

**REVIEW BY FORT BEND COUNTY  
COMMISSIONERS COURT**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytx.gov

Right of Way Permit  
 Commercial Driveway Permit  
Permit No: 2017-15899

**Applicant:** Mobilite, LLC

**Job Location Site:** S Fry Road & Grand Parkway, Katy, TX 77494

**Bond No.**                      **Date of Bond:** 11/16/2016 **Amount:** \$50,000.00

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

**Notes:**

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
  - a. 48 hours in advance of construction start up, and
  - b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru MyGovernmentOnline.org portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 3rd day of October, 2017, Upon Motion of Commissioner Meyers, seconded by Commissioner Patterson, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

**Signature**

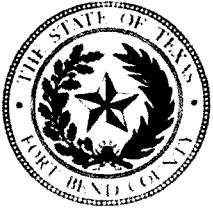
Presented to Commissioners Court and approved.

By: Charles O. Ay  
for County Engineer

Date Recorded 10-10-2017 Comm. Court No. 12c

By: N/A  
Drainage District Engineer/Manager

Clerk of Commissioners Court  
By: Sandy Wallis  
Deputy



**PERMIT APPLICATION REVIEW FORM FOR  
CABLE, CONDUIT, AND POLE LINE ACTIVITY  
IN FORT BEND COUNTY**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytexas.gov

- Right of Way Permit
- Commercial Driveway Permit

Permit No: 2017-15899

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

**(1) COMPLETE APPLICATION FORM:**

- a. Name of road, street, and/or drainage ditch affected.
- b. Vicinity map showing course of directions
- c. Plans and specifications

**(2) BOND:**

- County Attorney, approval when applicable.
- Perpetual bond currently posted.      Bond No: [REDACTED]      Amount: \$50,000.00
- Performance bond submitted.      Bond No: \_\_\_\_\_      Amount: \_\_\_\_\_
- Cashier's Check      Check No: \_\_\_\_\_      Amount: \_\_\_\_\_

**(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):**

\_\_\_\_\_  
Drainage District Approval      Date

**We have reviewed this project and agree it meets minimum requirements.**

*Charley O. Ay*  
\_\_\_\_\_  
Permit Administrator


*9/25/17*  
\_\_\_\_\_  
Date

# SITE ID: 9TXB008254 HO90XS051B S FRY RD & GRAND PKWY KATY, TX 77494

**mobilitie**  
intelligent infrastructure

925B PEACHTREE ST. NE,  
SUITE 710  
ATLANTA, GA 30309  
PHONE: (312) 638-5400

DIG ALERT



**811** Know what's below.  
Call before you dig.

TWO WORKING DAYS BEFORE YOU DIG

PROJECT DESCRIPTION

END USER PROPOSES TO INSTALL EQUIPMENT ON A PROPOSED WOOD UTILITY POLE WITHIN AN EXISTING RIGHT-OF-WAY. THE SCOPE WILL CONSIST OF THE FOLLOWING:

– INSTALL PROPOSED BACKHAUL TRANSPORT EQUIPMENT ON A PROPOSED WOOD UTILITY POLE

CODES

2015 INTERNATIONAL BUILDING CODE  
2014 NATIONAL ELECTRICAL CODE

DRAWING INDEX

SHEET NO:	SHEET TITLE
0.0	TITLE SHEET
1.0	SITE PLAN & EXHIBIT PHOTO
2.0	POLE ELEVATIONS
2.1	POLE ELEVATIONS
3.0	ANTENNA & EQUIPMENT MOUNTING DETAILS
3.1	ANTENNA & EQUIPMENT DETAILS
4.0	ELECTRICAL DETAILS
5.0	GROUNDING DETAILS
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
6.0	TRAFFIC CONTROL PLAN
6.1	TYPICAL PEDESTRIAN / WORKER SAFETY PLAN

ARCHITECT/ENGINEER

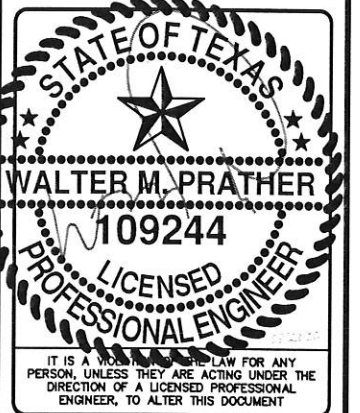
JACOBS ENGINEERING GROUP, INC.  
5449 BELLS FERRY ROAD  
ACWORTH, GA 30102  
CONTACT: KARL KRATINA  
PROJECT MANAGER  
TEL: (678) 460-1416  
FAX: (770) 701-2501

FORT BEND COUNTY ENGINEER

ENGINEER: *Richard W. Stolleis, P.E.*  
FOR RICHARD W. STOLLEIS, P.E.  
DATE: 9/14/17

THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN (1) YEAR FROM DATE OF APPROVAL.

APPROVED: *W. Casandrea*  
DEVELOPMENT COORDINATOR  
DATE: 9/12/17



HO90XS051B  
9TXB008254  
S FRY RD &  
GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
TITLE SHEET

SHEET NUMBER  
0.0

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OF EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SITE INFORMATION

PROPERTY OWNER: PUBLIC RIGHT-OF-WAY  
ADDRESS/CROSS ST: S FRY RD & GRAND PKWY

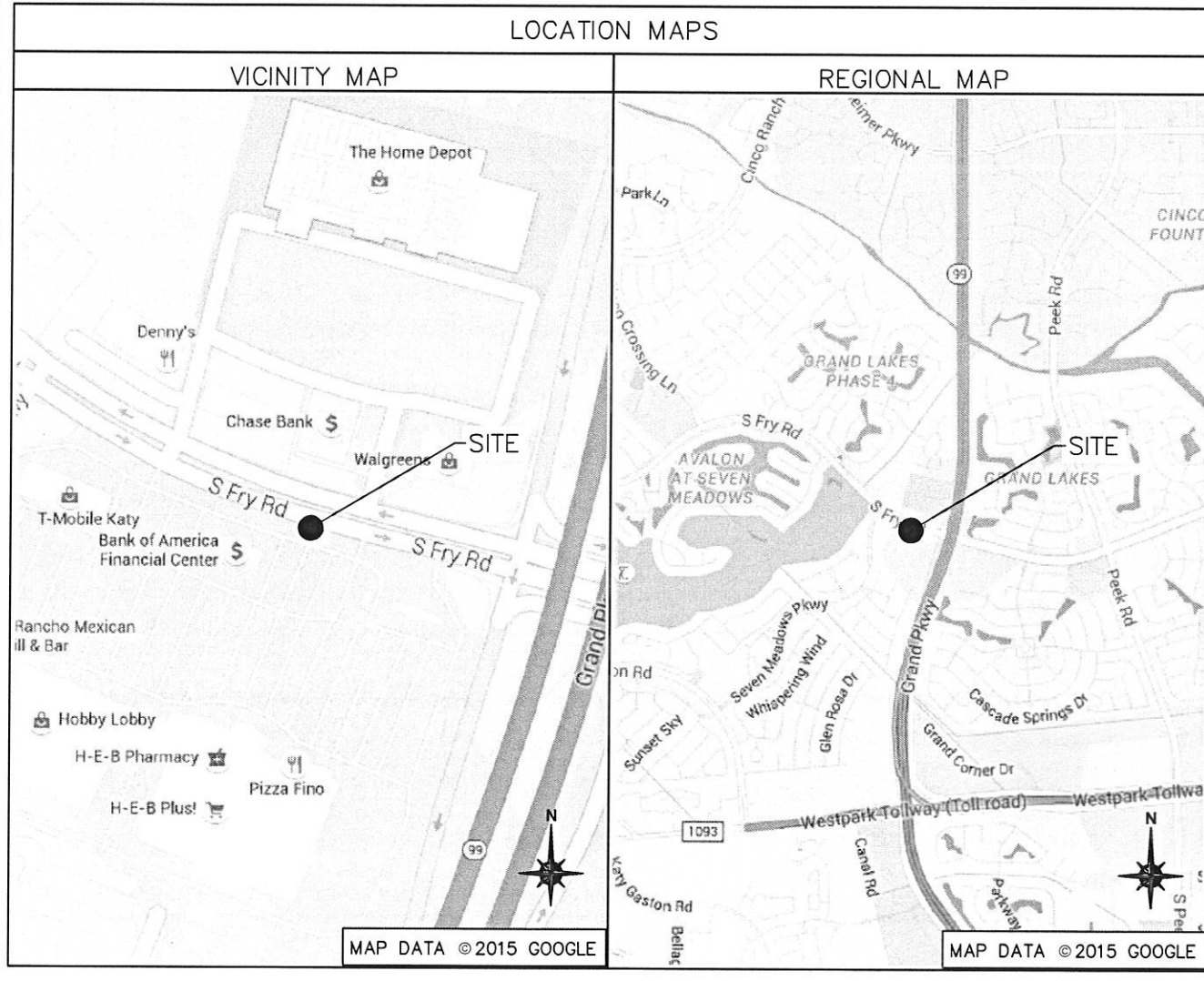
APPLICANT: MOBILITIE, LLC

APPLICANT ADDRESS: 925B PEACHTREE ST. NE, SUITE 710  
ATLANTA, GA 30309  
PHONE: (312) 638-5400

LATITUDE: 29° 42' 52.30" N (29.714528)  
LONGITUDE: 95° 46' 31.48" W (-95.775412)  
LAT/LONG TYPE: NAD 83  
GROUND ELEVATION: ± 107' AMSL  
COUNTY: HARRIS COUNTY  
JURISDICTION: CITY OF HOUSTON

BEFORE SCALING:

CONTRACTORS SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

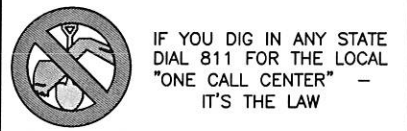


**SITE ID-CANDIDATE LETTER/CASCADE ID-CANDIDATE LETTER:  
9TXB008254B/HO90XSO51B**

**LATITUDE/LONGITUDE:  
29.714528/-95.775412**

**CROSS STREET:  
S. FRY RD & TX-99/GRAND PKWY**

**CITY, STATE, ZIP:  
KATY, TX 77494**



IF YOU DIG IN ANY STATE  
DIAL 811 FOR THE LOCAL  
"ONE CALL CENTER" -  
IT'S THE LAW

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS  
CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT  
SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES  
NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL  
BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE  
UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE  
TO THE (E) UTILITIES BY THE CONTRACTOR SHALL BE THE  
SOLE RESPONSIBILITY OF THE CONTRACTOR.



3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

*WWS 9/14/17*

**GENERAL NOTES**

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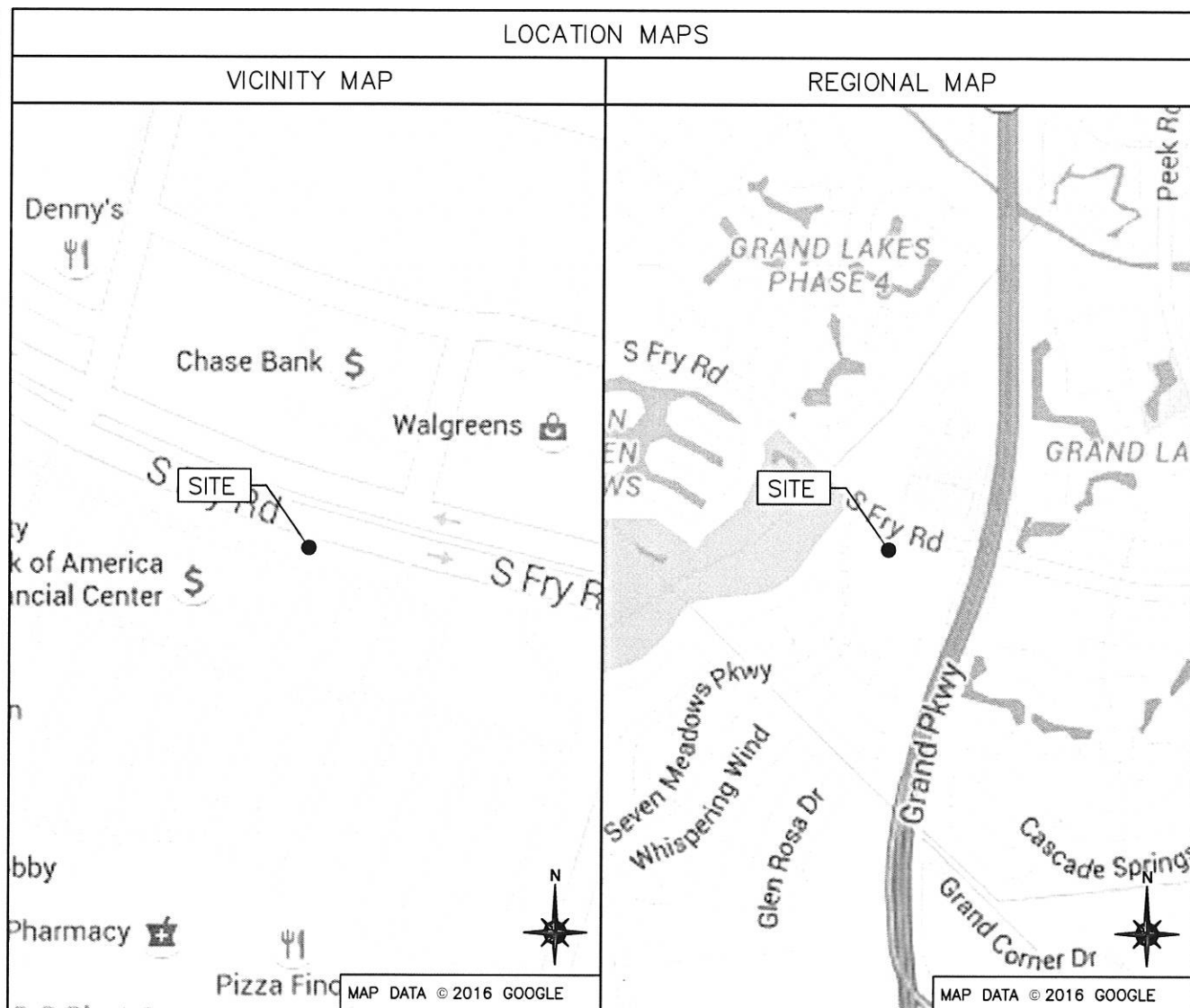
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CASCADE ID:	HO90XSO51B
LATITUDE:	29.714528
LONGITUDE:	-95.775412
CROSS STREET:	S. FRY RD & TX-99/GRAND PKWY
CITY, STATE, ZIP:	KATY, TX 77494
COUNTY:	FORT BEND COUNTY
JURISDICTION:	FORT BEND COUNTY
PROPERTY OWNER:	PUBLIC RIGHT-OF-WAY
APPLICANT:	MOBILITIE, LLC 3475 PIEDMONT ROAD NE, SUITE 1000 ATLANTA, GEORGIA 30305 PHONE: (312) 638-5400

**ENGINEER**

JACOBS ENGINEERING GROUP, INC. CONTACT: KARL KRATINA  
5449 BELLS FERRY ROAD PROJECT MANAGER  
ACWORTH, GA 30102 TEL: (678) 460-1416  
PROJECT: ER600201

**DO NOT SCALE DRAWINGS**

CONTRACTORS SHALL VERIFY ALL PLANS, (E) DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



**PROJECT DESCRIPTION**

END USER PROPOSES TO INSTALL EQUIPMENT ON A NEW WOOD POLE WITHIN AN EXISTING RIGHT-OF-WAY. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- INSTALL A NEW WOOD UTILITY POLE WITH PROPOSED BACKHAUL TRANSPORT EQUIPMENT

**CODES**

INTERNATIONAL BUILDING CODE  
NATIONAL ELECTRICAL SAFETY CODE  
TIA/EIA-222-G-2 OR LATEST EDITION  
LOCAL BUILDING/PLANNING CODE

**DRAWING INDEX**

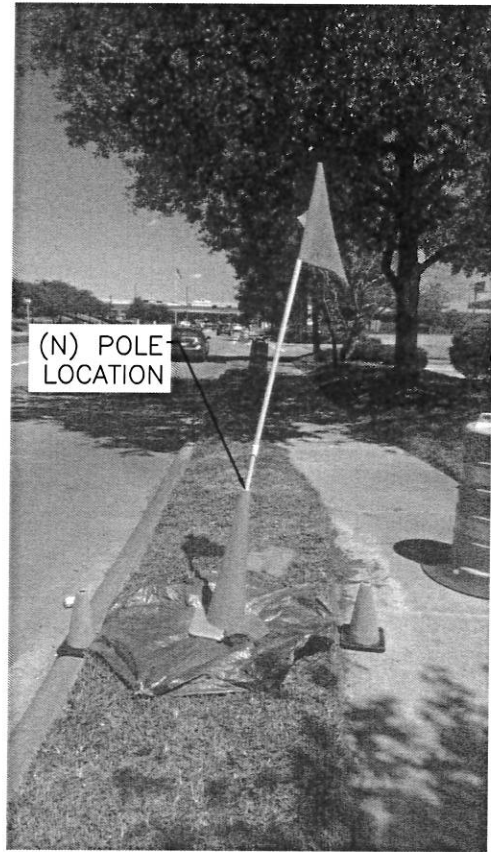
SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
SP-1	EXHIBIT PHOTO & SITE PLAN
EV-1	POLE ELEVATIONS
PL-1	PLUMBING & RISER DIAGRAM
EQ-1	EQUIPMENT DETAILS
EQ-2	EQUIPMENT DETAILS
E-1	ELECTRICAL DETAILS
G-1	GROUNDING DETAILS
S-1	POLE EMBEDMENT DETAILS
TC-1	VEHICULAR TRAFFIC CONTROL PLAN
TC-2	PEDESTRIAN SAFETY PLAN
TC-3	PEDESTRIAN FACILITIES CURB RAMP
TC-4	PEDESTRIAN FACILITIES CURB RAMP
TC-5	PEDESTRIAN FACILITIES CURB RAMP
TC-6	PEDESTRIAN FACILITIES CURB RAMP
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES



HO90XSO51B  
9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**



(N) POLE LOCATION

**EXHIBIT PHOTO**

SCALE: NOT TO SCALE

1

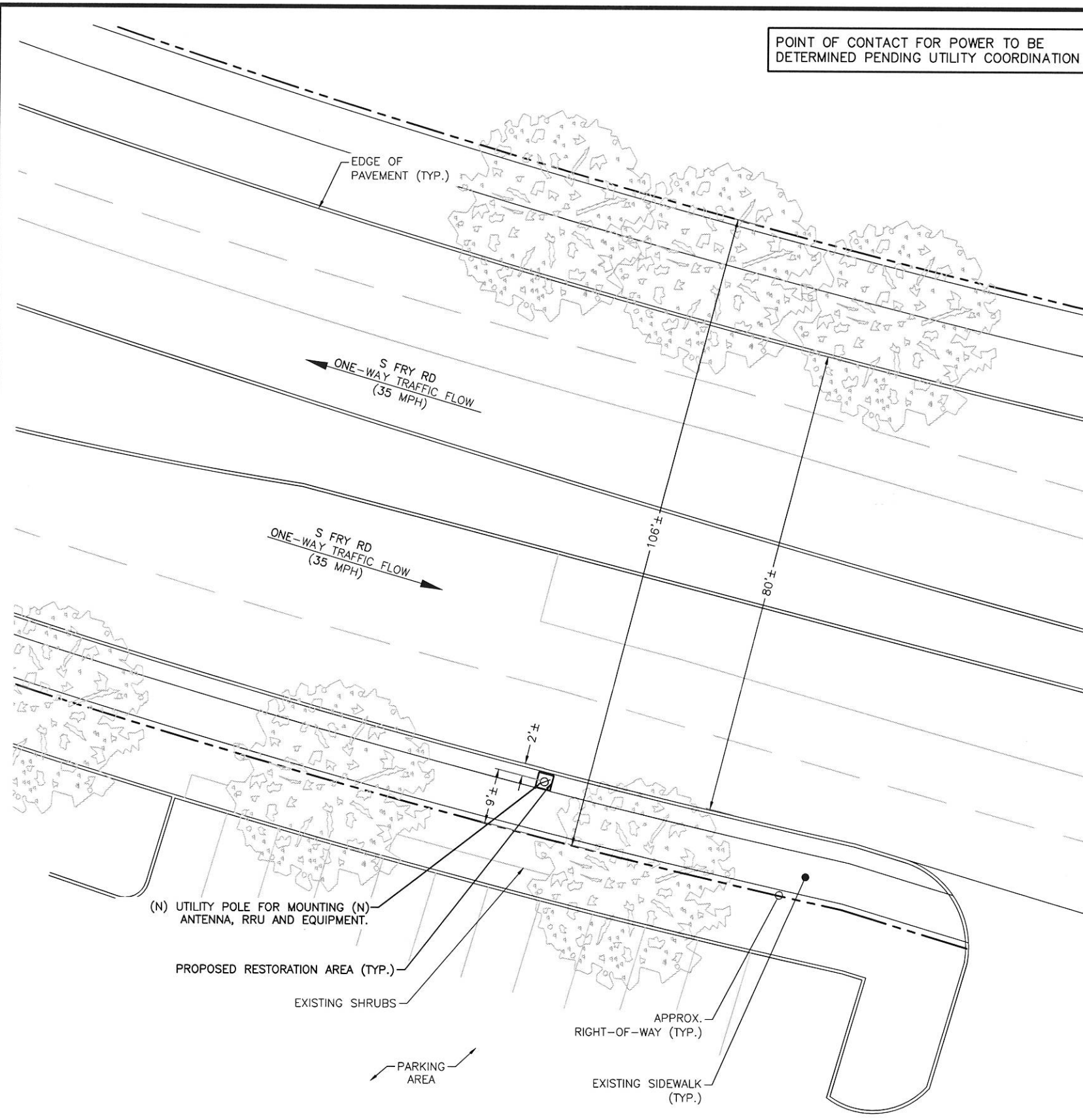


SITE LOCATION

**AERIAL SITE LOCATION**

SCALE: NOT TO SCALE

2



**NOTE:**  
THIS SITE PLAN WAS GENERATED WITHOUT THE USE OF A SURVEY. PROPERTY LINES, RIGHT-OF-WAYS, POWER & TELCO UTILITY POINT CONNECTIONS/ROUTES AND EASEMENTS SHOWN ON THESE PLANS ARE ESTIMATED. ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD.



**ENLARGED SITE PLAN**

SCALE: 1" = 20'-0" (1" = 10'-0" ON 24"x36" SHEET)

3

**mobilitie**  
intelligent infrastructure

3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
F	09.14.17	ADD POLE DIA./TC CLOSURE TIME
E	08.24.17	UPDATE EMBD/CURB TC SHEETS
D	07.13.17	CANDIDATE CODE & JX UPDATE
C	06.30.17	UPDATE TEMPLATE/ANTENNA HEIGHT & BLACK PAINT ON POLE
B	08.23.16	TYPE OF REVISION
A	06.07.16	FOR REVIEW



HO90XS051B  
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UTILITY POLE

SHEET TITLE  
EXHIBIT PHOTO & SITE PLAN

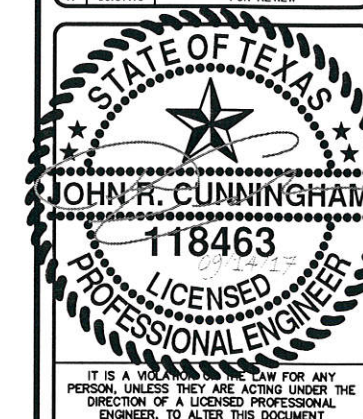
SHEET NUMBER  
SP-1

*CRS 9/14/17*

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SHEET TITLE  
**POLE ELEVATIONS**

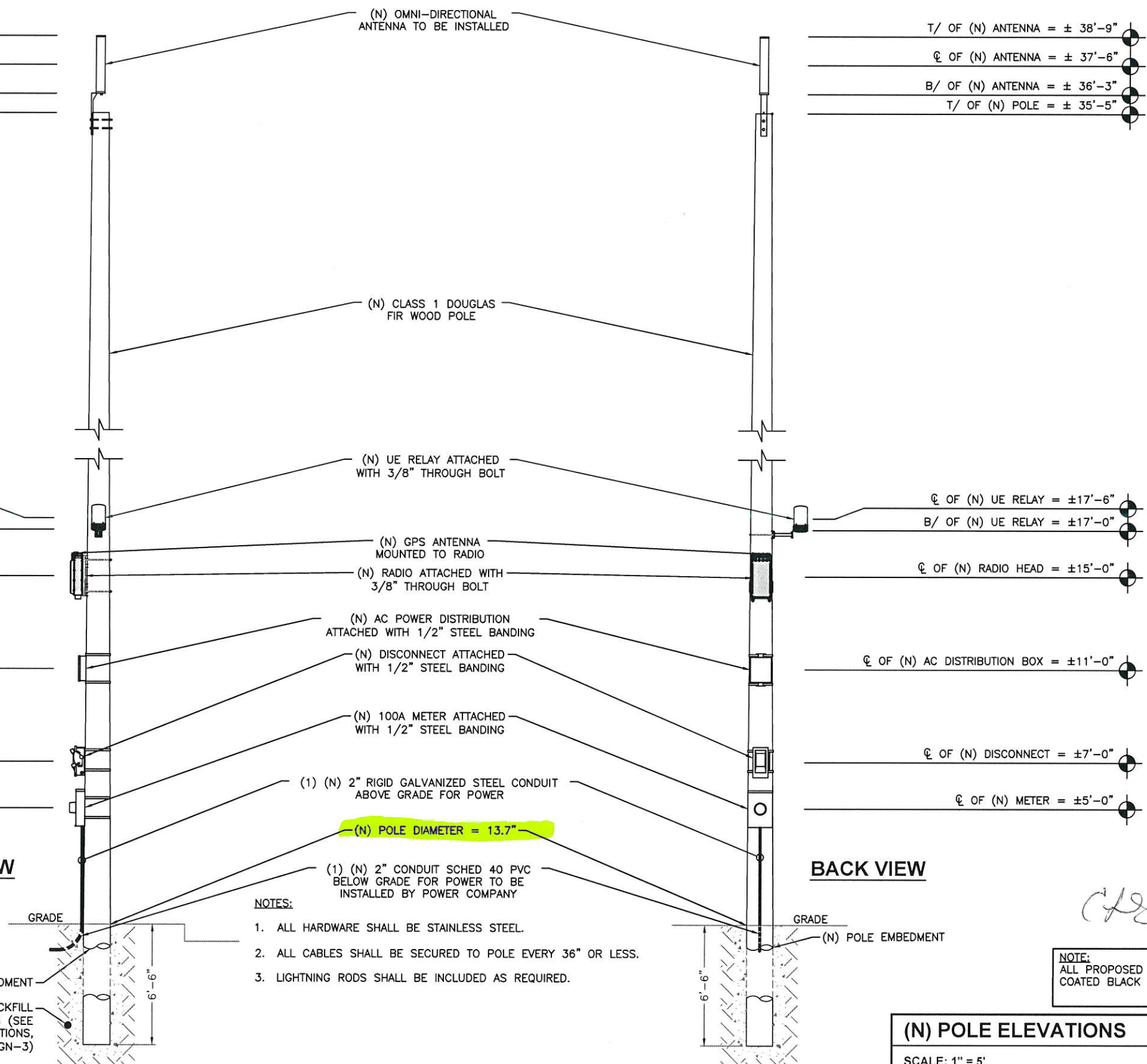
SHEET NUMBER  
**EV-1**

T/ OF (N) ANTENNA = ± 38'-9"  
C/ OF (N) ANTENNA = ± 37'-6"  
B/ OF (N) ANTENNA = ± 36'-3"  
T/ OF (N) POLE = ± 35'-5"

T/ OF (N) ANTENNA = ± 38'-9"  
C/ OF (N) ANTENNA = ± 37'-6"  
B/ OF (N) ANTENNA = ± 36'-3"  
T/ OF (N) POLE = ± 35'-5"

C/ OF (N) UE RELAY = ±17'-6"  
B/ OF (N) UE RELAY = ±17'-0"  
C/ OF (N) RADIO HEAD = ±15'-0"  
C/ OF (N) AC DISTRIBUTION BOX = ±11'-0"  
C/ OF (N) DISCONNECT = ±7'-0"  
C/ OF (N) METER = ±5'-0"

C/ OF (N) UE RELAY = ±17'-6"  
B/ OF (N) UE RELAY = ±17'-0"  
C/ OF (N) RADIO HEAD = ±15'-0"  
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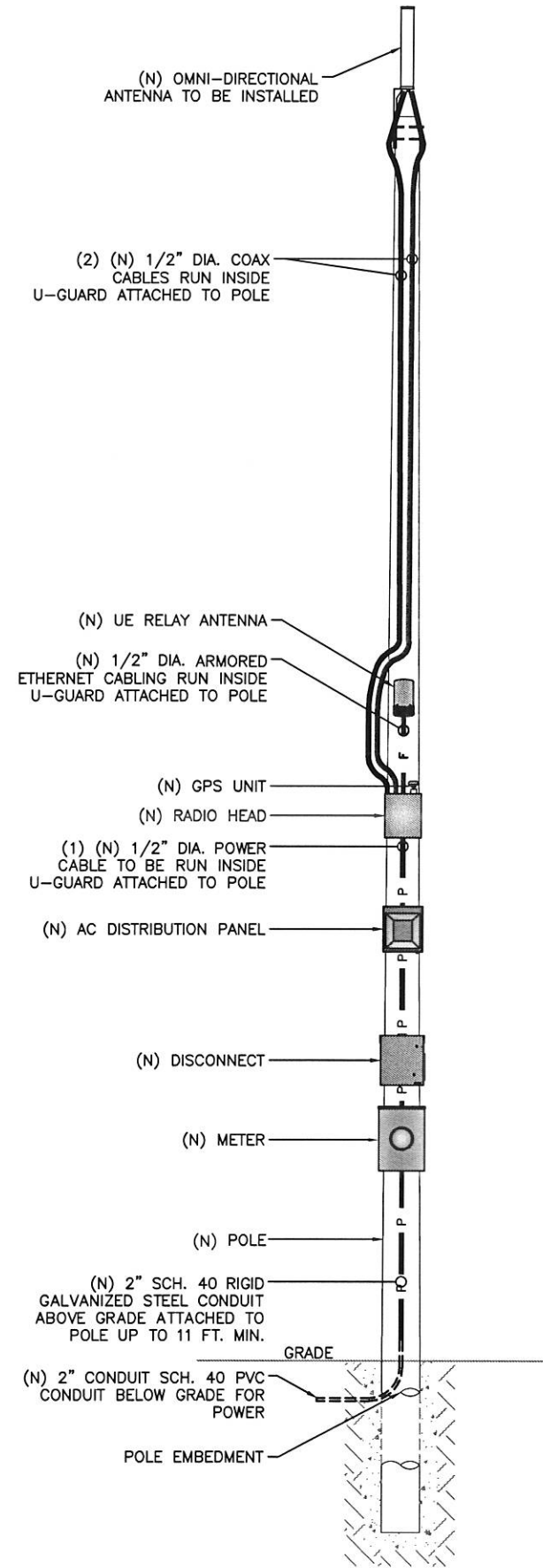


- NOTES:
1. ALL HARDWARE SHALL BE STAINLESS STEEL.
  2. ALL CABLES SHALL BE SECURED TO POLE EVERY 36" OR LESS.
  3. LIGHTNING RODS SHALL BE INCLUDED AS REQUIRED.

NOTE:  
REFER TO STRUCTURAL ANALYSIS REPORT  
(SEPARATE DOCUMENT) FOR ADDITIONAL  
STRUCTURAL INFORMATION.

CONTRACTOR TO BACKFILL  
PER REQUIREMENTS (SEE  
NOTE 2, FOUNDATIONS,  
GN-3)

**(N) POLE ELEVATIONS**  
SCALE: 1" = 5'



**NOTE:**  
 CABLING DIAGRAM IS FOR CLARITY OF CABLE ROUTE AND TERMINATION ONLY. CONTRACTOR SHALL INSTALL CABLES WITH MINIMAL VISUAL IMPACT ON (N) WOOD POLE. SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

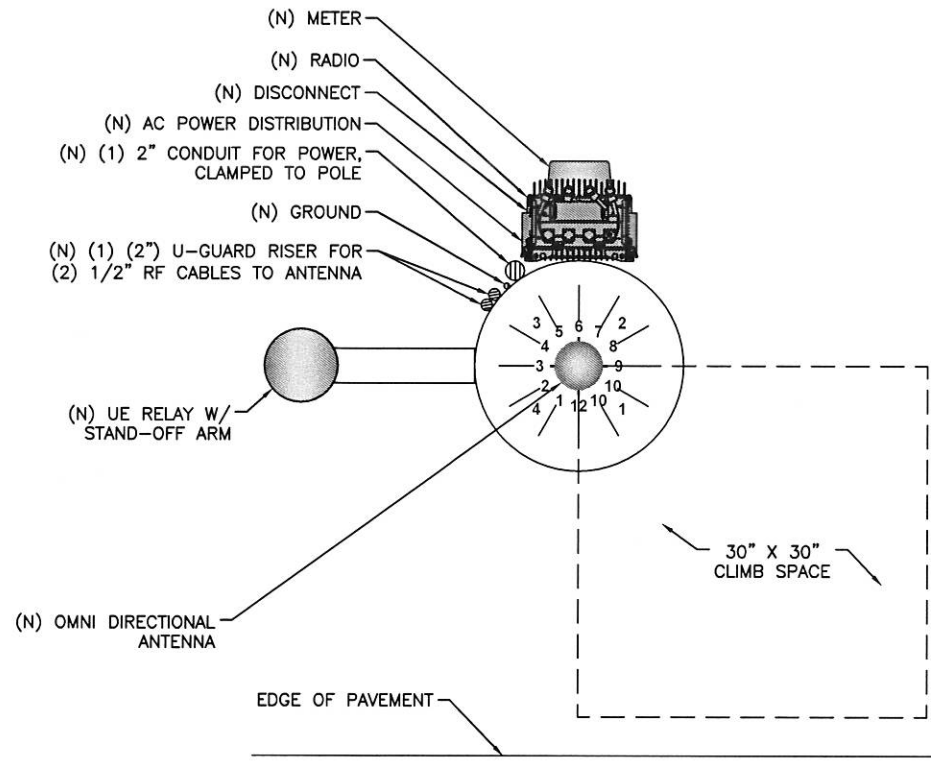
**CABLING NOTES:**

- A) WOOD, CONCRETE AND EXISTING METALLIC POLES
  - I) FROM GRADE LINE TO 11'-0" ABOVE GRADE, ALL CABLES/CONDUCTORS EXCEPT GROUNDING CONDUCTOR MUST RUN IN RIGID GALVANIZED STEEL CONDUIT (RGS)
  - II) GROUNDING CONDUCTORS IN EXPOSED LOCATIONS MUST BE INSTALLED IN PVC.
  - III) IN EARTH INSTALL PVC CONDUIT FOR BACKHAUL AND ELECTRICAL SERVICE. TRANSITION TO RGS AT GRADE LINE.
  - IV) ABOVE 11'-0" ALL CABLES (POWER, ETHERNET, COAXIAL) MUST RUN IN PVC UTILITY POLE RISER.
    - (1) AT MAJOR EQUIPMENT, EXTEND UTILITY DUCT IMMEDIATELY ADJACENT TO THE EQUIPMENT. INSTALL CABLES IN THE UTILITY POLE RISER CREATING CABLE DRIP LOOPS NOT LESS THAN THE CABLE BENDING RADIUS.
    - (2) INSIDE THE UTILITY POLE RISER, UTILIZE 1/2" COAX BLOCKS WITH LAG SCREWS TO SUPPORT COAX, RADIO AND MW POWER, RF COAX, AND ETHERNET CABLES TO WITHIN 12" OF THE EQUIPMENT BEING SERVED AND ON INTERVALS NOT TO EXCEED 4'.
  - V) FOR UNDERGROUND HFC/PUBLIC BACKHAUL, ROUTE ETHERNET CABLE IN CONDUIT UP THE POLE AND ENTER THE UTILITY POLE RISER. SEAL EXPOSED END OF CONDUIT WITH A CABLE TERMINATION FITTING.
  - VI) BY APPROVAL IN SELECT CASES LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) MAY BE USED IN LENGTHS NOT TO EXCEED 36" TO EXTEND THE ELECTRICAL SERVICE CONDUIT TO THE AC DISTRIBUTION BOX. EXAMPLE: UTILITY-REQUIRED DISCONNECT ON POLE W/ AC DISTRIBUTION BOX ON OPPOSITE SIDE OF POLE. NOT REQUIRED FOR COAX.
- B) NEW METALLIC POLES
  - I) PROCURE NEW POLES WITH SUITABLE HAND HOLES SUCH THAT HAND HOLES EXIST AT ALL EQUIPMENT LOCATIONS.
  - II) WHERE REQUIRED, INSTALL POLE BASE SUCH THAT THE ELECTRICAL FEED AND BACKHAUL (IF UNDERGROUND) CIRCUIT ENTER THE POLE THROUGH THE POLE BASE.

**PLUMBING DIAGRAM**  
 SCALE: NOT TO SCALE

BILL OF MATERIALS							
QTY.	DESCRIPTION	MANUFACTURER	MODEL NUMBER	AZIMUTH	CABLE	DIMENSIONS (HxWxD)	WEIGHT
1	ANTENNA	ALPHA WIRELESS	AW3477-S	TBD	26'±	30.7" X 4.7" DIAMETER	7 LBS
1	UE RELAY	AIRSPAN	iR460-SPB-ST-1-P-0	TBD	3'±	13" X 7" DIAMETER	8.8 LBS
-	-	-	-	-	-	-	-
1	GPS	TALLYSMAN	TW3012	-	-	0.8" X 2.6" DIAMETER	0.3 LBS
1	RADIO	AIRSPAN	AH4000	-	3'±	20.3" X 10.3" X 8.3"	42 LBS
-	-	-	-	-	-	-	-
1	AC DISTRIBUTION PANEL	TRANSECTOR	1101-1207-1012	-	1'±	12" X 12" X 4"	17 LBS
1	NEMA TYPE-3R DISCONNECT	SIEMENS	GF222NR	-	1'±	15.45" X 8.7" X 5.95"	14 LBS
1	METER SOCKET	MILBANK	U4801-XL-5T9	-	TBD	19" X 13" X 4.84"	21 LBS

**BILL OF MATERIALS**  
 SCALE: NOT TO SCALE



**RISER ORIENTATION DIAGRAM**  
 SCALE: NOT TO SCALE

**mobilitie**  
 intelligent infrastructure  
 3475 PIEDMONT ROAD NE  
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 ATLANTA, GEORGIA 30305  
 PHONE: (312) 638-5400

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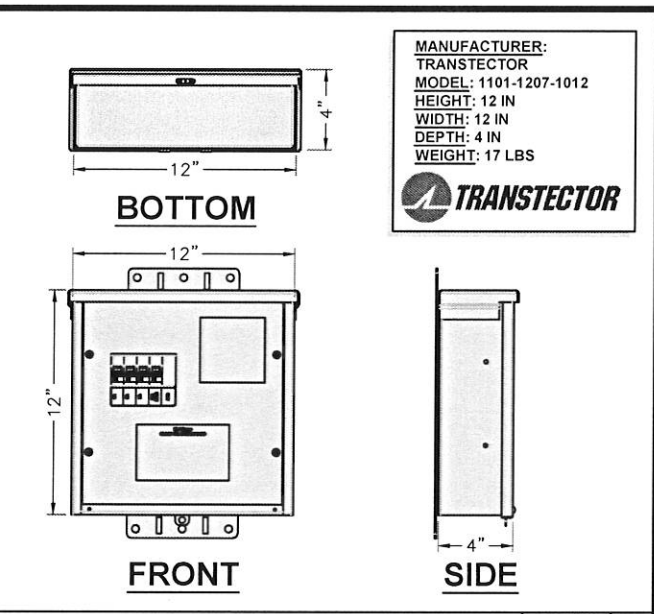
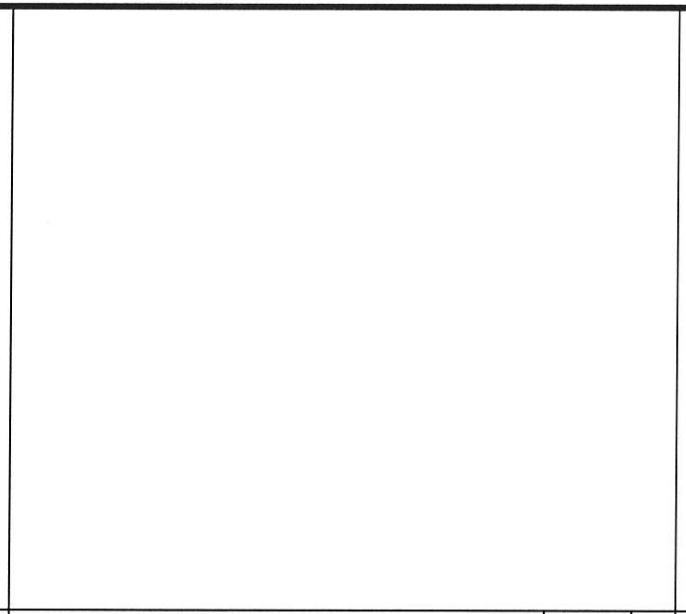
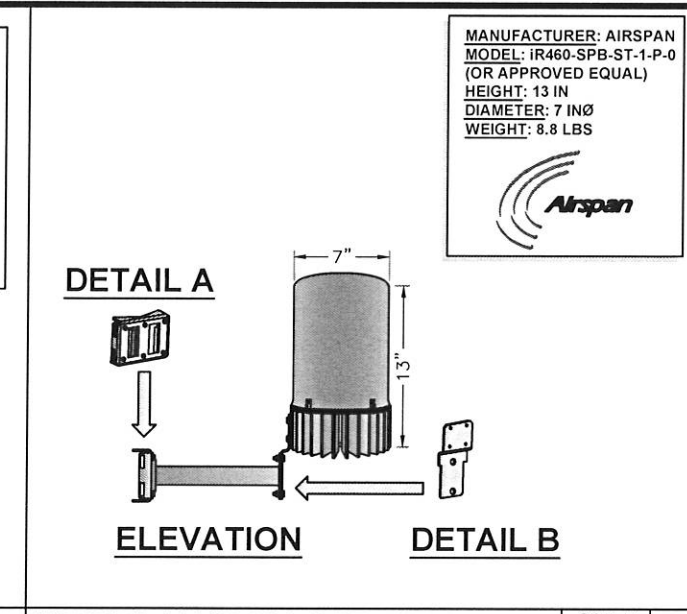
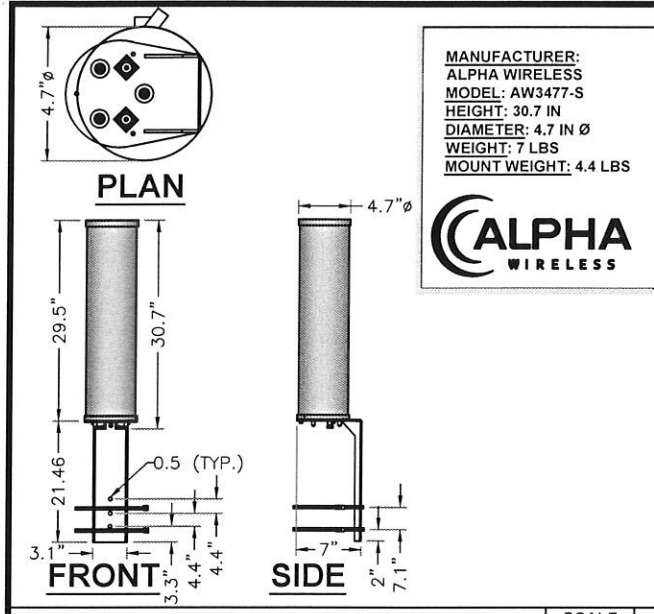


H090XS051B  
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 TX-99/GRAND PKWY  
 KATY, TX 77494  
 UTILITY POLE

SHEET TITLE  
 PLUMBING & RISER DIAGRAM

SHEET NUMBER  
 PL-1

*CJS 9/14/17*



**mobilitie**  
 intelligent infrastructure

3475 PIEDMONT ROAD NE  
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 PHONE: (312) 638-5400

CS 9/14/17

ALPHA AW3477-S OMNI (B41) SCALE N.T.S. 1

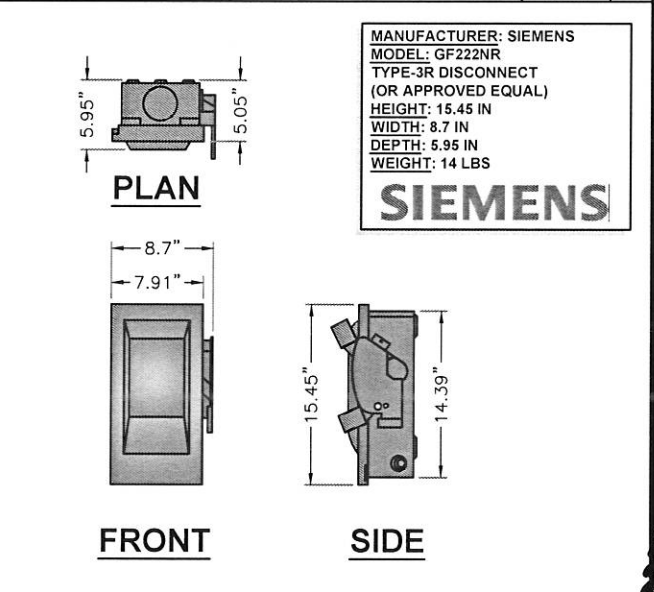
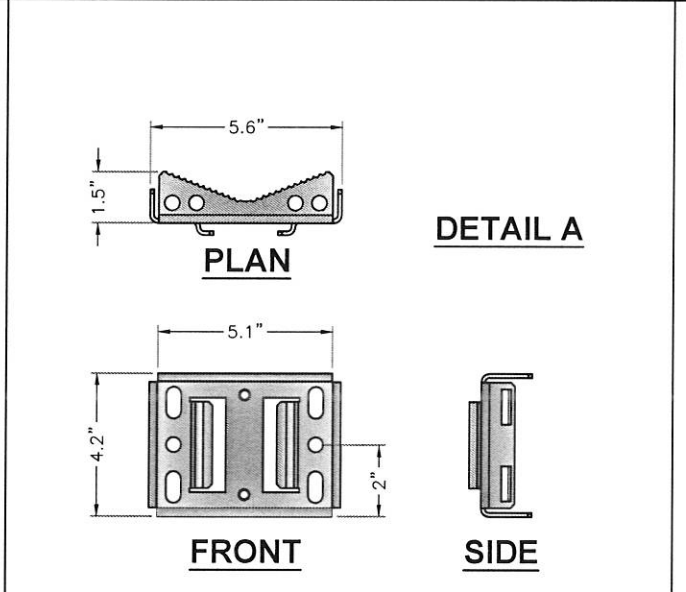
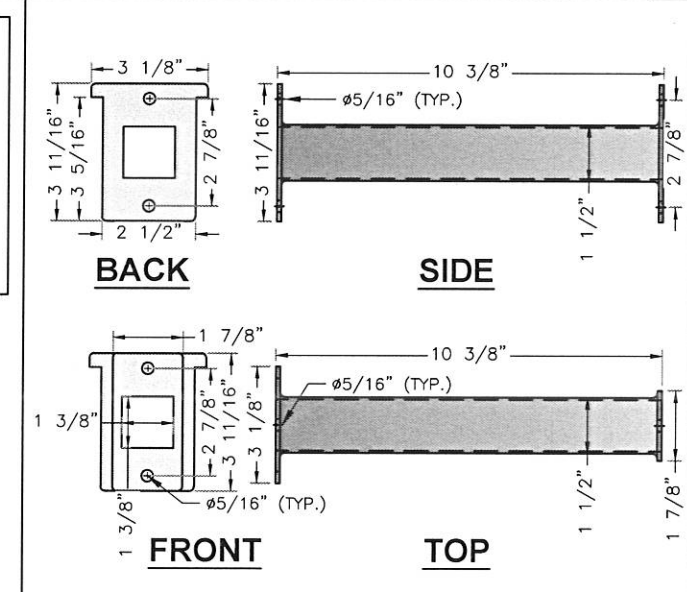
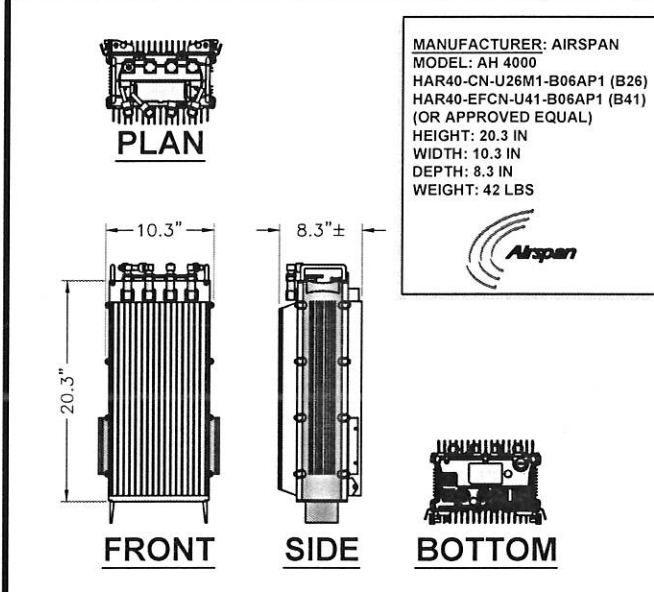
UE RELAY iR460-SPB-ST-1-P-0 SCALE N.T.S. 4

NOT USED SCALE N.T.S. 7

TRANSTECTOR 1101-1207-1012 SCALE N.T.S. 10

PROJECT NO: ER600201  
 DRAWN BY: W. WOODS  
 CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION



F	09.14.17	ADD POLE DIA./TC CLOSURE TIME
E	08.24.17	UPDATE EMBD/CURB TC SHEETS
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B	08.23.16	TYPE OF REVISION
A	06.07.16	FOR REVIEW

AIRSPAN RADIO AH4000 SCALE N.T.S. 2

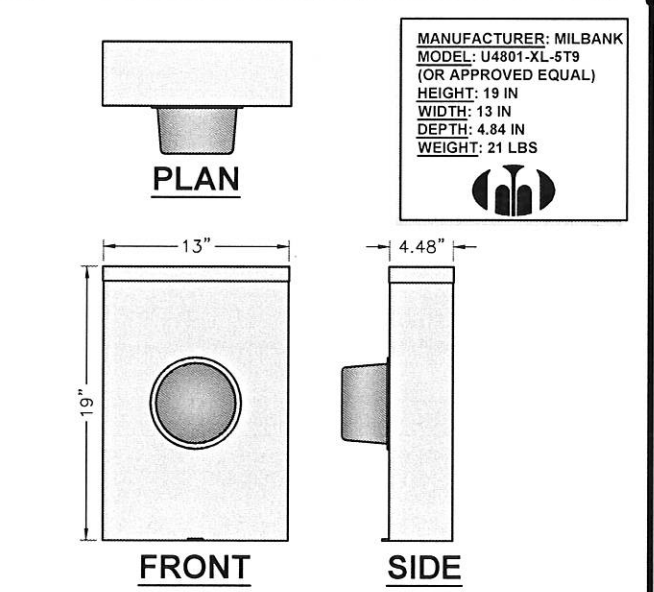
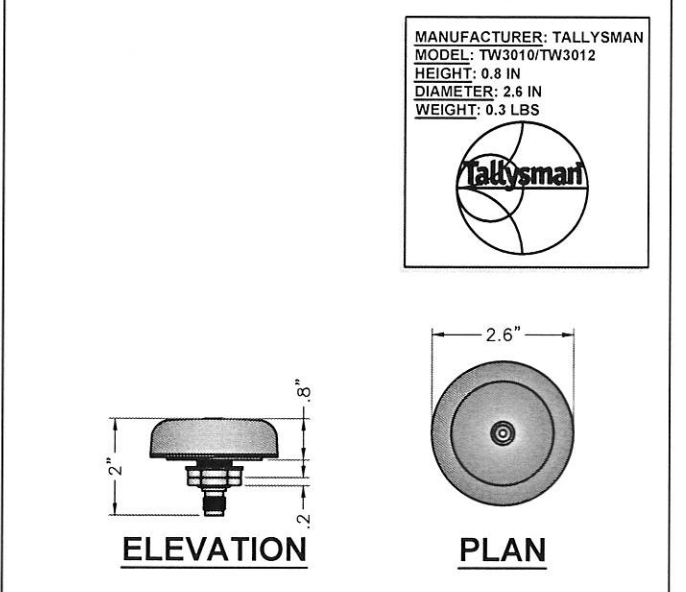
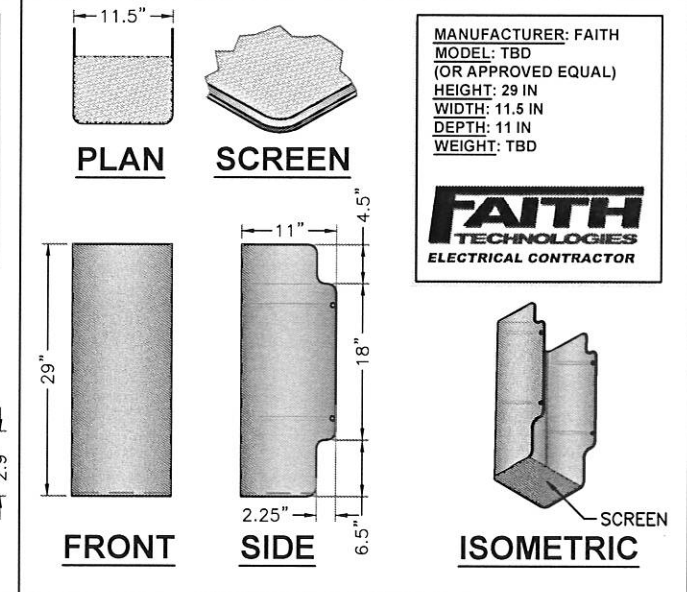
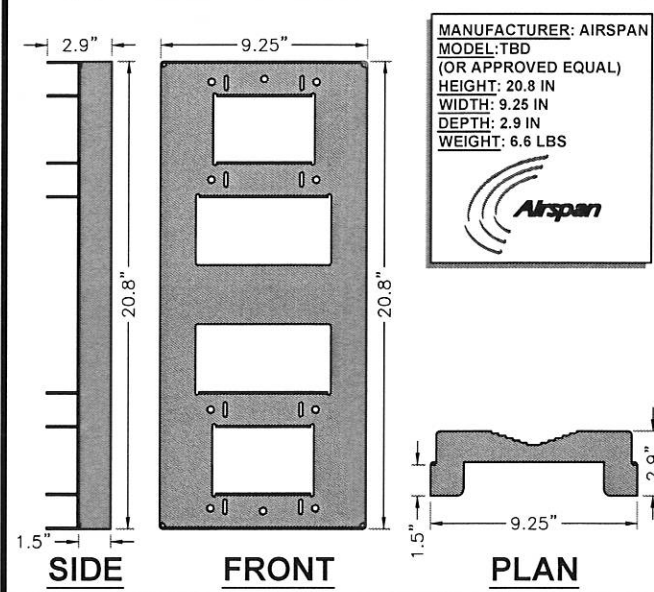
iR460 STAND-OFF SCALE N.T.S. 5

iR460 FLUSH MOUNT SCALE N.T.S. 8

NEMA TYPE-3R DISCONNECT SCALE N.T.S. 11

STATE OF TEXAS  
 JOHN R. CUNNINGHAM  
 118463  
 LICENSED PROFESSIONAL ENGINEER

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H090XS051B  
 9TXB008254B  
 S. FRY RD &  
 TX-99/GRAND PKWY  
 KATY, TX 77494  
 UTILITY POLE

SHEET TITLE  
 EQUIPMENT DETAILS

SHEET NUMBER  
 EQ-1

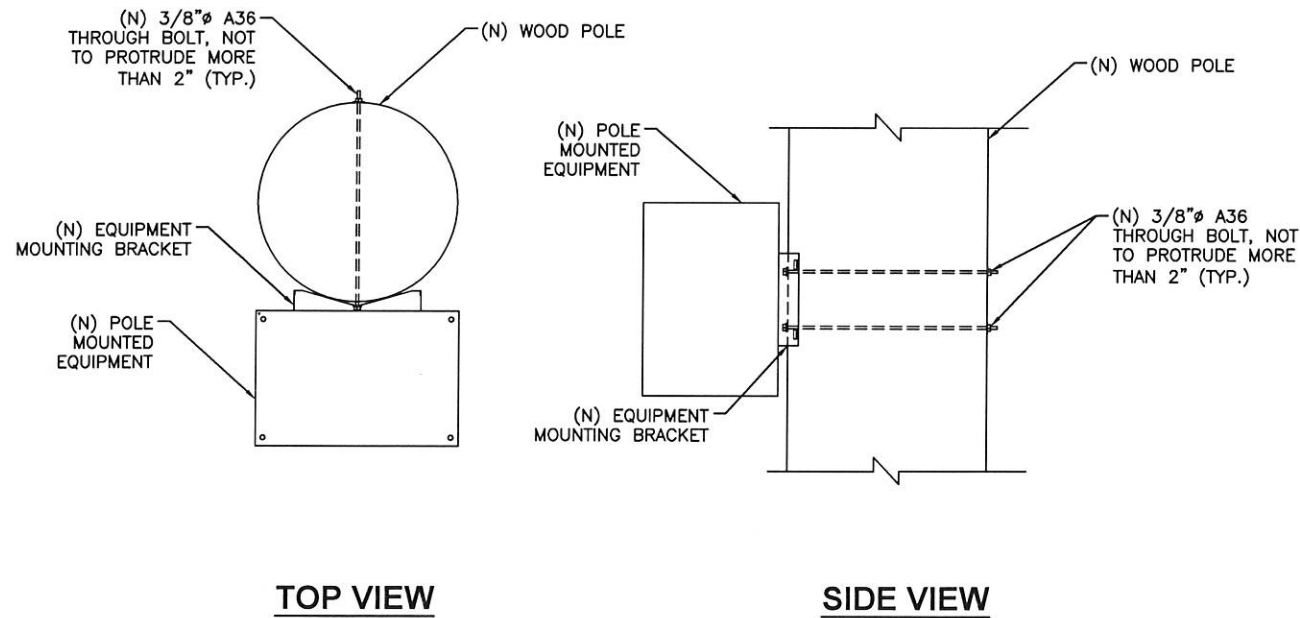
AIRSPAN RADIO MOUNT SCALE N.T.S. 3

AIRSPAN SUN SHIELD SCALE N.T.S. 6

TALLYSMAN GPS UNIT SCALE N.T.S. 9

MILBANK METER SOCKET SCALE N.T.S. 12

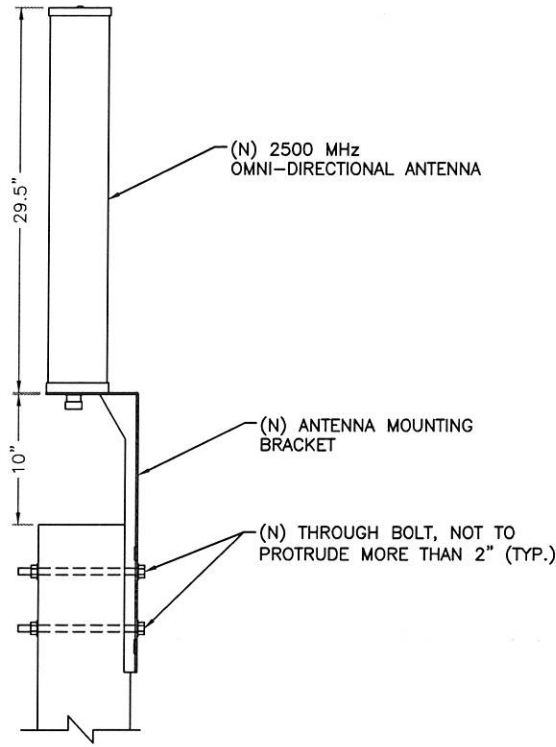
CS 9/14/17



**TOP VIEW**

**SIDE VIEW**

**EQUIPMENT MOUNTING DETAIL**  
SCALE: NOT TO SCALE **1**



**NOTE:**  
1. MOUNTING BRACKET ACCOMMODATES POLE SIZES FROM 3" TO 10" DIAMETER.  
2. JACOBS HAS NOT PERFORMED A STRUCTURAL EVALUATION FOR THE MOUNTING BRACKET. REFER TO THE MANUFACTURER FOR ADDITIONAL INFORMATION.

**ANTENNA MOUNTING DETAIL**  
SCALE: NOT TO SCALE **3**

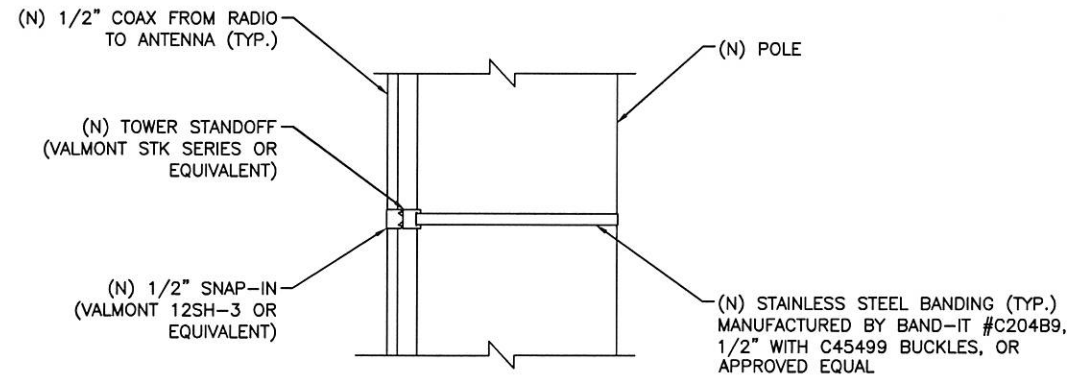


3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

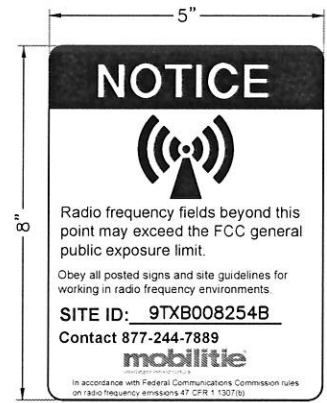
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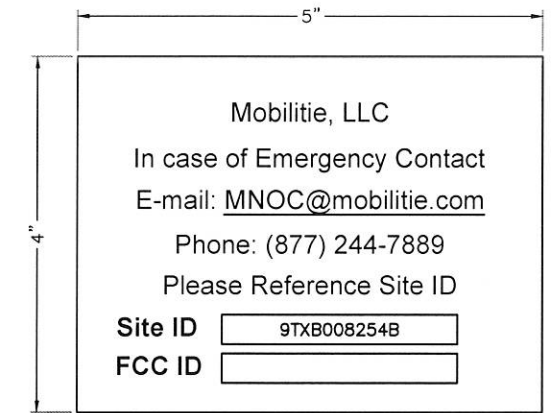
**NOTE:**  
SPACE SNAP-INS PER CABLE MANUFACTURER'S SPECIFICATIONS

**CABLE MOUNTING DETAIL**  
SCALE: NOT TO SCALE **2**



**ANTENNA SIGNAGE:**  
**ON WOOD POLES** - SIGN ON ALUMINUM WITH SS SCREW TO THE POLE  
**ON METAL POLES** - ADHESIVE VINYL OR PLACARD STRAPPED WITH SS TIES  
**ON CONCRETE / COMPOSITE** - PLACARD STRAPPED WITH SS TIES  
**SIGN PLACEMENT:**  
AFFIX TO THE STRUCTURE 3-4' BELOW THE COMMERCIAL RF ANTENNA(S)  
SIZE APPROX. 8" x 5"

**ANTENNA SIGNAGE**



**OWNER / OPERATOR NOTE:**  
SITE ID LABEL TO BE AFFIXED AT OR NEAR THE POINT OF POWER CONNECTION WITH TZeS241 LABELING TAPE OR EQUIVALENT BLACK ON WHITE LABELING TAPE OF AT LEAST 18mm WIDTH WITH EXTRA-STRENGTH ADHESIVE. USE ANY COMPATIBLE P-TOUCH LABEL MAKER. TEXT SHOULD BE PRINTED IN ALL CAPS WITH A MINIMUM HEIGHT OF 1/2".

**EMERGENCY CONTACT SIGN**

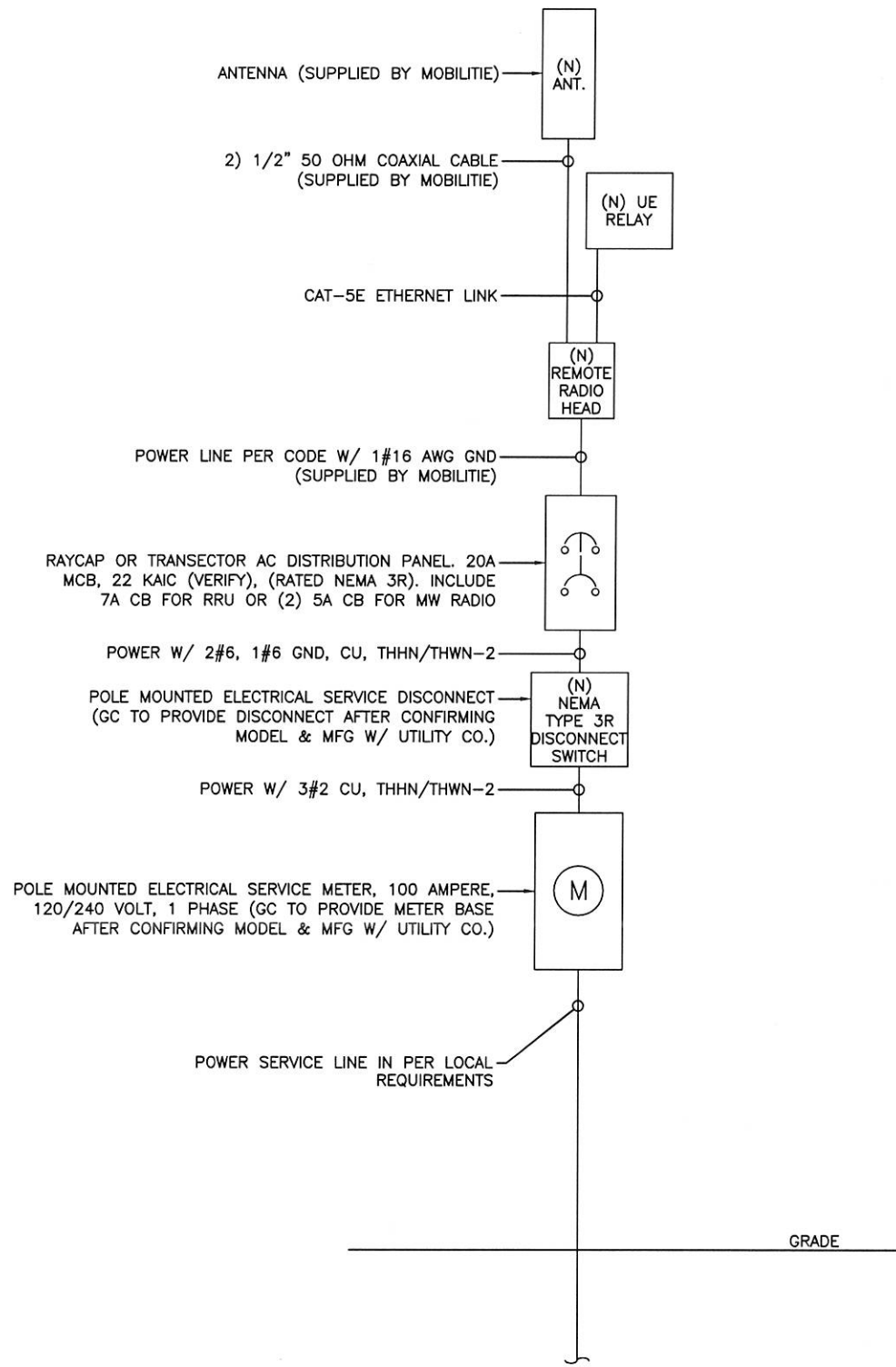
**POLE MOUNTED SIGNS**  
SCALE: NOT TO SCALE **4**



HO90XS051B  
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S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
**EQUIPMENT DETAILS**

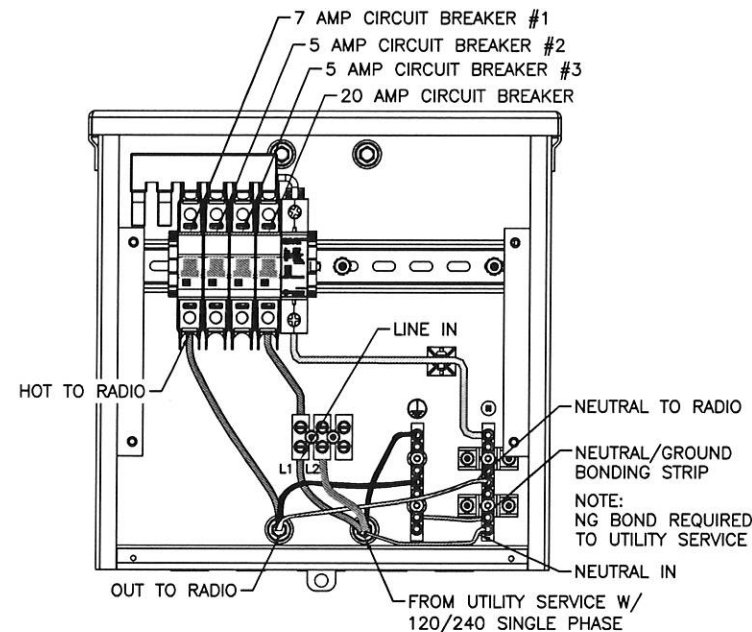
SHEET NUMBER  
**EQ-2**



**ONE-LINE DIAGRAM**

SCALE: NOT TO SCALE

1



**TRANSECTOR EXPORT  
AC DISTRIBUTION BOX**

**BREAKER SCHEDULE**

SCALE: NOT TO SCALE

2

**NOTES:**

1. NOMINAL POWER IS CALCULATED AS 80% OF OEM DOCUMENTED MAXIMUM POWER.
2. CALCULATIONS FOR UE W/ NOKIA DO NOT NEED TO INCLUDE THE POWER FOR THE UE ANTENNA AS IT IS INCLUDED IN THE MAX POWER FIGURE. CALCULATIONS FOR UE W/ AIRSPAN MUST INCLUDE UE AS IT IS NOT INCLUDED
3. KVA IS CALCULATED FROM THE CONSUMPTION VALUE ASSUMING A PF=1. MAXIMUM POWER WAS USED FOR KVA. WHERE MAXIMUM WAS NOTED BY THE OEM THE QUOTED FIGURE WAS USED. WHERE AVERAGE/NOMINAL POWER WAS NOTED BY THE OEM MAXIMUM POWER WAS CALCULATED BY INCREASING AVERAGE/NOMINAL POWER BY A FACTOR OF 50%

Airspan Scenario 2 AH4000 High Power Radio and UE Backhaul

Unit	Sub Description	Max Power		kVA	kWh/Yr
		(W)	Current (A)		
AirHarmony 4000	LTE Base Station	540	4.50	0.54	4730.4
Airspan IR460	UE Relay	N/A	N/A	N/A	N/A
<b>Total</b>		<b>540</b>	<b>4.50</b>	<b>0.54</b>	<b>4730.4</b>

**LOAD CALCULATIONS**

SCALE: NOT TO SCALE

3

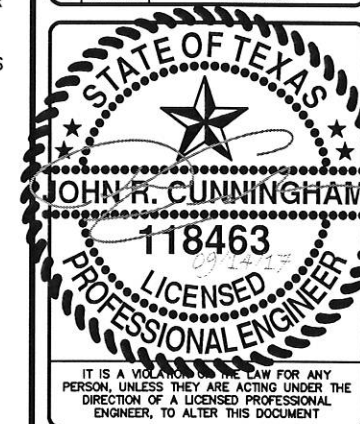
**mobilitie**  
intelligent infrastructure

3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

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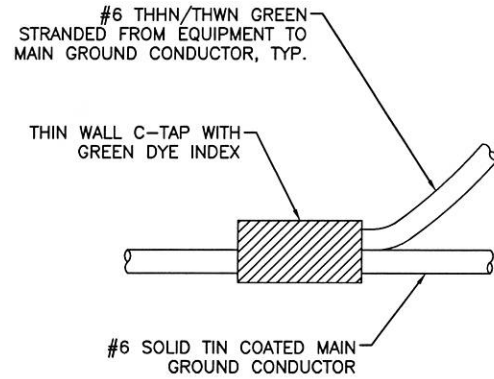
HO90XS051B  
9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
**ELECTRICAL DETAILS**

SHEET NUMBER  
**E-1**

*CJS 9/14/17*

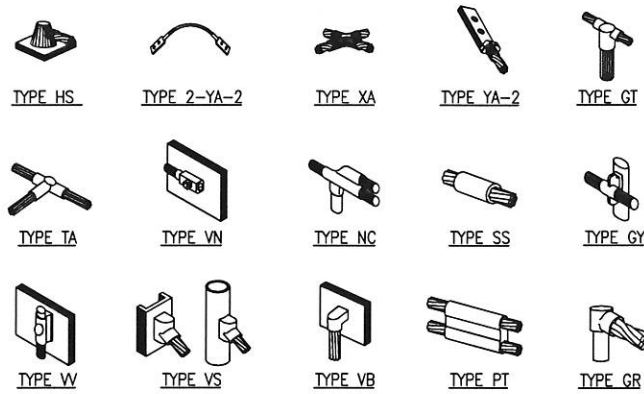
NOTE:  
CONTRACTOR TO SURROUND COMPLETED CONNECTION WITH HEAT-SHRINK TUBING TO ENSURE WEATHER PROOF CONNECTION



**C-TAP DETAIL**

SCALE: NOT TO SCALE

1



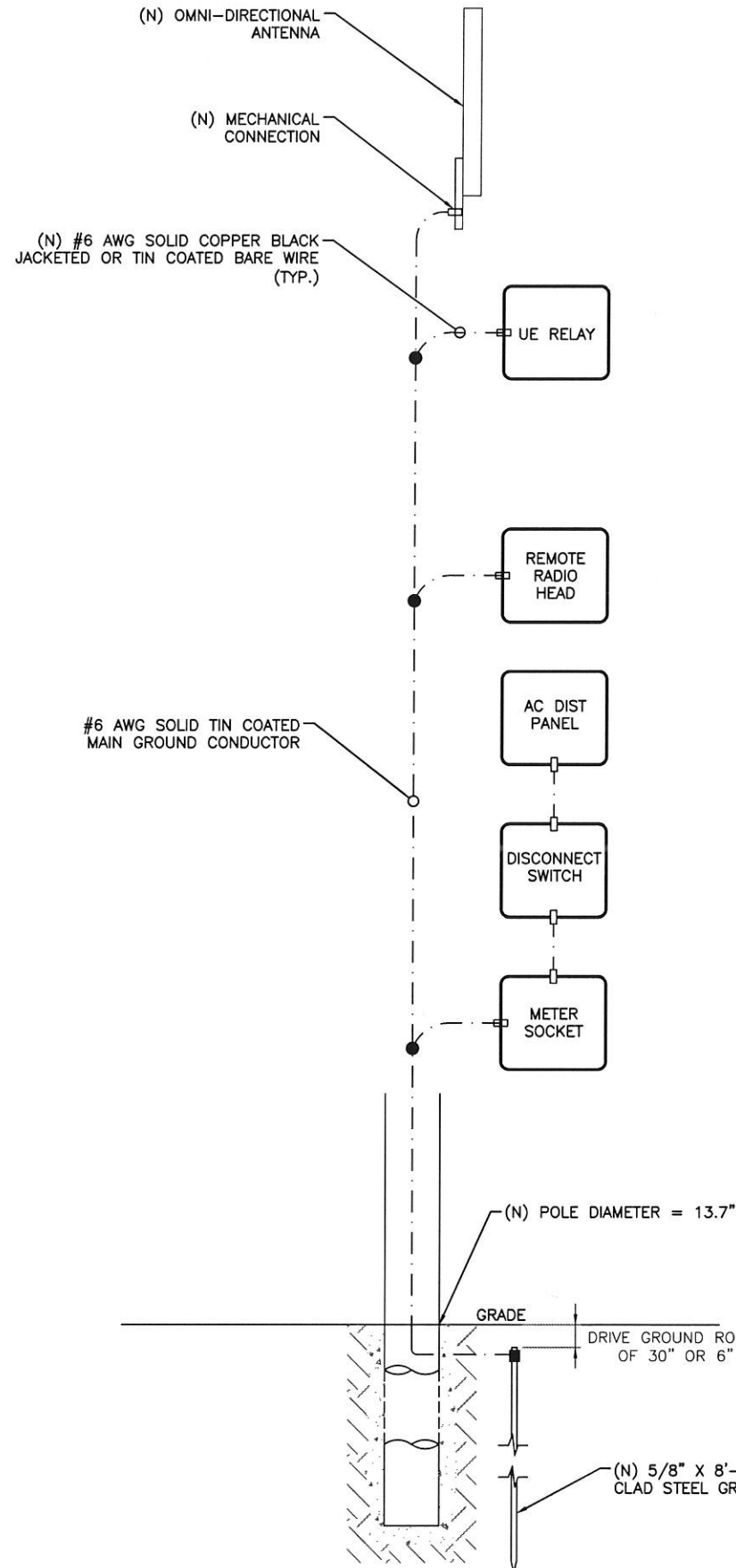
NOTE:

ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

**WELD CONNECTION DETAILS**

SCALE: NOT TO SCALE

2



**LEGEND**

- CADWELD CONNECTION
- MECHANICAL CONNECTION
- COMPRESSION CONNECTION

NOTE:  
GROUNDING RISER FOR DIAGRAMMATIC PURPOSES ONLY. SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

NOTES:

1. ALL RGS TO BE GROUNDED AT BOTH ENDS USING GROUNDING BUSHINGS
2. GROUND WIRE TO BE RUN IN 1/2" SCHEDULE 40 PVC.

*CJS 9/14/17*

**GROUNDING RISER DIAGRAM**

SCALE: NOT TO SCALE

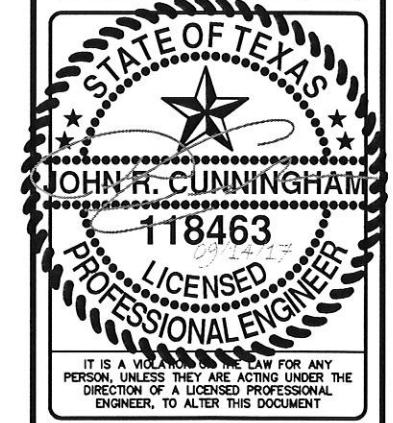
3

**mobilitie**  
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SHEET TITLE  
**GROUNDING DETAILS**

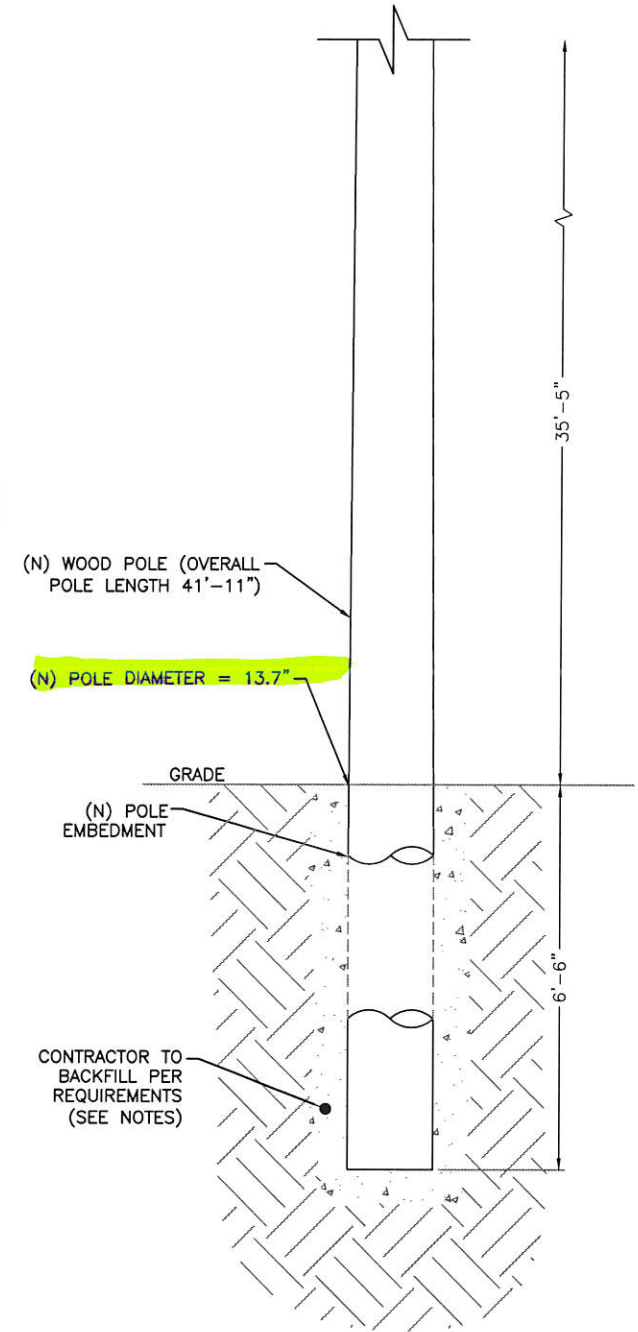
SHEET NUMBER  
**G-1**

**GENERAL CONSTRUCTION NOTES:**

- PRIOR TO ANY CONSTRUCTION WORK, CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES. ALL UTILITIES SHALL BE MARKED.
- BACKFILL OF THE POLES SHALL BE PERFORMED BASED ON THE WATER TABLE. FLOWABLE FILL MIXTURES PURCHASED FROM CONCRETE PLANTS WILL BE USED INSTEAD OF FOAM IN WATER TABLE AREAS.
  - A: NORMAL SOILS ORDER OF PREFERENCE - FOAM, FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES
  - B: HIGH WATER TABLE SOILS ORDER OF PREFERENCES - FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES.
- NON-NATIVE SOILS SHALL BE REMOVE FROM BORE AREA AND SHALL NOT BE REUSED FOR BACKFILL EMBED DEPTHS SHOWN ARE GENERALLY FOR GOOD SOILS AND CLASS 4 POLES. EMBED DEPTHS SHALL BE ADJUSTED BASED ON ACTUAL SOIL CONDITIONS AND FINAL POLE CLASS SELECTION. POOR SOILS WILL REQUIRE DEEPER EMBEDS. SOIL CONDITIONS ARE CLASSIFIED ACCORDING TO BEARING CAPACITY: "POOR": 0 TO 2,500 PSI, "AVERAGE": 2,501 PSI TO 8,000 PSI, "GOOD": GREATER THAN 8,000 PSI. GUYING IS AN OPTION FOR REDUCING EMBED DEPTHS BUT REQUIRES MOBILITIE CM WRITTEN APPROVAL.
- FOUNDATION HOLE SHALL BE EXCAVATED TO A MINIMUM OF 12" LARGER THAN POLE BASE DIAMETER TO ALLOW FOR SUITABLE BACKFILL PLACEMENT.
- REMOVE EXCESS WATER FROM HOLE BEFORE INSTALLING POLE.
- CONTRACTOR SHALL PREPARE LIFT PLANS FOR POLE SETTING ACTIVITIES WITH A BOOM TRUCK OR CRANE. ATTACH LIFTING SLING PER POLE MANUFACTURER RECOMMENDATIONS.
- IF REQUIRED BY MOBILITIE CM, CONTRACTOR SHALL PERFORM A TAPE DROP MEASUREMENT OF EXCAVATED HOLE AND WITNESS DROP WITH PHOTOGRAPHS.

**NOTE:**  
SEE GN-3 FOUNDATION, EXCAVATION AND BACKFILL FOR ADDITIONAL NOTES.

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS REPORT (SEPARATE DOCUMENT) FOR ADDITIONAL STRUCTURAL INFORMATION.



**CLASS 1 POLE DIAMETER TABLE**

OVERALL POLE LENGTH	DIAMETER SIX FEET FROM BUTT	MIN. CIRC. SIX FEET FROM BUTT
20'-0"	9.9"	31.0"
25'-0"	10.7"	33.5"
30'-0"	11.6"	36.5"
35'-0"	12.4"	39.0"
40'-0"	13.1"	41.0"
45'-0"	13.7"	43.0"
50'-0"	14.3"	45.0"
55'-0"	14.8"	46.5"
60'-0"	15.3"	48.0"
65'-0"	15.8"	49.5"
70'-0"	16.2"	51.0"
75'-0"	16.7"	52.5"
80'-0"	17.2"	54.0"
85'-0"	17.8"	55.0"
90'-0"	17.8"	56.0"

**WOOD POLE LENGTH TABLE**

OVERALL POLE LENGTH	MINIMUM EMBED (10%+2')	REQUIRED EMBED TO MEET 5' INCREMENT	POLE HEIGHT ABOVE GROUND
25'-0"	4'-6"	5'-0"	20'-0"
30'-0"	5'-0"	9'-0"	21'-0"
30'-0"	5'-0"	8'-0"	22'-0"
30'-0"	5'-0"	7'-0"	23'-0"
30'-0"	5'-0"	6'-0"	24'-0"
30'-0"	5'-0"	5'-0"	25'-0"
35'-0"	5'-6"	9'-0"	26'-0"
35'-0"	5'-6"	8'-0"	27'-0"
35'-0"	5'-6"	7'-0"	28'-0"
35'-0"	5'-6"	6'-0"	29'-0"
40'-0"	6'-0"	10'-0"	30'-0"
40'-0"	6'-0"	9'-0"	31'-0"
40'-0"	6'-0"	8'-0"	32'-0"
40'-0"	6'-0"	7'-0"	33'-0"
40'-0"	6'-0"	6'-0"	34'-0"
45'-0"	6'-6"	10'-0"	35'-0"
45'-0"	6'-6"	9'-0"	36'-0"
45'-0"	6'-6"	8'-0"	37'-0"
45'-0"	6'-6"	7'-0"	38'-0"
50'-0"	7'-0"	11'-0"	39'-0"
50'-0"	7'-0"	10'-0"	40'-0"
50'-0"	7'-0"	9'-0"	41'-0"
50'-0"	7'-0"	8'-0"	42'-0"
50'-0"	7'-0"	7'-0"	43'-0"
55'-0"	7'-6"	11'-0"	44'-0"
55'-0"	7'-6"	10'-0"	45'-0"
55'-0"	7'-6"	9'-0"	46'-0"
55'-0"	7'-6"	8'-0"	47'-0"
60'-0"	8'-0"	12'-0"	48'-0"
60'-0"	8'-0"	11'-0"	49'-0"
60'-0"	8'-0"	10'-0"	50'-0"
60'-0"	8'-0"	9'-0"	51'-0"
60'-0"	8'-0"	8'-0"	52'-0"
65'-0"	8'-6"	12'-0"	53'-0"
65'-0"	8'-6"	11'-0"	54'-0"
65'-0"	8'-6"	10'-0"	55'-0"
65'-0"	8'-6"	9'-0"	56'-0"
70'-0"	9'-0"	13'-0"	57'-0"
70'-0"	9'-0"	12'-0"	58'-0"
70'-0"	9'-0"	11'-0"	59'-0"
70'-0"	9'-0"	10'-0"	60'-0"
70'-0"	9'-0"	9'-0"	61'-0"
75'-0"	9'-6"	13'-0"	62'-0"
75'-0"	9'-6"	12'-0"	63'-0"
75'-0"	9'-6"	11'-0"	64'-0"
75'-0"	9'-6"	10'-0"	65'-0"
80'-0"	10'-0"	14'-0"	66'-0"
80'-0"	10'-0"	13'-0"	67'-0"
80'-0"	10'-0"	12'-0"	68'-0"
80'-0"	10'-0"	11'-0"	69'-0"
80'-0"	10'-0"	10'-0"	70'-0"
85'-0"	10'-6"	14'-0"	71'-0"
85'-0"	10'-6"	13'-0"	72'-0"
85'-0"	10'-6"	12'-0"	73'-0"
85'-0"	10'-6"	11'-0"	74'-0"
90'-0"	11'-0"	15'-0"	75'-0"

**NOTE:**  
FOR OVERALL POLE LENGTHS BETWEEN TWO VALUES, SELECT THE HIGHER POLE ON TABLE.

**FOAM TABLE**

Pole Diameter (Inches)	Hole Depth (Feet)						
	4	5	6	7	8	9	10
<b>8" Hole Diameter</b>							
5.0	1	1					
5.2	1	1					
<b>18" Hole Diameter</b>							
7.0	6	8	9	11	12	13	15
8.0	6	7	9	10	12	12	14
9.0	6	7	8	9	11	12	13
10.0	5	6	8	9	9	11	12
11.0	5	6	7	8	9	10	11
12.0	4	5	8	7	8	9	10
13.0	4	4	5	6	7	7	9
14.0	3	4	4	5	6	6	7
15.0	2	3	4	4	5	5	6
16.0	2	2	2	3	3	3	4
<b>24" Hole Diameter</b>							
12.0	10	12	14	17	19	20	24
13.0	9	11	14	16	18	19	22
14.0	9	11	13	15	17	18	21
15.0	8	10	12	14	16	17	19
16.0	7	9	11	12	14	15	18
17.0	7	8	10	11	13	14	16
18.0	6	7	9	10	11	12	14
19.0	5	6	7	9	10	10	12
20.0	4	5	6	7	8	8	10
22.0	2	3	3	4	3	5	5
<b>36" Hole Diameter</b>							
18.0			32	37	43	45	53
20.0			30	34	39	42	49
22.0			27	31	36	38	44
24.0			24	28	32	34	39
26.0			21	24	27	29	33
28.0			17	20	23	24	27
30.0			13	15	18	19	21
32.0			9	11	12	13	15
34.0			5	6	6	7	7
<b>48" Hole Diameter</b>							
36.0	39	44	47	55	61	66	77
38.0	33	38	40	47	52	56	66
40.0	27	31	33	39	42	46	54
42.0	21	24	25	30	33	36	41
44.0	14	16	17	20	22	24	28
46.0	8	8	9	10	12	12	15

**NOTE:**  
FOR ABOVE GRADE HEIGHTS BETWEEN TWO VALUES, SELECT THE HIGHER POLE ON TABLE.

**DESIGNED APPURTENANCE LOADING**

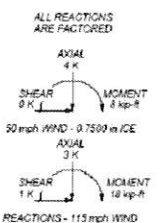
TYPE	ELEVATION	TYPE	ELEVATION
Antenna	31.1	AC	3
UL Wire	27	Water	4
Name of GPS	18		

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36	58			
A572-50	50	70			

- TOWER DESIGN NOTES**
- Tower designed for Exposure C to the TIA-222-G Standard.
  - Tower designed for a 115 mph basic wind in accordance with the TIA-222-G Standard.
  - Tower is also designed for a 50 mph basic wind with 0.75 in. ice. Ice is considered to increase in thickness with height.
  - Deflections are based upon a 50 mph wind.
  - Tower Risk Category I.
  - Topographic Category 1 with Crest Height of 0.00 ft.

Embedment Depth of 6.5ft



Jacobs Engineering Group, Inc. 45' Small Cell  
 3161 Michelson Drive  
 Irvine, CA 92612  
 Phone: (949) 224-7500  
 FAX: (949) 224-7501

Project: ER600192  
 Client: Falmey  
 Date: 12/20/16  
 Scale: N.T.S.  
 Drawn by: [Signature]  
 Checked by: [Signature]

**mobilitie**  
 intelligent infrastructure

3475 PIEDMONT ROAD NE  
 SUITE 1000  
 ATLANTA, GEORGIA 30305  
 PHONE: (312) 638-5400

9/14/17

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 DRAWN BY: W. WOODS  
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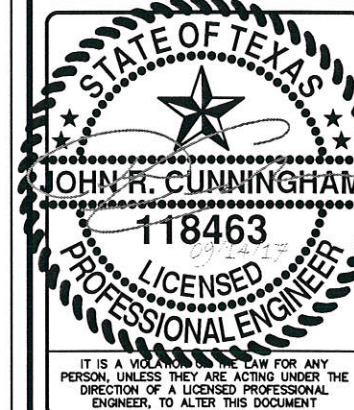
**POLE EMBEDMENT DETAILS**  
 SCALE: NOT TO SCALE

9/14/17

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C	06.30.17	UPDATE TEMPLATE/ANTENNA HEIGHT & BLACK PAINT ON POLE
B	08.23.16	TYPE OF REVISION
A	06.07.16	FOR REVIEW



HO90XS051B  
9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
VEHICULAR TRAFFIC  
CONTROL PLAN

SHEET NUMBER  
TC-1

TRAFFIC CONTROL PLAN SECTION SHALL BE COMPLETED BY ENGINEER

ROADWAY	POSTED SPEED	TAPER LENGTH	SPACING CHANNELIZING DEVICES		SIGN SPACING	BUFFER SPACE
			TAPER	TANGENT		
S FRY RD.	35	225'	35'	70'	160'	120'

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

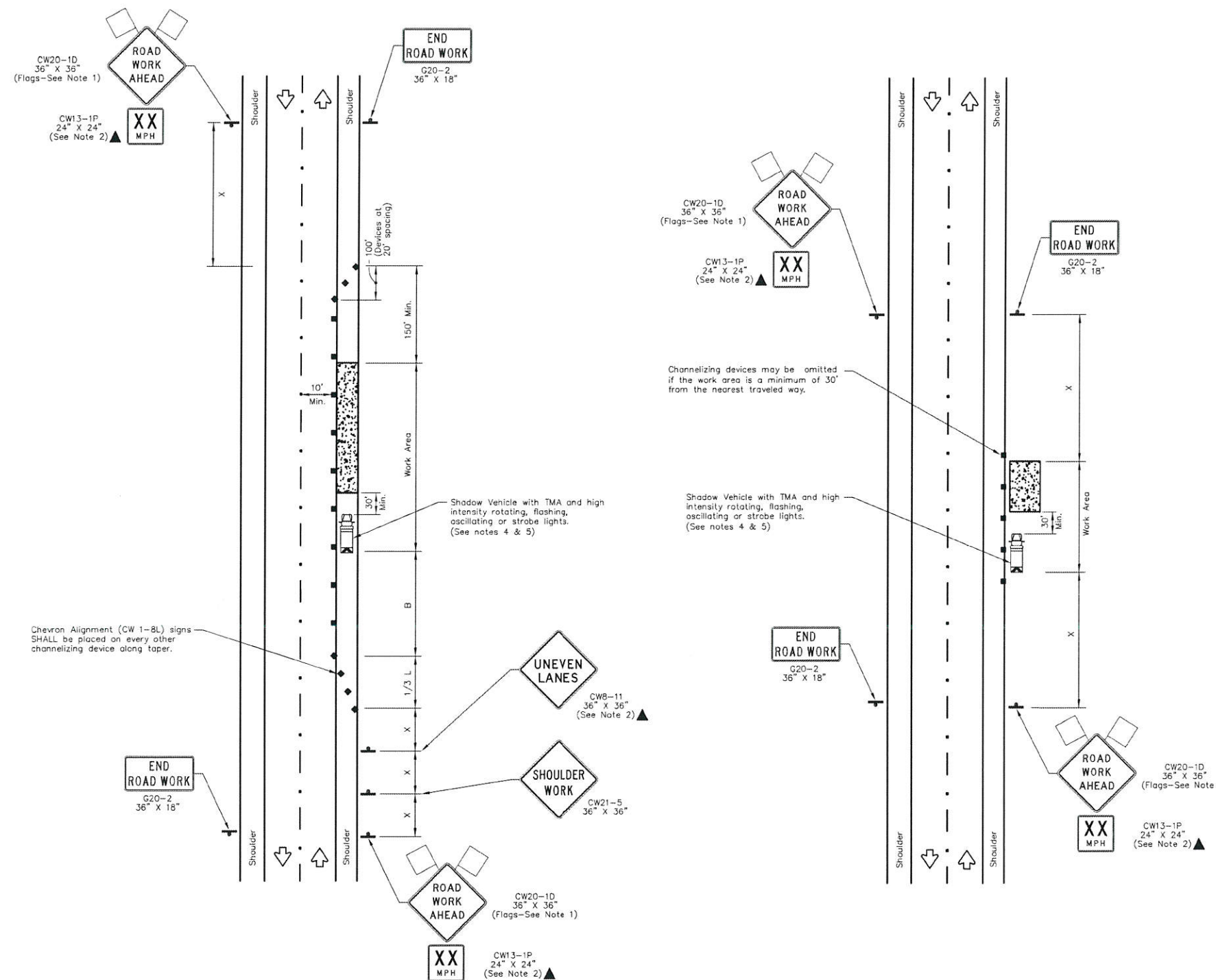
Posted Speed *	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS <sup>2</sup> / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60	600'	660'	720'	60'	120'	600'	350'	
65	650'	715'	780'	65'	130'	700'	410'	
70	700'	770'	840'	70'	140'	800'	475'	
75	750'	825'	900'	75'	150'	900'	540'	

\* Conventional Roads Only  
\*\* Taper lengths have been rounded off.  
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

GENERAL NOTES

- Flags attached to signs where shown are OPTIONAL.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol are OPTIONAL.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- Contractor shall provide and install traffic control devices in conformance with part VI of Texas Manual on Uniform Traffic Control Devices (TMUTCD - Latest edition with revisions) during construction.
- No lanes shall be blocked during construction.
- If project is within 400 feet from a signalized intersection, the Contractor shall contact Harris County Engineering Department, Traffic Signal Maintenance at (713) 881-3210 five (5) days prior to the start of construction.

LANCE CLOSURE IS LIMITED TO 9:00 AM TO 3:00 PM



WORK SPACE ON SHOULDER

WORK SPACE NEAR SHOULDER

NO.	REVISIONS	DATE	NAME
1	UPDATED DEPARTMENT NAME & GENERAL NOTES	4/16/15	BSH
2			
3			
4			

HARRIS COUNTY  
ENGINEERING DEPARTMENT



CONSULTANT  
LOGO/INFORMATION

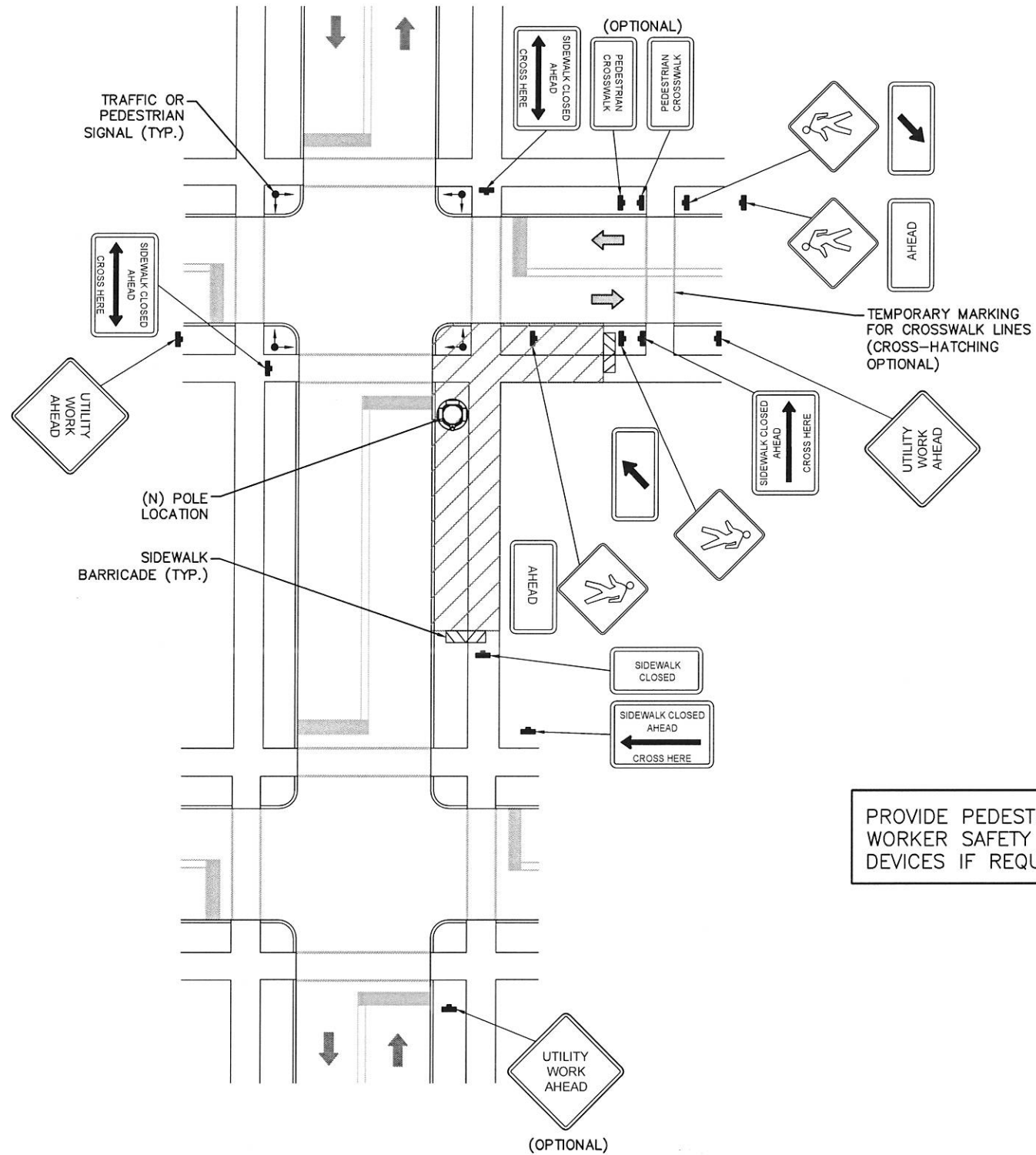
ENGINEERS  
SEAL

PROJECT TITLE:	TRAFFIC CONTROL PLAN (SHOULDER WORK)	
DRAWN BY:	BSH	HCD STANDARD
CR'D BY:	BSH	38
SCALE:	N.T.S.	SHEET NO:
DATE:	6/26/14	1

CLS 9/14/17

**TRAFFIC CONTROL GENERAL NOTES**

- ALL TEMPORARY TRAFFIC CONTROL SIGNAGE, LAYOUTS AND PROCEDURES SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, WHICHEVER IS MORE STRINGENT.
- PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
- TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
- SELECTION, PLACEMENT, MAINTENANCE, AND PROTECTION OF TRAFFIC, PEDESTRIANS, AND WORKERS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) - PART VI "TEMPORARY TRAFFIC CONTROL", AND LOCAL JURISDICTIONAL REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE APPROPRIATE HIGHWAY AUTHORITY HAVING JURISDICTION.
- ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY AND FOR ACTUAL TRAFFIC SPEEDS IF IN EXCESS OF POSTED SPEED LIMITS.
- TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.
- CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON THE (E) TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.
- ALL (E) ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE (N) TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED, OR RELOCATED. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITION AFTER COMPLETION OF WORK.
- CONTRACTOR SHALL CONTACT LOCAL AUTHORITY HAVING HIGHWAY JURISDICTION AND PROVIDE ADDITIONAL "FLAGMEN" OR POLICE SUPERVISION, IF REQUIRED.
- ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON A MINIMUM 6H:1V SLOPE PRIOR TO END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR PRECAST CONCRETE CURB BARRIER CONSTRUCTION BARRIER SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC.
- WHERE DICTATED BY LOCAL CONDITIONS, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN AND WORKER CROSSING LOCATIONS IN ACCORDANCE WITH ALL APPLICABLE CODES AND OSHA REQUIREMENTS.
- CONSTRUCTION ZONE SPEED LIMIT IF REDUCED FROM POSTED LIMITS SHALL BE IN ACCORDANCE WITH MUTCD AND WILL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.
- THERE SHALL BE NO WORKERS, EQUIPMENT, OR OTHER VEHICLES IN THE BUFFER SPACE OR THE ROLL AHEAD SPACE.
- DRIVEWAYS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-1 SIGN (ROAD WORK AHEAD) AS A MINIMUM.
- CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION PROVIDED THEY COMPLY WITH MUTCD.
- THE SPACING BETWEEN CONES, TUBULAR MARKERS, VERTICAL PANELS, DRUMS, AND BARRICADES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO 1.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.
- WHEN CHANNELIZATION DEVICES HAVE THE POTENTIAL OF LEADING VEHICULAR TRAFFIC OUT OF THE INTENDED VEHICULAR TRAFFIC SPACE, THE CHANNELIZATION DEVICES SHOULD BE EXTENDED A DISTANCE IN FEET OF 2.0 TIMES THE SPEED LIMIT IN MPH BEYOND THE DOWNSTREAM END OF THE TRANSITION AREA.
- TAPER LENGTHS ARE CALCULATED AS FOLLOWS:  
 $L = WS^2/60$  (40 MPH AND HIGHER) OR  $L2 = WS$  (OVER 40 MPH),  
 WHERE W= OFFSET WIDTH (FT), S= TRAFFIC SPEED (MPH).



PROVIDE PEDESTRIAN/  
WORKER SAFETY CONTROL  
DEVICES IF REQUIRED

*(JS 9/14/17)*

**TYPICAL PEDESTRIAN / WORKER SAFETY PLAN**  
SCALE: NOT TO SCALE

1

**mobilitie**  
intelligent infrastructure  
3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

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B	08.23.16	TYPE OF REVISION
A	06.07.16	FOR REVIEW

STATE OF TEXAS  
  
 JOHN R. CUNNINGHAM  
 118463  
 LICENSED PROFESSIONAL ENGINEER  
 IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

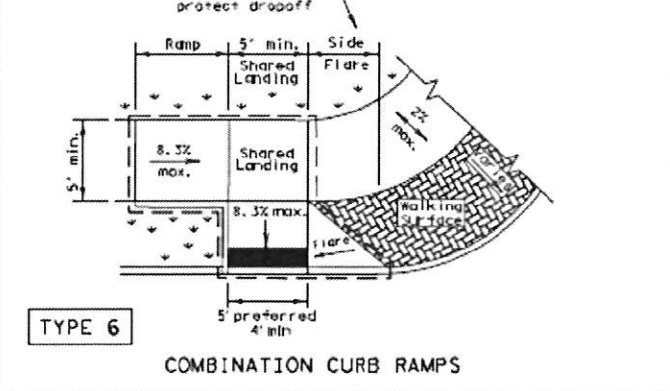
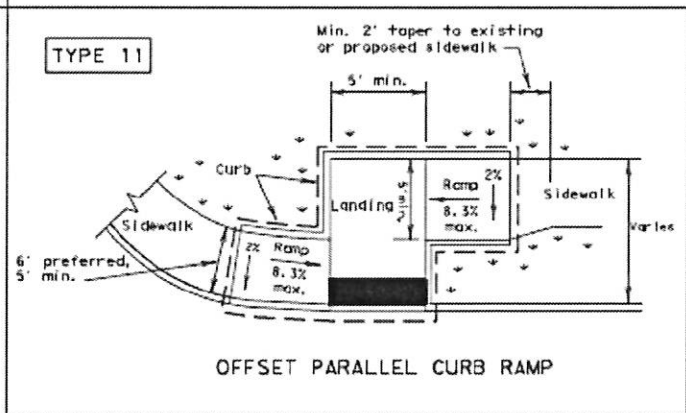
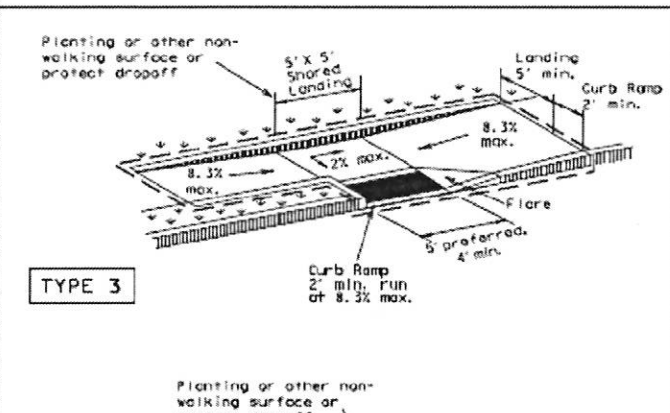
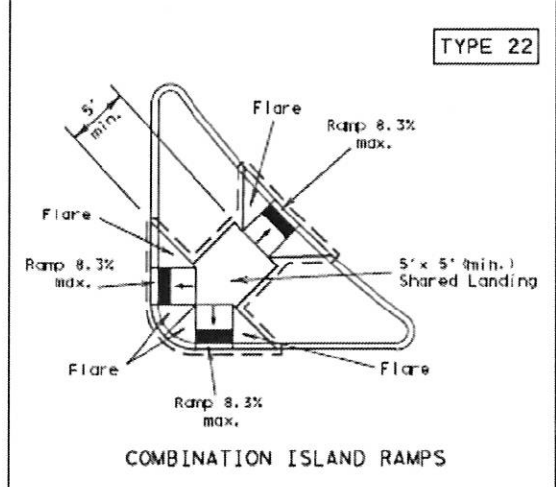
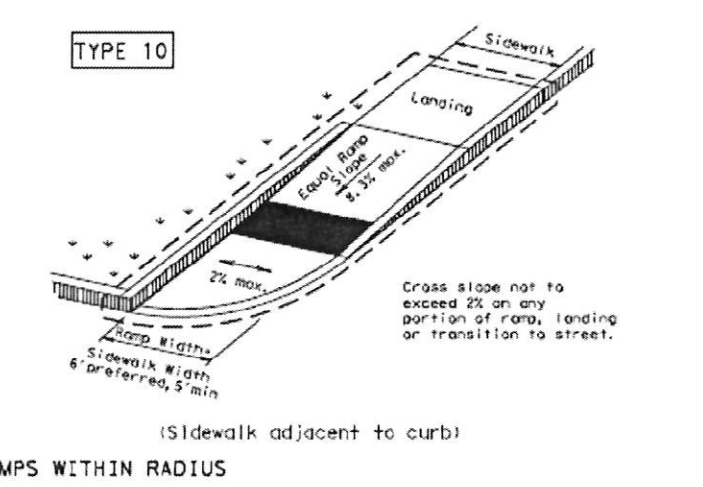
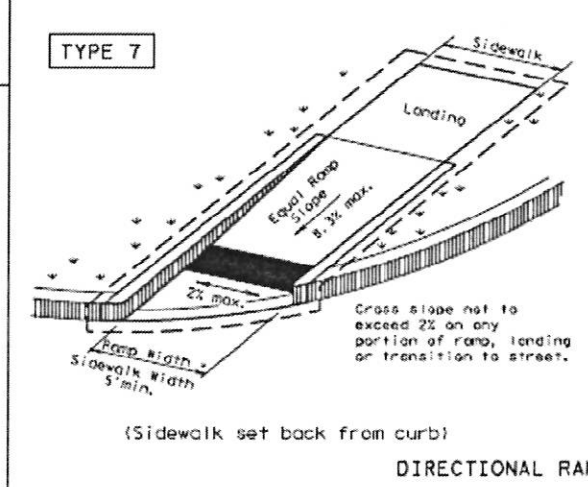
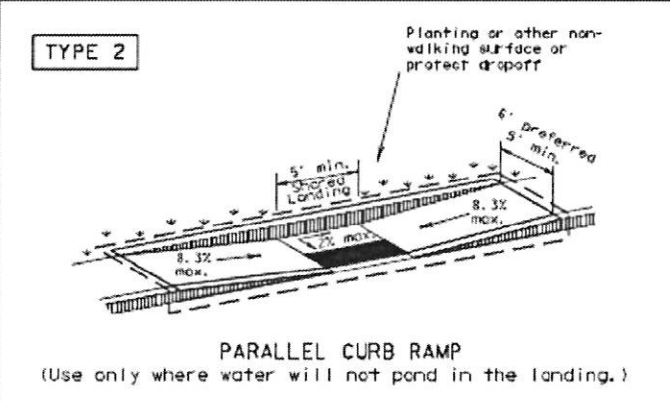
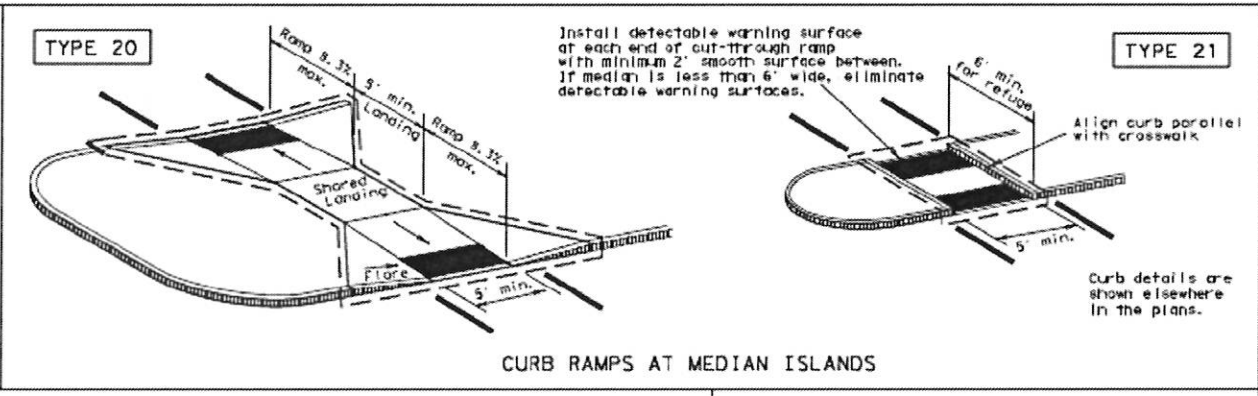
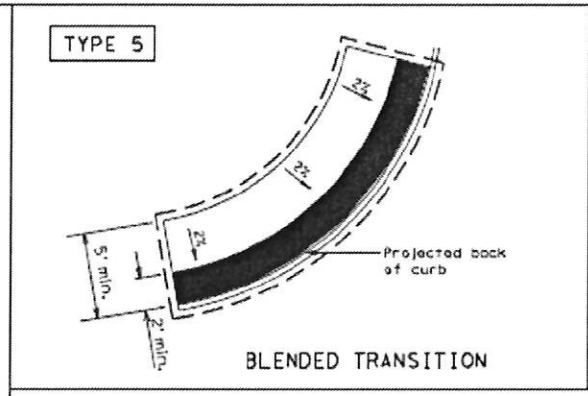
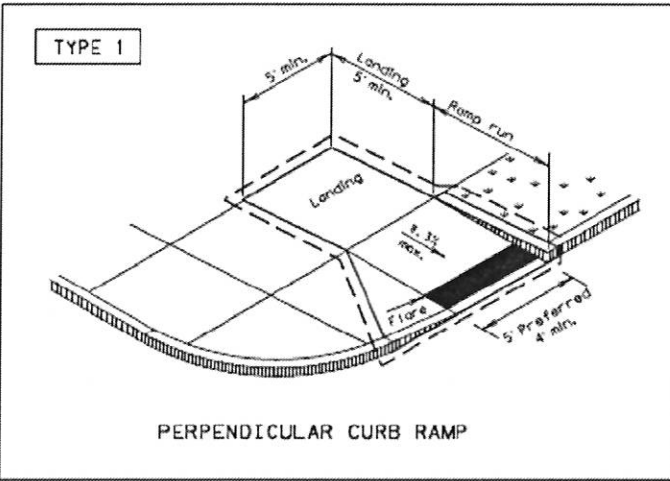
H090XS051B  
9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
**PEDESTRIAN SAFETY PLAN**

SHEET NUMBER  
**TC-2**

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DATE: FILE:



**NOTES / LEGEND:**  
See General Notes on sheet 2 of 4 for more information.  
v v v Denotes planting or non-walking surface not part of pedestrian circulation path.  
--- Ramp Limits of Payment  
■ Detectable Warning Surface

SHEET 1 OF 4

Texas Department of Transportation Design Division Standard

**PEDESTRIAN FACILITIES CURB RAMPS**

PED-12A

FILED	pedi.dwg	DATE	DESIGNED	BY	DATE	BY
FILED	pedi.dwg	DATE	DESIGNED	BY	DATE	BY
FILED	pedi.dwg	DATE	DESIGNED	BY	DATE	BY

**mobilitie**  
intelligent infrastructure

3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

F	09.14.17	ADD POLE DIA./TC CLOSURE TIME
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B	08.23.16	TYPE OF REVISION
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STATE OF TEXAS

JOHN R. CUNNINGHAM

118463

LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

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9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
PEDESTRIAN FACILITIES CURB RAMP

SHEET NUMBER  
TC-3

CFR 9/14/17

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DATE: FILE:

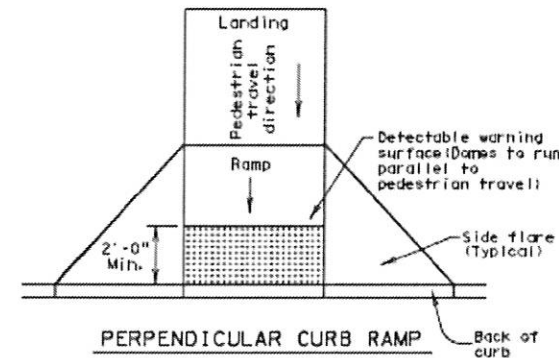
### General Notes

#### Curb Ramps

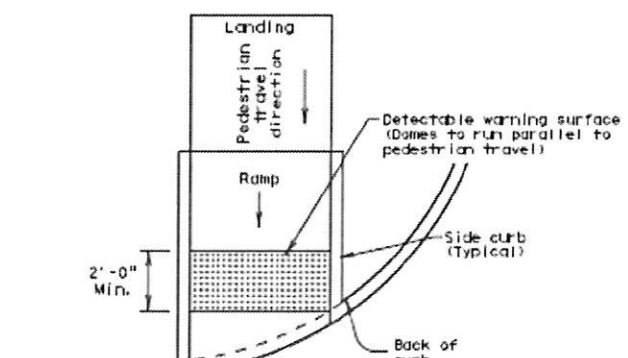
1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
4. Landings shall be 5' x 5' minimum with a maximum 2% slope in any direction.
5. Maneuvering space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102.
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Handrails are not required on curb ramps. Provide curb ramps wherever an accessible route crosses (penetrates) a curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5' for ramps, flares and landings, unless otherwise directed.
15. Provide a smooth transition where the curb ramps connect to the street.
16. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

#### Detectable Warning Material

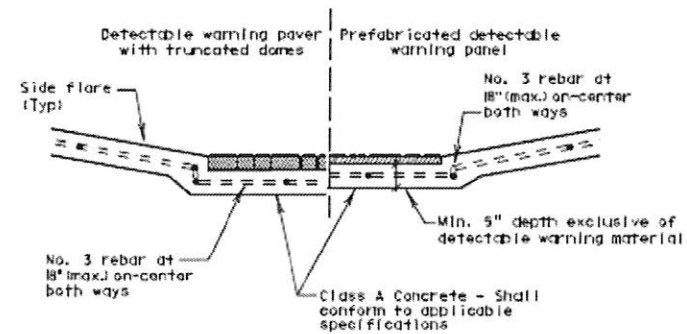
18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
19. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be curved along the corner radius.
23. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.



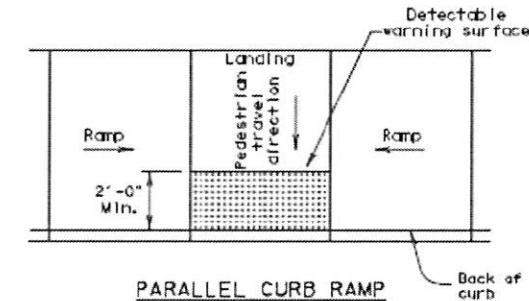
PERPENDICULAR CURB RAMP  
Typical placement of detectable warning surface on sloping ramp run.



DIRECTIONAL CURB RAMP  
Typical placement of detectable warning surface on sloping ramp run.



SECTION: CURB RAMP AT DETECTABLE WARNING



PARALLEL CURB RAMP  
Typical placement of detectable warning surface on landing at street edge.

### DETECTABLE WARNINGS

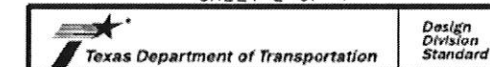
#### Detectable Warning Pavers

24. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
25. Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.

#### Sidewalks

26. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.

SHEET 2 OF 4



## PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

DATE	BY	CHKD	APP'D
06/13/12	VP	VP	VP
06/13/12	VP	VP	VP
06/13/12	VP	VP	VP

CS 9/14/17

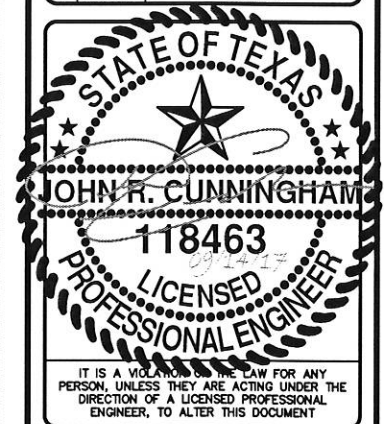


3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO: ER600201  
DRAWN BY: W. WOODS  
CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

F	09.14.17	ADD POLE DIA./TC CLOSURE TIME
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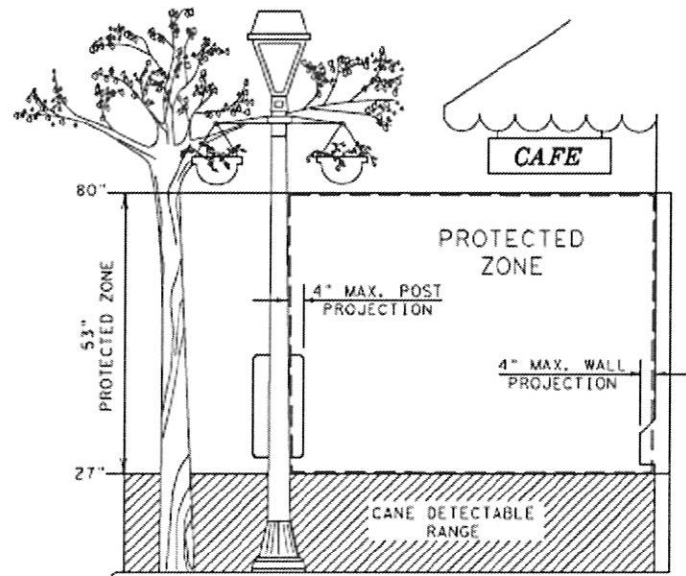
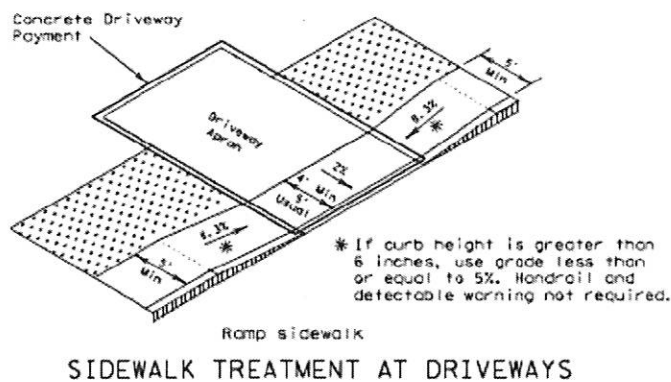
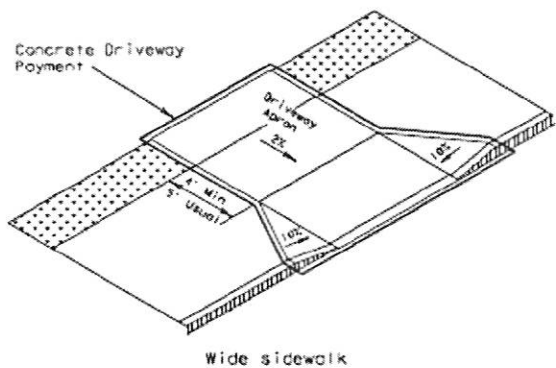
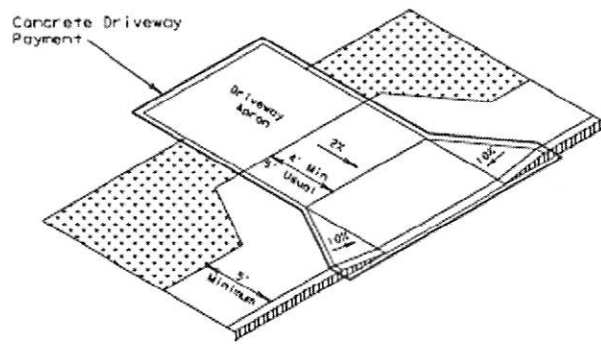
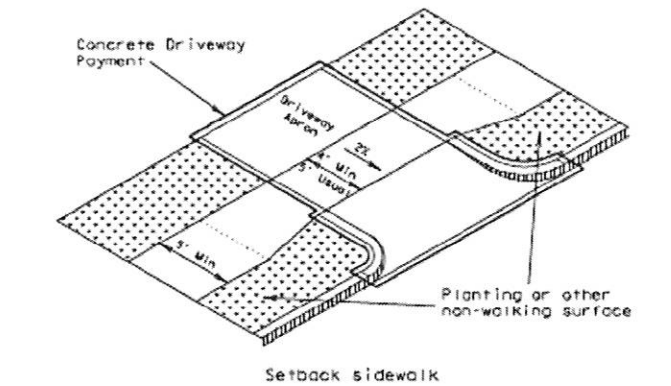


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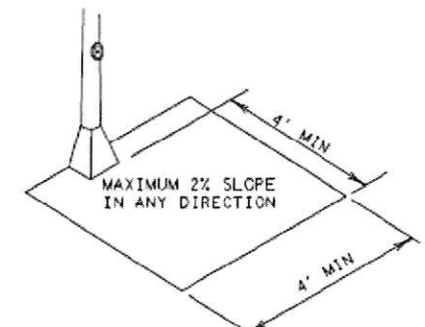
SHEET TITLE  
PEDESTRIAN FACILITIES  
CURB RAMP

SHEET NUMBER  
TC-4

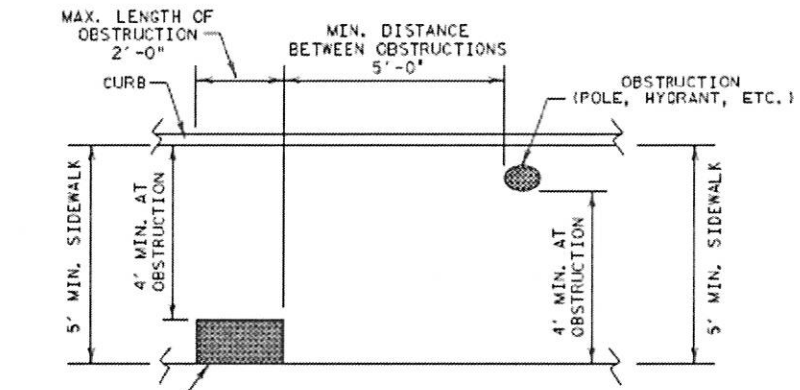
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**PROTECTED ZONE**  
 In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27" and 80" above the surface.

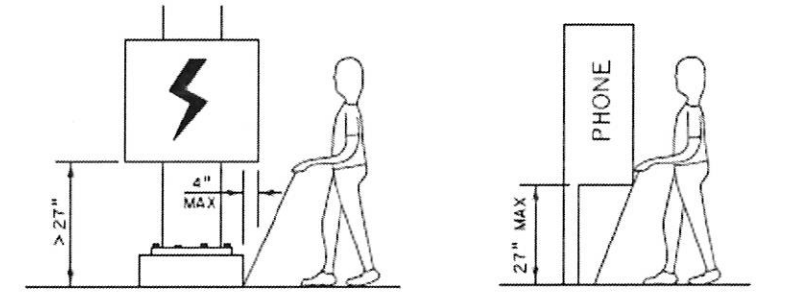


**CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON**



**PLAN VIEW  
 PLACEMENT OF STREET FIXTURES**

(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)



**DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"**

SHEET 3 OF 4

Design Division Standard

**PEDESTRIAN FACILITIES  
 CURB RAMPS**

**PED-12A**

FILED: PED-12A.dgn	DESIGNED BY: TxDOT	CHECKED BY: JRM	DESIGNED BY: TxDOT	CHECKED BY: JRM
© TxDOT March 2002	DATE: 03/02	JOB: 00000000	JOB: 00000000	JOB: 00000000
VP: June 13, 2012	JOB: 00000000	JOB: 00000000	JOB: 00000000	JOB: 00000000

**mobilitie**  
 intelligent infrastructure  
 3475 PIEDMONT ROAD NE  
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PRELIM - NOT FOR CONSTRUCTION

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E	08.24.17	UPDATE EMBD/CURB TC SHEETS
D	07.13.17	CANDIDATE CODE & JX UPDATE
C	06.30.17	UPDATE TEMPLATE/ANTENNA HEIGHT & BLACK PAINT ON POLE
B	08.23.16	TYPE OF REVISION
A	06.07.16	FOR REVIEW

STATE OF TEXAS  
  
**JOHN R. CUNNINGHAM**  
 118463  
 LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

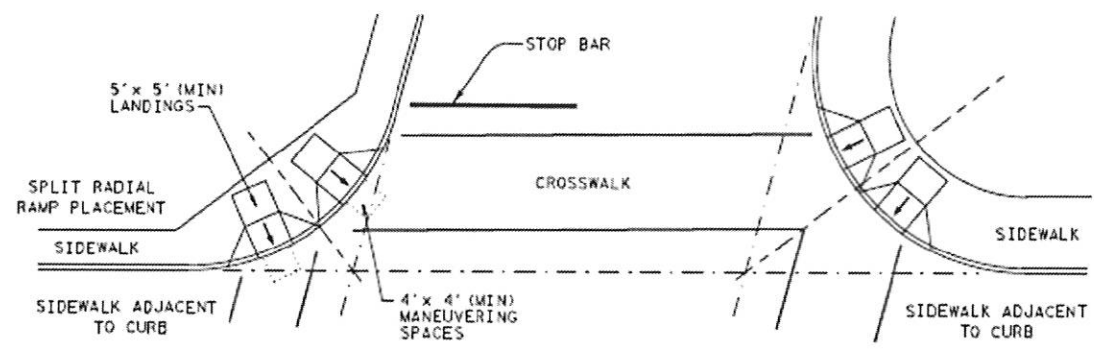
H090XS051B  
 9TXB008254B  
 S. FRY RD &  
 TX-99/GRAND PKWY  
 KATY, TX 77494  
 UTILITY POLE

SHEET TITLE  
**PEDESTRIAN FACILITIES  
 CURB RAMP**

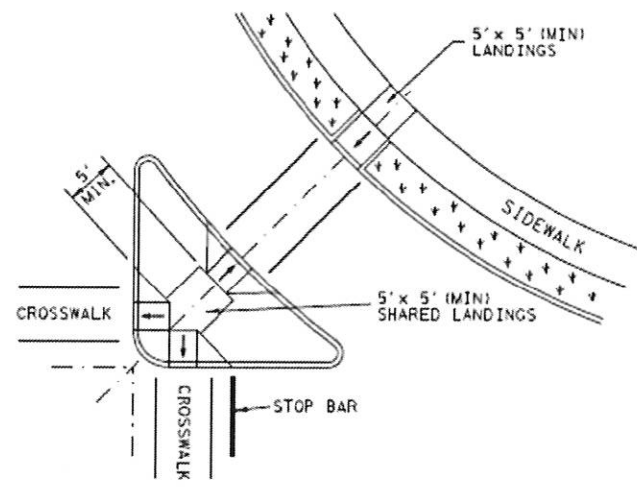
SHEET NUMBER  
**TC-5**

CJS 9/14/17

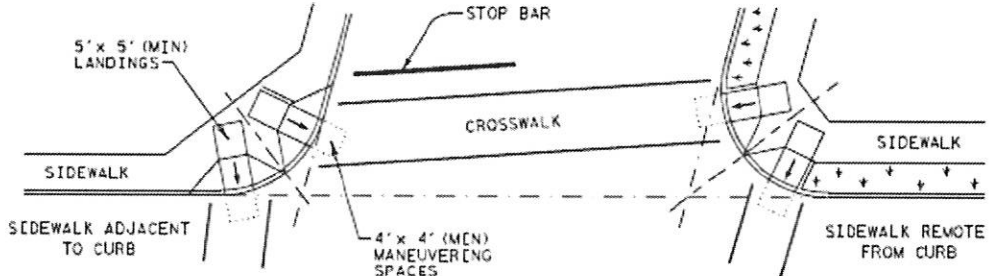
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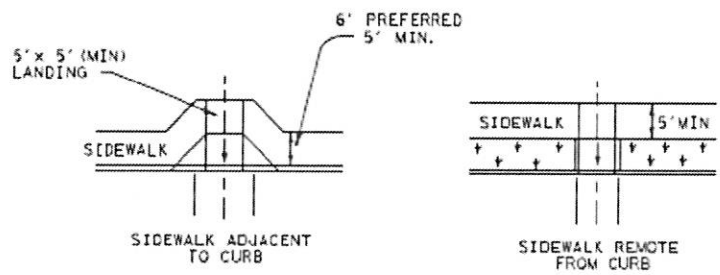
SKewed INTERSECTION WITH "LARGE" RADIUS



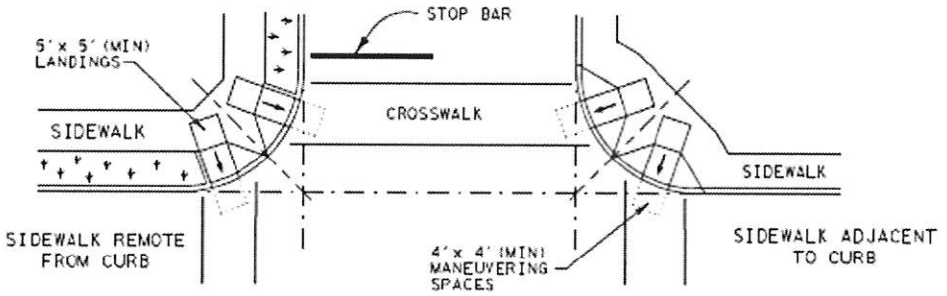
AT INTERSECTION  
W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT  
PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

TYPICAL CROSSING LAYOUTS

SHEET 4 OF 4

		Design Division Standard	
<b>PEDESTRIAN FACILITIES CURB RAMPS</b>			
<b>PED-12A</b>			
FILED: pedi 2a.dgn © TxDOT March 2002 REVISIONS VP June 13, 2012	DATE:	NEXT:	JOB:
DESIGNED BY:	CHECKED BY:	DRAWN BY:	SHEET NO.:

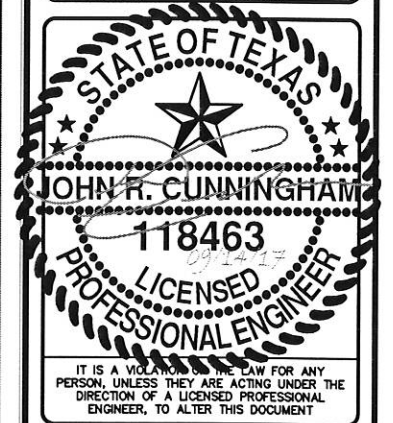
**mobilitie**  
intelligent infrastructure

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PROJECT NO: ER600201  
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PRELIM - NOT FOR CONSTRUCTION

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SHEET TITLE  
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CURB RAMP

SHEET NUMBER  
TC-6

*CLS 9/14/17*

DATE:  
FILE:

**GENERAL CONSTRUCTION NOTES:**

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST ADOPTED EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND LATEST MOBILITIE CONSTRUCTION STANDARDS. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THE CONSTRUCTION DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE (N) WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED, AS SHOWN, PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS.
4. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. CONTRACTOR IS REQUIRED TO FURNISH AND INSTALL ANY/ALL ITEMS FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM SUBJECT ONLY TO OWNER-SUPPLIED ITEMS. CONTRACTOR SHALL PROVIDE ANY/ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
5. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED AND CONTRACTOR INSTALLED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
  - A) TRANSMITTER
  - B) UHF ANTENNA AND MOUNTING BRACKETS, GPS UNIT AND KU BACKHAUL
  - C) UHF COAX AND HANGERS
  - D) INTEGRATED LOAD CENTER
6. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, (E) CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO THE ATTENTION OF THE MOBILITIE CM, IN WRITING, PRIOR TO THE COMMENCEMENT OF WORK.
7. DETAILS PROVIDED ARE FOR THE PURPOSE OF SHOWING DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR SITE CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
8. CONTRACTOR SHALL PAY FOR APPLICABLE PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO ORDERING MATERIALS AND THE COMMENCEMENT OF WORK.
9. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.
10. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
11. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING ACCEPTED INDUSTRY-STANDARD SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
13. CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE MOBILITIE CM AND SCHEDULE THEIR ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
15. CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
16. CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT (E) SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATE REPAIR, TO NEW CONDITION, ANY DAMAGE THAT OCCURS DURING CONSTRUCTION AT THE SOLE COST OF THE CONTRACTOR.
17. IN DRILLING HOLES, OR CORING, INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE LOCATED BY THE CONTRACTOR USING APPROPRIATE METHODS AND EQUIPMENT PRIOR TO ANY DRILLING OR CORING OPERATIONS IN (E) CONCRETE.
18. CONTRACTOR SHALL REPAIR, TO NEW CONDITION, ALL (E) WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.
19. CONTRACTOR SHALL SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES OR MATERIALS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS AND SYSTEMS THAT MEET OR EXCEED THE RATING OF THE ASSEMBLY IN WHICH THE NEW PENETRATION IS PLACED.
20. CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
21. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.
22. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO (E) SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ANY EROSION CONTROL MEASURES, RECORD-KEEPING, MONITORING, AND REPORTING TO THE OWNER AND REGULATORY AUTHORITIES.
23. ALL CONSTRUCTION WORK IS TO ADHERE TO APPLICANT'S INTEGRATED CONSTRUCTION STANDARDS UNLESS STATE OR LOCAL CODE IS MORE STRINGENT.
24. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE PER STATE BUILDING STANDARDS CODE AND STATE CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY PER STATE CODE OF REGULATIONS, A SCOPE OF WORK DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK. A CHANGE ORDER FOR THAT SCOPE SHALL BE SUBMITTED TO THE MOBILITIE CM PRIOR TO PROCEEDING WITH THE WORK.
25. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED BY THE CONTRACTOR FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.
26. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE. ANY CORRECTIVE WORK SHALL BE COMPLETED AT THE SOLE COST OF THE CONTRACTOR.

**ELECTRICAL NOTES:**

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY MOBILITIE CM AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE MOBILITIE CM HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE THEMSELVES WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL (E) CONDITIONS OF ELECTRICAL EQUIP., ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF THEIR BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC, ALL CODES AND ORDINANCES OF THE LOCAL JURISDICTION, AND POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT ARE NOT BE LIMITED TO:
  - A) UL – UNDERWRITERS LABORATORIES
  - B) NEC – NATIONAL ELECTRICAL CODE
  - C) NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
  - D) OSHA – OCCUPATIONAL SAFETY AND HEALTH ACT
  - E) SBC – STANDARD BUILDING CODE
  - F) NFPA – NATIONAL FIRE PROTECTION AGENCY
  - G) ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
  - H) IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
  - I) ASTM – AMERICAN SOCIETY FOR TESTING MATERIALS
4. REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH MOBILITIE CM ANY SIZES AND LOCATIONS WHEN NEEDED.
5. (E) SERVICES: CONTRACTOR SHALL NOT INTERRUPT (E) SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.
6. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE MOBILITIE CM, PRIOR TO BEGINNING ANY WORK.
7. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION, UNLESS OTHERWISE NOTED.
8. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.
9. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
10. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY APPLICANT.
11. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY FUNCTIONAL AND SHALL BE APPROVED BY THE MOBILITIE CM AND LOCAL JURISDICTION. ANY DEFICIENCIES SHALL BE CORRECTED BY AN ELECTRICAL CONTRACTOR AT THE SOLE COST OF THE CONTRACTOR.
12. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.



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SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-1

*CRS 9/14/17*

ELECTRICAL NOTES CONT'D

13. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED BY THE CONTRACTOR WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.
14. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.
15. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.
16. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IEC.
17. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURER'S CATALOG INFORMATION OF ANY/ALL EQUIPMENT AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE MOBILITIE CM PRIOR TO INSTALLATION.
18. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE MOBILITIE CM UPON FINAL ACCEPTANCE.
19. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
20. DISCONNECT SWITCHES SHALL BE UL-RATED, H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.
21. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND KNOWN AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.
22. RACEWAYS: CONDUIT SHALL BE SCHEDULE 80 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITZ ZINC' OR 'COLD GALV'.
23. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.
24. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, UNLESS OTHERWISE NOTED, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.
25. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
26. SERVICE: AS SPECIFIED ON THE DRAWINGS. OWNER OR OWNER'S AGENT WILL APPLY FOR POWER. ALL PROVISIONS FOR TEMPORARY POWER WILL BE OBTAINED BY THE CONTRACTOR.
27. TELEPHONE OR FIBER SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.
28. ELECTRICAL AND TELCO/FIBER RACEWAYS TO BE BURIED A MINIMUM DEPTH OF 30", UNLESS OTHERWISE NOTED.
29. CONTRACTOR SHALL PLACE 6" WIDE DETECTABLE WARNING TAPE AT A DEPTH OF 6" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOM".
30. ALL BOLTS SHALL BE 3-16 STAINLESS STEEL

GROUNDING NOTES:

1. ALL HARDWARE SHALL BE 3-16 STAINLESS STEEL, INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND, AS SPECIFIED, BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR SIZED TO MATCH COMPONENTS OR LOG SIZE.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.
4. ALL ELECTRICAL AND GROUNDING AT THE POLE SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.
5. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
6. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #6 GROUND WIRES. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS.
7. ALL GROUND CONNECTIONS SHALL BE #6 AWG, UNLESS OTHERWISE NOTED. USE SOLID COPPER, BLACK JACKETED WIRE ON NON WOOD POLES AND SOLID TINNED COPPER, BARE (NO JACKET) WIRES ON WOOD POLES. BLACK WIRES WILL USE A SINGLE STRIPE OF GREEN ELECTRICAL TAPE WITHIN 12" OF THE CONNECTION POINTS TO IDENTIFY AS GROUNDING WIRE.
8. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
9. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED A MINIMUM OF 30" BELOW GRADE/ 6" BELOW FROST-LINE IN TRENCH, UNLESS OTHERWISE NOTED. BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT/ENGINEER.
10. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.
11. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
  - A. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR OUTDOOR USE OR AS APPROVED BY APPLICANT PROJECT MANAGER.
  - B. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
  - C. ONE (1) OR (2) HOLES TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS.
12. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES) AND WEATHER-PROOFED WITH HEAT SHRINK.
13. ALL CONNECTION HARDWARE SHALL BE TYPE 3-16 STAINLESS STEEL (NOT ATTRACTED TO MAGNETS).
14. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL (E) AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS.

TESTING AND EQUIPMENT TURN UP REQUIREMENTS:

1. RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT TESTING WILL COMPLY WITH CURRENT INDUSTRY STANDARDS AND OR THOSE STANDARDS OF THE EQUIPMENT MANUFACTURER OR PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.
2. CONTRACTOR WILL USE THE APPROPRIATE CALIBRATED TESTING EQUIPMENT IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT THAT MEET INDUSTRY STANDARDS OF THE MANUFACTURER OR THOSE STANDARDS PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.

3. CONTRACTOR TO VERIFY AND RECORD ALL TEST RESULTS AND PROVIDE THESE RESULTS WITHIN THE FINAL CLOSE OUT PACKAGE.
4. ALL PERSONNEL INVOLVED IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT WILL BE REQUIRED TO HAVE BEEN TRAINED AND OR CERTIFIED IN THE PROPER TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT.
5. ALL TEST RESULTS SHALL BE TIME STAMPED, RECORDED AND PRESENTED PRIOR TO ENERGIZING AND TURN UP OF ANY EQUIPMENT.
6. GPS EQUIPMENT (WHEN REQUIRED) IS NOT TO BE TESTED OR ATTACHED TO ANY CABLING DURING TESTING, DOING SO WILL DAMAGE THE GPS UNIT.
7. PRIOR TO TESTING IF THE CONTRACTOR HAS ANY QUESTIONS ABOUT THE TESTING PROCEDURES THEY ARE TO CALL AND OBTAIN ASSISTANCE FROM A QUALIFIED DESIGNATED TESTING REPRESENTATIVE.
8. EQUIPMENT IS NOT TO BE ENERGIZED UNTIL ALL TESTING HAS BEEN COMPLETED, APPROVED AND THE APPROPRIATE AUTHORITY HAS BEEN NOTIFIED AND GIVES APPROVAL TO ENERGIZE THE EQUIPMENT.

SITE WORK NOTES:

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.
2. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.
3. ALL (E) UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL (E) UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING (E) UTILITIES.
4. CONTRACTOR SHALL VERIFY ALL (E) UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER OR MOBILITIE CM FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT THEIR OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL UTILITY LOCATE HOT LINE, SUCH AS 811, FOR UTILITY LOCATIONS A MINIMUM OF 48 HOURS PRIOR TO START OF CONSTRUCTION.
5. ALL NEW AND (E) UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK. ANY COST RELATED TO ADJUSTING (E) STRUCTURES SHALL BE BORNE SOLELY BY THE CONTRACTOR.
6. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO (E) GRADES AT THE GRADING LIMITS.
7. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.

**mobilitie**  
intelligent infrastructure

3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
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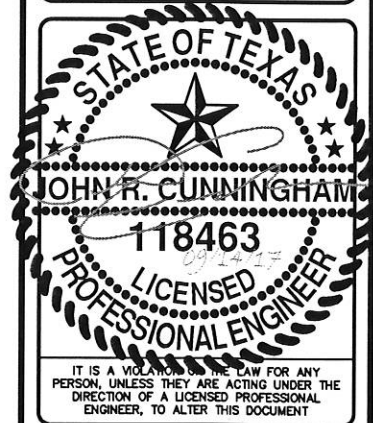
PROJECT NO: ER600201

DRAWN BY: W. WOODS

CHECKED BY: C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

F	09.14.17	ADD POLE DIA./TC CLOSURE TIME
E	06.24.17	UPDATE EMBD/CURB TC SHEETS
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HO90XS051B  
9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-2

*CS 9/14/17*

SITE WORK NOTES CONT'D

8. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY, UNLESS OTHERWISE NOTED.
9. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
10. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.
11. ANY FILLS PLACED ON (E) SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE (E) SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.
12. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO DEBRIS, PAPER, TRASH, WEEDS, BRUSH, EXCESS FILL, OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.
13. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.
14. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES:

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.
3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES AS REQUIRED BY THE LOCAL JURISDICTION WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.
4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.
7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.
8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.
9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE, BUT IS NOT LIMITED TO SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.
10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES.

11. GC TO PLACE FILTER MATERIAL AT ALL CATCH BASINS ADJACENT TO CONSTRUCTION SITE TO PREVENT SOLID WASTE CONTAMINATION FROM ENTERING SEWER SYSTEM

FOUNDATION, EXCAVATION AND BACKFILL NOTES:

1. ALL FINAL GRADED SLOPES SHALL BE A MAXIMUM OF 3 HORIZONTAL TO 1 VERTICAL, UNLESS OTHERWISE NOTED.
2. BACKFILL OF THE POLES SHALL BE PERFORMED BASED ON THE WATER TABLE. FLOWABLE FILL MIXTURES PURCHASED FROM CONCRETE PLANTS WILL BE USED INSTEAD OF FOAM IN WATER TABLE AREAS.
  - A: NORMAL SOILS ORDER OF PREFERENCE - FOAM, FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES
  - B: HIGH WATER TABLE SOILS ORDER OF PREFERENCES - FLOWABLE FILL, CONCRETE, COMPACTED AGGREGATES.
3. ALL EXCAVATIONS PREPARED FOR PLACEMENT OF CONCRETE SHALL BE OF UNDISTURBED SOILS, SUBSTANTIALLY HORIZONTAL AND FREE FROM ANY LOOSE, UNSUITABLE MATERIAL OR FROZEN SOILS, AND WITHOUT THE PRESENCE OF POUNDING WATER. DEWATERING FOR EXCESS GROUND WATER SHALL BE PROVIDED WHEN REQUIRED. COMPACTION OF SOILS UNDER CONCRETE PAD FOUNDATIONS SHALL NOT BE LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR THE SOIL IN ACCORDANCE WITH ASTM D1557.
4. CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC OR UNSUITABLE MATERIAL. IF ADEQUATE BEARING CAPACITY IS NOT ACHIEVED AT THE DESIGNED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION SHALL BE FILLED WITH CONCRETE OF THE SAME TYPE SPECIFIED FOR THE FOUNDATION. CRUSHED LIME STONE #57 MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. ANY STONE SUB BASE MATERIAL, IF USED, SHALL NOT SUBSTITUTE FOR REQUIRED THICKNESS OF CONCRETE.
5. ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH PRIOR TO BACK FILLING. BACK FILL SHALL CONSIST OF APPROVED MATERIALS SUCH AS EARTH, LOAM, SANDY CLAY, SAND AND GRAVEL, OR SOFT SHALE, FREE FROM CLODS OR LARGE STONES OVER 2 1/2" MAX DIMENSIONS. ALL BACK FILL SHALL BE PLACED IN COMPACTED LAYERS.
6. ALL FILL MATERIALS AND FOUNDATION BACK FILL SHALL BE PLACED IN MAXIMUM 6" THICK LIFTS BEFORE COMPACTION. EACH LIFT SHALL BE WETTED IF REQUIRED AND COMPACTED TO NOT LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR SOIL IN ACCORDANCE WITH ASTM D1557.
7. NEWLY PLACED CONCRETE FOUNDATIONS SHALL CURE A MINIMUM OF 72 HRS PRIOR TO BACK FILLING.
8. FINISHED GRADING SHALL BE SLOPED TO PROVIDE POSITIVE DRAINAGE AND PREVENT STANDING WATER. THE FINAL (FINISH) ELEVATION OF SLAB FOUNDATIONS SHALL SLOPE AWAY IN ALL DIRECTIONS FROM THE CENTER. FINISH GRADE OF CONCRETE PADS SHALL BE A MAXIMUM OF 4 INCHES ABOVE FINAL FINISH GRADE ELEVATIONS. PROVIDE SURFACE FILL GRAVEL TO ESTABLISH SPECIFIED ELEVATIONS WHERE REQUIRED.
9. NEWLY GRADED GRAVEL SURFACE AREAS TO RECEIVE GRAVEL SHALL BE COVERED WITH GEOTEXTILE FABRIC TYPE: TYPAR-3401 AS MANUFACTURED BY TYPAR GEOSYNTHETICS OR AN APPROVED EQUIVALENT, SHOWN ON PLANS. THE GEOTEXTILE FABRIC SHALL BE BLACK IN COLOR TO CONTROL THE RECURRENCE OF VEGETATIVE GROWTH AND EXTEND TO WITHIN 1 FOOT OUTSIDE THE SITE FENCING OR ELECTRICAL GROUNDING SYSTEM PERIMETER WHICH EVER IS GREATER. ALL FABRIC SHALL BE COVERED WITH A MINIMUM OF 4" DEEP COMPACTED STONE OR GRAVEL AS SPECIFIED. I.E. FDOT TYPE NO. 57 FOR FENCED COMPOUND; FDOT TYPE NO. 67 FOR ACCESS DRIVE AREA, UNLESS OTHERWISE NOTED.
10. IN ALL AREAS TO RECEIVE FILL: REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE. PLOW STRIP OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SUCH THAT FILL MATERIAL WILL BIND WITH (E)/PREPARED SOIL SURFACE.
11. WHEN SUB GRADE OR PREPARED GROUND SURFACE HAS A DENSITY LESS THAN THAT REQUIRED FOR THE FILL MATERIAL, SCARIFY THE GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE-CONDITION AND/OR AERATE THE SOILS AND RECOMPACT TO THE REQUIRED DENSITY PRIOR TO PLACEMENT OF FILLS.

12. IN AREAS WHICH (E) GRAVEL SURFACING IS REMOVED OR DISTURBED DURING CONSTRUCTION OPERATIONS, REPLACE GRAVEL SURFACING TO MATCH ADJACENT GRAVEL SURFACING AND RESTORED TO THE SAME THICKNESS AND COMPACTION AS SPECIFIED. ALL RESTORED GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES.

13. (E) GRAVEL SURFACING MAY NOT BE REUSED.
14. GRAVEL SUB SURFACE SHALL BE PREPARED TO REQUIRED COMPACTION AND SUB GRADE ELEVATIONS BEFORE GRAVEL SURFACING IS PLACED AND/OR RESTORED. ANY LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED AND ANY DEPRESSIONS IN THE SUB GRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL SHALL NOT BE USED FOR FILLING DEPRESSIONS IN THE SUB GRADE.
15. PROTECT (E) GRAVEL SURFACING AND SUB GRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE. USE PLANKING 'MATTS' OR OTHER SUITABLE PROTECTION DESIGNED TO SPREAD EQUIPMENT LOADS AS MAY BE NECESSARY. REPAIR ANY DAMAGE TO (E) GRAVEL SURFACING OR SUB GRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTORS OPERATIONS.
16. DAMAGE TO (E) STRUCTURES AND/OR UTILITIES RESULTING FROM CONTRACTORS NEGLIGENCE SHALL BE REPAIRED AND/ OR REPLACED TO THE OWNERS SATISFACTION AT NO ADDITIONAL COST TO THE CONTRACT.
17. ALL SUITABLE BORROW MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID. EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATIONS APPROVED BY GOVERNING AGENCIES AT NO ADDITIONAL COST TO THE CONTRACT.

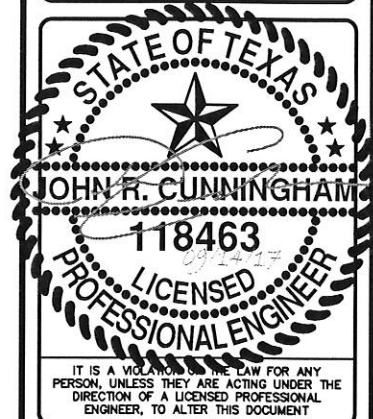


3475 PIEDMONT ROAD NE  
SUITE 1000  
ATLANTA, GEORGIA 30305  
PHONE: (312) 638-5400

PROJECT NO:	ER600201
DRAWN BY:	W. WOODS
CHECKED BY:	C. RAMEY

PRELIM - NOT FOR CONSTRUCTION

F	09.14.17	ADD POLE DIA./TC CLOSURE TIME
E	08.24.17	UPDATE EMBD/CURB TC SHEETS
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HO90XS051B  
9TXB008254B  
S. FRY RD &  
TX-99/GRAND PKWY  
KATY, TX 77494  
UTILITY POLE

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-3

*Handwritten:* 9/14/17

**FORT BEND COUNTY - CONSTRUCTION - GENERAL NOTES**

1. FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.
4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS" RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
5. ALL ROAD WIDTHS, CURB RADII AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB
6. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
7. ALL CONCRETE PAVEMENT SHALL BE 5 1/2 SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.
8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
9. 4"X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.
10. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACE IN ACCORDANCE WITH TXDOT PED-12A STANDARD DETAIL SHEET. A.D.A. -- HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
11. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 5' OF RAMPS.
12. ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.
13. GUIDELINES ARE SET FORTH IN THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION -- BOTH DAY AND NIGHT.
14. ALL R1-1 STOP SIGNS SHALL BE 30"X30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE W/REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.
16. A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.
17. THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES.

*ckg*  
*9/14/17*

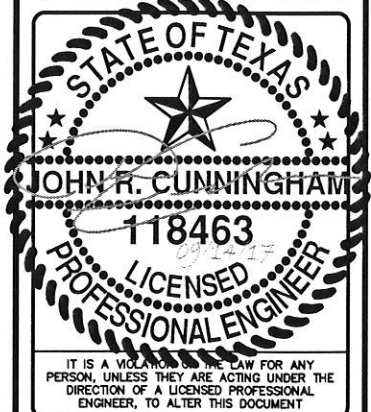


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