

.1 "XX X12 31X "!G P4P GDP 65P "XX" 615~~2G#515~~^{1G#515}X12636P615 (+ "5# (6 "5# 23G G
31PG G016 GDG5 P #6..G . 1D 3G G016 GD~~35~~³⁵ PG- 615' 3G D1 G P 65!G5 P3"XX
!13G 58

%8) CTOA2OU2C' UI7E0OTSBAC' OA2 MB2IC UIQUIUANCI

O8 T3G .1XX1265! C "5#" #P' UG!1X" 615P "5#~~INN4GP~~^{INN4GP} 21 5 PLG-6.6G# 65 3G M15 "-
~~28-10G5X6P8/XG~~^{28-10G5X6P8/XG} C " G "5# 01-"X M1#GP8
(8 M"X6.1 56" 416X#65! M1#G "5# M"X6.1 -56"NNNG' M1 G5 I#6 615P8
*8 4SMCS T2NN 8TGXG-1DD156- 615P 26P 6/1 615~~5~~⁵"X9' % 3 I#6 615 () :8
; 8 OACS<TSO<ISO9&: 6948%8 M1DDG -6"X 416X#~~65DT6X~~^{65DT6X}- 615P M"/X65! C "5#" #'
&8 OACS<TSO<ISO9&: 6948%9(8 M1DDG -6"X 416X#~~65DT6X~~^{65DT6X}- 615P M"/X65! C "5#" #'
=" %> 7G5G "X UG016 GDG5 P' O##G5#1D (' 7 115~~#615~~^{#615}#65! CLG-6.6- 615P .1
C- GG5G# 4"X"5-G# T26P G#9="6 71 6?15 "X M"/X65! 8
: 8 OACS<TSO<ISO9&: 6948%9*8 M1DDG -6"X 416X#~~65DT6X~~^{65DT6X}- 615P M"/X65! C "5#" #8
+8 OACS<TSO<ISO9&: 6948%9; 8 M1DDG -6"X 416X#~~65DT6X~~^{65DT6X}- 615P M"/X65! C "5#" #'
=" %> 7G5G "X UG016 GDG5 P' O##G5#1D ; UG1~~51156~~⁵¹¹⁵⁶ G!1 4 : "5# M" G!1 4 M"
: O "5# &) 5D 0"PG 9BL 6D6?G# &) <%(& 1D N1X 6D1#G BL "X Q6/G M"/X65! 8
68 OACS<TSO<ISO9&: 6948%9(8 M1DDG -6"X 416X#~~65DT6X~~^{65DT6X}- 615P M"/X65! C "5#" #'
=" (> 4"X"5-G# T26P G#9="6 M"/X65! M1DL15G5 P8
@8 OACS<TSO<ISO9&: 6948(9%8 M1DDG -6"X 416X#~~65DT6X~~^{65DT6X}- 615P M"/X65! C "5#" #'
=" (> 4"X"5-G# T26P G#9="6 M"/X65! M1DL1~~565#1D~~^{565#1D}' T "5PD6PP615
=G . 1 D"5-G CLG-6.6- 615P . 1 ; 9="6 %)) B3D M" !G! /X65! 8
%)8 OACS<TSO<ISO9&: 6948(9%) 8# ". (8)98 M~~1DD156X#65!~~^{1DD156X#65!} TGXG-1DD156- 615P M"/X65!
C "5#" #' = " (> 4"X"5-G# T26P G#9="6 M"/X~~65G#1D~~^{65G#1D} O##G5#1D %)'
T "5PD6PP615 =G . 1 D"5-G CLG-6.6- 615P . 1)) B3D O1!DG5 G# M" G!1 4 :
M"/X65! 8
%%8 OACS<TSO<ISO9&: 694*8* BL 6- "X Q6/G M~~DIX665MP~~^{DIX665MP} C "5#" #8
%(8 TSO9&: @948 M1DDG -6"X 416X#65! C "5#" XG-11DDG56- 615P = " 32"4P "5# CL"-GP8
%*8 OACS<TSO<ISO9:&: 908 O#D656P " 615 C "5# M1DDG -6"X TGXG-1DD156- 615P
S5. "P 1- 1 G8
%;8 OACS<TSO<ISO9:&: +908 M1DDG -6"X 416X#~~6565!~~^{6565!} 8# 5# 365! 9 "5# 415#65!
UG016 GDG5 P . 1 TGXG-1DD156- 615P8

COMMUNICATION BASIC REQUIREMENTS
27 00 00 - 2

%& < : + " = . " - - . - " . # ! . # #
2 # = " / ! 4
%: < + (" ? # - " / " / ! 71 #
%) *

\$ %& ' (* ! "#

COMMUNICATION BASIC REQUIREMENTS
27 00 00 - 3

```

&   "/   "4>$  -"      ?   "      1      '1 1" 4  "#  ." 1  1
      " " .#  "/1 # ! -  !  2"  "/   "  "#  "# ."  #
      "4  -"/  "4  "  "- 2"4
:   "  1 >7  1 # " # /1 # ! . " 1  /1 # !
      " 3
+   "  >    #  # "  " / 2  2      " 2 - "  -
      - . - 01      - - #0  "4  - 1#
      5 ' - - - - C1
      "#< " - - # ' " # 2  5" "  - #  - 1# - - - " - 3
      01
6   - > 01      1 #      " " #  !  - 1 -"  - - 1
@   - 1 > - 1  . 2  # " - #1-  2  1 - - 1 #
      "/  " - - 1 /4  5 ! 2 - - - "
%)  /  -  /1  8  9> "/  2      " ! 01  1 #
      # 3  ./  -- - - - " - 5  2 "
%& 7  1 # !>" - #1- ! - - "  - #1- ! / #4 " 3
      " - . "
%(&  ! # 3  - 1 >B"  1 # / E2  " ! # - 3  " 1 #  1
      " #  - - - " # 3 -
%*  ?  ">=" 2"4 ."- " #  # " - - !
      - 1 -" 1
%;  # "  /1  " 8  9> " " 2  5 ! 01      "-5" #<  -
      " 3  " # 3 #1" " " .  /1 # ! 2  "
%&  "-5> - " - 1 # - C1 - 2 " 1!  "5  - - - - " - / 2
      - 1 -"  - - 1 ' ! ' !  < ! - " - #1" C"5
%:  5> "  " / 2  2      ' - 1# !  " 01  ' 2  5
      " -"/  " # 01  -"/  D  - 1 1  - . - #1- . /
      - 1# !  - - ! " #2" " " - #
%+  -"  " 2  5 8  9> " "  . - 4 - - ! 3 " - 1 -" !
      # 3 - ' 4 -" 4      " #  2  5  # " ! -" 1
%6  "  /1  " 8  9> " 8  " 9# " 2  5 01      "-5" #<
      -" 4  --1  " # "4  3  " 4# 2  "
%@  # "> 4  . -"/  8 ! ' 2  # " ' - "E" ' . /  -9 1 #  3 # ! "
      " "
()  1 = . 4 8 = 9> -" 2  3 - 3# " # ..
      - - " #  / 4 . 3 - -1 2 # 01
(%  #1" 1!> !  ' ! - #1- # . 2  - -" - - 1 #
      2 " ! 4 " # - /
(( = " 3 01  >  - - " #2" " # " " 1 ' ! ' 01      "-5 "
      -"/  "4 ' - -" - - ' 2 ! / -5 "
$  %& ()(*  ! "#
```

COMMUNICATION BASIC REQUIREMENTS
27 00 00 - 4

```

(& = " 2"4> "- 4.      "- . - 1 -" -"/ " 2"4."- 4.- / 
 - # . 3 " - - 1# ! - #1 '2 2"4' -"/ "4' 1."-
 "- 2"4'1 # . 4 ' " # . ' - ! 1 2 ' -
 (: = - > - -" - # 3 - 1 # . ! 3 "!" - 
 - 1 -" - -1
 (+ "- 2"4> - # - " # ! # E 4. # ! 2 -"/ 0 "4
 - #1- 3 " 1" ! " - - 1# - #1 ' 1/ !
 2 2"4'1 # . "- 2"4' " # 1 ." - - 2"40# - 1# -"/ "4
 (6 "-5> - # 1- 1 ' 4 -" 4 "# . " 1 1 ' 1 #
 1 01 01 1" 4 . # " " 01 "-5 "4/ . " # ! " #
 . 1 # " 2" 1 # -"/ #1 4 " # "# @F 2 # "- !
 (@ B ! -5>=1 - # 2 " ! 01 1 # # 3 2 # " -
 - - ."-
```

%); = \$

= #1- 2 ! "# " / / 1! " . C - " "!

%)& =

3)% 1/ " . 01

%):

```

01 3" #1- 8 9 "4 / - # # . 1/ 1 . #1- - . #
 2 3 ' 01 3" #1- 8 9 1 / " 3 #'" # 2 # " # " #
 # -1 # 01 3" - #1- 8 9 - . # -1 " - 1# /1
 # #1- " '#'" " #'" # -1" "#'" 01 . #1-
 1/ 1 " # 1 ! # -1 " ' 1 /
%4.4 Td [()]-5.01315(&)6.04161()-2.6%67()-2.6%67(8.19, ()-.608.91( )1.60325(4( )-3.06824( )1.80(
# # 3 . (#)2.259
```

\$! "# %& ' () (*

COMMUNICATION BASIC REQUIREMENTS

27 00 00 - 5

COMMUNICATION BASIC REQUIREMENTS
27 00 00 - 6

2 ! # "!" . " - - ' " # 5 . # 3 #1" - . -"
- . "## " 01 . # "2 !

% %) B

= 3 # " E # # " 1."- 1 6 2" " 4 " -5/ " # ? "
1 -" 4 " - . # - . 3 (+

% %%

" - # " # "2 ! ' 2 " /1 . " "## #'" / 1/ # " - #
"2 ! " - . C -

- # "2 ! >

% 2 - " ! " # # 3 " . 1- "2 ! - 1# 2
#1 " # - " ! #
(2 E"- 1 . " 2"4 ." - " # 3 - " - - #1
* 2 E"- -" . "-5 ' -"/ ' 1 ! . " " # 5

" " # " " - -1 " >= 3 # - . - . 68 443()2.25997(!)2.711%(-)

\$

%& O(*)

! "#

COMMUNICATION BASIC REQUIREMENTS
27 00 00 - 7

PART 3 - EXECUTION

*)% |

1- -1 >

```
% "2 ! " #!" " " -2 4 / ! - 1 -" 01 "
1 " " #2 !
( - -" 4 / # -" !2 ! " # 01 2 " - -1
" - 1# # " - 1 - . -" 4 # 2
* E" . "2 ! "3 # - . - 2 4
E"- 1 " # " " . - 1 -" 2 ! " # 01 2 - #
- 1-
```

*)(

```
" - 1 -" 01 - 4" # - # /4 " 1."- 1 6 " "
1- / " " " 1- . " 1."- 1 1!
- 1 -" 01 ' E" 1- 1! 4 B 01 .
" " 1- - . - 2 " - -1 ' 01 - " . -
= 0 - " " ! < ! - # !2 " "
```



```
" - 1 -" 01 /3 1 " " ! '# 2"4 ' -1 ' - "2
"- 2 - 2 1# # / -5 " " ! H # # 1 "!
```



```
" - 1 -" 01 -" 2 2 2 1# /3 1 4 / 1/0 -
#" " ! #1 ! " 1 "!
```

*)*

```
> #1- . 01 "# 4 # " - " - 2
01 - . # 3 (+ A(6 . # 3#1" - . -"
01 # -1 " # -1# 1 -1
```

*); 7

```
3 # " ## / -"1 # /4 E -1 . - 1 -" 2 5
"3 - 1 -" 4 " # 1 # " - " - "#1 . .
" # 2 5 ! #
```

\$ %&' ()* ! "#

SECTION (+),))
COMMON - OR. RESULTS FOR COMMUNICATIONS

PART 1 - GENERAL

/.)/ SUMMARY

- A. This section specifies the 2"si0 m"te i"ls "n# methods to "ll lo3 4olt"!e p"th3"5s inst"ll"tion 3o 6 in0l7#e# 7n#e Di4ision (+ "n# (8 "n# 3he e those e97i ements #i1le 1 om the e97i ements o1 this section' the mo e st in!ent sh"ll !o4e n.
- B. This section "#s elinements to Di4ision (: th"t "pp15 to Comm7ni0"tions "n# e;t "-lo3-4olt"!e s5stems.

/.)(SCO%E

- A. M"te i"ls "n#<o metho#s 1o the 1ollo3in!.

/E ##b1.5(e)7. 2586423()0.50782 - 14.52 TdO 5- 22229(()- 2.6960)- 2.6983(1)0.069169677[(AI!)
6986(I)11.19temEp!3.4664()14.4 TIOT*dO[(\$)0.69926(C)- 0.630133(I)2301773(")507852083(O)- (M)- 5.34151>MEC/M -)

COMMON WORK RESULTS FOR COMMUNICATIONS

27 05 00 - 2

COMMON WORK RESULTS FOR COMMUNICATIONS

27 05 00 - 3

- *. All ne3 0on#7its sh"ll 2e siDe# "00o #in!l5 to "0hie4e " &)E m";im7m ill "tio 3ith initi"l 0"2les inst"lle#.

B. INNERDUCT

-
. O "n!e 0o 7!"te# HD% E @Hi!h Densit5 %ol5th5leneA Inne #70t sh"ll 2e 7se# 1o 1i2e opti0 0"2le p ote0tion in inte io lo0"tions.- (. F"2 i0 m7lti-0ell inne #70t is "pp o4e# 1o 7n#e ! o7n# 0on#7its (F "n# l" !e .

C. FITTIN=SC

-
. See Di4ision (: 1o e97i ements.- (. Con#7it 2o#ies "n# "n5 sh" p 2en# littin!s " e st i0tl5 p oh2ite# 1o 0omm7ni0"tion C"t: A "n# 1i2e opti0 0"2les. App op i"te 0on#7it s3eeps " e e97i e#.

D. %ULL LINE

-
. Minim7m /<8G #i"mete 'o l" !e 2

PART 3 - EXECUTION

*.) / COMMUNICATION SER\$ICES

A. Inst"ll 7n#e ! o7n# 2o;es' 0on#7its' "n# te min"

COMMON WORK RESULTS FOR COMMUNICATIONS

27 05 00 - 7

- E. \$7ppo ts€ \$7ppo t 0on#7it 3ith t3o-hole st "ps o st 7t 0h"nnel 3he e sho3n in #esi!n
#o07ments "n#<o spe0i1ie#. Coo #in"te s7ppo ts 3it

- A. S0 e3s sh"ll 2e 7se# to "tt"0h 2o;es' "n# m7st 2e "007 "tel5 pl"0e# 1o 1inish' in#epen#entl5 "n# se07 el5 s7ppo te# 25 "#e97"te 300# 2"06in! o 25 m"n71"0t7 e# "#B7st"2le 0h"nnel t5pe he"45-#7t5 2o; h"n!e s.
- /.. Bo;es sh"ll 2e "tt"0he# to met"l st7#s 3ith met"l 2o; h"n!e s.
- (.. Bo;es inst"lle# in m"son 5 tile o 0on0 ete 2lo06 0onst 70tion sh"ll 2e se07 e# 3ith "7;ili" 5 pl"tes' 2" s o 0lips "n# 2e ! o7te# in pl"0e.
- B. Lo0"te o7lets "t the 1ollo3in! hei!hts 7nless othe 3ise note# on D "3in!s' Spe0i1i0"tions' 07 ent CBC o "s e97i e# to meet ADA h"n#i0"p e97i ements.
- /.. D"t" O7lets S"me hei!ht "s ele0t i0"l o7lets
- (.. Telephone - "ll O7lets A2o4e 0o7nte <2"06spl"sh hei!ht o "t ele0t i0"l s3it0h hei!ht.
- C. Bo;es sh"ll 2e pl"0e# 3ithin /8F o1 ele0t i0"l o7lets.
- D. Fo so7n# 0ont ol' sep" "te o7lets on opposite si#es o1 3"lls /:G minim7m. - he e o7lets "e less th"n /:G o in so7n# "te# 3"lls' se"l "i ti!ht 3ith 1i e "te# sheet p7tt5 p"#s. Fill !"p 2et3een B7n0tion 2o; "n# 3"ll 3ith "0o7sti0"l se"l"nt "ll " o7n# pe imete o1 B7n0tion 2o;. Fill 0on#7its l" !e th"n / /<&G 3ith 1i e "te# p7tt5.
- E. Inst"ll"tion o1 0on#7it "n# o7let 2o;es in 1i e- esisti4e 3"lls' 1loo s' 1loo -0eilin! o oo1-0eilin! "sse2lies sh"ll 0ompl5 3ith Title (& %" t (' Se0tion +/*.

*.): UNDER=ROUND BOHES

- A. To 2e inst"lle# pe Di4ision (: e97i ements.
- B. % o4isions to 2e m"#e 1o s7ppo tin! 0"2les 1 om the 2o; si#es a.e.' B-hoo6s' #- in!sA

*.)+ SLEES AND CONDUIT %ENETRATIONS

- A. - he e 0on#7it p"sses th o7!h 3"lls' 0eilin!s' o 1loo s 3ith 0onne0tion points to B7n0tion 2o;es o "0e3"5s mo7nte# to the s"me 3"ll "s the penet "tion p o4i#e "th e"#e# 0on#7it "n# se07 e# in pl"0e 3ith lo06in! in!s on 2oth si#es. Ben# "#i7s e97i ements sh"ll 2e m"int"ine# 3he e penet "tions " e m"#e th o7!h the 2"06 o1 "0e3"5sMB7n0tion 2o;es 3ith "#e97"te #epth sh"ll 2e inst"lle# to 0ompl5 3ith this e97i ement.
- B. - he e 0on#7it p"sses th o7!h 3"lls' 0eilin!s' o 1loo s 3ith 0onne0tion points to B7n0tion 2o;es o "0e3"5s not mo7nte# to the s"me 3"ll "s the penet "tion p o4i#e EMT 0on#7it "n# se07 e# in pl"0e 3ith st 7t 0h"nnel. Bo; 0onne0to s sh"ll "I3"5s 2e 7se# to 0onne0t EMT to B7n0tion 2o;es "n# "0e3"5s.

COMMON WORK RESULTS FOR COMMUNICATIONS

27 05 00 -

C. FIRE STO%%IN=

- / . Se"l "ll 0on#7it penet "tions th o7!h 1i e "te# 3"lls "n# 1loo s 1i e "n# smo6e ti!ht in
0on1o m"n0e 3ith 07 ent CBC "n# 07 ent CEC. See Di4ision)+1o mo e in1o m"tion.

D. DRAFT STO%%IN=

- / . All non-1i e "te# 3"lls m7st 2e # "1t stoppe# "n# se"le#. S72mit metho# to 2e 7se# 1o

%* +(((

PART 1 – GENERAL

+ (+

- - . /0 " -- ' " " " " " !0 " " #
! /0 . " - " # "1 0-0 # "1 ! - 0 -"
2 2 " 3# ! 2 "1 " # ! . " - # " - 0 -"
. " # 10 . " 4 5 0! " - # " # 10 . " 4 5
/0 ! . 1 - " #6 - - "1 ! " # " - " # /0
- - # - %* ++ ((7 0 -" /0 ! '%* +)
((7 0 -" "-81 "1 ! '%* +9 ((7 0 -" : " "1 ! " #
%* +; ((7 0 -" - ! # - - 3 -

+ (%) <

= 8 = - 0# 10 1 # . = ! 1> - 3 ?
+ " - " .0 " # " " /0 # - " # " -- " 0 #
! # -0 . " - " # "1 0 8 2 2
% @0" 2 = 8 " " ! 2 . - " # " - 1 #
" ! 3 . . " = 8 " " - 0 . " = - A
" # " # " . " : 3 = " # " # " # /0
1 ! ! = 8
) " - " .0 " # " " /0 # . " # B04 /0" - 5
2= # . " # " -"
D " - " .0 " # " ! 0 # 10 1" " " #
9 " - " .0 " # " " /0 # "-8 " # -"1
; " - " .0 " " " # - .!0 0 0 "1 = 0 24 5
4 < 5 . " #6 "-8
* " - " .0 " # " " = 2 /0 # - #0 6 " - = "2
& " - " .0 " # " " =

\$

%& %(%)

! "#

+ () @

- (+ 7 , " /0
 - %* (((7 0 -"
 - %* (9 ((7 F 8 0 . 0 -" 2

+ (D ,

" . " - -" # 4 57 0 "# #3
 " . " 0 # ! # 4 57 0 "# #3
 6 9; & (7 , - 0 -" "1 ! . 0 <
 6 9; & + 7 -" 0 # ! 0 -" "1 ! " # # <" +? , "
 /0
 " 6 9; & % 7 " " - # = # <" - 0 -" "1 ! " #
 " # #
 6 9; &) 7 -" 1 "1 ! " # #
 , 6 9; E 7 -" 0 # ! " # # . - 0 -" <" ="2 " #
 "-
 6 ; (; 7 # " " # # # . -" - 0 -"
 . " 0- 0
 G 6 ; (* 7 -" 0 # ! # ! " # , 0 # ! 4 " ! 5 /0
 - 0 -"

+ (9 @

- " - " " " " . " * + (-
 " - 01- " - " " 3 9 2 " A# -0 # H -

+ (; @

2 = " " H ! 2 # . -" " " 2 ! "
 A H ! # " -" 1 " 2

\$ %& %(%)

! "#

+ (* | < F , C , @

- %* (((). /0

+ (&

- %* (((). /0

+ (E F

. 3 (+ F" " 2 -

- %* (((). "#" " /0

+9 2 " " 0."- 0 A =" " 26- .-"/0 #. " - " #.1 -"1 "

+ +(

- %* (((). /0

\$

%&%(%)

! "#

PART 2 – PRODUCTS

% (+ ,

```

# H "      # .      # -0      .      "      3 # "      "
#0-      " 1      = '0 0 # " # =      0 1      " # " 1 . " 0."- 0 A
-0      " # " # " #      #0-
" -      " - .      " /0      " 0 1      =      < > -      " "!
# ! /0      " #0 # " ! 01      " " /0 #
" = ! " # - . - "      # - " " > 2      -      " " # "2      = 3 2
-      ' - - '      #0 ' " -- 2 " " 21 /0 # 0
- . #      " - " 3 # " -      # # . -      " #
" . - 2      " " " #      "
" 0      ! " # = " " # " -      " -      # #12      " 0."- 0 .
/0      " /0      0 !      10 # !      0- 0 " # " #      " - #
/0      -      %* (9 ((.      /0
< #0- 3" "1 2
+      " - '      01      ! "      " " " #      #0- "3" "1 2 " #
# 3 2      " # " - 0# 0- - # "      #      "

```

% (%)

<

```

# H "      # .      # -0      .      "      3 # "      "
01 0      /0      . . /0 3" - " # "      3" 12      - " #6
" 3

```

% ()

<< 6 <

```

-      - "1 " # -      " 1 " ; " # 
+      "1 1 #0- # # "      F >"-8 . # ."0 -"1 ' 0 >"-8 . $ " #
--      2
%      "-8 1 8 2      2

```

<" - - # 2 6- ?

+ " " J 0 -

% < J , -

) \$ J 0 -

\$

%& %(%)

! "#

D -86 - J = -
9 -- J "-8 -

" ">-8 2 6- ?
+ " "6# ."0 J F -
% < J , -
) \$ J 0 -
D -86 - J = -
9 -- J "-8 -

. 1 - -"1 " # - " 1 ! ! # % " #
1 - -"1 " " 1 0 H 2

\$ %& %(%)

! "#

,

< F

+ " 0 # ! 0 # " - " = "2 - 2 ! = 3 %;

@ < G '

+ "-81 "# ?
 " " 1 " # 1 # "-8 "-1 . "-1 "1 1 # - 2
 " "- # = 3 -" = 0#
 1 "-81 "# " 1 "# .. " # " " /0" 2 -0 " #
 = " # # #!
 - "-81 "# " 1 " 0 BC "-8 "# " ! 0! -0 =
 3 -" = 0#
 # | C " " 1 3 1
 "-81 "# " 1 ." # = LC "! 1 "# = ' - # =
 "H 0 "- ! . + & C % 3 -" 0# + + 6% 1 #

% "# " M 3 - - 0 -" "-8 "# "-1 " 1 " - # " -- # " -
 = " 0." - 0 A - - " ' > - - - " "# 6 # " = # " ' ="
 " # . " # ! 0 # # 10 # ! ! 0 # ! # 4 = " - 5

) -0 2 0 /0 "-1 "# "-8 10 # ! 0- 0
 /0" 2 . 0 ." " 1 0 : # 2 -" 2 "# ! 1 . = # " "
 = # ! " - . - - . ! 01 "# " . 0 ! .
 " 3" 1 . " " 0 /0 " 3 # # " = ! 6# "

D /0 "-1 0 # "!" = " = "3) . - " " - . .
 # - " # " -- 1 " . 3 -

9 " # " " " 3 " " "# -" # + % (\$ % (" /0" # - "-
 " -

; <" - <" ? 0 " - " "-1 6 "-8 " - " 0." - 0 .
 H ! " . = - 0- "# H

* "1 " " ! ? -0 "-1 10 # 4 5 "-8 " . "# -" 1
 " " ! 1 # " - " "# - - - 1 -8 " " : "
 -"1 " " ! " " "# 1 "-8 . 0 ! "# " ! . " - -" 1
 " " 6 " # " "# # 10 # ! 0 ! "# 1 # "# 0

& 0 ! < - # 0 ? /0 # "-8 0 0 ! - # 0
 " 0." - 0 A # - . # " = ! . 0 !
 -"

! "#

\$ %& %(%)

STRUCTURED CABLING

27 10 00 - 8

1 - -"1 " 1 " # . " -

, " ! - 0!" # < 4 ! 2 < 2 2 5 #0- " 1 0 # . . 1 -
- "1 - - " - "

- ! . 1 - -"1 " 1 # = .0 -

APPENDIX A – Pre-A r! "e# \$%&er%"()

DESCRIPTION	\$*G	PART NUMBER
R%+, C%-'. e& 7/	C0%%)1 ! r&0	GT-2A220-CA
Re%r Per2! r%&e# D! 3-(e D!!r	C0%%)1 ! r&0	26350-701
4%((\$! 3. & C%-'. e& 485	DA\$AC	4SR48ABP1666-3GP
20 A\$P P! 1er S&r'	DA\$AC	P0828G\$201
197 R%+, \$! 3. & Gr! 3. # B%r	DA\$AC	ARGB019
C! . +re&e *(! ! r R%+, 8'&	DA\$AC	ARR*C8-58
*%. 8'& E. +(!)3re	DA\$AC	AT*82
Gr! 3. #'. 9 S&r% 8'&	DA\$AC	PLA12G8
127 L%##er R%+, 10:	DA\$AC	PLR1210-3
L%##er R%+, 4%((A. 9(e S3 ! r& 127	DA\$AC	PLBA12-3
L%##er R%+, ;3. +&! . P(%&e	DA\$AC	PLB12RS-3
L%##er R%+, Pr! &e+&"e E. # C%)	DA\$AC	PLAEC
195 <! r'=!. &%;(C%-(e \$%. %9er	DA\$AC	*533-1901
P%&+0 P%. e(24- ! r& 1-RU >B(%+, ?	Or&r! . '+)	OR-SP8SU24
P%&+0 P%. e(48- ! r& 2-RU >B(%+, ?	Or&r! . '+)	OR-SP8SU48
*%+e (%&e@2- ! r&>40'&e?	Or&r! . '+)	8S*P2-88

STRUCTURED CABLING

27 10 00 - 12

STRUCTURED CABLING

27 10 00 - 13

! "#

\$

%&` %(%)

DATA COMMUNICATIONS NETWORK EQUIPMENT
27 21 00 - 1

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

Josep !o"" e#\$ E%Tele-Ce""e(Up)(*+e

A% Co'''(*/'o(s *&3e &o/*'e+ 4# #>0 \$#les o(less 0(o\$ ' e p(o&e/ s#e 'o s2ppo(' 2- o2((espo"se '#\$e%

! % F#7e 6e*(s@e:pe(#e"/e #'s'*#e") +**"e'4o(5 e12#p\$e"" *"+ s6s'e\$\$s%

1%> SYSTEM REQUIREMENTS

A% A"6 "e4 #'s'*#o"s o(e:#\$#" s6s'e\$ \$o+##/*'#o"s s *#se*\$less& #'"e)(**e #'"o ' e s#e@ e:#\$#") +**"e'4o(5 #'0(*s'(2/"2(e%

1%A CONTRACTOR BSHOP DRAWIN=SC DESI=N REQUIREMENTS

A% See se/'#o" 27 00 00 lo((e12#(e\$e""s%

1%7 SU! MITTALS

A% See se/'#o" 27 00 00 lo((e12#(e\$e""s%

1%D WARRANTY

A% Re0e('o D#7#o" 01 W*((****6 se/'#o%"

! % See se/'#o" 27 00 00 lo(*++#o""*&(e12#(e\$e""s%

1%E CLOSEOUT DOCUMENTS

A% See se/'#o" 27 00 00 lo((e12#(e\$e""s%

PART 2 - PRODUCTS

1% Co'''(*/'o(- p(#o('o s23\$#"') * p(opos*& s *@@+e'e(\$#"e p(o+2/' *7*#*3#*6 *"+
+e#7e(6 '#\$e- *"+ s *@@#/12+e s2/ /o"s#+e(*'#o"s#"o # p(ope+ Co'''(*/' T#\$e%

2% S23@e/' 'o /o\$p#@**"/e 4# ' ese spe/#@/*'#o"s- p(o+2/'s *"+ s6s'e\$#s#/12+e+ #'' ' #
se/'#o" *(e 'o 3e #'s'*@@e+ *s spe/#@e+ 36 ' e \$**20*/'2(e(o@ ' e s6s'e\$ o(e")#"ee(
pp(o7e+ e12@@

202 EQUIPMENT

A% T e D#s'#/ '@ p(e@e((e+ \$**20*/'2(e(@o(9
1% Ro2'e(s - C#s/o
2% F#(e4*@@s - C#s/o
. % Ne'4o(5#"') S4#/ es H C#s/o ;A(23* 2"+e(e7*12*'#o"<
?% W#(e&ss A//ess Po#"'s - C#s/o ;A(23* 2"+e(e7*12*'#o"<

DATA COMMUNICATIONS NETWORK EQUIPMENT
27 21 00 - ?

PART 3 - EXECUTION

.%01 ACCEPTA! LE INSTALLERS

A% T e e12#p\$e''' s *&o"6 3e #'s'*&e+ 36 Co'''(* /

C% Co\$p& 4#) es' #' +2s'(6 s'*"+*(+s- e:/ep' 4 e" spe/#/e+ (e12#(e\$e""s #' +#//*' e \$o(e
(#)#+ s'*"+*(+s o(\$o(e p(e/#se 4o(5\$**s #p%

D% Pe(l)o(\$ Wo(5 4# pe(so"s e:pe(#e"/e+ *"+ 12*#/#e+ 'o p(o+2/e 4o(5\$**s #p spe/#/e+%

E% M**#***# 12*#6 /o""(o&o7e(s2pp&e(s **+ S23/o""(*/'o(s%

. %D PATHWAY AND EQUIPMENT INSTALLATION

A% l'"s'*#&*&/o""+2#*"+ p*' 4*6 pe(+es#)" +o/2\$e""s%Rele('o 27 0> 00 l)o(*++#/#o""*&
#"0o(\$**#o"G(e12#(e\$e""s%

I% l'"s'*#&*&C**AA /*3&e pe(+es#)" +o/2\$e""s%Rele('o 27 1> 00 l)o(*++#/#o""*&
#"0o(\$**#o"G(e12#(e\$e""s%

C% E12#p\$e"" 'o 3e #'s'*#e+ pe(\$**20*/'2(e@ #'s'(2/#o"s%

D% De7#/es (e12#(#") PoE po4e(s *#&3e /o""e/'e+ 'o * PoE s4#/ #'' e MDFGIDF +*** (*/5 H
7e(#6 4# Te/ "o&o)6 Se(7#/es l)o(*7*#*3&e PoE po4e(%

. %D7 CONFI=URATION

A% A"6 #'l)o(\$**#o" "ee+e+ l)o(\$ ' e D#s'(#/ l)o(/o"0#)2(*'#o" o)e12#p\$e"" ;#e%, LAN- e'/%
"ee+s 'o 3e (e12es'e+ #' 4(##") 2 4ee5s p(#o(%

I% A&e12#p\$e"" 'o 3e 02&6 /o"0#)2(e+ *"+ 'es'e+ l)o(02"/'#o""*&6 36 ' e Co""(*/'o(p(#o('o
D#s'(#/ *//ep'**/e 'es'#")%

. %D FIELD QUALITY CONTROL AND TESTIN=

A% Upo" (e*/ #") s23s'*#*&/o\$p&e#o"- pe(l)o(\$ * /o\$p&e'e 'es' *"+ #'spe/#o" o'l ' e
s6s'e\$% l)o2"+ 'o 3e #'s'*#e+ *"+ ope(*#") p(ope(l)- "o'#6 ' e D#s'(#/ o'l (e*+#'ess 'o
pe(l)o(\$ ' e l)o(\$*&Tes' J l"spe/#o" o'l ' e /o\$p&e'e s6s'e\$ 36 ' e D#s'(#/ o(#'s
(ep(ese""*#7e/M*5e *#&*+82s'\$e""s6/ *")es (e12#(e+ l)o(o\$ D#s'(#/G(ep(ese""*#7e (e7#e4%

I% S23\$# ' e Re/o(+ D(*4#")s ;*s-32#s<'o D#s'(#/ l)o((e7#e4 p(#o('o #'spe/#o"%)

C% D2(#") ' e l)o(\$*&Tes' J l"spe/#o" ;Co\$\$#ss#o"#" <o'l ' e s6s'e\$ *"+ *7e pe(so""e&
7#*3&e 4# ' ool& *"+ e12#p\$e"" 'o #'spe/' 4#(#")- +e7#/es- *"+ s6s'e\$ ope(*#o%"

D% l)o/o((e/'#o"s *(e "ee+e+- ' e Co""(*/'o(4#&3e p(o7#+e+ 4# * P2"/ -L#s' o'l *#&
+#/(ep**/#es% Pe(l)o(\$ ' e "ee+e+ /o((e/'#o"s # * '\$#e6 0*s #o"%)

E% No'#6 ' e D#s'(#/ 4 e" (e*+6 'o pe(l)o(\$ * (e-'#spe/#o" o'l ' e #'s'*#&*#o"%)

DATA COMMUNICATIONS NETWORK EQUIPMENT
27 21 00 - A

.%0 AS-! UILT DRAWIN=S

A% See se/'#o" 27 00 00 lo((e12#(e\$e'''s%

SECTION %* +, %).+(
EDUCATIONAL INTERCOM SYSTEMS

PART I - GENERAL

, .(, SUMMARY

- A. This section specifies equipment for a complete system consisting of a central control unit, power source, telephone interface, and a speaker system. The system shall provide two levels of control: remote control via a telephone handset and local control via a keypad. The system shall be capable of generating two types of tones: single and dual tones.

, .(% SCO4E

- A. The system shall include a remote control unit, a power source, a telephone interface, and a speaker system.

, . L20 "n# M"te i"ls<The Control Unit shall consist of a power source, telephone interface, and a speaker system. The system shall be capable of generating two types of tones: single and dual tones. The system shall be controlled by a remote control unit or a keypad. The system shall be capable of interfacing with a telephone system.

, .(H AUALIFICATIONS

B. Cont "-to sh"ll 2e lo- "te# 1 ithin +(miles o less

%.(, >ENERAL

- A. The "pp o6e# m"n0." -t0 e s .o the p o;e-t " e<
 - ,. Cont ol Onit "n# el"te# "--esso ies< R"O1"n# Tele-ente U
 - %. Spe"7e s<See Appen#i= A .o #i..e ent inst"ll"tion t5pes
 -). Ci e' -"2le' "n# "--esso ies< See Appen#i= A.
- B. All p o#0-ts sh"ll 2e ne1' On0se# "n# 1itho0t 2lemishes "n# sh"ll 2e o. m"n0." -t0 e ?s -0 ent "n# st"n#" # p o#0-tion.
- C. D "1in!s "n# Spe-i.i- "tions in#i- "te m";o s5stem -omponents" "n# m"5 not sho1 e6e 5 -omponent' -onne-to ' mo#0le' o "--esso 5 th"t m"5 2e e/0i e# to s0ppo t the ope "tion spe-i.ie#. The Cont "-to sh"ll p o6i#e "ll -omponents nee#e# .o -omplete "n# s"tis."-to 5 inst"ll"tion "n# ope "tion.
- D. 4 o#0-t A6"il"2ilit5
 - ,. The Cont "-to ' p io to s02mittin! " p opos"l sh"ll #ete mine p o#0-t "6"il"2ilit5 "n# #eli6e 5 time' "n# sh"ll in-l0#e s0-h -onsi#e "tions into his p opose# Cont "-t Time.
 - %. S02;e-t to -ompli"n-e 1ith these spe-i.i- "tions' p o#0-ts "n# s5stems in-l0#e# in this se-tion " e to 2e inst"lle# "s spe-i.ie# 25 the m"n0." -t0 e o. the s5stem o en!inee "pp o6e# e/0"l.

%.(% EAUI4MENT

- A. See Appen#i= A "t the en# o. this #o-0ment .o p e- "pp o6e# m"te i"ls.
- B. S02stit0tions e/0i e p oo. o. e/0i6"len-e "n# p io "pp o6"l 25 Dist i-t "n#3o it?sp esent"ti6e 2e.o e o #e in!.
- C. M"in s5stem -omponents<
 - ,. R"O1"n# Tele-ente U I4 C"mpOs Cont olle "n# so.t1" e
 - %. R"O1"n# Tele-ente U A0=illi" 5 Inp0t3O0tp0t Mo#0le
 -). R"O1"n# Tele-ente U %D-po t >"te1"5
 - D. R"O1"n# Tele-ente U I4 Cl"ss oom Mo#0le
 - +. R"O1"n# Tele-ente U A#minist "ti6e Console
 - E. R"O1"n# Tele-ente U 4 o! "m Line Inp0t Mo#0le

PART 3 - EXECUTION

).(. ACCE4TABLE INSTALLERS

- A. The e/0ipment sh"ll onl5 2e inst"lle# 25 Cont "-to s 1ho " e /0"li.ie# "n# -e ti.ie# 25 the m"n0."-t0 e to inst"ll "n# m"int"in the s5stem.
- B. The Cont "-to 9o s02-ont "-to liste# "t time o. 2i#: m0st h"6e "t le"st .i6e 9+: 5e" s? e=pe ien-e inst"llin! e#0- "tion"l inte -om e/0ipment 2e.o e the Bi# Openin! D"te.

).(% EI AMINATION

- A. The Cont "-to sh"ll 2e e/0i e# to 6isit the inst"ll"tion site9s: p io to 2i##in! the ;o2. The Cont "-to "-7no1le#!es th"t the ."il0 e to 6isit the site9s: 1 ill not elie6e the Cont "-to o. the esponsi2ilit5 .o o2se 6in! "n# -onsi#e in! those -on#itions 1hi-h " Cont "-to 1o0l#

- B. The Cont "-to sh"ll -oo #in"te 1ith the Dist i-t?S IT Dep" tment i. -onne-tin! to thei net1o 7. The Cont "-to sh"ll p o6i#e " sp e"#sheet o. "ll #e6i-e MAC "## esses in#e=e# 25 #e6i-e lo-"tion to the Dist i-t IT #ep" tment to ."-ilit"te p o! "mmin! o. ese 6e# l4 "## esses .o e"-h #e6i-e.
- C. Inst"ll"tion sh"ll 2e in "--o #n-e 1ith "ppli-"2le -o#es 9i.e. NEC' NF4A *%: lo-"l "n# st"te -o#es' "s sho1n on the # "1in!s" "n# "s e-ommen#e# 25 the m";o e/Oipment m"n0."-t0 e .
- D. 4e .o m "ll Co 7 "s in#i-"te# in the D "1in!s "n# Spe-i.i-"tions.
- E. All lo1 6olt"!e -"2les sh"ll 2e 7ept "1"5 . om po1e -i -0its.
- F. Cont "-to sh"ll p o6i#e p o! "mmin! "n# -on.i!0 "tion o. the E#0-"tion"l Inte -om s5stem .o .0ll .On-tion"lit5.
- >. Cont "-to sh"ll m"int"in " -omplete' Op-to-#"te 2"-70p o. the s5stem -on.i!0 "tion. B"-70p sh"ll 2e m"int"ine# th o0!ho0t the p o! "mmin! pe io# 0ntil .in"l A--ept"n-e 25 Dist i-t. S02mit 2"-7-Ops to Dist i-t Opon Fin"l A--ept"n-e.

).(E) LABELIN>3SCHEMES

- A. All l"2els " e to 2e m"-hine !ene "te# 2l"-7 lette s on 1hite "#hesi6e l"2el sto-7 th"t is "pp op i"te .o the inst"ll"tion en6i onment 9inte io 3e=te io :.
- B. L"2el "ll st"n#" # spe"7e -"2les 1ith po t ID.
- C. L"2el "ll spe"7e s 1ith spe"7e ID.
- D. L"2el "ll I4 spe"7e s 1ith MDF3IDF' p"t-h p"nel "n# ;"-7 n0m2e s.

).(H) CONFI>URATION

- A. All e/Oipment to 2e .0ll5 -on.i!0 e# "n# teste# .o .On-tion"lit5 p io to testin!.

).(I) FIELD AUALITY CONTROL AND TESTIN>

- A. Upon e"-hin! s02st"nti"l -ompletion' pe .o m " -omplete test "n# inspe-tion o. the s5stem. I. .0on# to 2e inst"ll# "n# ope "tin! p ope l5' noti.5 Dist i-t o. 500 e"#iness to pe .o m the .o m"l Test J Inspe-tion o. the -omplete s5stem.
- B. S02mit the Re-o # D "1in!s 9"s-20ilts: to Dist i-t .o e6ie1 p io to inspe-tion.

- C. D0 in! the .o m!"I Test J Inspe-tion %Commissionin!: o. the s5stem the Cont "-to sh"ll h"6e pe sonnel "6"il"2le 1ith tools "n# e/Oipment to inspe-t 1i in!' #e6i-es' "n# s5stem ope "tion.
- D. I. -o e-tions " e nee#e#' the Cont "-to 1ill 2e p o6i#e# 1ith " 40n-h-List o. "Il #is- ep"n-ies. 4e .o m the nee#e# -o e-tions in " timel5 ."shion.
- E. Noti.5 the Dist i-t 1hen e"#5 to pe .o m " e-inspe-tion o. the inst"ll"tion.
- F. Dist i-t o its ep esent"ti6e to p o6i#e .in"l si!n-o... .o "--ept"n-e.

).., AS-BUILT DRACIN>S

- A. See se-tion %* ((((.o e/Oi ements.
- B. As-20ilt ise #i"! "m sho1in! "ll"--ess -ont ol -omponents .o site.

).., % TRAININ>

- A. Fo ne1 s5stems p o6i#e &-h s en#-Ose t "inin!.
- B. Fo e=istin! s5stem Op! "#es p o6i#e %-h s en#-Ose t "inin!.

APPENDIX A – Pr -A!!r"#\$ M%& r%"0

DESCRIPTION	M*G	PART NUM+ER
IP C%, !-) C". &r"((r %. \$)"/&O%r 1('2 .))	R%-(%\$. \$ T (2 . & r U	

SECTION %* +) ,)
CLOC- SYSTEMS

PART I - GENERAL

, .(, SUMMARY

- A. This section specifies equipment and components required for installation and testing of complete Clo.4 system.

, .(% SCO6E

- A. The Clo.4 will install until not limited to the following options:
 - . L3o "n# M"te i"ls9 The Control .to sh"ll p o8i#e "n# p"5 /o "ll l"3o 's1pe 8ision' m"te i"ls' "... esso ies' components' equipment' tools' t "nspo t"tion' "n# other abilities "n# see 8ies ness" 5 /o the p ope inst"ll"tion of " t1 n-4e5 Clo.4 system to the Dist i.t.
 - . The .ont ".to 2ill .oo #in"te 2ith the Dist i.t in 2 itin! /o "n5 nee#e# in/o m"tion :i.e. l6 "## esses' et..; , (31siness #'5s p io to #"te the in/o m"tion is nee#e#.
 -). Clo.4 system equipment9 In.l1#es' 31t is not limited to
 - ". Clo.4s
 - 3. M"ste Clo.4 o NT6 se 8e "... ess
 - .. <ie
 - + Ne2 .onst 1.tion sh"ll 1til=e l6 3"se# #i!it"l .lo.4s th"t " e po2e e# 35 " 6oE #'t" s2it.h in the ne" est MDF>IDF. Clo.4s sh"ll s5n.h oni=e to " net2o 4 time p oto.ol :NT6; se 8e "s #ete mine# 35 the Dist i.t.
 - ? l6 .lo.4s " e to 1se Dist i.t st"n#" # net2o 4 ."3lin! see Section %* , ((.

CLOCK SYSTEMS

27 53 13 - 2

CLOCK SYSTEMS

27 53 13 - 3

PART 3 - EXECUTION

).C, ACCE6TABLE INSTALLERS

).., AS-BUILT DRA<INBS

A. See section %* ((/o e01i ements.

CLOCK SYSTEMS

27 53 13 - 8

APPENDIX A – Pre-A r! "e# M\$%er&\$'(

DESCRIPTION

M)G