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PART 3 - EXECUTION

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

PART 1 - GENERAL

/.)/ SUMMARY

A. This se0tion spe0i1ies the 2"si0 m"te i"ls "n# metho#s 1o "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 #i11e 1 om the e97i ements o1 this se0tion' the mo e st in!ent sh"ll !o4e n.

B. This se0tion "##s e1inements to Di4ision (: th"t "ppl5 to Comm7ni0"tions "n# e;t "-lo3-4olt"!e s5stems.

/.)(SCO%E

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

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6986(l)11.19temEp!3.4664( )14.4 TlOT*dO[($)0.69926(C) - 0.630133(l)2301773(")507852083(O) - (M) - 5.34151>MEC/M -)

*****. All ne**3 0**on**#7**its sh**"**ll **2**e si**D**e**# "00**o #in**!!5** to **"0**hie**4**e **" &)E** m**";**im**7**m 1ill **"**tio **3**ith initi**"**l **0"2**les inst**"**lle**#**.

B. INNERDUCT

/. O **"**n**!**e **0**o **7!"**te**#** HD%E @Hi**!**h Densit**5** %ol**5**th**5**leneA Inne **#70**t sh**"**ll **2**e **7**se**#** 1o 1i**2**e opti**0 0"2**le p ote**0**tion in inte io lo**0"**tions.

(. F**"2** i**0** m**7**lti-**0**ell inne **#70**t is **"**pp o**4**e**#** 1o **7**n**#**e **!** o**7**n**# 0**on**#7**its **(F "**n**#** l**" !**e .

C. FITTIN**=**S

/. See Di**4**ision **(:** 1o e**97**i ements.

(. Con**#7**it **2**o**#**ies **"**n**# "**n**5** sh**"** p **2**en**#** 1ittin**!**s **"** e st i**0**t**l5** p ohi**2**ite**#** 1o **0**omm**7**ni**0"**tion C**"**t**:** A **"**n**#** 1i**2**e opti**0 0"2**les. App op i**"**te **0**on**#7**it s**3**eeps **"** e e**97**i e**#**.

D. %ULL LINE

/. Minim**7**m **/<8**G **#**i**"**mete **'** o l**" !**e **2**

PART 3 - EXECUTION

***.) /** COMMUNICATION SER**$**ICES

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

E. S7ppo ts(S7ppo 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 3oo# 2"06in! o 25 m"n71"0t7 e# "#87st"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 o7tlets "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" O7tlets¢ S"me hei!ht "s ele0t i0"l o7tlets

(. Telephone - "ll O7tlets¢ 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 o7tlets.

D. Fo so7n# 0ont ol' sep" "te o7tlets on opposite si#es o1 3"lls /:G minim7m. - he e o7tlets " 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 87n0tion 2o; "n# 3"ll 3ith "0o7sti0"l se"l"nt "ll " o7n# pe imete o1 87n0tion 2o;. Fill 0on#7its l" !e th"n / /<&G 3ith 1i e "te# p7tt5.

E. Inst"ll"tion o1 0on#7it "n# o7tlet 2o;es in 1i e- esisti4e 3"lls' 1loo s' 1loo -0eilin! o oo1-0eilin! "ssem2lies 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 @i.e.' 8-hoo6s' #- in!sA

*.)+ SLEE$ES AND CONDUIT %ENETRATIONS

A. - he e 0on#7it p"sses th o7!h 3"lls' 0eilin!s' o 1loo s 3ith 0onne0tion points to 87n0tion 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"5s 87n0tion 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 87n0tion 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 "l3"5s 2e 7se# to 0onne0t EMT to 87n0tion 2o;es "n# "0e3"5s.

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

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PART 1 – GENERAL

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PART 2 – PRODUCTS

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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
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1%0**>** SYSTEM REQUIREMENTS

A. A**"6 "**e**4** #**"**s**'*&&*'**#o**"**s o**(** e**:**#s'#**")** s**6**s'e**$ $**o**+**#0**#/*'**#o**"**s s ***&&** se***$**&ess&**6** #**"'**e**)(*'**e #**"'**o **'** e s#**'**e@s e**:**#s'#**") +*'* "**e**'4**o**(5** #**"0(***s**'(2/'2(**e%

1%0**A** CONTRACTOR **B**SHOP DRAWIN**=**S**C** DESI**=**N REQUIREMENTS

A. See se**/'**#o**"** 27 00 00 **0**o**((**e**12**#**(**e**$**e**"'**s%

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PART 2 - PRODUCTS

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A% T e D#s'(#/'@s p(e0e((e+ $*"20*/'2(e(0o(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*&2*'#o"<

?% W#(e&ess A//ess Po#"'s - C#s/o ;A(23* 2"+e(e7*&2*'#o"<

PART 3 - EXECUTION

.%01 ACCEPTA!LE INSTALLERS

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

C% Co$p&6 4#' #) es' #"+2s'(6 s'*"+*(+s- e:/ep' 4 e" spe/#0#e+ (e12#(e$e"'s #"+#/*'e $o(e (#)#+ s'*"+*(+s o($o(e p(e/#se 4o(5$*"s #p%

D% Pe(0o($ Wo(5 4#' pe(so"s e:pe(#e"/e+ *"+ 12*&#0#e+ 'o p(o+2/e 4o(5$*"s #p spe/#0#e+%

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

.%0A PATHWAY AND EQUIPMENT INSTALLATION

A% I"s'*&& *&& /o"+2#' *"+ p*' 4*6 pe(+es#)" +o/2$e"'s% Re0e('o 27 0> 00 0o(*++#'#o"*& #"0o($*'#o"G(e12#(e$e"'s%

!% I"s'*&& *&& C*'AA /*3&e pe(+es#)" +o/2$e"'s% Re0e('o 27 1> 00 0o(*++#'#o"*& #"0o($*'#o"G(e12#(e$e"'s%

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

D% De7#/es (e12#(#") PoE po4e(s *&& 3e /o""e/'e+ 'o * PoE s4#'/ #" ' e MDFGIDF +*'* (*/5 H 7e(#06 4#' Te/ "o&o)6 Se(7#/es 0o(*7*#&*3&e PoE po4e(%

.%07 CONFI=URATION

A% A"6 #"0o($*'#o" "ee+e+ 0(o$ ' e D#s'(#/' 0o(/o"0#)2(*'#o" o0 e12#p$e"' ;#%e% ,LAN- e'/%< "ee+s 'o 3e (e12es'e+ #" 4(#'#") 2 4ee5s p(#o(%

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

.%0D FIELD QUALITY CONTROL AND TESTIN=

A% Upo" (e*/ #") s23s'*"'#*& /o$p&e'#o"- pe(0o($ * /o$p&e'e 'es' *"+ #"spe/'#o" o0 ' e s6s'e$% I0 0o2"+ 'o 3e #"s'*&&e+ *"+ ope(*'#") p(ope(&6- "o'#06 ' e D#s'(#/'0o3e/++oe 'o

.%10 AS-!UILT DRAWIN=S

A% See se/'#o" 27 00 00 0o((e12#(e$e"'s%

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

PART I - GENERAL

,.(, SUMMARY

A. This se-tion spe-i.ies e/0ipment' "--esso ies' m"te i"ls' 1i e' inst"ll"tion' -on.i!0 "tion' "n# testin! e/0i ements .o " -omplete "n# ope "2le Inte -om3402li- A## ess3Bell s5stem. This s5stem sh"ll p o6i#e the "2ilit5 to 2i-#i e-tion"ll5 -omm0ni-"te 1ith "n in#i6i#0"l oom' 2 o"#-"st to #e.ine# spe"7e 8one9s: "n# in! 2ell tones on " p e#e.ine# s-he#0le.

,.(% SCO4E

A. The 1o 7 1ill in-l0#e 20t not 2e limite# to the .ollo1in! o2;e-ti6es<

,. L"2o "n# M"te i"ls< The Cont "-to sh"ll p o6i#e "n# p"5 .o "ll l"2o ' s0pe 6ision' m"te i"ls' "--esso ies' -omponents' e/0ipment' tools' t "nspo t"tion' "n# othe ."-ilities "n# se 6i-es ne-ess" 5 .o the p ope inst"ll"tion o. " t0 n-7e5 Assisti6e Listenin! s5stem to the Dist i-t.

,.(H AUALIFICATIONS

B. Cont **"-**to sh**"**ll **2**e 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 0nit "n# el"te# "--esso ies< R"0l"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' 0n0se# "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?s ep esent"ti6e 2e.o e o #e in!.

C. M"in s5stem -omponents<
   ,. R"0l"n# Tele-ente U l4 C"mp0s Cont olle "n# so.t1" e
   %. R"0l"n# Tele-ente U A0=illi" 5 Inp0t3O0tp0t Mo#0le
). R"0l"n# Tele-ente U %D-po t >"te1"5
   D. R"0l"n# Tele-ente U l4 Cl"ss oom Mo#0le
   +. R"0l"n# Tele-ente U A#minist "ti6e Console
   E. R"0l"n# Tele-ente U 4 o! "m Line Inp0t Mo#0le

PART 3 - EXECUTION

).(, ACCE**4**TABLE INSTALLERS

A. The e**/0**ipment sh**"**ll onl**5 2**e inst**"**lle**#** **25** Cont **"-**to s **1**ho **"** e **/0"**li**.**ie**#** **"**n**#** **-**e ti**.**ie**#** **25** the m**"**n**0."-**t**0** e to inst**"**ll **"**n**#** m**"**int**"**in the s**5**stem.

B. The Cont **"-**to **9**o s**02-**ont **"-**to liste**#** **"**t time o**. 2**i**#:** m**0**st h**"6**e **"**t le**"**st **.**i**6**e **9+: 5**e**"** s? e**=**pe ien**-**e inst**"**llin**!** e**#0-"**tion**"**l inte **-**om e**/0**ipment **2**e**.**o e the Bi**#** Openin**!** D**"**te.

).(% E**!**AMINATION

A. The Cont **"-**to sh**"**ll **2**e e**/0**i e**#** to **6**isit the inst**"**ll**"**tion site**9**s**:** p io to **2**i**##**in**!** the ;o**2**. The Cont **"-**to **"-7**no**1**le**#!**es th**"**t the **."**il**0** e to **6**isit the site**9**s**: 1**ill not elie**6**e the Cont **"-**to o**.** the esponsi**2**ilit**5 .**o o**2**se **6**in**!** **"**n**#** **-**onsi**#**e in**!** those **-**on**#**itions **1**hi**-**h **"** Cont **"-**to **1**o**0**l**#**

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/0ipment 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 .0n-tion"lit5.

>. Cont "-to sh"ll m"int"in " -omplete' 0p-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"-7-0ps to Dist i-t 0pon Fin"l A--ept"n-e.

). (E LABELIN>3SCHEDULES

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 l4 spe"7e s 1ith MDF3IDF' p"t-h p"nel "n# ;"-7 n0m2e s.

). (H CONFI>URATION

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

). , (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. .o0n# to 2e inst"lle# "n# ope "tin! p ope l5' noti.5 Dist i-t o. 5o0 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"l Test J Inspe-tion ?Commissionin!: o. the s5stem the Cont "-to sh"ll h"6e pe sonnel "6"il"2le 1ith tools "n# e/0ipment 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. "ll #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 DRAC IN>S

A. See se-tion %* ((((.o e/0i 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#-0se t "inin!.

B. Fo e=istin! s5stem 0p! "#es p o6i#e %-h s en#-0se t "inin!.

APPENDIX A – Pr -A**! !** r**"# $** M%& r**'%()**

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 se.tion spe.i/ies e01ipment' ".. esso ies' m"te i"ls' 2i e' inst"ll"tion' .on/i!1 "tion' "n# testin! e01i ements /o " .omplete "n# ope "3le Clo.4 s5stem.

,.(% SCO6E

A. The 2o 4 2ill in.l1#e 31t not 3e limite# to the /ollo2in! o37e.ti8es9

,. L"3o "n# M"te i"ls9 The Cont ".to sh"ll p o8i#e "n# p"5 /o "ll l"3o ' s1pe 8ision' m"te i"ls' ".. esso ies' .omponents' e01ipment' tools' t "nspo t"tion' "n# othe /".ilities "n# se 8i.es ne.ess" 5 /o the p ope inst"ll"tion o/ " t1 n-4e5 Clo.4 s5stem 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 s5stem e01ipment9 In.l1#es' 31t is not limite# to9
". Clo.4s
3. M"ste Clo.4 o NT6 se 8e ".. ess
.. <i e

+. Ne2 .onst 1.tion sh"ll 1tili=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 Se.tion %* ,(((.

PART 3 - EXECUTION

).(, ACCE**6**TABLE INSTALLERS

).**, ,** AS-BUILT DRA**<** IN**B**S

A. See se**.**tion **%* ((((/**o e**01**i ements.

APPENDIX A – Pre-A r**!"**e**#** M**$**%er&**$'(**

DESCRIPTION M**)**G