



Athi Water Works Development Agency

Bidding Document for Procurement of Works

PROGRAMME: NAIROBI RIVERS BASIN REHABILITATION AND RESTORATION PROGRAM PHASE II-SEWERAGE IMPROVEMENT PROJECT

LOT 1-CONSTRUCTION OF DANDORA ESTATE WASTEWATER TREATMENT PLANT (DEWWTP) REHABILITATION AND DUPLICATION PLANT INLET WORKS"

OCBI No Number:" " " CY Y F C IP cTUR"KRY 1234244"

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Dkf f lpi "Rtqegf wtgu"

Dknu'qh'S wcpvklgu"

Y qtnu'Tgs wktgo gpw'cpf "Ur gekhlecwqpu"

Eqpf kklqpu'qh'Eqpvtcevu"

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G! 7U gY+' " bgdYV]jcb	677
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gdYV]YX']b' h'Y' 6]X' 8UhU' G\YYh'f68Gǂ h'Y' 9a d'cmYfǂ Ug'gdYV]YX']b' h'Y' 68Gǂ
]gg' Yg'h']g'6]XX]b['XcW'a Ybh'Zcf'h'Y'dfcj]g]cb'cZK cf_g'Ug'gdYV]YX']b'GYV]cb'
J=ǂK cf_g'ǂfYei]fYa Ybhg'h'Y'bUa Yǂ]XYbh]Z]V]h]cbǂUbX'bi a VYf'cZǂk \c'Y'cZH'Y'
k cf_g'ǂ\YfYUZh'f'W'YX' Ā' cf_g'ǂ]bj]h'X' i bXYf'cbY'cf'a cfY'`chg'f7cbhfU]g'cf'
DUW]U[Yg'YUW'`chVǂbh]b]b['cbY'cf'a cfY' Ā' cf_g'ǂcf'YUW' dUW]U[Y'Vǂbh]b]b['
cbY'cf'a cfY'`chg'cZH']g'≡ 6'UfY'gdYV]YX']b' h'Y' 68G''

%& H'fci [\ci h'h']gV]XX]b['XcW'a Ybh'

h'Y'h'fa 'ǂ]b'k'f]h]b[Ā'a YUbg'Vǂa a i b]V]h'YX']b'k'f]h'Yb'Zcfa 'fY'["'Vma U]ǂY!a U]ǂZUǂǂ
]bW]X]b[ǂ]Z' gdYV]YX']b' h'Y' 68Gǂ X]g'f]Vi h'YX' cf' fYV]j YX' h'fci [\ 'Y'YV]fcb]W
dfcW'fYa Ybhg'gh'Ya 'i gYX'Vmh'Y'9a d'cmYfǂk]h' dfccZcZfYV]dh'

]ZH'Y'Vǂbh]i hgc'fYei]fYgǂǂ]b[i 'Ufǂ'a YUbg'ǂd'i fUǂUbX'j]W'j YfgU/'

ǂ8Umǂ'a YUbg'W'YbXUf'XUnǂi b'Ygg'ch'Yfk]gY'gdYV]YX' Ug'U'ǂ6i g]bYgg'8Umǂ'5'6i g]bYgg'
8Um]g]UbmiXUm'h'U]g'U'k cf_]b['XUm'cZH'Y'6cffck Yf' ǂYI W' XYg'h'Y'6cffck Yfǂ]cZ]V]U'
di V']W]c']XUng'UbX'

ǂ9Gǂ'a YUbg'Ybj]fcb'a Ybh'U'UbX'gc'W]U'f]bW]X]b['GYI i U' 9 d'c]h]cbǂ UbX''

5Vi gY'fG95ǂUbX'GYI i U'<UfUgga Ybh'fG<ǂ/

ǂGYI i U'9 d'c]h]cb'UbX'5Vi gYǂǂfG95ǂǂ'a YUbg'h'Y'Zc`ck]b[.'

... ǂGYI i U' 9 d'c]h]cb'ǂ]g' XYZ]bYX' Ug' Ubmi U]U' U' cf' U'h'Ya dh'YX' UVi gY' cZ
dcg]h]cb'cZj i 'bYfUV']]mǂX]ZZYfYbh]U' dck Yf'cf'f'f' gǂZcf'gYI i U' di fdcgYgǂ
]bW]X]b[ǂ Vi h' bch']a]h'YX' hcǂ dfcZ]h]b['a cbYUf'] nǂ gc'V]U' mcf' dc']h]W' mi
Zca 'h'Y'gYI i U'YI d'c]h]cb'cZUbch'Yf/

... ǂGYI i U' 5Vi gYǂ]g'XYZ]bYX' Ug'h'Y'U]U' U' cf'h'fYU'h'YbYX'd\ng]W']b'f'f' g]cb'cZ
U'gYI i U' bU'i fYǂk \Y'h'Yf'Vmh'Zcf'W'cf'i bXYf'i bYei U'cf'VǂYfV] Y'VǂbX]h]cbg/

ǂGYI i U'<UfUgga Ybh'ǂǂfG<ǂǂ]g' XYZ]bYX' Ug' i bk Y'Vǂa Y'gYI i U' UXj UbWgǂfYei Yg'g'Zcf'
gYI i U' Z]j cfgǂ UbX' ch'Yf' j YfVU' cf' d\ng]W' VǂbXi V] cZ U' gYI i U' bU'i fY' Vmi h'Y'
7cbhfU]cfǂǂDYfgcbbY'k]h' ch'Yf'7cbhfU]cfǂǂcf'9a d'cmYfǂǂDYfgcbbY/'

ǂ7cbhfU]cfǂǂDYfgcbbY'ǂ]g'Ug'XYZ]bYX']b' Gi V! 7'Ui gY' %%%+ cZH'Y'; YbYfU' 7cbX]h]cbg'
cZ7cbhfU]U'UbX''

ǂ9a d'cmYfǂǂ dYfgcbbY'ǂ]g' Ug' XYZ]bYX']b' ; 77' Gi V! 7'Ui gY' %%% % cZ h'Y' ; YbYfU'
7cbX]h]cbg'cZ7cbhfU]U'

5' bcb!YI \Ui gh]j Y']gh' cZ f]ǂ VY\Uj]cfg' k \]W' Vǂbgh]i h'Y' G95' UbX' f]ǂǂ
VY\Uj]cfg'k \]W' Vǂbgh]i h'Y' G<]g'U]U]W]YX' hc'h'Y'7cXY'cZ7cbXi V]Zcfa]b'
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gYj YfU`m`jUV`Y`Zcf`h`Y`YI`YW`h`cb`c`Z`h`Y`Yb`h`fY`7`cb`f`U`M`h`j`b`U`W`f`X`U`b`W`k`j`h`h`Y`
7`cb`f`U`M`h`h`f`a`g`V`E`h`Y`>`g`U`b`c`a`j`b`U`h`U`F`Y`d`f`Y`g`Y`b`h`U`h`j`Y`k`c`g`U`U`j`Y`h`Y`
U`i`h`c`f`j`m`h`c`V`e`b`X`i`V`h`U`Vi`g`j`b`Y`g`g`Z`c`f`U`b`X`c`b`V`Y`U`Z`c`Z`U`b`m`U`b`X`U`h`Y`a`Y`a`V`Y`f`g`
c`Z`h`Y`>`X`i`f`j`b`[`h`Y`6`j`X`X`j`b`[`d`f`c`W`g`g`U`b`X`Z`j`b`h`Y`Y`j`Y`b`h`h`Y`>`j`g`U`k`U`f`X`Y`X`h`Y`
7`cb`f`U`M`h`X`i`f`j`b`[`V`e`b`f`U`M`h`Y`I`Y`W`h`cb`/`V`E`h`Y`a`U`j`a`i`a`bi`a`V`Y`f`c`Z`a`Y`a`V`Y`f`g`
d`f`c`d`c`g`Y`X`j`b`U`>`g`U`b`c`h`Y`I`W`Y`X`h`Y`bi`a`V`Y`f`g`d`Y`W`j`Y`X`j`b`h`Y`6`8`G`Z`c`f`h`Y`
bi`a`V`Y`f`X`Y`f`j`Y`X`Z`f`c`a`h`Y`d`Y`f`W`b`h`U`j`Y`g`d`Y`W`j`Y`X`i`b`X`Y`f`#`6`(`%`f`k`E`Z`k`\\`j`W`Y`j`Y`f`j`g`
g`a`U`Y`f`i`b`Y`g`g`V`c`h`U`f`Y`Y`e`i`U`Z`j`b`k`\\`j`W`W`g`Y`U`b`n`c`b`Y`g`U`U`d`d`m`U`b`X`X`E`
D`U`f`h`j`V`d`U`h`cb`V`m`j`U`i`Y`c`Z`h`Y`V`e`b`f`U`M`h`U`g`g`U`f`Y`c`Z`Y`U`W`c`Z`h`Y`>`d`U`f`h`b`Y`f`f`a`Y`a`V`Y`f`E`
g`U`b`c`h`V`Y`Y`g`g`h`U`b`h`Y`d`Y`f`W`b`h`U`j`Y`g`d`Y`W`j`Y`X`j`b`h`Y`6`8`G`#`b`W`g`Y`c`Z`U`b`m`
j`b`V`e`b`g`j`g`h`Y`b`V`h`V`Y`h`k`Y`Y`b`#`6`(`%`V`E`U`b`X`#`6`(`%`X`E`g`V`h`U`h`V`c`h`W`b`b`c`h`V`Y`U`d`d`j`Y`X`
g`j`a`i`h`U`b`Y`c`i`g`n`Z`h`Y`U`h`Y`f`g`U`d`f`Y`j`U`j`"

("&`5`6`j`X`X`Y`f`g`U`b`c`h`\\`U`j`Y`U`V`e`b`Z`j`V`h`c`Z`j`b`h`Y`f`Y`g`h`5`b`m`6`j`X`X`Y`f`Z`c`i`b`X`h`c`\\`U`j`Y`U`V`e`b`Z`j`V`h`
c`Z`j`b`h`Y`f`Y`g`h`g`U`V`Y`X`j`g`e`i`U`j`Z`Y`X`"5`6`j`X`X`Y`f`a`U`m`V`Y`V`e`b`g`j`X`Y`f`Y`X`h`c`\\`U`j`Y`U`V`e`b`Z`j`V`h`c`Z`
j`b`h`Y`f`Y`g`h`Z`c`f`h`Y`d`i`f`d`c`g`Y`c`Z`h`j`g`6`j`X`X`j`b`[`d`f`c`W`g`g`Z`h`Y`6`j`X`X`Y`f`."

f`U`E`X`j`f`Y`V`h`m`c`f`j`b`X`j`f`Y`V`h`m`V`e`b`f`c`g`Z`j`g`V`e`b`f`c`Y`X`V`m`c`f`j`g`i`b`X`Y`f`V`e`a`a`c`b`V`e`b`f`c`
k`j`h`U`b`c`h`Y`f`6`j`X`X`Y`f`/`c`f`"

f`V`E`f`Y`W`j`Y`g`c`f`\\`U`g`f`Y`W`j`Y`X`U`b`m`X`j`f`Y`V`h`m`c`f`j`b`X`j`f`Y`V`h`g`V`g`j`X`m`Z`f`c`a`U`b`c`h`Y`f`6`j`X`X`Y`f`/
c`f`"

f`W`E`\\`U`g`h`Y`g`U`a`Y`Y`Y`[`U`f`Y`d`f`Y`g`Y`b`h`U`h`j`Y`U`g`U`b`c`h`Y`f`6`j`X`X`Y`f`/`c`f`"

f`X`E`\\`U`g`U`f`Y`U`h`j`c`b`g`j`d`k`j`h`U`b`c`h`Y`f`6`j`X`X`Y`f`Z`X`j`f`Y`V`h`m`c`f`h`f`c`i`[`\\`V`e`a`a`c`b`h`j`f`X`
d`U`f`h`j`Y`g`Z`h`U`h`d`i`h`g`j`h`j`b`U`d`c`g`j`h`c`b`h`c`j`b`Z`i`Y`b`W`h`Y`6`j`X`c`Z`U`b`c`h`Y`f`6`j`X`X`Y`f`Z`c`f`
j`b`Z`i`Y`b`W`h`Y`X`Y`V`j`c`b`g`c`Z`h`Y`9`a`d`c`m`Y`f`f`Y`[`U`f`X`j`b`[`h`j`g`6`j`X`X`j`b`[`d`f`c`W`g`g`/`c`f`"

f`Y`E`c`f`U`b`m`c`Z`j`h`g`U`Z`j`U`h`Y`g`d`U`f`h`j`V`d`U`h`X`U`g`U`V`e`b`g`j`h`U`b`h`j`b`h`Y`d`f`Y`d`U`f`h`j`c`b`c`Z`h`Y`
X`Y`g`j`[`b`c`f`h`Y`W`b`j`W`j`g`d`Y`W`j`V`h`j`c`b`g`c`Z`h`Y`k`c`f`_`g`h`U`h`U`f`Y`h`Y`g`j`V`Y`V`h`c`Z`h`Y`
6`j`X`/`c`f`"

f`Z`E`c`f`U`b`m`c`Z`j`h`g`U`Z`j`U`h`Y`g`\\`U`g`V`Y`Y`b`\\`j`f`Y`X`f`E`f`j`g`d`f`c`d`c`g`Y`X`h`c`V`Y`\\`j`f`Y`X`E`V`m`h`Y`
9`a`d`c`m`Y`f`c`f`6`c`f`f`c`k`Y`f`U`g`9`b`j`[`j`b`Y`Y`f`Z`c`f`h`Y`7`cb`f`U`M`h`j`a`d`Y`a`Y`b`h`U`h`j`c`b`/`c`f`"

f`j`E`k`c`i`X`V`Y`d`f`c`j`j`X`j`b`[`[`c`c`X`g`Z`k`c`f`_`g`Z`c`f`b`c`b`!`V`e`b`g`j`h`j`b`[`g`Y`f`j`j`W`g`f`Y`g`j`h`j`b`[`Z`f`c`a`
c`f`X`j`f`Y`V`h`m`f`Y`U`h`Y`X`h`c`V`e`b`g`j`h`j`b`[`g`Y`f`j`j`W`g`Z`c`f`h`Y`d`f`Y`d`U`f`h`j`c`b`c`f`
j`a`d`Y`a`Y`b`h`U`h`j`c`b`c`Z`h`Y`d`f`c`Y`V`h`g`d`Y`W`j`Y`X`j`b`h`Y`6`8`G`#`6`&`%`h`U`h`j`d`f`c`j`j`X`Y`X`
c`f`k`Y`Y`f`d`f`c`j`j`X`Y`X`V`m`U`b`m`U`Z`j`U`h`h`U`h`X`j`f`Y`V`h`m`c`f`j`b`X`j`f`Y`V`h`m`V`e`b`f`c`g`Z`j`g`
V`e`b`f`c`Y`X`V`n`Z`c`f`j`g`i`b`X`Y`f`V`e`a`a`c`b`V`e`b`f`c`k`j`h`h`U`h`Z`f`a`/`c`f`"

f`k`E`\\`U`g`U`V`e`c`g`Y`V`i`g`j`b`Y`g`g`c`f`Z`j`a`j`m`f`Y`U`h`j`c`b`g`j`d`k`j`h`U`d`f`c`Z`Y`g`g`j`c`b`U`g`U`Z`c`Z`h`Y`
6`c`f`f`c`k`Y`f`f`E`f`c`Z`h`Y`d`f`c`Y`V`h`j`a`d`Y`a`Y`b`h`j`b`[`U`j`Y`b`V`h`Z`c`f`c`Z`U`f`Y`V`d`j`Y`b`h`c`Z`U`d`U`f`h`
c`Z`h`Y`c`U`b`E`k`\\`c`f`j`U`f`Y`X`j`f`Y`V`h`m`c`f`j`b`X`j`f`Y`V`h`m`j`b`j`c`j`Y`X`j`b`h`Y`d`f`Y`d`U`f`h`j`c`b`c`Z`
h`Y`6`j`X`X`j`b`[`X`c`W`a`Y`b`h`c`f`g`d`Y`W`j`V`h`j`c`b`g`c`Z`h`Y`7`cb`f`U`M`h`U`b`X`#`c`f`h`Y`6`j`X`
Y`j`U`i`U`h`j`c`b`d`f`c`W`g`g`c`Z`g`j`W`7`cb`f`U`M`h`c`f`f`j`E`k`c`i`X`V`Y`j`b`j`c`j`Y`X`j`b`h`Y`
j`a`d`Y`a`Y`b`h`U`h`j`c`b`c`f`g`j`d`Y`f`j`j`g`j`c`b`c`Z`g`j`W`7`cb`f`U`M`h`i`b`Y`g`g`h`Y`V`e`b`Z`j`V`h`
g`h`Y`a`j`b`[`Z`f`c`a`g`j`W`f`Y`U`h`j`c`b`g`j`d`\\`U`g`V`Y`Y`b`f`Y`g`c`j`Y`X`j`b`U`a`U`b`b`Y`f`U`W`W`d`h`U`V`Y`
h`c`h`Y`6`U`b`_`h`f`c`i`[`\\`c`i`h`h`Y`6`j`X`X`j`b`[`d`f`c`W`g`g`U`b`X`Y`I`Y`W`h`cb`c`Z`h`Y`7`cb`f`U`M`h`"

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(" 5 Zfa 'hUh]gU'6]XXYf'fY]hYf'jbx]j]Xi U'mcf'UgU'>]a Ya VYf'gU' bchdUfh]VdUHY'
]b'a cfY' hUb' cbY' 6]Xž Yl Wdh Zcf' dYfa]hYX' U'hYfbUh]Y' 6]Xg" H\]g']bWl XYg'
dUfh]VdUhc]b' UgU'g' VVēbfUMēcf']b'chYf'6]Xg" Gi W\ dUfh]VdUhc]b' gU'fYg' 'h]b'
hY'X]gei U']ZVh]cb'cZU'6]Xg]b'k\]W\ hY'Zfa ']g'bj c'j YX'" 5 Zfa 'hUh]g' bchU'
6]XXYf'cf'U'>]a Ya VYf'a UmdUfh]VdUHY' UgU'g' VVēbfUMēcf']b'a cfY' hUb' cbY' 6]X"

(" 5' 6]XXYf' UbX' U' dUfh]Yg' Vēbg]h]h]b[' hY' 6]XXYf']bWl X]b[' Ubm'
g' VVēbfUMēcf'g'cf'g' dd']Yfg'gU' \Uj Y' hY' bUh]cbU']hmcZUb'Y'] [V'Y' Vēi bfhmcZ
hY'6Ub_]b' UWēfXUbW' k]h\ hY'6Ub_ Āg DfcWfYa YbhDc']hZcf'hY'6Ub_ ; fci d'
: i bXYX' CdYfUh]cbg'XYgW]VYX' i bXYf'hY'6Ub_ Āg DfcWfYa Ybh: fUa Yk cf_žUbX' Ug'
]ghYX']b' GYV]cb' J ž9'] [V'Y' 7ci bfh]Ygž'g' V'YV]hc' hY'fYgh]V]cbg'di fgi Ubh'hc' #H6'
(" " 5' 6]XXYf'gU' VY'XYYa YX'hc' \Uj Y' hY' bUh]cbU']hmcZU'Vēi bfhm]Z hY'6]XXYf'
]gVēbg]h] hYXž]bVēfdcfUhYX'cf'fY[]ghYfYX']b' UbX' cdYfUhYg']b' VēbZcfa]hmik]h\ hY'
dfcj]g]cbg' cZ hY' 'Uk'g' cZ hUh' Vēi bfhmž Ug' Yj]XYbWX' Vm]hg' Ufh]WVg' cZ
]bVēfdcfUh]cb' fēf' Yei]j UYbhXcW'a Ybhg' cZ Vēbg]h] h]cb'cf' Uggc'V]Uh]cb'ē UbX']hg'
fY[]ghfUh]cb' XcW'a Ybhgž Ug'hY' Wdg' a UmVY'" H\]g'W]hYf]cb'gU' Ugc' Udd'mhc' hY'
XYhYfa]bUh]cb'cZ hY' bUh]cbU']hmcZdfcdcgYX' gi VVēbfUMēcf'g'cf'g' VVēbg' 'hUbhg'
Zcf'UbmdUfhcZ hY' 7cbfUM]]bWl X]b[' fY'UhYX'GYfj]Wg"

(" 5' 6]XXYf'hUh\ UgVYyb'gUbW]cbYX'Vm hY'6Ub_ždi fgi Ubh'hc' hY'6Ub_ Āg =bhY[f]hm'
: fUa Yk cf_ž UbX']b' UWēfXUbW' k]h\ ']hg' dfYj U']b[' gUbW]cbg' dc']WYg' UbX'
dfcWXi fYg'UgYhZcf'h\]b' hY'6Ub_ Āg =bhY[f]hm' fUa Yk cf_ž UgXYgW]VYX']b' GYV]cb'
J =dUfU[fUd\ ' &"& X" gU' VY']bY'] [V'Y' hc' VY' dfYei U']Z]YX' Zcfž V]X' Zcfž cf' VY'
Uk UfXYX' U' 6Ub_! Z]bUbWYX' VēbfUMēcf' VYbYZ]h'Zca' U' 6Ub_! Z]bUbWYX' VēbfUMēž
Z]bUbV]U'mcf' chYfk]gYž Xi f]b[' g' W\ dYf]cX' cZ h]a Y' Ug' hY' 6Ub_ gU' \Uj Y'
XYhYfa]bYX'" H\Y' ']gh' cZ XYVuffYX' Zfa g' UbX']bx]j]Xi Ug']g' Uj U']UVY' Uh' hY'
Y'YVfcb]WUXXfYgg'gdYVW]YX']b' hY' 68G"

("* 6]XXYfg' hUh' UfY' ghYh!ck bYX' YbhYfdf]gYg' cf']bgh]h]h]cbg']b' hY' 9a d'cmYf'Āg'
7ci bfhma UmVY'Y'] [V'Y' hc' Vēa dYhY'UbX' VY'Uk UfXYX' U' 7cbfUMēcf'cb'm]Z hY'mi
WUb'YghUV']g\ž]b' U'a UbbYf' UWWdHUV'Y'hc' hY'6Ub_ž hUh'hYmf]ē UfY'Y' [U'mUbX'
Z]bUbV]U'mUi hcbca ci g'f]]ēcdYfUhY' i bXYf'Vēa a YfV]U'Uk žUbX' f]]ē UfY' bchi bXYf'
gi dYfj]g]cb'cZ hY' 9a d'cmYf'"

("+ 5' 6]XXYf'gU' bchVY' i bXYf' gi gdYbg]cb'Zca' 6]XX]b[' Vm hY' 9a d'cmYf' Ug'hY'
fYg' 'h'cZ hY' cdYfUh]cb'cZU'6]X! GYWf]b[' 8YWWfUh]cb'"

(" :]fa g'UbX']bx]j]Xi Ug'a UmVY']bY'] [V'Y']Zgc']bX]W]hYX']b' GYV]cb' J' UbX' fUē Ug'U'
a UhYf'cZ'Uk 'cf'cZ]V]U'fY[i 'Uh]cbgž hY' 6cffck Yf'Āg Vēi bfhmdfc\]V]hg'Vēa a YfV]U'
fY'Uh]cbgk]h\ hUhVēi bfhmždfcj]XYX' hUh'hY'6Ub_]g'gUh]g]YX' hUhgi W\ Yl Wl g]cb'
XcYg' bchi dfYWl XY' YZZV]h]Y' Vēa dYh]h]cb' Zcf' hY' gi dd'm cZ [ccXg' cf' hY'
VēbfUMē]b[' cZk cf_g'cf'gYfj]Wg'fYei]fYX'/cf'fVēVmUb' UW]cZVēa d']UbW'k]h\ U'

"

XYV]g]cb'cZ h'Y' I b]hYX' B Uh]cbg'GYWf]m7ci bV]f' hU_Yb' i bXYf' 7\Ud hYf' J =cZ h'Y' 7\Uf hYf' cZ h'Y' I b]hYX' B Uh]cbg' h'Y' 6c f f c k Yf' f' V' i b h f m d f c \] V] h g' U b m] a d c f h' c Z [c c X g' c f' V' b h f U m] b [' c Z k c f' _ g' c f' g Y f j] W g' Z' c a ' h' U h V' i b h f m' z' c f' U b m d U n a Y b h g' h' c' U b m V' i b h f m' z' d Y f g c b z' c f' Y b h] m] b' h' U h V' i b h f m' i' K \ Y b' h' Y' K c f' _ g' U f Y'] a d' Y a Y b h Y X' U m' c g g' ^ f' g X] M] c b U' V c i b X U f] Y g' f U b X' a c f Y' h' U b' c b Y' V' i b h f m] g' U' 6 c f f c k Y f' z' U b X'] g'] b j' c' j Y X'] b' h' Y' d f c W' f Y a Y b h z' h' Y b' Y I W' g] c b' c Z U' Z' f a' ' c f'] b X] j] X i U' c b' h' Y' V U g] g' c Z # 6' (' , f U E' U V c j Y' V m U b m V' i b h f m i a U m V Y' U d d'] Y X' h' c' h' U h d f c W' f Y a Y b h U m' c g g' c h' Y f' V' i b h f] Y g'] b j' c' j Y X z'] Z h' Y' 6 U b _' U b X' h' Y' 6 c f f c k Y f g'] b j' c' j Y X'] b' h' Y' d f c W' f Y a Y b h U] f Y Y' ""

(" - 5' 6] X X Y f' g \ U' ' d f c j] X Y' g' W' X c W' a Y b h U f m Y j] X Y b W' c Z Y'] [] V]] m g U h g Z U m' c f m i h' c' h' Y' 9 a d' c m Y f' z' U g' h' Y' 9 a d' c m Y f' g \ U' ' f Y U g c b U V' m f Y e i Y g h' ""

(" % \$ 5' Z' f a' ' h' U h'] g' i b X Y f' U' g U b V m] c b' c Z X Y V U f a Y b h' V m h' Y' 6 c f f c k Y f' Z' c a' ' V Y] b [' U k U f X Y X' U V' b h f U m] g' Y'] [] V' Y' h' c' d U f h' V d U h Y'] b' h'] g d f c W' f Y a Y b h z' i b' Y g g' h' Y' 6 U b _ z' U h' h' Y' 6 c f f c k Y f' f' Y e i Y g h' z'] g' g U h g Z Y X' h' U h' h' Y' X Y V U f a Y b h' f U E' f Y' U h Y g' h' c' Z' U i X' c f' V' e f f i d h] c b z' U b X' f V E z' c' c k Y X' U' ^ X] W U' c f' U X a'] b] g' f U h j' Y' d f c W Y X] b [' h' U h U Z z' c f X Y X' h' Y' Z' f a' ' U X Y e i U h Y' X i Y' d f c W g g' ""

9] [] V' Y' A U h Y f] U g z' 9 e i] d a Y b h z' U b X' g Y f j] W g'

) "% h' Y' a U h Y f] U g z' Y e i] d a Y b h U b X' g Y f j] W g' h' c' V Y' g' d d'] Y X' i b X Y f' h' Y' 7 c b h f U m' U b X' Z' b U b W X' V m h' Y' 6 U b _' g \ U' ' \ U j' Y' h' Y' f' c f'] [] b'] b' U b' Y'] [] V' Y' V' i b h f m' c Z h' Y' 6 U b _'] b' U m' V' e f X U b W' k] h' ' h' Y' 6 U b _ A g' D f c W' f Y a Y b h' D c'] W h' Z' c f' 6 U b _' ; f c i d' : i b X Y X' C d Y f U h] c b g' X Y g W] V Y X' i b X Y f' h' Y' 6 U b _ A g' D f c W' f Y a Y b h' : f U a Y k c f' _ z' U b X' U g'] g h Y X'] b' G Y V m] c b' J z' 9] [] V' Y' 7 c i b h f] Y g z' g' V' Y V m' h' c' h' Y' f Y g' f] W] c b g' g d Y W Z Y X' h' Y f Y] b z' 9] [] V' Y' 7 c i b h f] Y g z' U b X' U' ' Y I d Y b X] i f Y g' i b X Y f' h' Y' 7 c b h f U m' k] ' b c h V' e b h f U j' Y b Y' g' W' f Y g' f] W] c b g' " 5 h' h' Y' 9 a d' c m Y f' f' Y e i Y g h' z' 6] X X Y f' g' a U m V Y' f Y e i] f Y X' h' c' d f c j] X Y' Y j] X Y b W' c Z h' Y' c f'] [] b' c Z a U h Y f] U g z' Y e i] d a Y b h U b X' g Y f j] W g' ""

) "& h' Y' b U h] c b U] m i c Z h' Y' Z' f a' ' h' U h d f c X i W g z' U g g' Y a V' Y g z' X] g' f] V i h' Y g z' c f' g Y' g' h' Y' a U h Y f] U g' U b X' Y e i] d a Y b h g \ U' ' b c h X Y h Y f a] b Y' h' Y' f' c f'] [] b' ""

7 c b h' b h g' c Z 6] X X] b [' 8 c W' a Y b h

GYV m] c b g' c Z 6] X X] b [' 8 c W' a Y b h

* "% h' Y' 6] X X] b [' X c W' a Y b h V' e b g] g h g' c Z D U f h g' % z' & z' U b X' ' z' k \] W'] b W' X Y g' U' ' h' Y' g' Y V m] c b g' g d Y W Z Y X' V Y' c k z' U b X' k \] W' g' c i ' X' V Y' f Y U X'] b' V' e b ^ b V m] c b' k] h' U b m i 5 X X Y b X U'] g g' Y X'] b' U m' V' e f X U b W' k] h' # 6' , ""

D 5 F H' % ' ' 6] X X] b [' D f c W X i f Y g'

j' G Y V m] c b' = ! ' b g' f i W] c b g' h' c' 6] X X Y f' g' f # 6 E'

"

"

i' GYVWcb'≡! '6]X'8UH'G\YYhf68GŁ
i' GYVWcb'≡! '9]Ui Uh'cb'UbX'E i U']ZVWh'cb'7f]hYf]U'
i' GYVWcb'≡! '6]XX]b[' : cfa g'
i' GYVWcb'J ! '9][]V'Y'7ci bhf]Yg'
i' GYVWcb'J ≡! ' : fUi X'UbX'7cffi dh'cb'
D5FH&'""K cf_gFYei]fYa Ybhg'
i' GYVWcb'J ≡! 'K cf_gFYei]fYa Ybhg'
D5FH' ""'7cbX]h'cbg'cZ7cbhfUMh'UbX'7cbhfUMh: cfa g'
i' GYVWcb'J ≡! ' ; YbYfU'7cbX]h'cbg'f] 7Ł
i' GYVWcb'Ł ! 'DUh]W'Uf'7cbX]h'cbg'fD7Ł
i' GYVWcb'L ! '7cbhfUMh: cfa g'

*"& H\Y' GdYVWZWDfcWfYa Ybh Bch]W' ! ' #j]Uh'cb' Zcf' 6]Xg' f# 6Ł]ggj YX' Vm h\Y'
9a d'cmYf']gbchdUfhcZ h\Y'6]XX]b['XcW'a Ybh'

*" I b'Ygg'cVHU]bYX'X]fYVWmZfca 'h\Y'9a d'cmYf'Z h\Y'9a d'cmYf']gbchfYgdcbg]V'Y'Zcf'
h\Y' VŁa d'YhYbYgg' cZ h\Y' 6]XX]b[' XcW'a Ybh'Z fYgdcbgYg' hc' fYei Yghg' Zcf'
WUf]ZVWh'cb'Z h\Y'a]bi h'g'cZ h\Y' d'fY! 6]X'a Y'h]b[' f]Z Ubnt'Z cf' 5XXYbXU' hc' h\Y'
6]XX]b[' XcW'a Ybh']b' UWŁfXUbW' k]h' #Ł' , "" #' WŁg' cZ Ubm VŁbfUX]W'cb'Z
XcW'a Ybhg'cVHU]bYX'X]fYVWmZfca 'h\Y'9a d'cmYf'g\U''d'fYj U]''

*"(H\Y' 6]XXYf']g' YIdYVWYX' hc' YI Ua]bY' U'']bghfi W'cbg'Z Zcfa g'Z hYfa g'Z UbX'
gdYVWZVWh'cbg']b' h\Y'6]XX]b['XcW'a YbhUbX'hc' Z fb]g\ k]h']hg'6]X'U'']bZcfa Uh'cb'
UbX'XcW'a YbhUh'cb'Ug']g'fYei]fYX'Vm h\Y'6]XX]b['XcW'a Ybh'

7`Uf]ZVWh'cb'cZ6]XX]b['8cW'a Ybh'ZG]h'J]g]h'ZDfY! 6]X'A Y'h]b['

+%" 5'6]XXYf'fYei]f]b['UbmiWUf]ZVWh'cb'cZ h\Y'6]XX]b['XcW'a Ybh'g\U''VŁbfUMh'h\Y'
9a d'cmYf']b'k f]h]b['Uh'h\Y'9a d'cmYf']g UXXfYgg'gdYVWZYX']b' h\Y'68G'cf'fU]gY']hg'
Ybei]f]YgXi f]b['h\Y'dfY! 6]X'a Y'h]b[']Zdfcj]XYX'Zcf']b' UWŁfXUbW' k]h' #Ł' +"(""
H\Y'9a d'cmYf'k]''fYgdcbX']b'k f]h]b['hc' UbmifYei Ygh'Zcf'WUf]ZVWh'cb'Zdfcj]XYX'
h\Uh'g' WŁ' fYei Ygh']g' fYW]j YX' bc' U'hYf' h\Ub' Zci fhYyb' f'Ł Ł XUhg' df]cf' hc' h\Y'
XYUX']bY' Zcf' g' Va]gg]cb' cZ 6]Xg' H\Y' 9a d'cmYf' g\U'' Zcfk UfX' VŁd]Yg' cZ]hg'
fYgdcbgY'hc' U''6]XXYfg'k \c' \Uj Y'UŁei]fYX'h\Y'6]XX]b['XcW'a Ybh']b' UWŁfXUbW'
k]h' #Ł' *"" ž]bW' X]b['U'XYgW]dh'cb'cZ h\Y']bei]fmVi h'k]h'ci h]XYbh]Z]b[']hg'
gci fW'''Zgc'gdYVWZYX']b' h\Y'68G'Z h\Y'9a d'cmYf'g\U''Ugc'dfca dhimidi V']g\]hg'
fYgdcbgY'Uh'h\Y'k YV'dU[Y]XYbh]ZYX']b' h\Y'68G'G\ci 'X'h\Y'WUf]ZVWh'cb'fYg' 'h]b'

"

"

V\Ub[Yg'hc' h\Y'YggYbh]U'Y'Ya Ybhg'cZ h\Y'6]XX]b['XcW'a Ybh'z h\Y'9a d'cmYf'g\U' Ua YbX' h\Y'6]XX]b['XcW'a YbhZc'ck]b['h\Y'dfcWXi fY'i bXYf'±6; 'UbX'±6&&"

+ "& h\Y'6]XXYf']g\UXj]gYX'hc'j]g]h\UbX'YI Ua]bY'h\Y'G]hY'cZK cf_g\UbX']hg'gi ffc i bX]b[g\ UbX' cVhU]b' Zcf']hgY'Z cb']hg' ck b' fYgdcbg[V']]m U']bZcfa Uh]cb' h\Uh' a Um VY' bYWggUfmZcf'dfYdUf]b['h\Y'6]X'UbX'YbhYf]b[']bhc'U'VtbfUWtZcf'Vtbgfi V]cb'cZ h\Y'K cf_g' h\Y'Vtghg'cZj]g]h]b['h\Y'G]hY'g\U' VY'Uh'h\Y'6]XXYf'Ag'ck b'YI dYbgY"

+ " h\Y'6]XXYf'UbX'UbmcZ]hg'dYfgcbbY'cf'U[Ybhg'k]' VY' [fUbhYX'dYfa]gg]cb'Vm'h\Y' 9a d'cmYf'hc'YbhYf'i dcb']hg'dfYa]gYg\UbX'UbXgZcf'h\Y'di fdcgY'cZgi V\j]g]h'Vi h' cb'mi dcb' h\Y'YI dfYgg'Vt bX]h]cb' h\Uh'h\Y'6]XXYf'z]hg'dYfgcbbY'z UbX' U[Ybhg'k]' fY'YUgY' UbX']bXYa b]Zm'h\Y' 9a d'cmYf' UbX']hg'dYfgcbbY' UbX' U[Ybhg' Z'ca ' UbX' U[U]bghi U']UV']]m]b' fYgdYVt h\YfYcZ' UbX' k]' VY' fYgdcbg[VY' Zcf' XYUh' cf' dYfgcbU']b' f'nz'cgg'cZcf'XUa U[Y'hc'dfcdYfmz'UbX'Ubmc'h\Yf'cggz'XUa U[YzVtghg'z UbX'YI dYbgYg']bWffYX'Ug'U'fYg' 'hcZ h\Y']bgdYV]cb"

+ "(Zgc'gdYV]ZYX']b'h\Y'68Gz h\Y'6]XXYf'Ag'XYg] [bUhYX'fYdfYgYbUhj Y']g']bj]hYX'hc' UhYbX' U' dfY! 6]X' a YYh]b[' UbX'#cf' U' G]hY' cZ K cf_g' j]g]h' h\Y' di fdcgY' cZ h\Y' a YYh]b[' k]' VY'hc'WUf]Zm]gg' Yg\UbX'hc'Ub'gk Yf'ei Ygh]cbg'cb'Ub'ma UhYf'h\Uh'a Um VY'fU]gYX'Uh'h\Uh'ghU[Y"

+ ") h\Y'6]XXYf']g' fYei YghYX'hc' gi Va]h'Ub'mei Ygh]cbg']b' k f]h]b[z'hc' fYUW' h\Y' 9a d'cmYf'bch'UhYf'h\Ub'cbY'k YY_ VYZcfY'h\Y'a YYh]b["

+ "*" A]bi hYg'cZ h\Y'dfY! 6]X' a YYh]b[z'ZUdd']WV'Yz']bW' X]b['h\Y'hY'hcZ h\Y'ei Ygh]cbg' Ug_YX' Vm'6]XXYfgz' k]h'ci h']XYbh]Zm]b[' h\Y' gci fWz' UbX' h\Y' fYgdcbgYg' []j Ybz' hc[Yh\Yf' k]h' Ub'mi fYgdcbgYg' dfYdUfYX' UZ'Yf' h\Y' a YYh]b[z'k]' VY' fU' boga]hYX' dfca dh'mhc'U' 6]XXYfg'k \c' \Uj Y'U'Vt']fYX' h\Y'6]XX]b['XcW'a Ybh]b'UWt'fXUbW' k]h' ±6 "*" "Zgc'gdYV]ZYX']b'h\Y'68Gz h\Y'9a d'cmYf'g\U' Ugc'dfca dh'midi V']g\ h\Y'A]bi hYg'cZ h\Y'dfY! 6]X' a YYh]b['Uh'h\Y'k YV'dU[Y']XYbh]ZYX']b'h\Y'68G' 5bmi a cX]ZVh]cb'hc' h\Y'6]XX]b['XcW'a Ybh'h\Uh'a UmVYVt'a YbYWggUfmUg'U'fYg' 'hcZ h\Y'dfY! 6]X' a YYh]b['g\U' VY'a UXY Vm'h\Y'9a d'cmYf'YI W' g] Y'm'h'fci [\ h\Y']gg' Y' cZUb'5XXYbXi a 'di fgj Ub'hc'±6; 'UbX'bch'h'fci [\ h\Y'a]bi hYg'cZ h\Y'dfY! 6]X' a YYh]b[" BcbUhYbXUbW' Uh' h\Y' dfY! 6]X' a YYh]b[' k]' bch' VY' U' W' gY' Zcf' X]gei U']ZVh]cb'cZU'6]XXYf"

5a YbXa Ybh'cZ6]XX]b['8cW'a Ybh

, "% 5h'Ub'mi]h'a Y'df]cf'hc' h\Y'XYUX']bY' Zcf' gi Va]gg]cb' cZ 6]Xg'z h\Y'9a d'cmYf'a Um Ua YbX' h\Y'6]XX]b['XcW'a YbhVm]gg']b[' UXXYbXU"

, "& 5bmi UXXYbXi a ']gg' YX' g\U' VY' dU'f'i cZ h\Y'6]XX]b['XcW'a Ybh' UbX' g\U' VY' Vt'a a i b]WUhYX']b' k f]h]b['hc'U' k \c' \Uj Y'cVhU]bYX' h\Y'6]XX]b['XcW'a Ybh'Z'ca "

"

"

h\Y' 9a d`cmYf']b' UWŁfXUbW' k]h' +H6' *'" " h\Y' 9a d`cmYf' g\U' Ugc' dfca dhmi
di V']g\ h\Y' UXXYbXi a' 'cb' h\Y' 9a d`cmYf' g\Y' dU[Y']b' UWŁfXUbW' k]h' +H6' +'%"

, "

Hc' []j Y' 6]XXYfg' fYUgcbUV' Y' h]a Y']b' k \]W' hc' HU_Y' Ub' UXXYbXi a']bhc' UWŁi bh']b'
dfYdUf]b[' h\Y' f' 6]Xgž' h\Y' 9a d`cmYf' g\ci 'X' YI hYbX' h\Y' XYUX']bY' Zcf' h\Y'
gj Va]gg]cb' cZ6]Xgž' di fg' Ubh' hc' +H6' &&"&"

DfYdUfU]cb' cZ6]Xg

7cg]cZ6]XX]b['

- "% h\Y' 6]XXYf' g\U' VYUf' U' VŁgng' Uggc' VUHYX' k]h' h\Y' dfYdUfU]cb' UbX' gj Va]gg]cb'
cZ']hg' 6]Xž' UbX' h\Y' 9a d`cmYf' g\U' bch' VY' fYgdcbg]V' Y' cf']UV' Y' Zcf' h\cgY' VŁgngž'
fY[UfX' Ygg' cZ h\Y' VŁbXi VŁcf' ci hVŁa Y' cZ h\Y' 6]XX]b[' dfcW' gg'"

@b[i U[Y' cZ6]X'

%\$% h\Y' 6]Xž' Ug' k Y' U' U' VŁffYgdcbXYbW' UbX' XcW' a Ybhg' fY' U]b[' hc' h\Y' 6]X'
YI V\Ub[YX' Vmi h\Y' 6]XXYf' UbX' h\Y' 9a d`cmYfž' g\U' VY' k f]hYb']b' h\Y' Ub[i U[Y'
gdYV]YX']b' h\Y' 68G' Gi ddcf]b[' XcW' a Ybhg' UbX' df]bhYX']hYfU] fY' h\U] UfY' dUfh'
cZ h\Y' 6]X' a Um' VY']b' Ubch' Yf' Ub[i U[Y' dfcj]XYX' h\Ymi UfY' UWŁa dUb]YX' Vmi Ub'
UWV' fU]h' fUbg' U]cb' cZ h\Y' fY' Yj Ubh' dUggU[Yg']b' h\Y' Ub[i U[Y' gdYV]YX']b' h\Y'
68Gž']b' k \]W' VŁgYž' Zcf' di fdcgYg' cZ]bhYfdYfU]cb' cZ h\Y' 6]Xž' gj V\ hfUb' g' U]cb'
g\U' [cj Yfb"

8cW' a Ybhg' 7ca df]g]b[' h\Y' 6]X'

%%% h\Y' 6]X' g\U' VŁa df]gY' h\Y' Zc' ck]b[.

fUŁ' @YhYf' cZ6]X' dfYdUfYX']b' UWŁfXUbW' k]h' +H6' %&/

fVŁ' G\YXi ' Yg']bW' X]b[' df]W\X' 6]' cZE i Ubh']hYgž' VŁa d' YhYX']b' UWŁfXUbW'
k]h' +H6' %&' UbX' +H6' % /

fVŁ' 6]X' GYV' f]hmc' f' 6]X' GYV' f]b[' 8YVWUfU]cbž']b' UWŁfXUbW' k]h' +H6' %' %/

fXŁ' HYV\ b]W' 6]X' !' cZ6UgY' 6]X/

fYŁ' 7ca a YfV\ U' HYfa g' UbX' 7cbX']h]cbg/

fZŁ' 5' hYfbU]h' j Y' HYV\ b]W' 6]Xž']ZdYfa]gg]V' Yž']b' UWŁfXUbW' k]h' +H6' % /

f[Ł' 5i h\cf]nU]cb' . k f]hYb' VŁbZ]fa U]cb' U' h\cf]n]b[' h\Y' g[bUhc' fmc' cZ h\Y' 6]X'
hc' VŁa a]h' h\Y' 6]XXYfž']b' UWŁfXUbW' k]h' +H6' &\$" /

f\ Ł' 9[[]V']]mi UbX' E i U']Z]W]h]cbg' XcW' a Ybh' UfmiYj]XYbW']b' UWŁfXUbW' k]h'
+H6' %+ Yg' U' V']g\]b[' h\Y' 6]XXYf' g\Y' []V']]mi UbX' ei U']Z]W]h]cbg' hc' dYfZc' fa
h\Y' 7cbh' fU]h']Z']hg' 6]X']g' UWV' dhYX/

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f]k 7cbZcfa]hmXcW a YbUfmYj]XYbW]b`UWŁfXUbW`k]h`#H6`%`UbX`#H6`
` \$žUbX`]b`gi ddcfhicZUvcj Y`gi V!dUfU[fUd\`g`fXŁUbX`fYŁcZ`#H6`%%%žUg`
` bYVWggUfmžhc`YghUv`]g\`h`Uh`h`Y`cZ`fYX`K`cf_g`UbX`GYfj]WgžUbX`HYfa`g`
` UbX`7cbX]h]cbg`cZ`h`Y`6]X`VŁbZcfa`hc`h`Y`fYei`]fYa`Ybhg`UbX`dfcj`]g]cbg`
` cZ`h`Y`V]XX]b[`XcW a Ybh`UbX`

f]k Ubmich`Yf`XcW a Ybh`fYei`]fYX`]b`h`Y`68G`

%%&`#`UX]h]cb`hc`h`Y`fYei`]fYa`Ybhgi`bXYf`#H6`%%%ž6]Xg`gi Va`]hYX`VmU`>`g`U`
]bW`XY`U`VŁdmcZ`h`Y`>`]bhJ`Ybh`fY`5[`fYYa`Ybh`Ybh`fYX`]bhc`VmU`a`Ya`VYfg`
5`hYfbUhj`Y`nž`U`Y`hYf`cZ`]bhYbhhc`YI`YW`hY`U`>`]bhJ`Ybh`fY`5[`fYYa`Ybh`]b`h`Y`Yj`Ybh`
cZ`U`gi`VWggž`6]X`g`U`VY`g][`bYX`VmU`a`Ya`VYfg`UbX`gi`Va`]hYX`k`]h`h`Y`6]Xž`
hc[`Yh`Yf`k`]h`U`VŁdmcZ`h`Y`dfcdcgYX`5[`fYYa`Ybh`

%%" `h`Y`6]XXYf`g`U`ž`fb]g\`]b`h`Y`@`hYf`cZ`6]X`]bZcfa`Uh]cb`cb`VŁa`a`]gg]cbg`UbX`
[`fUhi`]h]Ygž`ZUbmž`dU]X`cf`hc`VY`dU]X`hc`U[`Ybhg`cf`Ubmich`Yf`dUfmfY`Uh]b[`hc`h`g`
6]X`

%%(`h`Y`6]XXYf`g`U`ž`fb]g\`]b`h`Y`@`hYf`cZ`6]X`h`Y`bUa`Yg`cZ`h`fY`dchYbh]U`8]gdi`hY`
5j`c]XUbW`#5X`↑`X]W]h]cb`6cUfX`f8556Ł`a`Ya`VYfg`UbX`U`hUW`h`Y`f`W`ff]W`i`a`
j`]hY`"h`Y`]g`icZ`dchYbh]U`8556`a`Ya`VYfg`dfcdcgYX`Vmih`Y`9a`d`cnYf`f7`cbhfUW`
8U]U`&%%&`UbX`Vmih`Y`6]XXYf`f@`hYf`cZ`6]XŁ`g`U`VY`g`V`YV`h`h`Y`6Ub`_`g`Bc!
cV`YV`h]cb`

@`hYf`cZ`6]X`UbX`GWYXi`Yg`

%&%`h`Y`@`hYf`cZ`6]X`UbX`GWYXi`Ygž`]bW`X]b[`h`Y`6]`cZE`i`Ubh]h]Ygž`g`U`VY`dfYdUfYX`
i`g]b[`h`Y`fY`Yj`UbhZcfa`g`ž`fb]g`YX`]b`GYV]cb`⇒`ž6]XX]b[`:`cfa`g`h`Y`Zcfa`g`a`i`gh`
VY`VŁa`d`YhYX`k`]h`ci`h`Ubm`U`hYfU]h]cbg`hc`h`Y`hY`hž`UbX`bc`gi`Vgh]h`hYg`g`U`VY`
UWVdhYX`YI`WdhUg`dfcj`]YXX`i`bXYf`#H6`&\$`"5`V`Ub`_`gdUW`g`g`U`VY`ž`YX`]b`
k`]h`h`Y`]bZcfa`Uh]cb`fYei`YghYX`

5`hYfbUhj`Y`6]Xg`

%`%"`I`b`Ygg`ch`Yfk`]gY`gdYV]YX`]b`h`Y`68Gž`U`hYfbUhj`Y`6]Xg`g`U`bch`VY`VŁbg]XYfYX`
ž5`hYfbUhj`Y`6]Xg`UfY`dYfa`]hYXž`h`Y`68G`g`U`gdYV]Zmk`\\W`cZ`h`Y`Zc`ck`]b[`#H6`
f]k`bUa`Y`nž`#H6`%"&ž`#H6`%"`UbX`#H6`%"`(`g`U`VY`VŁbg]XYfYX`

%`&`K`\\Yb`U`hYfbUhj`Y`h`a`Yg`Zcf`VŁa`d`Yh]cb`UfY`YI`d`]V]hm]bj`]hYXž`U`g`U`h`a`Ybh`hc`h`Uh`
YZZV]k`j`VY`]bW`XYX`]b`h`Y`68Gž`UbX`h`Y`a`Yh`cX`cZ`Yj`Ui`Uh]b[`X]ZZYfYbh`
U`hYfbUhj`Y`h`a`Yg`Zcf`VŁa`d`Yh]cb`k`j`VY`XYgV]YX`]b`GYV]cb`⇒`ž9`Ui`Uh]cb`UbX`
E`i`U]ZV]h]cb`7f]hYf]U`

%`" `9`WdhUg`dfcj`]YXX`i`bXYf`#H6`%"`(`VY`ck`ž6]XXYfg`k`]g\`]b[`hc`cZ`Yf`hYVb]W`
U`hYfbUhj`Yg`hc`h`Y`fYei`]fYa`Ybhg`cZ`h`Y`6]XX]b[`XcW a Ybh`a`i`gh`Z]fghi`df]W`h`Y`

"

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9a d`cmYf`g XYg][b` Ug XYgWjVYX`]b` h`Y` 6]XX]b[` XcW`a Ybh` UbX` g\U`` Z` fh`Yf`
dfcj]XY`U``]bZcfa Uh]cb`bYVWggUfmZcf`U`Vt`a d`YH`Yj Ui Uh]cb`cZ`h`Y`U`Hf`bUhj` Y`Vm`
h`Y`9a d`cmYfz`]bW` X]b[`Xfuk]b[g`XYg][b`W`W`Uh]cbg`h`YVWb]W`gdYVWjVh]cbg`
VfYU`Xck b` cZ`df]Wg` UbX` dfcdcgYX` Vtbg`fi V]cb` a`Yh`cXc`c[m`UbX` ch`Yf`
f`Y`Yj Ubh`XYHj]g` Cb`mh`Y` h`YVWb]W`U`Hf`bUhj` Yg`]Z`Ub`n`cZ` h`Y` 6]XXYf` k]h` h`Y`
@ck Ygh`9j Ui UH`X`6]X`Vt`bZcfa]b[`hc`h`Y`VUg]W`h`VWb]W`f`Yei]f`Ya Ybhg`g\U``VY`
Vtbg]XYfYX`Vm`h`Y`9a d`cmYf`"

% "(" K \Yb`gdYVWjVYX`]b`h`Y`68Gz6]XXYfg`Uf`Y`d`Yfa]h`YX`hc`gi`Va]h`U`Hf`bUhj` Y`h`YVWb]W`
gc`i`h]cbg`Zcf`gdYVWjVYX`d`Uf`hg`cZ`h`Y`K`cf_g`Gi`W`d`Uf`hg`k]`VY`]XYbh]Z]YX`]b`h`Y`68G`
UbX` XYgWjVYX`]b`GYV]cb` J`Z`K`cf_g`F`Yei]f`Ya Ybhg` h`Y` a`Yh`cX`Zcf`h`Y]f`
Yj Ui Uh]cb`k]`VY`gh]di`UH`X`]b`GYV]cb`Z`9j Ui Uh]cb`UbX`E`i`U`]Z]W]h]cb`7f]h`f]U`"

6]X`Df]Wg`UbX`8]gW`i`bhg`

%("&` h`Y`df]Wg`UbX`X]gW`i`bhg`f]bW` X]b[`Ubmdf]W`f`YXi`V]cb`E`ei`ch`YX`Vm`h`Y`6]XXYf`]b`
h`Y`@Y`h`f`cZ6]X`UbX`]b`h`Y`6]`cZE`i`Ubh]h]Yg`g\U``Vt`bZcfa`hc`h`Y`f`Yei`]f`Ya Ybhg`
gdYVWjVYX`VY`ck`"

%("&&` h`Y`6]XXYf`g\U``Z]`]b`f`U`H`g`UbX`df]Wg`Zcf`U``]h`Ya`g`cZ`h`Y`K`cf_g`XYgWjVYX`]b`h`Y`
6]`cZE`i`Ubh]h]Yg`"h`Ya`g`U[U]bgh`k` \]W`bc`f`U`H`cf`df]W`]g`Ybh`f`YX`Vm`h`Y`6]XXYf`
g\U``VY`XY`Ya`YX`Vt`j`Yf`YX`Vm`h`Y`f`U`H`g`Zcf`ch`Yf`]h`Ya`g`]b`h`Y`6]`cZE`i`Ubh]h]Yg`UbX`
k]`bch`VY`dU]X`Zcf`g`Yd`Uf`U`H`m`Vm`h`Y`9a d`cmYf`5b`]h`Ya`bch`]gh`YX`]b`h`Y`df]W`X`
6]`cZE`i`Ubh]h]Yg`g\U``VY`Ugg` a`YX`hc`VY`bch`]bW`XYX`]b`h`Y`6]Xz`UbX`dfcj`]XYX`
h`U`h` h`Y` 6]X`]g`XY`h`fa`]bYX` g`Vgh`Ubh]U`m`f`Ygd`cbg]Y`bc`h`k`]h`g`UbX`]b[`h`]g`
ca`]gg]cbz`h`Y`Uj`YfU[Y`cf`h`Y` \] \Ygh`df]W`cZ`h`Y`]h`Ya`Ug`gdYVWjVYX`]b`h`Y`68G`
ei`ch`YX`Vm`gi`Vgh`Ubh]U`m`f`Ygd`cbg]Y`6]XXYfg`k]`VY`UXXYX`hc`h`Y`6]X`df]W`UbX`
h`Y`Yei`]j`U`Ybh`hc`U`Vt`gh`cZ`h`Y`6]X`gc`XY`h`fa`]bYX`k]`VY`i`g`YX`Zcf`df]W`
Vt`a`dUf]gcb`"

%("` h`Y`df]W`hc`VY`ei`ch`YX`]b`h`Y`@Y`h`f`cZ6]Xz`]b`UWt`f`X`UbW`k]h` +H`%&%z`g\U``VY`
h`Y`hc`U`df]W`cZ`h`Y`6]Xz`YI`W` X]b[`Ubmx]gW`i`bhg`cZYf`YX`"

%("(` h`Y`6]XXYf`g\U``ei`ch`Y`Ubmx]gW`i`bhg`UbX`h`Y`a`Yh`cXc`c[mZcf`h`Y]f`Udd`]W]h]cb`
]b`h`Y`@Y`h`f`cZ6]Xz`]b`UWt`f`X`UbW`k]h` +H`%&%z`+H`%&`"UbX`+H`%&`"+`"

%(") ` I`b`Ygg`ch`Yfk`]g`gdYVWjVYX`]b`h`Y`68G`UbX`h`Y`7cbX]h]cbg`cZ7cbh`f`UWt`h`Y`f`U`H`g`
UbX`df]Wg`ei`ch`YX`Vm`h`Y`6]XXYf`Uf`Y`g`V`YV`h`hc`UX`g`ra`Ybh`Xi`f]b[`h`Y`
dYfZcfa`UbW`cZ`h`Y`7cbh`f`UWt`]b`UWt`f`X`UbW`k]h`h`Y`dfcj`]g]cbg`cZ`h`Y`7cbX]h]cbg`
cZ7cbh`f`UWt`"b`g`W`U`Wg`Yz`h`Y`6]XXYf`g\U``Z`fb]g\`h`Y`]bX]Wg`UbX`k`Y[\h]b[g`
Zcf`h`Y`df]W`UX`g`ra`Ybh`Zcfa`i`UY`]b`h`Y`GW`YXi`Y`cZ5X`g`ra`Ybh`8UH`UbX`h`Y`
9a d`cmYf`a`Um`f`Yei`]f`Y`h`Y`6]XXYf`hc`g`h]Zm]hg`dfcdcgYX`]bX]Wg`UbX`k`Y[\h]b[g`
5`6]X`g`Va`]h`YX`k`]h`U`Z]YX`df]W`VUg]g`g\U``bch`VY`f`Y`VW`X`i`b`Ygg`ch`Yfk`]g`

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gdYVWZYX]b`h`Y`68G`UbX`]b`h`Y`U`H`Y`f`W`g`y`Z`U`6`X`g`i` Va`]h`Y`X`k`]h`Z`l`Y`X`d`f`]W`g`U`
VY`fY`V`W`X`""

%`"*` 5g`gdYVWZYX`]b`h`Y`68G`Z`V`X`g`U`fY`VY`]b`[`]b`j`]h`Y`X`Z`c`f`Å`k` c`f`_g`Å`U`g`U`g`]b`[`Y`V`b`h`f`U`M`
f`b`f`U`g`c`b`Y`c`h`/c`f`Z`c`f`]b`X`j`]X`i`U`c`h`g`f`V`b`h`f`U`M`g`Y`U`W`c`h`V`b`h`U`]b`[`c`b`Y`c`f`a`c`fY`
Å`k` c`f`_g`Å`c`f`Z`c`f`U`b`m`V`a`V`]b`U`h`]c`b`c`Z`c`h`g`f`U`W`U`[`Y`g`" 6`X`X`Y`f`g`k`]g`]b`[`h`c`c`Z`Y`f`
X`]g`V`i`b`h`g`Z`c`f`h`Y`U`k`U`f`X`c`Z`a`c`fY`h`U`b`c`b`Y`7`c`b`h`f`U`M`f`l`c`h`g`U`gdYVWZm`]b`h`Y`f`6`X`
h`Y`d`f`]W`fY`X`i`V`h`c`b`g`U`d`d`]V`W`Y`h`c`Y`U`W`V`b`h`f`U`M`f`l`c`h`U`b`X`d`U`W`U`[`Y`U`g`h`Y`W`g`Y`
a`U`m`V`Y`"6`X`X`Y`f`g`U`Z`"m`Y`l`d`U`]b`h`Y`a`Y`h`c`X`c`c`[`m`U`b`X`W`W`U`h`c`b`g`Z`c`f`U`d`d`n`]b`[`
g`i`V`X`]g`V`i`b`h`g`Z`g`c`k`]b`[`c`k`h`Y`fY`X`i`V`h`c`b`g`U`fY`X`Y`f`]Y`X`U`b`X`h`Y`b`Y`h`U`a`c`i`b`h`g`c`Z`
Y`U`W`V`b`h`f`U`M`U`Z`h`Y`f`h`Y`U`d`d`]V`h`c`b`c`Z`h`Y`c`Z`Y`fY`X`X`]g`V`i`b`h`g`h`c`]b`X`j`]X`i`U`]h`Y`a`g`
8`]g`V`i`b`h`g`V`U`b`V`Y`c`Z`Y`fY`X`c`b`m`Z`c`f`h`c`g`Y`]h`Y`a`g`Z`c`f`k` \`]W`h`Y`6`X`X`Y`f`]g`f`Y`e`i`]fY`X`h`c`
V`]X`U`b`X`b`c`h`Z`c`f`U`b`m`]h`Y`a`k` \`Y`fY`h`Y`9`a`d`c`m`Y`f` \`U`g`]b`W`i`X`Y`X`]h`g`Y`g`h`a`U`h`Y`X`V`b`g`h`U`g`
U`Z`l`Y`X`g`i`a`c`f`U`d`Y`f`W`b`h`U`[`Y`]b`h`Y`6`]g`c`Z`E`i`U`b`h`h`Y`g`8`]g`V`i`b`h`g`g`U`V`Y`
g`i`Va`]h`Y`X`]b`U`W`V`f`X`U`b`W`k`]h`+6`%`"(Z`U`b`X`+6`%`"*`d`f`c`j`]X`Y`X`h`U`h`h`Y`6`X`g`Z`c`f`
U`c`h`g`f`V`b`h`f`U`M`g`U`fY`c`d`Y`b`Y`X`U`h`h`Y`g`U`a`Y`h`a`Y`""

%`"+`"8`]g`V`i`b`h`g`c`Z`Y`fY`X`g`U`V`Y`W`U`f`U`b`X`k`]h`c`i`h`U`b`m`j`U`[`i`Y`b`Y`g`g`c`f`U`a`V`[`i`]m`h`c`U`j`c`]X`
fY`V`W`h`c`b`c`Z`h`Y`V`]X`U`g`b`c`W`U`f`]Z`V`h`c`b`g`U`V`Y`f`Y`e`i`Y`g`h`Y`X`c`f`d`Y`f`a`]h`Y`X`c`b`h`]g`
U`W`V`i`b`h`U`Z`h`Y`f`V`]X`g`i`Va`]g`g`]c`b`"h`Y`9`a`d`c`m`Y`f`Å`X`Y`W`h`c`b`c`b`U`V`]X`Å`X`]g`V`i`b`h`k`]
V`Y`V`U`g`Y`X`c`b`h`Y`V`b`h`Y`b`h`g`c`Z`h`Y`V`]X`]h`g`Y`Z`k`]h`c`i`h`fY`V`i`f`g`Y`h`c`U`b`m`Y`l`h`f`]b`g`]W`
Y`j`]X`Y`b`W`"Z`]b`h`Y`9`a`d`c`m`Y`f`Å`c`d`]b`c`b`Z`k` \`]W`k`]V`Y`Z`l`b`U`Z`U`X`]g`V`i`b`h`c`Z`Y`fY`X`]b`
h`Y`V`]X`k`]g`i`b`W`U`f`Z`U`a`V`[`i`c`i`g`c`f`j`U`[`i`Y`m`d`fY`g`Y`b`h`Y`X`h`c`h`Y`Y`l`h`Y`b`h`h`U`h`]h`W`b`b`c`h`
V`Y`Y`]h`Y`f`]b`h`Y`f`d`fY`h`Y`X`c`f`U`d`d`]Y`X`k`]h`c`fY`U`g`c`b`U`V`Y`U`W`V`f`U`M`Z`h`Y`6`X`g`U`V`Y`
fY`V`W`X`/`≡`fY`U`h`g`h`c`U`b`m`]h`Y`a`c`Z`V`b`g`h`Z`c`f`k` \`]W`h`Y`6`X`X`Y`f`]g`b`c`h`f`Y`e`i`]fY`X`h`c`
g`i`Va`]h`U`V`]X`d`f`]W`c`f`h`Y`9`a`d`c`m`Y`f`a`U`m` \`U`j`Y`]b`X`]W`h`Y`X`h`Y`Y`g`h`a`U`h`Y`X`V`b`g`h`Y`["`
Z`c`f`U`d`f`c`j`]g`c`b`U`g`i`a`c`f`V`b`h`]b`[`Y`b`V`Y`g`U`g`d`Y`f`h`Y`V`]X`X`]b`[`X`c`W`a`Y`b`h`Z`h`Y`b`h`Y`
V`]X`k`]V`Y`Y`j`U`i`U`h`Y`X`k`]h`c`i`h`h`Y`U`d`d`]V`h`c`b`c`Z`h`Y`X`]g`V`i`b`h`c`Z`Y`fY`X`Z`c`f`g`i`V`
]h`Y`a`c`Z`V`b`g`h`U`b`X`≡` \`U`g`a`]b`c`f`X`]g`W`Y`d`U`b`W`h`c`f`i`b`W`U`f`]m`k` \`]W`V`i`X`V`Y`
]b`h`Y`f`d`fY`h`Y`X`fY`U`g`c`b`U`V`n`Z`h`Y`9`a`d`c`m`Y`f`]b`h`]g`W`U`g`Y`a`U`m`X`Y`V`]X`Y`b`c`h`h`c`fY`V`W`h`h`Y`
V`]X`U`b`X`U`d`d`m`h`Y`X`]g`V`i`b`h`U`g`]h`X`Y`Y`a`g`fY`U`g`c`b`U`V`Y`U`b`X`U`d`d`f`c`d`f`]U`h`Y`f`Y`g`i`h`b`[`]b`
h`Y`c`k`Y`g`h`Y`j`U`i`U`h`Y`X`V`b`g`h`h`c`h`Y`9`a`d`c`m`Y`f`"Z`h`Y`6`X`X`Y`f`X`c`Y`g`b`c`h`U`W`V`d`h`h`Y`
9`a`d`c`m`Y`f`Å`X`Y`W`h`c`b`V`U`g`Y`X`c`b`U`b`m`c`Z`h`Y`U`V`c`j`Y`Z`h`Y`V`]X`g`U`V`Y`fY`V`W`X`"

%`,"` 5`"Xi`h`Y`g`Z`h`U`l`Y`g`Z`U`b`X`c`h`Y`f`Y`j`]Y`g`d`U`h`U`V`Y`V`m`h`Y`7`c`b`h`f`U`M`c`f`i`b`X`Y`f`h`Y`7`c`b`h`f`U`M`Z`
c`f`Z`c`f`U`b`m`c`h`Y`f`W`i`g`Y`Z`U`g`c`Z`h`Y`X`U`h`Y`&`X`U`h`g`d`f`c`f`h`c`h`Y`X`Y`U`X`]b`Y`Z`c`f`g`i`Va`]g`g`]c`b`
c`Z`6`]X`g`Z`g`U`V`Y`]b`W`i`X`Y`X`]b`h`Y`f`U`h`g`U`b`X`d`f`]W`g`U`b`X`h`Y`h`c`h`U`6`X`D`f`]W`g`i`Va`]h`Y`X`
V`m`h`Y`6`X`X`Y`f`"

7i`ffY`b`W`Y`g`c`Z`6`]X`U`b`X`D`U`h`a`Y`b`h`

%`"%` h`Y`W`ffY`b`W`h`f`]Y`g`c`Z`h`Y`6`X`U`b`X`h`Y`W`ffY`b`W`h`f`]Y`g`c`Z`d`U`h`a`Y`b`h`g`g`U`V`Y`U`g`
gdYVWZYX`]b`h`Y`68G`"

"

% "& 6]XXYfg' a Um VY' fYei]fYX' Vm hY' 9a d'cmYf' hc' † ghZnZ hc' hY' 9a d'cmYf'Ag
guh]gZM]cbžhY]f'cW' UbX' ZcFY][b' WffYbWmfYei]fYa Ybhgž UbX' hc' gi VghUbh]UHY'
hUhY'Ua ci bng]bWl XYX']b' hY' i b]hfUHYgUbX'df]WgUbX'g'ck b']b' hY' GWYXi 'Y'
cZ 5X† gha Ybh'8UH']b' hY' 5ddYbX] ' hc' 6]X' UfY' fYUgcbUV'Yž]b' k \]W' WlgY' U'
XYH]YX' VfYU_Xck b' cZ hY' ZcFY][b' WffYbWmfYei]fYa Ybhg'g\U' VY'dfcj]XYX' Vm
6]XXYfg"

8cWa Ybhg'7ca df]g]b['hY'HYWb]W'6]X'

%*"% hY' 6]XXYf' g\U' † fb]g\ XYH]g' cZ hYWb]W' gdYV]ZVh]cbg' dfcdcgYX']b' hY'
HYWb]W' 6]X']bWl X]b[' U' ghUHYa Ybh'cZ kcf_ 'a YhcXgž Yei]da Ybhž dYfgcbbYž
gWYXi 'Y' UbX' UbmchYf']bZcfa Uh]cb' Ug'gh]di 'UHYX']b' GYV]cb' † ž6]XX]b[' : cfa gž
cf' Y'gYk \YfY']b' hY' V]XX]b[' XcWa Ybhž UbX']Z Udd']WV'Yž U' ghUHYa Ybh' cZ
XYj]Uh]cbg'UbX' Yl Wdh]cbg'hc' UbmcZ hY'dfcj]g]cbg'cZ hY'V]XX]b[' XcWa Ybhž]b'
gi Z]V]YbhXYH] 'hc' XYa cbg'fUHY' hY' UXYei UWh'cZ hY' 6]XXYf'Ag dfcdcgU' hc' a YYh'
hY' 9a d'cmYf'Ag kcf_Ag fYei]fYa Ybhg' UbX' hY' Vta d'Yh]cb' hja Yž UbX' hc'
XYa cbg'fUHY' gi VghUbh]U' fYgdcbg]j YbYgg'hc' hY' HYWb]W' gdYV]ZVh]cbg'fYei]fYX'
UgdYf'hY'dfcj]g]cbg'cZ hY' GYV]cb' J † žK cf_Ag fYei]fYa Ybhg'""

8cWa Ybhg'9ghUV'g\]b['hY'9']]V']]mUbX'E i U']ZVh]cbg'cZ hY'6]XXYf'

%+ "% Hc 'YghUV']g\ 6]XXYf'Ag Y']]V']]m]b' UWt'fXUbW' k]h' † H6' (ž6]XXYfg'g\U' Vta d'YHY'
hY' @YHYf'cZ6]Xž]bWl XYX']b' GYV]cb' † ž6]XX]b[' : cfa g"

%+ "& †b' UWt'fXUbW' k]h' GYV]cb' † ž9' U' i Uh]cb' UbX' E i U']ZVh]cb' 7f]HYf]Užhc' YghUV']g\ '
]hg' ei U']ZVh]cbg' hc' dYfZcfa ' hY' 7cbhfUW' hY' 6]XXYf' g\U' dfcj]XY' hY'
]bZcfa Uh]cb' fYei YghYX']b' hY' Vt'ffYgdcbX]b[' Zcfa g']bWl XYX']b' GYV]cb' † ž
6]XX]b[' : cfa g"

%+ " † Z U' a Uf[]b' cZ dfYZfYbW' Udd']Yg' Ug' gdYV]ZYX']b' UWt'fXUbW' k]h' † H6' ' ' "%ž
Xca Ygh]W6]XXYfgž]bX]]Xi U'mcf']b' 'c]bhj Ybh' fYgž Udd'n]b[' Zcf' Y']]V']]m]Zcf'
Xca Ygh]VdfYZfYbW' cf'fY[]cbU' dfYZfYbW' g\U' gi dd'mU']bZcfa Uh]cb' fYei]fYX'
hc' gUh]gžmhY'W]HYf]U'Zcf'Y']]V']]m]gdYV]ZYX']b' UWt'fXUbW' k]h' † H6' ' ' "%

DYf]cX'cZJ U]X]]mcZ6]Xg'

% "% 6]Xg'g\U' fYa U]b' j U]X' Zcf' hY' 6]X' J U]X]]mdYf]cX' gdYV]ZYX']b' hY' 68G'cf' Ubmi
Yl hYbXYX' dYf]cX']ZUa YbXYX' VmhY' 9a d'cmYf']b' UWt'fXUbW' k]h' † H6' , "hY' 6]X'
J U]X]]mdYf]cX' ghUfng Zca 'hY' XUHY' Z] YX' Zcf' hY' 6]X' gi Va]gg]cb' XYUX']bY' flug'
dfYgW]VYX' VmhY' 9a d'cmYf']b' UWt'fXUbW' k]h' † H6' &&L" 5 6]X' j U]X' Zcf' U'g'cfHYf'
dYf]cX' g\U' VY'fY'VWYX' VmhY' 9a d'cmYf' Ug'bcbfYgdcbg]j Y""

% "& †b' Yl Wdh]cbU' V]W' a ghUbWgž df]cf' hc' hY' Yl d]fUh]cb' cZ hY' 6]X' j U]X]]mdYf]cXž
hY' 9a d'cmYf' a UmfYei Ygh'6]XXYfg'hc' Yl hYbX' hY' dYf]cX' cZ j U]X]]mcZ hY' f'6]Xg"

"

"

HAY'fYei Ygh UbX' hAY' fYgdcbgYg' gU' VY' a UXY']b' k f]h]b[" ZU' 6]X' GYWf]m]g'
fYei YghYX']b' UWVfXUbW' k]h' #6% ž]h'gU' Ugc' VY' YI hYbXYX' Zcf' h' Ybm]Y][\h'
f& E'XUhg' VYncbX' hAY' XYUX']bY' cZ hAY' YI hYbXYX' j U]X]hmdYf]cX'" 5' 6]XXYf' a Um'
fYZ' gY' hAY' fYei Ygh' k]h' ci h' ZcfZY]h]b[']hg' 6]X' gYWf]m] 5' 6]XXYf' [fUb]h]b[' hAY'
fYei Ygh'gU' bchVY' fYei]fYX' cf' dYfa]hYX' h' c' a cX]Zm]hg' 6]XžYI WdhUg'dfcj]XYX'
]b' #6% " "

% " Z hAY' Uk UfX']gXY' UhYX' VmU'dYf]cX' YI WYX]b[Z]Zm]g] f) *E'XUhg' VYncbX' hAY' YI d]fmi
cZ hAY']b]h]U' 6]X' j U]X]hmdYf]cXž hAY' 7cbhfUW'df]W' gU' VY' XYhYfa]bYX' UgZc' ck g'

fUŁ]b' hAY' WUgY' cZ Z] YX' df]W' VcbhfUW'gž hAY' 7cbhfUW'df]W' gU' VY' hAY' 6]X'
df]W' UX' ghYX' VmhAY' ZUW'cf'gdYV]YX']b' hAY' 68G' h' fYZYV' Ubm]bWYUgY'
]b' hAY' VcbgicZ]bdi hg' c' j Yf' hAY' dYf]cX' cZYI hYbg]cbžk \]W' Zcf' hAY' di fdcgY'
cZ hAY' g' UX' g' a Ybžg' U' VY' hAY' dYf]cX' Y' UdgYX' VYh' Yyb' hAY' XUHY' Uff] YX'
]a a YX]UHY' miUZHY' YI d]fmicZ hAY' Z]Zm]g] f) *E'XUhg' VYncbX' hAY']b]h]U' 6]X'
j U]X]hmdYf]cX' UbX' hAY' XUHY' cZ bch]Z]W]h]cb' cZ Uk UfX/'

fVŁ]b' hAY' WUgY' cZ UX' ghU' Y' df]W' VcbhfUW'gž bc' UX' g' a Ybh'gU' VY' a UXY/
UbX'

fVŁ]b' UbmWUgYž 6]X' Yj U' i Uh]cb' g' U' VY' VUgYX' cb' hAY' 6]X' df]W' k]h' ci h' hU_]b['
]b' h' Vcbg]XYfUh]cb' hAY' Udd']WV' Y' VcbffYV]cb' Z'ca' h' c' gY']bX]WUHYX' UWcj Y"

6]X'GYWf]m

% "% HAY' 6]XXYf' g' U' ž' fb]g' U'gdUfhicZ]hg' 6]XžY]h' Yf' U' 6]X'! GYWf]b[' 8YWUfU]cb' cf' U'
6]X' GYWf]m]Ua ci bhUg'gdYV]YX']b' hAY' 68Gž']b' cf][]bU' Zcfa' UbXž']b' hAY' WUgY' cZ
U' 6]X' GYWf]m]Ua ci bž']b' hAY' Ua ci bhUbX' WffYbW'gdYV]YX']b' hAY' 68G"

% "& 5' 6]X'! GYWf]b[' 8YWUfU]cb' g' U' i gY' hAY' Zcfa']bW' XYX']b' GYW]cb' ž 6]XX]b['
: cfa g"

% " ZU' 6]X' GYWf]m]Ua ci bh]g'gdYV]YX' di fg] Ubh' h' #6% "%ž hAY' 6]X' GYWf]m]gU' VY' U'XYa UbX' [i UfUbhY']b' Ubm'cZ hAY' Zc' ck]b[' Zcfa g' Uh' hAY' 6]XXYf' g' cdh]cb.'

fUŁ Ub' i bVcbX]h]cbU' [i UfUbhY']gg] YX' VmU' VUb_ 'cf' bcb! VUb_ Z]bUbV]U'
]bgh]h' h]cb' fg] W' Ug' Ub']bg] fUbWžVcbX]b[' cf' g] fYhmVcb' a dUbnt/'

fVŁ Ub']ffYj cWV' Y' YHY' f' cZ WYX]h' '

fVŁ U' WUg']Yf' g' cf' Wf]h]Z]YX' W' YW' /cf'

fXŁ UbchAY' f' gYWf]m]gdYV]YX']b' hAY' 68Gž'

HAY' 6]XXYf' g' U' cVhU]b' hAY' 6]X' GYWf]m]Z'ca' U' fYdi hU' V' Y' gci fW' Z'ca' Ub' Y'] []V' Y'
Vcb' b' h' f' ž Ub' i bVcbX]h]cbU' [i UfUbhY']g']gg] YX' VmU' bcb! VUb_ Z]bUbV]U'

"

"

]bgh]hi h]cb`cWuHYX`ci hg]XY`hY`9a d`cmYfAg 7ci bhfmz hY`]ggi]b[` bcb!VUb_
Z]bUbVU`]bgh]hi h]cb`g\U``\Uj Y`U`V`ffYgdcXbYbhZ]bUbVU`]bgh]hi h]cb`cWuHYX`]b`hY`
9a d`cmYfAg 7ci bhfmhc`a U_Y`]hYbZcfWUV`Y`i b`Ygg hY`9a d`cmYf`Ug`U[fYX`]b`
k f]h]b[ždf]cf`hc`6]X`gi Va]gg]cbžhUhU`V`ffYgdcXbYbhZ]bUbVU`]bgh]hi h]cb`]g`bch`
fYei]fYX`" b`hY`WUgY`cZ`U`VUb_ [i UfUbhYŽ hY`6]X`GYWf]Img\U``VY`gi Va]hYX`
Y]hYf`i g]b[`hY`6]X`GYWf]Imi: cfa`]bW`XYX`]b`GYW]cb`ž ž6]XX]b[`: cfa gžcf`]b`
UbchYf`gi VgUbh]U`m]ga]Uf`Zcfa Uh Uddfcj YX`Vm hY`9a d`cmYf`df]cf`hc`6]X`
gi Va]gg]cb`"hY`6]X`GYWf]Img\U``VY`j U]X`Zcf`hYbhmY][\hif&, tXUhgVYncbX`hY`
cf][]bU`j U]X]ImdYf]cX`cZhY`6]XžcfVYncbX`UbmdYf]cX`cZYI hYbg]cb]ZfYei YghYX`
i bXYf`#6`% "&"

% "("`-ZU`6]X`GYWf]Imi]b`Ua ci bhicf`6]X!GYWf]b[`8YWUfUh]cb`]g`gdYVWZYX`di fgj Ubh`hc`
#6`% "%žUbm6]X`bchUW`a dUb]YX`VmU`gi VgUbh]U`m]fYgdcbg]j Y`6]X`GYWf]Imi]b`
Ua ci bhicf`6]X!GYWf]b[`8YWUfUh]cb`k \]WYj Yf`]g`fYei]fYXžg\U``VY`fY`VW`X`Vm
hY`9a d`cmYf`Ug`bcb!fYgdcbg]j Y"

% ")"`-ZU`6]X`GYWf]Imi]g`gdYVWZYX`di fgj Ubh`hc`#6`% "%žhY`6]X`GYWf]ImcZi bgj WWggž`
6]XXYfg`g\U``VY`fYi fbYX`Ug`dfca dhmiUg`dcgg]V`Y`i dcb`hY`gi WWggž``6]XXYfAg
g][b]b[`hY`7cbhfUmiUbX`ž fb]g\]b[`hY`DYfZcfa UbW`GYWf]ImiUbX`]ZfYei]fYX`]b`
hY`68GžhY`9bj]fcb`a YbhU`UbX`GcVU`fDGLDYfZcfa UbW`GYWf]Imi fgj Ubh`hc`#6`
(, "

% "*"`hY`6]X`GYWf]ImcZ hY`gi WWggž``6]XXYf`g\U``VY`fYi fbYX`Ug`dfca dhmiUg`
dcgg]V`Y`cbW`hY`gi WWggž``6]XXYf`\Ug`g][bYX`hY`7cbhfUmiUbX`ž fb]g\YX`hY`
fYei]fYX`DYfZcfa UbW`GYWf]ImiUbX`]ZfYei]fYX`]b`hY`68GžhY`9bj]fcb`a YbhU`
UbX`GcVU`fDGLDYfZcfa UbW`GYWf]Imi`

% "+"`hY`6]X`GYWf]ImiUa ci bhia UmVY`ZcfZY]hYX`.

fUŁ`]ZU`6]XXYf`k]hXfUk`g`]hg6]X`Xi f]b[`hY`dYf]cX`cZ6]X`j U]X]ImgdYVWZYX`Vm
`
hY`6]XXYf`cb`hY`@]hYf`cZ6]XžcfUbmYI hYbg]cb`hYfYhc`dfcj]XYX`Vm hY`
`
6]XXYf`cf`

fVŁ`]ZhY`gi WWggž``6]XXYf`ZU]g`hc`."

` f]Ł` g][b`hY`7cbhfUmi]b`UW`fXUbW`k]h`#6`(+/cf`

` f]]Ł` ž fb]g\`U`DYfZcfa UbW`GYWf]ImiUbX`]ZfYei]fYX`]b`hY`68GžhY`
`
9bj]fcb`a YbhU`UbX`GcVU`fDGLDYfZcfa UbW`GYWf]Imi]b`UW`fXUbW`
`
k]h`#6`(+, "

% ","`hY`6]X`GYWf]ImiUa ci bhicf`hY`6]X!GYWf]b[`8YWUfUh]cb`cZU`ž]g\U``VY`]b`hY`
bUa Y`cZhY`ž]hUh]gi Va]hg`hY`6]X`-ZhY`ž`\Ug`bchVYYb`Y[U`m]V`bg]hi hYX`
]bhc`U`Y[U`m]YbZcfWUV`Y`ž`Uh`hY`h]a Y`cZ6]XX]b[žhY`6]X`GYWf]ImiUa ci bhicf`

"

"

h\Y'6]X!GYWf]b['8YWUfUh]cb'g\U''VY']b' h\Y' bUa Yg' cZ U'' ž h' fY' a Ya VYfg' Ug'
bUa YX']b' h\Y' YhYf' cZ]b' hYbhfYfYfYX' hc']b' #H6' ("%UbX' #H6' %&%"

% "- ' žU'6]X'GYWf]b['8YWUfUh]cb']g'fYei']fYX']b' h\Y'68Gždi' fgj' Ubh'hc' #H6' % "- %žUbX'."

fUŁ']ZU'6]XXYf'k']h\XfUk'g']hg'6]X'Xi' f]b[' h\Y'dYf]cX' cZ6]X' j' U']X']h' mgdYV\Z]YX' Vmi'
" h\Y'6]XXYf' cb' h\Y' @YhYf' cZ6]X' cf' UbmYI' hYbg]cb' h\YfYhc' dfcj']YX' Vmh\Y'
6]XXYf/' " cf'

fVŁ']Zh\Y'g' VVggž' '6]XXYf'Z]]g'hc'."

" f]Ł' g] [b' h\Y'7cbhfUW]b' UWŁfXUbW'k']h' #H6' (+/cf' "

" f]Ł' ž' fb]g\ 'U' DYfZcfa' UbW' GYWf]]mi' UbXž']Z' fYei']fYX']b' h\Y'68Gž' h\Y'
" 9bj']fcba' Ybh'U' UbX' GcV\U' fPGLDYfZcfa' UbW' GYWf]]mi' b' UWŁfXUbW'
" k']h' #H6' (, ž

h\Y'6cffck' Yf' a' UmYI' YW' h\Y'6]X'GYWf]b['8YWUfUh]cbž' Ug' dfcj']YX' žcf']b' h\Y'
68GžXYWUfY' h\Y'6]XXYf']bY'] []V'Y'hc' VY' Uk' UfYX' U' VŁbhfUW' Vmh\Y'9a' d' c'nYf' žcf'
U'dYf]cX' cZ h]a' Y' g' hYX']b' h\Y'68G"

: cfa UhUbX'G] [b]b['cZ6]X'

&\$"% h\Y'6]XXYf'g\U''dfYdUfY'cbY'cf] []bU' cZ h\Y'XcW'a' Ybhg' VŁa' df]g]b[' h\Y'6]X' Ug'
XYgV\YVYX']b' #H6' %&UbX' VYUf'ma' Uf_ ']h' ĀC F ÷ -B 5@Ā5' hYfbUh]j' Y'6]Xgž']ZdYfa']hYX'
]b' UWŁfXUbW'k']h' #H6' % ž'g\U''VY' VYUf'ma' Uf_YX' Ā5@H9F B 5H9 9Ā' -b' UXX']h' cbž'
h\Y'6]XXYf'g\U''g' Va']h' VŁd']Yg' cZ h\Y'6]Xž']b' h\Y'bi' a' VYf'gdYV\Z]YX']b' h\Y'68G' UbX'
VYUf'ma' Uf_ ' h\Y'a' Ā7C D M Ā' -b' h\Y'Yj' Ybh'cZ UbmX']g' VYdUbW' h' VYh' Yyb' h\Y'cf] []bU'
UbX' h\Y' VŁd']Ygž' h\Y'cf] []bU' g\U''dfY']U' "

&\$"& '6]XXYfg'g\U''a' Uf_ ' Ug' Ā7C B: -B 9B H5@Ā' U'']bZcfa' Uh]cb']b' h\Y'f'6]Xg'k' \]W' ']g'
VŁbZ]XYbh]U' hc' h\Y'f' Vi' g]bYgg' " h\g'a' Um]bW' XY' dfcd]f]Yh'fmi']bZcfa' Uh]cbž' hfUXY'
gYVYhgžcf' VŁa' a' YfV\U' cf' ž' bUbV\U' m' gYbg]h]j' Y']bZcfa' Uh]cb' "

&\$" ' h\Y'cf] []bU' UbX' U'' VŁd']Yg' cZ h\Y'6]X' g\U''VY' h' m' dYX' cf' k' f]hYb']b']bXY']V'Y']b_
UbX' g\U''VY'g] [bYX' Vmi' U'dYfgcb' Xi' ' m' U' h\cf]nYX' hc' g] [b' cb' VY\U' ZcZ h\Y'6]XXYf'
h\g'Ui' h\cf]nUh]cb' g\U'' VŁbg]gh'cZ U'k' f]hYb' VŁbZ]fa' Uh]cb' Ug'gdYV\Z]YX']b' h\Y'68G'
UbX' g\U''VY' U' h' U' VYX' hc' h\Y'6]X' " h\Y' bUa' Y' UbX' dcg]h]cb' \Y'X' Vmi' U' U' dYfgcb'
g] [b]b[' h\Y' U' h\cf]nUh]cb' a' i' gh' VY' h' m' dYX' cf' df]bhYX' VY'ck' h\Y'g] [b' U' h' fY' " 5'
dU']Yg' cZ h\Y'6]X' k' \YfY'Ybh'f]Yg'cf' Ua' YbXa' Ybhg' \Uj' Y' VYyb' a' UXY' g\U''VY'g] [bYX'
cf']b]h]YX' Vmh\Y' dYfgcb' g] [b]b[' h\Y'6]X' "

&\$"(' -b' VŁgy' h\Y'6]XXYf']g'U' > ž' h\Y'6]X' g\U''VY'g] [bYX' Vmi' Ub' U' h\cf]nYX' fYdfYgYbhUh]j' Y'
cZ h\Y' > ž' cb' VY\U' ZcZ h\Y' > ž' žUbX' gc' Ug'hc' VY'Y' [U' m' V']bX']b[' cb' U'' h\Y'a' Ya' VYfg'

"

"

Ug`Yj`JXYbWX`Vmi`U`dck`Yf`cZ`UhtcfbYmi`g][`bYX`Vmi`h`Y]f`Y[`U`mi`U`h`cf]nYX`fYdfYgYb`h`j`Yg`

&\$)`5bm]b`hYf!`]b`YU`h]cbz`YfUg`fYg`z`c`f`c`j`Yfk`f]h]b[`g`U`VY`j`U`X`c`b`m]Z`h`Ymi`UFY`g][`bYX`c`f]b]h]UYX`Vmi`h`Y`d`Yfg`c`b`g][`b]b[`h`Y`6]X`"

Gi`Va`[gg]cb`UbX`C`d`Yb]b[`c`Z`6]Xg`

GYU]b[`UbX`A`Uf_]b[`c`Z`6]Xg`

&%%`h`Y`6]XXYf`g`U`X`Y`j`Yf`h`Y`6]X`]b`U`g]b[`Y`z`g`Y`U`Y`X`Y`bj`Y`cd`Y`f`b`Y!`Y`bj`Y`cd`Y`6]XX]b[`d`f`c`W`gg`K`]h`]b`h`Y`g]b[`Y`Y`bj`Y`cd`Y`h`Y`6]XXYf`g`U`d`U`W`h`Y`Z`c`ck`]b[`g`Y`d`U`f`U`h`Y`z`g`Y`U`Y`X`Y`bj`Y`cd`Y`g`

fUŁ`]b`Ub`Ybj`Y`cd`Y`a`Uf_YX`Â`C`F`÷`B`5`@`Ä`U`X`c`W`a`Y`b`h`g`V`t`a`d`f]g]b[`h`Y`6]X`z`Ug`X`Y`g`W]V`Y`X`]b`H`6`%`&`/`UbX`"

fVŁ`]b`Ub`Ybj`Y`cd`Y`a`Uf_YX`Â`7`C`D`9`G`Ä`U`f`Yei`]f`Y`X`V`t`d]Y`g`c`Z`h`Y`6]X`/`UbX`"

fVŁ`]Z`U`h`Y`f`b`U`h`j`Y`6]X`g`U`F`Y`d`Y`f`a`]h`Y`X`]b`U`W`t`f`X`U`b`W`k`]h`H`6`%`z`U`b`X`]Z`f`Y`Y`j`U`b`h`

..`f]Ł`]b`Ub`Ybj`Y`cd`Y`a`Uf_YX`Â`C`F`÷`B`5`@`!`5`@`H`F`B`5`H`J`9`6`8`Ä`h`Y`U`h`Y`f`b`U`h`j`Y`6]X`/`UbX`"

..`f]]Ł`]b`h`Y`Y`bj`Y`cd`Y`a`Uf_YX`Â`7`C`D`9`G`!`5`@`H`F`B`5`H`J`9`6`8`Ä`U`f`Yei`]f`Y`X`V`t`d]Y`g`c`Z`h`Y`U`h`Y`f`b`U`h`j`Y`6]X`"

&%`&`h`Y`]b`b`Y`f`UbX`ci`h`Y`f`Y`bj`Y`cd`Y`g`U`"

fUŁ`V`Y`U`f`h`Y`b`U`a`Y`U`b`X`U`X`X`f`Y`g`g`c`Z`h`Y`6]XXYf`/`

fVŁ`V`Y`U`X`X`f`Y`g`g`Y`X`h`c`h`Y`9`a`d`c`m`Y`f`]b`U`W`t`f`X`U`b`W`k`]h`H`6`%`&`&`%`/`

fVŁ`V`Y`U`f`h`Y`g`d`Y`V`Z]W]X`Y`b`h]Z]W]h]c`b`c`Z`h`]g`6]XX]b[`d`f`c`W`gg`g`d`Y`V`Z]Y`X`]b`U`W`t`f`X`U`b`W`k`]h`6`8`G`%`&`/`UbX`"

fXŁ`V`Y`U`f`U`k`U`f`b]b[`b`c`h`h`c`d`Y`b`V`Y`Z`c`f`Y`h`Y`h`j`a`Y`U`b`X`X`U`h`Y`Z`c`f`6]X`c`d`Y`b]b[`"

&%"`Z`U`Y`bj`Y`cd`Y`g`U`F`Y`b`c`h`g`Y`U`Y`X`U`b`X`a`Uf_YX`U`g`f`Yei`]f`Y`X`Z`h`Y`9`a`d`c`m`Y`f`k`]`U`gg]`a`Y`b`c`f`Y`g`d`c`b`g]V`]h`m]Z`c`f`h`Y`a`]g`d`U`W`a`Y`b`h`c`f`d`f`Y`a`U`h`f`Y`c`d`Y`b]b[`c`Z`h`Y`6]X`"

8YUX`]b`Y`Z`c`f`Gi`Va`[gg]cb`c`Z`6]Xg`

&&%"`6]X`g`a`i`g`h`V`Y`f`Y`W`]j`Y`X`V`m`h`Y`9`a`d`c`m`Y`f`U`h`h`Y`U`X`X`f`Y`g`g`U`b`X`b`c`U`h`Y`f`h`U`b`h`Y`X`U`h`Y`U`b`X`h`j`a`Y`g`d`Y`V`Z]Y`X`]b`h`Y`6`8`G`"K`Y`b`g`c`g`d`Y`V`Z]Y`X`]b`h`Y`6`8`G`z`6]XXYf`g`U`U`j`Y`h`Y`c`d`h]c`b`c`Z`g]`Va`]h]b[`h`Y]f`6]X`g`Y`Y`W`f`c`b]W`m`6]XXYf`g`g]`Va`]h]b[`6]X`g`

"

"

Y'YVWfcb]W`mg\U``Zc`ck`h`Y`Y`YVWfcb]W6]X`g`Va`]gg]cb`dfcW`Xi`fYg`gdYVW]YX`]b`
h`Y`68G`"

&&"&`h`Y`9a`d`cmYf`a`Unž`Uh`]hg`X`]gWYh]cbž`YI`h`bX`h`Y`XYUX`]bY`Zcf`h`Y`g`Va`]gg]cb`cZ`
6]Xg`VmUa`YbX]b[`h`Y`6]XX]b[`XcW`a`Ybh]b`UW`fXUbW`k`]h`+6;`ž]b`k`\]W`Wbg`
U``f][`h`g]UbX`cV`][`Uh]cbg`cZ`h`Y`9a`d`cmYf`UbX`6]XXYfg`dfYj`]ci`g`mgj`V`YVW`h`c`h`Y`
XYUX`]bY`g\U``h`YfYUZhYf`VY`g`V`YVW`h`c`h`Y`XYUX`]bY`Ug`YI`h`bXYX`"

@hY`6]Xg`

&`"%`h`Y`9a`d`cmYf`g\U``bch`V`bg]XYf`Ubm`6]X`h`Uh`Uffj`Yg`UZhYf`h`Y`XYUX`]bY`Zcf`
g`Va`]gg]cb`cZ6]Xgž]b`UW`fXUbW`k`]h`+6&&""5bm6]X`fYVW]j`YX`Vm`h`Y`9a`d`cmYf`
UZhYf`h`Y`XYUX`]bY`Zcf`g`Va`]gg]cb`cZ6]Xg`g\U``VY`XYWUfYX`U`hž`fY`YVW`Xž`UbX`
fYh`fbYX`i`bcdYbYX`h`c`h`Y`6]XXYf`"

K`]h`Xfuk`UžG`Vgh]h`h]cbž`UbX`A`cX]Z]W]h]cb`cZ6]Xg`

&(`"%`5`6]XXYf`a`Um`k`]h`Xfuk`žg`Vgh]h`hYžcf`a`cX]Zm]hg`6]X`UZhYf`]h`\Ug`VYyb`g`Va`]hYX`
VmgybX]b[`U`k`f]hYb`bch]Wž`Xi`mg][`bYX`Vm`Ub`Ui`h`cf]nYX`fydfYgyb]h]j`Yž`UbX`
g\U``]bW`XY`UW`dm`cZ`h`Y`Ui`h`cf]nUh]cb`]b`UW`fXUbW`k`]h`+6&\$`žfYI`Wdh`h`Uh`
k`]h`Xfuk`U`bch]Wg`Xc`bch`fYei`]fY`V`d]Ygž`"h`Y`V`ffYgdc]bX]b[`g`Vgh]h`h]cb`cf`
a`cX]Z]W]h]cb`cZ`h`Y`6]X`a`i`gh`UW`a`d`Ub`m`h`Y`fYgdYVW]j`Y`k`f]hYb`bch]W`""`5`
bch]Wg`a`i`gh`VY`"

fUk`dfYdUfYX`UbX`g`Va`]hYX`]b`UW`fXUbW`k`]h`+6&\$`UbX`+6&%fYI`Wdh`h`Uh`
k`]h`Xfuk`U`g`bch]Wg`Xc`bch`fYei`]fY`V`d]Ygž`UbX`]b`UXX]h]cbž`h`Y`fYgdYVW]j`Y`
Ybj`Y`cdYg`g\U``VY`WUf`m`a`Uf`_YX`ĀK`+k`8F5K`5@Ā`ĀG`6GH`H`H`CB`Ā`
ĀA`C8÷÷75H`CB`Ā`UbX`"

fVĒ`fYVW]j`YX`Vm`h`Y`9a`d`cmYf`df]cf`h`c`h`Y`XYUX`]bY`dfYgW]VYX`Zcf`g`Va`]gg]cb`cZ`
6]Xgž]b`UW`fXUbW`k`]h`+6&&""

&(`"&`6]Xg`fYei`YghYX`h`c`VY`k`]h`Xfuk`b`]b`UW`fXUbW`k`]h`+6&(`"%g\U``VY`fYh`fbYX`
i`bcdYbYX`h`c`h`Y`6]XXYfg`"

&(`""`Bc`6]X`a`Um`VY`k`]h`Xfuk`bžg`Vgh]h`hYXžcf`a`cX]Z]YX`]b`h`Y`]bhYfj`U`VY`h`YYb`h`Y`
XYUX`]bY`Zcf`g`Va`]gg]cb`cZ6]Xg`UbX`h`Y`YI`d]fU]h]cb`cZ`h`Y`dYf]cX`cZ6]X`j`U`]X]h`m`
gdYVW]YX`Vm`h`Y`6]XXYf`cb`h`Y`@YhYf`cZ6]X`cf`Ub`m`YI`hYbg]cb`h`YfYcZ`"

6]X`C`dYb]b[`

&(`"%`9I`Wdh]b`h`Y`WbgYg`gdYVW]YX`]b`+6&`UbX`+6&(`&ž`h`Y`9a`d`cmYf`g\U``di`V`]Wm`
cdYb`UbX`fYUX`ci`h]b`UW`fXUbW`k`]h`h`]g`+6`U``6]Xg`fYVW]j`YX`Vm`h`Y`XYUX`]bYž`
Uh`h`Y`XUhYž`h]a`Y`UbX`d`UW`gdYVW]YX`]b`h`Y`68Gž`]b`h`Y`dfYgybW`cZ6]XXYfg]`
XYg][`bUhYX`fydfYgyb]h]j`Yg`UbX`UbncbY`k`c`W`ccgYg`h`c`UhYbX`"5bmigdYVW]W

"

"

Y'YVWfcb]W6]X'cdYb]b['dfcWXi fYgfYei]fYX]ZYVWfcb]W6]XX]b[']g'dYfa]HfYX']b'
UWVfXUbW'k]h' #6 &&%žg\U''VY'Ug'gdYVW]YX]b'h'Y'68G''

&) "& :]fghžYbj Y'cdYg'a Uf_YX'ĀK #k 8F5K 5@Āg\U''VY'cdYbYX'UbX'fYUX'ci h'UbX'h'Y'
Ybj Y'cdY'k]h' h'Y'VčffYgdcX]b['6]X'g\U''bch'VY'cdYbYX'Vi h'fYh'fbYX'hc'h'Y'
6]XXYf'' Bc'6]X' k]h'Xfuk U' g\U'' VY' dYfa]HfYX' i b'Ygg' h'Y' VčffYgdcX]b['
k]h'Xfuk U' bch]W' VčbH]bg'U'j U']X'Ui h'cf]nUh]cb'hc'fYei Ygh'h'Y'k]h'Xfuk U'UbX'
]g'fYUX'ci h'Uh6]X'cdYb]b[""

&) "' B YI hž Ybj Y'cdYg'a Uf_YX'ĀGĬ 6GH#H HCBĀg\U''VY'cdYbYX'UbX'fYUX'ci h'UbX'
YI V\Ub[YX'k]h' h'Y'VčffYgdcX]b['6]X'VY]b['g' Vgh]h' h'XžUbX'h'Y'g' Vgh]h' h'X'
6]X'g\U''bch'VY'cdYbYXžVi h'fYh'fbYX'hc'h'Y'6]XXYf''Bc'6]X'g' Vgh]h' h]cb'g\U''VY'
dYfa]HfYX' i b'Ygg' h'Y' VčffYgdcX]b['g' Vgh]h' h]cb' bch]W' VčbH]bg' U' j U']X'
Ui h'cf]nUh]cb'hc'fYei Ygh'h'Y'g' Vgh]h' h]cb'UbX']g'fYUX'ci h'Uh6]X'cdYb]b[""

&) "(B YI hž Ybj Y'cdYg'a Uf_YX'ĀA C8÷ ÷5HCBĀg\U''VY'cdYbYX'UbX'fYUX'ci h'k]h'
h'Y' VčffYgdcX]b['6]X''' Bc'6]X' a cX]Z]W]h]cb' g\U'' VY' dYfa]HfYX' i b'Ygg' h'Y'
VčffYgdcX]b['a cX]Z]W]h]cb' bch]W' VčbH]bg'U'j U']X'Ui h'cf]nUh]cb'hc'fYei Ygh'h'Y'
a cX]Z]W]h]cb'UbX']g'fYUX'ci h'Uh6]X'cdYb]b[""

&) ") B YI hž U''fYa U]b]b['Ybj Y'cdYg'g\U''VY'cdYbYX'cbY'Uh'U'h]a YžfYUX]b['ci h'h'Y'
bUa Y'cZ'h'Y'6]XXYf'UbX'k \Y'h'Yf'h'YfY']g'U'a cX]Z]W]h]cb'/h'Y'hc'U'6]X'Df]WždYf'
'ch'fVčbhfUWV']Z Udd']WV'Yž]bW'X]b['UbmX]gWč' bhg' UbX' U'h'fbUh]j Y'6]Xg/ h'Y'
dfYgYbW'cf'UVgYbW'cZ'U'6]X'GYWf]mcf'6]X!GYWf]b['8YVWfU]cbž]Z fYei]fYX/
UbX'Ubmich'Yf'XYH]j'g'Ug'h'Y'9a d'cmYf'a UmVčbg]XYf'Uddfcdf]UhY''''

&) "*" C b`m6]Xgž U'h'fbUh]j Y'6]Xg'UbX'X]gWč' bhg'h'Uh'UfY'cdYbYX'UbX'fYUX'ci h'Uh6]X'
cdYb]b['g\U''VY'Včbg]XYfYX'Z' f'h'Yf'Zcf'Y'U'i Uh]cb''h'Y'@Y'h'f'cZ6]X'UbX'h'Y'6]''
cZE i Ubh]h]Yg'UfY'hc'VY']b]h]U'YX'Vm'fYdfYgYbH]j YgcZ'h'Y'9a d'cmYf'U'h'YbX]b['6]X'
cdYb]b[']b'h'Y'a UbbYf'gdYVW]YX]b'h'Y'68G''

&) "+ h'Y'9a d'cmYf'g\U''bY]h'Yf'X]gWgg' h'Y'a Yf]hg'cZ'Ubm6]X'bcf'fY'YVh'Ubm6]X'
fYI WdhZcf''Uh'6]Xgž]b'UWVfXUbW'k]h' #6 &' %ž''

&) ", h'Y'9a d'cmYf'g\U''dfYdUfY'U'fYVčfX'cZ'h'Y'6]X'cdYb]b['h'Uh'g\U'']bW'XYžUg'U'
a]b]a i a .

fUč'h'Y'bUa Y'cZ'h'Y'6]XXYf'UbX'k \Y'h'Yf'h'YfY']g'U'k]h'Xfuk U'žg' Vgh]h' h]cbžcf'
a cX]Z]W]h]cb/'

fVč'h'Y'6]X'Df]WždYf'ch'fVčbhfUWV']Z Udd']WV'Yž]bW'X]b['UbmX]gWč' bhg/'

fVč'UbmU'h'fbUh]j Y'6]Xg/'

"

"

fXŁhY`dfYgybW`cfUVgybW`cZU`6]X`GYWf]mă]ZcbY`k Ug`fYei]fYX`"

&)"-` H`Y`6]XXYfg`fYdfYgybU`h] Yg`k`c`U`fY`dfYgyb`h`g`U`VY`fYei YghYX`hc`g][b`h`Y`fYVŁfx`"H`Y`ca]gg]cb`cZU`6]XXYf`g]g][bU`h`fY`cb`h`Y`fYVŁfx`g`U`bch`]bj U`]XU`h`h`Y`VŁbhYbhg`UbX`YZZV`icZ`h`Y`fYVŁfx`"5`VŁdmcZ`h`Y`fYVŁfx`g`U`VY`X]gf]Vi`hYX`hc`U`6]XXYfg`"

9] Ui Uh]cb`UbX`7ca dUf]gcb`cZ6]Xg

7cbZXYbh]U`]m

&*"%"` bZcfa Uh]cb`fY`Uh]b[`hc`h`Y`Yj Ui Uh]cb`cZ6]Xg`UbX`fYVŁa`a`YbXUh]cb`cZVŁbhFU`U`Uk UfX`g`U`bch`VY`X]gVŁcgYX`hc`6]XXYfg`cf`Ubmich`Yf`dYfgcbg`bch`cZ]VU`mi`VŁbWfbYX`k`]h`h`Y`6]XX]b[`dfcWgg]`bh`]bZcfa Uh]cb`cb`b`hYbh]cb`hc`5k UfX`h`Y`7cbhfU`U`]g`fUbg`]hYX`hc`U`6]XXYfg`]b`U`VŁfxUbW`k`]h`#Ł`('`"

&*"&` 5bmYZZcfhVmiU`6]XXYf`hc`]bZi`YbW`h`Y`9a`d`cmYf`]b`h`Y`Yj Ui Uh]cb`cZ`h`Y`6]Xg`cf`7cbhfU`U`Uk UfX`XYV]g]cbg`a`Um`fYg`h`]b`h`Y`fY`YV]cb`cZ]hg`6]X`"

&*" "` Bc`h`k`]h`g`UbX]b[`#Ł`&*"&Zcfa`h`Y`h`a`Y`cZ6]X`cdYb]b[`hc`h`Y`h`a`Y`cZ7cbhfU`U`Uk UfX`Z]ZU`6]XXYf`k`]g`Yg`hc`VŁbhU`U`h`Y`9a`d`cmYf`cb`Ubma`U`hYf`fY`U`hYX`hc`h`Y`6]XX]b[`dfcWgg]`hg`U`Xc`gc`]b`k`f]h]b["`

DfY`ja]bUfm]Ua]bUh]cb`/`7`Uf]ZVWh]cb`cZ6]Xg

&+"%"` Df]cf`hc`h`Y`XYH]YX`Yj Ui Uh]cb`Z`di`fg] Ub`h`hc`#Ł`"`)`Z`h`Y`9a`d`cmYf`k`]`VŁbXi`V`dfY`ja]bUfm]Ua]bUh]cb`cZU`V]Xg`h`Uh`U`Uj`Y`VYyb`fYVW]j`YX`Vmi`h`Y`XYUX`]bY`Zcf`V]X`g]`Va`]gg]cb`UbX`cdYbYX`U`h`h`Y`di`V`]VW]X`cdYb]b[`Ug`h`Y`Z]fgh`ghYd`h`k`UfXg`XYH`fa`]bUh]cb`cZ`h`Y`f`g]`Vg`Ubh]U`fYgdcbg]j`YbYgg`hc`h`Y`V]XX]b[`XcW`a`Ybh`h`Y`9a`d`cmYf`g]`XYH`fa`]bUh]cb`cZ`U`V]X`g]`fYgdcbg]j`YbYgg`]g`hc`VY`VUgYX`cb`h`Y`VŁbhYbhg`cZ`h`Y`V]X`]hgY`Z`Ug`XYZ]bYX`]b`#Ł`%%`k`]h`ci`h`fYVŁi`fgY`hc`Yi`hf]bg]W`Yj`]XYbW`"h`Y`9a`d`cmYf`k`]`j`Yf]ZmUbX`Yi`Ua]bY`V]Xg`hc`XYH`fa`]bY`k`Y`h`Yf`h`Ymi`UfY`VŁa`d`YH`ZdfcdYfmg][`bYX`hc`V]bX`h`Y`V]XXYf`Za`YH`Y`][`jV`]mifYei`]fYa`Ybhg`cZ`V]XXYfg`Z`a`U`hYf]Ug`Z`Yei`]da`Ybh`Z`UbX`gYfj`]Wg`Z`V]XXYfg`U`Uj`Y`bc`VŁbZ]V`icZ`]bhYfYgh`UbX`U`Uj`Y`dfcj`]XYX`fYei`]fYX`6]X`j`U`]X]mă`6]X`GYWf]mıcf`6]X`GYWf]b[`8YVUfU]cb`Z`Ug`fYei`]fYX`UbX`ch`Yf`YggYbh]U`XcW`a`Ybhg`hc`VŁa`d`YH`h`Y`Yj Ui Uh]cb`Z`UbX`k`Y`h`Yf`h`Y`V]Xg`UfY`[`YbYfU`m]b`cfXYf`"Gi`V`YV`h`c`#Ł`&+"&`UbX`&+"`Z`6]Xg`Z]j]b[`hc`a`YH`h`Y`Uvcj`Y`fYei`]fYa`Ybhg`g`U`VY`fY`YV]X`UbX`bch`fYH]bYX`Zcf`Z`f`h`Yf`fYj`jYk`"

Hc`Ugg]gh`]b`h`Y`Yi`Ua]bUh]cb`Z`Yj Ui Uh]cb`Z`UbX`VŁa`dUf]gcb`cZ`h`Y`6]Xg`Z`UbX`ei`U`]ZVWh]cb`cZ`h`Y`6]XXYfg`Z`h`Y`9a`d`cmYf`a`Un`Z`Uh]hg`X]gV`YH]cb`Z`Ug`Ubmi`6]XXYf`Zcf`U`VWUf]ZVWh]cb`cZ`]hg`6]X`Z`[`j`Yb`U`fYUgc`bU`Y`h`a`Y`Zcf`U`fYgdcbgY`"5bmYVUf]ZVWh]cb`g]`Va`]hYX`VmiU`6]XXYf`h`Uh]g]bch`]b`fYgdcbgY`hc`U`fYei`Ygh`Vmi`h`Y`9a`d`cmYf`g`U`bch`VY`VŁbg]XYfYX`"h`Y`9a`d`cmYf`g]fYei`Ygh`Zcf`WUf]ZVWh]cb`UbX`h`Y`fYgdcbgY`g`U`VY`]b`k`f]h]b["`Bc`V`U`b[`Y`Z`]bW`X]b[`Ubm]c`i`bhUfm]bWYUgY`cf`XYVWYUgY`Z`]b`h`Y`df]Wgcf`g]`Vg`UbW`cZ`h`Y`6]X`g`U`"

"

"

VY'gci [\hčcZYfYXžcf'dYfa]hYXžYI Wdhlc'VčbZfa 'hY'VčffYV]cb'cZUf]h'a Yh]WVffcf'g
X]gVčj YfYX'Vm'hY'9a d'cmYf'j'b'hY'Yj Ui Uh]cb'cZ'hY'6]Xgž]b'UWčfXUbW'k]h' +6' '%"

Ž U'6]XXYf'XcYg'bch'dfcj]XY'WUf]Z]W]h]cbg'cZ]hg'6]X'Vm'hY'XUhY'UbX'h]a Y'gyh]b'hY'
9a d'cmYf]g'fYei Ygh'Zcf'WUf]Z]W]h]cbž]hg'6]X'a UmVY'fY'YVWX"

8Yj]Uh]cbgžFYgyfj Uh]cbgžUbX'Ca]gg]cbg'

&,% 8i f]b['hY'Yj Ui Uh]cb'cZ6]Xgž'hY'Zc`ck]b['XYZ]b]h]cbg'Udd'm'

fUč: Ā8Yj]Uh]cbĀ'jg'U'XYdUfh'fY'Zca 'hY'fYei]fYa Ybhg'gdYV]ZYX']b'hY'6]XX]b['
XcW'a Ybh'

fVč: ĀFYgyfj Uh]cbĀ'jg' hY' gyh]b['cZ`ja]h]b['VčbX]h]cbg'cf'k]h'c'X]b['Zca '
Vča d'Yh' UWWdhUbW' cZ hY' fYei]fYa Ybhg' gdYV]ZYX']b'hY' 6]XX]b['
XcW'a Ybh'UbX'

fVč: ĀCa]gg]cbĀ'jg' hY' Z]i fY' hč' g' Va]h' dUfh'cf' U` cZ hY']bZca Uh]cb'cf'
XcW'a YbhUh]cb'fYei]fYX']b'hY'6]XX]b['XcW'a Ybh'

8YhYfa]bUh]cb'cZFYgdcbg]j YbYgg'

&-% : c`ck]b['hY'fY'YV]cb'cZ6]Xg]ZUbñ'di fgi Ubh'hc' +6' &+ž Ug'hY'bYI h'ghYdž'hY'
fYa U]b]b['6]Xg' k]` VY' ž fhYf' fYj]Yk YX' hč' XYhYfa]bY' hY]f' gi VghUbh]U'
fYgdcbg]j YbYgg'hY'9a d'cmYf]g'XYhYfa]bUh]cb'cZU'6]X]g'fYgdcbg]j YbYgg]g'h' VY'
VUgYX'cb'hY'VčbhYbhg'cZ'hY'6]X']hgY'ž Ug'XYZ]bYX']b' +6' %%"

&-"5'gi VghUbh]U`m'fYgdcbg]j Y'6]X']g'cbY'h'Uha YYhg'hY'fYei]fYa Ybhg'cZ'hY'6]XX]b['
XcW'a Ybh'k]h'ci h' a UhYf]U' XYj]Uh]cbž'fYgyfj Uh]cbž'cf' ca]gg]cb'" 5' a UhYf]U'
XYj]Uh]cbž'fYgyfj Uh]cbž'cf'ca]gg]cb']g'cbY'h'Uhž

fUč:]ZUWWdhYXžk ci `X'`

f]č: UZZYV]j]b'Ubmgi VghUbh]U'k Um'hY'gVčdYžei U]mž'cf'dYfZca UbW'cZ'hY'
K cf_g'gdYV]ZYX']b'hY'7cbhfUW'cf'

f]č: `ja]h]b'Ubmgi VghUbh]U'k Unž]bVčbg]ghYbhk]h'hY'6]XX]b['XcW'a Ybhž'hY'
9a d'cmYf]g' f][\hg'cf' hY' 6]XXYf]g' cV][Uh]cbg' i bXYf' hY' dfcdcgYX'
7cbhfUW'cf'

fVč:]ZfYV]ZYXžk ci `X'i bZ]f'm'UZZYV]hY'Vča dYh]h]j Y'dcg]h]cb'cZ'hY'f'6]XXYfg'
dfYgybh]b['gi VghUbh]U`m'fYgdcbg]j Y'6]Xg"

&-"` hY'9a d'cmYf'g'U`YI Ua]bY'hY'hYVb]W' UgdYV]g'cZ'hY'6]X']b'UWčfXUbW'k]h'
+6' %'ž +6' %+ž +6' &-ž +6' " \$ž68G']ZUdd']WV'Yž UbX'GYV]cb' =9j Ui Uh]cb'UbX'
E i U]Z]W]h]cb'7f]hYf]U']b'dUfh]W' Ufžhc' VčbZfa 'h'UhU'fYei]fYa Ybhg'cZGYV]cb'J =ž

"

"

K cf_gAFYeI jfYa Ybhg\Uj Y VYYb'a Yhk jhaci hUbmia UhYfjU'XYj jUhcbzYgYfj Uhcb'cf'ca jggjcb'"Hc'h jg YbXž j b'VēbgjXYfUhcb'cZ hY'a UhYfjU'jmicZ UbmXYj jUhcbgž fYgYfj Uhcbg'cf'ca jggjcbgž 6jXg'Zj]b['hc'a YYh' hY' a UbXUhc fm hYVb]W' fYeI jfYa Ybhg'cf'a j]a i a 'dUggjZj' hYVb]W'Wj hYfjU'cf'Zj]b['hc'g' VgUbhjU'mi a YYh'UbmichYf' hYVb]W' fYeI jfYa Ybhg'cZ hY'V]X]b['XcW'a Ybh'k j''fjg_ hY'f' fY'YVjcb"

&- "('hY' 9a d'cnYf' g\U' gja j'Ufmi Yi Ua jby' hY' Vēa a YfVjU' UgdYVtg cZ hY' V]Xg' j bW' X]b[' Ubm XYj jUhcbgž chYf' hU' hYVb]W' gdYVjZVUhcbgž g' Va j'hYX' j b' fYgdcbgY' hc' hY' dfcj jgcbg' cZ hY' V]XX]b[' XcW'a Ybhž hc' XYhYfa jby' jZ hYmi VēbZcfa' hc' hY' hYfa g'UbX'VēbX]hcbg'cZ hY' XfUZhVēbhfUmiUbX'chYf'XcW'a Ybhg' j bW' XYX' j b' hY'V]XX]b[' XcW'a Ybhk jhaci hUbmia UhYfjU'XYj jUhcbzYgYfj Uhcb'cf'ca jggjcbž UbX' YghU'jg\ a Ybh'cZ a UhYfjU'jmi j b' g' W' UgdYVtg k j''gja j'Ufmi fjg_ fY'YVjcb'cZ hY'6jXg"

&-") 'Z U' 6jX' jg bchi g' VgUbhjU'mi fYgdcbgj] Y' hc' hY' fYeI jfYa Ybhg' cZ hY' 6jXX]b[' XcW'a Ybhž jh'g\U' VY' fY'YVjX' Vmi hY' 9a d'cnYf' UbX' a Umbch'g' VgYeI Ybhmi VY' a UXY' fYgdcbgj] Y' Vmi VēffYVjcb' cZ hY' a UhYfjU' XYj jUhcbz fYgYfj Uhcbž cf'ca jggjcb'"5''chYf'V]Xg'XYhYfa jbyX'g' VgUbhjU'mi fYgdcbgj] Y'k j''VY' fYhU]bYX'Zcf'Z fhYf'Yj Ui Uhcb"

Bcba UhYfjU' BcbVēbZcfa jhYg'

' \$'% Dfcj jXYX' hUhi U' 6jX' jg' g' VgUbhjU'mi fYgdcbgj] Yž hY' 9a d'cnYf' a Umik Uj] Y' Ubm bcbVēbZcfa jhYg' j b' hY' 6jX'"

' \$"& Dfcj jXYX' hUhi U' 6jX' jg' g' VgUbhjU'mi fYgdcbgj] Yž hY' 9a d'cnYf' a UmifYeI Ygh' hUhi hY' 6jXXYf' g' Va jh' hY' bYVWggUfm j bZcfa Uhcb' cf' XcW'a YbhUhcbž k jh' j b' U' fYUgcbUV'Y' dYf]cX' cZ hja Yž hc' fYVjZmibcba UhYfjU' bcbVēbZcfa jhYg' j b' hY' 6jX' fY'UhYX' hc' XcW'a YbhUhcb' fYeI jfYa Ybhg'" FYeI Ygh]b[' j bZcfa Uhcb' cf' XcW'a YbhUhcb'cb'g' W' bcbVēbZcfa jhYg' g\U' bch VY' fY'UhYX' hc' Ubm UgdYVmi cZ hY' df]W' cZ hY' 6jX'" : Uj i fY' cZ hY' 6jXXYf' hc' Vēa d'mik jh' hY' fYeI Yghia UmfYg' h' j b' hY' fY'YVjcb' cZ jhg' 6jX'"

' \$"" Dfcj jXYX' hUhi U' 6jX' jg' g' VgUbhjU'mi fYgdcbgj] Yž hY' 9a d'cnYf' g\U' fYVjZmi ei Ubh]ZjUV'Y' bcbba UhYfjU' bcbVēbZcfa jhYg' fY'UhYX' hc' hY' 6jX' Df]W'" Hc' h' jg' YZZVē hY' 6jX' Df]W' g\U' VY' UX↑ ghYXžZcf' Vēa dUf]gcb' di fdcgYg'cb'nž hc' fYZYVmi hY' df]W' cZ U'a jggj b[' cf' bcb! VēbZcfa j b[' jh'Ya 'cf' Vēa dcbYbh'UbX' Vēgh'g' Uggc' VjUhYXž jZ Ub nž k jh' bcb! a UhYfjU'XYj jUhcbgž fYgYfj Uhcbg'UbX'ca jggjcbg'hc' hY' fYeI jfYa Ybhg' cZ hY' V]XX]b[' XcW'a Ybhg' j b' hY' a Ubbyf'gdYVjYX' j b' hY' 68G"

7cffYVjcb'cZ5f]h'a Yh]W' 9ffcfg'

"

"

'%% Dfcj JXYX`hUh`hY`6jX`jg`g VgUbhjU`m`fYgdcbgj YZ`hY`9a`d`cmYf`gU`V`ffYVh`
Ufj`h`a`Yh`W`Yffcf`g`cb`hY`Zc`ck`j`b`V`Ug`j`g`

fU` JZ`hYfY`j`g`U`X`j`g`WYdUbVh`VYh`YYb`hY`i`b`j`h`dfj`W`UbX`hY`hc`hU`dfj`W`h`Uh`j`g`
c`VhU`j`b`YX`V`m`a`i`h`d`n`j`b`hY`i`b`j`h`dfj`W`UbX`ei`Ubh`m`z`hY`i`b`j`h`dfj`W`g`U`
dfYj`U`UbX`hY`hc`hU`dfj`W`g`U`VY`V`ffYVh`X`Z`i`b`Ygg`j`b`hY`cd`j`b`cb`c`Z`hY`
9a`d`cmYf`hYfY`j`g`Ub`c`Vj`j`ci`g`a`j`gd`U`W`a`Y`bh`c`Z`hY`XY`W`a`U`dc`j`bh`j`b`hY`i`b`j`h`
dfj`W`z`j`b`k`\\j`W`W`gY`hY`hc`hU`dfj`W`U`g`ei`c`hY`X`g`U`[`c`j`Y`fb`UbX`hY`i`b`j`h`dfj`W`
g`U`VY`V`ffYVh`X`/`

fV` JZ`hYfY`j`g`Ub`Y`ffcf`j`b`U`hc`hU`V`ffYgdc`b`X`j`b`h`hY`U`X`j`h`cb`cf`g`V`h`U`W`j`cb`c`Z`
g`V`hc`hU`g`z`hY`g`V`hc`hU`g`g`U`dfYj`U`UbX`hY`hc`hU`g`U`VY`V`ffYVh`X`/`UbX`

fV` JZ`hYfY`j`g`U`X`j`g`WYdUbVh`VYh`YYb`k`c`f`X`g`UbX`Z`[`i`fYg`z`hY`U`a`ci`bh`j`b`k`c`f`X`g`
g`U`dfYj`U`j`z`i`b`Ygg`hY`U`a`ci`bh`Yl`dfYgg`YX`j`b`k`c`f`X`g`j`g`fY`U`hY`X`h`c`Ub`
Ufj`h`a`Yh`W`Yffcf`z`j`b`k`\\j`W`W`gY`hY`U`a`ci`bh`j`b`Z`[`i`fYg`g`U`dfYj`U`g`V`Y`W`h`c`
fU`UbX`fV`U`V`c`j`Y`"

'%&`6jXXYfg`g`U`VY`fYei`Yg`hY`h`U`W`dh`V`ffYVh`j`cb`c`Z`Ufj`h`a`Yh`W`Yffcf`g`U`j`i`fY`h`c`
U`W`dh`hY`V`ffYVh`j`cb`j`b`U`W`f`X`Ub`W`k`j`h`+`h`'%%z`g`U`fYg`h`j`b`hY`fY`V`W`j`cb`c`Z`
hY`6jX`"

7cbj Yfgjcb`h`Gj`b`Y`7i`ffYbVh`

'&%`:`c`f`Y`j`U`i`U`h`cb`UbX`V`a`d`Uf`j`cb`di`f`dcg`Yg`z`hY`W`ffYbVh`j`Yg`c`Z`hY`6jX`g`U`VY`
V`bj`Y`hY`X`j`b`h`c`U`g`j`b`Y`W`ffYbVh`U`g`d`Y`W`j`YX`j`b`hY`68G`"

A Uf`j`b`c`Z`d`fY`Z`fY`b`W`

' '%`I`b`Ygg`c`hY`fk`j`gY`g`d`Y`W`j`YX`j`b`hY`68G`bc`a`Uf`j`b`c`Z`X`ca`Y`g`h`W`cf`fY`j`cb`U`
d`fY`Z`fY`b`W`g`U`U`dd`m`i`z`U`a`Uf`j`b`c`Z`d`fY`Z`fY`b`W`j`g`U`dd`j`W`W`Y`Z`hY`U`dd`j`W`h`cb`
a`Y`h`c`X`c`c`[`m`g`U`VY`U`g`d`Y`W`j`YX`j`b`G`Y`W`j`cb`=`z`9j`U`i`U`h`cb`UbX`E`i`U`j`Z`W`h`cb`
7f`j`hY`f`j`U`z`UbX`j`b`U`W`f`X`Ub`W`k`j`h`hY`d`fcj`j`g`c`bg`g`h`di`U`hY`X`j`b`hY`6Ub`_`g`
D`fc`W`f`Y`a`Y`bh`f`U`a`Y`k`c`f`_`"

Gi V`b`b`f`U`W`c`f`g`

' ('%`I`b`Ygg`c`hY`fk`j`gY`g`U`hY`X`j`b`hY`68G`z`hY`9a`d`cmYf`X`c`Y`g`b`ch`j`b`hY`b`X`h`c`Yl`Y`W`hY`U`b`m`i`
g`d`Y`W`j`Y`W`Y`a`Y`bh`g`c`Z`hY`K`c`f`_`g`V`m`g`V`b`b`f`U`W`c`f`g`gY`Y`W`h`X`j`b`U`X`j`Ub`W`V`m`h`Y`
9a`d`cmYf`"

' ('&`6jXXYfg`a`U`m`d`f`c`d`c`gY`g`V`b`b`f`U`W`j`b`[`i`d`h`c`hY`d`Y`f`W`b`hU`Y`c`Z`h`c`hU`j`U`i`Y`c`Z`
V`b`b`f`U`W`j`c`f`hY`j`c`i`a`Y`c`Z`k`c`f`_`g`U`g`d`Y`W`j`YX`j`b`hY`68G`Gi`V`b`b`f`U`W`c`f`g`
d`f`c`d`c`gY`X`V`m`h`Y`6jXXYfg`g`U`VY`Z`"mei`U`j`Y`X`Z`c`f`hY`j`f`d`U`f`h`g`c`Z`hY`K`c`f`_`g`"

"

"

' (" ' H\Y'g' V\ebfU\cf\ei U]Z\W\h\cbg\g\U''bchVY'i gYX'VmH\Y'6]XXYf'hc'ei U]Z\mZcf' H\Y'K cf_gi b'Ygg'h\Y]f'gdYV\U]nYX'dUfhg'cZ\H\Y'K cf_gk YfY'dfYj]ci g'mXYg]] bU\H\Y' VmH\Y'9a d'cmYf']b'h\Y'68G'Ug'W\ub'VY'a YhVmgi V\ebfU\cf\fgfYZYffYX'hc'\YfYUZhYf' Ug'\GdYV\U]nYX'Gi V\ebfU\cf\fg\]b'k\]W\W\gYzh\Y'ei U]Z\W\h\cbg'k]h'fYgdYV\hc' cb'm'h\Y'gdYV\W\k cf_Yl dYf]YbW'cZ\H\Y'GdYV\U]nYX'Gi V\ebfU\cf\fgdfcdcgYX'Vm H\Y'6]XXYf'a UmVY'UXXYX'hc'h\Y'ei U]Z\W\h\cbg'cZ\H\Y'6]XXYf"

9j Ui Uhjcb'cZ6]Xg

') "% H\Y'9a d'cmYf'g\U''i gY'h\Y'W]hYf]U'UbX'a Yh\cXc'c[]Yg']ghYX']b'h']g' #H6' UbX' GYV\cb' =>9j Ui Uhjcb'UbX'E i U]Z\W\h\cb'7f]hYf]U'"Bc'ch\Yf'Yj Ui Uhjcb'W]hYf]U'cf' a Yh\cXc'c[]Yg'g\U''VY'dYfa]hYX'"6mUdd'n]b['h\Y'W]hYf]U'UbX'a Yh\cXc'c[]Yg' h\Y'9a d'cmYf'g\U''XYhYfa]bY'h\Y'g' W\ggZ' ``6]X'cf'6]Xg']b'UW\cfXUbW'k]h' #H6' (\$"

') "& Hc' Yj Ui UH' ``6]Xgž h\Y'9a d'cmYf'g\U'' V\ebg]XYf' h\Y' Zc'`ck]b['Z\W\cfgž]b' UW\cfXUbW'k]h' h\Y'Yj Ui Uhjcb'UbX' Uk UfX' W]hYf]U' Ug' Udd']W\V'Y' Zcf' g]b['Y' V\ebfU\cf'fcbY'`chž`chg'fV\ebfU\cf'cf' dUW\U[Yg'fV\ea V]bUhjcb'cZ`chg' UbX' Ug' gdYV\Z]YX'i bXYf'GYV\cb' =>9j Ui Uhjcb'UbX'E i U]Z\W\h\cb'7f]hYf]U'.

UŁ h\Y'6]X'df]Wž Yl Wl X]b['Dfcj]g]cbU' Gi a g' UbX' h\Y' dfcj]g]cbž]Z Ubnž Zcf' V\eb]b[YbW]Yg']b' h\Y'Gi a a Ufm6]``cZ E i Ub]h]Ygž Vi h']bWl X]b['8Unk cf_]hYa gžk \YfY'df]W\X'V\ea dYh]h] Ym'

VŁ df]W'UX↑ għa YbhZcf'V\effYV\cb'cZUf]h\ a Yh]WYffcfg']b'UW\cfXUbW'k]h' #H6' '%%/

WŁ df]W'UX↑ għa YbhXi Y'hc'X]gW\i bhg'cZYfYX']b'UW\cfXUbW'k]h' #H6' %&%'ž #H6' %\ ("ž #H6' %\ ("* UbX' #H6' %\ (" +/

XŁ V\ebj Yfh]b['h\Y'Ua ci bhYfYg' `h]b['Zfca 'Udd'n]b['fUŁ'hc'fW\UWcj Yž]ZfY'Yj Ubhž hc'U'g]b['Y'WffYbW\h]b'UW\cfXUbW'k]h' #H6' " &/

YŁ df]W' UX↑ għa Ybh' Xi Y' hc' ei Ub]Z]UV'Y' bcba UHf]U' bcbV\ebZcf'a]h]Yg']b' UW\cfXUbW'k]h' #H6' "\$" /

ZŁ h\Y' UXX]h]cbU' Yj Ui Uhjcb' Z\W\cf'gdYV\Z]YX']b' h\Y' 68G' UbX' GYV\cb' =>9j Ui Uhjcb'UbX'E i U]Z\W\h\cb'7f]hYf]U/UbX'

[Ł df]W'UX↑ għa YbhXi Y'hc'Udd']W\h\cb'cZA Uf[]b'cZDFYZYfYbWž]ZUdd']W\V'Yž Ug'dYf'68G'cZ #H6' " ' %žUbX'GYV\cb' =>9j Ui Uhjcb'UbX'E i U]Z\W\h\cb'7f]hYf]U"

') " ' H\Y'Ygh]a UH\X'YZZV\h'cZ h\Y'df]W'UX↑ għa Ybh dfcj]g]cbg'cZ h\Y'7cbX]h]cbg'cZ 7cbhfU\W\Udd']YX'cj Yf'h\Y'dYf]cX'cZYl YW]h]cb'cZ h\Y'7cbhfU\W\g\U''bchVY'fU_Yb']bhc'UW\cf'bh]b'6]X'Yj Ui Uhjcb'"

"

"

') (" ' Z h] g ' 6] X X] b [' X c W a Y b h U ' c k g ' 6] X X Y f g ' h c ' e i c h Y ' g Y d U f U H Y ' d f] W g ' Z c f ' X] Z Y f Y b h ' c h g ' f V e b h f U M g Z h Y ' a Y h c X c ' c [m h c X Y h Y f a] b Y ' h Y ' c k Y g h Y j U i U H Y X ' V e g h c Z h Y ' c h f V e b h f U M V e a V] b U h] c b g z ' b W i X] b [' U b m X] g V e i b h g ' c Z Y f Y X '] b ' h Y ' @ Y h Y f ' c Z 6] X z] g g d Y V] Z Y X '] b ' G Y V] c b ' = z 9 U i U h] c b ' U b X ' E i U] Z V h] c b ' 7 f] h Y f] U "

7ca dUf]gcb'cZ6]Xg

' * "% h Y ' 9 a d ' c m Y f ' g \ U ' ' V e a d U f Y ' h Y ' Y j U i U H Y X ' V e g h g ' c Z U ' ' g ' V g h U b h] U ' m f Y g d c b g] j Y ' 6] X g Y g U V '] g Y X '] b ' U M e f X U b W ' k] h ' + h 6 ' ') "& h c ' X Y h Y f a] b Y ' h Y ' 6] X ' h U h \ U g ' h Y ' c k Y g h Y j U i U H Y X ' V e g h "

5Vbcfa U`m@k`6]Xg

' + "% 5 b ' 5 V b c f a U ` m @ k ` 6] X '] g ' c b Y ' k \ Y f Y ' h Y ' 6] X ' d f] W z '] b ' V e a V] b U h] c b ' k] h ' c h Y f ' Y Y a Y b h g ' c Z h Y ' 6] X z U d d Y U f g ' g c ' c k ' h U h] h f U] g Y g a U h Y f] U ' V e b W f b g ' U g ' h c ' h Y ' W d U V]] m h c Z h Y ' 6] X X Y f '] b ' f Y [U f X g ' h c ' h Y ' 6] X X Y f ' g U V]] m h c ' d Y f Z c f a ' h Y ' 7 c b h f U M h Z c f ' h Y ' c Z Y f Y X ' 6] X ' D f] W "

' + "& ' b h Y ' Y j Y b h c Z] X Y b h] Z V h] c b ' c Z U ' d c h Y b h] U ' m 5 V b c f a U ` m @ k ` 6] X z h Y ' 9 a d ' c m Y f ' g \ U ' ' g Y Y _ ' k f] h Y b ' W U f] Z V h] c b g Z c a ' h Y ' 6] X X Y f z '] b W i X] b [' X Y h U] Y X ' d f] W ' U b U n g Y g ' c Z] h g ' 6] X ' d f] W '] b ' f Y ' U h] c b ' h c ' h Y ' g ' V Y V i a U h Y f ' c Z h Y ' V e b h f U M z g V e d Y z d f c d c g Y X ' a Y h c X c ' c [n z g W Y X i ' Y z U ' c W h] c b ' c Z f] g _ g U b X ' f Y g d c b g] V]] h Y g ' U b X ' U b m i c h Y f ' f Y e i] f Y a Y b h g ' c Z h Y ' 6] X X] b [' X c W a Y b h "

' + " ' 5 Z h Y f Y j U i U h] c b ' c Z h Y ' d f] W ' U b U n g Y g z '] b ' h Y ' Y j Y b h h U h h Y ' 9 a d ' c m Y f ' X Y h Y f a] b Y g ' h U h h Y ' 6] X X Y f ' \ U g ' Z U] Y X ' h c ' X Y a c b g h f U H '] h g ' W d U V]] m h c ' d Y f Z c f a ' h Y ' 7 c b h f U M h Z c f ' h Y ' c Z Y f Y X ' 6] X ' D f] W z h Y ' 9 a d ' c m Y f ' a U m f Y Y V h h Y ' 6] X "

I bVUUbWX'cf': fcbh@cUXYX'6]Xg

' , "% Z h Y ' 6] X ' h U h] g ' Y j U i U H Y X ' U g ' h Y ' c k Y g h Y j U i U H Y X ' V e g h] g z '] b ' h Y ' 9 a d ' c m Y f ' g c d] b] c b z g Y f] c i g m i b V U U b W X ' c f ' Z c b h ' c U X Y X z h Y ' 9 a d ' c m Y f ' a U m f Y e i] f Y ' h Y ' 6] X X Y f ' h c ' d f c j] X Y ' k f] h Y b ' W U f] Z V h] c b g " 7 ' U f] Z V h] c b g ' a U m] b W i X Y X Y h U] Y X ' d f] W ' U b U n g Y g ' h c ' X Y a c b g h f U H ' h Y ' V e b g] g h Y b W h c Z h Y ' 6] X ' d f] W g ' k] h ' h Y ' g V e d Y ' c Z k c f _ g z d f c d c g Y X ' a Y h c X c ' c [n z g W Y X i ' Y ' U b X ' U b m i c h Y f ' f Y e i] f Y a Y b h g ' c Z h Y ' 6] X X] b [' X c W a Y b h "

' , "& ' 5 Z h Y f ' h Y ' Y j U i U h] c b ' c Z h Y '] b Z c f a U h] c b ' U b X ' X Y h U] Y X ' d f] W ' U b U n g] g d f Y g Y b h Y X ' V m i h Y ' 6] X X Y f z h Y ' 9 a d ' c m Y f ' a U m U g ' U d d f c d f] U H . "

f U E ' U W W d h i h Y ' 6] X / c f "

f V E ' f Y e i] f Y ' h U h h Y ' h c H U ' U a c i b h c Z h Y ' D Y f Z c f a U b W ' G Y V f] m V Y '] b W Y U g Y X ' U h h Y ' Y i d Y b g Y ' c Z h Y ' 6] X X Y f ' h c ' U ' Y j Y ' b c h Y i W Y X] b [' & \$ i ' c Z h Y ' 7 c b h f U M h D f] W / c f "

"

fVŁ fY'YVhH'Y'6]X"

E i U]ZVh]cbg'cZh'Y'6]XXYf'

' - "% H'Y'9a d'cmYf'g\U'`XYH'fa]bY'hc']hg'guhgZUM]cb'k\YH'Yf'H'Y'Y'] [J'Y'6]XXYf'cf'6]XXYfg'hUh]g#U'Y'gY'YVW'X'Ug'\Uj]b['gi Va]H'Y'X'h'Y'`ck Ygh'Yj Ui UH'Y'X'VŁgh'UbX'gi Vgh'Ubh]U'mfYgdcbg]j Y'6]X'f'g'g' Vgh'Ubh]U'ma Y'Y'h'Y'ei U']Z'h]b['V]h'Y'f]U'gdYVW]YX']b'GYV]cb'==ž'j Ui Uh]cb'UbX'E i U']ZVh]cb'7f]h'Y'f]U'`Hc' h']gYbXžh'Y'9a d'cmYf'k]`XYH'fa]bY'Zcf'k \]W'`@hg'UbX'DUW]U' Ygž'UbX#cf'h'Y'f'VŁa V]bUh]cbgž'Ug'h'Y'VŁgY'a UmVYž'Zcf'k \]W'`6]XXYf'gi Va]H'Y'X'V]Xž]h'gi Vgh'Ubh]U'ma Y'Y'hg'h'Y'fYgdYVW]j Y'a]b]a i a 'ei U']ZVh]cb'V]h'Y'f]U'`

' - "& H'Y'XYH'fa]bUh]cb'g\U'`VY'VUgYX'i dcb'Ub'Yi Ua]bUh]cb'cZ h'Y'XcW'a Ybh'Ufm'Yj]XYbW'cZ h'Y'6]XXYf'g'ei U']ZVh]cbg'gi Va]H'Y'X'Vm'h'Y'6]XXYfždi fgi Ubh'hc' #H6' %+" H'Y'XYH'fa]bUh]cb'g\U'`bch'U_Y']bhc' VŁbg]XYfUh]cb'h'Y'ei U']ZVh]cbg'cZ ch'Y'f' Z]fa g' gi W'`Ug' h'Y'6]XXYf'g'gi Vg]X]U'f]Ygž' dU'fYbh' Ybh'h]Ygž' UZ]]U'Ygž'gi VVŁbhfUW'cf'g' fč'h'Y'f' h'Ub' GdYV]U']nYX' Gi VVŁbhfUW'cf'g']Z dYfa]H'Y'X']b' h'Y'6]XX]b['XcW'a Ybh'žcf'Ub'mch'Y'f'Z]fa fč'X]Z]YfYbh'žca 'h'Y'6]XXYf'

' - " 5b'UZZ]fa Uh]j Y'XYH'fa]bUh]cb'g\U'`VY'U'dfYfYei]g]h'Y'Zcf'Uk UfX'cZ h'Y'7cbhfUW'h'hc'h'Y'6]XXYf'5'bY[Uh]j Y'XYH'fa]bUh]cb'g\U'`fYgi 'h]b'X]gei U']ZVh]cb'cZ h'Y'6]Xž]b'k \]W'`Yj Ybh'h'Y'9a d'cmYf'g\U'`dfcWYX'hc' h'Y'6]XXYf'cf'6]XXYfg'k \c'cZ]YfYX'gi Vgh'Ubh]U'mfYgdcbg]j Y'6]X'cf'6]Xg'k]h' h'Y'bYi h'ck Ygh'Yj Ui UH'Y'X'VŁgh'hc'a U_Y'U'g]a]U'f'XYH'fa]bUh]cb'cZgi W'`6]XXYfg'g'ei U']ZVh]cbg'hc' dYfZca 'g]h]gZUM'cf']m'

' - "(H'Y'9a d'cmYf'fYgYfj Yg'h'Y'f] [\h'hc'k U]j Y'a]bcf'XYj]Uh]cbg'žca 'h'Y'ei U']ZVh]cb'V]h'Y'f]U']Z h'Y'm'Xc' bch'a U'h'f]U'm'UZZV]h' h'Y' h'YV]b]W'`VŁdU'V']]m'UbX' Z]bUbV]U'fYgci fW'g'cZ h'Y'6]XXYf'hc' dYfZca 'h'Y'7cbhfUW'h'cf'VŁa V]bUh]cb'cZ7cbhfUW'g'

Gi W'Wggž'`6]X'cf'6]Xg'

(\$'% <Uj]b['VŁa dU'fYX'h'Y'Yj Ui UH'Y'X'VŁgh'g'cZ6]Xgž'h'Y'9a d'cmYf'g\U'`XYH'fa]bY'h'Y'gi W'Wggž'`6]X'cf'VŁa V]bUh]cb'cZ6]Xg'Ug'h'Y'VŁgY'a UmVYž]b'UWŁfXUbW'k]h' h'Y'UXX]h]cbU'6]X'g' Ui Uh]cb'7f]h'Y'f]U'Ug'ž' f'h'Y'f'XYgV]YX']b'GYV]cb'=="Gi W'`6]X'cf'6]Xg'k ci 'X'VY'h'cgY'k \]W'`Ug'Uj Y'VYyb'XYH'fa]bYX'hc'.

fUŁ VY'gi Vgh'Ubh]U'mfYgdcbg]j Y'hc' h'Y'6]XX]b['XcW'a Ybh'Y'

fVŁ cZ]Yf'h'Y'`ck Ygh'Yj Ui UH'Y'X'VŁgh'hc' h'Y'9a d'cmYf'Zcf'U'`k cf_g]hc' VY'dfcW'fYX'VUgYX'cb'Y]h'Y'f'U'g]b['Y'7cbhfUW'h'cf'U'a i 'h]d'Y'7cbhfUW'g'VŁa V]bYXž'Ug'h'Y'VŁgY'a UmVYž']b' UWŁfXUbW'k]h' h'Y' #H6' %(*']bj]h]b['V]X' df]W'g' UbX'X]gVŁi bhž'UbX'dfcj]g]cbg'a UX'Y']b' h'Y'6]XX]b['8cW'a Ybh'Zcf'Yj Ui Uh]cb'cZ V]Xg'UbX'Uk UfX'cZVŁbhfUW'h'fč'U'UbX'

"

fVŁ VY'cZZfYX'Vm6]XXYf'cf'6]XXYfg' hUhg VgUbhU`ma YYh hY'ei U]ZVWhcb'
VŵjhyfjU'Udd]WVY'Zcf'7cbhfUMh'cf'VŁa V]bUh]cb'cZ'7cbhfUMhg'Zcf'k\jW' hYmi
UfY'gy'YVWYX"

9a d`cmYfAgF][\hlc'5WWh5bm6]XZUbX'hc'FY'VM5bmcf'5`6]Xg

(%% hY'9a d`cmYf'fYgyfj Yg' hY'f][\hlc' UWWdh'cf'fY'VM'Ubm6]X'UbX'hc' Ubbi`hY'
6]XX]b['dfcWgg'UbX'fY'VM'U`6]Xg'Uh'Ubm]a Y'df]cf'hc'7cbhfUMh'5k UfXžk]h'ci h'
hY'fYVmj]bW'ff]b['Ubm]UV]]h'hc'6]XXYfg'"b'WgY'cZ'Ubbi`a YbhžU`6]Xg'g' Va]hYX'
UbX'gdYV]ZVW`nž6]X'gYV'f]h]Ygžg'U`VY'dfca dhmfYh'fbYX'hc' hY'6]XXYfg'"

GhUbXgh`DYf]cX'

(&'% hY'7cbhfUMhg'U`bchVY'Uk UfXYX'YUf]Yf' h'Ub' hY'Yi d]fmcZ' hY' GhUbXgh`DYf]cX'"
hY' GhUbXgh`DYf]cX' g'U` VY' hYb' f%\$Ł 6i g]bYgg' 8Uhg' i b'Ygg' YI hYbXYX']b'
UWŁfXUbW'k]h' +Ł' (*"hY' GhUbXgh`DYf]cX'VŁa a YbWg'hY'XUmUZhyf' hY'XUhy'
hY'9a d`cmYf'\Ug' hfUbg']hYX'hc' YUW'6]XXYf' hY' Bch]ZVWhcb'cZ' bhybh]cb'hc'
5k UfX' hY'7cbhfUMh'K \YfY'cb'mcbY'6]X']g'g' Va]hYXžcf']Z' h']g' VŁbhfUMh']g']b'
fYgdcbgY'hc' Ub' Ya Yf[YbVh'g]h' Uh]cb' fYVŁ[b]nYX' Vmi hY' 6Ub_ž hY' GhUbXgh`
DYf]cX'g'U`bch'Udd'm'

Bch]ZVWhcb'cZ' bhybh]cb'hc'5k UfX'

('"%hY'9a d`cmYf'g'U`gYbX'hc' YUW'6]XXYf' hY' Bch]ZVWhcb'cZ' bhybh]cb'hc'5k UfX' hY'
7cbhfUMh'hc' hY'g' WWggž`6]XXYf'" hY' Bch]ZVWhcb'cZ' bhybh]cb'hc'5k UfX'g'U`
VŁbU]bžUh'U'a]b]a i a žhY'Zc`ck]b[]bZc'fa Uh]cb.'

fUŁ hY'bUa Y'UbX' UXXfYgg'cZ' hY'6]XXYf'g' Va]h]b['hY'g' WWggž`6]X/'

fVŁ hY'7cbhfUMh'df]W'cZ' hY'g' WWggž`6]X/'

fVŁ hY'bUa Yg'cZU`6]XXYfg'k \c'g' Va]hYX'6]XgžUbX' hY'f'6]X'df]W'g'Ug'fYUXci hž'
UbX'Ug'Yj U'i UhyX/'

fXŁ U'gUhy'a Ybh'cZ' hY'fYUg'cbf]g' hY'6]X'fŁcZ' hY'i bg' WWggž`6]XXYf'hc'k \ca'
hY'bch]ZVWhcb']g' UXXfYgg'YXŁk Ug'i bg' WWggž`ž i b'Ygg' hY'df]W']bZc'fa Uh]cb'
]b' VŁUVCj Y'U'fYUXmfYj YU'g' hY'fYUg'cb/'

fYŁ hY'Yi d]fmiXUhy'cZ' hY' GhUbXgh`DYf]cX'/UbX'

fZŁ]bg'fi W]cbg'cb' \ck'hc' fYei Ygi U'XYVf]YZ]b['UbX#cf'g' Va]h' U' VŁa d'U]bhi'
Xi f]b['hY'g' GhUbXgh`dYf]cX/'

5k UfX'cZ'7cbhfUMh'

5k UfX'7f]hyfjU'

"

"

(("%Gi V'YVh'hc' #H6' (%žUbX'i b'Ygg'ch'Yfk']gY'gdYVWZYX']b' h'Y' 68Gžh'Y' 9a d'cmYf'g'U''
Uk UfX' h'Y' 7cbhfUMh'cf' 7cbhfUMh'g' hc' h'Y' 6]XXYf'cf' 6]XXYfg'k' \cgY' 6]X'cf' 6]Xg'
\Ug'AUj'Y'VYYb'XYH'fa']bYX'g' VWggž' ``]b'UWžfXUbW'k']h' #H6'(\$''

BchjZVWhjcb'cZ5k UfX'

() "%Df]cf'hc' h'Y'YI d]fmcZ h'Y' 6]X' J U]X]mDYf]cX' UbX' i dcb'YI d]fmcZ h'Y' GfUbXgh]'`
DYf]cX'gdYVWZYX']b' #H6' (&%'cf' UbmYI h'bg]cb' h'YfYcZž UbXž i dcb' gUh]gZUMh'cf]'m'
UXXfYgg]b[' UbmVž'a d'U]bh'h'Uh' \Ug'VYYb' Z]YX' k']h']b' h'Y' GfUbXgh]'`DYf]cXž h'Y'
9a d'cmYf'g'U'' bchjZm'h'Y' g' VWggž' ``6]XXYfž']b' k' f]h]b[ž h'Uh']hg' 6]X' \Ug' VYYb'
UWVdhYX'' h'Y' bchjZVWhjcb' cZ Uk UfX' f'YfY]bUZh'f' UbX']b' h'Y' 7cbX]h]cbg' cZ
7cbhfUMh'UbX' 7cbhfUMh': cfa g'WV'YX' h'Y' Â@YH'f'cZ5WVdhUbW'Ž'g'U''gdYVWZm'h'Y'
g' a' h'Uh'h'Y' 9a d'cmYf'k']`dUm'h'Y' 7cbhfUMh'cf']b' Vžbg]XYfUh]cb'cZ h'Y'YI YV'h]cb'
cZ h'Y' 7cbhfUMh' f'YfY]bUZh'f' UbX']b' h'Y' 7cbX]h]cbg' cZ 7cbhfUMh' UbX' 7cbhfUMh'
: cfa g'WV'YX' Âh'Y' 7cbhfUMh'Df]W'Ž'`

() "& K']h']b' h'Yb' f'f\$Ł' 6i g]bYgg' 8Uhg' UZh'f' h'Y' XUH' cZ hfUbga']gg]cb' cZ h'Y' @YH'f' cZ
5WVdhUbWž h'Y' 9a d'cmYf'g'U'' di V']g' h'Y' 7cbhfUMh' 5k UfX' BchjW'k' \]W'g'U''
VžbH]bžUh'U'a']b]a' i a ž h'Y'Zc'`ck']b[']bZcfa' Uh]cb.'`

fUŁ' bUa' Y' UbX' UXXfYgg'cZ h'Y' 9a d'cmYf/

fVŁ' bUa' Y' UbX' f'YZfYbW' bi a VYf' cZ h'Y' VžbhfUMh' VY]b[' Uk UfXYXž UbX' h'Y'
g'YVW]cb'a' Yh'cX'i' gYX/`

fVž' bUa' Yg'cZU'' 6]XXYfg'h'Uh'g' Va']h'YX' 6]Xgž UbX' h'Y'f' 6]X' df]W'g'Ug'fYUX'ci' h'Uh'
6]X'cdYb]b[ž UbX' U'g'Yj' U'i' UH'YX/`

fXŁ' bUa' Yg'cZU'' 6]XXYfg'k' \cgY' 6]Xg'k' YfY'fY'YVW'X'Y]h'Yf'Ug'bcbfYgdcbg]j' Y'cf'Ug'
bch'a' YH]b['ei' U]ZVWh]cb'W]h'f]Užcf'k' YfY' bch'Yj' U'i' UH'YXž k']h' h'Y' fYUgcbg'
h'YfYZcf/`

fYŁ' h'Y'bUa' Y'cZ h'Y'g' VWggž' ``6]XXYfž h'Y' Z]bU' h'cHU' VžbhfUMh'df]Wž h'Y' VžbhfUMh'
Xi' fUh]cb' UbX' U'g' a' a' UfmcZ]hg'gVdY/UbX'`

fžŁ' g' VWggž' ``6]XXYf'g' 6YbYZ]VU' Ck' bYfg']d' 8]gVč'g' fY': cfa ž]ZgdYVWZYX']b' 68G'
#H6' (+'%`

() " `` h'Y' 7cbhfUMh' 5k UfX' BchjW'g'U'' VY' di V']g' YX'cb' h'Y' 9a d'cmYf'g'k' YVg]h'Y'k']h'
ZfYY'UWVgg]ZUj' U]UV'Yžcf']b' Uh'YUg'hcbY'bYk' gdUdYf'cZbUh]cbU' V'fW'Uh]cb']b' h'Y'
9a d'cmYf'g' 7ci' bhfžcf']b' h'Y'cZ]VU' [U'hYH'`h'Y' 9a d'cmYf'g'U'' U'gc' di V']g' h'Y'
VžbhfUMh'Uk UfX' bchjW']b' i' B 86'cb']bY''`

() "(`` i' bh] 'U'Zcfa' U' 7cbhfUMh'g'dfYdUfYX' UbX'YI' YV'hYXž h'Y' @YH'f'cZ5WVdhUbW'g'U''
Vžbg]h' h'Y'U'V]bX]b[' 7cbhfUMh'`

8YVf]YZ]b['Vm'h'Y' 9a d'cmYf'`

"

"

(*"% Cb'fYW]dhcZħY'9a d'cmYf'gBch]ZVh]cb'cZ'bhYb]cb'hc'5k UfX'fYZffYX'hc']b'≠6'
(' "%ž Ub' i bgj Wwggž ``6]XXYf' \Ug' ħ'fYY' fl'ē' 6i g]bYgg'8Umg' hc' a U_Y' U' k f]ħYb'
fYei Ygh'hc' ħY'9a d'cmYf'Zcf'UXYVf]YZ]b["ħY'9a d'cmYf'g\U''dfcj]XY'UXYVf]YZ]b['
hc'U''i bgj Wwggž ``6]XXYfg'k \cgY'fYei Ygh']g'fYW]j YX'k]ħ.]b'ħ.]g'XYUX']bY"

(*"& K \YfY'U'fYei Ygh'Zcf'XYVf]YZ]b[']g'fYW]j YX'k]ħ.]b' ħY'XYUX']bYž ħY'9a d'cmYf'
g\U''dfcj]XY'U'XYVf]YZ]b[' k]ħ.]b' Z]j Y' f]ē' 6i g]bYgg'8Umg' i b'Ygg' ħY'9a d'cmYf'
XYV]Xygž'Zcf'↑ gh]Z]UV'Y'fYUgc'bgž'hc' dfcj]XY'ħY'XYVf]YZ]b[' ci hg]XY'ħ.]g'h]a YZ]Ua Y"
≠b'ħ.Uh'W]gyž'ħY' gh]bXgh]'`dYf]cX'g\U''Ui' hca Uh]W'mVY'Yi ħYb'XYX' i bh]' Z]j Y' f]ē'
6i g]bYgg'8Umg' UZ]Yf'g' W'XYVf]YZ]b[']g'dfcj]XYX'" Z'a cfY'ħ.Ub'cbY'XYVf]YZ]b[']g'
gc'XY'UmYXž'ħY' gh]bXgh]'`dYf]cX'g\U''bchYbX'YUf']Yf'ħ.Ub'Z]j Y' f]ē' 6i g]bYgg'8Umg'
UZ]Yf'ħY'Ugh'XYVf]YZ]b[' HJ_Yg'd'UW'"ħY'9a d'cmYf'g\U''dfca dhm]bZ'ca žVmh'ħY'
ei]W_Ygh'a YUbg'Uj U]UV'YžU''6]XXYfg'cZħY'Yi ħYb'XYX' gh]bXgh]'`dYf]cX'"

(*"' K \YfY'U'fYei Ygh'Zcf'XYVf]YZ]b[']g'fYW]j YX'Vmh'ħY'9a d'cmYf'UħYf'ħ.Ub'ħY'ħ'fYY'
fl'ē' 6i g]bYgg'8Umg'XYUX']bYž ħY'9a d'cmYf'g\ci' X'dfcj]XY'ħY'XYVf]YZ]b[' Ugg'ccb'
Ug'dfU]W]W'Yž'UbX'bcfa U'mbc'UħYf'ħ.Ub'Z]Z]Yb'f]ē' 6i g]bYgg'8Umg' Z'ca' ħY'
XUħ'cZdi V']W]h]cb'cZDi V']WBch]W'cZ5k UfX'cZV'bh'fU]W'fYei Ygh'Zcf'XYVf]YZ]b['
fYW]j YX'ci hg]XY'ħY'ħ'fYY'fl'ē'XUmg'XYUX']bY'g\U''bch'YUX'hc'Yi ħYbg]cb'cZħY'
gh]bXgh]'`dYf]cX'"

(*"('8YVf]YZ]b[g'cZi bgj Wwggž ``6]XXYfg'a UmVY'XcbY']b'k f]h]b['cfj YfU'U'm'ħY'6]XXYf'
g\U''VYUf']hg'ck b'V'gh'g'cZUħYbX']b['g' W'U'XYVf]YZ]b['a YYh]b['"

G] [b]b['cZ7cbhfU]m

(+"% ħY'9a d'cmYf' g\U'' gYbX' hc' ħY' g' Wwggž ``6]XXYf' ħY' @YħYf' cZ 5Ww]d]UbW'
]bW] X]b[' ħY' 7cbhfU]m 5[fYYa Ybhž'UbXž']Z gdYV]Z]YX']b' ħY' 68Gž'U' fYei Ygh'hc'
g' Va]h' ħY' 6YbYZ]V]U' Ck bYfg\]d' 8]g]W'cg' fY' : cfa' dfcj]X]b[' UXX]h]cbU'
]bZ'ca Uh]cb'cb']hg' VYbYZ]V]U' ck bYfg\]d' ħY' 6YbYZ]V]U' Ck bYfg\]d' 8]g]W'cg' fY'
: cfa ž']Z gc' fYei Ygh'Xž' g\U'' VY' g' Va]ħY'X' k]ħ.]b' Y] [\h'f]ē' 6i g]bYgg'8Umg' cZ
fYW]j]b[' ħ.]g'fYei Ygh'"

(+"& ħY'g' Wwggž ``6]XXYf'g\U''g] [bžXUħ'UbX'fYh'fb'hc' ħY'9a d'cmYfž'ħY'7cbhfU]m
5[fYYa Ybhk]ħ.]b' ħ'k Ybhm]Y] [\h'f&, ē'XUmg'cZ']hg'fYW]dh"

DYfZ'ca UbW'GYW'f]m

(, "% K]ħ.]b' ħ'k Ybhm]Y] [\h'f&, ē'XUmg'cZħY'fYW]dhcZħY'@YħYf'cZ5Ww]d]UbW'Z'ca' ħY'
9a d'cmYfž'ħY'g' Wwggž ``6]XXYf'g\U''ž'fb]g\ ħY' DYfZ'ca UbW'GYW'f]m]UbXž']Z
fYei]fYX']b' ħY' 68Gž'ħY'9bj]fcb'a Yb]U'UbX'GcV]U'f]Gē' DYfZ'ca UbW'GYW'f]m]b'
UW'ē'fXUbW'k]ħ' ħY'; YbYfU'7cbX'h]cbg'cZ7cbhfU]mž'g' V'YVħ'hc'≠6" , "&fV'ēž' g]b['
Zcf'ħ.Uh'idi fdcgY'ħY'DYfZ'ca UbW'GYW'f]m]UbX'9G'DYfZ'ca UbW'GYW'f]m: cfa g'
]bW] XYX']b' GYV]cb' Lž 7cbhfU]m : cfa gž' cf' Ubch'Yf' Z'ca' UWW]d]UV'Y' hc' ħY'

"

"

9a d`cmYf"Z\hY'DYfZcfa UbW'GYWf]mZi fb]g\YX'Vm\hY'gi WWggZi`6]XXYf'jg]b'hY'Zcfa`cZU'VcbXZ]hig\U`VY]ggj YX'VmU'VcbX]b[`cf]bgi fUbW'Ve'a dUbmih\Ug VYYb'XYHfa]bYX'Vm\hY'gi WWggZi`6]XXYf'hc`VY'UWWdhUV`Y'hc'hY'9a d`cmYf"5`ZcfY][b`]bgh]h]hcb`dfcj]X]b[`U'VcbX`g\U`UjY`U'VeffYgdcbXYbhZ]bUbV]U`]bgh]h]hcb`cW\hYX`]b'hY'9a d`cmYf`g7ci b\fmzi b`Ygg'hY'9a d`cmYf`Ug]U[fYfYX`]b`k f]h]b[`h\UhU'VeffYgdcbXYbhZ]bUbV]U`]bgh]h]hcb`jg'bchfYei]fYX"

(, "&: U]i fY`cZ hY`g WWggZi`6]XXYf'hc`g Va]h'hY'UWcj Y!a Ybh]cbYX'DYfZcfa UbW'GYWf]m UbXZ]Z fYei]fYX`]b`hY'68GZ hY'9bj]fcba YbH]U`UbX`GcV]U`fDGL`DYfZcfa UbW'GYWf]mZcf]g][b'hY'7cbhfUW]g\U`Ve'bgh]h hY'gi ZZ]V]Ybh[fci bXgZcf`hY'Ubbi`a YbhicZ hY'Uk UfX`UbX`ZcfZY]h fY`cZ hY'6]X'GYWf]m`b`h\UhYj Ybh'hY'9a d`cmYf`a UmUk UfX`hY'7cbhfUW]hc`hY'6]XXYf`cf`6]XXYfg`cZZf]b[`hY'bYi hi @ck Ygh`9j Ui UhYX`7cgh`hc`hY'9a d`cmYf`Ug dYf`hY'V]X`Yj Ui Uh]cb`UbX`Uk UfX`V]hYf]U"

DfcWfYa YbhFY`UhYX`7ca d`U]bh

(- "%`hY'dfcWXi fYgZcf`a U_]b[`U'DfcWfYa Ybh fY`UhYX`7ca d`U]bhUfY`Ug`gdYW]YX`]b`hY'68G"

"

GYVjcb'≡6]X'8UuG\YYhf68GŁ

H\Y' Zc`ck]b[' gdYVjW XUHU' Zcf' h\Y' K cf_g' hc' VY' dfcWfYX' g\U` VŁa d'Ya Ybhž
g dd'Ya Ybhžcf'Ua YbX'h\Y'dfcj]g]cbg]b'h\Y' bdfi Vjcbg hc' 6]XXYfg f#ŁŁ'K \YbYj Yf'
h\YfY']g'U'VŁbZ]VŁh\Y'dfcj]g]cbg\YfY]b'g\U`dfYj Uj'cj Yf'h\cgY']b'h\Y' #Ł

5"; YbYfU'	
#Ł'%%	<p>H\Y' fYZfYbW' bi a VYf' cZ h\Y' b]j]Ujcb' Zcf' 6]Xg' f# ŁŁ']g' 5K K 85#B5FG-D=#K !\$%#&\$&&</p> <p>H\Y'9a d'cmYf']g 5h\]K UYf'K cf_g'8Yj Y'cda Ybh5[YbVh</p> <p>B Ua Y'cZK cf_g' .</p> <p>B UjfcV]F]j YfgGYk YfU[Y'a dfcj Ya YbhDfc[fUa 'D\UgY'≡</p> <p>@CH' %' 7CBGHFI 7HCB' C: ' 85B8CF5' 9GH5H9' K 5GH9K 5H9F' HF95HA 9BH'D@5BH'f89K K HDŁF9<56-@H5HCB'5B8'8I D@75HCB' D@5BH'B@H'K CF?G'</p> <p>H\Y' bUa Y' cZ h\Y' ÷6']g' CdYb' 7ca dYh]h] Y' 6]XX]b[' f#hYfbUjcbUŁŁ fC76ŁŁ</p> <p>H\Y' bi a VYf' UbX']Xybh]ZVh]cb' cZ kcf_g' i bXYf' g]b['Y' VŁbhfUMh' VŁa df]g]b['h\]g'÷6']g' 5K K 85#B5FG-D=#K !\$%#&\$&&</p>
#Ł'&'%	<p>H\Y'6cffck Yf']g' ; cj Yfba YbhicZ?YbntU'</p> <p>H\Y'GdYVjW6Ub_ Z]bUbV]b[']bgh]h]cb']g' 5Z]VŁb'8Yj Y'cda Ybh6Ub_ f5Z86Ł</p> <p>H\Y'bUa Y'cZh\Y'Dfc YVh]g' .</p> <p>B5FC6=F ÷9FG'65GB'F9<56-@H5HCB'5B8'F9GHCF5HCB' DFC; F5A 'D<5G9'÷G9K 9F5; 9'A DFCJ 9A 9BH'DFC>97H'</p>
#Ł'('%fUŁ	<p>]ŁH\Y'Z]fa g']b'U'x.]bhJ Ybh fYž7cbgcfh]i a 'cf'5ggcV]Ujcb'fŁŁ Ł'g\U`VY' Ł.]bhmiUbX'gYj YfU`m']UV`Y"</p>
#Ł'('%fVŁ	<p>A U]ja i a 'bi a VYf'cZ a Ya VYfg']b'h\Y'x.]bhJ Ybh fYž7cbgcfh]i a 'cf'5ggcV]Ujcb'fŁŁ Ł'g\U`VY.' ' f#fYYŁ</p>
#Ł'('%fXŁ	<p>A]b]ja i a ' g\UfY' cZ U' a Ya VYf' cZ x.]bhJ Ybh fYž 7cbgcfh]i a 'cf'5ggcV]Ujcb'fŁŁ Ł']b'h\Y'VŁbhfUMh'g\U`bchVY`Ygg'h\Ub' %Ł' 'dYfWbhicZ h\Y'hcU'j Ui Y'cZh\Y'VŁbhfUMh"</p>

#6'(')	5'`jgh'cZ XYVuffYX`Zfa g' UbX`]bX]j]Xi U'g']g' Uj U]'UW'Y' cb' h'Y' 6Ub_Äg' YI h'YfbU'` k YVg]hY'` \hfdg##k k k "UZXV"cf] #Yb#dfc YVWg]cdYfUhcbg# XYVUfa Ybh UbX!gUbW]cbgl dfcWXi fYg'
6""7cbhYbhg'cZ6]XX]b['8cWa Ybh	
#6'+%	: cf'7`Uf]ZVW]hcb'cZ6]X'di fdcgYg'cb`nžh'Y'9a d`cmYfÄg'UXXfYgg']g' 5HhYbh]cb. H'Y'7\]YZ9 YW]h] Y'CZ]Wf' 5XXfYgg'` 5H.]'K UH'f'K cf_g'8Yj Y'cda Ybh5[YbW]h' 5H.]'K UH'f'D'UhuZA i h'U] [U'Bcfh' FcUXž D'C'6cl'() & ' '! '\$\$%' 7]hm]B U]fcV]` 7ci bhfm'?YbmU` H'Y'd\cbY. ž & (! &\$! &+&(&- &# ž&+%& (&' : UW]ja]Y'bi a VYf. ž & (! &\$! &+&(&-)` 9YV]fcb]Wa U]'UXXfYgg']bž4 Uk k XU]'c" _Y` K YV'dU[Y. k k k "Uk k XU]'c" _Y`
#6'+(")	5'A 5B85HCFMDFY! 6]X'a YYh]b['g]U`hU_Y'd`UW'Uh'h'Y'Zc`ck]b['XUHž h]a Y'UbX'd`UW.` 8UH'Y. +^> i bY'&\$&&' H]a Y. \$-.\$\$'Ua` D'UW. H'Y'j Ybi Y'Zcf'h'Y'DfY! 5dd`]W]hcb'a YYh]b['k]`VY'Uh'h'Y'5H.]' K UH'f' K cf_g' 8Yj Y'cda Ybh' 5[YbW]h CZ]Wgž 5H.]' K UH'f' D'UhuZ A i h'U] [U'Bcfh' FcUX" 5' g]h' j]g]h' VžbXi V]X' Vm'h'Y' 9a d`cmYf' g]U` VY cf[Ub]hYX' UbX' U' 7Yfh]ZVW]h' k]` VY']gg' YX' Vm 5K K 85' k \]W' g]U` Zcfa` dUfh' h'Y' Yj U'i Uh]cb'V]h'Yf]U"" 8UH'Y. +^> i bY'&\$&&' H]a Y. %\$. \$\$'Ua` D'UW. H'Y'j Ybi Y'Zcf'h'Y'DfY! 5dd`]W]hcb'g]h'j]g]hk]`VY'g]h]b['Uh'h'Y' 5H.]' K UH'f' K cf_g' 8Yj Y'cda Ybh' 5[YbW]h CZ]Wg' 5H.]' K UH'f' D'UhuZ A i h'U] [U'Bcfh' FcUX'hc'j]g]h'g]h'g']b' 8UbXcfU'9gUH'Y'GYk U[Y' D'Ubh Fi U]žB U]fcV]'7ci bhm

⚡⚡⚡⚡⚡⚡	K YV'dU[Y: k k k "Uk k XU[c" Y
7""DFYdUFUjcb'cZ6]Xg'	
⚡⚡⚡⚡⚡⚡	<p>H\Y`Ub[i U[Y'cZH\Y'6]X']g' 9b[`]g\ " "</p> <p>5""VtffYgdcbXYbW`YI V\Ub[Y'g\U""VY' 9b[`]g\ `Ub[i U[Y"</p> <p>@Ub[i U[Y' Zcf' fUbgUjcb' cZ' gi ddcfh]b[` XcW'a Ybhg' UbX' df]bhYX'` `]hYfUhi fY']gB #5"</p>
⚡⚡⚡⚡⚡⚡fL'	<p>H\Y'6]XXYf'g\U""gi Va]hH\Y'Zc`ck]b[`UXX]h]cbU`XcW'a Ybhg']b]hg'6]X'` 5gdYf'GYWjcb' ÷ ž</p> <p>%' 7cXY'cZ7cbXi W\Zcf'7cbhfUWcfÅg'DYfgcbbY'fDGL'</p> <p>H\Y' 6]XXYf' g\U""gi Va]h']hg' 7cXY' cZ 7cbXi W\ H\Uhi k]"" Udd`m hc` 7cbhfUWcfÅg'DYfgcbbY' fUgXYZ]bYX']b`Gi V! `7`Ui gY'%%%+`cZH\Y'; YbYfU` 7cbX]h]cbg'cZ 7cbhfUWZ hc` Ybg' fY`Vt a d`]UbW`k]h\` H\Y' 7cbhfUWcfÅg` 9bj]fcba YbhU` UbX' GcVjU` fDGL' cV`] [Ujcbg' i bXYf' H\Y' 7cbhfUW` H\Y` 6]XXYf'g\U""i gY'Zcf'H\]g'di fdcgY`H\Y' 7cXY'cZ7cbXi W\Zcfa `dfcj]XYX`]b`GYWjcb' ÷ "Bc`gi VghUbh]U`a cX]Z]W]h]cbg'g\U""VY`a UXY`hc` H\]g'Zcfa ž YI Wdhi H\Uhi H\Y' 6]XXYf' a Um]bhfcXi W` UXX]h]cbU` fYei]fYa Ybhgž]bW X]b[` Ug' bYWggUfm hc` HU_Y']bhc` UWt i bh' gdYV]W 7cbhfUW`]gg Yg#]g_g"</p> <p>&" A UbU[Ya YbhGfUHY[]Yg'UbX' ÷ a d`Ya YbhUjcb'D`UbgiFA G-DL'hc` a UbU[Y`H\Y'fDGL'f]g_g'</p> <p>H\Y'6]XXYf'g\U""gi Va]hA UbU[Ya YbhGfUHY[]Yg'UbX' ÷ a d`Ya YbhUjcb` D`UbgiFA G-DL'hc`a UbU[Y`H\Y'9bj]fcba YbhU`UbX' GcVjU` fDGL'f]g_g"</p> <p>' " J U]X`HU `7ca d`]UbW`7Yfh]Z]WUHY"</p> <p>(" 7Yfh]Z]WUHY`cZ ÷ VtfdcfUjcb#FY[]ghUjcb"</p> <p>)" 8I `mVt a d`YHYX'g]hY'j]g]h7Yfh]Z]WUHY"</p>
⚡⚡⚡⚡⚡⚡	5`hYfbUhj Y'6]Xg' g\U`bchVY`Vtbg]XYfYX"
⚡⚡⚡⚡⚡⚡	5`hYfbUhj Y'hja Yg'Zcf`Vt a d`Yh]cb g\U`bchVY dYfa]hYX" "
⚡⚡⚡⚡⚡⚡	H\Wb]W`5`hYfbUhj Y`Ug'dYf'⚡⚡⚡⚡⚡⚡ " g\U`bchVY`dYfa]hYX"
⚡⚡⚡⚡⚡⚡	5`hYfbUhj Y`H\Wb]W`gc`i h]cbg'g\U`bchVY dYfa]hYX" "
⚡⚡⚡⚡⚡⚡	<p>H\Y' UX↑ gfa Ybh'g\U""VY`VUgYX' cb`H\Y' \] [\Ygh'df]W`cZ H\Y']hYa `Ug` ei chYX']b`ch\Yf'gi VghUbh]U`mfYgdcbg]j Y'6]Xg"</p>

#6'&\$'%	<p> 6'UXX]h]cb'hc'hAY'cf[[]bU'cZHAY'6]XZHAY'bi a VYf'cZVd]Yg]g' ' 'fHfYYE' </p>
#6'&\$" ' .	<p> HAY'k f]hYb'VebZ]fa Uh]cb'cZ Ui h]cf]nUh]cb'hc'g][b'cb'VY\UZ cZ hAY' 6]XXYf'g\U'Vebg]ghcZ'Dck Yf'cZ5HcfbYm' </p>
8'"Gi Va]gg]cb'UbX'CdYb]b['cZ6]Xg'	
#6'&&%'	<p> : cf'6]X'g Va]gg]cb'di fdcgYg'cb'nZHAY'9a d'cmYf'g'UXXfYgg]g' ' 5HfYb]cb.'HAY'7\JYZ9 YW]hj Y'CZ]Wf' ' 5XXfYgg' ' 5H.]'K UHf'K cf_g'8Yj Y'cda Ybh5[YbWf' 5H.]'K UHf'D'UnUZA i hU][U'Bcfh'FcUXZ D'C'6cl'() & ' ' '\$\$%'\$' 7]hm'B U]fcV] ' 7ci bhfm'?YbntU ' HY'Yd\cbY.'Z &) (! &\$! &+&(&- &# Z&+%& (& ' : UW]a JY'bi a VYf.'Z &) (! &\$! &+&(&-) ' '9YWfcb]W]a U]'UXXfYgg']bZc4 Uk k XU'f'c" _Y' HAY'XYUX']bY'Zcf'6]X'gi Va]gg]cb']g' ' 8UHf')'h'> i 'm&\$&& H]a Y.'%&\$&'da ' ' 6]XXYfg' g\U' bch' \Uj Y' hAY' cdh]cb' cZ gi Va]h]b[' hAY]f' 6]Xg' Y'YWfcb]W'n' HAY'Y'YWfcb]W6]XX]b['gi Va]gg]cb'dfcWXi fYg'g\U'VY.'B #5' </p>
#6'&)'%	<p> HAY'6]X'cdYb]b['g\U' hU_Y'd'UW'Uh' ' 5XXfYgg' ' 5H.]'K UHf'K cf_g'8Yj Y'cda Ybh5[YbWf' 5H.]'K UHf'D'UnUZA i hU][U'Bcfh'FcUXZ D'C'6cl'() & ' ' '\$\$%'\$' 7]hm'B U]fcV] ' 7ci bhfm'?YbntU ' </p>

	<p>HfYd\cbY. Ž &) (! &\$! &+&(&- &# Ž&+%% (&`</p> <p>: Uŵja JY'bi a VYf. Ž &) (! &\$! &+&(&-)`</p> <p>9YVfcbJWa Uj`UXXfYgg. bZc4 Uk k XU" c" _Y`</p> <p>8UHy.)`h`>`mi&\$&&`</p> <p>Hja Y. %&\$) `da`</p>
#6`&)`%`	<p>HfY`Y`YVfcbJW6]X`cdYb]b[`dfcWXi fYgg\U`VY. B#5`</p>
#6`&)`**`	<p>HfY`@fHyf`cZ6]X`UbX`GWYXi`Yg`g\U`VY`]b]h]U`YX`VmifYdfYgYb]h]j`Yg`cZ` HfY`9a`d`cmYf`VčbXi`V]b[`6]X`cdYb]b[``</p>
9``9`Ui`Uh]cbžUbX`7ca`dUf]gcb`cZ6]Xg`	
#6``\$``	<p>HfY`UX↑gha`Ybhk`Jh`fYgdYVh`c`U`a`]gg]b[`cf`bcb!`VčbZcfa`]b[`]hYa`cf` Vča`dcbYbhžUbX`Včghg`Uggc`V]UHYXž]ZUbnžk`Jh`bcb!`a`UHyf]U`XYj`]Uh]cbgž` fYgYfj`Uh]cbg`cf`ca`]gg]cbg`hc`HfY`fYei`]fYa`Ybhg`cZ`HfY`V]XX]b[`XcW`a`Ybh`g\U``VY`VUgYX`cb`HfY`\\[`Ygh`df]W`cZ`HfY`]hYa`cf` Vča`dcbYbh]UbX`Včghž]ZUbnžcZbcb!`a`UHyf]U`XYj`]Uh]cbgžfYgYfj`Uh]cbg`cf` ca`]gg]cbg`Ugei`chYX`]b`cf`XYfj`YX`Zca`chYf`gi`VghUbh]U`mfYgdcbg]j`Y`6]Xg`i`b`Ygg`UbmchYf`gdYV]WYj`Ui`Uh]cb`V]hYf]U`Ug`VYYb`dfcj`]XX`Y`gYk`\\YfY`]b`HfY`V]XX]b[`XcW`a`YbhZcf`gi`W`UX↑gha`Ybhg`]b`k`\\W`WUgY` HfY`UHyf`g\U``VY`Udd`]YX``Z`HfY`df]W`cf`Včgh`cZ`UbmchYf`Uvcj`Y`WUbbchVY`XYfj`YX`Zca`HfY`df]W`cZchYf`gi`VghUbh]U`mfYgdcbg]j`Y`6]Xgž` HfY`9a`d`cmYf`g\U``i`gY`]hg`VYgh`Ygha`Uhy`VUgYX`cb`]hg`ck`b`↑X[`a`Ybhž` dUghYI`dYf]YbW`cf`a`Uf`_YhgYUfW`žUg`Včbg]XYfYX`Uddfcdf]UHy``</p>
#6``&`%`	<p>HfY`WffYbVh]h`Uh`g\U``VY`i`gYX`Zcf`6]X`Yj`Ui`Uh]cb`UbX`Vča`dUf]gcb` di`fdcgYg`hc`Včbj`Yfh`Uh`HfY`gY`]b[`YI`WUub[`Y`fUHy`U``6]X`df]Wg` YI`dfYggYX`]b`j`Uf]ci`gWffYbV]Yg]bhc`Ug]b[`Y`WffYbVh]g`?YbntU`G`]`]b[`g` fP9G`</p> <p>HfY`gci`fW`cZYI`WUub[`Y`fUHy`g\U``VY`. HfY`7YbhfU`6Ub`_cZ?YbntU``</p> <p>HfY`XUHy`Zcf`HfY`YI`WUub[`Y`fUHy`g\U``VY`. &`XUhg`df]cf`hc`HfY`XYUX`]bY` Zcf`gi`Va`]gg]cb`cZ`HfY`6]Xg``Z`H`g`XUHy`UbXg`cb`U`k`YY`YbXž`HfYb`HfY` XUHy`Zcf`HfY`YI`WUub[`Y`fUHy`g\U``VY`HfY`dfYj`]ci`g`f]XUhi`</p> <p>HfY`WffYbVh]j`Yg`cZ`HfY`6]X`g\U``VY`Včbj`YfhYX`]bhc`Ug]b[`Y`WffYbVh]b` UWčfXUbW`k`Jh`HfY`dfcWXi`fY`i`bXYf`5`hYfbUhj`Y`5`HfY`Zc`ck`g`</p> <p><i>5`hYfbUhj`Y`5.`6]XXYfgei`chY`Ybh]fYm]b`cW`WffYbVh`</i></p> <p>:`cf`Vča`dUf]gcb`cZ6]Xgž`HfY`6]X`Df]WžVčffYVWX`di`fg`Ubh]c`#6``%žg\U` Z]fgh`VY`Vfc`_Yb`Xck`b`]bhc`HfY`fYgdYVh]j`Y`Ua`ci`bhg`dUhtV`Y`]b`j`Uf]ci`g`</p>

	<p>WffYbVWgVmi g]b['hY'gY''b['Yi WUb[Y'fUHyg'gdYVWZYX'VmH'Y'6]XXYf]b'UWfXUbW'k]h'±6'%'</p> <p>±h'Y'gYVbX'ghYdZ'hY'9a d'cmYf'k]''Vb'j Yfh'hY'Ua ci bhg']b'j Uf]ci g WffYbVWg]b'k\]W'h'Y'6]X'Df]W']gdUhtU'Y'fYi W'X]b['Dfcj]g]cbU'Gi a g Vi h']bW'X]b['8Uht'cf_'k\YfY' d'f]W'X' Vb'a dYh]h'j Y'nt' hc' h'Y' g]b['Y' WffYbVh]X'Ybh]Z'YX' U'Vcj Y'U'h'h'Y'gY''b['fUHyg'YghU'V']g\YX'Zcf'g]a]Uf' h'UbgUW]cbg'VmH'Y'Ui h'cf]m'gdYVWZYX' UbX'Z'cb'h'Y'XUHy'Z'gh'di 'UHYX' U'Vcj Y''</p>
±6" ' "%	<p>5'a Uf[]b'cZXca Ygh]WdfYZfYbW'g\U''bchUdd'm'</p> <p>5'a Uf[]b'cZfY[]cbU'dfYZfYbW'g\U''bchUdd'm</p>
±6" (" %	<p>5h'h]g'h]a Y'h'Y'9a d'cmYf'XcYg'bch]bhYbX'hc'Yi YW'h'V'fU]b'gdYVWZYW dUfh'g'cZ'h'Y'K cf_g'Vmg] VVb'hfUW'cf'g'Y'Y'W'X']b'UXj UbW''</p>
±6" (" &	<p>7cbhfUW'cf'g] dfcdcgYX' gi VVb'hfUW]b[.: A U]a i a ' dYfWbH[Y' cZ g] VVb'hfUW]b['dYfa]hYX'jg ' \$i ' cZ'h'Y'hc'U'Vb'hfUW]Ua ci bhcf' \$i ' 'cZ'h'Y'j'c'i a Y'cZ'k'cf_''</p> <p>6]XXYfg'd'Ubb]b['hc'g] VVb'hfUW]a cfY'h'U'%'\$i ' cZ'hc'U'j'c'i a Y'cZ' k'cf_g\U''gdYVWZ]b'h'Y'@h'Y'f'cZ6]X'Z'h'Y'UW]j]h'mf]Yg'cf'dUfh'g'cZ'h'Y' K cf_g] hc' VY' g] VVb'hfUW]X' U'cb['k]h' Vb'a d'Y'h'XYH]g' cZ h'Y' Gi VVb'hfUW'cf'g'UbX'h'Y]f'ei U]Z'W]h'cb'UbX'Yi dYf]YbW''</p>
±6" (" ' "	<p>B#5''</p>
±6") "&fL'	<p>B#5''</p>
: "'5k UfX'cZ7cbhfUW'	
±6' (+% "	<p>H'Y'g] W'ggZ '6]XXYf'g\U''g] Va]h'h'Y'6YbYZ]W]U' Ck bYfg\]d'8]gW'cg' fY' : cfa ''</p>
±6' (- "%	<p>H'Y' d'fcW'Xi fYg'Zcf' a U_]b['U' D'fcW'fYa Ybh'fY'UHYX' 7ca d'U]bh'UfY' XYH]YX']b'h'Y' Dufh'6 'cZ'h'Y' C'dYfU]cbg'D'fcW'fYa Ybh'A Ubi U' i bXYf' h'Y' D'fcW'fYa Ybh': fUa Yk'cf_'cZ'h'Y' 5Z]W]b' 8Yj Y'cda Ybh'6Ub_' -Z U' 6]XXYf'k]g\Yg'hc'a U_Y'U' D'fcW'fYa Ybh'fY'UHYX' 7ca d'U]bh'Z'h'Y'6]XXYf' g\U''g] Va]h]hg'Vb'a d'U]bh'Z'ck]b['h'YgY'd'fcW'Xi fYg'hc'h'Y'Ya d'cmYf'Z']b' k'f]h]b['fV'm'h'Y' ei]W]Ygh' a Yubg' Uj U]U'V'Y'Z'g] W' Ug' Vm'Ya U]']b' UWfXUbW'k]h'h'Y'Z'ck]b[.:</p> <p>: cf'h'Y'U'hYbh]cb. 9b["A]W'U'Y'A "H'i]h'</p> <p>H]hY#dcg]h]cb. 7\]YZ9 YW'h] Y'CZ]Wf'</p>

	<p>9a d'cmYf. 5hJ'K UHYf'K cf_g'8Y] Y'cda Ybh5[YbVh'</p> <p>9a U]'UXXfYgg]bZc4 Uk k XU'[c"_Y'</p> <p>÷g' a a Ufnž U'DfcWfYa Ybh fY'UH'X'7ca d'U]bha UmWU'Yb[Y'UbmicZ hY'Zc`ck]b[.'</p> <p>hY'hYfa g'cZhY'6]XX]b['8cW'a Ybhgž</p> <p>hY'di fWUgYf'g'XYV]g]cb'hc'YI W'XY'U'V]XXYf'Z'ca 'hY'dfcWfYa Ybh dfcWggdf]cf'hc'hY'Uk UFX'cZV'bfUMžUbX/ hY'9a d'cmYf'g'XYV]g]cb'hc'Uk UFX'hY'V'bfUMž''</p> <p>.</p> <p>hY'6Ub_Ā'DfcWfYa Ybh: fUa Yk cf_`g]di 'UHYg'hUhV]XXYfg'a UmigYbX' V'ed]Yg'cZhY]fV'ca a i b]W]h]cbgk]h'hY'6cffck Yfg'hc'hY'6Ub_'cf'k f]hY' hc'hY'6Ub_'X]fYV'mk \Ybž 6cffck Yfg'Xc' bchfYgdcbX'dfca dhñž Ubm ei Yg]h]cbg'cb'Ubm]gg' Yg'fY[UFX]b['hY']a d'Ya YbhU]cb'cZ6Ub_'Z bXYX' dfc'YV'gž cf'k \Yb' hY'V'ca a i b]W]h]cb']g' U'V'ca d'U]bh U[U]bgh' hY' 6cffck Yf''÷h']g'fY[UFXž]ZU'V]XXYf'k]g'Yg'hc'dfchYghU[U]bgh'U'XYV]g]cb' a UXY'VmU'6cffck Yf'cf' hY'6Ub_'k]h'fY[UFXg'hc'hY'dfcWfYa Ybh dfcWgg'cf'k]g'Yg'hc']bZcfa 'hY'6Ub_'hUh'hY'6Ub_Ā'dfcWfYa Ybhfi 'Yg' UbX#cf'dfcj]g]cbg'cZhY'V]XX]b['XcW'a Ybhg'\Uj Y'bchVYYb'V'ca d']YX' k]h'žUb'Ya U]'WUb'VY'gYbh'hc'hY'Zc`ck]b['UXXfYgg'</p> <p>9a U]'. dfcWfYa YbhV'ca d'U]bhg4 UZXV'cf] .</p>
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GYVlcb'==! '9j U'i Uh]cb'UbX'E i U]ZVUh]cb'7f]hYf]U'

H\]g'gYVlcb'VēbhU]bg'U''h\Y'V]hYf]U'h\Uh'h\Y'9a d'cnYf'g\U''i gY'hc'Yj U'i UhY'6]Xg'UbX' ei U]Zm6]XXYfg"Bc'ch\Yf'ZVlcb'fgza Yh\cXg'cf'V]hYf]U'g\U''VY'i gYX'ch\Yf'h\Ub'gdYV]ZYX']b'h\]g'6]XX]b['XcV\ a Ybh'h\Y'6]XXYf'g\U''dfcj]XY'U''h\Y']bZcfa Uh]cb'fYei YghYX']b'h\Y' Zcfa g']bV\ XYX']b'GYVlcb'≡ Ž6]XX]b[' : cfa g'"K \YfYj Yf'U'6]XXYf']g'fYei]fYX'hc'ghYh'U' a cbYhUfm Ua ci bhž 6]XXYfg' g\ci 'X']bX]VUhY' h\Y' I G8' Yei]j UYbh'i g]b[' h\Y' fUhY' cZ Yl V\Ub['Y'XYhYfa]bYX'Ug'Zc'ck g'

: cf'Vēbg'hfi V]lcb'hi fbcj Yf'cf'Z]bUbV]U'XUHU'fYei]fYX'Zcf'YUW'mYUf'! '9l V\Ub['Y'fUhY' dfYj U']b['cb'h\Y'UghXUmicZ h\Y'fYgdYV]j Y'V\YbXUf'mYUf'f]b'k \]V\ h\Y'Ua ci bhg'Zcf' h\UhYUf'UfY'hc'VY'Vēbj YfhYXEk Ug'cf[]bU'mYghUV'jg\YX"

J U'i Y'cZg]b['Y'VēbhfUW! '9l V\Ub['Y'fUhY'dfYj U']b['cb'h\Y'XUhY'cZ h\Y'VēbhfUW'

9l V\Ub['Y'fUhY'g'g\U''VY'HJ_Yb'Zca 'h\Y'di V]VmhUj U]UV'Y'gci fV\]XYbh]ZYX']b'h\Y'≠h6' '&%'5bmYffc'f]b'XYhYfa]b]b['h\Y'Yl V\Ub['Y'fUhY'g']b'h\Y'6]X'a UmVY'VēffYV\X'Vmih\Y' 9a d'cnYf'"

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%'' A Uf[]b'cZdFYZYfYbW'

%% DfYZfYbW'Zcf'8ca Ygh]W7cbhfUMfcfg'

≠hY'68G'gc'gdYVWZYgžhY'9a d'cnYf'k]''[fUbh'U'a Uf[]b'cZdFYZYfYbW'cZ%\$i' fHYb' dYfWbH'hc'Xca Ygh]WVbhfUMfcfgž]b'UWVfXUbW'k]hž UbX'g V'YVh'hcž hY'Zc'ck]b[' dfcj]g]cbg'

fUE' 7cbhfUMfcfg'Udd'n]b['Zcf'gi Vh'dfYZfYbW'g\U''VY'Ug_YX'hc'dfcj]XYž Ug'dUfhcZhY' XUhU'Zcf'ei U']ZVh]cbž'gi Vh']bZcfa Uh]cbž]bW X]b['XYhU]'g'cZck bYfg\]dž Ug'g\U'' VY'fYei]fYX'hc'XYhYfa]bY'k\Yh'YfžUWVfX]b['hc'hY'WUgg]ZVh]cb'YghUV']g\YX'Vm hY'6cffck Yf'UbX'UWVdhYX'Vm'hY'6Ub_ž U'dUfh]W'Uf'VbhfUMfcf'cf' [fci d'cZ VbhfUMfcfg'ei U']ZYG'Zcf'U'Xca Ygh]WdfYZfYbW''hY'6]XX]b['XcW'a Ybh'g\U'' VYUf'm]bX]VhY' hY'dfYZfYbW' UbX' hY'a Yh'cX' hUh'k]''VY'Zc'ck YX']b' hY' Yj U'i Uh]cb'UbX'Vta dUf]gcb'cZ6]Xg'hc' []j Y'YZYVh'hc'gi Vh'dfYZfYbW''

fVE' 5ZHYf'6]Xg'\Uj Y'VYyb'fYW'] YX'UbX'fYj]Yk YX'Vm'hY'9a d'cnYfž fYgdcbg]j Y'6]Xg' g\U''VY'WUgg]ZYX']bhc'hY'Zc'ck]b[' [fci dg'

'f]E' ; fci d'5.'6]Xg'cZYfYX'VmXca Ygh]WVbhfUMfcfgY'] []V'Y'Zcf'hY'dfYZfYbW''

'f]]E' ; fci d'6.'6]Xg'cZYfYX'VmchY'f'VbhfUMfcfg''

5''Yj U'i UhYX'6]Xg']b'YUW' [fci d'g\U''ž Ug'U'Zfgh'Yj U'i Uh]cb'ghYdž VY'Vta dUfYX'hc' XYhYfa]bY'hY'6]X'k]h'ck Ygh'Yj U'i UhYX'Vtghž UbX'hY'6]X'k]h'hY'ck Ygh'Yj U'i UhYX' Vtgh']b'YUW' [fci d'g\U''VY'ž fH'Yf'Vta dUfYX'k]h'YUW'chYf'' ≠Ug'U'fYgi 'h'cZh']g' Vta dUf]gcbžU'6]X'Zca' ; fci d'5']g'hY'ck Ygž']h'g\U''VY'gY'YVhYX'Zcf'hY'Uk UfXž]ZhY' 6]XXYf']g'XYhYfa]bYX'gi VghUbh]U'mei U']ZYX'' ≠U'6]X'Zca' ; fci d'6']g'hY'ck Ygž' Ug'U' gYVbX'Yj U'i Uh]cb'ghYdžU''6]Xg'Zca' ; fci d'6'g\U''hY'b'VY'ž fH'Yf'Vta dUfYX'k]h'hY' ck Ygh'Yj U'i UhYX'Vtgh'Zca' ; fci d'5'' : cf'hY'di fdcgy'cZh']g'ž fH'Yf'Vta dUf]gcb'cb'nž Ub'Ua ci bhYei U'hc' %\$i' fHYb'dYfWbH'cZhY'fYgdYVh]j Y'6]X'df]W'cZ' ; fci d'6'VtffYVhYX' Zcf'Uf]h'a Yh]W'Yffcfgž]bW X]b[' i bVbX]h]cbU'X]gVti bhg'Vi h'YI W X]b['dfcj]g]cbU' gi a g'UbX'hY'Vtgh'cZXUmik cf_gž]ZUbñ'g\U''VY'UXXYX'hc'hY'Yj U'i UhYX'Vtgh'cZYfYX']b' YUW'6]X'Zca' ; fci d'6'' ≠hY'6]X'Zca' ; fci d'5']g'hY'ck Ygž']h'g\U''VY'gY'YVhYX'Zcf' Uk UfX'' ≠bchžhY'6]X'cZYf]b['hY'ck Ygh'Yj U'i UhYX'Vtgh'Zca' ; fci d'6'VUgYX'cb'hY' Zfgh'Yj U'i Uh]cb'ghYd'g\U''VY'gY'YVhYXž]Z hY'6]XXYf']g'XYhYfa]bYX'gi VghUbh]U'm ei U']ZYX''

%& DfYZfYbW'Zcf'FY[]cbU'7cbhfUMfcfg'

≠hY'68G'gc'gdYVWZYgžhY'9a d'cnYf'k]''[fUbh'U'fY[]cbU'dfYZfYbW'hc'VbhfUMfcfg']b' FA 7g'hUh'\Uj Y'č]bYX'hY'6cffck Yf'g'Vti bH'm]b'U'fY[]cbU'VtcdYfUh]cb'U[fYYa Ybh' XYg] [bYX'hc'ZcghYf'YVbca]W]bhY[fUh]cbž VmU'Wg'ca gi b]cbžcf'U'ZfY'fUfY'UfYU']b' UWVfXUbW'k]h'hY'Zc'ck]b['dfcWXi fY''5''fYgdcbg]j Y'V]Xg'k]''VY'WUgg]ZYX']b'cbY' cZhY'Zc'ck]b['h'c' [fci dg'

"

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; fci d'5." 6]Xg'c ZYfYX'VmVēbfUMfcfgž k \]M\`Uj Y'YghUV]g\YXžhc`hY'gUhgZUM]cb`
cZH`Y'6cffck Yf'UbX`hY'6Ub_žhc`VY`Y][`JV`Y`Zcf'fY[]cbU`dfYZfYbW/UbX`

; fci d'6." 6]Xg'c ZYfYX'Vmch`Yf`VēbfUMfcfg`"

5`Yj Ui UHYX'6]Xg']b`YUW` [fci d`g\U`ž Ug' U`Zfgh`Yj Ui Uh]cb`ghYdž VY`Vēa dUFYX`hc`
XYHYfa]bY`hY'6]X`k]h`ck Ygh`Yj Ui UHYX`Vēgh`UbX`hY'6]X`k]h`hY`ck Ygh`Yj Ui UHYX`
Vēgh`]b`YUW` [fci d`g\U`VY`ž fh`Yf`Vēa dUFYX`k]h`YUW`ch`Yf` ž Ug' U`fYg`h`cZ`h`g`
Vēa dUf]gcbžU'6]X`žca` ; fci d'5`]g`hY`ck Ygh`]hg\U`VY`gY`YVWX`Zcf`hY`Uk UfXž]Z`hY`
6]XXYf`]g`XYHYfa]bYX`ei U`]ZYX` ž U'6]X`žca` ; fci d'6`]g`hY`ck Ygh` Ug' U`gYVēbX`
Yj Ui Uh]cb`ghYdžU`V]Xg`žca` ; fci d'6`g\U`hY`b`VY`ž fh`Yf`Vēa dUFYX`k]h`hY`ck Ygh`
Yj Ui UHYX`Vēgh`žca` ; fci d'5` : cf`hY`di fdcgY`cZ`h`g`ž fh`Yf`Vēa dUf]gcb`cb`nž Ub`
Ua ci bh`Yei U`hc`+) i` fgh`Yj Yb`UbX`\U`ZdYfWb`h`cZ`hY`fYgdYVW]j Y'6]X`df]W`cZ; fci d'6`
VēffYVWX`Zcf`Uf]h`a Yh]W`Yffcfgž]bW`X]b[`i bVēbX]h]cbU`X]gVēi bhg`Vi h`Yi W`X]b[`
dfcj]g]cbU`g`a gUbX`hY`Vēgh`cZXUnk cf_gž]ZUbžg\U`VY`UXXYX`hc`hY`Yj Ui UHYX`Vēgh`
cZYfYX`]b`YUW`6]X`žca` ; fci d'6` ž hY'6]X`žca` ; fci d'5`]g`hY`ck Ygh`]hg\U`VY`
gY`YVWX`Zcf`Uk UfX` ž bchž hY'6]X`cZYf]b[`hY`ck Ygh`Yj Ui UHYX`Vēgh`žca` ; fci d'6`
VUgYX`cb`hY`Zfgh`Yj Ui Uh]cb`ghYd`g\U`VY`gY`YVWXž]Z`hY`6]XXYf`]g`XYHYfa]bYX`
ei U`]ZYX`"

&" Gi WYggž`6]X`cf'6]Xg/`9j Ui Uh]cb`

ē`Vēbh]bi Uh]cb`UbX`UWēfXUbW`k]h`#6` (\$ž hY`9a d`cmYf`g\U`i gY`hY`W]hYf]U`UbX`
a Yh`cXc`c[]Yg`ghYX`]b`h`g`GYW]cb`hc`Yj Ui UHY`6]Xg`6mUdd`m]b[`h`YgY`W]hYf]U`UbX`
a Yh`cXc`c[]Yg`hY`9a d`cmYf`g\U`XYHYfa]bY`hY`Gi WYggž`6]X`cf'6]Xg`k \]M`
\Ug`Uj Y`VYYb`XYHYfa]bYX`hc`.

fUE` VY`g`VghUbh]U`mfYgdcbg]j Y`hc`hY`6]XX]b[`XcW`a Ybh`

fVE` cZYf`hY`ck Ygh`Yj Ui UHYX`Vēgh`hc`hY`9a d`cmYf`Zcf`U`k cf_g`hc`VY`dfcW`fYX`
VUgYX`cb`Y]h`Yf`U`g]b[`Y`7cbhfUM`cf`U`a i`h]d`Y`7cbhfUM]g`Vēa V]bYXž Ug`hY`
WUgY`a UmVYž]b`UWēfXUbW`k]h`hY`#6`%`*`]bj]h]b[`V]X`df]W`g`UbX`X]gVēi bhgž
UbX`dfcj]g]cbg`a UXY`cZH`Y`6]XX]b[`8cW`a Ybh`Zcf`Yj Ui Uh]cb`cZV]Xg`UbX`Uk UfX`
cZVēbfUM]fgž/UbX`

fVē` VY`cZYfYX`Vm6]XXYf`cf'6]XXYfg`h`Uhgi VghUbh]U`ma YYh`hY`ei U`]Z]W]h]cb`W]hYf]U`
Udd`]WV`Y`Zcf`7cbhfUM`cf`Vēa V]bYX`7cbhfUM]g`Zcf`k \]M`h`YmUfY`gY`YVWX`"

&% 9j Ui Uh]cb`f#6`) Ł

ē`UXX]h]cb`hc`hY`W]hYf]U`]ghYX`]b`#6`) "&`UbX`68Gž hY`Zc`ck]b[`W]hYf]U`g\U`Udd`m`

f]Ł` 5ggYgga Ybh`cZ`UXYei UM`icZ`HYWb]W`DfcdcgU`k]h`F`Yei]fYa Ybhg`fFYZfYbW`
#6`%`UbX`#6`&`Ł`hY`9a d`cmYf`k]`XYHYfa]bY`k \Yh`Yf`hY`6]Xg`UfY`
g`VghUbh]U`mfYgdcbg]j Y`hc`hY`HYWb]W`F`Yei]fYa Ybhg`"

"

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9j U'i Uh]cb'cZ h'Y'6]XXYffg]HYVWb]W'DfcdcdgU'k]''bWl XY'Ub'UggYgga YbhicZ h'Y'6]XXYffg]HYVWb]W'WdUW]mihc'a cV]]nY' _YmYei]da Ybh'UbX' dYfgcbbY' Zcf' h'Y' VtbfUW]Vtbg]ghYbhk]h']hg'dfcdcdgU'fY[UfX]b['k cf_ 'a Yh'cXgžgWYXi ']b[žUbX' a UHYf]U' gci fV]b[']b' gi ZZ]VYbh' XYH] ' UbX' Z 'm]b' UWtfxUbW' k]h' h'Y' fYei]fYa Ybhg]gh]di 'UHYX']b'GYV]cb'J =žK cf_gĀfYei]fYa Ybhg'" "

f]]' 5ggYgga Ybh'cZ UXYei UW]h'cZ 7ca a YfV]U' HYfa g' UbX' 7cbX]h]cbg' cZ h'Y' 6]X' fFYZYfYbW' #h6' &-'('h'Y' 9a d'cmYf' k]'' XYHYfa]bY' k \Yh'Yf' h'Y' 6]Xg' UfY' gi Vg]Ubh]U'm fYgdcbg]j Y' h'c' h'Y' 7ca a YfV]U' UbX' 7cbfUW] U' HYfa g' UbX' 7cbX]h]cbg'"

&"& G]b['Y'7cbfUW]g'

Di fgj Ubh'hc' #h6' %('žUbX' #h6') "('UbX']b' UWtfxUbW' k]h' \ck 'V]Xg'UfY']bj]hYX' Y]h'Yf'Zcf'ĀK cf_gĀYj U'i Uh]cb'UbX'Uk UfX'k]''VY'Ug'Zc'ck g'"

5k UfX'7f]hYf]U'Zcf'U'G]b['Y'7cbfUW]h'

ĀK cf_gĀ

9j U'i Uh]cb'UbX'5k UfX'7f]hYf]U'Zcf'ĀK cf_gĀUg'Cby'fG]b['Yt'7cbfUW]h'h'Y'V]Xg'k]'' VY'Yj U'i UHYX'Zcf'ĀK cf_gĀUbX'h'Y'VtbfUW]k]''VY'Uk UfXYX'h'c' h'Y'6]XXYf'cZZf]b[' h'Y'ck Ygh'Yj U'i UHYX'Vtgh'hc'h'Y'9a d'cmYf'Zcf'ĀK cf_gĀžgi VYV]h'c'h'Y'gy'YV]YX' 6]XXYf'gi Vg]Ubh]U'ma YYh]b['h'Y'fYei]fYX'ei U]Z]W]h]cb'W]hYf]U'Zcf'h'Y'VtbfUW]ž UbX'XYHYfa]bUh]cb'cZgi Vg]Ubh]U'fYgdcbg]j YbYgg'cZ h'Y'6]X'"

&" ' 5'hYfbUh]j Y'7ca d'Yh]cb'H]a Yg'

5'hYfbUh]j Y'h]a Y'Zcf'Vt'a d'Yh]cb']g'bchidYfa]hYX'"6]Xg'cZZf]b['Vt'a d'Yh]cb'h]a Y' 'cb[Yf' h'Ub' h'Uh'gdYV]ZYX' i bXYf' DUfh' 5!7cbfUW]h' 8Uh' i bXYf' GYV]cb' t! DUfh]W'Uf'7cbX]h]cbg'cZ7cbfUW]h]g'U' VY'fY'YV]YX'"

&"('.....G] gh]bUW'Y'DfcW'fYa Ybh'6UgYX'cb'h'Y'Zc'ck]b['a U]b'Vtbg]XYfUh]cbg' "

Uk GcV]c!YVt'bca]VWtbg]XYfUh]cb'"

Vt' 9bj]fcb'a YbH]m'UbX'GcV]U'mfYgdcbg]V'Y'DfcW'fYa Ybh'"

&") ' 5'hYfbUh]j Y'HW]b]W'Gc'i h]cbg'Zcf'gdYV]ZYX'dUfh]cZ h'Y'K cf_g'"

H]g]g'bch'U'ck YX'" "

&"*GdYV]U]nYX'Gi VVtbfUW]c'fg'

ždYfa]hYX' i bXYf' #h6' ' (žcb'mh'Y'gdYV]ZYX'dYf]YbW'cZ Gi VVtbfUW]c'fg'Zcf'gdYV]U]nYX'k cf_g'dYfa]hYX'Vmih'Y'9a d'cmYf'k]''VY'Vtbg]XYfYX'" h'Y' [YbYfU' "

"

YI dYfjYbW'UbX'ZjbUbVjU'fYgci fWg'cZh\Y'GdYVjU]nYX'Gi VVtbfUWtcf'g\U'`bch'
 VY'UXXYX'hc'h'cgY'cZh\Y'6]XXYf'Zcf'di fdcgYg'cZei U]ZVh]cb'cZh\Y'6]XXYf".....

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' ""E i U]ZVhcb'

9][]mUbX'E i U]ZVhcb'7f]HYf]U'			7ca d`]UbW'FYei]fYa Ybhg'				8cWa YbHhcb'
Bc"	Gi VYVh	FYei]fYa Ybh	G]b[`Y'9bh]mi	>c]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYXŁ			Gi Va]gg]cb' FYei]fYa Ybhg'
				5``A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
%''9][]m							
%%%. .	BUhcbU]mi	B UhcbU]mi]b'UWŁfXUbW'k]h' #Ł'('('	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	B #5'	@YhYf'cZ6]X' / : cfa g'9@=A'%% UbX'%'&žk]h' UhtUW'a Ybhg'
%%&.	9][]m]mcZ A UHf]Ugž 9ei]da Ybh UbX'GYfj]Wg'	7ci bhfmCZCf][]b']b' UWŁfXUbW'k]h' #Ł')'	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	B #5'	@YhYf'cZ6]X' / : cfa '9@%'
%&.	7cbZ]MhcZ #bhYfYgh	Bc'VŁbZ]MhcZ]bhYfYgh]b' UWŁfXUbW'k]h' #Ł'('&	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	B #5'	@YhYf'cZ6]X'
%'.	6Ub_9][]m	Bch\Uj]b[`VYYb'XYWUfYX']bY'][]V'Y'Vmih.Y'6Ub_žUg' XYgW]VYX']b' #Ł'(')''	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	B #5'	@YhYf'cZ6]X'
%(''	GHU! 'ck bYX' 9bhYfdf]gY'cf' #gh]h h]cb'cZ h.Y'6cffck Yf' VŁi bhfm	A YYhg'VŁbX]h]cbg'cZ #Ł' (''	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	A i ghia YYh fYei]fYa Ybh	B #5'	: cfa g'9@=A'%% UbX'%'&žk]h' UhtUW'a Ybhg'

"

9[[V]]mUbX'E i U]ZVhcb'7f]HYf]U'			7ca d']UbW'FYei]fYa Ybhg'				8cW'a YbhU]hcb'
Bc"	Gi V'YV'	FYei]fYa Ybh'	G]b['Y'9bh]m	x]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYXE'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5~~A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
%)'	I b]hYX' B U]hcbg' fYgc'i h]cb'cf' 6cffck Yf]g' Vei b]fm'Uk'	Bch\Uj]b['VYyb'YI W' XYX' Ug'U'fYg' 'hcZdfc\]V]hcb']b'hY'6cffck Yf]g' Vei b]fm' 'Uk g'cf'cZ]WU' fY[i 'U]hcbg' U[U]bgh'Ve'a a YfV]U' fY'U]hcbg'k]h' hY'6]XXYf]g' Vei b]fm'zcf'VmUb'UW'icZ Ve'a d']UbW'k]h' i B' GYWf]m7ci bV]Y' fYgc'i h]cbzVch']b' UW'cfXUbW'k]h' #k'(", ' UbX'GYV]hcb'J "	A i ghia YYh' fYei]fYa Ybh'	A i ghia YYh' fYei]fYa Ybh'	A i ghia YYh' fYei]fYa Ybh'	B #5'	: cfa g'9@-A'%% UbX'%'&z'k]h' U]hUW'a Ybhg'
&"<]g]cf]W'7cbhfUW'iBcb!DYfZcfa UbW'							
&'%	<]g]cf]m'icZ Bcb! DYfZcfa]b[' 7cbhfUW]g'	Bcb!dYfZcfa UbW'cZU' Veb]hfUW'hU'h'X]X'bch' cWW'f'Ug'U'fYg' 'hcZ Veb]hfUW'cf'XYZU' 'hg]bW' %g'>Ubi Ufm&\$%' "'	A i ghia YYh' fYei]fYa Ybh'	A i ghia YYh' fYei]fYa Ybhg'	A i ghia YYh' fYei]fYa Ybh'&''	B #5'	: cfa '7CB!&'

Nonperformance, as decided by the Employer, shall include all contracts where (a) nonperformance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Nonperformance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Nonperformance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

This requirement also applies to contracts executed by the Bidder as JV member.

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9[[V]]mUbX'E i U]ZMhcb'7f]HYf[U'			7ca d`]UbW'FYei]fYa Ybhg'				8cWa YbhU]cb'
Bc"	Gi VYVh	FYei]fYa Ybh	G]b[`Y'9bh]m	>c]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYX'E'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5``A Ya VYfg' 7ca V]bYX'	9UM' A Ya VYf'	CbY'A Ya VYf'	
&"('	@h] Uh]cb' <]ghcfm	Bc`Vcbg]ghYbh`]\ghcfmcZ Vti fh#UFV]hU`Uk UfX' XYW]g]cbg'U[U]bgh`h`Y' 6]XXYf'`g]bW`%g'>Ubi Ufm &\$%*""	A i gh'a YYh fYei]fYa Ybh'	A i gh'a YYh fYei]fYa Ybh	A i gh'a YYh fYei]fYa Ybh'	B #5'	: cfa `7CB `A`&''

The Bidder shall provide accurate information on the related Bid Form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five years. A consistent history of awards against the Bidder or any member of a joint venture may result in failure of the Bid.

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9][J]]mUbX'E i U]ZVh]cb'7f]hYf]U'			7ca d']UbW'FYei]fYa Ybhg'			8cW'a Yb]h]cb'	
Bc''	Gi V'YV'	FYei]fYa Ybh'	G]b['Y'9bh]mi	x]bh]Ybh fY'fYi]gh]b['cf']bhYbXYXE'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5''A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
&')'	8YVUfU]cb.' 9bj]fcb'a Yb]U' UbX'GcV]U' f]G] dUgh' dYfZcfa UbW'	8YVUfY'UbmV]]'k cf_ V]b]fUW]g'h Uh\Uj Y'VYYb' gi gdYbXYX'cf'hYfa]bUhYX' UbX#cf'dYfZcfa UbW' gYVf]m]W'YX'VmUb' Ya d'cmYf'Zcf'fYUgcbg' fY'UhYX'hc'hY'bcb! V]a d']UbW'cZUbm Ybj]fcb'a Yb]U'Zcf'gcV]U' f]bW X]b['gYi i U' Yl d'c]h]cb'UbX'UWi gY' f]G95E'UbX' [YbXYf! VUgYX'j]c'YbW'f] 6J HZ cf'\YU'h'cf'gUZY'mi fYei]fYa Ybhg'cf' gUZY[i UfX']b'hY'dUgh]Z] Y' f] E'nYUfg'	A i gh'a U_Y' h.Y' XYWUfU]cb'' K \YfY'h.YfY' UfY' GdYV]U']nYX' Gi V! V]b]fUW]cf#gZ h.Y' GdYV]U']nYX' Gi V! V]b]fUW]cf#g' a i gh]Ugc' a U_Y'h.Y' XYWUfU]cb''	B #5'	9UW' a i gh' a U_Y'h.Y' XYWUfU]cb'' K \YfY'h.YfY' UfY' GdYV]U']nYX' Gi V! V]b]fUW]cf#gZ h.Y' GdYV]U']nYX' Gi V! V]b]fUW]cf#g' a i gh]Ugc' a U_Y'h.Y' XYWUfU]cb''	B #5'	: cfa '7CB!' '9G' DYfZcfa UbW' 8YVUfU]cb'
' '' :]bUbV]U'G]h U]cb'UbX'DYfZcfa UbW'							

The Employer may use this information to seek further information or clarifications in carrying out its due diligence.

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9][]][]miUbX'E i U][ZVhcb'7f]hYf]U'			7ca d']UbW'FYei]fYa Ybhg'				8cW'a YbhU]hcb'
Bc'''	Gi V'YVh'	FYei]fYa Ybh'	G]b['Y'9bh]mi	x]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYX'E'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5'''A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
' "%	:]bUbV]U' 7UdUW]]hYg'	f]EhAY'6]XXYf'g\U''' XYa cbgfhU]h'Uh]h\Ug' UWWgg]hcZcf'\Ug'Uj U]UV'Yz `]ei]X'UggYhgZ i bYbW'a VYfYX'fYU' UggYhgZ`]bYg'cZVfYX]hZUbX' ch.Yf'Z]bUbV]U'a YUbg' f]bXYdYbXYbhicZUbm V`bhfUW' U'UXj UbW' dUna Ybhf'gi Z]VYbhic' a YYh hY'V`bgf]i V]cb' VUg\ 'Zck' fYei]fYa Ybhg' Ygh]a UhYX'Ug'I G8`~ (Z\$\$\$\$Zcf'hY'gi V'YVh' V`bhfUW'bYhcZHAY' 6]XXYf'g'ch.Yf' V`a a]ha Ybhg' f]]EhAY'6]XXYfg'g\U'''Ugc' XYa cbgfhU]hZhc'hY' gUhgZV]cb'cZHAY' 9a d'cmYfZ hUh]h\Ug' UXYei Uh'gci fWg'cZ Z]bUbW'hc'a YYh hY'VUg\	A i ghia YYh fYei]fYa Ybh' A i ghia YYh fYei]fYa Ybh'	A i ghia YYh fYei]fYa Ybh' A i ghia YYh fYei]fYa Ybh'	B #5' B #5'	: cfa' : B'À' "%Z' ' " 'UbX' " ('k]h' UhtUW'a Ybhg'	

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9[[V]]mUbX'E i U]ZVhcb'7f]HYf]U'			7ca d']UbW'FYei]fYa Ybhg'				8cW'a YbhU]hcb'
Bc"	Gi V'YVh'	FYei]fYa Ybh'	G]b['Y'9bh]m'	x]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYXE'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5~~A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
		Zck 'fYei]fYa Ybhg'cb' kcf_g'WffYbhm]b' dfc[fYgg'UbX'Zcf'Zi hi fY' VcbhfUWVcb' a]ha Ybhg" f]]EhY'Ui X]hYX'VU'UbW' g\YYhg'cfZ]ZbchfYei]fYX' VmhY'Uk'gcZH'Y'6]XXYfAg' Vcb' bhnzchYf'Z]bUbV]U' ghY'a Ybhg'UWVdHUV'Y'hc' hY'9a d'cmYfZ'Zcf'hY'Ugh' Z]j Y nYUfg'g\U'~VY' gi Va]hYX'UbX'a i gh' XYa cbghfUhy'hY'WffYbh' gci bXbYgg'cZH'Y'6]XXYfAg' Z]bUbV]U'dcg]h]cb'UbX']bX]WUhy'hg'dfcgdYV]j Y' `cb[!hYfa 'dfcZ]hUV']]m'	A i ghia YYh' fYei]fYa Ybh'	B#5'	A i ghia YYh' fYei]fYa Ybh'	B#5'	
' "&'	5j YfU[Y' 5bbi U' 7cbgfi W]cb' H fbcj Yf'	A]b]a i a 'Uj YfU[Y'Ubbi U' Vcbghf W]cb'h fbcj Yf'cZ' I G' % \$\$\$\$ W'W'UHYX' Ug'hcH'Wfh]ZYX' dUna Ybhg'fYW]j YX'Zcf' VcbhfUWVg]b' dfc[fYgg'	A i ghia YYh' fYei]fYa Ybh'	A i ghia YYh' fYei]fYa Ybh'	A i ghia YYh' ' \$i žf]h]fmi dYfWbH'cZ' hY' fYei]fYa Ybh'	A i ghia YYh' ' \$i žf]h]fmi dYfWbH'cZH'Y' fYei]fYa Ybh'	: cfa ': B'Ä' "&'

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9[[V]]mUbX'E i U]ZVhcb'7f]Yf]U'			7ca d`]UbW'FYei]fYa Ybhg'				8cW'a YbhU]cb'
Bc"	Gi VYVh'	FYei]fYa Ybh'	G]b[`Y'9bh]mi	x]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYX'E'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5`A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
		UbX#cf'Vta d`YhYX'k]h.]b' h.Y`UghZ] Y'f] EnYUfg"					
("9 dYf]YbW'							
("%fUL'	; YbYfU' 7cbgfi V]cb' 9 dYf]YbW'	9 dYf]YbW' i bXYf' Vabgfi V]cb' VabfUW]g']b' h.Y' fc`Y' cZ df]a Y' VabfUW]cfz >] a Ya VYfz g VabfUW]cfz cf' a UbU[Ya Ybh' VabfUW]cf' Zcf'Uh`YUghh.Y`UghZ] Y'f] EnYUfg"	A i ghia YYh' fYei]fYa Ybh'	B #5'	A i ghia YYh' fYei]fYa Ybh'	B #5'	: cfa '9LD'A' ("%
("&fUL'	GdYV]ZW 7cbgfi V]cb' / '7cbfUW] A UbU[Ya Ybh' 9 dYf]YbW'	5'a]b]a i a 'bi a VYf'cZ Hk c'f]Zg]a]Uf'VabfUW]g' gdYV]ZYX']b' ("&fVLEVY'ck' h.Uh\Uj Y'VYYb' gUhgZUW]cf']mUbX' gi VghUbh]U`m'Vta d`YhYX' Ug'U'df]a Y'VabfUW]cfz	A i ghia YYh' fYei]fYa Ybh'	A i ghia YYh' fYei]fYa Ybh'	B #5'	B #5'	: cfa '9LD' ("&fUL'

Substantial completion shall be based on 80% or more works completed under the contract.

In the case of JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whether the JV meets the requirement of total number of contracts, only the number of contracts completed by all members each of value equal or more than the minimum value required shall be aggregated.

"

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9][V]]mUbX'E i U]ZVhcb'7f]HYf]U'			7ca d']UbW'FYei]fYa YbHg'				8cWa YbHhcb'
Bc"	Gi VYVh	FYei]fYa Ybhi	G]b['Y'9bh]mi	x]bhJ Ybhi fY'fYi]gh]b['cf']bhYbXYX'E			Gi Va]gg]cb' FYei]fYa YbHg'
				5~~A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
		'c]bhj Ybhi fY'a Ya VYf'*Z a UbU[Ya YbhiVtbfUMcf' cf'gi VVtbfUMcf'k]h]b' hY''UghZ]i Y'f] E'mYUfg Z'ca ' hY'5dd']W]hcb' gi Va]gg]cb'XYUX']bY''9UW' VtbfUMg\ci 'X'\Uj Y'U' a]b]a i a 'j U'i Y'cZ?9G' , \$\$\$Z\$\$\$Z\$\$\$P'PYbntU' G\]']b[g'9][\h<i bXfYX' A]']cbL''					
("&fV'E 7cbgfi V]cb' 9 dYf]YbW']b' ?Ym7]]]' K cf_g' 5V]]hYg'		: cf'hY'UVcj Y'cf'chYf' VtbfUMgYi YVhYX'Xi f]b[' hY'dYf]cX'gh]di 'UHYX']b' ("&fU'UVcj YZU'a]b]a i a ' Yi dYf]YbW']b'hY' Zc``ck]b['_YmiUW]]h]Yg' <ul style="list-style-type: none"> 7cbgfi V]cb'cZ gYk U[Y'hfYUa Ybhi d'UbhiK]h' WdUM]mi 	A i ghia YYhi fYei]fYa YbHg'	A i ghia YYhi fYei]fYa YbHg'	B #5'	B #5'	: cfa '9LD'A' ("&fV'E

For contracts under which the Applicant participated as a joint venture member or sub-contractor, only the Applicant's share, by value, and role and responsibilities shall be considered to meet this requirement.

"

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9][V]]mUbX'E i U]ZVhcb'7f]HYf]U'			7ca d`]UbW'FYei]fYa YbHg'				8cW'a Yb]hcb'
Bc"	Gi V'YV'	FYei]fYa Ybh'	G]b[`Y'9bh]m	x]bhJ Ybh fY'fYi]gh]b['cf']bhYbXYX'E'			Gi Va]gg]cb' FYei]fYa YbHg'
				5``A Ya VYfg' 7ca V]bYX'	9UW' A Ya VYf'	CbY'A Ya VYf'	
		<p>[fYUhf'hUb', \$\$\$\$ a' #XUm'</p> <ul style="list-style-type: none">7cbVYh'DfcXi V]cb' %\$\$\$a' dYf'a cbh'9Ufhkcf_g) \$\$\$a' dYf'a cbh'					
("&fV'	7cbghf V]cb' 9 dYf]YbW']b' ?Ym 9YVfca YWU b]W'K cf_g' 5V]j]hYg'	<p>: cf'hY'Uvcj Y'cf'chYf' VzbfUWgYI YW'hX'Xi f]b[hY'dYf]cX'gh]di `UHYX']b' ("&fU'Uvcj YZU'a]b]a i a' YI dYf]YbW']b'hY' Zc``ck]b[`_YmUW]j]hYg'</p> <ul style="list-style-type: none">ghU`U]cb'cZgYk Yf']b`YhUbX'XY! [f]h]b[' a UW]bYfmUvcj Y' , \$\$\$\$a' #XUm'ghU`U]cb'cZG7585' Yei]da YbhZcf'i h]]m Yei]da Ybh	A i gha YYh fYei]fYa YbHg'	A i gha YYh fYei]fYa YbHg'	B #5'	B #5'	: cfa '9LD'A'("& fV'E'

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9[[V]]mUbX'E i U]ZMhcb'7f]HYf]U'			7ca d']UbW'FYei]fYa Ybhg'				8cWa YbhU]cb'
Bc"	Gi V'YV'	FYei]fYa Ybh'	G]b['Y'9bh]m	x]bhj Ybh fY'fYi]gh]b['cf']bhYbXYX'E'			Gi Va]gg]cb' FYei]fYa Ybhg'
				5''A Ya VYfg' 7ca V]bYX'	9UM' A Ya VYf'	CbY'A Ya VYf'	
		<ul style="list-style-type: none"> • bghU`U]cb'cZ gk]hW[YUf'fUHX' Uwcj Y'%\$\$\$5' 					
("&fX'E'	GdYV]ZW 9 dYf]YbW']b' a UbU[]b['9G' UgdYV]g'	: cf'hY'VebhfUMg']b' ("&fU'E' Uwcj Y'UbX#cf'UbmchYf' VebhfUMg'Gj Vg]Ubh]U'm V'a d'YHX'UbX'i bXYf']a d'Ya YbhU]cbQUg'df]a Y' VebhfUMcfZ'c]bhj Ybh fY' a Ya VYfZcf'Gi VVebhfUMcf' VYrk YYb %gh>Ubi Ufm&\$%+ UbX'6]X'g' Va]gg]cb' XYUX']bYZ'YI dYf]YbW']b' a UbU[]b['9G'f]g_gUbX']a dUMg']b'hY'Zc`ck]b[' UgdYV]g' 5g']b'hY'K cf_gÅ FYei]fYa Ybhg'! ' 9bj]fcba YbhU'UbX'GcV]U' fPGL'fYei]fYa Ybhg'	A i gha YYh fYei]fYa Ybhg'	A i gha YYh fYei]fYa Ybh'	B #5'	B #5'	: cfa '9LD'A' ("& fV'E'

"

(" 7cbhfUWcfÅgFYdfYgYbhUj Y'UbX'YmDYfgcbbY"

HAY'6]XXYf'a i gh XYa cbgfhU' hUh'jh k']\Uj Y' U' gi]hU'mei U]ZYX' 7cbhfUWcfÅg FYdfYgYbhUj Y' UbX' gi]hU'mei U]ZYX' fUbX']b' UXYeI Uh' bi a VYfg' ?YmDYfgcbbYž Ug XYgWjVYX']b' hAY'GdYVjZVhcb"

HAY'6]XXYf'g\U' dfcj]XYXYHj]g'cZHAY'7cbhfUWcfÅgFYdfYgYbhUj Y'UbX'YmDYfgcbbY' UbX' gi W' chAYf' ?YmDYfgcbbY' hUh'hAY'6]XXYf'V'bg]XYfg'Uddfcdf]Uh' hc' dYfZcfa' hAY' 7cbhfUWcfÅg[YhAYf'k]h' hAY]f'UWXYa]Wei U]ZVhcbg'UbX'k cf_ 'YI dYf]YbW'"HAY'6]XXYf' g\U'V'za d'YHY'hAY'fY'Yj Ubh: cfa g]b'GYW]cb'ž 6]XX]b[' : cfa g"

5_ YmfYei]fYa Ybh]g'hUh'hAYfY'VY'9b[']g\ 'gdYU_]b[' ghUZZk \c' \Uj Y'fU]bYX'chAYfg'cb' i h']]mcdYfUh]cbg]b' Uh'YUgh' ' j Yf]ZUV'Y'k UhYf'UbX'gYk U['Y'd'Ubhg]b' Gi V'GU'UfUb'5Z]W"

Bc"	9ei]da YbhHndY'UbX'7\UfUWf]gh]Vg'	HcHU'K cf_'G]a]Uf' 9 dYf]YbW'fHYUfg'	÷b'G]a]Uf'K cf_g' 9 dYf]YbW'fHYUfg'
%	CbY'fÅ'G]hY'5[Ybhf5'DfcZYgg]cbU' 7]j]#K UhYf'9b[]bYYf'fY[]ghYfYX'k]h' hAY'96? 'cf'Yei]j UYbht'	%&'	+
&	CbY'fÅ'8Ydi hmG]hY'5[Ybhfi fUXi UhY' 7]j]#K UhYf'9b[]bYYf'fY[]ghYfYX'k]h' 96? 'cf'Yei]j UYbht'	;%\$')'
' '	CbY'fÅ'9YVfca YWUb]W'9b[]bYYf' fBY[fYY']b'9YVfca YWUb]W' 9b[]bYYf]b[žcf'Yei]j UYbht'	;%\$')'
('	CbY'fÅ'÷ghfi a YbhUh]cb'9b[]bYYf' fBY[fYY']b'÷ghfi a YbhUh]cb'cZ 9YVfcb]Wžcf'Yei]j UYbht'	+	('
)'	Hk c'f&&G]hY'9b[]bYYfg'fY[]ghYfYX'k]h' 96? 'cf'9ei]j UYbhUg'; fUXi UhY' 9b[]bYYfg'k]h' 7]j]#K UhYf' 9b[]bYYf]b['HfU]b]b[' ')'	' '
*'	CbY'fÅ'9b[]bYYf]b['gi fj Ymcfg')')'
+	CbY'fÅ'9bj]fcba YbhU'ghfi b]j Yfg]mi ; fUXi UhY']b'9bj]fcba YbhU'GWYbW'cf' Yei]j UYbht'Å fY[]ghYfYX'k]h' B9A 5' cf'Yei]j UYbh)'	('
, '	CbY'fÅ'GcV]c'c[]ghfi b]j Yfg]mi ; fUXi UhY']b'GcV]c'c[nž7ca a i b]mi 8Yj Y'cda YbhGi X]Yg'cf'Yei]j UYbht')'	('

"

-`	Hk c`f&L'G]hY`K cf_gj -bgdYVWcfg# cfYa Yb fB]d`ca U'cf` Yei]j U'Ybh]b` 7]j]`#6i]X]b[#7cbgfi W]cb#K UHYf` 9b[]bYYf]b[Ł	%"`)`
%"`	CbY`f%Ł<YU'h`UbX`GUZYhmC Z]Wf` fFY`Yj Ubh8Y[fYY`UbX`Wfh]Z]W]cb`]b` CWWdU]cbU`<YU'h`UbX`GUZYhm 7ci fgY`	+"`	'`

.

)"" 9ei]da Ybh`

H\Y`6]XXYf`a i ghXYa cbgfhU'h`hUh]h\Ug'hY`_YmYei]da Ybh`]ghYX`\YfYUZHYf.`

Bc""	9ei]da Ybh`HndY`UbX`7\UfUWf]gh]Vg`	A]b]a i a `Bi a VYf`fYei]fYX`
%"`	%) a`'cf`&\$`hcb`9l W]j Uhcfg`	(`
&"`	6UW\cY`cUXYf`	'`
' ""`	+!%"`hcb`c`ff]Yg`	&
("`)`hcb`<c]gh7fUbY`	%"`
)""`	%`hcb`h]ddYfg`	&
*""`	A c`hcf`; fUXYfg`fl`"*a`V`UXYŁ	&
+"`	7cbVWYhY`A]l Yfgf2`&a`#a`Ł	(`
, ""`	7cbVWYhY`Xi a dYfgf]2`\$"+) a`Ł	(`
- ""`	7cbVWYhY`Dc_Yf`j]VfUhcfg`fl`)(`\$a a Ł	,`
%"`"	5]f`VŁa dfYggcf`fk]h`"2`, `>UW`\Ua a YfgŁ)`
%%`	A cV]Y`fi VVYf`hm]fYX`7fUbY`f)`hcbŁ	%"`
%&"`	Ghcfa`k UHYf`XfU]bU[Y`di a dgf2`" a`#a]b`Ł	&
% ""`	; YbYfUhcfg!`2%`_J 5/'`	%"`

H\Y`6]XXYf`g\U`d`fcj]XY`Z fh\Yf`XYH]`g`cZdfcdcgYX`]hYa g`cZYei]da Ybhi g]b[`: cfa`
9E I`]b`GYW]cb`÷ž6]XX]b[`: cfa g"

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h

GYW]cb' ð ! '6]XX]b[: cfa g'

@hYf'cZ6]X'

~~BGFI 7HCBGHC 6-889FG 89@H9H-6'6CL CB79MCI <5J97CA D@H98~~

H<9'8C7I A 9BH'

HAY'6]XXYfa i ghdfYdUFY'h]g'@hYf'cZ6]X'cb gh]cbYfmk]h]hg'YhYh YUX WWUFmi
g\ck]b['

hAY'6]XXYf]gVta d'Yh'blu Y'UbX'Vi g]bYgg'UXXfYgg''

BchY. 5'']hU]MhYX'hYh]b]g'hc \Yd'6]XXYfg]b d'fYdUf]b['h]g'Zcfa ''

8UHY'cZH]g'6]X'g Va]gg]cb. QbgYfhXUHY'fUgXUhz a cbh' UbX'mYUf'cZ6]X'g Va]gg]cbQ

C76-#@76'Bc''. QbgYfhbi a VYf'cZV]XX]b['dfcWggUg'dYf'dfcWfYa Ybhd'UbQ

÷j]h]cb'Zcf'6]X'Bc''. QbgYfhgUa Y'÷6'bi a VYf'Ug'UXj Yfh]gYXQ

5'hYfbUhj Y'Bc''. QbgYfh]XYbh]Z]W]cb Bc]ZH]g']g'U'6]X'Zcf'Ub U'hYfbUhj YQ

Hc. QbgYfhVta d'Yh'blu Y'cZ9a d'cmYQ

K Yzh'Y'i bXYfg] bYXZXYWUFY'hUh''

Bc' fYgYfj Uh]cbg' K Y' \Uj Y' YI Ua]bYX' UbX' \Uj Y' bc' fYgYfj Uh]cbg' hc' h'Y' V]XX]b['XcW'a Ybhž
]bW X]b['5XXYbXU']ggj YX]b'UWtfXUbW'hc' ÷6' /

9][]V']]m'cZ6]XXYf. K Yž]bW X]b['Ubmj VVtbfUWtf'g'cf'g' dd']Yfg'Zcf'UbmidUfh'cZH'Y'7cbhfUWt
\Uj Y' bUh]cbU']hYg'Zca 'Y][]V'Y'Vti bfh]Yg'UbX' a Yh'h'Y'Y][]V']]mfYei]fYa Ybhg'UbX' \Uj Y' bc'
Vt'bz]Vti'cZ]bhYfYgh]b'UWtfXUbW'k]h' ÷6' (/

9][]V']]m'cZ A UHYf]Ugž 9ei]da Ybh'UbX' GYfj]Wg' K Y' a Yh'h'Y'Y][]V']]mfYei]fYa Ybhg'Zcf'
A UHYf]Ugž 9ei]da Ybh'UbX' GYfj]Wg']b'UWtfXUbW'k]h' ÷6') /

6]X! GYWf]b[' 8YWUfUh]cb. K Y' \Uj Y' bch' VYYb' g' gdYbXYX' bcf' XYWUFYX']bY][]V'Y' Vmi h'Y'
9a d'cmYf' VUgYX' cb' YI YW]cb' cZ U' 6]X! GYWf]b[' 8YWUfUh]cb']b' h'Y' 9a d'cmYf]g' Vti bfhm]b'
UWtfXUbW'k]h' ÷6' (" +/

7cbZcfa]m'K Y'cZyf'hc' YI YW]h']b' Vt'bz'cfa]mk]h' h'Y' V]XX]b['XcW'a Ybh'UbX']b'UWtfXUbW'
k]h' h'Y' Vt'bgfi V]cb'gWYXi 'Y'h'Y'Zc'ck]b['K cf_g' QbgYfh'U'Vf]YZXYgM]dh]cb'cZH'Y'K cf_gQ'

6]X'Df]W. h'Y'hc'hU'df]W'cZci f'6]XžYI W X]b['UbmX]gVti bhg'cZyfYX]b']h'Ya 'f] E'VY'ck]g' QbgYfh'
cbY'cZH'Y'cdh]cbg'VY'ck 'Ug'Uddfcdf]UhYQ

[@dh\]cb'ž\]b'WUgY'cZcbY'7cbhfUWti'Zcf'K cf_gAQ'HchU'df\]W' \]g' QbgYfh'h'Y'hc'hU'df\]W'cZ](#)
[h'Y'6\]X' \]b'k cfXg'UbX'Z\]i fYgž \]bX\]W\]h\]b\['h'Y'j'Uf'ci g'Ua ci bhg'UbX' h'Y'fYgdYV\]h\]Y'](#)
[WffYbV\]YgQ'](#)

Cf''

Qd h j c b ' & z j b ' W l g Y ' c Z a i ' h j d ' Y ' c h g ' c f ' C d h j c b ' ' z j b ' W l g Y ' c Z a i ' h j d ' Y ' d U W U l ' Y g ' Y U M X ' d U W U l ' Y ' V t a d f j g j b l ' c Z c b Y ' c f ' a c f Y ' c h g ' Q f u l ' H c H U ' d f j W ' c Z Y U M X ' c h j X Y b h j z h j b l ' j h g ' d U W U l ' Y b i a V Y f ' j Z j h V Y c b l ' g h c ' U d U W U l ' Y ' Q b g Y f h i h Y ' h c H U ' d f j W ' c Z Y U M X ' c h j b ' k c f X g ' U b X z j l i f Y g z j b X j W h j b l ' h Y j U f j c i g l a c i b h g U b X h Y f Y g d Y W h j Y W f f Y b V W g Q U b X f V t H c H U ' d f j W ' c Z U ' ' c h g ' f g j a ' c Z U ' ' c h g ' Q b g Y f h i h Y ' h c H U ' d f j W ' c Z U ' ' c h g ' j b ' k c f X g ' U b X z j l i f Y g z j b X j W h j b l ' h Y j U f j c i g l a c i b h g U b X h Y f Y g d Y W h j Y W f f Y b V W g Q

8]gWti bhg 'HAY'X]gWti bhg'cZYfYX'UbX'hY'a YhcXc'c[mZcf'hY]f'Udd'jW]h'cb'UFY.''

- f]E'HA'Y'X]gWti bhg'cZYfYX'UFY. *Qd Y W m j b ' X Y H U j ' Y U M X ' X] g W t i b h c Z Y f Y X ' Q*
- f]E'HA'Y'YI U M i a Y h c X ' c Z W W ' U h j c b g h c ' X Y H f a ' j b Y h Y b Y h d f j W ' c Z Y U M X ' j h Y a ' U b X ' k c f ' g z U b X ' j b ' W l g Y ' c Z a i ' h j d ' Y ' c h g ' c f ' a i ' h j d ' Y ' d U W U l ' Y g z b Y h d f j W ' c Z Y U M X ' j h Y a ' z Y U M X ' c h i U b X ' Y U M X ' d U W U l ' Y ' U Z H Y f ' U d d ' j W h j c b ' c Z X] g W t i b h g ' j g ' g l c k b ' V Y c k . *Qd Y W m j b ' X Y H U j ' ' H Y ' a Y h c X ' h U h g l U ' V Y i g Y X ' h c ' U d d ' m i h Y ' X] g W t i b h g ' U b X ' Y b g i f Y ' W U f j m z i b U a V j l i j m z Y H W ' j b ' U W t f X U b W ' k j h ' # 6 % ' + Q*

6]X'J'U'X]mDYf]cX. 'Ci f'6]X'g'U'VY'j'U'X'Zcf'U'dYf]cX'gdYW]YX'j]b'68G'% '%f'f'Ug'Ua YbXXYX'jZ Udd'jW'V'Y'Z'ca 'hY'XUH'Z]l'YX'Zcf'hY'6]X'g'Va [gg]cb'XYUX'j]bY'gdYW]YX'j]b'68G'&&'%f'f'Ug'Ua YbXXYX'jZ Udd'jW'V'Y'Z'UbX'j]h'g'U'fYa U]b'V]bX]b['i dcb'i g'UbX'a UmVY'UWVdhYX'Uh'Ubmi]a Y'VYZcf'Y'hY'Yl d]fU]h'cb'cZ'h'UhdYf]cX/

DYfZcfa UbW'GYWf]m'Zci f'6]X'j]g'UWVdhYX'Zk Y'Vta a]h'c'cVH]b'U'DYfZcfa UbW'GYWf]m'QubX' Ub'9bj]fcb'a YbHU' UbX'GcV]U'f9GL'DYfZcfa UbW'GYWf]m'8Y'YH'jZbch'Udd'jW'V'Y'Q]b'hY'Zcfa g' j]b'UWt'fXUbW'k j]h'hY'V]XX]b['XcW'a Ybh'

CbY'6]X'DYf'6]XXYf.'K Y'UFY'bchig' Va]h]b['Ubmch'Yf'6]X'f]Ug'Ub'j]bX]j]Xi U'6]XXYf'ZUbX'k Y'UFY' bch'dUf]V]dU]b['j]b'Ubmch'Yf'6]X'f]Ug'U'>]bh'jYbh'fY'a Ya VYf'cf'Ug'U'g' Vt'bfUWt'f'Z'UbX' a YHh'hY'fYei]fYa Ybh'g'cZ#6(' ' zch'Yf'h'Ub'U'h'fbU]j'Y'6]X'g'g' Va]hY'X'j]b'UWt'fXUbW'k j]h'h'6' % /

Gi gdYbg]cb'UbX'8YVUfa Ybh'K YZ'Ucb['k j]h'Ubm'cZci f'g' Vt'bfUWt'f'g'g' dd'jYf'g'Z'bg' 'h'ubh'g'z a Ubi ZUM' fYf'g'cf'g'f]jW'dfcj]XYfg'Zcf'UbmdUfh'cZ'hY'Vt'bfUWt'f'UFY'bch'g' V'Y'V'h'c'Z'UbX'bch' Vt'bf'c'YX'Vm'UbmiYbh]m'c'f]bX]j]Xi U'h'U]j]g'g' V'Y'V'h'c'Z'U'h'Ya dcfUfmg' gdYbg]cb'cf'U'XYVUfa Ybh' j]a d'cgYX'Vm'h'Y'6Ub'cf'U'XYVUfa Ybh'j]a d'cgYX'Vm'h'Y'6Ub'j]b'UWt'fXUbW'k j]h'hY'5[fY'Ya Ybh' Zcf'A i h' U'9b'Zcf'W'a Ybh'cZ'8YVUfa Ybh'8YV]g]cbg'VY'h'YYb'h'Y'6Ub'UbX'ch'Yf'XY'Y'cda Ybh' VUb_g': i f'h'Yf'Zk Y'UFY'bch'j]bY]j]V'Y'i bXYf'h'Y'9a d'cnyf'g'Vt' b'f'm'Uk g'c'f'cZ]V]U'fY[i 'U]h'cbg' cf'di f]g' Ubh'c'U'XYV]g]cb'cZ'h'Y'i b]hY'X'BU]h'cbg'GYWf]m'7ci bV]f/

GhU!ck bYX'Ybh'Ydf]gY'cf'j]bg]h' h]cb. Qy'Y'V'h'Y'Udd'f'cd'f]U'h'c'd'h]cb'UbX'XY'Y'h'Y'c'h'Y'f'Q'Y' U'fY'bch'U'g'U'h'!ck bYX'Ybh'Ydf]gY'cf'j]bg]h' h]cbQ# Q'Y'U'fY'U'g'U'h'!ck bYX'Ybh'Ydf]gY'cf' j]bg]h' h]cb Vi ha Y'Y'h'Y'fYei]fYa Ybh'g'cZ#6(' "Q'

7ca a [gg]cbg'z[fUhi]hYg'ZYg'K Y'U'j'Y'dU]X'Zcf'k]'dUm'h'Y'Zc'ck j]b['Vta a [gg]cbg'z[fUhi]hYg'z cf'ZYg'k j]h'fYgdY'V'h'c'h'Y'6]XX]b['d'fc'W'gg'cf'Yl Y'W'h]cb'cZ'h'Y'7cb'f'U'V'Q'bgYf'h'Vta d'Y'h'bUa 'cZYUM' F'Y'V]d]Yb'h'j]h'g'z' 'UX'fY'g'g'h'Y'fY'U'g'c'b'Zcf'k \]M'YUM' Vta a [gg]cb'cf'[fUhi]m'ik Ug'dU]X' UbX'h'Y'Ua ci bh'UbX'W'f'fYb'V'h'cZYUM'gi W' Vta a [gg]cb'cf'[fUhi]m'Q

B Ua Y'cZFVWjYbh	5XXfYgg	FYUgcb	5a ci bh

fHbcbY\UgVYYb'dUjX'cf]g'hc'VY'dUjXz]bX]WUHY'AbcbY"ÅL/

6]bX]b['7cblfUW'K Y'i bXYfgUobX'h.Uh'h.]g'6]Xžhc[Y'hYf'k]h'nci f'k f]Hb'UWWdhUobW'h.YfYcZ
]bWl XYX']b'nci f'@HhYf'cZ5WWdhUobWžg\U' Vēbgh]h H'U'V]bX]b['VēbhfUW'VYh'YYb'i gzi bh]'U
Zcfa U'VēbhfUW'jgdFYdUFYX'UbX'YI YW'hYX/

Bchi6ci bX'hc'5WWdh'K Y'i bXYfgUobX'h.Uh'nci 'UFY'bchVci bX'hc'UWWdh'hY'ck YghYj Ui U'hYX'
Vēgh6]Xžcf'Ubmch'hYf'6]X'h.Uh'nci 'a UmfYW'j Y/

: fU' X'UbX'7cffi dh]cb.'K Y'\YfYVmWfhZmhUhk Y'\Uj Y'HU_Yb'ghYdg'hc'Ybgj fY'h.Uh'bc'dYfgcb'
UW]b['Zcf'i g'cf'cb'ci f'VY\UZYb[U[Yg']b'Uomim'Y'cZ: fU' X'UbX'7cffi dh]cb'"K Y'Ugc'VēbZ]fa'
h.Uh'k Y'dUfhYdU'hYX']b'h.Y'a UbXUhc'fmdfY! V]X'g]h'j]g]h"

DchYbh]U'8556'A Ya VYfg'K Y'\YfYVmdfcdcgY'h.Y'Zc'ck]b['h.fYY'dYfgcbgžk \cgY'Wff]W'i a'
j]HUY'UFY'UfUWYXZUgdchYbh]U'8556'a Ya VYfg'

B Ua Y'	5XXfYgg
o o'	.
o o o '!!!'	.
o o o .	.

B Ua Y'cZH.Y'6]XXYf.†QbgYfhVēa d'Yh' bUa Y'cZdYfgcb'g]] b]b['h.Y'6]XQ

B Ua Y'cZH.Y'dYfgcb'Xi 'mU' h.cf]hYX'hc'g]] b'h.Y'6]X'cb VY\UZcZH.Y'6]XXYf.†QbgYfhVēa d'Yh'
bUa Y'cZdYfgcb'Xi 'mU' h.cf]hYX'hc'g]] b'h.Y'6]XQ

H]hY'cZH.Y'dYfgcb'g]] b]b['h.Y'6]X.'QbgYfhVēa d'Yh'h]hY'cZH.Y'dYfgcb'g]] b]b['h.Y'6]XQ

G]] bU' hY'cZH.Y'dYfgcb'bUa YX'Uvcj Y.'QbgYfhg]] bU' hY'cZdYfgcb'k \cgY'bUa Y'UbX'WdUW]mi
UFY'g\ck b'Uvcj YQ

"

8Uy'g][bYX'QbgYfhXUhf'cZg][b]b[OXUmcZQbgYfha cbhAQbgYfhmYUfQ

[illegible]

f' 6h\Y\Wg\cZh\Y'6]X g Va]hY\X\Vm'c]bhj Ybhi fY'gdV\Zh\h\Y'bUa Y'cZh\Y'>]bhj Ybhi fY'Ug
 6]XXYf'cf'bUa Yg'cZU''a Ya VYfg'fU'fYbYfg'cZ>] UbX'g]] b'cb'VY\U'ZcZh\Y'>] UbX'bch'cb'
 VY\U'ZcZcb'mcbY'a Ya VYf'h\U'h\Ug'VYYb'[]] Yb'dck Yf'cZU'f'fYb'

11 DYfgc b'g][b]b['h.Y'6]X'g'u''\Uj Y'h.Y'dck Yf'cZUhtcfbYm[]j Yb'Vm'h.Y'6]XXYf'hc' VY'UhtUW'YX'
 k]h' h.Y'6]X'' Z'h.Y'6]XXYf']g'U' >]Z'h.Y'dck Yf'cZUhtcfbYmg'u'' VY' []j Yb'Vm'h.Y' >]'cf'VmU''
 a Ya VYfg'cZ'h.Y'>]''

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5ddYbX]l 'hc '6]X. 'G\XYi 'Y'cZ5X↑ gha Ybh8Uu'

f5dd`jWV`Y'cb`m]ZDfjWg`UfY'g' V`YVh'hc`UX↑ gha YbhUg'dYf'≠6`% " 'fU'UbX'G' V!
7fjhYfjU'% "+`cZDUfh5! 7cbhfUMh8Uu'i bXYf'D7E'

Qb`HUV`Yg'5z6zUbX'7zVY`ck`zh`Y'6]XXYf'g\U`'fU'UbX]WUHY`jhg'Ua`ci`bhcZ`cWU`WffYbWUhdUha`Ybhž
fV'E`]bX]WUHY`jhg'dfcdcgYX`gci`fW`UbX`VUgY`j`U'i`Yg`cZ`]bX]Wg`Zcf`h`Y`X]ZYfYbhZcfY][`b`WffYbWUhi
Y`Ya`Ybhg`cZV'gž`fV'XYfj`Y`jhg'dfcdcgYX`k`Y][`h]b[`g`Zcf`cWU`UbX`ZcfY][`b`WffYbWUhdUha`Ybhž
UbX`fX'E`]gh`h`Y`Yi`W`Ub[`Y`fUHY`gi`gYX`]b`h`Y`WffYbWUhdUha`Ybhž`Yfg]cb`Q`''''

HUV`Y'5'''@W`7i`ffYbWUhi

⊖XYI` V'XYI`	⊖XYI` XYgW]dhjcbt`	Gci`fW`cZ]bXYI`f`	6UgY`j`U'i`Y` UbX`XUHY`	6]XXYf`g` fY`UHYX`WffYbWUhi Ua`ci`bh`	6]XXYf`g` dfcdcgYX` k`Y][`h]b[`
	BcbUX↑`ghUV`Y`	Á`	Á`	Á`	5.````f` 6.````f` 7.````f` 8.````f` 9.````f`
HcHU`					%%\$`

Q`Hc`VY`YbhYfYX`Vmh`Y`9a`d`cmYf`K` \YfYUg`Ã5Ãg\ci`X`U`Z]`YX`dYfWbhU[`Yž6ž7ž8`UbX`9`g\ci`X`
gdYVWmU`fUb[`Y`cZ`j`U'i`Yg`UbX`h`Y`6]XXYf`k`]`VY`fYei`j`fYX`hc`gdYVWmU`j`U'i`Y`k`]h]b`h`Y`fUb[`Y`
g`W`h`Uh`h`Y`hcHU`k`Y][`h]b[`1`%\$ \$Q`

"

HUV`Y`6"" : cfY][b`7i ffYbWñfi 7Ł

.

GhUy`mŁY.....QZh`Y`6]XXYf`jgU`ck YX`hc`fYW]] Y`dUna`Ybh]b`ZcfY][b`WffYbWYg`h`jg`
HUV`Y`g\U`VY`i`gYX""Z6]XXYf`k`jg\Yg`hc`ei`chY`]b`a`cfY`h`Ub`cbY`ZcfY][b`WffYbWñfi`d`hc`h`fYY`
WffYbWYg`dYfa`]hYXŁh`Yb`h`jg`HUV`Y`g\ci`X`VY`fYdYUñYX`Zcf`YUW`ZcfY][b`WffYbWñQ

ŁXYI` VŁXY`	ŁXYI` XYgW]dh]cb`	Gci`fW`cZ]bXYI`	6UgY` j`Ui`Y`UbX` XUñY`	6]XXYf` fY`UñYX` gci`fW` WffYbWñ]b` mŁY#Ła`ci`bh`	9ei`j`U`Ybh`]b` : 7%	6]XXYf` dfcdcgYX` k`Y][`h]b[`
.	BcbUX†g`HUV`Y`	A`	A`	A`	.	5.____Ł` . 6.____Ł` . 7.____Ł` . 8.____Ł` . 9.____Ł`
HcŁU`					.	\$\$\$`

Ø`Hc`VY`YbhYfYX`Vmh`Y`9a`d`cmYf""K`YfYUg`Å5Åg\ci`X`U`Z]] YX`dYfWbñU[`Yž6ž7ž8`UbX`9g\ci`X`
gdYVWmU`fUb[`Y`cZ`j`Ui`Yg`UbX`h`Y`6]XXYf`k`]""VY`fYei`]fYX`hc`gdYVWmU`j`Ui`Y`k`]h`]b`h`Y`fUb[`Y`
g`W`h`Uñh`Y`hc`ŁU`k`Y][`h]b[`1`%\$\$\$Q

"

HUV'Y'7'''Gi a a UfmcZDUha Ybh'7i ffYbWYg''

Ob'WlgY'cZa i 'hd'Y'chg'cf'a i 'hd'Y'dUM/U[Yg'6]XXYf'g\U''dfYdUFY'gydUFUHY'fUV'Y'Zcf' YUM'`ch]XYbhjZYX'VmdUM/U[Y'bi a VYf'UbX'fY'UHYX'`chbi a VYfQ

HUV'Y.'5'hYfbUHj]Y'5''

: cf'Qa d'cmYf'hc'GY'VMh]L'cf']L'UbX'XY'YH'h'Y'c'h'YfQ]K'k'c'Y'c'Z'h'Y'K'cf_g#']L'Ob'gyf'h' bUa'Y'c'Z'GY'VM'cb'c'Z'h'Y'K'cf_g'QZ']L'j'g'Y'VM'X'Z'h'Y'b'9a d'cmYf'hc'`dfYdUFY'gla'J'UF'HUV'Y' 7'Zcf'U'`gY'VM'cb'g'c'Z'k'cf_g]bW'X]b['h'Y'gi a a UfmHUV'Y'7'c'ZU'`gY'VM'cb'g'hc'UW'Ve'i bh'Zcf' k'k'c'Y'k'cf_gi' bXYf'h'Y'Ve'b'h'fUMQ

B Ua Y'cZ dUha Ybh' WffYbWth	5' 5a ci bhcZ WffYbWth	6' FUH'cZ YI WUb[Y' flcW'WffYbWth dYf'i b]hcZ ZcfY]] bE'	7' @W'WffYbWth Yei]j UYbh' 7'1'5'1'6'	8' DYfWbHU[Y'cZ 'HcHU'6]X'Df]W'fH6DE' %\$\$17'' H6D'
@W'WffYbWth _____		%\$\$\$'		
: cfY]] b'WffYbWth , % _____				
: cfY]] b'WffYbWth , & _____				
: cfY]] b'WffYbWth , '' _____				
HcHU'6]X'Df]W'				%\$\$\$''''
Dfcj]glcbU'g a g' YI dfYggYX'j'b' 'cW'WffYbWthQZ']]L'UWcj Y'jg' gY'VM'X'	Ob' VY' YbhYfYX' Vmi h'Y' 9a d'cmYfQ	%\$\$\$'	Ob' VY'YbhYfYX' Vmi h'Y' 9a d'cmYfQ	

<p>9a d'cmYf'hc'` gdYVWmi dfcj jg]cbU'gi a g' Ug'Udd'jWVY'Zcf' YUM'gYVWjcbQ</p>				
<p>HCH5@6-8` DF 79'cZfj]kcf'f]]k Ug'Udd'jWVY' f]bW X]b[` dfcj jg]cbU'gi a k'</p>				

HUVY.'5'HYfbUhj Y'6`

Hc'VY'i gYX'cb'mk jH'5'HYfbUhj Y'6'DfjWgXjfyVWmei chX'j]b'hY'WffYbWYg'cZdUha Ybh'"f#6`
%`%k

Gi a a UfmcZWffYbWYg'cZHAY'6]X'Zcf' 9a d'cmYf'hc'GY'VWj]kcf'j]]kUbX'XY'YH'hY'cHAYf'
Qk'K\c'Y'cZHAY'K cf_g#]]kbgYfhibUa Y'cZGYWjcb'cZHAY'K cf_g"-Z]]k]ggY'VWjXZhYb`
9a d'cmYf'hc'dfydUfY'g]a jUF'HUVY'7'Zcf'U'gYVWjcbg'cZkcf_g]bW X]b[`hY'gi a a Ufmi
HUVY'7'cZU'gYVWjcbg'hc'UWmi bhZcf'k\c'Y'kcf_gi bXYf'hY'VebhfUMQ

	BLa Y'cZWffYbWmi	5a ci bhg'dUhtUVY'
	@W'WffYbWmi'_____	
	: cfY][b'WffYbWmi, %'_____	
	: cfY][b'WffYbWmi, &'_____	
	: cfY][b'WffYbWmi, '_____	
	Dfcj jg]cbU'gi a gYI dfYggYX'j]b'cW'WffYbWmi	<p>Qh'VY'YbhYfYX'Vmi hY'9a d'cmYf'QZ'j]]k' UWcj Y'jgY'VWjX'9a d'cmYf'hc'gdYVWmi dfcj jg]cbU'gi a g'Ug'Udd'jWVY'Zcf'YUM' gYVWjcbQ</p>

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6]~'cZE i Ubh]Yg'

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GRAND SUMMARY OF THE BILL OF QUANTITIES

Description		Amount (KES)
3	Rtgrlo kpc{ "cpf "I gpgtcnKgo u	7
4	Ek&ki"Y qtmu	7
5	Grgv{qo gej cplecn"Y qtmu	
Sub-total (1)		
Cff "32' "hqt"Rj { ulecnEqpv&pi gpekgu		
Sub-total (2)		
Cff "38' "hqt"Xcnwg"Cff gf "Vcz		
Grand Total C/F to Bid		

DAYWORK SCHEDULE

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KSh.)
	CLASS A - GENERAL ITEMS				
	cuugukpi "ij g'equv'qh'cp{ 'gz'vc'y qtm'qtf gtgf 'd{ 'ij g'Gpi kpggt'hqt" gzgewkqp"qp'c'F c{y qtm'dcuku0Vj g'tcvgu'lpf lecvgf "ctg'vq'dg'pgv" lp'tgrv'kqp'vq'ij g'r tqxkukqp'qh'rdqwt.'o cvgtkcu'qt'r rcpv'lpf lecvgf 0 O ctngv'tcvgu'ij cm'dg'wugf 'h'cp{ 'tcvg'ku'hqwpf "vq'dg'i tqunf " lpeqpukugpv'y kj "ij g'o ctngv'tcvg0				
	Labour				
C63308	Wpukngf 'rdqwtgt	j	4.222		
C63304	Hqtgo cp	j	422		
C63305	Rcpv'qr gtcvqt	j	422		
C63306	Xgj leng'f tlxgt	j	722		
C63307	O cuqp	j	722		
C63308	Ectr gpvgt	j	422		
C63309	Rwo dgt	j	422		
C6330	Ggevtlekcp	j	322		
C6330	Uwtxg{ qt	j	322		
C63302	Rclpvgt	j	322		
C63303	Y cvej o cp	j	4.222		
	Materials				
	Cm'o cvgtkcu'cu'r gt'ur gekk'ecv'kpu0"Vj g'tcvg'vq'lpewf g'hqt'uw r n{ . f grlxgt{ "vq'ukg.'uvqtc i g'cpf "j cpf r kpi 0				
C63508	Eqctug'ci i tgi cvgu'hqt'eqpetgv	o ⁵	322		
C63504	Hlp'ci i tgi cvgu'ucpf +hqt'eqpetgv	o ⁵	322		
C63505	Qtf lpct{ 'r qtrv'cpf "ego gpv	v	4		
C63506	Dwkrf lpi 'uvqpgleqpetgv'dm'emu	pt	422		
C63507	J ctfeqtg	o ⁵	722		
C63508	O wtco li t'cxgn	o ⁵	72		
C63508	Ur li qv'cpf "uqengv'eqpetgv'r kr gu"; 22o o "f k0	o	72		
C63504	Fqwdrg'Y cm'Eqtwi cvgf "J FRG'822o o "f k	o	322		
C635046	Eqpetgv'I tcf g'3742	o ⁵	37		
C635049	DTE""o guj "C474	o ⁴	42		
C635048	Eqpetgv'I tcf g'4742	o ⁵	47		
	Total C/F to Next Page				

DAYWORK SCHEDULE

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KSh.)
	Total B/F From Previous Page				
C63504:	J ki j "{lgrf""y kngf"uvgn"dictu	v	3		
C63504;	Uj wwtlpi "ko dgt	o ⁴	72		
C635052	F kgugn	n	722		
C635053	Nwdtlecpvu	n	322		
C635054	RclpvCuqtvgf Plant i tgcug"qr gtcvqtu"ge0	n	322		
C63708	3"qppg'r lemr	j	6:		
C63704	9"qppg'iqtt { "%kr r gt+	j	46		
C63705	37"qppg'iqtt { "%kr r gt+	j	46		
C63706	42"qppg'iqtt { "%kr r gt+	j	46		
C63707	F 9"dwnf q gt	j	46		
C63708	J {ftcwrle"gzecxcvqt luj qxgn*30o ⁵ +	j	46		
C63709	Dcenj qg'tcevt*30o ⁵ +	j	34		
C6370	Y j ggn'iqcf gt	j	:		
C6370	O qdkg'etcp*7qppg+	j	:		
C63702	Eqpetgv'o lzgt'30o ⁵	j	34		
C63703	F wo r gt.'208o ⁵	j	34		
C63704	F wo r gt.'40o ⁵	j	34		
C63705	Eqpetgv'xldtcvt*"r gvtqrlqt"fkugn"y kj "ftkxg."hgz"cpf"62o o "	j	34		
C63706	Eqpetgv'xldtcvt*"r gvtqrlqt"fkugn"y kj "ftkxg."hgz"cpf"97o o "	j	34		
C63707	Y cvgt"dqy ugt*7.222"n-	j	34		
C63708	Rqtwdng"f gy cvgtlpi "r wo r	j	34		
C63708:	Eqo r cevkp"tqngt"3"qppg	j	34		
	Total C/F to Next Page				

PRELIMINARIES AND GENERAL ITEMS

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KSh.)
	CLASS A - GENERAL ITEMS				
	Contractual Requirements				
C33208	Rgthqto cpeg'Ugewtkw\	uwo			
C342	Kpuwtcpeg'qh'yj g'Y qtmu	uwo			
C352	Vj kf 'Rctv\ 'Kpuwtcpeg	uwo			
C3; 208	Ugw\pi 'qw'yj g'Y qtmu'cu'ur geHkgf 'qt'f kgevgf 'd{ 'yj g' Gpi kpggt	uwo			
C3; 204	Cmqy 'hqt'o qpvy n\ 'ukg'o gg\pi u'cu'ur geHkgf 'qt'f kgevgf " d{ 'Gpi kpggt	P q0	44		
C3; 205	Cmqy 'hqt'yj g'r tqxkukqp'qh'7P t0Eqr kgu'tgeqtf "cu/dwkn+ " f tcy lpi u'CNN'lp'C3'cpf 'kp'uqhneqr {	uwo			*****622.22202
C3; 206	Cmqy 'hqt'r tqxkukqp'qh'7P t0Eqr kgu'Q(O 'O cpwcu'j ctf " eqr kgu'cpf 'uqh'eqr kgu	uwo			*****722.22202
	Specified Requirements				
	<i>Offices and Accomodation for the Engineer's Staff</i>				
C43308	Rtqxkukqpcri'Uwo 'hqt'TG)u'qhHegu'cu'lpuntwevgf "d{ " Gpi kpggt	uwo			*****7.222.22202
C43304	Rtqxkukqpcri'Uwo 'hqt'tgpvgf "ceeqo qf cvqd'hqt'Gpi kpggt'u' UchH'7P q0+	o qpvy	3;	*****372.22202	*****4.922.22202
C43305	' 'Cf l'wuo gpv'q'vj g'r tqxkukqpcri'Uwo 'hqt'Kgo u'C43308'vq' C43304'vq'eqxgt'qxgtj gcf u'cpf 'r tqhku	'	*****9.922.22202		
	<i>Services for Engineer's Staff</i>				
C44308	Rtqxkukqpcri'Uwo 'hqt'r wej cug'qh'Xgj lergu"4622ee+'hqt" wug'd{ 'Gpi kpggt'u'UchH'cu'lpuntwevgf 0Xgj lergu'vq'tgxgt'v'q' yj g'Go r nq { gt0	P q0	5	****8.722.22202	****3; .722.22202
C44304	' 'Cf l'wuo gpv'q'vj g'r tqxkukqpcri'Uwo 'hqt'Kgo u'C44308'vq' eqxgt'qxgtj gcf u'cpf 'r tqhku	'	****3; .722.22202		
C44305	O clpvgpcpegltwppkpi "equu'qh'yj g'xgj lergu" 'hqt'Gpi kpggt'u' uchH'qxgt'yj g'r gtlqf 'qh'eqptcev	no	*****372.22202		
	<i>Equipment for Engineer's Staff</i>				
C45308	Rtqxkukqpcri'Uwo 'hqt'hwtpluj lpi 'cpf 'gs vkr lpi " 'yj g'T0G)u' qHHeGu0Vq'lpwnf g'hwtplwtg.'hcr vqr 'eqo r wgtu." eqo o wplecvqp'f gxlegu.'f ki kcr'eco gtcu.'r tlpvgtu'g00	uwo			*****7.222.22202
	Total C/F to Next Page				

PRELIMINARIES AND GENERAL ITEMS (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KSh.)
	Total B/F From Previous Page				-
C45304	' 'Cf lwuo gpv'q'vj g'r tqxkukqpcn'Uwo 'hqt'Kgo 'C45308'vq" eqxgt'hqt'qxtgj gcf u'c'pf 'r tqhku	'	7.222.222022		
C45305	O qpvy n' 'o clpvgpcpeg'qh'q'heg'gs wkr o gpv'hqt'wug'd{ 'vj g" o qpvy Gpi kpggt'u'Uchh	o qpvy	3:		*****7
	Attendance Upon Engineer's Staff				
C463	Rtqxkukqpcn'Uwo 'hqt'cwpgf cpeg'wr qp'Gpi kpggt'u'Uchh'd{ " f tkxgtu'5P q0+	o qpvy	3:	*****; 2.222022	*****3.842.222022
C466	Rtqxkukqpcn'Uwo 'hqt'cwpgf cpeg'wr qp'Gpi kpggt'u'uchh'd{ " q'heg'cuukncpw'4P q0+	o qpvy	3:	*****82.222022	*****3.2: 2.222022
	Testing of Materials and Works				
C47208	Rtqxkukqpcn'Uwo 'hqt'v'g'v'p' 'qh'o cvgtkcu'cu'ur gek'heg'qt" f k'gevgf 'd{ 'vj g'Gpi kpggt	uwo			*****522.222022
C47204	' 'Cf lwuo gpv'q'vj g'r tqxkukqpcn'Uwo 'hqt'Kgo 'C47208'vq" eqxgt'hqt'qxtgj gcf u'c'pf 'r tqhku	'	*****522.222022		
C48204	Cmny 'c'Rtqxkukqpcn'Uwo 'hqt'Hcevt{ 'Ceeqr cpeg'v'guv' y kpggu'f 'd{ 'ukz'gpi kpggtu.'hqt'v'gr t'gugpvc'v'xgu'htqo 'vj g" erkep'cv'vj g'gs wkr o gpv'o cpw'cew'gt'u'y qtmu0Rtqxkukqp" u'j q'w'f 'l'pen'f g'hqt'cm'vj g'ck'v'lengu.'cee'qo qf cv'kp'cpf" cew'cn'v'g'v'p' 0	uwo			*****6.222.222022
	Project Signboards				
C49; 08	Rtqxkukqp.'h'z'k'p'. 'o clpvc'k'p' 'cpf' 'tgo qxcn'q'h'ukg" uki pdqctf u	pt	4		
C49; 04	Eqpvtw'ek'qp'qh'Rtqlgev'R'cs w'g'cv'eqpur leqwu'r'nceg'cu' f k'gevgf	uwo			*****322.222022
	Method Related Charges				
C532	k'p'cf f'k'k'qp'v'q'vj g'kgo u'h'k'vgf 'j' g'gwpf gt.'c'v'gpf gt'gt'ku'v'q" k'pugt'v'uwej 'kgo u'cu'j' g'o c{ 'f' gek'f g'v'q'eqxgt.'kgo u'q'h' y qtm'g'v'p' 'v'q'j' ku'p'v'gpf gf 'o g'vj qf 'q'h'gz'gew'k'p' 'vj g" y qtmu.'equu'q'h'y j lej 'ctg'p'q'v'q'dg'eqpukf gt'gf 'cu" r'qr q'v'k'p'cn'v'q'vj g's wcp'v'k'gu'q'h'y g'q'vj gt'kgo u'c'pf 'hqt" y j lej 'j' g'j' cu'p'q'v'cm'ny gf 'k'p'vj g'v'c'gu'c'pf 'r' t'legu'hqt'vj g" q'vj gt'kgo u	uwo			*****38.962.222022
	Guc'd'k'ij 'o clpvc'k'p' 'cpf' 'tgo q'xg'Eqpvtce'v'qt'u'eco r" l'pen'f k'p' 'q'h'hegu.'u'q't'gu.'r'cd'q't'c'v'q't'k'gu.'ecd'k'pu.'ecp'vg'g'pu'g've				
	Total C/F to Next Page				

PRELIMINARIES AND GENERAL ITEMS (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KSh.)
	Total B/F From Previous Page				
C64204	Rtqxkukqp'hqt'yj g'r wtej cug'qh'Q(O 'gs wkr o gpv'cu" f kt gevff "d{ 'Gpi kpggt	uwo			*****3.222.22202
C64207	Cmny 'hqt'o cpci gt'htqo 'Eqpvtecvqt'vq'Twp'cpf 'O clpvcqp" yj g'r rcpv'lpemf kpi 'vtclpki 'qh'uchh'hqt'3"{'gctu0Qpg'qp" uksg'hwn'wo gt'cpf 'qpg"{'gct'dculecm' 'o cpci go gpv'y j kg" cmny kpi 'PEY UE'uchh'vq'qr gtcvg'yj g'r rcpv'Uchh'gs wgf" hqt'yj g'huv'{'gct'vq'lpemf g<Rrnpv'O cpci gt. 'Nqi kukeu" O cpci gt. 'Cp'Cf o kplutcvqt. 'Grgvtecln'Gpi kpggt. " O gej cplecln'Gpi kpggt. 'Cp'Grgvtecln'Vgej plekcp. " kpuvwo gpvcvqp'Vgej plekcp'cpf 'Vy q'O gej cplecln' Vgej kplekcpu0Qp'yj g'Ugeqpf"{'gct'cmny 'Qpr' 'yj g'Rrnpv' O cpci gt. 'O gej cplecln'Gpi kpggt'cpf 'Grgvtecln'Gpi kpggt0	uwo			
C64208	Rtqxkukqpcn'uwo 'hqt'3'P q0'vtcevt'cpf '8'P q0o qvqte{ergu" hqt'o clpvgpcpeg'qh'yj g'F GUVR	uwo			*****7.222.22202
C64209	Rtqxkukqpcn'Uwo 'hqt'CHF UIJ KX. "Gpxktqpo gpvcn' eqpugtxcvqp"ge'Cy ctgpguu'Eco r cki pu.RRGju	Uwo			****32.222.22202
C6420	Cmny 'c'Rtqxkukqpcn'uwo 'qh'Muj u04.222.222"vq'ecvgt'hqt" o qpvy n' 'uksg'o ggvpki u. 'cu'f kt gevff "d{ 'yj g'r tqlgv'o cpci gt"	Uwo			*****4.222.22202
	Total C/F to Grand Summary				

SUMMARY OF CIVIL WORKS

Description	Amount (KES)
DknlP q03/"F GUVR"lprgY qtmuTgj cdkkcvkqp"cpf 'F wr nlecwkqp	
DknlP q04/"F GUVR"Ukg"Cpekmt{"Y qtm	
Civil Works Sub-Total	-

BILL NO. 1 - DESTP INLET WORKS - REHABILITATION AND DUPLICATION

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
<u>PART A - DUPLICATION OF INLET WORKS</u>					
CLASS E: EARTHWORKS					
Excavation					
<i>Excavation for Foundations</i>					
G533	Vqr "uqln"o czko wo "F gr vj "p02047o 0	o ⁵	53;		
G545	O cvgtkcnlqj gt "vj cp"qr uqln "tqem"qt "ctwleknj ctf "o cvgtkcn" "F gr vj " 2047/207o 0	o ⁵	862		
G552	Tqenlo cvgtkcn "Rtqxkukqpcn+	o ⁵	3; 2		
<i>Excavation Ancillaries</i>					
<u>F kur qucnlqj "Gzecxvqf "O cvgtkcn</u>					
Crrrtqxf "o cvgtkcnluj cmldg"tgcwpgf "hqt"dcenlknpi "cpf "vpwkscdng" o cvgtkcnluj cmldg"t kur qugf "q"kr 0Ecpvtcevqt "kf gpvkh "kr "uksg					
G753	Vqr "uqln"0F kur qucnlqj kj lp "F GUVY "Uksg	o ⁵	53;		
G754	O cvgtkcnlqj gt "vj cp"qr "uqln"tqemlqt "ctwleknj ctf "o cvgtkcn"j cwrci g" f kucpeg "gzeggf lpi "3no	o ⁵	72		
G755	Tqem"j cwrci g'y kj lp "F GUVR"uksg	o ⁵	3; 2		
CLASS F: IN SITU CONCRETE					
P qvg<"Cmleqpetgvg" f guki pgf "o lz "cpf "utwewtcrleqpetgvg"q "DU" GP 428					
Provision of Concrete					
Rtqxkf g"o cvgtkcnl "cpf "o lz "eqpetgvg"q "vj g"ur gekhgf "encuu="ego gpv"q" DU"GP "3; 9"					
H455	Rtqxkukqp "qh"eqpetgvg"i tcf g"E3742	o ⁵	8704		
H475	Rtqxkukqp "qh"eqpetgvg"i tcf g"E4742	o ⁵	; 34		
Placing of Concrete					
Rrcrg "xldtcvg"cpf "ewtg"eqpetgvg"lp "vj g"hmjy lpi "grgo gpw"qh"vj g" utwewt g"cu"ur gekhgf "qt "f kgevgf "d { "vj g"Gpi kpggt					
H733	O cuu"eqpetgvg"i tcf g"3742="drpf lpi . "vj lenpguu"97o o	o ⁵	8704		
H844	Tgkphqtegf "eqpetgvg"i tcf g"4742"lp "urdu. "vj lenpguu"372/522o o	o ⁵	542		
H864	Tgkphqtegf "eqpetgvg"i tcf g"4742"lp "y cmu. "vj lenpguu"372/522o o	o ⁵	7: 506		
H884	Tgkphqtegf "eqpetgvg"i tcf g"4742"lp "tqqh'eqnwo pu. "522z522o o ⁴	o ⁵	: 08		
Total C/F to Next Page					-

BILL NO. 1 - DESTP INLET WORKS REHABILITATION AND DUPLICATION (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
	Total B/F From Previous Page				-
	CLASS G: CONCRETE ANCILLARIES				
	Formwork: Fair Finish				
I 435	Rrcpg"j qtk qpvcn'y kf yj '204/206o	o ⁴	497		
I 435	Rrcpg"Xgtvlecn'y kf yj 'wr vq'407o	o ⁴	462;		
	Reinforcement				
	Tcvq'vq'lpemf'g'hqt'ewwlpki . 'dgpfpki . 'uwr r qtvlpki 'v\lpki 'cpf 'ugewtlpki				
I 744	J ki j "{lgrf 'uvgnldctu"F : +vq'DU666; "	v	3		
I 745	J ki j "{lgrf 'uvgnldctu"F 32+vq'DU666; "	v	52		
I 746	J ki j "{lgrf 'uvgnldctu"F 34+vq'DU666; "	v	65		
	Joints				
I 875	Rrcvle"qt'twddgt'egpvtg'dwld'y cvgt'uqr . 'ugcncpv.'hngt" tgdcvg'li tqxgu'gve0cu'ur gekhgf "qt'f k'gevgf'd{ "gpi kpggt	o	342		
	Concrete Accessories				
	<u>Hlpkuj lpi 'qh'Uwthcegu</u>				
I : 34	Hlpkuj lpi 'qh'vqr 'uwthcegu.'uvgnltqy gn	o ⁴	457		
	CLASS J: PIPEWORK - FITTINGS AND VALVES				
L : 7	Grgvle'cewcvgf'3222o o 'y kf g'd{ '4722o o 'f ggr 'o qvqt k gf " r gpuvqenli cvg'eqo r ngvg'y kj "o qvqt.'gzvgpukqp'ur kpf ngu.'i wkf g" dtcengw'cpf 'j cpf y j ggnlj gcf uvqem'lpemf'g'hqt'qr gtcvlpki "ecr 'cpf " ng{	pt	7		
L ; 208	Uwr r n{ 'cpf 'lpucnleqo r ngvg'ewr 'uetggpu'305o 'y kf g	pt	6		
L ; 204	Uwr r n{ 'cpf 'lpucnlo kzlpi 'r cf f ngu'hqt '\$LGVC\$I tk/Vter 'ugtkgu'3522	pt	6		
L ; 205	Uwr r n{ . 'lpucn'cpf 'eqo o kukqp'Cmtr k gy qtnlhqt '\$LGVC\$I tk/Vter " ugtkgu'3522	ugv	6		
L ; 206	Uwr r n{ . 'lpucn'cpf 'eqo o kukqp'Cknh/r wo r u'hqt '\$LGVC\$I tk/Vter " ugtkgu'3522	ugv	6		
L ; 207	Uwr r n{ 'cpf 'lpucn'lpqgu' 'Cwy qqf 'uetgy 'ercukgtu'y kj 'c'ecr cels{ " qh'722o 5 lj	pt	4		
L ; 208	Uwr r n{ 'j gcx{ 'f w{ 'o qxcdrg'tcuj 'unlr 'o kplk wo 'ecr cels{ '402o ⁵ " eqo r ngvg'y kj "j qkulpki 'hwi u.'tghphqtegf "eqtpgtu'cpf 'o kplk wo '8o o " vj lenidcug'r ngvg'cpf '6o o 'y cmtr ngvu0	pt	4		
	Total C/F to Next Page				

BILL NO. 1 - DESTP INLET WORKS REHABILITATION AND DUPLICATION (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
Total B/F From Previous Page					
CLASS N: MISCELLANEOUS METALWORK					
P 362	Uwr r n{ "cpf 'Hz'eqo r rvg"302o 'j k j 'I O U'j cpf tcku	o	4: ;		
P 3; 208	Uwr r n{ "cpf 'Hz'eqo r rvg"3222'z'4722o o "hpi 'I O U'hpg'uetggpu" hqt'qxgthuy 'ej cppgn	P t	3		
P ; 2204	Uwr r n{ "uetggpki u'tgo qxcn'tcng	pt	3		
P ; 2205	Uwr r n{ "cm'o cvgtcku'cpf "eqpwtve'c'tqqlpi 'uj cf g'hqt'yj g'uetggpki " ej co dgt'ctgc'eqo r rvg'y kj 'r qn'ectdqpcvg'eqtwi cvgf'tqqlpi " ujj ggw'cpf 'lvggn'twu'utwewtg	o ⁴	: 47		
CLASS U: BRICK, BLOCKS AND MASONRY WORK					
W343	447o o 'xgt'ckn'o cuqpt{ 'y cniht'o ctegtcvqt'tqgo 'y cmu	o ⁴	3: 9		
W3: 3	O cuqpt{ 'y cniqlpw'tgphqtego gpv'gxgt{ 'qyj gt'eqwtug	o	672		
W3: 4	F co r 'r tqql'eqwtug'dgnuy 'o cuqpt{ 'y cm	o	82		
CLASS V: PAINTING WORK					
X532	Qp'cm'gZR qugf 'o gcnly qtmu.'j cpf tcku'gw	o ⁴	5: 9		
<u>PART B - REHABILITATION OF WORKS</u>					
Flow Measurement					
Z; 22	Uwr r n{ . 'lpuxn'ecn'dtevgf . 'r tqi tco o gf "cpf 'guv'Wm'cuqple'qr gp" ej cppgn'huy 'o gcwtgo gpv'o gvgu'cv'yj g'gzknpi 'lprv'y qtmu" ej cppgn'y cvgt 'F kwtldwkp'ej cppgn'Cniqwtcm'ej cppgn	pt	8		
Z; 2308	Screens F guki p. 'uggn'crr tqxcn'ltqo 'yj g'gpi lpggt. 'lwr r n{ . 'lpuxn'cpf " eqo o kulp'o gej cpk'gf 'tckpi 'u'wgo 'hqt'yj g'gzknpi '422o o 'tcuj " uetggpu'eqo r rvg'lpem'kpi 'F tksg'O qvt "4722o o 'y kf g'ej cppgn' cpf '4722o "F ggr +"	pt	4		
Z; 2304	Uwr r n{ 'j gex{ 'f w{ 'o qxcdng'tcuj 'unlr 'o lolo wo 'ecr cks{ '402o ⁵ eqo r rvg'y kj 'j qknpi 'hwi u.'tghqtegf 'eqtpgtu'cpf 'o lolo wo '8o o ' y lenidcug'r rvgu'cpf '6o o 'y cni'r rvgu0	pt	3		
Z; 2305	Uwr r n{ 'cpf 'lpuxn'o cpwcm{ 'tcngf '97o o 'engct'ur ceg'eqctug'uetggp " 407o 'd{ '407o 'ej cppgn'qp'lpvg'ej cppgn	pt	4		
Z; 2408	Grit Chamber Uwr r n{ . 'lpuxn'cpf 'cwqo cvg'o qvqtkgf 'r gpuxqenu'q' yj g'ewr 'uetggpu	pt	6		
Total C/F to Next Page					

BILL NO. 1 - DESTP INLET WORKS REHABILITATION AND DUPLICATION (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
	Total B/F From Previous Page				
Z; 2404	Uwr r n' "cpf "lpucnltgr nrego gpv'uetggp'r r'v'gu'hqt"y'j g'ewr "uetggpu" 3050 "y k'f g	pt	6		
Z; 2405	Uwr r n' "cpf "lpucnltgr nrego gpv'o k'kpi "r c'f f'ngu'hqt"\$LGVC\$I tk/Vtcr " ugtlgu"3522	pt	6		
Z; 2406	Uwr r n' "lpucnltcpf "eqo o k'kqp'tgr nrego gpv'r k'gy qtnlhqt"\$LGVC\$I tk/Vtcr "ugtltgu"3522	ugv	6		
Z; 2407	Uwr r n' "lpucnltcpf "eqo o k'kqp'tgr nrego gpv'Cl'k'k'r wo r u'hqt"\$LGVC\$I tk/Vtcr "ugtltgu"3522	ugv	6		
Z; 2408	Iqpgu' "C'wy qqf "uetgy "emuhgtu'y kj "c'ecr cels" "qh'722o ⁵ lj	pt	4		
Z; 2409	Uwr r n' "j gcx{ "f w'f "o qxcdrg't'cu'j "unr "o k'plo wo "ecr cels" "402o ⁵ " eqo r r'ngv'y kj "j q'k'k'pi "h'w u "t'g'k'p'htegf "eqtpgtu'cpf "o k'plo wo "8o o " y lenidcug'r r'v'gu'cpf "6o o "y c'nlt r'v'gu'o	pt	4		
Z; 2508	De-sludging O cpwcm' "tgo q'xg'cpf "engcp'ceewo w'v'v'f "f tk'cpf "f gdtka'cv'y g'k'p'ngv" Y qtnu'k'p'ngv'ej c'p'p'gn'cu'y g'm'cu'q'xg't'h'ny "ej c'p'p'gn'cpf "f k'ur qug'q'h'h'cu' f k'gevgf "d{ "y'j g'G'pi k'p'ggt'0J c'w'ci g'f k'uc'peg'p'q'v'g'z'eg'gf k'pi "4no	NU	3		
Z; 2504	F g/unw'f i k'pi "q'h'C'p'cgtd'le"R'q'p'f u'cpf "f k'ur qug'q'h'h'y g'unw'f i g'cu' f k'gevgf "d{ "y'j g'g'pi k'p'ggt'y kj k'p'F G'U'V'R'uk'g'0F g'unw'f i k'pi "q'v'd'g" ecct'k'g'f "q'w'k'p'eq'q't'f k'p'c'v'k'p'y kj "P E Y U E'F G'U'V'R'uc'h't'o	o ⁵	"499.379		
Z; 2505	F g/unw'f i k'pi "q'h'C'p'cgtd'le"R'q'p'f u'cpf "f k'ur qug'q'h'h'y g'unw'f i g'cu' f k'gevgf "d{ "y'j g'g'pi k'p'ggt'y kj k'p'F G'U'V'R'uk'g'0F g'unw'f i k'pi "q'v'd'g" ecct'k'g'f "q'w'k'p'eq'q't'f k'p'c'v'k'p'y kj "P E Y U E'F G'U'V'R'uc'h't'o	o	"5.922		
Z; 2608	Marcerator Pump House Uwr r n' "cpf "lpucnltgr nrego gpv'uetggp'r r'v'gu'hqt"y'j g'ewr "uetggpu" 3050 "y k'f g	P t	6		
Z; 2604	Uwr r n' "cpf "lpucnltgr nrego gpv'uetggp'r r'v'gu'hqt"y'j g'ewr "uetggpu" 3050 "y k'f g	Ugv	6		
Z; 2605	T'q'q'h'ht'p'gy "O c'teg't'c'v'q't'R'wo r u'J q'w'g'0V'q'k'p'ew'f g'V't'w'ug'u."T'ch'g't'u' g'v'c'p'f "I c'w'g'4: "I c'k'c'p'k'g'f "E'q't't'w' c'v'g'f "T'q'q'h'k'pi "U'j g'g'u	o ⁴	447		
Z72208	PART C - CONTROL ROOM Eq'p't'q'n'T'q'q'o "D'w'k'f k'pi "E'q'o r r'ngv'"G'z'ew'f k'pi "h'q'q'v'k'pi "y q't'm'u'y j k'ej " c't'g'o g'cu'w'g'f "u'g'r c't'c'v'g'n'0H'q'q'v'k'pi "y q't'm'u'k'p'ew'f g'eq'o r c'v'g'f " j c't'f'eq't'g."d'r'k'p'f k'pi "eq'p'et'g'v'g'."h'q'q'v'k'pi "g'z'ec'x'c'v'k'p'."t'g'k'p'ht'eg'o g'p'v." h'q't'o k'pi 0"	o ⁴	595		
Z72204	Eq'p't'q'n'T'q'q'o "D'w'k'f k'pi "h'q'q'v'k'pi "g'z'ec'x'c'v'k'p'g'cu'w'g'f "p'g'v" x'g't'v'ec'm'f "+"	o ⁵	399		
	Total C/F to Next Page				

BILL NO. 1 - DESTP INLET WORKS REHABILITATION AND DUPLICATION (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
	Total B/F From Previous Page				
Z72205	EqpvtqniTqqo "Dwrf lpi "/"hqqvpi "dcenlkn"	o ⁵	354		
Z72206	EqpvtqniTqqo "Dwrf lpi "/"y gml'eqo r cev'f "j ctf eqtg'hqt "hqqvpi "	o ⁵	66		
Z72207	EqpvtqniTqqo "Dwrf lpi "/"dn'pf lpi "eqpetgvg'hqt "hqqvpi "	o ⁵	33		
Z72208	EqpvtqniTqqo "Dwrf lpi "/"hqqvpi "lpenwf lpi "eqpetgvg.'t'g'phqtego gpv' c'pf "h'qto lpi "	o ⁵	56		
Z72209	Nqcf "dgctkpi 'r'ncv'g'uv"	P t	5		
Z72210	EqpvtqniTqqo "Dwrf lpi "ucpkct { "ugy gt "u{ungo "lpenwf lpi "o cpj qngu." r k'gy qtnu.'ugr v'le "cpm'c'pf "eqppg'v'q'v'j g'ugr v'le "cpm	Kgo	3		
Z72211	Eqngev'k'p'ej co dgt "eqo r r'ngv' "lpenwf lpi "f'kuej cti g	Kgo	3		
Z722082	EqpvtqniTqqo "Dwrf lpi "y cvgt "f'kntkdw'k'p'u{ungo 0	Kgo	3		
Z722083	Y cuj "y cvgt "eqngev'k'p'c'pf "f'kntkdw'k'p'u{ungo "eqo r r'ngv' "lpenwf g'c'm' h'ek'k'k'g'u'y kj "y g'y cuj "y cvgt "f'kntkdw'k'p'u{ungo 0Eqo r r'ngv' "y kj "c'm' O " ("G'y qtnu.'utwewt'gu.'r k'gy qtnu.'y cuj "y cvgt "v'cr u'g'v' "uj c'm'c'nuq" dg"lpenwf g'f 0""	Kgo	3		
Z722084	H'kzgf "Y cuj "f'qy p'j' qug't'ggn'eqo r r'ngv' "y kj "c'52"o "h'qpi "j' qug'y kj " c'w'cej o g'p'u"	P t	3		
Z722085	C'm'qy "c'RE"Uwo "h'qt "r'tqx'k'k'p'c'pf "l'puc'm'v'k'p'q'h'g'gevt'k'k'c' "c'pf " g'gevt'k'c'n'lw'r r'ngv' "y kj "g'v'k'g'd { "M'gp { c'R'qy gt "c'pf "N'k'j v'p'k'pi " Eqo r c'p {	RE	3		
Z722086	C'm'qy "c'RE"Uwo "h'qt "r'tqx'k'k'p'q'h'g'gevt'k'c'n'lw'r r'ngv' "y kj "g'v'k'g'd { "M'gp { c'R'qy gt "c'pf "N'k'j v'p'k'pi " H'kz'wt'gu'c'pf "c'ee'gu'q't'k'g'u'v'q'v'k'g	RE	3		
Z722087	Eqpvtcev'qt'u'q'x'gtj g'cf u'c'pf "r'tq'h'ku'h'qt "k'go "Z722085"c'pf "Z722086	'	32		
	Replacement of Asbestos Roofing Tiles				
Z; 2708	Uw'r r'n' "c'm'bo cvgt'k'c'n'c'pf "eqpvtw'v'c't'q'q'h'k'pi "uj c'f g'h'qt "y g'v'et'g'g'p'k'pi " ej co dgt "c'tgc'eqo r r'ngv' "y kj "r'q'n'c't'd'q'p'c'v'g'eq'tt'wi cv'gf "t'q'q'h'k'pi " u'j g'g'v'u	o ⁴	: 47		
Z; 2709	F'kw'q "dw'v'c'v't'w'p'n'l'ugy gt "q'w'rg'v'r q'k'p'v	o ⁴	87		
	Total C/F to Grand Summary				

BILL NO. 2 – SITE WORKS (ACCESS ROADS, BOUNDARY WALL AND FENCING)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
<u>PART A : ACCESS ROADS</u>					
CLASS D - DEMOLITION AND SITE CLEARANCE					
F 322	I gpgtcn'ukg'engtcpeg	j c	38		
F 432	Tgo qxcn'qh'tgguc'pf "dwuj gu.'i kt y "207/3o	pt	472		
CLASS E - EARTHWORKS					
Gzecxvqp'uj cmlpenf g'hqt'utwkp' . 'uj wwtkp' . 'ucdkk' kpi "gzecxvqf" uwthegu.'nggr kpi "gzecxvqpu'ltgg'qh'y cvgt0					
Excavation for Cuttings					
G432	Vqr uqln'utkr r kpi . 'f gr yj "pqv'gzeggf kpi "2047o 0	o ⁵	72.472		
Filling					
Kpenf gu'r nckpi 'cpf 'eqo r cev'pi 'cu'ur gek'kgf					
G847	Hmkpi 'y kj 'ko r qtv'g'pcwtcn'o cvgtkn'qy gt'yj cp'qr 'uqln'cpf 'tqen'vq" hqto 'tqcf' 'go dcpno gp'0Eqo r cev'qp'vq"; : ' 'O F F 'kpenf kpi 'cm' pgeeguct { 'uerthk' kpi 'cpf 'y cvgtkpi 0F gr yj "pqv'gzeggf kpi "2047o 0	o ⁵	63.: 97		
CLASS R : ROADS & PAVINGS					
T33608	I tcpwrt'0O wtco +eqo r cev'g'vq"; : ' 'O F F 'kp'ceeqtf cpeg'y kj " ur gek'kecv'qp.'f gr yj "422o o	o ⁵	55.722		
<u>PART B : STORM WATER DRAINAGE CHANNEL</u>					
G533	Utkr r kpi 'qh'Vqr 'uqln'o czko wo 'f gr yj 'p002047o 0	o ⁵	348;		
G545	Gzecxvqp'qh'O cvgtkn'qy gt'yj cp'qr uqln'tqem"qt'ctw'kekn'j ctf " o cvgtkn=	o ⁵	9838		
M668	F kej gu'4uqto y cvgt'utcr gl qkf cn'f tclp'ej cpgn'kpgf 'y kj 'Tgkphqtegf" Eqpetg'g'cpf "DTE'C364'O guj 0eww'kpi 'vq'f k'gevgf 'kpxgtu'cpf " f ko gpukpu.'etqu'u'ge'v'kpcn'ctgc'p0'307"/'4o ⁴	o	4253		
M 77	Eqputwv'qp'qh'Qwhcm'utwewtg'vq'P cktqdk'Tkxgt'eqo r tkulpi 'qh' J gcf y cm'y kpi y cmu'cpf 'Cr tqp0	Pt	3		
<u>PART C : BOUNDARY MASONRY WALL</u>					
CLASS X : MISCELLANEOUS WORKS					
Z35808	Eqputwv'O cuqpt { 'Y cm'qp'yj g'y guvgtp'gf i g'qh'yj g'F cpf qtc'Guc'vg" Ugy ci g'Vtgcwo gpv'Y qtmu'0Vj g'j gli j v'qh'y cm'vq'dg'406'o gvgtu'cdq'xg'yj g' i tqwpf 'igxgt0'O czko wo 't'gkphqtegf 'Eqnwo pu'ur cekpi 'vq'dg'5o 'egp'vgt'vq' egp'vgt'y kj 'f qwdng'eqnwo p'gzr cpukqp'lqkp'v'cv'gxgt { '37o 'ur cekpi 0	o	*****4.572"		
Total C/F to Next Page					

BILL NO. 2 – SITE WORKS (ACCESS ROADS, BOUNDARY WALL AND FENCING) (Continued)

Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
	Total B/F From Previous Page				
Z35804	EqputwevTE'dqwpf ct { 'y cm'pgzv'q'j g'tkxgt'cu'r gt'f gckkgf'f tcy kpi u0	o	472		
	<u>PART D : BOUNDARY FENCE ALONG THE RIVER</u>				
	CLASS X : MISCELLANEOUS WORKS				
	Fences				
Z359	Eqpetgv'r quv'cpf 'y kg'hpeg'kpenxf kpi 'dctdgt 'y kg.'ej clprikpm'o guj ." kpyto gf kvg."eqtpgt'cpf 'dtcelpi 'r quu0	o	; 922		
	Gates and Stiles				
Z457	3o 'y kf g'r gf guntkcp'i cvgu'q'ceeguu'j g'tkxgt'hqt'y cvgt'uco r rikpi " eqo r rvg'y kj 'i crkcpkugf 'uvggnr quv'kqpo qpi gt { .'hkz kpi .'r cf nqemu'gve0 kpuvcmgf 'cv'iqecvkpu'kputwevgf 'd { 'Gpi kpggt	pt	6		
	Hedge				
Z; 22	Rrcpv'dco dqg'uggf rikpi u'hpeg'cmppi 'hpeg'cv'3o 'ur celkpi 0Vq'kpenxf g" y cvgtkpi 'vpxkt'y g { 'ctg'gucdrkuj gf	o	; 922		
	Total C/F to Grand Summary				-

SUMMARY OF ELECTROMECHANICAL WORKS

DESCRIPTION	AMOUNT (Kshs)
DKN"P Q023	
DKN"P Q024	
DKN"P Q025	
DKN"P Q026	
DKN"P Q027	
DKN"P Q028	
DKN"P Q029	
DKN"P Q02:	
DKN"P Q02;	
DKN"P Q032	
DKN"P Q033	
DKN"P Q034	
DKN"P Q035	
DKN"P Q036	
DKN"P Q037	
ELECTROMECHANICAL WORKS PHASE ONE-BILLS NO. 1-15	
DESCRIPTION	AMOUNT (Kshs)
DKN"P Q038	
DKN"P Q039	
DKN"P Q03:	
DKN"P Q03;	
DKN"P Q042	
DKN"P Q043	
DKN"P Q044	
DKN"P Q045	
DKN"P Q046	
DKN"P Q047	
DKN"P Q048	
DKN"P Q049	
DKN"P Q04:	
DKN"P Q04;	
DKN"P Q052	
DKN"P Q053	
DKN"P Q054	
DKN"P Q055	
DKN"P Q056	
DKN"P Q057	
DKN"P Q058	
DKN"P Q059	
ELECTROMECHANICAL WORKS PHASE TWO-BILLS NO. 16-37	
SUB TOTAL	

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 01					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<p>NOTE:</p> <p>1. Supply of Equipment: In addition to the supply of equipment/machinery, all Electromechanical Works will include supply and installation and commissioning of any necessary accessories, bolting, etc.</p> <p>2. Allow for sealing of old fixtures, bolt holes, etc.</p> <p>3. Any equipment that is removed and is deemed by the Engineer to be in operational condition shall be cleaned and handed over to the Employer for use as spares. Equipment that is deemed not re-useable shall be removed from site by the Contractor and disposed to an approved tip.</p>				
3	<u>GENERAL</u>				
308	Cmny 'hqt'vj g'f kxgtukqp'qh'tcy 'bgy ci g'q'd{/r cuu'vj g'Vtcuj 'Uetggp'kprgv' Ej co dgt'cpf 'vj g'kprgvEj cpggn'q'cmny 'hqt'vj g'kpuvncv'qp'qh'vj g'Vtcuj " Uetggp'Tcni'pi 'O gej cpluo 'cpf 'vj g'kprvto o gf kcv'Uetggp0	Kgo	Nwo r 'Uwo		
304	Cmny 'hqt'vj g'engcplpi 'qh'ukn'cpf 'f gdtku'htqo 'vj g'Vtcuj 'Uetggp'kprgv' Ej co dgt'cpf 'vj g'kprgvEj cpggn'cpf 'f kur qulpi 'qh'vj g'tgo qxgf 'f gdtku'q'c' 'kr 'cr r tqxgf 'd{ 'vj g'Gpi kpggt0	Kgo	Nwo r 'Uwo		
305	Cmny 'hqt'vj g'engcplpi 'qh'ukn'cpf 'f gdtku'htqo 'vj g'Uqto y cvgt'Qxgthny " Ej cpggn'cf lcegpv'q'vj g'Vtcuj 'Uetggp'Ej co dgt'cpf 'f kur qulpi 'qh'vj g' tgo qxgf 'f gdtku'q'c' 'kr 'cr r tqxgf 'd{ 'vj g'Gpi kpggt0	Kgo	Nwo r 'Uwo		
306	Cmny 'c'Rtqxkukqpcn'Uwo 'qh'Muj u'3.222.222'hqt'vj g'engcplpi 'qh'ukn'cpf " f gdtku'htqo 'vj g'Uqto y cvgt'I tsk'Tgo qxcn'Ej cpggn' *Rj cug'Kkprgv'Y qtmu+ " cpf 'f kur qulpi 'qh'vj g'tgo qxgf 'f gdtku'q'c' 'kr 'cr r tqxgf 'd{ 'vj g'Gpi kpggt.	Kgo	Nwo r 'Uwo		
307	Cmny 'hqt'vj g'engcplpi 'qh'ukn'cpf 'f gdtku'htqo 'vj g'gzkukpi 'Ewr 'Uetggp' Uwo r u'cpf 'f kur qulpi 'qh'vj g'tgo qxgf 'f gdtku'q'c' 'kr 'cr r tqxgf 'd{ 'vj g' Gpi kpggt0	Kgo	Nwo r 'Uwo		
308	Cmny 'hqt'vj g'engcplpi 'qh'ukn'cpf 'f gdtku'htqo 'vj g'gzkukpi 'Lgc'I tsk'Vtcr " Ej co dgtu'cpf 'f kur qulpi 'qh'vj g'tgo qxgf 'f gdtku'q'c' 'kr 'cr r tqxgf 'd{ 'vj g' Gpi kpggt0	Kgo	Nwo r 'Uwo		
309	Cmny 'c'Rtqxkukqpcn'Uwo 'hqt'vj g'tgr ckt'qh'vj g'f co ci gf 'Tgkphqtegf " Eqpetgve'dcug'ur'd'kp'vj g'Uqto y cvgt'Qxgthny 'Ej cpggn'cf lcegpv'q'vj g' Vtcuj 'Uetggp'Ej co dgt0	Kgo	Nwo r 'Uwo		
30	Tgr n'eg'cn'ieqttqf gf "o gvcny qtnilp'vj g'kprgv'Y qtmu'y kj 'uclp'rguu'uv'ggn	Kgo	Nwo r 'Uwo		
30	Cmny 'hqt'tgr n'ego gpv' 'qh'gzkukpi 'f tclpci g'i cvgu'wr utgco 'qh'vj g'gzkukpi " Vtcuj 'Uetggp'Wq'kpenw'g'tgr n'ego gpv'qh'dqnu' ('pwwu'y kj 'bgv 'tgr xlelpi. " nwtilelapi. 'tgr n'elpi 'twngf 'r ctu'y kj 'uclp'rguu'uv'ggn'cpf 'r wwkpi 'i cvgu' d'cenilp'q'p'qto cnlqr gtcv'kp0	pt	5		
TOTAL PAGE 1: TO COLLECTION SUMMARY PAGE					-

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 02					
ITE M	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
3082	Tgr nceg'y g'gzknkpi 'f tclpci g'r gpurqenli cvgu'f qy purtgo "qh'y g'gzknkpi " Vtcuj "Uetggp'y kj 'uclprguu'uggnlr gpurqenli cvgu'Vj g'ur kpf ngu 'dqnu'cpf " pww'o wuv'cnq'dg'tgr nceg'/'lpenw'g'ht'ugt'xlepi 'y g'u'ungo . 'hwdtlecvkp." tgr nceg'eattqf gf 'r ctw'y kj 'uclprguu'uggnlcpf 'r w'i cvgu'dcenilpq'pqto cri' qr gtcvkp0P qvg'y ku'dknlpennf gu'y g'i cvgu'kph'qp'v'qh'y g'vtcu'j "uetggp'cpf " y g'd{r cuu'i cvgu'lwu'dghqtg'y g'uetggpu0lpenw'g'cniceegutqgu'cpf 'r ctw'cu' rlungf 'cdqxg0lpenw'g'ht'cp{ 'qy gt'r ctv'q'cnny 'y g'u'ungo 'q'hwpv'kp'cu' kpgpf gf 0	pt	4		
3083	F gckkgf 'f guli p'cpf 'i gpgtricttcepi go gpv'f tcy kpi u	nu	3		
3084	Rtqlgev'O cpci go gpv'f wtkpi 'eqpvtcev'gzgewkqp	nu	3		
2.00 MECHANICAL EQUIPMENT					
R NGV'VTCUJ 'UETGGP					
408	Uwr r n'f 'kpuenl'cr gtgf '32o o 'uclprguu'uggnldet'y kj '97o o 'ur celkpi 'cv' y g'eqctug'uetggp'kpgv'q'tgr nceg'y g'ewtgpv'422o o 'ur cegf 'uetggpu	pt	322		
404	Uwr r n'f 'uclprguu'uggnlj cpf 'tcngu'ht' o cpwcnlengcpkpi 'qh'y g'97o o 'det' uetggp'cu'r gt'y g'ur gekhlecvkpu0	pt	32		
406	Uwr r n'f . 'kpuenl'cpf 'eqo o kuukp'pgy 'O gej cplecnlTcnkpi 'Gs wlr o gpv'v'q' uws'y g'97o o 'Vtcuj 'Uetggp0lpenw'g'cnlpgguuct { 'ceegutlgu'grgvtlecnl' y ktpi 'cpf 'eqpvtqm'cu'r gt'y g'ur gekhlecvkpu0P qvg'y g'tcnkpi 'uetggpu' eqpvtqnl cpnglj cnldg'cv'y g'o clp'eqpvtqnlqqo 'j qwulpi 'y g'UECF C'cdqw' 322'o g'v'cu'y c { 'dw'y kj 'uclprguu'uggnlqt'r n'wle'eqxgtgf 'o cpwcnl'cpf " go gti gpe { 'eqpvtqnlcv'y g'ukg0Vj g'u'ungo 'ku'q'dg'ecr cdng'qh'qr gtcvkpi " dqv'j 'tgo qvgn' . 'cwqo cvlecnl' 'cpf 'o cpwcnl'0Vj g'v'ki i gt'ht'cwqo cvle" qr gtcvkpu'uj cnldg'y g'gxgnlguquu'eqwr n'f 'y kj 'c'w'o gt'uy kej 0Vj g' qr gtcvqt'cv'UECF C'tqgo 'o wuv'cnq'dg'cdng'q'tgo qvgn' 'uactv'cpf 'uqr 'y g' gs wlr o gp0Cnly g'r ctw' . 'ceegutlgu'q'gpcdn'k'qr gtcv'cu'f guetldgf 'j gtg' cpf 'lp'y g'ur gekhlecvkpu'uj qwr 'dg'lpenw'gf 'lp'y g'r tleg0	pt	3		
406	Cnny 'c'RtqxkukqpcnUwo 'qh'Muj u'972.222'ht'cp { 'pgeguuct { 'ekxki'y qtmu' ht'y g'kpuenlcvkp'qh'y g'O gej cplecnlTcnkpi 'Gs wlr o gpv'lp'y g'kgo 'cdqxg0	Kgo	Nwo r 'Uwo		
407	Uwr r n'f . 'kpuenl' 'Eqo o kuukp'P gy 'Hwuj kpi 'Rwo r u'Ugu'3'F w { - '3'Ucpf' d { + 'eqo r n'g'y kj 'pgy 'r k'g'y qtm'Uqngpql'Xcnku'TO qvt'qr gtcv'f " xcnku'ht'cevkcvkp'qh'hwuj kpi 'y cvgt'kv'q'y g'vtcu'j 'f kiej cti g'ej wgo' Vj g'ue'hwuj kpi 'Rwo r u'y knldg'wugf 'ht'dqv' 'y g'Vtcuj 'Uetggp'cpf 'y g' Rtqr qugf 'kpgto gf kcv'Uetggp0Cnny 'ht'cnlpgvteqppgevkpi 'r k'gy qtm' xcnku'gve0 R NGV'HNQY 'EQP VTQN'RGP UVQEMU	Kgo	Nwo r 'Uwo		
408	Tgr nceg'y g'gzknkpi 'Rpurqenli cvgu'lpennf kpi 'tgr ncelkpi 'cnldqnu' ('pww' f lkguj ch' 'i w'f gu' hwdtlecvkp . 'r clpvkpi 'cpf 'r wwkpi 'y g'i cvgu'lpv'pqto cri' qr gtcvkp0Vj g'tgr nceg'f'r gpurqenli cvgu'q'dg'ukprguu'uggnlcr'cu'5260	pt	4		
409	Uwr r n'f . 'kpuenl' 'Eqo o kuukp'pgy 'grgvtlecnl'qr gtcv'f 'O qvtlkgf' " Cewcvqt'Wpku'ht'y g'tgr nceg'f'Rpurqenli cvgu'cu'r gt'y g'ur gekhlecvkpu0 P GY 'R VGT O GF KCVG'47o o 'UETGGP 'Y KJ 'O GEJ CP HECN TCMR I 'U UVGO . 'UETGGP R I U 'NCWPF GT . 'GVE0	pt	4		
40	Uwr r n'f . 'kpuenl' 'Eqo o kuukp'P gy 'Uclprguu'Uggnl'kpgto gf kcv' " O gej cplecnl' 'Tcnf 'Det'Uetggp'y kj '47o o 'det'ur celkpi u'q'uwk'y g' g'zknkpi 'kpgto gf kcv'Ej cppgnu'y k'f y 'cpf 'f gr y 0Tgo qxg'y g'gzknkpi " uetggpu'cpf 'j cpf qxgt'q'y g'ekgp'ht'uch'nggr kpi 0	pt	3		
40	Uwr r n'f 'Uclprguu'Uggnlj cpf 'tcng'Uwkdng'ht'o cpwcnlengcpkpi 'qh'y g'P gy " 47o o 'Det'Uetggp'cu'r gt'y g'ur gekhlecvkpu0	pt	32		
4082	Uwr r n'f ('Hv'pgy 'Uclprguu'UggnlUetggpkpi u'Ncwpf gt'Ej cppgnldgy ggp'y g' pgy 'kpgto gf kcv'Uetggp'cpf 'y g'Uetggpkpi u'J cpf n'kpi 'Hekls0	pt	3		
TOTAL PAGE 2: TO COLLECTION SUMMARY PAGE					-

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 03					
ITE M	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
4083	Cmny 'c'RtqxkukqpcnUwo "qhMuj uB.222.222'hqt'cp{'pgeguact{'EkxkiY qtmu hqt'yj g'lpucnwqkp'qh'yj g'pgy 'Kpvtgto gf kcvg'Uetggp'cpf 'Tcnkpi 'Gs wkr o gpv' kp'yj g'kgo 'cdqxxgO' EWR'UETGGP U	nu	3	*****3.222.222	*****3.222.222
4084	"Tgr nreg'yj g'gzknkpi 'cewecvf 'Rgpuxqemi'cv'yj g'lpngv'q'yj g'Ewr 'Uetggpu." kpenw'kpi 'tgr nre'kpi 'dqnu' 'pwu'y kj 'pgy . 'ugt'xle'kpi 'qkft'kxguj chv' " " i wkf gu.'hwdt'lec'v.'r'ckp'v'cpf 'r'w'dcenik'p'v'p'qto cil'qr g'tc'v'k'p'0	pt	6		
4085	"Uwr r n' . 'Kpuenl' ('Ego o kulkp'p'gy "g'gevt'le'cn'qr g'tc'v'g'f "O qv'kt'kugf 'Cewecv'qt' Wpku'hqt'yj g'tgr nreg'f 'Kp'v'Rgp'U'q'emi' c'v'u'cu'r gt'yj g'ur gek'le'c'v'k'p'u0	pt	6		
4086	"Cmny 'hqt'yj g'f'k'uo cp'v'k'pi . 'lpur ge'v'k'p' 'cpf 'cu'gu'uo gp'v'q'h'yj g'eqpf k'k'p'q'h' y'j g'gzknkpi 'Ewr 'Uetggpu' 'cpf 'cu'q'ec'v'g'f 'gs wkr o gp'v'cpf 'j' cp'f'k'pi 'q'x'gt' 'cm' eqo r q'p'p'w'u'tgo q'x'g'f 'hqt'yj g'tgr nreg'o gp'v'q'yj g'Go r n'q' {gt' 'qt' 'f'kur qul'pi 'q'v'cp' crr t'q'x'g'f 'h'q'ec'v'k'p'cu'f'k'ge'v'g'f 'd' { 'y'j g'G'pi k'p'g'gt'0	pt	6		
4087	Uwr r n' . 'Kpuenl' 'cpf 'Ego o kulkp' 'eqo r n'g'v'g' 'Ewr 'cpf 'f' two 'uetggp' 'w'p'k' eqo r n'g'v'g' y' kj 'P' gy 'f' t'k'x'g' 'Cu'go d'n' { 'w'p'k' 'eqo r n'g'v'g' y' kj 'O' q'v'kt' 'j' c'x'k'pi 'N'q'y' ('J' k' i' j' 'U' r' g'g'f 'q'r g'tc'v'k'p' 'h'g'c'w't'g'u' 'hqt' 'g'cej 'q'h'yj g' 'Ewr 'Uetggp' . 'cu'r gt' 'y'j g' ur gek'le'c'v'k'p'u0 'Ewr 'Uetggpu' 'd'g' 'gs wkr r g'f 'y' kj 'U' r' cu'j 'f' w'c't'f 'u'nc'lp'g'u'u' u'g'g'n'f'g'p'e'q'u'w't'g'0 'k'p'en'f' g' 'cp' { 'q'yj gt' 'cu'g'ee'q't'k'g'u' 'cpf 'r' c't'w' 'p'ge'gu'act { 'hqt' r' t'q'r gt' 'h'w'p'ek'p'k'pi 'q'h'yj g' 'ew' 'uetggp' 'w'p'k'0 'G'cej 'ew' 'uetggp' 'w'p'k' 'u'j c'n'ld'g' e'c'r'c'd'ng' 'q'h'yj cp'f' n'k'pi '87.222' 'e'w'd'le' 'o' g't'g'u' 'q'h' 't'cy 'h'g'y' c'i g' 'r' gt' 'f' c' { 0'V'j g' f' g'i' t'k'w't'g'u' 'u'j c'n'ld'g' 'f' g'u'k' i' p'g'f 'q'v' 't'go q'x'g'f' c't'w' 'e'ng'u' 'cd'q'x'g' '20' 'o' 'f' l'co 'v'g't' 'cpf' "	pt	6		
4088	Ugt'x'le'g' 'y'j g'gzknkpi 'U' r' k'f' gt' 'J' w'd' 'u'g'ec'v'k'p' 'hqt' 'g'cej 'Ewr 'Uetggp' 'cu'go d'n' " v'q'i g'yj gt' 'y' kj 'f' k' v'j 'i' g'ct' { 'hwdt'lec'v'k'p' 'u' { 'u'ngo 0' D'g'ct'k'pi u' "g'z'w't'c' 'k'go +	pt	6		
4089	"Uwr r n' (' 'Kpuenl' 'p'gy 'U'g'c'u' 'hqt' 'g'cej 'f' two 'Uetggp' 'eqo r n'g'v'g' y' kj 'h'k'z'k'pi " j' c't'f' y' c't'g' 'r' c't'w'0	pt	6		
408:	Uwr r n' (' 'Kpuenl' 'p'gy 'Uetggp'k'pi 'R'c'p'g'u' 'hqt' 'g'cej 'Ewr 'Uetggp' 'w'p'k' 'v'q' 'eq'p'v't'g'n' c'p'f' 'r' t'q'g'ev' 'y'j g' 'w'p'k' 'u'cu'r gt' 'y'j g'ur gek'le'c'v'k'p'u0	pt	6		
408:	Uwr r n' . 'Kpuenl' ('Ego o u'uk'p' 'P' gy 'I'g'v'Y' c'v'gt' 'U' r' t'c' { 'U' { 'u'ngo 'hqt' 'e'ng'c'p'k'pi " y'j g' 'Ewr 'Uetggpu0	pt	6		
4042	Uwr r n' . 'Kpuenl' ('Ego o kulkp' 'P' gy 'E'q'p't'c' / 't'q'v'k'pi 'E'ng'c'p'k'pi 'D't'w'uj " Cu'go d'n' 'hqt' 't'cu'j 'f'f' g'd't'k'u' 't'go q'x'c'n'lt'q'o 'y'j g'f' two 'Uetggp' . 'q'h'yj g' 'u'co' g' o' c'n'g' 'cu'v'j g'gzknkpi 'q't' 'C'r'r t'q'x'g'f 'Gs w'k'x'c'g'p'0	pt	6		
4043	T'g'j c'd'k'nc'v'g' 'y'j g'gzknkpi "V't'cu'j 'f' k'ue'j c't'i g'j q'r r gt' 'cpf 't'cu'j 'g'ng'x'c'v'k'pi 't'c' { " hqt' 'g'cej 'Ewr 'Uetggp0	pt	6		
4044	T'gr nreg' 'y'j g'gzknkpi "T'q'v'ct { 'U'c't'k'p'gt' 'Gs wkr o gp'v' 'hqt' 'g'cej 'Ewr 'Uetggp' . " k'p'en'f'k'pi 't'gr nre'k'pi 'q'h'yj g' 'h'k'p'g' 'u'et'ggp' . 'u'g'c'ri'u' { 'u'ngo . 'hwdt'lec'v'k'p' 'q'h'yj chv' d'g'ct'k'pi u' 'c'p'f' 'u'et'c'r' gt' 'd'n'f' g0	pt	6		
4045	E'q'o r t'g'u'u'q't'u' 'C'k't' 'D'ny' gt' 'hqt' 'f' t'k' 'u'nc'v'k'p'0 'Uwr r n' . 'lpucn' 'l' 'c'p'f' 'eqo o kulkp' " t'g'ek'r' t'q'ec'v'k'pi 'c'ev'k'p' 't'q'd'k'u'v'f' g'u'k' i' p' 'eqo r t'g'u'u'q't'u' 'e'q'x'g't'g'f 'k'p' 'u'nc'lp'g'u'u' 'u'g'g'n' j' q'v'ul'pi 'q'v' 'h'o' k' 'e'q't't'q'ul'k'p'0 'V'j g' 'w'p'k' 'u'j c'n'ld'g' 'e'c'r'c'd'ng' 'q'h'yj 'd'c't' 'r' t'g'u'u'w't'g' 'c'v' 5222' 't'g'x'q'n'w'k'p'u' 'r' gt' 'o' k'p'w'g' 'y'j k'g'f' g'k'x'g't'k'pi '62' 'e'w'd'le' 'o' g't'g'u' 'r' gt' 'j' q'w't'0 V'j g'f' 'u'j c'n'ld'g' 't'q'd'w'u'v' 'c'p'f' 'c'r' r' n'ec'd'ng' 'hqt' 'k'p'f' w'u't'k'ri'c'ev'k'p'u0 'V'j g' 't'g'eg'k'x'g'u' u'j c'n'lf' c'x'g' '6' 'w'o' g'u'v'j g' 'e'c'r'c'ek' { 'q'h'yj g'f' t'k' 'e'j' c'o' d'gt' 'c'p'f' 'c'd'ng' 'v'q' 'y' kj u'nc'p'f' " y'j g' 'e'q't't'q'ul'k'x'g' 'g'p'x'k' q'p'go gp'0 'V'j g' 'eqo r t'g'u'u'q't'u' 'u'j c'n'le'q'o' g' 'gs wkr r g'f' 'y' kj " r' t'g'u'u'w't'g' 'u'y' k'ej' g'u'v'q' 'c'm'y' 'hqt' 'c'w'q'o' c'v'le' 'u'y' k'ej' k'pi 'q'h'yj g' 'w'p'k'0 'V'j g' " eqo r t'g'u'u'q't'u' 'o' w'u'v' 'd'g' 'c'd'ng' 'v'q' 'r' g't'h'q'o 'hqt' '38: 'j' q'w't' 'u' 'eq'p'v'k'p'q'w'u' 'q'r g't'c'v'k'p' " y' kj q'w'c' 'd't'g'c'n'iq't' 'p'g'g'f' 'q'h' 'u'g't'x'le'g'0 'V'j g' 'c'k' 't' 'g'ug't'x'q'k' 'u'j c'n'lf' t'c'k'p' " c'w'q'o' c'v'le'c'n'f' 'v'q' 'r' t'g'x'g'p'v'j' c'v'gt' 'c'ee'w'o' w'w'v'k'p' 'k'p' 'y'j g' 'w'p'k' 'y'j k'g' 'y'j g' 'q'k'i' e'a'n'w'v' 'a'h' 'v'j g' 'c'k' 't' 'u'j c'n'ld'g' 'h'o' k'ef' 'v'a' '2'0' 'o' i' 'l'k't'e'0	pt	6		
4046	Uwr r n' . 'Kpuenl' ('Ego o kulkp' 'P' gy 'f' t'k'x'g' 'W'p'k' 'eqo r n'g'v'g' y' kj 'O' q'v'kt' . 'hqt' " y'j g' 'T'q'v'ct { 'U'c't'k'p'gt' 'Gs wkr o gp'u0	pt	6		
TOTAL PAGE 3: TO COLLECTION SUMMARY PAGE					
ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 04					

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
4047	Cmny 'hqt'tgr nkelpi 'eqttqf gf 'o gvcnly qtnlqh'yj g'ewr 'uetggp'unt wewtg'cu'r gt' yj g'ur gekhlecwkp0' <u>UETGGP RPI UJ C P F N R P I 'GS WRO GP V'</u>	nu	6		
4048	Cmny 'hqt'yj g'f'kuo cpvklpi . 'lpur gevklp'cpf 'cuuguuo gpv'qh'yj g'eqpf klkp'qh' yj g'gzklvpi 'O cegtcvqtu'cpf 'cuuqelcvgf 'r kr gy qtnlhp'yj g'O cegtcvqt 'Tqqo " cpf'j cpf lpi 'qxtg'cmleqo r qpgpu'tgo qxgf 'q'yj g'Go r nq { gt'qt'f kur qukpi 'q" cp'cr r tqxgf 'hqcwklp'cu'f k gevfg 'd { 'yj g'Gpi lpggt0Cmny 'hqt'ergcpkpi 'qww' yj g'gzklvpi 'O cegtcvqt 'Uwo r 'cpf 'f kur qukpi 'qh'yj g'f gdtku'lp'cp'cr r tqxgf " o cpggt0Tgr nceg'yj g'yj qrg'wpl'y kj 'pgy 'cu'r gt'yj g'ur gekhlecwkp0	nu	3		
4049	'Uwr r nq' . 'lpucnli' ('Eqo o kulqp'P gy 'Uetgy 'Y cuj 'Eqo r cevqtu.'hqt' Uetggpklpi 'Ncwpgf gtu'cu'y gni'cu'hqt'yj g'lpvgo g'f'cvg'Uetggp0	pt	6		
404:	Tgr nceg'yj g'gzklvpi 'Qxgtj gcf 'Vtcxgnkpi 'S'Vqp'I cpvt { 'Etcpg'cpf 'r tqxkf g' egt'khlecwklp'qh'hqcf 'dgctkpi 'ecr celw' 'chng'eqo r ngvklpi 'yj g'Tgr ncego gpv' Y qtnm0P qvg'kj ku'y knlj cxg'q'dg'ectt'kgf 'qww'cv'eqo o gpego gpv'q'gpcdrng" wug'qh'yj g'etcp'g'cpf 'i cpvt { 'cu'pgeguuct { 'hqt'yj g'Tgj cdkkclwklp'Y qtnu. "	pt	3		
404:	Uwr r nq' ('lpucnli'P gy 'Uetggpklpi 'Ncwpgf gtu'*Uclp'ngui'Uggni'htqo 'gzklvpi " Kw' w'qt'cr r tqxgf "gs wxcrgpv'twenly kj 'Uwr r gt' hqt'eqttqukg'v'cu'j 't'cpur qtv' cpf 'qh'hqcf lpi 'q'yj g'lpelkgtcvqt'y kj 'cwqo c'le'8'i gct'r nnu'3'tgxgtug. '8" vpppg. 'y kj 'j { f'c'wke'eqptqnt'gct'eqpvclpgt. <u>IGVC'I TK'VTCR'WP KV"</u>	pt	6		
4052		pt	4		
4053	Cmny 'hqt'yj g'f'kuo cpvklpi . 'lpur gevklp'cpf 'cuuguuo gpv'qh'yj g'eqpf klkp'qh'	pt	6		
4054	'Uwr r nq' . 'lpucnli' ('eqo o kulqp'i tks'v'cr 'wpl'kpenw' lpi . "P gy 'F tlxg'Vvdgu0'	pt	6		
4055	Uwr r nq' . 'lpucnli' ('eqo o kulqp'P gy 'Eqpucpv'Xgnqels' 'Rcf f'ngu. 'qh'yj g'uco g' o cng'cu'yj g'gzklvpi 'qt'cr r tqxgf "gs wxcrgpv0'	pt	6		
4056	Uwr r nq' . 'lpucnli' ('Eqo o kulqp'P gy 'I gctgf 'O qvqt'Wpl'hqt'yj g'I gct'Dqz" F tlxg'Wpl'cu'r gt'yj g'ur gekhlecwkp0'	pt	6		
4057	Uwr r nq' . 'lpucnli' ('Eqo o kulqp'P gy 'Dny gt'Wpl'ku'eqo r ngv'y kj 'o qvqt'cu" r gt'yj g'ur gekhlecwkp0'	pt	6		
4058	Cmny 'hqt'tgj cdkkclwklpi 'yj g'gzklvpi 'Ck'Rkr gnikpu. 'lpenw' lpi 'uwr r nq' lpi 'cpf' lpucnli' 'tgr ncego gpv'eqo r qpgpu'cu'tgs wktgf 0'	nu	6		
4059	Cmny 'hqt'tgr nkelpi 'yj g'gzklvpi 'I tks'Rkr gy qtnl'penw' lpi 'xcnkgu'cpf " ceeguut'kgu'cu'tgs wktgf 0	nu	6		
405:	Cr r nq' 'yj tgg'eqcv'qh'r clpv'wug'yj g'cp'w'eqttquklp'r clpvklpi 'uej go g'qwwklpg'lp" yj g'ur gekhlecwkp0'	nu	3		
405:	Uwr r nq' 'cpf 'lpucnli' cuu'dwtp'y q'unci g'tqvt { 'hklp'lpelkgtcvqt'ecr cdng'qh' dwtpklpi '52'vqpu'qh'y cuvg'r gt'f'c { 0Vj g'wpl'q' 'dg'uw'r r nqf 'y kj 'c'52'ewdke" o gvtg'j qrr gt'cpf 'cr r tqr tkevg' 'uk' gf 'r tg'eqo dwuklp'f'it { lpi 'u'ungo 'qh' 52My 'tctklpi 0Vq'wpl'uw'r r nqf 'uj cmleqo g'eqo r ngv'y kj 'hng" i cueqpf klkpklpi 'cpf 'dghqtg'gpvgtklpi 'c'dci 'hngt0Vj g'lp'pgt'f'ico gvtqhl'uj gni' uj cmldg'cdqww'4o 'cpf 'hpgy '37o 0Vj g'hklp'go r gtcwtg'uj cmldg': 72/3222" f gi tggu'egnukuu0Vj g'uwthceg'go r gtcwtg'qh'hklp'uj cmldg'cdqww'3: 2'f gi tggul' egnuksu0Vj g'f'tlxg'o qf g'uj cmldg'ukpi ng'f'k gevklp'i gct'y kj 'r quukdkw' 'qh' t'gxgtug'hqt' 'o clpv'gpcpeg0'lp'penw' g'hqt'dwkl' lpi 'unt wewtg' "eqpetgvg. " t'gphqtego gpv'gve'+q'j qwug'yj g'lpelkgtcvqt'y kj "cm'grgvt'ecn'o gej cplecl' cpf 'r nwo dklpi 'lpucnli'wkp'cu'tgs wktgf 'cpf 'f'k gevfg 'd { 'yj g'gpi lpggt0	pt	3		
TOTAL PAGE 4: TO COLLECTION SUMMARY PAGE					
ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 05					

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
502	<u>PUMPING EQUIPMENT</u> <u>UWDO GTUKDNG'RWO R'UGVU'HQT'EWR'UETGGP U'Y CUI</u> <u>Y CVGT</u>				
503	Cmny 'hqt'yj g'tgo qxcn'kpur gevqp'cpf 'cuuguuo gpv'qh'yj g'eqpf ksqp'qh'yj g'gzkukpi 'Rwo r 'Ugw'hqt'Ewr 'Uetggp'Y cuj 'Y cvgt.'hgtxlekp 'yj g'r wo r u'cpf " j cpf lpi 'qxtg'vq'yj g'Go r nq{gt'qt'f kur qulpi 'vq'cp'cr r tqxgf 'hgecvqp'cu' f kgevgf 'd{ 'yj g'Gpi kpggt.	pt	6		
504	Uwr r nq. 'kpuvni('Eqo o kuukp'pgy "qr gp'uvclprgu'uvgrilo r gngt'y kj " i tlpf lpi 'ecr cdkk{ 'Uwdo gtukdng'Rwo r u'hqt'Ewr 'Uetggp'Y cuj 'Y cvgt' cr r hgecvqp."y kj 'o lpo wo 'qxtgcm'ghhlegpe{ 'qh'87' 'UVj g'o qvt'uj cmldg" R8: 0Rwo r 'Ej ctcevgtku'cu'hqny u< V{r g'<Uwdo gtukdng" S "? '72'o 5 l t " J "? '42O utu"	pt	6		
505	Uwr r nq. 'kpuvni('Eqo o kuukp'P gy 'Uwevqp'('F kiej cti g'Xcxgu'hqt'lgv' ur tc{ 'Rwo ru	pt	6		
506	Cmny 'hqt'tgj cdkkcvlpi "To qf kh{lpi 'yj g'gzkukpi 'Rkr g'y qtni'v'uwk'yj g'pgy " r wo r 'ugw'lpnw lpi 'o qf khlecvcpu.'uwr r qtuw'.enro r lpi 'gve0	pt	6		
507	Cmny 'c'Rtqxkukpccn'Uwo 'qh'Muj u'722.222'hqt'Hqwpf cvqp'o qf khlecvcpu'cu' tgs wktgf 0 <u>IGV'Y CVGT'URTCI 'RWO RU'HQT'EWR'UETGGP U'ENGCP R I</u>	Kgo	Nwo r 'Uwo		
508	Cmny 'hqt'yj g'tgo qxcn'kpur gevqp'cpf 'cuuguuo gpv'qh'yj g'eqpf ksqp'qh'yj g'gzkukpi 'Lgv'Y cvgt'Ur tc{ 'Rwo ru.'hgtxlekp 'yj g'r wo r u'cpf 'j cpf lpi 'qxtg'vq' yj g'Go r nq{gt'qt'f kur qulpi 'vq'cp'cr r tqxgf 'vr 'cu'f kgevgf 'd{ 'yj g'Gpi kpggt0	pt	6		
509	Uwr r nq. 'kpuvni('Eqo o kuukp'P gy 'Lgv'Ur tc{ 'Rwo ru'hqt'yj g'Ewr 'Uetggpu' Uetggpki 'Rcpgr'engcpki . 'y kj "qr gp'uvclprgu'uvgrilo r gngt'y kj 'i tlpf lpi " ecr cdkk{ 'UVj g'r wo r 'cpf o qvt'uj cmldg'cxg'o lpo wo 'qxtgcm'ghhlegpe{ 'qh' 87' 0Rwo r 'Ej ctcevgtku'cu'hqny u< V{r g'<O wnk'Uci g" S "? '42'o 5 l t " J "? '72'O ut	pt	6		
50	Uwr r nq. 'kpuvni('Eqo o kuukp'pgy 'Xcxgu.'dqj 'Uwevqp'('F kiej cti g.'hqt" Y cuj 'Y cvgt'Rwo ru0	pt	6		
50	Cmny 'hqt'tgj cdkkcvlpi "To qf kh{lpi 'yj g'gzkukpi 'r kr g'y qtni'v'uwk'yj g'pgy " r wo r 'ugw'lpnw lpi 'o qf khlecvcpu.'uwr r qtuw'.enro r lpi 'gve0 <u>RQTVCNDNG'UGY CI G'RWO R'UGVU'HQT'F'TCR'CI G'; ';</u>	pt	6		
5082	Uwr r nq'('j cpf qxtg'vq'yj g'Go r nq{gt.'pgy 'Rqtvcdr'F tclpci g'Rwo ru" *uo cm#eqo r ngv'y kj "470 utu'Ecdngu0 " V{r g'<Rqtvcdr'Ukpi ng'Uci g" S "? '42'o 5 l t " J "? '3: 'O utu" MY "? '404	pt	4		
5083	Uwr r nq'('j cpf qxtg'vq'yj g'Go r nq{gt.'pgy 'Rqtvcdr'Ugy ci g'Rwo r 'Ugw'hqt" F tclpci g'y kj 'o lpo wo 'ghhlegpe{ 'qh'87' "cv'f w{ 'r qkp'v'eqo r ngv'y kj " 470 utu'6o o 'us wctg'Ecdngu0 V{r g'<Rqtvcdr'Ukpi ng'Uci g" S "? '32o 5 l t " J "? '37O utu" MY "? '307'MY	pt	4		
TOTAL PAGE 6: TO COLLECTION SUMMARY PAGE					-

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 07					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
5084	Cmny 'c'RtqxkukqpcnUwo 'qhMij u'3.722.222'hqt'O kuegnepgquw'Y qtnu' tgrvqf 'q'Uwr r n' 'cpf 'kpucnrvkp'qh'Rwo r lpi 'Gs wkr o gpv'cu'tgs wktgf 0	Kgo	Nwo r 'Uwo	*****3.722.222	*****3.722.222
602	ELECTRICAL EQUIPMENT				
608	O C R 'UWRRN' F KMTDWWQP'DQCTF F guki p.'Uwr r n'.'Kpucn'('Eqo o kuukp'pgy 'O clp'Uwr r n' 'f kntkdwkqp' Dqctf.'Hgg'Ucpcf lpi 'eqo r ngv'y kj 'y g'hqny lpi .'cu'r gt'y g' ur gekhlecwqpu0 3'Z'Gperquwtg'R'76" 3'Z'3222CVR'O EED'Kpeo gt" Ugv'qh'3222C'EwDwudctu'y kj '58nC'UIE'ewtgpv'ecr 0 4'Z'3222C'VR'O EED'Kpeo gt'/'I gpugv' 3'Z'3222C'Dwu'Eqw rgt" 3'Z'472C'VR'O EED'Hggf gt'q'RHRrcpv' 4Z'472CVR'O EED'Hggf gt'q'O EE'r cpgm'cv'y g'eqptqntqgo " 3'Z'322C'VR'O EED'Hggf gt'q'q'hleg'F D'***** 4'Z'85C'VR'O EED'Hggf gt'q'Gzvgtpcn'Ni j u'cpf 'Kpelpgtcvt'F Du' 3Z372MXct'RHRrcpv' 4'Z'85C'VR'O EED'Hggf gt'hqt'Hwwt g'Urtg" 3'Z'372CVR'O EED'Hggf gt'hqt'Hwwt g'Urtg" 3'z'322CVR'O EED'Hggf gt'hqt'Hwwt g'Urtg" 3'Z'MRNE'Ugevkp" Vj g'r tqgevkp'uj cnlcv'y g'xgt{ 'o lpo wo 'lpenf g'r j cug'hcwn' r j cug' hcnw'g'tgr{.'y gto cnlqxt'iqcf.'qxgtewtgpv'r tqgevkp.gct'y 'hgcnei g'cpf" f t{ 'twp'r tqgevkp'hqt'y g'r wo r u	pt	3		
604	F guki p.'Uwr r n'.'Kpucn'('Eqo o kuukp'pgy 'Ej cpi gqxtg'Rcpgrhqt'522" MXC'I gpugv'cu'r gt'y g'ur gekhlecwqpu	pt	3		
605	Uwr r n'('Kpucn'y g'hqny lpi 'uo cnl qy gt'('h'j vpi 'hskpi u'lp'y g' Uy ke j 'Tqqo 'cu'r gt'y g'ur gekhlecwqpu0 35C'Vy kp'Uqengv'Qwrgv'eqo r ngv' y kfg 'lp'5'z'40'2'o o "eqr r gt'ecdng'lp' 42o o "eqpf wko Vy kp'HN'Hskpi '6'HV'/'Dcwgp'v'rg 85C'VR'Uqengv'Qwrgv'ly 'Vqr 'Rwi 54C'VR'Uqengv'Qwrgv'ly 'Vqr 'Rwi Ni j vpi 'r qlp u'eqpukvpi 'qh'30'o o 4'y tgg'eqtg'eqr r gt'ecdngu'lp'42o o " J I 'eqpf wko'cpf 'hskpi u'lp'penf lpi '8C'Ni j vpi 'Uy ke j O kuegnepgquw'Y k lpi 'eqo r ngv'y kj 'Eqpf wku'Vtwpn lpi	pt	6		
606	F KMTDWWQP'DQCTF'/'R NGV'Y QTMU F guki p.'Uwr r n'/'Kpucn'('Eqo o kuukp'pgy 'F kntkdwkqp'Dqctf'cv'y g'lpgrv' Y qtnu.'Hgg'ucpcf lpi 'qt'y cnl o qwpv'v'rg.'eqo r ngv.'y kj 'y g'hqny lpi .' cu'r wt'y g'ur gekhlecwqpu03'Z'Gperquwtg'y gc'y gt'Rtqqh+ 3'Z'472C'VR'O EED'Kpeo gt" 3'Z'85C'VR'O EED'Hggf gt'q'Ck'Dny gtu'Uctvgtu'***** 3'Z'72C'VR'O EED'Hggf gt'q'Hggf gt'Rwo r u'Uctvgtu 5'Z'62C'VR'O EED'Hggf gt'q'Vtcuj 'Teng'Ctgc'F D.'lpvto gf kvg'Teng" O cej lpg'cpf 'Lgv'Urtc{ 'Rwo r u'Uctvgtu'**** 3'Z'42C'VR'O EED'Hggf gt'q'Htcuj 'Rwo r u'Uctvgtu 8'Z'38C'VR'O EED'Hggf gt'q'Tqqt'Uctkpgt.'Ewr 'Uetggp.'Lgc'F tkxu.'I tkv" Tgo qxgt'cpf 'Eqpxg'gt.'cpf 'Cewwvqt'O qqtu'Uctvgtu'***** 3'Z'38C'VR'O EED'Hggf gt'Urtg" 4'Z'30MY 'uctvgtu'-'Rtqgevkp" 6'z'Cewwvqt'eqptqni'hqt'Kpgrv' cgu" 3'Z'Rtqgevkp'F gxlegu" 3'Z'Eqo o qp'eqptqni'Ugevkp" 3'Z'Gctj lpi 'U'ungo " 3'z'O gvt lpi 'Ugevkp" 3'Z'Kpf lecvqpu	pt	3		
TOTAL PAGE 7: TO COLLECTION SUMMARY PAGE					

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ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 09					
ITE M No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<p><u>UO CNN'RQY GT' ('Nk J VR I</u></p> <p>uwr r n' 'cpf' 'lpuncwvqp' qh'uo cmlRqy gt' ('Nk j v' 'hkwlp' u. 'lpnw' lpi 'hki j v' 'hzw' wgu. 'ecdrgu. 'y k lpi. 'twpn' lpi. 'ecdrg' 'tvc { 'gctv j lpi. 'Nk j v' lpi. 'cttgu' qtu. "</p> <p>uwr r qt' v' d' t' c' eng' v' h' q' t' 'hki j v' h' zw' wgu. 'ecdrg' 'tvc { u. 'cni' cu' t' gt' 'y g' 'ur gek' h' ec' v' qp' u. "</p> <p>c' v' j g' 'h' q' n' y lpi 'r' r' p' v' h' ec' v' qp' u. <*****</p> <p>c+ 'K' r' g' v' 'Uetgg' lpi 'Ctgc</p> <p>d+ 'R' g' p' u' q' en' l' c' v' g' u</p> <p>e+ '97' o o 'K' p' v' to g' f' l' c' v' g' 'uetgg' lpi</p> <p>f+ 'E' w' 'Uetgg' lpi 'Ctgc</p> <p>g+ 'I' t' k' t' go q' x' c' n' 'Ctgc</p> <p>h+ 'Q' v' j g' t' 'N' q' ec' v' qp' u' cu' t' f' g' v' c' k' r' g' f' 'd' g' n' y <</p> <p>Sub Distribution board</p> <p>34' y c' { 'VRP' 'Uwd/ f' k' n' t' k' d' w' k' p' 'd' q' c' t' f' 'u' F' D/ 3+ 'h' w' u' j 'o q' w' p' v' g' f' . 'y k' j '322C' "</p> <p>VR' o c' k' p' u' y k' e' j 'cu' b' o c' p' w' h' c' e' w' t' g' f' 'd' { 'e' t' c' d' v' t' g' g' y k' j 'h' e' n' e' d' r' g' 'T' q' q' t' 'e' q' p' u' k' n' p' i' "</p> <p>q' h' <</p> <p>"/ '6' r' e' 'O' E' D' 'q' h' '54C. '5/ r' j</p> <p>"/ '32' r' e' u' 'O' E' D' 'q' h' 'C. '3/ r' j</p> <p>"/ '32' r' e' 'O' E' D' 'q' h' '54C. '3/ r' j</p> <p>"/ '8' r' e' u' 't' g' u' g' t' x' g' r' n' e' g. '3/ r' j . e' q' o r' n' g' v</p> <p>Lighting installation</p> <p>Light fittings complete with accessories, lamps and tubes, 1.5 mm² three core heat resisting cables and wiring to an adjacent lighting point (measured separately) and fixing</p>				
6087	<p>Nk j v' lpi 'r' q' l' p' u</p> <p>8' C' o r' 'q' p' g' i' c' p' i' 'q' p' g' y' c' { 'l' u' y k' e' j 'c' 'e' t' c' d' v' t' g' g</p> <p>Lighting fittings</p> <p>72Y 'NGF' 'H' q' q' f' 'Nk j v' 'Y' c' v' g' t' 'R' t' q' q' h' '5222M' 'e' q' o r' n' g' v' y' k' j 'O' q' w' p' v' lpi "</p> <p>D' t' c' e' n' g' w' 'cu' R' j k' k' r' u' q' t' 'c' r' r' t' q' x' g' f' 'g' s' w' k' c' r' g' p' v</p> <p>3422o o '3z58Y' 'u' l' p' i' r' g' 'h' w' q' t' g' u' e' g' p' v' D' e' w' g' p' y' k' j 'g' e' q' p' p' o { 'q' r' c' n' f' k' h' w' u' g' t' 'cu' "</p> <p>R' j k' k' r' u' q' t' 'c' r' r' t' q' x' g' f' 'g' s' w' k' c' r' g' p' v</p> <p>Final sub-circuits from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit, 2.5mm² PVC insulated copper cables, 2.5 mm² copper earthing cable including accessories and fittings</p> <p>H' w' u' j 'o q' w' p' v' g' f' 'u' q' e' n' g' v' // q' w' r' g' v' 'q' h' '54C. '3/ r' j . '442' k' 462x. '72J \ . 'h' g' f' "</p> <p>y' t' q' w' i' j 'E' w' 5z47' o o '4' R' X' E' 'k' p' u' w' v' g' f' 'E' W' y' k' t' g' u' k' p' '42o o 'e' q' p' f' w' k' u' "</p> <p>e' q' o r' n' g' v' y' k' j 'l' w' p' e' v' l' q' p' 'd' q' z' g' u. 'e' q' p' p' g' e' v' t' u' 'c' p' f' 'c' e' e' g' u' u' q' t' l' g' u</p> <p>Final sub-circuit from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit 4mm² PVC insulated copper cables, 4mm² earthing cable including accessories.</p> <p>54C. '5R- P - G' t' q' y' g' t' 'r' q' l' p' u' 'e' q' o r' n' g' v' y' k' g' f' 'l' p' '6' 'e' q' t' g' '6o o "</p> <p>R' X' E' l' l' y' C' R' X' E' 'e' q' r' r' g' t' 'e' c' d' r' g' u' f' t' c' y' p' l' p' 't' w' p' n' l' p' i' 'c' p' f' 't' w' p' l' p' i' 'h' t' q' o 'y' j' g' "</p> <p>f' k' n' t' k' d' w' k' p' 'd' q' c' t' f' 'q' 'y' j' g' '5' r' j' c' u' g' '54C' 'u' q' e' n' g' v' q' w' r' g' v' g' z' e' n' v' l' p' i' 'y' j' g' l' u' y' k' e' j' g' f' "</p> <p>u' q' e' n' g' v' o</p>	P q	3		
6088	Nk j v' lpi 'r' q' l' p' u	P q	39		
6089	8' C' o r' 'q' p' g' i' c' p' i' 'q' p' g' y' c' { 'l' u' y k' e' j 'c' 'e' t' c' d' v' t' g' g	P q	7		
608:	<p>Lighting fittings</p> <p>72Y 'NGF' 'H' q' q' f' 'Nk j v' 'Y' c' v' g' t' 'R' t' q' q' h' '5222M' 'e' q' o r' n' g' v' y' k' j 'O' q' w' p' v' lpi "</p> <p>D' t' c' e' n' g' w' 'cu' R' j k' k' r' u' q' t' 'c' r' r' t' q' x' g' f' 'g' s' w' k' c' r' g' p' v</p>	P q	:		
608:	<p>3422o o '3z58Y' 'u' l' p' i' r' g' 'h' w' q' t' g' u' e' g' p' v' D' e' w' g' p' y' k' j 'g' e' q' p' p' o { 'q' r' c' n' f' k' h' w' u' g' t' 'cu' "</p> <p>R' j k' k' r' u' q' t' 'c' r' r' t' q' x' g' f' 'g' s' w' k' c' r' g' p' v</p> <p>Final sub-circuits from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit, 2.5mm² PVC insulated copper cables, 2.5 mm² copper earthing cable including accessories and fittings</p> <p>H' w' u' j 'o q' w' p' v' g' f' 'u' q' e' n' g' v' // q' w' r' g' v' 'q' h' '54C. '3/ r' j . '442' k' 462x. '72J \ . 'h' g' f' "</p> <p>y' t' q' w' i' j 'E' w' 5z47' o o '4' R' X' E' 'k' p' u' w' v' g' f' 'E' W' y' k' t' g' u' k' p' '42o o 'e' q' p' f' w' k' u' "</p> <p>e' q' o r' n' g' v' y' k' j 'l' w' p' e' v' l' q' p' 'd' q' z' g' u. 'e' q' p' p' g' e' v' t' u' 'c' p' f' 'c' e' e' g' u' u' q' t' l' g' u</p> <p>Final sub-circuit from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit 4mm² PVC insulated copper cables, 4mm² earthing cable including accessories.</p> <p>54C. '5R- P - G' t' q' y' g' t' 'r' q' l' p' u' 'e' q' o r' n' g' v' y' k' g' f' 'l' p' '6' 'e' q' t' g' '6o o "</p> <p>R' X' E' l' l' y' C' R' X' E' 'e' q' r' r' g' t' 'e' c' d' r' g' u' f' t' c' y' p' l' p' 't' w' p' n' l' p' i' 'c' p' f' 't' w' p' l' p' i' 'h' t' q' o 'y' j' g' "</p> <p>f' k' n' t' k' d' w' k' p' 'd' q' c' t' f' 'q' 'y' j' g' '5' r' j' c' u' g' '54C' 'u' q' e' n' g' v' q' w' r' g' v' g' z' e' n' v' l' p' i' 'y' j' g' l' u' y' k' e' j' g' f' "</p> <p>u' q' e' n' g' v' o</p>	P q	;		
6042	<p>54C. '622X. '5R- P - G' t' w' h' c' e' g' 'o q' w' p' v' lpi 'l' p' v' g' t' r' q' e' n' g' f' 'l' u' y' k' e' j' g' f' 'u' q' e' n' g' v' q' w' r' g' v' "</p> <p>e' q' o r' n' g' v' y' k' j 'k' u' 'q' r' 'r' n' i' 'cu' 'O' M' E' c' v' P' q' 0; 867' T' G' F</p> <p><u>E' C' D' N' R' I' 'Y' Q' T' M' U</u></p>	P q	6		
6043	<p>54C. '5R- P - G' t' q' y' g' t' 'r' q' l' p' u' 'e' q' o r' n' g' v' y' k' g' f' 'l' p' '6' 'e' q' t' g' '6o o "</p> <p>R' X' E' l' l' y' C' R' X' E' 'e' q' r' r' g' t' 'e' c' d' r' g' u' f' t' c' y' p' l' p' 't' w' p' n' l' p' i' 'c' p' f' 't' w' p' l' p' i' 'h' t' q' o 'y' j' g' "</p> <p>f' k' n' t' k' d' w' k' p' 'd' q' c' t' f' 'q' 'y' j' g' '5' r' j' c' u' g' '54C' 'u' q' e' n' g' v' q' w' r' g' v' g' z' e' n' v' l' p' i' 'y' j' g' l' u' y' k' e' j' g' f' "</p> <p>u' q' e' n' g' v' o</p>	P q	5		
6044	<p>54C. '622X. '5R- P - G' t' w' h' c' e' g' 'o q' w' p' v' lpi 'l' p' v' g' t' r' q' e' n' g' f' 'l' u' y' k' e' j' g' f' 'u' q' e' n' g' v' q' w' r' g' v' "</p> <p>e' q' o r' n' g' v' y' k' j 'k' u' 'q' r' 'r' n' i' 'cu' 'O' M' E' c' v' P' q' 0; 867' T' G' F</p> <p><u>E' C' D' N' R' I' 'Y' Q' T' M' U</u></p>	P q	5		
6045	<p>U' w' r' n' f' '6E' 'z' '47o o 'R' x' e' l' l' y' c' l' R' x' e' 'E' c' d' r' g' 'h' t' q' o 'y' j' g' 'N' X' 'D' q' c' t' f' 'S' N' X' "</p> <p>R' j' c' u' g' '3S' 'c' v' j' g' 'P' g' y' 'E' q' p' v' q' i' T' q' q' o 'q' 'F' k' n' t' k' d' w' k' p' 'D' q' c' t' f' 'c' v' 'V' t' c' u' j' 'T' e' n' g' "</p>	o	372		
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ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 10					
ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
6046	Uwr r n' 'cpf 'lpucniI cncpki gf "ecdng"tc{u'422"z'72"z'30#o o "Vj len'cu" P cwkpy kf g'Gngvlecn'kf wmtkgu'Nf 'O cpwcewtgf "qt'gs wcnlcpf "cr r tqxgf 0	o	342		
6047	Uwr r n' 'cpf 'lpucniNk j xlpki "Cttguqtu'Ego r ngv'y kj "Eqr r gt"Ck" Vgto lpcn*3722o o 'z'37o o "f lco ggt+Dctg'Eqr r gt"eqpf wevt"cr g"%47"z" 6o o +."Dtcuj "Dqpf lpi . "Vgukpi "Rqlpw'cpf "Gctvj lpi "q'Gpi kpggt'u" cr r tqxcn0	P q	6		
6048	Uwr r n' . "lpucni6"Eqtg"z'3.7"b o 4"RXeIRxeIUy c IRXe"Ecdng'hqt'cni'Uctv'I" Uqr "Rwuj "Dwwqp"Ucwkpu'q' "O clp"EqptqniRcpgr0	o	4: 72		
6049	Vgto lpcvg"ecdngu'hqt'cni'j g'Rwuj "Dwwqp"Ucwkpu'lpnw' lpi "uwr r n' 'qh" I rcpf . "Uj tqwf u0	pt	86		
604:	Uwr r n' . "lpucni5"Eqtg"z'30"b o 4"RXeIRxeIUy c IRXe"Ecdng'hqt'"Hujy "O gvgt" Rqy gt"Uwr r n' "q' "O clp"EqptqniRcpgr0	o	662		
604:	Vgto lpcvg"ecdngu'hqt'"Hujy "O gvgt"r qy gt"Uwr r n' . "lpnw' lpi "uwr r n' 'qh" I rcpf . "Uj tqwf u0	pt	6		
6052	Uwr r n' . "lpucni5"Eqtg"z'30"b o 4"RXe"Uetggp"ecdng'hqt'"Hujy "O gvgt"Uk pcni' q' "O clp"EqptqniRcpgr0	o	662		
6053	Vgto lpcvg"ecdngu'hqt'"Hujy "o gvgtu'uki pcni'lpnw' lpi "uwr r n' 'qh'I rcpf . "	pt	6		
6054	Uwr r n' . "lpucni5"Eqtg"z'30"b o 4"RXeIRxeIUy c IRXe"Ecdng'hqt'"Ngxgn' Vtcupo kwgt'u'Rqy gt"Uwr r n' "q' "O clp"EqptqniRcpgr0	o	432		
6055	Vgto lpcvg"ecdngu'hqt'"Ngxgn'Vtcupo kwgt'u'Rqy gt"Uwr r n' . "lpnw' lpi "uwr r n' " qh'I rcpf . "Uj tqwf u0		6		
6056	Uwr r n' . "lpucni5"Eqtg"z'30"b o 4"RXe"Uetggp"ecdng'hqt'"Ngxg"vtcpuo kwgt" uki pcni'q' "O clp"EqptqniRcpgr0" "O clp"EqptqniRcpgr0	o	432		
6057	Vgto lpcvg"ecdngu'hqt'"Ngxgn'vtcpuo kwgt'uki pcni'lpnw' lpi "uwr r n' 'qh'I rcpf . " Uj tqwf u0	pt	6		
6058	Tg/Vgto lpcvg"O clp'uwr r n' "Ecdng'htqo "MRNE"qp'yj g'P gy "O clp"Dqctf . " lpnw' lpi "uwr r n' 'qh'P gy "I rcpf u."Uj tqwf u0	pt	3		
6059	Tg/Vgto lpcvg"O clp'uwr r n' "Ecdng'htqo "I gpugv'P q0"q'P gy "Ej cpi qxgt" ugevkp'lp'yj g'P gy "O clp"Dqctf . "lpnw' lpi "uwr r n' 'qh'P gy "I rcpf u."Uj tqwf u0	pt	3		
605:	Tg/Vgto lpcvg"O clp'uwr r n' "Ecdng'htqo "I gpugv'P q0"q'P gy "O clp"dqctf . " lpnw' lpi "uwr r n' 'qh'P gy "I rcpf u."Uj tqwf u0	pt	3		
605:	Tg/Vgto lpcvg"O clp'uwr r n' "Ecdng'htqo "O clp"EqptqniRcpgr0"q'P gy "O clp" dqctf . "lpnw' lpi "uwr r n' 'qh'P gy "I rcpf u."Uj tqwf u0	pt	4		
6062	Cmuj "c'RtqxkukqpcniUwo "qh'Muj u'422.222'hqt'"Tg/Vgto lpcv' lpi "cni'Qvj gt" uwr r n' "Ecdngu'htqo "O clp"EqptqniRcpgr0"q'xctkqu'qwi qlpi "ekewku" lpnw' lpi "uwr r n' 'qh'P gy "I rcpf u."Uj tqwf u0	Kgo	NU	*****422.222	*****422.222
6063	Cmuj "c'RtqxkukqpcniUwo "hqt"Uwr r n' ("lpucni'v'kp'qh'P gy "522o o "Y kf g" Ecdng"tc{ "cv'xctkqu'iqecv'kpu'eqo r ngv'y kj "uwr r qtu."h'kz' lpi "j ctf y ctg." dqnu"("P wu0	Kgo	NU	*****497.222	*****497.222
6064	Uwr r n' ("lpucni'P gy "I nEqpf wku'47o o "cv'xctkqu'iqecv'kpu'eqo r ngv" y kj "O qwpkpi "Ucfff'gu."uwr r qtu."h'kz' lpi "j ctf y ctg."dqnu"("P wu0	o	72		
6065	Uwr r n' 'cpf "lpucni'P gy "I nEqpf wku'54o o "cv'xctkqu'iqecv'kpu'eqo r ngv" y kj "O qwpkpi "Ucfff'gu."uwr r qtu."h'kz' lpi "j ctf y ctg."dqnu"("P wu0	o	42		
6066	Uwr r n' . "lpucni6"Eqtg"z'60"b o 4"RXeIRxeIUy c IRXq"Ecdng'hqt"xctkqu" o qvqtu'htqo "vj g'EqptqniRcpgr0	o	972		
TOTAL PAGE 10: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 11					
ITEM No	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	UVTGGV'NR J VR I				
6067	Uwr r n' ("kpuvniP gy 'Nli j vpi 'Hkwtgu'372Y 'NGF "qt'Cr r tqxgf "Gs wkcrgpv'qp'vj g'gzlumpi 'utggv'hi j v'r qngu0	pt	34		
6068	Uwr r n' ("kpuvniPgy 'cf f ksqpcni'Utggv'Nli j vEqnwo p'eqo r ngv'y kj '8C'UR' OED' ('Nli j vHkwtgu'372Y 'NGF "qt'Cr r tqxgf "Gs wkcrgpv'cv'xctkqu'r npv r qecvqpu0	pt	8		
6069	Uwr r n' ("kpuvni'5'Eqtg'z'307'o o ⁴ RXeIRXeIUy cIRXe'Ecdng'wpf gt'i tqwpf hqt'pgy 'Utggv'Nli j vEqnwo pu	o	722		
606:	Cmuy 'c'RtqxkukqpcniUwo 'qhiMuj u'3.472.222'hqt'Uwr r n' 'cpf 'kpuvni'vq'qh' Gctvj kpi 'U'ungo	Kgo	NU	*****3.472.222	3.472.222
606:	Uwr r n' ("kpuvni'ugv'cpf 'eqo o ksqp'722MXC'Rtlo g'lp'P cktqdK'Ucpf d{ "FkgugniI gpgtcvt'eqo r ngv'y kj 'vj g'3222C'VRP 'CVU'cpf 'ecdipi 'Itqo 'vj g' i gpgtcvt'q'vj g'cwqo c'v'e'tcpugt'ly ke j 'cv'vj g'o clp'ly ke j i gct" cr r tqzlo cvgn' '62'O vgtu'cy c{0Vj g'i gpgtcvt'q'dg'ukgvp'v qf g'cu" ur gekhgf 'lp'vj g'ur gekhcvkpu0Dkf f gt'q'cmuy 'cnuq'hqt'Uwr r n' 'cpf "kpuvni'vq'qh'46'j qwtu'ecr celv{ 'Fkgugni'cpni0	Kgo	3		
700	O REGNCP GQWU				
708	Cmuy 'hqt'gz'vpgf gf 'qr gtcvq'cpf 'o clpvgpcpeg'qhi'r npv'r tqxkukqpcni0Vj ku' kgo 'ij qwf 'pqv'dg'gz'vpgf gf 'q'vj g'co qwpv'eqnwo p0	O qpvj	3	*****3.222.222	
704	Cmuy 'hqt'gz'vpgf gf 'F ghgeu'Ncdkklv{ 'Rgtkqf 'unr wcvgf 'lp'I gpgtcni' Eqpf ksqpu'qh'Eapvtcev'Rtqxkukqpcni0Vj ku'kgo 'ij qwf 'pqv'dg'gz'vpgf gf 'q' vj g'co qwpv'eqnwo p0	O qpvj	3	*****3.222.222	
706	Cmuy 'hqt'cni'equn'hqt'vj g'Gpi kpggt'qt'cp'kpf gr gpf gpv'kpur gevqt'f gngi cvgf " d{ 'vj g'Gpi kpggt'q'ectt{ 'q'w'cp'kpf gr gpf gpv'kpur gevq'p'vt'kpi 'o cpw'cew'g' qh'vj g'r npv'cpf 'gs wkr o gpv'k'ceeqtf cpeg'y kj 'I gpgtcni'Eqpf ksqpu'qh' Eapvtcev	Kgo	Nwo r 'Uwo	*****422.222	422.222
706	Cmuy 'hqt'r tqxkukq'qh'cni'f tcy kpi u'cpf 'kphqto cvkq'q'dg'r tqxkf gf 'd{ 'vj g' Eapvtcev'qt'cu'r gt 'I gpgtcni'Ur gekhcvkq	kgo	Nwo r 'Uwo	*****622.222	622.222
707	Cmuy 'hqt'r tqxkukq'qh'Qr gtcvq'cpf 'O clpvgpcpeg' 'cpf 'Qxgtj cwt'O cpw'cni' cu'r gt 'I gpgtcni'Ur gekhcvkq	Kgo	Nwo r 'Uwo		
708	Cmuy 'hqt'r tqxkukq'qh'cni'Cu'Hkvgf 'f tcy kpi u'cu'r gt 'I gpgtcni'Ur gekhcvkq	Kgo	Nwo r 'Uwo		
709	Cmuy 'hqt'r tqxkukq'qh'ur ctgu'hqt'7'f gct'hqt'vj g'qr gtcvq'qh'vj g'r npv'k'p' ceeqtf cpeg'y kj 'I gpgtcni'Ur gekhcvkq0Vj g'Vgpf gt gt 'ij cni'r tqxkf g'c'hu'v'qh' vj g'ur ctgu'y kj 'gcej 'kgo 'lpf kxf wcm{ 'r tlegf 'cpf 'vj g'qv'cni'equn'q'dg' ecttlegf 'q'vj ku'kgo 0	Kgo	Nwo r 'Uwo		
70	Cmuy 'hqt'r tqxkukq'qh'cni'ur gekh'v'q'ni'p'geguuct{ 'hqt'vj g'o clpvgpcpeg'qh' vj g'r npv'k'p'ceeqtf cpeg'y kj 'I gpgtcni'Ur gekhcvkq0Vj g'Vgpf gt gt 'ij cni' r tqxkf g'c'hu'v'qh'vj g'qv'q'ni'y kj 'gcej 'kgo 'lpf kxf wcm{ 'r tlegf 'cpf 'qv'cni'equn' q'dg'ecttlegf 'q'vj ku'kgo 0	Kgo	Nwo r 'Uwo		
70	Cmuy 'hqt'cni'gzr gpugu'hqt'eqo r n' kpi 'y kj 'vj g'I gpgtcni'Eqpf ksqpu'hqt'cp{ "lpvgtxcni'cpf 'redqwt'pqv'ur gekh'cni' 'o gpv'kpgf 'lp'vj g'Dkni'qh'S wcp'v'kku' dw'p'geguuct{ 'hqt'vj g'uc'v'k'ceeqtf{ 'eqo r ngv'q'p' 'r wv'kpi 'lp'ugt'xleg'qh'cni' r npv'p'co kpi 'vj g'r ctv'ew'ct 'kgo 'cpf kq'En'wug't'ghgt'gpegu'cpf 'r tlekpi " ugr cte'vgn{ 'dgmuy < c+ d+ e+ f+ P qvg'<Cp{ 'equn'ctkupi 'Itqo 'eqo r n' kpi 'y kj 'vj g'Ur gekhcvkq' 'Eqpf ksqpu' qh'Eapvtcev'Eqpf ksqpu'q'Vgpf gtgtu'F tcy kpi u'gve..'pqv'k'penf gf 'lp'vj ku' kgo 'ij cni'dg'cuuwo gf 'q'dg'eqxgtgf 'd{ 'Vgpf gt 'Tc'v'gu"	RE			
800	EKKNOY QTMUCUUQEKCVGF 'Y KJ 'R'UVCNNC'VQIP 'QH' GS WRO GP V				
808	Gzecxv'kq'lp'eqo o qp'O cvgt'cn	o ⁵	72		/
TOTAL PAGE 11: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 12					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
804	Gzvtc'qxgt'hqt'gzcxcv'kp'lp'TqeniErcuu'C	o ⁵	32		
805	/F kwq'/'dw'TqeniErcuu':	o ⁵	32		
806	/F kwq'/'dw'TqeniErcuu'E	o ⁵	7		
807	Hqto y qtni/'Ercuu'H3	o ⁴	322		
808	Hqto y qtni/'Ercuu'H4	o ⁴	322		
809	Hqto y qtni/'Ercuu'H5	o ⁴	322		
80	Rtxkukap'cpf'r'ncelpi 'qh'o cuu'eqpetvg'Ercuu'3742.'lpenw'kpi 'xkdtcv'kpi " cpf'eculpi 'cu'ur gekhgf0	o ⁴	72		
80	/F kwq'/'dw'tg'phqtegf 'eqpetvg'Ercuu'4242	o ⁵	32		
802	/F kwq'/'dks'tg'phqtegf 'eqpetvg'Ercuu'4742	o ⁵	52		
803	UggniTg'phqtego gpv'/'cnif'kco gvgtu=f ghqto gf 'j ki j "{'kgrf 'dctu'v'q'DU'666; = lpenw'kpi 'hqt'eww'kpi . 'dgp'kpi 'v'kpi . 'gve0	ni	4722		
902	FIRE PROTECTION <u>PRELIMINARIES</u> Cnujy 'hqt'r tgrlo lpetkqu'q'v'cpur qtcv'kqp'qh'o cvgtknu'cpf'r'gtuqpgm" uqtc'i g'qp'ukg.'ugewt'k'f . 'kpuwt'cpeg'cpf'r'gthqto cpeg'dqpf u0' <u>G.I.PIPES</u> Uwr r n'kpi . "*****'kpuw'kpi . "*****'guk'kpi "*****'cpf 'eqo o kuuk'kpi "qh'I (K" Rkr gu'eqph'kto kpi "v'/'R'U'57: ; 'Rv'/'KJ gex{'i tcf g'y kj 'r c'k'kpi . 'uwkcdng" v'r g'qh'uwr r qtu.'c'pej qt'hcuvgp'gu."d'qnu'p'wu'f' c'k'c'p'k'g'f +: ""erc'o r u. "" \$WS""d'qng. ""o cmg'cdng'ur geknu""twej ""cu""T'gf v'egtu.V'ggu. ""g'rdqy u." h'c'p' gu0'k'penw'kpi ""eww'kpi . ""Y grf kpi . "h'k'kpi "k'p""T'qp'y cmu.'eg'k'kpi 'd{' wuk'kpi 'uwkcdng'uwr r qtu'gve.'cu'r gt'f'tcy kpi u0'Vj g's wq'g'f ""tcvg""t'ij cni'cnuq" k'penw'g'hqt'ej c'ukpi ""I""ej k'r kpi "y cmu."o c'k'kpi "d'qtg""j q'ngu""k'p""y cmu""I"" h'q'qt""cpf ""o c'k'kpi ""y go 'i q'qf 'y kj 'h'k'gt'o cvgt'k'c'p'f 'h'p'k'j gf 'k'p'ego gpv' o q'tvg't'gve0	Kgo			
908	322o o 'p'qo k'pcn'f'k'c : 2o o 'p'qo k'pcn'f'k'c	O O	442 37		
TOTAL PAGE 12: TO COLLECTION SUMMARY PAGE					-

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 13					
ITE M	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<u>WRAPPING & COATING</u>				
904	Uwr r n l kpi . 'lpucn l kpi . 'vgu l kpi 'cpf "eqo o kuukp l kpi ""qh""6o o ""y l eni"" r {r gnu y g""hqt"wpf gti tqw pf "r k gu0	O 4	492		
	<u>EXTRENAL HYDRANT</u>				
905	Uwr r n l kpi . 'lpucn l kpi . 'vgu l kpi "cpf "eqo o kuukp l kpi "qh" {ctf "j {f tcv" eqo r t k l kpi "qh" y g' h q n y l kpi . U l p i n g " j g c f g f " j { f t c p v " x c r k g " c u " r g t " K U " 7 4 ; 2 . ' b o c f g ' q h i w p o g c n l y k j " 8 5 o o " f k c " l p u c p c p g q w l q w g v q h i . 2 ' b o " f k c " l p i g f " l p g n x " D r e p m e c r u . " e j c l p " c p f " j c p f " y j g g n u " g v e 0	P q	37		
	<u>BUTTERFLY VALVES</u>				
906	Uwr r n l kpi . 'lpucn l kpi . 'vgu l kpi "cpf "eqo o kuukp l kpi "E K d w g t h i " x c r k g u " R P " " 3 8 - l u r k o " l u g n l u c p f c t f " l g x g t " q r g t c v g f " V r g ' e q p h k o l p i " v q " K U " U c p f c t f " y k j " t g s w k t g f " h r e p i g u . ' p w u . ' d q n u " g v e 0 e q o r n g v 0 322o o "p q o l p c n l f k	P q	4		
907	<u>AIR RELEASE VALVE</u> Uwr r n l kpi "cpf "h k l kpi "c r r t q x g f " b c n g " 4 7 o o " f k c 0 C w q o c v k e " c k t " t g r g c u g " x c r k g	P q	3		
	<u>CIVIL WORKS</u>				
908	Gzcexcv l k p " w r " v q " 3 2 " o w 0 l p " f g r y j . ' h q t " h e { l p i " r k r g u " " w r v q " " 3 7 2 o o " " f k c 0 " l p e n f l k p i " " h q t o l p i " d q v q o " u w t h c e g " v q " t g s w k t g f " l g x g n " t g h k n k p i " y j g " v t g p e j g u " y k j " l u g g e v g f " g z e c x c v g f " g c t y j " c t q w p f " y j " r k r g " l p " h e { g t u " q h " 3 7 2 o o " y j l e m " y c v g t l p i . ' e q p u q i k f c v l p i 0 " " S v q v g f " " " r t l e g " " l p e n w u k x g " " " q h " f k u r q u l p i " q h i T E c t v l p i " c y c { " y j g " u w t r n w u " g c t y j " q w w " u k f g " y j g " u k s g " v q " c " " f w o r " " { c t f " " c e e g r v d n g " h e c n l d q f l g u " q t " c u " f k t g e v g f " d { " y j g " u k s g " g p i l p g g t " y k j " c " l g c f " q h " 5 2 2 " o w 0 g v e 0 e q o r n g v 0	O	442		
909	J c t f " T q e m s W r v q " 5 2 2 " o o " P q t o c n i " u q h 0 " 5 2 2 o o " v q " D g n y " 3 0 " o v t " J c t f " t q e m	O	82		
	<u>HEAVY DUTY PIPE</u>				
90	Uwr r n l " c p f " l p u c n l k p i " q h i J g c x { " f w w l " r k r g u " q h " 3 7 2 " o o " f k c " (" P R " 4 " E n e u u " y k j " e q n e t u h q t " t q c f l d g n y " h r q q t " e t q u l k p i " q h i H t g " y c v g t " r k r g u 0 V j g " t c v g " " u j c n i " l p e n f g u " g z e c x c v l k p . " R E E " " " 3 - 6 < " 3 2 2 " o o " y j l e m d g f " c p f " g p f u " n i c u " f k t g e v g f " d { " u k s g " g p i l p g g t	O	57		
	<u>VALVE CHAMBERS</u>				
90	Uwr r n l " (" E q p u t w e l k p i " q h i " x c r k g " e j c o d g t " y k j " 4 5 2 " o o " D t l e m i " o c u q p t { " y c n i " y k j " d g u w " s w e r k s { " V O " d t l e m i " (" E O " " 3 - 6 . q p " c " R E E " " 3 - 6 - : " d g f " q h 3 2 2 " o o " y j l e m i " V j g " y c n i " u j c n i " d g " r n e u g t g f " l p v g t p c m l " u o q q y " l p " E O " 3 - 5 . y c v g t " r t q q h k p i " c u t g s w k t g f " c p f " g z v g t p c m l " t q w i j " " r n e u g t g f " y k j " l r q p i g " h k p k u j . " l p e n f l k p i " e w t l p i 0 " V j g " e j c o d g t " u j c n i " d g " " r t q x l f g f " y k j " O U 0 8 " I " : " o o " y j l e n i r n e v g " h c d t l e c v g f " " v q r " " e q x g t " " l p " " r g c x g u " " y k j " p g e e g u q t { " j l p i g u " c p f " l q e n k p i " c t t c p i g o g p v 0 V j g " u k g " q h " y j g " e j c o d g t " u j c n i " d g " 3 4 2 2 o o " z " 3 4 2 2 o o " z 3 7 2 2 o o " l p " f g r y j 0	P q	5		
TOTAL PAGE 13: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 14					
ITE M No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
9082	PCC PEDESTALS Uwr r n' 'cpf 'eqpuwewkqp'qh'REE '*3-4-6+'r gf cucnuluwr r qtu'htq" wpf gti tqwpf kdxg'i tqwpf "r k gu0S wqvgf 'tcvg'uj cmlpenwukxg'qh" gzecxcvqp"*h"tgs wktgf + "ej k r kpi lej culpi . 'uj wwtgkpi . 'r ruvgtkpi "h" tgs wktgf + 'gve0eqo r rvg0	EO	37		
9083	FIRE RATED PUMP Supply Fire Pumps Set 136.5m3/h, 10.0 bar Electrically driven pump Diesel generator and jockey pump, o go dtepg'r tguuwtg'xguugn'xcnkgu." ej genixcnkgu.'r tguuwtg'tgrgh'xcnkg.r tguuwtg'tcpuf wegtu.'cwqo cve'ck" tgrgcug'xcnkg'cpf "geegp'le'uwekqp'tgf wegt.'xldtcvqp'kuqrvkpi 'lqkpu." r tguuwtg'i cwi gu.'huy 'o gvgt.'r qy gt 'cpf 'eqpvtqrl'grgevtlecnu'r cpnglu.'f qvdrig" dcwgtlgu.'r kpi 'f tclp'y kj 'xcnkg'cpf 'ecr.'r tguuwtgucvu.'r qy gt 'cpf 'eqpvtqrl ecdripi u.'hpgt'le'dcug'y kj 'xldtcvqp'kuqrvqtu.'r kpi 'y kj 'y q'eqcu'qh' r tlo gt(' 'y q'eqcu'r clp'kpi . 'hskpi u.'urgxgu.'ecwnkpi 'o cvgtken'j cpi gtu." uwr r qtu.'cpf 'kf gpv'hecvkpu'ceeqtf kpi 'q'GP 34: 67"tgs wktgo gpv'cpf 'y g" ur ge'hecvkqp'.y kj 'cni'y g'tgs wktgo gpv'htq'y g'uc'vuhcevt ('gzgewkqp" qr gtcvqp'cpf 'eqo r rvgkqp'qh'y g'y qtm	Ugv	*****3"		
9084	CABLES Uwr r n' kpi . "h'kpi "cpf "eqo o kulkp'kpi 'qh'"3322X"i tcf g'"HKT'G" TGUVCP EG'NQY 'UO QMG'"o wnleqtg.'"tqwpf '"v'rg.'"lpuwv'gf ." uj gcvj gf .'"hgzldrg'"'eqr r gt'"'eqpf wevt'"'eqpvtqrl'ecdrgu'"y kj '" kpenf kpi '"pgeguuct { '"gpf 'gto kpcvqpu'y kj '"eqr r gt'hu u.'"lwevqp'" dqz.'etlo r kpi 'kf gpv'hecvkqp'ci u'cv'gej 'gpf 'gve0- 6'eqt'g'z'8'Us0 o 'Eqrr gt'cto qwtgf 'ecdrg	O	372		
9085	CONDUIT Uwr r n' 'cpf 'h'kpi 'qh'42'UY I 'O U'eqpf wks' clpvgf 'y kj '4'eqcu'qh'r tlo gt" cpf 'y q'eqcu'qh'tgf 'gpcu gnr clpv'go dgt f gf 'kp'ured ltw'qp'y cmly cni' ej cugukp'hcng'egk'kpi 'gve0'y kj 'r wnly kgu'cpf 'pgeguuct { 'eqpf wks' ceeguqtlgu0	O	372		
9086	UNDERGROUND WATER TANK <i>100m³ reinforced concrete Underground Water Storage tank to be constructed by others to S.E's details and The tank connection fittings to be of GMS material.</i>				
9086	Cnuy 'hqt'r tqxukp'urgxgu'hqt'62o o 'f'lc'kprgv'72o o 'cpf'322o o 'f'lc" qwwgv'322o o 'f'lc'qxgthuy . '97o o 'f'lc'dqy ugt'kprgv'322o o 'f'lc'dtgcvj gt" r k'g'cpf '672z672o o 'y cuj 'qww'f'clp'wwo r0	3	Kgo		
9087	Cnuy 'hqt'322'o o 'f'lc'dtgcvj gt IXgpv'r k'g'eqppgevkp'kpenf kpi '522'z'"522" o o 'I O U'r c f f ng'h'epi gu'cpf 'o qus wks'pgwpi 0	3	Kgo		
9088	Cnuy 'hqt'672o o 'y k'g'522o o 'lgr'ur celkpi 'ladder'kp'CHUK526'ucv'p'guu" uggn'cpf '5: 'o o 'O'r qrluj gf 'ucv'p'guu'uggr'dctu'q'cr r tqxcn0	3	Kgo		
9089	MECHANICAL FOAM TYPE - 9 LTRS O gej cplecn'hqco 'v'rg'h'g'gzv'kpi wuj gt'qh'; 'Mi u0Ecr cekv'.y kj 'lp'k'k'ni' h'k'kpi 'lp'dtcpf	Pq	" 8		
908:	MECHANICAL CO2 TYPE - 5Kgs O gej cplecn'Ectdqpf kqz'kf g'v'rg'h'g'gzv'kpi wuj gt'qh'7'Mi u0Ecr cekv'.y kj " lp'k'k'ni'h'k'kpi 'lp'dtcpf	Pq	8		
908:	FIRE BALL J k j 's wcnf' 'ugr'h'cev'x'cv'gf 'H'g'Dcni'hqt'H'uv'Cl'f'H'g'H'k j v'kpi 'cu'Gr'kf g'h'k'g" qt'gs wcnf'cpf 'err tqxgf 'eqo r rvg'y kj 'cpej qtc i g0	Pq	4		
TOTAL PAGE 14: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE ONE - BILL NO. 15					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	HOSE REEL Uwr r n{ "cpf "lkz"vj g'hqnyy lpi "Rrcpv'ergcpkpi "u{ uvgu u'lpucnrcvqkp"cpf "gs vkr o gpv'cu'f guetkldgf "ORkr gy qtnilp'y ku'ugevqkp"vq'dg"vq"J r xe0Vgpf gtgtu'uj qwrf "cnnyy "hqt"cnihkxkpi u."lqkpvkpi u."eqwrnkpi ."lpenvf lpi "vplqpu"cpf "enro r u'pgeguuct { "hqt"vj g'r tqrgt'hwpevqkpki "qh"vj g'lpucnrcvqkp"y j gp" r tlekp i 0				
9042	Uwr r n{ ".lpucnrcvqkp"ugv"vq"y qtnilrcu"J RXE'r kr g	NO	62		
9043	62o o 'F lc	NO	47		
9044	47o o 'F lc	NO	34		
9045	Extra over pipe for fitting Elbow/.Bend	PQ	8		
9046	62o o 'F lc	PQ	7		
9047	47o o 'F lc	PQ	:		
9048	Equal Tee	PQ			
9049	72o o 'F lc	PQ	4		
904:	62o o 'F lc	PQ	4		
904:	<u>Uqengv</u>	PQ			
9052	72o o 'F lc	PQ	5		
9053	62o o 'F lc	PQ	4		
9054	47o o 'F lc	PQ	4		
9055	<u>Wplqkp</u>	PQ			
9056	72o o 'F lc	PQ	6		
9057	62o o 'F lc	PQ	6		
9058	47o o 'F lc	PQ	:		
9059	<u>CPEKNCTKGU</u>				
905:	<u>I cvg"Xcxrk g</u>				
905:	72o o 'F lc	PQ	4		
9062	47o o 'F lc	PQ	6		
9063	"Dqqungt'ugv'r wo r "vq'lwrr n{ "j qugtggrihqt'ergcpkpi "r wtr qugu0Vj g""ecr cels{ "vq'dg"4o 5lj t'ci clpuv'47o "j gcf "eqo r rvg'y kj ""eqpvtqrlr cpgrl.pgeguuct { "hkxkpi u'cpf "ceeguuqtlgu	UGV	4		
9064	J qwulpi "Ewtdqctf "hqt"j qugtggriu{ uvgu "vq'r tqvgev'ci clpuv'eqtqtquukqp0' O cvgtlcnu'hqt"j qwulpi "dg"qh'lnclprguu'lvngri'	PQ	6		
9066	47o o 'F lco gvgt.'52o "hupi "uy lpi lpi "tgeguu"j qug'tggrihpenvf lpi "j gzci qpcri" wplqkp"cpf "i cvg"xcxrk g'hqt'o clpvgepcege'kuqrcvqkp"qh"j qug'tggrihu"Xgxtuchg)" Tgh0P q0GJ 47/UF O /; I "qt"gs wrcicpf "cr r tqxgf 0	PQ	6		
9068	Water tank 10,000 litres capacity Uwr r n{ "cpf "lpucnrcvqkp"Uqvg'0 qwrf gtu"Nf "Nqhw'Vcpnrlr qrf yj gpg'tgevcpi wact" xgtvlecrienqug'gpv "cpnlpqo kpcrlecr cels{ "qh"32.222"y kj "lkf 0'Vcpnrcvq'dg" eqo r rvg'y kj "kprgv"qwwrv'cpv "qxgthuy "eqppgevkpu"cpf "cpnleqppgevqtu" cu'f gvcku'd{ "y j g'Gpi kpggt0	PQ	4		
TOTAL PAGE 15: TO COLLECTION SUMMARY PAGE					
TOTAL BILL CARRIED FORWARD TO SUMMARY SHEET					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 16					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
3	NOTE: 1. Supply of Equipment: In addition to the supply of equipment / machinery, all Electromechanical Works will include supply and installation of any necessary accessories, bolting, etc. GENERAL				
308	Uwr r n' 'cpf 'lpuvml'f tclpci g'r gpurqenli cygu'f qy putgco 'qh'yj g'Vtcuj 'Uetggp' y kj 'uclprguu'uggnli gpurqenli cygu'Vj g'ur kpf ngu 'dqnu'cpf 'pwu'o wuv'cnuq'dg' tgr n'egf / 'lpenw' g'hqt 'ugt xlekp' 'y g'u' ugo . 'hwdtleclvqp' r w'i cygu'dcenilkpq' pqtto cnlqr gtcvqp0P q'v'j ku'dmllpenw' gu'v'j g'i cygu'kph qp'v'qh'yj g'v'cuj 'uetggp' cpf 'y g'd' c'ruu'i cygu'lwu'dghqt g'yj g'uetggpu0'kpenw' g'cnlceeguqtqgu'cpf 'r ctvu' cu'hkugf 'cdqxg0'kpenw' g'hqt 'cp' { 'qy' gt 'r ctv'q' cnujy 'y g'u' ugo 'q' hwpv'kqp'cu' k'v'p'f gf 0 F g'v'k'g'f 'f guki p'cpf 'i gpgt'cnl'ctt'cp' go gpv'f tcy kpi u Rtqlge'v'O cpci go gpv'f w'kpi 'eqp't'cev'gz gewl'kqp	pt	4		
		nu	3		
		nu	3		
2.0	MECHANICAL EQUIPMENT				
	IP NGV'VTCU' 'UETGGP				
408	Uwr r n' 'cpf 'lpuvml'v'cr gt'gf '32o o 'uclprguu'uggnl'dct 'y kj '97o o 'ur celpi 'cv'yj g' eqctug'uetggp'k'p'gy	pt	322		
404	Uwr r n' 'uclprguu'uggnl'j cpf 'tcngu'hqt' o cpwcnl'egcpkpi 'qh'yj g'97o o 'dct'uetggp' cu'r gt' 'y g'ur gekh'ecv'kpu0	pt	32		
405	Uwr r n' . 'kpuvml'cpf 'eqo o kuukp'pgy 'O gej cplecniT'cnkpi 'Gs wkr o gpv'q'uwk' 'y g'97o o 'Vtcuj 'Uetggp0'kpenw' g'cnl'p'geguu'ct { 'ceeguqt'kgu' g'ngextlecl'ny k'kpi 'cpf' 'eqp't'qnu' cu'r gt' 'y g'ur gekh'ecv'kpu0P q'v'j g't'cnkpi 'uetggpu'eqp't'qnlr cpgn'l'ij cni' dg'cv'yj g'o clp'eqp't'qnlr'qgo 'j q'v'kpi 'y g'UECF C'cdqw'322'o g'xtgu'cy c { 'dw' y kj 'uclprguu'uggnl'qt' r' r'w'ke'eqx'gt'gf 'o cpwcnl'cpf 'go gti gpe { 'eqp't'qnl'cv'yj g' 'ukg0Vj g'u' ugo 'ku'q' 'dg'ecr cdng'qh'qr gtcv'kpi 'dq'v'j 'tgo q'v'ng' . 'cwqo c'v'ecni' " cpf 'o cpwcnl'0Vj g't'k' i gt' hqt'cwqo c'v'le'qr gtcv'kpu'uj cni'dg'yj g'ngx'ngl'ugpuqtu' eqw'ng'f 'y kj 'c'w'o gt'uy kej 0Vj g'qr gtcv'qt'cv'UECF C'tqgo 'o wuv'cnuq'dg'cdng' v'q'tgo q'v'ng' 'u'ctv'cpf 'u'qr 'y g'gs wkr o gpv'0Cni'y g'r ctvu'ceeguqt'kgu'q'gpcdng'k' qr gtcv'cu'f guetldgf 'j gtg'cpf 'lp'yj g'ur gekh'ecv'kpu'uj q'w'f 'dg'l'penw'gf 'lp'yj g' r tleg0	pt	3		
406	Cnujy 'c'Rtqx'kuukp'cnl'Uwo 'qh'Muj u'972.222'hqt'cp { 'p'geguu'ct { 'ekxld'y q'tnu'hqt' 'y g'lpuvml'v'kqp'qh'yj g'O gej cplecniT'cnkpi 'Gs wkr o gpv'lp'yj g'kgo 'cdqxg0	Kgo	Nwo r 'Uwo	*****3	*****972.2220
407	Uwr r n' . 'kpuvml' ('Eqo o kuukp'P gy 'Hwuj kpi 'Rwo ru'Ugu'v'3'F w' - '3'Uc'pf " d { +eqo r'ngv'y kj 'pgy 'r'kr g'y qtm'U'qngp'q'f 'X'cn'kgu'TO q'v'qt'qr gtcv'gf 'x'cn'kgu' hqt'ce'v'x'cv'kqp'qh'l'hwuj kpi 'y c'v'gt'lp'v'q'yj g'v'cuj 'f'kuej cti g'ej w'g0Vj g'ug'Hwuj kpi " Rwo r u'y knldg'w'ugf 'hqt'dq'y 'y g'Vtcuj 'Uetggp'cpf 'y g'Rtqr qu'gf 'k'p'gto gf k'c'v'g' Uetggp0Cnujy 'hqt'cnl'p'v'gteqpp'ge'v'kpi 'r'kr g'y qtm'x'cn'kgu'g'v'e0 IP NGV'HNQY 'EQP VTQN'RGP UVQEMU	Kgo	Nwo r 'Uwo		
408	Uwr r n' 'cpf 'lpuvml'R'g'purqenli cygu'lp'env'kpi 'tgr n'celpi 'cnl'dqnu' ('pwu' " f'lx'guj ch'v' ('i w'k'gu' hwdtleclv'kqp' . 'r'cl'v'kpi 'cpf' 'r w'kpi 'y g'i cygu'lp'v'q'pqtto cnl' qr gtcv'kqp0Vj g'tgr n'egf 'r gpurqenli cygu'q'dg'uw'k'p'guu'uggnl'c'nu'5260	pt	4		
409	Uwr r n' . 'kpuvml' ('Eqo o kuukp'pgy 'ngextlecl'ny 'qr gtcv'gf 'O q'v'qt'kgu'f 'C'ew'cv'qt' " W'pku'hqt' "R'g'purqenli cygu'cu'r gt' 'y g'ur gekh'ecv'kpu0 P'GY 'IP VGTO GF IC VG'47o o 'UETGGP 'Y KJ 'O GEJ C'P'ECN	pt	3		
40	Uwr r n' . 'kpuvml' ('Eqo o kuukp'P gy 'Uclprguu'U'ggnl'k'p'v'to gf k'c'v'g'O gej cplecni' " T'cn'gf 'Dct'Uetggp'y kj '47o o 'dct'ur celpi u'q'uw'k'yj g'gz'k'kpi 'k'p'v'to gf k'c'v'g' E'j c'p'p'gn'u'y k'f'yj 'cpf 'f'gr yj 0	pt	3		
40	Uwr r n' 'Uclprguu'U'ggnl'j cpf 'tcng'U'w'k'cdng'hqt' o cpwcnl'egcpkpi 'qh'yj g'P gy " 47o o 'Dct'Uetggp'cu'r gt' 'y g'ur gekh'ecv'kpu0	pt	32		
4082	Uwr r n' (" 'H'k'p'gy 'Uclprguu'U'ggnl'Uetggp'kpi u'N'cw'p'f gt'E'j c'p'p'g'ld'gy ggp'yj g' "	pt	3		
TOTAL PAGE 16: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 17					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
4083	Cnuy "c"RtqxkukqpcnfUwo "qh"Mu j u08.222.222"ht"cp{"pgeguuct{"EkxkiY qtmu"ht" y j g"lpucmncvklp"qh"y j g"pgy "Kpvtgto gf kcvg"Uetggp"cpf "Tcnlpi "Gs wkr o gpv"lp"y j g" kgo "cdqxxgO" EWR"UETGGP U	nu	3	*****3.222.222"	*****3.222.2220"
4084	"Uwr r n" "cpf "lpucmncvkwgf "Rgpugenu"cv"y j g"lpngv"q"y j g"Ewr "Uetggpu." lpenw lpi "tgr ncelpi "dnu"("pww"y kj "pgy ."ugt xlelpi "qkf t kxguj chv"("i wkf gu" nwdtlecvg."r clpv"cpf "r w'dcemlpq"pqto crikp gtcvkpu0	pt	6		
4085	Uwr r n" "lpucmnc" ("Eqo o kuukqp"pgy "grgetecnfqr gtcvgf "O qvqt kugf "Cewcwqt" Wpku"ht"y j g"lpngv"Rgp"Uqenif cvgu"cu"r gt"y j g"ur gekhlec vkpu0	pt	6		
4086	Uwr r n" "lpucmnc"cpf "Eqo o kuukqp"eqo r ngvg"Ewr "cpf "f two "uetggp"wpk"eqo r ngvg" y kj "P gy "F tkxg"Cuugo dnf "wpk"eqo r ngvg"y kj "O qvqt"j cxlpi "Nqy "("J ki j " Ur gggf "qr gtcvkqp"hgcvwtgu"ht"geej "qh"y j g"Ewr "Uetggp."cu"r gt"y j g"ur gekhlec vkpu0 Ewr "Uetggpu"q"dg"gs wkr r gf "y kj "Ur ncu j "i wctf "lncp nguu"luggn"lpenw lpi gO" lpenw lpi g"cp{"qy j gt "cuugeeqtkgu"cpf "r ctu"pgeguuct{"ht"r tq r gt "hwpevkplpi "qh"y j g" ewr "uetggp"wpk0Gce j "ewr "uetggp"wpk"uj cml dg"ecr cdng"qh"j cpf r lpi "87.222" ewdle"o gtu"qh"tcy "ugy ci g"r gt"fc{"0Vj g"fi tkwgtu"uj cml dg"i guki pgf "q" tgo qxxg"r ctv"lgu"cdqxxg"204o o "F lco vgt"cpf "ur gekhlec"i t cxxk{"qh"40870	pt	6		
4087	Uwr r n" "cpf "lpucmnc"Uw l f gt"J wd"ugevkqp"ht"geej "Ewr "Uetggp"cuugo dnf "vqi gy j gt" y kj "I kty "i gct"("nwdtlec vkpu"u"ungo 0" Dgct lpi u"gz t c"lgo +	pt	6		
4088	"Uwr r n"(" "lpucmnc"Py "Ugcu"ht"geej "F two "Uetggp"eqo r ngvg"y kj "hxlpi " j ctf y ctg"r ctu0	pt	6		
4089	Uwr r n"(" "lpucmnc"pgy "Uetggplpi "Rcpnu"ht"geej "Ewr "Uetggp"wpk"q"eqpvtqni" cpf "r tqvgv"y j g"wpku"cu"r gt"y j g"ur gekhlec vkpu0	pt	6		
408:	Uwr r n" "lpucmnc" ("Eqo o kuukqp"Py "Lgv"Y cvgt"Urtc{"U"ungo "ht"engcplpi "y j g" Ewr "Uetggpu."qh"y j g"uco g"o cng"cu"y j g"gz kxkpi "qt"Cr r tqxxg"Gs wlxcrnp0	pt	6		
408;	Uwr r n" "lpucmnc" ("Eqo o kuukqp"Py "Eqpvtc/tqcvlpi "Engcplpi "Dtwuj "Cuugo dnf " ht"u"cu j "Tf gdtku"tgo qxcnftqo "y j g"F two "Uetggp0	pt	6		
4042	Uwr r n" "cpf "lpucmnc"Vtcuj "F kue j cti g"j qr r gt"cpf "u"cu j "grgxcv lpi "vte{"ht"geej " Ewr "Uetggp0	pt	6		
4043	Uwr r n" "cpf "lpucmnc"Uqct{"U"tclpgt"Gs wkr o gpv"ht"geej "Ewr "Uetggp."lpenw lpi "	pt	6		
4044	Eqo r tguuqtu"lck"Drny gt"ht"i t k"uvcvkpu0Uwr r n" "lpucmnc"cpf "eqo o kuukqp" tgekr tqcevc lpi "cevkqp"tqdku"f guki p"eqo r tguuqtu"eqxxgxf "lp"lncp nguu"luggn" j qwulpi "q"lko k"eqttqukqp0Vj g"wpk"uj cml dg"ecr cdng"qh"3"dt"r tguuwtg"cv"5222" t g x q n w k p u "r g t "o l p w g "y j k g "f g r k x g t l p i "62"ewdle"o gtu"qh"ck"r gt"j qwt0Vj g{" u j c m l d g "t q d w u "c p f "c r r h e c d n g "h q t "l p f w u t k r i c e v k p u 0 V j g "t g e g k x g u "u j c m l j c x g "6" v l o g u "y j g "e c r c e k f "q h "y j g "i t k "e j c o d g t "c p f "c d n g "q "y k j u n c p f "y j g "e q t t q u k x g " g p x k t q p g o g p 0 V j g "e q o r t g u u q t u "u j c m l e q o g "g s w k r r g f "y k j "r t g u u w t g "u y k e j g u "v q c m u y "h q t "c w q o c v l e "u y k e j l p i "q h "y j g "w p k 0 V j g "e q o r t g u u q t u "o w u d g "c d n g "q " r g t h q o "h q t "38: "j q w u "e q p v o q w u "q r g t c v k p "y k j q w "c "d t g c n l q t "p g g f "q h "u g t x l e g 0 V j g "c k t "t g u g t x q k "u j c m l f t c l p "c w q o c v l e c m f "q "r t g x g p v y c v g t "c e e w o w r e v k p "l p "y j g w p k "y j k g "y j g "q k l e q p g p v "q h "y j g "c k t "u j c m l d g "l k o k g f "q "207o i l k t g 0	pt	6		
4045	Uwr r n" "lpucmnc" ("Eqo o kuukqp"Py "F tkxg"Wpk"eqo r ngvg"y kj "O qvqt."ht"y j g" Tqct{"U"tclpgt"Gs wkr o gpw0	pt	6		
TOTAL PAGE 17: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 20					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
4073	Gtgevkp"qh"O gej cplecrlGs wkr o gpv				
502	<u>PUMPING EQUIPMENT</u> UWDO GTUKDNG'RWO R'UGVU'HQT'EWR'UETGGP U'Y CUJ Y CVGT				
508	Uwr r nq. "Kpuvni("Eqo o kuukp"pgy "qr gp"uclprguu"uggrilo r gngt"y kj "i tlpf lpi " ecr cdkk("Uwdo gtukdg"Rwo r u'hqt'Ewr "Uetggp"Y cuj "Y cvgt"cr r rlecvkp."y kj " o lpio wo "qxgtcm"ghlekp("qh"87' "UVj g'o qvt"uj cmfdg"R8: 0Rwo r " Ej ctcevgtkuueu"cu'hqmy u< V{r g"<Uwdo gtukdg" S "?72"o 5 II t" J "?42O tu"	pt	6		
504	Uwr r nq. "Kpuvni("Eqo o kuukp"P gy "Uwevkp("F kuej cti g"Xcixgu'hqt"lgvur tc{ " Rwo r u	pt	6		
505	Uwr r nq. "Kpuvni("Rk g'y qtnivq"uwl/vj g'pgy "r wo r "ugv"lpenw lpi "uwr r qtu/." erro r lpi "gve0	pt	6		
506	Cmuy "c"RtqxkukqpcnUwo "qh"mij u"722.222'hqt"Hqwpf cvkqp"y qtnic'utgs wkt gf 0	Kgo	Two r "Uwo	*****722.222	*****722.2220
	<u>JET WATER SPRAY PUMPS FOR CUP SCREENS CLEANING</u>				
507	Cmuy "hqt"y g'tgo qxen"lpuvni"cpf "cuuguo gpv"qh"y g"eqpf klqp"qh"y g" gzklkpi "Lgv"Y cvgt"Ur tc{ "Rwo r u"ugtxlelpi "y g'r wo r u'cpf "j cpf lpi "qxgt"vq"y g" Go r nq{gt"qt"fur kulpi "vq"cp"cr r tqxgf "kr "cu"ftkgevgf "d{ "y g"Gpi kpggt0	pt	6		
508	Uwr r nq. "Kpuvni("Eqo o kuukp"P gy "Lgv"Ur tc{ "Rwo r u'hqt"y g"Ewr "Uetggpu)" Uetggpkipi "Rcpgrlengcpkpi ."y kj "qr gp"uclprguu"uggrilo r gngt"y kj "i tlpf lpi " ecr cdkk(0Vj g'r wo r "cpf o qvt"uj cmfj cxg'o lpio wo "qxgtcm"ghlekp("qh" 87' 0Rwo r "Ej ctcevgtkuueu"cu'hqmy u< V{r g"<O wnkUci g" S "?42"o 5 II t" J "?72"O u	pt	6		
509	Uwr r nq. "Kpuvni("Eqo o kuukp"pgy "Xcixgu."dqvj "Uwevkp("F kuej cti g"hqt" Y cuj "Y cvgt"Rwo r u0	pt	6		
50	Uwr r nq. "Kpuvni("Rk g'y qtnivq"uwl/vj g'pgy "r wo r "ugv"lpenw lpi "uwr r qtu/." erro r lpi "gve0	pt	6		
	<u>PORTABLE SEWAGE PUMP SETS FOR DRAINAGE 9 9</u>				
50	Uwr r nq. "j cpf qxgt"vq"y g"Go r nq{gt."pgy "Rqtvedng"ftclpci g"Rwo r u"uo cm" eqo r ngv"y kj "470 tu"Ecdngu0 " V{r g"<Rqtvedng"Ukpi ng"Uci g" S "?42"o 5 II t" J "?3: "O u"u" MY "?404	pt	4		
502	Uwr r nq. "j cpf qxgt"vq"y g"Go r nq{gt."pgy "Rqtvedng"Ugy ci g"Rwo r "Uguv'hqt" F tclpci g"eqo r ngv"y kj "470 tu"Ecdngu0 " V{r g"<Rqtvedng"Ukpi ng"Uci g" S "?32o 5 II t" J "?370 tu" MY "?307"MY	pt	4		
TOTAL PAGE 20: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 21					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
503	Cmny "c"RtqxkukpcnUwo "qh"Uij u"3.722.222"ht"O kuegnpgqwu"Y qtmu'tgrvgf " vq'uw r n' "cpf "lpucmrvkqp"qh'Rwo r lpi "Gs vkr o gpv'cu'tgs vkt gf 0	Kgo	Uwo r "Uwo	""3.722.222	*****3.722.2220
602	<u>ELECTRICAL EQUIPMENT</u>				
603	Uwr r n' ("lpucm'ij g'hqmy lpi "uo cm'r qy gt' ("h'j vpi "hkwpi u'lp"ij g'Uy ke j " Tqqo "cu'r gt"ij g'ur gekhlecwkpu0 35C"Vy lp"UqengvQwngv'eqo r ngvgn' "y k gf "lp"5"z"4072"o o "eqr r gt"ecdrig"lp" 42o o "eqpf vks0 Vy lp"HN'Hkwpi "6"HV"/"Dcvgp"v'rg 85C"VR"UqengvQwngv'e ly "Vqr "Rwi 54C"VR"UqengvQwngv'e ly "Vqr "Rwi Nki j vpi "r qkpw'eqpuknpi "qh'307"o o 4"ij tgg'eqtg"eqr r gt"ecdrig"lp"42o o "J I " eqpf vks'cpf "hkwpi u'lpemf lpi "8C"Nki j vpi "Uy ke j O kuegnpgqwu"Y k lpi "eqo r ngv"y kj "Eqpf vksu"TVtwpn lpi	pt	6		
		pt	8		
		pt	3		
		pt	3		
		pt	8		
		pt	3		
604	<u>F E U T E D W V K Q P " D Q C T F " / " R P N G V " Y Q T M U O</u> F guki p. "Uwr r n' / "lpucm' ("Eqo o kulkp"pgy "F kntkdwkqp"Dqctf"cv'ij g'lpigv" Y qtmu. "tgg'uncpf lpi "qt"y cmfo qwpvgf "v'rg"eqo r ngv."y kj "ij g'hqmy lpi ."cu" r wt"ij g'ur gekhlecwkpu03"Z"Gperjuwtg"y gcj gt"Rtqqh+ 3"Z"472C"VR"O EED"lpego gt" 3"Z"85C"VR"O EED"Hggf gt"q"Ck'Dmgy gtu"Uctvgtu 3"Z"72C"VR"O EED"Hggf gt"q"Hggf gt'Rwo r u"Uctvgtu 5"Z"62C"VR"O EED"Hggf gt"q"Vtcuj "Tcmg'Ctgc"FD. "kpvgt o g f kvg"TCmg'O cej lpg"cpf" Igv"Urtc{"Rwo r u"uctvgtu"" 3"Z"42C"VR"O EED"Hgf gt"q"Hruj "Rwo r u"Uctvgtu 8"Z"38C"VR"O EED"Hgf gt"q"Uqqt"Uctclpgt. "Ewr "Uetggp. "lgvc"Flkxgu. "I tks"Ugo qxgt" cpf "Eqpxg{gt. "cpf "Cewcvqt"O qvqtu"Uctvgtu 3"Z"38C"VR"O EED"Hggf gt"Urtcg" 4"Z"30MY "uctvgtu"- "Rtqvgevkqp" 6"z"Cewcvqt"eqpvtqni"ht"Kngv"l cygu" 3"Z"Rtqvgevkqp"Fxlegu" 3"Z"Eqo o qp"eqpvtqni"Ugevkqp" 3"Z"Gctv lpi "U{ungo " 3"z"O gvg lpi "Ugevkqp" 3"Z"lpf lecvkpu Vj g'rtqvgevkqp"uj cm'cv'ij g'xgt {"o lpko wo "lpemf g'r j cug'hcvnw"r j cug'hcnwtg" tgrv {"ij gto cnlqxtg"tqcf. "qxgtewtgpv'r tqvgevkqp.gctv j "hcnvci g'cpf "ft {"twp" r tqvgevkqp"ht"ij g'r wo r u	pt	3		
TOTAL PAGE 21: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 22					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
605	Uwr r nq "6E"z"342o o 4"Rxe lRxe lUy c lRxe'Ecdng'htqo "O clp'dqctf "vq" F kwldwkwq'Dqctf "cv'krgvY qtmu.	o	347		
606	Kpucni("Vgto kpcv'ecdng'qp'dqvj "gpf u'ht"Kgo "607 UETGGP RPI "U UVGO "TI TK"TGQ QXCN'UVCVKQP	Kgo	Nwo r "Uwo		
607	O C R E'EQP VTQN'RCP GN F guki p."Uwr r nq."Kpucni("Eqo o kukqp'pgy "O clp'EqptqnlRcpgn'eqo r ngv" y kj "y g'hqmuy kpi ."cu'r gt"y g'ur gekhlecwkp u0 P qv<"Vj g'r tqr qugf "pgy "eqptqnlr cpgrluj cnldg'uwkcdm("F guki pgf "cpf " kpucngf "kp'r ræg'q'h'g'kukpi "eqptqnlr cpgrluj qy gxgt."y g'o ko le'r cpgrlj cu"vq" dg'tgclp'gpf "cpf "ku"q'dg'tg'cdkklcv'g'f "tgr rækpi "cmfo ko le'kpf lecvqtu'cpf " cuuqekcv'g'f "y k lpi "u{ungo "y kj "pgy ."uq'cu"vq"o cng'y g'o ko le'r cpgrlqr gtevkp'cnr cpf "uj cnldg'kpvgeqppgevg'f "vq"y g'pgy "eqptqnlr cpgrn'cnlcu'r gt"y g" ur gekhlecwkp u0 3"Z "Gperquw'g"R"42" 3"Z "472"VR"O EED"Kpego gt" 3"Z "Cwz"eqptqni" 6"Z "Ewr "Uetggp"F tlxg'unctvgtu" 6"Z "O kzgt"Uctvgtu"R"tgugt'xg" 6"Z "Hggf "Rwo r "Uctvgtu" 6"Z "Tqvt { "Utlcpgtu'unctvgtu" 6"Z "Lgv"Y cuj "Y cvgt"Rwo r "unctvgtu" 6"Z "I tk/Vtr "unctvgtu" 6"Z "Ck'Dny gt"unctvgtu" 4"z "Enuukhgt "Nwd"Uctvgtu"R"Rtqxkukp'cnr" 4"z "Uetgy "y cuj "Eqo r cevqt"Uctvgtu" 4"z "Y cvgt"Rwo r "unctvgtu" 4"z "Hwuj kpi "Rwo r "Uctvgtu" 3"Z "34"Y c { "VR"FD'eqo r ngv'y kj "O EDu" 3"Z "kputwo gpv'Rcpgrlugevkp" 3"Z "Tgj cd'q'h'Gzkukpi "O ko le'Rcpgn 3"Z "Eqo o qp'EqptqnlUgevkp" 3"Z "Gctvj kpi "U{ungo " 3"z "O gvgtlpi " 3"Z "kpf lecvqtu'Ugv'q'h'Nqecni"TTgo qvg'eqptqni'ht"cnlunctvgtu Ugv'q'h'CwqJO cpwcl'eqptqni'ht"cnlunctvgtu tgr { ."y gto cnlq'xgt"q'cf ."qxgtewttg'p'r tqvgevkp.gctvj "rgcni g'cpf "ft { "twp" C W Z K N I C T I " F G X H E G U Uwr r nq "("KpucniNqecniUctvUqr "Rwuj "Dwwqp"Ucvkqp'eqo r ngv'y kj " ucpej klp'ht"y g'hqmuy kpi "< 97o o "Vtcuj "Uetggp/"Hwuj kpi "u{ungo "cv'krgv 609 Kpvgo g'f lcv'Uetggp/"Hwuj kpi "u{ungo "cv'krgv 60 Ewr "Uetggp"F tlxg 60 Uwo gtukdg'Rwo r "Ugw'ht"Ewr "Uetggpu"Y cuj "Y cvgt 6082 Tqvt { "Hpg"Uetggplpi "F tlxg 6083 Lgv"Y cvgt"Urtc { "Rwo r u'ht"Ewr "Uetggp"engcplpi 6084 I tk/Vtr "F tlxg 6085 Ck'Dny gt 6086 Uetgy "Y cuj "Eqo r cevqt"ht"I tkv 6087 Uetgy "Y cuj "Eqo r cevqt"ht"Uetggplpi u 6088 Uwr r nq."KpucniEqo o kukp'kpi "h'zgf "J { f tqi gp"Uwr j kf g'I cu'F ggevt"vq" ur gekhlecwkp u'eqo r ngv'y kj "dqj "cvf kq'cpf "qr vlecnl'cnrto ."h'gf "uetggp."y k lpi " vq"y g"UECF C"u{ungo O C nuy "ht"cnl'ceeguutlgu'cpf "r ctw'vq'g'puwtg'y g'u{ungo y qtmu'cu'kpv'gpf g'f 0 6089 Uwr r nq."KpucniEqo o kukp'kpi "h'zgf "Ectdqp"O qpqz kf g'I cu'F ggevt"vq" ur gekhlecwkp u'eqo r ngv'y kj "dqj "cvf kq'cpf "qr vlecnl'cnrto ."h'gf "uetggp."y k lpi " vq"y g"UECF C"u{ungo O C nuy "ht"cnl'ceeguutlgu'cpf "r ctw'vq'g'puwtg'y g'u{ungo y qtmu'cu'kpv'gpf g'f 0	pt	3		
		pt	3		
		pt	6		
		pt	6		
		pt	6		
		pt	6		
		pt	6		
		pt	4		
		pt	4		
		pt	4		
		pt	4		
		pt	4		

TOTAL PAGE 22: TO COLLECTION SUMMARY PAGE					
ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 23					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	<p><u>UOCNN'RQY GT'(' 'Nk j VpI</u></p> <p>uwr r n' 'cpf 'lpucm'vqp'qh'uo cmlRqy gt'(' 'Nk j v'pI 'h'w'pI u.'lpenw' lpi 'h'j v'h'z'w't'gu." ecdngu.'y k'kpi . 'twpn'kpi . 'ecdng'tc{.'gct'v' lpi . 'Nk j v'pI 'c'tt'gu'qtu.'uwr r q'tv'd'tcengv'hqt" h'j v'h'z'w't'gu' ecdng'tc{u.'cni'cu'r' gt' 'y' g'ur' g'el'h'ec'v'k'pu'."cv'y' g'h'q'm'y' lpi 'r' n'p'v' m'ec'v'k'pu'0</p> <p>c+Ew' 'Uetggkpi 'Ctgc."</p> <p>d+I t'k'l'go q'x'cniCtgc</p> <p>e+avi et 'Naec'v'adu'cu'f' e'v'c'k'z'f' 'denov <</p> <p>Lighting installation</p> <p>Light fittings complete with accessories, lamps and tubes, 1.5 mm² three core heat resisting cables and wiring to an adjacent lighting point (measured separately) and fixing</p>				
608:	Nk j v'pI 'r' q'k'p'u	P q	36		
608:	8"Co r' 'q'p'g'i' cpi 'q'p'g'y' c{ 'u'y' k'ej 'c'et'cdv'tgg	P q	7		
	<p>Lighting fittings</p> <p>72Y 'NGF' 'H'q'q'f' 'Nk j v' 'Y' c'v'g't' 'R't'q'q'h' '5222M' 'eqo' r' n'g'v'y' k'j 'O' q'w'p'v'k'pI 'D'tceng'u'cu' 'R'j' k'k'r' u'q't' 'c'r' r' t'q'x'g'f' 'g's' w'k'c'ng'p'v'0</p>	P q	8		
6043	3422o o' '3z58Y' 'u'k'pI n'g' 'h'w'q't'g'ue'g'p'v' 'D'ew'g'p' 'y' k'j 'g'eq'p'q'o' { 'q'r' c'n'f' h'h'w'g't'cu' 'R'j' k'k'r' u'q't' 'c'r' r' t'q'x'g'f' 'g's' w'k'c'ng'p'v	P q	:		
	<p>Final sub-circuits from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit, 2.5mm² PVC insulated copper cables, 2.5 mm² copper earthing cable including accessories and fittings</p> <p>H'w'uj' 'o' q'w'p'v'g'f' 'u'q'eng'v'///q'w'g'u'q'h'54C. '3/r'j . '442'462x. '72J \ . 'h'g'f' 'j' t'q'w'i' j' 'E'w' '5z40'o o' 4'RXE' 'k'p'u'w'v'g'f' 'E'W'y' k'g'u'p'42o o' 'eq'p'f' w'k'u'eqo' r' n'g'v'y' k'j 'l'w'p'v'k'p' 'd'q'z'g'u'." 'eq'p'p'g'v'q'tu'c'p'f' 'c'ee'g'u'q't'g'u</p>	P q	6		
6044	<p>Final sub-circuit from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit 4mm² PVC insulated copper cables, 4mm² earthing cable including accessories.</p> <p>54C. '5R- P - G' r' q'y' g't' 'r' q'k'p'u'eqo' r' n'g'v' 'y' k'g'f' 'k'p'6'eq't'g'6o o' 'RXE' 'I'U'Y' C' 'I'RXE' " 'eq'r' r' g't' 'ecdng'u'f' t'cy' p' 'k'p' 't'w'p'n'k'pI 'c'p'f' 't'w'p'k'pI 'h'q'o' 'j' g't' k'w't'k'd'w'k'p' 'd'q'c't'f' 'v'q' 'j' g'5' 'r' j' c'ug' 54C' 'u'q'eng'v'q'w'g'v'g'z'en'w' lpi 'j' g' 'u'y' k'ej' g'f' 'u'q'eng'v'0</p>	P q	6		
6046	<p>54C. '622X. '5R- P - G' 'U'w'h'c'eg' 'o' q'w'p'v'k'pI 'k'p'v'g't'q'eng'f' 'u'y' k'ej' g'f' 'u'q'eng'v'q'w'g'v'eqo' r' n'g'v' 'y' k'j' 'k'u'v'q'r' 'r' n'w' 'cu' 'O' M'E'c'v'P' q'0; 867' 'T'G'F</p> <p><u>ECDNRP I 'Y QTMU</u></p>	P q	6		
6047	<p>Uwr r n' . 'k'p'uc'm'6' 'E'q't'g'z' '3.7' 'o' o' 4' 'RXe' 'I'RXe' 'I'U'y' c' 'I'RXe' 'E'cdng' 'h'q't' 'c'm' 'U'c't'v' 'I' 'U'q'r' " 'R'w'uj' 'D'w'w'q'p' 'U'c'v'k'p'u' 'v'q' 'O' c'k'p' 'E'q'p't'q'n' 'R'c'p'g'n'0</p>	o	4: 72		
6048	<p>V'g't'o' 'k'p'c'v'g' 'ecdng'u' 'h'q't' 'c'm' 'j' g' 'R'w'uj' 'D'w'w'q'p' 'U'c'v'k'p'u' 'l'p'en'w'f' lpi 'u'w'r' r' n' 'q'h' 'I' n'p'f' . " 'U'j' t'q'w'f' u'0</p>	pt	86		
6049	<p>Uwr r n' . 'k'p'uc'm'5' 'E'q't'g'z' '3.0' 'o' o' 4' 'RXe' 'I'RXe' 'I'U'y' c' 'I'RXe' 'E'cdng' 'h'q't' 'H'q'y' 'O' g'v'g't' " 'R'q'y' g't' 'U'w'r' r' n' 'v'q' 'O' c'k'p' 'E'q'p't'q'n' 'R'c'p'g'n'0</p>	o	662		
604:	<p>V'g't'o' 'k'p'c'v'g' 'ecdng'u' 'h'q't' 'H'q'y' 'O' g'v'g't' 'r' q'y' g't' 'U'w'r' r' n' . 'l'p'en'w'f' lpi 'u'w'r' r' n' 'q'h' 'I' n'p'f' . " 'U'j' t'q'w'f' u'0</p>	pt	6		
604:	<p>Uwr r n' . 'k'p'uc'm'5' 'E'q't'g'z' '3.0' 'o' o' 4' 'RXe' 'U'et'ggp' 'ecdng' 'h'q't' 'H'q'y' 'O' g'v'g't' 'U'k' 'p'c'm' 'v'q' " 'O' c'k'p' 'E'q'p't'q'n' 'R'c'p'g'n'0</p>	o	662		
6052	<p>V'g't'o' 'k'p'c'v'g' 'ecdng'u' 'h'q't' 'H'q'y' 'o' g'v'g't' 'u'k' 'p'c'm' 'l'p'en'w'f' lpi 'u'w'r' r' n' 'q'h' 'I' n'p'f' . " 'U'j' t'q'w'f' u'0</p>	pt	6		
6053	<p>Uwr r n' . 'k'p'uc'm'5' 'E'q't'g'z' '3.0' 'o' o' 4' 'RXe' 'I'RXe' 'I'U'y' c' 'I'RXe' 'E'cdng' 'h'q't' 'N'g'x'g'n' 'V't'c'p'u'o' k'v'g't' 'u' 'R'q'y' g't' 'U'w'r' r' n' 'v'q' 'O' c'k'p' 'E'q'p't'q'n' 'R'c'p'g'n'0</p>	o	432		
6054	<p>V'g't'o' 'k'p'c'v'g' 'ecdng'u' 'h'q't' 'N'g'x'g'n' 'V't'c'p'o' k'v'g't' 'u' 'R'q'y' g't' 'U'w'r' r' n' . 'l'p'en'w'f' lpi 'u'w'r' r' n' 'q'h' 'I' n'p'f' . " 'U'j' t'q'w'f' u'0</p>		6		
TOTAL PAGE 23: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 24

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
605	Uwr r nq. "Ipueni5'Eqtg'z'30'o o ⁴ "RXe"Uetggp"ecdng'hqt'Ngxg'tcpuo kwgt" uli pcni'vq'O clp'eapvtqnlRcpgn'lq'O clp'EapvtqnlRcpgn0	o	432		
606	Vgto lpcvg'ecdngu'hqt'Ngxgrl'tcpuo kwgt'uli pcni'lpennf lpi 'uwr r nq'qh'I rcpf." Uj tqwf u0	pt	6		
607	Tg/Vgto lpcvg'O clp'uwr r nq'Ecdng'htqo "MRNE"qp'yj g'P gy 'O clp'Dqctf." lpennf lpi 'uwr r nq'qh'P gy 'I rcpf u'Uj tqwf u0	pt	3		
608	Tg/Vgto lpcvg'O clp'uwr r nq'Ecdng'htqo 'I gpugvP q08'vq'P gy 'Ej cpi qxgt" ugevkp'lp'yj g'P gy 'O clp'Dqctf.'lpennf lpi 'uwr r nq'qh'P gy 'I rcpf u'Uj tqwf u0	pt	3		
609	Tg/Vgto lpcvg'O clp'uwr r nq'Ecdng'htqo 'I gpugvP q04'vq'P gy 'O clp'dqctf." lpennf lpi 'uwr r nq'qh'P gy 'I rcpf u'Uj tqwf u0	pt	3		
60:	Tg/Vgto lpcvg'O clp'uwr r nq'Ecdng'htqo 'O clp'eapvtqnlRcpgn'lq'P gy 'O clp' dqctf.'lpennf lpi 'uwr r nq'qh'P gy 'I rcpf u'Uj tqwf u0	pt	4		
60;	Cmuy "c'RtqxkukpcniUwo 'hqt'Tg/Vgto lpcvki "cni'Qvj gt'uwr r nq'Ecdngu'htqo " O clp'eapvtqnlRcpgn'lq'xctlkqu'qwi qlpi 'ektevku'lpennf lpi 'uwr r nq'qh'P gy " I rcpf u'Uj tqwf u0	Kgo	NU		
602	Cmuy "c'RtqxkukpcniUwo 'hqt'Uwr r nq('Ipuenr'ekp'qh'P gy '522o o 'Y kf g" Ecdng'tcl'cv'xctlkqu'hqecvkpu'eqo r ngv'y kj 'uwr r qtva'hkz lpi 'j ctf y ctg.'dqnu' ('P wu0	Kgo	NU		
603	Uwr r nq('IpueniP gy 'I nEqpf wku'47o o "cv'xctlkqu'hqecvkpu.'eqo r ngv'y kj " O qpwpki 'Ucf f ngu.'uwr r qtva'hkz lpi 'j ctf y ctg.'dqnu'(' P wu0	o	72		
604	Uwr r nq'cpf "IpueniP gy 'I nEqpf wku'54o o "cv'xctlkqu'hqecvkpu'eqo r ngv'y kj " O qpwpki 'Ucf f ngu.'uwr r qtva'hkz lpi 'j ctf y ctg.'dqnu'(' P wu0	o	42		
605	Uwr r nq."Ipueni6'Eqtg'z'60'o o ⁴ "RXeIRxeIUy cIRXq'Ecdng'hqt"xctlkqu'o qvqtu" htqo "yj g'eapvtqn'r cpgn0 <u>UVTGGV'NR J VRI</u>	o	972		
606	Uwr r nq"('IpueniP gy 'Nli j vki 'hkwtgu'372Y 'NGF 'qt'Crr tqxgf 'Gs wkxcrgpv" qp'yj g'gzkupi 'utggv'iki j vr qngu0	pt	34		
607	Uwr r nq('Ipueni'py "cf f kklpcniUtggv'Nli j vEqnw p'eqo r ngv'y kj '8C'UR" O ED"('Nli j vHkwtgu'372Y 'NGF 'qt'Crr tqxgf 'Gs wkxcrgpv'cv'xctlkqu'i rcpv' hqecvkpu0	pt	8		
608	Uwr r nq."Ipueni5'Eqtg'z'30'o o ⁴ "RXeIRxeIUy cIRXe'Ecdng'wpgt'i tqwpg'htq" pgy 'Utggv'Nli j vEqnw pu	o	722		
609	Cmuy "c'RtqxkukpcniUwo 'qh'Mij u'3.472.222'htq'Uwr r nq'cpf "Ipuenr'ekp'qh" Getvj lpi 'U'ungo 'htq'yj g'y j qng'Ipuenr'ekp	Kgo	NU	***3.472.222	*****3.472.2220
60:	Uwr r nq. 'Ipuem'guv'epf'eqo o kulap'722MXC'Rtlo g'lp'P cltqdKUCpf d{ 'F kgugi' I gpgtcvqt'eqo r ngv'y kj 'yj g'3222C'VRP 'CVU'cpf'ecdripi 'htqo 'yj g'i gpgtcvqt" vq'yj g'cwqo cve'tcpuhgt'uy keji 'cv'yj g'o clp'uy keji i gct'err tqzko cvgn'62" O ggtu'cy c{0Vj g'i gpgtcvqt'vq'dg'ukgpv'o qf'cu'ur gelkgf 'lp'yj g" ur gelhecvkpud0dk f gt'vq'emuy 'cmuy'htq'Uwr r nq'cpf 'Ipuenr'ekp'qh'46'j qwtu" ecr cekf 'F kgugi'vcpn0' O KEGNNCP GQWU	Kgo	3		
708	Cmuy 'htq'gzvpgf gf 'qr gtcvqp'cpf'bo clpvgpcpeg'qh'r rcpv'r tqxlukpcni0Vj lu" kgo 'uj qwrf 'pqv'dg'gzvpgf gf 'vq'yj g'co qwpv'eqnw p	O qpvi	8		

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 25					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
704	Cmny 'hqt'gzvgpf gf 'F ghgewi'Nlcdkkm 'Rgtkqf 'unlr wrcvgf 'lp'I gpgtciEqpf kskpu' qh'Eqpvtcev'Rtqxkukqpcn0Tcvg'qpnf	O qpvj	34		
705	Cmny 'hqt'cnlequw'hqt'yj g'Gpi kpggt'qt'cp'kpf gr gpf gpv'kpur gevqt'f gngi cvgf "d{ " yj g'Gpi kpggt'q'ectt{' 'qww'cp'lpf gr gpf gpv'kpur gevqp'f wtkpi 'o cpwlcwwtg'qh'yj g" r rcpv'cpf "gs vkr o gpv'lp'ceeqtf cpeg'y kj 'I gpgtciEqpf kskpu'qh'Eqpvtcev	Kgo	Nwo r 'Uwo		
706	Cmny 'hqt'r tqxlukqp'qh'cnlf tcy lpi u'cpf 'kphqto cvkqp'q'dg'r tqxkf gf "d{ "yj g" Eqpvtcev'qt'cu'r gt'I gpgtciUr gekhlecukqp	kgo	Nwo r 'Uwo		
707	Cmny 'hqt'r tqxlukqp'qh'Qr gtcukqp'cpf 'O clpygpcpeg.'cpf 'Qxgtj cwi'O cpwcn'cu' r gt'I gpgtciUr gekhlecukqp	Kgo	Nwo r 'Uwo		
708	Cmny 'hqt'r tqxlukqp'qh'cnlf'Cu'Hwvgf'f tcy lpi u'cu'r gt'I gpgtciUr gekhlecukqp	Kgo	Nwo r 'Uwo		
709	Cmny 'hqt'r tqxlukqp'qh'ur ctgu'hqt'7"{' gct'hqt'yj g'qr gtcukqp'qh'yj g'r rcpv'lp" ceeqtf cpeg'y kj 'I gpgtciUr gekhlecukqp0Vj g'Vgpf gtgt'uj cnlr tqxkf g'c'kuv'qh'yj g' ur ctgu'y kj "gcej 'Kgo 'lpf kxf wcm' 'r tlegf "cpf "yj g'qvcnlequw'q'dg'ecttkef "q'yj ku' Kgo 0	Kgo	Nwo r 'Uwo		
70	Cmny 'hqt'r tqxlukqp'qh'cnlf gekn'vqqu'pgeguact {'hqt'yj g'o clpygpcpeg'qh'yj g" r rcpv'lp'ceeqtf cpeg'y kj 'I gpgtciUr gekhlecukqp0Vj g'Vgpf gtgt'uj cnlr tqxkf g'c" kuv'qh'yj g'vqqu'y kj "gcej 'kgo 'lpf kxf wcm' 'r tlegf "cpf "qvcnlequw'q'dg'ecttkef " q'yj ku'Kgo 0	Kgo	Nwo r 'Uwo		
70	Cmny 'hqt'cnl'grr gpugu'hqt'eqo r n' lpi 'y kj 'yj g'I gpgtciEqpf kskpu'hqt'cp{ " lpgtxcni'cpf "rcdqwt'pqv'ur gekhlecni' 'o gpv'kpgf 'lp'yj g'Dknu'qh'S wcpv'ksgu'dw' pgeguact {'hqt'yj g'ucv'kucvqt {'eqo r r'gukqp'cpf 'r wv'kpi 'lp'ugtxleg'qh'cnlf rcpv' pco lpi 'yj g'r ctv'ewct'Kgo 'cpf kqt'Enwug'tghgt'gpegu'cpf 'r tlelpi 'ugr ctv'gn' " dgrny < c+ d+ e+ f+ g+ P qvg<Cp{' 'equw'ctukpi 'htqo "eqo r n' lpi 'y kj 'yj g'Ur gekhlecukqp.'Eqpf kskpu'qh' Eqpvtcev.'Eqpf kskpu'q'Vgpf gtgtu.'F tcy lpi u.'gve..'pqv'kpenw gf 'lp'yj ku'Kgo " uj cnldg'cuwo gf "q'dg'eqxgtgf "d{ "Vgpf gt'Tcvgu"	RE			
8	EEKKN0Y QTMU'CUUQEK VGF 'Y KJ 'RP UVCNNC VIQP 'QH'GS WRO GP V				
808	Gzecxukqp'lp'eqo o qp'O cvgtkn	o ⁵	72		
TOTAL PAGE 25: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 26					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
804	Gzvtc"qxgt"ht"gzecxcvkp"lp"TqemErnuu'C	o ⁵	32		
805	/Fkwq"/"dw'TqemErnuu':	o ⁵	32		
806	/Fkwq"/"dw'TqemErnuu'E	o ⁵	7		
807	Hqto y qtnl/"Ernuu'H3	o [?]	322		
808	Hqto y qtnl/"Ernuu'H4	o [?]	322		
809	Hqto y qtnl/"Ernuu'H5	o ⁴	322		
80	Rtqxkukp"cpf"r nckpi "qh'o cuu'eqpetgvg'Ernuu'3742."lpenwf lpi "xldtcvki "cpf" ecukpi "cu'ur gelhgf 0	o ⁴	72		
80	/Fkwq"/"dw'tgphqtegf"eqpetgvg'Ernuu'4242	o ⁵	32		
802	/Fkwq"/"dk'tgphqtegf"eqpetgvg'Ernuu'4742	o ⁵	52		
803	UggmTgphqtego gpv/"cnif lco gvgtu=f ghqto gf "j ki j "{lgrf'dctu'q'DU'666; = lpenwf lpi "ht"ewwki . 'dgpf lpi "v\ lpi . "gve0	mi	4722		
TOTAL PAGE 26: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 27					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	KIU TREATMENT PLANT				
7	<u>ELECTRICAL EQUIPMENT</u>				
	Uwr r n' ("Kpucni'y g'hqny kpi "uo cnir qy gt" ("hi j vki "hskpi u'lp'y g'Uy ke j " Tqqo "cu'r gt'y g'ur gelhecvkpu0				
908	35C"Vy lp"UqengvQwngv"/"hwuj	pt	6		
904	Vy lp"HN"Hskpi "6"HV"/"Dcvgp"v'rg	pt	8		
905	85C"VR"UqengvQwngv'e ly "Vqr "Rwi	pt	3		
906	54C"VR"UqengvQwngv'e ly "Vqr "Rwi	pt	3		
907	7C"Nki j vUy 0/"Hwuj "v'rg	pt	4		
908	O kugncpgqu"Y kipi "eqo r ngv'y kj "Eqpf wku"TVtwnkpi	pt	3		
	<u>F KVT KDWKQP "DQCTF" / "R NGV"Y QTMU</u>				
909	F guki p. "Uwr r n' / "Kpucni ("Eqo o kuukp'pgy "F kntkdwkqp"Dqctf "cv'y g'lpigv" Y qtmu. "Itgg"ucpf kpi "qt'y cnlo qwpvgf "v'rg."eqo r ngv."y kj "y g'hqny kpi ."cu" r wt'y g'ur gelhecvkpu03 "Z "Gperquwtg"y gcj gt "Rtqqh+ 3"Z": 2C"VR"O EED"Kpego gt" 3"Z"62C"VR"O EED"Hggf gt 4"Z"54C"VR"O EED"Hggf gt 4"Z"47C"VR"O EED"Hggf gt 3"Z"Rtqgcvkp"F gxlegu" 3"Z"Eqo o qp"eqpvtqilUgevkp" 3"Z"Gctj kpi "U'ungo " 3"z"O ggtkpi "Ugevkp" 3"Z"Kpf lecvkpu	pt	3		
90	Uwr r n' "6E"z"32o o 4"Rxe lRxe lUy c lRxe"Ecdng"htqo "O clp"dqctf "q"F kntkdwkqp" Dqctf "cv"Kpelpgtcvqt"J qwug	o	322		
90	Uwr r n' "6E"z"8o o 4"Rxe lRxe lUy c lRxe"Ecdng"htqo "O clp"dqctf "q"F kntkdwkqp" Dqctf "cv"Uy ke j i gct" Tqqo 0	o	:		
9082	Uwr r n' "6E"z"6o o 4"Rxe lRxe lUy c lRxe"Ecdng"htqo "O clp"dqctf "q"F kntkdwkqp" Dqctf "cv"htg"Rwo r "J qwug0	o	62		
9083	Cnny "ht"cr r n'ecvkp."hny "wr ."rc{o gpv'ht"ngentev' "eqppgevkp'ej cti guOK' ku'gunko cvgt "y g'htcf "ht'y g'y cvgt "tgco gpv'y qtmu'cpf "r wo r kpi "ugw'y knidg" cdqw"322MXC	Kgo	Nwo r "Uw	""3.472.222	""""3.472.2220
9084	Uwr r n'."Kpucni'cpf "Eqo o kuukp"72"MXC."622X."72J \ ."Ucpcf d{"I gpgtcvqt" Y kj "Ecpqr {"Eqo r ngv'y kj "CVU'cpf "Dcug"Vcpniku"Rgtmkpu'qt"Ewo o lpu'qt" cr r tqxgf "gs wxcrgp0	Kgo	3		
9085	Uwr r n' "6E"z"47o o 4"Rxe lRxe lUy c lRxe"Ecdng"htqo "y g'I gpgtcvqt"q'y g'O clp" F kntkdwkqp"Dqctf "cv"Uy ke j i gct" Tqqo 0	o	72		
9086	Uwr r n' "6E"z"47o o 4"Rxe lRxe lUy c lRxe"Ecdng"htqo "y g'I gpgtcvqt"q'y g"CVU" cv"Uy ke j i gct" Tqqo 0	o	72		
TOTAL PAGE 27: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 28					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
:	FIRE FIGHTING INSTALLATION				
: 08	<u>Hosereel Installation</u> Uwr r nq "cpf "lpucnviy g'hqnyy lpi "hkg'hki j vpi "lpucnvwqp"cpf "gs vkr o gpv'cu" f guetldgf "cpf "uj qy p'qp'yj g'eqpwtcev'tcy lpi u'qt'cu'uj cnidg'lpuntwevgf "d{ "y g" Gpi lpggt0Vgpf gtgtu'uj qwf "cmuy "hqt"cnlhkvlpi u.'lqlpvlp u'eqwr lpi u'lpnwf lpi "wpkpu"cpf "emco r u'y j gtg'pgeguuct { "hqt"y g'r tqr gt'hwpevlqplpi "qh'yj g" lpucnvwqp"y j gp'r tlelpi 0 Hosereel 42o o "Flco gvg't52o "mupi "uy lpi lpi "v'r g'j qug'tggri0 cpwhcewtgf "vq"DU7496." y kj "dqvqo "gpt { "cpf "eqo r ngv'y kj "f grkxgt { "xcnkg."o kf "unggrlhggf "r kr g." hqtrvwqp"xcnkg."i vlf g'cpf "cnlvqj gt"ceeguqtlgu'cu"\$Cpi wu"Hkg"Cto qwt"\$qt" gs wcnlcpf "crr tqxgf 0 GMS Pipework, Class B : 05 "47o o "Flco gvg't'r kr gy qtm 37 m : 06 "72o o "Flco gvg't'r kr gy qtm : m Extra Over GMS Pipework Bends : 07 "47o o "Flco gvg't'dgpf 7 P q0 Tees : 08 "72o o "Flco gvg't'gs wcnl'vgg 7 P q0 Reducers : 09 "72"z'47o o "Flco gvg't'gf wegt 7 P q0 Valves : 0 47o o "Flco gvg't'i cvg"xcnkg"cu"RGI NGT"qt"crr tqxgf "gs vlxcnrpf0 4 P q0 Unions : 0 47o o "Flco gvg't'r kr g'wpkqp 4 P q0 : 02 72o o "Z42o o "Tgf wegt 4 P q0 : 03 72o o "Uqengwu 7 P q0 : 04 47o o "Uqengwu 7 P q0 : 05 42o o "I Kxqengwu 7 P q0 : 06 47o o "Gndqy 7 P q0 : 07 72o o "I Kwplqp 7 P q0 : 08 72o o "I Kdlp kr r ng 5 P q0 : 09 47o o "I KDIP kr r ng 5 P q0 Painting : 08 Cnuy "hqt'r clpvlp "qh'yj g'j qugtggriplucnvwqp"y kj "4"eqcw'qh'uwr gt'i nquu'r clpv' qp"cr'tlo gt"eqcv'u'r gt"HQOE'twgu."4; yj "Gf kxqp"y kj "hcvgu/co o gpf o gpw'cpf " vq'yj g'crr tqxcl'qh'yj g'Rtqlgev"Gpi lpggt0 3 kgo Standard Printed Lable : 08; Ucpf ctf "r tlpvgf "hcdgu'hqt'yj g'hkg'ewr dqctf u0 3 P q0				
TOTAL PAGE 28: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 29					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
: 042	Hosereel Pumpset Uwr r nq. "lpucncvqpp"cpf "vgukpi "qh"J qugtggrr wo r ugv"qpg"fwf. "y g'qy gt" ucpf d{ "o qwpvgf "qp" c'htco g'y kj "c"o kf "uvgnldcug" r nvg0Gcej "r wo r "uj cml" j cxg" c'fwf "5o "5j t0ci clpuw62o "j gcf "cu" F C[NKHF HU4'O qf gnf D"6/82." 3067Z "3RJ "Rqy gt"qt"cr r tqxgf "gs wxcnpgv016"cf f ksqp. "y gt g'uj cml dg" c"6: " rktgu" f lcr j tci o "r tguuwtg" xguugr "cu" Xctgo "qt" cr r tqxgf "gs wxcnpgv. "r tguuwtg" uy ke j gu. "c"uy ke j "q" r tqvevf t{ "twp. "72o o "hqv"xcnrg"cpf "utclpgt. "vcpnl" eqppgevkpu. "i cvg"xcnrgu"cpf "bpq/tgwtp"xcnrgu0Vj g'r tguuwtg"ugv"q"dg"cu" F c{ rktgu"qt"gs wcnl"cpf "cr r tqxgf 0 Eqpvtqnluj cml dg"ghgevgf "xlc" c"r tguuwtg"uy ke j "y tqwi j "c"r tg/y kfg "eqpvtqnl" r cpgrly j ke j "uj cml kxg"cwqo c'le"ej cpi g/qxgt"htqo "fwf "q"ucpf d{ "r wo r " y kj lp"7ugeqpf u"uj qwf "y j g'fwf "r wo r "hcl"vq" f gnxgt "hqt"cp{ "tgcup0Vj g" r wo r ugv"uj cml penvf g"cnlpqp/tgwtpu"xcnrgu. "lo gt. "luqr"vpi "xcnrgu"cpf "r k" g" eqppgevkpu0	3	Ugv		
: 043	7.222"rktgu"ecr cels{ "j gcx{ "f w{ "r n'vle"e{ rkp f tleclny cvgt "uqtci g"vcpnlly kj " 3.: 52o o "f lc" d{ "4.2: 2o o "j gli j vln Plinth/slab"eqo r nvg'y kj "eqxgt"cpf " uetgy gf "eqppgevkpu" hqt "lpngv"47o o + "qwrugu"72o o + "qgxthuy "54o o +0/ Cnuy "hqt" y j g'eqppgevkp "hskvpi u"q hqtgo "y j g'vcpnlcu"TOP TANK"qt"gs wcnl" cpf "cr r tqxgf 0 Carbon Dioxide Gas Fire Extinguisher 7mi "ectdqp" f kqzlf g'f cu"r qtvcdng"htg"gzvpi vkuj gt "eqo r nvg'y kj "r tguuwtg" i cwi g. "lpklclnej cti g"cpf "o qwpvpi "dtcengvu0	3	P q0		
: 044	Dry Chemical Powder Fire Extinguisher 8mi "f t{ "ej go leclnr qf y gt "r qtvcdng"htg"gzvpi vkuj gt "eqo r nvg'y kj "r tguuwtg" i cwi g. "lpklclnej cti g"cpf "o qwpvpi "dtcengvu0	3	P q		
: 045	Manual Alarm Bell : \$%447o o +0 cpwclqr gtcvgf "cncro "dgm"qi qpi + Uwr r nq "cpf "lpucmlo cuu'dwtp"y q"vnci g'tqvt{ "hkp"lpelpgtcvt "ecr cdng"qh" dwtpkpi "5"qpu"qh'y cug"r gt "f c{ 0Vj g'wplv"q"dg"uwr r nqf "y kj "c"5"evdle"o gvtg" j qrr gt"cpf "c"uqret"j gcvgf "r tg"eqo dwukqp" f t{ lpi 0Vq "wplv"uwr r nqf "uj cml eqo g" eqo r nvg'y kj "hvg"i cueqpf ksqpki "cpf "dghgtg"gpvtkpi "c"dc i "hkngt 0Vj g'lpptg" f lco gvgtqhly gmluj cml dg"cdqw"4o "cpf "hgvj ": o "qt"cu"r gt" O cpwclcwgt IDtcpf +0Vj g'hknp"vgo r gtcwtg"uj cml dg": 72/3222" f gi tgguegnukvu0 Vj g'uwthceg"vgo r gtcwtg"qh'hknp"uj cml dg"cdqw"3: 2" f gi tgguegnukvu0 Vj g'f tks g" o qf g'uj cml dg"vki ng" f kgevkp"i gct"y kj "r quukdkw{ "qh"tgxgtug" hqt"o clpvgpcpeg0	3 pt	P q 3		
9.00	STREET LIGHTING : 03 Uwr r nq "f "lpucm"lpgy "Nli j vpi "hkwzgu"372Y "NGF "qt"Cr r tqxgf "Gs wxcnpgv" qp"y j g'gzlkupl "utggv"hi j v'r qgu0 : 04 Uwr r nq "f "lpucm"lpgy "cf f ksqpki"utggv"Nli j vEqnw p"eqo r nvg'y kj "8C"UR" O ED"l "Nli j vHkwzgu"372Y "NGF "qt"Cr r tqxgf "Gs wxcnpgv"v'xctlkwu"r n'p"v" mcevkpu0 : 05 Uwr r nq. "lpucm"5"Eqtg"z"30"o o "4"RXe lRxe lUy c lRXe"Ecdng"wpf gt"i tqwpf "hqt" pgy "Utggv"Nli j vEqnw pu : 06 Cnuy "c"RtqxkukqpcnlUwo "qh"mij u"472.222" hqt "Uwr r nq" "cpf "lpucm"vqpp"qh" Gctvj lpi "U"ungo : 07 Uwr r nq. "lpucm"Eqo o ksqpki "hkgf "J { f tqi gp"Uwr j kf g"l cu" F ggevt "q" ur gekhlecvkpu"eqo r nvg'y kj "dqy "cwf kq"cpf "qr vleclncro. "hgf "uetggp. "y ktkpi " Uwr r nq. "lpucm"Eqo o ksqpki "hkgf "Ectdqp"O qpqz k g"l cu" F ggevt "q" ur gekhlecvkpu"eqo r nvg'y kj "dqy "cwf kq"cpf "qr vleclncro. "hgf "uetggp. "y ktkpi "	pt	34		
		pt	34		
		o	722		
		Kgo	NU		
		pt	4		
		pt	4		
TOTAL PAGE 29: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 30					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
10.0	CONTROL ROOM MECHANICAL PLUMBING, DRAINAGE, FIRE FIGHTING AND AIR CONDITIONING INSTALLATIONS SANITARY FITTINGS Supply, assemble, install and commission the following Uwr r n' "cpf 'h'z'j g'hqny lpi 'ucpkct { 'cr r n'cpegu'eqo r n'g'y kj 'cm'j g' " eqppgevkpu'v'q'ugtxlegu.'y cu'g.'lq'p'v'p' 'v'q'w' r n' 'q'x'g't'hu'y u'cpf 'r n'w' i lpi "cpf " uetgy lpi "v'q'j g'h'q'q'u'0'Y j g't'g't'c'f'g'p'co gu'ct'g'o g'p'v'q'p'g'f'd'g'ny . 'j g't'g'h'g't'g'p'eg' k'l'p'v'p'g'f' "v'q'd'g'cu'c' 'i w'f'g'v'q'j g'v'f'g'q'h'h'v'p' 0 Cn'lp'uc'm'v'k'p'u'p' 'j k'l'ug'v'k'p' 'o w'u'd'g'f' q'p'g'p' 'c'ee'q't'f'c'p'eg'y kj General & Particular Specifications for Plumbing and Drainage Installations. Water Closets 3208 Y j k'g'X'k'st'g'q'u'E'j l'p'c'E'ni'q'g'eq'w'ng'f' "Y cu'j f'q'y p' "Y E' "u'w'k'g' "eqo r n'g'y kj 'ug'cv' eq'x'g't'ny 'h'g'x'g'i'ek'ng't'p'y kj 'f'w'c'i'h'w'j 'd'w'w'q'p'q'p'v'q'r .h'v'p'k'p' u.d'tc'eng'v'g'e'cu" V'y {h'q't'f' "q't'g's'w'c'i'c'p'f' "c'r r t'q'x'g'f' 0 WASHHAND BASINS 3204 Y j k'g' 'i' r'c' g'f' "x'k'st'g'q'u'E'j l'p'c'y cu'j "j c'p'f' "d'c'ul'p' "u'k' g' 722'z'682o o " "c'r r t'q'x'g'f' " y kj "3'P' q'0'c'r j q'ng'u'eqo r n'g'y kj "3'P' q'037'o o "f' l'co g'v'g't' "e'j t'q'o g'r' n'v'g'f' " C's'w'v'k'p'p' .r' n'g'w'f' g' 'u'k'p' i' n'g' "h'g'x'g't' "o k'z'g't' "v'c'r "c'p'f' "j c'p'f' n'g' .e'j c'lp' "y cu'g' "c'p'f' "r' n'v'k'e' " d'q'w'g' "t'c'r "54o o "f' l'co g'v'g't' "c'p'f' "u'k'le'q'p'g' "h'q't' "u'g'c'n'k'p' 0Cu") TWYFORD ADVENT) "q't' "C'r r t'q'x'g'f' "g's'w'k'c'ng'p'v Disabled Toilet Suite 3205 V'j g' "h'k'z'w't'g'u'v'q' "d'g'r' t'q'x'k'f' g'f' "l'p' "r' q'u'k's'k'p' "c't'g' < C'0' H'q't' "y j g'g'ng' c'k' "c'ee'g'u'k'd'ng' " Y E' u 30C "Y E' "u'w'k'g' "y kj "c'p' "q'x'g't'c'n'it' t'q'l'g'v'k'p' "h'q'o "d'c'ent'y c'n'v'q' "j g' "h'q'p'v'q'h' "j g' " u'g'c'v'q'h'972o o . "c'p'f' "c'j' g'k'i' j v' "h'q'o "h'q'q't' "v'q' "j g' "v'q'r "q'h' "j g' "u'g'c'v'q'h'672o o " " o l'p'o w'o "q' "697o o "o c'z'l'o w'o 040C "y cu'j d'c'ul'p' "y kj "c' "u'k'p' i' n'g' "e'g'p't'q'i'v'c'r "q'h'g'u'v' "v'q' "j g' "u'k'f' g' "q'h' "j g' "d'c'ul'p' "p'g'et'g'u'v'j g' "Y E' "50' H'q'w' "u'w' r q't'v't'c'k'u' "g'c'ej "822o o "h'q'p' i' " y kj "57o o "f' l'co g'v'g't' "t'c'k'f'00C "j l'p' i' g'f' "u'w' r q't'v't'c'k'i'l'p'eq't'r' q't'c'v'k'p' i' "v'q'k'g'v't'q'm' i' j q'r'f' g't' "h'q't' "w'ug' "c'q'p' i' u'k'f' g' "j g' "Y E' "y kj "c' "r' t'q'l'g'v'k'p' "q'h'972o o . "V'j g' "h'q'p'v'q'h' "j g' " t'c'k'i'o w'u'd'g' "h'g'x'g'f' y kj "h'q'p'v'q'h' "j g' "Y E' 070C "u'g'c'v'g'f' "w'ug't' "d'c'ent'y w' r q't'v'080C " o k't'q't' " 22o o "z' "622o o 00' U'q'r' "f'k'ur' g'p'ug't'0 0E'q'c'v'j' q'q'n'f'Cu' "V'y {h'q't'f' "C'x'c'ng'p' " Y E' "u'w'k'g' "q't'g's'w'c'i'c'p'f' "c'r r t'q'x'g'f' (R'q'u'k's'k'p'k'p' i' < "V'q' "d'g' "cu' "r'c' { q'w'f' "t'c'y l'p' i' u'0' Toilet Roll Holder 3206 Cu'X'k'st'g'q'u'E'j l'p'c' "u'g'o k't'g'eg'ug'f' "v'q'k'g'v't'q'm'j' q'r'f' g't' "h'k'z'g'f' "v'q' "y c'n'lp'em'f' l'p' i' " h'q't'o l'p' i' "j g' "t'g'eg'u' "u'k'f' g' "q'h'372'z'372o o 0 Mirror 3207 8o o "j k'ent'it' q'it'j g'f' "r' n'v'g'f' i' n'u'u' "u'k'x'g't' "d'c'eng'f' "o k't'q't' "y kj "d'g'x'g'ng'f' "g'f' i' g'u' "u'k'f' g' " 832z6; 9o o "r' n'w' i' g'f' "c'p'f' "u'et'gy g'f' "v'q' "y c'n'ly kj "6'P' q'0E'j' t'q'o g'r' n'v'g'f' "e'j' t'q'o g' " e'c'r'r' g'f' "u'et'gy u'c'p'f' "7o o "j k'ent'it'q'co "d'c'ent'it'g'u'0 Hand drier 3208 G'ng'v't'le' "S'U'V'C'T'O' K'Z' \$' "c'w'q'o c'v'e' "v'q'w'ej "h'g'g'j' c'p'f' "f' t'lg't' "h'q't' "g'ng'v't'le'c'i'l'w' r n'f' " eq'o r'c'v'd'ng' "y kj "442'462X'72J "u'k'p' i' n'g' "r'j' cu'g' "u'w' r n'f' "c'p'f' "v'q' "d'g' "eqo r n'g'y kj " c' "o q'w'p'v'k'p' i' "r' n'v'g' .e'g'p't'k'h'w' i' c'n'it'c'p' "c'p'f' "o q'v'q't' "4922' "r' o "y kj "j g't'o c'n'q'x'g't'ng'c'f' " c'p'f' "t'c'f' k'q' "u'w' r t'g'u'k'p' "c'p'f' "4322y "u'r' k'c'm'f' "y q'w'p'f' "g'ng'o g'p'v'y kj "c'w'q'o c'v'e' "t'g' / u'g'v'k'p' i' "j g't'o c'n'f'ew'q'w'c'p'f' "y k'k'p' i' "h'q'o "h'q'ec'n'it'k'ur'v'q't URINAL BOWL 3209 W'k'p'c'n'it'p' "c'r r t'q'x'g'f' "eq'ng'w' "x'k'st'g'q'u' "e'j' l'p'c' "eqo r' t'k'ul'p' i' "4'P' q'0d'q'y n'f' "c'p'f' "3'P' q'0' e'k'ng't'p'0'V'q' "d'g' "cu' "V'y {h'q't'f' u' "E'co f' g'p' "q't' "c'r r t'q'x'g'f' "g's'w'k'c'ng'p'v'0 320 Flash valve h'q't' "j g' "v'k'p'c'n'it'd'q'y n'f' "cu'f' "q'eq'n'it' "g's'w'c'i'c'p'f' "c'r r t'q'x'g'f' 320 Shower Fittings "eqo r' t'k'ul'p' i' "q'h' "j q'y g't' "t'q'ug' "4'p'q'037o o " "y c'v'g't' "uj' q'y g't' "v'c'r u' " cu' "eq'd't'c' "q't' "g's'w'c'i'c'p'f' "c'r r t'q'x'g'f' .r' k' l'p' i' "h'q't' "r' t'q'r' g't' "h'w'p'v'k'p'l'p' i' 0 3202 Robe hook l'p' "U'c'v'p' "C'w'o l'p'k'w'o "v'q' "d'g' "o q'w'p'v'g'f' "d' { "eq'p'eg'c'ng'f' "u'et'gy u'v'q' "y c'n'f' " y g'f' i' g'u'0'V'q' "d'g' "cu' "Tw'yf'ord's Spectrum 2000 c'ee'g'u'q't'k'g'u' q't' "g's'w'c'i'c'p'f' " c'r r t'q'x'g'f' 0*****	6	P q0		
3204		32	P q		
3205		4	P q0		
3206		8	P q0		
3207		8	P q0		
3208		4	P q0		
3209		5	P q		
320		5	P q		
320		4	P q		
3202		4	P q		
TOTAL PAGE 30: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 31

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
3203	Soap Dispenser Y cml'o qwpvgf "Uqcr 'f'kur gpugt'y kj 'c'ecr cek\ 'qh'cdqw'qpg'Nkst'g'j cxlpi "c" r tguu'cevqp "Uqcr 't'ngcug'o gej cpluo 'eqo r ngv'y kj 'h'kzlp' 'uetgy u0Cu" Starmix "qt"cr r tqxgf "gs wkxcrgpv0	4	P q		
3204	Soap Dish Y cml'o qwpvgf "Uqcr 'y j kg'f'kuj "'eqo r ngv'y kj 'h'kzlp' 'uetgy u0Cu'Ucto kz"qt" cr r tqxgf "gs wkxcrgpv	4	P q		
3205	Kitchen Sink Ukpi rgDqy n'Ukpi rg'F'fclpgt'ukpnituk g"3722z722o o 'y kj 'd'qy n'ituk g" 642z577z372o o 'f'ggr 'o cf g'qww'qh'3: f: 'u'ckprguu'uggn'eqo r ngv'y kj '3P q0' o kzgtu'y kj 'qxgtcto 'uy kxgn'qwwgv'3P q0ukpnituk cugv'y kj '92o o 'f'kco gvg" h'cpi gu'67o o 'uj cpmu'y kj 'dtcengvu 'r nxi u'cpf 'ej clpu'kpenwf lpi '3P q0R/utcr u0' Ukpni'uj cmi'dg'cu'SF crk'uckprguu'uggn'ukpnituk'qt"cr r tqxgf "gs wcn	3	P q		
3302	INTERNAL PLUMBING The following CPVC PIPE PN 10 tubing and fittings as described. Tenderer to allow for all sundry items e.g. reducers, clips etc in their other rates.				
3303	62o o 'f'k'f'k'f' 'lp'tqqh'ur ceg."tgpej . "ej cugf 'lp'y cmi'qt"lp'ugt'xleg'f'vewu	37	No 0		
3304	54o o 'f'k'f'k'vq	57	No 0		
3305	47o o 'f'k'f'k'vq	47	No 0		
3306	Gate Valves 62o o 'f'k'o gf kwo 'r tguu'wtg'uetgy 'f'qy p'hwnly c{ 'pqp/tckulpi 'u'go 'y gf i g'i cvg' xcrkg'vq'DDU'3; 74'y kj 'y j ggnlj gcf 'cpf 'lqlpu'vq'uggn'wdlpi "cu'Rgi rgt"qt"	4	P q0		
3307	54o o 'f'k'f'k'vq	4	P q0		
3308	47o o 'f'k'f'k'vq	4	P q0		
3309	P qp'tgwtp"xcrkgu'62o o	3	P q0		
3310	Bends/Elbows CPVC 62o o 'f'k'f'k'vq	37	P q0		
3311	54o o 'f'k'f'k'vq	57	P q0		
3312	47o o 'f'k'f'k'vq	65	P q0		
3313	Tees CPVC 54z47'z54'o o 'f'k	32	P q0		
3314	54z'47z47	42	P q0		
3315	47z47z42'o o 'f'k	44	P q0		
3316	54o o 'f'k	37	P q0		
3317	47o o 'f'k	42	P q0		
3318	40mm dia adaptor elbows CPVC	8	P q0		
3319	54o o 'f'k'f'k'vq"	37	P q0		
3320	47o o 'f'k'f'k'vq	37	P q0		
3321	40mm dia unions CPVC	4	P q0		
3322	54o o 'f'k'f'k'vq"	4	P q0		
3323	47o o 'f'k'f'k'vq	4	P q0		
3324	40mm dia adaptor sockets	7	P q0		
3325	54o o 'f'k'f'k'vq"	37	P q0		
3326	47o o 'f'k'f'k'vq	37	P q0		
3327	40mm plain sockets	7	P q0		
3328	54o o 'f'k'f'k'vq"	42	P q0		
3329	47o o 'f'k'f'k'vq	47	P q0		
3330	40mm G I Backnuts	6	P q0		
3331	54o o 'f'k'vq	6	P q0		
3332	47o o 'f'k'vq	4	P q0		
3333	40mm G I union	4	P q0		
3334	40x32mm dia Reducing bush	6	P q0		
3335	42z37o o 'f'k'f'k'vq	34	P q0		
3336	62z54o o 'f'k'f'k'vq	7	P q0		
3337	54z47o o 'f'k'f'k'vq	9	P q0		
TOTAL PAGE 31: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 32					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
	Flexible tubes				
33058	Uwr r n{ "cpf 'lpuxm37o o "z"522o o "tupi 'hgzldng'wdgu'e ly "uwlprguu'uvgnrdcent' pwwu	48	P q0		
33059	15mm dia angle valves	48	P q0		
33060	Cmny 'hqt'y cvgt'r qkpw'eqo r ngv'y kj "3o 'I Kr kr g."cpf 37o o "tuenndng'vcr 'pget'y g'ect'r ctmli ctei g0	6	P q0		
3402	FOUL DRAINAGE Take delivery, install and commission the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to manufacturers printed instructions and manufactured by reputable manufacturers. All pipes and fittings in this installation shall be UPVC to B.S 4660 and B.S 4515. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system. The installation must comply with B.S 5572. Pipes				
3403	322o o "f lco gygt'j gcx{ 'i cwi g'i tg{ 'wr xe'r kr gu"	3:	No		
3404	322o o "f lco gygt'j gcx{ 'i cwi g'i qrf gp"dtqy p"vRXE'r kr gu	52	No		
3405	72o o "f lsvq	42	No		
3406	62o o "f lsvq	34	No		
	Elbows				
3407	322o o "f lcu'uy ggr "dgpfu	32	P q0		
3408	72o o "f lcu'f lsvq	:	P q0		
3409	62o o "f lcu'f lsvq	34	P q0		
	Tees				
3410	322o o "f lcu	6	P q0		
3411	72o o "f lcu'f lsvq	34	P q0		
34012	62o o "f lcu'f lsvq	:	P q0		
	Access/Rodding Elbow				
34013	322o o "f lcu	8	P q0		
34014	72o o	4	P q0		
34015	62o o	4	P q0		
	Cross tee				
34016	322o o "f lcu	4	P q0		
	Access Tee				
34017	322o o "f lcu	4	P q0		
	Weathering Slate/Vent Cowl				
34018	322o o "f lcu gygt'y gcj gtlpi "uvvg."cr tqp"cpf "xgpv'eqy r0'	4	P q0		
34019	100mm WC Connector	8	P q0		
	Floor Traps				
34020	322z"72o o "4'y c{ "tcr r gf "hqqt"tcr "cpf "i tcvlpi	8	P q		
	Waste uPVC plugs				
34021	322o o "f lcu	:	P q0		
	Boss Connectors				
34022	322z72o o "f lsvq	9	P q0		
34023	322z62o o "f lsvq	9	P q0		
TOTAL PAGE 32: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 33

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
34044	UgVqH'3P q062'mi 'i cu'e{ rpf gtu'eqo r ngv'y kj 'vpxgtucitgi wvqtu.dcmhgxgt" xcixgu'y kj '54o o 'f'lc'ercuu'E""Uggri'O cplhqr'f'r k g'3722o o 'hpi 'cpf 'Eqr r gt" wdlpi u'hqt 'tgi wvqtu'lpvgteqppgevkqp'ltqo 'i cu'e{ rpf gtu'vq'O cplhqr'f'cpf" o clp'uj w'qH'xcixg'qp'uw r n'f'r k g'q'Ncdqtcvqt{0	P q	3		
34045	Cmuy 'hqt'hkpi 'y g'i cu'E{ rpf gtu'y kj 'Nls wkhgf 'Rgtqrgwo 'i cu0 <u>Pipework</u> Uwr r n'f'cpf 'lpucmfi cixcpk'gf'o kf 'uggrwldpi 'vq'DU'35: 9'ercuu'E'cpf 'hskpi u' vq'DU'365'cpf'3478	M 0	62		
34046	37o o 'f'lc'o gvg't'r k g " Gzxc'qxgt'I O U'r k gy qtm	NO	:		
34047	37o o 'f'lc'o gvg't'dgpf " <u>Tees</u>	P q0	6		
34048	37"z'37"z'37o o 'f'lc'o gvg't'Vgg " <u>Xcixgu'NRI 'I cu'Eqemu+</u>	P q0	4		
34049	37o o 'dcmhgxgt'qr gtcvgf 'kuqrvkpi 'i cu'xcixg"	P q0	3		
3404:	8t o o 'f'lc0I o u'uqengvu'*P k r rgu+	P q	3		
3404;	8o o 'f'lc'i cu'eqemu	P q	3		
3502	HOT WATER SOLAR PANEL				
3503	Uwr r n'f'lpucmfc'pf'eqo o lukqp'c'522'htg'j qv'y cvgt'luqnt'r cpgrieqo r ngv'y kj " c'30'My 'grgextle'dqqvgt'wpl'cpf'f'r k lpi 'vq'eqppgevk'v'g'dwkrf lpi 'j qv'y cvgt" u{ugo 0Vj g'j qv'y cvgt'r cpgri'vq'dg'cul Y 'j qv'y cvgt'r cpgnu'qt'gs wcrf'cpf" cr r txxgf "d{ 'y g'Gpi kpggt0	3	P q		
3602	ROOF TANKS Uwr r n'f'f'grkxgt{ "cpf 'lpucmfc'vq'qh'y g'hqny lpi 'cu'ur gekhgf 'cpf 'f'guetldgf 'lp" yj g'r ctvwrt'ur gekhccvku'eqo r ngv'y kj 'cm'y g'pgeguact{ "uwr r qtu. 'hskpi u' cpf "ceeguqtkgu."cm'vq'y g'ucvkuhccvku'qh'y g'Gpi kpggt0 Water Tank				
3603	Uwr r n'f'f'grkxgt'cpf 'lpucmfxgt'leclenqugf "gpf 'r'ncu'e"o qwf gf 'vcpn'qh'ecr cels{ " 7222'htgu'*3322'i cmupu+cpf 'f'lc'o gvg't'4572'z'3482o o 'j ki j 0Vj g'vcpm'vq'dg" cuugo dngf 'eqo r ngv'y kj "eqxgt'cpf 'j cxkpi 'uetgy gf "eqppgevkpu'hqt 'kprgv" qwrgv'qxgthuy ."47o o 'j ki j 'r tguuwtg'dcmhxcixg.'f' tclp'r k gu'cpf 'cp{ 'qj gt" pgeguact{ 'lsgo 'hqt'ku'r tqr gt'hwpevkplpi 0Vj g'vcpn'uj cmldg'o qwpvgf 'qp'c'hnv' tqqh'urcd'cpf 'uj cmldg'cu'TQVQ'O qf grlqt'cr r txxgf "gs wxcrgp'0'f'ht'J qugtggr' hkg'hki j vki +	3	P q0		
TOTAL PAGE 33: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 34

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
3702	EXTERNAL WATER RETICULATIONS WORKS Uwr r r f . " f g k x g t . " l p u v c n l c p f " g u v E R X E / R P 4 2 " r k r g u " c p f " h k w k p i u " c u " f g u e t l d g f " c p f " l j q y p " q p " j g " f t c y l p i u 0 " T c v g u " o w u v c m j y " h q t " c n l O g v c n l r e u n l e " j t g c f g f " c f c r v q t u " y j g t g " t g s w k g f " h q t " j g " e q p p g e v k q p " q h " u c p k s c t { " h k z w t g u . " x c r k g u . " u q e n g v u . " u n k l p i " c p f " h k z g f " l q l p w u . " u w r r q t v " t c e g y c { u . " l u q r e v k p i " l j g c v j u . " g r e u n l e " o c v g t l c n u . " g z r c p u k q p " c t o u " c p f " d g p f u . " e t q u u x g t u . " e q w r k p i u . " e n k r l p i u . " e q p p g e v q t u . " l q l p w u " g e 0 " c u " t g s w k g f " l p " j g " t w p p l p i " h p i j u " q h " r k r g y q t n l c p f " c n u q " y j g t g " p g e g u c t { . " h q t " r k r g " h k z l p i " e n k r u . " j q r f g t " d c u " r n w i i g f " c p f " u e t g y g f " h q t " j g " r t q r g t " c p f " u c w u h c e v q t { " h w p e v k q p l p i " q h " j g " u { u n g o 0				
	CPVC PN20 PIPEWORK				
3708	72o o " f l c o g v g t " r k r g y q t m	47	No		
3704	62o o " f l c o g v g t " r k r g y q t m	52	No		
3705	54o o " f l c o g v g t " r k r g y q t m	3	No		
	Extra over tubing for:				
	Bends				
3706	54o o " f l c o g v g t " d g p f	8	P q 0		
3707	62o o " f l c o g v g t " d g p f	32	P q 0		
3708	72o o " f l c o g v g t " d g p f	32	P q 0		
	Tees				
3709	54o o " f l c o g v g t " g s w c n l v g g	:	P q 0		
370	62o o " f l c o g v g t " g s w c n l v g g	8	P q 0		
370	72o o " f l c o g v g t " g s w c n l v g g	8	P q 0		
	Reducers				
37082	54"z"62o o " f l c o g v g t " t g f w e g t " u q e n g v	6	P q 0		
37083	62"z"72o o " f l c o g v g t " t g f w e g t " u q e n g v	7	P q 0		
37084	54"z"72o o " f l c o g v g t " t g f w e g t " u q e n g v	8	P q 0		
	Gate Valves				
37085	72o o " f l c o g v g t " f l w q	4	P q 0		
37086	62o o " f l c o g v g t " f l w q	4	P q 0		
37087	54o o " f l c o g v g t " f l w q	3	P q 0		
	Pipe Sockets				
37088	72o o " f l c o g v g t " f l w q	37	P q 0		
37089	62o o " f l c o g v g t " f l w q	3:	P q 0		
3708:	54o o " f l c o g v g t " f l w q	4	P q 0		
	Male/Female Brass Threaded Adapters/Transition fittings.				
3708;	72o o " f l c o g v g t " f l w q	8	P q 0		
37042	62o o " f l c o g v g t " f l w q	6	P q 0		
37043	54o o " f l c o g v g t " f l w q	6	P q 0		
	Water Booster Pump Set				
37044	F w w " c p f " u n c p f d { " I t w p f h q u " c w q o c v l e " y c v g t " r w o r u g v " f q l p i " 4 o 5 l j " c i c k p u v " c j g c f " q h " 4 2 o " j g c f " e q o r n g v g " y k j " 8 2 n l r t g u u w t g " x g u u g n l " r t g u u w t g " u y k e j g u . " i c w i g u " c p f " e q p w t q n l r c p g n 0 R c p g n l v q " d g " h t q o " u n c p f c t f " c p q f k g f " l j g g v o g v c n l c p f " v q " e q p w c l p " x l u w c n l p f l e c v q t u . " r t q v e v k q p " t g n c { u . " x q n o g v g t . " c o o g v g t " c w q " o c p w c n l u g n g e v k q p " u y k e j " g v e 0 Q v j g t " e q o r q p g p w l p " r w o r " c u u g o d n l " c t g " 3 " h x g n l u g v h q t " n j y " h x g n l h q c v u y k e j g u " f t { " t w p " e w " q w w " 3 " u g v " q h " g r g e t l e c n l u { u n g o " l o g " f g n c { " u y k e j " g v e 0 V g p f g t g " q " p q v g " j c v r c p g n l y k l p i " f l c i t c o " y k n i t g s w k g " G p i k p g g t u " c r r t q x c n l r t k q t " q " k u " h d t l e c v k q p 0 V j g " g p f g t g t " k u " c n u q " q " c n j y " h q t " h d t l e c v k q p " q h " c " r w o r " j q w u l p i " c u " l j q y p " l p " j g " f t c y l p i u 0 V j g " u w r r r f " o w u v e q o g " e q o r n g v g " y k j " c n l v j g " x c r k g u . " h k w k p i u " t g s w k g f " q " o c n g " j g " u { u n g o " y q t n l c u " l p g p f g f 0	3	U g v		
TOTAL PAGE 34: TO COLLECTION SUMMARY PAGE					-

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 35					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
3802	FOUL WATER EXTERNAL DRAINAGE Uwr r n{."f grkxgt'cpf'lpucnly g'hqny lpi 'WRXE.'O WRXE.'uqk'cpf'y cug" u{ungo u'tgur gevkn{ "q'DU07477'y kj 'hskpi u'hkzgf "q'O cpwhcewtgu'Rtlpvgf " lpuntwekqpu'cpf'bo cpwhcewtgf "d{ 'tgr wcdng'bo cpwhcewtgtu0Vgpf gtgtu'bo wuv" cnny 'lp'yj gk'r k gy qtnlr tlegu'hqt'cnly g'eqwr dki u.'ekr r lpi u.'eqppgevqtu." lqkp'u'ge0cu'tgs wktgf 'lp'yj g'twppkpi 'hpi yj u'qh'r k gy qtnlcpf "cnq'yj gtg" pgeguact{.'hqt'r k g'hkz lpi 'ekr u.'j qrf gt'dcu'r nvi i gf "cpf "uetgy gf 'hqt'yj g" r tqr gt'cpf 'ucvukcevt{ 'hwpevkqkpi 'qh'yj g'u{ungo 0' MuPVC and uPVC Waste and Soil pipework				
3803	322o o 'f lco gvg't'j gcx{ 'i cwi g'i qrf gp'dtqy p'bo WRXE'r k rg0 Bends	67	No		
3804	322o o 'f lco gvg't'uy ggr "dgpf Tees	:	P q0		
3805	322o o 'f lco gvg't'uy ggr "vgg	6	P q0		
3806	Manhole Ucpcf tcf'bo cuqpt{ '872'z'872'o o 'd{ '672o o 'O cpi qng'eqo r ngv'y kj 'htco g" cpf "j gcx{ 'f w{ 'eqxgt0' Gully Traps 322'z'72o o 'Vtcr r gf 'hqt' i wnt 'y kj '4'P q062o o 'f lco gvg't'kprg'v'cpf'72o o " " f lco gvg't'qwwg'e ly '372'z'372o o 'hqt' i wnt 'y kj '322o o 'f lco gvg't'kprg'0Vj k{ " ku'q'eqo g'lp'522'z'522'o o "ts wctg'vqr'bo cuqpt{ 'i wng{ 'cpf '347o o 'y keni' eqpetgvg'eqxgt 'fpenf g'cnlpgeguact{ 'gzeccvqpu.'hqt o 'y qtnlcpf 'hpkuj lpi 0	7	P q0		
3807		4	P q		
3808	Cnny 'hqt'Vgukpi 'cpf'eqo o kulkqkpi 'qh'yj g'gpvtg'Rwo dki 'cpf'F tclpci g" U{ungo "q'yj g'Gpi kpggt'u'Crr tqxcn	3	Kgo		
3902	Fire Fighting Equipments Portable Fire Extinguishers Supply complete with brackets and ensure fire safety certificate				
3903	607ni 'Ectdqp'f kqzkf g'i cu'r qtcdng'hk'g'gzvki wkuj gt'e ly 'r tguwtg'i cwi g.'lpkkn' ej cti g'cpf'j cpi lpi 'j qqm0	6	P q0		
3904	702ni 'F t{ 'r qy f gt'f kqzkf g'r qtcdng'hk'g'gzvki wkuj gt'e ly 'r tguwtg'i cwi g." lpkkn'ej cti g'cpf'j cpi lpi 'j qqm0	6	P q0		
3905	Cnny 'hqt't'hk'gdcnleqo r ngv'y kj 'j qrf gt'cpf'qyj gt'hskpi u 'Hk'g'Drcpny 3044o "z'3044o 'hkg'drcpny=5/n{ gt'enqy 'y kj 'r tqgevkg'xcr qwt'dcttkt'cpf " gcu{ 'hqt'f gr nq{ o gpv'q'DCHG'cpf'DUGP "/3: 8; "crr tqxgf "cu'Mkf f g'qt'gs wen' cpf "crr tqxgf 0	3	P q		
3906		3	P q		
TOTAL PAGE 35: TO COLLECTION SUMMARY PAGE					

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 36

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
3: 02	SPLIT AIR CONDITIONING SYSTEM Supply and instal the following air conditioning installations complete with the associated accessories. Split Air Conditioning for Server Rooms. 9ny "46.222Dwlij +y cni'o qwp'gf "ur rks'ck"eqpf ksqpgt"eqo r rvg'y kj "uwr r qt v' dtcengvuVj g'lpf qqt "wpl'uj cni'dg'lpucngf "qp'j ki j y cni'K'uj cni'j cxg" o letqr tqeguuqt "eqpvtqu'y cv'o qpkqt "ucwu'qh'wpl'eqo r qpgpu'cpf " gpxktqpo gpxn'r ctco gvtu'hng'vgo r ctewt'g'cpf 'j wo k'k' (K'uj cni'dg'gs wlr r gf " y kj "c'uli pcnkpi "c'cto "q'lpf lecvg'f gvtktcvkqp'qh'eqpf ksqpu.Grgv'qple" g'zr cpukqp"xckxg."c'ucwu'f kur re { "r cpgr'cpf "cni'qy gt "pgeguuc { "eqpvtqnl' f g'xlegu(K'uj cni'qr gtcvg'qp "T632'tghki gtcvp'qt "cp { "qy gt "pqp'q' qpg'f gr rvg'pi " tghki gtcvp'cpf "uj cni'dg'Gpgti { "Uct "Tcvf (Vj g'wpl'uj cni'dg'cu'NI " "v' r g'qt" cr r tqxgf "gs wkcngp'0'penf g'o qwp'kpi "Dtcengvu'cu'pgeguuct {0	3	P q		
3: 04	3: 222'Dwlij "f kwq'cv'O ggvkpi 0'	3	P q		
3: 05	34222'Dwlij "f kwq'cv'Uwr gtxluqt)r'Q'Heeg."Tgegr vkp"cpf "O qpkqt'kpi "tqqo	5	P q		
3: 06	Refrigeration Pipework Tghki gtcvkqp'r kr gy qtnikpenf lpi "47o o "Co chgz'lpuwr'vkp'hqt'dqy "y g" rls w'f "cpf "i cu'ikpu0'	77	No		
3: 07	Refrigerant Cmuy "T632C'tghki gtcvp'hqt"ej cti lpi "ck"eqpf ksqplpi "u'vgo 0	3	Kgo		
3: 08	Drainage Pipework 47o o "RXE"eqpf gpucvg'f tclpci g'r kr gy qtnikpenf lpi "dgp'f u.'erkr u.'lqkpu'cpf " yggul'p'y g'twplkpi "rapi y u'q'h'y g'r kr g0	47	NO		
3: 09	Surge Protector Rqy gt'r tqgevkqp'wpl'cu'Uqrvgnl'qt "gs wcn'cpf "cr r tqxgf 0	7	P q		
3: 0	Mounting Bracket O qwp'kpi "dtcengv'hqt'y g'qwf qqt "wpl'eqo r rvg'y kj "c'eci g'cpf "r tqxkf gf "y kj " r wtr qug/o cf g'r tqgevk'g'uggnl'kqp'cpi ng'htco g'cpf "cni'qy gt "cpej qtkpi " ceeguuqt'kpu'penf lpi "t'cy n'dqnu'cpf "cpk'xldtcvkqp'twddgt'o qwp'kpi u'vq" gpi kpggt'u'cr r tqxcr0	7	P q		
3: 0	Uwr r r'f "cpf "lpucni'522o o "z'72o o "I "KVtc { u'hqt'y g'r kr g'y qtnilego r rvg'y kj " uwr r qt v'dtcengvu."j cpi gtu'cpf "Hkwtgu0	NO	72		
3: 02	Cmuy "hqt "J qkukpi "y g'Qwf qqt "C IE "WpksU'vq "Tqqh'Huqt "cpf "lpucnkpi "lp'y g" Rrcpv'Ctgc'cmqecvgf "	Kgo	3		
3: 03	Cmuy "hqt "Rtguwtg "Vgukpi ."Xcewwo lpi " "cpf "Tghki gtcvp'Ej cti lpi "	Kgo	3		
3: 04	Cmuy "hqt "Vgukpi "cpf "Eqo o kuukplpi "qh'y g'U'vgo "	Kgo	3		
TOTAL PAGE 36: TO COLLECTION SUMMARY PAGE					-

ELECTRO MECHANICAL WORKS PHASE TWO - BILL NO. 37					
ITEM No.	DESCRIPTION	UNIT	QTY	RATE (Kshs)	AMOUNT (Kshs)
19.0	CONTROL ROOM ELECTRICAL INSTALLATIONS				
3; 08	34'y c{ "VRP "Uwd/f kntkdwkqp"dqctf "%UF D/3+.'hnuj "o qwpvgf .y kj "322C"VR" o clpuy kej "cu'o cpwrcwtgf "d{ "etcdvtgg'y kj "hqenrdng"fqqt "eqpukukpi "qh< "/6'te"O ED'qh54C."3/r i "/32'teu"O ED'qh: C."3/r i "/32'te"O ED'qh54C."3/r i "/8'teu"lguatxg'r nveg."3/r i .eqo r nvg Lighting installation Light fittings complete with accessories, lamps and tubes, 1.5 mm² three core heat resisting cables and wiring to an adjacent lighting point (measured separately) and fixing	P q	3		
3; 04	Nki j wpi "r qkpu	P q	7:		
3; 05	8'Co r "qpg'i cpi "qpg'y c{ 'uy kej "c'etcdvtgg Lighting fittings	P q	37		
3; 06	72Y "NGF "Hqqf "Nki j v "Y cgt "Rtqqh "5222M "eqo r nvg'y kj "O qwpukpi "Dtcengw'cu" Rj kkr u'qt "cr r tqxgf "gs wxcrgpv	P q	:		
3; 07	3422o o "4z58Y "Vy kp "hnuqtuegpn'Devgp "cu"Rj kkr u'qt "cr r tqxgf "gs wxcrgpv	P q	42		
3; 08	34Y "Uwthceg"O qwpvgf "Tqwpf "NGF "hki j v'cu"Rj kkr u'qt "cr r tqxgf "gs wxcrgpv Final sub-circuits from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit, 2.5mm² PVC insulated copper cables, 2.5 mm² copper earthing cable including accessories and fittings	P q	52		
3; 09	Hnuj "o qwpvgf "uqengv//qwgwu'qh54C."3/r j . "442462x."72J \ . "lhf "y tqwi j "Ew" 5z40'o o 4"RXE "lpwrcvgf "E W'y kgu'lp"42o o "eqpf wku'eqo r nvg'y kj "lwpevkqp"dqzgu." eqppgevtu'cpi "ceeguatkgu Final sub-circuit from distribution board in cable and conduit installation comprising concealed heavy gauge PVC conduit 4mm² PVC insulated copper cables, 4mm² earthing cable including accessories.	P q	47		
3; 02	54C."5R- P- G'r qy gt "r qkpu'eqo r nvg'f "y kgt "lp"6"eqtq'6o o "RXE IUY C IRXE" eqr r gt "ecdrgu'f tcy p'lp"tvpnkpi "cpf "twplpi "htqo "y g'f kntkdwkqp"dqctf "q"y g"5'r j cug' 54C"uqengv'qwgvg'zenw'kpi "y g'uy kej gf "uqengv	P q	3		
3; 02	54C."622X."5R- P- G'Uwthceg"o qwpukpi "lpvgtuengf "uy kej gf "uqengv'qwgvg'eqo r nvg" y kj "ksu'qr "r nwi "cu"O MEcvP q0; 867"TCF ECDNPI "Y QTMU	P q	3		
3; 02	Uwr r n' "6E "z'47o o "Rxe IRxe IUY c IRxe "Ecdng'htqo "y g'NX "Dqctf "SNX"Rj cug'3\$'cv'v'j g" P gy "EqpvtqntTqgo "q"F kntkdwkqp "Dqctf "F D"ES'cv'v'j g"EqpvtqntTqgo 0'	o	42		
3; 03	Uwr r n' "cpf "lpucmiI cixcpk gf "ecdng'vc{ u'422'z'72'z'304o o "Vj lenicu" P cvkqpy kf g" Grgentlecn'kpf wntkgu"Nf "O cpwrcwtgf "qt"gs wcrilcpf "cr r tqxgf 0'	o	342		
3; 04	Uwr r n' "cpf "lpucmiI cixcpk gf "Rqy f gt "ecdng'vc{ u'422'z'72'z'50o o "Vj leniEqo r nvg" y kj "Mpqeniqw'Rrcvgu."cu"Uej plf gt "Grgentle"Nf "O cpwrcwtgf "qt"gs wcrilcpf " cr r tqxgf 0'	o	372		
TOTAL PAGE 37: TO COLLECTION SUMMARY PAGE					
TOTAL BILL CARRIED FORWARD TO SUMMARY SHEET					

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HYWb]W'6]X'

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HYWb]W'6]X!6UgY'6]X'

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G]hY'Cf[Ub]nUh]cb'

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A Yh\cX'GhUya Ybh'

.

A cV]]nUh]cb'GWYXi`Y'

.

7cbgfi W]cb'GWYXi`Y'

.

9G'A UbU[Ya Ybh'GfUy[]Yg'UbX' a d`Ya YbUh]cb'D`Ubg'

.

7cXY'cZ7cbXi W]fDGL'

.

9ei]da Ybh'

.

?YmDYfgcbbY'GWYXi`Y'`

.

Ch\Yfg!`CdYfUh]cb'UbX'a U]bhYbUbW'd`Ub'

.....

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"

HYWbJW 6JX! 6UgY 6JX

ⒸchY Zcf JbZfa Uhcb cZ 6JXXYf. 6JXXYfg gU XYa cbgfuHr Vta d JUbW k Jh hY 9a d'cnYfAj fYei JfYa YbHg UbX HYWbJW GdYVWUhcbg Ug XYgWVYX Jb GYVhcb J = cZ hY 6JXXJb 8cW a YbHg 5bmXYdUfhi fYgcfXYj JUhcbgZca hY fYei JfYX HYWbJW GdYVWUhcbg gU VY \J \J \hYX UbX JZ hY fY UfY bcbYzZ Vta d JUbW gU VY VtbZfa YX

hY 6JXXYf gU dfcj JXY hY HYWbJW 6JX Zcf hY 6UgY! 6JX Vta d YHr Jb U fYgdYVhJbW XJb HYWbJW JbZfa Uhcb UbX ghUbXUFXgZ VtXYgZ XYgJ bgUbX gdYVWUhcbgZcZK cf_gcZYZYX Ucb k Jh U XcW a YbUhcb a YbhcbYX Jb #6 % UbX GYVhcb J = cZ hY 6JXXJb 8cW a Ybh hY Jg k JbW XYfY Yj Ubh JhYfuh fYgZUfUcfXfuk Jb gZHYghfYg hgUbX chYfYg ddcfhJb XcW a YbHg JbW XJb U JbZfa Uhcb fYei YghYX Jb hY 6JXXJb 8cW a Ybh UbX Ug a UmVY bYVWgUfmihc YghUV Jg VtbZfa Jhmik Jh hY 9a d'cnYfAj GdYVWUhcbg UbX fYei JfYa YbHg

5bm XYj JUhcbg Jb hY HYWbJW ghUbXUFXgZ VtXYgZ XYgJ bg cf gdYVWUhcbg cf chYf fYei JfYa YbHgZca hY cgY ghYX Jb hY 6JXXJb 8cW a YbHg gU VY YI d UjbYX JbXJUhcb hY YJf Ja dUmhcb hY dYfZca UbW fYei JfYa YbHgZVUfUfYghJgJ cf dUfUa YHfYg cZ hY k cf_g Hc hY Jg YbXZ Zcf Ubmig W XYj JUhcbg hc VY UMWdHUV YZ 6JX gU YghUV Jg hc hY ghJgZUmhcb cZ hY 9a d'cnYfY VghUbhU fYgdcBgJ YbYgg hc hY fYei JfYX HYWbJW gdYVWUhcbg VmYI d UjbJb UbX XcW a YbhJb Zcf hY cZYZYX k cf_gZ fYei Jj UYbVmk Jh cf Ja dfcj Ya Ybh hc hY fYei JfYX HYWbJW ghUbXUFXgZ VtXYgZ XYgJ bg UbX GdYVWUhcbg

5bmA UcfXYj JUhcb Zca hY 9a d'cnYfAj fYei JfYa YbHg gU VY hY WU gY Zcf fYVhcb cZ hY 6JX 5bmXYj JUhcb k \JW Jb hY 6JXXYfAj cdJbJb Jg VtbJgXYfYX a JbcfZ hY 6JXXYf gU dfcj JXY Yj JXYbW hc hY Jg YZYVh JbW XJb Yj JXYbW cZ Ubm a cbYUfmi Ja d JUhcbg WU gYX Vmigi W XYj JUhcb hY 9a d'cnYfAj Yj Ui Uhcb gU VY JbXYdYbXYbh cZ 6JXXYfAj cdJbJb cb gi W a UHfYg UbX gU VY ZbUQ

"

G]hY`C f[Ub]nUh]cb`

QbgYfhG]hY`C f[Ub]nUh]cb`]bZcfa Uh]cbQ

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h . . . "

A Yh̄cX'Gh̄h̄Ya Ybh̄

QbgYfh̄A Yh̄cX'Gh̄h̄Ya Ybh̄Q

H̄Y'a Yh̄cX'gh̄h̄Ya Ybh̄g\ci `X'j̄bW̄i XY'h̄Y'a Ubi Z̄W̄i fYfg'h̄V̄W̄b]W̄'XŪH̄'g\YYhg'UbX'
ei c̄h̄Ūh̄cbg'Z̄cf'gi dd'm̄i UbX'j̄bḡh̄Ū'Ūh̄cb'cZ h̄Y'Y'YV̄W̄fca YV̄W̄Ub]W̄'V̄t̄a dcbYbh̄gž
gi Va j̄h̄YX'UḡdUfh̄cZ̄h̄Y'6]X'UbX'U[fȲYX'UḡdUfh̄cZ̄h̄Y'7cb̄fŪW̄i"

A cV]nUhcb'GMXYXi`Y`

QbgYfhiA cV]nUhcb'GMXYXi`YQ

4b`UWwcfXUbW`k Jh`hY`Dufh]W`Uf`7cbX]h]cbgZGi V! 7`Ui gY`(`%ZhY`7cbhfUWwcf`g\U`bch`
Wffmici h`a cV]nUhcb`hc`G]hY`i b`Ygg`hY`9b[]bYYf`[]j Yg`WcbgYbhi`h`Uh`Uddfcdf]UhY`
a YUg`fYg`UfY`]b`d`UW`hc`UXXfYgg`Ybj`]fcba`YbH`UbX`gcV]U`f]g_g`UbX`]a dUWwZk`\\W`Ug`
U`a]b]a i`a`g\U`]bW`XY`Udd`m]b[`hY`A`UbU[Ya`Ybhi`GfUHY[]Yg`UbX`a d`Ya`YbH]cb`
D`Ubg`fA`G=Dg`UbX`7cXY`cZ`7cbXi`W`Zcf`7cbhfUWwcf`Ag`DYfgcbbY`Zgi`Va`]hYX`Ug`dUfhicZ`
hY`6]X`UbX`U[fYYX`Ug`dUfhicZ`hY`7cbhfUWwcf`

7cbghfi Wjcb'GWYXi`Y`

QbgYfh7cbghfi Wjcb'GWYXi`YQ

HA YWcbghfi Wjcb'gWYXi`Y'g\U`jbW XYhAYZc`ck jbl`_Yma jYghcbYg`

fUk Bc!cVYWjcb'hc'hAY7cbhfUMcfAgA G=Dgžk \jW Wc`YWjji Y'mZcfa`hAY7!9GA Džjb`
UMWfXUbW'k jh'hAY'DUfhjW'Uf`7cbXjhcbg'À GdYVjU'dfcj jg]cbg'Gi V!7'Ui gY`("%"
fVl 7cbghfi h]cb'cZHAY'8556`

"

9G'A UbU[Ya YbhGhfUHY[]Yg'UbX' a d`Ya YbhUjcb'D`Ubg`

fPG! A G-DL`

H\Y'6]XXYf'g\U``g Va]hVta dfY\Ybgj] Y'UbX'VtbWjY'9bj]fcba YbhU' UbX'GcVjU' fPG! A UbU[Ya YbhGhfUHY[]Yg'UbX' a d`Ya YbhUjcb'D`Ubg'fPG! A G-DL`Ug'fYei]fYX'Vm+K`%%` fLcZH\Y'6]X'8UH'G\YYH'H\YgY'ghfUHY[]Yg'UbX'd`Ubg'g\U``XYgWjVY']b'XYHU]'H\Y'UM]cbgZ a UHYf]UgZ'Yei]da YbhZ a UbU[Ya YbhdfcWggYg'YhW'hUh'k]``VY']a d`Ya YbhYX'Vm'hY' 7cbhfUMfcfZUbX']hg'j VVtbhfUMfcfg``

h'XYjY`cd]b['H\YgY'ghfUHY[]Yg'UbX'd`UbgZ h\Y'6]XXYf'g\U``\UjY'fY[UfX'hc' h\Y'9G dfcj]g]cbgjcZH\Y'VtbhfUM]bW X]b['h'cgY'Ug'a UmVY'a cfY'Z ``mXYgWjVYX']b'hY'K cf_g' FYei]fYa Ybhg']b'GYV]cb'J`="`

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7cXY'cZ7cbXi VmZcf'7cbhfUMcfAgDYfgcbbY'fDGL: cfa

Note to the Employer:

The following minimum requirements shall not be modified. The Employer may add additional requirements to address identified issues, informed by relevant environmental and social assessment.

The types of issues identified could include risks associated with: labour influx, spread of communicable diseases, O - - - - - O - O = - etc.

Delete this Box prior to issuance of the bidding documents.

Note to the Bidder

The minimum content of the Code of Conduct form as set out by the Employer shall not be substantially modified =

#

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#

#

7C89C: 7CB8I 7H: CF 7CBHF57HCFAGD9FGCBB9@

K Y'UFY'hY'7cbhfUMcfZQYbhYf'bUa Y'cZ7cbhfUMcfQ'K Y'\Uj Y'g] bYX'U'VcbhfUMk]h' QYbhYf'bUa Y'cZ9a d'cmYfQZcf'QYbhYf'XYgM]dh]cb'cZH Y'K cf_g'Q'HYgY'K cf_g'k]''VY' Wuff]YX'ci h'Uh'QYbhYf'h Y'G]h'UbX'ch Yf'c'W]h]cbgk \YfY'h Y'K cf_g'k]''VY'Wuff]YX'ci h' Ci f'VcbhfUMfYei]fYgi g'hc'ja d'Ya Ybhia YUgi fYg'hc'UXXfYgg'Ybj]fcb a YbhU'UbX'gc'VU' f]g_g'fY'UHYX'hc'h Y'K cf_g']bW X]b['h Y'f]g_g'cZgYi U'YI d'c]h]cbz'gYi U'UVi gY'UbX' gYi U'\UfUgga Ybh'

H.]g'7cXY'cZ7cbXi Vm.]g'dUfhcZci f'a YUgi fYg'hc'XYU'k]h'Ybj]fcb a YbhU'UbX'gc'VU' f]g_g'fY'UHYX'hc'h Y'K cf_g']h'Udd']Yg'hc'U'ci f'g'UZZ'UVci fYfg'UbX'ch Yf'Ya d'cmYg'Uh' h Y'K cf_g'G]h'cf'ch Yf'd'UW'gk \YfY'h Y'K cf_g'UFY'VY]b['Wuff]YX'ci h']h'Ugc'Udd']Yg' hc'h Y'dYfgcbbY'cZYUW'g' VVcbhfUMcf'UbX'Ubmch Yf'dYfgcbbY'Ugg]h]b['i g']b'h Y' YI YW]h]cb'cZH Y'K cf_g']5''g' Vm'dYfgcbg'UFY'fYZffYX'hc'Ug'7cbhfUMcfAgDYfgcbbY'7' UbX'UFY'g' VYVh'hc'h.]g'7cXY'cZ7cbXi Vm'

H.]g'7cXY'cZ7cbXi Vm.]XYbh]ZYg'h Y'VY\Uj]cf'h'Uh'k Y'fYei]fY'Zca 'U'7cbhfUMcfAgDYfgcbbY''''

Ci f'k cf_d'UW']g'Ub'Ybj]fcb a Ybhk \YfY'i bgUZYzcZYbg]j YzUWi g]j Y'cf'j]c'YbhVY\Uj]cf' k]''bchVY'hc'YfUHYX'UbX'k \YfY'U'dYfgcbg'g'ci 'X'ZY'Vta ZcfUWY'fU]g]b[']gg' Yg'cf' VcbWf'bg'k]h'ci h'ZYUf'cZYfU']h]cb''

F9EI F98'7CB8I 7H'

7cbhfUMcfĀjDYfgcbbY`g\U`:

%" Wffmci h\jg#AYfXi hYgVta dYHbhimUbX`X`][Ybhim/

&" Vta d`mk]h`h\jg7cXY`cZ7cbXi VmUbX`U`Udd`]WV`Y`Uk gžfY[i`Uh]cbg`
UbX`chYf`fYei]fYa Ybhgž]bWl X]b[`fYei]fYa Ybhg`hc`dfchVW`hY`
\YU`hžgUZymUbX`kY`!VY]b[`cZchYf`7cbhfUMcfĀjDYfgcbbY`UbX`Ubmi
chYf`dYfgcb/`

' " a U]bhU]b`U`gUZ`kcf_]b[`Ybj]fcb a Ybh]bWl X]b[`Vm`

(" Ybgf]b[`hUh`kcf_d`UWgž a UW]bYfmž Yei]da Ybh`UbX`dfcWggYg`
i bXYfYUW`dYfgcbĀjVtbfrc`UfYgUZ`UbX`k]h`ci hf]g`hc`\YU`h/`

)" kYUf]b[`fYei]fYX`dYfgcbU`dfchVW]jY`Yei]da Ybh`...

*" i g]b[`Uddfcdf]UHY` a YUgi fYg`fY`Uh]b[`hc`VWYa]Wž d\ng]W`UbX`
V]c`c[]W`g`VghUbWg`UbX`U[Ybhg/UbX`

+" Zc`ck]b[`Udd`]WV`Y`Ya Yf[YbWmcdYfUh]b[`dfcWXi fYg`

, " fYdcfh`kcf_]g]h`Uh]cbg`hUh`\Y#g\Y`VY`Yj Yg UfY`bch`gUZ`cf`\YU`hmi
UbX`fYa cjY`\ja gY`Z#YfgY`Z Zfca`U`kcf_]g]h`Uh]cb`k\]W`\Y#g\Y`
fYUgcbU`miVY`Yj Yg dfYgYbhg`Ub`ja a]bYbh`UbX`gyf]ci g`XUb[Yf`hc`
\jg#AYf`]Z`cf`\YU`h/`

- " hfYUich`Yf`dYcd`Y`k]h`fYgdYWžUbX`bchX]gW]a]bUHY`U[U]bghgdYW]ZW
[fci dg`gi W`Ug`k`ca YbždYcd`Y`k]h`X]gUV`]hYgž a][fUbhkcf_Yfg`cf`
W]XfYb/`

%" bchYb[U[Y`]b`GYI i U`<UfUgga Ybhžk\]W`a YUbg`i bkYVta Y`gYI i U`
UXj UbWgž fYei Ygth`Zcf`gYI i U`Z]j cfgž UbX`chYf`j YfVU`cf`d\ng]W`
VtbXi Vm`cZ U`gYI i U`bUhi fY`k]h`chYf`7cbhfUMcfĀjcf`9a d`cmYfĀj
DYfgcbbY/`

%" bchYb[U[Y`]b`GYI i U`9ld`c]hUh]cbž k\]W`a YUbg`Ubmi UWm`U`cf`
UhYa dhYX`Uvi gY`cZ dcg]h]cb`cZj i `bYfUV`]hmž X]ZYfYbh]U`dckYf`cf`
hfi gž Zcf`gYI i U`di fdcgYgž]bWl X]b[ž Vi h bch`ja]hYX`hcž dfcZ]h]b[`
a cbYHuf]nž gcVU`mcf`dc`]h]W`m`Zfca`hY`gYI i U`Yld`c]hUh]cb`cZ
UbchYf/`

%&" bchYb[U[Y`]b`GYI i U`5Vi gYžk\]W`a YUbg`hY`UWm`U`cf`h`fYUHYbYX`
d\ng]W`]bhfi g]cb`cZ U`gYI i U`bUhi fYž k\YhYf`Vm`ZcfW`cf`i bXYf`
i bYei U`cf`VtYfV]jY`VtbX]h]cbg/`

% " bchYb[U[Y`]b`UbmiZcf a`cZgYI i U`UW]j]hmik]h`]bX]j]Xi Ug`i bXYf`hY`
U[Y`cZ% žYI Wdh]b`WgY`cZdfY!YI]gh]b[`a Uff]U[Y/`

%("Vta d'YH' fY'Yj Ubh'fU]b]b['Vti fgYg'h Uh'k]'' VY' dfcj]XYX' fY'UH'X' hc' h'Y'Ybj]fcb' Yb'U' UbX' gc'V]U' Ugd'YVtg' cZ'h'Y' 7cb'fUM'Z']bW' X]b['cb' \YU'h' UbX' gUZY'mia UH'Yfg'Z'GYI i U'9' d'c]fU]cb' UbX' 5Vi gY' fG95t'Z' UbX' GYI i U' < UfUgga Yb'f'G< t/

% " fYdcfhj]c'Uh]cbg'cZ'h.]g'7cXY'cZ7cbXi V'W'UbX'

% " bch'fYH'U]UH'U[U]bgh'Ubmd'Yfgcb'k \c' fYdcfhj]c'Uh]cbg'cZ'h.]g'7cXY' cZ7cbXi V'Z'k \Y'h'Yf'hc' i g'cf'h'Y'9a d'cm'f'Z'cf'k \c'a U_Ygi gY'cZ'h'Y' [f]Y] UbW' a YV'U]b]ga ' Zcf' 7cb'fUM'Z'f'Ag DYfgcbbY' cf' h'Y' dfc'YV'Ag ; f]Yj UbW' FYX'fYgg'A YV'U]b]ga '"

F5-GB; '7CB79FBG'

ZUbmd'Yfgcb'cVgYfj Yg'VY\Uj]cf'h'Uh'\Y#g\Y'VY'Yj Yg'a Um'fYdfYgYb'U'j]c'Uh]cb'cZ'h.]g' 7cXY'cZ7cbXi V'Z'cf'h'Uh'ch'Yfk]gY'V'Z'bW'fbg'\ja #\Yf'Z'\Y#g\Y'g'ci 'X'fU]gY'h'Y'ggj Y' dfca dh'm'h'g]V'Ub'VY'XcbY']b'Y]h'Yf'cZ'h'Y'Zc'ck]b['k'Umg'

- 7cb'fUM'Z'f'Ag'Yb'f'f'b'Ua Y'cZ'h'Y'7cb'fUM'Z'f'Ag'Gc'V]U'9' d'Yf'h'k]h' fY'Yj Ub'h'YI d'Yf]YbW']b' \UbX']b['gYI i U'YI d'c]fU]cb'Z'gYI i U'U'Vi gY'UbX'gYI i U' \UfUgga Yb'h'V'UgY'g'Z'cf']Z'gi V' d'Yfgcb']g' bch'fYei]fYX' i bXYf'h'Y'7cb'fUM'Z'f'Ag'Ub'ch'Yf']bX'j]Xi U'XYg] [bUH'X'V'm'h'Y' 7cb'fUM'Z'f'hc' \UbX'Y'h'YgY'a UH'Yfg'Q]b'k f]h]b['Uh'h.]g'UX'X'fYgg'O' Qcf'V'm'h'Y'd\cbY' Uh'O'Qcf']b' d'Yfgcb' Uh'O'Qcf'
- 7U' 'O'Q'hc' fYU'X' h'Y'7cb'fUM'Z'f'Ag'\ch]bY' f]Z'Ub'm'Z'UbX'Y'Uj Y'U'a YggU' Y''

H'Y' d'Yfgcb'Ag']XYbh]m'k]'' VY' _Ydh' V'Z'bZ'XYbh]U'Z' i b'Ygg' fYdcfh]b['cZ' U'Y[Uh]cbg']g' a UbX'UH'X'V'm'h'Y' V'Z' i bh'm'Uk '" 5bcb'ma ci g' V'Z'a d'U]b'hg'cf' U'Y[Uh]cbg' a Um'Ugc' VY' gi Va]h'Y'X'UbX'k]'' VY' []j Yb'U' 'Xi Y'UbX'Udd'fcd'f]UH'Y'V'Z'bg]XY'fU]h]cb'"K' Y'HU_Y'gYf]ci g'mi U' fYdcfh'g'cZ'dcgg]V'Y'a]g'V'Z'bXi V'U'UbX'k]'']bj Yg'h] [UH'Y'UbX'HU_Y'Udd'fcd'f]UH'Y'U'V'm]cb'"K' Y' k]'' dfcj]XY'k Ufa' fYZY'ffU'g'hc'gYfj]W' dfcj]XY'f'g'h'U'ha Um'Y'd'gi ddc'f'h'Y'd'Yfgcb'k \c' YI d'Yf]YbW'X' h'Y'U'Y[YX']b'V]XY'b'h'Z'Ug'Udd'fcd'f]UH'Y''

H'Y'fY'k]'' VY'bc' fYH'U]Uh]cb'U[U]bgh'Ubmd'Yfgcb'k \c' fU]gY'g'U'V'Z'bW'fb']b['ccX'ZU]h'U'V'ci h' Ubm'VY\Uj]cf'dfc\]V]h'Y'X'V'm'h'g'7cXY'cZ7cbXi V'U'Gi V' fYH'U]Uh]cb'k ci 'X'VY'Uj]c'Uh]cb' cZ'h.]g'7cXY'cZ7cbXi V'U''

H'Y'fY'k]'' VY'bc' fYH'U]Uh]cb'U[U]bgh'Ubmd'Yfgcb'k \c' fU]gY'g'U'V'Z'bW'fb']b['ccX'ZU]h'U'V'ci h' Ubm'VY\Uj]cf'dfc\]V]h'Y'X'V'm'h'g'7cXY'cZ7cbXi V'U'Gi V' fYH'U]Uh]cb'k ci 'X'VY'Uj]c'Uh]cb' cZ'h.]g'7cXY'cZ7cbXi V'U''

7CBG9E I 9B79G'C: 'J-€@5HB; 'H<9'7C89'C: '7CB8I 7H'

5bmj]c'Uh]cb'cZ'h.]g'7cXY'cZ7cbXi V'U'V'm'7cb'fUM'Z'f'Ag' DYfgcbbY' a Um'fYgi 'h]b'gYf]ci g' V'Z'bg'Yei YbW'g'Z' i d' hc' UbX']bW' X]b[' h'Yfa]bUh]cb' UbX' d'cgg]V'Y' fYZY'ffU' hc' 'Y[U' U' h'cf]h]Yg''

"

: CF`7CBHF57HCFÅG'D9FGCBB9@`

≡\UjY`fYW]jYX`U`VēdmīcZ h\]g`7cXY`cZ 7cbXi Vti k f]HtYb`]b`U`Ub[i U[Y`h\Uh`≡
Vēa dfY\YbX""≡i bXYfgUbx`h\Uh]Z≡\UjY`Ubmieī Ygh]cbg'UVci h\h\]g`7cXY`cZ 7cbXi Vē≡
VUb`VēbhUMti QbhfY`bUa`Y`cZ 7cbhfUMtcfÅg`VēbhUMti dYfgcb`k jh`fY`Yj Ubh`Yl dYfjYbWQ
fYei Ygh]b[`Ub`Yl d`UbUh]cb""

B Ua`Y`cZ 7cbhfUMtcfÅg`DYfgcbbY`. QbgYfhibUa`YQ`

G][bUhi fY.`SS`

8UHY.`fXUma`cbh\`nYUfL`SS`

7ci bhYfg][bUhi fY`cZUi h\cf]nYX`fYdfYgYbhUhj`Y`cZ h\Y`7cbhfUMtcf.`

G][bUhi fY.`SS`

8UHY.`fXUma`cbh\`nYUfL`SS`

**5H57<A 9BH`%`6Y\Uj`]cfg`Vēbgh]hi h]b[`GYI i U`9l d`c]hUh]cb`UbX`5Vi`gY`fG95L`UbX`
VY\Uj`]cfg`Vēbgh]hi h]b[`GYI i U`<UfUgga`YbhifG<L`**

"

5H57<A 9BH%HC`H<9'7C89C: `7CB8I 7H: CFA`

69<5J-€FG7CBGHH HB; `G9LI 5@9LD@#5HCB`5B8`56I G9fG95L5B8`
69<5J-€FG7CBGHH HB; `G9LI 5@<5F5GGA 9BHfG<L`

H`Y`Zc``ck`b[`bcb!YI\Ui`ghj`Y``ghjg]bhhbXYX`hc`j`i`gfUHY`mdYgcZdfc\jVjHYX`
VY\Uj]ci fg`

*3+ 9!Ua d`YgcZgYI i U`YI d`c]fUhc b`UbX`Uvi gY`]bWl XYZVi hUfY`bch`ja`jHYX`hc`.

- 5`7cbhfUWcfAgDYfgcbbY`hY`gU'a Ya VYf`cZH`Y`Wta a i b]m`hUh\Y#g\Y`
WUb[`YhhYa`cVg`fY`UHYX`hc`hY`k`cf`_g]hY`fY`["Wtc`_b[`UbX`WUUb]b[`L`
]b`YI`WUUb[`Y`Zcf`gYI`"
- 5`7cbhfUWcfAgDYfgcbbY`hUh]g`WtbbYW]b[`Y`YVf]V]m]bdi h`hc`
\ci`gY\c`Xg`gUhg`hUh\Y`WUb`WtbbYW]k`ca`Yb`\YUXYX`\ci`gY\c`Xg`hc`hY`
[`f]X`]b`YI`WUUb[`Y`Zcf`gYI`"
- 5`7cbhfUWcfAgDYfgcbbY`fUdYgZcf`ch`Yfk`]gY`gYI i U`mUggUi`hg`U`
a Ya VYf`cZH`Y`Wta a i b]m`i`
- 5`7cbhfUWcfAgDYfgcbbY`XYb]Yg`U`dYfgcb`UWVgg`hc`hY`G]hY`i`b`Ygg`
\Y#g\Y`dYfZcfa`g`U`gYI i U`ZUj`ci`f`""
- 5`7cbhfUWcfAgDYfgcbbY`hY`gU`dYfgcb`Udd`m]b[`Zcf`Ya`d`cma`Ybhi`bXYf`
hY`7cbhfUWcfAgDYfgcbbY`hUh\Y#g\Y`k`]`cb`m\]fY`\ja`#Yf`]Z\Y#g\Y`Ug`gYI`k`j]h`
\ja`#Yf`""

*4+ 9!Ua d`YgcZgYI i U`\UfUgga`Ybh]b`U`k`cf`_WtbbYI h`

- 7cbhfUWcfAgDYfgcbbY`Wta a`Ybhicb`hY`UddYUfUbW`cZUbch`Yf`
7cbhfUWcfAgDYfgcbbY`fY]h`Yf`dcg]h]j`Y`cf`bY[`Uh]`YtUbX`gYI i U`
XYgj]fUV]]m`i`
- K`Yb`U`7cbhfUWcfAgDYfgcbbY`Wta d`U]bg`UVci`h`Wta a`Ybhg`a`UXY`Vm`
Ubch`Yf`7cbhfUWcfAgDYfgcbbY`cb`\]g`#Yf`UddYUfUbW`Zh`Y`ch`Yf`
7cbhfUWcfAgDYfgcbbY`Wta a`Ybhi`hUh\Y#g\Y`]g`Ug`_b[`Zcf`]h`VYVW]i`gY`
cZ\ck`Y`#g\Y`XfYggYg`"
- I`bk`Y`Wta`Y`hci`W]b[`cZU`7cbhfUWcfAgDYfgcbbY`9a`d`cmYfAgDYfgcbbY`Vm`
Ubch`Yf`7cbhfUWcfAgDYfgcbbY`""

"

- 5`7cbhfUWcfÅjDYfgcbbY`h`gUbch\Yf`7cbhfUWcfÅjDYfgcbbY`h`Uh`
\Y#g\Y`k`][Yh\]a`#Yf`U`gUfmfUjgYžcf`dfca`ch]cb`]Z\Y#g\Y`gYbXg`
\]a`#Yf`bU_YX`d\chc[fUd\g`cZ\]a`gY`Z#YfgY`Z`

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"

CdYfUjcb`UbX`A UjbybUbW`D`Ub`

QbgYfhCdYfUjcb`UbX`a UjbybUbW`d`UbQ

HA`Y`VebhfUMfc`k`J`VY`fYei`jFYX`hc`dYdUFY`Ub`CdYfUjcb`UbX`A`UjbybUbW`d`Ub`h`Uh`
HU`Yg`j`b`hc`Vebg`jXYfUjcb`a`j`b`ja`i`a`cdYfUjcb`dYfjcX`cZUh`YUghicbY`mYUf`UZHYf`
jgg`UbW`cZHa`Y`dYfZcfa`UbW`WfhjZVUhy`"

HA`Y`7cbhfUMfc`g`U`XYZjbY`h`Y`[`YbYfU`fc`Yg`UbX`fYgdcbgjV`j]hYg`k`j`h`j`b`j`hg`
cf`Ub`j`g`Ujcb`UbX`h`Y`U`c`VUjcb`cZHa`Y`UggcVjUhyX`hUg`g`Zcf`h`j`g`7cbhfUMk`j`h`fY`[`UfXg`
hc`cdYfUjcb`UbX`a`UjbybUbW`"f#bW`X]b`[`gi`VebhfUMfc`fg`UbX`Veb`7cbhfUMfc`fgZ`UbX`
g`U`XYg`j`[`bUHY`U`VebhUMidYfgcb`Zcf`h`Y`C`/`A`dYfjcX`"

`6UgYX`cb`j`hg`ck`b`UbU`ng`j`g`h`Y`d`Ub`Veb`j`Yfg`Uh`YUghicbY`Zc`ck`j`b`[`a`UHYfg`

- B`Y`Y`X`#Di`f`d`c`g`Y`Zcf`CdYfUjcbg`UbX`A`UjbybUbW`"
- DYfjcX`hc`Veb`j`Yf`#8i`fUjcb`"
- HA`Y`Veb`a`d`c`g`j`h`cb`UbX`dYfgcbbY`hc`i`bXYfhU`Y`h`Y`C`UbX`A`
- ?YmY`Ya`Yb`hg`cZHa`Y`Dfc`YVh`hc`VY`a`cb`j`hc`fYX`"

9HW

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: cfa '9E I . '9ei]da Ybh

H\Y'6]XXYf'g\U''dfcj]XY'UXYei UH']bZcfa Uh]cb'hc'XYa cbgfhUH'VWUf'mh\Uh]h\Ug'hY' WdUV']hm'hc' a YYh h\Y' fYei]fYa Ybhg' Zcf' h\Y' _YmYei]da Ybh']ghYX']b' GYV]cb' ⇒ 9j Ui Uh]cb'UbX'E i U']ZVUh]cb'7f]hYf]U''5'gYdUfUH': cfa 'g\U''VY'dfYdUfYX'Zcf'YUW']hYa ' cZYei]da Ybh']ghYXZcf'Zcf'UhfYfbUh] Y'Yei]da YbhdfcdcgYX'Vm'hY'6]XXYf''

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H\Ya 'cZYei]da Ybh'		
9ei]da Ybh']bZcfa Uh]cb'	B Ua Y'cZa Ubi ZUM' fYf'	A cXY'UbX'dck Yf'fUh]b['
	7UdUW]hm	MYUf'cZa Ubi ZUM' fY'
7i ffYbh' g\Uhi g'	7i ffYbh'cVUh]cb'	
	8YHU]'gcZWffYbh'Vt'a a]ha Ybhg'	
Gci fW'	bX]WUH'gci fW'cZh\Y'Yei]da Ybh' c' Ck bYX' c'FYbhYXc'@YUgYX' c'GdYV]U'ma Ubi ZUM' fYX'	

Ca]h'hY'Zc'ck]b[']bZcfa Uh]cb'Zcf'Yei]da Ybh'ck bYX'Vm'hY'6]XXYf''

Ck bYf'	B Ua Y'cZck bYf'	
	5XXfYgg'cZck bYf'	
	HY'Yd\cbY'	7cbhUM'bUa Y'UbX'h]hY'
	: U'	HY'YI'
5[fYYa Ybhg'	8YHU]'gcZfYbhU'#`YUgY'#a Ubi ZUM' fY'U[fYYa Ybhg'gdYV]ZVhc'h\Y'dfc'YVh'	

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: cfa 'D9F' !%

7cbhfUMcfÄjFYdfYgybHhjY'UbX'YmDYfgcbbY` GWYXi`Y`

6jXXYfgg\ci`X'dfcj]XY'hY'bUaYg'UbX'XYHJ]g'cZH'Y'g]HUV'meiU]ZjYX'7cbhfUMcfÄjFYdfYgybHhjY'UbX'YmDYfgcbbY`hc'dYfZcfa'hY'7cbhfUM'hY'XUH'cb'hY]f'YIdYf]YbW'g\ci`X'VY'gidd]YX'i]g]b['hY': cfa 'D9F'!&VY'ck'ZcfYUM'WUbX]XUH`"

7cbhfUMcfÄjFYdfYgybHhjY'UbX'YmDYfgcbbY`

%"	H hY'cZdcg hcb.'7cbhfUMcfÄjFYdfYgybHhjY'	
	B Ua Y'cZWbX]XUH.`	
	8i fU cb'cZ Uddc]bha Ybh'	Q bgYfh'hY'k\c`Y'dYf]cX'f gUfhUbX'YbX'XUH'gZcf'k\jM'h]g'dcg hcb'k']` VY'Yb[U[YXQ
	H a Y'Wta a]ha Ybh' Zcf'h]g'dcg hcb.'	Q bgYfh'hY'bi a VYf'cZXUng#k YY_#a cbh'g#hUh\Ug'VYYb'gWYXi`YX'Zcf' h]g'dcg hcbQ
	9 dYWMX'hja Y' gWYXi`Y'Zcf'h]g' dcg hcb.'	Q bgYfh'hY'YIdYWMX'hja Y'gWYXi`Y'Zcf'h]g'dcg hcb'fY["UfUMX\j[\`YjY` ; Ubth'WUffQ
&"	H hY'cZdcg hcb.'@bj]fcb a YbHU`GdYVjU]ghQ	
	B Ua Y'cZWbX]XUH.`	
	8i fU cb'cZ Uddc]bha Ybh'	Q bgYfh'hY'k\c`Y'dYf]cX'f gUfhUbX'YbX'XUH'gZcf'k\jM'h]g'dcg hcb'k']` VY'Yb[U[YXQ
	H a Y'Wta a]ha Ybh' Zcf'h]g'dcg hcb.'	Q bgYfh'hY'bi a VYf'cZXUng#k YY_#a cbh'g#hUh\Ug'VYYb'gWYXi`YX'Zcf' h]g'dcg hcbQ
	9 dYWMX'hja Y' gWYXi`Y'Zcf'h]g' dcg hcb.'	Q bgYfh'hY'YIdYWMX'hja Y'gWYXi`Y'Zcf'h]g'dcg hcb'fY["UfUMX\j[\`YjY` ; Ubth'WUffQ
' "	H hY'cZdcg hcb.'Q YU'h'UbX'GUZYImGdYVjU]ghQ	
	B Ua Y'cZWbX]XUH.`	
	8i fU cb'cZ Uddc]bha Ybh'	Q bgYfh'hY'k\c`Y'dYf]cX'f gUfhUbX'YbX'XUH'gZcf'k\jM'h]g'dcg hcb'k']` VY'Yb[U[YXQ

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.	Hja Y'Vta a Jra Ybh' Zcf'h.jgdcgjhcb.'	QbgYfhH Y'bi a VYf'cZXUng#k YY_#a cbh#g#h Uh\Ug'VYYb'gWYXi 'YX'Zcf' h.jgdcgjhcbQ
.	9 dYVMX'hja Y' gWYXi 'Y'Zcf'h.jgdcgjhcb.'	QbgYfhH Y'YI dYVMX'hja Y'gWYXi 'Y'Zcf'h.jgdcgjhcb fY"["UfUMX \J[\ 'Yj Y' ; Ubth'WUffQ
("	HjhY'cZdcgjhcb.'æcVJU'GdYVJU]gQ	
	B Ua Y'cZWbX]XUHY'...	
	8i fUjcb'cZ Uddc]bha Ybh'	QbgYfhH Y'k \c 'Y dYf]cX'fghUfHUbX'YbX'XUHYg'Zcf'k \JW'h.jgdcgjhcb'k']'' VY'Yb[U] YXQ
	Hja Y'Vta a Jra Ybh' Zcf'h.jgdcgjhcb.'	QbgYfhH Y'bi a VYf'cZXUng#k YY_#a cbh#g#h Uh\Ug'VYYb'gWYXi 'YX'Zcf' h.jgdcgjhcbQ
	9 dYVMX'hja Y' gWYXi 'Y'Zcf'h.jgdcgjhcb.'	QbgYfhH Y'YI dYVMX'hja Y'gWYXi 'Y'Zcf'h.jgdcgjhcb fY"["UfUMX \J[\ 'Yj Y' ; Ubth'WUffQ
)"	HjhY'cZdcgjhcb.'GYI i U'9 d'c]Ujcbz5Vi gY'UbX'<UfUgga Ybh9 dYfh' æ \ YfY'U Dfc'YMHG95'f]g_g'UfY'UggYggYX'hc' VY'g' VgUbh]U'cf'\J[\ Z?YmDYfgcbbY'g\ U']bWl XY'Ub YI dYfhk Jh' fY'Yj UbhYI dYf]YbW'Jb' UXXfYgg]b['gYI i U'YI d'c]UjcbzZgYI i U'UVi gY'UbX'gYI i U' \UfUgga Ybh'WUgYgQ	
.	B Ua Y'cZWbX]XUHY'	
.	8i fUjcb'cZ Uddc]bha Ybh'	QbgYfhH Y'k \c 'Y dYf]cX'fghUfHUbX'YbX'XUHYg'Zcf'k \JW'h.jgdcgjhcb'k']'' VY'Yb[U] YXQ
.	Hja Y'Vta a Jra Ybh' Zcf'h.jgdcgjhcb.'	QbgYfhH Y'bi a VYf'cZXUng#k YY_#a cbh#g#h Uh\Ug'VYYb'gWYXi 'YX'Zcf' h.jgdcgjhcbQ
.	9 dYVMX'hja Y' gWYXi 'Y'Zcf'h.jgdcgjhcb.'	QbgYfhH Y'YI dYVMX'hja Y'gWYXi 'Y'Zcf'h.jgdcgjhcb fY"["UfUMX \J[\ 'Yj Y' ; Ubth'WUffQ
*"	HjhY'cZdcgjhcb.'QbgYfhHhYQ	
	B Ua Y'cZWbX]XUHY'	
	8i fUjcb'cZ Uddc]bha Ybh'	QbgYfhH Y'k \c 'Y dYf]cX'fghUfHUbX'YbX'XUHYg'Zcf'k \JW'h.jgdcgjhcb'k']'' VY'Yb[U] YXQ
	Hja Y'Vta a Jra Ybh' Zcf'h.jgdcgjhcb.'	QbgYfhH Y'bi a VYf'cZXUng#k YY_#a cbh#g#h Uh\Ug'VYYb'gWYXi 'YX'Zcf' h.jgdcgjhcbQ
	9 dYVMX'hja Y' gWYXi 'Y'Zcf'h.jgdcgjhcb.'	QbgYfhH Y'YI dYVMX'hja Y'gWYXi 'Y'Zcf'h.jgdcgjhcb fY"["UfUMX \J[\ 'Yj Y' ; Ubth'WUffQ

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: cfa 'D9F!&'

FYgi a Y'UbX'8YWUfUjcb'

'7cbhfUWfA'FYdfYgYbhUj Y'UbX'?YmDYfgcbbY''

B Ua Y'cZ6]XXYf'
.

Dcglhcb'Q %QhY'cZdcglhcb'Zca : cfa 'D9F!%Q		
.		
DYfgcbbY']bZcfa Uhcb'	B Ua Y.' .	8UHY'cZV]fh\.'
.	5XXfYgg'	9!a U].'
.	.	.
	DfcZYgg]cbU'ei U']ZWH]cbg'	
	5WXYa]Wei U']ZWH]cbg'	
	@ub[i U[Y'dfcZYbWm' Cub[i U[Y'UbX''Yj Y'g'cZgdYU_]b[žfYUX]b['UbX' k f]h]b['g_]`gQ	
8YHU]g'	.	
	5XXfYgg'cZYa d`cmYf.'	
	HY'Yd\cbY.'	7cbhUWfA UbU[Yf'#dYfgcbbY' cZ]WfL'
	: U.'	.
	æV'h]hY.'	MUfg'k]h' dfYgYbhYa d`cmYf.'

Gi a a Uf]nY'dfcZYgg]cbU'YI dYf]YbW']b'fYj YfgY'Wfcb`c[]W'cfXYf''bX]WUHY'dUfh]W'Uf' hYWb]W'UbX'a UbU[Yf]U'YI dYf]YbW'fY'Yj Ubhlc'hY'dfc'YVh'

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7ca a YfVU`HYfa g'UbX`7cbX]hcbg'

..

Ø]XXYf'g\U``gdYVZmUbmXYj]Uhcbg'hc'h\Y'dfcj]g]cbg'cZh\Y'6]XX]b['8cW'a Ybhfc'h\Yf'
h\Ub'HYW\ b]WU' GdYVZ]WUhcbg']b'dUfh]W`Uf'h'cgY'gdYVZ]YX']b'DUfh' 'cZ h\Y'6]XX]b['
XcW'a Ybh']bW X]b[' ; YbYfU'UbX'DUfh]W`Uf'7cbX]hcbg'cZ7cbhfUW' ZÂBcbYÃ']hg\U``
VY'VcbZ]fa YX'UWVcfX]b[`nQ

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6]XXYfg'E i U]ZVh]cb'k]h'ci h'dfYei U]ZVh]cb'

Hc'YghUV]g\]h'ei U]ZVh]cbg'hc'dYfZcfa 'h'Y'VtbfUW]b'UWtFXUbW'k]h'GYW]cb'≡ž
 9j U'i Uh]cb' UbX' E i U]ZVh]cb' 7f]h'f]U' h'Y' 6]XXYf' g\U'' d'fcj]XY' h'Y']bZcfa Uh]cb'
 fYei YghX']b'h'Y'VtffYgdcX]b['bZcfa Uh]cb'G\YYhg]bWl XYX'\YfYi bXYf''

6]XXYf'≠Zcfa Uh]cb': cfa '

DU[Y 'SSSSSSSSSS&Z' SSSSSSSSSSSSSSSSSdU[Yg'

6]XXYffgjbUa Y`
ᄃWgY'cZ>c]bhjYbhi fYfĳŁzbUa Y'cZYUM'a Ya VYf.`
6]XXYffgUWU U'cf']bhYbXYX`Vēi bħmcZFy[ĴgfUh]cb.` <i>QbXJMUH'Vēi bħmcZ7cbghji h]cbQ</i>
6]XXYffgUWU U'cf']bhYbXYX'nYUf'cZ]bVēfdcfUh]cb.`
6]XXYffg`Y[U`UXxfYggQb`Vēi bħmcZFy[ĴgfUh]cbQ
6]XXYffgUi ħcf]nYX`fYdfYgybUhj Y`]bZcfa Uh]cb` B Ua Y.`SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS` 5XXfYgg.`SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS` HY`d\cbY# Uĳbi a VYfg.`SSSSSSSSSSSSSSSSSSSSSSSSSSSS` 9!a Uĳ`UXxfYgg.`SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS`
%`5HUMYX`UFY`Vēd]YgcZcf][ĴbU`XcW`a YbħgcZ `5fh]WgicZᄃVēfdcfUh]cbfēf`Yeī Ĵj ŪYbhXcW`a YbħgcZVēbgħji h]cb'cf`UggcVĴUh]cbŁzUbX#c'f` XcW`a YbħgcZFy[ĴgfUh]cb'cZH`Y`Y[Ū`Ybh]mibUa YX`UVcj Yž]b`UWēfXUbW`k Ĵħ`#H6`(`(` `ᄃWgY'cZ>Ĵ`Y`Hf'cZ]bhYbħc`Zcfa`>Ĵ`cf>Ĵ`U[fYYa Ybhž]b`UWēfXUbW`k Ĵħ`#H6`(`% `ᄃWgY'cZghUH!ck bYX`YbhYfdf]gY'cf]bgħji h]cbž]b`UWēfXUbW`k Ĵħ`#H6`(*`ŽXcW`a Ybħg` YghUV`għ]b[.]` @Y[Ū`UbX`Z]bUbVĴU`Ui ħbcba mĳ CdYfUh]cb'i bXYfVēa a YfVĴU``Uk` 9ghUV`għ]b[ħ.Uhħ.Y'6]XXYf`g]bchi bXYfħ.Y'gi dYfj g]cb'cZH`Y'9a d`cnYf` &'ᄃWĳ Xyx`UFY`ħ.Y'cf[Ub]nuh]cbU`VĴUfħzU`]ghcZ6cUfX'cZ8]fYVēfgzUbX`ħ.Y`VYbYZVĴU` ck bYfg.]d` QZfYeī JfYX`i bXYf'68G`#H6`(+`%Žħ Y'gĳ WwggZ` `6]XXYf`għU`dfcj JXY`UXX]h]cbU` ĴbZcfa Uh]cb'cb`VYbYZVĴU`ck bYfg.]dži gĴb[ħ.Y'6YbYZVĴU`Ck bYfg.]d'8]gMēgi fY': cfa`Q

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: cfa '9@!%'

9][]V`Y`A UHf]Ugž9ei]da YbhUbX`GYfj]Wg: cfa

flc`VY`Vta d`YHYX`VmhY`6]XXYfL`

6]XXYfAgB Ua Y. SSSSSSSSSSSS

8UH. SSSSSSSSSSSS

C 76#@76 Bc""UbX`h]hY. SSSSSSSSSSSS

DU[Y. SSSSSS Z SSSSSSSSSSdU[Yg

9][]V`Y`A UHf]Ugž9ei]da YbhUbX`GYfj]Wg`b`Vta d`]UbW`k]h`#b`) ždfcj]XY`h`Y`Zc`ck]b[]bZcfa Uh]cb`Zcf`U`A UHf]Ugž9ei]da YbhUbX`GYfj]Wg]bWl`XYX`i bXYf`h`Y`7cbhfUW`bghYUX`cZ`gh]b[`YUMX`UbX`Yj Yfm]hYa ž VfcUX`WUH[cf]Yg`UFY`ghYX`VY`ck`b`Wl`XY`U`hYa g`]b`h`YgY`WUH[cf]Ygi b`Ygg`Ubm]hYa`hc`VY`gi dd`]YX`]g`bchVtj YfYX`VmUbmcY`cZ`hYa`]b`k`V`WgY`gh`hYa`gYdUFUH`n`

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G` Bc`	8YgWdh]cb`cZ6fcUX`7UH[cfm cZA UHf]Ug#9ei]da YbhUbX` GYfj]Wg	9gha UHXX` E i Ubh]m` ObX]WUH. A5` ei Ubh]mUg` fYei]fYXAcf` ei Ubh]mVm gi VUH[cfmcZ]hYa gQ	9gha UHXX` 5[[fY[UH` J U i Y`fl G` 8c`Uf` 9ei]j UYbL	7ci bhf]YgcZ C f[]b`
%	5`7cbgfi W]cb`UbX`HYgh]b[` A UHf]Ug]bWl`X]b[`fUk` a UHf]Ugž7Ya YbhžGhY`ž H]a VYfž@a YžGUbXž 5[[fY[UH]gžD`Ug]Wž6]h a Ybž C]gž@ Vf]WUbhgžYH]WUg`dYf` gdYV]W]cb`			
&	5`hmlYg`cZD`Ubhgž9ei]da Ybh`]bWl`X]b[`@VcfUhcfmUbX` HYgh]b[`9ei]da Ybhž5`hmlYg`cZ J Y\]Wgž: i fb]h fYž:]h]b[`g`UbX` :]l h fYgžD]dYgžHc`gžGhY`UbX` C h Yf`Gfi W fYgžl hYbg]gž			

	7ca di hYfg'UbX'C hYf' H' 9ei Jda YbhžYhWUg'dYf' gdYVWZVWh]cb'			
' '	5`HmYg'cZGYfj]Wg]bWl X]b[' 7cbgfi V]cbž`bghU`Uh]cbž 5ggYa V`nž`bgdYVW]cbž Gi dYfj]g]cbž7UfY`cZG]hYgž @Vcf'fG_]`YX'UbX'I bg_]`YXlž 8f]`]b[žA Udd]b[ž HfUbgdcfUh]cb'UbX'`bgi fUbWVž YhWUg'dYf'gdYVWZVWh]cb'	'	'	'
'	'	'	'	'
'	'	'	'	'

<p>·DYbX]b[·]h[Uh]cb·]b·UWŁfXUbW·k]h·GYW]cb·⇒ž9j Ui Uh]cb·UbX·E i U]Z]WUh]cb·7f]hYf]Už Gi V! : UWŁcf·&" ·Ug·]bX]WUhYX·VY·ck "</p>			
<p>MYUf·cZ X]gdi hY·</p>	<p>5a ci bh·]b· X]gdi hY·fWffYbWŁŁ·</p>	<p>7cbhfUWŁi·XYbh]Z]WUh]cb·</p>	<p>HcHJ·7cbhfUWŁi 5a ci bh· fWffYbWŁŁ· I G8· 9ei]j UYbh· fYI WŁUb[·Y· fUHYŁ·</p>
		<p>7cbhfUWŁi·XYbh]Z]WUh]cb·. 'SSSSSSSSSS' B Ua Y·cZ9a d·cmYf. 'SSSSSSSSSSSS' 5XXfYgg·cZ9a d·cmYf. 'SSSSSSSSSSSS' A UhYf·]b·X]gdi hY. 'SSSSSSSSSSSSSSSS' DUfmik \c·]b]h]UhYX·h·Y·X]gdi hY. 'SSSS' GhUhi g·cZX]gdi hY. 'SSSSSSSSSSSSSS'</p>	
		<p>7cbhfUWŁi·XYbh]Z]WUh]cb·.· B Ua Y·cZ9a d·cmYf.· 5XXfYgg·cZ9a d·cmYf.· A UhYf·]b·X]gdi hY.· DUfmik \c·]b]h]UhYX·h·Y·X]gdi hY.· GhUhi g·cZX]gdi hY.··</p>	
<p>@h[Uh]cb·<]gŁcfm]b·UWŁfXUbW·k]h·GYW]cb·⇒ž9j Ui Uh]cb·UbX·E i U]Z]WUh]cb·7f]hYf]U·</p>			
<p>·· Bc·@h[Uh]cb·<]gŁcfm]b·UWŁfXUbW·k]h·GYW]cb·⇒ž9j Ui Uh]cb·UbX·E i U]Z]WUh]cb· 7f]hYf]UžGi V! : UWŁcf·&(" "</p> <p>·· @h[Uh]cb·<]gŁcfm]b·UWŁfXUbW·k]h·GYW]cb·⇒ž9j Ui Uh]cb·UbX·E i U]Z]WUh]cb· 7f]hYf]UžGi V! : UWŁcf·&(" ·Ug·]bX]WUhYX·VY·ck "</p>			

<p>MYU'cZ Uk UFX'</p>	<p>Ci hW'a Y'Ug' dYfWbHJ[Y'cZBYh' K cftA''</p>	<p>7cbhfUMh'XYbhjZVWhjcb'</p>	<p>HchU'7cbhfUMh' 5a ci bh' fWffYbVhZ I G8' 9ei jJ U'Ybh' fYI VUUb[Y' fUHY'E'</p>
<p>QbgYfh' nYUfQ</p>	<p>QbgYfh' dYfWbHJ[YQ</p>	<p>7cbhfUMh'XYbhjZVWhjcb'. QbX]VUHY' W'a d'YHY W'cbhfUMh'bUa YZbi a VYfZUbX' Ubmich\Yf']XYbhjZVWhjcbQ BUa Y'cZ9a d'cnYf.' QbgYfh'Z''bUa YQ 5XXfYgg'cZ9a d'cnYf.' QbgYfh' ghfYYhA\m\A\i bhfnQ A UHYf']b'X]gdi hY.' QbX]VUHY'a U]b'Jgg' Yg']b'X]gdi hYQ DUfmik \c']b]h]UHYX'h\Y'X]gdi hY.' QbX]VUHY'Â9a d'cnYfÃcf'Â7cbhfUMhcfÃQ FYUgcbfghZcf'@h] U]h]cb'UbX'Uk UFX' XYV]g]cb' QbX]VUHY'a U]b'fYUgcbfghZQ</p>	<p>QbgYfh' Ua ci bhQ</p>

: cfa '7CB 'Ä" ' .

9bj]fcba YbHJ'UbX'GcVJU'fDGL'DYfZcfa UbW'8YWUfUHjcb''

0A Y'Zc`ck]b['HUV'Y'g\U'`VY'Z'YX']b' VmH\ Y'6]XXYfZ'VmYUW' a Ya VYf'cZU'x:]bhJ'Ybhi fY'UbX' YUW' GdYVJU']nYX'Gi VVtbfUMtcfQ

6]XXYfAg'B Ua Y.' QbgYfhZ' ``bUa YQ

8UHY.' QbgYfhXUnza cbhžmYUfQ

x:]bhJ'Ybhi fY'A Ya VYfAg'cf'GdYVJU']nYX'Gi VVtbfUMtcfAg'B Ua Y.' QbgYfhZ' ``bUa YQ

C76-#@76'Bc"UbX'hjY.' QbgYfh= 6'bi a VYf'UbX'hjYQ

DU[Y' QbgYfhDU[Y'bi a VYfQcZ QbgYfh'cHJ'bi a VYfQDU[Yg'

B Ua Y'cZH\Y'FYdcfh]b[' :]fa SSSSSSSSSSSSSS'

9bj]fcba YbHJ'UbX'GcVJU'fDGL'DYfZcfa UbW'8YWUfUHjcb'cZH\Y'FYdcfh]b[' :]fa ''

9bj]fcba YbHJ'UbX'GcVJU'fDGL'DYfZcfa UbW'8YWUfUHjcb''			
]b'UWtFXUbW'k]h\ 'GYVt]cb'==žE i U']ZVWhjcb'7f]hyf]UžUbX'FYei]fYa Ybhg'			
<p>□ Bc'gi gdYbg]cb'cf'hYfa]bUHjcb'cZVtbfUMt' 5b'Ya d'cmYf'\Ug'bchigi gdYbXYX'cf'hYfa]bUHjcb'U' VtbfUMt' UbX'#cf' W'YX' h\Y' dYfZcfa UbW' gYVf]mZcf' U' VtbfUMt' Zcf' fYUgcbg' fY'UHjcb' h\c' 9bj]fcba YbHJ'cf'GcVJU'fDGL'dYfZcfa UbW'g]bW' h\Y'XUH'gdYVZ]YX']b'GYVt]cb'==žE i U']ZVWhjcb' 7f]hyf]UžUbX'FYei]fYa Ybhg'Gi V! : UMtcf'&)" "</p> <p>□ 8YWUfUHjcb'cZgi gdYbg]cb'cf'hYfa]bUHjcb'cZVtbfUMt' h\Y'Zc`ck]b[' VtbfUMt'f'g'\Ug'A Uj Y' VYYb'gi gdYbXYX'cf'hYfa]bUHjcb'UbX'#cf' dYfZcfa UbW' GYVf]mW'YX' VmUb'Ya d'cmYf'f'g'Zcf' fYUgcbg' fY'UHjcb' h\c' 9bj]fcba YbHJ'cf'GcVJU'fDGL'dYfZcfa UbW'g]bW' h\Y'XUH'gdYVZ]YX']b' GYVt]cb'==žE i U']ZVWhjcb' 7f]hyf]UžUbX'FYei]fYa Ybhg'Gi V! : UMtcf'&)" " 8YHU]g' UfY'XYgW]VYX' VY'ck.'</p>			
MYUf'	Gi gdYbXYX'cf' hYfa]bUHjcb' dcfh]cb'cZ VtbfUMt'	7cbtfUMt'XYbhjZVWhjcb'	HcHJ'7cbtfUMt' 5a ci bhfWffYbhi j Ui YZWffYbVtZ YI WUUb[Y'fUH' UbX'I G' Yei j] UYbHt'
QbgYfh' mYUfQ	QbgYfhUa ci bh UbX' dYfWbHJ[YQ	7cbtfUMt'XYbhjZVWhjcb.' QbX]VUH'Vt'a d'YH' VtbfUMt' bUa Y#bi a VYfZUbX'UbmicH Yf'jXybhjZVWhjcbQ B Ua Y'cZ9a d'cmYf.' QbgYfhZ' ``bUa YQ 5XXfYgg'cZ9a d'cmYf.' QbgYfhghfYyhAV]mAVi bHfnQ	QbgYfhUa ci bhQ

		FYUgcbfjZcf'g gdYbgjcb'cf'HYfa]bUh]cb. QbX]WUHY' a U]b fYUgcbfjZcf'Y"["[YbXYf! VUgYX'j]c`YbWV/gYI i U` YI d`c]HUh]cb'cf'gYI i U`UVi gY VfyUMXYgQ	
QbgYfh' mYUfQ	QbgYfh'Ua ci bh UbX' dYfWbhU] YQ	7cbhfUMiXYbh]Z]WUh]cb. QbX]WUHY'Vta d`YHY'VebhfUMi bUa Y#bi a VYfZUbX'UbmcH Yf]XYbh]Z]WUh]cbQ B Ua Y`cZ9a d`cmYf. QbgYfh'Z ``bUa YQ 5XXfYgg'cZ9a d`cmYf. QbgYfh'ghfYfYhA]m#A#i bhfnQ FYUgcbfjZcf'g gdYbgjcb'cf'HYfa]bUh]cb. QbX]WUHY' a U]b fYUgcbfjZcf'Y"["[YbXYf! VUgYX'j]c`YbWV/gYI i U` YI d`c]HUh]cb'cf'gYI i U`UVi gY VfyUMXYgQ	QbgYfh'Ua ci bhQ
o`	o`	Q]ghU`Udd]WUW'YVebhfUMigQ	o`
DYfZcfa UbW'GYWf]mW`YX`VmUb`Ya d`cmYfjZcf'fYUgcbg'fY`UH'X'hc`9G'dYfZcfa UbW`			
NYUf`	7cbhfUMiXYbh]Z]WUh]cb`		HchU`7cbhfUMi 5a ci bhfWffYbh j Ui YZ'WffYbVhZ YI WUb[Y`fUHY' UbX'I G` Yei]j UYbHc`
QbgYfh' mYUfQ	7cbhfUMiXYbh]Z]WUh]cb. QbX]WUHY'Vta d`YHY'VebhfUMibUa Y#bi a VYfZ UbX'UbmcH Yf]XYbh]Z]WUh]cbQ B Ua Y`cZ9a d`cmYf. QbgYfh'Z ``bUa YQ 5XXfYgg'cZ9a d`cmYf. QbgYfh'ghfYfYhA]m#A#i bhfnQ FYUgcbfjZcf'W`]b[`cZdYfZcfa UbW'gYWf]m: QbX]WUHY' a U]b` fYUgcbfjZcf'Y"["[Zcf'[YbXYf! VUgYX'j]c`YbWV/gYI i U` YI d`c]HUh]cb'Zcf' gYI i U`UVi gY VfyUMXYgQ		QbgYfh'Ua ci bhQ

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HcHJ`FYj Ybi Y`fHfE`
DfcZ]hg`6YZcfY`Hui Yg`fD6Hf`
7Ug\`:`ck`bZcf a Uh]cb`					
7Ug\`:`ck`Zfca`CdYfUh]b[` 5W]j`JhYg`

f FYZyf`hc`#6`%`Zcf`h\Y`Yi W\Ub[`Y`fUhf`

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GdYV]mgci fWg`cZ]bUbW`hc`a Yyh`h\Y`Wg\`Zck`fYei`JfYa Ybhg`cb`k cf_g`W`ffYbhm`
]b`dfc[`fYgg`UbX`Zcf`Z`hi fY`V`bhfUW`V`a`a`J`ha Ybhg`"

Bc`"	Gci fW`cZ]bUbW`	5a ci bhfl`G`Yei`Jj`UYbHf`
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H\Y`6]XXYf`UbX`]hg`dUfh]Yg`g\U``dfcj`]XY`V`d]Yg`cZ`Z]bUbV]U`ghUhf`a Ybhg`Zcf`
SSSSSSSSSShYUfg`di fg`UbhGYV]cb`=Z`9`Ui`Uh]cb`UbX`E`i`U`Z]W]h]cbg`7f]hYf]U`Z`Gi`V!`ZUW`cf`
`"%"H\Y`Z]bUbV]U`ghUhf`a Ybhg`g\U`.`

fUf`fYZYVh`h\Y`Z]bUbV]U`g]h`Uh]cb`cZ`h\Y`6]XXYf`cf`]b`WgY`cZ>J`a`Ya`VYfZ`UbX`bch`Ub`
UZZ`]UhYX`Ybh]hmfj`W`Ug`dUfYbhV`a`dUbmcf`[`fci`d`a`Ya`VYfE`"

fVf`VY`]bXYdYbXYbhm`Ui`X]hYX`cf`Wfh]ZYX`]b`UW`fXUbW`k`J`h`cW`Y[`]g`Uh]cb`"

fVf`VY`V`a`d`YhYz`]bW`X]b[`U`bchYg`hc`h\Y`Z]bUbV]U`ghUhf`a Ybhg`"

fXf`V`ffYgdc`bX`hc`UW`i`bh]b[`dYf]cXg`U`fYUXm`V`a`d`YhYX`UbX`Ui`X]hYX`"

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5HUVYX UFY Vtd]Yg cZ ZbUbVU ghUha Ybhg ' Zcf h\Y' .SSSSSSSSSSmYUfg fYei jfYX'
UVcj Y/UbX Vta d`mj b['k jh h\Y fYei jfYa Ybhg'

If the most recent set of financial statements is for a period earlier than 12 months from the date of Bid, the reason for this should be justified.

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[illegible][illegible]

5j YfU[Y'5bbi U`7cbgfi Wlcb'H fbcj Yf'cZh\Y'FYdcfh]b[:]fa :

		5bbi U`hi fbcj Yf`XUf`fVcbgf`fVjcb`cb`nL	
MYUf`	5a ci bh` 7i ffYbVh	9i VUub[Y`fUfY`	I G8`Yei Jj UYbhi
QbXjVUfY` mYUfQ	QbgYfhUa ci bhUubX`j`bXjVUfY` WffYbVhQ		
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G"Bc"	B Ua Y' cZ 7cbhfUW h	9a d`cmYfAg 7cbhUMi 5XXfYggZ HYž: U'	J U'i Y'cZ Ci hgtUbX]b[' K cf_ Œi ffYbhi G~ 9ei j j UYbhQ	9gha UhYX' 7ca d`Yhcb' 8UhY#Hja Y']b'A cbhlg' hc Vt'a d`YHY'	5j YfU[Y' A cbh\`m =bj c]Mb[' Cj Yf`@ghGj] ' A cbhlg' Ø G~ #a cbh\Q . .	9gha UhYX' 7Ug\!: `ck ' FYei jfYX'Zcf' Yj Yfm('' a cbhlg1 ' Ø U'i Y' i bXYf' Vt'i a b('' Xj jXYX'Vm A cbhlg' i bXYf' Vt'i a b') ' hja Yg'(Q
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9i d`UbUhjcb."						

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A UbU[Ya Ybh'9 dYf]YbW'

GdYwZw7cbgfi Vjcb'UbX'7cbfUwA UbU[Ya Ybh'9l dYf]YbW'cZhY'FYdcfh[b[':]fa '

Gla JUF'7cbfUMiBc"	ᄇZcfa Uᄇcb'
7cbfUMiXYbhjZUᄇcb'	QbgYfhVᄇbfUMibUa Y'UbX'bi a VYfzjZUdd'jMU'YQ
B Ua Y'cZᄇY'Zjfa 'ᄇUᄇk Ug'Uk UfXYX'ᄇY' VᄇbfUMijXYbhjZYX'UVcj Y'	' '
5k UfX'XUᄇY'	QbgYfhXUᄇza cbᄇᄇᄇmYUfZY'j'Z'ᄇ' > i bY'&\$%*Q
7ca d'Yᄇcb'XUᄇY ^{††} . ' ' ' ' '	QbgYfhXUᄇza cbᄇᄇᄇmYUfZY'j'Z'\$' A Um&\$% Q

Fc`Y`j`b`7`c`b`f`U`M`h`j`X`Y`b`h`j`Z`Y`X`U`V`c`j`Y` Q`N`Y`W`h`Y`U`d`d`f`c`d`f`j`U`H`Y`V`c`l`"7`Y`W`V`c`l`U`g` Å`D`f`j`a`Y`7`c`b`h`f`U`M`h`f`Å`j`Z`V`b`h`f`U`M`h`k`U`g`U`k`U`f`X`Y`X`h`c` h`Y`f`Y`d`c`f`h`j`b`[`Z`j`f`a`U`g`U`g`j`b`[`Y`V`b`g`h`f`i`V`h`j`c`b` V`b`h`f`U`M`h`f`"7`Y`W`V`c`l`Å`Å`Y`a`V`Y`f`j`b`>J`Å`j`Z`h`Y` V`b`h`f`U`M`h`k`U`g`U`k`U`f`X`Y`X`h`c`U`>J`U`b`X`k`U`g`U` a`Y`a`V`Y`f`c`Z`h`Y`>J`"7`Y`W`V`c`l`Å`Å`U`b`U`[`Y`a`Y`b`h` 7`c`b`h`f`U`M`h`f`Å`j`Z`h`Y`f`Y`d`c`f`h`j`b`[`Z`j`f`a`g`j`[`b`Y`X`h`Y` V`b`g`h`f`i`V`h`j`c`b`V`b`h`f`U`M`h`U`b`X`k`U`g`f`Y`g`d`c`b`g`j`V`Y`Z`c`f` j`h`g`d`Y`f`Z`c`f`a`U`b`W`U`b`X`V`b`a`d`Y`h`j`c`b`c`Z`k`c`f`_`g`U`g` d`Y`f`h`Y`f`a`g`U`b`X`V`b`X`j`h`j`c`b`g`c`Z`h`Y`V`b`h`f`U`M`h`5`g`c` g`Y`Y`H`H`V`Y`c`k`"7`Y`W`V`c`l`Å`G`i`V`i`7`c`b`h`f`U`M`h`f`Å`j`Z` h`Y`f`Y`d`c`f`h`j`b`[`Z`j`f`a`k`U`g`U`g`V`i`V`b`h`f`U`M`h`f` U`d`d`c`j`b`h`Y`X`V`m`h`Y`a`U`j`b`V`b`h`f`U`M`h`f`k`V`c`k`U`g` U`k`U`f`X`Y`X`h`Y`V`b`h`f`U`M`h`Q`	Df`j`a`Y` 7`c`b`h`f`U`M`h`f`	A`Y`a`V`Y`f`j`b` >J`	A`U`b`U`[`Y`a`Y` b`h` 7`c`b`h`f`U`M`h`f` H`H`.	G`i`V`i` V`b`h`f`U`M`h`f`
H`c`H`U`7`c`b`h`f`U`M`h`5`a`c`i`b`h`i`	Q`b`g`Y`f`h`h`c`H`U`V`b`h`f`U`M`h` U`a`c`i`b`h`j`b`"c`V`W`V`f`Y`b`V`h`Q`		I`G`~`Q`b`g`Y`f`h` 9`V`W`U`b`[`Y`f`U`H`Y`U`b`X` h`c`H`U`V`b`h`f`U`M`h`U`a`c`i`b`h`i` j`b`I`G`~` Y`e`i`j`j`U`Y`b`h`Q`	
≠`f`Y`d`c`f`h`j`b`[`Z`j`f`a`k`U`g`U`a`Y`a`V`Y`f`j`b`U`Å`>J`Å`c`f` Å`g`V`i`V`b`h`f`U`M`h`f`Å`Z`U`g`d`Y`f`V`c`l`V`W`Y`W`Y`X`U`V`c`j`Y`Z`j`h` W`U`b`W`U`j`a`Y`i`d`Y`f`j`Y`b`W`c`b`m`Z`c`f`j`h`g`Å`c`k`b`g`U`f`Y`c`Z` k`c`f`_`g`U`M`h`U`m`d`Y`f`Z`c`f`a`Y`X`i`b`X`Y`f`h`Y`V`b`h`f`U`M`h` U`b`X`b`c`h`h`Y`Y`b`h`j`f`Y`V`b`h`f`U`M`h`5`g`g`i`V`W`Z`h`Y` f`Y`d`c`f`h`j`b`[`Z`j`f`a`g`U`"j`b`X`j`W`H`Y`j`h`g`g`U`f`Y`U`g`U` d`Y`f`W`b`h`U`[`Y`c`Z`h`Y`h`c`H`U`7`c`b`h`f`U`M`h`U`a`c`i`b`h`i`U`b`X` U`g`c`j`b`U`V`g`c`i`h`Y`U`a`c`i`b`h`i`	Q`b`g`Y`f`h`h`Y` d`Y`f`W`b`h`U`[`Y` c`Z`h`Y`h`c`H`U` V`b`h`f`U`M`h` U`a`c`i`b`h` j`b`X`j`W`H`Y`X` U`V`c`j`Y` k`V`W` f`Y`d`f`Y`g`Y`b`h`g` f`Y`d`c`f`h`j`b`[` Z`j`f`a`Å`g`g`U`f`Y` i`b`X`Y`f`h`Y` V`b`h`f`U`M`h` d`Y`f`Z`c`f`a`Y`X`Q`	Q`b`g`Y`f`h` U`a`c`i`b`h`h`Y` f`Y`d`c`f`h`j`b`[` Z`j`f`a`f`Y`W`j`Y`X` c`f`Y`b`h`j`h`Y`X`h`c` Z`c`f`h`Y`k`c`f`_`g` d`Y`f`Z`c`f`a`Y`X`U`g` j`h`g`g`U`f`Y`j`b` h`Y`h`c`H`U` V`b`h`f`U`M`h` U`a`c`i`b`h`j`b` c`V`W` W`f`Y`b`V`h`Q`	Q`b`g`Y`f`h`Y`i`W`U`b`[`Y`f`U`H`Y` U`b`X`h`c`H`U`V`b`h`f`U`M`h` U`a`c`i`b`h`j`b`I`G`~` Y`e`i`j`j`U`Y`b`h`Q`	
Fc`Y`g`U`b`X`F`Y`g`d`c`b`g`j`V`j`h`Y`g`	Q`b`f`j`Y`Z`m`X`Y`g`M`j`V`Y`f`c`Y`g`U`b`X`f`Y`g`d`c`b`g`j`V`j`h`Y`g`c`Z`h`Y` F`Y`d`c`f`h`j`b`[`Z`j`f`a`i`b`X`Y`f`h`Y`U`V`c`j`Y`V`b`h`f`U`M`h`Q`			
9a`d`c`m`Y`f`f`j`B`U`a`Y`.	Q`b`g`Y`f`h`i`"B`U`a`Y`Q`			
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ff' ZVebfUMi]gibchiZ' mVea d'YHYX'Vi hgi VgUbh]U'mVea d'YHYX'hAYb]bX]VUH'hAY'UWgc'i H'hcHU'j Ui Y' cZ hAY' Vea d'YHYX' dUfh cZ hAY' VebfUMi UbX' Ugc' hAY' dYfWbHU[Y' Vea d'Yh]cb' W'W'UH'X' Ug' U' dYfWbHU[Y'cZHAY'hcHU'j Ui Y'cZHAY'VebfUMi dcb'Ve'a d'Yh]cb'"

fff' b WU]a]b['YI dYf]YbW'Ug'U'A UbU[Ya Ybh7cbfUMicf'hAY'6]XXYf'g'U'Z' fb]g\ Vea]Yg'cZHAY'VebfUMig' g] bYX'VmihAY'6]XXYf'XYa cbgfhU]b['gVedY'cZ Vebgf' V]cb'k cf_g dYfZcfa YX'" h'g'ci 'X'VY'bc'hAY' h'UhU'7cbgf' V]cb'A UbU[Yf']g'ibchiAY'gUa Y'Ug'U'A UbU[Ya Ybh7cbfUMicf'"7cbgf' V]cb'A UbU[Yf']g' U' 7cbg' 'Ubh Zcf' cf' U[Ybh cZ hAY' 6c'ffck Yf' UbX' a U]b'm fYgdcbg]V'Y' Zcf' g' dYfj]g]cb' cZ hAY' Vebgf' V]cb'k cf_g UbX'XcYg'ibchiU_Y'hAY'f]g_g UggcV]UH'X'k]h' hAY'dYfZcfa UbW'cZHAY'VebfUMi V]cb' VebfUMig' Ug' hAY' A UbU[Ya Ybh 7cbfUMicf' XcYg'" bghYUX' cZ dYfZcfa]b[' hAY' k cf_g X]fYVminz' U' A UbU[Ya Ybh7cbfUMicf' VebfUMig'ci h'UbX'a UbU[Yg'hAY'k cf_'cZ chAY'f'VebfUMicfg'U_]b['cb'Z' fYgdcbg]V']]mUbX'f]g_Zcf'df]Wzei U']mUbX'hja Y'mdYfZcfa UbW'Ug'dYf'hAY'hfa g'UbX'Ve'bX]h]cbg'cZ VebfUMig']hg] b'g'k]h' hAY'9a d'cmYfg'"

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8YgWdhjcb'cZH\Y'gja]Uf]mi]b'UWcfXUbW' k]h'Gi V! : UWcf' ('&fUL'cZGYWjcb'≡'	.
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<ul style="list-style-type: none">• 7ca d`YI]mi	.
<ul style="list-style-type: none">• A Yh\cXg#HYWbc`c[m	.
<ul style="list-style-type: none">• 7cbgfi Vjcb'fUhy'Zcf'_YmiUMj]hYg'	.
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8YgWdhjcb'cZሀY_YmUMj JhYg'jb' UWፔfXUbW'k Jh'Gi VI: UMፔf ("፩fVፔcZ GYVjcb'==	ቅርብ ሀብት		
	QbgYfhfYgdcbgY'hc '9a d'cmYf፩j'bei Jfm]bX]W፩YX'jb'YZh' Vፔ'i a bQ		
E i Ubh]m]c' c' i a Yፔbi a VY'cf'fUHY'cZ dfcXi V፩cbፔUg'Udd'JWV'Y'Zcf'ሀY'?Ym UMj Jmፔ'dYfZcf'a YX'i bXYf'ሀY'VፔbhfUM፩ dYf'mYU'cf'dUfhcZሀY'mYU'': cf'YUW' mYU'j]bX]W፩Y'ei Ubh]hYg'dYfZcf'a YX' UbX'gdYV፩mVch'gUfhUbX'YbX' a cbh'g''	HchU'ei Ubh]m]b' ሀY'VፔbhfUM፩ f]ፔ	DYfWbhu] Y' dUfh]WdUjcb' f]ፔ	5V፩ U' E i Ubh]m] dYfZcf'a YX' f]ፔi f]ፔ
QbgYfh'Yi hYbhcZdUfh]WdUjcb' JbX]W፩b] U፩ U'ei Ubh]mcZ_Ym UMj Jm፩g V፩ggፔ mVፔa d'YhYX'jb'ሀY' fc'Y'dYfZcf'a YXQ			
MYU'%'O'["&\$%* Z'ca 'Subi Ufmhc' GYdhYa VYfQ			
MYU'&O'["&\$%+ Z'ca 'Subi Ufmhc' 8YWA VYfQ			
MYU'"			
MYU'('			
ቅ'fYgdcbgY'hc'ሀY'W]hYf]cb'Zcf'fUHY'g'cZ dfcXi V፩cb'jb'%'፩bgYVW'hj'Y'a cbh'g' cf'Yggፔ]ZdYfZcf'a UbW'i bXYf'a cfY' ሀUb'cbY'VፔbhfUM፩gdYU'c'j Yf'a cfY' ሀUb'cbY'mYU'UfY'Vፔbg]XYfYXፔሀY' 5dd'JWbHg'U'dfcj JXY'jbZcf'a ሀብትV፩ a cbh'g'Zcf'YUW'g' W' VፔbhfUM፩hc' XYa cbghfU'k \JW'gJa Y'፩፩ VፔbgYVW'hj'Y'a cbh'g'a YYhሀY' a JbJa i a 'fUHY'cZdfcXi V፩cb'""			

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6YbYZWfmg' bchjZVh'cb'hc'h'Y'5dd']WubhcZH'Y'fYg' hg'cZH'Y'6]XX]b['dfcWgg/cf'f]]k' h'k'Ybhm'Y]] \hXUng'UZh'f'h'Y'YbX'cZH'Y'6]X'J'U']X]]mDYf]cX'''

7cbgYei YbhinzUbmXYa UbX'Zcf'dUna Ybhi bXYf'h.]g[i UfUbhY'a i gh'VY'fYW]j YX'Vmi g' Uih'Y'cZ]W]j]bX]V]hY'X'UVcj Y'cb'cf'VYZcf'h.Uh'XUh'""

H\jg[i UfUbhYY]g'g' V^Vh'hc'hAY' l b]Zcfa 'Fi`Yg'Zcf'8Ya UbX'; i UfUbhYYgfi F8; £&\$%\$
FYj]g]cbž77'Di V'Mh]cb'Bc"+), "

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g *b* *u* *h* *f* *y* *f* *g* *l* *o*

②chY: ɛ WgY'h Y5dd jWbh jg U'x jbh J Ybhi fY jbX jWbh Y'h Y'blā Y'cZ h Y'x jbh J Ybhi fY'cf
 blā YgcZ U'ā Ya VyfgcZ h Y'x jbh J Ybhi fY'h Uhgi Va jhYX'cf'k j'g Va jhh Y'6 jXQ'

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: cfa 'cZ6]X! GYW/f]b[ '8YWUfUh]cb'
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8 UH. 'SSSSSSSSSSSSSSSSSSSS'

C76-#@76'Bc". QbgYfhibi a VYf'Ug]b'dfcWfYa Ybhid`UbQ'SSSSSSSSSSSSSSSSS

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Hc. ''

K Yžh\Y'i bXYfg][bYXžXYWUfY'h Uh'

K Y'i bXYfgUbX'hUnzUWcFX]b['hc'nci f'Vc bX]]hcbgž6]Xg'a i ghVY'gi ddcfhn'X'VmU'6]X!GYWf]b[8YWUfU]hcb"

K Y' UWWdh hUhik Y' k]' 'Ui hca UhjW' mVY' gi gdYbXYX' Zfca ' VY]b[' Y][]VY' Zcf' 6]XX]b[']b' Ubm
VtbfhUW' k]h' h' Y' 9a d' cnyf' Zcf' h' Y' dyf]cX' cZ h]a Y' cZ ' QbgYfhi bi a VYf' cZ a cbh]g' c' f' mYUfg
Vtbg]gh' bhk]h' 68G% " -SSSSSSSSSSSSSSSZk Y' UFY']b' VFYUW' cZci f' cV][Uh]cbf]k i bXYf' h' Y' 6]X'
Vt bX]h]cbqZ VYUW' qY' k Y.'

fuk' \uj'Y'k'j'X'fuk' b'ci' f'6]X'Xi' f]b['h'Y'dYf]cX'cZ6]X'j' U]X]m'gd'Y'W]YX'j'b'h'Y'@h'Y'f'cZ6]X'cf'
Ubm'Yl' h'Y'bg]cb'h'Y'fY'h'c'd'fcj'j'YX'V'mi' g/cf'

fVŁ' \Uj]b['VYYb'bcɦ]ZYX cZHAY'UWWdHUbW'cZci f'6]X VmɦAY'9a d'cmYf'Xi f]b['ɦAY'dYf]cX'cZ
6]X'j U]X]mž f]Ł ZU] 'cf fYŽ gy'hc'YI YWɦr'ɦAY'7cbɦfUWŁ Z fYei]fYXžcf f]Ł ZU] 'cf fYŽ gy'hc'
Ž fb]g'ɦAY'DYfZcfa UbW'GYWf]mUbXž Z fYei]fYXž ɦAY'9bj]fcbaybɦU'UbX'GcVU'fPŁ
DYfZcfa UbW'GYWf]mž]b UWŁfxUbW'k]ɦ'ɦAY'+6(, "

HAY'ghufhXUHY'cZgi'gdYbg]cb'g\U``VY'hAY'ZfghXUHY'kY'dYfZcfa'`UbmcZHAY'UW]cbgaYbh]cbYX'
]b'dUFUf[fud\g'fUEUbX'fVEUvcjY''K'Y'i'bXYfg'ubX'h]g'6]X]GYWf]b['8YWUfU]cb'g\U``Yl d]fY'JZ
kY'UFY'bchhAY'gi'WWggZ`6]XXYfzi'dcb'hAY'YUf]Yf'cZf]kci'f'fYW]dhcZnci'f'bch]ZVU]cb'hci'gcZ
hAY'bUaY'cZHAY'gi'WWggZ`6]XXYf/cf'f]k'hYbm]Y]f]hXUmg]UZYf'hAY'Yl d]fU]cb'cZci'f'6]X''

BUa Y'cZ\Y'6]XXYft'

B Ua Y'cZ h\Y'dYf a c b'Xi `mUi h\c f]nYX'hc'g] b'h\Y'6]X'c b'VY\U Z cZ h\Y'6]X X Y f i t' SSSSSSS

H|h'Y'cZ'h'Y'dYfqb'b|g|[b]b['h'Y'6]X'

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[illegible]

1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12' 13' 14' 15' 16' 17' 18' 19' 20' 21' 22' 23' 24' 25' 26' 27' 28' 29' 30' 31' 32' 33' 34' 35' 36' 37' 38' 39' 40' 41' 42' 43' 44' 45' 46' 47' 48' 49' 50' 51' 52' 53' 54' 55' 56' 57' 58' 59' 60' 61' 62' 63' 64' 65' 66' 67' 68' 69' 70' 71' 72' 73' 74' 75' 76' 77' 78' 79' 80' 81' 82' 83' 84' 85' 86' 87' 88' 89' 90' 91' 92' 93' 94' 95' 96' 97' 98' 99' 100' 101' 102' 103' 104' 105' 106' 107' 108' 109' 110' 111' 112' 113' 114' 115' 116' 117' 118' 119' 120' 121' 122' 123' 124' 125' 126' 127' 128' 129' 130' 131' 132' 133' 134' 135' 136' 137' 138' 139' 140' 141' 142' 143' 144' 145' 146' 147' 148' 149' 150' 151' 152' 153' 154' 155' 156' 157' 158' 159' 160' 161' 162' 163' 164' 165' 166' 167' 168' 169' 170' 171' 172' 173' 174' 175' 176' 177' 178' 179' 180' 181' 182' 183' 184' 185' 186' 187' 188' 189' 190' 191' 192' 193' 194' 195' 196' 197' 198' 199' 200' 201' 202' 203' 204' 205' 206' 207' 208' 209' 210' 211' 212' 213' 214' 215' 216' 217' 218' 219' 220' 221' 222' 223' 224' 225' 226' 227' 228' 229' 230' 231' 232' 233' 234' 235' 236' 237' 238' 239' 240' 241' 242' 243' 244' 245' 246' 247' 248' 249' 250' 251' 252' 253' 254' 255' 256' 257' 258' 259' 260' 261' 262' 263' 264' 265' 266' 267' 268' 269' 270' 271' 272' 273' 274' 275' 276' 277' 278' 279' 280' 281' 282' 283' 284' 285' 286' 287' 288' 289' 290' 291' 292' 293' 294' 295' 296' 297' 298' 299' 300' 301' 302' 303' 304' 305' 306' 307' 308' 309' 310' 311' 312' 313' 314' 315' 316' 317' 318' 319' 320' 321' 322' 323' 324' 325' 326' 327' 328' 329' 330' 331' 332' 333' 334' 335' 336' 337' 338' 339' 340' 341' 342' 343' 344' 345' 346' 347' 348' 349' 350' 351' 352' 353' 354' 355' 356' 357' 358' 359' 360' 361' 362' 363' 364' 365' 366' 367' 368' 369' 370' 371' 372' 373' 374' 375' 376' 377' 378' 379' 380' 381' 382' 383' 384' 385' 386' 387' 388' 389' 390' 391' 392' 393' 394' 395' 396' 397' 398' 399' 400' 401' 402' 403' 404' 405' 406' 407' 408' 409' 410' 411' 412' 413' 414' 415' 416' 417' 418' 419' 420' 421' 422' 423' 424' 425' 426' 427' 428' 429' 430' 431' 432' 433' 434' 435' 436' 437' 438' 439' 440' 441' 442' 443' 444' 445' 446' 447' 448' 449' 450' 451' 452' 453' 454' 455' 456' 457' 458' 459' 460' 461' 462' 463' 464' 465' 466' 467' 468' 469' 470' 471' 472' 473' 474' 475' 476' 477' 478' 479' 480' 481' 482' 483' 484' 485' 486' 487' 488' 489' 490' 491' 492' 493' 494' 495' 496' 497' 498' 499' 500' 501' 502' 503' 504' 505' 506' 507' 508' 509' 510' 511' 512' 513' 514' 515' 516' 517' 518' 519' 520' 521' 522' 523' 524' 525' 526' 527' 528' 529' 530' 531' 532' 533' 534' 535' 536' 537' 538' 539' 540' 541' 542' 543' 544' 545' 546' 547' 548' 549' 550' 551' 552' 553' 554' 555' 556' 557' 558' 559' 560' 561' 562' 563' 564' 565' 566' 567' 568' 569' 570' 571' 572' 573' 574' 575' 576' 577' 578' 579' 580' 581' 582' 583' 584' 585' 586' 587' 588' 589' 590' 591' 592' 593' 594' 595' 596' 597' 598' 599' 600' 601' 602' 603' 604' 605' 606' 607' 608' 609' 610' 611' 612' 613' 614' 615' 616' 617' 618' 619' 620' 621' 622' 623' 624' 625' 626' 627' 628' 629' 630' 631' 632' 633' 634' 635' 636' 637' 638' 639' 640' 641' 642' 643' 644' 645' 646' 647' 648' 649' 650' 651' 652' 653' 654' 655' 656' 657' 658' 659' 660' 661' 662' 663' 664' 665' 666' 667' 668' 669' 670' 671' 672' 673' 674' 675' 676' 677' 678' 679' 680' 681' 682' 683' 684' 685' 686' 687' 688' 689' 690' 691' 692' 693' 694' 695' 696' 697' 698' 699' 700' 701' 702' 703' 704' 705' 706' 707' 708' 709' 710' 711' 712' 713' 714' 715' 716' 717' 718' 719' 720' 721' 722' 723' 724' 725' 726' 727' 728' 729' 730' 731' 732' 733' 734' 735' 736' 737' 738' 739' 740' 741' 742' 743' 744' 745' 746' 747' 748' 749' 750' 751' 752' 753' 754' 755' 756' 757' 758' 759' 760' 761' 762' 763' 764' 765' 766' 767' 768' 769' 770' 771' 772' 773' 774' 775' 776' 777' 778' 779' 780' 781' 782' 783' 784' 785' 786' 787' 788' 789' 790' 791' 792' 793' 794' 795' 796' 797' 798' 799' 800' 801' 802' 803' 804' 805' 806' 807' 808' 809' 810' 811' 812' 813' 814' 815' 816' 817' 818' 819' 820' 821' 822' 823' 824' 825' 826' 827' 828' 829' 830' 831' 832' 833' 834' 835' 836' 837' 838' 839' 840' 84

ɬɬ' DYfɔcb'g[b]b['hY'6]X'g\U''\Uj Y'hY'dck Yf'cZU'hcfbYm[]j Yb'Vm'hY'6]XXYf'U'hUWYX'hc'hY'6]X'

[illegible]

GYWjcb'J'!'9][JV'Y'7ci bhf]Yg'

9][JV']]mi Zcf' h'Y' Dfcj]g]cb' cZ ; ccXgž K cf_g UbX' Bcb!7cbg' h]b[' GYfj]Wg']b' 6Ub_ ; fci d' :]bUbWX'DfcWfYa Ybh'

- Dfcj]g]cbg'i bXYf'GYWjcb') 'A9][JV']]mācZh'Y'DfcWfYa YbhDc'WmZcf'6Ub_ ; fci d' : i bXYX' CdYfU]cbg UbX' 7\UdhYf'5&'cZh'Y' CdYfU]cbg DfcWfYa Ybh'A Ubi U' i bXYf' DfcWfYa Ybh' : fUa Yk cf_ 'cZh'Y'5Z]Wb'8Yj Y'cda Ybh'6Ub_

UŁ H'Y'5Z]Wb'8Yj Y'cda Ybh' : i bX'f58: Ł'dYfa]hg'Zfa g'UbX']bX]j]Xi U'g'Zfca 'U'WŁi bhf]Yg'hc' cZYZf[ccXgžk cf_gUbX'gYfj]Wg'Zcf'58: 'Z bXYX'dfc'YWg'

<ck Yj Yfž h'Y' dfcWYXg' cZ Ubm:]bUbW]b[' i bXYfU_Yb']b' h'Y' cdYfU]cbg' cZ h'Y' 5Z]Wb' 8Yj Y'cda Ybh'6Ub_ f586ŁUbX'h'Y'B][Yf]U'Hfi gh: i bX'fB H Ł'g\U' VY'i gYX'Zcf'dfcWfYa Ybh' cZ[ccXg'UbX'k cf_gž]bW X]b[' h'Y'fY'UHYX'gYfj]Wgždfcj]XYX'VmV]XXYfg'Zfca '9][JV'Y%' 7ci bhf]Yg'5bmWŁbX]h]cbg'Zcf'dUfh]VdU]cb'g\U' VY'ja]hYX'hc' h'cgY'h'UhfY'YggYbh]U'hc' Ybg' fY'h'Y'Zfa Ą'WdU]']mhc'Z'Z' h'Y'WŁbhfU]b'ei Ygh]cb'"Ł'h'Y'WŁg'cZ586'UbX'B H ž V]XXYfg'Zfca ' bcb!A Ya VYf' 7ci bhf]Yg' cZYZf]b[' [ccXgž k cf_g UbX' fY'UHYX'gYfj]Wg' f]bW X]b[' hfUbgdcfU]cb' UbX']bg' fUbWŁ UY' bch'Y][JV'Y'Yj Yb']Z h'YmccZYf' h'YgY'Zfca ' 9][JV'Y'A Ya VYf'7ci bhf]Yg'5bmK U]j Yf'hc' h'g'fi 'Y'k]' VY']b'UWŁfXUbW'k]h' h'Y'5fh]Wg' %&fŁŁ'fŁŁ'cZ h'Y'5[fYYa Ybh'9ghU'g\]b[' h'Y'5Z]Wb'8Yj Y'cda Ybh'6Ub_ UbX' ('%cZ h'Y' 5[fYYa Ybh'9ghU'g\]b[' h'Y'B][Yf]U'Hfi gh: i bX'"

- Fi 'Yg'UbX'DfcWXi fYg'Zcf'DfcWfYa YbhicZ; ccXg'UbX'K cf_g

Cj Yfj]Yk'

%' H'Y'Y'][JV']]mW]hYf]U'Zcf'dUfh]VdU]cb']b' h'Y'g' dd'micZ[ccXgžk cf_gUbX'fY'UHYX'gYfj]Wgž hc'VY'dfcWfYX'h'fci [\ h'Y'586'UbX'B H ' :]bUbW]b[žXYfj] Y'Zfca 'h'Y'fYei]fYa Ybh'g'cZ h'Y' 5[fYYa Ybh'9ghU'g\]b[' h'Y'5Z]Wb'8Yj Y'cda Ybh'6Ub_ž5fh]WY'%'%XžUbX'h'Y'5[fYYa Ybh' 9ghU'g\]b[' h'Y'B][Yf]U'Hfi gh: i bXž5fh]WY' ('%' h'Y'ZcfY[c]b[' fYei]fYa Ybh'g' VUg]W'mi dfYgW]VY'k c'ŁmŁYg'cZY'][JV']]mW]hYf]U'.

- H'Y'Y'][JV']]micZh'Y'V]XXYf/
- H'Y'Y'][JV']]micZh'Y'[ccXgžk cf_gUbX'fY'UHYX'gYfj]Wg'

9][JV']]micZh'Y'6]XXYf'i bXYf'h'Y'586'UbX'B H ' :]bUbW]b['

&" H'Y'Y'][JV']]micZh'Y'V]XXYf'g\U' VY'VUgYX'cb'bU]cbU']mž]b'UWŁfXUbW'k]h' h'Y'Zc'ck]b[' fi 'Yg'

fUŁ B Uhi fU'DYfgc'bg'5' bUhi fU'dYfgcb']g'Y'][JV'Y']Z\Y'cf'g\Y']g'U'bU]cbU'cZU'A Ya VYf' 7ci bhfmicZh'Y'586'"K \YfY'U'dYfgcb'\Ug'a cfY'h'Ub'cbY'bU]cbU']mžg' WŁ'U'dYfgcb'

Refer to Bank Procurement Framework for additional information on Eligibility.

"Eligible Countries" shall mean: (a) in the case of the African Development Bank (ADB) and the Nigeria Trust Fund, the Member Countries of the ADB; and (b) in the case of the African Development Fund (ADF), any country.

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g\U` VY`Y][JV`Y`JZ H`Y`bUh]cbU`]m]bX]W`H`Y`]b` \]g`cf` \Yf`V]X`]g`H`Uh`cZ`U`A`Ya` VYf`
7ci`bhfmcZ`H`Y`586"

fVŁ 7cfdcfUh]cbg`5`VŁfdcfUh]cb`]g`Y`][JV`Y`JZ]hgUh]gZ]Yg`H`Y`Zc`ck`]b[`W]hYf]U`

UŁ]h]g]bVŁfdcfUH`Y`]b`U`VŁi`bhfmiH`Uh]g`U`A`Ya` VYf`cZ`H`Y`586/

VŁ]h]g`U`bUh]cbU`cZ`U`VŁi`bhfmiH`Uh]g`U`A`Ya` VYf`cZ`H`Y`586žUg`XYH`fa`]bYX`VmiH`Y`Uk`
cZ]hg`d`UW`cZ]bVŁfdcfUh]cb/

WŁ]h`Ug`]hg`d`f]bV]dU`d`UW`cZVi`g]bYgg`]b`U`VŁi`bhfmiH`Uh]g`U`A`Ya` VYf`cZ`H`Y`586"

fWŁ xc]bhi`Y`bhi`fYg`UbX`5ggcV]Uh]cbg`5b`i`b]bVŁfdcfUH`Y`c`]bhi`Y`bhi`fYždUf]bYfg\]dž`
cf`UggcV]Uh]cbž`g\U` VY`Y`][JV`Y`JZ`a`cfY`H`Ub`)`\$i`cZ`H`Y`j`U`i`Y`cZ`]hg`k`cf`g`
UbX`#cf`gYfj`]Wg`]g`YI`VW`H`Y`Vmi`]hg`a`Ya` VYfg`gUh]gZ]b[`H`Y`Y`][JV`]m`
fYei`]fYa`Ybh]Zcf`]bX]j`]Xi`U`g`cf`VŁfdcfUh]cbg"

9][JV`]hmcZ`H`Y`; ccXgžK`cf`g`UbX`FY`UH`Y`GYfj`]Wg`

' "'`b`cfXYf`hc`VY`Y`][JV`Yž`H`Y`[ccXg`hc`VY`dfcW`fYX`a`i`gh` \U`Y`VYYb`a`]bYXž`[fck`bž`cf`
dfcXi`WXž`]b`H`Y`Z`fa`]b`k` \]WŁ`H`Y`miUFY`di`fWŁ`UgYXž`]b`Ub`9][JV`Y`A`Ya` VYf`7ci`bhfmi`

(" : cf`k`cf`g`VŁbhfUWŁž`k` \]WŁ`a`Um]bWŁ`XY`V]j`]`k`cf`gž`d`UbhVŁbghfi`V]cbž`cf`hi`fb`_YmVŁbhfUWŁž`
H`Y`VŁbhfUWŁcf`a`i`gh]gUh]gZ]mH`Y`bUh]cbU`]mW]hYf]U`cZ`Y`][JV`]hž`Y`H`Y`f`Ug`U`bUhi`fU`d`Yfg`cbž`
cf`VŁfdcfUh]cbž`cf`c`]bhi`Y`bhi`fY`UbX`UggcV]Uh]cb`"@Uci`fž`Yei`]da`Ybhž`UbX`a`UhYf]Ug`bYYXYX`
Zcf`WŁfmi]b[`ci`hH`Y`k`cf`g`VŁbhfUWŁž`g\U` VY`g`dd`]YX`ž`ca`9][JV`Y`A`Ya` VYf`7ci`bhf]Yg`"

) "'` : cf`VŁbhfUWŁž`k` \]WŁ` \U`Y`VYYb`Uk`UfXYX`cb`H`Y`VUg]g`cZ`7cgž`bg`fUbW`UbX` : fY][\hfi7`÷`Łž`
cf`7Uff]U[`Y`UbX`bg`fUbW`DU]X`f7`ĐŁž`V]XXYfg`g\U` VY`ž`FY`hc`UffUb[`Y`Zcf`cWUb`UbX`c`H`Y`f`
hfUb]gdcfUh]cbž`UbX`H`Y`FY`UH`Y`]bgi`fUbWžž`ž`ca`Ubmi9][JV`Y`A`Ya` VYf`7ci`bhfmi`C`b`H`Y`c`H`Y`f`
 \UbXž`k` \YfY`[ccXg`UFY`g\]ddYX`cb` : C6`VUg]gž`UbX`H`Y`6Ub`_` \Ug`U[fYfYX`hc`Z]bUbW`
hfUb]gdcfUh]cb`UbX`]bgi`fUbW`gYdUfUH`nž`k` \]WŁ`UFY`UffUb[`YX`VmiH`Y`di`fWŁ`UgYfž`i`bXYf`U`
gYdUfUH`VŁbhfUWŁž`H`Y`6Ub`_`g\U` VY`gUh]gZ]YX`H`Uh`H`Y`gYfj`]Wg`UFY`g`dd`]YX`ž`ca`9][JV`Y`
A`Ya` VYf`7ci`bhf]Yg`"

@ghcZ9][JV`Y`7ci`bhf]Yg`

*"'` @ghcZ9][JV`Y`VŁi`bhf]Yg`WŁb`VY`Zci`bX`]b`5ž]WŁb`8Yj`Y`cda`Ybhi6Ub`_`g`k`YVg]H`Y`

[\hfdg##k`k`k`"UZV"cf\]`#Yb#Uci`Hi`g#VŁfdcfUH`!`\]bZ`fa`Uh\]cb`#a`Ya` VYfg`#`](#)

žY][JV`Y`7ci`bhf]Yg`]b`fYZfYbW`hc`#H6`(",`UbX`#H6`)`"%`

+ "'`b`fYZfYbW`hc`#H6`(",`UbX`#H6`)`"%žZcf`H`Y`]bZ`fa`Uh]cb`cZ`H`Y`6]XXYfgž`Uh`H`Y`d`fYgYbhi`
h]a`Y`ž`fa`gž`[ccXg`UbX`gYfj`]Wg`ž`ca`H`Y`Zc`ck`]b[`VŁi`bhf]Yg`UFY`YI`WŁ`XYX`ž`ca`H`]g`
6]XX]b[`dfcWgg`

I`bXYf`#H6`(",`fUŁ`UbX`#H6`)`"%`QbgYfhU`]ghcZ`H`Y`VŁi`bhf]Yg`Zc`ck`]b[`Uddfcj`U`VmiH`Y`6Ub`_`
hc`Udd`miH`Y`fYghf]M]cb`cf`ghUH`_`Ā`cbYĀQ`"

I`bXYf`#H6`(",`fVŁ`UbX`#H6`)`"%`QbgYfhU`]ghcZ`H`Y`VŁi`bhf]Yg`Zc`ck`]b[`Uddfcj`U`VmiH`Y`6Ub`_`
hc`Udd`miH`Y`fYghf]M]cb`cf`ghUH`_`Ā`cbYĀQ`

"

GYMjcb'J =! : fUi X'UbX'7cffi dhjcb''

UŁ Di fdcgY'

fjŁ HAY'6Ub_Łj'ŁhY[f]m: fUa Yk cf_ 'UbX'h'lg'UbbYI 'Udd'mik j]h'fYgdYVh'hc'dfcWfYa Ybhi bXYf' 6Ub_Łj Ygra YbhDfc'YVh: j]bUbVj]b['cdYfUj]cbg''

VŁ FYei jfYa Ybhg'

- HAY'6Ub_ 'fYei jfYg'h'Uhi6cffi Yfg'f]bW X]b['VYbYZVjUf]Yg'cZ 6Ub_ 'Zj]bUbVj]b[Ł/V]XXYfg' fUdd'j]UbbhgŁ VŁbgj 'HUbhgŁ VŁbhfUMŁc'fg' UbX' gi dd'jYfg/ Ubm gi V!VŁbhfUMŁc'fgŁ gi V! VŁbgj 'HUbhgŁgYfj j]W'dfcj jXYfg'cf'gi dd'jYfg/UbmU[Ybhg'fk \Yh'Yf'XYWUfYX'cf'bcŁŁ/UbX' UbmŁZ h'Yf'dYfgcbbY'ŁcVgYfj Y'h'Y'\\[\Yghg'UbbXUfX'cZYh'j]g'Xi f]b['h'Y'dfcWfYa Ybhi dfcWggŁgY'YVh'cb'UbX VŁbhfUMŁYI YW'hjcb'cZ 6Ub_! Zj]bUbWX VŁbhfUMŁg'UbX fYzU]b'Zca' : fUi X'UbX'7cffi dhjcb'%'&''

- Hc'h'lg'YbXŁh'Y'6Ub_.'
- 8YZj]bYgŁZcf'h'Y'di fdcgYgcZ h'lg'dfcj j]gcbŁh'Y'h'fa ggYhŁcf h'VY'ck 'UgŁc'ck g.'

%ÅVŁffi dh' dfUMjWÅ' jg' h'Y' cZYf]b[Ł [j] b[Ł fYWj] b[Ł cf' gc'j]h' b[Ł X]fYVh'mi cf' j]bX]fYVh'mŁ cZ UbmŁh' b['cZ j U i Y' h'c' j]bZi YbW' ja dfcdYf'm h'Y' UMjcbg' cZ Ubch'Yf' dUf'm' /

&"ÅZUi Xi 'Ybhi dfUMjWÅ' jg' Ubm UMŁ cf' ca jgg]cbŁ j]bW X]b['a jgYdfYgYbUj]cbŁ h'Uhi _bck j]b['m cf' fYW'Ygg'mi a jgYUXgŁ cf' U'hYa dhg' h'c' a jgYUXŁ U' dUf'm' h'c' cVhU]b' Zj]bUbVj]b[cf'ch'Yf'VYbYZ]h'cf' h'c' Uj c]X'Ub'cV'[Uj]cb/

' "ÅVŁ' i gjj Y' dfUMjWÅ' jg' Ub' UffUbb[Ya Ybhi VYh'k Yyb' h'c' c'cf' a cfY' dUf'h'Yg' XYg] bYX' h'c' UMŁjYj Y' Ub' ja dfcdYf' di fdcgYŁ j]bW X]b['h'c' j]bZi YbW' ja dfcdYf'm h'Y' UMjcbg' cZ Ubch'Yf' dUf'm' /

("ÅVŁYfVj Y' dfUMjWÅ' jg' ja dUf]b['cf' \Ufa j]b[Ł cf' h'fYU'h' b]b['h'c' ja dUf]b['cf' \Ufa Ł X]fYVh'mi cf' j]bX]fYVh'mŁ Ubm dUf'mi cf' h'Y' dfcdYf'mi cZ h'Y' dUf'mi h'c' j]bZi YbW' ja dfcdYf'm h'Y' UMjcbg' cZ U' dUf'm' /

) "ÅcVgŁfi Vh'j Y' dfUMjWÅ' jg' :

- XYj]VYfU'h'mi XYgŁfcm]b[Ł ZUg]Z]b[Ł U'h'f]b[Ł cf' VŁbWU]b['cZ Yj jXYbW' a U'h'f]U' h'c' h'Y' j]bYgh[Uj]cb'cf' a U_]b['ZUgY'gh'U'h'a Ybhg' h'c' j]bYgh[U'h'c'fg]b' cfXYf' h'c' a U'h'f]U'm ja dYXY' U' 6Ub_ j]bYgh[Uj]cb' j]bhc' U'Y[Uj]cbg' cZ U' VŁffi dhŁ ZUi Xi 'YbhŁ VŁYfVj YŁ cf' VŁ' i gjj Y' dfUMjW / UbX#cf' h'fYU'h' b]b[Ł

In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

For the purpose of this sub-paragraph, "another party" refers to a public official acting in relation to the procurement process or contract execution, including Bank staff and employees of other organizations taking or reviewing procurement decisions.

For the purpose of this sub-paragraph, "party" refers to a public official, including Bank staff and employees of other organizations taking or reviewing procurement decisions.; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution."

\UfUgg]b[ž cf']bhja]XUh]b[' Ubmi dUfmi hc' dfYj Ybhi]h Zfa ' X]gVtcg]b[']hg _bck`YX[Y'cZ a UHfYfg'fY'Yj Ubh hc' h'Y']bj Ygh[Uh]cb'cf'Zfa 'di fg]]b['h'Y']bj Ygh[Uh]cb/cf'

- UWtg]bhYbXXY'hc'a UHf]U'm]a dYXY'h'Y'Yi YfV]gY'cZ'h'Y'6Ub_Āg]bgdYVW]cb UbX' U' X]h]f][\hg'dfcj]XYX'Zcf'i bXYf'dUfU[fUd\ '&'&'Y'"VY'ck "'
- FY'YVtg] U' dfcdcgU' Zcf' Uk UFX']Z h'Y' 6Ub_`XYHfYa]bYg' h'U' h'Y' Zfa ' cf']bX]j]Xi U' fYVt'a a YbXXY'Zcf'Uk UFX'ZUbmcZ]hg'dYfgcbbY'žcf']hg]U[Ybhgžcf']hg]g' V! Vtbg' 'h'ubhgžg' V! VtbfUWtcfgž' gYfj]W' dfcj]XYfgž' g' dd`Yfg' UbX# cf' h'Y]f' Ya d'cmYgž' \Ugž' X]fYVt'm'cf']bX]fYVt'nž'Yb[U[YX']b' Vtffi dhžZfU' Xi 'YbhžVt'`i g]j YžVt'YfV] Yžcf'cVgfr' V]j Y' dfUW]Wg']b' Vt'a dYh]b['Zcf'h'Y'VtbfUWt]b'ei Ygh]cb/
- ǂ'UXX]h]cb'hc' h'Y'`Y[U' fYa YX]Yg'gYh'ci h]b' h'Y' fY'Yj Ubh @[U' 5[fYYa Ybhž'a UmhU_Y' c'h'Yf'Uddfcdf]Uh'UW]cbgž]bW' X]b['XYWUf]b['a]gdfcW'fYa Ybhž']Z'h'Y'6Ub_`XYHfYa]bYg' Uh'Ubmi]h'a Y' h'U' h'fYdfYgYbhUh]j Yg'cZ'h'Y'6c'ffck Yf'cf'cZ'U'fYV]d]Ybh'cZ'UbmdUf'h'cZ'h'Y' dfcWYXg'cZ'h'Y'`cUb'Yb[U[YX']b' Vtffi dhžZfU' Xi 'YbhžVt'`i g]j YžVt'YfV] Yžcf'cVgfr' V]j Y' dfUW]Wg'Xi f]b['h'Y' dfcW'fYa Ybh'dfcW'gž'gY'VW]cb' UbX#cf'Yi YW'h]cb'cZ'h'Y' VtbfUWt]b'ei Ygh]cbž' `k]h'ci h' h'Y' 6c'ffck Yf' \Uj]b[' hU_Yb' h]a Y'm' UbX' Uddfcdf]Uh'UW]cb' gUhgZUWt'fmi'hc' h'Y'6Ub_`hc' UXXfYgg'g' W' dfUW]Wg'k Yb' h'YmcW'fž]bW' X]b['VmžU]]b[' hc']bZfa 'h'Y'6Ub_`]b'U'h]a Y'm'a UbbYf'Uh'h'Y'h]a Y' h'Ym_bYk 'cZ'h'Y' dfUW]Wg'`
- Di fg] Ubh hc' h'Y' 6Ub_g' ǂhY[f]mi : fUa Yk cf_` ' UbX']b' UWt'fXUbW' k]h' h'Y' 6Ub_Āg' dfYj U]]b[' gUbW]cbg'dc`]WYg'UbX' dfcW'Xi fYgž'a UmgUbW]cb'U' Zfa ' cf']bX]j]Xi U'žY]h'Yf']bXYZ]b]h'Y' mcf'Zcf'U'g'Uh'X' dYf]cX'cZ'h]a Yž]bW' X]b['Vmdi V']WmXYWUf]b['g' W' Zfa ' cf']bX]j]Xi U']bY'] []V'Y' f]k' hc' VY' Uk UFXYX' cf' c'h'Yfk]gY' VYbYZh' Zfa ' U' 6Ub_! Z]bUbWX' VtbfUWtž'Z]bUbW]U' mcf']b' Ubmich'Yf'a UbbYf'f]k'hc' VY'U'bca]bUh'YX`g' V! VtbfUWt'cfž' Vtbg' 'h'ubhž'a Ubi ZUW' fYf'cf'g' dd`Yfžcf'gYfj]W' dfcj]XYf'cZ'Ub'c'h'Yfk]gY'Y'] []V'Y' Zfa ' VY]b[' Uk UFXYX'U'6Ub_! Z]bUbWX' VtbfUWt'UbX' f]k'hc' fYW]j Y'h'Y' dfcWYXg'cZ'Ubmi'cUb' a UXY' Vm' h'Y' 6Ub_` cf' c'h'Yfk]gY' hc' dUf]V]dUh'Y' ž' f'h'Yf']b' h'Y' dfYdUfUh]cb' cf']a d'Ya YbhUh]cb'cZ'Ubmi6Ub_! Z]bUbWX' dfc'YVW'

FYei]fYg'h'U'U'WU' gY'VY']bW' XYX']b' V]XX]b['XcW'a Ybhg' UbX']b' VtbfUWt'g'Z]bUbWX' VmiU'6Ub_`cUbž'fYei]f]b['f]k' V]XXYfg'fUdd`]Wbhgž'Vtbg' 'h'ubhgž'VtbfUWt'cfgž'UbX' g' dd`Yfg' UbX' h'Y]f'g' V! VtbfUWt'cfgž'g' V! Vtbg' 'h'ubhgž' gYfj]W' dfcj]XYfgž'g' dd`Yfgž'U[Ybhgž'dYfgcbbY'ž'dYfa]h'

For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract. A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

hY'6Ub_hc'jbgdYVW%+`U`UWVei bhgžfYVčfXg'UbX'chYf'
XcW'a Ybhg'fY`Uh]b['hc'hY'dfcW/fYa YbhidfcWggž
gY`YV]cb'UbX#cf'VčbfUMhYI YVh]cbžUbX'hc'`Uj Y'
9bj]fcba YbhU'UbX'GcV]U'fPGL'fYei]fYa Ybhg''

HAYK cf_gĀdc`]Wh[cUžUg'U'a]b]a i a žg\ci `X'VY'ghUHX'hc']bhY[fUH'Ybj]fcba YbhU'dfchV]cbž
cWVdU]cbU'UbX'Vča a i b]hm\YU'h'UbX'guZYmž[YbXYfžYei U]mžV]X'dfchV]cbžj i `bYfUV`Y'
dYcd`Y'f]bW X]b['h'cgY'k]h'X]gU]`]hYgžgYI i U'`UfUgga Ybhž[YbXYf!VUgYX'j]c`YbWžGYI i U'
9I d'c]h]cb'UbX'5Vi gY'fG95kž < ÷ #5-8G' Uk UfYbYgg'UbX' dfYj Ybh]cb'UbX'k]XY' ghU_Y\c`XYf'
Yb[U[Ya Ybh]b'hY'd`Ubb]b['dfcWggYgždfc[fUa gžUbX'UM]j]hYg'cZhY'dUfh]Yg']bj c'j YX']b'hY'
YI YVh]cb'cZhY'K cf_g`HAY'9a d'cnYf']g'UXj]gYX'hc' Včbg' `hk]h' hAYK cfX'6Ub_hc' U[fY' hAY'
]ggj Yg'hc' VY']bW X'YX' k \]V`a Um U'gc' UXXfYgg' W]a UhY' UXUdh]cbž'UbX' UWēi]g]h]cb'UbX'
fYgYhYa Ybhž]bX] [Ybci g' dYcd`Yž YhW hAY' dc`]Wh g\ci `X' gYh' hAY' žUa Y' Zcf' a cb]hc]f]b[ž
Včbh]bi ci g]m]a dfcj]b['dfcWggYg'UbX'UM]j]hYg'UbX'Zcf'fYdcfh]b['cb'hY'Vča d']UbW'k]h' hAY'
dc`]Wh''

HAY'dc`]Whg'U'`]bW X'Y'U'ghU'Ya Ybh]h'UhžZcf'hY'di fdcgY'cZhY'dc`]WhUbX#cf'VčXY'cZVčbXi Včž
hY'hYfa `ĀV]XĀ#ĀV]XfYbĀa YUbg'UbmdYfgcbf]g'i bXYf'hY'U[Y'cZ% `mYUfg''

HAY'dc`]Whg\ci `Xž Ug'žUf' Ug'dcgg]V`Yž VY'Vf]YZ Vi h'gdYV]WUbX'YI d'`]hž UbX'a YUg' fUV`Yž hc'
YbUV`Y' fYdcfh]b['cZ Vča d']UbW'k]h' hAY'dc`]Wh]b' UWčfXUbW'k]h' Gi V!7'Ui gY'' '\$' `cZ hAY'
; YbYfU'7cbX]h]cbg'cZ7cbfUM''''

5g'U'a]b]a i a žhAY'dc`]Wh]g'Yhici h'hc'hAY'Vča a]ha Ybhg'hc'.

%' Udd'm[ccX']bhYfbU]cbU']bXi g'fmdfUM]W'hc' dfchV]h'UbX'VčbgYfj Y'hY'bUhi fU'
Ybj]fcba YbhUbX'hc'a]b]a]nY'i bUj c]XUV`Y']a dUM]g/
&" dfcj]XY'UbX'a U]bhU]b'U`YU'h'mUbX'guZY'k cf_`Ybj]fcba YbhUbX'guZY'gnghYa g'cZ
k cf_/
' " dfchV]h'hAY'\YU'h'UbX'guZYhmcZ`cW' Vča a i b]hYg'UbX'i gYfgžk]h' dUfh]W'Uf'
VčbWfb'Zcf'h'cgY'k \c'UfY'X]gU'YXžY'XYfnžcf'chYfk]gY'j i `bYfUV`Y/
(" VY']bhc`YfUbhcžžUbX'YbZcfW`X]gYd']bUfma YUg' fYg'Zcf']`Y[U'UM]j]hYg' Hc' VY'
]bhc`YfUbhcžžUbX'YbZcfW`X]gYd']bUfma YUg' fYg'Zcf' [YbXYf!VUgYX'j]c`YbWž

Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

]b\i a UbYfFYUha YbhžgYI i U`YI d`c]Uh]cbžfUdYžgYI i U`UWi gYžgYI i U`UMWj]Imk]h`
VX.]XfYbžUbX`gYI i U`UfUgga Ybh`

)"]bVčfdcfUHY`U[YbXYf`dYfgdYVWj Y`UbX`dfcj]XY`Ub`YbUV`]b[`Ybj]fcbā Ybhk`YfY
k ca Yb`UbX`a Yb`\Uj Y`Yei U`cddcfh b]Imhc`dUfh]VjdUHY`]bž UbX`VYbYZ]h žca ž
d`Ubb]b[`UbX`XYj Y`cda YbhicZhY`K cf_g/

*" k cf_ Vč!cdYfUhj Y`nž]bW X]b[`k]h`YbX`i gYfgicZhY`K cf_gžfY`Yj UbhUi h`cf]h]Ygž
VčbhfUMčfg`UbX`cWf`Vča a i b]h]Yg/

+" Yb[U[Y`k]h`UbX`]ghYb`hc`UZZYVWX`dYfgcbg`UbX`cf[Ub]nUh]cbg`UbX`VY`fYgdcbgj Y
hc`h`Yf] VčbWfbgž k]h`gdYVU`fY[UFX`Zcf`j i `bYfUV`Yž X]gUV`YXž UbX`Y`XYfm
dYcd`Y/

, " dfcj]XY`Ub`Ybj]fcbā Ybh`h`Uh`ZcghYfg`h`Y`YI V`Ub[Y`cZ]bžca Uh]cbžj]Yk gž UbX
]XYUg`h`Uh]g`žYY`cZUbmiZYUf`cZfYhU]Uh]cbžUbX`dfchVWg`k \]ghYV`ck Yfg/

- " a]b]a]nY`h`Y`f]g_`cZ Vča a i b]MV`Y`X]gYUgYg`UbX`hc`a]h[UHY`h`Y`YZZYVg`cZ
Vča a i b]MV`Y`X]gYUgYg`UggcVUHYX`k]h`h`Y`YI YVh]cb`cZhY`K cf_g/

H`Y`dc`]Vng\ci`X`VY`g[bYX`Vm`h`Y`gYb]cf`a UbU[Yf`cZh`Y`9a d`cmYf`H`]g]g`hc`g[bU`h`Y`]bhYbh
h`Uh]hk]`VY`Udd`YX`f[cfc i gmi

A`B`A I A`7CBH9BH`C: `9GF9EI`F`9A`9BHG`

č`dfYdUf]b[`XYhU]YX`gdYVW]VW]cbg`Zcf`9G`fYei]fYa Ybhgž`h`Y`gdYVU]ghg`g\ci`X`fYZYf`hc`UbX`
Včbg]XYf`

- dfc`YVh`fYdcfhg`Y"["9G-5#9GA`D
- VčbgYbh`dYfa]hVčbX]h]cbg
- fYei]fYX`ghUbXUfXg`]bW X]b[`6Ub_` fci d`9<G` i]XY`]bYg
- fY`Yj Ubh]bhYfbUh]cbU`Včbj Ybh]cbg`cf`fYUh]YgYhVčbUh]cbU`Y[U`UbX`#cf`fY[i`Uhc`fm
fYei]fYa Ybhg`UbX`ghUbXUfXg`fk`YfY`h`YgY`fYdfYgYbh`\[\Yf`ghUbXUfXg`h`Ub`h`Y
5ZB6`9<G` i]XY`]bYgk
- fY`Yj Ubh]bhYfbUh]cbU`ghUbXUfXg`Y"["K`<C` i]XY`]bYg`Zcf`GUZY`I`gY`cZDYgh]VX`Yg
- fY`Yj UbhgyVčf`ghUbXUfXg`Y"["9I`7ci bVY`8]fYVWj Y`-`%#&+%#997`7cbWfb]b[`I`fVUb
K`UghY`K`UHYf`fFYUha Ybh
- [f]Yj UbW`fYXfYgg`a`YV`Ub]ga`]bW X]b[`ImdYg`cZ[f]Yj UbWg`hc`VY`fYVčfYX`UbX
\ck`hc`dfchVhVčbZ]XYbh]U]ImY"["cZh`cgY`fYdcfh]b[`U`Y[Uh]cbgicZG95"
- G95`dfYj Ybh]cb`UbX`a`UbU[Ya Ybh`

H`Y`XYhU]`gdYVW]VW]cbg`Zcf`9G`g\ci`Xžhc`h`Y`YI hYbhidcgg]V`YžXYgW]VY`h`Y`]bhYbXYX`ci`hVča`Y`
fU`h`Yf`h`Ub`h`Y`a`Yh`cX`cZk`cf_]b["H`Y`9G`fYei]fYa Ybhg`g\ci`X`VY`dfYdUfYX`]b`a`UbbYf`h`Uh
XcYg`bchVčbZ]Vh`k]h`h`Y`fY`Yj Ubh` YbYfU`7cbX]h]cbg`cZ7cbhfUMh`UbX`DUfh]W`Uf`7cbX]h]cbg`
cZ7cbhfUMh`

H\Y'9a d'cnYf\g'9G'UbX'dfcWfYa Ybh'gdYV\U]g'g'g\ci 'X'V\bgjXYf'\ck 'H\Y'7cbhfUM\cf'k]''V\g'h
H\Y'XY'j] YfmcZH\Y'9G'fYei]fYa Ybh'g" b' H\Y'a U'cf]fmcZW\gYg'zH\Y'dUna YbhZcf'H\Y'XY'j] YfmcZ
9G'fYei]fYa Ybh'g'g\U''VY'U'g' Vg]X]UfmcV'[[Uh]cb'cZH\Y'7cbhfUM\cf'V\j YfYX'i bXYf'H\Y'df]Wg'
ei chYX'Zcf'chYf'6]''cZ E i Ubh]m]hYa g'cf'UM\j]hYg'': cf'YI Ua d'Yz bcfa U'm H\Y'V\g'h cZ
]a d'Ya Ybh]b['k cf_d'UM'gUZY'g'ghYa g'cZk cf_z]bW X]b['H\Y'a YUg'fYg'bYVWggUfmZcf'Ybg'f]b['
hfUZZ]WgUZYmz'g\U''VY'V\j YfYX'VmH\Y'6]XXYf\g'fUHYg'Zcf'H\Y'fY'Yj Ubh'k cf_g" 5'hYfbUh]j Ynz'
dfcj]g]cbU'g' a g'V\i 'X'VY'gYh'Ug]XY'Zcf'X]gVYHY'UM\j]hYg'Zcf'YI Ua d'Y'Zcf'< 3'V\i bgY''b['
gYfj]Wz UbXz UbXz; 6J #G95'Uk UfYbYgg'UbX'gYbg]h]nuh]cb'Uk UfYbYgg'UbX'gYbg]h]nuh]cb'cf'hc'
YbV\i fU[Y'H\Y'V\bfUM\cf'hc'XY'j] Yf'UXX]h]cbU'9G'ci hV\ta Yg'VYmcbX'H\Y'fYei]fYa Ybh'cZH\Y'
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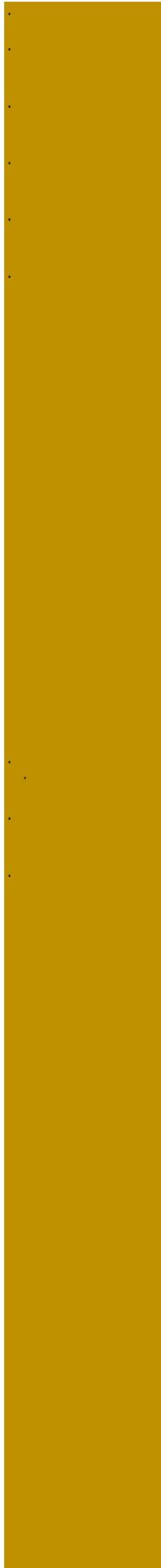
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Dfc'Yw6UW[fci bX'

HAY'Dfc'Yw'icb'B U]fcV]'GYk YfU[Y' a dfcj Ya Ybh'D\UgY' =]gdUfhicZ hAY'Uf[Yf'B U]fcV]'F]j Yfg' 6Ug]b' FY\UV]'hU]cb' UbX' FYg'cfU]cb' Dfc[fUa a Yz k \]W' U]a g' Uhi Yb\UbW'X' gi ghU]bUV'Y' a UbU[Ya Ybh'icZ hAY' B U]fcV]'F]j Yfg' hU]g' ddcfh'bUhi fU' Yw'g'ghYa g' fY[YbYfU]cbz'gcV]c! Yw'bca]WUW]j]h]Yg' UbX']a dfcj YX']j Y'\ccXg" HAY' f]j Yfg']b' hAY' B U]fcV]' 6Ug]b']bW' XY/ B U]fcV]'zB[cb[zA UH'UFYz?']i zF]UfU'UbX'; UH'UfU!]b' f]j Yfg"

HAY'8UbXcfU'9ghU]Y'GYk U[Y' HfYUha Ybh'D'UbhfB'9GHD']g' cW hYX' Uh8UbXcfU'9ghU]Y'cb' hAY' YUghYfb'YX[Y' cZ hAY' V]mz'Wcgy' hc' Fi U] UbX' hAY' W'ffYbhiV]mVci bXUfmh'Uhik Ug'YghU]]g'YX' g'c'fhmUZhf? Ybnu]g' bXYdYbXYbW']b' % * ' " #]Yg'UVci hgYj YbhYYb']ca YHf'g'Z'ca' hAY' V]mi WbhfY" HAY' g]hY' k Ug' YghU]]g'YX' Ug' hAY' df]bV]dU' 'cb[! hYfa' hYUha Ybh'g]hY' Z'cf' B U]fcV]']g' K Ug'hYk UHf']b' hAY' % +('GK' 97C'GYk YfU[Y'A Ug'hYf'D'Ub'Z'cf' hAY' V]mi'

D\UgY' =cZ89GHD'k Ug'W'a a]gg]cbYX']b' % , \$'UbX']bW' XYX'Ub']b'Yhk cf_g'Z'c'ck YX'Vmik c' dUfU'Y' gYf]Yg'cZk Ug'h'ghU]']nU]cb'dcbXg'9UW' gYf]Yg'cZdcbXg'k Ug'XYg] bYX'hc' hYUh'UXfm k YU hYf'Zck' fBK : E'cZ %) z\$\$\$a' #XUmUbX'W'a df]gYX'cbY' df]a UfmZUW' hU]j' Y'dcbXz'cbY' gYw'bXUfmZUW' hU]j' Y'dcbXz'UbX' h'c'a Uhi fU]cb'dcbXg"

HAY' D\UgY' =]b'Yhi kcf_g' W'a df]gYX' cZ h'c' W'UbbY'g'z']b' cbY' cZ k \]W' k Ug']bghU'YX' a YW'Ub]W' m'fU_YX' W'Ufgy' UbX' Z]bY' g'WYYbgz' [f]h fYa cj U' W'UbbY'g'k]h' a YW'Ub]W' [f]h W'c'Yw'icb'UbX'k Ug\]b[z'UbX'Zck' a YUg' fYa Ybh'UbX' fYw'fX]b['Yei]da Ybh' hAY']b'Yhk cf_g' k YfY'Yei]ddYX'hc' dUgg'U'8fmK YU hYf' : ck' fBK : E'cZ+) z\$\$\$a' #X'k]h' U'dYU_Zck' fU]Y'cZ' ' I'8K : " # k Ug']bhYbXYX' h'Uhi Uhi D\UgY' =z'Xi d']W hY' a UW']bYfmk ci 'X' VY']bghU'YX' UbX' U' gYw'bX' ZYXYf' W'UbbY'hc' hAY' dcbXg'k ci 'X' VY' W'cbg'fi W'X'UX'UW'bh'hc' hAY'Yi]gh]b[']b'Yh kcf_g"

5b']bgdYw'icb'cZD\UgY' =cZ hAY'GYk YfU[Y' hYUha Ybh'k cf_g'W'cbXi W'X']b' % , ' 'bchYX'j Uf]ci g' cdYfU]b[' dfcV'Ya g']b' hAY']b'Yhk cf_g' hAYgY']bW' XYX'.

Dccf'\nXfui']WXYg] b'

I bgU]gZUW'cfmigh'cfa' 'cj YfZck' UffUb[Ya Ybhi

HAY'a UW']bYfmk Ug'bch'fcVi ghYbci [\ 'Z'cf' hAY'di fdcgY']bghU'YX'

HAYfY'k Ug'bc' dfcj]g]cb'Z'cf' ghUbXVm]b' W'gY'cZVfYU_Xck b'UbX'a U]bhYbUbW'"

K \Yb' hAY'XYg] b'cZD\UgY' =k Ug'VY]b[' i bXYfhU_Ybz' hAY'XYg] b'g']b'W'fdcfU hYX'U'W'a d'YH'mi bYk']b'Yhi kcf_g/ hAY'cf]]bU']b'Yhi kcf_g'k Ug' a cX]Z]YX' UbX' fYU]bYX' Ug' U' gh'cfa' k UHf' hYUha Ybh'ZUW']m' Cj YfU'XYg] b'fYj]Yk YX' hAY'cf]]bU' dcbX' g'ghYa' UbX' W'cbW' XYX' h'Uhi hAY' dfYj]ci g'XYg] b'cj Yf! Ygh]a U hYX' hAY' W'dUW']m' cZ hAY' D\UgY' =dcbXg' hAY'mfYw'a a YbXYX' h'Uhi hAY' dcbX' W'dUW']m' g'ci 'X' VY' fYj]gYX'Xck bk UfXg'hc' % z\$\$\$a' #XUmZ'cf'YUW' gYf]Yg']bghU'X'

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cZ%) \$\$\$a' #XUm'

D\UgY' =cZ hY' 89GHD' k Ug Vta a]gg]cbYX']b' %- (" H\Y' bYk' dcbX' gngHYa' Vta df]gYg' gll' UXX]h]cbU' dUFU' Y' gyf]Yg' cZ' U[ccbgz' k]h' YUW' gyf]Yg' Vtbgl]b['cZ' U' df]a' UfmZUW' hU]j' Y' 'U[ccb' Zc' ck YX' VmihfY' a' U' fU]cb' dcbXg' H\Y' d\UgY' =gYk' U[Y' hfYUha' Ybh' k' cf_g' k' YfY' XYgll' bYX' hc' hfYUha' U' 8fmK' YUha' Yf: 'ck' cZ, \$\$\$a' #X' k']h']b' YhVdUW]mhc' dfc]j' XY' hfYUha' Ybh' i' d' hc' ' ' I' 8K : "H\Y' Z]bU' YZZi' YbhZca' hY' dcbX' gngHYa' gX]gVUf[Yg]bhc' hY' B' U]fcV] F]j' Yf"

H\Y' Vtbgrfi V]cb' cZ hY' UbUYfcV] WdcbXg' VYh' YYb' &\$\$) 'UbX' &\$('YUX' hc' hY' Xci' V]b[']b' VdUW]mhcZ89GHD' g' VdUW]mZca' , \$\$\$a' #XUmhc' %' \$\$\$a' #XUm'

D\UgY' =cZ hY' 89GHD']gi' bXYf' Vtbgrfi V]cb' "H']g]gYl' dYVWX' hc']b' VYUgY' hY' d' Ubh' g' VdUW]m' VmUb' UXX]h]cbU' &\$\$\$\$a' #XUmZca' %' \$\$\$a' #XUmhc' %' \$\$\$a' #XUm'

H\Y' df]bV]dU' XYhfa']b' UbhcZ hY' Zck' g' fYUW']b['89GHD']g' hY' VdUW]mhcZ hY' Yl']gh]b[' hfi' b_ ' gYk' Yf' ' b' cfXYf' hc' U] c]X' i' bYVt' bca']Wt' bgrfi V]cb' z hY' W' ffYbh]b' Yhk' cf_g' \U] Y' VYb' g]hYX']b' X]fYVh' fYU]h]cb' hc' hY' VdUW]mhcZ hY' Yl']gh]b[' a' U]b' hfi' b_ ' gYk' Yf' "H\Y' a' U] ja' i' a' 'Wffm]b[' VdUW]m' cZ' hY' a' U]b' hfi' b_ ' gYk' Yf' Yj' Yb' i' bXYf' dYfa']gg]V' Y' g' fVUf[Y' VtbX]h]cbg']g' -, *\$\$\$a' #X' UbX' h']g]gVfc' Yb' Xck' b' Ug' Zc' ck' g'

: 'ck' hc' fYW]j' Y' Z' ' hfYUha' Ybh' Uhd\UgY' =A' ' I' D\UgY' =8K : 'A' & (\$\$\$a' #XUm

Dfc]j']g]cb' Zcf' Z' h' fY' Zck' g' hc' fYW]j' Y' Z' ' hfYUha' Ybh! ' ' I' 8K : 'A' & (\$\$\$a' #XUm

: 'ck' g' hc' VY' X]gVUf[YX' X]fYVh' hc' hY' f]j' Yf' UZ' Yf' g' cfa' hfYUha' Ybh' cb' m' A' ' I' I' ' h]a' UY' 8K : 'A') \$* \$\$\$a' #XUm

7cbgrfi V]cb' cZ hY']b' Yhk' cf_g' k' Ug' XcbY' k']h' U' VdUW]mhc' hfYUha' & (\$\$\$a' #XUmUbX' h' YfY' k' Ug' dfc]j']g]cb' hc' Xi' d']VhY' hY']b' Yhk' cf_g']b' D\UgY' = "H\Y' a' U]b' ZYX' VUbbY' hc' hY' dcbXg' k' Ug' Vtbgrfi VYX' hc' 'Wffmi' d' hc' D\UgY' =Zck' g' H\Y' VdUW]mhcZ hY' a' U]b' ZYX' VUbbY']g' hY' fY' Zc' fY' U' a' U] ja' i' a' 'cZ(, \$\$\$a' #XUm'

H\Y' df]a' Ufm' VtbWfb' U' hY' 89GHD' ' b' Yh' K' cf_g' UbX' 7' UbbY']g' hY' ZU]i' fY' cZ' hY' Dfc[fUa' a' UV' Y' @ []W7cbhfc' gngHYa' fD@7' H\Y' ZU]i' fY' cZ' hY' D@7' gngHYa']b' & \$ % \$ \ UX' U' gll' b] ZUbbh]a' dUW]mcb' hY' dfcdYf' Z' bV]cb]b[' cZa' YWUb]W' UbX' Y' VVf]W' Yei']da' Ybh' U' hY']b' Yhk' cf_g' Gca' Y' cZ hY' gY' dfcV' Ya' g]bW' XY/

H\Y' g' cfa' 'k' UYf' c]j' YfZck' VUa' VYfg' UfY' Z' YX' k']h' g]h' UbX' XYVf]g' H']g' k' Ug' Ub']bX]W]h]cb' cZ' U' UW' cZVUg]W' a' U]bhYbUbW' U' hY' k' cf_g'

6YVU' gY' cZ hY' VfyU' Xck' b' cZU' bi' a' VYf' cZ Y' VVf' c' a' YWUb]W']hY' a' g' h' U' hY' bchfY' a' YX]YX' U' hY' h]a' Y' cZ hY' ZU]i' fY' z hY' Ybh]fY']b' Yhk' cf_g' k' Ug' bck' 'ci' h' cZVta' a']gg]cb' U' hY' h]a' Y' UbX' k' Ug' VY]b[' Vm' dUggYX"

5' ' hY' Yei']da' Ybh' Zcf' a' YUg' f]b[' Zck' g]bhc' UbX' ci' h' cZ hY']b' Yhk' cf_g' k' Ug' a']gg]b[' UbX' gc' bc' U' VV' fU' h' fYVt' fXg' cZ hY' Zck' g' k' YfY' U] U] UV' Y"

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HAY' f]hFYa c] U'Yei]da YbhUhHAY'għfa 'k UHY' dFY! hFYUha YbhZUMV]hm\UX'VYYb'ci hēZi gY' Zcf'U'bi a VYf'cZnYUfg"

HAY'gVēdY'cZk cf_għc'VY'Wff]YX'ci hēk]''bj c] Y'fY\UV]]hU]cb'cZHAY'89GHD']b'Yhēk cf_għc' cdh]a]nY' HAY'Vēa dcbYbhg'\Ufa YX'VmZU]YX'D@/gngħYa ŽFY\UV]]hU]cb'cZYI]gh]b['d\UgY'==]b'Yhēk cf_gžXi d']WU]cb'cZHAY']b'Yhēk cf_għc'Zcfa 'D\UgY'==]b'Yhēk cf_g'UbX'Zck 'gYdUfU]cb' hē'UbUYfcV]WdcbXgZcfa 'hAY'X]għf]Vi h]cb'WUbbY'"

Dfc'YVē7ca dcbYbhg'

HAY'k cf_gi bXYf'H.]gUgg][ba YbhYbhU]'FY\UV]]hU]cb'UbX'9l dUbg]cb'cZ8UbXcfU'GYk YfU[Y' hFYUha Ybh'D'Ubh'f89GHDē'ēb'Yhēk cf_g" HAY'gVēdY'cZHAY'k cf_g'k]''bj c] Y'Vi hēk]''bchVY' 'ja]hYX'hē'hAY'Zē'ck]b[.'

- 89GHD'ēb'YhFY\UV]]hU]cb'K cf_g'
- 89GHD'ēb'Yh9l dUbg]cb'k cf_g'
- 8Ygi X[]b[#8Yg]h]b['UbX'WUbb]b['cZ89GHD'5bUYfcV]Vē: UW'hU]j Y'UbX'A Uhi fU]cb' DcbXgħf]bW X]b['fYa c] U'cZ\mU]bHē'
- FY\UV]]hU]cb'cZ5WVgg'FcUXg'
- 7cbgħfi W]cb'cZU'għcfa k UHY'XfU]b'VYhk YYb'D\UgY'==UbX'D\UgY'==dcbXg'
- 6ci bXUfmK U''cb'9UghYfb'9X[Y'cZ89GHD'
- 8]g'cX[]b['8YVf]g'Zcfa 'hAY'?]i 'F]j Yf'HG'F]] Yf'7fcgg]b['UbX'gē'i h]cbg'Zcf'dFYj Ybh]b[' Z hē fY'Vi]X!i d'cZXYVf]g'
- FY\UV]]hU]cb'cZHAY'9ZZi YbhCi hYh7\UbbY'g'
- 8Yg]h]b['cZBU]fcV]'HG''

7cbgħfi W]cb'DYf]cX'

HAY'7cbgħfi W]cb'DYf]cX']g% 'a cbh\gk]h'U'%&! a cbh'8YZWg'Bch]ZWU]cb'DYf]cX'"

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' "GjHY'UbX'C hAYf'8UHU'

% @Wjcb'

HAY'8UbXcfU'9ghUHY'GYkU[Y'HFYUha YbhiD'Ubhi]g'cWjHYX'k Jh]b'BUjfcV]'7]hm'B'BUjfcV]'7]hm]g'
hAY'5Xa]b]ghfUhj Y'7Ud]HU'cZ hAY'FYdi V'jWcZ?YbntUz'cWjHYX'UVci h'(% \$'_a 'gci h'cZ hAY'
Yei UhcFzUbX'Uddfc] ja UHY'm) \$\$'_a 'k YghicZ hAY'fbX]Ub'C WUb'7]hmcZA ca VUgU' h'VcfXYfg'
?U]UXc'7ci bhmhc'hAY'Gci h'z?]Ua Vi '7ci bhmhc'hAY'Bcfh' / 'K Ygh'UbX'A UMU_cg'hc'hAY'
9Ugh' h'icWVd]Yg'U'hcHU'UbX'UFYU'cZUVci h'*(-) '%_a &'VYh YYb'cb[]h XYg' *s'() Å9Ugh'UbX'
'Uh]h XYg'%s's% ÅGci h'"BUjfcV]'7ci bhm]g'cbY'Ua cb['hAY'Zj Y'Væi bh]Yg'fP]Ua Vi z?U]UXcz
A UMU_cg'UbX'A i fUb[ÅE i bXYf'hAY'BUjfcV]'A Yhfcd'j]ub'FY[]cb'UbX'Væbg]XYfYX'Ug'Ub'
ja dcfhUbhfY[]cbU'WbhfY'Zcf'hfUXYZVæa a YfWZ]bhY[fUjcb'UbX'YVæbca]WXYj Y'cda Ybh'



:][i fY' .Dfc'YVh'@Wjcb'f]a U[Y'Zca ' ; cc['Y'9Ufh'Å'

&' Hcdc[fUd\mi

BUjfcV]'7ci bhm]Yg'Uh hAY'YX[Y'cZ5h]'?Ud]h'DU]bg'UbX'hAY'ck Yf'gcdYg'cZ?'_i m' UbX'hAY'
5VYfXUFYg'YgWfda Ybhk]h'Ub'U'h]h XY'cZUVci h'%, \$\$_a 'Ug'"HAY'hcdc[fUd\mcZBUjfcV]'
gcdYg'Zca 'K Ygh'hc'9Ugh'UbX']g']bZi YbWXX'Vm hAY'hfUj Yfg]b['k UHYf'Væi fgYg'ff]j Yfg'UbX'
ghfYUa g'cf][]bUh]b['Zca 'hAY'gci hAYfb'ck Yf'gcdYg'cZ hAY'5VYfXUFYg'UbX'?'_i m' Gdf]b[g'
UbX'hAY'B[cb['<]'g'hUhiYbX'hc'Zc'ck'hAY'gla Y'hfYbX'hck UFXg'hAY'fbX]Ub'C WUb'j]U'hAY'
5h]'Fj Yf'6Ug]b'"h]g'bchYX'hUha cghicZ hAY'UbX'g' fZUW']b'hAY'fY[]cb'\Ug'VYYb']bhYfZYfYX'
k]h'Vm\i a Ub'UWj]h]Ygcj Yf'hAY'mYfg'hfci [\YI Wj Uh]cbgk]h'g][b]ZVUbh]a d']Wjcbg'cb'
hAY'a]Wc'\nXfc'c[mUbX'XfU]bU[Y'dUHYfbg'K \]Y'hAY'hcdc[fUd\mk ci 'X'U'ck 'g' fZUW'
fi bcZZ'hYfY']g][b]ZVUbh]ZccX]b[]b'hAY'V]miXi f]b['hAY'fU]bmigYUg'cb'"

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H\Y'W]a UhY']b' B U]fcV]]g'hfcd]W' H\Y'fU]bZU']g'V]a cXU'k]h'`cb['Xi fU]cb'fU]bg'cW'ff]b[' VYrk YYb'A UfW' UbX'A Unžk \]Y'h\Y'g\cfhXi fU]cb'fU]bg'cW'f'Zca '5i [i gh'hc' Bcj Ya VYf' H\Y'fU]bZU'`fUb[Yg'VYrk YYb'+) \$a a 'hc'%' \$ \$'a a žk]h' U'a YUb'Ubbi U'fU]bZU'`cZ+) \$a a " HYa dYfUhi fYg'j Ufm'VYrk YYb' %+š7' UbX' &+š7'" š bY' UbX' š `m'UfY' H\Y' a cbh'g'k]h'`ck Ygh' HYa dYfUhi fYž'k \]Y'h\Y'`c'hYgh' a cbh'g' UfY' šUbi Ufm'UbX' GydhYa VYf'k]h' U' HYa dYfUhi fY' fUb[Y'VYrk YYb'&) š7' UbX' &+š7'"

(" ; Yc`c[]W'UbX'Gi V!gc]'7cbX]h]cbg'

B U]fcV]`7]]m']Yg'k]h']b' U'j c`WUb]WgYh]b['h'Uh'fYg' 'hYX'Zca 'H\Y'F]Zh'J U'YmZcfa Uh]cb'"H\Y' j c`WUb]WfcWg'cj Yf']Y'a YHLa cfd\]WfcWg'cZBYc! DfchYfcnc]W9fU'"H\Y'a YHLa cfd\]WfcWg' Vžbg]ghcZUbV]Ybh'gYX]a Ybh'žk \]W'g' VgYei Ybh'mk YfY'a YHLa cfd\cgYX' Ug'U'fYg' 'hcZ\][\ ' HYa dYfUhi fYg'UbX'dfYgg' fYg'"H\Y'fcWg']b'h\Y' B U]fcV]'7cfY'UfYU'h\YfYZcfY'a U]b'm'Vž'a df]gY' U'g' W'gg]cb'cZ'Uj Ug'UbX']bW' XY'd\cbc']h'gž'fUW'nmYgž'UbX'h\Y'f'j Uf]Uh]cbg'"H\Y'gc]'g'cZ'h\Y' B U]fcV]'UfYU'UfY'dfcXi W'g'cZ'k YU'h\Yf]b['cZ'a U]b'm'j c`WUb]WfcWg' UbX'\ Ug'dfcXi W'X'fYX' gc]'g'h'Uh'fYUW'a cfY'h'Ub') \$ZYh'f' a Ł]b'h']W'bYgg'"

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GdYVZVWhcb`

GD97 ÷ ÷ 5HCBG'657?; FCI B8`

Vj g'ur gekhlecvkpu'qwwkpgf 'j gtgwpf gt'j cxg'dggp'cf qr vgf 'ltqo 'y' g'hqmqy kpi 'DUGP.'Mgp{cp'Ucpcfctf u'*MU+."
Eqf gu'qh'Rtcevleg'cpf 'F guki p'O cpwcnr`"
"

O kpkut{ "qh"Y cvgt "cpf "Ktki cvkqp"ó"Rtcevleg"O cpwcnr'hqt"Y cvgt "Uwr r n{ "ugt xlegu"lp" Mgp{ c.'Qevqdg'42280'
Y cvgt "Uwr r n{ "ó"CE"Vy qtv'gv'cníó"7Y "Gf kkp"
Dcuke"Y cvgt "Vtgcwo gpv'hqt'cr r rlecvkqp"Y qtrf y kf g'ó'I gqti g'Uo gj twuv'3; 9; "
Y cvgt "cpf "Y cugy cvgt "Gpi kpggtkpi ."Xqno g"3"("4"ó"I qtf qp"O 0Hck=Lqj p"E0'I g{ gt=F cplgriC0Qmvp"
Y cvgt "cpf "Y cugy cvgt "Vgej pqmqi { "/"O ctníL0J co o gt "cpf "O ctníL0J co o gt "Lr0"ó" óY "Gf kkp"
DU'5727"ó"Ur gekhlecvkpu'hqt'wRXE'r tguuwtg'r kr gu'hqt'Eqr f'Rqtvedng'Y cvgt0'
DU"5823ICY Y C"422"ó"Ur gekhlecvkqp"qh"Uggri'Rkr gu"cpf "wdgu"hqt"Rtguuwtg'r wtr qugu"
MU'28/36; 'Rctv'4"ó"Ur gekhlecvkqp'hqt'wRXE"Y cvgt "Rtguuwtg'Rkr gu"
Y J Q'Tgr qtv'P q06"ó"Ugrgevkqp"cpf "F guki p'Etkgtkc'hqt'Ego o wpk{ "Y cvgt "Uwr r n{ "Rtqlgev"
DU'5823"ó"Ur gekhlecvkqp'hqt'Uggri'Rkr gu"cpf "Vwdgu'hqt'Rtguuwtg'r wtr qugu"
"

Vj g'tghgtgpegu'ctg'wugf 'kp'c'eqo r ngo gpvct{ 'o cppgt0Y j gt g'tgs vktgo gpw'qh'vy q'qt'o qt g'eqf gu'qt'ucpcfctf u"
ctg'hqwpf "vq'eqphlev'y' g'o qt g'utkpi gpv'qh'y' go 'ku'cf qr vgf 'hqt'y' g'r wtr qug'qh'y' ku'r tqlgev0'
"
Y j gpgxgt" tghgtgpeg" ku" o cf g" vq" òVj g" Gpi kpggtö" *qt" òVj g" Tgukf gpv" Gpi kpggtö+" qt" òVj g" Gpi kpggtö"
Tgr tguuwtg'v'xgö'kp'y' g'ur gekhlecvkpu.'k'uj cni'dg'eqpwtv'gf "vq'o gcp"òVj g"Rtqlgev'O cpci gtö"qt"òVj g"Rtqlgev"
O cpci gtö"Rtqlgev"O cpci gtö"Rtqlgev"O cpci gtö"Rtqlgev"O cpci gtö"Rtqlgev"O cpci gtö"Rtqlgev"O cpci gtö"Rtqlgev"
"

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LIST OF CLAUSES"

GD97 ÷ ÷ 5H€BG 657?; FCI B 8%	-
H97 < B ÷ 5@GD97 ÷ ÷ 5H€BG'9ffc'6cc_a Uf_ 'bchXYZbYX"	
NKUV'QH'ENC'WUGU%& \$	
G97H€B %'''; 9B 9F 5@F 9E I ÷ 9A 9B HG%	-
323 RTQLGEV'DCEMI TQWPF%	-
323Ø	VJ G'RTQLGEV'CTGC%& -
101.1.1	Location	149
101.1.2	Topography.....	149
101.1.3	Climate.....	149
101.1.4	Geological and Sub-soil Conditions	150
323Ø	RTQLGEV'EQO RQP GP VU%& \$
324 S WCNK	'CPF 'CRRTQXCNU%& \$
325 EQP UVTWEVQ	'F QEWO GP VU%& %
326 QRGTCVQ	'CPF 'O C R VGP CPEG'O CP WCNU%& %
327 NGXGN'F CVWO	%& %
328 UGVVRI	'QW'QH'VJ G'Y QTMU%& &
329 DQWPFCTKGU'QH'Y QTMU	%& &
32: Y QTM'VJ TQW J	'RTKCVG'NCPF%& ' .
32; RWDNE'WKNK	'O C R UCPF 'UGTXIEGU%& ' .
332 UCHGI WCTFUVQ'GZKVR	'R R GU.'ECDNGU.'UVTWEVWTGU%& ' .
333 TGEQTF'F TCY R I U	%& (.
334 EQP PGEVQ U'VQ'GZKVR	'R R GU.'ECDNGU'CPF 'GS WRO GP V%& (.
335 Nk J VR I .	'Y CVEJ R I 'CPF 'VTCHHE'EQP VTQN%& (.
336 EQP VTCEVQTØUQHHEGU	%& (.
337 RTQLGEV'O CPCI GTØUQHHEG	%&) .
338 XGI KENGU'HQT'VJ G'RTQLGEV'O CPCI GT	%& + .
339 EQP VTCEVQTØU[CTFU.'UVTGTU'CPF 'CEEQO O QFCVQ'HT'Y QTMO GP	%& + .
33: Y CVGT'CPF 'NGEVTIEK	'UWRRNGU%& , .
33; EQP VTCEVQTØU'VCHH'CPF 'Y QTMO GP	%& , .
342 VTCR R I	'QH'GORNQI GTU'Y QTMO GP%& , .
343 RTQLGEV'O CPCI GO GP V	%& , .
343ØO QP VJ N	'UVCVGO GP VU'CPF 'EGTVKHECVGU%& - .
343ØRTQI TGUU'O GGVRI U	%* \$
344 GS WRO GP V'HT'VJ G'GORNQI GT	%* \$
345 HCEKNK'GUHQT'UWXTG	'CPF 'K URGEVQ'P'D['VJ G'RTQLGEV'O CPCI GT%* \$
346 K URGEVQ'P'D['VJ G'RTQLGEV'O CPCI GT'F WT R I	'F GHGEVU'NCDKNK	'RGTIQF

347 RTQVGEV&G'ENQVJ RPI 'CPF'UCHGV['GS WRO GP V'.....%* %
 348 P QV&EG'DQCTFU'.....%* %
 349 NCPI WCI G'QH'EQT TGURQPF GPEG'CPF'TGEQTFU'.....%* %
 34: UVC PFCTFU'CPF'TGI WNCVQPU'.....%* %
 34: 'GS W&CNGPE['QH'UVC PFCTFU'CPF'EQFGU'.....%* &
 352 S WCN&['EQPVTQN'.....%* &
 353 Wp&U' %* &
 354 R&URGEVQ'CPF'VGUV&I 'FWTRPI 'O CPWHCEVWTG'.....%* &
 G97H&B '&' 95FH<K CF?GZ657?: @&B; '5B8'F9GHC F5H&B '.....%* '
 &\$%EQPF&VQPU'QH'U&G'.....%* '
 &\$&U&G'ENGCTCPEG'CPF'VQRUQ&'TGO QXCN'.....%* '
 &\$' GTQUQP' %* ('
 &\$(I TQWPF'NGXGNU'.....%* ('
 &\$) VTICN'J QNGU' %* ('
 &\$* GZECXCVQ'P' GP GTCNN['.....%* ('
 &\$+ GZECXCVQ'P' GZEGU'.....%*) '
 &\$, OGEJ CP&ECN'GZECXCVQ'P'.....%*) '
 &\$- GZECXCVQ'P' HQT'R&GNC[RPI '.....%*) '
 &/%J GCF RPI U' %* * '
 &/%GZECXCVQ'P' HQT'HQWPF CVQPU'QH'U&TWEVWTG'.....%* * '
 &/%TQEM'U&THCEGU'WPF GT'EQPETGVG'U&TWEVWTG'.....%* * '
 434& ' EQPETGVG'RNCEGF 'F K&GEVN['QP'TQEM'.....%* * '
 434& ' EQPETGVG'RNCEGF 'QP'ECRR&I 'NC[GT '.....%* + '
 &% GZRNQU&GU' %* + '
 &%(GZECXCVGF'O CVGTICNU'U&W&CDNG'HQT'TG/WUG'.....%* + '
 &%) DCEMH&N&I 'QH'GZECXCVQPU'.....%* , '
 &/% R&G'DGFF RPI U'.....%* , '
 &/% EQORCEVQ'P' H&CEVQ'P' VGU'.....%+ \$ '
 439& ' CRRCTCVWUTGS W&TG<'.....%+ \$ '
 &% UGNGEVGF'DCEMH&N'O CVGTICN'.....%+ \$ '
 &% DCEMH&N&I 'QH'R&G'VTGPEJ GU'.....%+ \$ '
 &/% OCM&I 'I QQF'U&DU&F GPEG'CHVGT'DCEMH&N&I '.....%+ % '
 &/% TGO QXCN'QH'V&ODGT RPI 'HTQO'GZECXCVQPU'.....%+ % '
 &/% TGR UVCVGO GP V'QH'U&THCEGU'.....%+ % '
 &/' UCHGV['QH'GZECXCVQPU'P' TQCFU'.....%+ ' '
 &/(VGORQTCT['TGR UVCVGO GP V'QH'CURJ CNVGF 'TQCFU'.....%+ ' '
 &/(VGORQTCT['TGR UVCVGO GP V'QH'W&O C FGTQCFU'.....%+ ('
 &/% RGT OCPGP V'TGR UVCVGO GP V'QH'CURJ CNV&'TQCFU'.....%+ ('
 &/% HQT O RPI 'DCPMU'CPF'H&NGF 'CTGCU'.....%+ ('
 &/% TGUVTQCVQ'P' QH'DQTTQY 'CTGCU.'URQ&'VRUCPF 'S WCTTIGU'.....%+ ('

&&- VQR'UQNNPI 'CPF'I TCUURI%+ (.
 & \$HGGFTCRPI 'HNN%+) .
 & %J CTFEQTG' %+) .

G97HCB ' ' "

7CB7F9H9K CF?GÀ; 9B9F5@%+ *

' \$%' UERG%+ * .
 524"EQPETGVG%+ + .
 VCDNG'5B'O R K WO 'EGO GP V'EQP VGP VU'%+ + .
 524Q'UVTGPI VJ%+ , .
 524Q'O KGU'%+ , .
 524Q' S WCNK'EQP VTQN'%+ - .
 524Q' RTQF WEVIQP% \$.
 524Q' EGO GP V'% (.
 524Q' CI I TGI CVGU'%) .
 524Q' Y CVGT'% , .
 524Q' C F O K VWTGU'% , .
 524Q' EQP VTQN'QH'CNMCNK'UNEC'TGCEVIQP'% - .
 525"TGPHQTEGO GP V'% - .
 525Q' UVQTCI G'% - .
 525Q' DGPFRPI 'CPF'HKRPI% \$.
 525Q' EQWRNGTU'% % .
 526HQTO Y QTM' % %
 526Q' UCY P'HQTO Y QTM'% ' .
 526Q' Y TQW J V'HQTO Y QTM'% ' .
 526Q' URGEKN'Y TQW J V'HQTO Y QTM'% ' .
 526Q' VQNGTCPEGU'% ' .
 526Q' UVTMPRI 'CPF'TGO QXCN'% (.
 527EQPETGVRI ' %) .
 527Q' VTCPURQTVRI%) .
 527Q' RNCEPI 'CPF'EQORCEVIQP% * .
 STRUCTURAL CONCRETE APPROVAL FORM (SCAF) 198
 527Q' EQPETGVRI 'R'F GGR'NMU'&\$ \$.
 527Q' EQP VR WQWUEQPETGVRI&\$ & .
 527Q' J QV'Y GCVI GT'EQPETGVRI 'HQT'VGO RGTCVWTGU'CDQXG'42'F GI TGGU'
 EGP VR TCFG+ &\$ & .
 527Q' Y GV'Y GCVI GT'EQPETGVRI&\$ ' .
 527Q' J QNGU'ECXKVGUCPF'HKRPI U'&\$ ' .
 527Q' RTQVGEVIQP'CPF'EWTRPI&\$ (.
 527Q' LQRVU'&\$, .
 527Q'3"HR KJ GU' I GP GTCN'&% % .
 528 VGUVRPI ' &% .

52804 NQCFRPI "VGUV".....&%(
529 URGEKN"EQPETGVG".....&%(
52904 CKT/GP VTCRPF "EQPETGVG".....&%(
52905 EQPETGVG"R"DGPEJ RPI ".....&%(
52906 TGCFL "O KZGF "EQPETGVG".....&&\$
52907 I TCPQNKVJ R "EQPETGVG".....&&\$
52908 RPGWOCVKECNNI "CRRNGF "O QTVCT"R I WP KVG".....&&\$
52909 EGO GP V I TQWU".....&&&
5290 RWO RGF "EQPETGVG".....&&&
52: RTGECUV"EQPETGVG"WP KU".....&&&
52: 04 MGTDU".....&&
52: 05 RCXRPI "UNCDU".....&&(
52: 06 QVJ GT"DNQEMU".....&&(
52: 07 Y CNN"WP KU".....&&(
52: 08 QVJ GT"KVGOU".....&&(
52; UKVG"DQQMUCPF"UVC PFCTFU".....&&(
52; 04 UKVG"FKT[".....&&(
52; 05 EQRKUQH"UVC PFCTFU"CPF "EQFGU".....&&(
532 Y CVGT"TGVCRRPI "UVTWEVWTGU/"URGEKN"ENCWUGU".....&&(
5320 O CMRPI "I QQF ".....&&(
53204 EQPUVTWEVQP "LQPVUR"Y CVGT"TGVCRRPI "UVTWEVWTGU".....&&(
53205 Y CVGTVKJ VP GU"QH"UVTWEVWTGU".....&&*
53206 J [FTQRJ KNE"TWDDGT"UGCNGT".....&&*
53207 Y CVGTRTQQH"O GO DTC PGUHQ"EQPETGVG"TTQHUCPF "I WVGU".....&&*
G97HCB (.....D=D9@B 9GZD=D9K CF?&&,
623 I GP GTCN' && ,
62304 O CVGTICNU".....&& ,
62305 CRRTXCN".....&& ,
62306 F IO GP UQPU".....&& ,
62307 RCEMCI RPI "CPF "RTQVGEVQPU".....&& ,
62308 OCTMRI ".....&&-
62309 TGEGRV."UVQTCI G."J CPFNRPI "CPF "VTCPURQTVCVQP ".....&&-
6230 OCPWHCEVWTGTU"EGTVKKECVGU".....&&-
6230 RTQRTKGVCT["O CVGTICNU".....&&-
62302 TGLGEVGF "O CVGTICNU".....&' \$
624 UCORNGUCPF "UVQTCI G"QHO CVGTICNU".....&' \$
625 HNCPI GU' &' \$
626 OGEJ CP KECN"EQWRNRPI U".....&' \$
627 O CVGTICNU"HT"VJ G"CUGODN["QH"NGZ KONG"LRPVU".....&' %
628 FWEVNG"KQP "RRGU".....&' %

62804' EQTTQUKQP 'RTQVGEVQIP'&' %
629 I CNXCP KGF 'UVGN'RRGU'&' %
62: UVGN'RRGU' &' %
62: 04' EQTTQUKQP 'RTQVGEVQIP'&' &
62; I NCUTGRHQTEGF 'RNCUVE' *I TR+RREGUCPF 'HKVVR I U'&' &
632 WRXE'UGY GTUCPF 'RTGUWTG'RREGUCPF 'HKVVR I U'&' &
633 EQPETGVGRRGU.'DGFUCPF 'LWPEVQPU'&' ' .
634 J FRGRRGUCPF 'HKVVR I U'&' ' .
63404' EQORQWPF 'O CVGTICN'&' (.
63405' KGP VHECVQIP 'EQORQWPF'&' (.
63406' I GP GTCN'CRRGCTCPEG'&' (.
63407' EQNQT'&' (.
63408' FKGP UKPU'&' (.
63409' OCTMRI U'&' (.
6340' LQKVR I 'QHRRGU'&') .
63408' I GP GTCN'&' * .
63404' LQK VU'&' * .
635 I CVG'XCNXGU'&' * .
63504' Y GFI GI CVG'XCNXGU'HQT'O CP WCN'QRGTCVQIP'&' + .
636 DWVGT HNJ 'XCNXGU'&' + .
63604' EQPUVTWEVQIP'&' , .
63605' XCNXGRGTHQTOCPEG'&' , .
63606' VGUVR I'&' , .
637 CK'XCNXGU' &' , .
638 P QP/TGVWTP 'XCNXGU'&' - .
63804' P Q\ \ NG'EJ GEM'XCNXGU'&' - .
639 HNQY 'EQPVTQN'XCNXGU'&' - .
63: RTGUWTG'TGFWEVR I 'XCNXGU'&' - .
63; DCNN'HNQCV'XCNXGU'&' - .
642 EQPUVCPVHNQY 'XCNXGU'&' (\$.
643 UWTHCEG'DQZGUCPF 'EJ CODGT'EQXGTU'&' (\$.
644 I WNNJ 'I TCVVR I U'CPF 'HICOGU'&' %
645 OCPJ QNG'UCHGVJ 'EJ CKU'&' %
646 OCPJ QNG'CPF 'EJ CODGT'CEEGUEQXGTU'&' %
647 OCPJ QNG'UVGR'KQPU'&' &
G97HCB '(6" D=D9@B 97CBGFI 7HCB&' ('
648 I GP GTCN' &' (' .
649 VQRQI TCRJ K'UWIXGJ U'&' (' .
64: J CPFNR I 'CPF 'VTCPUQRTV'QHRRGUCPF 'HKVVR I U'&' (' .
64; UVTRI RI 'CPF 'GZCO KCVQIP 'QHRRGURTKQT'VQ'NCI RI&' ((.

652 NC[RPI "RRGU&() .
652B' GO DGF O GP V'CPF 'EQORCEVIQP&() .
652C' RRGUNCF 'R' 'VTGPEJ& * .
652D' RRG'DGFF RPI 'CPF 'UWTTQWPF& * .
652E' RRGUNCF 'CDQXGI TQWPF& + .
653 EWWVRI 'RRGU& + .
654 RTQRTGVCT['LQR VU'CPF 'EQWRNRI U'& , .
655 HNCPI GF 'LQR VU'& , .
656 UVGN'RRGNR GU'Y GNF GF 'LQR VU'& , .
657 HIZ RPI 'XCNXGU'CPF 'RGP UVQEMU'& - .
658 VJ TWUV'CPF 'CPEJ QT' DNQEMU& - .
659 EQPETGVG'UWTTQWPF 'VQ'RRGU& - .
65: HNQVCVIQP 'QHRRGNR GU'& - .
65; RTGUWTG'TCVRI&) \$.
662 VGUVR I 'QH'Y CVGT'UWRN['RRGNR GU'&) \$.
663 ENGCPUR I 'CPF 'UVGTNK RPI 'QH'RRGNR GU'&) % .
664 RCR VRI ' &) & .
665 EQPPGEVIQP UVQ'CPF 'F >UQP UVQ'GZKVR I 'RRGY QTM'&) & .
665C' O CVGTICNU'&) ' .
665D' RGTUQPP GN'&) ' .
665E' RTGNK RCT['Y QTM'&) ' .
665F' ECTT[RPI 'QWV'VJ G'Y QTM'&) (.
665G' Y CVGT'RRGU'CPF 'EJ CODGTU'VQ'DG'CDCPF QP GF'&) (.
G97HCB '(7".....8F5-BGZG9K 9FG5B8'A 5B<C@G&))
6660 GZECXCVQP 'HQT'FTCR U'UGY GTU'CPF 'O CPJ QNGU'&)) .
6670 UWRRTVU'HQT'RKVU'VTGPEJ GU'CPF 'QVJ GT'GZECXCVQPU'&)) .
6680 TQEMEWWVRI 'R' 'VTGPEJ GU'HQT'RRGU'&)) .
6690 Y CVGT'R' 'VTGPEJ GU'HQT'RRGNR GU'&)) .
66: 0 NC[RPI 'CPF 'LQR VRI 'TK R' 'LQR VGF 'EQPETGVG'RRGU'&) * .
66; 0 RRGUNCF 'Y KVJ 'QGRP 'LQR VU'&) * .
6720 F TCR UVQ'DG'NGH'ENGCP 'QP'EQORNGVIQP&) * .
6730 TGHKNRI 'VTGPEJ GU'&) * .
6740 EQPPGEVIQP UQH'GZKVR I 'UGY GTU'CPF 'FTCR U'&) + .
6750 O CPJ QNGU'CPF 'R'URGEVIQP 'EJ CODGTU'&) + .
6760 RTGECUV'EQPETGVG'O CPJ QNGU'&) + .
6770 I WNN['EQPPGEVIQP U'&) , .
6780 UWTHCEG'DQZGU'EQXGTU'GVEO'&) , .
6790 I WNNIGU'&) , .
67: 0 EQORNGVIQP 'QH'FTCR CI G'Y QTMU'&) , .
67; 0 VGORQTCT['UVQRRGTU'&) , .

6820 RTQXKUKP 'HQT'HWWTG'EQP PGEVQP 'VQ'O CP J QNGU'.....&),
6830 UWTTQWPFPI 'QT'J CWPEJ PI 'QH'RRGUY KJ 'EQPETGVG'.....&),
6840 KXGTV'DNQEMCPF 'UVQPG/RK/EJ GF 'FTCP U'.....&),
6850 VGUVP I 'QH'LQP VGF 'RRGU'CPF 'O CP J QNGU'.....&)-
6860 RRGUY KJ 'T WDDGT'TPI 'LQP VU'.....&)-
687 NC[PI 'LQP VPI 'CPF 'DCEMHKNI 'HQT'HNZKNG'LQP VGF 'RRGU'.....&* \$
HNZKNG'T WDDGT'TPI 'LQP VU'.....&* \$
GZRCP UKP 'I CR'.....&* \$
UQNXGP V'EGO GP V'LQP VU'.....&* \$
G97HCB ') "'' 6I @B-B; '5B8'GHI 7HI F9G'.....&* %
) \$%EQPETGVG'DWNFPI 'DNQEMU'.....&* %
) \$&NC[PI 'DWNFPI 'DNQEMU'.....&* %
) \$' RTGECUV'EQPETGVG'WP KU'I GP GTCNN[.....&* %
) \$(OCUPT['WUPI 'PCVWTCN'KTGI WNCT'UVQPGU'.....&* %
) \$) UETGGP 'Y CNNPI&* %
) \$* F COR/RtQQHEQWTUG'.....&* &
) \$+F COR/RtQQHO GO DTCPG'.....&* &
) \$, EQORQUKQP 'QHO QTVCTU'.....&* &
) \$- O KPI 'QHO QTVCTU'.....&* &
) \$%EGO GP V'TGPF GTP I&* ' .
) %VCP MPI 'VQ'DWTGF 'EQPETGVG'UWTHCEGU'.....&* ' .
) %Y CVGTRTQQH'TGPF GTP I&* ' .
) % I TQWPI 'R'KQPY QTM'.....&* (.
) % ECDNG'FWEV'EQXGTU'CPF 'HTCO GU'.....&* (.
73604 EJ GEMGT'RNCVG'EQXGTU'.....&* (.
737 HGP EGU'CPF 'I CVGU'.....&* (.
738 LQP V'UGCNI 'EQORQWPF 'CPF 'UGCNCPU'.....&*) .
739 'QRGP PI U'P 'Y CNNU.'HNQGTU'CPF 'EGNI U'.....&*) .
73: UVTWEVWTCN'UVGGNY QTM'.....&*) .
73; 'QRGP'O GU 'Y CNMY C[UCPF 'EQXGTU'.....&* * .
742 J CPFTCKNI &* * .
743 I WCTFTCKN' &* * .
744 EJ CIP U' &* * .
745 UVGGN'CEEGU'EQXGTU'.....&* + .
746 KQNCVKQP 'QHCNWO R WO'.....&* + .
747 I CNXCP KPI &* + .
748 HZPI UVQ'UVTWEVWTG.'GVEO'.....&* + .
G97HCB '* 'FC58G'5B8'GI F: 57-B;&* ,
823'' CEEGU'VTCEMU'.....&* ,

824" CEEGUU'TQCFU".....&* ,
 82408" O CECFCO 'TQCFUCPF'O CECFCO 'J CTFUVCPI U'.....&* ,
 * \$&' WPUWTHCEGF 'TQCFUCPF 'J CTFUVCPI U'.....&* -
 * \$&' RGC'U R I NG'UWTHCEGF 'CTGCU'.....&* -
 825" RTGECUV'EQPETGVG'MGTDUCPF 'EJ CPP GNU'.....&* -
 826" RTGECUV'EQPETGVRI 'GFI RI '.....&+\$
 827" HQQVRCVJ UCPF 'RCXRI '.....&+\$
 828" NC[RI 'VQ'I TCFG'.....&+\$

G97HCB '+'

G5: 9HM<95@k 5B8 9BJ fCBA 9BH'.....&+%

923" RVTQFWEVIQP'.....&+&
 924" EQORNKPEGY KJ 'URGEHECVIQU'.....&+&
 925" HCKWTG'VQ'EQORN['Y KJ 'URGEHECVIQU'.....&+&
 926" I GP GTCN'TGS WKTGO GP VU'.....&+ ' .
 UCHGV['QHHEGT'.....&+ ' .
 UCHGV['VTCRRI '.....&+ (.
 UCHGV['OGGVRI U'.....&+ (.
 UCHGV['RURGEVIQU'.....&+ (.
 EQPVTQN'QH'UWDUVCPEGUJ C\ CTFQWU'VQ'J GCNVJ'.....&+ (.
 RQVGP VICN'J C\ CTFU'.....&+ (.
 CEEKGP V'TGRQTVRI '.....&+ (.
 PQVKEGU.'UK P.U.'GVEU'.....&+) .
 HKTUV'CF'CPF 'O GFKECN'CVVGP VIQP'.....&+) .
 GORNQ[GG'S WCNHECVIQU'CPF 'EQPFWEV'.....&+) .
 927" UCHGV['TGS WKTGO GP VU'.....&+ * .
 HKTG'RTQVGEVIQP 'CPF 'RTGXGP VIQP'.....&+ * .
 GNGEVTKECN'UCHGV['.....&+ , .
 QZ[I GP ICEGV[NGP GHWGN'I CUGUECTVTRFI G'VQQNU'.....&+ , .
 UECHHQNF RI IVGORQTCT['Y QTMU'.....&+ - .
 WUG'QH'NCFFGTU'.....&+ - .
 GNGXCVGF 'Y QTM'.....& , \$.
 • 92708'TQQHRI 'CPF 'UJ GGV'O GVCN'NC[RI '.....& , \$.
 • 92704'GTGEVIQP 'QH'UVTWEVWTGU'.....& , \$.
 • 92705'O QDKG'GNGXCVRI 'Y QTM'RNCVHQTOU'.....& , \$.

92706' J QKUV'.....& , \$

• 92707'UWURGPFGF 'ETCFNGU'.....& , \$.
 WUG'QH'VGO RQTCT['GS WRO GP V'.....& , % .
 ETCPGUK'.....& , % .
 NQEMRI /QW.'KQNCVRI 'CPF 'VCI I RI 'GS WRO GP V'.....& , & .
 RUCVNCNVIQP 'QH'VGO RQTCT['QT'RGTGCPGPV'GS WRO GP V'.....& , & .
 NCUGT'UWTXG['RUVTWO GP VU'.....& , & .

Y QTMRI "R"EQPHR GF "URCEGU".....& &
 F GO QNKVQP& ,
 WUG"QH"GZRNQUKXGU& ,
 GZECXCVQP "CPF"VTGPEJ RI& (,
 EQPETGVGTGRHQTEGO GP V"UVCTVGT"DCTU&)
 928"GPXKTQPO GP VCN"CPF"J GCNVJ "TGS WKTGO GP VU".....&)
 +\$*"%% RQNEI&)
 +\$*"%%& RNCPP RI& *
 +\$*"%" K RNGO GP VC VQP "CPF"QRTCVQP& *
 +\$*"& RTQVGEVQP "QH"VJ G"GPXKTQPO GP V".....& *
 +\$*" CKT"RQNNWVQP& +
 +\$*" Y CVGT"RQNNWVQP& +
 +\$*" UQNE "Y CUVG& +
 +\$*"("& TWDDKJ "TGO QXCN"CPF "F KURQCN".....& +
 +\$*"(" CUDGUVQUJ CPFNR I "CPF"TGQ QXCN".....& ,
 +\$*"(" RGV"EQP VTQN".....& ,
 +\$*)" P QKUG"EQP VTQN".....& ,
 929" CFFKVQPCN"TGSWKTGO GP VUHQT"Y QTMRI "RWDNE"CTGCU".....& -
 OGVJ QF"UVCVGO GP V".....& -
 ENQUWTG"QHTQCFU."GVEO".....& - \$
 VTGPEJ "CPF"QWJ GT"GZECXCVQPU".....& - \$
 UCHGV "DCTTKGTU".....& - \$
 G97HCB ,7CBHF57HCFAGG+97<97? @GH".....& &
 : 23"EQPVTCEVQTU"UVG" EJ GEM"NKU".....& &
 : 24 EQPUVTWEVQP "GPXKTQPO GP VCN"O CPC I GO GP V"RNCP \$%
 CDDTGXKCVQPU \$-

SECTION 1 GENERAL REQUIREMENTS

Project Background

The Project Area

Location

Vj g" F cpf qtc" Gucv" Ugy ci g" Vtgcvo gpv" Rucpv" ku" mcevgf " y kj lp" P cktqdk' Ek{ O' P cktqdk' Ek{ " ku" yj g" Cfo lpkutcvkxg" Ecr kcrf' qh' yj g" Tgr wdrle" qh' Mgp{ c." mcevgf " cdqww" 362no " uqwj " qh' yj g" gs wcvqt." cpf " cr r tqzlo cvgrf "722no "y guv'qh'yj g" kpf kcp" Qegcp' Ek{ " qh' O qo dcuc O K' dqtg gt u' Mclcf q' Eqwv{ " v' yj g" Uqwj . " Mco dw' Eqwv{ " v' yj g" P qt yj " (" Y guv' cpf " O cej cnqu" v' yj g" Gcu O' K' qeewr kgu' c" v' qcrf' rcpf " ctgc" qh' cdqww" 8; 70no " dgy ggp" rpi kwf gu' 58 A 67 Ø' Gcu' cpf " r v kwf gu' 32 A 3: Ø' Uqwj O P cktqdk' Eqwv{ " ku" qp g" co qpi " yj g" h x g" eqwv kgu" Mco dw' Mclcf q. " O cej cnqu" cpf " O wt cpi æ+ " vpf gt " yj g" P cktqdk' O g v q r q r kcp " T gi kqp " cpf " eqpukf gt gf " cu' cp' lo r q t c p v t gi k p c r i e g p v t g' h q t " t c f g. " e q o o g t e g. " k p v i t c v k p p " c p f " g e q p q o l e " f g x g r o g p v Ø "



Figure 1: Project Location (image from Google Earth)

Topography

P cktqdk' Eqwv{ " rgu' cv' yj g" gf i g" qh' C yj k' Mer kk' Rclpu' cpf " yj g" rny gt " urr gu' qh' Mkw{ w' cpf " yj g" Cdgtf ctgu" guetr o gpv y kj " cp' cnkwf g' qh' cdqww 3.: 22o " c 000 Vj g' v r q i t c r j { " qh' P cktqdk' urr gu' h q o " Y guv' v' Gcu' cpf " ku' l p h w g p e g f " d { " yj g' t c x g t u l p i " y c v g t " e q w t u g u " t k x g t u' c p f " u t g c o u+ q t k i k p c v k p i " h q o " yj g' u q w j g t p' h y g t " u r r g u " qh' yj g' Cdgtf ctgu' cpf " Mkw{ w' U t l p i u' c p f " yj g" P i q p i " J k m i' yj c v' v p f " v' q' h q m y " yj g' u c o g' t g p f " v y c t f u' yj g" k p f k c p " Q e g c p " x l c " yj g" C yj k' T k x g t " D c u l p O' K' k u' p q v g f " yj c v' o q u v' q h' yj g' r c p f " u w t h c e g " k p " yj g' t g i k q p " j c u' d g g p " k p v g t h g t g f " yj k j " d { " j w o c p " c e v k k l g u' q x g t " yj g " { g c t u' yj t q w i j " g z e c x c v k p u' y k j " u k i p k h e c p v' k o r r l e c v k p u' q p " yj g" o l e t q j { f t q m i { " c p f " f t c l p c i g' t c w g t p u Ø Y j k g " yj g' v r q i t c r j { " yj q w f " c m y " u w t h c e g t v p q h " yj g t g' k u' u k i p k h e c p v " h q q f k p i " k p " yj g' e k v { " f w t l p i " yj g' t c l p { " u g c u q p Ø "

Climate

Vj g' eno cvg' lp' P cktqdk' ku' t q r l e c r Ø Vj g' t c l p h m i k u' d l o q f c n l y k j " h q p i " f w t c v k p p' t c l p u' q e e w t t l p i " d g y g g p " O c t e j " c p f " O c { . " y j k g " yj g" u j q t v' f w t c v k p p' t c l p u' q e e w t " h q o " C w i w u v' v' P q x g o d g t Ø Vj g" t c l p h m i t c p i g u' d g y g g p " 972o o " v' q' 3722 " o o . " y k j " c " o g c p " c p p w e n t c l p h m i q h' 972o o Ø Vg o r g t c w t g u' x c t { " d g y g g p " 39 A " c p f " 49 A Ø "

Lxpg'cpf 'Lwn' 'ctg'yj g'o qpj u'y kj 'hny gu'go r gtcwtg.'y j kg'yj g'j qvgu'bo qpj u'ctg'Lcpwct { 'cpf 'Ugr vgo dgt'
y kj 'c'go r gtcwtg'tcpi g'dgvy ggp'47Æ'cpf '49Æ0'

Geological and Sub-soil Conditions

P cktqdk'Ekw' 'hgu'y kj kp'c'xqrecple'ugwki 'yj cv'tguwngf 'htqo 'yj g'Tkh'Xcng { 'hqtto cvkqp0Vj g'xqrecple'tqemu'
qxgtng'o gco qtr j le'tqemu'qh'P gq/Rtqvgtqj qle'Gtc0Vj g'o gco qtr j le'tqemu'eqpukv'qh'cpekgpv'ugf ko gpw.
y j lej 'uwdugs wgpw' 'y gtg'o gco qtr j qugf 'cu'c'tguwn'qh'j ki j 'go r gtcwtgu'cpf 'r tguwngu0Vj g'tqemu'kp'yj g'
P cktqdk'Eqtg'ctgc'yj gtghgtg'o clpn' 'eqo r tkug'c'uweeguukqp'qh'ixcu'cpf 'lpenw'g'rj qpqrkgu.'tcej { vgu'cpf "
yj gkt'xctkcvkpu0Vj g'uqku'qh'yj g'P cktqdk'ctgc'ctg'r tqf wew'qh'y gcj gtlpi 'qh'o clpn' 'xqrecple'tqemu'cpf 'j cu'
r tqf weg' 'tgf'uqku'yj cv'tgcej 'o qtg'yj cp'72'hggv*37o '+lp'yj lenpgu0'

Project Components

Vj g'r tqlgcv'kpxqkxgu'

- Tgj cdkkcvkqp'qh'Gz kuki 'Krgv'Ej co dgt'cpf 'I tk'Ej co dgtu0'
- Tgj cdkkcvkqp'qh'Grgv'q/O gej cplecn'Y qtmu'y kj kp'yj g'gz kuki 'Krgv'Y qtmu'
- F w rlec'cvkqp'qh'yj g'Krgv'Y qtmu'uctvki 'cv'yj g'Krgv'Ej cpggr0'
- Kpuwcvkqp'qh'Grgv'q/O gej cplecn'Y qtmu'y kj kp'yj g'Krgv'Y qtmu'
- F gunw' i kpi 'qh'gz kuki 'Cpctqdkle'Rqpf u'
- Ukg'Y qtmu'lpenw'kpi 'Hgeki . 'Ceegu'Tqcf u'cpf 'uqto 'y cvgt'f'clpci g0'

Quality and Approvals

Vj g'o cvgtkcu'cpf "y qtm0 cpuj k' "uj cml'dg" yj g'dguv'qh'yj gkt'tgur gev'xg"nkp'f u'cpf "vq" yj g'cr r tqxci'qh'yj g'
Rtqlgev'O cpci gt0' Vj g'y qtf u'0v'yj g'cr r tqxci'qh'yj g'Rtqlgev'O cpci gt0'uj cml'dg'f ggo gf "vq'dg'lpenw'gf "kp"
yj g'f guetk'vqp'qh'cml'kgo u'tgrvki "vq'f guki p.'eqputwv'vqp.'kpuwcvkqp'cpf "o cvgtkcu'cpf "y qtm0 cpuj k'
hqt'yj g'f vq'gz gev'vqp'qh'yj g'Y qtmu0'

Vj g'Eqptcev't'uj cml'wdo k'cmf'cvc.'f gcku'cpf 'uco r ngu'cu'pgeguuct { 'cpf 'cu'tgcuqpedn' 'tgs wguv'f "d { 'yj g'
Rtqlgev'O cpci gt'qh'cml'o cvgtkcu'yj cv'yj g'Eqptcev't'r tqr qugu'vq'wug"kp'yj g'Y qtmu0'O gyj qf "ucvgo gpw'
y j lej "cf gswcvgn' "f go quwcv'g" yj g'Eqptcev't'ur tqr qugf "o gyj qf "qh'y qtmki ."o gyj qf u'qh' o clpvclpki "
uchgv' 'cpf "eqo r rkepeg'y kj "yj g'r tqi tco o g'uj cml'dg'wdo kwgf "hqt'yj g'Rtqlgev'O cpci gtai' cr r tqxci'r tkqt"
vq'yj g'eqo o gpego gpv'qh'y qtm'qp'cp { 'ctgc'qh'yj g'Ukg0'

Y j gtg' yj g'Eqptcev't' ku' tgr qpukdng' hqt' yj g'r tgr ctcv'vqp' qh' Eqputwv'vqp' F qewo gpw' vq' f guetkdg' yj g'
r gto cpgpv' y qtmu' uvej "Eqputwv'vqp' F qewo gpw' u' cml'dg' cr r tqxgf "r tkqt" vq' yj g'r tqewtgo gpv' qh' cp { "
o cvgtkcu'qt'eqo o gpego gpv'qh'cp { 'y qtm'vq'y j lej 'yj g'f qewo gpw'tgrv'g0'

Pq" o cvgtkcu." Rr'pv' qt" gs wkr o gpv' u' cml'dg' r tqewt'f "hqt" yj g'Eqptcev' cpf "pq" y qtm" r gto cpgpv' qt"
vgo r qtct { . 'uj cml'eqo o gpeg'y kj qw'hkuv'qdvclpki 'yj g'Rtqlgev'O cpci gtai' cr r tqxci'r

Cml'o cvgtkcu." Rr'pv'cpf "gs wkr o gpv' uwr r rkgf "uj cml'dg'f guki pgf "hqt" qr gtcv'vqp'wpf gt" yj g'cdxqg' f guetkdgf "
eqpf kkp'pu0'

"

Construction Documents

F tcy kpi u"cpf "Fqewo gpwu" y j lej "ctg" vq" dg" uwo kxgf "d{ "y j g"Eqpvtcevqt" vq" f guetldg" y j g" Rgto cpgpv"
Y qtmu'uj cmldgeqo g'Eqputwekqp" Fqewo gpwu'wr qp'y j g'k'cr r tqxcn'
"

Cm'f tcy kpi u"vgej plecn'ur gekhlecukpu." dkm'qh's wcpvklgu." uej gf wgu." equv'gu'ko cvgu=r tqi tco o g"cpf "qy j gt"
kphqto cvkqp" vq" dg" uwo kxgf "d{ "y j g"eqpvtcevqt" u'j cm'dg" lp" Gpi rkuj "cpf "uj cm'dg" uwo kxgf "hqt" cr r tqxcn'
kp" vtr rlecvg' Hqmuy kpi "cr r tqxcn" y j g" eqpvtcevqt" u'j cm' uwr r n{ "c" hwtj gt" hkg" eqr kgu" vq" y j g" Rtqlgev'
O cpci gt' O' Eqputwekqp" Fqewo gpwu" u'j cm'pqv' dg" f gr ctvgf "htqo "y kj qww" y j g" cr r tqxcn' qh' y j g" Rtqlgev'
O cpci gt' O'

"

Cm'f tcy kpi u"cpf "f qewo gpwu" uwo kxgf "d{ "y j g"Eqpvtcevqt" u'j cm'j cxg" dggp" ej gengf. "uki pgf "cpf "dg" tgecf { "
hqt' kuvg" cpf "uj cmldgct"<
"

Vkrg'qh'y j g' f tcy kpi "qt' f qewo gpv<"/

Uecrg."

F cvg."

Y qtnlkgo 'tghgtgpeg' pwo dgt' eqo r n{ kpi "y kj 'cp' cr r tqxgf "pwo dgtkpi "u{ ugo ."

P co g" cpf "tghgtgpegu' qh'y j g' Eqpvtcevqt."

P co gu' qh'y j g' go r m{ gt' cpf "y j g' Rtqlgev' O cpci gt."

F cvg" qh' cr r tqxcn' d{ "y j g" Eqpvtcevqt" cpf "y j g" uki pcwtg" qh' y j g' r gtup" tgu qpukdg" hqt" cr r tqxcn'
"

F tcy kpi u"cpf "f qewo gpwu" uwo kxgf "hqt" cr r tqxcn' u'j cm'dg" f gr kxgtgf "vq" y j g" Rtqlgev' O cpci gt' u' qh' hleg" cu"
f guki pcvgf "d{ "y j g' Rtqlgev' O cpci gt' O'
"

Wprguu' qy j gty kug' ur gekhgf "y j g' Eqpvtcevqt" u'j cm'cmuy "c" o loko wo "qh'43" f c{ u." chgt "y j g' f cvg" qh' tgegr v" d{ "
y j g' Rtqlgev' O cpci gt' hqt" cr r tqxcn' qh' f tcy kpi u"cpf "f qewo gpwu" d{ "y j g' Rtqlgev' O cpci gt' O'
"

"

Operation and Maintenance Manuals

Vj g" Eqpvtcevqt" u'j cm' uwo k' vq" y j g" Rtqlgev' O cpci gt' hqt" cr r tqxcn' ulz" eqr kgu" qh' y j g" Qr gt cvkqp" cpf "
O ckpvgpcpeg" Q(O + O cpwcu' cu' f guetldg' lp' Erwug'7: "qh'y j g' Eqpvtcev' F cvc' O'
"

"

Vj g" Eqpvtcevqt" u'j cm' uwr r n{ "y j g' hpcn' xgtukp" qh' y j g" Q(O " O cpwcu' r tkt" vq" y j g' kuvg" qh' y j g' Vcnkpi / "
Qxgt" Egt v hlecvg" hqt" gky gt" y j g" y j qrg" qh' y j g" Y qtmu' qt" y j g' tgu ge vkg" Ugevkqp" qt" r ctv' qh' y j g" Y qtmu' O'
Gcej "ugv' u'j cmldg' dqwpf "qi gy j gt' kp" c' uqww' r rucvke" qt' qy j gt' cr r tqxgf "eqxgt' O'
"

"

Q(O " O cpwcu' u'j cmldg' uwr r rkgf "y tkvgp" kp" Gpi rkuj "rcpi vci g." cm' r ctvu" cpf "gs vkr o gpv' rkukpi u' u'j cmldg" kp"
Gpi rkuj O'
"

"

Level Datum"

Dghqtg"vj g"eqo o gpego gpv'qh'eqputwekqpcn'y qtni'vj g"Eqptcevt"uj cml'gucdrkuj . "lp" c"r quklqp"vq"vj g" cr r t q x c n' q h' v j g" R t q l g e v' O c p c i g t. "u g g n' f c w o " r g i u' y j l e j " u j c m' d g' u g e w t g n' " e q p e t g v g f " l p 0' V j g' r g x g n' q h' v j g u g' r g i u' u j c m' d g' g u c d r k u j g f " c p f " c i t g g f " y k j " v j g" R t q l g e v' O c p c i g t " c p f " c m' r g x g n' u w g f " l p " v j g" e q p u t w e k q p' q h' v j g' Y q t m' u j c m' d g' t g h g t t g f " v j g u g' g u c d r k u j g f " f c w o " f q l p u 0' V j g' e q t t g e v p g u u' q h' v j k u' f c w o " u j c m' d g' e j g e n g f " c v' t g i w a c t " l p v g t x c n' f w l k p i " v j g' e q p u t w e k q p' r g t k q f " c u' c i t g g f " y k j " v j g' R t q l g e v' O c p c i g t 0'

Y j g t g" r q u k l d r g' e q p u t w e k q p" f t c y l p i u" c p f " c m' r g x g n' u w g f " h q t" e q p u t w e k q p" u j c m' d g' t g h g t t g f " v q" v j g" p c v k q p c n' j g l i j v' f c w o " c u' f g h k p g f " d { " v j g" U w t x g { " q h' M g p { c 0' V j g" E q p t c e v t " u j c m' d g' t g u r q p u k d r g' h q t" q d v k l p i " v j g' m e c v k p p c p f " x c n x g u' q h' v j g' r g t o c p g p v' d g p e j " o c t m 0' k p " e c u g u' y j g t g' u w e j " d g p e j " o c t m i' f q" p q v' g z k u v' v j g' u k g' f c w o " u j c m' d g' c i t g g f " y k j " v j g' R t q l g e v' O c p c i g t 0'

Setting Out of the Works

V j g" u k g" r { q w' f t c y l p i u' u j q y " l p f l e c v k x g" u k g" r { q w u 0' R t k q t " v q" e q o o g p e k p i " e q p u t w e k q p. " v j g" R t q l g e v' O c p c i g t " y k m' c i t g g " y k j " v j g" E q p t c e v t " v j g" d c u l e " l p h q t o c v k p p" u w r r g o g p v c t { " v q" v j c v' u j q y p" q p" v j g" F t c y l p i u' u w e j " c u' v j g" r q u k l q p" q h' o c p j q r g u. " e j c o d g t u. " e g p t g / r k p g u" c p f " d c u g / r k p g u" u w h l e k g p v' h q t" v j g" E q p t c e v t " v q' h q e c v g' v j g' Y q t m u 0'

V j g" E q p t c e v t " u j c m' r t g r c t g" f g v k n g f " u g w l p i " q w' f t c y l p i u' c p f " f c v " u j g g w' c u' p g e g u a c t { " c p f " u w d o k' v j g o " v q" v j g" R t q l g e v' O c p c i g t " l p " v t k r d e c v g' h q t " c r r t q x c n 0' C p { " o q f h l e c v k p u " v q" v j g' u g w l p i " q w' f t c y l p i u' q t " f c v " u j g g u t g s w k t g f " d { " v j g' R t q l g e v' O c p c i g t " u j c m' d g' b c f g' d { " v j g' E q p t c e v t " c p f " t g u w d o k w g f " h q t " h k p c n' c r r t q x c n 0' U j q w f " k' d g' p g e g u a c t { " f w l k p i " u g w l p i " q w' q t " f w l k p i " e q p u t w e k q p" h q t " v j g" c r r t q x g f " u g w l p i " q w' f g v c k n' v q" d g' c o g p f g f. " v j g' E q p t c e v t " u j c m' c o g p f " v j g' f t c y l p i u' q t " f c v " u j g g w' q t " o c n g" p g y " q p g u' h q t " c r r t q x c n' c u' t g s w k t g f " d { " v j g' R t q l g e v' O c p c i g t 0'

H q t" r k r g r k p g u. " v j g" E q p t c e v t " u j c m' l p" v j g" r t g u g p e g" q h' v j g" R t q l g e v' O c p c i g t " u g v' q w' v j g" r k r g r k p g" c r k i p o g p u' l p " c e e q t f c p e g" y k j " v j g" l p f l e c v k x g" c r k i p o g p u' u j q y p" q p" v j g' f t c y l p i u' v c n k p i " l p v q' c e e q w p v' r j { u l e c n' h g c w t g u' q p' v j g' i t q w p f. " c p { " g z k n k p i " u g t x l e g u. " c p { " t g s w k t g o g p u' q h' t g r x c p v' C w j q t k l g u' c p f " c p { " e j c p i g u' f g g o g f " p g e g u a c t { " d { " v j g' R t q l g e v' O c p c i g t. " e q p h k t o l p i " v j g' m e c v k p u' q h' c m' x c n x g u. " c k t " x c n x g u. " y c u j q w u. j { f t c p u' c p f " d g p f u 0'

V j g" E q p t c e v t " u j c m' r t g r c t g" c p f " u w d o k' v q" v j g" R t q l g e v' O c p c i g t. " c v' c p" c r r t q x g f " u e c r g. " r n p u' q h' v j g" r k r g r k p g" t q w g" c p f " r t q h k g u" q h' i t q w p f " r g x g n' c h g t" c p { " l p k l c n' e n g t l p i " q h' v j g" y c { r g c x g" q t " g c u g o g p v' u j q y l p i " v j g" r t q r q u g f " r k r g' l p x g t v' r g x g n' c p f " r t g e k u g' e j c l p c i g u' h q t " c m' x c n x g u' c p f " h k w l p i u' h q t " c r r t q x c n 0' H q m y l p i " c r r t q x c n' v j g" E q p t c e v t " u j c m' u w d o k' v q" v j g" R t q l g e v' O c p c i g t " y q" e q r k g u' q h' v j g" c i t g g f " c r k i p o g p v' c p f " r t q h k g u 0'

Boundaries of Works

V j g" G o r m q { g t " u j c m' r t q x k f g' v j g' U k g" w r q p" y j l e j " v j g" R g t o c p g p v' Y q t m i' c t g' v q' d g' e q p u t w e k q p' Y j g t g" c" f t c l p" q t " r k r g r k p g" k u' v q' d g" y k j l p" c p" g z k n k p i " t q c f " q t " v c e m' t g u g t x c v k p p" q t " k u' q y g t y k u g' m e c v g f " l p" r c p f " f g u k i p c v g f " R w d r k e " F q o c l p" v j g' U k g" y k f v j " y k m' d g' t g u t l e v g f " v q" v j g' r d o k' q h' v j g' r v d r k e " r c p f 0" V j g' g z k n k p i " d q w p f c t { " h g p e g u' c p f " y c m i' u j c m' p q v' d g' f k u w t d g f " y k j q w' r t k q t " c r r t q x c n' q h' v j g" R t q l g e v' O c p c i g t " c p f. " v p r g u i' t q c f " f k x g t u k p u" c p f " e n q u w t g" p q v l e g u' c t g" c r r t q x g f " c p f " r q u g f. " e c t t k c i g y c { u' u j c m' d g' r g h' c x c k r d r g' h q t " v j g' u c h g' r c u a c i g' q h' v t c h l e 0'

V j g' E q p t c e v t " u j c m' p q v' g p v g t " w r q p' q t " q e e w r { " y k j " b g p. " v q q n. " g s w k r o g p v' q t " b c v g t k c n i' c p { " h c p f " q y g t " v j c p" v j g' u k g' y k j q w' v j g' y t k w g p' e q p u g p v' q h' v j g' q y p g t " q h' u w e j " h c p f 0'

Qp'qeevr cvkqp'qh'v'j g'Ukg'qt'qv'j gt'rcpf 'v'j g'Eqpvtcevt'uj cml'r tqxkf g'lwe'j 'hgpel'pi . 'cu'tgs vkt'gf 0'

Work through Private Land

Kp'qtf gt'v'j cv'v'j g'pgeguuct { 'r ctw'qh'v'j g'Ukg'y j lej 'ctg'qp'r tkxc'v'g'rcpf 'o c { 'dg'qdvcl'pgf 'v'j g'Eqpvtcevt'uj cml' uwr r n' 'v'j g'Rtqlgev'O cpci gt'y kj 'hwm'lphqto cvkqp'qh'j ku'r tqi tco o g'uw'hle'g'p'v' 'kp'cf xcpeg'qh'v'j g' f cvgu' wr qp'y j lej 'v'j g'Eqpvtcevt'r tqr qugu'v'q'gpvgt'wr qp'gcej 'ctgcu'qh'v'j g'Ukg'0' Vj g'Eqpvtcevt'uj cml' y j gtg' tgs vkt'gf . "kp'eqpuwncvkqp'y kj 'v'j g'Rtqlgev'O cpci gt . "r tqi tco o g'v'j g'Y qtmu'v'q'f guki pcv'g'v'j g' ctgcu'qh' v'j g'Ukg'v'q'y j lej 'v'j g'Eqpvtcevt'ku'v'q'dg'i kxgp'r quuguukqp'cpf "v'j g'ugs wgepeg'qh'v'cnl'pi "r quuguukqp'0'

Vj g'Eqpvtcevt'uj cml'qdvcl'p'y tkwgp'crr tqxcn'dghq'g'gpvgt'lpi "wr qp'cp { 'r tkxc'v'g'rcpf "qt'eww'kpi "v'j tqwi j " fkej . "dcpm"j gfi g . "y cm'hgpeg"qt'cp { "qv'j gt'hqto "qh'dqwpf ct { "o ctnl'pi "cpf "j g'uj cml'ectt { "qww'cml' tgcupcdng'tgs vkt'go gpw'cu'crr tqxgf 'd { 'v'j g'Rtqlgev'O cpci gt'lp'v'j g'bo cwtg'qht'gk'pucvgo gp'0'

Public Utility Mains and Services

Y j gtg'v'j g'Eqpvtcev'kpf kec'v'g'v'j g'r quukl'qpu'qh'gz'kukl'pi "ugt'xlegu"qt'crr ctcwu'v'j g'r quukl'qpu'uj qy p'ctg' dng'kxgf 'v'q'dg'eqtte'v'dw'p'q'y cttcp'v' ku'i kxgp'cu'v'q'v'j g'ceewtce { 'qt'eqo r ngv'g'p'guu'qh'v'j g'lphqto cvkqp'0'

K'uj cml'dg'v'j g'tgur qpukl'k'v' 'qh'v'j g'Eqpvtcevt'v'q'qdvcl'p'cml'phqto cvkqp'cxck'cdng'htqo "v'j g'Rwdrl'e'Wkrl'v' Cwj qtkl'gu'tgi ctf l'pi "v'j g'r quukl'qpu'qh'gz'kukl'pi "o clpu'cpf "ugt'xlegu'cpf "j g'uj cml'eqr { 'v'j ku'lphqto cvkqp'v'q'v'j g' Rtqlgev'O cpci gt'cu'v'q'qp'cu'j g'qdvcl'pu'k'0'

Vj g'Eqpvtcevt'uj cml'ectt { "qww'gzecxcvkqp'y qtmu'lp" c"o cpggt . "y j lej "uch'i wctf u'cp { "gz'kukl'pi "ugt'xlegu . " kpenw'kpi "j cpf "gzecxcvkqp"cu'pgeguuct { "cpf "uj cml'dg'tgur qpukl'ng'ht"v'j g'equ'v'qh'cp { "tgr clt"y qtm' pgeguukc'v'g'f "d { "fco ci g'ecw'g'f "d { "j ko "v'q'cp { "o clp"qt'ugt'xleg"cpf "ht"cp { "equu'ctkukl'pi "htqo "v'j g' f kutw'v'kqp'0'

Vj g'Eqpvtcevt'uj cml'qdvcl'p'cml'phqto cvkqp'cpf "cuuk'cpeg"htqo "v'j g'Rwdrl'e'Wkrl'v' Cwj qtkl'gu'ht"v'j g' m'ecv'kpi "qh'v'j g'o clpu'cpf "ugt'xlegu'cpf "uj cml'ci tgg'y kj "v'j g'Rtqlgev'O cpci gt'cp { "v'kcn'gzecxcvkqp" y j lej "o c { 'dg'pgeguuct { 'v'q'eqph'kto "qt'guvcd'kuj "v'j g'ug'm'ecv'kpu'0'

Vj g'Eqpvtcevt'uj cml'dg'tgur qpukl'ng'ht"m'ecv'kpi "cml'gz'kukl'pi "ugt'xlegu"y j g'v'j gt'npqy p'v'q'v'j g'Rwdrl'e' Wkrl'v' Cwj qtkl'gu'qt"pqv"cpf "uj cml'eqpf wv'v'j ku'qy p'uw'xg { "cu'pgeguuct { "v'q'ceewt'c'v'gn' "m'ecv'g'cml' ugt'xlegu'0' Cml'gh'qt'w'v'q'k'f gpv'kh' "v'j g'ug'gz'kukl'pi "ugt'xlegu'uj cml'dg'ectt'kgf "qww'lp'cf xcpeg'qh'eqpf wv'kpi " gzecxcvkqp'ht"v'j g'r gto cpgpv'y qtmu'0'

Cp { "vgo r qtct { "qt"r gto cpgpv'f kxgtukqp'qh'o clpu'cpf "ugt'xlegu"uj cml'dg'ci tggf "y kj "v'j g'crr tqrtk'c'v'g' Cwj qtkl'v'0'

Safeguards to Existing Pipes, Cables, Structures

K'uj cml'dg'v'j g'Eqpvtcevt'v'q'tgur qpukl'k'v' 'v'q'uch'i wctf "d { "o gcpu'qh'v'go r qtct { "qt"r gto cpgpv'uw'r qt'w' "qt" qv'j gty kug'cml'gz'kukl'pi "ugy gtu"r kr gu"ecd'rgu"utvewt'gu"qt"qv'j gt'v'j l'pi u'y j lej "y qwr' "dg'rkcdng'v'q'uw'htg' fco ci g'k'l'w'ej 'r tgecw'k'pct { 'o gcuw'gu'y g'g'pqv'cngp'0'

Uch'i wctf u'uj cml'dg'v'q'v'j g'crr tqxcn'qh'v'j g'Rtqlgev'O cpci gt'cpf "qh'v'j g'w'pf gt'v'cngt"qt"qy pgt"eqpegt'pgf 0'

Record Drawings"

Cv' cml' ukgu" cpf " cp{ " mjecvkpu" y j gtg" yj g" Eqpvtcevq" gzgewgu" y qtnl' wpf gt" yj g" Eqpvtcev" kpenw lpi " mjecvkpu" y j gtg" yj g" Eqpvtcevq" wpf gtvcngu" tgr ckt "qt" t'gj cdkkxcvkqp" y qtnl' yj g" Eqpvtcevq" u'j cml' tgeqtf " yj g" mjecvkqp" cpf " pcwtg" qh' cml' y cvgt " uwr r n{ " cpf " y cugy cvgt " y qtnl' kpenw lpi " yj gk" cpekmtlgu" cpf " cp{ " cuuqekcvgf " lgtxlegu0

Y j gtg' kputwvvgf " d{ " yj g' Rtqlgev' O cpci gt' hqt " yj g' r wtr qug' qh' r tqf welpi " Tgeqtf " F tcy lpi u " yj g" Eqpvtcevq" u'j cml' wpf gtvcng" uwe j " uwt xg{ u" cpf " kpxguni cvkpu" vq" f gvgto kpg" yj g" mjecvkqp" qh' gzkunkpi " ugtxlegu0 Uwe j " uwt xg{ u" cpf " kpxguni cvkpu" u'j cml' dg" cf f kklqpcn' vq" yj qug" uwt xg{ u" cpf " kpxguni cvkpu" wpf gtvcngp" d{ " yj g" Eqpvtcevq" hqt " yj g' r wtr qug' qh' f gvgto kplpi " yj g' mjecvkqp" qh' ugtxlegu' r tlqt " vq" gzecxcvkqp0

Vj g" Eqpvtcevq" u'j cml' y j gtg" pgeguuct{ " wklk g" cr r tqr tlcvg" gs wkr o gpv" cpf " y j gtg" kputwvvgf " d{ " yj g" Rtqlgev' O cpci gt" gzecxcvg" vlcni' r ku" vq" eqphkto " yj g" mjecvkqp" cpf " f gvgto kpg" yj g" uk g" cpf " pcwtg" qh' yj g" dwlkgf " lgtxlegu0

Hqt " ukgu" y j gtg" yj g" Eqpvtcevq" wpf gtvcngu" r gto cpgpv' y qtnl' Tgeqtf " F tcy lpi u " u'j cml' dg" uwd o kwgf " vq" yj g" Rtqlgev' O cpci gt. " hqt " cr r tqxcn" kp" yj g" hqto " qh' Cu' Dwn' F tcy lpi u'0 k{ " yj g" ecug" qh' tgr cktu" cpf " t'gj cdkkxcvkqp" yj g' Tgeqtf " F tcy lpi u " u'j cml' dg" uwd o kwgf " hqt " cr r tqxcn' y kj kp" c' r gtlkf " qh' 43" f c{ u' hmqy lpi " gzgewkqp" qh' yj g' y qtn0

Tgeqtf " F tcy lpi u " u'j cml' dg" r tgr ctgf " vq" cp" cr r tqxgf " hqto cv" cpf " uecrg" kp" rkg" y kj " yj g" eqputwvvgf " f tcy lpi 0

Connections to Existing Pipes, Cables and Equipment"

Vj g' Eqpvtcevq" u'j cml' dg' t'gur qpukdg' hqt " lqlkpi " w' " cpf " o cnkpi " eqppgevkpu" dgw ggp' r kr gu' cpf " ecdrgu" rclf " d{ " j ko " cpf " gzkunkpi " r kr gu' cpf " ecdrgu0 Vj g" Eqpvtcevq" u'j cml' uwd o k' vq" yj g" Rtqlgev' O cpci gt " c" f tcy lpi " u'j qy lpi " yj g" f gcku' qh' yj g" eqppgevkqp. " cpf " u'j cml' uvcvg" yj g" f cvg" qp" y j lej " yj g" r ctewwrt " eqppgevkqp" ku' tgs wktgf. " cpf " yj g' y qtnl' u'j cnlpqv' r tqeggf " wpvkl' yj g' Rtqlgev' O cpci gt0 cr r tqxcn' j cu' dggp" i kxgp0

Vj g" Eqpvtcevq" u'j cml' dg" t'gur qpukdg' hqt " gpwtkpi " yj g" eqo r cvdkk{ " qh' pgy " r kr gu' cpf " ecdrgu" y kj " gzkunkpi " r kr gy qtm' ecdrgu. " wdlkpi " cpf " gs wkr o gpv0

Lighting, Watching and Traffic Control

Y j gtg' pgeguuct{ " hqt " uchgv{ " qh' yj g' r wdile " qt" y j gtg" tgs wktgf " d{ " yj g' Rtqlgev' O cpci gt. " yj g' Y qtnl' u'j cml' dg" r tqr gtn{ " hpggf " cpf " uki pgf 0 k{ " cf f kklq. " yj g" Y qtnl' u'j cml' dg" rki j vgf " l' tgo " j cml' cp" j qwt " dghqtg" uwpugv' wpvkl' j crh/ cp/ j qwt " chgt " uwpkug" cpf " cv' qy gt " vko gu' y j gp " xkldkrlk{ " ku' r qqt0 Vj g" r quklqp" cpf " pwo dgt' qh' yj g' hco r u' u'j cml' dg" uwe j " yj cv' yj g" gzgpv' cpf " r quklqp" qh' yj g" Y qtnl' ctg' ergetn{ " f ghkpgf 0 Gcej " Ukg' u'j cml' dg" r tqxkf gf " y kj " ugewtk{ " i wctf u' cu' tgs wktgf 0

Contractor's Offices

Vj g"Eqpvtcevqt"uj cml'r tqxkf g"cpf "o clpvcpl"qhlegu"lqt"vj g"wg"qh"j ku'tgr t gupvcxg"cpf "uchh"vq"y j lej "y tkwgp"lpwtvklpu" d{ "vj g" Rtqlgev" O cpci gt" ecp" dg" f grkxgtgf O' Cp{ "lpwtvklpu" f grkxgtgf "vq" uvej "qhlegu"uj cml'dg" f ggo gf "vq"j cxg"dggp" f grkxgtgf "vq"vj g"EqpvtcevqtO"

Qhlegu"uj cml'dg"mcevgf "vq"i kxg"eqpxgplgpv"ceegu"vq"vj g"Y qtm"cpf "uj cml'dg"uwlgev"vq"vj g"cr r tqxcn' qh"vj g"Rtqlgev"O cpci gtO'Vj g"Eqpvtcevqt"uj cml'dg"tgr qpukdg"lqt"qdvclpki "vj g"rcpf "qp"y j lej "vq" guvdrkj "cp{ "go r qtct{ "ukg"qhleguO

Project Manager's Office

Vj g"qhlegu"qh"vj g"Rtqlgev"O cpci gt"uj cml'eqo r tkug"tgegr vkp"ctgc."vj tgg"5+"qhlegu."c"o ggkpi "tqqo ." nkej gp"cpf "ugr ctevg"Y E O' Vj g{ "uj cml'dg"ugt xgf "y kj "grgetle"iki j kpi "r qy gt."vgr j qpg"rpg."r qvdrng"y cvgt." pgwy qtngf" dtqcf dcpf" lpvgtpgv" eqppgevklp." j gcvkpi " cpf " ck" eqpf kklpki O' Vj g" dtqcf dcpf" eqppgevklp"uj cml'dg"pgwy qtngf "vj tqvi j qw"vj g"qhleg"cmjy "vr "vq"ukz"eqo r wgtu"vq"ceegu"vj g"pgwy qtnO' C" y krgu"pgwy qtniku"ceegr vdrngO

Vj g"Eqpvtcevqt"uj cml'o cmg"cf gs wcvg"r tqxklqp"lqt"vj g"ftclpci g"qh'tclpy cvgt."ukpm'y cug"i tgl{ "y cvgt+"cpf "hqw'lugy ci gO'Hh{ "uetggpu"uj cml'dg"hwgf"qp"gxgt{ "qr gplpi "y kpf qy "cpf "ugr u'uj cml'dg"r tqxkf gf "y j gtg"vj g"gpvtcepg"ku"grxcvgf "cdq xg"i tqwpf "rgxgrO'Vj g"Eqpvtcevqt"uj cml'cttcepi g"lqt"vj g"tgi wct"ergcpki "qh"vj g"heklklgu" cpf "vj g" tgo qxcn' qh"vj g" uqrf" y cugO'J g" uj cml' o clpvcpl" cml' gs wkr o gpv" kp" y qtnkpi "qtf gt"vj tqvi j qw"vj g"ftcvklp"qh"vj g"eqpvtcev"cpf "cttcepi g"lqt"vj g"uwr r n{ "qh"cm'eqpuwo cdrgu"lpenw kpi "o qdkg"r j qpg'xqvej gtu."ucvklpgt{ ."gveO

Qhleg"3"cpf "4"uj cml'j cxg"c"o kpl o wo "eqxgtgf "lqt"ctgc"qh"; "o 4" cpf "qhleg"5"uj cml'j cxg"47o 4"gej "cpf "gej "uj cmleqpvcpl"vj g"lqmjy kpi <"

Office 1 "	Office 2"	Office 3"
3'z'f'qwdrg'r'gf'gucnif'gum'	3'z'f'qwdrg'r'gf'gucnif'gum'	6'z'f'qwdrg'r'gf'gucnif'gum'
3'z'Gz'gewkxg'Qtvj'qr'gf'le'ej'ckt"	3'z'Gz'gewkxg'Qtvj'qr'gf'le'ej'ckt"	: "z'Qtvj'qr'gf'le'ej'cku"
4'Z'Qtvj'qr'gf'le'Ej'cku"	3'Z'Qtvj'qr'gf'le'Ej'cku"	4'z'6'f'tcy'gt'iqenrdrg"
3'z'6'f'tcy'gt'iqenrdrg'hkpi'ecdkgv"	3'z'6'f'tcy'gt'iqenrdrg'hkpi'ecdkgv"	4'z'7'vkt'uj'grkpi'wpl'vq"
3'z'7'vkt'uj'grkpi'wpl'vq'cng'C6"	3'z'7'vkt'uj'grkpi'wpl'vq'cng'C6'hrgu"	3'z'r'rcp'vdrng"
3'z'vgrg'j'qpg'wpl"	3'z'vgrg'j'qpg'wpl"	4'z'vgrg'j'qpg'wpluO'

Vj g'o ggkpi "tqqo "uj cml'j cxg"c"o kpl o wo "eqxgtgf "lqt"ctgc"qh"42o 4" cpf "uj cmleqpvcpl"vj g"lqmjy kpi <"

3'z'vdrng"qt'vdrng'qh"vj g'uco g'uk g+"vq"ceeqo o qf cvg". 'r gqr rgu'c p f " : "ej ck u"
3'z'y cml'o qwpvgf "r kp"dqctf ."4o "z"3o "
3'z'y cml'o qwpvgf "y j kg'o gr o kpg"dqctf ."4o "z"3o "3'z'CQ"uk g'xgtvlecn'rcp'ej gu"
3'z'C5IC6'eqmwt'rltpvgtlr j qvqqr lgt lueppgt lcz"3'z'vgrg'j'qpg'wpl"

Vj g'nkej gp"uj cml'dg"gs wkr r gf "y kj "c"ukpm" c"6"dwtpgt"i cu"eqngt."grgetle"ngwg"cpf "hki i g"vqi gj gt" y kj "cr r tqr tkvg"y qtnluwheguO

Vj g"ugr ctevg"Y E "uj cml'dg"gs wkr r gf "y kj "c"mly "rgxgr"Y E "uwkg"y kj "f wcn'hwj OCwqo cve"ck'xgpvklvklp"uj cml'dg"r tqxkf gf "y j gtg"vj gtg'ku'pq'qr gplpi "y kpf qy O'

Qy gt'gs wkr o gpv"vq"dg'lw r r lgt "lqt"vj g"uqrg'wg"qh"vj g"Rtqlgev"O cpci gt"uj cml'penw kpi <"

Qhleg'r cr gt'r wpej "	5'P t"
Y j kgdqctf .406o "z'304o "	3'P t"
Y j kgdqctf .304o "z'304o "	3'P t"
Qhleg'Vtc{ "5'vkt+"	5'P t"
Qhleg'Ucr rkp'i 'O cej kpgu"	4'P t"
UygriHkg'Ecdkpgv'y kj 'hqemu"16'f tcy gtu"O geqnt'qt"gs wxcrgpv'cr r tqxgf +"	5'P t"
-Eculqøqt'uko krt'uo cml'qtcdng'uekpvhle"grgetqple"ecrewrvt"	6'P t"
Hktu/Ckf 'hkv"ht'32'r gtuppu+'kp'O gvcnDqz"	4'P t"
Rqcdng'Hkt'Gz vki vkuj gt "7'hktgu"	5'P t"
Uo cmlqhleg'bekuqtu"	5'P t"
Y cuvg'r cr gt'dcungu"	6'P t"
Grgvle'hgrw"ecr cekv 'q'o cng'34'ewr u'qh'vge+"	4'P t"
EqlhggIvg'o cmlpi 'hceklv' kpenw kpi 'etqengt { 'hqt'cml'uwg gtxluqt { 'uvch'8"P t0' cpl "34'cf f kkanenl wemu"	3'Ugv"
Rgf gucnlgrgetle'hcp. 'uk' g'622o o "	6'P t"
-NI øqt'gs wxcrgpv'cr r tqxgf "T ght ki gtcvt "204'ew0 0ecr cekv +"	4'P t"
3VD'Gzvtgpcn'lvqtc i g'J F F ""	5P t0'
Desktop:"	"
J R'Eqtg'k9: 922m/'38'I D'/'3'VD'J F F "qt'uko krt'cr r tqxgf "eqo r ngv'y kj "46ö"	4P t0'
Laptop:"	"
J R'qt'uko krt'cr r tqxgf "	"
Y kpf qy u'32'Rtq'86Dk'	"
32vj 'I pggtcvkp'kpgn' 'Eqtg' k9'r tqeguut'38'I D'o go qt { =722'I D' UUF "	7'P t0'
Printers:	"
J R'QhlegIgv9732'Rtkpvt'qt'uko krt'cr r tqxgf ""	3P q0'
TEQ'F Uo "eqmwt'r tkpvt'qt'uko krt'cr r tqxgf	3P q0'
Rgw'Ecuj 'Dqz'y kj 'ugewtkv' hqem	3'P t"
Y cmlEqemu"	5'P t"
Hrcuj rki j w'dcwtg { 'r qy gtgf +"	3'P t"
F ki kcnEco gtc "Uqp { 'F UE'ö"Y : 32"qt'uko krt'cr r tqxgf +"	4'P t"

Vj g"Eqptcevt"uj cml'r tqxf g" c" Ugetgwt { "y j q"ecp"ur gcm' Gpi rkuj "cpf "ku"eqpxgtucpv'kp"vj g"wug"qh' cdqxg/ o gpvkpgf 'uqhy ctg'ht'yj g'f wcvkp'qh'yj g'Eqptcevt

Ucvkpgt { 'tgs vktgf 'r gt'o qpj 'cu'hqmy u<

C6'Uk' g'Rtkpvi 'Rcr gtu"	4'T gco u"
C5'Uk' g'Rtkpvi 'Rcr gtu"	4'T gco "
Dkt'q'r gpu'dnwglncemTgf "	34'P q0'
Dqz'hkpu"	6'P t"
Urtkpi 'Hkpu"	4'P t"
Fqewo gpvY cngw"	5'P t"
Egmqr g'o gf kwo +"	3'P t"
O cunkpi 'vr g'o gf kwo +"	3'P t"
Ucr ngu"	4'Rce0'
Rcr gt'erkr u"xctkqu'uk' gu+"	4'Rce0'
EF/T"Rcen'qh'34+"	3'Rce0'
WUD'40150'hrcuj 'ftkxu'O kpo wo "38I D"	6P q0'
J ki j rki j vgtu"ugv'qh'cnleqmwu+"	4'Ugw"

C8'j ctf eqxgt 'bqvddqmu"	4'P t"
Uqlw'RgpeklGtcugtu"*Ucgr vgt 'qt 'gs wxcnrvv+	5'P t"
Gpxgnr gu"*cmllk gu+	5'F ql 0'
Dcwtlgu'ht hrcuj rli j vu"	3'Ugv"
Eqmwt'cpf 'Drcenlkpnlectvtf i gu'ht 'vj g'C5'r tlvgt"	3'Ugv"
Drcenlkpnlectvtf i gl'vqpgt'ht 'vj g'C5'r tlvgt"	5'P t"

Uwr r n' "qh'ergcp"vqy gu'gxgt { "f c { . "uqr . "rcxvgt { "r cr gt. "f kulphgevcv'cpf "engcplpi "o cvgtkcu"ku"vq"dg" r tqxkf gf "cpf "o clpvcpgf "vj tqwi j qw'vj g'Eqptcev'Rgtkqf 0'

Vj g'equv'qh'cm'ij g'cdqyg'ugt xlegu'uj cm'dg'lpnw gf "d { "vj g'Eqptcevgt "wpf gt "kgo "ht "o clpvcpcpeg"cpf " cwpgf cpeg'ht "T gukf gpvGpi kpggtu'qhllegu0Cr ctvltqo "vj g'eqpuwo cdrgu. "vj g'tguv'qh'gs wkr o gpv'y knltgxgtv' vq'vj g'Go r m { gt "cv'vj g'gpf "qh'vj g'Eqptcev0'

Vj g'Eqptcevgt 'lj cm'r tqxkf g'cf gs wcv'ur ceg'cpf 'hceklkgu'cv'c'eqpxgplgpv'htecvqp'ht "o ggkpi u'dgy ggp" vj g'Rtqlgev'O cpci gt'cpf 'Eqptcevgt0'

Vj g'Rtqlgev'O cpci gt'u'qhlleg'lj cm'dg'lp'c'y gm'rk. 'lwt hcegf . 'hpegf "cpf 'ugewt g'eqo r qwpf 'y kj 'lwt hcegpv' f gf kcvgf 'r ctnkpi 'ht "8'xgj kergu0'

Vj g'eqo r qwpf "uj cm'dg'r tqxkf gf "y kj "46/j qwt "o cpgpf "i cvg"ugewtk { "vq" yj g'crr tqxcn'qh'vj g'Rtqlgev' O cpci gt0"

Vehicles for the Project Manager"

Vj g'Eqptcevgt "uj cm'r tqxkf g'cpf "o clpvcpl'ht "vj g'f wcvkqp"qh'vj g'Eqptcev'xgj kergu'ht "vj g'wug"qh'vj g' Rtqlgev'O cpci gt0Cv'vj g'eqpenwukqp"qh'vj g'Eqptcev'vj g'xgj kergu'y km'dg'j cpf gf "qxgt "vq'vj g'Go r m { gt "lp" c'lmw { "ugt xlegf "cpf "tqcf y qt vj { "eqpf klqp. "ltgg"ltqo "f ghgeu0Ugrgevkqp"qh'xgj kergu'uj cm'dg'ci tggf "y kj " vj g'Rtqlgev'O cpci gt "cv'vj g'eqo o gpego gpv'qh'vj g'eqptcev'cpf "cv'o kpo wo "y km'dg<

6Y F. "Vy lp'Ecd'Rlen'wr. "qt'crr tqxgf "gs wxcnrvv'lpnw lpi "tqcf "hcegpugu'pwo dgt" r rcvgu. 'lpwtcpegu."gve0' Vj g'xgj kerg"vq'tgxgtv'vq'Go r m { gt "chgt'eqo r ngvqp"qh' Eqptcev0' O kpo wo "ur gekhcevkqp'lpnw g'dw'pqv' rlo kgf "vq'vj g'hqmny lpi <

- Gpi kpg"/"406'hktgu'Vwtdq'F kgugr'
- Tgct'F khtgtpvknll gct'Nqem'
- Dtcnkpi 'U { ugo "vq'lpnw g'CDU"Cpvk/Nqem'Dtcng'U { ugo +"
- I gct'Nqem'
- Rqy gt'Uggtkpi 'y kj "cf lwvcdrg'Uggtkpi 'Eqnw p"
- Grgevtqple'Hvgrl'plgevkqp'U { ugo 0'
- 7/8'Ur ggf 'O cpwcn'Vtcpuo kulkqp"
- Rqy gt'Y kpf qy u"
- K o qdkkugt'cpf 'Crcro "U { ugo "
- Hvgrl'cpmlecr cek { "o kpo wo ". 2'hktgu"
- HqpvdwmiDct"

Contractor's Yards, Stores and Accommodation for Workmen

Vj g"Eqpvtcevt"uj cml'dg"tgr qpukdrg"ht"qdvclpki "vj g"rpf"cpf "ht"vj g"rtqxlkqp"qh'cml'vgo rqtct{"{ctfu." uqtgu."y qtmj qru."qhlegu."o guu"tqgo u"uj gngtu"cpf"ht"cm'ugtxlegu"kp"eqppgevkqp"vj gty kj 0' Vj g" mecvkqp"qh'cml'wej "hckkkgu"uj cml'dg"ci tggf"dghtgj cpf"y kj "vj g"Rtqlgev"O cpci gt"cpf"uj cml'dg"wej "cu" vq'cxqkf"qduvkvqp"cpf"pwkucpeg"vq"vj g'r wdke0'

Vj g"Eqpvtcevt"uj cml'eqpvtwev'ugewt'g'vqtcg'g'eqo r qwpf u'cpf"vqtcg'g'dwklf lpi "y j gty"vj g'uj cml'vqtcg"cv'j ku" qy p"tkun'cml'gs wkr o gpv'cpf"Rcpv"cy cklpi "gtgevkp0'Vj g"Eqpvtcevt"uj cml'cnuq"rtqxlk'g'ugewt'g"eqxgtgf" uqtcg'g"ht"cm'uco r rgu"uwo kwgf"vq"vj g"Rtqlgev"O cpci gt"ht"cr r tqxcn0' Uqtcg'g"dwlkf lpi "uj cml' dg" y gev gtr tqqh'cpf"uj cml'dg"qh'lwthlekpvlk'g'vq'ceeao o qf cvg'cnlkgu utgs wklpi "eqxgtgf"vqtcg'g'0'

Vj g"Eqpvtcevt"uj cml'rtqxlk'g"cpf"o clpckp"uwkcdrg"cpf"uwthlekp"uj gngtu"cpf"o guu"tqgo u"ht"j ku" y qtno gp"cpf"uwr gtxkqt{"uclh'cu"ctg"ewuqo ct{"cpf"pgeguuct{0' Vj g"Eqpvtcevt"uj cml'rtqxlk'g" uwthlekp"enuguv"qt"nclkgu"vq"vj g"ucukcevkqp"qh"vj g"tgexcpv"cwj qtk{0' Vj g{"uj cml' dg"rtqr gtn{" uetggpgf"cpf"o clpckpgf"kp"ce'egcp"cpf"ucpkct{"ucvg'cv'cml'ko gu0'Vj g"Eqpvtcevt"uj cml'dg"tgr qpukdrg"ht" o cnlpi "cml'cttcepi go gpv'ht"vj g'rtqr gt"tkur qucn'qh'y cuvg0'

Water and Electricity Supplies

Vj g"Eqpvtcevt"uj cml'o cng'cml'cttcepi go gpv'ht"cpf"rtqxlk'g'cf gs wev'uw r n'qh'r qvcdrg'y cvgt"vq'gcej "ukg" cu'pgeguuct{"ht"vj g'gzgewkqp"cpf"vgukpi "qh'vj g"Y qtmu'cpf"ht"vug'd{"j ku'y qtno gp0'

Vj g"Eqpvtcevt"uj cml'o cng"cttcepi go gpv'ht"cpf"rtqxlk'g"cp{"grgestlek{"uwr r n' tgs wklgf"ht"vj g" gzgewkqp"qh'vj g"Y qtmu."lpenw lpi "vj g'Vguu'qp'Ego r ngvqp0'

Contractor's Staff and Workmen

Vj g"Eqpvtcevt"uj cml'ci tgg"vq"go r nq{"Mgp{cp"y qtngtu"vq"vj g"o czlo wo "gzvgp"r quukdrg0' Vj g" Eqpvtcevt"uj cml'rtqxlk'g"c"eqo r gvgpv"Ukg"Ci gpv"vq"vj g"cr r tqxcn'qh"vj g"Rtqlgev"O cpci gt"vq"dg"kp" ej cti g'qh'vj g'y qtnly j q'uj cml'pqv'dg'ej cpi gf"gzegr v'y kj "vj g'eqpugpv'qh'vj g"Rtqlgev"O cpci gt0'

Vj g"Eqpvtcevt"ci tggv'vj cv'j ku'y qtno gp"cpf"go r nq{ggv'uj cml'dg'eqpukf gtgf"ht"cm'r wtr qugu'lp"j ku'f kgev" r c{"cpf"go r nq{"cpf"wpf gt"j ku'uw r gtxkklqp"cpf"eqpvtq0'J g'uj cml'dg'f kgev{"cpf"r gtuqpcn{"tgr qpukdrg" ht"tkuej cti lpi "cml'drki cvkpu"hpcepcn'qt"qy gt."y j lej "o c{"dg'qt"dg'eqo lpi "qy lpi "vq'cp{"uwej "y qtno cp" qt"go r nq{gg'qt"vq"j ku'uweguuqtu."cuuki pggu'qt"r gtuqpcn'tgr tguvpcv'kgu0'Vj g'uj cml' dg"pq"eqpvtcewcn'qt" nq'cn'tgrcvkpu"qh'cp{"nkp"y j cuqgxgt"dgvy ggp"vj g"Go r nq{gt"cpf"cp{"uwej "y qtno cp."go r nq{gg'qt" cp{"r gtuqp"go r nq{gf"kp"vj g'r gthqto cpeg'qh'vj g'Eqpvtcevt'au'qdrki cvkpu'wpf gt"vj ku'Eqpvtcevt0'

Vj g"Rtqlgev"O cpci gt"o c{"tgs wgu'cpf"vj g'Eqpvtcevt"ci tggv'vq'ceeegr v'y g'tgs wgu'ht"vj g'ko o gflcv'g'tgo qxcn' htqo "vj g"ukg"qh'cp{"go r nq{gg'qt"y qtngt"qh"vj g'Eqpvtcevt"cf lwf i gf"d{"vj g"Rtqlgev"O cpci gt" vq"dg" lpego r gvgpv."f kuqtf gtn{"."cpf"vptgrkcdrg"qt"qh'dcf"ej ctcevg0'Uwej "go r nq{gg'uj cml'pqv'ci clp"dg"go r nq{gf"qp" vj g'Y qtmu0'

Training of Employers Workmen

Vj g"Eqpvtcevt"uj cml'o cng'r tqxklqp'ht"vj g'qp/ukg'vclpki "qh'wr "vq'5'qh'vj g'Go r nq{gt'au'wclh0'

Project Management

"

Project Control

Vj g'Eqpvtcevt "uj cml'r tqxf g'y kj kp"j ku'ukg"qti cpl'vklp" c'r tqlgev'o cpci go gpv'ecr cdlrk\ "v'cf xlug" cpf "dg" f'ktgevl "tgr qpukdrg" v'j g'Ukg" Ci gpv'Eqpvtcevt'ej kgh'ukg" tgr tgu'pvc'xg+0Vj g'f wkgu'qh'j g'ugevklp" uj cml'penf g'y g'hmqy lpi <

"

Rcpplpi "cpf" r tqi tco o g'rtgr ctevlp" r ctvlewctn\ "lp" tgr vklp" v'j g' tgs vkt go gpv' qh' j g' Go r nq { gt "cpf" j g' r vdrle" cwj qtklgu" cpf " j g' tgs vkt go gpv' v'j o clp'clp" y cvgt " uwr r n\ " cpf " y cug" y cvgt " f kur qucn' ugtxlegu" y j gtg" ectghw' f g'ckrgf " ctcp' go gpv' j cxg" v' dg" o cf g' cpf " cf j gtgf " v'q0'

"

Rcpplpi "j g'gzgewklp" qh'j g'Y qtmu"lp" c"o cpgt" y j lej "o kpl' k gu' f kutw' vklp" v'j g' y cvgt " uwr r n\ " u{ ugo " cpf " y km' r gto k' j g' gh'ekp'v" cpf " gh'gev'xg" eqo o ku'klp'pi " qh' j g' y cvgt " uwr r n\ " u{ ugo " cpf " j g'kt " tgr gev'xg" eqo r qp'p'w0'

"

Gpuw'lp' "cf gs wcv' r q'cdrg' y cvgt " uwr r n'gu' cpf " y cugy cvgt " f kur qucn' ugtxlegu' ctg" o clp'clp'gf " v' cml'equw'o gu0'

"

Eqp'v'p'w' uwtxg'k'p'eg" qh' r tqi tguu' cpf " cp'lek' vklp" qh' h'evqtu' r'kng\ " v' ch'gev" j g' v'ko gn\ " r gthqto cpeg" qh'j g' Eqp'tce0'

"

O cml'pi "r tq' qucn' h'q' b qf k'hevklp" v' h'q' ty ctf "r rcpplpi " cpf " v' j g' r tqi tco o g'v'cp' g'ctn\ " l'ci g" lp' j g' h'ki j v'qhl'hevqtu' tguw'lp' " h'qo " f +cdq'xg0'

"

Eqp'v'p'w' cr r t'clucn' qh'j g'Eqp'tcevt'au' o gy qf u' cpf " tqw'kp'gu' r ctvlewctn\ " cu' v' j g'kt " gh'gev" qp' j g' eqo o v'p'k\ " cpf " r tq' gtv\ 0'

"

Hq' ty ctf "r rcpplpi " h'q' t'gu'q'w'eg" tgs vkt go gpv' v'cml'pi " f w'g' ceeq'w'p' qh' r quukdrg' u'j q'v'ci gu' cpf " f g'rc { u'lp" j g' cttk'x'cn\ qp' " uk'g" qh' o cvgt'k'cu. " gs w'kr o gpv' r rcpv' cpf " r gtu'pp'gn\ cpf " j g'kt " o qd'k'k\ vklp' h'q' t' gh'gev'xg' w'uci g0'

"

Ces w'uk'klp" cpf " r tq'egu' qh' w' r /v' f cv'g" k'p' h'qto vklp" h'q' r tqi tguu' o gg'v'pi u' y kj " j g' Rtqlgev' O cpci gt0' Vj g' r tgr ctevlp" qh' o qp'j n\ " r tqi tguu' tgr q'v' u'lp' enf lpi " cp" w' r f cv'g" qh' j g' f g'ckrgf " r tqi tco o g' cpf " ecuj " h'q' y " h'q' tgecu' y j lej " uj cml'penf g' r tqi tguu' r j q'v'ci tcr j u' cu' f'ktgevgf " d\ " j g' Rtqlgev' O cpci gt0'

"

Vj g'Eqp'tcevt'au' r tqlgev'o cpci go gpv' u'ch' h'uj cml'dg' qh' cf gs wcv' cdlrk\ " cpf " g'zr gtl'ep'eg0' Rtqi tco o gu' uj cml' dg" dcugf " w' qp" Etk'lecn' Rc'j " O cpci go gpv' *ERO + " pgy qtmu"lp" r tgegf g'peg" h'qto cv' cpf " uj cml'dg" r tgr ctf' w'lp' " c' u'w'k'cdrg" RE/dcugf " r tqlgev'o cpci go gpv' u'q'h'y ctg' r cen'ci g' cr r tq'xgf " d\ " j g' Rtqlgev' O cpci gt0'

"

Tgr q'v'lp' "uj cml'dg"lp" c"o cpgt" eqo r cv'k'rg' y kj " j g'Go r nq { gtu' r tqlgev'o cpci go gpv' r tqegf w'gu' cpf " uj cml' w'g" j g' Gctpgf " Xcn'g" *GX+ " Vgej p'k' w'g" cpf " uj cml' o q'p'k'qt" j g' cew'cn\ i tqu' xcn'g" qh' y qtm' eqo r r'gv'f " ci ckpu' v'j g' r tgf levgf " xcn'g0'

"

Monthly Statements and Certificates

O qp'j n\ " u'cv'go gpv' cpf " egt' v' h'ecygu' uj cml' dg" u'wdo k'vgf " lp" cp" cr r tq'xgf " o cpgt" cpf " h'qto cv0' k'p" cf f'kl'klp" v'j g' u'cv'go gpv' u'wdo k'vgf " lp" j ctf " eqr { " j g'Eqp'tcevt' uj cml' u'wdo k'c' eqo r wgt' eqr { " w'lp' " f cv'c" dcug" u'q'h'y ctg" cu" r tguet'ldgf " d\ " j g' Rtqlgev' O cpci gt0' Vj g' u'cv'go gpv' cpf " egt' v' h'ecygu' uj cml' f g'ck'k' j g' o gcuw'tgf " xcn'g" qh' j g' y qtm' eqo r r'gv'f " qp" g'cej " k'go " qh' j g'Y qtmu"lp" u'wej " f g'ck'k' j cv' j g'

Rtqlgev'O cpci gt'ecp'kf gpvkhf "hgecvkp"cpf "o gcuwtgo gpv'qh'gcej "kgo O'C'hgecvkp'uj cm'eqpukxwg"cu'ulpi ng' utvewt'g'uwej "cu'c'tgugtxqkt."r wo r "ucvkv"qt"ugevkv"qh'c'r kr grkp"qt"ceqo r qp'gpv'qh'c'u'ugo "uwej "cu'c" r kr grkp'xcixg'eqo r ngzO'

Gcej "kgo "uj cm'dg"vpls wgnf "kf gpvkhf "kp'ceeqtfcpeg"y kj "y g"pwo dgtkpi "u'ugo "cu'kp'utvewgf"d{ "y g" Rtqlgev'O cpci gtO'

Progress Meetings

Vj g"Eqpvtcevqt"uj cm'r tqxkf g" c"uwkcdng" xgpwg."pgct" y g"xlekp{ "qh'y g"Ukg."cpf "cttcpi g"r tqi tguu' tgxlg"y "o ggkpi u'v'q'dg'ej cktgf "d{ "y g"Rtqlgev'O cpci gt"cv'o qp'y n' "kp'vtxcni'v'eq'p'ekf g'y kj "uwo kuukp" qh'o qp'y n' "r tqi tguu'uwo kuukpuO'Vj g"Eqpvtcevqt"uj cm'cmqy "hqt"cv'gpf cpeg"d{ "y g" Rtqlgev'O cpci gt" cpf "wr "v'6'tgr t'gugpvcxgu"qh'y g"Rtqlgev'O cpci gt'at'Go r m{ gtO'Vj g'o ggkpi u' u' cm'dg"cv'gpf gf "d{ " y g"Eqpvtcevqt'at'ugp'kt"tgr t'gugpvcxgu."Ukg"Ci gp'v'cpf "qy gt"o go dgtu'qh'j ku' ug'p'kt'uch'i'cu'o c{ "dg" f ggo gf "p'geguuct{O'

Equipment for the Employer

Vj g'Eqpvtcevqt'uj cm'i'j cpf "qxgt"v'y g'Go r m{ gt"qp'eqo r ngvkv"qh'y g"Y qtmu'c'eqo r ngv'ugv'qh'v'qnu"cpf " gs vkr o gpv'qi gy gt'y kj "ur ctg'r ctu'v'cpf "h'k'kpi u'v'q'h'ek'k'v'g'y g'o cl'p'gpcpeg'cpf "qr gtcvkv"qh'y g"kp'ucmgf " y qtmuO'

Facilities for Survey and Inspection by the Project Manager"

Vj g'Eqpvtcevqt'uj cm'o cng'cxckcdng'v'gej plekpu"cpf "uwej "hcdqwt."o cvgtknu'cpf "uch'v' "gs vkr o gpv'cu" y g" Rtqlgev'O cpci gt"o c{ "tgs vkt g"ht"kp'ur gevkvpu"cpf "utxg{ "y qtm'kp"eqppgekv"y kj "y g"Y qtmuO'Vj g" Eqpvtcevqt'uj cm'r tqxkf g'cm'p'geguuct{ "cemg."guv'gs vkr o gpv'ceegu."hcdqwt."uch'i'cpf "cp{ "qy gt'y kpi " y g" Rtqlgev'O cpci gt"o c{ "tgcupcdn' "tgs vkt g"kp"qtf gt"y cv'j g"o c{ "uch'v'."eqpxgpkp'v' "cpf "s v'k'cm' " ectt{ " qw'uwej "kp'ur gevkvpu'cu'j g'f ggo u'p'geguuct{ "cv'cp{ "v'o g'f v'k'pi "y g'gzgewkv"qh'y g"Y qtmu'cpf "f v'k'pi "y g" F gh'geu"Nkcd'k'v' "Rgt'kf O'Vj g"Rtqlgev'O cpci gt."j ku'tgr t'gugpvcxg"cpf "cu'k'v'cu."uj cm'pqv' kp'ur gev' cp{ " ctgc"qh'y g"Y qtmu"y j gtg"y g'f ggo "y g"uch'v' "r tqxkvkv"v' "dg"kp'cf gs v'v'g"cpf "y g" Eqpvtcevqt'uj cm' v'p'gt'v'ng'cp{ "y qtm'itgs vkt gf "d{ "y g"Rtqlgev'O cpci gt"kp"qtf gt"v'q'o cng'k'uch'gO'

Vj g'Eqpvtcevqt'uj cm'r tqxkf g"kp'ceeqtfcpeg"y kj "y g"DqS "cpf "y g"Ur gek'h'ecvkv"y g'h'mqy kpi "kp'utwo gpv' " cpf "gs vkr o gpv'c'

- É 3P qOI gqf g'le'I RU=
- É 3'P qO'Vq'cn'Ucvkv0Gs vkr o gpv'eqo r ngv'y kj "cm'ceeguutkgu'cpf "uqhy ctg=
- É 4'P qO'cwqo cv'le'ngxgn'y kj "v'kr qf "cpf "ceeguutkgu."y kj "j qtk' q'v'cn'ek'terg=
- É 4'P qO'ngxgn'pi "uch'h'6'o g'v'gtu'h'pi "y kj "ngxgn'pi "d'wddrg=
- É 4'P qO'uggn'd'cpf u'52'o g'v'gtu'h'pi "kp'ewf kpi "uch'h'ngxgn=
- É P qO'uggn'd'v'cr gu'5'o g'v'gtu'h'pi =
- É 43'P qO'tcpi kpi "t'qf u=
- É 3'P qO'ur k'k'ngxgn'3'o g'v'gtu'h'pi =
- É Qpg'uggn'utck'j v'gf i g'3'o g'v'gtu'h'pi ."cpf "cm'v' g'r q'ngu."r gi u."r cl'p'v'v'go r ngv'v'utkpi "h'p'gu'cpf "qy gt" tgs v'k'kgu'ht'ugv'kpi "q'w'v'cpf "o gcuwtgo gpv'qh'y g'y qtmu=
- É Qpg'v'cr g'tgr ct "h'k'v=
- É Qpg'3'ni "j co o gt=
- É Qpg'6'ni "j co o gtO'

Inspections by the Project Manager during Defects Liability Period

Vj g"Rtqlgev'O cpci gt'y kn'i kxg"vj g"Eqpvtcevqt"fwg"pqvleg"qh"j ku"lpvgpvkqp"vq"ectt{"qww"cp{"kpur gevkapu" fwtlpi "vj g" Fghgeu" Ncdkx{" Rgtkqf" cpf" vj g" Eqpvtcevqt" uj cml" vj gtgwr qp" cttcpi g" hqt" c" tgr qpukdng" tgrtgugpvkxg"vq"dg"rtgugpv"cv"vj g"vko gu"cpf"fcvgu"pco gf"d{"vj g"Rtqlgev'O cpci gt0Vj ku" tgrtgugpvkxg" uj cml'tgpf gt" cml'pgeguuct{"cuukxcpvg"cpf"uj cml'tgeqtf" cml'o cvgtu"cpf"vj lpi u"vq"y j kej" j ku"cvgpvkqp"ku" fktgevgf"d{"vj g"Rtqlgev'O cpci gt0

Protective Clothing and Safety Equipment

Vj g"Eqpvtcevqt"uj cml'r tqxkf g"ht"vj g"Rtqlgev'O cpci gt."j ku"Trtgugpvkxg"cpf"cuukxcpw"cp{"cf fklqpcn' r tqvgevxg"emvj lpi "cpf"uchgv{"gs vkr o gpv'pgeguuct{"ht"vj g'r tqf gt" f kuej cti g"qh"vj gkt"fwkgu" qp"vj g"Ukg0

Vj g"Eqpvtcevqt"uj cml'r tqxkf g"cp{"pgeguuct{"rtqvgvkg"emvj lpi "cpf"uchgv{"gs vkr o gpv'ht"vj g"vug"qh" cwj qtk gf"xlukqtu"vq"vj g'ukg"lpenw lpi "vj g'Go r m{"gt"cpf"j ku"uchh'cpf"tgrtgugpvkxgu"cpf"vj qug"qh" cp{" tgrgxcpv'cwj qtk{"y j qj cxg'tgcuqp"vq"xluk/vj g'Ukg0

Notice Boards

Vj g"Eqpvtcevqt"uj cml'r tqxkf g"cpf"gtgev'uki p"dqctfu"cv"vj g"Ukgu"y j gtg"y qtmu"ctg"dglpi "gzgewgf."i kxkpi " lphqto cvkqp"vq"vj g'r wdrk"qp"vj g"Rtqlgev'cpf"vj g"Go r m{"gt"cpf"htvj gt"fgvku"cu"y kn'dg"rtguetkdgf" d{"vj g"Go r m{"gt0Vj g"mcevkap"qh"vj g'uki p"dqctfu"cv"vj g'ukgu"y kn'dg"lpf kcvgf"d{"vj g"Rtqlgev'O cpci gt0 Vj g"Eqpvtcevqt"uj cml'o clpvclp."cngt."o qxg'qt'cf cr v'vj g'uki p"dqctfu"htqo "vko g'vq"vko g'cu'b c{"dg'lpustwvgf" d{"vj g"Rtqlgev'O cpci gt0 Vj g'f kur r{"qh'cp{"pco gf"Uwd/eqpvtcevqtu"qt"cp{" qvj gt"lphqto cvkqp"cuqelcvgf" y kj "vj g"Y qtmu"uj cml'dg"vq"vj g'cr r tqxclqh"vj g"Rtqlgev'O cpci gt0

Language of Correspondence and Records

Cml'eqo o wplecvkapu'htqo "vj g"Eqpvtcevqt"vq"vj g"Rtqlgev'O cpci gt"uj cml'dg"lp"vj g"Gpi rkuj "ncpi wci g0Cml'dqqnu." vko guj ggu."tgeqtfu"pqvu."f tcy lpi u."f qewo gpvu."ur gekkcecvkapu"cpf"o cpwlcwgtu0rkgtcwgt" uj cml'dg"lp"vj g" Gpi rkuj "ncpi wci g0Ki"cp{"qh"vj g"chqtgo gpvkapgf"ku"lp"cpqj gt"ncpi wci g" c"egt vkgf"tcpuwcvkqp'lp"Gpi rkuj "uj cml' dg'uwo kvgf"vq"vj g"Rtqlgev'O cpci gt0

Standards and Regulations

Gcej "cpf"gxgt{"rctv'qh"vj g"Y qtmu"uj cml'dg"fguki pgf."eqputwvgf."o cpwlcwgtgf."vgvgf"cpf"lpucmgf" lp" ceeqtf cpeg"y kj "cp'lpvgtpcvkqpcml' tgeqi pl gf"ucpf ctf."Eqf g'qh'Rtcevleg."qt" Tgi wcvkqp'cr r rcedng"vq"vj cv" rctv'qh"vj g"Y qtmu0

Uwej "ucpf ctf u'cpf"eqf gu"uj cml'penw g<
Dtkuj "Ucpf ctf "Ur gekkcecvkap"rcuv'r vdrkuj gf 0
KpgtpcvkqpcnGgestqo gej cplecnEqo o kuukp."y j gtg'cxckrcdng"KGE+0
KpgtpcvkqpcnQti cpl cvkqp'ht"Ucpf ctf k cvkqp"KUQ+0

Vj g"Eqpvtcevt"uj cml'r tqxkf g" cpf "nggr" r gto cpgpwl " qp" usg" egr lgu" qh" uwej " ucpf ctf u" cu" o c{ "dg" f ktgev f'd{ "vj g'Rtqlgev'O cpci gt'cpf'uj cml'o cng'vj go 'cxclrdg'v'vj g'Rtqlgev'O cpci gt'cu'tgs wktgf O

Equivalency of Standards and Codes

Y j gtgxt'ghgtgpeg'ku'o cf g'lp'vj g'Eqpvtcev'lpewf lpi 'Ur gekhecvkpu'F tcy lpi u'cpf 'Dknl'qh'S wcpvklgu" vq" ur gekhe"ucpf ctf u'cpf "eqf gu'vq"dg"o gv'd{ "vj g'i qqf u'cpf "o cvgtknu"vq"dg"lmtpkij gf ."cpf "y qtnlr gthto gf " qt"vgufg ."vj g'r tqxkukpu"qh'vj g'ncvuv'ewtgpv'gf kklp"qt"tgxkukp"qh'vj g'tgrgxcpv'ucpf ctf u" cpf "eqf gu'lp" ghge'vj cml'cr r n{ ."wprguu'qy gty kug'ucvgf 'lp'vj g'Eqpvtcev'O Y j gtg'uwej "ucpf ctf u'cpf "eqf gu'ctg'pcvklpcn" qt"tgrvg"vq" c" r ctvewct "eqwpt{ " qt" tgi kqp." qvj gt" cwj qtkcvkg" ucpf ctf u" vj cv' gputg" c' uwdncpvcml{ " gs wcn'qt" j ki j gt" s wcrk{ "vj cp"vj g"ucpf ctf u'cpf "eqf gu'ur gekhegf "y kn'dg"ceegr vgf " uwdlgev"vq"vj g'Rtqlgev' O cpci gt'at' r tkqt"tgxky "cpf "y tkvgp"eqpugv'O k{ "vj g'gxgpv'vj g'Rtqlgev'O cpci gt" f gvgto kpgu" vj cv' uwej " r tqr qugf "f gxkcvkpu" f q"pqv' gputg" uwdncpvcml{ "gs wcn'qt" j ki j gt" s wcrk{ ."vj g" Eqpvtcevt'uj cml'eqo r n{ " y kj "vj g"ucpf ctf u'ur gekhegf 'lp'vj g'Eqpvtcev'O

Quality Control

Vj g"Eqpvtcevt"uj cml'dg'tgur qpukdg" hqt" j ku'qy p" s wcrk{ "eqpvtqn'cpf "uj cml'r tqxkf g" uwhlekp'eqo r gvgpv' r gtuqppgrlht' uwr gtxkupi "vj g'Y qtnu.'cnkpi "cpf "tgr ctkpi 'lco r ngu'cpf "hqt'ectt{ lpi 'qww'cml'pgeguuct{ "vguu'O

Units

Vj g"Kpvtcpvklpcn'U{ ugo "qh"*o gtle+"Wpkus"cu" ugv'qww'lp"CUVO "G5: 2"uj cml'dg" wugf "vj tqwi j qww'vj g" Eqpvtcev'gzevr vj j gtg'qvj gty kug'r tqxkf gf O

Inspection and Testing during Manufacture"

Vj g'r gthqto cpeg'qh'gcej "kgo "qh'Rncpv'qt'Rkr g'uj cml'dg'vgufg 'lp"ceeqtf cpeg'y kj "vj g'Ur gekhecvkqp"vq"vj g" tgs wktgo gpw'qh'vj g'Rtqlgev'O cpci gt'O

Vguv'egt whecvu"lp" vkr rdecv"uj cml'dg" uwdn kwgf "d{ "vj g"Eqpvtcevt"vq"vj g'Rtqlgev'O cpci gt"y kj lp"4" y ggmu'qh'vj g'f cvg'qh'vj g'vguu'O V{ r g'vguu'ctg'pqv'ceegr vcdng'O Vguv'egt whecvu"uj cml'dg"uwr r rkgf "hqt"vguu" ecttkgf "qww'qp"vj g'cewcnRncpv'dgkpi "uwr r rkgf O

Rncpv'uj cml'pqv'dg"f kur cvej gf "ltqo "vj g'o cpwhcewtgtat'y qtnu'wpvkl'j cu'r cuugf "vj g'ur gekhegf "vguu" cpf " cr r tqxcndggp'i kxgp'd{ "vj g'Rtqlgev'O cpci gt'O

Vj g'Rtqlgev'O cpci gt'uj cml'ev'j ku'f kuetgvkqp'y kpguu'vguu'qh'lpf kxkf wcnkgo u'qh'Rncpv'cv'vj g'o cpwhcewtgtat'y qtnu'O Vj g'Rtqlgev'O cpci gt'uj cml'dg'i kxgp'vj tgg'y ggmu'pqvleg"lp"y tkkpi "dghqtg'uwej "vguu'ctg'vq'cng" r rceg'O

Vj g"ceegr cpeg" d{ "vj g" Rtqlgev' O cpci gt" qh' cp{ " kgo " qh' Rncpv" qt" gs wkr o gpv' chgt" vguvki " cv' vj g" o cpwhcewtgtat'y qtnu"uj cml'lp"pq"y c{ "tgrkxg"vj g"Eqpvtcevt"qh"j ku" tgur qpukdkk{ "hqt"vj g"eqttgev' r gthqto cpeg'O

SECTION 2 EARTHWORKS, BACKFILLING AND RESTORATION"

Conditions of Site"

Dghqtg'ectt{ lpi "qww'y qtm'kp"cp{ 'Ukg.'y' g'Ukg'uj cml'dg'kp'ur gev'f "d{ 'y' g'Eqp'tcev't' "lp'eqpl'wpe'v'kp" y' kj "y' g'Rtql'gev'O cpci gt' "v'g'uc'dr'kuj "ku'i' gpg'tc'n'eq'f' k'k'q'p'y' j' lej "uj' cml'dg'ci' tggf "cp'f' "t'ge'q't'f' g'f' "kp" y' t'k'k'p' "cp'f' "d{ 'o' g'cp'u'q'h'f' k' k'c'n'r' j' q'q'i' t'c'r' j' { '0'

F' g'v'k'u' "t'ge'q't'f' g'f' "uj' cml'p'en'w'f' g' "y' g' "n'ec'v'k'p' "q'h' cml'd'q'w'p'f' c't' { "cp'f' "u'w't'x'g' { "d'g'c'e'q'p'u' "y' g' "e'q'p'f' k'k'q'p' "q'h' d'w'k'f' l'p'i' u' "u'w't'h'e'g' "v'g't't'c'e'k'p'i' " "k'h' "c'p' { "+" f' k'ej' g'u' "y' c'v'g't'e'q'w't'u'g'u' "t'q'c'f' u' "v'c'e'm'u' "h'g'p'e'g'u' "c'p'f' "q'y' g't' "l'p'h'q't'o' c'v'k'p' "t'g'r'c'v'k'p'i' "v'q' "y' g' "U'k'g' "c'p'f' "g'n'g'y' j' g't'g'y' j' lej "o' c' { "d'g' "c'h'g'ev'f' "d' { "y' g'y' q't'm'u'0'

K'p' "y' g' "e'c'u'g' "q'h'y' c' { "n'g'c'x'g'u' "h'q't' "r' k'r' g'r'k'p'g'u' "y' g' "d'q'w'p'f' c't'k'g'u' "q'h'y' g'y' c' { "n'g'c'x'g' "y' k'n'i'd'g' "f' g'h'k'p'g'f' "d' { "y' g' "G'o' r' n'q' { g't' "c'p'f' "y' g' "e'q'p't'c'e'v't' "uj' c'm'l'y' j' g't'g' "f' k't'g'ev'f' "r' t'q'x'k'f' g' "g't'g'ev' "c'p'f' "o' c'l'p'v'c'l'p' "l'p' "r' q'u'k'l'k'p' "t'q'o' "e'q'o' o' g'p'e'g'o' g'p'v' "v'q' "y' g' "h'p'c'n'le'q'o' r' n'g'v'k'p' "q'h'y' g' "Y' q't'm'u' "k'p' "g'x'g't' { "u'g'e'v'k'p' "u'w'd'u'c'p'v'k'n'i' "k'o' d'g't' "u'c'n'g'u' q't' "u'k'o' k'r'c't' "c'r' r' t'q'x'g'f' "o' c't'n'g't'u' "p'q'v' "g'u'u' "y' c'p' "30' "o' "j' k'i' j' "l'p'f' l'ec'v'k'p'i' "y' g' "r' q'u'k'l'k'p' "q'h'y' g' "d'q'w'p'f' c't' { "c'v' 322o' "q't' "q'y' g't' "u'w'ej' "l'p'v'g't'x'c'n'i' "c'u' "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't' "o' c' { "f' k't'g'ev'0' K'p' "y' g' "g'x'g'p'v' "q'h'c'p' { "d'q'w'p'f' c't' { "q't' "u'w't'x'g' { "o' c't'n'i'g'uc'd'r'k'uj' g'f' "h'q't' "y' g' "r' w'r' q'u'g' "q'h' "i'c'p'f' "k'w'g' "d'g'l'p'i' "f' k'u'w't'd'g'f' "q't' "f' k'u'r' "n'eg'f' "y' g' "E'q'p't'c'e'v't' "uj' c'm'l' "h'q't'y' y' kj "t'g'r' "n'eg' "y' g' "d'g'c'e'q'p'0'Y' j' g't'g' "p'g'e'g'u'c't' { "y' g' "E'q'p't'c'e'v't' "uj' c'm'l'g'o' r' n'q' { "y' g' "u'g't'x'k'g'u' "q'h' c'p' "c'r' r' t'q'x'g'f' "h'eg'p'ug'f' "u'w't'x'g' { q't' "h'q't' "y' g' "r' w'r' q'u'g' "q'h' "u'g'v'k'p'i' "q'w'd'q'w'p'f' c't'k'g'u'0'

Site Clearance and Topsoil Removal"

U'k'g' "e'ng't'c'p'eg' "uj' c'm'l' d'g' "e'c't't'l'g'f' "q'w' "q'x'g't' "y' g' "c't'g'c'u' "v'q' "d'g' "q'e'ew'r' k'g'f' "d' { "y' g' "R'g't'o' c'p'g'p'v' "Y' q't'm'u' "d'g'h'q't'g' "d'g'i' k'p'l'k'p'i' "g'z'e'c'x'c'v'k'p' "q't' "h'k'l'p'i' "q't' "q'y' g't' "y' q't'm' "c'p'f' "uj' c'm'l'p'en'w'f' g' "y' g' "e'ng't'c'p'eg' "q'h' c'm'l' "t'g'g'u' "u'w'o' r' u' "d'w'uj' g'u' "c'p'f' "q'y' g't' "x'g'i' g'v'c'v'k'p' "c'p'f' "y' g' "t'g'o' q'x'c'n' "q'h' c'm'l' "d'q'w'f' g't'u' "d'g'y' g'g'p' "2023" "c'p'f' "204o' 5" "x'q'n'w'o' g'u'0' "D'q'w'f' g't'u' "n'ec'v'g'f' "y' kj' k'p' "3o' "q'h'c'p' { "r' k'r' g' "e'g'p't'g'r'k'p'g' "uj' c'm'l'd'g' "t'g'o' q'x'g'f' "y' j' g't'g' "f' k't'g'ev'f' "d' { "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't'0'

D'g'h'q't'g' "d'g'i' k'p'l'k'p'i' "e'ng't'c'p'eg' "l'p' "c'p' { "c't'g'c' "y' g' "E'q'p't'c'e'v't' "uj' c'm'l'i' k'g' "u'g'x'g'p' "f' c' { "u'y' t'k'w'g'p' "p'q'v'k'eg' "q'h'i'j' k'u' "k'p'v'g'p'v'k'p' "v'q' "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't' "y' j' q'y' k'n'i'f' g'v'g't'o' k'p'g' "y' g' "g'z'v'g'p'v' "c'p'f' "h'o' k'u' "q'h' "u'w'ej' "e'ng't'c'p'eg'0'

V'q'r' u'q'l'k'l'uj' c'm'l'o' g'c'p' "y' g' "u'w't'h'e'g' "n' { g't' "q'h' "u'q'l'k'l'y' j' lej "d' { "k'u'j' "w'o' w'u' "e'q'p'v'g'p'v' "u'w'r' r' q't'w' "x'g'i' g'v'c'v'k'p' "c'p'f' "k'u' "w'p'u'w'k'c'd'g' "c'u' "c' "h'q't'o' c'v'k'p' "v'q' "t'q'c'f' u' "c'p'f' "e'q'p'e't'g'g' "u't'w'e'w't'g'u' "q't' "c'u' "c' "d'c'e'n't'k'n'i'q't' "d'g'f' f' l'p'i' "o' c'v'g't'k'n'i'0' V'j' g' "g'z'v'g'p'v' "c'p'f' "f' g'r' "y' "q'h' "v'q'r' u'q'l'k'l'y' c'v'p'g'g'f' u' "t'g'o' q'x'c'n' "uj' c'm'l'd'g' "ci' tggf' "y' kj' "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't'0' V'q'r' u'q'l'k'l'uj' c'm'l'd'g' "u'g'v' "c'u'k'f' g' "h'q't' "t'g' "w'ug' "q't' "f' k'u'r' q'u'c'n' "c'u' "f' k't'g'ev'f' "d' { "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't'0'

V't'g'g'u' "v'q' "d'g' "t'g'o' q'x'g'f' "uj' c'm'l'd'g' "w'r' t'q'q'v'g'f' "q't' "e'w' "f' q'y' p' "c'u' "p'g'c't' "v'q' "y' g' "i' t'q'w'p'f' "n'g'x'g'n' "c'u' "r' q'u'k'l'd'g'0' "D'w'uj' g'u' "w'p'f' g't'i' t'q'y' "y' j' "u'o' c'm'l' "t'g'g'u' "u'w'o' r' u' "c'p'f' "t'g'g' "t'q'q'v' "uj' c'm' "y' j' g't'g' "f' k't'g'ev'f' "d' { "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't' "d'g' "i' t'w'd'd'g'f' "q'w'0' "C'm'l'j' q'r'g'u' "n'g'h' "d' { "y' g' "u'w'o' r' u' "q't' "t'q'q'v' "uj' c'm'l'd'g' "d'c'e'n't'k'n'i'g'f' "y' kj' "u'w'k'c'd'g' "o' c'v'g't'k'n'i'k'p' "c' "o' c'p'p'g't' "c'r' r' t'q'x'g'f' "d' { "y' g' "R't'q'l'g'ev' "O' c'p'c'i' g't'0'

V'j' g' "R't'q'l'g'ev' "O' c'p'c'i' g't' "o' c' { "t'g's' w'k't'g' "y' c'v' "l'p'f' k'k'f' "w'e'n' "t'g'g'u' "uj' t'w'd'u' "c'p'f' "j' g'f' i' g'u' "c't'g' "r' t'g'ug't'x'g'f' "y' g' "E'q'p't'c'e'v't' "uj' c'm'l' "c'n'g' "c'm'l'p'g'e'g'u'c't' { "f' t'g'e'c'w'k'q'p'u' "v'q' "r' t'g'x'g'p'v' "y' g'k't' "f' c'o' c'i' g'0'

K'p' "y' g' "e'c'u'g' "q'h'y' c' { "n'g'c'x'g'u' "h'q't' "r' k'r' g'r'k'p'g'u' "c'p'f' "y' g' "r'k'ng' "y' g' "E'q'p't'c'e'v't' "uj' c'm'l' "r' t'g'ug't'x'g' "c'u' "h'e't' "c'u' "r' t'c'e'v'k'c'd'ng' "c'm'l'i' t'c'u'u' "c'p'f' "q'y' g't' "x'g'i' g'v'c'v'k'p' "q'w'w'k'f' g' "y' g' "r'o' k'u' "q'h' "t'g'p'ej' g'u' "c'p'f' "r' g't'o' c'p'g'p'v' "y' q't'm'u' "

"

cpf "uj cmlpqv'pgeguuctk{ 'f gultq{ "etqr u"qt"cp{ "xgi gvcvkqp"y j qug"tgo qxcn'y qwr{ "pqv'dg"guugpvkcn'
vq'j ku'qr gtcvkqpu0

"

Erosion"

Vj g"Eqpvtcevqt "uj cml'cng"ectg"cv'cm'vko gu"vq"r tggxgpv'gtqvkqp"qp"gxgt{ "ukg"cpf "gnugy j gtg"qp"
ncpf "y j lej "o c{ "dg" chgevgf "d{ "j ku"qr gtcvkqpu"cpf "y g"Rtqlgev'O cpci gt"o c{ "ko r qug"uwej "
tgcupcdng"tko kcvkqpu"cpf "tgutlevkqpu"wr qp"y g"o gy qf "qh'engctcepg"cpf "wr qp"y g"vko lpi "cpf "
ugcuqp'qh'y g"t{ gct'y j gp'engctcepg'ku'ecttkgf "qww'cu'y g'ektewo ucpegu'y ctcpv0

"

Ground Levels"

Dghqtg" eqo o gpego gpv' qh' cp{ " gct'y y qtmu" qt" f go qrkakqp" y g" ukgu" uj cml' dg" uwtxg{ gf ." cu"
pgeguuct{ ."lp"eqplvpevkqp"y kj "y g"Rtqlgev'O cpci gt"vq"guvdrkuj "gzknkpi "i tqwpf "ngxgnu0Vj gug"
ci tggf "i tqwpf "ngxgnu"uj cml'htqo "y g"dcuku'htqo "y g"ecrewrvkqp"qh'cp{ "uwdugs wgpv'gzeccxvkqp"cpf "
hknkpi 0

"

Trial Holes"

Vj g"Eqpvtcevqt "uj cml'gzeccxvg'tghknkcpf "tguvqtg'lp"cf xcpeg'qh'j ku'r tqi tco o g'uwej "vknk'j qrgu"cu"
j g'b c{ "tgs vktg'htq'f gvgto klpki "y g'pcwtg'qh'y g'uwdvukncpf "y g'hqecvkqp'qh'gzknkpi "vpf gti tqwpf "
ugtglegu'cpf "qduxtvevkqpu0

"

Excavation Generally"

Gzeccxvkqpu"uj cml'dg"o cf g'lp"qr gp'ewwlpki "wprguu'wppgnkpi "qt"j gcf lpi "ku'ur gekhkf "qt"cr r tqxgf "
d{ "y g"Rtqlgev'O cpci gt"cpf "uj cml'dg"vengp"qww'cu'pgctn{ "cu'r quukdng"vq"gzcev'f ko gpukqpu"cpf "
ngxgnu"uq"y cv'o kpo wo "qh'lpkknkpi "y kn'chgt y ctf u'dg"pgeguuct{ 0Vj g"Eqpvtcevqt "uj cml'gpvwtg"
y g"ucdkk{ "cpf "uchgv "qh'gzeccxvkqpu"cpf "uj cml'cng"cm'o gcuvtgu"pgeguuct{ "vq"gpvwtg"y cv"
pq" eqmcr ug"qt'uwdvukf gpeg'qeewtu0

"

Gzeqr v'y j gtg"f guetkdgf "lp"y g"Eqpvtcev'qt"r gto kwgf "vpf gt"y g"Eqpvtcev'gzeccxvkqp"uj cml'pqv'dg"
dcwgtgf 0Vj g'ukf gu'qh'cml'gzeccxvkqpu"uj cml'dg"ngr v'twv'cpf "uj cml'y j gtg"pgeguuct{ "dg"cf gswcvgn{ "
uwr r qtvgf "d{ "o gcpu"qh'vko dgt."uvgn'qt"qvj gt"v{ r g"utwu."y cmlkpi ."r qnkpi "dqctfu." uj ggvkpi ."
dtcelkpi "cpf "y g'hng0

"

Gzeccxvkqpu"uj cml' dg" ngr v' htgg" htqo " y cvgt" cpf " k' uj cml' dg" y g" Eqpvtcevqtu" tgur qpukdkk{ "
vq"eqputvev'cpf "o clpvclp"vgo r qtct{ 'f kxgtukqp'cpf 'f tclpci g'y qtmu'cpf "vq'ectt{ "qww'r wo r lpi "cpf "
vq" veng'cm'o gcuvtgu'pgeguuct{ "vq'eqo r n{ 'y kj "y ku'tgsvktgo gpv0

"

Kp'y g'gxgpv'qh'uqh'qt"qvj gty kug'vpuwkscdng'i tqwpf "dgkpi "gpeqwpvgf "cv'htqo cvkqp'ngxgri'qt'h'y g"
htqo cvkqp'ku'f co ci gf "qt'cmqy gf "vq"fgvgtkqtcvg'y g"Eqpvtcevqt "uj cml'htqy y kj "lphtqo "y g"Rtqlgev"
O cpci gt. "uj cml' gzeccxvg" vq" uwej "gzvct" f gr'y "cpf "tghkn' y kj "eqo rcevgt" i tcpwrt" qt" qv gt"
crr tqxgf 'hknk'qt'E37"eqpetvg"o kpo wo "eqo r tguuqt'utgpi y "37P lo o 4+'cu'y g"Rtqlgev'O cpci gt"
o c{ "tgs vktg'0Y kj "tgur gev'vq"y g'ukf g'hreg'qh'cp{ "gzeccxvkqp"ci clpuv'y j lej "eqpetvg"qt"qv gt"
y qtm'y kn'dg"lp"eqpvev'y g"Rtqlgev'O cpci gt"o c{ "tgs vktg"y cv'y g'pgv'f ko gpukqpu'qh'y g'y qtm'
dg" lpetgcugf 0

"

Vj g'Eqpvtcevqt'uj cmi'dg'tgur qpukdr'g'ht'yj g'f'kur qucn'q'Uwtr nuw'g'zecxv'g'f' 'o' cvgtkcn'q'hh'ukg.'y j lej "uj cmi'dg'v'q'c'iqecv'qp'crr tqxgf "d{ 'y j g'Rtqlgev'O cpci gt'P q'g'zecxv'g'f' 'o' cvgtkcn'uwkscdng'ht'tg/" wug'uj cmi'dg'tgo qxgf 'y kj qw'v'j g'crr tqx'cn'q'hh'v'j g'Rtqlgev'O cpci gt'0
Vj g'Eqpvtcevqt'uj cmi'pq'v'f'gr quk'v'g'zecxv'g'f' 'o' cvgtkcn'qp'r wdr'ke"qt'r t'k'x'cv'g'ncpf "g'zegr v'y j gt'g' f'kt'ge'v'g'f' "d{ 'y j g'Rtqlgev'O cpci gt'qt'y kj "y j g'eqpug'p'v'lp'y t'k'k'p'i "q'h'y j g't'g'x'cp'v'cwj q't'k'f' "qt'q'h' y j g' qy pgt'qt't'gur qpukdr'g't'gr t'g'ug'p'c'v'k'x'g'q'h'y j g'qy pgt'q'h'u'we'j "ncpf "cpf "q'p'n'f' 'y j g'p'lp'y q'ug'r'nc'egu' c'p'f' "wp'f' g't'u'we'j "eq'p'f' k'k'q'p'u'cu'y j g't'g'x'cp'v'cwj q't'k'f'f' "qy pgt'qt't'gur qpukdr'g't'gr t'g'ug'p'c'v'k'x'g'o c{ "r t'g'uet'k'd'g'0

"

Excavation in Excess"

K'c'p{ 'r'ctv'q'h'c'p{ "g'zecxv'k'p'ku'lp'gttqt'g'zecxv'g'f'f'ggr gt'c'p'f' l'q't'y k'f'gt'yj cp'ku't'gs w'k'g'f' 'y j g'z'w'c' f'gr'yj "c'p'f' l'q't'y k'f'yj "uj cmi'dg'h'k'ng'f'y kj "I t'c'f'g"E37R"eqpet'g'v'g'qt"eqo r'cev'g'f' "i t'c'p'w'nt"qt"q'yj gt' crr tqxgf 'h'k'n'v'q'yj g'q't'k'i l'p'c'n'q'ht'o c'v'k'p'g'x'g'n'c'p'f' l'q't'f'k'o g'p'uk'q'p'u'cu'yj g'Rtqlgev'O cpci gt'f'k'g'ew'0
K'p'r'k'g'v't'g'p'ej gu'y j gt'g'yj g'r'k'g'ku'p'q'v'd'g'f'f'g'f' "q'p'qt'lw'nt'q'w'p'f'g'f' 'y kj "eqpet'g'v'g'g'z'eg'u'g'z'ecxv'k'p'p'uj cmi'dg'h'k'ng'f'y kj "eqo r'cev'g'f' "i t'c'p'w'nt"o' cvgtkcn'0Gzegu'g'z'ecxv'k'p'lp't'q'eni't'g'p'ej gu' uj cmi'dg'h'k'ng'f'y kj "eqpet'g'v'g'*37P b o 4'eqo r'g'u'k'x'g'v'nt'g'p'i yj +w'v' "v'q'372o o "d'g'ny 'y j g'r'k'g'p'x'g't'0

"

Mechanical Excavation"

O'g'ej c'p'lec'n'g'z'ecxv'k'p'uj cmi'dg'go r'q'f'g'f' "q'p'n'f' 'h'y j g'u'w'd'u'q'k'i'ku'uwkscdng'c'p'f' "q'p'n'f' 'lp'u'we'j 'o' c'p'p'gt' y j lej 'y j k'n'c'm'y 'c'f'g's w'c'v'g'u'w'r r'q't'v'q'h'yj g'g'z'ecxv'k'p'u'0 Vj g'Eqpvtcevqt'uj cmi'g'p'u'w'g'yj c'v'yj g't'g'c't'g' p'q'r'k'g'gu' "e'cd'rg'u' "o' c'k'p'u'qt"q'yj gt' "u'g't'x'k'eg'u'qt'r'q'r'g't'v'f' 'y j lej "o' c{ "d'g'f'k'u'w'd'g'f' "qt'f'c'o'c'i'g'f' "d{ 'ku' w'ug'0

"

Excavation for Pipelaying"

Vj g'y k'f'yj "q'h'v't'g'p'ej "g'z'ecxv'k'p'uj cmi'dg'yj g'o k'p'o'w'o "t'g's w'k'g'f' "h'q't' "g'h'k'el'g'p'v'y q't'n'k'p'i "c'h'g't' c'm'y c'p'eg'j cu'd'g'g'p"o' c'f'g' "h'q't'c'p{ "w'o' d'g't'k'p'i "c'p'f' "u'w'w'k'p'i . "c'p'f' "uj cmi'p'q'v'g'z'eg'g'f' "y j g'y k'f'yj u' f'g'uet'k'd'g'f' "lp'yj g'Eqpvtcev'0C'v'c'p{ "q'p'g'ur t'g'c'f' "y j g'o c'z'k'o'w'o "r'g'p'i yj "q'h'q'r'g'p'v't'g'p'ej "uj cmi'p'q'v' y kj qw'v'j g'r't'k'q't'crr tqx'cn'q'hh'v'j g'Rtqlgev'O cpci gt.'g'z'eg'g'f' "322'o' g't'g'u'0

"

V't'g'p'ej gu' lp't'q'eni'h'q't' "r'k'g'u' w'r "v'q'322o o "d'q't'g' uj cmi'dg'g'z'ecxv'g'f' "v'q'r't'q'x'k'f'g'c" o k'p'o'w'o "e'ng't'c'p'eg'q'h'322'o o "c't'q'w'p'f' "y j g'q'w'w'k'f'g'q'h'yj g'r'k'g'c'p'f' "l'q'k'p'u'0H'q't'r'k'g'u'g'z'eg'g'f' l'p'i "322o o "d'q't'g'yj g'o k'p'o'w'o "e'ng't'c'p'eg'uj cmi'dg'l'p'et'g'c'ug'f' "v'q'372o o 0

"

Y j gt'g'yj g'v't'g'p'ej "ku'lp't'q'eni'q't' "t'q'eni'f' "i t'q'w'p'f' "y j g'Eqpvtcevqt'uj cmi'g'z'ecxv'g'yj g'r'k'g'v't'g'p'ej "v'q'c" f'gr'yj "q'h'372o o "d'g'ny 'y j g'p'x'g't'v'q'h'yj g'r'k'g'c'p'f' "t'g'h'k'n'y kj "eqo r'cev'g'f' "i t'c'p'w'nt'h'k'n'0

"

Vj g'o' cvgtkcn'ht't'g/w'ug'g'z'ecxv'g'f' "h'q'o' "v't'g'p'ej gu'uj cmi'dg'u'q'eni'k'ng'f' "c'v'yj g'u'k'f'gu'q'h'yj g'v't'g'p'ej "g'z'egr v'y j gt'g'yj k'u'y q'w'f' "q'd'u'w'ev'c'p{ "t'q'c'f' "qt' "h'q'q'r'c'yj "c'p'f' "r't'g'x'g'p'v'yj g'r'c'u'c'i'g'q'h'v't'c'h'k'e"qt' r'g'f'g'u't'k'c'p'u'0K'p'u'we'j "e'c'u'g'u'yj g'Eqpvtcevqt'uj cmi'g'z'ecxv'g'yj g'v't'g'p'ej "lp'u'we'j "r'g'p'i yj u'c'p'f' "u'q'eni'k'ng'f' yj g'g'z'ecxv'g'f' "o' cvgtkcn'c'v'u'we'j "r'nc'egu'cu'yj g'Rtqlgev'O cpci gt'b o c{ 't'g's w'k'g'0

"

Y j gt'g'g'z'ecxv'k'p'ht'r'k'g'r'k'g'nc{ l'p'i "ku'ectt'k'g'f' "q'w' d'g'i l'p'f' "y j t'w'u'v' d'q'q'eni'qp'g'z'k'k'p'i "r'k'g'k'p'gu' yj g'Eqpvtcevqt'uj cmi'r't'q'x'k'f'g'c'f'g's w'c'v'g'u'w'r r'q't'v' c'tt'c'p'i go g'p'u'v'q' "v't'c'p'uh'g't' "y j t'w'u'v'v'q' "y j g'u'w't'q'w'p'f' l'p'i "i t'q'w'p'f'0

"

"

Headings"

Gzecxcvkqp"ht'r kr gu'lp'j gcf lpi "uj cml'dg'ectt'kf "qww'q'v'j g'cr r tqxcn'qh'v'j g'Rtqlgev'O cpci gt'cpf "v'f'lo gpukpu'y j lej "y kn'r gto k'c'r tqr gt'lpur gev'kp'v'q'dg'o cf g'Vj g'j gcf lpi "uj cml'dg'r tqr gtn' "cpf "ugewtgn' "vo dgt'gf'Vj g'r kr g'uj cml'dg'rc'kf "qp'c'o k'p'o wo "v'j lempguu'qh'372o o "qh'eqpetgv'g'Chgt'v'j g'r kr g'j cu'dggp'rc'kf ".lq'p'v'g'f "cpf "v'g'v'g'f "v'j g'j gcf lpi "uj cml'dg'h'k'g'f "kp'uj q't'v'rgpi v'j u'p'qv'gzeg'gf lpi "3'o g't'g'y kj "I tcf g'E37R'eqpetgv'g'qt'cu'f'k'ge'v'g'f'Vj g'j gcf lpi "uj cml'dg'eqo r'ng'v'g'f "h'k'g'f "y kj "eqpetgv'g'cpf "j ctf "h'k'p'i "uj cml'v'j gp'dg'tco o gf "kp'v'q'v'j g'eqpetgv'g'cv'v'j g'et'qy p'qh'v'j g'j gcf lpi 0

"

Ur gekn'r tgecw'kpu'uj cml'dg'vc'ngp'v'q'r t'gx'gp'v'c'uw'o r "lp'v'j g'eqpetgv'g'cpf "v'q'g'pu'wt'g'v'j cv'p'q'unk' u'qt'h'cm'v'qh'v'j g'j gcf lpi "qt'lp'v'j g'i t'qwp'f "cd'qx'g'qt'lp'v'j g'uj chu'ecp'vc'ng'r'rc'eg'0

"

Excavation for Foundations of Structures"

Vj g'Eqp't'cev'qt'uj cml'i k'g'uw'h'le'gp'v'p'q'v'eg'v'q'v'j g'Rtqlgev'O cpci gt'v'q'g'p'cd'rg'j lo "v'q'lpur gev'cpf "cr r tqx'g'h'qwp'f cv'kpu'lp'cf xc'peg'qh'r'rc'ego gp'v'qh'v'j g'r gto cpgp'v'y q't'm'Vj g'Rtqlgev'O cpci gt'o c'f "y kj f'tcy "j ku'cr r tqxcn'kh'y q't'm'ku'p'qv'eqo o g'peg'f "y kj kp'6: "j q'wtu'qt'v'j g'hqto cv'kqp'ku'uw'dugs v'gp'v'g'f "cm'qy gf "v'q'f'g'v'g't'k'q'c'v'g'0

"

K'v'j g'Rtqlgev'O cpci gt'f'k'ge'w'c'd'q'w'qo 'h'c'f'gt'qh'g'zecxcvkqp'qh'p'q'v'v'g'u'v'j cp'97o o "v'j lempguu'uj cml'dg'ng'h'v'p'f ku'wt'd'gf "cpf "uw'dugs v'gp'v'g'f "vc'ngp'q'w'd'f "j cpf "lo o gf k'c'v'g'f "d'gh'q't'g'eqpetgv'g'qt'q'v'j gt'y q't'm'ku'r'rc'eg'f'0

"

Hqto cv'kpu'y j lej "ct'g'v'q't'geg'k'g'eqpetgv'g'd'rk'p'f lpi "qt'c'f't'cl'pci g'h'c'f'gt'uj cml'dg'eqx'g'f'f'v'j kj "uwe'j "d'rk'p'f lpi "qt'rc'f'gt'lo o gf k'c'v'g'f "v'j g'gzecxcvkqp'j cu'dggp'eqo r'ng'v'g'f ".lpur gev'g'f "cpf "cr r tqx'g'f'd'f "v'j g'Rtqlgev'O cpci gt'0

"

Uw'h'cegu'ci ckpu'v'y j lej 'r gto cpgp'v'y q't'm'ct'g'v'q'd'g'r'rc'eg'f "uj cml'dg'm'gr v'h't'gg'qh'q'kn'y cv'gt.'o wf "qt'cp'f'v'o cv'gt'k'cn'0

"

P'q'eqpetgv'g'qt'q'v'j gt'o cv'gt'k'cn'uj cml'dg'r'rc'eg'f "wp'v'k'hqto cv'kpu'j cx'g'dggp'cr r tqx'g'f'0C'f'gs'w'c'g'p'q'v'eg'uj cml'dg'i k'gp'v'q'v'j g'Rtqlgev'O cpci gt'v'q'g'p'cd'rg'j lo "v'q'gzco k'p'g'v'j g'hqto cv'kqp'0

"

Rock Surfaces under Concrete Structures"

Concrete Placed Directly on Rock"

Tqem'v'p'f'gt'eqpetgv'g'ut'w'ew't'gu'uj cml'dg'r't'gr'ct'gf"d'f' "r'len'k'p'i ".d'ctt'k'p'i "cpf "y g'f'i lpi "qt'q'v'j gt'o g'y q'f'u'y j lej "y kn'ng'cx'g'v'j g'tqem'lp'cu'u'qwp'f "c'eqp'f'k'k'qp'cu'o c'f "t'g'cu'p'cd'rn' "dg'gz'r'ge'v'g'f "cee'q't'f' lpi "v'q'v'j g'tqem's'w'rk'v'f'0

"

Tqem'uw'h'cegu'uj cml'dg'v'j q't'q'w'i j n' "er'g'cp'g'f"d'f' "eqo r't'gu'g'f "ck'cpf "y cv'gt'lg'v'qt'uwe'j "o g'cpu'cu'v'j g'Rtqlgev'O cpci gt'o'f' "f'k'ge'v'd'gh'q't'g'eqpetgv'g'ku'r'rc'eg'f'0

"

Concrete Placed on Capping Layer"

Y j g"tg"kpwtwvxf "y j g"tqem"gzecxcvqp"uj cml dg" vngp" f qy p" vq" c" f gr yj " qh'32o "dgmty " y j g" wpf gtukf g"qh'y j g"utvewtg"cpf "y j g"gzecxcvqp"dcenlkngf "y kj "ecrr lpi "o cvgtlcn"vq"y j g"tgs vktgf " hqto cvkqp"rgxgrOEcrr lpi "o cvgtlcn"uj cml dg"i tcpwrt"o cvgtlcnO Vj g"o cvgtlcn"uj cml dg"eqo rcevxf "kp" 372o o "rc{gtu"vq"cej kxg" c" f gpukf "qh'pqv"nguu"y cp"; 7' "o czlo wo "ft{ "f gpukf "cv"qr vko wo " o qluwtg"eqpvgpv- '7' "vq"4' "cu"t gvgto kpgf "d{ "y j g"DUj gcx{ "eqo rcevqp"guu"vq"DU'35990

Explosives"

Vj g"Eqptcevt"uj cml'cv'cml'vko gu'veng"gxgt{ "r quukdr"r tgecwkp"cpf "eqo r n{ "y kj "y j g"Gzr nqukxgu" Ncy u"qh'Mgp{c"cpf "tgi wvkvpu"tgrvki "vq"y j g"j cpf rki . "vcpur qtvkvqp."uqtci g"cpf "wug"qh' gzr nqukxgu"cpf "uj cml'cv'cml'vko gu'y j gp"gp ci gf "kp"drcvki "qr gtcvku"r quv"uwhlekgpv"y ctplki " hci o gp"vq"y j g'hvnlucvkvkvqp"qh'y j g"RtqlgevO cpci gtai"tgrtgugpvkvxgO

Vj g"Eqptcevt"uj cml'cnq"r tqxkf g" c"ur gekn'r tqr gt"uqtg"htq"gzr nqukxgu"kp"ceeqtf cpeg"y kj "mqecn' tgi wvkvpu" cpf "uj cml' r tqxkf g" gzr gtkepgf "o gp" y kj "xcrkf "drcvki " rkepgu." hqt" j cpf rki " gzr nqukxgu"vq"y j g'lvkvkvkvqp"qh'y j g"RtqlgevO cpci gt"cpf "y j g"cwj qtklgu"eqpegtpgf O

Vj g"Eqptcevt"uj cml'cv'cml'vko gu'o cng" hvm' rckuqp" y kj "cpf "kphqto "y gmi'kp" cf xcepg"cpf " qdvkvp" uvej "uwr gtxkvqp"cpf "r gto kkvqp"cu"ku"tgs vktgf "htqo "y j g"Rqrkeg"cpf "cml'I qxgtpo gpv" Cwj qtklgu." r wrke"dqf lgu"cpf "r tkxcvg"r ctvku"y j quqgxgt"eqpegtpgf "qt"chgevgf "d{ "drcvki " qr gtcvku"O

Drcvki "uj cml'qpn{ "dg'ecttkgf "qww'qp"y j qug'ugevku"qh'y j g"Y qtmu"htq"y j kej "r gto kkvqp"kp"y tkki " uj cml'j cxg'dggp"i kxgp"d{ "y j g"RtqlgevO cpci gt"cpf "y j g'tgrgxcpv'cwj qtklgu"cpf "uj cml dg'tgutlevgf " vq"uvej "j qwtu"cpf "eqpf kkvpu"cu'o c{ "dg'r tguetldgf O Drcvki "y kj kp"32'o gtu"qh'gzkvki "y cvgt" o clpu"y knipqv'dg'r gto kvgf O

Drcvki "uj cml dg'ecttkgf "qww'ku"cu'pqv'vq"y gcnpg"gzkvki "utvewtgu"qt"y j g'hqwpf cvkvpu"qt"i tqwvf " cf lcegpv" vq" y j g" gzkvki " cpf " r tqr qugf " y qtmuO Vj g" Eqptcevt" uj cml' vng" cml' pgeguuct{ " r tgecwkvpu"vq"r tggpvnquu."lplwt{ "qt"ceekf gpv'vq"r gtuqpu"qt"r tqr gtv{ "cpf "uj cml dg'gpv'vq"r "rkdng" hqt"cp{ "ceekf gpv'qt" f co ci g'y cvb c{ "tguu"htqo "y j g"vug'qh'gzr nqukxguO

Vj g" Eqptcevt"uj cml'wdo k'vq"y j g"Rtqlgev"O cpci gt"htq"j ku"cr r tqxcl" c""o gj qf ""ucvgo gpv' kpenf lpi "f gvcku"qh'y j g"lvvpgf gf "f tkki "r cvgtpu" f gr yj u"qh'j qrgu."y j g"co qwpv"qh'gzr nqukxgu"cv' gcej "hcekvqp"cpf "y j g"o gj qf "qt"ugs vepg'qh'ugvki "qh'y j cvj g'r tqr qugu"vq"vugO

Excavated Materials Suitable for Re-use"

Kp" uq" hct" cu" y j g{ "ctg" uwkcdng" cpf "eqo r n{ "y kj " y j g" Ur gekhcecvqp."o cvgtlcn" ctkvki " htqo " gzeccxcvqp"uj cml dg'tg/wugf "kp"y j g"Y qtmuO

Fvklpi "gzecxcvqp."y j g"Eqptcevt"uj cml'gpwtg"y j cv'cml'o cvgtlcn' uwkcdng"htq"t g/wug"ctg" ngr v' ugr ctcvg"cpf "ugv'cukf g"cpf "r tqvgevgf "cu"pgeguuct{ "vq"r tggpvnquu"qt" f gvtlqtcvkvqpO

"

Vj g"o cvgtknu"lqto lpi "vj g"uwthceg"cpf "lqwpf cvkqpu"qh"tqcf u."tqcf "xgti gu."tcenu"cpf "lqqy c{u" uj cml'y j gp"gzecxcvgf."cpf "lh'tgs vktgf "hqt"lwtvj gt"wug."dg'ectghwm"l"ugr ctcvgf 0Cm'j ctf "o cvgtknu" uj cml'dg'ngr vltgg'ltqo "uqkl'qt"qyj gt"gzecxcvgf "o cvgtknu"0
Fwtlpi "gzecxcvqp" qh' rkr g" v gpej gu" vj g" Eqpvtcevqt" uj cml' gpuwtg" vj cv' cml' i tcpwrt" qt" qvj gt" cr r tqxgf "o cvgtknu"uwkcdrg"lqt"lmlpi "ctqwpf"cpf "qxgt" rkr gu"uj cml'dg'ngr v'ugr ctcvg"cpf "tg/wugf " lqt"vj ku'r wtr qug0

"

Rcxlpi "urdu."dtlemu"cpf "ulo krt"uwthcegu"uj cml'dg'ectghwm"l"tgo qxgf"cpf "ucengf 0'Rtkqt"vq"vj g" eqo o gpego gpv'qh"gzecxcvqp"vj g"pwo dgt"qh'dcf n"dtqngp"cpf "vpuwkcdrg"rcxlpi "urdu."dtlemu" gve0qp"vj g'hpg"qh'vj g"gzecxcvqp"uj cml'dg'ci tggf "y kj "vj g'Rtqlgev 0 cpci gt0

"

Kp" xgti gu"cpf "qvj gt" i tcuu"uwthcegu" vj g" i tcuu"cpf "vqr "uqkl'uj cml' dg" utlkr r gf" cpf "ugr ctcvg"l" ucengf 0

Backfilling of Excavations"

Dcenlmlpi "uj cml'dg"vj qtqwi j n"eqo rcevfg "lp"rc{gtu'pqv'gzeggf lpi "372o o "eqo rcevfg "vj kempguu" cpf "d{ 'o gcpu'y j lej "y kmlpqv'f co ci g'vj g"Y qtmu0
Dcenlmlpi "qh'tgkphqtegf "eqpetgvg"utvewtgu"uj cml'dg"y kj "uwkcdrg"o cvgtknu'cr r tqxgf "d{ "vj g" Rtqlgev 0 cpci gt0

"

oI tcpwrt"o cvgtknu"cu'dcenlmlku"l'ghkpgf "cu'vpequqkl'f cvgf "s wett { "f wux"i tcxgn"ucpf "qt"ulo krt" lp" y j lej "vj g'er { "qt"uln'eqpv'gpv'ku'pqv'r tgf qo lpcpv 0Vj g"vug"qh'cpi wrt"etwuj gf "uqpg"uj cml'pqv" dg" r gto kwgf 0

"

Pipe Beddings"

Wprguu"qvj gty kug"ur gekkfg "i tcpwrt"o cvgtknu"lqt"dgf f lpi u"uj cml'eqpukv"qh'ci i tgi cvg"vq"DU'GP " 34842"cpf "uj cml'eqphqto "vq"vj g'hqmy lpi "i tcf lpi 0

"

Pipe Nominal Diameter (mm)	Max Size (mm)	Grading (mm)
>72"	ucpf "	P IC"
72"	32"	32"lupi rg/ukl g"
: 2"	32"	32"lupi rg/ukl g"
322"	32"	32"lupi rg/ukl g"
372"	37"	32"qt"36"lupi rg/ukl g" qt"36"vq"7"i tcf gf "
422"vq"722"	42"	32."36"qt"42"lupi rg/ukl gf " qt"36"vq"7"i tcf gf " qt"42"vq"7"i tcf gf "

"

@22"	62"	32.36'42"qt'ukpi ng/uk g" etwuj gf 'tqem' qt'36'q'7'i tcf gf " qt'42'q'7'i tcf gf " qt'62'q'7'i tcf gf "
------	-----	--

"

I tcpwrt "dgf f lpi "o cvgtkcn'y j gtg'ur gekhgf "uj cml'j cxg" c"Eqo r cevkqp "Hicevkqp"pqv'i tgcvg't'y cp" 205'cu'cuegtvckpgf 'd{ 'y' g'gu'bo gy qf 'f guetkdgf 'dgruy 0'

"

Ci i tgi cvgu" hqt "hgzkdng" r k'gu'uj cml'eqpukn' qh' uwd/tqwpf gf " qt" tqwpf gf " o cvgtkcn'y j lej " y km' pqv' ecwug'f co ci g'v'qt' r gpgtcvg' y' g' r k' g' b' o cvgtkcn'0'

"

Ucpf " dgf f lpi " o cvgtkcn'uj cml'eqpukn' qh' cr r tqxgf " mcecn' ucpf " y j lej " o cvgtkcn'uj cml'j cxg" c" Eqo r cevkqp "Hicevkqp"cuegtvckpgf 'd{ 'y' g'gu'bo gy qf 'f guetkdgf 'dgruy 'qh'pqv'i tgcvg't'y cp'2050' Ercuu' C' dgf f lpi 'uj cml'eqpukn'qh' I tcf g' E37R'eqpetgvg' dgf 'cpf 'uwtqwpf 0'

"

Ercuu' C3' dgf f lpi "uj cml'eqo r tkug" c"342" f gi tgg' u' etcf ng' qh' I tcf g' E37R' kpuw' wp/ tglphqtegf " eqpetgvg' wpf gt' y' g' r k' g' y' kj "ugrgevgf "dcen' h' m' o cvgtkcn' v' c' f gr y' "qh'522o o "cdqyg' y' g' etqy p' qh' y' g' r k' g' 0'

"

Ercuu' "D" dgf f lpi "uj cml'eqo r tkug" c"3: 2" f gi tgg' u' dgf " qh' ukpi ng/uk g' " i tcpwrt " o cvgtkcn' k' p' ceeqtf cpeg' y' kj "y' g' cdqyg' v' cdng' y' kj "ugrgevgf "dcen' h' m' o cvgtkcn' v' c' f gr y' "qh'522o o "cdqyg' y' g' etqy p' qh' y' g' r k' g' 0'

"

Ercuu' U' dgf f lpi "uj cml'eqo r tkug" c' eqo r ngv' uwtqwpf "qh' i tcpwrt " o cvgtkcn' k' p' ceeqtf cpeg' y' kj "y' g' cdqyg' v' cdng' v' c' f gr y' "qh'372o o "cdqyg' y' g' etqy p' qh' y' g' r k' g' 0'

"

Ercuu' F' dgf f lpi "uj cml'eqo r tkug" c' j cpf / v' tko o gf " pcwtn' dqwqo " v' q' y' g' v' t gpej " y' kj "ugrgevgf " dcen' h' m' o cvgtkcn' r' m' efg " ctqwpf " cpf " qxgt' y' g' r k' g' v' c' f gr y' "qh'522o o "cdqyg' y' g' etqy p' qh' y' g' r k' g' 0'

"

I tcpwrt "dgf f lpi " cpf "ugrgevgf "dcen' h' m' o cvgtkcn' r' m' efg " ctqwpf " cpf " v' c' y' kempguu' qh'522o o " cdqyg' y' g' etqy p' qh' y' g' r k' g' u' u' j cml' dg' r' m' efg " uko' wncpgqwn' { " qp' dqj' " uk' gu' qh' y' g' r k' g' k' p' r' { gtu' pqv' gzeeggf lpi "372o o "y' kempguu' cpf "eqo r cevgf " d{ "y' g' wug' qh' j' cpf " tco o gtu' v' cnkpi " r' ct v' ewrt " ectg' v' eqo r cev' y' g' b' o cvgtkcn' wpf gt' d' ctt g' n' qh' y' g' r k' g' cpf " ctqwpf " lqkpu0'

"

K' p' v' t gpej gu' y' j gtg' y' gtg' " ku" c' "eqpvkpwqu" ceewo wrcvkqp" qh' i tqwpf y' cvgt. " y' g' v' t gpej "uj cml' chgt" qdvcklpi " y' g' cr r tqxcn' qh' y' g' R' tqlgev' O cpci gt. " dg' qxgt/ gzeccvvgf " d{ "372o o " cpf "uj cml' dg" dcen' h' m' g' f' wukpi "eqo r cevgf " i tcpwrt " o cvgtkcn' k' p' ceeqtf cpeg' y' kj "y' g' cdqyg' v' cdng' 0'

"

K' i' y' g' s' wcpk' { "qh' uwkcdng" o cvgtkcn' y' j lej " ecp' dg' qdvckpgf " h' tqo " y' g' gzeccvckpu" ku" k' puw' h' lekp' v' y' g' Eqpv' t' cev' q' t' "uj cml' g' kj gt' uetggp' y' g' gzeccvvgf " o cvgtkcn' qt' v' t' cpur qt' v' uwkcdng" o cvgtkcn' h' tqo " qv' j' gt' " gzeccvvgf " qt' d' qttqy " r ku' qp' y' g' U' kg' 0' K' p' ecugu' y' j gtg' k' puw' h' lekp' v' o cvgtkcn' g' zk' u' qp' y' g' U' kg. " y' g' Eqpv' t' cev' q' t' "uj cml' ko r qtv' uwkcdng" o cvgtkcn' chgt" qdvcklpi " y' g' y' tkwgp" cr r tqxcn' qh' y' g' R' tqlgev' O cpci gt0'

"

Compaction Fraction Test

Apparatus required:"

Qr gp/gpf gf ""e{ rpf gt ""472""o o ""rpi ""cpf ""372o o ""Ö7o o ""kpgtpcn""f lco gvgf ""*372o o "f lco gvgf"
r k r g'ku'wukcdrg=""
O gcnfj co o gt'y kj 'utknpi 'hceg'5: "o o "f lco gvgf"cpf "y gki j kpi '3'mi O'
T wrgO'
"

217.2 Method"

Qdvclp"c'tgrtgugpvcxg"uco r rg."o qtg"vj cp"uwthelgpv"vq"hm'vj g'e{ rpf gt""xk O'cdqww'32mi -O'K'
ku'ko r qtcvpv'vj cv'vj g'o qluwtg'eqpvgpv'qh'vj g'uco r rg'uj qwf 'pqv'f h'htg'htqo "vj cv'qh'vj g'o clp'dqf { "
qh' o cvgtkcn'cv'vj g'vko g'qh'ku'wug'lp'vj g'tgpej O'
"

Rnreg"vj g'e{ rpf gt"qp"c'hko "hcv'uwthceg"cpf "i gpw{ 'r qwt'vj g'uco r rg'o cvgtkcn'lpvq"ku'wugugn{ "cpf "
y kj qww'vco r kpi O'Utknq"qh'vj g"vqr "uwthceg"ngxgn'y kj "vj g"vqr "qh'vj g'e{ rpf gt"cpf "tgo qxg'cm'
uwtr nu"o cvgtkcn'O'Nkn"vj g'e{ rpf gt"wr "engct"qh'ku'eqpvgpvu"cpf "r nreg"qp"c"htguj "ctgc"qh'hcv'
uwthceg'O'Rnreg'cdqww'qp'g's wctvgt'qh'vj g'o cvgtkcn'dcen'lp"vj g'e{ rpf gt"cpf "vco r "xki qtqwn{ 'wpvkl'
pq'hwt'vj gt'eqo r cevqp"ecp'dg'qdvclp'gf O' Tgr gc'v'y kj "vj g'ugeqpf's wctvgt."vco r kpi "cu'dghq'g."cpf "
uq'qp'hqt'vj g'vj kf "cpf "hqt'vj "s wctvgtu."vco r kpi "vj g'hpcn'uwthceg"cu'ngxgn'cu'r quukdrgO'
"

O gcuwtg"f qy p"htqo "vj g"vqr "qh'vj g'e{ rpf gt"vq"vj g'uwthceg"qh'vj g'eqo r cevqf""o cvgtkcn'O'Vj ku'
f kucpeg"lp"o knko gvtgu'f kxf gf "d{ "vj g"j gki j v'qh'vj g'e{ rpf gt""*472o o "+"ku'vj g'Ego r cevqp"
Hcevkqp"qh'vj g'o cvgtkcn'wpgf gt'guO'
"

Vq'qdvclp"c'tgrtgugpvcxg"uco r rg'cdqww'72mi "qh'vj g'r tqr qugf""o cvgtkcn'uj qwf "dg"j gcr gf "qp"c"
engct'uwthceg'cpf "f kxf gf "y kj "vj g'ur cf g'f qy p"vj g'o k'f rg'lpvq'vy q"j crxguO'Qpg'qh'vj gug'uj qwf "
vj gp'dg'uko krcn{ 'f kxf gf ."cpf "uq'qp'wpvkl'vj g'tgs wktgf "y gki j v'vco r rg'ku'ghnO'
"

Selected Backfill Material"

Dcen'hkn'lp'eqpcev'y kj "vj g'r k'gu'uj cm'dg'ugrgev'f""o cvgtkcn'cpf "uj cm'pqv'eqpvc'lp'rc'ti gu'uqpgu."
tqemu."tgg'tqqw"qt"ulo krc't"qdlgeu'y j lej "vj tqwi j "ko r cev'qt"d{ "eqpegpvc'kpi "ko r qugf "mqf u"
o ki j v'fco ci g"vj g'r k'gu'O'Vj g"o cvgtkcn'uj cm'dg'ecr cdr'g'qh'dgkpi "eqo r cevqf "y kj qww'vj g'wug'qh'
j gcx{ 'tco o gtu'cpf "uj qwf "dg'htgg'qh'erc{ "hwo r u'qt"qv'gt"o cvgtkcn'rc'ti gt"vj cp'967o o "qt'uqpgu"
rc'ti gt"vj cp'vj g'o czko wo "r ctv'erg'uk' g'ur gek'hgf "hqt'r k'g'dgf f kpi O'
"

Backfilling of Pipe Trenches"

Vj g'tgpej "cdqxg'r k'g'dgf f kpi "ngxgn'*522o o "cdqxg'vj g'etqy p"qh'vj g'r k'g+uj cm'dg'hngf "y kj "
vj g' cr r tqxgf "dcen'hkn' o cvgtkcn'qdvclp'gf "htqo "vj g'tgpej "gzeccxv'kpu."htgg'htqo "erc{ "rko r u."
dqwf gtu"cpf "tqen'htci o gpw'rc'ti gt"vj cp'372o o O'
"

Ki'vj g's wcpv'k' "qh'o cvgtkcn'y j lej "ecp'dg'qdvclp'gf "htqo "vj g'r k'g'tgpej "gzeccxv'kpu"ku'lpw'w'he'lgpv"
vj g'Eqpvc'ev'qt'uj cm'gkj gt'uetggp'vj g'gzeccxv'gf "o cvgtkcn'qt'tcpur qt'v'wukcdrg"o cvgtkcn'htqo "qv'gt"
gzeccxv'kpu"qt'dqttqy "r ku'qp"vj g'UkgO'Kp'ecugu'y j gtg'lpw'w'he'lgpv"o cvgtkcn'gzkuu'qp"vj g'Ukg."
"

"

vj g'Eqptcevt"uj cml'o r qtv'uwkcdrg'o cvgtkcn'chgt"qdvclpki "vj g'y tkwgp"cr r tqxcn'qh'vj g'Rtqlgev'
O cpci gt0'

"

Vj g'o cvgtkcn'uj cml'dg'r rcegf "kp"rc{gtu'pqv'gzegf lpi "372o o "vj kempgu"cpf "eqo r cevgf "d{ "vj g'
wug'qh'tco o gtu'v'cej kxg'c'f gpuk{ "qh'pqv'ngu'vj cp"; 7' "o czko wo "f gpuk{ "cv'qr vko wo "o qluwtg"
eqpvgpv'- 7' "vq"/4' "cu'f gvto kpgf "d{ "vj g'DUJ gcx{ 'Eqo r cevkqp'Vguv'vq'DU'35990'
Hqt"vtgpej gu'lp"hguf u'cpf "qr gp'ctgcu'y j gtg"ci tggf "d{ "vj g'Rtqlgev'O cpci gt "vj g'vtgpej "dcenhlkml'
uj cml'dg'eqo r cevgf "vq"qdvclp"c"f gpuk{ "qh'pqv'ngu'vj cp": 7' "o czko wo "f t{ "f gpuk{ "cv'qr vko wo "
o qluwtg'eqpvgpv'- 7' "vq"/4' "cu'f gvto kpgf "d{ "vj g'DUJ gcx{ 'Eqo r cevkqp'Vguv'vq'DU'35990'
"

Vj g"f gpuk{ "qh'vj g'eqo r cevgf "hml'uj cml'dg"f gvto kpgf "d{ "vj g'Eqptcevt" wukpi "vj g"öucpf"
tgr rcego gpv'o gjv qf "cu'f kgevgf "d{ "vj g'Rtqlgev'O cpci gt0'

"

Dghqtg"dcenhlkmlpi "vtgpej gu"vj g'Eqptcevt"uj cml'qdvclp"cr r tqxcn'ltqo "vj g'Rtqlgev'O cpci gt"qh'
vj g'o gjv qf u'j g'r tqr qugu"vq"vug"cpf "uj cml'go qpwtcvg" d{ "o gcpu'qh'vguu"vj cv'vj g"ur gekhkf"
eqo r cevkqp"ecp'dg'cej kxgf 0'Vj g'o gjv qf "qh'eqo r cevkqp"uj cml'cv'cm'vko gu'dg"vq"vj g'cr r tqxcn'qh'
vj g'Rtqlgev'O cpci gt0'

Y j gtg"i tqwpf "y cvgt "eqpf klqpu"ctg"uwej "vj cv'vj g"dgff lpi "o cvgtkcn'y qwr "dg"rkngn{ "vq"cev'cu'
c"ecttktg"ht"i tqwpf "y cvgt "ltqo "j ki j gt"qh'my gt"i tqwpf. "vj g'Rtqlgev'O cpci gt"o c{ "kpwtvev'
hny "dcttktg"qh'uwkcdrg"ugrgevgf "getvj "qt"eqpetvgv"vq"dg"lpugtvgf "lp"ngw'qh'dgf f lpi "o cvgtkcn'
Uwej "dcttktg"vq"dg"gtgevgf "cv'tgcupcdrg"kpvtgxcnu'emug"vq"hgzkdrng"lqkw'lp"vj g'r kr g0'

"

Making Good Subsidence after Backfilling"

Dcenhlkmlpi. "y j gjv gt "lp"tqwpf cvlqpu"qt "lp"r kr g"vtgpej gu"uj cml'dg"vj qtqwi j r{ "eqo r cevgf "d{ "
tco o lpi "cpf "cp{ "uwdukf gpeg" f vg"vq"eqpuqrf cvlqpu"uj cml'dg"o cf g'wr "y kj "gztc"eqo r cevgf "
o cvgtkcn'0'

"

Uj qwr "uwdukf gpeg" qeewt "chgt" cp{ "uwthreg" tglpucvgo gpv'j cu' dggp" eqo r rvgf "vj g" uwthreg"
tglpucvgo gpv'uj cml'htu'v'gd'tgo qxgf. "vj g"j qmny u'o cf g'wr. "cpf "vj gp"vj g"uwthreg"tglpucvgo gpv'
tg/rcf 0'

"

Cp{ "uwdukf gpeg" vj cv' qeewtu" cf lcegpv' vq" vj g" Ukg" qh' vj g" Y qtmu" y j kej "ku" cwtldwcdrg" vq"
vj g'Eqptcevtat'cevkklgu'uj cml'dg'tglpucvvgf "vq"vj g'hwmicvukcevkqp'qh'vj g'Rtqlgev'O cpci gt0'

"

Removal of Timbering from Excavations"

Vlo dgtlpi "uj cml'dg'tgo qxgf "ltqo "vj g'gzecxcvklpu"dghqtg"qt" f wtkpi "vj g'r tqeguu"qh'dcenhlkmlpi "
gzegr v'lp"uq"ht"cu'vj ku'tgo qxcn'qh'vko dgt"y qwr "dg"rkngn{ "vq"ecwug" f co ci g'vq"cf lcegpv'r tqr gtv{. "
utvewtgu"qt"utvewtgu"tqwpf cvlqpu"lp"y j kej "gxgpv'vj g'Eqptcevt"uj cml'gxcg"lp"vj g'gzecxcvklpu"
uwej "vko dgtlpi "cu'j g'eqpukf gtu'pgeguuct{ "qt"cu'o c{ "dg'qtf gtgf "d{ "vj g'Rtqlgev'O cpci gt0'

"

Reinstatement of Surfaces"

Cml'uwthregu"y j gjv gt "r wdrl"qt" r tkxcv"vj cv'ctg"chgevgf "d{ ""vj g"Y qtmu"uj cml'dg"tglpucvvgf"
vgo r qtctkl{ "lp"vj g'htu'v'lpucpeg"cpf "y j gp"vj g'i tqwpf "j cu'eqpuqrf cvgf "hwm{ "vj g'Eqptcevt"uj cml'
tglpucvvgf"vj g'uwthregu'r gto cpgpv{ 0'

"

"

vq'72o o 'fgr y 'vq'r gto k'yj g'eqputvexqp'qh'c'krgf'qt'r cxgf 'lwt'ceg'vq'o cvej 'y g'qtki kpcn'lwthceg' C'p'crrtqxf 'krgf'qt'r cxgf 'lwt'ceg'uj cml'y gp'dg'rcf'cpf'dgf f gf'qp'ucpf'qt'o qvct'vq'cp'gxgp' h'pkuj 0'

"

Safety of Excavations in Roads

Y j gtg'yj g'lwthceg'qh'yj g'tqcf '*qy gt'yj cp'yj cv'yj lej 'nku'ko o gf'kcvn'cdq'xg'yj g'tgpej '+ku' fco ci gf'gk'j gt'd{'y g'eqpegp'v'c'v'kp'qh'v'c'h'e'ecw'uf'd{'cp'qr gp'tgpej'.d{'u'wdu'f'gpeg'qt'qy gt' ecw'ug'ct'k'k'p'i'ht'qo 'y g'qr g'v'c'v'p'u'qh'yj g'Eqp't'cev'qt'.j'g'uj cml'gto cpg'p'v'f't'g'k'p'uc'v'g'yj yj q'rg'qh' yj g'lwthceg'vq'fco ci gf'vq'ku'qtki kpcn'eqpf'k'k'q'p'0'

Vj g'Eqp't'cev'qt'uj cml'gp'ut'g'yj cv'tgpej gu'cpf't'g'k'p'uc'v'go gpv'ctg'o c'k'p'v'c'k'p'g'f'k'p'c'uch'g'eqpf'k'k'q'p' c'p'f'uj cml'v'c'ng'ko o gf'k'v'g'cev'kp'vq'tgo gf{'cp{'f'g'v'g't'k'q't'c'v'kp'yj lej't'g'p'f'g'tu'yj g'y q'tnu'w'p'uch'g'0'k'i' k'p'yj g'qr k'p'q'p'qh'yj g'Rt'q'lg'v'O c'p'ci gt'cp{'g'z'ec'x'c'v'kp'qt't'g'k'p'uc'v'go gpv'ku'k'p'c'f'c'p'i'g't'q'w'u' eqpf'k'k'q'p'yj g'Eqp't'cev'qt'uj cml'o o gf'k'v'g'f'tgo gf{'y g'f'g'h'g'v'0'Uj q'w'f'yj g'Eqp't'cev'qt'k'c'k'i'v'ectt{'q'w'yj g't'g'k'p'uc'v'go gpv'r'tq'o r'w'f'yj g'y q'tm'c'p{'dg'ectt'k'g'f'q'w'd{'qy g'tu'c'v'yj g'Eqp't'cev'qt'at' g'z'r'g'p'ug'0'

"

Temporary Reinstatement of Asphalted Roads

K'p'cml'cur'j c'ng'f'qt'dk'wo gp'ur'tc{gf't'q'cf'u'yj g'tgpej gu'uj cml'dg't'g'h'k'rg'f'c'p'f'eqo r'cev'g'f'vq'yj g'w'p'f'g'tu'f'g'qh'yj g'qtki kpcn'tqcf'lwthceg'0'C'uw'd'dcug'rc{gt'uj cml'yj gp'dg'rcf'eqp'uk'v'k'p'i'qh' crr'tqxf'ht'gg'f't'c'p'ci'g'i't'c'p'w'ct'o c'v'g't'k'c'n'eq'p'h'q'to k'p'i'vq'yj g'h'q'm'y k'p'i'f'tcf'k'p'i'iko ku'<

"

322' "	"	d{'y g'k'i j v'	r cuulpi '72o o 'uk'x'g'"
97' "	"/'; 7' "	d{'y g'k'i j v'	r cuulpi '4706o o 'uk'x'g'"
62' "	"/'97' "	d{'y g'k'i j v'	r cuulpi ', 073o o 'uk'x'g'"
52' "	"/'82' "	d{'y g'k'i j v'	r cuulpi '607o o 'uk'x'g'"
42' "	"/'67' "	d{'y g'k'i j v'	r cuulpi '402o o 'uk'x'g'"
37' "	"/'52' "	d{'y g'k'i j v'	r cuulpi '647o o 'uk'x'g'"
7' "	"/'37' "	d{'y g'k'i j v'	r cuulpi '94o o 'uk'x'g'0'

"

C'dcug'rc{gt'uj cml'yj gp'dg'rcf'eqp'uk'v'k'p'i'qh'crr'tqxf'et'w'uj gf'iko gu'v'p'g'o c'v'g't'k'c'n'eq'p'h'q'to k'p'i'vq'yj g'h'q'm'y k'p'i'f'tcf'k'p'i'iko ku'0'

"

322' "	"	d{'y g'k'i j v'	r cuulpi '72o o 'uk'x'g'"
82' "	"/'; 2' "	d{'y g'k'i j v'	r cuulpi '42o o 'uk'x'g'"
47' "	"/'62' "	d{'y g'k'i j v'	r cuulpi '7o o 'uk'x'g'"

"

Vj g'bo c'v'g't'k'c'n'uj cml'j c'x'g'c'r'rc'w'ek'v'f'k'p'f'g'z'qh'p'q'v'g'z'eg'g'f'k'p'i'8' 0'Vj g'bo c'v'g't'k'c'n'ht'o k'p'i'yj g'uw'd'/'dcug'c'p'f'h'q'w'p'f'c'v'kp'uj cml'dg'rcf'k'p'rc{gtu'dt'q'w'i j v'v'q'qr'v'ko wo'bo q'k'uw't'g'eq'p'g'p'v'c'p'f'eqo r'cev'g'f'vq'; 7' q'h'yj g'bo cz'ko wo'f't{'f'g'p'uk'f'cu'f'g'v'g'to k'p'g'f'd{'R'ct'v'6'E'rc'w'ug'u'50'f'50'DU'3599-3; ; 20

"

Rt'k'q't'vq'crr'k'ec'v'kp'qh'yj g'vgo r'q'tct{'t'g'k'p'uc'v'go gpv'yj g'lwthceg'qh'yj g'tqcf'h'q'w'p'f'c'v'kp'uj cml'dg'eng'et'g'f'qh'cml'f'w'w'f'g'dt'ku'c'p'f'qy gt'f'g'rg'v'g't'k'q'w'u'o c'v'g't'c'p'f'uj cml'yj gp'dg'rcf'r't'lo gf'y k'j'q'p'g'crr'k'ec'v'kp'qh'ht'lo g'eq'cv'OE/92'qt'uko k'rc't'crr'tqxf'0C'm'l'q'k'p'u'y k'j'cf'l'ceg'p'v't'q'cf'lwthceg'k'p'i'uj cml'dg'ew'w'ut'ck'i j v'c'p'f'x'g't'k'ec'n'c'p'f'r't'lo gf'0'

"

"

Vj g"tqcf "uwlhceki "uj cml'dg"vgo r qtctkq "t'gkpuvcyf "y kj "47o o "hpkuj gf "y lempguu"qh'cur j cnle" eqpetgyg0Vj g"cur j cnle"eqpetgyg"uj cml'dg"rklf "cpf "eqo r cevgf "uq"cu"vq"cej kxg" c" f gpug"uo qqy " cpf "gxgp"uwlhceg"vukpi "c"tqngt"qh'pqv'iguu"y cp"34"vpppg'o cuu0

"

Vj g"uwlhceg"uj cml'dg"o clpvcldpgf "vplvld'y g"gpf "qh'y g'r gtlkf "qh'O clpvgpcpeg"qt "vplvld'kpuwvklpu" ctg"i kxgp"ht"y g'r gto cpgpv'tgkpuvcygo gpv'vq"dg"ecttkgf "qww0Vj g"uwlhceg"uj cml'pqv'dg"vqr r gf "wr " cdqyg"y g'gtki lpcnlwulhceg'igxgn'vq"cmqy "hqt"ugwrgo gpv0

"

Temporary Reinstatement of Unmade Roads"

Kp"cm'vpo cf g"tqcf u"y g"tgpej gu"uj cml'dg"tghkngf "cpf "eqo r cevgf "cu"ur gekhkf "kp"y g"Eqpvtcev"vq" y kj kp"372o o "qh'y g"uwlhceg0

"

Vj g"tgpej "uj cml'dg" uwlhceg" y kj "372o o "eqo r cevgf "y lempguu" qh' dcug" r {gt" o cvgtkcn' cu"ur gekhkf " cdqyg0

"

Vj g"uwlhceg"uj cml'dg"o clpvcldpgf "vplvld'y g"gpf "qh'y g"Rgtlkf "qh'O clpvgpcpeg"cpf "uj cml'pqv'dg" vqr r gf "wr "cdqyg"y g'igxgn'qh'y g'gtki lpcnlwulhceg'vq"cmqy "hqt"ugwrgo gpv0

"

Permanent Reinstatement of Asphaltic Roads"

Y j gtg" kpuwvklpu" ctg" i kxgp" y cv' r gto cpgpv' t'gkpuvcygo gpv' ku" vq" dg" ecttkgf " qww" y gp" y g" vgo r qtct{ "cur j cnle"eqpetgyg"uwlhceg"cpf "r ctv'qh'y g"htwpf cvkqp"r {gt"uj cml'dg"tgo qxgf "vq" c" o lpo wo "f gr y "qh'422o o "cpf "y g"uwlhceg"qh'y g"htwpf cvkqp"uj cml'dg"tqngf . "cm'f wu'cpf "f gdtku" tgo qxgf . lqkpu'ew'wtcki j v'cpf "xgtkecn0

"

Vj g"r gto cpgpv'tgkpuvcygo gpv'uj cml'eqo r tkug"etwuj gf "rko guwpg"o cvgtkcn'vq" c"vqcn'eqo r cevgf " y lempguu"qh'372o o "cpf "y g'y gctkpi "eqwtug"72o o "eqo r cevgf "y lempguu"qh'36'o o "pqo lpcn'uk g" f gpug"y gctkpi "eqwtug"cur j cnle"eqpetgyg0 Vj g"r {kpi "cpf "hpkuj kpi "qh'y g"eqcygf "o cecf co "uj cml' dg"ecttkgf "qww"uq"cu"vq"cej kxg" c" f gpug"uo qqy "cpf "gxgp"uwlhceg"vukpi "c"tqngt"qh'pqv'iguu"y cp" 34"vpppg'u0 cuu0

"

Forming Banks and Filled Areas"

Vj g"hnkpi "vq"dg"wgf "kp"y g"go dcpno gpv'cpf "hknkf "ctgcu"uj cml'dg"o cvgtkcn'ugngvgf "htqo "y cv" ctukpi "htqo "uwr nu"gzecxcvqp"*vprguu"qy gty kug" f ghtpgf "kp"y g"Rctvkwrt "Ur gekhcecvkp+ "y g" o cvgtkcn'dgkpi "r rcegf "ceeqt f kpi "vq"ku"pcwtg"cu"uj cml'dg"fkgevgf "d{ "y g"Rtqlgev'O cpci gt0Vj g" hnklj cml'dg"r rcegf "kp"r {gtu'pqv'gzeggf kpi "372o o "y lem"gej "r {gt"dgkpi "y qtqwi j n{ "eqo r cevgf " d{ "cp"cr r tqxgf "tqngt"vq"y g"ucvklhcecvkp"qh'y g"Rtqlgev'O cpci gt0

"

Restoration of Borrow Areas, Spoil Tips and Quarries"

Cp{ "ur qkrl'kr u"s wettlgu"qt"qy gt"dqttqy "ctgc" f gxgnr gf "d{ "y g"Eqpvtcevqt"ht"y g'r wtr qug"qh'y g" Y qtmu'uj cml'dg"hnkuj gf "vq"uchg"cpf "hck"uwr gu"vq"y g'cr r tqxcn'qh'y g"Rtqlgev'O cpci gt0

"

Top soiling and Grassing"

"

Y j gtg"tgs wktgf "uwthcegu"uj cml'dg"uqlkrf"y kj "hpg"ukhgf "uqlk'qt"ukn"pqv'rguu"vj cp"322"o o "eqo rcevqf"vj kempguu'y j lej 'uj cml'dg'tcngf'cpf'dtqwi j v'q'c'hpg'vknj O'

"

Uwthcegu"tgs wktgf "q"dg"i tcuugf"uj cml'dg"r npvgf"y kj "cr r tqxgf"mecn'i tcuu'cv'c"ur cekpi "qh"422o o "z"422o o O'Vj g"i tcuugf"ctgc"uj cml'dg"tgr npvgf"kh'vj g"htuv'qt"uwdugs wgpv'qr gtcvqkp"ku"wphtvkhwn'qt"kh'hqt"cp{"tgcuqp"j g"i tcuu'ku"fgutq{gf O'I tcuugf"ctgeu"uj cml'dg"y cvgtgf"cpf"cwgpfgf"wpvkl'vj g'i tcuu'j cu'dgeqo g'y gml'gucdrkuj gf O'

"

Vj g"uqlkpi "cpf"r npvki "qh'vj g"i tcuu'kp'unqr gu'uj cml'dg"ecttkgf"qww'ko o gf kcvgn{"vj g'unqr g"ku"hqto gf"cpf"vj g"i tcuu'uj cml'dg'ngr v'y ggf gf"cpf"ew'wpvkl'vj g'y qtni'ku'ceegr vgf"cv'vj g'vko g'qh'vj g"Egtvhecvq'qhEqo r ngvqppO'

"

Vj g"Eqpvcevt"uj cml'uw r n' "cwgpfcpeg"f wtkpi "vj g"F ghgeu"Nlcdkkl{"Rgtkqf"vq"gpwutg"vj cv'cml'r npvgf'i tcuu'ku'ngr v'y ggf gf"cpf"ew'cpf'kh'pgeguuct{"y cvgtgf O'

"

Free Draining Fill"

Hgg'f tcklpi "hml'hqt"wg'cu'dcenlpi "vq'y cml'uj cml'eqpukv'qh'uqwpf"j ctf"uqpg"qt"dtqngp"tqem'qt"eqpetgv'f gtxgf"htqo 'f go qrkklp'qh'utwewtgu'O'Vj g'r ct'kengu'uj cml'dg'tqwi j n' 'evdkhqto "cpf'uj cml'dg'dgy ggp"97o o "cpf"47o o "kp'uk'g O'Cml'uo cmgt'r ct'kengu"F wuv"twddkuj "cpf"qti cple"o cvgt"uj cml'dg'gzenwf gf O'

"

Hardcore"

J ctf eqtg'uj cml'eqpukv'qh'uqwpf"j ctf"uqpg"qt"dtqngp"tqem'qt"eqpetgv'f gtxgf"htqo "gzeccvklpu"qt"f go qrkklp"qh'utwewtgu"cpf"uj cml'dg"i tcf gf"htqo "372o o "vq"72o o "kp'uk'g."gzegr v'vj cv'uw'hekgpv'dw'pqv'gzequuk'g'drkpf lpi 'o cvgtknu'qh'uo cmgt'uk'gu'o c{"dg'r gto kwgf"cv'vj g'f'kuegkqp"qh'vj g'Rtqlgev'O cpci gtO'

Scope"

Vj g"uvcpf ctf "qh'o cvgtkcn'cpf "qh'y qtno cpui k' "uj cm'pqv'dg'kphgtkqt "v'j g'tgeqo o gpf cvkqpu"qh' vj g'ewtgpv<

DUGP "ó'3; ; 4'ó'Útwewtci'Wug"qh'Eapetgvg"

Vj g'tgs vkt go gpw'u'qwnkpgf "kp'j g'cdqyg'f qewo gpw'o wu'dg'tgcf "y kj "j qug'qh'j ku'Ugevkqp"qh' vj g'Úr gekhlecvkqp"cpf "y j gtg"cp{ "eqphlev'gzkuu'dgwy ggp"vj g'tgeqo o gpf cvkqpu"qh'v'j g'cdqyg' cpf "qh'v'j ku'Úr gekhlecvkqp."vj g'tgs vkt go gpw'u"qh'v'j g'Úr gekhlecvkqp"uj cm'r tgcxck' Cu'cpf "y j gp' tgs vkt gf "d{ "vj g'Rtqlgev'O cpci gt "vj g'Eapvtcevqt"uj cm'r tgr ctg'cpf "uwo k' dghgtg'eqo o gpekpi " vj g'y qtm'c'ko g'ej ctv'cf f kkpncv'v'j g'i gpgtcnr tqi tco o g+f gvcnkpi "vj g'xctkqu'qr gtcvkqpu' hqt'eqpetgvg'y qtno'

P q'o cvgtkcn'uj cm'dg'wugf "kp'j g'Y qtmu"wpvki'r tkqt"cr r tqxcn'hqt"ku'wug"j cu'dggp"i kxgp"d{ " vj g' Rtqlgev'O cpci gt="pgkj gt "uj cm'cp{ "ej cpi g'kp'j g'pcwtg."s wcrk{ . "nkp{ . "v'j g' "uqvteg"qh' uwr r n{ " qt'o cpw'cewtg'dg'o cf g'y kj qw'v'j g'Rtqlgev'O cpci gt)l'r gto kulkqp0'

P co gu'qh'o cpw'cewtg'gu'cpf "guv'egt vktcv'gu'hqt"o cvgtkcn'pqv'uwr r rkgf "d{ "vj g'Go r m{ gt'uj cm' dg'uwr r rkgf "cu'uqap"cu'r quikdg'v'j g'Rtqlgev'O cpci gt0'

Vj g"equv'qh'r tqxkf kpi "uco r ngu'cpf "vj g"equv'qh'ectt{ kpi "qwu'guu'tgs vkt gf "d{ "Ercwug"528" *gzege v'cu' qj gty kug' r tqxkf gf "kp'j g'Eapf kkpqu'qh'Eapvtcev"qi gj gt "y kj "vj g"equv'qh' uwr r n{ kpi "gs vkr o gpv'hqt"uco r rki "cpf "ukg'guv'kpi "kpf kcvgf "kp'eqno pu'5"cpf "6'qh'Vcdrg"50 " qh' vj ku'Ugevkqp"qh'v'j g'Úr gekhlecvkqp"uj cm'dg'dqtpg"d{ "vj g'Eapvtcevqt0'

F wtkpi "vj g'r tqi tguu'qh' vj g'Y qtmu."eqpuki po gpv'pqvu'hqt"o cvgtkcn'pqv'uwr r rkgf "d{ "vj g' Go r m{ gt'uj cm'dg'uwr r rkgf "v'j g'Rtqlgev'O cpci gt'i kxkpi "F gvcnu'qh'gcej "eqpuki po gpw0'

Vj g'Eapvtcevqt "uj cm'r tqxkf g'cnluco r ngu'tgs vkt gf "d{ "vj g'Rtqlgev'O cpci gt'cu'uqap"cu'r quikdg" chgt "eqpvtcev'cy ctf 0'P q'f grkxgtkgu'kp'dwm'u'uj cm'dg'o cf g'wpv'v'j g'uco r ngu'ctg'cr r tqxgf "d{ " vj g'Rtqlgev'O cpci gt0' Cnleqpf go pgf "o cvgtkcn'uj cm'dg'tgo qxgf "ltqo "vj g'ukg'y kj kp'46'j qwtu0'

C"eqo r gv'p'r gtuqp"cr r tqxgf "d{ "vj g'Rtqlgev'O cpci gt'uj cm'dg"go r m{ gf "d{ "vj g'Eapvtcevqt " y j qug'f w{ "y kn'dg'v'j uwr gtxkug'cm'u'ci gu'kp'j g'r tgr ctg'vkqp"cpf "r rckpi "qh'v'j g'eqpetgvg0' Cmi' ewdgu'uj cm'dg'o cf g'cpf "ukg'guu'ecttkgf "qwu'wpf gt"j ku'f k'gev'uwr gtxkukqp."kp'eqpuwncvkqp" y kj "vj g'Rtqlgev'O cpci gt0'

Cm'o cvgtkcn'y j lej "j cxg'dggp'f co ci gf ."eqpco kpcvgf "qt"j cxg'f gvgtkqtcvgf "qt"f q'pqv'eqo r n{ " kp'cp{ "y c{ "y kj "vj g'tgs vkt go gpw'u"qh'v'j gug'Rtgo dngu'uj cm'dg'tglgvgf "cpf "uj cm'dg'tgo qxgf " ko o g'f kcvn{ "ltqo "vj g'ukg'c'v'j g'Eapvtcevqtai' gzi gpug0' P q' o cvgtkcn'uj cm'dg'uqgtf "qt" ucengf "qp'uwr gpf gf "hqtu'y kj qw'v'j g'Rtqlgev'O cpci gtai'r tkqt"cr r tqxcn0'

Vj g"wug"qh'v'j g'y qtf "\$cr r tqxgf \$"kp'j ku'Úr gekhlecvkqp"tghgtu"v'j g'cr r tqxcn'qh'v'j g'Rtqlgev' O cpci gt'qt"j ku'f gngi cvgu0'

"

Etqu/tghgtpegu'dgwy ggp"egtvcip"erwugu"qh'vj ku"Ur gekhecvkp"j cxg'dggp"uj qy p"lp"dtcengwu"
hmqy lpi "vj g'r ctvewrt'kgo 0'

"

302 Concrete"

302.1 Requirements"

Vj g"o kz"r tqr qtvcipu"uj cmi'dg"ugrgev f "vq" gputg"vj cv'vj g"y qtnedkklv{ "qh'vj g"htguj "eqpetgv"
ku" uwksdrg" hqt" yj g" eqpf klkpu" qh" j cpf r lpi " cpf" r rnelpi ." j cxlpi " tgi ctf " vq" yj g" utwewtcr l
grgo gpv' dgkpi "eqputwv f ." yj g" f kur quklqp" qh' tglphqtgo gpv." cpf "vcnlpi " hwnl'ceeqwpv" qh'vj g"
gpxktqpo gpv"vq'y j lej 'k'y km'dg' uwdlgev f 0'

"

Vj g"o kpo wo "ego gpv'eqpvgpv"cpf "o czko wo "y cvgt lego gpv'tcvku"qh'f guki pgf "o kzgu"uj cmi'
dg" cu'i kxgp"lp"Vcdrg'500'

"

Vj g"o czko wo "ego gpv'eqpvgpv"lp"cpf { "o kz"uj cmi'pqv'gzegf "647"mi lo 5"ht"pqto cml'utwewtgu"
cpf "722"mi lo 5"ht' hls wkl' tgvclplpi "utwewtgu0'

"

Kp"cm'ecugu"qh'o kz"r tqr qtvcplpi ." yj g'cf f gf "y cvgt"uj cmi'dg"lpenw f gf "y kj "f wg"cmqy cpeg"ht"
yj g" o qkwatg"eqpvclpgf "lp"vj g"ci i tgi cvgu"cpf "uj cmi'dg"vj g"o kpo wo "eqpvklpgv"y kj "vj g"
y qtnedkklv{ tgs wktgo gpw0

Table 3.1 Minimum Cement Contents"

Cf f klkpcnTgs wktgo gpv'y j gp"Gzr qugf "q'Uwr j cvg'Eqp f klkpu"*Cml'utwewtcr lEqpetgv+"'

Eqpegpvtcvkp"qh"Uwr j cvgu" *gzr tguugf "cu"UQ5+"'		O kpo wo 'Ego gpv'Eqpvgpv' *mi lo 5+"O czko wo 'Ci i tgi cvg" Uk g"				O czko wo " Y cvgt l'Ego gpv' Tcvkq"
Kp"uqlk" *Vqvcn'UQ5+"'	Kp" i tqwpf " y cvgt" Rctvu" r gt" 322.222"	V{r g"qh" Ego gpv'	62"bo o "	42"bo o "	32"bo o "	
>"204"	>"52"	P q'Ur gekcnRtgecvklpu"				/"
204"/"207"	52"/"342"	QRE" qt" EGO 3.KK' qt"KK" r gt" MU3947"	522"	552"	592"	2072"
"	"	UTRE"	472"	4: 2"	542"	2077"
207"/"302"	342"/"472"	QRE" qt" EGO K" KK' qt"KK" r gt"	P qv't gto kwgf "			/"
"	"	UTRE"	522"	552"	592"	2072"
302"/"402"	472"/"722"	QRE" qt" EGO K" KK' qt"KK" r gt"	P qv't gto kwgf "			/"

"	"	UTRE "	562"	592"	632"	2067"
@42"	@722"	UTRE "	F kwq'dw'y kj 'r tqvgevkxg'eqcvkpi "			2067"

QRE " /" Qtf kpct { 'Rqtvrpf 'Ego gpv'
 UTRE "'/" Uwr j cvg'Tgukvpi 'Rqtvrpf 'Ego gpv'

302.2 Strength"

Vj g"ej ctcevgtkvke"utgpi vj "qh'eqpetgv"o gcpu"vj cv'xcnvq"qh'vj g"4: /fc{ "evdg"utgpi vj "dgrqy " y j lej "7" "qh'cmr quukdrq"vguvtguwvu'y qvrf "dg"gzr gevqf "q'fcmf

Vj g"tgrcvkpuij kr " dgvy ggp"i tcf g" qh' vj g"eqpetgv"cpf " ku"ej ctcevgtkvke" utgpi vj " uj cm' dg"cu" i kvgp"kp"DU754: 0Vj g"i tcf g"qh'eqpetgv"q'dg"wgf "kp'r ctvewrt "nqecvqpu'uj cm'dg"cu"i kvgp" kp" Vcdrg'50f'vprgu'pqvgf "qvj gty kvq'qp"vj g'f tcy kpi u0

Table 3.2 Concrete Strength Requirements"

Nqecvqp"	O czk wo " Eqctug" Ci i tgi cvg" Uk g" *o o +"	I tcf g " q h'Eqpetgv" *DU754: +"
Drkpf kpi 'Eqpetgv" I gpgtcnUtwewtgu" Nks vkf 'Tgvcklpi 'Utwewtgu"	42"qt'62" 42"	E37R"
Drkpf kpi 'Eqpetgv"/"Uwr j cvg'Eqpf kvqp"	42"	E42R"
Uwdutwewtg'vj lenpgui'guu'vj cp'622'b o "	42"	E47F "
Uwdutwewtgu.'y cmu'cpf 'urdu'b qtg'vj cp'622'b o "	42"qt'62"	E47F "
Uwr gtutwewtgu.'P qto cnEqpetgv"	42"	E47F "
Nks vkf 'Tgvcklpi 'Utwewtgu"	42"	E52F "
Hkpg'Eqpetgv"	32"	E47F "
Rtgecu'Eqpetgv"	32"qt'42"	E52F "

Kp'vj g'cdqxg'cdrg'wvHkz'R'b gcpu'c'rtguetkdgf'bo kz.'F'b gcpu'c'f guki pgf'bo kz'cpf "C"b gcpu'c'f guki p'bo kz" eqo r n kpi 'y kj 'vj g'tgs vktgo gpv'qh'DU': 2290

302.3 Mixes"

F guki pgf 'O kzgu"
 Rtqr qt'vqpu'uj cm'dg'f gvyto kpgf "kp"ceeqtf cpeg'y kj "vj g"\$F guki p"qh'P qto cn'Eqpetgv"O kzgu\$" r wdrkuj gf" d{ 'vj g'Wpklgf 'Mkpi f qo 'F gr ctvo gpv'qh'Vj g'Gpxktqpo gpv'cpf "qdvckpcdrq'htqo <"

Dwkrf kpi 'Tgugctej 'Guvcdruj o gpv'cpf 'Dqqnuj qr "I ctuvqp"

"

Y c\hqt f "
Y F 4" 9LT"
GPI NCPF "

"

Vgn<- 66"3; 45": ; 6262"
Hcz<- 66"3; 45'886232"

"

Qt"qvj gt'cr r tqxgf "o gyj qf u'hqt"vj g'tgs wktgo gpw'ugv'qwl'kp"vj ku'Ur gekhlec\kqp0'

"

Hqt"vj g'r wtr qug"qh'f gvgto k\lpi "vj g'f guki p"o gcp"utgpi vj "qh"vj g'eqpetgvg"o cti kp"uj cmldg"cf f gf "
vq"vj g'ej ctcevgtknle"utgpi vj "hqt"vj g'r ct\ewrct"i tcf g"qh'eqpetgvg0' Vj ku'f guki p"o cti kp"uj cmldg"
cuugugf "qp"vj g'f gi tgg"qh'eqpvtqn'tgcuqpcdn\ "vq"dg"gzr gevdf "kp"vj g"o cpw\cewtg"qh' vj g'eqpetgvg"
cpf "uj cm'pgkj gt'dg'rguu"vj cp"70P lo o 4"pqt'rguu"vj cp"306"vko gu"vj g'ucpf ctf " f gxlcvkqp0'Wp\kri'
uwej "vko g'cu"vj g'ucpf ctf "f gxlcvkqp"j cu'dggp"cuugugf "vj g"o cti kp"uj cmldg"pqv\rguu"vj cp'90P lo o 40'

"

F gvc\ku'qh'vj g'f guki pgf "o kzgu'uj cmldg'hqty ctf gf "lo o gf lcvgn\ "vq"vj g'Rtqlgev'O cpci gt'hqt"j ku"cr r tqxcn0'

"

Rtguetldgf "O kz gu"
Rtqr qt\kpu'hqt"vj g'ugxgcrn\ tcf gu'qh'eqpetgvg"uj cmleqphqto "vq"vj g'tgs wktgo gpw'qh'Vcdrgu'50"cpf '5060'

"

*f + "*****Ej nqt\kf g'Eqpvgpv"

"

Vj g'qvcr\ej nqt\kf g'eqpvgpv'qh'vj g'eqpetgvg"o kz"uj cmleqo r n\ "y kj "vj g'tgs wktgo gpw'qh'DU": 722<' Rctv'
4<Uge\kqp"7"

"

Quality Control"

Vj g'r t\pkr cnldcu'qh'eqpvtqn'uj cmldg'd{ "eqo r ct\kqp"qh'vj g'tguwnu'qh'vj g'eqo r tguukqp"ewdg"vguu"cv'
4: "f c{ u"gzegr v'hqt"uo cm's wcp\k\gu"qh'eqpetgvg" y j qug"utgpi vj "ecp"dg"qvj gty kug" f gtlxgf "cpf "
y j lej "ku"r gto kwgf "hqt"wu"gd{ "vj g'Rtqlgev'O cpci gt0'62"uco r rg"ewdgu"uj cmldg" o cf g'l\pk\cm\ "kp"
gki j v\co r rgu'gcej "f c{ 'hqt'h\g'f c{ u'qh'eqpetg\kpi "cpf "vj gtgchgt"qpg'uco r rg" r gt'47"o 5"qh'eqpetgvg"
dw\pqv\rguu"vj cp"qpg'uco r rg'hqt'gcej "f c{ u'eqpetg\kpi 0'

"

Y j gtg"o cvgt\knu'ctg"qh'cp'vphco k\kt'i tcf lpi "qt"v\ r g."eqo r tguukqp"ewdg'vguu'uj cmldg'ectt\kf "qww'cv9"
f c{ u'cpf "cf lwno gpw'o cf g'lp'cf xcpeg"qh'vj g"o ckp'eqpvtqn'o gyj qf u'qww\kpgf "cdq\g0'

"

Ewdg"vgu'tguwnu"y knldg"gzco kpgf "kpf k\kf vcm\ "lp"32"eqpugew\k\g"vgu'qh'hqwt"cpf "vj g'ucpf ctf "
f gxlcvkqp"cpf "o gcp"utgpi vj "qh"gcej "ugv'ecre\w\vgf 0' Vj g'eqpetgvg"o kz"r tqr qt\kpu"y kn'qpn\ "dg"
ceegr vcdrg'h'cn\qh'vj g'hqmqy lpi "tgs wktgo gpw'ctg'eqo r r\gf "y kj </"

"

P qv'o qtg"vj cp"vy q'tguwnu'lp'62"ctg'rguu"vj cp"vj g'ej ctcevgtknle"etwuj lpi "utgpi vj 0'

"

P q"xcnwg"qh'vj g'exgtci g'hqt"cp{ "ugv'qh'hqwt"tguwnu"ku'rguu"vj cp"vj g'ej ctcevgtknle" utgpi vj 'r nnu"
qpgj crh'qh'vj g'f guki p"o cti kp"Erwug'524+0'

"

"

Y j gp"62"tguwnu"j cxg"dggp"qdvclpgf"cpf"y g"o gcp"utgpi yj"cpf"ucpfctf"f gxlcvkqp"ctg"ecrewwvxf."
yj g"o gcp"utgpi yj"o kpwu"3(86"vko gu"yj g"ucpfctf"f gxlcvkqp"uj cml'dg"i tgcvgt"yj cp"yj g'ej ctcevgtknle"
utgpi yj 0'
"

Y j gtg"yj g"tguwnu"fq"pqv'eqphqto "vq"yj g"cdqxcg"tgs wktgo gpwu"yj g"lqmqy lpi "cevkqp"uj cml'dg"vncgp<"
"

Cflwwo gpwu"vq"yj g"o kz"uj cml'dg"o cf g"vq"qdvclpgf"yj g"utgpi yj "tgs wktgf 0'
"

Kp" yj g" ecug" y j gtg" cp{" tguwn" ku" ngu" yj cp": 2' " qh" yj g" ej ctcevgtknle" utgpi yj " yj g" utwewtcrf"
ko r rkecvkpu"uj cml'dg"eqpukf gtgf"cpf"cevkqp"vncgp"cu'qtf gtgf"d{" yj g"Rtqlgev'O cpci gt"cu'f tqxkf gf" hqt"
kp'Erwug'527+0'
"

Hqt" yj qug" Rtguetkdgf" O kzgu" tgs wktgf" vq" dg" vugvf."tgs wktgo gpwu" *ka" cpf" *kk" qpnf" y km' dg"
crr rkecdrg0'
"

Production"

Ci i tgi cvgu"cpf"ego gpv'uj cml'dg"r tqr qtvcpgf"d{" y gli j /dcvej lpi ."cpf"y cvgt"uj cml'dg"r tqr qtvcpgf "
d{" xqno g0Uwdlgev"vq"yj g"r tkt"cr r tqxcil'qh"yj g"Rtqlgev'O cpci gt"xqno g/"dcvej lpi "qh"ci i tgi cvgu"
o c{" dg" wugf" hqt" uo cml'ugevkpu" qh" y qtmu."dww" xqno g"dcvej lpi "qh" ego gpv'y km'kp"pq"ecug"dg"
ceegr vgf 0'Vj g'Eqptcevt'b c{.j qy gxgt."bq'r tqr qtvcpgf"yj g"o kz"yj cv'gcej "dcvej "uj cml'wug"cy j qng'dci "
qt'dci u'qh'ego gpv"yj g"y gli j v'qh'y j lej "ku"npqy p"r tgekugf 0'Y j gtg"r gto kuikqp"j cu'dggp"i kxgp"ht"
xqno g"dcvej lpi "qh"ci i tgi cvgu."cml'i cwi g"dqzgu"uj cml'dg"ceewtcvg"cpf"fwg"cmqy cpeg"uj cml'dg"o cf g"
hqt"yj g'dwmkpi "qh"yj g"ci i tgi cvgu"kp"cuuguulpi "yj g'eqttgev'xqno g'vq'dg"wugf 0'
"

Vj g"ci i tgi cvgu"cpf"yj g'ego gpv'uj cml'dg"yj qtqwi j n{" o kzgf"kp"c"engcp"o gejcplecn'o kzgt"ht"cy r gtlkf "
qh" vko g"ci tggf"y kj" yj g" Rtqlgev'O cpci gt"cpf" yj g"y cvgt"cff gf" qp" yj g"dcuku"qh" yj g"cr r tqxgf "
fguki p0'
"

Vj g"co qwpv'qhi'y cvgt'cff gf"uj cmleqphqto "vq"yj g"tgs wktgo gpwu"qh'Erwug'5240'
"

Dcej lpi "o kzlpi "o cej kpgu"uj cml'eqo r n{" y kj" yj g"tgs wktgo gpwu"qh'DU"35270Vj g{" yj cml'dg"r tqxkf gf "
kp"uwej "pwo dgtu"cpf"qh'uwej "ecrcek{" cu"vq"gpwtg"ceqvpwqwu"uwr r n{" qh'htguj n{" o kzgf"eqpetgvg"
cv'cm'vko gu'f wtkpi "eqputwvkap0'
"

Vcti gv'utgpi yj "hqt"v'kcn'o kz" ?" 305'z'Ej ctcevgtknle"Utgpi yj "

Vcti gv'utgpi yj "hqt"y qtmu" ?" 304'z'Ej ctcevgtknle"Utgpi yj "

"

Eqpvkpwqwu"o kzlpi "o cej kpgu"uj cml' dg" wugf" qpnf" y kj" yj g" y tkwgp"r gto kuikqp"qh" yj g" Rtqlgev"
O cpci gt0'
"

Pqv' ngu" yj cp" 52" f c{u" r tkt" vq" yj g" kpucncvkap" qh" yj g" Eqptcevtu"r r npv' cpf" gswko gpv' hqt"
r tqeguulpi ." j cpf ilpi ." vcpur qtvcvkap." uqtlpi " cpf" r tqr qtvcvkap" lpi tgf kpgu." cpf" hqt" o kzlpi ."
vcpur qtvcvkap" cpf" r rckpi "eqpetgvg."yj g"Eqptcevt"uj cml'uwo k'f tcy lpi u'ht"cr r tqxcn'd{" yj g"Rtqlgev"

"

O cpci gt."uj qy kpi "r tqr qugf"i gpgtcn'r npv'cttcepi go gpvu."qi gj gt"y kj "c"i gpgtcn'f guetkr vkp"qh'
vj g'gs wkr o gpv'r tqr qugf'hqt'wug0'
"

Chgt"eqo r ngvkp"qh'kpucmrvkp."j g"qr gtcvkp"qh'j g"r npv'cpf"gs wkr o gpv'uj cm'dg'uwdlgev'vq"j g"
cr r tqxcn'qh'j g'Rtqlgev'O cpci gt0'
"

Y j gtg"j gug'Rtgco drgu."j g"Dknu"qh'S wcpvkgu"qt"j g"F tcy kpi u'tgs wktg"ur gekhe'r tqegf wtgu"vq" dg"
hqmuy gf."uwej "tgs wktgo gpvu"ctg"pqv'vq" dg"eqputwgf"cu"rtqj kdkkpi "wug"d{"j g"Eqpvtcevt"qh"
cngtpcvkxg"r tqegf wtgu"kh'k'ku"cr r tqxgf"d{"j g"Rtqlgev'O cpci gt."r tkqt"vq"wug"qh'uwej "cngtpcvkxgu0'
"

Cr r tqxcn'qh'r npv'cpf"gs wkr o gpv'qt"j gkt"qr gtcvkp."qt"qh'cp{"eqputwvkp"r tqegf wtg."uj cm'pqv"
qr gtcvg"vq"y ckxg"qt"o qf kh{"cp{"rtqxkukp"qt"tgs wktgo gpvu"eqpvckgf"kp"j g'Rtgco drgu"i qxgtplpi "
j g's wcrk\ 'qh'j g'o cvgtkcu'qh'j g'hpkuj gf"y qtn0'

Table 3.3 Prescribed Mixes - Mass of Dry Aggregate to be Used With 100 kg of Cement

I tcf g'qh' eqpetgv"	P qo kpcn' o czk wo " uk g " qh'ci i tgi cvg' "o o +"	62" "		42" "		36" "		32" "	
	Y qtnedkklv"	O gf kwo "	J ki j "	O gf kwo "	J ki j "	O gf kwo "	J ki j "	O gf kwo "	J ki j "
	Tcpi g" hqt" ucpfctf" uco r rg" "o o +"	72/322"	: 2/392"	47/97"	87/357"	7/77"	72/322"	2/67"	37/87"
E90R" E32R" E37R" E42R" E47R" E52R"	Vqcn'ci i tgi cvg"	mi "	mi "	mi "	mi "	mi "	mi "	mi "	mi "
		32: 2"	; 42"	; 22"	9: 2"	P IC"	P IC"	P IC"	P IC"
		; 22"	: 22"	992"	8: 2"	P IC"	P IC"	P IC"	P IC"
		9: 2"	8: 2"	8: 2"	7: 2"	P IC"	P IC"	P IC"	P IC"
		882"	822"	822"	752"	782"	692"	732"	642"
		782"	732"	732"	682"	6; 2"	632"	672"	592"
		732"	682"	682"	622"	632"	582"	5: 2"	542"

P IC"pqv'cr r ncedrg"

"

"

3: 5"

Table 3.4 Prescribed Mixes - Percentage by Mass of Fine Aggregate to Total Aggregate"

I tcf g'" qh" eqpetgvg"	P qo kpcn' o czko wo "' uk g" qh' ci i tgi cvg" *o o +"	62" "		42" "		36" "		32" "	
"	Y qtnedkx{" "	O gf kwo "	J ki j "	O gf kwo "	J ki j "	O gf kwo "	J ki j "	O gf kwo "	J ki j "
E90R" ; " E32R" ; " E37R" ; "	"	52/67" "		57/72" "		P IC" "		P IC" "	
E42R" ; " E47R" ; " E52R" ; "	I tcf lpi \ qpg"3"	57"	62"	62"	67"	67"	72"	72"	77"
	4"	52"	57"	57"	62"	62"	67"	67"	72"
	5"	52"	52"	52"	57"	57"	62"	62"	67"
	6"	47"	47"	47"	52"	52"	57"	57"	62"

P IC'lo r rlgv":P qv'Cr r rdecdrqo'

P qvgu'qp'yj g'wug'qh'Vcdrgu'50'cpf '50"

P QVG"30Vj g'r tqr qt vqpu"i kxgp"lp"y j g'vcdrgu'y kn'pqto cm' r tqxkf g'eqpetgvg"qh'y j g'wugpi yj "lp"
P lo o "4"lpf kcvgf'd{ 'y j g'i tcf g'gzegr v'y j gtg'r qqt'eqpvtqiku'cnkgf'y kj "y j g'wug'qh'r qqt'o cvgtkni0

P QVG"40Hqt"i tcf gu"E90R"E32R"cpf "E37R"c"tcpi g'qh'hpg/ci i tgi cvg'r gtegpvcu gu"ku"i kxgp=
yj g" nqy gt"r gtegpvcu g"ku"cr r rdecdrq"vq" hpgt"o cvgtkni"uwej "cu" | qpg"6"ucpf "cpf " yj g"j ki j gt"
r gtegpvcu g"vq"eqctugt'o cvgtkni"uwej "cu" | qpg"3"ucpf 0

P QVG"50Hqt"cm'i tcf gu"uo cm'cf lwxo gvu"lp"y j g'r gtegpvcu g'qh'hpg"ci i tgi cvg'o c{ "dg'tgs wktgf"
f gr gpf lpi "qp'yj g'r tqr gt vgu'qh'yj g'r ct vewrt"ci i tgi cvgu'dgkpi 'wugf 0

P QVG"60Hqt"i tcf gu"E42R'E47R'cpf 'E52R'cpf'y j gtg'j ki j 'y qtnedkx{ 'ku'tgs wktgf . 'k'ku'cf xkucdrq"
vq" ej gen'yj cv'yj g'r gtegpvcu g'qh'hpg"ci i tgi cvg"ucvxf "y kn'r tqf weg"ucvuxevqt{ "eqpetgvg"kh'yj g"
i tcf lpi "qh'yj g'hpg"ci i tgi cvg'cr r tqcej gu'yj g'eqctugt'ho ku'qh' | qpg"3"qt'yj g'hpgt'ho ku'qh' | qpg"60

Cement"

Ego gpv'uj cm"cu"o o loko wo . "o gg'v'yj g'tgs wktgo gvu"qh'EGO K540."EGO K540"qt"EGO K/
540" lp" ceeqtf cpeg"y kj "Mgp{c"Ucpf ctf "MU"3947"Rctv"3"*Ego r qukkqp."Ur gekhcvkqpu"cpf "
eqphqto k{ 'etkgtk" hqt'eqo o qp'ego gvu"cpf 'Rctv"4"eqphqto k{ 'Gxcnvcvqp+0Eqpetgvg'hqt'r qy gt"

hmqvqf "hmqtu'uj cml'cu'c" o kpk wo "o ggv'j g'tgs wktgo gpw'qh'EGO K640'. 'EGO K640' "qt' EGO KX/640'

Crrtqxcr'vq"j g" wug"qh'ego gpv'o cpwcewgtf "vq"j g"cdqxg"ucpfctf u"qt"cp{ "qvj gt"cr r tqxgf "ucpfctf u"uj cml'dg'uwdlgev'vq"j g"Eqptcevt"fgo qpucvki "vj cv'j g'tguwki "eqpetgvg"uj cml'o ggv"j g"utgpi vj " tgs wktgo gpw'cu'i kxgp"kp"j g'f tcy kpi u"cpf "j g'tgxcpv'ugevkpu"qh'j g"Eqpetgvg"Urgelkcvkpu'

Rwxgtkugf /hwgn'cu'j "uj cml'j cxg"c"o czko wo "eqmwt"lpf gz"qh'8"Eqmwt"eqo rctcvqt"fkue'tghgtgpeg" Pq0'4; 8792+'y j gp"o gcuwtgf"wukpi "j g"Nqxcdqpf "Eqmwt"Eqo rctcvqt"u{ugo "cu'tgeqo o gpf gf"kp"DU" 5: ; 4<Rctv3'Crr gpf kz 'J . 'Erwug'J : 0'

Ego gpv'uj cml'dg'htguj "y j gp"fgkxgtgf "vq"Ukg"cpf "j g"eqpuki po gpw'uj cml'dg'wugf "kp"j g"qtf gt"qh'j gkt" fgkxgt{ 0'Vj g"Eqptcevt"uj cml'o ctn'j g'f cvg"qh'f gkxgt{ "qp"gej "eqpuki po gpv'cpf"gej "eqpuki po gpv' uj cml'dg"uqtf g"ugrctcvgn"cpf "kp"uwej "o cppgt"cu"vq"dg"gcukl "ceeguukdng"cpf "kf gpv'kcdng'

Pq"ego gpv'kp"dcu u"qt"qvj gt"eqpckpgtu"uj cml'dg"wugf "wprgu"j gug"cpf "j g"o cpwcewgt)u'ugcu"ctg'kpcev'v'j g'ko g'qh'o kzkpi 0'

K'j g"ego gpv'ku'f gkxgtgf "kp"dcu u'k'uj cml'dg'uqtf g"kp"cy cvgr tqqh'uj gf "qt'dwrf kpi "cv'c"vgo r gtcwtg"qh'pqv'ngu'j cp": 9E"cpf "j g"dcu u'uj cml' dg"r megf "qp"ft{ "dqctfu'cdqxg" j g" hmqv'vq" r tngxgpv' f gvtkqcvkqp"qt"eqpwo kpcvkp'htqo "cp{ 'ecwug0'

Dwmlego gpv'o c{ 'dg'wugf 'rtqxf gf 'k'ku'uqtf g'kp"cp'crr tqxgf "eqpckpgt0'

Vj g"Eqptcevt"uj cml'pqv'wug'ego gpv'y j lej "j cu'j ctf gpgf "kp"vq"nwo ru"dw'uwdlgev'vq"tgo qxcn'qh'j g" nwo ru" d{ "uetggpki ."j g"Rtqlgev'O cpci gt"o c{ "cmjy "uwej "ego gpv'vq"dg"wugf "kp"pqp/utwewt'eqpetgvg'o kzug0'

Ego gpv' qh'f hgtgpv' v' r gu"uj cml' dg" ngr v' ugrctcvg"kp"uqtcu g" cpf "uj cml' pqv' dg" o kzgf "vqi gj gt"kp" j g" r tqf wevkp'qh'eqpetgvg0'

Aggregates"

Vj g"Eqptcevt"uj cml'pxguki cvg'j g'r tqr qugf "ci i tgi cvg'uqwtgu"kp"fgvki'cpf "uj cml'wdo k'c"eqo r tgi gpukg" tgr qtv'y kj "vej plectkphqto cvkqp"cpf 'fcv'y j lej "uj cml'penw'g'j g'hmqy kpi <

Nqecvkp0'Qprf "Uqwtgu"gs wkr r gf "y kj "hckrkku"cf gswcvg"ht"j g'r tqf wevkp"qh'j g"o cvgtkcu" cu'ur gekkfg" cpf "kp"uwej 's wcpv'kku'cu'uj cml'dg'tgs wktgf "ht"j g'r tqo r vgzgewvkp'qh'j g"Eqptcevt"uj cml'dg'crr tqxgf 0'

Rgtqmi { "qh'uqwtgu"cpf 'r quukdng"qt'hknr { 'xctkcdkx{ 'f wtkpi "j g"Eqptcevt' gtlkf 0'

O gj qf "qh'r tqf wevkp"

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P qvg<O ctkpg"ci i tgi cvgu"cpf "uqo g"lprpf "ci i tgi cvgu"eqpckp"ej mtkf gu0Dqj "uj qwf "dg"ugrgev" ectghwn{ " cpf "o ctkpg"ci i tgi cvgu"pgeguakcvg"ghlekpv"y cuj kpi "vq"cej kxg"j g"208' "ej mtkf g"kp"rko k0 Y j gtgxt" rqukdrg."j g"qvcnej mtkf g"eqpvgpv"uj qwf "dg"ecrwcvgf "ltqo "j g'o kz "r tqr qtvkpu"cpf "j g'o gcuwgf "ej mtkf g" eqpvgpv"qh'gcej "qh'j g"eqpukwgpw0

"

Eqpetgv" o cf g" y kj " uqo g" ci i tgi cvgu" gzj kdk" Cmerk/Ukrec" Tgcevqp" *CUT+0 Vj ku" r j gpqo gpqp" ku" r ctvwrcn{ " fgtlo gpvcn' kp" utvewtgu" uwdlgev" vq" y gwki " cpf " j gkt" wug" y km' pqv' dg" cmqy gf " kp" uvej " utvewtgu0

"

Rtkqt "vq"ceegr vpeg"qh'cp"ci i tgi cvg"cu"lpgt'vq"cmcrk'tgcevqp"j g"tgr qtv'qh'c"s wckkkgf "i gmqi kuv"cr r qlpvgf " d{ " j g" Rtqlgev" O cpci gt" qp" j g" uwkcdkx{ " qt" qj gty kug" qh" o cvgtkcu" uj cm' dg" qdvckpgf " hmqy kpi " gzco kpcvqp"qh'cm'v{ r gu'qh'o cvgtkcn'j cv'j g'r tqr qugf "uqwtugu'y km' { kgrf "f wtkpi "j g"eqvtug"qh' j g"eqptcev0 Vj g"Rtqlgev'O cpci gt"o c{ "tgs vktg"j cv'uco r ngu"dg"vngp"ltqo "dqtgj qngu"cpf "kh'j g" eqptcev'gzvpgf u'qxtg" c'hqpi "r gtkqf "j gp'o qtg'j cp'qpg'tgr qtv'uj cmldg'qdvckpgf 0

"

Vj g'Rtqlgev'O cpci gt"o c{ "qtf gt'htvj gt'vgu'vq"dg'ecttkgf "qww'qp"j g'ci i tgi cvgu'r tqr qugf "d{ "j g"Eqptcevqt" hqt" j g"utvewtgu" kp"eqppgevqp"y kj "j ku"Eqptcev' dghgtg" r gto kuukqp"ku"i kxgp"vq" wug" j g" ci i tgi cvgu" r tqr qugf "d{ "j g"Eqptcevqt0

"

Y j gtg" cmqy gf " d{ " j g" Rtqlgev" O cpci gt" vq" wug"tgcevkg" qt" r qvgpvkm{ "tgcevkg" ci i tgi cvgu" kp" egtvckp" utvewtgu"j g"Eqptcevqt"uj cm'vng'cm'uwkcdrg"o gcuwgu"vq"r tngxgpv'f gvtkqtcvqp"qh'eqpetgv"f wg"vq"cmcrk/ ukrec"tgcevqp0Uvej "o gcuwgu"uj cm'kpenf g"j g"vug"qh'ego gpv'y kj "cp"cekf "uqndrg"gs wkxcrpv" qh'uqf kwo " qzlf g"eqpvgpv"P c4"Q"- "Q(87: M4"Q+qh'ngu"j cp"208' 0Vj g'tgcevkg"cmcrk'eqpvgpv"qh'j g"eqpetgv'o kz "uj cm' kp'pq'ekewo ucpegu'gzeggf "5'mi lo 0

"

Vj g" Cmerk/Ukrec" Tgcevqp" *CUT+" kp" j ctf gpqf " eqpetgv" ku" cmq" chgev" d{ " j g" y cvgt/ego gpv' tcvkq0 Vj gthgtg."y j gtg"CUT"ci i tgi cvgu'ctg'wugf ."y kj "j g'r gto kuukqp"qh'j g'Rtqlgev'O cpci gt."j g'y cvgt/"ego gpv' tcvkq"uj cmldg'ngv'vq'c"o kplo wo "kp"j g'tgi kqp"qh'206+0

"

Ci i tgi cvgu'tgs vktgf "hqt'wug'kp"j g'eqputwvqp"qh'eqpetgv'y cvgt'tgckpki ."y cvgt'gzenf kpi "cpf "qj gt"uko kct" utvewtgu"uj cmj cxg'c'hqy "T t{ kpi "uj tkpnci g'cpf "j g'y cvgt'cduqtr vqp"uj cmipqv'gzeggf "5' 0

"

Vj g'cduqtr vqp"qh'j g'ci i tgi cvgu"uj cmldg'o gcuwgf "kp'ceeqtf cpeg'y kj "DU": 34.'Rctv40

"

Ci i tgi cvgu"qh"tqwpf gf "uj cr g"qt"qj gty kug"ecr cdrg"qh'r tqf wvki "c"eqpetgv"qh'i qqf "y qtnckkx{ "y kj " j g" o kplo wo "cf f kkp"qh'y cvgt'uj cmldg'r tghgtgf 0

"

F wu'qt'hqwt'tguwnkpi "ltqo "etwuj kpi "j g'ci i tgi cvg"uj cmipqv'dg'cmqy gf "vq'eqpco kpcv'j g'vqenr kgu0Y j gp." kp"j g'qr kkp"qh'j g'Rtqlgev'O cpci gt"uvej "eqpco kpcvqp"j cu'vngp'r nceg'k'uj cmldg'tgo qxgf "d{ "cp'cr r tqxgf " o gcpu'qt"qj gty kug'j g'ci i tgi cvg'uj cmldg'tglgev0

"

Hqt" o cuu" eqpetgv." kp" qtf gt" vq" lo r txxg" j g" eqpukngpe{ " qh' j g" o kz." f wu' qt" hqwt" tguwnkpi " ltqo " etwuj kpi " j g" ci i tgi cvg." y j lej " o c{ " dg" uwdlgev" vq" vgu" dg" kpenf gf " kp" eqptqmgf " s wcpvkgu" vq" uwr rigo gpv'j g'hpg'ci i tgi cvg0

Gzegr v'y j gtg"ci i tgi cvgu"j cxg'dggp"qj gty kug'ur gekkgf "qp"j g" F tcy kpi u'j g'i tcf kpi "qh'ci i tgi cvgu"uj cmldg" cu'hmqy u"

"

"

Eqctug'Ci i tgi cvg<

"

32'o o "o cz0uk g."i tcf gf ."hqt"cm'tglphqtegf"eqpetgvg0

"

42"o o "o cz0uk g."i tcf gf ."hqt"cm'tglphqtegf"eqpetgvg"kp"dgco u'cpf "hqt"y cmu'cpf "urdu"pqv"i tgcvgt'vj cp"
622'o o "vj len0

"

62"o o "o cz0uk g."i tcf gf ."hqt"cm'tglphqtegf"eqpetgvg"y cmu'cpf "urdu"kp"gzeguu"qh'622"o o "vj len0

"

Hpg'Ci i tgi cvg<

"

Y j gtg'ci i tgi cvgu'eqphqto kpi "q\" qpgu'4"qt'5"qh'DU': : 4"ctg'cxckrdng'vj g{ 'uj cmldg'wugf 0'

"

Hqt'Rtguetldgf 'O kzgu.\" qpgu'3.'4.\"qt'5'ci i tgi cvgu'qpn{ 'uj cmldg'wugf 0'

"

Hpg'cpf"eqctug"ci i tgi cvgu'uj cmldg'cu'fghpgf"d{ "cpf"dg"qh'vj g'swckw{ "cpf"pcwtg'tgswtgf"d{ "DU": : 40kp"
cf fklqp'vj g{ 'uj cmldg'ej go lecm{ 'kpgt'vq"cmcrktgcevqp0

"

Water"

Vj g'Eqptcevt'uj cm'lwrrn{ "cm'ly cvgt."o cng'cm'cttcpi go gpw'cpf'r c{ "cm'lej cti gu'kp'tgur gev'qh'uwej "uwr r n{ 0'
Y j gtg'y cvgt'ecp'dg'qdvckpgf'ltqo "c'r wdrlk'y cvgt'lwrrn{ 'k'uj cmldg'wugf 0'

"

Y j gtg'y cvgt'ecppqv'dg'qdvckpgf'ltqo "c'r wdrlk'lwrrn{ 'k'uj cmldg'vgugf'kp"ceeqtf cpeg'y kj "DU'536: " cpf 'kh'
pgeguuct{ 'uj cmldg'tgcvgf "q'cuwtg'eqo r rlcpeg'vj gtgy kj 0'

"

Y cvgt" hqt" y cuj kpi " cpf" ewtkpi " uj cm' dg" uwej " vj cv' kv" y km' ko r ckt" pgkj gt" vj g" utgpi vj " qh' vj g" hpkuj gf"
eqpetgvg'pqt'ku'cr r gctcpeg0

"

Admixtures"

I gpgten'<Vj g'swcpw{ "cpf"o gy qf "qh'wukpi "cf o kzwtgau'uj cmldg"kp"ceeqtf cpeg'y kj "vj g"o cpwlcwgtgta'
tgego o gpf cvkpu" cpf " kp" cm' ecugu" uj cm' dg" uwdlgev" vq" vj g" cr r tqxcn' qh' vj g" Rtqlgev" O cpci gt0' Wprguu"
qj gty kug'lr gekhgf'qt'cr r tqxgf 'd{ 'vj g'Rtqlgev'O cpci gt.'cp'cf o kzwg'uj cm'eqo r n{ " y kj 'qpg'qh'vj g'hqmy kpi "
<"

"

DU"3236"*Rli o gpw'hqt"Rqtvrpf"ego gpv'cpf "Rqtvrpf"ego gpv'r tqf wevu0' DU"

7297"*Eqpetgvg'cf o kzwgu'gzegr v'ej mtkf g'dcugf "cf o kzwgu0'

Kp'cm'ecugu'vj g'Eqptcevt'uj cm'ltqxlk g'vj g'hqmy kpi 'lphqto cvkqp'hqt'vj g'Rtqlgev'O cpci gtat'cr r tqxcn'

"

"

vj g's wcpvk\ "q'dg'wugf . 'lp'hkqi tco u'r gt 'hkqi tco "qh'ego gpv'cpf 'lp'hkqi tco u'r gt 'ewdle'o gvtg" qh'eqpetgv="

vj g'f gvtko gpvcrigh'geu'ecwugf 'd\ "cf f lpi 'c'i tgcvgt'qt'nguugt's wcpvk\ 'lp'hkqi tco u'r gt 'ewdle'o gvtg"qh'eqpetgv="

vj g'ej go lecripco g'*u+qh'vj g'o clp'cevkxg'lpi tgf lgpvu="

y j gj gt "d\ "vj g'Rtqlgev'O cpci gt. 'vj g'Eqptcevqt'uj cmlf go qpwtcv'vj g'cevqp'qh'cp'cf o kzwg'd\ "o gcpu'qh'v'kcn' o kzu0'

Ecrekwo 'ej mtkf g0Vj g'wug'qh'ecrekwo 'ej mtkf g'lp'cp\ 'hqto 'ku'r tqj kdkgf 0'

Control of Alkali-Silica Reaction"

Vj g'tkum'qh'etcentpi "cpf "gzs cpukqp'f wg'vq'cmek'uklec'tgcevqp'uj cmlg'o kpo kugf 'd\ "eqo r rlcpeg'y kj " vj g"ur gekhec'vqp"cpf "i wkf cpeg"pqv'gu'ugv'qw'lp"Vgej plecni'Tgr qtv'P q0'52"qh'vj g"Eqpetgv"Uqekv\ ." Tkxgtukf g'J qwug. '6'O gcf qy u'Dwulpguu'RctniUc'vqp'Cr r tqcej . 'Drceny cvgt. 'Eco dgtng\ . 'Uwtg\ . 'I W39" ; CD'Hcz<- 66*2+3498'829363. 'Y gdukx<'[y y @qpetgv@ti 0wn0'](#)

303 Reinforcement"

303.1 Steel"

Tgkphqtego gpv'uj cmlg<'

Rrc'lp'tqwpf'o kf "uvgnrlt'J ki j 'l kgrf "uvgnrdctu'eqphqto lpi "vq'DU'666; 0'

Eqrf 'y qtnrgf "uvgnrdctu'eqphqto lpi "vq'DU'666; <3; : : 0'

Hcdtle'tgkphqtego gpv'o cf g'qh'eqrf 'f'tcy p'j ki j "vgpukg'dctu'eqphqto lpi "vq'DU'66: 50'

Vj g'Eqptcevqt'uj cmlqdvclp'htqo 'j ku'lw r rkgtu'egt'v'khec'v'qh'vj g'o gej cplecni'cpf 'r j { ulecni' tqr gt'v'gu'qh' vj g"tgkphqtego gpv' cpf "uj cml' uwdok' vj go " vq" vj g" Rtqlgev' O cpci gt" hqt" cr r tqxcn" gzege v' y j gtg" tgkphqtego gpv'j cu'dggp'uwr r rkgf "d\ "vj g'Go r rkgf'gt0' Vj g'htgs wge\ "qh'uco r r lpi "cpf "vj g'o gj qf "qh' s wcrk\ "eqptqn'uj cml'dg"lp"ceeqtf cpeg'y kj "Vcdrg"6" cpf "Enrwug"42"tgur gev'xgn\ "qh'vj gug'Dtkkuj " Ucpf ctf u0'Cml'j ki j " { kgrf "cpf "eqrf "y qtnrgf "dctu"*gzege v'lp'y grf gf "hcdtle'tgkphqtego gpv'uj cml'dg" f ghqto gf "dctu'eqo r r lpi 'y kj "Enrukh'ec'vqp'V{r g'V4'hqt'dqpf 'utgpi vj 'lp'ceeqtf cpeg'y kj 'DU'666; 0' Y j gtg'i cnxcpkugf "tgkphqtego gpv'ku'ur gekh'gf . 'i cnxcpkupi "uj cml'eqo r r lpi "y kj "vj g'tgs wktgo gpv'qh'DU' 94; . 'Rctv'30'

Storage"

Tgkphqtego gpv'uj cml'dg'uxqf g'qp"Ukg"wpf gt"eqxgt"cpf"uwr r qtv'gf"ergct"qh'v'j g'i tqw'pf"cpf"lp"uwej " o cpgt"cu'v'q'o cng'kf gpv'k'ecv'kp"gcuf'0Uwr r qtv'uj cml'dg'uwej "v'j cv'f'k'uxqf'v'kp"qh'v'j g'uggn'ku"cxqkf gf" cpf'eqp'co kpcv'kp'cpf'eqttq'k'p'r t'gxg'p'v'gf'0

Bending and Fixing"

Vj g"Eqpvtcevqt"uj cml'r tqxkf g'qp"Ukg"r'ek'k'k'gu"ht"eww'kpi "cpf"dgpf kpi "tgkphqtego gpv'y j g'v'j gt"j g' ku" qtf g'kpi "j ku'tgkphqtego gpv'dgpv'qt"pqv'cpf"uj cml'g'p'uw'g'v'j cv'c'v'q'ngp"co qwpv'qh'utck j v'dct"ku" cxck'cdng" qp"Ukg'ht"dgpf kpi "cu'cpf"y j gp'f'k'gevgf'd{ 'v'j g'Rtqlgev'O cpci gt'0

Tgkphqtego gpv'uj cml'dg'y k'g'dt'wuj gf"cpf"ergcp'gf"cv'v'j g'Eqpvtcevqt'u'gzr gpug."dghqtg"cpf k'q't'ch'gt'k'ku" r r'egf'lp'r qukk'p."k'h't'gs v'k'gf'd{ 'v'j g'Rtqlgev'O cpci gt'0

Vj g"dctu"uj cml'dg"eqrf"dgpv'lp"utlev'cee'qtf'cpeg'y kj "v'j g'f'tcy kpi u"cpf"v'j g'Eqpvtcevqt"uj cml'dg" t'gur qpuk'dng'ht"v'j g'ceewtce{"qh'v'j g'dgpf kpi 0Dgpf kpi "f'ko gpuk'p'u'uj cml'dg'y qtn'gf"v'q'v'j g'v'q'rgtc'pegu" k'pf'lec'vgf"lp"DU'6688"cpf"DU": 332"v'cdng"504: 0'Dctu"lp"y j k'ej "cp{"gtt'qtu"lp"d'gpf kpi "ctg'dg{qp'f"v'j g' r'ko ku'qh'v'j g'ht'gi q'kpi "v'q'rgtc'pegu'uj cml'dg't'gr r'egf"cv'v'j g'Eqpvtcevqt'u'equv'd{"eqtt'ge'v'f"dgpv'p'gy "dctu." qt." o c{"dg'utck j v'p'gf"cpf"t'gd'gpv" eqrf"u'wdl'gev" v'q" v'j g'Rtqlgev" O cpci gt'u'r t'k'qt"cr r tqx'c'f'0Cp{" f'k'uet'gr c'pe{"q't'lp'ceewtce{"h'q'w'pf"lp'v'j g'f'tcy kpi u'uj cml'dg'b'q'v'k'k'gf"v'q'v'j g'Rtqlgev'O cpci gt'k'o o g'f'k'ev'f'0

Ch'gt"dgpf kpi ."tgkphqtego gpv'uj cml'dg'ugewt'gn{"d'w'pf'ngf"cpf"r'cd'ng'gf"y kj "y g'v'j gt/r tq'qh'v'ci u'qt"uj cml' dg'o ctngf"y kj "q'v'j gt"cr r tqx'gf'k'ki pu'd{"y j k'ej "k'ecp't'gcf'k'f"dg'k'f'gpv'k'k'gf'0

Dghqtg"cu'go d'rkpi "qt"hz'kpi "v'j g'tgkphqtego gpv'v'j g'f'ko gpuk'p'u'v'q"y j k'ej "k'j cu'dggp"dgpv'uj cml'dg" ej g'engf'd{"v'j g'Eqpvtcevqt"ci k'p'u'v'v'j g'f'tcy kpi u'0

Vj g'tgkphqtego gpv'uj cml'dg'h'z'gf"lp'utlev'cee'qtf'cpeg'y kj "v'j g'f'tcy kpi u'cu't'gi ct'f'u'eqxgt."ur'celkpi "cpf" r qukk'p."cpf"u'w'k'cdng"r t'ge'cw'k'p'u'uj cml'dg'v'cngp"d{"v'j g'Eqpvtcevqt"v'q"r t'gxg'p'v'v'j g'f'k'ur'ne'go gpv'qh' tgkphqtego gpv'f'wt'kpi "v'j g'r'celkpi "cpf"eqo r c'ev'k'p'qh'eqpet'g'v'g'0

F'wt'kpi "eqpet'g'v'kpi "c'eqo r g'v'gpv'uggn'h'z'gt'o w'uv'dg'lp"cw'g'pf'c'peg"v'q"cf'lw'uv'cpf"eqtt'ge'v'v'j g'r qukk'p'u'qh' cp{"tgkphqtego gpv'y j k'ej "o c{"dg"f'k'ur r'egf'0Vj g'x'ldtc'v'qtu'ctg"pqv'v'q"eqo g"lp'v'q"eqp'cev'y kj "v'j g" tgkphqtego gpv'0

Y j g't'gs v'k'gf"v'q"uwr r qtv'cpf"tg'v'clp"v'j g'tgkphqtego gpv'lp"ku"eqtt'ge'v'r qukk'p"v'j g'Eqpvtcevqt"uj cml' r tqx'kf'g'go r r'ev'gu."u'q'q'ni'qt"q'v'j gt"uwr r qtv'cv'j ku'q'y p'equ'0J g'uj cml'cn'qy "ht"eww'kpi "v'q'eqtt'ge'v'igpi v'j " cml'eqtp'gt'r'egf'dctu'k'p'env'gf"lp'v'j g'dct'uej gf'w'gu'cu'uc'pf'ctf'igpi v'j u'0

Rt'ge'cu'v'eqpet'g'v'g'uwr r qtv'd'ng'em'u'ht"tgkphqtego gpv'uj cml'dg"o c'p'w'k'ewt'gf"ht'qo "I tcf'g"E52F"\$h'p'g"\$ eqpet'g'v'g"v'q"gp'uw'g"v'j g'eqtt'ge'v'eqxgt"v'j k'ep'ngu'0Vj g'f"uj cml'dg"y g'm'ewt'gf"dghqtg"wg"cpf"ect'g'lw'nn" u'q'f'gf"qp"Ukg"v'q"cxqkf"eqp'co kpcv'kp'0R'c'v'k'ue"cpf"o g'c'v'ruwr r qtv."ej cktu"ge'0o c{"dg"wg'f"cpf"uj cml' dg'u'wdl'gev'v'q'v'j g'Rtqlgev'O cpci gt'u'r t'k'qt"cr r tqx'c'f'0

"

kp"vj g'ecug"qh'o kf "uvggn"e'rcr "qh'pqv'ngu"vj cp"62"lco gvtu"qh'vj g'uo cmgt"dct"uj cmldg'r tqxf gf "cv'vj g" lwpv"vqp"qh'vy q"dctu"ht"y j lej "vj g"rcr "ku"pqv'ur geklcm" f gvc"rgf "qp"vj g"ftcy kpi u"cpf . "kp"vj g'ecug" qh' J ki j "l kgrf "uvggn"e'rcr "qh'pqv'ngu"vj cp"72"lco gvtu0

"

Cmlpvtugev"qpu"qh'dctu"kp"y cmi'cpf "urdu'cpf "cmleqppge"vqpudgwy ggp"dkpf gtu"qt"tkpmi'cpf "o clp'dctu" kp"eqno pu"qt"dgco u"uj cmi'dg"vkgf "y kj "uqhv"ktqp"y kg"vku"qt"y kj "hzkpi "erkr u"y j lej "uj cmi'pqv'dg" cmqy gf " vq"o cng"eqpcev'y kj "vj g'htto y qtn'qt"vq'r tqlgev'o cvgtkcm" kp"vq"vj g'ur geklkgf "eqxgt0

"

Wpngu"r gto kwgf "d{ "vj g"Rtqlgev'O cpci gt. "y grf kpi "qh'dct"tgkphqtego gpv'cv'kpvtugev"qpu"qt"ht" yj g" lqkpkpi "qh'dctu"ku"rtqj kdkgf0 Y j gtg"r gto kuukqp"ku"i tcvpvgf . "y grf kpi "uj cmi'dg"ecttkgf "qww"kp" ceeqtf cpeg" y kj "vj g'tgeqo o gpf cvkpu"qh'vj g"kpukwvg"qh'Y grf kpi "ht"vj g'y grf kpi "qh'tgkphqtekp" dctu" ht"tgkphqtegf" eqpetgvg'eqputwv"qp0

"

Y j gp"hzgf "tgkphqtego gpv'ku"vq"dg"ngh"gzr qugf "ht"o qtg"vj cp"gki j v'y ggm. "k"uj cmi'dg"vj qtqwi j n{ " ergcpgf "cpf "r ckpvgf "y kj "pgcv'ego gpv'i tqw0

"

Y j gtg"i crkcpkugf "tgkphqtego gpv'ku"vugf "cp{ "fco ci g"uwhtgf "d{ "i crkcpkupi "uj cmi'dg"o cf g"i qqf "d{ " yj g'cr r decv"qp"qh'cp"cr r tqxgf "i crkcpkupi "htto wcv"qp. "dghqtegf"eqpetgvg"i rcelpi "ku'eqo o gpegf0

"

Pq"eqpetgkpi "uj cmi'dg"eqo o gpegf "wpkl"vj g"Rtqlgev'O cpci gt"j cu"lpur gev"vj g"tgkphqtego gpv'kp" r qukqp"cpf "wpkl"j ku"cr r tqxcn"j cu'dggp"qdvclpgf "cpf "vj g"Eqpvtcev"uj cmi' kxg'cf gs wcv"pqv'eg"qh'j ku" kpvgv"qp"vq'eqpetgvg0

"

Couplers"

Eqwr"gtu"ht"tgkphqtego gpv'uj cmi'dg"gkj gt"Ucpfctf "Uy ci gf "Ur nlegu"qt"V{r g"KCrj c"Eqwr"gtu" o cpwkcwtf "d{ "EEN"U{ungo u."Wpkv'6."Rctm'4222"O kngppkwo "Y c{ . "Y guwcpf "Tqcf . "Nggf u."NU33" 7CN."Vgrgr j qpg<- 66*2+'335492'3443."Hz<- 66*2+'335'499"; 99."go cln'ucrguB eenxtguikpi @qo "qt" uko kct'cr r tqxgf0Y j gtg'dctu"qh'f khtgtpv'f lco gvtu'ctg'vq'dg'lqkpgf "c'EEN"tgf wegt "Urgxg"qt"uko kct" uj cmldg"vugf0

"

Eqwr"gtu"uj cmi'dg"uwkcdrg"ht"vj g'v{r g"cpf "uk" g"qh'tgkphqtekp" dctu"cpf "uj cmi'dg"ecr cdrg"qh'f gxgr"r kpi " 337" "qh'vj g'ej ctcevgtkule"utgpi vj "qh'vj g'uo cmgt"qh'vj g'tgkphqtekp" dctu'dgkpi "lqkpgf "kp"dqvj "vgpukqp" cpf" eqo r tguikqp0 Eqwr"gtu" uj cmi' dg" kpucngf" kp" ceeqtf cpeg" y kj " vj g" o cpwkcwtf gtu" tgeqo o gpf cvkpu0Us wctg"vy kngf "tgkphqtekp" dctu"uj cmi'pqv'dg"vugf "y kj "eqwr"gtu0

"

Formwork"

Requirements"

Vj g'vgtto "Shqto y qtns"uj cmi'dg'cngr"vq'kpenwf g'egpvtkpi .htto y qtm'utwwkpi . 'dtcelpi "cpf "vj g'hng0 Y j gp" ecngf "wr qp" vq"fq"uq" d{ " vj g"Rtqlgev'O cpci gt" vj g" Eqpvtcev"uj cmi'uwdo k" j ku" htto y qtni' r tqr qucni'ht"ej genkpi "cpf "cr r tqxcn" d{ " vj g"Rtqlgev'O cpci gt"kp'cf xcpeg"qh'vj g'eqpetgkpi0

"

Hqto y qtnluj cmi'dg'qhl'wej "ceewtce{ . 'utgpi yj "cpf 'tli kfk 'cu'v'ectt{ 'y g'y gli j v'cpf 'r tguwtg'htqo 'y g' eqpetgvg'q' 'dg' r' r'ceg' "qp"qt'ci clpu'lv' "qi g'y gt'y kj "cm'eqputwv'kpcn'y kpf "qt"qy gt'rqcf u'rkng' "v" dg' ko r ctvgf "v" kv' y kj qw' r tqf welpi " fghqto cvkqp" qh' yj g' h'kuj gf " eqpetgvg" kp" gzeguu" qh' yj g' vqgtcpegu" qwrlpgf 'kp'Erwug'526'cpf "Vcdrg'500"

Cmlhqt y qtnluj cmi'dg'uw'helepv' "ki j v'y kj qw'r nwi i kpi . 'v' r t'gxgpv'huu'qhl' tqw'f wtkpi 'y g'xkdtcvkp" qh' yj g'eqpetgvg'Y y gp'tgs wtkgf 'd{ 'y g'Rtqlgev'O cpci gt. 'lqpw'dgy ggp'htqo y qtnl'hekp' 'dqctf u'lj cmi' dg'ugcrf' y kj "hqco 'twddgt. 'ugcrpi 'utkr u'qt'qy gt'cr r tqxgf "o cvgtkr'O'C'hqco 'twddgt'qt' r qn' wgy cpg" utkr 'uj cmi'dg' r tqxgf gf "ctqwpf 'y g'vqr u'qhl'cm'y cmi'cpf "eqnw pu'dghqtg'chzkpi 'y g'htqo u'ht' yj g'pgzv' rkh'O"

Hbegu'qhl'htqo y qtnluj cmi'dg'engcp. 'htgg'htqo 'r tqqlgev'kpi 'pcku'cf j g'kpi "i tqw'cpf "qy gt'ko r gthgevkpu" qt' f ghgeu' y j lej "y qwf "r t'gxgpv' yj g'ur gekhgf "uw'heg" h'kuj "htqo "dgkpi "cwckpgf'O Vj g{ "uj cmi'dg' v'gcvf" y kj "cr r tqxgf" o qwf "qhl' dghqtg" r qukskpkpi'O I t'gcv'ectg" u'j cmi'dg' g'zgteku'gf "v" r t'gxgpv' t'gphqtgo gpv'qt' "ugny qtnl'htqo "dgkpi "eqpco kpcv'gf 'd{ 'y g'qklf wtkpi 'gt'gevkp'qh'yj g'htqo y qtn'O"

Hqto y qtm'y j lej "cu'c'tguwn'qhl'r tqm'pi gf "wug"qt'i gpgtclnf gvgtktcvkp'f qgu'pqv. 'kp'yj g'qr kpkp'qh'yj g' Rtqlgev'O cpci gt. 'eqphqto "v'yj g'r ct'kwrt' t'gs wtkgo gpw'ugv'qwl'p'y ku'erwug. 'uj cmi'p'v'dg'wugf'O"

Vj tqwi j /dqnu'qt'v'gu'y kmpqv'dg'r gto kwgf 'kp'hs wlf /tgckpkpi "uw'ewtgu'O'Vj g'Eqpvtcev'qt' u'j cmi'wug'qpn' " uwej "dqnu'qt'v'gu'cu'ctg'ecr cdrg'qh'dgkpi "tgo qxgf "kp'y j qrg"qt' "kp"r ctv'uq' yj cv'pq' r ctv'tgo clpkpi " go dgf f gf "kp" yj g'eqpetgvg' u'j cmi'dg'pgctgt' yj g'uw'heg'qh'yj g'eqpetgvg' yj cp' yj g'ur gekhgf "y kempgu'qh' eqxgt'v'yj g'tgphqtgo gpv'O"

Dgco "uqhl'ku'uj cmi'dg'gt'gevgf' yj kj "cp'w' y ctf "eco dgt'qh'7"o o "ht"gej "5"o g'v'gu'qh'ur cp'O"

Vqr 'htqo y qtnluj cmi'dg'eqwpgty gli j v'gf "qt"qy gty kug'cpej qt'gf 'ci clpu'lv'wv'kpcn'y

Dqzgu'ht'htqo kpi "j qrgu'uj cmi'dg'eqputwv'gf "uq'cu'v'q' dg'gcul' "tgo qxcdrg'y kj qw'f co ci kpi "y g' eqpetgvg'f wtkpi "tgo qxcn'O Vj g{ "uj cmi'dg' r tqrgtn' "xgpvgf "v" r gto k'yj g'gu'ecr g'qh'gpv'cr r gf "ck. "cpf" u'j cmi'dg'ecr cdrg'qh'dgkpi "ugcrf. "uw'dugs v'gpv' "v" r t'gxgpv'yj g'huu'qhl' tqw'O'Vj g'wug'qh'r qn' uv' t'gpg" d'qemu'ht' yj g'htqo kpi "qhl' qrgu. 'ukp'kpi u. 'gve'Oy kmpqv'dg'cm'y gf "gze'gr v'd{ 'gzr t'gu'r gto ku'kqp'qh'yj g' Rtqlgev'O cpci gt'O"

Qp'cm'gzv'gtpcn'gf i gu'tkugtu'qh'yj g'eqpetgvg'42"o o "ej co hgtu'uj cmi'dg'htqo gf'O"

Qr gpkpi u'ht'kp'ur gev'kqp'qh'yj g'kpu'f g'qh'dgco . 'y cm'eqnw p'cpf "uko kct'htqo y qtnl'cpf "ht'ergcpkpi / qw' r wtr qugu'uj cmi'dg'htqo gf "uq' yj cv'yj g{ 'ecp'eqpxgpkp'v' "dg'emugf "dghqtg'yj g'r melpi "qh'eqpetgvg'O"

Cml'r tqru' u'j cmi'dg' uwr r qtv'gf "qp" cf g'w'v'g' uqrg' r r'v'gu' cpf " u'j cmi'pqv' dgct' f'kt'gevf "qp"qt'ci clpu'v' eqpetgvg'O'Vj g{ "uj cmi'dg'ecr cdrg'qh'dgkpi "t'grgcugf "i gpv' "cpf" y kj qw' u'j qen'htqo "y g' uwr r qtv'gf" htqo y qtn'O'P q'cr r r'kpeg'ht' uwr r qtv'kpi "y g'htqo y qtnl'uj cmi'dg'dv'kn'kp'v' yj g'r gto cpgpv'utwewt'g' y kj qw' yj g' Rtqlgev' O cpci gt'u' r t'kqt' cr r tqxcn'O Rtqr u'ht' w'r gt'ngxgn' uwr r qtv' u'j cmi'dg' r r'ceg'f " f'kt'gevf "qxgt' yj qug'cv'hu'y gt'hxgn. 'cpf "y g'hu'y gto qu'r tqru' u'j cmi'dg'ct'w'qp' y qtnl'uw'helepv' "o cwt'g" v'q'ectt{ "y g'htcf'O"

"

Hqto y qtn'uj cml'dg'wej "cu'vq'cmjy 'hqt'ku'tgo qxcn'y kj qw'fco ci lpi "y g'eqpetgv."cpf "lp'y g'ecug'qh' uwr gpf gf "hmqtu."hqt "y g'tgo qxcn'qh'y g'dgco "ukf gu"cpf "urcd"uqlhku'y kj qw'fkuwtdlpi "y g" dgco / dqwqo "dqctfu"cpf "y gkt'r tqr uO'

"

Dghqtg"eqpetgkpi ."y g"ctgcu"y j lej "ctg"lpvgpf gf "vq"tgegkxg"y g'eqpetgv"uj cml'dg'engcpgf "d{ "lgwkipi " y kj 'eqo r tguugf'ckt."cpf "cnly cvgt"cpf "gzvcpqgwu'o cvgtkcnlgo qxgf O'

"

Y j gtg'ko dgt "ku"wguf "hqt'hqto y qtm'k'uj cml'dg'r tqr gtn{ "ewt gf ."hgg"htqo "y ctr ."utcki j v"engcp"cpf " hgg" htqo "hqug'hpqwuO'

Y j gtg'o gcnlhqto u'ctg'wguf "hqt'hqto y qtm'y g{ "uj cml'dg'qh'y g'v{ r g'utgpi y gpgf "d{ "lpvgo gf kvgt'ldu" qt'etquu'dtcelpi O'

"

O qxkpi 'hqto y qtnlo c{ 'dg'wguf 'y j gtg'lp'y g'qr kpkp'qh'y g'RtqlgevO cpci gt'k'ku'cr r tqr tkvgO'

"

Sawn Formwork"

Ucy p'hqto y qtn'uj cml'r tqf weg"cp"qtf lpet{ "ucpf ctf "qh'hpkuj "eqpukvgp'y kj "pqto cni' qqf "r tceveg'hqt" wug" y j gtg'y g'hceg'qh'y g'hpkuj gf "eqpetgv'y knlpqv'dg'gZR qugf O'Vj g'hceg'lp'eqpcev'y kj "y g'eqpetgv"uj cml'eqpukv' qh'ucy p'ko dgt "dqctfu"uj ggvo gcnlqt"qv gt'cr r tqxgf "o cvgtkcnlO'

"

Wrought Formwork"

Y tqwi j v'hqto y qtn'hqt"wug"qp"gzr qugf "hcegu"cpf "y cvgt"tgvcplpi "hcegu'uj cml'r tqf weg"c"j ki j "ucpf ctf " qh' hpkuj "eqpukvgp'y kj "y g'dgu'r tcevegO'Vj g'hceg'lp'eqpcev'y kj "y g'eqpetgv"uj cml'eqpukv'qh'y tqwi j v' cpf "y lenpguugf "dqctfu"vpi wgf "cpf "i tqxgf "qh'pqv'ngu"y cp"52"o o "hpkuj gf "y lenpguu."htco gf "r n'y qqf " qt"o gcnl'rcpgnu"qt"qv gt'cr r tqxgf "o cvgtkcnlO' Lqkpw'dgy ggp"dqctfu"cpf lqt"rcpgnu" uj cml'dg'cttcepi gf "lp"c" vpkhqtO' r cwgtpO'

"

Special Wrought Formwork"

Ur gekcn'y tqwi j v'hqto y qtn'uj cml'r tqxkf g"y j ki j guv'ucpf ctf "qh'hpkuj "y j gtg'y g'hceg'qh' y g'hpkuj gf " eqpetgv'ku'vq'hqto "c'r ctvlewrt "hgcwtgO'Vj g'hceg'lp'eqpcev'y kj "y g'eqpetgv"uj cml'eqpukv'qh'rti g"uo qqy " uj ggw."wprguu"qv gty kug"ur gekhgf ."cttcepi gf "lp"cp"cr r tqxgf "vpkhqtO' r cwgtp."y kj "lqkpw"eqkpek lpi "y kj " r quikdr'cte j kgewtcnlhgcwtgu."ukmu."y lpf qy "j gcf u"qt'ej cpi gu'lp'f kgevkp"qt'uwthcegO' Ceewtcvg'cnli po gpv'qh' cml'lqkpw'uj cml'dg'o clpckpgf O'Y tqwi j v'dqctf lpi "cpf "ucpf ctf "uvggnl'rcpgnu"uj cml'pqv'dg'wguf "wprguu'ur gekcn' " hceg O'

"

Tolerances"

"

Wprguu" qvj gty kug" kpf lecygf "qp" yj g" ftcy kpi u" yj g" vqrqtcpegu" qh' yj g" hpkuj gf "eqpetgw" y kj "tgu gev" vq" yj g" f lo gpukqpu" yj qy p" qp" yj g" ftcy kpi u" yj cmlpqv'gzeggf "yj g" hko ku'ugv'qww'kp" Vcdng" 5070

"

Table 3.5 Tolerances of Dimensions for Finished Concrete"

Kgo u"	Vqrqtcpegu" o o +"
Qxgtcmf lo gpukqpu' cpf "	07"
Ngxgnu"	
Eqnwo p' uk gu	07"
"	
+ "Dgco 'uk gu	
..	
Xgt vccn' hkgu" qww' qh' r nwo d"	7" o o "037" o o "kp" gxgt { "37" o "j gki j v"

Gzegr v' yj cv' kp" yj g" ecug" qh' Ucy p" Hqto y qtm' yj g" f lo gpukqpu" qh' yj g" hpkuj gf "eqpetgw" yj cml' dg" pqv' ngu" yj cp" yj qug' yj qy p" qp" yj g" ftcy kpi u'

"

Striking and Removal"

Vj g' tgeqo o gpf cv' kpu" ug' v' qww' kp" Vcdng" 508" ctg' i kxgp" cu' c' o kpo wo ' tgs wktgo gpv' hqt' utn' kpi ' hqto y qtm' "

"

"

Table 3.6 Striking of Formwork"

Kgo "	Uwr j cvg" Tgukn' kpi "	Tcr kf "	Rqt v' cpf "
	cpf " Qtf k' pct { "	J ctf gpl' kpi "	Rq q' r' pc"
	Rqt v' cpf " Ego gpv'	Ego gpv' P qto cni'	Ego gpv' qt "
	EGO "Kv" MU" 3947"	Y gc' yj gt * 38qE"	EGO " KX" vq"
	P qto cni' Y gc' yj gt "	cpf 'cdq' xg+ "	MU' 3947"
	* 38qE" cpf " cdq' xg+ "	F c { u"	
Dgco "Uk' gu. "Y cmu. 'Eqnwo pu"	3"	3"	3"
Urdu" * r tqr u' rgh' v' p' f gt+ "	6"	5"	7"
Dgco "Uq' hku" * r tqr u' rgh' v' p' f gt+ "	9"	7"	; "
Tgo qxcn' qh' r tqr u' vq' "urdu"	: "	7"	32"
Tgo qxcn' qh' r tqr u' vq' "dgco u"	38"	: "	3: 07"
Uj chu' cpf "Vwppgnu"	3"	3"	307"

Vj g" tgo qxcn' qh' r tqr u' vq' "urdu" cpf "dgco u" yj cm "h' f' k' g' ev' f " d { " yj g" Rtql' gev' O cpci gt. "dg' uwdl' gev' vq" uc' w' l' c' ev' qt { ' tgu' wnu' qh' yj g' t' gr' x' cpv' 9/ f c { " ewd' g' et' wuj kpi "vgu' u' "

"

Vj g" cdq' xg" utn' kpi " v' lo gu' ctg' " hqt" p' qto cni' eqpf k' k' ppu" cpf " dgh' qtg' f g' el' k' kpi " qp" yj g" cew' cni' v' lo g' hqt" g' cej " ecug. " yj g' Eqp' t' c' ev' qt' yj cni' eqp' u' k' gt' cpf "gz' v' p' f " yj g' t' g' k' f " cu' v' c' dng' f " h' - 2/ "

"

"

vj g"ur cp"qh"vj g"utwewtcrl'o go dgt"wpf gt"eqpukf gtcvkqp"gzeggf u"8"o gvtgu"lqt"dgco u"cpf "5"o gvtgu"lqt"urcdu" Cp"cf f kklqpcrl'r gtlqf "qh"qpg"fc{ "lqt"gcej "722"o o "qh"cf f kklqpcrl'ur cp"uj cml'vj gp"dg"cmqy gf ="

"

vj g"f gcf "mqcf "qh"vj g"utwewtcrl'o go dgt"wpf gt"eqpukf gtcvkqp"lqto u"c"rcti g"r tqr qtvkqp"qh"vj g"vqcnlf guki p" mqcf ="

"

eqpurtwewkqpcrl'mqcf u"eqo lpi "qp"vq"vj g"utwewtcrl'o go dgt"wpf gt"eqpukf gtcvkqp"ctg"dgkpi "r rcegf "uqqp"chgt"vj g" eqpetgvkpi "qr gtcvkqpu"cpf "vj gug"mqcf u"lqto "c"rcti g"r tqr qtvkqp"qh"vj g"vqcnlf guki p"mqcf ="

"

vj g'ugvkpi "qh"vj g"eqpetgv"j cu'dggp'tgvctf gf "lqt"cp{ 'tgcuppu="

"

vj g'vgo r gtcwtg'hcmu'dgmuy ": qEOCp"cf f kklqpcrl'r gtlqf "qh"j cml'c"fc{ "uj cml'dg"cf f gf "lqt"gcej "fc{ "qp"y j lej "vj g" vgo r gtcwtg'hcmu'dgmuy ": qEOHqt"vgo r gtcwtgu'hcmkpi "dgmuy "5qE"vj g'cf f kklqpcrl'r gtlqf "vq"dg"cf f gf "uj cml'dg"qpg" fc{ "lqt"gcej "fc{ "qp"y j lej "vj g'vgo r gtcwtg'hcmu'dgmuy "5qE="

"

cp{ "eqo dlpcvkqp"qh"vj g"cdqyg"r qlpw"cpf "qyj gt"eqpukf gtcvkqpu"y j lej "y qwr"ecml"lqt"uwej "c"r tgecwvkqp"vq"dg" vngp0'

"

vj g"ur cp"eqpetgpgf "ku'r ctv"qh"c"eqpvkpwqvu"ur cplkpi "u{ ugo "cpf "vj g"cf lcegpv"vy q"ur cpu"j cxg"pqv'dggp"ewt gf " uwlhlekpvv'0'

"

kphqto cvkqp'tgi ctf lpi "rctci tcr j "d"cdqyg"y kmldg"lwr r rkgf "d{ "vj g'Rtqlgev'O cpci gt=cp{ "qyj gt"fc guki p" kphqto cvkqp'tgrgxcpv"vq"vj g'cdqyg"uj cml'dg"qdvclpgf "d{ "vj g'Eqvtcevqt"lqto "vj g'Rtqlgev'O cpci gt0'

"

Concreting"

Requirements"

Vj g'hpkuj gf "eqpetgv"uj cml'dg"f gpug."f wtcdrg."ko r gtxkqu"vq"vj g"lpi tguu"qh'y cvgt."lqgg"lqto "etcemu" cpf "j qpg{ eqo dlpi ."cpf "tgukwcpv"vq"y gct"cpf "o kf "ej go lecn'cvcen0' Ur gekcn'eqpetgvu"y kmldg"vj g" uwdlgev"qh"vj gkt"qy p'r ctvewtct"ugevkqpu"qh"Ur gekcn'Eqpetgv0'

"

Transporting"

Eqpetgv"uj cml'dg"tcur qtvgf "vq"vj g'r rceg"qh'hkpcnlf gr quks'd{ "cr r tqxgf "o gcpu0'

"

Dettqy u."ur cf gu"cpf "qyj gt"gs wkr o gpv"wgf "lp"vj g"r tqegu"qh"tcur qtvkpi "eqpetgv"uj cml'dg" vj qtqwi j n{ " engcpgf "dghqtg"gcej "fc{ "u"y qtm'qt"chgt"c"nqpi "lpvgtt wvkqp"cpf "vj g{ "uj cml'dg"lqgg"lqto "j ctf gpgf "eqpetgv0'

"

Eqpetgv"uj cml'dg" tcur qtvgf "cu" uqqp"cu"r quukdr" chgt" o kzkpi ." d{ "o gvj qf u"y j lej "y km' r tngxgpv"vj g" ugi tgi cvkqp."lquu'qt"eqpxco lpcvkqp"qh"vj g'lpi tgf lgpvu0'

.

"

"

Rtqr gt "dtkf i kpi "cttcpi go gpwuhqt "tchle"qxgt "tgphqtego gpv'uj cml'dg"r tqxkf gf "uq"vj cv'vj g"tgphqtego gpv' ku'pqvf kuqtvf .f co ci gf "qt'f kur rnegf O'

"

Y j gtg"cr r tqxcl'ku"qdvclpgf "hqt"eqpetgvg"vq"dg"eqpxg{ gf "d{ "ej wgu."vj gug'uj cml'j cxg"cxg"uqr g"pqv'gzeggf kpi " 3"xgtvlecl'vq"4"j qtk qpvcn"uwej "cu'vq"gpuwtg"cxg"eqpvpwqwu"huqy "qh'eqpetgvgO' Cf f kkpcl'y cvgt" uj cml'pqv'dg" kvtqf wegf "vq"cuukv'vj g'huqy O'Kf'gr qukkqp'ku'vq"dg'kpvgto kvgpv'vj g'ej wgu'uj cml'dg'cttcpi gf "vq'f kiej cti g'kp'vq"cxg" uvtci g"j qr r gtO'kp'pq'ecug'y kml'c"erget "hcm'qh'o qtg"vj cp"3"o "dg'r gto kvgf "cv'vj g'f kiej cti g'gpf "qh'vj g'ej wguO'

"

Y j gtg"cr r tqxcl'ku"qdvclpgf "hqt"r wo r kpi "vj g"eqpetgvg."vj g"r wo r "o cpwlcwgtu"tgego o gpf cvkqpu" uj cml' dg'hqmqy gf O'Vj g'r wo r u'wugf "uj cml'dg'qh'cf gs wvg"ecr cekf "cpf "r qy gt "vq"gpuwtg"f gkxgt { "qh'c" eqpvpwqwu" uwr n{ O'Vj g'Eqpvtcevqt "uj cml' tqxkf g'cf gs wvg"cngrpcvkg"cttcpi go gpwuhqt "tcpu qt vpi "vj g'eqpetgvg'kp'ecug" qh'c"dtgcnf qy p'qh'vj g'r wo r kpi "gs vkr o gpvO'

"

Y j gtgxt "tcpu qt v'qh'eqpetgvg'ku"kvgttwr vgf "hqt"cp{ "hpi vj "qh'vko g"*r gtlkf u'qh'qxgt "j cml'cp"j qwt "uj cml' dg" tgcvgf "cu'wej +vj g'ej wgu."r wo r u'kr gu'cpf "cp{ "qvj gt"o gcpu'qh'f kntkdwkqp'uj cml'dg'vj qtqwi j n{ "huwj gf "qww" cpf "engcpgf O'Vj gug" uj cml' cnuq"dg" huwj gf "qww"o o gf kvgn{ "r tkqt" vq" tguwo r kvqp'qh'eqpetgvg'pi "cpf "uj cml'dg" ngr v'htgg"htqo "j ctf gpgf "eqpetgvgO'Cml'y cuj y cvgt "wugf "uj cml'dg'f kiej cti gf "qwwkf g'vj g'htqo y qtnl'cpf "erget" qh'cp{ "htguj n{ "r negf "eqpetgvgO'

"

Placing and Compaction"

P q"eqpetgvg'uj cml'dg'r negf "vpkl'vj g'Eqpvtcevqt"j cu'qdvclpgf "cr r tqxcl'vq"fq"uq'htqo "vj g'Rtqlgev'O cpci gtO' Y j gp"vj g'Eqpvtcevqt "kvpgf u"vq"r negf"eqpetgvg."j g'uj cml'kphqto "vj g'Rtqlgev'O cpci gt "kp" uwlhlekpv" vko g" vq"gpclrg"j ko "vq"kpur gev"vj g"tgphqtego gpv."htqo y qtnl'cpf "uwlhceg"qp" y j kej "vj g'eqpetgvg'ku'vq"dg'r negf" cpf "vj g'Eqpvtcevqt"uj cml' tqxkf g"cmhceklkgu'htqo "uwej "kpur gevklpO'

"

Vj ku"cr r tqxcl'uj cml'dg"uqwi j vld{ "r tguvpkpi "vy q"eqr lgu"qh'vj g"eqo r rvgf "oUtwewtcl'Eqpetgvg"Cr r tqxcl' Hqto o"UECH"vq"vj g'Rtqlgev'O cpci gtaiTgr tguvpvkg"cv'rgcu'46"j qwtu'dghqtg'kvpgf kpi "vq" eqpetgvgO'Ugg" uco r rg'r ci g'45+O'

"

Eqpetgvg"uj cml'dg'r negf "y kj kp"52"o kpwgu'qh'o k kpi ."vq"vplhtqto "rgxgn"kp"n{ gtu'pqv'gzeggf kpi "722"o o " f ggr "kp"uwej "o cpgt"cu'vq"cxqkf"ugi tgi cvkqp."cpf "gcej "n{ gt"uj cml'dg"eqo r cevgt "d{ "o gcpu'qh' cr r tqxgf " xldtcvqtu"vq"htqo "c"f gpug"o cvgtcl'htgg"htqo "j qpg{ eqo d kpi "cpf "qvj gt"drgo kuj guO' Eqo r cevklp"d{ "j cpf " o c{ "dg'wugf "qpn{ "y kj "vj g'r tkqt"cr r tqxcl'qh'vj g'Rtqlgev'O cpci gtO'

"

Cv'rgcu'qp'kvgtpcn'xldtcvqt"uj cml'dg'qr gtcvgf "hqt"gxgt { "hqt"ewdle"o gvtgu'qh'eqpetgvg'r negf "r gt"j qwt" cpf "cv' rgcu'qp'g'ur ctg"xldtcvqt"htq"gxgt { "vj tgg"uj cml'dg"o clpvcpgf "qp"Ukg"kp'ecug"qh'dtgcnf qy p" f wt kpi "eqpetgvg'pi " qr gtcvklpuO'

"

Xldtcvklp" vko g."vj g"ghgevg"tcf kwu"cpf "qvj gt" xldtcvklp"ej ctcevgtklneu"uj cml'dg"kp"ceeqtf cpeg"y kj "vj g" xldtcvqt"o cpwlcwgtu"tgego o gpf cvkqpuO'

K'kvgtpcn'xldtcvqtu'ctg"wugf ."vj g{ "uj cml'dg'y kj f tcy p"ko o gf kvgn{ "y cvgt "qt"cxg"vj kp'hko "qh'o qtvt"dg' kpu" vq" cr r gct"qp"vj g'uwthceg"qh'vj g'eqpetgvgO' Y kj f tcy cnl'uj cml'dg'ecttkgf "qwwhuqy n{ "vq"cxqkf "ecxkcvklpO'

"

"

Kpvtprcl'xkdtcvqtu"uj cml'pqv'dg"lpugtvgf "dgy ggp"nc{gtu"qh'tgkphqtego gpv'rguu"vj cp"qpg/"cpf "qpg/j c nh"
vko gu"vj g"fkco gvg"qh'vj g"xkdtcvqtu"cr ctv"Eqpcev'dgy ggp"xkdtcvqtu"cpf "tgkphqtego gpv'cpf "xkdtcvqtu"cpf "
hqto y qtn'uj cml'dg'cxqkf gf 0

"

Xkdtcvqtu'uj cml'pqv'dg'wugf "vq"o qxg'eqpetgvg'htqo "r nreg"vq"r nreg'lp"vj g'hqto y qtn0

"

Y j gtg"vy q"f kulpv'dcvej gu"qh'eqpetgvg "r nregf "cv'f khtgtpv'r gkqf u"qh'vko g"cpf "hqto lpi "r ctv'qh'vj g"uco g"
eqpetgvkpi "qr gtcvkp"ctg'tgs wktgf "vq'dg'hqto gf "b qpqikj kcm{"y kj "gcej "qyj gt."vj g'b qtg'b cwtg'eqpetgvg'uj cml'
dg"r gpgtcvgf "d{"vj g"xkdtcvqt"vq"cu'whtkelpv'f gr vj "vq"ghgevr'rcu'ke"o qxgo gpv'dgy ggp" vj g"vy q"dcvej gu0
Y j gtg"vj g"eqpetgvg"fqgu"pqv'tgur qpf "vq"vj g"cevkp"qh'vj g"xkdtcvqt."k'uj cml'dg" f ggo gf "vq"j cxg'ugv."cpf "
pq"htvj gt"f kwtcpeg"y kn'dg"r gto kwgf 0Wprguu"qyj gty kug'lpwtvexgf "d{"vj g"Rtqlgev'O cpci gt"vj g'eqpf kkp"
uj cml'dg'tgcvgf "cu'ht"cu'Suxr r ci g"qh'y qtns"cpf "vj g'o ctt{lpi "vr "qh'vj g"vy q'eqpetgvgu'uj cml'dg'ghgevgf "qpn"
y j gp'dqvj 'eqpetgvgu'j cxg'r tqrgtn'ugv0

"

K'gzvgtprcl'xkdtcvqtu"ctg"wugf."vj g'hqto y qtn'uj cml'dg'utqpi "gpqwi j "vq"y kj ucpf "vj g'hqtegu"qh'xkdtcvkp0

Vgo r qtct{"qt"r gto cpgpv'uxrr ci gu'qh'y qtn'uj cml'dg'o cf g'qpn{"ci ckpuv'uxr "gpf u"*Enwug'527+0

Wprguu"qyj gty kug'ur gekhgf."dghqtg'r nelpi "pgy "eqpetgvg"ci ckpuv'eqpetgvg"y j kej "j cu'ctgcf {"j ctf gpgf."vj g"
hceg"qh'vj g'qrf gt"eqpetgvg'uj cml'dg'r tgr ctgf "d{"vj g'tgo qxcn'qh'cp{"nkcpeg"cpf "mqug"ci i tgi cvg."cpf "uj cml'dg"
engcpgf "d{"c'lgv'qh'eqo r tguugf "ckt0

"

Y j gp"f kur nregtu"ctg'r gto kwgf "vq'dg'wugf "vj g{"uj cml'dg'vq"r nregf "vj cv'pq"f kur nregt'ku'y kj kp'522"o o "qh'cp{"
hpkuj gf "hceg"qt"y kj kp'722"o o "qh'cp{"qyj gt"f kur nregt0 Qp"eqo r ngvkp"qh'cp{"rhtv"f kur nregtu"uj cml'dg'vq"
cttcpi gf "vj cv'vj g{"rtqlgev'ht"j ch'vj gkt"j gli j vcdqvg'vj g'whtceg0

"

STRUCTURAL CONCRETE APPROVAL FORM (SCAF)

***Vq'dg'hkrf'kp'fwrlecvg'dchgtg'cpf'eqpetgvg'r qwt+ "

Eqptcevf'F gcku'

Iqd"_____Iqd'P q'"_____ "

Eqptcevt"_____Ukg'Gpi kpggt'"_____ "

Ugevkp'cpf'Eqpetgvg'F gcku'

Ugevkp'TDqen'"_____ "

Ngxgn'_____O go dgt'"_____ "

F cvg'T'Vko g'qh'Tgs wguva"_____F cvg'T'Vko g'qh'Rqwt'"_____ "

Eqpetgvg'Ernuu"_____O kz<F guli p'TP qo kpci*f grvg'qpg+Dcvj kpi <Ukg'TTgcf { 'O kz *f grvg"
qpg+'"

Ej geniNku'

Description of Check	Checked	Remarks
Reinforcement Fixing Chairs / Links, etc.	.	.
Reinforcement Cover	.	.
Shutters / Stop ends	.	.
Shutter Props	.	.
Tie Bolts	.	.
Plumbness / Slope	.	.
Dimensions	.	.
Line and Level	.	.
Preparation hacking of joints	.	.
Water Stops	.	.
Moulds for Cubes	.	.
Materials for Curing	.	.
Any other checks (specify)	.	.

"

"

"

Crrtqxcn'

"

Crrtqxf "

PqvCrrtqxf "

"

Fcyg<_____ Uki pcwtg<_____ "

"

P qvg<Crrtqxcn'd{ 'j g'Rtqlgev'O cpci gt"qt"j ku'Tgrtgugpvcxg"f qgu'pqv'tgkxg'y g'Eqpvtcevqt"qh"
cp{ "qh" j ku'eqpvtcewcn'qdrki cvkpu0

"

Concreting in Deep Lifts"

Nko kcvkqpu"

"

Cp{ "j gki j v'gzeggf kpi "40"o "h'qo "y j lej "eqpetgvg"ku'r qwtgf "kpq'hqto y qtn'v'hqto "ugevkqpu"qh'y cml'y km' dg" eqpuk'gtgf "y kj kp'yj g'vgo u'qh'y ku'Erwug0"

"

Eqpetgvg" kp" eqnwo pu" o c{ " dg" r nregf " vq" c" j gki j v' qh' 60" o " y kj " ectghwi' r nreki " cpf " xldtcvkp" cpf " ucukhcevt{ "tguvnu0Y j gtg'yj g'j gki j v'qh'yj g'eqnwo p"gzeggf u'60"o "uwkcdng"qr gpkpi u'o wuv'dg'rg'h'kp" yj g" uj wwtu'uq'yj cv'yj g'o czko wo "h'h'ku'pqv'gzeggf gf 0"

"

F ggr "h'h'eqputwevkp"y km'pqv'dg'r gto kwgf "y j gtg'yj g'tgkphqteki "dctu'ctg'vq'dg'r nregf "enugt'yj cp'322" o o " vq"qpg"cpqyj gt "kp"cp{ "f kgevkp"qt."y j gtg'yj g'engct"y kf yj "cv'yj g'r qkp'qh'cf o kwpki "yj g'eqpetgvg" dgvy ggp" qpq'nc{ gt"qh'tgkphqtego gpv'cpf "cpqyj gt"*qt "kp"yj g'ecug'qh'ukpi n{ "tgkphqtegf "y cml'dgvy ggp" tgkphqtego gpv' cpf "hqto y qtm'ku'hgu'yj cp'422"o o 0"

"

Vj g'o gj qf "uj cml'qpn{ "dg'wugf "y j gtg'v'kcn'ugevkqpu'tgxgcrgf "yj cv'kp"yj g'Rtqlgev'O cpci gt'u'qr kpkp'k'ecp'dg" ucukhcevtk{ "go r nq{ gf ."kp"y j lej "ecug'yj g'tgs vktgo gpv'qh'yj ku'Ur gekhcevkp'uj cml'cr r n{ "gzeqr v' y j gtg'yj g{ " ctg'kp'eqphlev'y kj "yj g'tgs vktgo gpv'qh'yj ku'r ct'kwrt'ercwug."y j gp'yj g'rcwgt'uj cml'tgxck0"

"

Eqpetgvg"

"

Kp"qtfgt"vq"r txxgpv'ugi tgi cvkq"qh'ci i tgi cvgu."eqpetgvg"o kzu'uj cml'dg"f guki pgf "hqt"kpctgcugf "eqj gukqp." qt."y j gtg'uwkcdng."qp"ci cr/i tcf gf "dcuku0Vj g'wug'qh'cr r tqxgf "cf o kzwgu'o c{ "dg'o cf g'vq'cej kxxg'yj ku'gpf " *524-0"

"

Cv'yj g'uco g'vko g."yj g'o kz'uj cml'dg'uwej "cu'vq'hko k'yj g'co qwpv'qh'dnggf kpi "kp'yj g'eqpetgvg."cpf "y j gtg" kp'yj g" qr kpkp'qh'yj g'Rtqlgev'O cpci gt'yj g's wcpv'k{ "qh'h'gg'yj cvgt'tkukpi "vq'yj g'uwthceg'ku'gzeguukxg."yj g" o kz'uj cml'dg" eqtgevgf "dghqg'hwtyj gt'eqpetgkpi "ku'wvf gtcngp0"

"

Kp"qtfgt"vq"qh'ugv'cp{ "kpctgcug'kp"yj g'y cvgt/ego gpv'tcvk'cv'yj g'wr r gt'hxggu."yj g'Rtqlgev'O cpci gt'o c{ " tgs vktg" yj g'eqpetgvg"o kz"vq'dg'o qf khgf "hqt'yj g'wr r gt'f gr qukkqpu0"

"

C"unwo r "qh': 2"o o "uj cml'pqv'dg'gzeggf gf 0"

"

Tgkphqtego gpv"

"

Kp"qtfgt"yj cv'tgkphqtego gpv'ku'pqv'f kuqtvgf "qt'f kur nregf "f wtkpi "eqputwevkp"cu'c"tguvnu'qh'k'v'dgkpi "wugf "hqt" i cklkpi "ceegu'kp"qt"qww'qh'yj g'hqto y qtm'cml'pvgtugevkqpu'qh'xgt'v'ecr'cpf "j qtk qpvcn'uggn'uj cml'dg" r tqr gtn{ " h'wugpf 0"

"

"

Cnldutwekpu'ecwugf "d{ 'ur cegt "dmjenu"qt'ej cktu'ij cni'dg'gko kpcvgf 'uq'cu'vq'r gto k'cp'wpqdutwevgf "r cuuci g" hqt "vj g"eqpetgvg "vq"vj g"dqwqo "qh"vj g"hqto y qtn0Vj g"Eqpvtcevqt "o c{ "wug"urkf lpi "vko dgt "ur cegt u'kpuygcf " qh'kzgf 'eqpetgvg'qt'r r'cunke'ur cegt "dmjenu"vq'r qukskqp"vj g'tgkphqtogo gpv0

"

"

Hqto y qtnl

"

Kp"xlgy "qh"vj g"j ki j "r tguwtgu"vq"dg"gzr gevfg "Hqto "vj ku"hqto "qh'eqputwekqp"gzv'c'cwgpv'kqp"uj cni'dg"r ckl " vq"vj g"utgpi vj "cpf "ucdkkx{ "qh"vj g"hqto y qtnl"vq"vj g"rtxgpkqp"qh'mquu"qh'i tqaw"cpf "vq"vj g"rtxgpkqp" qh'kur r'ego gpv'qh'cf lcegpv'r cpgnu0

"

Vj g"wug"qh"vj tqwi j /dqnu"cpf "qvj gt "ceeguqtkgu"y j lej "o ki j v'kpvgtgtg"y kj "vj g"htgg"r cuuci g"qh'eqpetgvg" dgwy ggp"cpf "ctqwpf "vj g'tgkphqtogo gpv'uj cni'dg"tgf wegf "vq"v'c"o kpklo wo "d{ "vj g"wug"qh"r tqrgtn{ " f guki pgf " hqto y qtn0

"

Eqpetgkpi "

"

Rctkewrt "cwgpv'kqp"uj cni'dg"r ckl "vq"vj g"eqpetgkpi "qh"vj g'kpkkl'ugev'kpu'cv'vj g"dqwqo "qh"vj g"hqto y qtnl" vq" r t'xgvp'ugi tgi c'kqp"ecwugf "d{ "tgdqwpf "Hqto "vj g"j ctf "uwlhceg"qh"vj g"nkengt."dcug"cpf lqt"mgy gt"ugev'kpu0 Vj g'kpkkl'gr qukskpu'ij cni'vj gtgqtg'dg'o cf g'd{ "wukpi "twpnkpi "o gy qf u."qt'd{ 'r r'ekpi "vj g"eqpetgvg"vj tqwi j " qr gpkpi u"hqto gf "lp"vj g"ukf gu"qh"vj g"hqto y qtn0Uwej "qr gpkpi u"uj cni'pqv'dg"j ki j gt " Hqto "vj g"j ctf "uwlhceg" vj cp"40o 0

"

Kp'qtfgt "vq'tgf wegf f k'htgpkv'cnlugwgo gpv'cpf "eqpugs wgpv'f .etcentkpi "dgwy ggp"vy q'ugev'kpu'qh'eqpetgvg"r r'ceg " cv'f k'htgpkv'kpvgtxcnu"qh'vko g."eqpetgkpi "dgwy ggp"qpg"ugev'kqp"cpf "cpqvj gt"uj cni'dg"ectt'kf "qww"qp"v'c"i cr / eqputwekqp"dcuku"Ere wug"527-0Vj g"i cr "uj cni'uwdugs wgpv'f "dg"eqpetgvgf "kp"f k'ukpev'khu"gej 'pqv'gzeggf kpi " 40o "kp"j gli j 0Hqt"vj g'uco g'tgcuqp."y j gp"eqpetgkpi "vy q'cf lcegpv' ugev'kpu'r r'ceg "cv'vj g'uco g"vko g"dw' qh'f k'htgpkv'j gli j w"*g0 0'y j gtg"dqz kpi "qww"ku"lpenf gf + "vj g" f k'htgpeg'kp"j gli j v'uj cni'pqv'gzeggf "37' "qh" vj g'j gli j v'qh'vj g'f ggr gt "ugev'kqp0

"

Eqpetgkpi "Hqto "vj g'wr r gt'lxgri'qh'vj g'hqto y qtnl'ij cni'dg'ectt'kf "qww"lp'uwej "o cpggt'cu'vq'gpwtg"vj cv'eqpetgvg" ku'cf o kvgf "egpvtcm{ "dgwy ggp"vj g"lcegu"qh"vj g'hqto y qtn0Hqt"vj ku'r wtr qug"vj g"Eqpvtcevqt "uj cni'o cng" wug" qh'twpnkpi "qt"uj cni'wug"hwppgr'uj cr gf "j qrr gtu"gzv'p'kpi "hqt"v'c'f k'wcepg"qh'pqv'ngu" vj cp"30'o "kp"v'vj g" hqto y qtn0 C" uwlh'ekgpv' pwo dgt "qh" uwej "j qrr gtu" u'ij cni' dg" r tqxkf gf ." cpf lqt " vj g{ " u'ij cni'dg"ecr c'rng"qh" o qxgo gpv'c'rupi "vj g'rgpi vj "qh"vj g'hqto y qtnl"vq"gp'cdng"vj g"eqpetgvg"vq"dg"r r'ceg "kp" eqp'ki wqwu"j gcr u'cv'vj g" dcug"qh'vj g'r qwt0 Uwej "j gcr u'ij cni'pqv'gzeggf "682"o o "kp"j gli j 0

"

Y j gtg"gzegu'kxg" dnggf kpi "ku"kp" g'xkf gpeg."vj g"gzegu"y cvgt" u'ij cni' dg" tgo qxgf "dghqtg"r r'ekpi "hwtvj gt" eqpetgvg0

"

Eqo rcev'kqp"

"

Eqo rcev'kqp" u'ij cni' dg" ectt'kf "qww"y j gtg"r quikdr" d{ "o cpwen"qr gtcv'kqp"qh"r qngt" xkdtcv'qtu"y kj kp" vj g" hqto y qtn0Y j gtg"vj ku"ku"pqv'r quikdr"r qngt" xkdtcv'qtu"u'ij cni'dg"uwur gpf gf "kp"uwlh'ekgpv'pwo dgtu"vq" gpwtg" wpl'kqto "eqo rcev'kqp"cr'uppi "vj g'rgpi vj "qh"y cni'tgegl'kpi "vj g"eqpetgvg."y kj qww"vj g'pggf "hqt"vj gk"y kj f tcy cni' cpf "tg/kpugt'kqp0 Vj g"o gcpu"qh'uwur gpukqp" u'ij cni' dg"uwej "vj cv' vj g" xkdtcv'qtu"o c{ "dg"r tqi tgu'kxgn" cpf "

"

u{ ugo cvecm{ "rhgf" cu" yj g" eqpetgvkpi "r tqeggf u" vq" gpuwt g" yj cv" gxgt { "ugevkqp" qh" r megf "eqpetgv" ku" o cttkgf "
kpq" cf lcegpv" cpf "wpf gtn{ kpi "ugevkpuo"
"

Vj g" wug" qh" xkdtcvqtu" vq" tgr qukkqp" f gr qukgf " eqpetgv" ku" r tqj kdkgf O Uwtceg" xkdtcvqtu" cwcej gf" vq" yj g"
hqt o y qtno c{ "dg" wugf "qpn{ "vq" uwr r ngo gpv yj g" o ckp" o gcpu" qh" eqo r cevkkpO"
"

Continuous Concreting"

Y j gt g" yj g" Eqptcevt f guktgu" vq" wug" eqpvkpwu" eqpetgvkpi " o gyj qf "kp" rcti g" ugevkpu" tchu" cpf "y cmu" j g" uij cni"
uwo k" c" y tkwgp" tgs wguv" vq" yj g" Rtqlgev" O cpci gt "hqt" cr r tqxcnO" k" yj g" tgs wguv" j g" uij cni" cwcej " f gvcku" y j lej "
uj cni kpenw" g" dw" pqv" dg" hko kgf "vq" yj g" hqmjy kpi " < "
"

Vqwrko qwpv" qh" eqpetgv" vq" dg" r megf "kp" yj g" uij kmo"
Uqenlqh" cr r tqxgf "eqpetgv" o cvgtkcu" qp" ukgo"
Ecr cek{ "qh" yj g" dcej kpi " r rcpO"
P wo dgt "cpf "v{ r g" qh" tvenbo kzgu" vq" dg" f gr m{ gf "hqt" yj g" gzgtekg" cpf "o qxgo gpv" hqi kuleuO"
P wo dgt "qh" unkgf "cpf "qvj gt" o cpr qy gt "vq" dg" f gr m{ gf "hqt" yj g" gzgtekg" kp" uij kmo"
P wo dgt "cpf "ecr cek{ "qh" r rcpv" vq" dg" wugf "kp" r mekpi "eqpetgv" r wo r u" xkdtcvqtu" dwengv" gve+O"
O gyj qf "u" qh" bo qpkqt kpi "cpf "f gcnkpi "y kj " yj g" j gcv" qh" j { f tcvkkpO"
F gvcku" qh" r tqvevkp" ci ckpuv" tckp" cpf "hmqf y cvgtu" cpf "j qy "vq" eqr g" y kj " ko"
"

Vj g" Rtqlgev" O cpci gt " yj cni" epukf gt " yj g" cdqxf" f gvcku" cpf "qvj gt" r ctco gvtu" gO O y gcvj gt. "ucvukcevt { " tgeqtf u"
qh" ewdg" wguv" tguwmu. " cxckrdk{ "qh" cf gs wcv" y qtnkpi " ugevkpu" y j gt g" tghphqtego gpv" r mego gpv" cpf " yj g"
pgeguet { " hqt o y qtn" j cxg" dggp" cr r tqxgf " gve+ " dghqte" o cni kpi " j ku" f gekukpO" Vj g" Rtqlgev" O cpci gt " o c { "
qtf gt " yj cv" cf f kkkpcn" eqpetgv" ewdg" o qwr u" dg" o cf g" cxckrdg" cu" y gni" cu" cttcpi go gpw" dg" o cf g" hqt " ewdg"
etwuj kpi " y kj " cp" cr r tqxgf " rcdqtevt { "vq" eqr g" y kj " yj g" kpetgcugf " f go cpf O"
"

Vj g" Rtqlgev" O cpci gt " o c { " qtf gt " yj cv" yj g" eqpetgvkpi " y qtnu" dg" uwr r gf " ko o gf kcvgn{ " kh" kp" j ku" qr kpkp" yj g"
swck{ "qh" yj g" y qtnu" ku" yj tgcvgpgf "hqt" y j cvxgt " tgcucpO"
"

Hot Weather Concreting (for temperatures above 20 Degrees Centigrade)"

Eqpetgvkpi " uij cni" pqv" dg" r gto kwgf " kh" ku" vgo r gtcwtg" cv" r mekpi " ku" kp" gzeguu" qh" 57⁹E0" k" qtf gt "vq" o ckpvckp"
yj g" vgo r gtcwtg" qh" yj g" eqpetgv" dg" m y " yj ku" xcwv" yj g" hqmjy kpi " r tgecvkkpu" uij cni" dg" vcnjp" y j qm{ "qt" kp" r ctv"
cu" kputwv" gf " d { " yj g" Rtqlgev" O cpci gt < "
"

Cni" ci i tgi cvg" uqenr kgu. " y cvgt " rkpgu" cpf " cpnu" cu" y gni" cu" yj g" o kzgt " uij cni" dg" r tqvevgf " hqo " yj g" fktgevtc { u"
qh" yj g" uwp= "
"

Eqctug" ci i tgi cvg" uij cni" dg" eqqrgf " d { " eqpuwcpv" y cvgt kpi " y j gt g" r quikdg= "
"

"

O kzkpi 'y cvgt 'uj cml'dg'eqqrgf 'd{ 'y' g'cf f kklqp'qh'leg'v'q'j' g'lwqtc i g'vcpml'y j gt g'pgeguuct {-="

"

Tcr kf /j ctf gplpi 'ego gpv'uj cmlpqv'dg'wugf ="

"

Y j gtg'yj g'cdqyg'r tgecwklqpu'ctg'kpcf gs wcv'eqpetgvlpi 'uj cml'dg'ectt'kgf 'qwf'v'wtkpi 'y' g'eqqrgt'r ctu'qh'yj g'f c{ " qt'f'v'wtkpi 'y' g'pki j v'cu'o c{ "dg'f'k'gevgf 'd{ 'y' g'Rtqlgev'O cpci gt'0

"

Y j gp'yj g'ck' "go r gtcwtg'ku'cdqyg'429E'mqu'qh'o kzkpi 'y cvgt 'd{ "gxcrtcvklqp'uj cml'dg'eqpukf gtgf "kp" cttklpi " cv' yj g" co qwpv'qh'y cvgt "v'q" dg" cff gf "v'q" yj g" o kz " *Erwug" 524+0' k' qtf gt "v'q" o clpvc'p' yj g" y cvgt lego gpv' tcv'q' y kj k'p' r gto kuukdr'iko ku'cp'cr r tqxgf 'y cvgt/tgf v'wtkpi "ci gpv'uj cml'dg'lp'w'gf "k'p'yj g" o kz " *Erwug" 524+0'

"

Vj g" o czlo wo " y cvgt lego gpv' tcv'qu" kpflecvgf " kp" Erwug" 524" o c{ " dg" kpetgcugf " y kj " yj g" Rtqlgev' O cpci gt'u'r gto kuukdp'd{ "207"*qt"40' rktgu/72"mi "qh'ego gpv'f'v'wtkpi "o kzkpi . "dw'qp"pq'cee'qwpv'uj cml'y cvgt " dg'cf f gf "v'q'eqpetgvg'f'k'gevgf "qt'k'p'f'k'gevgf "qpeg'k'j' cu'gh'v'yj g'o kz gt'0

"

k'p' qtf gt "v'q" tgf weg" r tgo cwtg" f t{ kpi " qh' yj g" eqpetgvg" f'v'wtkpi " v'cpur qt'v'wtkpi " cpf " r r'ekpi . " cml' ej wgu" hqto y qtn'cpf 't'g'k'p'htego gpv' u'j cml' dg" eqqrgf 'd{ " y cvgt kpi "y j gp'r quukdr." qt'uj cml'q'yj gty kug" dg'r tqv'gevgf " hqo " yj g" f'k'gevgf 'tc{ u'qh' yj g" uwp'0' Cp{ " y cvgt "uq" wugf "uj cml' dg" tgo qxgf "d{ "lgw'kpi " y kj " eqo r tguugf 'ck' dg'htg'r'ekpi "y' g'eqpetgvg'k'p'equg'eqp'v'ce'0'

"

Cu'uqpp'cu'r quukdr' chgt "eqpetgvlpi . "y' g'hqto y qtn'uj cml'dg"utk'r gf " *Erwug" 526+ "cpf "y' g'uw'h'ceg'qh' yj g" eqpetgvg'uj cml'dg't'g'cvgf "k'p'cee'qtf'cpeg'y kj "Erwug"5270'

"

Y j gtg'f t{ kpi "y kpf u'ctg" gpeqwpv'gtgf . "y kpf "uj kgr u'uj cml'dg'r quukdp'gf "cu'f'k'gevgf 'd{ "y' g'Rtqlgev'O cpci gt " v'q'r tqv'gevg'zr qugf "uw'h'ceg'qh'yj g'v'wtkpi "eqpetgvg'0'

"

Wet Weather Concreting"

Eqpetgvlpi "f'v'wtkpi "r g'k'q'f'u'qh'eqpucpv'tclp'uj cml'pqv'dg'r gto kwgf "wprguu'ci i tgi cvg'uwqenr kgu." o kzgtu" cpf " v'cpur qt'v'wtkpi "gs wkr o gpv'cpf "y' g'ctgcu'v'q'dg'eqpetgvgf 'ctg'cf gs wcv'g'f "eqxgtgf'0'

"

F'v'wtkpi "uj qy gt{ "y gcvj gt. "y' g"Eqpvtcevqt"uj cml'gpw'gt"y' cv'y qtn'ecp"dg"eqpen'w'gf "cv'uj qtv'pq'v'leg"d{ " yj g" r tqxklqp'qh'uqr "gpf u'0'Qp"pq'cee'qwpv'uj cml'y qtn'dg'v'gto kpcvgf "dg'htg'gcej "ugev'k'p." dgvy ggp'qp'g'uqr "gpf " cpf "cpq'yj gt. "ku'eqo r r'gvg'0' Cf gs wcv'g'eqxgtkpi "uj cml'dg'r tqxkf gf "v'q" r tqv'gevg'pgy n' "r'ceg'f "eqpetgvg'hqo "y' g" tclp'0'

"

Holes, Cavities and Fixings"

Vj g'Eqpvtcevqt'uj cml'dg'tgur qpukdr'hqt'yj g'eq'qtf'kpcvklp'qh'cml'tgs vktgo gpv'qh'j' ku'Uwd/eqpvtcevqtu'cu"tgi ctf u' r tqxklqp'qh'j' q'gu "ej cugu. "ecxkl'gu"cpf "H'z'kpi u"cpf "uj cm"kh"tgs vktgf "d{ "y' g'Rtqlgev'O cpci gt. " r tgr ctg" f tcy kpi u'i kzkpi "f'g'cku'qh'j' ku'cpf "j' ku'Uwd/eqpvtcevqt'u'tgs vktgo gpv'cpf "uj cml'ugpf "eqr kgu'qh' uwej "f tcy kpi u' v'q'yj g'Rtqlgev'O cpci gt'r t'kqt'v'q'eqpvtcevklp'0'

"

"

J qrgu."ge0'uj cml'dg"ceewtcvgn{"o ctngf"cpf"dqzgf/qw"ht"dghtg"eqpetgvpi"qr gtcvkqpu"eqo o gpeg"cpf."y kj qw'yj g"Rtqlgev'O cpci gt'u'r tkt"cr r tqxcn"pq"uwej"j qrgu."ge0'uj cml'dg"htg gf"chgt"yj g"eqpetgvj"cu"ugv0

"

Y j gtg'dctu."h'r rnegf"v"ur gekhgf"ur celpi"y qwf"hwj'j qrgu"qh'uk g'rgu"yj cp"472"o o "z"472"o o "yj g" hwn'rgpi yj"qh'yj g"dct"uj cml'dg"o qxgf"v"qpg"ukf g"cpf"lp"yj g"ecug"qh"j qrgu"gzeggf lpi"472"o o "z"472"o o "yj g"dctu'uj cml'dg"ew'qp'ukg'cpf"r'r r gf"y kj"cf f kkpncn'gs wkcrgpv'dctu."qt"cu'qyj gty kug'lpf kcvgf"qp'yj g'f tcy lpi u0

"

Y j gtgxt"r quukdr."yj g"Eqptcevqt"uj cml'dwrf"lp"cm'r k'gy qtm"ktqpy qtm"ge0'y j lej"r cuugu"yj tqwi j"y cmu"cpf"huqtu."cpf"yj g'r k'gy qtm"ktqpy qtm"ge0'uj cml'htu'dg'yj tqwi j n{"engcpgf"cpf"htggf"htqo"cp{"f grvgtkqu"o cwtg."cpf"gxgt{"ectg'uj cml'dg"cnegp"v"gpwtg'yj cvk'ku'yj tqwi j n{"gpecugf"lp"eqpetgv0

"

Wprguu"qyj gty kug"lpwtwvgt"d{"yj g"Rtqlgev'O cpci gt"cm'grgevtlecn'eqpf vku"v"dg"r qukkqpgf"y kj lp"yj g"tgphqtegf"eqpetgv"uj cml'dg"hzgf"lpukf g"yj g"uggn'eci gu'qh'dgco u"cpf"dgwy ggp"yj g"vqr"cpf"dqwqo"uggn'rc{gtu'lp'urdu'cpf"uko kct'b go dgtu0

"

Vj g'r tqrguf"r qukkq"qh'cm'eqpf vku"47"o o "cpf"qxgt"lp"f ko gvt'y j lej"ctg"v"dg"gpemugf"lp"yj g"eqpetgv"uj cml'dg'uj qy p'ceewtcvgn{"qp"e'r rcp"v"dg"uwo kvgf"v"yj g"Rtqlgev'O cpci gt."y j qug"cr r tqxcn'uj cml'dg'qdvkpgf"dghtg'cp{"uwej"eqpf vku'ku'r negf 0

"

Dqnu."j qqnu"cpf"qyj gt"hz lpi u'uj cml'dg"go dgf f gf"lp"eqpetgv."qt"j qrgu"uj cml'dg"ftknf"cpf"hwgf"y kj"yj tgcg gf"gzr cpf lpi"cepej qtu"v"tgegxg"yj g"dqnu0 Vj g"Eqptcevqt"uj cml'gpwtg'yj cv'dqnu."j qqnu."ge0'ctg"ceewtcvgn{"r qukkqpgf 0J qrf lpi"fy p'dqnu'ht"o cej kpgt{"uj cml'dg'ugvd{"o gcpu"qh'c"vgo r negf 0

"

Y j gtg'dtlen'qt"uqpgy qtn'ku"v"htgto"chcelpi"v"yj g"eqpetgv"qt'y j gtg'yj g'gpf"qh'c"dtlen'qt"uqpg'y cml'dwuu"ci clpu'c"eqpetgv"neg."i cnkcpkugf"o gcn'vku"qh'cr r tqxgf"o cpw'cewtg"v"DU"3465"uj cml'dg"keqtr qtcvgf 0 Vj g'f kncepg"dgwy ggp"vku"uj cml'dg'i cwi gf"y kj"fwg'tgi ctf"ht"yj g"dqpf lpi"qh'yj g'y cmu."cpf"cv'kvgtxcnu"tgs vktgf"d{"yj g"Rtqlgev'O cpci gt0

"

Protection and Curing"

Pgy n{"r negf"eqpetgv"uj cml'dg"rtqvgvgt"d{"cr r tqxgf"o gcpu'htqo"tclp."ft{lpi"y kpf u"uwp"cpf"eqpcev"y kj"uwducpegu'y j lej"ecp'cf xgtugn{"chgevk0

"

Pq"vchle"qt"eqputwvkvpcn'ncf u'uj cml'dg"r gto kvgf"qp"pgy n{"r negf"eqpetgv"wpki'k'j cu"j ctf gpgf"uw'helepv{"v"cneg'uwej"vchle"qt"ncf."cpf"qpn"yj gp'y kj"yj g'cr r tqxcn'qh'yj g"Rtqlgev'O cpci gt0

"

Eqpetgv"uj cml'cv"pq"ko g'dg"uwldgevgf"v"ncf lpi"lpenw lpi"ku"qy p"o cuu+lpenw lpi"eqo r tguukg"utguu"wpvkl'j cu'tgcej gf"2062"qh'ku'ur gekhgf"4:/f c{"utgpi yj 0

"

Cp{"eqpetgv"uw'hegu"tktu"cpf"v'gcf u'qh'uck y c{u'y j lej"o ki j v'dg"fco ci gf"fwlpi"yj g"eqputwvkv"qh'yj g"Y qtm'uj cml'dg'cf gs wcvgn{"rtqvgvgt 0

"

Cmlutwewtcn'eqpetgv"uj cml'dg'ewtgf"vulpi"o gyj qf u'cr r tqxgf"d{"yj g"Rtqlgev'O cpci gt0

"

"

Vj g'bo gj qf "qh'ewt'pi "uj cml'rtgxgpv'hu'qh'bo qkwtg'ltqo "vj g'eqpetgvg'0K o gf'kvgn' "chgt'eqo r'cev'qp" cpf "hqt" 9" f'c{ u'vj gtg'chgt" eqpetgvg" uj cml'dg" r'tqvgvgf" ci'ckpuv" j'cto hwi'gh'geu" qh'y gc'vj gt." kpenw'kpi " tckp." tcr'kf" vgo r'gtcwtg'ej cpi gu'cpf "ltqo "f't{kpi "qwo"

"

Vj g'ewt'pi "ko g'uj cml'dg"vj g'pwo dgt'qh'f'c{ u'i kxgp'kp "Vcdrg'50'wprgu'vj g'cxgtci g'vgo r'gtcwtg'qh'vj g'eqpetgvg" f'wt'kpi "vj g'tgs'vkt'gf "pwo dgt'qh'f'c{ u'icmu'dgny "32 E'lp'y j'lej "ecug'vj g'r'gtkqf "qh'ewt'pi "uj cml'dg'gz'vpgf'gf "cu" cf'xlugf "d{ "vj g'Gpi kpggt'at'Gr'tgugpvc'kxg0"

Table 3.7 Normal Curing Methods"

O k'pko wo "r'gtkqf "qh'r'tqvgv'qp'hqt'f'lt'htg'p'v'v' r'gu'qh'ego gpv"

"

Conditions under which concrete is maturing	Number of days (where the average temperatures of the concrete exceeds 10°C during the whole of the period)		
	Type IV	Type I or Type V	Type III
1. Hot weather or drying winds	7	4	2
2. Conditions not covered by 1.	4	2	1
Type IV	- Low Heat Portland Cement/Portland - Pozzolana Cement		
Type I	- Ordinary Portland Cement		
Type V	- Sulphate-resisting Portland Cement		
Type III	- Rapid-hardening Portland Cement		
Hot weather	- Temperature over 16 C		

"

"

Ewtłpi "uj cml'dg"ectltgf "qwwłkpi "gkij gt "qhl'vj g'hqmıy łpi "dcule"o gıj qf u."qt"cp{ "qvj gt"o gıj qf "ci tggf" y kį "vj g"Rtqlgev'O cpci gt0 O gıj qf u"łpxqrlkpi "vj g"wg"qhl'f co r gpgf "j gułcp"eqxgtłpi u"uj cml'pqv'dg" wugf 0' Vj g"o gıj qf "cf qv vgf "łqt"cp{ "r ctłewrt "łkwcvłqp"uj cml'dg"ci tggf "y kį "vj g"Rtqlgev'O cpci gt0

"

O go dtepg'Crr rłkf "d{ 'Urtc{ "

"

Nls włf "o go dtepg'eqo r qwpf u"uj cml'dg"cr rłkf "q"o qłw'eqpetgvg'łwłhcegu'cu'hqmıy uł"

"

Włłqto gf 'Uwłhcegu"

"

Vj g'eqo r qwpf "uj cml'dg"cr rłkf "ło o gf łcvłł "chgt"vj g'łtgg'y cvgt'j cu'łgh'vj g'łwłhceg0

"

Hqto gf 'Uwłhcegu"

"

Vj g'eqo r qwpf "uj cml'dg"cr rłkf "ło o gf łcvłł "chgt"tgo qxłpi "vj g"łqto u0'Kı'vj gtg"ku"cr r tgełcdng"ft{ łpi ." vj g"uwłhceg"uj cml'dg"o ku"ur tc{ gf "y kį "y cvgt "vq"r tqf weg" c"vplłqto n{ "f co r "cr r gctcepg"dghqtg"vj g" eqo r qwpf "ku"cr rłkf 0'

"

Vj g'eqo r qwpf "uj cml'dg"cr rłkf "łp"qpg"qt "y q'łgr ctcvg"cr r łecvłpu'q'r tqf weg'eqo r rıvg'cpf "vplłqto "eqxgtci g" qhl'vj g"uwłhceg0 Kı'vj g'eqo r qwpf "ku"cr rłkf "łp"y q"łpetgo gpvı "vj g"ugeqpf "cr r łecvłqp"uj cml' hqmıy "vj g"łktv" y kį łp" 52" o łpwgu0 Vj g"o gıj qf " cpf " tcvg" qhl' cr r łecvłqp"uj cml' dg" łp" ceeqtf cpeg" y kį " vj g" eqo r qwpf "o cpwłcewtgt'łłkputwvłqpu0

"

Kı'ctłp'łcmı"qp"vj g'pgy n{ "eqcvgf "uwłhceg"dghqtg"vj g'łkm "j cu'f tłgf "uwłhłegpvł "vq'tgukv'f co ci g."qt'łh'vj g" łkm "ku"f co ci gf "łp"cp{ "qvj gt"o cpgt." c"pgy "eqcv'qhl'eqo r qwpf "uj cml'dg"cr rłkf "vq"vj g"chgevgf "ctgc" gs wcl'łp" ewtłpi "xcnwg"vq"vj cv'qtłi łpcm{ "cr rłkf 0'

"

Eqo r qwpf "cr rłkf "vq"eqputwvłqp"lqlpv'uwłhcegu."qt"vq"qvj gt "uwłhcegu"vq"y j łej "eqpetgvg"ku"vq"dg"dqpf gf ." uj cml'dg'tgo qxgf "r tłqt "vq'r łekłpi "vj g'łtguj "eqpetgvg0

"

F gr gpł łpi "qp" vj g"uwłhceg" vq"y j łej "k'ku"vq"dg" cr rłkf "vj g'eqo r qwpf "uj cml'eqplłto "vq" vj g'hqmıy łpi "tgs włtgo gpw'qhl'CCUJ VQ'O 36: 0'

"

Gzr qugf "cpf "xgtłecłeqpetgvg'uwłhcegu/"V{ r g'KF "ergct"eqo r qwpf "y kį "łwi kłxg" f { g:0'

"

Wpgzr qugf "vqr "uwłhcegu"qhl'qwpf cvłqpu'cpf "łwr gtutwewłgu/"V{ r g'4"y j kğ'r łi o gpvgf +0'

"

"

Rqłł vj gpg'Uj ggvłpi "

"

Vj g'eqpetgvg'uwłhcegu'uj cml'dg'eqxgtgf "y kį "y j kğ'r qłł vj gpg'uj ggvłpi "cu'hqmıy uł"

"

Włłqto gf 'Uwłhcegu"

"

"

Vj g'uj ggkpi "uj cm'dg'rkf "qxtg "y g'wthceg"cu"uqpp"cu'r quikdg"y kj qww'o cttkpi "y g'wthceg"cpf "pqv" wvki
kpkcnlwkthgkpi "j cu'cnngp'r nceg'kh'c'dtwuj gf "qt'vco r gf "hpkuj 'ku'tgs wkt gf 0'

"

Hqto gf "Uwthcegu"

"

Vj g'wthcegu'uj cm'dg'eqxgtgf 'ko o gf kcvn' 'chgt'y g'tgo qxcnqhv' g'hqto u0'

"

Vj g'uj ggkpi "o c{ "dg"kp"eqpcev'y kj "y g'eqpetgvg"qt"o cf g"kpq"r qtwcdng"uj gngtu"qp"rki j v'y gki j v'htco gu0'
k" dqy "ecugu." yj g'uj ggkpi "uj cm' dg" lqkpvf" cpf "ugcrf" ci ckpuv' yj g'eqpetgvg" wthcegu" vq" r tngxgpv'y kpf "
dmgy kpi "dgvy ggp'yj g'uj ggkpi "cpf "y g'eqpetgvg0'

"

Vj g'y j kg'r qn' yj gpg'uj gg'uj cm'eqplhqt "y kj "y g'tgs wktgo gpw'qh'CCUJ VQ"O 3930" Qp"pq"ceeqwpv'uj cm'
engct'qt'cp{ "qy gt'eqmwt'qh'uj ggkpi "dg'wugf 0'

"

Qvj gt'Ewtkpi "O gyj qf u"

"

Vj gug'uj cm'dg'ci tggf "y kj "y g'Rtqlgev'O cpci gt0O gyj qf u"lpxqmkpi "y g'wug'qh'f co r gf "j gukcp" eqxgtkpi u"
uj cm'pqv'dg" wugf ."wprgu'cv'ngcu'4"rc {gtu'qh'eqpvpwqu"j gukcp"ctg" wugf "cpf "y g{ "ctg" ngr v'eqpvpwquw " "
y gv'cpf'r tqgevgf "htqo "y kpf u'y j kej "ecwug'ceegrgtcvgf "f t{ kpi 0'

"

Y j gtg" yj g' yj kempgu' qh' eqpetgvg" r nceg" gzeggf u" 307" o ." yj g'Eqpvtcevqt" uj cm' uwdok' hqt" yj g' Rtqlgev'
O cpci gt'u'cr r tqxcnr tqr qucu'v'gputg'yj cv'f wtkpi "y g'ewtkpi "r gtlqf <"

"

yj g'tcvg'qh'tkug'qh'vgo r gtcwtg'lp'yj g'eqpetgvg'f qgu"pqv'gzeggf "37qE'r gt"j qwt'ht' yj g'htuv"5"j qwtu="

"

yj gtgchgt'yj g'tcvg'qh'tkug'cpf 'hcm'qh'vgo r gtcwtg'lp'yj g'eqpetgvg'f qgu'pqv'gzeggf "57qE'r gt"j qwt="

"

yj g'o czko wo "vgo r gtcwtg'lp'yj g'eqpetgvg'f qgu'pqv'gzeggf "92qE="cpf "

"

yj g'o czko wo "f khtgpeg'lp'vgo r gtcwtg'dgy ggp'yj g'eqtg'cpf "yj g'wthceg'qh'yj g'eqpetgvg'f qgu'pqv'gzeggf "
42qE0'

"

Vj g'r tqr qucu'uj cm'lpennf g'eqpukf gtcvkpp'qh' "

"

*c+" eqpetgvg" o kz" f guki p="

vgo r gtcwtg'qh'o kz"cv'ko g'qh'r nckpi ="

*e+"*****o gyj qf "qh'ewtkpi 0'

"

"

Y j gtg"tgs wktgf "d{ "y j g"Rtqlgev"O cpci gt."y j g"Eqpvtcevqt"uj cml'ectt{ "qww'go r gtcwttg"o gcwttgo gpw"kp" y j g" eqpetgvg0 Vj g" o gyj qf" cpf" r tgegfwtg" qh' vgo r gtcwttg" o gcwttgo gpv' uj cml' dg" ci tggf" y kj" y j g" Rtqlgev" O cpci gt0

"

Joins"

Eqputwekqp'lqkpw"

"

Vj g"r qukkqp" qh' eqputwekqp" lqkpw."y j gp" pqv' uj qy p" qp" y j g" F tcy kpi u" qt" qy gty kug" tgs wktgf "d{ "y j ku" Ur gekhecvkqp."uj cml'dg" f gekf gf "qp" uksg" j cxlpi "tgi ctf "vq" y j g" r rcpv' cpf "ndqwt" o cf g"cxckndng" d{ "y j g"

"

Eqpvtcevqt" hqt" y j g" o cpwhewtg. "r nelpi "cpf" eqo r cevqp" qh' y j g" eqpetgvg" cu" y gmi'cu'ku" ewtkpi. "y j g" enko ckle" eqpf kkkpu" r tgcxckpi "cv" y j g" vko g" qh' eqpetgvgpi. "y j g" pcwtg" cpf "uk" g" qh' y j g" hqto y qtm" cpf "y j g" eqpf kkkpu" qh' qr gtcvqp" qh' y j g" y qtn0 Y cvgtuqr "uj cml'dg" r tqxkf gf "vq" cml'eqputwekqp" lqkpw' qp" y cvgt" tgcxckpi "qt" gzenw' kpi " utvewtgu0 Vj g" Eqpvtcevqt" uj cml' uwd0 k' j ku" r tqr qucni" vq" y j g" Rtqlgev" O cpci gt" hqt" j ku" cr r tqxck' cv' rncuv' hqwtvggp" f c{ u'dghqtg' eqo o gpekpi "y j g" y qtn0

"

Eqputwekqp' lqkpw' lwtchegu' luj cml'dg' tgcvgf "d{ "y j g" \$y cuj / qh' s' b gyj qf "gzt rckpgf" dgruy. "gzegr v' y j gtg' k" ecppqv" dg' r tcevecm' "gh' gvgf. "kp" y j lej "ecug" y j g{ "uj cml'dg' tgcvgf "kp" ceeqtf cpeg" y kj "Erwug" 527" cu" hqt" y j g' r nelpi " qh' pgy "eqpetgvg" ci ckw' j ctf gp' gf "eqpetgvg0

"

Y j gp" gzt cpf gf " o gvcn' rvy kpi " ku" wugf " hqt" y j g" hqto cvkqp" qh' eqputwekqp" lqkpw" c" tgdvcg" y kn' pqv' dg" tgs wktgf "vq" dg' hqto gf 0 Vj g' gzt cpf gf " b gvcn' rvy kpi "uj cml'dg' lgh' kp" y j g' y qtn' cpf "uj cml' pqv' gzt v' pf "erugt" vq" y j g" h' kp' j gf " lwtcheg" qh' y j g' eqpetgvg" y cp' 47" o o 0 K' luj cml'dg' lgewtgn' " hzgf "vq" y j g' t' gkphqtego gpv0 Vj g' hqmy kpi " r ctvewrt " tgs wktgo gpw' luj cml' cuq' dg' qdugt xgf <"

"

Urdu' lwr r qtvgf "qp" y j g' f tqwpf "

"

Kp' qtf gt "vq" gpwtg' eqpvtqnlp" y j g' r nelpi "qh' eqpetgvg" y j g' Eqpvtcevqt" luj cml' r tqxkf g' eqpvtqnl' dqtcf u' vq" hqto " r cpgni" pqv' rti gt "y j cp" 370 4" "kp" ctgc0 Vj gug" uj cml' dg' r h' hgf "cu" y j g' eqpetgvgpi " r tgegfw" gzegr v' y j gtg" y j g{ " ctg" qh' gzt cpf gf " o gvcn' kp" y j lej "ecug" y j g{ " o c{ " dg' rgh' kp" r qukkqp" cu" r ctv' qh' y j g' r gto cpgpv' y qtm. " r tqxkf gf "y j cv" y j g{ "uj cml' pqv' gzt v' pf "erugt" vq" y j g' h' kp' j gf " lwtcheg" qh' y j g' eqpetgvg" y j cp' 47" o o 0 K' y j g' g' xgpv' qh' c' dtgcni qy p" kp" y j g' lwr r n' "qh' eqpetgvg" y j g' Eqpvtcevqt" luj cml' gpwtg' y j cv' cp' cngt pcv' xg" lwr r n' "qh' eqpetgvg" ku" o cf g" cxckndng" *vq" h' kp' j " y j g' y qtn' ci ckw' v' y j g' eqpvtqnl' dqtcf u' cev' kpi "cu" uqr" gp' u-0 Vj g" lqkpw' uq" hqto gf " uj cml' y j gp" dg" tgcvgf " cu" c" eqputwekqp" lqkpw0 Y j gtg" Tgc f { / o kzgf " eqpetgvg" ku" r gto kwgf " y j g' eqpvtqnl' dqtcf u' uj cml' dg" r qukkqp' gf "uq" cu" vq" gperug" c" xqno g" qh' eqpetgvg" gs wcn' vq" y j cv' f g' r kxgtgf "d{ " gcej " tven0

"

Eqputwekqp' lqkpw' cpf "eqpvtqnl' lqkpw" luj cml'dg' hqto gf "pqto cni" vq" y j g' lwtcheg" qh' y j g' t' gcvkpgf "eqpetgvg0

"

Uwr gp' gf "Dgco u' cpf "Urdu"

"

V/dgco u' luj cml'dg' hqto gf "vq" y j gk' hwn' f gr y j "kp' gi tcm{ "y kj "y j g' cf lcegpv' urd" cpf "y kj qw' j qtk qpvcn' lqkpw0

"

"

Eqnw pu'

"

Y j gtg"nlemtu"ctg"lpflecvgf"qp"vj g"ftcy kpi u"vj gug"uj cmi'dg"ecuv"vqi gvj gt"y kj "vj g"urcd"qt"dgco "dgmj 0'
Qp"pq"ceeqpvp"uj cmi'nlemtu"dg"ecuv"cu"c"ugrctcvg"qr gtcvkqp0' Cngetpcvkgf. "vj g"Eqvtcevt" o c{"cfqr v'
onlemtu"eqputwekvpo"o gvj qf u"rtqxf kpi "j g"ecp"ucvkh{"vj g"Rtqlgev'O cpci gt"vj cv'j ku" u{ugo 'ku'tgkcdg"
cpf 'fqu'pqv'eqo r tqo kug'y qtno cpui k 0'
"

Y cmi'

"

J qtk qpvrleqpwtwekvplqkpw'lp'y cmi'uj cmi'dg'hqto gf "cmipi 'utcki j v'hpgu"eqkpek kpi 'y kj 'vj g'hwn'j gli j v' qh'
vj g'hqto y qtn0'Vj g"j gli j v'qh'vj g'hqto y qtn'vj wu"eqvtqmipi "vj g"j gli j v'qh'vj g'r qwt"uj cmi'dg"fgvto kpgf "
y kj "tghgtpeg"vq"vj g"cxckcdk{"qh'eqpetgvg"vj g"uk g"cpf"co qwpv'qh'tgkphqtego gpv'cpf"vj g'o gcpu'qh'
eqo r ckvqp'cxckcdg0'
"

Wprguu"qvj gty kug"lpflecvgf"qp"vj g"ftcy kpi u"qt"qvj gty kug"r gto kwgf"d{"vj g"Rtqlgev'O cpci gt"ht"vj g"
eqputwekvq"qh'ekewrt"cpnu."eqpetgvkpi "uj cmi'dg"ecttgef"qww eqpvkpwvwn{"ht"vj g'hwn'ektewo hgtpeg"
y kj qw'xgtvecn'lqkpw0'Y j gtg'r gto kuikqp"ku'i tcvpvgf"ht"vj g'wug'qh'xgtvecn'lqkpw'vj g'Rtqlgev'O cpci gt"o c{"
qtf gt."cv'pq'gztc'equ'vq"vj g'Go r nq{gt."vj g'lpnwukqp"qh'cp'cr r tqxgf"v{r g'qh'y cvgt'uqr 0'
"

Kp'vj g'ecug'qh'tgevcpi wrt"cpnu."xgtvecn'lqkpw'uj cmi'pqv'dg'r qukkqpgf"enqugt"vq"cp{"eqtpgt"vj cp"qpg"o gvtg0'
Vj g{"uj cmi'dg'hqto gf"y kj 'r tqr gtn{"tgdcvgf"uqr"gpfu'qt."y j gtg'eqpfkkqpu'r gto k'd{"vj g'wug"qh'gzr cpf gf"
o gvrh'vj kpi 0'Wptgkphqtegf"o cpj qrgu'uj cmi'dg'eqputwevgf'y kj qw'xgtvecn'lqkpw0'
"

Vj g'\$Y cuj /qhi'O gvj qf '\$'qhr tgr ctkpi 'Eqputwekvq'Lqkpw"

"

Cu'uqpp'cu'r qukdrg'chgt"eqpetgvkpi ."cpf"y j kg'vj g'uwthceg'ku'ukm'i tggp."vj g'uwthceg'qh'vj g'eqpetgvg'hqto kpi "
vj g'lqkv'uj cmi'dg'htggf"qh'mqug'ci i tgi cvg"cpf"ur tc{gf"y kj "c'hkg'ur tc{"qh'y cvgt"vq"rtgxgpv"vj g'hqto cvkqp"
qh'rekcepg0'Uwdugs wgpv{"cni'gzeuu"y cvgt"uj cmi'dg'tgo qxgf"d{"c"lgy'qh'eqo r tguugf"ckt"cpf"vj g'uwthceg'ghv"
engcp"vq'tgegxg'htvj gt"eqpetgvg0'
"

Y j gtg'gzr cpf gf"o gvrh'vj kpi 'ku'wugf'ht'eqputwekvq'lqkpw."vj ku'o gvj qf"qh'uwthceg'r tgr ctkvqp'uj cmi'dg'wugf"
kp'gxgt{"ecug0'
"

O qxgo gpv'lqkpw"

"

Vj gug'uj cmi'penmf g'eqvtcekvq'cpf"gzr cpukqp'lqkpw'cpf"uj cmi'dg'cu'lpflecvgf"qp'vj g'ftcy kpi u0'

"

Eqvtcekvq"lqkpw" y kni' dg" gkj gt" hwn' eqvtcekvq"lqkpw" qt" r ctvkn' eqvtcekvq"lqkpw0' Y j gtg" r ctvkn'
eqvtcekvq"lqkpw"ctg"ur gekhgf"c"r gtkf"qh'cv'rgcu'hkgf"fc{u"uj cmi'gtr ug"dgw ggp"vj g'eqpetgvkpi "qh'vj g"
ugekvq'qp'gcej "ukf g'qh'vj g'lqkv0'
"

Y j gtg'vj g'ftcy kpi u'lpflecvgf'c'eqvtcekvq'i cr "vq'dg'hqto gf'lp'cp{"r cpn'vj ku'i cr "y knipqv'gzeggf"qpg"o gvtg+ "
eqpetgvkpi "qp'gkj gt'ukf g'qh'vj g'i cr "uj cmi'dg'ecttgef"qww'cu'vq'hqto 'r ctvkn'eqvtcekvq'lqkpw'cv'gcej "ukf g'qh'
vj g'i cr 0'Rtkqt"vq"vj g'eqpetgvkpi "qh'vj g"i cr "ugekvq."vj g'lqkv'uwthcegu'uj cmi'dg'engcpgf" dwv'qvj gty kug'ghv"
"

"

wptgcvgf O'Vj g'eqpetgkpi "qh'y g'i cr "ugevkp"uj cml'pqv'dg'ecttlgf "qww'wpvkl'c'r gtlkf " qh'cvhgcuv'hxg'f'c { u'j cu' g'cr ug'f 'chgt'eqo r r'gkqp'qh'y g'cf lcegpv'ugevkpuo'

"

Cngt'pcvg'r cpgn'eqpustwekqp"qy'j gt'y cp"eqptcevkp"i cr "eqpustwekqp"qwkpgf "cdqyg+y kml'dg'r gto kwgf "qpn' " y kj "y g'cr r tqxcn'qh'y g'Rtqlgev'O cpci gt."qt'lp'y qug'ecugu'y j gt'g'gkj gt'y g'tgkphqtego gpv'ku'pqv' eqp'kwqwu' y tqwi j "y g'lqkpv'qt'y j gt'g'y g'r cpgnu'ctg'ugr ctcvgf "d{ "gzr cpukqp'qt'eqptcevkp'lqkpuo'

"

Wprguu'qy'j gty kug'ur gekhgf "qt'r gto kwgf "d{ "y g'Rtqlgev'O cpci gt'cmly cvgtuqr "uj cml'eqpukv'qh'twddgt'qt" RXE0' lqkpv'kpi "qh'y cvgtuqr "uj cml'dg'd{ "xwrecpkupi . "gzegr v'y j gt'g"RXE"ku'ur gekhgf "qt'r gto kwgf "lp"y j kej "ecug" lqkpu'uj cml'dg'd{ "hwkpi "qt"y grf kpi O'O cvgtknu'uj cml'dg"qdvclpgf "htqo "cp"cr r tqxgf "o cpwhcewtgt'y j qug" tgeqo o gpf cvkpu'cu'v'q'lqkpv'kpi "uj cml'dg'hwk' 'eqo r r'kgf "y kj O'

"

Y cvgtuqr "cpf 'lqkpv'kpi 'O cvgtknu'"

"

Y cvgtuqr "cpf 'lqkpv'kpi 'o cvgtknu'uj cml'dg'qdvclpgf "htqo "cp"cr r tqxgf "o cpwhcewtgt0'

"

Cmly cvgtuqr "cpf 'lqkpv'kpi "o cvgtknu'y j kej "ctg"pqv'tgs wktgf "hqt"ko o gf kcv'wug'uj cml'dg'wqtgf "cv'cm' vko gu' lp'c'eqqnf co r 'r mreg0'

"

Y cvgtuqr "uj cml'dg'o cpwhcewtgf "qh'twddgt'qt"RXE"r qn' xlp{ rej mtkf g+'cu'uj qy p'qp'y g'f tcy kpi u"cpf "uj cml' dg'qh'y'j g'v{r g'cpf "uk' g'uj qy p'qp'y g'f tcy kpi u'O'Ukg'lqkpu'uj cml'dg'o cf g'utkvn' "lp'ceeqtf cpeg" y kj "y g' o cpwhcewtgtu"lpustwekpu"cpf "cm'lpvgtugevkpu"cpf "lwpevkpu"uj cml'dg"qdvclpgf "r tghcdtkecvf " htqo "y j g' cr r tqxgf "o cpwhcewtgt0'

"

Lqkpv' hkg't "uj cml' dg" o cpwhcewtgf " qh' pcwtcn' dqp'gf " eqtn' qt" qy'j gt" cr r tqxgf " o cvgtknu' y j kej " tgo ckpu' ugtxlegcdng"y j gp'y g'v'lqkpv'hkg't"uj cml'dg'ew'cpf "vko o gf "ceewtcvgn' "v'uwk'y'j g'lqkpv'r tqhkg'cpf "uj cml' dg" o clpvclpgf "ceewtcvgn' "lp'r qukqp"d{ "o gcpu'qh'cp"cr r tqxgf "cf j gukxg'O'Vj g'eqo r tguikdkv' "qh'y'j g'hkg't"uj cml' dg'uwj "y cv'kw'ecp'dg'eqo r tguuf "v'72' "y lempgu'y kj "c'r tguwtg'qh'pqv'rguu'y cp'2029' P lo "uswtg"cpf " pq"i tgcvg't "y cp'206' P lo o "uswtg'O'Chgt"72' "eqo r tguikqp." y j g'o cvgtknu'uj qwrf "tgeqxtg'v'cv'rgcu'92' " qtki kpcn'y lempgu'y kj lp'52'o kpwgu' Qp'pq'ceeqwpv'uj cml'hdtdgqctf "qt'uko kct" dg'wugf "cu'hkg't0'

"

Lqkpv'ugcnkpi "eqo r qwpf u'uj cml'dg'cr r tqxgf "r qn' uwr j kf'g'dcugf "eqo r qwpf u'uwkcdng'hqt'ugcnkpi "lqkpu' lp" j qtk'qpvn' cpf " xgt'vccnluqr kpi " eqpetgvg' uwt'hegu' cu" cr r tqrtkcv'O' Ugcnkpi " eqo r qwpf u'uj cml' dg" cr r r'kgf " utkvn' "lp'ceeqtf cpeg"y kj "y g'o cpwhcewtgtu"lpustwekpu"cpf "uj cml'eqo r r'gvn' "hm'y'j g'lqkpv' tgegu'O'Uwt'heg" r tko gtu'uj cml'dg'htqo "y j g'uco g'o cpwhcewtgt"cu'y j g'ugcnpw'y go ugrxgu'O'Lqkpv'ugcnkpi "eqo r qwpf u'uj cml'dg' gpv'kgn' "uwkcdng'hqt'eqpcev'y kj "r qvcdng'y cvgt"y j gt'g'y g'ug'ctg'wugf "lp"y cvgt'tgvcplkpi 'utwewtgu'

"

Y cvgtuqr "uj cml'dg'mecvgf "cpf "o clpvclpgf "ceewtcvgn' "lp'r qukqp"cpf "f gvcnu'qh'y'j g'r tqr qugf "o g'y qf " qh' hzkpi "uj cml'dg'uwdo kwgf "v'y'j g'Rtqlgev'O cpci gt "hqt"cr r tqxcn'O'Qp'pq'ceeqwpv'uj cml'y cvgtuqr "dg" ugevtgf " d{ "pcku'qt"d{ "cp{ "qy'j gt"o gcpu'lpqxqkpi "r wpewtg'qh'qt'f'co ci g'v'q'y'j g'y cvgtuqr "o cvgtknu' wprguu'r vtr qug" o cf g'pckkpi 'hrcpi gu'ctg'lpeqtr qtcvgf "lp'y'j g'f guki p'qh'y'j g'y cvgtuqr O'

"

Urkr 'O go dtepg"

"

Vj g'urkr "o go dtepg"uj cml'dg'\$urkr utkr '\$'cu'lw'r r'kgf "d{ "Ugtxlegf 'Nko kgf.'Clcz'Cxgpgw."Uqwi j ."Dgtmuj kg." WM'qt'uko kct"cr r tqxgf "o cvgtknu'O'Vj g'urkr "o go dtepg"uj cml'dg'pqv'rguu'y cp'307'o o "y keni' cpf "uj cml'dg'c"

"

r rucle"rtghqto gf "utkr "y kj "ny "eqghlelcpv'qh"ltlvkqp"ur gekhlecml "o cpwlcwctgf "hqt"wg" cu" c" ugr ctcvpi " o go dtcpg"kp"urkf lpi "lqkvu"dgw ggp"eqpetgvg"uwthcegu0Gcej "urkf lpi "lqkv"uj cml'eqo r tkug'vy q'lc{gtu'qh'vj g" o go dtcpg'wprguu'qy gty kug'uj qy p"qp'vj g'ttcy lpi u0

"

Vj g"eqpetgvg"uwthceg"vq'y j lej "vj g'urkr "o go dtcpg"ku'vq"dg'hkzgf "uj cml'dg'hkpluj gf "y kj "c"uvgnl'hqcv'vq"rtqxkf g" c'uo qqvj "twg'uwthceg'ltgg'ltqo 'f wuv'cpf 'lqqug'r ctwlrgu0

"

Gzr cpf chqco "

"

Gzr cpf chqco "uj cml'dg"cu"uwr r rkcf "d{ "Gzr cpf kg"Nko kgf ."3/; "Ej cug"tqcf ."Nqpf qp."P Y 32"8RU."WM'qt " uko kct'cr r tqxgf "o cvgtkr0Gzr cpf chqco 'ku'c'equgf "egmlhgzkdng'r qn{ gy {ngpg'lqkv'hkngt "wugf "y j gtg" c'tgcf kl " eqo r tguakdg'ny "hpcf "tcpuhtg'lqkv'hkngt "ku'tgs wktgf 0Gzr cpf chqco "uj cml'dg'hkzgf "kp'r qukkqp" wukpi "c'uwkcdng" cf j gukxg0

"

305.11 Finishes - General"

Cml' gzar qugf " hcegu" qh' eqpetgvg" wprguu" qy gty kug" ur gekhkgf " uj cml' dg" j ctf ." uo qqvj " cpf " ltgg" ltqo " j qpg{eqo dlpi ."ck'cpf "y cvgt"j qrgu'cpf "qy gt'drgo kuj gu0

"

Cml'r tqlgcvpi "lo r gthgevkpu"uj cml'dg"twddgf "f qy p"y kj "ectdqtwpf wo "uqpg"qt"d{ "qy gt"cr r tqxgf "o gcpu" cpf "i tk'cpf "f wuv'vj ggtqto "uj cml'dg"vj qtqwi j n' "y cuj gf "qht'y kj "engcp'y cvgt0

"

Uwthceg'Hkpluj gu'

"

Y qqf "hqcv'hkpluj gu'uj cml'dg'hqto gf "d{ "uo qqvj "hqcvlpi "vj g'ceewtcvgn{ "ngxgmrgf "cpf "uetggf gf " uwthceg0Ectg" uj cml' dg"vcngp" vq" gpuwtg"vj cv'vj g'eqpetgvg"ku'y qtnrgf "pq"o qtg"vj cp"ku"pgeguuct{ "vq" r tqf weg" c"wpkhqto " uwthceg'ltgg'ltqo "uetggf "o ctml0

"

Uvggn'tqy grlhkpluj gu'uj cml'dg'hqto gf "y j krg"vj g'eqpetgvg"ku'uwkny gv'd{ "o gcpu'qh'c"uvgnl'tqy gn'cr r rkcf "vq"cp" ceewtcvgn{ "ngxgmrgf "cpf "uetggf gf "uwthceg"ugg'cnuq'Ercwug'529+0

"

I tcpqrkj le" hpluj gu'uj cml'eqphqto "vq"vj g"tgeqo o gpf cvkpu" rcf "f qy p"kp"\$Ur gekhlecvkp" hqt" I tcpqrkj le" hqqt" vqr r lpi u'rcf "kp/ukw" eqpetgvg0."cu'r wdkuj gf " d{ " vj g"WM' Ego gpv" cpf " Eqpetgvg" Cuuqekcvkpy kj " ur gekrltghgtgpeg"vq"o qpqrkj le"eqputwevkp0

"

Uetggf gf "hpluj gu'uj cml'dg'hqto gf "d{ "ngxgmki "cpf "uetggf lpi "vj g'eqpetgvg"vq" r tqf weg" c"wpkhqto ."r rclp" qt'tkf i gf "uwthceg"cu'ur gekhkgf "uwthceg"j ctf pgtu'uj cml'dg'cr r rkcf "utlevl "kp"ceeqtf cpeg"y kj "vj g'o cpwlcwctgt0u' tgeqo o gpf cvkpu0

"

Dwuj /j co o gtgf "qt'r cwgtp/y qtnrgf "hpluj gu0

"

Y j gp"gzr qugf "ci i tgi cvg"ku'vq"dg"vj g'uwthceg"vgzwg."vj g'Eqpvtcevqt"uj cml'gpuwtg"vj cv'c"wpkhqto "f kntkdwkqp" qh'vj g'eqctug"ci i tgi cvg'cngu'r nceg'cv'vj g'hceg0Vj g'hqto y qtnluj cml'dg'tgo qxgf "cu'uqpp" cu'r quukdg'ltqo "vj g"

"

hceg"vq"dg"tgevgf="vj g"lwthceg"uj cml'dg"vj qtwi j n"y gwgf"cpf"y ktg"dtwuj gf."cpf"dwuj /j co o gtgf"qt"r cwgtp/
y qtnrgf"cu"cpf"y j gp"lpustwevgf O'Uwthceg"tgctf gtu"uj cml' dg" wugf" qpn" y j gp"r gto kwgf" d{ "vj g"Rtqlgev"
O cpci gt O'

"

Dwuj /j co o gtapi "qt"r cwgtp/y qtnapi "uj cml'pqv'dg"tgrkf"wr qp"vq"qduewt"cp{ "f ghgeu"kp"vj g"eqpetgvg" hceg"
y j lej "ctkug"htqo "hqto y qtniko r gthgevkpu O'

"

O cnapl 'I qqf"

"

Qp'pq"ceeqwpv'uj cml'cp{ 'hwm"j qpg{eqo dgf"qt"qvj gty kug"f ghgevkxg"eqpetgvg"dg"tgr cktgf"qt"r cvej gf"
wpvklvj g"Rtqlgev'O cpci gt'j cu'o cf g'cp'lpur gevkqp"cpf'kuwgf'lpustwevkpu'ht'vj g'tgr ckt O'

"

J qpg{eqo dgf"qt"fco ci gf"lwthcegu"qh'eqpetgvg."y j lej "lp"vj g'qr kpkp"qh'vj g"Rtqlgev'O cpci gt."ctg'pqv'
uwej "cu"vq"y cttcpv'vj g'ewwapi "qww"cpf"tgr mego gpv'qh'vj g"eqpetgvg."uj cml'dg"o cf g'i qqf"cu"uqpp"cu"
r quukdg"chgt'tgo qxcn'qh'vj g'hqto y qtnicu'hmqy u-/"

"

3<30/Rqtwpf'Ego gpv'cpf'ucpf"o kzwg"uj cml'dg"y qtnrgf"lpvq"vj g'r qtgu'qxtg"vj g'y j qrg"lwthceg"y kj "c"
hpg"ectdqtwpf wo "hqv"lp"uwej "c"o cppgt"vj cv'pq"o qtg"o cvgtkn'ku'gh"qp"vj g"eqpetgvg" hceg"vj cp"ku"
pgeguuct{ "v'hkn'vj g'r qtgu'eqo r rvgn"uq"vj cv'c'wpkhqto n'uo qqvj "cpf"fgpug"lwthceg"qh'wpkhqto "eqmwt"
ku'hpcml'rtgugpvf O'

"

Tgo qxcn'cpf"tgr mego gpv'qh'Wpuc'kucvqt{ 'Eqpetgvg'

"

Vj g'Eqpvcvqt"uj cml'qp"vj g"Rtqlgev'O cpci gt'u'lpustwevkpu"vq"fq"uq"ew'qww'cpf"tgr mego"cp{ 'eqpetgvg'
kp"cp{ 'rctv'qh'vj g'utvewt g'hilp"vj g"Rtqlgev'O cpci gt'u'qr kpkp-/"

"

vj g'eqpetgvg"fgu'pqv'eqphqto "vq"vj g'Ur gekh'ecvkp."qt"

"

fgrvgtkwu"o cvgtknu"qt"o cvgtknu"y j lej "ctg"dnzn"vq"rtqfweg"j cto hwn'ghgeu"j cxg"dggp"lpwnf gf"kp"
vj g'eqpetgvg."qt"

"

vj g'j qpg{eqo dgf"qt"fco ci gf"lwthcegu"ctg"vqg"gzvgpukxg."qt"

"

vj g"hpkuj gf"eqpetgvg"uk gu'ctg'pqv"lp"ceeqtf cpeg"y kj "vj g"ftcy kpi u'y kj kp"r gto kuukdg"vqrgtcpegu."qt"

"

vj g'ugwapi /qww'ku'lpqttgev."qt"

"

vj g'uggn'eqxgt'j cu'pqv'dggp"o clpvc'pvgf."qt"

"

vj g"rtqvgvkp."lpwnf kpi "ewtkpi."qh"vj g"eqpetgvg"fwtkpi "vj g"eqpustwevkp"y cu"lpcf gswcvg."tguwnkpi "kp"
fco ci g."qt"

"

vj g'y qtn'qh'o cnapl "i qqf"qt"qvj gt'tgo gf kn'o gcuwgu"vj g"Rtqlgev'O cpci gt"o c{ "lpf'lecvg"ctg"pqv'ecttkgf"qww"

.

"

vq'j ku'ucvukhcevkqp."qt"

"

vpf wg'f ghqto cvkqp"qh'qt" f co ci g'vq'y g'y qtnu'j cu'vcngp'r rreg'f wg'vq'kpcf gs wcvg'hqto y qtm"qt'vq'r tgo cwtg"
vchle"qt'vq'gzeguukxg'hqcf kpi ."qt"

"

cp{ 'eqo dlpvkvq'qh'y g'cdqyg'r qkpwl'j cu'vcngp'r rreg'tguwnkpi 'kp'wpucvukhcevqt { 'y qtn0'

"

"

Testing"

Sampling and Testing - (see also Clauses 301 and 302)"

Vj g'Eqpvtcevqt'uj cml'r tqxkf g'qp'yj g'Ukg'gs wkr o gpv'ueh'cpf 'hcdqwt'hqt'ectt {kpi 'qww'yj g'uco r r kpi 'cpf "
vgu'kpi "qww'kpgf "kp'eqnw pu'5"cpf "6"qh"Vcdrg"50 ."cpf "j g'uj cml'ectt { "qww'cp { "qt"cm'qh'yj gug'vguu'cv'
uwej 'vko gu'cpf 'y kj 'uwej 'htgs wgepe { "cu'o c { 'dg'tgs wguvf 'd { 'y j g'Rtqlgev'O cpci gt0'

"

Cml'gs wkr o gpv'uj cml'dg'ecrkdtevgf "cpf "ej gen'gf "htqo "vko g"vq"vko g"d { "cp"cr r tqxgf "ci gpe { ."cu'yj g"
Rtqlgev'O cpci gt'0 c { 'tgs wktg0'

"

Vj g'Eqpvtcevqt'uj cml'r tqxkf g'cm'uco r rgu'tgs wktgf "d { 'y j g'Rtqlgev'O cpci gt0'Vj qug'uco r rgu'vq'dg'vgu'gf "
kp'cp'qh'hu'kg'hcdqtecvqt { 'uj cml'dg'ect ghwn' hqty ctf gf 'd { 'y j g'Eqpvtcevqt 'vq'cp'cr r tqxgf 'hcdqtecvqt { 0T guwnu'
qh'hcdqtecvqt { "cpf "ukg'vguu'uj cml'dg'ngr v'qp"ukg'cpf "eqr lgu'qh'cm'vgu'v'tgr qtvu'uj cml'dg'hqty ctf gf "kp"
f wr hcevg'vq'yj g'Rtqlgev'O cpci gt0'

"

G c e j "ewdg'uj cml'dg'o ctngf 'y kj "c"fkukpi wuj kpi 'pwo dgt"pwo dgtu'vq'twp'eqpugewkxgn { +cpf 'y j g"
fcvg." cpf 'c'tgeqtf 'uj cml'dg'hgr v'qp'Ukg'i kxkpi 'y j g'hqmqy kpi 'r ct'vewrctw"/"

- Ewdg'P q0'
- F cvg'cpf 'vko g'o cf g"
- Vgo r gtcwtg'cpf 'y gcvj gt'eqpf kxkpu"
- Nqecvkvq'kp'y qtn'
- 9/f c { 'Vguv'

F cvg<"

- Utgpi yj "
- 4: /f c { 'Vguv'

F cvg<"

- Utgpi yj "

"

Ewdgu'uj cml'dg'hqty ctf gf ."ecttkei g'r ckf ."vq'cp'cr r tqxgf "Vgu'kpi 'hcdqtecvqt { 'kp'vko g'vq'dg'vgu'gf "y q'cv"9'f c { u"
cpf 'y q'cv'4: 'f c { u0'P q'ewdg'uj cml'dg'f kur cvej gf 'y kj kp'5'f c { u'qh'ecurkpi 0'

"

"

Cwj gpwle"eqr lgu'qh'cm'Y qtm'Vguv'tguwuu'uj cml'dg'hqty ctf gf "v'j g'Rtqlgev'O cpci gt'f'k'geu' 'ltqo "j g"v'gukpi " r'cdqtcvqt{ " cpf " qpg" uj cml' dg" tgvclpgf " qp" j g" ukgo' Vj g" v'guv' egt'v'k'ec'v'gu" uj cml' kpf'k'ec'v'g" cml' r' tqr gt'v'gu'cu" tgs v'k'gf "d{ 'DU3: : 30'

"

Vj g"Eqptcevt"o wuv'cmqy "kp"j ku'tcv'gu'hqt"eqpetgv"v'guv'ewdgu'hqt"cm'gzr'gpugu'kp"eqppge'v'qp"y kj "j g" r'tgr'ctcv'qp"cpf"eqpxg{cpeg"v"j g"V'gukpi "Ncdqtcvqt{ "cpf"v'gukpi "qh"v'guv'ewdgu"cpf"pq"er'ko "kp"t'gur'gev' qh'j ku'h'k'w'g'v'q'f'q'v'q'y kn'dg'gpv'gt'v'clpgf'0'

"

Cp{ "dcvej "qh'eqpetgv"y j lej "h'k'u"v'q'cej k'xg"j g'tgs v'k'gf "ej ctcev'gt'k'ue"u'v'gpi j "uj cml'dg'tgo q'xgf "cpf"o cf g" i q'qf "kp"cee'qtf'cpeg"y kj "j ku'U'g'ek'h'ec'v'qp'0'Vj g"Eqptcevt"uj cml'ectt{ "q'w'cml'uwej "y qtm'cv'j ku" qy p'equ'0'

"

H'gs w'gpe{ "qh"v'guu"cpf"j g"p'wo d'gt"qh"uco r'ngu'tgs v'k'gf "y kn'dg"i q'xgtp'gf "d{ "j g"t'guwuu"qh"j g"r't'gx'k'q'wu" v'guu."j g"s'w'k'v'k'v' "qh"j g"o c'v'gt'k'cu"t'gx'g'c'ngf "f'v'k'pi "j g"v'guu"cpf"j g"v'p'h'q'to k'v' "qh"j cv's'w'k'v'k'v' " *ugg"E'rc'wug" 524-0' Uj q'w'f "k'v'd'geqo g"gx'k'f'gp'v'j cv'j g"s'w'k'v'k'v' "qh"eqpetgv"ku"f'g'v'gt'k'q'tcv'k'pi "j g"Rtqlgev' O cpci gt"o c{ " tgs v'k'g"cf'f'k'k'q'pcn'uco r'ngu"v'q"dg"v'c'ngp"cpf"v'guv'ewdgu"v'q"dg"o cf g"cpf"v'guv'f"v'q" f'g'v'gt'o k'p'g'j g'ec'wug'0'

"

Loading Tests"

Vj g'Rtqlgev'O cpci gt"o c{ "f'k'geu'v'j cv'c"m'qcf'k'pi "v'guv'dg"o cf g"qp"j g"y qtm'qt"cp{ "r'ctv'j g't'g'q'h'k'h"j g" f'ggo u' u'wej "v'guv'v'q'dg'p'gegu'ct{ "h'q't'q'pg'qt"o q'tg'q'h'j g'h'q'm'qy k'pi "t'gcu'qpu<"

"

h'k'w'g"qh'\$U'kg'E'wdgu'\$v'q'c'w'cl'p"j g'v'v'gpi j "tgs v'k'go g'p'u'q'h'E'rc'wug'524="

"

r'tgo c'w'gt'g'tgo q'x'cn'q'h'h'q'to y q'tn="

"

q'x'gt'm'qcf'k'pi "q'h'v'v'ew'gt'f'v'k'pi "eq'p'ut'v'ew'k'p="

"

ko r' tqr gt'eqo r'cev'k'p'cpf'k't'ew'k'pi "qh'eqpetgv="

"

cp{ "q'j g't"ek'tewo u'c'pegu"cw'k'd'w'cd'ng"v'q"cn'gi gf "p'gi r'k'i g'peg"qp"j g"r'ctv'qh"j g"E'q'p't'ce'v'qt." y j lej . "kp"j g" q'r'k'p'k'p'qh"j g'Rtqlgev'O cpci gt."o c{ "t'guw'u'kp"c"u'v'ew'gt'g'd'g'k'pi "qh'h'guu'j cp"j g't'gs v'k'gf "u'v'gpi j ="

"

K'j g'm'qcf'k'pi "v'guv'ku'q'tf'gt'gf "v'q"dg"o cf g'u'q'rgn{ "q't"kp"r'ctv'h'q't'g'cu'q'pu"*c+"v'q"*f+"j g"v'guv'uj cml'dg"o cf g" cv'j g" E'q'p't'ce'v'qt'u'qy p'equ'0'

"

K'j g'm'qcf'k'pi "v'guv'ku'q'tf'gt'gf "v'q"dg"o cf g'h'q't'g'cu'q'p"*g+ "j g"E'q'p't'ce'v'qt'uj cml'dg't'g'lo d'w'ug'f'h'q't'j g'equ" qh"j g" v'guv'k'h"j g"t'guw'u'ku"u'c'v'k'ce'v'qt{ 0' P q"gz'v'g'p'uk'q'pu"v'q"j g"E'q'p't'ce'v'F'v'c'v'k'p"uj cml'dg"i t'cp'v'gf "h'q't" f'g'nc{ u'cpf" f'k'ut'w'v'k'p't'guw'u'k'pi "ltqo "j g'ug'v'guu'0'

"

N'qcf'k'pi "v'guv'uj cml'dg'ectt'k'gf "q'w'kp"cee'qtf'cpeg"y kj "j g'tgs v'k'go g'p'u'q'h'DU': 332"6'4"U'ge'v'k'p"; 0'

"

K' yj g"t guwuu" qh' yj g" guv' ctg" pqv' ucw hcevqt { . " yj g" Rtqlgev" O cpci gt" y kn' f kgev' yj cv' yj g" r ctv' qh' yj g" y qtm'
 eqpegtpgf "dg" cngp" f qy p"qt' tgo qxgf "cpf" tgeqputwvfg "vq" eqo r n' "y kj "yj g" Ur gekkcevqp. "qt" yj cv' uvej "qyj gt"
 tgo gf knb gcuwtgu' cu' j g' o c { "yj kn' hkdg" cngp" vq' o cng' yj g' y qtn' ceegr wdg' cpf "yj g' Eqptcevqt" uj cml' ectt { "qww"
 uvej "y qtn' cv' j ku' qy p' equw'

Table 3.8 Sampling, Testing and Acceptance Standards"

O cvgtkcn"	Vguv"	Ukg'Uco r npi "	Vgukpi "	Ceegr vgf "	Tgo ctmu"
3"	4"	5"	6"	7"	8"
Ego gpv"	Qtf kpc{ 'Rqtvrpf " Tcr kf 'J ctf gplpi " Uwr j cvg" Tgukukpi "	"	DU'6772"	DU'34" DU'34" DU'6249" MU3947"	O cpw hcewtgt)u'Vguv'Egtv hlecvg"
Ci i tgi cvgu"	F guetk vqp" cpf "	"	DU': 34'Uge'4"	DU': : 4"	"
	Ernuuk hlec vqp"				
	Rctveng'Uk g"	DU': 34'Uge'3"	DU': 34'Uge'5"	DU': : 4"	+"
	Rctveng'Uj cr g"	DU': 34'Uge'3"	Xkwrncpf " DU': 34'Uge'5"	"	+" +" O kz"
	Urgelhe' l tckx{ "	DU': 34'Uge'3"	DU': 34'Uge'5"	"	+" F guki p"
	F gpukv{ "	DU': 34'Uge'3"	DU': 34'Uge'5"	"	+" T gs wkt go gpw"
	Xqkf u"	DU': 34'Uge'3"	DU': 34'Uge'6"	"	+"
	Cduqtr vqp"	DU': 34'Uge'3"	DU': 34'Uge'6"	DU': 229'En8040"	Ugg'Hggj g/vj cy "Vgukp"vj ku'cdng"
	Qti cple'K r wtkgu"	DU': 34'Uge'7"	"	"	"
	O qkwtg'Eqpvgpv"	DU': 34'Uge'7"	"	"	Hqt'cf lwuo gpvqh'cf f gf 'y cvgt'hqt'eqpetgv'g cnkpi "
Y cvgt"	Uvkcdkx{ "	DU'536: "	DU'536: "	DU'536: "	P qvtgs wkt gf 'hqt'r qvcdng'y cvgt"
	Eqpetgvg"	DU'3: : 3'Rv'323"	DU'3: : 3'Rv'325"	"	+"
"	Uwo r "	"	DU'3: : 3'Rv'324"	"	+" Y qtnedkx{ 'Vguv" +" +"
"	Etwej kpi "	"	DU'3: : 3"	DU'754: . " DU': 332"	Ewdg'vguv"
	Y cvgt'Cduqtr vqp"	"	DU'3: : 3'Rv'344"	DU'9485"	Rtgecuv'eqpetgv'Ernwug'52: "

	Hgg g/ y cy "	DU'3: : 3"	DU': 34"Uge03"	"	F wcdkklv{ ""vguv""hqt""ci i tgi cvg""pqv""eqo r n lpi "" y kj "o qkuwtg"cdugtr vqp"tgs vltgo gpvu"qh"DU" 7559"Er0'
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"

O c v g t k c u "	V g u v "	U k g ' U c o r r k p i "	V g u k p i "	C e e g r v g f " U c p f c t f u "	T g o c t m u "
3 "	4 "	5 "	6 "	7 "	8 "
"	"	"	"	"	4304 "
"	G r g e v t q n { v e " G h m t g u e g p e g "	"	"	"	C u " t g s w k t g f " h q t " u c n / e q p v c k p k p i " c i i t g i c v g " q t " u c r k p g " y c v g t "
"	E q t g u "	D U ' 3 : : 3 ' R v ' 8 " D U ' 3 : : 3 ' R v ' 342 "	D U ' 3 : : 3 ' R v ' 8 " D U ' 3 : : 3 ' R v ' 342 "	D U " ' 3 : : 3 " " R v " ' 342 " y k j " t g h " v q " e q p e t g v g ' l u t g p i v j u " v j k u " U r g e k h e c v k p p "	U g g ' E r c w u g ' 528 "
C f o k z g t u "	E q o r c v k d k r k v { ' y k j ' e g o g p v "	C u " " t g s w k t g f " " d { " N c d q t c v q t { "	"	"	V g u u v " v q " d g " e c t t k g f " q w ' d { " k p f g r g p f g p v ' N c d q t c v q t { " c u ' t g s w k t g f "

Vj g" Rtqlgev" O cpci gt" o c{ " cnq" kputwev" vj g" Eqptcevt" dghgtg" c" mcf kpi " vguv" vngu" r nceg" vj" vng" qw" e{ nkp ftecrtegt" ur geko gputtqo " vj g" utwewtgu" eqpetgpgf " cpf " j cxg" vj go " vguvf O' Vj g" ewwki " gs wkr o gpv" cpf " vj g" o gvj qf " qh' f qkpi " vj g" y qtniuj cmi' dg" vj g" Rtqlgev" O cpci gt" u" cr r tqxcr O' Vj g" ur geko gputtqo cmi' dg" f gcn' y kj " kp" ceeqtf cpeg" y kj " DU' 3: : 30 Rtkt " vj " vguvki . " vj g" ur geko gputtqo cmi' dg" cxckcdng" hqt " gzco kpcvqp" d{ " vj g" Rtqlgev" O cpci gt O' K' vj g" eqtgu" ctg" qtf gtgf " vj " dg" vngp" uqng{ " qt " kp" r ctv" hqt " tgcuppu" *e+ " cpf " *f + " cdqyg. " vj g" y qtni kpxqngf " cpf " vj g" vguvki " uij cmi' dg" o cf g' cv' vj g' Eqptcevt u' qy p' equ O' K' vj g' eqtgu" ctg" vj " dg" vngp" hqt " tgcuppu" *d+ " *e+ " cpf " *g+ " cdqyg. " vj g" Eqptcevt " y km' dg" t glo dwtugf " vj g" equv" kh' vj g" mcf kpi " vguv" f guetkdgf " kp" vj g" r t gxlqwu" r ctei tcr j u' r tqxgu' ucukcevt { O' "

Special Concrete"

No-fines Concrete"

P q/hkpu" eqpetgvg" hqt" wug" kp" uwdugkl' f tclpci g" uij cmi' eqpukuv" qh' c" 3< " ego gpvki i tgi cvg" o kz" d{ " xqruw g O' Ci i tgi cvg" uij cmi' dg" 42" o o " vj " 32" o o " i tcf gf " y kj " pq" o qtg" vj cp" 7' " r cuukpi " vj g" 32" o o " ukxg O' Qprf " uwhkelpv' y cvgt " uij cmi' dg" cf f gf " vj " gputtqo eqo r rvg" eqcvki " qh' vj g" ci i tgi cvg O' Qpg" j cmi' qh' vj ku" y cvgt " uij cmi' dg" r nceg " kp" vj " vj g" o kzgt " hktuv" chgt " y j lej " vj g" ci i tgi cvg" cpf " ego gpv" uij cmi' dg" cf o kvgf O' Chgt " r ctvcrn" o kz kpi " vj g" dcrpeg" qh' vj g' y cvgt " uij cmi' dg" cf f gf " vpvkic' eqpukugpe { " qh' o kz " ku' cej kxgf O' "

Rtgrko kpc{ " vguv" uij cmi' dg" ecttkgf " qw" qp" vj g" uksg" vj " r tqxg" vj g" uwkcdkuv { " qh' vj g" hpkuj gf " eqpetgvg. " cpf " cf lwuo gpw' o cf g' vj " g' r tqxgt vqpu' cpf " qt' i tcf kpi " cu' o c { " dg' tgs vkt gf " d { " vj g" Rtqlgev" O cpci gt O' "

Air-Entrained Concrete"

Eqpetgvg" hqt " tqcf u" cpf " vj qug" utwewtgu' y j gtg" ur gekhgf . " uij cmi' kpenf g' cp" cr r tqxgf " ckt / gputclpki " ci gpv" ecr cdng" qh' r tqf vekpi " c' 7' " ckt / gputclpo gpv' y kj " c' " vqrgtcepg" qh' 20' " *Erwug 524+0' "

Vj g" o kz " uij cmi' dg" r wtr qugn { " f guki pgf . " j cxkpi " tgi ctf " hqt " vj g" pcwtg" qh' i tcf kpi " qh' vj g" ci i tgi cvgu" cpf " ckt / gputclpki " ci gpv' dgkpi " wugf O' "

Rtghgtgpeg" uij cmi' dg" i kxgp" vj " vj g" wug" qh' ckt / gputclpki " ci gpw' y j lej " ecp" dg" cf o kplungt gf " kp" hzgf " ecrkdtcvgf " co qwpw" vj tqwi j " c" f gr gpf cdng" o geij cplecrn' f kur gpugt " qt " ucej gv" cpf " y j lej " ctg" cf f gf " vj " vj g" o kz kpi " y cvgt O' "

Htgs wgpv' ckt " o gvg" vguv" uij cmi' dg" ecttkgf " qw" cpf " vj g" eqpukugpe { " qh' vj g" ckt / gputclpo gpv' o clpvclpgf " vj " vj g" cdqyg" vqrgtcepu' d { " cf lwuo gpw' kp" vj g" o kz . " cu' o c { " dg' pgeguuct { O' "

Concrete in Benching"

Eqpetgkpi " hqt " dgpej kpi " kp" o cpj qrgu. " r wo r kpi " ucukpu" cpf " y qtni" utwewtgu" uij cmi' eqpukuv" qh' i tcf g" E47R" eqpetgvg" vprguu" qv gty kug" ur gekhgf O' K' uij cmi' dg" r nceg " y kj " ny " y qtnedkuv { " vj " vj g" cr r tqzko cvg" uij cr g" tgs vkt gf " cpf . " y j krg " ukni' tggp. " uij cmi' dg" hpkuj gf " y kj " pqv' ngu' vj cp" 72" o o " qh' i tcf g" E47R" eqpetgvg" vj " c" " uggni" tqy gngf " hpkuj " cpf " vj " vj g" eqpvqtu' lpf kecvgf " qp" vj g' ftcy kpi u O' "

"

Ready Mixed Concrete"

Wpɾɾuu'qɿj gty kug'ucvɟf "ɿj g'tgɾɾxcɾp'vɛɾɾwɾgu'qh'DU'754: 'uj cɱɿɾɾ r n(0'

"

Tgcf { "o kɾgf "eqpetgɟ"uj cɱɿɾɾn("dg'wɾgf "y kɿj "ɿj g'r tɿkɿt"ɾɾ r tɿxcɱɿ'qh'ɿj g'Rtɿɿlɾgev'O cɾci gt0Vj g'Eɿqɾɾtceɿvɿt" uj cɱɿɾɾqɿ'dg" tɾɿkɾxɾgf "qh'j kɱ'qɱɱɱ cɿkɿp"ɿq'r tɿxɿkɱf g'eqpetgɟ"ɿq'ɿj g'ucɾɾf ctf "ɱkɱf "f qy p'ɿp'ɿj kɱ'Uɾ gɛkɱɱecɿkɿp'd { " xɱwɾg'qh'cɾp { "ɾɾ r tɿxcɱɿ' i kɿgɾp'hɿt'ɿj g'wɾg'qh'eqpetgɟ'uwɾ r rɱgf 'd { 'qɿj gtu."cɾɾf "ɿj g'Rtɿɿlɾgev'O cɾci gt'tgugtxɾgu" ɿj g'tɿkɱ j v'ɿq'y kɿj f tcy "j kɱ'ɾɾ r tɿxcɱɿ' cɿ'cɾp { " ɱo g"eqɾugs wɾpɿ'qɾ" cɾp { "f gɿgtɿkɿtɿkɿp"ɿp'ɿj g's wɱkɱ { "qh'ɿj g"Eɿqpetgɟ."qt'wɾucɿkɱhɱceɿvɿt { 'f gɱkɱgt { 'qt'cɾp { 'qɿj gt" tgcɱɱp'j g'eqɾukɱf gtu'f gɱtɱo gɾɱɱɱɱ'ɿq'ɿj g'Y qɱɱɱ0'

Tgcf { "o kɾgf "eqpetgɟ"o cɾɱwɱɱcewɱtɱf "qh'ɿj g'ukɱg" uj cɱɿ' dg" ɱtcɾɱɱ qɱvɱf " ɿp" c" tɱxɱɱɱkɱɱi " f two " cɾɾf " uj cɱɿ' dg" eqɾɱɱpɱwɱɱɱɱ { "cɱ kɱcɿgf "wɾɱɱɱkɱ'kɱ'wɱɱf "ɿp'ɿj g'y qɱɱɱwɾɱɱuu'qɿj gty kug"ɾɾ r tɿxɱgf 0'Vj g'ɱo g'ɿpɱgtɱxcɱɱ'dɱgy gɱp'cɱf f ɿkɱi " y cɿgt'ɿq'ɿj g'f two "cɾɾf "r ɱɱɱkɱi "uj cɱɿɾɾqɿ'gzɛgɱf "; 2'o ɿpɱwɱɱ0' Vj g'ɱo g'ɿpɱgtɱxcɱɱ'dɱgy gɱp'eqo r ɱɱɱkɱp" qh'o kɱkɱi "cɾɾf " r ɱɱɱkɱi "uj cɱɱeqo r n('y kɿj 'Eɱɱwɱg'5270'

"

Granolithic Concrete"

Tghɿt'ɿq'Eɱɱwɱg'5270'

"

Pneumatically Applied Mortar (Gunit)"

Tgs wɱtgo gɾɱɱ'

"

Vj g'r pɱwo cɱɱe"ɾɾ r ɱɱecɿkɱp"qh'o qɱvɱt"uj cɱɿ'dg"ectɱkɱf "qɱw'qɱɱ { "d { "Eɿqɾɾtceɿvɿtu"gzɾ gɱkɱpɱɱf "ɿp'ɿj kɱ'ɿ { r g'qh" y qɱɱɱ cɾɾf "ɿj j q"ctg"ɿp"r qɱugɱɱkɱp"qh'r tɱɾ gɱt'Rɱɱpɿ'cɾɾf "gs wɱkɱ o gɾɱ0' P qɱ | ɱgo gɾ"go r ɱɱ { gɱf "qɾ"ɿj g'y qɱɱɱ"uj cɱɿ' dg'uwɱkɱgf " qɱ gɱcɱqɱu0'

"

Vj g'hɱpɱkɱj gɱf "r tɱf wɱv'uj cɱɿ'dg"f gɱɱɱ."qh'gɱgɾp"ɱgz wɱt g'cɾɾf "eqɱɱwɱt."cɾɾf "ɿq'ɿj g'tgs wɱtgo gɾɱɱ'qh'uwɱtɱgɱi ɿj . " ɱɱgtcɱɱɱf " cɾɾf "hɱpɱkɱj "ugv'qɱw'ɿp'ɿj kɱ'Uɾ gɛkɱɱecɿkɱp0'

"

Uɱtɱɱi ɿj "

"

Chɱgt'ewɱɱkɱi . "ɿj g'o qɱvɱt"uj cɱɿ'dg"ɛɱɱ cɱɱɱg'qh'r tɱf wɱkɱi "eqɱtɱf "ɱco r ɱɱu'y kɿj "c"4: /f c { "ɛj ctceɿgtɱkɱɱe"uwɱtɱgɱi ɿj " qh'pɱv' ɱɱu'ɿj cɾp'490P ɱo 40'

"

O cɿgtɱkɱɱ'

"

Ucɾɾf ."ego gɾɱv'cɾɾf "y cɿgt"uj cɱɱ'eqo r n("y kɿj "ɿj g'tgs wɱtgo gɾɱɱ'qh'Eɱɱwɱg"524"qh'ɿj kɱ'Uɾ gɛkɱɱecɿkɱp"gzɛgɱ v' ɿj cɿv' ɿj g'ucɾɾf "uj cɱɱeqɱɱɱto "ɿq'ɿj g'ɱ tɱf ɿkɱi "qh'\ qɱg'4"qh'DU': : 40'

"

Rtqr qtvkpu"
"

Vj g'r tqr qtvkpu"v"dg"wgf"lp"j g'o lz"uj cmi'dg"f gvgto kpgf"y kj "tghgtgpeg"v"j g"tgs vktgo gpw"qwwkpgf"lp" uwd/
erwug"529*4"cpf"j g"o lz"uj cmi'dg"pqv"y gcngt"j cp"qpg"r ctv"qh'ego gpv"v"hw"r ctvu"qh"ucpf"d{"xqno g."
j cxlpi "tgi ctf"v"j g'cf lwuo gpw'ht'dwmkpi "qh'j g'ucpf0
"

Qr gtcvkp"
"

Ck"cpf"y cvgt"rtguwtgu"uj cmi'dg"uwej "cu"v"r gto k'j g'r tqr gt"cr r rlecvkp"qh'j g'o qtvt."cpf"uj cmi'dg"f gvgto kpgf"
y kj "tghgtgpeg"v"j qug'rgpi j u'cpf'pq||rg"fko gvgto
"

O qtvt"tgdqwpf."tgeqxgtgf."ergcpgf"cpf"wpqpwco kpcvgf"y kj "gzvcpqgw"o cvgt."o c{"dg"tg/wgf"dw"pqv" hqt"
y cvgt/tgcklpi "utwewtgu0K"uj cmi'dg"tgi ctf gf"cu"cp"gs wxcrpv"xqno g"qh"ucpf"y j lej"uj cmi'pqv"gzeggf"42"
r gt'egpv'qh'j g'qvcdlucpf"tgs vktgo gpw0Tgdqwpf"y j lej"j cu'hf i gf"lp"j g'hqto y qtn'qt'dgwy ggp"tgphqtgo gpv'uj cmi'
dg'tgo qxgf"d{'eqo r tguugf"ckt0
"

Tgphqtgo gpv'uj cmi'dg"eqo r rvgnt"go dgf f gf"lp"j g'o qtvt"d{"j g'r tqr gt"f kgevkp"qh'j g'pq||rg"cpf"j g"o qtvt"
uj cmi'dg"cr r rkgf"cu'c"ugcf {"cpf"wpkvgttw vgf"hw"tqo"j g'pq||rg0
"

O qtvt"cr r rlecvkp"uj cmi'dg"f kucpvpwgf"cv'cp{"ugevkp"qh'j g'y qtn'ly j gtg'uci i lpi "qh'j g'o qtvt"ku"lp"gxkf gpeg0
"

Lqkpw"
"

Vj gug"uj cmi'dg"hqto gf"d{"uqr lpi"j g"uwthceg"v"c"j lp"gf i g0"Dghqtg"cr r r lpi"pgy"o qtvt."j g"uwthceg"uj cmi'dg"
j qtqwi j n'y gwgf0Nckcpeg"uj cmi'dg'tgo qxgf"d{"j g'lpkclrf kiej cti g'qh'htguj"o qtvt0
"

Vqrgtcpegu"
"

Vj g'j kempgu"qh'cr r rkgf"o qtvt"uj cmi'dg'pqv'guu"j cp"j g'fko gpukpu"uj qy p'qp"j g'F tcy lpi u'pqt'i tgcvt"j cp"32"
o o"qxgt"j qug'fko gpukpu."wrguu"qj gty kug'lpf lecvf"qp"j g'F tcy lpi u'qt'qj gty kug'r gto kwgf0
"

Rtqvgevkp"cpf'Ewtlpi "
"

Uj cmi'dg'ecttkgf"qwlk"ceeqtf cpeg"y kj"j g'tgs vktgo gpw'qh'Erwug"5270
"

Hpkuj gu"
"

Wrguu"qj gty kug"ur gekhgf"cmi'uwthcegu"uj cmi'dg"dtqwi j v"v"c"i tcpwct"vgzwtgf"Hpkuj"d{"o gcpu"qh'c"y qqf gp"
hqcw0
"

Eqrf"Y gcj gt"Y qtn"
"

P q"err rlecwqp"qh'o qtvct"uj cml'dg"o cf g"ci ckpuv"ltql gp"uwthcegu"pqt"y j gp"vj g"ckt"vgo r gtcwgtg"ku'dgrny "7qE0

"

O cml'pi "I qqf"

"

Cp{ 'F ghgevwg'y qtn'uj cml'dg'ew'qvw'ko o gf kcvn' 'cpf "o cf g'i qqf "y kj "ltguj "o qtvct'rpgwo c'kecm' 'cr r rkgf O'

"

Cement Grouts"

Ego gpv'i tqw'uj cml'dg"o kzgf "kp" yj g"tgrxcpv'r tqr qt'kpu" kpf kcvgf "kp" yj g"hqmqy kpi "vcdrg" wulpi "vj g" o kpk wo "s wcpv'k' qh'y cvgt "vq" gpuwt g" yj g" pgeguuct { "mwf k' "cpf "vq" tgpfgt "k' ecr cdirg" qh'r gpgwcvkpi "vj g" y qtn0

"

Erccu"	P qo kpcn'O kz "d { 'O cuu" "	
"	Ego gpv'	Ucpf "
I 3"	3"	/"
I 4"	3"	5"
I 5"	3"	32"

"

Ego gpv'i tqw'uj cml'dg'wugf "y kj kp'qpg'j qw'qh'o kzkpi . "gzegr v'y j gtg'eqpvcklpi "c'tgctf cpv'cf o kzwgO'

"

Pumped Concrete"

Y j gtg'r wo r kpi "qh'eqpetgv'ku'r gto kwgf "vq" dg'wugf "pq'tgrczcvkqp" qh'y g'tgs wktgo gpw'qh'y ku'Ur gekhlecwqp" y kni'dg" r gto kwgf O'Rct'kewrt" cvgpv'k'p" uij cml'dg" r ckf "vq" yj g" r tqr gt" i tcf kpi "qh' ci i tgi cvgu" vq" r tgrxgpv' drggf kpi "cpf kqt'ugi tgi cvkqp" fvtkpi "vj g'r wo r kpi "qr gtcwqpuO'Vj g" lpenwukqp" qh'y cvgt/tgf wv'kpi "cf f k'k'gu"qt" qvj gt"o cvgtknu' lpenw' kpi "m' cuj . "vq" ko r tqxg' yj g' hqy "ej ctcevgtk'ku' qh'y g'eqpetgv'y kni'qpn' "dg'r gto kwgf" y j gtg'k'ecp"dg'uj qy p"vj cv'vj g{ "f q"pqv'cf xgtugn' "chge'v'y g'eqpetgv'gk'j gt"kp" yj g'r m'v'ke"r j cug"qt"kp" yj g" h'pkuj gf "y qtn0

"

Precast Concrete Units"

Requirements"

Wprguu" qvj gty kug" ci tggf "kp" y tklkpi "d { " yj g" Rtqlgev" O cpci gt. "cml'r tgecu'v'eqpetgv' w'pku" uij cml'dg" o cpw'kewt'gf" qp" uk'g" cpf "uj cml'dg" v'w'g" vq" f'ko gpukqp" cpf "uj cr g. "y kj "v'w'g" ct'kugu" cpf "y kj "r gthge'v' "uo qqy "gzr qugf" h'cegu" ltgg" ltqo "uwthceg" drgo kuj gu. "ckt'j qngu. "etc| kpi "cpf "qvj gt" f ghge'v. "y j gvj gt" f gxgr'gr gf "dgh'gt"qt" ch'gt" dw'kf kpi / k'pO'Vj g{ "lj cnleqo r n' "y kj "vj g" cr r tqr t'k'v'g" DUO*P qv'g<Eqr kpi "dm'emi" cpf "uko k'ctn' "gzr qugf" w'pku" ctg'r ct'kewrt'n' "uw'egr v'ldrg" vq" etc| kpi "y j gp" yj g"eqpetgv'ku" o cpw'kewt'gf" wulpi "j li j "y cvgt'ego gpv'tcvku"

"

Vj g'o czko wo "uk g'qh'eqctug"ci i tgi cvg"lp"r tgecuveqpetgv"uj cmlpqv'gzeggf "42"o o "gzegr v'ht"j kempguugu'guu"
yj cp'97"o o "y j gtg'k'uj cmlpqv'gzeggf "32"o o 0'
"

Vj g'eqo rcevpki "qh'r tgecuveqpetgv"uj cml'eqphqto "y kj 'tgs vktgo gpw'i kxgp'gnugy j gtg'lp'y ku'Ur gekh'ecv'kp"gzegr v'
hqt"y j lp"urdu"y j gtg"wug'qh'ko o gtukqp"v r g'xldtcvqtu"ku"pqv'r tcevecdrg0 Vj g'eqpetgv"lp"y gug"urdu"o c{"dg"
eqpuqkf cvgf "qp" c" xldtcvki "vdrng"qt" d{"cp{"qy gt"o gy qf u" cr r tqxgf" d{"y g" Rtqlgev"O cpci gt0'
"

Ugco "ewtkpi "qh'r tgecuveqpetgv"y km'dg"r gto kwgf 0' Vj g'r tqegf vtg"ht"ugco "ewtkpi "uj cml'dg" uwdlgev"vq" y j g"
crr tqxch'qh'y g'Rtqlgev/O cpci gt0'
"

Vj g'r tgecuveqpetgv"y qtni'uj cml'dg"o cf g'wpf gt"eqxgt"cpf"uj cml'tgo clp"wpf gt"y j g'uco g'ht"ugxgp"fc{ u0'F wtkpi " y ku"
r gtlkf"cpf"ht" c" hwtj gt"ugxgp"fc{ u" y j g'eqpetgv"uj cml'dg"uj kgrf gf" d{"ucenki "qt"qy gt" crr tqxgf" o cvgtkni"
ngr v'eqpuvcpv' "y g0'K'uj cml'y gp"dg'ucengf "lp"y j g'qr gp'ht"cv'ngcu" c" hwtj gt"ugxgp"fc{ u"vq"ugcuqp"dg'htg'dglpi "
ugv'lp"r qukkqp0'Y j gtg'ugco "ewtkpi "ku" wugf "y gug"ko gu'o c{"dg'tgf wegf "uwdlgev"vq" y j g'crr tqxch'qh'y g'Rtqlgev"
O cpci gt0'
"

Rtgecuveqpetgv"wpku"uj cml'dg"eqputwevf"lp"lpf kxf wcn'htgo u0'Vj g'o gy qf "qh"j cpf rki "y j g'r tgecuveqpetgv"
wpku"chgt"ecunki ." f wtkpi "ewtkpi "cpf" f wtkpi "vcpur qtv"cpf" gtgevkp"uj cml'dg" uwdlgev"vq" y j g'crr tqxch'qh'y g"
Rtqlgev/O cpci gt." r tqxkf lpi "y cv'wej "crr tqxch'uj cml'pqv'tgrkxg"y j g'Eqptcevt"qh" tgr qpukdkv{ 'ht" f co ci g'vq"
r tgecuveqpetgv"wpku'tguwnki "htgo 'ectgrgu'j cpf rki 0'
"

Tgr ck"qh'f co ci g"vq"y j g'r tgecuveqpetgv"wpku"gzegr v'ht"o lqqt"cdtcukpu"qh'y g'gf i gu'y j lej "y km'pqv'ko r ck"
y j g'kpucmv'kp"cpf kt" crr gctcepg"qh'y g'wpku."y km'pqv'dg'r gto kwgf "cpf"y j g'f co ci gf "wpku"uj cml'dg'tgr wegf" d{"
y j g'Eqptcevt"cvj ku'qy p"gzr gpug0'
"

Gzegr v'y j gtg'r tgecuveqpetgv"y qtni'ku'f guetldgf "cu"ohck'hcegö"qt"cu"j cxlpi "ögzr qugf"ci i tgi cvgö"qt"vgttc| | q'hpkuj " y j g"
o qwf u'uj cml'dg"o cf g'qh'uwxcdrg"utqpi "ucy p"vko dgt"vvg"lp"htgo "vq"y j g'uj cr gu'tgs vktgf 0' Wprguu" qy gty kug"
f guetldgf."hcegu'ctg'vq'dg'hgh'tqwi j "htgo "y j g'ucy p"o qwf u0'
"

Y j gtg'r tgecuveqpetgv"y qtni'ku'f guetldgf "cu"ohck'hcegö"y j g'o qwf u'ctg'vq'dg'o cf g'qh'b gcnlqt'ctg'vq'j cxg'o gcnlqt"r n'y qqf "
rki lpi u"qt"ctg'vq'dg'qy gt" crr tqxgf"o qwf u'y j lej "y km'r tqf weg" c'uo qqy "f gpug'hck'hceg'vq'y j g'hpkuj gf "eqpetgv"
uwxcdrg"vq" tgegkxg" c" r clpvgf" hpkuj " f kgev" cpf "htgg"htgo " cml'uj wwtg" o ctmi." j qrgu." r kwcegu."gve0'Y j gtg"
r tgecuveqpetgv"y qtni'ku"vq"j cxg"cp"ögzr qugf"ci i tgi cvgö"qt"vgttc| | q'hpkuj "y j g'o qwf u'uj cml' dg"eqputwevf"vq"y j g"
tgs vktgo gpw'i kxgp'ht"o qwf u'ht"ohpkuj gf "hckö'y qtn0'
"

Vj g'o gy qf "qh'cej kxkpi "y j g'gzr qugf"ci i tgi cvg'hpkuj "uj cml'dg"öci i tgi cvg'vcpuhgtö"qt"qy gt" crr tqxgf" o gy qf 0'
"

Kerbs"

Rtgecuveqpetgv"ngtd"uj cml'eqphqto "vq"DU"9485< Rctv'3<3; ; 2."gzegr v'y j cv'eqctug"ci i tgi cvg"uj cml'eqphqto "
vq"DU": : 4<3; : 50 Hlpg"ci i tgi cvg'uj cml'eqpukv'qh'ucpf'tguwnki "htgo "y j g'pcwtcnf kulvgi tcv'kp'qh'tqen0'
"

"

Cr r t q x g f " c k / g p v t c k p k p i " c i g p v u " o c { " d g " r g t o k w g f " v q " d g " w u g f " r t q x k f l p i " v j c v " c r r t q x g f " c f l w u o g p v u " c t g " o c f g " v q " v j g " o k z " y k j " t g i c t f " v q " y c v g t " c p f " h k p g " c i i t g i c v g " r t q r q t v k p u " * E n c w u g " 5 2 4 - 0 ' k p " u w e j " e c u g u " v j g " o q l u w t g " c d u q t r v k p p " r k o k u " u g v " q w w " k p " D U " 5 6 2 " o c { " d g " p g i n g e v g f " u w d l g e v " v q " v j g " e q p e t g v g " u c v k u h { k p i " v j g " h g g l g " v j c y " u g w i c k f " f q y p " w p f g t " v j g j g c f k p i " \$ Y g k " D n q e m u " c p f " U k m u \$ 0 "

Paving Slabs"

R c x k p i " u r c d u " u j c m l e q p h q t o " v q " D U " 5 8 : " c p f " u j c m i d g " 7 2 " o o " v j k e m l w p r g u u " q v j g t y k u g " u r g e k h g f 0 "

Other Blocks"

D n q e m u " w u g f " h q t " d w k f k p i " y q t m l c p f " h k n g t " d g f " y c m u " u j c m l e q p h q t o " v q " D U " 8 2 9 5 < " R c t v " 3 < 3 ; : 3 0 "

Wall Units"

N / u j c r g f " y c m l w p k u " u j c m l e q p h q t o " v q " v j g " t g s w k t g o g p v u " q h " D U " : 3 3 2 0 ' Y j g t g " k v " k u " p q v l p v g p f g f " v q " w u g " e q r k p i " d n q e m u " h q t " v j g " r t q x g e v k p p " q h " v j g " w r r g t " g z r q u g f " u w t h c e g " q h " v j g " w p k u " v j g " w r r g t o q u v " 3 7 2 " o o . " h q t " v j g " h w n l " y k f v j " q h " v j g " w p k u " u j c m l d g " h q t o g f " y k j " e q p e t g v g " e q o r q u g f " q h " c i i t g i c v g " e q o r n l k p i " y k j " D U " : : 4 < 3 ; : 4 0 ' U w e j " e q p e t g v g " u j c m i d g " h q t o g f " k p v i t c m l " y k j " v j g " o c k p " d q f { " q h " v j g " e q p e t g v g 0 "

Other Items"

O c p j q r g " t k p i " w p k u " " " v c r g t u " e q x g t " u r c d u " " u g i o g p v u " c p f " e q p e t g v g " r k r g u " c t g " t g h g t t g f " " " v q " " " w p f g t " v j g k t " r c t v k e w r t " j g c f k p i 0 "

Site Books And Standards"

Instructions to be Recorded"

V j g " E q p v t c e v q t " u j c m l r t q x k f g " c p f " n g g r " r g t o c p g p v l " q p " v j g " U k g " c " p w o d g t g f " v k r n e c v g " d q q m l y j g t g k p " v j g " E q p v t c e v q t " u j c m l t g e q t f " c m l k p u t w e v k p u " t g r v k p i " v q " e q p e t g v g " y q t m l k u u w g f " d { " v j g " R t q l g e v O c p c i g t 0 ' Q p g " e q r { " q h " g x g t { " g p v t { " v j g t g k p " u j c m i d g " u g p v " v q " v j g " R t q l g e v O c p c i g t " q p " v j g " u c o g " f c { " c u " v j g " g p v t { " k u " o c f g 0 "

Site Diary"

Vj g"Eqpvtcevqt"uj cml'r tqxkf g"cpf"nggr "r gto cpgpv\ "qp"vj g"Ukg" c"eqpvpwqwu"gpv\{"f lct{"y j gtgkp"vj g"
Eqpvtcevqt"uj cmltgeqtf" f gvcu'qh'hqto y qtm'eqputvevqp."r nckpi "qh'tgkphqtego gpv'eqpetgkpi "cpf"ewtkpi "
qr gtcvqpu"utknpkpi "qh'hqto y qtm"o cmlpi "i qqf "cpf" f cln\ "vgo r gtcwtg"cpf"y gcvj gt"eqpf kskqpu0Vj ku'f lct{"
uj cml'ny c{ u'dg'cxckcdng'hqt'kpur gevqp'd{ "vj g'Rtqlgev'O cpci gt0

"

"

Copies of Standards and Codes"

Vj g"Eqpvtcevqt"uj cml'r tqxkf g"cpf"nggr "r gto cpgpv\ "qp"vj g"Ukg"eqr kgu'qh'vj g'hqmqy kpi "Ucpf ctf"Eqf gu"
qh'Rtcevkg<"

"

DU' : 34"
DU' : : 4"
DU' 3: : 3"
DU' 6688"

DU' 754: "
DU' 784: "
DU' : 229"
DU' : 332"
MUB947"

"

Vj g"Eqpvtcevqt"uj cmlp"cf f kkp'r tqxkf g"cpf"nggr "r gto cpgpv\ "qp"vj g"Ukg"eqr kgu'qh'uwej "qvj gt"Ucpf ctf u."
Eqf gu. P qvgu'cpf"Ur gekhecvkpu'cu'o c{ 'dg'tgs wktgf "d{ "vj g'Rtqlgev'O cpci gt0

"

Water Retaining Structures - Special Clauses"

P qvg<Kp"vj g'gxgpv'qh'cp{ "f hgtgpegu'dgwy ggp"vj g'\$Ur gekcnErnwugu\$"cpf"vj g'r tgxkqwu"Ur gekhecvkpwf gt"
Ugevqp"40"vj g'r tqxkukqpu'qh'vj gug'\$Ur gekcnErnwugu\$"uj cmlj cxg'r tgegf gpeg0

"

Making Good"

Vj g'ego gpv0 qtvt'wugf'kp'hknpkpi "tgeguugu'kp"vj g'eqpetgv'hqto gf"d{ "dqddkpukp'eqppgevqp'y kj "hqto y qtm'
uj cml'eqpvckp'cp'cr r tqxgf'gzr cpf kpi "cf o kzwtg0

"

Construction Joints in Water Retaining Structures"

Kp"y cvgt'tgvcpkpi "utvewtgu"RXE"y cvgtuqr u'pqv'ngu"vj cp"352"o o "y kf g'o cpwxcwtgf"d{ "cp"cr r tqxgf"
o cpwxcwtgf"uj cml'dg"dvkn'kpq"cm'eqputvevqp"lqkp'u'lp"gz vgtpcn'y cml'cpf "eqputvevqp"lqkp'u'lp"tqqhu"
qh'r qvcdng'y cvgt'tgvcpkpi "utvewtgu0Eqputvevqp'lqkp'u'uj cml'dg'hqto gf "cv'r qukkqpu'ci tggf "d{ "vj g'Rtqlgev"
O cpci gt0

"

Vj g'equv'qh'hqto kpi 'eqputwekqp'lqkp'u'uj cmi'dg'kpenw gf 'd{ 'y g'Eqptcevt'kp'j ku'i gpgtcr'eqpetgvg'tcvgu0'

"

Watertightness of Structures"

Vj g'Eqptcevt'uj cmi'dg'uqrgn' 'tgr qpukdng'hqt 'y g'y cvgt'ki j vpguu'qh'utwewt'gu'cpf 'cp{ 'tgo gf kcn' o gcuwt'gu' pgeguuct {0'

"

Hydrophilic Rubber Sealer"

J { f tqr j kke"twddgt"ugcrgt"uj cmi'dg'eq/gzvwf gf "htqo "ej nqtqr tpgp"cpf "j { f tqr j kke"twddgtu"kpq" c"egmwrt" utkr "cr r tqzko cvgn{ "47"o o "z"9"o o "y keni'y j lej "gzr cpf u'cu'k'cduqtdu'y cvgt0'Vj g'utkr "uj cmi'kpeqr qtcvg" cp'gzr cpukqp'f gr{ 'eqcvkpi 'q'r t'gxgpv'cevkxcvqp'f vtlkpi 'ugvklpi 'qh'y g'utwtqwpf kpi "eqpetgvg0'

"

J { f tqr j kke"twddgt"ugcrgt"uj cmi'dg'cr r rkgf "q"y j g'r g'tko gvg"qh'cmi'kr gu'vq'dg'dwkn'kpq"eqpetgvg'utwewt'gu." vq"gzvklpi "eqpetgvg"y cmi'cpf "urdu"cv'qt"dgnjy "y cvgt'ngxgn"y j lej "j cxg"dggp'f go qrkuj gf "cpf "tgs vkt'g" gzvgpukqp.'cpf 'vq'qy gt'qecvku'cu'kpf kcvgf 'qp'y g'F tcy kpi u0'

"

Vj g'utkr "ugcrgt"uj cmi'dg'dqpf gf "q"y j g'r k g'f kco gvg"qt"qp"vq"y j g'hceg"qh'f go qrkuj gf "utwewt'gu"qp"vq" y j lej "pgy "eqpetgvg"ku'vq'dg'r megf "u'cu'vq'dg'cv'ngcu'322"o o "htqo "y g'y cmi'utw'hceg0' Y j gtg'f qy gndctu' ctg"lpeqr qtcvgf "kp'dqpf kpi "pgy "eqpetgvg"vq'qf."y j g'ugcrgt"uj cmi'dg'r megf "cdqxg"y j g'f qy gndctu'qp"y j g" \$y g'v'k'f g'qh'y g'utwewt'g0'Dqpf kpi 'uj cmi'dg'cee go r rkuj gf "vukpi 'r tqr tkgct{ "pgqr tpgp'qt'gr qz{ "cf j gukxgu" vq'gpwt'g'y j g'ugcrgt'ku'p'qv'f kuwtdgf 'f vtlkpi 'r mego gpv'qh'y g'eqpetgvg0'

"

Vj g'ugcrgt' utkr "uj cmi'dg'htqo "cp'cr r tqxgf "uwr r rkg"cpf "cr r rkecvkqp'uj cmi'dg'utw'kv{ "kp'cee qtf cpeg"y kj " y j g'b cpw'cewt'gt'u'tgego o gpf cvkqp'u0'

"

Waterproof Membranes for Concrete Roofs and Gutters"

Eqpetgvg'tqqhu"cpf "i wgtu'uj cmi'dg'y cvgtr tqqhgf "d{ 'y g'r tqxkukqp'qh'c"o go dtepg"vq'dg'rkf "qp"vq'qh'y g" urcd0' Vj g'o go dtepg"uj cmi'dg" c"eqrf "cr r rkgf "r tghqto gf "y cvgtr tqqh'rcu kpcvgf "rc{ gt"eqo r tkukpi "c"J F RG" ecttktg"tkm " y kj "c"uqrnt"tghrgevkxg"utw'hceg"cpf "c"ugrh'cf j gukxg"twddgt"dkwo gp"eqo r qwpf "eqo r n{ kpi "y kj " y j g'tgs vkt'go gpw' qh'DU": 3240'Vj g'o go dtepg'uj cmi'gzj kdk'c"vgct'tgukucpeg"qh'cv'ngcu'472'P lo o "y j gp"vgugf "kp'cee qtf cpeg"y kj " CUVO "F 32260' Cf j gukqp"vq'r tko gf "eqpetgvg"vq'ku'gh'uj cmi'gzeggf "307'P lo o "y j gp"vgugf "kp'cee qtf cpeg"y kj " CUVO "F 322." cpf "c"r v'pewtg"t'gukucpeg"qh'4; 2'P "87"o o "y j gp"vgugf "kp'cee qtf cpeg"y kj "CUVO "G3760" O go dtepgu'uj cmi'gzj kdk'c"y cvgt'tgukucpeg"qh'p'qv'o qtg"y j cp'2086" "chgt" 46" j qwtu'y j gp"vgugf "kp'cee qtf cpeg"y kj "CUVO "F 7960' Vj g'eqptcevt'uj cmi' uwo k'r tqr qucu'ht"y cvgtr tqqh' o go dtepgu'ht'cr r tqxcn'vqi gj gt'y kj 'o cpw'cewt'gt'u'ecvcmj vgu'cpf 'vgej plecnlktg'cwt'g0'

"

Y cvgtr tqqh' o go dtepgu' uj cmi' dg' kpu'cnf" gpv'kgn' "kp'cee qtf cpeg" y kj " y j g" o cpw'cewt'gt'u' kpu'wekqp'u0' O go dtepgu'uj cmi'dg'eqp'v'p'w'v'w' "y j g'lp'v'p'cd'hteg"qh'y j g'r cter gv'y cmi'cpf "h'kuj gf "egp'tcm'v'p'f gt'y j g'eqr kpi 0' Cf lcegp'v'utkr u'qh'o go dtepg'uj cmi'dg'qxgt'cr r gf "vq'r tqxkf g" c"y cvgtr tqqh'lqkp'0'Vj g'r tqxkukqp'qh'c"y cvgtr tqqh'

o go dtcpg"qp"vj g'tqqh'lurcd"lj cmlpqv'tgrgxxg"vj g'Eqpvcevt"qh'j ku'tgur qpukdkkkgu"q'r tqf weg"c'y cvgtr tqqh'tqqh'lurcd"
y j lej 'lj cmlj cxg'wceguuhwml 'r cuugf "c'y cvgt "ki j vpguu'guv'dghqtg"vj g'o go dtcpg'ku" kpuvcngf 0'
"

SECTION 4 PIPELINES, PIPEWORK

General

Equivalency of Goods, Materials and Plant

Y j gtgxtg'tghgtgpeg'ku'o cf g'lp'yj g'Eqpvtcev'lpentf lpi 'Ur gekklecvkpu.'F tcy lpi u'cpf 'Dkm'qh'S wcpvkkgu.'vq" ur gekklecf "o cpwlcwewtgu"qt'uw r rkgu'htq"y j g'uw r n' "qh'i qqf u."o cvgtknu'cpf "r rcpv'htq"y j g'Y qtmu."i qqf u." o cvgtknu'cpf "r rcpv'htqo "cngtpcvkxg"o cpwlcwewtgu"cpf "uw r rkgu'y kn'dg"r gto kwgf."wprguu' qvj gty kug" gzt rguu' l'ucv'f'lp'yj g'Eqpvtcev.'r tqxlf lpi 'y j g'ug'qvj gt'i qqf u."o cvgtknu'cpf "r rcpv'ctg'uwducpvkcm' "gs wcn'qt" qh'c'j ki j gt's wcn'f'lp'yj cp'yj qug'qh'yj g'ur gekklecf "o cpwlcwewtgu"qt'uw r rkgu'cpf "ctg'cr r tqxgf 'lp'y tklpi "d{ "y j g' Rtqlgev' O cpci gt'O'F khtgpegu" dgvy ggp" y j g' ur gekklecf "i qqf u." o cvgtknu' qt" r rcpv' cpf "y j g' r tqr qugf " cngtpcvkxg'lj cni'dg'f guetldgf 'lp'y tklpi "d{ "y j g'Eqpvtcev'qt'cpf "uwdo kwgf "vq'y j g'Rtqlgev'O cpci gt."vqi gyj gt" y kj "uwej "o cpwlcwewtgu"qt'uw r rkgu'vgej plecn'rkgtcwgt"cpf "uco r ngu"cu"y j g'Rtqlgev'O cpci gt"o c{ " tgcuppcdn' tgs wktgOC'v'ngcu'4: 'f c{ u'r tkqt "vq'y j g'f cvg'y j gp'y j g'Eqpvtcev'qt'f guktgu'y j g'Rtqlgev'O cpci gt'at' eqpugp'O' l'p'y j g'gxgp'yj g'Rtqlgev'O cpci gt'f gvgto kpgu'yj cv'uwej "r tqr qugf "cngtpcvkxg'i qqf u."o cvgtknu'qt" r rcpv'f q'pq'gpwtg'uwducpvkcm' "gs wcn'qt"j ki j gt's wcn'f'lp'yj g'Eqpvtcev'qt'uj cni'qdvclp"y j g'i qqf u."o cvgtknu' qt' r rcpv'htqo "y j g'o cpwlcwewtgu'qh'uw r rkgu'ur gekklecf 'lp'y j g'Eqpvtcev'O

"

Materials

Cp{ 'o cvgtknu'y j lej 'y kn'eqo g'lpv'eqpvtcev'y kj 'r qvcdrg'y cvgt'qt'y cvgt'vq'dg'wugf 'hqt'r qvcdrg'uw r n' 'lj cni' eqo r n' 'y kj 'y j g'WM'tgi wrcvqpu"qp'y j g'wug'qh'o cvgtknu'htq'r qvcdrg'y cvgt'uw r n' 'O'Y cvgt'Uw r n' '*Y cvgt' S wcn'f'+T'gi wrcvqpu'3; ; 'cpf '37'y 'Ucvg'o gpv'qh'yj g'F gr ctvo gpv'qh'Gpxkqpo gpv'Ego o kvgg'qp'Ej go lecn' cpf "O cvgtknu'qh'Eqputvewkp'htq'wug'lp'r wdrle"y cvgt'uw r rkgu'cpf "uy lo o lpi "r qqnu."r wdrkuj gf "d{ "y j g' F gr ctvo gpv'qh'yj g'Gpxkqpo gpv.'WM'ht'pcv'kqpcn'ucpf ctf u'cf qr vgf 'hqt'wug'lp'Mgp{cO

"

Approval

Cu"uqqp"cu"r quikdrng'chgt"eqo o gpego gpv'qh'yj g'Eqpvtcev."y j g'Eqpvtcev'qt'uj cni'uwdo k'vq"y j g'Rtqlgev' O cpci gt'htq"j ku'cr r tqxcn'c'rkun'qh'j ku'r tqr qugf "uw r rkgu."uqwtegu'qh'o cvgtknu'cpf "r tqr qugf "ucpf ctf u'O' P q"o cvgtknu."r rcpv'qt"gs wkr o gpv'uj cni'dg'r tqewt'f'htq"y j g'Eqpvtcev'y kj qw'htu'v'qdvclp'lp'i "y j g'Rtqlgev' O cpci gt'at'cr r tqxcn'O' Uco r ngu'qh'o cvgtknu'uj cni'dg'uwdo kwgf "vq"y j g'Rtqlgev'O cpci gt'htq"cr r tqxcn'cu" tgs wktgf "d{ "y j g'Rtqlgev'O cpci gt'O'O cvgtknu'uwdugs wgpv'f'uw r rkgf "uj cni'eqphqto "vq"y j g's wcn'f' "qh'y j g' uco r ngu'y j lej "j cxg'dggp"cr r tqxgf "d{ "y j g'Rtqlgev'O cpci gt'O'P q"ucpf ctf u."o gyj qf "qh'o cpwlcwewtgu"qt" ur gekklecvkpu'uj cni'dg'ej cpi gf "y kj qw'yj g'cr r tqxcn'qh'yj g'Rtqlgev'O cpci gt'O'Y j gtg'r quikdrng."r rcpv'uj cni' dg'uw r rkgf "vq"y j g'uco g'ucpf ctf u'qt'vq'eqo r cvkdrng'ucpf ctf u'O

"

Vj g'Eqpvtcev'qt'uj cni'r tqxlf g'ugewt'g'wqtci g'htq'cni'uco r ngu'uwdo kwgf "vq"y j g'Rtqlgev'O cpci gt'O

"

Dimensions

Rcpv'cpf "o cvgtknu'uj cni'dg'uw r rkgf "vq"y j g'i gpgten'cttcepi go gpv'cpf "f ko gpukqp."qt'vq'uwk'yj g'f ko gpukqpu." uj qy p'qp'yj g'F tcy lpi u'qt'qvj gty kug'lpf lecv'f'lp'yj g'Eqpvtcev'O'Y j gtg'pq'uwej "f ko gpukqpu"ctg'lj qy p'yj g' Eqpvtcev'qt'uj cni'dg'tgur qpukdrng'htq'uk' lpi 'y j g'Rcpv'O'CP { 'tgf guki p."gztc'f guki p."cf f kkgpcn'eqputvewkp"qt" cp{ "qvj gt"equu"t guw'kpi "htqo "y j g'wug'qh'Rcpv'vq"qvj gt"cttcepi go gpv'qt"vq"qvj gt" f ko gpukqpu'uj cni' dg'yj g'tgur qpukdrng' "qh'yj g'Eqpvtcev'qt'O

"

Packaging and Protections

Cm'kgo u'uj cm'dg'cf gs wcvgrf "etcvgrf"qt"r cenæi gf "vq"y kj uvcpf "f co ci g"cpf "r t g x g p v f g v g t k q t c v k p p f v g v g"vq"
uj k r r k p i . "j c p f r k p i "c p f "u q t c i g 0 V j g "o g y q f u "q h r t q v g e v k p p c p f "u j k r r k p i "u j c m i d g "v q "y g "c r r t q x c n i q h "y g"
RtqlgevO cpci gt0

Marking"

Cm'Ræpv'uj cm'dg'o ctngf "k"ceeqtf cpeg"y kj "Eræwug"7"qh'DU'GP "767"cpf "Eræwug"59"qh'DU"73850Dghqtg"
uj k r r k p i . "c m i k g o u ' u j c m i d g ' e r g c t n f " o c t n g f 0 E t c v g u " q t " r c e n æ i g u " u j c m i d g " o c t n g f " q p " v y q " u k f g u " y k j "
k p f g r k d r g " r c k p v ' y k j " y g " p c o g " q h ' y g " r t q l g e v " y g " G o r m q { g t " c p f " y g " E q p t c e v " p w o d g t " u j c m i d g e t " o c t n u i "
k p f l e c v k p i " y g ' e q p v g p w 0

Receipt, Storage, Handling and Transportation"

Ræpv"gs wkr o gpv'cpf "o cvgtknu'uj cm'dg'uqtf "k"uwej "c"o cpggt"cu"vq"r t g u g t x g " k u ' s w e r k v { " c p f " e q p f k k q p "
v q " y g " u v c p f c t f u ' t g s w k t g f " d { " y g " E q p t c e v 0 V j g " R t q l g e v O c p c i g t " u j c m i t g h w u g " v q " c e e g r v q t " u j c m i t g l g e v " c p { "
o c v g t k n u " q h " R æ p v " y c v l p " j k u " q r l p k p p " k u " f g h g e v k x g " q t " q y g t y k u g " h c k u " v q " e q o r n f " y k j " y g " u v c p f c t f u ' t g s w k t g f "
d { " y g " E q p t c e v 0 C m i u w e j " f g h g e v k x g " k g o u " u j c m i d g " t g o q x g f " h t q o " y g " U k g " c u " f k t g e v g f " d { " y g " R t q l g e v "
O c p c i g t 0 T g r c k u " u j c m i d g " e c t t k g f " q w " k p " c e e q t f c p e g " y k j " r t q e g f w t g u " c r r t q x g f " d { " y g " R t q l g e v O c p c i g t "
c p f " u j c m i d g ' e q o r r g v g f " v q " y g " R t q l g e v O c p c i g t a i " u c v k u f c e v k p 0

Manufacturer's Certificates"

Vj g'Eqpvtcevqt'uj cm'hwtpkuj "y g'RtqlgevO cpci gt'y kj "c"o cpwæewtgtæ'egtæhlecvg'eqphqto kpi 'eqo r ræpeg"
vq"y g'ur gekæecvqp"kp'tgur gev'qh'cm'kgo u'qh'Ræpv"gs wkr o gpv'cpf "o cvgtknu' Vj g'qtli kpcn'cpf "qpg'eqr { "qh"
y g' b o c p w æ e w t g t æ ' e g t æ h l e c v g ' u j c m i d g ' f g r k x g t g f " v q " y g " R t q l g e v O c p c i g t " p q v i æ v g t " y c p " 3 6 " f c { u ' r t k q t " v q " y g "
k p v g p f g f " f c v g " q h i f g r k x g t { " q h " y g " k g o " v q " U k g 0

Proprietary Materials"

Rtqr tlgvct { "o cvgtknu'uj cm'dg'uwr r rægf "k"uwæcdng"eqpvæpgtu"cpf "k"cr r t q r t l g v g " d c v e j " u k g u " h q t " y g " y q t n i "
v q " d g " w p f g t v æ n g p 0 V j g ' e q p v æ p g t u " u j c m i d g ' o c t n g f " y k j " y g " h q m y k p i " k p h q t o c v k p p <

Uqtc i g l p u t w e v k p u "
Vj g' b c p w æ e w t g t æ i p c o g "
Uj g r h i h g " c p f " f c v g u " q h i b c p w æ e w t g "
O c v g t k n i k f g p v æ h l e c v k p p "
Dcvej 't g h g t g p e g " p w o d g t "
P g v y g l i j v "
O k z k p i ' k p u t w e v k p u "
C p { " y c t p k p i u " q t " r t g e c w k p u " e q p e g t p k p i " y g ' e q p v g p w " c p f " y g k t ' u c h g ' w u g 0

Vj g"Eqpvtcevqt"uj cm'uwr r n f "y kj "gcej "eqpuli po gpv"qh"r t q r t l g v c t { "o cvgtknu" f g r k x g t g f " v q " y g " U k g . "
e g t æ h l e c v g u h w t p k u j g f " d { " y g ' b o c p w æ e w t g t " q t " j k u ' c i g p v i æ v k p i <

Vj g' b c p w æ e w t g t æ i p c o g " c p f " c f f t g u i "
Vj g' c i g p v æ i p c o g " c p f " c f f t g u i " y j g t g " c r r æ c d n g "
O c v g t k n i k f g p v æ h l e c v k p p "

Dcvej 'tghgtgpeg'pwo dgtu 'uk' g'qh'gcej 'dcvej 'cpf 'y' g'pwo dgt 'qh'eqpvclpgtu'lp'y' g'eqpuk po gpv'
F cvg'qhb cpwxcwtg0'
"

Rejected Materials

Uj qwf "cp{ "kgo "qh'r rcpv."o cvgtknu'qt"o cpwxcwtgf "ctvkgu"dg"lp'y' g'lwfi o gpv'qh'y' g'Rtqlgev'O cpci gt."
vpuqwpf "qt"qh'kphgtkqt "s wcrk{ "qt"lp"cp{ "y c{ "vpuwkgf "hqt "y' g'r wtr qug"lp'y j lej "k'ku'r tqr qugf "vq"go r nq{ "
y' go ."uwej "kgo u."o cvgtknu'qt"o cpwxcwtgf "ctvkgu"uj cni'pqv'dg"wgf "w qp" y' g"Y qtmu'dw'uj cni'dg"
dtcpf gf. "h'lp'y' g'qr lkpqp'qh'y' g'Rtqlgev'O cpci gt "y' ku'ku'pgeguuct{ ."cpf "uj cni'hqt y' y' kj "dg'tgo qxgf "htqo "
y' g'Ukg0'
"

Samples and Storage of Materials

Y j gtg'tgs wktgf "d{ "y' g'Rtqlgev'O cpci gt "y' g'Eqpvtcevqt "uj cni'wdo k'vq'y' g'Rtqlgev'O cpci gt "hqt"cr r tqxcrn'
uco r ngu'qhr kr gu "hkwpi u'cpf "o cvgtknu'r tkt "vq'r tqewtgo gpv0' Vj g'Eqpvtcevqt "uj cni'pqn' "uqtg'r kr g. "hkwpi u'
cpf "qy' gt "o cvgtknu'cv'r r egu"cr r tqxgf "d{ "y' g'Rtqlgev'O cpci gt "cpf "uj cni'cv'cni'vko gu'r tqxkf g"cf gs wcvg"
uwr gtxlup" cpf "y' cvej o gp" vq" r txxgpv' y' gh' qt" f co ci g0' Cp{ " rquu" qt" f co ci g" lpewtgf "y' kni' dg" y' g"
Eqpvtcevqt'aur qpukkrk{ 0'
"

Rkr gu'uj cni'pqv'dg'ucengf "j ki j gt "y' cp'tgeqo o gpf gf "d{ "y' g'o cpwxcwtg0'"Vj g'ctgc"qp'y j lej "y' g'r kr gu'
ctg'vq'dg'ucengf "uj cni'dg'htgg'f tclpki. "y' g'i tcuu'qt"qy' gt "xgi gcvkqp'uj cni'dg'ngr v'ew'cpf "uwxcdng'vko dgt "
etcf ngu'uj cni'dg'r tqxkf gf "qp'y j lej "y' g'r kr gu'uj cni'dg'ncf 0' Gpf "uqr u'vq'cni'ucenu'uj cni'dg'r tqxkf gf 0'
"

Hkwpi u'cpf "xcrgu"uj cni'pqv'dg'ucengf "o qtg"y' cp"qpq"vgt"j ki j "cpf "y' g{ "uj cni'dg"uwr r qtvgf "qht'y' g"
i tqwpf "d{ "uwxcdng'vko dgtu0'
"

Ck "xcrgu "twddgt "lqpvtlpi u."i cunwu."dqnu"cpf "uko kct "hkwpi u'cpf "o cvgtknu'uj cni'dg'ngr v'lp"cr r tqxgf "
nengf "r tgo kug'cpf "uwej "hkwpi u'cpf "o cvgtknu'uj cni'pqv'dg'f kntkdwgf "vq'y' g'tgpej "ukf g'vpxi'ko o gf lcvgn "
r tkt "vq'rc{ lpi. "hkwpi. "lqlpki "qt"cuugo dng'y' gtqht0' Cni'tvddgt "lqlpvtlpi u'cpf "i cunwu'o wu'dg" uqtgf "lp"c "
eqqnf co r "hcecvkp"cpf "cni'hkwpi u'cpf "o cvgtknu'uj cni'cv'cni'vko gu'dg'uqtgf "lp'y' g'uj cf g'wpf gt" eqxgt "cpf "
r tqgevgf "htqo "y' g'y' gcv' gt "vq'y' g'ucvukcevkqp'qh'y' g'Rtqlgev'O cpci gt0'
"

Flanges

Hrcpi gu'uj cni'dg'ncegf "cpf "ftknf "vq"eqphqto "vq'y' g'fko gpukpu'ur gekhgf "lp"DU'67260'Hrcpi gu'uj cni'dg"
eqo r cvkng'y' kj "y' g'r tguwtg"tcvpi "qh'y' g'cf lcegpv'r kr gy qtn'qt "cu'ucvxf "qp"y' g'f tcy lpi u0' Dqnu. "pwu"
cpf "y' cuj gtu"y' q'y' cuj gtu'r gt "dqnu"uj cni'dg'vq"DU'GP "32; 4/5=42250P q"dqnu'uj cni'r tqqlgev'ngu'y' cp'y' q "
hwn'y' tgcf u'dg{ qpf "ku'pw'chgt"vki j vglpi 0'lp"pq"ekewo ucpegu'uj cni'y' g'uj qtvgpki "qh'gzeguixgn{ "nqpi "
dqnu'd{ "ewwpi "dg'cmny gf 0'
"

I cunwu'uj cni'eqo r n' "y' kj "tgr negf "d{ "DU'GP "3736"3; ; 9+cpf "tgr negf "d{ "DU'GP "8: 3/4"422+cpf "DU"
8: 3/3"3; ; 8+V{r g"Y 0'Hrcpi gu'uj cni'dg'r clpvgf "y' kj "y' q"eqcu'qh'gr qz{ "tulp'r clp0'Rwf f ng'hrcpi gu'uj cni'
dg'hkwf "vq'cni'r kr gy qtn'r cuulpi "y' tqwi j "y' cvgt/tgclpki "utvewtgu'cpf "o cpj qngu'i tgcvt "y' cp'40/0' "f ggr 0'
"

Mechanical Couplings

Wprguu"qy' gty lug'ur gekhgf "qt"uj qy p"lp'y' g'F tcy lpi u'r kr gu'cpf "hkwpi u'uj cni'dg"uwr r nkgf "y' kj "hgzkdng"
lqlpu0'O gej cplecni'eqwr npi u'uj cni'dg'qh' y' g"F tguugt. "Xknpi "Lqj puqp"v{r g"y' kj qw" c"egpvtg"tgi kngt0'
452"

Lqlpw"tlpi u"wgf "uj cml'dg"qh'yj g'gyj { rpgg"r tqr { rpgg"twddgt "GRF O + "qt"qj gt"o cvgtkcn'cr r tqxgf "d{ "y g" Rtqlgev'O cpci gt'O Cml'o gejcplecn'eqwr lpi u"cpf "lrcpi g"cf cr vgtu'lpnw lpi "pwwu."dquu"cpf "y cuj gt u"uj cml' dg"uwr r rkgf "y kj "Tlucpø'p{ rrp"y gto qr rucw"r qn{ co kf g"cr r rkgf "d{ "hwxk k gf "dggf "fkr lpi "qt"uko krt" cr r tqxgf O

Materials for the Assembly of Flexible Joints"

Nwdtlecpv'uj cml'dg"qh'c"nlpf "pqv'eqpf vekg"vq"y g'i tqy yj "qh'dcevgtk"cpf "uj cml'j cxg"pq" f grvgtkwu"ghgewu" qp"glkj gt "y g"lqlpv"tlpi u"qt"r kr gu'O Nwdtlecpw"lqt"y cvgt "uwr r n{ "uj cml'pqv'ko r ctv"vq"y cvgt. "cung."eqmwt."qt" cp{ "ghgev'hpqy p"vq"dg"lplwtkwu"vq"j gcnj O

Ductile Iron Pipes"

General"

F wekrg"lqp"r kr gu"cpf "hwlpi u"lqt"y cvgt "uwr r n{ "uj cml'eqo r n{ "y kj "DU'GP "767"*3; ; 7+0'Rkr gu"cpf "hwlpi u" uj cml'j cxg" ur ki qv" cpf "uqengv" lqlpwu" wprguu" qj gty lug" ur gekhgf O'Rkr gu" uj cml' dg" ercuu" M; O'Ur ki qv" cpf " uqengv'hzgldrg"lqlpwu"uj cml'dg"qh'yj g'r wuj /hsv' r g'y kj "i cungv'qh'gyj { rpgg"r tqr { rpgg"twddgt "GRF O +0Vj g" Eqptcevqt"uj cml'uwr r n{ "7" "qh'yj g"utcki j v'r kr gu"uwkcdrg"lqt"ewwlp" qp"ukg"cpf "y gug"uj cml'dg"ergctn{ " o ctngf O

Corrosion Protection"

Rkr gu"cpf "hwlpi u"uj cml'dg"r tqxevgf "gzvgtpcml"y kj "cp"gzvtf gf "r qn{ gyj { rpgg"qt"r qn{ wtgyj cpg"eqcvlpi " eqo r n{ lpi "y kj "F R "52896"Rctv'30'Rkr gu"cpf "hwlpi u"uj cml'dg"lpgf "lpvgtpcml"y kj "egpvtkwi cml"cr r rkgf " ego gpv'o qtvt"cpf "eqo r n{ lpi "y kj "F R "528960lqlpv'ctgcu'uj cml'dg"eqcvgf "y kj "gr qz { "qt"r qn{ wtgyj cpg"vq" F R "528960' Cml'rlpki "cpf "eqcvlpi "o cvgtkcn"uj cml'dg"cr r tqxgf "lqt"eqpcev'y kj "r qvcdrg"y cvgt "d{ "cp" lpvgtpcvqpcml "tgeqi pl gf "dqf { "hng"y g'F tlpnlp" Y cvgt "Kpur gevqtcvg"qh'WMO

Galvanised Steel Pipes"

I crxcplugf "uvggnr kr gu'uj cml'dg'o gf kwo "f w{ "o cpwhcewtgf "vq"DU'35: 90

Steel Pipes"

General"

Uvggnr kr gu'uj cml'dg'o cpwhcewtgf "vq"DU'GP "32446"qt"CY Y C'E422"cpf "uj cml'dg"uwkcdrg"lqt"y g'r tguwrg" tcvlpi u'tgs wktgf "d{ "y g'EqptcevO Hwlpi u'uj cml'eqphqto "f lo gpukqpcml "vq"DU'GP "32446."CY Y C"42: /7; " qt"CY Y C"O 330' Wprguu"qj gty lug"ur gekhgf "qt"pgeguuct { "vq"o ggv'yj g"tgs wktgo gpw"qh'yj g'Eqptcev" uvggnr r kr gu'uj cml'dg'o cpwhcewtgf "cu'hqmjy u<

FP522o o "cpf "dgruy "uj cml'dg'o cpwhcewtgf "vq"o lpl wo "qh'I tcf g"N457"qt"CRK7N'I tcf g"D" FP572o o "cpf "cdqsg'uj cml'dg'o cpwhcewtgf "vq"o lpl wo "qh'I tcf g"N497"qt"CRK7N'I tcf g"Z640Vj g'r kr gu"cpf " hwlpi u"qh'fko gvt"822o o "qt"nguu"uj cml'dg"uwr r rkgf "y kj "r wuj /hsv' ur ki qv"cpf "uqengv'v' r g" lqlpwu"y kj "lpvgi tcn' i cungv'qh'GRF O "twddgt"qt"uko krt"vq"DU'GP "32446"qt"DU'ER"42320'Rkr gu'i tgevg"y cp"822o o "uj cml'dg"uwr r rkgf " y kj "gpf u"ew'us wctg"uwkcdrg"lqt"wg"y kj "hzgldrg"eqwr lpi u"cpf "y g"gzvgtpcn'y grf "i tqwpf "dcenlw'hlkcpw' O

Vj g'Eqpvtcevqt"uj cml'wrr n' "7" "qh'vj g'utckl j v'r kr gu'cu"j cml'rgpi vj 'r kr gu'*pqv'gzeggf kpi '8o -0' Gcej 'r kr g' u'j cml'dg'wrr n'kgf "eqo r ngv'y kj 'c'eqw r kpi 'hqt'lqpkvpi 0'

Corrosion Protection"

Uggn'r r kr gu'cpf "hkwpi u'uj cml'dg'r tqvgevgf "gzvgtpcm{"cv'vj g'o cpw'zewt gt)u"y qtmu"y kj "hkwqp" dqpfgf " gr qz {"t'gulkp"kp"ceeqtf cpeg'y kj "CY Y C"E4350'Rkr gu'i tgcvgf"vj cp"822o o "cpf "cml'hkwpi u'uj cml'cnuq"dg" r kpgf "kpvtgpcml"y kj "hkwqp" dqpfgf "gr qz {"vq"CY Y C"E4350'Rkr gu"822o o "qt"rguu"uj cml'dg'r kpgf "y kj " ego gp'vo qtvt"vq"CY Y C"E427"qt"DU'GP"324; : 0'Cml'rkpi "cpf "eqcvkpi "o cvgtknu"uj cml'dg'cr r tqxgf "hqt" eqpvcevy kj "r qcdrig'y cvgt"d {"cp"kpvtgpcvqpcml"tgeqi pk gf "dqf {"hkg"vj g'F tlpnpi "Y cvgt "k'ur gevqtcvg"qh" WMO'

Y j gtg'tgs vkt gf "d {"vj g'Dknu'qh'S wcpvklgu."vj g'Uwr r ngt"uj cml'cnuq'r tleg'hqt"vj g'r tqxkukqp"qh'cp"cnegtpcvkg" 5NRG'eqcvkpi "vq'F R"52892"qt"CY Y C"E437"qh'c'vkr ng'y tcr "u'ugvo "qh'hkwqp" dqpfgf "qt"ur tc {"gf "gr qz {" r tko gt."cp"kpvtgto gf kcvg"r qn'o gt"cf j gukxg"rc {"gt"cpf "cp"gzvtf gf "j li j "f gpuk {"r qn'gy {"ngp"eqcvkpi "kp" i gpgtcnleqphqto cpeg'y kj "KUQIF KU43: 2; /3'Ercuu'D'bu'cr r tqr tkevg0'

Glass Reinforced Plastic (GRP) Pipes and Fittings"

I rcuu'tgkphqtegf "r rcu"e"4 TR+r kr gu'cpf "hkwpi u'hqt"r tguuwtg'y cvgt "uwr r n' "uj cml'dg"j li j "u'hkpgu"cpf " u'j cml'eqo r n' "y kj "vj g'tgrgxcpv'r tqxkukqp"qh'DU'76: 20' Vj g'o kpo wo "r kr g'u'hkpgu"uj cml'dg'7.222'P b 40'

Rkr gu'cpf "hkwpi u'uj cml'dg'o ctngf "kp"ceeqtf cpeg'y kj 'Ercwug"KU 0DU'76: 20'

Rkr gu'uj cml'qpn {"dg'ew'd {"vgej pls wgu"y j kej "ecp"dg'uj qy p"pqv"vq"ko r ckt"vj g'r kr gu'r tguuwtg'tgi tguukqp" r gthqto cpeg0'Y j gtg'cp {"r kr g'ku'ew"vj g'gzr qugf "hdtgu'cv'vj g'ew'r kr g'gpf "uj cml'dg'tgucngf "vq"r t'gxp'v' r qv'p'v'cn'np' "vgt "f gi tcf cvkqp0'O g'j qf u'qh'ewkpi "cpf "t'gucnpi "gzr qugf "hdtgu"uj cml'dg'uwd "kwgf "vq" vj g'Rtqlgev'O cpci gt "hqt"Cr r tqxcn0' Grcuqo gtle"ugcnpi "t'kpi u'cpf "h'ku'uj cml'eqo r n' "y kj "DU'GP"8: 30'

Qp" f grkxgt {"vq"uksg"cpf "ko o gf kcvgn "r t'kqt"vq"kpucm'v'kp" gcej "r kr g'uj cml'dg"xkucm {"kp'ur gevfgf "dqj " gzvgtpcm {"cpf "y j gtg'r qukdrig."kpvtgpcml" hqt" f co ci g'uwej "cu'uct'etcenpi "qh'vj g'i gr'eqcv'rc {"gt0'Y j gtg" cp {"f co ci g'gzv'p'f u'vj tqwi j "vj g'r kr g'y cml'vj g'r kr g'uj cml'dg'tglgevgf "qt"vj g'f co ci gf "ugev'kp"ew'qw'cpf " tgr m'egf "kp"ceeqtf cpeg"y kj "tgr ckt"o g'j qf u'cr r tqxgf "d {"vj g'Rtqlgev'O cpci gt0' K'kp" "vj g'"Rtqlgev' O cpci gt'au'qr kpkp"vj g'r kr g'ku'p'qv'uwkcdng"qh'tgr ckt 'k'uj cml'dg'tglgevgf "cpf "tgo qxgf "h'qo "uksg0'

uPVC Sewers and Pressure Pipes and Fittings"

Wpr rcu"ekugf "RXE"r kr gu'cpf "hkwpi u'hqt"y cvgt "uwr r n' "r tguuwtg'r kr gu'uj cml'eqo r n' "y kj "Dt'k'kuj "Ucpcf ctf u" 5727"ewt'gp'v'dw'cnq"uwr gtugf gf "d {"DU'GP"3674"cpf "65680'Vj g {"uj cml'dg'qdv'kpgf "h'qo "cp"cr r tqxgf " o cpw'zewt gt'cpf "uj cml'dg'o kpo wo "r tguuwtg'tcvgf "34'dctu+wprgu'q'vj gty kug'ucv'gf 0'

Wpr rcu"ekugf "RXE"r kr gu'cpf "hkwpi u'hqt"i t'cxk {"ugy gtu'cpf "f tclpu"uj cml'eqo r n' "y kj "Dt'k'kuj "Ucpcf ctf u" 6882"qt"76: 3"cpf "uj cml'dg'qdv'kpgf "h'qo "cp"cr r tqxgf "o cpw'zewt gt0' T gu'v'ckpgf "t'wddgt'tkpi "v'r g'r wuj "h'k' h'gz'kdrig"lqkpu"uj cml'dg'wugf "wprgu'q'vj gty kug'ucv'gf 0'Uq'k'g'p'v'y grf "lqkpu'y kn'p'q'v'pqto cml "dg'r gto kwgf 0' Rkr gu'cpf "hkwpi u'uj cml'dg'r tqvgevgf "h'qo "vj g'f k'gev'tc {"u'qh'vj g'uw'p'cv'cm'v'ko gu'd {"o gcpu'qh'tgh'ge'v'kg" eqxgt "uj ggu0'

Concrete Pipes, Bends and Junctions"

Eqpetgvg"r kr gu" dgpfu"cpf "lwpevkpu" hqt" wug"kp" ugy gtu"uj cml'dg"o cf g"y kj "uwrj cvg/tgukvpi "ego gpv0
Rkr gu."dgpfu"cpf "lwpevkpu"uj cml'eqphqto "vq"vj g'tgs vktgo gpw"qh'DU'7; 33'hqt"vj g'r ctvkwrt"ercuu'qh'r kr g"
tgs vktgf "vq"dg" wugf 0'Vj g'kpvtpcn'f ko gpukpu"uj cml'dg"tvg"cpf "tgi wrt"cpf "vj g'kpvtpcn'wrt'ceg"uo qqvj "
cpf "htgg"htqo "wrt'ceg" drgo kuj 0'Vj g'cewcn'f lco gvg"qh"vj g'r kr g"uj cml'dg"pqv'ngu"vj cp"vj g'pqo kpcn'
f lco gvgf 0'Cml'lqkpu"uj cml'dg"qh'vj g'i cungv'v{r g"y kj "hgzkdrg"ur ki qv'cpf "uqengv'cr r tqxgf "d{ "vj g'Rtqlgev"
O cpci gt 0'I cungv'uj cml'dg'gruqo gte'e qo r n{ kpi 'y kj 'DU'GP'8: 30'

Vj g'o clp'r kr g'cpf "dtcepej gu"qh'cml'lwpevkpu"uj cml'dg"qh'vj g'uco g'wtgpi vj "ercuuk'hec'vqp"cpf "uj cml'j cxg"vj g"
uco g'kpvtpcn'f ko gpukpu'cu'vj g'r kr gu'y kj "y j kej "vj g{ "ctg'vq"dg'wugf 0'

Vj g'r kr gu."dgpfu"cpf "lwpevkpu" f grkxgtgf "vq"vj g'Ukg"uj cml'dg"egt vktgf "d{ "vj g'r kr g'o cpw'cewtgt "vq"j cxg"
eqo r rkgf "y kj "DU'7; 33."qt"qvj gt"cr r tqxgf "ucpf ctf "cpf "qpg'eqr { "qh'vj g'egt vktgf "uj cml'dg" f grkxgtgf "vq"
vj g'Rtqlgev'O cpci gt'dghqg'vj g'i qqf u'ctg'wprqcf gf 0'

Wprguu"qvj gty kug"ur gek'kfg "r kr gu" ctg" tgs vktgf "vq"dg"qh' Gz'vc" Utgpi vj = vj g{ "o c{ ."wprguu"qvj gty kug"
ur gek'kfcml' "ecngf "hqt."dg'tgkphqtegf "gkj gt"y kj "ecuv'kp'unggn'qt"d{ "cp'gzvgtpcn'ly tcr r kpi "qh'hkdtg'i rcuu'cpf "
tgulp."cr r rkgf "d{ "cp'cr r tqxgf "o cpw'cewtgt 0'

Vj g'Eqpvtcevqt"uj cml'r tqxkf g" cml'hcek'kfgu" hqt" cpf "uj cml'ectt { "qw"lqkpu" y kj "vj g'Rtqlgev'O cpci gt "h"
uq" tgs vktgf "+"c" hwn'xkuwn'kpur gev'qp"qh'cml'r kr gu."dgpfu"cpf "lwpevkpu" hqt"o cpw'cewtgtu" f ghgeu'cpf "
qvj gt" hwnu"qt" f co ci g0Dghqg"cp { "r kr g."dgpf "qt"lwpevkpu"ku"rkl "k"uj cml'ci clp"dg"ectghwn { "gzco kpgf "
cpf "uqwpf gf"y kj "c'y qqf gp'o cngv0 Cp { "r kr g'hqwpf "vq"dg'et'cengf "qt"qvj gty kug'f ghgevkxg'uj cml'pqv'dg'wugf "
qp"vj g'Y qtm0'

Eqpetgvg"r kr gu"uj cml'dg"kpvtpcn' "eqcvf"y kj "c"322"r gtegpv'uqrkf u'eqcn'vt"gr qz { "rklpi "92"r gtegpv"
o kpo wo "gr qz { "eqv'gpv0 Eqcv'vj kenguu'522"o ketqp"o kpo wo 0'

HDPE Pipes and Fittings"

General"

Rqrqf gvj { rpgg'r kr gu"vr "vq"pqo kpcn'uk' g"85o o "hqt'dgrqy "i tqwpf "wug"uj cml'dg'eqrvtgf "dwg"cpf "eqo r n{ "
y kj "vj g'tgrgxcpv'r tqxkukpu"qh'DU'87940'Rqrqf gvj { rpgg'r kr gu"hqt" wug"kp"pqo kpcn'f lco gvgtu"i tgcvgt"vj cp"
85o o "uj cml'dg'cu'ur gek'kfg "dgrqy 0'

Vj g'r kr gu"uj cml'dg'engctn' "cpf "kpf grkdn' "o ctngf "vq"uj qy "vj g'pco g"qh'vj g'o cpw'cewtgt."f lco gvgt."rtguwtg"
ercuu'cpf "f cvg'qh'o cpw'cewtgt 0'

J qwug'eqppgev'qp'r kr gy qtnlf qy pwtgco "qh'vj g'o cplkqr' "uj cml'dg'RG: 2=cm'lvj gt"J FRG'r kr gy qtnlvj cml'dg"
RG3220'

Compound Material"

Vj g"o cvgtkcnltqo "y j lej "vj g'r kr gu"ctg"o cf g"uj cni'dg"lp"ceeqtf cpeg"y kj "RQ"6649/30Cni'r kr gu"uj cni'dg" o cpwlcwctgf "wulpi " r t g/e qo r qwpf gf " ectdqp" drcem" dko qf cn" j ki j " f gpuk{ " r qn{ g y { rpg" O TU" 32Ø" o cvgtkcnlRG322-ØVj g"vug"qh'pcwctcnRG322'y kj "c'Ectdqp"drcembo cugt'dcej 'ku'wtlevl 'pqv'cmqy gf Ø

"

Ectdqp"drcem'uj qwf "dg'y gni'f kur gtugf "vq"i kxg"qwuucpf lpi "WX"tgukucpeg."cpf "uj qwf "j cxg"c"o kpo wo "ectdqp" eqpvgpv'qh'4' ØRkr gu"uj qwf "dg"o cpwlcwctgf "ltqo "egt vllgf "RG322- "o cvgtkcn'y kj "dcej "egt vllgf "cxckrdg" y kj "r kr g'f grkxgt { Ø

"

Identification compound"

Vj g"eqo r qwpf "wugf "hqt"kf gpvllgf "utkr gu"uj cni'dg"o cpwlcwctgf "ltqo "c"RG"r qn{ o gt"o cpwlcwctgf "ltqo " y g'uco g'v{ r g'qh'dcug'r qn{ o gt"cu'wugf "lp"vj g"eqo r qwpf "hqt"r kr g'r tqf vevkp Ø

"

General appearance"

Y j gp"xlgy gf "y kj qw"o ci plllgf "vj g"kpvtpcn'cpf "gzvgtpcn'utlcegu"qh'r kr gu"uj cni'dg"uo qqy ."ergcp" cpf "ltgg"ltqo "ueqtkpi ."ecxkkgu'cpf "qy gt"utlcegf ghgeu'uwej "cu'y qwf "r t gxpveqphqto k{ "qh'y g'r kr g'vq" RQ"6649Ø Vj g'r kr g'gpf u'uj cni'dg'ew'ergcpn{ 'cpf "us wctg'vq"vj g'czku'qh'y g'r kr gØ

"

Color"

Vj g'r kr gu"uj cni'dg"drcemly kj "eqmwtgf "kf gpvllgf "utkr guØ

"

Dimensions"

Vj g"f ko gpukpu"qh'y g'r kr g"uj cni'dg"o gcuwtf "lp"ceeqtf cpeg"y kj "RQ"5348ØØ cpwlcwctkpi "uj cni'dg"vq" RQ" 6649'Ucpf ctf ."cu'r gt"vj g'cr r tqxgf "f ko gpukpu'ej ctvØ

"

Rkr gu'uj qwf "dg"o cpwlcwctgf "lp"o cej kpgt { "ecr cdrg'qh'wxtcuqple"y cni'y kempgu'f gvevqp'y kj "r tqf vevkp"tgr qtui" r tqxkf gf "y kj "f grkxgt { "qh'r kr guØY j gtg"eqkpi "ku'r quukdrg."y g"o kpo wo "kpvtpcn'f lco gvt"qh'y g" eqklij cni'pqv" dg'rgui'vj cp"3: f Ø

"

Vj g'rgpi vj u'uj cni'dg'utrr rkgf "vq"o kpo k g'vj g'pwo dgt'qh'lqkpw"vq"dg'f qpg'lp"vj g'hgrf ."cpf "vj g'uk g'vj cvku"cmqy gf " vq"dg'rgi cm{ "tcur qtvgf "qp"Mp { cp'tqcf u'd{ "vj g'vchle"f gr ctvo gpvØ

"

Markings"

Cni'r kr gu"uj cni'dg'r gto cpgpwl "cpf "rgi kdn{ "o ctngf "lp'uwej "c'y c{ "vj cv'y g'o ctnkpi "f qgu'pqv'lpkkg'etcemi" qt"qy gt" v{ r gu'qh'hcwctgf "uwej "vj cvpqto cni'wtci g'y gcy gtlpi .j cpf rpi .lpucmrvkp'cpf "vug'f qgu'pqv'chgevj g'rgi kdkk{ " qh'y g'o ctnkpi Ø

"

Vj g'eqnwt'qh'ij g'r tlvpgf 'lphqto cvkqp'uj cml'khtg'ltqo 'ij g'dcule'eqnwt'qh'ij g'r tqf wev'Vj g'b ctnkpi 'uj cml'dg' uwej " yj cv'k'ku'ngi kdrng'y kj qw'o ci plhlecvtqp'Vj g'ltgs wgepe{ "qh'o ctnkpi "uj cml'pqv' dg'nguu'y cp"qpeg"r gt" o gvtg' O ctnkpi u'uj qwf "dg'b cf g'wulpi 'c'j qv'go dquugf 'hqkluxco r 'r tlvkpi 0' "

Gcej "r k'g'uj cml'c'o kpio wo "qh'5"gs wkur cegf "dnvg'npki kwf kpcn'utkr gu'lpf kcvkpi "o gf kwo "qh'hwkf "wcpur qtvgf 'lp' yj g'r k'guOC'wuo o ct{ 'qh'o ctnkpi 'tgs wktgo gpw'ctg'i kxgp'lp'yj g'vcdng'dnguy 0' "

Minimum required marking"

<u>Aspect</u>	<u>Marking</u>
Ucpcf ctf 'P wo dgt"	KUQ'6649"
O cpwlcwgt'ul'f gpw'klecvtqp"	P co g'qt'u{o dqn'
F ko gpukqpu'zdp" 'ep+ "	g0 0347Z3306"
UF T'ugt'kgu'ngt'F P '@54+ "	g0 0UF T'33"
O cvgtkcn'cpf 'f guki pcvkqp"	RG'322"
Rtguwtg'tcvkpi 'lp'dct"	g0 0RP '38"
Rtqf wev'kqp'r gtlqf 'f cvg'qt'eqf g+ "	g0 02426 ^c "
Eqwpt { 'qh'Rtqf wev'kqp"	Mgp{ c"

<u>Aspect</u>	<u>Marking</u>
Eqknu'ij cml'dg'ugs wgpvcml' b ctnngf 'y kj 'ij g'b gvtgci g. 'lpf kcvkpi 'ij g'ngpi yj 'tgo clkpi 'qp'yj g'eqk'0' c"/'k'engct'hi wtu'qt'lp'eqf g'r tqxkf lpi 'tcegcdk'k'v'q'yj g'r tqf wev'kqp'r gtlqf 'y kj lp' { gct " o qpvy " cpf . 'hi'yj g'b cpwlcwgt'ku'r tqf wev'kpi 'cv'f khtg'gpv'ukgu. 'ij g'r tqf wev'kqp'ukg'0' "	

Jointing of Pipes"

Wprguu'qy gty kug"ur gek'k'f"qt" cr r tqxgf "d{ "ij g'Rtqlgev'O cpci gt. "Rqn{ gy { ngpg"r k'gu'uj cml'dg'grgetq" hwukqp" y g'f gf 0'lqkpw"dgw ggp"r qn{ gy { ngpg"r k'gu'uw r rkgf "ltqo "f khtg'gpv'o cpwlcwgt'gu"qt"pqv'o cpwlcwgt'f"ltqo " yj g'uco g"i tcf g'qh'r qn{o gt"uj cml'qpn{ "dg"lqkpgf "d{ "grgetq" hwukqp"qt" d{ "r wuj "hw" o gej cplecn'eqw r kpi u' O gej cplecn'eqw rgtu'cpf "eqo r tguukqp'v{ r g'hwkpi u'uj cml'peqtr qtcvg'c'ugt'cvf "lpwtpcn'rkpgt "v'uw r qtv'yj g'r k'g" ci clpuv'eqo r tguukqp'ngcf u'gzgtvgf "d{ "ij g'hwkpi "cpf "v'rtgxgpv'r wngw" wpf gt "czkcn'ngcf 0' "

Dww'qt"uqeng'v'hwukqp"lqkpv'gej pls wgu'uj cml'qpn{ "dg"cr r rkgf "dgw ggp"r k'gu'uw r rkgf "ltqo "ukpi ng'uqwtg"cpf " o cpwlcwgt'f"ltqo " yj g'uco g"i tcf g'qh' dcug"r qn{o gt'0' Hwukqp"y g'f lpi "qh'r qn{ gy { ngpg"r k'gu'uj cml'qpn{ "dg" wpf gtvengp"d{ "unkngf "qr gtcv'xgu"vulpi "cr r tqr tlcvg"ur gek'k'f"gf "vqkpi 0'Rk'gu"v'q"dg"lqkpgf "uj cml'dg"ltgg" ltqo " eqpwo kpcv'kqp'cpf "ectg'uj cml'dg'wugf "v'rtqgev'hwukqp"lqkpv'pi "qr gtcv'kpu'ltqo "y lpf "cpf "ci clpuv'yj g" gh'geu'qh' lpergo gpv'y gc'y gt'0' O gej cplecn'li u'qt"qy gt"cr r tqxgf "o gy qf u'uj cml'dg'wugf "v'gpw'g'eqttgev'cni po gpv'qh'yj g" r k'g'yj gp'o ctnkpi "dww'hwukqp"lqkpv'0'F gcknu'qh'hwukqp"y g'f lpi "r tqegf wtu'kpen'f lpi "f gcknu'qh'vqnu. "qr gtcv'xgu" o cvgtkcn'cpf "o gy qf "ucvgo gpw'uj cml'dg'wudo kvgf "v'yj g'Rtqlgev'O cpci gt" hqt"cr r tqxcn't tkqt "v'cp{ 'lqkpv'pi 0' "

Uggn'cpf "ltqp"r k'g'hwkpi u'uj cml'eqo r n{ "y kj "ij g'tgrxcpv'r tqxkukqp"qh'DU'GP "767"*3; ; 7+ "tgr m'egf "d{ "DU" GP " 32446'dw'cnuq'ewt'gpo'0' "

General

Rqn{ g{ { rpg"r k gu"wr "v"pqo kpcn'uk g"85o o "hqt"dgmy "i tqwpf "wug"uj cmi'dg"eqmwtgf "dnwg"cpf "eqo r n{ " y kj " vj g"tgrxcpv"r tqxkukpu"qh"DU"87940'Rqn{ g{ { rpg"r k gu"hqt"wug"kp"pqo kpcn'f lco gvtu"i tgcvt "y cp"85o o "uj cmi' dg"eqmwtgf "dnwg"J k j "F gpuk{ "Rqn{ g{ { rpg"*J F RG+"uwkcdrg"hqt"cy qtnkpi "r tguwtg"qh"34"ctu0'

Vj g"r k gu"uj cmi'dg"erctn{ "cpf "kpf grkdn{ "o ctngf "v"uj qy "y g"pco g"qh'y g"o cpwcewtgt."f lco gvt."r tguwtg" ercuu' cpf "f cvg"qh'o cpwcewtg0'

J qwug'eqppgcvkp't k gy qtnf qy pwtgco "qh'y g'o cplkqf "uj cmi'dg"RG: 2=cmiqy gt"J F RG't k gy qtnij cmi'dg"RG3220'

Joints

Wprguu'qy gty kug'ur gekhgf "qt"cr r tqxgf "d{ "y g"Rtqlgev'O cpci gt'Rqn{ g{ { rpg't k gu"uj cmi'dg"grgevtq'hukqp"y grf gf 0' lqkpu"dgvy ggp"r qn{ g{ { rpg"r k gu"uwr r rkgf "ltqo "f lhtgvp'o cpwcewtgt"qt"pqv'o cpwcewtgf "ltqo " y g"uco g" i tcf g"qh'r qn{ o gt "uj cmi'qpn{ "dg"lqkpvgf "d{ "grgevtq'hukqp"qt" d{ "r wuj "hk'o gej cplecn'eqwr kpi u0'"O gej cplecn' eqwr rgtu"cpf "eqo r tguukp"v{ r g"hwkpi u"uj cmi'kpeqr qtcvg" c"ugtvcvgf "kpygtpcn'rkpgt " v" uwr r qtv "y g"r k g"ci ckpuv' eqo r tguukp"mqf u"gzgtvgf "d{ "y g"hwkpi "cpf "v"r tgxgpv'r wruw'wpgf gt "czkcn'mqf 0'

Dww"qt"uqengv'hwkqp"lqkpv'gej plsvgu"uj cmi'qpn{ "dg"cr r rkgf "dgvy ggp"r k gu"uwr r rkgf "ltqo "ukpi rg"uqwtg"cpf " o cpwcewtgf "ltqo " y g"uco g"i tcf g"qh'dcug"r qn{ o gt 0'hwkqp"y grf kpi "qh'r qn{ g{ { rpg"r k gu"uj cmi'qpn{ "dg" wpgf gtvengp"d{ "unhngf "qr gtcvkgu"wkpi "cr r tqr tlcvg"ur gekrk gf "vqqrkpi 0'Rkr gu"v"dg"lqkpvgf "uj cmi'dg"ltgg"ltqo " eqpwo kpcvqp"cpf "ectg'uj cmi'dg'wugf "v"rtqygev'hwkqp"lqkvpki "qr gtcvkgpu"ltqo "y kpf "cpf "ci ckpuv'y g'ghgveu"qh' kpergo gpv'y gcy gt 0' O gej cplecn'lk u"qt"qy gt"cr r tqxgf "o gy qf u"uj cmi'dg'wugf "v"gpwtg"eqttgev' crk po gpv'qh' yj g"r k g"y j gp"o cmi' "dww"hwkqp"lqkpu0'F gvcnu' qh'hwkqp"y grf kpi "r tqegf wtgu" kpenw kpi "f gvcnu'qh'vqqu." qr gtcvkgu."o cvgtkcn'cpf "o gy qf "ucvgo gpw'uj cmi'dg"uwo kwgf "v"y g"Rtqlgev'O cpci gt " hqt"cr r tqxcn'r tkqt"v" cp{ 'lqkvpki 0'

Uggn'cpf "kqp"r k g"hwkpi u"uj cmi'eqo r n{ "y kj "y g"tgrxcpv"r tqxkukp"qh"DU'GP "767"*3; ; 7+"tgr rcegf "d{ "DU' GP "32446"dw'cnuq'ewtgpv0'

Gate Valves

General

Xcrkgu"hqt"pqto cnf w{ "qp"y cvgt"r k grkpgu"y kj "r tguwtg"tcvki u"wr "v"RP 47"uj cmi'dg"ng{ "qr gtcvgf "ecuv' kqp"hcpi gf "i cvg"xcrkgu"hqt"y cvgty qtnu'r wtr qugu'i gpgtcm{ "eqo r n{ kpi "y kj "y g'tgs wktgo gpw'qh"DU'7385" *V{ r g'D+0'CmiI cvg"Xcrkgu"uj cmi'dg'uwr r rkgf "y kj "c"32" gct"o cpwcewtgtu'y cttecpv{ 0'

Ecuv'kqp"i cvg"xcrkgu"hqt"r tguwtg"tcvki u"v"RP 36"uj cmi'dg"ecuv'kqp"hcpi gf "xcrkgu"eqo r n{ kpi "y kj "DU' 7372"tgr rcegf "d{ "DU'GP "3393"*dqy "DU'7372"cpf "DU'7373+"qt"ecuv'kqp"r ctcngrlurk g"xcrkgu"eqo r n{ kpi " y kj "DU'73730'

Dwngthn{ "xcrkgu"hqt"r tguwtg"tcvki u"qh'wr "v"RP 36"uj cmi'dg"f qwdrg"hcpi gf "y chgt"v{ r g"dwngthn{ "xcrkgu" eqo r n{ kpi "y kj "DU'73770'

Wprguu"qyj gty lug"ur gekhgf "xcxngu" hqt "wug" qp "uvggn" r kr gu"uj cml'dg" hrcpi gf . "y j gtg" dww/y grf "gpf u" ctg"
ur gekhgf "xcxngu"uj cml'eqo r n{ 'y kj "DUGP"3; : 6."qt "DUGP"3592; 0'

Wedge Gate Valves for Manual Operation"

Xcxngu"wr "vq"cpf "lpenw" lpi "FP"522"uj cml'dg"qh'v'j g'tgukrkv'ugcn'v{ r g'cpf "xcxngu" hrci gt "v'j cp"FP"522"uj cml'
j cxg'o gvcrlugcn'0'

Ur kpf ngu"uj cml'dg"qh'v'j g"pqp/tkulpi "v{ r g"cpf "uetgy gf "uq"cu"vq"enjug"v'j g"xcxngu"y j gp"tqvcgf "kp"v'j g"
enjeny lug"f ktgevkqp'0' Vj g"f ktgevkqp"qh'enjukpi "uj cml'dg"ergctr{ "ecuv"qp"v'j g"xcxng"ecr "qt"j cpf "y j ggn'cu"
cr r tqr tlcvg'0' Vj g'xcxngu"uj cml'dg'eqputwvgf "qh'v'j g'hqmy lpi 'o cvgtkcn'<

dqf { " /" ecuv'ktqp="

ur kpf ng" /" hqti gf "dtqpl g'qt'lvckprguu'lvgn="

o gvcrl'cegu'cpf "ugcn' /" I wpo gvcrl'0'

Vj g'xcxngu"uj cml'dg'lvckcdng'hqt"v'j g'wpdcnpegf "j gcf "cu"ur gekhgf "qt'lpf lcvgf "kp"v'j g'uej gf wrgu'0'

Uwkscdng'i gctkpi "cpf "cpv'ktlvkqp" f gxlegu'wvej "cu'dcml'dgctkpi "v'j twu'eqmctu'uj cml'dg'r tqxkf gf "cu" pgeguct { "
vq"gpdcng"qr gplpi "cpf "enjukpi "d{ "o cpwen'qr gtcvkqp"cv'v'j g'r tguuwtg'lvvgf . "wukpi "cp"ghhqv'pq"i tgcvtg"v'j cp"
48m "qp"v'j g"vgg"ng{ "qt"j cpf "y j ggn' uwr r rkgf'0' J cpf "y j ggn' u'uj cml'pqv' gzeggf "722o o " f lco gvg'0' C"
d{ r cuu"y kj "i cvg"xcxng" hqto lpi "cp"lvgi tcn'r ctv'qh'v'j g"xcxng"uj cml'dg'r tqxkf gf "y j gtg"tgeqo o gpf gf "
d{ "v'j g'xcxng'o cpwlcwgt' hqt"v'j g'r tguuwtg'ur gekhgf'0'

I gctkpi "qp"xcxngu"qh'FP"522"cpf "rguu"uj cml'dg" gperjugf "kp" c"ugcrf" i gctdqz" uwkscdng" hqt" dwtkgf "
kpuvncv'kqp"cpf "qr gtcvgf "y kj "c"vgg'ng{ 0'Gzegr v'y j gtg'uj qy p"lp"v'j g'F tcy lpi u"cm'xcxngu"gzeggf lpi "FP"
522"uj cml'dg'r tqxkf gf "y kj "dgxgrf gctkpi "cpf "j cpf "y j ggn'0'Xcxngu"vq"dg'wugf "hqt"y cuj qwu'cpf "kuqrv'kpi "
ck'xcxngu"uj cml'j cxg'uetgy gf "ugcu'0'

Gzv'pukqp"ur kpf ngu"uj cml'dg'i crxcpk gf "qt'lvckprguu'lvgn'cf gs wcvgn{ "uwr r qtvgf "y kj "ecuv'ktqp"dtcengv' "cpf "qh"
uwl'hekp'v'f lco gvg' "vq"r t'gxgpv'cp{ "y j kr rcuj "ghge'v'j tqw j "y kulkpi "y j gp"dgkpi "wugf "vq"qr gtcvg'v'j g'xcxngu'0'
Vj g'ur kpf ngu"uj cml'dg'ecr r gf "hqt"ng{ "qr gtcvkqp'0'Xcxng"ecr u'uj cml'dg'hkvgf "y kj "j gzci qp'cnlug'v'uetgy u'0'

Xcxngu"uj cml'dg'eqcvgf "y kj "cp'cr r tqxgf "gr qz{ "eqo r n{ lpi "y kj "FP"528960'Mg{ u'hqt'xcxng"qr gtcvkqp'uj cml'
dg'qh'uwl'hekp'v'rgpi v'j "uq"v'j cv'v'j g'xcxngu"ecp"dg"qr gtcvgf "d{ "c"o cp"ucpf lpi . "dw'uj cml'pqv'gzeggf "304o "lp"
ngpi v'j . "cpf "uj cml'j cxg'c'f gcej cdng'etqu'ldct'0'

Butterfly Valves"

General"

Dwugth{ "xcxngu"uj cml'eqphqto "vq"DU"GP"7; 50'Cml'Dwugth{ "Xcxngu"uj cml'dg"uwr r rkgf "y kj "c"32" { gct"
o cpwlcwgt'at'y ctcpv'0'

Construction

Dwagthn "xcxgu"uj cmlj cxcg"cj kj j "i tcf g"ecuv"tqp"dqf { "vq"DU'GP "3783"f guki pgf "vq"vj g"ur gekkqf "y qtnkpi " cpf "vgu"r tguuwtgu0Vj g"r tguuwtg"tcvki "xcxg"uj cml'dg"ecuv"lp"vj g"xcxg"dqf { 0Vj g"f kae"uj cml'dg"qh"j kj j " i tcf g"ecuv"tqp"vq"DU'GP "3783"qt"pqf wct"ecuv"tqp"vq"DU'49: ; "vq"vj g"f ghpqf "y qtnkpi "cpf "vgu"r tguuwtgu0 K'uj cmlj cxcg"ceqpxgz"uj cr g"f guki pgf "vq"cej kxcg"my "j gcf "iqu"ej ctcevgtkueu0 Vj g"xcxg"uj chu"uj cml'dg" qh'lvckprguu'lvgnlqr gtcvki "lp'ugrh/nvdtkecvki "dwuj gu'lp"vj g"dqf { 0

"

Vj g"xcxg"ugcv"uj cml'dg"qh"i wpo gxcn'vq"DU"36220Vj g"ugcrkpi "tkpi "uj cml'dg" c"tgpgy cdrp"Gvj { rpgp" Rtqr { rpgp"r kpgp"O qpqo gt "GRF O +tvdgt"cwcej gf "vq"vj g"f kae"gf i g"d{ "c"ugevkcpcn'dtqpl g'tgvcklpi "tkpi " vq'hqto "c'tguklqpv"cpf "f wtcdng"ugcn0

"

Vj g"xcxgu"uj cml'dg"hwgf"y kj "j cpf"y j ggn'cewcvqtu"pqv"gzeggf kpi "722o o "f kco gvg"lpeqtr qtcvki " i gctkpi "vq"cmqy "qr gpkpi "cpf "emulpi "d{ "o cpwcn'qr gtcvqp"cv"vj g"r tguuwtg"ucvqf "wukpi "cp"ghqtv"pq" i tgcvg"vj cp'58ni "qp"vj g'j cpf"y j ggnlwr r kcf 0

"

Kp'cm'ecugu"vj g"i gctkpi "uj cml'dg"f guki pgf "vq"emug"vj g"xcxg."htqo "hwnl "qr gp"vq"hwnl "emug"lp" c"r gtlqf "qh" pqv'rguu"vj cp"vgp"o kpwgu"y kj "vj ku"ghqt0Cewcvqtu"uj cml'dg"f guki pgf "uq"cu"vq"emug"vj g"xcxgu"y j gp"vj g" j cpf"y j ggn'ku"wtpgf "lp" c"emqeny kug"f kgevqp="vj g"f kgevqp"qh'emulpi "uj cml'dg"ergetn' "ecuv"qp"vj g'j cpf" y j ggn0Rquklqp'lpf kcvqtu"uj cml'dg"hwgf "vq"cm'cewcvqtu0

"

Y j gtg"tgs wkt gf "xcxgu"uj cml'dg"grgetlecm' "cewcvqf"y kj "c"o cpwcn'qxgttkf g0Tgo qvg"cewcvqp"uj cml'dg" r tqxkf gf "y kj "c"xkucn'lpf kcvqp"qh'xcxg"qr gp."xcxg"emugf "cpf "r gtegpvc i g"qr gpkpi "vqi gvj gt"y kj "hwnl" lpf kcvqp0

"

Valve Performance

C"r gthqto cpeg"ewtxg."tgrvki "r gtegpvc i g"xcxg"txcgn"qr gp"ctgc"cpf "f kaej cti g"eqghlelqpv"uj cml'dg" uwd0 kwgf "vq"vj g"Rtqlgev0 cpci gt0Vj g'j gcf "iqu"eqghlelqpv"y kj "xcxg"hwml "qr gp"uj cml'dg"f ghpgf 0

"

Testing

Cml'xcxgu"uj cml'dg'vgwgf "lp'ceeqtf cpeg"y kj "DU'GP "7; 5"cpf "r tguuwtg"cpf "o cvgtkcn'vgu'egtwhlecvgu"uj cml' dg'uwd0 kwgf "vq"vj g"Rtqlgev0 cpci gt"ht"cr r tqxcn0

"

Air Valves

Ck'xcxgu"uj cml'dg'gkij gt<

"

Ukpi rg"*uo cm'qtkheg"xcxgu"*UCX+."ht"vj g"f kaej cti g"qh'ck"f wtkpi "vj g"pqto cnl'qr gtcvqp"qh"vj g"r k r kpgp0

"

Fqwdng"qtkheg"xcxgu"*FCX+."eqpukvki "qh" c"ncti g"qtkheg"cpf "c"uo cm'qtkheg0Vj gug"uj cml'r gto k" vj g"dwml' f kaej cti g"qh'ck"htqo "vj g'o clp"f wtkpi "hmkpi "cpf "ck"lp'hy "y j gp"go r v'kpi "lp"cf f kkp"vq"

"

vj g"f kaej cti g"qh'uo cm'l'wcpvklgu"qh'ck"f wtkpi "pqto cnl'qr gtcvki "eqpf klqpu0

Ckt "xcnkgu"uj cni' dg" uwr r nkgf "y kj " cp" kpf gr gpf gpv' kuqrcvki " dwwgthn(" xcnkg" *FCX+" qt" eqeni' *UCX+" y j lej " r gto ku"vj g"eqo r rvg"tgo qxcn'qh' yj g"ckt "xcnkg"htqo "yj g"o clp."y kj qw" chgevkpi "yj g"hnqy "qh' y cvgt"lp"vj g"o clp0

Gcej "ckt"xcnkg"cuugo dn("uj cni'dg"uwkscdng"htq"eqppgevkqp"vq" c"hnpi g"qp"vj g'r kr gkpg0
Cv"vj g"eqppgevkqp"dgvy ggp"vj g"ckt "xcnkg"cpf "ku"kuqrcvki "xcnkg" c"DUR"vcr r lpi "uj cni'dg"o cf g"uwkscdng"htq" hkvkpi "qh' c"r tguuvtg"i cwi g0 Cni'vcr lpi u"uj cni'dg"ugcrpf "d{ "c"dtcuu"r nwi "cpf"eqr r gt"eqo r tguukqp"tlpi " i cunv0

Ckt "xcnkgu"uj cniqr gtcvg"cwqo cvkcm("cpf "dg"eqputwvvgf "uq"vj cv"vj g"qr gtcvki "o gejcpluo "y knipqv'lco "lp" gkij gt"vj g"qr gp"qt'emqugf "r qukskpu0

Non-Return Valves"

Swing Check Valves"

P qp/tgwt p"xcnkgu"uj cni'dg"uwkscdng"htq"y cvgty qtmu'r vtr qugu"cpf "uj cni'dg"o cpwkcwgtgf "vq"eqo r n("y kj " yj g"i gpgtcn' tgs vktgo gpw" qh' DU" GP " 345560 Vj g{ "uj cni'dg" f qwdng" hnpi gf " v{ r g." pqp/urco o lpi " cpf " tgeqknguu'qp'hnqy 'tgxgtuci0

Xcnkgu"qh'FP "922"cpf "rti gt"uj cni'dg"qh'vj g"o wnkf lue"v{ r g"qt"vknkpi "f lue"v{ r g0 Vj g"xcnkgu"uj cni'j cxg" c" j ki j "i tcf g"ecuv'kqp"dqf { "cpf "eqxgt"vq"DU"GP "3783" I tcf g"442 442"y kj "i wp"o gvcn'plengn'dtqp| g"cmq { " f qqt'ugcvki 0 Vj g'j lpi g'r lp"uj cni'dg"qh'uwkprguu'uggn'lecttkgf "qp"bqp/eqttqf kdng'dgctkpi u0

Nozzle Check Valves"

P q| | ng"ej gen'xcnkgu"uj cni'dg"urco "htgg"enukpi "y kj "c" utgco dkpgf "etqui"ugevkqp"cu"o cpwkcwgtgf "d{ " O cppguo cpp'F go ci "qt'uko kct0

Flow Control Valves"

Hnqy "eqptqnu'wprguu'qy gty kug'ur gekkfg "uj cni'dg"dwwgthn("xcnkgu0 Vj g{ "uj cni'dg"kpucmngf "eqo r rvg"y kj "c" j gcf uqen'cpf "r qukskqp'kpf lecvqt"uj qy lpi "vj g"i gi tgg'qh'qr gplpi 0

Pressure Reducing Valves"

Rtguuvtg'tgf vekpi "xcnkgu"uj cni'cwqo cvkcm("tgf vwg" c"j ki j gt "lprgv'r tguuvtg"vq" c"ugcf { "hnqy gt" f qy pwtgco " r tguuvtg"tgi ctf rguu'qh'ej cpi lpi "hnqy "tcvg"qt"xct { lpi "lprgv'r tguuvtg0 Vj g"xcnkg"uj cni'dg" c"j { f tcwkecm(" qr gtcvgf "r knq'eqptqngf "f kr j tci o "v{ r g." i nqdg'qt" cpi ng"xcnkg0

Vj g'o clp"xcnkg"uj cni'j cxg" c"ukpi ng'tgo qxcdng'ugev'cpf "c'tguklpgv'f lue0

Ball Float Valves"

Dcm'lmqcv'xcxgu'y j lej "ctg'v'q'dg'lpucngf "y kj kp'tgugtxqktu'uj cml'dg'vj g'f grc { gf "cewkp "v' r g'v'q'gko kpcv'g"
kphuy "cv'uo cml'xcxg'qr gplpi u0Vj g{ "uj cml'dg'hkxgf "y kj "c'wknpi "ej co dgt. "cwzkdct { "lmqcv'xcxg'cpf "kprgv'
dgmo qwj "y kj "tgi wv'kpi "xcxg0'Vj g'o clp"xcxg'uj cml'dg'hkxgf "y kj "c'npki "cewv'kpi "rgxgt "v' r tqxkf g"
c"npki "lmqcv'tcxgihqt'lmuy "xcxg'enquwtg0'

Xcxgu'uj cml'dg'qh'vj g'tki j v'cpi ng'r cwgtp "v' r g'y kj "hncpi gf "kprgv'cpf "j cxg" c'tgukl'gpn'u { p'vj g'v'le "twddgt "f kae"
y j lej "hcto u" c" f tqr "v'ki j v'ugcn'ci clpuv'c" tgo qxcdng'ugcv'lpugt v0'Vj g' f kcr j tci o " "cewcv'gf "i mdg" r cwgtp0' Vj g{ "uj cml'j cxg" c" t'gukl'gpn'
xldtcv'kqp" wpf gt " y j g' ur gekh'gf " y qtnkpi " eqpf klqpu0' Hncpi gf " vcr gtu" uj cml' dg" r tqxkf gf " qp" y j g' kprgw" cu"
pgeguuct { "v'lwkv'vj g'v'kl g'qh'xcxgu'r tqr qugf 0'
Xcxgu'uj cml'dg'ecr cdng'qh'y kj ucpf kpi "vj g'o czko wo "ucv'le" r tguwtg'cpf "qh'r cuukpi "vj g'o czko wo "lmuy "
tcv'g'uj qy p0' Qtkh'eg'r r'v'gu'uj cml'dg'r tqxkf gf "cu"pgeguuct { "v'cduqtd"gzeguu'y qtnkpi "r tguwtg'cv'vj g'lpklcn'
lmuy "tcv'g'lpf kcv'gf 0'

Vj g'r tguwtg'tcv'kpi "qh'vj g'xcxg'uj cml'dg'ecuv'lpv'q'vj g'dqf { "qh'vj g'xcxg0'

Constant Flow Valves"

Eqpucpv' lmuy "xcxgu" uj cml' o clpvc'p" c" "eqpucpv'tcv'g" qh' lmuy " tgi ctf rguu" qh' "h'wewcv'kpu"lp" "w' r utgco " "
r tguwtg0'

Xcxgu'uj cml'dg'j { f tcv'w'ecm { "qr gtcv'gf. "f kcr j tci o "cewcv'gf "i mdg" r cwgtp0' Vj g{ "uj cml'j cxg" c" t'gukl'gpn'
u { p'vj g'v'le "twddgt "f kae" y j lej "hcto u" c" f tqr "v'ki j v'ugcn'ci clpuv'c" tgo qxcdng'ugcv'lpugt v0'Vj g' f kcr j tci o " "
cuugo dn { "cpf "xcxg'ugco "uj cml'dg'hwm { "i v'kf gf "cv'dqy "gpf u'd { "dgctkpi u'lp'vj g'xcxg'eqxgt "cpf "xcxg'ugcv'0'
Vj g' f kcr j tci o "uj cml'eqpukv'qh'p { np { "h'cdt'le" dqp'gf gf "y kj "u { p'vj g'v'le "twddgt 0' Rcenkpi "i ncpf u'cpf "uww'hkpi "
dqzgu'ctg'pqvr gto kv'gf "cpf "vj g'g'uj cml'dg'bp'q'r kxqpu'qr gtcv'kpi "vj g'xcxg'qt'r kqv'eqpvtqn0'

Vj g'r kqv'eqpvtqn'uj cml'dg'f k'gev'cev'kpi "f kcr j tci o "xcxg'f guli pgf "v'q'enqug'y j gp'vj g'cev'v'kpi "f k'htg'p'v'kcn'
kpetgcugu" dg { qp'f "vj g' ur t'kpi "ugv'kpi 0'Vj g'cev'v'kpi "f k'htg'p'v'kcn' r tguwtg'uj cml' dg" r tqf wv'gf "d { "c" y j kp"
gf i gf "qtkh'eg'r r'v'g'lpucngf "lp'cp'qtkh'egu'hncpi g'f qy pwtgco "qh'vj g'xcxg0'
Cp { "pgeguuct { "tgr cktu'v'q'vj g'xcxg'uj cml'dg'cee'qo r r'kuj gf "y kj qwt'go qxkpi "vj g'xcxg'htqo "vj g'o clp0'

Xcxgu'uj cml'dg'uk'gf "v'q" r cuu'vj g'o czko wo "eqpv'kpw'wu"lmuy "ucv'gf "qp" y j g'f tcy kpi u'cv'vj g'y qtnkpi " "
r tguwtg'i kxgp0' Vj g'r tguwtg'tcv'kpi "qh'vj g'xcxg'uj cml'dg'ecuv'lpv'q'vj g'dqf { "qh'vj g'xcxg0'

Surface Boxes and Chamber Covers"

Uw'hceg" dqzgu" cpf " ej co dgt "eqxgtu" uj cml' dg" g'kxj gt " ecuv' k'qp" qt " f v'ek'g" k'qp" cpf " eqcv'gf " y kj " d'rcen'
dkwo k'p'q'wu'k'q'w'k'q'p0'

Uw'hceg" dqzgu'qxgt "i cv'g'xcxgu'uj cml'dg'j kpi gf "cpf "ej cl'pgf "cpf "uj cml' gpgtcm { "eqo r n { "y kj "DU7: 560'

Kp'tqcf u' "t'cemu'xgti gu'J gcx { "f w { "y kj "372"z"372o o "p'qo k'pcn'ergct"qr gplpi 0'
Kp'h'k'grf u'cpf "ctgcu'wdl'gevgf "v'q"n'ki j v'y j g'grgf "qt" r g'f g'ut'kcp"t'ch'le<O gf kwo "f w { "y kj "372"z"372"o o " "
p'qo k'pcn'ergct"qr gplpi 0'

Uw'hceg" dqzgu'htq"j { f tcv'p'ej co dgtu'uj cml'j cxg" c"372"z"372o o "ergct"qr gplpi "cpf "uj cml'eqo r n { "y kj "DU"
972"cpf "uj cml'dg'lw'k'cdng'htq"j gcx { "t'ch'le"htqf kpi 0'

Eqxgtu"vq"ct"xcxg"cpf"qy gt"ej co dgtu"uj cml'dg"vq"vj g"fo gpukqpu"cpf"mcf kpi "tgs wktgo gvu"uj qy p"qp"
vj g"ftcy kpi u"qt"cu"ucvgf"lp"vj g"Dkmlqhl'S wcpvklgu0"

Eqxgtu"uj cml'dg"uwkcdrg"lqt"vj g"lqmny kpi "o czko wo "uchg"egptg"ucvle"mcf u"

Light duty - 250kg

Medium duty - 1500kg

Heavy duty - 5000kg

Y j gtg"cr r rkecdrg "eqxgtu"uj cml'eqo r n"y kj "DUGP "346"qt"qy gt"cr r tqr tlcvg"Ucpf ctf 0"

Nkmlkpi "ng{u"uj cml'dg"r tqxkf gf "lqt"gecj "v{r g"uwthceg"dqz"qt"eqxgt"uwr r rkgu0Qpg"ugv"qh"ng{u"uj cml'dg"
r tqxkf gf "lqt"gxgt{"vgp"uwthceg"dqzgu"qt"eqxgtu"uwlgevg"vq"o kpi wo "qh"vgp"ugvu"qh"ng{u"qt"vj g"cewcn"
pwo dgt"qh'eqxgtu"lhl'guu"vj cp"vgp0"

Gully Gratings and Frames"

Tqcf"i wml"i tcvkpi u"cpf"lco gu"uj cml'dg"qh'cr r tqxgf"v{r g"cpf"o cpwlcwgtg"lp"ecul"tg{"F wclkg"Kqp"cpf"
uj cml'dg"qh"J gcx{"F wml"P qp/tqenlpi "Rcvgt"p"fgukl pgf"lqt"y j ggn"mcf"qh"330"vqppg"cpf"i gpgtcm{"kp"
ceeqtf cpeg"y kj "DU"GP "3460"Ukpi ng"i wmlgu"qh"pqo kpcnukl g"3272o o "z"972o o 0"Kpvg"i tcvkpi u"qh"qy gt"
r rcp"fo gpukqpu"uj cml'cxg"o kpi wo "y cvgt"y c{"ctgc"qh"6; "qh"vj g"vqcnlpgv"i tcvkpi "ctgc0"

I wml"lco gu"uj cml'dg"ugv"lp"ego gpv"o qtvt"cpf"j cvpej gf"y kj "Enu"l"E47"eqpetgvg0"K"uj cml'dg"vj g"
Eqptcevgat"tgr qpuklkl{"vq"guvcdkuj "vj g"lpluj gf"tqcf"ngxgu"lco "vj g"cr r tqr tlcvg"cwj qtkl"cpf"lhz"vj g"
i tcvkpi u'ceeqtf kpi n0"

Manhole Safety Chains"

O krf"luggl'ej clp"uj cml'dg": "o o "pqo kpcnukl g"l tcf g"O "6+pqp/ecnlctvgf"ej clp."V{r g"3."eqo r n"lpi "y kj "DU"
y kj f tcy p0"Chgt"o cpwlcwgtg."o krf"luggl'uchgv"ej clp"uj cml'dg"j qv"kr"i cxcplk gf"lp"ceeqtf cpeg"y kj "DU"
GP "3460"

Manhole and Chamber Access Covers"

Vj g"o cpj qrg"cpf"ej co dgt"ceegu"eqxgtu"uj cml'eqo r n"y kj "DU"6; 9"Rctv"3"cpf"dg"qdvclpgf"lco "cp"
cr r tqxgf"o cpwlcwgtg"cpf"uj cml'dg"vq"vj g"lpgtperlo kpi wo "ergt"qr gplpi "cul"gvclrgf"lp"vj g"Eqptcevg0"

Cml'o cpj qrg"cpf"ej co dgt"ceegu"eqxgtu"lp"tqcf"uj cml'dg"vq"cp"cr r tqxgf"J gcx{"F wml"r cvgt"p"cpf"lp"
lqqr cvj u"uj cml'dg"o gf kwo l j gcx{"f wml"vprguu"qy gty lkg"ur geklkgf 0"Vj g"lco g"cpf"lkl"uj cml'j cxg"ng{"j qrgu"
lqto gf"y kj "ugcrgf"r qengvu"wpf gtpgcj "vq"r tngxgpv"lpi tguu"qh"ucpf."i tk"cpf"uwthceg"y cvgt"cpf"uj cml'dg"qh"
cp"cr r tqxgf"pqp/tqenlpi "r cvgt"p0"Vj g"eqxgtu"cpf"lco gu"uj cml'j cxg"ceewtcvg"ugcvkpi "lcegu"vq"r tngxgpv"
tqenlpi "cpf"vj g"lpi tguu"qh"ucpf"qt"y cvgt."cpf"kv"uj cml'dg"kl j v"lklpi "vq"tgukv"qxgthny "eqpf klqpu"qt"
vpcwj qtkl gf"tgo qxcn0"Vj g"ugcvkpi "lcegu"uj cml'dg"eqcvgf"y kj "i tcr j kg"i tgcug"dghgtg"lpwcnvklp"qh"vj g"
eqxgt0"

C"uwr r n{ "qh'ng{ u'hqt"wg'y kj "gxgt{ "v{ r g'qh'o cpj qrg"eqxgt"cpf "uwt hceg'dqz"uj cm'dg"j cpf gf "qxgt"d{ "y g"
Eqpvtcevqt"cv'y g"eqo r ngvqp"qh'y g"Eqpvtcev'qp"y g"dcuku"qh'qpg"ugv'qh'ng{ u'hqt"gej "72"eqxgtu"qt"r ctv"
y gtgqh0

"

O cpj qrg"cpf "ej co dgt"eqxgt"ltco gu"uj cm'dg"ugv'kp"ego gpv'o qtvt"cpf "j cwpej gf "y kj "Ernu"E52 B2"
eqpetgv"cpf "uj cm'dg'ugv'vq"y g"eco dgt"qt"lcm'qh'y g'hpkuj gf "tqcf "uwt hceg0K"uj cm'dg'y g"Eqpvtcevqtai"
tgur qpukdkk{ "vq"guvcdkuj "y g'hpkuj gf "tqcf "uwt hceg"ngxgnu"ltqo "y g"cr r tqr tlcvg"cwj qtk{ "cpf "vq"hz"y g"
eqxgtu'ceeqtf kpi n{0

"

Manhole Step Irons"

O cpj qrg"ugr "ktqpu"uj cm'dg"qh'i ctkcpk gf "o cmgcdng"ktqp"cpf "uj cm'eqphqto "kp"cm'r ctvlewrtu"vq"DU"GP "
353230'

"

"

SECTION 4B. PIPELINE CONSTRUCTION

General

"

Vj g"tgs wktgo gpv'qh'vj ku'ugevqp"uj cml'cr r n "v"vj g"eqpuxwvqp"qh'r qvcdrg"cpf "tcy "y cvgt "r kr grkpgu" cpf "r kr gy qtn0

"

Y kj kp "vj ku'ugevqp" Rcpw'tghgtu"v"r kr g"hwkpi u."xcrgu."uwlhceg"dqzgu"cpf "ej co dgt"eqxgtu."cpf " qvj gt"uwej "o cvgtknu'tgs wktgf "hqt'r kr grkpgu."o ckpu'cpf "r kr gy qtn'cv't gugtxqktu'cpf "grxcvgt "cpnu0

"

Cml'Rcpv'uj cml'dg"uwkcdrg"ht "y cvgt y qtnu'r wtr qugu"ht "vj g"eqpxg{cpeg"qh'r qvcdrg"y cvgt "kp"vj g" erko c'le"eqpf kkpup'r tgcxk'kp "kp'Mgp{c'cpf "kp'r ct'kewct "cv'vj g'qecvqp"qh'vj g'Y qtnu0

"

Vj g"Rtqlgev"O cpci gt"uj cml'r tqxkf g"fgvku"qh'gcej "r kr grkpg"fkco gygt."rtguwtg"tcvki ".j {ftewle" ej ctcevgtku'eu" cpf "vj g"cr r tqzlo cvg"crki po gpv0 Vj g"Eqpvtcevq"uj cm"kp"eqpuwvqp"y kj "vj g" Rtqlgev" O cpci gt"ugv'qww"vj g"r tqr qugf "r kr grkpg"crki po gpw."o cml'pi "cp{ "ej cpi gu"vj cv'vj g"Rtqlgev" O cpci gt"o c{ "f ggo "pgeguact{ ."eqphkto kpi "cnuq"vj g"gzcev'qecvqp"qh'cml'o cpj qrgu."xcrgu."ck " xcrgu."y cuj qwu."j {ftcpw."cpf "vj g'hwg0

Topographic Surveys

Vqr qi tcr j le'wtxg{u'cmipi "r kr grkpg'tqwggu'uj cmldg'gkj gt<"

Rcp"cpf "rtqhwg'wtxg{u."qt"

Nkpg'cpf "rgxgr'vcxgtug'wtxg{u."cu"

kputwvgtf "d{ "vj g'Rtqlgev"O cpci gt0

"

Rcp"cpf "rtqhwg'wtxg{u'uj cml'eqxgt"u'wtkr "qh'320o "y kf g"egpvtcm{ "qp"vj g"r tqr qugf "egpvtg"rkpg"qh' vj g"r kr grkpg0" Vj g'wtxg{ "uj cml'dg'ectt'gf "qww'kp'ceeqtf cpeg'y kj "vj g'ur gek'k'ecvqp"fgvkgf "kp'Enwug" 3280

"

Nkpg"cpf "rgxgr'wtxg{u'uj cml'eqo r tkug"u'vcxgtug"rkpg"cmipi "vj g"egpvtg"rkpg"qh' vj g"r kr grkpg"cu" gucdrukj gf "d{ "vj g'Rtqlgev"O cpci gt0

Handling and Transport of Pipes and Fittings

"

Vj g"mqcf kpi ."vcpur qt'vki ."wpmqcf kpi "cpf "j cpf rkpi "qh'r kr gu"cpf "hwkpi u'uj cml'dg'ectt'gf "qww'uwej " vj cv'pq" fco ci g"ku'ecwugf 0Cml'kp'ceeqtf cpeg'y kj "vj g'tgeqo o gpf cvkpu'qh'vj g'o cpw'cewgt"cpf "vq" vj g'cr r tqxcl'qh'vj g"Rtqlgev"O cpci gt0 Vj g"wg'qh'rk'kpi "j qquu'ku'pqv'r gto kvgt 0 Rkmy u'uj cml'dg" r tqxkf gf "dgy ggp"nuj kpi "tqr gu"y kgu'qt "ej ckpu'cpf "vj g'r kr gu0Cml'etcf ngu'cpf "nuj kpi u'uj cml'dg" qh'uwej "y kf vj u'cu"vq"r txcgpv'fco ci g'vq"vj g'eqcvkpi "qh'vj g'r kr g."qt"fkvqt'vqp"qh'vj g'r kr gu0

"

Xcrgu" cpf " hwkpi u' u'uj cml' dg" vcpur qt'vgtf " kp" vko dgt" r cent'kpi " cpf " y j gtg" r quukdrg" kp" vj g" o cpw'cewgt'at'qtki kpcrit cent' kpi 0

"

Rtqvevkg" eqxgt" cpf" qvj gt" rtqvevkg" o cvgtkcn" rtqxf gf" d{ " yj g" o cpwcewtgt" uj cml' pqv' dg" r gto cpgpv{ "tgo qxgf'wpviko o gf'kvgn{ 'r tkt'v'q'lpucmrvkp0'

"

Kp"vj g"gxgpv'qh'cp{ "f co ci g"dgkpi "ecwgf"v"q"r kr g."yj g"Rtqlgev'O cpci gt"uj cml'f gvgto kpg"y j gyj gt" f co ci gf"r kgeg"uj cml'dg"tgr rnegf"qt'tgr cktgf 0'Tgr ckt"v"eqcvkpi "qpn{ "uj cml'dg"cmqy gf"cpf"uj cml'dg" cu'f kgevgf"d{ "yj g"Rtqlgev'O cpci gt0'

"

Kp"cmkpucegu'y j gp'cmipi "tgpej "ukf gu.'hgttqwu'r kr gu'uj cml'dg'uwr r qtvf'y kj kp'3'o gvtg'qh'gkj gt"gp{ "qp"ucpf "hkgf"dcu'uwvej "y cvpq'r ctv'qh'y g'y cml'qh'y g'r kr g'vqvej gu'y g'i tqvpf."cpf'kp'y g'ecug'qh'r kr gu' qxgt"8'o gvtgu'hipi "y kj "cf f kkpncnlegpvtcnucpf"dcu'0'

"

Y j gp'r kr gu'ctg'dgkpi "hpcf gf"lpv'xgj lergu'ectg'uj cml'dg'vengp"v"cxqkf"vj gkt'eqo kpi "lpv'eqpvcev'y kj " cp{ "uj ctr'eqtpgtu'weij "cu'eqr g'ktqpu."hqug'pckij gcf u.'gve0'Y j kuv'lp'tcpuk'r kr gu'uj cml'dg'y gmlgewtgf" qxgt" yj gkt'gpv'kg'hipi yj "cpf'pqv'cmqy gf"v'q'r tqlgev'wpugewtgf"qxgt"yj g'vckndqctf"qh'yj g'hqtt{0'

"

Rkr gu'o c{ "pqv'dg'qh'hpcf gf"htqo "hqtktgu'd{ "tqmkpi "yj go ."uwkcdng'ectpci g'uj cml'dg'wugf 0'Rkr gu'uj cml' pqv' dg'tqmgf"qt'f tci i gf'cmipi "yj g'i tqvpf 0'

"

Stringing and Examination of Pipes Prior to Laying"

Cml'F Kcpf "UggniRkr gu'cpf"vj gkt'eqcvkpi u'cpf"rkpki u'uj cml'dg'ectghwm{ 'lpur gev'gf"qp'Uks'r tkt'v'q'rc{ kpi 0'

"

Kpur gev'kp"qh'yj g'r kr g'y kml'dg"o cf g"d{ "yj g"Rtqlgev'O cpci gt"chgt"f grkxgt{ "cpf"ci ckp"ko o gf'kvgn{ " r tkt'v'q'rc{ kpi 0' Cp{ "r kr g"uj cml'dg'uwdlgev'v"tglgev'kp"cv'cp{ "vko g"qp"ceeqwpv'qh'hckwtg"v"o ggv' cp{ "qh'yj g"Ur gekh'ecv'kp"tgs vktgo gpv."gxgp"vj qwi j "r kr gu'o c{ "j cxg'dggp'ceegr vgf"cu'ucv'k'cev'qt{ " cv'yj g'r rneg'qh" o cpwcewtgt0'Rkr g"tglgev'gf"chgt"f grkxgt{ "uj cml'dg"o ctngf"ht"kf gpv'kh'ecv'kp"cpf" uj cml'ko o gf'kvgn{ "dg" tgo qxgf'htqo "yj g'ukg0'

"

Cml'r kr g"qt'hkvpki u'uj cml'dg'gzco kpgf"dghtg"rc{ kpi "cpf"pq'r kgeg"uj cml'dg'lpucmgf"y j kej "ku'hqwpf" vq'dg"f ghgev'kg0' Cp{ "f co ci g"vq" yj g"r kr g"rkpki u'qt"eqcvkpi u'uj cml'dg'tgr cktgf"cu'f kgevgf"d{ " yj g" Rtqlgev' O cpci gt0'J cpf rkpi "cpf"rc{ kpi "qh'r kr g"cpf"hkvpki u'uj cml'dg'kp"ceeqtf cpeg"y kj "yj g" O cpwcewtgt)y' tkgvp" kpwtv'ekv'pu'cpf"cu'ur gekh'gf"j gtgkp0'

"

Dghgtg'hqy gtlpi "lpv'vj g'tgpej "qt'r rckpi "lp'r qukkp"gcej "f vev'kg'ktqp'r kr g'qt'ecv'kpi "uj cml'dg'uwpki " cpf"uqwpf gf"y kj "c'o cngv'v'gu'hqt'j ckt'etcemu0'Rkr gu'vj cv'f q'pqv'tkpi "tv'g'y kml'dg'f luectf gf 0'

"

Cml'ego gpv'o qtvct"rkpki u'uj cml'dg'xluwcm{ "lpur gev'gf"ht"f ghgeu'uwvej "cu'etcen'kpi "qt"ur cnkpi "cpf" etcen' y kf yj u'uj cml'dg"o gcwtf"v"eqphko "vj cv'y kf yj "ku'uwvej "vj cv'pcwtcn'tg'ugcnkpi "y kml'qeevt" qppeg"r w'lpv" ugtxleg=qvj gty lug'etcemu'cu'y gml'cu'cp{ "ur cnkpi "uj cml'dg"o cf g'i qqf"dghtg"rc{ kpi "kp" ceeqtf cpeg'y kj "yj g" o cpwcewtgt)y' tkgvp"kpwtv'ekv'pu'0'

"

Cml'gr qz{ "rkpki u'cpf"cm'eqcvkpi u'uj cml'dg'uwdlgev'gf"v"j qrkf c{ "f ggev'kp"v'guu."lp"ceeqtf cpeg"y kj " PCEG"TR'26; 2."yj g'xqnci g'qh'yj g'j qrkf c{ "f ggev'qt'dgkpi "ugrgev'gf"err tqr tlv'g'ht"yj g'o cvgtkcn'cpf"ku" yj lenpgu0'P q'r kr g'uj cml'dg"rcf"j cxkpi "hckgf"vj g'j qrkf c{ "v'guu'wpv'k'yj g'f ghgev'kg'ctgc"ku"o cf g'i qqf" kp"ceeqtf cpeg"y kj "yj g'o cpwcewtgt)y' tkgvp"kpwtv'ekv'pu'cpf"tgv'ugf"ucv'k'cev'qt'k{ "dghtg'wug0'

"

"

Cmlr kr g"cpf "hskpi u'uj cml'dg"vj qtwi j n{ "engcpgf "dghqtg"rc{ kpi . "cpf "uj cml'dg"ngr v'engcp "wpkl'vj g{ "ctg" wugf " kp"vj g"y qtm"cpf "y j gp"rcf . "uj cml'eqphqto "vq"vj g"rpgu"cpf "i tcf gu'tgs wktgf 0'Rkr g"uj cml'pqv'dg" rcf "wpguu" vj g"tgpej "ku"tgg"qh'y cvgt"cpf "kp" c"ucvkuhcevt{ "eqpf kkp0F wevkg"tqp"r kr g"cpf "hskpi u' uj cml'dg"lpucmgf "kp"ceeqtf cpeg"y kj "vj g'tgs wktgo gpw"qhlCY Y C"E822"gzegr v'cu'qvj gty kug'r tqxkf gf " j gtgk0Kfcp{ "f ghgevkxg"r kr g"ku" f kueqxtgf "chgt"kv"j cu'dggp"rcf . "kv"uj cml'dg"tgo qxgf "cpf "tgr rcegf " y kj "c"uqwpf "r kr g"kp" c" ucvkuhcevt{ "o cppgt"d{ "vj g"Eqptcevt . "cvj ku'qy p"gzr gpug0

"

Y j gp"rc{ kpi "ku"pqv'kp"r tqi tguu"kpemf kpi "cp{ "y qtn'dtgcml'gzeggf kpi "52"o kpwgu . "vj g"qr gp"gp f u" qh"vj g" r kr g"uj cml'dg"enugf "d{ "y cvgtki j v'r nwi u"qt"qvj gt"cr r tqxgf "o gcpu0I qqf "crki po gpv'uj cml'dg" r tguetxgf "kp"rc{ kpi 0Vj g" f ghgevkqp"cvlqkp u'uj cml'pqv'gzeggf "vj cv'tgeqo o gp f gf "d{ "vj g"O cpwkcwgt0 Gpf "ecr u'uj cml'pqv'dg"tgo qxgf "wpkl'uwej "vko g"cu'vj g'r kr g"ku'v'dg"kpur gev f "cpf "rcf 0

"

Y j gtg"vj g'r kr grkpg"etquugu'tqcf u . "tcemu'qt"cp{ "qvj gt"ceeguu'qt"y j gtg" f kgevgf "d{ "vj g"Rtqlgev0 cpci gt . " vj g"Eqptcevt"uj cml'rceg"vj g'r kr gu'uq"vj cv'ceeguu'vq"vj g'r wdne"ku'pqv'kp"cp{ "y c{ "r tqj kdkgf 0

"

Uj qtwi "dghqtg"rc{ kpi "qt'hkz kpi "cp{ "xcnkg . "r kr g"qt'hskpi . "vj g"Eqptcevt"uj cml'gzco kpg"geej "xcnkg . "r kr g" cpf " hskpi "vq"cuegtwkp"vj cv'vj gtg"ku"pq" f co ci g"qt" f ghge0 Vj g"Eqptcevt"uj cml'i kxg"vj g"Rtqlgev" O cpci gt"pqv" nguu" vj cp" 6: "j qwtu"pqvleg" qh"j ku" kp'gpkqp" vq" wpf gtvcng" uwej " gzco kpcvqp0 Vj g" Eqptcevt"uj cml'pqv"rc{ " uwej "r kr gu"cpf "hskpi u'wpkl'j g"j cu'tgegkxgf "cr r tqxcn'ltqo "vj g"Rtqlgev" O cpci gt0

"

Nkpkpi u'uj cml'dg"kpur gev f "r tkqt"vq"rc{ kpi "cpf "cp{ "f ghgevo cf g'i qqf 0

"

Laying Pipes"

Ko o gf kcvn{ "dghqtg"cp{ "r kr g"ku'qy gtgf "kpq"vj g"tgpej "vj g'r nwi "uj cml'dg"tgo qxgf "ltqo "vj g"gp f "qh"vj g" rcu"r kr g"rcf "cpf "vj g'pgy "r kr g"uj cml'dg"ectghmn{ "qy gtgf "kpq"vj g"tgpej 0

"

Gcej "r kr g"cpf "hskpi "uj cml'dg"rcf "v'wg"vq"crki po gpv'ewtxg"cpf "i tcf kgpv'kp"ceeqtf cpeg"y kj "vj g" F tcy kpi u"qt" cu'f kgevgf "d{ "vj g"Rtqlgev0 cpci gt0 Vj g'o kpo wo "i tcf kgpv'uj cml'pqv'dg"rcwgt"vj cp"3" kp"7220

"

Rkr gu"uj cml'dg"dqpgf "vq" i tcf kgpv'cpf "uki j v'tcku"uj cml'dg"r tqxkf gf "hqt" vj ku"r wtr qug"cv'kp'vtxcnu" pqv" gzeggf kpi "72o "cpf "cv'cm'ej cpi gu"kp"i tcf g0P q" f kr u"qt"uwo o ku'uj cml'dg"r gto kwgf "qvj gt"vj cp"cu" uj qy p"qp"vj g" F tcy kpi u0

"

Embedment and Compaction"

Cml'f wevkg"tqp"cpf "u'ggd'r kr gu"uj cml'dg"go dg f gf "wulpi "c"ucpf "qt"eqctug"i tclpgf "uqkl'y kj "nguu"vj cp" 34' " hpgu . "y j lej "kh'pgeguuct{ "uj cml'dg"lo r qtv f "kh'gzecxcvgf "o cvgtkcnku'hqwpf "vq"dg"wpukcdrg<

"

Kp" ctgcu" r tqpg" vq" y cvgt" rqi i kpi " qt" y j gtg" ur gekh'ecm{ " ecngf " hqt" qp" vj g" F tcy kpi u" qt" kp" vj g" Dknu" qh" S wepv'kku" c" ukpi ng" uk g"qt" i tcf gf "i tcnxgn"uj cml'dg"wugf "cu" c" ur gekcn'ny gt" dg f f kpi . "y kj " i tcf kpi "cu" kpf kcv f "dgny 0

"

Nominal Pipe Diameter (mm)"	Grading for Special Lower Bedding [to ASTM Sieve Sizes]"	
	Single size Gravel"	Graded gravels"
>'422"	32."36"ukpi ng/uk g'i tecxgn'	36"vq'7'i tcf gf "
422"vq'722"	32."36"ukpi ng/uk g'i tecxgn'	36"vq'7"i tcf gf "'qt'"42"vq'7"i tcf gf "
@722"	32."36."42"ukpi ng/uk g"etwuj gf "taem"at'i tecxgn'	36"vq'7"i tcf gf "'qt'"42"vq'7"i tcf gf "

Vj g"uwksdks{ "qh'cu'f wi "tgpej "o cvgtkcn'cu'cp"go dgf o gpv'o cvgtkcn'cpf "y j gtg"ko r qtvf . "vj g"uqwtg" uj cmi' dg"cr r tqxgf "d{ "vj g"Rtqlgev'O cpci gtO' Cp{ "f grc{ u"cu" c'tguwn'qh'pqv'uggnkpi "vj ku'cr r tqxcn'lp" i qqf "vko g" uj cmi'dg'gpv'kgn' "vq"vj g'Eqptcevtat'ceeqpvp"

Cmi'rc{ gtu"qh'vj g"go dgf o gpv'uj cmi'dg"vj qtqwi j n' "eqo r cevgf . "cpf "uj cmi'pqv'gzeggf "372"o o "cpf "dg" tckugf " gxpni' "qp"dqvj "ukf gu'qh'vj g'r kr g'cu'k'ku'r megf O' C' o loko wo "eqo r cevgf"qh' 2' "O RF "uj cmi'dg" cej kexgf "cv' cmi'vko gu "vj ku'dgkpi "eqphko gf "d{ "uco r r kpi "cpf "vukpi "cv'kpvtxcnu'qp" f khtgtpv'rgxgnu" qh'go dgf o gpv'cv' kpvtxcnu'qh'pqv'o qtg"vj cp'72"o "y kj "vukpi "lp"ceeqtf cpeg"y kj "DU'3599"qt "KQ" 44698"vukpi "vj g"ucpf " tgr mego gpv'o gj qf O'

Uj qwf "cp{ "tguwnu'hkri'vq"cej kexg"vj ku'cduqnwg"o loko wo "rgxgn"vj gp"vj g'r kr gu."go dgf o gpv'o cvgtkcn' cpf "rc{ gt"uj cmi'dg"tgo qxgf "hqt"cp"gs wcn'f kucpeg"qp" gkij gt"ukf g"qh'vj g'hkpf "vuv"vj g"vqcn'f kucpeg" dgkpi "gs wcn'vq"vj g"ngpi vj "dgwy ggp"cf lcegpv'uco r r kpi "mev'kpu"cpf "tg/rckf "cr r tqr tkcgn' "dw'y kj " eqo r cevgf "rc{ gt"vj lenpguu'j cixgf O'k'cf f kkp"vj g'f kucpeg"dgwy ggp'uco r r kpi "cpf "vukpi "uj cmi'cuq'dg" j cixgf "wpv'k'lp" vj g" qr kkp" qh' vj g" Rtqlgev' O cpci gtat' Tgr tgu'pvc'kxg" c" uwt'lekgpv' pwo dgt' qh' eqpugew'kxg'r cuugu'cmqy u" dqvj "lpf k'k' wcn'rc{ gt"vj lenpguu'cpf "vj g'f kucpeg"dgwy ggp'uco r r kpi "cpf " vukpi "vq"dg"tgwtpgf "vq"vj g" r t'g'k'q'w'vj lenpguu'cpf "ur cekpi O'

Cmi'dcen'hm'u'k'ri'cdqxs"vj g"go dgf o gpv'uj cmi'dg"htgg"htqo "erc{ "nwo r u"dqwf gtu"cpf "tqem'htci o gpv" i tgcvgf "vj cp'72"o o "cpf "cu'ht'cu'r tce'ecdrng "i kxgp"vj g'pcwtg'qh'vj g'u'k'ri 2' "O RF "uj cmi'dg"cwclpgf O' J qy g'xgf . "vj ku'tgs wktgo gpv'o c{ "dg"tgrczgf "vq": 7' "O RF "d{ "vj g"Rtqlgev'O cpci gtat'Tgr tgu'pvc'kxg" kh'j g'eqpukf gtu" vj g'ekewo ucpeg"y cttcpv'kO'

Pipes Laid in Trench"

Rkr gu'cpf "h'k'kpi u'rcf "lp"tgpej "uj cmi'j cxs'cv'rgcu'vj g'o loko wo "eqxgt'ucv'gf "lp"vj g'F tcy kpi uO' Nqpi "tcf ku'ewt'xgu'lp"dwt'k'f "r kr g'kp'gu'uj cmi'dg"pgi q'k'v'gf "d{ "f gh'ge'v'kpu'v'cngp'vr "lp"vj g'lq'k'w'qh'qpg" qt" o qtg" r kr gu'O'Vj g" f gh'ge'v'k'p' cv' lq'k'w'uj cmi'pqv' gzeggf "97' "qh"vj g"o cpw'cewt'gtat'o czko wo " ur gek'k'gf "rko ku'O'F gu'k' pu'j cxs'g'dggp"dcugf "vr qp"vj g'wug'qh'8o "nqpi "r kr gu'O'k'vj g'Eqptcevtat'r tqxkf gu" nqpi gt'r kr gu" uwt'lekgpv'uj qt'v'ngpi vj u'uj cmi'dg'r tqxkf gf "vq"gp'cdng"vj g'r tqr qugf "r kr g'ewt'xcwtg'y kj qww' cf f k'k'q'cn'dgpf u"qt'f ggr "gzecxc'v'k'p'O'

Rkr gu'uj cmi'pqv'dg" f tci i gf "cmqpi "vj g"tgpej "dqwqo O' Rkr gu'rcf "lp"tgpej gu'uj cmi'dg"rcf "cpf "h'ko n' " dgf f gf " qp"cp"gxgp"cpf "wp'k'qto "dgf O'Y j gtg"r kr gu'ctg'pqv'rcf "qp" c' i tcpw'rt"dgf . "vj g'dqwqo "qh'vj g" tgpej "uj cmi'dg"uo qqj "cpf "htgg"htqo "uqpgu'qt"qj gt'r tq'ge'v'k'p'uO' lq'k'p'j qrgu'uj cmi'dg"gzecxc'v'gf "dgny "vj g"tgpej "dqwqo "cpf "uj cmi'dg"cu'uo cmi'cu'r qu'k'ldng"cpf "uj cmi' dg" h'k'ngf "lp"cpf "eqo r cevgf "chgt"vj g'r kr gu'ctg'rcf "cpf "dgh'qtg"vj g'tgh'k'kpi "qh'vj g'tgpej "ku'eqo o gpegf O'

Pipe Bedding and Surround"

"

Hqt'r qn{ g'v { rpgg.'wRXE'cpf 'I TR'r kr grkpgu.'Encu'U'dgf f lpi 'uj cml'dg'wugf 'y j gtg'yj g'eqxgt'ku'gs wcn'vq"
qt" i tgcvtg'tj cp"32o 0'Y j gtg'yj gtg'ku'ngu" y cp"208o "eqxgt.'Encu'C"eqpetgvg'wttqwpf "uj cml'dg"
wugf 0' k'p" dgvy ggp'yj g'Rtqlgev'O cpci gt"uj cml'f gekf g'wr qp"y j g'dgf f lpi "v{ r g'f gr gpf gpv'wr qp"y j g"
cuugugf 'tkm'qh'f co ci g'vq'yj g'r kr g0

"

Pipes Laid Above Ground"

Rkr grkpgu'vq'dg'rcf "cdqg"i tqwpf "uj cml'dg'eqputwvgf "qh'hrcpi gf "f wewg'ktqp'r kr gu'y kj "o gej cplecn'
v{ r g" g'zr cpukqp'lqkpw0'Uwr r qtvu'uj cml'dg'r tqxkf gf "cv'c"o czko wo "ur cekpi "qh'qpg'r kr g"rgpi yj "cpf "
cf lcegpv'vq" yj g'hrcpi gf 'lqkpw0'

"

Vj g'g'zr cpukqp'lqkpw'uj cml'eqo r gpucvg'hqt'c'xctkckqp"qh'co dkgpv'go r gtcwtg'dgvy ggp'l gtq'cpf "62a'E"
qp"y j g'cf lqkpkpi 'r kr grkpgo'Cpej qtcu'gu'uj cml'dg'r tqxkf gf "ko o gf kcvgn' "vr j kni'qh'gcej "g'zr cpukqp'lqkpv'
cpf "cv'gcej "ej cpi g'kp'xgt'vlecn'cpf "j qtk qpvcn'cni po gpv0' Vj g'i tqwpf ltqenlwthceg'wpf gt "y j g'r kr grkp g"
uj cml'dg'tg'" i tcf gf 'cu'pgeguuct { 'vq'cmqy 'c'ucvukcevt { 'xgt'vlecn'cni po gpv'qh'yj g'r kr grkpgo'

"

Vj g'Eqptcevt"o c { "r tqr qug."cu'cp"cngtpcxg"vq"y j g'wug"qh'o gej cplecn'g'zr cpukqp'lqkpw."gkj gt "qh'
y j g'hmqy lpi 'o gyj qf u'hqt'cee qo o qf cvkpi 'y j gto cng'zr cpukqp<"

"

C"i ki | ci "r kr grkp g"cnki po gpv'y j gtgd { "y j g"y j gto cni'o qxgo gpv'ku'cee qo o qf cvgf "d { "f ghrgv'kqp"qh'y j g"
dgpfu0'

C'tki kf "hqt"o "qh'eqputwv'kqp'y kj "y j g"y j gto cni'o qxgo gpv'dgkpi "eqputckpgf "y kj kp'yj g'r kr g'y cmi'd { " y j g"
wug'qh'lwducpv'cnl'cpej qt'dmqemu0'

"

Lqkpw'uj cml' dg"o cf g" kp" eqo r rlcpeg" y kj " y j g"o cpwlcwgt'gta' kputwv'kpu" cu' cr r tqxgf " d { " y j g"
Rtqlgev' O cpci gt0'Ectg'uj cml'dg'v'ngp"vq"gpwtg'yj g'cduqnwg'engcpikpgui'qh'yj g'r kr g'gpf u'cpf "lqkpv'
eqo r qp'gpv0' Qpn' 'y j g'tgeqo o gpf gf "cr r tqxgf 'hwdtlecpv'uj cml'dg'wugf 0'
Lqkpv'pi 'uj cml'qpn' 'dg'ectt'kgf 'qwd { "g'zr gtlgpegf 'r gtuappgn'wpf gt "enqg'Uwr gtxkukqp'd { 'y j g'Eqptcevt0'

"

Vj g'Eqptcevt"uj cml'gpwtg"yj cv'pq'f k'v { "y cvgt"qt" qy j gt "gz'v'cp'gqwu"o cwtg "ku'cmqy gf "vq"gpvtg"y j g"
r kr gu" f v'kpi "qt'chn'rc { lpi 0'k'p"y j g'gxgpv'qh'f k'v { "y cvgt"qt"gz'v'cp'gqwu"o cwtg "gpvtgkpi "y j g'r kr gu'y j g"
Eqptcevt"uj cml'o o gf kcvgn' 'ectt { "q'w'engcpkpi "cpf 'f k'ulphg'v'kqp'cu'f k'gevgf "d { 'y j g'Rtqlgev'O cpci gt0'

"

Gzegr v'y j gp"pgeguuct { "hqt"lqkpv'pi . "y j g"gpv' "qh' y j g"rcu'v' r kr g"rcf "uj cml' dg"n'gr v'r nwi i gf "vq"y j g"
ucvukce'v'kqp" qh'yj g'Rtqlgev'O cpci gt "vq'r' t'gxgpv'yj g'kpi t'gu'qh'f wuv'f k'v'f'q'emu'cpf "qy j gt'f gdt'ku0'
Vj g'Eqptcevt"uj cml'dg"r'cdng'hqt"cp { "f co ci g'ecwugf "vq"y j g"Go r nq { gta'R'rcpv'cpf "cr r ctcwu"qt"
qy j gt" gs vkr o gpv' cu" c" t'guwn' qh' hqtgk'p" o cwtg" qh' cp { " n'kpf "pqv" j cxkpi " dg'gp" engctgf "q'w" qh'
r kr grkpgu'dgh'gtg"Vcnkpi /Qxgt0'

"

Rkr g'v'gpej gu'uj cml'pqv' dg"dcen'k'ngf "wpv'kr' cr r tqxgf " d { " y j g" Rtqlgev' O cpci gt0' Qpeg" cr r tqxgf "
v'gpej gu"uj cml'dg'dcen'k'ngf "y kj q'w'f gr { "vq'cv'lgcu'v'yj g'o k'pko wo "gz'v'gpv't'gs v'k'gf 'hqt'r t'guu'w'g'v'gukpi 0'

Cutting Pipes"

Vj g'gf i gu'qh'yj g'ew'r kr gu'uj cml'dg'engcp."v'wg"cpf "us wctg0'F wewg'ktqp'r kr gu'uj cml'qpn' "dg'ew'y kj "
cp" cr r tqxgf "o gej cplecn'r kr g'ewwt'kp"eqphqto k'v { "y kj "y j g'r kr g"o cpwlcwgt'gta'tgeqo o gpf cvkpu0'
Vj g'wug'qh'qz { cegv'rgpg'h'co g'ewwt'y kni'pqv'dg'r gto kwgf 0'Vj g'gf i gu'qh'yj g'ew'v'qi gyj gt "y kj "y qug"
r ctv'qh'yj g'r kr gu'ltqo "y j lej "y j g'eqcv'kpi "j cu'dggp'tgo qxgf "uj cml'dg'i k'xgp"vy q'eqcu'qh'dkwo k'pqwu"
r ckpv'cpf "y j g" k'pvt'pcn'r'k'kpi "t'gr ck'gf 0'Y j gp"y j g'ew'r kr g'ku'vq'dg'k'pugt'gf "k'p'c'0'v { v'q'pö'v{ r g'lqkpv'k"
uj cml'dg'dgxgmgf "hqt" 32o o "cv'52a'vq'r kr g'yj g'czku0'

"

Cudguqu"Ego gpv"J FRG."wRXE"cpf "I TR"r kr gu"uj cml'dg"ew'y kj "cp"cr r tqxgf "o gej cplecn'r kr g"
ewwgt" cpf "lp"eqphqto k{ "y kj "y g'r kr g"o cpwhcewtgtai'tgeqo o gpf cwkqpu'Y j gtg'y g'ew'gpf "qh'y g"
r kr g'ku"vq"dg" lpeqtr qtcvgf "lp"clqkp'v'y g'r kr g'uj cml'dg'wtpgf "f qy p"vq"y g'eqttgev'f kco gvg'tgs vktgf "
hqt'hqto kpi "y g'lqkp' d{ "cpf "cr r tqxgf "o gej cplecn'wtpkpi "o cej kpg'Vj g"rgpi y "qh'wtpkpi "uj cml'dg"
ceewtcvgn{ " dgxgmgf" d{ " o gej cplecn' o gcpu" vq" y g" f ko gpukqpu" ur gekkkgf "lp" y g" o cpwhcewtgtai'
tgeqo o gpf cwkqpu'

"

Uggri'r kr gu"uj cml'dg'ew'd{ "wukpi "c"o gej cplecn'r kr g'ewwgt"cr r tqxgf "d{ "y g'Rtqlgev'O cpci gt'Vj g'wug"
qh" cp"qz{ cegv'rgpg"hrco g'ewwgt"y knl'pqv'dg"r gto kwgf'Vj g"gf i gu"qh'y g'ew'uj cml'dg"i kxgp"vy q"
eqcvkpi u'qh'ns wkf "gr qz{ "eqo r cwkdr'y kj "y g'gtki kpcn'eqcvkpi O'Vj g'gzvgtpcn'eqcvkpi "cpf "y g'lpvgtpcn'
rkpki "uj cml'dg" tgr cltgf "vq"y g"cr r tqxcn'qh'y g'Rtqlgev'O cpci gt'Vj g'ew'gpf "uj cml'dg'dgxgmgf "cu"
tgs vktgf "vq"uwk"y g" hqto "qh'lqkp'wugf O'

"

Proprietary Joints and Couplings"

Rtqr tlgvt{ "lqkwu"cpf "eqwr kpi u'uj cml'dg"cuugo drgf "lp"ceeqtf cpeg'y kj "y g'o cpwhcewtgtai'lpustwekqp"
cu" cr r tqxgf "d{ "y g'Rtqlgev'O cpci gt'O'Y j gtg'r kr gu"ctg"rkf "cdqxs"i tqwpf "cpf "lqkvgf "y kj "dqngf "
eqwr kpi u'uj g'lqkp'uj cml'dg'r tqxgvgf "ci clpuv'xcpf crkuo "d{ "uj gc'y kpi "y kj "cp"cr r tqxgf "j gc'uj tkpn'
o qwf kpi "cu" o cpwhcewtgf "d{ "Tc{ej go "qh'Uy kpf qp"WM'qt'uko kct"cr r tqxgf O'

"

Flanged Joints"

Hrcpi gf "lqkwu"uj cml'dg"o cf g'y kj "y q'y cuj gtu'r gt"dqnx"qpg'wpf gt"y g'dqn'j gcf "cpf "y g'qy gt"wpf gt"
y g" pw'Vj g" ki j vgpki "qh' y g" dqnu" uj cml'dg"ectkkgf "qw" lp" y g" ugs wgepg" cpf "vq" y g" qts wg"
tgeqo o gpf gf "d{ "y g'o cpwhcewtgtO'C"qts wg'y tgepj "uj cml'dg'wugf O'

"

Dwtkgf "hrcpi g"lqkwu"uj cml'dg"r tqxgvgf "d{ "r clpki "y kj "cr r tqxgf "dkwo gp"r clp'cpf "d{ "y tcr r kpi "
wukpi "F gpuqø'r cug."o cunke"vcr g"cpf "qwggt"y tcr."qt"uko kct"cr r tqxgf "o cvgtkcu"cm'l'lp"ceeqtf cpeg"
y kj "y g"o cpwhcewtgtai'lpustwekqpu"cu"cr r tqxgf "d{ "y g'Rtqlgev'O cpci gt."wprguu'uw r rkgf "y kj "gr qz{ "
eqcvkpi "cpf "i crkcpk gf "dqnu'

"

Hrcpi gf "cf cr vtui"cpf "o gej cplecn'eqwr kpi u'uj cml'j cxg" c"TKNUCP "p{ nqp"eqcvkpi "cr r rkgf "d{ "y g"
o cpwhcewtgtO'

"

Steel Pipelines Welded Joints"

Ki'ur gekkkgf "tgs vktgf "wpf gt"y g'eqptcev'r kr gu"uj cml'pqv'dg"y grf gf O'Ki'r gto kwgf "d{ "y g'Rtqlgev'
O cpci gt" hqt"r ctvewxt"eqpf kkp'v'y g'Eqptcevqt"uj cml'uwdo k'vq"y g'Rtqlgev'O cpci gt" c"fgvckrgf "
o gj qf "ucvgo gpv" hqt"eqputwekpi "y g'r kr grkpg'wukpi "y grf gf "lqkwu"y j lej "uj cml'penwf g"dw'pqv'dg"
rko ksf."vq<

f gvcnu'qh'y g'Eqptcevqtai'unkrgf "rdqwt"cpf "uw r gtxkukqp"ucth'y j q'j cxg'f kkgv'gzr gtlgpeg"lp'y g"

eqputwekqp'qh'y grf gf "uggrir kr g="

f gvcnu'qh'y g'Eqptcevqtai'r rcpv'q'dg'f gr nq{ gf="

f gvcnu'qh'go r qtct{ "uci kpi ."ceegu'cpf "etcpgei g="

r tqegf w'g'ht"eqputwekqp'qh'uw r qt'v'cpf "cpej qtcu"gu"cpf "y grf kpi "lqkwu="

s wckw{ "cuwtpceg'r tqr qucu'hqt"vukpi "y g'lpvgi tkw{ "qh'y g'y grf uO'

"

"

Vj gug'f gvcnu'uj cmldg'wdo kxgf "v'j g'Rtqlgev'O cpci gt'ht'j ku'cr r tqxclpqv'rvgt'vj cp'43'f c{ u'dghqtg' vj g' Eqptcevt'y kuj gu'q'eqo o gpeg'r k g'rc { kpi 0

"

Cm'hgrf "y grf u'uj cmldg'lpur gev'f "xluwcm' "y kj "ur gekn'cwgpvkp"i kxgp"v'j g'rkpg'vr "cpf "f qy p'v'j g' tqqv'twp'qt'utkpi gt'dgcf u'P qp'f gntwexg'v'gukpi "qh'v'j g'eqo r rvgf "y grf "uj cmldg'ecttkgf "qwt'wukpi " tcfkqi tcrj k" o gvj qf u'y kj 'r tqegf w'gu'kp'ceeqtf cpeg'y kj 'DU4; 320'

"

Qp'eqo r rvgkp"cpf "lpur gev'kp"qh'lqkv'y grf kpi . "tgo gf kcr'y qtmu'uj cmldg'ecttkgf "qwt'qp'v'j g'lpvgtpcn' rkpki " cpf "gzvgtpcn'eqvki 0'P q'o qtg'v'j cp'hxg'r k g'lqkvu'uj cmldg'y grf gf "y kj qw'eqo r rvgkp"qh' tgo gf kcr'y qtmu'v'lqkvu0'

"

Fixing Valves and Penstocks"

Xcxkgu."r gpuqemu'cpf "qvj gt'hkvpki u'uj cmldg'ugewtgn' "hkzgf 0'Gz vgpukp"ur kpf ngu'cpf "j gcf uqemu'uj cmldg' r tqr gtn' "crki pgf "cpf "hkzgf "kp" c"xgtvlecn'r qukskp"cpf "xcxkg'ecr u'uj cmldg'hkzgf "ugewtgn' "wukpi "v'j g' mnenkpi " pwo'

"

Thrust and Anchor Blocks"

Eqpetgvg'v'j twu'cpf "cpej qt'dmumu'uj cmldg'hqto gf "cv'dgpf u."vggu'cpf "xcxkgu'kp'ceeqtf cpeg'y kj " vj g' f gvcnu'uj qy p'qp"v'j g'F tcy kpi u'qt'cu'f kgevgf "d{ "v'j g'Rtqlgev'O cpci gt0' Gzecxvkp"uj cmldg' o cf g'chgt" r k grc{ kpi "cpf "v'j g'dmumu'eqpetgvgf "ko o gf kvgn' "chgt"gzecxvkp0' Vj g'dcen'uwr r qtwi' cpf "dmumu'uj cmldg' cdw'kp"v'q'uqkf "vpf kuwtdgf "i tqvpf "y kj "cm'iqug'o cvgtkn'dgkpi "tgo qxgf "dghqtg' eqpetgkpi 0'

"

P q'r tguwtg'uj cmldg'crr rkgf "kp"cp{ "ugevkp"qh'o clp'vpv'v'j g'eqpetgvg'j cu'cej kxgf "cf gs wcv'utgpi vj " cpf "cv'heuv'v'j tgg'f c{ au'ewtkpi 0'

"

Hgzkdrg"lqkvu'uj cmldg'pqv'pqto cmldg'ecuv'kp0' Y j gtg'v'j g'uk'g'qh'v'j g'dmumu'f qgu'pqv'o cng'v'j ku' r qukdrg." cf f ksqpcn'hgzkdrg"lqkvu'uj cmldg'r tqxkf gf "pq"i tgcvt'v'j cp"j cni'c'r k g'f kco gvgf "dg{ qpf " gcej "hceg'qh'v'j g'dmumu'0'

"

Concrete Surround to Pipes"

Y j gtg'r k rkpgu'r cuu'vpf gt'utgco u'cpf "tkxgtu"qt"y j gtg'f kgevgf "d{ "v'j g'Rtqlgev'O cpci gt."v'j g' r k rkp"uj cmldg'utwtqvpf gf "y kj "eqpetgvg'cu'uj qy p'qp"v'j g'F tcy kpi u0'

"

Eqpetgvg'utwtqvpf "uj cmldg'odtqmgpö"cv'cmldg'r k g'lqkvu"v'q'tgcv'kp'hgzkdrg" "kp"v'j g'r k rkp0'P q'lqkvu'uj cmldg'eqpetgvgf "kp"v'j kj qw'v'j g'r tkqt'cr r tqxclpqv'v'j g'Rtqlgev'O cpci gt0'

"

Flotation of Pipelines"

Vj g'Eqptcevt"uj cmldg'puwtg'v'j cv'hqcv'kp"qh'v'j g'r k rkp" f qgu'pqv'qewt" f wtkpi "eqputwexkp0' Uwhlekpv' dcen'hknu'uj cmldg'r negf "qxgt'gcej "r k g'chgt'rc { kpi "cpf "dghqtg'v'gukpi "v'j r txxgpv'hqcv'kp0'

"

Pressure Rating

Vj g"rtguwtg"tcvpi "qh'r kr gu'uj cmi'dg"cu"lpflecvgf"qp"vj g"ftcy kpi "qt"Dknl'qh'S wcpvklgu"qt"lh'pqv'lpflecvgf"vj gp"ugrgevgf"uwej"vj cv'vj g'o czko wo "rtguwtg"lp"vj g'r kr grkp g"lpenwukg"qh'lwti g'r tguwtgu'uj cmi'pqv'gzeggf"vj g'o czko wo "cmjy cdrg'lwucp g"y qtnkpi 'rtguwtg'tcvpi "qh'vj g'r kr g="Vj g'lwti g'r tguwtg'co r rkwf g"vj g'f lhtgpeg'dgy ggp"o czko wo "cpf"o kpo wo "lwti g'r tguwtgu'uj cmi'pqv'gzeggf"qpg'j cmi'qh'vj g'o czko wo "cmjy cdrg'lwucp g"y qtnkpi 'rtguwtg'tcvpi "qh'vj g'r kr g'o"

Testing of Water Supply Pipelines

Cmli tguwtg'r kr grkp gu'uj cmi'dg'j {ftquvlecni 'vguf 0Ukg'vgu'r tguwtgu'uj cmi'dg'30'ko gu'vj g'o czko wo "y qtnkpi 'rtguwtg'qt"cmjy cpeg"rtguwtg'r nru"7"dict"y j lej gxgt"ku'vj g'uo cmgt"o gcuwtf"cv'vj g'iqy guv'rtv' qh'vj g'r kr grkp g"wpgru'q'vj gty kug'ur gekhgf"qp"vj g'ftcy kpi uo"

Vj g"Eqptcevt"uj cmi' kxg'vj g'Rtqlgev'O cpci gt'pqv'ngu'vj cp'6: "j qwtu'pqv'eg"qh'j ku'lpv'p'v'q"ectt{"qww'c"rtguwtg"vgu'Vgu'pi "uj cmi'pqv'eqo o gpeg'y kj qww'vj g'Rtqlgev'O cpci gt'au'cr r tqxcif'Dghqtg"cnpi y "qh'r kr g"ku'vguf."gcej"r kr g'uj cmi'dg"ugewtgn{"cpej qtgf 0Cmi'j twu'cpf"cepej qt"dnqemu'uj cmi'j cxg"dggp"eqpwtvevgf"cpf."vj g"dttn'qh'gcej"r kr g'uj cmi'dg"dcenikngf"vq"vj g"gzv'p'pgeguuct{"vq"rtgxgpv'lmv'v'q"qt"o qxgo gpv'qh'vj g'r kr grkp g"cpf"uj cmi'dg'pqv'ngu'vj cp'822o o 0"

Pqto cmi'lqpw'uj cmi'dg'gh'g'zr qugf"wpv'rtguwtg'vgu'pi 'j cu'dggp'lcu'kucv'qtk'eqo r ngvf 0Cp{"pggf"vq"dcenikn'c"r kr grkp g'dghqtg'r tguwtg'vgu'pi "uj cmi'pqv'tgrkxg"vj g"Eqptcevt"qh'j ku'tgur qpukdkk{"vq"gzecxcvg"vq"iqecvg"cpf'tgr ck'cp{"hgcnu'0"

Rtguwtg"vgu'pi "uj cmi'dg"ectt'kf"qww'cu'vj g'y qtni'rtqeggf u"lp"uwej"ngpi y u'cu'ctg"eqpxgpkp'v'dw'pqv'gzeggf kpi "722o 0'Vj g"gpfu'qh'vj g'ngpi y "qh'r kr grkp g"vpf gt"vgu'uj cmi'dg'enqugf"d{"o gcpu'qh'ugewtgn{"cpej qtgf"ecru'qt"dnrpn'hcpi gu'0Rkr grkp g"xcrngu'uj cmi'pqv'dg"wgf"htq"vj ku'r wtr qug'0Cmi'y cuj qw'xcrngu'uj cmi'dg'hv'gf"y kj "dnrpn'hcpi gu'cpf"vj g'xcrngu'qr gpgf"dghqtg"vj g'eqo o gpego gpv'qh'cp{"rtguwtg"vgu'0Cv'gcej"ck'xcrng'iqecv'q"cu'geln'ck'tgrgcug'ctt'cpi go gpv'uj cmi'dg'r tqxkf gf"vq"cmjy "o cpwcd'tgrgcug"qh'ck'f wtkpi "hknpi "qr gtcv'qp'0Rtguwtg"vgu'pi "uj cmi'pqv'dg"ectt'kf"qww'y kj "r gto cpgpv'ck'xcrngu'lp'r nceg'0"

Vj g'r kr grkp g"vq"dg"vguf"uj cmi'dg'hkngf"unqy n' y kj "y cvgt"lp"uwej"c"o cpggt"vj cv'cm'ck'ku'g'zr gmgf 0Ck'xgpw'uj cmi'dg'ej gengf"vq'gpwtg'vj cv'pq'ck'ku'tcr r gf"cv'j ki j 'r qkp'0"

Vj g"rtguwtg"lp"vj g'r kr grkp g"uj cmi'unqy n' dg"tckuf"vq"vj g'y qtnkpi "rtguwtg."vj g'vgu'r wo r"flueqppgevgf"cpf"vj g'r kr grkp g'gh'ej cti gf"vpf gt'rtguwtg'y kj "ck'xcrngu'qr gpgf"htq'c'r g'gtkf"qh'pqv'ngu'vj cp'46'j qwtu'vq'cmjy "ck'lp'vj g'r kr grkp g"vq"dg'zr gmgf"cpf'r kr g'lpkpi u'cpf'r kr g'y cmi'qh'cdutdgpv'o cvgt'cni'vq'dgeqo g"ucwtcvgf 0Cv'vj g"gpf"qh'vj ku'r g'gtkf"qh'vko g"ck'xcrngu'uj cmi'dg'enqugf"cpf"vj g'vgu'r wo r"uj cmi'dg"tgeqppgevgf"cpf"vj g'rtguwtg"lp"vj g'r kr grkp g'tckuf"vq"vj g'vgu'r tguwtg"cpf"vj ku'r tguwtg"o ck'v'p'gf"htq"c'r g'gtkf"qh'46'j qwtu'qt"uwej"q'vj gt'r g'gtkf"cu'f'k'gevgf"d{"vj g'Rtqlgev'O cpci gt'0"

Vj tqwi j qww'vj ku'r g'gtkf"vj g'r tguwtg"lp"vj g'r kr grkp g'uj cmi'pqv'dg"cmjy gf"vq'lcni'qt'tkug'o qtg"vj cp'8o"j gcf"qh'ij cvgt'cdq'xg'vj g'vgu'r tguwtg'cpf"vj ku'uj cmi'dg'bee'qo r rkuj gf"d{"r wo r kpi "y cvgt'lp'v'qt'tgrgcupki"y cvgt'htqo"vj g'r kr grkp g'cu'tgs wkgf 0Vj g'xqno g'qh'ij cvgt'r wo r gf"lp'v'qt'tgrgcugf'htqo"vj g'r kr grkp g'uj cmi'dg'ectghwn{"o gcuwtf 0Cv'vj g'gpf"qh'ij g'vgu'r g'gtkf"vj g'r tguwtg"lp"vj g'r kr grkp g'uj cmi'dg'cf'lwngf"vq"vj g'vgu'r tguwtg'd{"r wo r kpi "y cvgt'lp'v'qt'tgrgcupki"y cvgt'htqo"vj g'r kr grkp g'cu'tgs wkgf 0"

"

Vj g"cr r ctgpn'ngnei g"htqo "vj g'r k'gkpg"uj cml'dg"cuegtvclpgf "htqo "vj g'pgv'xqno g'qh'y cvgt "vj cv'j cu" dggp" r wo r gf "kpq"vj g'r k'gkpg"ftkpi "vj g'vuv'r gkqf 0'Vj g'r gto kuukdg'nuu'uj cml'pqv'gzeggf "4'htgu" r gt'o gtg"pqo kpcldqtg'r gt'htqo gvtg'ngpi vj "r gt'o "j gcf "r gt'46"j qwtu0

"

F wtkpi "vj g'r tguwtg"vuv'gzt qugf "lqkpu"uj cml'dg"kpur gevgt "cpf "cp{ "ngnei g"qt"uggr kpi "lqkpu"uj cml' dg'tgo gf kcf 0Cmlki pu'qh'ngnei g'uj cml'dg'tgo gf kcf "y j gj gt "vqcn'cr r ctgpn'ngnei g'htqo "vj g'r k'gkpg" vpf gt "vuv'ku'nguu"vj cp"vj g'cr r ctgpn'cmqy cdng'ngnei g"qt"pqv0'Uj qwf "cp{ "ngpi vj "qh'r k'gkpg"htk'vq" r cuu'vj g'r tguwtg"vuv'vj g'Eqptcevgt "uj cml'cv'j ku'qy p"gzr gpug'ectt{ "qww'cmly qtn'pgeguuct{ "vq"ngecv" cpf "tgo gf { "vj g'hwu'cpf "vq'tgvuv'vj g'r k'gkpg"wpkrls'ucvukcevgtkl{ "r cuugu'vj g'vuv'0

"

C"ngy "r tguwtg"clt "vuv"pqv'gzeggf kpi "205"dtc+o c{ "dg'wugf "cu"r tgrko kpc{ "lqkpv'ki j vguu'vuv'r tkt "vq" dcenthklpi "cpf "j { f tqucve "vuvkpi 0'Vj g'y cvgt "wugf "hqt"r tguwtg"vuvkpi "uj cml'dg'r tqxkf gf "d{ "vj g" eqptcevgt "cpf "uj cml' dg" htgg"htqo "ko r wtkgu" cpf "qh' uwej "c" s wcrk{ "y j lej "y kn' pqv' r qmwg" qt" kplwtg"vj g" r k'gkpg0'Vj g'Eqptcevgt "uj cml' dg" tgr qpukdg"htq" qdvclpki "vj g'y cvgt." vcpur qtkpi "k" cpf "hqt"ku"uchg" f kur qucnqp'eqo r ngvqp0

"

Cleansing and Sterilizing of Pipelines"

Chgt "vj g'r k'gkpgu"j cxg" dggp"eqo r ngvf "cpf "r tguwtg"vuv'g'ucvukcevgtkl{ "cu"j gtgkpi "ur gekhgf" vj g'Eqptcevgt "uj cml'hwj "qww'cpf "engcpug"vj g'r k'gkpgu0'Y j gtg'y cvgt "ku'r tqxkf gf "d{ "vj g'Go r m{ gt." vj g'equv' qh'vj ku'y knldg'tgko dwtudng'wpf gt "c"r tqxkukpcrluwo 0

"

F lco gvtu'522'o o "cpf "i tgcvt<

Rkr gkpgu"uj cml' dg" engcpugf "kp" ugevqpu" cpf "vj ku"uj cml' dg" ecttkgf "qww" d{ "o gcpu" qh' r cuukpi " vj tqwi j "r qn'wtgij cpg'hqco "uy cdu0'Vj g'uy cdu'uj cml'dg"vq"vj g'cr r tqxclqhl'vj g'Rtqlgev'O cpci gt0

"

F lco gvtu'iguu'vj cp'522'o o <

Rkr gkpgu"uj cml'dg"engcpugf "kp"ugevqpu"d{ "hwj kpi "y kj "r qvcdng"y cvgt."htq" c"r gkqf "qh'vko g"vq"dg" f gekf gf "d{ "vj g'Rtqlgev'O cpci gt)Tgr tguvpcvkg0

"

Engcpulpi "qh'cp{ "ugevqp"uj cml'dg"tgr gevgt "cu'tgs vktgf "d{ "vj g'Rtqlgev'O cpci gt)Tgr tguvpcvkg"kp" vj g'gxgpv'qh'vj g'lpklcl'qt "uudugs vgpv'qr gtevkp"pqv'dgkpi "vq"j ku'ucvukcevgt0'Vj g'equv'qh'uwej "y cvgt" vj cml'dg'ej cti gf "vq"vj g'Eqptcevgt0

"

Vj g'Eqptcevgt "uj cml'uw r n{ "cm'pgeguuct{ "gs vkr o gpv'htq"vj g'engcpulpi "cpf "ugtktk kpi "qr gtevkpu." kpenf kpi "cml'uy cdu'cpf "uy cd'f ggevgtu'y j lej "uj cml'dg'j cpf gf "qxtg"vq"vj g'Go r m{ gt "qp'eqo r ngvqp'qh' vj g'Y qtmu0

"

Uy cdu'uj cml'dg'r cuugf "vj tqwi j "r k'gkpgu'cvlur ggf u'qh'dgvy ggp'204"cpf "206'o gvtu'r gt'ugeqpf "vq"qdvclp0 vj g' dguv'engcpkpi "tguwnu"y kj "vj g'o kpo wo "pwo dgt"qh' r cuugu0'Uj qwf "k"dg" cr r ctgpn'htqo "vj g" f gdtku" eqmgevgt "d{ "vj g'uy cd"vj cv'f co ci g"vq"vj g'htkpi "j cu'qeevgtgf ."vj g'Eqptcevgt "uj cml'dg"y j qm{ " tgr qpukdg"htq"tgr ctkpi "vj g'htkpi "vq"vj g'ucvukcevgt'qh'vj g'Rtqlgev'O cpci gt)Tgr tguvpcvkg0

"

Vj g'uy cddkpi "qr gtevkp"uj cml'dg"eqptqmgf "d{ "cp"gzr gtlgepgf "Rtqlgev'O cpci gt"vq" gpuwtg"vj cv"pq" vpf vg" uwti gu'kp"vj g'r k'gkpg."j gcx{ "f qenki "qh'vj g'r ki "qt"r tguwtkupi "qh'vj g'r k'gkpg"qeev'ecvukpi " f co ci g"vq" cp{ "qh' vj g" r gto cpgpv" y qtmu0 Cp{ "f co ci g" ecwugf "uj cml' dg" o cf g" i qqf "d{ "vj g" Eqptcevgt "vq"vj g'ucvukcevgt'qh'vj g'Rtqlgev'O cpci gt)Tgr tguvpcvkg0

"

"

Vj g'Eqpvtcevt'uj cml'o cng'cml'pgeguuct { "cttcpi go gpw'ht'vj g'tcpur qtvcvkp"qh'y cvgt'htqo "vj g'r qkp'v' qh' uwr r n' "htqo "vj g'Go r m { gt"vq"vj g'tgs vkt gf "mcevkvq."cpf "o cng'cml'cttcpi go gpw'ht'vj g'f kur qucn' qh'vj g'y cvgt'O'cm'f kur qucn'o gy qf u'cpf "mcevkvpu'uj cml'dg'vq"vj g'cr r tqxcn'qh'vj g'Rtqlgev'O cpci gt'u' Tgr tguvpvcxgO'

"

Y j gp"vj g'r kr grkpgu"j cxg"dggp"ergcpugf "vq"vj g"ucvkvcevkp"qh'vj g'Rtqlgev'O cpci gt'u'Tgr tguvpvcxg" vj g'Eqpvtcevt'uj cml'pvtqf weg'cv'c'uruy 'tcvg'qh'y cvgt'hny "d { 'c'r qtvcdr'ej ntkpvcvt'qt'qvj gt'cr r tqxgf " o gcpu'qh'c"uqnwkvq"qh'vgtkrk kpi "ci gpv'kp"uwej "s wcpvkv { "cpf "qh'uwej "utgpi vj u'cu'y kn'tguwn'kp"vj g' eqpegpvcvkp"qh'ej ntkp'vj tqwi j qw'vj g'ngpi vj "qh'vj g'r kr grkpgu'qh'pqv'ngu'vj cp"52'r ctu'r gt'o knkqpO' Vj ku'vgtkrk kpi "ej cti g'uj cml'dg'cmjy gf "vq"tgo clp"kp"vj g'r kr grkpgu'ht"46"j qwtu'chgt"y j lej "ko g" vj g" r kr grkpgu'uj cml'dg'vj qtqwi j n' "hnuj gf "wulpi "vj g'uwr r n' "y cvgt"vq"tgo qxg'ej ntkp'kp"gzegui'qh' vj cv'kp" vj g'uwr r n' "y cvgtO'

"

Y j gp" vj ku" hnuj kpi " j cu" dggp" ucukhcevtkn { "eqo r rvgf" uco r ngu' qh'y cvgt" y kn' dg" vngp" d { " vj g" Rtqlgev' O cpci gt'u' Tgr tguvpvcxg'ht'dcevgtkmji lecn'cpn'uku'd { "vj g'Go r m { gtO'K'cp { "qh'vj g'tguwnu' qh'vj g'cpn' ugu'ctg'wpucvkvcevt { "y j gp'eqo r ctgf "y kj "vj qug'qh'vj g'eqpvtqnuco r ng'qh'vj g'uwr r n' "y cvgt" vj g"vgtkrk kpi " r tqegu'uj cml'dg'tgr gcvgf "wpv'ucukhcevt { "tguwnu'ctg" qdvclpgf O'Qp"eqo r rvgkvq" qh' vgtkrk kpi "cpf "hnuj kpi "vj g'r kr grkpgu'uj cml'dg'ng'hwn'qh'uwr r n' "y cvgtO'

Vj g'Eqpvtcevt'uj cml'dg'uqng { "tgr qpukdr'ht"vj g'r tqxkvkqp"qh'cml'ndqwt."o cvgtknu'cpf "ej go lecn' pgeguuct { "ht'ectt { kpi "qww'vj g'htgi qkpi "qr gcvkpuO'

Vj g'equv'qh'y cvgt'wugf'ht'tgr gcvgf "ergcpukpi . "vgtkrk kpi "cpf "hnuj kpi "r kr grkpgu'kp"ceeqtf cpeg'y kj "vj ku' erwug'qh'vj g'Ur gekhcevkp'y knldg'ej cti gf "vq"vj g'Eqpvtcevt'cpf "vj g'Eqpvtcevt'uj cml'dg'tgr qpukdr'ht" cml'go r qtct { "y qtnu'cpf "qvj gt"cttcpi go gpw'kp"eqppgevkp'y kj "ergcpukpi . "vgtkrk kpi "cpf "hnuj kpi "vj g" r kr grkpguO'

Vj g'equu'qh'vj g'lpkkn'uco r r kpi "cpn' ugu'cpf "r tgr ct kpi "tgr qt w'qp"vj g'dcevgtkmji lecn's wcn { "qh'vj g" y cvgt'uj cml'dg'datpg'd { "vj g'Go r m { gt'dw'vj g'equu'qh'cp { "uwdugs wgpv'uco r r kpi "cpn' ugu'cpf "r tgr ct kpi " tgr qt w'uj qwf "vj g'lpkkn'tgr qt w'dg'wpucvkvcevt { "uj cml'dg'datpg'd { "vj g'EqpvtcevtO'

"

Painting"

Cml'uggn'qt" f vevkg" kqp" r kr gu" cpf " hkvkpi u" gzr qugf " vq" xkgy " kpenf kpi " cdqyg" i tqwvf " r kr grkpgu' uj cml'dg'r clpvgf "chgt"o cnkpi "i qaf"vj g"gzvgtpcn'r tqgevkp'y kj "y q'eqcu'qh'öDkwo cuke"Cno kpkwo " uqnwkvq" F O' 7; 2; ö"o cpwkcwtgf "d { "Y clgu'F qxg'Dkwo cuke"Nf . "J gddwtp."F vtj co ."Gpi rcpf ."qt" uko krt'cr r tqxgf O'

"

Rkr gu'cpf "hkvkpi u'kp"ej co dgtu'uj cml'dg'r clpvgf "y kj "y q'eqcu'qh'öDkwtqu'Uqnwkvqö"o cpwkcwtgf " d { " Y clgu'F qxg'Dkwo cuke"Nf . "qt"uko krt'cr r tqxgf O' Xcrxgu'cpf "Uwtceg'Dqzgu'uj cml'dg'uko krtn { " r clpvgf O'

"

Connections to and Diversions to Existing Pipework"

General"

Vj g'Eqpvtcevt'uj cml'dg'tgr qpukdr'ht'eqppgevkpi "pgy "r kr gy qtnl'cpf "ugt xleg"eqppgevkpu'rcf "vpf gt" vj g' Eqpvtcev' vq" gzkvkpi " r kr gy qtm" cpf " ht" drcpnkpi /qht' gzkvkpi " r kr gy qtn' cpf " ugt xleg" eqppgevkpuO'Vj g' eqppgevkp'uj cml'dg'o cf g'lp'c'b cpgt"vq'b kpo k g'cp { "f kut w'kvq"vq'uwr r n' O'

"

"

Dghqtg"drpnkpi /qhh"qt"o cnkpi "c"eqppgevqp"vq"gzknkpi "r kr gy qtni"vj g"Eqpvtcevqt"uj cmi'pqvkh{"vj g" Rtqlgev'O cpci gt"kp"y tkkpi "pq"ngu"vj cp"36"fc{u'lp"cfxcpeg"qh"vj g"fcvg"qp"y j lej "j g"rtqr qugu"vq" ectt{"qww"vj g" y qtn0 Chgt"i kxkpi "uwej "pqvleg"vj g"Eqpvtcevqt"uj cmi'qdvclp"htqo "vj g"tgur qpukdrg" Cwj qtk{"ci tggo gpv'qp"vj g"rtgekug"fcvg."vko gu"cpf"o gjv qf"vj cv'vj g"eqppgevqp"y kni'dg"o cf g0 Vj g" eqppgevqp"qt"drpnkpi /qhh"uj cmi'dg"o cf g'cv'wej "vko gu'qh'vj g'f c{ 'qt'pki j v'cu'ukr wrcvg" d{ "vj g'Rtqlgev' O cpci gt0

"

Vj g"Eqpvtcevqt"uj cmi'rtgr ctg"cf g'vckrgf"o gjv qf"ucvgo gpv'r tqi tco o g'qh'vj g'y qtni'cpf "c'uej gf wng"qh" cmi' r rcpv'cpf"o cvgtkcn"vq"dg"vugf"cpf"uj cmi'qdvclp"vj g"cr r tqxcn'qh"vj g"Rtqlgev'O cpci gt"pqv'ngu" yj cp"94"j qwtu"dghqtg"eqo o gpego gpv'qh'vj g'y qtn0 Vj g"rtqi tco o g"uj cmi'cmqy "hqt"vj g"ko o gf kcvg" tg/"eqo o kuukpki "qp'eqo r rgvqp"qh'vj g'y qtn0

"

Vj g"Eqpvtcevqt"uj cmi'dg"tgur qpukdrg"ht"mjevckpi "vj g"gzcev'rkpg"cpf "ngxgn'qh"vj g"gzknkpi "r kr gy qtni' cpf" ugtxleg"eqppgevqp"u'cpf"uj cmi'ci tgg'y kj "vj g'Rtqlgev'O cpci gt"cpf"vj g"tgur qpukdrg"Cwj qtk{"vj g" rtgekug" mjevckpi"qh'vj g"eqppgevqp"qt"drpnkpi /qhh0

"

Materials"

Dghqtg"eqo o gpelkpi "vj g"eqppgevqp"vj g"Eqpvtcevqt"uj cmi'gzeccxvg"v'kcn'r ku'cu'pgeguuct{"cpf"uj cmi' ej gen'vj g"qwu'kf g"fkco gvg"qh"vj g"gzknkpi "r kr gy qtni'cpf"gpugt"vj cv'vj g"eqwr rkpi u"vq"dg"vugf" hqt"o cnkpi "eqppgevqp"vq"vj g"gzknkpi "r kr gy qtni'cpf"vj g"o cvgtkcn"vugf"ht"drpnkpi /qhh"gzknkpi " r kr gy qtni'ctg" fko gpukqpcmi'lvkcdrg0

"

Vj g"Eqpvtcevqt"uj cmi'gpugt"vj cv'cni'vj g"o cvgtkcn"ctg"qp"ukg"pqv'ngu"vj cp"46"j qwtu"dghqtg"vj g" eqo o gpego gpv'qh'vj g'y qtn0

"

Personnel"

Vj g"Eqpvtcevqt"uj cmi'gpugt"vj cv'cv'ngcu'qp"ugplqt"o go dgt"qh"j ku' hkrf" uwr gtxluqt{"ucv'h" y j q'ku"gzr gtlgpegf"kp"uwej "qr gtcv'kpu'cpf"hwgpv'kp"dqj "Gpi rkuj "cpf"vj g'rcpi wci g'qh"j ku'rcdqwtgtu" ku'qp"ukg" y tqwi j qww'vj g'f wcv'kqp"qh'vj g'y qtn0

"

Vj g"Eqpvtcevqt"uj cmi'cuq'gpugt"vj cv'cmipgeguuct{"unimgf"ctv'kpu'cpf"cp'cf gs wcv'pwo dgt'qh'rcdqwtgtu" hqt"vj g'qr gtcv'kqp"ctg"qp"ukg"vj tqwi j qww'vj g'y qtn0

"

"

Preliminary Work"

Vj g"Eqpvtcevqt"uj cmi'gzgewg"cnly qtni'r quukdrg"dghqtg"fcueqppgevqp"qh'vj g'lw r r n'lpexf kpi <" Gzeccxv'kpu'cpf"uwr r qtu'vq"vj g"gzecxcv'kpu0 Drpf kpi "y kj "eqpetgvg"vj g'ko o gf kcvg'y qtnkpi "ctgcu."dw'pqv'ngu"vj cp"vj g'y j qng"qh'vj g'dqwo "qh'vj g" gzeccxv'kpu0 Rwkpi "kp"cmif tckpu."qt"y j gtg"vj ku'ku'pqv'r quukdrg"cuwo r "qh'cf gs wcv'uk g'htqo "y j lej "c'r wo r" o c{" qr gtcvg0

"

Ecukpi "vj g'hqqt'qh'cp{"ej co dgt"y j lej "ku'rcvgt"vq"dg"eqputwvgf"ctqwpf"cp{"qh'vj g'y qtn0 Ecukpi "vj g'y twv'dmgu'qt"cp{"qj gt'y qtni'y j lej "o c{"dg'tgs vktgf0

"

"

Gzr qulpi 'cpf 'engcpkpi 'r kr gu'lp'tgcf kpguu'ht 'vj g'y qtn0

"

Carrying out the Work"

Vj g'Eqptcevt'uj cni'dg'tgur qpukdg'ht'go r v'kpi 'vj g'ugevqp'qh'gzkukpi 'r kr gy qtn'qp'y j lej 'vj g'y qtn' ku'vq" dg'ecttkef'qww'd{ 'c'o gjv qf 'ci tggf 'y kj 'vj g'Cwj qtk' 'cpf 'cr r tqxgf'd{ 'vj g'Rtqlgev'O cpci gt0

"

Vj g'Eqptcevt'uj cni'cng'cni' tgecwkpup'pgeguuct { 'vq'r tggp'v'f k'v'cpf 'qjv gt 'hqtgki p'o cwtg'gpvgtkpi 'vj g' r kr g'kpgu0

"

Vj g'Eqptcevt'uj cni'r tqxkf g'cv'vj g'Ukg'c'uw'ht'lekp'v's wcp'v'k' 'qh'engcp'y cwtg'eqpvckpki 'cr r tqzko cvgn' " 32'r ctv'r gt'o knkqp"*32o i ln'qh'ej n'ltkpg'dghqtg'r tqeggf kpi 'y kj 'vj g'ewwki 'qh'vj g'gzkukpi 'r kr g'kpg0 Gcej 'kgo 'qh'r kr gy qtn'kpen'f kpi 'vj g'lqkpu'uj cni'dg'uwdo gti gf 'lp'vj g'uqnwkp'ht'c'o k'p'o wo 'r gt'kf " qh'37'o k'pwgu" ko o gf'kcvgn' 't'ktq't'v'k'p'ucn'v'k'p0

"

Water Pipes and Chambers to be abandoned"

Y j gtg" gzkukpi 'y cwtg'r kr gu'"ctg'vq'dg" tgr'ceg'f 'y kj " pgv " r kr gy qtn'vj g'gzkukpi 'r kr gy qtn'ku'"vq'dg" cdcpf qp'gf 0' Y j gtg" pgv 'y qtnu'eqph'ev'y kj " gzkukpi " r kr gy qtn'vq" dg" cdcpf qp'gf ." cdcpf qpo gpv' qh' r kr gy qtn'uj cni'eqpuk'qh'tgo qxcn'cpf 'f kur qucn'vq'c'ukg'cr r tqxgf'd{ 'vj g'Rtqlgev'O cpci gt0Y cwtg" uwr r n' 'r kr gy qtn'uj cni'p'v'dg'cdcpf qp'gf 'v'p'v'k'ukcdng'cngt'p'v'k'g'b' gcpu'q'h'lw'r r n' 'ctg'lp'r'ceg'cpf 't'gcf { " ht'eqppgevkp0

"

Y j gtg'ej co dgtu'ctg'vq'dg'cdcpf qp'gf 'vj gug'uj cni'dg'dtqngp'f qy p'cpf 'f kur qugf 'qh'cpf 'vj g'xqkf 'h'ngf " cpf 'eqo r cev'f 'y kj 'ukcdng'b' cvgt'k'nc'r r tqxgf'd{ 'vj g'Rtqlgev'O cpci gt0Ej co dgtu'f ggr gt 'vj cp'3'o gvtg" y kn'dg'dtqngp'f qy p'vq"3'o gvtg'dgr'y "h'pkuj gf "i tqwpf "rgxgr'cpf "vj g'tgo c'k'p'ki "xqkf "h'ngf "cpf " eqo r cev'f "y kj 'ukcdng'b' cvgt'k'nc'r r tqxgf'd{ 'vj g'Rtqlgev'O cpci gt0

"

SECTION 4C. DRAINS, SEWERS AND MANHOLES"

Excavation for Drains, Sewers and Manholes"

Vj g'i tqwpf "uj cmi'dg"gzecxcvqf "v"j g'rkpgu"cpf "f gr yj u'uj qy p"qp"vj g'f tcy kpi u'qt"v"uwej "qy gt"rkpgu" cpf " f gr yj u'cu"vj g'Rtqlgev'O cpci gt"o c{ "f k tge'v' Vtgepej gu'uj cmi'dg"qh'uwhlekpvy kf yj "v"gpcedrg"vj g' r kr gu"v"dg"r tqr gtn{ "rckf "cpf "lqkpygf O'k"ecug"qh'r kr gu"qh'i tgcvgt "f lco gvg"vj cp"522o o . "vj g'y kf yj "qh' vtgepej "uj cmi'dg"gzvgtpcrnf lco gvg"qh'r kr g. 'r nuw'622o o O'

Y j gp"cp{ "gzecxcvqp"j cu"dgpp"vengp"qw"cpf "tlo o gf "v"j g'rgxgnu"cpf "f lo gpukpu"uj qy p"qp" vj g' f tcy kpi u' qt"cu" f k tgevgf "d{ "vj g' Rtqlgev' O cpci gt." vj g' Rtqlgev' O cpci gt" uj cmi' dg" kphqto gf " ceeqtf kpi n{ "uq" vj cv'j g"o c{ "kpur gev'vj g'eqo r ngvgf "vtgepej "cpf "pq"gzecxcvqp"uj cmi'dg"hmrgf "kp"qt" eqxgtgf "y kj "eqpetvg" wpvkn'k"j cu"dgpp"uq"kpur gev'v"cpf "vj g'Eqpvtcevqt"j cu"dgpp"cwj qtkugf "v" r tqeggf "y kj "vj g'y qtnO'cm' uwr nuw'o cvgtkcn'ltqo "uwej "gzecxcvqpupqvtgs vktgf "hqt'tghkpi "uj cmi'dg" ectvgf "cy c{ "v"vkr u'qt"qy gty kug'f kur qugf "qh"cu'f k tgevgf O'

Cmi'gzecxcvqp"uj cmi'dg"ngr v'f t{ . "cpf "cni'dcktpi "cpf "r wo r kpi . "vko dgtkpi . "uj qtkpi "cpf "uwr r qtkpi "qh' ulf gu"vj cv'o c{ "dg'tgs vktgf . "cpf "cp{ "tghkpi . "tco o kpi "cpf "f kur qucn'qh'uwr nuw'o cvgtkcn'pgeguuct { "kp" ectt { kpi "qw"vj g'gzecxcvqp"cpf "dcenikpi "qh'vtgepej gu'uj cmi'dg"vengp"v"r tqxkf g'c'uqkf "cpf "gxgp"dgf " hqt"dcttgn" qh'vj g'r kr gu"cpf . "y j gtg"c"eqpetvg"dgf "ku"pqv'ur gekkfg . "vj g'hmqt"qh'vj g'vtgepej "uj cmi'dg" r tqr gtn{ "uj cr gf "v" tgegkxg'vj g'luqengv"cpf "vj g'dcenikno wuv'dg'vj qtqwi j n{ "tco o gf "cmppi "vj g'ulf gu"qh' vj g'r kr gO'

Supports for Pits, Trenches and Other Excavations"

Vj g'ulf gu"qh'r ku. "vtgepej gu"cpf "qy gt"gzecxcvqp"uj cm'y j gtg"pgeguuct { . "dg'cf gs wcvgn{ "uwr r qtvgf "v" vj g' ucukvckp"qh'vj g'Rtqlgev'O cpci gt. "cpf "cni'wej "gzecxcvqp"uj cmi'dg"qh'ulk gu'uwhlekpvy"v"gpcedrg" vj g'r kr gu"cpf "dgf f kpi "v"dg'rckf "ceewtcvgn{ . "cpf "r tqr gt'tghkpi "cpf "eqo r cevpi "v"dg"ecttkgf "qwO'

Vj g'Eqpvtcevqt"uj cmi'veng'cmi'r tgecwkpupgeguuct { "hqt"vj g'uchgv{ "qh'cf lqkpi "utwewt gu"cpf "dwkf kpi " d{ "uj qtkpi . "qr gpki "kp"uj qtvhpi vj u'qt"qy gty kug. 'f wtkpi "vj g'vko g'vj g'vtgepej gu'ctg'qr gpO'

Rock Cutting in Trenches for Pipes"

Y j gtg'uqrf "tqeniku"o gv'y kj kp"vtgepej gu."k'uj cmi'dg"eww"qw"v"c"f gr yj "qh'322o o "dgrny "vj g'lvpgf gf " r xgn{ qh'vj g'dqwo "qh'vj g'r kr gu. "cpf "tgr rnegf "y kj "322o o "qh'cr r tqxgf "o cvgtkcn'cu'ur gekkfg O'k" o gcuwtkpi " uwej "tqen'gzecxcvqp"vj g'Eqpvtcevqt"y kmi'dg"cmqy gf "c"y kf yj "qh'622o o "o qtg"vj cp"vj g' gzvgtpcrnf lco gvg"qh' vj g'r kr gu"v"c"rgxgn'qh'322o o "dgrny "vj g'dqwo "qh'vj g'r kr guO'Vj g'Eqpvtcevqt" uj cmi'f kur qug"qh'cni'wtr nuw"o cvgtkcn'ctkpi "ltqo "tqen'gzecxcvqp"kp"c"o cppgt"v"vj g'cr r tqxgn'qh'vj g' Rtqlgev'O cpci gtO'

Water in Trenches for Pipelines"

Vtgepej gu'uj cmi'dg"ngr v'ltgg'ltqo "y cvgt"cv'cni'vko gu'f wtkpi "eqputvevqp"qh'y qtnu'wpvkn'kp"vj g'qr kpkp" qh'vj g' Rtqlgev'O cpci gt. "cp{ "eqpetvg"qt"qy gt"y qtnu'vj gtgkp"ctg'uwhlekpvy "ugv"cpf "vj g'Eqpvtcevqt" uj cmi'eqputvevcp{ "lwo r u'qt"vgo r qtct { "f tclpu"vj cv'vj g'Rtqlgev'O cpci gt"o c{ "f ggo "pgeguuct { O'

Vj g'Eqpvtcevqt"uj cmi'dg'tgur qpukdg'hqt"vj g'tgo qxcn'cpf "f kur qucn'qh'cm'y cvgt"gpvgtkpi "vj g'gzecxcvqp" ltqo "y j cvxgt"uqwtg"cpf "uj cmi'f gcn'y kj "cpf "f kur qug"qh'uwej "y cvgt "kp"c"o cppgt"cr r tqxgf "d{ "vj g'

"

Rtqlgev' O cpci gt 'uq'cu'q'gputg'yj cv'gzeccv'kpu'ctg'hgr v'f t { 'y j krg'gputkpi 'y cv'yj g'f kur qucn'qh'yj ku' y cvgt 'f qgu' pqv'ecwug'c'pwkucpeg'v'q'cf lcegpv'r nqv'j qrf gtu'qt 'y qtmu' Vj g'Eapvtcevt 'uj cm'r tqxkf g'cm' r rcpv'rdqwt'cpf 'o cvgtkcu'tgs vkt gf 'hqt 'uwej 'y qtnu'

"

Laying and Jointing Rigid Jointed Concrete Pipes"

"

Eqpetgvg'r kr gu'uj cmldg'rcf 't wg'v'q'hpg'cpf 'rgxgn'gcej 'r kr g'dgkpi 'ugr ctcvgn' 'dppgf 'dgwy ggp'uki j v'tcknu'

Hqt "ur ki qv'cpf "uqengv'lqkpu." yj g'ur ki qv'qh'gcej "r kr g'uj cm'dg'r rcegf "j qo g'kp" yj g'uqengv'qh'yj g' qpg'r t gxlqwun' "rcf." cpf "yj g'r kr g'yj gp'cf lwngf 'cpf 'hkgf 'kp'ku'eqttevt' r qukqpp'yj kj 'yj g'ur ki qv'qh'yj g' r kr g'ceewtcvgn' 'egpvtgf 'kp'yj g'uqengv'0'C'tkpi 'qh'vcttgf 'tqr g' { ctp'uj cm'pgz'v'dg'kpugtvgf 'kp'yj g'uqengv'qh' gcej "

r kr g'r t gxlqwun' 'rcf' 'cpf 'f tkxgp'j qo g'yj kj 'c'y qqf gp'ecwukpi 'vqnd'cpf 'y qqf gp'bo cmgv'uwej " { ctp'yj j gp' kp'r qukqpp'uj cmldg'47o o 'kp'f gr yj 0Vj g'uqengv'uj cm'yj gp'dg'eqo r rvgnd' 'hknf 'y kj 'ego gp'bo qtvt '3'v'q' 4'cpf 'c'hknv'qh'yj g'uco g'y qtngf 'cm'tqwpf 'yj g'ukf g0Vj g'hknv'uj cm'dg'rgxngf 'qh'cpf 'gzvgf 'hqt 'c' rgi yj 'qh'pqv'hu'yj cp'72o o 'htqo 'yj g'hceg'qh'yj g'uqengv'0'

Hqt "Qi ggdlqkpgf 'r kr gu' yj g'lqkpu'uj cmldg'yj qtqwi j n' 'ergcpf 'dghgtg're { kpi . 'cpf 'ego gp'bo qtvt. 'uj cm' dg'er r rkgf 'gxgn' 'v' yj g'gpf u'ht' lqkpi 'u'cu'v'eqo r rvgnd' 'hknf 'y g'lqkpu'0Vj g'r kr gu'uj cm'yj gp'dg'pgcv' " r qkpgf 'y kj 'c'dcpf 'qh'ego gp'bo qtvt 'er r tqzko cvgn' '347o o 'y kf g'cpf '42o o 'y len0Vj g'kpukf g'qh'gcej " lqkpu'yj cm'cu'q'dg'r qkpgf 'w'cu'yj g'y qtnr tqeggf u'0'

Ur gekn'ectg'uj cmldg'cngp'v'ugg'yj cv'cp { 'gze'gu'qh'ego gp'bo qtvt 'gve0ku'pgcv' 'ergcpf 'qh'yj j krg'gcej " lqkpu'ku'dgkpi 'o cf g'cpf 'cp { 'gct yj . 'ego gp'vt 'qy gt'bo cvgtkcn'ergcpf 'qvw'qh'yj g'r kr gu'd { 'f tcy kpi 'c'v'ki j v' hknpi 'y cf 'y tqwi j 'y go 'cu'yj g'y qtnr tqeggf u. 'qt' d { 'qy gt'cr r tqxgf 'o gcpu'0C' r tqr gtn' 'hknpi 'r nvi " uj cm'dg'y gml'ugwtgf 'cv'yj g'gpf 'qh'yj g'mu'rcf "r kr g'cpf 'uj cm'dg'tgo qxgf 'qpn' 'y j gp'r kr g'rc { kpi 'ku' r tqeggf kpi 0Vj g'v'gpej gu. 'r kr gu'cpf 'lqkpu'yj qngu'uj cm'dg'ngr v'htgg'htqo "y cvgt 'wpv'ki yj g'lqkpu'ctg' yj qtqwi j n' 'ugv'0'

Y j gtg'uj qy p'qp'yj g'f tcy kpi u'qt'f k'gvgf 'd { 'y j g'Rtqlgev'O cpci gt. "eqpetgvg'r kr gu'uj cmldg'dgf f gf " cpf "j cwpej gf 'qt'wttqwpf gf 'y kj 'eqpetgvg'0'

"

Pipes Laid with Open Joints"

Qd 0'r qtqwu'eqpetgvg'r kr gu'uj cmldg'rcf "vplqkpgf "y kj "c'ur ceg'qh'34o o "dgwy ggp'yj g'ur ki qv'cpf " yj g'kpgt'gpf 'qh'yj g'uqengv'0'

Cm'r kr gu'uj cmldg'r cengf 'cpf 'wttqwpf gf 'cu'f k'gvgf 'd { 'y j g'Rtqlgev'O cpci gt 'y kj 'cr r tqxgf 'dtqngp' uqpg. 'ucpf "qt" i t'xgn'ci i tgi cvg. "v' yj g'i tcf kpi u'cu'uj qy p'qp'yj g'f tcy kpi u'qt'ucv'gf 'kp'yj g'Dkn'qh' S wcpv'kku'0'

"

Drains to be Left Clean on Completion"

Qp'eqo r rvgkq. "cm'f tckpu." o cpj qngu' gve0'uj cmldg'hu'uj gf 'htqo "gpf "v' gpf "y kj "y cvgt'htqo "cp' cr r tqxgf " uqteg'cpf 'gh'ergcp'cpf 'htgg'htqo 'qdutwv'kpu'0'

"

Refilling Trenches"

"

Vtgepej gu'uj cml'dg'tghkngf "y kj "uwkscdng"gzecxcvgf "o cvgtkcr'qh'322o o "uwttqwpf "dw'pqv'dghqtg"vj g" y qtnl' j cu' dggp" o gcwxtgf " cpf " cr r t q x g f " d { " y g" Rtqlgev" O cpci gt0' Hqt" r kr gu" y j lej " ctg" pqv' uwttqwpf gf "y kj " eqpetgvg."y g'hkuv'rc {gt'qh'hknp" o cvgtkcr'uj cml'dg'ltgg'ltqo "uqpgu'cpf "uj cml'pqv' dg'vj tqy p'f'kgevf "qp"vq" yj g'r kr gu."dw'uj cml'dg'r rcegf "cpf "r cengf "y kj "ectg"cm'tqwpf "yj go 0' Cml' hknp" "uj cml'dg'f gr quksf "cpf "eqo r cevgf "lp"rc {gtu."pqv'gzeggf kpi "447o o "mqug" f gr yj ."vq" c" f t { " f gpukf "pqv'rguu" yj cp" yj cv'qh" yj g"cf lqlkpi "uqk0' Vj g"rcuv'672o o "qh'hknp" o wuv'dg'tgwtpgf "lp" yj g'qtf gt "lp"y j lej "k'j cu'dggp"tgo qxgf 0' Vlo dgt'cpf "ltco kpi "uj cml'dg'y kj f tcy p'cj gcf "qh'yj g'rc {gt" vq'dg'eqo r cevgf ."ectg'dgkpi "vcngp"vq'nggr "yj g" ukf gu'qh'yj g'vtgepej gu'uqkf "cpf "vq'hkncml'yj g'ur cegu'hgm' d { "y g'y kj f tcy p'vko dgt0'

"

Connections of Existing Sewers and Drains"

Y j gtg'uj qy p"qp"vj g'f tcy kpi u."gzkukpi "ugy gtu"cpf "f tckpu"uj cml'dg'r tqr gtnf "gzvgpf gf ."eqppgevgf " cpf " lqlpvgf "vq" pgy "ugy gtu."ewkgtu."f tckpu"qt" ej cpggn0' Cml' uwe j "eqppgevkpu"uj cml' dg" o cf g" f wtkpi "y g'eqputwevkp'qh'yj g'o clp'ugy gt."f tckp"qt"qy gt"y qtnl'cpf "c'tgeqtf "qh'yj gk'r qukskpu'ngv' hqt"hwmtg"wg"qt" tghgtgep0'Y j gtg'r kr g'eqppgevkpu'ctg"o cf g"vq" c"ugy gt."uqpg"r ke j gf "qt"rkpgf " ej cpggn"yj g'r kr gu'uj cml' dg"y gml'cpf "vki j vq" "dwkn"kpq" yj g'eqpetgvg."qt"o cuqpt { "y qtnl'cpf "dg"uq" r rcegf "cu"vq" f kue j cti g"lp" yj g'f kgevkp'qh'yj g'o clp'ugy gt."f tckp"qt"ej cpggn'cpf "y kj "y g'gpf "qh'yj g" r kr g'ectghwm"ew"vq" yj g'pgeguuct { " cpi rg0' Y j gtg'yj g'eqppgevkpu'ctg'dgw ggp'r kr g'ugy gtu'qt'f tckpu." ur gekn'eqppgevkpi "r kr gu'cu'uj qy p"qp" yj g'f tcy kpi u'uj cml'dg'uwr r rkgf "cpf "dg'vwnf "rcf "cpf "r tqr gtnf " lqlpvgf 0'

"

Manholes and Inspection Chambers"

O cpj qrgu"cpf "kpur gevqp"ej co dgtu"uj cml'dg'eqputwevgf "lp"ceeqtf cpeg"y kj "y g'f tcy kpi u"cpf "lp" yj g" r qukskpu'uj qy p"qp" yj g'f tcy kpi u"qt" f kgevgf "d { "y g'Rtqlgev"O cpci gt0'Vj g'ukf g'y cml'uj cml'dg'hck" hcegf "qt" tgp f gt gf "kpvtpcm" "cu'ur gekhgf "qp" f tcy kpi u0' Vj g { "uj cml'dg'dtqwi j v'w' xgtvkecm" "vq'tgegxg" c'r tgecu'urcd" hqto gf "qh'eqpetgvg"qh'yj g"cr r tqr tkvg"ercuu"ur gekhgf "cpf "tgkphqtegf "cml'cu'uj qy p" qp" yj g'f tcy kpi u0' Ecu'ktqp"o cpj qrg'eqxgtu'cpf "ltco gu'uj cml'dg'r tqxkf gf "cpf "ltco gu'uj cml'dg'dgf f gf " lp'ego gpv0 qtvt'3"vq"5"cpf "lq'ugv'yj cv'yj g'vqr u'qh'yj g'eqxgtu'uj cml'dg'hwuj "cv'cm'r qkpu'y kj "uwttqwpf kpi " uwthceg'qh'yj g'hqwy c { .xgti g'qt'ecttki gy c { .cu'yj g'ecug'b c { "dg0Cp { "urki j v'cf lwuo gpv'qh'yj g'urcd'lgxgn' y j lej "o c { "dg"pgeguuct { "vq"ceeqo r rkuj "y ku'uj cml'dg'ghgevgf "d { "vqr r kpi "y g'ukf g'y cml'y kj "eqpetgvg" kpvgi tcn'y kj "y g'urcd0'

"

Kf'tgs vktgf ".j cml'ej cpggn'r kr gu."dgp f u"cpf "lwpevkpu"cu'ur gekhgf "uj cml'dg'rcf "cpf "dgf f gf "lp'ego gpv' o qtvt'3"vq"5"vq" yj g'tgs vktgf "rkpgu"cpf "rgxgn."cpf "dqy "ukf gu'qh'yj g'ej cpggn'r kr gu'uj cml'dg'dgepej gf " w" y kj "eqpetgvg"qh'yj g"cr r tqr tkvg"ercuu"cpf "hkuj gf "uo qqy "vq" yj g'urqr gu'cpf "rgxgn"cu'uj qy p" qp" yj g'f tcy kpi u"qt" f kgevgf "d { "y g'Rtqlgev"O cpci gt0'Vj g'gpf u'qh'cml'r kr gu'uj cml'dg'pgcwnf "dwkn"lp" cpf "hkuj gf " hwuj "y kj "ego gpv' o qtvt'3"vq"50'Y j gtg" yj g'f gr yj "qh" yj g"kpvgt'v'gzeggf u"3"o gvtg' dgrny "y g'hkuj gf "uwthceg'qh'yj g'ecttki gy c { "qt" yj g'cf lcegpvi tqwpf ."kqp'ugr u'uj cml'dg'dwkn"lp"y kj " cngtpevg'ugr u'lp'hpg"xgtvkecm" "cpf "y kj "uwe j "cf f kkpqcnj cpf "kqpu'cu'yj g'Rtqlgev"O cpci gt'b c { "f kgevt0'

"

Cml'o cpj qrgu"y j gp"eqo r rvgf "uj cml'dg"y cvgtvi j v'cpf "vq" yj g'ucvukcevkp'qh'yj g'Rtqlgev"O cpci gt0' Vj g" r tlegu'kpugtvgf "lp" yj g'Dkm'qh'S wcpvkgu'uj cml'pwnf g'ht"gzecxcvkp."r tqxkukp'qh'cml'o cvgtkcu." eqputwevkp." tghknp" "cpf "f kr qucn'qh'uwr nw0'

"

Precast Concrete Manholes"

Rtgecu'eqpetgvg"o cpj qrgu'uj cml'dg'uwr r rkgf "cpf "rcf "i gpgtcm" "lp"ceeqtf cpeg"y kj "y g'f tcy kpi u0'

"

"

Gully Connections"

Eqppgevkpu"ltqo "i wnkgu"vq"ugy gtu"cpf"uwthceg"y cvgt"f tclpu"qt" f kej gu"uj cml'eqpukuv"qh'eqpetgvg" r kr gu" cpf "hkvpi u'lqkpvf"y kj "ego gpv'o qtvct"3"vq"50Cmlr kr gu."dgpf u'cpf "lwpevkpu"uj cml'dg'rckf "vq"vj g" rkpgu"cpf "rgxgu"uj qy p"qp"vj g"t tcy kpi u'qt"cu'f kgevgf "d{ "vj g'Rtqlgev'O cpci gtO

"

Surface Boxes, Covers Etc."

Uwthceg"dqzgu"o cpj qrgu"cpf" qvj gt"eqxgtu"n kpi "y kj kp"vj g"ukg"qh"vj g"y qtnu"uj cml'dg"tclugf." rny gtgf."cngtgf"qt'tgo qxgf"cu'f kgevgf "d{ "vj g'Rtqlgev'O cpci gtO

"

Gullies"

I wnkgu"eqo r rvg"y kj "i tcvpi u"cpf"y kj "tqf f kpi "g{ gu"y j gtg"pgeguuct{ "uj cml'dg"uwr r rkgf"cpf"rckf" kp" ceeqtf cpeg"y kj "vj g"t tcy kpi uO"Y j gtg"f kgevgf "d{ "vj g'Rtqlgev'O cpci gt."r tgecu'eqpetgvg"i wnkgu" uj cml'dg" rckf"qp"cpf"uwttqwpf gf"y kj "322o o "qh'eqpetgvg"qh"vj g"cr r tqr tlcvg"i tcf gO" Vj g"eqpetgvg" uwttqwpf "ku"vq"dg"dtqwi j v'wr "vq"vj g"wpf gtulf g"qh"vj g"ltco g"qt"lhwj"y kj "vj g"vqr"uwthceg"cu"vj g"ecug" o c{ "dgO"O cuqpt{ "i wnkgu"uj cml'dg"eqputwvgf"ltqo "447o o "dwlrf kpi "uqpg"cpf"tgpf gtgf"kpvtpcmlO" I wnkgu"uj cml'dg"tcr r gf"y j gtg'hgcf kpi "lpvq'hqwlugy gtu'qt"lpvq'eqo dlpgf "hqwlcpf"uwthceg"y cvgt'ugy gtuO

"

Completion of Drainage Works"

Cmlwd/uqklcpf"uwthceg"y cvgt"f tclpu"uj cml'dg'eqo r rvgf"kp'cf xcpeg"qh"vj g'eqputwvkpO

"

Temporary Stoppers"

Lwpevkp'r kr gu"y j kej "ctg'rckf"dw'pqv'lo o g'lcvgf"eqppgevgf"vq'i wnkgu"uj cml'dg'hkvgf"y kj "vgo r qtct{ " uqrr gtu'qt"ugcu."cpf"vj g'r quklqp"qh'cml'wej "lwpevkpu"uj cml'dg'ergetn{ "f ghkgf "d{ "o gcpu"qh'ucngu"qt" vclpki "y kgu'r tqr gtn{ "o ctngf"cpf"rcdngfO

"

Provision for Future Connection to Manholes"

Krgv'r kr gu"qh"vj g'tgs wktgf "fco gvgtu"uj cml'dg'dw'w'lpvq"vj g'y cml'qh'o cpj qrgu"cpf"gnugy j gtg'hqt"lhwwtg" wug" cpf "uj cml'dg'qh"vj g'fco gvgtu"uj qy p"qp"vj g'f tcy kpi uO" Vj g'gzvgtpcn'gpf u'qh'cml'wej "eqppgevkpu" uj cml'dg"ugcrgf"qh"vj kj "vgo r qtct{ "lqrr gtu."cr r tqxgf "d{ "vj g'Rtqlgev'O cpci gtO" Vj g'r kr gu"uj cml'dg'rckf" cpf "lqkpvf" cpf "f wtkpi "vj g'r rckpi "qh"vj g'eqpetgvg"vj g{ "uj cml'dg'cf gs wcvgn{ "uwr r qtvfO

"

Surrounding or Haunching of Pipes with Concrete"

Uwttqwpf kpi "qt"j cwpej kpi "qh'r kr gu"uj cml'dg"ecttlgf "qww'wukpi "hpg"eqpetgvgO" Kp'ectt{ kpi "qww'vj ku'y qtnf" vj g"Eqptcevt"uj cml'cng'ectg"vq'r cenlvj g'eqpetgvg"wpf gt"cpf"ctqwpf"vj g'r kr gu"vq"gpuwtg'gxgp'dgf f kpi " cpf" uqikf k{ "kp"vj g'eqpetgvg"cpf"vj g'eqpetgvg"uj cml'pqv'dg"vj tqy p"fkgevf"qp"vq"vj g'r kr guO"Vj g'wr r gt" uwthceg"qh"vj g'eqpetgvg"uj cml'dg'wtven'qlh"y kj "c'y qqf gp'wtggf"qt"vgo r rvg'cpf"pgcvf" hkpki gf"qlhO

"

Invert Block and Stone-Pitched Drains"

"

"

Rtgecuveqpetgvg'kpxgtv'dmqu'cpf 'ukf g'urdu'uj cml'dg'hqto gf 'qh'eqpetgvg'qh'vj g'cr r tqr tlcvg'i tcf g'cpf " fko gpukpu'uj qy p'qp'vj g'f tcy kpi u' Gcej 'eqvtug'qh'ukf g'urdu'tgs vkt gf 'kp'vj g'Dknd'qh'S wcpvkgu'uj cml' dg'kp'vtr tgvf 'cu'qpg'eqo r ngv'tqy 'qh'ukf g'urdu'v'q'qpg'ukf g'qh'vj g'ej cpgg'eqpetgvg' Uqpg'wugf 'hqt' ej cpggu'uj cml'dg'447o o 'z'322o o 'dvk'f kpi 'uqpg' F tclpu'uj qwr 'pq'p'qto cml' 'dg'rc'kf 'v'c'tcf kwu'qh' ewtxcwtg'rgu'vj cp'32'ko gu'vj g'cewcnly kf vj 'qh'vj g'f tclp'0

"

Kpxgtv'dmqu'cpf "uqpg/r kej gf "f tclpu"uj cml'dg"eqputwvvgf "kp"vj g'r qukkpu"cpf "v"vj g'rgxgu"cpf " fko gpukpu'uj qy p'qp'vj g'f tcy kpi u'cpf 'rc'kf 'v'v'w'g'h'p'g'cpf 'gxgp'hc'no' Y j gtg'v'p'gt/h'k'kpi 'ku'tgs vkt gf " k' u' cml'dg'kp'322o o "o czko wo "vj kempgu'rc' {gtu'qh'eqo r cev'gf "o vttco'0' Vj g'gctvj "ukf gu'v'q'uwej " ej cpggu'uj cml'dg'pgcv' 'h'k'kuj gf "v'c'ur'g'qh'3'v'q'3'qt'uwej "q'vj gt'ur'g'cu'vj g'Rtqlgev'O cpci gt'o c' { f'ktgev'0

"

Kpxgtv'dmqu'cpf 'ukf g'urdu'uj cml'dg'rc'kf "qp'c'322o o "o k'pko wo "vj kempgu'qh'eqo r cev'gf "o vttco "cpf " dg' "pgcv' 'lq'p'vgf 'y kj 'ego gp'v'o q'v'ct'3'v'q'5'cu'vj g'y q'nm'r tqeggf u'0' Vj g'g'z'ec'x'cv'k'p'p' "o vttco "dg'f f'k'pi . " r t'q'x'k'f k'pi . 'rc' {k'pi "cpf 'lq'p'v'k'pi 'kpxgtv'dmqu'qt'uqpg. 'dcen'h'k'k'pi "cpf 'F'ur quc'qh'lwtr n'wu'uj cml'cml'dg'cu' ur g'ek'h'gf "cpf "cml'p'ukw'eqppg'ev'k'pu'uj cml'dg'kp'eqpetgvg'qh'vj g'cr r tqr tlcvg'i tcf g'0

"

Testing of Jointed Pipes and Manholes"

Ugcrgf "lq'p'vgf "f tclpu "vr "v'c'p'f "l'p'ew'f k'pi "822o o "f'kco g'v'gt'uj cml'dg'v'g'ugf "kp'ugev'k'pu' "g'f'0'd'g'y g'gp' o cpj q'rgu'd' { 'h'k'k'pi "y kj "y cv'gt'v'p'f gt'c'j gcf 'qh'p'q'v'rgu'vj cp'3'o g'v'gt'0' F tclpu'h'q'v'p'f "v'c'g'y cv'gt'v'k'j v' ch'gt' "c'r g't'k'f 'qh'52'o k'p'w'gu'y kml'dg'r cu'gf "cu'uc'k'v'ce'v'q' { 'dw'vj g'y cv'gt' "o w'v'd'g't'g'v'k'p'g'f "kp'vj g'r k'rgu' v'p'v'k'c' "f gr vj "qh'c'v'rgu'v'672o o "qh'h'k'k'pi "j cu'd'gg'p'f gr qu'k'gf "cpf "eqo r cev'gf "qp'v'qr "vj g't'g'q'h'0' F tclpu' h'k'k'pi "v'c' u'c'p'f "vj g'v'gu'v'uj cml'dg'c'ng'p'q'w'c'p'f "vj g'r k'rgu't'g'rc'kf "cpf "t'g'lq'p'vgf "v'p'v'k'le'qo r r'v'g'n' "y cv'gt'v'k'j v'0

"

F tclpu'g'z'eg'gf k'pi "822o o "kp'f'kco g'v'gt'uj cml'dg'v'g'ugf "d' { "o g'c'p'u'q'h'c' "uo q'ng'v'gu'v'd'g'h'q't'g'vj g' { 'ct'g'eq'x'g't'gf " vr'0' D'q'vj "g'p'f u'q'h'vj g'rg'pi vj u'q'h'f tclp'v'c'g'v'g'ugf "uj cml'dg'ug'c'rgf "v'c'vj g'v'c'k'v'ce'v'k'p'q'h'vj g'Rtqlgev' O cpci gt. "cpf "uo q'ng'v'uj cml'vj gp'd'g'r wo r g'f "kp'v'q'vj g'ugev'k'p'f'it'qo "cp'cr r t'q'x'g'f "o cej k'p'g'0' Uj q'wr "cp' { " lq'p'v' "kp'vj g'ugev'k'p'uj qy "cp'g'uecr g'qh'uo q'ng. "vj g'ugev'k'p'uj cml'dg'c'ng'p'q'w'c'p'f "vj g'r k'rgu't'g'rc'kf "cpf " t'g' "lq'p'vgf "v'p'v'k'v'j g't'g'k'u'p'q'h'v'j g't'g'uecr g'qh'uo q'ng'0

"

Uj q'wr "vj g'Rtqlgev'O cpci gt "u'q'f'kt'gev' "o cpj q'rgu'uj cml'dg'v'g'ugf "d' { "eqo r r'v'g'n' "h'k'k'pi "y kj "y cv'gt. "cpf " vj g't'g'uj cml'dg'p'q'cr r t'g'ek'd'rg'h'qu'v'q'x'g't'c'r g't'k'f 'qh'4'j q'w'u'0

"

Qp'eqo r r'v'k'p'q'h'vj g'y q't'm. "qt'c'v'w'k'cd'rg'k'p'v'g't'x'cu'f v't'k'pi "eq'p'ut'w'v'k'p'p. 'l'p'h'k'nt'c'v'k'p'v'gu'v'y kml'dg'ect'lt'gf " q'w'0'Vj g'r g'to k'u'k'd'rg'co q'w'p'v'q'h'l'p'h'k'nt'c'v'k'p'uj cml'dg'3'h'k't'g'r g't'j q'w'r g't'h'k'p'g'ct' "o g'v'g'q'h'p'qo k'p'c'nl'p'v'g't'p'c'n' f'kco g'v'gt'0

"

Vj g'Eq'p't'ce'v'q't'uj cml'r t'q'x'k'f g'cml'cd'q'w't' "cpf "cr r c't'c'w'u'h'q't' "vj g'cd'q'x'g'v'gu'v'0

"

Cml'g'uk'pi "y kml'dg'f'q'p'g'kp'ce'eq't'f c'p'eg'y kj "vj g'r t'q'eg'f w'g'q'h'vj g'D't'k'k'uj "U'c'p'f c't'f "Eq'f g'0

"

Pipes with Rubber Ring Joints"

T'v'd'd'gt' "t'k'pi u'uj cml'dg'g'p'v'k'g'n' "u'w'k'cd'rg'h'q't' "vj g'r k'rg'd'g'l'pi "w'ug'f "cpf "y kml'dg'r t'q'x'k'f g'f "d' { "vj g'Eq'p't'ce'v'q't'0' Vj g' { "y kml'dg'rc'kf "kp'vj g'v'c'g'ng'v'c'p'f "vj g'r k'rgu'v'j gp'lq'p'vgf "cu'ur g'ek'h'gf'0' Vj g'lq'p'v'k'pi "qh'r k'rgu'v'uj cml'dg' ect'lt'gf "q'w'kp'ce'eq't'f c'p'eg'y kj "o c'p'v'k'c'ew't'g't'au'k'p'ut'w'v'k'p'p' "cpf "kp'eq'p'h'q'to k' { "y kj "cp' { "o q'f k'h'ec'v'k'pu' r t'qr qu'g'f "d' { "vj g'Rtqlgev'O cpci gt'0

"

465 Laying, Jointing and Backfilling for Flexible Jointed Pipes

Vj g'Eqpvtcevt'uj cml'gputg'yj cv'cp{ 'j ctf 'ur qu'cpf 'hqug'wqpgu'ctg'tgo qxgf 'htgo 'yj g'hqto cv'qp'r tkqt "vq" rc{lpi "qh'dgff lpi "o cvgtkcn'Vj g'Eqpvtcevt'uj cml'rc{ "c'dgf "qh'yj lmpguu"322o o "eqpuklpi "qh' i tcpwrt'o cvgtkcn'Q0ucpf . 'i tcxgn'qt'cr r tqxgf 'uqld'qh'htkcdrg'pcwtg0

Chgt'rc{lpi "qh'r kr gu'yj g'Eqpvtcevt'uj cml'rc{ "dgff lpi "o cvgtkcn'qp'yj g'ukf gu'qh'yj g'r kr g'eqo r cevgf "d{ "vco r lpi 'kp'v'q'uh'k'qh'ugy gt0

Chgt'eqo r r'g'v'qp'qh'yj ku'qr gtcv'qp'yj g'Eqpvtcevt'uj cml'rc{ "yj g'dgff lpi "o cvgtkcn'qp'v'qh'yj g'r kr g'lp" 372o o "rc{gtu'vq" c" 'y lmpguu'qh'522o o 0'Vj g'o cvgtkcn'ku'vq"dg'eqo r cevgf "d{ "vco r lpi 0'J qy gxgt." r tgecw'kpu'ctg"vq"dg"cn'gp"vq"cxqkf "gzegu'kxg"vco r lpi "qp"v'qp'qh'yj g'r kr g'0'Vj g'tgo cl'p'pi "t'gpej "gzecxcv'qp'ku'vq"dg'dcen'k'ngf 0

Vj g'r kr gu'uj cml'dg'rc'kf 'y kj 'hgz'kdr'g'tlpi 'ugcn'lq'kp'u'r tqxkf gf 'yj cv'uq'k'gp'v'ego gpv'lq'kp'u'eqw'f "dg'wugf "hqt'h'w'kpi u'yj gtg'p'geguuct{ 'uwl'ge'v'v'q'yj g'cr r tqxcn'qh'yj g'Rtql'ge'v'O cpci gt0'Rkr gu'cpf 'h'w'kpi u'uj cml'dg' ej g'engf 'hqt'f ghqto k'kgu'r tkqt'vq'rc{lpi 0'F ghqto gf 'r kr gu'cpf 'h'w'kpi u'uj cml'p'q'vdg'ceegr v'gf 0

Flexible Rubber Ring Joints

Vj g'Eqpvtcevt'uj cml'gputg'yj cv'yj g'ur ki qv'gpf 'ku'htgg'htgo 'i tk'f'wuv'qt'f'k'v'cpf 'ugcn'lpi 'tlpi u'uj qw'f "dg" ugcvgf "gxgpn' "lp'yj g'uqengv'i tqxg0'Rkr g'r'gpi yj u'cpf 'h'w'kpi u'ctg'uwr r r'kgf 'y kj "c'ej co hgt"qp'yj g' ur ki q'0' Y j gtg'r kr gu'ctg'vq"dg'ew'qt'ctg'uwr r r'kgf 'y kj qw'c'ej co hgt"qp'yj g'ur ki qv'gpf 'yj g'Eqpvtcevt'uj cml'gputg' yj cv'yj g'r kr g'ku'ew'us wctg'cpf 'yj gp'hqto 'c'ej co hgt"qp'yj g'ur ki qv'gpf 'y kj "c'o gf kwo "h'kg" vq'cp'cpi ng'qh'37" f gi tgg0'Tgo qxg'ucy 'h'ruj lpi 'd{ "ueter lpi 'y kj "c'r gp'np'k'g0

Expansion Gap

K'ku'p'geguuct{ 'vq'hgcxg'c'f cr 'dgwy ggp'yj g'gf i g'qh'yj g'ur ki qv'gpf 'cpf 'yj g'dcug'qh'yj g'uqengv'v'cm'yj 'hqt" g'zr cpuk'qp0' O qw'f gf "h'w'kpi u'ctg'uwr r r'kgf "y kj "cp"go dqu'gf "r'kg"lp'f'k'ecv'pi "yj g'eqttge'v'f gr yj "qh' k'pugt'v'qp0' k'p'q'yj gt'ecugu'yj j gtg'yj g'o ctn'lpi 'ku'p'qv'f'p'p'g' 'yj g'Eqpvtcevt'uj cml'gputg'yj cv'cp'g'zr cpuk'qp" i cr 'qh'cv'ngcu'50 o 'r gt'o g'v'g'r'gpi yj "qh'r kr g'qt'cv'ngcu'37o o 'r gt'r kr g'r'gpi yj "ku'r tqxkf gf 0'Vj ku'ecp" dg'f'p'p'g'd{ " o ctn'lpi 'ur ki qv'gpf u'qt'd{ 'r wuj lpi 'ur ki qv'hw'nf 'j qo g' o ctn'lpi 'c'uo cml'o ctn'l'qp'r kr g'cpf " yj gp'yj kj f tcy lpi "yj g'r kr g'd{ "37o o 0'

Chgt'eqo r r'g'v'pi "lq'p'v'pi "yj g'r kr g'uj cml'dg'rc'kf "qp"yj g'r tgr'ctgf "dgf "o ctn'lpi "uwtg"yj cv'c"u'w'kcdrg" f gr tgu'k'qp'ku'etgcv'gf 'kp'yj g'dgf 'hqt'yj g'uqengv0

Solvent Cement Joints

Hqt'uq'k'gp'v'ego gpv'lq'kp'u'b cng'lw'g'yj cv'b cv'pi 'uwt'h'egu'ctg'eng'cp'cpf 'htgg'q'h'i tgcug'cpf 'f'k'v'0'Tqwi j gp" o cv'pi "uwt'h'eg'yj kj "ucpf r cr gt."eng'cp'dq'yj "uwt'h'egu'yj kj "eng'cp'p'pi "h'w'kf "w'kpi "c'eng'cp'em'yj 0' Crr n' "uq'k'gp'v'ego gpv'qp'dq'yj "o cv'pi "uwt'h'egu0' Y kj qw'f grc{ "dt'lpi "o cv'pi "uwt'h'egu'v'qi g'yj gt'cpf "j qrf "lp" r q'uk'qp'h'kto n' 'hqt'c'h'gy "ugeqpf u0'C'rc{ gt'qh'h'ego gpv'uj qw'f "dg'x'k'kdr'g'cv'yj g'gf i gu0'lq'kp'u'uj qw'f "pqv" dg" f ku'wtdgf 'hqt'cv'ngcu'32'o k'pwgu'chgt'cu'go dr'f 0

"

"

SECTION 5. BUILDING AND STRUCTURES"

Concrete Building Blocks"

Eqpetgvg"dwkf lpi "dqemu"uj cml'dg'qh'crr tqxgf "o cpwlcwgtg"cpf "uj cml'dg"htqto gf "lp"o c"rtguo'Vj g"dqemu" o cpwlcwgtg 'lp'Erucul'E52'eqpetgvg'uj cml'dg'ewtgf 'hqt'c'v'hcuv'32'f c { u'dghqtg'wug0'
Dqemu"uj cml'dg'y gml'cpf "gxgpn' "htqto gf "y kj "twg"eqtpgtu"cpf "wpdtqngp"ctkugu"cpf "uj cml'dg"ectghwn' "
j cpf rnf 'cpf 'ucengf 0'

"

Laying Building Blocks"

Lqkpw'dgvy ggp"dqemu"uj cml'dg'hkngf "uqkf "y kj "o qtvt'cpf "uj cml'dg'qh'tgi wrct "y kempgu'qh'7"vq'32o o 0'Vj g" dqemu"uj cml'dg'rkf "lp'rgxgrleqwtugu"cpf "dqpfgf "uq"y cv'gcej "xgtvlecn'lqkpv'ku"o kf y c { "cdqvg'y g'hceg"qh'y g" dqem'dgnqy . "gzegr v'cv'lwpv'kpu"cpf "r lgtu'y j gtg'c" dqpfgf "qh'pqv'rgu"y cp'322o o "uj cml'dg'r tqxkf gf 0'Vj g" y cml'uj cml'dg'tckugf "lp'rkhu'pqv'gzeggf lpi "y tgg'o gvtgu"lp"j gki j v'lp"cp { "qpg'f c { . "cpf "vwn' "xgtvlecn'0' Cml' dqemu"uj cml'dg'y gwgf "dghqtg'dgkpi "rkf 0'

"

Lqkpw'qh'gzr qugf "y qtn'luj cml'dg'tcngf "qww'cpf "pgcvf "hwwj /r qkpv'gf "lp"y g'uco g'o qtvt'0'Vj g'y j qrg'qh'y g" xkukdng"hcgu"qh'y g'y cml'uj cml'dg'rgm'r gthgevf "engcpu"cpf "cml'uwthceg"o qtvt'cpf "f tqr r lpi u"uj cml'dg" tgo qxgf "dghqtg'y g { 'j cxg'ug0'

Lqkpw'lp'y qtn'lq'dg'tgpf g'gf "uj cml'dg'tcngf "qww'q"o c'f gr yj "qh": o o "vq'r tqxkf g'c'ng { 'hqt'y g'tgpf g'kpi 0'

"

Dqeny qtn'luj cml'dg'v'gf "lpv'cf lqkplpi "utvewtcl'no go dgtu'cv'y g'uco g'rgxgn'cu'dqeny qtn'l'tgkphqtego gpv' wukpi '372o o "hupi "dwgthn' "cpi u'qt'gs wxcrgpv'hkzgf "cpf "o qtvt'gf "lpv'r tqr tlgvct { "xgtvlecn'lutkr u0'

"

Precast Concrete Units Generally"

Cml'r tgecu'eqpetgvg"wpku"uj cml'kpenf g"cm'hkz lpi "r nwi u"cpf "utkr u"vq"gpcedng"uetgy "vku"qt"qy gt'hkz lpi " f gxlegu'vq'dg'hko n' "cwcej gf 0' Hqt'cml'r tgecu'wpku'vq'dg'ugv'lp'dqem'qh'o cuqpt { 'y cml'y g'r nwi u'cpf "utkr u" uj cml'dg'vq'r qukqpgf "cu'vq'r tqxkf g'hkz lpi "c'v'eqwtug'cpf "lp'pq'ecug"gzeggf lpi '672o o "egpwtgu0'

"

Masonry Using Natural Irregular Stones"

Uqpgu'uj cml'eqo g"htqo "ugrgev'gf "swctt { "rc { gtu'vq"y g" crr tqxcn'qh'y g"Rtqlgev'O cpci gt0'Vj g { "uj cml'dg" j qo qi gpgquw'htquv'tgukwcpv'hcuy rguu'htgg'qh'cp { "etcemu'qt"dqwkpu."uqkf . "cpf "qh'gs wcn'i tclp"cpf "uj cml' j cxg'cml'y g'tgs wktgf "s wcpv'kku'vq"i kxg'c'tgi wrct'hcelpi 0'Vj g { "uj cml'i kxg'qww'c'engct'uqwpf "y j gp"j k'd { "c" j co o gt0'

O qtvt'uj cml'dg'tgo qxgf "htqo "y g'gzvtpcn'lutw'hcgu'qh'y g'y cml'0'Vj g'Eqptcev'qt'uj cml'r tgr ctg'c'y cml'uco r ng' crr tqxgf "d { "y g"Rtqlgev'O cpci gt"y j lej "uj cml'dg"ngr v'cv'y g'eqputwv'kqp"uksg"wpv'k'cml'y g'o cuqpt { "ku" eqo r rvgf 0'

"

Screen Walling"

.

Uetggp'y cmlpi 'uj cml'eqpukw'qh'r gtqtcvgf 'r tgecu'eqpetvg'dnqemu'322o o 'y lenl'qh'cr r tqxgf 'uj cr g.'f guki p" cpf "o cpw'cewtg'ncf "vq"cp'cr r tqxgf "r cwgt p"kp"ego gpv'o qtvct'y k'r gthgevn{ "gxgp"lqkpw'y j lej "uj cml'dg" pgcv{ 'hwxj "qt'tgegu'r qkpvgf 'cu'f kgevgf O'

Damp-Proof Course"

Cml'gzvgtper'y cml'qh'dwrf lpi u'ctg'vq'dg'r tqxkf gf "y kj "f co r/r tqqh'eqwtug"*FRE+'qh'vgzwtgf "RXE"utlr " qh' y kf yj "gswn'vq'yj g'vqcn'yj kempguu'qh'yj g'y cml'cpf "cp{ "gzvgtper'tgpf gtapi O'Vj g"FRE"ku'vq'dg'r cr r gf " y kj " yj g" f co r/r tqqh' o go dtepg" cpf " dgf f gf " kp" o qtvct" ur gekhgf " hqt" yj g" v r g" qh' dmen' wugf O'Vj g" i tgecu' ngpi yj u'r quukdr'ctg'vq'dg'wugf 'hqt'yj g"FRE'au'dw'cp{ "gpf 'r cr u'tgs vktgf "ctg'vq'dg'cv'ngcu'422o o " npi "o cf g'f t{ 'y kj qw'lpvgtxgplpi 'o qtvct O' Rkgtu'ctg'vq'j cxg'eqo r ngvg'FRE'au'r cr r gf 'y kj "yj g'y cmlFRE O'

Damp-Proof Membrane"

F co r/r tqqh'o go dtepgu'uj cml'dg'ncf . "cu'f kgevgf "d{ 'y g"Rtqlgev'O cpci gt. "dpgcvj "cml'hqqt"urdu'tguapi " qp"yj g"i tqwpf O'""Vj g{ "uj cml'dg""eqo r qugf ""qh"ukpi ng"uj ggwu'qh"o kpo wo ""y kempguu""2622o o "drcen' r qn{ gyj { ngpg'hko "qh'cp'cr r tqxgf "o cpw'cewtg't ur gekm{ 'o cf g'hqt'wug'cu'f co r/r tqqh'o go dtepg O'

Vj g'hko "uj cml'dg'ncf "qp'ucpf "cpf "wtpgf "wr "ctqwpf "cml'gi gu'qh'yj g'urcd'cpf "y kj "372"o o "o cti kp"cdqyg" yj g'vqr "qh'yj g'urcd'vq'dg'wengf "kp'vq'yj g'r gto gvgf "y cml'qh'yj g'dwrf lpi O'Y j gtg'yj g'dwrf lpi "ku'vq'rci g'cu' vq"gzeggf "yj g"o czko wo "uj gg'v'uk g'cxckrdg."ugxgcr'uj ggwu'uj cml'dg'wugf "cpf "yj g"lqkpw'uj cml'dg'r cr r gf " 372o o "cpf "hugf "qi gyj gt "wulpi "c"y grf lpi "vqqr'f guki pgf "hqt"yj cv'r wtr qug O'Gxgt { "ectg'uj qwr'f dg'vngp" d{ "yj g"hmjy lpi "vctf gu"vq"r txxgpv'r gthqtcvqp"qh'yj g"o go dtepg"dw'kp"yj g"gxgpv'qh'yj g"r wpewtg"yj g" r gthqtcvqp"uj cml'dg'eqxgtgf "d{ "c"r cvej "qh'uko kct"o cvgtkcr'qh'f lo gpukpu'gzeggf lpi "yj g"ctgc"qh'yj g" r wpewtg'd{ '522o o "cpf "yj g'vy q'uj ggwu'y grf gf "qi gyj gt "cu'f guetkdgf "cdqyg O'

Composition of Mortars"

Ego gpv'o qtvct" hqt" dqpflpi "eqpetvg"uj cml' dg" eqo r qugf "qh' ego gpv' cpf "ucpf "o kzgf "kp" yj g" r tqr qt'vqp"qh' yj g'lqkpwgf 'eqpetvg O'

Ego gpv'o qtvct" hqt"ugwapi "r tgecu'eqpetvg"qt"r kej lpi "uj cml'dg"eqo r qugf "qh'ego gpv'cpf "ucpf "o kzgf "kp"yj g" r tqr qt'vqp"qh'72m "qh'ego gpv'vq"266o 5"qh'ucpf . "y kj "yj g'cf f kkp"qh'cp'cr r tqxgf "r mwek gt O'

Ego gpv'o qtvct" hqt"dnqeny qtnlpi "eqpetvg"dnqemu'uj cml'dg'eqo r qugf "qh'ego gpv'cpf "ucpf "o kzgf "kp" yj g'r tqr qt'vqp" qh'72m "qh'ego gpv'vq"266o 5"qh'ucpf O'

Ucpf "cpf "Ego gpv'hqt"o qtvctu'uj cml'dg'cu'f guetkdgf "kp"yj g'ur gekhcvqp'hqt'eqpetvg O'

Mixing of Mortars"

Vj g'o cvgtkcr'qh'o qtvctu'uj cml'dg"o gcuwgf "qw'kp"yj gkt"eqttgev'r tqr qt'vqpu'cpf "uj cml'ktu'dg'yj qtqwi j n{ " o kzgf "qi gyj gt"kp" c" f t{ "ucv" d{ "wtpkpi " yj go "qxgt"wr qp" c"engcp"y qqf gp"uci g"vpxk' yj g{ "ctg"qh" c" j qo qi gpgqu'cr r gctcepg'kp'eqpukngpe{ "cpf "eqrwt O'Engcp"y cvgt "uj cml'y gp'dg'cf f gf "y j kg'yj g'o kzwtg"ku"

"

dglpi "wtpgf"qxgt"wpvkl'cwcipu'c'uwkcdrg"eqpukvgpe{0Rrurlek gt "uj cml'dg'cf f gf "lp'ceeqtf cpeg'y kj " y g"
o cpwrcwgtat'geqo o gpf c'vqpu'cu'cr r tqxgf "d{ 'y g'Rtqlgev'O cpci gtO'

"

Vj g'o qtvt'uj cml'dg'wugf "ko o gf k'vgn' "chgt'k'j cu'dggp"o kz gf 0P q"o qtvt'y j lej "j cu'eqo o gpegf "ku'htuv"
ugv'uj cml'dg'wugf . "qt"o kz gf "wr "ci clp0'O qtvt'uj cm"y j gtg'r quikdr'lp"j qv'y gcvj gt. "dg'r tqvgevgf "htqo "vq"
tcr kf "cevkqp"d{ 'eqxgtlpi 'y kj 'ko r gtxkqu'bo cvgtkrlwej "cu't qn'gy { nrgp'hko 0'

"

O kzlpi "d{ 'j cpf "y km'dg'cmqy gf "qpn' "h'y g'Rtqlgev'O cpci gt "i kxgu'ur gekhe"cr r tqxcr0'O kzlpi "d{ "o cej kpg"
wulpi "y g'uco g'ugs wpeg'qhl'qr gtcv'qpu'f guetldgf "cdqsg'uj cml'dg'ecttldgf "qwy'j gpgxgt'r quikdr'0'

"

Cement Rendering"

Tgpf gtlpi "uj cml'dg'lp" c"72"mi "vq"347mi "ego gpv'ucpf "o kz "dw'y j gtg'cr r tqxcr'j cf "dggp"i kxgp"vq"y g'wug"
qhl'c"r rucvlek gt "qt"qvj gt "cf f k'xgu" y gug"r tqr qt'vqpu"o c{ "dg"o qf k'k'gf "vq"y g"cr r tqxcr' qhl' y g"Rtqlgev"
O cpci gtO'

"

Cml'wthcegu'vq'tgegk'g" c'hpkuj lpi "eqcv'qhl'ego gpv'tgpf gtlpi "qt'hpg'eqpetgvg'uj cml'dg"y qtqwi j n' "r tgr ctgf "
cpf "ergcpgf "cpf "y g"tgpf gtlpi "qt"uetggf lpi "uj cml'dg"r rcegf "ko o gf k'vgn' "chgt"uwej "wthcegu"j cxg'dggp"
y qtqwi j n' "y gwgf 0'

"

Cml'tgpf gtlpi "uj cml'dg"r wv'vq" c"o k'plo wo "qhl'vy q"eqcvu"y g'htuv'dglpi "ngh'tqwi j "vq" c"o k'plo wo "qhl'32"
o o "y kempguu."dw'y g'ugeqpf "eqcv'uj cml'dg'tqy gmgf "w'vq" c'h'ek'hcegu'cu'vqpp'cu't quikdr'chgt'k'ku'cr r rldgf 0'

"

Cml'k'vgtpcn'tgpf gtlpi "uj cml'dg" h'pkuj gf "vq"cp"gxgp"cpf "r qrluj gf "wthceg"y kj "c"hm'cv"vqy gnl'qt"qvj gt"
uwkcdrg"vqqn"ur gekn'ectg'dglpi "vengp"vq"qdvclp"r gthgevn' "uo qqvj "cpf "i n' gf "hcegu0'K'uj cml'pqv'dg"rguu"
y cp'37o o "y kempguu'y j gp'h'pkuj gf "vprguu'k'pustvevgf "qvj gty kug0'

"

Cml'gzvgtpcn'tgpf gtlpi "uj cml'dg"dtqwi j v'vq"cp"gxgp"wthceg"y kj "c"y qqf "hm'cv'hqmqy lpi "y j lej "c"v'tqrgcp"
h'pkuj "qhl'cr r tqxgf "eqmqw'uj cml'dg'cr r rldgf "vprguu'qvj gty kug'ucv'gf 0'

"

Cml'tgpf gtlpi "uj cml'dg"r tqvgevgf "htqo "uwp"cpf "tclp" d{ "cf gs wcv'g"cpf "uwkcdrg"eqxgtlpi u"y j lej "uj cml'dg"
uwr r rldgf "cpf "h'k'gf "lp"cf xcpeg'qhl' y gug"eqpf k'k'qpu'ctklpi 0'Vj g"tgpf gtlpi u"uj cml'dg"n'gr v'f co r "y j k'g"
ugw'kpi "cpf "r tqvgevgf "htqo "t' t{ lpi "y kpf u0'

"

Tanking to Buried Concrete Surfaces"

Gzvgtpcn'eqpetgvg'wthcegu'vq'dg'vcpngf "uj cml'dg"eqcv'gf "y kj "c"dkwo k'pqu'y cvgtr tqqlh'pi "o go dtcpg"5o o "
o k'plo wo "y k'len0'Vj g'vcpn'kpi "uj cml'dg"ftgu'gf "k'vq'utvewtg"cu'uj qy p"lp"y g"F tcy lpi u"cpf "dg'r tqvgevgf "
d{ 'pqp/tqwlpi "dqctf lpi "r t'kt'vq'dcen'h'k'k'pi 0'

"

Waterproof Rendering"

Y cvgtr tqqlh' tgpf gtlpi " unwt{ "uj cml'eqo r t'kug" c"72mi "vq"347mi "ego gpv'ucpf "o kz "y kj "cp"cr r tqxgf "
y cvgtr tqqlh'pi "cf o k'zwtg'uwej "cu'lv'tgpg'ctet{ r'v'eqr qn' o gtO'

"

.

Vj g'ob cvgtkcnlj cml'dmql'ecr kret'ku'cpf'ob k'pqt'uj t'pnci g'et'cenu'v'f' t'g'x'g'p'v'y cvgt'kpi t'guu'y j k'g'c'm'y kpi 'y' g' r cuuci g'q'h'y cvgt'x'cr qwt'y t'qwi j 'y' g'ut'vewt'g'0

Vj g't'g'p'f'g't'uj cml'dg'cr r'k'g'f'v'q'c'v'q'cn'y k'emp'guu'q'h'p'q'v'nguu'y cp'42o o "y' g'h'k'u'v'e'q'cv'uj cml'dg'cr r'k'g'f' r'g'x'g'ng'f'v'et'c'v'ej g'f'c'p'f'h'g'h'v'q'f't'f'h'q't'p'q'v'nguu'y cp'5'f'c'f'u'0

Grouting in Ironwork"

Cml'dtceng'u'f'ci /d'qnu'c'p'f'q'y g't'k'p'py q't'n'h'q't'y j k'ej 'j' q'ngu'j c'x'g'd'g'g'p'd'q'z'g'f'q'w'q't'f'g'h'v'k'p'y' g'e'q'p'et'g'v'g'q'h'c' ut'v'ewt'g'uj cml'dg'ect'g'h'm'f'i t'q'w'g'f'k'p'v'q'y' g't'k'eq'tt'g'ev'r'q'u'k'k'p'u'k'p'cml'r'ct'v'ew't'u'0'Vj g'i t'q'w'k'p'i 'k'p'uj cml'dg'ect't'k'g'f'q'w'y' k'y 'ego g'p'v'c'p'f'uc'p'f'i t'q'w'k'p'u'w'ej 'c'o c'p'p'g't'y' c'v'y' g't'g'uj cml'dg'p'q'cr r'ct'g'p'v'f'k'h'g't'g'p'eg'k'p'y' g'v'z'w't'g'q't'eq'm'q't'y' t'q'wi j q'w'y' g'h'c'eg'q'h'y' g'h'k'p'k'uj g'f'ut'v'ewt'g'c'p'f'y' c'v'y' g't'g'uj cml'dg'p'q'ug'g'ci g'q'h'y' cvgt'g'k'y' g't'd'g'y' g'g'p'y' g'k'p'py q't'n'c'p'f'y' g'ug'v'i t'q'w'q't'd'g'y' g'g'p'y' g'ug'v'i t'q'w'c'p'f'y' g'ut't'q'w'p'f'k'p'i 'ut'v'ewt'g'0

Vj g'cd'q'x'g'k'p'ut'v'ew'k'p'u'uj cml'cr r'n'f'c'nu'q'v'q'y' g'd'w'k'f'k'p'i /k'p'q'h'r'k' g'u'g'z'eg'r'v'y' c'v'E'rcuu'E47 B2'eq'p'et'g'v'g'uj cml'dg'w'ug'f'k'p'h'g'w'q'h'ego g'p'v'i t'q'w'0

Cml'j q'ngu'ng'h'h'q't'd'w'k'f'k'p'i /k'p'uj cml'dg'h'g'g'h'q'o "c'p'f' "u'k'i p'q'h'k'p'h'k'nt'c'v'k'p'q'h'y' cvgt'd'g'h'q't'g'y' g'd'w'k'f'k'p'i /k'p'k'u'ect't'k'g'f'q'w'0'P'q't'g'k'c'p'eg'uj cml'dg'r'nc'eg'f'w'r'q'p'y' g'd'w'k'f'k'p'i /k'p'r't'q'eg'uu'h'q't'y' g'ug'c'k'p'i 'q'h'u'w'ej 'h'g'c'nei g'0

Cable Duct Covers and Frames"

Recessed Covers"

Ecd'g'f'v'ew'eq'x'g'tu't'g'eg'ug'f'h'q't'h'q'q't'k'p'i 'h'k'p'k'uj g'u'uj cml'dg'r't'q'x'k'f'g'f'y' k'y 'i c'x'c'p'k'g'f't'q'ng'f'v'ug'g'n'c'p'i r'gu'q'h'j g'k'i j v'g's'v'cn'v'q'y' g'y' k'emp'guu'q'h'y' g'h'q'q't'h'k'p'k'uj k'p'i 'c'p'f'h'z'g'f'v'q'y' g'ut'v'ew't'c'g'q'h'y' g'ut'v'ew't'c'n'l'h'q'q't'v'ur'd'c'm'p'i "cml'g'f'i g'u'q'h'y' g't'g'p'ej g'u'u'q'y' c'v'y' g'v'q'r'g'f'i g'k'u'g'x'g'n'y' k'y 'y' g'h'k'p'k'uj g'f'h'q'q't'g'x'g'n'0'Vj g'c'p'i r'g'uj cml'dg'r'c'k'f' "u'q'cu'v'q'h'q'to "ug'c'v'k'p'i 'h'q't'f'v'ew'eq'x'g'tu'c'p'f'cml'c'f'f'k'k'q'p'cn'i c'x'c'p'k'g'f't'q'ng'f'v'ug'g'n'v'g'g'ug'ev'k'p'u'uj cml'c'nu'q'd'g'r't'q'x'k'f'g'f'v'q'u'w'r'q't'v'y' g'f'v'ew'eq'x'g'tu'0

Vj g'f'v'ew'eq'x'g'tu'uj cml'dg'i c'x'c'p'k'g'f'v'q'u'w'k'y' g'f'v'ew'u'c'p'f'y' g'ug'c'v'k'p'i "f'g'u'et'k'd'g'f'cd'q'x'g'0'C'r'k'i j y' g'k'i j v'i c'x'c'p'k'g'f'v'ug'g'n'o'g'uj 'uj cml'dg'h'z'g'f'v'q'y' g'w'r'g't'ut'v'ew't'c'g'q'h'y' g'v't'c'f'u'v'q'r't'q'x'k'f'g'c'ng'f' "h'q't'h'q'q't'h'k'p'k'uj g'u'0'Vj g'ug'c'v'k'p'i 'c'p'f'v't'c'f'u'uj cml'dg'u'q'r'c'k'f'y' c'v'y' g'h'k'p'k'uj g'f'h'q'q't'k'u'r'g't'h'g'ev'f'g'x'g'n'c'p'f'cml'v't'c'f'u'h'm'f' "u'w'r'q't'v'g'f'c'v'cml'g'f'i g'u'y' k'y' q'w'y' g'w'ug'q'h'm'q'ug'r'c'cn'k'p'i 0'C'v'g'c'uv'q'p'g'v't'c'f' "k'p'g'x'g't'f'ug't'k'g'u'q'h'v't'c'f'u'eq'x'g't'k'p'i "c'r'g'p'i y' "q'h'f'v'ew'uj cml'dg'r't'q'x'k'f'g'f'y' k'y "ec'uv'k'p'h'k'k'p'i "g'f'g'u'c'p'f'c'r'c'k'q'h'u'w'k'cd'g'h'k'k'p'i "ng'f'u'uj cml'dg'j' c'p'f'g'f'v'q'y' g'Rt'q'lg'ev'0'c'p'ci g't'q'p'eq'o r'g'v'k'p'0

Checker Plate Covers"

Ej g'eng't'r'v'ew'eq'x'g'tu'uj cml'dg'j' q'v'f'k'r'g'f'i c'x'c'p'k'g'f'o'k'f'v'ug'g'n'h'k'w'g'f'h'w'uj 'y' k'y 'y' g'h'q'q't'ut'v'ew't'c'g'c'p'f'h'm'f' "u'w'r'q't'v'g'f'0

Fences and Gates"

H'g'p'egu'i g'p'g't'cm'f'uj cml'dg'k'p'c'ee'q't'f'c'p'eg'y' k'y 'y' g't'g'ng'x'c'p'v'r'c't'u'q'h'DU'3944'R'ct'v'3<3; : 80'Ej c'k'p'r'k'p'n'h'g'p'el'k'p'i 'uj cml'dg'V'r'g'RN'0435'I t'c'f'g'C'y' k'y '30'o "j'k'i j "r'nc'uke'eq'x'g't'g'f'ej c'k'p'r'k'p'n'o'g'uj 0'Vj g'o'g'uj "c'p'f'r'k'p'g'y'k'g'u'uj cml'dg'i c'x'c'p'k'g'f'r't'k'q't'v'q'd'g'k'p'i 'r'nc'uke'eq'x'g't'g'f'0'Vj g'r'q'u'u'uj cml'dg't'g'k'p'h'q't'eg'f'eq'p'et'g'v'g'0

"

"

Vj g" utcklpi " r quu" kpgto gfkvg" r quu" cpf " utwu" uj cml' dg" o cpwcewtgf" cpf " gtgevgf" eqo r rvg" cu" ur geklhf "lp" DU"39440Vj g" hpekpi "uj cml' dg" tvg" vq" dkpg" cpf " xgtvkecn" hmqy kpi " r tqhkg" qh" yj g" i tqwvf . " r tngxkwu" i tcf gf " uq" cu" vq" r tngxgpv" ceegu" dpggcj " yj g" dqvqo " y kgo I cvgu" uj cml' dg" j wpi " qp" cf gs wevg" r quw" cpf " uj cml' dg" twn" xgtvkecn

"

Qtpco gpvnl' hdtkevgf " o gvcy qtnl' hpegu" cpf " i cvgu" uj cml' dg" eqputvevgf " qh" o kf " uvgndct. " utkr " qt" wdg" lp" ceeqtf cpeg" y kj " yj g" F tcy kpi u' Cml' y grf gf " lqkpu" cpf " f tknpi u' hqt" dqnu" uj cml' dg" o cf g' dghgtg" r clpki . " cpf " cml' dqnu " pww" cpf " y cuj gtu" uj cml' dg" i cnckpk gf " qt" r rvgf " lp" cp" cr r tqxgf " o cpgt0 Cp " o gvcy qtnl' upn" lpvq" yj g" i tqwvf " uj cml' dg" tgcvgf " y kj " y q' eqcu" qh' dkw" kpwu" r clp0

"

Joint Sealing Compound and Sealants

Lqkpv' ugcrlpi " eqo r qwvf u' uj cml' dg" ko r gto gcdrg" f wekrg" o cvgtkcu" qh" c" v{ r g" uwkcdrg" hqt" yj g" eqpf kkpku" qh" gzt quwtg" lp" y j lej " yj g{ " ctg" vq" dg" r rvgf . " cpf " ecr cdrg" qh" r tqxf kpi " f wcdrg. " hgzkdrg" cpf " y cvgtki j v' ugcrl' { " cf j gukqp" vq" yj g' eqpetgvg" yj tqwi j qwv" yj g' tci g' qh' lqkpv" o qxgo gpv0

"

J qvr' qwtgf " lqkpv' ugcrlpi" uj cml' eqo r n{ " y kj " DU"46; ; . " Qtf lpc{ " V{ r g" C3" ugcrlpv0
Eqrf " r qwtgf " r qn{ o gt/ dcugf " lqkpv' ugcrlpi" uj cml' eqo r n{ " y kj " DU"7434- Rctv3. " P qto cnV{ r g" P " ugcrlpv0

"

Vy q" r ctv" r qn{ uwr j kf g" dcugf " ugcrlpi" uj cml' eqo r n{ " y kj " yj g" tgrgxcpv" r tqxkukpu" qh" DU"64760Rqwtlpi " I tcf g" uj cml' dg" cr r rkgf " vq" j qtk qpvr' wry ctf " hcelpi " lqkpu" cpf " I wp" I tcf g" vq" lqkpu" qh' cp{ " qj gt" cur gev" qt" kperkpcvqp0 Qj gt " y q' r ctv" r qn{ o gt" dcugf " ugcrlpi" qh' I wp" qt" Vtqy grl tcf g" uj cml' eqo r n{ " y kj " yj g" j { ulecn' cpf " gwtgs wktgo gpw' qh' DU"64760

"

Ukleqp" dcugu" dwkf kpi " ugcrlpi" uj cml' eqo r n{ " y kj " yj g" tgrgxcpv" r tqxkukpu" qh' DU"7: ; ; 0Rtko gtu" hqt" wug" y kj " lqkpv' ugcrlpi" uj cml' dg" eqo r ckdrg" y kj . " cpf " qdvkpgf " hqto " yj g" uco g" o cpwcewtgtu" cu" yj g" cf lcegpv" ugcrlpv0 Rtko gtu" uj cml' cxg' bq" j cto hwtghgeu" qp" yj g' eqpetgvg0

"

Ugcrlpi" cpf " r tko gtu" y j lej " y kml' dg" lp" eqpcev" y kj " y cvgt" vq" dg" wugf " hqt" r qvcdrg" uwr r n{ " uj cml' pqv' ko r ctv" vq" y cvgt" vug. " eqruw. " qt" cp{ " ghgev" hpqy p" vq" dg" j cto hwt' vq" j gcny . " cpf " uj cml' dg" tgukucpv" vq" dcevgtkcn' i tqy yj 0 Ugcrlpi" cpf " r tko gtu" y j lej " y kml' dg" lp" eqpcev" y kj " ugy ci g" qt" ugy ci g" unwf i g" uj cml' dg" tgukucpv" vq" dkqf gi tcf cvkqp0

"

Openings in Walls, Floors and Ceilings

Vj g" Eqptcevt " uj cml' ej cug" r w' cpf lqt" ew' qr gplpi u' yj tqwi j " y cmu. " hqqtu" cpf " egklpi u' hqt" yj g" r cuuci g" qh" r kr gu" cpf " ecdrgu" y j gtg" f guetldgf " lp" yj g" eqptcev" uj cml' r tqxf g" cpf " hz" lp" r quklqp" cr r tqxgf " wdg" urggxg" ew' qh' hmwj " y kj " yj g" hpluj gf " uwtcego Cml' qr gplpi u' cpf " f weu" uj cml' dg" ugcrgf " qp" eqo r rvgkqp" vq" r tngxgpv" yj g' r cuuci g' qh' vqzke" qt" gzt r mkg' i cugu0

"

Structural Steelwork

O cvgtkcn' hqt" utwewtcn' uvgnd' y qtnl' uj cml' eqo r n{ " y kj " DU" GP "32359" cpf " y qtno cpuj kr " y kj " DU"7; 720 Vj g" uvgnd' y qtnl' uj cml' dg" ugevtgrf " hzgf " vq" yj g" hqwpf cvkpu" qt" dwkf kpi " cpf " f guki pgf " vq" j cxg" uwej " utgpi yj " cpf " uwhpgu" vj cvku' f ghgevkqp" cpf " o qxgo gpv' wvf gt" yj g' hqcf u' vq" dg" cr r rkgf " uj cml' dg" y kj lp" vqngtcdrg" hko ku0

"

"

Cm'dqnu"cpf "pwu"uj cm'eqo r n' "y kj "y g'tgs vktgo gpw'qh"DU'58; 5"gzegr v'ht"J ki j "Utgpi yj "Hlekvp"
I tkr "Dqnu'y j kej 'uj cm'eqo r n' "y kj "DU'65; 70"

"

O krf "uggn'grgevtqf g'uj cm'eqo r n' "y kj "y g'tgs vktgo gpw'qh"DU'GP '6; ; "cpf "J ki j "I kgrf "Uggn'y kj "DU'47620"

"

Cm'lutwewtcn'uggn'hdtdlecvkp'uj cm'eqphqto "v'y y g'tgs vktgo gpw'qh"DU'GP '76220' Vj g'wug'qh"J ki j "Utgpi yj "
Hlekvp" I tkr "Dqnu'uj cm'dg'kp'ceeqtf cpeg'y kj "DU'y kj f tcy p0"

"

Cm'lutwewtcn'uggn'y qtn'uj cm'dg'hdtdlecvgf "wukpi "y grf gf "lqkw'y j gtg'r quukdr"ht"uj qr "lqkw"cpf "dqngf "
lqkw'ht' hgrf "cuogo drg0"

"

Open Mesh Walkways and Covers"

Qr gp'o guj "v'r g'y cmy c{u."r rvhqtu u'cpf "eqxgtu"uj cm'dg'qh'cno kpkwo "qt"i cixcpk gf "uggn"uwkcdrg'ht"
c" uwr gto r qugf "mqf "qh'pqv'rguu"y cp"8nP lo 40'Vj g"y cmy c{u."r rvhqtu u'cpf "eqxgtu"uj cm'l'penxf g"
cm'l pgeguet{ "uwr r qtuv'pqvf gckgrf "qp'y g'F tcy kpi u0"

"

Qr gp'o guj "r cpgnu'uj cm'dg'vto o gf "y kj "hwn'f gr yj "pqukpi "dct"cnpi "cm'gf i gu"cpf "dqngf "vq"geej "qy gt"
y j gp"kp'r rceg"vq"j gr "gpwtg"c"hto "y cmy c{0' Rcpgnu'uj cm'dg'ew"kp"uwej "c"y c{"cpf "hzkpi "uq"cu"vq"
r tqxkf g'c'eqpvkpwk{ "qh'r cwgtp0"

"

Eqxgtu'uj cm'l'peqtr qtcvg"j kpi gf "mqenrdrg"qr gp'o guj "ceegu'r cpgn'y kj "c"972"z"972o o "engct"qr gplpi ."
utqpi "f wtdrg"j kpi gu"cpf "j gcx{ "f w{ "pqp/eqttqf kdr"r cf mqen0'Qr gplpi u"ht"xcixg"ng{ u"uj cm'l dg"lwu"
uw'hlekpvk'uk' g'ht"y g'xcixg"ng{ "cpf "uj cm'l'peqtr qtcvg"j kpi gf "qpn0"

"

Cm'l r cpgnu'uj cm'l dg"ugewtgn{ "dqngf "vq" yj g" uwr r qtvkpi "utwewtg0' Y j gtg" yj g" uwr r qtvkpi "utwewtg" ku"
eqpetgvg"i cixcpk gf "o krf "uggn'cpi ng'ewdu'uj cm'dg'r tqxkf gf "cpf "ugewtgn{ "i tqwgf "kpq"tgdcvgu'gh'kp"y g"
eqpetgvg'uwej "y cv'y g'vqr u'qh'y g'r cpgnu'ctg'hwuj "y kj "y g'vqr "qh'y g'eqpetgvg0"

"

Handrailing"

J cpf "tckkpi "uj cm'dg'crr tqzko cvgn' "3222o o "kp"j gki j v'y kj "cp'kvgtg gf kvg"j qtk qpven'tckk'y kj "ucpf ctf u"
pqv'o qtg"y cp"4222o o "cr ctv0'J cpf "tckkpi "uj cm'dg'f guki pgf "ht"j c"j qtk qpven'rqcf kpi "qh'pqv'rguu"y cp"
442P lo o 0'J qqr u'uj cm'dg'y grf gf "qp"y j gtg'tgs vktgf "ht"hzkpi "i wctf "ej ckpu0'Ucpcf ctf u'cpf "tcku"uj cm'l
dg"o cpw'cewtgf "htqo "dr'em'o krf "uggn'wdg"vq"DU'35: 9-3; : 7."htqo "uggn'wdkpi "vq"DU'3997"qt"htqo "
gzvtf gf "cno kpkwo "cmq{ "crr tqxgf "d{ "y g'Rtqlgev'O cpci gt0' Vj g'pqo kpcn'dqtg'qh'uggn'wdkpi "uj cm'dg'pqv"
rguu"y cp"54o o 0'Cf gs wcvg'r tqxkukp"uj cm'dg"o cf g'ht"y j gto cn'o qxgo gpv0'Uggn'j cpf "tckkpi "uj cm'dg"
j qvf kr r gf "i cixcpk gf "chgt'hdtdlecvkp0"

"

Guardrail"

I wctf tcku'uj cm'dg'972o o "kp"j gki j v'y kj "c"ukpi ng"vqr "tck0'kp"cm'l'qy gt"tgur gewu'k'uj cm'eqo r n' "y kj "y g"
ur gekk'ecvqp'ht"j cpf "tckkpi 0"

"

Chains"

.

Ej clpu'cetquu'qr gplpi u'lp"j cpf tcku'cv'qr u'qh'nef fgtu'uj cm'dg"i cncpkl gf "o kf "uugnl'j cxlpi "5"UY I "z"5"
rlpmu'r gt'322o o "cpf 'uj cm'dg'uw'r rkgf 'eqo r ngv'y kj "U0j qqmu'cpf 'ur rkv'tkpi u0'

Steel Access Covers

Uugni'ceegu'eqxgtu'uj cm'dg'vq"y g'f w'f "tgs wktgf"cpf "uk gf "vq"uwk'y g'qr gplpi "uj qy p"qp"y g'Ftcy kpi u0'
Vj g' "uj cm'dg'eqo r ngv'y kj "lco g'cpf "uj cm'dg'y gcvj gtr tqqh"r tgxgpv'kpi tguu'qh'y cvgt+'y j gp'emugf "cpf "
uj cm'lp'cm'tgur gew'dg'utqpi 'cpf 'f wcdrg0'

Vj g'eqxgtu"uj cm'dg"j kpi gf "cpf "menædrg"cpf "rtqxf gf"y kj "uc{ u"vq"r tgxgpv'y g'eqxgtu'qr gplpi "o qtg"
y cp'327æ0'Vj g'Eqptcevt"uj cm'r tqxf g"y kj "gcej "eqxgt" c"j gcx{ "f w'f "pqp/eqttqf kdr"r cf men'cpf "hqv"
ng{ u0' Vj g'eqxgtu'cpf "lco gu'uj cm'dg'i cncpkl gf 0'

Isolation of Aluminum

Cm'kgo u'qh'cnwo kpkwo "eqputwvklp"uj cm'dg"kuqrvgf"ltqo "eqpetvg" d{ "y g"wg"qh'dkwo kpwu'hgn'qt"FRE"
o cvgtkrl'qt"y q'eqcu'qh'dkwo kpwu'r clp0'Vj g'cnwo kpkwo "uj cm'dg"kuqrvgf"ltqo "fkuo krt"o gcn'd{ "y g"wg"qh"
hdtg'y cuj gtu'cpf 'ur cegtu0'

Galvanising

Y j gtg"i cncpkl kpi "j cu"dggp"ur geklhf"y g'kgo u'uj cm'chgt"hdtkcvklp"dg"j qv'fkr gf"i cncpkl gf "kp"
ceeqtf cpeg"y kj "DU'8752"Rctv'3"vq" c"y kempguu'qh'207o o "22700' Cm'kgo u'vq"dg"r tqvgv'f "uj cm'dg"
r tgr ctgf "cu"ur geklhf"kp"y g'cdqvg"ucpf ctf u0' Ct'krgu"cnegt gf"cv'y g"o cpw'cewtgtu'y qtnu"kp"cp{ "y c{ "
chgt"i cncpkl kpi "ctg"vq"dg"tg/i cncpkl gf "cu"ur geklhf 0' Ct'krgu"uwlgev"vq"o kpat"cnegtpcvklpu"cv'ukg"qt"
tgs wklpi "o kpat"tgr ckt"cv'ukg"uj cm'dg"y ktf "dtwuj gf"vq"tgo qvg"cm'twv'cpf "eqcvf"y kj "5"eqcu'qh"
crrtqvgf"l kpe'tlej 'eqf"i cncpkl kpi 'eqo r qwpf 0'

Fixings to Structure, etc."

Y j gtg'hkz kpi u'vq'utwewtgu'r tgxkwu' "eqputwvklp"ctg"vq"dg"o cf g'd{ "ugwklpi "c'dqn'u{ ugo "lpvq'r gthqto gf "
j qrgu"uwej "hkz kpi u'uj cm'dg"o cf g'gkij gt"d{ "Tcy nqnv'Rtqlgevlpi "Dqn"V{ r g"qt"d{ "wklpi "cp"cr r tqvgf "
r tqr tkgvt{ "tgulp"cej qt"u{ ugo 0'Y j gtg'r gthqto gf "j qrgu"j cxg'pqv'dggp'r tqxf gf "c'ugr/f tknlpi "gzr cpf kpi "
dqn'u{ ugo "uj cm'dg'wugf 0'

Y j gtg'yj kp'ugevklpu'ctg"lpxqkxf"qt"y j gtg'utguugu'ctg'rkng' "vq"dg'ugv'wr"y j lej "o li j v'ecwug'f co ci g'vq"
y g'utwewtg"y g'wg"qh'y g'tgvp"cej qt"u{ ugo "qpn"y km'dg"r gto kvgf 0' Qpn"lp"ur gekn'ekewo ucpegu"
y km'y g'Rtqlgev'O cpci gt"qt"y g'Rtqlgev'O cpci gt'ut'g'rgugv'kxg'r gto kv'cy nqnv'vq"dg'wugu0' Rgthqto gf "
j qrgu'uj cm'dg'ceewtcvnl"ugv'vq'go r rvg'r tkat"vq'r rckpi "y g'utwtqwpf kpi "eqpetvg"cpf "uj cm'dg'ngr v'tki k'nf "
kp'r rceg'v'pkl'y g'eqpetvg"j cu'r tqr gtn' 'ugv0'

Y j gtg'tgvp"cej qtc i g'ku'wugf "y g'Eqpvcevt"uj cm'lpwug'y cv'y g'ugwklpi "ko g'qh'y g'tgvp"ku'cr r tqr tkvg" vq"
y g'tgs wktgo gpw'hqt"ugwklpi "wr."r nwo dlpi "cpf "crki plpi "y g'y qtn'dghqg"ku'ugv0' Dqnu"uj cm'dg'ugv'vq"
vgo r rvg'cpf "j qrg'f lco gvtu'uj cm'eqphqto "vq"y g'tgeqo o gpf cvklp'qh'y g'uw'r rgtu0'Y j cvxgt"u{ ugo "ku"
wugf."cm'dqnu'uj cm'dg'r rvgf "vq'tgukv'eqttqkqp0'

"

"

SECTION 6. ROADS AND SURFACING"

601 Access Tracks"

Rgto cpgpv' ceegu' t'cenu' uj cml' dg' eqputvexgf " qpn' " y j gtg' uj qy p" qp" vj g" F tcy lpi u0' Vt'cenu' uj cml' dg' vpuw'hegf 0' Hn'kpi "vq' dtlpi " hqto c'vqp' vq' vj g' tgs vktgf " r'xgn'uj cml' dg' n'ecm' " g'zecxv'gf " o cvgtk'cl'y j lej "uj cml' dg' r' n'egf "lp' r'c{ gtu' c'pf " eqo r' cev'gf " d{ " t'cenu' kpi " y k'j " vj g' " g'zecxv'kqp' r' r'cpv0' Vj g' t'qcf " hqto c'vqp' uj cml' dg' t'cengf " c'pf " i tcf gf " y k'j " c " f q' l gt " d'rcf g' qt " dwengv' vq' i k'xg' c " etqu' h'cm' qh' p'qv' r'guu' vj cp' " 3 " lp' " 620' U'w'hegf v'pf w'v'k'p'u' uj cml' p'qv' g'zeggf " 422o o " q'xgt " c " r'gpi vj " qh' 50' o . " v'p'rguu' q'v gty kug " cr r' t'q'xgf " d{ " vj g' " Rt'ql'gev' O c'pci gt0'

"

Vj g' b' czko wo " i tcf k'gpv'uj cml' p'qv' g'zeggf " q'pg' xgt v'k'ec'v'q' 8' j q'tk' q'p'v'cl'c'pf " vj g' b' k'plo wo " v'w'p'kpi " e'k't'erg' t'cf k'wu' o g'cu'v'gf " vq' t'cenu' e'g'p't'g' h'k'p'g' vj cml' p'qv' d'g' r'guu' vj cp' " 370' o 0'

"

602 Access Roads"

Vj g' t'qcf " hqto c'vqp' uj cml' dg' vj g' u'w'hegf " q'd'v'k'p'gf " ch'gt " eqo r' r'g'v'k'p' qh' c'p{ " g'ct'v' y q't'm' 0' Hn'kpi " vq' dtlpi " vj g' hqto c'vqp' vq' vj g' tgs vktgf " r'xgn'uj cml' dg' u'g'v'egf " o cvgtk'cl' 0' K'uj cml' dg' r'c'k' " c'pf " eqo r' cev'gf " lp' r'c{ gtu' p'qv' g'zeggf lpi " 372o o " lp' vj l'emp'guu' vj g' eqo r' cev'k'p' d'g'kpi " e'ct't'k'gf " q'w' d{ " c " t'q'm'gt " qh' p'qv' r'guu' vj cp' " : " v'q'p'p'g' y g'k' i j v0'

"

Vj g' Go r' m' g' t' c'pf " vj g' E'q'p't'cev'qt " o c{ " c'v'c'p{ " v'ko g' ch'gt " vj g' eqo r' r'g'v'k'p' qh' vj g' c'ee'guu' t'qcf " *ch'gt " 36' f c{ u' lp' vj g' e'cu'g' qh' e'q'p'et'g'v' u'w'hegf u'w'v'g' vj go " q't' c'm'q' vj g' k' " w'ug' d{ " vj g' k' " go r' m' g' g'gu' t' u'w' d' e'q'p't'cev'qt u0'

"

C'v' u'we'j " v'ko g'u' f v'k'p' i " vj g' R'g't'k'qf " qh' vj g' e'q'p't'cev' qh' R'g't'k'qf " qh' O c'k'p'v'g'c'p'eg' cu' vj g' " Rt'ql'gev' O c'pci gt " o c{ " f k't'ge'v' vj g' E'q'p't'cev'qt " uj cml' c'v'j k'u' q'y p' g'z'r' g'p'ug' o c'n'g' i q'q'f " c'p{ " f g'v'g't'k'q'c'v'k'p' y j lej " o c{ " j c'x'g' q'ee'w't'gf " lp' vj g' e'q'p'f k'k'q'p' qh' vj g' t'qcf u' " y j g'y gt " cu' t'g'u'w'v' qh' vj g' w'ug' qh' t'qcf u' d{ " vj g' Go r' m' g' t' q't " q'v gty kug 0' k'p' r' c't'k'ew'rt' " c'p{ " r' c't'u' qh' vj g' h'q'w'p'f c'v'k'p'u' l'p'v' y j lej " u'q'k'ij cu' r' g'p'g't'c'v'gf " uj cml' dg' f' w' i " q'w' c'pf " t'g'r' n'egf " y k'j " eng'cp' b' cvgtk'cl' u0'

"

602.1 Macadam Roads and Macadam Hardstandings"

Vj g' u'w'd/ dcug' uj cml' e'q'p'uk'v' qh' 372o o " eqo r' cev'gf " vj l'emp'guu' qh' h'gg' f t'c'k'p'kpi " i t'c'p'w'rt " o cvgtk'cl' e'q'p'h'qto lpi " vq' vj g' i t'cf lpi " r'ko k'u' ur g'ek'h'k'gf " lp' vj g' e'q'p't'cev' 0' Vj g' r' r'c'u'k'ek'v' " l'p'f g'z " uj cml' dg' " 2/8' " o czko wo " c'pf " vj g' E'c'r'k'k'q't'p'k' D'g'ct'lpi " T'c'v'q' c'v' o czko wo " f g'p'uk'v{ " *V'gu'v' 34. " DU' 3599-3; ; 2+ " uj cml' dg' " 47' " o k'plo wo 0' Vj g' o cvgtk'cl' uj cml' dg' eqo r' cev'gf " vq' ; 7' " qh' vj g' o czko wo " f g'p'uk'v{ " cu' f g'v'g'to l'p'gf " d{ " V'gu'v' P q' 0' 35. " DU' 3599-3; ; 2+ " j g'c'x{ " eqo r' cev'k'p' + d{ " b' g'c'p'u' qh' c' t'q'm'gt " qh' p'qv' r'guu' vj cp' " : " v'q'p'p'g' y g'k' i j v0'

"

K'k' vj g' s' w'c'r'k'v{ " qh' h'q'w'p'f c'v'k'p' u'q'k'i' k'u' e'q'p'uk'f g't'gf " l'p'c'f g's w'c'v'g' " vj g' Rt'ql'gev' O c'pci gt " o c{ " f k't'ge'v' vj c'v' vj g' u'w'd/ dcug' dg' " 522o o " vj l'em' lp' " y j lej " e'cu'g' e'q'p'ut'v'ek'q'p' uj cml' dg' e'ct't'k'gf " q'w' cu' f g'uet'k'dgf " c'd'q'x'g' d'w' cu' " y q' 372o o " vj l'em' r'c{ g'tu0'

"

Vj g' t'qcf " dcug' uj cml' e'q'p'uk'v' qh' 372o o " eqo r' cev'gf " vj l'emp'guu' qh' h'gg' f t'c'k'p'kpi " e't'w'ij gf " r'ko g'u'q'p'g' e'q'p'h'qto lpi " vq' vj g' i t'cf lpi " r'ko k'u' u'c'v'gf " lp' vj g' E'q'p't'cev' 0' Vj g' r' r'c'u'k'ek'v{ " l'p'f g'z " uj cml' dg' " 2/8' " o czko wo " c'pf " vj g' E'c'r'k'k'q't'p'k' D'g'ct'lpi " T'c'v'q' c'v' o czko wo " f g'p'uk'v{ " *V'gu'v' 35. " DU' 3599-3; ; 2+ " uj cml' dg' " 2' " b' k'plo wo 0'

"

Vj g"dcug"uj cml'j cxg"r rtko g'eqcv'rr rkgf "pqv'o qtg"vj cp"ugxgp"fc{u"chgt"vj g'eqo r rgvqp"qh'vj g"dcug"cpf "pqv'rwgt"vj cp"vy gpv' "hwt"j qwtu"chgt"rr tqxcld{ "vj g"Rtqlgev'O cpci gt0Vj g"cur j cm'wugf "hqt"vj g'r tko g"eqcv'uj cml' gpgtcm' "eqphqto "vq"vj g'tgrxcpv'CCUJ VQ"ur gekhecvkqp0'
Dghqtg"rc{ kpi "vj g"vcto cecfco "dcug"eqwtug"qpq"vj g"r tko gf "dcug."cm'rqug"drlpf kpi "o cvgtkcn'uj cml'dg"dtwuj gf "qhl"vj g"tqcf"cpf "tgo qxgf0Vj g"vcto cecfco "dcug"eqwtug"uj cml'eqpukv'qh'82o o "eqo rcevgt"vj lempgu"qh'42o o "pqo kpcn'uk g"fgpug"dcug"eqwtug"o cecfco 0Vj g"ci i tgi cvg"cpf "cur j cm'uj cml'dg"i gpgtcm' "kp'ceeqtf cpeg'y kj "vj g'tgrxcpv'CCUJ VQ"ur gekhecvkqp0'

"

C"cem'eqcv'uj cml'dg"rr rkgf "dgvy ggp"uweeguikxg"rc{gtu'qh'cur j cm'o cvgtkcn'cpf"uj cml' gpgtcm' "eqphqto "vq"vj g"tgrxcpv'CCUJ VQ"ur gekhecvkqp0'O cej kpg"rc{ kpi "uj cm'pqto cm' "dg"wugf"cpf"eqo rcevkgp"uj cml'dg"ecttkgf "qww'y kj "c"tqngt"qh'pqv'rguu"vj cp"34"vppgu'y gki j v'uq"cu"vq"cej kxg"c"fgpug."uo qqy "cpf"gxgp"uwthceg0 Y j gtg'pgy "tqcf"eqputvevkgp"ku"vq"dg"lqlpgf "vq"cp"gzkvkpi "tqcf."vj g'uwthceg'uj cml'dg"ew'dcen'vq"c'utckl j v'kpg"cpf'r tko gf0'

"

Uj qwrf "vj g'Eqptcevt'y kuj "vq"rc{ "O cecfco "qp'vj g'tqcf u'gctn' "lp"vj g"
Eqptcevt'ht"vug'd{ "vj g'eqputvevkgp"tchle."j g'o c{ "f q"uq"r tqxkf gf "eqputvevkgp"ku'uxrr gf "cv'eqo r rgvqp"qh'vj g'O cecfco "dcug"eqwtug"cpf "vj ku'ukpi rg'rc{ gt'drlpf gf "y kj "dkwo kpqwu'i tk'vq"ugcn'vj g'uwthceg0'

"

Y j gp"cm'eqpetgkpi ."gctvj "o qxlpi "cpf"j gcx{ "etclpci g"cpf"j cwrci g"j cu"dggp"eqo r rvgf."cpf"kp"i gpgtcn'vqy ctf u"vj g"gp"qh'vj g'Eqptcev"vj g"dcug"eqwtug"uq"r tqxkf gf "uj cml'dg"vj qtqwi j n' "engcpgf"qh'cpf "tgr clt gf."cpf"tg/rgxgmf"y j gtg'pgeguuct{."cpf"cu'wksdrg"eqrf "dkwo kpqwu"go wvukp"cem'eqcv'i gpgtqwu"rr rkgf"d{ "ur tc{ "kp'ceeqtf cpeg'y kj "vj g'o cpwrcwtgtu'lp'utvevkgpu."ectg'dglpi "cngp"vq"cxqlf"ur cvgtkpi "ngtdu"qt"qy gt"cf lcegpv'eqpetg0Vj g'y gctkpi "eqwtug"o c{ "vj gp"dg"rcf"cpf"drpf gf "cu'f guetkdgf "kp'uwd/"ugevkgp"ka'cdqxg0Cp{ "cf fklqpcn'equu'lp'xqrgf "lp"vj g"cf qr vkgp"qh'vj g'o gjv qf "qh'rc{ kpi "f guetkdgf "kp"vj ku'uwd/ugevkgp"uj cml'dg'lp'env gf "d{ "vj g'Eqptcevt'lp"j ku'tcvu'ht"tqcf "o cmlpi 0'

"

P qy kj ucpf kpi "vj g"vko g"qh'r rckpi "qh'vj g"tqcf y qtmu."vj g'eqpf kkgp"qh'vj g"hlkuj gf "tqcf "cv'vj g'eqo r rgvqp"qh'vj g'Eqptcev'uj cml'dg"qh'-eu"pgy o's wcrkx."y kj "engcp."ceewtcvgn' "r tqhkgf."tqngf"cpf"ugcrgf"uwthceg'vj tqwi j qww"htgg'htqo "eqpetgvg'ur qwkpi "qt"uclpkpi ."r cvej "o ctmu."tgpj "qwwkpgu."r clpv"qklqt"hwgn'ur knrci gu'qt"qy gt"xkukdg"qt"utvewtclf ghgeu0'

"

Unsurfaced Roads and Hardstandings"

Wpuwthceg' "tqcf u'cpf"j ctf ucpf kpi u'uj cml'dg"eqputvevkgf "htqo "522o o "qh'etwuj gf "rko g"uqpg"eqphqto kpi "vq"vj g'i tcf kpi "rko ku'ur gekhegf "lp"vj g'Eqptcev'rcf "lp"vy q"rc{gtu'qh'372o o 0'

"

Ccej "rc{gt"uj cml'dg'eqo rcevgt"vq"; 7' "qh'vj g'o czko wo "f gpukv' "Vguv34."DU3599-3; ; 2-0'

"

Pea Shingle Surfaced Areas"

Vj g"uwd/dcug"vq"r gc"uj kpi rg"ctgcu'uj cml'dg"cu'f ghpgf "kp": 230"cdqxg0'Rgc"uj kpi rg"eqpukv'kpi "qt"42o o "vj keni7o o "pqo kpcn'ukpi rg'uk gf "uqpg'rcf"cpf "tcngf"vq"c'rgxgrhlkuj 0'

"

603 Precast Concrete Kerbs and Channels"

Mgtdu'uj cml'dg'rcf "dghqtg"vj g'cf lcegpv'ecttkci gy c{ "ku'eqputvevkgf"cpf"uwthlekpvn' "lp"cf xcpeg"vq"o gg'vj g"Rtqlgev' O cpci gtu' tgs vktgo gpwu' Mgtdu" uj cml' dg" dgf f gf" uqrf n{ "cpf" ceewtcvgn' "lp" vj gkt" eqpetgvg" hqwpf cvkpu'dghqtg"vj g'lpkcn'ugv'qh'vj g'eqpetgvg"j cu'uwctgf 0' Ccej "ngtd'uj cml'dg'ugv'uqrf n{ "cpf" ceewtcvgn' "

"

vq'vj g'tgs vktgf 'hkgp'cpf 'hgxgny kj 'lqkpv'pq'o qtg'vj cp'8'o o 'y kf g.'pgcvt 'r qkpv'f'y kj 'ego gpv'o qtvt'cpf 'hkgf 'hqt'vj gkt 'hwnf'gr'vj 'y kj 'ego gpv'i tqw'cu'ur gekhgf 0Cv'gxgt { 'vgpy 'ngtd'lqkv'vj g'r qkvp'pi 'cpf 'i tqw'uj cml'dg'qo kvgf 0C'r kgeg'qh'6o o 'vj lenl'cr r tqxgf 'lqkvp'pi 'o cvgtkrl'uj cml'dg'r rceg'f'kp'vj gug'lqkvu.'pgcvt 'vko o gf 'vq'dg'hwuj 'y kj 'vj g'hceg'qh'vj g'ngtd0Vj g'dgf f'kpi 'uj cml'dg'y gml'j cwpej gf 'wr 'vq'vj g'dcenl'qh'vj g'ngtd.'vq'y kj kp'322o o 'qh'vj g'vqr'qh'vj g'ngtd0Cm'eww'kpi 'uj cml'dg'pgcvt 'hqt o gf 'uq'cu'vq'uj qy 'pq'f co ci g'vq'vj g'gizr qugf 'hcegu'cpf 'vq'hcgxg'vj g'gpf u'us vctg'hqt'vj g'hwnl'y kf vj 'qh'vj g'ngtd0'

"

Vj g'ngtdu'cpf 'ej cppgnu'uj cml'dg'352o o 'y kf g'd { '472o o 'f ggr 0' Mgtdu'uj cml'dg'j crh' dcwgt gf 0' Mgtdu' f co ci gf 'cv'vj g'gizr qugf 'hcegu'y knlpqv'dg'ceegr vgf 0'

"

604 Precast Concreting Edging"

Gfi kpi 'uj cml'dg'72o o 'z'372o o 'kp'uk' g0'Gfi kpi 'uj cml'dg'rc'kf 'kp'vj g'uco g'o cppgt'cu'ngtpl'pi 'cpf 'kp'uj qt'v' npi vj u.'y j gtg'tgs vktgf 'vq'dg'ekewrt'qp'vj g'r rcp0'

"

605 Footpaths and Paving"

Hqt'uwthceg'f'hqqr'cvj u'cpf 'uko krt'r cxgf 'vj g'dcug'o cvgtkrl'uj cml'dg'rc'kf 'qp'j ctf 'hknl'qt'ugrgev'f'o cvgtkrl'cu'f kgev'f 'd { 'vj g'Rtqlgev'O cpci gt'au'Tgr tgu'pvc'xg'cpf 'eqo rcev'f 'd { 'c'tqngt'qh'207"vq'5"vqppgu'y gki j v0Vj g'hqqr'cvj 'dcug'uj cml'dg'hqt o gf 'qh'etwuj gf 'tqenl' tcf gf 'ht'qo '72o o 'vq'32o o 'uwkcdrg'hqt'vj g'r wr qug'cpf 'rc'kf 'cu'y gvo k'z'qt'f t { 'o cecf co 'cpf 'tqngf'qt'eqo rcev'f 'vq'vj g'hpcrl'hqt o 'cpf 'i tcf kpi 'qh'vj g'hpcrl'uwthce'kpi 'vq'c'vj kempuu'qh'322o o 0'

"

Vj g'dcug'eqwtug'uj cml'eqpukv'qh'322'o o 'eqo rcev'f 'vj kempuu'qh'dkwo kpqwu'o cecf co 'qh'36o o 'pqo kpcrl'uk' gf 'o cvgtkrl'0'Chgt'rc { kpi 'cpf 'tqnl'pi 'vj g'dcug'eqwtug.'c'y gctkpi 'eqwtug'uj cml'dg'rc'kf 'vq'r tqxkf g'c'hkpcrl'hkpij 0'Vj ku'uj cml'eqpukv'qh'37o o 'eqo rcev'f 'vj kempuu'qh'322o o 'pqo kpcrl'uk' g'dkwo kpqwu'o cecf co 0' Cu'uqpp'cu'r quukdr'g'chgt'rc { kpi 'vj g'y gctkpi 'eqwtug.'k'uj cml'dg'dr'kpf gf 'y kj 'dkwo kpqwu'i tk'k'kpg'eqrf' cur j cn'v'vq'y gc'vj gt/ugcr0' Hqt'eqpetgv'r cxkpi . 'vj g'r tgecu'eqpetgv'hci u'uj cml'dg'qh'cr r tqxgf 'eqr'wt'cpf 'uk' g'pqv'rguu'vj cp'52o o 'vj lenl'wprguu'qy gty kug'kpf kec'v'f 0'Vj g { 'uj cml'dg'rc'kf 'cpf 'dgf f gf 'kp'ego gpv'o qtvt'wr qp'c'322o o 'vj lenl'dgf 'qh'eqo rcev'f 'etwuj gf 'hko guqpg0'

"

Vj g'Eqptcev'qt' y knl' dg' tgs vktgf 'vq' rkn' cpf 'tgr { 'cv'j ku' gizr gpug'hci u' y j kej 'j cxg' uwpn' vj tqwi j 'eqpuqr'kf cvkqp'qh'ugwgo gpv'qh'vj g'i tqw'pf 'dgp'gcy 'cpf 'vj g'Rtqlgev'O cpci gt'au'o cl'p'vgpcpeg'egt'v'k'ec'v'y knl'pqv'dg'kuwgf 'v'p'k'luwe'j 'y qtnl'j cu'dggp'eqo r r'v'v'f 'vq'j ku'uc'v'k'luwe'v'k'p0'

"

606 Laying to Grade"

Cml'pgy 'cpf 'tgkpu'cv'gf 'tqcf u.'cng { y c { u'cpf 'j ctf 'u'cpf kpi u'uj cml'dg'eqo r r'v'v'f 'kp'c'o cppgt'vj cv'g'puwt'gu' etqu/hcmu'ctg'qy ctf u'vj g'lwqto 'y cvgt'f' tcl'pci g'lp'v'engu0'

701 Introduction

Vj g"r t g x p v k p q h' l p l w t { " c p f l q t " k n p g u u " v q " y j g " u k g " r g t u q p p g n l c p f " y j g " r w d r l e . " f c o c i g " v q " y j g " Y q t m u " c p f " v q " r w d r l e " c p f " r t k x c v g " r t q r g t v l . " r t q v g e v k p q h' y j g " g p x k t q p o g p v " c p f " e q o r r l c p e g " y k j " c r r l e c d r g " r e y u " c t g " r t k o c t { " q d l g e v k x g u " q h' y j g " G o r m q { g t 0 D g e c w u g " q h' y j g " l o r q t v c p e g " y j g " G o r m q { g t " r r e g u " q p " o g g v k p i " y j g u g " q d l g e v k x g u " u g r g e v g f " o l p k o w o " t g s v k t g o g p v u " c t g " q w r l p g f " l p " y j g u g " U c h g v l . " J g c n j " c p f " G p x k t q p o g p v c n l U r g e k h l e c v k p u " y k j " y j l e j " E q p v t c e v q t u " u j c m l e q o r n l " y j k g " y q t n k p i " q p " y j k u " e q p v t c e v 0 I k x g p " y j c v " y j g u g " U r g e k h l e c v k p u " e c p p q v e q x g t " g x g t { " g x g p w c r k l . " y j g " E q p v t c e v q t " u j c m l d g " g z r g e v g f " v q " g z g t e k u g " i q q f " l w f i o g p v l p " c m l u w e j " o c v g t u " g x g p " y j q w i j " p q v o g p v k p g f " l p " y j g u g " U r g e k h l e c v k p u " c p f " u j c m l v n g " c p { " c p f " c m l c f f k k q p c n l o g c u w t g u " c u " t g s v k t g f " q t " p g e g u a c t { . " v q " o g g v " j k u " t g u r q p u k l k l s { " h q t " u c h g v l . " j g c n j " c p f " g p x k t q p o g p v c n l o c v g t u f w t k p i " y j g r g t k q f " q h' y j g " E q p v t c e v 0

Vj g"Go r m q { g t " p q t " k u t g r t g u g p v k x g u " u j c m l p q v d g " j g r f " h l c d r g " h q t " c p { " c e v k p u " v n g p " d { " y j g " E q p v t c e v q t " y j c v " c t g " c w t k d w g f " v q " h q m y l p i " y j g b l p k o w o " t g s v k t g o g p v u l v c g f " j g t g l p c h g t 0 Vj g"Eqpvtcevt "uj cml'v tqwi j qww'y j g"gzgewkqp"cpf"eqo r ngvqp"qh'y j g"Y qtmu"cpf"y j g"tgo gf { lpi "qh" cp { "f ghgeu'y j gtgkp<

j c x g ' h w n l t g i c t f " h q t " y j g " u c h g v l " q h' c m l r g t u q p u " q p " y j g " U k g " c p f " n g g r " y j g " U k g " c p f " y j g " Y q t m u " l p " c p " q t f g t n l " l v c v g " c r r t q r t l c v g " v q " y j g " c x q k f c p e g " q h' f c p i g t " v q " c p { " r g t u q p = "

n p q y " c p f " w p f g t u c p f " c m l r e y u " i q x g t p k p i " j k u " c e v k x k l g u " c m p i " y k j " c p { " u k g " t g s v k t g o g p v u " c p f " y q t m l u k g " j c l c t f u 0 U e j " l p h q t o c v k p " u j c m l d g " e q o o w p l e c v g f " d { " y j g " E q p v t c e v q t " v q " j k u " r g t u q p p g n l c p f " l w d e q p v t c e v q t u = "

v n g " c m l p g e g u a c t { " o g c u w t g u " v q " r t q v g e v " j k u " r g t u q p p g n " y j g " G o r m q { g t a u " r g t u q p p g n " q v j g t " r g t u q p u " y j g i g p g t c n l r w d r l e " c p f " y j g " g p x k t q p o g p v = "

c x q k f " f c o c i g " q t " p w l u c p e g " v q " r g t u q p u " q t " v q " r t q r g t v l " q h' y j g " r w d r l e " q t " q v j g t u t g u w n k p i " h t q o " r q m w k p . " p q k u g " q t " q v j g t " e c w u g u " c t k u l p i " c u " c " e q p u g s w g p v q h' e c t t { l p i " q w v j g " Y q t m u 0

702 Compliance with Specifications

Vj g"Eqpvtcevt "uj cml'eqo r n l " y k j " y j g " t g s v k t g o g p v u " q h' y j g u g " U c h g v l . " J g c n j " c p f " G p x k t q p o g p v c n l U r g e k h l e c v k p u " c p f " c m l q v j g t " c r r l e c d r g " t g i w r v k p u " q t " t g s v k t g o g p v u w p f g t " M g p { c p " r e y u . " r c k f " f q y p " d { " t g r g x c p v c w j q t k l g u " q t " k u w g f " d { " y j g " G o r m q { g t " q t " y j g " R t q l g e v " O c p c i g t " e q p e g t p k p i " u c h g v l . " j g c n j " c p f " y j g " g p x k t q p o g p v " l p " h q t e g " q t " l p v q f w e g f " q t " k u w g f " h t q o " v k o g " v q " v k o g " f w t k p i " y j g r g t k q f " q h' y j g " E q p v t c e v 0

K p " u q " h c t " c u " y j g u g " U r g e k h l e c v k p u " c t g " c r r l e c d r g . " y j g { " u j c m l c r r n l " v q " u k g u " c p f " r g t u q p p g n l q w u k f g " y j g " U k g " c u u q e k c v g f " y k j " y j g r g t h q t o c p e g " q h' y j g " E q p v t c e v 0

Vj g"U r g e k h l e c v k p u " g s w c m l " c r r n l " v q " u w d e q p v t c e v q t u " c p f " c m l q v j g t " r c t v k u " g p i c i g f " d { " y j g " E q p v t c e v q t " c p f " y j g k t " r g t u q p p g n 0 Vj g"Eqpvtcevt "uj cml'g puwtg"cm l'we j " r c t v k u " c t g " h w n l " c y c t g " q h' c p f " e q o r n l " y k j " y j g " U r g e k h l e c v k p u 0

"

"

Vj g"Eqpvtcevt"uj cni'eqo r n' y kj "cni'pqv'khec'vqpu'cpf"y tkwgp"qt"xgtdcn'lputwexqp'tgi ctf lpi "uchgv' kuwgf " r wuvcpv'v"y gug"Ur gek'hlec'vqpu'd{"y g"Go r m{gt."Rtqlgev'O cpci gt"qt'tgrxcpv'cwj qtkkgu' y kj kp'yj g'v'o g" ur gek'hgf'lp'yj g'pqv'khec'vqpu'qt'lputwexqp0

"

Vj g"Eqpvtcevt"uj cni'cf qr v'c'r qukkxg"cr r tqcej ."cy ctgpguu'cpf "t'gur qpukdkkx' "vqy ctf u'uchgv'."j gcnj " cpf " yj g'gpxktqpo gpv'cpf "vcng"cr r tqr tlcvg'cevqp."d{<

"

gpuwtlpi "yj g"Ur gek'hlec'vqpu'ctg"ghqtegf "cpf "hqmjy gf "d{"yj g"Eqpvtcevtat'r gtupppgn0Cp{ 'hcnwtg' d{"yj g"Eqpvtcevtat'r gtupppgn'v" hqmjy "yj g"Ur gek'hlec'vqpu'uj cni'dg'tgi ctf gf "cu'c'hcnwtg"d{"yj g" Eqpvtcevt0

"

r c{ lpi "cwgpvqp"v"r quukdng'lp'wt{"v"wpwvj qtk gf "r gtuppu'gpvgtlpi "yj g'ukg."r ctvewrctn{ 'ej kftgp0

"

Y j gpgxgt'lp'yj gug"Ur gek'hlec'vqpu'yj g"Eqpvtcevt'ku'tgs vkt gf "v"r tqxkf g'vuv'egt'v'khec'v'ht"gs vkr o gpv' cpf " r gtupppgn'cpf "v"eqo r n' y kj "yj g"tgrxcpv'cwj qtkkgu'tgs vkt go gpw'cpf "pq'lpf gr gpf gpv'vuv' hcek'kkgu'ctg" cxckrdng'qt'pq'tgrxcpv'cwj qtkkgu'gzku'lp'Mgp{c."yj g"Eqpvtcevt'uj cni'r tqxkf g<

"

lp'hgw'qh'lpf gr gpf gpv'vuv'egt'v'khec'v'g<

hqt'gs vkr o gpv'o'f gcknu'qh'yj g'vuv'yj cv'j cxg'dggp'ecttkgf "qw'd{"yj g"Eqpvtcevt'cpf "c"y tkwgp'ucvgo gpv'yj cv' yj g"Eqpvtcevt"j cu'uc'v'k'gf "j ko ugh'yj cv'yj g'kgo "qh'gs vkr o gpv'ku'h'cpf "uchg'ht'vug=" hqt'r gtupppgn'o'f gcknu'qh'yj g'v'cl'p'pi "cpf "gxr gtl'p'eg"qh'yj g'r gtupppgn'cpf "c"y tkwgp' ucvg o gpv'yj cv'yj g" Eqpvtcevt"j cu'uc'v'k'gf "j ko ugh'yj cv'yj g{"j cxg'yj g'tgs vkt gf "rgxgn' qh'eqo r gvgpe{"=

"

lp" rkgw' qh' tgrxcpv' cwj qtkkgu' tgs vkt go gpw'o' f gcknu' qh' yj g" Eqpvtcevtat' qy p" twrgu" tgi wrc'vqpu." tgs vkt go gpw'cpf "r tqegf wgu'tgi ctf lpi "uchgv'."j gcnj "cpf "yj g'gpxktqpo gpv0

"

Ki'yj g"Rtqlgev'O cpci gt"ku'f ku'c'v'k'gf "y kj "yj g'f gcknu'r tqxkf gf "d{"yj g"Eqpvtcevt."yj g"Eqpvtcevt" uj cni'r tqxkf g'ht'yj gt'f gcknu'qt'ectt{"qw'ht'yj gt'v'v'v'qt'r tqxkf g'ht'yj gt'y tkwgp'ucvgo gpw'cu'o c{"dg" tgcupcdn' tgs vkt gf "d{"yj g"Rtqlgev'O cpci gt0

"

Y j gp" yj g" Rtqlgev' O cpci gt" j cu' uc'v'k'gf " j ko ugh' tgi ctf lpi " yj g" Eqpvtcevtat' qy p" twrgu" tgi wrc'vqpu."tgs vkt go gpw'cpf "r tqegf wgu'r tqxkf gf "lp'ceeqtf cpeg'y kj "d+cdq'xg."uwej "twrgu'gve0uj cni' dg'f ggo gf "v"htto "r ctv'qh'yj gug"Ur gek'hlec'vqpu'cpf "v"y j lej "Erwug'5'uj cni'gs wcm{"cr r n'0

"

703 Failure to Comply with Specifications"

General"

Uj qwr" yj g"Eqpvtcevt" hcn' vq' eqo r n' y kj "cp{"qh' yj g"Ur gek'hlec'vqpu'qt" tgs vkt go gpw' qh' yj g" Rtqlgev' O cpci gt<

yj g"Rtqlgev'O cpci gt"o c{"uwur gpf "yj g"Y qtmu'qh'r ctv'qh'yj g"Y qtmu'wpv'ki'yj g"Eqpvtcevt" j cu'vcngp'yj g" pgeguuct{"wgru."v"y'g'uc'v'k'hec'v'qpu'qh'yj g'Rtqlgev'O cpci gt."v'eqo r n' y kj "yj g'Ur gek'hlec'vqpu'qt'tgs vkt go gpw0 yj g"Go r m{gt"o c{"hqmjy lpi "y tkwgp'pq'v'eg"v"yj g"Eqpvtcevt."ectt{"qw'yj go ugr'k'gu'qt"cttcpi g'ht'cpq'yj gt" eqpvtcevt"v"ectt{"qw'uwej "o gcum'gu'cu'yj g{"o c{"eqpuk'gt"cr r tqr tlcvg"qp"dgi cni' qh'yj g"Eqpvtcevt0Cp{" uwej "cev'qpu"d{"yj g"Go r m{gt"uj cni'pqv'cht'gev'qt'f ko lp'kuj "yj g"Eqpvtcevtat'qdri' c'v'qpu'qt't'gur qpukdkk'k'gu"

wpf gt' 'y g'Eqpwtcew'
y g' Rtqlgev' O cpci gt' o c { . ' d { ' y tkwgp' pqwleg' qh' uwur gpukqp' ' q' ' y g' Eqpwtcewqt. ' uwur gpf' ' cml' r c { o gpv' ' q' ' y g' Eqpwtcewqt' wpf gt' ' y g' Eqpwtcew' h' y g' Eqpwtcewqt' ' l' kn' ' q' ' tgevkh' ' cp { ' dtgcej' ' qh' ' y g' ' Ur gekh' ckwpu' y kw kp' ' y g' r gtqkf' ' ur gekh' ' d { ' ' y g' Rtqlgev' O cpci gt. ' r tqxf gf' ' y cv' uwej' ' pqwleg' qh' uwur gpukqp' < "

uj cml'ur gelh' 'y g'pcwtg'qh'y g'hcnwtg'qt'hcnwtgu=c'pf "
 uj cml'tgs wgu'y g'Eapvtcevt'q'tgo gf { 'gcej 'uwej 'hcnwtg'y kj kp'c'ur gelh'gf 'r g'kqf " chgt'tgegr v'd{ 'y g' "
 Eapvtcevt'qh'uwej 'pqvleg'qh'uwr g'pukap0'
 "

Uwej "uwur gpukap"qh'r c{o gpv'uj cm'tgo clp'k'hqteg'wp'k'uwej "ko g"cu"y g'Eapvtcevt"
j cu'tgevk'kf "y g'dtgej "qt'dtgej gu"q"y g'uc'k'cevk'ap"qh'y g'Rtqlgev'O cpci gt0'P q"
k'pvtguv' uj cm'idg'r c'k'qp'y g'uwur gpf g'r c{o gpw0'

"

Hkxw'g'q'eqo r n{ 'y kj 'y'j g'Ur gell'c'v'p'u'q't'g's w'k'go g'p'u'uj c'm'd'g'eq'p'u'k'g't'g'f'c'd't'g'c'j'q'h'y'j g'Eq'p't'c'v' d'f'{"y'j g'Eq'p't'c'v'q't"cpf"o c{ "t'g'u'w'v'k'p"v'g'to k'p'c'k'q'p'q'h'y'j g'Eq'p't'c'v' d'f'{"y'j g'Go r n'q'j{g't'0'k'p' "y'j g'g'x'g'p'v' q'h' 'y'j g' Go r n'q'j{g't"v'n'k'p' "c'v'k'q'p'd'c'u'g'f'q'p"y'j k'u'Er'w'ug"y'j g'Eq'p't'c'v'q't"uj c'm'p'q'v'd'g'g'p'k'g'f' "q'c'p'f' c'f'k'k'q'p'r'equ'u'v' q't'g'z'v'p'u'k'q'q'y'j g'Eq'p't'c'v'Eq'o r n'g'v'k'p'F'c'v'g'0' C'm'le'qu'u'k'p'ew't'g'f'd'f'{"y'j g'Go r n'q'j{g't" r'w'u'w'c'p'v'q'U'w'd'Er'w'ug"
925030'd+uj c'm'd'g'f'g'f'w'v'g'f'f'g'o 'y'j g'co q'w'p'u'q'v'g'ty k'g'f'w'g'q'y'j g'Eq'p't'c'v'q't'0'

"

704 General Requirements"

Preamble"

Cmít ghgt gpegu'vq'uchgv{ 'uj cm'dg'f ggo gf'vq'kpenwf g'j gcnj "cpf "v'j g'gpxktqpo gpv0

"

Safety Officer"

Vj g"Eqpwtcevt"uj cm'cr r qkpvc"eqo r ggpv"Uchgv "Qhleg"y j q"uj cm'dg"tgr qpukdg"ht"uchgv. "j gcmj " cpf" vj g"gpuxtqpo gp0Vj g"Uchgv "Qhleg"uj cm'dg"i kxgp"uwhlegpv"ko g"d{"vj g"Eqpwtcevt"vq"ectt{" qw"} ku"fwku"o kolo wo "tgs wktgo gpv"uj cm'dg"cu"hmuy u"

!!

Y qtnhqtæg'qp'ukg'qh'qxgt'472"	/"	hwm'ko g'Uchgv' 'Qhlegt="
Y qtnhqtæg'qp'Ukg'qh'322'6'472"	/"	72' "qh'Uchgv' 'Qhlegta'ko g="
Y qtnhqtæg'qp'ukg'dgrny '322"	/"	cu'tgs vktgf'hqt'yj g'Y qtnu'dw'c'o kpo wo "qh'7"j qwtu'r gt" y ggm'qh' Uchgv' " Qhlegta'ko g" y j gtg'o qtg'yj cp'42'y qtngtu0'

"

Vj g"Eqpwcevt"uj cm'r tqxkf g"y j g"Uchgv "Qhleg"y kj "cr r tqr tlcvg"kf gpwkhecvap."lpemf kpi "c"y j kg" j ctf "j cv" y kj "tgf"etquu"u{o dqn"cpf "cp"kf gpwkhecvap"dcf i g0Vj g"cr r qkpvo gpv"qh"y j g"Uchgv "Qhleg" uj cm" dg" kp" y tkkpi "cpf"eqr kgf"vq"y j g"Rtqlgev"O cpci gt0Vj g"cr r qkpvo gpv"uj cm"lpemf g"ur gekhe" kpwtwekqpu"vq"ghqtteg" y gug"Ur gekhecvapu"cpf "f ngi cvgf"cwj qtkf"vq"vcng"cp{"cevkp."o gcwt g"qt"vq" kuwg"kpwtwekqpu"tgi ctf kpi "y gk"ghqttego gpv0Cm'r gtuppu"qp"Ukg"uj cm'dg"o cf g"cy ctg"qh"y j g"pco g" cpf"cwj qtkf"qh"y j g"Uchgv "Qhleg"cpf "kpwtwevf"vq"eqo r n"y kj "cp{"kpwtwekqpu"qt"f kgevkp"kp" uchgv"o cwgtn"xtgdcn"qt"kp"y tkkpi "kuwgf"d{"y j g"Uchgv "Qhleg"0

"

"

Vj g"Uchgv "Qhleg"uj cml'dg'r tqxkf gf "y kj "c'o qdkg'r j qpg'qt"qj gt"uko krt'o gcpu'qh'eqo o wplecvkp0
Vj g"Uchgv "Qhleg"uj cml'dg'ceeguikdg'cpf "cxckcdng'cv'cm'ko gu'kpenw'kpi 'pqto crly qtnkpi 'j qwtu0

"

Safety Training

Vj g'Eqptcevt"uj cml'r tqxkf g'uchgv "kpf wevkp"tcklpi "hqt"cm'ukg'r gtuqppgn'wr qp'uctv'kpi "qp"

ukg0 Vj g'Eqptcevt"uj cml'r tqxkf g'uchgv "tghtgij gt ltkphqtego gpv'tcklpi "cv'tgi wrt'kpvgtxcni"

hqt'j ku'uchf0

Safety Meetings

Vj g'Eqptcevt"uj cml' j qrf " tgi wrt" uchgv "o ggkpi u" vq" r tqxkf g" uchgv " kputwevkpu" cpf " tgegkxg"
hggf dcmi' htqo " uksg" r gtuqppgn' qp" uchgv " j gcnj " cpf " gpv'kqpo gpvni' o cvgtu0 C" y ggm' " uchgv "
O ggkpi " uj cml' dg" ej cktgf "d{ "vj g"Uchgv "Qhleg" cpf "o kpwgu'uj cml' dg" vngp" qh' vj g" o ggkpi 0 Vj g"
o ggkpi lo kpwgu'uj cml' dg" i kxgp" vq" vj g" Rtqlgev' O cpci gt0 Vj g" Uchgv "Qhleg"uj qwf " cvgpf " vj g"
Eqptcevt'au'y ggm' "ukg'o ggkpi u'cpf " oUchgv "o'uj cml'dg'cp'kgo "qp'v' g'ci gpf c0

"

Safety Inspections

Vj g"Uchgv "Qhleg"uj cml'o cng"tgi wrt" uchgv "kpur gev'kp"qh' vj g"y qtn'ukg0" Vj g"Uchgv "Qhleg"uj cml'
r tgr ctg" c" tgr qtv' qh' gcej " kpur gev'kp0 Vj ku' tgr qtv'uj cml' kpenw' g" f gvcku" qh' cml' dtgcej gu' qh' vj gug"
Ur gekh'ecv'kpu"cpf " cp{ "qj gt"o cvgtu"qt"ukwcv'kpu"tgrv'kpi "vq"uchgv "hqw'pf "f v'kpi "vj g" kpur gev'kp."
kputwevkpu"kuwgf "d{ "vj g"Uchgv "Qhleg"cpf "cev'kpu"vngp"d{ "vj g'Eqptcevt0 C"eqr { "qh' vj g"Uchgv "
Qhleg'au'tgr qtu'uj cml'dg"i kxgp" vq" vj g' Rtqlgev' O cpci gt0

"

Control of Substances Hazardous to Health

J c| ctf qwu'o cvgtknu'uj cml'dg'v'qtf gf "kp"cr r tqxgf "uchgv "eqpv'kpgtu"cpf "j cpf r'gf "kp"o c'ppgt'ur gekh'gf "d{ "vj g"
o cpw'cewtgtu'cpf kq' r' tguetkdgf "d{ "tgrxcpv'cwj qtkk'gu0

"

Qpn' 'r tqr gtn' 'tckpgf "cpf "gs wkr r gf "r gtuqppgn'uj cml'j cpf r'gf j c| ctf qwu'o cvgtknu0

"

Potential Hazards

Vj g'Eqptcevt"uj cml'phqto "go r nq{ ggu'qh'r qv'p'v'cnj c| ctf u'v'cng"vj g'cr r tqr tlc'v'v'gr u'v'q'tgf v'eg'j c| ctf u' cpf "
dg'r tgr ctgf "hqt"go gti gpe{ "ukwcv'kpu0 Vj g'Eqptcevt"uj cml'o cng'cp'cuuguu gpv'qh'g'xgt { "qr g'cv'kq" kpxq'rkpi "
j c| ctf qwu" u'wduv'pegu0 Vj g" cuuguu gpv' uj cml' dg" tgeqtf gf "qp" c" J c| ctf qwu" cpf " Hxo o cdng" U'wduv'pegu"
Cuuguu gpv'O gy qf "U'cvgo gpv'y j k'ej "uj cml'dg'u'wdo k'wgf "vq" vj g' Rtqlgev' O cpci gt' r t'kq' "vq" vj g" f g'rkxgt { "cpf "wug"
qh' vj g' u'wduv'peg'qp'U'kg0

"

Accident Reporting

Vj g'Eqptcevt"uj cml' tgr qtv' cml' ceekf gpw' cpf " f cpi gtqwu" qeewt'gpegu" vq" vj g" Rtqlgev' O cpci gt0 Vj g"
Eqptcevt"uj cml'r tgr ctg" c" tgr qtv' qp" gcej " ceekf gpv' qt" f cpi gtqwu" qeewt'gpeg" cpf " c" eqr { "qh' vj g" tgr qtv"
vqj gyj gt" y kj " y kpguu" u'cvgo gpw' cpf " cp{ " qj gt" tgrxcpv' kphqto cv'kq. "uj cml' dg" u'wdo k'wgf "vq" vj g" Rtqlgev'
O cpci gt0 C" tgr qtv'cdng' ceekf gpv' qt" f cpi gtqwu" qeewt'gpeg"uj cml'kpenw' g" cp{ " ceekf gpv' vq" cp{ " r gtuqppgn' qp" uksg"

"

tgs wklpi "o gf lecnlcwgpvkp"qt"tguwnkpi "lp"vj g"nqu"qh'y qtnkpi "j qwtu"qt"cp{ "lpekf gpv"vj cv'tguwngf ."qt"eqwf "
j cxg'tguwngf ."lp"lplwt{ ."fco ci g'qt"t'f cpi gt"vq"vj g"Y qtnu."r gtuqpu."r tqr gtv{ "qt"vj g'gpxktqpo gpv0
"

lp"vj g"gxgpv"qh"cp"ceekf gpv"qt"fcpi gtqwu"qeewtgpeg."vj g"Eqptcevt"uj cml'dg"tgu qpukdrh"ht"eqo r rguvpi "cm'
ucwwqt{ "pqvhlcevkpu"cpf "tgr qtu0'Eqr lgu"qh"cm'ucwwqt{ "pqvhlcevkpu"cpf "tgr qtu"uj cml'dg"r cuugf "vq" yj g"
RtqlgevO cpci gt0
"

Cml'ceekf gpv"cpf "fcpi gtqwu"qeewtgpegu"uj cml'dg"tgeqtf gf "lp"t'Ukg'Ceeekf gpv'Dqqn0Vj g"Ukg'Ceeekf gpv'Dqqn'
uj cml'dg"cxckrdg"cv'cm'ko gu'ht'lpur gevkap'd{ "vj g'RtqlgevO cpci gt0
"

Vj g"Eqptcevt"uj cml'ko o gf lcvgn{ "tgevhl"cp{ "ukwcvkp"qt"eqpf klkp"vj cv'eqwf "tguwn"lp"lplwt{ ."fco ci g'qt"t'
fcpi gt" vq" yj g" Y qtnu." r gtuqp." r tqr gtv{ "qt" yj g" gpxktqpo gpv0 Kk" yj g" ukwcvkp" qt" eqpf klkp" ecppqv" dg"
eqttgevgf "ko o gf lcvgn{ ."vj g"Eqptcevt"uj cml'r tqxkf g"vgo r qtct{ "dcttltgu"cpf "cr r tqr tkvg"y ctpkpi "uki pu"cpf "
f gxlegu" cpf lqt" vng" qv gt" cr r tqr tkvg" cevkap" pgeguuct{ "ht" yj g" r tqgevkap" qh" r gtuqpu." r tqr gtv{ "cpf " yj g"
gpxktqpo gpv0
"

Notices, Signs, Etc."

Cml'uchgv{ ."j gcmj ." gpxktqpo gpvcr"cpf "qvj gt" pqvlegu"cpf "uki pu"uj cml'dg"engctn{ "f kur nc{ gf "cpf "y tkwgp"lp"
Gpi rkuj 0' Cml' tgs wktgo gpv." kputvewkpu." r tqegf vtu." gre0 kuwgf " d{ " yj g" Eqptcevt" eqpegtplpi " yj gug"
Ur gekhlcevkpu"uj cml'dg"r tlpgf "lp"Gpi rkuj "cpf "f kur nc{ gf "cpf "tgc f kl{ "cxckrdg"vq"vj g"Eqptcevtu"r gtuappgn0
"

First Aid and Medical Attention"

Vj g"Eqptcevt"uj cml'j cxg"eqo r tgj gpukxg"Hktuv"Clk "Mkvu"qp"Ukg"cv'cm'ko gu0Hktuv"Clk "Mku"uj cml'dg"
eqpxgplgpv{ "hcevgf"cpf "engctn{ "kf gpvhlcdg0
"

Vj g"Eqptcevt"uj cml'j cxg"qpg"go r m{ gg"qp"ukg"tckpgf "lp"htuv'ckf "ht"bxgt{ "47"go r m{ ggu0Uwej "t gtuqpu"uj cml'
dg"r tqxkf gf "y kj "cr r tqr tkvg"kf gpvhlcevkp."lpennf lpi "c'tgf "j ctf "j cv'y kj "c"y j kg"otgf "etquu"u{ o dqn" cpf "
cp"kf gpvhlcevkp"dcf i g0
"

Vj g" Eqptcevt" uj cml' o cng" eqpvkpi gpe{ " ctcp i go gpw" ht" ecnkpi " c" F qevt""cpf " vcpur qt vkpi " lplwtgf "
r gtuqpu"vq"j qur kcn0"Vj g"vng r j qpg"pwo dgtu"qh"vj g"go gti gpe{ "ugt xlegu"cpf " yj g"pco g."cf f tgu"cpf "
vng r j qpg"pwo dgt"qh"vj g" F qevt"cpf "pgctgu"j qur kcn"uj cml'dg"r tqo kpgpv{ "f kur nc{ gf "lp"vj g"Eqptcevtu"
ukg"qlhleg0
"

Employee Qualification and Conduct"

Vj g"Eqptcevt"uj cml'go r m{ "qpn{ "r gtuqpu" y j q"ctg" hkv"svcnkkgf"cpf "unkmgf"lp"vj g"y qtnl"vq"dg"
r gthqto gf 0' Cml' gtuqpu"uj cml'dg"cdqxs"vj g'b loko wo "y qtnkpi "ci g0Eqptcevtu"r gtuappgnlj cml'wug"vj g"
vlgv'heekklgu"r tqxkf gf "d{ "vj g"Eqptcevt0
"

Vj g"Eqptcevt"uj cml'gpwtg-
vj cv'pq"htgcto u."y gcr qpu."eqptqngf"qt"knki cn'uwducpegu"qt"creqj qrle"dgxgtci gu"ctg" dtqwi j v'qpqv"vj g"
Ukg"cpf "vj cv'pq"r gtuappgn"wpf gt"vj g"lphwpeg"qh'creqj qn'qt"ftwi u"ctg"r gto kwgf "qp"Ukg0
"

"

Vj cv'cmr'gtuqppgn'qdg' 'y ctp'kpi 'lki pu' r' t'qf wev'qt' r' t'qegu' r' d'gnu' c'pf' r' qu'gf' 'k'pust wev'kpu'0

"

Vj cv'f' t'kx'gtu'qt' "qr' gtcv'qtu' qh' x'gj' k'engu' "o' cej' k'pgt' { . "r' n'p'v' c'pf' "gs' w'k' r' o' g'p'v' h'q'm'y' "y' g' t'w'gu' h'qt' " uch'g' "qr' gtcv'kpu'0
F' t'kx'gtu' u'j' c'm'y' g'ct' u'gcv' d'gnu' c'pf' 'qdg' { 'c'm'li' pu' c'pf' r' qu'gf' 'ur' g'gf' 'h'o' ku'0

"

705 Safety Requirements"

Personal Protective Equipment"

Vj g' "Eq'p't'cev'qt' "uj' c'm' r' t'q'x'k'f' g' r' gtu'q'p'c'n' r' t'q'v'g'e'v'k'g' "gs' w'k' r' o' g'p'v' "k'p'en'w'f' k'pi' "j' c't'f' "j' c'u' "uch'g'v' "i' n'u'ugu' "t'g'u' r' k'c'v'qtu' "i' n'q'x'g'u' "uch'g'v' "u'j' q'gu' "c'p'f' "u'w'ej' "q'y' g't' "gs' w'k' r' o' g'p'v' c'u' t'gs' w'k' g'f' . "c'p'f' "u'j' c'm' l'c'm'g' "c'm' o' g'c'u'w't'g'u' "q't' "c'e'v'k'p'u' h'qt' "y' g' r' t'q'v'g'e'v'k'p' "c'p'f' "uch'g'v' "q'h' Eq'p't'cev'qt' a' r' gtu'q'p'p'g'n'0

"

P'q'p' o' g'v'e'n'k'e' "j' c't'f' "j' c'u' u'j' c'm' d'g' y' q't'p' c'v' c'm' l'k'o' g'u' d' { 'c'm' r' gtu'q'p'p'g'n' c'v' y' g' y' q't'm'k'g' y' k'y' "y' g' "g'z'e'g'r' v'k'p' "q'h' "y' q'u'g' "c't'g'c'u' y' j' g't'g' "y' g' "R't'q'l'g'e'v' O' c'p'c'i' g't' "j' c'u' "k'p'f' l'ec'v'g'f' "k'v' k'u' "p'q'v' p'g'e'g'u'c't' { "v'q' "f' q' "u'q'0' U'ch'g'v' "i' n'u'ugu' "u'j' c'm' o' g'g'v' "k'p'v'g't'p'e'v'k'p'c'n' u'c'p'f' c't'f' u' "c'p'f' "d'g' "c'x'c'k'c'd'ng' "h'q't' "w'ug' "c'p'f' "y' q't'p' "k'p' "u'r' g'e'k'h'g'f' "y' q't'm'k'g' "c't'g'c'u'0' C'u' "c' "o' k'p'o' w'o' . "uch'g'v' "i' n'u'ugu' u'j' c'm' d'g' y' q't'p' "h'q't' "y' g' "h'q'm'y' k'pi' "v' r' g'u' q'h' y' q't'm'j' c'o' o' g't'k'p'i' . "e'j' k'r' r' k'pi' . "y' g'r'f' k'pi' . "i' t'k'p'f' k'pi' . "w'ug' "q'h' "g'r'e'v't'k'c'm'f' "r' q'y' g't'g'f' "q't' "r' p'g'w'o' c'v'e' "gs' w'k' r' o' g'p'v' "k'p'u'w'c'v'k'p' "j' c'p'f' r' k'pi' . "u'r' t'c' { "r' c'k'p'v'k'pi' . "y' q't'n'k'pi' "y' k'y' "u'q'x'g'p'u' "c'p'f' "q'y' g't' "l'q'd'u' y' j' g't'g' "y' g' "r' q'v'g'p'v'c'n' q'h' "c'p' "g' { g' "k'p'w' { "g'z'k'u'0' H'c'eg' "u'j' k'g'r'f' u' "c'p'f' l'q't' "i' q'i' i' r'gu' "u'j' c'm' d'g' y' q't'p' "y' j' g't'g' "r' q'u'k'd'ng' "g'z'r' q'u'w'g' "v'q' "j' c' { c't'f' q'w'u' "e'j' g'o' k'ec'n' "e't' { q'i' g'p'le' "h'w'k'f' u' "c'e'k'f' u' "e'c'w'u'k'eu' "q't' "f' w'u'v' "g'z'k'u' "c'p'f' "y' j' g't'g' "uch'g'v' "i' n'u'ugu' "o' c' { "p'q'v' r' t'q'x'k'f' g' "c'f' "gs' w'c'v'g' r' t'q'v'g'e'v'k'p'0

"

Y' j' g'p' "j' c'p'f' r' k'pi' "c'e'k'f' u' "e'c'w'u'k'eu' "c'p'f' "e'j' g'o' k'ec'n' y' k'y' "e'q't't'q'u'k'x'g' "q't' "v'q'z'k' "r' t'q'r' g't'v'k'u' "u'w'k'c'd'ng' "r' t'q'v'g'e'v'k'p' . "u'w'ej' "c'u' "c'e'k'f' "u'w'k'u' "q't' "e'j' g'o' k'ec'n' t'g'u'k'v'c'p'v'c'r' t'q'p'u' "c'p'f' "i' n'q'x'g'u' u'j' c'm' d'g' y' q't'p' "v'q' "r' t'g'x'g'p'v'c'e'k'f' g'p'v'c'n' l'eq'p'c'ev' "y' k'y' "y' g' "u'w'd'u'c'p'eg'0

"

R'g'u'q'p'p'g'n' u'j' c'm' "p'q'v' "d'g' "r' g't'o' k'w'g'f' "v'q' "y' q't'm' "y' j' k'u'v' "y' g'c't'k'p'i' "r' gtu'q'p'c'n' e'n'q'y' k'pi' "q't' "h'q'q'v' g'c't' "r'k'ng'n' { "v'q' "d'g' "j' c' { c't'f' q'w'u' "v'q' "y' g'o' u'g'r'k'g'u' "q't' "q'y' g't'u'0

"

Vj g' y' g'c't'k'p'i' "q'h' "uch'g'v' "u'j' q'gu' y' k'y' "u'g'g'r'it'g'k'p'h'q't'eg'f' "v'q'g'u' "k'u' "t'g'e'q'o' o' g'p'f' g'f' "h'q't' "c'm' Eq'p't'cev'qt' a' r' gtu'q'p'p'g'n' "q'p' "u'k'g'0' k'p' "c'm' l'ec'ugu' "Eq'p't'cev'qt' a' r' gtu'q'p'p'g'n' u'j' c'm'y' g'c't' "u'w'd'u'c'p'v'c'n' y' q't'm' u'j' q'gu' y' c'v' "c't'g' "e'q'o' o' g'p'u'w't'c'g' "y' k'y' "j' c' { c't'f' u' "q'h' y' g' y' q't'm' c'p'f' "y' g' y' q't'm' k'g' "c't'g'c'0

"

J' g'c't'k'p'i' "r' t'q'v'g'e'v'k'p' . "k'p'en'w'f' k'pi' "o' w'h'u' . "r' n'w'i' u' "q't' "c' "e'q'o' d'k'p'c'v'k'p' "y' g't'g'q'h' "u'j' c'm' d'g' "r' t'q'x'k'f' g'f' "h'q't' "c'm' l' r' gtu'q'p'p'g'n' q'r' g't'c'v'k'p'i' "k'p' "c't'g'c'u' y' j' g't'g' "y' g' "p'q'k'ug' "h'g'x'g'n' g'z'eg'g'f' u' ; 2' f' g'e'k'd'g'u'0' U'w'ej' "r' t'q'v'g'e'v'k'p'u' u'j' c'm' l'c'v'q' "d'g' "r' t'q'x'k'f' g'f' "h'q't' "q'r' g't'c'v'qtu' y' q't'n'k'p'i' "y' k'y' "gs' w'k' r' o' g'p'v' "g'z'eg'g'f' k'pi' "u'w'ej' "c' "h'g'x'g'n'0' V'j' k'u' "o' c' { "k'p'en'w'f' g' "gs' w'k' r' o' g'p'v' "u'w'ej' "c'u' "g'z'ec'x'c'v'qtu' "u'j' q'x'g'u' "l'c'e'n'j' c'o' o' g'tu' "u'c'y' u' "f' t'k'm' "i' t'k'p'f' g't'u' "c'p'f' "y' g' "h'k'ng' "c't'g' "d'g'k'p'i' "w'ug'f'0

"

Vj g' "Eq'p't'cev'qt' "uj' c'm' g'p'eq'w't'c'i' g' "g'o' r' m' { g'g'u' "v'q' "y' g'c't' "u'w'd'u'c'p'v'c'n' y' q't'm' i' n'q'x'g'u' y' j' g'p'g'x'g't' "r' t'c'e'v'k'ec'n' "c'p'f' "uch'g' "v'q' "f' q' "u'q'0

"

Fire Protection and Prevention"

Vj g' "Eq'p't'cev'qt' "uj' c'm' l'eq'o' r' n' { "y' k'y' "h'k'g' "r' t'q'v'g'e'v'k'p' "k'pust wev'kpu' "i' k'x'g'p' d' { "y' g' "C'w'j' q't'k'k'g'u' "j' c'x'k'p'i' "l'w'k'uf' l'ev'k'p' "k'p' "t'g'i' c't'f' "v'q' "h'k'g' "r' t'q'v'g'e'v'k'p' "t'g'i' w'c'v'k'p'u'0' Vj g' "Eq'p't'cev'qt' "uj' c'm' "w'r' q'p' "o' q'x'k'p'i' "q'p' "u'k'g' . "r' t'q'x'k'f' g' "v'q' "y' g' "R't'q'l'g'e'v' O' c'p'c'i' g't' "c'p'f' "y' g' "C'w'j' q't'k'k'g'u' "c' "h'k'g' "r' t'g'x'g'p'v'k'p' "c'p'f' "g'x'c'e'w'c'v'k'p' "r' n'p'0' Vj k'u' u'j' c'm' l'k'p'en'w'f' g' "f' t'c'y' k'pi' "u' "u'j' q'y' k'pi' "y' g' "h'k'g' "c'u'g'o' d'n' { "r' q'k'p'u'0' Vj g' "h'k'g' "r' t'g'x'g'p'v'k'p' "c'p'f' "g'x'c'e'w'c'v'k'p' "r' n'p' "c'p'f' "f' t'c'y' k'pi' "u' "u'j' c'm' d'g' "w'r' f' c'v'g'f' "h'q'o' " "v'o' g' "

"

q"vo g"cu"y g"Y qtmu"rtqi tgu0Vj g"Eqpvtcevqt"uj cni'gputg"cmi'r gtuqppgn'ctg"hmuf "lphqto gf"qp" guecr g" tqwgu"cpf "cuugo dnf "rqlpw"cpf "cp{"ej cpi gu"y gtgq0Hvgn'uqtci g"y kn'pqv"dg"r gto kwgf "kp"eqputwexqp" y qtn'ctgcu0 Eqpvtcevqtu"o c{"guvdrkuj "hvgn'uqtci g"vpmu"kp"ur gekkfg "ctgcu'ugv'cukf g"ht"y g" r wtr qug"cpf " crrtqxf" d{"y g"Rtqlgev'O cpci gt0' Uqtci g"vpmu"uj cni'dg"cf gs wvgn' dwpf gf "v"eqpvtqn' ur kni g0' Htg" gzvpi vkuj gtu'uj cni'dg'r tqxf gf "cpf "kpuvngf "kp"u'wkscdrg'pgctd{"hgevqkp0

"

J ki j n{"eqo dwukdr'qt"xqrvkg'o cvgtknu'uj cni'dg'uqtf gf "ugrctevgn' "htqo "qvj gt"o cvgtknu'cpf "cu'r tguetkdgf" d{" tgrxcpv' cwj qtkkgu" cpf " wpf gt" pq" ektewo ucpegu" y kj kp" dwkf kpi u" qt" utwewtgu" hqto kpi " rctv' qh' yj g" r gto cpgpv' Y qtmu0 Cni' uwej " o cvgtknu' uj cni' dg" r tqvgevgf " cpf " pqv' gzt qugf " v" qv' qv' gp" hco g" qh' qv' gt" ukwcvkpu'y j lej "eqwf "tguv/kp"u'htg'tkun0

"

P q"eqo dwukdr'o cvgtknu'uj cni'dg'hgevqf "kpkf g"qt"y kj kp"32"o gtu'q'qh'c"dwkf kpi "h'utwewtgu"htqo kpi "rctv' qh'yj g'r gto cpgpv'Y qtmu0 Y j gtg'wpku"j cxg"v"dg"vugf "kp"y gug'ektewo ucpegu" yj g{"uj cni'dg'eqputwexgf" qh' pqp/eqo dwukdr'o cvgtknu'cpf "j cxg"u"j crh'j qwt"htg"tckpi "kpkf g"v"qwu'kf g"cpf "qwu'kf g"v"kp"kf g0' P qp/" eqo dwukdr'htv'pwtg'uj cni'dg'vugf "y j gtg'r tcevecn0

"

Cni'go r qtct{"ceeqo o qf cvkqp"cpf "uqtgu'uj cni'dg'r tqxf gf "y kj "uo qng'f ggevqtu'cpf "htg'crcto u0' Uo qnki "

uj cni'dg'dcpgpf "kp"j ki j "tkun'ctgcu0

Gzr cpf gf "rqn'uf tggp"y kj "qt"y kj qw'hco g'tgvctf kpi "cfffkxg."rqn'yj gpg."ectfdqctf"cpf "jctfy qpf"uj cni' pqv"dg"vugf "cu'r tqvexqp"o cvgtknu0 Rn'y qpf "cpf "ej krdqctf"uj cni'qpn{"dg"vugf "cu'r tqvexqp"qp"hnqtu0 Xgtvecn'r tqvexqp"uj cni'dg"pqp/eqo dwukdr0F gdtku'pgvki "cpf "y gc'y gt"r tqvexqp"uj ggvki "uj cni'dg'htg" tgvctf cpv0

"

Y j gp" wulpi "ewwki "qt"y grf kpi "vtej gu"qt"qvj gt"gs vkr o gpv'y kj "cp"qr gp" hco g."yj g"Eqpvtcevqt"uj cni' r tqxf g"u'htg"gzvpi vkuj gt'emug'd{"cv'cni'vo gu0 Cni'hco o cdrg'o cvgtknu'uj cni'dg'ergetgf "htqo "ctgcu'qh'j qv' y qtmu"qt"y qtn'hgevqpu'r tkqt"v"y grf kpi "qt"qz{"li cu'dwtpki "qr gtcv'kpu0Cni'j qv'y qtmu'uj cni'egcug"j cni'cp" j qwt"dghtg"y g"gpf "qh'c"y qtn'uj kv"v"cmuy "hqt"y qtwi j "ej genki "hqt"uo qwf gtpki "o cvgtknu0 Y j gtg" crrtqr tlcg.'ctgcu'qh'j qv'y qtmu'ctg'v"dg'uqwgf "kp"y cvgt'dghgtg'yj g'uj kv'gpf u0

"

Cp"cf gs wvg"pwo dgt"qh'htg"gzvpi vkuj gtu'qh'v'r gu'wkvf "v"y j g'htg'tkni'cpf "y g"o cvgtknu'gzr qugf "uj cni'dg" r tqxf gf0Vj gug"uj cni'dg'r rcegf "kp"ceegukdr."y gm'o ctngf "hgevqpu"y tqwi j qw"y j g'lqd'ukg0Eqpvtcevqtu' r gtuqppgn'uj cni'dg'vclpgf "kp"y gk"vug0Gz'vpi vkuj gtu'uj cni'dg'ej gengf"o qvj n{"ht"ugtxleg" eqpf kkp"cpf " tgrcegf "qt'tgej cti gf .cu'cr rqr tlcg'chgt "vug0

"

Qpn{"cr rtqxf" eqpvclpgtu"uj cni'dg"vugf "hqt"uqtci g."vcpur qtv"cpf "fkr gpulpi "qh'hco o cdrg"uuducpegu0 Rqtvedrg"eqpvclpgtu"vugf "hqt"vcpur qtvki "qt"vcpuhgttkpi "i cuqkpg"qt"qvj gt" hco o cdrg" rks vku"uj cni'dg" cr rtqxf "uchgv' "ecpu0Hvgn'dwtpki "gpi kpu'uj cni'dg'uj w'qh'y j kg"dgkpi "tghwngf0Cf gs wvg"xgpkv'vqp"v" r tggpv'cp"ceewo wv'vqp"qh'hco o cdrg'xcr qwtu'uj cni'dg'r tqxf gf "y j gtg'uqk'gpv'qt"xqrvkg'engcpki "ci gpv' ctg'vug0

"

Hco o cdrgu'uj cni'pqv"dg"uqtf gf "wpf gt"qxgtj gcf "rkr gkpgu."ecdrg'v{"u."grgetkcn'y kgu'qt"uclty c{"u'vugf "hqt" go gti gpe{"gi tgu0Rcpv'uj cni'dg'uqtf gf "cpf "o kvgf "kp"u'v'qgo "cuuki pgf "hqt"y j g'r wtr qug0Vj ku'tqgo "uj cni'dg" ngr v'wpf gt'hqen'cpf "hg{0

"

Qkn{"y cuvg."tcu'cpf "qvj gt"uwej "eqo dwukdr'o cvgtknu'uj cni'dg'uqtf gf "kp"r tqr gt"o gvcn'eqpvclpgtu'y kj "ugr" hnqulpi "rkf u'cpf "tgo qxf"gxgt{"pki j v'v"u'c"uchg'ctgc"qt"qh'h'ukg0 Gxgt{"r tgecvkqp"uj cni'dg'vengp"v"r tggpv' ur qpvcpgv'u'eqo dwukdr0

"

"

Electrical Safety"

Cm'vgo r qtct { "grgvtlecn'lpuvncv'kpu."vqnu"cpf "gs vkr o gpv'uj cm'eqo r n' "y kj "ewttgpv'tgi wv'kpu" f gcr'kpi " y kj "qp/ukg"grgvtlecn'lpuvncv'kpu0'Vj g'Eqpv'tcevt'uj cm'gucdr'kuj "c'r gto k/vq/y qtn'l'u{ uvg o "hqt'y qtn'l'p"qt"kp" r tqzko k' "vq"gpgti k' gf "ekewku"qh'cp { "xqnci g0'Eqpv'tcevt'au'r gtuqppgr'uj cm'pqv'eqo o gpeg'y qtn'l'qp" uwej " ekewku"vpr'gu'c'r gto k'vq'y qtn'l'j cu'dggp"kuwgf"cpf "cf gs wcv'g"uchgv' "o gcuw'gu"j cxg'dggp"v'cngp" cpf "vj g" y qtn'l'qr gtcv'kq'j cu'dggp'tgx'kgy gf "cpf "cr r tqxgf "d { "vj g'Rtqlge'v'O cpci gt0' "

Qpr' "cwj qtk' gf "r gtuqppgr' uj cm' dg" cmqy gf " vq" y qtn'l' qt" tgr ckt" grgvtlecn'l' kpuvncv'kpu" cpf " gs vkr o gpv'0' Rqt'vdr'g"vqnu"cpf "gs vkr o gpv'uj cm'dg"462"xqnu"vpr'gu'q'j gty kug'ci tggf "d { "vj g'Rtqlge'v'O cpci gt0' "

Y j gp'r qt'vdr'g"qt"ugo k'r qt'vdr'g"gs vkr o gpv'qr gtcv'gu'cv'xqnci gu'kp"gzegu"qh'462"xqnu."vj g'uw' r n' "uj cm' dg" r tq'gevgf "d { "c"TGukf wcn'Ewt'gpv'F gxleg"TEF +t'gi ctf'ngu"qh'cp { "uwej "f gxleg"hwgf "vq"vj g'gs vkr o gpv'0' Vj g" TEF "o wuv'j cxg'c'tkr r kpi "ej ctcv'gt'ku'le'qh'52'o k'kco r u'cv'52'o k'kugeqpf u'o czko wo 0' "

Cm'ucv'le."grgvtlecn'l' "r qy gtgf "gs vkr o gpv'kpen'f kpi "o qv'qtu."t'cpuhqto gtu."i gpgtcv'qtu."y grf gtu"cpf "q'j gt" o cej kpgt { ."uj cm'dg"r tq' r gtn' "gct'j gf ."kpuw'v'gf ."cpf kq't'r tq'gevgf "d { "c"i tq'wpf "h'wv'k'p'gt'w'v'kq'p" f gxleg0' k'p" cf f k'kq'p."vj g' un'kp"o g'v'cn'l'dw'kf kpi u"cpf "t'ck'gtu" y kj "grgvtle"ugt'xleg"uj cm'dg" gct'j gf 0' O g'v'cn'l'ugr u."y j gp" wugf "uj cm'dg"ugev'w'gn' "h'zgf "vq"vj g't'ck'gt0' Nco r j q'f gtu"qp"hgux'q'p'rk'j v'kpi "uj cm'dg"o q'w'f gf "vq"hg'z'kdr'g"ecdr'g"cpf "dg"qh'vj g'uet'gy "kp"v' r g0'E'rk' "qp" i wctf u'uj cm'dg'hwgf "vq"ge'ej "rco r "v'pk0' "

Cm' wpi uvgp/j cm'j gp" rco r u'uj cm' dg" hwgf " y kj " c" i r'cuu" i wctf " vq" vj g' grgo gpv'0'Vj gug" rco r u' o wuv' dg" r gto cpgp'v' "h'zgf "cv'j k'j "h'gx'gr0' Grgvtlecn'l'gs vkr o gpv'uj cm'dg'r g'k'q'f lecn'l' "k'pur ge'vgf "cpf "t'gr ckt'gf "cu'p'gegu'ct { "d { "eqo r g'v'gpv'r gtuqpu0' "

Cp { " y qtn'l' kp" grgvtlecn'l' gs vkr o gpv' cpf " u' uvg o u'uj cm' dg" o cf g' uch'g" vj tq'w'j " n'qen'kpi ." vci i kpi ." cpf kq't" ku'qr'v'kq'p" qh' vj g' gs vkr o gpv' dgh'qt'g" y qtn'l' eqo o g'pegu0'Rt'kq't" vq" vj g' u'ct'v' qh' vj g' y qtn'l' vj g' gs vkr o gpv' qt" u' uvg o u'uj cm'dg'v'gugf "vq"gp'uw'g'v'j cv'v'j g { "j cxg'dggp'r tq' r gtn' "f g'gp'gti kugf "cpf "ku'qr'v'gf 0' "

Gr'gvtlecn'l'gr ckt'y qtn'l'qp"gp'gti k' gf "u' uvg o u'uj cm'dg'cx'q'kf gf "y j gp'gx'gt'r qu'ukdr'g0' Gr'gvtlecn'l'v'q'wdr'g'uj q'q'v'kpi "uj cm'dg'eq'pf w'ev'gf "q'pn' "ch'gt'i g'v'kpi "y tkw'gp"cr r tq'x'cn'l'q'h'v'j g'Rtqlge'v'O cpci gt0' "

W'pcw'j qtk' gf "r gtuqppgr' uj cm' pqv' gp'vt" g'p'en'quw't'gu" qt" ct'gc" eq'p'v'ck'p'kpi " j k'j " xqnci g" gs vkr o gpv' uwej " cu' uy ke'j i gct."t'cpuhqto gtu'qt'uw'duc'v'kpu0' "

Oxygen/Acetylene/Fuel Gases/Cartridge Tools"

Eqo r tgu'gf "qz { i gp"uj cm'pgx'gt"dg" wugf "kp"vj g'r n'ceg"qh'eqo r tgu'gf "ck0'H'rc'uj /dcen'l'*Ur ct+"ctt'gu'qtu" uj cm' dg"hwgf "vq"cm'i cu'gs vkr o gpv'0'N'ls w'kf "r g'v'qr'gwo "I cu"*NRI +e { r'k'pf gtu"uj cm'pqv'dg"u'qt'gf "qt"r'gh"kp" ct'gcu" dgm'y "i tq'wpf "h'x'gn'l'q'x'gtp'k'j v0'E { r'k'pf gtu'o wuv'dg"u'qt'gf "w'r t'k'j v0' "

Vj g"s wcp'v'k { " qh' qz { i gp."ceg'v' ng'p" cpf " NRI " e { r'k'pf gtu" cv' vj g" r q'lpv' qh' y qtn'l' uj cm' dg" t'gu'v'levgf " vq" c" o czko wo "qh'qp'g" f c { au'uw' r n' 0'E { r'k'pf gtu"uj cm' dg"n'gr v'kp" w'r t'k'j v' x'gt'v'lecn'l'tcen'l'eq'p'v'ck'p'gtu"qt"dg"uch'gn' " uge'w'gf "vq"c"x'gt'v'lecn'l'w'r r qt'v0' "

"

Ectvlf i g'vqnu'uj cml'dg'qhl'y g'hqy 'xgmekv\ 'v\ r g0Qr gtcvtu'o wuv'j cxg'tgegkxgf 'cf gs wcvg'tcklpi 'lp'y g'uchg' wug'cpf 'qr gtcvqp'qhl'y g'vqnl'vq'dg'wugf 0'

"

Scaffolding/Temporary Works"

P q"cnwo kpkwo "wdg"uj cml'dg'wugf ."gzeqr v'hqt'r tqr tkgvct { "o qdlrg"vqy gtu."wprguu"qy gty kug"ci tggf "y kj "y g" Rtqlgev'O cpci gt0'

"

F tcy kpi u'cpf "ecrewvqp'u'uj cml'dg'wdo kvgf "vq'y g'Rtqlgev'O cpci gt."r tlqt"vq"eqo o gpego gpv'qh'y qtnl'qp" yj g'ukg."hqt"cmi'Vgo r qtct { "Y qtmu."kpenw'kpi "gzeccvqp'u."hruy qtm"vqy gt"etcpgu."j qkxu."ugtlegu"cpf " uechqrf kpi 0'F guki pu'uj cml'qphqto "vq'lpvgtpcvqp'cnl'wcpf ctf u0' Vj g'Rtqlgev'O cpci gt"y km'pqv'cr r tqxg"Vgo r qtct { "Y qtnl'f guki pu'dw'yj g"Eqpvtcevqt"uj cml'veng"ceeqwpv'qh' cp { 'eqo o gpw'qp'wvej 'f guki pu'o cf g'd { 'y g'Rtqlgev'O cpci gt0'

"

Vj g'Eqpvtcevqt"uj cml'pur gev'cpf "cr r tqxg"cmi'Vgo r qtct { "Y qtmu"chgt"gt gev'qp"cpf "dghqtg"ceegu."hqc'f kpi " qt" wug'ku'cmqy gf 0'Ego r rvgf "cpf "cr r tqxg"Vgo r qtct { "Y qtmu'uj cml'dg'ci i gf "y kj "c'uech'vci "qt'uko kct"uchgv { " u { ugo "cpf "y g'Uchg"Utwewtg"lpugt'f kur n { gf 0'Hqt"uechqrf kpi ."qpg'vci "uj cml'dg'f kur n { gf "gxgt { " 54'o 4"qh' hreg"ctgc0' C"egp'tcn'tgeqtf "u { ugo "uj cml'dg"nqr v'qp"cmi'Vgo r qtct { "Y qtn0' Vgo r qtct { "Y qtmu" uj cml'dg" kpur gev'f "y ggm { 'cpf "uko kctn { 'tgeqtf gf 0'

"

Cml'o qdlrg'uechqrf "vqy gtu'uj cml'dg'gt gev'f "lp'ceeqtf cpeg'y kj "y g'o cpw'cewtgt'at'lpustwvqp'u'cpf "c'eqr { " qh' yj gug"uj cml'dg'wdo kvgf "vq'y g'Rtqlgev'O cpci gt"r tlqt"vq"cp { "wug"qp"ukg0'C f f kkp'cm { ."cmi'vqy gtu'uj cml' dg" gt gev'f "eqo r rvg'y kj "ceegu'hcf f gt."uchgv { 'tcku'cpf "hlemldqctf u'y j cvxgt'yj g'j gli j v0'

"

Vj g"Eqpvtcevqt" uj cml' tgr ckt" qt" tgr mæg." lo o gf kvgn { ." cp { " uechqrf ." kpenw'kpi " ceeguqtkgu." f co ci gf " qt" y gcngpgf 'htqo "cp { 'ecwug0'

"

Vj g'Eqpvtcevqt"uj cml'gputg'yj cv'cp { 'unkr r gt { 'eqpf kkp'u'qp'uechqrf u'ctg'grko kpcvgf "cu'uqpp"cu'r quikdrg" chgt" yj g { 'qewt0'

"

Cml'uechqrf u'wugf "hqt"uqtkpi "o cvgtkcu."hqt"dtlenl'qt"dmjenl'nc { kpi ."hqt"ceegu"vq"htqo y qtnl'qt"ht"cp { "qy gt" r wtr qug'y j gtg'o cvgtkcu'o c { "dg"ceekf gpvcml "hcm'uj cml'dg'r tqxkf gf "y kj "y ktg'o guj 'i wctf u'qh'c" uwdwcpv'cn' o cvgtkcn'lp'cf f kkp'vq'hlemldqctf u0'

"

Use of Ladders"

O cpw'cewtgf "hcf fgtu'uj cml'o gg'v'y g'cr r nlecdrg'uchgv { "eqf gu'hqt'y qqf "qt"o gvcn'hcf fgtu0'O gvcn'hcf fgtu"uj cml' pqv'dg'wugf "y j gtg'yj gtg'ku"cp { "hng'kj qqf "qh'eqpcev'y kj "grgevtle"ecdrgu"cpf "gs wkr o gpv0'Cml'o gvcn' hcf fgtu" uj cml'dg'engctn { 'o ctngf <0Ecw'kqp"o'F q'pqv'wug'ctqwpf "grgevtlecn'gs wkr o gpv0'0'ld"o cf g'hcf fgtu" uj cml'pqv'dg" r gto kvgf 0'

"

Gzvpukqp"qt'utcki j v'hcf fgtu'uj cml'dg'gs wkr r gf "y kj "pqp/unkf "uchgv { 'hggv"cpf "uj cml'dg'pq"o qtg'yj cp"34"o " lp" j gli j v0'Vj g'o czko wo "j gli j v'qh'c'vgr "hcf fgt"uj cml'dg'4"o 0Ncf fgtu'uj cml'pqv'dg'wugf "cu'r nvhqto u'qt"uechqrf " r ncpm0'

"

Ncf fgtu'twpi u'cpf "vgr u'uj cml'dg'hgr v'engcp"cpf "htgg'qhl' tgcug'cpf "qkt0'

.

"

Gzvpuakp"cpf"utcki j v'ncf fgtu'uj cni'dg'vkgf "qhi'cv'yj g'vqr "cpf kq "dqwqo "y j gp'kp'wug0Qpn{ "qpg'r gtuqp"uj cni'dg'cmqy gf 'kp'c'ncf fgt'cvc'ko g0

"

F ghgevkxg"ncf fgt"uj cni'dg'vngp"qww'qh'ugtxleg"cpf "pqv'wugf 0 Ncf fgtu'uj cni'pqv'dg'r ckpvgf "cpf "uj cni'dg'kpur gevfg'hqf'f ghgeu'r tkqt'vq'wug0

"

Elevated Work"

Vj g'Eqptcevt"uj cni'r tqxkf g'cni'r gtuappgn"y j kg'y qtnkpi "cv'cp'grgxcvgf'r qukkqp."y kj "cf gs wcvg"r tqvgevqp"ltqo 'hcm0F gvcku'qhi'wej 'r tqvgevqp"uj cni'dg'uwo kvgf "v'yj g'Rtqlgev0 cpci gt0

Vj g'Eqptcevt"uj cni'ectt{ "qww'f chq' "kpur gevqp"qhi'cni'grgxcvgf "y qtni'r ncvtqto u0 F ghgew'uj cni'dg'eqtgevgf "r tkqt'vq'wug0

"

705.7.1 Roofing and Sheet Metal Laying"

C"O gj qf "Ucvgo gpv'f gvckkpi "y j g'r tqegf wtgu"vq"dg"cf qr vgf "uj cni'dg'uwo kvgf "vq"cpf "ci tggf "y kj "y j g'Rtqlgev0 cpci gt'r tkqt'vq'eqo o gpego gpv'qh'y qtnkqp'yj g'uksg0

O qdkrg"grgxcvpi "y qtni'r ncvtqto u"qt"y j g'gs wxcrgpv"uj cni'dg'wugf "vq"kpucmi'tqqhpi "cpf "uj ggvo cvgtkcu"y j gtgxt'r tcevecdrg'cpf "c'uwkcdrg'dcug'ku'cxckcdrg0

705.7.2 Erection of Structures"

C"O gj qf "Ucvgo gpv'f gvckkpi "y j g'r tqegf wtgu"vq"dg"cf qr vgf "uj cni'dg'uwo kvgf "vq"cpf "ci tggf "y kj "y j g'Rtqlgev0 cpci gt'r tkqt'vq'eqo o gpego gpv'qh'y qtnkqp'yj g'uksg0

Uchgv"j ctpgu'cpf "hkgu'uj cni'dg'r tqxkf gf "d{ "y j g'Eqptcevt"hqf'wug'd{ "y j g'gtgevqp"r gtuappgn'cpf "y qtp"cv'cni'ko gu0

O qdkrg"grgxcvpi "y qtni'r ncvtqto u"qt"y j g'gs wxcrgpv"uj cni'dg'wugf "vq"gtgev'utwewtgu"y j gtgxt'r tcevecdrg'cpf "c'uwkcdrg'dcug'ku'cxckcdrg0

"

705.7.3 Mobile Elevating Work Platforms"

Qr gtevtu"uj cni'dg'vckpgf "kp'y j g'uchg'wug'qh'wej "r ncvtqto u'cpf "j qrf "c'ewtgpv'Egtvhecvg"qh'Ego r gvgpeg0

"

705.7.4 Hoists

C"eqr { "qh'yj g'ewtgpv'Vguv'Egtvhecvg'uj cni'dg'uwo kvgf "vq'yj g'Rtqlgev0 cpci gt'dghqtg"cp{ "j qkv'r gtuappgn'qt"o cvgtkcu'ku'dtqwi j v'lpvq"qr gtcvqp"qp"y j g'uksg0Y j gtg'yj g'tcpi g"qh'vtxgri'ku'kpetgcugf "qt'tgf wegf "c"eqr { "qh'yj g'tgxkgf "Vguv'Egtvhecvg'uj cni'dg'uwo kvgf0

Gcej "ncpf kpi "i cvg'uj cni'dg'hkvf "y kj "c"o gej cplecn'qt"grgextecn'kpvgtmen'vq"r tggp'v'o qxgo gpv'qh'yj g'j qkv'y j gp'cp{ 'wej 'i cvgu'ku'kp'yj g'qr gp'r qukkqp0

Uchgv"j ctpgu'o wuv'dg"y qtp"cpf "wugf "d{ "r gtuappgn'gtgevpi ."cngtkpi "cpf "f luo cpvki "j qkvu0

"

705.7.5 Suspended Cradles"

Uwur gpf gf "etcf rgu'uj cni'dg'kpucngf ."o qxgf "cpf "f luo cpvrf "d{ "c'ur gekckuv'eqptcevt0

Uwur gpf gf "etcf rgu'uj cni'eqo r n{ "y kj "hjecritgi wcvkpu0

Cni'r qy gtgf "uwur gpf gf "etcf rgu'uj cni'keqtr qtcvg'kpf gr gpf gpv'uchgv' "hkgu"vq"qxgtur ggf "dtenkpi "f gxlegu"cpf "

"

lpf gr gpf gpv' uwur gpukqp" rkpgu" hqt" r gtuppcn' uchgv' "j ctpguu" cwcej o gpv'

"

Use of Temporary Equipment

Vj g'uchg'f guki p'qh'cp{ 'rlgeg'qh'gs wkr o gpv'uj cmlpqv'dg'gzeggf gf. 'pqt'uj cml'y g'gs wkr o gpv'dg'o qf hkgf 'kp" cp{ " o cpggt' y' cv'cngtu' y' g' qtki kpcn' hcevqt' qh' uchgv' "qt' ecr cekf 00 qdkrg" gs wkr o gpv'uj cml'dg' hkwgf "y kj " uwkcdrg" crcto "cpf" b' qv'kp' ugpu'ki 'f gxlegu. 'kpen'f lpi 'dcem' wr 'crcto . 'y j gp' tgs wkt gf 0' Vj g'Eqpvtcevqt' 'uj cml' gpuwtg' y' cv' y' g' kpuv'ncv'kp' cpf "wug" qh' gs wkr o gpv'ctg' kp" ceeqtf cpeg" y' kj " y' g' uchgv' "twrgu" cpf "tgeqo o gpf cv'kpu" rckf " f qy p' d{ " y' g' o cpw' hcewtgt. "vcn'kpi "kp'v' ceeqwpv' y' g' qv' gt "kp'v'ncv'kpu" cttgcf { "kp" r rceg'qt' v' dg' kp'v'ncv'gf 'kp' y' g' hwwt g'0

"

Vj g'eqpvtcevqt' 'uj cml'kpur gev'Gs wkr o gpv'r tkqt' v' ku'wug'qp' y' g' Y' qtmu' cpf "r g' tkqf kcmf " y' gtgchgt' v' g'puwtg' "kv' ku' kp' uchg' y' qtnkpi " qtf gt 0' Ur gekn' cwgp'v'kp' u'j cml' dg' i' kxgp' v' uwe'j " kgo u' cu' ecdrgu. " j qugu. " i' wctf u. " dqgu u. " dmjenu. " j qqmu' cpf " uchgv' " f gxlegu'0' Gs wkr o gpv' hqwpf " v' dg' f ghg'v'xg' u'j cml'pqv' dg' wugf " cpf " ko o gf kcv'ngf " tgo qxgf 'ltqo 'ugt'xlegu. 'cpf " c' y' ctpkpi 'vci' cwcej gf 0'

"

P cwt'cn'cpf "u' py' g'ke' hdtg' tqr g' b' cf g' qh' b' cvgt' kcn' uwe'j "cu' b' cpl'k. 'p{ n'p. 'r qn' g'ugt. 'qt' r' qn' r' tqr { n'pg' u'j cml'pqv' dg' wugf "cu' urkpi u'0' Qpn' " v'cl'p'gf. " s'w'cl'k'gf "cpf "cwj' qtk' gf "r gtuppgn' u'j cml'qr gtcv'g" gs wkr o gpv'0' Cml' f' tkxgtu' cpf "qr gtcv'qtu' u'j cml'j qrf "c" ewt'gpv' Egt' v' h'ecv'g' qh' V'cl'p'kpi "Ce'j kxgo gpv' hqt' y' g' gs wkr o gpv' dg'kpi "wugf 0' C" uchgv' "qdugt'xgt' u'j cml' dg' cu'ki pgf "v' y' cve'j "o qxgo gpv' qh' j' gex{ "o qdkrg" gs wkr o gpv' y' j' gtg' j' c' ctf u' o c{ " gzku' v' q' v' gt "r gtuppgn' ltqo " y' g' o qxgo gpv' kh' uwe'j "gs wkr o gpv' qt' y' j' gtg' gs wkr o gpv' eqw'f " j' k' qxgtj gcf " rkpgu' qt' uwewt'gu'0' Vj g' qdugt'xgt' u'j cml' cnu'q' gpuwtg' y' cv' r gqr ng' ctg' ngr' v' engct' qh' o qdkrg" gs wkr o gpv' cpf " uwur gpf gf "v' qnu'0'

"

Y j gp' o qdkrg' qt' j' gex{ "gs wkr o gpv' ku' v' t'cxgnkpi "qp'v' c' r' wdrke' y' qtqwi j' h'etg' qt' tqcf y' c{. "c" h'ci o cp' u'j cml' gpuwtg' y' cv' v'cl'k'le" j' cu' dggp' u'qrr gf "r tkqt' v' uwe'j "gs wkr o gpv' r' t'qeggf kpi 0' Y j krg' y' g' o qdkrg' qt' j' gex{ " gs wkr o gpv' ku' v' t'cxgnkpi "qp' c' r' wdrke' tqcf y' c{. "c' v'cl'k'kpi "g'ueqt' v' x'gj kerg' y' kj "c' u'ki p' y' ctpkpi "qh' c' u'qy / o qxkpi " x'gj kerg' y' cv' ku' f' cpi g' t'qwu' v' q' r' cuu' u'j cml' dg' r' t'qxf gf 0'

Cranes:

Vj g'Eqpvtcevqt' u'j cml' i' kxg' c' o' k'p'lo wo "qh'6: "j qwtu' b'pqv'k'eg" v' y' g' Rtqlgev'0' cpci gt' r' tkqt' v' q' dtkpi kpi "c' etcp'g" qp' uk'g'0'

"

P q' etcp'gu' u'j cml' dg' gt' gev'f 'kp' y' g' uk'g' y' kj qw' v' g' r' tkqt' cr' r' t'qxcn' qh' y' g' Rtqlgev'0' cpci gt'0' Vj g' Rtqlgev'0' cpci gt' o c{ "f' k' gev' y' g' Eqpvtcevqt' cu' v' q' m'ecv'k'qp' y' j' gtg' etcp'gu' o c{ "pqv' dg' m'ecv'gf 0' Vj g' Eqpvtcevqt' u'j cml' v'cng' uwe'j " f' k' gev'k'pu' kp'v' ceeqwpv' y' j' gp' u'wdo k'v'kpi "j' ku' r' t'qr qucu' hqt' etcp'g' m'ecv'k'qp' r' q'kp' u. "dcug' h'q'v'kpi u. "r' k'cn' wr " r' q'kp' u' cpf "uy' kpi "tcf k'wu'0' Ego r' k'cpeg' y' kj "cp{ "uwe'j "f' k' gev'k'qp' u'j cml'pqv' gp'v'k'rg' y' g' Eqpvtcevqt' v' q' cp{ "gz' v'gpukqp' qh' y' g' Rgt'k'f "qh' Ego r' ng'v'k'p' qt' v' q' cp{ "l'petg'cug' qh' y' g' Eqpvtcev' Rt'leg'0'

"

Uchgv' "j ctpguu" u'j cml' dg' y' qtp' cpf "wugf" cv' cml' v'ko gu' d{ "r gtuppgn' gpi ci gf "qp" y' g' gt' gev'k'qp. "cngt'cv'k'pu" cpf "f' kuo cpv'kpi "qh' v'qy gt' etcp'gu'0'

"

Vj g'Eqpvtcevqt' u'j cml' r' t'qxf g' c' eqr { "qh' y' g' ewt'gpv' Vgu' Egt' v' h'ecv'g' "ugg' "Uwd/Encwug'924+" v' y' g' Rtqlgev'0' cpci gt' dg' h'qtg' cp{ "etcp'g' "y' gt' qt' o qdkrg' +ku' dtqwi j' v' kp'v' q' r' gtcv'k'qp' qp" y' g' Uk'g'0'

"

Cml' h'k'kpi "vcem'g' o wuv' j' qrf "c" ewt'gpv' Vgu' Egt' v' h'ecv'g'0' Cml' h'k'kpi "vcem'g' o wuv' dg' y' qtqwi j' n{ "gz'co k'p'gf "gxgt { "8' b' qpy' u' cpf "cp' k'pur gev'k'qp' t'gr qt' v' t'cl'ugf 0'

"

"

Cmldtqwy gd'urpi u'uj cmldg'f gwtq{ gf 'cpf 'tgr nceg '8'o qpvj u'chgt'hkuw'wug0

"

Cmletcpg'f tkgutlqr gtcvtu'uj cm'j qrf 'c'Egtv'k'ecvg'qh'Vtclpki 'Cej lxxgo gpv'ht' 'y g'ercu'q'hetcpg'qr gtcvgf 0

"

Cmldcpmo cp'urpi gtu'uj cm'j qrf 'c'Vtclpki 'Egtv'k'ecvg'htqo 'c'tgeqi pk gf 'vclpki 'ci gpe{ 0

"

Vj g'o czko wo 'y ggm{ 'y qtnkpi 'j qwtu'q'h'c'etcp'f tkg'qt'dcpmo cp'uj cmldg'tgwtlevf 'v'82'j qwtu0

"

Wpf gt'pq'ekewo ucpogu'uj cm'c'etcp'qt'rqcf'eqo g'y kj kp'6'o 'qh'cp{ ' ' gpgti k gf ' ' qxgtj gcf 'r qy gt'rkpg'qt' qvj gt'etkscrl'utvewt'g0

"

Locking-out, Isolating and Tagging Equipment."

Gs vkr o gpv' y cv'eqwf "rtgugpv" c" j c| ctf "vq" r gtuqppgn'kh'ceekf gpvcn{ "cevkxcvg" f wtkpi "y g" r gthqto cpeg" qh' kpucnrcvqp."tgr ckt."cngtcvqp."ergcpkpi ."qt"kpur gevqp"y qtn'uj cmldg'o cf g"kpqr gtdrg"cpf "htgg" qh'wqtgf " gpgti { "cpf kqt'o cvgtkcn'r tkqt'vq'y g'uctv'q'h'y qtn0Uvej 'gs vkr o gpv'uj cm'kpenw'f g'ekewk'dtgcngtu."eqo r tguqtu." eqpxg{ qtu."grxcvqtu."o cej kpg'vqqu."r kr gkpgu."r wo r u.'xcnrgu."cpf 'uko krc'gs vkr o gpv0

"

Y j gtg'gs vkr o gpv'ku'uwldge'v'v'wpzr gev'f "gzvgtprcl'r j { ulecl'o qxgo gpv'uwej "cu'tqcvkpi ."wtpkpi ."ftqr r kpi ." hcnkpi ."tqnkpi ."urk'kpi ."gve0"o gej cplecl'cpf kqt"utvewtcl'eqpwtcl'p'u'uj cmldg"cr r rkcf "vq" r txxgpv' uvej " o qxgo gpv0

"

Gs vkr o gpv' y j lej "j cu'dggp"nqngf/qw."ko o qdkk gf ."qt"vcnrgp"qww'qh'ugtxlegu"ht"tgr ckt"qt"dgecwug"qh'c" r qvqpvkcm{ "j c| ctf qwu"eqpf kkp"uj cmldg"cr r tqr tlcvg{ "ci i gf "kpf levkpi "y g"tgcuqp" k"j cu'dggp"kuqrcvgf " cpf kqt'vcnrgp"qww'qh'ugtxleg0

"

Y j gtg"uchgv{ "rqenu"ctg"wgf "hqt"rqen'kpi "qww'qt"kuqrcvki "gs vkr o gpv."y g"rqen'uj cmldg"ur gekcm{ "kf gpv'rkcf " cpf "gcucl' tgeqi pk gf "cu'c'uchgv{ "rqen0

Installation of Temporary or Permanent Equipment"

F wtkpi "kpucnrcvqp"cpf "vukpi "y g"Eqptcevqt'ur gekcku"Rtqlgev'O cpci gt"uj cmldg"kp"cwgpfcpeg0 Cm' eqptqri0 gej cplko "r cpgn'cpf 'y k'kpi 'Fki tco u'uj cmldg'cxckrdrg'cpf 'r tlv'kf 'kp'Gpi rkuj 0

"

Laser Survey Instruments"

F gvcnu'qh'yj g'v{ r gu'cpf 'wug'qh'rcugt'kpwtwo gpw'uj cmldg'uwdo kwgf "cpf "ci tggf 'y kj 'y g'Rtqlgev'O cpci gt0

"

Working in Confined Spaces"

Eqphkpgf "ur cegu."kpenw'kpi 'vcpmu.'xguugnu."eqpvclpgtu."r ku."dlpu."xcwmu."wppgm."uj chu."t'gpej gu."xgpv'rcvqp" f vewu."qt"qj gt"gpem'utgu"y j gtg"npqy p"qt"r qvqpvkcl'j c| ctf u'o c{ "gzku"uj cm'pqv'dg"gpvtgf " y kj qww'r tkqt" kpur gevqp'd{ "cpf "cwj qtk'cvqp'htqo "y g'Ukg'Uchgv{ 'Q'htegt'cpf 'y g'kuwcepg'q'h'c'J c| ctf qwu"Y qtn'Rgto k0

"

Rtkqt"vq"gpvtkpi "y g"eqphkpgf "ur ceg."y j g"ctgc"uj cmldg"eqo r rvgn{ "kuqrcvgf "vq" r txxgpv' y g"gpvt{ "qh'cp{ " j c| ctf qwu'uwducegu"qt"o cvgtkcn'y j lej "eqwf "ecwug"cp"qz{ i gp'f gh'ekgpv'cvo qur j gtg0 Cm'gs vkr o gpv' y cv'

"

eqwrf "dgeo g"gpsti k gf "qt"o qdrlk gf "uj cml'dg"r j {ulecm{ "tguclpof "cpf "ci i gf O' Cml'npgu"i qlpi "lpv" y g"
eqphkpgf "ur ceg'uj cml'dg'kuqrcvgf "cpf kq "drcpngf O'
"

Rgtuqppgr'y qtnkpi "lp" c"eqphkpgf "ur ceg"y j gtg"go gti gpe{ "gucr g"qt "tguewg"eqwrf "dg" f khlwv "uj cml'y gct "c"
uchgv "j ctpguu" cwcej gf "vq" c" rllhklpg O' C" s wclhgf "cwpgf cpv'u+ "vclpof "cpf "npqy rgi i gclrg" kp "lqd/tgrvgt"
go gti gpe{ "rtqegf vtu "uj cml'dg'rtgugpv'cv'cm'ko gu'y j krg'rtuqpu'ctg'y qtnkpi "y kj kp'y g'eqphkpgf "ur ceg O' Vj g"
cwpgf cpv'uj cml'dg'ecr clrg"qh'ghgevpki "c" tguewg "j cxg" pgeguuct { "tguewg"gs wkr o gpv'ko o gf lcvn{ "cxclrdrg."
cpf "dg"gs wkr r gf "y kj "cv'gcu'v'j g'uco g'r tqvge'v'g'gs wkr o gpv'cu'v'j g'r tuqp"o cmlpi "gpt { O'
"

Cml'gs wkr o gpv'vq "dg" wugf "lp" c"eqphkpgf "ur ceg"uj cml'dg"lpur gev'gf "vq" f gvgto kpg"ku" ceegr vclrlk{ "hqt" wug O'
Y j gtg'c'j c| ctf "ltqo "grgevtlek{ "o c { "gzkv"gs wkr o gpv'wklk gf "uj cml'dg'qhlrcy "xqnci g'v' r g O' Vj g" cvo qur j gtg"
y kj kp'y g'eqphkpgf "ur ceg'uj cml'dg'vugf "vq" f gvgto kpg'khl'ku'uchg'vq" gpvt O' Ceegr vclrg' hko ku" ctg<
"

qz { i gp< 3; O' "hpy gt. '44' 'j k j gt=" "
hco o clrg' i cu' pqv'vq"gzeggf '32' "qhl'hpy gt "gzi rqukqp' hko k=" "
vqzle'eqpco kpcpvu' pqv'vq"gzeggf "v'j g'r gto kuclrg'gzi rquw'g' hko k O'
"

Uwdugs wgpv'vugkpi "uj cml'dg" f qpg" chgt "gcej "lpvgtt w'vqp" cpf "dghqtg" t/g'pvgtkpi "v'j g'eqphkpgf "ur ceg." cu" y gml'
cu'cv'lpvgtxcni'pqv'gzeggf kpi "6" j qwtu O'Eqpvkpwqu"o qpkqtkpi "ku" r tghgtclrg" cpf "o c { "dg" pgeguuct { "lp" egtvclp"
ukwcvkpu O'
"

Cf gs wcv'xgpkv'vqp'uj cml'dg'r tqxkf gf "vq" gpwtg'v'j g'cvo qur j gtg'ku' o clpckpgf "y kj kp" ceegr vclrg' hko ku O'

Demolition"

C" f gclkgf "O gy qf "Ucvgo gpv' f gclkpi "v'j g' f go qrlkqp" r tqegf vtu hgej pks wgu'vq "dg" wugf "uj cml'dg" uwo kwgf "
vq" cpf "crr tqxgf "d { "v'j g' Rtqlgev' O cpci gt' r tkqt "vq" eqo o gpego gpv'qhl'y qtnkqp' lkg O'
"

Vj g" O gy qf "Ucvgo gpv" o wuv' lpenf g' hml' f gclku' qh' o gcwtgu" vq "dg" vcnrp" vq" gpwtg" v'j cv' v'j gtg" ctg" pq"
r gtuqpu" tgo clkpi " lp" v'j g" dwkf kpi lwtewtg" cpf " vq" f kucpeg" o go dgtu" qh' v'j g" r wdike" cpf " Eqpv'cev'qtai"
r gtuqppgrltqo "v'j g' dwkf kpi lwtewtg' r tkqt "vq" f go qrlkqp O'
"

Use of Explosives"

Vj g"Eqpv'cev'qt "uj cml'pqv' wug" gzi rqukxu" y kj qw' v'j g" y tkv'p" r gto kuclqp" ltqo " v'j g" Rtqlgev' O cpci gt" cpf "
tgrxcpv'cwj qtkkgu O'
"

Vj g"Eqpv'cev'qt "uj cml'qdugtxg" cml'tgi wcv'kpu" tgi ctf kpi "r tqr gt" r wtej culpi ."vcpur qtvc'kqp." uqtc i g." j cpf r kpi "
cpf "wug'qh'gzi rqukxu O'
"

Vj g" Eqpv'cev'qt "uj cml' gpwtg" v'j cv' gzi rqukxu" cpf " f gvpcev'qtu" ctg" uqtf gf " lp" ugr ctevg" ur gekn' dwkf kpi O'
Vj gug'ugewt gf "dwkf kpi u'lj cml'dg'eqpv'wv'gf ."hgevgf "cpf "ergctn{ "o ctngf "lp" Cpi r k j <
"

"

"DANGER – EXPLOSIVES"

Cm'cu'cr r t q x g f " d { " y j g " R t q l g e v " O c p c i g t " c p f " t g r x c p v " c w j q t k l g u " V j g " E q p t c e v q t " u j c m l' g p u w t g " y j c v' c m l' r q u i k d i g " r t g e c w k q p u " c t g " c n g p " c i c k p u v " c e e k f g p v c n l' h t g " q t " g z r n q u k q p . " c p f " g p u w t g " y j c v' g z r n q u k x g u " c p f " f g v p c v q t u " c t g " n g r v' l p " c " r t q r g t " c p f " u c h g " e q p f k l q p " V j g " e q p t c e v q t " u j c m l' g p u w t g " y j c v' g z r n q u k x g u " c p f " f g v p c v q t u " c t g " c n y c { u " t c p u r q t v g f " l p " u g r c t c v g " x g j k e n g u " c p f " h g r v' c r c t v' w p k n l' y j g " h u v' r q u i k d i g " o q o g p v' c p f " y j c v' o g v c n l e " v q n u " c t g " p q v' w u g f " v q " q r g p " d q z g u " q h' g z r n q u k x g u " q t " f g v p c v q t u " O "

Blasting Procedure < " y j g " e q p t c e v q t " u j c m l' e c t t { " q w' d r u k p i " q r g t c v k q p u " l p " c " o c p p g t " y j c v' y k n i p q v' g p f c p i g t " y j g " u c h g v' " q h' r g t u q p u " q t " r t q r g t v' O " V j g " E q p t c e v q t " u j c m l' c n p i " y k j " q y j g t " p g e g u c t { " r t g e c w k q p u < "

e n g t " c m l' r g t u q p u " h t q o " d w k f l p i " c p f " y j g " c t g c " c h g e v g f " d { " y j g " d r u k p i " O " C m l' u e j " r g t u q p u " u j c m l' d g " i k x g p " c f g s w c v g " p q v' l e g " q h' y j g " c e w c n l' k o g " c p f " f c v g " q h' d r u k p i = "

g p u w t g " y j c v' r q r l e g " c p f " q y j g t " n e c n l' c w j q t k l g u " c t g " n g r v' h w n l' " l p h q t o g f . " l p " c f x c p e g . " q h' y j g " d r u k p i " r t q i t c o o g " l u " y j c v' y j g { " o c { " d g " r t g u g p v' y j g p " d r u k p i " c n g u' r n e g " k h' y j g { " l u " t g s w k t g = "

g t g e v' y c t p l p i " p q v' l e g u " c t q w p f " y j g " c t g c " c h g e v g f " y j c v' d r u k p i " q r g t c v k q p " c t g " l p " r t q i t g u u = "

e c t t { " q w " c " y j q t q w i j " u g c t e j " q h' d w k f l p i u " c p f " y j g " c t g c " c h g e v g f " r t k q t " v q " d r u k p i = "

g p u w t g " y j c v' d r u k p i " k u " q p n l' " e c t t l g f " q w " d { " g z r g t k g p e g f " u j q v' h t g t u " O " R t k o l p i . " e j c t i l p i . " u w g o o l p i " c p f " u j q v' h t l p i " u j c m l' d g " e c t t l g f " q w " y k j " i t g c v g u " t g i c t f " h q t " u c h g v' " c p f " l p " u t l e v " c e e q t f c p e g " y k j " y j g " t w g u " c p f " t g i w r v k q p u " q h' y j g " t g r x c p v " c w j q t k l g u " O "

g p u w t g " y j c v' g z r n q u k x g " e j c t i g u " c t g " p q v' g z e g u k x g . " e j c t i g f " d q t g j q r g u " c t g " r t q r g t n l' " r t q v g e v g f " c p f " r t q r g t " r t g e c w k q p u " c t g " c n g p " h q t " y j g " u c h g v' " q h' r g t u q p u " c p f " r t q r g t v' O "

V j g " E q p t c e v q t " u j c m l' o c k p v c l p " c p " w r / v q / f c v g " l p x g p v q t { " q h' c m l' g z r n q u k x g u " c p f " g z r n q u k x g " f g x l e g u " c p f " u j c m l' u w d o k' c " o q p y n l' " t g r q t v' v q " y j g " R t q l g e v " O c p c i g t . " f g v c k l p i " y j g " w u g " q h' c m l' g z r n q u k x g u " d { " f c v g " c p f " h q e c v k p O "

Excavation and Trenching"

C p " g z e c x c v k q p " r g t o k' u k i p g f " d { " y j g " R t q l g e v " O c p c i g t " o w u v' d g " k u w g f " d g h q t g " g z e c x c v k q p " r t q e g g f u " l p " c p { " y q t n l' n e c v k q p " O " V j g " e q p t c e v q t " u j c m l' l p x g u n k i c v g " c p f " l f g p v k h { " y j g " n e c v k q p " q h' g z k u k p i " u g t x l e g u " d { " u w f { " q h' y j g " f t c y l p i u " c " x l u w e n l' j { u l e c n l' u w f { " q h' y j g " u l g . " u y g g r l p i " d { " c r r t q r t l c v g " f g v g e v k q p " g s w k r o g p v' c p f " y j g t g " p g e g u c t { " j c p f " g z e c x c v k q p " q h' v t k e n l' j q r g u " O "

H q m y l p i " y k u " l p x g u n k i c v k q p . " y j g " E q p t c e v q t " u j c m l' u w d o k' c " y t l x g p " t g s w g u " h q t " c p " g z e c x c v k q p " r g t o k' v q " y j g " R t q l g e v " O c p c i g t O "

V j g " R t q l g e v " O c p c i g t " y k n i t g w t p " y j g " r g t o k' u k i p g f " c p f " f c v g f " v q " l p f l e c v g < " u g t x l e g u " y j k e j " c t g " v q " d g " o c k p v c l p g f " O " u g t x l e g u " y j k e j " c t g " v q " d g " k u q n v g f " O " c p { " l r g e k n l' r t g e c w k q p u " v q " d g " c n g p " O "

"

"

C"uco r ng"Gzecxcvqp"Rgto k'ku'i kxgp'kp"Cppgz "3"v'j ku'Ur gekhecvqp0Vj g'kuwg'qh'cp"Gzecxcvqp"Rgto k'd{"
vj g'Rtqlgev'O cpci gt'uj cmlpqv'tgdxg'vj g'Eqptcevqt"qh'j ku'tgur qpukdkkkgu'wvf gt'vj g'Eqptcev0

"

Vj g"ukf g"qh'cml'gzecxcvqpu"cpf" v'gpej gu"y j kej "kp"vj g"qr kpkp"qh'vj g"Rtqlgev'O cpci gt"o ki j v'gzr qug"
r gtuqppgn'qt"lcekklkgu"v'f cpi gt"tguwnkpi "htqo "uj kkpki "gctj u"uj cml'dg"rtqgevgf"d{"cf gs wvg"vgo r qtct{"
uwr r qtwt'qt'unqr gf"v'j g'cr r tqr tlcvg'cpi ng'qhtgr qug0

"

Cml'gzecxcvqpu"unqr gu"cpf" vgo r qtct{"uwr r qtwt'uj cml' dg" kpur gevgf" fckn{"cpf" chgt" gcej" tclp."
dghqtg"cmqy kpi 'r gtuqppgn'v'gpvt'vj g'gzecxcvqp0

"

Gzecxcvqpu"30"o gvtgu'qt"o qtg'kp"f gr vj "cpf"qeevr kgf"d{"r gtuqppgn'uj cml'dg"rtqxf gf"y kj "rff ftu"
cu"o gcpu"ht"gpwcpeg"cpf" gi tgu0Ncf fgtu"uj cml'gzvgf"pqv'ngu"vj cp"3"o gvtg"cdqvg"vj g"vqr"
qh'vj g'gzecxcvqp0

"

Vj g"Eqptcevqt"uj cml'rtqxf g"cf gs wvg"dcttktg"rtqgevgf"v'cml'gzecxcvqpu0Dcttktu"uj cml' dg"
tgcfnk{"xkukdr'd{"f c{"qh'kpi j v0

"

Gzecxcvgf"qt'qvj gt"o cvgtknu'uj cml'dg'lvqtgf"v'ngcu'2087"o gvtgu'htqo "vj g'ukf gu'qh'gzecxcvqpu0

"

Concrete Reinforcement Starter Bars"

Vj g'Eqptcevqt'uj cml'gpwtg'eqpetvg'tglphqtgo gpv'uctvt'dctu'ctg'pqv'c'f cpi gt'v'rtuqppgn0Y j gtg"
r gto kvgf"d{"vj g'Rtqlgev'O cpci gt.'uctvt'dctu'uj cml'dg'dgpv'f qy p0Cngtpcvkgn'.'vj g'uctvt'dctu'uj cml'
dg" r tqgevgf"wkpi "gkj gt"j qqngf"uctvtu."r rnuke"ecru"r n'y qqf"eqxgtu"qt"qvj gt"o gjv qf u'ci tggf"
y kj "vj g'Rtqlgev'O cpci gt0

"

706 Environmental and Health Requirements"

Contractor environmental and social management plan"

Vj g'Eqptcevqt'uj cml'gxgnr "j ku'qy p"Gpxktqpo gpv'n'cpf "Uqekn'O cpci go gpv'Rrp"v'gpwtg'cevqpu"
cpf" o kki cvkqp'pgeguct{"v'rtqgev'vj g'gpxktqpo gpv'cu'eqpvkpgf"kp"vj g'Rtqlgev'GUIC"Trgtv'cpf"
Nlegpug.'ctg"lpeqtr qtcvgf'kpq'cmlukg'r tqegf wtgu0Cv'c'bo kpklo wo .'vj g'eqptcevqtat'GUO R'bo wuv'cf f tguu"
vj g'hqmqy kpi <

"

Rqrle{"
Rrpplkpi "
ko r rgo gpvcvqp'cpf'Qr gtcvqp"

"

Policy"

Vj g'Eqptcevqt'uj cml'gxgnr "cp'gpxktqpo gpv'n'r qrl{"vj cv'kpenwf gu.'cu'c'bo kpklo wo .'vj g'hqmqy kpi <

"

C"eqo o ko gpv'v'eqo r n'y kj "cr r rkecdrg'tgi wrcvqpu"cpf"qvj gt'tgs vktgo gpv'v'cv'vj g'eqpwtvewkqp"
eqo r cp{"lvduetkdg'u'v'q="

C"eqo o ko gpv'v'rtqxf g'c'uchg'y qtni'gpxktqpo gpv="

"

C"eqo o ko gpv"q'r tqxkf g"vj g"tclpki "cpf "gs wkr o gpv'pgeguuct { "hqt" go r m{ ggu"q"eqpf wev'y gk"y qtni" uchgn{ =
C"eqo o ko gpv"q"eqpvkpwqwn{ "ko r tqxg'r gthqto cpeg"cpf "q'r qmwkqp'r tngxgpvkp="cpf "
C"eqo o ko gpv"q"eqo o wplecvg"vj g'r qrl{ "q"cmi'gtuqpu'y qtnkpi "hqt"cpf "qp"dgj cni'qh'y g"eqo r cp{0
"

Planning"

Gpxktqpo gpvni'kuwgu"cpf "vj g"ngi cni'cpf "qj gt"tgs wktgo gpv"kp"eqputwevkp"qh"vj g"rtqlgev"j cxg"
dggp"kf gpv'hgf "kp"vj g'r tqlgewu"GUC"Tr qtVj g"Eqptcevt"o wuv'f go qpvtcvg"y kj kp"j ku'r rcp"vj cv'
j g"j cu'tgcf " cpf "wpf gtuvqf "vj g"GUC"Tr qtV'cpf "ku'r tqxkukpu"hqt"gpvktqpo gpvni'o cpci go gpv'cpf "
o qpkqtkpi 0

Implementation and Operation"

Tqngu."tgr qpukdkkku"cpf "cwj qtkku"o wuv'dg"fg hkgf."f qewo gpvgf"cpf "eqo o wplecvg"q"gpwtg"
ghgevkxg" gpvktqpo gpvni' cpf "uqelci" o cpci go gpv' C" ur gekle" o cpci go gpv' tgr tguvkvxg" y kj "
tgs wkuvg" s wvkhkcvkpu"uj cni'dg"cuuki pgf "vj g'tgr qpukdkk{ "hqt"gpwtkpi "vj cv'y g"GUO R"ku'gucdrkj gf."
ko r ngo gpvgf"cpf "o clpvclpgf"cpf "uj cni'dg"tgr qpukdr"hqt"tgr qtkpi "r gthqto cpeg."tgxky kpi "vj g"
Rrcp"cpf "o cni'pi "tgeqo o gpfcvkpu"hqt"ko r tqxgo gpv'F qewo gpvgf"eqphko cvkqp"ku"tgs wktgf"vj cv'
vj g"tclpki "pggf u'qh'cni'r gtuvpu'y qtnkpi "hqt"qt"qp"vj g"eqo r cp{au'dgj cni'y j qug'y qtni' qug'uki phtecpv'
j c|ctf u"q"vj gk"j gcnj "cpf "uchgv"cpf lqt"o c{ "etgcvg" c"uki phtecpv"ko r cev"qp"vj g"gpvktqpo gpv"j cu'
dggp"kf gpv'hgf 0Tgeqtf u"qh'cni' tclpki "o wuv'dg"o clpvclpgf 0
"

O cpci go gpv"uwr gtxku{."cpf "go r m{ gg"tgr qpukdkkku"o wuv'dg"eqo o wplecvg"q"cmi'go r m{ ggu"
vj tqw j "tclpki"."hqt cni'qd"fguetk vkpu"y qtni'gztgkpeg"j kpi "r tcevkgu"ge0Cy ctgpguu'tclpki "
uj cni'dg'r tqxkf gf "vj cv'penf g"vj g'ko r qtcpeg'qh'eqphqto kpi "q"vj g'r qrl{ "cpf "r tqegf wtu."vj g'uki phtecpv'
gpvktqpo gpvni'kuwgu."cpf "vj g'tqngu"cpf "tgr qpukdkkku"qh'o cpci go gpv'cpf "uchf0
"

Tgeqtf u"uj cni'dg"ngi kdr."kf gpv'hkdr"cpf "tcegedrg"q"vj g"cevkx{0Tgeqtf u"uj cni'dg"uqtf"cpf "
o clpvclpgf "kp"uwej "c"y c{ "vj cv'y g{ "ctg'tgtgxcdrg"cpf "r tqgevgf "ci clpu'f co ci g"fgvgtkqtcvkp"qt"huu0
"

Vj g'Eqptcevt"uj cni'gucdrkj."ko r ngo gpv'cpf "o clpvclp"r tqegf wtu"q"kf gpv'h{ "r qv'pki'go gti gpe{ "
ukwcvkpu"cpf "r qv'pki' ceekf gpv" y cv' ecp" j cxg" cp" ko r cev" qp" yj g" gpvktqpo gpv" uwtqwpf kpi "
eqo o wplekv." yj g'go r m{ ggu"cpf lqt"vj g'r wdrk0
"

Vj g'Eqptcevt"uj cni'dg'r tgr ctgf "q"tgr qp"q"cewcn'go gti gpe{ "ukwcvkpu"cpf "ceekf gpv"cpf "r tngxgpv"
qt" o kki cvg"cuqekcvf"cf xgtug" gpvktqpo gpvni'qt" uqelci" ko r cev' Vj g"GUO R"o wuv'cuq"cf f tguu"
j qy "vj g"Eqptcevt"y kntgegkxg."f qewo gpv'cpf "tgr qp"q"gzvgtprkpvgtgvgf "r ctvku0
"

Protection of the Environment"

Vj g'Eqptcevt"uj cni'dg"npqy ngf i gedrg"qh'cpf "eqo r n{ "y kj "vj g"gpvktqpo gpvni'O cpci go gpv'Rrcp"*GO R+ "
cpf "y kj "cni'gpvktqpo gpvni'ny u."twgu"cpf "tgi wvkvkpu"hqt"o cvtkcu."kpenf kpi "j c|ctf qwu"uuducpegu"qt"
y cuvu'wpf gt"j ku'eqptqri0Vj g'eqptcevt"uj cni'pqv'f wo r."tgrgcug"qt"qj gty kug"fkuej cti g"qt"fkur qug"qh'cp{ "
uwej "o cvtkcu"y kj qw'y g'cwj qtk cvkqp"qh'y g'Rtqlgev'O cpci gt0
"

Cp{ "tgrgcug"qh'c"j c|ctf qwu"uuducpeg"q"vj g'gpvktqpo gpv"y j gj gt"ckt."y cvgt"qt"i tqwpf."o wuv'dg"tgr qtvf"q"
vj g'Rtqlgev'O cpci gt"ko o gfkcvn{0Y j gp"tgrgcugu"tguwki"htqo "Eqptcevt"cevkp"qewt."vj g" Eqptcevt"
uj cni' wcn" r tqr gt" r tgecvkqpc{ "o gcuwgu" q" eqwvgt" cp{ "npqy p" gpvktqpo gpvni' qt" j gcnj " j c|ctf u"

"

cuuqekcvgf " y kj " uwej " tgrgcug0 Vj gug " y qwrf " kpenxf g" tgo gfkni r tqegf wtgu" uwej " cu" ur kni eqpvtqn" cpf " eqpvkpo gpvcpf "pqvhecvkqp"qh'y g'r tqr gt'cwj qtkkgu0

"

Air Pollution

Vj g"Eqpvtcevt."f gr gpf lpi "qp"vj g"v{r g"cpf"s wcpvk{ "qh'o cvgtknu"dgkpi "wugf."o c{ "dg"tgs wktgf "v"j cxg"cp" go gti gpe{ "gr kuqf g"r ncp"lqt"cp{ "tgrgcugu"v"j g"cv qur j gtg0 Vj g"Eqpvtcevt"uj cni'cnuq"dg"cy ctg"qh'mecni qtf kpcpegu'chhecvkpi 'ckt'r qmwkqp0

"

Vj g"Eqpvtcevt"uj cni'cng'cni'pgeguuct{ "o gcuwtgu"v"rko k'r qmwkqp"htqo "f wuv'cpf "cp{ "y kpf dny p"o cvgtknu" f wtkpi "y g"Y qtmu."kpenxf lpi "f co r lpi "f qy p"y kj "y cvgt"qp"c'tgi wrct'dcuku'f wtkpi "f t{ "erko c'ke'eqpf kskpu0

"

Vj g"eqpvtcevt"uj cni'gpwtg"vj cv'cni'tvemu"ngcxkpi "vj g"Ukg"ctg"r tqr gtn{ "eqxgtgf "v"r tngxgpv'f luej cti g"qh" f wuv'tqemu."ucpf ."gve0

"

Water Pollution

Vj g"eqpvtcevt"uj cni'pqv'f kur qug"qh'y cug"uqrgpva."r gvtqrgwo "r tqf weu."vzle"ej go lecu'qt"uqmwkqp"qp"vj g" ekv{ "f tclpci g"u{ungo "qt"y cvteqwtug."cpf "uj cni'pqv'f wo r "qt'dwt{ "f ctdei g"qp"vj g"Ukg0 Vj gug"v{r gu'qh" y cug" uj cni'dg"cnpp"v"cp"cr r tqxgf "f kur qucu'f'cekkv{ "tgi wrctn{ ."cpf "lp"ceeqtf cpeg"y kj "tgs wktgo gpw"qh" tgrxcpv" Cwj qtkkgu0 Vj g"Eqpvtcevt"uj cni'cnuq"dg'tgur qpukdg"htq"vj g"eqpvtqn'qh'cni'twp/qhhu."gtqukqp."gve0

"

Solid Waste

General Housekeeping

Vj g"Eqpvtcevt"uj cni'o clpvk{ "vj g"Ukg"cpf "cp{ "cpekmt{ "ctgcu"wugf "cpf "qeev kpf "lqt"r gthqto cpeg"qh" yj g"Y qtmu"lp"c'engcp."w{ { "cpf "tvdckuj /htgg'eqpf kskqp"cv'cni'ko gu0

Wt qp"vj g"kuwg"qh"cp{ "Vcnkpi /Qxgt"Egtvhecvg."vj g"Eqpvtcevt"uj cni'engct"cy c{ "cpf "tgo qxg"htqo "vj g" Y qtmu"cpf "vj g"Ukg"v"y j lej "vj g"Vcnkpi /Qxgt"Egtvhecvg"tgrvgu."cni'Eqpvtcevtai"Gs wkr o gpv"uwr nnu" o cvgtknu"tvdckuj "cpf "Vgo r qtct{ "Y qtmu"qh"gxgt{ "nlpf."cpf "ngcxg"vj g"uckf "Y qtmu"cpf "Ukg"lp"c'engcp" eqpf kskqp"v"j g"ucvkuhecvkqp"qh"vj g"Rtqlgev"O cpci gt0Rtqxf gf "vj cv'vj g"Eqpvtcevt"uj cni'dg"gpvkrgf "v"tgvc{p" qp"Ukg."wpvki"vj g"gpv "qh" yj g" F ghgew" Ncdk{ " Rgtkqf." uwej " o cvgtknu." Eqpvtcevtai" Gs wkr o gpv" cpf " Vgo r qtct{ " Y qtmu" cu" ctg" tgs wktgf " d{ " j ko " lqt" yj g" r wtr qug" qh" hwtknpkpi " j ku" qdrki cvkpu" f wtkpi " yj g" F ghgew" P qvhecvkqp"Rgtkqf 0

"

Rubbish Removal and Disposal

Vj g"Eqpvtcevt"uj cni'eqo r n{ "y kj "ucwwqt{ "cpf"o vplekr cni'tgi wrv'kpu"cpf "tgs wktgo gpw" lqt"vj g'f kur qucu'qh" tvdckuj "cpf"y cug0

"

Vj g"Eqpvtcevt"uj cni'r tqxkf g"uwkcdng"o gvcni'eqpvkpgtu"htq"vj g"vgo r qtct{ "uqtci g"qh'y cug0

"

Vj g"Eqpvtcevt"uj cni'r tqxkf g"uwkcdng"o gvcni'eqpvkpgtu"htqo "Ukg"cu"uqpp"cu"vj g{ "ctg"hwnt0Tvddkuj "eqpvkpgtu" uj cni'pqv'dg'emqy gf "v"q"qxgtmqy 0

"

.

"

Vj g"Eqpvtcevt"uj cml'r tqxkf g"j ctf "ucpf lpi u" hqt" cpf "erget" xgj keng" ceegu" vq" twddkuj "eqpvclpgtu0"

"

Vj g"Eqpvtcevt"uj cml'r tqxkf g" gpenugf "ej wgu" qh'y qqf "qt" o gven'y j gtg" o cvgtknu" ctg" f tqr r gf "o qtg" vj cp" 9" o gvgtu0 Vj g" ctgc" qpvy j lej "vj g" o cvgtknu" f tqr r gf "uj cml'dg" r tqxkf gf "y kj "uwkcdng" gpenugf "r tqvgevkp" dctlktu" cpf "y ctpkpi "uki pu" qh'vj g" j c| ctf "qh' hcnkpi "o cvgtknu0 Y cuvg' b cvgtknu' luj cml'pqv' dg' tgo qxgf "htqo " vj g" tuj gt" ctgc" vpwklj cpf npi " qh' b cvgtknu' cdq xg' j cu' egcu g f 0

"

Fqo gunk" cpf "dkf gi tcf cdng" y cuvg" htqo " qh' legu" ecpvggpu" cpf "y grhctg" hcekklgu" uij cml'dg" tgo qxgf "f ckl" htqo " vj g' lkg0

"

Vqzle" cpf "j c| ctf qwu" y cuvg" uij cml'dg" eqmgevgf " ugr ctcvgn(" cpf " dg" f kur qugf " qh' lp" ceeqtf cpeg" y kj " ewtgpv" tgi wvklpu0

"

Asbestos Handling and Removal"

Vj g"Eqpvtcevt" uij cml'eqo r n("y kj "cml' mecn' tgi wvklpu" tgi ctf lpi "vj g" j cpf npi "qh' cudguqu" o cvgtknu0 Kp" vj g" cdugpegu" qh' mecn' tgi wvklpu " tngxcpv' Kp vgtpcvklpcn' Ucpf ctf u' luj cml' r r n(0

"

Pest Control"

Vj g"Eqpvtcevt" uij cml' dg" tgu r qpukdng" hqt" vj g" tqf gpv" cpf " r guv" eqpvtqn' qp" vj g" Ukg0 Kp" tgs wguvgf. " vj g" eqpvtcevt" uij cml' udo k' vj g' Rtqlgev0 cpci gt. " hqt" cr r tqxen' c' f gckngf " r tqi tco o g' qh' vj g' b' gcuw tgu' vj g' " vngp" hqt" vj g' eqpvtqn' cpf "gtcf lecvkp" qh' tqf gpv' cpf " r guv0

"

Noise Control"

Vj g"Eqpvtcevt" uij cml' gpw t g' vj cv' vj g' y qtmu' ku' eqpf wvgf "kp" c' b' cppgt" uq" cu' vj g' eqo r n("y kj "cml' tgu t lecvkp" qh' vj g' Cw j qt klgu' j cxlpi " lwt kuf lecvkp. " cu' vj g' { " tgrvg" vj g' pqlug0

"

Vj g"Eqpvtcevt" uij cml' "kp" cml' ecugu. " cf qr v' vj g" dguv' cxckcdng" r ncpvcpf "qt" o cej kpgt { " uij cml' dg" wugf 0 Cml' gs wkr o gpv' uij cml' dg" o clpvclpgf " kp" i qqf " o ge j cplecn' qtf gt" cpf " hvgf " y kj " vj g" cr r tqr tlcvg" ukngpegtu. " o vhtgtu" qt" ceqwukle" eqxgtu" y j gtg" cr r r kcdng0 Ucvklpct { " pqlug" uqwtugu" uij cml' dg" ukngf " cu" hct" cy c { " cu" r quukdng" htqo " pqlug/ugpukxg" ctgcu' cpf. " y j gtg" pgeguuct { " ceqwukle" dctlktu' luj cml' dg" wugf " vj g' lgrf " vj go 0 Uvej " dctlktu" o c { " dg" r tqr tlcvg { " v' r gu. " qt" o c { " eqpukv" qh' ukng" o cvgtknu" uvej " cu" dtkemi" qt" gctvj " o qwpf u' cu" cr r tqr tlcvg0

"

Ego r tguuqtu. " r gtewukqp" vqnu" cpf " xgj kengu" uij cml' dg" hvgf " y kj " ghtgevxg" ukngpegtu" qh' c" v' r g" tgego o gpf gf " d { " vj g" o cpw hcewtgtu" qh' vj g" gs wkr o gpv' Rpgwo ckle" f tkm" cpf " qvj gt" pqlu { " cr r r kcegu" uij cml' pqv' dg" wugf v' tklpi " f c { u' qh' tguv' qt" chgt" pqto cn'y qtnkpi " j qwtu" y kj qw' vj g' eqpugpv' qh' vj g' Rtqlgev" O cpci gt0

"

Ctgcuy j gtg' pqlug' r xgn' gzeggf ", 2' f gekdgn. " g xgp" qp" c' vgo r qtct { " dcuku. " uij cml' dg" r quvgf " cu" j ki j " pqlug" r xgn' ctgcu0

"

707 Additional Requirements for Work in Public Areas"

General"

Vj qug'cf fklqpcntlgs vkt go gpv'uj cml'cr r n' 'q'cm'y qtmu'ecttlg'f 'qwl'p'Rwdrl'e'Ctgc'u0'
Rwdrl'e'Ctgc'u'ctg'f g'hl'p'gf "cu"ctgc'u'ukn'l'wugf "d{ "qt"ceeguukdrg"vq"y'j g'r wdrle0' Vj gug"lpenw'f g'r wdrle"
tqcf u"cpf 'r cxgo gpv'u'qewr kgf 'dwl'f lpi u'cpf "ctgc'u'qwu'f g'y'j g'Eqpvtcevt'at'dqwpf ct{ 'h'p'ekpi 0'

Cm'y qtm'lp'Rwdrl'e'Ctgc'u'uj cml'dg'ecttlg'f 'qwl'q'b' o l'p'lo k' g'f'kuwtdcpeg'cpf 'cxqkf 'f'cpi gtu'v'q'y'j g'r wdrle0'

Dghqtg"eqo o g'p'ekpi "y qtm" y'j g'Eqpvtcevt"uj cml' gpw'g" y'j cv' cml' p'geguuct{ "tguqwt'egu" l'penw'f lpi " rcdqwt." r r'p'v'cpf "o cvgtl'cnu'y kml'dg'cxckrdrg"y'j gp'tgs vktgf 'cpf "y'j cv'y'j g'y qtmu'y kml'r tqeggf "y'j kj qww' f'gr{ u'cpf "dg" eqo r r'g'v'f "lp"y'j g'uj q't'v'g'u'r quukdrg"v'o g0'Rgtkqf "qh"l'p'cevkxk'f "cpf "un'y "r tqi t'guu"qt" f'gr{ u'lp'o g'g'v'pi "y'j g' ci tggf "r tqi tco o g'h'qt"y'j g'Y qtmu.'t'guw'v'k'pi "t'qo "y'j g'Eqpvtcevt'at'h'c'kwt'g"v'q" r t'q'x'k'f g'p'geguuct{ "tguqwt'egu"qt"q'y'j g't'ecw'g'u'y'j kj lp"y'j g'eqpvt'q'n'q'h'y'j g'Eqpvtcevt."y'j kml'p'q'v'dg'ceegr'v'f 0' k'p"y'j g'gx'g'p'v'q'h'uw'ej "l'p'cevkxk'f." un'y "r tqi t'guu"qt" f'gr{ u."y'j g'Eqpvtcevt"uj cml'v'cng'k'o o g'f'k'v'g'cevk'q'p" v'q"t'g'ev'h{ "y'j g'ukw'c'v'k'p." l'penw'f lpi "cml' r quukdrg"ceegr'g't'c'v'k'q'p"o g'cuw't'gu"v'q"eqo r r'g'v'f "y'j g'y qtmu'y'j kj lp" y'j g'ci tggf "r tqi tco o g0'F'g'v'k'u" q'h'y'j g'cevk'q'pu'cpf "ceegr'g't'c'v'k'q'p"o g'cuw't'gu'uj cml'dg'u'wdo k'v'g'f "v'q"y'j g' Rtqlge'v'O cpci g't0'k'v'j g'Rtqlge'v'O cpci g't'k'u'f'k'u'c'v'k'k'f'f' y'j "y'j g'Eqpvtcevt'at't'q'r qucnu'y'j g'Eqpvtcevt" u'j cml'v'cng'uw'ej "h'w'v'j g't'cevk'q'pu"qt"o g'cuw't'gu"cu" t'gs vktgf "d{ "y'j g'Rtqlge'v'O cpci g't0' Cml'equu'l'pew't'g'f" u'j cml'dg'y'j g't'g'ur q'p'uk'd'k'k'f' q'h'y'j g'Eqpvtcevt0'

Method Statement"

Vj g'Eqpvtcevt'uj cml'u'wdo k'v'q'y'j g'Rtqlge'v'O cpci g't'c'b' g'y'j qf 'u'c'v'go gpv'h'qt'g'cej 'u'g'r c't'c'v'g'ctgc'qt'y'j qtm'l' p" Rwdrl'e'Ctgc'u0' Vj g'O g'y'j qf 'U'c'v'go gpv'uj cml'l'penw'f g'<

c'i' g'p'g't'c'n'f' g'uet'l'r'v'k'p'q'h'y'j g'Y qtmu'cpf "o g'y'j qf q'm'i { "q'h'j' q'y'j k'v'y' kml'dg'ecttlg'f 'qww'0'

F'g'v'k'u"q'h'y'j g'o g'cuw't'gu'cpf "v'go r q't'ct{ "y'j qtmu'v'q"o l'p'lo k'ug'f'kuwtdcpeg'cpf "uch'g'i wctf "y'j g' r wdrle0' Vj gug'uj cml' l'penw'f g'v'go r q't'ct{ "f'k'x'g't'uk'q'pu'uch'g'v'f "d'ctt'l'g'tu'uet'g'g'pu'uki'pu'iki'j'v'k'pi." y'c'ej o gp"cpf "ctt'c'pi go gpv'u'h'qt'eqpvt'q'n' q'h'v'c'h'le"cpf "r g'f'g'ut'l'c'pu'cpf "cf'x'c'p'eg'y' c't'p'k'pi "v'q'd'g'i'k'x'g'p'v'q"y'j g'r wdrle0'

F'g'v'k'u"q'h'y'go r q't'ct{ "t'g'k'p'uc'v'go gpv'cpf "o c'l'p'v'g'p'c'p'eg'q'h'uc'o g'r t'k'q't'v'q'h'p'c'n'l'g'k'p'uc'v'go gpv'0'

H'qt"y'j qtmu'l'p'x'q'v'k'k'pi "r'p'pi "r'g'pi y'j u'q'h'v'g'p'ej g'u'qt"y'j qtmu'v'q'd'g"eqo r r'g'v'f "lp"u'g'ev'k'q'pu."y'j g'r'g'pi y'j u'qt"u'g'ev'k'q'pu" q'h'g'cej "cevk'x'k'f "g0'0'w'r "v'q"v'go r q't'ct{ "t'g'k'p'uc'v'go gpv'f'k'p'c'n'l'g'k'p'uc'v'go gpv'v'q'd'g'ecttlg'f 'qww'v'c'p{ "q'p'g'v'o g0'

F'g'v'k'u"q'h'y'j g'cxckrd'k'k'f' q'h'p'geguuct{ "tguqwt'egu"r'cdqwt." r r'p'v."o cvgtl'cnu."g'v'e0'v'q"eqo r r'g'v'f "y'j g'y qtm'0'

C"r tqi tco o g'uj q'y'j l'pi "u'c't'v'cpf "eqo r r'g'v'k'p'f'c'v'g'u'cpf "r g't'k'q'f "h'qt"cm'l'cevk'x'k'k'g'u"q'h'g'cej "r'g'pi y'j "qt"u'g'ev'k'q'p." l'penw'f lpi "v'go r q't'ct{ "y'j qtmu'cpf "y'j g'y qtmu'q'x'g't'cm'0'

U'w'ej "h'w'v'j g't'k'p'q'to c'v'k'p'cu'p'geguuct{ "qt't'gs vktgf "d{ "y'j g'Rtqlge'v'O cpci g't0'

"

Vj g"Eqpvtcevt"uj cml'pqv'eqo o gpeg"y qtm"lpenf lpi "vgo r qtct{"y qtmu."wpvkl'chgt"vj g"cr r tqxcn'qh'vj g"
Eqpvtcevtai'O gvj qf "Ucvgo gpv'd{"vj g'Rtqlgev'O cpci gt0'
"

O gvj qf "Ucvgo gpv"uj cml'dg"wr f cvgf "dcugu"qp"cewcn'r tqi tguu"qt"cu"cpf "y j gp"tgs vktgf "d{"vj g'Rtqlgev'
O cpci gt0'
"

Closure of Roads, Etc."

Vj g"enquwtg"qt"r ctvkn'enquwtg"qh"tqcf u."r cxgo gpv"cpf "qvj gt"r vdrle"ctgcu"y knl'qpn{"dg"r gto kvgf "kh"
cr r tqxgf "d{"vj g'Rtqlgev'O cpci gt"cpf "Tgrgxcpv'Cwj qtkkgu0'Vj g"Eqpvtcevt"uj cml'gckl'ht"gej "enquwtg"vj g"
gzv'p'q'ht'ctg'q'dg'enqugf .vj g'tgcuqpu'cpf 'f vtcvqp'qh'vj g'enquwtg'cpf 'y j gt g'cr r tqr tlcvg.'tqr qugf "f kxgtukpu0'
C'uco r rg'Utggv'Enquwtg'Rgto k'ku'i kxgp'cvCp'pgz'4'v'q'vj ku'Ur gekk'ecv'kp0'
"

Trench and Other Excavations"

Vj g"tgs vktgo gpv"eqxgtlpi "vtgpej"cpf "qvj gt"gzecxcv'kpu"y knl'f gr gpf"qp"vj g"necv'kqp"cpf "v'r g"qh'vj g"
gzecxcv'kqp"cpf 'vj g'r qv'p'v'cn'lknu'v'q'vj g'r vdrle0'
Vj g'hqmqy lpi 'i v'f g'p'gu'cr r n'f'ctv'kw'ctn'v'q'vtgpej gu'dw'uj cml'cnq'cr r n'f'v'q'qvj gt'v'r gu'qh'gzecxcv'kpu"
"

dghqtg'eqo o gpekpi 'y qtn'vj g'Eqpvtcevt'uj cm'
pqv'kl'vj g'Rtqlgev'O cpci gt'qh'vj g'necv'kqp"cpf 'f vtcvqp'qh'vj g'y qtn0'Cp'gzecxcv'kqp"r gto k'uki pgf "d{"vj g"
Rtqlgev'O cpci gt'o wv'dg'kuwgf 'lp'cee'qtf cpeg'y kj "Uwd/Erwug"
927088'dghqtg'gzecxcv'kqp'r tqeggf u'lp'cp{"y qtn'necv'kqp"
qdv'clp'r gto k'ukqp'htqo 'tgrgxcpv'cwj qtkkgu'lpenf lpi 'vj g'r q'k'eg'y j gp'tgs vktgf "
gtgevcml'go r qtct{"y qtm'uwej 'cu'dctt'ktu.'y ctpkpi 'uki pu'hi j v'kpi .gve0'
j cxg'cx'k'cdrg"cf gs wcvg"o cvgtknu'ht"vgo r qtct{"uwr r qtu"v'q'ukf gu"qh'gzecxcv'kpu"cpf "pgegu'ct{"r'cdqwt."
r rcpv'cpf "o cvgtknu'v'q'eqo r rvg'vj g'y qtn'y kj kp"vj g'uj qtv'gu"r quikdrg'vko g0'
"

kp'ectt{lpi "qww'vj g'y qtm'vj g'Eqpvtcevt'uj cm'vprgu'qvj gty kug'r gto kvgf "qt'tgs vktgf "d{"vj g'Rtqlgev'
O cpci gt-'
pqv'qr gp'o qtg'vj cp'qpg'gzecxcv'kqp'y kj kp'c'tcf ksu'qh'472'o g'v'gu"
rko k'vj g'rgpi 'vj 'qh'vtgpej "gzecxcv'kqp'qr gp'cv'qpg'vko g'v'q'372'o g'v'gu"
o clp'v'clp"cpf "cn'gt"qt"cf cr v'cm'vgo r qtct{"y qtmu"lpenf lpi "uwr r qtu"v'q'ukf gu"qh'gzecxcv'kpu"
tgo qxg'cm'l'wtr nu'gzecxcv'gf 'o cvgtknu'vj g'uco g'f'c{"k'ku'gzecxcv'gf "
eqo r rvg'vj g'y qtmu"lpenf lpi 'h'p'cn'it'g'pucv'go gpv'y kj kp'v'gp'f'c{u"
y j gtg' h'p'cn'it'g'pucv'go gpv'ku"pqv'cej kxgf"y kj kp"vj g"tgs vktgf "vko g."v"ectt{"qww'vgo r qtct{"
t'g'pucv'go gpv"
gpw'g'vj cv'cp{"vgo r qtct{"t'g'pucv'go gpv'ku"o clp'v'clp'gf "cv'vj g'e'q'tt'ge'v'rgxgn'wpv'kl'h'p'cn'it'g'pucv'go gpv'ku"
cej kxgf 0'
"

Vj g'cdq'xg'i v'f g'p'gu'uj cml'pqv't'g'k'xg'vj g'Eqpvtcevt'qh'j ku'qdrki cv'kpu'cpf 't'gur qpukd'k'k'kgu0'
"

Safety Barriers"

Uchgv" d'ctt'ktu"uj cml' dg"r tqx'kf gf "v"vj g"r g'tko g'vgt"qh'y qtn' ctgcu"cpf "v"vtgpej"cpf "qvj gt"v'r gu"qh'
gzecxcv'kpu"cpf "v"gz'k'k'pi "qr g'p'kpi u'we'j "cu"o cpj qrgu"ftcy "r ku"cpf "vj g'rkng0'Y j gp'g'zr qugf "v"vj g"
r vdrle."uchgv" d'ctt'ktu"uj cml' dg"r tqx'kf gf "v"dqj "ukf gu"cpf "gp'f u'qh'vtgpej gu"cpf "ctqwpf "cm'ukf gu"qh'
qr g'p'kpi u0'
"

"

Vj g"Eqpvtcevqt"uj cml'rtqxf g"fgvcku"qh'vj g"v{r g"qt"v{r gu"qh'uchgv "dcttlgtu"ht" gcej "gzeccvqp"ht"vj g"
crrtqxcn'qh'vj g"Rtqlgev'O pci gt"rtkt"v"eqo o gpeki "y qtn0" P q"y qtn'uj cml'eqo o gpeg"wpki'vj g"uchgv "
dcttlgtu'ctg'lp'rneg0
"

Vj g"v{r g"qh'uchgv "dcttlgt"wgf "uj cml'dg"crrtqr tkvg"v"vj g"r ctvewrt "necvqp"cpf "vj g"r qvgpvcn'tkum'v"vj g"
r wde0' Gzco r ngu'qhf khtgpnv{r gu'qh'uchgv "dcttlgtu'ctg'i kxgp"dgny <
"

V{r g"3" /"gzeccvgf "o cvgtkn"
V{r g"4" /"pqp/tki kf "dcttlgt"qh'tqr g"qt"htguepn'vr g"utwpi "dgw ggp"o gcn'tqf u"ftkxgp" kpq"vj g"
i tqwpf =
V{r g"5"/"tki kf "dcttlgt"qh'vko dgt."uvgg'qt"eqpetgvg0Uwej "dcttlgtu"eqwf "dg"lp"vj g"htto "qh'j qtk qpvcn'tcku"
qt"uj ggv'o cvgtkn'ugewgf "v"r quu'ftkxgp"qt"eqpetgvgf "qpq"vj g'i tqwpf 0'
Vj g"htny lpi "ctg'i vkf gkpgu"qp"vj g"v{r g"qh'uchgv "dcttlgtu"vj cv'eqwf "dg"wgf "lp"fkhtlpi "ukwcvqpu0'Vj g{ "
crrn{"r ctvewrtn{ "v" vgej gu'dw'cnu" crrn{ "v" qj gt" v{r gu"qh' gzeccvqp."gzknkpi "qr gkpi u"qpq"vj g"
r gko gvt"qh'y qtn'ctgcu<
"

ctgcu'pqv'wdlgev'v'xgj lewrt'tchle"/"V{r gu'3'qt'4=
tqcf y c{u'ny 'tchle'ur ggf +"/"V{r gu'3'qt'4=
tqcf y c{u'j k j 'tchle'ur ggf "qt'y j gtg"gzeccvqp"ctg'i tgcvt"vj cp'4'o +/"V{r g'50
"

Vj g"cdqyg"gzco r ngu'qh'vj g"v{r gu"qh'dcttlgtu"cpf "vj g"i vkf gkpgu"qp"ukwcvqpu"lp'y j lej "vj g{ "eqwf "dg"wgf "
uj cml'pvtgdxg'vj g'Eqpvtcevqt"qh'j ku'qdrki cvkpu'cpf "tgur qpukdkkku0'

"

"

SECTION 8 CONTRACTOR'S SITE CHECK LIST"

801 Contractor's Site Check List"

C"uco r ig'Eqpvtcevqtai'Ukg'Ej gen'Nku'ku'kpenwf gf 'kp'CpPgZ '3.4'("5"vq'yj ku'Ur gekhlecvkpp0Vj ku'ku'kpenwf gf " vq"cuukv'eqpvtcevqtu"uj qwf"y g{ "y kuj "vq"kvtf weg"uwej "c"u{ ugo "cu"r ctv'qh' y gkt "ukg"o cpci go gpv' r tgegfwgu0' Vj g'ku'ku'pqv'gzj cwukxg'cpf 'hwtj gt'kgo u'y knipggf "vq'dg'cf f gf'd{ 'y g'Eqpvtcevqt0'

"

Vj g'ku'ku'kuwgf "hqt"i vkf cpeg"qpn{ ."cpf "f qgu"pqv"kp"cp{ "y c{ ."tgxkug"qt"nko k'yj g'tgs wktgo gpw'eqxgtgf " gnugy j gtg'kp'y gug'Ur gekhlecvkpu0'

"

Sample Excavation Permit"

"

Fcvg<"í í í í í í í í 0'

Request for Excavation Permit No: 1 1 1 1 ""

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"

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Ecuecp" %' Vtkcn'J qngu"Gzecxcvkqp"%

"

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"

Vj g"cdq xg"gzecxcvqp"o c { 'rtqeggf."uwdlgev"q"j g"hmgy kpi <

Ugtxlegu" vq" dg" kuqrvgf" dghqtg" y qtm'

rtqeggfu"Qvj gt"o cwgtu"

"

F cvg<"

1 1 1 1 1 1 1 1 "

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Sample Street Closure Permit"

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Fcvg<"í í í í í í í í 0'

Request for Street Closure Permit No: 1 1 1 1 "

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"

Vj g"cdqxg"utggv*+o c{"dg"emugf"ht"j g"r gkqf u"ucvgf"uwldgev"q"j g"mqmy kpi "eqpf kkpq<

$$Qy \text{ gt}^{\leq}$$

"

"

"

Ukpgf"Rtqlgev'Ocpici gt+í í í í í í í í í í í í í í 0'

Fcvgí í í í í í í í í 0'

"

"

Annex 3"

Sample Contractor's Site Check

List Safe Access:"

cttcepi go gpw'ht'xkukqtu'cpf 'pgy 'y qtngtu'v'j g'ukg"
uchg'ceegu'v'q'y qtnkpi 'hcecvkpu"
y cmy c{u'ltgg'ltqo 'qdutwekpu"
gf i g'r tqvgevp'v'q'y cmy c{u'lxgt'4o "cdqyg'i tqwpf"
j qngu'hpgef 'qt'r tqvgevf 'y kj 'hkgf 'eqxgtu"
kf { 'ukg'cpf 'uchg'vqtci g'qh'o cvgtknu"
y cug'eqngevp'cpf 'fkr qucn"
ej wgu'ht'y cug'fkr qucn'y j gtg'er r rlecdrng"
tgo qxcnqt'j co o gtapi 'fgy p'qh'pcku'kp'vko dgt"
uchg'iki j vki 'hqt'fctn'qt'r qqt'iki j v'eqpf kkpku"
r tqr u'qt'uj qtu'kp'r rneg'v'ugewtg'utvewtgu'y j gtg'er r rlecdrng"

Ladders:"

v'gd'wugf 'qpn' 'kh'cr r tqr tlcvg"
i qgf 'eqpf kkp'cpf 'r tqr gtn' 'r qukkp'gf "
hcecvf 'qp'hto . 'hgxgn' tqwpf "
ugewtg'pgct'vqr O'Kipqv'r qukdrg. "v'gd'ugewtg'pgct'dqvg'o . 'y gki j vgf 'qt'hqvgf 'v'r t'gxgpv'unkr r kpi "
vqr 'qh'icf fgt'o kpo wo "3'o gvg'cdqyg'icpf kpi 'r rneg"

Scaffolding:"

f guki p'ecrewkvp'lwdo kwgf "
r tqr gt'ceegu'v'uechqrf 'r rnvhto "
r tqr gtn' 'hqvpgf 'vr tki j w'y kj 'dcug'r rnvgu"
ugewtg'v'v'j g'dwkr kpi 'y kj 'utqpi 'vku'v'r t'gxgpv'eqmcr ug"
dtcegf 'hqt'vcdkkr "
mqcf 'dgctkpi 'hvkpi u. 'y j gtg'tgs wktgf "
wr tki j w. 'hgi i gu. 'dtcegu'cpf 'utwu'pqv'v'gd'tgo qxgf 'f vtkpi 'wug"
hwn' 'dqctf gf 'y qtnkpi 'r rnvhto u. 'ltgg'ltqo 'f ghgeu'cpf 'cttcepi gf 'v'cxqkf 'vr r kpi 'qt'vkr r kpi "
ugewtg' 'hkgf 'dqctf u'ci ckpu'utqpi 'y kpf u"
cf gswcvg' i wctf 'tknu'cpf 'vqg'dqctf u'y j gtg'uechqrf 'ku'4o "cdqyg'i tqwpf "
f guki pgf 'hqt'mqcf kpi 'y kj 'o cvgtknu. 'y j gtg'er r tqr tlcvg"
gxgn' 'f kvtkwgf 'o cvgtknu"
dcttltgu'qt' y ctpkpi 'pqvlegu'ht' lpego r rvg'uechqrf "KQOpqv'hwn' 'dqctf gf +"
y ggmn' 'kpur gevkvpu'cpf 'chgt'dcf 'y gcy gt'd { 'eqo r gvgpv'r gtuqp"
tgeqtf 'qh'kpur gevkvpu"

Excavation:"

wpf gti tqwpf 'ugt'xlegu'v'gd'hcecvf 'cpf 'o ctngf . 'r tgecwkvpu'cneg'v'cxqkf 'v'j go "
cf gswcvg'cpf 'v'ukcdrg'vko dgt. "v'gpej "uj ggw. "r tqr u'cpf "qvj gt'vwr r qtvkpi "o cvgtknu'cxckndrg"qp"ukg'dghqtg"
gzeccvkv'v'utv"
uchg'o gvj qf 'hqt'gtgevp' 'cpf 'tgo qxcnqh'vko dgt'vwr r qtv"
unqr gf 'qt'dcwtgf 'v'kf gu'v'r t'gxgpv'eqmcr ug"
f ckr 'kpur gevkvpu'chgt 'wug'qh'gzr mqk'gu'qt'chgt'vpgzr gev'f 'hcm'qh'o cvgtknu"
uchg'ceegu'v'gzeccvkvpu'g'g' Oluw'hekgpn' 'hupi 'icf fgt +"
dcttltgu'q'tgutlev'r gtuappgnr rcpv"
vcdkkr 'qh'pgki j dqvtkpi 'dvkr kpi u"
tkni'qh'hqgf kpi "
o cvgtknu'v'cengf . 'vr qkr'cpf 'xgi lergu'cy c{ 'ltqo "vqr 'qh'gzeccvkvpu'v'cxqkf 'eqmcr ug"
ugewtg'v'vqr 'drqemu'ht'xgi lergu'vr r kpi 'kpvg'gzeccvkvpu"

Roof Work:"

etcy r kpi 'icf fgtu'qt'dqctf u'qp'tqqhu'o qtg'v'j cp'32'f gi tggv"

"

kh'cr r nēcdng. 'tqqh'dcwgpu'q'r tqxkf g'c'uchg'j cpf j qrf "cpf 'hqqj qrf "

"

"

dcttlgtu'qt'qyj gt'gf i g'r tqvgevqp"
etcy rkp "dqctf u'ht' y qtnkpi "qp'htci kq"tqqh'o cvgtkcu'uwej "cu'cudguqu'ego gpv'uj ggwu'qt"i rnuu' i wctf "
tcku'cpf 'pqvlegu'v'uco g"
tqqh'iki j w'r tqr gtn' 'eqxgtgf "qt'r tqxkf gf 'y kj "dcttlgtu"
f vtlpi 'uj ggkpi 'qr gtcvqpu' r tgecwqpu'v'uvqr 'r gqr ng'hcnkpi 'htqo "gf i g'qh'uj gg"
r tgecwqpu'v'uvqr 'f gdtku'hcnkpi 'qp'v'qyj gtu' y qtnkpi "wpf gt'v'j g'tqqh'y qtni"

Transport and Mobile Plant:"

kp'i qqf 'tgr ck' "g'g' O'uggtkpi . 'j cpf dtcng' 'hqqvdtcng' "
vtckpgf 'f tkxgtu'cpf 'qr gtcvqtu'cpf 'uchg'wug'qh'r rcpv'
ugewt gf 'hpcf u'qp'xgj kergu"
r cuugpi gtu'r tqj kdkgf 'htqo 'tkf kpi 'kp'f cpi gtqwu'r qukkqpu"
r tqr r kpi 'tckugf 'dqf lgu'ht'v'kr r kpi 'hqtltgu'r tkqt'v'k'pur gevqpu"
eqpvtqrlq'hp/ukg'o qxgo gpv'v'q'cxqkf 'f cpi gt'v'j gf gvtckpu.'gve'
eqpvtqrlq'ht'gxtukpi 'xgj kergu'd' 'r tqr gtn' 'vtckpgf 'dcpmuo gp. 'hmqy kpi 'uchg'u'v'ugo 'qh'y qtni"

Machinery and Equipment:"

cf gs wcvg'ugewt gf "i wctf u'kp"i qqf "tgr ck"v'f cpi gtqwu'r ctu. "g'g' O'g'zr qugf "i gctu."ej clp'f tkxgu" r tqlgvki "
gpi kpg'uj chmu"

Cranes and Lifting Appliances:"

y ggmi' tgeqtf gf 'k'pur gevqpu"
tgi wct'k'pur gevqpu'd' { 'c'eqo r gvgpv'r gtuqp"
v'guv'egt'v'ht'ecvgu"
eqo r gvgpv'cpf 'vtckpgf 'f tkxgtu'qxgt'3: " { gctu'qh'ci g"
engctn' 'o ctngf'eqpvtqni"
ej genu'd' { 'f tkxgt'cpf 'dcpmuo cp'qp'y gki j v'qh'hpcf 'dghqtg'htkpi "
gh'ht'ekpv'cwqo cvk'uchg'hpcf 'kpf kcvqt. 'k'pur gev'f' y ggmi' . 'hqt'ld'etcpgu'y kj 'c'ecr cek' { 'qh'o qtg'y cp" qpg"
v'ppg"
ht'o 'h'xgn'dcug'ht'etcpgu"
u'v'ht'ekpv'r ceg'ht'uchg'qr gtcvqp"
vtckpgf 'dcpmuo cp'k'pur gt'v'q"i kxg'uki pcnu'cpf "v'q'cwcej "hpcf u'eqttgevt' . "y kj "npqy ngf i g'qh'htkpi "
rko kcvqp'qh'etcpg"
hqt'etcpgu'y kj "xct' { kpi "qr gtcvki "tcf kwu."engctn' "o ctngf "uchg'y qtnkpi "hpcf u'cpf "eqttgur qpf kpi "tcf kk"
tgi wct'v'clp'v'gpcpeg"
htkpi 'i gct'kp'i qqf 'eqpf k'k'pur'cpf 'tgi wctn' { 'gzco kpgf "

Electricity:"

o gcuvtgu'v'q"r tqvgev' r qtvcdng' "grgevtke"v'qqu'cpf "gs vkr o gpv'htqo "o gejcplecn'f co ci g"cpf "y gv"
eqpf k'k'pur"
ej genu'ht'f co ci g'v'q'qt'k'pv'ght'gpeg'y kj "gs vkr o gpv'y k'gu'cpf 'ecdrgu"
wug'qh'eqttgevt' nxi u'v'q'eqppgev'v'q'r qy gt'r q'k'pu"
r tqr gt'eqppgevqpu'v'q'r nxi u'ht'o "ecdrg'i tkr u'v'q'r t'gxgpv'gcty 'y k'g'htqo 'r wnkpi "q'w'or gto k/v'q/y qtni"
r tqegf v'gu'v'q'gpv'gt'uchgv' "
f k'ueqppgevqpu'qh' u'w'r r dgu'v'q'qxgtj gcf "k'p'gu"qt"qyj gt"r tgecwqpu'y j gtg"etcpgu"v'kr r gt"nqttkgu."
uechqrf kpi . 'gve'0o ki j v'v'qvej 'k'p'gu'qt'ecwug'ctekpi "

Cartridge Operated Tools:"

o cngt'v'k'pustwv'k'pur'dgkpi 'hmqy gf "
r tqr gtn' 'vtckpgf 'qr gtcvqtu.'cy ctgpgu'qh'f cpi gtu'cpf 'cdk' { 'v'f gcn'y kj 'o k'ht'gu"
uchgv' { 'qi i ngu"
tgi wct'engcpkpi 'qh'i v'p"
ugewt g'r n'eg'ht'v'v'p'cpf 'ectv'kf i gu'y j gp'p'qv'k'p'wug"

Falsework/formwork:"

f guki p'ecrewv'k'pur'u'wdo kvgf 'o gy qf 'u'cvgo gpv'f gcnkpi 'y kj 'r t'gxgpv'kpi 'h'cu'qh'y qtngtu"
crr q'k'pvo gpv'qh'hcngy qtnieqqt'f k'pcvt"

"

"

ej genu'qp'f guki p'cpf 'y' g'wv r qtu'hqt'uj wvgtkpi 'cpf 'hqt y qtni'
uchg'gt gevqp'htqo 'uvg u'qt'r tqr gt'r rchqto u'
cf gs wcv'g'dcugu'cpf 'i tqwpf 'eqpf kkp'u'hqt'htcf u'
r nvo d'r tqr u'qp'gvg'dcugu'cpf 'r tqr gtn' 'ugv'qww'
eqttgevr kpu'wvgf 'kp'y' g'r tqr u'
vko dgty qtnkp'i qpf 'eqpf kkp'
kpur gevqp'd{ 'eqo r gvgpvr gtuqp.'ci ckpu'ci tggf 'f guki p.'dghqtg'r qwtkpi 'eqpetgvg'

Risks to the Public:"

kf gpvkh{ 'cm'tkumi'v'q'o go dgtu'qh'y' g'r vdrle"qp"cpf "qh'ukg."g0 0o cvgtknu'hmki 'htqo "uechhqr" 'gve0" uksg'r rcpv'
cpf "tcpu r qtv'*ceegulgi tguu'cpf 'ko r ngo gpvr tgecvkqpu."g0 0uechhqr' hcpulpgu."dcpmuo gp.'y ctpkpi 'pqvlegu."
gve0'
dcttkgtu'v'q'r tqvgevkugrvg'r gtuqpu'cpf 'xgi lergu'
cf gs wcv'g'ukg'r gtko gvg' "hpekp' 'v'nggr "qww'y' g'r vdrle"cpf "r ctvewrctn{ 'ej krf tgp0" ugewt'g'y' g'ukg" f wtkpi "
pqp/y qtnkpi 'r gtlkf u'
o cng'uchg'ur gekhe'f cpi gtu'kp'ukg" f wtkpi "pqp/y qtnkpi "r gtlkf u."g0 0'gzevcvqpu'cpf "qr gpkpi u"eqxgtgf "
qt'hpegf.'o cvgtknu'uchgn' 'ucengf.'r rcpv'ko o qdkk'gf.'hcf f gtu'tgo qxgf "qt'dqctf gf "

Fire – General:"

uwhlekpvpwo dgt'cpf 'v' r gu'qh'hk'g'gz vki wkuj gtu'
cf gs wcv'g'guer g'tqwg'u.'hgr v'ergct "
y qtngt'cy ctgguu'qh'y' j cv'q'f'q'kp'cp'go gti gpe{ "

Fire – Flammable Liquids:"

r tqr gt'lvqtci g'ctgc"
co qwpv'qh'hro o cdrg'hk'wkf "qp'ukg'hgr v'q'c'o kpo wo 'hqt'y' g'f'c{ 'u'y' qtni'
uo qnkpi 'r tqj kdkgf =qj' gt'ki pkkqp'lwtegu'hgr v'cy c{ 'htqo 'hro o cdrg'hk'wkf u'
r tqr gt'uchgv' 'eqpckpgtu'

Fire – Compressed Gases, e.g. Oxygen, LPG, Acetylene:"

r tqr gtn{ 'lvqtgf 'e{ rkp' gtu'
xcrgu'hwm{ 'emugf 'qp'e{ rkp' gtu'y' j gp'pqv'kp'wug"
cf qr v'vj qv'y qtno'r tqegf wtu'
ukg'e{ rkp' gtu'kp'wug'qwwkf g'y' wu'

Fire – Other Combustible Materials:"

o kpo wo "co qwpv'hgr v'qp'ukg"
r tqr gt'y' cug'dkpu'
tgi wrct'tgo qxcn'qh'y' cug'o cvgtkcn'

Noise:"

cuuguu gpv'qh'pqkug'tkumi"
pqku{ 'r rcpv'cpf 'o cej kpgt{ 'hkwgf 'y' kj 'ukgpegtulo wtu'
gct'r tqgevqp'hqt'y' qtngtu'kh'y' g{ 'y' qtnkp'xgt{ 'pqku{ 'lwttqwpf kpi u'

Health:"

kf gpvkh{ 'j c{ ctf qwu'wduvpegu.'g0 0cudguqu.'hgc'f.'uqrgpvu.'gve0'cpf 'cuuguu'y' g'tkumi"
wug'qh'qj' gt'wduvpegu'y' j g'g'r quikdr"
eqpvtq'gzr quwtg'd{ 'o gcpu'qj' gt'y' cp'd{ 'wukpi 'r tqgevkg'gs vkr o gpv'
uchgv' 'kphqto cvkp'uj ggu'cxckrdrg'htqo 'y' g'wv r rkt"
uchgv' 'gs vkr o gpv'cpf 'kpustvckpu'hqt'wug"
nggr 'qj' gt'y' qtngtu'y' j q'ctg'pqvr tqgev'f'qww'qh'f cpi gt'ctgcu"
vgukpi 'qh'cvo qur j g'g'kp'eqphkgf 'ur cegu="r tqxkukqp'qh'htguj "ck'uwv r n{ 'kh'pgeguuct{ 0'Go gti gpe{ "
r tqegf wtu'hqt'tguewg'htqo 'eqphkgf 'ur cegu'

Manual Handling:"

cxqkf 'y' j g'g'tkumi'qh'kplwt{ "

"

kh'wpcxqlf cdrg."cugui'cpf 'tgf weg'tkmi"
Protective Clothing:"

uwkcdrg"gs wkr o gpv'q'r tqvgev'j gcf."g{ gu.'j cpf u'cpf 'hggv'j gtg'crr tqr tlcvg"

"

"

gphqteg'y gctkpi 'qhl'r tqvevkg'gs vkr o gpv'
Welfare:"

uwkcdrg'vqkqvu"
engcp'y cuj 'dculp.'j qvly cto 'y cvgt.'uqcr 'cpf 'vqy gn'
tqqo 'qt'ctgc'y j gtg'enqy gu'ecp'dg'f tkgf "
y gvly gcvj gt 'i gct'hqt'y qug'y qtnkpi 'kp'y gveqpf kkpupu"
j gcvgf 'ukg'j wly j gtg'y qtngtu'ecp'cng'lj gngt'cpf 'j cxg'b gcu'y kj 'vj g'hcekrk' hqt'dqkpi 'y cvgt"
uwkcdrg'hkuv'ckf 'hcekrkku"
Work in Public Areas:"

cnitkumi'v'vj g'r wdne'kf gpv'kkgf "
o gvj qf 'ucvgo gpv'cr r tqxgf "
tqcf 'enquwtgu'cr r tqxgf "
vgo r qtct { 'f kxgtukapu'kp'r nreg"
uchgv' 'dcttktu'gtgevgf lo clpvclpgf "
ncdwt.'o cvgtkcu.'r ncpv'cpf 'qvj gt'tguqwtugu'uw'hlekp'v'q'b ggv'r tqi tco o g"
vgo r qtct { 'tglpuvcvgo gpv'eqo r rvgf 'cpf 'r tqr gtn' 'o clpvclpgf "
r gto cpgpv'tglpuvcvgo gpv'eqo r rvgf 'cv'gctrlguv'r quikdng'f cvg0'
"

Construction Environmental Management Plan"

C"Eqputwekqp" Gpxktqpo gpvcr' O cpci go gpv' Rnp" *EGO R+ "ku" c" r tcevecrn' cpf "cej kxgcdng" r ncp" qh"
o cpci go gpv'v'q'gpwtg'y cv'cp { 'gpxktqpo gpvcrlo r cevf wtkpi 'vj g'f guli p.'r nppkpi 'cpf 'eqputwekqp'r j cug"
ctg" o kpo k gf 0' EGO R+ "j cxg" dggp" r tqr qugf " vq" f gcn' y kj " vj g" hqmny kpi " kuwgu" f wtkpi " Rtqlgev"
eqputwekqp<

Ego r gpucv'qp'cpf 'r'cpf 'cng. "
Rj { ulecrnugv'kpi . 'hqt'c'cpf 'hcvpc=" "
Kpvgttwv'kqp'qh'hng { 'kpl'cwtwewt'g'lpucm'v'kpu=" "
Y cvgt's wcrk' { 'cpf 'gpgti { 'o cpci go gpv=" "
F wuv'cpf 'ck' s wcrk' { " "
Qeewr cvkppcnj gcnj 'cpf 'uchgv { " "
P qkug'cpf 'xldtcv'kqp.'cpf = "
Y cug'b cpci go gpv0'
"

F gvckrgf 'EGO R+ 'ctg' r tgu'pvgf 'dgmny 0'

"

"

"

EGO R'hqt'Ego r gpucvkp"cpf 'rcpf 'cng"

"

Qdlgevkg"	Vq'gpwtg'yj cv'yj g'rcpf qy pgtu'ctg'r tqr gtn' 'eqo r gpucvgf "cpf 'cxckrlrcpf 'hqt 'yj g'r tqr qugf "Rtqlgev0'			
O cpci go gpv' utcvgi { "	Upveg'eqo r gpucvkp'ku'cp'kpvgi tcnr ctv'qh'Rtqlgevf guki p."gpwtg'k'ku'f gcn'y kj 'htqo 'yj g'gctrlguv'uci gu'qh'Rtqlgevf tgr ctcvkqp" cpf 'eqo r n' 'y kj 'yj g'rcy u'qh'Mgp{ c0'			
"	Cevkxkkgu"	Tgur qpukdkkv{ "	Vlo kpi "	Equu" *MGU
Cevkpu"	Ncpf " cng" uj qwf " dg" o kpo k gf " y j gtg" hgcukdg." gzt nqt kpi " cm" xkcdrg" cngtpcvkxg'Rtqlgevf guki pu'gfi 0tgcrl po gpv'qh'yj g'r k gkpg'o c{ 'tki plklecpv{ " tgf weg'eqo r gpucvkp="cpf " Y j gtg"f kur rnego gpv'ku'wpcxqkf cdrg."eqo r gpucvkp"cpf "tgugwrgo gpv'r rpu" uj qwf " dg" f gxgnr gf " y kj " cf gswcvg" eqo r gpucvkp" wpf gt " i wkf cpeg" qh' xctkqu"rgcf "ci gpekgu'lpemf kpi "O kpkut { "qh"Ncpf u."VY UD."NqecrlEqwpekui" cpf "yj g'F kntlevF gxgnr o gpvEqo o kvggu0'	Rtqr qpgpv'	Rtkqt "q" eqputwevkp"	" " " " " " "
Rgthqto cpeg" kpf lecvqtu"	Ncent'qh'eqo r rkpwu"TEgo r rkpwu0'	Rtqr qpgpv'	Eqputwevkp" Rj cug"	VDF "
O qpkqtkpi " tgs wktgo gpw"	Fqewo gpvcvkp="cpf "Ncpf "gcugo gpv'	Rtqr qpgpv'	Eqputwevkp" Rj cug"	
Tgr qtvkpi "	Fqewo gpvcvkp"	Rtqr qpgpv'	Eqputwevkp" Rj cug"	
Eqttgevkg" cevkpu"	Ko r ngo gpvtgeqo o gpf cvkpu0'	Rtqr qpgpv'	Eqputwevkp" Rj cug"	
Kpvgthceg"	Gpuwtg'eqo r rkepeg'y kj 'yj g'Ncy "qh'Mgp{ c'cpf 'yj g'tgs wktgo gpw'qh'cp{ " f qpqtu'kpxqrxgf 'kp'yj g'Rtqlgev0'	Rtqr qpgpv'	Eqputwevkp" Rj cug"	

"

EGO R'hqt'Rj { ulecnlugwłpi . 'hqt'cpf 'hwp' "

"

Qdlgevłg"	O clpvcłp'vj g'gzłwłpi 'dncpeg'y kj łp'vj g'r j { ulecn'hwp'cpf 'hqt'eqo r qpłpw'łp'vj g'Rtqlgev'ctgc'ugwłpi 0'			
O cpci go gpv' utcvgi { "	Rtqłkf g'hqt'cr r tqr tlcw'bo gcuwłgu'vj cv'i wctcpvgg'vj g'r tqvgevłqp'qh'j cdkcwa.'hqt'cpf 'hwp'0'			
"	Cevłxkłgu"	Tgur qpukłkłł "	Vlo łpi "	Equw" *MGU
Cevłqpu"	Rtqłkf g'"utvewłgu'"vj cv'y km'"pqv'"j łpf gt'"łtgg'"o qxgo gpv'"qh'"cpło cni'"cpf " f łur gtucłqh'łr tqr ci cvłqp'eqo r qpłpw=" O clpvcłp'cu'bo wej 'cu'ł quukłdg'vj g'pcwłcnłf tclpci g'u{ ugo u'cpf 'r cwgtpu=" I tcf g'łkłgu'q'qtłi łpcłłgxgnı'q'bo clpvcłp'vqr qı tcr j { = Cu'bo wej 'cu'ł tcevłecnłło k'vj g'co qpłv'qh'xgi gvcłqp'engctgf 'F włłpi 'y qłm=" F łueqwtci g'dwuj 'bo gcv'j wplłpi = Łp'vj g'gxgp'vj cv'eqpukł gtcdrg'f co ci g'v'q'xgi gvcłqp'ku'gpxkuci gf . 'ugv'qw'c" r ncp'hqt'tgr męgo gpv'qt'i tcf łpi 'q'gpeqwtci g'pcwłcnłtłwłgpvcłqp=cpf " F guki p"cpf "r ncp'hqt"wuł"qh'y c{ nęcxg"d{ "r gf gultłcpu"cpf "pqł/o qvqtł gf "	Eqpuwłłpi " Gpi łpggtu" " Eqpłtcevłt" CY UD"	Rcpplłpi 0' F guki p'(" " eqpłtwevłqp"	VDF "
Rgthqto cpeg" łpf łecvqtu"	Rtgugpeg'qh'c'i qqf 'dncpeg'qh'łhqt'cpf 'hwp'=cpf " O łło cłłqt'pq'łqłf łpi 'łp'Rtqlgev'ctgc0'	CY UD"	Eqpłtwevłqp" Rj cug"	
O qpłqłłłpi " tgs włłgo gplu"	Dcugłłpg'f cv'łRtqlgev'eqo r nęvłqp'Dcugłłpg=cpf " Ej cpi gu'łp'łqecłłj { f tqłłi { 0'	CY UD"	Eqo o kłkłpłł i 'łnci g0'	
Tgr qłłłpi "	Ułg'łqı dqqnłcpf 'GO EC'tgs włłgo gplu0'	Eqpłtcevłt"	Eqpłtwevłqp" Ri cug"	
Eqttgevłł g'cevłqpu"	Tgj cłłkłcvłqp"	CY UD"	Eqo o kłkłpłł i 'łnci g"	
Łpłgtłceg"	GO R'eqo r nęu'y kj 'vj g'GO EC'cpf 'qıj gt'cr r nęcdrg'łcy u0'	CY UD"	Eqpłtwevłqp"	

"

EGO R'hqt "Kpvttr vkp'qh'ng' 'lph'cutwewtg'lpucm'vkpu"

"

Qdlgev'xg"	Rrnp'eqputwewkp'cev'xkkgu'q'b' l'p'lo' kug'lpvgttr vkpu'qh'lp'ht'cutwewtg'cpf' 'gputw'g'uo' qq'j' 'Rtqlgev'lo' r' ngo' gpvcvkp'y' j' kng' eqo' r' n' l'pi' 'y' kj' 'y' g'rcy' u'qh'Mgp{ c"			
O'cpci' go' gpv' utcvgi { "	Nlckug'y' kj' 'ucngj' qrf'gtu'lp'y' g'r' tqlgev'ctgc'q'g'putw'g'y' cv'ceegu'qp'r' tqvgev'f'qt'r' t'kxcvg'ctgcu'ku'i' t'cpvgf' 'lp'i' qqf' 'v'ko' g'lp'qtf'gt"			
"	Cev'xkkgu'	Tgur'qpukdk'x' { "	V'ko' l'pi' "	Equu' *MGU
Cev'kpu'	Gucdr'kuj' 'y' g'p'cwtg'qh'c'm'ucngj' qrf'gtu=" K'gp'v'h' { 'ng' { 'lpvgtguu'qh'gcej' 'qh'y' g'ucngj' qrf'gtu=" Hqto' cm' { 'hckug'y' kj' 'y' g'ucngj' qrf'gt'cpf' "eqo' o' wplecvg'y' g' 'Rtqlgev'f' gvc'ku'q' " y' go' 'y' kj' 'c'x'ky' 'qh'f' g'xgr' l'pi' "c'y' qtn'r' rcp=" K'o' r' ngo' gpv'y' qtn'r' rcp="cpf' " Ces'v'kt'g'p'q'v'gu'qp' 'Uc'v'k'ucv'qt { 'Eqo' r' r'gv'k'p'qh'Y' qtn'u'd' { 'gcej' 'ch'gev'f' 'r' ctv' { '0'	CY UD" Eqp'uw'ncpv' Eqp'tcev'qtu'	R'c'p'p'k'pi' . " F'g'uki' p' 'cpf' " Eqp'utwewkp' r' j' cug'	" " " " " "
Rgthqto' cpeg' l'pf' l'ecv'qtu'	Ngxgr'q'h'eqo' r' rckpu'0'	Cm'	Eqp'utwewkp' r' j' cug'	VDF "
O'qpkqt'l'pi' " tgs'v'kt'go' gpw'	V'ko' gn' { 'cej' k'xgo' gpv'q'h'b' k'gu'qp'gu="cpf' " Ncen'q'h'lpvgttr vkp' 'qh'ugtx'k'egu'0'	Cm'	Eqp'utwewkp'	
Tgr'qt'v'pi' "	U'kg'h'qi' 'dqqm'	Eqp'tcev'qt'	Eqp'utwewkp' r' j' cug'	
Eqttgev'xg' cev'kpu'	K'pxg'uki' cvg'ecwug'qh'lpvgttr vkpu=" K'o' r' ngo' gpv'eqttgev'xg'b' gcuw'gu'0'	CY UD" U'cngj' qrf'gtu'	Eqp'utwewkp' r' j' cug'	
K'p'v'gth'ceg"	Eqo' r' n' { 'y' kj' 'y' g'GO R'eqpvc'k'pgf' 'lp'y' ku'tgr'qt'v'0'	Eqp'tcev'qt'	Eqp'utwewkp' r' j' cug'	

EGO R'hqt'y cvgt"cpf "gpgti { "o cpci go gpv"

Qdlgevkg	O kpo kug'ko r cev'qp'y cvgt'cpf "gpgti { 'tguqtegu'y kj kp'yj g'Rtqlgevtgc'f wg'q'vj g'eqpustwekqp'y qtmu'}			
O cpci go gpv' utcvgi { "	Eqpugt'xg'y cvgt'cpf "gpgti { 'tguqtegu.'cdcvgr qmwkqp'cpf 'eqo r n' 'y kj 'vj g'rcy u'qhMgp{ c'}			
"	Cevkxkkgu"	Tgur qpukdkkv{ "	Vlo kpi "	Equu" *MGU+
Cevkqpu"	Rtqxkf g'err tqr tlcvg'cpf 'cf gs wcvg'f tclpci g'lphtcutwewtg'y j gtg'tgs vktgf=" Gpuwtg'o cej kpgt { 'ku'tgi wctn' 'ugt'xlegf 'q'cxqkf 'rgcnci gu'cpf lqt'ur knci gu=" Qku. "h'wgu" cpf "'qj gt "'o cvgtkcn' "q "'dg "'uqtdgf "'kp "'ceeqtfcpeg"'y kj "'vj g" o cpw'cewtgtu'uchgv' f'cvc'lj ggw'*O UF U=" Vtclp'lnclh'qp'ur knitgur qpug=" K' r ngo gpv'gtqulqp'cpf 'ugf ko gpvcvqp'eqpvtqnu=" Rtqrgt'j cpf kpi lf kur qucn'qh'iks vkf 'y cug=" Gpgti { 'b cpci go gpv'vj tqwi j 'wug'qh'buqwpf lerr tqr tlcvg'gs wkr o gpv=" Crr rdecvqp'qh'tcvgf 'gs wkr o gpv'kp'y grf kpi 'cpf 'tgrcvgf 'y qtmu="cpf " Wug'qh'gh'hekgpv'o gej cplecn'r rcpv'cpf "gpgti { 'ucxgtu'qp'ukgu'}	Eqpvtcevqt"	Eqpustwekqp" r j cug"	" " " " " " " " " "
Rgthqto cpeg" kpf lecvqtu"	O kpo cnlkpvtgtgtgpeg'qh'y cvgt'cpf "gpgti { 'tguqtegu'kp'yj g'ctgc'}	Eqpvtcevqt"	Eqpustwekqp" r j cug"	VDF "
O qpkqtkpi " tgs vktgo gpw"	Rj { ulecnlkpur gevqp="cpf "Ngxgn'qh'eqo r n'kp'u'}	Eqpuwn'cpv"	Eqpustwekqp" r j cug"	
Tgr qt'kpi "	Ukg'cev'xkkgu'hqi "dqan'}	Eqpvtcevqt"	Eqpustwekqp" r j cug"	
Eqttgevkg" cev'kqpu"	K' r ngo gpvcvqp'qh'o qpkqtkpi 'h'p'f kpi u'cpf 'tgeqo o gpf cvkqpu'}	Eqpvtcevqt"	Eqpustwekqp" r j cug"	
K'vgt'heg"	Eqo r n' 'y kj 'rcy u'cpf 'i vkf grkpgu'}	Eqpvtcevqt"	Eqpustwekqp" r j cug"	

"

EGO R'hqt 'f wu'cpf 'ekt 's wcrk'f "

"

Qdlgevkg"	O clpvc'p'vj g's wcrk'f { "qh'vj g'ekt'cpf "o k'p'lo kug"cp { 'j cto hwi'go kuuk'p'u'kp'v'vj g'c'vo qur j gtg'cpf "eqo r n' 'y kj 'vj g'rcy u'qh'Mgp { c"			
O cpci go gpv' utcvgi { "	Cdcvg'r qmwk'p'qh'vj g'c'vo qur j gtg'd { "ekt'dqtpg'r ct'v'w'rcvg' "o c'wgt'0'			
"	Cevk'x'k'ku"	Tgur qpuk'k'k'k'f { "	Vko kpi "	Equu" *MGU
Cevk'p'u"	F co r gp'y qtn'ctgcu"o cvgt'k'cu"j gcr u'cpf "o wrej "dctg"i tqwpf "vq"o k'p'lo kug" f wu'go kuuk'p'u=" O clpvc'p'gs wkr o gpv'cpf "o cej k'p'gt { 'vq' "o cpw'c'ewt'gtu'0'ur gek'h'ecv'k'p'u=" Wug'gpx'k'qpo gpc'm { 'ht'k'p'f n' 'hwgn=" O k'p'lo kug'vj g'r g'k'qf 'hqt' "o cej k'p'gt { 'k'f r'k'pi =" Rwtuwg'i qqf 'r t'cev'legu'lp' "gp'gti { "wug' "cpf 'ug'puk'k'ug' 'u'ch' " "cpf "Rt'qx'k'f g" cr r tqr t'k'cvg'r gtu'qppgn'r tqv'gev'kg'gs wkr o gpv'vq'uk'g'y qtn'gtu'0'	Eqpvtcevqt"	Eqputwcvk'p' r j cug"	" " " " " " " "
Rgthqto cpeg" k'p'f k'ecv'qtu"	Ncem'qh'eqo r r'k'p'u"TEqo r r'k'p'u=" cpf "Tgr q'tu"TNqi "dq'q'm'g'pvt'k'gu'0'	CY UD"	Eqputwcvk'p' r j cug"	VDF "
O qp'k'q't'k'pi " tgs w'k'go g'p'u"	Rj { u'k'ecr'k'p'ur gev'k'p' " Uk'g'Nqi "da'q'mi"	Eqpuwncpv"	Eqputwcvk'p' r j cug"	
Tgr q't'k'pi "	Ukg'hqi u'q'h'k'p'ur gev'k'p'u'cpf "eqttgev'kg'cev'k'p'u'0'	Eqpvtcevqt"	Eqputwcvk'p' r j cug"	
Eqttgev'kg'cev'k'p'u"	Ko r ngo gpvt'geqo o gp'f'cev'k'p'u"	Eqpvtcevqt"	Eqputwcvk'p' r j cug"	
K'p'g't'h'ceg"	Tgx'k'gy "cpf "eqo r n' 'y kj 'rcy u'cpf 'tgi w'rcv'k'p'u'0'	Eqpvtcevqt"	Eqputwcvk'p' r j cug"	

"

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"

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"

EGO R'hqt'y cug'o cpci go gpv'

"

Qdlgevkg"	O kpo kug'yj g'r qvqvclnht'gpxkqpo gpvcllo r cev'qh'y cugu'i gpgtcvgf 'f wg'q'yj g'eqputwekqp'cevxxkku'cpf 'eqo r n' 'y kj 'y g' ncy u'qh'Mgp{c0'			
O cpci go gpv' utcvgi { "	Ghgevkgm' 'b cpci g'yj g'ukgu'cpf 'cevxxkku'yj cv'b c{ 'hgc' 'q'i gpgtcvkp'qh'y cugu0'			
"	Cevxxkku"	Tgur qpukdkkx{ "	Vlo kpi "	Equu" *MGU"
Cevkpu"	Cm'y cugu"uj cm'dg"eqpvclpgf "qp"ukg"r tkt "q" f kur qucn'wukpi "cr r tqr tlcvg" uvtci g'eqpvclpgtu=" Cm'y cugu"uj cm'dg"tgi wrctn' "ergctgf "htqo "y'j g"ukg" cpf "f kur qugf "qh'kp" cr r tqxgf 'b cppgt=" J ki j 'hgxgn'qh'j qwugnggr kpi 'uj cm'dg'o clpvclpgf =cpf" Uchh'uj cm'dg'vclpgf "l'ugpukkgf "cdqw'y cug'o cpci go gpv'cv'yj g'utv'qh' yj g'Rtqlgev'cpf 'tgi wrctn' 'cu'b c{ 'dg'hqwpf 'cr r tqr tlcvg0'	Eqptcevt"	Eqputwekqp" r j cug"	" " " " " "
Rgthqto cpeg" kpf lecvqtu"	P q'y cug'cv'y qtnlukgu'gzegr v'kp'cr r tqxgf 'cpf 'b ctngf 'hcecvkpu0'	Eqptcevt"	Eqputwekqp" r j cug"	" VDF "
O qpkktpi " tgs vktgo gpw"	Tgi wrct'ukg'kpur gevkvpu=cpf " Y cug'f kur qucn'f qewo gpvkvqp'cpf 'tcentkpi 0'	Eqptcevt"	Eqputwekqp" r j cug"	
Tgr qtvpki "	Tgxky 'qh'y cug'j cpf r kpi 'unr u'cpf "qy gt'tgrcvgf 'f qewo gpvkvqp0'	Eqptcevt"	Eqputwekqp" r j cug"	
Eqttgevkg" cevkvpu"	Rtqxf g't gr qt vu."eqttgevkg"cevkvpu'cpf 'tgeqo o gpfcvkpu'y j gt g" pqp/eqphqto kku'qewt0'	Eqptcevt"	Eqputwekqp" r j cug"	
Kpvtceeg"	Gpuwt'g'yj cvEqptcevtu'qt'uwdeqptcevtu'GO R'eqo r rku'y kj 'y g'GO R" eqpvclpgf 'kp'yj k'gr qt v0'	Eqptcevt"	Eqputwekqp" r j cug"	

Abbreviations"

Vj g'hqmy kpi 'cddtgxkvp'ctg'wugf 'kp'yj gug"
f qewo gpw<

Hf K	Hf gtcvkp"Kvgtpcvqpcn'f gu"Kpi gplgwtu"
ó'Eqpugku"DU"	Dtkkuj 'Ucpf ctf u"
ER"	Eqf g'qh'Rtceveg"
I TR"	I nuu'Tgphqtegf 'Rruke"
CE"	Cudguqu'Ego gpv"
FK	F wevkg'Kqp"
Ej "	Ej clpci g"
RXE"	Rqn{ xlp{ nEj ntkf g"
nRc"	nku'Rcucri'
i "	ceegrgtcvqp'f vg'vq'i tcvkw{ '/'*; 0 29o k ⁴ +
i ro "	i cmypu'r gt'o kpwg"
o i f"	o ktkqp'i cmypu'r gt'f c{ "
o o "	o ktko gvgtu"
o "	o gvtgu"
o j f"	o gvtgu'j gcf "
o 5"	ewdle'b gvtgu"
o 5 f c{ "	ewdle'b gvgu'r gt'f c{ "
o k ⁴ "	o gvtgu" r gt"
ugeqpf " j gcf "	3lj gcf f c{
"	rtkgtu" r gt"
j gcf " r gt"	f c{ " nY
"	nkuycwu"
nXc"	nkuqxqn/co r gtg"
nY j "	nkuycw'j qwt"
KUQ"	KvgtpcvqpcnUcpf ctf u'Qti cplucvqp"
EHO "	ewdle'hggv'r gt'o kpwg"
CQF "	Cdqxg'qtf pcpeg'f cwo "
UY N"	Ucvke'y cvgt'hgxgn'
RY N"	Rwo r kpi 'y cvgt'hgxgn'
I N"	I tqwvf'hgxgn'
GQJ "	Gpf 'qh'j qrg"

SPECIFICATIONS FOR ULTRASONIC OPEN CHANNEL FLOW METER

"

Summary

POF series flow meter is designed to measure velocity and flow for partially filled pipe and open channel stream or river. It utilizes Doppler ultrasonic theory to measure fluid velocity. According to pressure sensor, the flow depth and sectional area can be obtained, finally the flow can be calculated. POF transducer has the functions of conductivity test, temperature compensation, and coordinate correction. It is widely applied in measuring sewage, waste water, industrial effluents, stream, open channel, residential water, river etc. In addition, it is applied in monitoring sponge city, urban black odor water and river & tide research.

Features

The Meter Can Programme And Measure Any Shapes Of Open Channel & Partial Filled Pipe By 20 Coordinate Points

Velocity Range 0.02-12m/s, Accuracy $\pm 1.0\%$

Bi-directional Measuring Velocity, Positive Flow And Negative Flow

Depth Measurement By Pressure Sensor And Ultrasonic Sensor, Accuracy $\pm 0.1\%$

Built-in Coordinate Correction Function

Standard 4-20mA, RS485/MODBUS Output, Opt.GPRS

Available Configure Data Logger With SD Card

"

Sensor Specification

Velocity"	Tcpi g"	42o o lu/34o lu'Dkftgevkpcn'O gcwtlpi . "v" F ghcnw/42o o lu'vq'308o lu'uki pcnftgevkpcn' o gcwtgo gpv"
	Ceewtce{ "	Ö3Ø' "vrlecn'
	Tguqnwkqp"	3o o lu"
Depth(ultrasonic)"	Tcpi g"	42o o "vq'7222o o "7o +"
	Ceewtce{ "	Ö3Ø' "
	Tguqnwkqp"	3o o "
Depth(ultrasonic)"	Tcpi g"	2o o "vq'32222o o "32o +"
	Ceewtce{ "	Ö3Ø' "
	Tguqnwkqp"	3o o "
Temperature"	Tcpi g"	2"ç'82 "
	Ceewtce{ "	Ö2Ø' "

	Tguqnwkqp"	208 "
Conductivity"	Tcpi g"	2"vq"422.222"Uleo "
	Ceewtce{ "	Õ3Ø' "v{r lecn'
	Tguqnwkqp"	Õ3Uleo "
Tilt"	Tcpi g"	Õ92ÅXgtvecn'cpf "j qtk qpven'czku "
	Ceewtce{ "	Õ3Åpi ngu'nguu'vj cp'67Å'
Communication"	UF K34"	UF K34"x30"O cz0ecdrg'72o "
	O qf dwu"	O qf dwu"TVW'O cz0ecdrg'722o "
Display"	F kur rc{ "	Xgnqekf . 'hny . 'f gr vj "
	Crr rdecvkqp"	Rkr g."qr gp"ej cppgn'pcwtcnlxtgco "
Environment"	Qr gtcvkqp"Vgo r "	2 "ç82 "y cvgt"vgo r gtcwtg+"
	Uqtci g"Vgo r "	/62 "ç97 "
	Rtqvgevkqp"Encuu"	R88: "
Others"	Ecdrg"	Ucpcf ctf '37o ."O cz0722o "
	O cvgtlen'	Gr qzlf g'tgukp'ugcrgf "gpenquwtg.'uclpnguu'uvgn'o qwpvki " hzwtg"
	Uk g"	357o o 'z'72o o 'z'42o o "NzY zJ +"
	Y gli j v'	3m "y kj '37o "ecdrg+"

Calculator Specification"

Kpuvcnvkqp"	Y cm'o qwpvgf ."Rqtvedrg"
Rqy gt"Uwr r n{ "	CE<: 7/487X'F E<34/4: X"
Rtqvgevkqp"Encuu"	R88"
Qr gtcvkqp"Vgo r "	/62 "ç97 "
F kur rc{ "	607"lpej "NEF "
Qwr w'	Rwng."6/42o C*xgnqekf . 'hgxgn:"TU6: 7*O qf dwu+"Qr v0F cwc"nqi i gt."I RTU"
Y gli j v'	406m "
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1.1.1 Location

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Figure 1: Project Location (image from Google Earth)

1.1.3 Topography

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1.1.4 Climate

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1.1.5 Geological and Sub-soil Conditions

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1.1.6 Project Components

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1.1.7 Quality and Approvals

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1.1.8 Construction Documents

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1.1.9 Operation and Maintenance Manuals

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1.1.10 Level Datum

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1.1.11 Setting Out of the Works

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1.1.12 Boundaries of Works

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1.1.13 Work through Private Land

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1.1.14 Public Utility Mains and Services

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1.1.15 Safeguards to Existing Pipes, Cables, Structures

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1.1.16 Record Drawings

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1.1.17 Connections to Existing Pipes, Cables and Equipment

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1.1.18 Lighting, Watching and Traffic Control

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1.1.19 Contractor's Offices

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1.1.20 Project Manager’s Office

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1.1.21 Vehicles for the Project Manager

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1.1.22 Contractor's Yards, Stores and Accommodation for Workmen

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1.1.23 Water and Electricity Supplies

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1.1.24 Contractor's Staff and Workmen

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1.1.25 Training of Employers Workmen

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1.2.1 Project Control

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1.2.2 Monthly Statements and Certificates

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1.2.3 Progress Meetings

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1.2.4 Equipment for the Employer

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1.2.5 Facilities for Survey and Inspection by the Project Manager

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1.2.6 Inspections by the Project Manager during Defects Liability Period

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1.2.7 Protective Clothing and Safety Equipment

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1.2.8 Notice Boards

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1.2.9 Language of Correspondence and Records

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1.2.10 Standards and Regulations

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1.2.11 Equivalency of Standards and Codes

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1.2.12 Quality Control

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1.2.13 Units

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1.2.14 Inspection and Testing during Manufacture

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1.3.1 Definitions

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"Working Drawing"			#
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"Contract Drawing"			-
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"Certified Manufacturer's Drawing"			
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"Special Tools"			

1.3.2 Regulation, Standards, Materials and Workmanship

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1.3.3 Design and Standardization

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1.3.4 Packing transport and storage of materials and plant

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1.3.5 Contract Period and Programme

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1.3.6 Tender Drawings

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1.3.7 Working drawings

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1.3.9 Record Drawings

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1.3.10 Ambient Conditions

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1.3.11 Date Schedules of Technical Information

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1.3.12 Copies of Orders

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1.3.13 Standardization

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1.3.14 Foundations and Building Works

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1.3.15 Inspection and Tests at Manufacturer's Works

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1.3.16 Erection and Checking of Work

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1.3.17 Supervision and Labor

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1.3.18 Specialist Subcontractors

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1.3.19 Special Tools

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1.3.20 Installation, Operating and Maintenance Manuals

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1.3.21 Spare Parts

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1.3.22 Labels and Plates

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1.3.23 Dust, Insect and Vermin Proofing

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1.3.24 Alternatives

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1.4.1 General

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1.4.2 Tests at Manufacturers Works

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1.4.3 Test Certificates

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1.4.4 Tests After erection on Site

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1.4.5 Continuous Test Period

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1.4.6 Instructions and Training of Local Staff

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1.4.7 Works Executed by the Employer on by Other Contractors

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1.4.8 Sequence of Operations and Delays to Other Contractors

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1.4.9 Contractor's Site Offices, Workshops, Storage and Working Areas

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1.4.10 Use of Site

1.4.11 Possession of Site

1.4.12 Interference with the works

1.4.13 Rejected Materials and Defective Work

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1.4.14 Existing Works and Services

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1.4.15 Overhead Power Lines

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1.4.16 Existing Access

1.4.17 Excavation Across Roads and Tracks

1.4.18 Liaison with Police and other officials

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1.4.19 Preservation of Trees

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1.4.20 Protection From Water

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1.4.21 Protection Against Fires

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1.4.22 Watching, Fencing and lighting

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1.4.23 Water and Power for Use on the Works

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1.4.24 Fuel Supplies

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1.4.25 Telephone and Communications

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1.4.26 Sanitation

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1.4.27 First Aid and Medical Services

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1.4.28 Inspection by Engineer During Defects Liability Period

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1.4.27 Sign Boards

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1.4.28 Reference Documents

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2.9.1 General

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2.9.2 Grease Lubrication

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2.9.3 Oil Lubrication

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2.10.1 Alignment

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2.11 Gear Boxes

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2.12.1 Below Water Bearings

2.12.2 Above Water Bearings

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2.13.1 General

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2.13.2 Pump Casings

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2.13.3 Impellers

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2.13.4 Pump Shafts

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2.13.5 Bearings

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2.13.6 Shaft Seals

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2.13.7 Pump sleeves

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2.13.8 Pumps Miscellaneous

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2.13.9 Performance

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2.13.10 Submersible Borehole Pumps

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2.14.1 General

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2.14.2 Sump Pumps

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2.14.3 Jointing

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2.15.1 Pipe work General

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2.15.2 Steel pipe work

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2.15.3 Accuracy of Work

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2.15.4 Cutting Pipes

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2.15.5 Welded Joints

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2.15.6 Flexible Joints

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2.15.7 Flanged Joints

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2.15.8 Bonding

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2.15.9 Deviations at Joints

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2.15.10 Protection of Buried Pipes

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2.15.11 Gaps for Equipment

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2.15.12 Ductile Iron pipe work

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2.15.13 uPVC pipe work

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2.15.14 Small Bore pipe work

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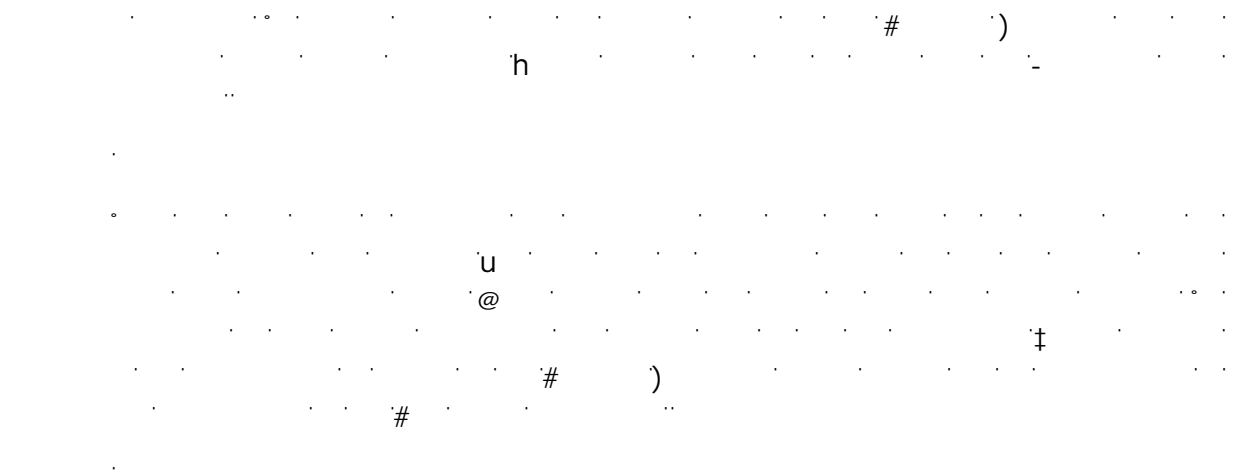
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2.15.15 Puddle Flanges

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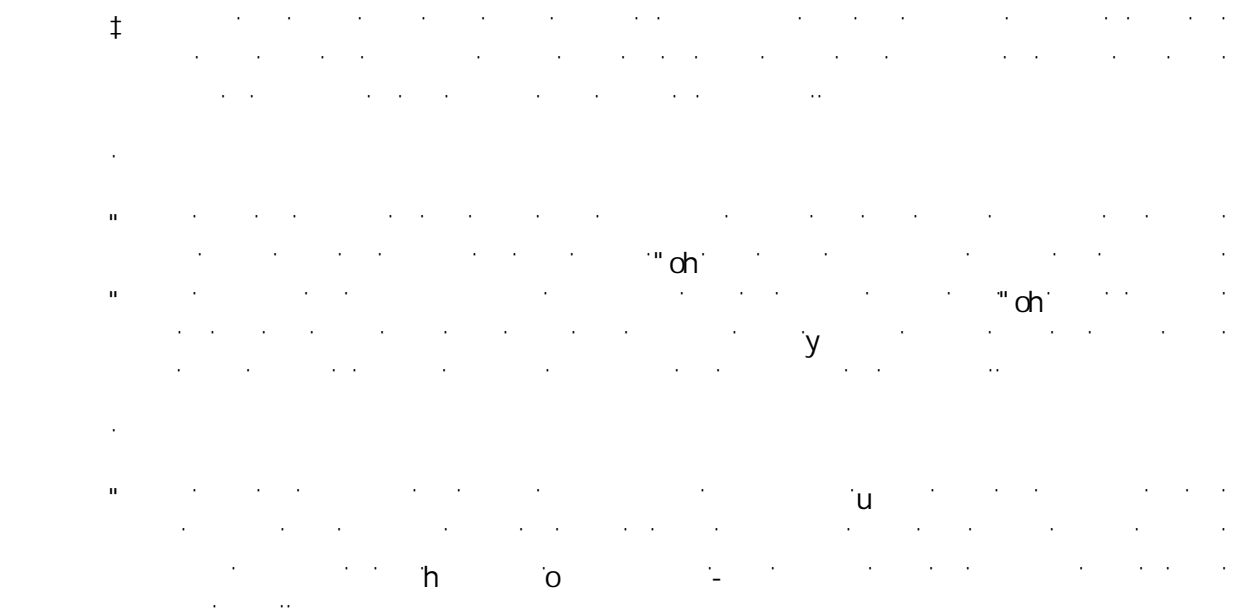
2.15.16 Reference Marking



2.15.17 Protection of pipe work



2.15.18 Branch Pipes and Bosses



2.16.1 Valves and Penstocks-General

2.16.2 Valve Access

2.16.3 Operation

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2.16.4 Materials

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2.16.5 Wedge Gate Valves

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2.16.6 Butterfly Valves

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2.16.7 Non-Return Valves

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2.16.8 Air Release Valves

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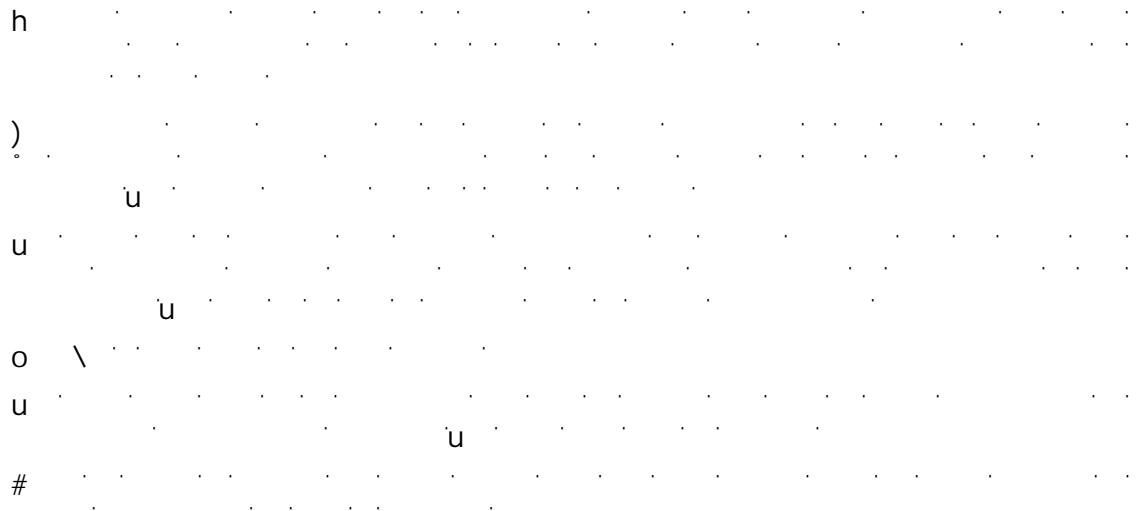
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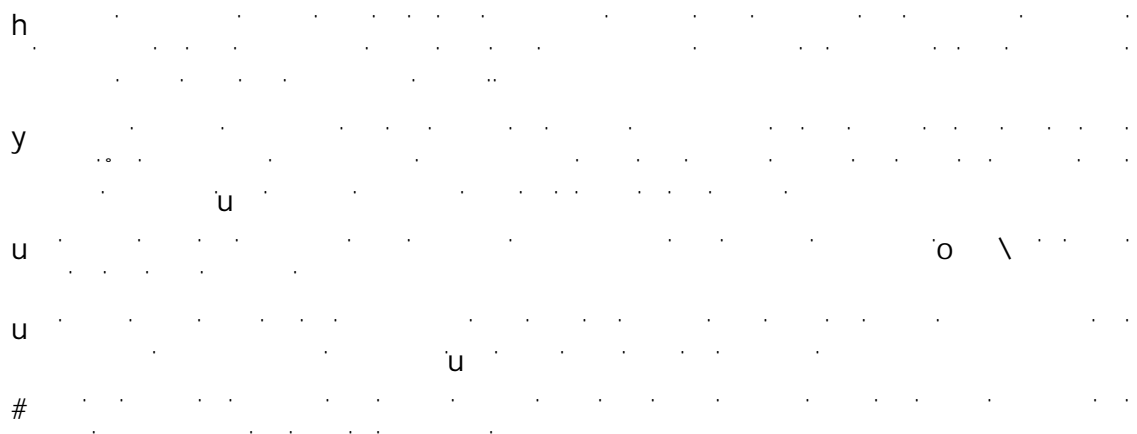
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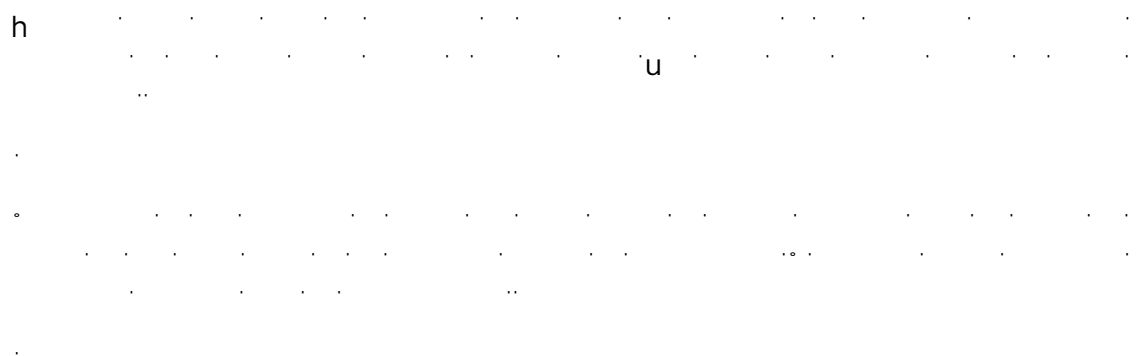
2.16.9 Pressure reducing Valves



2.16.10 Pressure sustaining Valves



2.16.11 Pressure Relief Valves



2.16.12 Diaphragm Valves

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2.16.13 Ball Float Valves

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2.16.15 Penstocks

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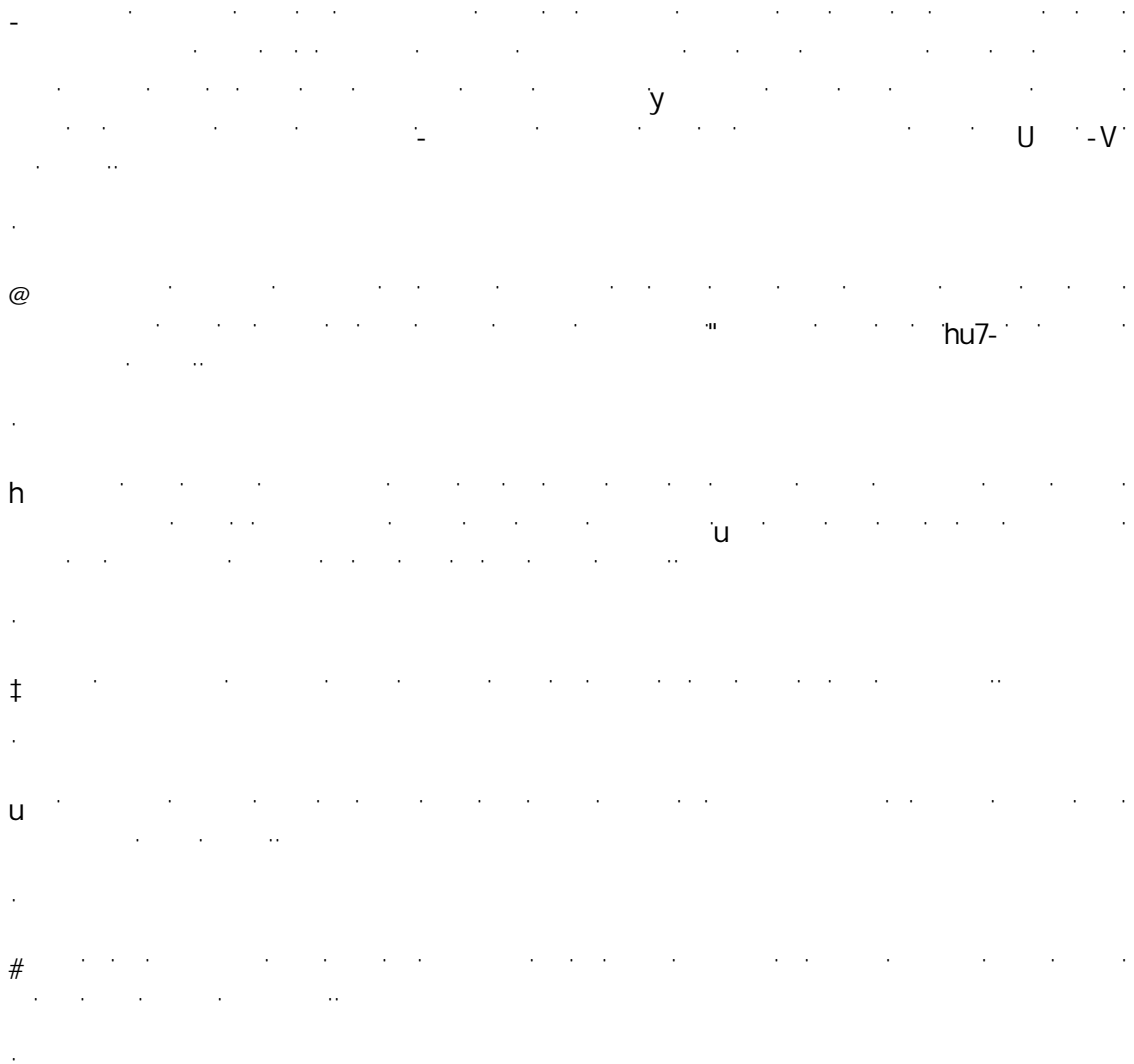
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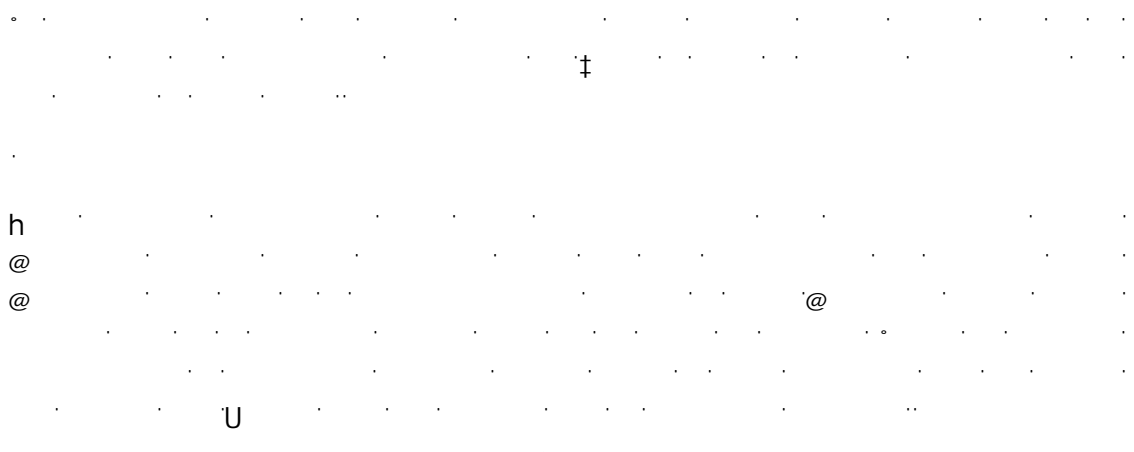
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2.16.16 Extension Spindles and Pedestals



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2.17.1 General



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2.17.2 Water Meters

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2.17.3 Ultrasonic Water Meters

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2.17.4 Level Meters, Switches and Indicators

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2.17.5 Pressure Meters and Switches

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2.18.1 Paint General

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2.18.2 Painting General

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2.18.3 Preparation of Surfaces of Receive Paint

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2.18.4 Galvanizing and Metal Coatings

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2.18.7 Repairs to Damaged Surfaces

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2.18.8 Painting of Existing and Previously Painted Surfaces

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2.18.9 Paint Specifications

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2.18.10 Protection During Transportation

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2.18.11 Parts Built into Concrete

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2.18.12 Inspection and Tests

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2.18.13 Corrosion Resistant Materials

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2.18.14 Box and Tubular Sections

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2.18.15 Machined Surfaces.

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2.18.16 Manufacturer's Standards Finishes

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2.18.17 Switchboards

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2.18.18 Paint Systems

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2.18.19 Wrapping of Buried Pipe work

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2.19.1 General

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2.19.2 Chemical Dosing Pumps

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2.19.3 Chemical Dosing Pipe

A 7x10 grid of dots with the following symbols placed at specific intersections:

- Row 1: # at (1,1), ht# at (5,1)
- Row 2: h at (1,2), o at (3,2), t at (4,2)
- Row 3: k at (2,3), o at (4,3), t at (5,3)
- Row 4: k at (2,4), ht# at (5,4)
- Row 5: 7 at (1,5)
- Row 6: 8U o at (7,6), h at (10,6)
- Row 7: 8U o at (7,7), ° at (9,7)

2.19.4 Mechanical Mixers

8 u 8kh @

k

k

u u '8kh' u
 .
. - 'k

&"&\$' :`ccfHfYbW'7cjYfgZ7\YeiYf'D'Uhb['UbX'9[['7fUHY':`ccf]b[''

&"&% : ci bXUhc b'6c`hg'UbX':]l]b['5ffUb[Ya Ybhg'

u # u 8

&"& 6fUW_YhgZ:]] b[gZ5bWcf'Dc]bhg'UbX'D]dY'UbX'J Uj Y'G ddcfhg''

‡ #

&"& ' ; i UFX]b['UbX'DfchW]cb'cZA cj]b['DUfhg''

U 8 8 "O'

&"&(' GWYXi `Y'cZHgh''

&"&("% ; YbYfU''

u 'o o

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7 #

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h # u

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&"& Hg'UhA Ubl ZMM fYf'K cf_g'

u # " o

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&"(" Hg'5Zhf'9fYf'cb'cb'Gh'

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h _ U

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&"& GHubXVmDck Yf'; YbYfUhb['D'Ubh

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2.25.1 General

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u h u #

2.25.2 Engines

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7 # 7 ‡ u

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2.25.3 Alternators

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2.25.4 Control Panel

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2.25.5 Exhaust Systems for Diesel Engines

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2.25.6 Daily Service Tank

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2.25.7 Protections

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2.25.8 Tests

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2.25.9 Spare Parts

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2.25.10 Guarantee

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2.25.11 Technical Documentation

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G97HCB"! 9@97HF=75@; 9B 9F5@GD97÷=75HCBG'

' "% ðhfcXi Wjcb'

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' "& Jc`fU[Y`UbX`G dd`mGmY`a ``

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3.3.3 XLPE Single Wire Armoured Cable

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3.3.4 PVC Insulated Single Wire Armoured Cable

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U h†# h†# h†#

o h†#

o h†# h†#

3.3.5 Polyethylene Insulated Armoured Instrument Cable

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3.3.6 Sheathed and Insulated Flexible Cords

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3.3.7 Flexible Cables - Power

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-h V)

3.3.8 PVC Insulated Cable

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3.3.9 PVC Insulated and Sheathed Cable

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o . . . " u o #† . . . #†

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3.4.2 Installation Direct in the Ground

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3.4.3 Installation in Underground Ducts

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3.4.4 Sealing Cable Entries into Buildings

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3.4.5 Marking of Underground Cables

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3.4.6 Installation in Cable Trunking

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3.4.7 Installation in Troughs and Trenches

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3.4.8 Installation in Buildings

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3.4.9 Cable Installation in Conduit

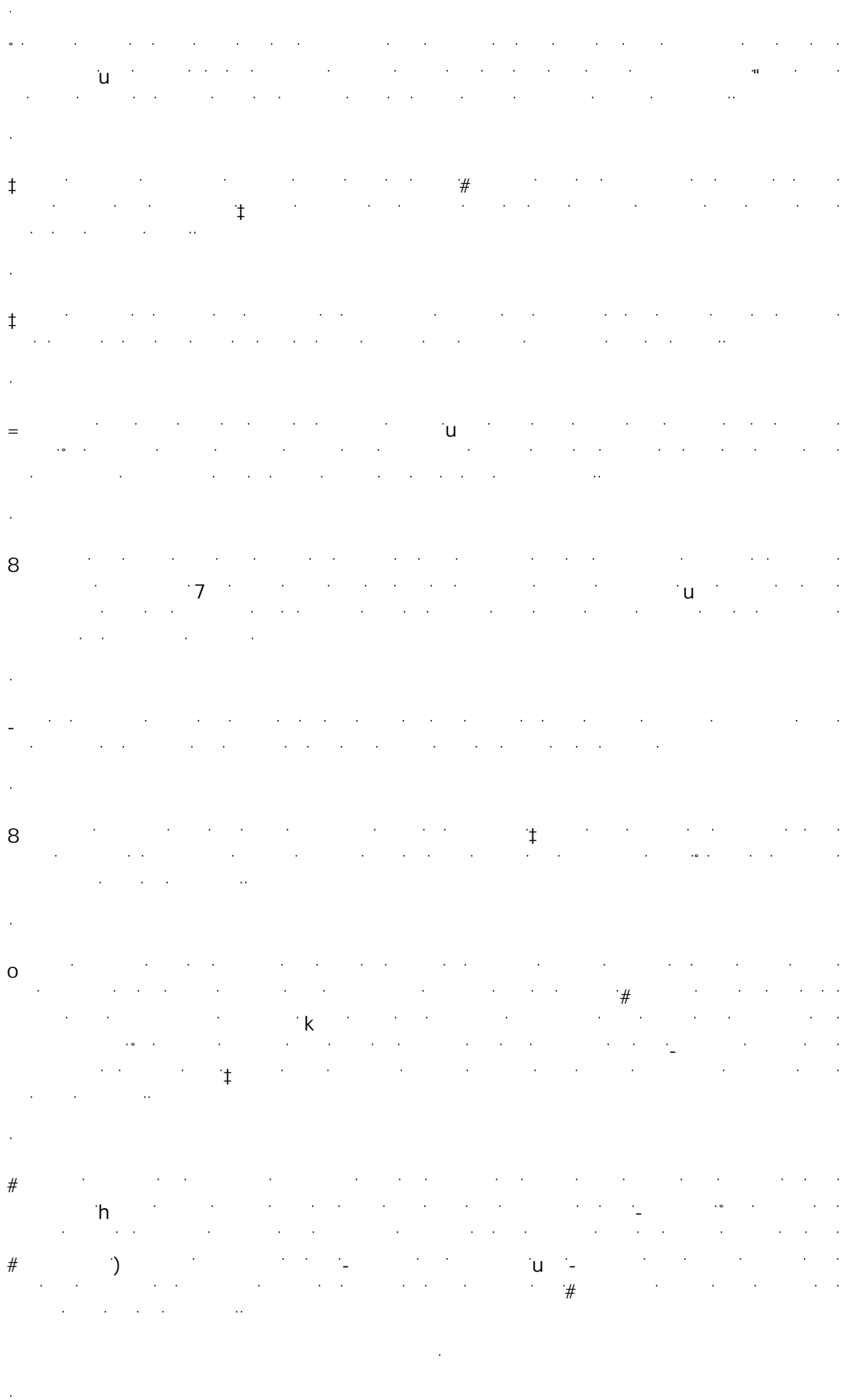
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3.5.1 General

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3.5.2 Termination of screened signal cables

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3.5.3 Cable glands-general

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3.5.4 Identification of Cores and Wires

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3.5.5 Power Cable Terminations and Joints

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3.5.6 Multicore and Control Cable Terminations

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3.6.1 Introduction

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3.6.3 Mounting

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3.6.6 Component Mounting'''

3.6.7 Cabling Arrangement

3.6.8 Bolts, Nuts, Washers and Screws

3.6.9 Protection and Finish

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3.6.10 Auxiliary Supplies and Anti-condensation Heaters

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3.6.11 Busbars and Main Connections

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3.6.12 Balance

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3.6.13 Circuit Lists

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3.7.1 General

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3.7.2 Instruments, Indications and Alarm

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3.7.3 Control Panel Cabling

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3.8.1 General

3.8.2 Air Circuit-breakers

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3.8.3 Contactors

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3.8.4 Current Transformers

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3.8.5 Fused Switches and Isolators

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3.8.6 Fuses and Links

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3.8.7 Hours Run Counters

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3.8.8 Moulded Case Circuit-breakers

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3.8.9 Miniature Circuit-breakers

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3.8.10 Overload Relays

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3.8.11 Voltage Protection Relays

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3.8.12 Phase Failure Relays

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3.8.13 Push Buttons

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3.8.14 Relay Units

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3.8.15 Residual Current Devices (RCD's)

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3.8.16 Selector Switches

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3.8.17 Terminals

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3.8.18 Thermostats

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3.8.19 Timers

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3.8.20 Transformers

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3.8.21 Spare Ways

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3.10.1 General

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3.10.3 Surface Motors

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3.10.4 Cable for Submersible Motors

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3.10.5 Lock-Off Push Buttons

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3.10.6 Power Factor

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3.10.7 Safety Devices and Controls

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3.10.8 Variable Speed Drives 3.10.8.1 General

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3.10.8.2 Design

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3.10.8.3 Standards

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3.10.8.4 Protection functions and features

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3.10.8.5 Control signals

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3.11.1 Labels and Notices

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3.11.2 Shrouding

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3.11.3 Control Circuits

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3.11.4 Steel Conduit and Fittings

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3.11.5 Plastic Conduit and Fittings

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3.11.6 Trunking

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3.11.7 Cable Tray and Accessories

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3.11.8 Low Level Sensor and Protection

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3.11.9 Sump Pump Controls

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3.11.10 Coordination

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3.11.11 Locks

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3.11.12 Continuity

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3.11.13 Radiated Interference

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3.12.1 General

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3.12.2 Conductors

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3.12.3 Earth Electrodes

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3.12.4 Main Earthing Terminal

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3.12.5 Tests on Site

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3.12.6 Lightning Protection

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3.13.1 General

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3.13.2 Wiring

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3.13.3 Internal Lighting

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3.13.4 Incandescent Fittings

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3.13.5 Fluorescent Fittings

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3.13.6 Lighting Switches

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3.13.7 Socket Outlets and Spur Outlets

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3.13.8 Three Phase Power outlets

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3.13.9 Distribution Boards and Consumer Units

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3.13.10 Fused Connection Units

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3.13.11 Emergency Battery Lighting Unit

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3.13.12 Portable Hand Held Fire Extinguishers

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3.13.13 Floodlights

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3.15.1 General

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3.15.2 Marshalling Cabinets

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3.15.3 General Facilities

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3.17.1 Scope for Dandora Estate Sewage Treatment Plant Inlet Works WWTP Contract

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3.17.2 Drawings

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3.17.3 Power Supplies

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3.17.4 Signal Isolators, Converters and Conditioners

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3.17.5 Instrumentation

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b. Field Mounted Instruments

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3.17.6 Control Philosophy

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3.17.7 Programmable Logic Controllers (PLC)

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3.18.1 General

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3.18.2 Tests at Manufacturer's Works

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3.18.3 Tests of Pumps at the manufacturer's works

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3.18.4 Tests of motors at the manufacturer's works

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3.18.5 Test After Erection on Site

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3.18.5.1 Pumps

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3.18.6 Commissioning and Site Performance Tests

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3.18.7 Spare Parts

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Flushing Pumps

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Fire-Fighting System

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Jet Water Spray System

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Ultrasonic Level Meter

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Electromagnetic Flowmeter

Gas Detection Equipment.

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Pumping Equipment (Submersible and Jet Water Spray Pumps) Submersible pumps/Motors

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Monitoring of pumps

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Other Requirements for Pumps and Electric Motors and Electric Pumps

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Potable Sewerage Pumps

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Gate Valves

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Butterfly Check Valves

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Woltmann Watermeter

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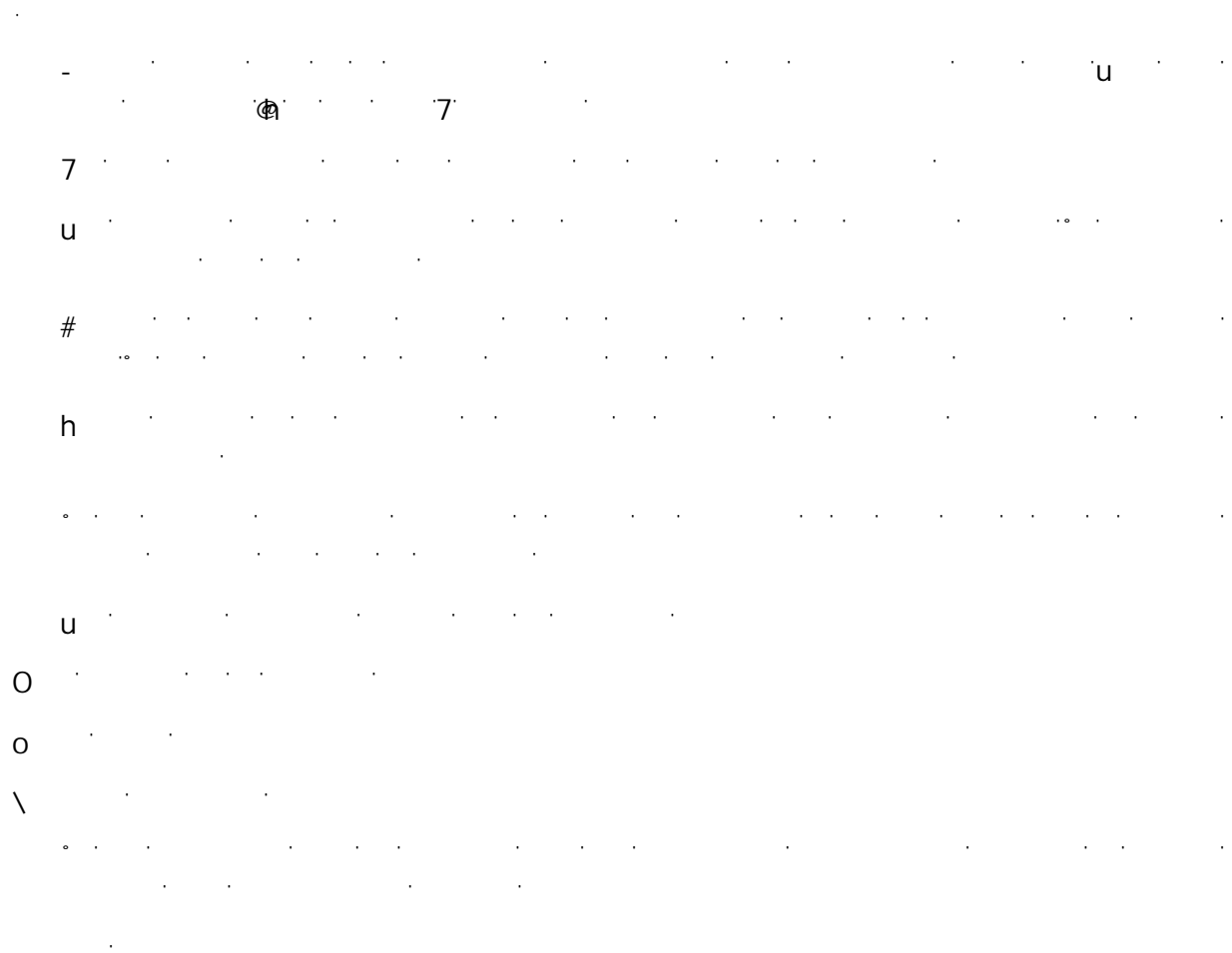
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Monorail Hoist

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Pressure transmitters



Bourdon manometers



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Incinerator

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Contractor's Working Drawings

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Calculations

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Operation and maintenance instructions

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Packing for transport

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Storage and erection

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Scope of Works

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General for Materials

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Protection and Packing for Dispatch

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Unloading, Erection and Running of Plant

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Storage and Safe Keeping

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Fire Extinguisher

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First Aid Cabinet

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Applicability

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Specification	Year	Description
KUQ'9227"	4233"	Ur gekhecvkqp"hqt"hcpi gu"cpf"dqnlpi "hqt" r kr gu."xcnrgu."cpf "hwlpi u"
DU'GP "32448/3"	4226"	Ur gekhecvkqp"hqt"r kr g"vj tgcfu"hqt"wdgu" cpf " hwlpi u" y j gtg" r tguwtg/vki j v' lqlpvu" ctg"o cf g"qp"vj tgcf "o gvtle" f ko gpukpu+0'
KGE'8248; /4"	4235"	Ectvtf i g"hwugu"hqt" xqnci gu"vr "vq" cpf " kpenwf lpi "3222"X"ca00cpf "3722"X"f0e"
KGE'82273/; "	423; "	Fktgev/Cevkqp" Kpf kecvkpi " Grgextlecn" O gcuwtkpi " Kputwo gpvu" cpf " vj gkt" Ceeguutlgu0'
DU'GP "32464."KUQ" 6; "	3; ; 7"	Ur gekhecvkqp"hqt"o cmgcdrg"ecuv"ktqp"cpf " ecuv'eqr r gt"cmq{ "vj tgcg gf "r kr g'hwlpi u0'

Specification	Year	Description
KGE'82298"/"3.4.5.7"	4224/4235"	Rqy gt "Vtcpuhtto gtu"
KGE'82: : : "	3; : 9"	Ur gekhecvkqp" hqt" i gpgtcn' r wtr qug" i cixcpk gf "uvgnly ktg"utcpf 0'
KUQ'36948"	423; "	Ur gekhecvkqp" hqt" eqmwtu" hqt" kf gpvkhecvkqp." eqf kpi " cpf " ur gekcn' r wtr qugu"
KUQ'77; "	3; ; 3"	Ur gekhecvkqp" hqt" uvgn' r kr gu. "lqkpw" cpf " ur gekcn' hqt" y cvgt "cpf " ugy ci g0'
DU'85; "	3; : 8"	Ur gekhecvkqp" hqt" eqxgtgf " ectdqp" cpf " ectdqp" o cpi cpgug" uvgn' grgextqf gu" hqt" o cpwcnlo gvcrlcte' y grf kpi 0'
DU'GP "3683"	422; "	Ur gekhecvkqp" hqt" j qv' f kr " i cixcpk gf " eqcvkpi u" qp' kqp" cpf "uvgn' ctv' ct v' ergu0'
DU'GP "KGE'84493/ 328"	4243"	Ur gekhecvkqp" hqt" Eqpvcvqtu" /" C0' Eqpvcvqtu' hqt' xqnci gu' cdqxs' 3' hx' "cpf " wr " vq' cpf " kpenf kpi " 34' hx0'
DU'GP "KUQ'7: 23"	4239"	Hcpu' hqt' I gpgtcn' Rwtr qugu" o' o' gy qf u' qh' vgukpi " r gthqto cpeg"
KUQ'599."5985"	4239"	Ur gekhecvkqp" hqt" y tqwi j v' uvgnu" hqt" o gej cplecn' cpf " cmkgf " Gpi kpggtkpi " r wtr qugu0' I gpgtcn' kpur gev kpi " cpf " vgukpi " r tqegf wtgu" cpf " ur gekhe' tgs vktgo gpv' hqt" ectdqp." ectdqp" o cpi cpgug." cmq{ ." cpf " uvckprgu' uvgnu0'
KGE'822: 5"	"	Ur gekhecvkqp" hqt" 35" C" r nxi u." uqengv/ qwr gv' cpf " cf cr vgtu0'
DU'3598"	3; 96*3; : 7+ "	Ur gekhecvkqp" hqt' eqmwt "qh' rki j v' uki pcnu0'
KUQ'345; /4"	4226"	Ur gekhecvkqp" hqt' betgy "cpf " uqengvgf "uvgn' wdgu" cpf " wdwrtu" cpf " hqt' r nkp" gpv' "uvgn' uwkcdng" hqt' y grf kpi " qt" hqt' uetgy kpi " vq" KUQ'9' r kr g' j tgc f u0'
DU'3662"	3; : 7"	Ur gekhecvkqp" hqt' eqr r gt "cmq{ " kpi qu" cpf " eqr r gt" cmq{ " cpf " j ki j " eqpf vevkxk{ " eqr r gt' ecuvkpi u0'
DU'366; "	3; ; 3"	Uvgn' r nvg. "uj gg v' cpf " utkr "
KUQ"; 67/3"	422: "	Ur gekhecvkqp" hqt' hcnng' i tcr j kg' ecuv' kqp0'

Specification	Year	Description
KUQ'9: 46"	3; : 8"	Nwdtkecvkpi "pk r ngu" Nwdtkecvkpi "pk r ngu" cpf "cf cr vgtu" hqt "wug" qp "o cej kpgt { "cpf " vqqu"
DU'3723/"Rctv'3"	3; : 2*3; ; 2+"	Uvggn' hqt " r tguuwtg" r wtr qug< r r vgu" /" Ur gekhkecvkqp" hqt " ectdqp" cpf " ectdqp" o cpi cpgug'uvgnu0'
DU'3723/"Rctv'4"	3; : : "	Uvggn' hqt " r tguuwtg" r wtr qug< r r vgu" /" Ur gekhkecvkqp" hqt "cmq { 'uvgnu0'
DU'3786"	3; 97"*3; ; 5+"	Ur gekhkecvkqp" hqt " r tguugf "uvgn'ugevkvpcn' tgevcpi wnt "vcpmu0'
KGE"82365"("KGE" 823: 5"	"	Ur gekhkecvkqp" hqt " ecr cekqtu" hqt " eqppgevkqp" 'q' r qy gt "tgs wgpe { "u{ ugo u"
GP ": 59/3"	3; ; 8"	Ur gekhkecvkqp" qh" dqwtf qp" wdg" r tguuwtg" cpf "xcewwo "i cwi gu"
DU'39; 6"	3; 74"*3; ; 6+"	Ur gekhkecvkqp" hqt " ej ctv' tpci gu" hqt " vgo r gtcwtg" tgeqtf kpi 'kputwo gpw0'
KGE'82; 43"	3; ; 2"	Vwdwrt " hwtguegpv" rco r u" hqt " i gpgtcn' rki j vki "ugt xleg"6" Rctv'3<Ur gekhkecvkqp" hqt " kpgt pcvkpcn { "ur gekhkecvkqp" rco r u0'
KUQ"45933"	4225"	Ur gekhkecvkqp" hqt " gruvqo gtle" ugcnu" hqt " lqkpu'k' r k gy qtnicpf "Rkr gkpgu"
KU2"4285/3"cpf "4"	423; "	Ur gekhkecvkqp" hqt "ur tc { gf "o gwn'eqcvkpi u0' Rtqvgevkqp" qh' kqp" cpf "uvgnid { "cnwo kpkwo " cpf " l kpe" ci ckpuv' cwo qur j gtle "eqttqukqp" Rtqvgevkqp" qh' kqp" cpf " uvgn' ci ckpuv' eqttqukqp" cpf " qzkcvcvkqp" cv" grgxcvgf " vgo r gtcwtgu"
KUQ"58; 2"	423: "	Ur gekhkecvkqp" hqt "Ernuu"3"cte"y grf kpi "qh" hgttkle"uvgnir k gy qtni hqt "ectt { kpi "hwnkf u0'
KGE'824: 4"	"	Hwugu" hqt " xqnci gu" gzeggf kpi " 3222" X(C(E0' Ur gekhkecvkqp" hqt "ewt tgpv'iko kiki 'hwugu0' Gzr wukqp" Hwugu"
KUQ"44: /3"	4222"	Ur gekhkecvkqp" hqt " r k r g" vj tgc f u" hqt " wdg u" cpf " hwnkpi u" y j gtg" r tguuwtg/ki j v' lqkpu' ctg" pqv' o cf g" qp" vj tgc f u" *o gtle" f lo gpukpu+ "
DU'49: ; "	3; : 7"	Ur gekhkecvkqp" hqt "ur j gtqkf cn' i tcr j kg" qt" pqf wnt "i tcr j kg" ecuv' kqp"

Specification	Year	Description
DU"4; 48"	3; : 6"	Ur gekhlecvkqp" hqt" ej tqo kwo " cpf " ej tqo kwo /plengn" uvggn" grgevtf gu" hqt" o cpwcn'o gvcn/cte"y grf lpi "
DU"4; 93"	3; ; 3"	Ur gekhlecvkqp" hqt" Ernuu" Kkcte"y grf lpi "qh" ectdqp" uvggn'r kr gy qtnlhqt" ectt { lpi "hmkf u"
DU"4; : ; "	3; ; 4"	Ur gekhlecvkqp" hqt" eqpvkpwqwn{ " j qvfr " lpe" cmq{ " eqcvgf " uvggn" hrcv" r tqf vewu< vqrgtcpegu"qp" f ko gpukqpu"cpf "uj cr g"
KGE"822; ; "	"	Ur gekhlecvkqp" hqt" uwti g" f kxgtvgtu" hqt" cngtpcv lpi "ewtgpvr qy gt"ektewku"
DU"5496"	3; 82"	Ur gekhlecvkqp" hqt" wdwrcr " j gcv' gzej cpi gtu" hqt" i gpgtcnr wtr qugu"
DU"5638"	3; ; 3"	Ur gekhlecvkqp" hqt" dkwo gp/dcugf "eqcv lpi u" hqt" eqrf " cr r rlecvkqp." uwkcdrg" hqt" wug" kp" eqpvcev'y kj "r qvcdrg'y cvgt"
DU"56; 8"	3; : ; "	Ur gekhlecvkqp" hqt" G" i nuu" hkdg" ej qr r gf " utcpf " o cv" hqt" yj g" tglphqtego gpv' qh" r qn{ guvg" cpf " qvj gt" rks wlf " mo lpcv lpi " u{ ugo u"
KUQ"665; "	3; ; 8"	Ur gekhlecvkqp" hqt" vpr nuu" kugf "r qn{ xlp { n' ej mtkf g" *wRXE+ "Rtguwtg" r kr gu" hqt" eqrf " r qvcdrg'y cvgt"
DU"6657"	3; ; 3"	Ur gekhlecvkqp" hqt" vpr nuu" kugf "RXE" r kr g" hqt" f tclpci g" cpf "y cuvg'y cvgt" r kr gu"
DU"5754"	3; ; 2"	O gy qf " hqt" ur gekh{ lpi " wpucwtcvgf " r qn{ guvg" t gulk" u{ ugo u"
KUQ"6422"	3; ; 3"	Ur gekhlecvkqp" hqt" f ko gpukqpu"cpf "o cuugu" r gt" wpk" ngpi yj "qh"y grf gf "cpf "ugco nguu" uvggn" r kr gu" cpf " wdgu" hqt" rtguwtg" r wtr qugu"
DU"5728"	3; 8; "	Ur gekhlecvkqp" hqt" vpr nuu" klf gf "RXE" r kr g" hqt" kpf wutkcn' wugu0'
DU"5754"	3; ; 2"	O gy qf " hqt" ur gekh{ lpi " wpucwtcvgf " r qn{ guvg" t gulk" u{ ugo u0'
KUQ"9906207"	"	Ur gekhlecvkqp" hqt" ectdqp" uvggn'r kr gu" cpf " wdgu" y kj " ur gekhgf " tqgo " vgo r gtcwtg" r tgr ctgf " hqt" r tguwtg" r wtr qugu0' Uy kej gu" hqt" j qwugj qrf "cpf "uko krcr "kz gf "grgevtkecn' kpuvcmlqpu"

Specification	Year	Description
DU'58; 3"	3; ; 2"	Ur gekhlecwqp" hqt "G"i rnuu" hdtg" tqlpi "hqt" yj g" tglphqtego gpv'qh'r qn{ guvgt" cpf "gr qz { " tguip" u{ ugo u0'
DU'58; 5"	3; ; 4"	Tgeqo o gpf cvkqpu" hqt" f guki p" qh" uecrgu" cpf " kpf gzgu" qp" cpcnqi wg" kpf lecvpi " kputwo gpv"
KGE'82; 56"	"	Ur gekhlecwqp" hqt "o kplcwtg" cpf "o qwf gf " ecug'ekewk/dtgcngtu/'O kplcwtg'ckt/dtgcni' ekewk/dtgcngtu" hqt "c00ekewku0'
DU'5; 45"	3; : 8"	O gyj qf u" hqt" wntcuqple" gzco kpcvqp" qh" y grf u" /" Rctv' 3< O gyj qf u" hqt" o cpwcn' gzco kpcvqp" qh" hwukqp" y grf u" kp" hgttkle" uvgnu0'
KGE" 82639" (" : 3936"	"	I tcrj kcn' u{ o dqu" hqt" grgestkcn'r qy gt." vgrgeqo o wplecvqpu" cpf " grgestqpleu" f ki tco u0'
KGE'82295"	"	Eqmwtu" qh' kpf lecvqt" rki j vu." r wuj "dwwqpu." gpwpekcvqtu0' cpf "f ki kcn't gcf qwu0'
DU'63; 2"	3; 89"	Ur gekhlecwqp" hqt" KUQ" o gwle" dnren' j gzc qp" dquu." uetgy u' cpf "pwu0'
KGE'845: 6"	"	I wkf g" qp" yj g" tgrkcdkx{ " qh" grgestqple" gs wkr o gpv'u' cpf "r ctvu' wugf " yj gt glp0'
DU'6433"	3; : 9"	Ur gekhlecwqp" hqt" rcf fgtu" hqt" r gto cpgpv' ceegu' "q' ej ko pg{ u." qvj gt" j ki j " utwewtgu." ukqu" cpf "dlpu"
KGE'8252; "	"	Ur gekhlecwqp" hqt "kpf wutkn'r nwi u." uqengv/ qwrgvu" cpf "eqwr rgtu" hqt "C0E0' cpf "F 0E" uwr r rgu"
KJ2'3674"	422; "	<p>Lqlpw" cpf " hkwpi u" hqt" wug" y kj " wpr rnukekugf "RXE" r tguwtg" r kr gu0'</p> <p>Kplgecvqp" o qwf gf " wpr rnukekugf " RXE" hkwpi u" hqt "uqrxgpv' y grf lpi "hqt" wug" y kj " r tguwtg" r kgu." kpenw lpi " r qvcdrg" y cvgt" uwr r n{ 0"</p> <p>O gejcplecnllqlpw' cpf "hkwpi u." r t kpekr cm{ " qh' wpr rnukekugf "RXE0"</p> <p>Ur gekhlecwqp" hqt "uqrxgpv' ego gpv0'</p>
DU'6582"	3; : 8"	Ur gekhlecwqp" hqt" y grf cdrg" utwewtcn' uvgnu0'

Specification	Year	Description
DU'658: "	"	Ego r tguakqp"eqw rkp i u'hqt"wdgu/"Rctv'3< Ur gekhlec vqp" hqt" j gcx { "ugt lgu"eqw rkp i u" *o gtle+"
KUQ'9227"	4233"	Ektewrct" hrcpi gu" hqt" r kr gu." xcrk gu." cpf " Hwkp i u"*RP "f guki pcvgf +." " Uvggn"ecuv'kqp."cpf "eqr r gt"cmq { "hrcpi gu0" Ur gekhlec vqp" hqt"uvggn'hrcpi gu0" Ur gekhlec vqp" hqt"ecuv'kqp" hrcpi gu0'
KUQ'35: 69"	4235"	Ur gekhlec vqp" hqt" y grf kpi " qh' uvggn' r kr gkpogu"qp"rcpf "cpf "qh'uj qtg0'
DU'6755"	"	Nwo kpc kt gu"
DU'678: "	3; 92"	Ur gekhlec vqp" hqt"uvggn'eqpf vkw/cpf "hwkp i u" y kj " o gtle" vj tgc f u" qh' KUQ" hqto " hqt" grgevtlecn' kpuvcnrcvqpu" /" Rctv' 3< Uvggn' eqpf vkw."dgp f u'cpf "eqw rgtu0'
DU'678: "	3; 92"*3; : : +"	Ur gekhlec vqp" hqt"uvggn'eqpf vkw/cpf "hwkp i u" y kj " o gtle" vj tgc f u" qh' KUQ" hqto " hqt" grgevtlecn' kpuvcnrcvqpu" /" Rctv' 4< Hwkp i u" cpf "ego r qpgpvu0'
KGE'82; 69"	"	P qp/o gvcnle" eqpf vku" cpf " hwkp i u" hqt" grgevtlecn' kpuvcnrcvqpu< Ur gekhlec vqp" hqt" uy kej i gct"cpf "eqpvtn'i gct" hqt"xqnci gu" wr "q"cpf "kpenwf kpi "3222"X" c00cpf "3422" X"f00'
KUQ'4753"	422; "	Ur gekhlec vqp" hqt" f wexkg" kqp" r kr g" cpf " hwkp i u"
DU'6: 22"	3; : ; "	Uej gf wrg" hqt" r clpv' eqmwtu" hqt" dwkf kpi " r wtr qugu"
KUQ'96: 5"	3; ; 3"	F ko gpukqpu"qh'i cungvu'hqt'r kr g'hrcpi gu'q" KUQ'9227"/"Rctv'3<*3; : ; + "Ur gekhlec vqp" hqt"ppq/o gvcnle" hrcv' i cungvu" *kpenwf kpi " i cungvu'hqt'hrcpi gu'q'DU'6994+0'
DU'6: 92"	3; : 3"	Ur gekhlec vqp" hqt" crrtqxcn' vguvpi " qh' y grf kpi " r tqegf wtg" /" Rctv' 3< Hwkp" y grf kpi "qh'uvggn'
DU'6: 92"	3; : 7"	Ur gekhlec vqp" hqt" crrtqxcn' vguvpi " qh' y grf kpi " r tqegf wtg"/"Rctv'5<Cte/y grf kpi " qh'wdg'q't nvg'lqpw'k'b gvcnle'b cvgtkcn'
DU'6; 43"	3; : : "	Ur gekhlec vqp" hqt"uj gtcf kuf "eqcvkpi u"qp" kqp"qt'uvggn0'

Specification	Year	Description
KGE'82; 69"	422; "	O qvqt" uctvgtu" hqt" xqnci gu" wr " vq" cpf " lpenwf lpi "3222"X" c00cpf "3422"X" f00
KGE'82256"	4239"	I gpgtci" tgs wkt go gpw" hqt" tqvcvpi " grgevtlecn'o cej kpgu" Ur gekhlecvcqp" kptqf wevcqp" cpf " kphqto cvkqp"qp"qy gt"r ctu0" Ur gekhlecvcqp" hqt" tcvpi "cpf" r gthqto cpeg0" Ur gekhlecvcqp" hqt" dwkf" kp" yj gto cni" r tqgvcvpi" hqt" grgevtle"o qvqtu" tcvf" cv882" X" c00cpf "dgm y "" Ur gekhlecvcqp" hqt" vguu"
DU'7222"	"	Tqvcvpi "grgevtlecn'o cej kpgu"qh'r ctvewrt" v r gu"qt" hqt" r ctvewrt" cr r decvcvpiu0'
DU'7357"	3; : 6"	Ur gekhlecvcqp" hqt" yj g" cte/y grf lpi " qh" ectdqp/o cpi cpgug"vvggu"
GP "3393"	4237"	Ur gekhlecvcqp" hqt" ecuv'kqp" i cvg"xcvngu"
GP "34556"	4223"	Ur gekhlecvcqp" hqt" ecuv'kqp" ej gen'xcvngu"
KUQ'32853"	4235"	Ur gekhlecvcqp" hqt" dwgthn' "xcvngu"
KUQ'32853."3835: "	4235"	Ur gekhlecvcqp" hqt" fkr j tci o "xcvngu"
KGE'84493"	4229"	Ur gekhlecvcqp" hqt" c00' o gvcn/gpenugf " uy kej i gct" cpf " eqpvtqn" i gct" tcvf" xqnci gu" cdqyg" 3" nX" cpf " wr " vq" cpf " lpenwf lpi "940"MX0'
KGE'8288; ."83242." 8327: "	3; ; 2"	Ur gekhlecvcqp" hqt" cngtpcvpi " ewtgpv' f lueqppgevtu"cpf"uy kej gu"
KUQ'6855"	4237"	Ur gekhlecvcqp" hqt" lqkvcpi "o cvgtkcu" cpf " eqo r qwpf u" hqt" kpuwmcvkvpu"vulpi "y cvgt" mgy /r tguwtg"ugco "qt"3uv"4pf "cpf "5tf" hco kn' "i cugu0'
DU'752: "	"	Kpwtwo gpvcvqp"Ecdrgu0'
KGE'82449"	"	Ur gekhlecvcqp" hqt" r qn' gy { ngpg" kpuwrcvgf " ecdrgu0'
KUQ'73; : "	3; : 9"	Ur gekhlecvcqp" hqt" ceegr vpeg" vguu" hqt" egpvtkmi cn"o kzgf"mgy "cpf"czkcn'r wo r u"
DU'75; 3"	3; 98"	Ur gekhlecvcqp" hqt" cet { mpktkg/dwcf kpgg/ uv' tpgg"*CDU+"hkvpi u" hqt" wug"y kj "CDU" r tguwtg"r kr gu"/"Rctv'3<"Hkvpi u" hqt" wug" y kj "r kr g" hqt" kpf wutkcn'wugu"

Specification	Year	Description
DU763; "	3; 99*3; ; 2+	Ur gekhlecvkqp" hqt" ckt" dtgcnl' uy kej gu." qwdtgcni' f'ueqppgevkqp)u." ckt' dtgcnl'uy kej " f'ueqppgevkqp)u." cpf " hwug/eo dlpckvkqp" wpku'hqt'xqnci g'wr "vq'vj g'kpenwf lpi "3222" X"ce0cpf "3422"X"f0e0'
KGE'84484"	"	Ur gekhlecvkqp" hqt" f'gi tggu"qh'r tqvgevkqp"qh" gpenqwtgu'qh'uy kej i gct"cpf "eqpvtqrñi gct" hqt'xqnci gu"wr "vq"cpf "kpenwf lpi "3222"X" ce0cpf "3422"X"f0e0'
KUQ'9387"	4239"	Ur gekhlecvkqp" hqt" r qtvcdrg" hktg" gz vki wkuj gtu"
KGE'82487"	4222"	Ur gekhlecvkqp" hqt" j ki j "xqnci g'uy kej gu" J ki j /xqnci g'uy kej gu" hqt" tcvgf "xqnci g" cdqyg"3"mX"cpf "rguu'vj cp"74"mX"
DU7689"	3; ; ; "	Ur gekhlecvkqp" hqt" ecdrgu" y kj " vj gto qugwki " kpuwrvkqp" hqt" gngvlekvl " uwr r n{ " hqt" tcvgf " xqnci gu" wr " vq" cpf " kpenwf lpi " 822 B3222" X" cpf " wr " vq" cpf " kpenwf lpi "3; 22 B522"X0'
KGE'8365; "	"	Nqy /xqnci g'uy kej i gct"cpf "eqpvtqrñi gct" cuugo dnguo" Rctvkwrt" tgs wktgo gpw" hqt" dwudct" vwpnkpi "u{ uvgu u0" "
KUQ'8274; "	423; "	Encuukhlecvkqp" qh' f gi tggu" qh' r tqvgevkqp" r tqxkf gf "d{ "gpenqwtgu0'
KUQ'34; 66"	423; "	Eqf g'qh'r tcevkqg'hqt'r tqvgevkxg"eqcvki /qh" ktqp" cpf " uvggn' utwewtgu" ci ckpuv' eqttqulqp0'
DU7722"	3; ; 3"	Ur gekhlecvkqp" hqt" wphktgf "hwukqp" y gnf gf " r tguwtg'xguugn"
KUQ'37772"	4224"	Tgekr tqecvki " kpgtpci' eqo dwukqp" gpi kpgu<r gthqto cpeg" Ur gekhlecvkqp" hqt" uvcpf ctf " tghgtgpeg" eqpf kkp"cpf "f gencvkvpu"qh'r qy gt."hwgn' eqpuwo r vkp." cpf " nwtlecvkpi " qki' eqpuwo r vkp" Ur ggf "i qxgtplpi "" Ur gekhlecvkqp" hqt"eqf gu'hqt" gpi kpg'r qy gt""

Specification	Year	Description
KUQ"6286"	4236"	O gcuwtgo gpv' qh' hmqy " qh' eqrf " r qvcdrg" y cvgt'lp'emqugf "eqpf wku" Ur gekhlecwkq" hqt'ulpi rg'o gvgtu" Rctv'4<"3; : 2"*3; : : +"" Ur gekhlecwkq" hqt" kpucmwkq" tgs wktgo gpw" hqt" ulpi rg" o gvgtu0'
DU"7955"	4236"	Ur gekhlecwkq" hqt'i gpgtcn'tgs wktgo gpw'hqt" grgevtlecni'ceeguuqtlgu0'
KUQ"42678"	4239"	Grgv'tgo ci pgvle'hmqy o gvgtu0'
DU"7: 78"	3; : 2"*3; : 7+"	Ur gekhlecwkq" hqt" o qvqt" uvcvtgtu" hqt" xqnci gu'cdqyg"3"nX"ce0'cpf "304"nX"f 0' /"Rctv'3<"F kgev'qp/nkg"*hwn'xqnci g+'ce0' uvcvtgtu0'
KGE"82467"	"	Ur gekhlecwkq" hqt'Twddgt'lpuwrvgf "ecdrgu" hqt'grgevtle'r qy gt'cpf "hki j kpi 0'
KGE"82924"	"	O kpgtci'lpuwrvgf "eqr r gt'uj gcj gu'ecdrgu" y kj "eqr r gt'eqpf wvqtu0'
DU"8722"	3; ; 2"	Ur gekhlecwkq" hqt'lpuwrvgf "hgz kdrng"eqtf u" cpf "ecdrgu0'
DU"929; "	3; ; 2"	Rtgrctevkq" qh' uvggn' uwdutvcgu" dghqtg" cr r decwkq"qh'r clpw'cpf 'tgrcvgf 'r tqf wewu0' Rctv'2<"*3; ; 2+"kpvqf wewkq"" Rctv'E4<"*3; ; : +O gy qf 'hqt'yj g'i tcf kpi "qh" uwlhceg'r tqhkg'qh'cdtcukxgn' "dnruv'engcpgf " uvggn'wukpi "c"eqo r ctvqt""
DU"9587"	*3; ; 2+"	Ur gekhlecwkq" hqt"j ctf "f tcy p"cnwo kpkwo " y kg'qxgtj gcf "hkg"eqpf wvqtu"
DU"9652"	3; ; 4"	Eqf g'qh'r tcevkag'gctvj kpi "
RF"86; ; "	3; ; 3"	I wkg'g"vq"lpuwrwkq"eq/qtf kpcwkq"y kj kp" mqy "xqnci g'u{ ugo u'kpenwf kpi "ergtcpegu" cpf "etggr ci g'f kncepegu'hqt'gs wkr o gpv0'
DU"ER"3238"	3; : 2"	Eqf g" qh' Rtcevkag" hqt" yj g" wug" qh" Ugo kqpf wvqt'F gxlegu0'
RQ"F4377"E"	"	Uqrf gtrguu"Eqppgevkpu"o cf g"d{ "Y ktg/ Y tcr r kpi " O gy qf " *qt" gs wlxcrgpv' Ucpcf ctf +"
RQ"F4459"	"	Vgto kpcn'Vci u" hqt"Uqrf gtrguu"Y tcr r gf " Eqppgevtu"

Installation Standards

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$$k \cdot \frac{1}{\sqrt{\pi}} \int_0^{\infty} \frac{e^{-t^2}}{t^2} dt = \frac{1}{\sqrt{\pi}}$$

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$$V_{\text{eff}} = \frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$$

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$$V = \frac{U}{\sqrt{1 - \beta^2}}$$

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LV creepage distance and clearances

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$$V = \frac{1}{2} \int_{-\infty}^{\infty} \left(\dot{\phi}^2 + (\nabla \phi)^2 + m^2 \phi^2 \right) d^3x$$
$$V = \frac{1}{2} \left(\frac{1}{\rho} \frac{d\rho}{dt} + \frac{1}{\rho} \frac{d\rho}{d\tau} \right)$$

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Main electricity supply

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Distribution Boards

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Switchboards and Multi-Motor Control Boards

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Fuses

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Terminals

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Auxiliary switches

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Small wiring and terminal blocks

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Indicating lamps

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Cable connection

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2.2.13 Instruments

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$\frac{1}{n} \sum_{i=1}^n y_i$	$\frac{1}{n} \sum_{i=1}^n y_i = \bar{y}$

2.2.14 Current Transformers

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2.2.15 Voltage Transformers

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2.2.16 Safety notice and equipment

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2.2.17 Circuit Breakers

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2.2.18 General for Fuse Switches

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Isolating Switches

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Fuses and Links

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Remote control and signaling equipment

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Auxiliary panels

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Direct Current supply system

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Programmable Logic Controllers (PLC)

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Motor Starters

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Low-voltage (LV) Starters

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Interlocking

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Motor protection

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Protection relays

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Variable Speed Drives

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Electric motors

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Plastic insulated wire-armored cable (PVC SWA PVC)

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2.3.2 PVC Insulated cables

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Building services wiring

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Cabling methods

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Cable ducts

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Flexible conduit

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Cable trunking

Socket outlets

Lighting switches

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Lighting fittings

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Battery units

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Power Transformers

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Emergency diesel generators

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Earthing systems

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2.5.3 Earthing nests

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2.5.4 Location of nests

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2.5.5 Lightning protection

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2.6.1 Works testing and inspection

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2.6.2 Test instruments

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2.6.3 Test Certificates

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2.6.4 Works inspection tests and guarantees

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2.6.4.1 Motors

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2.6.4.2 Alternators

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2.6.4.3 Diesel Engine

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2.6.4.4 Diesel Alternator Set

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2.6.4.5 Fuel Tanks

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2.6.4.6 Switchboards and Control Panels

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Circuit Breakers

2.6.4.8 All circuit breakers shall be subject to the following tests:

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Transformers

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2.6.4.11 Site Testing

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2.6.4.12 Co-ordination of Site Testing Programme

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2.6.4.13 Cable Tests during installation

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2.6.4.14 Final painting

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2.7.1 Manuals

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2.7.2 Spare parts

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2.7.3 Staffing requirement

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General

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Programmable Logic Controller

2.8.2.1 General Specifications

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2.8.4 PLC specification for medium installations

2.8.5 PLC for large installations

2.8.6 Remote input and output modules (RIOs)

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2.8.7 Programming

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2.8.8 Processing general analogue inputs

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2.8.9 Processing analogue inputs with pulse counting devices

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2.8.10 Processing pulse counting devices

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2.8.11 Processing valve-type devices motor operated with no remote controlling

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2.8.12 Processing valve-type devices motor operated with remote controlling

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2.8.13 Processing valve-type devices motor operated with PID controlling

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2.8.14 Other equipment

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2.8.15 Other accessories

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2.9.1 Communication Cabinets

2.9.2 Automation and Communication Switchboards

2.9.2.1 General characteristics

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2.9.3 General electrification

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2.9.4 Terminal blocks

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2.9.5 Identification of the equipment and labeling

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2.9.6 Earth connection

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2.9.7 Insulation test

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2.9.8 General equipment

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2.10.1 Servers

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2.10.2 Network Server Authentication, File Share and Backup System

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2.10.3 SCADA System Servers

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2.10.5 Portable Computer

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2.10.6 Video wall computer

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2.11.1 Operating System

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2.11.2 Supervision Software Package

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2.11.3 “Office-Like” Software Package

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2.14.1 Optical Fiber Cable for the Primary Communications Network

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2.14.2 Multimode Optical Fiber Cable

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2.14.3 Cables Installation

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2.14.4 Optical Cables Joins

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2.14.5 Fiber optics adapter

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2.21.2 Visual Inspection of the Hardware

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2.21.3 Functional Inspection of the Hardware

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2.22.2 Spare parts

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2.22.3 Taking over

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2.25.3 General Requirements

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2.26.1 General Design Parameters

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2.26.2 Design Parameters

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2.28.1 Walkways

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2.28.2 Welds and Fasteners

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2.28.3 Inlet Channels

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2.31.1 Noise

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2.32.1 Rotors

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2.32.2 Drive Unit

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2.32.3 Bearings

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2.32.4 Housing

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2.32.4 Lubrication

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2.32.5 Noise

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2.32.6 Valves

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2.32.7 Pipe work

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2.34.3 Screw Assembly

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2.34.3 Screw Trough

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2.34.4 Drive Unit

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2.44.1 Manufacture

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2.44.2 Installation

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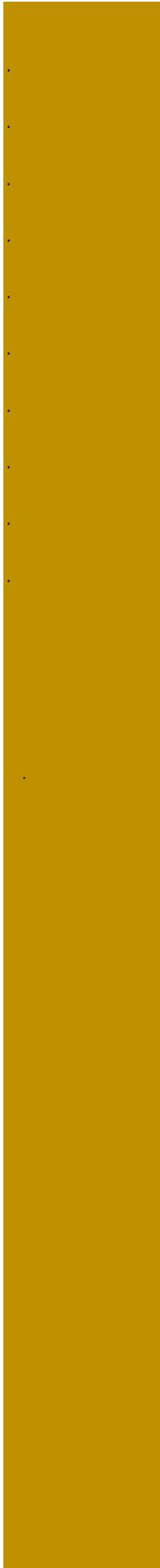
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# General Conditions

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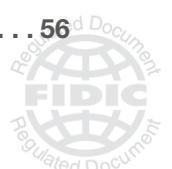
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# General Conditions

## 1 General Provisions

### 1.1

#### Definitions

In the Contract the following words and expressions shall have the meanings stated, except where the context requires otherwise

- 1.1.1 “**Accepted Contract Amount**” means the amount accepted in the Letter of Acceptance for the execution of the Works in accordance with the Contract.
- 1.1.2 “**Advance Payment Certificate**” means a Payment Certificate issued by the Engineer for advance payment under Sub-Clause 14.2.2 [*Advance Payment Certificate*].
- 1.1.3 “**Advance Payment Guarantee**” means the guarantee under Sub-Clause 14.2.1 [*Advance Payment Guarantee*].
- 1.1.4 “**Base Date**” means the date 28 days before the latest date for submission of the Tender.
- 1.1.5 “**Bill of Quantities**” means the document entitled bill of quantities (if any) included in the Schedules.
- 1.1.6 “**Claim**” means a request or assertion by one Party to the other Party for an entitlement or relief under any Clause of these Conditions or otherwise in connection with, or arising out of, the Contract or the execution of the Works.
- 1.1.7 “**Commencement Date**” means the date as stated in the Engineer’s Notice issued under Sub-Clause 8.1 [*Commencement of Works*].
- 1.1.8 “**Compliance Verification System**” means the compliance verification system to be prepared and implemented by the Contractor for the Works in accordance with Sub-Clause 4.9.2 [*Compliance Verification System*].
- 1.1.9 “**Conditions of Contract**” or “**these Conditions**” means these General Conditions as amended by the Particular Conditions.
- 1.1.10 “**Contract**” means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, any addenda referred to in the Contract Agreement, these Conditions, the Specification, the Drawings, the Schedules, the Contractor’s Proposal, the JV Undertaking (if applicable) and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.
- 1.1.11 “**Contract Agreement**” means the agreement entered into by both Parties in accordance with Sub-Clause 1.6 [*Contract Agreement*].
- 1.1.12 “**Contract Data**” means the pages, entitled contract data which constitute Part A of the Particular Conditions.
- 1.1.13 “**Contract Price**” means the price defined in Sub-Clause 14.1 [*The Contract Price*].



- 1.1.14 “**Contractor**” means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title of such person(s).
- 1.1.15 “**Contractor’s Documents**” means the documents prepared by the Contractor as described in Sub-Clause 4.4 [*Contractor’s Documents*], including calculations, digital files, computer programs and other software, drawings, manuals, models, specifications and other documents of a technical nature.
- 1.1.16 “**Contractor’s Equipment**” means all apparatus, equipment, machinery, construction plant, vehicles and other items required by the Contractor for the execution of the Works. Contractor’s Equipment excludes Temporary Works, Plant, Materials and any other things intended to form or forming part of the Permanent Works.
- 1.1.17 “**Contractor’s Personnel**” means the Contractor’s Representative and all personnel whom the Contractor utilises on Site or other places where the Works are being carried out, including the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.
- 1.1.18 “**Contractor’s Representative**” means the natural person named by the Contractor in the Contract or appointed by the Contractor under Sub-Clause 4.3 [*Contractor’s Representative*], who acts on behalf of the Contractor.
- 1.1.19 “**Cost**” means all expenditure reasonably incurred (or to be incurred) by the Contractor in performing the Contract, whether on or off the Site, including taxes, overheads and similar charges, but does not include profit. Where the Contractor is entitled under a Sub-Clause of these Conditions to payment of Cost, it shall be added to the Contract Price.
- 1.1.20 “**Cost Plus Profit**” means Cost plus the applicable percentage for profit stated in the Contract Data (if not stated, five percent (5%)). Such percentage shall only be added to Cost, and Cost Plus Profit shall only be added to the Contract Price, where the Contractor is entitled under a Sub-Clause of these Conditions to payment of Cost Plus Profit.
- 1.1.21 “**Country**” means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.
- 1.1.22 “**DAAB**” or “**Dispute Avoidance/Adjudication Board**” means the sole member or three members (as the case may be) so named in the Contract, or appointed under Sub-Clause 21.1 [*Constitution of the DAAB*] or Sub-Clause 21.2 [*Failure to Appoint DAAB Member(s)*].
- 1.1.23 “**DAAB Agreement**” means the agreement signed or deemed to have been signed by both Parties and the sole member or each of the three members (as the case may be) of the DAAB in accordance with Sub-Clause 21.1 [*Constitution of the DAAB*] or Sub-Clause 21.2 [*Failure to Appoint DAAB Member(s)*], incorporating by reference the General Conditions of Dispute Avoidance/Adjudication Agreement contained in the Appendix to these General Conditions with such amendments as are agreed.
- 1.1.24 “**Date of Completion**” means the date stated in the Taking-Over Certificate issued by the Engineer; or, if the last paragraph of Sub-Clause 10.1 [*Taking Over the Works and Sections*] applies, the date on which the Works or Section are deemed to have been completed in accordance with the Contract; or, if

Sub-Clause 10.2 [*Taking Over Parts*] or Sub-Clause 10.3. [*Interference with Tests on Completion*] applies, the date on which the Works or Section or Part are deemed to have been taken over by the Employer.

- 1.1.25 “**day**” means a calendar day.
- 1.1.26 “**Daywork Schedule**” means the document entitled daywork schedule (if any) included in the Contract, showing the amounts and manner of payments to be made to the Contractor for labour, materials and equipment used for daywork under Sub-Clause 13.5 [*Daywork*].
- 1.1.27 “**Defects Notification Period**” or “**DNP**” means the period for notifying defects and/or damage in the Works or a Section or a Part (as the case may be) under Sub-Clause 11.1 [*Completion of Outstanding Work and Remedying Defects*], as stated in the Contract Data (if not stated, one year), and as may be extended under Sub-Clause 11.3 [*Extension of Defects Notification Period*]. This period is calculated from the Date of Completion of the Works or Section or Part.
- 1.1.28 “**Delay Damages**” means the damages for which the Contractor shall be liable under Sub-Clause 8.8 [*Delay Damages*] for failure to comply with Sub-Clause 8.2 [*Time for Completion*].
- 1.1.29 “**Dispute**” means any situation where:
- (a) one Party makes a claim against the other Party (which may be a Claim, as defined in these Conditions, or a matter to be determined by the Engineer under these Conditions, or otherwise);
  - (b) the other Party (or the Engineer under Sub-Clause 3.7.2 [*Engineer’s Determination*]) rejects the claim in whole or in part; and
  - (c) the first Party does not acquiesce (by giving a NOD under Sub-Clause 3.7.5 [*Dissatisfaction with Engineer’s determination*] or otherwise),
- provided however that a failure by the other Party (or the Engineer) to oppose or respond to the claim, in whole or in part, may constitute a rejection if, in the circumstances, the DAAB or the arbitrator(s), as the case may be, deem it reasonable for it to do so.
- 1.1.30 “**Drawings**” means the drawings of the Works included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.
- 1.1.31 “**Employer**” means the person named as the employer in the Contract Data and the legal successors in title to this person.
- 1.1.32 “**Employer’s Equipment**” means the apparatus, equipment, machinery, construction plant and/or vehicles (if any) to be made available by the Employer for the use of the Contractor under Sub-Clause 2.6 [*Employer-Supplied Materials and Employer’s Equipment*]; but does not include Plant which has not been taken over under Clause 10 [*Employer’s Taking Over*].
- 1.1.33 “**Employer’s Personnel**” means the Engineer, the Engineer’s Representative (if appointed), the assistants described in Sub-Clause 3.4 [*Delegation by the Engineer*] and all other staff, labour and other employees of the Engineer and of the Employer engaged in fulfilling the Employer’s obligations under the Contract; and any other personnel identified as Employer’s Personnel, by a Notice from the Employer or the Engineer to the Contractor.



- 1.1.34 “**Employer-Supplied Materials**” means the materials (if any) to be supplied by the Employer to the Contractor under Sub-Clause 2.6 [*Employer-Supplied Materials and Employer’s Equipment*].
- 1.1.35 “**Engineer**” means the person named in the Contract Data appointed by the Employer to act as the Engineer for the purposes of the Contract, or any replacement appointed under Sub-Clause 3.6 [*Replacement of the Engineer*].
- 1.1.36 “**Engineer’s Representative**” means the natural person who may be appointed by the Engineer under Sub-Clause 3.3 [*Engineer’s Representative*].
- 1.1.37 “**Exceptional Event**” means an event or circumstance as defined in Sub-Clause 18.1 [*Exceptional Events*].
- 1.1.38 “**Extension of Time**” or “**EOT**” means an extension of the Time for Completion under Sub-Clause 8.5 [*Extension of Time for Completion*].
- 1.1.39 “**FIDIC**” means the Fédération Internationale des Ingénieurs-Conseils, the International Federation of Consulting Engineers.
- 1.1.40 “**Final Payment Certificate**” or “**FPC**” means the payment certificate issued by the Engineer under Sub-Clause 14.13 [*Issue of FPC*].
- 1.1.41 “**Final Statement**” means the Statement defined in Sub-Clause 14.11.2 [*Agreed Final Statement*].
- 1.1.42 “**Foreign Currency**” means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.
- 1.1.43 “**General Conditions**” means this document entitled “Conditions of Contract for Construction for Building and Engineering Works designed by the Employer”, as published by FIDIC.
- 1.1.44 “**Goods**” means Contractor’s Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.
- 1.1.45 “**Interim Payment Certificate**” or “**IPC**” means a Payment Certificate issued by the Engineer for an interim payment under Sub-Clause 14.6 [*Issue of IPC*].
- 1.1.46 “**Joint Venture**” or “**JV**” means a joint venture, association, consortium or other unincorporated grouping of two or more persons, whether in the form of a partnership or otherwise.
- 1.1.47 “**JV Undertaking**” means the letter provided to the Employer as part of the Tender setting out the legal undertaking between the two or more persons constituting the Contractor as a JV. This letter shall be signed by all the persons who are members of the JV, shall be addressed to the Employer and shall include:
- (a) each such member’s undertaking to be jointly and severally liable to the Employer for the performance of the Contractor’s obligations under the Contract;
  - (b) identification and authorisation of the leader of the JV; and
  - (c) identification of the separate scope or part of the Works (if any) to be carried out by each member of the JV.



- 1.1.48 “**Key Personnel**” means the positions (if any) of the Contractor’s Personnel, other than the Contractor’s Representative, that are stated in the Specification.
- 1.1.49 “**Laws**” means all national (or state or provincial) legislation, statutes, acts, decrees, rules, ordinances, orders, treaties, international law and other laws, and regulations and by-laws of any legally constituted public authority.
- 1.1.50 “**Letter of Acceptance**” means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression “Letter of Acceptance” means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.
- 1.1.51 “**Letter of Tender**” means the letter of tender, signed by the Contractor, stating the Contractor’s offer to the Employer for the execution of the Works.
- 1.1.52 “**Local Currency**” means the currency of the Country.
- 1.1.53 “**Materials**” means things of all kinds (other than Plant), whether on the Site or otherwise allocated to the Contract and intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.
- 1.1.54 “**month**” is a calendar month (according to the Gregorian calendar).
- 1.1.55 “**No-objection**” means that the Engineer has no objection to the Contractor’s Documents, or other documents submitted by the Contractor under these Conditions, and such Contractor’s Documents or other documents may be used for the Works.
- 1.1.56 “**Notice**” means a written communication identified as a Notice and issued in accordance with Sub-Clause 1.3 [*Notices and Other Communications*].
- 1.1.57 “**Notice of Dissatisfaction**” or “**NOD**” means the Notice one Party may give to the other Party if it is dissatisfied, either with an Engineer’s determination under Sub-Clause 3.7 [*Agreement or Determination*] or with a DAAB’s decision under Sub-Clause 21.4 [*Obtaining DAAB’s Decision*].
- 1.1.58 “**Part**” means a part of the Works or part of a Section (as the case may be) which is used by the Employer and deemed to have been taken over under Sub-Clause 10.2 [*Taking Over Parts*].
- 1.1.59 “**Particular Conditions**” means the document entitled particular conditions of contract included in the Contract, which consists of Part A - Contract Data and Part B – Special Provisions.
- 1.1.60 “**Party**” means the Employer or the Contractor, as the context requires. “**Parties**” means both the Employer and the Contractor.
- 1.1.61 “**Payment Certificate**” means a payment certificate issued by the Engineer under Clause 14 [*Contract Price and Payment*].
- 1.1.62 “**Performance Certificate**” means the certificate issued by the Engineer (or deemed to be issued) under Sub-Clause 11.9 [*Performance Certificate*].
- 1.1.63 “**Performance Security**” means the security under Sub-Clause 4.2 [*Performance Security*].

- 1.1.64 “**Permanent Works**” means the works of a permanent nature which are to be executed by the Contractor under the Contract.
- 1.1.65 “**Plant**” means the apparatus, equipment, machinery and vehicles (including any components) whether on the Site or otherwise allocated to the Contract and intended to form or forming part of the Permanent Works.
- 1.1.66 “**Programme**” means a detailed time programme prepared and submitted by the Contractor to which the Engineer has given (or is deemed to have given) a Notice of No-objection under Sub-Clause 8.3 [*Programme*].
- 1.1.67 “**Provisional Sum**” means a sum (if any) which is specified in the Contract by the Employer as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.4 [*Provisional Sums*].
- 1.1.68 “**QM System**” means the Contractor’s quality management system (as may be updated and/or revised from time to time) in accordance with Sub-Clause 4.9.1 [*Quality Management System*].
- 1.1.69 “**Retention Money**” means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [*Application for Interim Payment*] and pays under Sub-Clause 14.9 [*Release of Retention Money*].
- 1.1.70 “**Review**” means examination and consideration by the Engineer of a Contractor’s submission in order to assess whether (and to what extent) it complies with the Contract and/or with the Contractor’s obligations under or in connection with the Contract.
- 1.1.71 “**Schedules**” means the document(s) entitled schedules prepared by the Employer and completed by the Contractor, as attached to the Letter of Tender and included in the Contract. Such document(s) may include data, lists and schedules of payments and/or rates and prices, and guarantees.
- 1.1.72 “**Schedule of Payments**” means the document(s) entitled schedule of payments (if any) in the Schedules showing the amounts and manner of payments to be made to the Contractor.
- 1.1.73 “**Section**” means a part of the Works specified in the Contract Data as a Section (if any).
- 1.1.74 “**Site**” means the places where the Permanent Works are to be executed and to which Plant and Materials are to be delivered, and any other places specified in the Contract as forming part of the Site.
- 1.1.75 “**Special Provisions**” means the document (if any), entitled special provisions which constitutes Part B of the Particular Conditions.
- 1.1.76 “**Specification**” means the document entitled specification included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.
- 1.1.77 “**Statement**” means a statement submitted by the Contractor as part of an application for a Payment Certificate under Sub-Clause 14.3 [*Application for Interim Payment*], Sub-Clause 14.10 [*Statement at Completion*] or Sub-Clause 14.11 [*Final Statement*].
- 1.1.78 “**Subcontractor**” means any person named in the Contract as a subcontractor, or any person appointed by the Contractor as a subcontractor.

or designer, for a part of the Works; and the legal successors in title to each of these persons.

- 1.1.79 **"Taking-Over Certificate"** means a certificate issued (or deemed to be issued) by the Engineer in accordance with Clause 10 [*Employer's Taking Over*].
- 1.1.80 **"Temporary Works"** means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution of the Works.
- 1.1.81 **"Tender"** means the Letter of Tender, the Contractor's Proposal, the JV Undertaking (if applicable), and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.
- 1.1.82 **"Tests after Completion"** means the tests (if any) which are stated in the Specification and which are carried out in accordance with the Special Provisions after the Works or a Section (as the case may be) are taken over under Clause 10 [*Employer's Taking Over*].
- 1.1.83 **"Tests on Completion"** means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [*Tests on Completion*] before the Works or a Section (as the case may be) are taken over under Clause 10 [*Employer's Taking Over*].
- 1.1.84 **"Time for Completion"** means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [*Time for Completion*], as stated in the Contract Data as may be extended under Sub-Clause 8.5 [*Extension of Time for Completion*], calculated from the Commencement Date.
- 1.1.85 **"Unforeseeable"** means not reasonably foreseeable by an experienced contractor by the Base Date.
- 1.1.86 **"Variation"** means any change to the Works, which is instructed as a variation under Clause 13 [*Variations and Adjustments*].
- 1.1.87 **"Works"** mean the Permanent Works and the Temporary Works, or either of them as appropriate.
- 1.1.88 **"year"** means 365 days.

## 1.2

### Interpretation

In the Contract, except where the context requires otherwise:

- (a) words indicating one gender include all genders; and "he", "his" and "himself" shall be read as "he/she", "his/her" and "himself/herself" respectively;
- (b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- (c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
- (d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;
- (e) "may" means that the Party or person referred to has the choice of whether to act or not in the matter referred to;

- (f) “shall” means that the Party or person referred to has an obligation under the Contract to perform the duty referred to;
- (g) “consent” means that the Employer, the Contractor or the Engineer (as the case may be) agrees to or gives permission for, the requested matter;
- (h) “including”, “include” and “includes” shall be interpreted as not being limited to, or qualified by, the stated items that follow;
- (i) words indicating persons or parties shall be interpreted as referring to natural and legal persons (including corporations and other legal entities); and
- (j) “execute the Works” or “execution of the Works” means the construction and completion of the Works and the remedying of any defects (and shall be deemed to include design to the extent, if any, specified in the Contract)

In any list in these Conditions, where the second-last item of the list is followed by “and” or “or” or “and/or” then all of the list items going before this item shall also be read as if they are followed by “and” or “or” or “and/or” (as the case may be).

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

### 1.3

#### Notices and Other Communications

Wherever these Conditions provide for the giving of a Notice (including a Notice of Dissatisfaction) or the issuing, providing, sending, submitting or transmitting of another type of communication (including acceptance, acknowledgement, advising, agreement, approval, certificate, Claim, consent, decision, determination, discharge, instruction, No-objection, record(s) of meeting, permission, proposal, record, reply, report, request, Review, Statement, statement, submission or any other similar type of communication), the Notice or other communication shall be in writing and:

- (a) shall be:
  - (i) a paper-original signed by the Contractor’s Representative, the Engineer, or the authorised representative of the Employer (as the case may be); or
  - (ii) an electronic original generated from any of the systems of electronic transmission stated in the Contract Data (if not stated, system(s) acceptable to the Engineer), where the electronic original is transmitted by the electronic address uniquely assigned to each of such authorised representatives,
 or both, as stated in these Conditions; and
- (b) if it is a Notice, it shall be identified as a Notice. If it is another form of communication, it shall be identified as such and include reference to the provision(s) of the Contract under which it is issued where appropriate;
- (c) delivered by hand (against receipt), or sent by mail or courier (against receipt), or transmitted using any of the systems of electronic transmission under sub-paragraph (a)(ii) above; and
- (d) delivered, sent or transmitted to the address for the recipient’s communications as stated in the Contract Data. However, if the recipient gives a Notice of another address, all Notices and other communications shall be delivered accordingly after the sender receives such Notice.

Where these Conditions state that a Notice or NOD or other communication is to be delivered, given, issued, provided, sent, submitted or transmitted, it shall have effect when it is received (or deemed to have been received) at the recipient's current address under sub-paragraph (d) above. An electronically transmitted Notice or other communication is deemed to have been received on the day after transmission, provided no non-delivery notification was received by the sender.

All Notices, and all other types of communication as referred to above, shall not be unreasonably withheld or delayed.

When a Notice or NOD or certificate is issued by a Party or the Engineer, the paper and/or electronic original shall be sent to the intended recipient and a copy shall be sent to the Engineer or the other Party, as the case may be. All other communications shall be copied to the Parties and/or the Engineer as stated under these Conditions or elsewhere in the Contract.

## 1.4

### Law and Language

The Contract shall be governed by the law of the country (or other jurisdiction) stated in the Contract Data (if not stated, the law of the Country), excluding any conflict of law rules.

The ruling language of the Contract shall be that stated in the Contract Data (if not stated, the language of these Conditions). If there are versions of any part of the Contract which are written in more than one language, the version which is in the ruling language shall prevail.

The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.

## 1.5

### Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. If there is any conflict, ambiguity or discrepancy, the priority of the documents shall be in accordance with the following sequence:

- (a) the Contract Agreement;
- (b) the Letter of Acceptance;
- (c) the Letter of Tender;
- (d) the Particular Conditions Part A – Contract Data;
- (e) the Particular Conditions Part B – Special Provisions;
- (f) these General Conditions;
- (g) the Specification;
- (h) the Drawings;
- (i) the Schedules;
- (j) the JV Undertaking (if the Contractor is a JV); and
- (k) any other documents forming part of the Contract.

If a Party finds an ambiguity or discrepancy in the documents, that Party shall promptly give a Notice to the Engineer, describing the ambiguity or discrepancy. After receiving such Notice, or if the Engineer finds an ambiguity or discrepancy in the documents, the Engineer shall issue the necessary clarification or instruction.





**1.6****Contract Agreement**

The Parties shall sign a Contract Agreement within 35 days after the Contractor receives the Letter of Acceptance, unless they agree otherwise. The Contract Agreement shall be based on the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

If the Contractor comprises a JV, the authorised representative of each member of the JV shall sign the Contract Agreement.

**1.7****Assignment**

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

- (a) may assign the whole or any part of the Contract with the prior agreement of the other Party, at the sole discretion of such other Party; and
- (b) may, as security in favour of a bank or financial institution, assign the Party's right to any moneys due, or to become due, under the Contract without the prior agreement of the other Party.

**1.8****Care and Supply  
of Documents**

The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

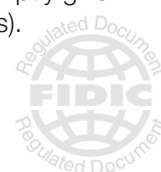
Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until submitted to the Engineer. The Contractor shall supply to the Engineer one paper-original, one electronic copy (in the form as stated in the Specification or, if not stated, a form acceptable to the Engineer) and additional paper copies (if any) as stated in the Contract Data of each of the Contractor's Documents.

The Contractor shall keep at all times, on the Site, a copy of:

- (a) the Contract;
- (b) the records under Sub-Clause 6.10 [*Contractor's Records*] and Sub-Clause 20.2.3 [*Contemporary records*];
- (c) the publications (if any) named in the Specification;
- (d) the Contractor's Documents;
- (e) the Drawings; and
- (f) Variations, Notices and other communications given under the Contract.

The Employer's Personnel shall have right of access to all these documents during all normal working hours, or as otherwise agreed with the Contractor.

If a Party (or the Engineer) becomes aware of an error or defect (whether of a technical nature or otherwise) in a document which was prepared for use in the execution of the Works, the Party (or the Engineer) shall promptly give a Notice of such error or defect to the other Party (or to the Parties).



## 1.9

### Delayed Drawings or Instructions

The Contractor shall give a Notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The Notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and details of the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the Notice with supporting details, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such EOT and/or Cost Plus Profit.

## 1.10

### Employer's Use of Contractor's Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents (and other design documents, if any, made by (or on behalf of) the Contractor).

The Contractor shall be deemed (by signing the Contract Agreement) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents (and such other design documents, if any), including making and using modifications of them. This licence shall:

- (a) apply throughout the actual or intended operational life (whichever is longer) of the relevant parts of the Works;
- (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents (and such other design documents, if any) for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works;
- (c) in the case of Contractor's Documents (and such other design documents, if any) which are in the form of electronic or digital files, computer programs and other software, permit their use on any computer on the Site and/or at the locations of the Employer and the Engineer and/or at other places as envisaged by the Contract; and
- (d) in the event of termination of the Contract:
  - (i) under Sub-Clause 15.2 [*Termination for Contractor's Default*], entitle the Employer to copy, use and communicate the Contractor's Documents (and other design documents made by or for the Contractor, if any); or
  - (ii) under Sub-Clause 15.5 [*Termination for Employer's Convenience*], Sub-Clause 16.2 [*Termination by Contractor*] or Sub-Clause 18.5 [*Optional Termination*], entitle the Employer to copy, use and communicate the Contractor's Documents for which the Contractor has received payment

for the purpose of completing the Works and/or arranging for any other entities to do so.





The Contractor's Documents (and other design documents, if any, made by (or on behalf of) the Contractor) shall not, without the Contractor's prior consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

## 1.11

### Contractor's Use of Employer's Documents

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification and Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at the Contractor's cost, copy, use and communicate these documents for the purposes of the Contract.

These documents (in whole or in part) shall not, without the Employer's prior consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

## 1.12

### Confidentiality

The Contractor shall disclose all such confidential and other information as the Engineer may reasonably require in order to verify the Contractor's compliance with the Contract.

The Contractor shall treat all documents forming the Contract as confidential, except to the extent necessary to carry out the Contractor's obligations under the Contract. The Contractor shall not publish, permit to be published, or disclose any particulars of the Contract in any trade or technical paper or elsewhere without the Employer's prior consent.

The Employer and the Engineer shall treat all information provided by the Contractor and marked "confidential", as confidential. The Employer shall not disclose or permit to be disclosed any such information to third parties, except as may be necessary when exercising the Employer's rights under Sub-Clause 15.2 [*Termination for Contractor's Default*].

A Party's obligation of confidentiality under this Sub-Clause shall not apply where the information:

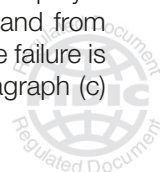
- (a) was already in that Party's possession without an obligation of confidentiality before receipt from the other Party;
- (b) becomes generally available to the public through no breach of these Conditions; or
- (c) is lawfully obtained by the Party from a third party which is not bound by an obligation of confidentiality.

## 1.13

### Compliance with Laws

The Contractor and the Employer shall, in performing the Contract, comply with all applicable Laws. Unless otherwise stated in the Specification:

- (a) the Employer shall have obtained (or shall obtain) the planning, zoning or building permit or similar permits, permissions, licences and/or approvals for the Permanent Works, and any other permits, permissions, licenses and/or approvals described in the Specification as having been (or being) obtained by the Employer. The Employer shall indemnify and hold the Contractor harmless against and from the consequences of any delay or failure to do so, unless the failure is caused by the Contractor's failure to comply with sub-paragraph (c) below;



- (b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all other permits, permissions, licences and/or approvals, as required by the Laws in relation to the execution of the Works. The Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so unless the failure is caused by the Employer's failure to comply with Sub-Clause 2.2 [*Assistance*];
- (c) within the time(s) stated in the Specification the Contractor shall provide such assistance and all documentation, as described in the Specification or otherwise reasonably required by the Employer, so as to allow the Employer to obtain any permit, permission, licence or approval under sub-paragraph (a) above; and
- (d) the Contractor shall comply with all permits, permissions, licences and/or approvals obtained by the Employer under sub-paragraph (a) above.

If, having complied with sub-paragraph (c) above, the Contractor suffers delay and/or incurs Cost as a result of the Employer's delay or failure to obtain any permit, permission, licence or approval under sub-paragraph (a) above, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

If the Employer incurs additional costs as a result of the Contractor's failure to comply with:

- (i) sub-paragraph (c) above; or
- (ii) sub-paragraph (b) or (d) above, provided that the Employer shall have complied with Sub-Clause 2.2 [*Assistance*],

the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of these costs by the Contractor.

## 1.14

### Joint and Several Liability

If the Contractor is a Joint Venture:

- (a) the members of the JV shall be jointly and severally liable to the Employer for the performance of the Contractor's obligations under the Contract;
- (b) the JV leader shall have authority to bind the Contractor and each member of the JV; and
- (c) neither the members nor (if known) the scope and parts of the Works to be carried out by each member nor the legal status of the JV shall be altered without the prior consent of the Employer (but such consent shall not relieve the altered JV from any liability under sub-paragraph (a) above).

## 1.15

### Limitation of Liability

Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than under:

- (a) Sub-Clause 8.8 [*Delay Damages*];
- (b) sub-paragraph (c) of Sub-Clause 13.3.1 [*Variation by Instruction*];
- (c) Sub-Clause 15.7 [*Payment after Termination for Employer's Convenience*];
- (d) Sub-Clause 16.4 [*Payment after Termination by Contractor*];
- (e) Sub-Clause 17.3 [*Intellectual and Industrial Property Rights*];
- (f) the first paragraph of Sub-Clause 17.4 [*Indemnities by Contractor*];

- and
- (g) Sub-Clause 17.5 [*Indemnities by Employer*].  
The total liability of the Contractor to the Employer under or in connection with the Contract, other than:
- (i) under Sub-Clause 2.6 [*Employer-Supplied Materials and Employer's Equipment*];
- (ii) under Sub-Clause 4.19 [*Temporary Utilities*];
- (iii) under Sub-Clause 17.3 [*Intellectual and Industrial Property Rights*]; and
- (iv) under the first paragraph of Sub-Clause 17.4 [*Indemnities by Contractor*],

shall not exceed the sum stated in the Contract Data or (if a sum is not so stated) the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, gross negligence, deliberate default or reckless misconduct by the defaulting Party.

## 1.16

### Contract Termination

Subject to any mandatory requirements under the governing law of the Contract, termination of the Contract under any Sub-Clause of these Conditions shall require no action of whatsoever kind by either Party other than as stated in the Sub-Clause.

# 2

## The Employer

### 2.1

#### Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, those parts of the Site within such times as may be required to enable the Contractor to proceed in accordance with the Programme or, if there is no Programme at that time, the initial programme submitted under Sub-Clause 8.3 [*Programme*].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the applicable Contractor's Documents, the Contractor shall not be entitled to such EOT and/or Cost Plus Profit.

### 2.2

#### Assistance

If requested by the Contractor, the Employer shall promptly provide reasonable assistance to the Contractor so as to allow the Contractor to obtain:



- (a) copies of the Laws of the Country which are relevant to the Contract but are not readily available; and
- (b) any permits, permissions, licences or approvals required by the Laws of the Country (including information required to be submitted by the Contractor in order to obtain such permits, permissions, licences or approvals):
  - (i) which the Contractor is required to obtain under Sub-Clause 1.13 [*Compliance with Laws*];
  - (ii) for the delivery of Goods, including clearance through customs; and
  - (iii) for the export of Contractor's Equipment when it is removed from the Site.

## 2.3

### Employer's Personnel and Other Contractors

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors (if any) on or near the Site:

- (a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [*Co-operation*]; and
- (b) comply with the same obligations which the Contractor is required to comply with under sub-paragraphs (a) to (e) of Sub-Clause 4.8 [*Health and Safety Obligations*] and under Sub-Clause 4.18 [*Protection of the Environment*].

The Contractor may require the Employer to remove (or cause to be removed) any person of the Employer's Personnel or of the Employer's other contractors (if any) who is found, based on reasonable evidence, to have engaged in corrupt, fraudulent, collusive or coercive practice.

## 2.4

### Employer's Financial Arrangements

The Employer's arrangements for financing the Employer's obligations under the Contract shall be detailed in the Contract Data.

If the Employer intends to make any material change (affecting the Employer's ability to pay the part of the Contract Price remaining to be paid at that time as estimated by the Engineer) to these financial arrangements, or has to do so because of changes in the Employer's financial situation, the Employer shall immediately give a Notice to the Contractor with detailed supporting particulars.

If the Contractor:

- (a) receives an instruction to execute a Variation with a price greater than ten percent (10%) of the Accepted Contract Amount, or the accumulated total of Variations exceeds thirty percent (30%) of the Accepted Contract Amount;
- (b) does not receive payment in accordance with Sub-Clause 14.7 [*Payment*]; or
- (c) becomes aware of a material change in the Employer's financial arrangements of which the Contractor has not received a Notice under this Sub-Clause,

the Contractor may request and the Employer shall, within 28 days after receiving this request, provide reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the part of the Contract Price remaining to be paid at that time (as estimated by the Engineer).

## 2.5

### Site Data and Items of Reference

The Employer shall have made available to the Contractor for information, before the Base Date, all relevant data in the Employer's possession on the topography of the Site and on sub-surface, hydrological, climatic and environmental conditions at the Site. The Employer shall promptly make available to the Contractor all such data which comes into the Employer's possession after the Base Date.

The original survey control points, lines and levels of reference (the "items of reference" in these Conditions) shall be specified on the Drawings and/or in the Specification or issued to the Contractor by a Notice from the Engineer.

## 2.6

### Employer-Supplied Materials and Employer's Equipment

If Employer-Supplied Materials and/or Employer's Equipment are listed in the Specification for the Contractor's use in the execution of the Works, the Employer shall make such materials and/or equipment available to the Contractor in accordance with the details, times, arrangements, rates and prices stated in the Specification.

The Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it, using it, or in control of it.

# 3 The Engineer

## 3.1

### The Engineer

The Employer shall appoint the Engineer, who shall carry out the duties assigned to the Engineer in the Contract.

The Engineer shall be vested with all the authority necessary to act as the Engineer under the Contract.

If the Engineer is a legal entity, a natural person employed by the Engineer shall be appointed and authorised to act on behalf of the Engineer under the Contract.

The Engineer (or, if a legal entity, the natural person appointed to act on its behalf) shall be:

- (a) a professional engineer having suitable qualifications, experience and competence to act as the Engineer under the Contract; and
- (b) shall be fluent in the ruling language defined in Sub-Clause 1.4 [*Law and Language*].

Where the Engineer is a legal entity, the Engineer shall give a Notice to the Parties of the natural person (or any replacement) appointed and authorised to act on its behalf. The authority shall not take effect until this Notice has been received by both Parties. The Engineer shall similarly give a Notice of any revocation of such authority.

## 3.2

### Engineer's Duties and Authority

Except as otherwise stated in these Conditions, whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall act as a skilled professional and shall be deemed to act for the Employer.

The Engineer shall have no authority to amend the Contract or, except as otherwise stated in these Conditions, to relieve either Party of any duty, obligation or responsibility under or in connection with the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the consent of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. There shall be no requirement for the Engineer to obtain the Employer's consent before the Engineer exercises his/her authority under Sub-Clause 3.7 [*Agreement or Determination*]. The Employer shall not impose further constraints on the Engineer's authority.

However, whenever the Engineer exercises a specified authority for which the Employer's consent is required, then (for the purposes of the Contract) such consent shall be deemed to have been given.

Any acceptance, agreement, approval, check, certificate, comment, consent, disapproval, examination, inspection, instruction, Notice, No-objection, record(s) of meeting, permission, proposal, record, reply, report, request, Review, test, valuation, or similar act (including the absence of any such act) by the Engineer, the Engineer's Representative or any assistant shall not relieve the Contractor from any duty, obligation or responsibility the Contractor has under or in connection with the Contract.

### 3.3

#### The Engineer's Representative

The Engineer may appoint an Engineer's Representative and delegate to him/her in accordance with Sub-Clause 3.4 [*Delegation by the Engineer*] the authority necessary to act on the Engineer's behalf at the Site, except to replace the Engineer's Representative.

The Engineer's Representative (if appointed) shall comply with sub-paragraphs (a) and (b) of Sub-Clause 3.1 [*The Engineer*] and shall be based at the Site for the whole time that the Works are being executed at the Site. If the Engineer's Representative is to be temporarily absent from the Site during the execution of the Works, an equivalently qualified, experienced and competent replacement shall be appointed by the Engineer, and the Contractor shall be given a Notice of such replacement.

### 3.4

#### Delegation by the Engineer

The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation, by giving a Notice to the Parties, describing the assigned duties and the delegated authority of each assistant. The assignment, delegation or revocation shall not take effect until this Notice has been received by both Parties. However, the Engineer shall not delegate the authority to:

- (a) act under Sub-Clause 3.7 [*Agreement or Determination*]; and/or
- (b) issue a Notice to Correct under Sub-Clause 15.1 [*Notice to Correct*].

Assistants shall be suitably qualified natural persons, who are experienced and competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

Each assistant, to whom duties have been assigned or authority has been



delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the Engineer's Notice of delegation under this Sub-Clause. Any act by an assistant, in accordance with the Engineer's Notice of delegation, shall have the same effect as though the act had been an act of the Engineer. However, if the Contractor questions any instruction or Notice given by an assistant, the Contractor may by giving a Notice refer the matter to the Engineer. The Engineer shall be deemed to have confirmed the assistant's instruction or Notice if the Engineer does not respond, within 7 days after receiving the Contractor's Notice, reversing or varying the assistant's instruction or Notice (as the case may be).

### 3.5

#### Engineer's Instructions

The Engineer may issue to the Contractor (at any time) instructions which may be necessary for the execution of the Works, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from the Engineer's Representative (if appointed) or an assistant to whom the appropriate authority to give instruction has been delegated under Sub-Clause 3.4 [*Delegation by the Engineer*].

Subject to the following provisions of this Sub-Clause, the Contractor shall comply with the instructions given by the Engineer or the Engineer's Representative (if appointed) or delegated assistant, on any matter related to the Contract.

If an instruction states that it constitutes a Variation, Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply.

If not so stated, and the Contractor considers that the instruction:

- (a) constitutes a Variation (or involves work that is already part of an existing Variation); or
- (b) does not comply with applicable Laws or will reduce the safety of the Works or is technically impossible

the Contractor shall immediately, and before commencing any work related to the instruction, give a Notice to the Engineer with reasons. If the Engineer does not respond within 7 days after receiving this Notice, by giving a Notice confirming, reversing or varying the instruction, the Engineer shall be deemed to have revoked the instruction. Otherwise the Contractor shall comply with and be bound by the terms of the Engineer's response.

### 3.6

#### Replacement of the Engineer

If the Employer intends to replace the Engineer, the Employer shall, not less than 42 days before the intended date of replacement, give a Notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer.

If the Contractor does not respond within 14 days after receiving this Notice, by giving a Notice stating an objection to such replacement with reasons, the Contractor shall be deemed to have accepted the replacement.

The Employer shall not replace the Engineer with a person (whether a legal entity or a natural person) against whom the Contractor has raised reasonable objection by a Notice under this Sub-Clause.

If the Engineer is unable to act as a result of death, illness, disability or resignation (or, in the case of an entity, the Engineer becomes unable or



unwilling to carry out any of its duties, other than for a cause attributable to the Employer) the Employer shall be entitled to immediately appoint a replacement by giving a Notice to the Contractor with reasons and the name, address and relevant experience of the replacement. This appointment shall be treated as a temporary appointment until this replacement is accepted by the Contractor, or another replacement is appointed, under this Sub-Clause.

### 3.7

#### Agreement or Determination

When carrying out his/her duties under this Sub-Clause, the Engineer shall act neutrally between the Parties and shall not be deemed to act for the Employer.

Whenever these Conditions provide that the Engineer shall proceed under this Sub-Clause to agree or determine any matter or Claim, the following procedure shall apply:

##### 3.7.1 Consultation to reach agreement

The Engineer shall consult with both Parties jointly and/or separately, and shall encourage discussion between the Parties in an endeavour to reach agreement. The Engineer shall commence such consultation promptly to allow adequate time to comply with the time limit for agreement under Sub-Clause 3.7.3 [*Time limits*]. Unless otherwise proposed by the Engineer and agreed by both Parties, the Engineer shall provide both Parties with a record of the consultation.

If agreement is achieved, within the time limit for agreement under Sub-Clause 3.7.3 [*Time limits*], the Engineer shall give a Notice to both Parties of the agreement, which agreement shall be signed by both Parties. This Notice shall state that it is a "Notice of the Parties' Agreement" and shall include a copy of the agreement.

If:

- (a) no agreement is achieved within the time limit for agreement under Sub-Clause 3.7.3 [*Time limits*]; or
- (b) both Parties advise the Engineer that no agreement can be achieved within this time limit

whichever is the earlier, the Engineer shall give a Notice to the Parties accordingly and shall immediately proceed as specified under Sub-Clause 3.7.2 [*Engineer's Determination*].

##### 3.7.2 Engineer's Determination

The Engineer shall make a fair determination of the matter or Claim, in accordance with the Contract, taking due regard of all relevant circumstances.

Within the time limit for determination under Sub-Clause 3.7.3 [*Time limits*], the Engineer shall give a Notice to both Parties of his/her determination. This Notice shall state that it is a "Notice of the Engineer's Determination", and shall describe the determination in detail with reasons and detailed supporting particulars.

##### 3.7.3 Time limits

The Engineer shall give the Notice of agreement, if agreement is achieved, within 42 days or within such other time limit as may be proposed by the Engineer and agreed by both Parties (the "time limit for agreement" in these Conditions), after:



- (a) in the case of a matter to be agreed or determined (not a Claim), the date of commencement of the time limit for agreement as stated in the applicable Sub-Clause of these Conditions;
- (b) in the case of a Claim under sub-paragraph (c) of Sub-Clause 20.1 [Claims], the date the Engineer receives a Notice under Sub-Clause 20.1 from the claiming Party; or
- (c) in the case of a Claim under sub-paragraph (a) or (b) of Sub-Clause 20.1 [Claims], the date the Engineer receives:
  - (i) a fully detailed Claim under Sub-Clause 20.2.4 [Fully Detailed Claim]; or
  - (ii) in the case of a Claim under Sub-Clause 20.2.6 [Claims of continuing effect], an interim or final fully detailed Claim (as the case may be).

The Engineer shall give the Notice of his/her determination within 42 days or within such other time limit as may be proposed by the Engineer and agreed by both Parties (the “time limit for determination” in these Conditions), after the date corresponding to his/her obligation to proceed under the last paragraph of Sub-Clause 3.7.1 [Consultation to reach agreement].

If the Engineer does not give the Notice of agreement or determination within the relevant time limit:

- (i) in the case of a Claim, the Engineer shall be deemed to have given a determination rejecting the Claim; or
- (ii) in the case of a matter to be agreed or determined, the matter shall be deemed to be a Dispute which may be referred by either Party to the DAAB for its decision under Sub-Clause 21.4 [Obtaining DAAB's Decision] without the need for a NOD (and Sub-Clause 3.7.5 [Dissatisfaction with Engineers determination] and sub-paragraph (a) of Sub-Clause 21.4.1 [Reference of a Dispute to the DAAB] shall not apply).

#### 3.7.4 Effect of the agreement or determination

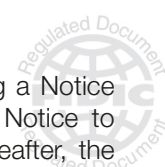
Each agreement or determination shall be binding on both Parties (and shall be complied with by the Engineer) unless and until corrected under this Sub-Clause or, in the case of a determination, it is revised under Clause 21 [Disputes and Arbitration].

If an agreement or determination concerns the payment of an amount from one Party to the other Party, the Contractor shall include such an amount in the next Statement and the Engineer shall include such amount in the Payment Certificate that follows that Statement.

If, within 14 days after giving or receiving the Engineer's Notice of agreement or determination, any error of a typographical or clerical or arithmetical nature is found:

- (a) by the Engineer: then he/she shall immediately advise the Parties accordingly; or
- (b) by a Party: then that Party shall give a Notice to the Engineer, stating that it is given under this Sub-Clause 3.7.4 and clearly identifying the error. If the Engineer does not agree there was an error, he/she shall immediately advise the Parties accordingly.

The Engineer shall within 7 days of finding the error, or receiving a Notice under sub-paragraph (b) above (as the case may be), give a Notice to both Parties of the corrected agreement or determination. Thereafter, the



corrected agreement or determination shall be treated as the agreement or determination for the purpose of these Conditions.

### 3.7.5 Dissatisfaction with Engineer's determination

If either Party is dissatisfied with a determination of the Engineer:

- (a) the dissatisfied Party may give a NOD to the other Party, with a copy to the Engineer;
- (b) this NOD shall state that it is a "Notice of Dissatisfaction with the Engineer's Determination" and shall set out the reason(s) for dissatisfaction;
- (c) this NOD shall be given within 28 days after receiving the Engineer's Notice of the determination under Sub-Clause 3.7.2 [*Engineer's Determination*] or, if applicable, his/her Notice of the corrected determination under Sub-Clause 3.7.4 [*Effect of the agreement or determination*] (or, in the case of a deemed determination rejecting the Claim, within 28 days after the time limit for determination under Sub-Clause 3.7.3 [*Time limits*] has expired); and
- (d) thereafter, either Party may proceed under Sub-Clause 21.4 [*Obtaining DAAB's Decision*].

If no NOD is given by either Party within the period of 28 days stated in sub-paragraph (c) above, the determination of the Engineer shall be deemed to have been accepted by both Parties and shall be final and binding on them.

If the dissatisfied Party is dissatisfied with only part(s) of the Engineer's determination:

- (i) this part(s) shall be clearly identified in the NOD;
- (ii) this part(s), and any other parts of the determination that are affected by such part(s) or rely on such part(s) for completeness, shall be deemed to be severable from the remainder of the determination; and
- (iii) the remainder of the determination shall become final and binding on both Parties as if the NOD had not been given.

In the event that a Party fails to comply with an agreement of the Parties under this Sub-Clause 3.7 or a final and binding determination of the Engineer, the other Party may, without prejudice to any other rights it may have, refer the failure itself directly to arbitration under Sub-Clause 21.6 [*Arbitration*] in which case the first and the third paragraphs of Sub-Clause 21.7 [*Failure to Comply with DAAB's Decision*] shall apply to such reference in the same manner as these paragraphs apply to a final and binding decision of the DAAB.

## 3.8

### Meetings

The Engineer or the Contractor's Representative may require the other to attend a management meeting to discuss arrangements for future work and/or other matters in connection with execution of the Works.

The Employer's other contractors, the personnel of legally constituted public authorities and/or private utility companies, and/or Subcontractors may attend any such meeting, if requested by the Engineer or the Contractor's Representative.

The Engineer shall keep a record of each management meeting and supply copies of the record to those attending and to the Employer. At any such



# 4

## The Contractor

### 4.1

#### Contractor's General Obligations

meeting, and in the record, responsibilities for any actions to be taken shall be in accordance with the Contract.

The Contractor shall execute the Works in accordance with the Contract. The Contractor undertakes that the execution of the Works and the completed Works will be in accordance with the documents forming the Contract, as altered or modified by Variations.

The Contractor shall provide the Plant (and spare parts, if any) and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required to fulfil the Contractor's obligations under the Contract.

The Contractor shall be responsible for the adequacy, stability and safety of all the Contractor's operations and activities, of all methods of construction and of all the Temporary Works. Except to the extent specified in the Contract, the Contractor:

- (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract; and
- (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this alteration having been submitted to the Engineer.

If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall prepare, and submit to the Engineer for Review, the Contractor's Documents for this part (and any other documents necessary to complete and implement the design during the execution of the Works and to instruct the Contractor's Personnel);
- (b) these Contractor's Documents shall be in accordance with the Specification and Drawings and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs. If the Engineer instructs that further Contractor's Documents are reasonably required to demonstrate that the Contractor's design complies with the Contract, the Contractor shall prepare and submit them promptly to the Engineer at the Contractor's cost;
- (c) construction of this part shall not commence until a Notice of No-objection is given (or is deemed to have been given) by the Engineer under sub-paragraph (i) of Sub-Clause 4.4.1 [*Preparation and Review*] for all the Contractor's Documents which are relevant to its design, and construction of such part shall be in accordance with these Contractor's Documents;
- (d) the Contractor may modify any design or Contractor's Documents which have previously been submitted for Review, by giving a Notice

to the Engineer with reasons. If the Contractor has commenced construction of the part of the Works to which such design or Contractor's Documents are relevant, work on this part shall be suspended, the provisions of Sub-Clause 4.4.1 [*Preparation and Review*] shall apply as if the Engineer had given a Notice in respect of the Contractor's Documents under sub-paragraph (ii) of Sub-Clause 4.4.1, and work shall not resume until a Notice of No-objection is given (or is deemed to have been given) by the Engineer for the revised documents;

- (e) the Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purpose(s) for which the part is intended as are specified in the Contract (or, where no purpose(s) are so defined and described, fit for their ordinary purpose(s));
- (f) in addition to the Contractor's undertaking above, the Contractor undertakes that the design and the Contractor's Documents for this part will comply with the technical standards stated in the Specification and Laws (in force when the Works are taken over under Clause 10 [*Employer's Taking Over*]) and in accordance with the documents forming the Contract, as altered or modified by Variations;
- (g) if Sub-Clause 4.4.2 [*As-built Records*] and/or Sub-Clause 4.4.3 [*Operation and Maintenance Manuals*] apply, the Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with such Sub-Clause(s) and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part; and
- (h) if Sub-Clause 4.5 [*Training*] applies, the Contractor shall carry out training of the Employer's Personnel in the operation and maintenance of this part.

## 4.2

### Performance Security

The Contractor shall obtain (at the Contractor's cost) a Performance Security to secure the Contractor's proper performance of the Contract, in the amount and currencies stated in the Contract Data. If no amount is stated in the Contract Data, this Sub-Clause shall not apply.

#### 4.2.1 Contractor's obligations

The Contractor shall deliver the Performance Security to the Employer, with a copy to the Engineer, within 28 days after receiving the Letter of Acceptance. The Performance Security shall be issued by an entity and from within a country (or other jurisdiction) to which the Employer gives consent and shall be in the form annexed to the Particular Conditions, or in another form agreed by the Employer (but such consent and/or agreement shall not relieve the Contractor from any obligation under this Sub-Clause).

The Contractor shall ensure that the Performance Security remains valid and enforceable until the issue of the Performance Certificate and the Contractor has complied with Sub-Clause 11.11 [*Clearance of Site*]. If the terms of the Performance Security specify an expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days before the expiry date, the Contractor shall extend the validity of the Performance Security until the issue of the Performance Certificate and the Contractor has complied with Sub-Clause 11.11 [*Clearance of Site*].

Whenever Variations and/or adjustments under Clause 13 [Variations and Adjustments] result in an accumulative increase or decrease of the Contract Price by more than twenty percent (20%) of the Accepted Contract Amount:



- (a) in the case of such an increase, at the Employer's request the Contractor shall promptly increase the amount of the Performance Security in that currency by a percentage equal to the accumulative increase. If the Contractor incurs Cost as a result of this Employer's request, Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply as if the increase had been instructed by the Engineer; or
- (b) in the case of such a decrease, subject to the Employer's prior consent the Contractor may decrease the amount of the Performance Security in that currency by a percentage equal to the accumulative decrease.

#### 4.2.2 Claims under the Performance Security

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract in the event of:

- (a) failure by the Contractor to extend the validity of the Performance Security, as described in this Sub-Clause, in which event the Employer may claim the full amount (or, in the case of previous reduction(s), the full remaining amount) of the Performance Security;
- (b) failure by the Contractor to pay the Employer an amount due, as agreed or determined under Sub-Clause 3.7 [*Agreement or Determination*] or agreed or decided under Clause 21 [*Disputes and Arbitration*], within 42 days after the date of the agreement or determination or decision or arbitral award (as the case may be);
- (c) failure by the Contractor to remedy a default stated in a Notice given under Sub-Clause 15.1 [*Notice to Correct*] within 42 days or other time (if any) stated in the Notice;
- (d) circumstances which entitle the Employer to terminate the Contract under Sub-Clause 15.2 [*Termination for Contractor's Default*], irrespective of whether a Notice of termination has been given; or
- (e) if under Sub-Clause 11.5 [*Remedying of Defective Work off Site*] the Contractor removes any defective or damaged Plant from the Site, failure by the Contractor to repair such Plant, return it to the Site, reinstall it and retest it by the date of expiry of the relevant duration stated in the Contractor's Notice (or other date agreed by the Employer).

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent that the Employer was not entitled to make the claim.

Any amount which is received by the Employer under the Performance Security shall be taken into account:

- (i) in the Final Payment Certificate under Sub-Clause 14.13 [*Issue of FPC*]; or
- (ii) if the Contract is terminated, in payment due to the Contractor under Sub-Clause 15.4 [*Payment after Termination for Contractor's Default*], Sub-Clause 15.7 [*Payment after Termination for Employer's Convenience*], Sub-Clause 16.4 [*Payment after Termination by Contractor*], Sub-Clause 18.5 [*Optional Termination*], or Sub-Clause 18.6 [*Release from Performance under the Law*] (as the case may be).

#### 4.2.3 Return of the Performance Security

The Employer shall return the Performance Security to the Contractor:



- (a) within 21 days after the issue of the Performance Certificate and the Contractor has complied with Sub-Clause 11.11 [*Clearance of Site*]; or
- (b) promptly after the date of termination if the Contract is terminated in accordance with Sub-Clause 15.5 [*Termination for Employer's Convenience*], Sub-Clause 16.2 [*Termination by Contractor*], Sub-Clause 18.5 [*Optional Termination*] or Sub-Clause 18.6 [*Release from Performance under the Law*].

### 4.3

#### Contractor's Representative

The Contractor shall appoint the Contractor's Representative and shall give him/her all authority necessary to act on the Contractor's behalf under the Contract, except to replace the Contractor's Representative.

The Contractor's Representative shall be qualified, experienced and competent in the main engineering discipline applicable to the Works and fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

Unless the Contractor's Representative is named in the Contract, the Contractor shall, before the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked, or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable replacement for such appointment. If the Engineer does not respond within 28 days after receiving this submission, by giving a Notice to the Contractor objecting to the proposed person or replacement, the Engineer shall be deemed to have given his/her consent.

The Contractor shall not, without the Engineer's prior consent, revoke the appointment of the Contractor's Representative or appoint a replacement (unless the Contractor's Representative is unable to act as a result of death, illness, disability or resignation, in which case his/her appointment shall be deemed to have been revoked with immediate effect and the appointment of a replacement shall be treated as a temporary appointment until the Engineer gives his/her consent to this replacement, or another replacement is appointed, under this Sub-Clause).

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. The Contractor's Representative shall act for and on behalf of the Contractor at all times during the performance of the Contract, including issuing and receiving all Notices and other communications under Sub-Clause 1.3 [*Notices and Other Communications*] and for receiving instructions under Sub-Clause 3.5 [*Engineer's Instructions*].

The Contractor's Representative shall be based at the Site for the whole time that the Works are being executed at the Site. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement shall be temporarily appointed, subject to the Engineer's prior consent.

The Contractor's Representative may delegate any powers, functions and authority except:





- (a) the authority to issue and receive Notices and other communications under Sub-Clause 1.3 [*Notices and Other Communications*]; and
- (b) the authority to receive instructions under Sub-Clause 3.5 [*Engineer's Instructions*]],

to any suitably competent and experienced person and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received a Notice from the Contractor's Representative, naming the person, specifying the powers, functions and authority being delegated or revoked, and stating the timing of the delegation or revocation.

All these persons shall be fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

## 4.4

### Contractor's Documents

#### 4.4.1 Preparation and Review

The Contractor's Documents shall comprise the documents:

- (a) stated in the Specification;
- (b) required to satisfy all permits, permissions, licences and other regulatory approvals which are the Contractor's responsibility under Sub-Clause 1.13 [*Compliance with Laws*];
- (c) described in Sub-Clause 4.4.2 [*As-Built Records*] and Sub-Clause 4.4.3 [*Operation and Maintenance Manuals*], where applicable; and
- (d) required under sub-paragraph (a) of Sub-Clause 4.1 [*Contractor's General Obligations*], where applicable.

Unless otherwise stated in the Specification, the Contractor's Documents shall be written in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

The Contractor shall prepare all Contractor's Documents and the Employer's Personnel shall have the right to inspect the preparation of all these documents, wherever they are being prepared.

If the Specification or these Conditions specify that a Contractor's Document is to be submitted to the Engineer for Review, it shall be submitted accordingly, together with a Notice from the Contractor stating that the Contractor's Document is ready for Review and that it complies with the Contract.

The Engineer shall, within 21 days after receiving the Contractor's Document and this Notice from the Contractor, give a Notice to the Contractor:

- (i) of No-objection (which may include comments concerning minor matters which will not substantially affect the Works); or
- (ii) that the Contractor's Document fails (to the extent stated) to comply with the Contract, with reasons.

If the Engineer gives no Notice within this period of 21 days, the Engineer shall be deemed to have given a Notice of No-objection to the Contractor's Document.

After receiving a Notice under sub-paragraph (ii), above, the Contractor shall revise the Contractor's Document and resubmit it to the Engineer for Review in accordance with this Sub-Clause and the period of 21 days for Review shall be calculated from the date that the Engineer receives it.

#### 4.4.2 As-Built Records

If no as-built records to be prepared by the Contractor are stated in the Specification, this Sub-Clause shall not apply.

The Contractor shall prepare, and keep up-to-date, a complete set of “as-built” records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed by the Contractor. The format, referencing system, system of electronic storage and other relevant details of the as-built records shall be as stated in the Specification (if not stated, as acceptable to the Engineer). These records shall be kept on the Site and shall be used exclusively for the purposes of this Sub-Clause.

The as-built records shall be submitted to the Engineer for Review, and the Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over the Works and Sections*] until the Engineer has given (or is deemed to have given) a Notice of No-objection under sub-paragraph (i) of Sub-Clause 4.4.1 [*Preparation and Review*].

The number of copies of as-built records to be submitted by the Contractor under this Sub-Clause shall be as required under Sub-Clause 1.8 [*Care and Supply of Documents*].

#### 4.4.3 Operation and Maintenance Manuals

If no operation and maintenance manuals to be prepared by the Contractor are stated in the Specification, this Sub-Clause shall not apply.

The Contractor shall prepare, and keep up-to-date, the operation and maintenance manuals in the format and other relevant details as stated in the Specification.

The operation and maintenance manuals shall be submitted to the Engineer for Review, and the Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over the Works and Sections*] until the Engineer has given (or is deemed to have given) a Notice of No-objection under sub-paragraph (i) of Sub-Clause 4.4.1 [*Preparation and Review*].

### 4.5

#### Training

If no training of employees of the Employer (and/or other identified personnel) by the Contractor is stated in the Specification, this Sub-Clause shall not apply.

The Contractor shall carry out training of the Employer’s employees (and/or other personnel identified in the Specification) in the operation and maintenance of the Works, and any other aspect of the Works, to the extent stated in the Specification. The timing of the training shall be as stated in the Specification (if not stated, as acceptable to the Employer). The Contractor shall provide qualified and experienced training staff, training facilities and all training materials as necessary and/or as stated in the Specification.

If the Specification specifies training which is to be carried out before taking over, the Works shall not be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [*Taking Over the Works and Sections*] until this training has been completed in accordance with the Specification.



## 4.6

### Co-operation

The Contractor shall, as stated in the Specification or as instructed by the Engineer, co-operate with and allow appropriate opportunities for carrying out work by:

- (a) the Employer's Personnel;
- (b) any other contractors employed by the Employer; and
- (c) the personnel of any legally constituted public authorities and private utility companies,

who may be employed in the carrying out, on or near the Site, of any work not included in the Contract. Such appropriate opportunities may include the use of Contractor's Equipment, Temporary Works, access arrangements which are the responsibility of the Contractor, and/or other Contractor's facilities or services on the Site.

The Contractor shall be responsible for the Contractor's construction activities on the Site, and shall use all reasonable endeavours to co-ordinate these activities with those of other contractors to the extent (if any) stated in the Specification or as instructed by the Engineer.

If the Contractor suffers delay and/or incurs Cost as a result of an instruction under this Sub-Clause, to the extent (if any) that co-operation, allowance of opportunities and coordination was Unforeseeable having regard to that stated in the Specification, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

## 4.7

### Setting Out

The Contractor shall set out the Works in relation to the items of reference under Sub-Clause 2.5 [*Site Data and Items of Reference*].

#### 4.7.1 Accuracy

The Contractor shall:

- (a) verify the accuracy of all these items of reference before they are used for the Works;
- (b) promptly deliver the results of each verification to the Engineer;
- (c) rectify any error in the positions, levels, dimensions or alignment of the Works; and
- (d) be responsible for the correct positioning of all parts of the Works.

#### 4.7.2 Errors

If the Contractor finds an error in any items of reference, the Contractor shall give a Notice to the Engineer describing it:

- (a) within the period stated in the Contract Data (if not stated, 28 days) calculated from the Commencement Date, if the items of reference are specified on the Drawings and/or in the Specification; or
- (b) as soon as practicable after receiving the items of reference, if they are issued by the Engineer under Sub-Clause 2.5 [*Site Data and Items of Reference*].

#### 4.7.3 Agreement or Determination of rectification measures, delay and/or Cost

After receiving a Notice from the Contractor under Sub-Clause 4.7.2

[Errors], the Engineer shall proceed under Sub-Clause 3.7 [Agreement or Determination] to agree or determine:

- (a) whether or not there is an error in the items of reference;
- (b) whether or not (taking account of cost and time) an experienced contractor exercising due care would have discovered such an error
  - when examining the Site, the Drawings and the Specification before submitting the Tender; or
  - if the items of reference are specified on the Drawings and/or in the Specification and the Contractor's Notice is given after the expiry of the period stated in sub-paragraph (a) of Sub-Clause 4.7.2; and
- (c) what measures (if any) the Contractor is required to take to rectify the error

(and, for the purpose of Sub-Clause 3.7.3 [Time limits], the date the Engineer receives the Contractor's Notice under Sub-Clause 4.7.2 [Errors] shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

If, under sub-paragraph (b) above, an experienced contractor would not have discovered the error:

- (i) Sub-Clause 13.3.1 [Variation by Instruction] shall apply to the measures that the Contractor is required to take (if any); and
- (ii) if the Contractor suffers delay and/or incurs Cost as a result of the error, the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/or payment of such Cost Plus Profit.

## 4.8

### Health and Safety Obligations

The Contractor shall:

- (a) comply with all applicable health and safety regulations and Laws;
- (b) comply with all applicable health and safety obligations specified in the Contract;
- (c) comply with all directives issued by the Contractor's health and safety officer (appointed under Sub-Clause 6.7 [Health and Safety of Personnel]);
- (d) take care of the health and safety of all persons entitled to be on the Site and other places (if any) where the Works are being executed;
- (e) keep the Site, Works (and the other places (if any) where the Works are being executed) clear of unnecessary obstruction so as to avoid danger to these persons;
- (f) provide fencing, lighting, safe access, guarding and watching of:
  - (i) the Works, until the Works are taken over under Clause 10 [Employer's Taking Over]; and
  - (ii) any part of the Works where the Contractor is executing outstanding works or remedying any defects during the DNP; and
- (g) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land and property.

Within 21 days of the Commencement Date and before commencing any

construction on the Site, the Contractor shall submit to the Engineer for information a health and safety manual which has been specifically prepared for the Works, the Site and other places (if any) where the Contractor intends to execute the Works. This manual shall be in addition to any other similar document required under applicable health and safety regulations and Laws.

The health and safety manual shall set out all the health and safety requirements:

- (i) stated in the Specification;
- (ii) that comply with all the Contractor's health and safety obligations under the Contract; and
- (iii) that are necessary to effect and maintain a healthy and safe working environment for all persons entitled to be on the Site and other places (if any) where the Works are being executed.

This manual shall be revised as necessary by the Contractor or the Contractor's health and safety officer, or at the reasonable request of the Engineer. Each revision of the manual shall be submitted promptly to the Engineer.

In addition to the reporting requirement of sub-paragraph (g) of Sub-Clause 4.20 [*Progress Reports*], the Contractor shall submit to the Engineer details of any accident as soon as practicable after its occurrence and, in the case of an accident causing serious injury or death, shall inform the Engineer immediately.

The Contractor shall, as stated in the Specification and as the Engineer may reasonably require, maintain records and make reports (in compliance with the applicable health and safety regulations and Laws) concerning the health and safety of persons and any damage to property.

## 4.9

### Quality Management and Compliance Verification Systems

#### 4.9.1 Quality Management System

The Contractor shall prepare and implement a QM System to demonstrate compliance with the requirements of the Contract. The QM System shall be specifically prepared for the Works and submitted to the Engineer within 28 days of the Commencement Date. Thereafter, whenever the QM System is updated or revised, a copy shall promptly be submitted to the Engineer.

The QM System shall be in accordance with the details stated in the Specification (if any) and shall include the Contractor's procedures:

- (a) to ensure that all Notices and other communications under Sub-Clause 1.3 [*Notices and Other Communications*], Contractor's Documents, as-built records (if applicable), operation and maintenance manuals (if applicable), and contemporary records can be traced, with full certainty, to the Works, Goods, work, workmanship or test to which they relate;
- (b) to ensure proper coordination and management of interfaces between the stages of execution of the Works, and between Subcontractors; and
- (c) for the submission of Contractor's Documents to the Engineer for Review.



The Engineer may Review the QM System and may give a Notice to the Contractor stating the extent to which it does not comply with the Contract. Within 14 days after receiving this Notice, the Contractor shall revise the QM System to rectify such non-compliance. If the Engineer does not give such a Notice within 21 days of the date of submission of the QM System, the Engineer shall be deemed to have given a Notice of No-objection.

The Engineer may, at any time, give a Notice to the Contractor stating the extent to which the Contractor is failing to correctly implement the QM System to the Contractor's activities under the Contract. After receiving this Notice, the Contractor shall immediately remedy such failure.

The Contractor shall carry out internal audits of the QM System regularly, and at least once every 6 months. The Contractor shall submit to the Engineer a report listing the results of each internal audit within 7 days of completion. Each report shall include, where appropriate, the proposed measures to improve and/or rectify the QM System and/or its implementation.

If the Contractor is required by the Contractor's quality assurance certification to be subject to external audit, the Contractor shall immediately give a Notice to the Engineer describing any failing(s) identified in any external audit. If the Contractor is a JV, this obligation shall apply to each member of the JV.

#### 4.9.2 Compliance Verification System

The Contractor shall prepare and implement a Compliance Verification System to demonstrate that the design (if any), Materials, Employer-Supplied Materials (if any), Plant, work and workmanship comply in all respects with the Contract.

The Compliance Verification System shall be in accordance with the details stated in the Specification (if any) and shall include a method for reporting the results of all inspections and tests carried out by the Contractor. In the event that any inspection or test identifies a non-compliance with the Contract, Sub-Clause 7.5 [*Defects and Rejection*] shall apply.

The Contractor shall prepare and submit to the Engineer a complete set of compliance verification documentation for the Works or Section (as the case may be), fully compiled and collated in the manner described in the Specification or, if not so described, in a manner acceptable to the Engineer.

#### 4.9.3 General provision

Compliance with the QM System and/or Compliance Verification System shall not relieve the Contractor from any duty, obligation or responsibility under or in connection with the Contract.

### 4.10

#### **Use of Site Data**

The Contractor shall be responsible for interpreting all data referred to under Sub-Clause 2.5 [*Site Data and Items of Reference*].

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, access to the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all matters relevant to the execution of the Works, including:

- (a) the form and nature of the Site, including sub-surface conditions;
- (b) the hydrological and climatic conditions, and the effects of climatic conditions at the Site;
- (c) the extent and nature of the work and Goods necessary for the execution of the Works;
- (d) the Laws, procedures and labour practices of the Country; and
- (e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and any other utilities or services.

#### 4.11

##### Sufficiency of the Accepted Contract Amount

The Contractor shall be deemed to:

- (a) have satisfied himself/herself as to the correctness and sufficiency of the Accepted Contract Amount; and
- (b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters described in Sub-Clause 4.10 [*Use of Site Data*].

Unless otherwise stated in the Contract, the Accepted Contract Amount shall be deemed to cover all the Contractor's obligations under the Contract and all things necessary for the proper execution of the Works in accordance with the Contract.

#### 4.12

##### Unforeseeable Physical Conditions

In this Sub-Clause, "physical conditions" means natural physical conditions and physical obstructions (natural or man-made) and pollutants, which the Contractor encounters at the Site during execution of the Works, including sub-surface and hydrological conditions but excluding climatic conditions at the Site and the effects of those climatic conditions.

If the Contractor encounters physical conditions which the Contractor considers to have been Unforeseeable and that will have an adverse effect on the progress and/or increase the Cost of the execution of the Works, the following procedure shall apply:

##### 4.12.1 Contractor's Notice

After discovery of such physical conditions, the Contractor shall give a Notice to the Engineer, which shall:

- (a) be given as soon as practicable and in good time to give the Engineer opportunity to inspect and investigate the physical conditions promptly and before they are disturbed;
- (b) describe the physical conditions, so that they can be inspected and/or investigated promptly by the Engineer;
- (c) set out the reasons why the Contractor considers the physical conditions to be Unforeseeable; and
- (d) describe the manner in which the physical conditions will have an adverse effect on the progress and/or increase the Cost of the execution of the Works.

##### 4.12.2 Engineer's inspection and investigation

The Engineer shall inspect and investigate the physical conditions within



7 days, or a longer period agreed with the Contractor, after receiving the Contractor's Notice.

The Contractor shall continue execution of the Works, using such proper and reasonable measures as are appropriate for the physical conditions and to enable the Engineer to inspect and investigate them.

#### 4.12.3 Engineer's instructions

The Contractor shall comply with any instructions which the Engineer may give for dealing with the physical conditions and, if such an instruction constitutes a Variation, Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply.

#### 4.12.4 Delay and/or Cost

If and to the extent that the Contractor suffers delay and/or incurs Cost due to these physical conditions, having complied with Sub-Clauses 4.12.1 to 4.12.3 above, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost.

#### 4.12.5 Agreement or Determination of Delay and/or Cost

The agreement or determination, under Sub-Clause 20.2.5 [*Agreement or determination of the Claim*], of any Claim under Sub-Clause 4.12.4 [*Delay and/or Cost*] shall include consideration of whether and (if so) to what extent the physical conditions were Unforeseeable.

The Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen by the Base Date. If and to the extent that these more favourable conditions were encountered, the Engineer may take account of the reductions in Cost which were due to these conditions in calculating the additional Cost to be agreed or determined under this Sub-Clause 4.12.5. However, the net effect of all additions and reductions under this Sub-Clause 4.12.5 shall not result in a net reduction in the Contract Price.

The Engineer may take account of any evidence of the physical conditions foreseen by the Contractor by the Base Date, which the Contractor may include in the supporting particulars for the Claim under Sub-Clause 20.2.4 [*Fully detailed Claim*], but shall not be bound by any such evidence.

### 4.13

#### **Rights of Way and Facilities**

The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site.

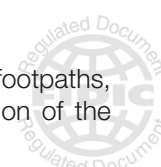
The Contractor shall also obtain, at the Contractor's risk and cost, any additional facilities outside the Site which may be required for the purposes of the Works.

### 4.14

#### **Avoidance of Interference**

The Contractor shall not interfere unnecessarily or improperly with:

- (a) the convenience of the public; or
- (b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.





The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

#### 4.15

##### Access Route

The Contractor shall be deemed to have been satisfied, at the Base Date, as to the suitability and availability of the access routes to the Site. The Contractor shall take all necessary measures to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These measures shall include the proper use of appropriate vehicles (conforming to legal load and width limits (if any) and any other restrictions) and routes.

Except as otherwise stated in these Conditions:

- (a) the Contractor shall (as between the Parties) be responsible for repair of any damage caused to, and any maintenance which may be required for the Contractor's use of, access routes;
- (b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permissions or permits which may be required from the relevant authorities, for the Contractor's use of routes, signs and directions;
- (c) the Employer shall not be responsible for any third party claims which may arise from the Contractor's use or otherwise of any access route;
- (d) the Employer does not guarantee the suitability or availability of particular access routes; and
- (e) all Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

To the extent that non-suitability or non-availability of an access route arises as a result of changes to that access route by the Employer or a third party after the Base Date and as a result the Contractor suffers delay and/or incurs Cost, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost.

#### 4.16

##### Transport of Goods

The Contractor shall:

- (a) give a Notice to the Engineer not less than 21 days before the date on which any Plant, or a major item of other Goods (as stated in the Specification), will be delivered to the Site;
- (b) be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works;
- (c) be responsible for customs clearance, permits, fees and charges related to the import, transport and handling of all Goods, including all obligations necessary for their delivery to the Site; and
- (d) indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the import, transport and handling of all Goods, and shall negotiate and pay all third party claims arising from their import, transport and handling.

#### 4.17

##### Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall

not remove from the Site any major items of Contractor's Equipment without the Engineer's consent. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

In addition to any Notice given under Sub-Clause 4.16 [*Transport of Goods*], the Contractor shall give a Notice to the Engineer of the date on which any major item of Contractor's Equipment has been delivered to the Site. This Notice shall be given within 7 days of the delivery date, shall identify whether the item of Contractor's Equipment is owned by the Contractor or a Subcontractor or another person and, if rented or leased, shall identify the rental or leasing entity.

#### 4.18

##### Protection of the Environment

The Contractor shall take all necessary measures to:

- (a) protect the environment (both on and off the Site);
- (b) comply with the environmental impact statement for the Works (if any); and
- (c) limit damage and nuisance to people and property resulting from pollution, noise and other results of the Contractor's operations and/or activities.

The Contractor shall ensure that emissions, surface discharges, effluent and any other pollutants from the Contractor's activities shall exceed neither the values indicated in the Specification, nor those prescribed by applicable Laws.

#### 4.19

##### Temporary Utilities

The Contractor shall, except as stated below, be responsible for the provision of all temporary utilities, including electricity, gas, telecommunications, water and any other services the Contractor may require for the execution of the Works.

The following provisions of this Sub-Clause shall only apply if, as stated in the Specification, the Employer is to provide utilities for the Contractor's use. The Contractor shall be entitled to use, for the purposes of the Works, the utilities on the Site for which details and prices are given in the Specification. The Contractor shall, at the Contractor's risk and cost, provide any apparatus necessary for the Contractor's use of these services and for measuring the quantities consumed. The apparatus provided for measuring quantities consumed shall be subject to the Engineer's consent. The quantities consumed (if any) during each period of payment stated in the Contract Data (if not stated, each month) shall be measured by the Contractor, and the amount to be paid by the Contractor for such quantities (at the prices stated in the Specification) shall be included in the relevant Statement.

#### 4.20

##### Progress Reports

Monthly progress reports, in the format stated in the Specification (if not stated, in a format acceptable to the Engineer) shall be prepared by the Contractor and submitted to the Engineer. Each progress report shall be submitted in one paper-original, one electronic copy and additional paper copies (if any) as stated in the Contract Data. The first report shall cover the period up to the end of the first month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the month to which it relates.



Reporting shall continue until the Date of Completion of the Works or, if outstanding work is listed in the Taking-Over Certificate, the date on which such outstanding work is completed. Unless otherwise stated in the Specification, each progress report shall include:

- (a) charts, diagrams and detailed descriptions of progress, including each stage of (design by the Contractor, if any) Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing;
- (b) photographs and/or video recordings showing the status of manufacture and of progress on and off the Site;
- (c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
  - (i) commencement of manufacture,
  - (ii) Contractor's inspections,
  - (iii) tests, and
  - (iv) shipment and arrival at the Site;
- (d) the details described in Sub-Clause 6.10 [*Contractor's Records*];
- (e) copies of quality management documents, inspection reports, test results, and compliance verification documentation (including certificates of Materials);
- (f) a list of Variations, and any Notices given (by either Party) under Sub-Clause 20.2.1 [*Notice of Claim*];
- (g) health and safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- (h) comparisons of actual and planned progress, with details of any events or circumstances which may adversely affect the completion of the Works in accordance with the Programme and the Time for Completion, and the measures being (or to be) adopted to overcome delays.

However, nothing stated in any progress report shall constitute a Notice under a Sub-Clause of these Conditions.

#### 4.21

##### Security of the Site

The Contractor shall be responsible for the security of the Site, and:

- (a) for keeping unauthorised persons off the Site; and
- (b) authorised persons shall be limited to the Contractor's Personnel, the Employer's Personnel, and to any other personnel identified as authorised personnel (including the Employer's other contractors on the Site), by a Notice from the Employer or the Engineer to the Contractor.

#### 4.22

##### Contractor's Operations on Site

The Contractor shall confine the Contractor's operations to the Site, and to any additional areas which may be obtained by the Contractor and acknowledged by the Engineer as working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.



At all times, the Contractor shall keep the Site free from all unnecessary obstruction, and shall properly store or remove from the Site any Contractor's Equipment (subject to 4.17 [Contractor's Equipment]) and/or surplus materials. The Contractor shall promptly clear away and remove from the Site any wreckage, rubbish, hazardous waste and Temporary Works which are no longer required.

Promptly after the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish, hazardous waste and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain at locations on the Site agreed with the Engineer, during the DNP, such Goods as are required for the Contractor to fulfil obligations under the Contract.

#### 4.23

#### Archaeological and Geological Findings

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take all reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, as soon as practicable after discovery of any such finding, give a Notice to the Engineer in good time to give the Engineer opportunity to promptly inspect and/or investigate the finding before it is disturbed. This Notice shall describe the finding and the Engineer shall issue instructions for dealing with it.

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions, the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/or payment of such Cost.

## 5 Subcontracting

### 5.1

#### Subcontractors

The Contractor shall not subcontract:

- (a) works with a total accumulated value greater than the percentage of the Accepted Contract Amount stated in the Contract Data (if not stated, the whole of the Works); or
- (b) any part of the Works for which subcontracting is not permitted as stated in the Contract Data.

The Contractor shall be responsible for the work of all Subcontractors, for managing and coordinating all the Subcontractors' works, and for the acts or defaults of any Subcontractor, any Subcontractor's agents or employees, as if they were the acts or defaults of the Contractor.

The Contractor shall obtain the Engineer's prior consent to all proposed Subcontractors, except:

- (i) suppliers of Materials; or
- (ii) a subcontract for which the Subcontractor is named in the Contract.



Where the Contractor is required to obtain the Engineer's consent to a proposed Subcontractor, the Contractor shall submit the name, address, detailed particulars and relevant experience of such a Subcontractor and the work intended to be subcontracted to the Engineer and further information which the Engineer may reasonably require. If the Engineer does not respond within 14 days after receiving this submission (or further information if requested), by giving a Notice objecting to the proposed Subcontractor, the Engineer shall be deemed to have given his/her consent.

The Contractor shall give a Notice to the Engineer not less than 28 days before the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site.

## 5.2

### Nominated Subcontractors

#### 5.2.1 Definition of "nominated Subcontractor"

In this Sub-Clause, "nominated Subcontractor" means a Subcontractor named as such in the Specification or whom the Engineer, under Sub-Clause 13.4 [*Provisional Sums*], instructs the Contractor to employ as a Subcontractor.

#### 5.2.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor whom the Engineer instructs and against whom the Contractor raises reasonable objection by giving a Notice to the Engineer, with detailed supporting particulars, no later than 14 days after receiving the Engineer's instruction. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees to indemnify the Contractor against and from the consequences of the matter:

- (a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- (b) the subcontract does not specify that the nominated Subcontractor shall indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, the nominated Subcontractor's agents and employees; or
- (c) the subcontract does not specify that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
  - (i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge the Contractor's corresponding obligations and liabilities under the Contract, and
  - (ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities.

#### 5.2.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.4 [*Provisional Sums*], except as stated in Sub-Clause 5.2.4 [*Evidence of Payments*].

#### 5.2.4 Evidence of Payments

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with the previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

- (a) submits this reasonable evidence to the Engineer, or
- (b)
  - (i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and
  - (ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,

then the Employer may (at the Employer's sole discretion) pay, directly to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above.

Thereafter, the Engineer shall give a Notice to the Contractor stating the amount paid directly to the nominated Subcontractor by the Employer and, in the next IPC after this Notice, shall include this amount as a deduction under sub-paragraph (b) of Sub-Clause 14.6.1 [*The IPC*].

## 6 Staff and Labour

### 6.1

#### **Engagement of Staff and Labour**

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all Contractor's Personnel, and for their payment, accommodation, feeding, transport and welfare.

### 6.2

#### **Rates of Wages and Conditions of Labour**

The Contractor shall pay rates of wages, and observe conditions of labour, which comply with all applicable Laws and are not lower than those established for the trade or industry where the work is carried out.

If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

### 6.3

#### **Recruitment of Persons**

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

Neither the Employer nor the Engineer shall recruit, or attempt to recruit, staff and labour from amongst the Contractor's Personnel.

### 6.4

#### **Labour Laws**

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment (including wages and working hours), health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require the Contractor's Personnel to obey all applicable Laws, including those concerning health and safety at work.

## 6.5

### Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:

- (a) otherwise stated in the Contract;
- (b) the Engineer gives consent; or
- (c) the work is unavoidable or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately give a Notice to the Engineer with reasons and describing the work required.

## 6.6

### Facilities for

### Staff and Labour

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel.

If such accommodation and facilities are to be located on the Site, except where the Employer has given the Contractor prior permission, they shall be located within the areas identified in the Contract. If any such accommodation or facilities are found elsewhere within the Site, the Contractor shall immediately remove them at the Contractor's risk and cost. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.

## 6.7

### Health and Safety of Personnel

In addition to the requirements of Sub-Clause 4.8 [*Health and Safety Obligations*], the Contractor shall at all times take all necessary precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that:

- (a) medical staff, first aid facilities, sick bay, ambulance services and any other medical services stated in the Specification are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel; and
- (b) suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint a health and safety officer at the Site, responsible for maintaining health, safety and protection against accidents. This officer shall:

- (i) be qualified, experienced and competent for this responsibility; and
- (ii) have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorised to enter and/or work on the Site and to take protective measures to prevent accidents.

Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

## 6.8

### Contractor's

### Superintendence

From the Commencement Date until the issue of the Performance Certificate, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect, test and monitor the execution of the Works.



Superintendence shall be given by a sufficient number of persons:

- (a) who are fluent in or have adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [*Law and Language*]); and
- (b) who have adequate knowledge of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents),

for the satisfactory and safe execution of the Works.

## 6.9

### Contractor's Personnel

The Contractor's Personnel (including Key Personnel, if any) shall be appropriately qualified, skilled, experienced and competent in their respective trades or occupations.

The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative and Key Personnel (if any), who:

- (a) persists in any misconduct or lack of care;
- (b) carries out duties incompetently or negligently;
- (c) fails to comply with any provision of the Contract;
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment;
- (e) is found, based on reasonable evidence, to have engaged in corrupt, fraudulent, collusive or coercive practice; or
- (f) has been recruited from the Employer's Personnel in breach of Sub-Clause 6.3 [*Recruitment of Persons*].

If appropriate, the Contractor shall then promptly appoint (or cause to be appointed) a suitable replacement. In the case of replacement of the Contractor's Representative, Sub-Clause 4.3 [*Contractor's Representative*] shall apply. In the case of replacement of Key Personnel (if any), Sub-Clause 6.12 [*Key Personnel*] shall apply.

## 6.10

### Contractor's Records

Unless otherwise proposed by the Contractor and agreed by the Engineer, in each progress report under Sub-Clause 4.20 [*Progress Reports*], the Contractor shall include records of:

- (a) occupations and actual working hours of each class of Contractor's Personnel;
- (b) the type and actual working hours of each of the Contractor's Equipment;
- (c) the types of Temporary Works used;
- (d) the types of Plant installed in the Permanent Works; and
- (e) the quantities and types of Materials used

for each work activity shown in the Programme, at each work location and for each day of work.

## 6.11

### Disorderly Conduct

The Contractor shall at all times take all necessary precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

**6.12****Key Personnel**

If no Key Personnel are stated in the Specification this Sub-Clause shall not apply.

The Contractor shall appoint the natural persons named in the Tender to the positions of Key Personnel. If not so named, or if an appointed person fails to act in the relevant position of Key Personnel, the Contractor shall submit to the Engineer for consent the name and particulars of another person the Contractor proposes to appoint to such position. If consent is withheld or subsequently revoked, the Contractor shall similarly submit the name and particulars of a suitable replacement for such position.

If the Engineer does not respond within 14 days after receiving any such submission, by giving a Notice stating his/her objection to the appointment of such person (or replacement) with reasons, the Engineer shall be deemed to have given his/her consent.

The Contractor shall not, without the Engineer's prior consent, revoke the appointment of any of the Key Personnel or appoint a replacement (unless the person is unable to act as a result of death, illness, disability or resignation, in which case the appointment shall be deemed to have been revoked with immediate effect and the appointment of a replacement shall be treated as a temporary appointment until the Engineer gives his/her consent to this replacement, or another replacement is appointed, under this Sub-Clause).

All Key Personnel shall be based at the Site (or, where Works are being executed off the Site, at the location of the Works) for the whole time that the Works are being executed. If any of the Key Personnel is to be temporarily absent during execution of the Works, a suitable replacement shall be temporarily appointed, subject to the Engineer's prior consent.

All Key Personnel shall be fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

## 7 Plant, Materials and Workmanship

**7.1****Manner  
of Execution**

The Contractor shall carry out the manufacture, supply, installation, testing and commissioning and/or repair of Plant, the production, manufacture, supply and testing of Materials, and all other operations and activities during the execution of the Works:

- (a) in the manner (if any) specified in the Contract;
- (b) in a proper workmanlike and careful manner, in accordance with recognised good practice; and
- (c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

**7.2****Samples**

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

- (a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and





- (b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

### 7.3

#### Inspection

The Employer's Personnel shall, during all the normal working hours stated in the Contract Data and at all other reasonable times:

- (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained;
- (b) during production, manufacture and construction (at the Site and elsewhere), be entitled to:
  - (i) examine, inspect, measure and test (to the extent stated in the Specification) the Materials, Plant and workmanship,
  - (ii) check the progress of manufacture of Plant and production and manufacture of Materials, and
  - (iii) make records (including photographs and/or video recordings); and
- (c) carry out other duties and inspections, as specified in these Conditions and the Specification.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing safe access, facilities, permissions and safety equipment.

The Contractor shall give a Notice to the Engineer whenever any Materials, Plant or work is ready for inspection, and before it is to be covered up, put out of sight, or packaged for storage or transport. The Employer's Personnel shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or the Engineer shall promptly give a Notice to the Contractor that the Employer's Personnel do not require to do so. If the Engineer gives no such Notice and/or the Employer's Personnel do not attend at the time stated in the Contractor's Notice (or such time as may be agreed with the Contractor), the Contractor may proceed with covering up, putting out of sight or packaging for storage or transport.

If the Contractor fails to give a Notice in accordance with this Sub-Clause, the Contractor shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's risk and cost.

### 7.4

#### Testing by the Contractor

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

The Contractor shall provide all apparatus, assistance, documents and other information, temporary supplies of electricity and water, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified, experienced and competent staff, as are necessary to carry out the specified tests efficiently and properly. All apparatus, equipment and instruments shall be calibrated in accordance with the standards stated in the Specification or defined by applicable Laws and, if requested by the Engineer, the Contractor shall submit calibration certificates before carrying out testing.

The Contractor shall give a Notice to the Engineer, stating the time and place for the specified testing of any Plant, Materials and other parts of the Works. This Notice shall be given in reasonable time, having regard to the location of the testing, for the Employer's Personnel to attend.



The Engineer may, under Clause 13 [*Variations and Adjustments*], vary the location or timing or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the Cost and any delay incurred in carrying out this Variation shall be borne by the Contractor.

The Engineer shall give a Notice to the Contractor of not less than 72 hours of his/her intention to attend the tests. If the Engineer does not attend at the time and place stated in the Contractor's Notice under this Sub-Clause, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer. These tests shall then be deemed to have been made in the Engineer's presence. If the Contractor suffers delay and/or incurs Cost from complying with any such instruction or as a result of a delay for which the Employer is responsible, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of Cost Plus Profit.

If the Contractor causes any delay to specified tests (including varied or additional tests) and such delay causes the Employer to incur costs, the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of these costs by the Contractor.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a test certificate to the Contractor, to that effect. If the Engineer has not attended the tests, he/she shall be deemed to have accepted the readings as accurate.

Sub-Clause 7.5 [*Defects and Rejection*] shall apply in the event that any Plant, Materials and other parts of the Works fails to pass a specified test.

## 7.5

### Defects and Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, Contractor's design (if any) or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer shall give a Notice to the Contractor describing the item of Plant, Materials, design or workmanship that has been found to be defective. The Contractor shall then promptly prepare and submit a proposal for necessary remedial work.

The Engineer may Review this proposal, and may give a Notice to the Contractor stating the extent to which the proposed work, if carried out, would not result in the Plant, Materials, Contractor's design (if any) or workmanship complying with the Contract. After receiving such a Notice the Contractor shall promptly submit a revised proposal to the Engineer. If the Engineer gives no such Notice within 14 days after receiving the Contractor's proposal (or revised proposal), the Engineer shall be deemed to have given a Notice of No-objection.

If the Contractor fails to promptly submit a proposal (or revised proposal) for remedial work, or fails to carry out the proposed remedial work to which the Engineer has given (or is deemed to have given) a Notice of No-objection, the Engineer may:

- (a) instruct the Contractor under sub-paragraph (a) and/or (b) of Sub-Clause 7.6 [*Remedial Work*]; or
- (b) reject the Plant, Materials, Contractor's design (if any) or workmanship

by giving a Notice to the Contractor, with reasons, in which case sub-paragraph (a) of Sub-Clause 11.4 [*Failure to Remedy Defects*] shall apply.

After remedying defects in any Plant, Materials, design (if any) or workmanship, if the Engineer requires any such items to be retested, the tests shall be repeated in accordance with Sub-Clause 7.4 [*Testing by the Contractor*] at the Contractor's risk and cost. If the rejection and retesting cause the Employer to incur additional costs, the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of these costs by the Contractor.

## 7.6

### Remedial Work

In addition to any previous examination, inspection, measurement or testing, or test certificate or Notice of No-objection by the Engineer, at any time before the issue of the Taking-Over Certificate for the Works the Engineer may instruct the Contractor to:

- (a) repair or remedy (if necessary, off the Site), or remove from the Site and replace any Plant or Materials which are not in accordance with the Contract;
- (b) repair or remedy, or remove and re-execute, any other work which is not in accordance with the Contract; and
- (c) carry out any remedial work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

The Contractor shall comply with the instruction as soon as practicable and not later than the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c) above.

The Contractor shall bear the cost of all remedial work required under this Sub-Clause, except to the extent that any work under sub-paragraph (c) above is attributable to:

- (i) any act by the Employer or the Employer's Personnel. If the Contractor suffers delay and/or incurs Cost in carrying out such work, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit; or
- (ii) an Exceptional Event, in which case Sub-Clause 18.4 [*Consequences of an Exceptional Event*] shall apply.

If the Contractor fails to comply with the Engineer's instruction, the Employer may (at the Employer's sole discretion) employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for work under this Sub-Clause, the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor of all costs arising from this failure. This entitlement shall be without prejudice to any other rights the Employer may have, under the Contract or otherwise.

## 7.7

### Ownership of Plant and Materials

Each item of Plant and Materials shall, to the extent consistent with the mandatory requirements of the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

- (a) when it is delivered to the Site;
- (b) when the Contractor is paid the value of the Plant and Materials under Sub-Clause 8.11 [*Payment for Plant and Materials after Employer's Suspension*]; or
- (c) when the Contractor is paid the amount determined for the Plant and Materials under Sub-Clause 14.5 [*Plant and Materials intended for the Works*].

## 7.8

### Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

- (a) natural Materials obtained from outside the Site, and
- (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are stated in the Specification.

# 8

## Commencement, Delays and Suspension

### 8.1

#### Commencement of Works

The Engineer shall give a Notice to the Contractor stating the Commencement Date, not less than 14 days before the Commencement Date. Unless otherwise stated in the Particular Conditions, the Commencement Date shall be within 42 days after the Contractor receives the Letter of Acceptance.

The Contractor shall commence the execution of the Works on, or as soon as is reasonably practicable after, the Commencement Date and shall then proceed with the Works with due expedition and without delay.

### 8.2

#### Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including completion of all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [*Taking Over the Works and Sections*].

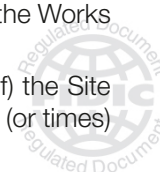
### 8.3

#### Programme

The Contractor shall submit an initial programme for the execution of the Works to the Engineer within 28 days after receiving the Notice under Sub-Clause 8.1 [*Commencement of Works*]. This programme shall be prepared using programming software stated in the Specification (if not stated, the programming software acceptable to the Engineer). The Contractor shall also submit a revised programme which accurately reflects the actual progress of the Works, whenever any programme ceases to reflect actual progress or is otherwise inconsistent with the Contractor's obligations.

The initial programme and each revised programme shall be submitted to the Engineer in one paper copy, one electronic copy and additional paper copies (if any) as stated in the Contract Data, and shall include:

- (a) the Commencement Date and the Time for Completion, of the Works and of each Section (if any);
- (b) the date right of access to and possession of (each part of) the Site is to be given to the Contractor in accordance with the time (or times)



- stated in the Contract Data. If not so stated, the dates the Contractor requires the Employer to give right of access to and possession of (each part of) the Site;
- (c) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), preparation and submission of Contractor's Documents, procurement, manufacture, inspection, delivery to Site, construction, erection, installation, work to be undertaken by any nominated Subcontractor (as defined in Sub-Clause 5.2 [*Nominated Subcontractors*]) and testing;
  - (d) the Review periods for any submissions stated in the Specification or required under these Conditions;
  - (e) the sequence and timing of inspections and tests specified in, or required by, the Contract;
  - (f) for a revised programme: the sequence and timing of the remedial work (if any) to which the Engineer has given a Notice of No-objection under Sub-Clause 7.5 [*Defects and Rejection*] and/or the remedial work (if any) instructed under Sub-Clause 7.6 [*Remedial Work*];
  - (g) all activities (to the level of detail stated in the Specification), logically linked and showing the earliest and latest start and finish dates for each activity, the float (if any), and the critical path(s);
  - (h) the dates of all locally recognised days of rest and holiday periods (if any);
  - (i) all key delivery dates of Plant and Materials;
  - (j) for a revised programme and for each activity: the actual progress to date, any delay to such progress and the effects of such delay on other activities (if any); and
  - (k) a supporting report which includes:
    - (i) a description of all the major stages of the execution of the Works;
    - (ii) a general description of the methods which the Contractor intends to adopt in the execution of the Works;
    - (iii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel, and of each type of Contractor's Equipment, required on the Site, for each major stage of the execution of the Works;
    - (iv) if a revised programme, identification of any significant change(s) to the previous programme submitted by the Contractor; and
    - (v) the Contractor's proposals to overcome the effects of any delay(s) on progress of the Works.

The Engineer shall Review the initial programme and each revised programme submitted by the Contractor and may give a Notice to the Contractor stating the extent to which it does not comply with the Contract or ceases to reflect actual progress or is otherwise inconsistent with the Contractor's obligations. If the Engineer gives no such Notice:

- within 21 days after receiving the initial programme; or
- within 14 days after receiving a revised programme

the Engineer shall be deemed to have given a Notice of No-objection and the initial programme or revised programme (as the case may be) shall be the Programme.

The Contractor shall proceed in accordance with the Programme, subject to the Contractor's other obligations under the Contract. The Employer's Personnel shall be entitled to rely on the Programme when planning their activities.

Nothing in any programme, the Programme or any supporting report shall be taken as, or relieve the Contractor of any obligation to give, a Notice under the Contract.

If, at any time, the Engineer gives a Notice to the Contractor that the Programme fails (to the extent stated) to comply with the Contract or ceases to reflect actual progress or is otherwise inconsistent with the Contractor's obligations, the Contractor shall within 14 days after receiving this Notice submit a revised programme to the Engineer in accordance with this Sub-Clause.

## 8.4

### Advance Warning

Each Party shall advise the other and the Engineer, and the Engineer shall advise the Parties, in advance of any known or probable future events or circumstances which may:

- (a) adversely affect the work of the Contractor's Personnel;
- (b) adversely affect the performance of the Works when completed;
- (c) increase the Contract Price; and/or
- (d) delay the execution of the Works or a Section (if any).

The Engineer may request the Contractor to submit a proposal under Sub-Clause 13.3.2 [*Variation by Request for Proposal*] to avoid or minimise the effects of such event(s) or circumstance(s).

## 8.5

### Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to Extension of Time if and to the extent that completion for the purposes of Sub-Clause 10.1 [*Taking Over the Works and Sections*] is or will be delayed by any of the following causes:

- (a) a Variation (except that there shall be no requirement to comply with Sub-Clause 20.2 [*Claims For Payment and/or EOT*]);
- (b) a cause of delay giving an entitlement to EOT under a Sub-Clause of these Conditions;
- (c) exceptionally adverse climatic conditions, which for the purpose of these Conditions shall mean adverse climatic conditions at the Site which are Unforeseeable having regard to climatic data made available by the Employer under Sub-Clause 2.5 [Site Data and Items of Reference] and/or climatic data published in the Country for the geographical location of the Site;
- (d) Unforeseeable shortages in the availability of personnel or Goods (or Employer-Supplied Materials, if any) caused by epidemic or governmental actions; or
- (e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.

The Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT if the measured quantity of any item of work in accordance with Clause 12 [*Measurement and Valuation*] is greater than the estimated quantity of this item in the Bill of Quantities or other Schedule by more than ten per cent (10%) and such increase in quantities causes a delay to completion for the purposes of Sub-Clause 10.1 [*Taking Over the Works and Sections*]. The agreement or determination of any such Claim, under Sub-Clause 20.2.5 [*Agreement or determination of the Claim*], may include a review by the Engineer of measured quantities of other items of work which are significantly less (by

more than 10%) than the corresponding estimated quantities in the Bill of Quantities or other Schedule. To the extent that there are such lesser measured quantities, the Engineer may take account of any favourable effect on the critical path of the Programme. However, the net effect of all such consideration shall not result in a net reduction in the Time for Completion

When determining each EOT under Sub-Clause 20.2 [*Claims For Payment and/or EOT*], the Engineer shall review previous determinations under Sub-Clause 3.7 [*Agreement or Determination*] and may increase, but shall not decrease, the total EOT.

If a delay caused by a matter which is the Employer's responsibility is concurrent with a delay caused by a matter which is the Contractor's responsibility, the Contractor's entitlement to EOT shall be assessed in accordance with the rules and procedures stated in the Special Provisions (if not stated, as appropriate taking due regard of all relevant circumstances).

## 8.6

### Delays Caused by Authorities

If:

- (a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities or private utility entities in the Country;
- (b) these authorities or entities delay or disrupt the Contractor's work; and
- (c) the delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.5 [*Extension of Time for Completion*].

## 8.7

### Rate of Progress

If, at any time:

- (a) actual progress is too slow to complete the Works or a Section (if any) within the relevant Time for Completion; and/or
- (b) progress has fallen (or will fall) behind the Programme (or the initial programme if it has not yet become the Programme) under Sub-Clause 8.3 [*Programme*],

other than as a result of a cause listed in Sub-Clause 8.5 [*Extension of Time for Completion*], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [*Programme*], a revised programme describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete the Works or a Section (if any) within the relevant Time for Completion.

Unless the Engineer gives a Notice to the Contractor stating otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or the Goods, at the Contractor's risk and cost. If these revised methods cause the Employer to incur additional costs, the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of these costs by the Contractor, in addition to Delay Damages (if any).

Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply to revised methods, including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.5 [*Extension of Time for Completion*].



## 8.8

### Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [*Time for Completion*], the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of Delay Damages by the Contractor for this default. Delay Damages shall be the amount stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the relevant Date of Completion of the Works or Section. The total amount due under this Sub-Clause shall not exceed the maximum amount of Delay Damages (if any) stated in the Contract Data.

These Delay Damages shall be the only damages due from the Contractor for the Contractor's failure to comply with Sub-Clause 8.2 [*Time for Completion*], other than in the event of termination under Sub-Clause 15.2 [*Termination for Contractor's Default*] before completion of the Works. These Delay Damages shall not relieve the Contractor from the obligation to complete the Works, or from any other duties, obligations or responsibilities which the Contractor may have under or in connection with the Contract.

This Sub-Clause shall not limit the Contractor's liability for Delay Damages in any case of fraud, gross negligence, deliberate default or reckless misconduct by the Contractor.

## 8.9

### Employer's Suspension

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works, which instruction shall state the date and cause of the suspension.

During such suspension, the Contractor shall protect, store and secure such part or all of the Works (as the case may be) against any deterioration, loss or damage.

To the extent that the cause of such suspension is the responsibility of the Contractor, Sub-Clauses 8.10 [*Consequences of Employer's Suspension*], 8.11 [*Payment for Plant and Materials after Employer's Suspension*] and 8.12 [*Prolonged Suspension*] shall not apply.

## 8.10

### Consequences of Employer's Suspension

If the Contractor suffers delay and/or incurs Cost from complying with an Engineer's instruction under Sub-Clause 8.9 [*Employer's Suspension*] and/or from resuming the work under Sub-Clause 8.13 [*Resumption of Work*], the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

The Contractor shall not be entitled to EOT, or to payment of the Cost incurred, in making good:

- (a) the consequences of the Contractor's faulty or defective (design, if any) workmanship, Plant or Materials; and/or
- (b) any deterioration, loss or damage caused by the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.9 [*Employer's Suspension*].

## 8.11

### Payment for Plant and Materials after Employer's Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension instructed under Sub-Clause 8.9 [*Employer's Suspension*]) of Plant and/or Materials which have not been delivered to Site, if:

- (a) the work on Plant, or delivery of Plant and/or Materials, has been suspended for more than 28 days and
  - (i) the Plant and/or Materials were scheduled, in accordance with the Programme, to have been completed and ready for delivery to the Site during the suspension period; and
  - (ii) the Contractor provides the Engineer with reasonable evidence that the Plant and/or Materials comply with the Contract; and
- (b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.

## 8.12

### Prolonged Suspension

If the suspension under Sub-Clause 8.9 [*Employer's Suspension*] has continued for more than 84 days, the Contractor may give a Notice to the Engineer requesting permission to proceed.

If the Engineer does not give a Notice under Sub-Clause 8.13 [*Resumption of Work*] within 28 days after receiving the Contractor's Notice under this Sub-Clause, the Contractor may either:

- (a) agree to a further suspension, in which case the Parties may agree the EOT and/or Cost Plus Profit (if the Contractor incurs Cost), and/or payment for suspended Plant and/or Materials, arising from the total period of suspension;

or (and if the Parties fail to reach agreement under this sub-paragraph (a))

- (b) after giving a (second) Notice to the Engineer, treat the suspension as an omission of the affected part of the Works (as if it had been instructed under Sub-Clause 13.3.1 [*Variation by Instruction*]) with immediate effect including release from any further obligation to protect, store and secure under Sub-Clause 8.9 [*Employer's Suspension*]. If the suspension affects the whole of the Works, the Contractor may give a Notice of termination under Sub-Clause 16.2 [*Termination by Contractor*].

## 8.13

### Resumption of Work

The Contractor shall resume work as soon as practicable after receiving a Notice from the Engineer to proceed with the suspended work.

At the time stated in this Notice (if not stated, immediately after the Contractor receives this Notice), the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Engineer shall record any deterioration, loss, damage or defect in the Works or Plant or Materials which has occurred during the suspension and shall provide this record to the Contractor. The Contractor shall promptly make good all such deterioration, loss, damage or defect so that the Works, when completed, shall comply with the Contract.

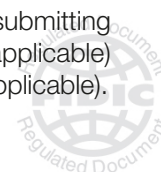
# 9

## Tests on Completion

### 9.1

#### Contractor's Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [*Testing by the Contractor*], after submitting the documents under Sub-Clause 4.4.2 [*As-Built Records*] (if applicable) and Sub-Clause 4.4.3 [*Operation and Maintenance Manuals*] (if applicable).





The Contractor shall submit to the Engineer, not less than 42 days before the date the Contractor intends to commence the Tests on Completion, a detailed test programme showing the intended timing and resources required for these tests.

The Engineer may Review the proposed test programme and may give a Notice to the Contractor stating the extent to which it does not comply with the Contract. Within 14 days after receiving this Notice, the Contractor shall revise the test programme to rectify such non-compliance. If the Engineer gives no such Notice within 14 days after receiving the test programme (or revised test programme), the Engineer shall be deemed to have given a Notice of No-objection. The Contractor shall not commence the Tests on Completion until a Notice of No-objection is given (or is deemed to have been given) by the Engineer.

In addition to any date(s) shown in the test programme, the Contractor shall give a Notice to the Engineer, of not less than 21 days, of the date after which the Contractor will be ready to carry out each of the Tests on Completion. The Contractor shall commence the Tests on Completion within 14 days after this date, or on such day or days as the Engineer shall instruct, and shall proceed in accordance with the Contractor's test programme to which the Engineer has given (or is deemed to have given) a Notice of No-objection.

As soon as the Works or Section have, in the Contractor's opinion, passed the Tests on Completion, the Contractor shall submit a certified report of the results of these tests to the Engineer. The Engineer shall Review such a report and may give a Notice to the Contractor stating the extent to which the results of the tests do not comply with the Contract. If the Engineer does not give such a Notice within 14 days after receiving the results of the tests, the Engineer shall be deemed to have given a Notice of No-objection.

In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of (any part of) the Works by the Employer on the performance or other characteristics of the Works.

## 9.2

### Delayed Tests

If the Contractor has given a Notice under Sub-Clause 9.1 [*Contractor's Obligations*] that the Works or Section (as the case may be) are ready for Tests on Completion, and these tests are unduly delayed by the Employer's Personnel or by a cause for which the Employer is responsible, Sub-Clause 10.3 [*Interference with Tests on Completion*] shall apply.

If the Tests on Completion are unduly delayed by the Contractor, the Engineer may by giving a Notice to the Contractor require the Contractor to carry out the tests within 21 days after receiving the Notice. The Contractor shall carry out the tests on such day or days within this period of 21 days as the Contractor may fix, for which the Contractor shall give a prior Notice to the Engineer of not less than 7 days.

If the Contractor fails to carry out the Tests on Completion within this period of 21 days:

- (a) after a second Notice is given by the Engineer to the Contractor, the Employer's Personnel may proceed with the tests;
- (b) the Contractor may attend and witness these tests;
- (c) within 28 days of these tests being completed, the Engineer shall send a copy of the test results to the Contractor; and



- (d) if the Employer incurs additional costs as a result of such testing, the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor of the costs reasonably incurred.

Whether or not the Contractor attends, these Tests on Completion shall be deemed to have been carried out in the presence of the Contractor and the results of these tests shall be accepted as accurate.

### 9.3

#### Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [*Defects and Rejection*] shall apply. The Engineer or the Contractor may require these failed tests, and the Tests on Completion on any related work, to be repeated under the same terms and conditions. Such repeated tests shall be treated as Tests on Completion for the purposes of this Clause.

### 9.4

#### Failure to Pass Tests on Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [*Retesting*], the Engineer shall be entitled to:

- (a) order further repetition of Tests on Completion under Sub-Clause 9.3 [*Retesting*];
- (b) reject the Works if the effect of the failure is to deprive the Employer of substantially the whole benefit of the Works in which event the Employer shall have the same remedies as are provided in sub-paragraph (d) of Sub-Clause 11.4 [*Failure to Remedy Defects*];
- (c) reject the Section if the effect of the failure is that the Section cannot be used for its intended purpose(s) under the Contract, in which event the Employer shall have the same remedy as is provided in sub-paragraph (c) of Sub-Clause 11.4 [*Failure to Remedy Defects*]; or
- (d) issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (d) above, the Contractor shall then proceed in accordance with all other obligations under the Contract, and the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor or a reduction in the Contract Price as described under sub-paragraph (b) of Sub-Clause 11.4 [*Failure to Remedy Defects*], respectively. This entitlement shall be without prejudice to any other rights the Employer may have, under the Contract or otherwise.

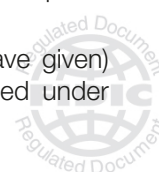
## 10 Employer's Taking Over

### 10.1

#### Taking Over the Works and Sections

Except as stated in Sub-Clause 9.4 [*Failure to Pass Tests on Completion*], Sub-Clause 10.2 [*Taking Over Parts*] and Sub-Clause 10.3 [*Interference with Tests on Completion*], the Works shall be taken over by the Employer when:

- (a) the Works have been completed in accordance with the Contract, including the passing of the Tests on Completion and except as allowed in sub-paragraph (i) below;
- (b) if applicable, the Engineer has given (or is deemed to have given) a Notice of No-objection to the as-built records submitted under Sub-Clause 4.4.2 [*As-Built Records*];



- (c) if applicable, the Engineer has given (or is deemed to have given) a Notice of No-objection to the operation and maintenance manuals under Sub-Clause 4.4.3 [*Operation and Maintenance Manuals*];
- (d) if applicable, the Contractor has carried out the training as described under Sub-Clause 4.5 [*Training*]; and
- (e) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply for a Taking-Over Certificate by giving a Notice to the Engineer not more than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

If any Part of the Works is taken over under Sub-Clause 10.2 [*Taking Over Parts*], the remaining Works or Section shall not be taken over until the conditions described in sub-paragraphs (a) to (e) above (where applicable) have been fulfilled.

The Engineer shall, within 28 days after receiving the Contractor's Notice, either:

- (i) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects (as listed in the Taking-Over Certificate) which will not substantially affect the safe use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
- (ii) reject the application by giving a Notice to the Contractor, with reasons. This Notice shall specify the work required to be done, the defects required to be remedied and/or the documents required to be submitted by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work, remedy such defects and/or submit such documents before giving a further Notice under this Sub-Clause.

If the Engineer does not issue the Taking-Over Certificate or reject the Contractor's application within this period of 28 days, and if the conditions described in sub-paragraphs (a) to (d) above (where applicable) have been fulfilled, the Works or Section shall be deemed to have been completed in accordance with the Contract on the fourteenth day after the Engineer receives the Contractor's Notice of application and the Taking-Over Certificate shall be deemed to have been issued.

## 10.2

### Taking Over Parts

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure, which is either stated in the Specification or with the prior agreement of the Contractor) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued the Contractor shall give a Notice to the Engineer identifying such part and describing such use, and:

- (a) that Part shall be deemed to have been taken over by the Employer as from the date on which it is used;



- (b) the Contractor shall cease to be liable for the care of such Part as from this date, when responsibility shall pass to the Employer; and
- (c) the Engineer shall immediately issue a Taking-Over Certificate for this Part, and any outstanding work to be completed (including Tests on Completion) and/or defects to be remedied shall be listed in this certificate.

After the Engineer has issued a Taking-Over Certificate for a Part, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out the outstanding work (including Tests on Completion) and/or remedial work for any defects listed in the certificate. The Contractor shall carry out these works as soon as practicable and, in any case, before the expiry date of the relevant DNP.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a Part, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of such Cost Plus Profit.

If the Engineer issues a Taking-Over Certificate for any part of the Works, or if the Employer is deemed to have taken over a Part under sub-paragraph (a) above, for any period of delay after the date under sub-paragraph (a) above, the Delay Damages for completion of the remainder of the Works shall be reduced. Similarly, the Delay Damages for the remainder of the Section (if any) in which this Part is included shall also be reduced. This reduction shall be calculated as the proportion which the value of the Part (except the value of any outstanding works and/or defects to be remedied) bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine this reduction (and for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the Engineer receives the Contractor's Notice under this Sub-Clause shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3). The provisions of this paragraph shall only apply to the daily rate of Delay Damages, and shall not affect the maximum amount of these damages.

### 10.3

#### Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days (either a continuous period, or multiple periods which total more than 14 days), from carrying out the Tests on Completion by the Employer's Personnel or by a cause for which the Employer is responsible:

- (a) the Contractor shall give a Notice to the Engineer describing such prevention;
- (b) the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed; and
- (c) the Engineer shall immediately issue a Taking-Over Certificate for the Works or Section (as the case may be).

After the Engineer has issued this Taking-Over Certificate, the Contractor shall carry out the Tests on Completion as soon as practicable and, in any case, before the expiry date of the DNP. The Engineer shall give a Notice to the Contractor, of not less than 14 days, of the date after which the Contractor may carry out each of the Tests on Completion. Thereafter, Sub-Clause 9.1 [*Contractor's Obligations*] shall apply.



If the Contractor suffers delay and/or incurs Cost as a result of being prevented from carrying out the Tests on Completion, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

## 10.4

### Surfaces Requiring

#### Reinstatement

Except as otherwise stated in the Taking-Over Certificate, a certificate for a Section or Part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

# 11 Defects after Taking Over

## 11.1

### Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section and/or Part, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

- (a) complete any work which is outstanding on the relevant Date of Completion, within the time(s) stated in the Taking-Over Certificate or such other reasonable time as is instructed by the Engineer; and
- (b) execute all work required to remedy defects or damage, of which a Notice is given to the Contractor by (or on behalf of) the Employer on or before the expiry date of the DNP for the Works or Section or Part (as the case may be).

If a defect appears (including if the Works fail to pass the Tests after Completion, if any) or damage occurs during the relevant DNP, a Notice shall be given to the Contractor accordingly, by (or on behalf of) the Employer. Promptly thereafter:

- (i) the Contractor and the Employer's Personnel shall jointly inspect the defect or damage;
- (ii) the Contractor shall then prepare and submit a proposal for necessary remedial work; and
- (iii) the second, third and fourth paragraphs of Sub-Clause 7.5 [*Defects and Rejection*] shall apply.

## 11.2

### Cost of Remedying Defects

All work under sub-paragraph (b) of Sub-Clause 11.1 [*Completion of Outstanding Work and Remedying Defects*] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

- (a) design (if any) of the Works for which the Contractor is responsible;
- (b) Plant, Materials or workmanship not being in accordance with the Contract;
- (c) improper operation or maintenance which was attributable to matters for which the Contractor is responsible (under Sub-Clauses 4.4.2 [*As-Built Records*], Sub-Clause 4.4.3 [*Operation and Maintenance Manuals*] and/or Sub-Clause 4.5 [*Training*] (where applicable) or otherwise); or

- (d) failure by the Contractor to comply with any other obligation under the Contract.

If the Contractor considers that the work is attributable to any other cause, the Contractor shall promptly give a Notice to the Engineer and the Engineer shall proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the cause (and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date of this Notice shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3). If it is agreed or determined that the work is attributable to a cause other than those listed above, Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply as if such work had been instructed by the Engineer.

### 11.3

#### Extension of Defects Notification Period

The Employer shall be entitled to an extension of the DNP for the Works, or a Section or a Part:

- (a) if and to the extent that the Works, Section, Part or a major item of Plant (as the case may be, and after taking over) cannot be used for the intended purpose(s) by reason of a defect or damage which is attributable to any of the matters under sub-paragraphs (a) to (d) of Sub-Clause 11.2 [*Cost of Remedying Defects*]; and
- (b) subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*].

However, a DNP shall not be extended by more than a period of two years after the expiry of the DNP stated in the Contract Data.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.9 [*Employer's Suspension*] (other than where the cause of such suspension is the responsibility of the Contractor) or Sub-Clause 16.1 [*Suspension by Contractor*], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the DNP for the Works, of which the Plant and/or Materials form part, would otherwise have expired.

### 11.4

#### Failure to Remedy Defects

If the remedying of any defect or damage under Sub-Clause 11.1 [*Completion of Outstanding Works and Remedying Defects*] is unduly delayed by the Contractor, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. A Notice of this fixed date shall be given to the Contractor by (or on behalf of) the Employer, which Notice shall allow the Contractor reasonable time (taking due regard of all relevant circumstances) to remedy the defect or damage.

If the Contractor fails to remedy the defect or damage by the date stated in this Notice and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [*Cost of Remedying Defects*], the Employer may (at the Employer's sole discretion):

- (a) carry out the work or have the work carried out by others (including any retesting), in the manner required under the Contract and at the Contractor's cost, but the Contractor shall have no responsibility for this work. The Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor of the costs reasonably incurred by the Employer in remedying the defect or damage;



- (b) accept the damaged or defective work, in which case the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to a reduction in the Contract Price. The reduction shall be in full satisfaction of this failure only and shall be in the amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure;
- (c) require the Engineer to treat any part of the Works which cannot be used for its intended purpose(s) under the Contract by reason of this failure as an omission, as if such omission had been instructed under Sub-Clause 13.3.1 [*Variation by Instruction*]; or
- (d) terminate the Contract as a whole with immediate effect (and Sub-Clause 15.2 [*Termination for Contractor's Default*] shall not apply) if the defect or damage deprives the Employer of substantially the whole benefit of the Works. The Employer shall then be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to recover from the Contractor all sums paid for the Works, plus financing charges and any costs incurred in dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

The exercise of discretion by the Employer under sub-paragraph (c) or (d) above shall be without prejudice to any other rights the Employer may have, under the Contract or otherwise.

## 11.5

### Remedying of Defective Work off Site

If, during the DNP, the Contractor considers that any defect or damage in any Plant cannot be remedied expeditiously on the Site the Contractor shall give a Notice, with reasons, to the Employer requesting consent to remove the defective or damaged Plant off the Site for the purposes of repair. This Notice shall clearly identify each item of defective or damaged Plant, and shall give details of:

- (a) the defect or damage to be repaired;
- (b) the place to which defective or damaged Plant is to be taken for repair;
- (c) the transportation to be used (and insurance cover for such transportation);
- (d) the proposed inspections and testing off the Site;
- (e) the planned duration required before the repaired Plant shall be returned to the Site; and
- (f) the planned duration for reinstallation and retesting of the repaired Plant (under Sub-Clause 7.4 [*Testing by the Contractor*] and/or Clause 9 [*Tests on Completion*] if applicable).

The Contractor shall also provide any further details that the Employer may reasonably require.

When the Employer gives consent (which consent shall not relieve the Contractor from any obligation or responsibility under this Clause), the Contractor may remove from the Site such items of Plant as are defective or damaged. As a condition of this consent, the Employer may require the Contractor to increase the amount of the Performance Security by the full replacement cost of the defective or damaged Plant.



## 11.6

### Further Tests after Remedying Defects

Within 7 days of completion of the work of remedying of any defect or damage, the Contractor shall give a Notice to the Engineer describing the remedied Works, Section, Part and/or Plant and the proposed repeated tests (under Clause 9 [*Tests on Completion*]). Within 7 days after receiving this Notice, the Engineer shall give a Notice to the Contractor either:

- (a) agreeing with such proposed testing; or
- (b) instructing the repeated tests that are necessary to demonstrate that the remedied Works, Section, Part and/or Plant comply with the Contract.

If the Contractor fails to give such a Notice within the 7 days, the Engineer may give a Notice to the Contractor, within 14 days after the defect or damage is remedied, instructing the repeated tests that are necessary to demonstrate that the remedied Works, Section, Part and/or Plant comply with the Contract.

All repeated tests under this Sub-Clause shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [*Cost of Remedying Defects*], for the cost of the remedial work.

## 11.7

### Right of Access after Taking Over

Until the date 28 days after issue of the Performance Certificate, the Contractor shall have the right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

Whenever the Contractor intends to access any part of the Works during the relevant DNP:

- (a) the Contractor shall request access by giving a Notice to the Employer, describing the parts of the Works to be accessed, the reasons for such access, and the Contractor's preferred date for access. This Notice shall be given in reasonable time in advance of the preferred date for access, taking due regard of all relevant circumstances including the Employer's security restrictions; and
- (b) within 7 days after receiving the Contractor's Notice, the Employer shall give a Notice to the Contractor either:
  - (i) stating the Employer's consent to the Contractor's request; or
  - (ii) proposing reasonable alternative date(s), with reasons. If the Employer fails to give this Notice within the 7 days, the Employer shall be deemed to have given consent to the Contractor's access on the preferred date stated in the Contractor's Notice.

If the Contractor incurs additional Cost as a result of any unreasonable delay by the Employer in permitting access to the Works by the Contractor, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of any such Cost Plus Profit.

## 11.8

### Contractor to Search

The Contractor shall, if instructed by the Engineer, search for the cause of any defect, under the direction of the Engineer. The Contractor shall carry out the search on the date(s) stated in the Engineer's instruction or other date(s) agreed with the Engineer.



Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [*Cost of Remedying Defects*], the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of the Cost Plus Profit of the search.

If the Contractor fails to carry out the search in accordance with this Sub-Clause, the search may be carried out by the Employer's Personnel. The Contractor shall be given a Notice of the date when such a search will be carried out and the Contractor may attend at the Contractor's own cost. If the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [*Cost of Remedying Defects*], the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor of the costs of the search reasonably incurred by the Employer.

## 11.9

### Performance Certificate

Performance of the Contractor's obligations under the Contract shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor fulfilled the Contractor's obligations under the Contract.

The Engineer shall issue the Performance Certificate to the Contractor (with a copy to the Employer and to the DAAB) within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has:

- (a) supplied all the Contractor's Documents; and
- (b) completed and tested all the Works (including remedying any defects) in accordance with the Contract.

If the Engineer fails to issue the Performance Certificate within this period of 28 days, the Performance Certificate shall be deemed to have been issued on the date 28 days after the date on which it should have been issued, as required by this Sub-Clause.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

## 11.10

### Unfulfilled Obligations

After the issue of the Performance Certificate, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

However in relation to Plant, the Contractor shall not be liable for any defects or damage occurring more than two years after expiry of the DNP for the Plant except if prohibited by law or in any case of fraud, gross negligence, deliberate default or reckless misconduct.

## 11.11

### Clearance of Site

Promptly after the issue of the Performance Certificate, the Contractor shall:

- (a) remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site;
- (b) reinstate all parts of the Site which were affected by the Contractor's activities during the execution of the Works and are not occupied by the Permanent Works; and



- (c) leave the Site and the Works in the condition stated in the Specification (if not stated, in a clean and safe condition).

If the Contractor fails to comply with sub-paragraphs (a), (b) and/or (c) above within 28 days after the issue of the Performance Certificate, the Employer may sell (to the extent permitted by applicable Laws) or otherwise dispose of any remaining items and/or may reinstate and clean the Site (as may be necessary) at the Contractor's cost.

The Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor of the costs reasonably incurred in connection with, or attributable to, such sale or disposal and reinstating and/or cleaning the Site, less an amount equal to the moneys from the sale (if any).

# 12

## Measurement and Valuation

### 12.1

#### Works to be Measured

The Works shall be measured, and valued for payment, in accordance with this Clause.

Whenever the Engineer requires any part of the Works to be measured on Site, he/she shall give a Notice to the Contractor of not less than 7 days, of the part to be measured and the date on which and place on Site at which the measurement will be made. Unless otherwise agreed with the Contractor, the measurement on Site shall be made on this date and the Contractor's Representative shall:

- (a) either attend or send another qualified representative to assist the Engineer and to endeavour to reach agreement of the measurement, and
- (b) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative at the time and place stated in the Engineer's Notice (or otherwise agreed with the Contractor), the measurement made by (or on behalf of) the Engineer shall be deemed to have been made in the Contractor's presence and the Contractor shall be deemed to have accepted the measurement as accurate.

Any part of the Permanent Works that is to be measured from records shall be identified in the Specification and, except as otherwise stated in the Contract, such records shall be prepared by the Engineer. Whenever the Engineer has prepared the records for such a part, he/she shall give a Notice to the Contractor of not less than 7 days, stating the date on which and place at which the Contractor's Representative shall attend to examine and agree the records with the Engineer. If the Contractor fails to attend or send a representative at the time and place stated in the Engineer's Notice (or otherwise agreed with the Contractor), the Contractor shall be deemed to have accepted the records as accurate.

If, for any part of the Works, the Contractor attends the measurement on Site or examines the measurement records (as the case may be) but the Engineer and the Contractor are unable to agree the measurement, then the Contractor shall give a Notice to the Engineer setting out the reasons why the Contractor considers the measurement on Site or records are inaccurate. If the Contractor does not give such a Notice to the Engineer

within 14 days after attending the measurement on Site or examining the measurement records, the Contractor shall be deemed to have accepted the measurement as accurate.

After receiving a Contractor's Notice under this Sub-Clause, unless at that time such measurement is already subject to the last paragraph of Sub-Clause 13.3.1 [*Variation by Instruction*], the Engineer shall:

- proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the measurement; and
- for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date on which the Engineer receives the Contractor's Notice shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3.

Until such time as the measurement is agreed or determined, the Engineer shall assess a provisional measurement for the purposes of Interim Payment Certificates.

## 12.2

### Method of Measurement

The method of measurement shall be as stated in the Contract Data or, if not so stated, that which shall be in accordance with the Bill of Quantities or other applicable Schedule(s).

Except as otherwise stated in the Contract, measurement shall be made of the net actual quantity of each item of the Permanent Works and no allowance shall be made for bulking, shrinkage or waste.

## 12.3

### Valuation of the Works

Except as otherwise stated in the Contract, the Engineer shall value each item of work by applying the measurement agreed or determined in accordance with Sub-Clauses 12.1 [*Works to be Measured*] and 12.2 [*Method of Measurement*], and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Bill of Quantities or other Schedule or, if there is no such an item, specified for similar work.

Any item of work which is identified in the Bill of Quantities or other Schedule, but for which no rate or price is specified, shall be deemed to be included in other rates and prices in the Bill of Quantities or other Schedule(s).

A new rate or price shall be appropriate for an item of work if:

- (a) the item is not identified in, and no rate or price for this item is specified in, the Bill of Quantities or other Schedule and no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract;
- (b)
  - (i) the measured quantity of the item is changed by more than 10% from the quantity of this item in the Bill of Quantities or other Schedule,
  - (ii) this change in quantity multiplied by the rate or price specified in the Bill of Quantities or other Schedule for this item exceeds 0.01% of the Accepted Contract Amount,
  - (iii) this change in quantity directly changes the Cost per unit quantity of this item by more than 1%, and



- (iv) this item is not specified in the Bill of Quantities or other Schedule as a “fixed rate item”, “fixed charge” or similar term referring to a rate or price which is not subject to adjustment for any change in quantity; and/or
- (c) the work is instructed under Clause 13 [Variations and Adjustments] and sub-paragraph (a) or (b) above applies.

Each new rate or price shall be derived from any relevant rates or prices specified in the Bill of Quantities or other Schedule, with reasonable adjustments to take account of the matters described in sub-paragraph (a), (b) and/or (c), as applicable. If no specified rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with the applicable percentage for profit stated in the Contract Data (if not stated, five percent (5%)), taking account of any other relevant matters.

If, for any item of work, the Engineer and the Contractor are unable to agree the appropriate rate or price, then the Contractor shall give a Notice to the Engineer setting out the reasons why the Contractor disagrees. After receiving a Contractor’s Notice under this Sub-Clause, unless at that time such rate or price is already subject to the last paragraph of Sub-Clause 13.3.1 [*Variation by Instruction*], the Engineer shall:

- proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the appropriate rate or price; and
- for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date on which the Engineer receives the Contractor’s Notice shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3.

Until such time as an appropriate rate or price is agreed or determined, the Engineer shall assess a provisional rate or price for the purposes of Interim Payment Certificates.

## 12.4

### Omissions

Whenever the omission of any work forms part (or all) of a Variation;

- (a) the value of which has not otherwise been agreed;
- (b) the Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- (c) the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- (d) this cost is not deemed to be included in the valuation of any substituted work;

then the Contractor shall, in the Contractor’s proposal under sub-paragraph (c) of Sub-Clause 13.3.1 [*Variation by Instruction*], give details to the Engineer accordingly, with detailed supporting particulars.

# 13 Variations and Adjustments

## 13.1

### Right to Vary

Variations may be initiated by the Engineer under Sub-Clause 13.3 [*Variation Procedure*] at any time before the issue of the Taking-Over Certificate for the Works.



Other than as stated under Sub-Clause 11.4 [*Failure to Remedy Defects*], a Variation shall not comprise the omission of any work which is to be carried out by the Employer or by others unless otherwise agreed by the Parties.

The Contractor shall be bound by each Variation instructed under Sub-Clause 13.3.1 [*Variation by Instruction*], and shall execute the Variation with due expedition and without delay, unless the Contractor promptly gives a Notice to the Engineer stating (with detailed supporting particulars) that:

- (a) the varied work was Unforeseeable having regard to the scope and nature of the Works described in the Specification;
- (b) the Contractor cannot readily obtain the Goods required for the Variation; or
- (c) it will adversely affect the Contractor's ability to comply with Sub-Clause 4.8 [*Health and Safety Obligations*] and/or Sub-Clause 4.18 [*Protection of the Environment*].

Promptly after receiving this Notice, the Engineer shall respond by giving a Notice to the Contractor cancelling, confirming or varying the instruction. Any instruction so confirmed or varied shall be taken as an instruction under Sub-Clause 13.3.1 [*Variation by instruction*].

Each Variation may include:

- (i) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation);
- (ii) changes to the quality and other characteristics of any item of work;
- (iii) changes to the levels, positions and/or dimensions of any part of the Works;
- (iv) the omission of any work, unless it is to be carried out by others without the agreement of the Parties;
- (v) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work; or
- (vi) changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration to and/or modification of the Permanent Works, unless and until the Engineer instructs a Variation under Sub-Clause 13.3.1 [*Variation by Instruction*].

## 13.2

### Value Engineering

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted:

- (a) accelerate completion;
- (b) reduce the cost to the Employer of executing, maintaining or operating the Works;
- (c) improve the efficiency or value to the Employer of the completed Works; or
- (d) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the details as stated in sub-paragraphs (a) to (c) of Sub-Clause 13.3.1 [*Variation by Instruction*].

The Engineer shall, as soon as practicable after receiving such a proposal, respond by giving a Notice to the Contractor stating his/her consent or

otherwise. The Engineer's consent or otherwise shall be at the sole discretion of the Employer. The Contractor shall not delay any work while awaiting a response.

If the Engineer gives his/her consent to the proposal, with or without comments, the Engineer shall then instruct a Variation. Thereafter, the Contractor shall submit any further particulars that the Engineer may reasonably require, and the last paragraph of Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply which shall include consideration by the Engineer of the sharing (if any) of the benefit, costs and/or delay between the Parties stated in the Particular Conditions.

If a proposal under this Sub-Clause, to which the Engineer gives his/her consent, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

- (i) the Contractor shall design this part at his/her cost; and
- (ii) sub-paragraphs (a) to (h) of Sub-Clause 4.1 [*Contractor's General Obligations*] shall apply.

### 13.3

#### Variation Procedure

Subject to Sub-Clause 13.1 [*Right to Vary*], Variations shall be initiated by the Engineer in accordance with either of the following procedures:

##### 13.3.1 Variation by Instruction

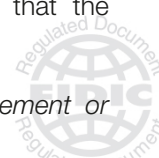
The Engineer may instruct a Variation by giving a Notice (describing the required change and stating any requirements for the recording of Costs) to the Contractor in accordance with Sub-Clause 3.5 [*Engineer's Instructions*].

The Contractor shall proceed with execution of the Variation and shall within 28 days (or other period proposed by the Contractor and agreed by the Engineer) of receiving the Engineer's instruction, submit to the Engineer detailed particulars including:

- (a) a description of the varied work performed or to be performed, including details of the resources and methods adopted or to be adopted by the Contractor;
- (b) a programme for its execution and the Contractor's proposal for any necessary modifications (if any) to the Programme according to Sub-Clause 8.3 [*Programme*] and to the Time for Completion; and
- (c) the Contractor's proposal for adjustment to the Contract Price by valuing the Variation in accordance with Clause 12 [*Measurement and Valuation*], with supporting particulars (which shall include identification of any estimated quantities and, if the Contractor incurs or will incur Cost as a result of any necessary modification to the Time for Completion, shall show the additional payment (if any) to which the Contractor considers that the Contractor is entitled). If the Parties have agreed to the omission of any work which is to be carried out by others, the Contractor's proposal may also include the amount of any loss of profit and other losses and damages suffered (or to be suffered) by the Contractor as a result of the omission.

Thereafter, the Contractor shall submit any further particulars that the Engineer may reasonably require.

The Engineer shall then proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine:





- (i) EOT, if any; and/or
- (ii) the adjustment to the Contract Price (including valuation of the Variation in accordance with Clause 12 [*Measurement and Valuation*] using measured quantities of the varied work)

(and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the Engineer receives the Contractor's submission (including any requested further particulars) shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3). The Contractor shall be entitled to such EOT and/or adjustment to the Contract Price, without any requirement to comply with Sub-Clause 20.2 [*Claims For Payment and/or EOT*].

### 13.3.2 Variation by Request for Proposal

The Engineer may request a proposal, before instructing a Variation, by giving a Notice (describing the proposed change) to the Contractor.

The Contractor shall respond to this Notice as soon as practicable, by either:

- (a) submitting a proposal, which shall include the matters as described in sub-paragraphs (a) to (c) of Sub-Clause 13.3.1 [*Variation by Instruction*]; or
- (b) giving reasons why the Contractor cannot comply (if this is the case), by reference to the matters described in sub-paragraphs (a) to (c) of Sub-Clause 13.1 [*Right to Vary*].

If the Contractor submits a proposal, the Engineer shall, as soon as practicable after receiving it, respond by giving a Notice to the Contractor stating his/her consent or otherwise. The Contractor shall not delay any work whilst awaiting a response.

If the Engineer gives consent to the proposal, with or without comments, the Engineer shall then instruct the Variation. Thereafter, the Contractor shall submit any further particulars that the Engineer may reasonably require and the last paragraph of Sub-Clause 13.3.1 [*Variation by Instruction*] shall apply.

If the Engineer does not give consent to the proposal, with or without comments, and if the Contractor has incurred Cost as a result of submitting it, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment of such Cost.

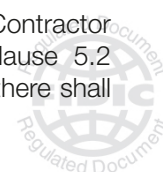
## 13.4

### Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed.

For each Provisional Sum, the Engineer may instruct:

- (a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor, and for which adjustments to the Contract Price shall be agreed or determined under Sub-Clause 13.3.1 [*Variation by Instruction*]; and/or
- (b) Plant, Materials, works or services to be purchased by the Contractor from a nominated Subcontractor (as defined in Sub-Clause 5.2 [*Nominated Subcontractors*]) or otherwise; and for which there shall be included in the Contract Price:



- (i) the actual amounts paid (or due to be paid) by the Contractor; and
- (ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the applicable Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

If the Engineer instructs the Contractor under sub-paragraph (a) and/or (b) above, this instruction may include a requirement for the Contractor to submit quotations from the Contractor's suppliers and/or subcontractors for all (or some) of the items of the work to be executed or Plant, Materials, works or services to be purchased. Thereafter, the Engineer may respond by giving a Notice either instructing the Contractor to accept one of these quotations (but such an instruction shall not be taken as an instruction under Sub-Clause 5.2 [*Nominated Subcontractors*]) or revoking the instruction. If the Engineer does not so respond within 7 days of receiving the quotations, the Contractor shall be entitled to accept any of these quotations at the Contractor's discretion.

Each Statement that includes a Provisional Sum shall also include all applicable invoices, vouchers and accounts or receipts in substantiation of the Provisional Sum.

### 13.5

#### Daywork

If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule, and the following procedure shall apply.

Before ordering Goods for such work (other than any Goods priced in the Daywork Schedule), the Contractor shall submit one or more quotations from the Contractor's suppliers and/or subcontractors to the Engineer. Thereafter, the Engineer may instruct the Contractor to accept one of these quotations (but such an instruction shall not be taken as an instruction under Sub-Clause 5.2 [*Nominated Subcontractors*]). If the Engineer does not so instruct the Contractor within 7 days of receiving the quotations, the Contractor shall be entitled to accept any of these quotations at the Contractor's discretion.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate (and one electronic copy), which shall include records (as described under Sub-Clause 6.10 [*Contractor's Records*]) of the resources used in executing the previous day's work.

One copy of each statement shall, if correct and agreed, be signed by the Engineer and promptly returned to the Contractor. If not correct or agreed, the Engineer shall proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the resources (and for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the works which are the subject of the Variation under this Sub-Clause are completed by the Contractor shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

In the next Statement, the Contractor shall then submit priced statements of the agreed or determined resources to the Engineer, together with all applicable invoices, vouchers and accounts or receipts in substantiation of



any Goods used in the daywork (other than Goods priced in the Daywork Schedule).

Unless otherwise stated in the Daywork Schedule, the rates and prices in the Daywork Schedule shall be deemed to include taxes, overheads and profit.

### 13.6

#### Adjustments for Changes in Laws

Subject to the following provisions of this Sub-Clause, the Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in:

- (a) the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws);
- (b) the judicial or official governmental interpretation or implementation of the Laws referred to in sub-paragraph (a) above;
- (c) any permit, permission, license or approval obtained by the Employer or the Contractor under sub-paragraph (a) or (b), respectively, of Sub-Clause 1.13 [*Compliance with Laws*]; or
- (d) the requirements for any permit, permission, licence and/or approval to be obtained by the Contractor under sub-paragraph (b) of Sub-Clause 1.13 [*Compliance with Laws*],

made and/or officially published after the Base Date, which affect the Contractor in the performance of obligations under the Contract. In this Sub-Clause “change in Laws” means any of the changes under sub-paragraphs (a), (b), (c) and/or (d) above.

If the Contractor suffers delay and/or incurs an increase in Cost as a result of any change in Laws, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost.

If there is a decrease in Cost as a result of any change in Laws, the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to a reduction in the Contract Price.

If any adjustment to the execution of the Works becomes necessary as a result of any change in Laws:

- (i) the Contractor shall promptly give a Notice to the Engineer, or
  - (ii) the Engineer shall promptly give a Notice to the Contractor
- (with detailed supporting particulars).

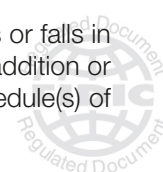
Thereafter, the Engineer shall either instruct a Variation under Sub-Clause 13.3.1 [*Variation by Instruction*] or request a proposal under Sub-Clause 13.3.2 [*Variation by Request for Proposal*].

### 13.7

#### Adjustments for Changes in Cost

If Schedule(s) of cost indexation are not included in the Contract, this Sub-Clause shall not apply.

The amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts calculated in accordance with the Schedule(s) of cost indexation.



To the extent that full compensation for any rise or fall in Costs is not covered by this Sub-Clause or other Clauses of these Conditions, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as certified in Payment Certificates, shall be calculated for each of the currencies in which the Contract Price is payable. No adjustment shall be applied to work valued on the basis of Cost or current prices.

Until such time as each current cost index is available, the Engineer shall use a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either:

- (a) each index or price applicable on the date 49 days before the expiry of the Time for Completion of the Works; or
- (b) the current index or price

whichever is more favourable to the Employer.

# 14

## Contract Price and Payment

### 14.1

#### The Contract Price

Unless otherwise stated in the Particular Conditions:

- (a) the Contract Price shall be the value of the Works in accordance with Sub-Clause 12.3 [*Valuation of the Works*] and be subject to adjustments, additions (including Cost or Cost Plus Profit to which the Contractor is entitled under these Conditions) and/or deductions in accordance with the Contract;
- (b) the Contractor shall pay all taxes, duties and fees required to be paid by the Contractor under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.6 [*Adjustments for Changes in Laws*];
- (c) any quantities which may be set out in the Bill of Quantities or other Schedule(s) are estimated quantities and are not to be taken as the actual and correct quantities:
  - (i) of the Works which the Contractor is required to execute, or
  - (ii) for the purposes of Clause 12 [*Measurement and Valuation*]; and
- (d) the Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price (if any) in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.

### 14.2

#### Advance Payment

If no amount of advance payment is stated in the Contract Data, this Sub-Clause shall not apply.

After receiving the Advance Payment Certificate, the Employer shall make an advance payment, as an interest-free loan for mobilisation (and design, if



any). The amount of the advance payment and the currencies in which it is to be paid shall be as stated in the Contract Data.

#### 14.2.1 Advance Payment Guarantee

The Contractor shall obtain (at the Contractor's cost) an Advance Payment Guarantee in amounts and currencies equal to the advance payment, and shall submit it to the Employer with a copy to the Engineer. This guarantee shall be issued by an entity and from within a country (or other jurisdiction) to which the Employer gives consent, and shall be based on the sample form included in the tender documents or on another form agreed by the Employer (but such consent and/or agreement shall not relieve the Contractor from any obligation under this Sub-Clause).

The Contractor shall ensure that the Advance Payment Guarantee is valid and enforceable until the advance payment has been repaid, but its amount may be progressively reduced by the amount repaid by the Contractor as stated in the Payment Certificates.

If the terms of the Advance Payment Guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days before the expiry date:

- (a) the Contractor shall extend the validity of this guarantee until the advance payment has been repaid;
- (b) the Contractor shall immediately submit evidence of this extension to the Employer, with a copy to the Engineer; and
- (c) if the Employer does not receive this evidence 7 days before the expiry date of this guarantee, the Employer shall be entitled to claim under the guarantee the amount of advance payment which has not been repaid.

When submitting the Advance Payment Guarantee, the Contractor shall include an application (in the form of a Statement) for the advance payment.

#### 14.2.2 Advance Payment Certificate

The Engineer shall issue an Advance Payment Certificate for the advance payment within 14 days after:

- (a) the Employer has received both the Performance Security and the Advance Payment Guarantee, in the form and issued by an entity in accordance with Sub-Clause 4.2.1 [*Contractor's Obligations*] and Sub-Clause 14.2.1 [*Advance Payment Guarantee*] respectively; and
- (b) the Engineer has received a copy of the Contractor's application for the advance payment under Sub-Clause 14.2.1 [*Advance Payment Guarantee*].

#### 14.2.3 Repayment of Advance Payment

The advance payment shall be repaid through percentage deductions in Payment Certificates. Unless other percentages are stated in the Contract Data:

- (a) deductions shall commence in the IPC in which the total of all certified interim payments in the same currency as the advance payment (excluding the advance payment and deductions and release of retention moneys) exceeds ten percent (10%) of the portion of the

Accepted Contract Amount payable in that currency less Provisional Sums; and

- (b) deductions shall be made at the amortisation rate of one quarter (25%) of the amount of each IPC (excluding the advance payment and deductions and release of retention moneys) in the currencies and proportions of the advance payment, until such time as the advance payment has been repaid.

If the advance payment has not been repaid before the issue of the Taking-Over Certificate for the Works, or before termination under Clause 15 [*Termination by Employer*], Clause 16 [*Suspension and Termination by Contractor*] or Clause 18 [*Exceptional Events*] (as the case may be), the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Employer.

### 14.3

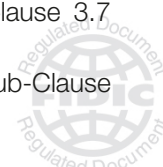
#### Application for Interim Payment

The Contractor shall submit a Statement to the Engineer after the end of the period of payment stated in the Contract Data (if not stated, after the end of each month). Each Statement shall:

- (a) be in a form acceptable to the Engineer;
- (b) be submitted in one paper-original, one electronic copy and additional paper copies (if any) as stated in the Contract Data; and
- (c) show in detail the amounts to which the Contractor considers that the Contractor is entitled, with supporting documents which shall include sufficient detail for the Engineer to investigate these amounts together with the relevant report on progress in accordance with Sub-Clause 4.20 [*Progress Reports*].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- (i) the estimated contract value of the Works executed, and the Contractor's Documents produced, up to the end of the period of payment (including Variations but excluding items described in sub-paragraphs (ii) to (x) below);
- (ii) any amounts to be added and/or deducted for changes in Laws under Sub-Clause 13.6 [*Adjustments for Changes in Laws*], and for changes in Cost under Sub-Clause 13.7 [*Adjustments for Changes in Cost*];
- (iii) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the amounts under sub-paragraphs (i), (ii) and (vi) of this Sub-Clause, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data;
- (iv) any amounts to be added and/or deducted for the advance payment and repayments under Sub-Clause 14.2 [*Advance Payment*];
- (v) any amounts to be added and/or deducted for Plant and Materials under Sub-Clause 14.5 [*Plant and Materials intended for the Works*];
- (vi) any other additions and/or deductions which have become due under the Contract or otherwise, including those under Sub-Clause 3.7 [*Agreement or Determination*];
- (vii) any amounts to be added for Provisional Sums under Sub-Clause 13.4 [*Provisional Sums*];



- (viii) any amount to be added for release of Retention Money under Sub-Clause 14.9 [*Release of Retention Money*];
- (ix) any amount to be deducted for the Contractor's use of utilities provided by the Employer under Sub-Clause 4.19 [*Temporary Utilities*]; and
- (x) the deduction of amounts certified in all previous Payment Certificates.

## 14.4

### Schedule of Payments

If the Contract includes a Schedule of Payments specifying the instalments in which the Contract Price will be paid then, unless otherwise stated in this Schedule:

- (a) the instalments quoted in the Schedule of Payments shall be treated as the estimated contract values for the purposes of sub-paragraph (i) of Sub-Clause 14.3 [*Application for Interim Payment*];
- (b) Sub-Clause 14.5 [*Plant and Materials intended for the Works*] shall not apply; and
- (c) if:
  - (i) these instalments are not defined by reference to the actual progress achieved in the execution of the Works; and
  - (ii) actual progress is found by the Engineer to differ from that on which the Schedule of Payments was based,

then the Engineer may proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine revised instalments (and for the purpose of Sub-Clause 3.7.3 [*Time limits*] the date when the difference under sub-paragraph (ii) above was found by the Engineer shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3). Such revised instalments shall take account of the extent to which progress differs from that on which the Schedule of Payments was based.

If the Contract does not include a Schedule of Payments, the Contractor shall submit non-binding estimates of the payments which the Contractor expects to become due during each period of 3 months. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at intervals of 3 months, until the issue of the Taking-Over Certificate for the Works.

## 14.5

### Plant and Materials intended for the Works

If no Plant and/or Materials are listed in the Contract Data for payment when shipped and/or payment when delivered, this Sub-Clause shall not apply.

The Contractor shall include, under sub-paragraph (v) of Sub-Clause 14.3 [*Application for Interim Payment*]:

- an amount to be added for Plant and Materials which have been shipped or delivered (as the case may be) to the Site for incorporation in the Permanent Works; and
- an amount to be deducted when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (i) of Sub-Clause 14.3 [*Application for Interim Payment*].

The Engineer shall proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine each amount to be added for Plant and Materials if the following conditions are fulfilled (and for the purpose of Sub-Clause 3.7.3 [*Time limits*] the date these conditions are fulfilled shall be

the date of commencement of the time limit for agreement under Sub-Clause 3.7.3):

- (a) the Contractor has:
- (i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection by the Engineer;
  - (ii) submitted evidence demonstrating that the Plant and Materials comply with the Contract (which may include test certificates under Sub-Clause 7.4 [*Testing by the Contractor*] and/or compliance verification documentation under Sub-Clause 4.9.2 [*Compliance Verification System*]) to the Engineer; and
  - (iii) submitted a statement of the Cost of acquiring and shipping or delivering (as the case may be) the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

- (b) the relevant Plant and Materials:
- (i) are those listed in the Contract Data for payment when shipped;
  - (ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and
  - (iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with:
    - evidence of payment of freight and insurance;
    - any other documents reasonably required by the Engineer; and
    - a written undertaking by the Contractor that the Contractor will deliver to the Employer (prior to submitting the next Statement) a bank guarantee in a form and issued by an entity to which the Employer gives consent (but such consent shall not relieve the Contractor from any obligation in the following provisions of this sub-paragraph), in amounts and currencies equal to the amount due under this Sub-Clause. This guarantee shall be in a similar form to the form described in Sub-Clause 14.2.1 [*Advance Payment Guarantee*] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

- (c) the relevant Plant and Materials:
- (i) are those listed in the Contract Data for payment when delivered to the Site, and
  - (ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The amount so agreed or determined shall take account of the evidence and documents required under this Sub-Clause and of the contract value of the Plant and Materials. If sub-paragraph (b) above applies, the Engineer shall have no obligation to certify any payment under this Sub-Clause until the Employer has received the bank guarantee in accordance with sub-paragraph (b)(iii) above. The sum to be certified by the Engineer in an IPC shall be the equivalent of eighty percent (80%) of this agreed or determined amount. The currencies for this certified sum shall be the same as those in which payment will become due when the contract value is included under



sub-paragraph (i) of Sub-Clause 14.3 [*Application for Interim Payment*]. At that time, the Payment Certificate shall include the applicable amount to be deducted which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

## 14.6

### Issue of IPC

No amount will be certified or paid to the Contractor until:

- (a) the Employer has received the Performance Security in the form, and issued by an entity, in accordance with Sub-Clause 4.2.1 [*Contractor's obligations*]; and
- (b) the Contractor has appointed the Contractor's Representative in accordance with Sub-Clause 4.3 [*Contractor's Representative*].

#### 14.6.1 The IPC

The Engineer shall, within 28 days after receiving a Statement and supporting documents, issue an IPC to the Employer, with a copy to the Contractor:

- (a) stating the amount which the Engineer fairly considers to be due; and
- (b) including any additions and/or deductions which have become due under Sub-Clause 3.7 [*Agreement or Determination*] or under the Contract or otherwise,

with detailed supporting particulars (which shall identify any difference between a certified amount and the corresponding amount in the Statement and give the reasons for such difference).

#### 14.6.2 Withholding (amounts in) an IPC

Before the issue of the Taking-Over Certificate for the Works, the Engineer may withhold an IPC in an amount which would (after retention and other deductions) be less than the minimum amount of the IPC (if any) stated in the Contract Data. In this event, the Engineer shall promptly give a Notice to the Contractor accordingly.

An IPC shall not be withheld for any other reason, although:

- (a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the estimated cost of rectification or replacement may be withheld until rectification or replacement has been completed;
- (b) if the Contractor was or is failing to perform any work, service or obligation in accordance with the Contract, the value of this work or obligation may be withheld until the work or obligation has been performed. In this event, the Engineer shall promptly give a Notice to the Contractor describing the failure and with detailed supporting particulars of the value withheld; and/or
- (c) if the Engineer finds any significant error or discrepancy in the Statement or supporting documents, the amount of the IPC may take account of the extent to which this error or discrepancy has prevented or prejudiced proper investigation of the amounts in the Statement until such error or discrepancy is corrected in a subsequent Statement.

For each amount so withheld, in the supporting particulars for the IPC the Engineer shall detail his/her calculation of the amount and state the reasons for it being withheld.



#### 14.6.3 Correction or modification

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or Notice of No-objection to any Contractor's Document or to (any part of) the Works.

If the Contractor considers that an IPC does not include any amounts to which the Contractor is entitled, these amounts shall be identified in the next Statement (the "identified amounts" in this paragraph). The Engineer shall then make any correction or modification that should properly be made in the next Payment Certificate. Thereafter, to the extent that:

- (a) the Contractor is not satisfied that this next Payment Certificate includes the identified amounts; and
- (b) the identified amounts do not concern a matter for which the Engineer is already carrying out his/her duties under Sub-Clause 3.7 [*Agreement or Determination*]

the Contractor may, by giving a Notice, refer this matter to the Engineer and Sub-Clause 3.7 [*Agreement or Determination*] shall apply (and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the Engineer receives this Notice shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

### 14.7

#### Payment

The Employer shall pay to the Contractor:

- (a) the amount certified in each Advance Payment Certificate within the period stated in the Contract Data (if not stated, 21 days) after the Employer receives the Advance Payment Certificate;
- (b) the amount certified in each IPC issued under:
  - (i) Sub-Clause 14.6 [*Issue of IPC*], within the period stated in the Contract Data (if not stated, 56 days) after the Engineer receives the Statement and supporting documents; or
  - (ii) Sub-Clause 14.13 [*Issue of FPC*], within the period stated in the Contract Data (if not stated, 28 days) after the Employer receives the IPC; and
- (c) the amount certified in the FPC within the period stated in the Contract Data (if not stated, 56 days) after the Employer receives the FPC.

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

### 14.8

#### Delayed Payment

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [*Payment*], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the expiry of the time for payment specified in Sub-Clause 14.7 [*Payment*], irrespective (in the case of sub-paragraph (b) of Sub-Clause 14.7) of the date on which any IPC is issued.

Unless otherwise stated in the Contract Data, these financing charges shall be calculated at the annual rate of three percent (3%) above:





- (a) the average bank short-term lending rate to prime borrowers prevailing for the currency of payment at the place of payment, or
- (b) where no such rate exists at that place, the same rate in the country of the currency of payment, or
- (c) in the absence of such a rate at either place, the appropriate rate fixed by the law of the country of the currency of payment.

The Contractor shall by request be entitled to payment of these financing charges by the Employer, without:

- (i) the need for the Contractor to submit a Statement or any formal Notice (including any requirement to comply with Sub-Clause 20.2 [*Claims For Payment and/or EOT*]) or certification; and
- (ii) prejudice to any other right or remedy.

## 14.9

### Release of

### Retention Money

After the issue of the Taking-Over Certificate for:

- (a) the Works, the Contractor shall include the first half of the Retention Money in a Statement; or
- (b) for a Section, the Contractor shall include the relevant percentage of the first half of the Retention Money in a Statement.

After the latest of the expiry dates of the Defects Notification Periods, the Contractor shall include the second half of the Retention Money in a Statement promptly after such latest date. If a Taking-Over Certificate was (or was deemed to have been) issued for a Section, the Contractor shall include the relevant percentage of the second half of the Retention Money in a Statement promptly after the expiry date of the DNP for the Section.

In the next IPC after the Engineer receives any such Statement, the Engineer shall certify the release of the corresponding amount of Retention Money. However, when certifying any release of Retention Money under Sub-Clause 14.6 [*Issue of IPC*], if any work remains to be executed under Clause 11 [*Defects after Taking Over*], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

The relevant percentage for each Section shall be the percentage value of the Section as stated in the Contract Data. If the percentage value of a Section is not stated in the Contract Data, no percentage of either half of the Retention Money shall be released under this Sub-Clause in respect of such Section.

## 14.10

### Statement at Completion

Within 84 days after the Date of Completion of the Works, the Contractor shall submit to the Engineer a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [*Application for Interim Payment*], showing:

- (a) the value of all work done in accordance with the Contract up to the Date of Completion of the Works
- (b) any further sums which the Contractor considers to be due at the Date of Completion of the Works; and
- (c) an estimate of any other amounts which the Contractor considers have or will become due after the Date of Completion of the Works under the Contract or otherwise. These estimated amounts shall be

shown separately (to those of sub-paragraphs (a) and (b) above) and shall include estimated amounts for:

- (i) Claims for which the Contractor has submitted a Notice under Sub-Clause 20.2 [*Claims For Payment and/or EOT*];
- (ii) any matter referred to the DAAB under Sub-Clause 21.4 [*Obtaining DAAB's Decision*]; and
- (iii) any matter for which a NOD has been given under Sub-Clause 21.4 [*Obtaining DAAB's Decision*].

The Engineer shall then issue an IPC in accordance with Sub-Clause 14.6 [*Issue of IPC*].

## 14.11

### Final Statement

Submission by the Contractor of any Statement under the following provisions of this Sub-Clause shall not be delayed by reason of any referral under Sub-Clause 21.4 [*Obtaining DAAB's Decision*] or any arbitration under Sub-Clause 21.6 [*Arbitration*].

#### 14.11.1 Draft Final Statement

Within 56 days after the issue of the Performance Certificate, the Contractor shall submit to the Engineer, a draft final Statement.

This Statement shall:

- (a) be in the same form as Statements previously submitted under Sub-Clause 14.3 [*Application for Interim Payment*];
- (b) be submitted in one paper-original, one electronic copy and additional paper copies (if any) as stated in the Contract Data; and
- (c) show in detail, with supporting documents:
  - (i) the value of all work done in accordance with the Contract;
  - (ii) any further sums which the Contractor considers to be due at the date of the issue of the Performance Certificate, under the Contract or otherwise; and
  - (iii) an estimate of any other amounts which the Contractor considers have or will become due after the issue of the Performance Certificate, under the Contract or otherwise, including estimated amounts, by reference to the matters described in sub-paragraphs (c) (i) to (iii) of Sub-Clause 14.10 [*Statement at Completion*]. These estimated amounts shall be shown separately (to those of sub-paragraphs (i) and (ii) above).

Except for any amount under sub-paragraph (iii) above, if the Engineer disagrees with or cannot verify any part of the draft final Statement, the Engineer shall promptly give a Notice to the Contractor. The Contractor shall then submit such further information as the Engineer may reasonably require within the time stated in this Notice, and shall make such changes in the draft as may be agreed between them.

#### 14.11.2 Agreed Final Statement

If there are no amounts under sub-paragraph (iii) of Sub-Clause 14.11.1 [*Draft Final Statement*], the Contractor shall then prepare and submit to the Engineer the final Statement as agreed (the "Final Statement" in these Conditions).

However if:

- (a) there are amounts under sub-paragraph (iii) of Sub-Clause 14.11.1 [*Draft Final Statement*]; and/or
- (b) following discussions between the Engineer and the Contractor, it becomes evident that they cannot agree any amount(s) in the draft final Statement,

the Contractor shall then prepare and submit to the Engineer a Statement, identifying separately: the agreed amounts, the estimated amounts and the disagreed amount(s) (the "Partially Agreed Final Statement" in these Conditions).

## 14.12

### Discharge

When submitting the Final Statement or the Partially Agreed Final Statement (as the case may be), the Contractor shall submit a discharge which confirms that the total of such Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that the total of the Statement is subject to any payment that may become due in respect of any Dispute for which a DAAB proceeding or arbitration is in progress under Sub-Clause 21.6 [*Arbitration*] and/or that it becomes effective after the Contractor has received:

- (a) full payment of the amount certified in the FPC; and
- (b) the Performance Security.

If the Contractor fails to submit this discharge, the discharge shall be deemed to have been submitted and to have become effective when the conditions of sub-paragraphs (a) and (b) have been fulfilled.

A discharge under this Sub-Clause shall not affect either Party's liability or entitlement in respect of any Dispute for which a DAAB proceeding or arbitration is in progress under Clause 21 [*Disputes and Arbitration*].

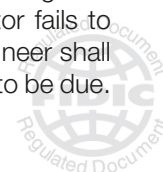
## 14.13

### Issue of FPC

Within 28 days after receiving the Final Statement or the Partially Agreed Final Statement (as the case may be), and the discharge under Sub-Clause 14.12 [*Discharge*], the Engineer shall issue to the Employer (with a copy to the Contractor), the Final Payment Certificate which shall state:

- (a) the amount which the Engineer fairly considers is finally due, including any additions and/or deductions which have become due under Sub-Clause 3.7 [*Agreement or Determination*] or under the Contract or otherwise; and
- (b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, and after giving credit to the Contractor for all amounts (if any) previously paid by the Contractor and/or received by the Employer under the Performance Security, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not submitted a draft final Statement within the time specified under Sub-Clause 14.11.1 [*Draft Final Statement*], the Engineer shall request the Contractor to do so. Thereafter, if the Contractor fails to submit a draft final Statement within a period of 28 days, the Engineer shall issue the FPC for such an amount as the Engineer fairly considers to be due.



If:

- (i) the Contractor has submitted a Partially Agreed Final Statement under Sub-Clause 14.11.2 [*Agreed Final Statement*]; or
- (ii) no Partially Agreed Final Statement has been submitted by the Contractor but, to the extent that a draft final Statement submitted by the Contractor is deemed by the Engineer to be a Partially Agreed Final Statement

the Engineer shall proceed in accordance with Sub-Clause 14.6 [Issue of IPC] to issue an IPC.

#### 14.14

##### Cessation of Employer's Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it in:

- (a) the Final Statement or Partially Agreed Final Statement; and
- (b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) the Statement under Sub-Clause 14.10 [*Statement at Completion*].

Unless the Contractor makes or has made a Claim under Sub-Clause 20.2 [*Claims For Payment and/or EOT*] in respect of an amount or amounts under the FPC within 56 days of receiving a copy of the FPC the Contractor shall be deemed to have accepted the amounts so certified. The Employer shall then have no further liability to the Contractor, other than to pay the amount due under the FPC and return the Performance Security to the Contractor.

However, this Sub-Clause shall not limit the Employer's liability under the Employer's indemnification obligations, or the Employer's liability in any case of fraud, gross negligence, deliberate default or reckless misconduct by the Employer.

#### 14.15

##### Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Contract Data. If more than one currency is so named, payments shall be made as follows:

- (a) if the Accepted Contract Amount was expressed in Local Currency only or in Foreign Currency only:
  - (i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Contract Data, except as otherwise agreed by both Parties;
  - (ii) payments and deductions under Sub-Clause 13.4 [*Provisional Sums*] and Sub-Clause 13.6 [*Adjustments for Changes in Laws*] shall be made in the applicable currencies and proportions; and
  - (iii) other payments and deductions under sub-paragraphs (i) to (iv) of Sub-Clause 14.3 [*Application for Interim Payment*] shall be made in the currencies and proportions specified in sub-paragraph (a) (i) above;
- (b) whenever an adjustment is agreed or determined under Sub-Clause 13.2 [*Value Engineering*] or Sub-Clause 13.3 [*Variation Procedure*], the amount payable in each of the applicable currencies shall be

- specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified in sub-paragraph (a)(i) above;
- (c) payment of Delay Damages shall be made in the currencies and proportions specified in the Contract Data;
  - (d) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;
  - (e) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
  - (f) if no rates of exchange are stated in the Contract Data, they shall be those prevailing on the Base Date and published by the central bank of the Country.

# 15

## Termination by Employer

### 15.1

#### Notice to Correct

If the Contractor fails to carry out any obligation under the Contract the Engineer may, by giving a Notice to the Contractor, require the Contractor to make good the failure and to remedy it within a specified time ("Notice to Correct" in these Conditions).

The Notice to Correct shall:

- (a) describe the Contractor's failure;
- (b) state the Sub-Clause and/or provisions of the Contract under which the Contractor has the obligation; and
- (c) specify the time within which the Contractor shall remedy the failure, which shall be reasonable, taking due regard of the nature of the failure and the work and/or other action required to remedy it.

After receiving a Notice to Correct the Contractor shall immediately respond by giving a Notice to the Engineer describing the measures the Contractor will take to remedy the failure, and stating the date on which such measures will be commenced in order to comply with the time specified in the Notice to Correct.

The time specified in the Notice to Correct shall not imply any extension of the Time for Completion.

### 15.2

#### Termination for Contractor's Default

Termination of the Contract under this Clause shall not prejudice any other rights of the Employer under the Contract or otherwise.

##### 15.2.1 Notice

The Employer shall be entitled to give a Notice (which shall state that it is given under this Sub-Clause 15.2.1) to the Contractor of the Employer's intention to terminate the Contract or, in the case of sub-paragraph (f), (g) or (h) below a Notice of termination, if the Contractor:

- (a) fails to comply with:
  - (i) a Notice to Correct;
  - (ii) a binding agreement, or final and binding determination, under Sub-Clause 3.7 [*Agreement or Determination*]; or
  - (iii) a decision of the DAAB under 21.4 [*Obtaining DAAB's Decision*] (whether binding or final and binding)

and such failure constitutes a material breach of the Contractor's obligations under the Contract;

- (b) abandons the Works or otherwise plainly demonstrates an intention not to continue performance of the Contractor's obligations under the Contract;
- (c) without reasonable excuse fails to proceed with the Works in accordance with Clause 8 [*Commencement, Delays and Suspension*] or, if there is a maximum amount of Delay Damages stated in the Contract Data, his failure to comply with Sub-Clause 8.2 [*Time for Completion*] is such that the Employer would be entitled to Delay Damages that exceed this maximum amount;
- (d) without reasonable excuse fails to comply with a Notice of rejection given by the Engineer under Sub-Clause 7.5 [*Defects and Rejection*] or an Engineer's instruction under Sub-Clause 7.6 [*Remedial Work*], within 28 days after receiving it;
- (e) fails to comply with Sub-Clause 4.2 [*Performance Security*];
- (f) subcontracts the whole, or any part of, the Works in breach of Sub-Clause 5.1 [*Subcontractors*], or assigns the Contract without the required agreement under Sub-Clause 1.7 [*Assignment*];
- (g) becomes bankrupt or insolvent; goes into liquidation, administration, reorganisation, winding-up or dissolution; becomes subject to the appointment of a liquidator, receiver, administrator, manager or trustee; enters into a composition or arrangement with the Contractor's creditors; or any act is done or any event occurs which is analogous to or has a similar effect to any of these acts or events under applicable Laws;

or if the Contractor is a JV:

- (i) any of these matters apply to a member of the JV, and
- (ii) the other member(s) do not promptly confirm to the Employer that, in accordance with Sub-Clause 1.14(a) [*Joint and Several Liability*], such member's obligations under the Contract shall be fulfilled in accordance with the Contract; or
- (h) is found, based on reasonable evidence, to have engaged in corrupt, fraudulent, collusive or coercive practice at any time in relation to the Works or to the Contract.

#### 15.2.2 Termination

Unless the Contractor remedies the matter described in a Notice given under Sub-Clause 15.2.1 [*Notice*] within 14 days of receiving the Notice, the Employer may by giving a second Notice to the Contractor immediately terminate the Contract. The date of termination shall be the date the Contractor receives this second Notice.

However, in the case of sub-paragraph (f), (g) or (h) of Sub-Clause 15.2.1 [*Notice*], the Employer may by giving a Notice under Sub-Clause 15.2.1 immediately terminate the Contract and the date of termination shall be the date the Contractor receives this Notice.



### 15.2.3 After termination

After termination of the Contract under Sub-Clause 15.2.2 [*Termination*], the Contractor shall:

- (a) comply immediately with any reasonable instructions included in a Notice given by the Employer under this Sub-Clause:
  - (i) for the assignment of any subcontract; and
  - (ii) for the protection of life or property or for the safety of the Works;
- (b) deliver to the Engineer:
  - (i) any Goods required by the Employer,
  - (ii) all Contractor's Documents, and
  - (iii) all other design documents made by or for the Contractor to the extent, if any, that the Contractor is responsible for the design of part of the Permanent Works under Sub-Clause 4.1 [*Contractor's General Obligations*]; and
- (c) leave the Site and, if the Contractor does not do so, the Employer shall have the right to expel the Contractor from the Site.

### 15.2.4 Completion of the Works

After termination under this Sub-Clause, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and/or these entities may then use any Goods and Contractor's Documents (and other design documents, if any) made by or on behalf of the Contractor to complete the Works.

After such completion of the Works, the Employer shall give another Notice to the Contractor that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall then promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold (to the extent permitted by applicable Laws) by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

## 15.3

### **Valuation after Termination for Contractor's Default**

After termination of the Contract under Sub-Clause 15.2 [*Termination for Contractor's Default*], the Engineer shall proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the value of the Permanent Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract (and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date of termination shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

This valuation shall include any additions and/or deductions, and the balance due (if any), by reference to the matters described in sub-paragraphs (a) and (b) of Sub-Clause 14.13 [*Issue of FPC*].

This valuation shall not include the value of any Contractor's Documents, Materials, Plant and Permanent Works to the extent that they do not comply with the Contract.



## 15.4

### Payment after Termination for Contractor's Default

The Employer may withhold payment to the Contractor of the amounts agreed or determined under Sub-Clause 15.3 [*Valuation after Termination for Contractor's Default*] until all the costs, losses and damages (if any) described in the following provisions of this Sub-Clause have been established.

After termination of the Contract under Sub-Clause 15.2 [*Termination for Contractor's Default*], the Employer shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to payment by the Contractor of:

- (a) the additional costs of execution of the Works, and all other costs reasonably incurred by the Employer (including costs incurred in clearing, cleaning and reinstating the Site as described under Sub-Clause 11.11 [*Clearance of Site*]), after allowing for any sum due to the Contractor under Sub-Clause 15.3 [*Valuation after Termination for Contractor's Default*];
- (b) any losses and damages suffered by the Employer in completing the Works; and
- (c) Delay Damages, if the Works or a Section have not been taken over under Sub-Clause 10.1 [*Taking Over the Works and Sections*] and if the date of termination under Sub-Clause 15.2 [*Termination for Contractor's Default*] occurs after the date corresponding to the Time for Completion of the Works or Section (as the case may be). Such Delay Damages shall be paid for every day that has elapsed between these two dates.

## 15.5

### Termination for Employer's Convenience

The Employer shall be entitled to terminate the Contract at any time for the Employer's convenience, by giving a Notice of such termination to the Contractor (which Notice shall state that it is given under this Sub-Clause 15.5).

After giving a Notice to terminate under this Sub-Clause, the Employer shall immediately:

- (a) have no right to further use any of the Contractor's Documents, which shall be returned to the Contractor, except those for which the Contractor has received payment or for which payment is due under a Payment Certificate;
- (b) if Sub-Clause 4.6 [*Co-operation*] applies, have no right to allow the continued use (if any) of any Contractor's Equipment, Temporary Works, access arrangements and/or other of the Contractor's facilities or services; and
- (c) make arrangements to return the Performance Security to the Contractor.

Termination under this Sub-Clause shall take effect 28 days after the later of the dates on which the Contractor receives this Notice or the Employer returns the Performance Security. Unless and until the Contractor has received payment of the amount due under Sub-Clause 15.6 [*Valuation after Termination for Employer's Convenience*], the Employer shall not execute (any part of) the Works or arrange for (any part of) the Works to be executed by any other entities.

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Contractor's Obligations After Termination*].





**15.6****Valuation after Termination  
for Employer's Convenience**

After termination under Sub-Clause 15.5 [*Termination for Employer's Convenience*] the Contractor shall, as soon as practicable, submit detailed supporting particulars (as reasonably required by the Engineer) of:

- (a) the value of work done, which shall include:
  - (i) the matters described in sub-paragraphs (a) to (e) of Sub-Clause 18.5 [*Optional Termination*], and
  - (ii) any additions and/or deductions, and the balance due (if any), by reference to the matters described in sub-paragraphs (a) and (b) of Sub-Clause 14.13 [*Issue of FPC*]; and
- (b) the amount of any loss of profit or other losses and damages suffered by the Contractor as a result of this termination.

The Engineer shall then proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the matters described in sub-paragraphs (a) and (b) above (and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the Engineer receives the Contractor's particulars under this Sub-Clause shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

The Engineer shall issue a Payment Certificate for the amount so agreed or determined, without the need for the Contractor to submit a Statement.

**15.7****Payment after Termination  
for Employer's Convenience**

The Employer shall pay the Contractor the amount certified in the Payment Certificate under Sub-Clause 15.6 [*Valuation after Termination for Employer's Convenience*] within 112 days after the Engineer receives the Contractor's submission under that Sub-Clause.

# 16

## Suspension and Termination by Contractor

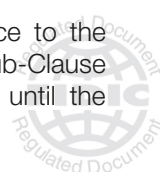
**16.1****Suspension by Contractor**

If:

- (a) the Engineer fails to certify in accordance with Sub-Clause 14.6 [*Issue of IPC*];
- (b) the Employer fails to provide reasonable evidence in accordance with Sub-Clause 2.4 [*Employer's Financial Arrangements*];
- (c) the Employer fails to comply with Sub-Clause 14.7 [*Payment*]; or
- (d) the Employer fails to comply with:
  - (i) a binding agreement, or final and binding determination under Sub-Clause 3.7 [*Agreement or Determination*]; or
  - (ii) a decision of the DAAB under 21.4 [*Obtaining DAAB's Decision*] (whether binding or final and binding)

and such failure constitutes a material breach of the Employer's obligations under the Contract,

the Contractor may, not less than 21 days after giving a Notice to the Employer (which Notice shall state that it is given under this Sub-Clause 16.1), suspend work (or reduce the rate of work) unless and until the Employer has remedied such a default.



This action shall not prejudice the Contractor's entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Employer subsequently remedies the default as described in the above Notice before the Contractor gives a Notice of termination under Sub-Clause 16.2 [*Termination by Contractor*], the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to EOT and/or payment of such Cost Plus Profit.

## 16.2

### Termination by Contractor

Termination of the Contract under this Clause shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

#### 16.2.1 Notice

The Contractor shall be entitled to give a Notice (which shall state that it is given under this Sub-Clause 16.2.1) to the Employer of the Contractor's intention to terminate the Contract or, in the case of sub-paragraph (g)(ii), (h), (i) or (j) below a Notice of termination, if:

- (a) the Contractor does not receive the reasonable evidence within 42 days after giving a Notice under Sub-Clause 16.1 [*Suspension by Contractor*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*];
- (b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate;
- (c) the Contractor does not receive the amount due under any Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [*Payment*];
- (d) the Employer fails to comply with:
  - (i) a binding agreement, or final and binding determination under Sub-Clause 3.7 [*Agreement or Determination*]; or
  - (ii) a decision of the DAAB under 21.4 [*Obtaining DAAB's Decision*] (whether binding or final and binding)

and such failure constitutes a material breach of the Employer's obligations under the Contract;

- (e) the Employer substantially fails to perform, and such failure constitutes a material breach of, the Employer's obligations under the Contract;
- (f) the Contractor does not receive a Notice of the Commencement Date under Sub-Clause 8.1 [*Commencement of Works*] within 84 days after receiving the Letter of Acceptance;
- (g) the Employer:
  - (i) fails to comply with Sub-Clause 1.6 [*Contract Agreement*], or
  - (ii) assigns the Contract without the required agreement under Sub-Clause 1.7 [*Assignment*];
- (h) a prolonged suspension affects the whole of the Works as described in sub-paragraph (b) of Sub-Clause 8.12 [*Prolonged Suspension*];
- (i) the Employer becomes bankrupt or insolvent; goes into liquidation, administration, reorganisation, winding-up or dissolution; becomes

subject to the appointment of a liquidator, receiver, administrator, manager or trustee; enters into a composition or arrangement with the Employer's creditors; or any act is done or any event occurs which is analogous to or has a similar effect to any of these acts or events under applicable Laws; or

- (j) the Employer is found, based on reasonable evidence, to have engaged in corrupt, fraudulent, collusive or coercive practice at any time in relation to the Works or to the Contract.

#### 16.2.2 Termination

Unless the Employer remedies the matter described in a Notice given under Sub-Clause 16.2.1 [Notice] within 14 days of receiving the Notice, the Contractor may by giving a second Notice to the Employer immediately terminate the Contract. The date of termination shall then be the date the Employer receives this second Notice.

However, in the case of sub-paragraph (g)(ii), (h), (i) or (j) of Sub-Clause 16.2.1 [Notice], by giving a Notice under Sub-Clause 16.2.1 the Contractor may terminate the Contract immediately and the date of termination shall be the date the Employer receives this Notice.

If the Contractor suffers delay and/or incurs Cost during the above period of 14 days, the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/or payment of such Cost Plus Profit.

### 16.3

#### **Contractor's Obligations After Termination**

After termination of the Contract under Sub-Clause 15.5 [Termination for Employer's Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 18.5 [Optional Termination], the Contractor shall promptly:

- (a) cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works. If the Contractor incurs Cost as a result of carrying out such instructed work the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to be paid such Cost Plus Profit;
- (b) deliver to the Engineer all Contractor's Documents, Plant, Materials and other work for which the Contractor has received payment; and
- (c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

### 16.4

#### **Payment after Termination by Contractor**

After termination under Sub-Clause 16.2 [Termination by Contractor], the Employer shall promptly:

- (a) pay the Contractor in accordance with Sub-Clause 18.5 [Optional Termination]; and
- (b) subject to the Contractor's compliance with Sub-Clause 20.2 [Claims For Payment and/or EOT], pay the Contractor the amount of any loss of profit or other losses and damages suffered by the Contractor as a result of this termination.



# 17

## Care of the Works and Indemnities

### 17.1

#### Responsibility for Care of the Works

Unless the Contract is terminated in accordance with these Conditions or otherwise, subject to Sub-Clause 17.2 [*Liability for Care of the Works*] the Contractor shall take full responsibility for the care of the Works, Goods and Contractor's Documents from the Commencement Date until the Date of Completion of the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is deemed to be issued) for any Section or Part, responsibility for the care of the Section or Part shall then pass to the Employer.

If the Contract is terminated in accordance with these Conditions or otherwise, the Contractor shall cease to be responsible for the care of the Works from the date of termination.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the Date of Completion, until this outstanding work has been completed.

If any loss or damage occurs to the Works, Goods or Contractor's Documents, during the period when the Contractor is responsible for their care, from any cause whatsoever except as stated in Sub-Clause 17.2 [*Liability for Care of the Works*], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods or Contractor's Documents (as the case may be) comply with the Contract.

### 17.2

#### Liability for Care of the Works

The Contractor shall be liable for any loss or damage caused by the Contractor to the Works, Goods or Contractor's Documents after the issue of a Taking-Over Certificate. The Contractor shall also be liable for any loss or damage, which occurs after the issue of a Taking-Over Certificate and which arose from an event which occurred before the issue of this Taking-Over Certificate, for which the Contractor was liable.

The Contractor shall have no liability whatsoever, whether by way of indemnity or otherwise, for loss or damage to the Works, Goods or Contractor's Documents caused by any of the following events (except to the extent that such Works, Goods or Contractor's Documents have been rejected by the Engineer under Sub-Clause 7.5 [*Defects and Rejection*] before the occurrence of any of the following events):

- (a) interference, whether temporary or permanent, with any right of way, light, air, water or other easement (other than that resulting from the Contractor's method of construction) which is the unavoidable result of the execution of the Works in accordance with the Contract;
- (b) use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract;
- (c) fault, error, defect or omission in any element of the design of the Works by the Employer or which may be contained in the Specification and Drawings (and which an experienced contractor exercising due care would not have discovered when examining the Site and the Specification and Drawings before submitting the Tender), other than design carried out by the Contractor in accordance with the Contractor's obligations under the Contract;

- (d) any operation of the forces of nature (other than those allocated to the Contractor in the Contract Data) which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventative precautions;
- (e) any of the events or circumstances listed under sub-paragraphs (a) to (f) of Sub-Clause 18.1 [*Exceptional Events*]; and/or
- (f) any act or default of the Employer's Personnel or the Employer's other contractors.

Subject to Sub-Clause 18.4 [*Consequences of an Exceptional Event*], if any of the events described in sub-paragraphs (a) to (f) above occurs and results in damage to the Works, Goods or Contractor's Documents the Contractor shall promptly give a Notice to the Engineer. Thereafter, the Contractor shall rectify any such loss and/or damage that may arise to the extent instructed by the Engineer. Such instruction shall be deemed to have been given under Sub-Clause 13.3.1 [*Variation by Instruction*].

If the loss or damage to the Works or Goods or Contractor's Documents results from a combination of:

- (i) any of the events described in sub-paragraphs (a) to (f) above, and
- (ii) a cause for which the Contractor is liable,

and the Contractor suffers a delay and/or incurs Cost from rectifying the loss and/or damage, the Contractor shall subject to Sub-Clause 20.2 [*Claims for Payment and/or EOT*] be entitled to a proportion of EOT and/or Cost Plus Profit to the extent that any of the above events have contributed to such delays and/or Cost.

### 17.3

#### Intellectual and Industrial Property Rights

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trademark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a third party claim (or proceedings pursuing a third party claim) alleging an infringement.

Whenever a Party receives a claim but fails to give notice to the other Party of the claim within 28 days of receiving it, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim (including legal fees and expenses) alleging an infringement which is or was:

- (a) an unavoidable result of the Contractor's compliance with the Specification and Drawings and/or any Variation; or
- (b) a result of any Works being used by the Employer:
  - (i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
  - (ii) in conjunction with any thing not supplied by the Contractor, unless such use was disclosed to the Contractor before the Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim (including legal fees and expenses) alleging an infringement which arises out of or in relation to:



- (i) the Contractor's execution of the Works; or
- (ii) the use of Contractor's Equipment.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at the indemnifying Party's cost) assume overall responsibility for negotiating the settlement of the claim, and/or any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and the Contractor's Personnel or the Employer's Personnel, as the case may be) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to promptly assume overall responsibility for the conduct of any negotiations, litigation or arbitration after being requested to do so by the other Party.

## 17.4

### Indemnities by Contractor

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all third party claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) bodily injury, sickness, disease or death of any person whatsoever arising out of or in the course of or by reason of the Contractor's execution of the Works, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; and
- (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss:
  - (i) arises out of or in the course of or by reason of the Contractor's execution of the Works, and
  - (ii) is attributable to any negligence, wilful act or breach of the Contract by the Contractor, the Contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

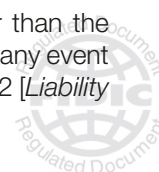
To the extent, if any, that the Contractor is responsible for the design of part of the Permanent Works under Sub-Clause 4.1 [*Contractor's General Obligations*], and/or any other design under the Contract, the Contractor shall also indemnify and hold harmless the Employer against all acts, errors or omissions by the Contractor in carrying out the Contractor's design obligations that result in the Works (or Section or Part or major item of Plant, if any), when completed, not being fit for the purpose(s) for which they are intended under Sub-Clause 4.1 [*Contractor's General Obligations*].

## 17.5

### Indemnities by Employer

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all third party claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) bodily injury, sickness, disease or death, or loss of or damage to any property other than the Works, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; and
- (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of any event described under sub-paragraphs (a) to (f) of Sub-Clause 17.2 [*Liability for Care of the Works*].





## 17.6

### Shared Indemnities

The Contractor's liability to indemnify the Employer, under Sub-Clause 17.4 [*Indemnities by Contractor*] and/or under Sub-Clause 17.3 [*Intellectual and Industrial Property Rights*], shall be reduced proportionately to the extent that any event described under sub-paragraphs (a) to (f) of Sub-Clause 17.2 [*Liability for Care of the Works*] may have contributed to the said damage, loss or injury.

Similarly, the Employer's liability to indemnify the Contractor, under Sub-Clause 17.5 [*Indemnities by Employer*], shall be reduced proportionately to the extent that any event for which the Contractor is responsible under Sub-Clause 17.1 [*Responsibility for Care of the Works*] and/or under Sub-Clause 17.3 [*Intellectual and Industrial Property Rights*] may have contributed to the said damage, loss or injury.

# 18

## Exceptional Events

### 18.1

#### Exceptional Events

**"Exceptional Event"** means an event or circumstance which:

- (i) is beyond a Party's control;
- (ii) the Party could not reasonably have provided against before entering into the Contract;
- (iii) having arisen, such Party could not reasonably have avoided or overcome; and
- (iv) is not substantially attributable to the other Party.

An Exceptional Event may comprise but is not limited to any of the following events or circumstances provided that conditions (i) to (iv) above are satisfied:

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;
- (b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war;
- (c) riot, commotion or disorder by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors;
- (d) strike or lockout not solely involving the Contractor's Personnel and other employees of the Contractor and Subcontractors;
- (e) encountering munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; or
- (f) natural catastrophes such as earthquake, tsunami, volcanic activity, hurricane or typhoon.

### 18.2

#### Notice of an Exceptional Event

If a Party is or will be prevented from performing any obligations under the Contract due to an Exceptional Event (the "affected Party" in this Clause), then the affected Party shall give a Notice to the other Party of such an Exceptional Event, and shall specify the obligations, the performance of which is or will be prevented (the "prevented obligations" in this Clause).

This Notice shall be given within 14 days after the affected Party became aware, or should have become aware, of the Exceptional Event, and

the affected Party shall then be excused performance of the prevented obligations from the date such performance is prevented by the Exceptional Event. If this Notice is received by the other Party after this period of 14 days, the affected Party shall be excused performance of the prevented obligations only from the date on which this Notice is received by the other Party.

Thereafter, the affected Party shall be excused performance of the prevented obligations for so long as such Exceptional Event prevents the affected Party from performing them. Other than performance of the prevented obligations, the affected Party shall not be excused performance of all other obligations under the Contract.

However, the obligations of either Party to make payments due to the other Party under the Contract shall not be excused by an Exceptional Event.

### 18.3

#### Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of an Exceptional Event.

If the Exceptional Event has a continuing effect, the affected Party shall give further Notices describing the effect every 28 days after giving the first Notice under Sub-Clause 18.2 [*Notice of an Exceptional Event*].

The affected Party shall immediately give a Notice to the other Party when the affected Party ceases to be affected by the Exceptional Event. If the affected Party fails to do so, the other Party may give a Notice to the affected Party stating that the other Party considers that the affected Party's performance is no longer prevented by the Exceptional Event, with reasons.

### 18.4

#### Consequences of an Exceptional Event

If the Contractor is the affected Party and suffers delay and/or incurs Cost by reason of the Exceptional Event of which he/she gave a Notice under Sub-Clause 18.2 [*Notice of an Exceptional Event*], the Contractor shall be entitled subject to Sub-Clause 20.2 [*Claims For Payment and/or EOT*] to:

- (a) EOT; and/or
- (b) if the Exceptional Event is of the kind described in sub-paragraphs (a) to (e) of Sub-Clause 18.1 [*Exceptional Events*] and, in the case of sub-paragraphs (b) to (e) of that Sub-Clause, occurs in the Country, payment of such Cost.

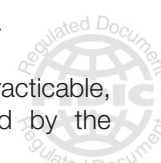
### 18.5

#### Optional Termination

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of an Exceptional Event of which Notice has been given under Sub-Clause 18.2 [*Notice of an Exceptional Event*], or for multiple periods which total more than 140 days due to the same Exceptional Event, then either Party may give to the other Party a Notice of termination of the Contract.

In this event, the date of termination shall be the date 7 days after the Notice is received by the other Party, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Contractor's Obligations After Termination*].

After the date of termination the Contractor shall, as soon as practicable, submit detailed supporting particulars (as reasonably required by the Engineer) of the value of the work done, which shall include:





- (a) the amounts payable for any work carried out for which a price is stated in the Contract;
- (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery. This Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
- (c) any other Cost or liability which in the circumstances was reasonably incurred by the Contractor in the expectation of completing the Works;
- (d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's place of business in the Contractor's country (or to any other destination(s) at no greater cost); and
- (e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

The Engineer shall then proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the value of work done (and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the Engineer receives the Contractor's particulars under this Sub-Clause shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

The Engineer shall issue a Payment Certificate, under Sub-Clause 14.6 [*Issue of IPC*], for the amount so agreed or determined, without the need for the Contractor to submit a Statement.

## 18.6

### Release from Performance under the Law

In addition to any other provision of this Clause, if any event arises outside the control of the Parties (including, but not limited to, an Exceptional Event) which:

- (a) makes it impossible or unlawful for either Party or both Parties to fulfil their contractual obligations; or
- (b) under the law governing the Contract, entitles the Parties to be released from further performance of the Contract,

and if the Parties are unable to agree on an amendment to the Contract that would permit the continued performance of the Contract, then after either Party gives a Notice to the other Party of such event:

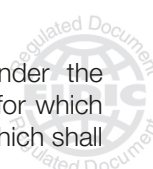
- (i) the Parties shall be discharged from further performance, and without prejudice to the rights of either Party in respect of any previous breach of the Contract; and
- (ii) the amount payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 18.5 [*Optional Termination*], and such amount shall be certified by the Engineer, as if the Contract had been terminated under that Sub-Clause.

# 19 Insurance

## 19.1

### General Requirements

Without limiting either Party's obligations or responsibilities under the Contract, the Contractor shall effect and maintain all insurances for which the Contractor is responsible with insurers and in terms, both of which shall



be subject to consent by the Employer. These terms shall be consistent with terms (if any) agreed by both Parties before the date of the Letter of Acceptance.

The insurances required to be provided under this Clause are the minimum required by the Employer, and the Contractor may, at the Contractor's own cost, add such other insurances that the Contractor may deem prudent.

Whenever required by the Employer, the Contractor shall produce the insurance policies which the Contractor is required to effect under the Contract. As each premium is paid, the Contractor shall promptly submit either a copy of each receipt of payment to the Employer (with a copy to the Engineer), or confirmation from the insurers that the premium has been paid.

If the Contractor fails to effect and keep in force any of the insurances required under Sub-Clause 19.2 [*Insurances to be provided by the Contractor*] then, and in any such case, the Employer may effect and keep in force such insurances and pay any premium as may be necessary and recover the same from the Contractor from time to time by deducting the amount(s) so paid from any moneys due to the Contractor or otherwise recover the same as a debt from the Contractor. The provisions of Clause 20 [*Employer's and Contractor's Claims*] shall not apply to this Sub-Clause.

If either the Contractor or the Employer fails to comply with any condition of the insurances effected under the Contract, the Party so failing to comply shall indemnify the other Party against all direct losses and claims (including legal fees and expenses) arising from such failure.

The Contractor shall also be responsible for the following:

- (a) notifying the insurers of any changes in the nature, extent or programme for the execution of the Works; and
- (b) the adequacy and validity of the insurances in accordance with the Contract at all times during the performance of the Contract.

The permitted deductible limits allowed in any policy shall not exceed the amounts stated in the Contract Data (if not stated, the amounts agreed with the Employer).

Where there is a shared liability the loss shall be borne by each Party in proportion to each Party's liability, provided the non-recovery from insurers has not been caused by a breach of this Clause by the Contractor or the Employer. In the event that non-recovery from insurers has been caused by such a breach, the defaulting Party shall bear the loss suffered.

## 19.2

### Insurance to be provided by the Contractor

The Contractor shall provide the following insurances:

#### 19.2.1 The Works

The Contractor shall insure and keep insured in the joint names of the Contractor and the Employer from the Commencement Date until the date of the issue of the Taking-Over Certificate for the Works:

- (a) the Works and Contractor's Documents, together with Materials and Plant for incorporation in the Works, for their full replacement value.



- The insurance cover shall extend to include loss and damage of any part of the Works as a consequence of failure of elements defectively designed or constructed with defective material or workmanship; and
- (b) an additional amount of fifteen percent (15%) of such replacement value (or such other amount as may be specified in the Contract Data) to cover any additional costs incidental to the rectification of loss or damage, including professional fees and the cost of demolition and removal of debris.

The insurance cover shall cover the Employer and the Contractor against all loss or damage from whatever cause arising until the issue of the Taking-Over Certificate for the Works. Thereafter, the insurance shall continue until the date of the issue of the Performance Certificate in respect of any incomplete work for loss or damage arising from any cause occurring before the date of the issue of the Taking-Over Certificate for the Works, and for any loss or damage occasioned by the Contractor in the course of any operation carried out by the Contractor for the purpose of complying with the Contractor's obligations under Clause 11 [*Defects after Taking Over*] and Clause 12 [*Tests after Completion*].

However, the insurance cover provided by the Contractor for the Works may exclude any of the following:

- (i) the cost of making good any part of the Works which is defective (including defective material and workmanship) or otherwise does not comply with the Contract, provided that it does not exclude the cost of making good any loss or damage to any other part of the Works attributable to such defect or non-compliance;
- (ii) indirect or consequential loss or damage including any reductions in the Contract Price for delay;
- (iii) wear and tear, shortages and pilferages; and
- (iv) unless otherwise stated in the Contract Data, the risks arising from Exceptional Events.

#### 19.2.2 Goods

The Contractor shall insure, in the joint names of the Contractor and the Employer, the Goods and other things brought to Site by the Contractor to the extent specified and/or amount stated in the Contract Data (if not specified or stated, for their full replacement value including delivery to Site).

The Contractor shall maintain this insurance from the time the Goods are delivered to the Site until they are no longer required for the Works.

#### 19.2.3 Liability for breach of professional duty

To the extent, if any, that the Contractor is responsible for the design of part of the Permanent Works under Sub-Clause 4.1 [*Contractor's General Obligations*], and/or any other design under the Contract, and consistent with the indemnities specified in Clause 17 [*Care of the Works and Indemnities*]:

- (a) the Contractor shall effect and maintain professional indemnity insurance against liability arising out of any act, error or omission by the Contractor in carrying out the Contractor's design obligations in an amount not less than that stated in the Contract Data (if not stated, the amount agreed with the Employer); and
- (b) if stated in the Contract Data, such professional indemnity insurance

shall also indemnify the Contractor against liability arising out of any act, error or omission by the Contractor in carrying out the Contractor's design obligations under the Contract that results in the Works (or Section or Part or major item of Plant, if any), when completed, not being fit for the purpose(s) for which they are intended under Sub-Clause 4.1 [*Contractor's General Obligations*].

The Contractor shall maintain this insurance for the period specified in the Contract Data.

#### 19.2.4 Injury to persons and damage to property

The Contractor shall insure, in the joint names of the Contractor and the Employer, against liabilities for death or injury to any person, or loss of or damage to any property (other than the Works) arising out of the performance of the Contract and occurring before the issue of the Performance Certificate, other than loss or damage caused by an Exceptional Event.

The insurance policy shall include a cross liability clause such that the insurance shall apply to the Contractor and the Employer as separate insureds.

Such insurance shall be effected before the Contractor begins any work on the Site and shall remain in force until the issue of the Performance Certificate and shall be for not less than the amount stated in the Contract Data (if not stated, the amount agreed with the Employer).

#### 19.2.5 Injury to employees

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising out of the execution of the Works in respect of injury, sickness, disease or death of any person employed by the Contractor or any of the Contractor's other personnel.

The Employer and the Engineer shall also be indemnified under the policy of insurance, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that the Contractor's Personnel are assisting in the execution of the Works. For any person employed by a Subcontractor, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for the Subcontractor's compliance with this Sub-Clause.

#### 19.2.6 Other insurances required by Laws and by local practice

The Contractor shall provide all other insurances required by the Laws of the countries where (any part of) the Works are being carried out, at the Contractor's own cost.

Other insurances required by local practice (if any) shall be detailed in the Contract Data and the Contractor shall provide such insurances in compliance with the details given, at the Contractor's own cost.



# 20

## Employer's and Contractor's Claims

### 20.1 Claims

A Claim may arise:

- (a) if the Employer considers that the Employer is entitled to any additional payment from the Contractor (or reduction in the Contract Price) and/or to an extension of the DNP;
- (b) if the Contractor considers that the Contractor is entitled to any additional payment from the Employer and/or to EOT; or
- (c) if either Party considers that he/she is entitled to another entitlement or relief against the other Party. Such other entitlement or relief may be of any kind whatsoever (including in connection with any certificate, determination, instruction, Notice, opinion or valuation of the Engineer) except to the extent that it involves any entitlement referred to in sub-paragraphs (a) and/or (b) above.

In the case of a Claim under sub-paragraph (a) or (b) above, Sub-Clause 20.2 [*Claims For Payment and/or EOT*] shall apply.

In the case of a Claim under sub-paragraph (c) above, where the other Party or the Engineer has disagreed with the requested entitlement or relief (or is deemed to have disagreed if he/she does not respond within a reasonable time), a Dispute shall not be deemed to have arisen but the claiming Party may, by giving a Notice refer the Claim to the Engineer and Sub-Clause 3.7 [Agreement or Determination] shall apply. This Notice shall be given as soon as practicable after the claiming Party becomes aware of the disagreement (or deemed disagreement) and include details of the claiming Party's case and the other Party's or the Engineer's disagreement (or deemed disagreement).

### 20.2 Claims For Payment and/or EOT

If either Party considers that he/she is entitled to any additional payment by the other Party (or, in the case of the Employer, a reduction in the Contract Price) and/or to EOT (in the case of the Contractor) or an extension of the DNP (in the case of the Employer) under any Clause of these Conditions or otherwise in connection with the Contract, the following Claim procedure shall apply:

#### 20.2.1 Notice of Claim

The claiming Party shall give a Notice to the Engineer, describing the event or circumstance giving rise to the cost, loss, delay or extension of DNP for which the Claim is made as soon as practicable, and no later than 28 days after the claiming Party became aware, or should have become aware, of the event or circumstance (the "Notice of Claim" in these Conditions).

If the claiming Party fails to give a Notice of Claim within this period of 28 days, the claiming Party shall not be entitled to any additional payment, the Contract Price shall not be reduced (in the case of the Employer as the claiming Party), the Time for Completion (in the case of the Contractor as the claiming Party) or the DNP (in the case of the Employer as the claiming Party) shall not be extended, and the other Party shall be discharged from any liability in connection with the event or circumstance giving rise to the Claim.



### 20.2.2 Engineer's initial response

If the Engineer considers that the claiming Party has failed to give the Notice of Claim within the period of 28 days under Sub-Clause 20.2.1 [*Notice of Claim*] the Engineer shall, within 14 days after receiving the Notice of Claim, give a Notice to the claiming Party accordingly (with reasons).

If the Engineer does not give such a Notice within this period of 14 days, the Notice of Claim shall be deemed to be a valid Notice. If the other Party disagrees with such deemed valid Notice of Claim the other Party shall give a Notice to the Engineer which shall include details of the disagreement. Thereafter, the agreement or determination of the Claim under Sub-Clause 20.2.5 [*Agreement or determination of the Claim*] shall include a review by the Engineer of such disagreement.

If the claiming Party receives a Notice from the Engineer under this Sub-Clause and disagrees with the Engineer or considers there are circumstances which justify late submission of the Notice of Claim, the claiming Party shall include in its fully detailed Claim under Sub-Clause 20.2.4 [*Fully detailed claim*] details of such disagreement or why such late submission is justified (as the case may be).

### 20.2.3 Contemporary records

In this Sub-Clause 20.2, "contemporary records" means records that are prepared or generated at the same time, or immediately after, the event or circumstance giving rise to the Claim.

The claiming Party shall keep such contemporary records as may be necessary to substantiate the Claim.

Without admitting the Employer's liability, the Engineer may monitor the Contractor's contemporary records and/or instruct the Contractor to keep additional contemporary records. The Contractor shall permit the Engineer to inspect all these records during normal working hours (or at other times agreed by the Contractor), and shall if instructed submit copies to the Engineer. Such monitoring, inspection or instruction (if any) by the Engineer shall not imply acceptance of the accuracy or completeness of the Contractor's contemporary records.

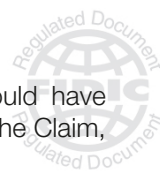
### 20.2.4 Fully detailed Claim

In this Sub-Clause 20.2, "fully detailed Claim" means a submission which includes:

- (a) a detailed description of the event or circumstance giving rise to the Claim;
- (b) a statement of the contractual and/or other legal basis of the Claim;
- (c) all contemporary records on which the claiming Party relies; and
- (d) detailed supporting particulars of the amount of additional payment claimed (or amount of reduction of the Contract Price in the case of the Employer as the claiming Party), and/or EOT claimed (in the case of the Contractor) or extension of the DNP claimed (in the case of the Employer).

Within either:

- (i) 84 days after the claiming Party became aware, or should have become aware, of the event or circumstance giving rise to the Claim,





or

- (ii) such other period (if any) as may be proposed by the claiming Party and agreed by the Engineer

the claiming Party shall submit to the Engineer a fully detailed Claim.

If within this time limit the claiming Party fails to submit the statement under sub-paragraph (b) above, the Notice of Claim shall be deemed to have lapsed, it shall no longer be considered as a valid Notice, and the Engineer shall, within 14 days after this time limit has expired, give a Notice to the claiming Party accordingly.

If the Engineer does not give such a Notice within this period of 14 days, the Notice of Claim shall be deemed to be a valid Notice. If the other Party disagrees with such deemed valid Notice of Claim the other Party shall give a Notice to the Engineer which shall include details of the disagreement. Thereafter, the agreement or determination of the Claim under Sub-Clause 20.2.5 [*Agreement or determination of the Claim*] shall include a review by the Engineer of such disagreement.

If the claiming Party receives a Notice from the Engineer under this Sub-Clause 20.2.4 and if the claiming Party disagrees with such Notice or considers there are circumstances which justify late submission of the statement under sub-paragraph (b) above, the fully detailed claim shall include details of the claiming Party's disagreement or why such late submission is justified (as the case may be).

If the event or circumstance giving rise to the Claim has a continuing effect, Sub-Clause 20.2.6 [*Claims of continuing effect*] shall apply.

#### 20.2.5 Agreement or determination of the Claim

After receiving a fully detailed Claim either under Sub-Clause 20.2.4 [*Fully detailed Claim*], or an interim or final fully detailed Claim (as the case may be) under Sub-Clause 20.2.6 [*Claims of continuing effect*], the Engineer shall proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine:

- (a) the additional payment (if any) to which the claiming Party is entitled or the reduction of the Contract Price (in the case of the Employer as the claiming Party); and/or
- (b) the extension (if any) of the Time for Completion (before or after its expiry) under Sub-Clause 8.5 [*Extension of Time for Completion*] (in the case of the Contractor as the claiming Party), or the extension (if any) of the DNP (before its expiry) under Sub-Clause 11.3 [*Extension of Defects Notification Period*] (in the case of the Employer as the claiming Party),

to which the claiming Party is entitled under the Contract.

If the Engineer has given a Notice under Sub-Clause 20.2.2 [*Engineer's initial response*] and/or under Sub-Clause 20.2.4 [*Fully detailed Claim*], the Claim shall nevertheless be agreed or determined in accordance with this Sub-Clause 20.2.5. The agreement or determination of the Claim shall include whether or not the Notice of Claim shall be treated as a valid Notice taking account of the details (if any) included in the fully detailed claim of the claiming Party's disagreement with such Notice(s) or why late submission is justified (as the case may be). The circumstances which may be taken into account (but shall not be binding) may include:



- whether or to what extent the other Party would be prejudiced by acceptance of the late submission;
- in the case of the time limit under Sub-Clause 20.2.1 [*Notice of Claim*], any evidence of the other Party's prior knowledge of the event or circumstance giving rise to the Claim, which the claiming Party may include in its supporting particulars; and/or
- in the case of the time limit under Sub-Clause 20.2.4 [*Fully detailed Claim*], any evidence of the other Party's prior knowledge of the contractual and/or other legal basis of the Claim, which the claiming Party may include in its supporting particulars.

If, having received the fully detailed Claim under Sub-Clause 20.2.4 [*Fully detailed Claim*], or in the case of a Claim under Sub-Clause 20.2.6 [*Claims of continuing effect*] an interim or final fully detailed Claim (as the case may be), the Engineer requires necessary additional particulars:

- he/she shall promptly give a Notice to the claiming Party, describing the additional particulars and the reasons for requiring them;
- he/she shall nevertheless give his/her response on the contractual or other legal basis of the Claim, by giving a Notice to the claiming Party, within the time limit for agreement under Sub-Clause 3.7.3 [*Time limits*];
- as soon as practicable after receiving the Notice under sub-paragraph (i) above, the claiming Party shall submit the additional particulars; and
- the Engineer shall then proceed under Sub-Clause 3.7 [*Agreement or Determination*] to agree or determine the matters under sub-paragraphs (a) and/or (b) above (and, for the purpose of Sub-Clause 3.7.3 [*Time limits*], the date the Engineer receives the additional particulars from the claiming Party shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3).

#### 20.2.6 Claims of continuing effect

If the event or circumstance giving rise to a Claim under this Sub-Clause 20.2 has a continuing effect:

- the fully detailed Claim submitted under Sub-Clause 20.2.4 [*Fully detailed Claim*] shall be considered as interim;
- in respect of this first interim fully detailed Claim, the Engineer shall give his/her response on the contractual or other legal basis of the Claim, by giving a Notice to the claiming Party, within the time limit for agreement under Sub-Clause 3.7.3 [*Time limits*];
- after submitting the first interim fully detailed Claim the claiming Party shall submit further interim fully detailed Claims at monthly intervals, giving the accumulated amount of additional payment claimed (or the reduction of the Contract Price, in the case of the Employer as the claiming Party), and/or extension of time claimed (in the case of the Contractor as the claiming Party) or extension of the DNP (in the case of the Employer as the claiming Party); and
- the claiming Party shall submit a final fully detailed Claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the claiming Party and agreed by the Engineer. This final fully detailed Claim shall give the total amount of additional payment claimed (or the reduction of the Contract Price, in the case of the Employer as the claiming Party), and/or extension of time claimed (in the case of the Contractor as the claiming Party) or extension of the DNP (in the case of the Employer as the claiming Party).



### 20.2.7 General requirements

After receiving the Notice of Claim, and until the Claim is agreed or determined under Sub-Clause 20.2.5 [*Agreement or determination of the Claim*], in each Payment Certificate the Engineer shall include such amounts for any Claim as have been reasonably substantiated as due to the claiming Party under the relevant provision of the Contract.

The Employer shall only be entitled to claim any payment from the Contractor and/or to extend the DNP, or set off against or make any deduction from any amount due to the Contractor, by complying with this Sub-Clause 20.2.

The requirements of this Sub-Clause 20.2 are in addition to those of any other Sub-Clause which may apply to the Claim. If the claiming Party fails to comply with this or any other Sub-Clause in relation to the Claim, any additional payment and/or any EOT (in the case of the Contractor as the claiming Party) or extension of the DNP (in the case of the Employer as the claiming Party), shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the Claim by the Engineer.

## 21 Disputes and Arbitration

### 21.1

#### Constitution of the DAAB

Disputes shall be decided by a DAAB in accordance with Sub-Clause 21.4 [*Obtaining DAAB's Decision*]. The Parties shall jointly appoint the member(s) of the DAAB within the time stated in the Contract Data (if not stated, 28 days) after the date the Contractor receives the Letter of Acceptance.

The DAAB shall comprise, as stated in the Contract Data, either one suitably qualified member (the "sole member") or three suitably qualified members (the "members"). If the number is not so stated, and the Parties do not agree otherwise, the DAAB shall comprise three members.

The sole member or three members (as the case may be) shall be selected from those named in the list in the Contract Data, other than anyone who is unable or unwilling to accept appointment to the DAAB.

If the DAAB is to comprise three members, each Party shall select one member for the agreement of the other Party. The Parties shall consult both these members and shall agree the third member, who shall be appointed to act as chairperson.

The DAAB shall be deemed to be constituted on the date that the Parties and the sole member or the three members (as the case may be) of the DAAB have all signed a DAAB Agreement.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DAAB consults, shall be mutually agreed by the Parties when agreeing the terms of the DAAB Agreement. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may appoint a suitably qualified person or persons to replace any one or more members of the DAAB. Unless the Parties agree otherwise, a replacement DAAB member shall be appointed if a member declines to act or is unable to act as a result of death,

illness, disability, resignation or termination of appointment. The replacement member shall be appointed in the same manner as the replaced member was required to have been selected or agreed, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone.

Unless otherwise agreed by both Parties, the term of the DAAB (including the appointment of each member) shall expire either:

- (a) on the date the discharge shall have become, or deemed to have become, effective under Sub-Clause 14.12 [*Discharge*]; or
- (b) 28 days after the DAAB has given its decision on all Disputes, referred to it under Sub-Clause 21.4 [*Obtaining DAAB's Decision*] before such discharge has become effective,

whichever is later.

However, if the Contract is terminated under any Sub-Clause of these Conditions or otherwise, the term of the DAAB (including the appointment of each member) shall expire 28 days after:

- (i) the DAAB has given its decision on all Disputes, which were referred to it (under Sub-Clause 21.4 [*Obtaining DAAB's Decision*]) within 224 days after the date of termination; or
- (ii) the date that the Parties reach a final agreement on all matters (including payment) in connection with the termination

whichever is earlier.

## 21.2

### Failure to Appoint DAAB Member(s)

If any of the following conditions apply, namely:

- (a) if the DAAB is to comprise a sole member, the Parties fail to agree the appointment of this member by the date stated in the first paragraph of Sub-Clause 21.1 [*Constitution of the DAAB*]; or
- (b) if the DAAB is to comprise three persons, and if by the date stated in the first paragraph of Sub-Clause 21.1 [*Constitution of the DAAB*]:
  - (i) either Party fails to select a member (for agreement by the other Party);
  - (ii) either Party fails to agree a member selected by the other Party; and/or
  - (iii) the Parties fail to agree the appointment of the third member (to act as chairperson) of the DAAB;
- (c) the Parties fail to agree the appointment of a replacement within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, illness, disability, resignation, or termination of appointment; or
- (d) if, after the Parties have agreed the appointment of the member(s) or replacement, such appointment cannot be effected because one Party refuses or fails to sign a DAAB Agreement with any such member or replacement (as the case may be) within 14 days of the other Party's request to do so,

then the appointing entity or official named in the Contract Data shall, at the request of either or both Parties and after due consultation with both Parties, appoint the member(s) of the DAAB (who, in the case of sub-paragraph (d)

above, shall be the agreed member(s) or replacement). This appointment shall be final and conclusive.

Thereafter, the Parties and the member(s) so appointed shall be deemed to have signed and be bound by a DAAB Agreement under which:

- (i) the monthly services fee and daily fee shall be as stated in the terms of the appointment; and
- (ii) the law governing the DAAB Agreement shall be the governing law of the Contract defined in Sub-Clause 1.4 [*Law and Language*].

Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official. If the Contractor pays the remuneration in full, the Contractor shall include one-half of the amount of such remuneration in a Statement and the Employer shall then pay the Contractor in accordance with the Contract. If the Employer pays the remuneration in full, the Engineer shall include one-half of the amount of such remuneration as a deduction under sub-paragraph (b) of Sub-Clause 14.6.1 [*The IPC*].

## 21.3

### Avoidance of Disputes

If the Parties so agree, they may jointly request (in writing, with a copy to the Engineer) the DAAB to provide assistance and/or informally discuss and attempt to resolve any issue or disagreement that may have arisen between them during the performance of the Contract. If the DAAB becomes aware of an issue or disagreement, it may invite the Parties to make such a joint request.

Such joint request may be made at any time, except during the period that the Engineer is carrying out his/her duties under Sub-Clause 3.7 [*Agreement or Determination*] on the matter at issue or in disagreement unless the Parties agree otherwise.

Such informal assistance may take place during any meeting, Site visit or otherwise. However, unless the Parties agree otherwise, both Parties shall be present at such discussions. The Parties are not bound to act on any advice given during such informal meetings, and the DAAB shall not be bound in any future Dispute resolution process or decision by any views or advice given during the informal assistance process, whether provided orally or in writing.

## 21.4

### Obtaining DAAB's Decision

If a Dispute arises between the Parties then either Party may refer the Dispute to the DAAB for its decision (whether or not any informal discussions have been held under Sub-Clause 21.3 [*Avoidance of Disputes*]) and the following provisions shall apply.

#### 21.4.1 Reference of a Dispute to the DAAB

The reference of a Dispute to the DAAB (the "reference" in this Sub-Clause 21.4) shall:

- (a) if Sub-Clause 3.7 [*Agreement or Determination*] applied to the subject matter of the Dispute, be made within 42 days of giving or receiving (as the case may be) a NOD under Sub-Clause 3.7.5 [*Dissatisfaction with Engineer's determination*]. If the Dispute is not referred to the DAAB within this period of 42 days, such NOD shall be deemed to have lapsed and no longer be valid;
- (b) state that it is given under this Sub-Clause;
- (c) set out the referring Party's case relating to the Dispute;



- (d) be in writing, with copies to the other Party and the Engineer; and
- (e) for a DAAB of three persons, be deemed to have been received by the DAAB on the date it is received by the chairperson of the DAAB.

The reference of a Dispute to the DAAB under this Sub-Clause shall, unless prohibited by law, be deemed to interrupt the running of any applicable statute of limitation or prescription period.

#### 21.4.2 The Parties' obligations after the reference

Both Parties shall promptly make available to the DAAB all information, access to the Site, and appropriate facilities, as the DAAB may require for the purposes of making a decision on the Dispute.

Unless the Contract has already been abandoned or terminated, the Parties shall continue to perform their obligations in accordance with the Contract.

#### 21.4.3 The DAAB's decision

The DAAB shall complete and give its decision within:

- (a) 84 days after receiving the reference; or
- (b) such period as may be proposed by the DAAB and agreed by both Parties.

However, if at the end of this period, the due date(s) for payment of any DAAB member's invoice(s) has passed but such invoice(s) remains unpaid, the DAAB shall not be obliged to give its decision until such outstanding invoice(s) have been paid in full, in which case the DAAB shall give its decision as soon as practicable after payment has been received.

The decision shall be given in writing to both Parties with a copy to the Engineer, shall be reasoned, and shall state that it is given under this Sub-Clause.

The decision shall be binding on both Parties, who shall promptly comply with it whether or not a Party gives a NOD with respect to such decision under this Sub-Clause. The Employer shall be responsible for the Engineer's compliance with the DAAB decision.

If the decision of the DAAB requires a payment of an amount by one Party to the other Party

- (i) subject to sub-paragraph (ii) below, this amount shall be immediately due and payable without any certification or Notice; and
- (ii) the DAAB may (as part of the decision), at the request of a Party but only if there are reasonable grounds for the DAAB to believe that the payee will be unable to repay such amount in the event that the decision is reversed under Sub-Clause 21.6 [Arbitration], require the payee to provide an appropriate security (at the DAAB's sole discretion) in respect of such amount.

The DAAB proceeding shall not be deemed to be an arbitration and the DAAB shall not act as arbitrator(s).



#### 21.4.4 Dissatisfaction with DAAB's decision

If either Party is dissatisfied with the DAAB's decision:

- (a) such Party may give a NOD to the other Party, with a copy to the DAAB and to the Engineer;
- (b) this NOD shall state that it is a "Notice of Dissatisfaction with the DAAB's Decision" and shall set out the matter in Dispute and the reason(s) for dissatisfaction; and
- (c) this NOD shall be given within 28 days after receiving the DAAB's decision.

If the DAAB fails to give its decision within the period stated in Sub-Clause 21.4.3 [*The DAAB's decision*], then either Party may, within 28 days after this period has expired, give a NOD to the other Party in accordance with sub-paragraphs (a) and (b) above.

Except as stated in the last paragraph of Sub-Clause 3.7.5 [*Dissatisfaction with Engineer's determination*], in Sub-Clause 21.7 [*Failure to Comply with DAAB's Decision*] and in Sub-Clause 21.8 [*No DAAB In Place*], neither Party shall be entitled to commence arbitration of a Dispute unless a NOD in respect of that Dispute has been given in accordance with this Sub-Clause 21.4.4.

If the DAAB has given its decision as to a matter in Dispute to both Parties, and no NOD under this Sub-Clause 21.4.4 has been given by either Party within 28 days after receiving the DAAB's decision, then the decision shall become final and binding on both Parties.

If the dissatisfied Party is dissatisfied with only part(s) of the DAAB's decision:

- (i) this part(s) shall be clearly identified in the NOD;
- (ii) this part(s), and any other parts of the decision that are affected by such part(s) or rely on such part(s) for completeness, shall be deemed to be severable from the remainder of the decision; and
- (iii) the remainder of the decision shall become final and binding on both Parties as if the NOD had not been given.

### 21.5

#### Amicable Settlement

Where a NOD has been given under Sub-Clause 21.4 [*Obtaining DAAB's Decision*], both Parties shall attempt to settle the Dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the twenty-eighth (28th) day after the day on which this NOD was given, even if no attempt at amicable settlement has been made.

### 21.6

#### Arbitration

Unless settled amicably, and subject to Sub-Clause 3.7.5 [*Dissatisfaction with Engineer's determination*], Sub-Clause 21.4.4 [*Dissatisfaction with DAAB's decision*], Sub-Clause 21.7 [*Failure to Comply with DAAB's Decision*] and Sub-Clause 21.8 [*No DAAB In Place*], any Dispute in respect of which the DAAB's decision (if any) has not become final and binding shall be finally settled by international arbitration. Unless otherwise agreed by both Parties:

- (a) the Dispute shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce;
- (b) the Dispute shall be settled by one or three arbitrators appointed in accordance with these Rules; and



- (c) the arbitration shall be conducted in the ruling language defined in Sub-Clause 1.4 [*Law and Language*].

The arbitrator(s) shall have full power to open up, review and revise any certificate, determination (other than a final and binding determination), instruction, opinion or valuation of the Engineer, and any decision of the DAAB (other than a final and binding decision) relevant to the Dispute. Nothing shall disqualify the Engineer from being called as a witness and giving evidence before the arbitrator(s) on any matter whatsoever relevant to the Dispute.

In any award dealing with costs of the arbitration, the arbitrator(s) may take account of the extent (if any) to which a Party failed to cooperate with the other Party in constituting a DAAB under Sub-Clause 21.1 [*Constitution of the DAAB*] and/or Sub-Clause 21.2 [*Failure to Appoint DAAB Member(s)*].

Neither Party shall be limited in the proceedings before the arbitrator(s) to the evidence or arguments previously put before the DAAB to obtain its decision, or to the reasons for dissatisfaction given in the Party's NOD under Sub-Clause 21.4 [*Obtaining DAAB's Decision*]. Any decision of the DAAB shall be admissible in evidence in the arbitration.

Arbitration may be commenced before or after completion of the Works. The obligations of the Parties, the Engineer and the DAAB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

If an award requires a payment of an amount by one Party to the other Party, this amount shall be immediately due and payable without any further certification or Notice.

## 21.7

### Failure to Comply with DAAB's Decision

In the event that a Party fails to comply with any decision of the DAAB, whether binding or final and binding, then the other Party may, without prejudice to any other rights it may have, refer the failure itself directly to arbitration under Sub-Clause 21.6 [*Arbitration*] in which case Sub-Clause 21.4 [*Obtaining DAAB's Decision*] and Sub-Clause 21.5 [*Amicable Settlement*] shall not apply to this reference. The arbitral tribunal (constituted under Sub-Clause 21.6 [*Arbitration*]) shall have the power, by way of summary or other expedited procedure, to order, whether by an interim or provisional measure or an award (as may be appropriate under applicable law or otherwise), the enforcement of that decision.

In the case of a binding but not final decision of the DAAB, such interim or provisional measure or award shall be subject to the express reservation that the rights of the Parties as to the merits of the Dispute are reserved until they are resolved by an award.

Any interim or provisional measure or award enforcing a decision of the DAAB which has not been complied with, whether such decision is binding or final and binding, may also include an order or award of damages or other relief.

## 21.8

### No DAAB In Place

If a Dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DAAB in place (or no DAAB is being constituted), whether by reason of the expiry of the DAAB's appointment or otherwise:

- (a) Sub-Clause 21.4 [*Obtaining DAAB's Decision*] and Sub-Clause 21.5 [*Amicable Settlement*] shall not apply; and
  - (b) the Dispute may be referred by either Party directly to arbitration under Sub-Clause 21.6 [*Arbitration*] without prejudice to any other rights the Party may have.
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| 7cbX]hcbg`                                      | Gi V!7`Ui gY` | 8UH`                                                                                                                                                                                                                                                                                                                                                               |
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| 9a d`cmYfAg`bUa Y`UbX`<br>UXXfYgg`              | %%* %         | 7\JYZ9 YW]h] Y`CZZWf`<br>5h.]K UHyf`K cf_g8Yj Y`cda Ybh5[ YbWm5h.]K UHyf`<br>D`UnUZA i h.U][ U`Bcfh` FcUXZ`<br>D`C`6cl` ( ) & , ' ! \$\$\$ \$B U]fcV]z?YbntU`<br>HY` .Z & ) (! &\$! &+&( &- &# Z&+%% ( &`<br>: U! .Z & ) (! &\$! &+&( &- )`<br>9a U]. <a href="#">bZc4 Uk k XU" c" Y`</a><br>K YVg]hY. <a href="#">k k k "Uk k XU" c" Y`</a><br>.                  |
| 9b[ ]bYYfAg`bUa Y`UbX`<br>UXXfYgg`              | %%* )`        | 7\JYZA UbU[ Yf`A`K UHyf`UbX`Gub]hU]cb`<br>5h.]K UHyf`K cf_g8Yj Y`cda Ybh5[ YbWm5h.]K UHyf`<br>D`UnUZA i h.U][ U`Bcfh` FcUXZ`<br>D`C`6cl` ( ) & , ' ! \$\$\$ \$B U]fcV]z?YbntU`<br>HY` .Z & ) (! &\$! &+&( &- &# Z&+%% ( &`<br>: U! .Z & ) (! &\$! &+&( &- )`<br>9a U]. <a href="#">bZc4 Uk k XU" c" Y`</a><br>K YVg]hY. <a href="#">k k k "Uk k XU" c" Y`</a><br>. |
| 6Ub_Ag`bUa Y`                                   | %%%, -`       | H`Y`6Ub_`]g`5Z]Wb`8Yj Y`cda Ybh6Ub_`                                                                                                                                                                                                                                                                                                                               |
| 6cffck YfAg`bUa Y`                              | %%%- \$`      | ; cj Yfba YbhicZ?YbntU`                                                                                                                                                                                                                                                                                                                                            |
| H]a Y`Zcf`7ca d`Yh]cb`                          | %%%, ( `      | ) ( , `XUng`f%`a cbh]g.`                                                                                                                                                                                                                                                                                                                                           |
| 8YZWgBch]ZVh]cb`DYf]cX`                         | %%%&+`        | ' *) `XUng`f%`a cbh]g.`                                                                                                                                                                                                                                                                                                                                            |
| GYW]cbg`                                        | %%%+`'`       | B #5`                                                                                                                                                                                                                                                                                                                                                              |
| 9`YVfcb]WfUbg`a ]gg]cb`<br>gng`h`a`             | %` fUk`f]]k`  | 9a U]. <a href="#">bZc4 Uk k XU" c" Y`</a>                                                                                                                                                                                                                                                                                                                         |
| 5XXfYgg`cZ9a d`cmYf`Zcf`<br>Vt`a`a`i`b]W]h]cbg` | %` fXk`       | H`Y`9a d`cmYfAg`UXXfYgg`Zcf`h`Y`di fdcgY`cZ<br>Vt`a`a`i`b]W]h]cbg`]g`<br>.                                                                                                                                                                                                                                                                                         |

| 7cbX]hcbg'                                                                                                               | G V! 7'U gY' | 8UU'                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                          |              | <p>7\JYZ9 YW]j Y'CZ]Wf''</p> <p>5h\]K UHyf'K cf_g8Yj Y'cda Ybh5[ YbWñ5h\]</p> <p>K UHyf'D'UñUZA i h\U[ U'Bcfh\FcUXZ'</p> <p>D'C'6cl'() &amp;,' '! '\$%\$\$'BU]fcV]ž?YbñU''</p> <p>HY'. Ž &amp;)(!&amp;\$!&amp;+&amp;(&amp;- &amp;# ž&amp;+%&amp; (&amp;'</p> <p>: U! . Ž &amp;)(!&amp;\$!&amp;+&amp;(&amp;-) ''</p> <p>9a Uj. <a href="#">]bZc4 Uk k XU' c" Y'</a></p>                                                                                                  |
| <p>5XXfYgg'cZ9b[ ]bYYf'Zcf'</p> <p>Vča a i b]W]hcbg'g''</p>                                                              | %* fXŁ       | <p>H\Y'9a d'cmYf]g'UXXfYgg'Zcf'h\Y'di fdcgY'cZ</p> <p>Vča a i b]W]hcbg'g''</p> <p>7\JYZA UbU[ Yf'À'K UHyf'UbX'Gub]h]hcb''</p> <p>5h\]K UHyf'K cf_g8Yj Y'cda Ybh5[ YbWñ5h\]</p> <p>K UHyf'D'UñUZA i h\U[ U'Bcfh\FcUXZ'</p> <p>D'C'6cl'() &amp;,' '! '\$%\$\$'BU]fcV]ž?YbñU''</p> <p>HY'. Ž &amp;)(!&amp;\$!&amp;+&amp;(&amp;- &amp;# ž&amp;+%&amp; (&amp;'</p> <p>: U! . Ž &amp;)(!&amp;\$!&amp;+&amp;(&amp;-) ''</p> <p>9a Uj. <a href="#">]bZc4 Uk k XU' c" Y'</a></p> |
| <p>5XXfYgg'cZ7cbhfU]Wcf'Zcf'</p> <p>Vča a i b]W]hcbg'</p>                                                                | %* fXŁ       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ; cj Yfb]b[ @uk'                                                                                                         | %('          | @uk'g'cZh\Y'FYdi V']WcZ?YbñU'                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Fi' ]b[ ''Ub[ i U[ Y'                                                                                                    | %('          | 9b[ ]g\'                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| @ub[ i U[ Y'Zcf'                                                                                                         | %('          | 9b[ ]g\'                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| H]a Y'Zcf'h\Y'DUfh]Yg'hc'g][ b'                                                                                          | %*''         | &,'XUhg'UZHf'fYW]dhicZh\Y'@YhYf'cZ5WWdhUbW'                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bi a VYf'cZUXX]hcbU'dUdYf'                                                                                               | %,'          | ' 'f]h\ fYYŁ'                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>Včd]Yg'cZ7cbhfU]Wcf'g'</p> <p>8cW'a Ybñg'</p>                                                                         |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>HcHU''[UV]]hmcZh\Y'</p> <p>7cbhfU]Wcf'hc'h\Y'9a d'cmYf'</p> <p>i bXYf'cf']b'VčbbYV]hcb'k ]h'</p> <p>h\Y'7cbhfU]W'</p> | %%&'         | B #5 ''                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| G]hY''                                                                                                                   | %%+(         | 5g8YgW]VYX']b'GdYV]Z]W]hcbg'                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| 7cbX]hcbg'                                                                                                                                                                                                  | GI V! 7`U gY' | 8UH'                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| >c]bhUbX`GYj YfU`@UV`]hmi                                                                                                                                                                                   | %%(           | YEA UI Ja i a `bi a VYfgcZa Ya VYfg]b`hY`>c]bh<br>JYbhi fYz7cbgcfh]i a `cf`5ggcVUh]cb`f&Eg\U`bch<br>YI WYX`" "<br>fEA ]bja i a `g\UfY`cZU`a Ya VYf`cZ>c]bhJYbhi fYz<br>7cbgcfh]i a `cf`5ggcVUh]cb`f&E]b`hY`V&bfUMi<br>g\U`bchVY`Ygg`hUb`" " i `dYfWbhcZhY`hcU`<br>j Ui Y`cZhY`V&bfUMi`" |
| Hja Y`Zcf`UWWgg`hc`hY`G]hY`                                                                                                                                                                                 | &`%           | &, `XUhg`UZhf`7ca a YbW`a Ybh8UHY`                                                                                                                                                                                                                                                      |
| 9b[ ]bYYf&8i hYgUbX`<br>5i h`cf]hmi                                                                                                                                                                         | ' "&          | J Uf]Uh]cbg`fYg`h]b[ ]b`Ub`]bWYUgY`cZhY`5WVdhYX`<br>7cbhfUMi5a ci bh]b`YI Wgg`cZ%\$i `g\U`fYei ]fY`<br>k f]hYb`V&bgYbhcZhY`9a d`cmYf`                                                                                                                                                   |
| Gi gh]bUW`Y`dfcWfYa Ybh                                                                                                                                                                                     | (`%           | B #5`                                                                                                                                                                                                                                                                                   |
| DYfZcfa UbW`GYWf]hmi                                                                                                                                                                                        | (`"&          | H`Y`dYfZcfa UbW`gYWf]hmi j`VY`]b`hY`Zcfa `cZ<br>i bV&bX]hcbU`VUb_[] i UfUbhY`UWWdhUW`Y`hc`hY`<br>Ya d`cmYf]b`hY`Ua ci bh]b`cZ%\$i `cZhY`<br>5WVdhYX`7cbhfUMi5a ci bhUbX`]b`hY`gJa Y`<br>WffYbWffYg`cZhY`5WVdhYX`7cbhfUMi5a ci bh`                                                       |
| 9bj ]fcba YbhU`UbX`GcV]U`<br>f9G`DYfZcfa UbW`GYWf]hmi`                                                                                                                                                      | (`"&          | B #5`                                                                                                                                                                                                                                                                                   |
| DYf]cX`Zcf`bch]ZVh]cb`cZ<br>Yffc]g]b`hY`]hYa g`cZ<br>fYZfYbW`                                                                                                                                               | (`+"&fU&      | &, `8Uhg`                                                                                                                                                                                                                                                                               |
| DYf]cX`cZdUna YbhZcf`<br>hYa dcfUfmi h]`hYg`                                                                                                                                                                | (`%`          | &, `8Uhg`                                                                                                                                                                                                                                                                               |
| Bi a VYf`cZUXX]hcbU`dUdYf`<br>V&d]Yg`cZdfc[ fYgg`fYdcfhg`                                                                                                                                                   | (`"&\$`       | ' `fH`fYY&                                                                                                                                                                                                                                                                              |
| A UI Ja i a `U`ck UW`Y`<br>UWW`a i `UhYX`j Ui Y`cZkcf`_<br>g`V&bfUMiX`fUg`U`<br>dYfWbU[] Y`cZhY`5WVdhYX`<br>7cbhfUMi5a ci bhcf]j`c`i a Y`<br>cZkcf`! Ug`dYf`dfcj ]g]cb`<br>a UXY`i bXYf`68G`cZ`+b`<br>' ("& | )`%fU&        | ' \$i`                                                                                                                                                                                                                                                                                  |

| 7cbX]hcbg'                                                                           | G V! 7'U gY' | 8Uu'                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dufhg'cZhY'K cf_g'Zcf'k\]W'g VVbhfUM]b[ ]g'bchi dYfa ]hYX'                           | ) "%fVŁ      | B #5'                                                                                                                                                                                                                                                                  |
| Bcfa U'k cf_]b[ \ci fg'                                                              | *")'         | Bcfa U'k cf_]b[ \ci fg'UfY.', \ci fg'dYf'XUmZca' A cbXUmhc': f]XUmUbX') \ci fg'cb'GUh fXUmYl Wdhi Gi bXUhg'UbX'Di V']W<c']XUhg''                                                                                                                                       |
| Bi a VYf'cZUXX]hcbU'dUdYf' VŁd]Yg'cZdfc[ fUa'                                        | , " '.       | '..                                                                                                                                                                                                                                                                    |
| 8Y'UmXUa U[ Yg'dUmW'Y'Zcf' YUW'XUmcZXY'Um                                            | , " '.       | \$'% 'cZhY'5WVdhYX'7cbhfUM]5a ci bhdYf'XUnZ'Ygg'dfcj ]g]cbU'gi a Zcf'8556"                                                                                                                                                                                             |
| A Ul ]a i a 'Ua ci bhicZXY'Um XUa U[ Yg'                                             | , " '.       | %'\$ı 'cZhY'5WVdhYX'7cbhfUM]5a ci bh'Ygg'dfcj ]g]cbU'gi a 'Zcf'8556"                                                                                                                                                                                                   |
| A Yh'cX'cZa YUgi fYa Ybhi                                                            | %&'&         | 7]j ]'9b[ ]bYYf]b[ 'GHUbXUfX'A Yh'cX'cZ A YUgi fYa Ybhf79GA A Ł'                                                                                                                                                                                                       |
| DYfWbHJ[ Y'dfcZ]h                                                                    | %&"'         | 5g'ghUHX'i bXYf'%%&\$'UWcj Y'                                                                                                                                                                                                                                          |
| DYfWbHJ[ Y'fUHY'hc'VY' Udd']YX'hc'Dfcj ]g]cbU'Gi a g'Zcf'cj YfYUX'WUf[ Yg'UbX'dfcZ]h | % "( 'fVŁf]Ł | )ı'                                                                                                                                                                                                                                                                    |
| 5X↑ gha Ybhg'Zcf'WUUb[ Yg']b' VŁgh                                                   | % "+'        | 5X↑ gha Ybh'Zcf'WUUb[ Yg']b' VŁghg\U'`bchiUdd'm'                                                                                                                                                                                                                       |
| HcHU'UXj UbW'dUna Ybhi'                                                              | %Ł'&         | &\$ı 'DYfWbHJ[ Y'cZhY'5WVdhYX'7cbhfUM]5a ci bhdUmW'Y']b'hY'WffYbWYg'UbX'dfcdcfh]cbg']b' k \]W'hY'5WVdhYX'7cbhfUM]5a ci bh]g'dUmW'Y'"                                                                                                                                   |
| FYdUna YbhicZ5Xj UbW'dUna Ybhi                                                       | %Ł'&"'       | fUŁFYdUna Ybhihc'VY[ ]b'k \Yb'hY'Ua ci bhicZ Wfh]ZYX'k cf_g'UfU]bg'Yl WYXg&\$ı 'cZhY'dcfh]cb' cZhY'5WVdhYX'7cbhfUM]5a ci bhdUmW'Y']b'hUhi WffYbWYh'Ygg'dfcj ]g]cbU'Gi a g'<br>fVŁXYXi W]cbg'g\U'`VY'VŁa d'YhYX'k \Yb'Wfh]ZYX' k cf_g'fYUW' - \$ı 'cZhY'7cbhfUM]Gi a "' |

| 7cbX]hcbg'                                                                                                                | GI V! 7'U gY'  | 8UU'                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DYf]cX'cZdUna Ybhi                                                                                                        | % " "          | FYdUna Ybhi'c'VY[ ]b'k \Yb'hAY'Ua ci bhi'cZWfh]ZYX' k cf_g'U'U]bg'&\$i 'cZ'hAY'7cbhfUM'iGi a 'UbX'hc'VY' Vta d'YhYX'k \Yb'Wfh]ZYX'k cf_g'fYUW' - \$i 'cZ'hAY' 7cbhfUM'iGi a " |
| Bi a VYf'cZUXX]hcbU'dUdYf' Vtd]Yg'cZGHUHa Ybhi                                                                            | % " fV'E'      | ' fH'fYY'E'                                                                                                                                                                   |
| DYfWbhU[ Y'cZfYhYbh]cb'                                                                                                   | % " f]]E'      | %\$i 'cZ]bhYf]a 'dUna Ybhi'Wfh]ZVhYg'                                                                                                                                         |
| @a ]h'cZFYhYbh]cb'A cbYmi fUg'U'dYfWbhU[ Y'cZ 5WVdhYX'7cbhfUM'i5a ci bhi                                                  | % " f]]E'      | %\$i 'cZ'hAY'5WVdhYX'7cbhfUM'i5a ci bhi                                                                                                                                       |
| D'UbhiUbX'A UHYf]Ug'                                                                                                      | % (") fV'E']E' | B #5'                                                                                                                                                                         |
|                                                                                                                           | % (") fV'E']E' | B #5'                                                                                                                                                                         |
| A ]b]a i a '5a ci bhi'cZ bhYf]a 'DUna Ybhi7Yfh]ZVhYg'                                                                     | % " * "&'      | &i 'cZ'hAY'5WVdhYX'7cbhfUM'i5a ci bhi'                                                                                                                                        |
| DYf]cX'cZdUna Ybhi'cZ 5Xj UbW'DUna Ybhi'c'hAY' 7cbhfUM'icf'                                                               | % ( "+fU'E'    | & 'XUhg'                                                                                                                                                                      |
| DYf]cX'Zcf'hAY'9a d'cmYf'hc' a U_Y']bhYf]a 'dUna Ybhi'c'hAY'7cbhfUM'icf'i bXYf'Gi V! 7'U gY'% ( " * f]bhYf]a ' DUna Ybhi' | % ( "+Vf]]E'   | ) * 'XUhg'                                                                                                                                                                    |
| DYf]cX'Zcf'hAY'9a d'cmYf'hc' a U_Y']bhYf]a 'dUna Ybhi'c'hAY'7cbhfUM'icf'i bXYf'Gi V! 7'U gY'% ( "% 'fi ]bU' DUna Ybhi'    | % ( "+Vf]]E'   | & 'XUhg'                                                                                                                                                                      |
| DYf]cX'Zcf'hAY'9a d'cmYf'hc' a U_Y']bU'dUna Ybhi'c'hAY' 7cbhfUM'icf'                                                      | % ( "+fV'E'    | ) * 'XUhg'                                                                                                                                                                    |

| 7cbX]hcbg'                                                                                                                                                                      | GI V! 7`U gY' | 8UU'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Z]bUbV]b[ `W\Uf[ Yg'Zcf`<br>XY`UhyX`dUna Ybh<br>fdYfWbhU[ Y'dc]bhg'UWcj Y`<br>h\Y`Uj YfU[ Y`VUb_`g\cfH<br>hYfa ``YbX]b[ `fUhy`Ug`<br>fYZffYX`hc`i bXYf'gi V!<br>dUfU[ fUd\`fUk` | %(" ,`        | &`                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Bi a VYf'cZUXX]hcbU`dUdYf`<br>Vd]Yg'cZXfUZh: ]bU`<br>GfUHy a Ybh                                                                                                                | %('%%`fV`     | ` `fH`fYY`                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| : cfWg'cZbUhi fYzh\Y`f]g_g'cZ<br>k \]W`UfY`U`cWUhyX`hc`h\Y`<br>7cbhfUWkcf`                                                                                                      | %+`&fX`       | B #5`                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DYfa ]hYX`XYXi W]V`Y``]a ]hg`                                                                                                                                                   | %`-%`         | <p>H\Y`a ]b]a i a `]bgi fUbW`Ua ci bhg'UbX`XYXi W]V`Yg`<br/>g\U``VY.`</p> <p>]bgi fUbW`fYei ]fYX`Zcf`h\Y`K cf_g``'9G`<br/>' \$\$\$\$\$\$Q</p> <p>]bgi fUbW`fYei ]fYX`Zcf`; ccXg.'9G`) \$\$\$\$\$\$Q</p> <p>]bgi fUbW`fYei ]fYX`Zcf``]UV`]mZcf`VfYUW`cZ<br/>dfcZYgg]cbU`Xi m.'9G`) \$\$\$\$\$\$Q</p> <p>]bgi fUbW`fYei ]fYX`U[ U]bgh``]UV`]mZcf`Z]hYgg`Zcf`<br/>di fdcgY`f]ZUbm]g`fYei ]fYX`B #5`</p> <p>]bgi fUbW`fYei ]fYX`Zcf`]b↑fmhc`dYfgc'bg'UbX`<br/>XUa U[ Y`hc`dfcdYfm.'9G`" \$\$\$\$\$\$Q</p> <p>]bgi fUbW`fYei ]fYX`Zcf`]b↑fmhc`Ya d`cmYYg.'9G`<br/>) \$\$\$\$\$\$Q</p> |
| 5XX]hcbU`Ua ci bhhc`VY`<br>]bgi fYX`fUg`U`dYfWbhU[ Y`cZ<br>h\Y`fYd`UW`a Ybhj Ui Yz]Z<br>`Ygg'cf'a cfY`h\Ub`%) I`E`                                                              | %`"&'fV`      | B #5`                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| 7cbX]hcbg'                                                                                            | G V! 7`U gY' | 8UU'                                                                  |
|-------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------|
| @ghcZ9l Wdh]cbU`F]g_g`<br>k \]W`g\U`bchVY`Yl Wl XYX`<br>Zfca`h\Y`]bgj fUbW`Wtj Yf`Zcf`<br>h\Y`K cf_g` | % "&"f]j Ł   | B #5`                                                                 |
| 9l hYbhcZ]bgj fUbW`fYei ]fYX`<br>Zcf`; ccXg`                                                          | % "&"&`      | 5g]b`% "%UVcj Y`                                                      |
| 5a ci bhcz]bgj fUbW`<br>fYei ]fYX`Zcf`; ccXg`                                                         |              | 5g]b`% "%UVcj Y`                                                      |
| 5a ci bhcz]bgj fUbW`<br>fYei ]fYX`Zcf`"]UV"]]mZcf`<br>VfYUW`cZdfcZgg]cbU`Xi hm                        | % "&" fUŁ    | 5g]b`% "%UVcj Y`                                                      |
| hbgj fUbW`fYei ]fYX`U[ U]bgh`<br>"]UV"]]mZcf`Z]hbYgg`Zcf`<br>di fdcgY`                                | % "&" fVŁ    | B c`                                                                  |
| DYf]cX`cZ]bgj fUbW`fYei ]fYX`<br>Zcf`"]UV"]]mZcf`VfYUW`cZ<br>dfcZgg]cbU`Xi hm                         | % "&" `      | 5g]b`% "%UVcj Y`                                                      |
| 5a ci bhcz]bgj fUbW`<br>fYei ]fYX`Zcf`]b† fmihc`<br>dYfgcbg`UbX`XUa U[ Y`hc`<br>dfcdYfmi              | % "&"( `     | 5g]b`% "%UVcj Y`                                                      |
| CH\Yf`]bgj fUbW`g`fYei ]fYX`<br>Vm@k`g`UbX`Vm`cW`<br>dfUW`W`f[]j Y`XYHJ]gŁ                            | .            | B #5`                                                                 |
| H]a Y`Zcf`Uddc]bha YbhcZ<br>8556`                                                                     | &%%          | ( &XUng`UZhf`g][ buhi fY`VmVch`dUfh]Yg`cZh\Y`<br>7cbhfUW`5[ fYYa Ybhi |
| H\Y`8556`g\U`VY`<br>Wt`a df]gYX`cZ                                                                    | &%%          | H\fYY`A Ya VYfg`                                                      |

| 7cbX]hcbg'                                   | GI V! 7`Ui gY' | 8Uu'                                                                                                                    |
|----------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------|
| @gicZdfcdcgYX'a Ya VYfg'<br>cZ8556'          | &%%            | DfcdcgYX`Vm9a d`cmYf`<br>XcW/a YbhUbX`h\Y`7cbhfUMQ<br>%<br>&'<br>'<br>DfcdcgYX`Vm7cbhfUMcf`<br>7cbhfUMQ<br>%<br>&'<br>' |
| 5ddc]bha Ybhf]ZbchiU[ fYXŁ<br>hc`VY'a UXY`Vm | &%%            | 7\UfhYfYX`bgh]i hY`cZ5fV]fUhcfg?YbntU`7\UdhYf'                                                                          |
| Fi`YgicZUfV]fUhc]cb`                         | &%* fUŁ        | GI V! 7`Ui gY`&%* fUŁcZD5FH'6`Ā`GdYWZ]WDfcj ]g]cbg'<br>g\U`Udd`m'                                                       |
| .                                            | &%* fVŁ        | GI V! 7`Ui gY`&%* fVŁcZD5FH'6`Ā`GdYWZ]WDfcj ]g]cbg'<br>g\U`Udd`m'`                                                      |
| D`UW`cZUfV]fUhc]cb`                          | &%* fUŁ        | 5fi g\UŁHUb]U                                                                                                           |



HUV`Y. Gi a a UfmcZGYWjcbgfjZUbnt

|                                                                                                                                        |                                                                                   |                                                 |                                          |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------|
| 8YgWjdh]cb'cZdUfhgcZ`<br>hY`K cf_g'hUhg\U`VY`<br>XYg][ bUHYX`U'GYWjcb`<br>Zcf'hY`di fdcgYgcZH`Y`<br>7cbhfUM`<br>fGi V!7`Ui gY`%%'+` E` | J Ui Y. DYfWbhU[ Yf`cZ`<br>5WVdhYX`7cbhfUM`<br>5a ci bh`<br>fGi V!7`Ui gY`%(`"-E` | Hja Y`Zcf`7ca d`Yh]cb`<br>fGi V!7`Ui gY`%%, (E` | 8Y`Um8Ua U[ Yg`<br>fGi V!7`Ui gY`,`", E` |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |
| .                                                                                                                                      | .                                                                                 | .                                               | .                                        |

fH\Ygy`dyfWbhU[ Yg`g\U`Ugc`VY`Udd`JYX`hc`YUW`\U`ZcZH`Y`FYH`bh]cb`A`cbYmii`bXYf`Gi V!7`Ui gY`%(`"-`

DUFh6!`GdYVWZWDfcj ]g]cbg`

Gi V!7`Ui gY`%%`%\$`  
7cbhfUMi

ÅhY`7cbhfUMi`cfÅgDfcdcgU`Ä]g`XY`YhYX`"

Gi V!7`Ui gY`%%`(-`  
@uk`g`

H\Y`Gi V!7`Ui gY`]gfYd`UWX`k`]h\`"  
Å@uk`g`Ä`a`YUbg`hY`d`bUh]cbU`f`f`g`UHYE`Y[ ]g`Uh]cbž`g`Uhi`hYgž`  
cfX]bUbWg`UbX`ch\Yf`Uk`gž`UbX`fY[ i`Uh]cbg`UbX`Vmh`Uk`g`cZ`Ubm`  
Y[ U`mV`bgh]hi`hYX`di`V`]MUi`h`cf]m`Ä`

Gi V!7`Ui gY`%%`+(`  
G]hY`

H\Y`Gi V!7`Ui gY`]gfYd`UWX`k`]h\`"  
ÅG]hY`Ä`a`YUbg`hY`d`UWg`k`YfY`hY`DYfa`UbYbhK`cf\_g`UfY`hc`VY`  
YI`YW`hYXž`]bW`X]b[ `g`cfU[ Y`UbX`k`cf\_]b[ `UfYUž`UbX`hc`k`Y`W`  
D`Ubh`UbX`A`UHyf]Ug`UfY`hc`VY`XY`]j`YfYXž`UbX`Ubmch\Yf`d`UWg`  
gdYVWZ`YX`]b`hY`7cbhfUMi`Ug`Zcfa`]b[ `d`Ufhc`Z`hY`G]hY`Ä`

Gi V!7`Ui gY`%%`++`  
G`UHYa`Ybh`

Cb`hY`gYV`bX`]bY`UZhYf`Ä`DUha`Ybh`7Yfh]Z`W`hY`i`bXYf`Äž`UXX`  
ÅGi V!7`Ui gY``%`"&%`ØXj`UbW`DUha`Ybh` ; i`UfUbhYQ`f]Z`  
Udd`]W`W`Y`Äž`"

Gi V!7`Ui gY`%%`,`%`  
HYbXYf`

ÅhY`7cbhfUMi`cfÅgDfcdcgU`Ä]g`XY`YhYX`"

Gi V!7`Ui gY`%%`,`-`hc`%%`-`%`UfY`UXXYX`UZhYf`Gi V!7`Ui gY`%%`,` ,` ,`

Gi V!7`Ui gY`%%`,`-`6Ub`\_`

Å6Ub`\_`Ä`a`YUbg`hY`Z]bUbV]b[ `]bgh]hi`h]cb`f]Z`Ubm`bUa`YX`]b`hY`  
7cbhfUMi`8UH`"

Gi V!7`Ui gY`%%`,`-\$`  
6cffck`Yf`

Å6cffck`Yf`Ä`a`YUbg`hY`d`Yfgcb`f]Z`Ubm`bUa`YX`Ug`hY`Vcffck`Yf`  
]b`hY`7cbhfUMi`8UH`"

Gi V!7`Ui gY`%%`,`-%`  
9G`

Å9G`Ä`a`YUbg`9bj`]fcb`a`YbhU`UbX`GcV]U`f]bW`X]b[ `GYI`i`U`  
9l`d`c]hUh]cb`UbX`5ggui`h`fG95`Äž`"

Gi V! 7`Ui gY`%%- &  
GYI i U`9 d`c]hUjcb`UbX`  
5Vi gY`fG95kZUbX`GYI i U`  
<UfUgga YbhifG<E`

ÂGYI i U` 9 d`c]hUjcb` UbX` 5Vi gY`Â fG95kZ UbX` GYI i U`  
<UfUgga Ybhifk Gk`a YUb`hY`Zc`ck ]b[ .`

GYI i U`9 d`c]hUjcb` ]g`XYZ]bYX` Ug`UbmUW` U`cf`UthYa dhYX`  
Uvi gY`cZ dcdg]hcb`cZ j i `bYfUV`]hmx X]ZZYfYbh]U` dck Yf`cf`  
hfi gž Zcf`gYI i U` di fdcgYgž ]bW X]b[ ž Vi h bchi`ja ]hYX`hcž  
dfcZ]h]b[ `a cbYfUf]nžgcV]U`mcf`dc`]h]W`mZfca `hY`gYI i U`  
YI d`c]hUjcb`cZUbchYf`"

GYI i U` 5Vi gY` ]g` XYZ]bYX` Ug` hY` UW` U`cf` hYfUthbYX`  
d\ng]W` ]bhfi g]cb`cZU`gYI i U` bUhi fYžk \YhYf`VmiZcfW`cf`  
i bXYf`i bYei U`cf`VtYfVj Y`VtX]hcbg/UbX`"

ÂGYI i U` <UfUgga Ybh`Â fG<kZ` ]g` XYZ]bYX` Ug` i bk Y`Vt`a Y`  
gYI i U` UXj UbWgž fYei Yg`g` Zcf`gYI i U` Z]j cfgž UbX` chYf`  
j YfVU`cf` d\ng]W` VtX`i W` cZ U` gYI i U` bUhi fY` Vmi hY`  
7cbhfUWcf`g` DYfgcbbY` k ]h` chYf` 7cbhfUWcf`g` cf`  
9a d`cmYf`g`DYfgcbbY`"

Gi V! 7`Ui gY`%&  
bhYfdYfUjcb`

Gi V! dUfU[ fUd\`fUk]g`fYd`UWX`k ]h` hY`Zc`ck ]b[ .`

- ÂK`cfXg`]bX]W]h]b[ `cbY[ YbXYf`]bW X Y`U`[ YbXYfg/

Â\Y#g\Y`Â]g`fYd`UWX`k ]h`Â]h`

Â]a #AYf`Â]g`fYd`UWX`k ]h`Â]h`

Â]g`ÂUbX`Â]g`#AYf`UfY`fYd`UWX`k ]h`Â]hg`

Â]a gY`Z#AYfgY`Z`UfY`fYd`UWX`k ]h`Â]hgY`Z`Â

: i fhYfz`ÂUbX`Â]g`XY`YhYX`Zfca `hY`YbX`cZg` V! dUfU[ fUd\`f]k`UbX`  
UXXYX`Uh`hY`YbX`cZg` V! dUfU[ fUd\`f]k`"

gi V! dUfU[ fUd\`f]k]g`UXXYX`.

f]k` ÂhY` kcfX` ÂhYbXYf`Â` ]g` gntcbma ci`g` k ]h` Â]X`Â` cf`  
ÂdfcdcgU`Âž` hY` kcfX` hYbXYfYf` k ]h` Â]XXYf`Â` cf`  
ÂdfcdcgYf`Â` UbX` hY` kcfXg` ÂhYbXYf` XcW`a Ybhg`Â` k ]h`  
ÂfYei YghZcf`V]Xg`XcW`a Ybhg`Â`cf`ÂfYei YghZcf`dfcdcgU`  
XcW`a Ybhg`Âž`Ug`Udd`]WV`Y`Â`

Gi V! 7`Ui gY`%)`  
Df]cf]hmcZ8cW a Ybhg`

H\Y`Zc`ck]b[ `XcW a Ybhg`UfY`UXXYX`]b`h\Y`]gh cZ Df]cf]hmi  
8cW a Ybhg`UZHf`fYk`

ÅZ`h\Y`Dufh]W`Uf`7cbX]h]cbg`Dufh7!`fui X`UbX`7cffi dh]cb/

f[ E`h\Y`Dufh]W`Uf`7cbX]h]cbg`Dufh8!`%bj]fcb a YbhU`UbX`GcV]U`  
fPGL`A`Yhf]Vg`Zcf`Dfc[ fYgg`FYdcfhg`Å

`UbX`h\Y`]ghfYbi a VYfYX`UWk`fX]b[ `n`

Gi V! 7`Ui gY`%\*`  
7cbhfUMk5[ fYYa Ybh`

H\Y`UghdUfU[ fUd\`]g`fYd`UWX`k`]h\`

ÅZ`h\Y`7cbhfUMkcf`Vka df]gYg`U`>Z`h\Y`Ui`h`cf]gYX`  
fydfYgybhU]j`Y`cZ`h`Y`>`g`U`g][`b`h\Y`7cbhfUMk5[ fYYa Ybh]b`  
UWk`fX`UbW`k`]h`g`V`ÅW`Ui`gYg`%`%`f]c]bhUbX`GYj`YfU`@]UV`]h`Å

Gi V! 7`Ui gY`%&`  
7cbZXYbh]U]hmi

H\Y`Zc`ck]b[ `]g`UXXYX`Uh`h\Y`YbX`cZ`h\Y`gYVkbX`dUfU[ fUd\`  
Å`h\Y`7cbhfUMkcf`g`U`VY`dYfa`]hYX`hc`X]gVkcgy`]bZcfa`Uh]cb`  
fYei`]fYX`hc`YghUV`]g`]hg`ei`U`]ZV]h]cbg`hc`Vka`dYhY`Zcf`ch\Yf`  
dfc`YV]g`Å

ÅcfÅ`Uh`h\Y`YbX`cZ`fV]g`XY`YhYX`"

ÅcfÅ`Uh`h\Y`YbX`cZ`fV]g`UXXYX`"

H\Y`Zc`ck]b[ `]g`h`Yb`UXXYX`Ug`fXk`Å]g`VY]b[ `dfcj`]XYX`hc`h\Y`  
6Ub\_`"Å

Gi V! 7`Ui gY`%+`  
b]gdYV]cbg/`5i X]hVmi`h\Y`  
6Ub\_`

H\Y`Zc`ck]b[ `Gi V! 7`Ui gY`]g`UXXYX`UZHf`Gi V! 7`Ui gY`%+`

ÅDi`fgi`Ubhihc`dUfU[ fUd\`&`&`Y`"cZ`Dufh]W`Uf`7cbX]h]cbg!`Dufh7!`  
:`fui X`UbX`7cffi`dh]cbZ`h\Y`7cbhfUMkcf`g`U`dYfa`]h`UbX`g`U`  
V]i`gY`]hg`U[`Ybhg`f]k`\YfY`XYWUfYX`cf`bchZ`gi`VVkbhfUMkcf`gZ`  
gi`VVkbgi`h`UbhgZ`gYfj`]W`dfcj`]XYf`gZ`g`dd`]Yf`gZ`UbX`dYfgcbbY`Zhc`  
dYfa`]hZ`h\Y`6Ub\_`UbX`#cf`dYfgc`bg`Uddc]bhYX`Vmi`h\Y`6Ub\_`hc`  
]bgdYV]i`h\Y`g]hY`UbX`#cf`h\Y`UWk`i`bhgZ`fYVkfXg`UbX`ch\Yf`  
XcW a Ybhg`fY`Uh]b[ `hc`h\Y`dfcW`fYa`Ybh`dfcW`ggZ`gY`YV]cb`  
UbX`#cf`VkbhfUMkYi`YV]h]cbZ`UbX`hc`\Uj`Y`gi`V`UWk`i`bhgZ`fYVkfXg`  
UbX`ch\Yf`XcW a Ybhg`Ui`X]hYX`Vmi`Ui`X]hcf`g`Uddc]bhYX`Vmi`h\Y`  
6Ub\_`"h\Y`7cbhfUMkcf`Å]g`UbX`]hg`Gi`VVkbhfUMkcf`gÅ`UbX`  
gi`VVkbgi`h`UbhgÅ`UhYbh]cb`]g`Xfuk`b`hc`Gi V! 7`Ui gY`%`",`fi`fui X`  
UbX`7cffi`dh]cbk`k`\]W`dfcj`]XYgZ`]bhYf`U`]UZH`Uh`UW]g`]bhYbXYX`  
hc`a`UhYf]U`m]a`dYXY`h\Y`Yi`YfV]gY`cZ`h\Y`6Ub\_`Å]bgdYV]cb`UbX`  
Ui`X]h]f][`\hg`Vkbgh]h`hY`U`dfc\]V]hYX`dfUM]W`gi`V`YV]hc`VkbhfUMk`  
hYfa`]bUh]cb`fUg`k`Y`Ug`hc`U`XYhYfa`]bUh]cb`cZ`]bY][`]V`]hmi  
di`fgi`Ubhihc`h\Y`6Ub\_`Å]dfYj`U]b[ `gubV]cbg`dfcW`Xi`fYgZ`Å

H\Y`ZfghdUfU[ fUd\`]g`fYd`UWX`k`]h\`

Gi V! 7`Ui gY`&`(`

9a d`cmYfġ: ]bUbVU`  
5ffUb[ Ya Ybhg`

ĀĤY`9a d`cmYfġU`g Va ]hVYZcfY`ĤY`7ca a YbWVa Ybh8UHYž  
fYUgcbUV`Yj ]XYbW`ĤUhi Z]bUbVU`UffUb[ Ya Ybhg`Uj Y`VYYb`  
a UXY`Zcf Z]bUbVb[ `ĤY`9a d`cmYfġcV][ U]cbg i bXYf`ĤY`  
7cbhfUMĀ

ĤY`Zc`ck ]b[ `g V!dUFU[ fUd\ `]g UXXYX`Uhi ĤY`YbX`cZ Gi V!  
7`Ui gY`&(`.  
Āb`UXX]hcbž]ZĤY`6Ub\_`Ug`bch]ZYX`ĤĤY`6cffck Yf`ĤUhiĤY`  
6Ub\_`Ug`g gdYbXYX`X]gVi fgYa Ybhg`i bXYf`]hg`cUbž k \]W`  
Z]bUbWg ]b`k \c`Y`cf ]b`dUfhĤY`YI YW]hcb`cZĤY`K cf\_gžĤY`  
9a d`cmYf`gU` [ ]j Y`bch]W`cZ`g W`g gdYbg]cb`ĤĤY`  
7cbhfUMcfk ]Ĥ`XYH]YX`dUfh]W`Ufgž]bWi X]b[ `ĤY`XUH`cZgi W`  
bch]Z]W]hcbžk ]Ĥ`U`VēdmĤĤY`9b[ ]bYYfžk ]Ĥ]b`+ XUng`cZĤY`  
6cffck Yf`Uj ]b[ `fYW]j YX`ĤY`g gdYbg]cb`bch]Z]W]hcb`Zca`ĤY`  
6Ub\_`Z UHYfbU]j Y`Z bXg`k ]`VY`Uj U]UV`Y` ]b`Uddfcdf]UH`  
WffYbVYg`ĤĤY`9a d`cmYf`ĤVēb]bi Y`a U\_]b[ `dUna`Ybhg`ĤĤY`  
7cbhfUMcfVYncbX`U`XUH`\*`\$`XUng`UZHf`ĤY`XUH`cZ6Ub\_  
bch]Z]W]hcb`cZ`ĤY`g gdYbg]cbž ĤY`9a d`cmYf`gU`dfcj ]XY`  
fYUgcbUV`Yj ]XYbW` ]b`]hg`bch]W`cZĤY`YI HbĤĤĤ`k \]W`g W`  
Z bXg`k ]`VY`Uj U]UV`Y`Ā

Gi V!7`Ui gY`&`  
9a d`cmYf!Gi dd`JYX`  
A UHYf]UgUbX`9a d`cmYfġ  
9ei ]da Ybh

GZ`9a d`cmYf!`Gi dd`JYX`A UHYf]Ug`UFY`]ghYX` ]b`ĤY`9a d`cmYfġ  
FYeI ]fYa Ybhg`Zcf`ĤY`7cbhfUMcfġi gY` ]b`ĤY`YI YW]hcb`cZ  
K cf\_gžĤY`Zc`ck ]b[ `dfcj ]g]cbg`a UmVY`UXXYXQ`

ĤY`Zc`ck ]b[ `]g UXXYX`UZHf`ĤY`Ugh`dUFU[ fUd\`cZGi V!7`Ui gY`  
&`\*`.

ĀĤY`9a d`cmYf`gU`g dd`mĤĤY`7cbhfUMcf`ĤY`9a d`cmYf!  
Gi dd`JYX`A UHYf]Ug`]ghYX` ]b`ĤY`GdYV]Z]W]hcbž Uhi ĤY`Ĥja YfĤ  
ghYX` ]b`ĤY`GdYV]Z]W]hcb`f]ZbchghYXžk ]Ĥ]b`ĤY`Ĥja Yg`ĤUhi  
gU`VY`fYeI ]fYX`ĤĤY`bUV`Y`ĤY`7cbhfUMcf`ĤdfcWYX`k ]Ĥ`  
YI YW]hcb`cZĤY`K cf\_g]b`UMēfXUbW`k ]Ĥ`ĤY`Dfc[ fUa`a Yē`

K`Yb`a UXY`Uj U]UV`Y`VmĤY`9a d`cmYfžĤY`7cbhfUMcf`gU`  
j ]g U`m ]bgdYVĤĤY`9a d`cmYf!Gi dd`JYX`A UHYf]Ug`UbX`gU`  
dfca dhm[ ]j Y`UBch]W`ĤĤY`9b[ ]bYYf`cZUbmg`cfU[ YžXYZVĤ  
cf`XYZUi`h]b`ĤYa`"ĤY`fYUZHfžĤY`7cbhfUMcf`gU`fYV]Zmg`W`  
g`cfU[ YžXYZVĤcf`XYZUi`h`ĤĤY`YI HbĤ ]bgfi VĤX`VmĤY`  
9b[ ]bYYf`Gi W` ]bgfi V]cb`gU`VY`XYYa YX`ĤUj Y`VYYb[ ]j Yb`  
i bXYf`Gi V!7`Ui gY`%` "%Q`Uf]U]hcb`Vm`bgfi V]cbQ`

5ZHf`Ĥ]g j ]g U` ]bgdYV]hcbžĤY`9a d`cmYf!Gi dd`JYX`A UHYf]Ug`  
gU`Vēa`Y`i bXYf`ĤY`WfYž`WgĤXm`UbX`Vēbfc`cZ`ĤY`  
7cbhfUMcf`ĤY`7cbhfUMcfġcV][ U]cbg`cZ ]bgdYV]hcbž`WfYž  
WgĤXm`UbX`Vēbfc`gU`bchfY`Yj Y`ĤY`9a d`cmYf`cZ`]UV`]Im

cZUbmig\cfHU[ YžXYZVMicf'XYZUi`h'bhciUddUFYbhiZfca`Uj`Jgi`U`  
]bgdYVW]cb"Ä`

OZ9a`d`cmYfÄg`9ei`Jda`YbhUFY`"JghYX`Jb`h`Y`GdYVW]W]h]cb`Zcf`h`Y`  
7cbhfUMcfÄg`i`gY`Jb`h`Y`YI`YW`h]cb`cZ`K`cf\_g`h`Y`Zc`ck`Jb[`  
dfcj`Jg]cbg'a`UmVY`UXXYXQ`

H`Y`Zc`ck`Jb[`Jg`UXXYX`UZhYf`h`Y`UghidUFU[`fUd\`cZGi`V!`7`Ui`gY`  
&"\*`.

Ä`H`Y`9a`d`cmYf`g`U`"a`U\_Y`h`Y`9a`d`cmYfÄg`9ei`Jda`Ybh`JghYX`Jb`  
h`Y`GdYVW]W]h]cb`Uj`Uj`UV`Y`hc`h`Y`7cbhfUMcf`Uh`h`Y`h]a`Yfg`  
ghUHYX`Jb`h`Y`GdYVW]W]h]cb`fJZbchig`UHYXZk`Jh`Jb`h`Y`h]a`Yg`h`Uh`  
g`U`"VY`fYei`JfYX`hc`YbUV`Y`h`Y`7cbhfUMcf`hc`dfcWYX`k`Jh`  
YI`YW`h]cb`cZ`h`Y`K`cf\_g`Jb`UW`efXUbW`k`Jh`h`Y`Dfc[`fUa`a`Yl`

I`b`Ygg`YI`dfYggim`ghUHYX`c`h`Yfk`JgY`Jb`h`Y`GdYVW]W]h]cbZ`h`Y`  
9a`d`cmYfÄg`9ei`Jda`Ybhg`U`"VY`dfcj`JXYX`Zcf`h`Y`YI`W`gj`Y`i`gY`  
cZ`h`Y`7cbhfUMcf`"

K`\Yb`a`UXY`Uj`Uj`UV`Y`Vm`h`Y`9a`d`cmYfZ`h`Y`7cbhfUMcf`g`U`"`  
j`Jgi`U`m]bgdYVW]h`Y`9a`d`cmYfÄg`9ei`Jda`YbhUbX`g`U`"dfca`dhim`  
[`J`Y`UB`ch]W`hc`h`Y`9b[`JbYYf`cZUbmig\cfHU[ YžXYZVMicf'XYZUi`h`  
Jb`h`Ya`"H`YfYUZhYfZ`h`Y`7cbhfUMcf`g`U`"fYV]Znig`W`g`U`cfHU[ Yž  
XYZVMicf'XYZUi`h`hc`h`Y`YI`hYbh]bgfi`VW`X`Vm`h`Y`9b[`JbYYf`Gi`W`  
Jbgfi`W]cb`g`U`"VY`XYYa`YX`hc`\Uj`Y`VYYb`[`J`Yb`i`bXYf`Gi`V!`  
7`Ui`gY`%`"``%O`Uf]U]h]cb`Vm`bgfi`W]cbQ`

H`Y`7cbhfUMcf`g`U`"VY`fYgdcbg]V`Y`Zcf`h`Y`9a`d`cmYfÄg`  
9ei`Jda`Ybh`k`\`Y`Jh`Jgi`bXYf`h`Y`7cbhfUMcfÄg`V`bhf`c`UbX`#cf`  
UbmicZ`h`Y`7cbhfUMcfÄg`DYfgcbbY`Jg`cdYfU]b[`Jh`Xf]J`Jb[`Jh`  
X]fYV]b[`Jh`i`g]b[`Jh`cf`Jb`V`bhf`c`cZ`Jh`

H`Y`7cbhfUMcf`g`U`"bchfYa`cj`Y`Zfca`h`Y`G]hY`Ubm]hYa`g`cZ`h`Y`  
9a`d`cmYfÄg`9ei`Jda`Ybh`k`Jh`ci`h`h`Y`V`bgYbhcZ`h`Y`9a`d`cmYf`"  
<ck`Yj`YfZ`V`bgYbhi`g`U`"bchi`VY`fYei`JfYX`Zcf`j`Y\]W]g`  
hfUbgdcfh]b[`;`ccXg`cf`7cbhfUMcfÄg`dYfgcbbY`hc`cf`Zfca`h`Y`  
G]hY`Ä`

Gi`V!`7`Ui`gY`"``%`  
H`Y`9b[`JbYYf`

H`Y`Zc`ck`Jb[`Jg`UXXYX`Uh`h`Y`YbX`cZ`h`Y`Z]fghg`V!`dUFU[`fUd\`"  
Ä`H`Y`9b[`JbYYfÄg`ghUZZ`g`U`"JbW`XY`g`JhUV`mei`U`JZYX`Yb[`JbYYfg`  
UbX`ch`Yf`dfcZYgg]cbU`g`k`\`c`UFY`V`a`dYhYbh`hc`W]ffmci`h`h`YgY`  
Xi`hYg`Ä`

Gi V!7`Ui gY" "&  
9b[ ]bYYf`g8i hYg`UbX`  
5i hcf]hmi

HAY`9b[ ]bYYf`g\U``cVhU]b`hAY`VebgYbhi ]b`k f]h]b[ `cZ hAY`  
9a d`cnYf`VYZcfY`hU\_]b[ `UW]cb`i bXYf`hAY`Zc`ck ]b[ `Gi V!  
7`Ui gYgcZHAYgY`7cbX]h]cbg`

% Gi V!7`Ui gY`% "%F][`h]h`j Ufmi!`]bgrfi W]b[ `U`j Uf]U]cbZ  
YI WdhY`

- ]b` Ub` Ya Yf[ YbVh  
g]h U]cb` Ug`XYHYfa ]bYX`  
VmihAY`9b[ ]bYYf`cf`
- f]Z`gi W` U` J Uf]U]cb`  
k ci`X` ]bWYUgY` hAY`  
5WVdhYX` 7cbfUW  
5a ci bhVm`Ygg`hUb`hAY`  
dYfWbHU[ Y`gdYV]ZYX` ]b`  
hAY`7cbfUW8UH`

&" Gi V!7`Ui gY`% "&f]Ui Y`9b[ ]bYYf]b[ E`gU]b[ `VebgYbhc`f`  
chAYfk ]gY`h`U`j U`i Y`Yb[ ]bYYf]b[ `dfcdcgU`gi Va`]hYX`Vm  
hAY`7cbfUWcf`]b`UWefXUbW`k ]h`Gi V!7`Ui gY`% "&"

Bck ]h]g`UbX]b[ `hAY`cV][`U]cbZ Ug`gYh`ci h`Uvcj YZ`h`c`cVhU]b`  
VebgYbhi ]b`k f]h]b[ Z` ]Z` ]b` hAY`cd]b]cb`cZ hAY`9b[ ]bYYfZ`Ub`  
Ya Yf[ YbVh`cWVfg`UZZYV]b[ `hAY`gUZYhmcZ`]ZY`cf`cZHAY`K`cf`g`  
cf`cZ`UX`c]b]b[ `dfcdYfmZ` ]h`a`UnZ`k ]h`ci`h`fY`Y] ]b[ `hAY`  
7cbfUWcf`cZ`UbmcZ`\]g`Xi`hYg`UbX`fYgdcbg]V`]hmi bXYf`hAY`  
7cbfUWZ`]bgrfi W]hAY`7cbfUWcf`h`YI`YW`hY`U`g`W`k`cf`cf`h`  
Xc`U`g`W`h`b[ g`Ug`a`UnZ`]b`hAY`cd]b]cb`cZ hAY`9b[ ]bYYfZ`VY`  
bYWggUfmi`h`UVU`hY`cf`fYXi`W`hAY`f]g`" hAY`7cbfUWcf`g\U``  
Zcfh`k ]h`V`a`d`nZ`XYgd]hY`hAY`UVgYbW`cZ`VebgYbhi`cZ`hAY`  
9a d`cnYfZ`k ]h`Ubmi`gi`W` ]bgrfi W]cb`cZ hAY`9b[ ]bYYf`" hAY`  
9b[ ]bYYf`g\U``XYHYfa ]bY`Ub`UXX]h]cb`h`hAY`7cbfUW]Df]WZ`]b`  
fYgdYVh`cZ`gi`W` ]bgrfi W]cbZ`UbX`9CH`]Z`UbNZ`]b`UWefXUbW`k ]h`  
7`Ui gY`% `UbX`g\U``bc]Z`hAY`7cbfUWcf`UWefX]b[ `nZ`k ]h`U`  
V`dmih`hAY`9a d`cnYf`"

Gi V!7`Ui gY" " .  
9b[ ]bYYf`gFYdfYgYbHU]j Y`

HAY`Zc`ck ]b[ ]g`UXXYX`Uh`hAY`YbX`cZ`Gi V!7`Ui gY" " .

A`hAY`9b[ ]bYYf`g\U``cVhU]b`hAY`VebgYbhcZHAY`9a d`cnYf`VYZcfY`  
Uddc]b]b[ `cf`fYd`U]b[ `Ub`9b[ ]bYYf`gFYdfYgYbHU]j Y`A`

Gi V! 7`Ui gY" "(  
8Y`Y[ Uh]cb VmH`Y`9b[ ]bYYf`

H`Y`Zc`ck ]b[ ]g]UXXYX`UhH`Y`YbX`cZH`Y`gYV`bX`dUFU[ fUd\`.

ÄZ`UbmUgg]g`Ubhg`UFY`bchZi`Ybh]b`h`g`Ub[ i`U[ YžH`Y`9b[ ]bYYf`  
g`U`a`U`Y`V`a`dYH`bh]bH`Y`dFYH`fgUj`U]UV`Y`Xi`f]b[ `U`k`cf\_]b[ `  
`ci`fgž]b`U`bi`a`VYf`g] Z]WY`bh`Zcf`h`c`gY`Ugg]g`Ubhg`h`c`dfcdYf`m`  
dYfZ`fa`h`Y]f`Ugg][`bYX`Xi`h]Yg`UbX`#cf`Yi`YfV]gY`h`Y]f`XY`Y[`UH`YX`  
Ui`h`cf]m`Ä`

Gi V! 7`Ui gY" ""  
FYd`UW`a`YbhcZH`Y`  
9b[ ]bYYf`

÷`h`Y`Z]fghdUFU[ fUd\`žÄ`(&`XUhg`Ä`g`fYd`UW`X`k`]h`. `Ä`%`XUhg`Ä`  
÷`h`Y`h`]fX`dUFUž`Ä`g`U`Ä`g]fYd`UW`X`k`]h`. `Ä`g\`ci`X`Ä`

Gi V! 7`Ui gY" (%  
7cbHfUM`cf`Ä`g;`YbYfU`  
CV][ Uh]cbg`

H`Y`Zc`ck ]b[ ]g]bgYfH`YX`UZH`Yf`h`Y`dUFU[ fUd\`Ä`H`Y`7cbHfUM`cf`  
g`U`d`fcj`]XY`h`Y`D`UbH`fUbX`gdUFY`dUfhgž]Z`Ubnt`°`Ä`

Ä5`Yei`]da`Ybhž`a`UH`Yf]Už`UbX`gYfj`]W`g`h`c`VY`]bV`fdcfUH`YX`]b`  
cf`fYei`]fYX`Zcf`h`Y`K`cf`\_`g`g`U`U`Y`h`Y]f`cf][`]b`]b`Ubm`Y][`]V`Y`  
gci`fW`V`i`bfmUg`XYZ]bYX`VmH`Y`6Ub`\_`Ä`

H`Y`Zc`ck ]b[ ]g]bgYfH`YX`UZH`Yf`h`Y`dUFU[ fUd\`Ä`H`Y`7cbHfUM`cf`  
g`U`ž`k`YbYj`Yf`fYei`]fYX`VmH`Y`9b[ ]bYYf`Ä`

H`Y`7cbHfUM`cf`g`U`bch`Wffmci`h`a`cV][`nUh]cb`h`c`G]H`Y`fY"[`"  
`ja`]H`YX`W`UfUbW`Zcf`\`Ui`fcUX`gž`g]H`Y`UW`YggYg`UbX`k`cf`\_`g]H`Y`  
Yg`U`V`]g`a`Ybhž`[`Ych`V`b]W`]b]Ygh][`Uh]cbg`cf`]b]Ygh][`Uh]cbg`  
h`c`gY`YV`U`bV`UfmZY`U`h`fYg`g]V`Ug`ei`Uff]Yg`UbX`V`cf`ck`d]hgž`  
i`b`Ygg`h`Y`9b[ ]bYYf`[`]Yg`V`bgYbhž`U`V`bgYbh`h`Uh`g`U`bch`VY`  
i`bfYUg`cbU`mXY`UmYX`ž`h`Uh`Udd`fcd`f]UH`Y`a`YUg`fYg`UFY`]b`d`UW`  
h`c`UX`fYgg`Ybj`]fcb`a`YbhU`UbX`gc`V]U`f]g`\_`g`UbX`]a`d`UW`gž`k`\`]W`  
Uh`U`a`]b]a`i`a`g`U`]bW`XY`Udd`m]b[`H`Y`A`UbU[`Ya`Ybh`  
G`fUH`Y[`]Yg`UbX`a`d`Ya`YbhUh]cb`D`Ub`g`fA`G`Dg`UbX`7`cXY`cZ`  
7`cbXi`V`h`Zcf`7`cbHfUM`cf`Ä`g`DYf`g`cb`bY`g]Va`]H`YX`Ug`dUfh`cZH`Y`  
6]X`UbX`U[`fY`YX`Ug`dUfh`cZH`Y`7`cbHfUM`

H`Y`7cbHfUM`cf`g`U`g]Va`]hž`h`h`Y`9b[ ]bYYf`Zcf`FYj`]Yk`Ubm`  
UX`X]h]cbU`A`G`Dg`Ug`UFY`bY`W`ggUfm`h`a`UbU[`Y`h`Y`9G`f]g`\_`g`UbX`  
]a`d`UW`g`cZ`cb[`c]b[`K`cf`\_`g`fY"[`"Yi`W]Uh]cbž`YUf`h`k`cf`\_`gž`  
Vf]X[`Y`UbX`ghfi`V`fY`k`cf`\_`gž`ghfYUa`UbX`fcUX`X]Yf`g]cbgž`  
ei`Uffm]b[`cf`Yi`fUM]cb`cZ`a`UH`Yf]Ugž`V`bV`Y`h`V`U`h`X]b[`UbX`  
Ugd\`U`h`a`Ubi`Z`U`fY`Ä`H`YgY`A`G`Dg`V`Y`V`Y]Y`m`V`a`df]gY`h`Y`  
7`cbHfUM`cf`Ä`g]b]fcb`a`YbhU`UbX`Gc`V]U`A`UbU[`Ya`Ybh`D`Ub`f!`  
9GA`DE`H`Y`7`cbHfUM`cf`g`U`fYj`]Yk`h`Y`7!`9GA`Dž`dYf]cX]W`m`  
fVi`h`bch`Ygg`h`Ub`Yj`Yfm]g][`f`Ä`a`cb`h`gž`UbX`i`dXUH`Y`]h`Ug`  
fYei`]fYX`h`c`Ybg`fY`h`Uh]h`V`b`hU]bg`a`YUg`fYg`Udd`fcd`f]UH`Y`h`c`  
h`Y`K`cf`\_`g`H`Y`i`dXUH`YX`7!`9GA`D`g`U`VY`g]Va`]H`YX`h`c`h`Y`  
9b[ ]bYYf`Zcf`FYj`]Yk`



H\Y'7!9GA D'g\U'`VY'dUfhcZH\Y'7cbhfUMfcf'g'8cW'a Ybhg'"H\Y'  
dfcWXi fYgZcfFYj ]Yk`cZH\Y'7!9GA D'UbX`]hg'i dXUHYg'g\U'`VY'  
Ug'XYgW]VYX`]b'Gi V!7'Ui gY'('("%ØFYdUfU]cb`UbX`FYj ]Yk`Ø`

H\Y'Zc`ck ]b[ `]g'UXXYX`Ug`f]`Ł/f]`Ł'UbX`f\Ł'cZH\Y'Gi V!7'Ui gY'  
UFY'h\Yb`fYbi a VYfYX`Ug`f\Ł'UbX`f]`Ł'fYgdYV]j`Y'm`

f]`Ł]Zgc`g'UHYX`]b`h\Y`GdYV]j`V]h]cbžh\Y'7cbhfUMfcf'g\U'`.

XYg][`b`g'fi V]i fU`Y`Ya Ybhg`cZH\Y`K cf\_g`fU\_]b[ `]bhc`UW]i bh  
V]a UH`V\Ub[ `Y`V]bg]XYfU]cbg/`

Udd`mi h\Y` V]bWdh`cZ`i b]j`YfgU` UWW`gg`f\h\Y` V]bWdh`cZ`  
i b]j`YfgU` UWW`gg`a YUbg`i b]a dYXYX`UWW`gg`Zcf`dYcd`Y`cZ`U`  
U[ `Yg`UbX`UV`]h]Yg`]b`X]ZZfYbh`g]h`U]cbg`UbX`i bXYf`j`U]ci`g`  
V]fV'a`g`U]bWg/`

V]bg]XYf`h\Y` ]bW]Ya YbU` f]g\_g`cZ`h\Y` di V`]V]j`dchYbh]U`  
Yl dcg`fY`hc`cdYfU]cbU` UW]XYbhg`cf`bU] fU` \U]fXgž`  
]bW`X]b[ `Yl`fYa`Y`k`YU`Yf`Yj`Ybhg`UbX`

`Ubmch\Yf`fYei`]fYa`Ybhg`UHYX`]b`h\Y`GdYV]j`V]h]cb`Ä`

H\Y'Zc`ck ]b[ `]g'UXXYX`U]h\Y`YbX`cZH\Y'Gi V!7'Ui gY`.

ÄH\Y`7cbhfUMfcf`g\U`dfcj`]XY`fY`Yj`Ub]i V]bhfUMi`fY`UHYX`  
]bZcfa U]cbž`Ug`h\Y`9a d`cnYf`UbX`#cf`9b[ ]bYYf`a Um  
fYUgcbUV`m`fYei`Ygh`hc`V]bXi V]i GHU\_Y\c`XYf`Yb[ U[ `Ya`Ybhg`  
ÄGHU\_Y\c`XYfÄfYZYfg`hc`]bX]j`]Xi`Ug`cf[ `fci`dgk`c.`

- UfY`UZZYV]X`cf`\_Y`mhc`VY`UZZYV]X`Vmh\Y'7cbhfUMW`  
UbX`
- a`Um\Uj`Y`UV`]bhYfYgh`]b`h\Y'7cbhfUMi`

H\Y'7cbhfUMfcf`a`UmUgc`X]fYV]midUfh]V]dUHY`]b`GHU\_Y\c`XYf`  
Yb[ U[ `Ya`Ybhgž`Ug`h\Y`9a d`cnYf`UbX`#cf`9b[ ]bYYf`a`Um  
fYUgcbUV`m`fYei`Ygh`Ä`

Gi V! 7`Ui gY' ("&  
DYfZcfa UbW`GYWf]mUbX`  
9G`DYfZcfa UbW`GYWf]m`

H`Y`ZfghdUfU[ fUd\`]g`fYd`UWX`k`jH`.

ÅH`Y`7cbhfUMtcf`g`U`cVhU]b`flu`]hg`Vtgh`U`DYfZcfa UbW`  
GYWf]m`Zcf`dfcdYf`dYfZcfa UbW`UbX`jZ`Udd`jWV`Y`Z`Ub`  
9bj`jfcba`YbhU`UbX`GcV]U`fðG`DYfZcfa UbW`GYWf]m`Zcf`  
Vtad`jUbW`k`jH`H`Y`7cbhfUMtcf`9G`cV][`Uh]cbg`j`H`Y`  
Ua`ci`bhg`ghYX`j`b`H`Y`7cbhfUMtcf`8UH`UbX`XYbca`j`b`H`Y`  
WffYbWf]Yg`cZ`H`Y`7cbhfUMtcf`j`U`ZY`mVt`bj`Yfh`V`Y`WffYbWf`  
UW`dhU`Y`hc`H`Y`9a`d`cnYf`Z`Ua`ci`bhg`Uf`bch`ghYX`j`b`H`Y`  
7cbhfUMtcf`8UH`Z`H`j`Gi V! 7`Ui gY`g`U`bchUdd`m`Å`

Æ`H`Y`Zc`ck`j`b`[`Gi V! 7`Ui gY`g`cZ`H`Y`YbYfU`7cbX`h]cbg`H`Y`  
HYfa`ÅDYfZcfa UbW`GYWf]m`Å`j`g`fYd`UWX`k`jH`ÅDYfZcfa UbW`  
GYWf]mUbX`jZ`Udd`jWV`Y`Z`Ub`9bj`jfcba`YbhU`UbX`GcV]U`fðG`  
DYfZcfa UbW`GYWf]m`Å`

&`%`F][`h`cZ5W`gg`hc`H`Y`G]hY`/`

%`(`&`5Xj`UbW`Duna`Ybh`

%`(`\*`!`egj`Y`cZ`D7`/`

%`(`%&`8]g`W`Uf`[`Y`/`

%`(`%`!`egj`Y`cZ`D7`/`

%`(`%`7Ygg`h]cb`cZ`9a`d`cnYf`Å`@]Uv`]m`

%`(`&`HYfa`j`b`h]cb`Zcf`7cbhfUMtcf`Å`8YZU`h`

%`(`)!`HYfa`j`b`h]cb`Zcf`9a`d`cnYf`Å`7cbj`Yb]YbW`"

Gi V! 7`Ui gY' ("&`%  
7cbhfUMtcf`Å`  
cV][`Uh]cbg`

H`Y`ZfghdUfU[ fUd\`]g`fYd`UWX`k`jH`.

ÅH`Y`7cbhfUMtcf`g`U`XY`j`Yf`H`Y`DYfZcfa UbW`GYWf]mUbX`jZ`  
Udd`jWV`Y`Z`Ub`9G`DYfZcfa UbW`GYWf]m`hc`H`Y`9a`d`cnYf`k`jH`j`b`  
&`XUhg`U`Z`Yf`fYW`j`j`b`[`H`Y`@H`Yf`cZ5W`d`UbW`UbX`g`U`gYbX`  
U`Vt`dm`hc`H`Y`9b`[`j`b`YYf`H`Y`DYfZcfa UbW`GYWf]m`g`U`VY`  
]ggj`YX`VmU`fYdi`H`U`Y`V`Ub`\_`cf`Z`b`Ub`V]U`j`b`gh]i`h]cb`gY`Y`W`X`Vm`  
H`Y`7cbhfUMtcf`UbX`g`U`VY`j`b`H`Y`Zcfa`UbbYI`YX`hc`H`Y`  
DUfh]W`Uf`7cbX`h]cbg`Ug`gh]di`UH`YX`Vm`H`Y`9a`d`cnYf`j`b`H`Y`  
7cbhfUMtcf`8UH`Zcf`j`b`Ubch`Yf`Zcfa`Uddfcj`YX`Vm`H`Y`9a`d`cnYf`  
H`Y`9G`DYfZcfa UbW`GYWf]m`g`U`VY`]ggj`YX`VmU`fYdi`H`U`Y`  
V`Ub`\_`gY`Y`W`X`Vm`H`Y`7cbhfUMtcf`UbX`g`U`VY`j`b`H`Y`Zcfa`  
UbbYI`YX`hc`H`Y`DUfh]W`Uf`7cbX`h]cbg`Ug`gh]di`UH`YX`Vm`H`Y`

9a d`cnYf`jb`h.Y`7cbhfUMf8UHJcf`jb`Ubch.Yf`Zcfa`Uddfcj`YX`  
Vmih.Y`9a d`cnYf`A`

H.YfYUZHfzhfci`[\ci`hGi`V!`7`Ui`gY`(" &`ADYfZcfa`UbW`GYWf]m`A`  
]g`fYd`UMX`k`]h.`ADYfZcfa`UbW`GYWf]mUbXz`JZ`Udd`jWV`Yz`9G`  
DYfZcfa`UbW`GYWf]m`A`

Gi`V!`7`Ui`gY`("&`  
7`UJa`gi`bXYf`h.Y`  
DYfZcfa`UbW`GYWf]m`  
H.Y`Z]fgh`dUFU[`fUd`\\`]g`fYd`UMX``jb`]hg`Ybh]fYm`k`]h.`A`H.Y`  
9a d`cnYf`g`U`\\`bch`a`U\_Y`U`WUJa``i`bXYf`h.Y`DYfZcfa`UbW`  
GYWf]m`ZY`WdhZcf`Ua`ci`bhgZcf`k`\\W`h.Y`9a d`cnYf`]g`Ybh]h`YX`  
i`bXYf`h.Y`7cbhfUM`A`

Gi`V!`7`Ui`gY`("&`  
FYh`fb`cZDYfZcfa`UbW`  
GYWf]m`  
b`gi`V!`dUFU[`fUd`\\`fU`A`%`XUng`A`]g`fYd`UMX`k`]h.`A`&`,`XUng`A`"

Gi`V!`7`Ui`gY`("`  
7cbhfUMcf`A`  
FYdfYgYbU`h`j`Y`  
H.Y`Zc`ck`jb[`]g`UXXYX`Uh`h.Y`YbX`cZ`h.Y`Ugh`dUFU[`fUd`\\`.A`Z`Ubm`  
cZ`h.Y`gY`dYfgcbg`]g`bchZi`Ybh]b`h`]g`Ub[`]i`U[`Yz`h.Y`7cbhfUMcf`  
g`U`\\`a`U\_Y`W`a`dYhYbh]b`hYfdYhYfg`Uj`Uj`UV`Y`Xi`f]b[`]U`k`cf\_]b[`]`  
\\ci`fg]b`U`bi`a`VYf`XYa`YX`g`Z]W`YbhVmih.Y`9b[`]b`YYf`A`

Gi`V!`7`Ui`gY`("`  
7c!cdYfU`h`cb`  
Cb`h.Y`gYW`bX!`Ugh`jbY`cZ`h.Y`Z]fgh`dUFU[`fUd`\\`VYzcfY`  
A`7cbhfUMcf`A`Z`UXX`A`cZ`h.Y`A`

H.Y`Zc`ck`jb[`]g`UXXYX`UZHf`h.Y`Z]fgh`dUFU[`fUd`\\`

A`H.Y`7cbhfUMcf`g`U`\\`UgcZ`Ug`gh`UHX`]b`h.Y`GdYVW`V`h`cb`cf`Ug`  
]bg`fi`V`YX`Vm`h.Y`9b[`]b`YYfz`W`cdYfU`h`k`]h`UbX`U`ck`  
Uddfcdf]U`h`cddcfi`b]h`Yg`Zcf`h.Y`9a d`cnYf`A`DYfgcbby`h`c`  
W`bXi`W`UbmYbj`jfcba`YbHU`UbX`gc`V`U`UggY`gga`Ybh`

Gi`V!`7`Ui`gY`("+`  
GYh]b[`]ci`h`  
b`h.Y`gYW`bX`Vi`YH`dc]bhcZgi`V!`dUFU[`fUd`\\`fV`EcZGi`V!`7`Ui`gY`  
("+`"

VYzcfY`A`Z`h.Y`]hYa`g`cZ`fYZfYbW`A`Z`UXX`.A`k`\\Yb`Yi`Ua`]b]b[`]h.Y`  
]hYa`g`cZ`fYZfYbW`k`]h`]b`h.Y`dYf]cX`gh`UHX`]b`gi`V!`dUFU[`fUd`\\`  
fU`EcZGi`V!`7`Ui`gY`("+`&`A`

Cb`h.Y`gYW`bX`UbX`h`fX`\\`bYgZ`h.Y`Zc`ck`jb[`]g`XY`YHX`A`UbX`  
h.Y`W`bhfUMcf`A`B`ch`W`]g[`]j`Yb`UZHf`h.Y`dYf]cX`gh`UHX`]b`gi`V!`  
dUFU[`fUd`\\`fU`EcZGi`V!`7`Ui`gY`("+`&`A`

Gi`V!`7`Ui`gY`(",`  
<YU`h`UbX`GUZY`hm`  
CV`]U`h`cbg`  
H.Y`Zc`ck`jb[`]UFY`]bW`XYX`UZHf`XY`Yh]b[`]A`UbX`A`Uh`h.Y`YbX`cZ`  
f`U`UbX`fYd`UM]b[`]A`A`k`]h`A`A`Uh`h.Y`YbX`cZ`f[`]L`  
A`

flE'dfcj ]XY\YU'h'UbX'gUZYhmhfU]b[ 'cZ7cbhfUMcfÅg'  
 DYfgcbbY' Ug' Uddfcdf]UHY' UbX' a U]bU]b' hfU]b[ 'fYVt'fXg/  
 f]E' UM]j Y'm Yb[ U[ Y' h'Y' 7cbhfUMcfÅg' DYfgcbbY' ]b'  
 dfca ch]b[ ' i bXYfgU]bX]b[ ž UbX' a Yh'cXg' Zcfž  
 ]a d'Ya YbhU]cb'cZ\YU'h'UbX'gUZYhmfYei ]fYa YbhgžUg'  
 k Y' Ug' ]b' dfcj ]X]b[ ' ]bZcfa U]cb' hc' 7cbhfUMcfÅg'  
 DYfgcbbY'žhfU]b]b[ 'cb'cVWdU]cbU'gUZYhmU]bX'\YU'h'ž  
 UbX' dfcj ]g]cb' cZ dYfgcU' dfchV]j Y' Yei ]da Ybh  
 k ]h'ci h'Yi dYbgY'hc' h'Y'7cbhfUMcfÅg'DYfgcbbY'/'  
 flE'di h']b'd'UW'k cf\_d'UW' dfcWggYg'Zcf'7cbhfUMcfÅg'  
 DYfgcbbY'hc' fYdcfhk cf\_g]h' U]cbg'h'U]h'YmVY']Yj Y'  
 UfY' bch'gUZY' cf'\YU'h'nž UbX'hc' fYa cj Y' h'Ya gY'j Yg'  
 Zcfa 'U'k cf\_g]h' U]cb'k\]W' h'Ym\Uj Y' fYUgcbU'Y'  
 ↑gh]ZV]h]cb'hc' VY']Yj Y' dYgYbhg' Ub' ]a a ]bYbh'UbX'  
 gYf]ci g'XUb[ Yf'hc' h'Y]f' ]Z'cf'\YU'h'""  
 flE' 7cbhfUMcfÅg' DYfgcbbY' k\c' fYa cj Y' h'Ya gY'j Yg'  
 Zcfa 'g' W'k cf\_g]h' U]cbg'g'U' bch'VY'fYei ]fYX'hc'  
 fYh'fb'hc'k cf\_ i bh' bYWggUfmi fYa YX]U' UM]cb'hc'  
 VtffYVh' h'Y' g]h' U]cb'\Ug' VYYb' hU\_Yb" 7cbhfUMcfÅg'  
 DYfgcbbY'g'U' bch'VY'fYhU]U]h'X'U[ U]bgh'cf'h'Yfk ]gY'  
 g' V'YVh'hc' fYdf]gU' cf' bY[ U]j Y' UM]cb' Zcf' g' W'  
 fYdcfh]b[ 'cf'fYa cj U/'  
 flE' g' V'YVh'hc' Gi V! 7'Ui gY' ("ž Vt'UWcfUHY' k ]h' h'Y'  
 Ybh]h]Yg'UbX'DYfgcbbY'i bXYf'dUfU[ fUd\ fUŁž fVŁUbX'  
 fVŁcZGi V! 7'Ui gY' ("ž]b'Udd'n]b[ 'h'Y\YU'h'UbX'gUZYhm  
 fYei ]fYa Ybhg" h' ]g' ]g' k ]h'ci h' dYf'X]W'hc' h'Y'  
 fYgdcbg]V']hmicZ h'Y'fY'Yj Ubh'Ybh]h]Yg'Zcf' h'Y'\YU'h'  
 UbX'gUZYhmcZ h'Y]f'ck b'dYfgcbbY'/UbX' "  
 flE' EYghU' ]g' UbX' ]a d'Ya YbhU'gng'h'Ya Zcf'fY[ i 'Uf'f]bch'  
 'Ygg' h'Ub' g]l !a cbh'nt' fYj ]Yk' cZ\YU'h'UbX'gUZYhm  
 dYfZcfa UbW'UbX'h'Y'k cf\_]b[ 'Ybj ]fcb'Ybh'Å

H'Y'gYVt'bx'UbX'h' ]fX'dUfU[ fUd\g'UfY'fYd'UWX'k ]h' h'Y'  
 Zc'ck ]b[ .

ĀGi V'YVh'hc' Gi V! 7'Ui gY' ("ž h'Y'7cbhfUMcf'g'U'g' Va ]h'hc' h'Y'  
 9b[ ]bYf'Zcf'fYj ]Yk' U'\YU'h'UbX'gUZYhma Ubi U'k\]W'\Ug'  
 VYYb'gdYV]W' mdfYdUfYX'Zcf'h'Y'K cf\_gž h'Y'G]h'UbX'ch'Yf'  
 d'UW'g'f]Z Ubnt'k\YfY'h'Y'7cbhfUMcf' ]bhYbXg'hc' Yl VY'hY' h'Y'  
 K cf\_g" h'Y' dfcWXi fYg'Zcf'fYj ]Yk' cZ h'Y'\YU'h'UbX'gUZYhm  
 a Ubi U'UbX' ]hg' i dXU]h'g'g'U' VY' Ug'XYgV]VYX' ]b' Gi V! 7'Ui gY'  
 (" (" %ŲfYdUfU]cb'UbX'fYj ]Yk' Ų

H'Y\YU'h'UbX'gUZYhma Ubi U'g'U' VY' ]b' UXX]h]cb'hc' Ubmic'h'Yf'  
 g]a ]Uf'XcW'a Ybh'fYei ]fYX' i bXYf'Udd' ]WV'Y\YU'h'UbX'gUZYhm  
 fY[ i 'U]cbg'UbX'@uk'g"

HAY\YUHA'UbX'gUZYhma Ubi U'g\U'gYhici hU'`HAY\YUHA'UbX'  
gUZYhmifYei JfYa Ybhgi bXYf`HAY'7cbhfUMž`

fUE`k\]M'g\U'`]bWl XY'UhU'a ]b]a i a .`

HAY' dfcWXi fYg' hc' YghU'`]g\` UbX' a U]bhU]b' U' gUZY' k cf\_]b[`  
Ybj ]fcbaybh' k ]h'ci h' f]g\_` hc' \YUHA'` Uh' U'` k cf\_d`UWgž`  
a UM]bYfmžYei ]da YbhUbX' dfcWggYgi bXYf`HAY'Vžbhf`cZHAY'  
7cbhfUMžcfž]bWl X]b[` Vžbhf`a YUgi fYg'Zcf`VXYa ]Mžd\ng]Mž`  
UbX'V]c`c[ ]Mž'gi VghUbWg'UbX'U[ Ybhg/`

XYHU]g'cZHAY'hfU]b]b[` hc' VY' dfcj ]XYXžfYVžfXg'hc' VY`\_Ydh/`

HAY' dfcWXi fYg' Zcf` dfYj Ybh]cbž dfYdUFYXbYgg' UbX' fYgdcbgY'  
UM]j ]h]Yg' hc' VY' ]a d`Ya YbhYX' ]b' HAY' VWgY' cZ Ub' Ya Yf[ YbVh  
Yj Ybh]fY'`Ub' i bUb]M]dUHfX' ]bV]XYbžUf]g]b[` Žfca` Vch' bUhi fU'  
UbX' a Ub!a UXY' \UhfXgž` hml]Mž`m ]b' HAY' Zcfa` cZ ŽfYž  
Yl d`cg]cbgž`YU\_g' cf`gd]`gž`k\]M'`a UmcWVf` Zcf` U'j Uf]YhmcZ  
X]ZZYfYbh' fYUgcbg' ]bWl X]b[` Ž]i fY' hc' ]a d`Ya Ybh' cdYfU]b[`  
dfcWXi fYg' H.Uh' UFY' XYg][ bYX' hc' dfYj Ybh' HAY]f` cWVffYbWž  
Yl hfYa Y`k YUHA'Yf`cf`UW]`cZYUf`mk Ufb]b[` ž/`

HAY'a YUgi fYg' hc' VY` HU\_Yb' hc' U] c]X'cf'a ]b]a ]nY' HAY' dchYbh]U'  
Zcf`Vž`a a i b]hmYl d'cg' fY' hc' k UHYf! VcfbYžk UHYf! VUgYXžk UHYf!  
fY`UHYXžUbX'j YVžcf! VcfbY'X]gYUgYgž`

HAY'a YUgi fYg' hc' VY' ]a d`Ya YbhYX' hc' U] c]X'cf'a ]b]a ]nY' HAY'  
gdFYUX' cZ Vž`a a i b]MV`Y' X]gYUgYg' f]bWl X]b[` hfUbgZYf` cZ  
GYl i U'mhFubga ]hYX'8]gYUgYg'cf`bZYV]cbg'fGH8gžgi V\Ug<ž`  
j ]fi gž` UbX' bcb!Vž`a a i b]MV`Y' X]gYUgYg' UggcV]UHfX' k ]h' HAY'  
Yl YW]h]cb' cZ` HAY' K cf\_gž` HU\_]b[` ]bhc' Vžbg]XYfU]h]cb'  
X]ZZYfYbh]UHfX'Yl d'cg' fY' hc' UbX'\][ \Yf`gYbg]h] ]hmcZj i`bYfUV`Y'  
[ fci dg`H.]g]bWl XYghU\_]b[` a YUgi fYg'hc' U] c]X'cf'a ]b]a ]nY' HAY'  
hfUbgga ]gg]cb' cZ` Vž`a a i b]MV`Y' X]gYUgYg' H.Uh' a Um' VY'  
UggcV]UHfX' k ]h' HAY' ]bZi l` cZ` hfYa dcfUfm' cf` dYfa UbYbh  
7cbhfUMfY`UHfX'`UVci f/`

HAY'dc`]V]g'UbX' dfcWXi fYg'cb`HAY'a UbU[ Ya YbhUbX'ei U]hm  
cZ` UMVž`a a cXU]h]cb' UbX' k Y`ZUFY' ŽU]j]h]Yg' ]Z` gi V\`  
UMVž`a a cXU]h]cb' UbX' k Y`ZUFY' ŽU]j]h]Yg' UFY' dfcj ]XYX' Vm' HAY'  
7cbhfUMžcf]b`UMVž`fXUbW'k ]h' Gi V! 7`Ui gY`\*\*\*/UbX'

....fVž`.....UbmchYf`fYei JfYa Ybhg'ghUHfX' ]b' HAY' GdYV]V]h]cb''

HAY' dUFU[ fUd\`ghU]h]b[` k ]h'` Āb` UXX]h]cb' hc' HAY' fYdcfh]b[`  
fYei JfYa Ybhcz` Ā]gXY`YhYX' UbX' fYd`UMX'k ]h' HAY' UXX]h]cb' hc'  
; 7` Gi V! 7`Ui gY'` ("&\$` ]b' Gi V! 7`Ui gY'` ("&\$` cZ` HAY' GdYV]U'  
Dfcj ]g]cbg''

Gi V!7`Ui gY'('%`  
5VWggjFci H`

HAY`Zc`ck Jb[ `Jg`UXXYX`Uh`HAY`YbX`cZGi V!7`Ui gY'('%`  
A`HAY`7cbhfUMtcf`g\U`HJ\_Y`U`bYWggUfmgUZymia YUgi fYg`hc`  
Uj`c`X`HAY`cVWffYbW`cZ`JbVXYbhg`UbX`Jb`f`fYg`hc`UbmH`fX`  
dUfmiUggcVJUHXY`k`JH`HAY`i`gY`cZ`7cbhfUMtcf`Ag`9ei`Jda`Ybh`cb`  
di`V`JWfcUXg`cf`ch`Yf`di`V`JWJbZUgfi`VH`fY`  
HAY`7cbhfUMtcf`g\U`a`cbJ`hcf`fcUX`gUZym`JbVXYbhg`UbX`  
UWVXYbhg`hc`JXYbhJZmbY[`Uhj`Y`gUZymJggj`YgZ`UbX`YghUV`Jg`UbX`  
Ja`d`Ya`Ybh`bYWggUfma YUgi fYg`hc`fYgc`j`Y`HAYa`A`

Gi V!7`Ui gY'('%`  
DfchVMjcb`cZHAY`  
9bj Jfcb`a`Ybh`

Gi V!7`Ui gY'('%`DfchVMjcb`cZ`HAY`9bj Jfcb`a`Ybh`Jg`fYd`UWV`  
k`JH`  
A`HAY`7cbhfUMtcf`g\U`HJ\_Y`U`bYWggUfma YUgi fYg`hc`  
dfchVMjHAY`Ybj Jfcb`a`Ybh`fVch`cb`UbX`cZHAY`GjHYt`UbX`  
Ja`JhXUa`U[`Y`UbX`bi`JgUbW`hc`dYcd`Y`UbX`dfcdYfmi`fYg`hJb[`  
Zfca`dc`i`hJcbZ`bcJgY`UbX`ch`Yf`fYg`hg`cZ`HAY`7cbhfUMtcf`Ag`  
cdYfU`hJcbg`UbX`#`cf`UMVj`JhYg`

HAY`7cbhfUMtcf`g\U`Ybg`fY`H`UhYa`JggJcbgZgi`fZUW`XJgWUf[`YgZ`  
YZZi`Ybh`UbX`Ubm`ch`Yf`dc`i`HUbhg`Zfca`HAY`7cbhfUMtcf`Ag`  
UMVj`JhYg`g\U`YI`WYX`bYJHAY`f`HAY`j`U`i`Yg`JbXJWUHX`Jb`HAY`  
GdYVWJWJhJcbZ`bcf`H`cgY`dfYgWJYX`VmiUddJWVY`@k`g`

Ab`HAY`Yj`Ybh`cZ`XUa`U[`Y`hc`HAY`Ybj Jfcb`a`YbhZ`dfcdYfmi`UbX`#`cf`  
bi`JgUbW`hc`dYcd`YZcb`cf`cZGJHY`Ug`U`fYg`hc`ZHAY`7cbhfUMtcf`Ag`  
cdYfU`hJcbgZ`HAY`7cbhfUMtcf`g\U`U[`fYY`k`JH`HAY`9b[`JbYYf`HAY`  
UddfcdfJUH`UMjcbg`UbX`hJa`Y`gWY`hc`fYa`YXnz`Ug`dfUMVWVYZ`  
HAY`XUa`U[`YX`Ybj Jfcb`a`Ybh`hc`Jhg`Zfca`Yf`VebXJhJcb`HAY`  
7cbhfUMtcf`g\U`Ja`d`Ya`Ybh`gi`W`fYa`YXJYg`Uh`Jhg`Vegh`hc`HAY`  
guhJgZUMjcb`cZHAY`9b[`JbYYf`A`

Gi V!7`Ui gY'("&\$`  
Dfc[ fYggjFYdcfhg`

FYd`UW`A`("&\$`f[`E`k`JH`A`HAY`9bj Jfcb`a`YbhU`UbX`GcVJU`fDGE`  
a`YhfJvg`ghci`hJb`DUfhW`Uf`7cbXJhJcbg!`DUfh8A`

HAY`Zc`ck Jb[ `Jg`UXXYX`Uh`HAY`YbX`cZHAY`Gi V!7`Ui gY`  
Ab`UXXJhJcb`hc`HAY`fYdcfhJb[`fYei`JfYa`Ybh`cZ`H`Jg`gi`V!`  
dUfU[`fUd\`f[`E`cZ`Gi V!7`Ui gY'("&\$`Dfc[ fYggj FYdcfhg`HAY`  
7cbhfUMtcf`g\U`JbZfca`HAY`9b[`JbYYf`Ja`a`YXJUH`m`cZ`Ubm`  
U`Y[`UhJcbZ`JbVXYbhcf`UWVXYbhZk`JW`Ug`cf`Jg`LY`mhc`Uj`Y`U`  
gJ[`bJZVUbh`UXj`YfgY`YZZVMjcb`HAY`Ybj Jfcb`a`YbhZ`HAY`UZZYVMX`  
Vea`a`i`bJhYgZ`HAY`di`V`M9a`d`cnYfAg`DYfgcbbY`cf`7cbhfUMtcf`Ag`  
DYfgcbbY`H`Jg`JbW`XYgZ`Vi`hJg`bch`Ja`JHYX`hcZ`UbmJbVXYbhcf`  
UWVXYbhVU`gJb[`ZUHJ`mcf`gYf`ci`g`Jb`f`fmx`gJ[`bJZVUbh`UXj`YfgY`  
YZZVMjcf`XUa`U[`Y`hc`dfJ`UH`dfcdYfmx`cf`UbmU`Y[`UhJcb`cZ`G95`  
UbX`#`cf`G<`Ab`WgY`cZ`G95`UbX`#`cf`G<Z`k`JY`a`UJbHJbJb[`  
VebZJXYbhJU`JmUg`UddfcdfJUHZ`HAY`hmdY`cZ`U`Y[`UhJcb`fgyi`i`U`

Yl d`c]hU]cbžgYl i U`Uvi gY`cf`gYl i U`UfUgga YbHž [ YbXYf`UbX`  
U[ Y` cZ` hAY` dYfgcb` k`c` Yl dYf]YbWX` hAY` U`Y[ YX` ]bV]XYbh  
g\ci`X`VY`]bWl`XYX`]b`hAY`]bZcfa`Uh]cb`"

HAY` 7cbhfUMtcfž i dcb` VYVta` ]b[ ` Uk`UfY` cZ` hAY` U`Y[ Uh]cbž  
]bV]XYbh` cf` UW]XYbhž` g\U` Ugc` ]a` a`YX]UHY`m` ]bZcfa` ` hAY`  
9b[ ]bYYf` cZ` Ubm` g` W` ]bV]XYbh` cf` UW]XYbh` cb` hAY`  
Gi` VVtbfUMtcfġcf` g` dd` ]YfgġdfYa` ]gYg`fY`Uh]b[ ` hc` hAY` K` cf`\_g`  
k` \]W` \Ug`cf`]g` \_Y`mhc` \Uj` Y`Ug[ ] b]Z]WbhUXj` YfgY`ZZV]Wcb` hAY`  
Ybj` ]fcb` YbžhAY` UZZV]WX` Vta` a` i` b]h]YgžhAY`di` V` ]V]9a` d`cnYfġ  
DYfgcbY` cf` 7cbhfUMtcfġž` ]hg` Gi` VVtbfUMtcfġ` UbX` g` dd` ]Yfgġ  
dYfgcbY`" hAY` bch]Z]W]cb` g\U` dfcj` ]XY` g` Z]V]Ybh` XYHJ`  
fY[ UfX]b[ ` g` W` ]bV]XYbhg` cf` UW]XYbhg` hAY` 7cbhfUMtcf` g\U`  
dfcj` ]XY` Ž` XYHJ` g` cZ` g` W` ]bV]XYbhg` cf` UW]XYbhg` hc` hAY`  
9b[ ]bYYf`k` ]h` ]b`hAY`h`a` YZUa` Y`U[ fYfX`k` ]h` hAY` 9b[ ]bYYf`"

HAY` 7cbhfUMtcf` g\U` fYei` ]fY` ]hg` Gi` VVtbfUMtcfġ` UbX` g` dd` ]Yfg`  
fthAYf` h`Ub` Gi` VVtbfUMtcfġ` hc` ]a` a`YX]UHY`m` bch]Zm` hAY`  
7cbhfUMtcf` cZ` Ubm` ]bV]XYbhg` cf` UW]XYbhg` fYfYfYX` hc` ]b` h`g`  
Gi` VWU` gY`ġ`"

Gi` V!` 7`Ui` gY` ("&%  
GYWf]hmcZHAY`G]hY`

Gi` V!` 7`Ui` gY` ("&%GYWf]hmcZHAY`G]hY` ]g`fYd`UWX`k` ]h`.  
ġGi` V!` 7`Ui` gY` ("&%GYWf]hmcZHAY`G]hY`  
HAY` 7cbhfUMtcf` g\U` VY`fYgdcbg]V`Y`Zcf`hAY`gYWf]hmcZHAY`G]hY`  
UbX`."

Zcf`\_YYd]b[ ` i` bUi` h`cf]gYX`dYfgcbg`cZ`hAY`G]hY`/`

Ui` h`cf]gYX` dYfgcbg` g\U` VY` ]a` ]hYX` hc` hAY` 7cbhfUMtcfġ  
DYfgcbY`ž` hAY` 9a` d`cnYfġ` DYfgcbY`ž` UbX` hc` Ubm` chAYf`  
dYfgcbY` ]XYbh]Z]YX` Ug` Ui` h`cf]gYX` dYfgcbY` f]bWl`X]b[ ` hAY`  
9a` d`cnYfġ`chAYf`VtbfUMtcfġcb`hAY`G]hY`ZVmUBch]W`Zca` hAY`  
9a` d`cnYf`cf`hAY` 9b[ ]bYYf`hc` hAY` 7cbhfUMtcf`"

Gi` V`YV]hc` Gi` V!` 7`Ui` gY` ("&%hAY` 7cbhfUMtcf` g\U` g` Va` ]hZcf`hAY`  
9b[ ]bYYfġBc!`cV`YV]cb`U`gYWf]h`ia` UbU[ Ya` Ybhid`Ub`h`UhigYhg`  
ci` h`hAY`gYWf]h`iUffUb[ Ya` Ybhg`Zcf`hAY`G]hY`"

HAY` 7cbhfUMtcf` g\U` f]ġ` Vt`bXi` V]` Uddfcdf]UHY` VUW[ fci` bX`  
W`YW]g`cb` UbmdYfgcbY` fYHJ]bYX` hc` dfcj` ]XY` gYWf]h`f]ġ`fU]b`  
hAY` gYWf]h`mdYfgcbY` UXYe` UHY`mftf`XYHfa` ]bY`h`Uh`hAY`mUfY`  
dfcdYf`m`fU]bYXġ` ]b` hAY` i` gY` cZ` ZcfW` fUbX`k` \YfY` Udd` ]WV`Yž`  
Z]fYUfa` gž` UbX` Uddfcdf]UHY` Vt`bXi` V]` hc`k` UfXg` 7cbhfUMtcfġ  
DYfgcbY`ž` 9a` d`cnYfġ` DYfgcbY` UbX` UZZV]WX` Vta` a` i` b]h]Yg/  
UbX` f]]ġ` fYei` ]fY` hAY` gYWf]h`mdYfgcbY` hc` UW] k` ]h` ]b` hAY`  
Udd` ]WV`Y` @k`g` UbX` Ubm` fYei` ]fYa` Ybhg` gYh` ci` h` ]b` hAY`  
GdYV]Z]W]cb`"



H\Y'7cbhfUMtcf'g\U''bchdYfa ]hUbm i gY'cZ ZcfW'VmgYWf]hm  
dYfgcbbY'' ]b' dfcj ]X]b[ ' gYWf]hm YI Wdh' k \Yb' i gYX' Zcf'  
dfYj Ybhj Y'UbX XYZYbgj] Y di fdcgYg]b' dfcdcfh]cb'hc' h\Y'bUhi fY'  
UbX'YI hYbhcZH\Y'h fYUH'

Æ' a U\_]b[ ' gYWf]hm UffUb[ Ya Ybhgž h\Y' 7cbhfUMtcf' g\U'' Ugc'  
Vt'a d'm k ]h' Ubm UXX]h]cbU' fYei ]fYa Ybhg' ghYhX' ]b' h\Y'  
GdYV]Z]W]h]cb"Ä'

Gi V!7'Ui gY' ("&  
7cbhfUMtcf'gCdYfU]h]cbg'  
cb'G]hY'

Gi V!7'Ui gY' ("&  
5fV\UYc'c[ ]W'UbX'  
; Yc'c[ ]W': ]bX]b[ g

Cb'h\Y'h ]fX'' ]bY'cZH\Y'gYVt'bx'dUfU[ fUd\ 'VYZcfY'Ä' (%+ÄžÄGi V!  
7'Ui gYÄ]g'UXXYX''

H\Y'Z]fghidUfU[ fUd\ ' ]g'fYd'UWX'k ]h' h\Y'Zc''ck ]b[ .'  
Ä5'' Zcgg]gž Vt']bgž Ufh]WYg' cZ j Ui Y' cf' Ubh]ei ]mž gfi Vh' fYgž  
[ fci dg'cZghf Vh' fYgžUbX'ch\Y'fYa U]bg'cf']hYa g'cZ[ Yc'c[ ]Wž  
UfV\UYc'c[ ]Wž dUYcbhc'c[ ]Wž \ ]g'cf]Wž UfV\]hYVh' fU' cf'  
fY'] [ ]ci g]bh'fYghZci bX'cb'h\Y'G]hY'g\U'' VY'd'UWX'i bXYf'h\Y'  
Vh'fY'UbX'Wg'hcXmicZH\Y'9a d'cmYf''H\Y'7cbhfUMtcf'g\U''.

HU\_Y'U''fYUgcbUV'Y'dfYVh' h]cbgž]bW X]b[ 'ZYbVb[ !cZH\Y'UfYU'  
cf'g]hY'cZH\Y'Z]bX]b[ žhc'Uj c]X'Z' fh\Y'fX]gh' fVUbW'UbX'dfYj Ybh'  
7cbhfUMtcf'g' DYfgcbbY'' cf' ch\Y'f' dYfgcbg' Zfca' fYa cj ]b[ 'cf'  
XUa U[ ]b[ 'Ubmich\Y'gY'Z]bX]b[ g/

hfU]b'fY'Yj Ubh7cbhfUMtcf'g'DYfgcbbY''cb'Uddfcdf]UHY'UM]cbg'hc'  
VY'HU\_Yb' ]b'h\Y'Yj YbhcZg' Vh'Z]bX]b[ g/UbX'

]a d'Ya Ybh'Ubmich\Y'UM]cb'Vtbg]ghYbhk ]h' h\Y'fYei ]fYa Ybhg'  
cZH\Y'GdYV]Z]W]h]cb'UbX'fY'Yj Ubh'@k g'Ä'

Gi V!7'Ui gY' ("&  
Gi dd'Yfg'fth\Y'f'h\Ub'  
Gi VVt'bfUMtcf'g'

("&("%: cfWX'@Uci f'

H\Y'7cbhfUMtcf'g\U'' HU\_Y' a YUg' fYg'hc' fYei ]fY' ]hg'gi dd'Yfg'  
fth\Y'f'h\Ub' Gi VVt'bfUMtcf'g' bch'hc' Ya d'cmcf'Yb[ U[ Y' ZcfWX'  
'Uci f']bW X]b[ 'hfUZZ]W]YX'dYfgcbg'UgXYgW]VYX' ]b'Gi V!7'Ui gY'  
\*"8%" Ž ZcfWX' 'Uci f'hfUZZ]W]b[ ' WlgYg' UfY' ]XYbh]ZYXž h\Y'  
7cbhfUMtcf'g\U'' HU\_Y' a YUg' fYg'hc' fYei ]fY'h\Y'g' dd'Yfg'hc' HU\_Y'  
Uddfcdf]UHY'ghYdg'hc' fYa YXmh\Ya "K \YfY'h\Y'g' dd'Yf'XcYg'  
bch' fYa YXm h\Y' g]h'Uh]cbž h\Y' 7cbhfUMtcf' g\U'' k ]h' ]b' U'  
fYUgcbUV'Y'dYf]cX'g' Vgh]h' h\Y'g' dd'Yf'k ]h' U'g' dd'Yf'h\Uh'  
]g'UV'Y'hc' a UbU[ Y'gi Vh' f]g\_g''

("&("&7\]X'Uci f'

H\Y'7cbhfUMtcf'g\U'' HU\_Y' a YUg' fYg'hc' fYei ]fY' ]hg'gi dd'Yfg'  
fth\Y'f'h\Ub' Gi VVt'bfUMtcf'g' bch'hc' Ya d'cmcf'Yb[ U[ Y' Vh'X'  
'Uci f' Ug'XYgW]VYX' ]b'Gi V!7'Ui gY' \*"8%" Ž Vh'X' 'Uci f' WlgYg'  
UfY' ]XYbh]ZYXž h\Y' 7cbhfUMtcf'g\U'' HU\_Y' a YUg' fYg'hc' fYei ]fY'  
h\Y'g' dd'Yfg'hc' HU\_Y'Uddfcdf]UHY'ghYdg'hc' fYa YXmh\Ya "K \YfY'  
h\Y'g' dd'Yf'XcYg' bch' fYa YXm h\Y' g]h'Uh]cbž h\Y' 7cbhfUMtcf'



g\U`k ]h]b`U`fYUgcbUV`Y`dYf]cX`gi Vgh]h hY`hY`gi dd`]Yf`k ]h`U`  
gi dd`]Yf`hUh]g`UV`Y`hc`a UbU[`Y`gi W`f]g\_g`"

("&("`GYf]ci g`GUZYhm`gg Yg`"

H\Y`7cbhfUM`cfz]bW`X]b[` ]hg]Gi VV`bhfUM`cfgzg\U` V`a d`mk ]h`  
U` Udd`]WV`Y`gJZY`hmcV`][ Uh]cbg`z ]bW`X]b[` `Ug`ghYX` ]b`Gi V!  
7`Ui gYg` ("`z`)"% UbX` \*`+`" H\Y` 7cbhfUM`cf` g\U` Ugc` hJ\_Y`  
a YUgi fYg`hc`fYei ]fY` ]hg`gi dd`]Yfg`fchY`f`h`Ub`Gi VV`bhfUM`cfg`  
hc` UXcdh`dfcW`Xi fYg` UbX`a ]h[` Uh]cb`a YUgi fYg` UXYei UH`hc`  
UXXfYgg`gJZY`hm]gg`Yg`fY`UH`X`hc` h\Y]f`dYfg`cbbY`" Z`gyf]ci g`  
gJZY`hm]gg`Yg`UFY`jXYbh]ZYXZ`hY`7cbhfUM`cf`g\U` hJ\_Y`a YUgi fYg`  
hc`fYei ]fY`hY`gi dd`]Yfg`hc`hJ\_Y`Udd`fcd`f]UH`ghYdg`hc`fYa YXm`  
hYa "K` \fY`hY`gi dd`]Yf`XcYg`bch`fYa YXm`hY`g]h Uh]cbZ`hY`  
7cbhfUM`cf` g\U`k ]h]b`U`fYUgcbUV`Y`dYf]cX`gi Vgh]h hY`hY`  
gi dd`]Yf`k ]h`U`gi dd`]Yf`hUh]g`UV`Y`hc`a UbU[`Y`gi W`f]g\_g`"

("&("`CVHJ]b]b[` `bUhi fU`fYgci fW`a UH`f]Ug` ]b`fY`UH]cb`hc`  
gi dd`]Yf`"

H\Y`7cbhfUM`cf` g\U`cVHJ]b`bUhi fU`fYgci fW`a UH`f]Ug`Z`ca`  
gi dd`]Yfg`hUh`W`b`XYa cbgh`fUH`Z`h`fci [ `V`a d`]UbW`k ]h`hY`  
Udd`]WV`Y`j Yf]Z`VH]cb`UbX`#`cf`W`f]Z`VH]cb`fYei ]fYa Ybhg`hUh`  
cVHJ]b]b[` `gi W`a UH`f]Ug` ]g`bch`V`bhf]Vi h]b[` `hc`hY`f]g`cZ`  
g][ b]Z`V`b`h`V`bj Yfg]cb`cf`g][ b]Z`V`b`h`XY[ fUXUh]cb`cZ`bUhi fU`cf`  
V`]h`W` \UV]fUhg`gi W` Ug` i bg`ghU]bUV`mi \Uf]YghYX`k`ccX`  
dfcXi W`g`[ fUj`Y`cf`gUbX`Yi hfUM]cb`Z`ca`f]j YfVYXg`cf`VYUW`Yg`"

Z`U`gi dd`]Yf`W`b`bch`V`b`h]bi Y`hc`XYa cbgh`fUH`hUh`cVHJ]b]b[`  
gi W`a UH`f]Ug` ]g`bch`V`bhf]Vi h]b[` `hc`hY`f]g`cZ`g][ b]Z`V`b`h`  
V`bj Yfg]cb`cf`g][ b]Z`V`b`h`XY[ fUXUh]cb`cZ`bUhi fU`cf`V`]h`W`  
\UV]fUhg`hY`7cbhfUM`cf` g\U`k ]h]b`U`fYUgcbUV`Y`dYf]cX`  
gi Vgh]h hY`hY`gi dd`]Yf`k ]h`U`gi dd`]Yf`hUh]g`UV`Y`hc`  
XYa cbgh`fUH`hUh`hY`mi UFY`bch`g][ b]Z`V`b`h`mi UXj YfgY`mi  
]a dUM]b[`hY`\UV]fUhg`"

Gi V!7`Ui gY`("&")`  
7cXY`cZ7cbXi V`

H\Y`7cbhfUM`cf` g\U` \Uj`Y`U`7cXY`cZ`7cbXi V`Z`cf`hY`  
7cbhfUM`cf`g`DYfg`cbbY`"

H\Y`7cbhfUM`cf`g\U`hJ\_Y`U`bYW`ggUfma YUgi fYg`hc`Ybg`fY`hUh`  
YUW`7cbhfUM`cf`g`DYfg`cbbY` ]g`a UX`Uk`UFY`cZ`hY`7cXY`cZ`  
7cbXi V`]bW`X]b[`gdYV]ZWVY\Uj`]cfg`hUh`UFY`dfc\j]hYXZ`UbX`  
i bXYfg`hUbXg`hY`V`bgYei YbW`g`cZYb[ U[ ]b[ ]b`gi W`dfc\j]hYX`  
VY\Uj`]cfg`"

H\YgY`a YUgi fYg` ]bW`XY`dfcj`X]b[` ]bgh`f`V`cbg`UbX`  
XcW`a YbhUh]cb`hUh`W`b`VY`i bXYfg`c`cX`Vm`hY`7cbhfUM`cf`g`  
DYfg`cbbY`UbX`gY`\_]b[` `hc`cVHJ]b`hUh`dYfg`cb`g`g][ bUhi fY`

UWbck`YX[ ]b[ ` fYW]dh` cZ` g` V` ` ]bghf V]cbg` UbX#cf`  
XcW`a YbhU]cbZ`Ug`Uddfcdf]UH`"

H`Y`7cbhfUWcf`g`U`Ugc`Ybg`fY`h`Uh`h`Y`7cXY`cZ`7cbXi`V`]g`  
j`]g]V`mX]gd`UhYX`]b`a`i`h]d`Y`cV]h]cbg`cb`h`Y`G]hY`UbX`Ubmch`h`Yf`  
d`UW`k`\\YfY`h`Y`K`cf\_g`k`]`VY`VWff]YX`ci`hZ`Ug`k`Y`Ug`]b`UfYUg`  
ci`hg]XY`h`Y`G]hY`UWVgg]V`Y`hc`h`Y`cW`V`a`a`i`b]hmUbX`dfc`YV`  
UZZV`hX`dYcd`Y`" H`Y`dcghYX`7cXY`cZ`7cbXi`V`]g`U`VY`  
dfcj`]XYX`]b`Ub[ i`U[ Yg`V`a`dfY`Ybg]V`Y`hc`7cbhfUWcf`  
DYfgcbbY`Z`9a`d`cmYf`DYfgcbbY`UbX`h`Y`cW`V`a`a`i`b]m`

H`Y`7cbhfUWcf`A`UbU[ Ya`Ybh`GfUH[ m`UbX`a`d`Ya`YbhU]cb`  
D`Ubg`g`U`]bW`XY`Uddfcdf]UH`dfcW`ggYg`Zcf`h`Y`7cbhfUWcf`hc`  
j`Yf]ZmV`a`d`]UbW`k`]h`h`YgY`cV`][ U]h]cbg`"

G`V!7`U`gY`)`%`  
G`VW`bhfUWcf`g`

H`Y`Zc`ck`]b[ `]g`UXXYX`Uh`h`Y`VY[ ]bb]b[ `cZ`h`Y`gYV`bX`  
dUfU[ fUd`"

Ã`H`Y`7cbhfUWcf`g`U`fYei`]fY`h`Uh`]hg`G`VW`bhfUWcf`g`Y`YW`hY`  
h`Y`K`cf\_g`]b`UW`fX`UbW`k`]h`h`Y`7cbhfUW`]bW`X]b[ `V`a`d`m]b[ `k`]h`h`Y`fY`Y`Ubh`9G`fYei`]fYa`Ybhg`UbX`h`Y`  
cV`][ U]h]cbg`gYh`ci`h`]b`G`V!7`U`gY`)`("&`UWcj`Y`Ã`

H`Y`Zc`ck`]b[ `]g`UXXYX`Uh`h`Y`YbX`cZ`h`Y`Ug`dUfU[ fUd`cZ`  
G`V!7`U`gY`)`%`

Ã5`g`VW`bhfUW`g`fY`Uh]b[ `hc`h`Y`K`cf\_g`g`U`]bW`XY`  
dfcj`]g]cbg`k`\\W`Ybh]hY`h`Y`9a`d`cmYf`hc`fYei`]fY`h`Y`  
g`VW`bhfUW`hc`VY`Ugg][ bYX`hc`h`Y`9a`d`cmYf`i`bXYf`g`V!`  
dUfU[ fUd`fU`cZ`G`V!7`U`gY`)`"&`"05ZHYf`HYfa`]bU]h]cb`  
K`\\YfY`dfUW]VW`Yz`h`Y`7cbhfUWcf`g`U`[ ]Y`Z]f`UbX`  
fYUgc`bU`Y`cddcf`h`b]m]Zcf`V`bhfUWcf`g`Z`ca`h`Y`7ci`bhfmi`hc`  
VY`Uddc]b`hX`Ug`G`VW`bhfUWcf`g`Ã`

G`V!7`U`gY`)`"&`&`  
CVYW]cb`hc`B`ca`]bU]h]cb`

÷`g`V!dUfU[ fUd`fU`Z`cb`h`Y`Z]fgh`]bY`VYZcfY`Ã`G`VW`bhfUWcf`Ã`  
Ã`bca`]bU]hXÃ`]g`UXXYX`"

÷`g`V!dUfU[ fUd`fU`

Ã`UbXÃ`]g`XY`YhYX`Z`ca`h`Y`YbX`cZ`f]`/`

Ã`Ã`Uh`h`Y`YbX`cZ`f]]`]g`fYd`UWX`k`]h`Ã`Z`UbXÃ`"

H`Y`Zc`ck`]b[ `]g`h`Yb`UXXYX`Ug`f]]]`E`"

Ã`f]]]E`VY`dU]X`cb`m]Z`UbX`k`\\Yb`h`Y`7cbhfUWcf`\\Ug`fYW`]YX`  
Z`ca`h`Y`9a`d`cmYf`dU`h`Ybhg`Zcf`g`a`g`Xi`Y`i`bXYf`h`Y`

Gi VVbhfUMtfYZYffYX'hc' i bXYf'Gi V! 7`Ui gY') "&" 'ODUna Ybh'hc' bca ]bUHYX'Gi VVbhfUMtfgcA'

Gi V! 7`Ui gY' \* "%  
9b[ U[ Ya YbhcZGhZZUbX'  
@Uci f'

HAY'Zc`ck ]b[ `dUfU[ fUd\g' UfY' UXXYX' Uhi HAY' YbX' cZ HAY' Gi V!  
7`Ui gY.'

HAY' 7cbhfUMtf' g\U` dfcj ]XY' HAY' 7cbhfUMtfA' DYfgcbbY'  
]bZcfa Uh]cb' UbX' XcW'a YbHUh]cb' H.Uh' UfY' VWUF' UbX'  
i bXYfgHUbXUV'Y' fY[ UFX]b[ ' HAY]f' Hf'a g' UbX' VbX]h]cbg' cZ  
Ya d'cna Ybh'HAY']bZcfa Uh]cb'UbX'XcW'a YbHUh]cb'g\U`gYhici h'  
HAY]f' f][ \hg' i bXYf' fY'Y] Ubh' UVci f' @Uk g' Udd']WV'Y' hc' HAY'  
7cbhfUMtfA' DYfgcbbY' fK \]W' k ]'' ]bWl XY' Ubm Udd']WV'Y'  
Vb`YVW]Y' U[ fY'a YbhgZ]bWl X]b[ ' HAY]f' f][ \hg'fY'UHYX'hc' \ci fg'  
cZk cf\_žk U[ Ygžcj Yfh]a YžVb'a dYbgUh]cb'UbX'VYbYZ]hgž Ug'k Y''  
Ug'HcgY' Uf]g]b[ ' Zfca' Ubm fYei ]fYa Ybhg ]b' HAY' GdYV]Z]W]h]cb''  
HAY' 7cbhfUMtfA' DYfgcbbY' g\U` VY' ]bZcfa YX' k \Yb' Ubm  
a UHYf]U' VWUb[ Yg'hc' HAY]f' Hf'a g'cf'VbX]h]cbg'cZYa d'cna Ybh'  
cVW'f''

ÅHAY'7cbhfUMtf' ]g'YbVb'i fU[ YXžhc' HAY'Yl HYbhidfUM]WV'Y'UbX'  
fYUgcbUV'Yž hc' Ya d'cmi ghZZ UbX' UVci f' k ]h' Uddfcdf]UHY'  
ei U']Z]W]h]cbg' UbX' Yl dYf]YbW' Zfca' gci fWg' k ]h]b' HAY'  
7ci bhfmÅ'

Gi V! 7`Ui gY' \* "&  
FUHYg'cZK U[ YgUbX'  
7cbX]h]cbg'cZ@Uci f'

HAY'Zc`ck ]b[ `dUfU[ fUd\g' UfY' UXXYX' Uhi HAY' YbX' cZ HAY' Gi V!  
7`Ui gY.'

ÅHAY'7cbhfUMtf'g\U` ]bZcfa' HAY'7cbhfUMtfA'DYfgcbbY'UVci h'

UbmXYXi V]cb'hc' HAY]f' dUna Ybh'UbX' HAY' VbX]h]cbg' cZ gi V'  
XYXi V]cbg]b'UWb'fXUbW'k ]h' HAY'Udd']WV'Y'@Uk g'cf'Ug'g'UHYX'  
]b' HAY'GdYV]Z]W]h]cb'/UbX'  
HAY]f' ]UV'] ]mhc' dUm dYfgcbU' ]bVb'a Y' HUl Yg' ]b' HAY' 7ci bhfm]b'  
fYgdYV]cZ gi V' cZ HAY]f' g\Uf]Ygž k U[ Ygž U`ck UbW'g' UbX' Ubm  
VYbYZ]hg' Ug' UfY' g' V'YV]hc' HUl' i bXYf' HAY'@Uk g' cZ HAY' 7ci bhfm'  
Zcf' HAY'h]a Y'VY]b[ ' ]b'ZcfW''''

HAY' 7cbhfUMtf' g\U` dYfZcfa' gi V' Xi h]Yg' ]b' fY[ UFX' hc' gi V'  
XYXi V]cbg'hYfYcZUg'a UmVY' ]a dcgYX'cb' \]a' Vmgi V' @Uk g''

K \YfY' fYei ]fYX' Vm Udd']WV'Y' @Uk g' cf' Ug' g'UHYX' ]b' HAY'  
GdYV]Z]W]h]cbž HAY' 7cbhfUMtf' g\U` dfcj ]XY' HAY' 7cbhfUMtfA'  
DYfgcbbY' k f]HfYb' bch]W' cZ Hf'a ]bUh]cb' cZ Ya d'cna Ybh'UbX'  
XYH]g' cZ gYj YfUbW' dUna Ybhg ]b' U' h]a Y'm a Ubbyf'' HAY'  
7cbhfUMtf' g\U` \Uj Y' dU]X' HAY' 7cbhfUMtfA' DYfgcbbY' fY]HAY'  
X]fYV]m]cf' k \YfY' Uddfcdf]UHY' Zcf' HAY]f' VYbYZ]H' U` Xi Y' k U[ Yg'  
UbX' Ybh]hYa Ybhg ]bWl X]b[ ž Ug' Udd']WV'Yž gcV]U' gYW'f]m

VYbYZ[hg UbX dYbg]cb Vcbhf]Vi h]cbgž cb cf VYZcfY H.Y YbX cZ  
H.Y]f Yb[ U[ Ya Ybh#Ya d'cna YbhA'

Gi V! 7`Ui gY`\*)` K cf\_]b[  
<ci fg`

H.Y Zc`ck ]b[ ]g]bgYfhYX UhH.Y YbX cZH.Y Gi V! 7`Ui gY`

ÅH.Y 7cbhfUMcf` gU` dfcj ]XY` H.Y 7cbhfUMcf`Åg DYfgcbbY`  
Ubbi U` \c`]XUm UbX` g]Vž a UhYfb]m UbX` ZJa ]m` YUj Yž Ug`  
fYei ]fYX VmUdd ]VWV`Y @uk g'cf Ug ghUHXY ]b` H.Y GdYVW]VWh]cb`Å

Gi V! 7`Ui gY`\*\*`  
: UW]h]Yg Zcf`GHUZZUbX`  
@Vci f`

H.Y Zc`ck ]b[ ]g]UXXYX Ug`H.Y`UghdUfU[ fUd\.

ÅZ ghUHXY ]b` H.Y GdYVW]VWh]cbž H.Y 7cbhfUMcf` gU` [ ]j Y UWVgg`  
hc`cf dfcj ]XY` gYfj ]Wg`h Uh UMta a cXUH` H.Y d\ng]Wž gcV]U`  
UbX` W`h fU` bYYXg cZ H.Y 7cbhfUMcf`Åg DYfgcbbY` H.Y  
7cbhfUMcf` gU` Ug` dfcj ]XY` gla ]Uf` ZWV]h]Yg Zcf` H.Y  
9a d'cnyfÅg DYfgcbbY` Ug ghUHXY ]b` H.Y GdYVW]VWh]cb`Å

Gi V! 7`Ui gY`\*`+`  
<YU`H`UbX`GUZYfmcZ  
DYfgcbbY`

þ`H.Y gYVcbX`dUfU[ fUd\ž ÅH.Y 7cbhfUMcf`Å]g`fYd`UWX`k ]H.`

Å9l Wdhi Ug` chYfk ]gY` ghUHXY` ]b` H.Y GdYVW]VWh]cbž H.Y  
7cbhfUMcf` Å

Gi V! 7`Ui gY`\*-`  
7cbhfUMcf`Åg DYfgcbbY`

H.Y Gi V! 7`Ui gY`]g`fYd`UWX`k ]H.`

ÅH.Y 7cbhfUMcf`Åg DYfgcbbY` f]bWl X]b[ ]?YmDYfgcbbYž ]Z Ubnt`  
gU` VY` Uddfcdf]UH`m ei U]Z]YXž g\_]`YXž Yl dYf]YbWXX` UbX`  
Vta dYHbh]b` H.Y]f`fYgdYVW]j Y`fUXYgcf`cWV dUh]cbg`"

H.Y 9b[ ]bYYf`a UmfYei ]fY`H.Y 7cbhfUMcf`hc`fYa cj Y`f`f`Vli gY`  
hc`VY`fYa cj YXE`Ubm dYfgc b`Ya d'cnyX`cb`H.Y G]H`cf`K cf\_gž  
]bWl X]b[ ]H.Y 7cbhfUMcf`Åg FYdfYgybH]j Y`UbX`?YmDYfgcbbY`  
f]ZUbntžk \c.`

dYfg]g]g]b`Ubma ]gVcbXi Vñcf`UW`cZVWfY/  
WVff]Yg`ci hXi h]Yg]bVta dYHbhñmcf`bY[ ][ Ybhñ  
ZU]g`hc`Vta d`mík ]H` Ubmdfcj ]g]cb`cZH.Y 7cbhfUMW`  
dYfg]g]g]b`UbmVcbXi Vñk \]W` ]g`dfY↑ X]V]U`hc`gUZYfñ\YU`hžcf`  
H.Y dfchVW]cb`cZH.Y Ybj ]fcb a Ybh`  
VUgYX`cb`fYUgcbUV`Y Yj ]XYbWž]gXYHfa ]bYX`hc` \Uj Y Yb[ U[ YX`  
]b` fUl X`UbX`7cffi dh]cb`Xi f]b[ ]H.Y Yl YW]h]cb`cZH.Y`K cf\_g`  
\UgVYYb`fYVW] ]H`X`Zca`H.Y 9a d'cnyfÅg DYfgcbbY` ]b`VfYUW`cZ  
Gi V! 7`Ui gY`\*-``@YVW] ]ha YbhicZDYfgcbgQ`  
i bXYfU\_YgVY\Uj ]cf`k \]W` VfyUW`Yg`H.Y 7cXY`cZ7cbXi VñZcf`  
7cbhfUMcf`Åg DYfgcbbY` f9GL"

žUddfcdf]UHž H.Y 7cbhfUMcf` gU` H.Yb`dfca dhmUddc]bh`f`f`  
Wli gY`hc`VY`Uddc]bh`XE`U`gi ]HUV`Y`fYd`UW`a Ybhk ]H` Yei ]j U`Ybh



Gi V! 7`Ui gY`\*`%`  
Gi dd`mcZK UHYf`

HAY7cbhfUMtcf`g\U`Z\Uj ]b[ `fY[ UFX`hc`cW`W`bX]h]cbgZdfcj ]XY`  
cb`hAY`G]hY`Ub`UXYei UHY`gi dd`mcZXf]b\_]b[ `UbX`c`hAYf`k UHYf`Zcf`  
hAY`i gY`cZ`hAY`7cbhfUMtcf`fAg`DYfgcbbY`"

Gi V! 7`Ui gY`\*`%`  
A YUgi fYg`U[ U]bgi`bgYVh`  
UbX`DYghBi ]gubW`

HAY7cbhfUMtcf`g\U`UhU`hja Yg`hU\_Y`hAY`bYWggUfmdfYVWi h]cbg`  
hc`dfchVh`hAY`7cbhfUMtcf`fAg`DYfgcbbY`Ya d`cmYX`cb`hAY`G]hY`  
Zfca`\_]bgYVh`UbX`dYghbi ]gubWZ`UbX`hc`fYXi W`hAY`XUb[ Yf`hc`  
hAY]f` \YU`h`" HAY`7cbhfUMtcf` g\U` V`a d`mi k ]h` U` hAY`  
fY[ i`Uh]cbg`cZ`hAY`cW` \YU`h`Ui h`cf]hYgZ`]bWi X]b[ `i gY`cZ`  
Uddfcd`f]UHY`]bgYVh`VXY`"

Gi V! 7`Ui gY`\*`%`  
5V`c`]W@ei cf`cf`8fi [ g`

HAY`7cbhfUMtcf`g\U`bchZ`chAYfk ]gY`h`Ub`]b`UW`fX`UbW`k ]h`  
hAY`@k`g`cZ`hAY`7ci b`fmZ`ja dcfhZ`gY`Z[ ]j YZ`VU`hYf`cf`chAYfk ]gY`  
X]gdcgY`cZ`UbmU`V`c`]W]ei cf`cf`Xfi [ gZ`cf`dYfa ]h`cf`U`ck`  
]a dcf`Uh]cbZ`gUYZ` [ ]Z`Z`VU`hYf`cf`X]gdcgU` hAYfY`hc` Vmi  
7cbhfUMtcf`fAg`DYfgcbbY`"

Gi V! 7`Ui gY`\*`%`  
5fa g`UbX`5a a i b]h]cb`

HAY`7cbhfUMtcf`g\U`bch[ ]j YZ`VU`hYfZ`cf`chAYfk ]gY`X]gdcgY`cZ`  
hc`UbmidYfgcbZ`UbmUfa g`cf`Ua a i b]h]cb`cZ`Ubm\_]bXZ`cf`U`ck`  
7cbhfUMtcf`fAg`DYfgcbbY`hc`Xc`gc`"

Gi V! 7`Ui gY`\*`%`  
: Ygh] Ug`UbX`FY][ ]ci g`  
7i g`ca g`

HAY7cbhfUMtcf`g\U`fYgdYVh`hAY`7ci b`fmZ`fYV`[ b]hYX`ZYgh] UgZ`  
XUhg`cZ`fYgh`UbX`fY][ ]ci g`cf`chAYf`W`g`ca g`"

Gi V! 7`Ui gY`\*`&\$`  
: i bYfU`5ffUb[ Ya Ybhg`

HAY`7cbhfUMtcf`g\U`VY`fYgdcbg]V`YZ`hc`hAY`Yi hYbh`fYei ]fYX`Vmi  
cW`fY[ i`Uh]cbgZ`cf`a U\_]b[ `UbmZ`bYfU`UffUb[ Ya Ybhg`Zcf`Ubm`  
cZ`]hg`cW`Ya d`cmY`g`k`c`a UmX]Y`k` \]Y`Yb[ U[ YX`i dcb`hAY`  
K`cf\_g`"

Gi V! 7`Ui gY`\*`"&%`  
: cfWX`@U`ci f`

HAY`7cbhfUMtcfZ`]bWi X]b[ `]hg`Gi V`bhfUMtcf`gZ`g\U`bchYa d`cm`  
cf`Yb[ U[ Y`ZcfWX`U`ci f`": cfWX`U`ci f`V`bg]ghg`cZ`Ubmik`cf`  
cf`gyfj ]WZ`bchj`c`i b`Uf]mdYfZ`fa YXZ`h`Uh]g`Yi U`mYX`Zfca`Ub`  
]bX]j ]Xi U`i bXYf`h`fYU`h`cZ`ZcfW`cf`dYbU`mZ`UbX`]bWi XYg`Ubm`  
\_]bX`cZ`]bj`c`i b`Ufmc`f`V`a di `gc`fm`U`ci fZ`g V`Ug`]bXYbh`fYX`  
U`ci fZ`VcbXYX`U`ci f`cf`gja ]Uf`U`ci f!V`bhfUM]b[ `UffUb[ Ya Ybhg`"

Bc`dYfgcbg`g\U`VY`Ya d`cmYX`cf`Yb[ U[ YX`k`c` \Uj Y`VYYb`  
gi V`YVh`hc`fUZZ]W\_]b[ "HfUZZ]W\_]b[ `]b`dYfgcbg`]g`XYZ]bYX`Ug`hAY`  
fYVh`]ha YbhZ`fUbgdcf`U]h]cbZ`fUbgZYfZ`UfVci f]b[ `cf`fYW]dhcZ`  
dYfgcbg`Vma YUbg`cZ`hAY`h`fYU`h`cf`i gY`cZ`ZcfW`cf`chAYf`Zfca`g`  
cZV`YfV]cbZ`U`Xi V]cbZ`Z`U`i XZ`XYWdh]cbZ`U`i gY`cZ`dck`YfZ`cf`cZ`  
U`dcg]h]cb`cZ`j`i`bYfUW`]mZ`cf`cZ`hAY` [ ]j ]b[ `cf`fYW]j ]b[ `cZ`  
dUn`a Ybhg`cf`VYbYZ]hg`hc`UW]Yj Y`hAY`V`bgYbh`cZ`U`dYfgcb`  
\Uj ]b[ `V`bhf`c`cj`Yf`UbchAYf`dYfgcbZ`Zcf`hAY`di fdcgYg`cZ`  
Yi d`c]h]h]cb`"

G! V! 7`U! gY`\* "&&  
7\]X`@Vci f`

H\Y`7cbhfUWcfz]bWl X]b[ `]hg'Gi VV`bhfUWcfgzg\U`bchYa d`cm  
cf`Yb[ U[ Y`U`W]X`i bXYf`h\Y`U[ Y`cZ%( i b`Ygg`h\Y`bU]cbU`Uk`  
gdYVW]YgU`\][ \Yf`U[ Y`f`h\Y`a ]b]a i a `U[ YL`

H\Y`7cbhfUWcfz]bWl X]b[ `]hg'Gi VV`bhfUWcfgzg\U`bchYa d`cm  
cf`Yb[ U[ Y`U`W]X`VYhk YYb`h\Y`a ]b]a i a `U[ Y`UbX`h\Y`U[ Y`cZ  
% `]b`U`a Ubbyf`h\U]g`\_Y`mhc`VY`\UnUfXci g`zcf`hc`]b`hYfZYf`  
k ]h`z`h\Y`W]X`Ag`YXi VU]cbz`cf`hc`VY`\Ufa Z`\_`hc`h\Y`W]X`Ag`  
\YU`h`cf`d`ng]W]Z`a YbU]Z`gd]f]i U]Z`a cfU]Z`cf`gcV]U`  
XYj Y`cda Ybh`

H\Y`7cbhfUWcfz]bWl X]b[ `]hg'Gi VV`bhfUWcfgzg\U`cb`mYa d`cm  
cf`Yb[ U[ Y`W]X`fYb`VYhk YYb`h\Y`a ]b]a i a `U[ Y`UbX`h\Y`U[ Y`cZ  
% `UZ`hYf`Ub`Uddfcdf]U`h`f]g`\_UggYgga Ybh`\Ug`VYyb`V`bXi VWX`  
Vm`h\Y`7cbhfUWcfz]k ]h`h\Y`9b[ ]b`Yf`Ag`V`bgYbh`H\Y`7cbhfUWcfz`  
g\U`VY`g`V`YV`h`cf`fY[ i `Uf`a cb]hc`f]b[ `Vm`h\Y`9b[ ]b`Yf`h\U]`  
]bWl XYg`a cb]hc`f]b[ `cZ`\YU`h`z`k`cf\_]b[ `V`bX]h]cbg`UbX`\ci fg`  
cZk`cf`\_`

K`cf`\_`V`bg]XYfYX`\UnUfXci g`Zcf`W]X`fYb`]g`k`cf`\_`h\U]Z`Vm]hg`  
bU]h`fY`cf`h\Y`V]fV`a g`UbWg`]b`k`\]W`]h]g`W]f]YX`ci h`z]g`\_Y`m  
hc`Y`cdUfX]nY`h\Y`\YU`h`z`g`ZY`m`z`cf`a`cfU`g`cZ`W]X`fYb`"Gi`W`  
k`cf`\_`UW]j`]h]Yg`dfc`\]V]hYX`Zcf`W]X`fYb`]bWl XY`k`cf`\_`

k ]h`Yl`d`cg`fY`hc`d`ng]W]Z`dgn`W`c`c[ ]W`cf`gYl`i`U`Wi`gY/  
i`bXYf[ fci`bX`z`i`bXYfk`U`hYf`z`k`cf\_]b[ `Uh`\Y][ \hg`cf`]b`V`bZ]bYX`  
gdUWg`  
k ]h`XUb[ Yfci`g`a`UW]bYfn`z`Yei`]da`Ybh`cf`hc`c`g`zcf`]bj`c`j`]b[ `  
\UbX`]b[ `cf`h`Ub`g`d`cf`h`cZ`YU]m`c`UXg`  
]b`i`b`YU`h`m`Ybj`]fcb`a`Ybh`g`Yl`d`cg]b[ `W]X`fYb`hc`\UnUfXci`g`  
gi`V`g`UbW`g`z`U[ Ybh`g`z`cf`d`fc`W`gg`Y`g`z`cf`hc`h`Ya`dYfU]h`fY`g`z`bc]gY`cf`  
j`]VfU]cb`X`Ua`U[ ]b[ `hc`\YU`h`/cf`



i bXYfX]ZZW`hVxbX]h]cbg'g' W`Ug'k cf\_`Zcf`cb[ `\\ci fgZXi f]b[ ` hY`b][ `\\hcf`]b`VxbZ]bYa Ybhcb hY`dfYa ]gYgcZ hY`Ya d`cnYf`

Gi V! 7`Ui gY`\*`&`  
9a d`cna YbhFYVxfXg`cZ  
K cf\_Yfg`

H`Y` 7cbfUMVcf`g`U` \_YYd`Vta d`YH` UbX`UWVfUH`fYVxfXg`cZ  
hY`Ya d`cna YbhcbZ`UVci f`Uh`hY`G]hY`"H`Y`fYVxfXg`g`U` ]bW` XY`  
hY`bUa YgZU[ YgZ[ YbXYfgZ`\\ci fg'k cf\_YXZUbX`k U[ Yg'dU]X`hc`U`  
k cf\_Yfg`" H`Y`gY`fYVxfXg`g`U` VY`g` a a Uf]gYX`cb`U` a cbh`m  
VUg]g`UbX`g` Va ]hYX`hc`hY`9b[ ]bYYf`" H`Y`gY`fYVxfXg`g`U` VY`  
]bW` XYX` ]b` hY` XYH]g`hc` VY`g` Va ]hYX` Vm`hY` 7cbfUMVcf`  
i bXYfGi V! 7`Ui gY`\*`%\$`fYVxfXg`cZ 7cbfUMVcf`f`g`DYfgcbbY`UbX`  
9ei ]da Ybh`

Gi V! 7`Ui gY`\*`&(`  
K cf\_Yfg`f`Ub]gU]cbg`

fb`Vti bhf]Yg'k`\\fY`hY`fY`Yj Ubh`UVci f`Uk`g`fYVxf`b]gY`k cf\_Yfg`f`  
f][`\\hg`hc`Zcfa`UbX`hc`e]b`k cf\_Yfg`f`cf[ Ub]gU]cbg`cZ hY`f`  
W`ccg]b[ `UbX`hc`VUf[ U]b`Vt`YVW] Y`mk ]h`ci h]bhYfZfYbWZ`hY`  
7cbfUMVcf`g`U`Vta d`mk ]h`g` W`Uk`g`fb`g` W`VWV`a g`UbWgZ`  
hY`fc`Y`cZ`Y[ U`m`YghU`]g`YX`k cf\_Yfg`f`cf[ Ub]nU]cbg`UbX`  
`Y[ ]h`a UH`k cf\_Yfg`f`Yd`fYgYbhU] Yg'k ]`VY`fYgdYVW`XZ`UbX`h`Ym`  
k ]` VY`dfcj ]XYX`k ]h` ]bZcfa U]cb`bYYXYX`Zcf`a YUb]b[ Z`  
bY[ ch]U]cb ]b`U]h`a Y`ma UbbYf`"K`\\fY`hY`fY`Yj Ubh`UVci f`Uk`g`  
g` Vg`Ubh]U`m`fYgh]V`k cf\_Yfg`f`cf[ Ub]gU]cbgZ`hY` 7cbfUMVcf`  
g`U`YbUV`Y`U`HfbU]h] Y`a YUbg`Zcf`hY` 7cbfUMVcf`f`g`DYfgcbbY`  
hc`YI`dfYgg`hY`f`[ f]Y] UbWg`UbX`dfchYV`hY`f`f][`\\hg`fY[ UfX]b[ `  
k cf\_]b[ `Vt`bX]h]cbg`UbX`hYfa`g`cZYa d`cna Ybh`hY` 7cbfUMVcf`  
g`U`bchigYY`hc` ]bZi YbW`cf`Vt`bhf`"H`Y`gY`U`HfbU]h] Y`a YUbg`  
H`Y` 7cbfUMVcf`g`U`bchX]gW]a ]bUH`cf`fYH]UH`U[ U]bgi`hY`  
7cbfUMVcf`f`g`DYfgcbbY`k`c`dUfh]Vd`UH`Zcf`gY`\_hc`dUfh]Vd`UH`Z`  
]b`g` W`cf[ Ub]gU]cbg`UbX`Vt`YVW] Y`VUf[ U]b]b[ `cf`U`HfbU]h] Y`  
a YW`Ub]ga`g`" K cf\_Yfg`f`cf[ Ub]gU]cbg`UfY`YI`dYVW`X`hc`ZU]f`m`  
fYdfYgYbh`hY`k cf\_Yfg`]b`hY`k cf\_ZcfW`"

Gi V! 7`Ui gY`\*`&`  
Bcb! 8]gW]a ]bU]cb`UbX`  
9ei U`Cddcfh`b]m`

H`Y` 7cbfUMVcf`g`U` bch`a U`Y` XYW]cbg`fY`Uh]b[ `hc`hY`  
Ya d`cna Ybhcf`fYU`h`a Ybh`cZ 7cbfUMVcf`f`g`DYfgcbbY`cb`hY`  
VUg]g`cZ dYfgcbbU`W`UfUMVf]gh]Vg`i b`fY`UH`X`hc` ]b`\\fY`bhi`eV`  
fYei ]fYa Ybhg`" H`Y` 7cbfUMVcf`g`U` VUgY`hY`Ya d`cna Ybh`cZ  
7cbfUMVcf`f`g`DYfgcbbY`cb`hY`df]bVd`Y`cZ`Yei U`cddcfh`b]m`  
UbX`ZU]f`fYU`h`a YbhZ`UbX`g`U`bchX]gW]a ]bUH`k ]h`fYgdYV`hc`  
Ubm`UgdYVW]`cZ`hY`Ya d`cna Ybh`fY`Uh]cbg`]dZ` ]bW`X]b[ `  
fYV` ]h`a Ybh`UbX`\\f]b[ Z`Vta dYbgU]cb`f]bW`X]b[ `k U[ Yg`UbX`  
VYbYZ]hgZ`k cf\_]b[ `Vt`bX]h]cbg`UbX`hYfa`g`cZ`Ya d`cna YbhZ`  
UWVgg`hc`fU]b]b[ Z`eV`Ugg][`ba YbhZ`dfca`ch]cbZ`hYfa` ]bU]cb`cZ`  
Ya d`cna Ybhcf`fYh]fYa YbhZ`UbX`X]gW]d` ]bUfmdfUMVWg`"



GdYVU`a YUgi fYg`cZdfchVW]cb`cf`Ugg]ghUbW`hc`fYa YXmidUgh  
X]gV]a ]bUh]cb`cf`gY`VW]cb`Zcf`U`dUfhVW`Uf`eV`VUgYX`cb`hY`  
]b\YfYbh fYei ]fYa Ybhg`cZ`hY`eV`gU`bch`VY`XYa YX`  
X]gV]a ]bUh]cb`hY`7cbhfUMcf`gU`dfcj ]XY`dfchVW]cb`UbX`  
Ugg]ghUbW`Ug`bYVWggUfm`hc`Ybg`fY`bcb!X]gV]a ]bUh]cb`UbX`  
Yei U`cddcfh b]hñ`]bW`X]b[ `Zcf`gdYVW]W[ fci dg`g`VW`Ug`  
k`ca YbždYcd`Y`k`]h`X]gU]`]h]Ygža ][ fUbhk`cf`Yfg`UbX`VW]`XfYb`  
fēZk`cf`\_]b[ `U[ Y`]b`UWēfXUbW`k`]h`Gi`V!`7`Ui`gY`\*`&`&`

Gi V!`7`Ui`gY`\*`&`  
7cbhfUMcf`Ag`DYfgcbbY`  
; f]Yj UbW`A`YVXUb]ga`

HAY`7cbhfUMcf`gU` \Uj`Y`U` [ f]Yj UbW`a`YVXUb]ga` Zcf`  
7cbhfUMcf`Ag`DYfgcbbY`Z`UbX`k`YfY`fY`Yj Ubh`hY`k`cf`Yfg`  
cf[ Ub]nUh]cbg`ghYX`]b`Gi`V!`7`Ui`gY`\*`&`(`ž`hc`fU]gY`k`cf`d`UW`  
VēbWfbg`hY`[ f]Yj UbW`a`YVXUb]ga`gU`VY`dfcdcfh]cbUhY`hc`  
hY`bUh`fYž`gWYž`f]g`g`UbX`]a`dUW]g`cZ`hY`7cbhfUM`hY`  
a`YVXUb]ga`gU` UXXfYgg`VēbWfbg`dfca`dhñ`i`g]b[ `Ub`  
i`bXYfghUbXUV`Y`UbX`fUbgdUfYbhdFcWgg`h`Uh`dfcj ]XYg`h]a`Y`m`  
ZYXVUW`hc`h`cgY`VēbWfbYX`]b`U`Ub[ i`U[ Y`hY`mi`bXYfghUbXž`  
k`]h`ci`h`Ubm`fYf`]Vi`h]cbž`UbX`gU`cdYfU`]b`Ub`]bXYdYbXYbh`  
UbX`cV`YV]j`Y`a`UbbYf`

HAY`7cbhfUMcf`Ag`DYfgcbbY`gU`VY`]bZcfa`YX`cZ`hY`[ f]Yj UbW`  
a`YVXUb]ga`Uh`hY`h]a`Y`cZ`Yb[ U[ Ya`Ybh`Zcf`hY`7cbhfUMē`UbX`  
hY`a`YUgi`fYg`di`h]b`d`UW`hc`dfchVW]h`Ya`U[ U]bgh`Ubm`fYdf]gU`  
Zcf`]hg`gY`A`YUgi`fYg`k`]VY`di`h]b`d`UW`hc`a`U`Y`hY`[ f]Yj UbW`  
a`YVXUb]ga`YUg]mUWVgg]V`Y`hc`U`7cbhfUMcf`Ag`DYfgcbbY`

HAY`[ f]Yj UbW`a`YVXUb]ga`gU`bch]a`dYXY`UWVgg`hc`chYf`  
↑X]VU`cf`UXa`]b]ghU]j`Y`fYa`YX]Yg`h`Uha`][`hVY`Uj`U]UV`Yž`cf`  
gi`Vgh`h`hY`Zcf`[ f]Yj UbW`a`YVXUb]ga`g`dfcj ]XYX`h`fci`[`  
Vē`YV]j`Y`U[ fYYa`Ybhg`

HAY`[ f]Yj UbW`a`YVXUb]ga`a`Um`i`h]`nY`Yi`]gh]b[ `[ f]Yj UbW`  
a`YVXUb]ga`gž`dfcj ]X]b[ `h`Uh`h`Ym`UfY`dfcdYf`m`XYg][`bYX`UbX`  
]a`d`Ya`YbhYXž`UXXfYgg`VēbWfbg`dfca`dhñ`UbX`UfY`fYUX]m`  
UWVgg]V`Y`hc`g`VW`dfc`YV`k`cf`Yfg`9`]gh]b[ `[ f]Yj UbW`  
a`YVXUb]ga`g`a`UmVY`gi`dd`Ya`YbhYX`Ug`bYXYX`k`]h`7cbhfUM`  
gdYVW]WUffUb[ Ya`Ybhg`

Gi V!`7`Ui`gY`\*`&`+`  
HfU]b]b[ `cZ`7cbhfUMcf`Ag`  
DYfgcbbY`

HAY`7cbhfUMcf`gU`dfcj ]XY`Uddfcdf]UhY`fU]b]b[ `hc`fY`Yj Ubh`  
7cbhfUMcf`Ag`DYfgcbbY`cb`9G`UgdYV]g`cZ`hY`7cbhfUMē`]bW`X]b[ `  
Uddfcdf]UhY`gYbg]h]nUh]cb`cb`dfc`V]h]cb`cZ`G95ž`UbX`YU`h`  
UbX`gUZY`hm`fU]b]b[ `fYZYffYX`hc`]b`Gi`V!`7`Ui`gY`(``

5g`ghYX`]b`hY`GdYVW]W]cb`cf`Ug`]bgh`VW`X`Vmi`hY`9b[ ]bYfž`  
hY`7cbhfUMcf`gU`Ugc`U`ck`Uddfcdf]UhY`cddcfh`b]h]Yg`Zcf`  
hY`fY`Yj Ubh`7cbhfUMcf`Ag`DYfgcbbY`hc`VY`fU]bYX`cb`9G`UgdYV]g`  
cZ`hY`7cbhfUM`Vmi`hY`9a`d`cmYf`Ag`DYfgcbbY`

G! V! 7`Ui gY`+"`  
-bgdYVWjcb`

G! V! 7`Ui gY`+"`  
Ck bYfg\jd`cZD`Ubh`UbX`  
A UHyfjUg`

G! V! 7`Ui gY`,`%`  
7ca a YbW a Ybh cZK cf\_`

H\Y`7cbhfUMfcf`g\U``dfcj`jXY`hfU]b]b[`cb`G95ž`]bWl`X]b[`jhg`  
dfYj`Ybh]cbžhc`UbmcZ]hg`dYfgcbbY`k`c`UgUfc`Y`hc`gi`dYfj`jgY`  
cH\Yf`7cbhfUMfcf`Āj`DYfgcbbY`"

H\Y`Zc``ck`j]b[`jg`UXXYX`j]b`h\Y`ZjfgidUfU[`fUd\`UZhYf`Ā9a`d`cnYfĀj`  
DYfgcbbY`ĀĀj]bWl`X]b[`h\Y`6Ub`\_`ghUZZcf`Vēbgj`hUbhg`UMj]b[`cb`  
h\Y`6Ub`\_Āj`VY\Už`ghU`Y\c`XYfg`UbX`h`fX`dUfhjYgž`gi`W`Ug`  
]bXYdYbXYbh`Yl`dYfhgž`cW`Vēa`a`i`b]h]Ygž`cf`bcb!`  
[`cj`Yfba`YbHj`cf[`Ub]hUj]cbgĀ

H\Y`Zc``ck`j]b[`jg`UXXYX`Ug`fVēfj`Ē`  
Āfj]Ē`Wffmēi`hYbj`jfcba`YbHj`UbX`gcVjU`Ui`X]hēUbXĀ

H\Y`Zc``ck`j]b[`jg`UXXYX`VYZcfY`h\Y`ZjfgidUfU[`fUd\`  
Ā9l`WdhUg`cH\Yfk`jgY`dfcj`jXYX`j]b`h\Y`7cbhfUMĀ

H\Y`G! V! 7`Ui gY`jg`fYd`UWX`j]b`jhg`Ybh]fYfmk`j]h`h\Y`Zc``ck`j]b[`  
ĀH\Y`9b[`j]bYYf`g\U``[`j]Y`U`B`chjW`hc`h\Y`7cbhfUMfcf`ghUj]b[`h\Y`  
7ca`a`YbW`a`Ybh`8UHyž`bch`Ygg`h`Ub`%(`XUhg`VYZcfY`h\Y`  
7ca`a`YbW`a`Ybh`8UHy`"

H\Y`B`chjW`g\U``VY`jggj`YX`dfca`dhm`UZhYf`h\Y`9b[`j]bYYf`  
XYHyfa`j]bYg`h\Y`Z`Z]a`Ybh cZ h\Y`Zc``ck`j]b[`VēbX]h]cbg`

%`g][`bUhi`fY`cZ`h\Y`7cbhfUMi`5[`fYYa`Ybh`VmVch`dUfhjYgž`  
UbX`jZ`fYei`j]fYXž`Uddfcj`U`cZ`h\Y`7cbhfUMi`VmifY`Yj`Ubh`  
Ui`h`cf]h]YgcZ`h\Y`7ci`bhfmx`

&`XY`j]Yfmhc`h\Y`7cbhfUMfcf`cZ`fYUgcbUV`Y`Yj`jXYbW`cZ`  
h\Y`9a`d`cnYfĀj`Z]bUbVjU`UffUb[`Ya`Ybhg`fil`bXYf`G! V!`  
7`Ui`gY`&(`9a`d`cnYfĀj`j]bUbVjU`5ffUb[`Ya`YbhgQ`

`"Yl`Wdh`jZ`cH\Yfk`jgY`gdYVjYX`j]b`h\Y`7cbhfUMi`8UHuž`  
YZZYVj]Y`UWVgg`hc`UbX`dcggYgg]cb`cZ`h\Y`G]hY`[`j]Yb`hc`  
h\Y`7cbhfUMfcf`hc[`YH\Yf`k`j]h`gi`W`dYfa`jgg]cbf]gi`bXYf`  
fUē`cZ`G! V! 7`Ui`gY`%%`σca`d`j]UbW`k`j]h`@uk`gQ`Ug`  
fYei`j]fYX`Zcf`h\Y`Vēa`a`YbW`a`Ybh cZ h\Y`K`cf\_g/`

("fYV]dh`Vm`h\Y`7cbhfUMfcf`cZ`h\Y`5Xj`UbW`DUha`Ybh`  
i`bXYf`G! V! 7`Ui`gY`%(`&`QXj`UbW`DUha`YbhQdfcj`jXYX`  
h`Uh`h\Y`VēffYgdcbX]b[`VUb`\_`[`i`UfUbHY`Ug`VYYb`  
XY`j]YfYX`Vm`h\Y`7cbhfUMfcf/`

)"Vēbgj]h`h]cb`cZ`h\Y`8556`j]b`UWēfXUbW`k`j]h`G! V!`  
7`Ui`gY`&%`UbX`G! V! 7`Ui`gY`&%`&Ug`Udd`jWV`Y`"

Gì V! 7`Ui gY`%&+`  
F][`hZ5WVgg`UZhYf`  
HU]b[`Cj Yf`

Gì V! 7`Ui gY`(" %cb`hY`A UbU[ Ya YbhGhfUHy[ JYg`UbX`  
=a d`Ya YbhU]cb`D`Ubg`UbX`hY`7! 9GA`D`UbX`Gì V! 7`Ui gY`(" %cb`  
hY`\\YU`h`UbX`gUZYhma`Ubi`U`Zh`hY`7`cbhfUMtcf`g`U`Vt`a`a`YbW`  
hY`YI`YW`h]cb`c`Zh`Y`K`cf\_g`Ug`g`cc`b`Ug`]g`fYUgc`b`Uv`mdfUMt`WV`Y`  
UZhYf`hY`7`ca`a`YbW`a`Ybh`8`UHy`Z`UbX`g`U`h`Yb`dfc`WYX`k`]h`  
hY`K`cf\_g`k`]h`Xi`Y`YI`dYX`h]cb`UbX`k`]h`ci`hXY`U`h`A`

Gì V! 7`Ui gY`%&+`  
F][`hZ5WVgg`UZhYf`  
HU]b[`Cj Yf`

=b`hY`gYVt`bX`d`UFU[ fUd`\\`Z`K`\\`YbYj`Yf`hY`7`cbhfUMtcf`]bhYbXg`h`  
UWVgg`Ubm`d`Ufh`c`Z`hY`K`cf\_g`Xi`f]b[`hY`fY`Yj`Ubh`8`B`D`A`]g`  
fYd`UWVX`k`]h`.

Gì V! 7`Ui gY`%&+`  
F][`hZ5WVgg`UZhYf`  
HU]b[`Cj Yf`

AK`\\`YbYj`Yf`Z`i`bh`hY`XUHy`&`XUhg`UZhYf`]gg`Y`c`Z`hY`  
DYfZ`fa`UbW`7`Yfh]Z`W`hY`Zh`hY`7`cbhfUMtcf`]bhYbXg`h`UWVgg`Ubm`  
d`Ufh`c`Z`hY`K`cf\_g`A`

Gì V! 7`Ui gY`%`" `%  
J`Uf]U]cb`Vm`=bgfi`W]cb`

Gì VdUFU[ fUd`\\`%`" `%fUE`]g`fYd`UWVX`k`]h`. AU`XYg`W]dh]cb`c`Zh`Y`  
j`Uf]YX`k`cf\_`dYfZ`fa`YX`cf`h`VY`dYfZ`fa`YX`Z`]b`W`X`]b[`XY`U]`g`  
c`Z`hY`fYgc`i`fW`g`UbX`a`Y`h`c`Xg`UXcd`hYX`cf`h`VY`UXcd`hYX`Vm`  
hY`7`cbhfUMtcf`Z`UbX`g`Z]W]Ybhi`9G`]b`Z`fa`U]cb`h`Yb`U`Y`Ub`  
Yj`U`i`U]cb`c`Z`9G`f]g\_g`UbX`]a`d`UMt`g`A`

Gì V! 7`Ui gY`%`(" %  
Dfcj`lg]cbU`Gi`a`g`

H`Y`Zc`ck`]b[`]g`]bgYfHYX`Ug`hY`dYbi`h]a`UHy`dUFU[ fUd`\\`  
.  
A`hY`Dfcj`]g]cbU`Gi`a`g`U`VY`i`gYX`h`Vt`g`Yf`hY`9a`d`cnYffg`  
g`UfY`c`Z`hY`8556`a`Ya`VYfg`AZ`Yg`UbX`YI`dYbgYg`Z`]b`UWt`fX`UbW`  
k`]h`7`Ui`gY`&%`B`c`d`f]c`f`]bgfi`W]cb`c`Z`hY`9b[`]b`Yf`g`U`VY`  
fYei`]fYX`k`]h`fYgdYVt`h`hY`k`cf\_`c`Z`hY`8556`hY`7`cbhfUMtcf`  
g`U`g`Va`]h`hY`8556`a`Ya`VYfg`A`]b`c`]Wg`UbX`g`U]g`Z`UMt`fm`  
Yj`]XYbW`c`Z`\\`Uj`]b[`]d`U]X`%\$\$\$`c`Z`g`VX`]b`c`]Wg`Ug`d`Ufh`c`Z`hY`  
g`Vg`Ubh]U]cb`c`Z`h`cgY`G`U`h`Ya`Ybh`g`g`Va`]hYX`i`bXYf`Gì V!`  
7`Ui`gY`%`(" %`  
..

Gì V! 7`Ui gY`%`" %  
5X↑`g`a`Ybh`g`Z`f`7`\\`Ub[`Yg`  
]b`@k`g`

H`Y`Zc`ck`]b[`]dUFU[ fUd`\\`]g`UXXYX`U`h`hY`YbX`c`Z`hY`Gì V!`  
7`Ui`gY`.  
.  
AB`c`h`]h`g`U`bX`]b[`]hY`Zc`fY[`]b[`]Z`hY`7`cbhfUMtcf`g`U`b`ch`VY`  
Ybh]hYX`h`Ub`YI`hYbg]cb`c`Z`h]a`Y`]Z`hY`fY`Yj`Ubh`XY`Um`\\`Ug`  
U`fYUX`m`VYYb`hU`Yb`]b`h`UWt`i`bh`]b`hY`XY`h`fa`]b`U]cb`c`Z`U`  
d`fYj`]ci`g`YI`hYbg]cb`c`Z`h]a`Y`UbX`g`VX`7`c`g`i`g`U`b`ch`VY`  
gYd`UfU`h`md`U]X`]Z`hY`g`Ua`Y`g`U`U`fYUX`m`\\`Uj`Y`VYYb`hU`Yb`]b`h`  
UWt`i`bh`]b`hY`]b`XYI`]b[`]c`Z`Ubm`]b`di`hg`h`hY`HUV`Y`c`Z`  
5X↑`g`a`Ybh`8`UHU`]b`UWt`fX`UbW`k`]h`hY`d`fcj`]g]cb`g`c`Z`Gì V!`  
7`Ui`gY`%`"+`5X↑`g`a`Ybh`g`Z`f`7`\\`Ub[`Yg`]b`7`c`g`h`A`

Gi V!7`Ui gY`% "+..... 5XX`h`Y`Zc`ck`]b[ `dUfU[ fUd\`Uh`h`Y`YbX`cb`m]Z`7cbhfUMi8UHJ`  
5X↑ gha Ybhg`Zcf`W`Ub[ Yg` gdYVWZ]Yg` UX↑ gha Ybh`g\U` Udd`n` C`h`Yfk`]gYž`df]Wg`g\U` VY`  
]b`7cgh` Z]l`YX`Xi`f]b[ `h`Y`Xi`fU]cb`cZ`h`Y`7cbhfUMi`

GWYXi`Y`cZ7cgh`bXYI`Uh]cb.`: cfa`i`U`Zcf`5X↑ gha YbhZcf`  
7\Ub[ Y`]b`7cgh`

Db`1`U`Ž`V`@#`@`Ž`W9b`#9c`Ž`X`A`b`#A`c`Ž`.....k`YfY.`

ĀDbĀ]gh`Y`UX↑ gha Ybha`i`h]d`]Yf`hc`VY`Udd`]YX`hc`h`Y`Ygh]a`UhX`  
VčbhfUMi]`U`i`Y`]b`h`Y`fY`Yj`Ubh`W`ffYbW`h`cZ`h`Y`k`cf`\_`WUff]YX`ci`h`  
]b`dYf]cX`ĀbĀž`h`]g`dYf]cX`VY]b[ `U`a`cbh`i`b`Ygg`c`h`Yfk`]gY`  
ghUhX`]b`h`Y`7cbhfUMi8UHJ`

ĀUĀ`]g`U`Z]l`YX`VčYZZ]WYbhz`ghUhX`]b`h`Y`fY`Yj`Ubh`hUV`Y`cZ`  
UX↑ gha YbhXUHž`fYdfYgYbh]b[ `h`Y`bcb!`UX↑ ghUV`Y`dcfh]cb`]b`  
VčbhfUMi`U`dUna`Ybhg`

ĀVĀž`ĀWĀž`ĀXĀž`°`UFY`VčYZZ]WYbhz`fYdfYgYbh]b[ `h`Y`Ygh]a`UhX`  
dfcdcfh]cb`cZ`YUW`Včgh`Y`Ya`Ybh`fY`UhX`hc`h`Y`YI`YW]h]cb`cZ`  
h`Y`K`cf`\_gž`Ug`ghUhX`]b`h`Y`fY`Yj`Ubh`hUV`Y`cZ`UX↑ gha YbhXUHJ`  
gi`W`hUVi`UhX`Včgh`Y`Ya`Ybhg`a`UmVY`]bX]WU]h]Y`cZ`fYgci`fWg`  
gi`W`Ug`UVci`fžYei`]da`YbhUbX`a`UhYf]Ug`

ĀbĀž`Ā9bĀž`ĀA`bĀž`°`UFY`h`Y`W`ffYbh`Včgh`]bX]Wg`cf`fYZfYbW`  
df]Wg`Zcf`dYf]cX`ĀbĀž`YI`dfYggYX`]b`h`Y`fY`Yj`Ubh`W`ffYbW`h`cZ`  
dUna`Ybhž`YUW`cZ`k`\]W`]g`Udd`]WV`Y`hc`h`Y`fY`Yj`Ubh`hUVi`UhX`  
Včgh`Y`Ya`Ybhcb`h`Y`XUH`(-`XUhg`df]cf`hc`h`Y`Ugh`XUmicZ`h`Y`  
dYf]cX`f]hc`k`\]W`h`Y`dUfh]W`Uf`DUna`Ybh`7Yfh]Z]WU]h`fY`UhYgž`  
UbX`

Ā@Āž`Ā9c`Āž`ĀA`c`Āž`°`UFY`h`Y`VUgY`Včgh`]bX]Wg`cf`fYZfYbW`df]Wgž`  
YI`dfYggYX`]b`h`Y`fY`Yj`Ubh`W`ffYbW`h`cZ`dUna`Ybhž`YUW`cZ`k`\]W`  
]g`Udd`]WV`Y`hc`h`Y`fY`Yj`Ubh`hUVi`UhX`Včgh`Y`Ya`Ybhcb`h`Y`  
6UgY`8UH`"

h`Y`Včgh`]bX]Wg`cf`fYZfYbW`df]Wg`ghUhX`]b`h`Y`hUV`Y`cZ`  
UX↑ gha YbhXUHJ`g\U`VY`i`gYX`"ž`h`Y]f`gci`fW`]g`]b`Xci`Vhž`]h`  
g\U`VY`XYH`fa`]bYX`Vm`h`Y`9b[`]bYf`":cf`h`]g`di`fdcgyž`  
fYZfYbW`g\U`VY`a`UXY`hc`h`Y`j`U`i`Yg`cZ`h`Y`]bX]Wg`UhghUhX`  
XUHg`fēi`chYX`]b`h`Y`Zci`fh`UbX`Z]Z`h`Vč`i`a`bg`fYgdYVW]j`YmicZ`  
h`Y`hUV`Yē`

ž`h`Y`W`ffYbW`h`]b`k`\]W`h`Y`7cbhfUMi`df]W`]g`YI`dfYggYX`]g`  
X]ZZYfYbh`Zca`h`Y`W`ffYbW`h`cZ`h`Y`Vč`i`bhfmcZ`cf][`]b`cZ`h`Y`  
]bX]Wgž`U`VčffYV]cb`ZUMcf`k`]VY`Udd`]YX`hc`Uj`c]X`]bVčffYV]`  
UX↑ gha Ybhg`cZ`h`Y`7cbhfUMi`df]W`"h`Y`VčffYV]cb`ZUMcf`g\U`  
VY`Nš`#Nš`žk`YfYž`

N\$ 1` HAY`bi a VYf`cZ i b]hg`cZ WffYbWmcZ HAY`cf][`]b`cZ HAY`  
]bX]Wg`k \]W`Yei U`hc`cbY`i b]hcZ HAY`WffYbWmcZ HAY`  
7cbfUW`Df]W`cb`HAY`6UgY`XUHYZUbX`

N% 1` HAY`bi a VYf`cZ i b]hg`cZ WffYbWmcZ HAY`cf][`]b`cZ HAY`  
]bX]Wg`k \]W`Yei U`hc`cbY`i b]hcZ HAY`WffYbWmcZ HAY`7cbfUW`  
Df]W`cb`HAY`8UH`cZ5X↑g`a Ybh`

***ⒼchY`hc`HAY`9a d`cmYf.`]bW`XY`cbY`cZ HAY`Zc`ck]b[`Hkc`  
UHfYbUHj`Y`Hf]hg`Ug`Udd`JWV`YQ***

HAY`Zc`ck]b[`]g`UXXYX`UhHAY`YbX`cZ HAY`Gi V! 7`Ui gY.`

***ⒼHfYbUHj`Y`%Q***

ĀBckk ]H`g`UbX]b[` HAY` dfcj ]g]cbg` cZ` gi VdUFU[ fUd\` fVtZ`  
7cbfUW`cf]g` 9ei ]da YbhZ` ]bW`X]b[` YggYbh]U` gdUFY` dUfhg`  
HAYfYZcfZ]a dcfHXY`VmiHAY`7cbfUW`cf`Zcf`HAY`gc`Y`di fdcgY`cZ`  
YI YW`h]b[` HAY`7cbfUW`g`U`VY`YI Ya dhZca` HAY`dUna`YbhicZ`  
]a dcfhXi`h]Yg`UbX`Hf]Ygi dcb`]a dcfHUh]cb`Ā

Gi V! 7`Ui gY`%`%`  
HAY`7cbfUW`Df]W`

***ⒼHfYbUHj`Y`&Q***

ĀBckk ]H`g`UbX]b[` HAY` dfcj ]g]cbg` cZ` gi VdUFU[ fUd\` fVtZ`  
7cbfUW`cf]g` 9ei ]da YbhZ` ]bW`X]b[` YggYbh]U` gdUFY` dUfhg`  
HAYfYZcfYZ]a dcfHXY`VmiHAY`7cbfUW`cf`Zcf`HAY`gc`Y`di fdcgY`cZ`  
YI YW`h]b[` HAY`7cbfUW`g`U`VY`Hf`a dcfUf]mYI Ya dhZca` HAY`  
dUna`YbhicZ]a dcfhXi`h]Yg`UbX`Hf]Ygi dcb`]b]h]U`]a dcfHUh]cbZ`  
dfcj ]XYX` HAY` 7cbfUW`cf` g`U` dchg`k ]H` HAY` Wg`ca`g`  
Ui`Hcf]h]Yg`Uh`HAY`dcfhicZ`YbhfmiUb`Uddfcj`YX`YI dcfhVcbX`cf`  
VUb\_ [ i UfUbHYZj`U]X`i bh` HAY`H]a`Y`Zcf`7ca`d`Yh]cb`d`i`g`g]`  
a`cb`h`gZ`]b`Ub`Ua`ci`bh`Yei`U`hc`HAY`Z`~`]a`dcfhXi`h]Yg`UbX`Hf]Yg`  
k \]W`k`ci`X`VY`dUnW`Y`cb`HAY`UggYggYX`]a`dcfhXY`j`Ui`Y`cZ`  
g`W`7cbfUW`cf]g` 9ei ]da YbhUbX`gdUFY`dUfhgZ`UbX`W`UV`Y`]b`  
HAY`Yj`YbhHAY`7cbfUW`cf]g` 9ei ]da Ybh]g`bchYI dcfHXY`Zca` HAY`  
7ci`bfmcb`Vt`a`d`Yh]cb`cZ`HAY`7cbfUW`5`Vt`dmcZ`HAY`VcbX`cf`  
VUb\_ [ i UfUbHY`YbXcfYX`VmiHAY`Wg`ca`g`Ui`Hcf]h]Yg`g`U`VY`  
dfcj ]XYX` Vmi`HAY` 7cbfUW`cf` hc` HAY` 9a`d`cmYf` i`dcb` HAY`  
]a`dcfhUh]cb`cZ`]bX]j` ]Xi`U`]Hf`a`g`cZ`7cbfUW`cf]g` 9ei ]da YbhUbX`  
gdUFY`dUfhg`" i`dcb`YI dcfh`cZ`]bX]j` ]Xi`U`]Hf`a`g`cZ`7cbfUW`cf]g`  
9ei ]da Ybh`cf`gdUFY`dUfhgZ`cf` i`dcb` HAY` Vt`a`d`Yh]cb`cZ` HAY`  
7cbfUW`HAY` 7cbfUW`cf` g`U` dfYdUFYZ`Zcf` Uddfcj`U` VmiHAY`  
Wg`ca`g`Ui`Hcf]h]YgZ`Ub`UggYgga`YbhicZ`HAY`fYg]Xi`U`j`Ui`Y`cZ`HAY`  
7cbfUW`cf]g` 9ei ]da YbhUbX`gdUFY`dUfh`hc`VY`YI dcfHXYZ`VUgYX`  
cb`HAY`XYdfYVUh]cb`g`WY`fg`UbX`ch`Yf`W`]h`f]U`i`gYX`VmiHAY`  
Wg`ca`g`Ui`Hcf]h]YgZcf`g`W`di`fdcYgi`bXYf`HAY`dfcj ]g]cbg`cZ`  
HAY`Udd`JWV`Y`@k`g`~a`dcfhXi`h]Yg`UbX`Hf]Yg`g`U`VY`Xi`Y`UbX`

Gi V! 7`Ui gY`%( "&%"  
5Xj UbW`Duma Ybh'  
; i UfUbhYY`

Gi V! 7`Ui gY`%( " `

Gi V! 7`U! gY`%( " \* "&  
K ]h\c`X]b[ 'fla ci b!g]b!t  
Ub`#D7`

ʒʌji fY'hc'Vɛ'a d'mk jh'Ubm9G'cV'] [Uh]cbg'cf'k cf\_ 'XYgW'VYX']b'  
h'Y'K cf\_g'AFYei jfYa Ybh'gk \ ]W'a Um]bWl XY.k cf\_]b' [ci hg]XY'  
g]h'Vci bXUf]Yg'ZI Wggj Y'Xi gr'XUa U[ Y'hc'cZg]h'Y j Y[ Yh]cbž  
dc''i h]cb' cZ k UhYf' Vɛ'ifqYg' Z'ca ' c]g' cf' gYX]a YbhUh]cbž

VēbHLa ]bUh]cb'cZ'UbX'Y[" "Zfca 'c]gž\i a Ub'k UghYžXUa U[ Y'hc' UfWUYc'c[ mcf'W'h fU' \Yf]fU[ Y'ZYUhi fYgž U]f' dc''i h]cb' Ug' U' fYg' 'hcZi bU! H'cf]nYX'UbX#cf']bYZZ]VYbhVēa Vi gh]cb/

ZU]i fY'hc' fY[ i 'Uf'nfYj ]Yk '7! 9GA D'UbX#cf'i dXUHY' ]h]b'U'h]a Y'm a UbbYf'hc' UXXfYggYa Yf[ ]b[ '9G' ]gg' Ygžcf'Ubh]VdUHYX' f]g\_g'cf' ]a dUWtg/

ZU]i fY' hc' ]a d'Ya Ybhi H'Y' 7! 9GA D' Y[" " ZU]i fY' hc' d'fcj ]XY' fYei ]fYX'fU]b]b[ 'cf'gybg]h]nUh]cb/

ZU] ]b[ ' hc' \Uj'Y' Uddfcdf]UHY' VēbgYbhg#dYfa ]hg' df]cf' hc' i bXYfU\_]b[ 'K cf\_g'cf'fY'UHYX' UW]j ]h]Yg/

ZU]i fY' hc' gi Va ]hi 9G' fYdcfh#g' fUg' XYgW]VYX' ]b' DUfh]W'Uf' 7cbX]h]cbg! ' DUfh 8ēz'cf' ZU]i fY' hc' gi Va ]hi gi W' fYdcfhg' ]b' U'h]a Y'ma UbbYf/

ZU]i fY'hc' ]a d'Ya Ybh'fYa YX]Uh]cb' Ug']bg'f'i W'YX' Vm'h'Y'9b[ ]bYYf' k ]h]b' h'Y' gdYV]ZYX' h]a YZfUa Y' fY[" " fYa YX]Uh]cb' UXXfYgg]b[ ' bcb! Vēa d']UbW#g'Ā

Gi V! 7'Ui gY'%' "+"  
DUha Ybhi

5h'h'Y'YbX'cZ'gi V! dUfU[ fUd\ 'fVē' ĀubXĀ' ]g' fYd'UWYX' k ]h' ĀcfĀ UbX' h'Y'Zc''ck ]b[ ' ]bgYfHYX' Ug'f]]ē

Āf]]ēUh'U'h]a Y'k \Yb'h'Y'6Ub\_Āg''cUb'cf'W'YX]h'fZfca 'k \]W' dUfh' cZ' h'Y' dUha Ybhg' hc' h'Y' 7cbhfUW'cf' ]g' VY]b[ ' a UXYē' ]g' gi gdYbXXYžh'Y'Ua ci bhg\ck b'cb'Ubmg'UHYa Ybhgi Va ]h'YX'Vm h'Y' 7cbhfUW'cf' k ]h]b' %' XUnq' UZH'f' gi W' g'UHYa Ybhi ]g' gi Va ]h'YXžUbmx]g'WYdUbVh'VY]b[ ' fYV]ZYX' ]b'h'Y'byI hidUha Ybhi hc'h'Y'7cbhfUW'cf'/UbXĀ

5h'h'Y'YbX'cZ'gi V! dUfU[ fUd\ 'fVē' ĀĀ' ]g' fYd'UWYX' k ]h' ĀĀ'UbX' h'Y' Zc''ck ]b[ ' ]bgYfHYX'.

ĀcfžUh'U'h]a Y'k \Yb'h'Y'6Ub\_Āg''cUb'cf'W'YX]h'fZfca 'k \]W' dUfh' cZ'h'Y'dUha Ybhg'hc' h'Y'7cbhfUW'cf' ]g'VY]b[ ' a UXYē' ]g'gi gdYbXXY' h'Y'i bX]gdi h'YX'Ua ci bhg\ck b' ]b'h'Y': ]bU' G'UHYa Ybh'k ]h]b' ) \* XUnq' UZH'f' h'Y' XUH' cZ' bch]ZVh]cb' cZ' h'Y' gi gdYbg]cb' ]b' UWē'fXUbW' k ]h' Gi V! 7'Ui gY' %' "&' ØYfa ]bUh]cb' Vm 7cbhfUW'cf'Ā

Gi V! 7'Ui gY'%' "-"  
FY'YUg' cZFYh'Ybh]cb'  
A cbYm

H'Y'Zc''ck ]b[ ' ]g'UXXYX'Uh'h'Y'YbX'cZ'Gi V! 7'Ui gY'%' "-"

Ā' b'Ygg' ch'Yfk ]gY' g'UHYX' ]b' h'Y' 7cbhfUW'ē' k \Yb' h'Y' HU\_]b[ ! Cj Yf' 7Yfh]ZVh'Y' \Ug' VYYb' ]gg' YX' Zcf' h'Y'K cf\_g' UbX' h'Y' Z]fgh'



-Z hAY DYfZcfa UbW' GYWf]m UbXz ]Z Udd']WV'Yz Ub' 9G  
 DYfZcfa UbW' GYWf]mifYei ]fYX' i bXYf'Gi V! 7'U' gY' ('&']g']b'hY'  
 Zcfa 'cZ'U'XYa UbX' [i UfUbhYYz UbX' hAY' Ua ci bh [i UfUbhYYX  
 i bXYf'hY'a k\Yb'hY'HU ]b[!Cj Yf'7Yfh]ZVWY' ]g']gg' YX ]g'a cfY'  
 h.Ub\U'ZcZ'hY'FYh'bh]cb'A cbYnz'hY'b'hY'FYh'bh]cb'A cbYm  
 [i UfUbhYY' k]'' bch VY' fYei ]fYX' -Z hAY' Ua ci bh [i UfUbhYYX  
 i bXYf' hAY' DYfZcfa UbW' GYWf]m UbXz ]Z Udd']WV'Yz Ub' 9G  
 DYfZcfa UbW' GYWf]mz k\Yb' hAY' HU ]b[!Cj Yf' 7Yfh]ZVWY' ]g'  
 ]gg' YX ]g'Ygg'h.Ub\U'ZcZ'hY'FYh'bh]cb'A cbYnz'hY'FYh'bh]cb'  
 A cbYm [i UfUbhYY' k]'' cb'm VY' fYei ]fYX' Zc'f' hAY' X]ZYfYbW'  
 VYh'YYb'\U'Z' cZ' hAY' FYh'bh]cb' A cbYm UbX' hAY' Ua ci bh  
 [i UfUbhYYX' i bXYf'hY'DYfZcfa UbW' GYWf]mUbXz]ZUdd']WV'Yz  
 Ub' 9G'DYfZcfa UbW' GYWf]m'Ä

Cb`h.Y`gYj Ybh`"bY`cZ`h.Y`Zfgh`dUFU[ fUd\z`ÂGi V! 7`Ui`gY`&%`  
G5fV)fUfhcb@`jg`fYd`UWX`k`j.h.`Â7`Ui`gY`&%`@jgdi`hYg`UbX`  
5fV)fUfhcb@`

Hfci [ \ci h Gi V! 7`Ui gY' %(\%) ž Ā7cbhfUMh 8UHĀ ]g' fyD`UWX'  
k ]h. ĀG\WYXi `YcZDUma Ybh7i ffYbVWYgĀ"

$$\hat{A}U_bX\tilde{A}^{-1}q^{\dagger}XY^{\dagger}YhYX^{\dagger}Zfca^{-1}fV\tilde{L}U_bX^{\dagger}$$

H\Y'Zc`ck ]b[ ' ]g'h\Yb'UXXYX'Ug'fXŁ



ÅfXŁgdYVWZmhYhja Yk JhJb k \JW ħY7cbhfUMŁcf g\U ħYgdc bX ħc ħY BchJW ħc 7cffYVMA

Æ ħY ħ JfX dUfUžĀg\U ħa a YXJUH ħmfYgdc bXĀJg fYd UWX k Jh. Āg\U ħYgdc bX k JhJb ħY hja YgdYVWZYX Jb fXĀ: i fħYfzJb ħY ħ JfX dUfUžĀ ħc VŁa d ħmk Jh ħY hja YgdYVWZYX Jb ħY BchJW ħc 7cffYVMA Jg fYd UWX k Jh. Ā ħc VŁa d ħmk Jh ħY hja YgdYVWZYX Jb fVŁĀ

Gi V! 7`Ui gY`% "&%"  
BchJW`

Gi V! dUfU[ fUd\ ħŁ Jg fYd UWX k Jh. ĀUgYX cb fYUgcbUV Y Yj JXYbWZ\Ug Yb[ U[ YX Jb: fUi X UbX 7cff i dhcb Ug XYZbYX Jb dUfU[ fUd\ "&" cZ ħY DufhJW Uf 7cbXJhcbg! Dufh7!: fUi X UbX 7cff i dhcbžJb VŁa dYhJb[ Žcfcf Jb YI YW hJb[ ħY 7cbhfUMĀ

Gi V! 7`Ui gY`% ",  
: fUi X UbX 7cff i dhcb

ĤY Žc`ck Jb[ bYk Gi V! 7`Ui gY Jg UXXYX.

Ā

%", "% ĤY 6Ub\_ fYei JfYg VŁa d JUbW k Jh JhJg ÆhY[ fJm : fUa Yk cf\_ VŁa dfJgJb[ ħY 5ZJWb 8Y Ycda Ybh6Ub\_ ; fci dĀJ GubVŁcbg DfcWXi fYgž ĤY 6Ub\_ĀJ K \JghYV`ck Jb[ UbX 7ca d UJbhg Dc JWŁ ĤY 6Ub\_ĀJ DfcWfYa Ybh Dc JWŁ i bXYf ĤY DfcWfYa Ybh : fUa Yk cf\_ UbX Ubm chYf Udd JMVY Dc JMYg UbX DfcWXi fYg JbW XJb[ ĤY Jf i dXUHyg ž Ug gYh ŽcfĤ Jb DufhJW Uf 7cbXJhcbg! Dufh7!: fUi X UbX 7cff i dhcb"

%", "& ĤY 9a d ħmYf fYei JfYg ĤY 7cbhfUMŁcf ħc XJgŁcgY Ubm VŁa a JggJcbgcf ZYg ĤUħa Um\Uj Y VYYb dUJX cf UY ħc VY dUJX ħc U[ Ybhgcf UbmchYf dUfmk Jh fYgdYVŁ ħc ĤY VJXXJb[ dfcWggcf YI YW hJcb cZ ĤY 7cbhfUMĤY ĤY JbZcfa Uhcb XJgŁcgYX a i ghJbW XY Uħ YUgh ĤY bUa Y UbX UXXfYgg cZ ĤY U[ Ybhcf chYf dUfmŁ ĤY Ua ci bh UbX WffYbWŁ UbX ĤY di fdcgY cZ ĤY VŁa a JggJcbž [ fUħ Jmcf ZY"Ā

Gi V! 7`Ui gY`% "-  
9][ J]Jm

ĤY Žc`ck Jb[ bYk Gi V! 7`Ui gY Jg UXXYX.

Ā ĤY 7cbhfUMŁcf UbX Jhg Gi VŁbhfUMŁcf cf Gi dd JYfg g\U \Uj Y ĤY bUhcbU Jm cZ Ub Y J JY VŁi bhmcZ ĤY 6Ub\_ Jb UWŁfX UbW k Jh ĤY 6Ub\_ĀJ DfcWfYa Ybh Dc JWŁ Žcf ĤY 6Ub\_ fci d: i bXYX CdYfUhcb XYgVJYX i bXYf ĤY 6Ub\_ĀJ DfcWfYa Ybh : fUa Yk cf\_ž UbX Ug JghYX Jb GVMcb Jž 9 J JY VŁci bh JYg ĤY 7cbhfUMŁcf g\U VY XYYa YX ħc \Uj Y ĤY bUhcbU Jm cZ U VŁi bhfm JZ ĤY 7cbhfUMŁcf Jg VŁbgJh ĤY Xž Jb VŁf dcfU ĤY cf fY[ JghYfYX Jb UbX cdYfUHyg Jb VŁbZcfa Jmk Jh ĤY dfcj JgJcbgcZ

.....

hAY`Uk'g' cZ hUhi Vei bfrnZ Ug' Yj ]XYbWX' Vm ]hg' Ufh]Wg' cZ  
]bVefdcfU]cb' ftef' Yei ]j UYbhi XcW'a Ybhg' cZ Vebgh]h h]cb' cf'  
UggcVU]cbE UbX' ]hg' fY[ ]ghfU]cb' XcW'a YbhgZ Ug' hAY' WdgY' a Um  
VY""H.]gV]hYf]cb' Ugc' g\U""Udd'mhc' hAY'XYHfa ]bU]cb' cZ hAY'  
bU]cbU']hmcZ dfcdcgYX' gi VVebfUMfcfg'cf' gi VVebgi' fUbhg' Zcf'  
Ubm dUfh' cZ hAY' 7cbhfUMh' ]bW X]b[ ' fY'UHYX' GYfj ]Wg' 5""  
a UHfj]UgZ' Yei ]da Ybh UbX' gYfj ]Wg' hc' VY' gi dd' ]YX' i bXYf' hAY'  
7cbhfUMh'g' U""Uj Y hAY'fVei bfrmcZcf][ ]b ]b Ub Y][ ]V'YVei bfrmi  
cZ hAY'6Ub\_ ]b' UWefXUbW'k ]h' hAY'6Ub\_ Ag' DfcWfYa YbhiDc' ]Vh  
Zcf'6Ub\_ ; fci d' i bXYX' CdYfU]cbgXYgW]VYX' i bXYf' hAY'6Ub\_ Ag'  
DfcWfYa Ybhi : fUa Yk cf\_z UbX' Ug' gYh' Zcfh' ]b' DUfh]W' Uf'  
7cbX]h]cbg! DUfh'9! GYV]cb' J Z9][ ]V'Y'7ci bfh]YgA'

Gi V!7`Ui gY'%`"%  
Gi gdYbg]cb`Vm7cbhfUMfcf`

hAY'Zc`ck ]b[ 'dUFU[ fUd\ ]g]bgYfhYX' UZHf' hAY'ZfghidUFU[ fUd\.

ABch ]h'ghUbX]b[ ' hAY' Uvcj YZ' ]Z hAY' 6Ub\_ '\Ug' gi gdYbXYX'  
X]gVi fgYa Ybhgi bXYf' hAY'`cUb'cf'WYX]hZfca 'k \]W' dUha Ybhg'  
hc' hAY'7cbhfUMfcf' UfY'VY]b[ 'a UXYZ']b'k \c'Y'cf' ]b' dUfhZ'Zcf' hAY'  
YIYW]h]cb' cZ hAY'K cf\_gZUbX' bc' UHf]bU]j Y Z' bXg' UfY' Uj U]UV'Y'  
Ug' dfcj ]YX' Zcf' ]b' Gi V!7`Ui gY' &(' Qa d'cmYfAg' : ]bUbV]U'  
5ffUb[ Ya YbhgZ hAY'7cbhfUMfcf'a UmVmbch]W' gi gdYbX'k cf'\_cf'  
fYXi W' hAY' fUHY' cZk cf\_ UhiUbmih]a YZ'Vi hibch'Ygg' hUbo' + XUngh'  
UZHf' hAY'6cffck Yf\Uj ]b[ 'fYW]j YX' hAY' gi gdYbg]cb' bch]Z]W]h]cb'  
Zfca' hAY'6Ub\_"A'

Gi V!7`Ui gY'%`"&`%  
Bch]W'

Gi V!dUFU[ fUd\ f]E]g'XY'YHYX' ]b' ]hg'Ybh]fYm'`

5h hAY'YbX' cZgi V!dUFU[ fUd\ f]E' A/cfA']g'fYd'UWXX'k ]h' .AA`

gi V!dUFU[ fUd\ f]E']g'fYd'UWXX'k ]h'.

AAE' hAY' 7cbhfUMfcf' XcYg' bch' fYW]j Y' U' Bch]W' cZ hAY'  
7ca a YbWa Ybhi 8UHY' i bXYf' Gi V!7`Ui gY' , "%  
OZca a YbWa Ybh'cZK cf\_gQk ]h.]b' % \$ XUngh' UZHf' fYW]j ]b[ '  
hAY'@HhYf' cZ5WVdHUbWZ'Zcf' fYUgcbg' bch'Uhf]Vi HUV'Y'hc' hAY'  
7cbhfUMfcf'A'

Gi V!7`Ui gY'%`"&`%  
HYfa ]bU]cb'

hAY'Zc`ck ]b[ ' ]g'UXXYX' Uhi hAY'YbX' cZGi V!7`Ui gY'%`"&`%  
Ab' hAY'Yj Ybhi hAY'6Ub\_ 'gi gdYbXg' hAY'`cUb'cf'WYX]hZfca '  
k \]W' dUfh'cf'k \c'Y' cZ hAY' dUha Ybhg' hc' hAY'7cbhfUMfcf'  
UfY'VY]b[ 'a UXYZ' ]Z hAY'7cbhfUMfcf' \Ug' bch' fYW]j YX' hAY'  
gi a g'Xi Y'hc' \]a 'i dcb'Yi d]fU]cb' cZ hAY' % ( XUngh' fYZffYX'  
hc' ]b' Gi V!7`Ui gY' % ( "+ QDUna YbhQ Zcf' dUna Ybhg' i bXYf'  
-bhYf]a' DUna Ybh7Yfh]Z]W]h]gZ' hAY'7cbhfUMfcf'a UnZk ]h'ci hi  
dfY↑ X]W' hc' hAY' 7cbhfUMfcf'f]g' Ybh]hYa Ybhi hc' Z]bUbV]b[ '

VXUF[ Ygi bXYf'Gi V! 7`Ui gY`%`", 'QBY`UhyX`DUha YbhQ`HU\_Y`  
cbY`cZH`Y`Zc`ck ]b[ 'UM]cbgžbUa Y`mf]E`gi gdYbX`k`cf`\_`cf`  
fYXi W`h`Y`fUHy`cZk`cf`\_`i bXYf'Gi V! 7`Ui gY`%`"%UVcj Yžcf`  
f]]E`hYfa ]bUHy` h`Y` 7cbhfUMtcf` Vm [ ]j ]b[ ' bch]W` hc` h`Y`  
9a d`cmYfžk ]h` U`Vt`dmhc` h`Y`9b[ ]bYYfžg] W` hYfa ]bU]cb`  
hc`HU\_Y`YZZVt`%` 'XUhg]UZhYf`h`Y`[ ]j ]b[ 'cZH`Y`bch]W`"Ä`

Gi V! 7`Ui gY`%`" `.  
7cbhfUMtcf`Ä`CV]] U]cbg`  
5ZhYf`hYfa ]bU]cb`

GZH`Y`9a d`cmYf`\Ug`a UXY`Uj Uj`UV`Y`Ubm]9a d`cmYf!`Gi dd`]YX`  
A UHyf]Ug`UbX`#cf` 9a d`cmYfÄ` 9ei ]da Ybh` ]b`UMt`fXUbW` k ]h`  
Gi V! 7`Ui gY`&`"ž]bW] XY`h`Y`Zc`ck ]b[ .Q`

Ä`UbXÄ` ]g`XY`YhYX` Žca` h`Y`YbX` cZ`gi V! dUFU[ fUd\` fVtž`gi V!  
dUFU[ fUd\` fVt`XY`YhYX`UbX`h`Y`Zc`ck ]b[ 'UXXYX`.

`XY`]Yf` hc` h`Y` 9b[ ]bYYf` U` 9a d`cmYf!` Gi dd`]YX` A UHyf]Ug`  
UbX`#cf` 9a d`cmYfÄ` 9ei ]da Ybh` a UXY` Uj Uj`UV`Y` hc` h`Y`  
7cbhfUMtcf` ]b` UMt`fXUbW` k ]h` Gi V! 7`Ui gY` &`" Qa d`cmYf!  
Gi dd`]YX`a UHyf]Ug`UbX` 9a d`cmYfÄ` 9ei ]da YbhQ`UbX`  
fYa`cj Y`U`ch`Yf` ; ccXg`Žca` h`Y`G]hYžY] Wdh]Ug`bYW`ggUfmZcf`  
guZYmžUbX`YUj Y`h`Y`G]hY`"Ä`

Gi V! 7`Ui gY`%`+"`%`  
FYgdcbg]V]]]mžcf`7UfY`  
cZH`Y`K`cf`\_`g`

`Cb`h`Y`Zci`fh`UbX`Z]h`]]bYg`cZ`h`Y`Z]fgh]dUFU[ fUd\`ž`fYd`UW`  
Ä`8UHy`cZ`7ca`d`Yh]cb`cZH`Y`K`cf`\_`gÄ`k ]h` Ä`ggi Y`cZH`Y`HU\_]b[ !`  
Cj Yf`7Yfh]Z]WHy`Zcf`h`Y`K`cf`\_`gÄ`"

GZ`9a d`cmYf!`Gi dd`]YX`A UHyf]Ug`UfY`]]ghYX` ]b`h`Y`GdYV]Z]W]h]cb`  
Zcf`h`Y`7cbhfUMtcf`Ä`gi gY` ]b`h`Y`Y] YW]h]cb`cZK`cf`\_`gž]bW] XY`h`Y`  
Zc`ck ]b[ ' dfcj ]g]cb`" GYY`Ugc` Gi V! 7`Ui gY` &`" Qa d`cmYf!  
Gi dd`]YX`A UHyf]Ug`UbX` 9a d`cmYfÄ` 9ei ]da YbhQ`

5ZhYf`h`Y`h`c` ]bgh]UbW]g`cZ`Ä` ccXgÄ` ]b`h`Y`Ugh]dUFU[ fUd\`ž`h`Y`  
Zc`ck ]b[ ' ]g`UXXYX`. Ä`9a d`cmYf!`Gi dd`]YX`A UHyf]Ug`"Ä`

GZ` 9a d`cmYfÄ` 9ei ]da Ybh` UfY` ]ghYX` ]b` h`Y` 9a d`cmYfÄ`  
FYei ]fYa Ybhg` Zcf` h`Y` 7cbhfUMtcf`Ä` i gY` ]b` h`Y` Y] YW]h]cb`cZ`  
K`cf`\_`gž]bW] XY`h`Y`Zc`ck ]b[ ' dfcj ]g]cb`" GYY`Ugc` Gi V! 7`Ui gY`  
&`" Qa d`cmYf!`Gi dd`]YX`A UHyf]Ug`UbX` 9a d`cmYfÄ` 9ei ]da YbhQ`

5ZhYf`h`Y`h`c` ]bgh]UbW]g`cZ`Ä` ccXgÄ` ]b`h`Y`Ugh]dUFU[ fUd\`ž`h`Y`  
Zc`ck ]b[ ' ]g`UXXYX`. Ä`ž`9a d`cmYfÄ` 9ei ]da YbhÄ`"

Gi V! 7`Ui gY`%`+"`.  
b`h`Y`Vt` U`UbX`bXi`gf]U`  
DfcdYfmiF]]\hg`

Cb`h`Y`Z]fgh`]]bY`cZ`h`Y`gYVt`bX`dUFU[ fUd\`ž`fYd`UW` Ä`bch]WÄ`]g`  
fYd`UWX`k ]h` Ä`U`Bch]WÄ`"

Gi V! 7`Ui gY%"+`  
I gY`cZ9a d`cnYfAg  
5Wtā a cXUh]cb# UW]hYg

H\Y`Zc`ck ]b[ `Gi V! 7`Ui gY`]g`UXXYX`Ug%"+`.

ĀH\Y`7cbhfUMtcf`g\U`HU\_Y`Z` ``fYgdcbg]V`]hmZcf`H\Y`WfY`cZH\Y`  
9a d`cnYf!dfcj ]XYX`UWtā a cXUh]cb`UbX`ZUM]h]Ygž ]Z`Ubnž`Ug`  
XYH]YX` ]b` H\Y`GdYVWZVUh]cbž`Zfca` H\Y`fYgdYVW]Y`XUH`g`cZ`  
`UbX!cj`Yf`hc`H\Y`7cbhfUMtcf`i`bh`]`WggUh]cb`cZ`cWW`dUh]cb`  
fk`YfY`UbX!cj`Yf`cf`WggUh]cb`cZ`cWW`dUh]cb`a`UmhU\_Y`d`UW`  
UZHf`H\Y`XUH`g`UHfYX` ]b` H\Y`HU\_]b[ !Cj`Yf`7Yfh]ZVUH`Zcf`H\Y`  
K`cf`g`

≠Ubm`cgg`cf`XUa`U[`Y`UddYbg`hc`UbmcZH\Y`UVcj`Y`]H`Ya`gk`Y`  
H\Y`7cbhfUMtcf`]g`fYgdcbg]V`Y`Zcf`H\Y`f`WfY`Uf]g]b[ `Zfca`Ubmi`  
VWi`gY`k`Uhg`Yj`Yf`cH\Yf`H`Ub`h`cgy`Zcf`k`Y`W`H\Y`9a d`cnYf`]g`  
]UV`Yž`H\Y`7cbhfUMtcf`g\U`ž`Uh`]hg`ck`b`Vt`gž`fYVW]Zmh\Y`cgg`cf`  
XUa`U[`Y`hc`H\Y`gUh]gZUM]cb`cZH\Y`9b[ ]b`Yf`Ā`

Gi V! 7`Ui gY`%`%`  
9 Wdh]cbU`9j`Ybhg`

Gi V! dUfU[ fUd\`fVt`]g`gi`Vgh]h`hYX`k`]H`.

ĀfVt`f]chž`Vtā a`ch]cbž`X]gc`fXYf`cf`gUV`chU[`Y`VmidYfgcbg`cH\Yf`  
H`Ub`H\Y`7cbhfUMtcf`Ag`DYfgcbbY`UbX`cH\Yf`Ya`d`cnY`Yg`cZ`  
H\Y`7cbhfUMtcf`UbX`Gi`VWt`bfUMtcf`gĀ`

Gi V! 7`Ui gY`%`"(`  
7cbgYeI`YbW`gicZUb`  
9 Wdh]cbU`9j`Ybh

H\Y`Zc`ck ]b[ `]g`UXXYX`Uh`H\Y`YbX`cZ`gi`V! dUfU[ fUd\`fVt`UZHf`  
XY`Yh]b[ `H\Y`ĀĀ`

Āž`]bW`X]b[ `H\Y`Vt`g`g`cZ`fYVW]Z]b[ `cf`fYd`UW]b[ `H\Y`K`cf`g`  
UbX`#cf`;`ccXg`XUa`U[`YX`cf`XYg`fcmYX`Vm`9 Wdh]cbU`9j`Ybhgž`  
hc`H\Y`YI`hYbh`H\Y`miUFY`bch]b`XYa`b]Z]YX`h`fci`[ `H\Y`]bg`fUbW`  
dc`]W`h`fYZf`fYX`hc` ]b` Gi V! 7`Ui gY`%`"&`O`≠g`fUbW`hc`VY`  
dfcj ]XYX`Vm`H\Y`7cbhfUMtcf`Ā`

Gi V! 7`Ui gY`%`")`  
Cdh]cbU`HYfa`]bUh]cb`

≠`gi`V! dUfU[ fUd\`fVt`Ā`UbX`bYVWggUf`]nĀ`]g`]bgY`fH\Y`UZHf`ĀĀ`Ug`  
fYUgcbUV`nĀ`

Gi V! 7`Ui gY`%`%`  
;`YbYfU`FYei`]fYa`Ybhg`

H\Y`Zc`ck ]b[ `dUfU[ fUd\`g`UFY`UXXYX`UZHf`H\Y`Z]fgh`

ĀK`YfYj`Yf`H\Y`9a d`cnYf`]g`H\Y`]bg`f]b[ `DUf`mž`YUW`]bg`fUbW`  
g\U`VY`YZYVW`X`k`]H`]bg`fYfg`UbX`]b`HYfa`g`UWV`dHUV`Y`hc`H\Y`  
7cbhfUMtcf`H\Y`gY`HYfa`g`g\U`VY`Vt`bg]gh`Ybhik`]H`HYfa`g`f]Z`Ubnt`  
U[`fYfYX`Vm`Vch`DUf]Yg`VY`ZcfY`H\Y`XUH`cZ`H\Y`@f`HYf`cZ`  
5WV`dHUbW`

H\]g`U[`fYfYa`Ybh`cZ`HYfa`g`g\U`HU\_Y`dfYVWXYbW`cj`Yf`H\Y`  
dfcj ]g]cbg`cZH\]g`7`Ui`gY`

Gi V!7`Ui gY`% "&`  
]bgj fUbW`hc`VY`dfcj ]XYX`  
VmiH`Y`7cbhfUM`cf`

H`Y`Zc`ck ]b[ `]g`]bgYfhYX`Ug`h`Y`Z]fghi`gYbhYbW`]b`Gi V!7`Ui gY`  
% "&`

Å`H`Y`7cbhfUM`cf`g`U`VY`Ybh]hYX`hc`d`UW`U`]bgj fUbW`g`  
fY`Uh]b[ `hc`h`Y`7cbhfUM`f]bW`X]b[ `Z`Vi`h`bch`ja`]hYX`hc`h`Y`  
]bgj fUbW`fYZffYX`hc`7`Ui gY`%`Ek`]h`]bgj fYfg`Zca`UbmY`][`V`Y`  
gci`fW`V`i`bhf`Å`

Gi V!7`Ui gY`% "&`%`  
H`Y`K`cf\_g`

C`b`h`Y`Ugh`]bY`cZ`h`Y`gYV`bX`dUfU[`fUd`\\`Å`7`Ui gY`%&`*ØH`g`g`  
U`Z`H`f`V`e`a`d`Y`h`c`b`Å`]*g`XY`YhYX`"

Gi V!7`Ui gY`% "&`)  
`b`↑`fmi`hc`Ya`d`cm`Y`g`

H`Y`gYV`bX`dUfU[`fUd`\\`]g`fYd`UWX`k`]h`.

Å`H`Y`9a`d`cmYf`UbX`h`Y`9b[ `]bYf`g`U`Ugc`VY`]bXYa`b`]Z]YX`  
i`bXYf`h`Y`dc`]W`h`cZ`]bgj fUbW`Z`U[`U]bgh`]UV`]Im`Zcf`WU]a`g`Z`  
XUa`U[`Yg`Z`cgYg`UbX`YI`dYbgYg`f]bW`X]b[ `Y[`U`ZYg`UbX`  
YI`dYbgYg`Uf]g]b[ `Zca`]b`↑`fn`g]W`bYgg`Z`X]gYUgY`cf`XYU`h`cZ`Ubm`  
dYfgcb`Ya`d`cmYX`Vm`h`Y`7cbhfUM`cf`cf`Ubm`chYf`cZ`h`Y`  
7cbhfUM`cf`Å`DYfgcbbY`ZYI`W`dh`h`Uh`h`]g]bgj fUbW`a`UmYI`W`XY`  
cgYg`UbX`WU]a`g`hc`h`Y`YI`hYbh`h`Uh`h`YmUf]gY`Zca`UbmUM`cf`  
bY[ `YV`icZ`h`Y`9a`d`cmYf`cf`cZ`h`Y`9a`d`cmYf`g`DYfgcbbY`"Å`

Gi V!7`Ui gY`&\$`%`  
7`U]a`g`

`b`U`E`Å`UbmUXX]h]cbU`d`Uha`Ybh`Å`]g`fYd`UWX`k`]h`Å`d`Uha`Ybh`Å`

Gi V!7`Ui gY`&\$`&`  
7`U]a`g`Zcf`DUha`Ybh`UbX`#cf`  
9CH`

H`Y`Z]fghidUfU[`fUd`\\`]g`fYd`UWX`k`]h`.  
Å`Z`Y]h`Yf`DUfmiV`bg]XYfg`h`Uh`]h`]g`Ybh]hYX`hc`WU]a`i`bXYf`&\$`%`  
fU`E`cf`fV`E`Z`h`Y`Zc`ck ]b[ `WU]a`dfcW`Xi`fY`g`U`Udd`m`Å`

Gi V!7`Ui gY`&%`%`  
7cbg`h`i`h]cb`cZ`h`Y`  
8556`

`b`h`Y`gYV`bX`dUfU[`fUd`\\`Z`h`h`Y`YbX`cZ`h`Y`Z]fghi`gYbhYbW`U`Z`H`f`  
XY`Yh]b[ `Å`Å`Z`h`Y`Zc`ck ]b[ `]g`UXXYX. Å`ZYUW`cZk`ca`g`U`a`YYh`  
h`Y`W]hYf]U`gYh`Zcfh`]b`Gi V!7`Ui gY`" " `cZ`5ddYbX]!` ;`YbYfU`  
7cbX]h]cbg`cZ8]gdi`hY`5j`c]XUbW`#5X`↑`X]W]h]cb`5[`fYYa`Ybh`Å`

5Z`H`f`h`Y`gYV`bX`dUfU[`fUd`\\`]bgYfh`h`Y`Zc`ck ]b[ `dUfU[`fUd`\\`Å`Z`  
h`Y`7cbhfUM`]g`k`]h`U`ZcfY][`b`7cbhfUM`cf`Z`h`Y`8556`a`Ya`VYfg`  
g`U`bch`Uj`Y`h`Y`gUa`Y`bUh]cbU`]miUg`h`Y`9a`d`cmYf`cf`h`Y`  
7cbhfUM`cf`Å`

Gi V!7`Ui gY`&%`&`  
:`U]i`fY`hc`5ddc`]bh8556`  
A`Ya`VYf`fU`

:`cf`V`ch`fU`E`UbX`fV`E`Å`m`h`Y`X`U`H`g`U`H`YX`]b`h`Y`Z]fghidUfU[`fUd`\\`  
cZ`Gi V!7`Ui gY`&%`%`*Ø`7cbg`h`i`h]cb`cZ`h`Y`8556`Å`]*g`fYd`UWX`  
k`]h`. Å`k`]h]b[ `(&`X`Uhg`Zca`h`Y`X`U`H`h`Y`7cbhfUM`]g`g][`bYX`Vm`  
V`ch`DUfhY`g`Å`

Gi V!7`Ui gY`&%\*`  
5fV]fUhc b.....

⊖` h`Y` Zfgh dUfU[ fUd\ž XY`Yh` gUfh]b[ ` Zca .` Ā]bhYfbUh]cbU`  
UfV]fUhc bĀi d`hc` h`Y`YbX`cZfWžUbX`fYd`UW`k` ]h` h`Y`Zc`ck` ]b[ .`  
ĀUfV]fUhc b`"5fV]fUhc b`g\U` VY`VēbXi` VŲX`Ug`Zc`ck`g`

]Z`h`Y` VēbhfUW` ]g`k` ]h` `Zc`fY][` b` VēbhfUW`c`fgž` i` b`Ygg`c`h`Yfk` ]gY`  
gdYVWžYX` ]b` h`Y` 7cbhfUW` 8UfU/` h`Y` X]gd`i` hY` g\U` VY` Z]bU`m`  
gYfhYX` i` bXYf` h`Y` Fi` Yg` cZ` 5fV]fUhc b` cZ` h`Y` ⊖bhYfbUh]cbU`  
7\Ua` VYf`cZ7ca` a` YfW/VmcbY`cf`h`fYY`UfV]fUhc fg`Uddc` ]bhYX`  
]b`UWēfXUbW`k` ]h` h`Y`gY`Fi` Yg`"h`Y`d`UW`cZ`UfV]fUhc b`g\U`  
VY`h`Y`bYi` fU`"cVWh]cb`gdYVWžYX` ]b` h`Y` 7cbhfUW` 8UfU/`UbX` h`Y`  
UfV]fUhc b`g\U` VY`VēbXi` VŲX` ]b` h`Y`fi` ]b[ ` Ub[ i` U[ Y`XYZ]bYX`  
]b`Gi V!7`Ui gY`%(` @uk` UbX`@ub[ i` U[ YQ`  
fV`E`" Z`h`Y` 7cbhfUW` ]g`k` ]h` `Xca` Ygh]WVēbhfUW`c`fgž` UfV]fUhc b`  
k` ]h` d`fcWYX` ]b[ gVēbXi` VŲX` ]b`UWēfXUbW`k` ]h` h`Y`Uk` g`  
cZ`h`Y`9a` d`cmYfĀ]Vēi` bhfmĀ`

5ddYbX]!` ;` YbYfU`7cbX]h]cbg`cZ8]gd`i` hY` 5j`c]XUbW`#5X↑X]WWh]cb`  
5[ fYYa` Ybh

H]hY`

Ā` YbYfU` 7cbX]h]cbg` cZ` 8]gd`i` hY` 5j`c]XUbW`#5X↑X]WWh]cb`  
5[ fYYa` YbhĀ` ]g` fYd`UW`X`k` ]h` Ā` YbYfU` 7cbX]h]cbg` cZ` 8556`  
5[ fYYa` YbhĀ`

%`8YZ]b]h]cbg`

Gi V!7`Ui gY` %&`" ⊖` Vch` h`Y` Zfgh` UbX` h`fX`" ]bYgž` Ā855`  
5[ fYYa` YbhĀ` ]g` fYd`UW`X`k` ]h` Ā8556` 5[ fYYa` YbhĀ`

Gi V! 7`Ui gY`%` .  
 -b`h`Y`Z]fgh`]bYz`A8]gdi hY`5j c]XUbW`#5X↑X]WU]cb`5[ fYYa Ybh`A`  
 cf`A855`5[ fYYa Ybh`A`a YUbg`A]g`fYd`UWX`k`Jh`.  
 A8556`5[ fYYa Ybh`A]g`Ug`XYZ]bYX`i bXYf`h`Y`7cbhfUW`U`bX`Jg`A`  
 -b`h`Y`Z]fgh`]bY`cZ`g`V!dUFU[ fUd\` fWZ`A855`5[ fYYa Ybh`A`]g`  
 fYd`UWX`k`Jh`A8556`5[ fYYa Ybh`A`  
 -b`g`V!dUFU[ fUd\` fWZ]kZ`A`U]fa Ub`A`]g`fYd`UWX`k`Jh`  
 A`U]fdYfgcb`A`  
 Gi V! 7`Ui gY`%` A8556`5WU]J]hYg`A]g`fYd`UWX`k`Jh`Gi V! 7`Ui gY`  
 %(`A8556`5WU]J]hYg`A`UbX`h`Y`g`VgYei YbhGi V! 7`Ui gY`gi bXYf`  
 7`Ui gY`%`A8YZ]b]h]cbg`A`fYbi a VYfYX`.  
 Gi V! 7`Ui gY`%`+`hc`%&`FYd`UW`U`]bghUbW`g`cZ`A855`  
 5[ fYYa Ybh`A`k`Jh`A8556`5[ fYYa Ybh`A`  
 -b`Gi V! 7`Ui gY`%,`U]k`A`Ui h`cf]gYX`fYdfYgYbU]h]Y`cZ`h`Y`  
 V`bhfUW`cf`cf`cZ`h`Y`9a d`cmYf`A]g`fYd`UWX`k`Jh`A7cbhfUW`cf`A`  
 FYdfYgYbU]h]Y`cf`Ui h`cf]gYX`fYdfYgYbU]h]Y`cZ`h`Y`9a d`cmYf`A`  
 Gi V! 7`Ui gY`&`&]g`XY`YhYX`]b`]hg`Ybh]fYhm`

&""; YbYfU`dfcj]g]cbg

K UffUbh]Yg`

Gi V! 7`Ui gY`" "`]g`XY`YhYX`UbX`fYd`UWX`k`Jh`h`Y`Zc`ck]b[`.  
 A`K`Yb`Uddc]bh]b[`h`Y`8556`A`Ya VYfzYUW`DUfmfY`Yg`cb`h`Y`  
 8556`A`Ya VYf`A]g`fYdfYgYbU]h]cbg`h`U`h`Y`#g`Y/  
 \Ug`U`h`YUgh`U`VUW`Y`cf`A]g`XY[ fYY`]b`fY`Y] UbhX]gVd`]bYg`gi W`Ug`  
 `Uk`Z`Yb[ ]bYYf]b[ Z`V`bghfi W]cb`a UbU[ Ya Ybh`cf`V`bhfUW`  
 a UbU[ Ya Ybh`  
 \Ug`U`h`YUgh`h`Yb`mYUfg`cZ`Yl dYf]YbW`]b`V`bhfUW`  
 UXa`]b]ghfU]cb`#a UbU[ Ya Ybh`UbX`X]gdi hY`fYgc`i`h]cbz`ci`h`cZ`  
 k`Jh`U`h`YUgh`Z]j`Y`mYUfg`cZ`Yl dYf]YbW`Ug`Ub`UfV]fUhc`cf`  
 UX↑X]WU]cf`]b`V`bghfi W]cb!fY`U`h`Y`X]gdi hY`g/  
 \Ug`fYW`j`YX`Zcfa`U`hfU]b]b[`Ug`Ub`UX↑X]WU]cf`Zcfa`Ub`  
 ]bhYfbU]cbU`mfYV`[ b]hYX`cf[ Ub]nU]cb/  
 \Ug`Yl dYf]YbW`UbX`#cf`]g`\_bck`YX[ YU`Y`]b`h`Y`hmdY`cZ`k`cf`\_  
 k`Jh`h`Y`7cbhfUW`cf`]g`hc`WUffmci`hii bXYf`h`Y`7cbhfUW`  
 \Ug`Yl dYf]YbW`]b`h`Y`]bhYfdYU]h]cb`cZ`V`bghfi W]cb`UbX`#cf`  
 Yb[ ]bYYf]b[ V`bhfUW`XcW`a Ybhg/  
 \Ug`ZJa`]]U]hmk`Jh`h`Y`Zcfa`g`cZ`V`bhfUW`di`V`]g`YX`Vm: -8-7`  
 g]bW`%`--`Z`UbX`Ub`i bXYfgU`bX]b[`cZ`h`Y`X]gdi hY`fYgc`i`h]cb`  
 dfcW`Xi`fYg`V`bU]bYX`h`Y`fY]b/U`bX`

]g' Zi Ybh ]b` h\Y`Ub[ i U[ Y`Zc f`V@a a i b]Mh]cbg`g`hYX` ]b` h\Y`  
7cbhfUM8UH`f`f`h\Y`Ub[ i U[ Y`Ug U[ fYYX`VYhk YYb`h\Y`Dufh]Yg`  
UbX`h\Y`8556E`A`

+ "7cbZXYbh[U]hm

⊖`Gi V! 7`Ui gY`+ " .`ĀcfĀ]g`XY`YhYX`UZh`f`gi V! dUfU[ fUd` fV`Z`  
`UbX`h\Y`Zc`ck ]b[ `UXXYX`.

`Ācf`fX`E`]g`VY]b[ `dfcj`]XYX`hc`h\Y`6Ub`\_`Ā`

- " : YYg`UbX`9 dYbgYg`

⊖`Gi V! 7`Ui gY`- "%fV`Ā`i`g]bYgg`WUgg`cf`Yei`j] UYbhĀ]g`fYd`UWX`  
k`j`h` .`Ā]b`Ygg`h`Ub`Z]fgh`WUgg`Ā`

⊖`Gi V! 7`Ui gY`- "( .`ĀUbX`U]f`ZUfYgĀ`UbX`Ā`Ch`YfĀ`UfY`XY`YhYX`Z`ca`  
h\Y`Z]fgh`UbX`gYV`bX`gYbhYbW`g`fYgd`Ym]j`Y`m`

- " FYg[[ bU]cb`/  
HYfa ]bU]cb`

⊖`Gi V! 7`Ui gY`%\$` .`Ā`h\Y`855`5[ fYYa`YbhĀ]g`fYd`UWX`k`j`h` .`ĀU`  
8556`a`Ya`VYfĀ]g`8556`5[ fYYa`YbhĀ`

5bbYI!`8556`DfcWXi fU`Fi`Yg`

Fi`Y`(" &`C`b`h\Y`Zci`fh`"]bYž`Ā`U]fa`UbĀ]g`fYd`UWX`k`j`h` .`Ā`U]fd`Yfgcb`Ā`

Fi`Y`,"`C`b`h\Y`g]l`h`"]bYž`Ā`U]fa`UbĀ]g`fYd`UWX`k`j`h` .`Ā`U]fd`Yfgcb`Ā`

: cfa`cZ8]gdi`hY`5j`c]XUbW`#5X↑X]Mh]cb`5[ fYYa`Ybh`

5`"]bg`hUbW`g`cZĀ855`5[ fYYa`YbhĀ`UfY`fYd`UWX`k`j`h` .`Ā8556`5[ fYYa`YbhĀ`

⊖`7`fV`Ā`U]fa`UbĀ]g`fYd`UWX`k`j`h` .`Ā`U]fd`Yfgcb`Ā`



# DufhW`Uf`7cbX]h]cbg`

## Dufh7! : fui X`UbX`7cffi dh]cb`

fHf h]b`h`g`DufhW`Uf`7cbX]h]cbg!`Dufh7`g`U`bchVY`a`cX]ZYXL`

%` Di fdcgY`

%%` H`Y`6Ub\_`g`bHf[ f]m: fUa Yk cf\_`UbX`h`g`UbbYI`Udd`mk`Jh`fYgdVW`h`dfcWfYa Ybh`i`bXYf`6Ub\_`b`Ygfa YbhDfc`YVh: ]bUbV]b[ `cdYfU]h]cbg`

&` FYei ]fYa Ybhg`

&`%` H`Y`6Ub\_`fYei ]fYg`h`U`6cffi`Yfg`f]bW`X]b[ `VYbYZ]VUf]Yg`cZ`6Ub\_`Z]bUbV]b[ `t/V]XXYfg`fUdd`]VUbhgZ`V`bg`h`UbhgZ`V`bhfUW`c`fg`UbX`g`dd`Yfg/`Ubm`g`V!`V`bhfUW`c`fgZ`g`V!`V`bg`h`UbhgZ`gYfj`]W`dfcj`]XYfg`c`f`g`dd`Yfg/UbmU`Ybhg`fk`Yh`Yf`XYWUfYX`c`b`c`h`UbX`Ubm`cZ`h`Yf`dYfg`bbY`Z`cVgYf`Y`h`Y`\\`Y`g`h`g`UbXUfX`cZ`Yh`]Vg`Xi`f]b[ `h`Y`dfcWfYa Ybh`dfcW`ggZ`g`YV]h]cb`UbX`V`bhfUW`YI`YV`h]cb`cZ`6Ub\_`Z]bUbW`X`V`bhfUW`gZ`UbX`fYfU]b`Z`ca` : fui X`UbX`7cffi dh]cb`%`

&`&` Hc`h`g`YbXZ`h`Y`6Ub\_`

U` 8YZ]bYgZ`Z`c`h`Y`di`fdcgYg`cZ`h`g`dfcj`g]cbZ`h`Y`h`fa`g`g`Yh`Z`c`h`VY`ck`Ug`Z`ck`g`

J` A`V`ffi`dhdfUW]W`A`]g`h`Y`cZ`Yf]b[ `Z[ ]`]b[ `Z`fYW]j`]b[ `Z`c`f`gc`]V]h]b[ `Z`X]fYV]m`c`f`]bX]fYV]m`Z`cZ`Ub`h`h]b[ `cZ`j`U`i`Y`h`c`]bZi`YbW`ja`dfcdYf`m`h`Y`UW]h]cbg`cZ`Ub`ch`Yf`dUf]m`/`

]]` A`Z`U`Xi`Y`bh`dfUW]W`A`]g`Ubm`UW`c`f`ca`]gg]cbZ`]bW`X]b[ `a`]g`Yd`fYg`Yb`U]h]cbZ`h`U`h`\_`bck`]b[ `m`c`f`fYW`Ygg`mia`]g`YUXgZ`c`f`U`h`Ya`dhg`h`c`a`]g`YUXZ`U`dUf]m`&\$`h`c`cV`U]b`Z]bUbV]U`c`f`ch`Yf`VYbYZ]h`c`f`h`c`U`j`c`X`Ub`c`V`][`U]h]cb/`

]]]` A`V`i`g]j`Y`d`fUW]W`A`]g`Ub`Uff`Ub[`Ya`Ybh`VYh`Yb`h`k`c`c`f`a`c`f`Y`d`Uf]h]Yg`XYg][`bYX`h`c`UW]j`Y`Ub`ja`dfcdYf`di`fdcgYZ`]bW`X]b[ `h`c`]bZi`YbW`ja`dfcdYf`m`h`Y`UW]h]cbg`cZ`Ub`ch`Yf`dUf]m`/`

]j` A`V`YfV]j`Y`d`fUW]W`A`]g`ja`dU]f]b[ `c`f`\\`Ufa`]b[ `Z`c`f`h`fYU`Yb]b[ `h`c`ja`dU]f`c`f`\\`Ufa`Z`X]fYV]m`c`f`]bX]fYV]m`Z`Ubm`dUf]m`c`f`h`Y`dfcdYf`m`cZ`h`Y`dUf]m`h`c`]bZi`YbW`ja`dfcdYf`m`h`Y`UW]h]cbg`cZ`U`dUf]m`/`

j` A`cVg`fi`V]j`Y`d`fUW]W`A`]g`

fU` XY`]YfU`h`m`XYg`f`c`n]b[ `Z`Z]g]Z]b[ `Z`U`h`Yf]b[ `Z`c`f`V`bW`U]b[ `cZ`Y]`]X`YbW`a`U`h`Yf]U`h`c`h`Y`]b`Y`g]h[`U]h]cb`c`f`a`U\_]b[ `Z`U`g`Y`g`U`h`Ya`Ybhg`h`c`]b`j`Y`g]h[`U`h`c`fg]b`c`f`X`Yf`h`c`a`U`h`Yf]U`m]a`dYXY`U`6Ub\_]b`j`Y`g]h[`U]h]cb`]b`h`c`

In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

For the purpose of this sub-paragraph, “another party” refers to a public official acting in relation to the procurement process or contract execution, including Bank staff and employees of other organizations taking or reviewing procurement decisions.

For the purpose of this sub-paragraph, “party” refers to a public official, including Bank staff and employees of other organizations taking or reviewing procurement decisions.; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.”

U`Y[ Uh]cbg`cZ U`V`ffi dh`Z fU`i Xi`Ybh`Z V`YfVj Y`Z cf`V`i gj`Y`dfUMjW/  
 UbX#cf`h`fYUHyb]b[ `Z`UfUgg`cf`]bh]a ]XUh]b[ `UbmdUfmi`hc`dfYj Ybh`]h`  
 Z`ca`X]gV`cg]b[ `]hg`\_bck`YX[ Y`cZa UH`YfgfY`Yj Ubh`hc`h`Y`]bj Ygh[ Uh]cb`  
 cf`Z`ca`di fg`]b[ `h`Y`]bj Ygh[ Uh]cb/cf`

fV`E` UMjg`]bhYbXYX`hc`a UH`f]U`m`]a dYXY`h`Y`YI YfVjgY`cZ h`Y`6Ub\_`Aj  
 ]bgdYVj]cb`UbX`U`X]h`f][`hg`dfcj`]XYX`Zcf`i bXYf`dUfU[ fUd\`&`Y`  
 VY`ck`"

V"" F`Y`YVjg`U`dfcdcgU`Zcf`Uk UFX`]ZH`Y`6Ub\_`XYH`fa`]bYg`h`Uh`h`Y`Z`fa`cf`]bX]j`]Xi U`  
 fYV`a`a`YbXYX`Zcf`Uk UFX`Z`Ubmi`cZ`]hg`dYfg`bbY`Z`cf`]hg`U[ Ybhg`Z`cf`]hg`g`V!  
 V`bgj`h`Ubhg`g`V! V`bhfUM`cf`g`g`Yfj`]W`dfcj`]XYfg`g`dd`]Yfg`UbX#`cf`h`Y]f`  
 Ya`d`cmYg`Z`Ug`X]fYVjmc`f`]bX]fYVjmh`Yb[U[ YX`]b V`ffi dh`Z fU`i Xi`Ybh`Z V`i gj`Y`Z`  
 V`YfVj Y`Zcf`cVg`fi Vj] Y`dfUMjWg`]b V`a`dYh]b[ `Zcf`h`Y`V`bhfUMj]b`ei Ygh]cb/

W`-b`UXX]h]cb`hc`h`Y`Y[ U`fYa YX]YgYh`ci`h]b`h`Y`fY`Yj Ubh`@[ U`5[ fYYa Ybh`Za`Um`  
 hU`Y`c`h`Yf`Uddfcdf]UHY`UMjcbg`Z]bW`X]b[ `XYWUf]b[ `a`]gdfcW`fYa Ybh`Z]ZH`Y`6Ub\_`  
 XYH`fa`]bYg`Uh`Ubmi]a`Y`h`Uh`fYdfYgYb`h`h] Yg`cZ`h`Y`6c`ff`ck`Yf`cf`cZU`fYVj]d]Ybh`cZ`  
 UbmdUfmi`cZ`h`Y`dfcWYXg`cZ`h`Y`c`Ub`Yb[U[ YX`]b V`ffi dh`Z fU`i Xi`Ybh`Z V`i gj`Y`Z`  
 V`YfVj Y`Zcf`cVg`fi Vj] Y`dfUMjWg`]Xi f]b[ `h`Y`dfcW`fYa Ybh`dfcW`g`g`Y`YVj]cb`  
 UbX#cf`YI YW`h]cb`cZ`h`Y`V`bhfUMj]b`ei Ygh]cb`Z`k`]h`ci`h`h`Y`6c`ff`ck`Yf`\Uj]b[ `hU`  
 Yb`h]a`Y`mi`UbX`Uddfcdf]UHY`UMjcb`g`h]gZUM`fmi`hc`h`Y`6Ub\_`hc`UXXfYgg`g`W`  
 dfUMjWg`k`Yb`h`YmcW`f`Z]bW`X]b[ `Vm]Z]j]b[ `hc`]bZ`ca`h`Y`6Ub\_]b`U`h]a`Y`mi`  
 a`UbbYf`Uh`h`Y`h]a`Y`h`Ym`\_bYk`cZ`h`Y`dfUMjWg/`

X"" Di fg`Ubh`hc`h`Y`6Ub\_`Aj`-bhY[ f]h`mi: fUa Yk`cf`\_Z`UbX`]b`UM`f`fX`UbW`k`]h`h`Y`6Ub\_`Aj`  
 dfYj`Uj]b[ `g`UbVj]cbg`dc`]WYg`UbX`dfcW`Xi`fYg`Za`Um`g`UbVj]cb`U`Z`fa`cf`]bX]j`]Xi U`Z`  
 Y]h`Yf`]bXYZ]b]h`Y`mc`f`Zcf`U`g`h`YX`dYf]cX`cZ`h]a`Y`Z]bW`X]b[ `Vm]di`V`]W`miXYWUf]b[ `g`  
 g`W`Z`fa`cf`]bX]j`]Xi U`]bY`][`]V`Y`f]k`hc`VY`Uk UfXYX`cf`c`h`Yfk`]gY`VYbYZ]h`Z`ca`U`  
 6Ub\_]Z]bUbW`X`V`bhfUM`Z`Z]bUbVj]U`m`cf`]b`Ubmi`c`h`Yf`a`UbbYf`%/`f]k`hc`VY`U`  
 bca`]bUHYX`&&`g`V! V`bhfUM`f`Z`V`bgj`h`Ubh`Za`Ubi`ZUM`fYf`cf`g`dd`]Yf`Z`cf`g`Yfj`]W`  
 dfcj`]XYf`cZ`Ub`c`h`Yfk`]gY`Y`][`]V`Y`Z`fa`VY]b[ `Uk UfXYX`U`6Ub\_]Z]bUbW`X`V`bhfUM`  
 UbX`f]]k`hc`fYW]j`Y`h`Y`dfcWYXg`cZ`Ubmi`c`Ub`a`UXY`Vm`h`Y`6Ub\_`cf`c`h`Yfk`]gY`hc`  
 dUf]h]VdUHY`Z`f`h`Yf`]b`h`Y`dfYdUfUj]cb`cf`]a`d`Ya`Ybh`h]cb`cZ`Ubmi`6Ub\_]Z]bUbW`X`  
 dfc`YVW`

Y"" F`Yei`]fYg`h`Uh`U`WU`i`gY`VY`]bW`XYX`]b`V]XX]b[ `#`Yei`Ygh`Zcf`dfcdcgU`g`XcW`a`Ybhg`  
 UbX`]b`V`bhfUMjg`Z]bUbW`X`Vm`U`6Ub\_`c`Ub`Z`fYei`]f]b[ `f]k`V]XXYfg`fUdd`]W`Ubhg`Z`  
 V`bgj`h`Ubhg`Z`V`bhfUM`cf`g`UbX`g`dd`]Yfg`UbX`h`Y]f`g`V! V`bhfUM`cf`g`g`V!  
 V`bgj`h`Ubhg`g`Yfj`]W`dfcj`]XYfg`g`dd`]Yfg`U[ Ybhg`dYfg`bbY`Z`dYfa`]h`h`Y`6Ub\_`hc`  
 ]bgdYVj`U`UM`f`i`bhg`fYV`fXg`UbX`c`h`Yf`XcW`a`Ybhg`fY`Uh]b[ `hc`h`Y`g`Va`]gg]cb`

For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard

cZ V]Xg UbX WbhfUM dYfZcfa UbWž UbX hc \Uj Y h Ya Uli X]hYX Vmi Uli X]hcfj  
Uddc]bhYX Vmi hY 6Ub\_'''

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copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

# DUFhW`Uf`7cbX]h]cbg`

DUFh8!`9bj]fcbaybhU`UbX`GcV]U`fPGL`

A Yhf]WjZcf`Dfc[ fYggFYdcfhg`

ⒼchY`hc`9a d`cmYf`hY`Zc`ck]b[`a Yhf]Wj`a UmVY`Ua YbXYX`hc`fYZYVh`hY`gdYVWjZcf`cZ`hY`7cbhfUMh`hY`9a d`cmYf`gU`Ybgi`fY`hU`hY`a Yhf]Wj`dfcj]XYX`UFY`Uddfcdf]UHY`Zcf`hY`K`cf\_g`UbX`ja dUMj#`Ym]ggi`Yg]XYbh]ZYX`]b`hY`Ybj]fcbaybhU`UbX`gcV]U`UggYgga`YbhQ`

A Yhf]WjZcf`fY[i`Uf`fYdcfh]b[.`

U"" Ybj]fcbaybhU`]bV]XYbhg`cf`bcb!Vta d`]UbWg`k]h`VbhfUMh`fYei]fYa YbhgZ`]bW`X]b[`VbhfUa`]bU]cbZdc`i`h]cb`cf`XUa U[`Y`hc`[`fci`bX`cf`k`UHYf`gi`dd`]Yg/`

V"" \YU`h`UbX`guZYhm]bV]XYbhgZ`UMV]XYbhgZ`]b↑`f]Yg`h`UhfYei`]fY`fYUha`YbhUbX`U`ZU]h]Yg/`

W`]bhfUMh]cbg`k]h`fY[i`Uhc`fg``]XYbh]Zm`U[`YbWtZ`XUHYgZ`gi`V`YVtZ`ci`hVta`Yg`fYdcfh`hY`bY[`Uhj`Y`]ZbcbYt/`

X"" ghU`i`g`cZU`dYfa`]hg`UbX`U[`fYYa`Ybhg`  
]"" k`cf\_dYfa`]hg`bi`a`VYf`fYei`]fYXZbi`a`VYf`fYW]j`YXZUMh]cbg`hU`Yb`Zcf`h`cgY`bchfYW]j`YX/  
]]"" ghU`i`g`cZdYfa`]hg`UbX`VtbgYbhg`

- !` ]gh`UFYUg#ZUW]h]Yg`k]h`dYfa`]hg`fYei`]fYX`fci`Uff]YgZ`Ugd\`U`h/`VU`h`d`UbhgZ`XUHYg`cZ`Udd`]W]h]cbZ`XUHYg`]gg`YX`fUMh]cbg`hc`Zc`ck`i`d`]Z`bch`]gg`YXtZ`XUHYg`gi`Va`]hYX`hc`fYg]XYbh`Yb[`]bYYf`fci`Yei`]j`UYbhZ`ghU`i`g`cZ`UFYU`fk`U]h]b[`]Zcf`dYfa`]hgZ`k`cf\_]b[`]Z`UV`UbXcbYX`k]h`ci`hfYVUa`U]h]cbZ`XYVta`a`]gg]cb]b[`]d`Ub`VY]b[`]ja`d`Ya`YbhYXZ`YhVt/`
- !` ]gh`UFYUg`k]h`UbXck`bYf`U[`fYYa`Ybhg`fYei`]fYX`fV`c`ffck`UbX`gdc`]UFYUgZ`VUa`d`g]hYgZ`XUHYg`cZU[`fYYa`YbhgZ`XUHYg`gi`Va`]hYX`hc`fYg]XYbhYb[`]bYYf`fci`Yei`]j`UYbhZ/`
- !` ]XYbh]Zm`a`U`cf`UMh]h]Yg`i`bXYfhU`Yb`]b`YUW`UFYU`]b`hY`fYdcfh]b[`]dYf]cX`UbX`\[`\[`\h`g`cZYbj]fcbaybhU`UbX`gcV]U`dfchV]h]cb`f]UbX`WYUf]b[`]ZVci`bXUfma`Uf\_]b[`]Z`hcdgc`]gU]U[`YZhUZZ]Wa`UbU[`Ya`YbhZ`XYVta`a`]gg]cb]b[`]d`Ubb]b[`]Z`XYVta`a`]gg]cb]b[`]ja`d`Ya`YbhU]h]cbt/`
- !` Zcf`ei`Uff]Yg`ghU`i`g`cZ`fY`cW]h]cb`UbX`Vta`dYbgU]h]cb`fVta`d`YhYXZ`cf`XYhU]g`cZ`UMh]h]Yg`UbX`W`fYbhghU`i`g`]b`hY`fYdcfh]b[`]dYf]cXt"

Y"" \YU`h`UbX`guZYhmgi`dYfj`]g]cb.`  
]"" guZYhmicZ]Wf.`bi`a`VYf`XUng`k`cf\_YXZbi`a`VYf`cZ`Z`""`]bgdYVh]cbg/`dUfh]U`]bgdYVh]cbgZ`fYdcfhg`hc`Vtbgf`i`V]h]cb#dfc`YVh`a`UbU[`Ya`Ybh/`

]]"" bi`a`VYf`cZ`k`cf\_YfgZ`k`cf\_`\ci`fgZ`a`Yhf]WcZ`DD9`i`gy`fdYfWbhU[`Y`cZ`k`cf\_Yfg`k]h`Z`""`dYfgcbU`dfchV]h]cb`Yei`]da`YbhfDD9Z`dUfh]U`Z`YhVtZ`k`cf\_Yf]j`]c`U]h]cbgicVgYfj`YX`fV`mhm`dY`cZj`]c`U]h]cbZ`DD9`cf`ch`Yfk`]gYtZ`k`Ufb]b[`]g[`]j`YbZfYdYU`h`Ufb]b[`]g[`]j`YbZ`Zc`ck`!`i`d`UMh]cbg`hU`Yb`f]Z`Ubnt/`

Z" kcf\_Yf'UWt'a a cXUhc'bg'

]"" bi a VYf'cZYI dUhg\ci gYX'jb'UWt'a a cXUhc'bgžbi a VYf'cZ'cWg/

]"" XUH' cZ 'Ugh' ]bgdYVW]cbž UbX' \[\']\hg' cZ ]bgdYVW]cb' ]bW X]b[ ' gh'g' cZ UWt'a a cXUhc'bg'UWt'a d'UbW'k ]h' bUhc'bu'UbX'cW'Uk'UbX'[ ccX'dfUW]Wž]bW X]b[ ' glub]h]cbžgdUWžYhW'

]""UW]cbg'hU\_Yb'hc'fYUWt'a a YbX#fYei ]fY'ja dfcj YX'Vt'bx]h]cbgžcf'hc'ja dfcj Y'Vt'bx]h]cbg"

[ "" <YU'h'gYf' ]Wg'dfcj ]XYf'cZ\YU'h'gYf' ]Wgž]bZ'fa Uh'cb'UbX#cf'hU]b]b[ ž'cW]h]cb'cZW]b]Vž bi a VYf' cZ bcb!gUZ'hm X]gYUgY'cf' ]'bYgg' fYUha Ybhg' UbX' X]U[ bcgYg' fbc' bUa Yg'hc' VY' dfcj ]XYXt/

\" [ YbXYf'fZcf'YI dUhg' UbX'cW'g' gYdUfUHY'nt' bi a VYf' cZ ZYa UY' kcf\_Yfgž dYfWbH]Y' cZ kcf\_ZcfWž [ YbXYf' ]gg' Yg' fU]gYX' UbX'XYU'h'k ]h' fWcgg' fYZfYbW' [ f]Yj UbWg'cf' chYf' gYV]cbg'Ug'bYYXYXt/

]"" hU]b]b[ .''

- bi a VYf' cZ bYk' kcf\_Yfgž bi a VYf' fYW]j ]b[ ' ]bXi V]cb' hU]b]b[ ž' XUH'g' cZ ]bXi V]cb' hU]b]b[ /

]"" bi a VYf'UbX'XUH'g'cZhc'Vcl' hU\_gžbi a VYf'cZkcf\_Yfg'fYW]j ]b[ 'CWVdUhc'bu'<YU'h' UbX'GUZ'hmfc<GžYbj ]fcba YbH'UbX'gcV]U'hU]b]b[ /

]""bi a VYf' UbX'XUH'g' cZ Vt'a a i b]WV'Y'X]gYUgYg'f]bW X]b[ 'GH8g' gYbg]h]nUhc'bu'UbX#cf' hU]b]b[ žbc""kcf\_Yfg'fYW]j ]b[ 'hU]b]b[ 'f]b'hY'fYdcfh]b[ 'dYf]cX'UbX' ]b'hY'dUgh'gUa Y' ei Ygh]cbg'Zcf' [ YbXYf'gYbg]h]nUhc'bzZU[ 'dYfgc'b'hU]b]b[ ""

]""bi a VYf' UbX'XUH' cZ G95' dfYj Ybh]cb' gYbg]h]nUhc'bu'UbX#cf' hU]b]b[ 'Yj Ybhgž ]bW X]b[ ' bi a VYf'cZkcf\_Yfg'fYW]j ]b[ 'hU]b]b[ 'cb'7cXY'cZ7cbXi V]Zcf'7cbhUWcf'gDYfgcbbY'f]b' hY'fYdcfh]b[ 'dYf]cX'UbX' ]b'hY'dUgh'YhW

^ Ybj ]fcba YbH'UbX'gcV]U'g' dYfj ]g]cb.'

]"" Ybj ]fcba YbH']gh'XUhg'kcf\_YXžUFYUg' ]bgdYVW]X'UbX' bi a VYfg'cZ ]bgdYVW]cbg'cZ YUW' ffcUX' gYV]cbž kcf\_' Wla dž UWt'a a cXUhc'bgž ei Uff]Ygž Vc'ffck' UFYUgž gdc]' UFYUgž gk'Ua dgžZcfYgh'Wcgg]b[ gžYhWž\[\']\hg'cZUM]j ]h]Yg#Z]bX]b[ 'g'f]bW X]b[ 'j ]c'Uh]cbg'cZ Ybj ]fcba YbH'UbX#cf'gcV]U' VYgh'dfUW]WgžUM]cbg' hU\_Ybž'fYdcfhg'hc' Ybj ]fcba YbH'UbX#cf'gcV]U'gdYV]U']gh'Vt'bgf'i V]cb#g]h' a UbU[ Ya Ybh/

]""gcV]c'c[ ]gh'XUhg'kcf\_YXž bi a VYf' cZ dUfh]U'UbX'Z'""g]h' ]bgdYVW]cbg'fV'mUFYU'fcUX' gYV]cbž kcf\_' Wla dž UWt'a a cXUhc'bgž ei Uff]Ygž Vc'ffck' UFYUgž gdc]' UFYUgž V]b]Vž <#5-8G'WbhYfžVt'a a i b]hmWbhYfgžYhWž\[\']\hg'cZUM]j ]h]Yg'f]bW X]b[ 'j ]c'Uh]cbg' cZ Ybj ]fcba YbH'UbX#cf'gcV]U' fYei ]fYa Ybhg'cVgYfj YXžUM]cbg' hU\_Ybž'fYdcfhg'hc' Ybj ]fcba YbH'UbX#cf'gcV]U'gdYV]U']gh'Vt'bgf'i V]cb#g]h' a UbU[ Ya Ybh/UbX'

]]]"Vta a i b]hm]U]gcb'dYfgcbf'XUhg'k cf\_YX'f'ci fgVta a i b]hm]WbHYf'cdYblz'bi a VYf'cZ  
dYcd'Ya YhZ\[\ \][ \hg'cZUM]j]h]Yg'f]gg] Yg'f]gYXZ'YH'WZ'fYdcfhg'hc'Ybj]fcb'a YbHU'UbX'#cf'  
gcV]U'gdYV]U]gh#V'cbgf'V]cb#g]h'Ya UbU[ Ya Ybh"

\_'" ; f]Yj UbWg`]ghbYk`[ f]Yj UbWg'fY"[ "bi a VYf'cZU`Y[ Uh]cbgcZG95'fYW]j YX']b'hY'fYdcfh]b[ '  
dYf]cX'UbX'bi a VYf'cZi bfYgc'j YX'dUgh[ f]Yj UbWgVmXUH'fYW]j YXZ'Vta d'U]bUbh]g]U[ Y'UbX'  
gYI'Z'ck`fYW]j YXZ'h'k\ca`fYZ'fYX'h'Zcf'UM]cbz'fYgc'i h]cb'UbX'XUH'f]Z'Vta d'YH'X'Z'XUH'  
fYgc'i h]cb' fYdcfhYX' h' Vta d'U]bUbhZ' Ubm'fYei]fYX' Zc`ck!i d' f]f'cg]fYZ'fYbW' chYf'  
gYV]cbg'Ug'bYYXYX'`  
]" K cf\_Yf'[ f]Yj UbWg/

]]'" 7ca a i b]hm[ f]Yj UbWg`

\_" HfUZZ]V'fcUX'guZYhmUbX'j Y\]Wg#Yei]da Ybh'  
]" HfUZZ]WUbX'fcUX'guZYhm]bV]XYbhg'UbX'UM]XYbhg']bj c'j]b[ 'dfc'YV]j Y\]Wg/`Yei]da Ybh'  
dfcj]XY'XUH'Z'cW]h]cbz'XUa U[ YZ'W] gYZ'Zc`ck!i d/

]]'" HfUZZ]WUbX'fcUX'guZYhm]bV]XYbhg'UbX'UM]XYbhg']bj c'j]b[ ' bcb!dfc'YV]j Y\]Wg'cf'  
dfcdYf]m]fUgc'fYdcfhYX'i bXYf'ja a YX]UH'a Yhf]V]Z' dfcj]XY'XUH'Z'cW]h]cbz'XUa U[ YZ'  
W] gYZ'Zc`ck!i d/`

]]]"cj YfU`V'cbX'h]cb'cZ j Y\]Wg#Yei]da Ybh'f]j V'YV]j Y'↑ X[ a Ybh'Vm'Ybj]fcb'a YbHU]g'h/  
bcb!fci h]bY'fYdU]fg'UbX'a U]bhYbUbW'bYYXYX'h'ja dfcj Y'guZYhmUbX'#cf'Ybj]fcb'a YbHU'  
dYfZ'fa UbW'f'h'V'bhfc`ga c\_YZ'YH'V"

a '" 9bj]fcb'a YbHU'a ]h[ Uh]cbg'UbX']gg] Yg'fk\Uh\Ug'VYYb'XcbY'`  
]" Xi gh'bi a VYf'cZk cf\_]b[ 'Vck gYfgz'bi a VYf'cZk UH'f]b[ g#XUnz'bi a VYf'cZ'Vta d'U]bhgZ'  
k Ufb]b[ g[ ]j Yb'Vm'Ybj]fcb'a YbHU]g'hZ'UM]cbg'HU\_Yb'h'fYgc'j Y/\][ \][ \hg'cZei UffmXi gh'  
V'bhfc'fV'Z'Yfgz'gd'fUhgZ'cdYfU]h]cbU'g]U]g' / 'cZ'fcW'#gdc]'`c'ff]Yg'k ]h'V'Z'Yfgz'UM]cbg'  
HU\_Yb'Z'cf'i bV'Z'YfYX'j Y\]Wg/

]]'" Yfcg]cb' V'bhfc'` V'bhfc'g'ja d'Ya YbhYX' Vm'cW]h]cbz' g]U]g' cZ k UH'f' W'cgg]b[ gZ'  
Ybj]fcb'a YbHU]gh]b]gdYV]cbg'UbX'fYg' h'gZ'UM]cbg'HU\_Yb'h'fYgc'j Y']gg] YgZ'Ya Yf[ YbV'h'  
fYdU]fg'bYYXYX'h'V'bhfc'Yfcg]cb#gYX]a YbHU]h]cb/

]]]"ei Uff]YgZ'V'c'f'ck`UFYUgZ'gdc]'UFYUgZ'Ugd\U'h'd'UbhgZ'VUH'X'd'Ubhg']XYbh]Z'ma U'cf'UM]j]h]Yg'  
i bXYfHU\_Yb']b'hY'fYdcfh]b[ 'dYf]cX'UhYUW'Z'UbX'\][ \][ \hg'cZYbj]fcb'a YbHU'UbX'gcV]U'  
dfchYV]cb.'UbX'WYU]b[ Z'Vci bXUfm'a Uf\_]b[ Z'hcdgc]'`gu] U[ YZ' HfUZZ]W'a UbU[ Ya YbhZ'  
XYVta a ]gg]cb]b[ 'd'Ubb]b[ Z'XYVta a ]gg]cb]b[ 'ja d'Ya YbHU]h]cb/

] '"V'Ugh]b[ 'bi a VYf'cZV'Ugh'f]UbX'cW]h]cbgZ'g]U]g'cZ]a d'Ya YbHU]h]cb'cZV'Ugh]b[ 'd'Ub'  
f]bW]X]b[ 'bch]W'gZ'Y]UM]h]cbgZ'YH'WZ']bV]XYbhg'cZcZ]g]h'XUa U[ Y'cf'Vta d'U]bhg'fV'cgg]  
fYZ'fYbW'chYf'gYV]cbg'Ug'bYYXYX'`

j '" gd]'`WYUb!i dgZ]ZUbmi'a UH'f]U'gd]'YXZ'cW]h]cbz'Ua ci bhZ'UM]cbg'HU\_YbZ'a UH'f]U'X']gdcgU'  
fYdcfhU'gd]'g'h'Uh'fYg'`h]b'k UH'f'cf'gc]'V'bhUa ]bU]h]cb/

j ]"k UghY'a UbU[ Ya Ybh'fmdYg'UbX'ei Ubh]hYg[ YbYfUHYX'UbX'a UbU[ YXž]bW X]b[ 'Ua ci bh  
hU\_Yb'cZg]h'fUbX'Vmik \ca Łcf'fYi gYX#fYVWVWX#X]gdcgYX'cb!g]hY/

j ]]"XYHU]g'cZ hfYY'd'Ubh]b[ g'UbX'chYf'a ]h[ Uh]cbg'fYei ]fYX' i bXYfhU\_Yb' ]b' hAY' fYdcfh]b[ 'dYf]cX/

j ]]"XYHU]g'cZ k UhYf' UbX' gk Ua d' dfchVW]cb' a ]h[ Uh]cbg'fYei ]fYX' i bXYfhU\_Yb' ]b' hAY' fYdcfh]b[ 'dYf]cX"

b" VŁa d`]UbW.'

]"" VŁa d`]UbW' ghUhi g'Zcf' VŁbX]h]cbg' cZ U"" fY'Y] Ubh' VŁbgYbHg#dYfa ]hgž Zcf' hAY' K cf\_ž  
]bW X]b[ 'ei Uff]YgžYhVŁ' ghUHYa YbhicZVŁa d`]UbW'cf""gh]b[ 'cZ]ggj Yg'UbX'UW]cbg'hU\_Yb'  
fŁcf'hc'VY'hU\_YbŁ'hc'fYUWV VŁa d`]UbW/

]"" VŁa d`]UbW' ghUhi g'cZ7!9GA D#9G=D'fYei ]fYa Ybhg' ghUHYa YbhicZVŁa d`]UbW'cf""gh]b[ 'cZ  
]ggj Yg'UbX'UW]cbg'hU\_Yb'fŁcf'hc'VY'hU\_YbŁ'hc'fYUWV VŁa d`]UbW'

]]" VŁa d`]UbW' ghUhi g'cZG95'dfYj Ybh]cb UbX'fYgdcbgY'UW]cb'd'Ub' ghUHYa YbhicZVŁa d`]UbW'  
cf""gh]b[ 'cZ]ggj Yg'UbX'UW]cbg'hU\_Yb'fŁcf'hc'VY'hU\_YbŁ'hc'fYUWV VŁa d`]UbW'

]"" VŁa d`]UbW' ghUhi g'cZ<YU' h' UbX'GUZY'miA UbU[ Ya Ybh'D'Ub'fY' ghUHYa YbhicZVŁa d`]UbW'  
cf""gh]b[ 'cZ]ggj Yg'UbX'UW]cbg'hU\_Yb'fŁcf'hc'VY'hU\_YbŁ'hc'fYUWV VŁa d`]UbW'

j "" chYf'i bfYgc'j YX ]ggj Yg'Zfca 'dfYj ]ci g'fYdcfh]b[ 'dYf]cXg'fY'UHYX'hc'Ybj ]fcb'a YbHU'UbX'  
gcV]U'. VŁbh]bi YX'j ]c'Uh]cbgž VŁbh]bi YX'ZU]i fY'cZYei ]da Ybhž VŁbh]bi YX''UW'cZj Y\]WY'  
VŁj Yfgž gd]`g' bch'XYU'h'k ]hž VŁbh]bi YX' VŁa dYbgUh]cb'cf'V'Ugh]b[ ' ]ggj Ygž YhW' '7fcgg!  
fYZfYbW'chYf'gYV]cbg'Ug'bYYXYX"

# DufhW`Uf`7cbX]h]cbg`

## Dufh9!GYM]cb`J`!`9][`JY`7ci bhf]Yg`

9][`JY`]m] Zcf` hY` Dfcj ]g]cb` cZ` ; ccXgž` K cf\_g` UbX` Bcb!7cbg` h]b[` GYfj ]Wg` ]b` 6Ub\_` ; fci d` : ]bUbWX`DfcWfYa Ybh`

Dfcj ]g]cbg` i bXYf` GYM]cb`) ` 9][` JY`]m] cZ` hY` DfcWfYa Ybh Dc` ]m] Zcf` 6Ub\_` ; fci d` : i bXYX` CdYfU]cbg` UbX` 7\UdHYf` 5&` cZ` hY` CdYfU]cbg` DfcWfYa Ybh A Ubi U` i bXYf` DfcWfYa Ybh : fUa Yk cf\_` cZ` hY` 5Z]Wb` 8Yj Ycda Ybh 6Ub\_`

YŁ` hY` 5Z]Wb` 8Yj Ycda Ybh: i bX` f58: ŁdYfa ]hg` Zfa g` UbX` ]bX]j ]Xi Ug` Zca` U` VŁ` i bhf]Yg` hc` cZYf[` ccXgž` k cf\_g` UbX` gYfj ]Wg` Zcf` 58: `Z` bXYX` dfc` YWg`

<ck Yj Yfž` hY` dfcWYXg` cZ` Ubm: ]bUbV]b[` i bXYfU` Yb` ]b` hY` cdYfU]cbg` cZ` hY` 5Z]Wb` 8Yj Ycda Ybh 6Ub\_` f586Ł` UbX` hY` B][` Yf]U` Hfi gh: i bX` fB` H Łg` U` VY` i gYX` Zcf` dfcWfYa Ybh cZ[` ccXg` UbX` k cf\_gž` ]bW` X]b[` hY` fY` UHYX` gYfj ]Wgž` dfcj ]XYX` VmV]XXYfg` Zca` 9][` JY`Y` 7ci bhf]Yg` 5bmVŁ` bX]h]cbg` Zcf` dUfh]V]dU]cb` g` U` VY` ]a` ]hYX` hc` hŁ` cgY` hŁ` UfY` YggYbh]U` hc` Ybgj` fY` hY` Zfa` Ą` WdUv` ]m] hc` Z` Z` hY` VŁ` bhfU]m] ]b` ei Ygh]cb` b` hY` WŁgY` cZ` 586` UbX` B` H` ž` V]XXYfg` Zca` bcb!A` Ya VYf` 7ci bhf]Yg` cZYf]b[` [` ccXgž` k cf\_g` UbX` fY` UHYX` gYfj ]Wg` f]bW` X]b[` hfUbgdŁ` fU]cb` UbX` ]bgj` fUbwŁ` UfY` bchY` ]J` JY`Y` Yb` ]ZhY` m] cZYf` hY` gY` Zca` 9][` JY`Y` A` Ya VYf` 7ci bhf]Yg` 5bm] Uj` Yf` hc` hŁ` g]fi` Y` k` ]` VY` ]b` UWŁ` fXUbW` k` ]h` hY` 5fh]Wg` %` fŁ` fXŁ` cZ` hY` 5[` fYYa Ybh` 9gUv` ]g` ]b[` hY` 5Z]Wb` 8Yj Ycda Ybh` 6Ub\_` UbX` (%` cZ` hY` 5[` fYYa Ybh` 9gUv` ]g` ]b[` hY` B][` Yf]U` Hfi gh: i bX`

Fi` Yg` UbX` DfcWXi` fYg` Zcf` DfcWfYa Ybh cZ; ccXg` UbX` K` cf\_g`

Cj` Yfj` Jk`

%` hY` Y` ]J` ]m] W]hYf]U` Zcf` dUfh]V]dU]cb` ]b` hY` g` dd` m] cZ[` ccXgž` k cf\_g` UbX` fY` UHYX` gYfj ]Wgž` hc` VY` dfcWfYX` hŁ` fci [` \` hY` 586` UbX` B` H` : ]bUbV]b[` žXYfj] Y` Zca` hY` fYei` ]fYa Ybh g` cZ` hY` 5[` fYYa Ybh 9gUv` ]g` ]b[` hY` 5Z]Wb` 8Yj Ycda Ybh 6Ub\_` ž5fh]WY` %` %` Xž` UbX` hY` 5[` fYYa Ybh 9gUv` ]g` ]b[` hY` B][` Yf]U` Hfi gh: i bXž` 5fh]WY` (%` hY` ZcfY[` c]b[` fYei` ]fYa Ybh g` VUg]W` m] dfYgW]VY` hŁ` c` hŁ` Yg` cZY` ]J` ]m] W]hYf]U`

hY` Y` ]J` ]m] cZ` hY` V]XXYf/UbX`

hY` Y` ]J` ]m] cZ` hY` [` ccXgž` k cf\_g` UbX` fY` UHYX` gYfj ]Wg`

9][` JY`]m] cZ` hY` 6]XXYf` i bXYf` hY` 586/` B` H`

&` hY` Y` ]J` ]m] cZ` hY` V]XXYf` g` U` VY` VUgYX` cb` bU]cbU` ]mž` ]b` UWŁ` fXUbW` k` ]h` hY` Zc` ck` ]b[` fi` Yg`

Refer to Bank Procurement Framework for additional information on Eligibility.

"Eligible Countries" shall mean: (a) in the case of the African Development Bank (ADB) and the Nigeria Trust Fund (NTF), the Member Countries of the ADB; and (b) in the case of the African Development Fund, any country.



fUk: B.Uh fU'DYfgcbg'5'bUh fU'dYfgcb'lg'Y][ J'Y'JZ\Y'cf'g\Y'lg'U'bUh]cbU'cZU'A Ya VYf'7ci bHfmcZ\Y'586'"K \YfY'U'dYfgcb'\Ug'a cfY'f\U'cbY'bUh]cbU']mžgi V\U'dYfgcb'g\U''VY'Y][ J'Y'JZ\Y' bUh]cbU']m]bX]W\YX' ]b'\]g'cf'\Yf'V]X' ]g'f\U'cZU'A Ya VYf'7ci bHfmcZ\Y'586'"

fVt: 7cfdcfUhc]bg'5'VtfdcfUhc]b'lg'Y][ J'Y'JZ]hgUhgZ]Yg'h\Y'Zc''ck ]b[ 'W]hYf]U'

- ]h]g']bVtfdcfUHYX' ]b'U'Vt i bHfmi\U'h]g'U'A Ya VYf'cZ\Y'6Ub\_žcf'GfUHY'DUfh]V]dUbhcZ\Y': i bX/
- ]h]g'U'bUh]cbU'cZU'Vt i bHfmi\U'h]g'U'A Ya VYf'cZ\Y'586žUg'XYHYfa ]bYX'Vmih\Y''Uk' cZ]hg'd'UW'cZ']bVtfdcfUhc]b/UbX'
- ]h'\Ug']hg'df]bV]dU'd'UW'cZVi g]bYgg']b'U'Vt i bHfmi\U'h]g'U'A Ya VYf'cZ\Y'586'"

fVt: x]bhjY]bhi fYgUbX'5ggcVUhc]bg'5b'i b]bVtfdcfUHYX' 'c]bhj Ybhi fYždUfYbYfg\]dž cf'UggcV]Uhc]bžg\U''VY'Y][ J'Y'JZ'a cfY'f\U'cbY' ) \$i 'cZ\Y'j U'i Y'cZ]hg'k cf\_g'UbX'#cf' gYfj ]Wg' ]g' YI YW\YX' Vm ]hg' a Ya VYfg' gUhgZ]b[ 'h\Y' 'Y][ ]V']]mi fYei ]fYa YbhgZcf']bX] ]Xi Ug'cf'VtfdcfUhc]bg'"

9][ J']]mhcZ\Y'; ccXgžK cf\_g'UbX'FYUHYX'GYfj ]Wg'

' "' b'cfXYf'hc'VY'Y][ J'Yžh\Y' [ ccXg'hc'VY'dfcWfYX'a i gh'\Uj Y'VYYb'a ]bYXž [ fck bž cf'dfcXi W\Xž]b'h\Y'Zca ]b'k \]W\h\YmUfY'di fWUgYXž]b'Ub'9][ J'Y'A Ya VYf'7ci bHfmi'

(" : cf'k cf\_g'Vt bHfUWtžk \]W\ 'a Um]bW\ XYV] ]'k cf\_gžd'UbhVtbgf]i V]cbžcf'hi fb\_YmVt bHfUWtžk h\Y'Vt bHfUWtcf'a i gh]gUhgZ]mih\Y' bUh]cbU']m]W]hYf]U'cZY][ ]V']]mžY]h\Y'f'Ug'U'bUh fU'dYfgcbž cf'VtfdcfUhc]bžcf'c]bhj Ybhi fY'UbX'UggcV]Uhc]b' @U'ci fžYei ]da YbhžUbX'a UHYf]U'g]bYXYX'Zcf'Wffm]b[ 'ci h'h\Y'k cf\_g'Vt bHfUWtžg\U''VY'g dd']YX'Zca '9][ J'Y'A Ya VYf'7ci bHf]Yg'"

) "' : cf'Vt bHfUWtžk \]W\ \Uj Y'VYYb'Uk UfXYX'cb'h\Y'VUg]g'cZ7cgž'bg' fUbW'UbX': fY][ \hif7 ÷ lž cf'7Uff]U[ Y'UbX'bg' fUbW'DU]X'f7'ĐlžV]XXYfg'g\U''VY'žfY'hc'UffUb[ Y'Zcf'cWUb'UbX'c'h\Y'f'fUbgdcfUhc]bžUbX'h\Y'fY'UHYX' ]bg' fUbWžZca 'Ubm9][ J'Y'A Ya VYf'7ci bHfmi'Cb'h\Y'c'h\Y'f'\UbXž k \YfY' [ ccXg'UfY'g\]ddYX'cb': C6'VUg]gž UbX'h\Y'6Ub\_'\Ug'U[ fYfY'hc'Z]bUbW'fUbgdcfUhc]b'UbX' ]bg' fUbW'gYdUfUHY'nžk \]W\ UfY'UffUb[ YX'Vmih\Y'di fWUgYfž i bXYf'U'gYdUfUHY'Vt bHfUWtžh\Y'6Ub\_g\U''VY'gUhgZ]YX'h\U'h\Y'gYfj ]Wg'UfY'g dd']YX'Zca '9][ J'Y'A Ya VYf'7ci bHf]Yg'"

@ghcZ9][ J'Y'7ci bHf]Yg

\*"' @ghcZ9][ J'Y'Vt i bHf]Yg'Wb'VY'Zci bX' ]b'5Z]Wb'8Yj Y'cda Ybh6Ub\_žk YVg]hY.'

[\hfdg##k k k 'UZXV'cf\] #Yb#U'ci h'i g#VtfdcfUHY! \]bZca Uh\]cb#a Ya VYfg#](#)

žY][ J'Y'7ci bHf]Yg]b'fYZfYbW'hc' #b(' , 'UbX' #b') '%

+ "' b'fYZfYbW'hc' #b(' , 'UbX' #b') '%žZcf'h\Y' ]bZca Uh]cb'cZ\Y'6]XXYfgžUh'h\Y'dfYgYbhi h]a Y'Z]fa gž[ ccXg'UbX'gYfj ]Wg'Zca 'h\Y'Zc''ck ]b[ 'Vt i bHf]Yg'UfY'YI W\XYX'Zca 'h]g'6]XX]b[ 'dfcWgg'

I bXYf`#16`(", fUEUbX`#16`) "% QbgYfhU`]ghcZhl Y Vti bhf]YgZc`ck ]b[ Uddfcj U Vmhl Y 6Ub\_  
hc Udd`mhl Y fYghf]Mjcb`cf`ghUf`AbcbYÃQ`

I bXYf`#16`(", fUEUbX`#16`) "% QbgYfhU`]ghcZhl Y Vti bhf]YgZc`ck ]b[ Uddfcj U Vmhl Y 6Ub\_  
hc Udd`mhl Y fYghf]Mjcb`cf`ghUf`AbcbYÃQ`

GYWjcb'L!`7cbhfUMi: cfa g'

HUV'Y'cZ: cfa g'

|                                                    |        |
|----------------------------------------------------|--------|
| BchZWhjcb'cZ-bhYbhjcb'hc'5k UfX'                   | +\$, ' |
| 6YbYZVU`Ck bYfg\jd'8]gWcgj fY': cfa '              | +%&'   |
| @hYf'cZ5WWdhUbW'                                   | +%('   |
| 7cbhfUMi5[ fYYa Ybh'                               | +%('   |
| DYfZcfa UbW'GYWf]hmiCdhjcb'%8Ya UbX'; i UfUbhYY'   | +%+'   |
| DYfZcfa UbW'GYWf]hmiCdhjcb'&'DYfZcfa UbW'6cbX'     | +%'    |
| 9bj ]fcba YbhU'UbX'GcVJU`f9GL'DYfZcfa UbW'GYWf]hmi | +%\$'  |
| 5Xj UbW'DUna YbhGYWf]hmi                           | +%&'   |
| FYhYbhjcb'A cbYmGYWf]hmi                           | +%'    |

## BchjZWhjcb'cZ-bhYbhjcb'hc'5k UfX'

GAJg'BchjZWhjcb'cZ-bhYbhjcb'hc'5k UfX'gU'VY'gybh'hc'YUM'6JXXYf'hUhg'VaJhYX'U'6JXQ  
GGYbX'hJg'BchjZWhjcb'hc'hY'6JXXYf'5i h'cfjnyX'FYdfYgybhUhj'Y'bUa YX'jb'hY'6JXXYf'  
-bZfa Uhjcb':cfa Q

:cf'hY'U'hYbhjcb'cZ6JXXYf'5i h'cfjnyX'FYdfYgybhUhj'Y'

B Ua Y: QbgYfh'5i h'cfjnyX'FYdfYgybhUhj'Y'g'bUa YQ  
5XXfYgg' QbgYfh'5i h'cfjnyX'FYdfYgybhUhj'Y'g'5XXfYggQ  
HY'Yd\cbY# Ul'bi a VYfg' QbgYfh'5i h'cfjnyX'FYdfYgybhUhj'Y'g'hY'Yd\cbY#ZU'bi a VYfgQ  
9a UJ'5XXfYgg' QbgYfh'5i h'cfjnyX'FYdfYgybhUhj'Y'g'Ya UJ'UXXfYggQ

GA DCFH5BH'jbgYfh'hY'XUH'hU'hJg'BchjZWhjcb'jg'hUbg JhYX'hc'6JXXYfg'hY'BchjZWhjcb'  
a i gh'VY'gybh'hc'U'6JXXYfg'gla i 'hU'Yci g'm'hJg'a YUbg'cb'hY'gla Y'XUH'UbX'Ug'Wcg'hc'hY'  
gla Y'hja Y'Ug'dcggjVY'Q'

85H9C: HF5BGA -GGCB. HJg'BchjZWhjcb'jgYbhVm'Qa UJ'#ZU'Qcb'OXUH'OfcW'hja YL'

## BchjZWhjcb'cZ-bhYbhjcb'hc'5k UfX'

9a d'cmYf: QbgYfh'hY'bUa Y'cZ'hY'9a d'cmYfQ  
Dfc'YVM' QbgYfh'bUa Y'cZdfc'YVMQ  
7cbhfUM'hY: QbgYfh'hY'bUa Y'cZ'hY'V'bfUMQ  
7ci b'fm: QbgYfh'V'i b'fmk \YfY'F: 6'jg'ggj YXQ  
@Ub'Bc"#7fYXjhBc"#; fUbhBc". QbgYfh'fYZfYbW'bi a VYf'Z'f'cUb#MYXjh# fUbhQ  
F: 6'Bc: QbgYfh'F: 6'fYZfYbW'bi a VYf'Z'ca' DfcW'fYa Ybh'D'UbQ

HJg'BchjZWhjcb'cZ-bhYbhjcb'hc'5k UfX'fBchjZWhjcb'EbchjZ'Yg'mei'cZci'f'XYWg'jcb'hc'Uk UfX'  
hY'UWcj'Y'V'bfUM'hY'hUbg Jgg'cb'cZ'hJg'BchjZWhjcb'VY[ jbg'hY'GhUbXgh]'DYf]cX'"8i f]b[ '  
hY'GhUbXgh]'DYf]cX'nei'ia Um'

W' fYei Ygh'UXYVf]YZb[ 'jb'fY'Uhjcb'hc'hY'Yj'Ui'Uhjcb'cZnei'f'6JXzUbX#cf'

XE' g'Va Jh'U'DfcW'fYa Ybh'fY'UH'X'7ca d'U]bh]jb'fY'Uhjcb'hc'hY'XYWg'jcb'hc'Uk UfX'  
hY'V'bfUM'

- H'Y'g'WWggZ'6JXXYf'

|                |                                       |
|----------------|---------------------------------------|
| B Ua Y:        | QbgYfh'bUa Y'cZ'g'WWggZ'6JXXYfQ       |
| 5XXfYgg'       | QbgYfh'UXXfYgg'cZ'hY'g'WWggZ'6JXXYfQ  |
| 7cbhfUM'dfjW.' | QbgYfh'V'bfUM'dfjW'cZ'hY'g'WWggZ'6JXQ |

- CH.YF'6]XXYfg' GBGFI 7HCBG' jbgYfhbUa Yg'cZU'6]XXYfg'h Uh'g Va jhYX'U'6]X' "ZHY' 6]X'gdfjW'k UgYj Ui UHYX'jbW XYh Y'Yj Ui UHYX'dfjW'Ugk Y' Ug'h Y'6]X'dfjW'Ug'fYUX'ci HQ

| BLa Y'cZ6]XXYf' | 6]X'dfjW'        | 9 Ui UHYX'6]X'dfjW' f]ZUdd'jWV'Yt' |
|-----------------|------------------|------------------------------------|
| QbgYfhbUa YQ    | QbgYfh'6]X'dfjWQ | QbgYfh'Yj Ui UHYX'dfjWQ            |
| QbgYfhbUa YQ    | QbgYfh'6]X'dfjWQ | QbgYfh'Yj Ui UHYX'dfjWQ            |
| QbgYfhbUa YQ    | QbgYfh'6]X'dfjWQ | QbgYfh'Yj Ui UHYX'dfjWQ            |
| QbgYfhbUa YQ    | QbgYfh'6]X'dfjWQ | QbgYfh'Yj Ui UHYX'dfjWQ            |
| QbgYfhbUa YQ    | QbgYfh'6]X'dfjWQ | QbgYfh'Yj Ui UHYX'dfjWQ            |

- FYUgcb#g'k \mnci f'6]X'k Ug'i bgj WVggZ "

GBGFI 7HCBG' GHY' hY' fYUgcb#g' k \m h'jg' 6]XXYfg' 6]X'k Ug'i bgj WVggZ " 8c' BCH' jbw XY' fU'U'dc]bhVmdc]bhVt'a dUf]gcb'k jh' Ubch'Yf'6]XXYfg'6]X'cf'fVt'j]bZ'fa Uh'cb'h Uh' jg'a Uf\_YX'Vt'bZ]XYbhjU'Vm'h Y'6]XXYf'j]b'j]g'6]X'Q

- <ck'hc'fYei YghU'XYVf]YZ]b[ '

8958@B 9.'hY'XYUX'j]bY'hc'fYei YghU'XYVf]YZ]b[ 'Yl d]fYg'Uha j]Xb][ \hcb'QbgYfh'XU'hQ'cW' h'a Yt'

Mci 'a UmfYei YghU'XYVf]YZ]b[ 'j]b'fY'Uh'cb'hc'hY'fYg' 'hg'cZ'hY'Yj Ui Uh'cb'cZ'nci f'6]X' "Znci 'XYV]XY'hc'fYei YghU'XYVf]YZ]b[ 'nci f'k f]hYb'fYei Ygh'a i gh'VY'a UX'k j]h'j]b'h'fY'f]t' 6i g]bYgg'8Uhg'cZ'fYW]dh'cZ'h'jg'Bch]Z]W]h'cb'cZ'bh'bh'cb'hc'5k UfX'""

Dfcj jXY'hY'Vt'bfUW'hbUa YZ'fYZ'fYbW'bi a VYfZ'bUa Y'cZ'hY'6]XXYfZ'Vt'bfUW'hXYHj]g'UbX' UXXfYgg'hY'fYei YghZ'c'XYVf]YZ]b[ 'Ug'Z'ck'g'

5H'Ybh]cb.' QbgYfh'Z' "bUa Y'cZ'dYfg'cbZ]ZUdd'jWV'YQ

H]hY#dcg]h]cb.' QbgYfh'h]hY#dcg]h]cbQ

5[ YbVh' QbgYfhbUa Y'cZ'9a d'cnyfQ

9a U] UXXfYgg' QbgYfhYa U] UXXfYggQ

: U'bi a VYf.' QbgYfhZU'bi a VYfOXY'Yh'j]Zbchi'g]X'

Znci f'fYei YghZ'c'U'XYVf]YZ]b[ 'j]g'fYW]j YX'k j]h'j]b'hY' "6i g]bYgg'8Uhg'XYUX'j]bYZ'k Y'k j' " dfcj jXY'hY'XYVf]YZ]b[ 'k j]h'j]b'Z] Y'f]t' 6i g]bYgg'8Uhg'cZ'fYW]dh'cZ'nci f'fYei Ygh' "Zk Y'UfY' i bUV'Y'hc' dfcj jXY'hY'XYVf]YZ]b[ 'k j]h'j]b'h'j]g'dYf]cX'Z'hY'GH'UbX'gh' "DYf]cX'g'U' VY'Yi hYbXYX' Vm'Z] Y'f]t' 6i g]bYgg'8Uhg'UZh'f'hY'XU'h'Y'U'h'hY'XYVf]YZ]b[ 'j]g' dfcj jXYX' "Z'h'j]g'UddYbgZ'k Y' k j' "bch]Z'nci 'UbX'Vt'bZ]fa 'hY'XU'h'Y'U'h'hY'Yi hYbXYX'GH'UbX'gh' "DYf]cX'k j' "YbX'""

H'Y'XYVf]YZ]b[ 'a UmVY'j]b'k f]h]b[ 'ZVmd\cbYzj jXYc'Vt'bZ'fYbW'W' "cf'j]b'dYfg'cb' "K Y'g'U' dfca dh'mUXj]g'Y'nci 'j]b'k f]h]b[ '\ck'hc'hY'XYVf]YZ]b[ 'k j' "hY'U'd'UW'UbX'Vt'bZ]fa 'hY'XU'h' UbX'h'a Y'""





# 6YbYZVU' Ck bYfg\jd' 8]gWcgi fY': cfa "

## INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful Bidder. In case of joint venture, the Bidder must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Bidder is any natural person who ultimately owns or controls the Bidder by meeting one or more of the following conditions:

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder

F: 6'Bc": QbgYfhibi a VYf'cZF: 6'dfcWggQ

FYei YghZcf'6]X'Bc": QbgYfhi]XYbh]ZVU'hcbQ

Hc: QbgYfhiVta d'YHY'bUa Y'cZ9a d'cmYQ

h: fYgdcbgY' hc' mci f' fYei Ygh ]b' hY' @YHYf' cZ 5WVdHUbW' XUH'X' QbgYfhi XUH' cZ 'YHYf' cZ 5WVdHUbWQc' Z fb]g\ 'UXX]h]cbU' ]bZcfa Uh]cb'cb VYbYZVU'ck bYfg\jd'. @Y'YV'hcbY'cdh]cb 'Ug' Udd'jWV'Y'UbX'XY'YHY'h' Y'cdh]cbg'h UhUFY'bchUdd'jWV'YQ'

f]Ek Y'\YfYVmdfcj ]XY'hY'Zc'ck ]b[ 'VYbYZVU'ck bYfg\jd' ]bZcfa Uh]cb'""

8YHU]g'cZVYbYZVU'ck bYfg\jd'

|                                                                                            |                                                                                    |                                                                                               |                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| XYbh]micZ<br>6YbYZVU' Ck bYf'                                                              | 8]fYV'micf' ]bX]fYV'mi<br>\c'X]b[ '&) i' 'cf'a cfY'<br>cZ hY'g'UfYg'<br>fMYg'#BcE' | 8]fYV'micf'<br>]bX]fYV'mi\c'X]b[ '<br>&) i' 'cf'a cfY'cZ<br>hY'Jch]b[ 'F][ \hg'<br>fMYg'#BcE' | 8]fYV'micf' ]bX]fYV'mi<br>\Uj ]b[ 'hY'f][ \hlc'<br>Uddc]bhU'a U'cf]hmi<br>cZ hY'VcUfX'cZ hY'<br>X]fYV'c'fg'cf'Ub'<br>Yei ]j UYbh<br>[ cj Yfb]b[ 'VcXmicZ<br>hY'6]XXYf'<br>fMYg'#BcE' |
| QbW'XY' Z' "" bUa Y'<br>f]UghZ' a ]XX'Yz' Z]fghZ'<br>bUh]cbU']hmZ' Vti bHfm<br>cZfYg]XYbWQ |                                                                                    |                                                                                               |                                                                                                                                                                                      |



CF'

f]]E'K'Y'XYWUFY' h'Uh' h'YfY' ]g' bc' 6YbYZVJW' Ck bYf' a' YYh]b[ 'cbY'cf' a' cfY'cZ h'Y' Zc'`ck ]b[ ' W6bX]h'cbg''

YŁ X]fYVWmicf']bX]fYVWm\c'X]b[ ' &) i' 'cf' a' cfY'cZ h'Y' g\ UfYg'  
ZŁ X]fYVWmicf']bX]fYVWm\c'X]b[ ' &) i' 'cf' a' cfY'cZ h'Y' j' ch]b[ ' f]] \hg'  
[ Ł X]fYVWmicf']bX]fYVWm\Uj ]b[ ' h'Y' f]] \h'hc' Uddc]bhU' a' U'cf]h'mcZ h'Y' VcUfX'cZX]fYVWc'fg'  
cf'Yei' ]j' UYbh[ 'cj' Yfb]b[ ' VcXmcZ h'Y' 6]XXYf'

CF''

f]]]E'K'Y'XYWUFY' h'Uh' k'Y'UFY' i' bUV'Y'hc' ]XYbh]ZmUbm6YbYZVJW' Ck bYf' a' YYh]b[ 'cbY'cf' a' cfY'cZ h'Y' Zc'`ck ]b[ ' W6bX]h'cbg'' QZ h' ]g'cdh]cb ]ggY'YVW'XZ h'Y' 6]XXYf'g\ U'`dfcj ]XY'Yi' d'UbUh]cb'cb'k' \mi ]h]g'i' bUV'Y'hc' ]XYbh]ZmUbm6YbYZVJW' Ck bYfQ

\Ł X]fYVWmicf']bX]fYVWm\c'X]b[ ' &) i' 'cf' a' cfY'cZ h'Y' g\ UfYg'  
]Ł X]fYVWmicf']bX]fYVWm\c'X]b[ ' &) i' 'cf' a' cfY'cZ h'Y' j' ch]b[ ' f]] \hg'  
Ł X]fYVWmicf']bX]fYVWm\Uj ]b[ ' h'Y' f]] \h'hc' Uddc]bhU' a' U'cf]h'mcZ h'Y' VcUfX'cZX]fYVWc'fg'  
cf'Yei' ]j' UYbh[ 'cj' Yfb]b[ ' VcXmcZ h'Y' 6]XXYfQ

B'Ua' Y'cZ h'Y' 6]XXYf: ' f' QbgYfh'W6a' d'Yh' b'Ua' Y'cZ h'Y' 6]XXYfQ

B'Ua' Y'cZ h'Y' d'Yfgcb'Xi' `miU' h'cf]h'YX'hc' g]] b'h'Y' 6]X'cb' VV\U'ZcZ h'Y' 6]XXYf: ' f' QbgYfh'W6a' d'Yh' b'Ua' Y'cZ d'Yfgcb'Xi' `miU' h'cf]h'YX'hc' g]] b'h'Y' 6]XQ

H]h'Y'cZ h'Y' d'Yfgcb' g]] b]b[ ' h'Y' 6]X: ' QbgYfh'W6a' d'Yh' h]h'Y'cZ h'Y' d'Yfgcb' g]] b]b[ ' h'Y' 6]XQ

G]] b'Uhi' fY'cZ h'Y' d'Yfgcb' b'Ua' YX'U'Vcj' Y: ' QbgYfh'g]] b'Uhi' fY'cZ d'Yfgcb' k' \cgY' b'Ua' Y'UbX' W6dUW'mi UfY'g\ck' b'U'Vcj' YQ

8U'Y' g]] b'YX: ' QbgYfh'XU'Y'cZ g]] b]b[ 'OX'umcZ' QbgYfha' cbh' Q'QbgYfh'mYUfQ

'`b' h'Y' W6gY'cZ h'Y' 6]X' g' Va' ]h'YX' VmU'`>]bhJ' Ybh' fY'gd'YVW'mh'Y' b'Ua' Y'cZ h'Y'`>]bhJ' Ybh' fY'Ug' 6]XXYf''  
'b' h'Y' Yj' Ybh' h'U' h'Y' 6]XXYf' ]g'U'`>]bhj' Ybh' fY'Z'YUW' fY'Z'fYbW'hc' `A6]XXYf`A' ]b' h'Y' 6YbYZVJW' Ck bYfg\ ]d'

8]gWcg fY': cfa' f]bWl X]b[ 'H.]g' bhcXi V]cb' hYfYhcE' g\U'' VY' fYUX' hc' fYZf' hc' hY' c]bh' j Ybh' fY'  
a Ya VYf''  
''DYfgcb'g][ b]b[ 'hY'6]X'g\U''\Uj Y'hY'dck Yf'cZUhcfbYm[ ]j Yb'Vm'hY'6]XXYf''hY'dck Yf'cZUhcfbYm'  
g\U''VY'UfUWYX'k ]h' hY'6]X'GWYXi 'Yg''

@hYf'cZ5WWdhUbW'

OYhYf\ YUX'dUdYf'cZ\h Y'9a d'cmYfQ

αUHQ

Hc.'' @Ua Y'UbX'UXXfYgg'cZ\h Y'7cbhfUMhc'fQ

H.]g]g'hc' bch]Zmci 'h.Uhnci f'6]X'XUHY' αUHQcf'YI YW]cb'cZ\h Y' @Ua Y'cZ\h Y'7cbhfUMh'UbX'  
]XYbh]Z]VU]cb' bi a VYfZ Ug' [ ]j Yb' ]b' hY' 7cbhfUMh' 8UHUQZcf' hY' 5WWdhYX' 7cbhfUMh' 5a ci bh'  
@a ci bh]b' bi a VYfg'UbX'k cfxgQ@Ua Y'cZW'ffYbVh'@Ug'VcfYVWYX'UbX'a cX]Z]YX' ]b' UWcfXUbW'  
k ]h' hY' b'gfi V]cbg'hc'6]XXYfgz'g\YfYVmUWWdhYX' Vmci f'5[ YbVh'

Mci 'UFY'fYei YghYX'hc' Z'fb]g\ f]E'hY'DYfZcfa UbW'GYWf]m'UbX'Ub'9bj ]fcba YbHU'UbX'GcW]U'  
DYfZcfa UbW'GYWf]m'@Y'YH'9G'DYfZcfa UbW'GYWf]m]Z]h]g'bchfYei ]fYX'i bXYf'hY'VcbhfUMQ  
k ]h' ]b' & 'XUng' ]b' UWcfXUbW'k ]h' hY'7cbX]h]cbg'cZ7cbhfUMh'i g]b[ žZcf'h.Uhidi fdcgYžcbY'cZ  
hY'DYfZcfa UbW'GYWf]m': cfa g'UbX'hY'9G'DYfZcfa UbW'GYWf]m': cfa ž @Y'YH'fYZfYbW'hc'  
hY'9G'DYfZcfa UbW'GYWf]m' cfa ]Z]h]g'bchfYei ]fYX'i bXYf'hY'VcbhfUMQbX'f]]E'hY'UXX]h]cbU'  
]bZcfa Uh]cb'cb VYbYZ]V]U'ck bYfg\jd' ]b' UWcfXUbW'k ]h' 68G#H6'(+%žk ]h' ]b' Y][ \hfi' E6i g]bYgg'  
XUng'i g]b[ 'hY'6YbYZ]V]U'ck bYfg\jd'8]gWcg fY': cfa ž ]bWl XYX' ]b'GYW]cb'Lž7cbhfUMh': cfa gž  
cZ\hY'V]XX]b[ 'XcW'a Ybh''

5i hcf]nYX'G][ bUhi fY.'''\_\_\_\_\_

B Ua Y'UbX'H]hY'cZG][ bUhc'fm''''\_\_\_\_\_

B Ua Y'cZ5[ YbVh''''\_\_\_\_\_

5HUAa Ybh''7cbhfUMh'5[ fYYa Ybh'

•

- ## h

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[illegible]

G][ bYK`VmSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSfZcf'h\Y'7cbhfUMwclE

DYfZcfa UbW'GYWf]hm'Cdh]cb'%8Ya UbX'; i UfUbhY'

Q i UfUbhcf'YthYf YUX'cf'GK ÷ H]XYbh]ZYf'VtXYQ

6YbYZ]Ufm'QbgYfhbUa Y'UbX'5XXfYgg'cZ9a d'cnYfQ'

8UHY.'SSSSSSSSSSSSSS QbgYfhXUHY'cZ]ggj YQ

DYfZcfa UbW'; i UfUbhY'Bc'.SSSSSSSSSSSSSSSS

; i UfUbhcf.'QbgYfhbUa Y'UbX'UXXfYgg'cZd'UW'cZ]ggj Yzi b'Ygg]bX]UHYX]b'h'Y'YthYf YUXQ

K Y'\Uj Y'VYYb]bZcfa YX'h'Uh'SSSSSSSSSSSSSSS f'YfY]bUZHf'W'YX' "h'Y'5dd]Wbh'E\Ug'YbhYfYX' ]bhc'7cbfUW'iBc'"SSSSSSSSSSSSSS XUHY'X'SSSSSSSSSSSSS k]h'h'Y'6YbYZ]Ufm'Zcf'h'Y'YIYW'h]cb'cZ SSSSSSSSSSSSSSSSSSSSS f'YfY]bUZHf'W'YX' "h'Y'7cbfUW'iE'":i f'h'Yfa c'fYz k'Y'i bXYfgUbx'h'UhZ UWt'fX]b[ 'hc'h'Y'Vt'bx]h]cbg'cZ'h'Y'7cbfUW'iU'dYfZcfa UbW' [i UfUbhY']g'fYei ]fYX"

5h'h'Y'fYei Yg'h'cZ'h'Y'5dd]Wbh'h'c' ]ggj Y'h'g' [i UfUbhY'Zk'Y'Ug'; i UfUbhcf'Z\YfYVmi]ffY] c'WV'mi i bXYfhU\_Y'hc'dUm'h'Y'6YbYZ]Ufm'Ubm'g'a'cf'g'a'g'bch'YI'WYX]b[ ]b'h'c'U'Ub'Ua'ci'bh'cZ SSSSSSSSSSSSSSSSSSSSS f].....LZ\*%gi W'gi a'VY]b[ 'dUm'Y'Y' ]b'h'Y'h'm'Yg'UbX'dfcdcfh]cbg'cZ W'ffYbVYg' ]b'k'\]W'h'Y'7cbfUW'iDf]W' ]g'dUm'Y'Zi dcb'fYW]dh'Vmi'g'cZ'h'Y'6YbYZ]Ufm'Vt'a'd'm]b[ 'XYa'UbX'g'ddcfYX'Vmi'h'Y'6YbYZ]Ufm'g'h'Y'a'Ybh'Zk\Y'h'Yf' ]b'h'Y'XYa'UbX' ]hg'Zcf' ]b'U'g'dUfUHY'g] bYX'XcW'a'Ybh'UWt'a'dUm]b[ 'cf' ]XYbh]Z]b[ 'h'Y'XYa'UbX'Z'g'U]b[ 'h'Uh'h'Y'5dd]Wbh'g' ]b'VfYUW'cZ]hg'cV' ]U]cbf'g'i bXYf'h'Y'7cbfUW'iZk' ]h'ci'h'h'Y'6YbYZ]Ufm'bYX]b[ 'hc'dfcj'Y'cf'hc'g'ck' [fci bXg'Zcf'nci f'XYa'UbX'cf'h'Y'g'a'gdYV]ZYX'h'YfY]b"

H'g' [i UfUbhY'g'U'YI'd]fYzbc'UHYf'h'Ub'h'Y'° "8Um'cZ'° ž&° &+&°zUbX'Ubm'XYa'UbX'Zcf'dUha'Ybhi i bXYf' ]hia i ghVY'fYW] ]YX'Vmi'g'Uh'h'g'cZ]W' ]bX]UHYX'UVcj'Y'cb'cf'VYZcf'Y'h'Uh'XUHY'"

H'g' [i UfUbhY' ]g'g' V'YV'h'c'h'Y'I' b]Zcfa 'Fi'Yg'Zcf'8Ya'UbX'; i UfUbhY'g'f'F8; E&\$%\$F'Y] ]g]cbz ÷7'Di'V' ]W]h]cb'Bc'" +), žYI'Wdh'h'Uh'h'Y'g'ddcf]b[ 'g'h'Y'a'Ybhi bXYf'5fh]W' % flU' ]g'\YfYVmi YI'W'XYX"

SSSSSSSSSSSSSSSSSSSS

@] ]b'U'i'fYf'Q

*BchY.'5"]U]MhYX'h'i'h]bW'X]b[ 'Zc]bchYg'g'Zcf'i'g'Y' ]b'dfYdUf]b[ 'h'g'Zcfa'UbX'g'U'VY' XY'YhX'Zca' h'Y'Z]bU'dfcXi'W'*

<sup>1</sup> The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

<sup>2</sup> Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

DYfZcfa UbW'GYWf]lm'Cdh]cb'&'DYfZcfa UbW'6cbX'

[illegible]

K < 9F 95G h Y 7 c b f H U M t c f \ U g Y b h Y f Y X ] b t c U k f j H Y b 5 [ f Y Y a Y b h k ] H h Y 9 a d c m Y f X U h Y X h Y  
 \_\_\_\_\_ ' X U m c Z ' \_\_\_\_\_ ž & \$ S S S Z Z c f S S S S S S S S S S S S S S S S ] b U M t c f X U b W k ] h  
 h Y X c W a Y b h g z d U b g z g d Y V V Y Z V W h c b g z U b X U a Y b X a Y b h g h Y f Y h c z k \ ] W h c h Y Y i h Y b h \ Y f Y ] b  
 d f c j ] X Y X Z c f Z U f Y V m f Y Z f Y b W a U X Y d U h \ Y f c Z U b X U f Y \ Y f Y ] b U Z h Y f Y Z f Y f Y X h c U g h Y 7 c b f H U M  
 B C K ž H k 9 F 9 C F 9 ž h Y 7 c b X ] h c b c Z h ] g C V ] [ U h c b ] g g i W h U h z ] Z h Y 7 c b f H U M t c f g U  
 d f c a d h m U b X Z ] h z ž m d Y f Z c f a h Y g U ] X 7 c b f H U M t c f j b W X ] b [ U b m U a Y b X a Y b h g h Y f Y h c z h Y b  
 h ] g c V ] [ U h c b g U V Y b i U b X j c ] X / c h Y f k ] g Y z ] h g U f Y a U ] b ] b ž Z c f W U b X Y Z Y W  
 K \ Y b Y Y f h Y 7 c b f H U M t c f g U V Y z U b X X Y W U f Y X V m h Y 9 a d c m Y f h c V Y z ] b X Y Z j i h i b X Y f h Y  
 7 c b f H U M t c f h Y 9 a d c m Y f U j ] b [ d Y f Z c f a Y X h Y 9 a d c m Y f g c V ] [ U h c b g h Y f Y i b X Y f z h Y G i f Y m  
 a U m d f c a d h m i f Y a Y X m h Y X Y Z j i h z c f g U d f c a d h m i

fɪɛ̃    ʋɛ̃a   ḍ'Yɦ'ɦ'Y'7cbɦfUɦ]b'UWɛ̃fXUbW'k'ɦ'ɦ' ]ɦ'ɦ'fa   g'UbX'ʋɛ̃bX]ɦ'cbg/cf'

f&L cVHUJb U 6JX cf 6JXg Zfca ei UJZYX 6JXXYfg Zcf gi Va JggJcb hc hAY 9a dcmYf Zcf Vta dYHJb hAY 7cbfUUMi Jb UWtfxUbW k Jh Jhg hYfa g UbX VtbXJhcbgZ UbX i dcb XYHfa JbUHJcb Vm hAY 9a dcmYfUbX hAY Gi fYmcZ hAY ck YghfYgdcbgJ Y 6JXXYfZuffUb Y Zcf U 7cbfUUMi VYHk YYb gi W 6JXXYf UbX 9a dcmYf UbX a U\_Y Uj UJUVY Ug k cf dfc fYggYgfY Yb hci hAYfY gci X VY UXYZU hcf Ugi WggJcb cZXYZU hgi bXYf hAY 7cbfUUMi cf 7cbfUUMg cZ Vta dYHJcb UffUb YX i bXYf hJg dUfU fud\ E gi ZMYbhi Z bXg hc dUm hAY VtghicZ Vta dYHJcb Ygg hAY 6UUbW cZ hAY 7cbfUUMi DfJW/Vi h bchi YI WYXJb Z JbW XJb chAYf Vtghg UbX XUa U Yg Zcf k J W hAY Gi fYmia Um VY JUVY YfYi bXYfZ hAY Ua ci bhigYhZcf h Jb hAY Zfgh dUfU fud\ YfYcZ hAY hYfa A6UUbW cZ hAY 7cbfUUMi DfJW Z Ugi gYX Jb hJg dUfU fud\ Zg U a YUb hAY hcU Ua ci bhidUm UY Vmi 9a dcmYf hc 7cbfUUMi cf bXYf hAY 7cbfUUMi Ygg hAY Ua ci bhidfc dYf mdUJX Vmi 9a dcmYf hc 7cbfUUMi cf/cf

f1 E dUm h'Y' 9a d'cnyf' h'Y' Ua ci bh fYei ]fYX' Vm 9a d'cnyf' hc' Wta d'Yh' h'Y' 7cbhfUMh ]b' UWefXUbW' k ]h' ]hg h'fa g'UbX' WtbX'h]cbgi d'hc' U'hc h'U' bch'Yl WYX]b[ 'h'Y' Ua ci bhicZ h'lg'6cbX"

HAYGi fYmg\U`'bchVY~]UV'Y ZcfU'[ fYUhf q a 'hUb'hAY'adVWZYX'dYbU'micZh]g6cbX"

5bmj]hi bXYf'h]g'6cbX'a i ghVY]bg]hi hYX VYZcfY'hY Yl d]fu]hcb'cZcbY'mYUf'Zca 'hY'XU'h'cZ  
hY]lq]l'b[ 'cZhY'HU]l'b[!Cj Yf'7YfhZW'h'"

Bc'f][\hcZUM]cb'g\U''UMW Y'cb'h.]g'6cbX'h'cf'Zcf'hY'i gY'cZUbmIdYfgcb'cf'WdfdcfUh]cb'  
ch\Yf'hUb'hY'9a d'cmYf'bUa YX'\YfY]b'cf'hY'\Y]fgžYI YW'hcfgžUXa ]b]gfUhcfgžgi WWggcfgžUbX'  
Ugg][ bg'cZhY'9a d'cmYf''

ቈ'hYgh]a cbmk \YfYcZ'hY'7cbhfUMcf'\Ug'\YfYi bhc'gYh]hg'\UbX'UbX'UZZ] YX' ]hg'gYUžUbX'hY'  
Gi fYm\Ug'Wli gYX'hYgY'dfYgYbhg'hc'VY'gYUYX'k ]h' ]hg'WdfdcfUh'gYU'Xi 'mUhmghYX'Vm'hY'  
g][ bUhi fY'cZ]hg'Y[ U'fYdfYgYbhUh]j Yžh.]g'\_\_\_\_\_ 'XUmcZ'\_\_\_\_\_ '&\$'  
\_\_\_\_\_

G÷ B 98 'CB ''\_\_\_\_\_ 'cb'VY\UZcZ'\_\_\_\_\_

6m'\_\_\_\_\_ ]b'hY'WdUM]mcZ'\_\_\_\_\_

ቈ'hY'dfYgYbW'cZ'\_\_\_\_\_

G÷ B 98 'CB ''\_\_\_\_\_ 'cb'VY\UZcZ'\_\_\_\_\_

6m'\_\_\_\_\_ ]b'hY'WdUM]mcZ'\_\_\_\_\_

ቈ'hY'dfYgYbW'cZ'\_\_\_\_\_

## Introduction





H\jg[i UfubhYy]ggj VYVWfnc hYI b]Zcfa 'Fi `YgZcf8Ya UbX'; i UfubhYygfll F8; L&\$%\$ FYj ]g]cbZ  
 =77 Di V]W]h]cb'Bc"+), ŽYI WdhHUhH'Y'g ddcfh]b[ 'g]Hya Ybhi bXYf'5fh]WV'% flUc]g\YfYVmi  
 YI Wl XYX"

Q1/ buhi fYfgLO

<sup>2</sup> *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

FYhYbh]cb`A cbYmGYW/f]hm

8Ya UbX; i UfUbhYY

$\mathcal{Q} \vdash UfUbhc f \neg YhmYf \wedge YUX'cf'GK \equiv H'JXYbhJZYf'Ve'XYQ$

6YbYZVYUfm SSSSSSSSSSSSSSSSS GbgYfhbUa Y'UbX'5XXfYgg'cZ9a d'cmYfQ  
8UHY SSSSSSSSSSSSSSSSS GbgYfhXUHY'cZ]ggi YQ  
F9H9BHCB'A CB9M; I 5F5BH99'Bc". GbgYfh[i UfUbHY'fYZfYbW'bi a VYfQ  
; i UfUbrcf." GbgYfhbUa Y'UbX'UXXfYgg'cZd'UW'cZ]ggi YZi b'Ygg]bX]MUH'X'j b h Y'YHYfA YUXQ

K Y`Uj Y VYyb j]bZcfa YX`H Uh SSSSSSSSSSSSSSSS QbgYfhibLa Y`cZ7cbhfUMtcfzk \JW j]b H Y`VugY`cZ  
U`e]bhj Ybhi fY`g\ U` VY`H Y`bLa Y`cZH Y`e]bhj Ybhi fY`fYfY]bUZhf VW`YX``H Y`5dd J]Wbh`E\ Ug  
YbhfYX` ]bhc` 7cbhfUMi Bc" SSSSSSSSSSSSSS QbgYfhi fYZfYbW` bi a VYf` cZ H Y` W`bfhUMQXUH X`  
SSSSSSSSSSSS k ]h` H Y` 6YbYzV]ufnz Zc` H Y` YI YVWhcb` cZ SSSSSSSSSSSSSSSSSSSSSS QbgYfhibLa Y`cZ  
W`bfhUMiUbX` VfYZXYGvfhjcb` cZK cf\_gfYfY]bUZhf VW`YX``H Y`7cbhfUMi`E`

: i fñ hYfa cFYZk Y'i bXYfgrubX h.UhUwxfX]b[ 'hc h'Y VwbX]hcbgicZH'Y 7cbhfUwz h'Y 6YbYZVUf m  
fYH]bga cbYngi d'hc h'Y"ja ]hgYhZcfh ]b'h'Y 7cbhfUwz h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
h'Y HU\_]b[ !Cj Yf 7YfhZVUwY \Ug VYYb' ]gg YX'i bXYf h'Y 7cbhfUwz h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
fYh'bh]cb'A cbYm\Ug VYYb WfhZVYX' Zcf dUna Ybñ dUna Ybñ cZ QbgYfh h'Y gYVwbX' \UZ cZ h'Y  
fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
HU\_]b[ !Cj Yf 7YfhZVUwY ]g' ]gg YX' ]g' Ygg h.Ub' \UZ cZ h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
VYh YYb' \UZ cZ h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A  
GYW f]mUbxZ]ZfYei ]fYXZh'Y 9GDYfZcf a UbW GYW f]mUbxZ]ZfYei ]fYXZh'Y 9GDYfZcf a UbW GYW f]mUbxZ]ZfYei ]fYXZh'Y  
[ i fñ hYfa cFYZk Y'i bXYfgrubX h.UhUwxfX]b[ 'hc h'Y VwbX]hcbgicZH'Y 7cbhfUwz h'Y 6YbYZVUf m  
fYH]bga cbYngi d'hc h'Y"ja ]hgYhZcfh ]b'h'Y 7cbhfUwz h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
h'Y HU\_]b[ !Cj Yf 7YfhZVUwY \Ug VYYb' ]gg YX'i bXYf h'Y 7cbhfUwz h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
fYh'bh]cb'A cbYm\Ug VYYb WfhZVYX' Zcf dUna Ybñ dUna Ybñ cZ QbgYfh h'Y gYVwbX' \UZ cZ h'Y  
fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
HU\_]b[ !Cj Yf 7YfhZVUwY ]g' ]gg YX' ]g' Ygg h.Ub' \UZ cZ h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb  
VYh YYb' \UZ cZ h'Y fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A cbYmñZUbX h.Uhñ \Yb fYh'bh]cb'A  
GYW f]mUbxZ]ZfYei ]fYXZh'Y 9GDYfZcf a UbW GYW f]mUbxZ]ZfYei ]fYXZh'Y 9GDYfZcf a UbW GYW f]mUbxZ]ZfYei ]fYXZh'Y

5hH.Y fYei YgicZH.Y 5dd`JWbhc`Jggj Y`h`Jg[ i UfUbhYzK YzUg; i UfUbhcFz\YfVmi]ffYj cWV`m  
i bXYfhU\_Y`hc`dUmhH.Y 6YbYZWUfmUbmj a`cf`g`a`g`bch`Yl WYX]b[ `]b`hcU`Ub`Ua`ci`bh`cZ  
SSSSSSSSSS QbgYfhUa`ci`bh]b`Z[ i fYgF\_\_\_\_\_t Qa`ci`bh]b`k`cFXG<sup>8%</sup>i dcb`fYW]dhVmi`g`cZ  
H.Y 6YbYZWUfmUbmj a`d`n]b[ `XYa`UbX`g`ddcfYX`VmH.Y 6YbYZWUfmUbmj g`h`h`a`YbhzK`Yh`Yf`]b`h`Y`  
XYa`UbX`]hgY`Z`cf`]b`U`gYdUfU`g[ bYX`XcW`a`Ybh`UW`a`dUbm]b[ `cf`]XYbh]Z]b[ `h`Y`XYa`UbX`Z`  
g`h]b[ `h`U`h`H.Y 5dd`JWbhc`Jg]b`VfYUW`cZ]hg`cV[[]U`h`bfg`i bXYf`h`Y`7cbh`fUW`k`h`ci`h`ci`f`  
bYXX]b[ `hc`dfcj`Y`cf`g`ck`[ fci`bXg`Z`f`nci`f`XYa`UbX`cf`h`Y`g`a`gdYVZYX`h`YfY]b`

[illegible]

1 The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.

This guarantee shall expire no later than the .... Day of ....., 2...<sup>332</sup>, and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

*Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*

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<sup>332</sup> Insert the same expiry date as set forth in the performance security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

