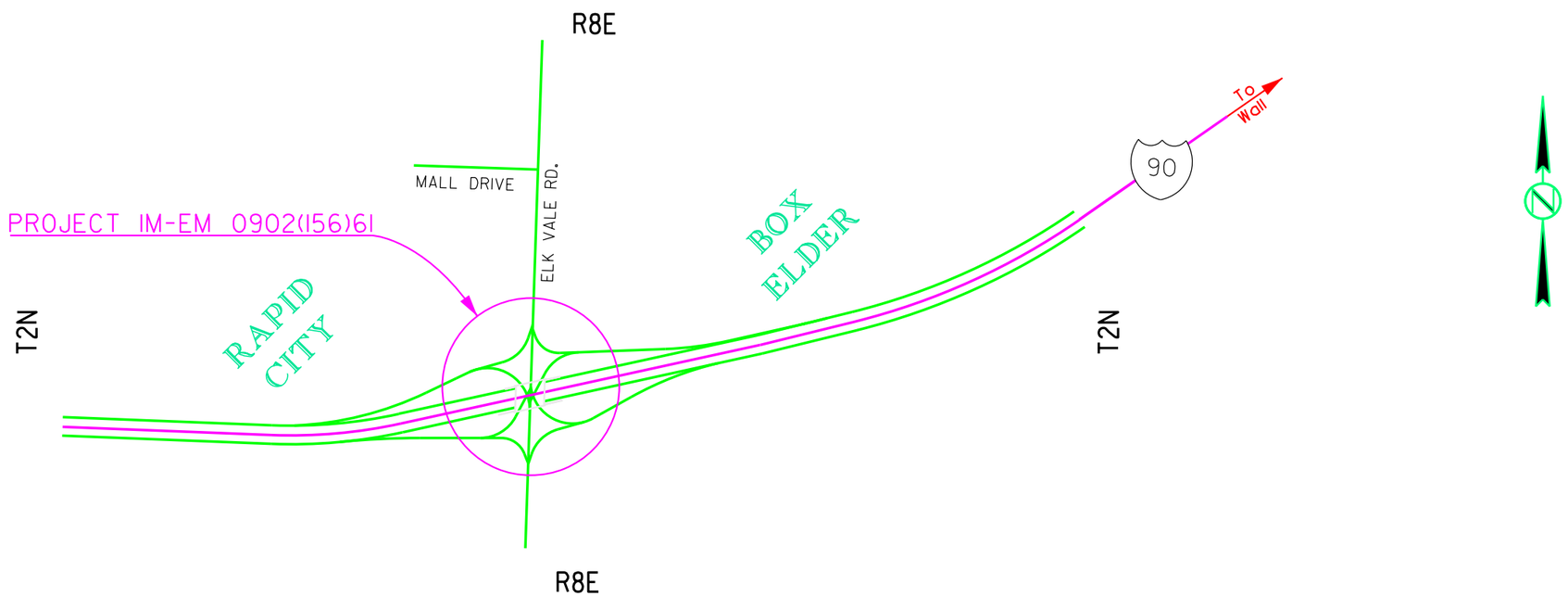
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-EM 0902(156)61	L1	L5

Plotting Date: 01/13/2014

Section L: Signal & Lighting Plans

INDEX OF SHEETS

L1	General Layout With Index
L2	Estimate With General Notes & Tables
L3-L4	Existing Signal & Signal Layouts
L5	Signal Timings



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SECTION L ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
110E5110	Salvage Signal Equipment	Lump Sum	LS
635E5922	Pedestrian Signal Head with Countdown Timer	8	Each
635E5930	Pedestrian Crossing Sign	8	Each

SALVAGE SIGNAL EQUIPMENT

Existing signal equipment shall be salvaged and delivered to the City of Rapid City by the Contractor. The Contractor shall notify the City 5 days before the delivery of the salvaged signal equipment. The City contact is Traffic Operations at (605) 394-1633.

All costs for work involved in the salvage and delivery of the existing signal equipment shall be incidental to the contract lump sum price for “Salvage Signal Equipment”.

SIGNAL AIMING

Signals shall be aimed and trees shall be trimmed such that all the signals for each approach shall be continuously visible for the minimum distance listed in the table in Section 4D.12 of the MUTCD.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor shall submit shop drawings and catalog cuts in accordance with Section 985 of the Standard Specifications or in Adobe PDF format.

Adobe PDF submittals shall be sent to the following email addresses:

Stacy.Bartlett@state.sd.us
Pete.Longman@state.sd.us

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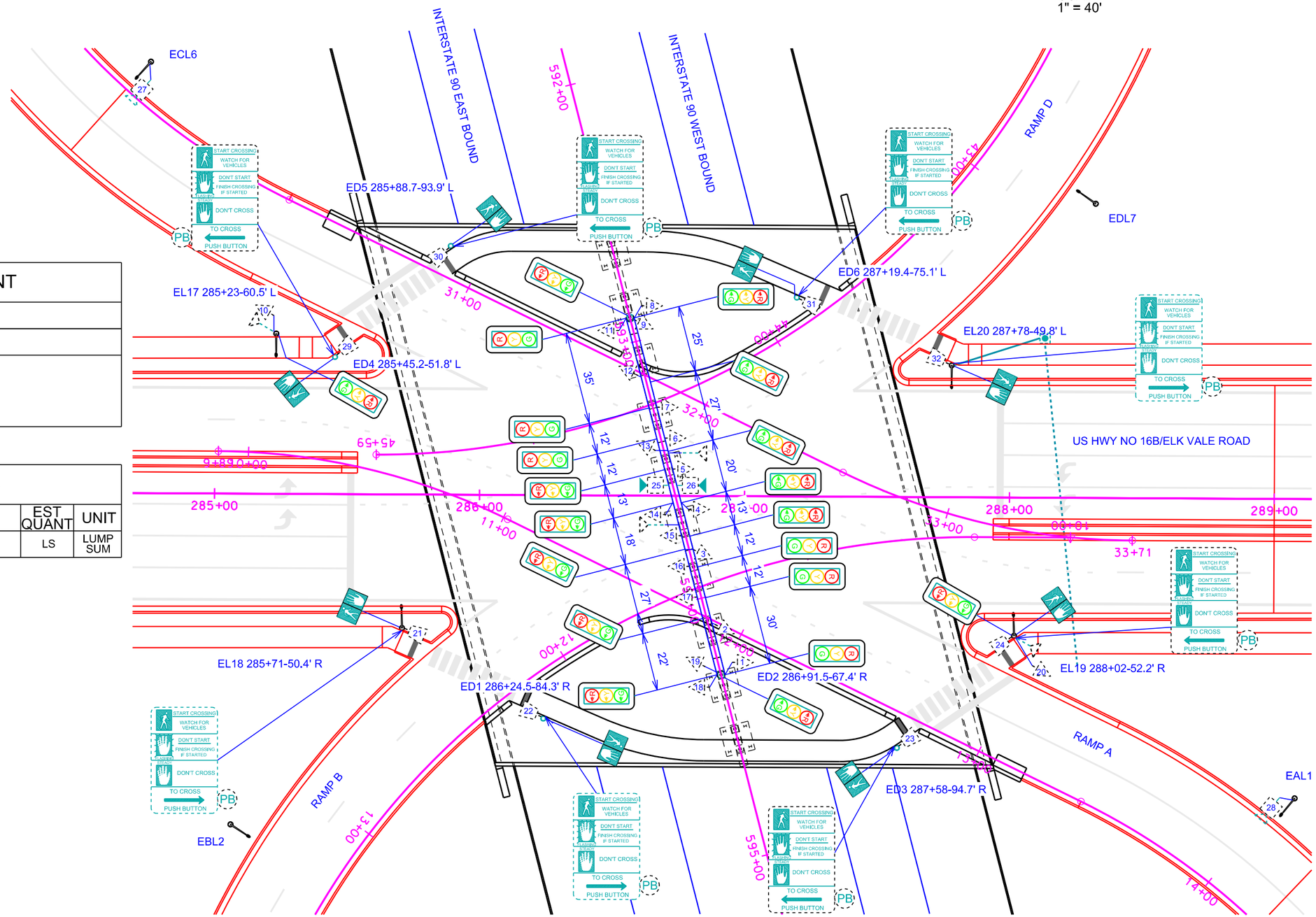
EXISTING SIGNAL LAYOUT

US HWY 16B / ELK VALE ROAD

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-EM 0902(156)61	L3	L5

Plotting Date: 01/13/2014

SCALE
1" = 40'



SALVAGE SIGNAL EQUIPMENT

KEY	ITEM
	PEDESTRIAN SIGNAL HEAD (21-24,29-32)
	PEDESTRIAN CROSSING SIGN (R10-3B)

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	SALVAGE SIGNAL EQUIPMENT	LS	LUMP SUM

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SIGNAL LAYOUT
US HWY 16B / ELK VALE ROAD

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-EM 0902(156)61	L4	L5

Plotting Date: 01/13/2014

SCALE
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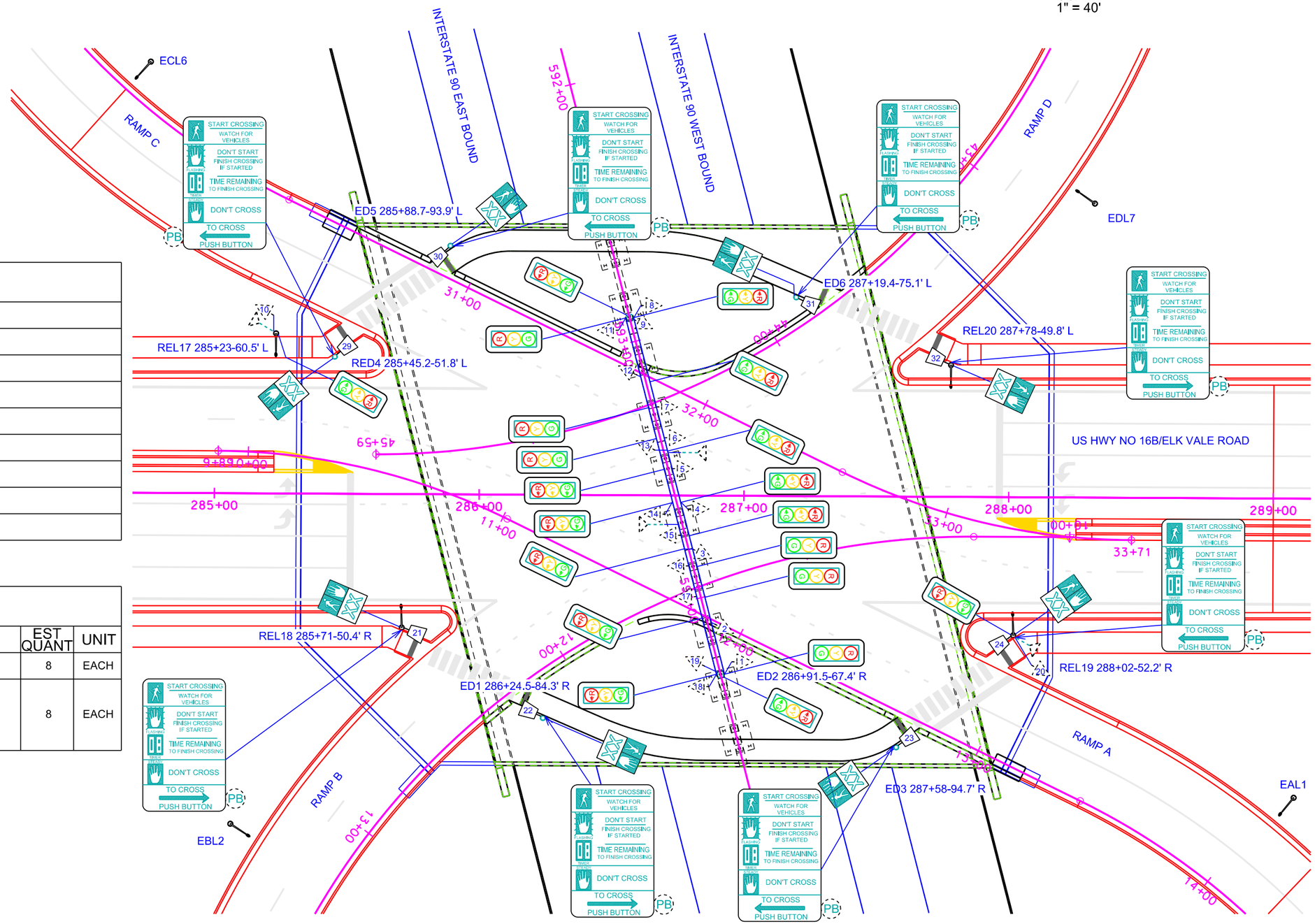

EXISTING ITEMS

KEY	ITEM
	BREAKAWAY BASE LUMINAIRE POLE W / 8' ARM 50' MT HT (REL17-REL20)
	PEDESTAL SIGNAL POLE (ED1, ED3 - ED5, RED6)
	SINGLE BEAM SIGN BRIDGE (ED2)
	ROADWAY LUMINAIRE, 400W WITH P.E.
	3 SECTION VEHICLE SIGNAL HEAD (1-20) (3 LEFT-14)
	SIREN EMERGENCY VEHICLE PREEMPTION SYSTEM (4-CHANNEL)
PB	PEDESTRIAN PUSH BUTTON
	SIREN EMERGENCY VEHICLE PREEMPTION SYSTEM DETECTOR

ESTIMATE OF QUANTITIES

KEY	ITEM	EST QUANT	UNIT
	PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER (21-24, 29-32)	8	EACH
	PEDESTRIAN CROSSING SIGN (R10-3e)	8	EACH

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-EM 0902(156)61	L5	L5

Plotting Date: 01/13/2014

SIGNAL TIMINGS
US HWY 16B/ELK VALE ROAD

SEQUENCING

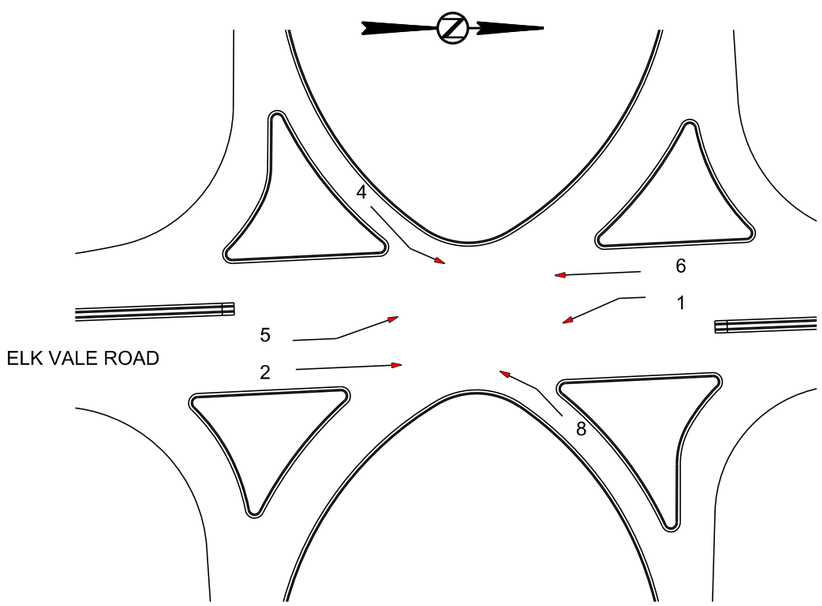
SIGNAL HEAD \ INTERVAL	1	2	3	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
11,14,15	<G	<Y		<G	<Y														
1,4,5				<G	<Y		<G	<Y											
16-18	G	Y								G	Y			G	Y				
6-8							G	Y		G	Y			G	Y				
2,3,9,10,12,13,19,20																	<G	<Y	
21-24	W	W	W	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	F DW	F DW	DW	DW	DW	DW
29-30	DW	DW	DW	DW	DW	DW	W	W	W	DW	DW	DW	W	F DW	F DW	DW	DW	DW	DW
MOVEMENTS	φ2 & φ5			or φ1 & φ5			or φ1 & φ6			φ2 & φ6							φ4 & φ8		
PHASE																			

CONTROLLER TIMINGS (Free Operation)

MOVEMENT	1	2	3	4	5	6	7	8
PHASE								
MIN GREEN	7	10		7	7	10		7
ADDED INITIAL								
MAX INITIAL								
PASSAGE TIME	4			4	4			4
MAXIMUM 1	12	20		15	12	20		15
MAXIMUM 2	20	35		35	20	35		35
TIME BEFORE								
TIME TO REDUCE								
MINIMUM GAP								
YELLOW CHANGE	6.5	6.5		6.5	6.5	6.5		6.5
RED CLEARANCE	2.0	2.0		2.0	2.0	2.0		2.0
WALK		7				7		
PED CLEARANCE		10				10		

DETECTOR SETTINGS

DETECTOR LABEL	AMPLIFIED CHANNEL DETECTOR	DETECTOR TYPE	DETECTOR OPERATION			LOCKING CALL	MOVEMENT CALLED	MOVEMENT EXTENDED
			CALLS & EXTENDS	CALLS ONLY	EXTENDS ONLY			
S1,S2	1	PREFORMED	X				5	5
S3,S4	2	PREFORMED	X				5	5
S5,S6	3	PREFORMED	X				5	5
S7,S8	4	PREFORMED	X				5	5
N1,N2	5	PREFORMED	X				1	1
N3,N4	6	PREFORMED	X				1	1
N5,N6	7	PREFORMED	X				1	1
N7,N8	8	PREFORMED	X				1	1
E1,E2	9	PREFORMED	X				8	8
E3,E4	10	PREFORMED	X				8	8
E5,E6	11	PREFORMED				X	8	8
W1,W2	12	PREFORMED	X				4	4
W3,W4	13	PREFORMED	X				4	4
W5.W6	14	PREFORMED				X	4	4



TIMING PLAN 1

TIME OF DAY (TOD)	PATTERN (C/S/O)
6:00 - 23:00	111
23:00 - 6:00	FREE

COORDINATION TIMING

CYCLE 1 = 77 SEC								
MOVEMENT	1	2	3	4	5	6	7	8
PHASE								
TIME - SPLIT 1	22	31		24	22	31		24
COORDINATED PHASE		X				X		
OFFSET 1 = 0 SEC								

WEEKLY PROGRAM

	SUN	MON	TUE	WED	THU	FRI	SAT
TIMING PLAN	1	1	1	1	1	1	1

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