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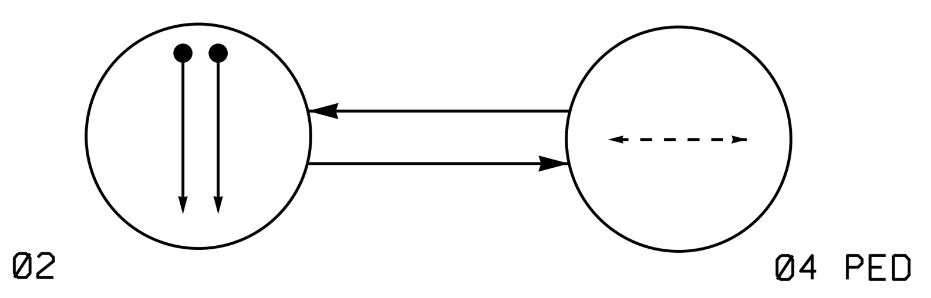
PROJECT REFERENCE NO.	SHEET NO.
W-5705K	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

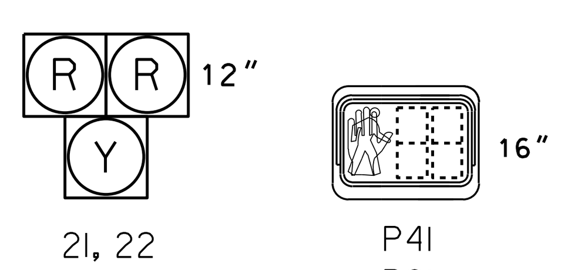
SIGNAL FACE	PHASE: Ø2 DARK	ACTIVATION	STEADY YELLOW	ALL RED	Ø4 PED WALK	Ø4 PED CLEAR	FLASH
21, 22	DRK	FY	Y	R	R	FR*	Y
P41	DW	DW	DW	DW	W	DW	DRK
P81	DW	DW	DW	DW	W	DW	DRK

* Alternating Flash

Y - Steady Yellow
FY - Flashing Yellow
R - Steady Red
FR - Flashing Red
W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.



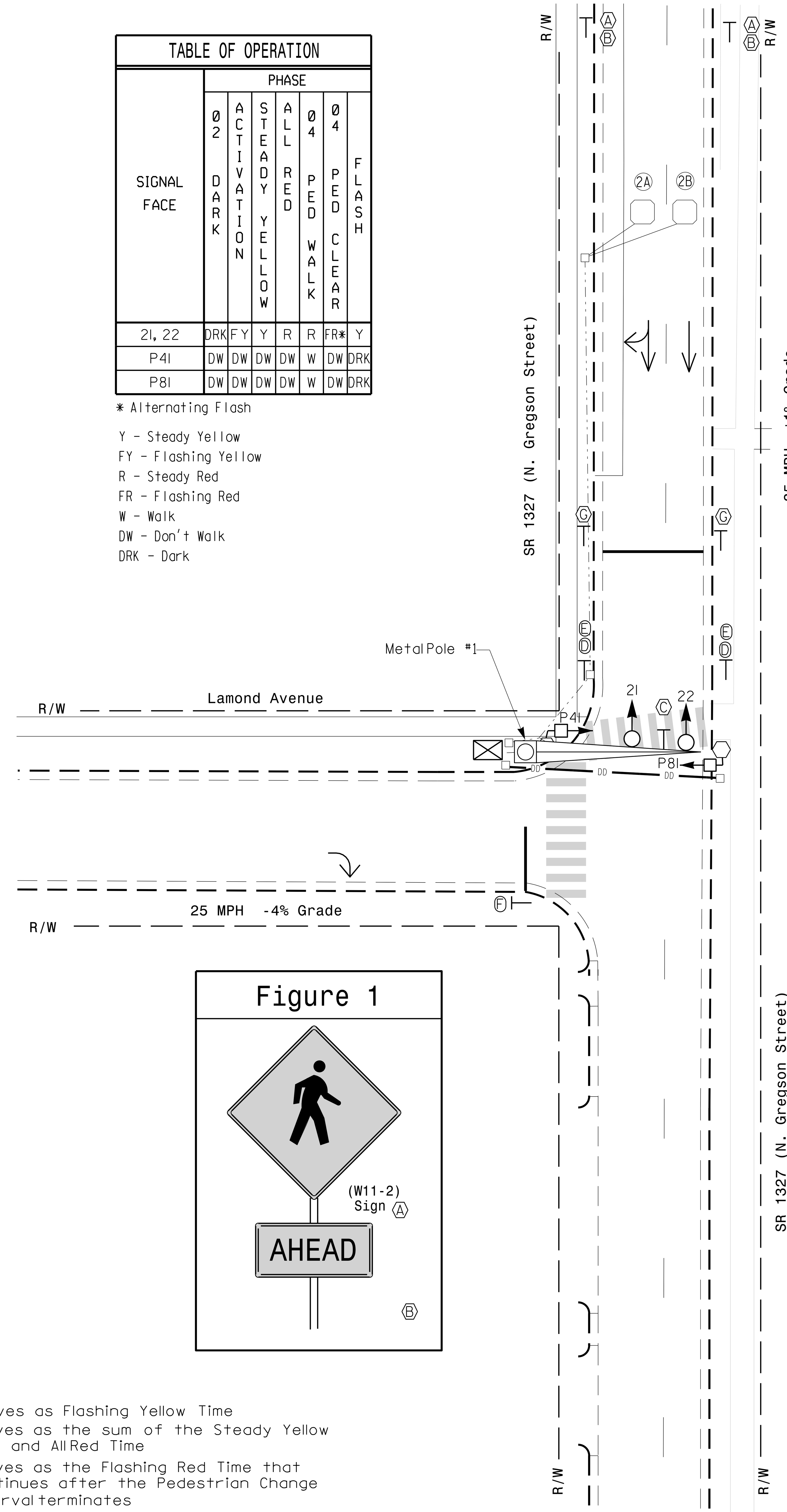
2033 SOFTWARE w/ 2070 CONTROLLER LOOP & DETECTOR UNIT INSTALLATION CHART

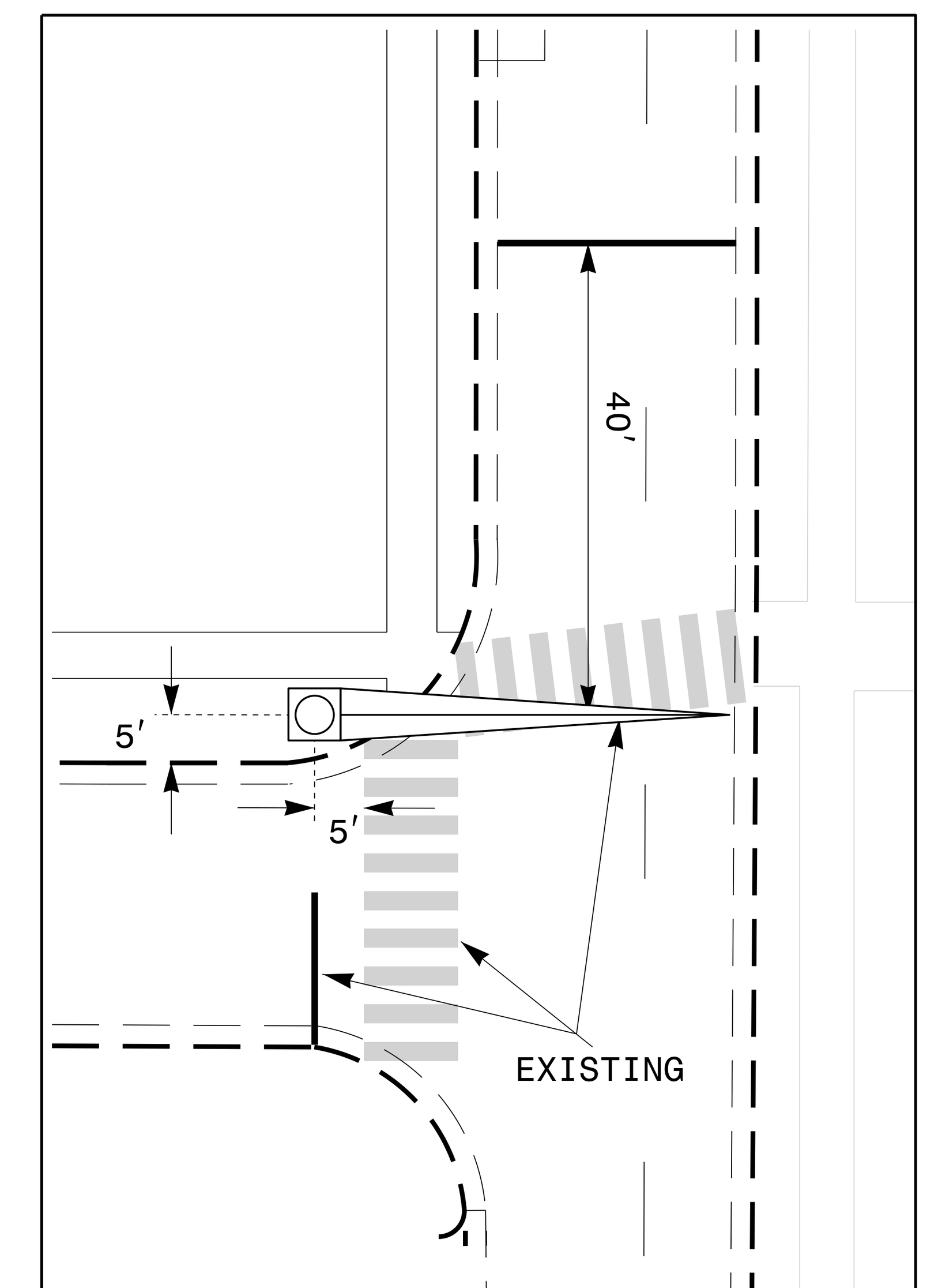
INDUCTIVE LOOPS: LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	DETECTOR PROGRAMMING: NEMA PHASE	TIMING: DELAY	TIMING: CARRY (STRETCH)	ATTRIBUTES 1 FULL TIME DELAY	2 PEDESTRIAN CALL	3 RESERVED	4 COUNT	5 EXTENSION	6 TYPE 3	7 CALLING	8 ALTERNATE	SYSTEM LOOPS	STATUS: NEW	STATUS: EXISTING
2A	6X6	4	70	X	-	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	X	-
2B	6X6	4	70	X	-	6	- SEC.	- SEC.	-	-	-	-	X	-	X	-	-	X	-
P41	N/A	N/A	N/A	X	-	4	- SEC.	- SEC.	-	X	-	-	-	-	-	-	-	X	-
P81	N/A	N/A	N/A	X	-	4	- SEC.	- SEC.	-	X	-	-	-	-	-	-	-	X	-

2 Phase
Fully Actuated
Pedestrian Hybrid Beacon
(Durham Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Set all detector units to presence mode.
3. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
4. Set phase bank 3 maximum limit to 250 seconds for phases used.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
8. Pavement markings are existing unless otherwise shown.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Locate Pedestrian and Crosswalk advance signs in accordance with Table 2C-4 in Section 2C.05 of the 2009 MUTCD or as otherwise directed by the Engineer.





Proposed Metal Pole and Stop Line Locations

Figure 1

(W11-2) Sign Ⓐ
AHEAD
Ⓑ

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
Ⓐ	Pedestrian Warning Sign (W11-2) See Figure 1	Ⓐ
Ⓑ	"AHEAD" Sign (W16-9P) See Figure 1	Ⓑ
Ⓒ	"CROSSWALK - STOP ON RED" Sign (R10-23)	Ⓒ
Ⓓ	School Crossing Sign (S1-1)	Ⓓ
Ⓔ	Diagonal Arrow Sign (W16-7P)	Ⓔ
Ⓕ	"STOP" Sign (R1-1)	Ⓕ
Ⓖ	"STOP HERE ON RED" Sign (R10-6)	Ⓖ

TIMING CHART
2033 SOFTWARE w/ 2070 CONTROLLER

PHASE	Ø2	Ø4 PED	OL1
MINIMUM INITIAL *	10 SEC.	7 SEC.	5 xx SEC.
VEHICLE EXTENSION *	3.0 SEC.	– SEC.	
YELLOW CHANGE INT.	5.0 xx SEC.	3.0 + SEC.	3.8 ++ SEC.
RED CLEARANCE	8.8 ^ SEC.	– SEC.	– SEC.
MAXIMUM LIMIT *	20 SEC.	– SEC.	
RECALL POSITION	VEH. RECALL	NONE	
VEHICLE CALL MEMORY	YELLOW LOCK	NONLOCK	
DOUBLE ENTRY	OFF	OFF	
WALK *	– SEC.	7 SEC.	
FLASHING DON'T WALK	– SEC.	7 SEC.	
TYPE 3 LIMIT	– SEC.	– SEC.	
ALTERNATE EXTENSION	– SEC.	– SEC.	
ADD PER VEHICLE *	– SEC.	– SEC.	
MAXIMUM INITIAL *	– SEC.	– SEC.	
MAXIMUM GAP*	3.0 SEC.	– SEC.	
REDUCE 0.1 SEC EVERY *	– SEC.	– SEC.	
MINIMUM GAP	3.0 SEC.	– SEC.	

* 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.

xx Serves as Flashing Yellow Time
^ Serves as the sum of the Steady Yellow Time and All Red Time
+ Serves as the Flashing Red Time that continues after the Pedestrian Change Interval terminates
++ Serves as the Steady Yellow Time

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Design Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy.Garner,NC 27529

Pedestrian Hybrid Beacon on SR 1327 (N. Gregson Street) at Lamond Avenue

Division 5 | Durham County | Durham

PLAN DATE: March 2017	REVIEWED BY:
PREPARED BY: C.E. Carter	REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 20 1"=20'

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 430320FAA2654C3... 4/27/2017 DATE

SIG. INVENTORY NO. 05-0335

28-APR-2017 08:07
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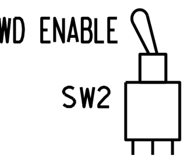
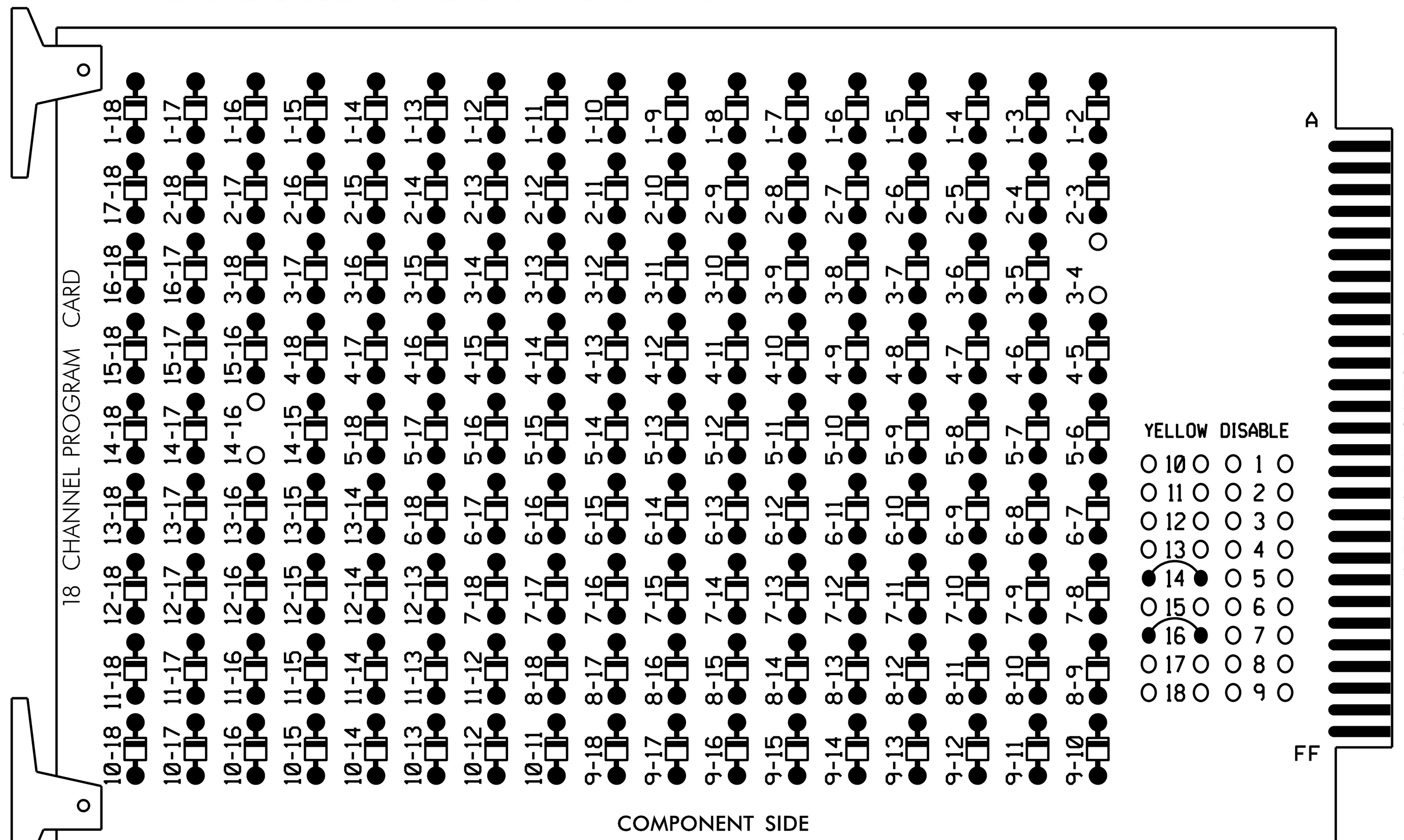
EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

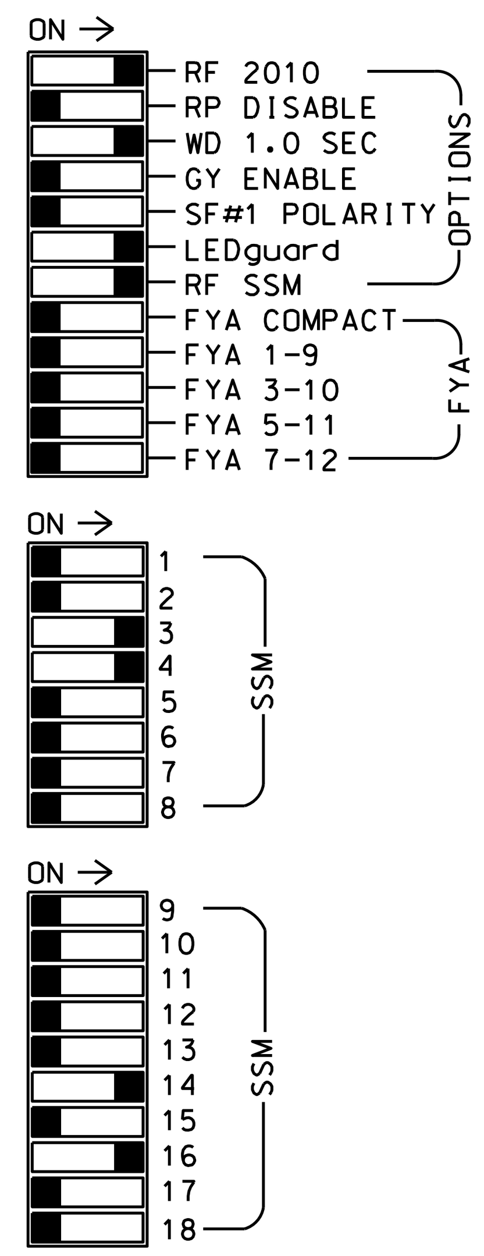
(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 3-4 and 14-16.



REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. Verify that signal heads flash in accordance with the signal plans. Insert yellow flash program blocks for loadswitches S4 and S5.
2. Program controller to Start Up in phase 2 green.
3. Set power-up flash time to 0 seconds within the controller programming. The conflict monitor will govern startup flash. Ensure STARTUP "RED START" is set to 0 seconds.
4. Program all timing information into phase banks 1, 2, and 3 unless otherwise noted.
5. Set phase bank 3 maximum limit to 250 seconds for phases used.
6. Ensure start up flash phases are coordinated with flash program block assignments.
7. This cabinet and controller are part of the Durham Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070E
CABINET.................332
SOFTWARE................McCAIN 2033
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S4,S5,S6,S12
PHASES USED.............2*,4*,4 PED
OVERLAP 1...............2
OVERLAP 2...............NONE
OVERLAP 3...............NONE
OVERLAP 4...............NONE

* Used for timing purposes only

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	**	**	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	NC	NU	21,22	21,22	P41	NU	NU	NU	NU	NU	P81
RED				116	101							
YELLOW				117	*							
GREEN				*	*							
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
(Hand)						104						110
(Walking person)						106						112

NU = Not Used

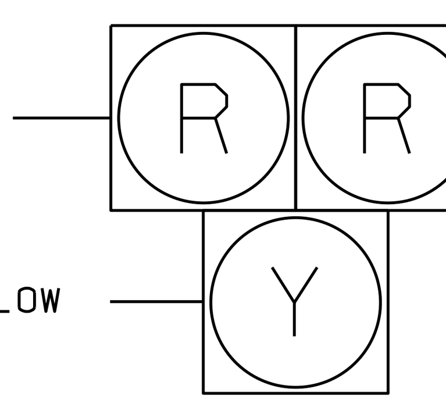
NC = Not Connected

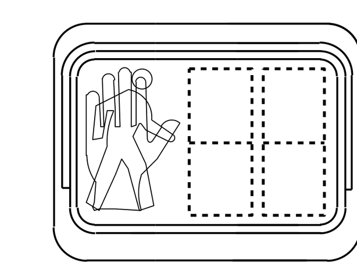
* Denotes install load resistor. See load resistor installation detail this sheet.

** These indications are driven by controller logic. See Logic Programming Detail on sheet 2.

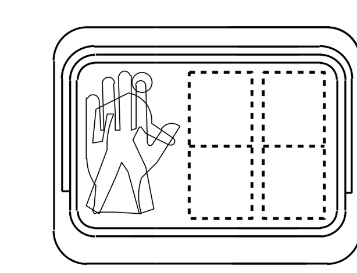
SIGNAL HEAD WIRING DETAIL

(wire signal heads as shown)





P41



P81

NOTE: Ped 8 push button is programmed to call Ped 4

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	NOT USED	FS DC ISOLATOR
	L		Ø 2 2B										Ø4 PED DC ISOLATOR	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	DETECTOR NO.	PIN NO.	ATTRIBUTES	NEMA PHASE
2A	TB2-5,6	I2U	1	39	5 7	2
2B	TB2-7,8	I2L	5	43	5 7	2
PED PUSH BUTTONS						
P41	TB8-5,6	I12L	27	69	2	4 PED
P81	TB8-8,9	I13L	28	70	2	4 PED

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

NOTE: PROGRAM DETECTOR DELAY AND CARRYOVER TIMES AS SPECIFIED ON SIGNAL DESIGN PLANS.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

DETECTOR ATTRIBUTES LEGEND:

1-FULL TIME DELAY
2-PED CALL
3-RESERVED
4-COUNTING
5-EXTENSION
6-TYPE 3
7-CALLING
8-ALTERNATE

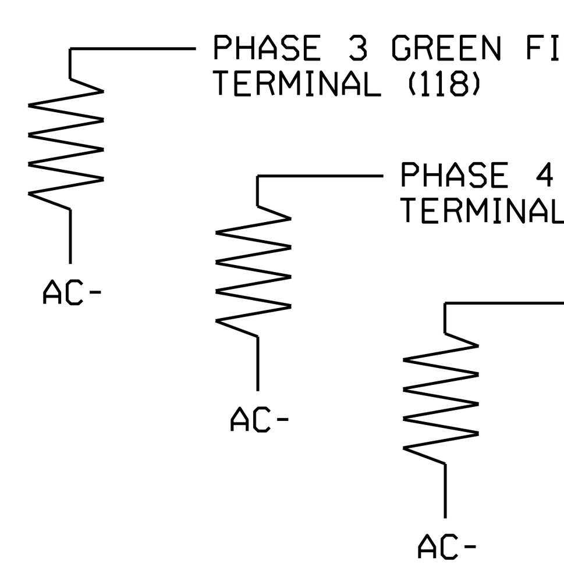
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0335
DESIGNED: March 2017
SEALED: 4/27/2017
REVISED:

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



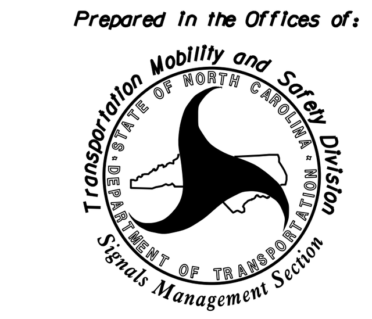
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

SR 1327 (N. Gregson Street)
at
Lamond Avenue

Division 5 Durham County Durham

PLAN DATE: April 2017 REVIEWED BY:
PREPARED BY: B.A. Stouchko REVIEWED BY:

REVISIONS	INIT.	DATE

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by:
Zachary M. Little 5/2/2017
DATE

SIG. INVENTORY NO. 05-0335

PROJECT REFERENCE NO.	SHEET NO.
W-5705K	Sig. 3

LOGIC PROGRAMMING DETAIL

Main Menu - 6) OUTPUTS - 1) GENERAL OUTPUTS

```
GENERAL OUTPUTS

ADV WARN1    0 FLASHER1  200 ONLINE    0
ADV WARN2    0 FLASHER2  201 EXWALK    0
DET FAIL     0 FAST FLS    0 EXDONT    0
```

Main Menu - 8) IN/OUT LOGIC - 1) AND

```
AND GATES
        AND1 AND2 AND3 AND4 AND5 AND6
INPUT     13  214  203  200  201  202
INPUT    200  204  210  211  211   12
OUTPUT   207  208  211  212  213  214
```

Main Menu - 6) OUTPUTS - 9) REDIRECT OLAPS

```
OVERLAP OUTPUT REDIRECTION
OVERLAP  1   2   3   4   5   6   7   8
RED    204   0   0   0   0   0   0   0
YELLOW 205   0   0   0   0   0   0   0
GREEN    0   0   0   0   0   0   0   0
```

Main Menu - 8) IN/OUT LOGIC - 3) TWO INPUT OR

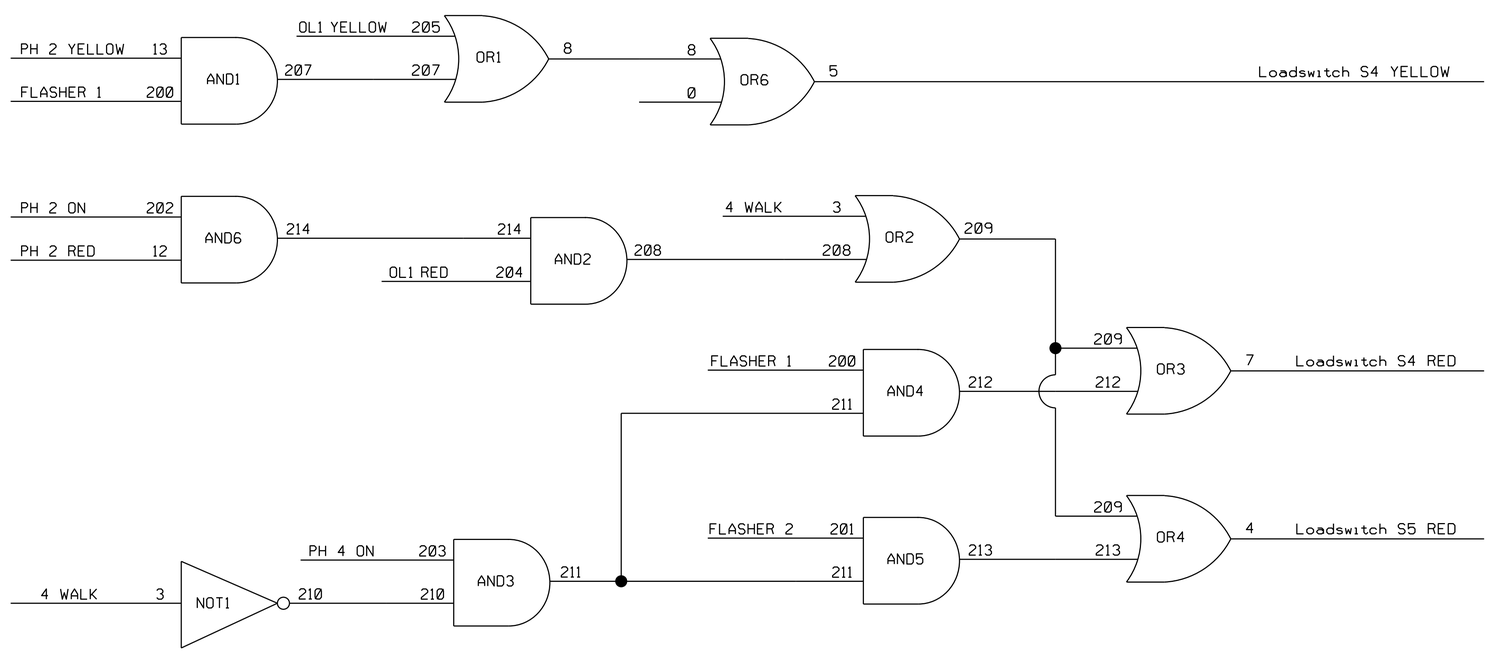
```
OR GATES
        OR1 OR2 OR3 OR4 OR5 OR6 Or7 Or8
INPUT   205   3 209 209   0   8  15  15
INPUT   207 208 212 213   0   0   0   0
OUTPUT    8 209   7   4   0   5   9   6
```

Main Menu - 6) OUTPUTS - C) PHASE CHECK/ON

```
     PHASE CHECK and ON OUTPUTS
        1   2   3   4   5   6   7   8
CHECK   0   0   0   0   0   0   0   0
   ON   0 202   0 203   0   0   0   0
```

Main Menu - 8) IN/OUT LOGIC - 5) NOT

```
NOT GATES
        NOT1 NOT2 NOT3 NOT4
INPUT      3    0    0    0
OUTPUT   210    0    0    0
```



STARTUP PROGRAMMING DETAIL

Main Menu - 9) UTILITIES - 1) STARTUP

```
STARTUP
FLASH START     0     YELLOW PHS ........
RED START     0.0     1ST GN PHS .2......
VEH CALLS  ........ PED CALLS  ........
```

PHASE 8 PED ASSIGNMENT DETAIL

Main Menu - 6) OUTPUTS - 8) REDIRECT PHASE

PHASE 4 WALK = 20 (Ph 8 WALK)
PHASE 4 DWALK = 19 (Ph 8 DON'T WALK)

DISABLE MINIMUM YELLOW

Disable Phase 4 minimum yellow as follows:
Main Menu - 9) UTILITIES - 5) CONFIG

NO MIN YEL = 4

OVERLAP PROGRAMMING DETAIL

Program overlaps as follows:
Main Menu - 4) OVERLAP

OVERLAP [1]:

VEH SET 1 = 2
NEGATIVE PED = 4
GREEN CLEARANCE = 5
YELLOW CLEARANCE = 3.8

END OF OVERLAP PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0335
DESIGNED: March 2017
SEALED: 4/27/2017
REVISED:

Electrical Detail - Sheet 2 of 2

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1327 (N. Gregson Street)
at
Lamond Avenue

Division 5 Durham County Durham

PLAN DATE: April 2017 REVIEWED BY:

PREPARED BY: B.A. Stouchko REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY W. LITTLE

DocuSigned by: Zachary W. Little 5/2/2017
DC21EF094F5341F... DATE

SIG. INVENTORY NO. 05-0335

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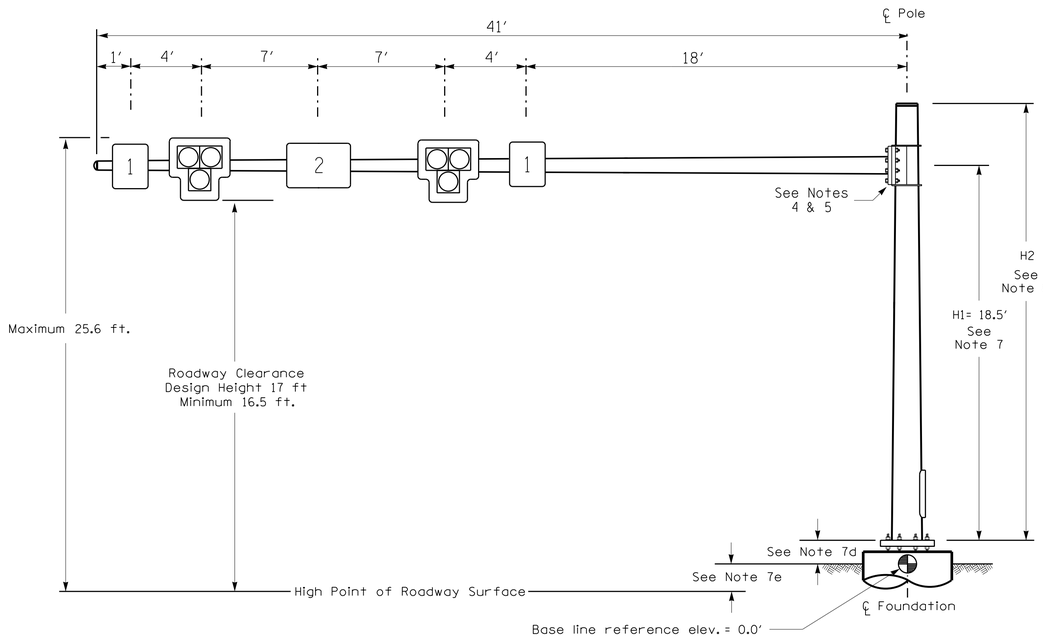
METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
W-5705K	Sig. 4

Design Loading for METAL POLE NO. 1



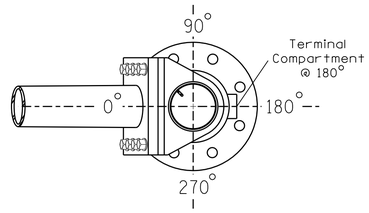
Elevation View

SPECIAL NOTE

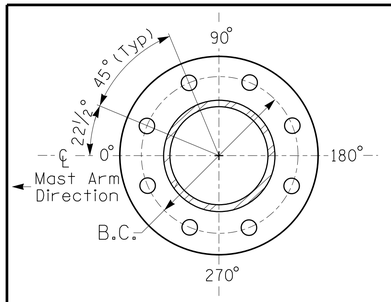
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1
Baseline reference point at ⊕ Foundation @ ground level	0.0 ft.
Elevation difference at High point of roadway surface	-0.9 ft.
Elevation difference at Edge of travelway or face of curb	N/A

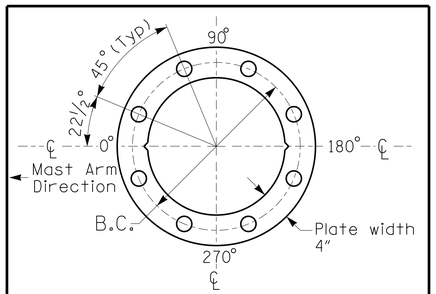


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
⊠	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	10.0 S.F.	38.0" W X 38.0" L	70 LBS
1	SIGN RIGID MOUNTED	5.0 S.F.	24.0" W X 30.0" L	11 LBS
2	SIGN RIGID MOUNTED	10.0 S.F.	60.0" W X 24.0" L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole X based on the luminaire height requirement of 30 ft.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (90 mph)

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Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Pedestrian Hybrid Beacon on SR 1327 (N. Gregson Street) at Lamond Avenue

Division 5 Durham County Durham

PLAN DATE: April 2017 REVIEWED BY:

PREPARED BY: C.E. Carter REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 N/A N/A

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 5/9/2017
430320FAA2654C3 DATE

SIG. INVENTORY NO. 05-0335

09-MAY-2017 11:41
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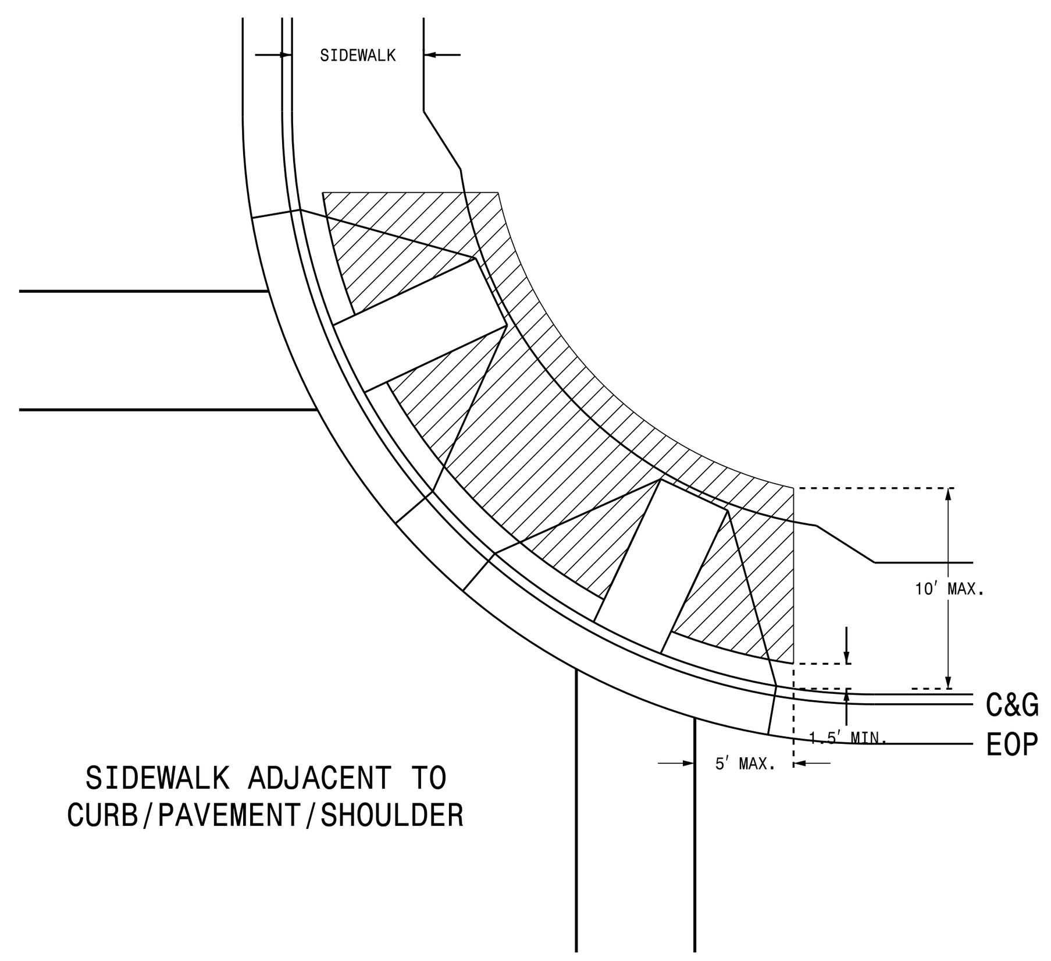
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

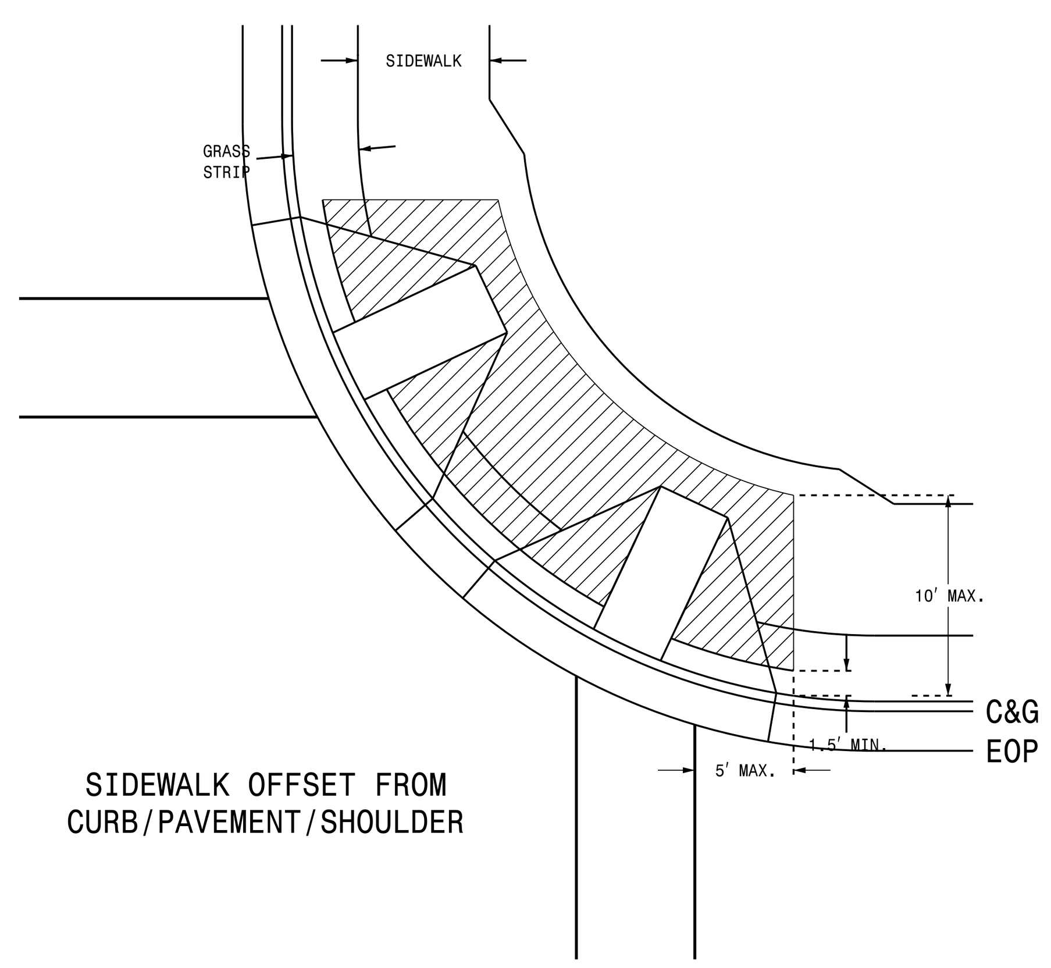
ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 1 OF 3
1705D01

PUSHBUTTON PLACEMENT
SEPARATE CURB RAMPS

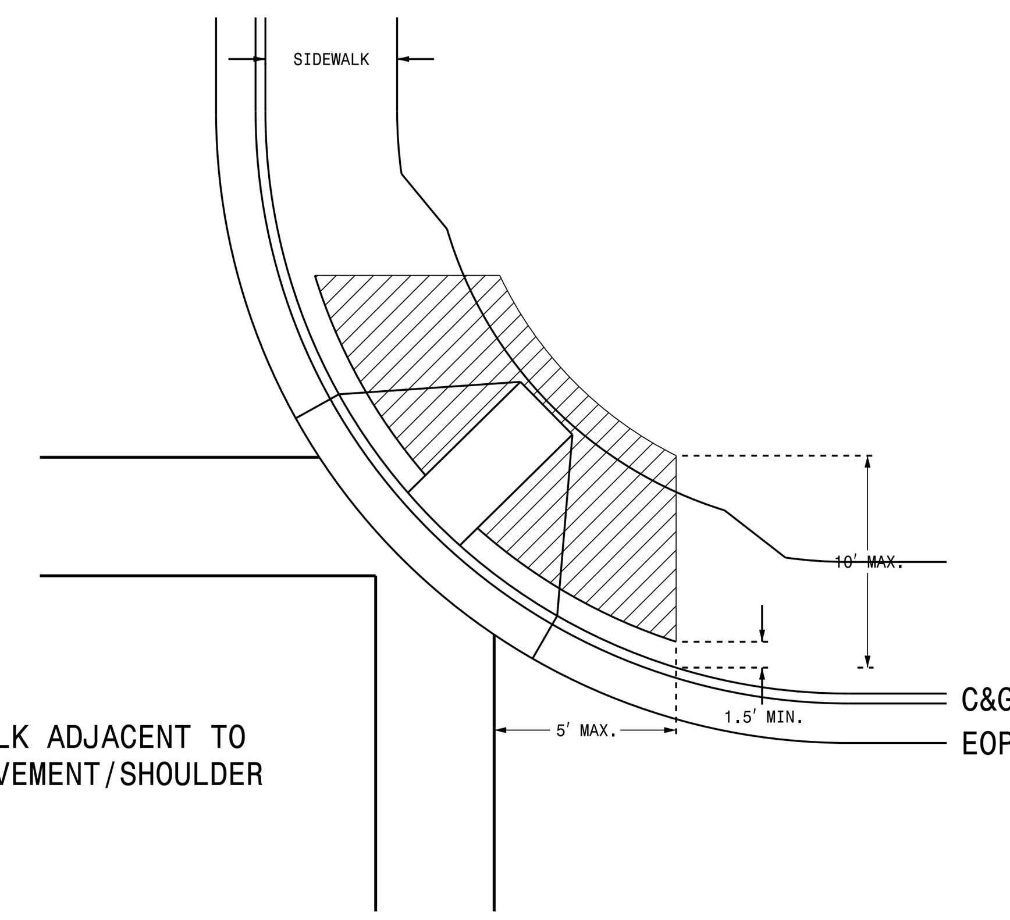


SIDEWALK ADJACENT TO CURB/PAVEMENT/SHOULDER

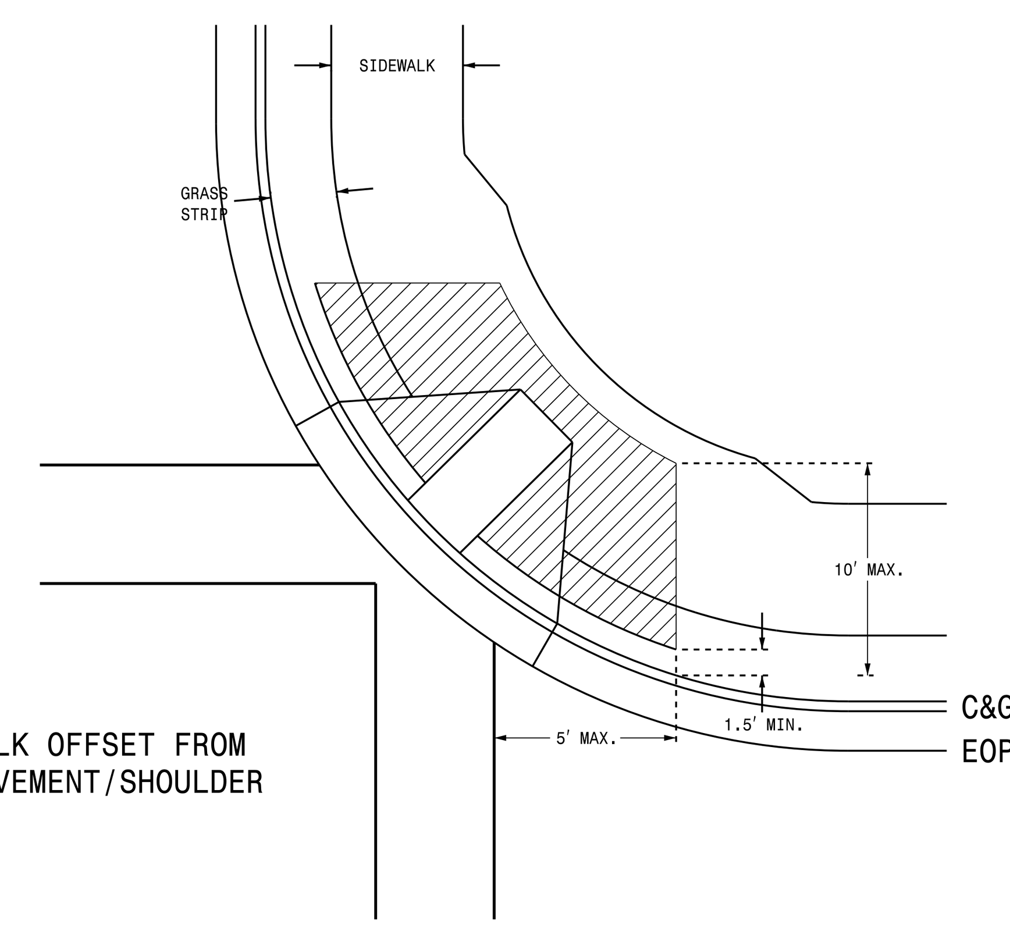


SIDEWALK OFFSET FROM CURB/PAVEMENT/SHOULDER

PUSHBUTTON PLACEMENT
SHARED CURB RAMP



SIDEWALK ADJACENT TO CURB/PAVEMENT/SHOULDER



SIDEWALK OFFSET FROM CURB/PAVEMENT/SHOULDER

NOTES

1. Pushbutton pedestals should not be located further than 10 feet from the edge of curb, shoulder, or pavement.
2. The face of the pushbutton should be parallel to the applicable crosswalk.
3. Separate pushbuttons used on the same corner should be separated by a distance of at least 10 feet.
4. Pushbuttons shall be installed adjacent to a level surface with a maximum reach distance of 10 inches.
5. Maintain 4 feet of clearance around pedestal if located in sidewalk.
6. Refer to section 1705 of the 2012 NCDOT Roadway Standard Drawings for Pushbutton Assembly details.
7. Refer to section 1743 of the 2012 NCDOT Roadway Standard Drawings for Pedestal details.
8. Contact Division Traffic Engineer for pushbutton location approval prior to installation.
9. Curb ramps are for symbolic use only and may not reflect actual design or field conditions.

LEGEND

PROPOSED

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

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ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 1 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N. Greenfield Parkway
Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

SIGNATURE | DATE 6/17/2014

26-AUG-2014 16:37
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rziemba

PROJECT NO.	SHEET NO.
	Sig. P2

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

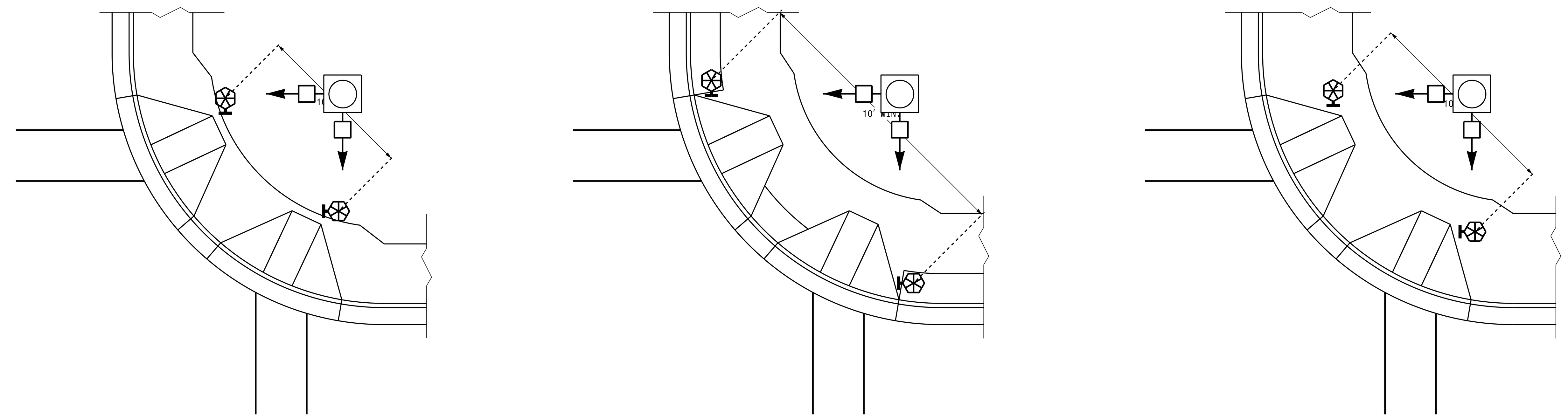
06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

TYPICAL PUSHBUTTON LOCATIONS (CASE I)

SEPARATE CURB RAMPS W/ TYPE I PEDESTALS



BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER

GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

PUSHBUTTON PLACEMENT IN WIDE SIDEWALK

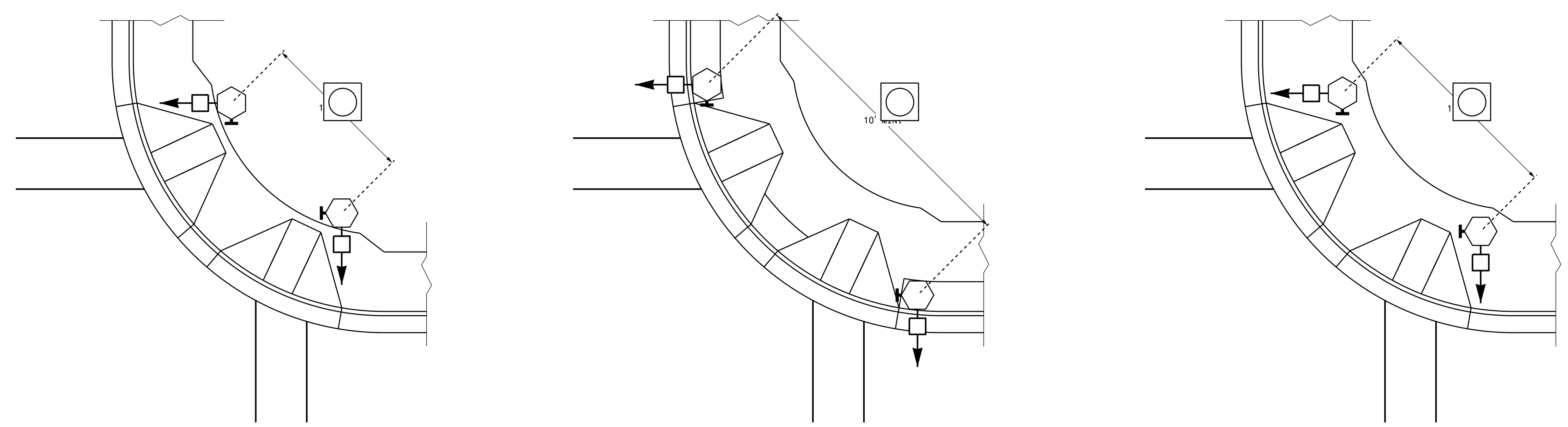
LEGEND

PROPOSED

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

TYPICAL PUSHBUTTON LOCATIONS (CASE II)

SEPARATE CURB RAMPS W/ TYPE II PEDESTALS



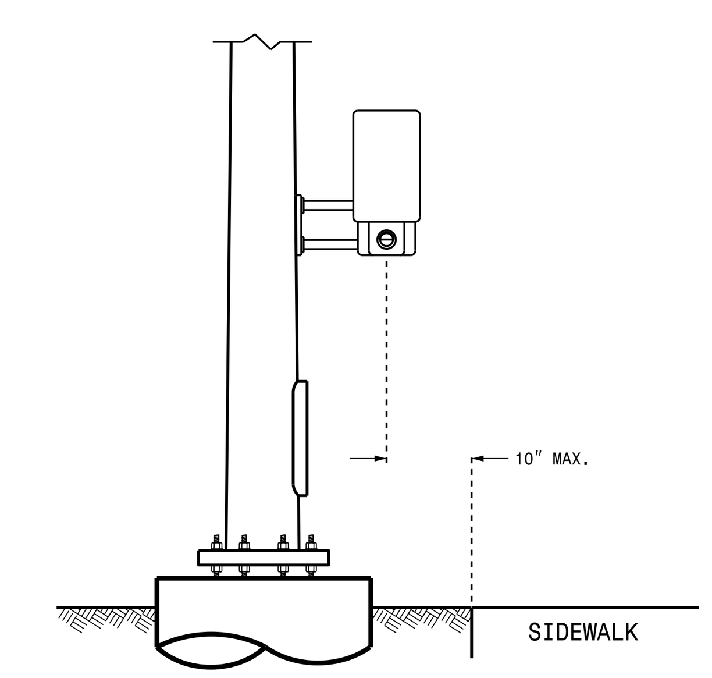
BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER

GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

PUSHBUTTON PLACEMENT IN WIDE SIDEWALK

OPTIONAL PUSHBUTTON EXTENSION

FACE OF PUSHBUTTON PARALLEL TO APPLICABLE CROSSWALK



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ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

See Plate for Title

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Signal Design Section

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Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026486 ROBERT J. ZIEMBA

SIGNATURE 6/17/2014 DATE

26-AUG-2014 16:38
S:*ITS&SU*ITS Signals*Signal Design Section*Central Region*Rob's Files*Ped Sids*Pushbutton Drawings*Pushbutton Plate Drawings_20140617.dgn
rziemba

PROJECT NO.	SHEET NO.
	Sig. P3

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

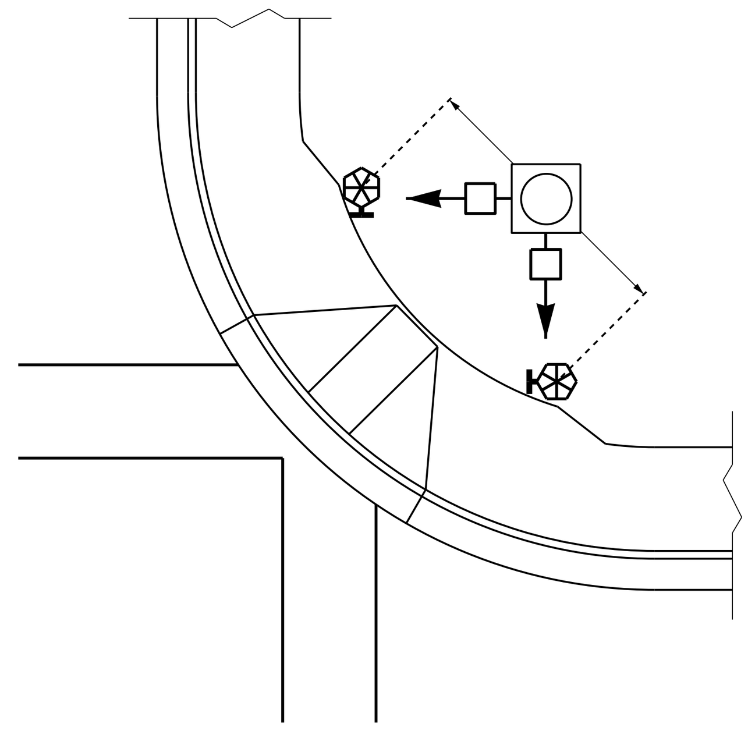
ENGLISH DETAIL DRAWING FOR

PEDESTRIAN PUSHBUTTON LOCATIONS

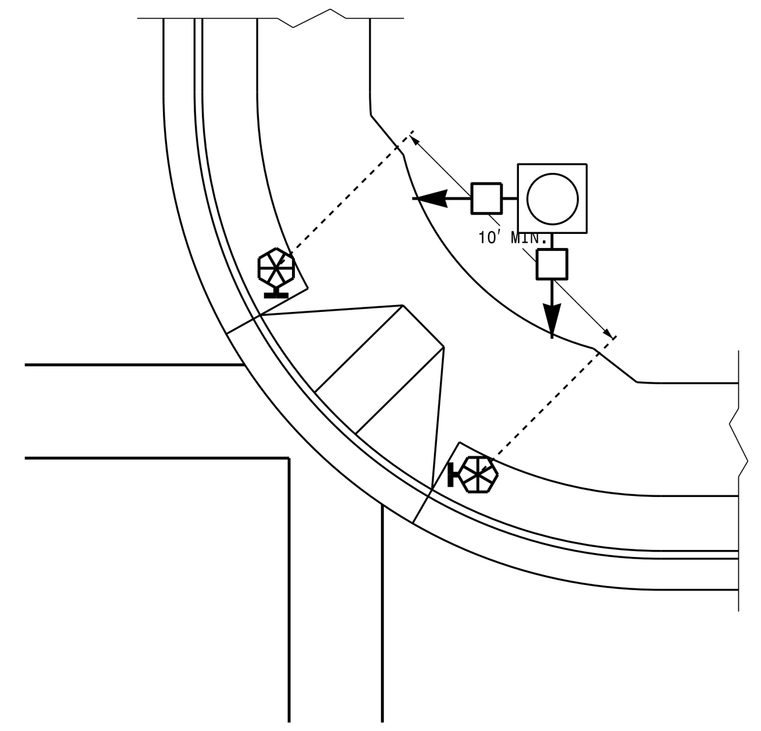
PLACEMENT DETAIL

TYPICAL PUSHBUTTON LOCATIONS (CASE III)

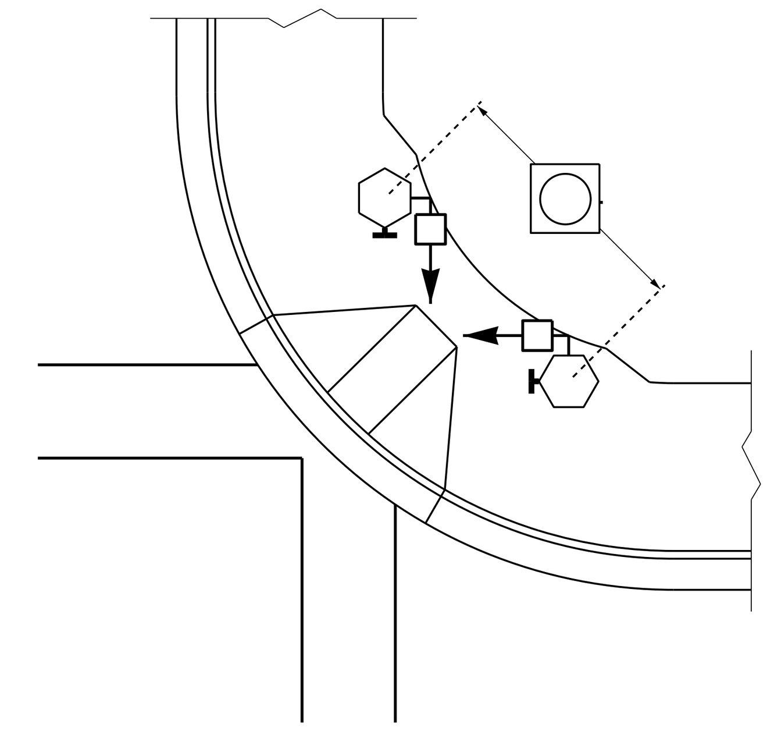
SHARED CURB RAMPS



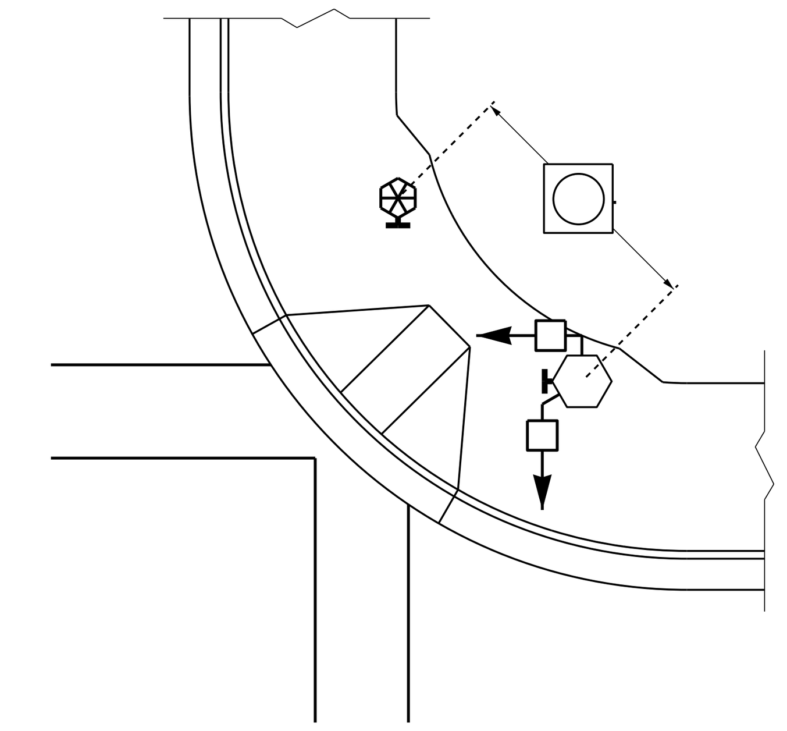
BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

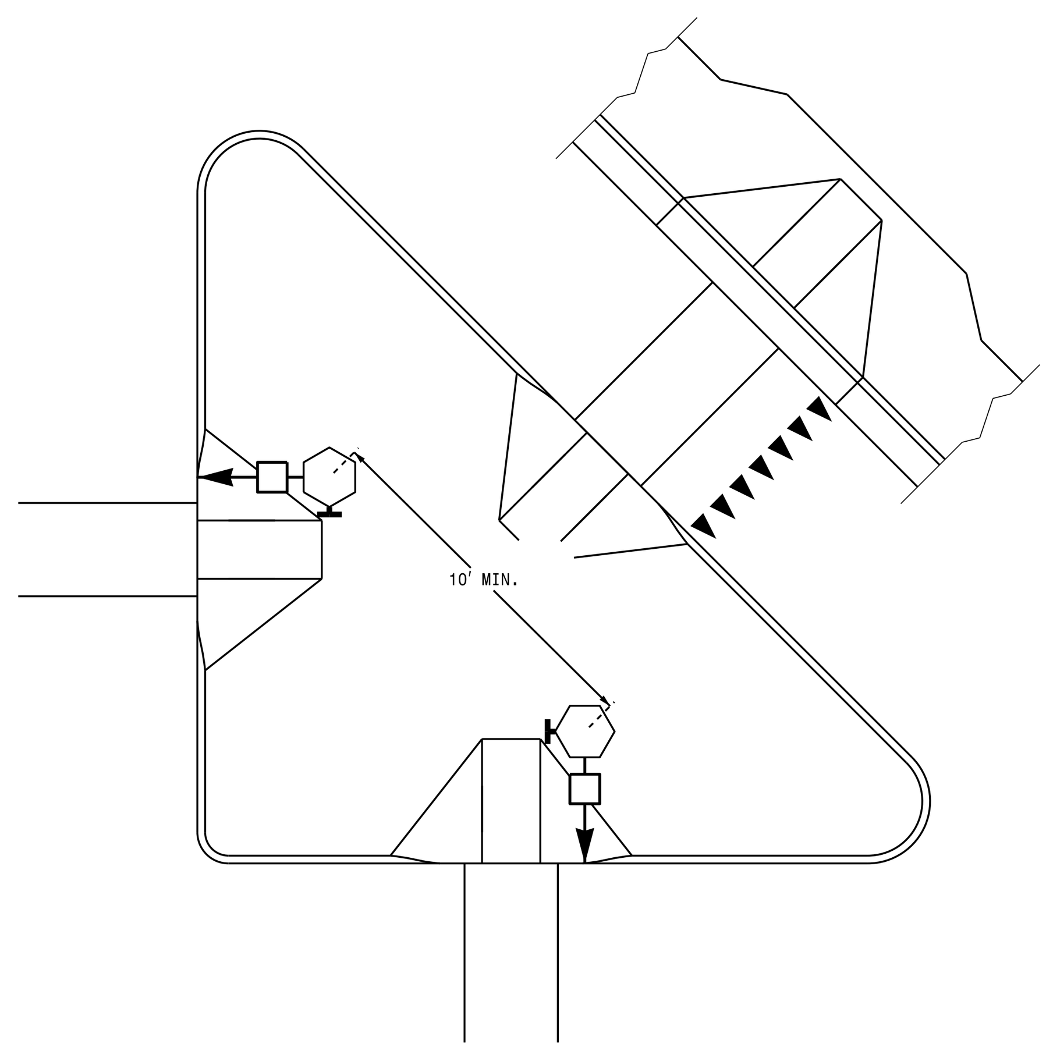


PUSHBUTTON PLACEMENT IN WIDE SIDEWALK (CORRESPONDING PUSHBUTTONS AND SIGNAL HEADS ON DIFFERENT PEDESTALS)

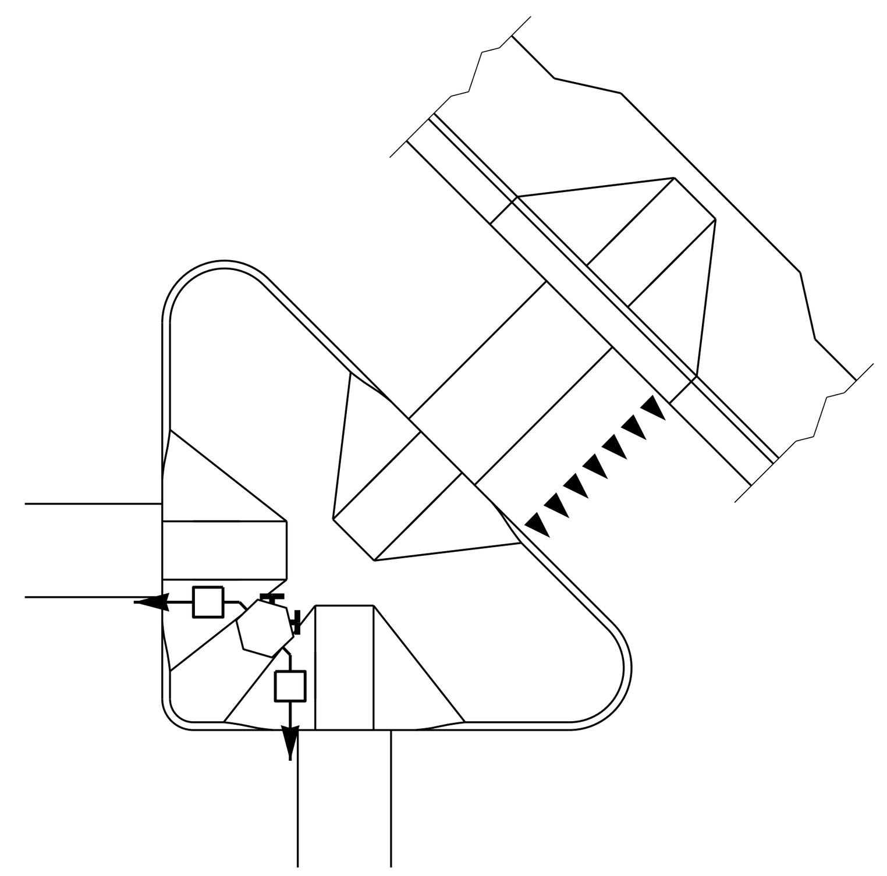


PUSHBUTTON PLACEMENT WITH SHARED TYPE II SIGNAL PEDESTAL AND TYPE I PUSHBUTTON POST

TRAFFIC ISLAND PUSHBUTTON LOCATIONS

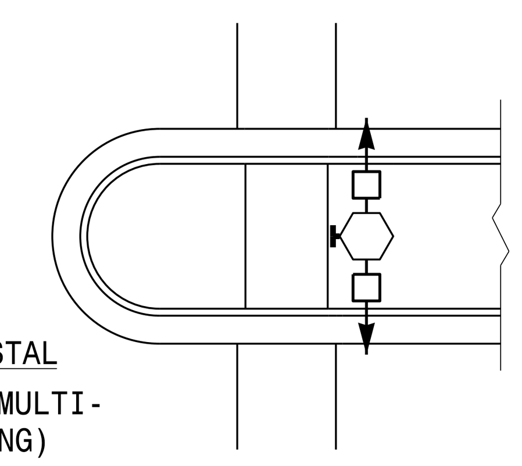


PUSHBUTTON PLACEMENT IN LARGE "PORK CHOP ISLAND" WITH SEPARATE PEDESTALS

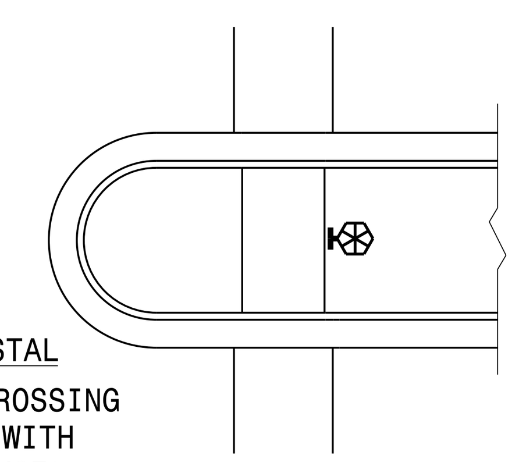


PUSHBUTTON PLACEMENT IN SMALL "PORK CHOP ISLAND" WITH SHARED PEDESTAL

PUSHBUTTON PLACEMENT IN MEDIAN



TYPE II PEDESTAL
(FOR STAGED OR MULTI-PHASE CROSSING)



TYPE I PEDESTAL
(FOR COMPLETE CROSSING CURB TO CURB WITH OPTIONAL REFUGE)

LEGEND

PROPOSED

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

SHEET 3 OF 3

1705D01

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SHEET 3 OF 3

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