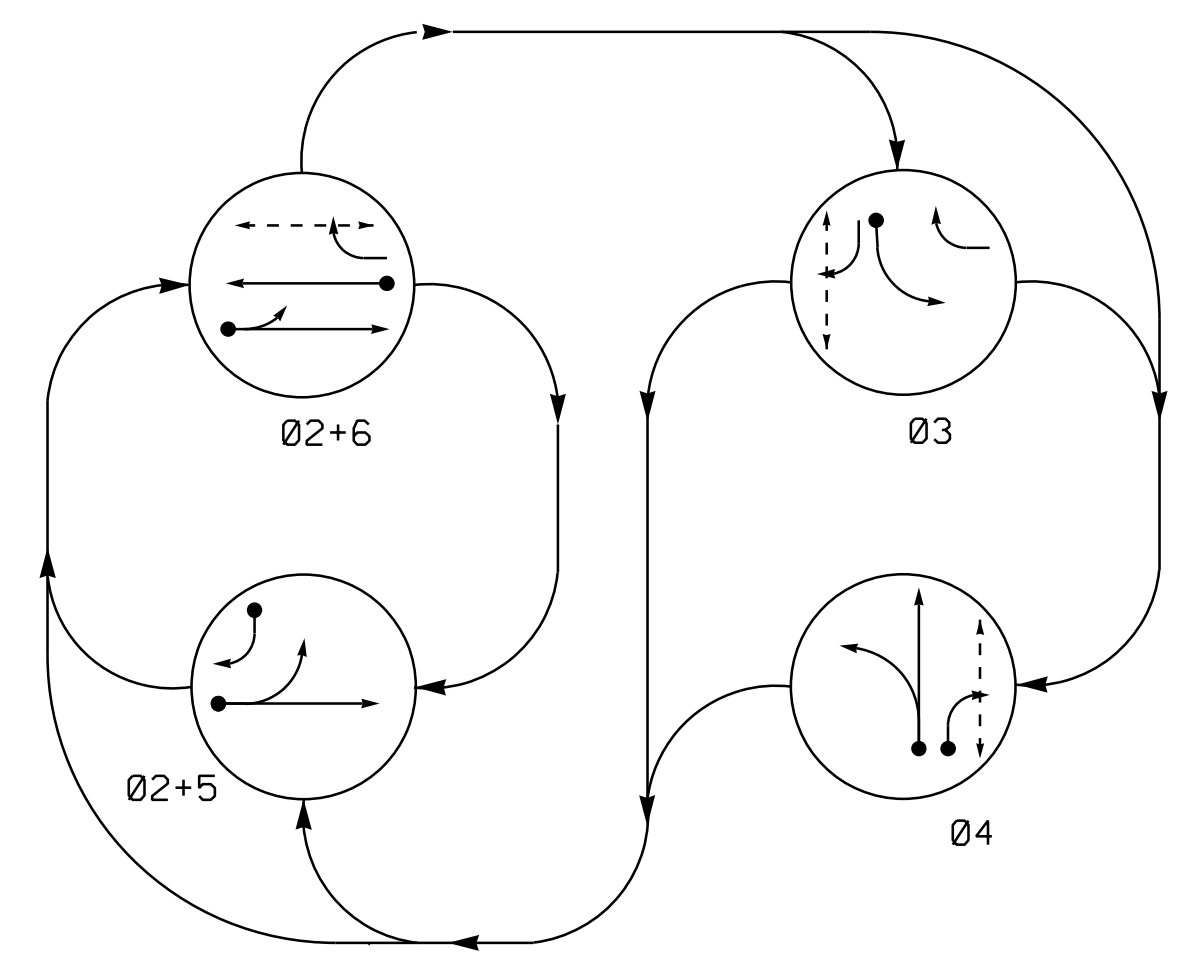


**PHASING DIAGRAM**



**PHASING DIAGRAM DETECTION LEGEND**

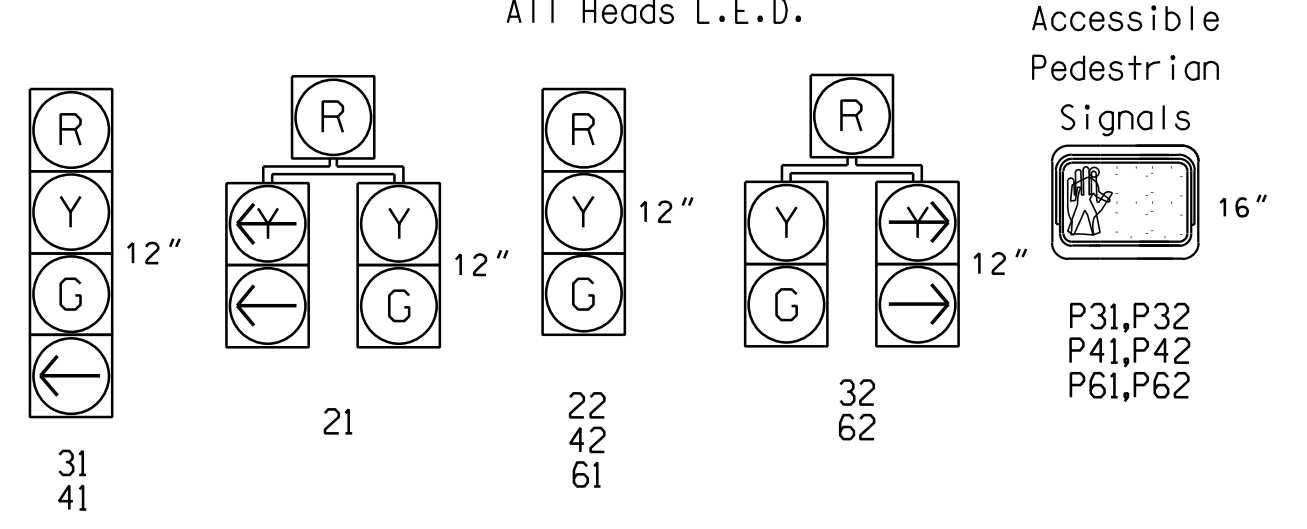
- ◄●► DETECTED MOVEMENT
- ◄◄◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄---► UNSIGNALIZED MOVEMENT
- ◄---► PEDESTRIAN MOVEMENT

**TABLE OF OPERATION**

SIGNAL FACE	PHASE				
	02+5	02+6	03	04	FLASH
21	G	G	R	R	Y
22	G	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
61	R	G	R	R	Y
62	R	G	R	R	Y
P31,P32	DW	DW	W	DW	DRK
P41,P42	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	DW	DRK

W - Walk  
DW - Don't Walk  
DRK - Dark

**SIGNAL FACE I.D.**



**OASIS 2070E LOOP & DETECTOR INSTALLATION CHART**

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X40	EXIST	2-4-2	-	5	Y	Y	-	-	5	-	Y
3A	6X40	EXIST	2-4-2	-	3	Y	Y	-	-	3	-	Y
4A	6X18	EXIST.	EXIST.	-	4	Y	Y	-	-	10	-	Y
5A	6X40	EXIST.	2-4-2	-	5	Y	Y	-	-	15	-	Y
6A	6X40	EXIST.	2-4-2	-	6	Y	Y	-	-	-	-	Y

**4 Phase Fully-Actuated (Asheville Signal System)**

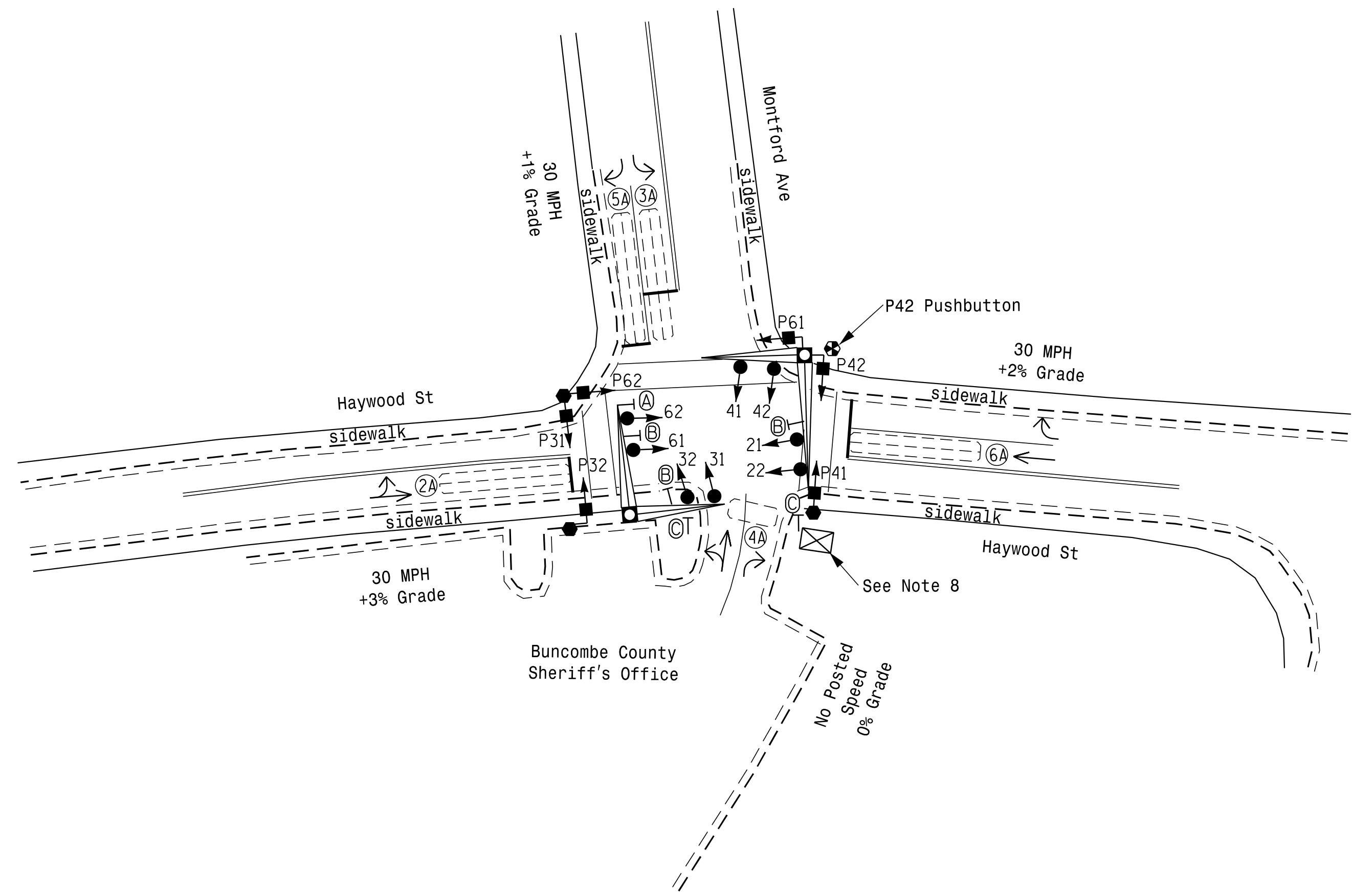
**NOTES**

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Locate new cabinet on existing foundation. Existing APS central control unit to be located in new cabinet.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Program controller to allow an Advance Walk movement before serving the vehicle phase.
- Program phase 6 for Rest-in-Walk.

**ACCESSIBLE PEDESTRIAN SIGNAL OPERATION**

SIGNAL FACE	INTERVAL	MESSAGE/TONE*
P31, P32	Walk	"Haywood St: Walk sign is on to cross Haywood St."
	Flashing Don't Walk/Don't Walk	Silent Pushbutton Locator Tone Only**
P41, P42	Walk	"Haywood St: Walk sign is on to cross Haywood St."
	Flashing Don't Walk/Don't Walk	Silent Pushbutton Locator Tone Only**
P61, P62	Walk	"Montford Avenue: Walk sign is on to cross Montford Avenue."
	Flashing Don't Walk/Don't Walk	Silent Pushbutton Locator Tone Only**

\* Volume should be set to 5 db over the ambient noise level.  
\*\* Pushbutton locator tones shall have a duration of 0.15 seconds or less, and shall repeat at 1-second intervals.



**LEGEND**

- |  |   |  |   |
|--|---|--|---|
|  | Traffic Signal Head                                       |  | Existing Traffic Signal Head                              |
|  | Modified Signal Head                                      |  | N/A   |
|  | Pedestrian Signal Head                                    |  | N/A   |
|  | Signal Pole with Guy                                      |  | Existing Signal Pole with Guy                             |
|  | Signal Pole with Sidewalk Guy                             |  | Existing Signal Pole with Sidewalk Guy                    |
|  | Inductive Loop Detector                                   |  | Existing Inductive Loop Detector                          |
|  | Controller & Cabinet                                      |  | Existing Controller & Cabinet                             |
|  | Junction Box  |  | Existing Junction Box                                     |
|  | 2-in Underground Conduit                                  |  | Existing 2-in Underground Conduit                         |
|  | Right of Way  |  | Existing Right of Way                                     |
|  | Directional Arrow   |  | Existing Directional Arrow                                |
|  | Metal Pole with Mastarm                                   |  | Existing Metal Pole with Mastarm                          |
|  | Type I Pushbutton Post                                    |  | Existing Type I Pushbutton Post                           |
|  | Type II Signal Pedestal                                   |  | Existing Type II Signal Pedestal                          |
|  | 'NO TURN ON RED' Sign (R10-11)                            |  | Existing 'NO TURN ON RED' Sign                            |
|  | 'TURNING TRAFFIC MUST YIELD TO PEDESTRIANS' Sign (R10-15) |  | Existing 'TURNING TRAFFIC MUST YIELD TO PEDESTRIANS' Sign |
|  | 'DO NOT ENTER' Sign (R5-1)                                |  | Existing 'DO NOT ENTER' Sign                              |

**OASIS 2070E TIMING CHART**

FEATURE	PHASE				
	2	3	4	5	6
Min Green 1 *	10	12	10	7	18
Extension 1 *	2.0	2.0	2.0	2.0	2.0
Max Green 1 *	30	30	15	20	30
Yellow Clearance	3.4	3.5	3.0	3.0	3.4
Red Clearance	1.6	1.9	1.2	1.8	1.8
Walk 1 *	-	4	4	-	4
Don't Walk 1	-	7	6	-	11
Walk Advance **	0.0	3.0	3.0	0.0	3.0
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode	MIN. RECALL	PED SOFT	PED SOFT	-	MIN. RECALL / PED SOFT
Vehicle Call Memory	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.  
\*\* See Note 10

**Signal Upgrade**

City of Asheville  
161 S. Charlotte St, Asheville, NC 28802

**Haywood St at Montford Ave**

Division 13 Buncombe County Asheville

PLAN DATE: JUNE 2016 REVIEWED BY: SMH

PREPARED BY: BGR REVIEWED BY: JBV

SEAL  
JAMES B. VOSS  
140P00378041P  
12/13/2016

**Mattern & Craig**  
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ASHEVILLE, NORTH CAROLINA 28801  
(828) 254-2201  
FAX (828) 254-4562

SCALE  
0 30  
1"=30'

REVISIONS

NO.	DATE	INIT.	DATE

B-37-18 AM  
 R-1-156202 Asheville 1110 Signal System (D)NACA-0403 (C)A-403-sig.dgn-dgn  
 D:\projects\1110 Signal System (D)NACA-0403 (C)A-403-sig.dgn