

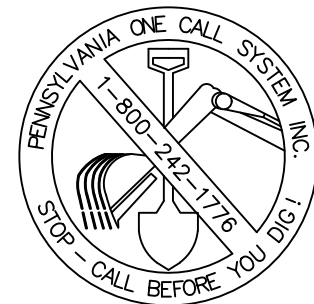
# SCIENCE PARK ROAD & SANDY DRIVE (NORTH)

## TRAFFIC SIGNAL CONSTRUCTION PLAN

### CONTRACT 2020-C18

### DECEMBER 20, 2023

### REVISED FEBRUARY 14, 2024



BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA I CALL 1-800-242-1776 NON-MEMBERS MUST BE CONTACTED DIRECTLY

**GENERAL UTILITY & ACT 38 INFORMATION:**

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

CONTRACTOR SHALL NOTIFY THE PA. ONE CALL SYSTEM NOT LESS THAN THREE (3) DAYS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PLACE THE CALL AND REFERENCE THE SERIAL NUMBER GIVEN AND PROVIDE AN APPROXIMATE DATE AND TIME THAT DIGGING WILL OCCUR. THE ONE CALL SYSTEM WILL AGAIN NOTIFY THE PUBLIC UTILITIES IN THE AREA. PUBLIC UTILITIES WILL THEN COORDINATE DIRECTLY WITH THE CONTRACTOR FOR ACTUAL FIELD LOCATIONS.  
PA. ONE CALL SYSTEM: PH. 1-800-242-1776  
SERIAL NO.: 20230293637, 20240082450

**SANITARY:** UNIVERSITY AREA JOINT AUTHORITY  
1576 SPRING VALLEY ROAD  
STATE COLLEGE, PA 16801  
PH: (814) 238-5361

**STORM:** FERGUSON TOWNSHIP  
3147 RESEARCH DRIVE  
STATE COLLEGE, PA 16801  
PH: (814) 238-4651

**WATER:** STATE COLLEGE BOROUGH WATER AUTHORITY  
1201 WEST BRANCH ROAD  
STATE COLLEGE, PA 16801  
PH: (814) 238-6766

**GAS:** COLUMBIA GAS OF PENNA. INC.  
2550 CAROLEAN INDUSTRIAL DRIVE  
STATE COLLEGE, PA 16801  
PH: (814) 278-5842; WEEKEND: (888) 460-4332

**ELECTRIC:** WEST PENN POWER COMPANY  
2800 EAST COLLEGE AVENUE  
STATE COLLEGE, PA 16801  
PH: (814) 231-5338/(800) 255-3443

**CABLE:** COMCAST  
250 REESE ROAD  
STATE COLLEGE, PA 16801  
PH: (814) 238-8510/(740) 773-4123

**PHONE:** VERIZON PENNSYLVANIA, INC.  
224 SOUTH ALLEN STREET  
STATE COLLEGE, PA 16801  
PH: (814) 231-6528; AFTER HOURS (800) 275-2355

**WINDSTREAM**  
441 SCIENCE PARK ROAD  
STATE COLLEGE, PA 16803  
PH: (814) 272-2685

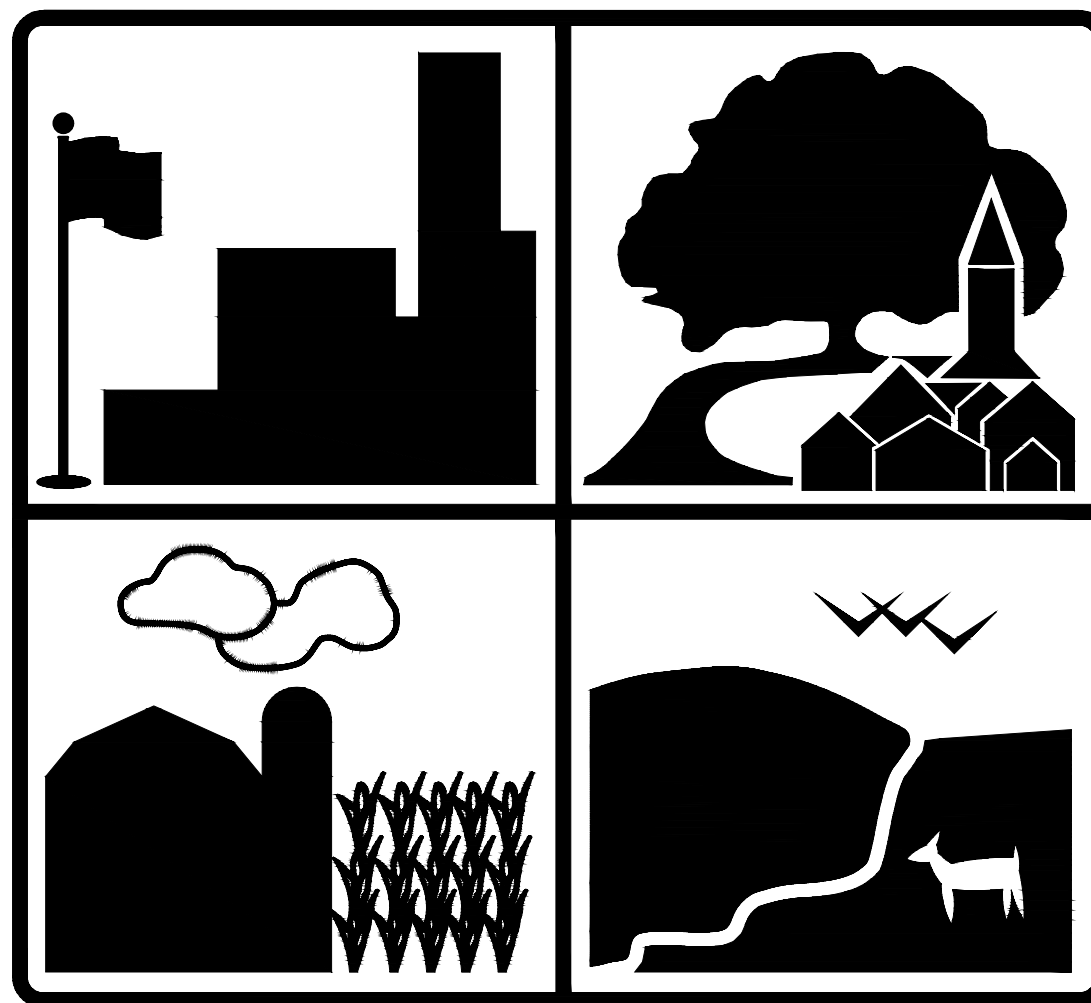
**ALLEGHENY COMMUNICATIONS CONNECT (FIBER)**  
100 BRUSH RUN ROAD  
GREENSBURG, PA 15601  
PH: (866) 463-8222

**FIRST ENERGY TELECOM SERVICES, INC.**  
2800 POTTSVILLE PIKE, P.O. BOX 15164  
READING, PA 19612-5164  
PH: (877) 611-2111

**ALL TEL COMMUNICATIONS**  
P.O. BOX 239  
WARRIORS MARK, PA 16877  
PH: (814) 632-3501

**PENN STATE TELECOMMUNICATIONS AND NETWORKING SERVICES**  
110 UNIVERSITY SUPPORT BUILDING 2  
UNIVERSITY PARK, PA 16802-1013  
PH: (814) 863-5419 (JIM REIGH)

## FERGUSON TOWNSHIP



## PUBLIC WORKS & ENGINEERING

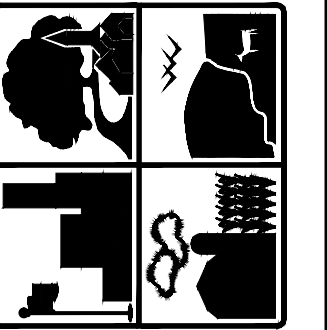
3147 RESEARCH DRIVE, STATE COLLEGE, PA 16801  
PH: 814-238-4651  
FAX: 814-238-3454  
WWW.TWP.FERGUSON.PA.US

DRAWING INDEX

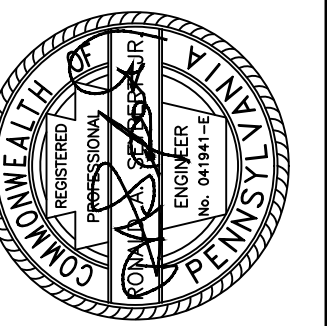
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- 15-16 SCIENCE PARK ROAD & OLD GATESBURG ROAD
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FERGUSON TOWNSHIP BOARD OF SUPERVISORS

LISA STRICKLAND	CHAIR
JEREMIE THOMPSON	VICE CHAIR
PATRICIA STEPHENS	BOARD MEMBER
MATTHEW HELLER	BOARD MEMBER
OMARI PATTERSON	BOARD MEMBER
CENTRICE MARTIN	SECRETARY, TOWNSHIP MANAGER



**FERGUSON TOWNSHIP**  
DEPT. OF PUBLIC WORKS & ENGINEERING  
3147 RESEARCH DRIVE  
STATE COLLEGE, PA 16801  
PHONE: 814-238-4651  
FAX: 814-238-3454  
www.twp.ferguson.pa.us



REV.	DATE	REVISION DESCRIPTION
1		

SCIENCE PARK ROAD AND SANDY DRIVE (NORTH)  
SIGNALS CONTRACT 2020-C18

DESIGNED BY: RAS	<b>1</b>
DRAWN BY: RAS	
CHECKED BY: RAS DATE: 12-20-2023	

**COVER**

**PROJECT NOTES:**

- OWNER: FERGUSON TOWNSHIP  
3147 RESEARCH DRIVE  
STATE COLLEGE, PA 16801  
(814) 238-4651
- ELEVATIONS AND HORIZONTAL CONTROL ARE BASED ON NAD83 Pennsylvania State Planes, North Zone, US Foot DATUM.  
CONTACT FERGUSON TOWNSHIP ENGINEERING DEPT. FOR PROJECT TRAVERSE POINT LOCATIONS/INFORMATION.
- RIGHT OF WAY
  - SCIENCE PARK ROAD: 60' PLUS 10' BIKE PATH EASEMENT (P75, PG198)
  - SANDY DRIVE (EAST): 60' PLUS 10' UTILITY & SIDEWALK EASEMENTS (P53, PG147)
  - SANDY DRIVE (WEST): 50'-62' (P41, PG61)

**UTILITY NOTES:**

- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY AND ARE BASED ON RECORDS OF THE VARIOUS FACILITY OWNERS AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE UTILITY INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST NOTIFY THE PA ONE-CALL SYSTEM AT LEAST 3 DAYS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
- THE CONTRACTOR SHALL DIG TEST PITS AT EXISTING CONFLICTS SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT PLAN REVISIONS AS REQUIRED.
- ALL EXISTING ON-SITE UTILITIES SHALL REMAIN FUNCTIONAL UNLESS DESIGNATED FOR REMOVAL OR ABANDONMENT.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE RELOCATION OF ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- NO UTILITY SERVICE MAY BE DISCONNECTED WITHOUT PRIOR APPROVAL OF THE OWNERS REPRESENTATIVE.

**CONSTRUCTION NOTES:**

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING PUBLICATIONS:  
FERGUSON TOWNSHIP CHAPTER 21 - "STREETS AND SIDEWALKS"  
FERGUSON TOWNSHIP CHAPTER 26 - "WATER (STORMWATER MANAGEMENT)"  
PENNDOT PUBLICATION 408 / 2020 (CHANGE No. 7)  
PENNDOT PUBLICATIONS 34, 35, 37, AND 38 (APPROVED CONSTRUCTION MATERIALS)  
PENNDOT PUBLICATION 72M - STANDARDS FOR ROADWAY CONSTRUCTION  
PENNDOT PUBLICATION 213M - WORK ZONE TRAFFIC CONTROL  
PENNDOT PUBLICATION 70M - GUIDELINES FOR DESIGN OF LOCAL ROADS AND STREETS  
PENNDOT PUBLICATION 111M - TC 8600 PAVEMENT MARKINGS AND SIGNING STANDARDS  
PENNDOT PUBLICATION 111M - TC 8700 TRAFFIC SIGNING STANDARDS  
PENNDOT PUBLICATION 236M - HANDBOOK OF APPROVED SIGNS  
PENNDOT PUBLICATION 13M - DESIGN MANUAL 2 - HIGHWAY DESIGN  
PENNSYLVANIA CODE, TITLE 67, CHAPTERS 441 AND 459  
PENNDOT PUBLICATION 148 - TC 8800 TRAFFIC STANDARDS
- CONSTRUCTION STANDARDS:  
CONSTRUCTION DETAILS, OTHER THAN THOSE INDICATED ON THE PLAN, ARE ON THE FOLLOWING PENNDOT PUBLICATIONS 72M  
STANDARD DRAWINGS: (64M, 67M, 81M)  
64M - CURBS AND GUTTERS  
67M - CURB RAMPS AND SIDEWALKS  
81M - HIGHWAY LIGHTING-JUNCTION BOXES LIGHT-DUTY

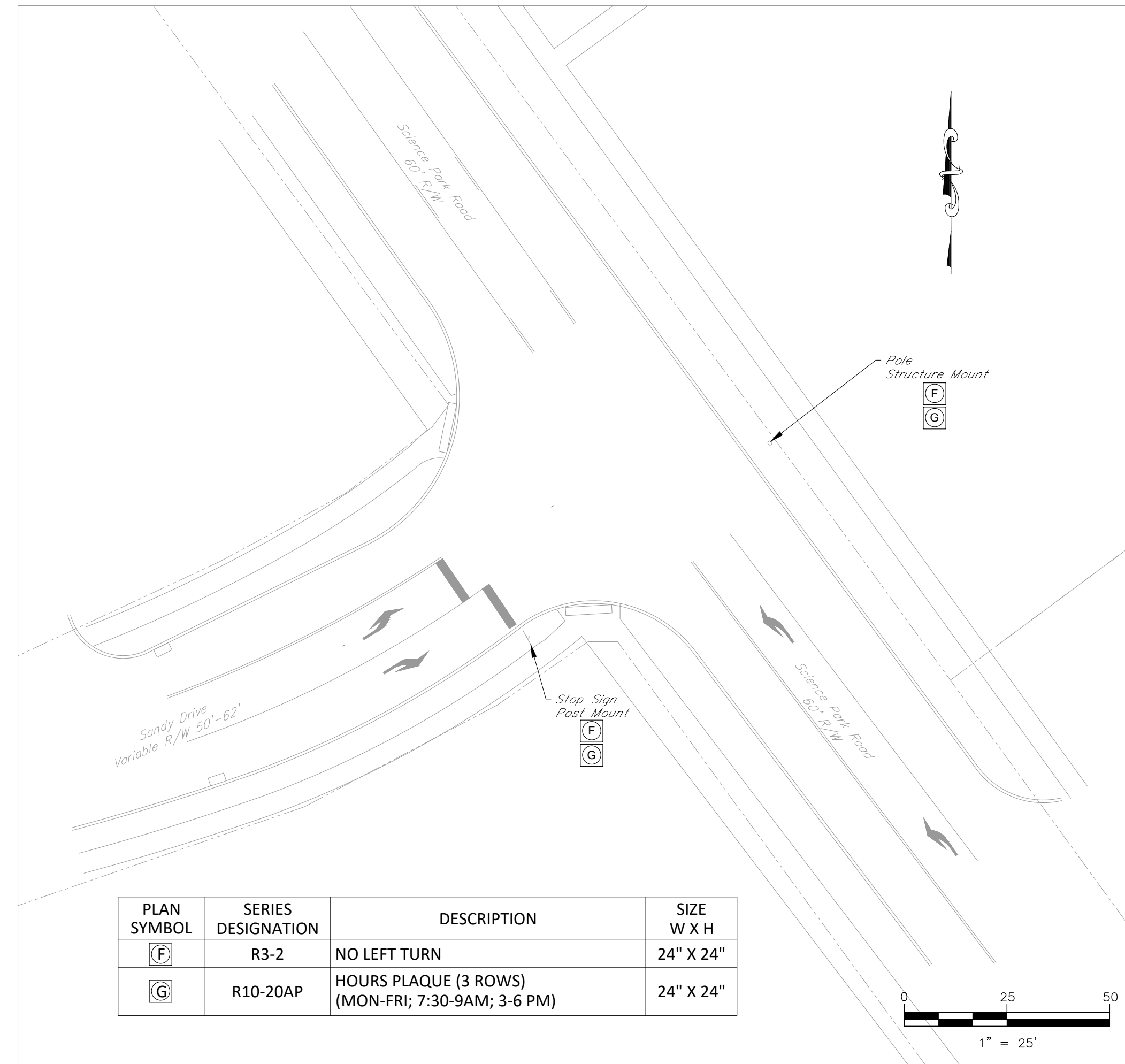
**TRAFFIC CONTROL NOTES:**

- MAINTAIN TRAFFIC IN ACCORDANCE WITH THE LATEST EDITION OF PENNDOT PUBLICATION 213M (67 PA CODE, CH. 212)  
WORK ZONE TRAFFIC CONTROL GUIDELINES.
- PROVIDE FLAGGERS AT INTERSECTIONS DURING LANE CLOSURES.
- SHORT-TERM WORK ZONE TRAFFIC CONTROL SHALL BE REMOVED AT THE END OF EACH WORK DAY.
- DO NOT HAVE TRAVEL LANE DROP-OFFS/OPEN EXCAVATIONS DURING NON-WORKING HOURS.
- THE POSTED SPEED LIMIT ON SCIENCE PARK ROAD IS 35 MPH.
- THE POSTED SPEED LIMIT ON SANDY DRIVE IS 25 MPH.
- PROVIDE ORANGE REFLECTIVE FENCING WITH DELINEATION DEVICES AROUND AREAS OF OPEN EXCAVATION TO DELINEATE FOR PEDESTRIAN TRAFFIC.
- PROVIDE CHANNELIZING DEVICES AS NEEDED TO CLEARLY DELINEATE TRAVEL LANE AND ACCESS TO DRIVEWAYS.
- PROVIDE AN APPROPRIATE NUMBER OF FLAG PERSONS AS NEEDED BASED UPON LIMIT OF WORK AREA.
- NO LANE CLOSURES ON SCIENCE PARK ROAD BETWEEN 7-9 AM OR 3-6 PM.



**PROJECT LOCATION MAP**

1"=2000'

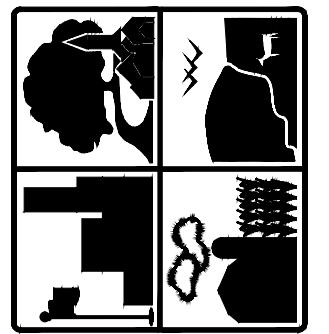


PLAN SYMBOL	SERIES DESIGNATION	DESCRIPTION	SIZE W X H
F	R3-2	NO LEFT TURN	24" X 24"
G	R10-20AP	HOURS PLAQUE (3 ROWS) (MON-FRI; 7:30-9AM; 3-6 PM)	24" X 24"

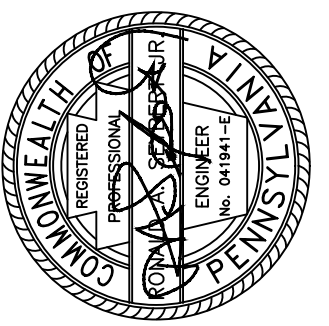
**SANDY DRIVE (SOUTH)  
SIGN LOCATIONS**

**LEGEND**

- Existing Text
- Existing Control Point
- Gas Wire
- Utility Pole
- Road Sign
- Manhole
- Water Valve
- Gas Valve
- Mailbox
- Fire Hydrant
- Light Post
- Clean Out
- Bollard
- Shrub
- Evergreen Tree
- Deciduous Tree
- Fence
- Right-of-Way Line
- Easement Line
- Property Line
- Water Line
- Storm Sewer
- Sanitary Sewer
- Underground Electric
- Overhead Electric
- Underground Telecomm
- Gas Line
- Major Contour
- Minor Contour



**FERGUSON TOWNSHIP**  
DEPT. OF PUBLIC WORKS & ENGINEERING  
3147 RESEARCH DRIVE  
STATE COLLEGE, PA 16801  
PHONE: 814-238-4651  
FAX: 814-238-3454  
www.twp.ferguson.pa.us



REV.	DATE	REVISION DESCRIPTION

SCIENCE PARK ROAD AND SANDY DRIVE (NORTH)  
SIGNALS CONTRACT 2020-C18

**GENERAL NOTES &  
PROJECT LOCATION**

DESIGNED BY: RAS  
DRAWN BY: RTS  
CHECKED BY: RAS  
DATE: 12-20-2023

PATH:\PUBLIC WORKS\STAFF\CAPITAL PROJECTS\2020 PROJECTS\2020-C18 SCIENCE PARK & SANDY NORTH SIGNAL DESIGN\DWG SHEETNOTES.SAVED:2/15/2024 4:13 PM















DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
2-0	CENTRE	LOCAL		9 OF 18	
FERGUSON TOWNSHIP					
REVISION NUMBER	REVISIONS			DATE	BY
1	REVISED PER PENNDOT REVIEW OF 2-7-24			2-14-24	RAS

### PHASING DIAGRAM

SIGNAL	PHASE 2+6					PHASE 4+8					EMERGENCY FLASHING
	1	2	3	4	5	1	2	3	4	5	
1,2	R	G	G	Y	R	R	R	R	R	R	Y
3,4	R	G	G	Y	R	R	R	R	R	R	Y
5,6	R	R	R	R	R	R	G	G	Y	R	R
7,8	R	R	R	R	R	R	G	G	Y	R	R
9,10 (**)	W	W	FD	DW	DW	DW	DW	DW	DW	DW	OFF
11,12 (**)	W	W	FD	DW	DW	DW	DW	DW	DW	DW	OFF
13,14 (**)	DW	DW	DW	DW	DW	W	W	FD	DW	DW	OFF
15,16 (**)	DW	DW	DW	DW	DW	W	W	FD	DW	DW	OFF
FIXED			4	2				3	3		
MIN GREEN		8						3			
PASSAGE		1.5						3			
MAX 1		63						25			
CYCLE 1 (*)			69					31			
CYCLE 2 (*)			74					31			
PEDESTRIAN (**)	5	2	15			5	2	15			
MEMORY		MIN RECALL						NON-LOCKING			

### COORDINATING DIAGRAM

PLAN NO.	DAY OF WEEK							TIME	CYCLE (SEC)	OFFSET (SEC) *	REMARKS
	S	M	T	W	T	F	S				
1								0:00	-	-	MAX 1
2								7:30	100	89	CYCLE 1
1								9:00	-	-	MAX 1
3								15:00	105	7	CYCLE 2
1								18:00	-	-	MAX 1

### ATSPM DETECTOR MAPPING TABLE

DETECTOR TYPE	DETECTOR SIZE / LOCATION FROM STOP BAR	PHASE / ZONE (DETECTOR  )								
		2	5	4	7	6	1	8	3	
PRESENCE	50' x 10' @ 40'	17-18 (1)	-	25-26 (2)	-	33-34 (3)	-	41-42 (4)	-	-
COUNT	6' x 10' @ -20'	19-20 (1)	-	27-28 (2)	-	35-36 (3)	-	43-44 (4)	-	-
PULSE ADVANCE	6' @ 400'	21 (5)	-	-	-	37 (6)	-	-	-	-
DILEMA ZONE	CONTINUOUS @ 450'	22 (5)	-	-	-	38 (6)	-	-	-	-
PEDESTRIAN	PB	49	21-22	50	41-42	51	61-62	52	81-82	

### CONSTRUCTION NOTES:

- IMMEDIATELY PRIOR TO TURNING ON SIGNAL, REMOVE CONFLICTING VEHICLE STOP SIGNS ON SANDY DRIVE, BIKE STOP SIGNS ALONG SHARED USE PATH, AND STREET NAME SIGN. PROVIDE ALL SIGNS, POSTS, AND ANCHORS TO FERGUSON TOWNSHIP. INCIDENTAL TO PROJECT.
- IMMEDIATELY PRIOR TO TURNING ON SIGNAL, INSTALL TURN RESTRICTION SIGNS AT SCIENCE PARK ROAD AND SANDY DRIVE (SOUTH).
- PER PUBLICATION 408, SECTION 950.3 FOR LOCATIONS PRESENTLY UNSIGNALIZED, FLASH SIGNALS FOR A PERIOD OF 3 TO 7 DAYS BEFORE FULL OPERATION. SIGNAL FULL OPERATION TO START ON A TUESDAY, WEDNESDAY, OR THURSDAY.
- COORDINATE WITH UTILITY COMPANIES TO HAVE THE UTILITY COMPANIES RELOCATE OR ADJUST THEIR JUNCTION BOXES LOCATED IN THE SIDEWALK AT STA. 72+96, OFFSET 36' RT

SIGNAL NOTES:  
 (\*) TIME EQUALS TOTAL LENGTH OF PHASE.  
 (\*\*) WALK SYMBOL AND TIMES UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE DON'T WALK AT ALL TIMES.

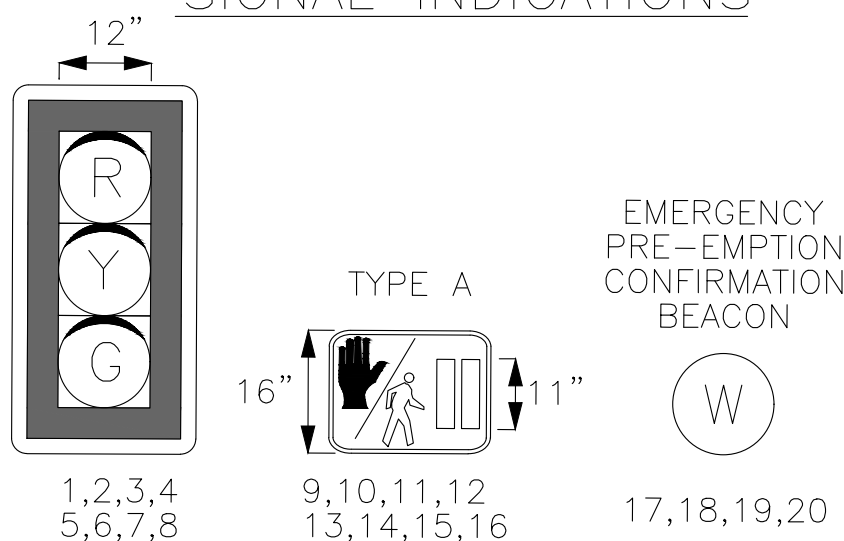
### PRESENCE DETECTION ZONE NOTES:

RANGE OF DETECTION: MINIMUM 30 - MAXIMUM 100 FEET FROM STOP BAR  
 MINIMUM SPEED BOUNDARY - 1 MPH ZONE MAY BE ADJUSTED IN FIELD.

### ADVANCE DILEMMA ZONE NOTES:

ESTIMATED TIME OF ARRIVAL: MINIMUM 2.5 SECONDS - MAXIMUM 5.5 SECONDS. RANGE OF DETECTION: MINIMUM 3 FEET - MAXIMUM 450 FEET FROM THE STOP BAR. MINIMUM SPEED BOUNDARY 10 MPH. ZONE MAY BE ADJUSTED IN THE FIELD.

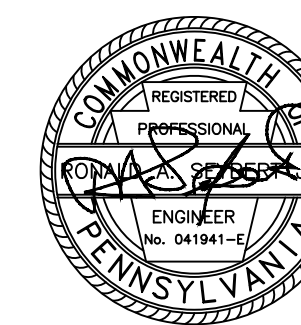
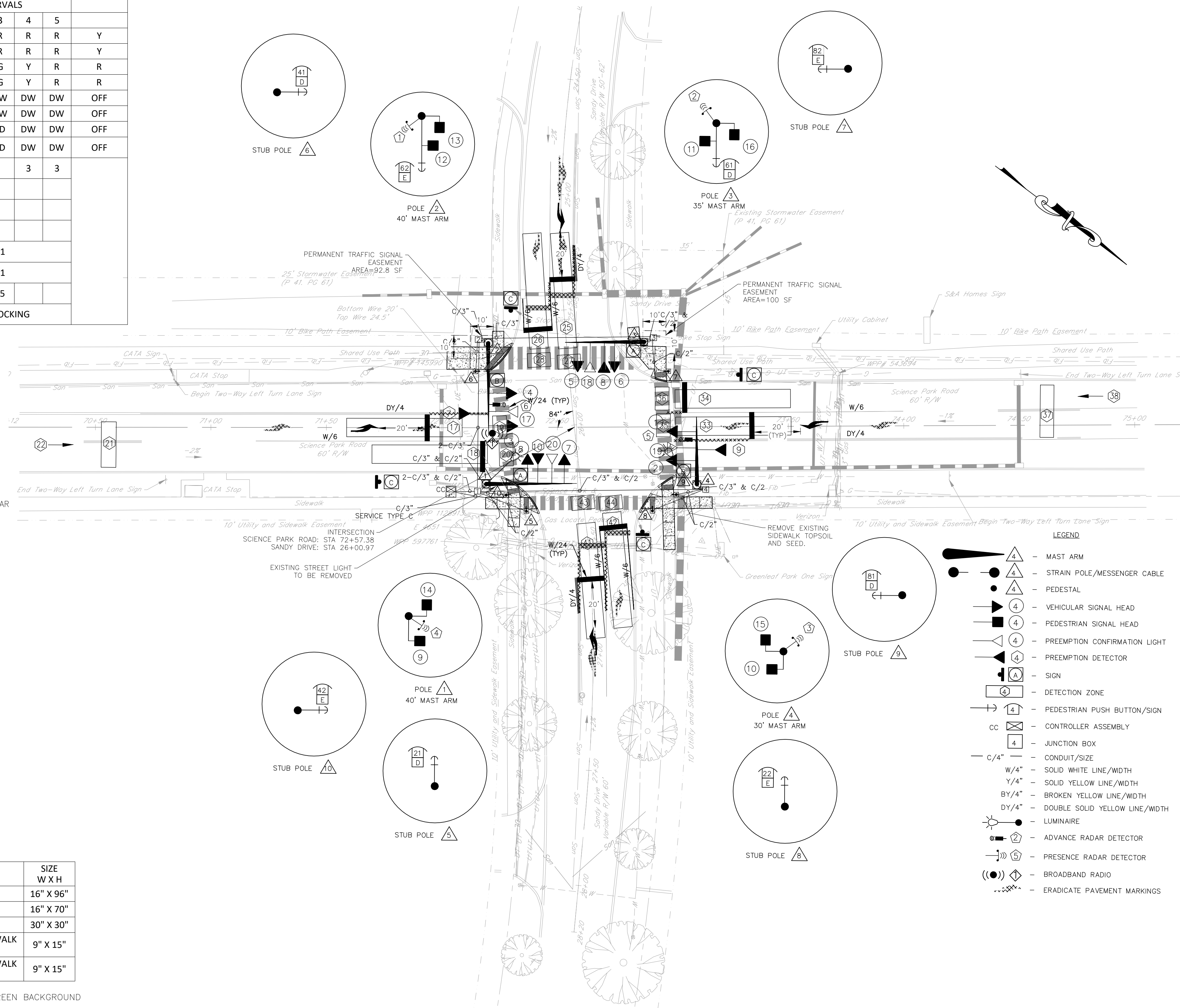
### SIGNAL INDICATIONS



### SIGN TABLE

PLAN SYMBOL	SERIES DESIGNATION	DESCRIPTION	SIZE W X H
(A)	D3-4	SCIENCE PARK RD	16" X 96"
(B)	D3-4	SANDY DRIVE	16" X 70"
(C)	R3-8(L-SR)	LANE USE CONTROL SIGN (L-SR)	30" X 30"
(D)	R10-3E-L	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER	9" X 15"
(E)	R10-3E-R	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER	9" X 15"

NOTE: SIGNS A AND B SHALL HAVE WHITE LEGEND ON A GREEN BACKGROUND



### TRAFFIC SIGNAL PLAN

COUNTY : CENTRE  
 MUNICIPALITY : FERGUSON TOWNSHIP  
 INTERSECTION : SCIENCE PARK ROAD (T-336)  
AND SANDY DRIVE (T-306)

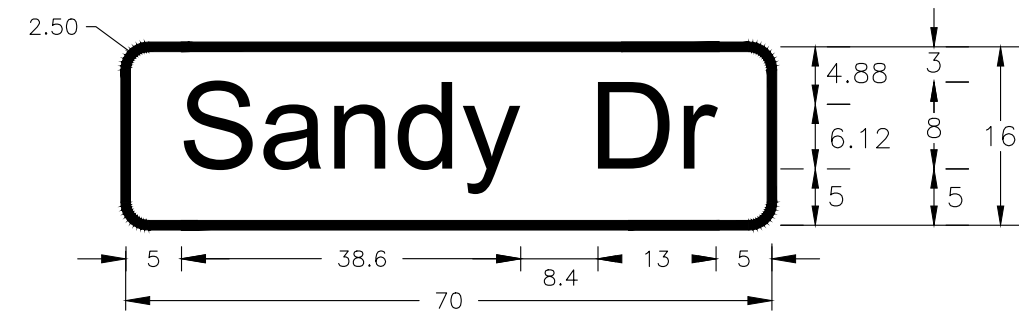
APPROVED BY:   
 MUNICIPAL OFFICIAL 12/20/2023  
DATE

RECOMMENDED : \_\_\_\_\_  
 DISTRICT TRAFFIC ENGINEER DATE

SCALE :

EMERGENCY VEHICLE PRE-EMPTION NOTES

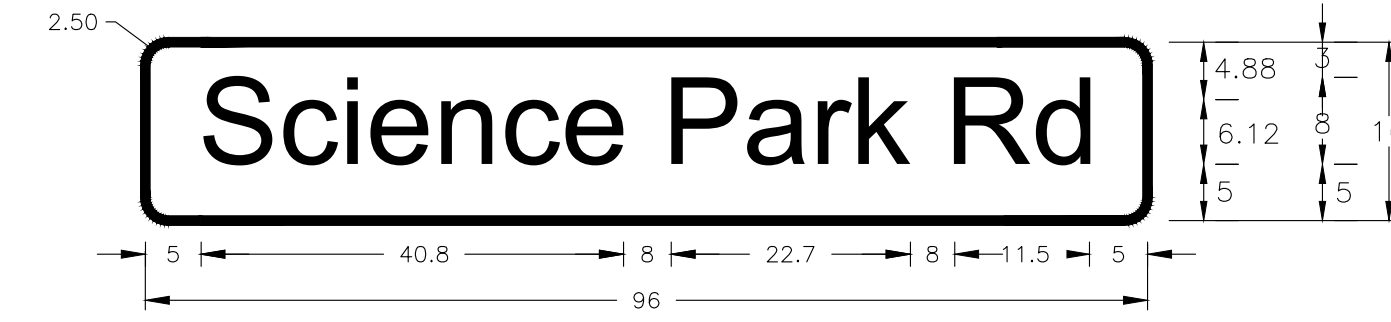
NORMAL TRAFFIC SIGNAL OPERATION SHALL ONLY BE PRE-EMPTED BY EMERGENCY VEHICLES RESPONDING TO EMERGENCY CALLS. EMERGENCY PRE-EMPTION SHALL BE PROVIDED ON A FIRST-COME, FIRST-SERVE BASIS. ONCE THE FIRST PRIORITY EMERGENCY VEHICLE CALLS THE SYSTEM, IT SHALL PREVENT OTHER PRE-EMPTIVE VEHICLES FROM ENTERING CALLS UNTIL THE FIRST EMERGENCY VEHICLE RELEASES CONTROL AND CLEARS THE INTERSECTION. EMERGENCY VEHICLE PRE-EMPTION MAY OCCUR DURING ANY INTERVAL OF THE NORMAL CONTROLLER OPERATION. PROVIDE EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT IN THE CONTROLLER CABINET CAPABLE OF DISPLAYING APPROACH CONTROL OPERATION. DEPENDING ON THE DIRECTION OF TRAVEL OF THE EMERGENCY VEHICLE, ONE OF THE FOLLOWING PHASES SHALL BE DISPLAYED: PHASE 2, PHASE 6, PHASE 4 OR PHASE 8. PROVIDE THE FOLLOWING SEQUENCE UPON ACTIVATION BY AN EMERGENCY VEHICLE. IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A NON-PRE-EMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING WALK INDICATION AND PROCEED THROUGH THE FLASHING DON'T WALK INTERVAL, THE YELLOW AND ALL RED INTERVALS BEFORE PROCEEDING TO THE PRE-EMPTION PHASE GREEN. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL. IF THE CONTROLLER IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A NON-PRE-EMPTIVE PHASE, THE CONTROLLER SHALL TIME OUT THE INTERVAL BEFORE PROCEEDING THROUGH THE YELLOW AND ALL-RED CLEARANCE INTERVALS. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL. IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A PRE-EMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PRE-EMPTION PHASE AND IMMEDIATELY TERMINATE THE WALK INDICATION AND PROCEED TO THE FLASHING DON'T WALK INTERVAL TIME. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME, ANY CONFLICTING GREEN INDICATION WILL BE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS. IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A PRE-EMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PRE-EMPTION PHASE, EXCEPT THE FLASHING DON'T WALK SHALL TIME OUT. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME, ANY CONFLICTING GREEN INDICATION WILL BE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS. IF THE CONTROLLER OPERATION IS IN THE YELLOW, YELLOW ARROW OR RED CLEARANCE INTERVAL OF ANY PHASE, THE CONTROLLER SHALL TIME OUT THOSE INTERVALS NORMALLY BEFORE PROCEEDING TO THE PRE-EMPTION PHASE GREEN. UPON TERMINATION OF THE PRE-EMPTION, THE SIGNAL SHALL RETURN TO NORMAL OPERATION. UPON TERMINATION OF THE PREEMPTION, THE SIGNAL SHALL RETURN TO NORMAL OPERATION. IF EMERGENCY VEHICLE PRE-EMPTION OCCURS WHEN THE TRAFFIC SIGNALS ARE IN CONFLICTING/TIME CLOCK FLASHING OPERATION, THE NORMAL FLASHING OPERATION SEQUENCE, AS SHOWN IN THE PHASING DIAGRAM, SHALL CONTINUE. WHEN THE PRE-EMPTION SIGNAL HAS BEEN ACCEPTED, THE FAIL-SAFE INDICATION SHALL BE DISPLAYED IMMEDIATELY ON THE PRE-EMPTED APPROACH IN THE FORM OF A FLASHING WHITE LIGHT. THE FAIL-SAFE INDICATION SHALL CONTINUE TO FLASH FOR THE DURATION OF THE PRE-EMPTION PHASE. NO FAIL-SAFE INDICATION SHALL BE GIVEN DURING FLASHING OPERATION.



2.50" RADIUS, 0.80" BOARDER, WHITE ON GREEN; "Sandy Dr", CLEARVIEWHWY-2-W

	S	a	n	d	y		D	r	
5.0	7.8	8.5	8.2	7.9	6.2	8.4	9.3	3.7	5.0

DETAIL B NOT TO SCALE

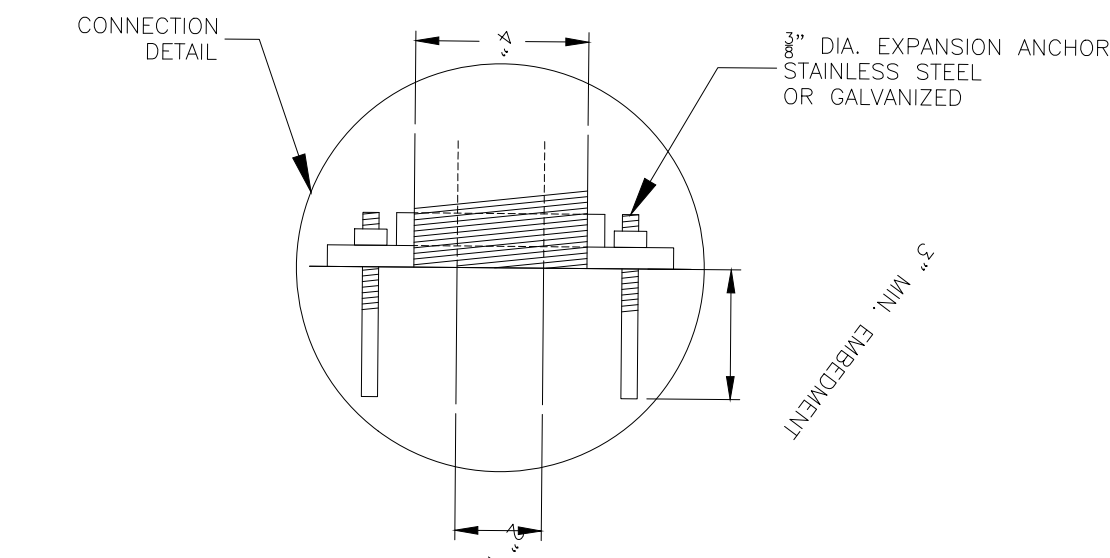
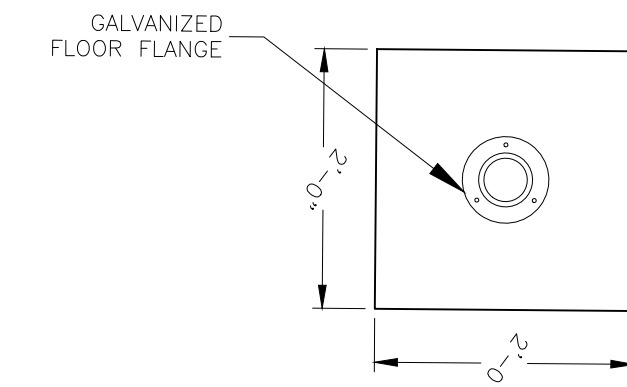
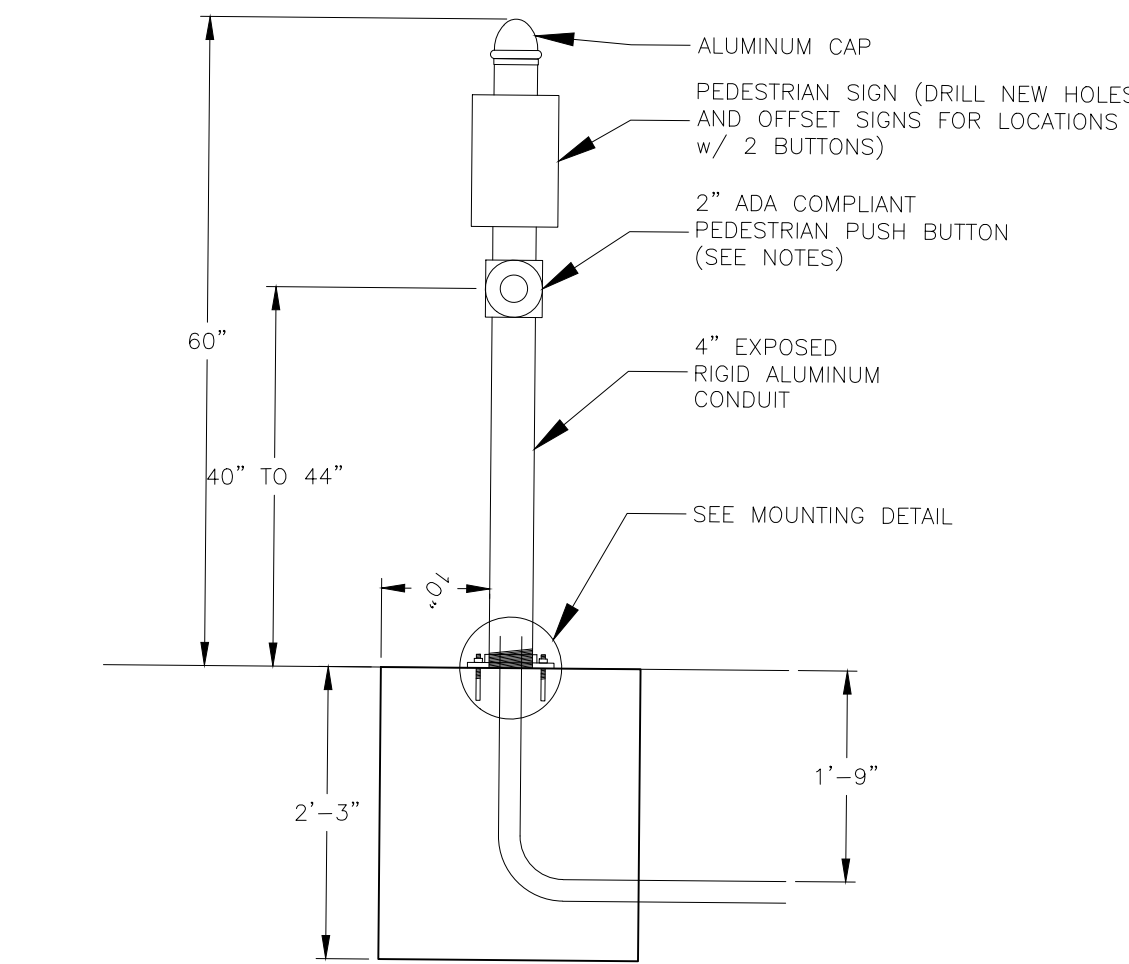


2.50" RADIUS, 0.80" BOARDER, WHITE ON GREEN; "Science Park Rd", CLEARVIEWHWY-2-W 81% SPACING;

	S	c	i	e	n	c	e		P	a	r	k		R	d	
5.0	6.5	6.2	3.8	7.0	6.6	6.0	4.8	8.0	6.3	6.9	4.9	4.6	8.0	6.8	4.7	5.0

DETAIL A NOT TO SCALE

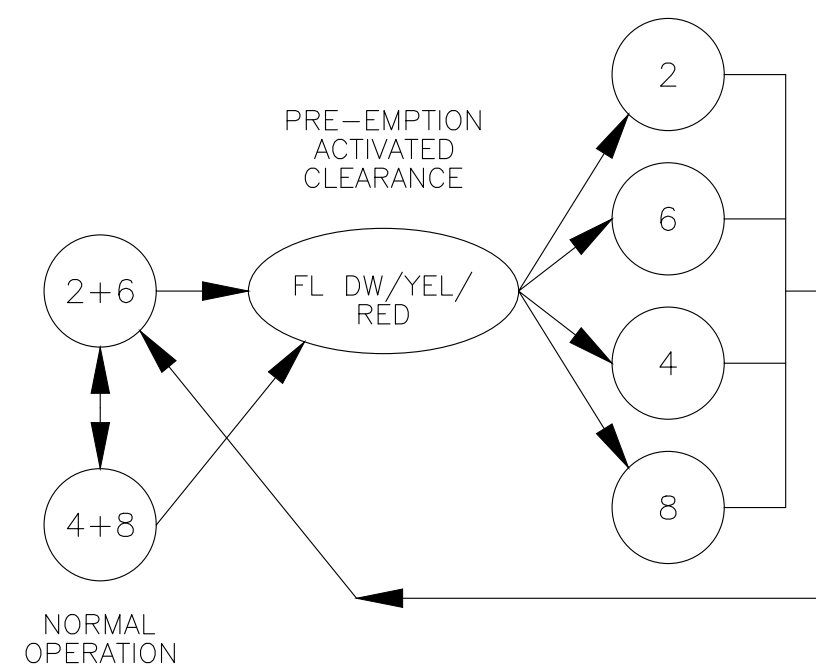
TYPE B MODIFIED



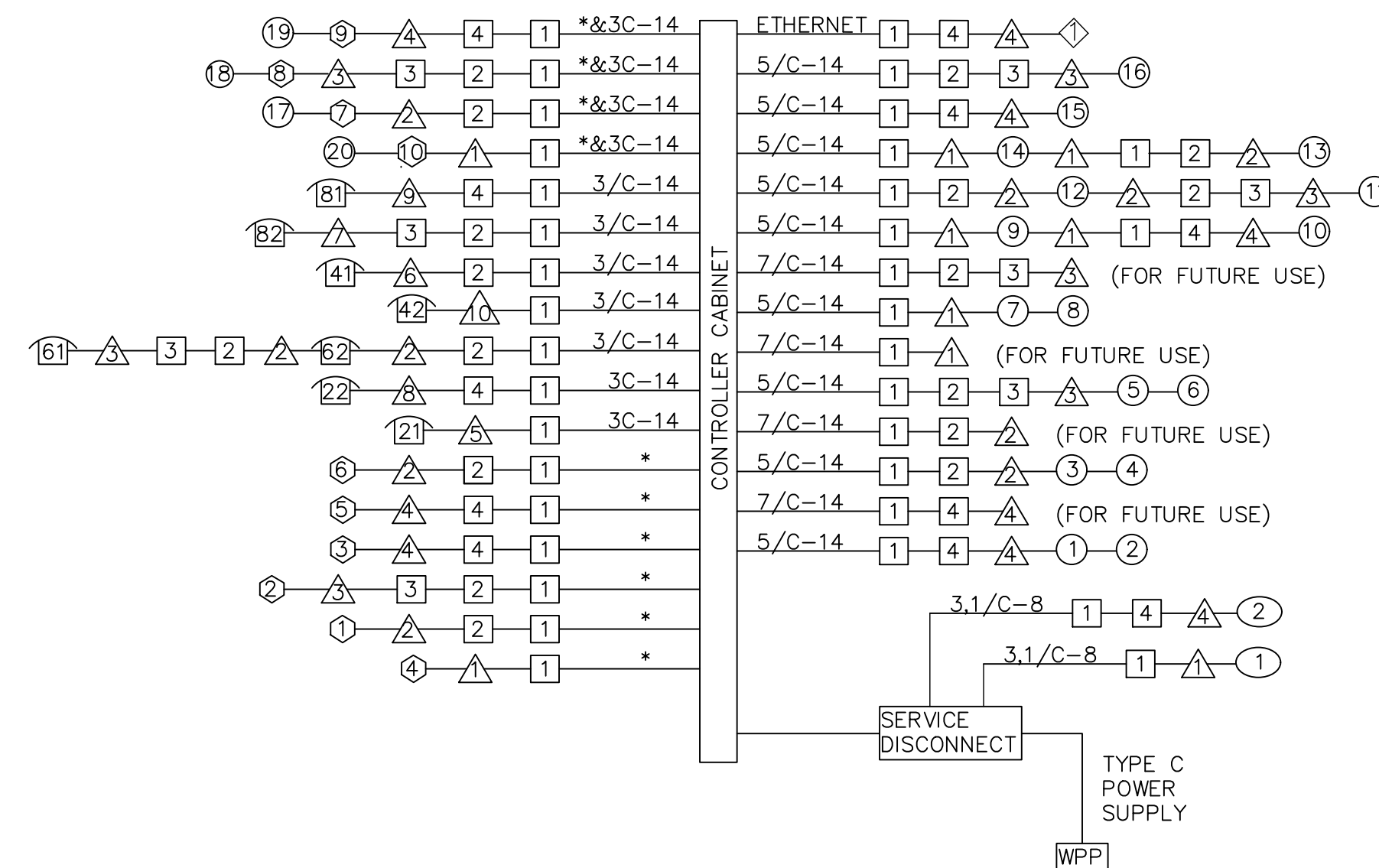
FLANGE PLATE MOUNTING DETAIL TYPE B AND E NOT TO SCALE

NOTE: MOUNT PEDESTRIAN PUSH BUTTON BETWEEN 40" TO 44" ABOVE TOP OF SIDEWALK OR FINISHED GRADE TO THE EXPOSED CONDUIT AND LATERALLY 10" MAX FROM LEVEL LANDING. PEDESTRIAN PUSH BUTTON EXTENSION ARM TYPICALLY MEASURES UP TO 3". MAX LENGTH OF EXTENSION ARMS MEASURING BETWEEN 3" TO 12" REQUIRE DISTRICT APPROVAL PRIOR TO INSTALLATION.

PRE-EMPTION OPERATION APPROACH CONTROL PHASING



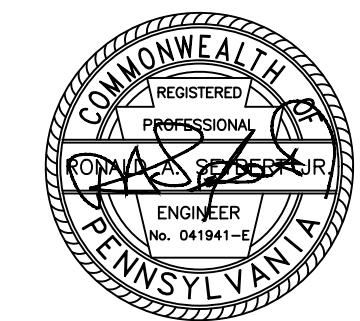
EMERGENCY VEHICLE PRE-EMPTION SEQUENCE



WIRING DIAGRAM

- LEGEND:
- \* PER MANUFACTURER
  - 1 JUNCTION BOX
  - △ SIGNAL POLE
  - ② SIGNAL INDICATION
  - ① DETECTOR
  - ◇ BROADBAND RADIO
  - ②② PEDESTRIAN PUSH BUTTON
  - ① LUMINAIRE

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
2-0	CENTRE	LOCAL		10 OF 18
FERGUSON TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	
1	REVISED PER PENNDOT REVIEW OF 2-7-24	2-14-24	RAS	



TRAFFIC SIGNAL PLAN

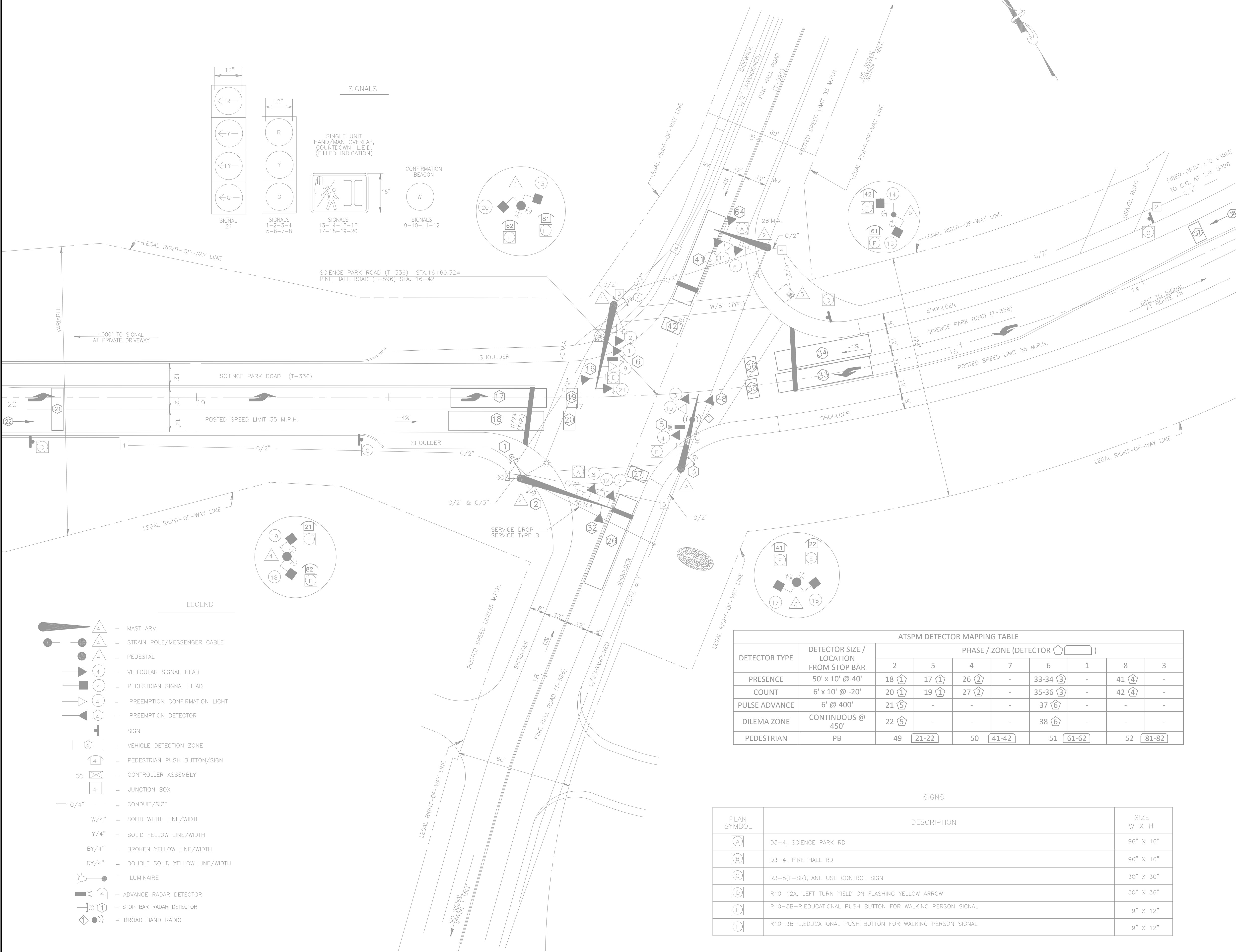
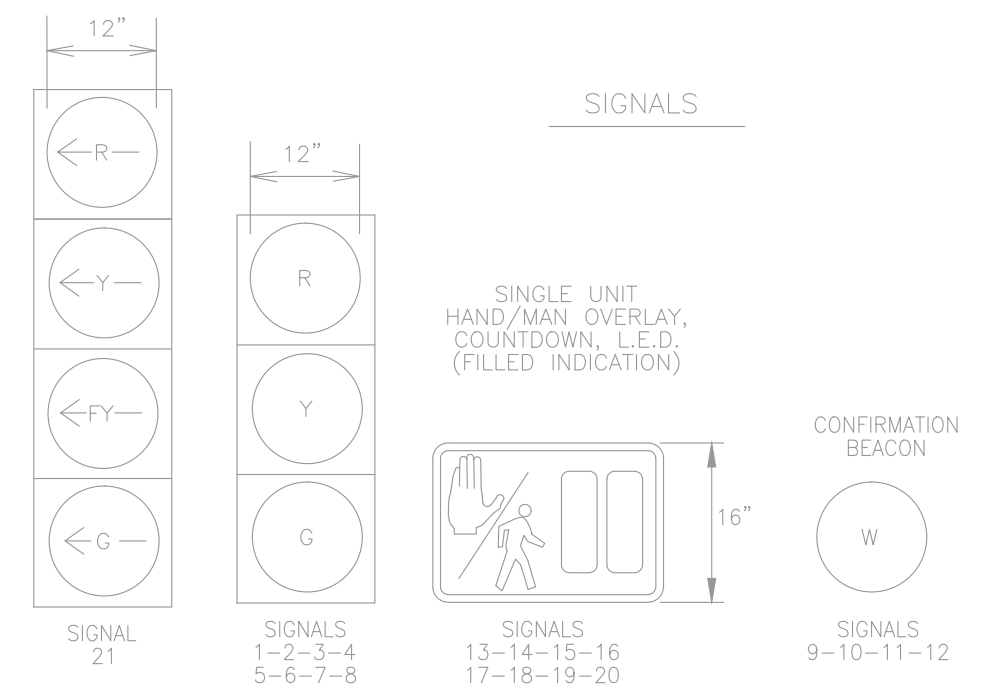
COUNTY : CENTRE  
 MUNICIPALITY : FERGUSON TOWNSHIP  
 INTERSECTION : SCIENCE PARK ROAD (T-336) AND SANDY DRIVE (T-306)

APPROVED BY: *[Signature]* 12/20/2023  
 MUNICIPAL OFFICIAL DATE

RECOMMENDED :  
 DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0 25 50 75

NOTE:  
 -EQUIP ALL VEHICULAR SIGNALS WITH TUNNEL VISORS.  
 -EQUIP SIGNALS 1,2,3,4 AND 21 WITH BACK PLATES AND REFLECTORIZED TAPE.  
 -EQUIP ALL VEHICULAR SIGNAL INDICATIONS WITH L.E.D. MODULES.  
 -EQUIP ALL PEDESTRIAN SIGNAL MAN/HAND INDICATIONS WITH L.E.D. MODULES.

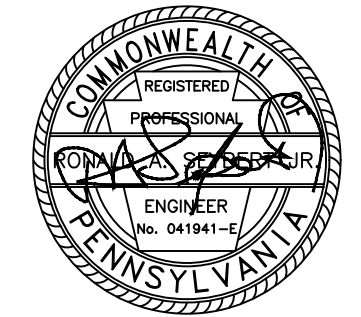


LEGEND

- MAST ARM
- STRAIN POLE/MESSENGER CABLE
- PEDESTAL
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PREEMPTION CONFIRMATION LIGHT
- PREEMPTION DETECTOR
- SIGN
- VEHICLE DETECTION ZONE
- PEDESTRIAN PUSH BUTTON/SIGN
- CONTROLLER ASSEMBLY
- JUNCTION BOX
- CONDUIT/SIZE
- SOLID WHITE LINE/WIDTH
- SOLID YELLOW LINE/WIDTH
- BROKEN YELLOW LINE/WIDTH
- DOUBLE SOLID YELLOW LINE/WIDTH
- LUMINAIRE
- ADVANCE RADAR DETECTOR
- STOP BAR RADAR DETECTOR
- BROAD BAND RADIO

DETECTOR TYPE	DETECTOR SIZE / LOCATION FROM STOP BAR	PHASE / ZONE (DETECTOR  )							
		2	5	4	7	6	1	8	3
PRESENCE	50' x 10' @ 40'	18 (1)	17 (1)	26 (2)	-	33-34 (3)	-	41 (4)	-
COUNT	6' x 10' @ -20'	20 (1)	19 (1)	27 (2)	-	35-36 (3)	-	42 (4)	-
PULSE ADVANCE	6' @ 400'	21 (5)	-	-	-	37 (6)	-	-	-
DILEMA ZONE	CONTINUOUS @ 450'	22 (5)	-	-	-	38 (6)	-	-	-
PEDESTRIAN	PB	49	21-22	50	41-42	51	61-62	52	81-82

PLAN SYMBOL	DESCRIPTION	SIZE W X H
(A)	D3-4, SCIENCE PARK RD	96" x 16"
(B)	D3-4, PINE HALL RD	96" x 16"
(C)	R3-B(L-SR),LANE USE CONTROL SIGN	30" x 30"
(D)	R10-12A, LEFT TURN YIELD ON FLASHING YELLOW ARROW	30" x 36"
(E)	R10-3B-R,EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL	9" x 12"
(F)	R10-3B-L,EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL	9" x 12"



COUNTY : CENTRE  
 MUNICIPALITY : FERGUSON TOWNSHIP  
 INTERSECTION : SCIENCE PARK ROAD (T-336) AND PINE HALL ROAD (T-596)

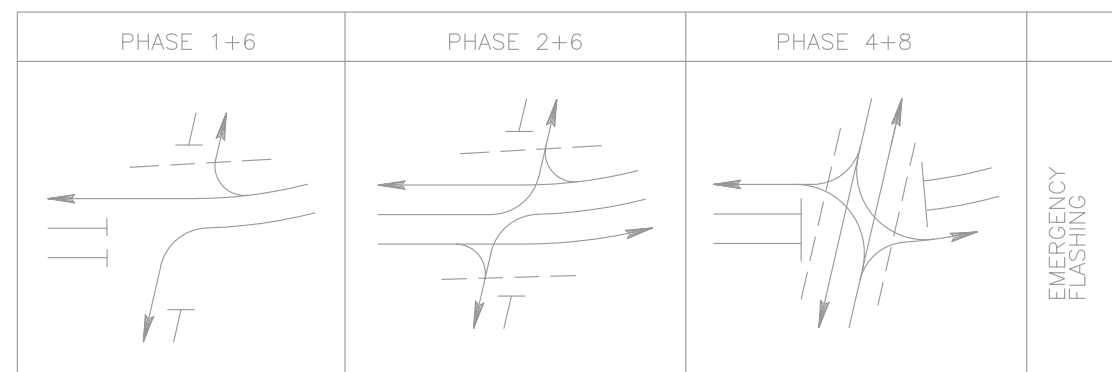
APPROVED BY:   
 MUNICIPAL OFFICIAL 12/27/23  
 DATE

RECOMMENDED :  
 DISTRICT TRAFFIC ENGINEER DATE

SCALE :

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
2-0	CENTRE	LOCAL	2020-C18	12 OF 18
FERGUSON TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

PHASING DIAGRAM

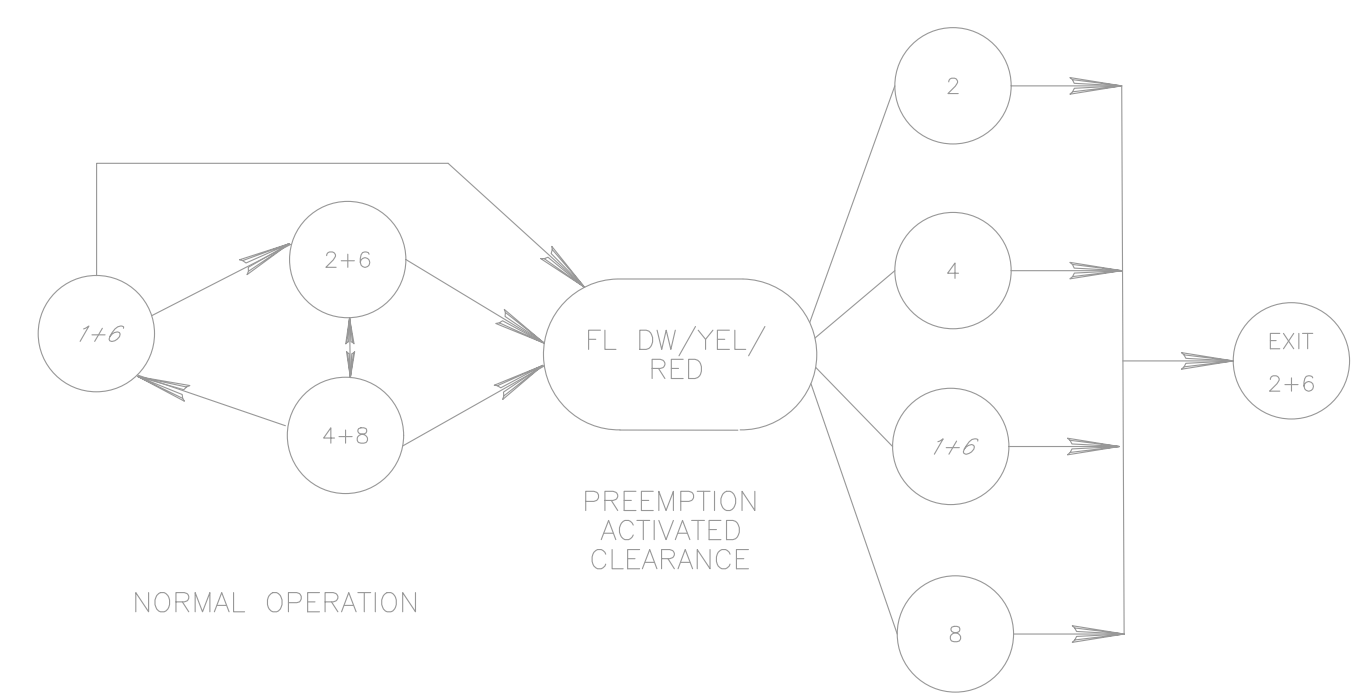


SIGNAL \ INTERVAL	INTERVALS				INTERVALS				INTERVALS				
	1	2	3	4	1	2	3	4	1	2	3	4	
1, 2	G	G	Y	R	G	G	Y	R	R	R	R	R	Y
3, 4	R	R	R	R	G	G	Y	R	R	R	R	R	Y
5, 6	R	R	R	R	R	R	R	R	G	G	Y	R	R
7, 8	R	R	R	R	R	R	R	R	G	G	Y	R	R
21	G	G	Y	R	FY(3)	FY	Y	R	R	R	R	R	OFF
13, 14, 17, 18	DW	DW	DW	DW	W	FD	DW	DW	DW	DW	DW	DW	OFF
15, 16, 19, 20	DW	DW	DW	DW	DW	DW	DW	DW	W	FD	DW	DW	OFF
FIXED	X	X	3.5	3	X	X	4	2	X	X	4	2	
MIN GREEN	3				8				3				
PASSAGE	2				1.5				3				
MAX 1	7				48				26				
CYCLE 1 (1)	13				54				33				
CYCLE 2 (1)	13				59				33				
PEDESTRIAN (2)					7	19			7	20			
MEMORY	NON-LOCKING				MIN RECALL				NON-LOCKING				

SIGNAL NOTES:  
(1) TIME EQUALS TOTAL LENGTH OF PHASE.  
(2) WALK SYMBOL AND TIMES UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE DON'T WALK AT ALL TIMES.  
(3) FYA TO HAVE **THREE** SECOND DELAY

PRESENCE DETECTION ZONE NOTES:  
RANGE OF DETECTION: MINIMUM 30 - MAXIMUM 100 FEET FROM STOP BAR  
MINIMUM SPEED BOUNDARY - 1 MPH ZONE MAY BE ADJUSTED IN FIELD.

ADVANCE DILEMMA ZONE NOTES:  
ESTIMATED TIME OF ARRIVAL: MINIMUM 2.5 SECONDS - MAXIMUM 5.5 SECONDS. RANGE OF DETECTION:  
MINIMUM 5 FEET - MAXIMUM 450 FEET FROM THE STOP BAR. MINIMUM SPEED BOUNDARY 10 MPH.  
ZONE MAY BE ADJUSTED IN THE FIELD.



COORDINATION PLAN

PLAN NO.	DAY OF WEEK							TIME	CYCLE (SEC.)	OFFSET (SEC.)	REMARKS
	S	M	T	W	T	F	S				
1								0:00	-	-	MAX 1
2								7:30	100	0	CYCLE 1
3								9:00	-	-	MAX 1
4								15:00	105	0	CYCLE 2
5								18:00	-	-	MAX 1

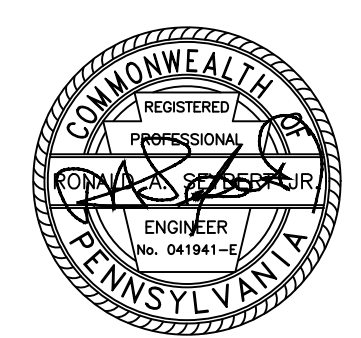
\* OFFSET IS REFERENCED TO THE BEGINNING OF PHASE 2+6, INTERVAL 3.

INTERCONNECT NOTE

CONTROLLER TO BE INTERCONNECTED WITH ADJACENT SIGNAL CONTROLLERS ALONG SCIENCE PARK ROAD (T-336) TO PROVIDE A PROGRESSIVE MOVEMENT OF TRAFFIC INTERSECTIONS INCLUDED IN INTERCONNECT ARE AS FOLLOWS:  
- OLD GATESBURG ROAD (T-335)  
- ARL ENTRANCE/BAYTHEON DRIVEWAY  
- PINE HALL ROAD (T-596)

EMERGENCY VEHICLE (FIRE APPARATUS) PREEMPTION NOTES:

NORMAL TRAFFIC SIGNAL OPERATION SHALL ONLY BE PREEMPTED BY FIRE APPARATUS VEHICLES RESPONDING TO EMERGENCY CALLS.  
EMERGENCY VEHICLE PREEMPTION MAY OCCUR DURING ANY INTERVAL OF THE NORMAL CONTROLLER OPERATION. PROVIDE EMERGENCY VEHICLE PREEMPTION EQUIPMENT IN THE CONTROLLER CABINET CAPABLE OF DISPLAYING APPROACH CONTROL OPERATION. DEPENDING ON THE DIRECTION OF TRAVEL OF THE EMERGENCY VEHICLE, THE FOLLOWING PHASES SHALL BE DISPLAYED: PHASE 2, PHASE 4, PHASE 1+6 OR PHASE 8. PROVIDE THE FOLLOWING SEQUENCE UPON ACTIVATION BY AN EMERGENCY VEHICLE.  
IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING WALK INDICATION AND PROCEED THROUGH THE FLASHING DON'T WALK AND YELLOW INTERVAL BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL.  
IF THE CONTROLLER IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL TIME OUT THE INTERVAL BEFORE PROCEEDING THROUGH THE YELLOW CLEARANCE INTERVAL. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL.  
IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING GREEN INDICATION AND PROCEED THROUGH THE YELLOW CLEARANCE INTERVAL BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN.  
IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE AND IMMEDIATELY TERMINATE THE WALK INDICATION AND PROCEED TO TIME THE FLASHING DON'T WALK INTERVAL TIME. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE.  
IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE, EXCEPT THE FLASHING DON'T WALK SHALL TIME OUT. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME ANY CONFLICTING GREEN INDICATION WILL BE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS.  
IF THE CONTROLLER OPERATION IS IN THE YELLOW OR RED CLEARANCE INTERVAL OF ANY PHASE, THE CONTROLLER SHALL TIME OUT THOSE INTERVALS NORMALLY BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN.  
UPON TERMINATION OF THE PREEMPTION, THE SIGNAL SHALL RETURN TO NORMAL OPERATION.  
FLASHING TO EMERGENCY VEHICLE PREEMPTION. IF EMERGENCY VEHICLE PREEMPTION OCCURS WHEN THE TRAFFIC SIGNALS ARE IN CONFLICTING/TIME CLOCK FLASHING OPERATION, THE NORMAL FLASHING OPERATION SEQUENCE, AS SHOWN IN THE PHASING DIAGRAM, SHALL CONTINUE.  
FAIL-SAFE INDICATION. WHEN THE PREEMPTION SIGNAL HAS BEEN ACCEPTED, THE FAIL-SAFE INDICATION SHALL BE DISPLAYED IMMEDIATELY ON THE PREEMPTED APPROACH IN THE FORM OF A FLASHING WHITE LIGHT. THE FAIL-SAFE INDICATION SHALL CONTINUE TO FLASH FOR THE DURATION OF THE PREEMPTION PHASE. NO FAIL-SAFE INDICATION SHALL BE GIVEN DURING FLASHING OPERATION.



COUNTY : CENTRE  
MUNICIPALITY : FERGUSON TOWNSHIP  
INTERSECTION : SCIENCE PARK ROAD (T-336) AND  
PINE HALL ROAD (T-596)

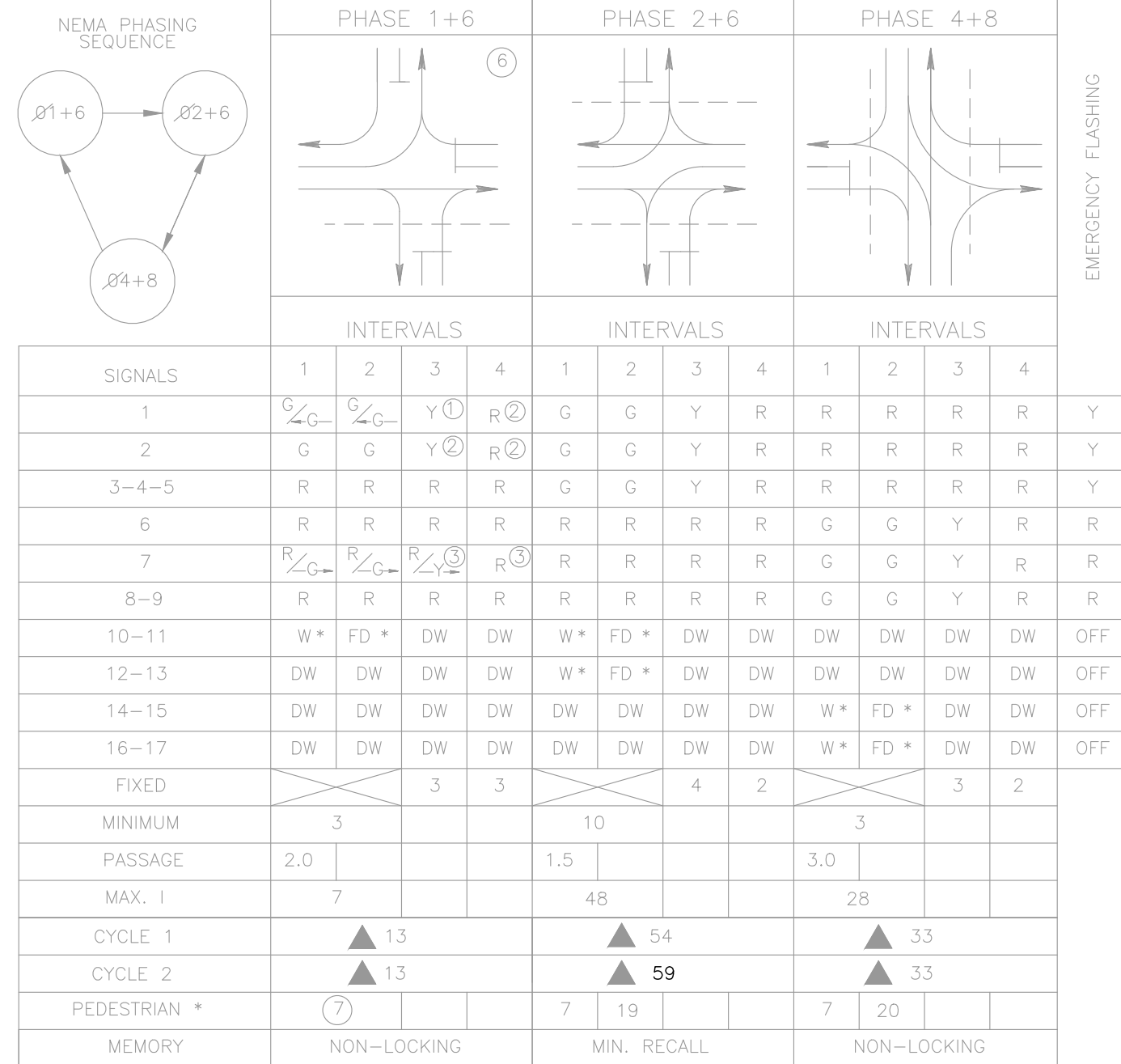
APPROVED BY: [Signature] 12/27/23  
MUNICIPAL OFFICIAL DATE

RECOMMENDED :  
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0 25 50 75

DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
2-0	CENTRE	LOCAL	2020-C18	13 OF 18	
FERGUSON TOWNSHIP					
REVISION NUMBER	REVISIONS			DATE	BY

PHASING DIAGRAM



CONTROLLER NOTES:

- ①  $\frac{G}{Y}$  IF FOLLOWED BY 2+6
  - ② G IF FOLLOWED BY 2+6
  - ③  $\frac{R}{G}$  IF FOLLOWED BY 4+8
  - ④ REMOVED
  - ⑤ REMOVED
  - ⑥ PHASE 1+6 TO FOLLOW PHASE 4+8 ONLY.
  - ⑦ TIMING WILL BE AS SHOWN IN PHASE 2+6. INTERVALS 1 & 2 MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6.
- CONTROLLER PROGRAMMING WITH DUAL ENTRY.
  - PHASE 2 AND 6 WITH SIMULTANEOUS GAP-OUT.

COORDINATION PLAN

PLAN NO.	DAY OF WEEK							TIME	CYCLE (SEC.)	OFFSET* (SEC.)	REMARKS
	S	M	T	W	T	F	S				
1								0:00	-	0	MAX 1
2								7:30	100	77	CYCLE 1
3								9:00	-	-	MAX 1
4								15:00	105	36	CYCLE 2
5								18:00	-	0	MAX 1

\* OFFSET IS REFERENCED TO THE BEGINNING OF PHASE 2+6, INTERVAL 3.

NOTES:

- EQUIP CONTROLLER WITH HAND CONTROL FOR MANUAL OPERATION.
- EQUIP CONTROLLER CABINET WITH AN 18" BASE EXTENSION.
- EQUIP ALL PEDESTRIAN PUSH BUTTONS WITH A 2" PLUNGER.

ATSPM DETECTOR MAPPING TABLE

DETECTOR TYPE	DETECTOR SIZE / LOCATION FROM STOP BAR	PHASE / ZONE (DETECTOR ①)							
		2	5	4	7	6	3		
PRESENCE	50' x 10' @ 40'	18 ①	17 ①	26-27 ②	-	34 ③	33 ③	41-42 ④	-
COUNT	6' x 10' @ -20'	20 ①	19 ①	28-29 ②	-	36 ③	35 ③	43-44 ④	-
PULSE ADVANCE	6' @ 400'	21 ⑤	-	-	-	37 ⑥	-	-	-
DILEMA ZONE	CONTINUOUS @ 450'	22 ⑤	-	-	-	38 ⑥	-	-	-
PEDESTRIAN	PB	49	21-22	50	41-42	51	61-62	52	81-82

- DETECTOR 41 TO HAVE 5 SECOND DELAY
- DETECTOR 27 & 42 TO HAVE 20 SECOND DELAY

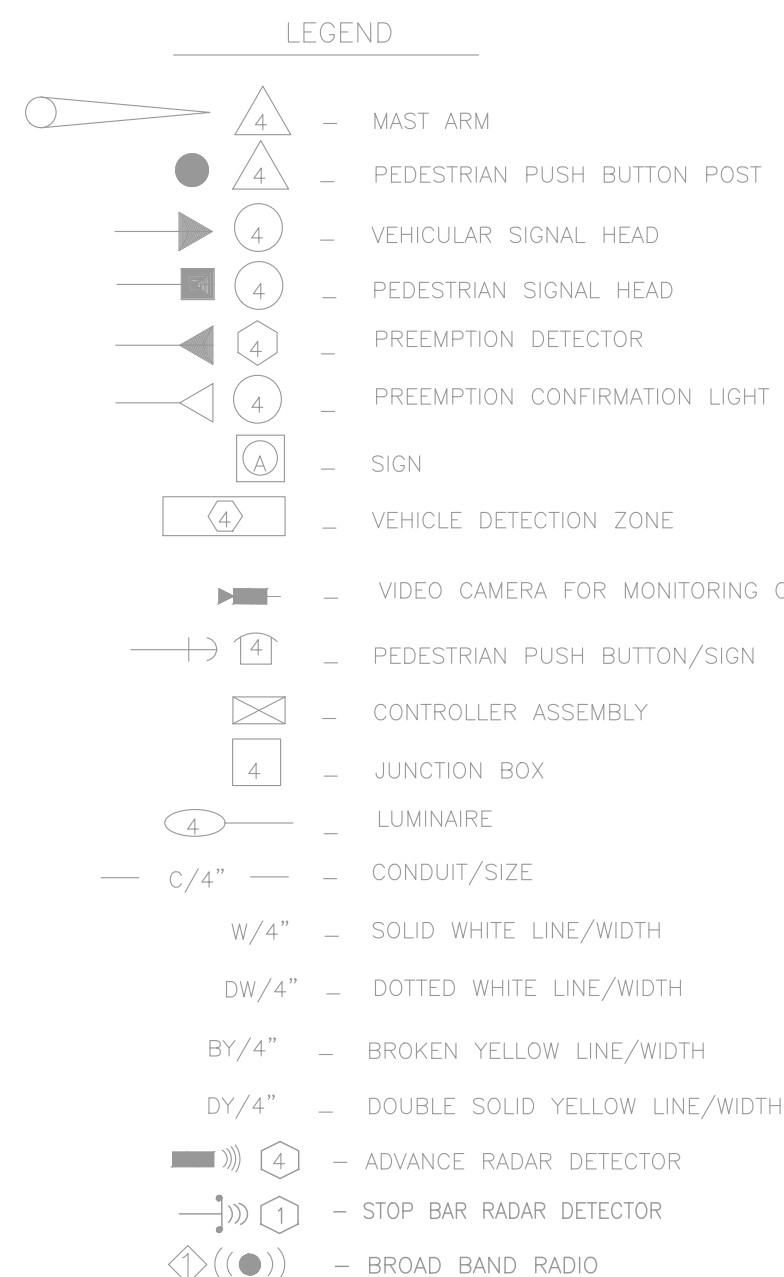
ADVANCE DILEMA ZONE NOTES:

1. ETA: MIN 2.5 SEC - MAX 5.5 SEC
2. RANGE: MIN 50 FEET - MAX 450 FEET FROM STOP BAR
3. MIN SPEED BOUNDARY - 10 MPH

STOP BAR DETECTION ZONE NOTES:

1. RANGE: MIN 10 FEET - MAX 100 FEET FROM STOP BAR
2. MIN SPEED BOUNDARY - 5 MPH
3. ZONE MAY BE ADJUSTED IN FIELD

THIS INTERSECTION IS COORDINATED WITH THE ADJACENT INTERSECTIONS AT:  
 - OLD GATESBURG ROAD (T-335)  
 - PINE HALL ROAD (T-596)

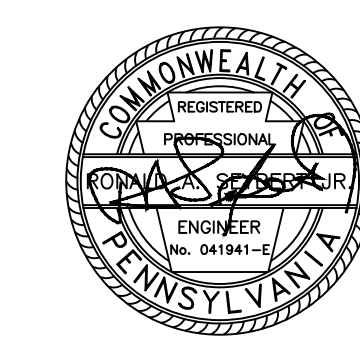
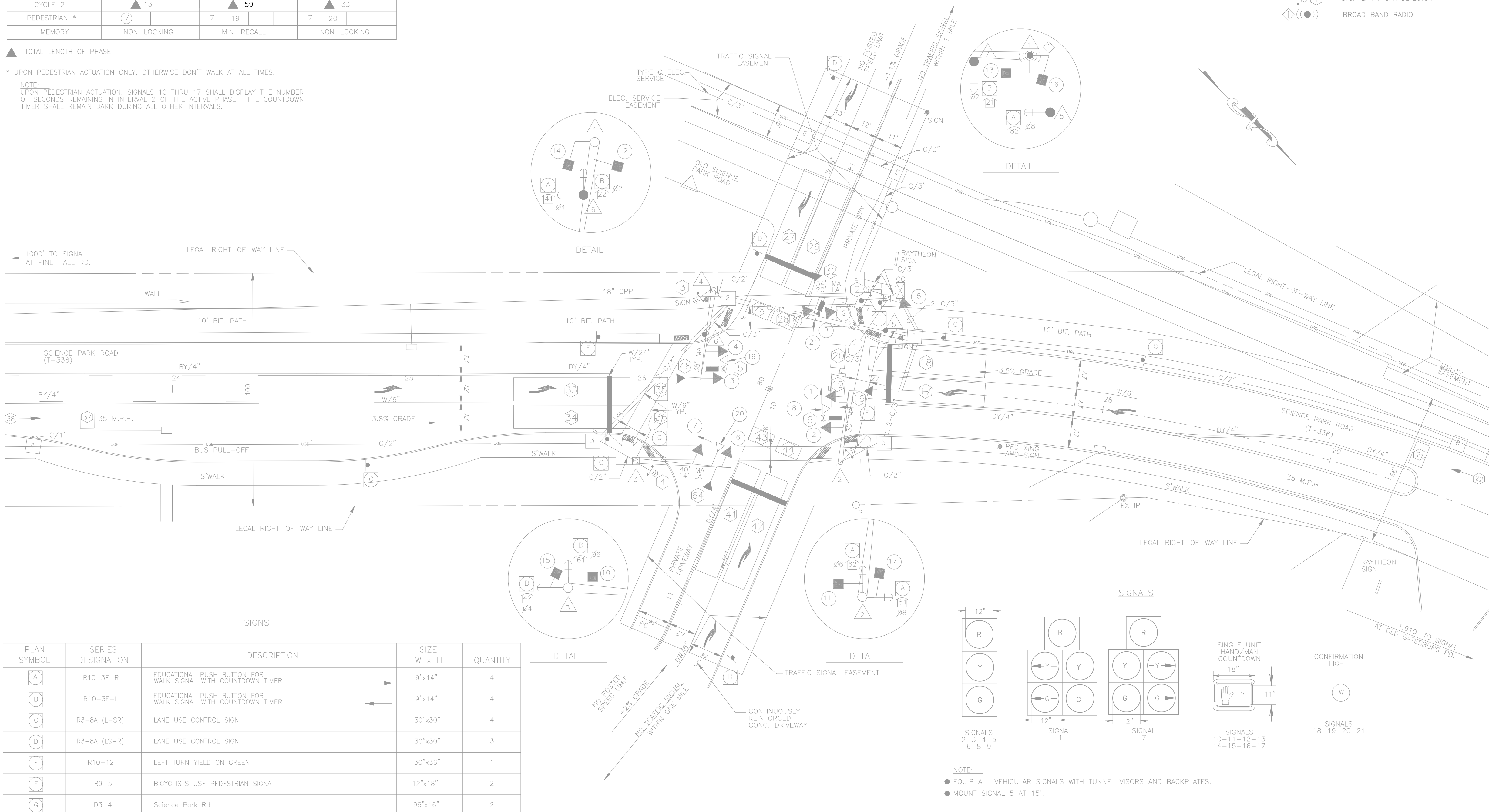


▲ TOTAL LENGTH OF PHASE

\* UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE DON'T WALK AT ALL TIMES.

NOTE:

UPON PEDESTRIAN ACTUATION, SIGNALS 10 THRU 17 SHALL DISPLAY THE NUMBER OF SECONDS REMAINING IN INTERVAL 2 OF THE ACTIVE PHASE. THE COUNTDOWN TIMER SHALL REMAIN DARK DURING ALL OTHER INTERVALS.



COUNTY : \_\_\_\_\_ CENTRE \_\_\_\_\_

MUNICIPALITY : \_\_\_\_\_ FERGUSON \_\_\_\_\_

INTERSECTION : \_\_\_\_\_ SCIENCE PARK ROAD (T-336) AND \_\_\_\_\_ PRIVATE DRIVEWAY \_\_\_\_\_

APPROVED BY: \_\_\_\_\_ DATE: 12/27/23

MUNICIPAL OFFICIAL \_\_\_\_\_ DATE \_\_\_\_\_

RECOMMENDED : \_\_\_\_\_

DISTRICT TRAFFIC ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

SCALE : 0 25 50 75

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
2-0	CENTRE	LOCAL	2020-C18	14 OF 18
FERGUSON TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

EMERGENCY VEHICLE PREEMPTION NOTES:

NORMAL TRAFFIC SIGNAL OPERATION SHALL ONLY BE PREEMPTED BY EMERGENCY VEHICLES RESPONDING TO EMERGENCY CALLS.

EMERGENCY VEHICLE PREEMPTION SHALL BE PROVIDED ON A FIRST-COME, FIRST-SERVE BASIS. ONCE THE FIRST PRIORITY EMERGENCY VEHICLE CALLS THE SYSTEM, IT SHALL PREVENT OTHER PREEMPTIVE VEHICLES FROM ENTERING CALLS UNTIL THE FIRST EMERGENCY VEHICLE RELEASES CONTROL AND CLEARS THE INTERSECTION.

EMERGENCY VEHICLE PREEMPTION MAY OCCUR DURING ANY INTERVAL OF THE NORMAL CONTROLLER OPERATION. PROVIDE EMERGENCY VEHICLE PREEMPTION EQUIPMENT IN THE CONTROLLER CABINET CAPABLE OF DISPLAYING APPROACH CONTROL OPERATION. DEPENDING ON THE DIRECTION OF TRAVEL OF THE EMERGENCY VEHICLE, ONE OF THE FOLLOWING PHASES SHALL BE DISPLAYED: PHASE 1+6, PHASE 2, PHASE 4, OR PHASE 8. PROVIDE THE FOLLOWING SEQUENCE UPON ACTIVATION BY AN EMERGENCY VEHICLE.

IF THE CONTROLLER IS IN INTERVAL 1 (GREEN/GREEN ARROW) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING GREEN INDICATION AND PROCEED THROUGH THE YELLOW AND ALL-RED CLEARANCE INTERVALS BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN.

IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING WALK INDICATION AND PROCEED THROUGH THE FLASHING DON'T WALK AND YELLOW AND ALL-RED INTERVALS BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL.

IF THE CONTROLLER IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL TIME OUT THE INTERVAL BEFORE PROCEEDING THROUGH THE YELLOW AND ALL-RED CLEARANCE INTERVALS. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL.

IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING GREEN INDICATION AND PROCEED THROUGH THE YELLOW AND ALL-RED CLEARANCE INTERVALS BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN.

IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE WHILE THE CONFLICTING GREEN INDICATIONS ARE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS.

IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE AND IMMEDIATELY TERMINATE THE WALK INDICATION AND PROCEED TO TIME THE FLASHING DON'T WALK INTERVAL TIME. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME AND CONFLICTING GREEN INDICATION WILL BE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS.

IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE, EXCEPT THE FLASHING DON'T WALK SHALL TIME OUT. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME, ANY CONFLICTING GREEN INDICATION WILL BE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS.

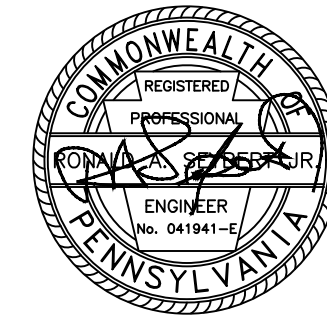
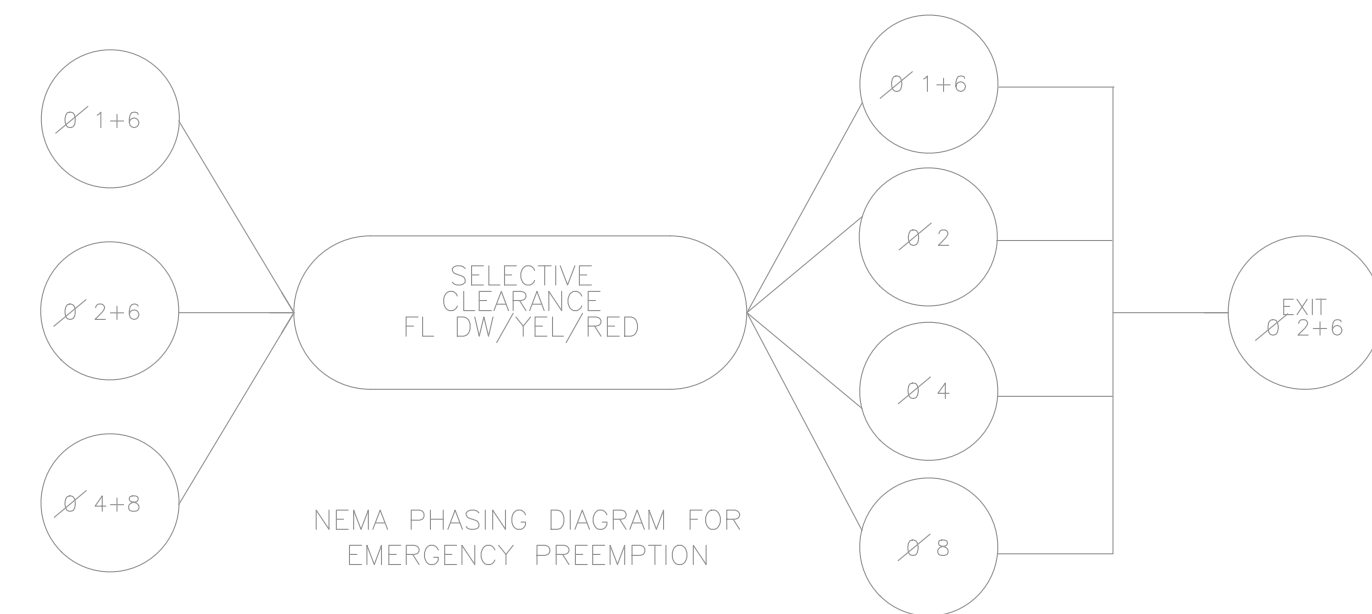
IF THE CONTROLLER OPERATION IS IN THE YELLOW, YELLOW ARROW OR RED CLEARANCE INTERVAL OF ANY PHASE, THE CONTROLLER SHALL TIME OUT THOSE INTERVALS NORMALLY BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN.

UPON TERMINATION OF THE PREEMPTION, THE SIGNAL SHALL RETURN TO NORMAL OPERATION.

IF EMERGENCY VEHICLE PREEMPTION OCCURS WHEN THE TRAFFIC SIGNALS ARE IN CONFLICTING/TIME CLOCK FLASHING OPERATION, THE NORMAL FLASHING OPERATION SEQUENCE, AS SHOWN IN THE PHASING DIAGRAM, SHALL CONTINUE.

WHEN THE PREEMPTION SIGNAL HAS BEEN ACCEPTED, THE FAIL-SAFE INDICATION SHALL BE DISPLAYED IMMEDIATELY ON THE PREEMPTED APPROACH IN THE FORM OF A FLASHING WHITE LIGHT. THE FAIL-SAFE INDICATION SHALL CONTINUE TO FLASH FOR THE DURATION OF THE PREEMPTION PHASE. NO FAIL-SAFE INDICATION SHALL BE GIVEN DURING FLASHING OPERATION.

LOCATION OF PREEMPTION RECEIVERS MAY BE FIELD-ADJUSTED BY THE ENGINEER TO ACHIEVE MAXIMUM DETECTION DISTANCE.



COUNTY : CENTRE

MUNICIPALITY : FERGUSON

INTERSECTION : SCIENCE PARK ROAD (T-336) AND  
PRIVATE DRIVEWAY

APPROVED BY: [Signature] 12/27/23

MUNICIPAL OFFICIAL \_\_\_\_\_ DATE

RECOMMENDED :

\_\_\_\_\_  
DISTRICT TRAFFIC ENGINEER DATE

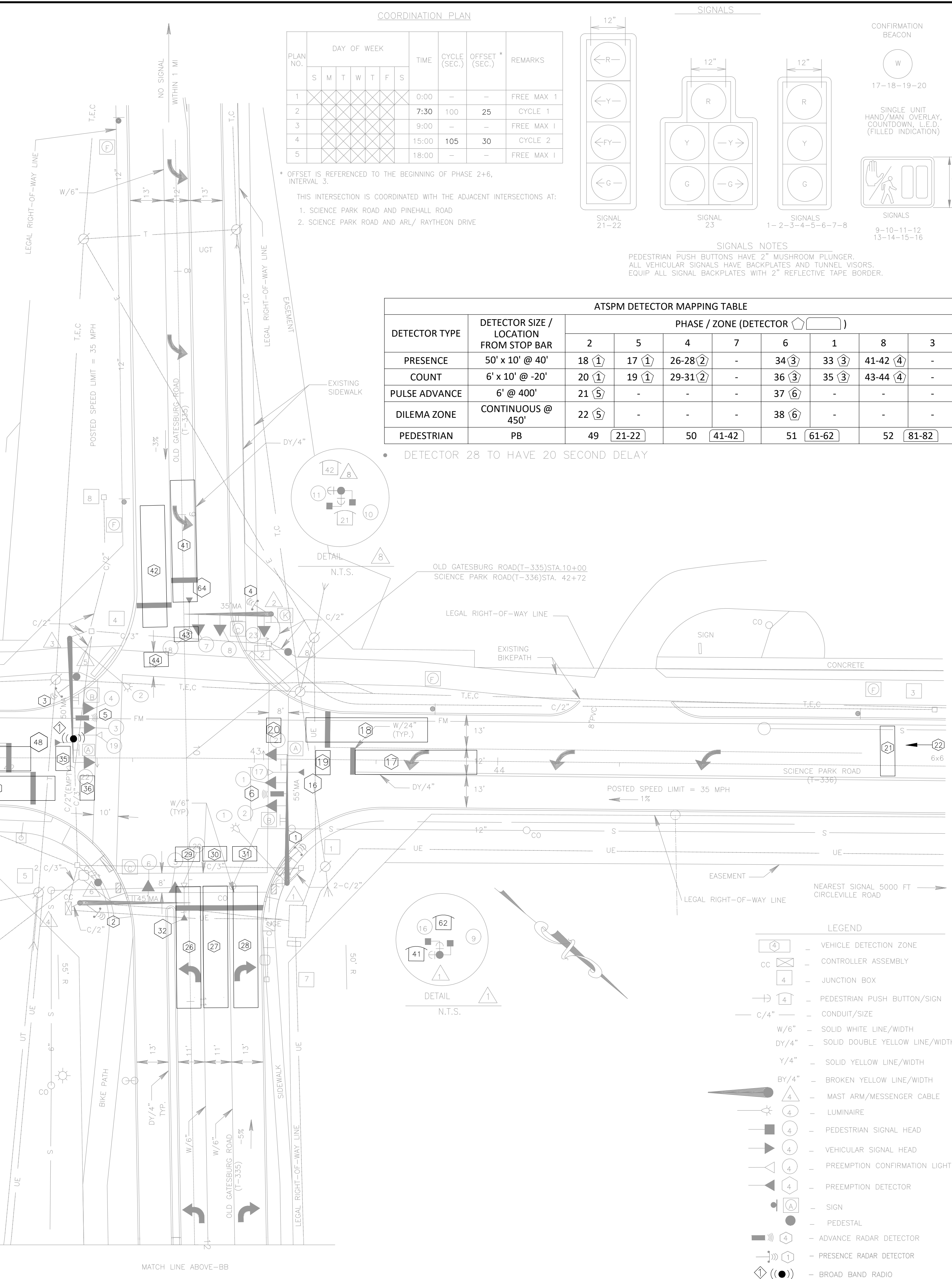
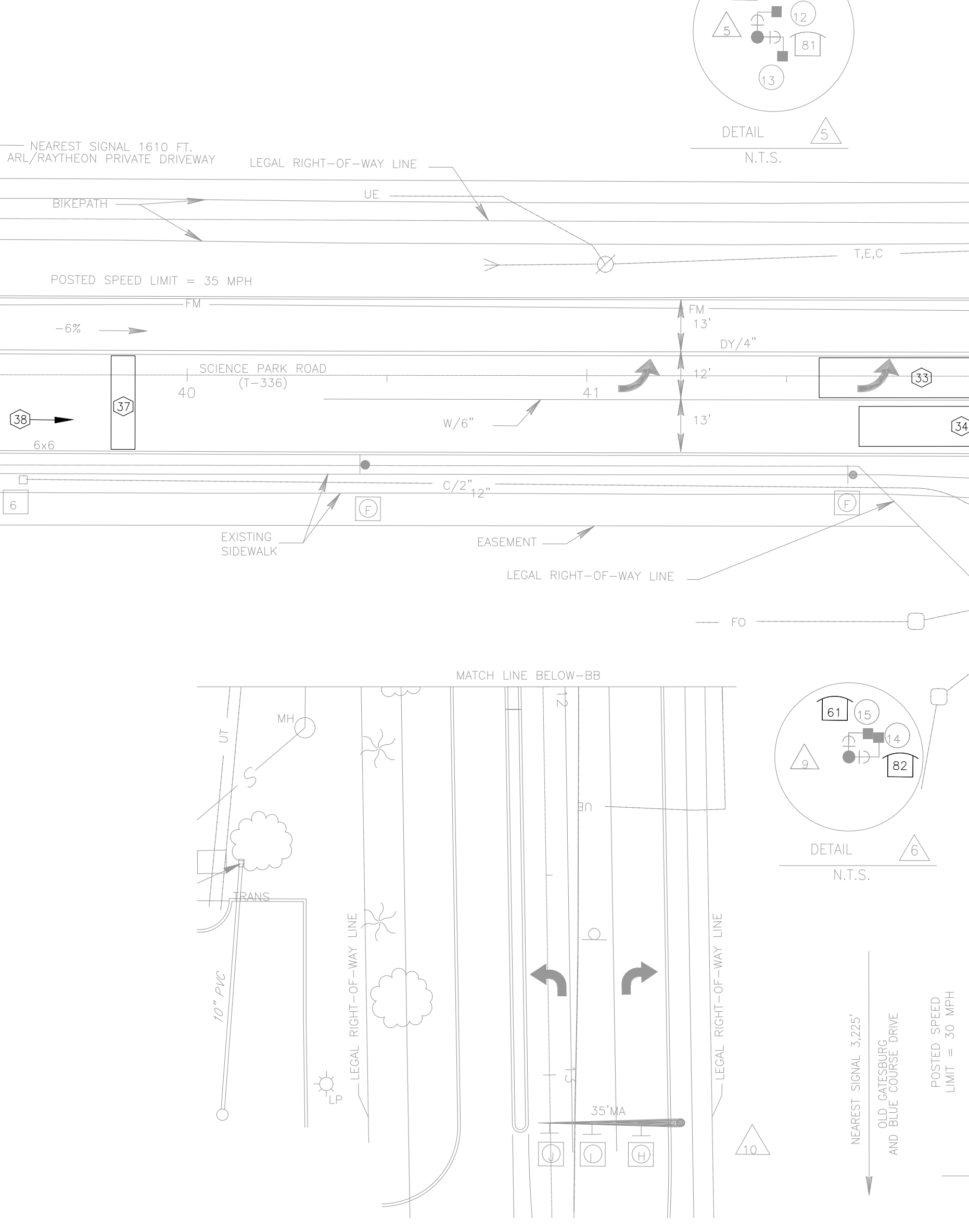
SCALE : 0 25 50 75

SIGNAL \ INTERVAL	PHASE 1+5				PHASE 1+6				PHASE 2+5				PHASE 2+6				PHASE 4+8				EMERGENCY FLASH
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
21	G	Y(1)	R(1)		G	Y(2)	R(2)		FY(9)	FY	FY(7)	FY(6)	FY(9)	FY	FY(7)	FY(6)	Y	R	R	R	OFF
22	G	Y(2)	R(2)		FY(9)	FY	FY(7)	FY(6)	G	G	Y	R	G	G	Y	R	R	R	R	R	OFF
1, 2	R	R	R		G	G	Y	R	R	R	R	R	G	G	Y	R	R	R	R	R	Y
3, 4	R	R	R		R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	Y
5, 6	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
7, 8	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
23	R/G	R/Y	R(3)		R	R	R	R	R/G	R/Y	R	G	R	G	Y	R	R	R	R	R	OFF
9, 10, 13, 14 (5)	DW	DW	DW		DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FD	DW	DW	OFF
11, 12 (5)	DW	DW	DW		DW	DW	DW	DW	W	FD	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OFF
15, 16 (5)	DW	DW	DW		W	FD	DW	DW	DW	DW	DW	DW	W	FD	DW	DW	DW	DW	DW	DW	OFF
FIXED	X	3.5	3		X	X	3.5	3	X	X	3.5	3	X	X	4	2	X	X	4	2	
MIN GREEN	3				3				3				8				3				
PASSAGE	2				2				2				1.5				3				
MAX 1	7				7				11				48				26				
CYCLE 1 (4)	14				14				18				32								
CYCLE 2 (4)	14				14				58				33								
PEDESTRIAN (5)					NOTE 6				NOTE 6				7	19	7	20					
MEMORY	NON-LOCKING				NON-LOCKING				NON-LOCKING				MIN RECALL				NON-LOCKING				

**SIGNAL NOTES:**  
 (1) G IF FOLLOWED BY PHASE 1+6  
 (2) G IF FOLLOWED BY PHASE 2+5  
 (3) R/G IF FOLLOWED BY PHASE 2+5  
 (4) TIME EQUALS TOTAL LENGTH OF PHASE  
 (5) WALK SYMBOL AND TIMES UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE DON'T WALK AT ALL TIMES  
 (6) TIMING AS SHOWN IN 2+6. WALK INTERVAL MAY TIME OUT DURING THIS PHASE  
 (7) Y IF FOLLOWED BY 4+8  
 (8) R IF FOLLOWED BY 4+8  
 (9) FYA TO HAVE THREE SECOND DELAY

**PRESENCE DETECTION ZONE NOTES:**  
 RANGE OF DETECTION MINIMUM 30 - MAXIMUM 100 FEET FROM STOP BAR  
 MINIMUM SPEED BOUNDARY - 1 MPH ZONE MAY BE ADJUSTED IN FIELD.

**ADVANCE DILEMMA ZONE NOTES:**  
 ESTIMATED TIME OF ARRIVAL: MINIMUM 2.5 SECONDS - MAXIMUM 5.5 SECONDS. RANGE OF DETECTION: MINIMUM 5 FEET - MAXIMUM 450 FEET FROM THE STOP BAR. MINIMUM SPEED BOUNDARY 10 MPH. ZONE MAY BE ADJUSTED IN THE FIELD.

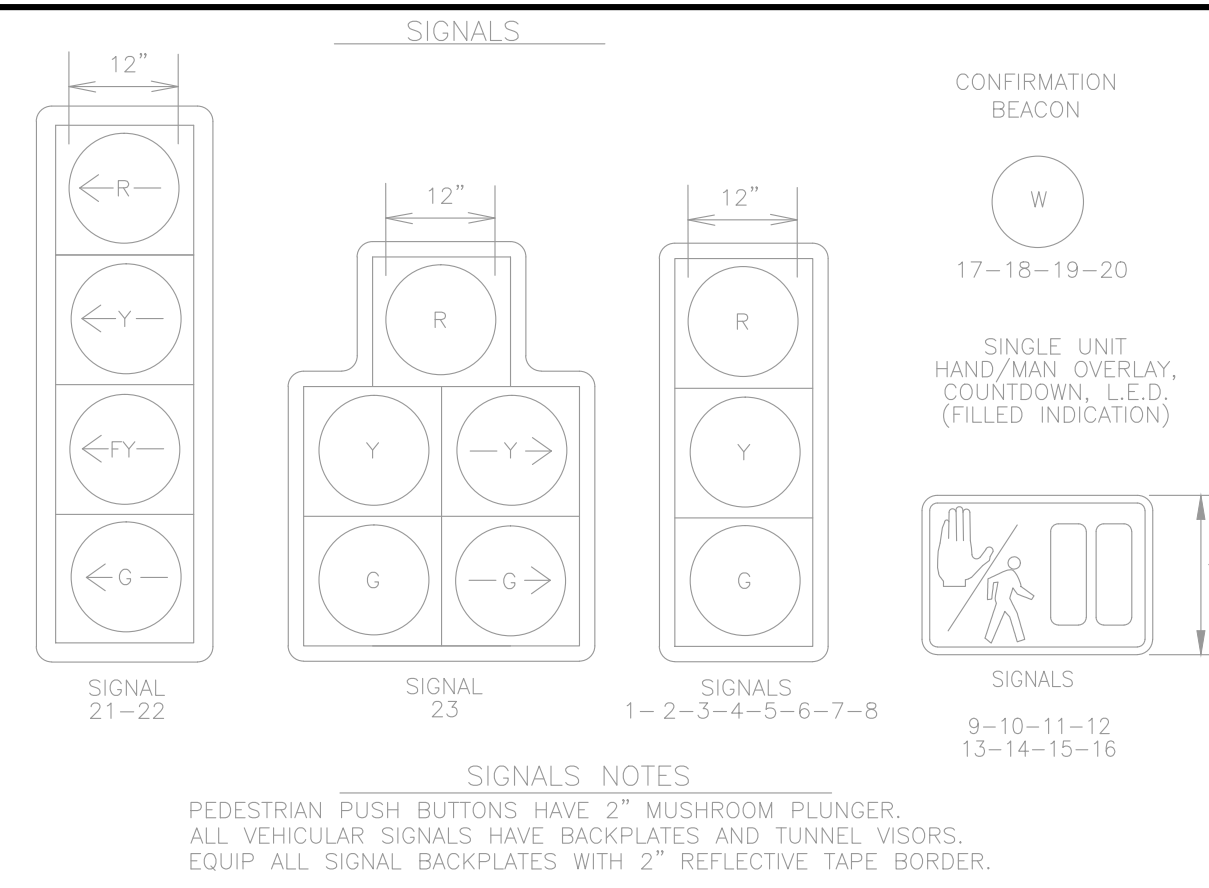


**COORDINATION PLAN**

PLAN NO.	DAY OF WEEK							TIME	CYCLE (SEC.)	OFFSET* (SEC.)	REMARKS
	S	M	T	W	T	F	S				
1								0:00	-	-	FREE MAX 1
2								7:30	100	25	CYCLE 1
3								9:00	-	-	FREE MAX 1
4								15:00	105	30	CYCLE 2
5								18:00	-	-	FREE MAX 1

\* OFFSET IS REFERENCED TO THE BEGINNING OF PHASE 2+6, INTERVAL 3.

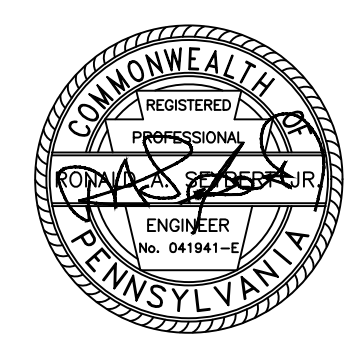
THIS INTERSECTION IS COORDINATED WITH THE ADJACENT INTERSECTIONS AT:  
 1. SCIENCE PARK ROAD AND PINEHALL ROAD  
 2. SCIENCE PARK ROAD AND ARL/ RAYTHEON DRIVE



**ATSPM DETECTOR MAPPING TABLE**

DETECTOR TYPE	DETECTOR SIZE / LOCATION FROM STOP BAR	PHASE / ZONE (DETECTOR )							
		2	5	4	7	6	1	8	3
PRESENCE	50' x 10' @ 40'	18 (1)	17 (1)	26-28 (2)	-	34 (3)	33 (3)	41-42 (4)	-
COUNT	6' x 10' @ -20'	20 (1)	19 (1)	29-31 (2)	-	36 (3)	35 (3)	43-44 (4)	-
PULSE ADVANCE	6' @ 400'	21 (5)	-	-	-	37 (6)	-	-	-
DILEMMA ZONE	CONTINUOUS @ 450'	22 (5)	-	-	-	38 (6)	-	-	-
PEDESTRIAN	PB	49	21-22	50	41-42	51	61-62	52	81-82

• DETECTOR 28 TO HAVE 20 SECOND DELAY



COUNTY : CENTRE

MUNICIPALITY : FERGUSON TOWNSHIP

INTERSECTION : SCIENCE PARK ROAD (T-336) AND OLD GATESBURG ROAD (T-335)  
SCIENCE PARK ROAD (T-336)

APPROVED BY: [Signature] 12/27/23  
 MUNICIPAL OFFICIAL DATE

RECOMMENDED : \_\_\_\_\_  
 DISTRICT TRAFFIC ENGINEER DATE

SCALE :





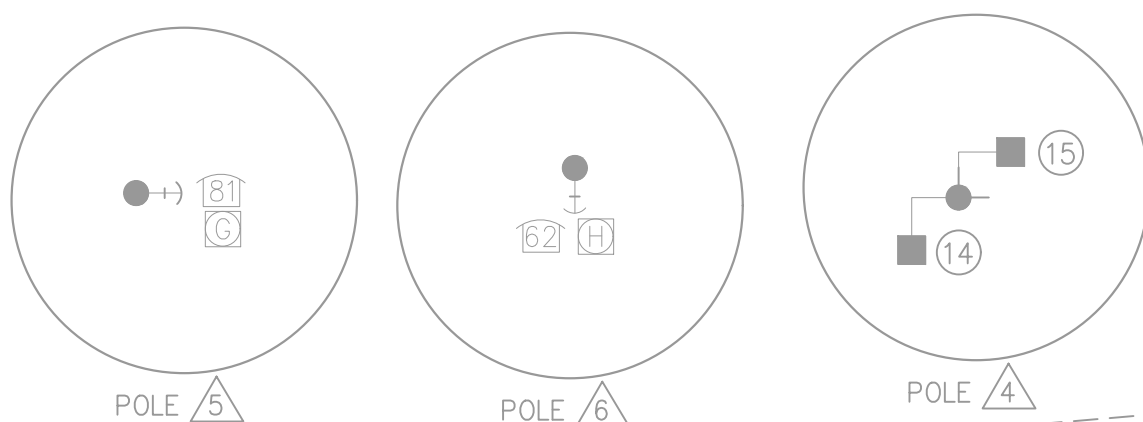
PHASING DIAGRAM

SIGNALS	PHASE 1+5				PHASE 2+5				PHASE 1+6				PHASE 2+6				PHASE 4+8				E.M.E.R. FLASHING
	1	2	3		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1	R	R	R		R	R	R		R	R	R		R	R	R		R	R	R		Y
2	R	R	R		R	R	R		R	R	R		R	R	R		R	R	R		Y
3	R	R	R		R	R	R		R	R	R		R	R	R		R	R	R		Y
4	R	R	R		R	R	R		R	R	R		R	R	R		R	R	R		Y
5, 6, 7, 8	R	R	R		R	R	R		R	R	R		R	R	R		R	R	R		Y
17	R	R	R		R	R	R		R	R	R		R	R	R		R	R	R		Y
* 9, 10, 13, 14	DW	DW	DW		DW	DW	DW		DW	DW	DW		DW	DW	DW		W	FD	DW	DW	OFF
* 11, 12	DW	DW	DW		W	FD	DW	DW	DW	DW	DW		W	FD	DW	DW	DW	DW	DW	DW	OFF
* 15, 16	DW	DW	DW		DW	DW	DW		W	FD	DW	DW	W	FD	DW	DW	DW	DW	DW	DW	OFF
FIXED	3.5	3			3	3.5	3		3.5	3			4	2			4	2			
MINIMUM	3				3				3				15				5				
PASSAGE	2				2				2				2				2				
MAX 1	8				8				8				47				27				
CYCLE 1 ▲	14				14				14				53				33				
CYCLE 2 ▲	14				14				14				58				33				
* PEDESTRIAN					9				9				7	19			7	20			
MEMORY	NON-LOCKING				NON-LOCKING				NON-LOCKING				MINIMUM RECALL				NON-LOCKING				

\*UPON PEDESTRIAN ACTUATION, OTHERWISE 'DONT WALK' AT ALL TIMES  
 MAX 1: ALL OTHER TIMES  
 MAX 11: 3:00PM TO 6:00PM  
 PHASES 1 & 5 SHALL ONLY FOLLOW PHASE 4+8  
 ▲ TIME EQUALS TOTAL LENGTH OF PHASE

PRESENCE DETECTION ZONE NOTES:  
 RANGE OF DETECTION: MINIMUM 30 - MAXIMUM 100 FEET FROM STOP BAR  
 MINIMUM SPEED BOUNDARY - 1 MPH ZONE MAY BE ADJUSTED IN FIELD.

ADVANCE DILEMMA ZONE NOTES:  
 ESTIMATED TIME OF ARRIVAL: MINIMUM 2.5 SECONDS - MAXIMUM 5.5 SECONDS. RANGE OF DETECTION: MINIMUM 5 FEET - MAXIMUM 450 FEET FROM THE STOP BAR. MINIMUM SPEED BOUNDARY 10 MPH. ZONE MAY BE ADJUSTED IN THE FIELD.



- NOTES
- IF FOLLOWED BY PHASE 2+6.
  - G IF FOLLOWED BY PHASE 2+6.
  - G IF FOLLOWED BY PHASE 1+6.
  - IF FOLLOWED BY PHASE 1+5.
  - IF FOLLOWED BY PHASE 2+5.
  - G IF FOLLOWED BY PHASE 2+5.
  - IF FOLLOWED BY PHASE 1+6.
  - IF FOLLOWED BY PHASE 2+5.
  - TIMING WILL BE SHOWN IN PHASE 2+6. INTERVALS 1 & 2 MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 2+6.

ATSPM DETECTOR MAPPING TABLE

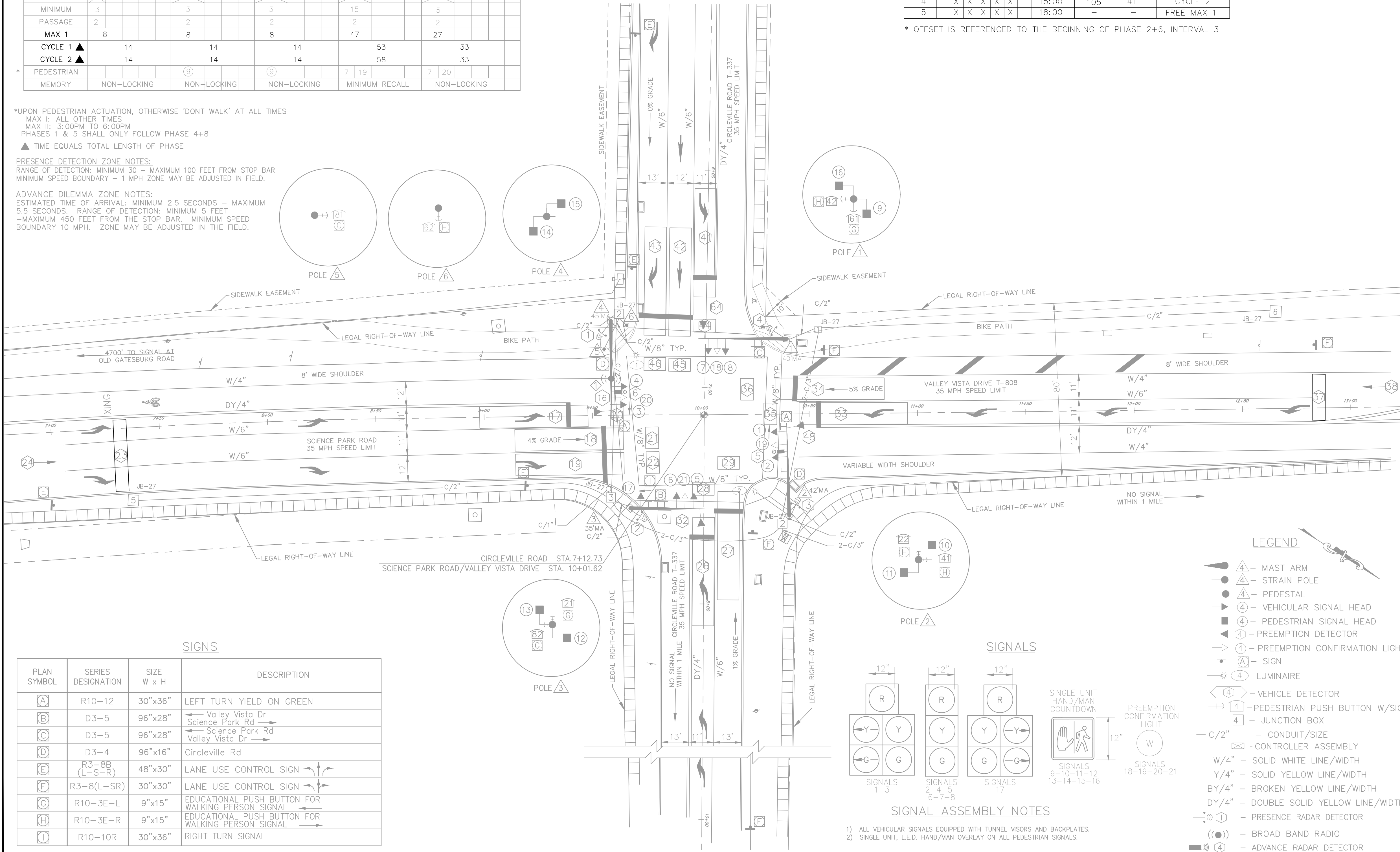
DETECTOR TYPE	DETECTOR SIZE / LOCATION FROM STOP BAR	PHASE / ZONE (DETECTOR)							
		2	5	4	7	6	1	8	3
PRESENCE	50' x 10' @ 40'	18-19	17	26-27	-	34	33	41-43	-
COUNT	6' x 10' @ -20'	21-22	20	28-29	-	36	35	44-46	-
PULSE ADVANCE	6' @ 400'	23	-	-	-	37	-	-	-
DILEMMA ZONE	CONTINUOUS @ 450'	24	-	-	-	38	-	-	-
PEDESTRIAN	PB	49	21-22	50	41-42	51	61-62	52	81-82

\* DETECTOR 43 TO HAVE 20 SECOND DELAY

COORDINATION PLAN

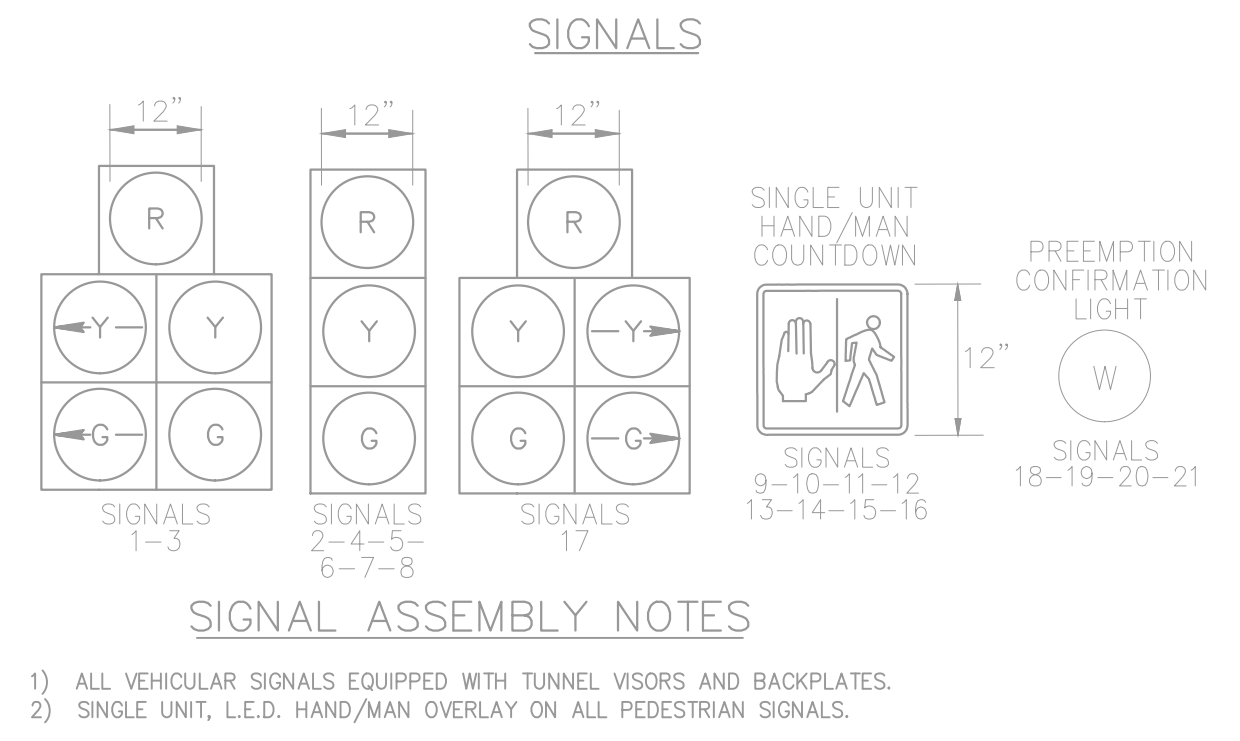
PLAN NO.	DAY OF WEEK							TIME	CYCLE (SEC)	OFFSET (SEC)	REMARKS
	S	M	T	W	T	F	S				
1	X	X	X	X	X	X	X	0:00	-	-	FREE MAX 1
2	X	X	X	X	X	X	X	7:30	100	56	CYCLE 1
3	X	X	X	X	X	X	X	9:00	-	-	FREE MAX 1
4	X	X	X	X	X	X	X	15:00	105	41	CYCLE 2
5	X	X	X	X	X	X	X	18:00	-	-	FREE MAX 1

\* OFFSET IS REFERENCED TO THE BEGINNING OF PHASE 2+6, INTERVAL 3



SIGNS

PLAN SYMBOL	SERIES DESIGNATION	SIZE W x H	DESCRIPTION
A	R10-12	30"x36"	LEFT TURN YIELD ON GREEN
B	D3-5	96"x28"	← Valley Vista Dr Science Park Rd
C	D3-5	96"x28"	→ Science Park Rd Valley Vista Dr
D	D3-4	96"x16"	Circleville Rd
E	R3-8B (L-S-R)	48"x30"	LANE USE CONTROL SIGN
F	R3-8(L-SR)	30"x30"	LANE USE CONTROL SIGN
G	R10-3E-L	9"x15"	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL
H	R10-3E-R	9"x15"	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON SIGNAL
I	R10-10R	30"x36"	RIGHT TURN SIGNAL



- LEGEND
- ▲ MAST ARM
  - STRAIN POLE
  - PEDESTAL
  - VEHICULAR SIGNAL HEAD
  - PEDESTRIAN SIGNAL HEAD
  - ◀ PREEMPTION DETECTOR
  - ▶ PREEMPTION CONFIRMATION LIGHT
  - SIGN
  - LUMINAIRE
  - VEHICLE DETECTOR
  - PEDESTRIAN PUSH BUTTON W/SIGN
  - JUNCTION BOX
  - C/2" - CONDUIT/SIZE
  - CONTROLLER ASSEMBLY
  - W/4" - SOLID WHITE LINE/WIDTH
  - Y/4" - SOLID YELLOW LINE/WIDTH
  - BY/4" - BROKEN YELLOW LINE/WIDTH
  - DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
  - PRESENCE RADAR DETECTOR
  - BROAD BAND RADIO
  - ADVANCE RADAR DETECTOR

DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
2-0	CENTRE	LOCAL	2020-C18	17 OF 18	
FERGUSON TOWNSHIP					
REVISION NUMBER	REVISIONS			DATE	BY

COUNTY : CENTRE

MUNICIPALITY : FERGUSON TOWNSHIP

INTERSECTION : CIRCLEVILLE ROAD (T-337) AND VALLEY VISTA DRIVE (T-808)/ SCIENCE PARK ROAD (T-336)

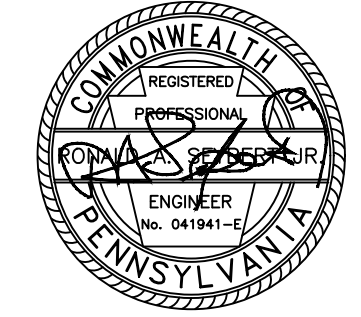
APPROVED BY: 12/27/23

MUNICIPAL OFFICIAL DATE

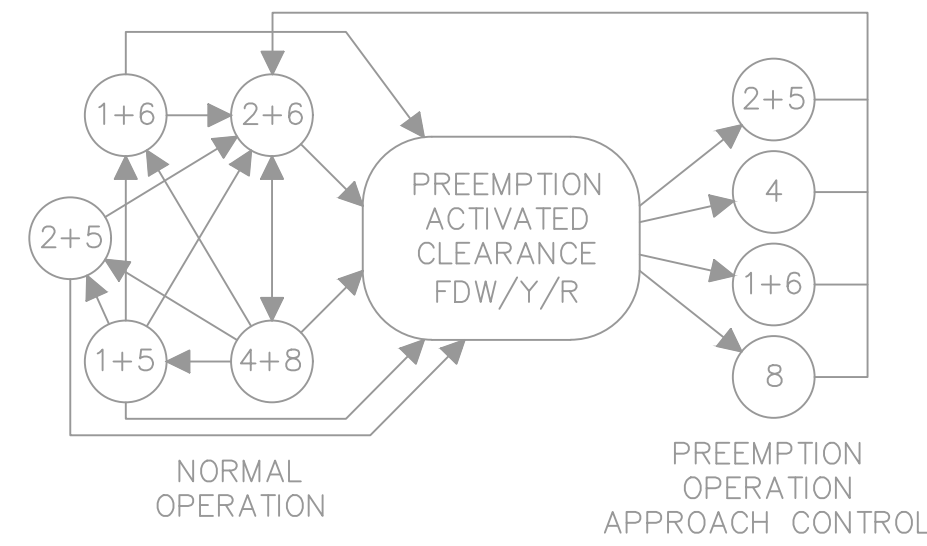
RECOMMENDED :

DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0 25 50 75



FERGUSON TOWNSHIP			
REVISION NUMBER	REVISIONS	DATE	BY



NORMAL TRAFFIC SIGNAL OPERATION SHALL ONLY BE PREEMPTED BY EMERGENCY VEHICLES RESPONDING TO EMERGENCY CALLS. EMERGENCY VEHICLE PREEMPTION MAY OCCUR DURING ANY INTERVAL OF THE NORMAL CONTROLLER OPERATION. PROVIDE EMERGENCY VEHICLE PREEMPTION EQUIPMENT IN THE CONTROLLER CABINET CAPABLE OF DISPLAYING APPROACH CONTROL OPERATION. DEPENDING ON THE DIRECTION OF TRAVEL OF THE EMERGENCY VEHICLE, THE FOLLOWING PHASES SHALL BE DISPLAYED: PHASE 2+5, PHASE 4, PHASE 1+6 OR PHASE 8. PROVIDE THE FOLLOWING SEQUENCE UPON ACTIVATION BY AN EMERGENCY VEHICLE.

IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING WALK INDICATION AND PROCEED THROUGH THE FLASHING DON'T WALK AND YELLOW INTERVAL BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL.

IF THE CONTROLLER IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL TIME OUT THE INTERVAL BEFORE PROCEEDING THROUGH THE YELLOW CLEARANCE INTERVAL. THE GREEN INDICATION SHALL REMAIN GREEN THROUGH THE FLASHING DON'T WALK INTERVAL.

IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN) OF A NON-PREEMPTIVE PHASE, THE CONTROLLER SHALL IMMEDIATELY TERMINATE THE CONFLICTING GREEN INDICATION AND PROCEED THROUGH THE YELLOW CLEARANCE INTERVAL BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN.

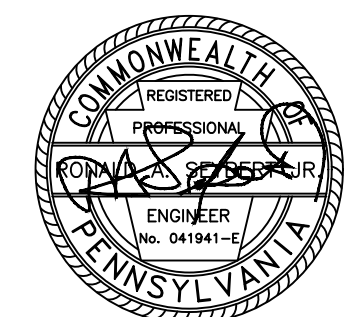
IF THE CONTROLLER OPERATION IS IN INTERVAL 1 (GREEN/WALK) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE AND IMMEDIATELY TERMINATE THE WALK INDICATION AND PROCEED TO TIME THE FLASHING DON'T WALK INTERVAL TIME. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE.

IF THE CONTROLLER OPERATION IS IN INTERVAL 2 (GREEN/FLASHING DON'T WALK) OF A PREEMPTION PHASE, THE CONTROLLER SHALL REMAIN IN THE GREEN INTERVAL OF THE PREEMPTION PHASE, EXCEPT THE FLASHING DON'T WALK SHALL TIME OUT. UPON CONCLUSION OF THE FLASHING DON'T WALK TIME ANY CONFLICTING GREEN INDICATION WILL BE IMMEDIATELY TERMINATED AND PROCEED THROUGH THE YELLOW AND ALL-RED INTERVALS.

IF THE CONTROLLER OPERATION IS IN THE YELLOW OR RED CLEARANCE INTERVAL OF ANY PHASE, THE CONTROLLER SHALL TIME OUT THOSE INTERVALS NORMALLY BEFORE PROCEEDING TO THE PREEMPTION PHASE GREEN. UPON TERMINATION OF THE PREEMPTION, THE SIGNAL SHALL RETURN TO NORMAL OPERATION.

FLASHING TO EMERGENCY VEHICLE PREEMPTION. IF EMERGENCY VEHICLE PREEMPTION OCCURS WHEN THE TRAFFIC SIGNALS ARE IN CONFLICTING/TIME CLOCK FLASHING OPERATION, THE NORMAL FLASHING OPERATION SEQUENCE, AS SHOWN IN THE PHASING DIAGRAM, SHALL CONTINUE.

FAIL-SAFE INDICATION. WHEN THE PREEMPTION SIGNAL HAS BEEN ACCEPTED, THE FAIL-SAFE INDICATION SHALL BE DISPLAYED IMMEDIATELY ON THE PREEMPTED APPROACH IN THE FORM OF A FLASHING WHITE LIGHT. THE FAIL-SAFE INDICATION SHALL CONTINUE TO FLASH FOR THE DURATION OF THE PREEMPTION PHASE. NO FAIL-SAFE INDICATION SHALL BE GIVEN DURING FLASHING OPERATION.



COUNTY : CENTRE  
MUNICIPALITY : FERGUSON TOWNSHIP  
INTERSECTION : CIRCLEVILLE ROAD (T-337) AND  
VALLEY VISTA DRIVE (T-808)/  
SCIENCE PARK ROAD (T-336)

APPROVED BY: [Signature] 12/27/23  
MUNICIPAL OFFICIAL DATE

RECOMMENDED : \_\_\_\_\_  
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0 25 50 75