
PVC CONDUIT FITTINGS FOR USE ON SCHEDULE 40 PVC CONDUIT. (STANDARD RADIUS EXCEPT WHERE NOTED.)		
SIZES:	4" - 48" RADIUS	145394
	6" - 48" RADIUS	403687

PVC CONDUIT END CAP
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



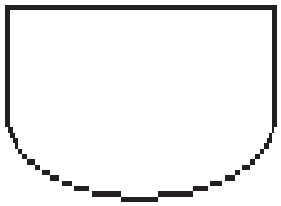
Description	GRU Stock Code
PVC CONDUIT END CAP, FOR USE ON SCHEDULE 40 PVC CONDUIT.	
END CAPS:	
3/4"	501492
1"	829668
1-1/2"	568244

PVC CONDUIT END CAP
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description		GRU Stock Code
PVC CONDUIT END CAP, FOR USE ON SCHEDULE 40 PVC CONDUIT.		
END CAPS:	2"	111457
	2-1/2"	260568
	3"	260576

PVC CONDUIT END CAP
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

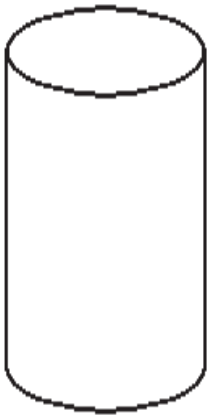


Description		GRU Stock Code
PVC CONDUIT END CAP, FOR USE ON SCHEDULE 40 PVC CONDUIT.		
END CAPS:	4"	696889
	6"	857521

PVC CONDUIT REDUCER
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

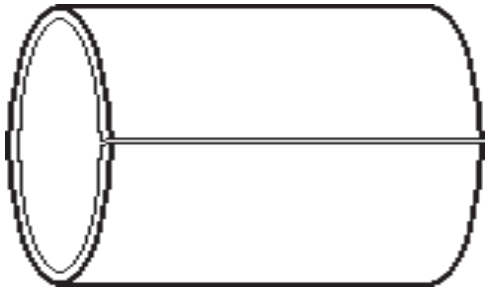
Description		GRU Stock Code
PVC CONDUIT REDUCER FITTING.		
SIZES:	1” TO 3/4”	426504
	3" TO 2-1/2"	426407
	2-1/2" TO 2"	426458

PVC CONDUIT SLEEVE COUPLING (REPAIR WORK)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description			GRU Stock Code
PVC CONDUIT SLEEVE COUPLING FOR REPAIR WORK ON SCHEDULE 40 PVC CONDUIT. THIS COUPLING IS A SLIDING COUPLING WITH NO RIDGE. THIS ALLOWS YOU TO SLIDE THE COUPLING ON THE CONDIUT AT THE REPAIR POINT.			
SIZE:	2"	(CARLON LENGTH: 3") (CANTEX LENGTH: 6")	703451
	2-1/2"	(CARLON LENGTH: 3") (CANTEX LENGTH: 6")	703508
	3"	(CARLON LENGTH: 3") (CANTEX LENGTH: 6")	703559
	4"	(CARLON LENGTH: 7") (CANTEX LENGTH: 3")	703605
	6"	(CARLON LENGTH: 10-1/8") (CANTEX LENGTH: 8.51")	703656

PVC CONDUIT SPLIT SLEEVE COUPLING (REPAIR WORK)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

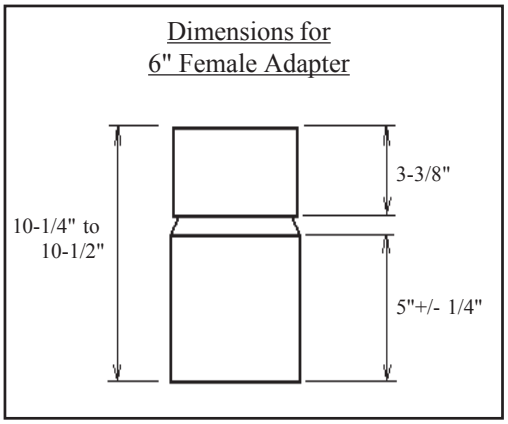


Description		GRU Stock Code
PVC SPLIT SLEEVE COUPLING USED FOR REPAIRING SCHEDULE 40 PVC CONDUIT.		
SIZE:	2"	673412
	3"	673463
	4"	673617
	6"	673668

PVC CONDUIT TERMINAL ADAPTER (FEMALE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

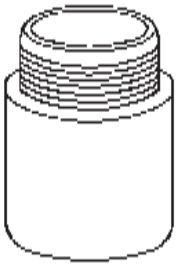
SIZES: 3/4" THRU 4"

SIZE: 6"

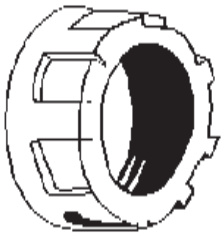


Description	GRU Stock Code
FEMALE TERMINAL ADAPTER FOR SCHEDULE 40 PVC CONDUIT.	
SIZE:	
3/4"	577375
1"	012106
1-1/2"	120332
2"	518719
2-1/2"	454125
3"	273724
4"	301353
6" (LONG LINE)	855987

PVC CONDUIT TERMINAL ADAPTER (MALE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



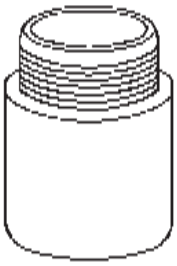
TERMINAL ADAPTER



TERMINAL ADAPTER BUSHING

Description		GRU Stock Code
MALE TERMINAL ADAPTER AND TERMINAL ADAPTER BUSHING TO BE USED ON SCHEDULE 40 CONDUIT, FOR ADAPTING NON-METALIC CONDUIT TO JUNCTION BOX. MALE THREADS ON ONE END, SOCKET END ON OTHER.		
SIZE:	TERMINAL ADAPTER: 3/4"	453862
	TERMINAL BUSHING: 3/4"	453919
	TERMINAL ADAPTER: 1"	454117
	TERMINAL BUSHING: 1"	454265

PVC CONDUIT TERMINAL ADAPTER (MALE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

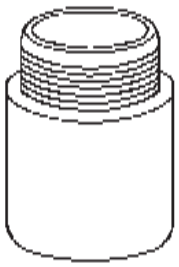


TERMINAL ADAPTER

TERMINAL ADAPTER BUSHING

Description		GRU Stock Code
MALE TERMINAL ADAPTER AND TERMINAL ADAPTER BUSHING TO BE USED ON SCHEDULE 40 CONDUIT, FOR ADAPTING NON-METALIC CONDUIT TO JUNCTION BOX. MALE THREADS ON ONE END, SOCKET END ON OTHER.		
SIZE:	TERMINAL ADAPTER: 1-1/2"	454168
	TERMINAL BUSHING: 1-1/2"	454311
	TERMINAL ADAPTER: 2"	45214
	TERMINAL BUSHING: 2"	454362

PVC CONDUIT TERMINAL ADAPTER (MALE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



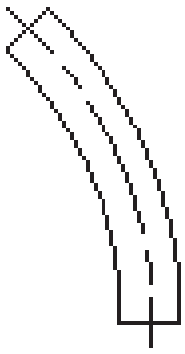
TERMINAL ADAPTER

Description	GRU Stock Code
MALE TERMINAL ADAPTER AND TERMINAL ADAPTER BUSHING TO BE USED ON SCHEDULE 40 CONDUIT, FOR ADAPTING NONMETALLIC CONDUIT TO JUNCTION BOX. MALE THREADS ON ONE END, SOCKET END ON THE OTHER END.	
SIZE:	
TERMINAL ADAPTER: 2-1/2"	454419
TERMINAL ADAPTER: 4"	417742
TERMINAL ADAPTER: 6"	460737

STEEL CONDUIT
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

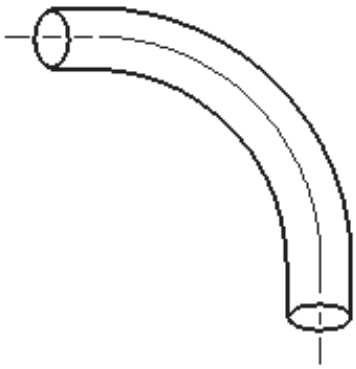
Description		GRU Stock Code
STEEL CONDUIT, GALVANIZED, MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.1-1966		
LENGTH: 10 FEET SUPPLIED W/COUPLINGS		
CONDUIT SIZE:	1/2"	031003
	3/4"	566284
	1"	706647
	1-1/4"	740098
	1-1/2"	459771
	2"	663093
	2-1/2"	645354
	3"	770469
	4"	601926
	6"	254495

45 DEGREE STEEL CONDUIT ELBOW
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description		GRU Stock Code
45 DEGREE ELBOW USE ON GALVANIZED STEEL CONDUIT. STANDARD RADIUS, UNLESS OTHERWISE NOTED.		
SIZE:	2"	791059
	4"	791105
	6"	791156

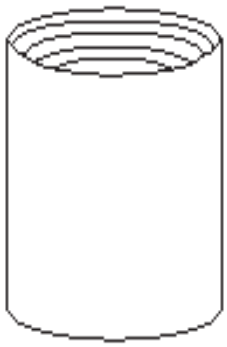
STEEL CONDUIT ELBOW
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



* STANDARD RADIUS IS MEASURED TO CENTER OF CONDUIT.

Description		GRU Stock Code
STEEL CONDUIT FITTINGS FOR USE WITH GALVANIZED STEEL CONDUIT. * STANDARD RADIUS EXCEPT WHERE NOTED.		
SIZE: 1" (STD. RAD. 5-3/4")		498076
1-1/2" - 36" RADIUS	**THIS ITEM HAS BEEN DELETED**	383961
1-12" - 24" RADIUS		269409
2" - 36" RADIUS		384011
2-1/2" - 36" RADIUS		645303
3" - 36" RADIUS		384062
4" - 24" RADIUS		441724
4" - 48" RADIUS		701289
6" - 48" RADIUS		418439

STEEL CONDUIT COUPLING
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description	GRU Stock Code
STEEL CONDUIT FITTINGS FOR USE WITH GALVANIZED STEEL CONDUIT.	
COUPLING SIZE:	
1/2"	400033
3/4"	246824
1"	521272
1-1/4"	500747
1-1/2"	810401
2"	107166
2-1/2"	645257
3"	727458
4"	091685
6"	356573

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APPENDIX - B
CONCRETE MATERIAL SPECIFICATIONS

The Contractor/Developer is responsible for verifying approved materials listed in this Energy Delivery Service Guide Appendices before construction.

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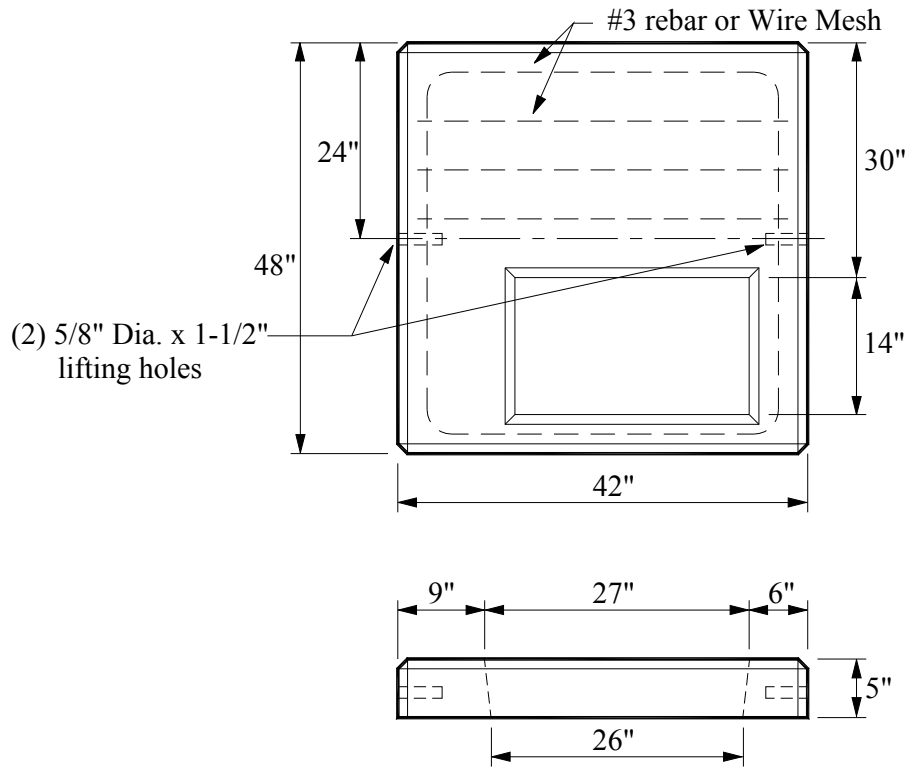
Please note revised information in this guide will be printed in "*Italics*".

PRECAST CONCRETE PAD FOR SINGLE PHASE TRANSFORMER
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

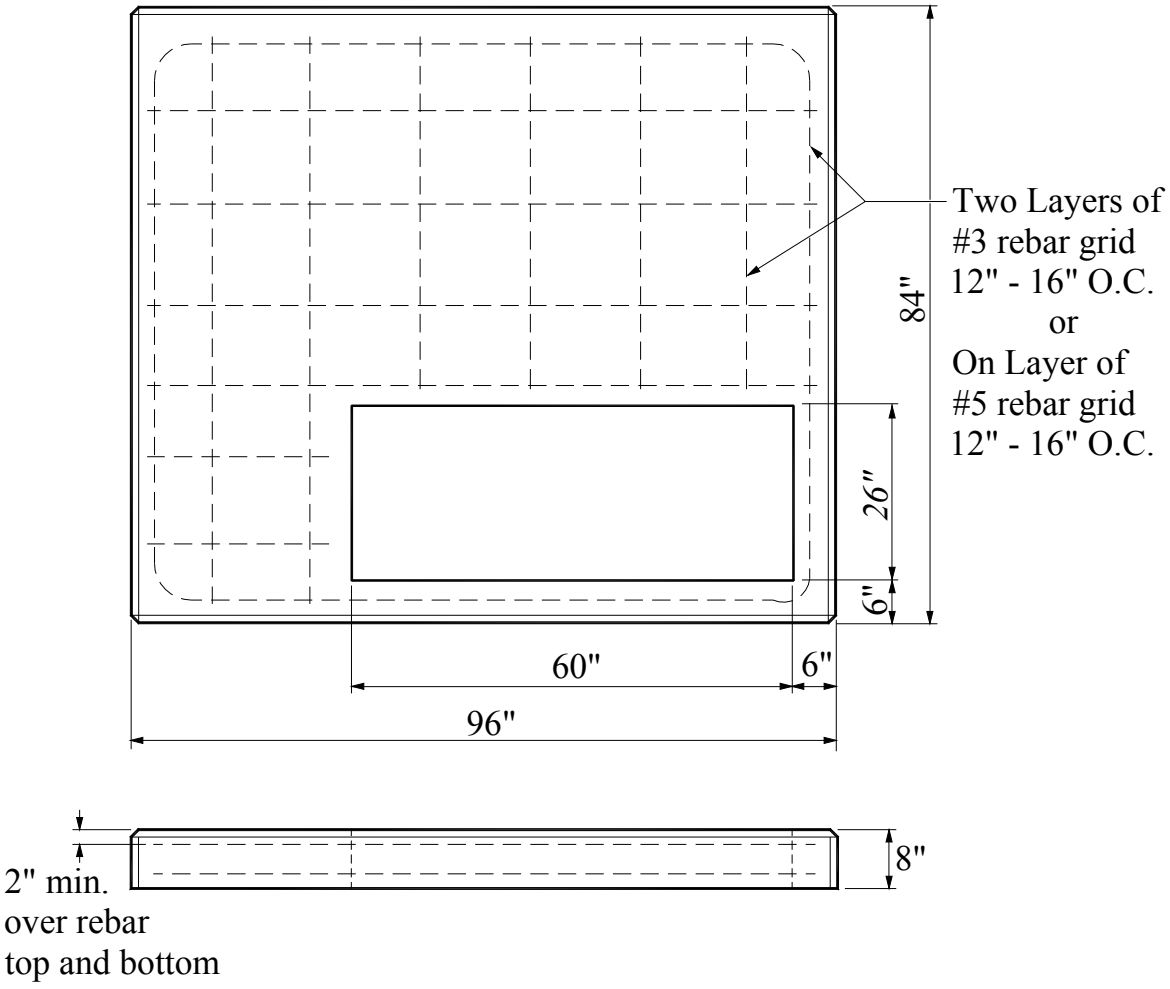


Description	GRU Stock Code
PRECAST CONCRETE MOUNTING PAD FOR SINGLE PHASE PAD MOUNTED TRANSFORMERS.	
CONCRETE MIN.: 3500 PSI CONCRETE	
REINFORCING: #3 REBAR OR (1) MAT 3" X 4" X3.1/W4.1 WIRE MESH GRADE 65KSSI	
APPROX. WEIGHT: 600 LBS.	
PAD SIZE: 42" X 48" X 5"	331287

NOTE:
THIS SINGLE PHASE TRANSFROEMR CONCRETE PAD WILL ACCOMMODATE ALL STANDARD GRU SINGLE PHASE TRANSFORMERS.

CONCRETE PAD FOR THREE PHASE TRANSFORMER
(Verify Information before installation. This manual maybe superseded.)

NOTE: THE THREE PHASE TRANSFORMER PAD SHALL BE FORMED AND POURED IN-PLACE. SEE DETAIL BELOW. THIS THREE PHASE TRANSFORMER PAD WILL ACCOMMODATE ALL STANDARD THREE PHASE TRANSFORMERS.



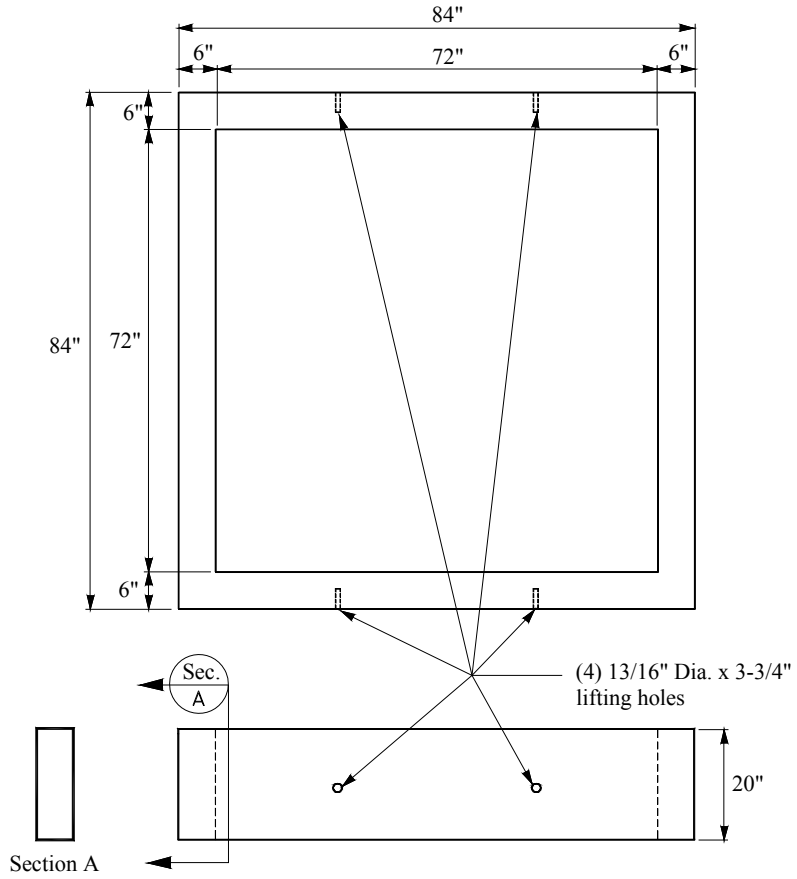
SPECIFICATIONS:

CONCRETE MIN: 3500 P.S.I

REINFORCED #3 REBAR @ 12" O.E.C.W.

PRECAST CONCRETE BOX FOR PME SWITCHGEAR & 3 PH. JUNCTION CABINET

(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description	***GRU Stock Code***

PRECAST CONCRETE BOX FOR PME SWITCHGEAR AND
3 PHASE JUNCTION CABINET. CONCRETE
5000 PSI 28 DAYS, REBAR GRADE 60.

WALL THICKNESS: 6"
LIFTING HOLES: 13/16" FOR LIFTING BOLT
APPROX. WEIGHT: 3224 LBS.

DIMENSIONS: 84" x 84" x 20"

454354

DELETED

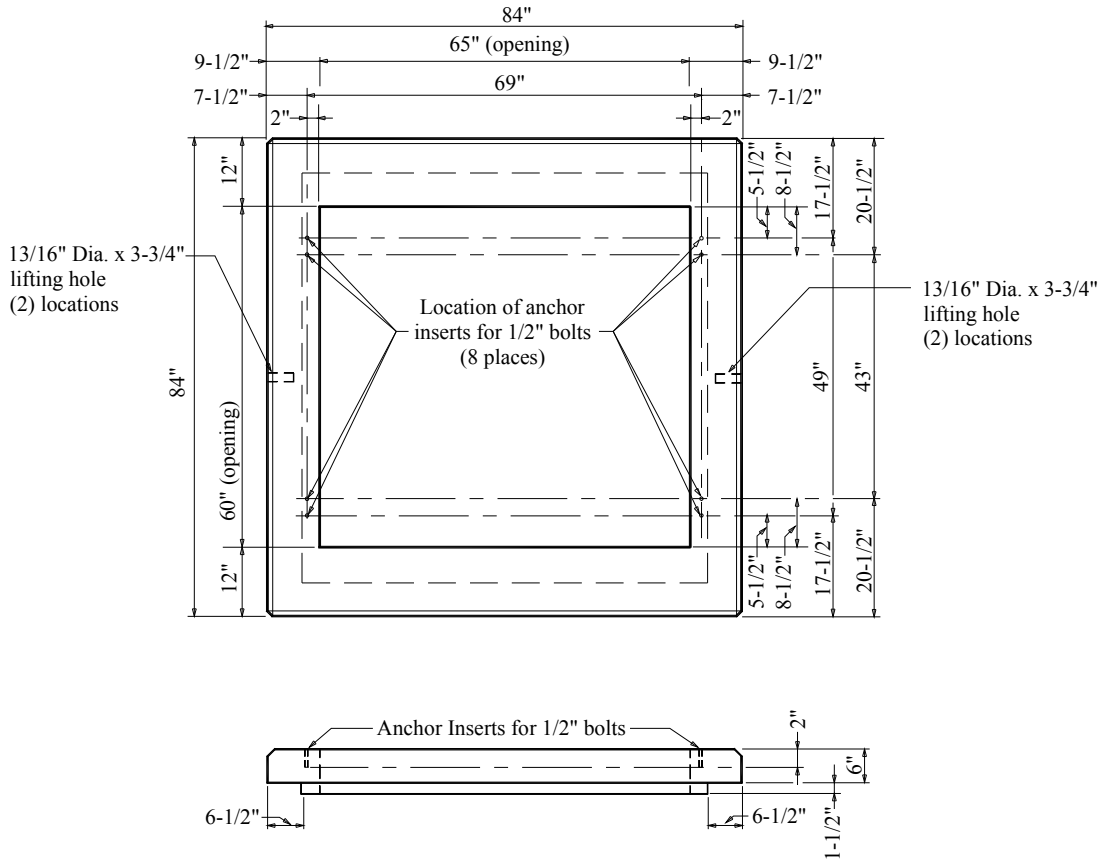
Description	Manufacturer	Catalog No.
PRECAST CONCRETE BOX TOP FOR PME TYPE 9 SWITCHGEAR. CONCRETE 5000 PSI 28 DAYS, REBAR GRADE 60.		
TOP THICKNESS: 6"-7.5" LIFTING HOLES: 1" FOR LIFTING BOLT ANCHOR BOLTS: (4) 1/2" WEDGE TYPE	*SOUTHERN PRE-CAST, INC.* *RT.3 BOX 229* *ALACHUA, FL 32615* *PH: (904) 462-2015*	SPSWT7096X6

PRECAST CONCRETE BOX TOP FOR PME TYPE 11 SWITCHGEAR

DELETED

Description	Manufacturer	Catalog No.
PRECAST CONCRETE BOX TOP FOR PME TYPE 11 SWITCHGEAR. CONCRETE 5000 PSI 28 DAYS, REBAR GRADE 60.		
TOP THICKNESS: 6"-7.5" LIFTING HOLES: 1" FOR LIFTING BOLT ANCHOR BOLTS: (4) 1/2" WEDGE TYPE	*SOUTHERN PRE-CAST, INC.* *RT.3 BOX 229* *ALACHUA, FL 32615* *PH: (904) 462-2015*	SPSWT7116X6

PRECAST CONCRETE BOX TOP FOR PME TYPE 9 AND 11 SWITCHGEAR
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

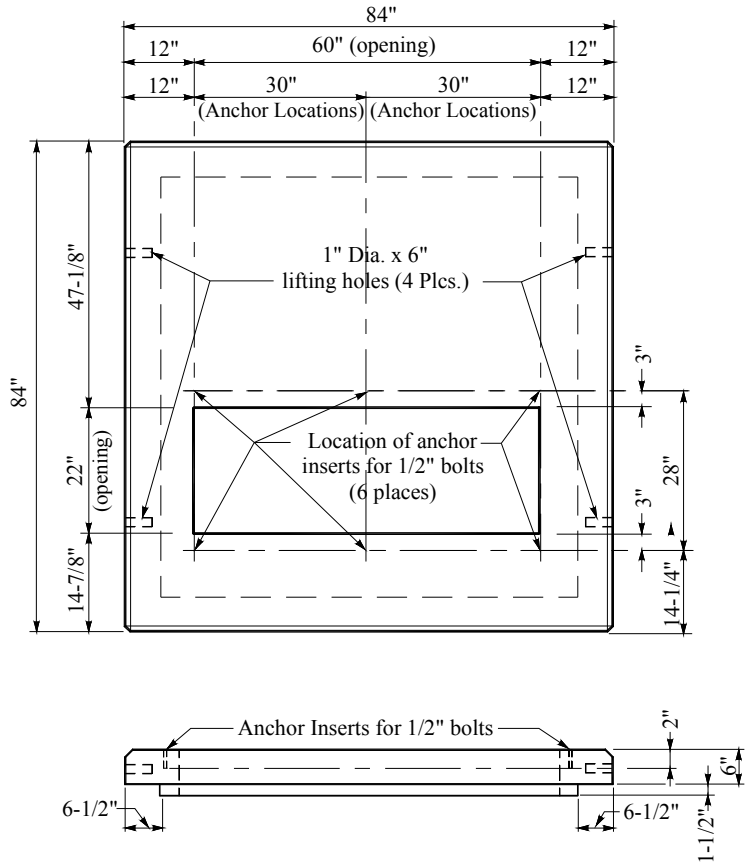


Description	***GRU Stock Code***
PRECAST CONCRETE BOX TOP FOR PME TYPE 9 AND 11 SWITCHGEAR.	515884

CONCRETE 5000 PSI 28 DAYS, REBAR GRADE 60.

TOP THICKNESS: 6"-7.5"
LIFTING HOLES: 1" FOR LIFTING BOLT
ANCHOR INSERTS: 8 - FOR 1/2" ANCHORS

PRECAST CONCRETE BOX TOP FOR 3 PHASE JUNCTION CABINET
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

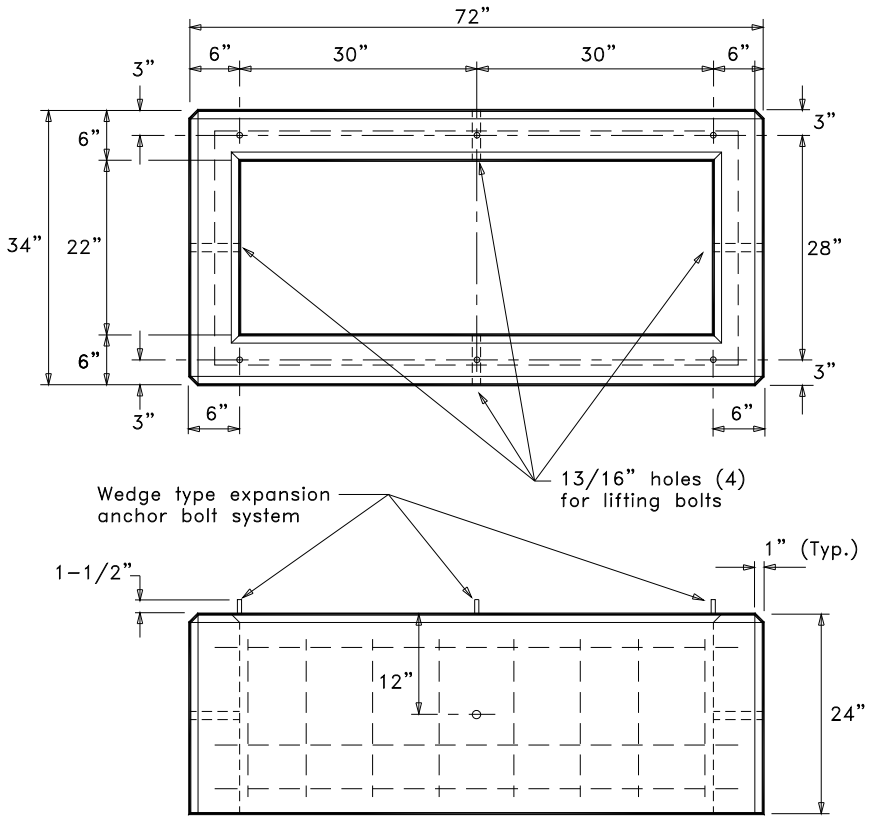


Description	***GRU Stock Code***
PRECAST CONCRETE BOX TOP FOR 3 PHASE JUNCTION CABINET	516007

CONCRETE 5000 PSI 28 DAYS, REBAR GRADE 60.

TOP THICKNESS: 6"-7.5"
LIFTING HOLES: 1" FOR LIFTING BOLT
ANCHOR BOLTS: (6) 1/2" WEDGE TYPE

JUNCTION CABINET GROUND SLEEVE
(CONCRETE, 30" DEEP CABINET)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description	GRU Stock Code
JUNCTION CABINET GROUND SLEEVE. TO BE USED WITH THE 30" DEEP THREE PHASE JUNCTION CABINET LISTED ON PAGE C-5.55 IN THIS MANUAL. JUNCTION CABINET GROUND SLEEVE MADE OF PRECAST CONCRETE.	304018

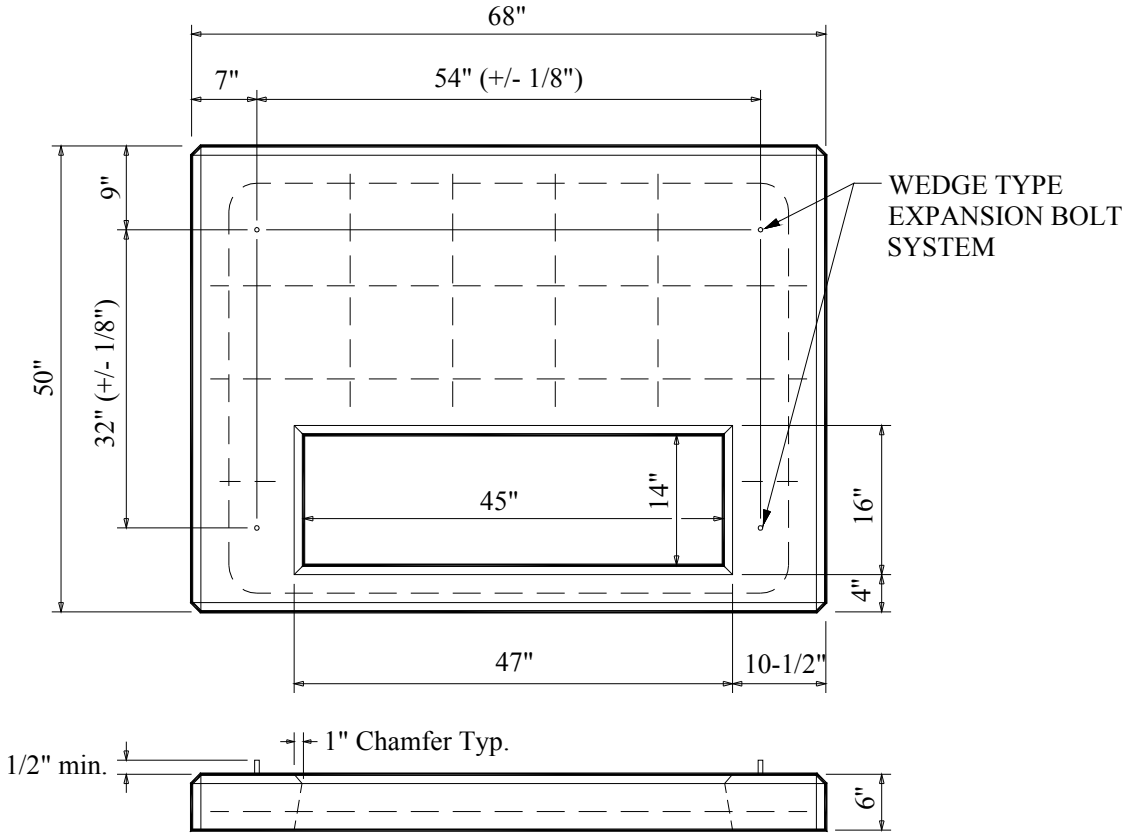
WEDGE TYPE EXPANSION ANCHOR BOLT SIZE:
3-3/4" x 1/2" - 13 THREADS PER INCH
(SEE DRAWING ABOVE FOR LOCATION AND HEIGHT OF ANCHOR BOLTS)

MIN. CONCRETE: 3500 PSI CONCRETE

EST. WEIGHT: 2600 LBS.

SIZE: SEE ILLUSTRATION ON THIS PAGE.

PRECAST CONCRETE PAD FOR DEAD-FRONT FUSE CABINET
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description	GRU Stock Code
PRECAST CONCRETE MOUNTING PAD FOR 15 kV 200 AMP DEAD-FRONT FUSE CABINET.	379522

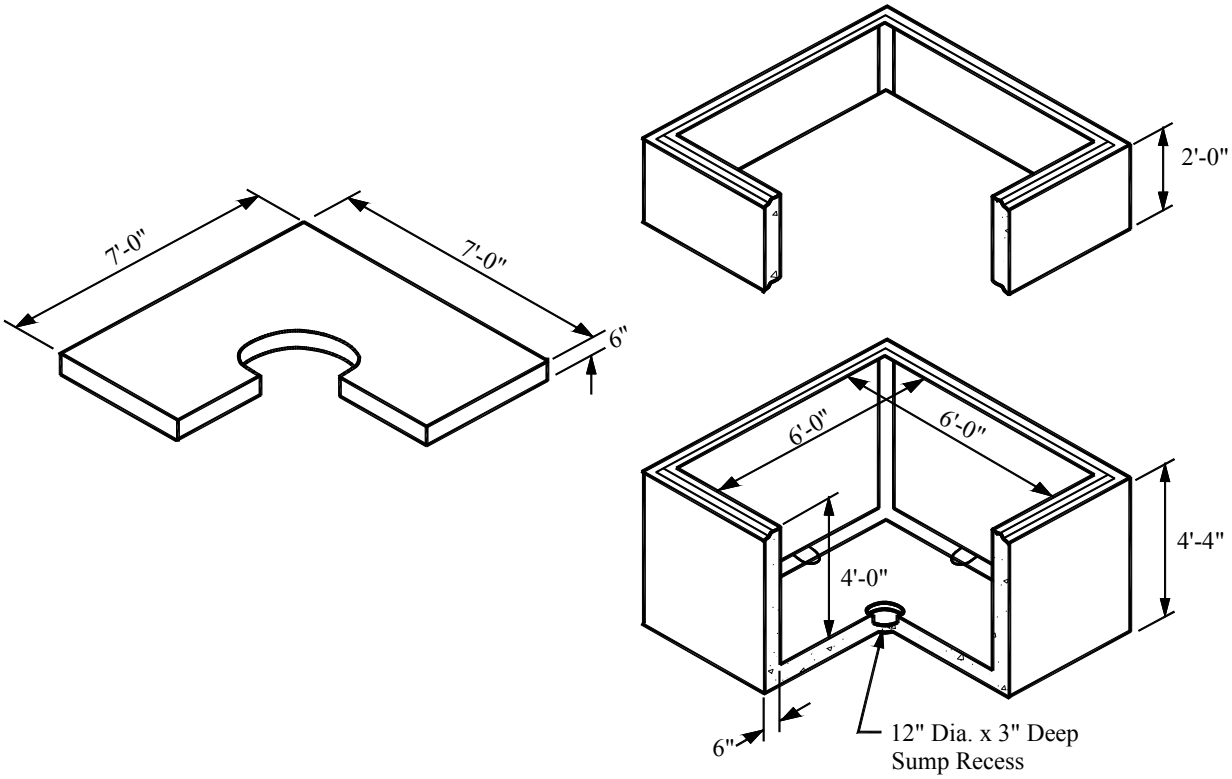
USE #4 REBAR, GRADE 40, PER ILLUSTRATION ABOVE, WITH WEDGE TYPE EXPANSION ANCHOR BOLTS.

WEDGE TYPE EXPANSION ANCHOR BOLT SIZE:
3-3/4" x 1/2" - 13 THREADS PER INCH
(SEE DRAWING ABOVE FOR LOCATION AND HEIGHT OF ANCHOR BOLTS)

MIN. CONCRETE: 3500 PSI CONCRETE

SIZE: SEE ILLUSTRATION ON THIS PAGE.

PRECAST CONCRETE MANHOLE 6’ X 6’ X 4’ w/2’ EXTENSION
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

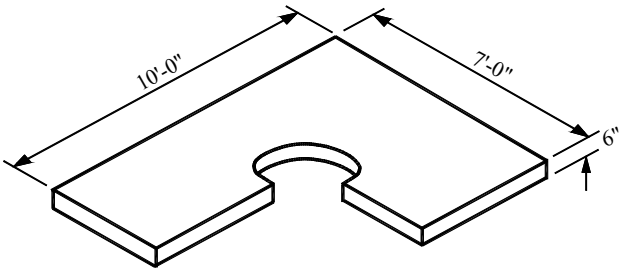


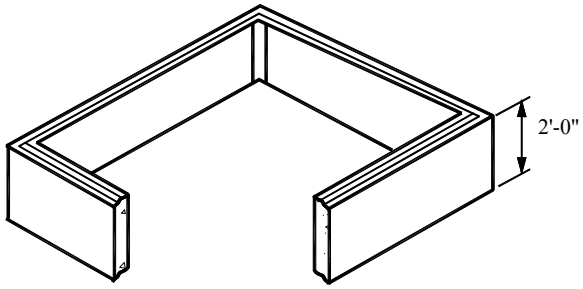
Description	GRU Stock Code
PRE-CAST CONCRETE MANHOLE	
SIZE: 6' X 6' X 4'	706906
PRE-CAST CONCRETE MANHOLE BARREL EXTENSION	
SIZE: 6' X 6' X 2'	706957

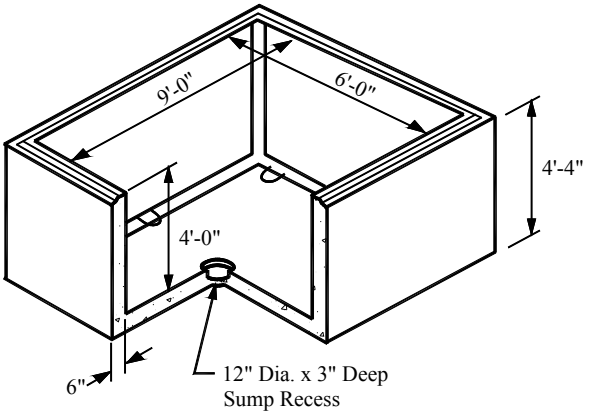
NOTES:

1) REFERENCE TECHNICAL SPECIFICATIONS ON FOL LOWING PAGES.

PRECAST CONCRETE MANHOLE 6’ X 9’ X 4’ w/2’ EXTENSION
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)







Description	GRU Stock Code
PRE-CAST CONCRETE MANHOLE	
SIZE: 6' X 9' X 4'	705926
PRE-CAST CONCRETE MANHOLE BARREL EXTENSION	
SIZE: 6' X 9' X 2'	705977

NOTES:

1) REFERENCE TECHNICAL SPECIFICATIONS ON FOLLOWING PAGES.

TECHNICAL SPECIFICATIONS FOR MANHOLE, PRE-CAST CONCRETE MANHOLE W/BARREL EXTENSION

1. SCOPE

1.1 This specification is for a pre-cast concrete manhole with barrel extensions to be used on underground electric distribution system.

2. APPLICABLE DOCUMENTS

2.1 ASTM C478-80 SPECIFICATIONS FOR PRE-CAST REINFORCED CONCRETE MANHOLES.

3. REQUIREMENTS

3.1 Design Loading shall include dead load, live load, impact, loads due to water table, and any other loads which may be placed on the structure.

1) Live loading shall be for H-20 as specified in the A.A.S.H.O. Standard Specifications for Highway Bridges. The designed wheel load shall be 16 kips.

2) Live load shall be that loading which products the maximum shear and bending moments in the structure.

3.2 Concrete shall have a minimum compressive strength of 4000 psi at 28 days.

1) All aggregates, shall be free of deleterious substances and shall conform to the specifications as covered by ASTM C-33.

2) All cement shall be Portland Cement which conform to ASTM C-150, type 1.

3.3 Steel Reinforcing shall be in accordance with thE applicable sections of ASTM Grade 60 and ASTM Grade 40. The welded wire fabric shall be in accordance with ASTM A185.

3.4 Configuration of the manholes shall be as dimensioned and detailed on page M-1.03, in the GRU Approved ElectricSystem Materials Manual.

1) The minimum wall thickness on all sides shall be 6inches.

~~2) The manholes shall be furnished with 2 Ft. x 2 Ft. square knockouts, minimum wall thickness at knockouts to be 2-1/4". The knockouts shall be located on all four sides of the manhole as shown on the drawing on page M-1.03, in the GRU Approved Electric System Materials Manual.~~

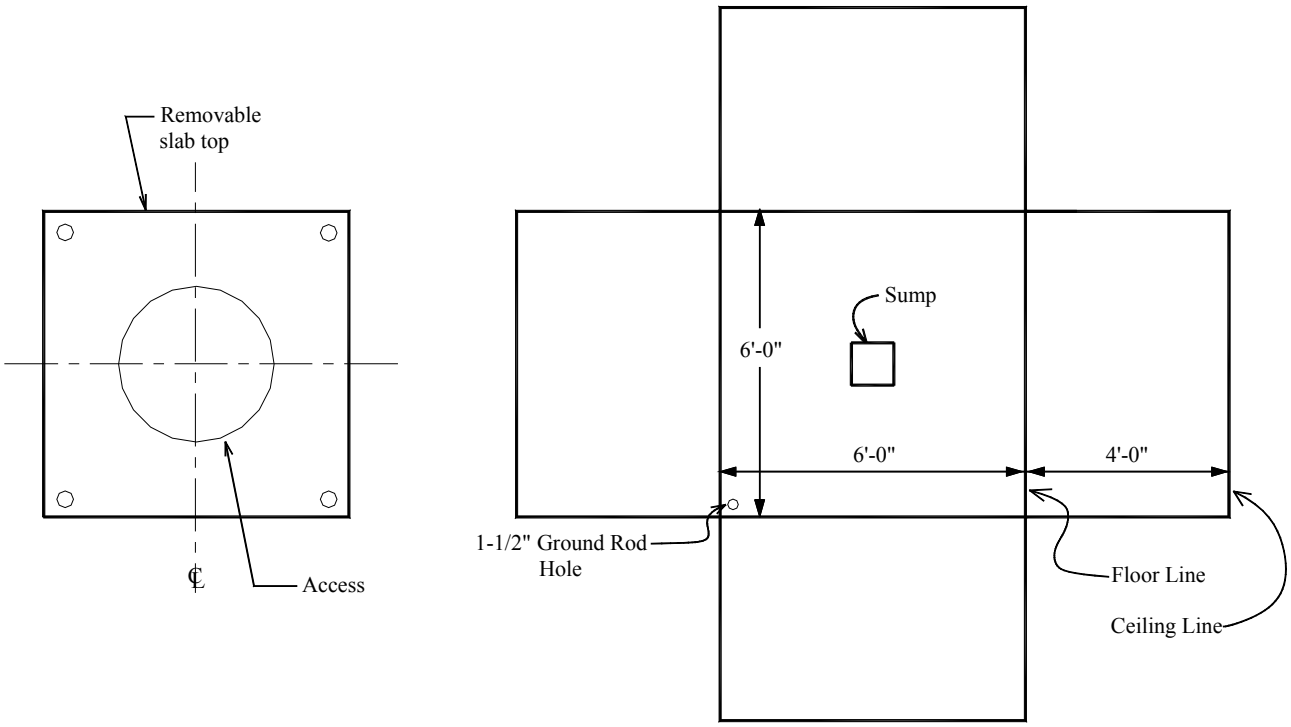
3) The manhole shall include a 12 inch diameter, 3 inch deep sump recess.

4) Pulling irons shall be provided and installed on all four sides (upper and lower) as shown on the drawing on page M-1.03, in the GRU Approved Electric System Material Manual.

3.5 Pre-cast Top. The pre-cast top shall have a minimum wall thickness of 6" and shall be completely removable, with adequate lifting provisions. The pre-cast top shall be constructed to allow for installation of a circular manhole ring and cover with a 36" clear opening.

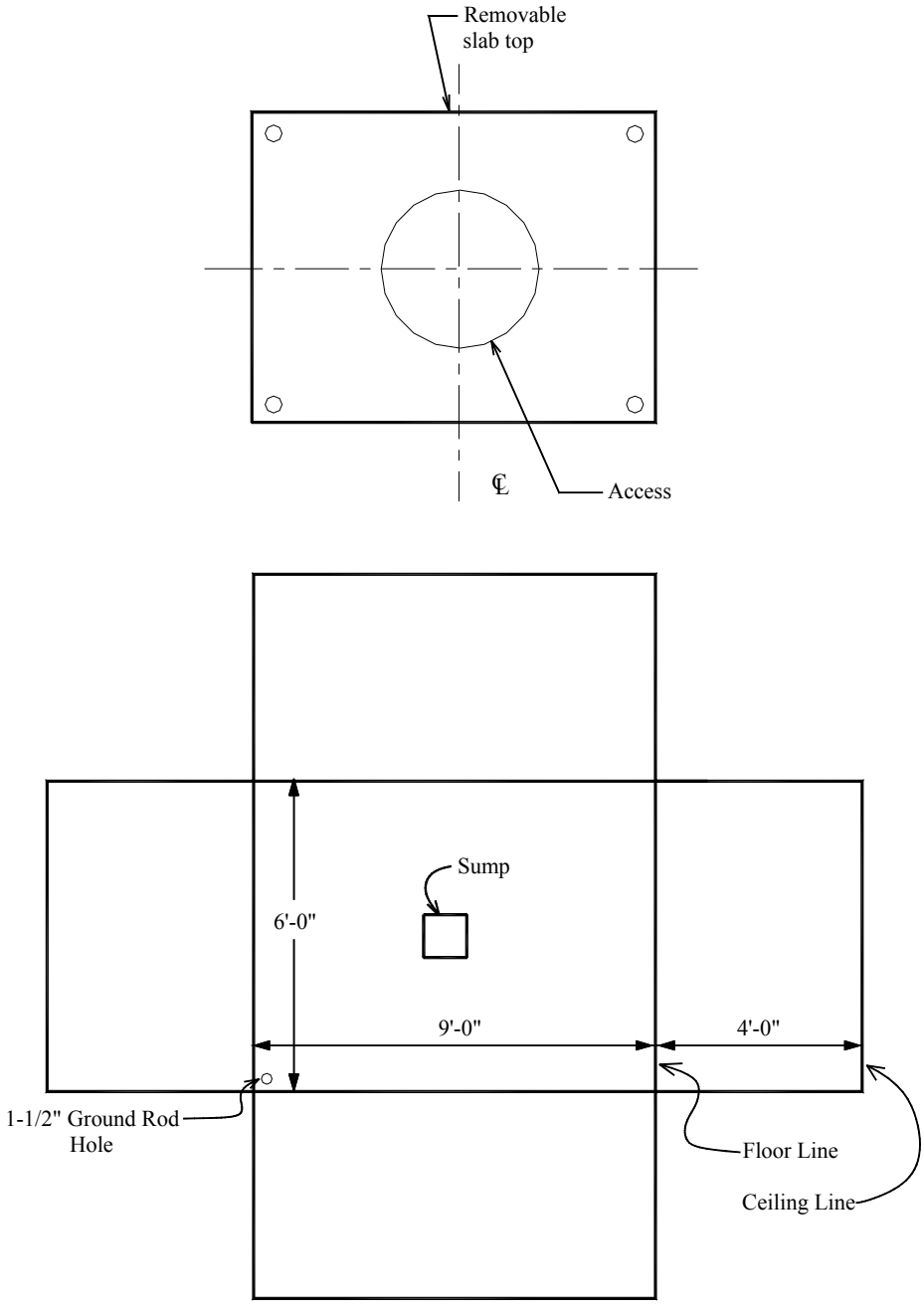
3.6 Adequate lifting provisions shall be furnished to permit handling and placement of the manhole.

TECHNICAL SPECIFICATIONS FOR MANHOLE, PRE-CAST CONCRETE 6’ X 6’ X 4’ MANHOLE W/BARREL EXTENSION
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



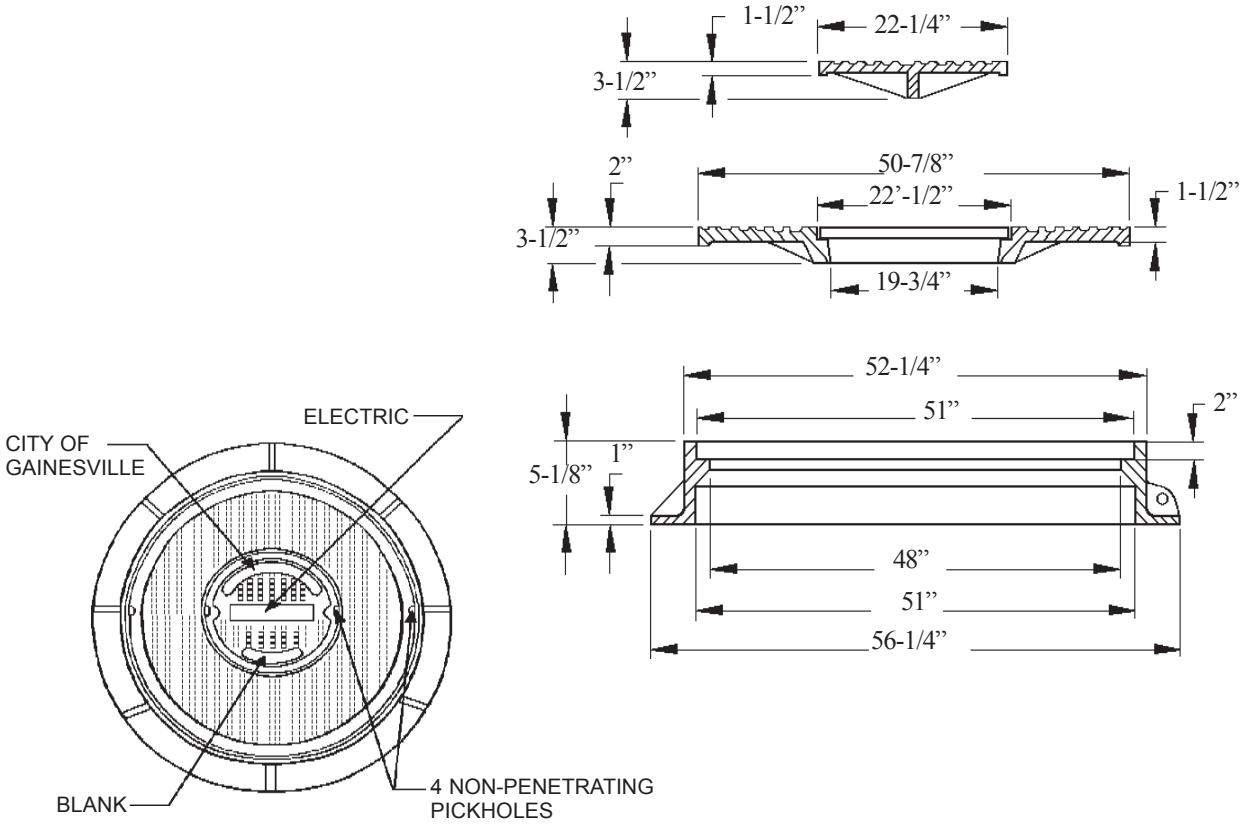
Dimensional Layout

TECHNICAL SPECIFICATIONS FOR MANHOLE, PRE-CAST CONCRETE 6' X 9' X 4' MANHOLE W/BARREL EXTENSION
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



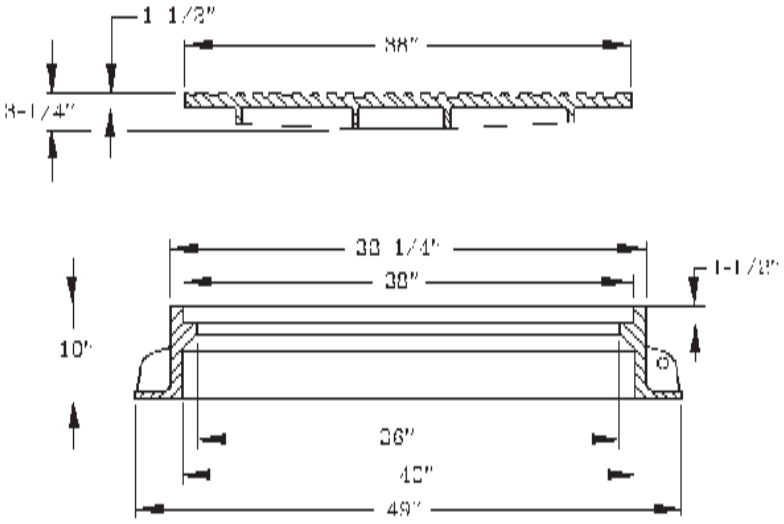
Dimensional Layout

RINGS & DOUBLE COVERS FOR MANHOLES
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)

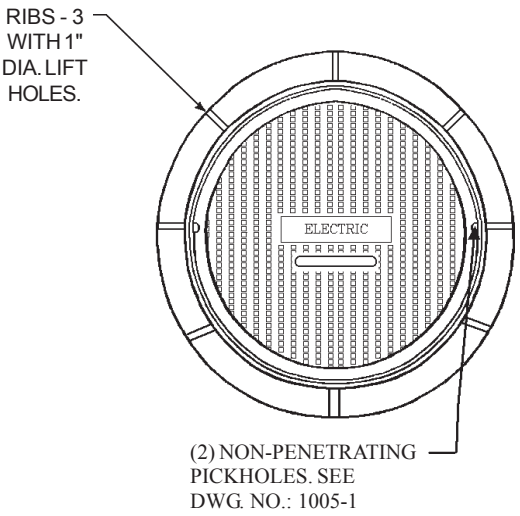


Description	GRU Stock Code
MANHOLE RINGS & DOUBLE COVERS, WITH MACHINED HORIZONTAL BEARING SURFACES. NON-PENETRATING PICK-HOLES. ACCESS LID TYPE “M”, HEAVY DUTY. 105 LBS. (SEE ILLUSTRATION ABOVE) LOAD RATING: HEAVY DUTY (HIGHWAY TRAFFIC LOADS, OR 16,000 LBS. WHEEL LOADS) PROOF LOAD TEST: 25,000 LBS. (REF. FED SPEC. RR-F-621C) COVER WEIGHT: 780 LBS. TOTAL WEIGHT: 1105 LBS. PAINT APPLICATION: NONE	809896

RING & SINGLE COVER FOR MANHOLE
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



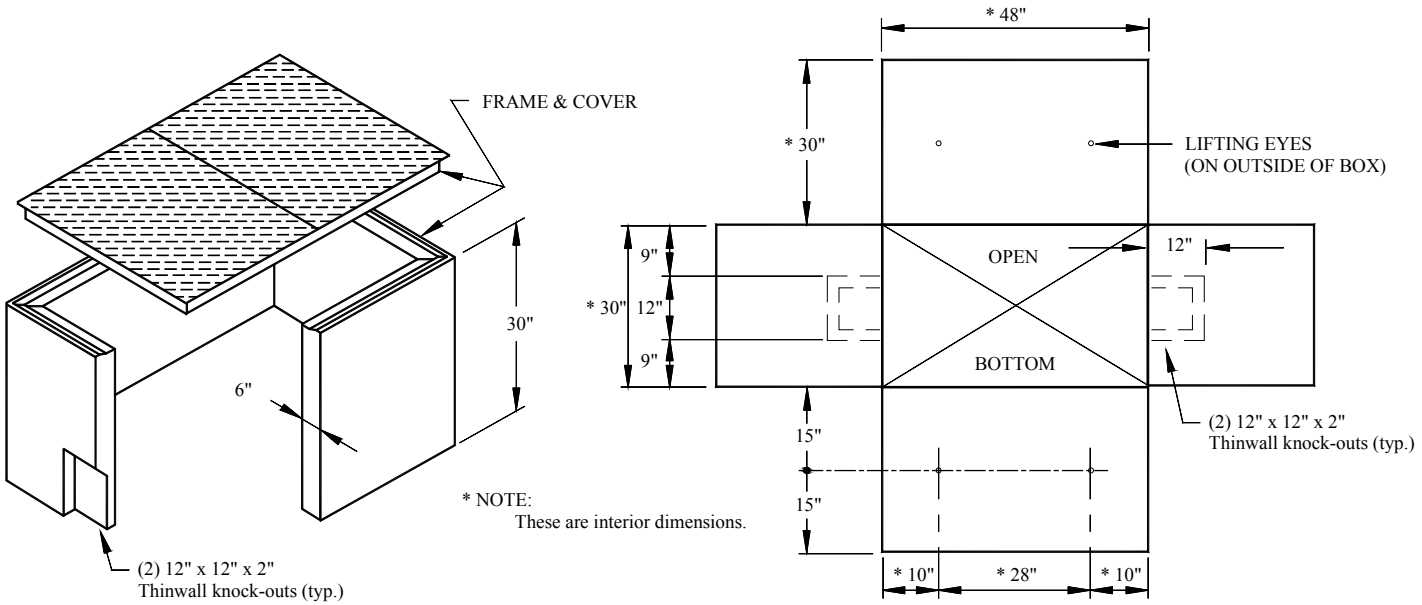
RING



COVER

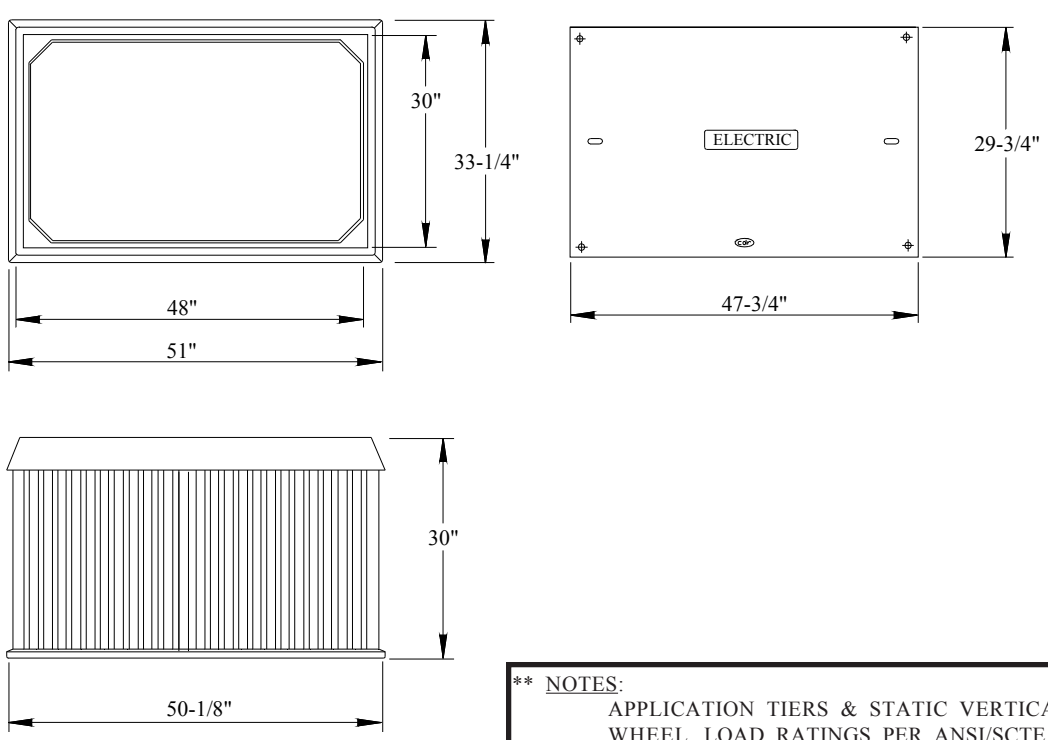
Description	GRU Stock Code
MANHOLE RING & SINGLE COVER, WITH MACHINED HORIZONTAL BEARING SURFACES. NON-PENETRATING PICK-HOLES AND DROP-IN HANDLE. ACCESS LID TYPE "AZ", HEAVY DUTY. COVER WEIGHT: 475 LBS. (SEE ILLUSTRATION ABOVE) TOTAL WEIGHT: 875 LBS. PAINT APPLICATION: NONE	809942

UD JUNCTION BOX "ELECTRIC" (CONCRETE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description	GRU Stock Code
UD JUNCTION BOX, MADE OF CONCRETE 5000 PSI @ 28 DAYS, REINFORCING GRADE 60, 6" THICK WALLS, OPEN BASE (BOTTOM), (4) LIFTING EYES	
"ELECTRIC" (PRINTED ON COVER) SIZE: 30" x 48" x 30" D (INSIDE DIMENSIONS) WITH 30" X 48" GALVANIZED FRAME & 2 PIECE METAL COVER 12" x 12" x 2" THINWALL KNOCK-OUT	56927-5
LOAD RATING: AASHTO H-20 ROADWAY HEAVY TRAFFIC	
"FIBER OPTIC" (PRINTED ON COVER) SIZE: 30" x 48" x 30" D (INSIDE DIMENSIONS) WITH 30" X 48" GALVANIZED FRAME & 2 PIECE METAL COVER 12" x 12" x 2" THINWALL KNOCK-OUT	45392-7
LOAD RATING: AASHTO H-20 ROADWAY HEAVY TRAFFIC	
WEIGHTS: 1,661 LBS. (APPROX.)	

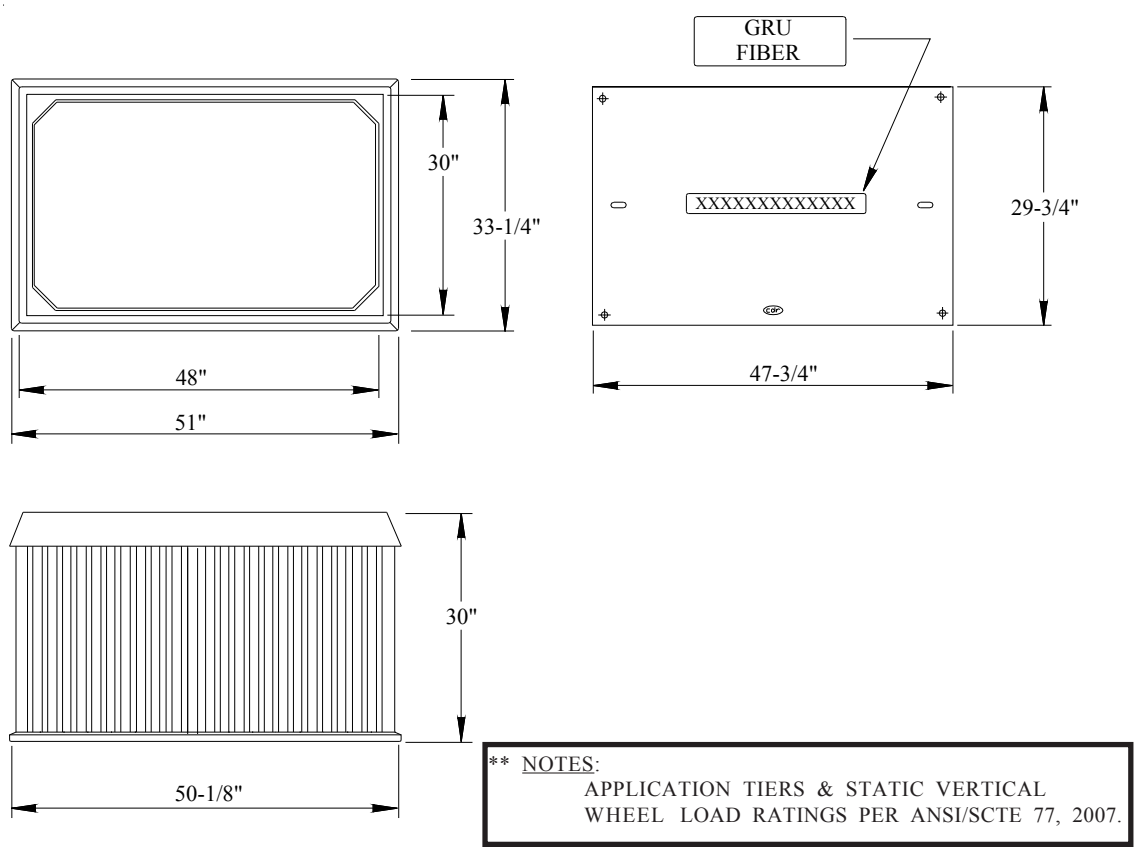
UD JUNCTION BOX "ELECTRIC" (POLYMER CONCRETE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



** NOTES:
APPLICATION TIERS & STATIC VERTICAL WHEEL LOAD RATINGS PER ANSI/SCTE 77, 2007.

Description	GRU Stock Code
ELECTRIC UD JUNCTION BOX. BOX AND COVER CONSTRUCTION: 1) WALLS SHALL BE MADE OF CORRUGATED REINFORCED POLYESTER, POLYMER CONCRETE OR CORRUGATED FIBERGLASS REINFORCED POLYMERS. 2) COLLAR AND COVER SHALL BE MADE OF POLYMER CONCRETE. 3) COVER SHALL BE MARKED WITH "ELECTRIC" 4) JUNCTION BOX SHALL BE FURNISHED WITH (4) LIFTING EYES OR BOLTS 5) 1/2" CAPTIVE PENTA HEAD STAINLESS STEEL BOLTS SHALL BE USED FOR THE COVER AND SHALL BE PERMANENTLY SECURED IN SLOTS 6) 1/2" - 13 LOCK DOWN NUTS SHALL BE MADE OF BRASS, BRONZE OR GALVANIZED STEEL (STAINLESS STEEL NUTS SHALL NOT BE USED TO PREVENT GALLING.) 7) THE LIFTING POCKETS SHALL BE 5/8" (MIN.) TO 3/4" X 4".	
SIZE: 30" x 48" x 30" D, WITH "ELECTRIC" ON TOP	192694
** LOAD RATING: TIER 8 (8,000 LBS. - VERTICAL DESIGN LOAD)	
WEIGHT: TIER 8 = 374 LBS. TO 511 LBS.	

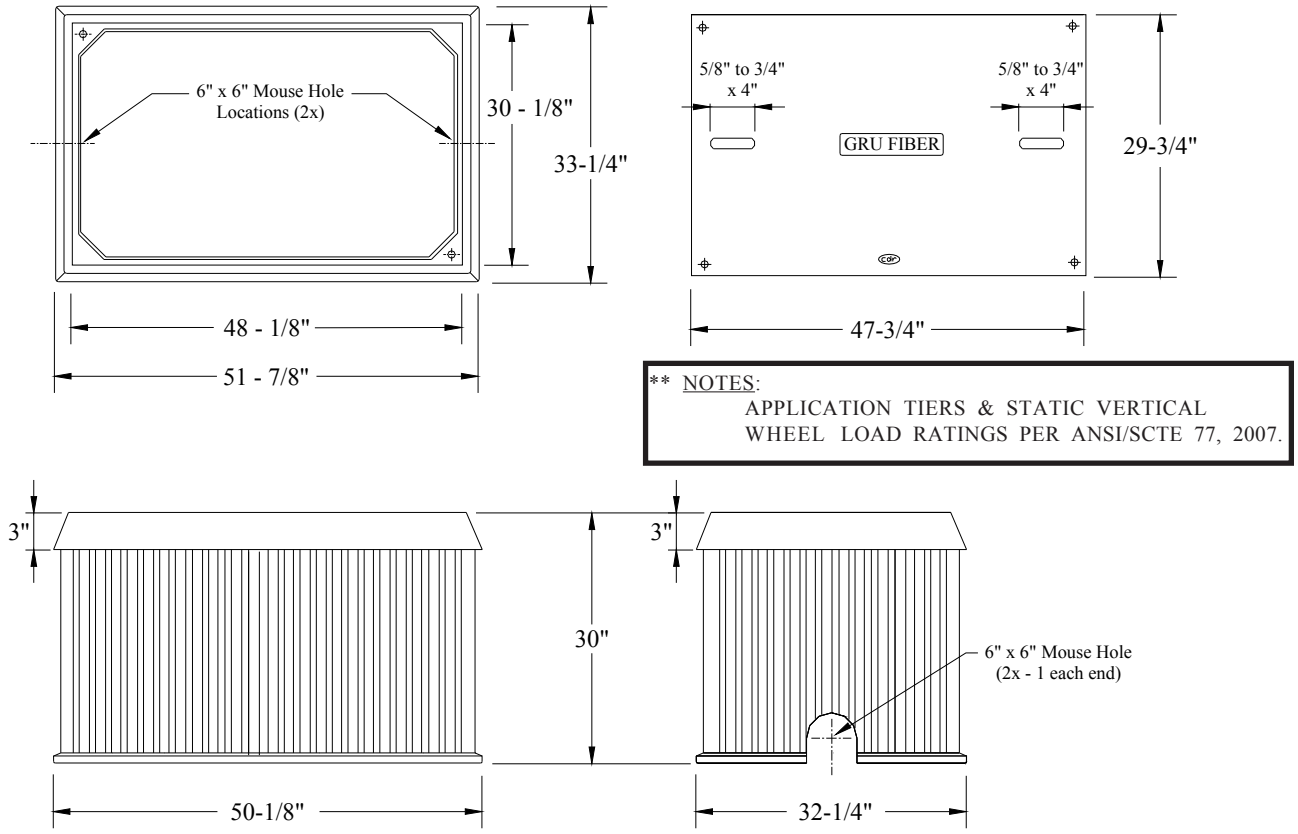
UD JUNCTION BOX “GRU FIBER” (POLYMER CONCRETE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



** NOTES:
APPLICATION TIERS & STATIC VERTICAL WHEEL LOAD RATINGS PER ANSI/SCTE 77, 2007.

Description	GRU Stock Code
FIBER OPTIC UD JUNCTION BOX. BOX AND COVER CONSTRUCTION: 1) WALLS SHALL BE MADE OF CORRUGATED REINFORCED POLYESTER, POLYMER CONCRETE OR CORRUGATED FIBERGLASS REINFORCED POLYMERS. 2) COLLAR AND COVER SHALL BE MADE OF POLYMER CONCRETE. 3) COVER SHALL BE MARKED WITH "GRU FIBER" 4) JUNCTION BOX SHALL BE FURNISHED WITH (4) LIFTING EYES OR BOLTS 5) 1/2" CAPTIVE PENTA HEAD STAINLESS STEEL BOLTS SHALL BE USED FOR THE COVER AND SHALL BE PERMANENTLY SECURED IN SLOTS 6) 1/2" - 13 LOCK DOWN NUTS SHALL BE MADE OF BRASS, BRONZE OR GALVANIZED STEEL (STAINLESS STEEL NUTS SHALL NOT BE USED TO PREVENT GALLING.) 7) THE LIFTING POCKETS SHALL BE 5/8" (MIN.) TO 3/4" X 4".	
SIZE: 30" x 48" x 30" D WITH "GRU FIBER" ON THE TOP	412007
** LOAD RATING: TIER 15 (15,000 LBS, - VERTICAL DESIGN LOAD)	
WEIGHT: TIER 15 = 434 LBS. TO 511 LBS.	

UD JUNCTION BOX "GRU FIBER" with 6 X 6" Mousehole (POLYMER CONCRETE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description

GRU Stock Code

FIBER OPTIC UD JUNCTION BOX WITH 6" X 6" MOUSEHOLES BOX AND COVER CONSTRUCTION:

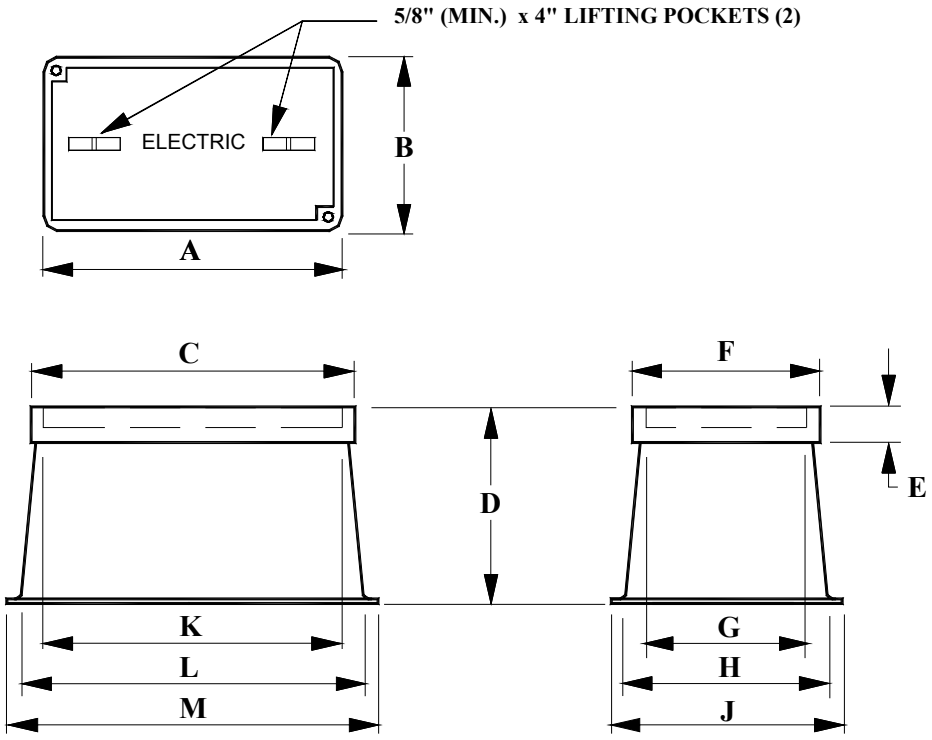
1) WALLS SHALL BE MADE OF CORRUGATED REINFORCED POLYESTER, POLYMER CONCRETE OR CORRUGATED FIBERGLASS REINFORCED POLYMERS.
2) COLLAR AND COVER SHALL BE MADE OF POLYMER CONCRETE.
3) COVER SHALL BE MARKED WITH "GRU FIBER"
4) JUNCTION BOX SHALL BE FURNISHED WITH (4) LIFTING EYES OR BOLTS
5) 1/2" CAPTIVE PENTA HEAD STAINLESS STEEl BOLTS SHALL BE USED FOR THE COVER ANd SHALL BE PERMANENTLY SECURED IN SLOTS
6) 1/2" - 13 LOCK DOWN NUTS SHALL BE MADE OF BRASS, BRONZE OR GALVANIZED STEEL (STAINLESS STEEL NUTS SHALL NOT BE USED To PREVENT GALLING.)
7) THE LIFTING POCKETS SHALL BE 5/8" (MIN.) TO 3/4" X 4".

SIZE: 30" x 48" x 30" WITH "**GRU FIBER**" ON THE TOP 42350-5

** LOAD RATING: TIER 15 (15,000 LBS, - VERTICAL DESIGN LOAD)

WEIGHT: TIER 15 = 434 LBS. TO 511 LBS.

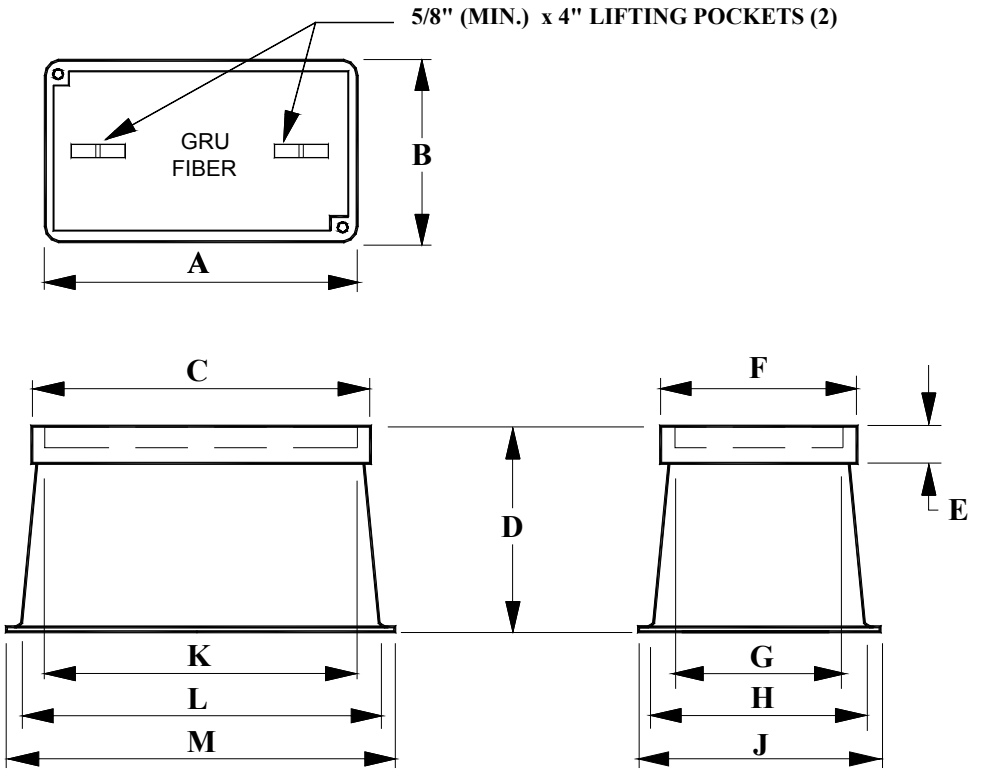
UD "ELECTRIC" SERVICE ENCLOSURE (POLYMER CONCRETE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



DIMENSIONS:
A = 30-1/2"
B = 17-1/2"
C = 30-3/4" to 32-3/4"
D = 18" to 19"
E = 3-1/2" to 4"
F = 19-3/4"
G = 15-15/16" to 16"
H = 23-1/2" to 23-5/8"
J = 27-3/4" to 33"
K = 27-1/2" to 28-61/64"
L = 35" to 36-1/4"
M = 40-1/4" to 41"

Description	GRU Stock Code
*U*D ELECTRIC SERVICE ENCLOSURE. ENCLOSURE AND COVER CONSTRUCTION: 1) COVER AND RING SHALL BE MADE OF POLYMER CONCRETE, FLARED BOX (BASE) SHALL BE MADE OF SMOOTH FINISHED LAY UP OR FORMED FIBERGLASS. 2) COVER SHALL BE MARKED WITH "ELECTRIC" 3) 1/2" CAPTIVE PENTA HEAD STAINLESS STEEL BOLTS SHALL BE USED FOR THE COVER AND SHALL BE PERMANENTLY SECURED IN SLOTS 4) 1/2" - 13 LOCK DOWN NUTS SHALL BE MADE OF BRASS, BRONZE OR GALVANIZED STEEL (STAINLESS STEEL NUTS SHALL NOT BE USED TO PREVENT GALLING.) 5) THE LIFTING POCKETS SHALL BE 5/8" (MIN.) TO 1" X 4".	
SIZE: NOMINAL DIMENSIONS: 17" X 30" X 18" (SEE ILLUSTRATION ABOVE) LOAD RATING: TIER 8 (8,000 LBS. - VERTICAL DESIGN LOAD) WEIGHT: TIER 8 = 105 LBS. TO 138 LBS.	33195-3
SIZE: NOMINAL DIMENSIONS: 17" X 30" X 18" (SEE ILLUSTRATION ABOVE) LOAD RATING: TIER 15 (15,000 LBS. - VERTICAL DESIGN LOAD) WEIGHT: TIER 15 = 115 LBS. TO 290 LBS.	29214-1

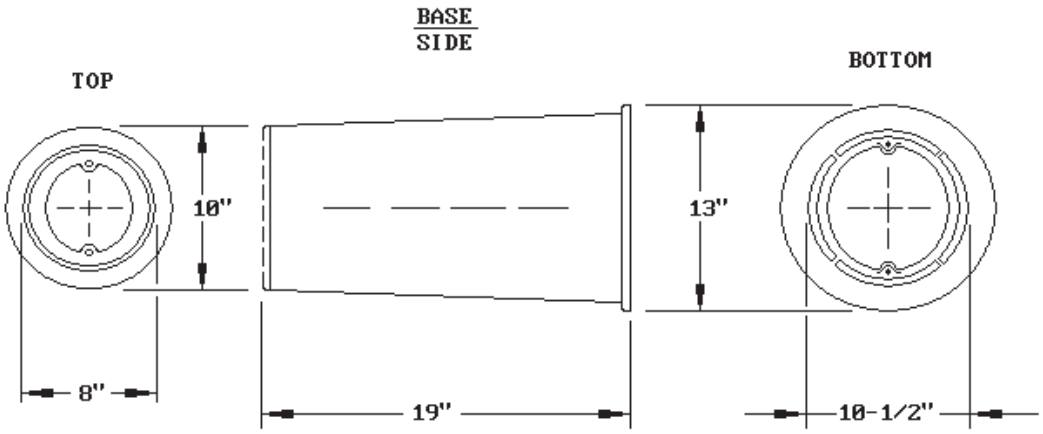
UD "FIBER OPTIC CABLE" SERVICE ENCLOSURE (POLYMER CONCRETE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



DIMENSIONS:
A = 30-1/2"
B = 17-1/2"
C = 30-3/4" to 32-3/4"
D = 18" to 19"
E = 3-1/2" to 4"
F = 19-3/4"
G = 15-15/16" to 16"
H = 23-1/2" to 23-5/8"
J = 27-3/4" to 33"
K = 27-1/2" to 28-61/64"
L = 35" to 36-1/4"
M = 40-1/4" to 41"

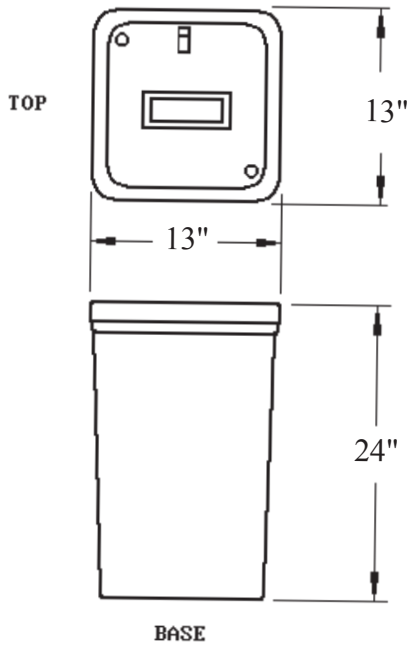
Description	GRU Stock Code
UD FIBER OPTIC SERVICE ENCLOSURE. ENCLOSURE AND COVER CONSTRUCTION: 1) COVER AND RING SHALL BE MADE OF POLYMER CONCRETE, FLARED BOX (BASE) SHALL BE MADE OF SMOOTH FINISHED LAY UP OR FORMED FIBERGLASS. 2) COVER SHALL BE MARKED WITH "GRU FIBER" 3) 1/2" CAPTIVE PENTA HEAD STAINLESS STEE BOLTS SHALL BE USED FOR THE COVER AND SHALL BE PERMANENTLY SECURED IN SLOTS 4) 1/2" - 13 LOCK DOWN NUTS SHALL BE MADE OF BRASS, BRONZE OR GALVANIZED STEEL (STAINLESS STEEL NUTS SHALL NOT BE USED TO PREVENT GALLING.) 5) THE LIFTING POCKETS SHALL BE 5/8" (MIN.) TO 1" X 4". SIZE: NOMINAL DIMENSIONS: 17" X 30" X 18" (SEE ILLUSTRATION ABOVE) LOAD RATING: TIER 15 (15,000 LBS. - VERTICAL DESIGN LOAD) WEIGHT: TIER 15 = 115 LBS. TO 290 LBS.	703303

ENCLOSURE, BURIED WIRE (ROUND)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



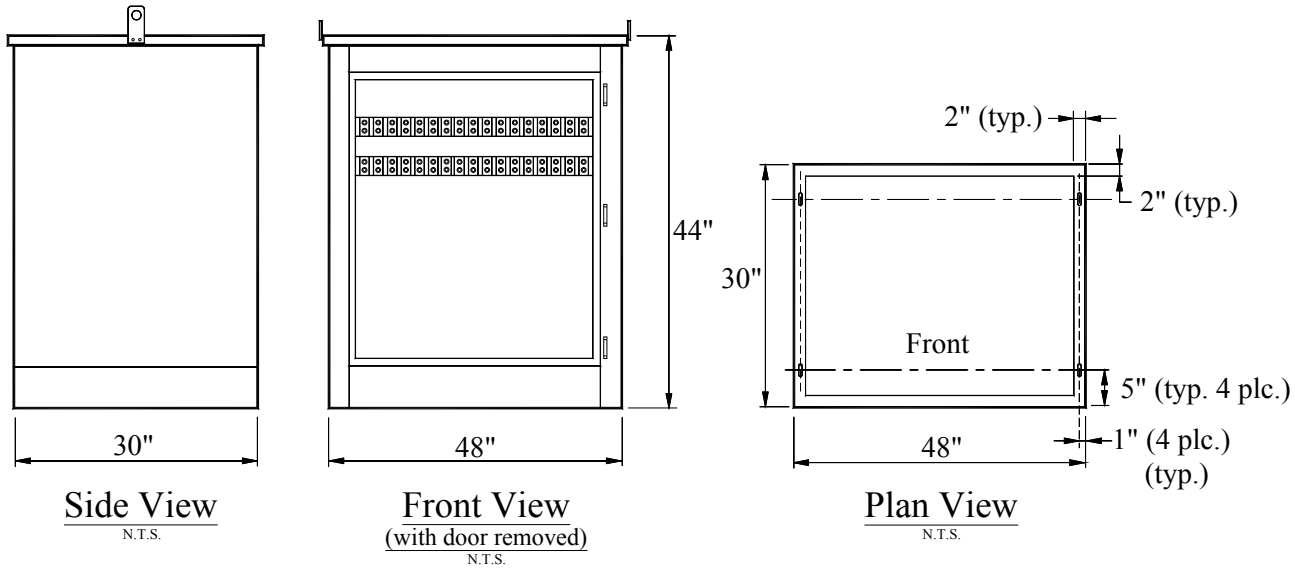
Description	GRU Stock Code
ROUND BURIED ENCLOSURE TYPE PE-10, MADE OF HIGH DENSITY POLYETHYLENE. WEIGHT: BOX & LID 6 LBS. COLOR: AVOCADO GREEN HARDWARE: TWO 3/8" - 16 X 1-1/4" PENTA HEAD STAINLESS STEEL BOLTS. VERTICAL LOAD: 5,00 LBS. SIZE: AS ILLUSTRATED IN THE DIAGRAM ABOVE.	652954

ENCLOSURE, BURIED WIRE (SQUARE)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Description	GRU Stock Code
SQUARE BURIED WIRE ENCLOSURE, STANDARD NO FLOOR, MADE OF POLYMER CONCRETE WEIGHT BOX: 52 LBS. WEIGHT COVER: 9 LBS. STATIC LOAD CAPACITY: 20,000 LBS. HARDWARE: 2- BOLTS (PENTA HEAD) SIZE: BOX (14" X 14" X 24") AND COVER (12-7/8" X 12-7/8")	415324

ENCLOSURE, PAD-MOUNTED TERMINATION (24 POSITION)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



Side View
N.T.S.

Front View
(with door removed)
N.T.S.

Plan View
N.T.S.

THE INSTALLATION OF THIS EQUIPMENT MUST BE PRE-APPROVED BY GRU ENGINEERING

(THIS ITEM SHALL BE SPECIFIED BY GRU AND PURCHASED AND INSTALLED BY THE CUSTOMER)

THIS ENCLOSURE IS DELETED AND IS NO LONGE APPROVED

Description

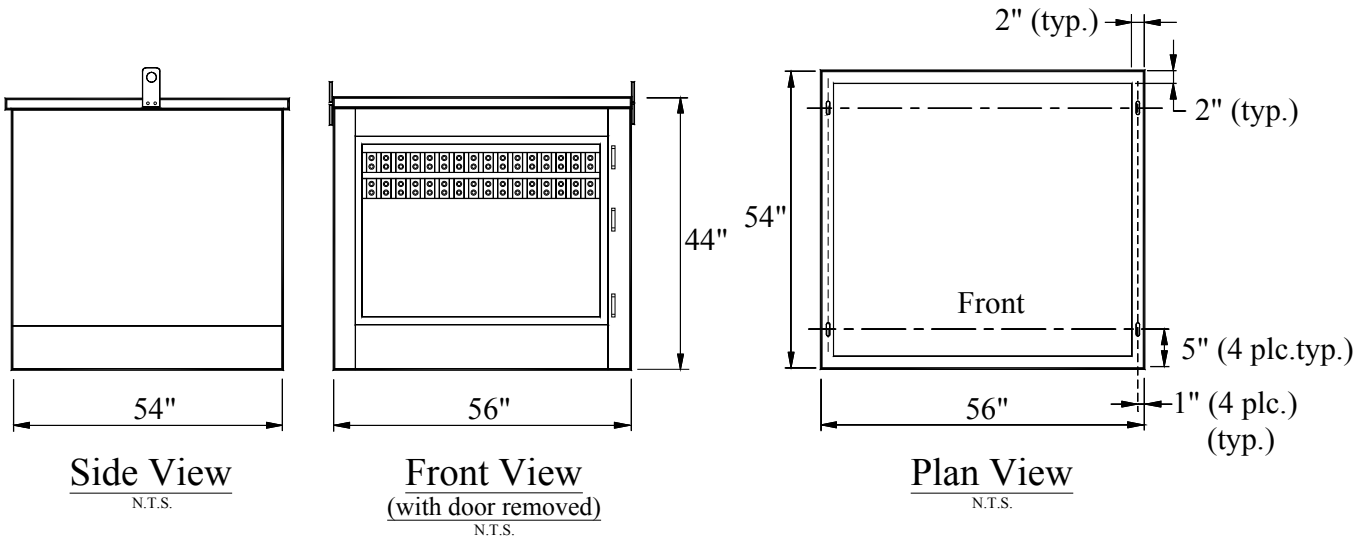
PAD-MOUNTED TERMINATION ENCLOSURE, USED WHEN A
TERMINATIONS FOR A CUSTOMER IS NEEDED. MEETS
ANSI C57 - 12.28. NEMA 3R RAIN-PROOF ENLCLO
TOP.

40211-7

SPECIFICATIONS:

ENCLOSURE MATERIAL:	
CONSTRUCTION:	
MOUNTING	
HARDW	STEEL
DIMENSI	D. X 44"H.
LID:	OVABLE
REV. DOORS:	REMOVABLE SWINGING, STAINLESS STEEL 3-POINT LOCKING HANDLES & STAINLESS STEEL PENTA-HEAD BOLT FOR SECURITY
COLOR:	MUNSEL GREEN
ELECTRIC RATING:	600 VOLTS
FAULT CURRENT:	**VERIFY FAULT CURRENTRATING MEETS APPLICATION REQUIREMENTS,**
U.L. AMP. RATING:	ALUMINUM - 3720 AMPS COPPER - 4560 AMPS
BUS:	LAY-IN BUS BAR
NO. BUS POSITIONS:	(24) #2 AWG - 750 MCM PER BUS

ENCLOSURE, PAD-MOUNTED TERMINATION (30 POSITION)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



THE INSTALLATION OF THIS EQUIPMENT MUST BE PRE-APPROVED BY GRU ENGINEERING

(THIS ITEM SHALL BE SPECIFIED BY GRU AND PURCHASED AND INSTALLED BY THE CUSTOMER)

Description	GRU Stock Code
PAD-MOUNTED TERMINATION ENCLOSURE, USED WHEN ADDITIONAL TERMINATIONS FOR A CUSTOMER IS NEEDED. MEETS OR EXCEEDS ANSI C57 - 12.28. NEMA 3R RAIN-PROOF ENLCLOSURE W/LIFT-OFF TOP.	
SPECIFICATIONS:	40216-8
ENCLOSURE MATERIAL: ALUMINUM	
CONSTRUCTION: ALL-WELDED	
MOUNTING HARDWARE: 18-8 STAINLESS STEEL	
DIMENSIONS: 56"W. X 54"D. X 44"H.	
LID: REMOVABLE	
DOORS: REMOVABLE SWINGING, STAINLESS STEEL 3-POINT LOCKING HANDLES & STAINLESS STEEL PENTA-HEAD BOLT FOR SECURITY	
COLOR: MUNSEL GREEN	
ELECTRIC RATING: 600 VOLTS	
FAULT CURRENT: **VERIFY FAULT CURRENTRATING MEETS APPLICATION REQUIREMENTS,**	
U.L. AMP. RATING: ALUMINUM - 3720 AMPS COPPER - 4560 AMPS	
BUS: LAY-IN BUS BAR	
NO. BUS POSITIONS: (30) #2 AWG - 750 MCM PER BUS	

Customer Owned Meter Enclosure For Self-Contained

Watt-Hour Meter Specification

The Contractor/Developer is responsible for verifying approved materials listed in this Energy Delivery Service Guide Appendices before construction.

Approved manufacturers and their catalog numbers can be viewed on the GRU Web Site. See Appendix - W, in this guide for instructions on how to "Look-Up" information on the GRU Web Site.

Please note revised information in this guide will be printed in "*Italics*".

Table of Contents

1.0 SCOPE

1.1 This Specification covers general and specific requirements applicable to self-contained watt-hour meter sockets. All other components that are an integral part of the enclosure shall be listed with Underwriters Laboratories, Inc. (UL) Product Listing Program.

2.0 STANDARDS:

2.1 All general requirements, ratings, definitions and terminology, except those covered in this specification shall be in accordance with the latest revision of the following publications and all publications referenced therein:

1) American National Standard Requirements for Watt-hour Meter Sockets, **ANSI C12.7.**

2) American National Standard Safety Standard for Electric Cabinets and Boxes, **ANSI/UL 50.**

3) American National Standard on Enclosures for Electrical Equipment (1000 Volts Maximum), **ANSI/NEMA 250.**

4) American National Standard Safety Standard for Meter Sockets, **ANSI/UL 414.**

5) American Society for Testing and Materials Standard Method of Salt Spray (Fog) Testing, **ASTM Designation: B 117.**

6) American Society for Testing and Materials Specifications for Electrodeposited Coatings of Cadmium on Steel, **ASTM Designation: A165.**

7) American Society for Testing and Materials Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) by the Hot-Dip Process, **ASTM Designation: A 525.**

8) American Society for Testing and Materials Standard for Aluminum and Aluminum Alloy Sheet and Plate, **ASTM Designation: 13209.**

9) **ANSI/NFPA 70** - National Electrical Code (NEC)

10) Standard for Safety for Dead-Front Switchgear, UL 891.

11) All applicable city, county, state and federal ordinances and regulations.

12) Most current issue of Energy Delivery Service Guide.

3.0 DEFINITIONS:

3.1 Block Assembly: The entire assembly mounted in the enclosure to include jaws, terminals, bypass and the mounting hardware.

3.2 Continuous-Duty Current Rating: The rating in amperes which a meter socket will carry continuously under stated conditions, without exceeding the allowable temperature rise.

3.3 Continuous Load: A load where the current continues for three (3) hours or more.

3.4 Enclosure (Socket Enclosure): The housing including cover to which an assembly of jaws, terminals and bypass (if specified), mounted on an insulating base, are attached.

3.5 Jaws (Socket Jaws): The receiver mechanism that accommodates the bayonet-type blades of detachable watt-hour meter.

~~*3.6 K-Base meter bases: Meter mounting device designed to accept the (bolt-in) K-Base Class meters.*~~

3.7 Manual Lever Operated Bypass (Bypass): An assembly of parts that when properly operated, closes the circuit between the line and load jaws.

3.8 Meter/Breaker Combination Socket: Service entrance device that contains meter mounting and disconnecting means on the load side of the meter.

3.9 Meter Socket (Socket): An enclosure which has matching jaws to accommodate the bayonet-type (blade) terminals of a detachable watt-hour meter and has a means of connections for the termination of the circuit conductors. It may be a single-position socket for one (1) meter or a multi-position trough socket for two (2) or more meters.

3.10 Ring-Type Meter Socket: A meter socket that has a socket rim.

311 Ringless-Type Meter Socket: A meter socket that has no provision for a socket sealing ring but has other means of holding a detachable waft-hour meter in place, such as a cover which is secured in place by a latch/hasp assembly.

3.12 Self-contained Metering: Metering that consists of a revenue meter connected in series with the load and installed directly into a jaw-type or bolted type meter socket.

3.13 Socket Cover: The removable portion of the enclosure that provides access to the meter socket wiring.

3.14 Socket Rim: That part of a ring-type meter socket which is required to accommodate the socket-sealing ring which holds a detachable watt-hour meter in place.

3.15 Socket Sealing Ring: A (captive screw sealing) ring used to overlap the socket rim and the detachable watt-hour meter to hold and provide a means for sealing a detachable watt-hour meter in place.

3.16 Terminals (Socket Terminals): The point of connection to the line or load conductors.

4.0 PERFORMANCE REQUIREMENTS:

4.1 Performance requirements for meter sockets shall be in accordance with applicable performance sections of **ANSI/UL 414**.

5.0 CONSTRUCTION AND WORKMANSHIP:

5.1 The meter socket enclosers shall be constructed of steel or aluminum and shall be made and finished with a high degree of uniformity and in a workmanlike manner. The enclosures shall be made in accordance with **ANSI/UL 50** standard for Cabinets and Boxes. Steel enclosures to be approved for outdoors use shall be galvanized with a coating designation of G-90 (or equivalent). Any other materials or coatings must be approved. (Refer to section 12.0 - Deviations from this specification, page C-10).

1) After fabrication the steel enclosure shall be painted. Aluminum enclosures may be painted after fabrication. All finish coats shall be a minimum of 3 mils thickness and shall provide a tough non-chalking weather resistant finish.

5.2 All components of the meter enclosure will be completely assembled and tightened to manufacturers specifications before being shipped.

5.3 Enclosure Type. If the enclosure is to be approved for outdoor use, it shall be **NEMA Type 3R** and shall meet **ANSI/UL 50** requirements.

1) If the enclosure is approved for indoor use, it shall be **NEMA Type 1 or 3R**.

5.4 All multiple position sockets shall be designed such that after mounting, the centerline of the lowest meter shall be a minimum of 22 inches above finished grade while the centerline of the highest meter shall not exceed 72 inches from the finished grade level.

5.5 All painted parts shall be pre-treated and provided with a corrosion-resistant, UL recognized acrylic baked paint finish. The color shall be **ANSI 49** medium light gray per **ANSI Standard 255.1-1967**. All exterior parts shall be of galvanized steel. All exterior hardware shall be zinc-plated steel.

5.6 The entire socket assembly shall be suitable for operation at the specified available fault current. The equipment shall be labeled to indicate the maximum available fault current rating, taking into account the structure, bussing, main disconnects, and tenant disconnects.

5.7 The through bussing shall be tin-plated aluminum and shall be of sufficient cross-sectional area to meet **UL Standard 891** for temperature rise.

5.8 For meter centers and ganged sockets the through bussing shall extend the full length of the equipment and be 100% rated throughout the line-up. Tapered bus is not acceptable. There shall be provisions for future splicing of additional sections from either end.

5.9 The neutral bus shall be 100% rated. The ground bus shall be sized per **UL Standard 891**, and of the same material as the through bus.

5.10 Block assemblies shall be mounted in the enclosure so that the entire base structure is firmly supported with no flexing under field use.

5.11 All work pertaining to fabrication, corrosion protection and painting processes are subject to inspection by GRU.

5.12 Pedestal type meter enclosures shall be designed so that after mounting the centerline of the meter shall be a minimum of 42 inches and a maximum of 60 inches above finished grade. The disconnecting means (live working parts) shall be a minimum of 24 inches above finished grade.

5.13 All Multi-Compartment enclosures shall be constructed such that line and load compartments are separated by a strong and stable barrier. The load wiring shall not inhibit entrance to the line compartment. Stainless Steel latch/hasp (Section 7.2, page C-8) shall apply to utility line compartments.

5.14 The post type meter sockets shall be constructed such that it shall have a permanent, embedded, ground level mark, to provide a minimum four (4) foot burial. The last foot can be a stabilizer foot.

5.15 Protection. The enclosure must be designed to:

1) Protect personnel against accidental contact with the electrical devices. All exposed buss work must be protected.

2) Guard against unauthorized use of electric service and such that it cannot be opened without either breaking the seal or visibly damaging the enclosure.

3) Assure that after installation is completed and sealed, no opening shall be left through which wires or other foreign materials can be readily inserted into the enclosure.

4) Assure that after installation is completed and sealed, no exposed screw heads, that if removed, could provide and opening such that wires or other foreign materials can be readily inserted into the enclosure. This includes the hub-opening cover plate.

5.16 Enclosure Covers. Covers may be either ring or ringless type except single position socket covers shall be ringless type design only. Ringless enclosure covers shall be constructed such that under normal installation and removal of the cover, there shall be no interruption of service and no contact with any energized part. The utility line compartment must have a separate one-piece cover and the cover shall comply with Section 7.2, page C-7, re: Stainless Steel latch/hasp and hardware.

1) For multi-socket assemblies, each meter socket position shall have an individual cover capable of being removed without disturbing the other socket positions.

5.17 Mounting Bosses. Socket enclosures shall have a minimum of four mounting bosses located as close as practical to the enclosure corners. Where more than four are used, the remaining bosses will be located so as to clear any knockouts. Mounting bosses shall have centered knockouts provided for internal screw or bolt mounting to insure rainproof integrity. Mounting bosses shall provide a minimum of 0.125 inch of air space between the back of the sockets and the surface on which they may be mounted.

1) Multi-socket assemblies shall be provided with an internal means for mounting, unless other external mounting means sufficient to support the device are provided. Wall mounted socket assemblies shall have mounting bosses on all mounting surfaces.

6.0 KNOCKOUTS AND HUB OPENING

6.1 Concentric conduit knockouts shall be provided. They shall be located as follows: one (1) on each side panel and one (1) in the back panel of the enclosure and shall be as low as practicable. There shall be a minimum of two (2) bottom knockouts located on the right and left side of the bottom panel, and be located as close to the back panel as practicable. No part of the knockouts shall be above the load terminals. Knockouts shall be so constructed that any size knockout may be removed without disturbing the next larger size knockout. All concentric knockouts shall be sized according to Table 1.

TABLE 1

SERVICE CLAMP	1 PHASE
100 Amp	**Up to 1-1/2" Conduit**
200 Amp	**Up to 2-1/2" Conduit**
400 Amp	**Up to 4" Conduit**
~~***600 Amp (K Base)***~~	~~***Up to 4" Conduit***~~

1) For single position sockets and line termination chambers for multi-socket enclosures, there shall be one (1) additional 1/2" conduit knockout and one (1) additional 1/4" knockout located on the bottom panel as near to the back panel as practicable.

6.2 Where conduit hubs are required, they shall be per **ANSI C12.7, Fig. 8** and as close to the back edge as possible. Where interchangeable hubs are used, they shall be fastened with four mounting screws to make a rainproof fit. Dimensions of hubs shall be sized to accommodate the largest size conduit as specified in Table 1, Section 6.1.

6.3 For all enclosures that provide for Overhead and Underground feeds, the top cover plate must be secured from the inside of the enclosure. See Section 5.15, page C-7.

7.0 SEALING:

7.1 Each socket shall be constructed such that it cannot be opened or have its bypass operated without first having its seal broken.

7.2 One (1) latch and hasp with the provision to accept a seal, will be sufficient to fasten the cover at the bottom of the enclosure, provided the cover cannot be removed when sealed and the meter is held firmly in place. This latch/hasp assembly including mounting hardware must be made of high strength stainless steel. The stainless steel latch shall be provided with two holes, one a minimum of 1/8" (for sealing ring) and one a minimum of 5/16" (for padlock provision). Other methods for sealing must be approved.

7.3 For those enclosures having separate line compartments, provisions shall be made for sealing these compartments.

7.4 A captive screw sealing ring shall be provided with all ring type meter sockets. See Approved Metering Equipment List

8.0 SOCKET JAWS:

8.1 Single-phase sockets can be equipped with four (4) or (5) socket jaws. See Section 9.3

1) The fifth jaw is required for all network meter installations.

2) The fifth jaw shall be located in the 9 o'clock or the 6 o'clock position. The fifth jaw must lock in place such that it will not pull free when the meter is removed.

8.2 Block assemblies shall be replaceable from the front, within each individual position without disturbing other socket positions.

8.3 Current carrying socket jaws shall be reinforced and have meter blade guides. As an alternate, the meter blade guides can be omitted if the socket is constructed to center the meter as it is installed.

8.4 Socket jaws shall be tin plated; capable of carrying full rated (continuous) current and withstand the mechanical and heat rise requirements of **ANSI/UL 414**.

8.5 Ring type sockets shall have the line side socket jaws protected with a plastic cover.

9.0 TERMINAL CONNECTORS:

9.1 Terminal connectors shall be suitable for use with aluminum as well as copper conductors, and have a sufficient quantity of ALNOX or equal inhibitor to ensure complete infusion around the wire when the connection is tightened.

9.2 The terminal screws shall be 5/16", 7/16" or 1/2" (across flats) hex head and non-slotted or Allen set screw, no less than 5/16" across flats of socket. Nut for studs shall be 9/16" or 3/4" across flats. The nut assembly shall include captive belleville washer with flat washer.

9.3 On (4) jaw sockets, neutral terminals shall be provided (in the meter section of the enclosure). Neutral test point shall be provided in the meter block, accessible from the front, without removing ring-style meter covers. Ground terminals shall also be provided in the line compartment and shall be securely attached to the neutral buss.

9.4 All sockets shall be equipped with a grounding lug physically attached to the neutral buss to accommodate a grounding electrode conductor of a size not less than given in **Table 250-66 of the National Electrical Code**.

10.0 MANUAL LEVER BYPASS:

10.1 All self-contained meter sockets for use in commercial applications shall be constructed with a manual lever bypass. Only five (5) terminal bypass blocks may be provided with these units.

10.2 The bypass shall have manual jaw tension control, with jaw tension relaxed when in bypass position. It shall be a quick operating pressure release design with a manually operated lever. Meters must be easily installed and removed when in the bypass position.

10.3 The bypass handle shall be mounted on the right hand side of the enclosure and shall not contact energized parts when operated. When in the bypass position, it shall prevent the cover from being installed.

10.4 The bypass device shall be capable of carrying 100% of the continuous rated amperage in the socket in which it is used.

10.5 No horn bypass of any description is allowed. Horn bypass parts shall not be included on any meter enclosures submitted for approval.

11.0 MARKINGS:

11.1 All sockets shall have identifying markings in accordance with **ANSI/UL 414**, unless otherwise specified in this specification.

1) The manufacturers name and identifying designation (i.e., model number, catalog number, etc.) shall be visible from both inside (the utility-side of a meter/breaker combination) and outside the enclosure and shall be the same as used on the Florida Meter Group's Approved Metering Enclosure List.

11.2 All sockets submitted for approval shall be listed with the Underwriters Laboratories Inc. (UL) Product Listing Service.

1) All approved meter sockets shall have a UL Authorized Listing Mark permanently placed inside the enclosure as near to the upper right corner as practicable.

2) The UL Listing Mark shall include the following information:

- UL's name and/or symbol

- The word "Listed"

- A control number

11.3 The date the meter socket was manufactured must be displayed on a label or can be applied to an existing label, in the line compartment.

11.4 Grounding Label: Each individual socket shall have a label placed in the line compartment stating: "Grounding wire shall be securely fastened to the ground terminal lug in the line compartment with no breaks in the wire".

12.0 TESTING

12.1 Certified Heat Rise Test. Meter enclosures shall meet the heat rise requirements of **ANSI/UL 414**. Upon request, written certification shall be submitted to GRU verifying compliance with the above stated heat rise test.

13.0 DEVIATIONS FROM THIS SPECIFICATION

13.1 Should the customer wish to make exceptions to this specification, he shall submit to the GRU Gas and Electric Measurement Division, a written request and assembly drawing, with parts list, detailing the exception or change. Written approval must be obtained. Failure to comply with this specification will cause the denial to install or the removal of the meter socket. Contact the GEM Division for an updated list of approved meter enclosures.

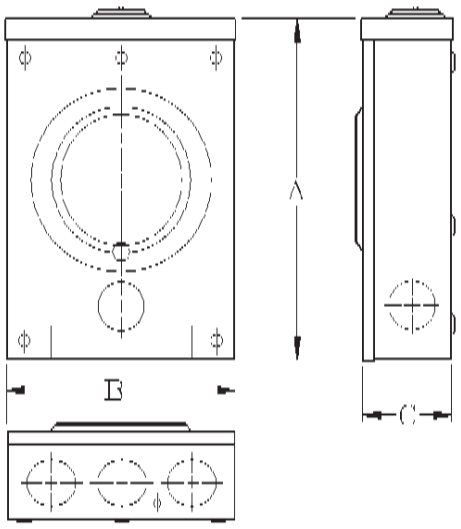
14.0 ATTACHMENTS

14.1 See attachments at the end of this appendix for approved minimum specifications.

Written correspondence shall be sent to:

Gainesville Regional Utilities
Gas and Electric Measurement Division
P.O. Box 147117, Station 031C
Gainesville, FL 32614-7117

100 AMP SINGLE PHASE METER SOCKET
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



ANCHOR
A= 10"
B= 8-1/4"
C= 3-11/16"

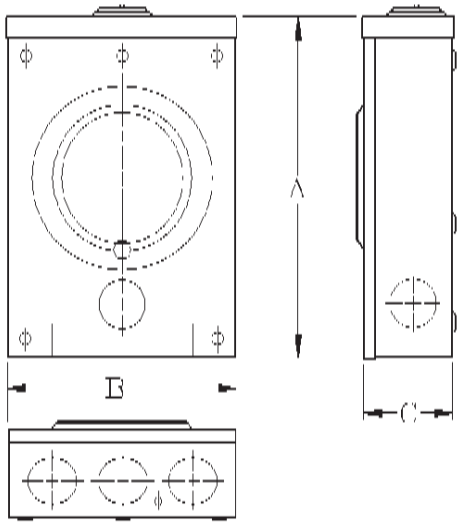
DURHAM
A= 10-1/2"
B= 8"
C= 3-1/2"

MILBANK
A= 10-1/2"
B= 8"
C= 3-5/16"

APPROVED FOR CUSTOMER USE
(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	Manufacturer	GRU Stock Code
100 AMP SINGLE PHASE SOCKET - RINGLESS, STEEL, INTERCHANGEABLE HUB, 4 TERMINALS, BACK AND SIDE KNOCKOUTS UP TO 1-1/2", BOTTOM KNOCKOUTS UP TO 2", FLOATING PRESSURE PAD CONNECTORS, WIRE SIZE: #6 - 2/0 DOUBLE NEUTRAL	ANCHOR DURHAM MILBANK	UL LISTED UL LISTED UL LISTED

200 AMP SINGLE PHASE METER SOCKET
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



MILBANK
A= 15-1/2"
B= 11"
C= 4-1/8"

DURHAM
A= 14"
B= 11"
C= 4-3/8"

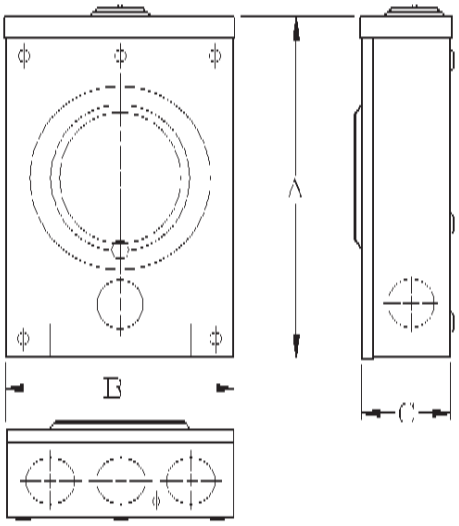
T & B ANCHOR
A= 14-5/8"
B= 12-1/8"
C= 5-9/32"

APPROVED FOR CUSTOMER USE
(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	Manufacturer	GRU Stock Code
200 AMP SINGLE PHASE METER SOCKET RINGLESS STEEL INTERCHANGEABLE HUB BACK, SIDE AND BOTTOM KNOCKOUTS UP TO 2-1/2", 4 TERMINALS, W/TRIPLEX NEUTRAL.		
WIRE RANGE: #6 - 250 KCMIL MAX. CU/AL FOR UNDERGROUND AND OVERHEAD USE	MILBANK DURHAM T & B ANCHOR	UL LISTED UL LISTED UL LISTED

NOTES:
1) ALL SOCKETS MUST BE ABLE TO ACCEPT #6 WIRE.
2) FOR WIRE SIZES GREATER THAT 250 KCMIL SEE PAGE C-11.

400 AMP SINGLE PHASE METER SOCKET
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



MILBANK
A= 30"
B= 15"
C= 4-7/8"

DURHAM
A= 34-1/2"
B= 13"
C= 4-15/16"

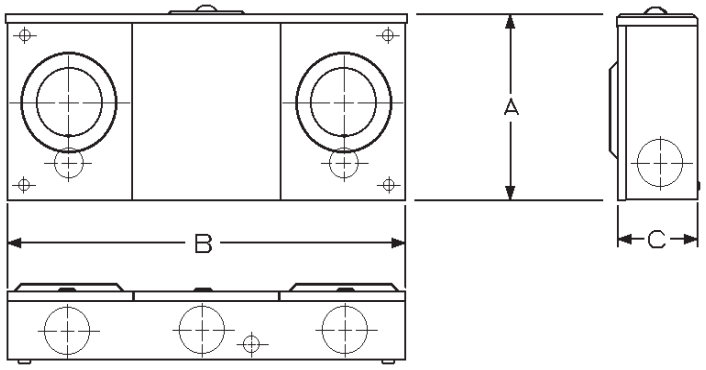
T & B ANCHOR
A= 26"
B= 15"
C= 5-7/16"

APPROVED FOR CUSTOMER USE
(THIS ITEM IS NOT SUPPLIED BY GRU)

Description		Manufacturer	GRU Stock Code
400 AMP SINGLE PHASE METER SOCKET RINGLESS STEEL INTERCHANGEABLE HUB BACK, SIDE AND BOTTOM KNOCKOUTS UP TO 3-1/2", 4 TERMINALS, W/TRIPLEX NEUTRAL.			
WIRE RANGE:	#6 - 600 KCMIL MAX. CU/AL FOR UNDERGROUND AND OVERHEAD USE	MILBANK	UL LISTED
		DURHAM	UL LISTED
		T & B ANCHOR	UL LISTED

NOTES:
1) 400 AMP SINGLE PHASE METER SOCKET SHALL BE USED WHEN SERVICE SIZE EXCEEDS 200 AMPS OR SERVICE CONDUCTOR SIZE EXCEEDS 250 KCMIL.
2) THE CUSTOMER SHALL PROVIDE PROPER LUG KITS SUITABLE TO ACCOMMODATE WIRING APPLICATIONS (E.G. PARALLEL LUGS FOR PARALLEL CONDUCTORS).
3) BYPASS CAPABILITIES REQUIRED FOR 400 AMP SINGLE PHASE COMMERCIAL APPLICATIONS ONLY

2 GANG METER SOCKET (150 AMP.)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



ANCHOR
A = 12"
B = 25-1/8"
C = 5-1/2"

MILBANK
A = 14"
B = 26-1/2"
C = 5-1/8"

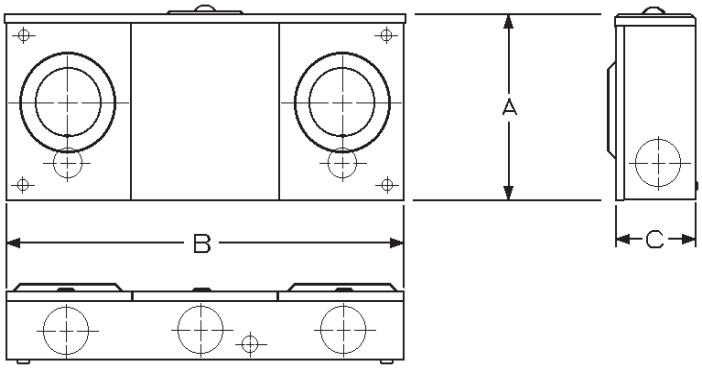
APPROVED FOR CUSTOMER USE
(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	GRU Stock Code
2 GANG METER SOCKET, RINGLESS, 150 AMP PER POSITION CENTER WIRING COMPARTMENT, OVERHEAD OR UNDERGROUND FEED.	326437

CONNECTOR SIZE RANGES:
(CU/AL)

LINE: 1/0 - 350 KCMIL
LINE NEUTRAL: 350 KCMIL
LOAD: #6 - 4/
LOAD NEUTRAL: #6 - 4/0

2 GANG METER SOCKET (200 AMP.)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



ANCHOR
A = 18"
B = 25 -1/8"
C = 5 -1/2"

MILBANK
A = 14"
B = 26 -1/2"
C = 5 -1/8"

DURHAM
A = 14 -1/8"
B = 24 - 5/16"
C = 5 - 3/8"

Description	GRU Stock Code
2 GANG METER SOCKET, RINGLESS, 200 AMP PER POSITION CENTER WIRING COMPARTMENT, OVER-HEAD OR UNDERGROUND FEED	326534

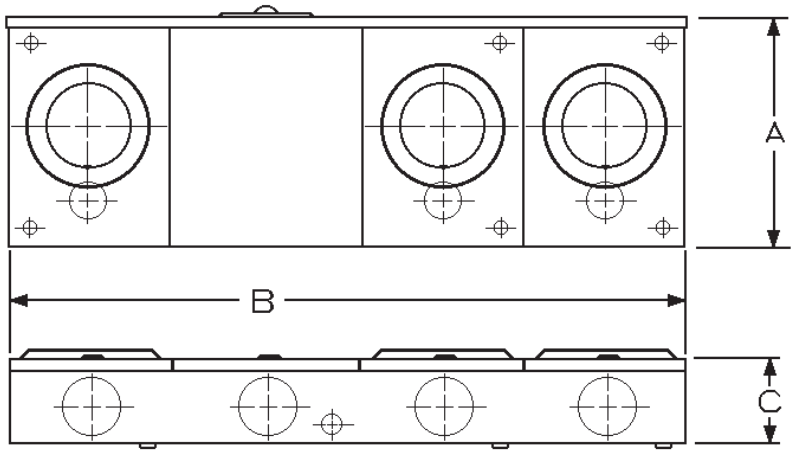
CONNECTOR SIZE RANGES:
(CU/AL)

LINE CONNECTORS: 1/0 - 350 KCMIL

LOAD CONNECTORS: #6 - 250 KCMIL

3 GANG METER SOCKET (200 AMP.)

(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



ANCHOR
A= 12"
B= 33-1/2"
C= 5-1/2"

MILBANK
A= 14"
B= 34-1/2"
C= 5-1/8"

DURHAM
A = 14 - 1/8"
B = 32 - 15/32"
C = 5 - 3/8"

APPROVED FOR CUSTOMER USE

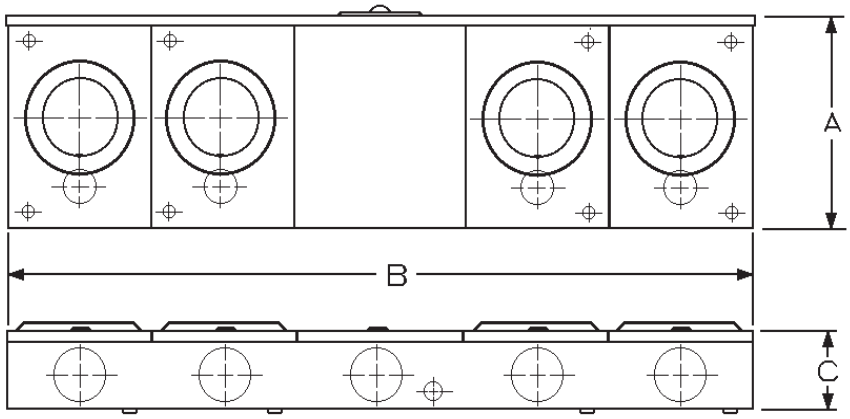
(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	GRU Stock Code
3 GANG METER SOCKET, RINGLESS, 200 AMP PER POSITION, CENTER WIRING COMPARTMENT, OVERHEAD OR UNDERGROUND FEED	024546

LINE CONNECTORS: 1/0 - 350 KCMIL CU/AL

LOAD CONNECTORS: #6 - 250 KCMIL CU/AL

4 GANG METER SOCKET (200 AMP.)
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



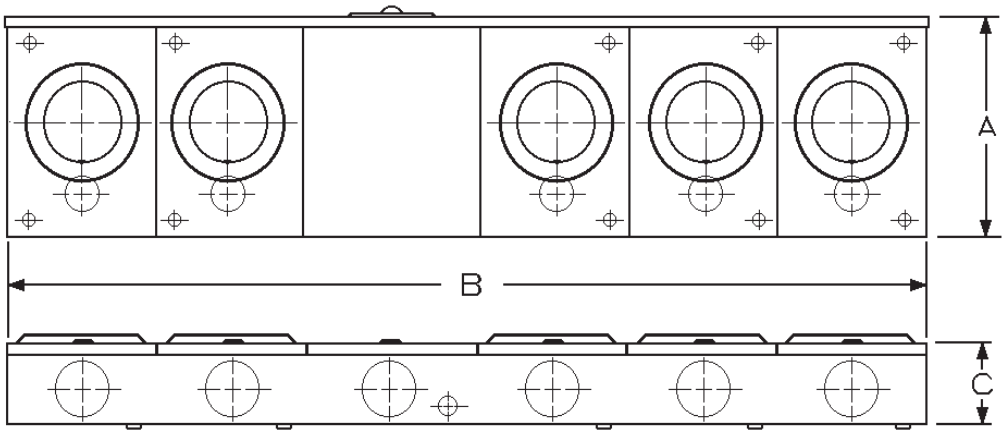
ANCHOR
A= 12"
B= 45-5/8"
C= 5-1/2"

MILBANK
A= 14"
B= 42-3/4"
C= 5-1/8"

APPROVED FOR CUSTOMER USE
(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	GRU Stock Code
4 GANG METER SOCKET, RINGLESS, 200 AMP PER POSITION, CENTER WIRING COMPARTMENT, OVERHEAD OR UNDERGROUND FEED	336157
LINE CONNECTORS: 500 KCMIL MAX. CU/AL	
LOAD CONNECTORS: 250 KCMIL MAX. CU/AL	
LUGS FOR LINE CONNECTORS: 350 KCMIL CU/AL (FOR MILBANK SOCKET ONLY)	567051

5 GANG METER SOCKET
(Verify Information before installation at:
https://apps.gru.com/WorkWithGRU/StandardPageLookup/default.jsp)



ANCHOR
A= 12"
B= 54"
C= 5-1/2"

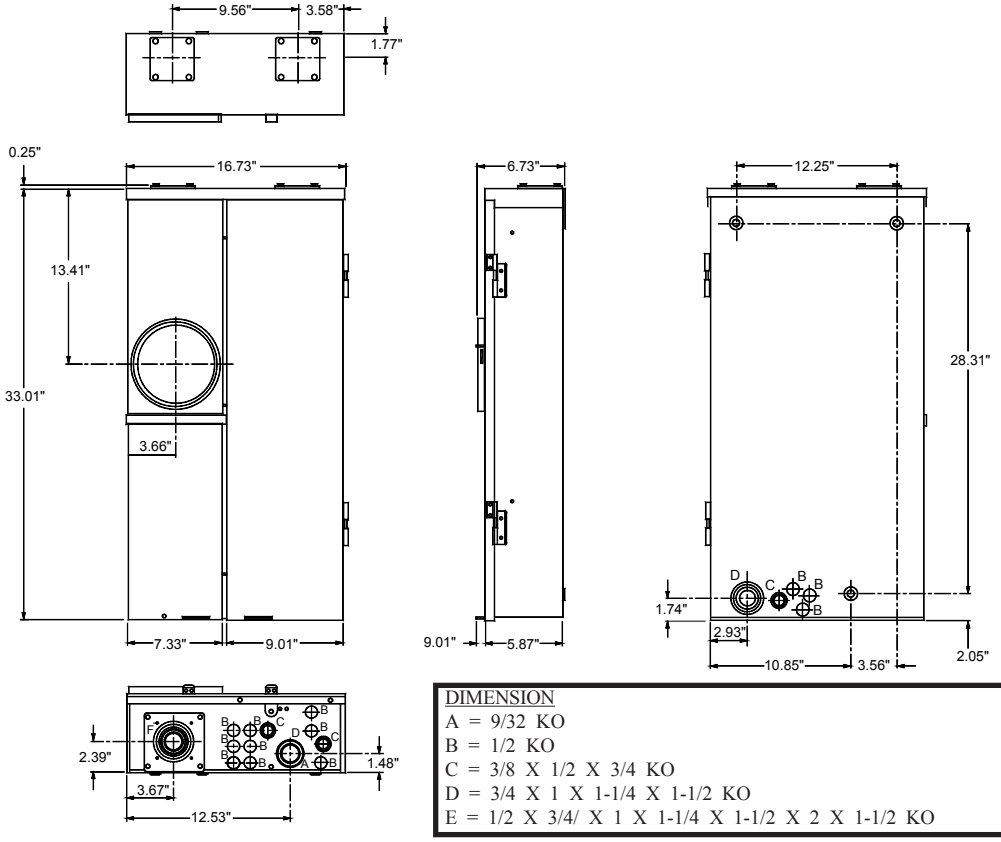
MILBANK
A= 14"
B= 51"
C= 5-1/8"

APPROVED FOR CUSTOMER USE

(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	Manufacturer	GRU Stock Code
5 GANG METER SOCKET, RINGLESS 200 AMP PER POSITION, CENTER WIRING COMPARTMENT, WITH 3 SOCKETS ON THE RIGHT, OVERHEAD OR UNDERGROUND FEED LINE CONNECTORS: 2-350 KCMIL MAX. CU/AL LOAD CONNECTORS: 250 KCMIL MAX. CU/AL	ANCHOR	UL LISTED
	MILBANK	UL LISTED
5 GANG METER SOCKET, RINGLESS 200 AMP PER POSITION, CENTER WIRING COMPARTMENT, WITH 3 SOCKETS ON THE RIGHT, OVERHEAD OR UNDERGROUND FEED LINE CONNECTORS: 1-600 KCMIL MAX. CU/AL LOAD CONNECTORS: 250 KCMIL MAX. CU/AL	ANCHOR	UL LISTED
	MILBANK	UL LISTED

METER SOCKET LOAD CENTER



DIMENSION	QTY.
A = 9/32 KO	1
B = 1/2 KO	12
C = 3/8 X 1/2 X 3/4 KO	3
D = 3/4 X 1 X 1-1/4 X 1-1/2 KO	2
E = 1/2 X 3/4/ X 1 X 1-1/4 X 1-1/2 X 2 X 1-1/2 KO	1

APPROVED FOR CUSTOMER USE

(THIS ITEM IS NOT SUPPLIED BY GRU)

Description	Manufacturer	Catalog Number

METER SOCKET LOAD CENTER, SIDE BY SIDE METER COMBO.

SPECIFICATIONS:
CLASS CTL PANEL BOARD
1 PHASE
N3R OUTDOOR ENCLOSURE
8 SPACE/ 16 CIRCUIT
FEED THROUGH LUGS
DWG NO. 10103091SH77

SIZES:	*150A MCB*	*GE*	*TSM815CSCU*
	200A MCB	*GE*	*TSM820CSCU*

APPENDIX - D
STANDARD CONSTRUCTION DETAILS

TRENCHING DETAILS

EQUIPMENT DETAILS

Note:

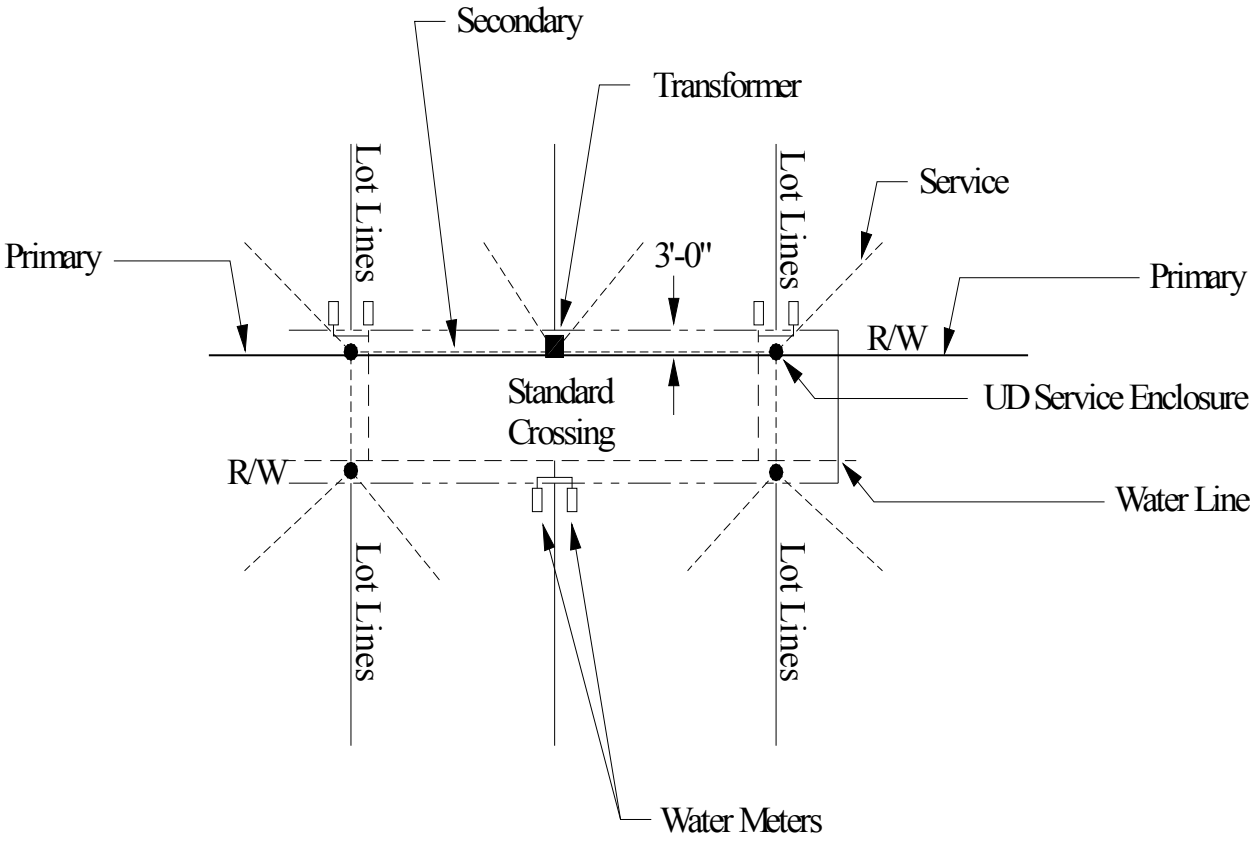
All customer or contractor/developer furnished and installed materials, conduit, concrete equipment foundations, and related civil infrastructure must be inspected and approved by qualified GRU personnel. If the materials and/or workmanship do not meet GRU Specifications the deficiencies must be corrected, at the customer or developers expense, before GRU can provide service to that customer or developer.

Please note revised information in this guide will be printed in "*Italics*".

ELECTRICAL LAYOUT FOR JOINT TRENCH

NOTES:

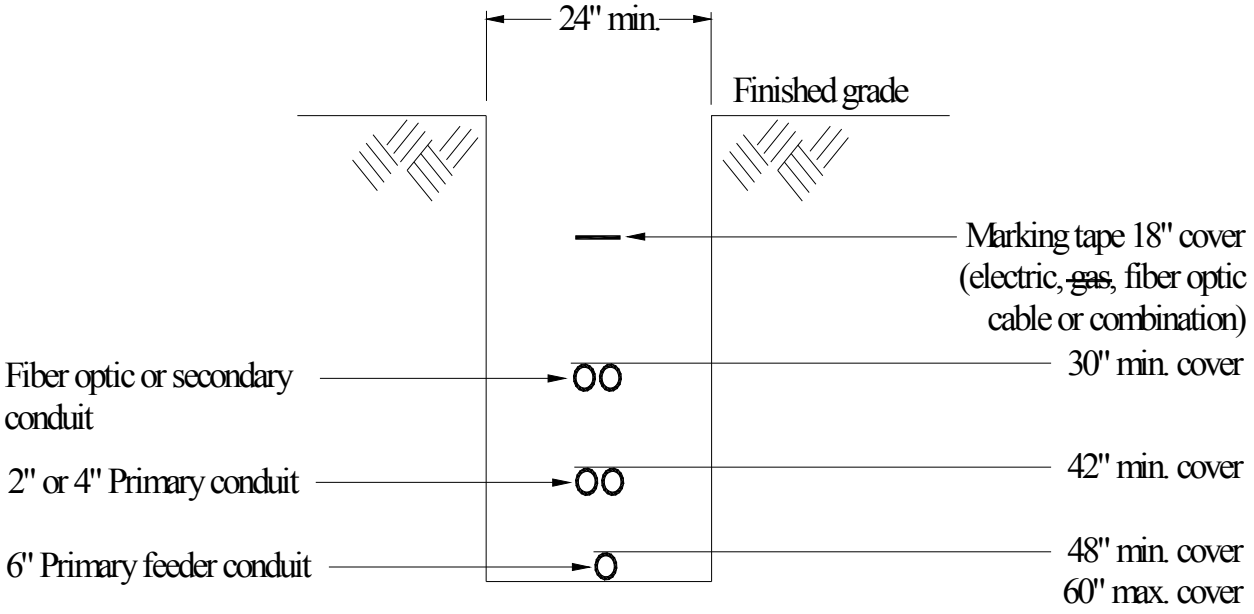
1) Joint trenching is available for the following utilities: electric, fiber optics, CATV, and gas. Please contact GRU early in the planning process of your project for more information on joint trenching.



CONDUIT TRENCH DETAILS (TYP.)

NOTES:

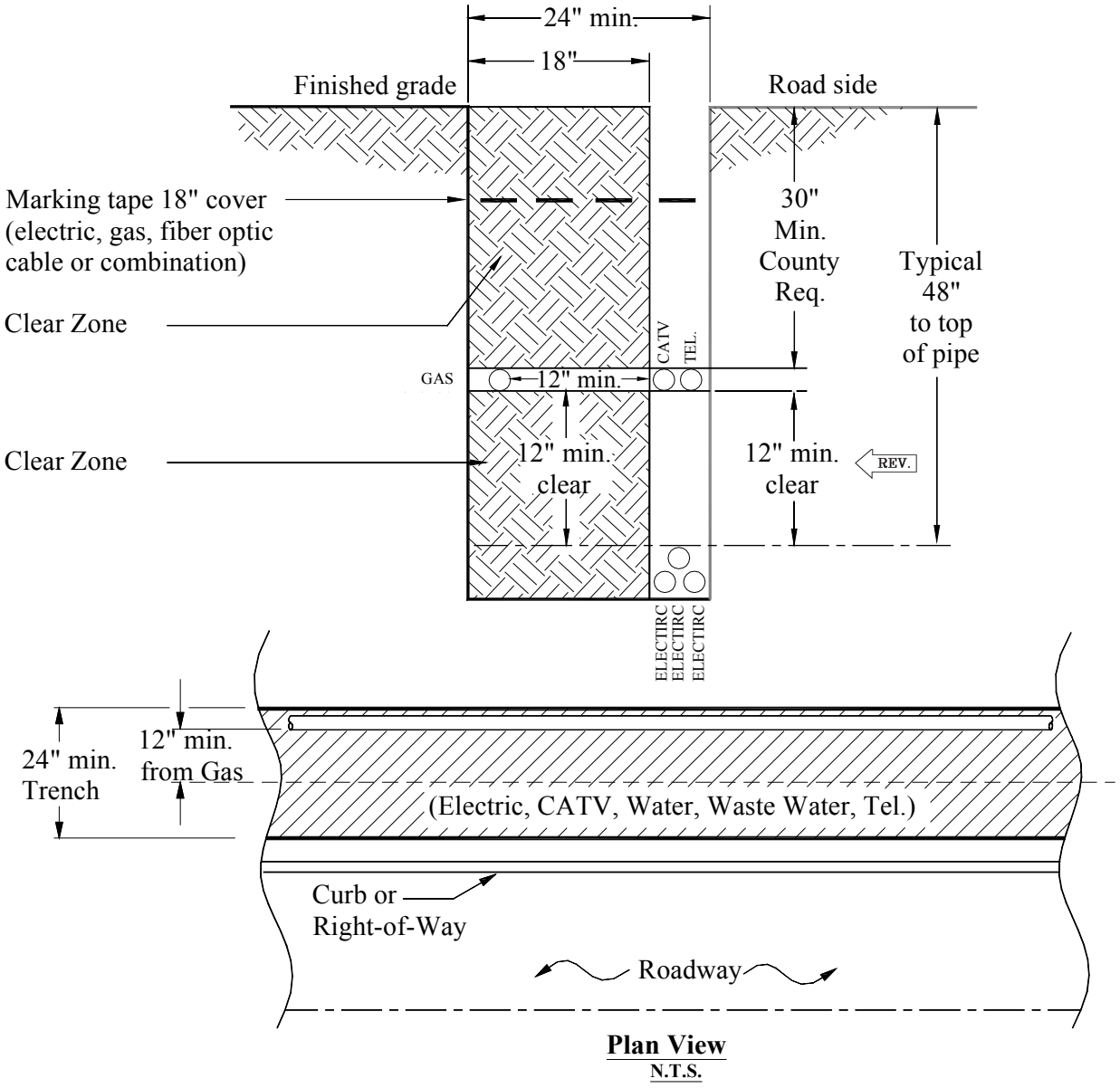
1) All conduit shall be furnished and installed by owner. All cover from finished grade to top.
2) Secondary conduit and fiber optic conduit may be located at the same depth as primary conduit.
3) Back filling shall follow the laying of pipe as closely as practical and shall be done in such a manner as to provide firm support under the pipe and minimize trench settlement. Additionally, care must be exercised to prevent rocks or other unsuitable material from being placed on or over the conduit/pipe.
4) Joint trenching is available for the following utilities: electric, fiber optics and CATV. ~~and gas~~. Please contact GRU early in the planning process of your project for more information on joint trenching.



MAJOR ROADWAY JOINT TRENCH

NOTES:

1) All conduit shall be furnished and installed by owner. All cover from finished grade to top.
2) Secondary conduit and fiber optic conduit may be located at the same depth as primary conduit.
3) Joint trenching is available for the following utilities: electric, fiber optics, CATV, telephone and gas. Please contact GRU early in the planning process of your project for more information on joint trenching.
4) No other utilities shall be place above or below Gas Conduit. A minimum of 12" separation shall be maintained adjacent to all Gas conduit.
5) The telephone conduit requires a minimum of 12" from Electric, Water and Gas conduit.

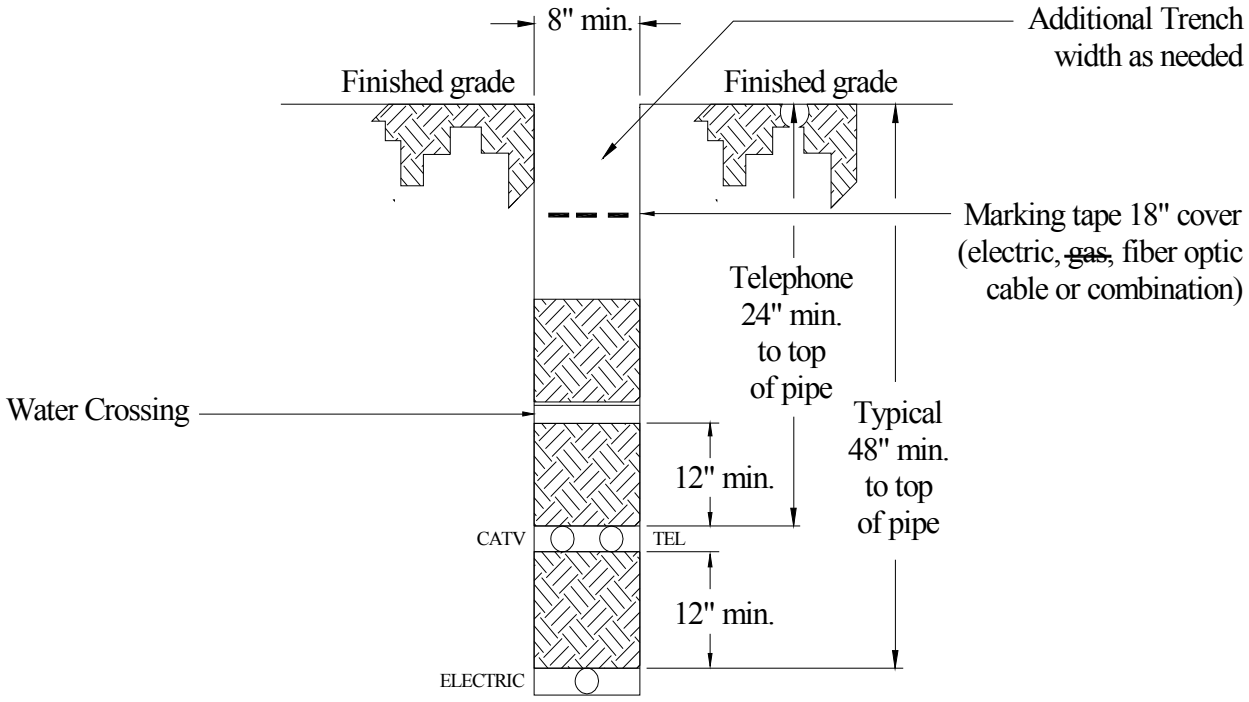


Plan View
N.T.S.

MINOR ROADWAY JOINT TRENCH

NOTES:

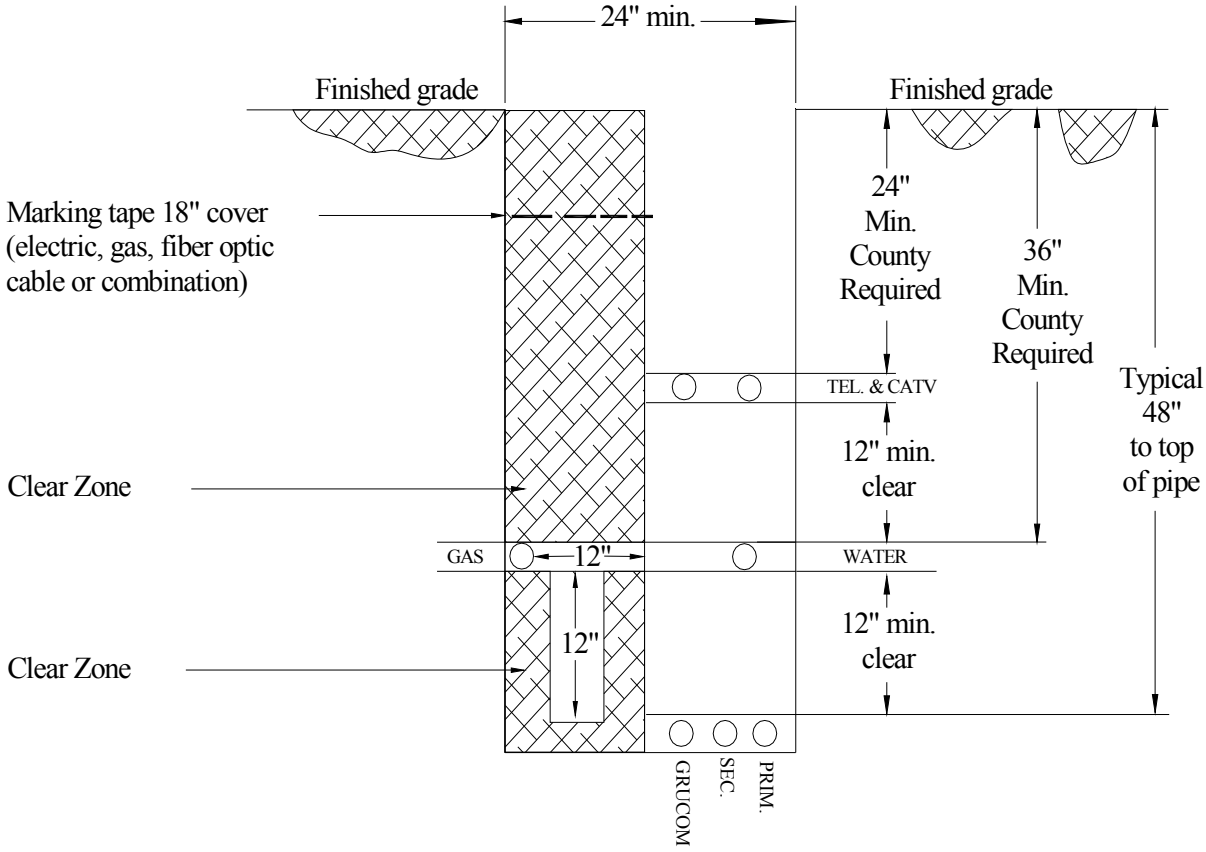
1) All conduit shall be furnished and installed by owner. All cover from finished grade to top.
2) Electric Secondary conduit and fiber optic conduit may be located at the same depth as primary conduit.
3) Joint trenching is available for the following utilities: electric, fiber optics, CATV, and telephone. (Note: Gas has been removed from this Joint Trench Detail Drawing). Please contact GRU early in the planning process of your project for more information on joint trenching.
4) Telephone conduit requires a minimum of 12" from Electric and Water conduit.
~~4) No other utilities shall be place above Gas Conduit. A minimum of 12" separation from other utilities is required.~~



JOINT TRENCH AT ROAD CROSSING

NOTES:

1) County and state road permits required.
2) 95% - 98% Compaction required.
3) All conduit shall be furnished and installed by owner. All cover from finished grade to top.
4) Secondary conduit and fiber optic conduit may be located at the same depth as primary conduit.
5) Joint trenching is available for the following utilities: electric, fiber optics, CATV, and gas. Please contact GRU early in the planning process of your project for more information on joint trenching.
6) No other utilities shall be place above or below Gas Conduit. A minimum of 12" separation shall be maintained adjacent to all Gas conduit.
7) The telephone conduit requires a minimum of 12" from Electric, Water and Gas conduit.



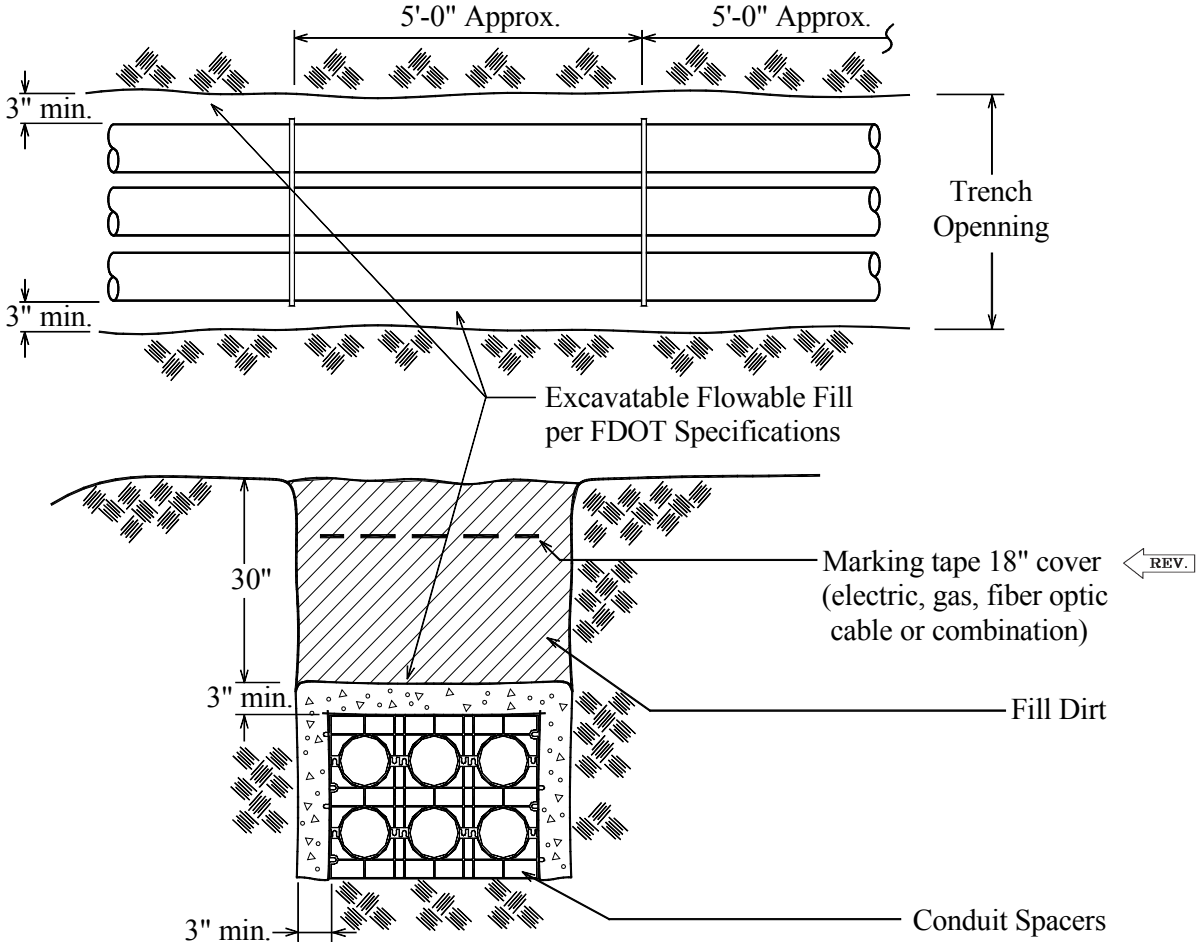
CONDUIT ENCASEMENT DETAIL

CONDUIT ENCASEMENT (IN CONCRETE) SPECIFICATIONS:

1) All OSHA requirements shall be followed in preparing the trench for conduit installation.
2) Use conduit spacers (GRU base S/N 511706 and intermediate S/N 511757)
3) 3" concrete encasement on sides an top.
4) Use excavatable Flowable Fill Concrete per FDOT Specifications.
5) 30" minimum fill dirt from top of pavement to top of concrete.
6) Tie down conduit to prevent conduit floating during flowable fill pouring.
7) Conduit spacers shall be place at approximately 5 foot intervals.
8) Conduit spacers shall be placed 12" or more from any coupling of joint.
9) Conduit couplings or joints shall be staggered a minimum of 6", so that no coupling or joint is in line with the coupling or joint on an adjacent conduit.
10) Conduit shall have beveled ends. If conduit has been cut the ends must be beveled.

CLEARANCES:

1) Trees may be placed 3.5' from Concrete Encased Conduit.
2) Contact other utilities to see if clearances can be reduced.



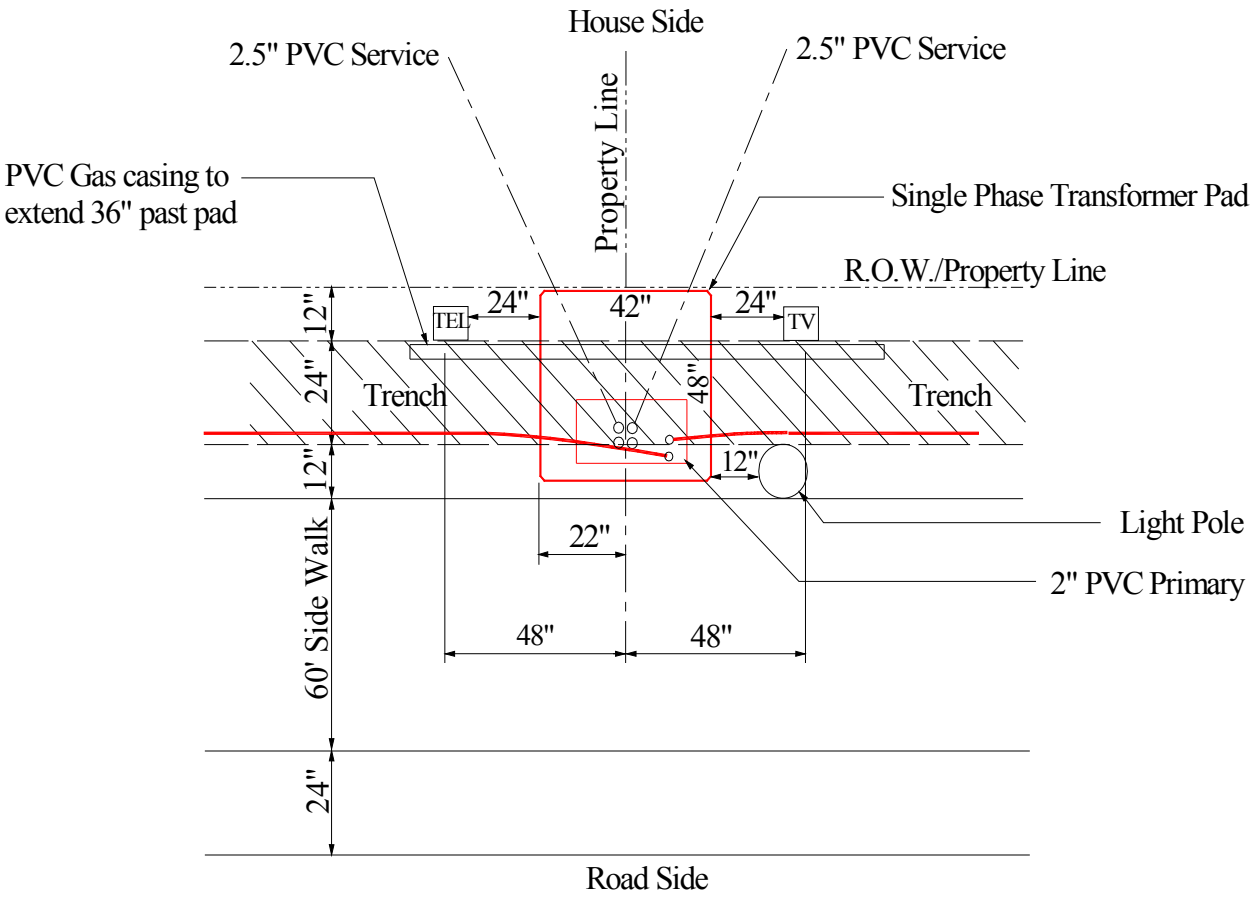
Detail Drawing

Not to Scale

JOINT TRENCH AT TRANSFORMER

NOTES:

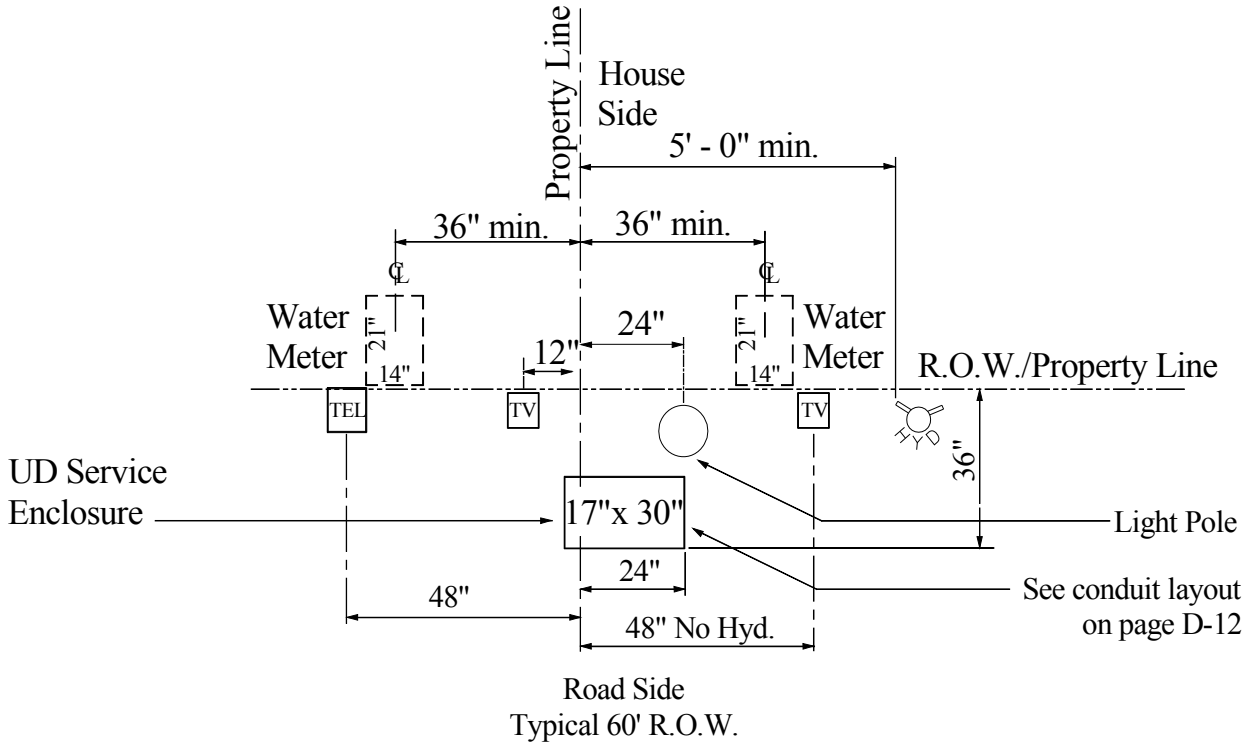
1) 4" min. crossing clearance from gas to all utilities.
2) Water will not be in joint trench.
3) Conduit shown are typical sizes.
4) Joint trenching is available for the following utilities: electric, fiber optics, CATV, and gas. Please contact GRU early in the planning process of your project for more information on joint trenching.



Single Phase Transformer Pad

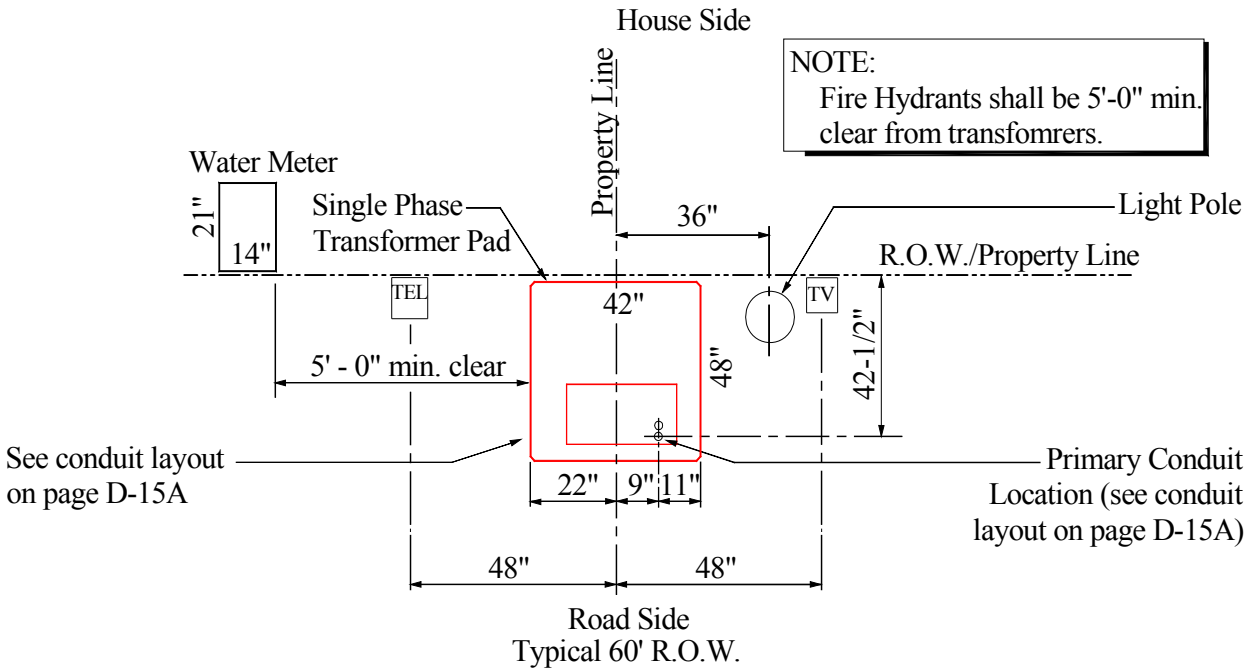
Not to Scale

UTILITY EQUIPMENT ALLOCATION PLAN WITH NO PUEDETAILS (TYP.)



UD Service Enclosure

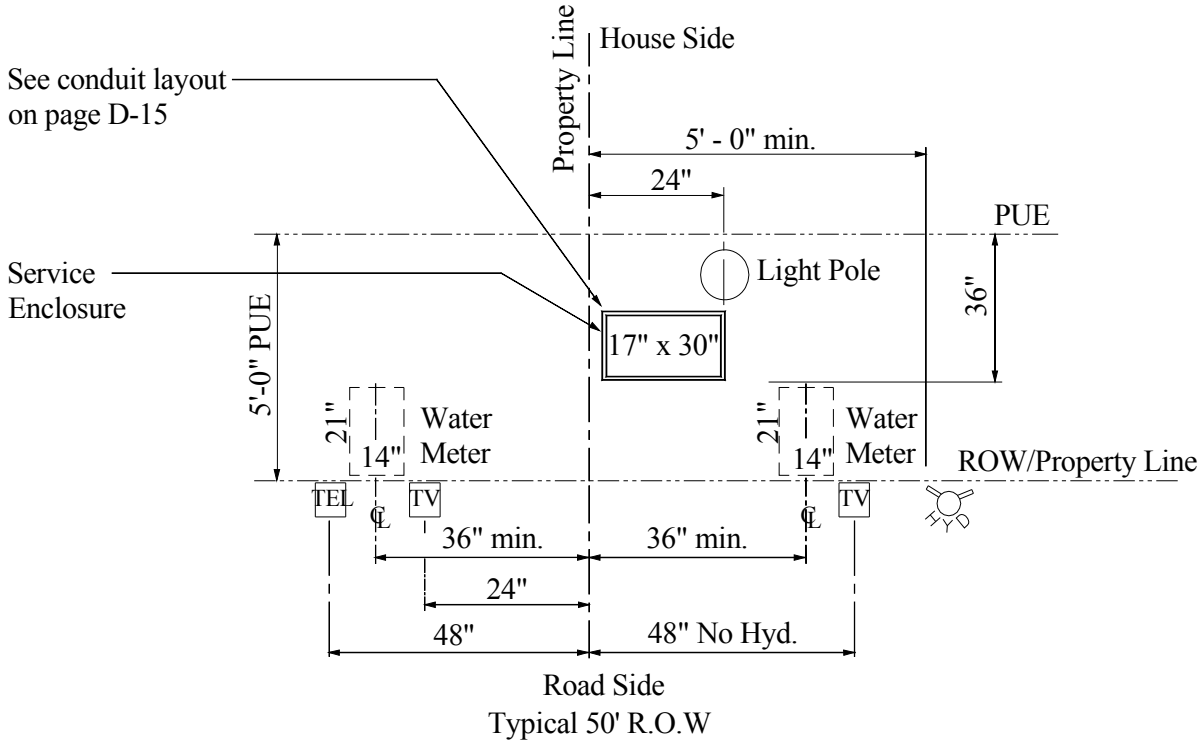
Not to Scale



Single Phase Transformer Pad

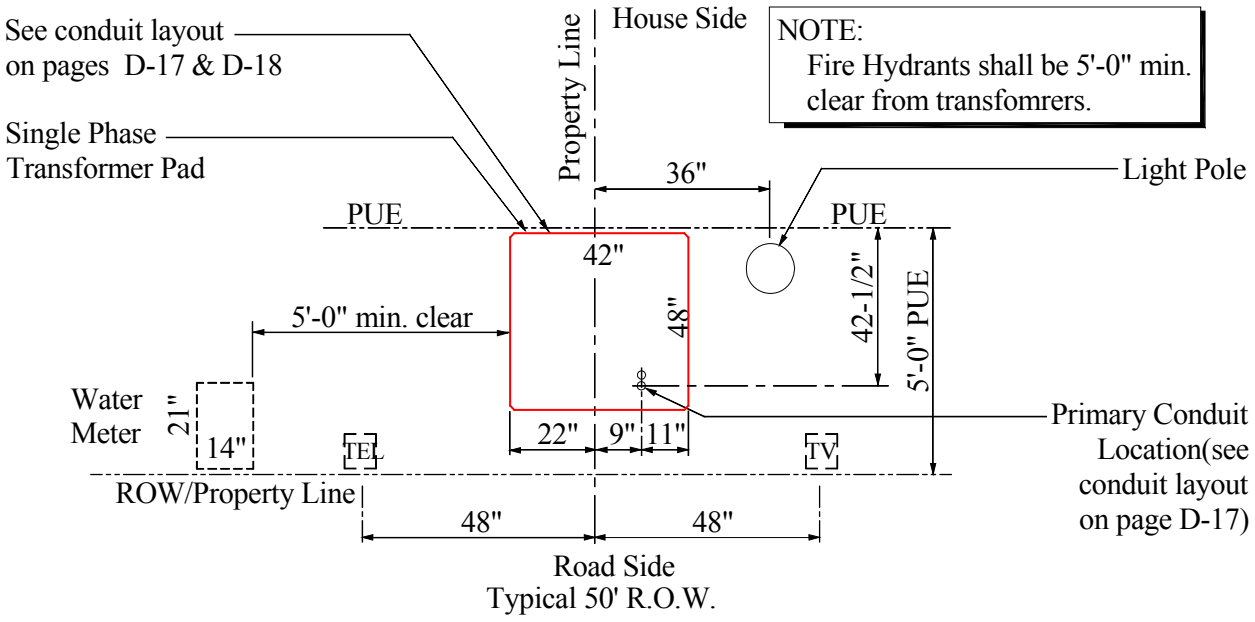
Not to Scale

UTILITY EQUIPMENT ALLOCATION PLAN WITH PUE DETAILS (TYP.)



UD Service Enclosure

Not to Scale



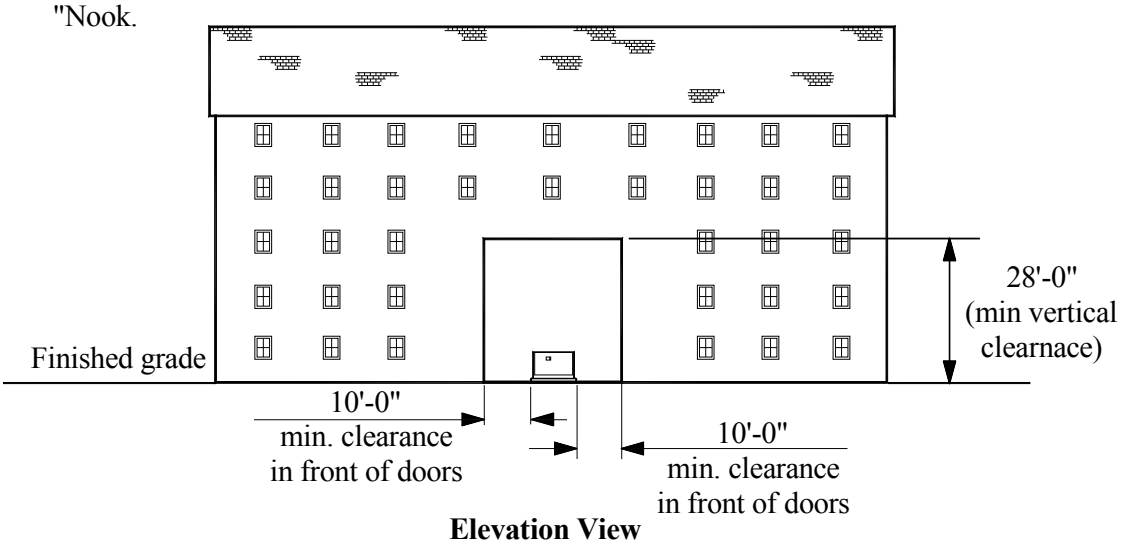
Single Phase Transformer Pad

Not to Scale

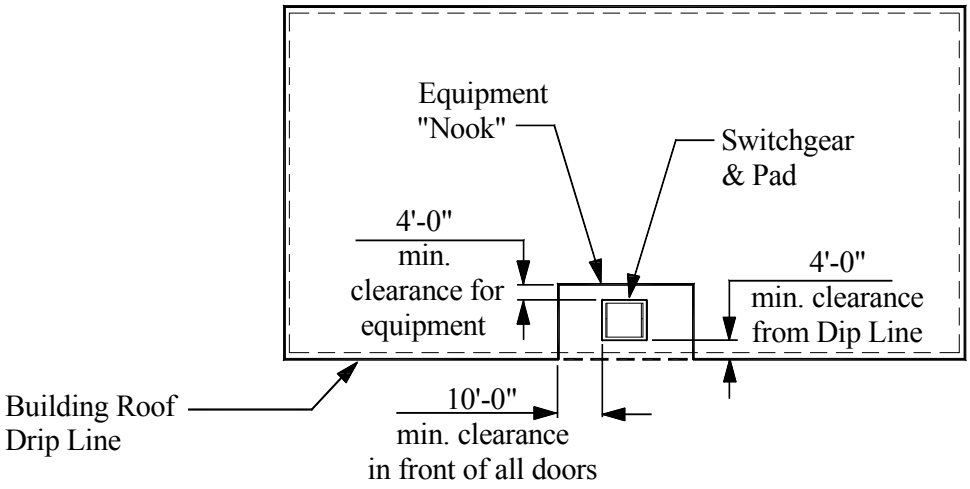
VERTICAL PAD MONUNTED SWITCHGEAR CLEARANCES FOR MULTIPLE STORY BUILDING DETAIL (TYP.)

NOTES:

1) Vertical clearnaces for pad mounted equipment shall be clear to the sky or for pad mounted equipment installed in an Equipment "Nook", a space built into the side of a multiple story building, shall have a minimum vertical clearance of 28'-0".
2) All Equipment "Nooks" must be pre-approved by GRU Electrical Engineering.
3) The size of the Equipment "Nook" will vary according to the type of pad mounted equipment installed.
4) Switchgear shall be located a minimum of four (4) feet from the building drip line and ten (10) feet from any window or door. All clearances shall be considered when designing the size of the Equipment "Nook".
5) There shall be full access to the pad mounted equipment from the opening of the Equipment "Nook.



Elevation View
N.T.S.

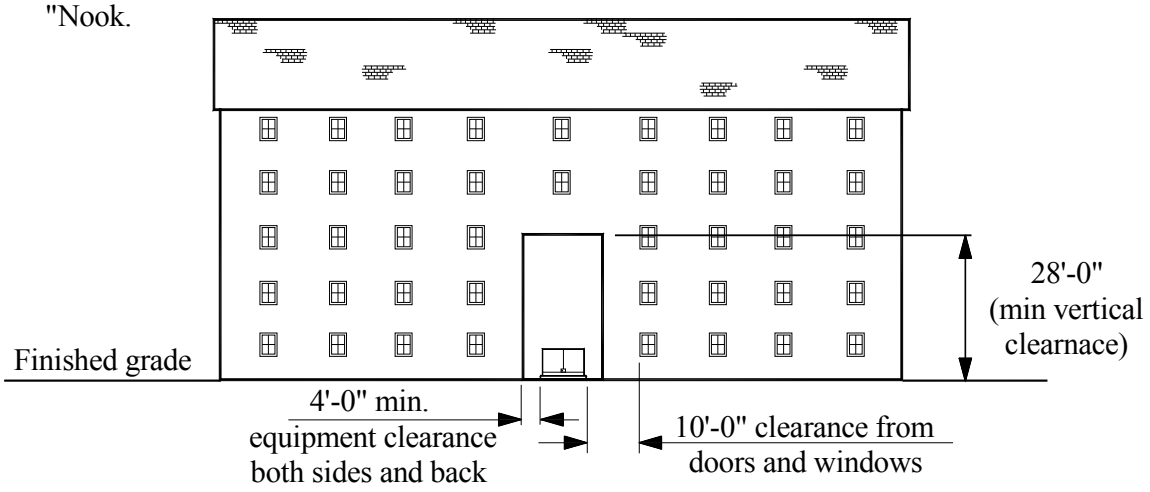


Plan View
N.T.S.

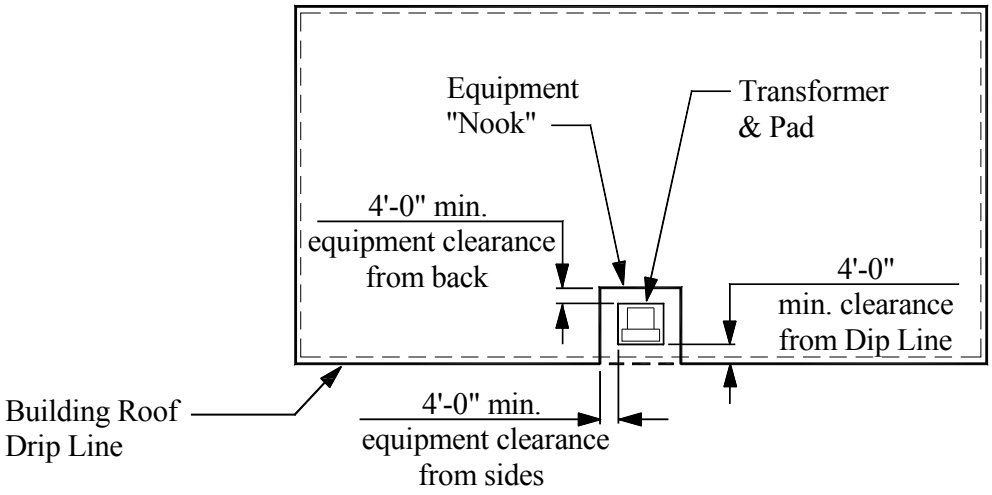
VERTICAL PAD MONUNTED TRANSFORMER CLEARANCES FOR MULTIPLE STORY BUILDING DETAIL (TYP.)

NOTES:

1) Vertical clearnaces for pad mounted equipment shall be clear to the sky or for pad mounted equipment installed in an Equipment "Nook", a space built into the side of a multiple story building, shall have a minimum vertical clearance of 28'-0".
2) All Equipment "Nooks" must be pre-approved by GRU Electrical Engineering.
3) The size of the Equipment "Nook" will vary according to the type of pad mounted equipment installed.
4) Transformer shall be located a minimum of four (4) feet from the building drip line and ten (10) feet from any window or door. All clearances shall be considered when designing the size of the Equipment "Nook".
5) There shall be full access to the pad mounted equipment from the opening of the Equipment "Nook.



Elevation View
N.T.S.

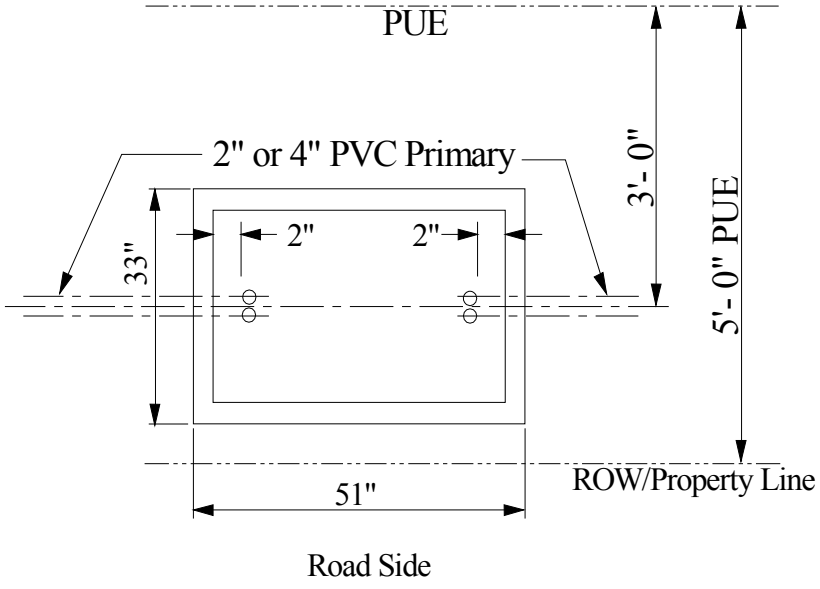


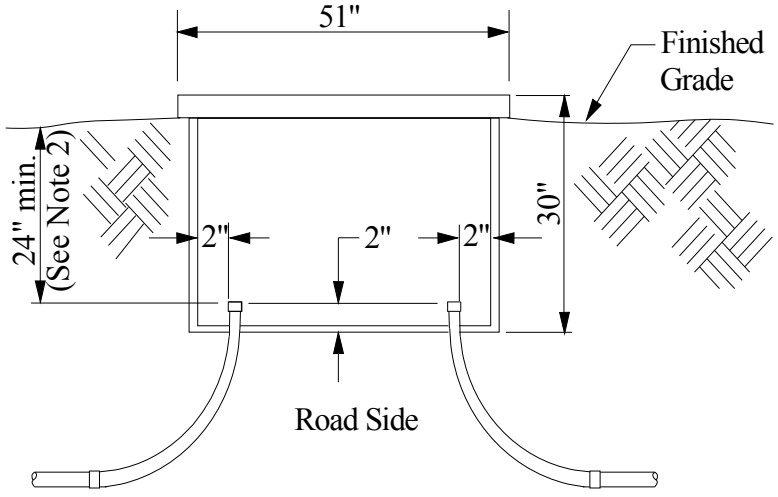
Plan View
N.T.S.

UD JUNCTION BOX DETAIL (TYP.) (Material - Polymer Concrete)

NOTES:

1) **Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipment will be installed deeper than the nominal installation depth to meet turn-up requirements.**
2) The top of the elbow shall be at a minimum of 24" from finished grade.
3) **For 4" and 6" conduit 48" radius steel elbows are required; for less than 4" conduit 36" radius steel elbows are required**.
4) All conduit shall be installed with one piece of continuous pre-lubricated woven polyeste pull tape with printed sequential footage markings.

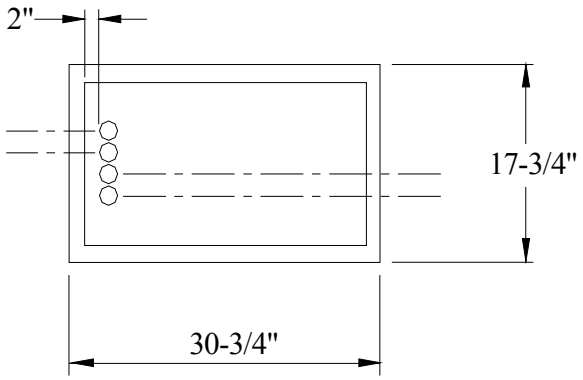




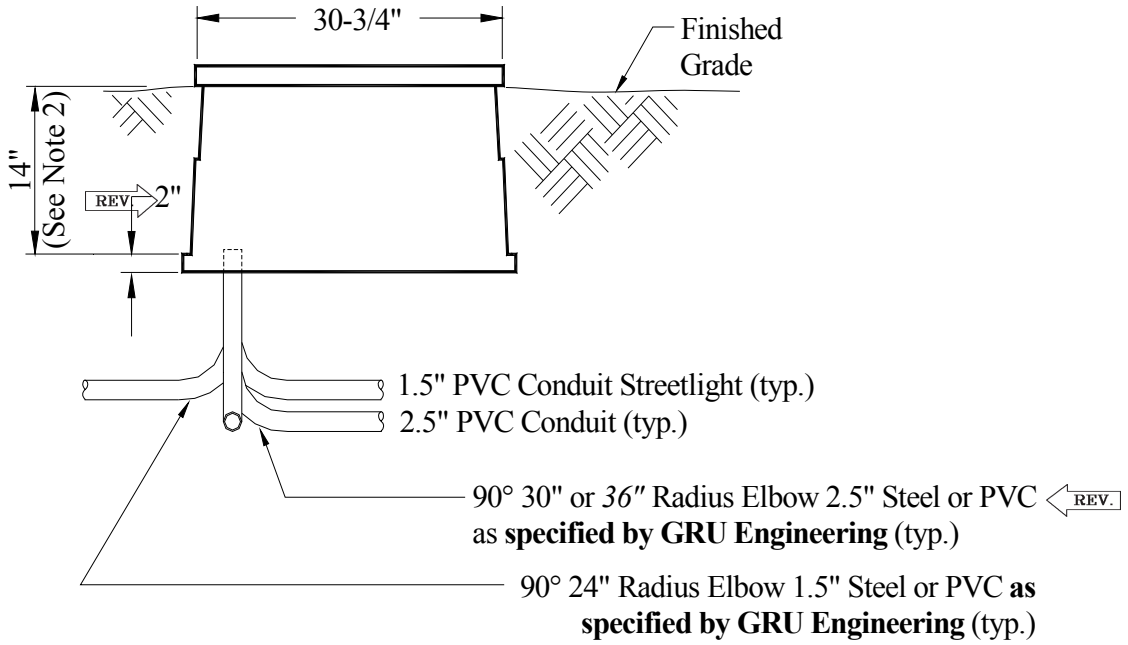
UD SERVICE ENCLOSURE DETAIL (TYP.)
(Material - Polymer Concrete)

NOTES:

1) **Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipment will be installed deeper than the nominal installation depth to meet turn-up requirements.**
2) The top of the elbow shall be a minimum of 14" from finished grade.
3) All conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.



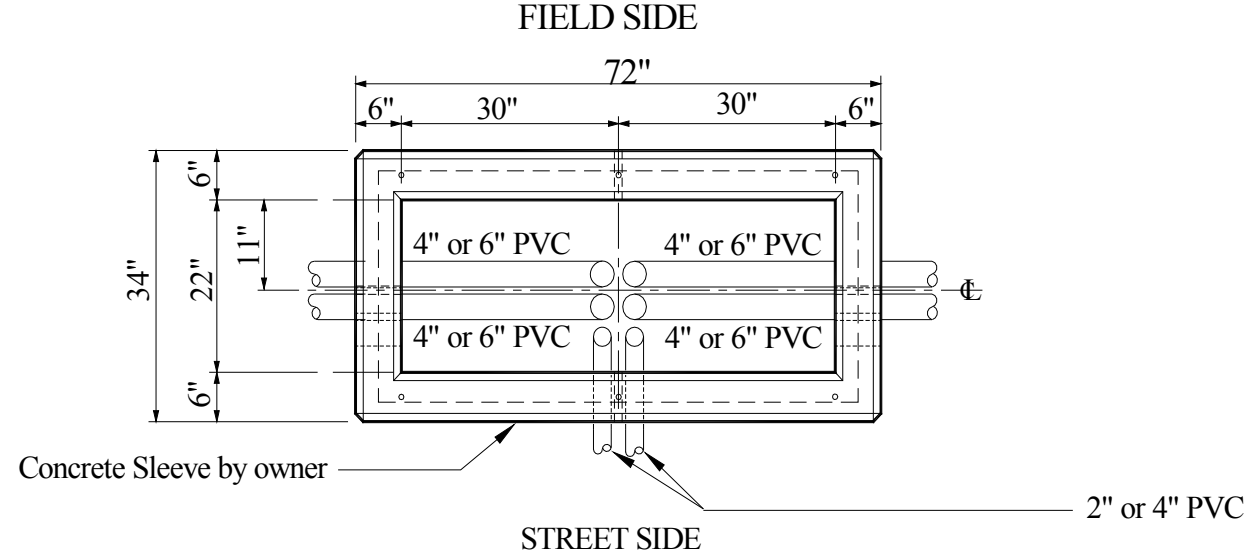
Plan View

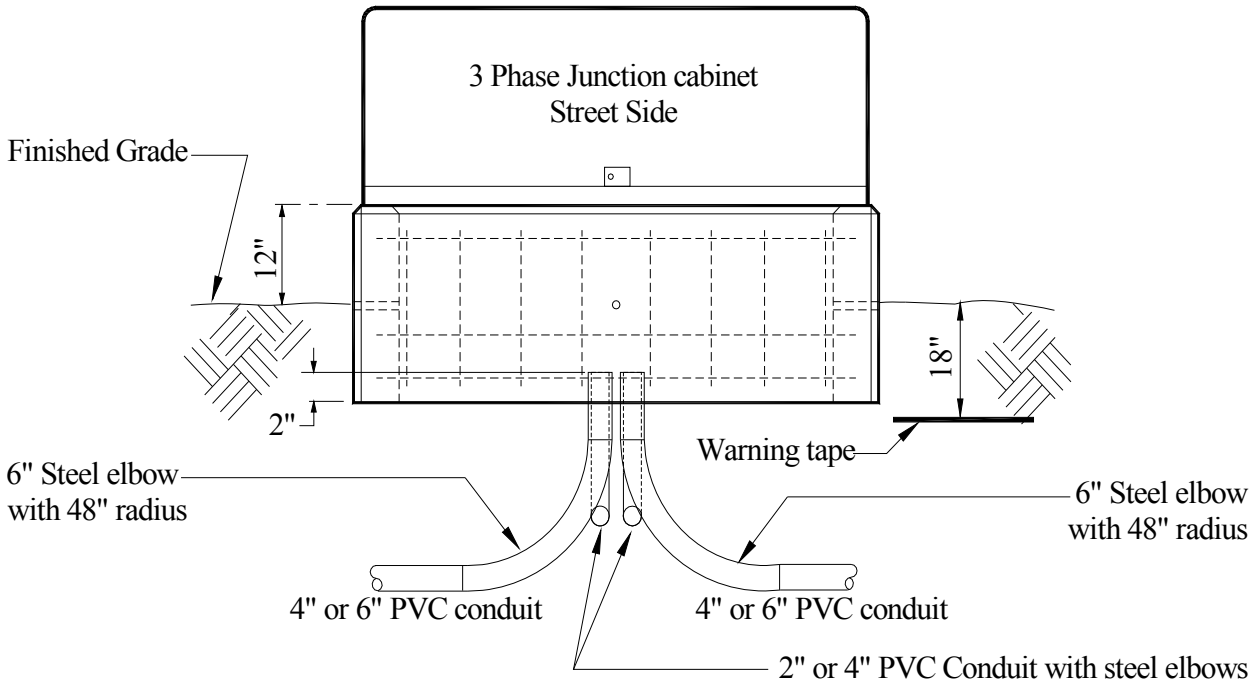


JUNCTION CABINET CONCRETE SLEEVE DETAIL (TYP.)
(Material - Concrete)

NOTES:

1) **Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipent will be installed deeper than the nominal installation depth to meet turn-up requirements.**
2) 2", 4", or 6" conduit may be used as required by GRU.
3) All conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.
4) **For 4" and 6" conduit 48" radius steel elbows are required; for less than 4" conduit 36" radius steel elbows are required**.

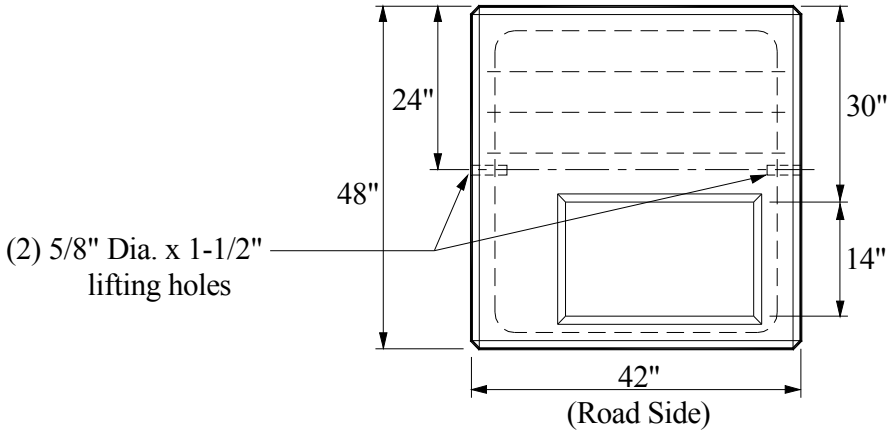




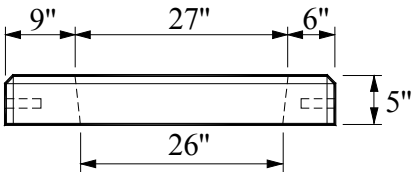
SINGLE PHASE TRANSFORMER PAD DETAIL (TYP.)

NOTES:

1) Locate transformer adjacent to lot line and right-of-way intersection for platted subdivision or 8 feet to 15 feet from paving for vehicle access.
2) Transformer shall be located a minimum of four (4) feet from building drip line and ten (10) feet from any window or door.
3) Maintain 10 feet separation from trash dumpster or trash compactor.
4) Fire Hydrants shall be installed 5'-0" (min.) from Transformers.
5) Transformer bushing will accommodate up to eight sets of 500 KCMIL.
6) See conduit layout on page 15A.



THIS SINGLE PHASE TRANSFORMER PAD WILL ACCOMMODATE ALL STANDARD GRU SINGLE PHASE TRANSFORMER SIZES.

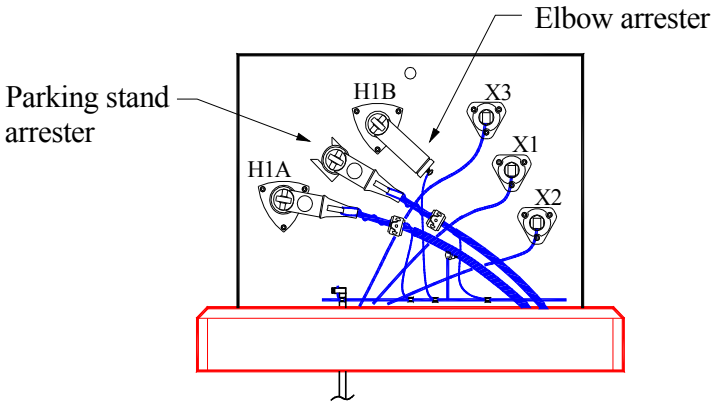


PAD ELEVATION

(Transformer pads shall be placed on compacted earth.)

WARNING:

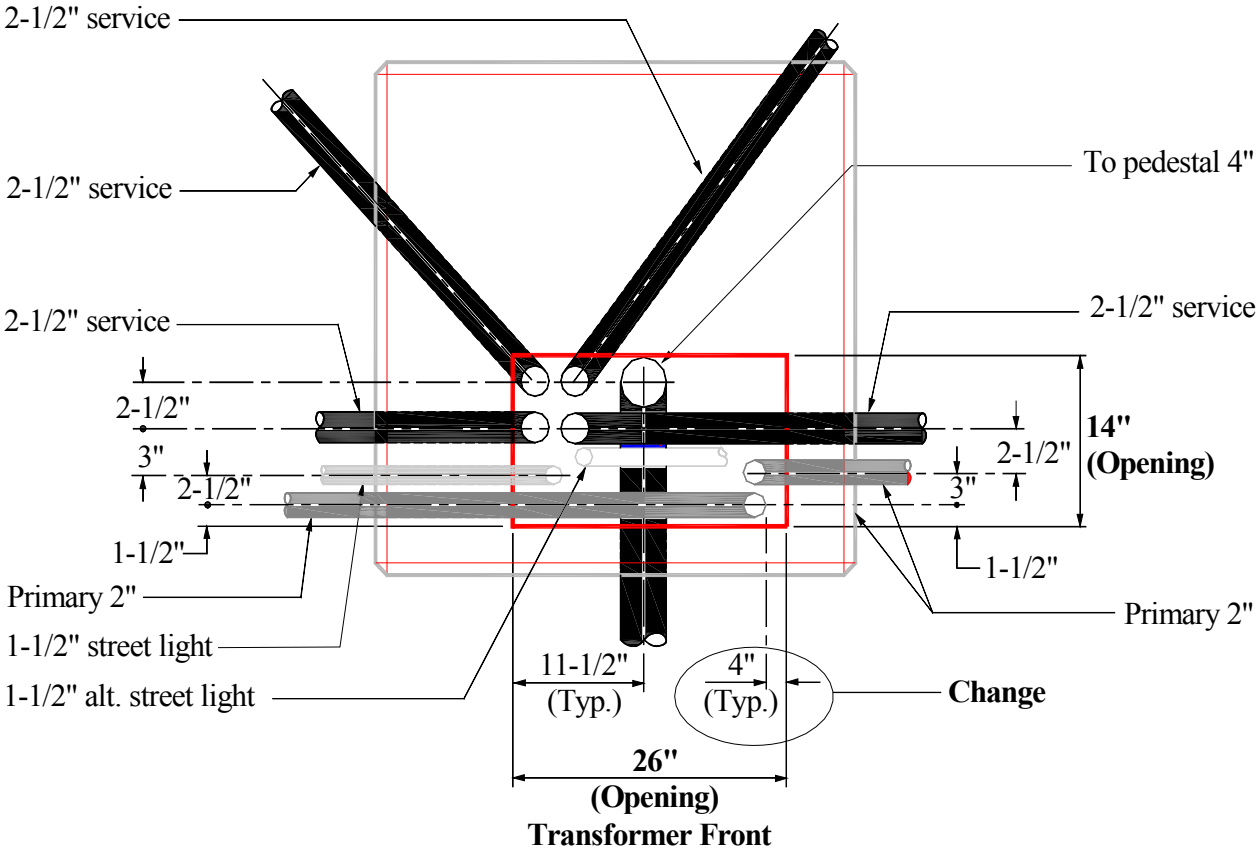
Owner shall not open transformer, push conduit under transformer, or install conductors when transformer is energized. Life threatening electrical shock may occur.

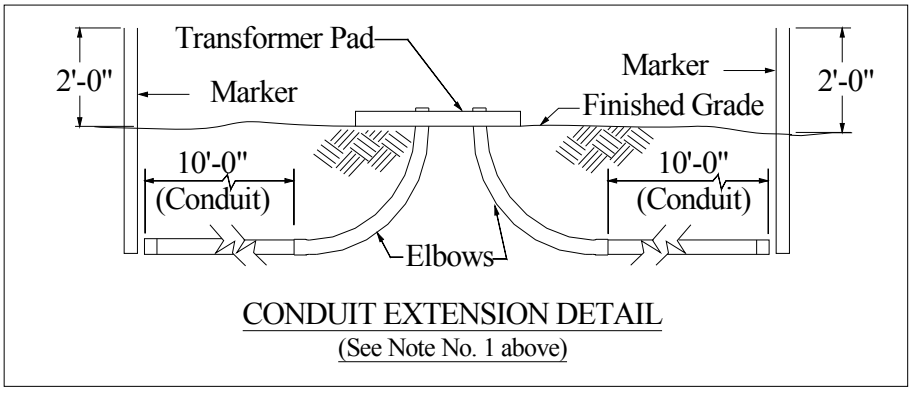


SINGLE PHASE TRANSFORMER CONDUIT LAYOUT DETAIL (TYP.)

NOTES:

1) All conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.
2) All conduit shall be extended a minimum of 10 feet from elbow with the end temporally covered. The end of the conduit shall be marked with a piece of pipe which should extend 2 feet above grade for easy location. See detail on this page.





CONDUIT EXTENSION DETAIL
(See Note No. 1 above)

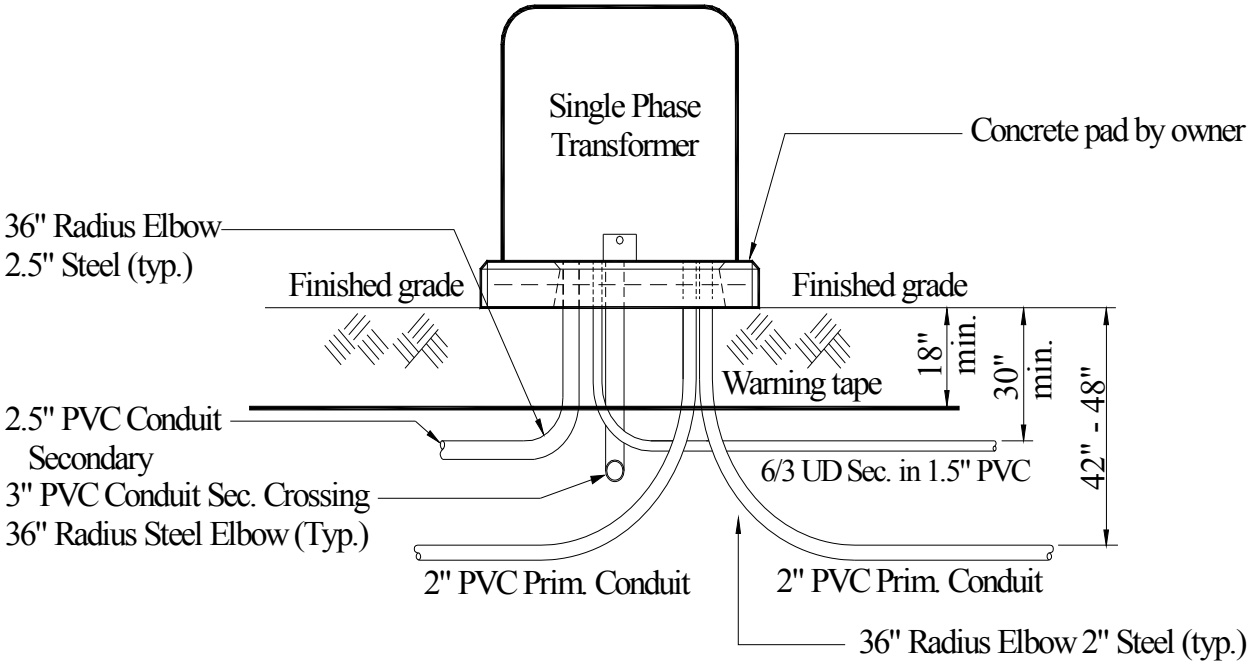
WARNING:

Owner shall not open transformer, push conduit under transformer, or install conductors when transformer is energized. Life threatening electrical shock may occur.

SINGLE PHASE TRANSFORMER INSTALLATION DETAIL (TYP.)

NOTES:

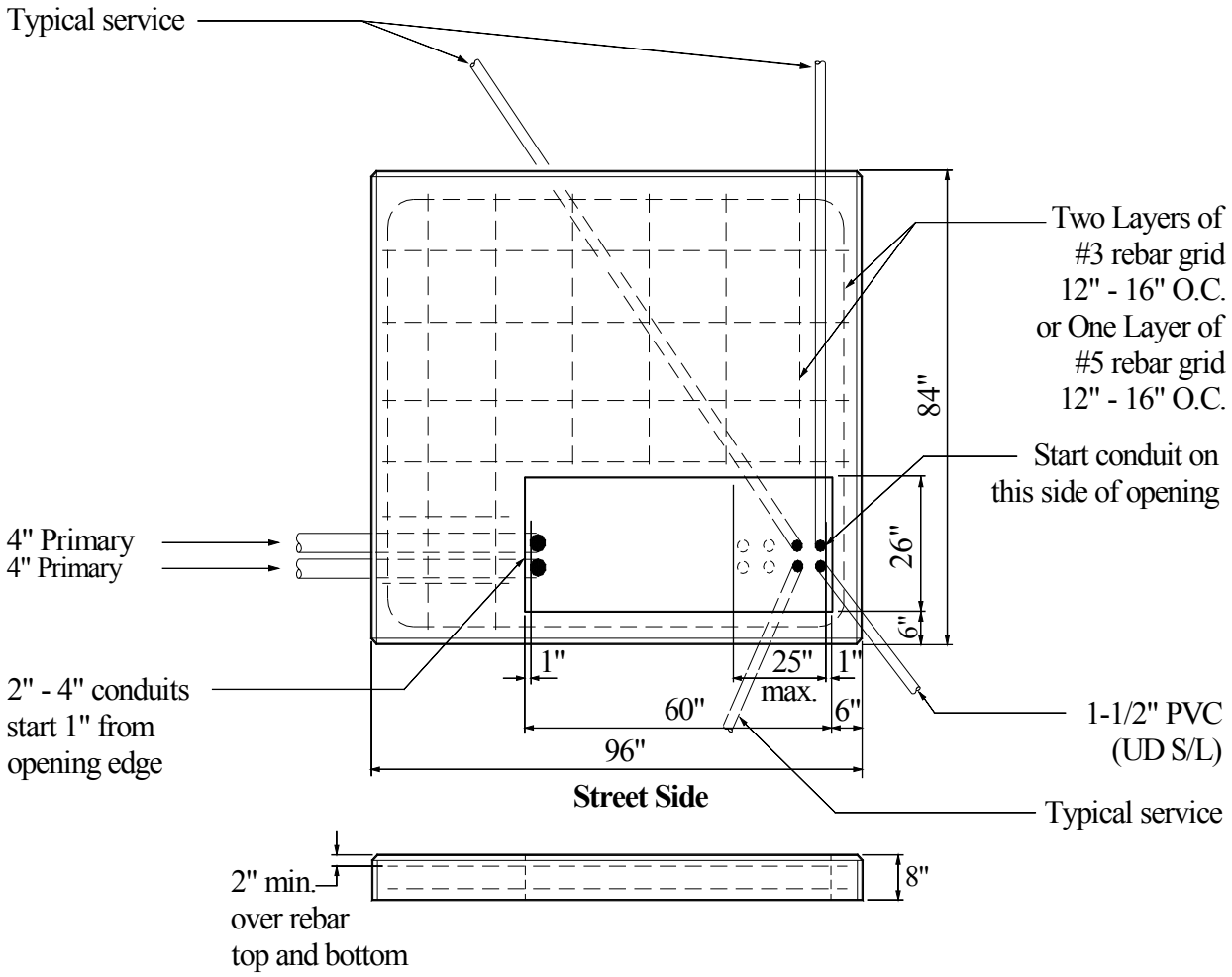
1) **Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipment will be installed deeper than the nominal installation depth to meet turn-up requirements.**
2) All conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.
3) All conduit not shown for clarity. Conduit sizes are typical.
4) **For 4" and 6" conduit 48" radius steel elbows are required; for less than 4" conduit 36" radius steel elbows are required**.



THREE PHASE TRANSFORMER PAD DETAIL (TYP.)

NOTES:

1) The dimensions listed below are to be used for transformers installed after August 8, 2019. ~~*Pad dimensions for transformers purchased before this date should be field verified.*~~
2) Transformer bushings will accommodate up to eight sets of 750 KCMIL conductor.
3) **The 3 Phase Transformer Pad shall be formerd and poured in place.**
4) This Three Phase Transformer Pad will accomodate all standard GRU Three Phase Transformer sizes.



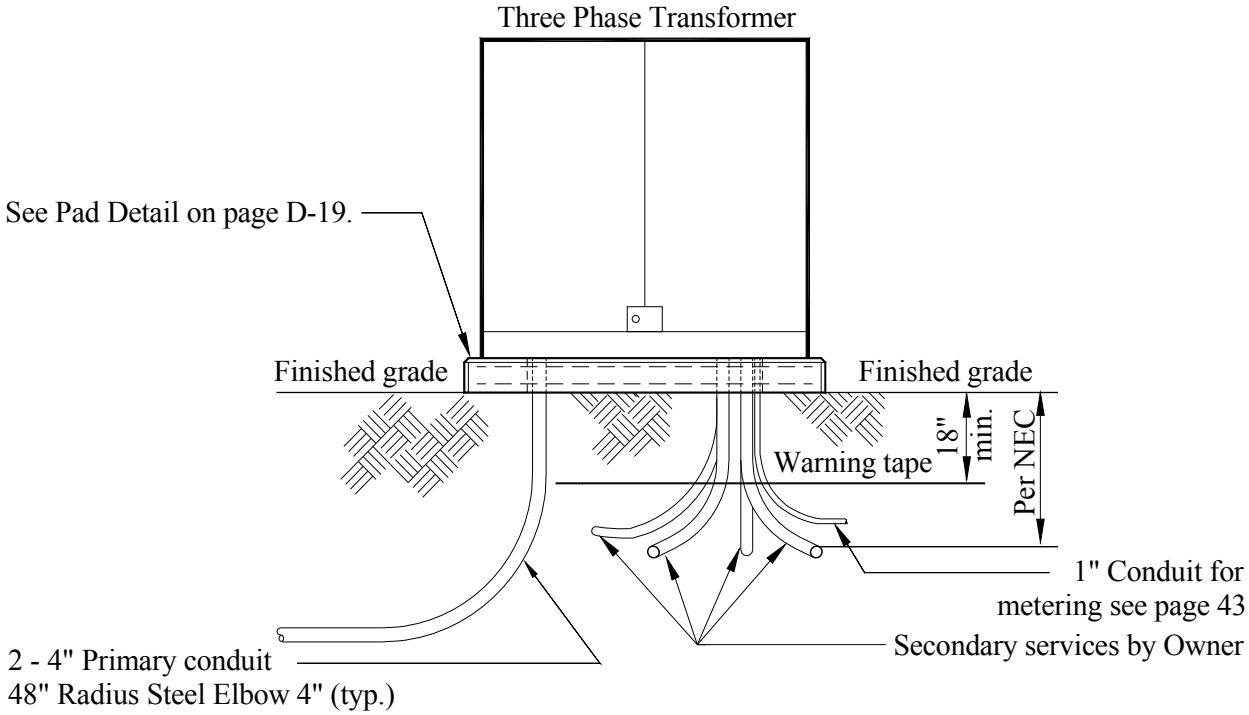
PAD ELEVATION

(Transformer pads shall be formed on compacted earth)

THREE PHASE TRANSFORMER INSTALLATION DETAIL (TYP.)

NOTES:

1) Transformers front should be 8 feet to 15 feet from paving for line truck access.
2) Transformer shall be located a minimum of four (4) feet from the building drip line and ten (10) feet from any window or door.
3) Maintain 10 feet separation from fire hydrants, trash dumpster or trash compactor.
4) Terminate conduits flush with pad.
5) Concrete pad is to be formed and poured in place, See detail on page D-19.
6) Concrete shall be 3,500 P.S.I.
7) All conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.
8) **Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipment will be installed deeper than the nominal installation depth to meet turn-up requirements.**
9) For 6" and 4" conduit 48" radius steel elbows are required, for less than 4" conduit 36" radius steel elbows are required.
10) All conduit shall be extended a minimum of 10 feet from elbow with the end temporally covered. The end if the conduit shall be marked with a piece of pipe which should extend 2 feet above grade for easy location. See detail on page D-19.

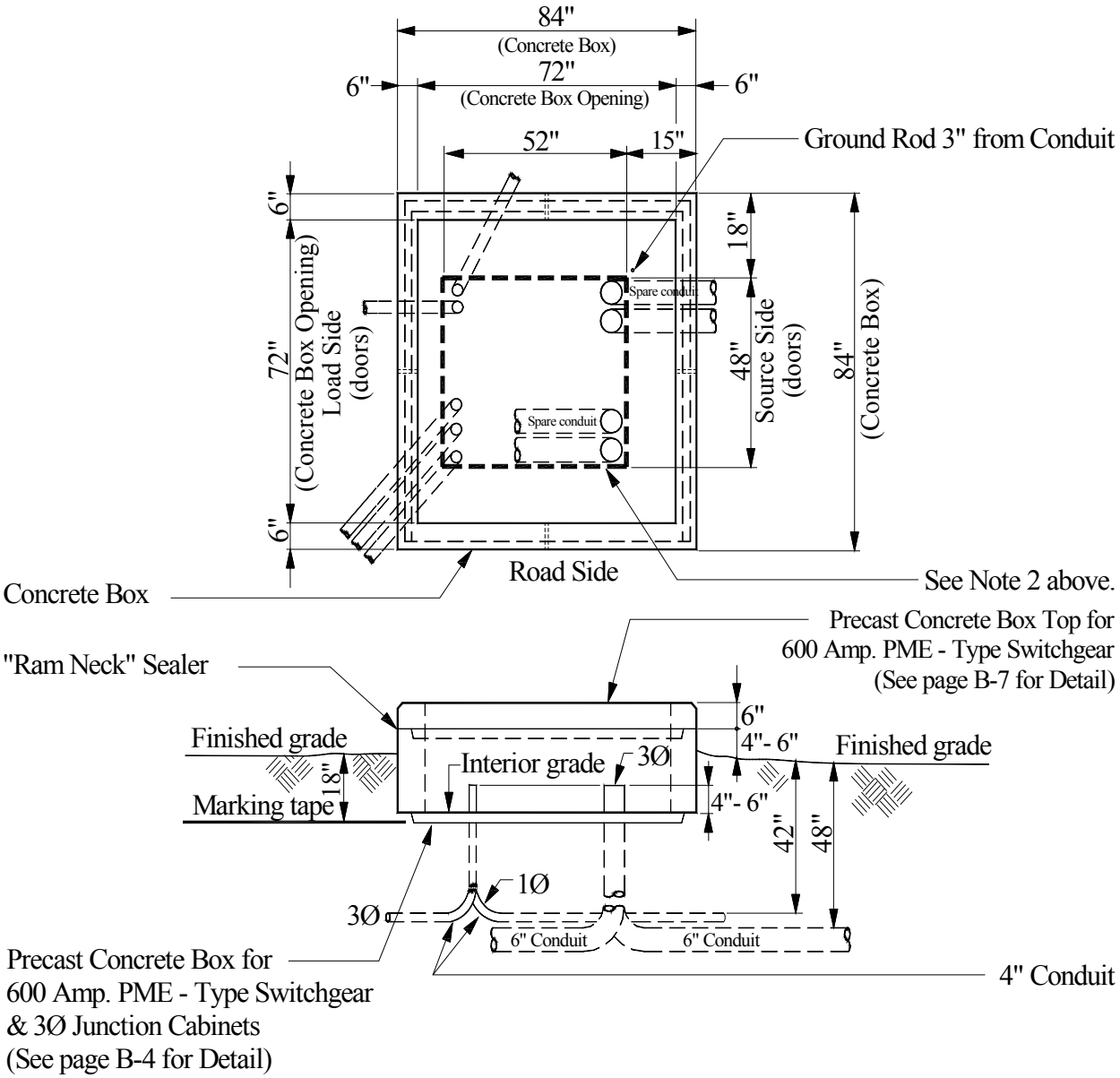


WARNING:
Owner shall not open transformer, push conduit under transformer, or install conductors when transformer is energized. Life threatening electrical shock may occur.

600 AMP. PME 9 & 11 SWITCHGEAR & 3Ø JUNCTION CABNET
CONDUIT LAYOUT DETAIL (TYP.) (Material - Precast Concrete Box)

NOTES:

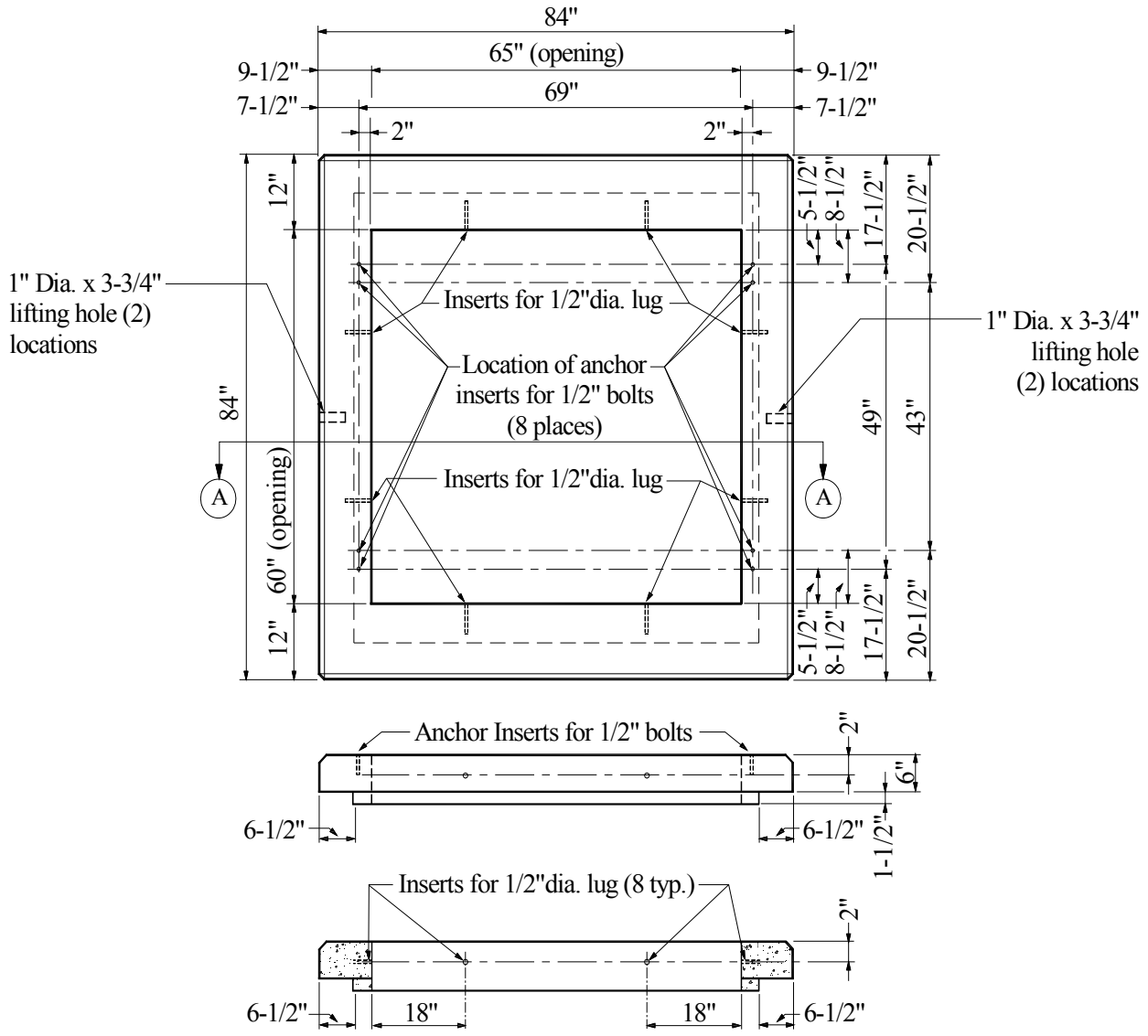
1) All conduit furnished and installed by owner. Conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.
2) This 48" x 52" (note location of fuse and switch sides of Switchgear) area will be located in the field and used to install conduit before the concrete box is installed. This area will be laid out by the crew installing the conduit.
3) For PME 9/11 top orientation detail see page D-20 in this document.
4) Do not cut off elbows.
5) For 4"and 6" conduit a 48" radius steel elbow is required, for less than 4" conduit a 36" radius steel elbow is required
6) Equipment front should be 8 feet to 15 feet from paving for line truck access.



600 AMP. PME 9 & 11 SWITCHGEAR TOP LAYOUT DETAIL (TYP.)
(Material - Precast Concrete Box)

NOTES:

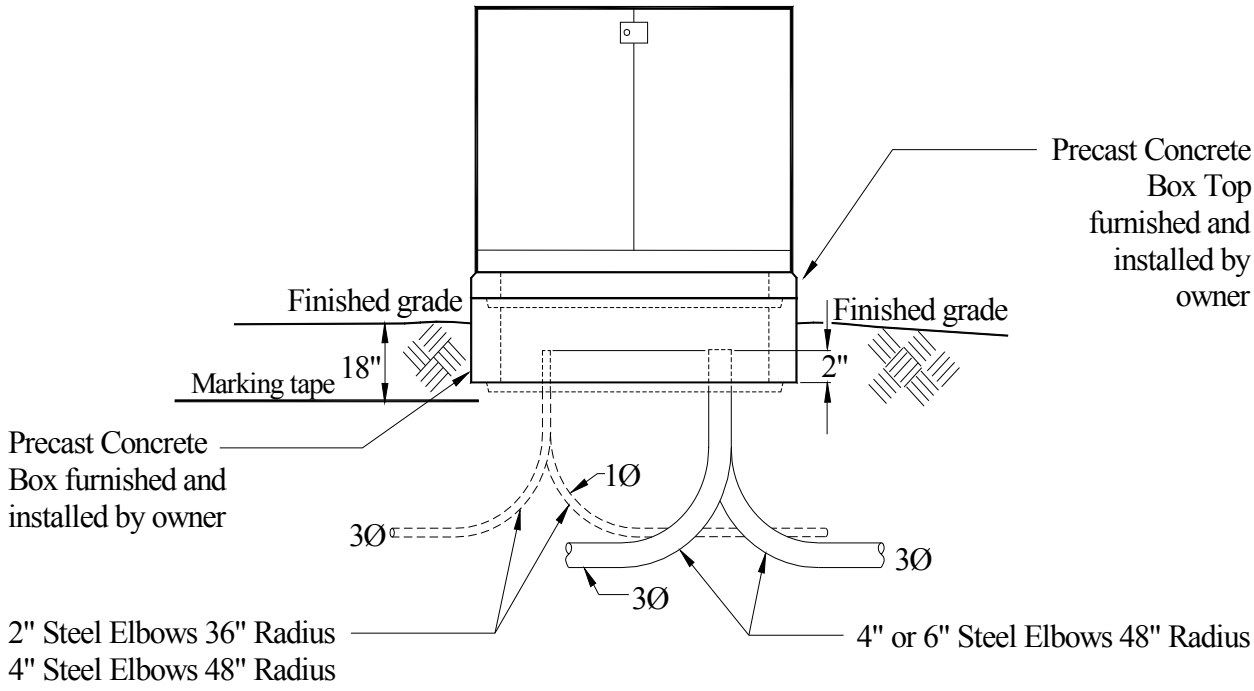
1) This drawing details the orientation of the PME 9/11 switchgear foundation top. Please note the location of the doors and the location of the anchor bolt inserts.
2) The most inner anchor inserts (from the center of the top) are used to install the PME 9 switchgear and the most outer anchor inserts (from the center of the top) are used to install the PME 11 switchgear.



600 AMP. PME TYPE SWITCHGEAR INSTALLATION DETAIL (TYP.)

NOTES:

1) All conduit furnished and installed by owner. Conduit shall be installed with one piece of continuous pre-lubricated woven polyester pull tape with printed sequential footage markings.
2) Switchgear shall be located a minimum of four (4) feet from the building drip line and ten (10) feet from any window or door.
3) Maintain 10 feet separation from fire hydrants, trash dumpster or trash compactor.
4) **Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipment will be installed deeper than the nominal installation depth to meet turn-up requirements.**



PAD-MOUNTED 24 POSITION TERMINATION ENCLOSURE - FOUNDATION (TYP.)

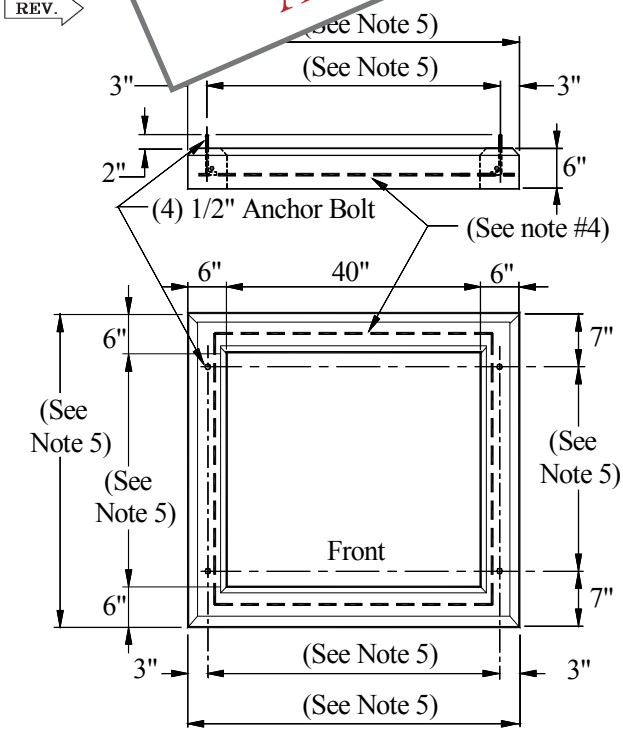
PLEASE NOTE: THIS IS NOT THE PERFERRED CONSTRUCTION METHOD AND MUST BE APPROVED BY GRU ENGINEERING

NOTES:

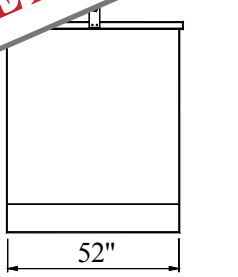
1) The installation of this equipment must be pre-approved by GRU Engineering.
2) GRU S/N 402117, Termination Enclosure (four bus bars with 24 positions per bus) can be used when a customer service requires more than the standard 8 sets of secondary connections allowed by GRU in a transformer. This equipment shall be specified by GRU and purchased, installed and maintained by the customer. (See Energy Delivery Service Guide - Text, Section 2: 2.3, 8), page 17).
3) Do not cut off elbows. Elbows at equipment locations and the condui… …sition to this equipment will be installed deeper than the nominal installatio… …up requirements.
4) The rebar size and placement (shown in the drawi… …y the customer.
5) The Concrete Pad/Foundation shall … …y the customer to fit the Termination Enclosure purch…

THIS ENCLOSURE IS DELETED AND IS NO LONGE APPROVED

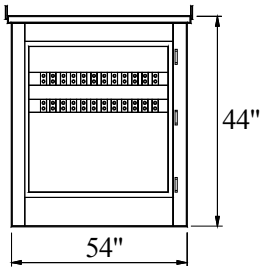
REV.



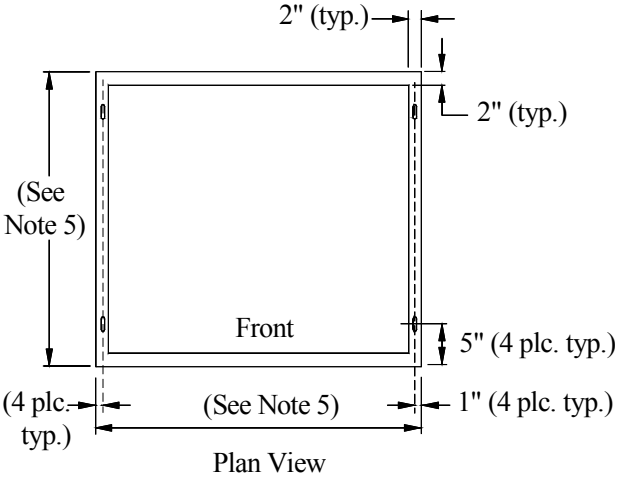
Concrete Pad/Foundation for the 24 Position Termination Enclosure
N.T.S.



Side View 24 Position Termination
N.T.S.



Front View 24 Position Termination (with door removed)
N.T.S.



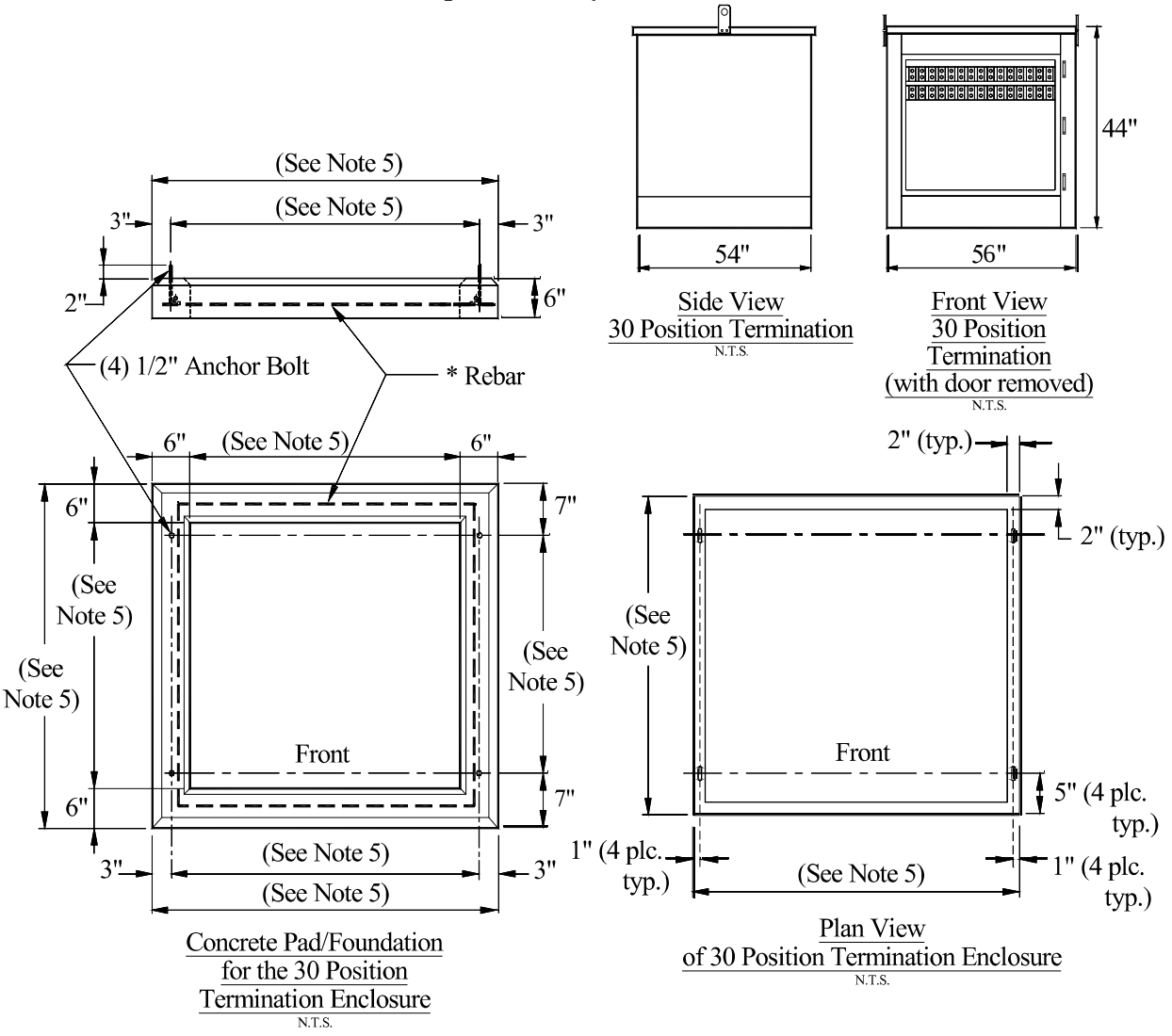
Plan View of 24 Position Termination Enclosure
N.T.S.

PAD-MOUNTED 30 POSITION TERMINATION ENCLOSURE- FOUNDATION (TYP.)

PLEASE NOTE: THIS IS NOT THE PERFERRED CONSTRUCTION METHOD AND MUST BE APPROVED BY GRU ENGINEERING

NOTES:

1) The use of this equipment must be pre-approved by GRU Engineering.
2) GRU S/N 40216-8, Termination Enclosure (four bus bars with 30 positions per bus) can be used when a customer service requires more than the standard 8 sets of secondary connections allowed by GRU in a transformer. This equipment shall be specified by GRU and purchased, installed and maintained by the customer. (See Energy Delivery Service Guide - Text, Section 2: 2.3, 8), page 17).
3) Do not cut off elbows. Elbows at equipment locations and the conduit system transition to this equipment will be installed deeper than the nominal installation depth to meet turn-up requirements
4) The rebar size and placement (shown in the drawing below) shall be determined by the customer.
5) **The Concrete Pad/Foundation shall be formed and poured in place by the customer to fit the Termination Enclosure purchased by customer.**



UNDERGROUND ELECTRIC, FIBER OPTIC CABLE AND GAS LEGEND FOR CONSTRUCTION DRAWING DETAILS (TYP.)

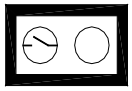
OWNER = OWNER OR OWNER REPRESENTATIVE
PROVIDE = OWNER FURNISHED AND INSTALLED
OFI = OWNER FURNISHED AND INSTALLED

ALL CONDUIT, PADS, UD JUNCTIONS BOXES, SERVICE ENCLOSURES & SERVICE PROVIDED BY OWNER

ALL WORK SHALL COMPLY WITH THE GRU ENERGY DELIVERY SERVICE GUIDES DATED JUNE 1, 2000 OR LATER.

EXISTING	NEW	
		OFI ROUND BURIED STREETLIGHT ENCLOSURE 10.5" DIAMETER X 19' DEEP, HIGH DENSITY POLYETHYLENE. INCLUDES 30" RADIUS PVC ELBOWS FOR ALL 1.5" CONDUIT.
		OFI BURIED POLYMER CONCRETE UD SERVICE ENCLOSURE 17" X 30" X 18" DEEP. INCLUDES 36" RADIUS PVC ELBOW FOR ALL CONDUIT AS NOTED.
		OFI BURIED POLYMER CONCRETE UD JUNCTION BOX 30" X 48" X 30" DEEP. INCLUDES 48" RADIUS STEEL ELBOW FOR ALL CONDUIT AS NOTED.
		OFI 6" PRIMARY CONDUIT AT 48" MINIMUM DEPTH FROM TOP OF CONDUIT TO FINISHED GRADE. CABLE BY GRU.
		OFI 4" PRIMARY CONDUIT AT 42" MINIMUM DEPTH FROM TOP OF CONDUIT TO FINISHED GRADE. CABLE BY GRU.
		OFI 2" PRIMARY CONDUIT AT 42" MINIMUM DEPTH FROM TOP OF CONDUIT TO FINISHED GRADE. CABLE BY GRU.
		TRENCH LINE (CENTER OF TRENCH) WITH CONDUIT, GAS, ELECTRIC, ETC. AS NOTED.
		OFI FIBER OPTIC PVC CONDUIT (2", OR 4") AT 30" DEPTH FROM TOP OF CONDUIT TO FINISHED GRADE.
		1.25" GAS
		2" GAS
		3" GAS
		4" GAS
		6" GAS
		J & B CASING (ELECTRIC), SLEEVE FOR GAS, 2" FOR 1.25" GAS, 4" FOR 2" GAS, 6" FOR 4" GAS, AND 8" FOR 6" GAS.

UNDERGROUND ELECTRIC, FIBER OPTIC CABLE AND GAS LEGEND FOR CONSTRUCTION DRAWING DETAILS (TYP.) (continued from previous page)

EXISTING	NEW	
		PRIMARY FUSED CABINET WITH OFI CONCRETE PAD.
		PRIMARY SWITCHGEAR (PME9 OR PME11) WITH OFI CONCRETE BASE AND TOP.
		TRANSFORMER WITH OFI CONCRETE PAD.
		JUNCTION CABINET (TAP BOX) WITH OFI CONCRETE BASE AND TOP.
		MANHOLE (WITH SWITCH)
		CUTOFF STREETLIGHT ON WOOD, FIBERGLASS OR CONCRETE (SQUARE) POLES.
		DECORATIVE LUMINAIRES (TEARDROP, PENDANT, ROUND) ON ALUMINUM OR CONCRETE POLES
		FLOODLIGHT WITH WOOD OR CONCRETE (SQUARE) POLES.
		DECORATIVE PEDESTRIAN LIGHT
		ROUND/SQUARE POLE BY GRU
REV. STEEL ELBOWS		ALL 2", 4" AND 6" PRIMARY CONDUIT ELBOWS SHALL BE RIGID GALVANIZED STEEL, UNLESS OTHERWISE NOTED, IN COMPLIANCE WITH THE LATEST NATIONAL ELECTRICAL CODE (NEC), SHALL BE UL LISTED AND SHALL BE IN ACCORDANCE WITH ANSI STANDARD C80.1 1996 OR LATEST REVISION. MINIMUM RADIUS SHALL BE 30" FOR SECONDARY CONDUIT, 36" FOR 2" PRIMARY CONDUIT AND 48" FOR 4" AND 6" PRIMARY CONDUIT.
REV. PVC CONDUIT		PVC CONDUIT SHALL BE SCHEDULE 40 RIGID NON-METALLIC HEAVY WALL TYPE ELECTRICAL CONDUIT IN COMPLIANCE WITH THE LATEST NATIONAL ELECTRICAL CODE (NEC) ARTICLE 347, AND SHALL BE IN ACCORDANCE WITH NEMA TC2- (LATEST) AND SHALL BE IN THE GRU APPROVED MATERIALS LIST. INSTALL GRU APPROVED MARKING TAPE AND PULL STRING FOR ALL CONDUIT. **PLEASE NOTE THIS PVC CONDUIT IS NOT UL LISTED AND SHOULD ONLY BE USED FOR GRU CONSTRUCTION.**

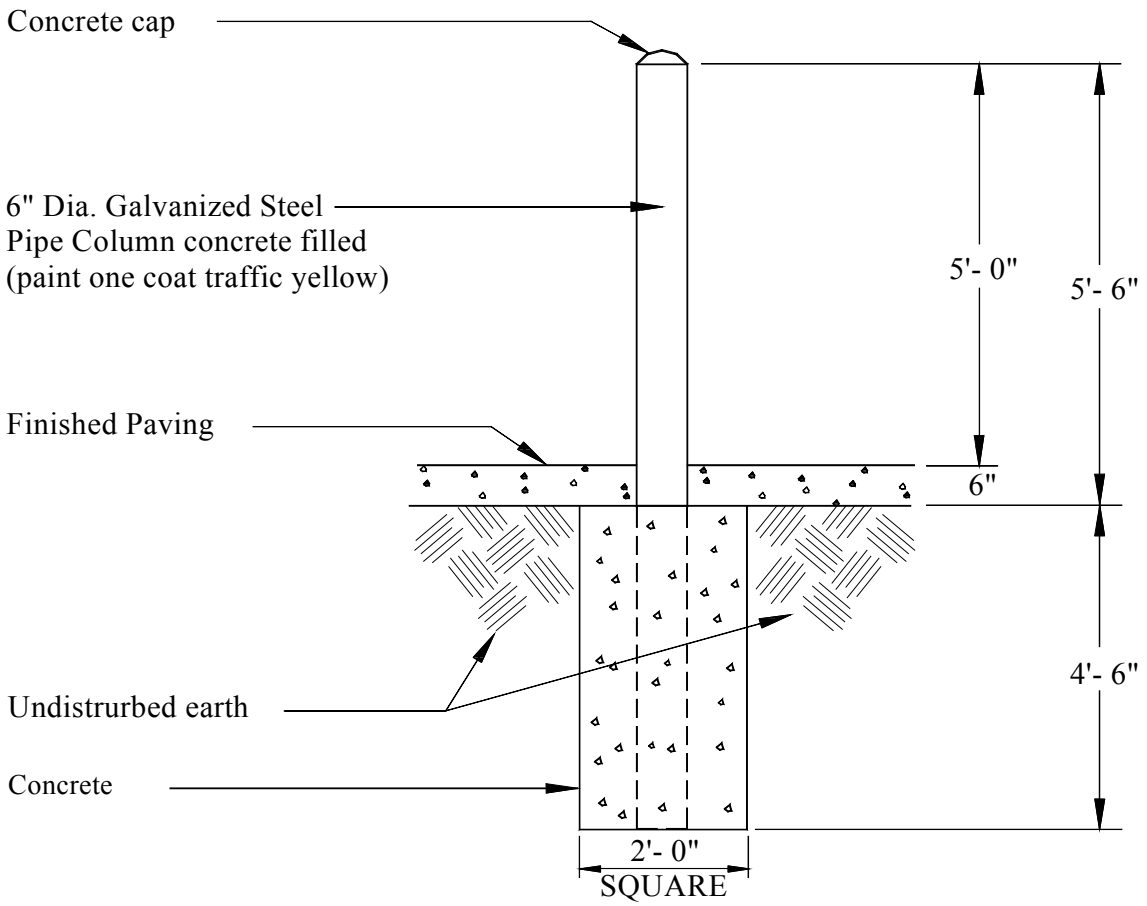
A PRE-CONSTRUCTION CONFERENCE IS REQUIRED BETWEEN THE OWNER AND GRU, PRIOR TO STARTING WORK FOR COORDINATION OF TRADES.

ALL WORK RELATED TO GRU PRIMARY AND SECONDARY CONSTRUCTION MUST BE INSPECTED BY GRU'S ELECTRICAL INSPECTOR PRIOR TO BACKFILLING. THE INSPECTOR REQUIRES A 48 HOUR NOTIFICATION.

LARGE TRAFFIC BUMPER DETAIL (TYP.) (Material - Concrete & Pipe)
For Three Phase Transformers and 600 Amp. Switchgear

NOTES:

1) This traffic bumper shall be furnished and installed by customer using this detail.

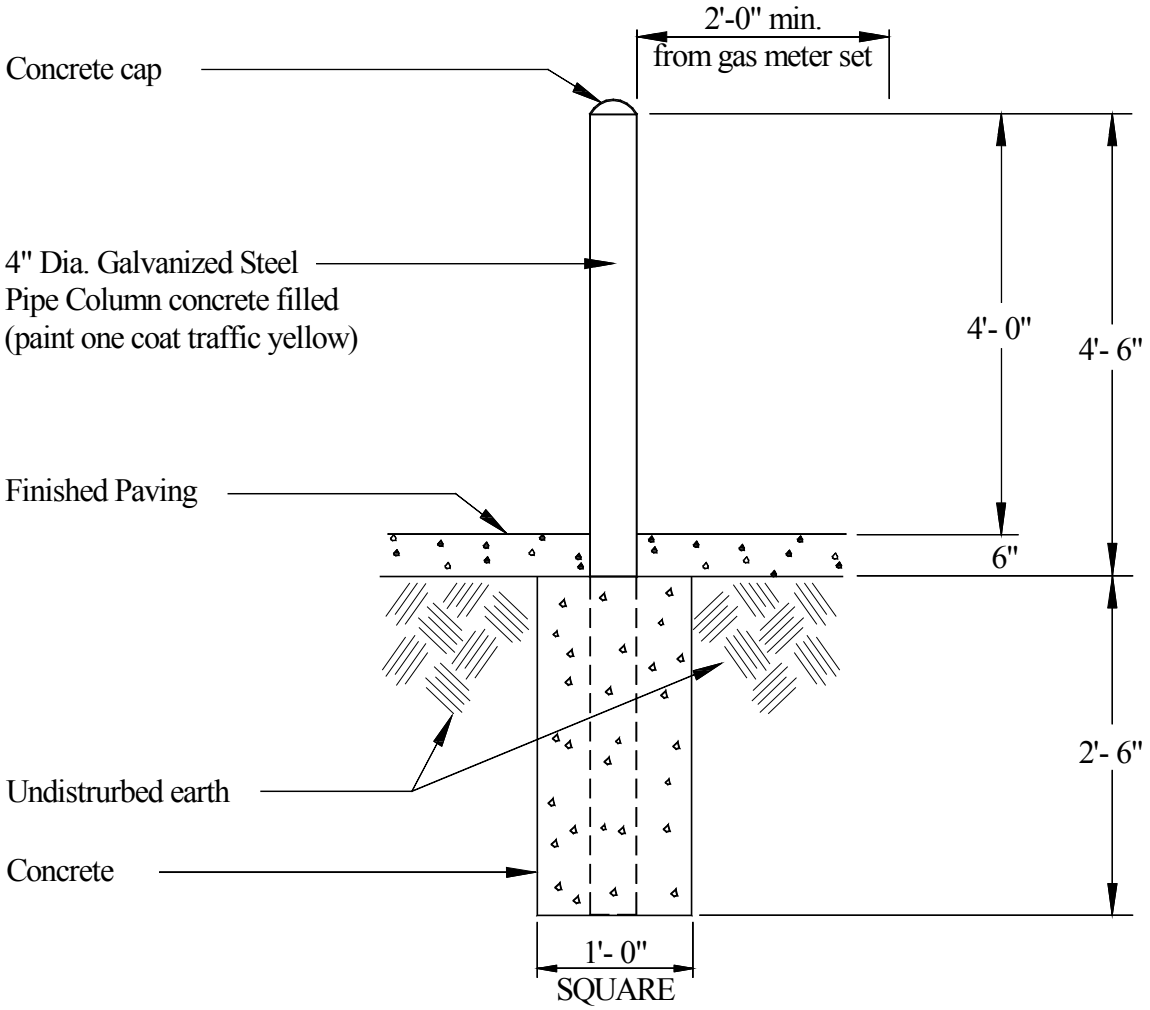


LARGE TRAFFIC BUMPER DETAIL
N.T.S.

SMALL TRAFFIC BUMPER DETAIL (TYP.) (Material - Concrete & Pipe)
For Single Phase Transformers *and Gas Meters*

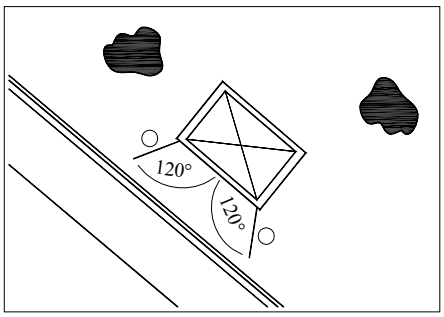
NOTES:

1) This traffic bumper shall be furnished and installed by customer using this detail.
2) Traffic bumpers shall be placed a minimum of 2'-0" from a Gas Meter Set.

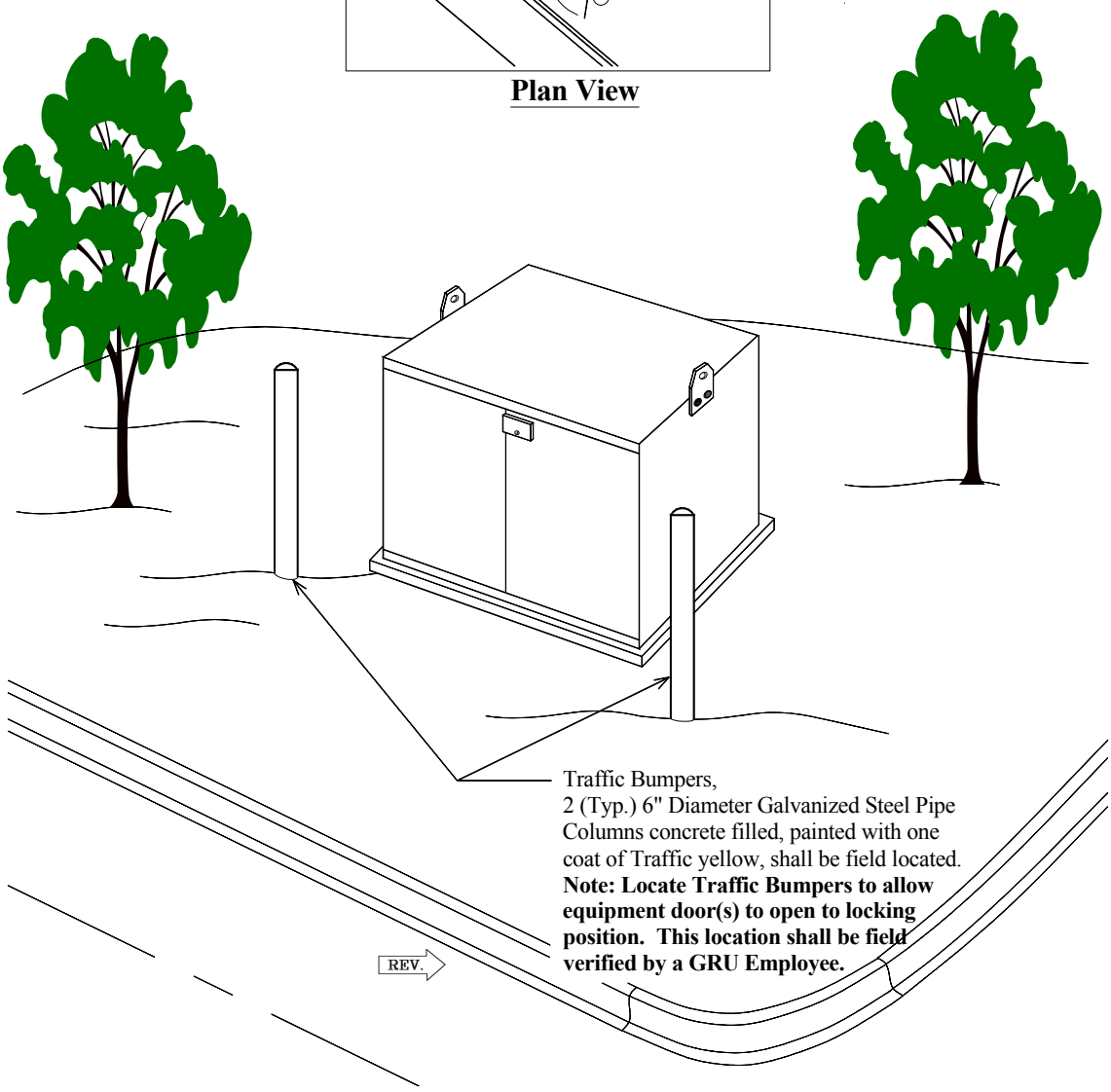


SMALL TRAFFIC BUMPER
DETAIL
N.T.S.

TRAFFIC BUMPER LOCATION DETAIL (TYP.) (Material - Concrete & Pipe)
For Three Phase Transformers and 600 Amp. Switchgear



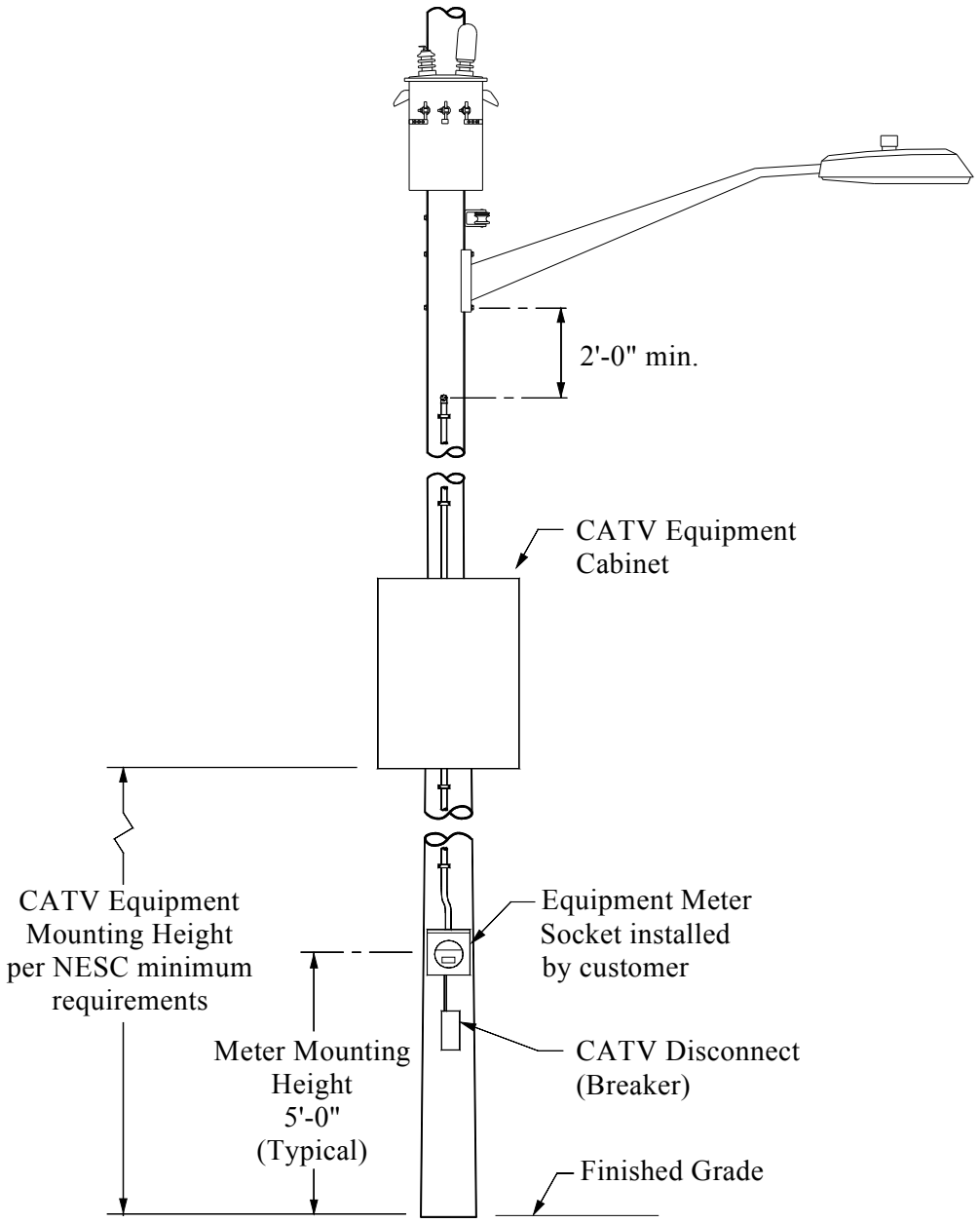
Plan View



CATV EQUIPMENT PLACEMENT ON GRU POLES (TYPICAL)

NOTES:

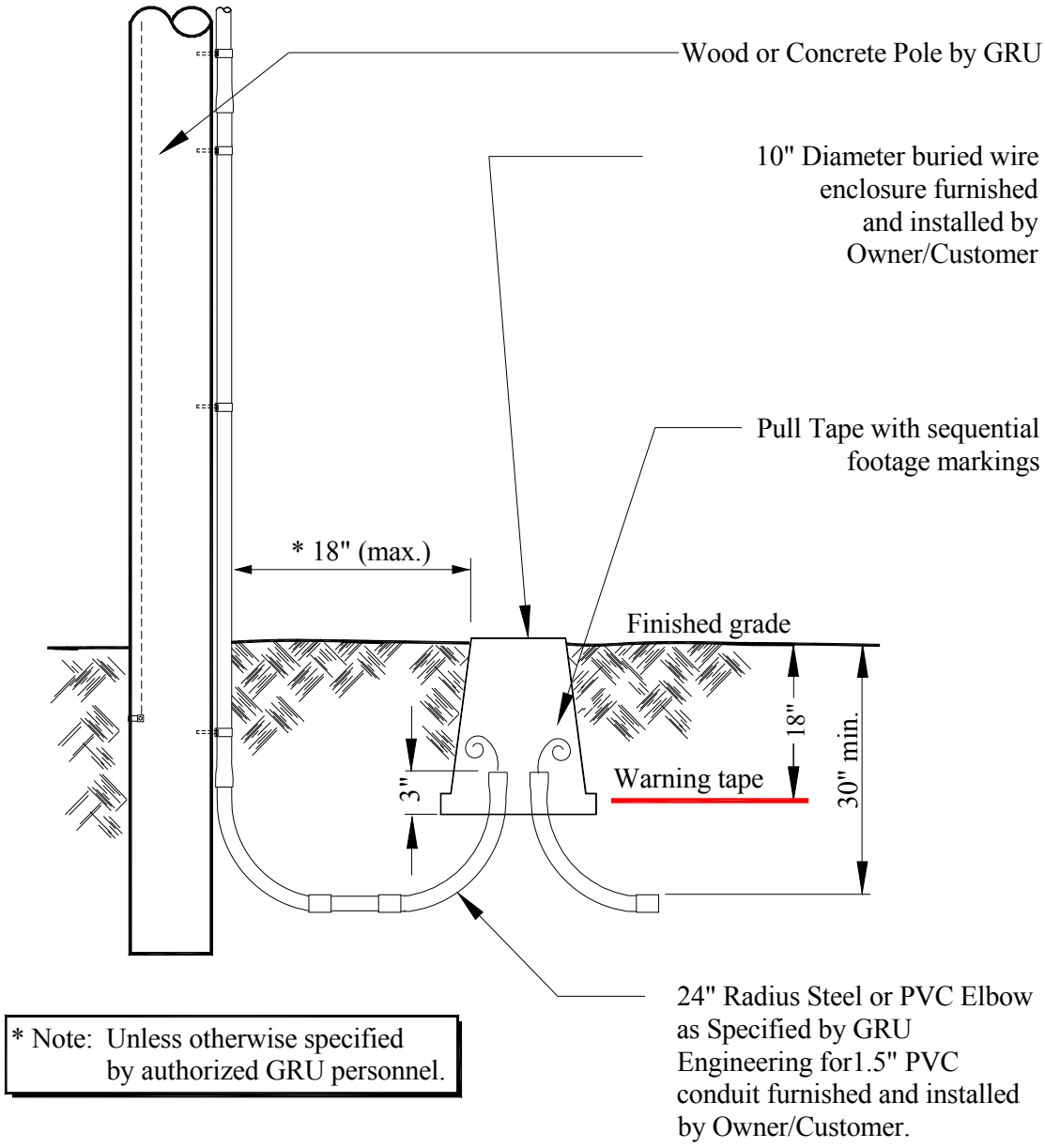
1) CATV equipment shall be installed by customer using these dimensions.
2) CATV equipment shall be installed on one quarter of the pole and shall meet all applicable codes.
3) The Street Side and the Field Side of the pole shall not be used.



APPENDIX - E
STANDARD CONSTRUCTION LIGHTING DETAILS

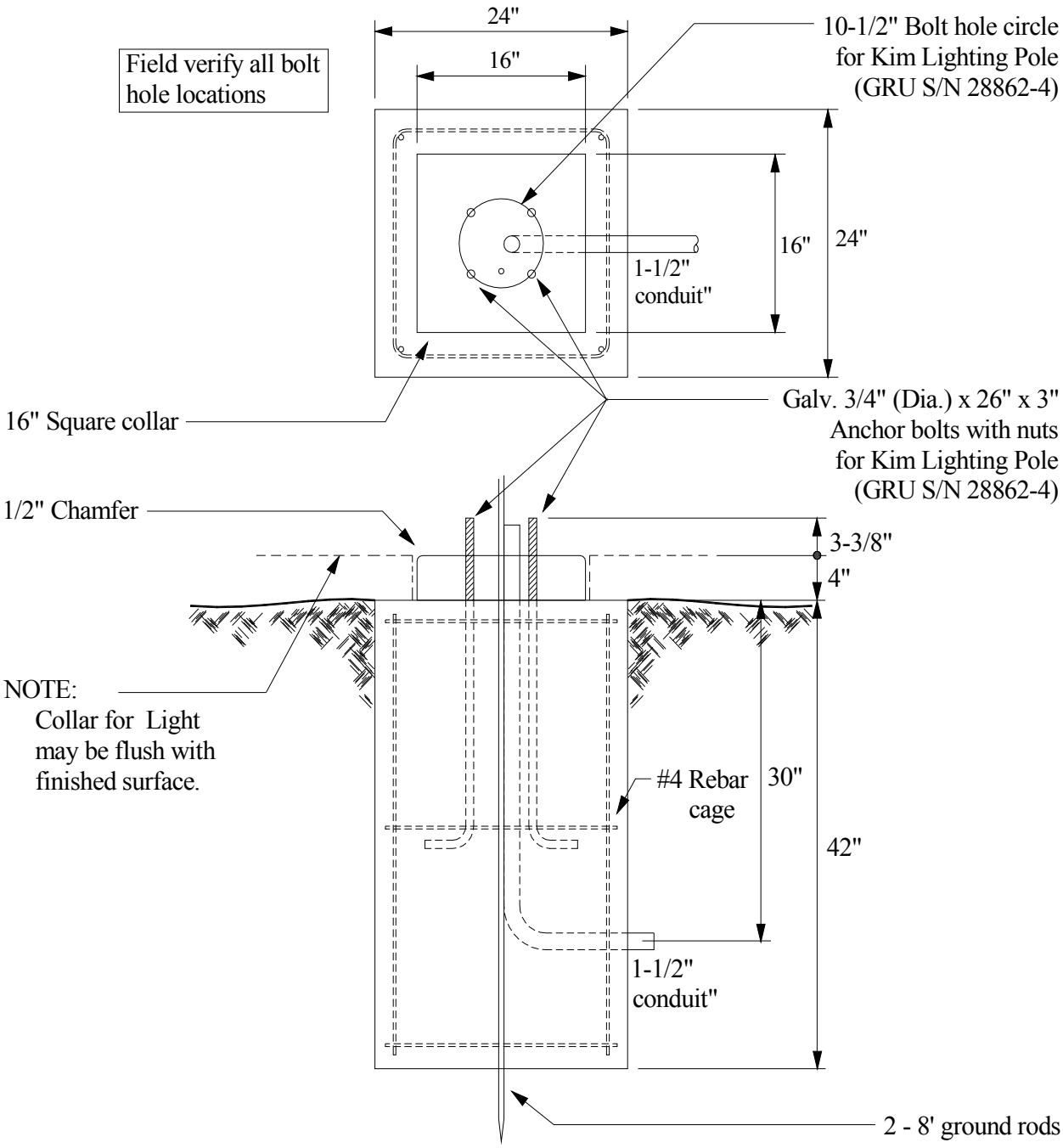
Please note revised information in this guide will be printed in "*Italics*".

STREETLIGHT DETAIL POLE AND ENCLOSURE (TYP.)

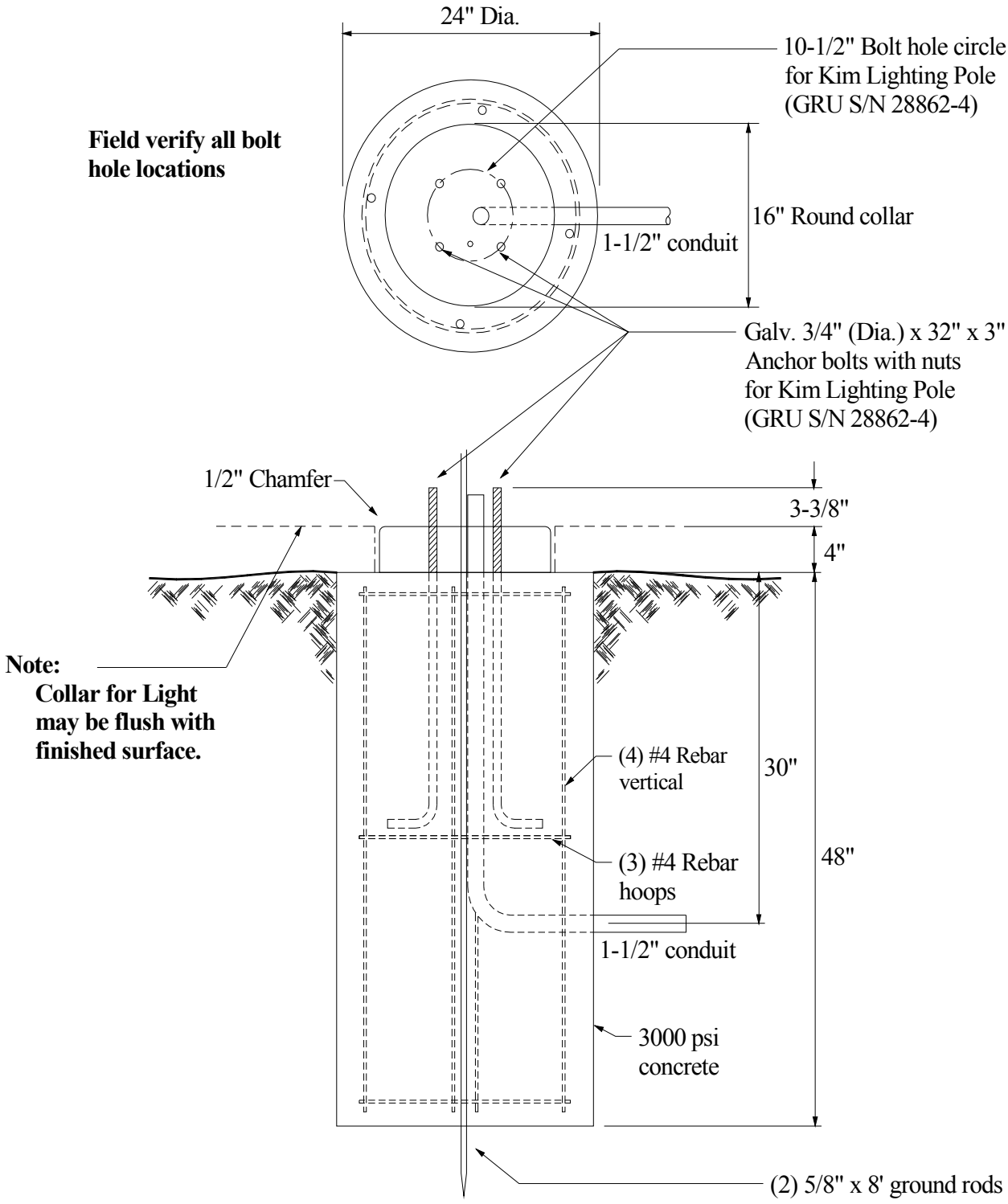


* Note: Unless otherwise specified by authorized GRU personnel.

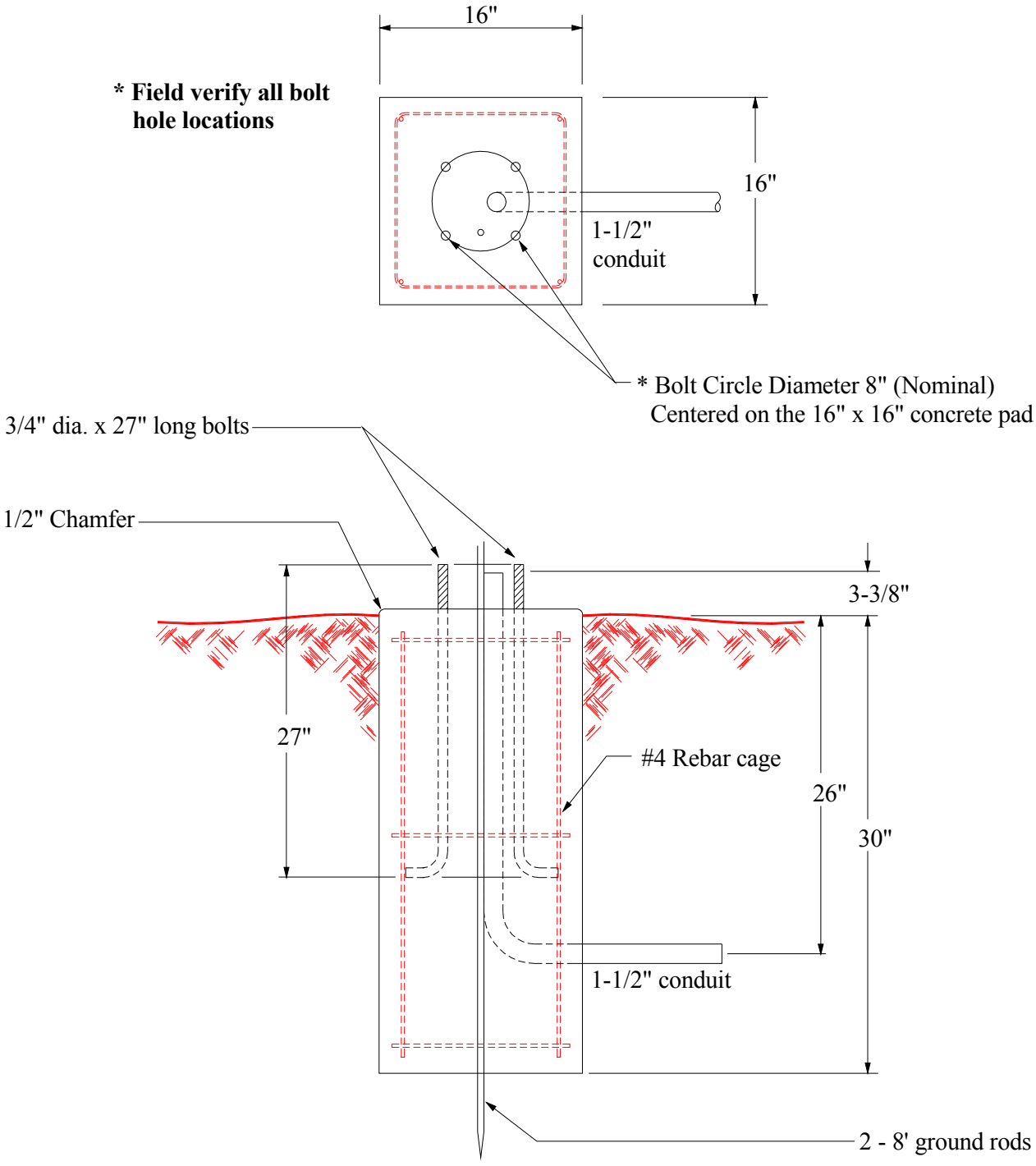
LED ROUND ROADWAY LIGHT- SQUARE FOUNDATION DETAIL (TYP.)



LED ROUND ROADWAY LIGHT - ROUND FOUNDATION DETAIL (TYP.)

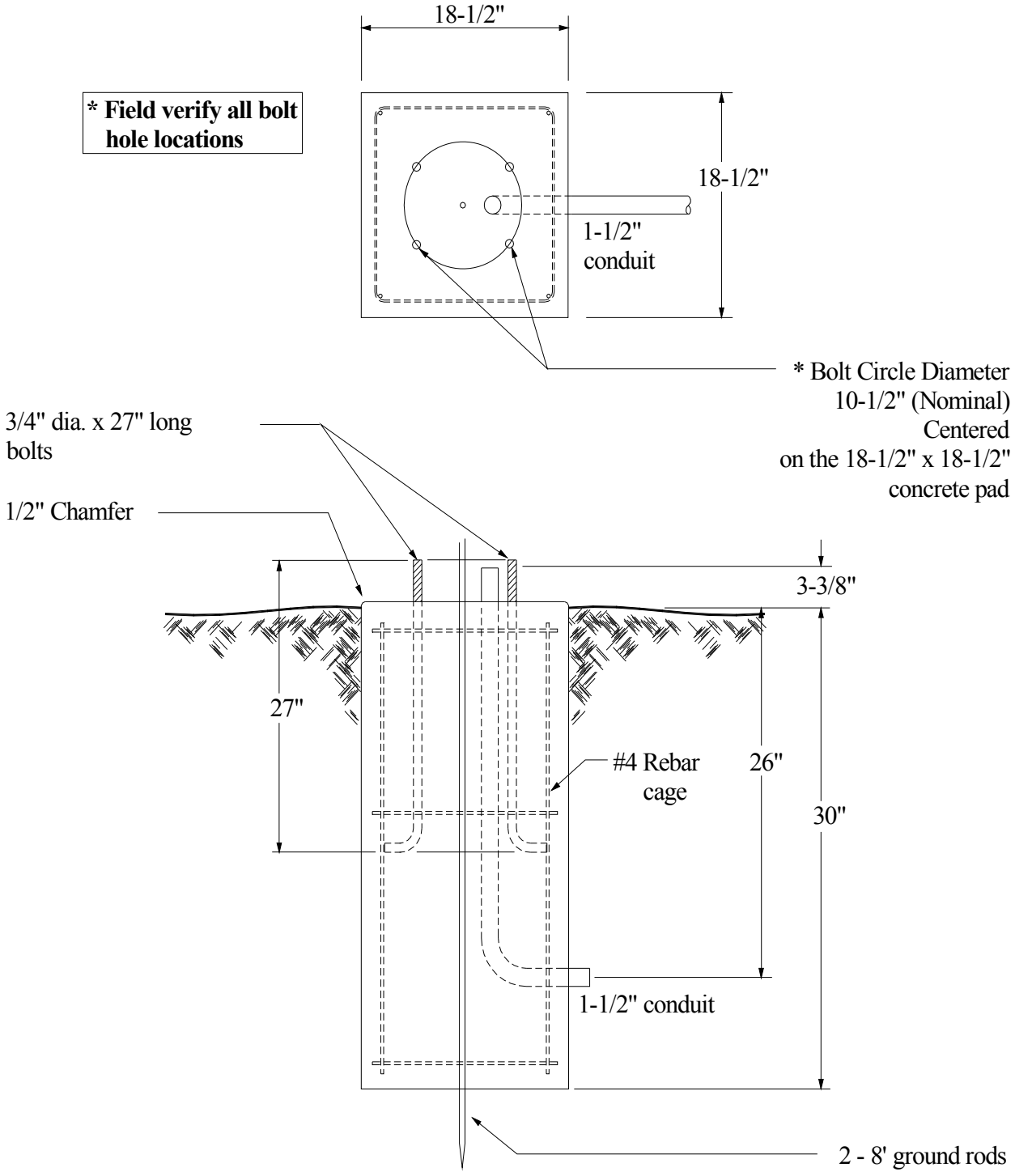


100W. HPS "DOMUS" CONCRETE FOUNDATION DETAIL FOR POLE WITH BASE COVER OR "BOTTLENECK POLE" (TYP.)

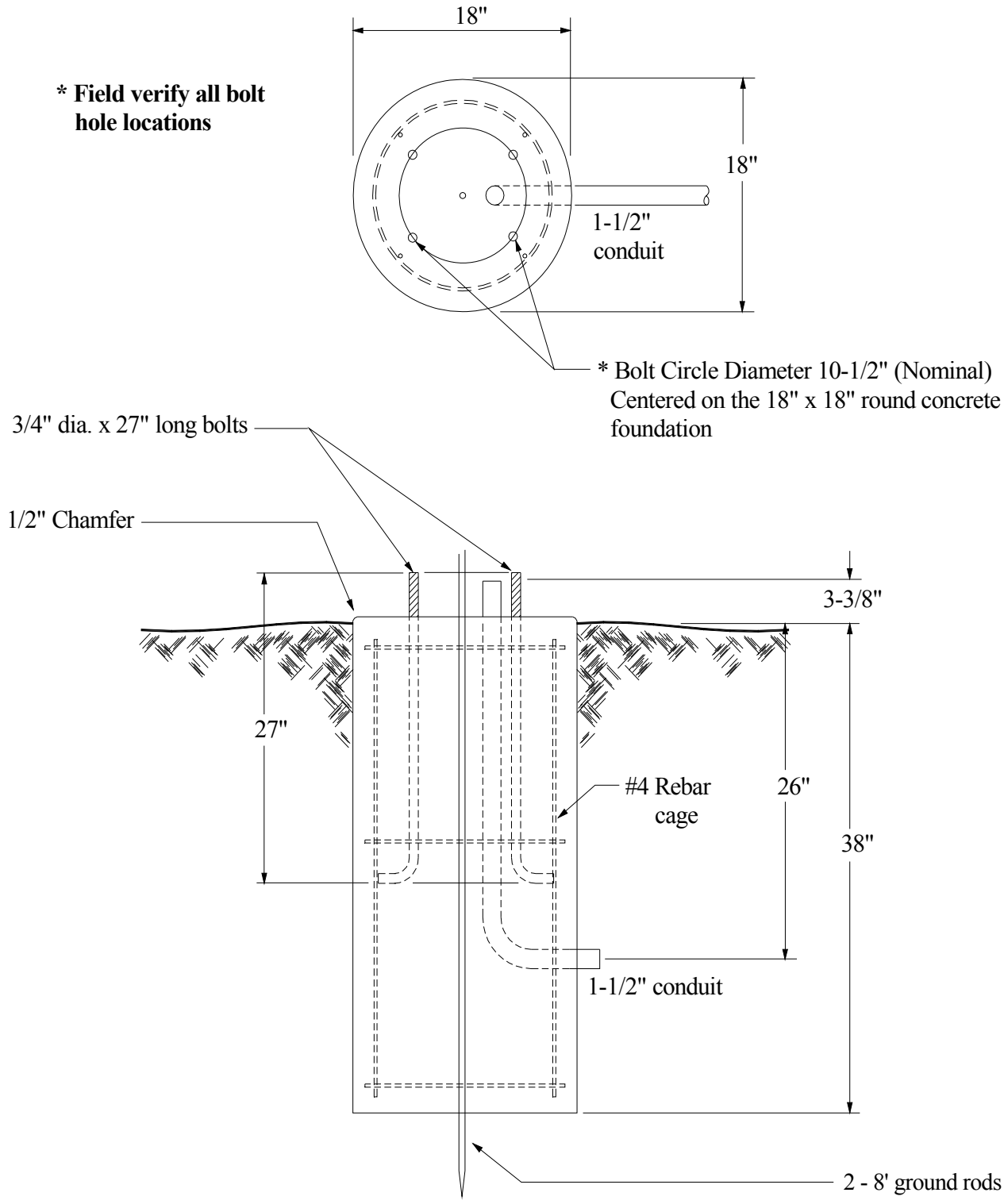


This Base No Longer Used

LED PENDANT ROADWAY LIGHT- CONCRETE FOUNDATION DETAIL FOR POLE WITH BASE COVER OR "BOTTLENECK POLE" (TYP.)



LED PENDANT ROADWAY LIGHT - ROUND CONCRETE FOUNDATION DETAIL FOR POLE WITH BASE COVER OR "BOTTLENECK POLE" (TYP.)



APPENDIX - W
GRU WEB CATALOG SEARCH - Instructions

How to Look Up the
Energy Delivery Service Guides on The GRU Web Site

The Gainesville Regional Utilities (GRU) Energy Delivery Service Guide and Appendixes, issued by Energy Delivery Standards, may be viewed and printed from the following Web Site:

http://www.gru.com

Below are the steps for access the GRU Web Site and the Energy Delivery Service Guides.

Steps To View Web Site from you browser:

Step 1) Type in: www.gru.com - this is the GRU Web Site
Step 2) Go to the Title Bar drop down menu "Work with GRU" - select
Step 3) Under "Work with GRU Links" (left hand side of the web page) choose "Construction & Development" , and then choose "Energy Delivery Services Guide" this will take you to a new page.

How to Look Up the
Energy Delivery Service Guides on The GRU Web Site, cont.

Step 4) At the bottom of this page are the links to the "Energy Delivery Service Guide" documents.

* Step 5) "Energy Delivery Service Guide (pdf)" will open up the text document.

* Step 6) "Energy Delivery Service Guide Appendixes (pdf)" will open up the document that contains materials, construction drawings and other information.

* Note: If the file does not appear and no error message is indicated refresh your screen using the F5 key and/or **check to make sure your "Pop-Up" blocker is disabled**. The pages at this location are in PDF (Acrobat Reader) file format and can be printed for your files.

How to Look Up the Energy Delivery Manuals Pages on The GRU Web Site

Gainesville Regional Utilities (GRU) Approved Electric System Materials, Approved Safety Equipment and Tools and the Approved Gas Materials Manuals issued by Energy Delivery Standards may be viewed and printed from the following Web Site:

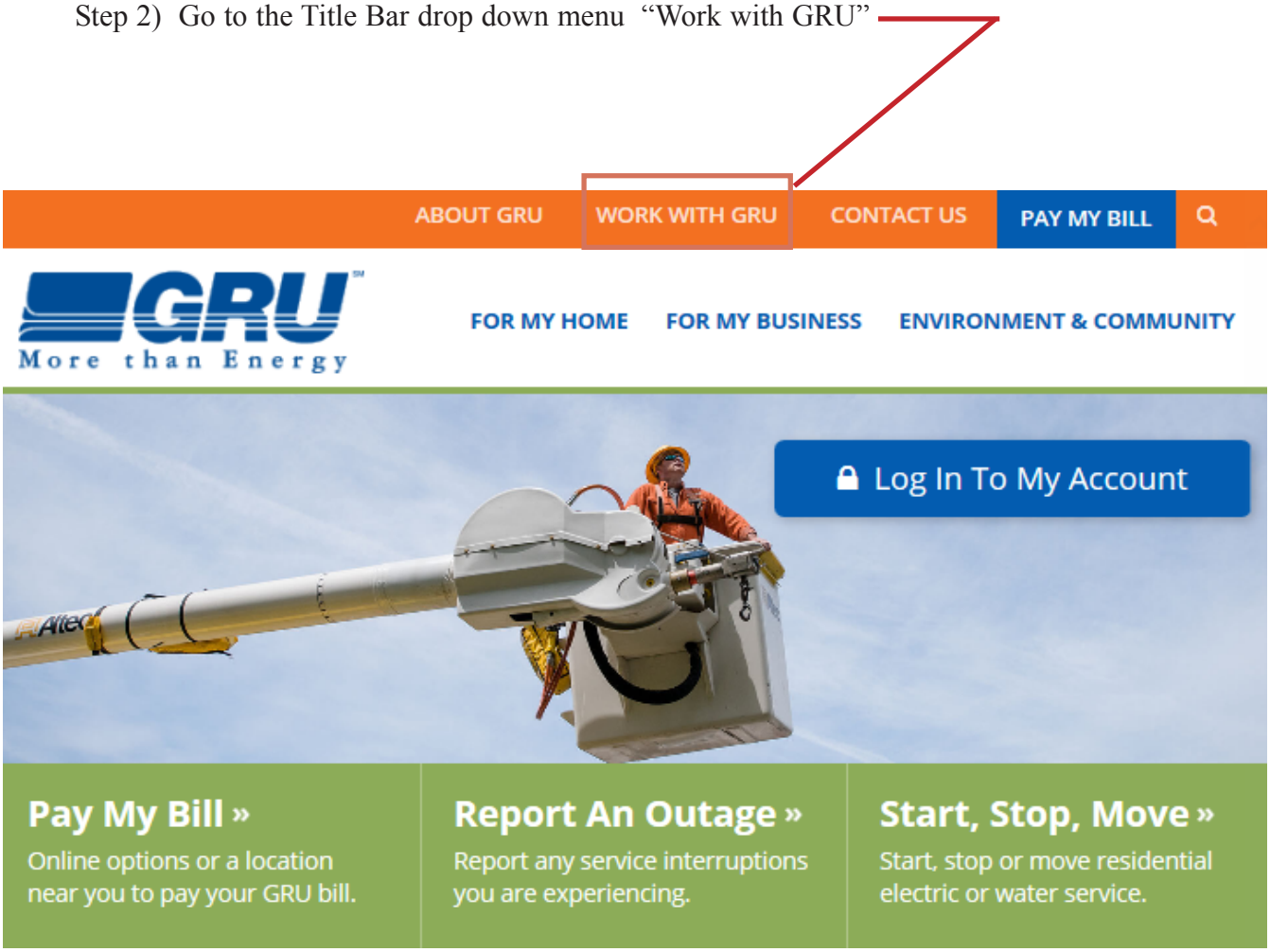
https://www.gru.com/WorkWithGRU.aspx

Below are the steps for access the GRU Web Site and Standards Manuals pages.

Steps To View Web Site from you browser:

Step 1) Type in: www.gru.com - this is the GRU Web SiteStep

Step 2) Go to the Title Bar drop down menu "Work with GRU"

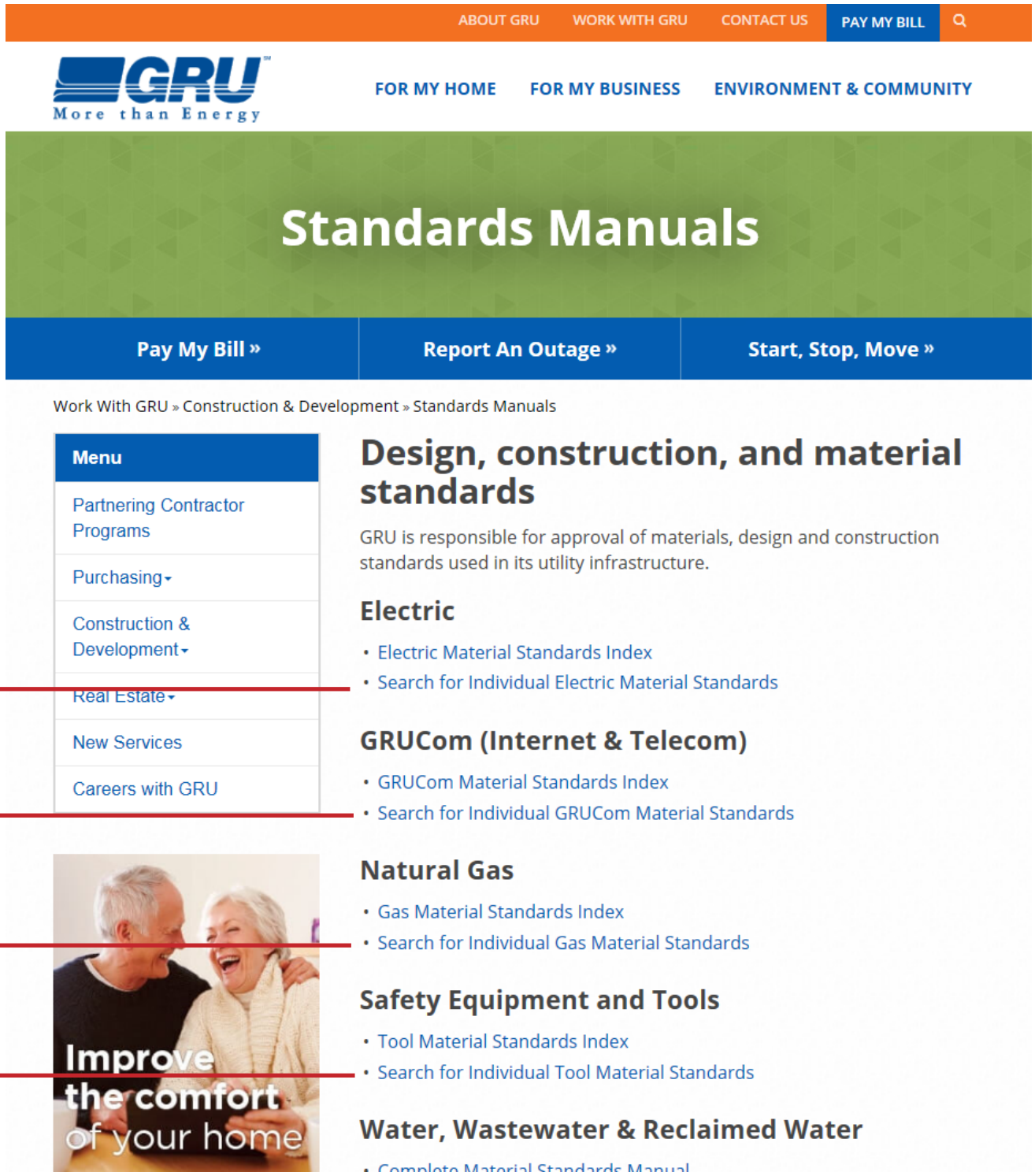


Step 3) Under "Construction and Development"
Step 4) Pick "Standards Manuals" – this will take you to the "Standards Manuals" screen

How to Look Up the Energy Delivery Manuals Pages on The GRU Web Site continued

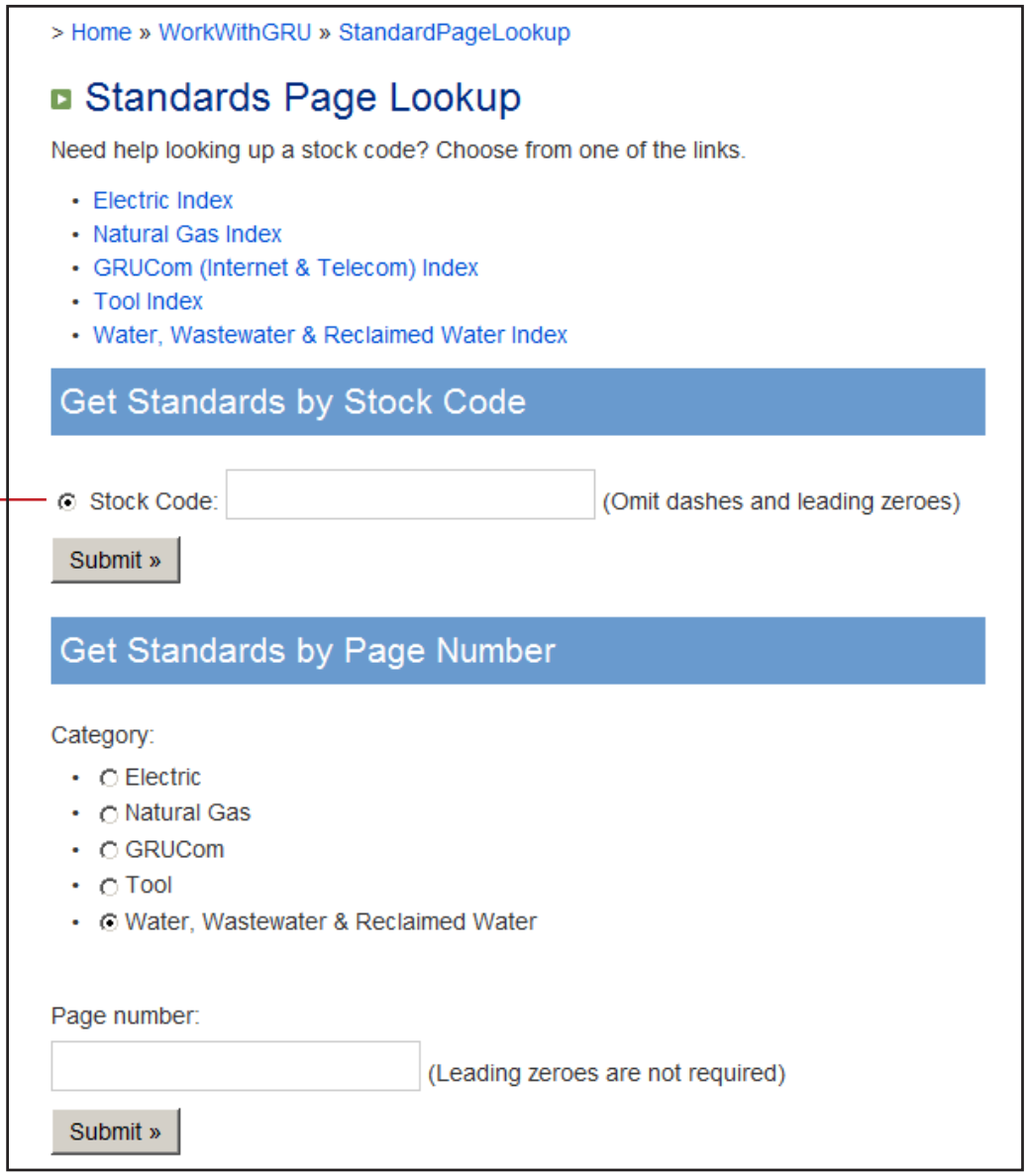
Step 5) Under "Standards Manuals"

Step 6) Pick "Electric" or "GRUCom" or "Natural Gas" or "Safety Equipment and Tools" – Standards Index or Search for Individual Electric, GRUCom, Natural Gas or Safety Equipment and Tools Manual Pages



How to Look Up the Energy Delivery Manuals Pages on The GRU Web Site continued

Steps To Lookup Standards Pages:



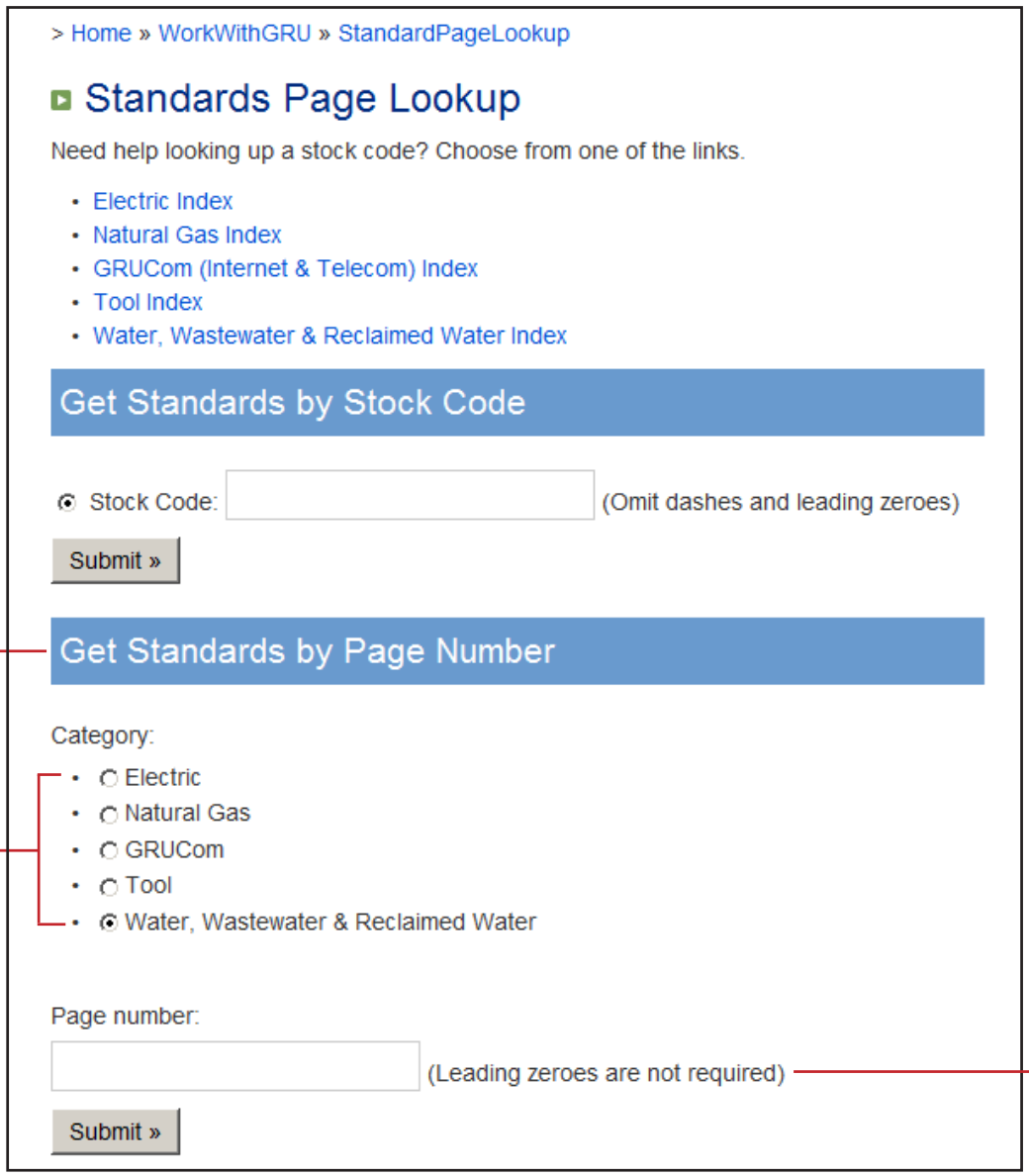
Option A: (using a GRU Stock Code (Stock Number)) - see "Standards Page Lookup" screen above.

Step 1) You may look up a specific material by the Stock Code of that material by using **" Get Standards By Stock Code"** you will note that this button is already selected.

* Step 2) Type in the Stock Code without the dash and "Submit. This will allow you to view the page on which the GRU Stock Code (Stock Number) is located.

* If the page does not appear and no error message is indicated refresh your screen using the F5 key and/or **check to make sure your "Pop-Up" blocker is disabled**. The pages at this location are in PDF (Acrobat Reader) file format and can be printed for your files.

How to Look Up the Energy Delivery Manuals Pages on The GRU Web Site continued



Option B: (using a GRU Manual Page Number) - see "Standards Page Lookup" screen above.

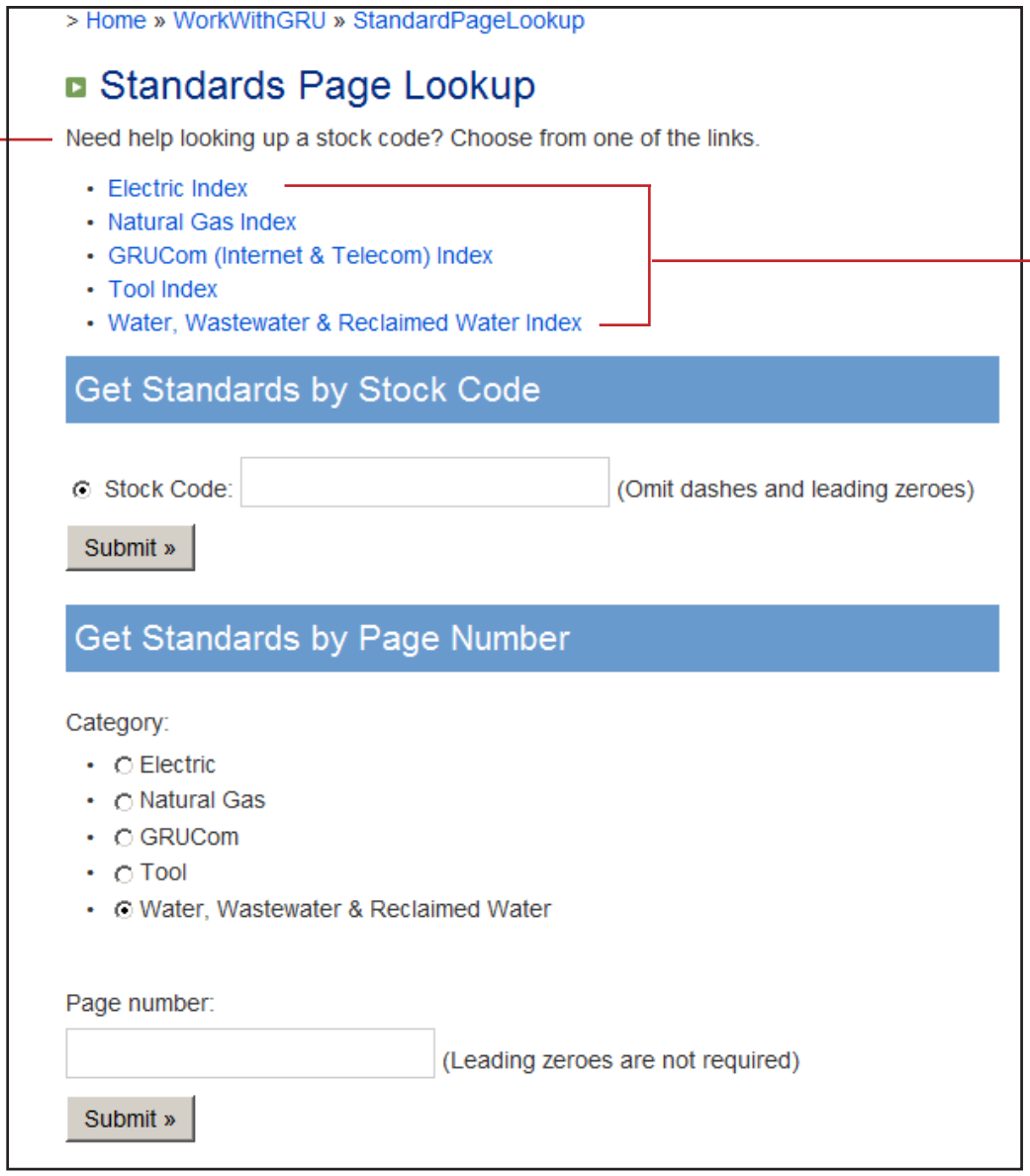
Step 1) You may also look up a specific page from one of the manuals by using **"Get Standards By Page Number"**.

Step 2) Select the appropriate manual button for Electric, Tools, Gas or GRUCom.

* Step 3) Then type in the page number (Example: C-35.00) you wish to viewnd and "Submit". This will allow you to view the page.

* If the page does not appear and no error message is indicated refresh your screen using the F5 key and/or **check to make sure your "Pop-Up" blocker is disabled**. The pages at this location are in PDF (Acrobat Reader) file format and can be printed for your files.

How to Look Up the Energy Delivery Manuals Pages on The GRU Web Site continued



Steps To Lookup Standards Index:

If you need to look at a manual index or make a copy of an index pick the manual index you need (Electric, Gas, GRUCOM, Tool) move you mouse arrow over the appropriate manual at: "Need help looking up a stock code? Choose from on of the links." (See "Standards Page Lookup" screen above).

If the page does not appear and no error message is indicated refresh your screen using the F5 key and/or **check to make sure your "Pop-Up" blocker is disabled**. The pages at this location are in PDF (Acrobat Reader) file format and can be printed for your files.

Please contact me by phone or email if you have any questions or problems
(352) 393-1536, or email me at: carrollkl@gru.com.

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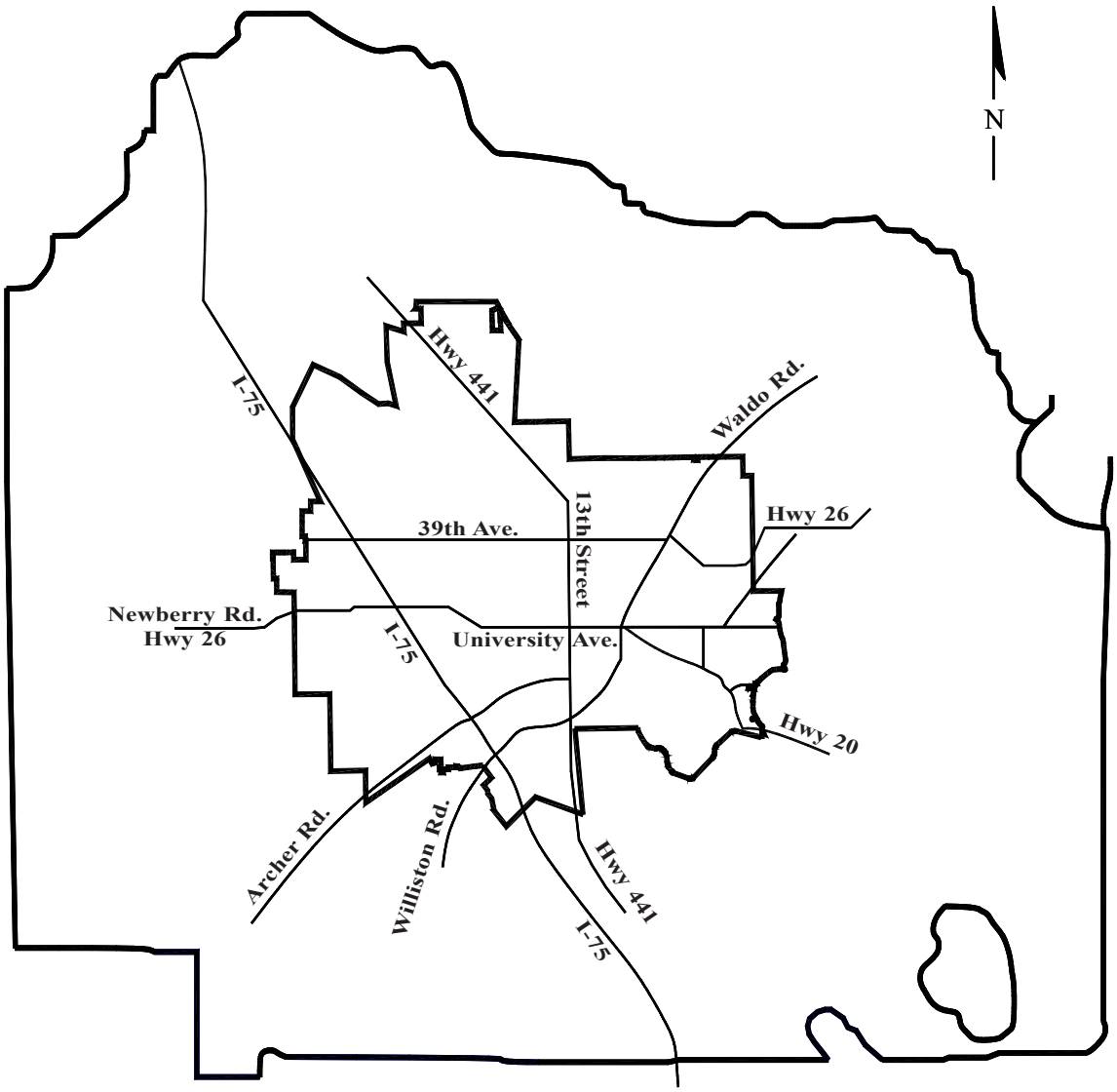
GRU℠
More than Energy

Electric Service Area

City of Gainesville, Alachua County, Florida



Electric Service Area
(Subject to change. For exact Service Area contact GRU)