TETRA TECH

.HYLQ└ 6FRWW└
3URMHFW└ 0DQDJHU└

6HSWHPEHU└ ¶ ☼ └ ┴ ‼ ¶ → └

0U◄ └ 5REHUW└ (JDQ└
&RUUHFWLYH└ $FWLRQ└ 0DQDJHU└
8QGHUJURXQG└ 6WRUDJH└ 7DQNV└ 6HFWLRQ└
5HMRXUFH└ &RQVHUYDWLRQ└ DQG└ 5HFRYHU\└ $FW└ %UDQFK└
8◄ 6◄ └ (3$└ 5HJLRQ└ ↑ └
→ → └ :└ -DFNVRQ└ %OYG└ ♂ /5↕ ¶ → -□ └
&KLFDJR☼ └ ,/└ ├ ‼ ├ ‼ ┤ └

6XEMHFW └ :RUN└ 3ODQ└ IRU└ 7RZHU└ 6WDQGDUG└ ♂ 5HYLVLRQ└ ‼ □ └
/HDNLQJ└ 8QGHUJURXQG└ 6WRUDJH└ 7DQN└ ♂ /867□ └ 6LWH └ └ 3LORW└ 6WXG\└
/DF└ GX└)ODPEHDX☼ └ :,└
&RQWUDFW└ 1R◄3┼ 6↑ ┼ ¶ ┬ ┼ ‼ ¶
7''└ 1R◄└└6‼ ↑ ┼ ‼ ‼ ┴ ‼ ┼ ¶ → ‼ ┼ ┴ ‼ ‼
'71 └ ┴ ‼ ↑ ¶ └

'HDU└ 0U◄ └ (JDQ └

7HWUD└ 7HFK└ LV└ SURYLGLQJ└ LWW└ ZRUN└ SODQ└ IRU└ WKH└ DERYH┼ UHIHUHQFH└ 6LWH◄ └ └ 2XU└ DWWDFKHG└ Z
GHWDLOHG└ GHVFULSWLRQ└ RXU└ WHFKQLFDO└ DSSURDFK└ UHVSRQGLQJ└ WR└ WKH└ 6FRSH└ RI└ :RUN☼ └ LQFOXGLQJ
DQG└ VLWH└ KLWWRU\☼ └ ♂ ┴ □ └ WHFKQLFDO└ DSSURDFK☼ └ ♂ ┬ □ └ GHOLYHUDEOHV└ DQG└ VFKHGXOHV☼ └ ♂ ┤ □
DQG└ OLPLWDWLRQV└ DQG└ ♂ ├ □ └ HWWLPDWHG└ FRWWW◄ └

3OHDVH└ FRQWDFW└ PH└ DW└ ┬ ¶ ┴ ┼ ┴ ‼ ¶ ┼ → → ┬ └ LI└ \RX└ VKRXOG└ KDYH└ DQ\└ TXHWWLRQV◄ └

6LQFHUHO\☼ └

.HYLQ└ 6FRWW└
3URMHFW└ 0DQDJHU└

FF └ 7''└)LOH└

7HWUD└ 7HFK☼ └ ,QF◄ └
¶ └ 6◄ └ :DFNHU└ 'U◄ └ 6XLWH└ ┬ → ‼ ‼ ☼ └ &KLFDJR☼ └ ,/└ |
7HO┬ ¶ ┴ ◄ ┴ ‼ ¶)DI┬ ¶ ┼ ◄ ┴ ‼ ¶ ◄ ‼ ‼ ┬ ¶
ZZZ◄ WHWUDWHFK◄ FRP

:25. 3/$1)25 72:(5 67$1'$5'

/($.,1* 81'(5*5281' 6725$*(7$1. 6,7(3,/27 678'<

/$& '8)/$0%(8 :,6&216,1

5HYLVLRQ

3UHSDUHG IRU

8 6 (QYLURQPHQWDO 3URWHFWLRQ $JHQF\

5HJLRQ

&KLFDJR ,/

6XEPLWWHG E\

7HWXD 7HFK ,QF

&KLFDJR ,/

(3$ &RQWUDFW 1R (3 6 7'' 1R 6 '71

6HSWHPEHU

3UHSDUHG E\

.HYLQ 6FRWW

3URMHFW 0DQDJHU

$SSURYHG E\

-RKQ 'LUJR

67$57 4& 5HYLHZHU

7HWXD 7HFK ,QF

&KLFDJR ,/

ZZZ VWXDWHFK FRP

7DEOH RI &RQWHQWV

&RQWHQWV

¶ ◀ ‼ ,1752'8&7,21
┴ ◀ ‼ 352-(&7 %$&.*5281'
┴ ◀ ¶ 6,7(/2&$7,21
┴ ◀ ┴ 6,7(+,6725<
┴ ◀ ┬ 6,7(63(&,),& %$&.*5281' ,1)250$7,21
┬ ◀ ‼ 352-(&7 3352&+
┬ ◀ ¶ *(1(5$/ 5(48,5(0(176)25 7+(:25.
┬ ◀ ┴ .(< 352-(&7 3(56211(/
┬ ◀ ┬ 7(&+1,&$/ 3352&+ 72 7$6.6
┬ ◀ ┬ ◀ ¶ 7DVN ¶ ,PSOHPHQW 3URMHFW 3ODQQLQJ DQG 6XSSRUW
┬ ◀ ┬ ◀ ┴ 7DVN ┴ 3UHSDUH 6LWH 6SHFLILF 3ODQV
┬ ◀ ┬ ◀ ┬ 7DVN ┬ ,PSOHPHQW 3LORW 7HVW)LHOG :RUN
┬ ◀ ┤ 3UHSDUH 3LORW 7HVW 5HSRUW
┬ ◀ ↑ 3URYLGH 3RVW 3LORW 7HVW 6XSSRUW
┤ ◀ ‼ 6&+('8/($1' '(/,9(5$%/(6
↑ ◀ ‼ 67$)),1* 3/$1
├ ◀ ‼ $668037,216 $1' /,0,7$7,216
5()(5(1&(6

7DEOHV

¶ 6LWH 6SHFLILF ,QIRUPDWLRQ
┴ .H\ 3URMHFW 3HUVRQQHO DQG &RQWDFW ,QIRUPDWLRQ
┬ 6FKHGXOH RI 'HOLYHUDEOHV
┤ 6WDIILQJ 3ODQ

EPA-R5-2017-010506_0003716

3LOR/V- 7HV/V- :RUN L 3DDQ L ± L 7RZHU L 6/DQGDUG L 6LV/H¤ L :, L

¶ ◀ ‼ L L ,1752'8&7,21 L

7H/UD L 7HFK¤ L ,QF◀ L ♂ 7H/UD L 7HFK□ L SUHSDUHG L WKLV L ZRUN L SODQ L LQ L UHVSRQVH L WR L 7HFKQLFDO L 'L
♂ 7''□ L 6‼ ↑ ┼ ‼ ‼ ┴ ‼ ┼ ¶ → ‼ ┼ ┴ ‼ ‼ ¤ L XQGHU L &RQWUDF/ (3┼ 6↑ ┼ ¶ ┬ ┼ ‼ ¶ L ZLWK L WKH L 8◀
♂ (3$□ L 5HJLRQ L ↑ ◀ L L 7KH L 6FRSH RI L :RUN L ♂ 62:□ L GLUHF/W L 7H/UD L 7HFK L WR L VXSSRU/ D L SLOR
HYDOXDW/ H[FDYDW/RQ L DQG L DLU L VSDUJH↕ VRLO L YDSRU L H[W/UDF/RQ L ♂ $6↕ 69(□ L DV L SR/HQW/DO L LQ/HU
VLW/H◀ L ,Q L DGGL W/RQ L WR L WKLV L LQ/URGXF/RQ¤ L WKH L ZRUN L SODQ L LQFOXGH/ L WKH L IROORZLQJ L VHF/RQ
EDFNJURXQG¤ L ♂ ┴ □ L W/HFKQLFDO L DSSURDFK L WR L WDVN/¤ L ♂ ┬ □ L VFKHGXOH¤ L ♂ ┤ □ L W/DI ILQJ L SODQ
OLPL W/DW/RQ/◀ L L 7H/UD L 7HFK∂V L FRX/V- HX/LPDW/H L LV L SUR/YLGHG L DV L DQ L D/W/DFKPHQW◀ L

┴ ◀ ‼ L 352-(&7 L %$&.*5281' L

7KLV L VHF/RQ L SUHVHQW/ EDFNJURXQG L LQIRUPDW/RQ L RQ L WKH L 7RZHU L 6/DQGDUG L CHDNLQJ L XQGHUJURXQG L
♂ /867□ L ♂ 7RZHU L 6/DQGDUG□ L 6LV/H◀ L L

┴ ◀ ¶ L 6,7(L /2&$7,21 L

7KH L 7RZHU L 6/DQGDUG L 6LV/H L LV L ORFDW/HG RQ IHH L CDQG ZLW/KLQ L WKH /DF L GX)CDPEHDX L ♂ /')□ L ,C
WKH L LQ/HUVHF/RQ RI L 6/DW/H +LJKZD\ L → ‼ L DQG &RXQ/ L 5RDG ' L QHDU /DF L GX)CDPEHDX¤ L :LVF
ERUGHUHG RQ WKH RRUW/K E\ 6/DW/H +LJKZD\ L → ‼ ¤ L WR WKH VRX/K E\ D VFDOO SRQG DQG +DV
D YDFDQ/ SURSHU/\ L ♂ IRUPHUO\ D UHX/DXLDQ/□ ¤ L DQG WR WKH VRX/KZHX/ E\ WKH +DVNHOO /DN
ILUHZRUN/ VKRS ZD/ IRUPHUO\ ORFDW/HG WR WKH QRU/K DFUR/ +LJKZD\ L → ‼ ◀ L +RPH/ ZLW/K SUL
W/ULEDO W/UX/X/ CDQG¤ L OLH RQ WKH HDX/ DQG ZHX/ VLGH/ RI L +DVNHOO /DNH◀ L 7KH 6LV/H SURSH
7KH /') W/ULEH UHIHU/ WR 7RZHU 6/DQGDUG 6LV/H D/ WKH +DVNHOO /DNH 3HW/ROHXP &RQDPLQDW/
⊥ ◀ ┴ L 6,7(L +,6725< L

7KH L 7RZHU L 6/DQGDUG L JD/ W/DW/RQ ZD/ EXLO/ LQ WKH HDUO\ L ¶ ┤ ‼ V DQG RSHUDW/HG XQ/LO L ¶
RI L WKH L JD/ W/DW/RQ¤ L WKH IRUPHU JD/ W/DW/RQ EXLOGLQJ ZD/ X/HG D/ D EDLW/ VKRS LQ WK
┴ ‼ ¶ ↑ ◀ L 6L[L XQGHUJURXQG W/RUDJH W/DQ/ ZHUH CRFDW/HG RQ WKH SURSHU/\ L ILY/H FRQ/DLQHG
JD/ROLQH DQG RQH FRQ/DLQHG ZDX/H RLO◀ L $OO W/DQ/ ZHUH UHPRY/HG LQ ¶ → ◀ L L

┴ ◀ ┬ L 6,7(┼ 63(&,),&L %$&.*5281' L ,1)250$7,21 L

7DECH L ¶ L SUHVHQW/ VLW/H┼ VSHFLILF EDFNJURXQG LQIRUPDW/RQ DQG WKH SUR/HF/ SXUSR/H IRU WKH
6LV/H◀ L L L

7DECH L ¶ ◀ L L 6LV/H 6SHFLILF ,QIRUPDW/RQ

6LV/H $GGUHV/ L	,QV/HUVHF/RQ RI 6/DW/H +LJKZD\ L → ‼ L DQG &RXQ/ L 5RDG ' L /DF L GX)CDPEHDX¤ L IHH CDQG ZLW/KLQ WKH /DF L GX)CDPEHDX¤ L ,QGLDQ 5HV/HUY/DW/RQ□ L
6LV/H /DW/W/XGH↕ L /RQJLW/XGH L	┤ ↑ É↑ ┤ ∂┤ ◀ → ¥ L 1RUW/K¤ L ← É↑ ┤ ∂┤ → ◀ → ┤ ¥ L :HX/V-
6LV/H 6L]H↕ 6KDSH L	2Q┼ KDOI L DFUH¤ L DSSUR[LPDW/HD\ L ¶ ┼ ┼ L IHHW/- E\ L ¶ ┤ ‼ L IHHW/¤ L VTXDUH L
6LV/H +LX/RU\ L ♂ ZKHQ↕ ZK\ L VLV/H ZD/L[L XQGHUJURXQG W/RUDJH W/DQ/ ZHUH RQ WKH SURSHU/\¤ L ILY/H FRQ/DLQLQJ CHDGG RUL JLQDOO\ L GHY/HORSHG JD/ROLQH DQG RQH FRQ/DLQLQJ ZDX/H RLO◀ L L 7KH VL[L W/DQ/ ZHUH UHPRY/HG LQ ¶ SDX/- X/HV↕ RSHUDW/RU/ JD/ W/DW/RQ FORV/HG¤ L WKH IRUPHU JD/ W/DW/RQ EXLOGLQJ ZD/ X/HG D/ D EDLW/ V

¶ L

7DEOH- ¶ ◀ - - 6LW\H- 6SHFLILF- ,QIRUPDWLRQ

FXUUHQW- XVH¤ - SURSRVHG- XVH¤ - IX\XUH- XVH□ -	DYDLODEOH- EDFNJURXQG- LQIRUPDWLRQ- IRU- WKH- 6LW\H◀ - -
([LW\LQJ- (QYLURQPHQWDO‡ - *HRORJLF- ,QIRUPDWLRQ	3HW\ROHXP- UHOHDVHV- ♂ JDVROLQH□ - IURP- WKH- WDQN\- KDYH- LPSDFW\HG- VRLO- DQG- JURXQG 6LQFH- ¶ → ¤ - VLW\H- LQYH\WLJDWLRQ\- LGHQWLILHG- FRQWDPLQDW\HG- VRLO- DQG- JURXQGZD FRQWDPLQDW\RU- EHQHDW\K- WKH- IRUPHU- WDQN- SLW◀ - - $- SUL\DW\H- ZHOO- DW- WKH- VLW\H- DG DGVDPHQW- PRW\HO- ♂ GLUHFW\\- \RX\WKZHW\- RI- WKH- VLW\H□ - ZHUH- UHSODPHG- ZKHQ- EHQ]HQH FRQWDPLQDW\RU- ZDV- LGHQW\LILHG◀ - - $- PRQLW\RULQJ- ZHOO- QHW\ZRUN- DQG- JURXQGZDW\HU- SX W\LHDW- V\W\W\P- ZHUH- LQW\DOOHG◀ - - 7KH- 6\DW\H- FORVHG- WKH- VLW\H- LQ- ⊥ !! !! ├ ¤ - DQW JURXQGZDW\HU- ZDV- W\W\OOO- SUHVHQW - DW- WKDW- WLPH¤ - FRQWDPLQDW\RU- ZDV- WKRXJKW- WR WR- DQ- DUHD- DW¤ - DQG- QHDU¤ - WKH- 6LW\H◀ - 6XEVHTXHQW- HQYLURQPHQWDO- LQYH\WLJDW\RQ LGHQW\LILHG- W\W\RQJ- SHW\ROHXP- RGRUV- DQG- JURXQGZDW\HU- FRQWDPLQDW\RQ- PRYLQJ- WRZDUG- +DVNHOO- /DNH- ♂ VRX\WK- RI- WKH- VLW\H□◀ - - 7KH- 6\DW\H- UHSHQHG- WKH- VLW\H- LQ- ⊥ !! LQYH\WLJDW\RQ- KDV- EHQ- LPSOHPHQW\HG- ZLW\K- LQYROY\PHQW- E\- WKH- 6\DW\H¤ - WKH- 5HVSR 3DU\\ ∂V- ♂ 53□ - FRQWDFW\RU¤ - (3$¤ - DQG- WKH- /')- W\UEH◀ - - -

7KH- FXUUHQW- XQGHUW\DQGLQJ- RI- WKH- VLW\H- LQGLFDW\HV- VPHDU-]RQH- FRQWDPLQDW\RQ- LQ- DUHD¤ - PRW\- RI- ZKLFK- LV- XSRQ- WKH- UHW\DXUDQW- SURSHU\\- WR- WKH- HDW\- RI- WKH- 7KLV- VRXUFH- LV- FRQW\QXLQJ- WR- FRQWDPLQDW\H- VKDOORZ- JURXQGZDW\HU◀ - - &RQWDPLQDW\W- PLJUDW\G- GHHS- LQWR- JURXQGZDW\HU- DQG- DUH- PLJUDW\QJ- WRZDUG- +DVNHOO- /DNH- ♂ VRX\WK 6LW\H□¤ - EX\W- WKH- PDW\- RI- WKH- SOXPH- PD\- OLH- EHORZ- WKH- OD\H- EHG◀ - - 3UL\DW\H SUHVHQW\- FRQW\DPLQDW\G- E\- WKH- UHOHDVH- DW- WKH- VLW\H- DQG- YDSRU- LQW\UXVLRQ- VDPSO LQGLFDW\H- XQDFFHSW\DEOH- CHY-HOV - QR- RQH- LV- FXUUHQW\- NQRZQ- WR- EH- H[SRV\G- WR- W FRQW\DPLQDW\G- VRLOV◀ - ,QYH\WLJDW\RQ- DUH- RQJRLQJ◀ - - -

3URVHFW- 3XUSRVH -	'HYHORS- DQG- LPSOHPHQW- D- SLORW- W\W\W- WR- HYDOXDW\H- WKH- HIIHFW\LYHQHV- RI- H VSDUJH‡ VRLO- YDSRU- H[W\UDFW\RQ- ♂ $6‡ 69(□ - WR- VXSSRUW- VRXUFH- UHPHGLDW\RQ- DW- WK ,QW\HUP- 0HDVXUH‡ &RUUHFW\LYH- 0HDVXUH- 6\XG\- 7HW\WD- 7HFK- LV- VXSSRUW\QJ- XQGHU- D- 7HFKQLFDO- 'LUHFW\RQ- 'RFXPHQW- ♂ 7''□ - ZLOO- DGGUHV- WKH- IROORZLQJ- UHPHGLDO- RSW\ H[FDYDW\RQ¤ - H[FDYDW\RQ- ZLW\K- $6‡ 69(¤ - DQG- $6‡ 69(◀ - -

- ◀ !! - 352-(&7- 3352&+-

7KLV- VHFW\RQ- SUHVHQW\- JHQHUDO- UHTXLUHPHQW\¤ - NH- SURVHFW- SHUVRQQHO¤ - DQG- 7HW\WD- 7HFK- V IRU- WKH- SURSRVHG- VFRSH- RI- ZRUN◀ -

- ◀ ¶ - *(1(5$/- 5(48,5(0(176-)25- 7+(- :25.-

7HW\WD- 7HFK- ZLOO- VXSSRUW- D- SLORW- W\W\W- WR- HYDOXDW\H- WKH- HIIHFW\LYHQHV- RI- H[FDYDW\RQ- DQG- DQW\HUQDW\LYHV- IRU- WKH- 6LW\H◀ - - %R\WK- RI- WKH- H\H- UHPHGLHV- KDYH- EHHQ- GLVFXW\HG- ZLW\K- WKH- /') DFFHSW\DEOH- WR- WKH- WULEH- DV- WKH- PHDQV- WR- LPSOHPHQW- VRXUFH- UHGXFW\RQ◀ - - $V- SDUW- RI- ILL ZLOO- HYDOXDW\H- IRU- WKH- SUHW\QFH- RI- OLJKW- GRQ┼ DTXHRXV- SKDW\H- OLTXLG- ♂ /1$3/□ - DV- UHTXH\W RQ- 6HSW\HPEHU- ¶ ← ¤ - ⊥ !! ¶ → - ♂ 6KHUU\- .DFN\H- RI- (3$- 5HJLRQ- ↑ □◀ - - - -

7HW\WD- 7HFK- ZLOO- IXUQLVK- QHFHW\DU\- DQG- DSSURSULDW\H- SHUVRQQHO¤ - PDW\HULDOV- DQG- VHUYLFHV- WR 7HW\WD- 7HFK- ZLOO- FRPPXQLFDW\H- DW- QHDW- ZHHNO\- ZLW\K- WKH- (3$- 7''- &RQWDFW\LQJ- 2IILFHU- 5HSU ♂ &25□¤ - 5REHUW- (JDQ¤ - WKURXJK- IDFH┼ WR┼ IDFH- PHW\LQJV- RU- FRQIHUHQFH- FDOOV◀ - - 7HW\WD- 7H W\HFKQLFDO- DQG- ILQDQFLDO- UHFRUGV- IRU- WKH- 7''◀ - (3$- DQG- 7HW\WD- 7HFK- ZLOO- XVH- HQHFW\RQLF- SRVVLEOH◀ - -

(3$- ZLOO- RYHUVHH- 7HW\WD- 7HFK ∂V- DFW\LYLW\LHV- IRU- WKH- SLORW- W\W\W◀ - (3$- ZLOO- UHYLHZ- GHOLYH OLNHOKRRG- WKDW- WKH- SLORW- W\W\W- ZLOO- DFKLHYH- LW\- JRDOV- DQG- WKDW- SHUIRUPDQFH- UHTXLUHPHQW

3LOR W 7HW W :RUN 3DDQ ± 7RZHU 6WDQGDUG 6LWH: :,

7HFK ZLOO VXEPLW DQ RIILFLDO UHFRUG RQ &' DQG D KDUGFRS\ WR WKH &25 DW WKH HQG RI LQGLFDWHV WKH SHULRG RI SHUIRUPDQFH LV SODQQHG WR HQG 1RYHPEHU ¶ ‼ ☼ ⊥ ‼ ¶ → ◀

¶ ◀ ⊥ .(< 352-(&7 3(56211(/

7DECH ⊥ SUHVHQW NH\ SURVHFW SHUVRQQHO DQG FRQWDFW LQIRUPDWLRQ IRU (3$ DQG 7HWUD 7HF

7DECH ⊥ ◀ .H\ 3URVHFW 3HUVRQQHO DQG &RQWDFW ,QIRUPDWLRQ

5RCH	1DPH	$JHQF\ &RPSDQ\	3KRQH 1XPEHU	(PDLO $GGUHVV
(3$				
(3$ 32	6DP &KXPPDU	(3$ 5HJLRQ ↑ ¶ ⊥ ◀ ←	← ├ ◀ ¶ ┤ ¶ ┤	VDP FKXPPDU#HSD
(3$ &25 ♂ 3ULPDU\ 3URVHFW &RQWDFW	5REHUW (JDQ	(3$ 5HJLRQ ↑ ¶ ⊥ ◀	← ← ├ ◀ ├ ⊥ ¶ ⊥	UREHUW HJDQ#HS
(3$ (57 7HFKQLFDO /LDLVRQ	7KRPDV .DG\	(3$ (57	→ ¶ ⊥ ◀ ‼ ├ ◀ ├ ¶ → ⊥	.DG\ 7KRPDV#HSD JRY
7HWUD 7HFK				
5↑ 67$57 3URJUDP DQG 3URVHFW 0DQDJHU	HYLQ 6FRWW	7HWUD 7HFK	¶ ⊥ ◀ ⊥ ♂ RIILFH ← ↑ ├ ◀ ⊥ ¶ → ◀ ├	‼ NHYLQ VFRWW#WWWLDWHFK FRP ‼ → ⊥ ♂ FHOO
67$57 6XSHUYLVLQJ /HDG (QJLQHHU	'DYH %HUHWWD 3	7HWUD 7HFK	¶ ⊥ ◀ ♂ RIILFH ‼ ¶ ┤ ← → ‼ ┤	GDYLG EHUHWWD#WWWLDWHFK FRP ├ ├ ♂ FHOO
67$57 3URVHFW (QJLQHHU	&KLW &KULWWLDQ	7HWUD 7HFK	¶ ♂ RIILFH → ⊥ ‼ ◀ ¶ ↑ ◀ ├	FKULWWLDQ#WWWLDWHFK FRP ├ ← ⊥ ♂ FHOO
67$57 4XDOLW &RQWUR 0DQDJHU	-RKQ 'LUJR	7HWUD 7HFK	¶ ⊥ ◀ ♂ RIILFH	NRHQ GLUJR#WWWLDWHFK FRP
1RWHV (3$ 8 6 (QYLURQPHQWDO 3URWHFWLRQ $JHQF\ (57 (QYLURQPHQWDO 5HVSRQVH 7HDP 3 (QJLQHHU 32 3URVHFW 2IILFHU &25 &RQWUDFW 2IILFHU 5HSUHVHQWDWLYH 67$57 6XSHUIXQG 7H $VVHVVPHQW DQG 5HVSRQVH 7HDP				

¶ ◀ ¶ 7(&+1,&$/ 3352&+ 72 7$6.6

7HWUD 7HFK ZLOO SURYLGH VXSSRUW IRU D SLORW WHWW DW WKH 6LWH 3URVHFW WDVNV DUH VXEWHFWLRQV

¶ ◀ ¶ ◀ ¶ 7DVN ¶ ,PSOHPHQW 3URVHFW 3ODQQLQJ DQG 6XSSRUW

7HWUD 7HFK ZLOO LPSOHPHQW SURVHFW SODQQLQJ DQG VXSSRUW WR HQVXUH ZRUN DGGUHVVHV (3$ QO WHWW

¶ ◀ ¶ ◀ ¶ ◀ ¶ ,PSOHPHQW 3URVHFW 3ODQQLQJ

7KLV WDVN LQFOXGHV HIIRUWV UHODWHG WR SURVHFW LQLWLDWLRQ DV IROORZV

¶ ◀ ¶ ◀ ¶ ◀ ¶ ◀ ¶ $VVHQG .LFNRII 0HHWLQJ ├ 7HWUD 7HFK DQG (3$ SDUWLFLSDWHG LQ D NL FRQIHUHQFH FDOO RQ 6HSWHPEHU ¶ ¶ ☼ ⊥ ‼ ¶ → ◀ 7KLV FDOO ZDV DWWHQGHG E\ WKH NH\ 7DECH ¶ ♂ PLQXV -RKQ 'LUJR ☼ ZLWK DGGLWLRQDO (3$ UHSUHVHQWDWLYHV LQFOXGLQJ 6KHUU\ ↑ 867 6HFWLRQ &KLHI ☼ 5HVRXUFH &RQVHUYDWLRQ DQG 5HFRYHU\ $FW %UDQFK DQG 7KRPDV .DG\ WHFKQLFDO UHSUHVHQWDWLYHV IURP WKH (3$ (QYLURQPHQWDO 5HVSRQVH 7HDP ♂ (57 ◀ 'XUQJ WK 7HFK DQG (3$ UHYLHZHG WKH 62: ☼ VLWH KLWWRU\ ☼ WDNHKROGHU LQSXW ☼ WHFKQLFDO UHTXLUHPHQ JRDOV IRU WKH ZRUN ◀

¶ ⊥

3LOR\W- 7HW\W- :RUN L 3DDQ L ± L 7RZHU L 6\DQGEDUG L 6LW\H¤ L :, L

7KLV L ZRUN L SDDQ L GRFXPHQW L GLVFXVVLRQ L DQG L (3$ L GLUHFWLRQ L SURYLGHG L GXULQJ L WKLV L NLFN┼ RII L PH
WHFKQLFDO L DSSURDFK L LV L GHVLJQHG L WR L WU\ L DPOLQH L HIIRUW L WR L KHOS L DFKLHYH L (3$ ∂V L VFKHGXOH L JH
DQG L WKH L UHDWHG L ,0↕ &06 L EHLQJ L LPSOHPHQWHG L XQGHU L D L VHSDUDWH L 7''◄ L L 7R L VXSSRUW H[SHGLWH
7HFK L LV L XVLQJ L D L FRQVLWHQW L WDII LQJ L DSSURDFK L IRU L ER\K L 7''V◄ L L L L

┬ ◄ ┬ ◄ ¶ ◄ ¶ ◄ ┴ L 3UHSDUH L 3LOR\W- 6\XG\ L :RUN L 3DDQ L ┼ L 7HWUD L 7HFK L SUHSDUHG L WKLV L GUDIW- ZI
DFWLYLWLHV¤ L VFKHGXOHV¤ L WDII LQJ L SDDQV¤ L DVVXPSWLRQV L DQG L OLPLWDWLRQV¤ L DQG L HWWLPDWHG L FRX
YHUEDO L LQIRUPDWLRQ L DQG L GLUHFWLRQ L SURYLGHG L E\ L (3$ L GXULQJ L WKH L NLFN┼ RII L PHHWLQJ◄ L L 'XULQ
PHHWLQJ¤ L SDUWLFXOD U DVVHQWLRQ L ZDV L SDLG L WR L GLVFXVVLQJ L WKH L VHTXHQFH L RI L HYHQW L WR L FRRUGL
SURYLGH L D L UHDOLWLF¤ L EXW- DJJUHVVLYH¤ L SLRW- WHWW- VFKHGXOH◄ L L 7HWUD L 7HFK L ZLOO L UHYLVH L W
DGGUHVV L DQ\ L FRPPHQW L WKDW- (3$ L SURYLGHV◄ L L L

┬ ◄ ┬ ◄ ¶ ◄ ┴ L ,PSOHPHQW- 3URMHFW- 0DQDJHPHQW

7HWUD L 7HFK L ZLOO L LPSOHPHQW- SURMHFW- PDQDJHPHQW- LQFOXGLQJ L PDQDJHPHQW- DQG L WUDFNLQJ L RI L FRX
RI L 0RQWKO\ L 3URJUHVV L 5HSRUWV¤ L DVVHQGDQFH L DW- SURMHFW- PHWLQJV¤ L DQG L SUHSDUDWLRQ L DQG L VXEP
7KH L SHUIRG L RI L SHUIRUPDQFH L LV L FXUUHQW\ L LVXXH G L WKURXJK L 1RYHPEHU L ┬ !! ¤ L ┴ !! ¶ → ◄ L L 7HWU
SDUWLFLSDWH L LQ L PHHWLQJV L DQG L FRQIHUHQFH L FDOOV L WR L VKDUH L DQG L UHYLHZ L SURMHFW- SURJUHVV◄ L L
PHHWLQJV¤ L ZLWK L RQH L WR L WZR L 7HWUD L 7HFK L WDII L LQ L DVVHQGDQFH¤ L IRU L D L WRWDO L RI L ¶ ↑ L KRX

┬ ◄ ┬ ◄ ┴ L 7DVN L ┴ L L 3UHSDUH L 6LW\H┼ 6SHFLILF L 3DDQV L

7KLV L VHFWLRQ L SURYLGHV L 7HWUD L 7HFK ∂V L DSSURDFK L WR L GHYHORS L WKH L SURMHFW ∂V L TXDOLW\ L DVVXUDQF
♂ 4$33□ ¤ L KHDOWK L DQG L VDIHW\ L SDDQ L ♂ +$63□ ¤ L DQG L SLOR\W- WHWW- SDDQ◄ L

┬ ◄ ┬ ◄ ┴ ◄ ¶ L 3UHSDUH L 6LW\H┼ 6SHFLILF L 4$33 L L

'XULQJ L WKH L NLFN┼ RII L PHHWLQJ¤ L WKH L WHDP L GLVFXVVHG L XVLQJ L WKH L 6XSHUIXQG L 7HFKQLFDO L $VVHVVP
7HDP L ♂ 67$57□ L FRQWUDFW- SURJUDP L 4XDOLW\ L $VXUDQFH L 3UHSHFW- 3DDQ L ♂ 4$33□ L RU L D L VLW\H┼ VSHF
%HFDXVH L FRXW- RI L WKH L ZRUN L LV L FRYHUHG L XQGHU L WKH L SURJUDP L 4$33¤ L (3$ L GLUHFWHG L WKDW- WKH L
4$33 L VKRXOG L EH L XVHG◄ L L $Q\ L LWHPV L QRW- DGGUHVVHG L LQ L WKH L SURJUDP L 4$33 L ZLOO L EH L DGGUHVVH
VDPSOLQJ L DQG L DQDO\VLV L SDDQ L RU L SLOR\W- WHWW- SDDQ L ♂ VHH L ┬ ◄ ┬ ◄ ┴ ◄ ┬ □◄ L L 7KH L 5HJLRQ L ↑
EHHQ L SUHYLRXVO\ L UHYLHZHG L DSSURYHG L E\ L (3$ L 5HJLRQ L ↑ ◄ L L

7KH L 4$33 L DQG L VXSSOHPHQWDO L GRFXPHQWDWLRQ L ZLOO L DGGUHVV L DOO L HQYLURQPHQWDO L GDWD L FRQGHWLRQ¤
DQG↕ RU L XVH L ± L LQFOXGLQJ L XVH L RI L H[LWLQJ L GDWD L LGHQWLILHG L LQ L WKLV L 7''◄ L $V L IRORZ L XS L
7HWUD L 7HFK L SURYLGHG L WKH L 67$57 L 4$33 L WR L WKH L (3$ L 5HJLRQ L ↑ L VLW\H L 4$33 L UHYLHZ L CHDG¤ L =DF
+H L UHYLHZHG L WKH L SURJUDP L 4$33 L DQG L GHWHUPLQHG L WKDW- WKH L SURJUDP L 4$33¤ L VXSSOHPHQWHG L E\ L D
VSHFLILF L UHTXLUHPHQW L QRW- DGGUHVVHG L LQ L WKH L SURJUDP L 4$33 L ZRXOG L EH L VXII LFLHQW- WR L PHHW- 4
WKH L SLOR\W- WHWW◄ L L L

┬ ◄ ┬ ◄ ┴ ◄ ┴ L 3UHSDUH L 6LW\H┼ 6SHFLILF L +$63 L L

7HWUD L 7HFK L ZLOO L SUHSDUH L D L VLW\H┼ VSHFLILF L +$63 L WR L VXSSRUW- SLOR\W- WHWW- ILHOG L DFWLYLWLHV◄
WKH L IRUPDW- WKDW- 7HWUD L 7HFK L XVHV L IRU L R\KHU 67$57 L +$63V¤ L ZLWK L LQIRUPDWLRQ L LQFOXGLQJ L
DQG L VDIHW\ L ♂ + 6□ L DQG L VLW\H L FRQWDFW¤ L DQWLFLSDWHG L FRQWDPLQDQW L DQG L VLW\H L KD]DUGV¤ L DSS
SUDFWLFHV¤ L EDVLF L WUDLQLQJ L UHTXLUHPHQW¤ L + 6 L SUWHFWLRQ L DQG L HTXLSPHQW¤ L D L VLW\H L PDS L DQ
WKH L QHDUHWW- KRVSLWDO¤ L DQG L R\KHU + 6 L LQIRUPDWLRQ◄ L L 7KH L GUDIW- +$63 L ZLOO L EH L UHYLHZHG L
7HWUD L 7HFK L UHJLRQDO L + 6 L UHSUHVHQWDWLYH L EHIRUH L XVH◄ L L

7HWUD L 7HFK L ZLOO L SUHSDUH L D L GUDIW- +$63 L DFFRUGLQJ L WR L WKH L VFKHGXOH L LQ L 7DEOH L ┬ ◄ L L 7HWUD
UHYLVHG L +$63 L XSRQ L UHFHLSW- RI L DQ\ L FRPPHQW L IURP L (3$◄ L L L

┬ ◄ ┬ ◄ ┴ ◄ ┬ L 3UHSDUH L 6LW\H┼ 6SHFLILF L 3LOR\W- 7HW\W- 3DDQ L L

7HWUD L 7HFK L ZLOO L SUHSDUH L D L GUDIW- 3LOR\W- 7HW\W- 3DDQ L DQG L VXEPLW- LW- WR L (3$ L IRU L UHYLHZ L DQ
7HW\W- 3DDQ L ZLOO L GHVFULEH L WKH L WHFKQRORJ\ L WR L EH L WHW\W HG¤ L WHW\W- REMHFWLYHV¤ L WHW\W- HTXLSPHQW
H[SHULPHQWDO L SURFHGXUHV¤ L FRQGLWLRQV L WR L EH L WHW\W HG¤ L PHDVXUHPHQW L RI L SHUIRUPDQFH¤ L DQDO\WL

┼ L

3LOR/V- 7HXV- :RUN- 3DDQ- ± - 7RZHU- 6WDQGDUG- 6LWH: - :, -

PDQDJHPHQW- DQG- DQDO\VLV: - DQG- UHVLGXDOV- PDQDJHPHQW - 7KH- 3LOR/V- 7HXV- 3DDQ- ZLOO- DOVR- GRF
4XDOLW\ - 2EMHFWLYHV - - - 'XULQJ- WKH- NLFN+ RII- PHHWLQJ: - (3$- DQG- 7HWUD- 7HFK- DOVR- GLVFXVVHG
UHPHGLDO- DFWLRQ- REMHFWLYHV- IRU- WKH- ,0: &06: - ZKLFK- LV- UHDWHG- WR- WKH- SLORW- WHXW - - *
DGGUHVV- VRXUFH- DUHD- FRQWDPLQDWLRQ: - (3$- WWDWHG- WKDW- SHUFHQW- PDV- UHGXFWLRQ- JRDOV- DUH- D
6SHFLILFDOO\: - WKH- LQWHULP- PHDVXUH- VKRXOG- WDUJHW- DW- CHDXW- !! - UHGXFWLRQ- LQ- VRXUFH- D
DQG- LGHDOO\ - FORVHU- WR- ↑ - UHGXFWLRQ - - 7KH- LQWHULP- FRUUHFWLYH- PHDVXUH- VKRXOG- DOORZ-
UHPHG\ - WKDW- PD\ - WDUJHW- QXPHULFDO- JRDOV- VXFK- DV- PD[LPXP- FRQWDPLQDQW- CHYHOV- ♂ 0&/V - LQ-
7KH- SLORW- WHXW- ZLOO- HYDOXDWH- $6: 69(- DQG- H[FDYDWLRQ- DV- SRWHQWLDO- UHPHGLDO- DQWHUQDWLYHV-

$6: 69(- + - 5HVRXUFHV- WR- VXSSRUW- WKH- 3LOR/V- 7HXV- 3DDQ- ZHUH- GLVFXVVHG- GXULQJ- WKH- NLFN+ R
LQFOXGH - - ♂ ¶ □ - LQSXW- IURP- 7KRPDV- .DG\ - DQG- RWKHU- WWDII- RI- (3$- (57: - ♂ ⊥ □ - D- ZUL
UHFRPPHQGDWLRQV- IRU- WKH- SLORW- WHXW- SUHSDUHG- E\ - (3$- (57- DQG- VKDUHG- ZLWK- 7HWUD- 7HFK- YL
EDFNJURXQG- LQIRUPDWLRQ- SURYLGHG- WR- VXSSRUW- WKH- ,0: &06- UHSRUW - - $V- DGGLWLRQDO- EDFNJURX
H[SODLQHG- WKDW- LVW- DSSURDFK- WR- WKH- SLORW- WHXW- LQFOXGHV- D- VHW- XS- DQG- FRQILJXUDWLRQ- WK
W\SLFDO- SLORW- WHXW- IRU- $6: 69(- - 7KH- EHQHILW- RI- WKLV- DSSURDFK- LV- WKDW- LW- FDQ- LPPHG
LQWHULP- PHDVXUH- LPSOHPHQWDWLRQ- IROORZLQJ- WKH- SLORW- WHXW - - (3$- DOVR- FDUULHG- WKDW- WKH
PHDVXUH- IRFXV- RQ- WKH- VRXUFH- DUHD- RI- WKH- SOXPH- ♂ JHQHUDOO\- XQGHU- WKH- DVSKDOW- SDYHG- DU
WUHDWPHQW- SURYHV- VXFFHVVIXO- ♂ DV- DQWLFLSDWHG □ - WKH- V\WWHP- FRXOG- EH- XVHG- WR- DGGUHVV- R
RYHU- WLPH - -

'XULQJ- WKH- NLFN+ RII- PHHWLQJ: - 5REHUW- (JDQ- RI- (3$- WWDWHG- WKDW- 7HWUD- 7HFK- DQG- (3$- (57
FRPPXQLFDWH- UHJDUGLQJ- WHFKQLFDO- PDWWHUV- WR- VXSSRUW- SUHSDUDWLRQ- RI- WKH- 3LOR/V- 7HXV- 3DDQ
FRPPXQLFDWLRQ- ZLOO- KHOS- HQVXUH- EDFNJURXQG- LQIRUPDWLRQ: - SUHYLRXV- WXXG\ - FRQVLGHUDWLRQV: - D
SULRULWLHV- DQG- FRQWDFW- DUH- VKDUHG - - 7KLV- DOVR- ZLOO- KHOS- H[SHGLWH- WKH- 3LOR/V- 7HXV- 3D

7HWUD- 7HFK- DQG- (3$- DOVR- GLVFXVVHG- WKH- DFFHSWDELOLW\ - RI- R[\JHQ- RU- R]RQH- VSDUJLQJ- DV- S
WKH- LQWHULP- PHDVXUH - - (3$- KDV- QRW- UHFHLYHG- LQSXW- IURP- WKH- /') - WULEH- RQ- WKLV- FDWWHU
7HWUD- 7HFK- DJUHHG- WKDW- WKLV- LQIRUPDWLRQ- ZDV- QRW- QHFHVVDU\ - IRU- SDDQ- LQJ- WKH- SLORW- WHXW
$6: 69(- - 7KHUHIRUH: - (3$- ZLOO- QRW- UHTXHXW- LQSXW- IURP- WKH- /'5- WULEH- DW- WKLV- WLPH - -

'XULQJ- WKH- NLFN+ RII- PHHWLQJ: - (3$- WWDWHG- WKDW- DQ- (3$- 5HJLRQ- ← - $6: 69(- PRELCH- XQLW- I
H[SHGLWHG- SLORW- WHXWLQJ - - 7KH- XQLW- FRXOG- EH- DYDLODEOH- IRU- WHXWLQJ- LQ- WKH- QHDU- WHUP
VSHFLILFDWLRQV- IRU- WKLV- XQLW- WR- 7HWUD- 7HFK: - VR- WKDW- WKLV- XQLW∂V- VSHFLILFDWLRQV- FDQ- I
LQFRUSRUDWHG: - DV- DSSURSULDWH: - LQ- WKH- 3LOR/V- 7HXV- 3DDQ - -

([FDYDWLRQ- + - 7HWUD- 7HFK- QRWHV- WKDW- FKDOOHQJHV- DUH- DVVRFLDWHG- ZLWK- LPSOHPHQWLQJ- DQ- H[F
GHPRQWWUDWLRQ- DQG- UHPHG\ - - 7KHVH- DUH- GHVFULEHG- LQ- WKH- SDUDJUDSKV- WKDW- IROORZ- IRU- DQ- D
ZLOO- DOVR- EH- DGGUHVVHG- WR- VXSSRUW- WKH- H[FDYDWLRQ- SLORW- WHXW - - 7KH- H[FDYDWLRQ- SLORW- V
CRFDWLRQ- DW- WKH- DVSKDOW- SDYHG- DUHD- ZKHUH- $6: 69(- ZLOO- EH- LPSOHPHQWHG: - EXW- LQ- DQ- DGM
RI- WKH- VLWH - -

)RU- WKH- DFWXDO- UHPHG\: - FRQWDPLQDWHG- VRLO- ZRXOG- EH- H[FDYDWHG- IURP- WKH- YDGRVH-]RQH: - LQ
ZKHUH- WRWDO- 92&- FRQFHQWUDWLRQV- H[FHHG- ↑ !! !! - PLFURJUDP: NLCRJUDP- ♂ XJ: NJ □ - - - 6RLOV- FRQ
FRQFHQWUDWLRQV- H[FHHGLQJ- ↑ !! !! - XJ: NJ- H[LWW- WR- GHSWKV- RI- DSSUR[LPDWHO\ - ← - IHHW- EHORZ- V
KLWWRULFDOO\- UDQJHV- IURP- ← - WR- ¶ !! - IHHW- EJV □ - - - 7KXV: - WWRWDO- H[FDYDWLRQ- GHSWKV- ZRXO
IHHW- EJV - - ([FDYDWLRQ- WR- WKH- WKLV- GHSWK- WR- EHORZ- WKH- ZDWHU- WDEOH- LV- FULWLFDO- WR- H
FKDOOHQJHV- RI- FRQWDPLQDWHG- VRLO- H[FDYDWLRQ: - LQFOXGLQJ- GHZDWHULQJ- IORZ- UDWHV: - ZHW- VRLOV
GU\LQJ- UHTXLUHPHQWW: - VLGHZDOO- VORXJKLQJ- ZKHQ- H[FDYDWLQJ- EHORZ- WKH- ZDWHU- WDEOH - - -

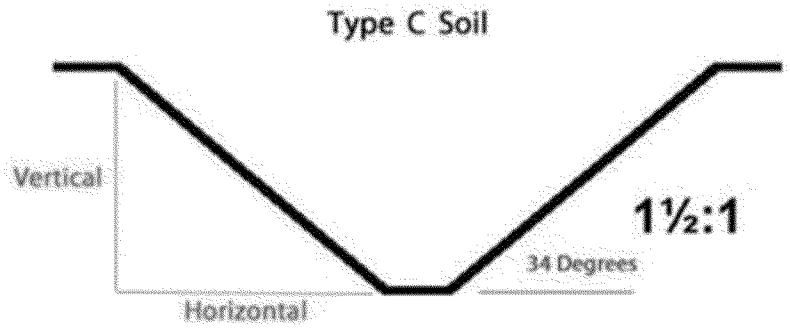
6LWH- VRLOV- FRQVLWW- SULPDULO\- RI- VDQG- DQG- JUDYHO: - ZLWK- PLQRU- DPRXQW- RI- VLQW- DQG- FOD
QRW- EH- FRKHVLYH- DQG- ZLOO- OLNHO\- KDYH- D- ORZ- XQFRQILQHG- FRPSUHVVLYH- WWUHQJWK- ♂ 5(, - ⊥ !!
ZRXOG- OLNHO\- EH- FODVVLILHG- DV- 7\SH- &- VRLOV- SHU- 2FFXSDWLRQDO- 6DIHW\- DQG- +HDOWK- $GPLQLW
UHJXODWLRQV- ⊥ - - &)5- ¶ - ⊥ ├ ◄ ├ ↑ !! ◄ - - 7\SH- &- VRLOV- DUHD- GHILQHG- DV- ≥FRKHVLYH- VRLOV
FRPSUHVVLYH- WWUHQJWK- RI- !! ◄ ↑ - WRQV- SHU- VTXDUH- IRRW- RU- CHVV - 2WKHU- 7\SH- &- VRLOV- LQF

↑ -

3LOR\W- 7HW\W- :RUN- 3ODQ- ± - 7RZHU- 6\VWHP&DGHW- 6LW\H&- :, -

JUDYHO&- VDQG- DQG- ORDP\ - VDQG&- VXEPHUJHG- VRLO&- VRLO- IURP- ZKLFK- ZDWHU- LV- IUHHO\ - VHHSL
URFN- WKDW- LV- QRW- WDEECH◀ ¥ - - -

26+$- UHTXLUHV- H[FDYDWLRQV- JUHDWHU- WKDQ- ↑ - IHHW- LQ- GHSWK- LQ- 7\SH- &- VRLOV- WR- KDYH- HLW
¶ ◀ ↑ - KRUL]RQWDO- WR- ¶ - YHUWLFDO- ♂ ┬ ┤ - GHJUHH□ - ♂ VHH- EHORZ□ - RU- VKRULQJ◀ -



$VVXPLQJ- WKDW- WKH- ZDWHU- WDEECH- LV- SUHVHQW- DW- DSSUR[LPDWHO\ - ← - IHHW- EJV- GXULQJ- H[FDYDWL
LV- LQWHQGHG- WR- UHFRYH- VRXUFH- DUHD- VRLOV- WR- D- GHSWK- RI - DSSUR[LPDWHO\ - ← - IHHW- EHORZ- W
EJV□ &- WKH- WRS- RI - WKH- H[FDYDWLRQ- ZLOO- KDYH- WR- H[WHQG- DW- CHDXW- ┴ ┤ - IHHW- KRUL]RQWDOO
H[FDYDWLRQ◀ - - 7KLV- ZRXOG- VLJQLILFDQWO\ - LQFUHDVH- WKH- VL]H- DQG- FRXW- RI - WKH- H[FDYDWLRQ◀ -
↑ ┼ IRRW- E\ - ↑ ┼ IRRW- VTXDUH- DW- WKH- ¶ ├ ┼ IRRW- WDUJHW- GHSWK&- - ZLOO- PHDXUH- ↑ ┬ - IHHW- E
UHTXLUH- HLWKHU- D- CRQJ┼ WXLFN- H[FDYDWRU- WR- UHDFK- GRZQ- WR- WKH- ERWWRP- RI - WKH- H[FDYDWLRQ-

([FDYDWLRQ- RI - WKH- GU\&- - YDGRVH-]RQH- VRLOV- WR- D- GHSWK- RI - ← - IHHW- EJV- ZLOO- EH- UHODWL
GLUHFWO\ - ORDGHG- LQWR- WUXFNV- DQG- KDXOHG- WR- DQ- RI IVLWH- CDQGILOO- IRU- GLVSRVDO&- - OLNHO\ - D
ZDXWH◀ - - -

([FDYDWLRQ- RI - VRLOV- DW- DQG- EHORZ- WKH- ZDWHU- WDEECH- ZLOO- UHTXLUH- GHZDWHULQJ- RI - WKH- H[FD
D- VXPS- DQG- GHZDWHULQJ- WKH- H[FDYDWLRQ- ZLWK- GHZDWHULQJ- SXPSV- DQG- HLWKHU- VKRULQJ- RU- VORS
FDOFXODWLRQV- IRU- GHZDWHULQJ- WR- DFKLHYH- D- ↑ ┼ IRRW- GUDZGRZQ- LQ- VLWH- VRLOV- ZLWK- DQ- DYHU
FRQGXFWLYLW\ - RI - !! ◀ !! ┴ ↑ - FHQWLPHWHUV- SHU- VHFRQG- ♂ 'DNRWD- 7HFKQRORJLHV- ┴ !! ¶ ├ □ - LQGLFD
RI - ┴ ├ !! - JDOORQV- SHU- PLQXWH- ♂ RU- ┬ → ┤ &- ┤ !! !! - JDOORQV- SHU- GD\□ &- ZKLFK- ZLOO- SRVH- C
SURECHPV◀ - -

$V- DQ- DOWHUQDWLYH- WR- D- VORSHG- H[FDYDWLRQ&- - WKH- H[FDYDWLRQ- ZRXOG- UHTXLUH- VKRULQJ&- - OLNH
VKHHW- SLOLQJ◀ - - 7R- DFKLHYH- DQ- H[FDYDWLRQ- GHSWK- RI - ¶ ├ - IHHW&- - VKHHW- SLOHV- ZRXOG- OLNH
GHSWKV- RI - JUHDWHU- WKDQ- ┬ ┴ - IHHW&- - UHTXLULQJ- VSHFLDOL]HG- HTXLSPHQW◀ - - 3URU- WR- VKHHW- S
LQVHWWLJDWLRQ- ZRXOG- EH- UHTXLUHG- WR- REWDLQ- VLWH┼ VSHFLILF- JHRWHFKQLFDO- GDWD◀ - - $- OLFHQVH
WXLXFWXLDO- HQJLQHHU- ZRXOG- WKHQ- QHHG- WR- GHVLJQ- WKH- VKHHW- SLOH- VKRULQJ- ♂ VKHHW- SLOH- WKL
DQG- WRWDO- GULYH- GHSWK□ ◀ - -)RU- WKH- SXUSRVHV- RI - WKH- H[SHGLWHG- H[FDYDWLRQ- SLORW- WHWXW&- -
H[FDYDWLRQ- ZLOO- EH- XVHG- LQWHDG- RI - D- VKHHW┼ SLOH- VKRUHG- H[FDYDWLRQ◀ - - - -

7KHVH- FRQVLGHUDWLRQV- ZLOO- EH- HYDOXDWHG- LQ- WKH- ,0↕ &06- UHSRUW- DQG- ZLOO- EH- LQWHJUDWHG- LQ
DV- DSSURSULDWH◀ - - 7HWUD- 7HFK- DVVXPHV- WKDW- WKH- H[FDYDWLRQ- ZRUN- ZLOO- EH- LPSOHPHQWHG- FRQ
$6↕ 69(- SLORW- WHWXW◀ - - 'XULQJ- ZHOO- GULOOLQJ- DVVRFLDWHG- ZLWK- SUHSDUDWLRQ- IRU- WKH- $6↕ 69(
SODQQLQJ- IRU- WKH- VRLO- H[FDYDWLRQ- GHPRQVWUDWLRQ- DOVR- ZLOO- EH- LPSOHPHQWHG◀ - - ,W- LV- DVXX
VRLO- IRU- WKH- SLORW- WHWXW- ♂ HXWLPDWHG- ├ ¶ ┴ - FXELF- \DUGV□ - ZLOO- EH- GLVSRVHG- RI - RI IVLWH-
WKDW- GHZDWHULQJ- ZDWHU- ZLOO- EH- JHQHUDWHG- DW- ┴ ├ !! - JDOORQV- SHU- PLQXWH- ♂ JSP□ - IRU- ├ - I
GLVSRVHG- RI - DW- WKH- &LW\ - RI - :DXXDX- ZDXWHZDWHU- WUHDWPHQW- SODQW◀ - - - &RXW- IRU- CDERU- WR
SLORW- WHWXW&- - KLUH- D- CRFDO- H[FDYDWLRQ- VXEFRQWUDFWRU&- - DQG- PDQDJHPHQW- DVVRFLDWHG- ZDXWH- PD
LQ- WKH- DVVDFKHG- FRXW- HXWLPDWH◀ - -

3LOR\W- 7HW\W- 3ODQ- ┤ - 7KH- 3LOR\W- 7HW\W- 3ODQ- ZLOO- GHVFULEH- SLORW- WHWXW- REVHFWLYHV&- - SURFHGXU
HTXLSPHQW◀ - 7KH- 3LOR\W- 7HW\W- 3ODQ- ZLOO- SURYLGH- D- VFKHGXOH- IRU- SHUIRUPLQJ- WKH- SLORW- WHWXW

3LORW- 7HXW- :RUN 3DDQ ± 7RZHU 6WDQGDUG 6LWH: ,

HDFK WDVN DQG VXEWDVN LQFOXGLQJ (3$ UHYLHZ SHULRGV .H\ PLOHVWRQHV IRU WKH $6 69(EXW DUH QRW OLPLWHG WR OLPLWDWLRQ RI FRQWDPLQDWRUV ZHOO LQVWDOODWLRQ VDPSOH FR DQDO\VLV V\VWHP LQVWDOODWLRQ V\VWHP WXUQXS V\VWHP VKXWGRZQ DQG UHSRUWLQJ RI 3LO PLOHVWRQHV IRU WKH H[FDYDWLRQ LQFOXGH HYDOXDWLQJ KHDOWK DQG VDIHW\ UHTXLUHPHQWV LG RRFDO H[FDYDWLRQ ILUP DVVHVVLQJ WKH DUHD RI SODQQHG H[FDYDWLRQ GXULQJ LQLWLDO ILHOG DFWXDO H[FDYDWLRQ DQG WKH SLOHW WHXW H[FDYDWLRQ DQG GRFXPHQWDWLRQ RI WKH SLOHW WHXW

)RU WKH $6 69(SLOHW WHXW 7HWLD 7HFK∂V 3LOHW 7HXW 3DDQ ZLOO GHVFULEH KRZ 7HWLD 7H HPLVVLRQV ♂ DVVXPHG WR EH WUHDWHG ZLWK YDSRU SKDVH JUDQXODU DFWLYDWHG FDUERQ SULRU WR DWPRVSKHUH GXULQJ SLOHW WHXW DQG GLVSRVDO UHTXLUHPHQWV UHPHGLDWLRQ GHULYHG ZDXWH DQWHUGDWLYHV 7HWLD 7HFK∂V WHXW SODQ ZLOO HXWLPDWH FRXW IRU ZDXWH UHVLGXDO PDQDJHPHQ XQGHUWDQGV WKDW SLOHW WHXW DQG UHPHGLDO ZDXWHV ♂ VRLO FXWWLQJV DQG ZHOO GHYHORSPHQW S ZDXWU H[FDYDWLRQ GHZDWHULQJ ZDXU PXW EH WUDQVSRUWHG RII VLWH IRU GLVSRVDO ♂ EDVHG FRPPXQLFDWLRQV DQG DJUHPHQW ZLWK WKH /') WULEH

7HWLD 7HFK ZLOO LQFRUSRUDWH FRPPHQW SURYLGHG E\ (3$ DQG VXEPLW WKH ILQDO 3LOHW 7HXW GD\V

 7DVN

,PSOHPHQW 3LOHW 7HXW)LHOG :RUN

7HWLD 7HFK ZLOO LPSOHPHQW WKH SLOHW WHXW WR HYDOXDWH WKH HIIHFWLYHQHVV RI WKH $6 69(UHPHGLDO DQWHUQDWLYHV WR DGGUHVV VRXUFH FRQWDPLQDWLRQ DW WKH 6LWH 7HWLD 7HFK ZLOO 5HJLRQ DQG (3$ (57 DV WKH SLOHW WHXW ILHOG ZRUN LV LPSOHPHQWHG E RII PHHWLQJ 7HWLD 7HFK ZLOO EDVH WKH $6 69(SLOHW WHXW ZRUN SODQ RQ WKH GUDIW SL FRQVLGHUDWLRQV SUHSDUHG E\ 7KRPDV .DG\ ♂ (3$ (57 DQG SURYLGHG WR 7HWLD 7HFK)RU H 7HFK ZLOO DOVR ZRUN ZLWK (3$ (57 (3$ 5HJLRQ ↑ DQG ORRDO YHQGRUV WR SODQ WKH Z

7R LPSOHPHQW WKH SLOHW WHXW 7HWLD 7HFK ZLOO LPSOHPHQW WKH IROORZLQJ DFWLYLWLHV

 3URFXUH)LHOG 6XEFRQWUDFWRUV 0DWHULDOV DQG (TXLSPHQW

7HWLD 7HFK ZLOO SURFXUH YHQGRUV PDWHULDOV DQG HTXLSPHQW WR VXSSRUW WKH ILHOG SLOHW W EH LPSOHPHQWHG DV VRRQ DV IHDVLEOH ♂ ZLWK WKH JRDO RI LPSOHPHQWLQJ ILHOG ZRUN LQ WKH

$6 69(┼ 7R VXSSRUW WKH $6 69(SLOHW WHXW 7HWLD 7HFK ZLOO SURFXUH DQG RYHUVHH D IROORZLQJ UHTXLUHG ZHOOV DQG SHUIRUP WKH IROORZLQJ DVVRFLDWHG DFWLYLWLHV

- 6L[YHUWLFDO ┤ ┼ LQFK GLDPHWHU 69(ZHOOV ZLOO EH LQVWDOOHG WR D GHSWK RI ¶ ↑ I WWP DXJHU
- 7KUHH GHS ♂ XS WR ├ !! IHHW GHS ⊥ ┼ LQFK GLDPHWHU WWHO RU WWDLQOHVV WWHO D LQVWDOOHG ♂ PD\ EH GLUHFW SXVK
- 7KUHH VKOOORZ ♂ XS WR ⊥ ↑ IHHW GHS ⊥ ┼ LQFK GLDPHWHU WWHO RU WWDLQOHVV WWHO LQVWDOOHG ♂ PD\ EH GLUHFW SXVK
- 7KUHH GHS PRQLWRULQJ ZHOOV ♂ ↑ !! IHHW GHS ZLOO EH LQVWDOOHG ♂ PD\ EH GLUHFW S
- 7KUHH VKOOORZ PRQLWRULQJ ZHOOV ♂ ⊥ ↑ IHHW GHS ZLOO EH LQVWDOOHG ♂ PD\ EH GLUHFW
- 7KUHH YDGRVH VRLO JDV]RQH PRQLWRULQJ SRLQWV ZLOO EH LQVWDOOHG
- $OO ¶ ⊥ QHZ JURXQGZDWHU ZHOOV ZLOO EH GHYHORSHG E\ WKH GULOOHU
- 7KH VL[69(ZHOOV DQG WKUHH YDGRVH]RQH VRLO JDV PRQLWRULQJ SRLQWV ZLOO QRW EH G
- $OO JURXQGZDWHU DQG YDSRU ZHOOV ZLOO EH ORJJHG ♂ H[FHSW LI WKH VSDUJH ZHOOV DUH L SXVK
- :HOO GHYHORSPHQW ZDWHU ZLOO EH FRQFHWHG DQG GLVSRVHG RI RIIVLWH DW WKH &LW\ RI : RZQHG WUHDWPHQW ZRUNV ♂ 327: E\ WKH GULOOHU ♂ DERXW ← !! PLHV IURP WKH VLWH

7KHVH ZHOOV ZLOO EH GHVLJQHG DQG LQVWDOOHG VR WKDW WKH FDQ EH XVHG DV SDUW RI WKH UHPHG\ LI $6 69(LV VHOHFWHG DV WKH UHPHGLDWLRQ WHFKQRORJ\

3LORW- 7HWW- :RUN- 3DDQ- ± - 7RZHU- 6WDQGDUG- 6LWH: - :, -

'XULQJ - WKH- NLFN┼ RII - PHHWLQJ: - (3$ - WDWHG- WKDW- D- 5HJLRQ - ← - $6↕ 69(- WUDLOHU- XQLW- FDQ- E
SLORW- WHWW- VFKHGXOH◄ - - ,I - WKLV- XQLW- LV- QRW- DYDLODEOH: - 7HWUD- 7HFK- ZLOO- SURFXUH- D- SL
YHQGRU: - ZKLFK- ZLOO- LQFUHDVH- FRXW- DQG- PD\ - GHOD\ - WKH- VFKHGXOH◄ - - -

([FDYDWLRQ- ┼ - 7R- VXSSRUW- WKH- H[FDYDWLRQ- SLORW- WHWW: - 7HWUD- 7HFK- ZLOO- ZRUN- ZLWK- (3$- (
ORFDO- H[FDYDWLRQ- YHQGRUV - WR- SDDQ- WKH- ZRUN◄ - 7HWUD- 7HFK- QRWHV - WKDW- LW- SDDQQLQJ- ZLOO- E
RUJLWLFDO- DQG- VDIHW\ - FKDOOHQJHV- DVVRFLDWHG- ZLWK- H[FDYDWLRQ- ♂ 6HFWLRQ- ┬◄┬◄┴◄┬□◄ -
ZLOO- LQFOXGH -

- ([FDYDWLRQ- LQ- DQ- DUHD- RI - WKH- VLWH- WKDW- LV- QRW- FRYHUHG- ZLWK- DVSKDOW- DQG- ZLWK- VRFH
  DQWLFLSDWHG- ♂ KRZHYHU: - ZH- DQWLFLSDWH- WKLV- ZLOO- QRW- EH- ZLWKLQ- WKH- SULPDU\ - VRXUFH- DU
- 6RLO- VDPSOLQJ - ZLOO- EH- LPSOHPHQWHG- IRU- HDFK- VLGH- ZDOO- ♂ RQH- VDPSOH□ - DQG- WKH- EDVH-
  ♂ RQH- VDPSOH□◄ - -
- 7KH- H[FDYDWLRQ- ZLOO- PHDVXUH- ¶┼ - IHHW- GHHS- DQG- ↑ - E\ - ↑ - IHHW- DW- WKH- EDVH- ZLWK- V
  DQG- ↑┬ - IHHW- E\ - ↑┬ - IHHW- DW- WKH- WRS◄ -
- ([FDYDWHG- VRLO- DQG- JURXQGZDWHU- ZLOO- EH- FKDUDFWHUL]HG- DQG- PDQDJHG- RII - VLWH- DERXW- ┼ ¶
  ♂ EF\□◄ -
- 2II - VLWH- PDQDJHPHQW- ZLOO- SULPDULO\ - EH- DV- QRQKD]DUGRXV- ZDWWH◄ -
- 1R- H[FDYDWHG- PDWHULDO- ZLOO- EH- XVHG- IRU- EDFNILOO - EDFNILOO- ZLOO- EH- IURP- DQ- RII┼ VL
- 7KH- H[FDYDWLRQ- ZLOO- UHTXLUH- GHZDWHULQJ - GHZDWHULQJ- ZDWHU- ♂ ┬☼┼!! !! - JDOORQV□ - ZLO
  GLVSRVHG- RI - RIIVLWH- DW- WKH- &LW\ - RI - :DXXDX- ZDXWHZDWHU- WUHDWPHQW- SODQW◄ -
- 6DPSOLQJ- LQFOXGHV- VLGHZDOO- DQG- ERWWRP- VRLO- VDPSOHV- ♂ 73+□ - SOXV- ZDWWH- FKDUDFWHUL]DWLR

$- OLQH- LWHP- FRXW- IRU- WKH- SLORW- WHWW- H[FDYDWLRQ- LV- LQFOXGHG- ZLWK- WKLV- GUDIW- ZRUN- SOD
HYDOXDWH- IRU- WKH- SUHVHQFH- RI - /1$3/- GXULQJ- H[FDYDWLRQ- ZRUN- DQG- ZLOO- FRQGXFW- PRQLWRULQJ-
GHVFULEHG- IRU- WKH- $6↕ 69(- SLORW- ZRUN- ♂ DV- DSSURSULDWH- WR- WKH- H[FDYDWLRQ- HIIRUW□◄ - 7HW
DGGLWLRQDO- QHFHVVDU\ - PDWHULDOV: - HTXLSPHQW- DQG- VHUYLFHV- WR- LPSOHPHQW- WKH- SLORW- WHWW◄ - (
VRFH- QDPHV- RI - GULOOHUV- IDPLOLDU- ZLWK- WKH- VLWH- DQG- 7HWUD- 7HFK- ZLOO- FRQWDFW- WKHVH- GULO
DYDLODELOLW\ - DQG- TXDOLILFDWLRQV◄ -

┬◄┬◄┬◄┴ - 3URYLGH- $QDO\WLFDO- 6HUYLFHV-

7HWUD- 7HFK- ZLOO- DUUDQJH- IRU- RII┼ VLWH- DQDO\WLFDO- VHUYLFHV- XVLQJ- HXWDEOLVKHG- PDWWHU- VHUY
DQDO\WLFDO- ODERUDWRULHV- WR- WKH- H[WHQW- IHDVLEOH◄ - - ,I- QHFHVVDU\: - DGGLWLRQDO- VSHFLDOW\ - O
SURFXUHG◄ - - -

┬◄┬◄┬◄┬ - 7HWW- DQG- 2SHUDWH- (TXLSPHQW-

7HWUD- 7HFK- ZLOO- SURYLGH- ILHOG- WDII- IRU- RYHUVLJKW- DQG- SLORW- WHWW- REVHUYDWLRQ - WKHVH-
RSHUDWH- WKH- SLORW- WHWW- HTXLSPHQW◄ - - -

┬◄┬◄┬◄┤ - 5HWULHYH- 6DPSOH- IRU- 7HWWLQJ

7HWUD- 7HFK- ILHOG- WDII- ZLOO- FRROHFW: - SDFNDJH: - ODEHO- DQG- WUDQVSRUW- VDPSOHV- IRU- RII┼ V
VDPSOHV- ZLOO- EH- FRROHFWHG- DQG- PDQDJHG- DV- VSHFLILHG- LQ- WKH- 67$57- SURJUDP- 4$33- DQG- WKH
4$33- DGGHQGXP- ♂ 6$3- RU- SLORW- WHWW- SODQ□◄ - -

2Q- 6HSWHPEHU- ¶←☼ - ┴!! ¶→☼ - (3$- UHTXHXWHG- YLD- HPDLO- WKDW- ILHOG- ZRUN- LQFOXGH- WKH- HY
/1$3/◄ - (YDOXDWLRQ- IRU- /13$3/- FDQ- LQFOXGH- XVLQJ- DQ- RLO- ZDWHU- LQWHUIDFH- SUREH- IRU- DOO-
JDXJLQJ◄ - - 7HWWLQJ- IRU- /1$3/- FRXOG- DOVR- LQFOXGH- PHWKRGV- XVLQJ- /1$3/- ILHOG- WHWW- NLW-
SURYLGH- PL[HG- UHVXOWW□ - WR- H[SOVLYH- VRLO- FRUH- VDPSOH- FRROHFWLRQ- DQG- IUHH]LQJ: - ZLWK- V
/1$3/- VDWXUDWLRQ: - /1$3/- YLVFRVLW\: - DQG- QXPEHU- RI - RWKHU- SDUDPHWHUV◄ - - $GGLWLRQDO- PHWKR
DYDLODEOH- YDU\ - LQ- FRXW: - XVHIXOQHVV: - DQG- FRPSOH[LW\◄ - - 7KH- DEVHQFH- RI - /1$3/- RU- SUHVH
DPRXQW- RI - PRELOH- /1$3/- GRHV- QRW- VLJQLILFDQWO\ - LPSDFW- WKH- UHPH\ - DSSURDFK≤DV- VPDOO- DP
JDVROLQH- /1$3/- FDQ- EH- UHPHGLDWHG- E\ - HLWKHU- H[FDYDWLRQ- RU- $6↕ 69(◄ - - -

← -

3LOR/V- 7HXV- :RUN- 3DDQ- ± - 7RZHU- 6\VDGEDUG- 6LVWH¤ - :, -

3UHYLRXV- JURXQGZDWHU- PRQLWRULQJ- DW- WKH- VLWH- KDV- QRW- GHWHFWHG- PHDVXUHDEOH- /1$3/ - WKLFNQHV
VLWH- PRQLWRULQJ- ZHOOV◀ - - $ - VKHHQ- PD\ - KDYH- EHHQ- REVHUYHG- LQ- 9$6┼ ¶ ¶ - DW- ┤ ‼ - IHHW- E
♂ EJV□◀ - - 6RPH- RI - WKH- KLJK- FRQWDPLQDQW- FRQFHQWUDWLRQ- LQ- H[FHHV- RI - ¶ - SHUFHQW- RI - WKH
VXJJHVW- WKDW- UHVLGXDO- /1$3/¤ - DQG- SRWLEO\ - PRELCH- /1$3/¤ - LV- SUHVHQW- LQ- WKH- VRXUFH- DU

7HWUD- 7HFK∂V- WHFKQLFDO- DSSURDFK- LQFOXGHV- YLVXDO- ILHOG- LQVSHFWLRQ- RI - VRLO- VDPSOHV- IRU- V
DQG- D- VKDNH- WHWW¤ - ZKHUH- D- VDPSOH- RI - VRLO- DQG- JURXQGZDWHU- LV- FRQFHFWHG- LQ- MDU- DQG- V
FDXVLQJ- PRELCH- /1$3/ - WR- VHSDUDWH- IURP- WKH- VRLO- PDWUL[- DQG- ICRDW- RQ- WKH- ZDWHU- VXUIDFH
7HFKQRORJ\ - - 5HJXODWRU\ - &RXQFLO- ⊥ ‼ ‼ □◀ - - 7R- VXSSRUW- HYDOXDWLRQ- IRU- /1$3/¤ - JURXQG
PHDVXUHPHQW- ZLOO- EH- FRQGXFWHG- ZLWK- DQ- RLO↕ ZDWHU- LQWHUIDFH- SUREH◀ - - -

7KXV¤ - 7HWUD- 7HFK- KDV- LQFOXGHG- FRQGXFWLQJ- RQH- WR- WZR- VKDNH- WHWW- SHU- ERUHKRCH- LQ- WKH
LPSDFWHG- VRLO- KRUL]RQ- DQG↕ RU- ZKHUH- 3,' - PHDVXUHPHQW- H[FHHG- ¶ ¤ ‼ ‼ ‼ - SDUW- SHU- PLOOLR
7HWUD- 7HFK- KDV- DOVR- LQFOXGHG- XVH- RI - DQ- RLO↕ ZDWHU- LQWHUIDFH- SUREH- LQ- WKLV- ZRUN- SODQ-

┬◀┬◀┬◀↑ - 3HUIRUP- /DERUDWRU\ - $QDO\VLV- DQG- (YDOXDWH- 'DWD- - -

$V- WXDWHG- LQ- 6HFWLRQ- ┬◀┬◀┬◀⊥¤ - 7HWUD- 7HFK- ZLOO- SUFXUH- ODERUDWRU\ - DQDO\WLFDO- VHU
ZLOO- EH- YDOLGDWHG- E\ - 7HWUD- 7HFK- FKHPLWW◀ - - 7HWUD- 7HFK- DOVR- ZLOO- HYDOXDWH- DQDO\WLFDO-
PHDVXUHPHQW- UHVXOWW- IRU- WKH- SLOR/- WHXW◀ - - -

┬◀┬◀┬◀├ - &KDUDFWHUL]H- DQG- 'LVSRVH- RI - 5HVLGXDOV- -

7HWUD- 7HFK- ZLOO- FRQGXFW- VDPSOLQJ- DQG- DQDO\VLV¤ - DV- QHFHVVDU\¤ - WR- FKDUDFWHUL]H- UHVLGXDO
VXEFRQWUDFWRUV- IRU- ZDWWH- FKDUDFWHUL]DWLRQ◀ - - %DVHG- RQ- ZDWWH- FKDUDFWHUL]DWLRQ¤ - 7HWUD- 7HF
RII┼ VLWH- GLVSRVDO- RI - ZDWWHV- ZLWK- RU- ZLWKRXW- SUH┼ WUHDWPHQW◀ - - 7HWUD- 7HFK- XQGHUWDQGV- W
KDYH- DJUHHG- WKDW- JHQHUDWHG- UHVLGXDO- PDWHULDOV- ZLOO- EH- PDQDJHG- RII- VLWH◀ - - -

┬◀┤ - 3UHSDUH- 3LOR/- 7HXW- 5HSRUW- -

7HWUD- 7HFK- ZLOO- XVH- WKH- ILQGLQJV- IURP- 7DVN- ┬ - WR- SUHSDUH- DQG- VXEPLW- WKH- 'UDIW- 3LOR/
WKH- NLFN┼ RII- PHWLQJ¤ - (3$- DQG- 7HWUD- 7HFK- GLVFXVVHG- ZKHWKHU- WKH- SLOR/- GRFXPHQWDWLRQ- ♂
UHVXOW- UHSRUW□ - VKRXOG- EH- LQFRUSRUDWHG- LQWR- WKH- ,0↕ &06- UHSRUW- ♂ EHLQJ- LPSOHPHQWHG- XQG
¶→ ‼ ←┼ ‼ ‼ ←□◀ - 7HWUD- 7HFK- UHFRPPHQGHG- LW- ZRXOG- EH- PRUH- HIILFLHQW- WR- NHHS- WKH- SLO
UHSRUW- VHSDUDWH- IURP- WKH- ,0↕ &06- GUDIW- UHSRUW◀ - - +RZHYHU¤ - 7HWUD- 7HFK- WXDWHG- WKDW- JLY
WLPLQJ- RI- HYHQW- DQG- GRFXPHQWDWLRQ¤ - SLOR/- WHXW- ILQGLQJV- OLNHO\ - FRXOG- EH- LQFRUSRUDWHG- I
UHSRUW◀ - - (3$- FRQFXUUHG- ZLWK- WKLV- DSSURDFK◀ -

7KH- 'UDIW- 3LOR/- 7HXW- 5HSRUW- ZLOO- GHVFULEH- WKH- SHUIRUPDQFH- RI- WKH- $6↕ 69(- V\WWHP- GXULQ
UHVXOW- RI- WKH- WHXW◀ - - 7HWUD- 7HFK∂V- UHSRUW- ZLOO- GLVFXW- UDGLXV- RI- LQIOXHQFH¤ - ICRZ- U
WDECH- UHVSRQVH¤ - DQG- JHRFKHPLWWU\◀ - 7HWUD- 7HFK- ZLOO- SURYLGH- D- UHYLVHG- DQG-)LQDO- 3LOR/-
LQFRUSRUDWH- FRPPHQW- SURYLGHG- E\ - (3$◀ - - - -

┬◀↑ - 3URYLGH- 3RXW- 3LOR/- 7HXW- 6XSSRUW-

$V- GLUHFWHG- E\ - (3$¤ - 7HWUD- 7HFK- ZLOO- SURYLGH- SRXW- SLOR/- WHXW- VXSSRUW◀ - - 7KLV- PD\ - LQ
WHFKQLFDO- PHHWLQJV- DQG- EULHILQJV¤ - VXSSRUWLQJ- SUHVHQWDWLRQ- DQG- PHHWLQJV- ZLWK- WKH- /')- W
SLOR/- WHXW- ILQGLQJV¤ - DQG- SURYLGLQJ- DQ- RWKHU- VXSSRUW- DV- GLUHFWHG- E\ - (3$◀ - - -

┤◀‼ - 6&+('8/(- $1' - '(/,9(5$%/(6-

7HWUD- 7HFK- XQGHUWDQGV- WKDW- WKH- JRDO- IRU- SLOR/- WHXW- VXSSRUW- LV- WR- FRPSOHWH- ZRUN- E\ -
GLVFXVVHG- ZLWK- (3$¤ - DQ- DJJUHVVLYH- VFKHGXOH- LV- UHTXLUHG- WR- DFFRPSOLVK- WKH- ZRUN- ZLWKLQ-
GLUHFWHG- E\ - (3$¤ - 7HWUD- 7HFK- KDV- UHYLHZHG- WKH- 62:¤ - EDFNJURXQG- LQIRUPDWLRQ- SURYLGHG- E\
DQG- GLUHFWLRQ- IURP- WKH- NLFN┼ RII- PHWLQJ- DQG- KDV- DSSOLHG- LW- SURIHVVLRQDO- H[SHULHQFH- W
UHDOLWWLF- EXW- DJJUHVVLYH- VFKHGXOH- VKRZQ- LQ- 7DECH- ┬◀ - - 7DECH- ┬ - SUHVHQW- WKH- 62: - UHII

-

DVVRFLDWHG└ GDWHV└ IRU└ GHOLYHUDEOH └ 7HWUD└ 7HFK└ UHFRPPHQGV└ (3$└ DQG└ 7HWUD└ 7HFK└ GLVFXVV└ WKH└ JUHDWHU└ GHWDLO└ ZLWK└ UHYLHZ└ RI└ WKH└ GUDIW- ZRUN└ SODQ└ DV└ LQIRUPDWLRQ└ RQ└ WKH└ DYDLODELOLW└ VXEFRQWUDFWRU└ LV└ EHLQJ└ REWDLQHG└ LQ└ DQ└ RQJRLQJ└ PDQQHU└ └ └ └

7DEOH└ ┬ └ 6FKHGXOH└ RI└ 'HOLYHUDEOHV└

62:└ 5HIHUHQFH└	'HOLYHUDEOH└	'XH└ 'DWH└
7DVN└ ¶ └ ¶ └ ┤ └ ¶ └	'UDIW- 3LOR/V- 6\XG\└ :RUN└	$V└ VRRQ└ DV└ SRVVLEOH└ ♂ DV└ DJUHHG└ GXULQJ└ WKH└ NLFN┼ RII└ PHHWLQJ□ └ └
7DVN└ ¶ └ ¶ └ ┤ └ ⊥ └	5HYLVHG└ 3LOR/V- 6\XG\└ :RUN└	↑ └ GD\V└ DIWHU└ UHFHLSW- RI└ FRPPHQW- IURP└ (3$└ RQ└ ZRUN└ SODQ└
⊥ └ ¶ └	67$57└ 3URJUDP└ 4$33└ └	3URYLGHG└ WR└ (3$└ RQ└ 6HS/WHPEHU└ ¶ ┤ ☼ └ ⊥ ‼
⊥ └ ¶ └	'UDIW- VLWH┼ VSHFLILF└ 6$3└ WR└ VXSSOHPHQW└ 4$33└ RI└ UHFHLYLQJ└ 7''└ ♂ 7''└ UHFHLYHG└ RQ└ ♂ D└ VHSDUDWH└ GRFXPHQW- RU└ GHYHORSHG└ 6ZBWKHEWH└ ☼ └ ⊥ ‼ ¶ → □ └ WHXW- SODQ☼ └ VHH└ 7DVN└ ⊥ └ ┬ □ └	
⊥ └ ¶ └	)LQDO└ VLWH┼ VSHFLILF└ 6$3└ WR└ VXSSOHPHQW└ 4$33└ GD\V└ RI└ UHFHLYLQJ└ FRPPHQW└ IURP└ ♂ D└ VHSDUDWH└ GRFXPHQW- RU└ GHYHORSHG└ (ZBWKRQWK6$3└ WHXW- SODQ☼ └ VHH└ 7DVN└ ⊥ └ ┬ □ └	
⊥ └ ⊥ └	'UDIW- +$63└	¶ ↑ └ GD\V└ DIWHU└ UHFHLSW- RI└ (3$└ 7''└
⊥ └ ⊥ └	)LQDO└ +$63└	:LWKLQ└ ↑ └ GD\V└ RI└ UHFHLYLQJ└ DQ\└ FRPPHQW└ RQ└ +$63└ IURP└ (3$└
⊥ └ ┬ └	'UDIW- 3LOR/V- 7HX/V- 3DDQ└	¶ ↑ └ GD\V└ DIWHU└ UHFHLSW- RI└ (3$└ 7''
⊥ └ ┬ └	)LQDO└ 3LOR/V- 7HX/V- 3DDQ└	↑ └ GD\V└ DIWHU└ UHFHLSW- RI└ FRPPHQW- RQ└ WHXW- SODQ IURP└ (3$└ └
┬ └	3LOR/V- 6\XG\└)LHOG└ :RUN└	$V└ VRRQ└ DV└ SRVVLEOH└ DIWHU└ DSSURYDO└ RI└ 3LOR/V- 7HX/V- 3DDQ└ ♂ EDVHG└ RQ└ FXUUHQW- YHQGRU└ DYDLODELOLW\ DQG└ IIHOG└ SUHSDUDWLRQ└ UHTXLUHPHQW□ └ ± └ HXWLPDWH└ IIHOG└ ZRUN└ LPSOHPHQWDWLRQ└ LQ└ 2FWREHU└ ⊥ ‼ ¶ → └
┤ └	'UDIW- 3LOR/V- 7HX/V- 5HSRUW/-	¶ ‼ └ GD\V└ DIWHU└ FRPSOHWLRQ└ RI└ WKH- SLOR/V- WHXW- R GD\V└ DIWHU└ UHFHLSW- RI└ OBERUDWRU\└ GDWD└ ♂ ZKLFKHYHU└ LV└ ODWHU□ └
┤ └	)LQDO└ 3LOR/V- 7HX/V- 5HSRUW/-	↑ └ GD\V└ DIWHU└ UHFHLSW- RI└ FRPPHQW- RQ└ SLOR/V- WHX UHSRUW/- IURP└ (3$└ └

↑ ◀ ‼ └ 67$))),1*└ 3/$1└

7DEOH└ ┤ └ VKRZV└ 7HWUD└ 7HFK∂V└ WXDIILQJ└ SODQ└ DQG└ HXVLPDWHG└ KRXUV└ E\└ WDVN└ IRU└ WKLV└ ZRUN VFKHGXOH└ DQG└ IRFXVHG└ WHFKQLFDO└ QHHGV☼ └ 7HWUD└ 7HFK∂V└ NH\└ WXDIII└ LQFOXGH└ WZR└ HQJLQHHUV└ H

SHUIRUPLQJ L WHFKQRORJ\ L HYDOXDWLRQV L IRU L D L UDQJH L RI L KD]DUGRXV L ZDVWH L VLWHV L LQFOXGLQJ L VLWH FRQWDPLQDWLRQ L L L

7DEOH L ¶ L &ODII LQJ L 3DDQ L L

1DPH L	5RO H L &RPSUHUR\ L &DWHJRU\ L	7DVNV L DQG L +RXUV L				
		¶ L ± L 3URMHFW 0DQDJHPHQW	L L ± L 6LWH 6SHFLILF 3DDQV	L L ± L 3LOR/V 7HVW)LHOG :RUN	L L ± L 3LOR/V 7HVW 5HSRUWV	L L ± L &GGLWLRQDO 6XSSRUW
.HYLQ 6FRWW	67$57 L 3URJUDP L DQG 3URMHFW 0DQDJHU ♂ 3ULQFLSDO L 3URIHVVLRQDO L	¶ L	¶ L	← L	¶ L	¶ L
'DYH %HUHXWXD L 3(L	6XSHUYLVLQJ L &HDG L (QJLQHHU L ♂ 3ULQFLSDO L 3URIHVVLRQDO L	¶ L	¶ !! L	¶ ← L	¶ !! L	¶ ¶ ¶ L
&KLV &KULVWLDQ L	6HQLRU L (QJLQHHU L ♂ (QJLQHHU L ,9 L L	!! L	⊥ !! L	¶ L	!! L	!! L
$GDP 3HWHUFD L	(QJLQHHU L ♂ (QJLQHHU L	,,, L	!! L	!! L	⊥ L	⊥ !! L !! L
$QGUHZ &DUOVRQ L	(QJLQHHU L ♂ (QJLQHHU L	,, L	!! L	¶ L	!! L	!! L ¶ !! L
+HDWKHU :RRG L	6HQLRU L *HRORJLVW ♂ 6FLHQWLVW L ,9 L	!! L	!! L	!! L	!! L	!! L
0DWW 9LOODFDQD L	6FLHQWLVW L ♂ 6FLHQWLVW L	,,, L	!! L	⊥ L	¶ !! ¶ L	¶ !! L
0DJJLH %DQK L	0XQLFLSDO ,QVS *,6 *UDSKLFV ♂ ,7 L 3URIHVVLRQDO L	!! L	¶ L	⊥ L	¶ !! L	!! L
&DUOD %XUNV L	:RUN L 3DDQ L DQG 7HFKQLFDO 6XSSRUW ♂ 3ULQFLSDO L 3URIHVVLRQDO L	⊥ L	!! L	¶ L	!! L	!! L
-RKQ L 'LUUR L	67$57 L 4XDOLW\ L &RQWUR L 5HYLHZHU L ♂ 3ULQFLSDO L 3URIHVVLRQDO L	¶ L	¶ L	¶ L	¶ L	!! L
%XWFK)ULHV L	67$57 L (GXFDWLRQDO 5HYLHZHU L ♂ 5HSRUWW L ♂ 7HFKQLFDO L 6XSSRUW L 6ZDII L ,, L	⊥ L	!! L	¶ L	!! L	!! L
7R EH GHWHUPLQHG L	(QYLURQPHQWDO L 7HFKQLFLDQ L ,, L	!! L	¶ L	!! L	!! L	!! L

7DEOH- ¦ ◀ - 6\DI ILQJ- 3DDQ- -

5LQG\ - 0RUWHQVHQ-	3URFXUHPHQW- ♂ $GPLQLVWUDWLYH- 6XSSRUW-	!! -	⊥ -	¦	-	!! -	!! -
7RXDOV-	3URVHFW- 7RXDO- - ¦ ←	⊥ -	¶ ├ -	¶ ¶	¦ -	⊥ !! ¦ -	¶ ¶ ← -

├ ◀ !! $668037,216- $1'- /,0,7$7,216-

$VVXPSWLRQV- DQG- OLPLWDWLRQV- FDQ- LPSDFW- WKH- DSSURDFK¤ - VFKHGXOH- DQG- FRXWV- SURYLGHG- LQ- W
7HWUD- 7HFK∂V- DVVXPSWLRQV- DQG- LGHQWLILFDWLRQ- RI - SRWHQWLDO- OLPLWDWLRQV- RQ- WKH- ZRUN- DUH- S

- 7KH- VFKHGXOH- DQG- FRXW- HXWLPDWH- DVVXPH- WKDW- WKH- (3$- 5HJLRQ- ← - $6↕ 69(- XQLW- LV- DYDL
GHOLYHUHG- WR- WKH- VLWH- LQ- D- WLPHO\- PDQQHU- DQG- DW- QR- FRXW- WR- 7HWUD- 7HFK◀ - - ,I- 7H
$6↕ 69(- XQLW- RU- DUUDQJH- DQG- SD\- IRU- WUDQVSRUW- RI - WKH- 5HJLRQ- ← - XQLW¤ - WKLV- FRXOG-
WLPH- DQG↕ RU- RWKHU- GLUHFW- FRXW- ♂ HTXLSPHQW- UHQWDO- DQG- VLWH- GHOLYHU\□◀ - - 7HWUD- 7HF
7HWUD- 7HFK- ZLOO- GLVFXW- WKH- VFKHGXOH- ZLWK- GUDIW- ZRUN- SODQ- UHYLHZ- DV- FDOOV- DQG- FRP
RQJRLQJ- ZLWK- (3$- SDUWLHV- DQG- YHQGRUV↕ VXEFRQWUDFWRUV◀ -
- 7KH- FRXW- HXWLPDWH- IRU- H[FDYDWLRQ- ♂ DQDO\WLFDO¤ - VXEFRQWUDFWRU¤ - ZDXWH- PDQDJHPHQW¤ - DQG
LV- LQFOXGHG- DV- RQH- OLQH- LWHP- LQ- WKH- DWWDFKHG- FRXW- HXWLPDWH◀ - - 7KH- FRXW- HXWLPDWH-
5$&(5- DQG- DFWXDO- FRXW- PD\- GL IIHU- IURP- DVVXPSWLRQV◀ - - 7HWUD- 7HFK- ZLOO- XSGDWH- (3$-
DUH- REWDLQHG◀ - - $- FRXW- EUHDNRXW- ZLOO- EH- SURYLGHG- LQ- WKH- ILQDO- ZRUN- SODQ◀ -
- 7KH- VFKHGXOH- DQG- FRXW- HXWLPDWH- DVVXPH- YHQGRUV- DUH- DYDLODEOH- IRU- DQ- 2FWREHU- WLPH- IU
ZHOO- LQWDOODWLRQ- DQG- H[FDYDWLRQ◀ -
- (3$- ZLOO- SURYLGH- WLPHO\- UHYLHZV- DQG- DSSURYDOV- WR- VXSSRUW- WKH- H[SHGLWHG- VFKHGXOH◀ -
- $OO- DFFHVV- DJUHHPHQWV- IRU- WKH- 6LWH- DUH- LQ- SODFH- DQG- VLWH- DFFHVV- ZLOO- EH- UHDGLO\-
GHOD\- ILHOG- ZRUN◀
- &RQWDPLQDWHG- VRLO- YDSRU- H[WUDFWHG- E\- WKH- 69(- V\WWHP- FDQ- EH- WUHDWHG- YLD- YDSRU┤ SKDVH
DFWLYDWHG- FDUERQ- EHIRUH- EHLQJ- GLVFKDUJHG- WR- WKH- DWPRVSKHUH- GXULQJ- WKH- SLORW- WHWW◀ -
- 6L[- YHUWLFDO¤ - ⊥ ┤ LQFK- GLDPHWHU- 69(- ZHOOV- ZLOO- EH- LQWDOOHG- WR- D- GHSWK- RI - ¶ ↑ - I
- 7KUHH- GHHS- ♂ XS- WR- ├ !! - IHHW- GHHS□¤ - ⊥ ┤ LQFK- GLDPHWHU- WWHO- RU- WWDLQOHVV- WWHO- D
LQWDOOHG◀
- 7KUHH- VKDOORZ- ♂ XS- WR- ⊥ ↑ - IHHW- GHHS□ - ⊥ ┤ LQFK- GLDPHWHU- WWHO- RU- WWDLQOHVV- WWHO-
LQWDOOHG◀
- 7KUHH- GHHS- PRQLWRULQJ- ZHOOV- ♂ ↑ !! - IHHW- GHHS□ - ZLOO- EH- LQWDOOHG◀
- 7KUHH- VKDOORZ- PRQLWRULQJ- ZHOOV- ♂ ⊥ ↑ - IHHW- GHHS□ - ZLOO- EH- LQWDOOHG◀
- 7KUHH- YDGRVH- VRLO- JDV-]RQH- PRQLWRULQJ- SRLQW- ZLOO- EH- LQWDOOHG◀
- $OO- ¶ ← - QHZ- ZHOOV- ZLOO- EH- GHYHORSHG- E\- WKH- GULOOHU◀
- :HOO- GHYHORSPHQW- ZDWHU- ZLOO- EH- FROOHFWHG- DQG- GLVSRVHG- RI - RI IVLWH- DW- WKH- &LW\- RI - :
GULOOHU◀
- 6RLO- FXWWLQJV- ZLOO- EH- FROOHFWHG- DQG- GLVSRVHG- RI - RI IVLWH◀
- 7KH- FRXW- HXWLPDWH- DVVXPHV- WKDW- H[SHGLWHG- DQDO\WLFDO- VHUYLFHV- DUH- XVHG- DQG- WKDW- DOO-
EH- YDOLGDWHG- E\- 7HWUD- 7HFK◀ - -
- :HDWKHU- FRQGLWLRQV- GR- QRW- LPSHGH- ILHOG- WHXW- DFWLYLWLHV- SODQQHG- IRU- IDOO- ⊥ !! ¶ → ◀
- 6XEFRQWUDFWHG- ODERUDWRULHV- DUH- XVHG- IRU- DQDO\WLFDO- VHUYLFHV◀ - - ,I- (3$- ODERUDWRU\- VHU
DQDO\WLFDO- FRXW- ZRXOG- EH- UHGXFHG◀
- 7KH- SLORW- WHXW- ZLOO- UHTXLUH- WKH- IROORZLQJ- ILHOG- HTXLSPHQW- ♂ LQ- DGGLWLRQ- WR- WKH- $6↕
XQLW□ -
  R 7ZR- GRZQKROH- ♂ ¶ ◀ ↑ ┤ LQFK- RU- VPDOOHU□ - GLDPHWHU- GLVWROYHG- R[\JHQ- SUREHV-
  R 2QH- SKRWRLRQ]DWLRQ- GHWHFWRU¤ - 5$(- ┬ !! !! !! - RU- HTXDO

3LCRW└ 7HWW└ :RUN└ 3ODQ└ ± └ 7RZHU└ 6WDQGDUG└ 6LWH☼ └ :, └

R 2QH└ ODQGILOO└ JDV└ PHWHU└ ♂ PHWKDQH☼ └ FDUERQ└ GLR[LGH☼ └ DQG└ R[\JHQ□ └ ♂ /DQGWHF└ *(0└ ┴
R 2QH└ SHULWDOWLF└ SXPS└ DQG└ DVVRFLDWHG└ GLVSRVDECH└ WXELQJ└ ♂ IRU└ JURXQGZDWHU└ VDPSOH└ FRO
R 2QH└ <6, └ PXOWL┼ SDUDPHWHU└ ZDWHU└ TXDOLW\└ PHWHU└ ZLWK└ IORZ┼ WKURXJK└ FHOO
R 2QH└ WKHUPDO└ DQHPRPHWHU
R 2QH└ RLO↕ ZDWHU└ LQWHUIDFH└ SUREH
R 7ZR└ 'Z\HU└ 0DUN└ ┤ → ↑ └ GLJLWDO└ PDQRPHWHUV
R 6L[└ 'Z\HU└ PDJQHKHOLF└ DQDORJ└ PDQRPHWHUV

- 0RQLWRULQJ└ ZHOO└ LQWDOODWLRQ└ DQG└ JURXQGZDWHU└ VDPSOLQJ└ ZLOO└ UHTXLUH└ WKH└ IROORZLQJ└ HTXL
R 2QH└ SKRWRLRQL]DWLRQ└ GHWHFWRU☼┬└ !!5$(!! └ RU└ HTXDO
R 2QH└ <6, └ PXOWLSDUDPHWHU└ ZDWHU└ TXDOLW\└ PHWHU└ ZLWK└ IORZ┼ WKURXJK└ FHOO
R 2QH└ ODQGILOO└ JDV└ PHWHU└ ♂ PHWKDQH☼ └ FDUERQ└ GLR[LGH☼ └ DQG└ R[\JHQ□◄ └ └ /DQGWHF└ *(0└
R 2QH└ SHULWDOWLF└ SXPS└ DQG└ DVVRFLDWHG└ GLVSRVDECH└ WXELQJ
R 2QH└ └ RLO↕ ZDWHU└ LQWHUIDFH└ SUREH
- 7KH└ VL[└ QHZ└ JURXQGZDWHU└ PRQLWRULQJ└ ZHOOV└ ZLOO└ EH└ VDPSOHG└ EHIRUH◄ └ └ 6DPSOHV└ ZLOO└ EH
WRWDO└ SHWURCHXP└ K\GURFDUERQV└ ♂ JDVROLQH□ └ ♂ 73+┼ J□☼ └ YRODWLOH└ RUJDQLF└ FRPSRXQGV└ ♂ 92&
SHWURCHXP└ GHJUDGLQJ└ EDFWHULD◄
- ([WUDFWHG└ YDSRU└ VDPSOHV└ ZLOO└ EH└ FROOHFWHG└ DQG└ DQDO\]HG└ IRU└ 92&V└ ♂ (3$└ 0HWKRG└ 72┼ ¶
JDVHV└ ♂ $670└ '└ ¶ ┤ ├ □◄ └ └ $└ WRWDO└ RI└ ¶ ├ └ YDSRU└ VDPSOHV└ ZLOO└ EH└ FROOHFWHG└ XVLQ
VXPPD└ FDQLWWHUV◄
- $└ JHQHUDWRU└ FDSDECH└ RI└ SURYLGLQJ└ HOHFWULFDO└ SRZHU└ DW└ WKH└ SURSHU└ YROWDJH↕ SKDVH└ ZLOO└
GXUDWLRQ└ RI└ WKH└ WHWW◄
- 7ZR└ SRUWDECH└ YDSRU└ SKDVH└ JUDQXODU└ DFWLYDWHG└ FDUERQ└ XQLW└ ZLOO└ EH└ PRELOL]HG└ WR└ WKH└
VHULHV└ WR└ WUHDW└ WKH└ H[WUDFWHG└ VRLO└ YDSRU◄
- $└ ORFDO└ OLFHQVHG└ HOHFWULFLDQ└ ZLOO└ EH└ KLUHG└ WR└ FRQQHFW└ WKH└ $6↕ 69(└ SLORW└ WHWW└ WUDLO
- 7KH└ $6↕ 69(└ SLORW└ WHWW└ VHWXS☼ └ WHWWLQJ☼ └ DQG└ EUHDNGRZQ└ ZLOO└ EH└ FRPSOHWHG└ LQ└ ↑ └ ILH
LQFOXGH└ DW└ D└ PLQLPXP☼ └ 69(└ WWHS└ WHWW└ RQ└ WZR└ 69(└ ZHOOV☼ └ $6└ WWHS└ WHWW└ RQ└ D└ VKD
VSDUJH└ ZHOO☼ └ DQG└ D└ FRPELQHG└ $6↕ 69(└ WHWW└ ♂ WR└ HYDOXDWH└ HIIHFW└ RI└ DLU└ VSDUJLQJ└ RQ└
FRQFHQWUDWLRQ◄ └ 1R└ SHUPLWWLQJ└ RU└ RWKHU└ H[WHUQDO└ DJHQF\└ DSSURYDO└ SURFHVV└ UHTXLUHPHQW└
WKHVH└ FRXOG└ LPSDFW└ WKH└ SURVHFW└ FRWW└ DQG└ VFKHGXOH◄

5()(5(1&(6└

)XOO└ FLWDWLRQV└ IRU└ UHIHUHQFHV└ FLWHG└ LQ└ WKH└ ERG\└ RI└ WKLV└ ZRUN└ SODQ└ ZLOO└ EH└ LQFOXGHG└

¶┬└