

WMATA

VAN NESS-UDC

A06

EXAMPLE LOCATION

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GAH</u> <small>6-00</small> <small>DATE</small>	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY	COVER SHEET
DRAWN <u>JMR</u> <small>6-00</small> <small>DATE</small>	NUMBER	DESCRIPTION	DATE	BY		
CHECKED _____ <small>DATE</small>			08/2001	SYSP	Revised and issued by the Authority	
APPROVED _____ <small>DATE</small>						
UPDATED _____ <small>DATE</small>						
					SUBMITTED _____ <small>DATE</small>	APPROVED <i>[Signature]</i> <small>May 3, 2001</small> DIRECTOR <small>DATE</small>
					SCALE NONE	DRAWING NO. ST-TC-A6-G-001

LEGEND:

- ⊖ - SPEED RESTRICTION UNTIL REAR OF THE TRAIN CLEARS A PASSENGER PLATFORM
- ⊡ - SPEED RESTRICTION UNTIL THE REAR OF THE TRAIN CLEARS A TRACK SWITCH IN A DIVERGING POSITION.
- ⊠ - ASSIGNED SPEED UNTIL THE REAR OF THE TRAIN CLEARS AN INTERLOCKING DURING A TURNBACK MOVEMENT.
- [0] - STOP UNTIL SIGNAL CLEARS ON TURNBACK MOVE.



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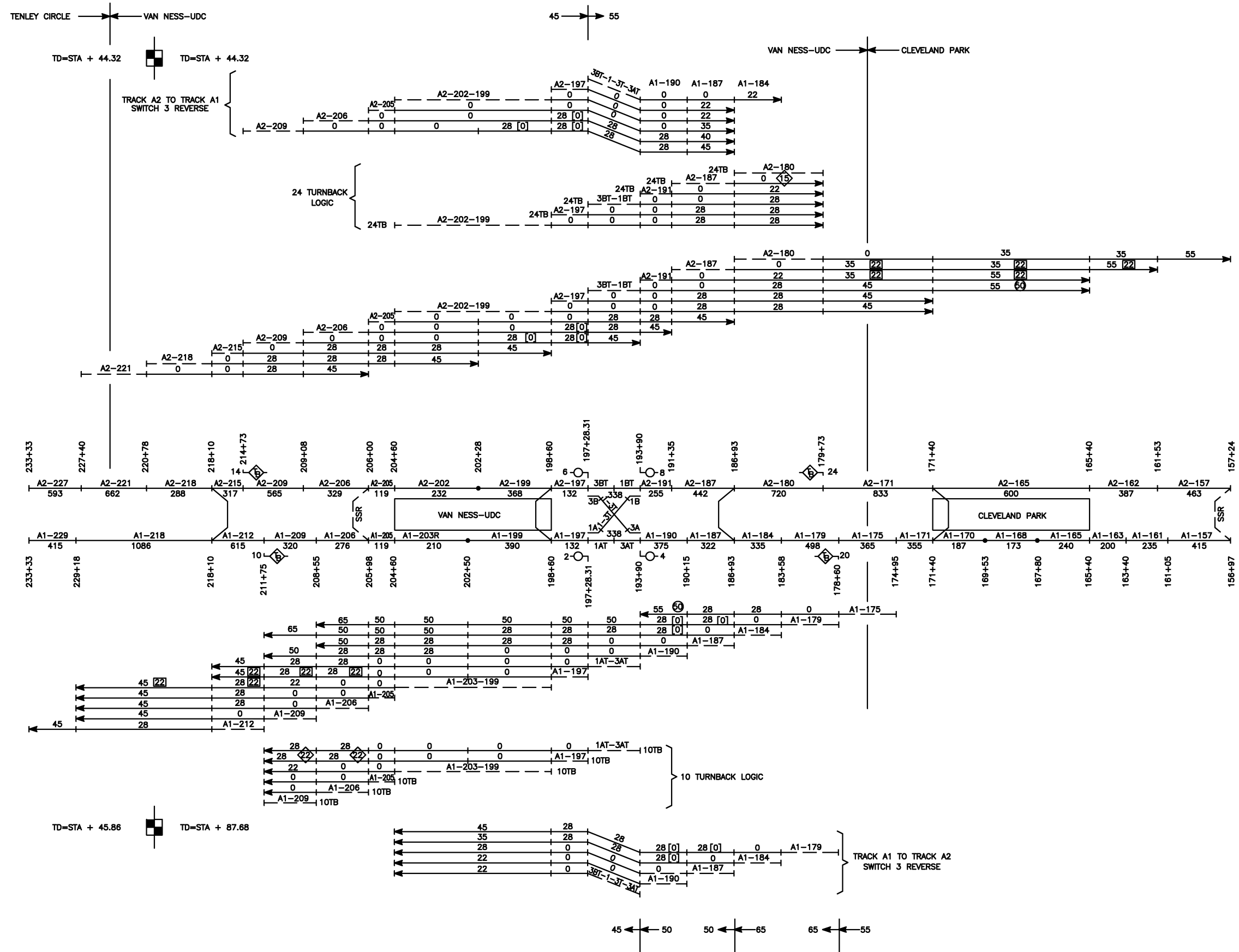
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UPDATED			DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE _____

ATP SPEED COMMANDS CONTROL LINE DIAGRAM A - ROUTE	
SCALE NONE	DRAWING NO. ST-TC-A6-G-007



- LEGEND:**
- Ⓢ - SPEED RESTRICTION UNTIL REAR OF THE TRAIN CLEARS A PASSENGER PLATFORM
 - Ⓜ - SPEED RESTRICTION UNTIL THE REAR OF THE TRAIN CLEARS A TRACK SWITCH IN A DIVERGING POSITION.
 - Ⓛ - ASSIGNED SPEED UNTIL THE REAR OF THE TRAIN CLEARS AN INTERLOCKING DURING A TURNBACK MOVEMENT.
 - [0] - STOP UNTIL SIGNAL CLEARS ON TURNBACK MOVE.

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DESIGNED	GAH	08/06
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APPROVED		DATE
UPDATED		DATE

REFERENCE DRAWINGS		REVISIONS		
NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
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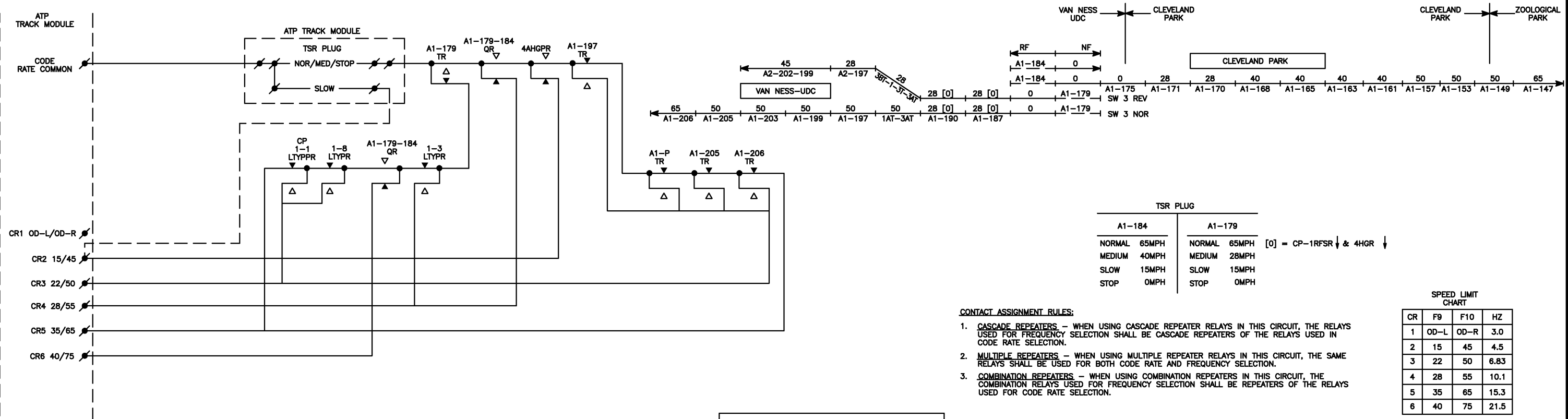
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

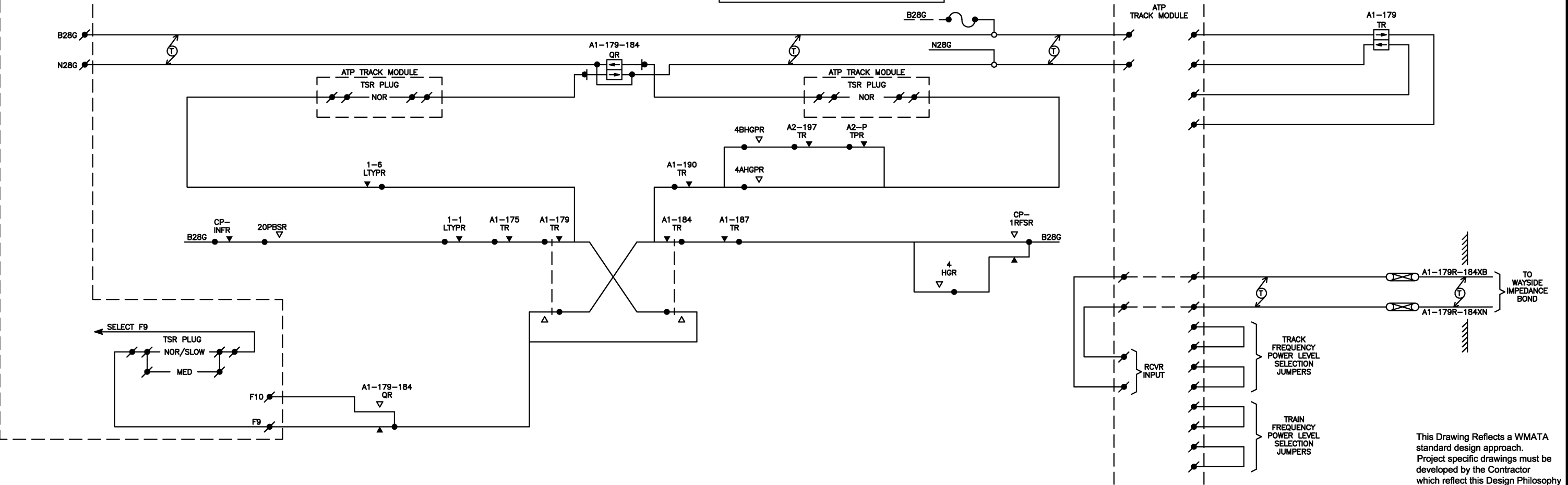
SUBMITTED _____ DATE _____

APPROVED DIRECTOR *[Signature]* May 3, 2001 DATE

ATP SPEED COMMANDS CONTROL LINE DIAGRAMS	
EXAMPLE LOCATION: VAN NESS-UDC, REVERSE DIRECTION	
SCALE NONE	DRAWING NO. ST-TC-A6-G-008



NOTE: "QR" RELAY AND ASSOCIATED 28-VOLT ENERGY MUST BE WIRED EXACTLY AS SHOWN.



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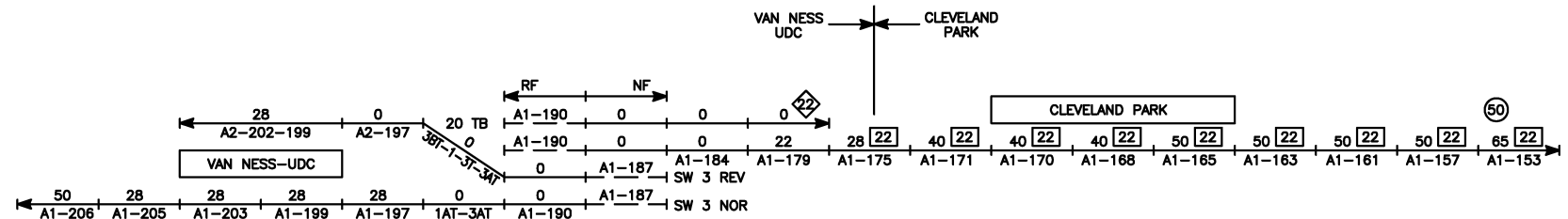
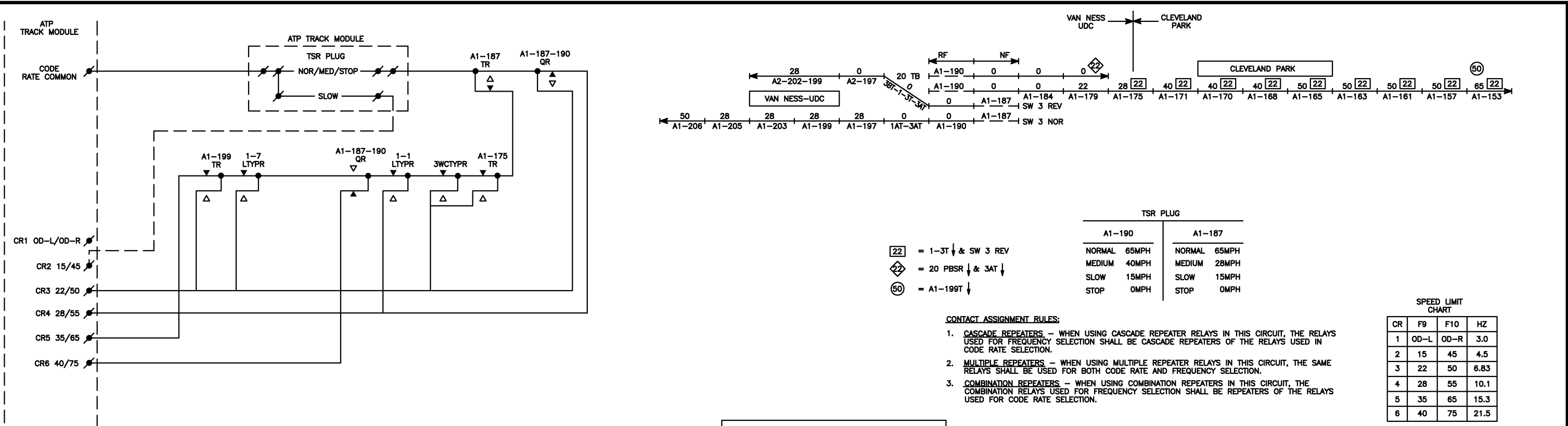
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* May 3, 2001
DIRECTOR DATE

SPEED LIMIT COMMAND CIRCUIT
A1-179-184 QR

SCALE NONE DRAWING NO. ST-TC-A6-S-002



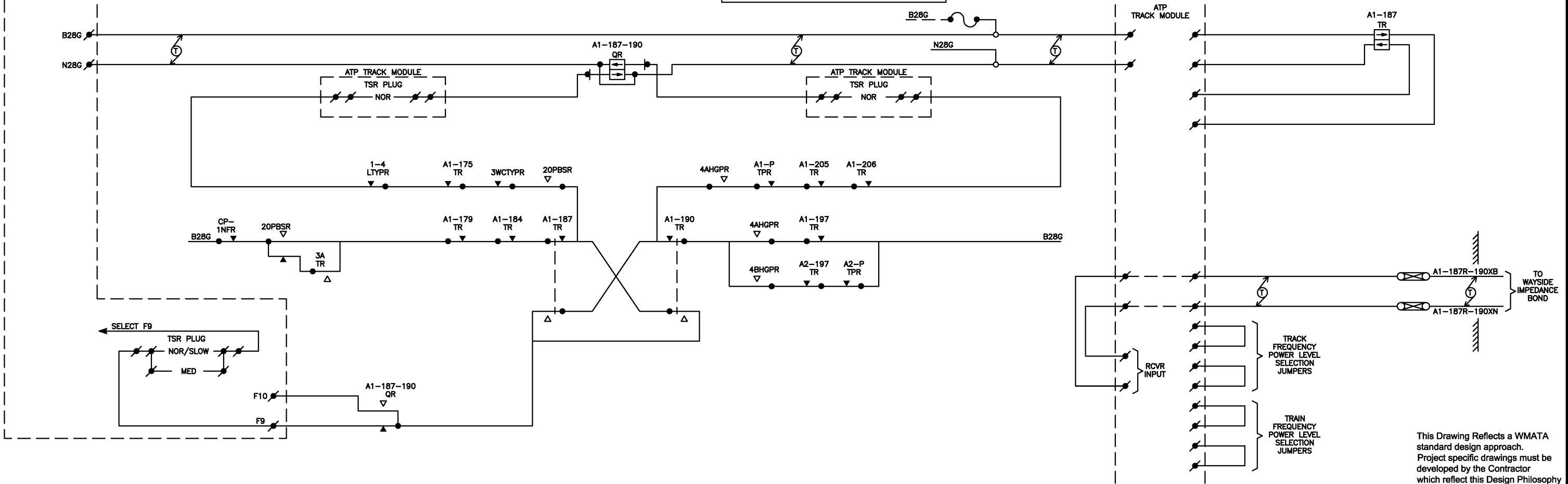
- 22 = 1-3T ↓ & SW 3 REV
- 22 = 20 PBSR ↓ & 3AT ↓
- 50 = A1-199T ↓

TSR PLUG	
A1-190	A1-187
NORMAL 65MPH	NORMAL 65MPH
MEDIUM 40MPH	MEDIUM 28MPH
SLOW 15MPH	SLOW 15MPH
STOP 0MPH	STOP 0MPH

CR	F9	F10	HZ
1	OD-L	OD-R	3.0
2	15	45	4.5
3	22	50	6.83
4	28	55	10.1
5	35	65	15.3
6	40	75	21.5

- CONTACT ASSIGNMENT RULES:**
- CASCADE REPEATERS** - WHEN USING CASCADE REPEATER RELAYS IN THIS CIRCUIT, THE RELAYS USED FOR FREQUENCY SELECTION SHALL BE CASCADE REPEATERS OF THE RELAYS USED IN CODE RATE SELECTION.
 - MULTIPLE REPEATERS** - WHEN USING MULTIPLE REPEATER RELAYS IN THIS CIRCUIT, THE SAME RELAYS SHALL BE USED FOR BOTH CODE RATE AND FREQUENCY SELECTION.
 - COMBINATION REPEATERS** - WHEN USING COMBINATION REPEATERS IN THIS CIRCUIT, THE COMBINATION RELAYS USED FOR FREQUENCY SELECTION SHALL BE REPEATERS OF THE RELAYS USED FOR CODE RATE SELECTION.

NOTE: "QR" RELAY AND ASSOCIATED 28-VOLT ENERGY MUST BE WIRED EXACTLY AS SHOWN.



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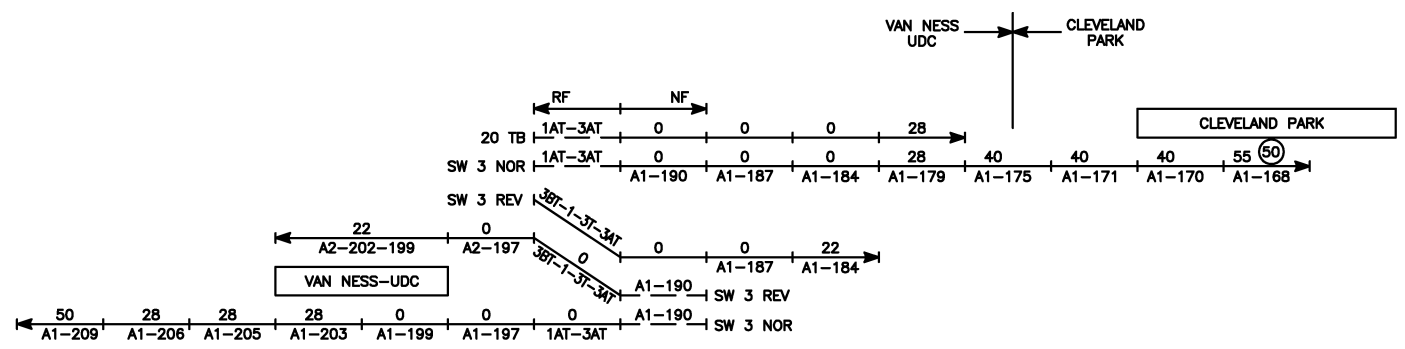
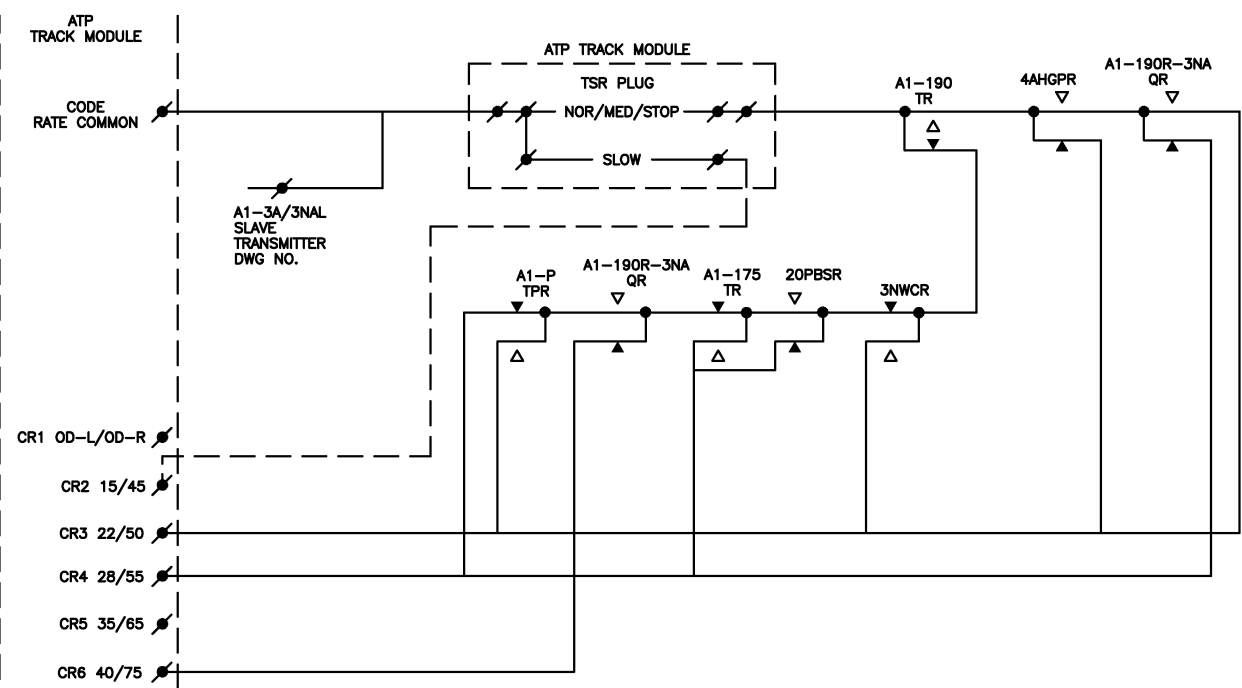
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SUBMITTED _____ DATE _____ APPROVED *respat* May 3, 2001
DIRECTOR DATE

SPEED LIMIT COMMAND CIRCUIT
A1-187-190 QR

SCALE NONE DRAWING NO. ST-TC-A6-S-004



TSR PLUG

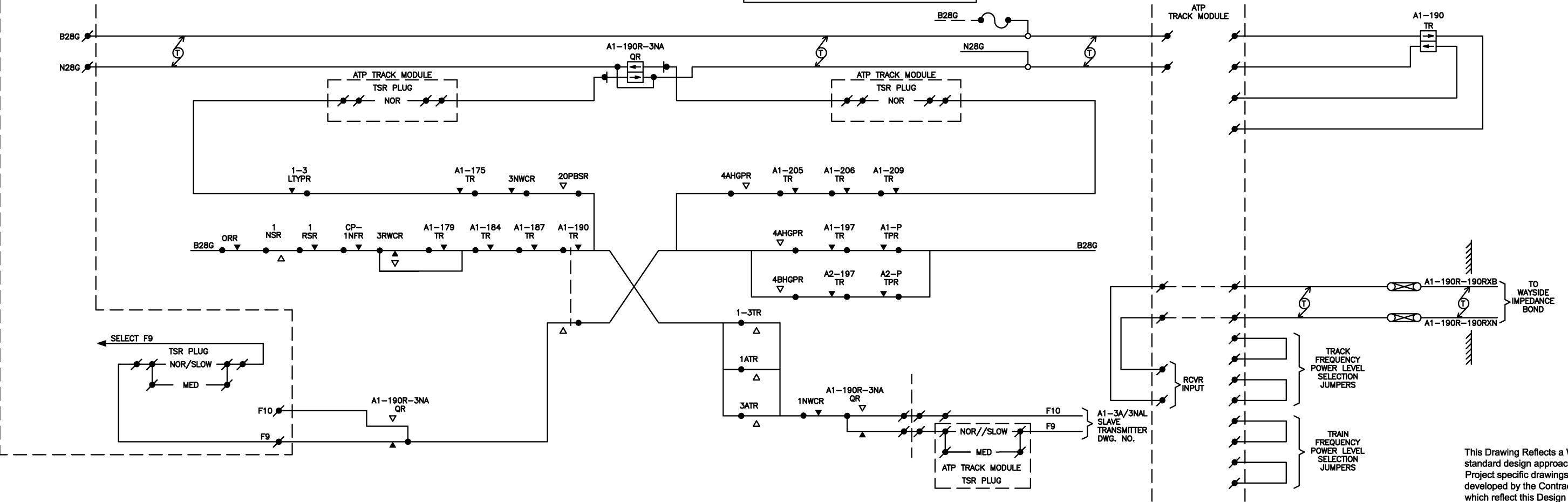
3NA		A1-190	
NORMAL	55MPH	NORMAL	50MPH
MEDIUM	40MPH	MEDIUM	28MPH
SLOW	15MPH	SLOW	15MPH
STOP	0MPH	STOP	0MPH

SPEED LIMIT CHART

CR	F9	F10	HZ
1	OD-L	OD-R	3.0
2	15	45	4.5
3	22	50	6.83
4	28	55	10.1
5	35	65	15.3
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UPDATED			DATE				

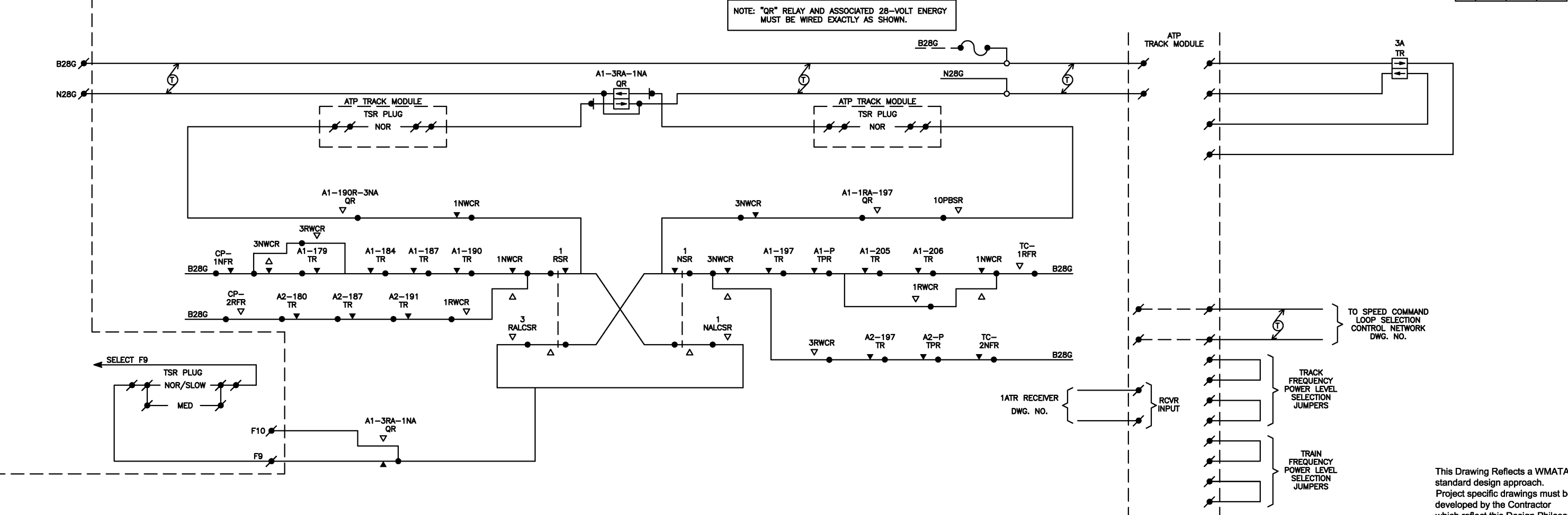
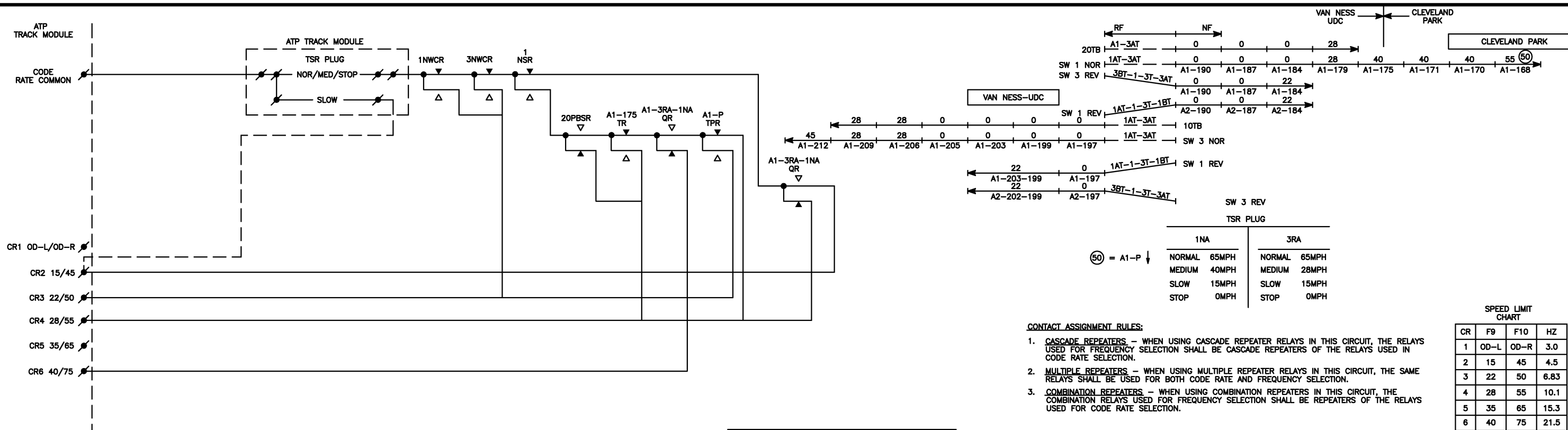
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OFFICE OF SYSTEMS

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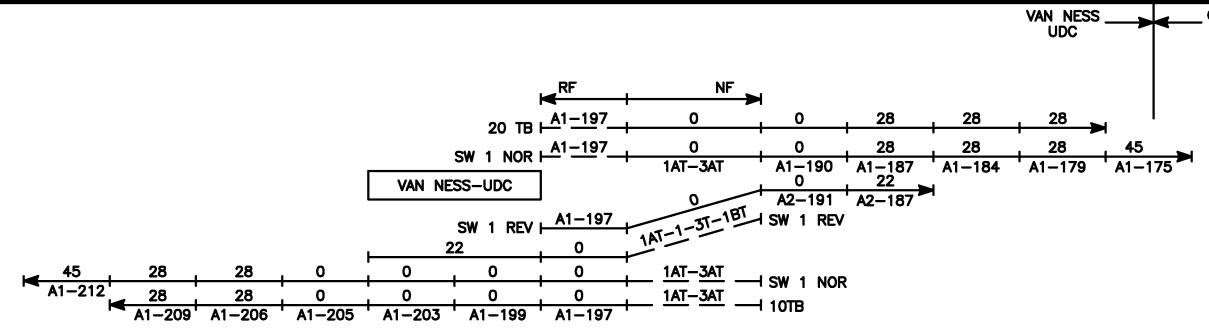
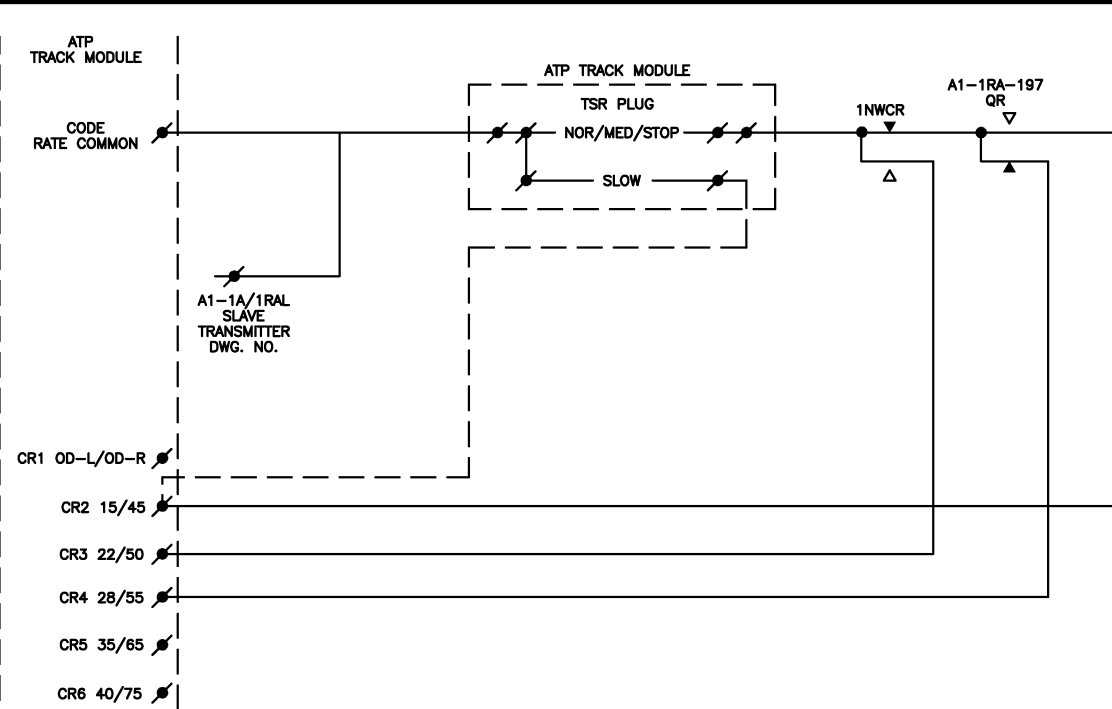
SPEED LIMIT COMMAND CIRCUIT
A1-190R-3NA QR

SCALE NONE DRAWING NO. ST-TC-A6-S-005



DESIGNED <u>GAH</u> 6-00 DATE	<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> <th colspan="2">REVISIONS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>08/2001</td> <td>SYSP</td> <td>Revised and issued by the Authority</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	REFERENCE DRAWINGS		REVISIONS		NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION			08/2001	SYSP	Revised and issued by the Authority																<p align="center">WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</p> <p align="center">DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS</p> <p>SUBMITTED _____ DATE _____ APPROVED <i>[Signature]</i> May 3, 2001 DATE</p>	<p align="center">SPEED LIMIT COMMAND CIRCUIT A1-3RA-1NA QR</p> <p>SCALE NONE DRAWING NO. ST-TC-A6-S-006</p>
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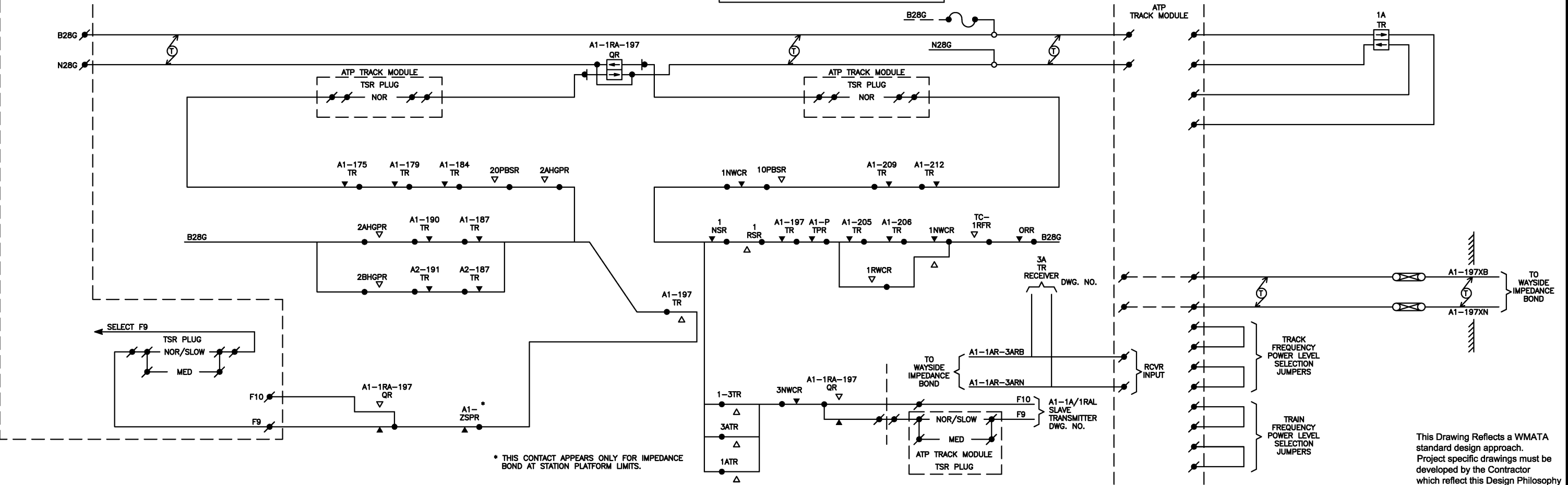


TSR PLUG			
	A1-197	1RA	
NORMAL	45MPH	NORMAL	45MPH
MEDIUM	28MPH	MEDIUM	28MPH
SLOW	15MPH	SLOW	15MPH
STOP	0MPH	STOP	0MPH

SPEED LIMIT CHART			
CR	F9	F10	HZ
1	OD-L	OD-R	3.0
2	15	45	4.5
3	22	50	6.83
4	28	55	10.1
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* May 3, 2001
DIRECTOR DATE

SPEED LIMIT COMMAND CIRCUIT
A1-1RA-197 QR

SCALE NONE DRAWING NO. ST-TC-A6-S-007

WMATA

TYPICAL CIRCUITS

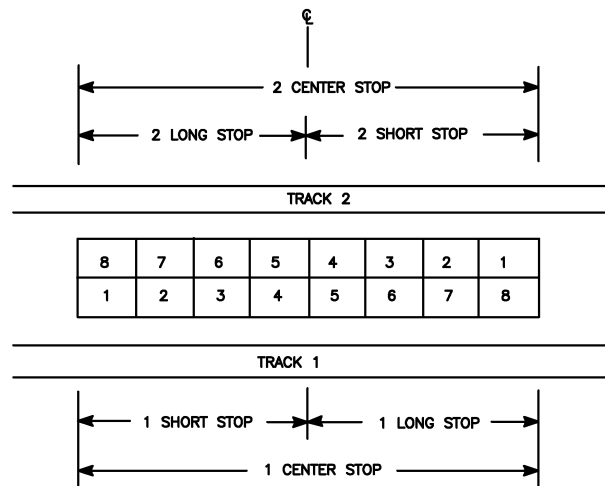
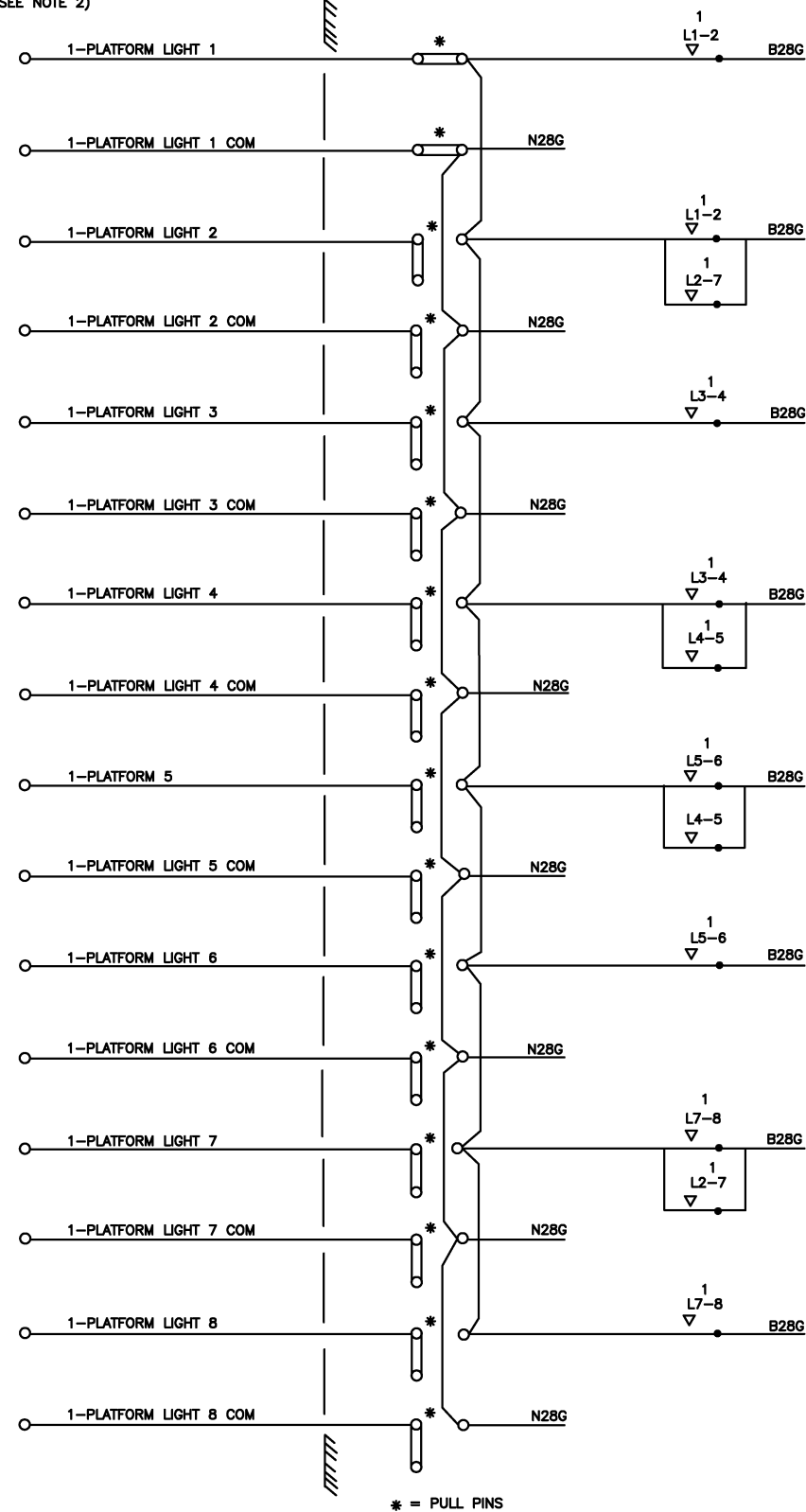
BOOK OF PLANS

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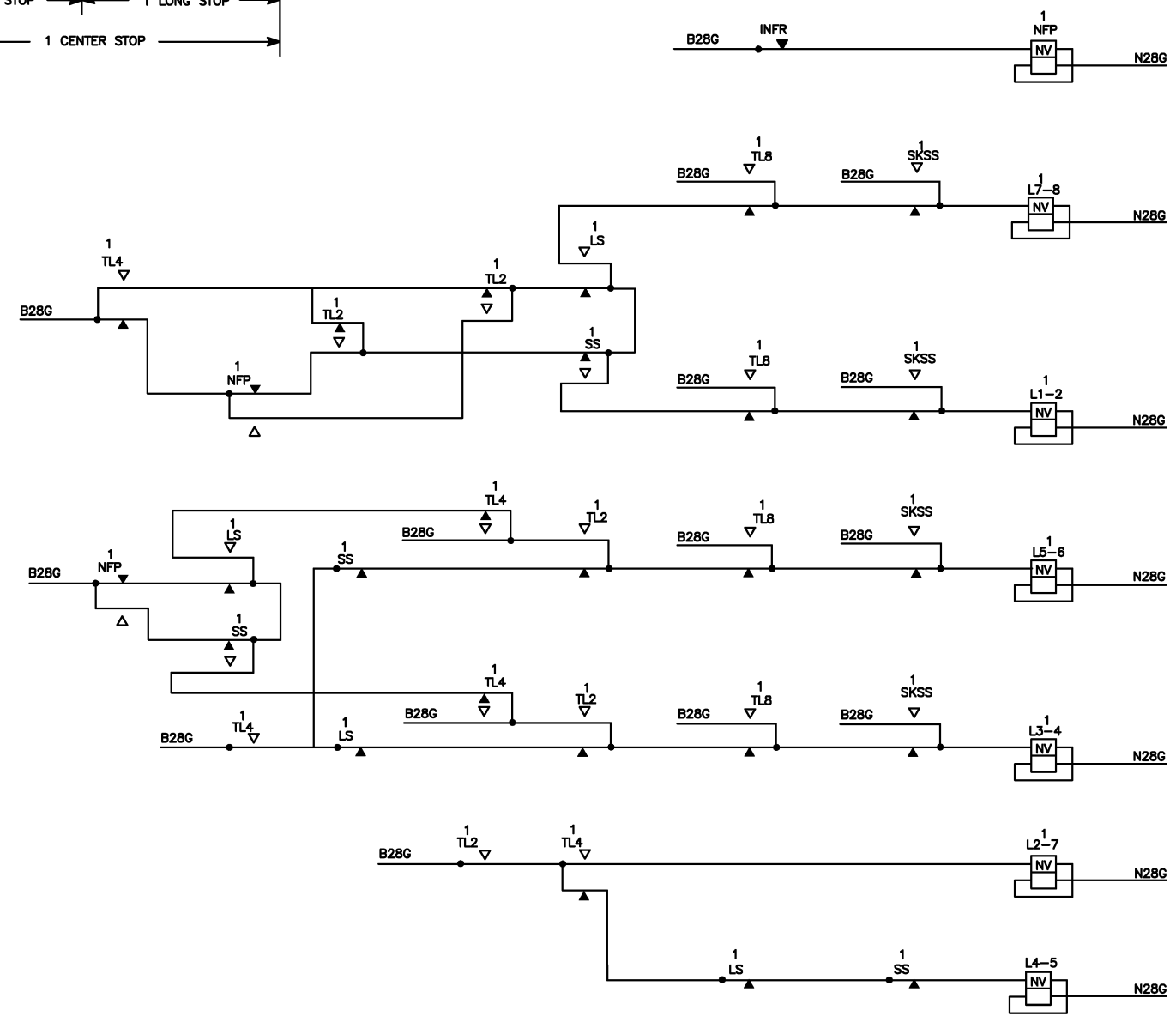
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DRAWN <u>JMR</u> <u>2-00</u> DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS		SCALE NONE
CHECKED _____ DATE			08/2001	SYSP	Revised and issued by the Authority	SUBMITTED _____ DATE		DRAWING NO. ST-TC-C-001
APPROVED _____ DATE						APPROVED <u>[Signature]</u> <u>May 3, 2001</u> DIRECTOR DATE		
UPDATED _____ DATE								

APPLICABLE
AC SERVICE ROOM(S)
(SEE NOTE 2)

PLATFORM LIGHT CONTROL



- NOTES:
1. CIRCUITS SHOWN FOR TRACK 1, EQUIVALENT FACILITIES REQUIRED FOR TRACK 2.
 2. THE CONTRACTOR SHALL PROVIDE PLATFORM LIGHT CONTROL WIRING TO THE "COMBINED", "NEAR", AND/OR "FAR" AC SERVICE ROOM(S), AS APPLICABLE FOR EACH STATION PLATFORM.



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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

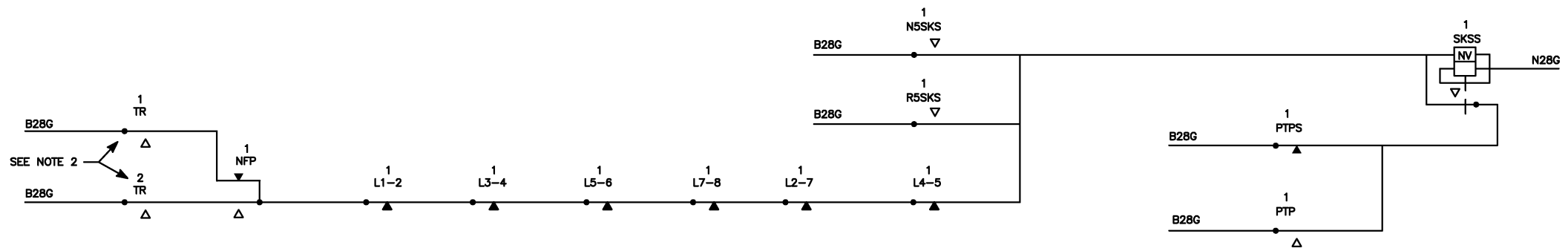
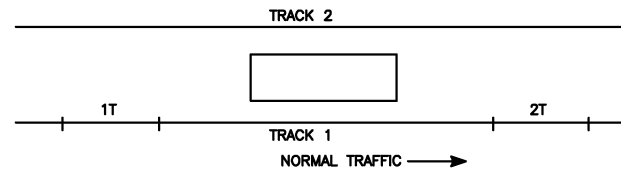
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* May 3, 2001
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**TYPICAL PLATFORM EDGELIGHT CONTROL
CIRCUIT (SHEET 1 OF 2)**

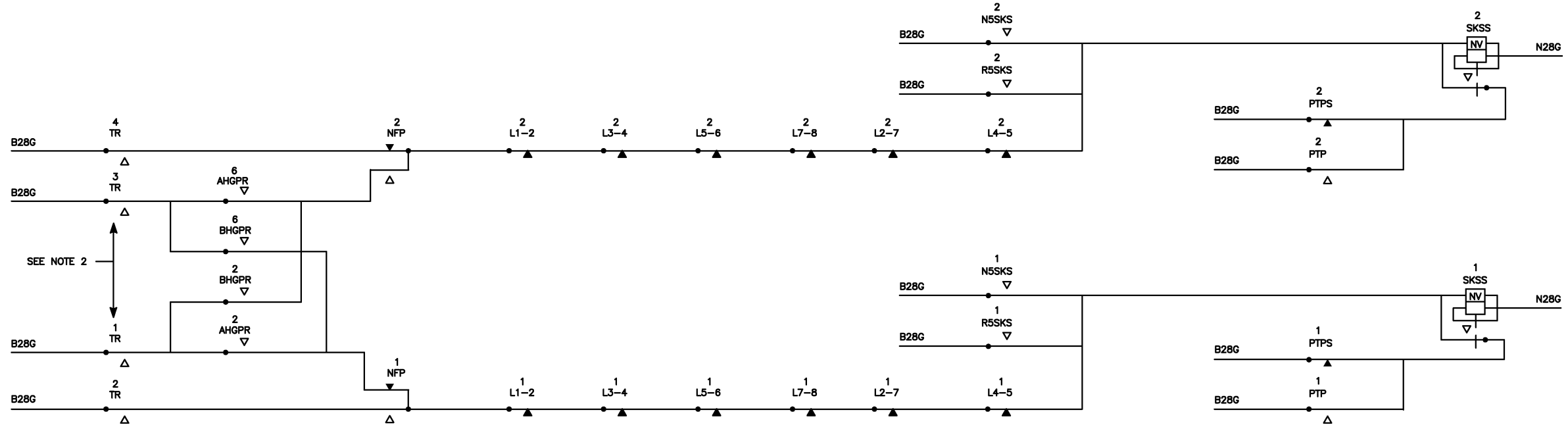
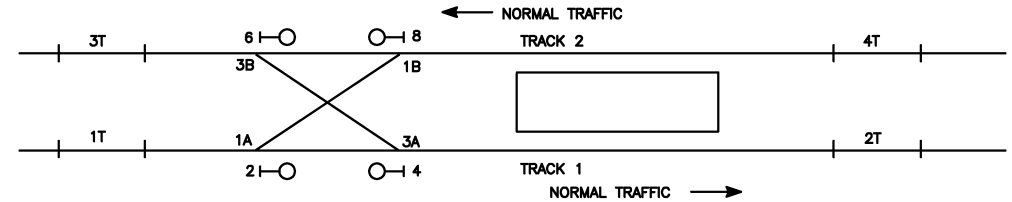
SCALE NONE DRAWING NO. ST-TC-C-002

INLINE STATION



- NOTES:
1. CIRCUIT SHOWN FOR TRACK 1. EQUIVALENT CIRCUIT REQUIRED FOR TRACK 2.
 2. TR CONTACT SHALL BE THE TRACK CIRCUIT WHICH CONTAINS THE 1200 FT PROGRAM STOP MARKER COILS.

INTERLOCKING STATION



- NOTES:
1. THIS CIRCUIT REQUIRED WHEN INITIATING TRACK CIRCUITS ARE LOCATED UPSTREAM OF INTERLOCKING. WHEN NO INITIATING TRACK CIRCUITS ARE LOCATED UPSTREAM OF INTERLOCKING, THE CIRCUIT SHOWN ABOVE FOR INLINE STATIONS SHALL BE USED.
 2. TR CONTACT SHALL BE THE TRACK CIRCUIT WHICH CONTAINS THE 1200 FT PROGRAM STOP MARKER COILS EXCEPT WHEN THE 1200 FT MARKER COILS ARE LOCATED WITHIN THE INTERLOCKING. IN THIS CASE, THE TR CONTACT SHALL BE THE TRACK CIRCUIT UPSTREAM OF THE INTERLOCKING HOME SIGNAL. WHEN THERE ARE NO 1200 FT PROGRAM STOP MARKER COILS, SUCH AS AT TERMINALS WHERE THERE IS MANUAL OPERATION, THE TR CONTACT SHALL BE A TRACK CIRCUIT THAT IS 300' TO 400' AWAY FROM THE PLATFORM ENTERING END.

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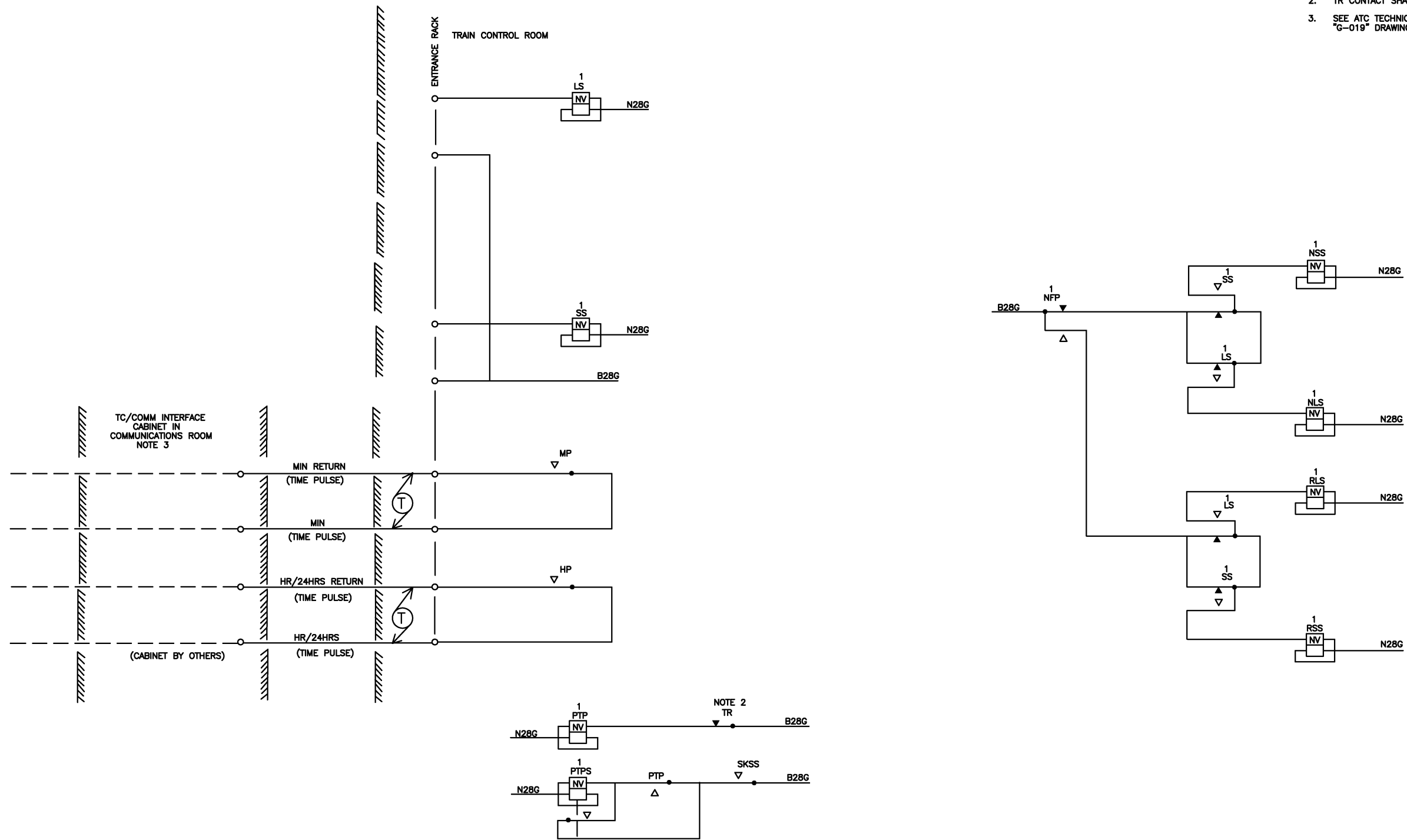
TYPICAL PLATFORM EDGELIGHT CONTROL CIRCUITS

SCALE NONE

DRAWING NO. ST-TC-C-003

SHEET 2 OF 2

- NOTES:
1. CIRCUITS SHOWN FOR TRACK 1. EQUIVALENT CIRCUITS REQUIRED FOR TRACK 2, EXCLUDING THE MP & HP INPUTS.
 2. TR CONTACT SHALL BE THE PLATFORM TRACK.
 3. SEE ATC TECHNICAL APPENDIX & SITE SPECIFIC "G-019" DRAWINGS.



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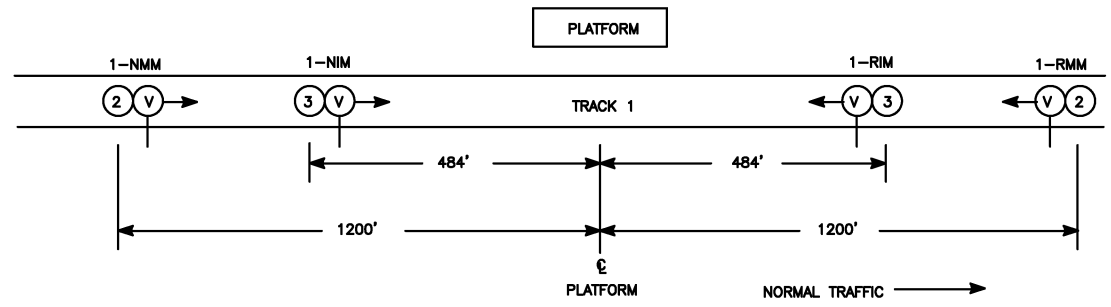
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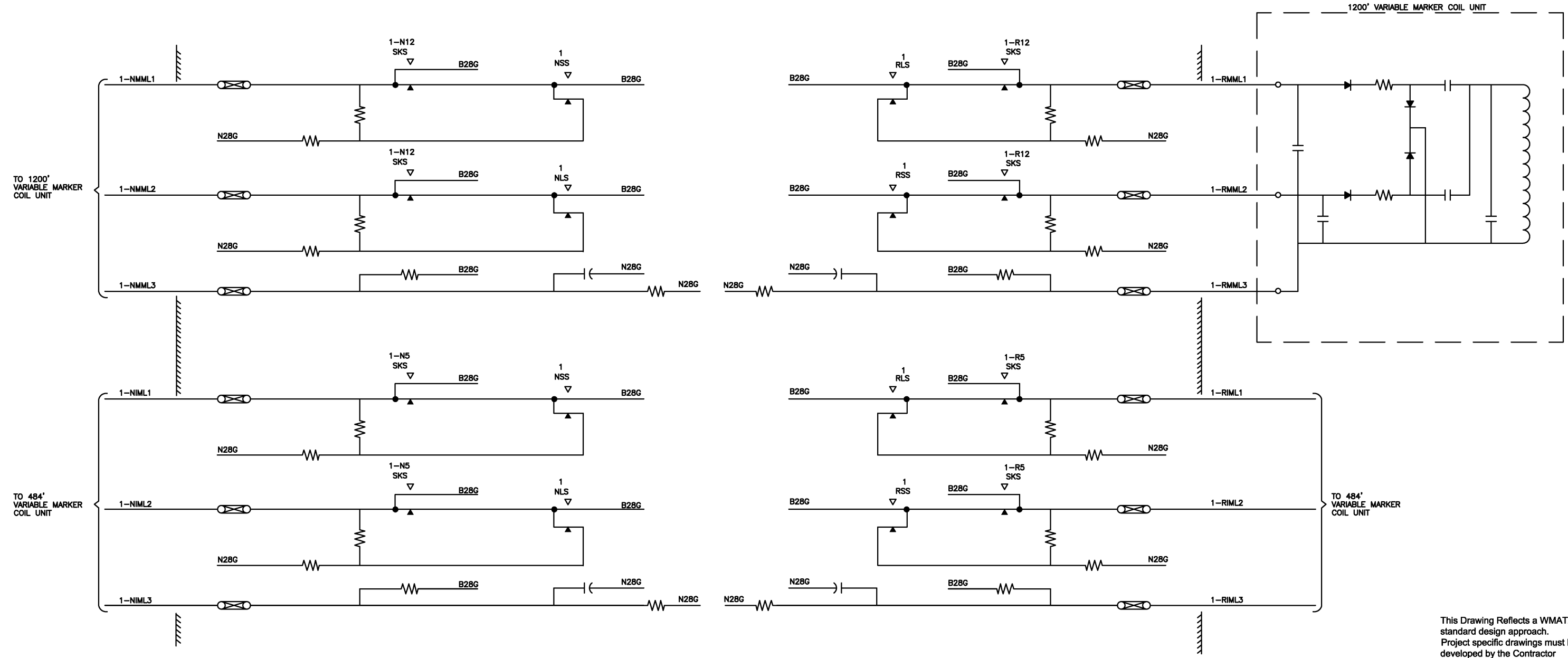
SUBMITTED _____ DATE _____ APPROVED *[Signature]* DATE May 3, 2001
DIRECTOR

TYPICAL PROGRAM STOP CONTROL CIRCUITS AND TIME PULSE INPUTS	
SCALE NONE	DRAWING NO. ST-TC-C-004

NOTES: 1. CIRCUITS SHOWN FOR TRACK 1. EQUIVALENT CIRCUITS REQUIRED FOR TRACK 2.



TYPE OF STOP NORMAL TRAFFIC (PLATFORM)	TYPE OF STOP REVERSE TRAFFIC (PLATFORM)	TYPE OF STOP (CAR)	LINE ENERGIZED POSITIVE	FREQUENCY
SHORT	LONG	A	L1	7
LONG	SHORT	B	L2	8
CENTER	CENTER	C	L3	9
SKIP	SKIP	SKIP	L1 & L2	6



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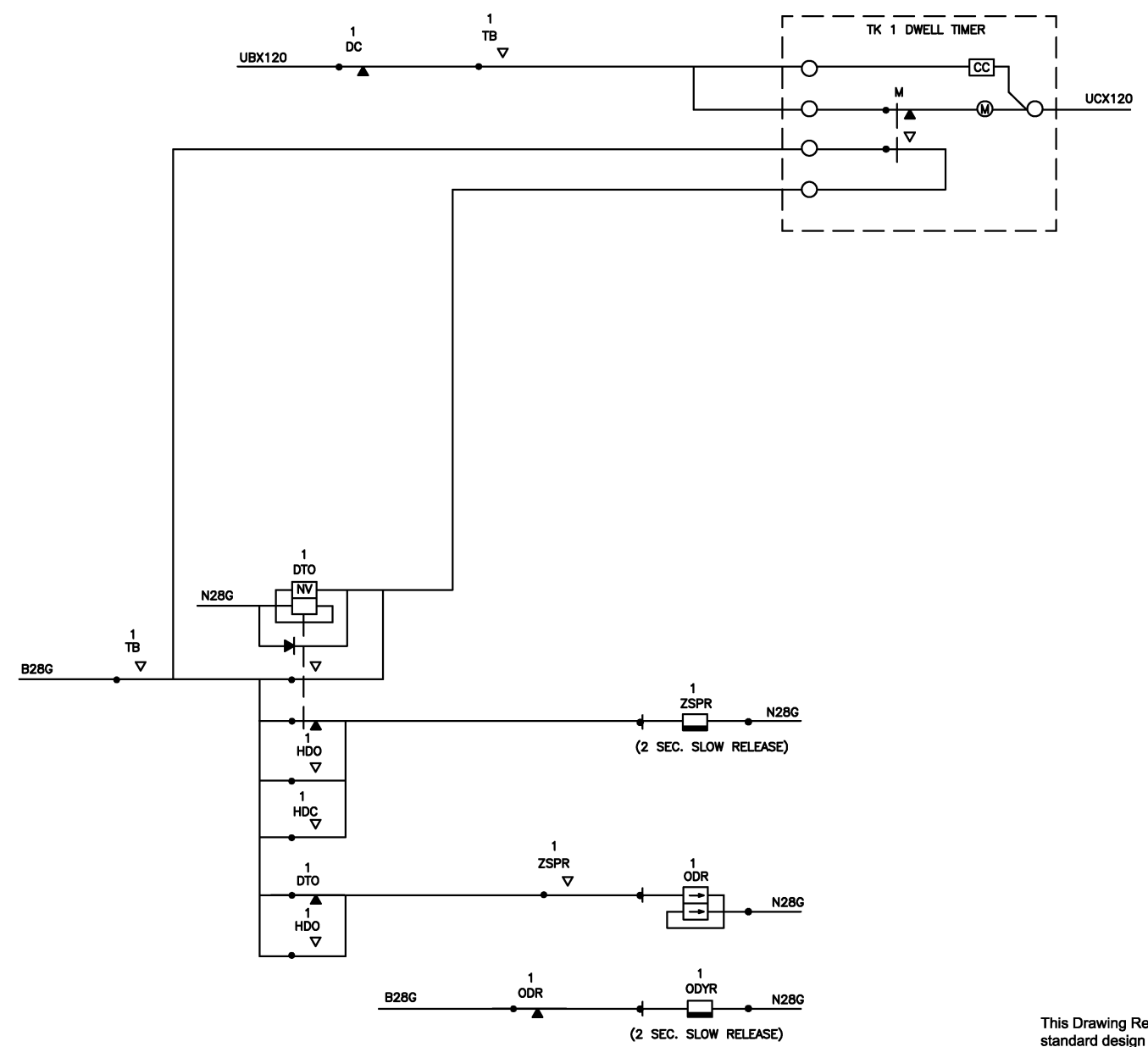
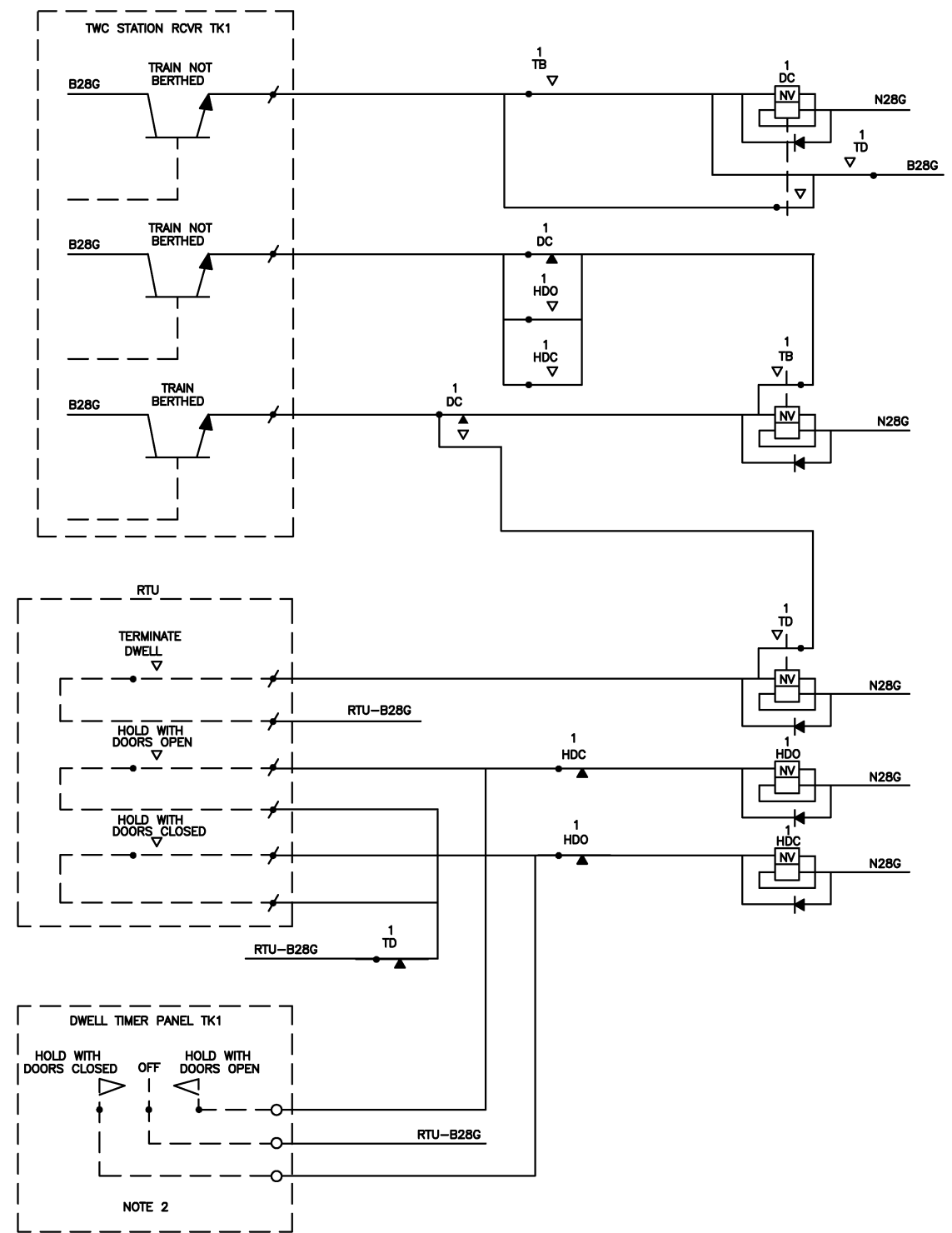
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TYPICAL PROGRAM STOP MARKER CONTROL CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-C-005

- NOTES:
1. CIRCUITS SHOWN FOR TRACK 1. EQUIVALENT CIRCUITS REQUIRED FOR TRACK 2.
 2. "HOLD" SWITCH SHALL NOT BE PROVIDED, BUT CONTRACTOR SHALL PROVIDE EXTERNAL WIRING FOR POSSIBLE FUTURE SWITCH.



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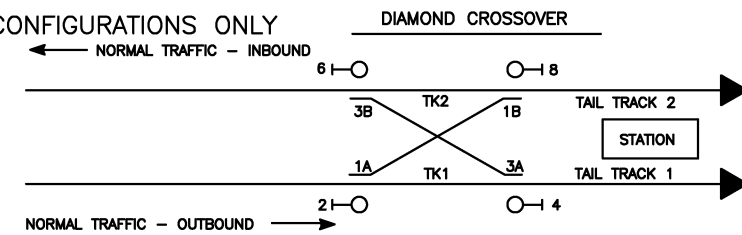
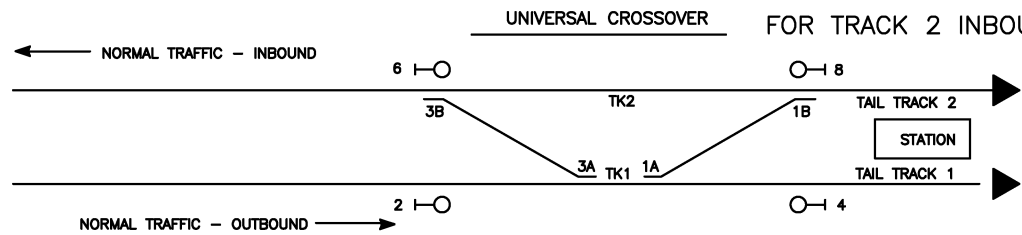
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SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE

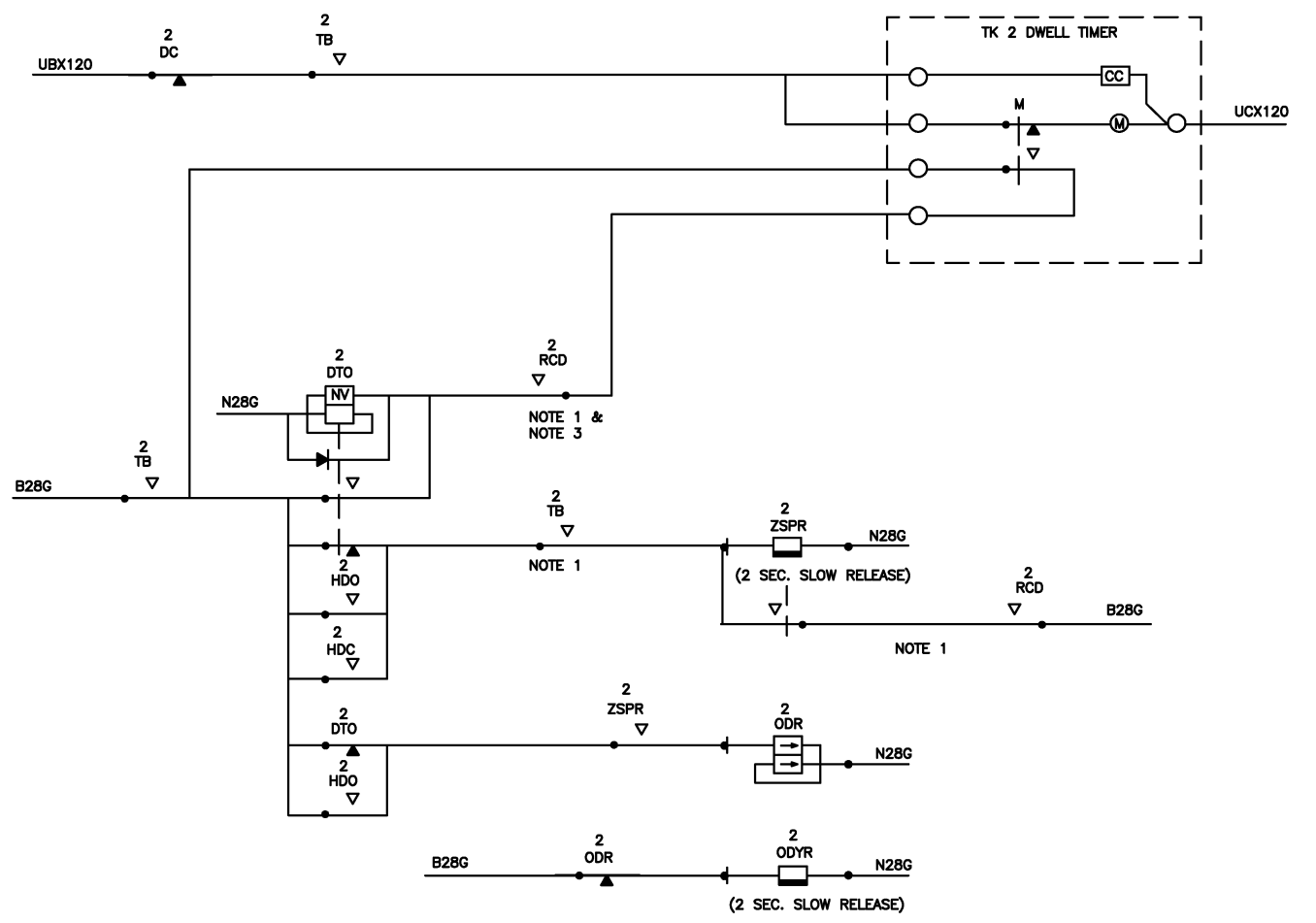
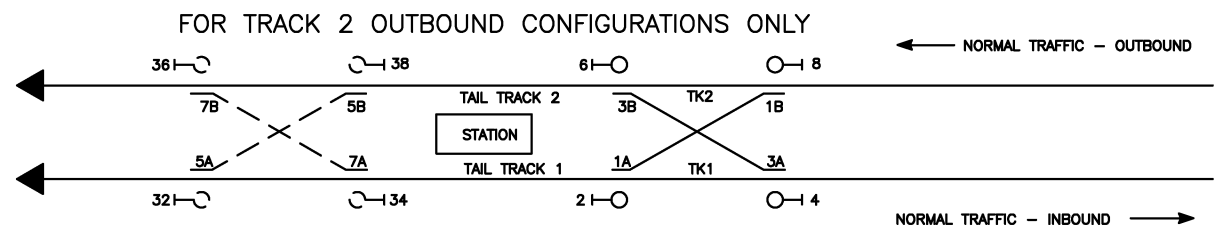
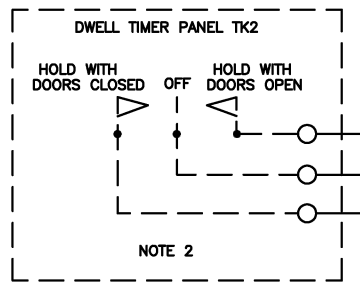
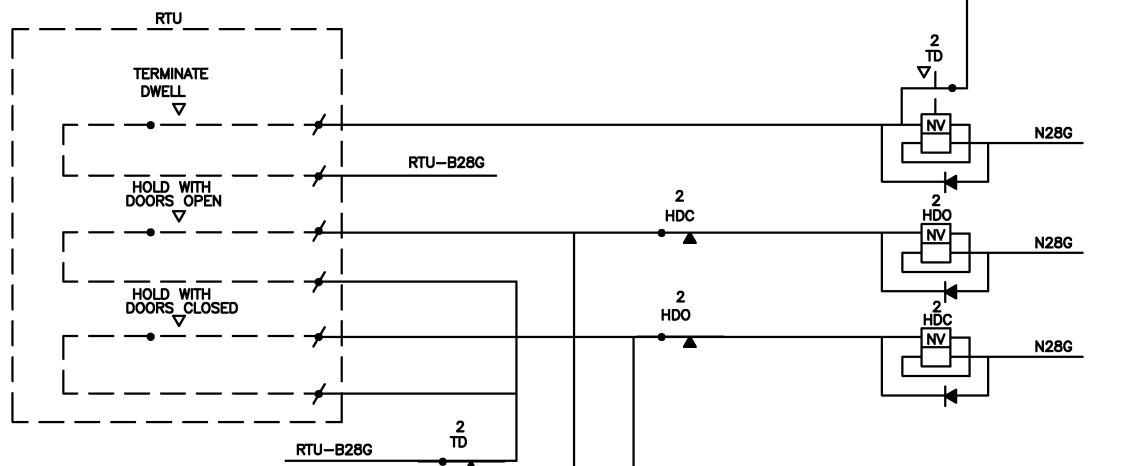
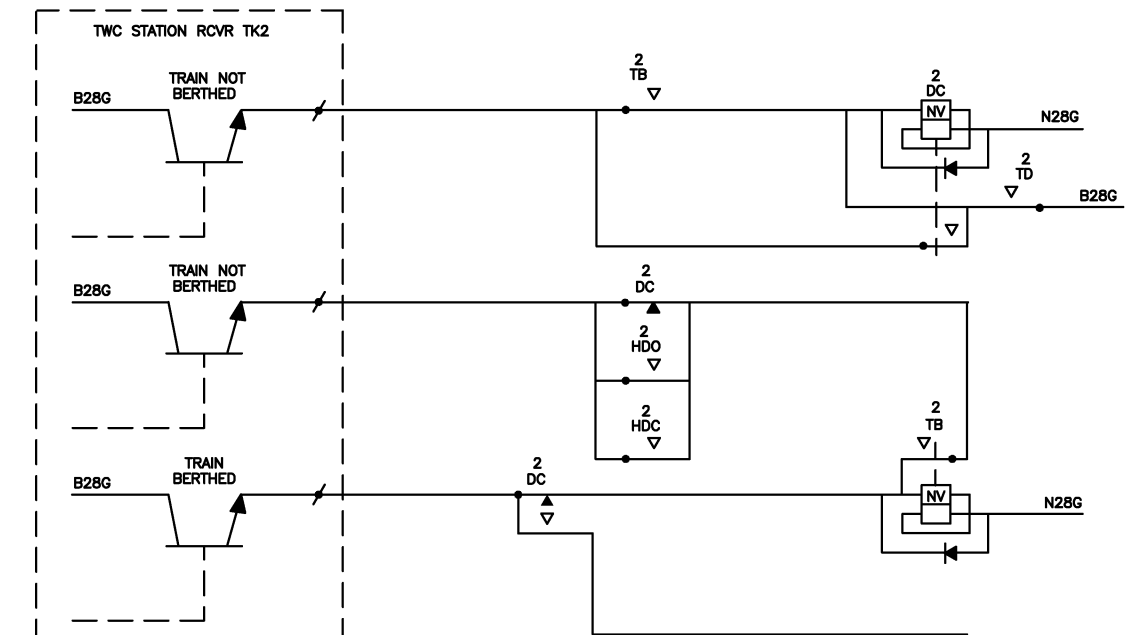
TYPICAL DOOR AND DWELL CONTROL CIRCUITS

EXCEPT TAIL-TRACK TERMINALS

SCALE NONE DRAWING NO. ST-TC--C-006



- NOTES:
1. THESE CIRCUIT MODIFICATIONS APPLY ONLY WHEN THE TERMINAL STATION IS LOCATED ON THE TAIL-TRACKS, I.E., OUTBOUND OF THE TERMINAL INTERLOCKING.
 2. "HOLD" SWITCH SHALL NOT BE PROVIDED, BUT CONTRACTOR SHALL PROVIDE EXTERNAL WIRING FOR POSSIBLE FUTURE SWITCH.
 3. USE "2RCD" FOR TRACK 2 INBOUND. SUBSTITUTE "2NCD" FOR TRACK 2 OUTBOUND.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
GAH	5-00			08/2001	SYSP	Revised and issued by the Authority
DRAWN	DATE					
CHECKED	DATE					
APPROVED	DATE					
UPDATED	DATE					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

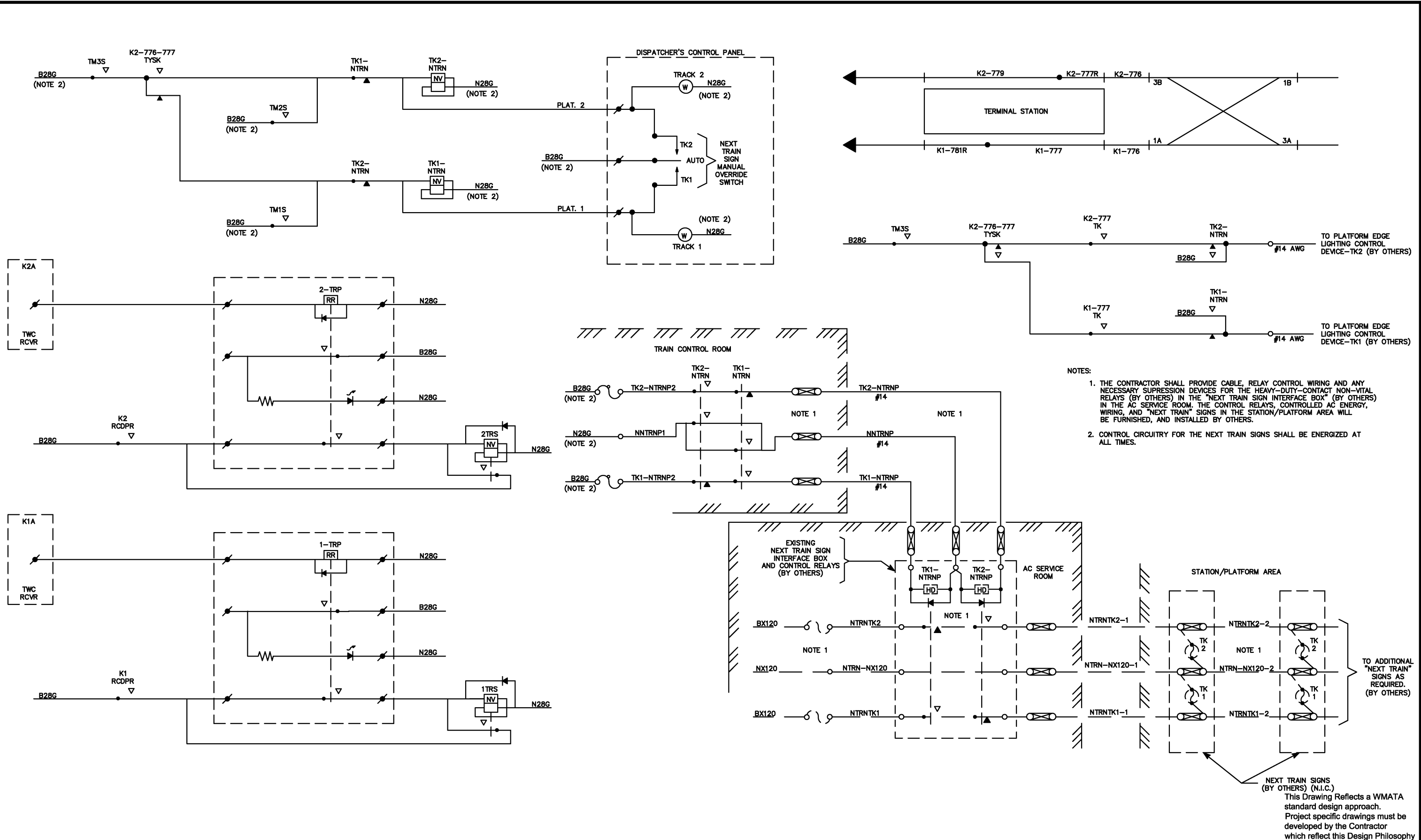
TYPICAL DOOR AND DWELL CONTROL CIRCUITS - TRACK 2

TAIL-TRACK TERMINALS

SCALE: NONE

DRAWING NO. ST-TC-C-009

SUBMITTED: _____ DATE: _____ APPROVED DIRECTOR: *[Signature]* May 3, 2001 DATE: _____



- NOTES:
1. THE CONTRACTOR SHALL PROVIDE CABLE, RELAY CONTROL WIRING AND ANY NECESSARY SUPPRESSION DEVICES FOR THE HEAVY-DUTY-CONTACT NON-VITAL RELAYS (BY OTHERS) IN THE "NEXT TRAIN SIGN INTERFACE BOX" (BY OTHERS) IN THE AC SERVICE ROOM. THE CONTROL RELAYS, CONTROLLED AC ENERGY, WIRING, AND "NEXT TRAIN" SIGNS IN THE STATION/PLATFORM AREA WILL BE FURNISHED, AND INSTALLED BY OTHERS.
 2. CONTROL CIRCUITRY FOR THE NEXT TRAIN SIGNS SHALL BE ENERGIZED AT ALL TIMES.

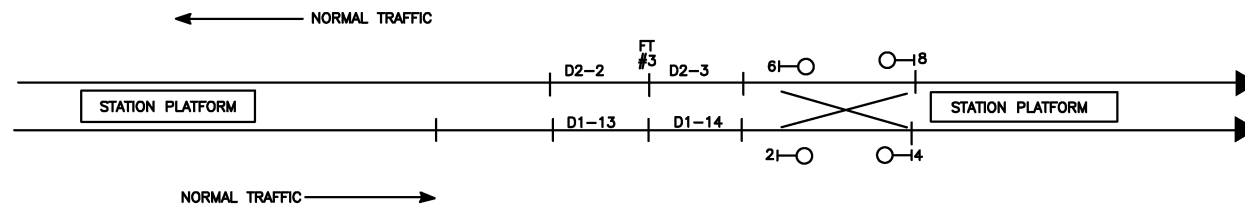
NEXT TRAIN SIGNS (BY OTHERS) (N.I.C.)
 This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
GAH	2-00			08/2001	SYSP	Revised and issued by the Authority
DRAWN	DATE					
CHECKED	DATE					
APPROVED	DATE					
UPDATED	DATE					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
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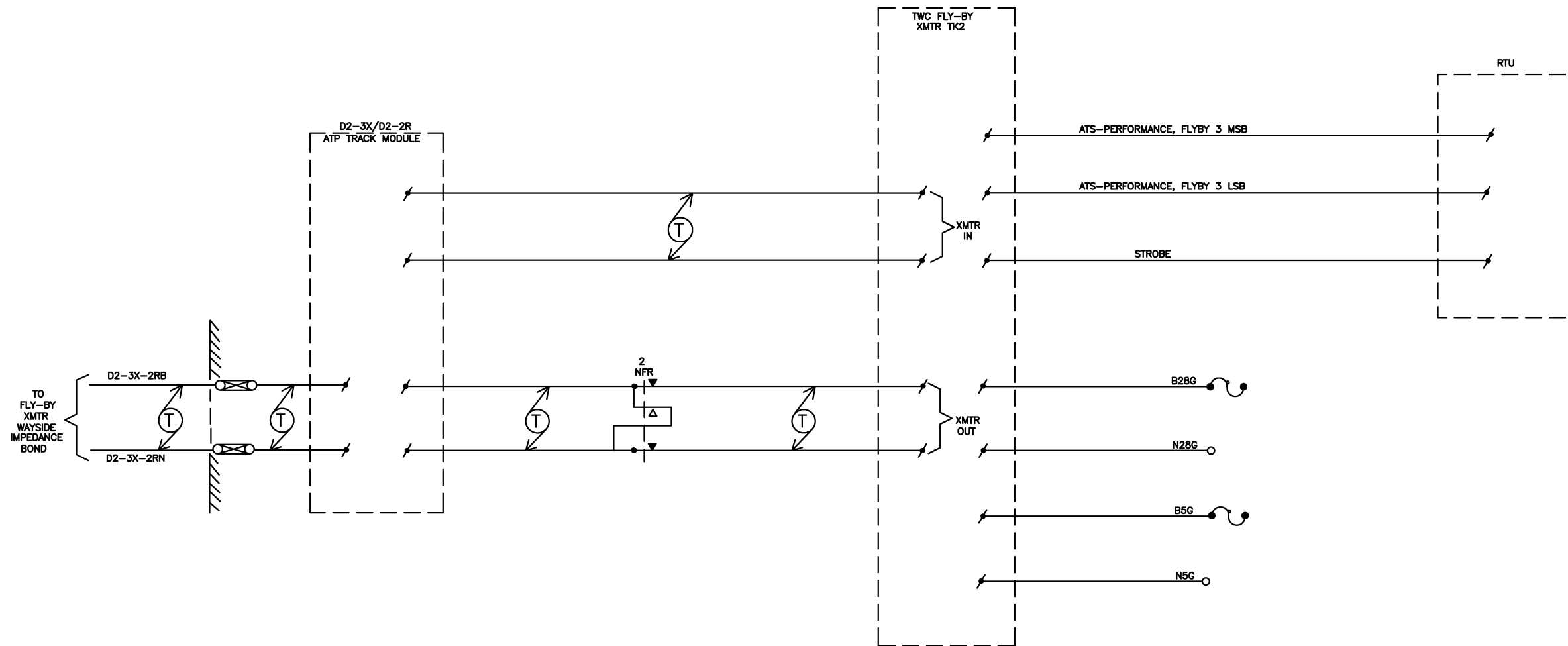
SUBMITTED _____ DATE _____ APPROVED *respat* May 3, 2001 DATE _____
 DIRECTOR

TERMINALS	DRAWING NO.
SCALE	ST-TC-C-011
NONE	



NOTES:

1. THE CONTRACTOR SHALL DETERMINE PERFORMANCE LEVEL SPEEDS FOR EACH LOCATION IN THE SPECIFIED MANNER AS PART OF HIS DESIGN RESPONSIBILITY.
2. PROGRAMMING PLUG SHALL BE CONSTRUCTED TO MAKE IT EASILY ACCESSIBLE TO CHANGE SPEEDS IF REQUIRED. THE ASSIGNMENT OF THE PINS IS THE CONTRACTOR'S RESPONSIBILITY.
3. THE CONTRACTOR SHALL DETERMINE WHICH TCR(S) THE FLY-BY TRANSMITTER EQUIPMENT IS TO BE LOCATED IN AS PART OF HIS BLOCK DESIGN RESPONSIBILITY.



NOTE 1

ATS - PERFORMANCE (RTU OUTPUT)			
LSB	MSB	PERFORMANCE LEVEL	SPEED (MPH)
0	0	MAXIMUM	79
1	0	NORMAL	49
0	1	REDUCED	39
1	1	RETARDED	24

NOTE 2

ATS- PERFORMANCE LEVEL	SPEED (MPH)	PROGRAMMING PLUG							
		SPEED (MPH)	PIN TO	PIN	BINARY OUTPUT				
	79	X	X	X	1	1	1	1	1
	79	X	X	X	1	0	0	0	0
	14				0	1	0	0	
	19				1	1	0	0	
RETARDED	24				0	0	1	0	
	29				1	0	1	0	
	34				0	1	1	0	
REDUCED	39				1	1	1	0	
	44				0	0	0	1	
NORMAL	49				1	0	0	1	
	54				0	1	0	1	
	59				1	1	0	1	
	64				0	0	1	1	
	69				1	0	1	1	
	74				0	1	1	1	
MAXIMUM	79	X	X	X	1	1	1	1	

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

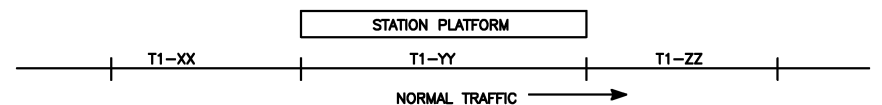
DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
GAH	2-00			08/2001	SYSP	Revised and issued by the Authority
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APPROVED						
UPDATED						

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

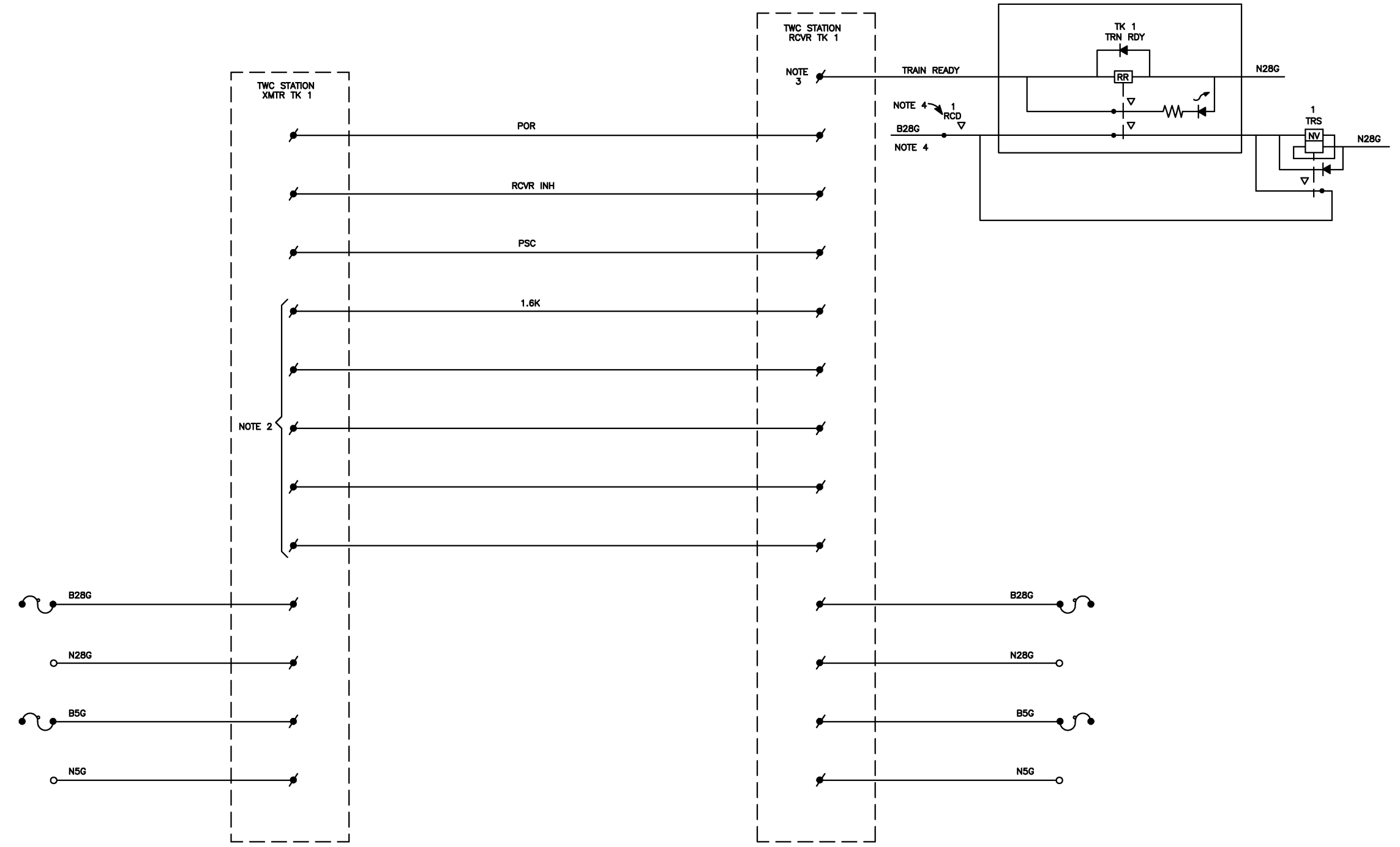
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

TYPICAL TWC FLYBY TRANSMITTER CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-C-016



- NOTES:
1. EQUIVALENT CIRCUIT REQUIRED FOR TRACK 2.
 2. FOR TIMING AND CONTROL PULSES REQUIRED BY THE RECEIVER, WHICH ARE DEVELOPED WITHIN THE TRANSMITTER.
 3. "TRAIN READY" REQUIRED AT TERMINALS WITH INTERLOCKING ON REVENUE SERVICE END OF STATION PLATFORM.
 4. NCD IS REQUIRED WHEN TRAIN IS ENTERING REVENUE SERVICE ON THE SPECIFIED TRACK IN THE NORMAL DIRECTION AND THE RCD IS REQUIRED WHEN IT IS ENTERING IN THE REVERSE DIRECTION.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	2-00	DATE
DRAWN	JMR	2-00	DATE
CHECKED			DATE
APPROVED			DATE
UPDATED			DATE

REFERENCE DRAWINGS		REVISIONS	
NUMBER	DESCRIPTION	DATE	BY
		08/2001	SYSP

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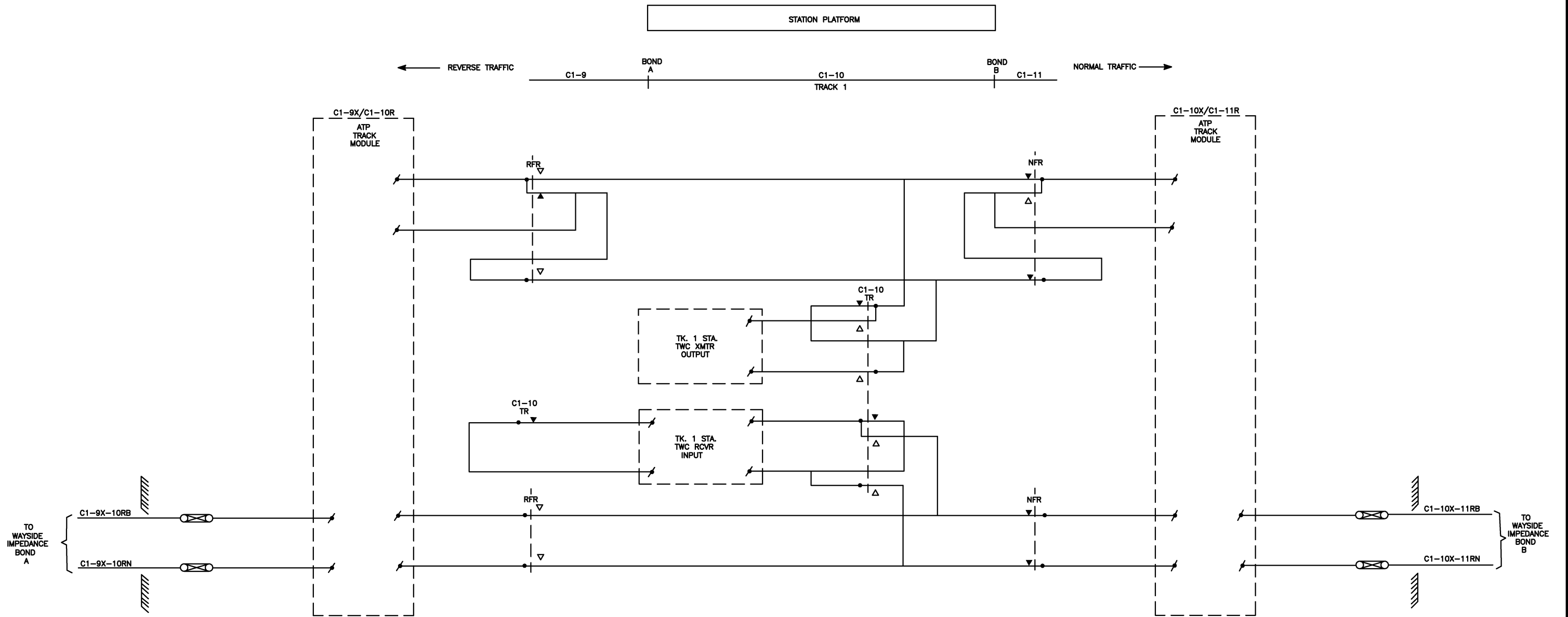
SUBMITTED _____ DATE _____

APPROVED *[Signature]* DATE May 3, 2001

DIRECTOR

TYPICAL TWC XMTR-RCVR INTERFACE CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-C-018

- NOTES:
1. EQUIVALENT CIRCUIT REQUIRED FOR TRACK 2
 2. ALL DUAL-LEAD WIRING SHALL BE TWISTED PAIR.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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DRAWN	JMR	2-00	DATE	NUMBER	DESCRIPTION	DATE	DESCRIPTION
CHECKED			DATE			08/2001	SYSP Revised and issued by the Authority
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UPDATED			DATE				

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TYPICAL TWC SELECTION CIRCUITS

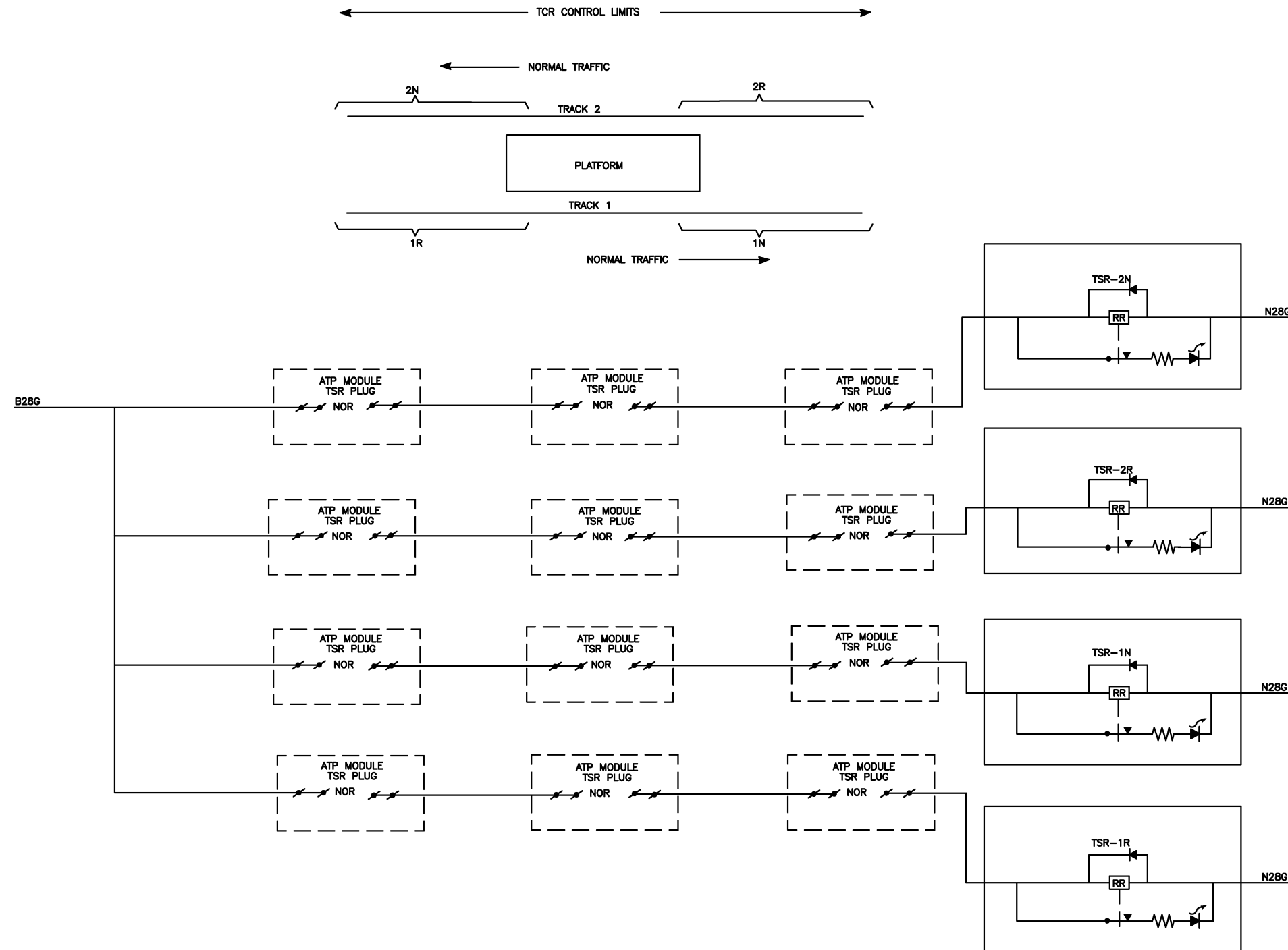
SUBMITTED _____ DATE _____

APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

SCALE
NONE

DRAWING NO.
ST-TC-C-020

- NOTE:
1. ALL ATP MODULES WITHIN TRAIN CONTROL ROOM SHALL BE INDICATED.
 2. SEE SITE-SPECIFIC DRAWINGS AND SECTION 16918 FOR NON-TYPICAL TEMPORARY SPEED RESTRICTION ZONE ARRANGEMENTS.



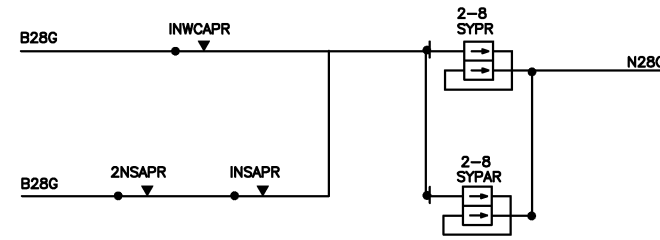
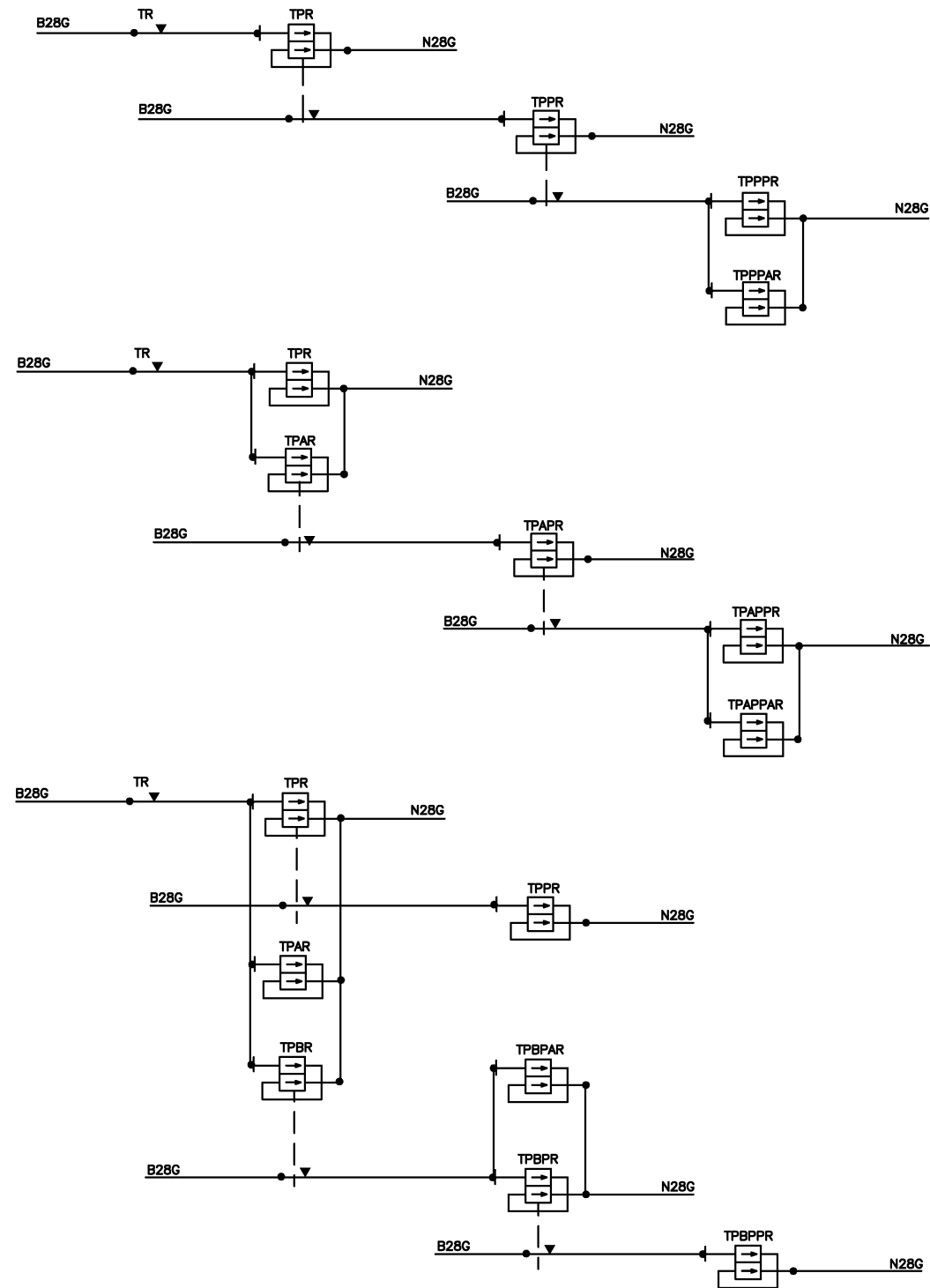
This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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DRAWN <u>JMR</u> <u>2-00</u> DATE	NUMBER	DESCRIPTION	DATE	BY
CHECKED _____ DATE			08/2001	SYSP
APPROVED _____ DATE				
UPDATED _____ DATE				
				Revised and issued by the Authority

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DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS		
SUBMITTED _____	APPROVED <u>respat</u> DIRECTOR	May 3, 2001 DATE

TYPICAL TEMPORARY SPEED RESTRICTION ALARM CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-C-023

- NOTES:
1. CIRCUITS ON THIS DRAWING SHOWN ONLY TO REPRESENT REPEATER WIRING AND NOMENCLATURE RULES.
 2. POSITIVE AND NEGATIVE ENERGY SOURCES FOR MULTIPLE VITAL RELAYS SHALL BE CONNECTED ONLY TO THE POSITIVE AND NEGATIVE COIL TERMINALS OF THE FIRST (CASCADE) REPEATER.
 3. NO MORE THAN THREE RELAYS SHALL BE CONNECTED IN MULTIPLE.



REPEATER RELAY NOMENCLATURE

- LETTER "P" INDICATES FIRST CASCADE (SERIES) REPEATER.
- LETTERS "PP" INDICATE SECOND CASCADE REPEATER, THAT IS, A CASCADE REPEATER OF ANOTHER REPEATER.
- LETTERS "PPP" INDICATE THIRD CASCADE REPEATER.
- LETTERS "PA" INDICATE FIRST MULTIPLE REPEATER OF A CASCADE REPEATER
- LETTERS "PB" INDICATE SECOND MULTIPLE REPEATER OF A CASCADE REPEATER.
- LETTERS "YP" INDICATE A "COLLECTOR" CASCADE REPEATER, THAT IS, A SERIES REPEATER OF MORE THAN ONE CONTACT CLOSURE AND TYPE OF RELAY.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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		NUMBER	DESCRIPTION	DATE	DESCRIPTION
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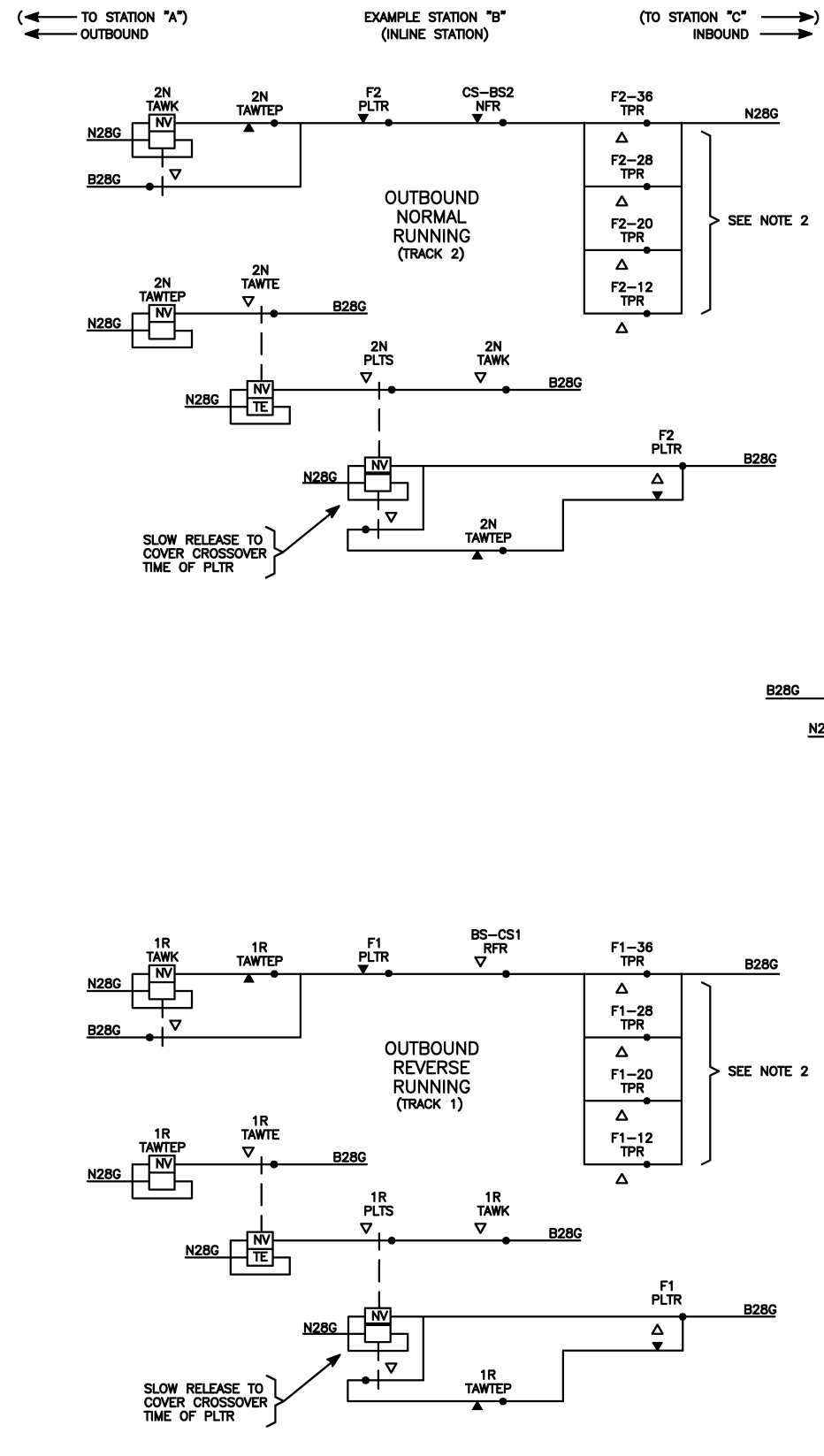
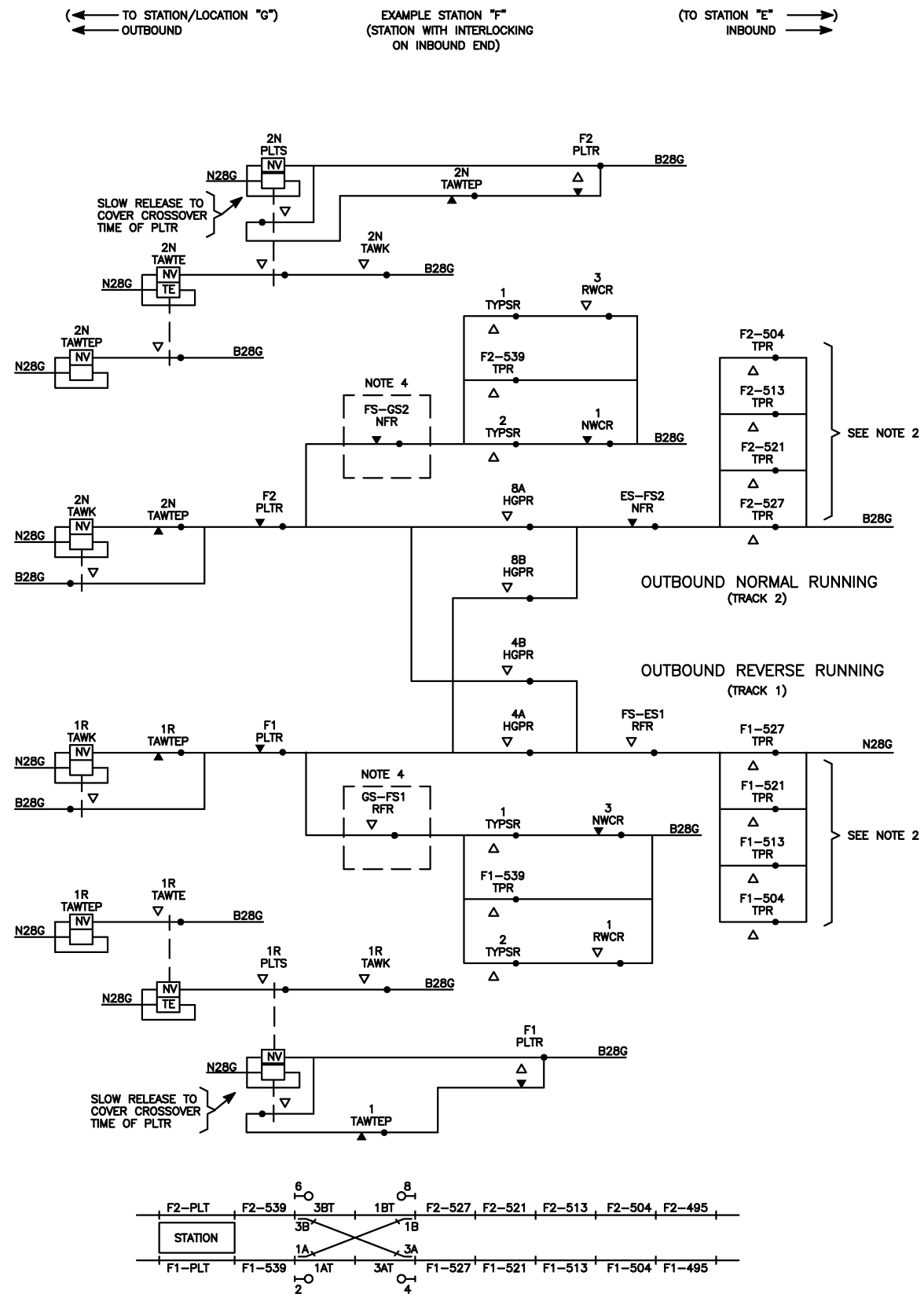
SUBMITTED _____ DATE _____

APPROVED DIRECTOR *[Signature]* May 3, 2001 DATE

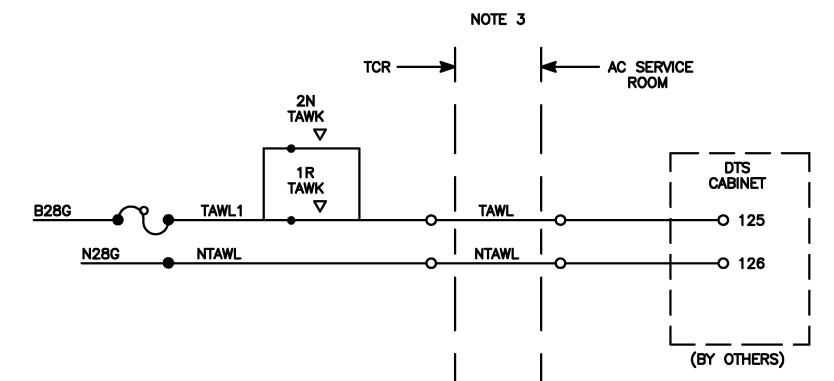
SCALE NONE

DRAWING NO. ST-TC-C-024

TYPICAL REPEATER RELAY
WIRING AND NOMENCLATURE



- NOTES:
- SEE SECTION 16924.1.02.E.5, TRAIN APPROACH WARNING LIGHT CONTROL.
 - THE CONTRACTORS SHALL PROVIDE CONTACTS FROM SUFFICIENT APPROACH TRACK RELAYS TO ENSURE 60 SECONDS OF APPROACH TIME TO THE PLATFORM TRACK AT THE APPLICABLE AVERAGE OUTBOUND APPROACH SPEED. (TRACK NOMENCLATURE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY).
 - THE CONTRACTOR SHALL PROVIDE THE "TRAIN APPROACH WARNING LIGHT" (TAWL) WIRING FROM THE TCR TO THE DTS BOX (BY OTHERS) IN THE APPROPRIATE STATION AC SERVICE ROOM AS SHOWN.
 - THE CONTRACTOR SHALL USE THE APPROPRIATE TRAFFIC OR DIRECTIONAL STICK CIRCUIT CONTACT FOR THE STATION PLATFORM TRACK.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GAH</u> 2-00 DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN <u>JMR</u> 2-00 DATE	NUMBER	DESCRIPTION	DATE	BY
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UPDATED _____ DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

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APPROVED *[Signature]* DIRECTOR

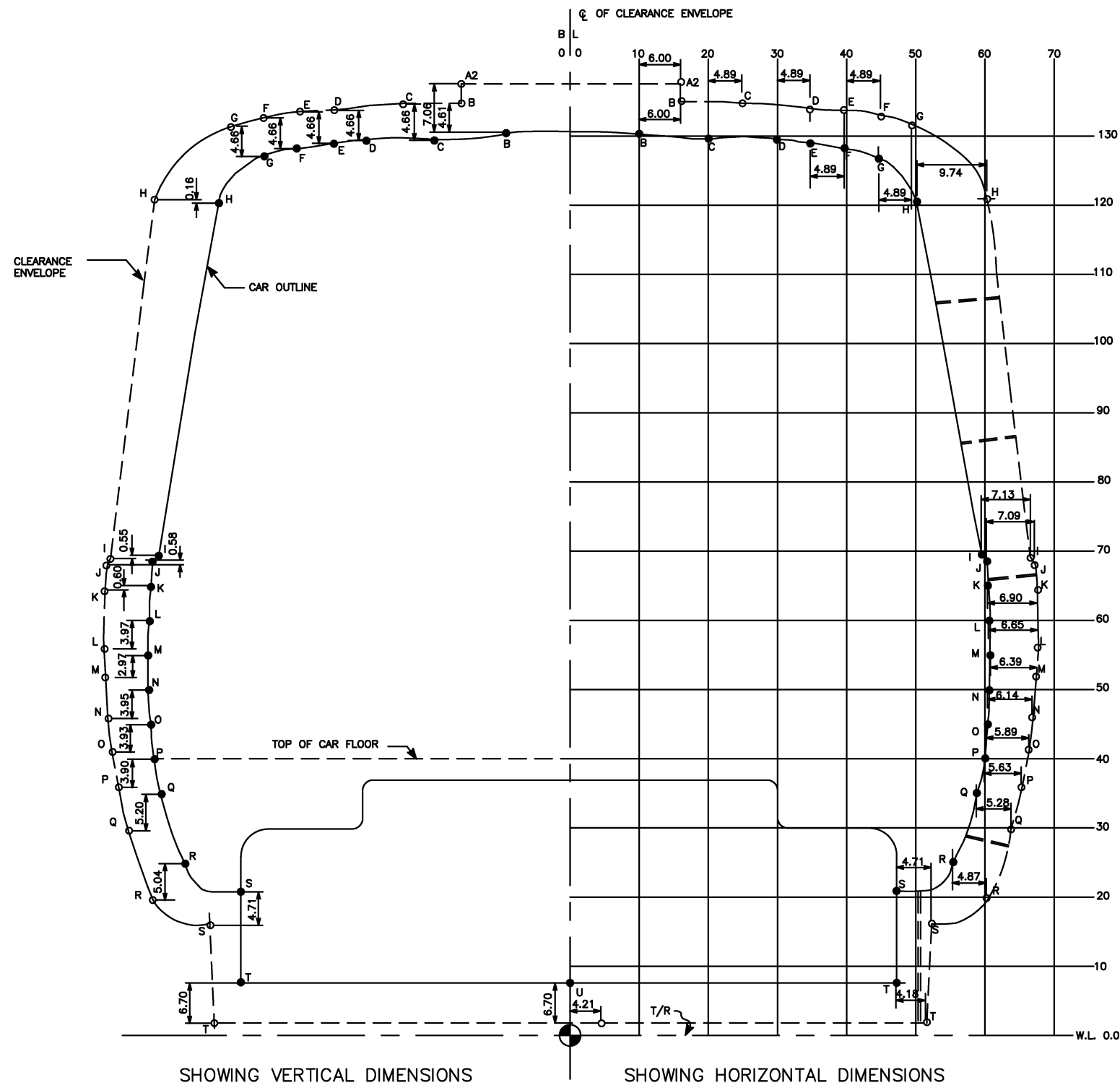
May 3, 2001 DATE

TYPICAL OUTBOUND TRAIN APPROACH WARNING CIRCUITS/LOGIC

SCALE NONE

DRAWING NO. ST-TC-C-036

NOTE: ALL DIMENSIONS SHOWN IN INCHES.



A.T.C. CLEARANCE ENVELOPE

STATIC OUTLINE (CAR OUTLINE)

PT.	B.L.	W.L.
B	10.00	130.37
C	20.00	129.97
D	30.00	129.30
E	35.00	128.75
F	40.00	127.91
G	45.00	126.50
H	50.72	120.50
I	59.63	69.44
J	60.31	68.75
K	60.63	65.00
L	60.84	60.00
M	60.88	55.00
N	60.69	50.00
O	60.44	45.00
P	60.00	40.00
Q	59.16	35.00
R	55.50	25.00
S	47.50	20.81
T	47.50	7.63
U	0.00	7.63

MAXIMUM LIMITS - DYNAMIC OUTLINE IN PROXIMITY TO SPECIAL TRACKWORK

THE MAXIMUM HORIZONTAL LIMITS OF THE DYNAMIC OUTLINE OF THE STANDARD WMATA DESIGN VEHICLE AS IT MOVES THROUGH TURNOUTS FROM A LEVEL, TANGENT RUNNING TRACK ARE SHOWN ON INFORMATION DRAWING ATCCSI-HDO-031.

CLEARANCE ENVELOPE *

PT.	B.L.	W.L.
A2	16.00	137.43
B	16.00	134.98
C	24.89	134.63
D	34.89	133.96
E	39.89	133.41
F	44.89	132.57
G	49.89	131.16
H	60.46	120.34
I	66.76	68.89
J	67.40	68.17
K	67.53	64.40
L	67.49	56.03
M	67.27	52.03
N	66.83	46.05
O	66.33	41.07
P	65.63	36.10
Q	64.44	29.80
R	60.37	19.96
S	52.21	16.10
T	51.68	0.93
U	4.21	0.93

* - DYNAMIC OUTLINE PLUS TWO INCHES (NO ENCROACHMENT AREA)

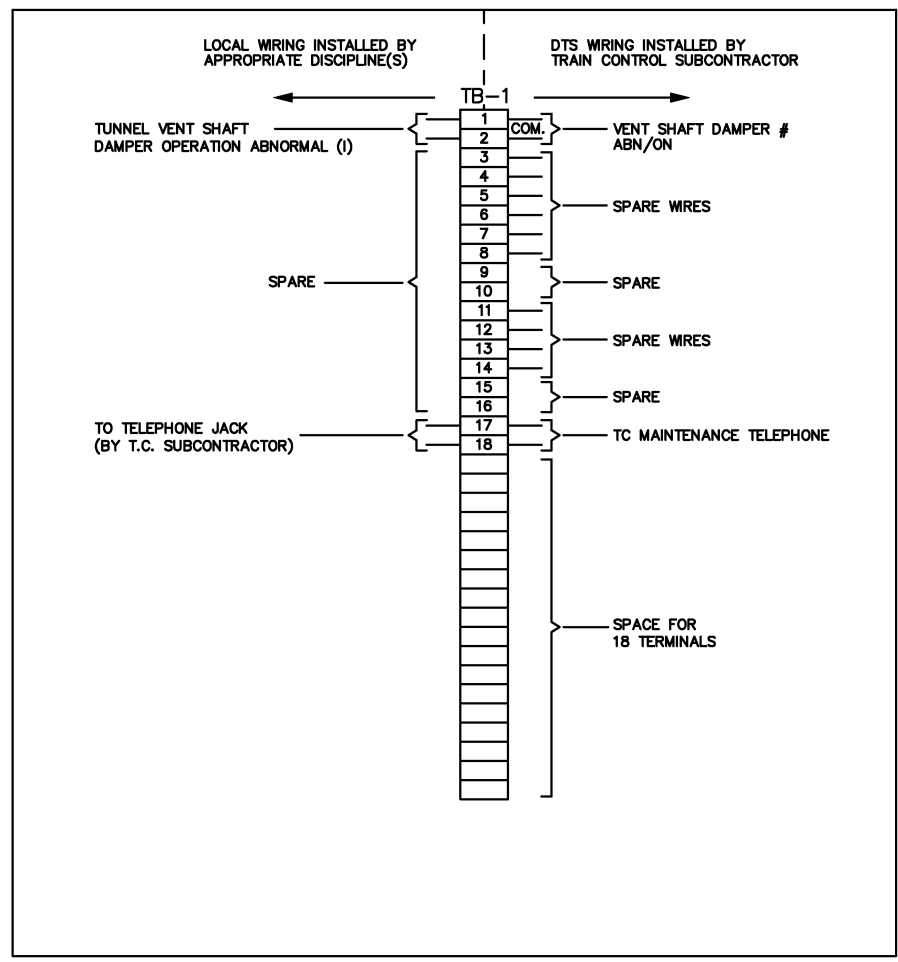
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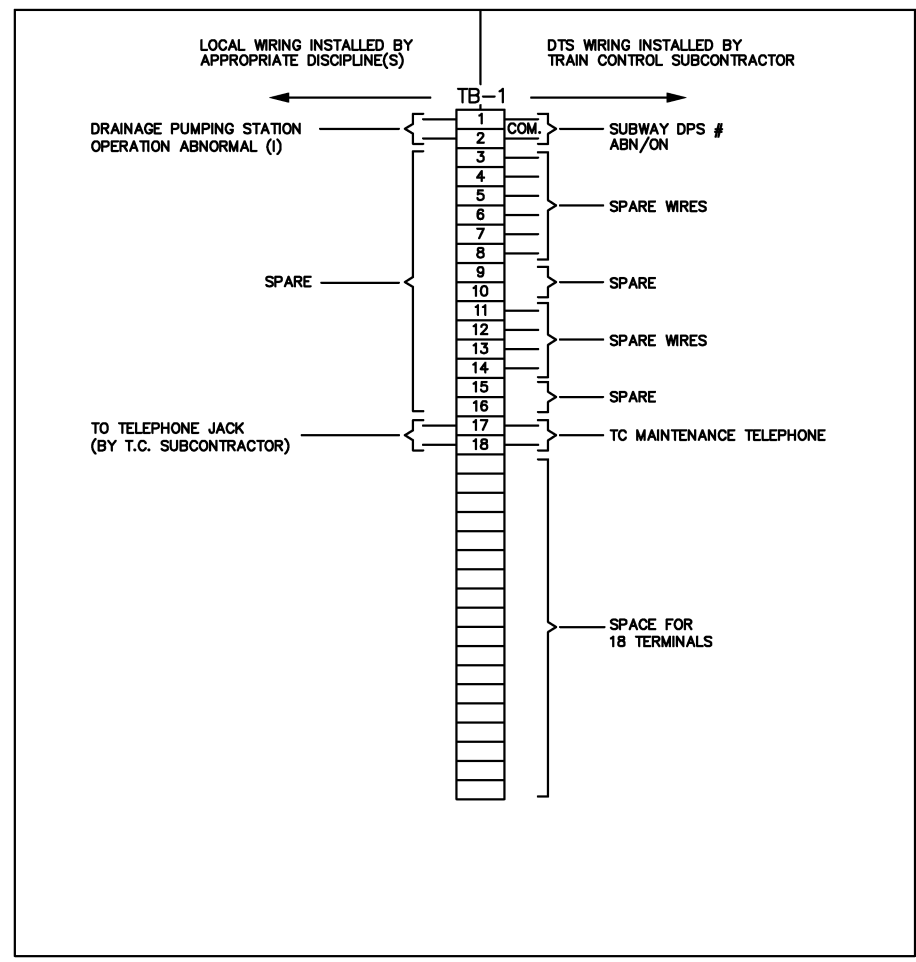
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
 OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE

ATC CLEARANCE ENVELOPE	
SCALE NONE	DRAWING NO. ST-TC-CE-030



TUNNEL VENT SHAFT



DRAINAGE PUMPING STATION

LEGEND
 (I) — DENOTES INDICATION
 (C) — DENOTES CONTROL
 # — NUMBER ASSIGNED IN ATC SCAN SHEETS

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

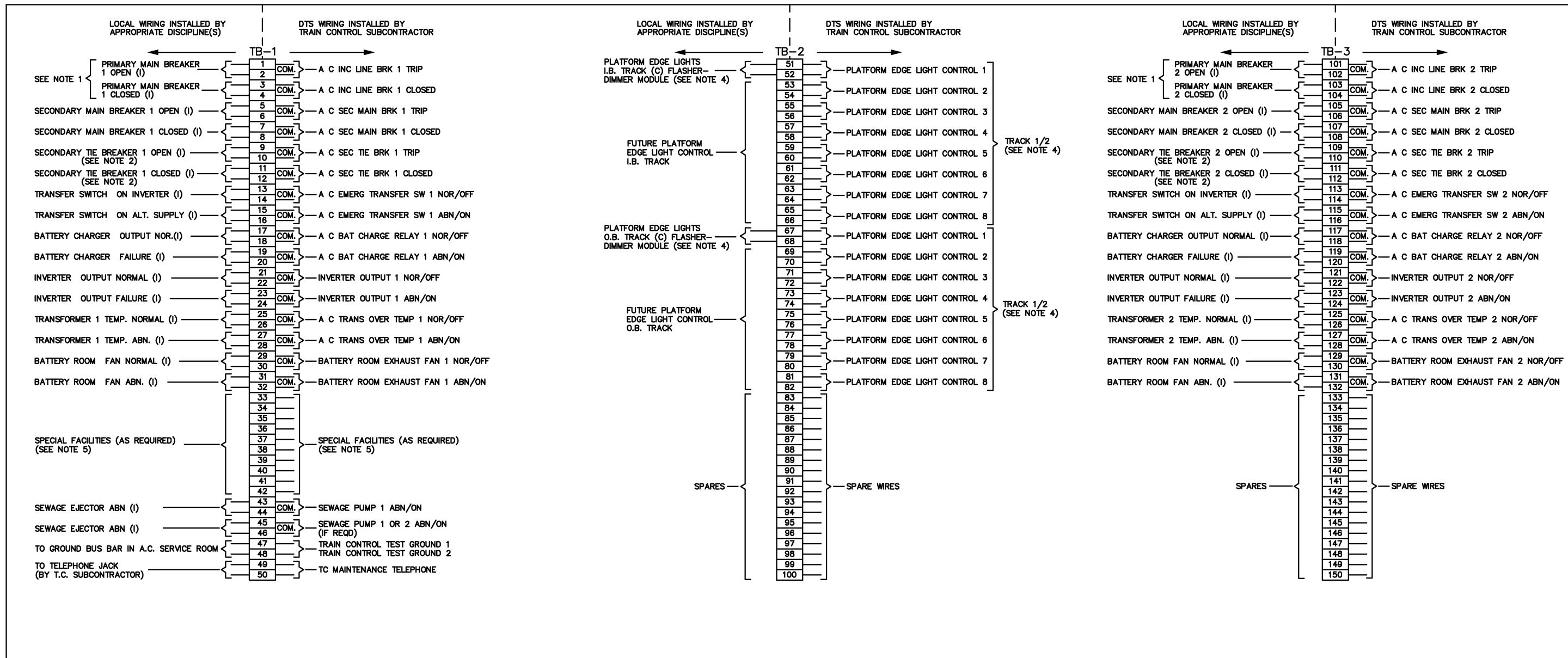
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DRAWN	JMR	01-01	NUMBER	DESCRIPTION	DATE	BY
CHECKED					08/2001	SYSP
APPROVED						
UPDATED						

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SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
 DIRECTOR DATE

**DATA TRANS. SYS. (DTS) INTERFACE CABINET
 VENT SHAFT & DRAINAGE PUMPING STATION**

SCALE NONE DRAWING NO. ST-TC-DTS-002



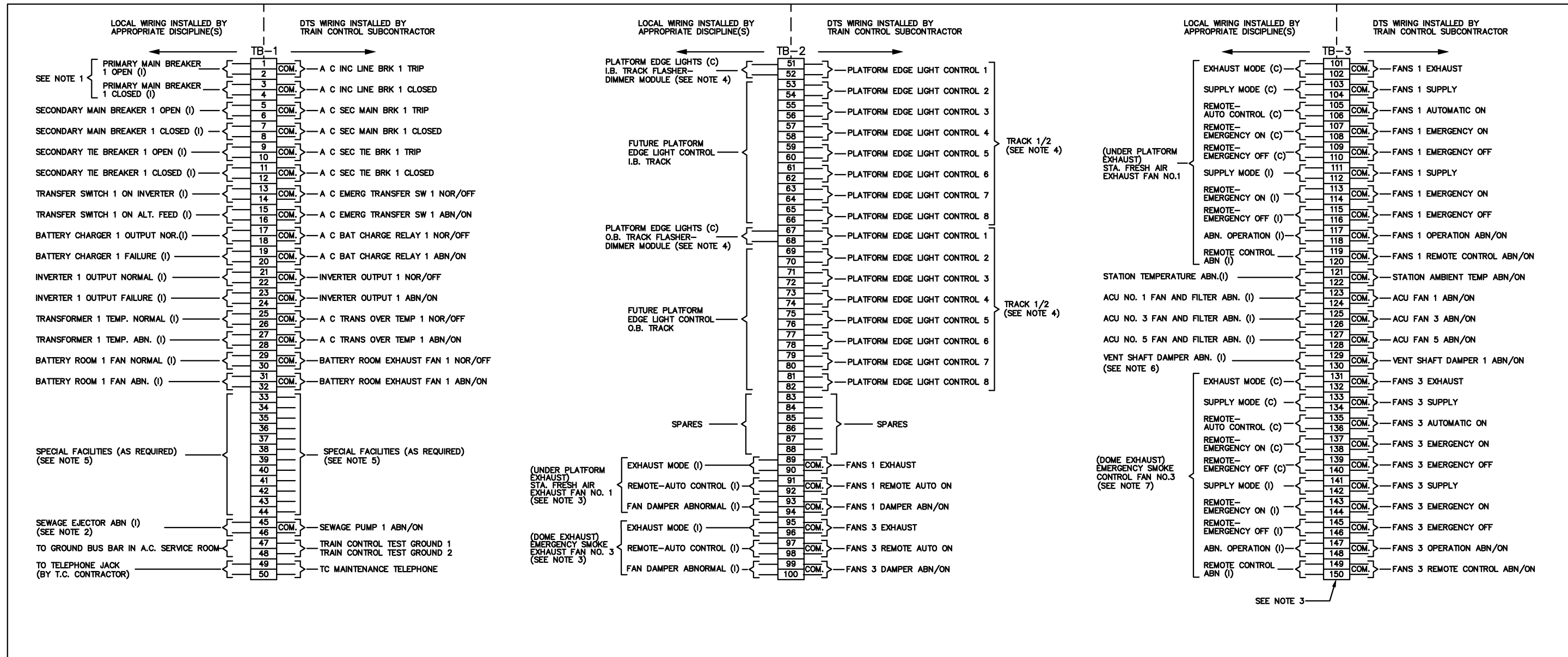
LEGEND
 (I) — DENOTES INDICATION
 (C) — DENOTES CONTROL

A.C. SERVICE/SWITCHBOARD ROOM (COMBINED) ABOVE GROUND

- NOTES:**
- WHERE LOAD INTERRUPTER SWITCH IS USED INSTEAD OF CIRCUIT BREAKER, JUMPER NORMALLY "CLOSED" TERMINALS 3 & 4. NORMALLY "OPEN" TERMINALS 1 & 2 WILL BE SPARE.
 - ONLY ONE SET OF SECONDARY TIE BREAKER POINTS ARE USED FOR A COMBINED AC SERVICE/SWITCHBOARD ROOM. FOR UNUSED SET OF SECONDARY TIE BREAKER POINTS, JUMPER "CLOSED" TERMINALS AND SPARE "OPEN" TERMINALS.
 - FOR COMBINED AC SERVICE/SWITCHBOARD ROOM IN UNDERGROUND STATION, USE TWO DTS CABINETS; AC SERVICE/SWITCHBOARD ROOM ("NEAR" & "FAR"). SEE DWGS ST-TC-10 & ST-TC-11. NOTE 2 ABOVE ALSO APPLIES.
 - USE I.B AND/OR O.B AS APPROPRIATE. THE TRAIN CONTROL SUBCONTRACTOR SHALL DETERMINE TRACK 1 / 2 & I.B / O.B RELATIONSHIP.
 - TERMINALS 33 THRU 42 ARE TO BE USED FOR SPECIAL OR UNIQUE STATION FACILITIES REQUIRING D.T.S SUPERVISION AND/OR CONTROL. THE STATION DESIGNER SHALL IDENTIFY THESE REQUIREMENTS AND ASSIGN TERMINALS TO BE USED. THE STATION CONTRACTOR SHALL PROVIDE APPROPRIATE WIRE IDENTIFICATION TAGS. THE TRAIN CONTROL SUBCONTRACTOR SHALL INCULDE SPECIAL FACILITIES WIRING ON AS BUILT DRAWINGS.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GMH</u> 01-01 DATE	<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> <th colspan="2">REVISIONS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>08/2001</td> <td>SYSP</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	REFERENCE DRAWINGS		REVISIONS		NUMBER	DESCRIPTION	DATE	BY			08/2001	SYSP									WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS		DATA TRANS. SYS. (DTS) INTERFACE CABINET A.C. SERVICE/SWITCHBOARD ROOM (COMBINED)	
REFERENCE DRAWINGS		REVISIONS																							
NUMBER		DESCRIPTION	DATE	BY																					
			08/2001	SYSP																					
DRAWN <u>JMR</u> 01-01 DATE	SUBMITTED _____ DATE _____		APPROVED <u>[Signature]</u> May 3, 2001 DATE																						
CHECKED _____ DATE			SCALE NONE		DRAWING NO. ST-TC-DTS-003																				
APPROVED _____ DATE																									
UPDATED _____ DATE																									



LEGEND

- (I) — DENOTES INDICATION
- (C) — DENOTES CONTROL
- (NEAR) — DENOTES THE A.C. SWITCHBOARD ROOM THAT IS CLOSER TO THE STATION TRAIN CONTROL ROOM
- △ — STATION DESIGNER TO INSERT NORTH, EAST, SOUTH OR WEST AS IDENTIFIED ON ELECTRICAL DRAWINGS.

A.C. SERVICE/SWITCHBOARD ROOM (NEAR)

NOTES:

1. WHERE LOAD INTERRUPTER SWITCH IS USED INSTEAD OF CIRCUIT BREAKER, JUMPER NORMALLY CLOSED TERMINALS 3-4. NORMALLY "OPEN" TERMINALS 1 & 2 WILL BE SPARE.
2. TERMINATION FOR SEWAGE EJECTOR TO BE LOCATED IN A.C. SERVICE/SWITCHBOARD ROOM NEAREST TO EJECTOR. TERMINALS NOT USED WILL BECOME SPARES.
3. TERMINALS 89 THRU 100 WILL BE SPARES AND 101 THRU 150 ARE TO BE OMITTED AT SURFACE STATIONS. A TYPE 2 CABINET (100 TERMINALS ON 2 TBs) MAY BE SUBSTITUTED.
4. USE I.B. AND/OR O.B. AS APPROPRIATE. THE TRAIN CONTROL SUBCONTRACTOR SHALL DETERMINE TRACK 1/2 & I.B./O.B. RELATIONSHIP. EACH TRACK'S PLATFORM EDGELIGHTS SHALL NORMALLY BE CONTROLLED FROM THE AC SVC ROOM AT THE UPSTREAM END OF THE APPLICABLE PLATFORM.
5. TERMINALS 33 THRU 44 ARE TO BE USED FOR SPECIAL OR UNIQUE STATION FACILITIES REQUIRING D.T.S SUPERVISION AND/OR CONTROL. THE STATION DESIGNER SHALL IDENTIFY THESE REQUIREMENTS AND ASSIGN TERMINALS TO BE USED. THE STATION CONTRACTOR SHALL PROVIDE APPROPRIATE WIRE IDENTIFICATION TAGS. THE TRAIN CONTROL SUBCONTRACTOR SHALL INCLUDE SPECIAL FACILITIES WIRING ON AS BUILT DRAWINGS.
6. TERMINATION FOR VENT SHAFT DAMPER WHEN VENT SHAFT IS ADJACENT TO STATION. WHEN TERMINALS ARE NOT USED THEY WILL BECOME SPARES.
7. TERMINALS 95-100 AND 131-150 WILL BE SPARE WHEN NOT REQUIRED.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

△ A.C. SWITCHBOARD ROOM

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APPROVED					
UPDATED					

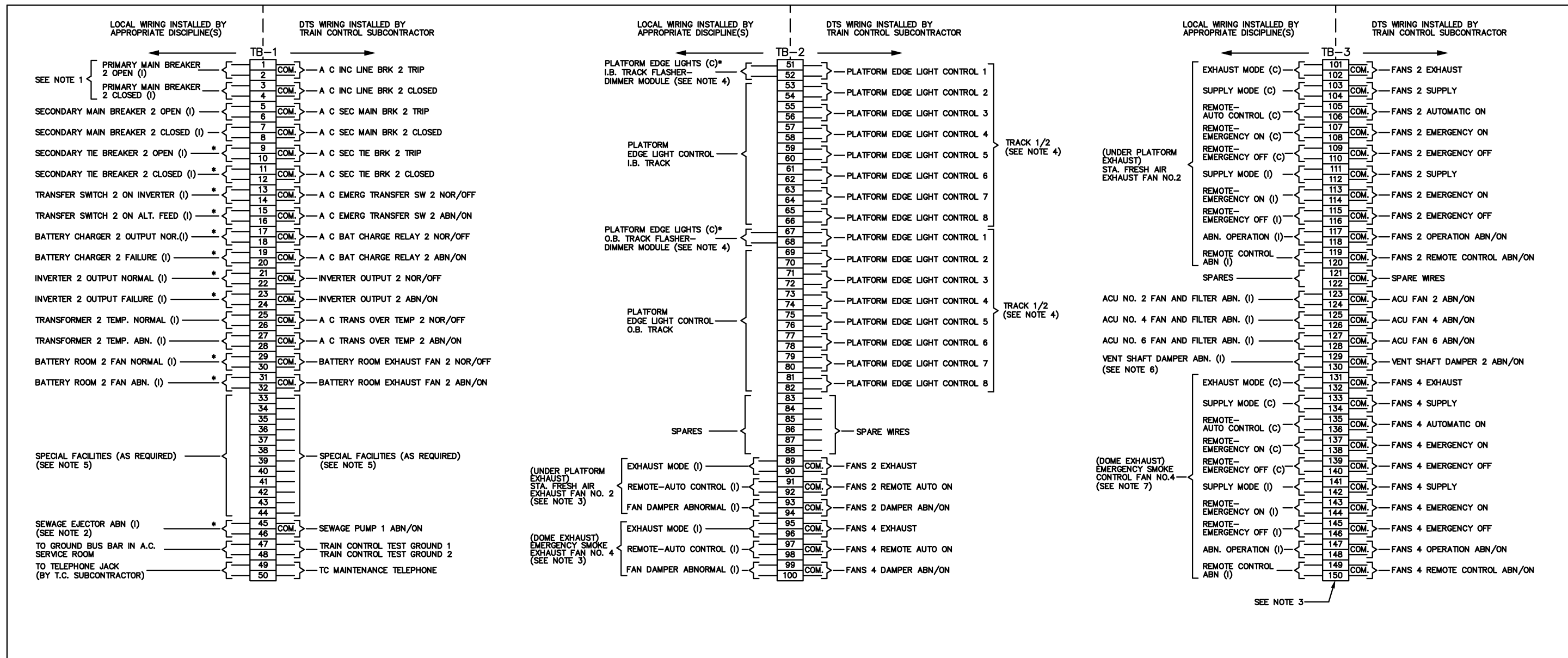
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

DATA TRANS. SYS. (DTS) INTERFACE CABINET
A.C. SERVICE/SWITCHBOARD ROOM (NEAR)

SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

SCALE NONE DRAWING NO. ST-TC-DTS-004



LEGEND

- (I) — DENOTES INDICATION
- (C) — DENOTES CONTROL
- (FAR) — DENOTES THE A.C. SWITCHBOARD ROOM THAT IS FARTHER FROM THE STATION TRAIN CONTROL ROOM.
- * — WHEN THESE POINTS ARE NOT REQUIRED FOR COMBINED UNDERGROUND A.C. SERVICE/SWITCHBOARD ROOM, THE TERMINALS WILL BE SPARE.
- △ — STATION DESIGNER TO INSERT NORTH, EAST, SOUTH OR WEST AS IDENTIFIED ON ELECTRICAL DRAWINGS.

A.C. SERVICE/SWITCHBOARD ROOM (FAR)

NOTES:

1. WHERE LOAD INTERRUPTER SWITCH IS USED INSTEAD OF CIRCUIT BREAKER, JUMPER NORMALLY "CLOSED" TERMINALS 3-4. NORMALLY "OPEN" TERMINALS 1 & 2 WILL BE SPARE.
2. TERMINATION FOR SEWAGE EJECTOR TO BE LOCATED IN A.C. SERVICE/SWITCHBOARD ROOM NEAREST TO EJECTOR. TERMINALS NOT USED WILL BECOME SPARES.
3. TERMINALS 89 THRU 100 WILL BE SPARES AND 101 THRU 150 ARE TO BE OMITTED AT SURFACE STATIONS. A TYPE 2 CABINET (100 TERMINALS ON 2 TBs) MAY BE SUBSTITUTED.
4. USE I.B. AND/OR O.B. AS APPROPRIATE. THE TRAIN CONTROL SUBCONTRACTOR SHALL DETERMINE TRACK 1/2 & I.B./O.B. RELATIONSHIP. EACH TRACK'S PLATFORM EDGELIGHTS SHALL NORMALLY BE CONTROLLED FROM THE AC SVC ROOM AT THE UPSTREAM END OF THE APPLICABLE PLATFORM.
5. TERMINALS 33 THRU 44 ARE TO BE USED FOR SPECIAL OR UNIQUE STATION FACILITIES REQUIRING D.T.S SUPERVISION AND/OR CONTROL. THE STATION DESIGNER SHALL IDENTIFY THESE REQUIREMENTS AND ASSIGN TERMINALS TO BE USED. THE STATION CONTRACTOR SHALL PROVIDE APPROPRIATE WIRE IDENTIFICATION TAGS. THE TRAIN CONTROL SUBCONTRACTOR SHALL INCLUDE SPECIAL FACILITIES WIRING ON AS BUILT DRAWINGS.
6. TERMINATION FOR VENT SHAFT DAMPER WHEN VENT SHAFT IS ADJACENT TO STATION. WHEN TERMINALS ARE NOT USED THEY WILL BECOME SPARES.
7. TERMINALS 95-100 AND 131-150 WILL BE SPARE WHEN NOT REQUIRED.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

△ A.C. SWITCHBOARD ROOM

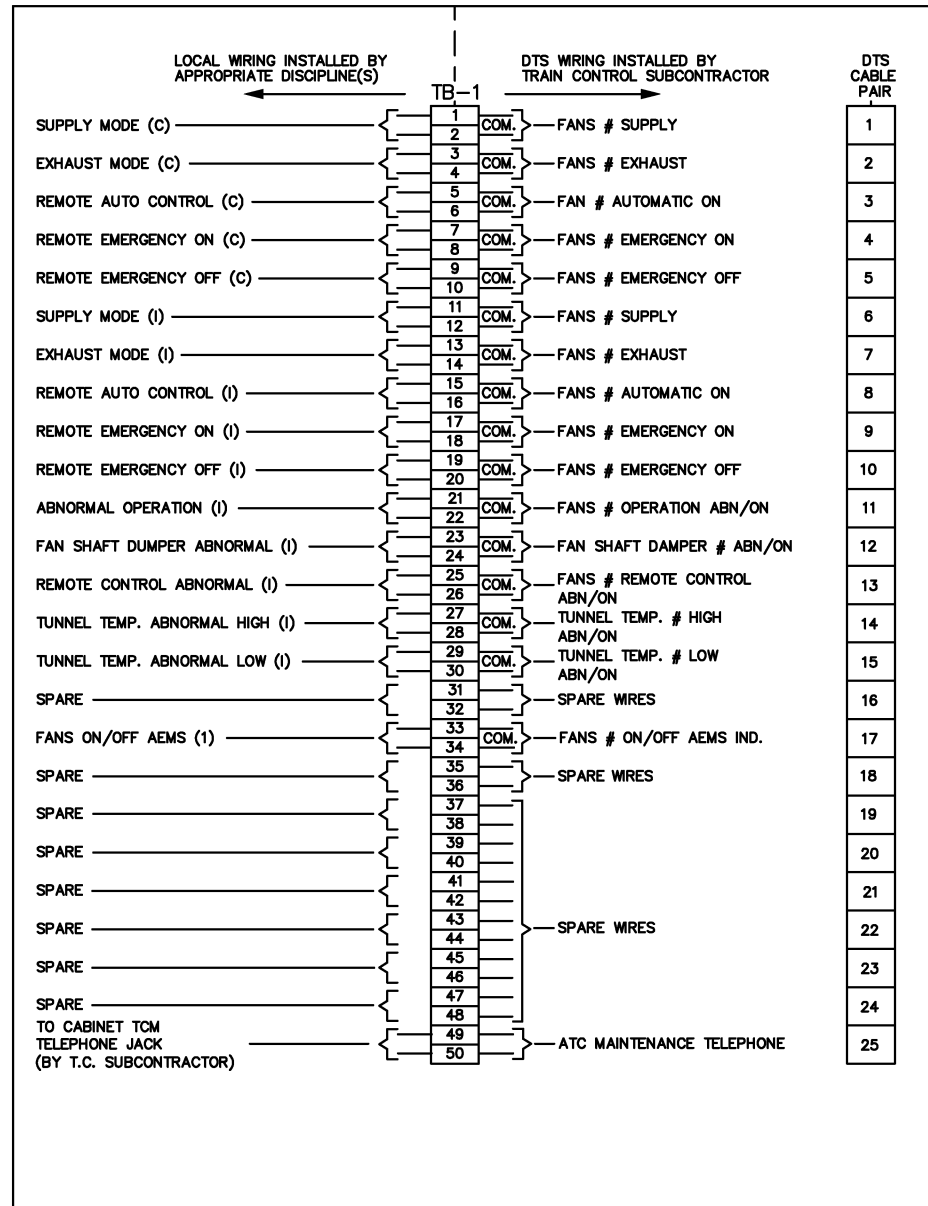
DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
GAH	01-01			08/2001	SYSP Revised and issued by the Authority
DRAWN	JMR				
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APPROVED					
UPDATED					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

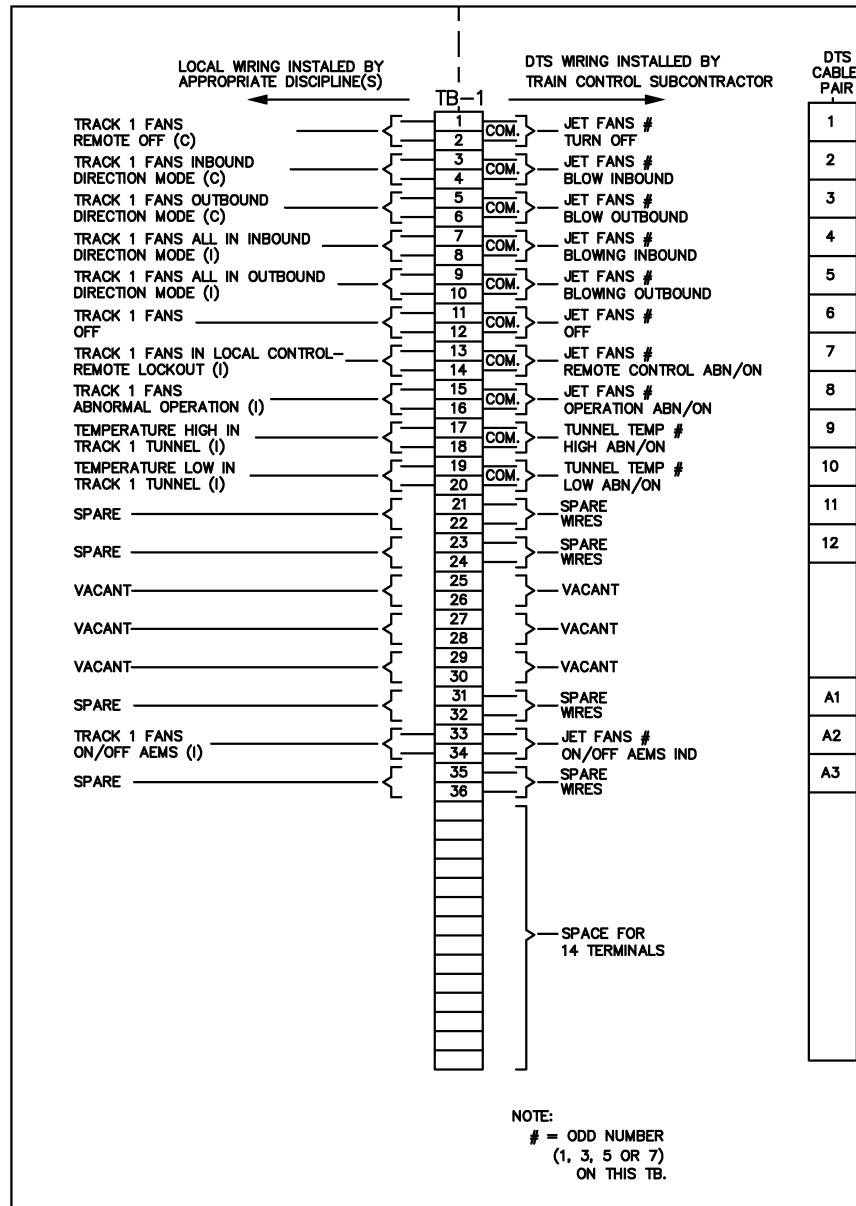
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

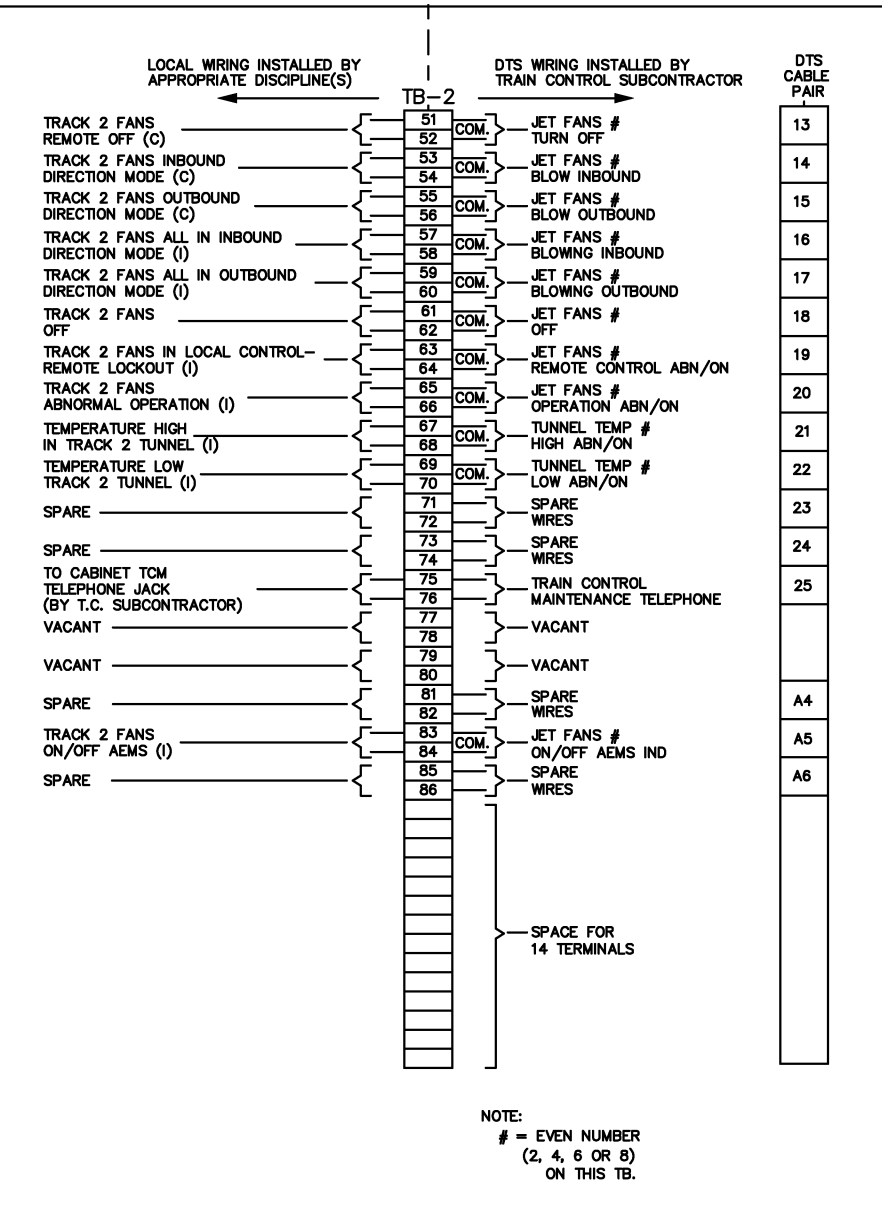
DATA TRANS. SYS. (DTS) INTERFACE CABINET A.C. SERVICE/SWITCHBOARD ROOM (FAR)	
SCALE NONE	DRAWING NO. ST-TC-DTS-005



TUNNEL FAN SHAFT



JET FAN CONTROL ROOM



- NOTES:
- THE "ON/OFF AEMS IND" SHALL BE CONVEYED FROM THE FAN SHAFT OR JET FAN CONTROL ROOM TO THE APPLICABLE AC SERVICE ROOM IN THE DTS CABLES PROVIDED BY THE TRAIN CONTROL SUBCONTRACTOR.
 - THE JET FAN GROUPS (AND ASSOCIATED TUNNEL TEMPERATURES) SHALL BE NUMBERED IN ACCORDANCE WITH THE FOLLOWING TABLE. CONTROLS AND INDICATIONS FOR ODD NUMBERED GROUPS SHALL BE TERMINATED ON TB-1, AND EVEN NUMBERED GROUP CONTROLS AND INDICATIONS SHALL BE TERMINATED ON TB-2.

GIVEN TRAIN CONTROL ROOM AREA OF CONTROL				
JET FAN CONTROL ROOM NUMBER	1	2	3	4
TRACK 2 FAN GROUP AND TUNNEL TEMP. NO.	2	4	6	8
TRACK 1 FAN GROUP AND TUNNEL TEMP. NO.	1	3	5	7

LEGEND

(I) — DENOTES INDICATION
 (C) — DENOTES CONTROL
 # — NUMBER ASSIGNED IN ATC SCAN SHEETS
 AEMS = AUTOMATED ENERGY MANAGEMENT SYSTEM (POWER DISCIPLINE)

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GWH	GPAR	REFERENCE DRAWINGS		REVISIONS	
			NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	JMR	GPAR			08/2001	SYSP Revised and issued by the Authority
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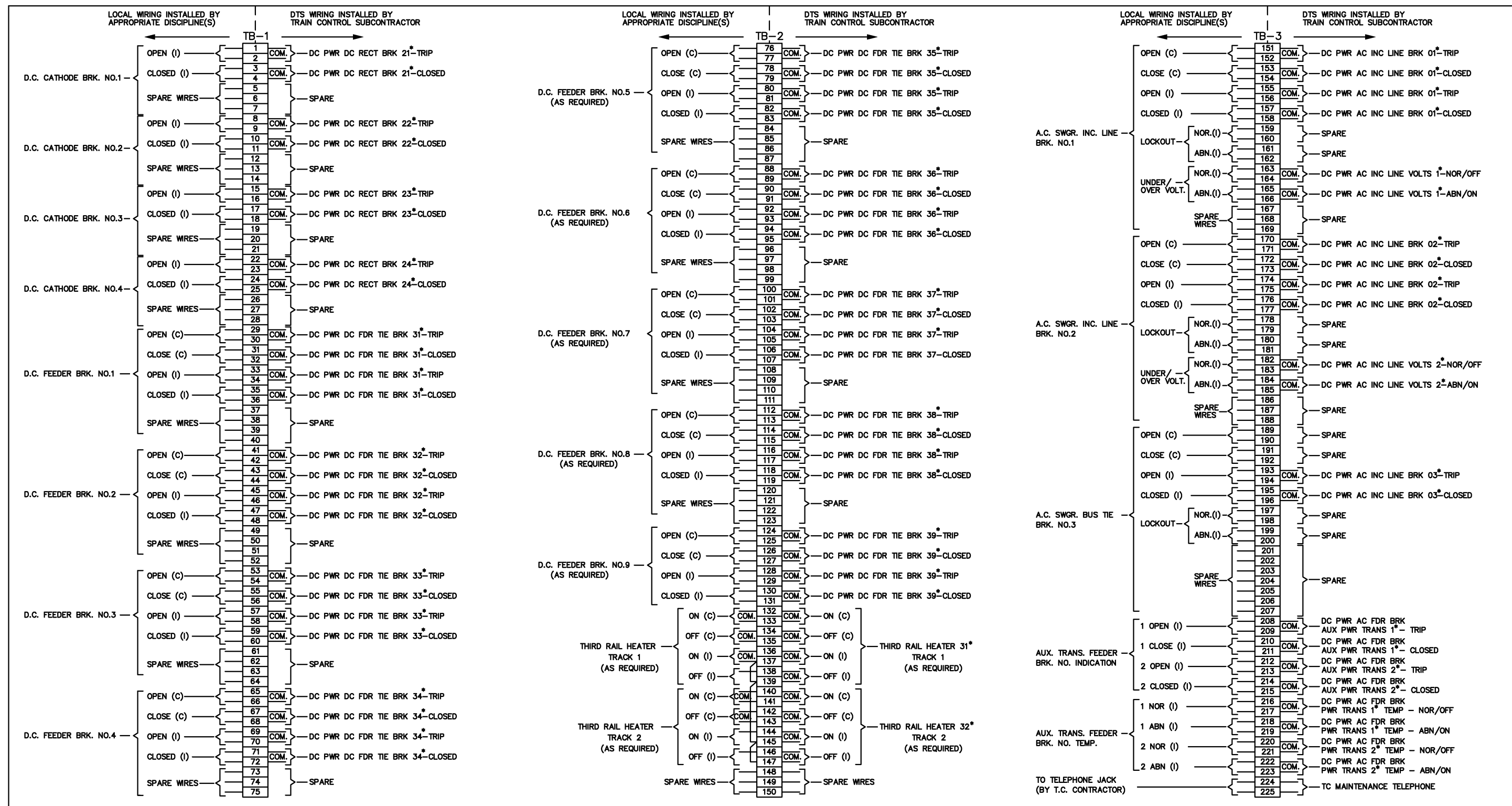
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

**DATA TRANS. SYS. (DTS) INTERFACE CABINET
FAN SHAFT & JET FAN CONTROL ROOM**

SCALE NONE DRAWING NO. ST-TC-DTS-006



* - SEE NOTE 1 ON DWG. ST-TC-16

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

TRACTION POWER SUBSTATION

SEE NOTES AND LEGEND ON DWG. ST-TC-16.

MATCH LINE A-A (SEE ST-TC-16)

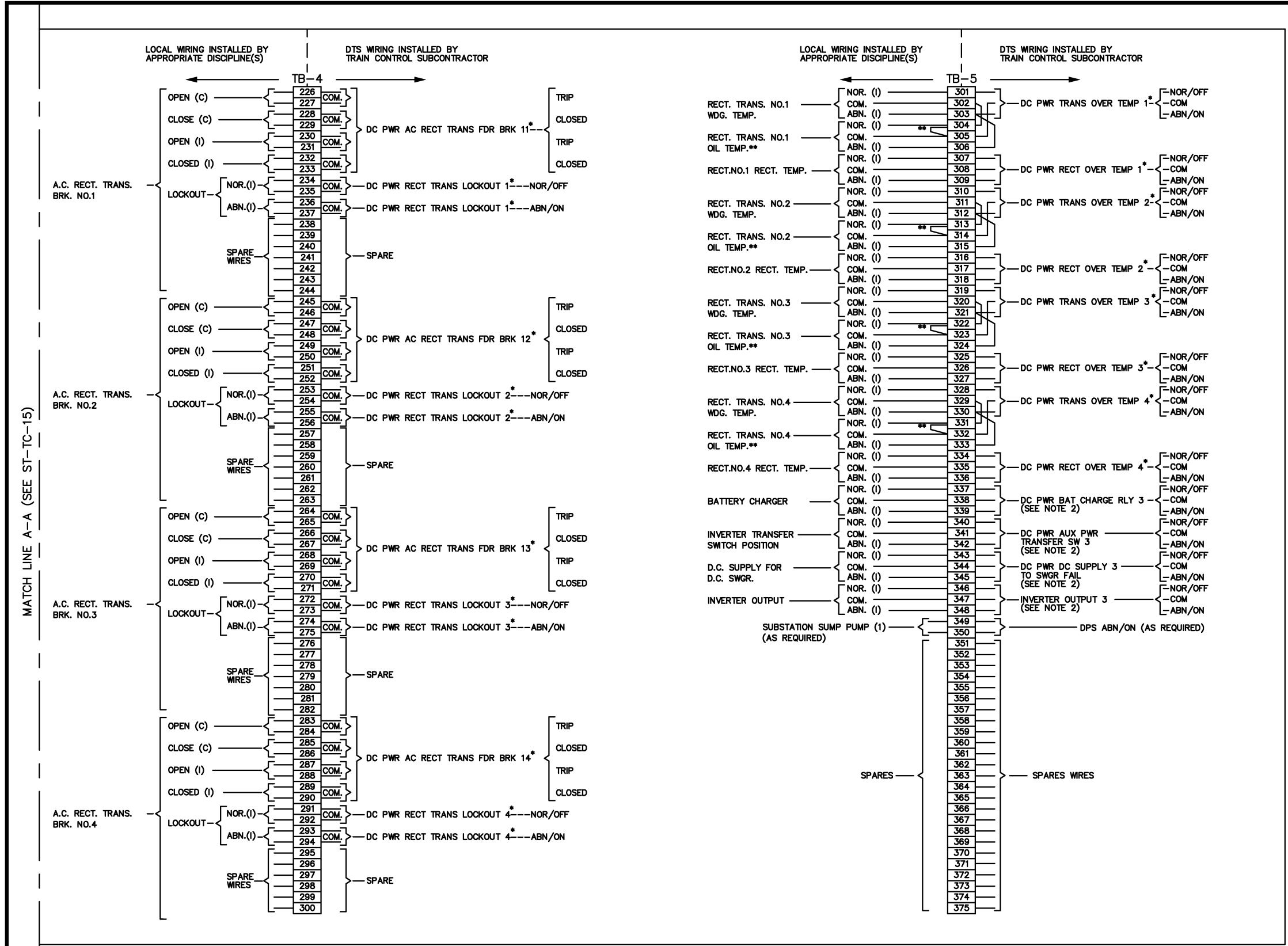
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		NUMBER	DESCRIPTION	DATE	DESCRIPTION
GAH	01-01			08/2001	SYSP Revised and issued by the Authority
DRAWN	JMR				
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DATA TRANS. SYS. (DTS) INTERFACE CABINET TRACTION POWER SUBSTATION (SHT. 1 OF 2)	
SCALE NONE	DRAWING NO. ST-TC-DTS-008



LEGEND:
 (I) — DENOTES INDICATION
 (C) — DENOTES CONTROL
 * — SEE NOTE 1
 ** — SEE NOTE 3

NOTES:
 1. WHEN TWO SUBSTATIONS ARE IN THE SAME RTU CONTROL AREA, THE SECOND SUBSTATION WILL USE A DIFFERENT SERIES OF BREAKER NUMBERS. SEE TABLE BELOW.
 2. FOR SECOND SUBSTATION, USE THE NUMBER 5 INSTEAD OF 3.
 3. FOR DRY TYPE TRANSFORMER, SSI SUBCONTRACTOR TO PROVIDE JUMPER BETWEEN NOR AND COM TERMINALS DELETING RECT. TRANS. OIL TEMP. WIRING AND TERMINATION.

FUNCTION	BRK NO.	1ST SUBSTA. NO.	2ND SUBSTA. NO.	YARD AREA INTERFACE NO.
DC CATH BRK/ DC RECT BRK	1	21	25	
	2	22	26	
	3	23	27	
	4	24	28	
DC FDR BRK/ DC FDR TIE BRK	1	31	51	81
	2	32	52	82
	3	33	53	83
	4	34	54	84
	5	35	55	85
	6	36	56	86
	7	37	57	87
	8	38	58	88
	9	39	59	89
AC SWGR INC LINE BRK/ AC INC LINE BRK	1	01	04	
	2	02	05	
AC TIE BRK	03	03	06	
UNDER/OVER VOLTS/A.C. INC LINE VOLTS	1	1	3	
	2	2	4	
A.C. RECT. TRANS BRK./ AC RECT TRANS FDR BRK	1	11	15	
	2	12	16	
	3	13	17	
	4	14	18	
RECT TRANS LOCKOUT	1	1	5	
	2	2	6	
	3	3	7	
	4	4	8	
TRANS OVER TEMP OR RECT OVER TEMP	1	1	5	
	2	2	6	
	3	3	7	
	4	4	8	
AUX. TRANS FEEDER BRK./ DC PWR AC FDR BRK AUX PWR TRANS	1	1	3	
	2	2	4	

TRACTION POWER SUBSTATION

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DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
GMH	01-01			08/2001	SYSP	Revised and issued by the Authority
DRAWN	JMR	01-01				
CHECKED						
APPROVED						
UPDATED						

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SUBMITTED _____ DATE _____ APPROVED *respatz* DIRECTOR May 3, 2001 DATE _____

SCALE NONE	DRAWING NO. ST-TC-DTS-009
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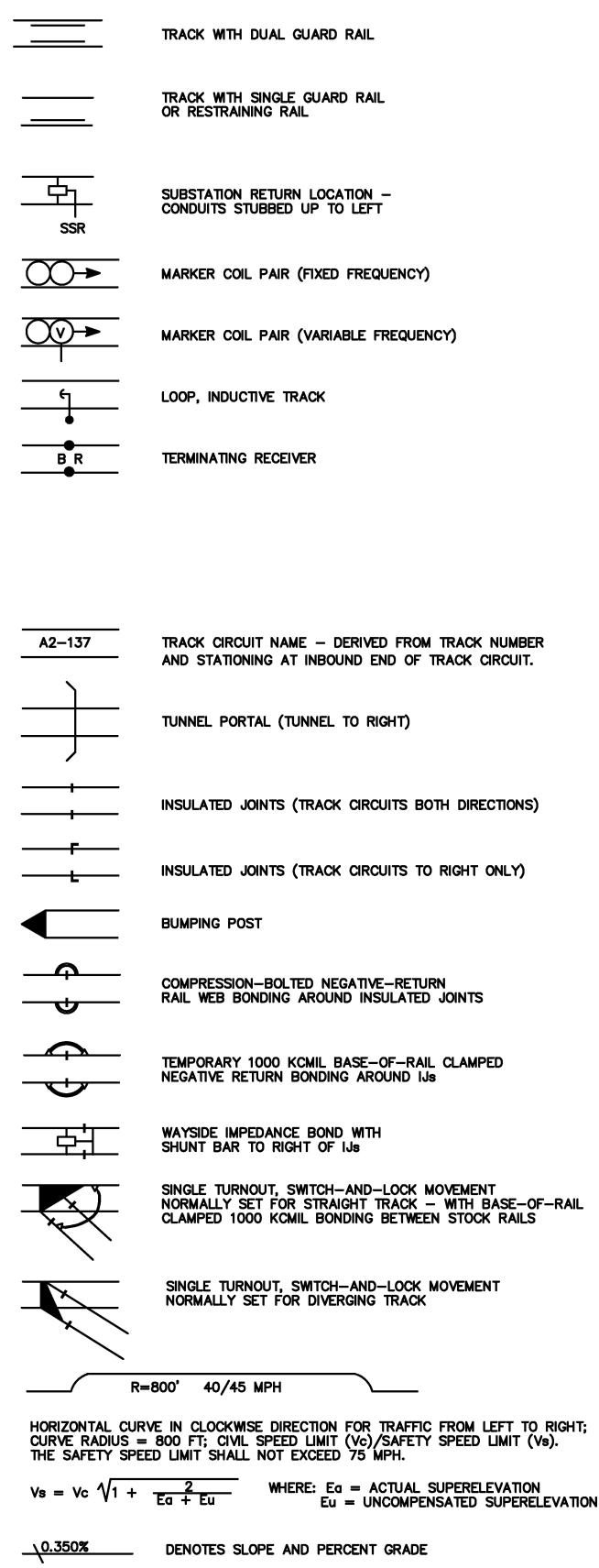
ABBREVIATIONS & SYMBOLS

AHD	AHEAD
AWS	ADVANCE WARNING SIGN
BK	BACK
CB	CROSS BOND
CB-CL	CROSS BOND CONDUIT LOCATION
C.C.	CURVE TO CURVE
COM	COMMUNICATIONS
D.G.R.	DUAL GUARD RAIL
C.S.	CURVE TO SPIRAL
EOP	END OF PLATFORM
EOT	END OF TRACK
G	SIGNAL
I.B.	INBOUND
ID	TRAIN IDENTITY
IJ	INSULATED JOINT
MAS	MAXIMUM ALLOWABLE SPEED
NIC	NOT INCLUDED IN CONTRACT
NTS	NOT TO SCALE
O.B.	OUTBOUND
PB	PUSHBUTTON
P.I.T.O.	POINT OF INTERSECTION OF TURNOUT
PS	POINT OF SWITCH
P.V.C.	POINT OF VERTICAL CURVE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.V.T.	POINT OF VERTICAL TANGENT
RTU	REMOTE TERMINAL UNIT
S	SIGN
S.C.	SPIRAL TO CURVE
SSR-CL	SUBSTATION RETURN CONDUIT LOCATION
SSR	SUBSTATION RETURN
S.T.	SPIRAL TO TANGENT
STA	SURVEYOR'S STATIONING
TCER	TRAIN CONTROL EQUIPMENT ROOM
TCR	TRAIN CONTROL ROOM
TD	TRUE DISTANCE
T.S.	TANGENT TO SPIRAL
ZB	IMPEDANCE BOND
	STATIONING EQUATION
	SUBSTATION (SS)
	TIE BREAKER STATION (TBS)
	FAN SHAFT (FS)
	VENT SHAFT (VS)
	SEWAGE EJECTOR (SEJ)
	DRAINAGE PUMPING STATION (DPS)
	SUMP PUMP
	CHILLED WATER PLANT (CHP)
	EMERGENCY EXIT (EE)
	TRAIN CONTROL ROOM (TCR)
	TRAIN CONTROL EQUIPMENT ROOM (SATELLITE TCR - NO RTU) (TCER)
	COMMUNICATIONS ROOM (COM)
	AC SERVICE ROOM (AC)
	DATA TRANSMISSION SYSTEM JUNCTION BOX (CABINET)

	IF	INTERFACE CASE
	SM	SNOWMELTER CONTROL CASE
	TC	TRAIN CONTROL EQUIPMENT CASE
	BJ	TERMINATING RECEIVER JUNCTION BOX
	CJ	LOOP COUPLING UNIT JUNCTION BOX
	DJ	DISTRIBUTION JUNCTION BOX
	GJ	SIGNAL JUNCTION BOX
	IFJ	INTERFACE JUNCTION BOX
	IJ	INTERLOCKING JUNCTION BOX
	LNJ	LINE JUNCTION BOX
	LJ	LOOP JUNCTION BOX
	MJ	PROGRAM STOP MARKER JUNCTION BOX
	SZJ	IDW SUB-ZONE JUNCTION BOX
	TJ	TRACK JUNCTION BOX
	WJ	SWITCH JUNCTION BOX

SIGNS, SIGNALS, AND PUSHBUTTONS

	TRAIN BERTHING SIGN (MOUNTED UNDER PLATFORM) (NUMBER IN BOX INDICATES NO. OF CARS IN TRAINS TO BE STOPPED AT THAT POINT) (N = SIGN FOR NORMAL DIRECTION) (R = SIGN FOR REVERSE DIRECTION)	
<hr/>		
MAST MOUNTED	WALL MOUNTED	
	WAYSIDE SIGN MARKING THE OUTERMOST STATION STOPPING MARKER	
	TURNBACK SIGN	
	START ATC SIGN	
	END ATC SIGN	
	CONTROLLED SIGNAL	
	MARKER SIGNAL	
	PUSHBUTTON BOX (ROUTE SELECTION)	
<hr/>		
	PLATFORM ROUTE-CANCEL PUSHBUTTON (NO LONGER USED)	
	MANHOLE IN DUCT BANK (BY OTHERS)	
	SWITCH MACHINE (SWITCH-AND-LOCK MOVEMENT)	
	POINT OF VERTICAL INTERSECTION	
	WAYSIDE IMPEDANCE BOND (ZB)	
	FLY-BY RECEIVER	
	FLY-BY TRANSMITTER	
	DISPATCH RECEIVER	
	CROSSBOND LOCATION (CONDUIT RUN ON LEFT - STUBS UP TO RIGHT) (CB-CL)	



MARKERS

MARKER LAYOUTS ARE USED TO INDICATE DISTANCE TO CENTERLINE OF STATION AND TYPE OF STATION STOP. ALL MARKER UNITS CONSIST OF A PAIR OF MARKER COILS, EXCEPT FOR THE SINGLE-COIL PLATFORM MARKERS.

② THIS SYMBOL INDICATES A MARKER COIL. THE NUMBER WITHIN THE CIRCLE IS THE FREQUENCY NUMBER. THIS IS A FIXED FREQUENCY COIL TUNED TO FREQUENCY 2.

Ⓧ THIS INDICATES A VARIABLE FREQUENCY MARKER COIL. THIS MARKER COIL IS USED FOR STATION STOPPING INSTRUCTIONS.

THE COILS ARE MOUNTED ON THE CENTERLINE OF THE TRACK, EXCEPT ON CURVES WITH A RADIUS LESS THAN 8500 FT. THE COILS ARE THEN OFFSET IN THE DIRECTION AND DISTANCE SHOWN ON THE TRACK PLAN.

THE MOUNTING CENTERS OF A MARKER PAIR SHALL BE LOCATED NOT LESS THAN 4 FT. APART AND NOT MORE THAN 8 FT. APART. BETWEEN SETS OF ADJACENT MARKER PAIRS, THE CENTERS OF THE CLOSEST COILS SHALL BE NO CLOSER THAN 12 FT. A MINIMUM OF 1 1/2 FT. MUST BE MAINTAINED BETWEEN THE CENTER OF A MARKER COIL AND ANY HEAVY METALLIC OBJECT.

STATION STOPPING

ALL TWO-COIL STATION STOPPING MARKER UNITS ARE POSITIONED FROM THE CENTERLINE OF THE STATION TO THE CENTERLINE OF THE OUTERMOST COIL OF THE PAIRS. THE ARROW INDICATES THE DIRECTION OF TRAVEL FOR WHICH THE MARKER APPLIES.

① 8 → OUTER MARKER LOCATED AT 2700 (+20,-0) FT. FROM PSGR. STA. ☺

② V → MIDDLE MARKER LOCATED AT 1200 (+20,-0) FT. FROM PSGR. STA. ☺

③ V → INNER MARKER LOCATED AT 484 (+0,-20) FT. FROM PSGR. STA. ☺

④ → PLATFORM MARKER LOCATED AT 160 ± 1/2 FT. FROM PSGR. STA. ☺

THE MARKERS SHALL BE LOCATED WHERE SHOWN ON THE TRACK PLAN

THE NO. 1 MARKER IS USED WHERE THE DISTANCE BETWEEN STATIONS IS GREATER THAN 3000 FT. THE FIRST COIL IS ALWAYS f1 AND THE SECOND COIL IS f8.

MARKER FREQUENCIES

THE FREQUENCY NUMBER IS INDICATED ON EACH MARKER COIL SYMBOL ON THE TRACK PLAN. THE FOLLOWING TABLE INDICATES THE FUNCTION.

FREQUENCY NO.	FUNCTION	FREQUENCY
FIRST COIL		
1	2700 FT. STATION STOPPING	110KHz
2	1200 FT. STATION STOPPING	100KHz
3	484 FT. STATION STOPPING	92KHz
4	160 FT. STATION STOPPING	170KHz
SECOND COIL		
6	PRECEDED BY (2 OR 3) SKIP STOP	130KHz
7	(2 OR 3) SHORT (TYPE A) STOP	140KHz
8	(1) DIRECTION	160KHz
8	(2 OR 3) LONG (TYPE B) STOP	
9	(2 OR 3) CENTER (TYPE C) STOP	180KHz
V	(2 OR 3) CONTROLLED VARIABLE (f6, f7, f8, OR f9) - USED TO INDICATE TYPE OF STATION STOP AS INDICATED ABOVE.	

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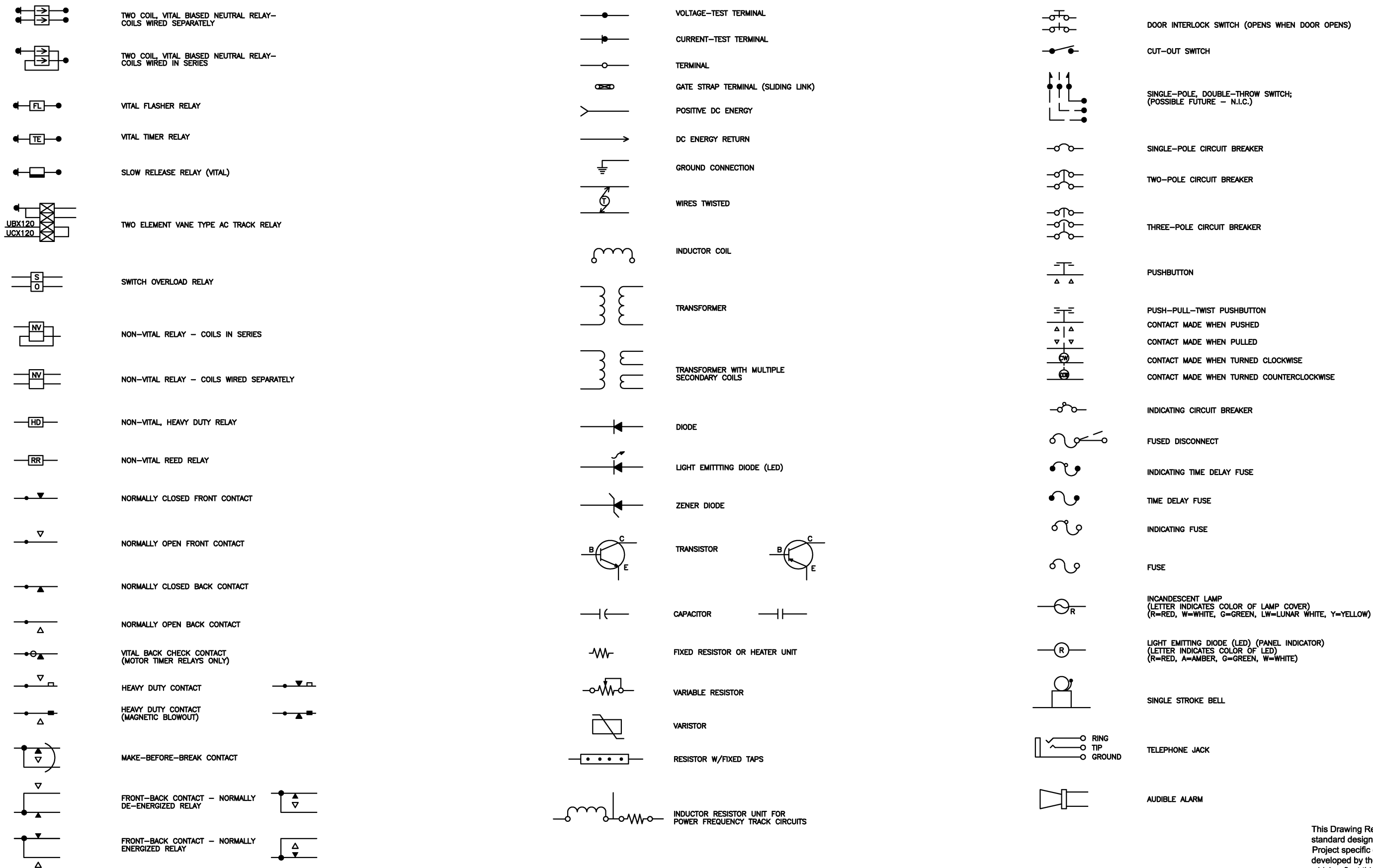
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DRAWN	JMR	5-00	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
CHECKED			DATE					
APPROVED			DATE					
UPDATED			DATE					

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SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
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TYPICAL TRACK PLAN ABBREVIATIONS, SYMBOLS, AND INSTALLATION DATA	
SCALE	DRAWING NO.
NONE	ST-TC-G-021



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APPROVED			DATE
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REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
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TYPICAL ELECTRICAL SYMBOLS	
SCALE NONE	DRAWING NO. ST-TC-G-022

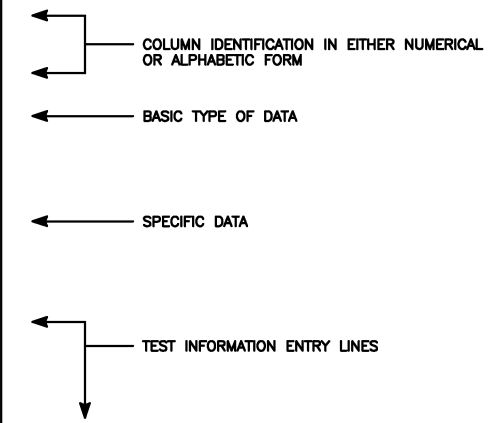
SAFE BRAKING TEST DATA SHEET

CONTRACT NUMBER _____

ROUTE SEGMENT _____

TRANSMITTAL NUMBER OF APPROVED BLOCK DESIGN DATA _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	
	← BLOCK DESIGN DATA					← TRAIN TEST DATA (FROM TEST FIXTURE)					← CALCULATED ANALYSIS					← TRAIN TEST DATA COMPENSATED					← COMPENSATED ANALYSIS					← EXTRAPOLATED ANALYSIS →					
	TARGET BOND	OVERRUN BOND	TEST ZONE FEET, TRUE DISTANCE	EFFECTIVE BRAKE RATE MPHPS X % GRADE	C.L. ATP APPROACH SPEED	RUN AWAY SPEED	REACTION DISTANCE	DESIGN STOPPING DISTANCE	B CAR ALLOWANCE	DATE OF TEST	HEAD END CAR #	MAXIMUM SPEED	STOPPING TIME	STOPPING DISTANCE	DISTANCE TO O BOND	DISTANCE READINGS CHECK (CONSTANT)	OVERRUN CHECK >10 OK > 0 IF X 2 RUNS	SPEED CHECK >0=OK	BRAKE RATE CHECK -0.1 to +0.1=OK	REACTION DISTANCE	MAXIMUM SPEED	STOPPING DISTANCE	DISTANCE TO O BOND	DISTANCE READINGS CHECK (CONSTANT)	OVERRUN CHECK >10 OK; 0=OK IF 2X RUN	SPEED CHECK >0=OK	BRAKE RATE CHECK -0.1 to +0.1=OK	CORRECTED STOPPING DISTANCE	ADDED STOPPING DISTANCE	PROBABLE DISTANCE TO OVERRUN >10	
	T.C.STA.	T.C.STA.	FEET		M.P.H.	M.P.H.	FEET	FEET	FEET	MM/DD/YY		M.P.H.	SECONDS	FEET	FEET	FEET	FEET	M.P.H.	MPHPS	FEET	M.P.H.	FEET	FEET	FEET		M.P.H.	MPHPS	FEET	FEET	FEET	
17																															
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26																															



WORKSHEET FORMULAS FOR DATA

ROW	COLUMN	NUMERIC FORMULA	ALPHABETIC FORMULA
19	16 P	$[(19c3-19c7-19c14-19c15)/(19c3/1000)]$	$[C-G-N-O]/[C/1000]$
	17 Q	$(19c3-19c7-19c14-19c9-18)$	$C-G-N-I-18$
	18 R	$(19c12-19c6)$	$L-F$
	19 S	$((19c12/19c13)-19c4)$	$[L/M]-D$
	20 T	$[19c7+(19c16*19c7/1000)]$	$[G+(P*G/1000)]$
	21 U	$[(19c12+(19c16*19c12/1000)]$	$[L+(P*L/1000)]$
	22 V	$[(19c14+(19c16*19c14/1000)]$	$[N+(P*N/1000)]$
	23 W	$[(19c15+(19c16*19c15/1000)]$	$[O+(P*O/1000)]$
	24 X	$(19c3-19c20-19c22-19c23)/(19c3/1000)$	$[(C-T-V-W)/(C/1000)]$
	25 Y	$(19c3-19c20-19c22-19c9-18)$	$C-T-V-I-18$
	26 Z	$(19c21-19c6)$	$U-F$
	27 AA	$[(19c21/19c13)-19c4]$	$[U/M]-D$
	28 AB	$[(19c22*0.73*19c6^2)/(0.73*19c21^2)]$	$[V*.73F^2]/[.73U^2]$
	29 AC	$(19c28-19c22)$	$AB-V$
	30 AD	$(19c23-19c29-19c9-18)$	$W-AC-I-18$
20	16 P	AS ABOVE	
	17 Q		
	30 AD		

ETC.

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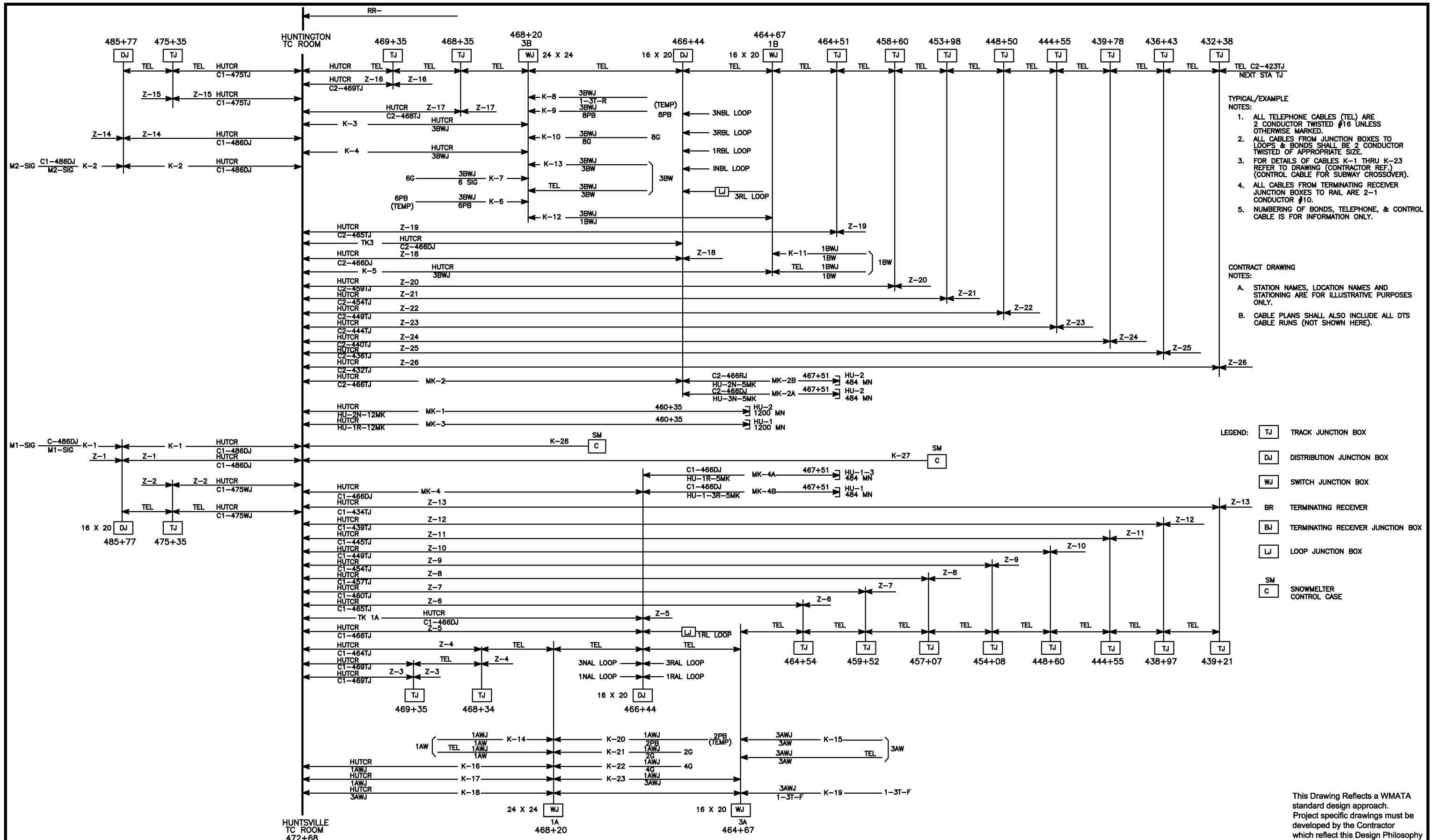
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DRAWN <u>JMR</u>	DATE <u>7-00</u>	NUMBER	DESCRIPTION	DATE	BY
CHECKED _____	DATE _____				
APPROVED _____	DATE _____				
UPDATED _____	DATE _____				

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DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
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SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE _____

DATA SHEET FORMAT - SAFE BRAKING TESTS	SCALE NONE	DRAWING NO. ST-TC-G-026
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- TYPICAL/EXAMPLE NOTES:
1. ALL TELEPHONE CABLES (TEL) ARE 2 CONDUCTOR TWISTED #16 UNLESS OTHERWISE MARKED.
 2. ALL CABLES FROM JUNCTION BOXES TO LOOPS & BONDS SHALL BE 2 CONDUCTOR TWISTED OF APPROPRIATE SIZE.
 3. FOR DETAILS OF CABLES K-1 THRU K-23 REFER TO DRAWING (CONTRACTOR REF.) (CONTROL CABLE FOR SUBWAY CROSSOVER).
 4. ALL CABLES FROM TERMINATING RECEIVER JUNCTION BOXES TO RAIL ARE 2-1 CONDUCTOR #10.
 5. NUMBERING OF BONDS, TELEPHONE, & CONTROL CABLE IS FOR INFORMATION ONLY.

- CONTRACT DRAWING NOTES:
- A. STATION NAMES, LOCATION NAMES AND STATIONING ARE FOR ILLUSTRATIVE PURPOSES ONLY.
 - B. CABLE PLANS SHALL ALSO INCLUDE ALL DTS CABLE RUNS (NOT SHOWN HERE).

- LEGEND:
- TJ TRACK JUNCTION BOX
 - DJ DISTRIBUTION JUNCTION BOX
 - WJ SWITCH JUNCTION BOX
 - BR TERMINATING RECEIVER
 - BJ TERMINATING RECEIVER JUNCTION BOX
 - LJ LOOP JUNCTION BOX
 - SM SNOWMELTER CONTROL CASE

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GAH	2-00	NUMBER	DESCRIPTION	DATE	DESCRIPTION
DRAWN	2-00			08/2001	Revised and issued by the Authority
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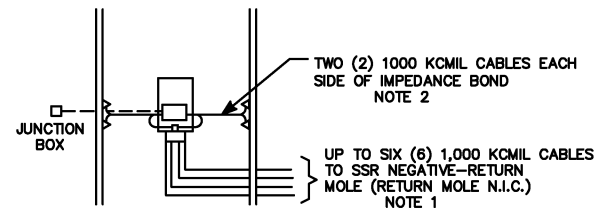
SUBMITTED _____ DATE _____ APPROVED *[Signature]* DATE May 3, 2001

TYPICAL ATC WAYSIDE CABLE PLAN

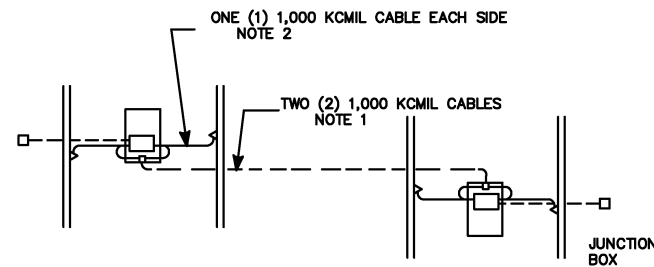
SCALE NONE DRAWING NO. ST-TC-G-031

NOTES:

1. ACTUAL ROUTING OF 1000 KCMIL CROSSBONDING AND SUBSTATION RETURN CABLES MAY REQUIRE CONSIDERABLY MORE CABLE THAN IS INDICATED BY THIS SCHEMATIC. CONTRACTOR SHALL CONDUCT HIS OWN FIELD INSPECTION TO DETERMINE LENGTHS OF CABLE ACTUALLY REQUIRED.
2. FOR CLAMPED CONNECTION OF 1000 KCMIL CABLE TO RUNNING RAILS, SEE DWG. G-036 AND DETAIL "A" ON DWG. G-037.
3. EQUIVALENT LAYOUT REQUIRED FOR BALLASTED TRACK.
4. AS AN ALTERNATIVE TO EACH 1000 KCMIL CLAMPED IMPEDANCE-BOND-TO-RUNNING-RAIL CABLE, THE CONTRACTOR MAY PROVIDE A DUAL 500 KCMIL CABLE, COMPRESSION BOLTED TO THE RUNNING RAIL. SEE SECTION 16968.



SCHEMATIC OF NEGATIVE RETURN AT SUBSTATION
(OTHERWISE SAME AS FIG. 1)



SCHEMATIC OF 2-BOND LOCATION WITH CROSSBONDING
(OTHERWISE SAME AS FIG. 1)

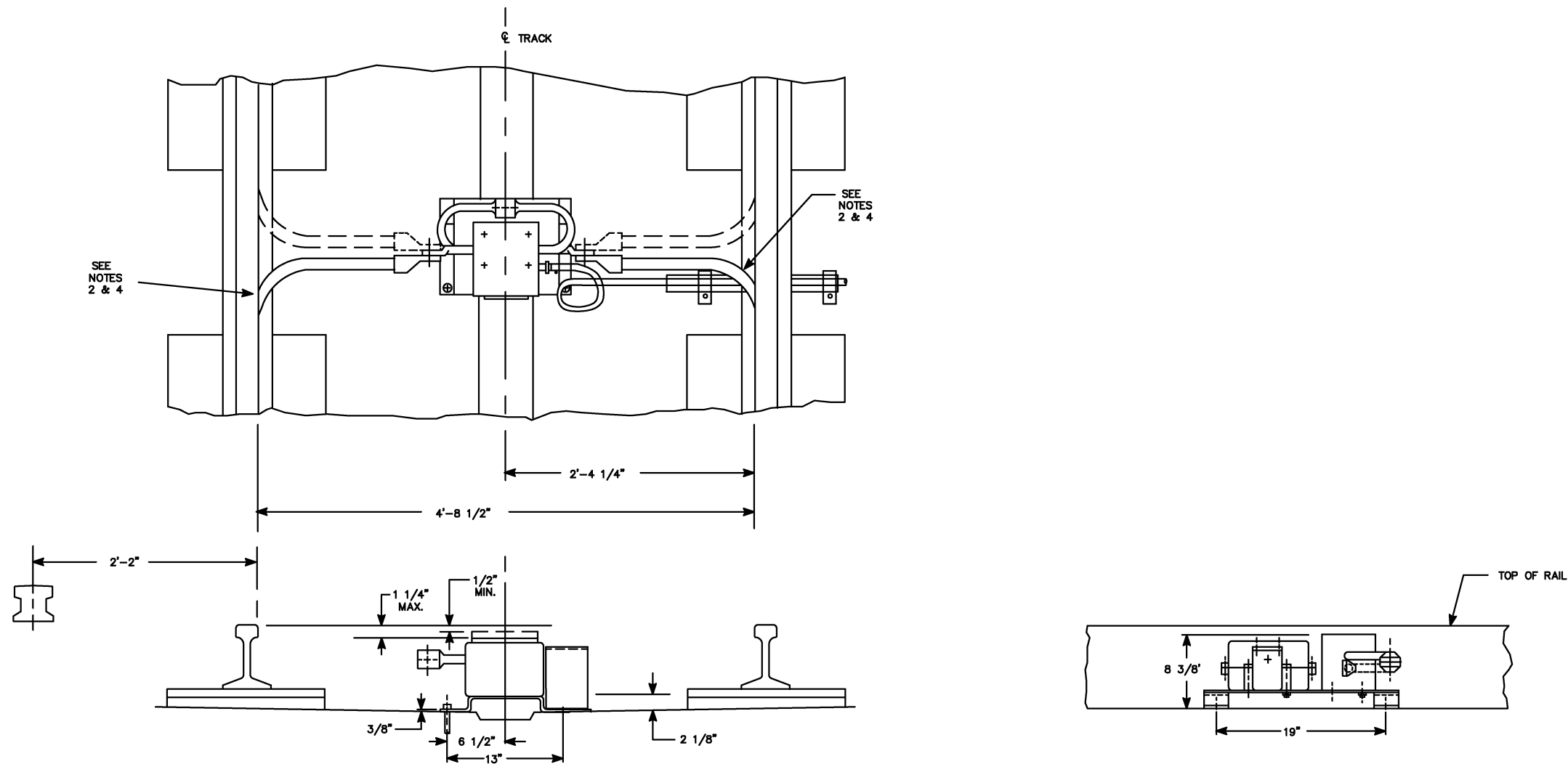


FIG. 1

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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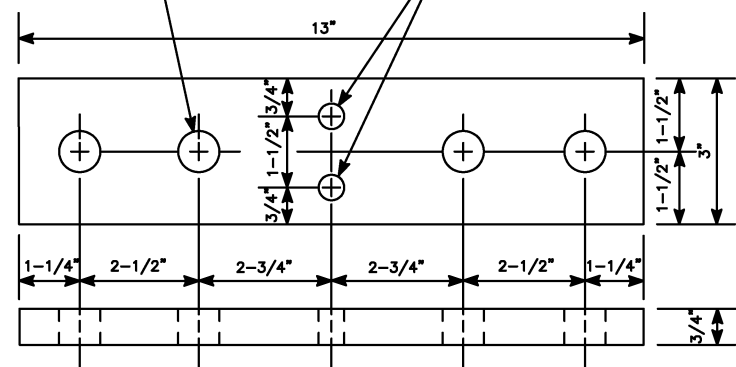
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DIRECTOR DATE

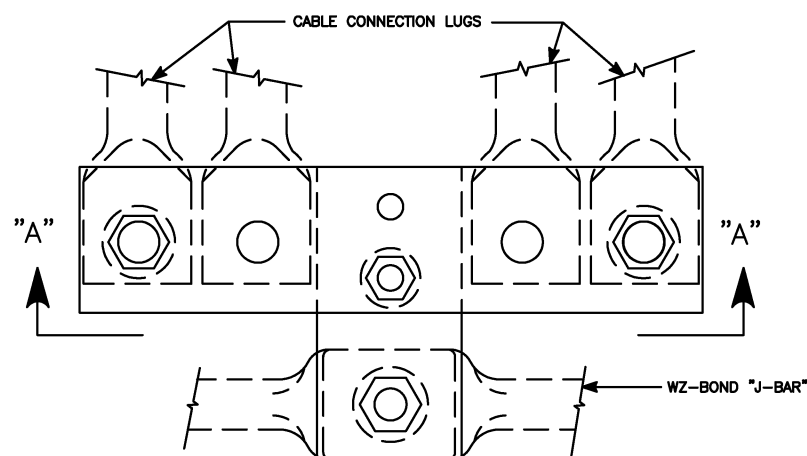
TYPICAL IMPEDANCE BOND LAYOUT FOR DIRECT FIXATION TO CONCRETE	
SCALE NONE	DRAWING NO. ST-TC-G-035

4 7/8" Ø HOLES
(FOR 3/4" NAVAL
OR SILICON BRONZE
BOLTS)

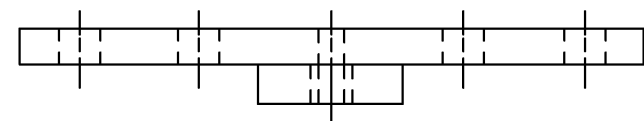
2 9/16" Ø HOLES
(FOR 1/2" NAVAL BRONZE
OR SILICON BRONZE
BOLTS)



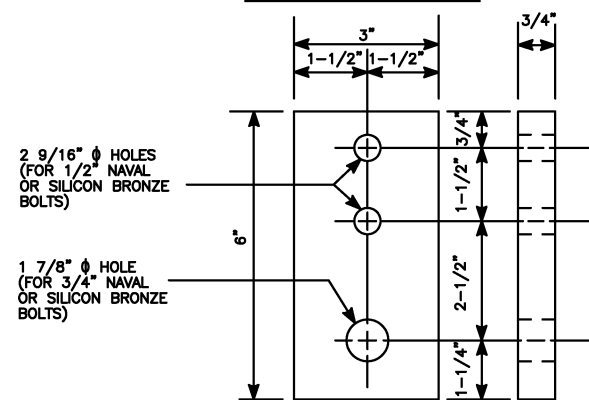
HEAD PIECE



PLAN VIEW



SECTION "A-A"



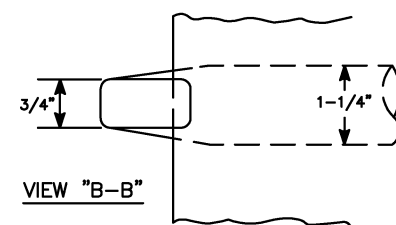
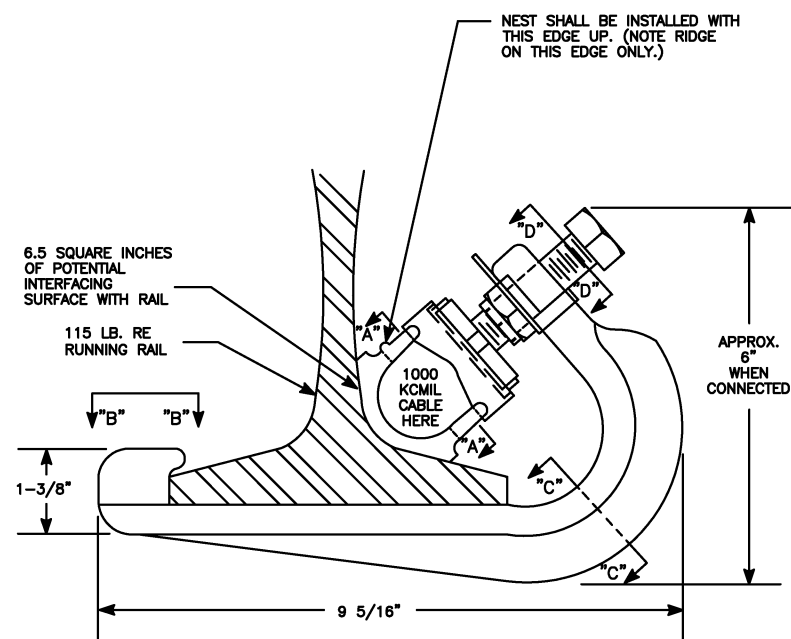
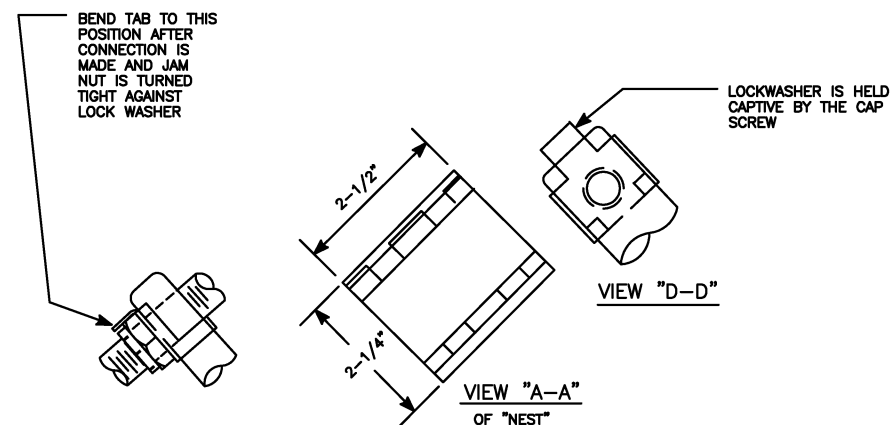
BASE PIECE

" T " CONNECTOR

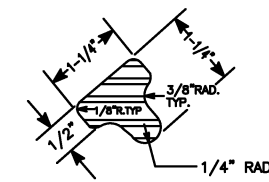
NOTES:
1. CONTRACTOR SHALL FABRICATE THESE CONNECTORS FROM 3 X 3/4 INCH COPPER BUS BAR HAVING 98% CONDUCTIVITY.

BASE-OF-RAIL CLAMP

NOTES:
1. BASE-OF-RAIL CLAMPS SHALL BE AS MANUFACTURED BY CONNECTOR PRODUCTS, INC., PENNSAUKEN, N.J., THEIR PART NUMBER 115-1000.



VIEW "B-B"



SECTION "C-C"

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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TYPICAL IMPEDANCE BOND "T" CONNECTOR
AND BASE-OF-RAIL CLAMP

SUBMITTED _____ DATE _____

APPROVED *respat* May 3, 2001
DIRECTOR DATE

SCALE
NONE

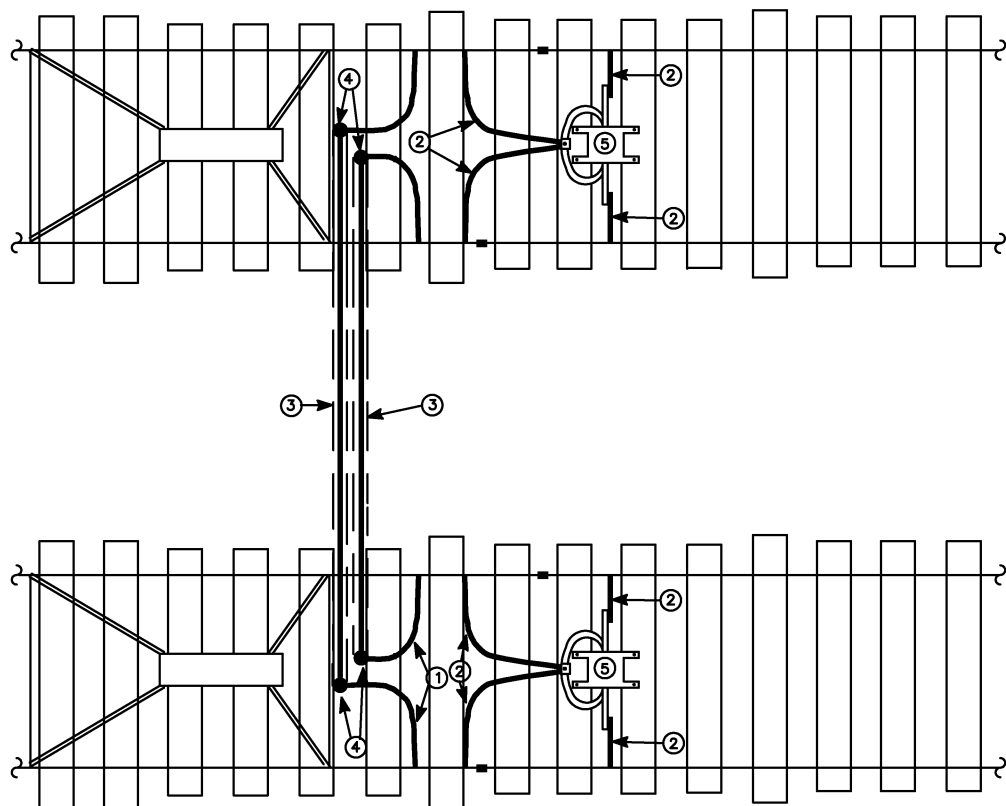
DRAWING NO.
ST-TC-G-036

NOTES:

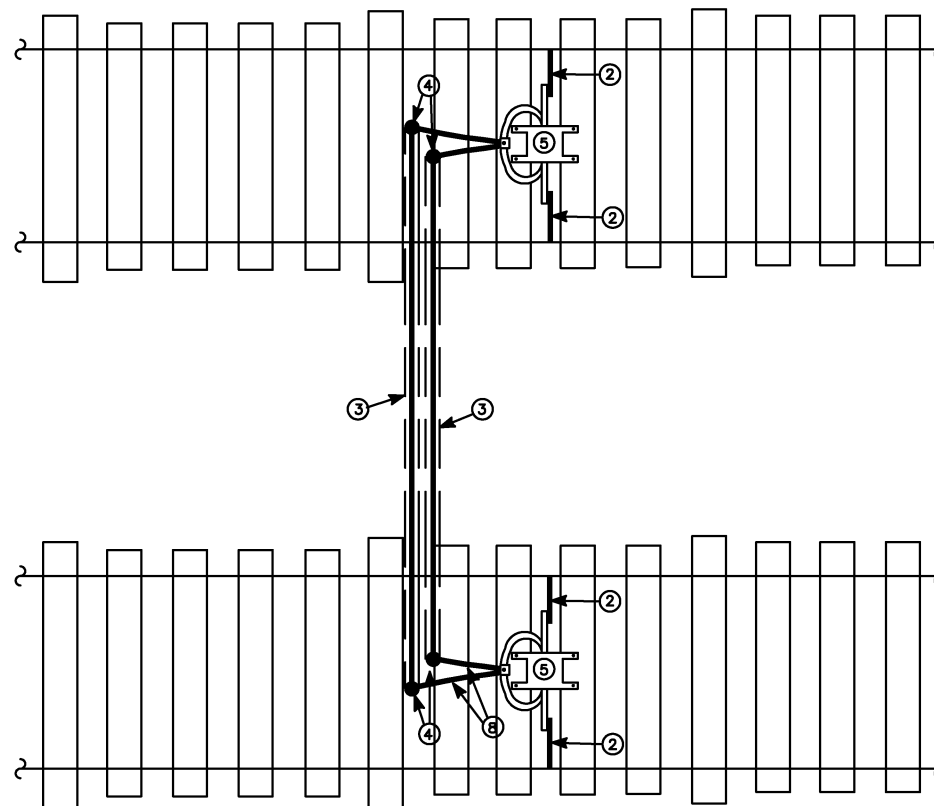
1. ACTUAL ROUTING OF 1000 KCMIL CROSSBONDING AND SUBSTATION RETURN CABLES MAY REQUIRE CONSIDERABLY MORE CABLE THAN IS INDICATED BY THIS SCHEMATIC. CONTRACTOR SHALL CONDUCT HIS OWN FIELD INSPECTION TO DETERMINE LENGTHS OF CABLE ACTUALLY REQUIRED.
2. SEE DETAIL 'A' FOR CLAMPED CONNECTION OF 1000 KCMIL CABLES TO RUNNING RAILS.
3. EQUIVALENT CONFIGURATION REQUIRED FOR "DIRECT FIXATION".
4. AS AN ALTERNATIVE TO EACH 1000 KCMIL CLAMPED CABLE (ITEM ②), THE CONTRACTOR MAY PROVIDE A DUAL 500 KCMIL CABLE, COMPRESSION BOLTED TO THE RUNNING RAIL. SEE SECTION 16968.

EQUIPMENT:

- ① 1000 KCMIL CABLE WITH TWO CLAMPS (DETAIL 'A').
- ② 1000 KCMIL CABLE WITH ONE COMPRESSION TYPE EYE FITTING (PER SPECIFICATIONS) AND ONE CLAMP (DETAIL 'A'). SEE NOTE 4.
- ③ 3" PVC CONDUIT INSTALLED BY OTHERS.
- ④ SEALING COMPOUND (PER SPECIFICATIONS).
- ⑤ WAYSIDE IMPEDANCE BOND AND TUNNING UNIT.
- ⑥ "T"CONNECTOR—FABRICATED PER SPECIFICATIONS. SEE DWG. G-036.
- ⑦ 1000 KCMIL CABLE WITH ONE COMPRESSION TYPE EYE FITTING (PER SPECIFICATIONS).
- ⑧ 1000 KCMIL CABLE WITH TWO COMPRESSION TYPE EYE FITTINGS (PER SPECIFICATIONS).
- ⑨ SUBSTATION RETURN INTERFACE ("MOLE") (PROVIDED BY OTHERS).



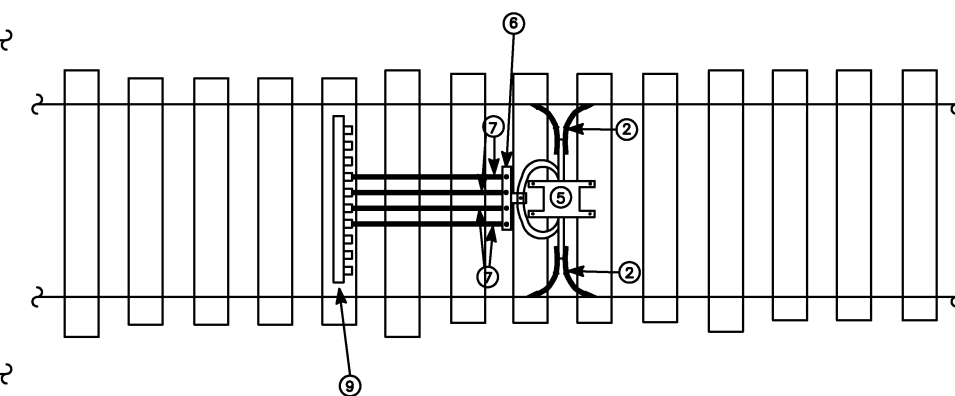
BUMPING POST CROSS-BOND
(WHERE APPLICABLE)



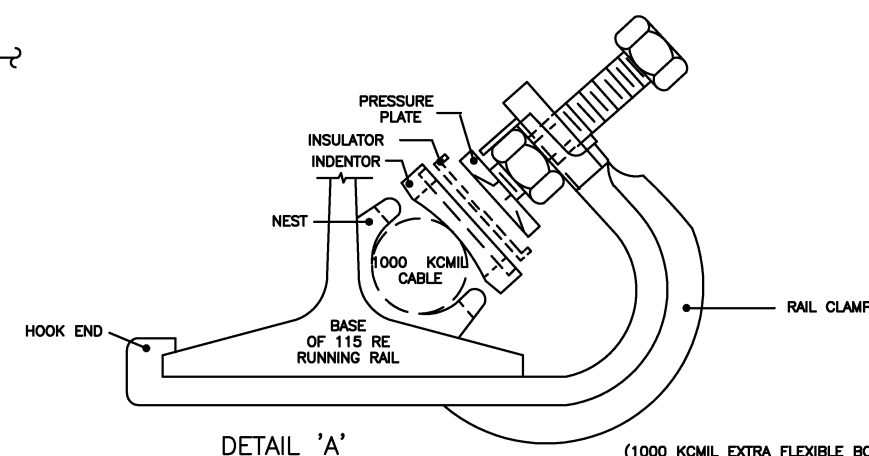
MAINLINE CROSS-BOND

LEGEND

- NEGATIVE RETURN CABLE
- RUNNING RAIL
- INSULATED JOINT, BY OTHERS



SUBSTATION RETURN



DETAIL 'A'

(1000 KCMIL EXTRA FLEXIBLE BOND CABLE SHALL BE CUT TO FIT AND CLAMPED AS SHOWN. CLAMP AS MANUFACTURED BY CONNECTOR PRODUCTS, INC. PART NO. 115-1000, OR APPROVED EQUAL).

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GAM</u> 2-00 DATE	<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> <th colspan="2">REVISIONS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>08/2001</td> <td>SYSP</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	REFERENCE DRAWINGS		REVISIONS		NUMBER	DESCRIPTION	DATE	BY			08/2001	SYSP								
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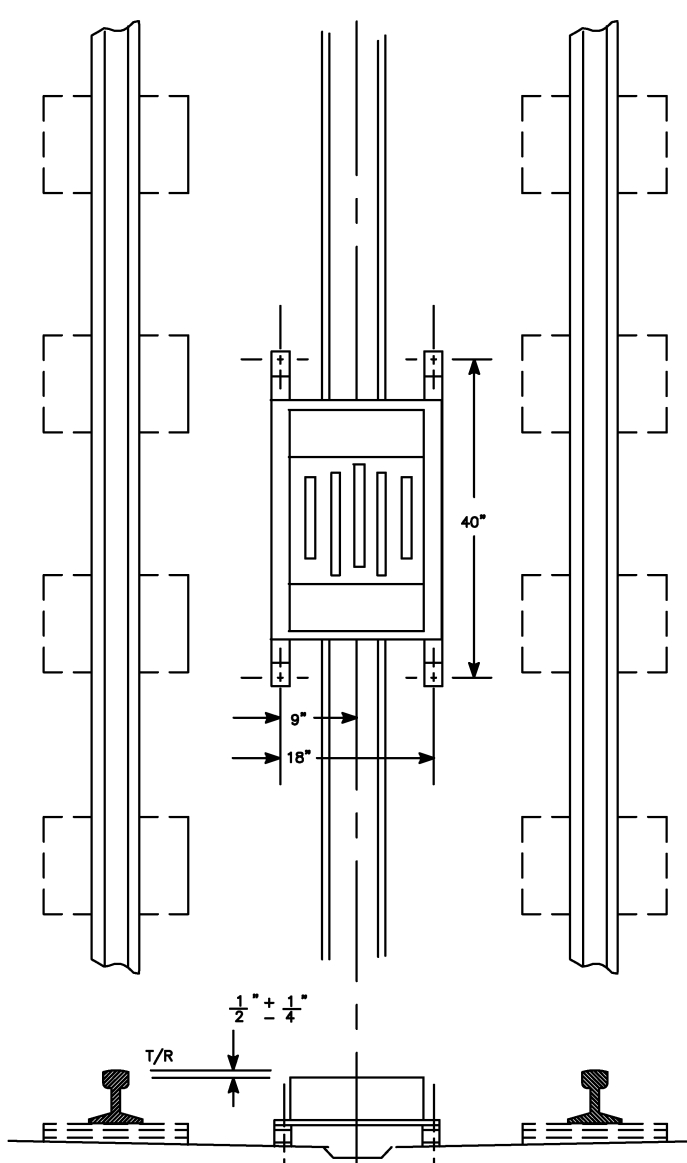
APPROVED respatz May 3, 2001 DATE

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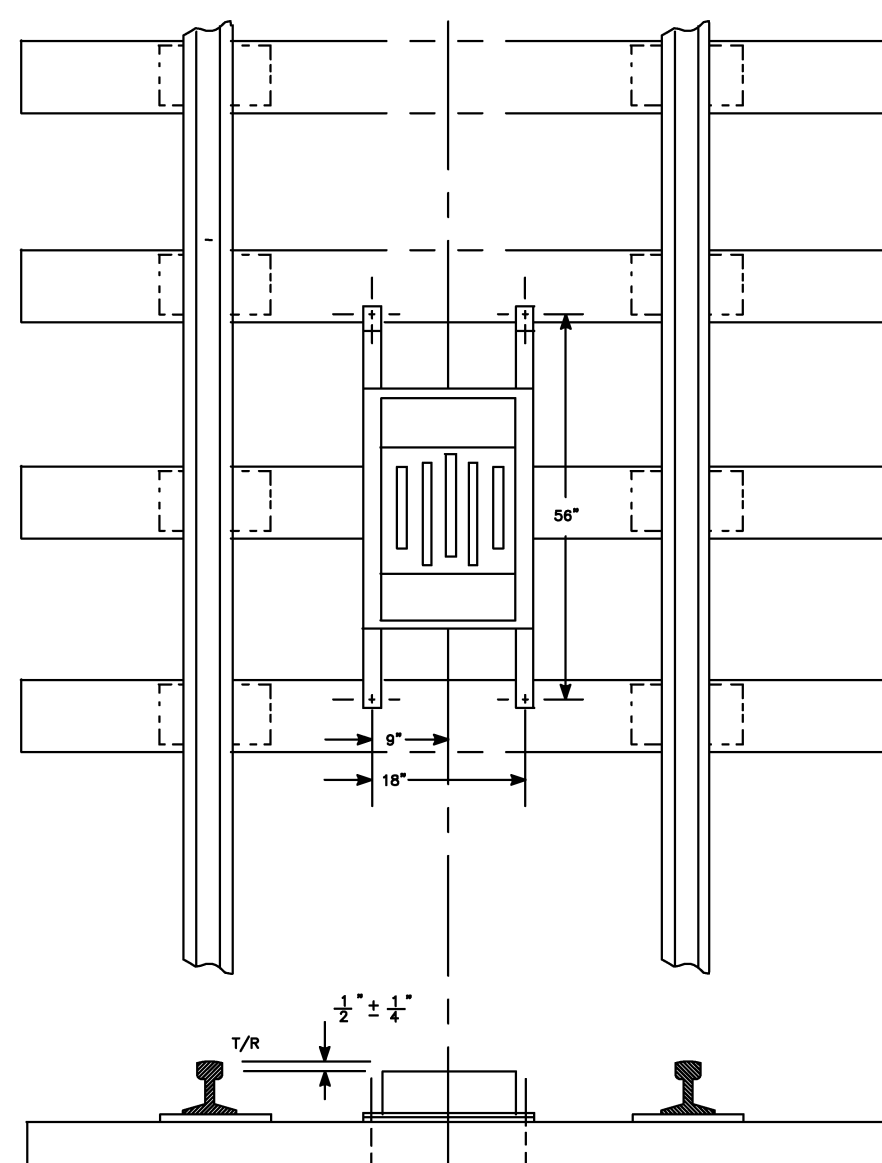
DRAWING NO. ST-TC-G-037

TYPICAL CROSS-BOND & SUBSTATION-RETURN NEGATIVE RETURN BONDING DIAGRAM

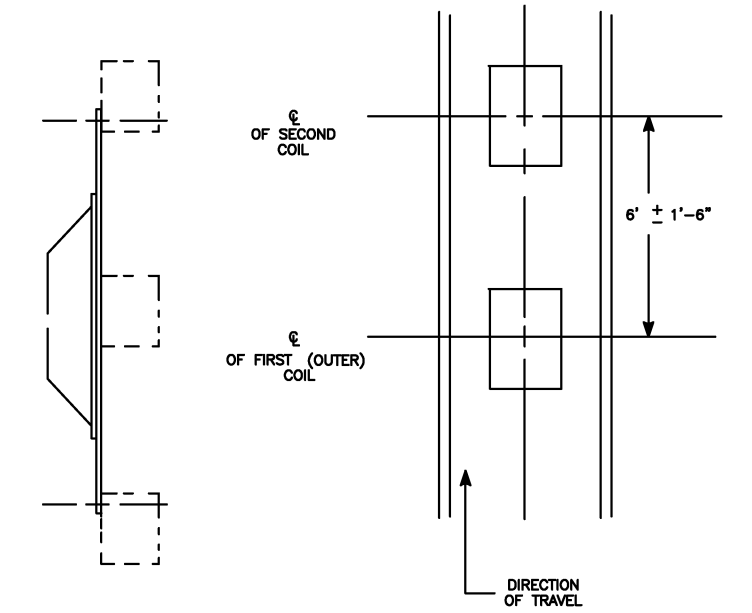
- NOTES:
1. MARKER COILS SHALL NOT BE INSTALLED WITHIN 60 FT. OF SWITCH POINTS.
 2. MARKER COILS SHALL NOT BE INSTALLED OVER DRAINS OR CABLE STUB-UPS.
 3. A STATION OVERSPEED MARKER SIGN (AS SPECIFIED IN SECTION 16976) SHALL BE AFFIXED TO ONE OF THE SLOPING FACES OF EACH 160-FOOT PLATFORM MARKER HOUSING AS SPECIFIED IN SECTION 16967.



DIRECT FIXATION



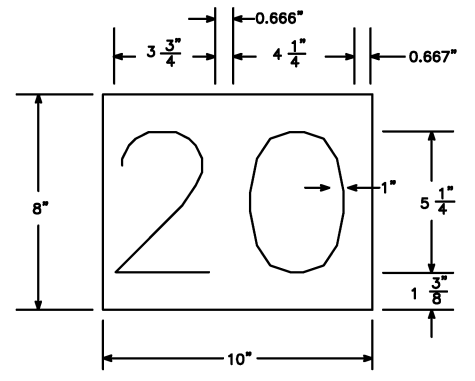
BALLASTED TRACK



MARKER COIL OFFSET VS CURVE RADIUS

RADI OF CURVE	OFFSET FROM ϕ
8500'-2900'	1"
2900'-1750'	2"
1750'-1250'	3"
1250'-975'	4"
975'-800'	5"
800'-700'	6"
LESS THAN 700'	7"

SEE SECTION 16967.



STATION OVERSPEED MARKER SIGN

(SILVER NUMBERS ON GREEN BACKGROUND)
(SEE SECTIONS 16967 & 16976 AND NOTE 3.)

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APPROVED					
UPDATED					

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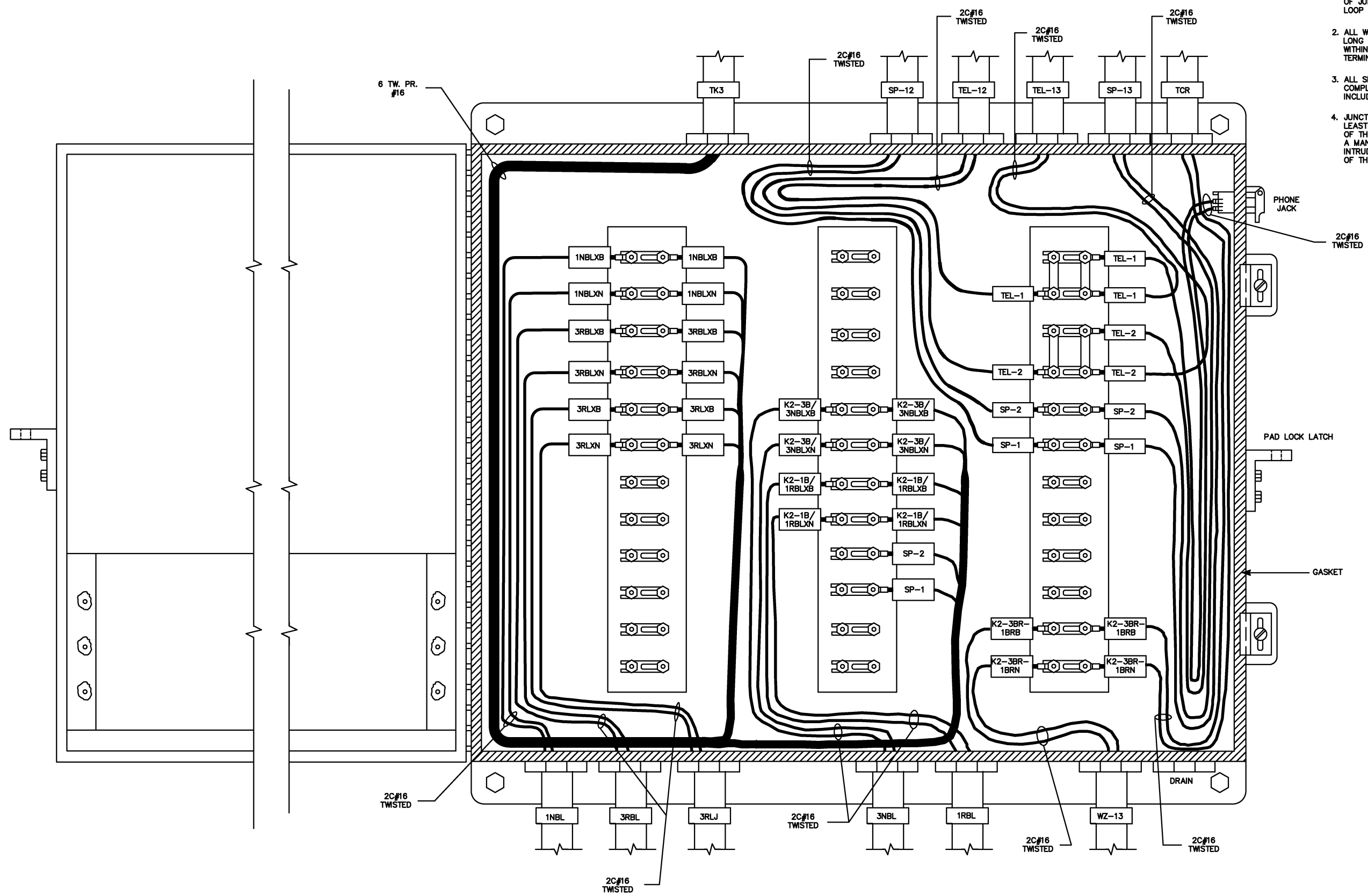
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OFFICE OF SYSTEMS

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TYPICAL MARKER COIL LAYOUTS - DIRECT FIXATION AND BALLASTED TRACK

SCALE NONE DRAWING NO. ST-TC-G-039

- NOTES:
1. THIS JUNCTION BOX IS A REPRESENTATION OF JUNCTION BOXES OTHER THAN THE TRACK (TJ), LOOP (LJ), AND MARKER (MJ) JUNCTION BOXES.
 2. ALL WIRES WITHIN A JUNCTION BOX SHALL BE LONG ENOUGH TO REACH ANY TERMINAL WITHIN THE JUNCTION BOX AFTER THE TERMINATING DEVICE HAS BEEN APPLIED.
 3. ALL SPARE TERMINALS SHALL HAVE A FULL COMPLEMENT OF HARDWARE. THIS SHALL INCLUDE SLIDE STRAPS.
 4. JUNCTION BOXES SHALL BE MOUNTED AT LEAST 6 FEET FROM THE CENTERLINE OF THE NEAREST TRACK AND IN SUCH A MANNER THAT THE OPEN BOX COVER CANNOT INTRUDE INTO THE CLEARANCE ENVELOPE OF THE TRANSIT VEHICLES.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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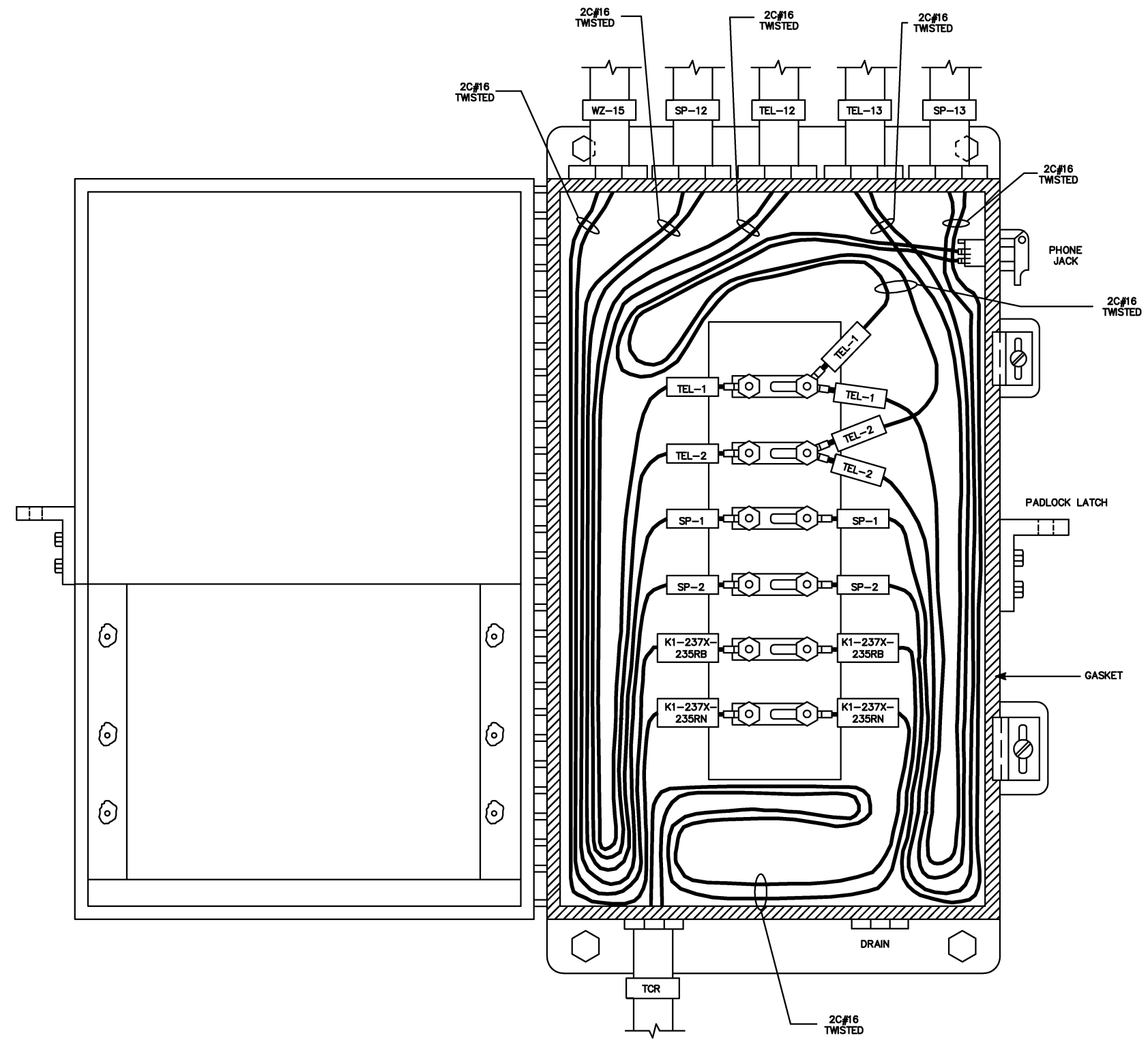
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
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SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001 DATE

TYPICAL LARGE JUNCTION BOX PLAN

SCALE NONE DRAWING NO. ST-TC-G-041

- NOTES:
1. THIS DRAWING IS A REPRESENTATION OF A SMALL JUNCTION BOX USED FOR TRACK (TJ), LOOP (LJ) AND MARKER (MJ) JUNCTION BOXES.
 2. ALL WIRES WITHIN A JUNCTION BOX SHALL BE LONG ENOUGH TO REACH ANY TERMINAL WITHIN THE JUNCTION BOX AFTER THE TERMINATING DEVICE HAS BEEN APPLIED.
 3. ALL SPARE TERMINALS SHALL HAVE A FULL COMPLEMENT OF HARDWARE. THIS SHALL INCLUDE SLIDE STRAPS.
 4. JUNCTION BOXES SHALL BE MOUNTED AT LEAST 6 FEET FROM THE CENTERLINE OF THE NEAREST TRACK AND IN SUCH A MANNER THAT THE OPEN BOX COVER CANNOT INTRUDE INTO THE CLEARANCE ENVELOPE OF THE TRANSIT VEHICLES.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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UPDATED			DATE

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NUMBER	DESCRIPTION	DATE	BY
		08/2001	SYSP

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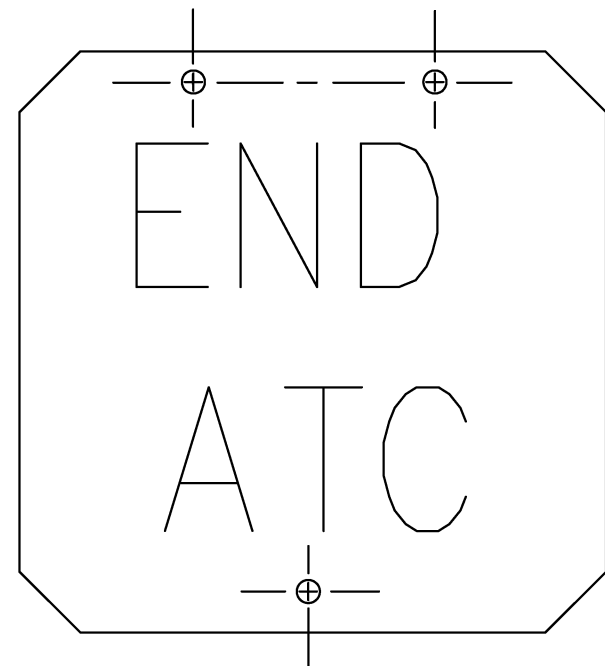
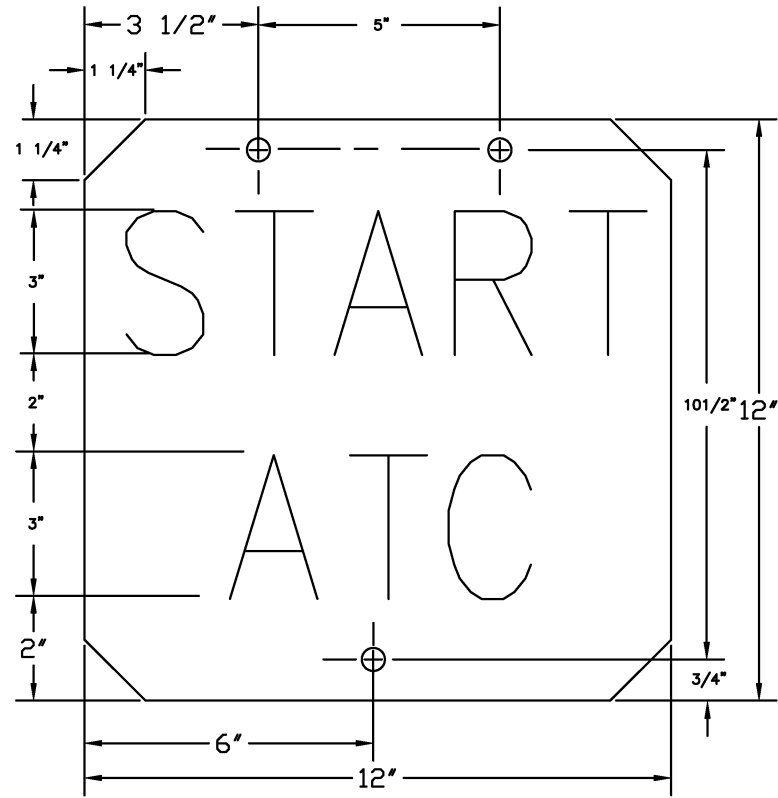
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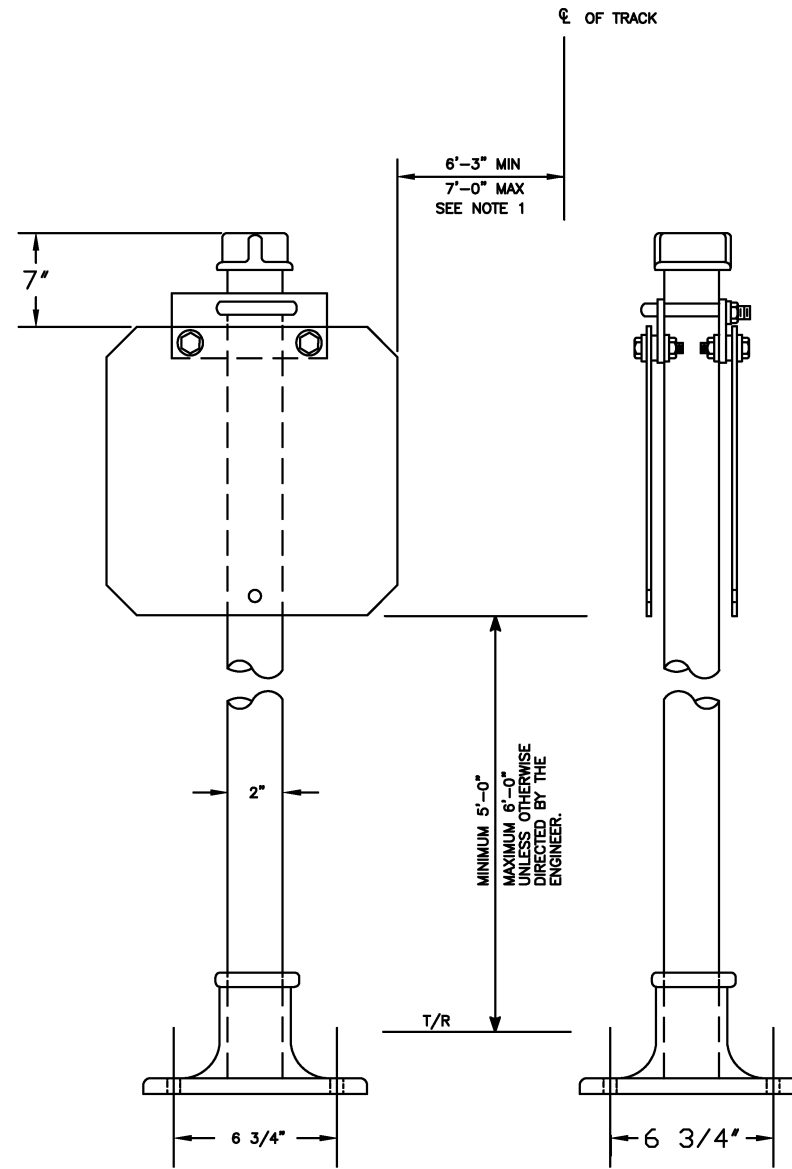
TYPICAL SMALL JUNCTION BOX PLAN

SCALE	DRAWING NO.
NONE	ST-TC-G-042

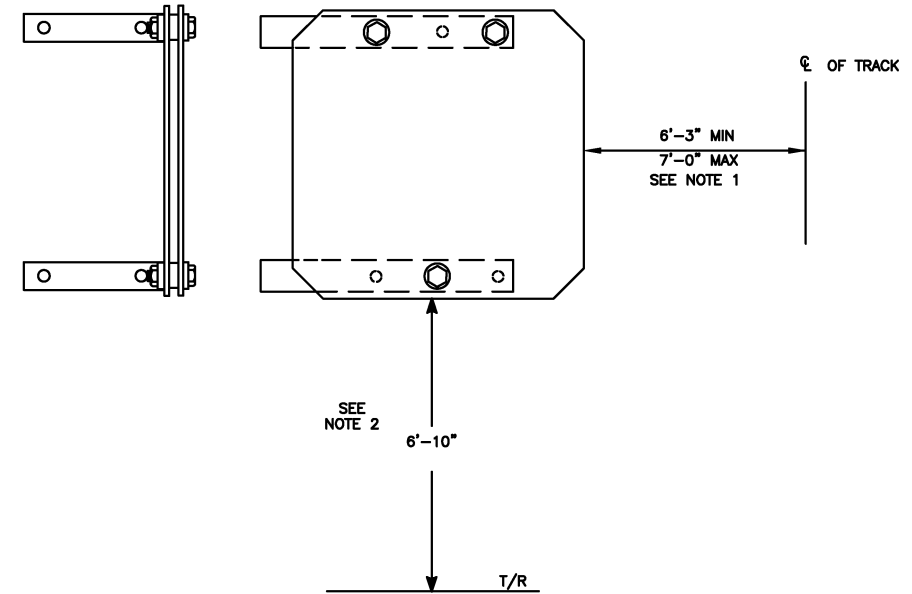


DIMENSIONS AS SHOWN ABOVE

- NOTES:
1. NOMINAL CLEARANCE TOLERANCES SHOWN FOR TANGENT TRACK. CLEARANCE DISTANCE SHALL BE INCREASED AS NECESSARY TO COMPENSATE FOR TRANSIT VEHICLE OVERHANG ON NON-TANGENT TRACK AND IN OR ADJACENT TO TURNOUTS AND TRANSIT VEHICLE TILTING ON SUPERELEVATED TRACK.
 2. NOMINAL DISTANCE SHOWN, CONTRACTOR SHALL MODIFY AS APPROVED BY THE ENGINEER TO PROVIDE SAFETY CLEARANCES AS REQUIRED.
 3. SEE DWG. ATCINF-CE-030.



MAST MOUNTED



WALL MOUNTED

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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APPROVED		DATE				
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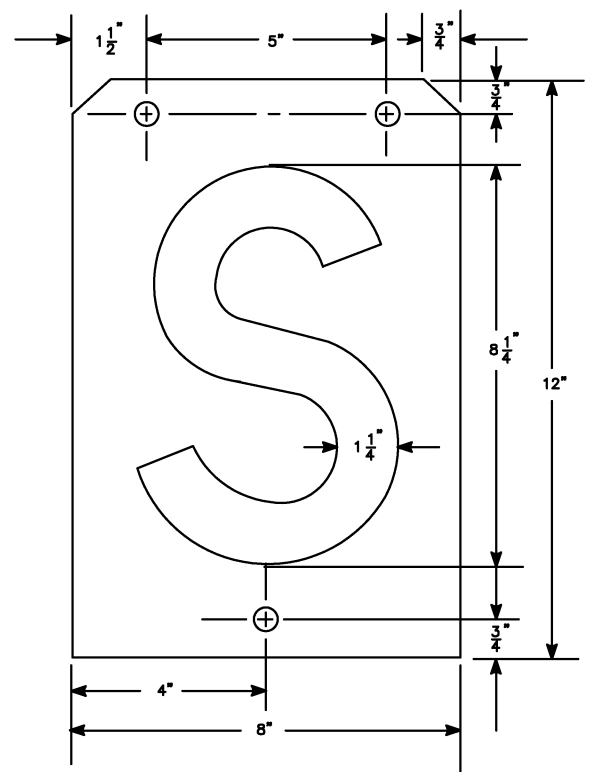
TYPICAL START ATC-END ATC SIGN LAYOUTS

SUBMITTED _____ DATE _____

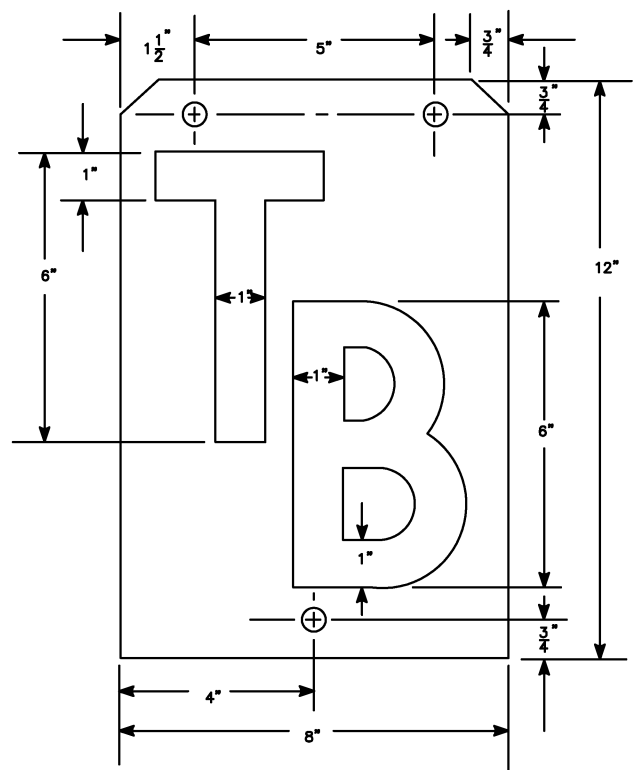
APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

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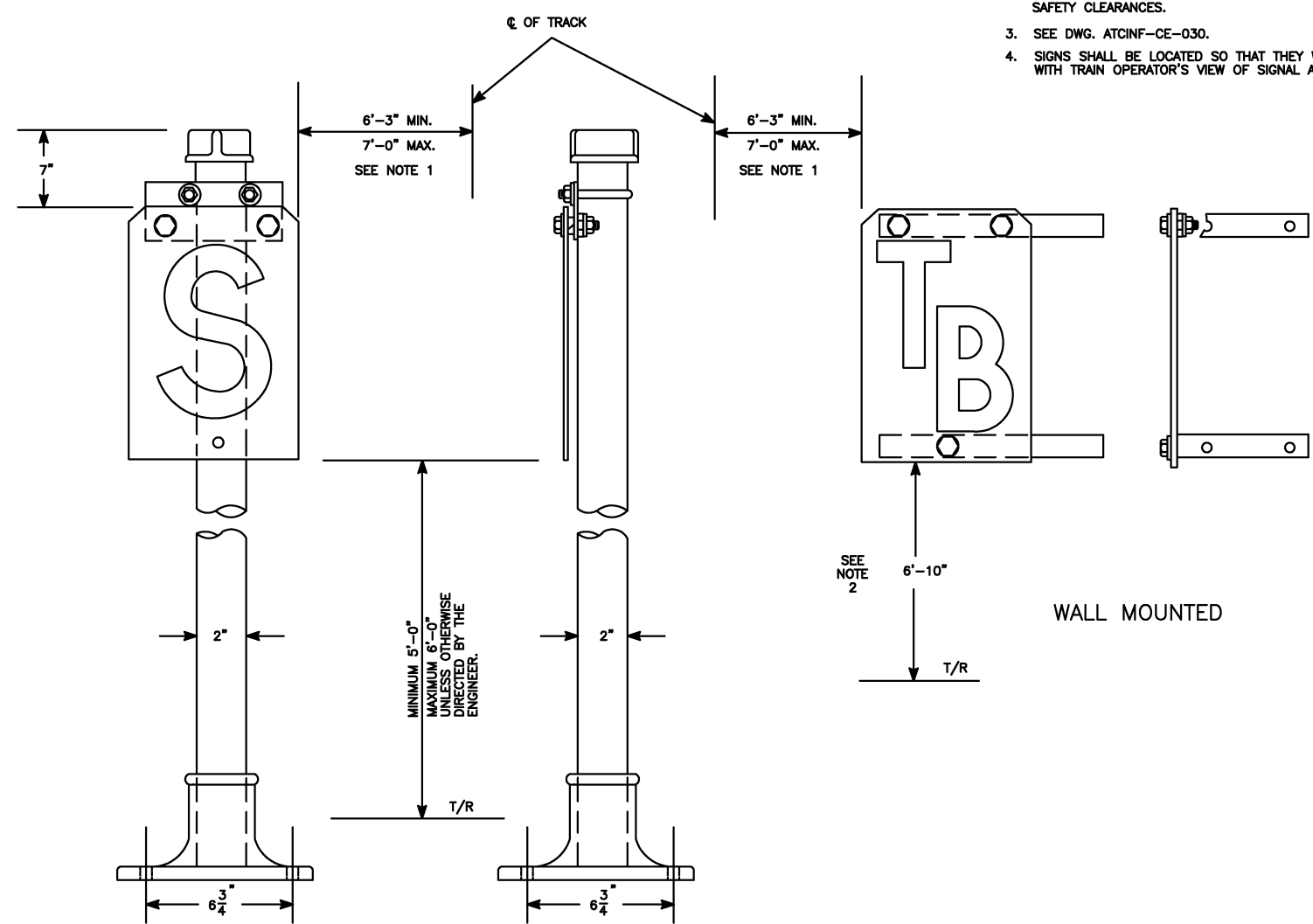
DRAWING NO. ST-TC-G-045



STATION STOP SIGN



TURNBACK SIGN



MAST MOUNTED

WALL MOUNTED

- NOTES:
1. NOMINAL CLEARANCE TOLERANCES SHOWN FOR TANGENT TRACK. CLEARANCE DISTANCE SHALL BE INCREASED AS NECESSARY TO COMPENSATE FOR TRANSIT VEHICLE OVERHANG ON NON-TANGENT TRACK AND IN OR ADJACENT TO TURNOUTS, AND TRANSIT VEHICLE TILTING ON SUPERELEVATED TRACK.
 2. NOMINAL DISTANCE SHOWN. CONTRACTOR SHALL MODIFY AS APPROVED BY THE ENGINEER TO PROVIDE REQUIRED SAFETY CLEARANCES.
 3. SEE DWG. ATCINF-CE-030.
 4. SIGNS SHALL BE LOCATED SO THAT THEY WILL NOT INTERFERE WITH TRAIN OPERATOR'S VIEW OF SIGNAL ASPECTS.

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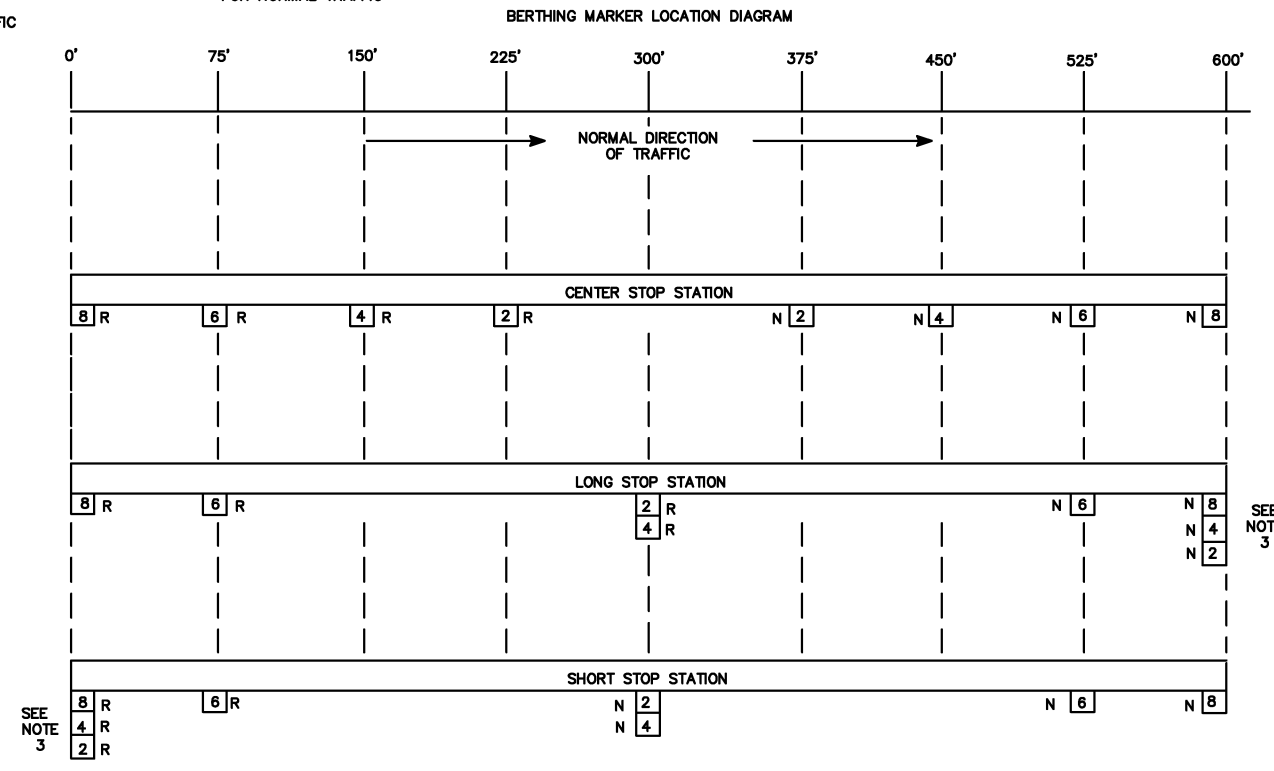
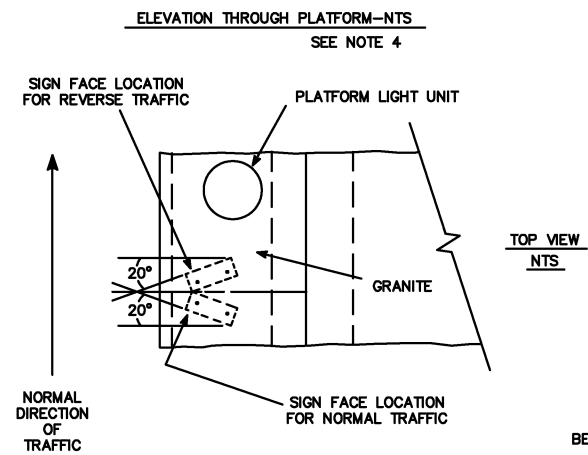
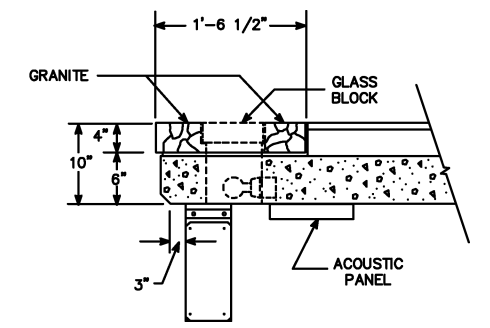
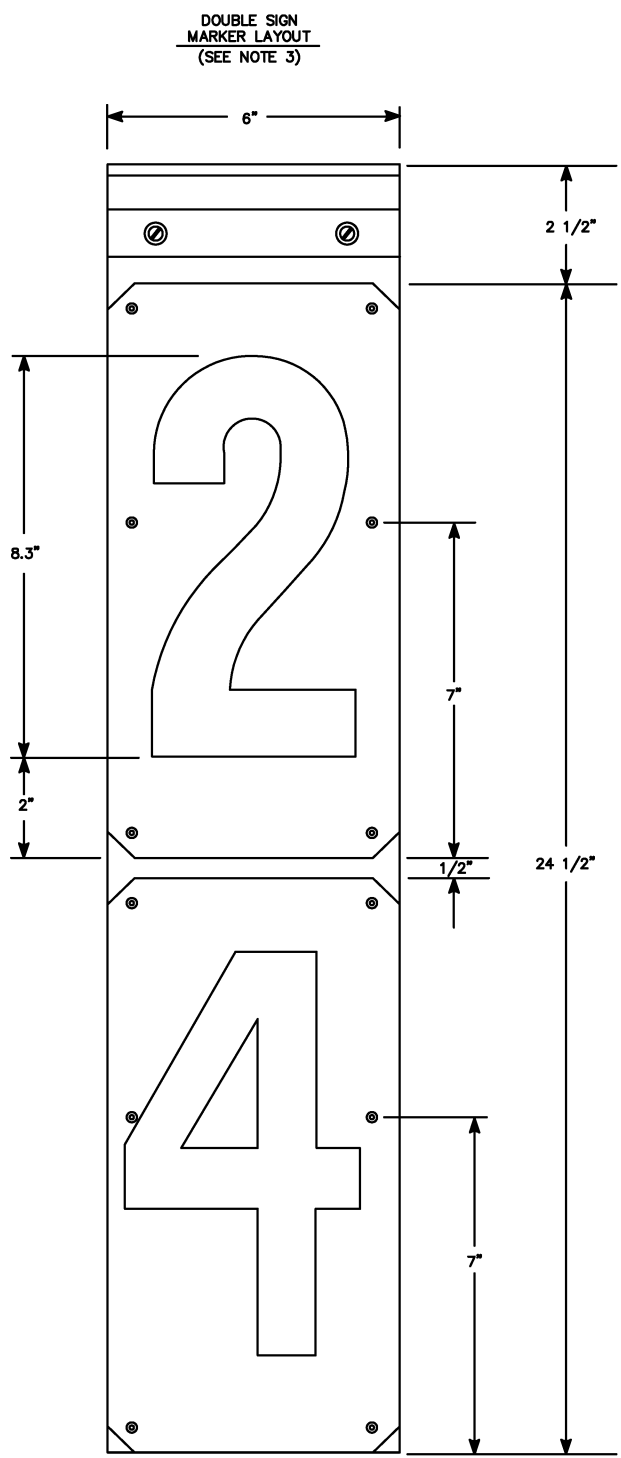
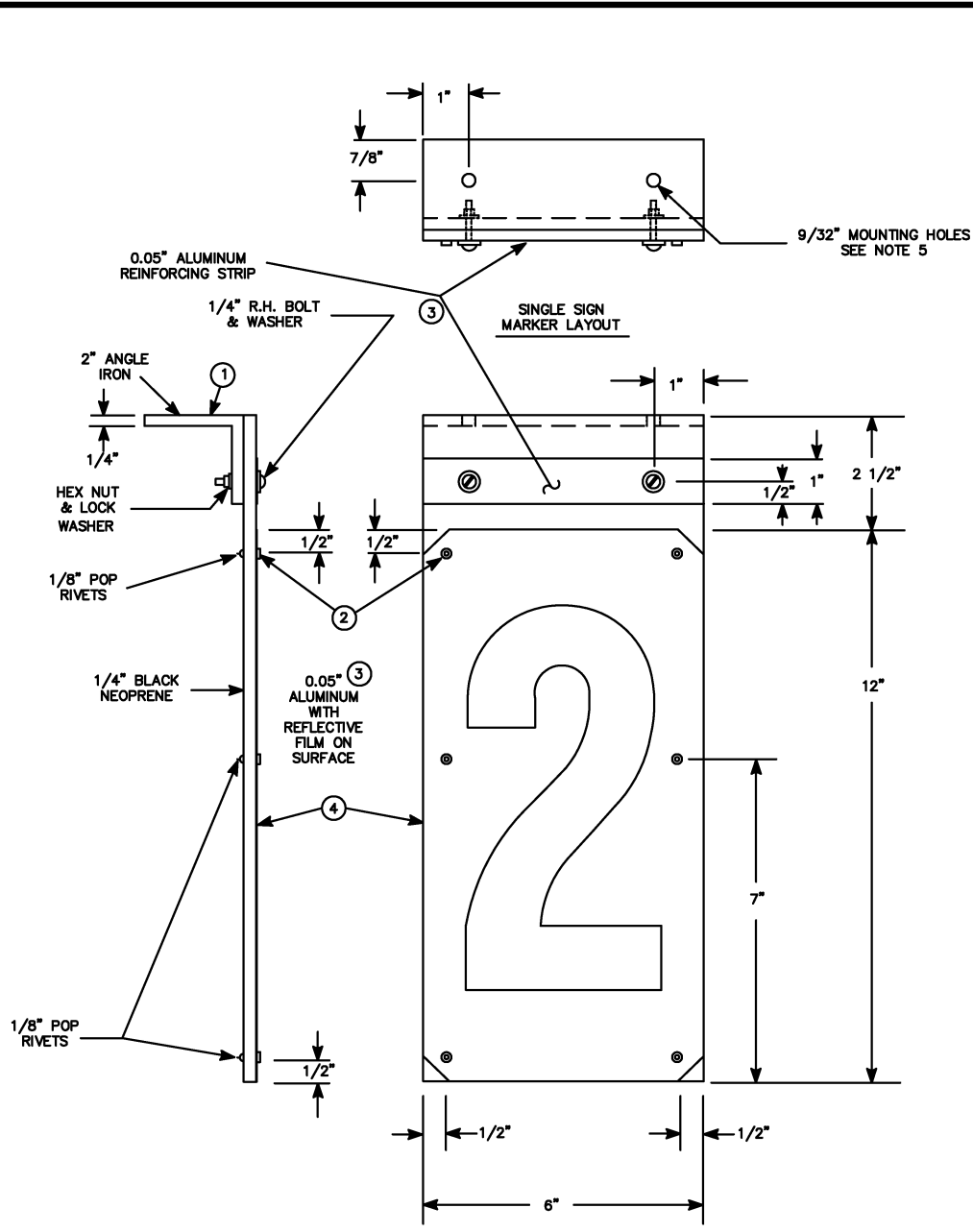
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TYPICAL STATION STOP AND TURNBACK SIGN LAYOUTS

SCALE NONE DRAWING NO. ST-TC-G-046



- NOTES:
1. THE CONTRACTOR SHALL PROVIDE EIGHT BERTHING MARKER SIGNS (FOUR FOR EACH DIRECTION OF TRAFFIC) UNDER EACH STATION PLATFORM FOR EACH TRACK SERVING THE STATION. (A TOTAL OF 16 SIGNS FOR EACH 2-TRACK STATION).
 2. THE CONTRACTOR SHALL LOCATE AND POSITION THE APPROPRIATE BERTHING MARKER LAYOUTS IN COMPLIANCE WITH THE RESPECTIVE TYPES OF STATIONS AS SHOWN ON THE "BERTHING MARKER LOCATION DIAGRAM" AND AS INDICATED IN THE DETAILED VIEWS OF THE PLATFORM EDGE. THE "STATION TYPES" WILL BE DESIGNATED BY THE DESIGNATED RESIDENT ENGINEER.
 3. AT INDIVIDUAL LOCATIONS WHERE THREE BERTHING MARKER SIGNS ARE REQUIRED, THE CONTRACTOR SHALL PROVIDE TWO BERTHING LAYOUTS SIDE-BY-SIDE (ONE "SINGLE" AND ONE "DOUBLE"). THE "SINGLE" MARKER LAYOUT SHALL BE LOCATED ADJACENT TO THE PLATFORM EDGE.
 4. MOUNTING POSITION DETAIL VIEWS ARE FOR "SIDE PLATFORM" STATIONS. COMPARABLE "MIRROR IMAGE" VIEWS SHALL APPLY FOR "CENTER PLATFORM" STATIONS, I.E., WHERE THE STATION PLATFORM IS ON LEFT AS VIEWED FROM A TRAIN APPROACHING THE STATION IN THE NORMAL DIRECTION OF TRAFFIC.
 5. METHOD OF MOUNTING BERTHING MARKER LAYOUT TO THE UNDERSIDE OF THE PLATFORM EDGE SHALL HAVE THE PRIOR APPROVAL OF THE DESIGNATED RESIDENT ENGINEER.

MATERIALS

1. 1/4" X 2" ANGLE IRON SHALL BE HOT-DIP GALVANIZED.
2. USE SIX 1/8-INCH POP-RIVETS PER SIGN, LOCATED AS SHOWN. USE REINFORCING WASHERS UNDER POP-RIVETS.
3. ALL EDGES OF SIGNS AND REINFORCING STRIPS SHALL BE SMOOTHED AND DE-BURRED TO LEAVE NO SHARP EDGES OR CORNERS.
4. REFLECTIVE FILM SHALL BE 3M SCOTCHLITE HIGH INTENSITY PRESSURE SENSITIVE SHEETING OR APPROVED EQUAL. BACKGROUND SHALL BE GREEN, NUMERALS SILVER. LETTERING STYLE, HELVETICA MEDIUM (ELONGATED).

LEGEND:
 N=MARKER FOR NORMAL TRAFFIC.
 R=MARKER FOR REVERSE TRAFFIC.

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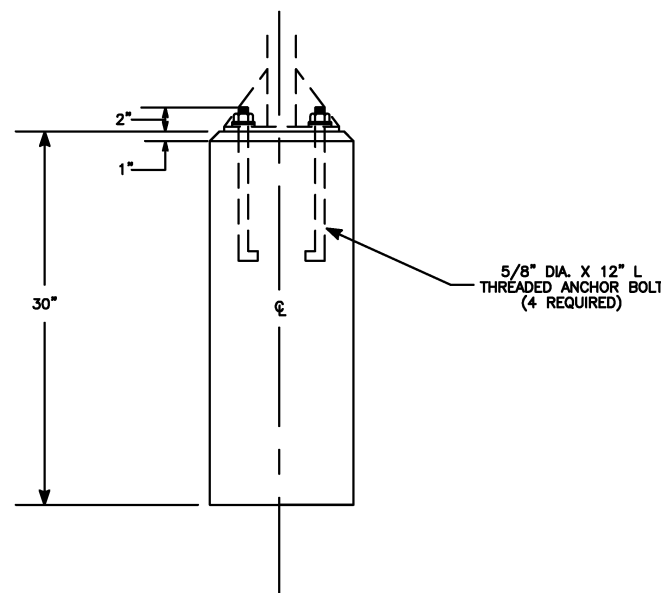
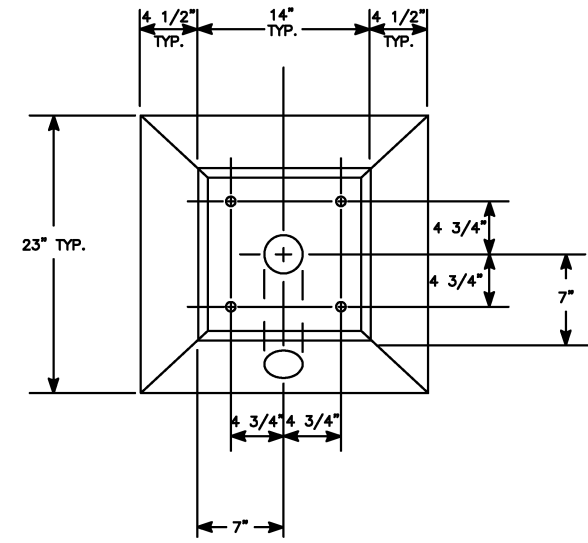
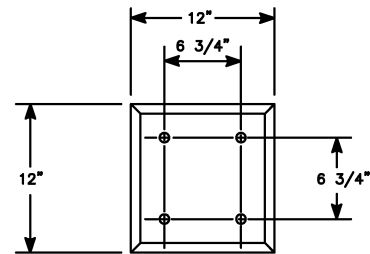
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DRAWN	JMR		08/2001 SYSP Revised and issued by the Authority
CHECKED			
APPROVED			
UPDATED			

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 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
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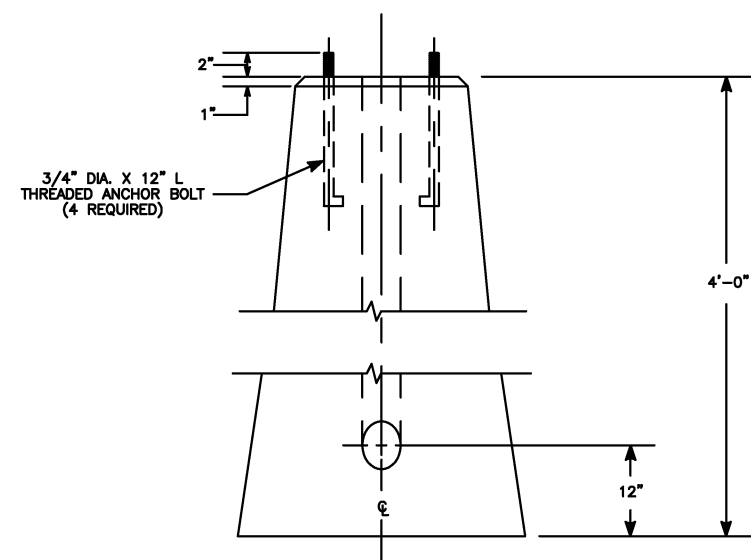
SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

SCALE NONE	DRAWING NO. ST-TC-G-047
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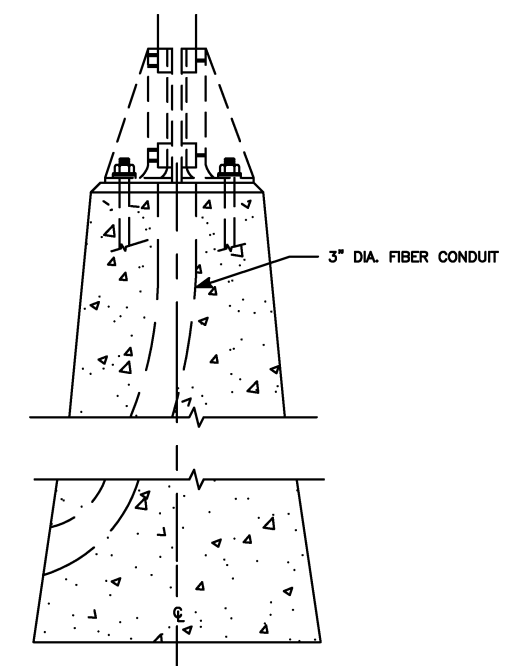
NOTES: 1. ALTERNATE SECTIONAL CONCRETE FOUNDATIONS FOR SIGNALS SHALL BE AS RECOMMENDED IN PART 14.4.1 OF THE AREMA SIGNAL MANUAL.



SIGN AND JUNCTION BOX FOUNDATION



SIGNAL AND PUSHBUTTON FOUNDATION



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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 OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* May 3, 2001 DATE _____
 DIRECTOR

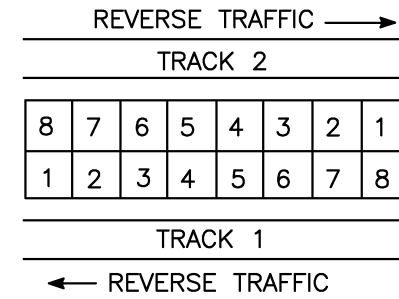
TYPICAL FOUNDATIONS FOR SIGNAL, SIGN, AND PUSHBUTTON LAYOUTS

BALLASTED TRACK

SCALE NONE

DRAWING NO. ST-TC-G-049

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy



NOTES: 1. 1 SECTION = 75', 8 SECTIONS = 600'.
2. SAME AS CENTER STOP.

	NORMAL TRAFFIC			REVERSE TRAFFIC																																																																																																		
	SHORT STOP (CAR = A STOP)	CENTER STOP (CAR = C STOP)	LONG STOP (CAR = B STOP)	LONG STOP (CAR = B STOP)	CENTER STOP (CAR = C STOP)	SHORT STOP (CAR = A STOP)																																																																																																
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DESIGNED	GAH	2-00
DRAWN	JMR	2-00
CHECKED		
APPROVED		
UPDATED		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
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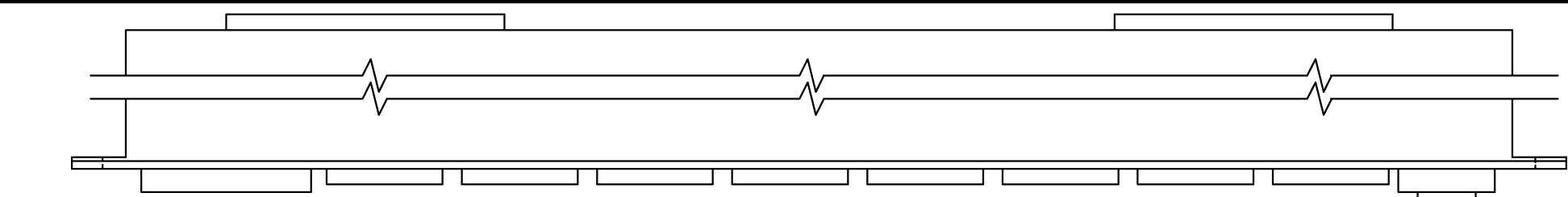
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE

TYPICAL PLATFORM EDGELIGHT AND PROGRAM STOP
TRAIN PLACEMENT DIAGRAM

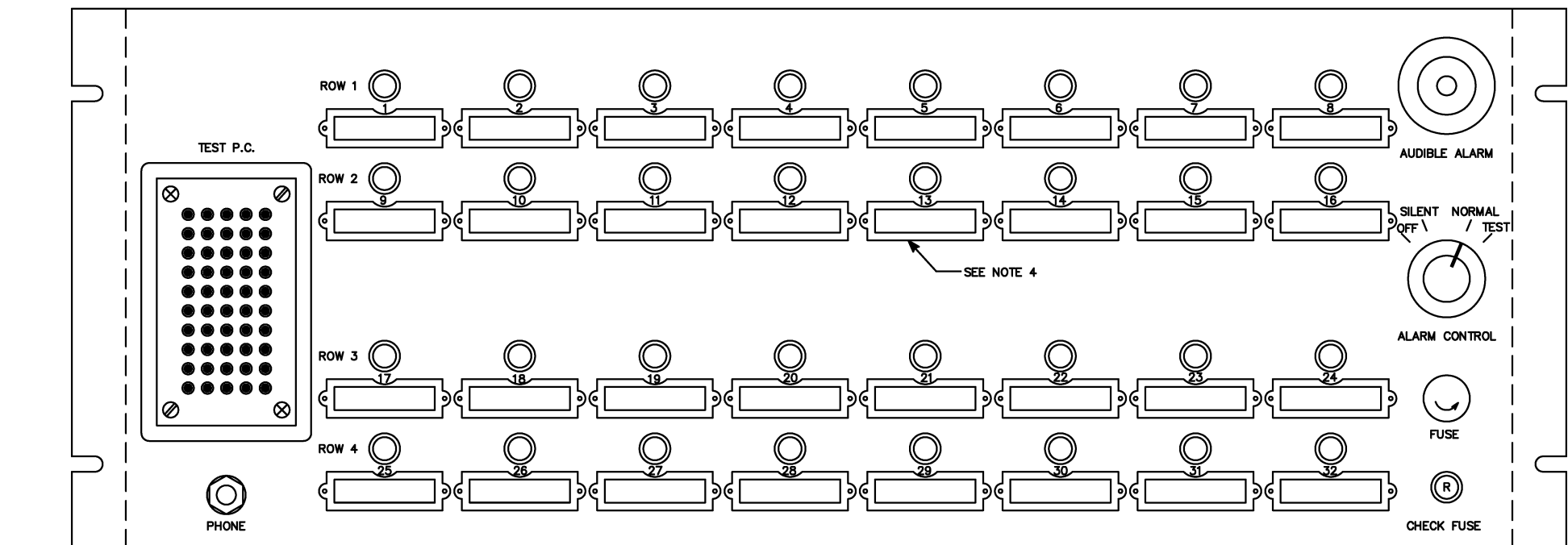
SCALE NONE DRAWING NO. ST-TC-G-051



TOP VIEW



BACK VIEW

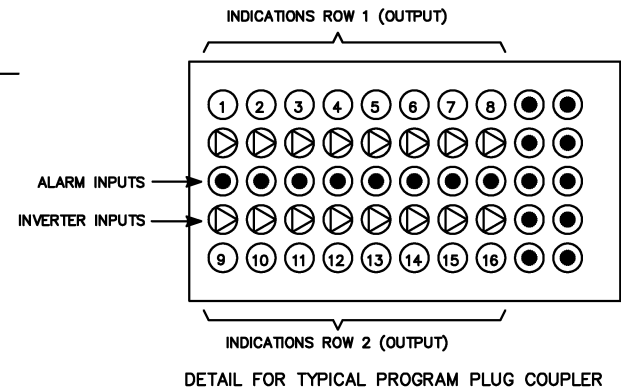


FRONT VIEW

NOTES:

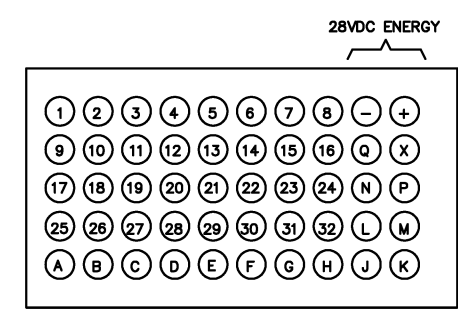
1. PIN X IS THE CONTACT BUS CONNECTION.
2. NUMBERED PINS ARE 28VDC OUTPUT FROM INDICATIONS ON TEST P.C. OR 28VDC INPUTS ON INPUT P.C.
3. LETTERED PINS EXCEPT X ARE WIRED FROM TEST P.C. THROUGH INPUT P.C. TO TERMINALS WHERE THEY SHALL BE CONNECTED TO LIKE TERMINALS ON SECOND UNIT IF REQUIRED AT A GIVEN LOCATION.
4. INDICATOR TAGS SHALL BE MADE OF PLASTIC AND INSERTED IN HOLDING PLATES. PANEL IDENTIFICATION TAG SHALL BE DIE-STAMPED NAMEPLATE. SEE SECTION 16977.
5. PANEL SHALL BE MOUNTED ON THE RACK NEAREST THE DOOR ENTERING THE TCR.
6. THIS IS AN EXAMPLE OF THE PANEL'S APPEARANCE. THE CONTRACTOR MAY ELECT TO HAVE A LARGER PANEL THAN SHOWN.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

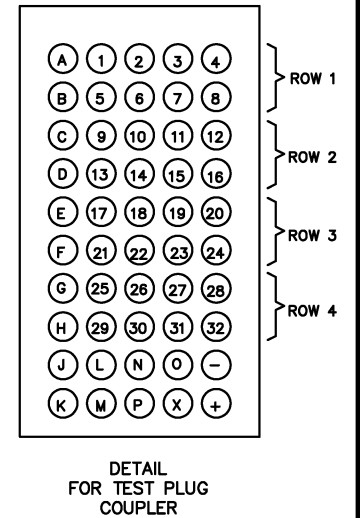


DETAIL FOR TYPICAL PROGRAM PLUG COUPLER

NOTE 6



DETAIL FOR INDICATION INPUT COUPLER



DETAIL FOR TEST PLUG COUPLER

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UPDATED			DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

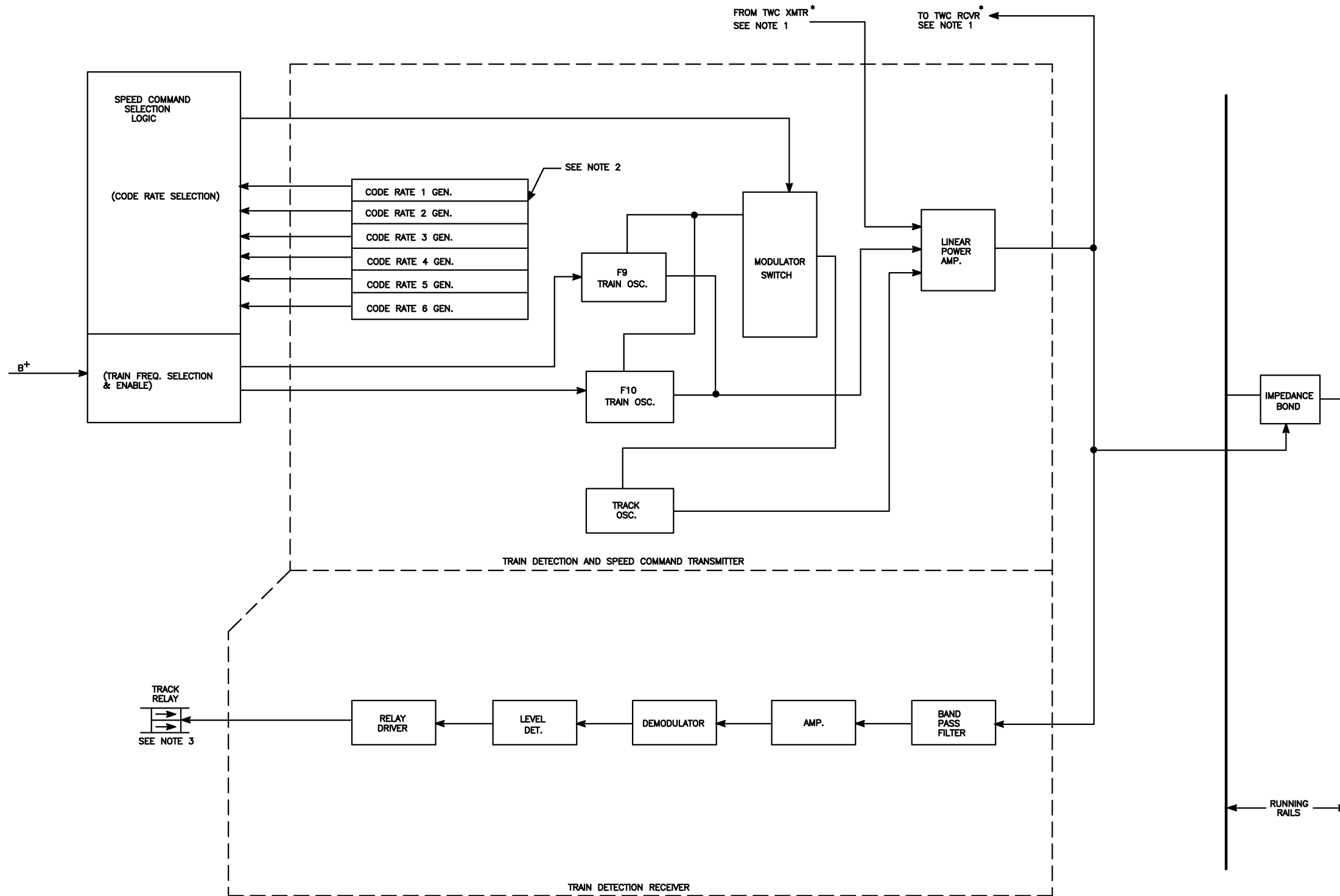
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
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SUBMITTED _____ DATE _____ APPROVED DIRECTOR *[Signature]* May 3, 2001 DATE

TYPICAL ALARM AND/OR TRACK INDICATION PANEL

SCALE NONE DRAWING NO. ST-TC-G-056

- NOTES:
- * WHERE REQUIRED.
 - USE ONLY CODE RATE GENERATORS REQUIRED AT EACH LOCATION.
 - TRACK RELAY SHALL BE TWO-COIL, VITAL, BIASED NEUTRAL RELAY WIRED AS SHOWN ON SPEED LIMIT COMMAND CIRCUITS.



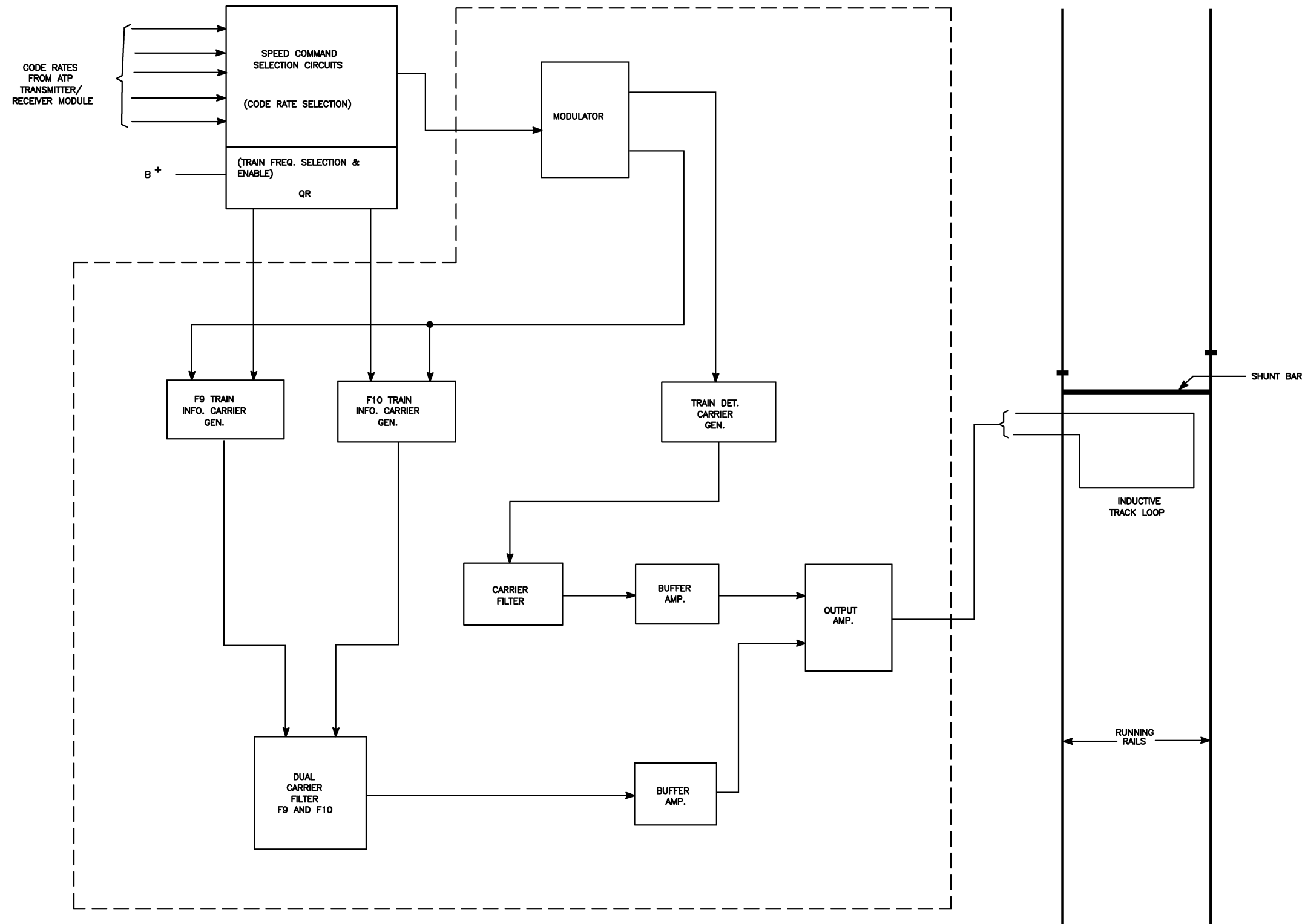
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APPROVED			DATE				
UPDATED			DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
 OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DATE May 3, 2001
 DIRECTOR

TYPICAL ATP TRACK MODULE BLOCK DIAGRAM	
SCALE NONE	DRAWING NO. ST-TC-G-061



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GAH</u> 2-00 DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN <u>JMR</u> 2-00 DATE	NUMBER	DESCRIPTION	DATE	BY
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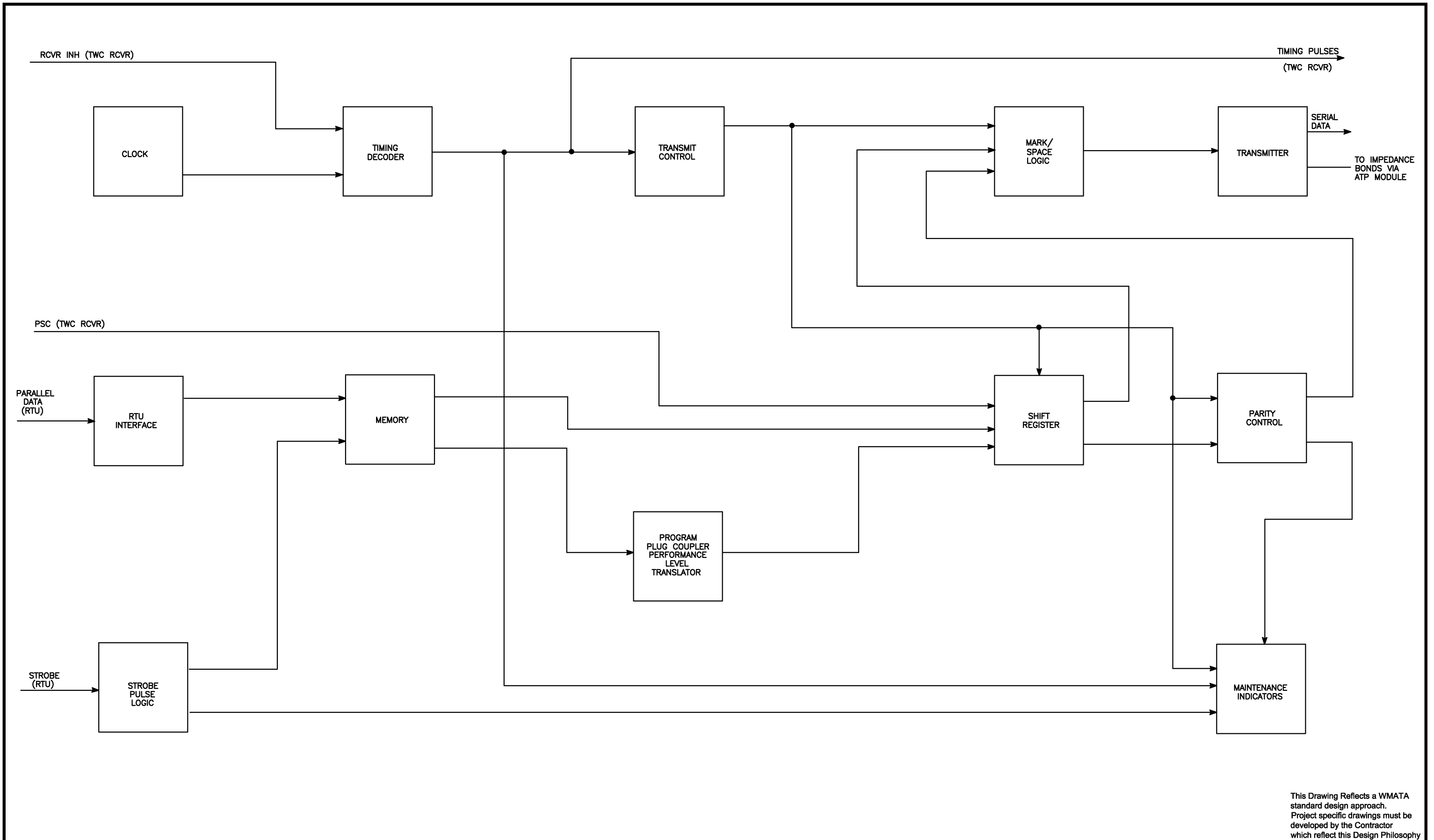
SUBMITTED _____ DATE

APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

TYPICAL ATP SLAVE TRANSMITTER BLOCK
DIAGRAM

SCALE
NONE

DRAWING NO.
ST-TC-G-062



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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DRAWN	JMR	2-00	DATE	NUMBER	DESCRIPTION	DATE	BY
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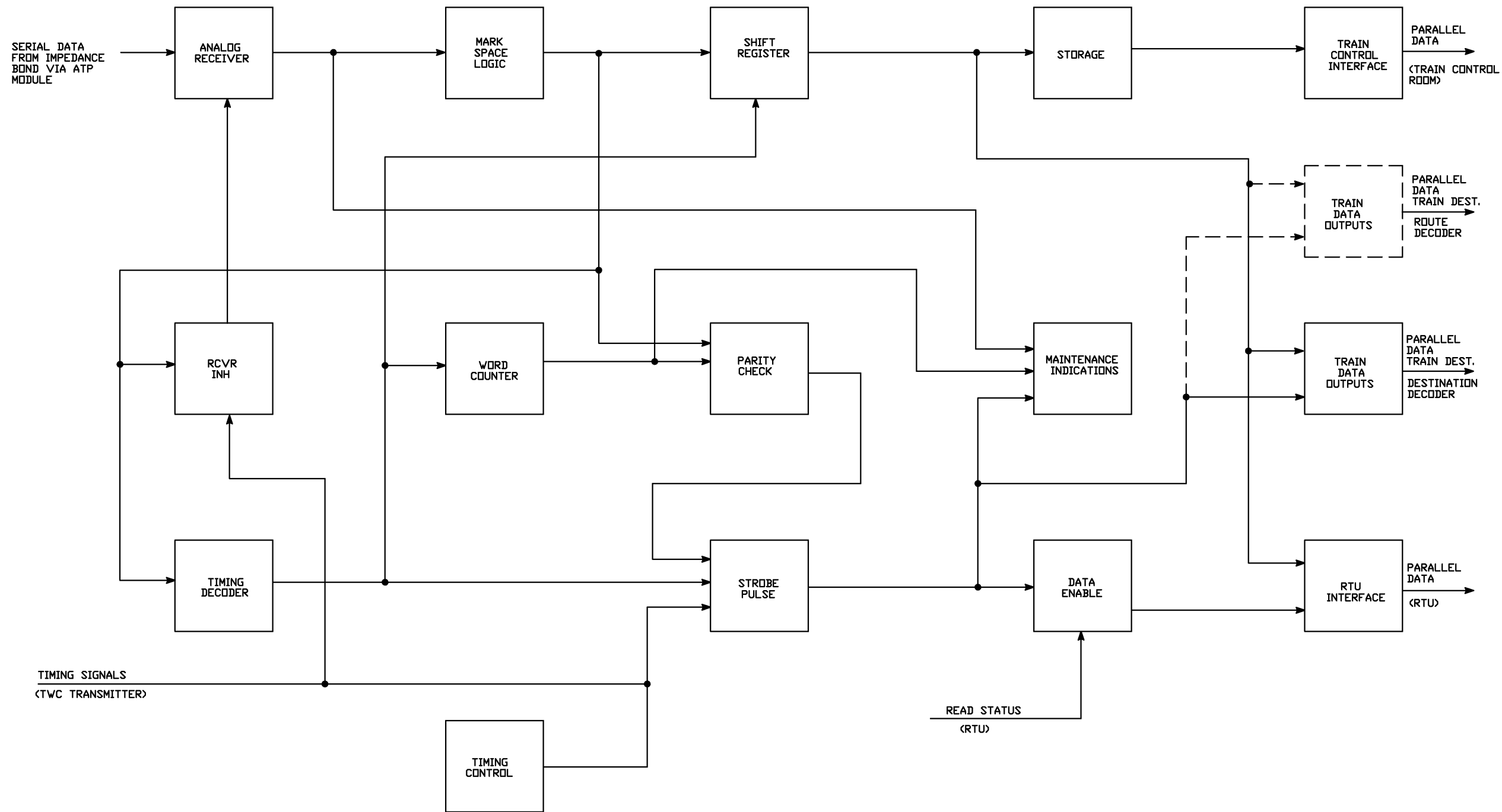
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OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

TYPICAL TWC TRANSMITTER BLOCK DIAGRAM

SCALE NONE DRAWING NO. ST-TC-G-064



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

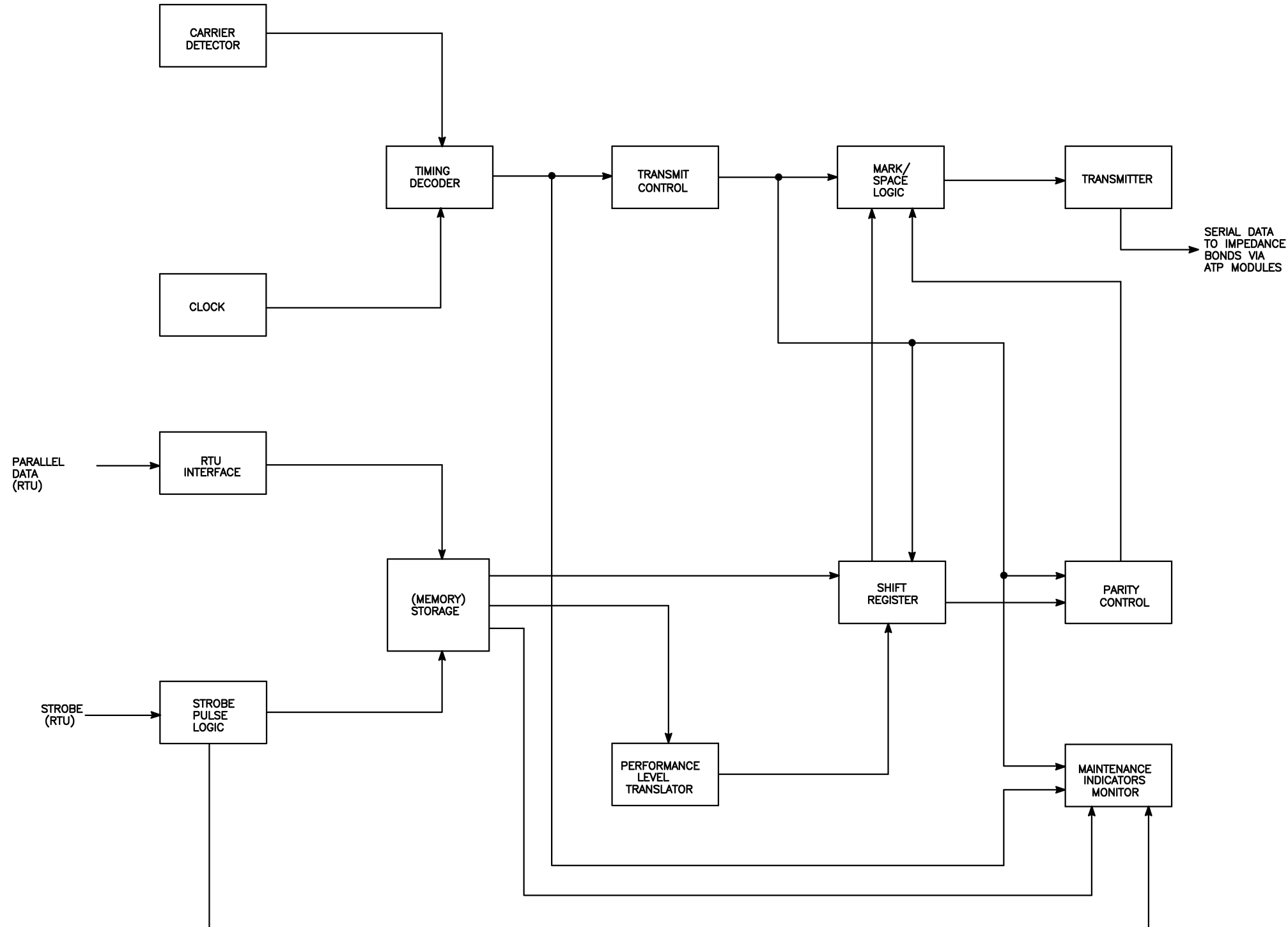
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TYPICAL TWC RECEIVER BLOCK DIAGRAM

SCALE NONE DRAWING NO. ST-TC-G-065



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

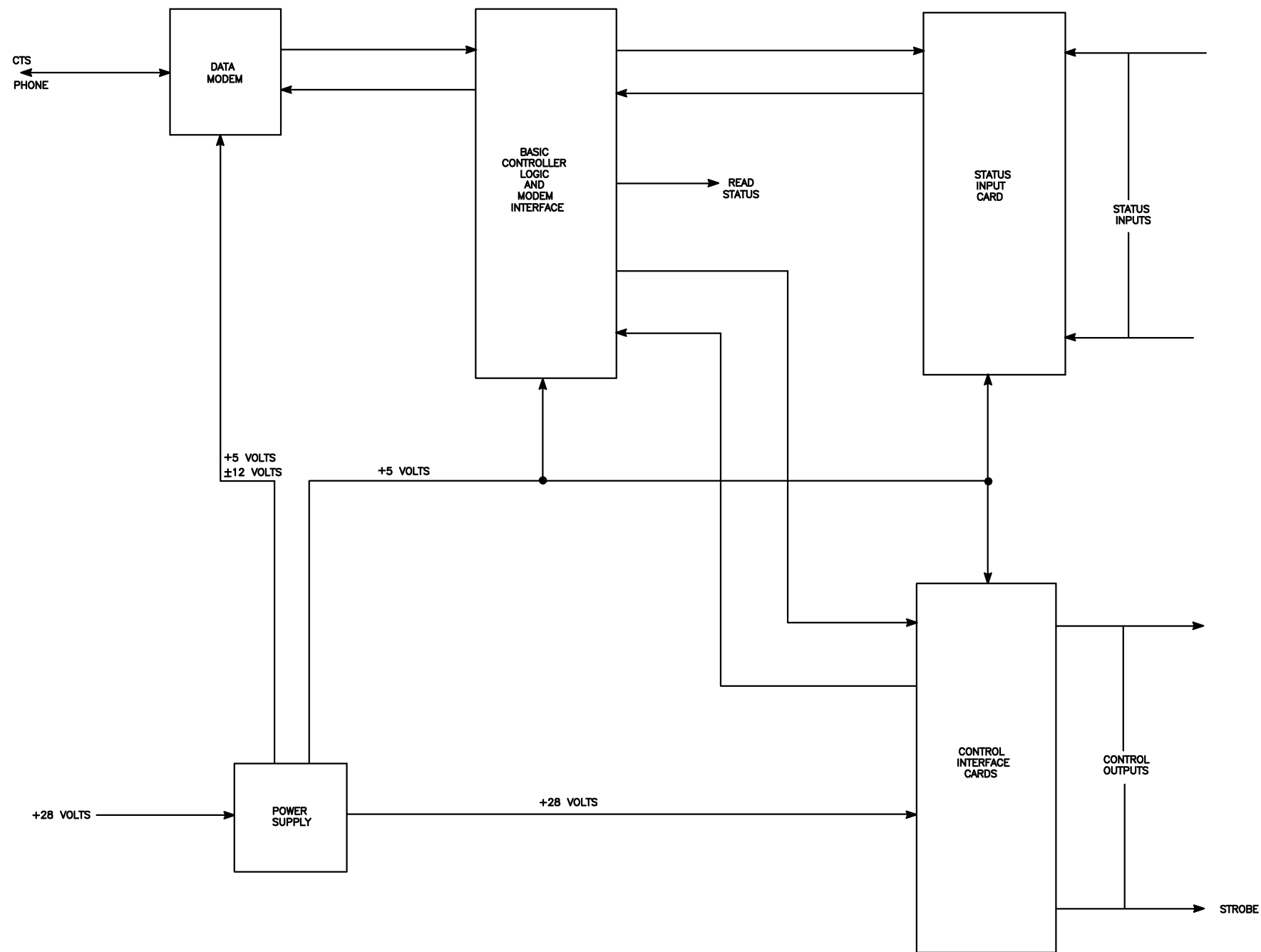
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TYPICAL TWC FLYBY TRANSMITTER BLOCK DIAGRAM	
SCALE NONE	DRAWING NO. ST-TC-G-066



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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TYPICAL EXISTING RTU BLOCK DIAGRAM	
SCALE NONE	DRAWING NO. ST-TC-G-070

NOTE: DRAWING NUMBERS NOT SHOWN ARE NOT USED IN THIS CONTRACT.

FILE NO.	DRAWING NO.	REV. NO.	TITLE
MXXXX-XXX	ST-TC-G-001		KEY PLAN
MXXXX-XXX	ST-TC-G-002		INDEX OF DRAWINGS - SHEET 1
MXXXX-XXX	ST-TC-G-003		INDEX OF DRAWINGS - SHEET 2
MXXXX-XXX	ST-TC-G-004		INDEX OF DRAWINGS - SHEET 3
MXXXX-XXX	ST-TC-G-005		INDEX OF DRAWINGS - SHEET 4
MXXXX-XXX	ST-TC-G-021		TYPICAL TRACK PLAN ABBREVIATIONS, SYMBOLS, AND INSTALLATION DATA
MXXXX-XXX	ST-TC-G-022		TYPICAL ELECTRICAL SYMBOLS
MXXXX-XXX	ST-TC-G-025		TYPICAL RELAY/CONTACT LOCATION CHART
MXXXX-XXX	ST-TC-G-026		DATA SHEET FORMAT - SAFE BRAKING TESTS
MXXXX-XXX	ST-TC-G-031		TYPICAL ATC WAYSIDE CABLE PLAN
MXXXX-XXX	ST-TC-G-035		TYPICAL IMPEDANCE BOND LAYOUT FOR DIRECT FIXATION TO CONCRETE
MXXXX-XXX	ST-TC-G-036		TYPICAL IMPEDANCE BOND "T" CONNECTOR AND BASE-OF-RAIL CLAMP FOR 1000 KCMIL CABLE CONNECTIONS
MXXXX-XXX	ST-TC-G-037		TYPICAL CROSS-BOND AND SUBSTATION RETURN NEGATIVE RETURN BONDING
MXXXX-XXX	ST-TC-G-039		TYPICAL MARKER COIL LAYOUTS - DIRECT FIXATION & BALLASTED TRACK

FILE NO.	DRAWING NO.	REV. NO.	TITLE
MXXXX-XXX	ST-TC-G-041		TYPICAL LARGE JUNCTION BOX PLAN
MXXXX-XXX	ST-TC-G-042		TYPICAL SMALL JUNCTION BOX PLAN
MXXXX-XXX	ST-TC-G-045		TYPICAL START ATC - END ATC SIGN LAYOUTS
MXXXX-XXX	ST-TC-G-046		TYPICAL STATION STOP AND TURNBACK SIGN LAYOUTS
MXXXX-XXX	ST-TC-G-047		TYPICAL BERTHING MARKER LAYOUTS
MXXXX-XXX	ST-TC-G-049		TYPICAL FOUNDATIONS FOR SIGNAL, SIGN, AND PUSHBUTTON LAYOUTS - BALLASTED TRACK (SYSTEMWIDE)
MXXXX-XXX	ST-TC-G-051		TYPICAL PLATFORM EDGELIGHT AND PROGRAM STOP TRAIN PLACEMENT DIAGRAM
MXXXX-XXX	ST-TC-G-056		TYPICAL ALARM AND/OR TRACK INDICATION PANEL
MXXXX-XXX	ST-TC-G-061		TYPICAL ATP TRACK MODULE BLOCK DIAGRAM
MXXXX-XXX	ST-TC-G-062		TYPICAL ATP SLAVE TRANSMITTER BLOCK DIAGRAM
MXXXX-XXX	ST-TC-G-064		TYPICAL TWC TRANSMITTER BLOCK DIAGRAM
MXXXX-XXX	ST-TC-G-065		TYPICAL TWC RECEIVER BLOCK DIAGRAM
MXXXX-XXX	ST-TC-G-066		TYPICAL TWC FLYBY TRANSMITTER BLOCK DIAGRAM

FILE NO.	DRAWING NO.	REV. NO.	TITLE
MXXXX-XXX	ST-TC-G-070		TYPICAL EXISTING RTU BLOCK DIAGRAM
MXXXX-XXX	ST-TC-TEL-001		TYPICAL TC MAINTENANCE TELEPHONE CIRCUITS SHEET 1 - FOR WAYSIDE ATC EQUIPMENT
MXXXX-XXX	ST-TC-TEL-002		TYPICAL TC MAINTENANCE TELEPHONE CIRCUITS SHEET 2 - FOR TRAIN CONTROL ROOMS
MXXXX-XXX	ST-TC-TEL-003		TYPICAL TC MAINTENANCE TELEPHONE CIRCUITS SHEET 3 - FOR DTS INTERFACE JUNCTION BOXES AND TC/COMM INTERFACE CABINET
MXXXX-XXX	ST-TC-C-001		TITLE SHEET - TYPICAL CIRCUITS - SYSTEMWIDE
MXXXX-XXX	ST-TC-C-002		TYPICAL PLATFORM EDGELIGHT CONTROL CIRCUITS - SHEET 1 OF 2
MXXXX-XXX	ST-TC-C-003		TYPICAL PLATFORM EDGELIGHT CONTROL CIRCUITS - SHEET 2 OF 2
MXXXX-XXX	ST-TC-C-004		TYPICAL PROGRAM STOP CONTROL CIRCUITS AND TIME PULSE INPUTS
MXXXX-XXX	ST-TC-C-005		TYPICAL PROGRAM STOP MARKER CONTROL CIRCUITS
MXXXX-XXX	ST-TC-C-006		TYPICAL DOOR AND DWELL CONTROL CIRCUITS - (EXCEPT TAIL-TRACK TERMINALS)
MXXXX-XXX	ST-TC-C-008		TYPICAL DOOR AND DWELL CONTROL CIRCUITS (TAIL-TRACK TERMINALS - TRACK 1)
MXXXX-XXX	ST-TC-C-009		TYPICAL DOOR AND DWELL CONTROL CIRCUITS (TAIL-TRACK TERMINALS - TRACK 2)
MXXXX-XXX	ST-TC-C-011		TYPICAL NEXT TRAIN SIGN CONTROL CIRCUITS (TERMINALS)

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DESIGNED	DATE	REFERENCE DRAWINGS		REVISIONS	
		NUMBER	DESCRIPTION	DATE	DESCRIPTION
GAH	2-00			08/2001	SYSP Revised and issued by the Authority
JMR	2-00				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

INDEX OF DRAWINGS		SCALE	DRAWING NO.
		NONE	ST-TC-G-IX-002
			SHEET 1 OF 4

FILE NO.	DRAWING NO.	REV. NO.	TITLE	FILE NO.	DRAWING NO.	REV. NO.	TITLE	FILE NO.	DRAWING NO.	REV. NO.	TITLE
MXXXX-XXX	ST-TC-C-016		TYPICAL TWC FLYBY TRANSMITTER CIRCUITS	MXXXX-XXX	ST-TC-I-013		TYPICAL ROUTE STORAGE CIRCUITS	MXXXX-XXX	ST-TC-I-035		TYPICAL APPROACH STICK CIRCUITS (EMERGENCY CROSSOVERS)
MXXXX-XXX	ST-TC-C-018		TYPICAL TWC XMTR-RCVR INTERFACE CIRCUITS					MXXXX-XXX	ST-TC-I-036		TYPICAL ROUTE STICK & APPROACH CIRCUITS (EMERGENCY CROSSOVERS)
MXXXX-XXX	ST-TC-C-020		TYPICAL TWC SELECTION CIRCUITS - SYSTEMWIDE	MXXXX-XXX	ST-TC-I-016		TYPICAL ROUTE STORAGE CIRCUITS - TERMINAL CROSSOVERS (SH. 1 OF 2) (TK 2 OUTBOUND)	MXXXX-XXX	ST-TC-I-037		TYPICAL ROUTE STICK & APPROACH CIRCUITS (TERMINAL CROSSOVERS)
MXXXX-XXX	ST-TC-C-022		TYPICAL TWC SELECTION CIRCUITS - TERMINALS (TK1 INBOUND)	MXXXX-XXX	ST-TC-I-017		TYPICAL ROUTE STORAGE CIRCUITS - TERMINAL CROSSOVERS (SH. 2 OF 2) (TK 2 OUTBOUND)	MXXXX-XXX	ST-TC-I-039		TYPICAL AUTOMATIC SIGNAL OPERATION SELECTION CIRCUITS - SIGNALS 2, 6 & 8 (TERMINAL CROSSOVERS - TK2 OUTBOUND)
MXXXX-XXX	ST-TC-C-023		TYPICAL TEMPORARY SPEED RESTRICTION ALARM CIRCUITS								
MXXXX-XXX	ST-TC-C-024		TYPICAL REPEATER RELAY WIRING AND NOMENCLATURE					MXXXX-XXX	ST-TC-I-041		TYPICAL SWITCH CONTROL & CORRESPONDENCE CIRCUITS - CROSSOVER 1
MXXXX-XXX	ST-TC-C-036		TYPICAL OUTBOUND TRAIN APPROACH WARNING CIRCUITS/LOGIC					MXXXX-XXX	ST-TC-I-042		TYPICAL SWITCH CONTROL & CORRESPONDENCE CIRCUITS - CROSSOVER 3
MXXXX-XXX	ST-TC-I-000		TITLE SHEET - TYPICAL INTERLOCKING CIRCUITS					MXXXX-XXX	ST-TC-I-043		TYPICAL SWITCH OPERATING & REPEATER CIRCUITS - EMERGENCY CROSSOVERS
MXXXX-XXX	ST-TC-I-001		TYPICAL PUSHBUTTON AND FLEETING CIRCUITS - SIGNALS 2, 4, 6, & 8 EMERGENCY CROSSOVERS	MXXXX-XXX	ST-TC-I-021		TYPICAL ROUTE INITIATION CIRCUITS - EMERGENCY CROSSOVERS				
MXXXX-XXX	ST-TC-I-002		TYPICAL TURNBACK PUSHBUTTON AND FLEETING CIRCUITS - SIGNALS 10, 14, 20, & 24 (EMERGENCY CROSSOVERS)					MXXXX-XXX	ST-TC-I-045		TYPICAL REPEATER CIRCUITS - CROSSOVERS
				MXXXX-XXX	ST-TC-I-023		TYPICAL ROUTE INITIATION CIRCUITS - TERMINAL CROSSOVERS (TK 2 - OUTBOUND)	MXXXX-XXX	ST-TC-I-046		TYPICAL SPEED COMMAND LOOP CONTROL STICK CIRCUITS (DIAMOND CROSSOVERS)
				MXXXX-XXX	ST-TC-I-024		TYPICAL ROUTE INITIATION & RESET STICK CIRCUITS TERMINAL CROSSOVERS (TK 1 OUTBOUND)	MXXXX-XXX	ST-TC-I-047		TYPICAL SPEED COMMAND LOOP SELECTION CIRCUITS, 4 FT. LOOPS AND CROSSOVER LOOPS (DIAMOND CROSSOVERS)
				MXXXX-XXX	ST-TC-I-025		TYPICAL ROUTE INITIATION & RESET STICK CANCEL CIRCUITS - TERMINAL CROSSOVERS (TK 2 - OUTBOUND)	MXXXX-XXX	ST-TC-I-048		TYPICAL TRACK AND SPEED COMMAND LOOP CIRCUITS - 2 FT. LOOPS (DIAMOND CROSSOVERS)
MXXXX-XXX	ST-TC-I-007		TYPICAL WAYSIDE PUSHBUTTON STORAGE CIRCUITS - SIGNAL 2 - TERMINAL CROSSOVERS (TK 1 INBOUND)								
MXXXX-XXX	ST-TC-I-008		TYPICAL WAYSIDE PUSHBUTTON STORAGE CIRCUITS - SIGNAL 4 - TERMINAL CROSSOVERS (TK 1 INBOUND)	MXXXX-XXX	ST-TC-I-027		TYPICAL AUTOMATIC ROUTE INITIATION STICK CIRCUITS - SIGNALS 2, 6, & 8 - TERMINAL CROSSOVERS (TK 2 - OUTBOUND)				
MXXXX-XXX	ST-TC-I-009		TYPICAL WAYSIDE PUSHBUTTON STORAGE CIRCUITS - SIGNAL 6 - TERMINAL CROSSOVERS (TK 2 OUTBOUND)								
MXXXX-XXX	ST-TC-I-010		TYPICAL WAYSIDE PUSHBUTTON STORAGE CIRCUITS - SIGNAL 8 - TERMINAL CROSSOVERS (TK 2 OUTBOUND)	MXXXX-XXX	ST-TC-I-029		TYPICAL ROUTE COMPLETION CIRCUITS - EMERGENCY CROSSOVERS				
MXXXX-XXX	ST-TC-I-011		TYPICAL TIMER CANCEL CIRCUITS FOR SIGNALS HAVING WAYSIDE PUSHBUTTON CONTROL	MXXXX-XXX	ST-TC-I-031		TYPICAL ROUTE CHECK CIRCUITS - CROSSOVERS				

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DESIGNED <u>GAH</u> <small>2-00</small> DATE	REFERENCE DRAWINGS		REVISIONS		WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY	INDEX OF DRAWINGS
DRAWN <u>JMR</u> <small>2-00</small> DATE	NUMBER	DESCRIPTION	DATE	BY		
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APPROVED _____ DATE						
UPDATED _____ DATE						
					DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS	
					SUBMITTED _____ DATE	APPROVED <u>respatz</u> <small>May 3, 2001</small> DIRECTOR DATE
					SCALE NONE	DRAWING NO. ST-TC-G-IX-003
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FILE NO.	DRAWING NO.	REV. NO.	TITLE	FILE NO.	DRAWING NO.	REV. NO.	TITLE	FILE NO.	DRAWING NO.	REV. NO.	TITLE
MXXXX-XXX	ST-TC-I-061		TYPICAL SIGNAL CONTROL CIRCUITS (CROSSOVER INTERLOCKINGS)								
MXXXX-XXX	ST-TC-I-062		TYPICAL SIGNAL REPEATER CIRCUITS (EMERGENCY CROSSOVERS)								
MXXXX-XXX	ST-TC-I-064		TYPICAL SIGNAL REPEATER CIRCUITS (TERMINAL CROSSOVERS - TK 2 OUTBOUND)	MXXXX-XXX	ST-TC-I-100		TITLE SHEET - TYPICAL EQUIPMENT LAYOUTS	MXXXX-XXX	ST-TC-I-131		INTERLOCKING VITAL PROCESSOR SYSTEM FUNCTIONAL BLOCK DIAGRAM
MXXXX-XXX	ST-TC-I-066		TYPICAL SIGNAL LIGHTING AND AC TRACK RELAY CIRCUITS (EMERGENCY CROSSOVERS)	MXXXX-XXX	ST-TC-I-101		TYPICAL INTERLOCKING CONFIGURATION - DIAMOND CROSSOVERS				
MXXXX-XXX	ST-TC-I-067		TYPICAL MARKER SIGNAL LIGHTING CIRCUITS (TERMINALS)								
MXXXX-XXX	ST-TC-I-069		TYPICAL DETECTOR TRACK REPEATER CIRCUITS (DIAMOND CROSSOVERS)	MXXXX-XXX	ST-TC-I-103		TYPICAL INDUCTIVE TRACK LOOP LAYOUT - 4 FT. LOOPS WITH IMPEDANCE BOND (INTERLOCKINGS - DIRECT FIXATION)				
MXXXX-XXX	ST-TC-I-071		TYPICAL LOCAL/REMOTE SELECTION CIRCUITS - NON-TERMINAL INTERLOCKINGS	MXXXX-XXX	ST-TC-I-104		TYPICAL INDUCTIVE TRACK LOOP LAYOUT - 2 FT. LOOPS WITH SHUNT BAR (INTERLOCKINGS - DIRECT FIXATION)				
MXXXX-XXX	ST-TC-I-072		TYPICAL LOCAL/REMOTE SELECTION CIRCUITS - TERMINALS	MXXXX-XXX	ST-TC-I-105		TYPICAL SPEED COMMAND CROSSOVER LOOP LAYOUT (DIAMOND CROSSOVERS)				
				MXXXX-XXX	ST-TC-I-107		TYPICAL AC TRACK CIRCUIT CONNECTIONS	MXXXX-XXX	ST-TC-P-000		TITLE SHEET - TYPICAL POWER DRAWINGS
MXXXX-XXX	ST-TC-I-074		TYPICAL TERMINAL MODE SELECTION CIRCUITS (TERMINAL INTERLOCKINGS)	MXXXX-XXX	ST-TC-I-108		TYPICAL MAINLINE SIGNAL RAIL BONDING (SYSTEMWIDE)	MXXXX-XXX	ST-TC-P-001		TYPICAL POWER DISTRIBUTION SCHEMATIC FOR TRAIN CONTROL ROOMS (TCRs)
				MXXXX-XXX	ST-TC-I-109		TYPICAL MAINLINE NEGATIVE RETURN BONDING	MXXXX-XXX	ST-TC-P-002		TYPICAL DC POWER DISTRIBUTION
								MXXXX-XXX	ST-TC-P-003		TYPICAL POWER DISTRIBUTION SCHEMATIC DISTRIBUTION
MXXXX-XXX	ST-TC-I-077		TYPICAL LOCAL/REMOTE LOCKOUT CIRCUITS (TERMINALS - TK 2 OUTBOUND)	MXXXX-XXX	ST-TC-I-111		TYPICAL SWITCH-AND-LOCK MOVEMENT LAYOUT ON BALLASTED TRACK (INTERLOCKINGS)	MXXXX-XXX	ST-TC-P-004		TYPICAL POWER FAILURE AND BLOWN FUSE CIRCUITS (INLINE STATIONS)
				MXXXX-XXX	ST-TC-I-112		TYPICAL SWITCH-AND-LOCK MOVEMENT LAYOUT - DIRECT FIXATION	MXXXX-XXX	ST-TC-P-005		TYPICAL POWER FAILURE AND BLOWN FUSE CIRCUITS (INTERLOCKING STATIONS)
MXXXX-XXX	ST-TC-I-079		TYPICAL LOCAL, REMOTE, PANEL & FLASHING B28G ENERGY DISTRIBUTION					MXXXX-XXX	ST-TC-P-006		TYPICAL GROUND DETECTOR CIRCUITS
				MXXXX-XXX	ST-TC-I-114		TYPICAL SNOWMELTER LAYOUT	MXXXX-XXX	ST-TC-P-007		TYPICAL SNOWMELTER CONTROL & INDICATION CIRCUIT (DIAMOND CROSSOVERS)
MXXXX-XXX	ST-TC-I-081		TYPICAL AUXILIARY SWITCH PUSHBUTTON AND SWITCH POSITION INDICATION CIRCUITS - SWITCH 1 (EMERGENCY CROSSOVERS)	MXXXX-XXX	ST-TC-I-115		TYPICAL SNOWMELTER CONTROL CASE (INTERLOCKINGS EXPOSED TO WEATHER)	MXXXX-XXX	ST-TC-P-008		TYPICAL SNOWMELTER CONTROL CASE CIRCUITS (INTERLOCKING EXPOSED TO WEATHER)
MXXXX-XXX	ST-TC-I-082		TYPICAL AUXILIARY SWITCH PUSHBUTTON AND SWITCH POSITION INDICATION CIRCUITS - SWITCH 3 (EMERGENCY CROSSOVERS)	MXXXX-XXX	ST-TC-I-116		TYPICAL SNOWMELTER HEATING ELEMENT MOUNTING DETAILS	MXXXX-XXX	ST-TC-P-009		TYPICAL ALARM AND/OR TRACK INDICATION PANEL - INTERNAL CIRCUITS
				MXXXX-XXX	ST-TC-I-117		TYPICAL SWITCH ROD HEATER LAYOUT ON BALLAST (MAINLINE INTERLOCKINGS)				
MXXXX-XXX	ST-TC-I-085		TYPICAL INTERLOCKING CONTROL PANEL INDICATION CIRCUITS, TRACK OCCUPANCY AND TRAFFIC (DIAMOND CROSSOVERS)	MXXXX-XXX	ST-TC-I-121		TYPICAL SIGNAL LAYOUTS (INTERLOCKINGS AND TAIL TRACKS)				
MXXXX-XXX	ST-TC-I-086		TYPICAL INTERLOCKING CONTROL PANEL INDICATION CIRCUITS, SIGNAL FLEETING AND ROUTE (DIAMOND CROSSOVERS)	MXXXX-XXX	ST-TC-I-123		TYPICAL WAYSIDE PUSHBUTTON LAYOUT - AUTOMATIC INTERLOCKINGS				

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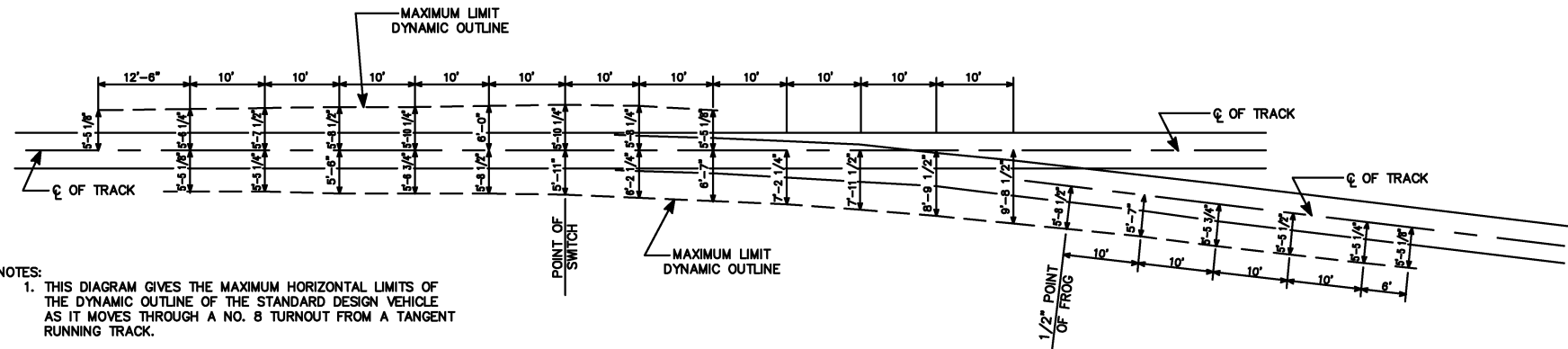
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DRAWN <u>JMR</u>	2-00 DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT			SCALE NONE
CHECKED _____	DATE			08/2001	SYSP	Revised and issued by the Authority	OFFICE OF SYSTEMS			
APPROVED _____	DATE						SUBMITTED _____			DRAWING NO. ST-TC-G-IX-004
UPDATED _____	DATE						APPROVED <u>respatz</u> May 3, 2001 DIRECTOR DATE			
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INFORMATION ONLY DRAWINGS

FILE NO.	DRAWING NO.	REV. NO.	TITLE	FILE NO.	DRAWING NO.	REV. NO.	TITLE	FILE NO.	DRAWING NO.	REV. NO.	TITLE
			DRAWINGS MXXXX-XXX THROUGH MXXXX-XXX ARE INCLUDED FOR INFORMATION PURPOSES ONLY AND REPRESENT AN EXAMPLE OF THE GENERAL FORMAT TO BE USED BY THE CONTRACTOR IN PREPARING HIS BLOCK DESIGN AND FINAL PLANS.	MXXXX-XXX	ST-TC-INF-000		INFORMATION DRAWINGS (COVER SHEET)	MXXXX-XXX	ST-TC-NVP-001		TYPICAL NON-VITAL PROCESSOR OUTPUTS
				MXXXX-XXX	ST-TC-DTS-001		DATA TRANS SYS. (DTS) INTERFACE CABINET - CABINET DETAILS AND TERM. BLOCK ARRANGEMENT	MXXXX-XXX	ST-TC-NVP-002		TYPICAL NON-VITAL PROCESSOR INPUTS
MXXXX-XXX	ST-TC-A5-G-001		CLEVELAND PARK TCR AREA EXAMPLE LOCATION A05	MXXXX-XXX	ST-TC-DTS-002		DATA TRANS SYS. (DTS) INTERFACE CABINET - VENT SHAFT AND DRAINAGE PUMPING STATION	MXXXX-XXX	ST-TCCE-030		ATC CLEARANCE ENVELOPE
MXXXX-XXX	ST-TC-A5-S-005		SPEED LIMIT COMMAND CIRCUIT A1-161-163 QR	MXXXX-XXX	ST-TC-DTS-003		DATA TRANS SYS. (DTS) INTERFACE CABINET - A.C. SERVICE/SWITCHBOARD ROOM (COMBINED)	MXXXX-XXX	ST-TC-HDO-031		HORIZONTAL LIMITS OF DYNAMIC OUTLINE OF DESIGN VEHICLE THROUGH TURNOUTS
MXXXX-XXX	ST-TC-A5-S-024		BRIDGING RECEIVER TRACK CIRCUITS A1-165, A1-168R & A1-170R	MXXXX-XXX	ST-TC-DTS-004		DATA TRANS SYS. (DTS) INTERFACE CABINET - A.C. SERVICE/SWITCHBOARD ROOM (NEAR)				
MXXXX-XXX	ST-TC-A5-C-001		PLATFORM TRACK REPEATER CIRCUITS	MXXXX-XXX	ST-TC-DTS-005		DATA TRANS SYS. (DTS) INTERFACE CABINET - A.C. SERVICE/SWITCHBOARD ROOM (FAR)				
MXXXX-XXX	ST-TC-A5-C-003		SPEED COMMAND HD LINE CIRCUITS - TRACK 1	MXXXX-XXX	ST-TC-DTS-006		DATA TRANS SYS. (DTS) INTERFACE CABINET - FAN SHAFT AND JET FAN CONTROL ROOM				
MXXXX-XXX	ST-TC-A5-C-004		SPEED COMMAND HD LINE CIRCUITS - TRACK 2	MXXXX-XXX	ST-TC-DTS-007		TC STD. DWG TC-ST-14 DATA TRANSMISSION SYSTEM (DTS) INTERFACE CABINET - TRACTION POWER TIE BREAKER STATION				
MXXXX-XXX	ST-TC-A5-C-005		LINE TRACK REPEATER DECODE CIRCUITS - TRACK 1	MXXXX-XXX	ST-TC-DTS-008		DATA TRANS SYS. (DTS) INTERFACE CABINET - TRACTION POWER SUBSTATION (SH. 1 OF 2)				
MXXXX-XXX	ST-TC-A5-C-006		LINE TRACK REPEATER DECODE CIRCUITS - TRACK 2	MXXXX-XXX	ST-TC-DTS-009		DATA TRANS SYS. (DTS) INTERFACE CABINET - TRACTION POWER SUBSTATION (SH. 2 OF 2)				
MXXXX-XXX	ST-TC-A5-C-007		TRAFFIC INITIATION & CONTROL LINE CIRCUITS - TRACKS 1 & 2	MXXXX-XXX	ST-TC-RTU-011		TYPICAL RTU WIRING COMM ROOM, MAIN DIST. FRAME				
MXXXX-XXX	ST-TC-A5-C-009		LINE REPEATER CIRCUITS	MXXXX-XXX	ST-TC-RTU-012		TYPICAL RTU WIRING TC/COM INTERFACE CABINETS				
MXXXX-XXX	ST-TC-A6-G-001		VAN NESS-UDC TCR AREA EXAMPLE LOCATION A06	MXXXX-XXX	ST-TC-RTU-013		TYPICAL RTU WIRING TIEBREAKER STATIONS (SH. 1 OF 3)				
MXXXX-XXX	ST-TC-A6-G-007		ATP SPEED COMMANDS CONTROL LINE DIAGRAMS - NORMAL DIRECTION	MXXXX-XXX	ST-TC-RTU-014		TYPICAL RTU WIRING TIEBREAKER STATIONS (SH. 2 OF 3)				
MXXXX-XXX	ST-TC-A6-G-008		ATP SPEED COMMANDS CONTROL LINE DIAGRAMS - REVERSE DIRECTION	MXXXX-XXX	ST-TC-RTU-015		TYPICAL RTU WIRING TIEBREAKER STATIONS (SH. 3 OF 3)				
MXXXX-XXX	ST-TC-A6-S-002		SPEED LIMIT COMMAND CIRCUIT A1-179-184 QR								
MXXXX-XXX	ST-TC-A6-S-004		SPEED LIMIT COMMAND CIRCUIT A1-187-190 QR								
MXXXX-XXX	ST-TC-A6-S-005		SPEED LIMIT COMMAND CIRCUIT A1-190R-3NA QR								
MXXXX-XXX	ST-TC-A6-S-006		SPEED LIMIT COMMAND CIRCUIT A1-3RA-1NA QR								
MXXXX-XXX	ST-TC-A6-S-007		SPEED LIMIT COMMAND CIRCUIT A1-1RA-197 QR								

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

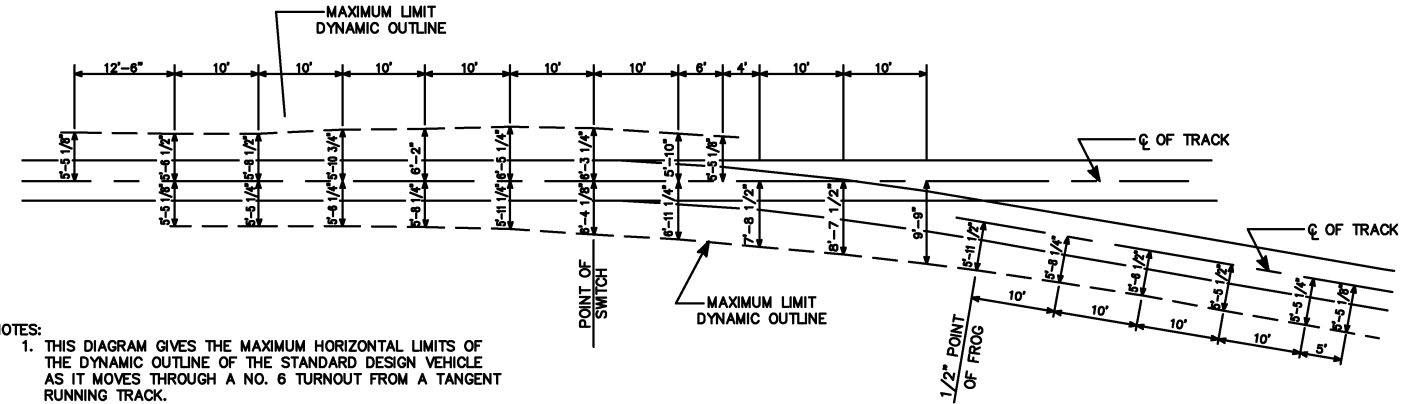
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APPROVED _____	DATE						SCALE NONE		DRAWING NO. ST-TC-G-IX-005	
UPDATED _____	DATE						SHEET 4 OF 4			



- NOTES:
1. THIS DIAGRAM GIVES THE MAXIMUM HORIZONTAL LIMITS OF THE DYNAMIC OUTLINE OF THE STANDARD DESIGN VEHICLE AS IT MOVES THROUGH A NO. 8 TURNOUT FROM A TANGENT RUNNING TRACK.
 2. FOR CLEARANCES BETWEEN THE DYNAMIC OUTLINE AND STRUCTURES OR INTERMITTENT INSTALLATIONS, REFER TO THE CLEARANCE DIAGRAMS IN THE MANUAL OF DESIGN CRITERIA FOR THE PARTICULAR TYPE OF CONSTRUCTION INVOLVED.
 3. IF THE TURNOUT IS MADE FROM A CURVED OR SUPERELEVATED TRACK, THE VALUES SHOWN ON THIS STANDARD MUST BE CORRECTED FOR THAT SUPERELEVATION AND CURVATURE.

NO. 8 TURNOUT

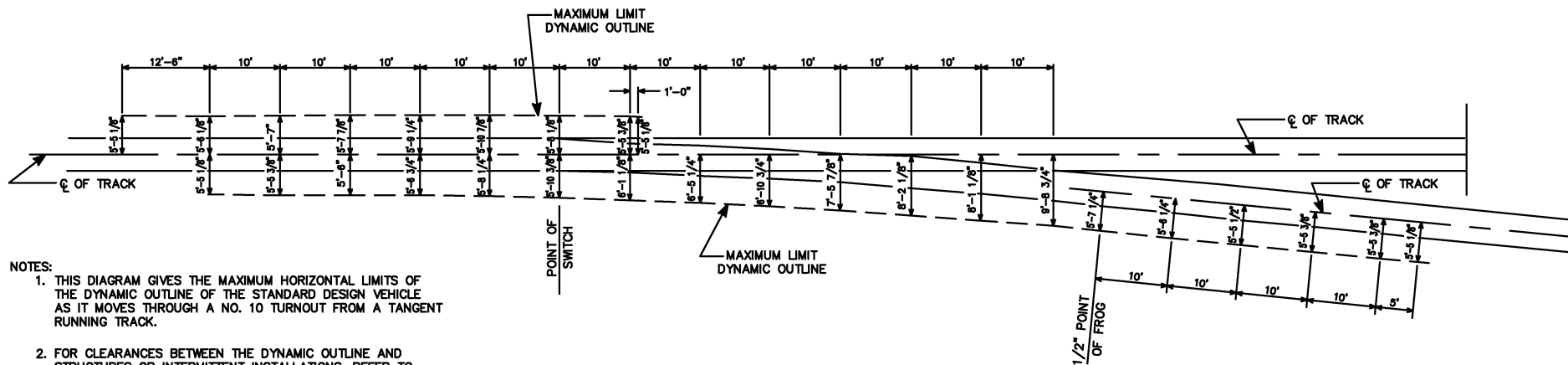
REPRODUCTION OF DESIGN
CRITERIA FIG. II 47
(BASED ON A.R.E.A.
PLAN NO. 8-62)



- NOTES:
1. THIS DIAGRAM GIVES THE MAXIMUM HORIZONTAL LIMITS OF THE DYNAMIC OUTLINE OF THE STANDARD DESIGN VEHICLE AS IT MOVES THROUGH A NO. 6 TURNOUT FROM A TANGENT RUNNING TRACK.
 2. FOR CLEARANCES BETWEEN THE DYNAMIC OUTLINE AND STRUCTURES OR INTERMITTENT INSTALLATIONS, REFER TO THE CLEARANCE DIAGRAMS IN THE MANUAL OF DESIGN CRITERIA FOR THE PARTICULAR TYPE OF CONSTRUCTION INVOLVED.
 3. IF THE TURNOUT IS MADE FROM A CURVED OR SUPERELEVATED TRACK, THE VALUES SHOWN ON THIS STANDARD MUST BE CORRECTED FOR THAT SUPERELEVATION AND CURVATURE.

NO. 6 TURNOUT

REPRODUCTION OF DESIGN
CRITERIA FIG. II 46
(BASED ON A.R.E.A.
PLAN NO. 6-62)



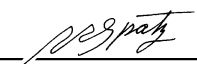
- NOTES:
1. THIS DIAGRAM GIVES THE MAXIMUM HORIZONTAL LIMITS OF THE DYNAMIC OUTLINE OF THE STANDARD DESIGN VEHICLE AS IT MOVES THROUGH A NO. 10 TURNOUT FROM A TANGENT RUNNING TRACK.
 2. FOR CLEARANCES BETWEEN THE DYNAMIC OUTLINE AND STRUCTURES OR INTERMITTENT INSTALLATIONS, REFER TO THE CLEARANCE DIAGRAMS IN THE MANUAL OF DESIGN CRITERIA FOR THE PARTICULAR TYPE OF CONSTRUCTION INVOLVED.
 3. IF THE TURNOUT IS MADE FROM A CURVED OR SUPERELEVATED TRACK, THE VALUES SHOWN ON THIS STANDARD MUST BE CORRECTED FOR THAT SUPERELEVATION AND CURVATURE.

NO. 10 TURNOUT

REPRODUCTION OF DESIGN
CRITERIA FIG. II 48
(BASED ON A.R.E.A.
PLAN NO. 10-62)

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	DATE	REFERENCE DRAWINGS	REVISIONS
GAH	11-00		
DRAWN	DATE	NUMBER	DESCRIPTION
JMR	11-00		
CHECKED	DATE		
APPROVED	DATE		
UPDATED	DATE		

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SUBMITTED	DATE
APPROVED DIRECTOR	DATE
 May 3, 2001	

HORIZONTAL LIMITS OF DYNAMIC OUTLINE OF DESIGN VEHICLE THROUGH TURNOUTS	
SCALE	DRAWING NO.
NONE	ST-TC-HDO-031

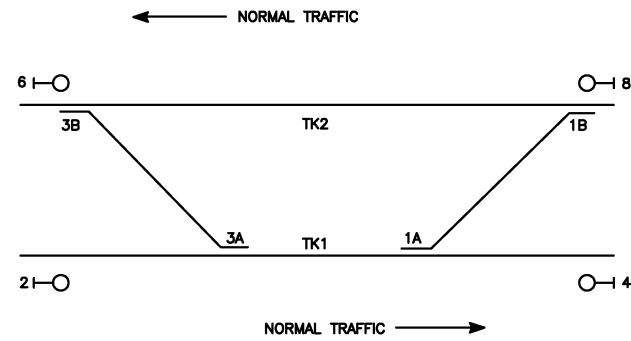
WMATA

TYPICAL INTERLOCKING CIRCUITS

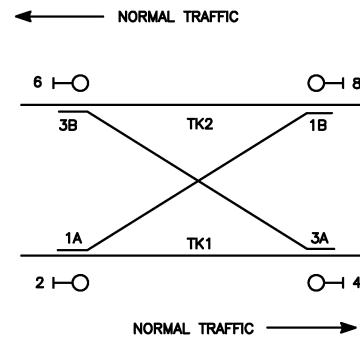
BOOK OF PLANS

DESIGNED <u>GAH</u> <small>DATE 2-00</small>	REFERENCE DRAWINGS <table border="1"><thead><tr><th>NUMBER</th><th>DESCRIPTION</th></tr></thead><tbody><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></tbody></table>	NUMBER	DESCRIPTION									REVISIONS <table border="1"><thead><tr><th>DATE</th><th>BY</th><th>DESCRIPTION</th></tr></thead><tbody><tr><td>08/2001</td><td>SYSP</td><td>Revised and issued by the Authority</td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table>		DATE	BY	DESCRIPTION	08/2001	SYSP	Revised and issued by the Authority										WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT OFFICE OF SYSTEMS		TYPICAL INTERLOCKING CIRCUITS	
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08/2001	SYSP	Revised and issued by the Authority																														
DRAWN <u>JMR</u> <small>DATE 2-00</small>			SUBMITTED _____ DATE _____	APPROVED <u><i>[Signature]</i></u> <small>DATE May 3, 2001</small>	SCALE NONE	DRAWING NO. ST-TC-I-000																										
CHECKED _____ <small>DATE</small>																																
APPROVED _____ <small>DATE</small>																																
UPDATED _____ <small>DATE</small>																																

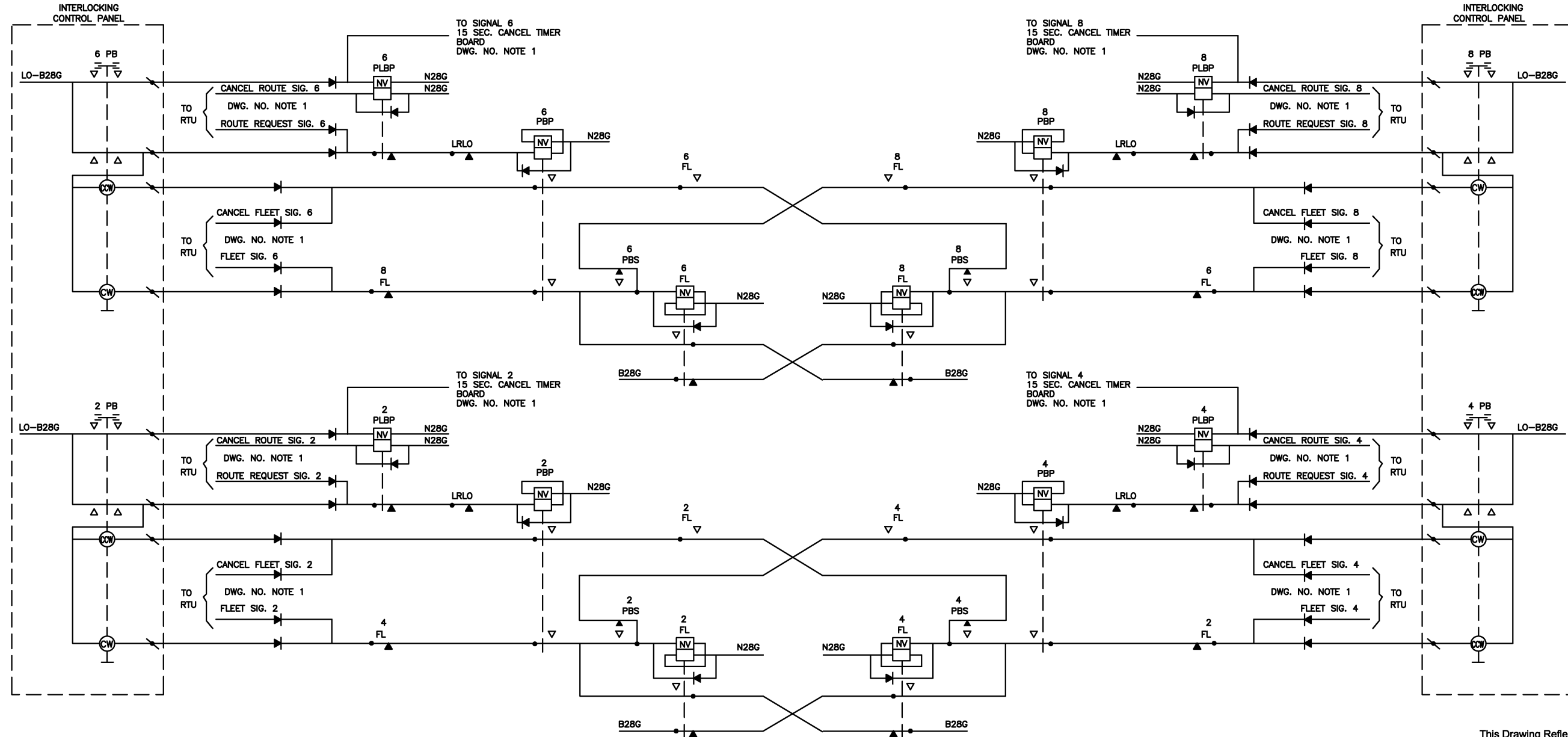
UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



NOTE: 1. DWG. NO. CROSS REFERENCE SHALL BE SHOWN ON CONTRACTOR'S RTU CONTROL CIRCUIT DRAWINGS.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAM	2-00
		DATE
DRAWN	JMR	2-00
		DATE
CHECKED		DATE
APPROVED		DATE
UPDATED		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	SYSP	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

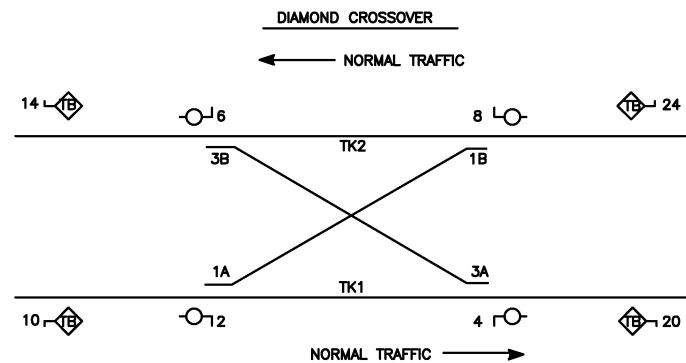
SUBMITTED _____ DATE _____

APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

TYPICAL PUSHBUTTON AND FLEETING CIRCUITS
SIGNALS 2, 4, 6 & 8

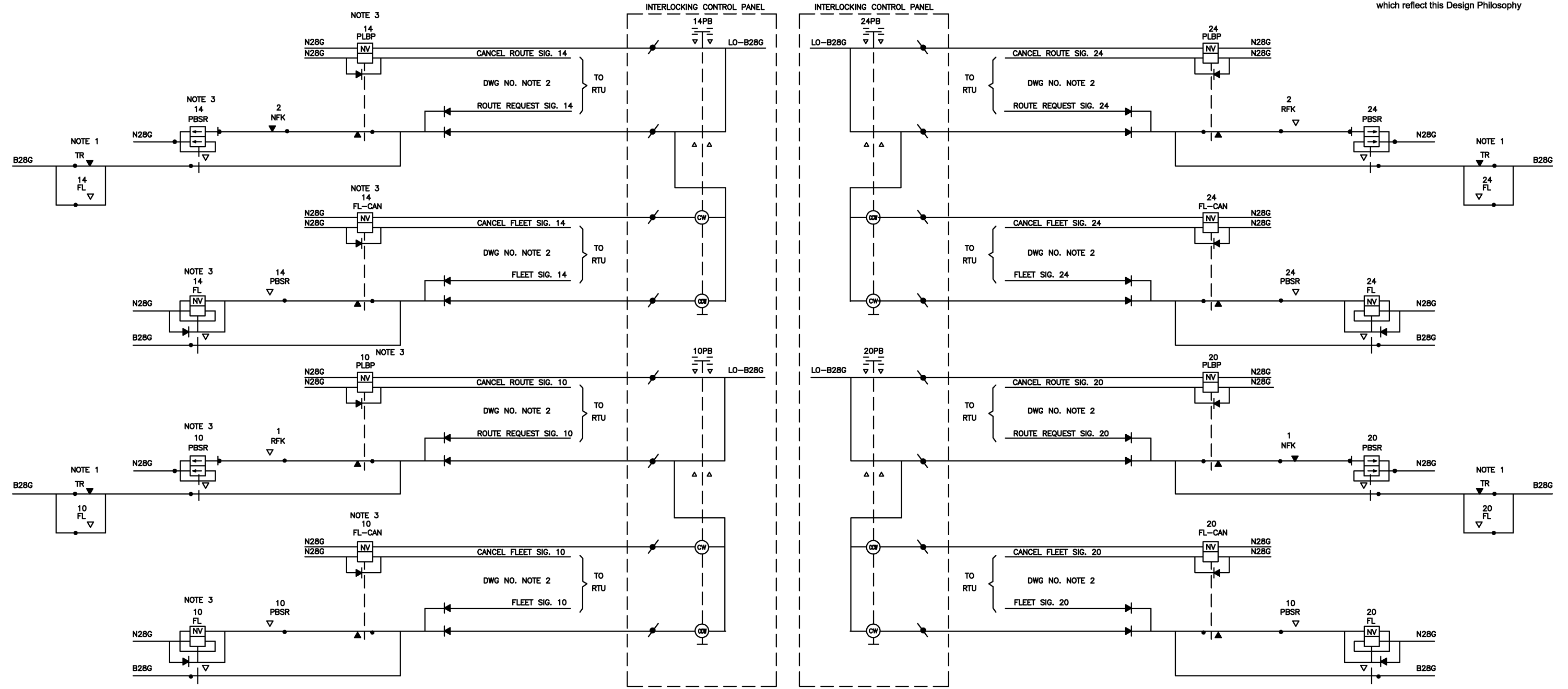
SCALE
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DRAWING NO.
ST-TC-1-001



- NOTES:
- TURNBACK SIGNALS SHALL BE PUT TO STOP BY THE FIRST TRACK DOWNSTREAM FROM THE TURNBACK POINT, EXCEPT WHEN FLEETED.
 - DWG. NO. CROSS REFERENCE SHALL BE SHOWN ON CONTRACTOR'S CIRCUIT DRAWINGS.
 - RELAY SHALL BE REMOVED DURING TEMPORARY TERMINAL OPERATION. HOWEVER, RELAY SHALL BE PROVIDED UNDER THIS CONTRACT, WITH NAME TAG ATTACHED SO THAT IT CAN BE ADDED WHEN LINE IS EXTENDED.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy



DESIGNED <u>GAM</u> 2-00	DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN <u>JMR</u> 2-00	DATE	NUMBER	DESCRIPTION	DATE	BY
CHECKED	DATE			08/2001	SYSP
APPROVED	DATE				
UPDATED	DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

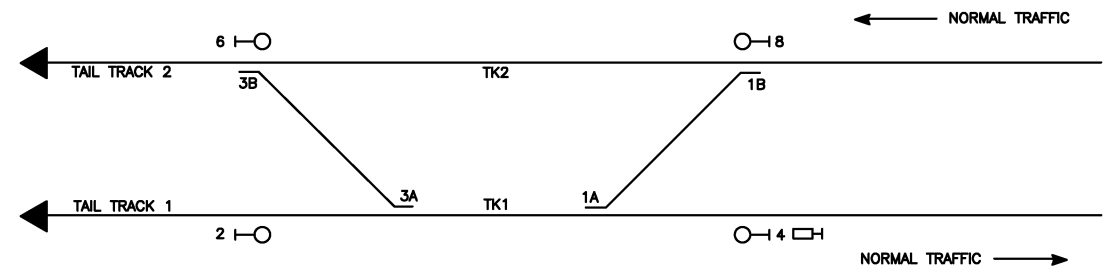
SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

TYPICAL TURNBACK PUSHBUTTON AND FLEETING
CIRCUITS SIGNAL 10, 14, 20, & 24

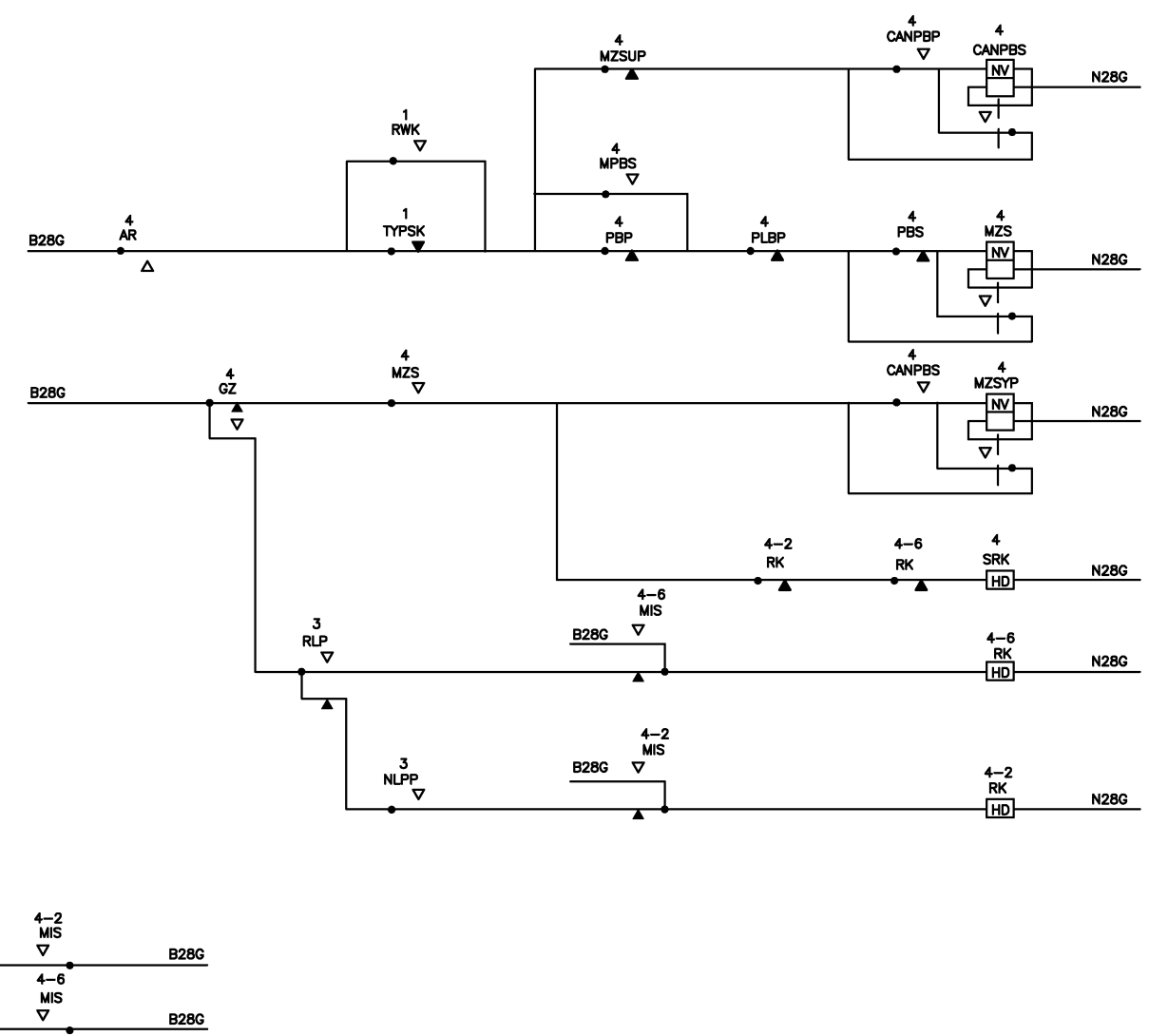
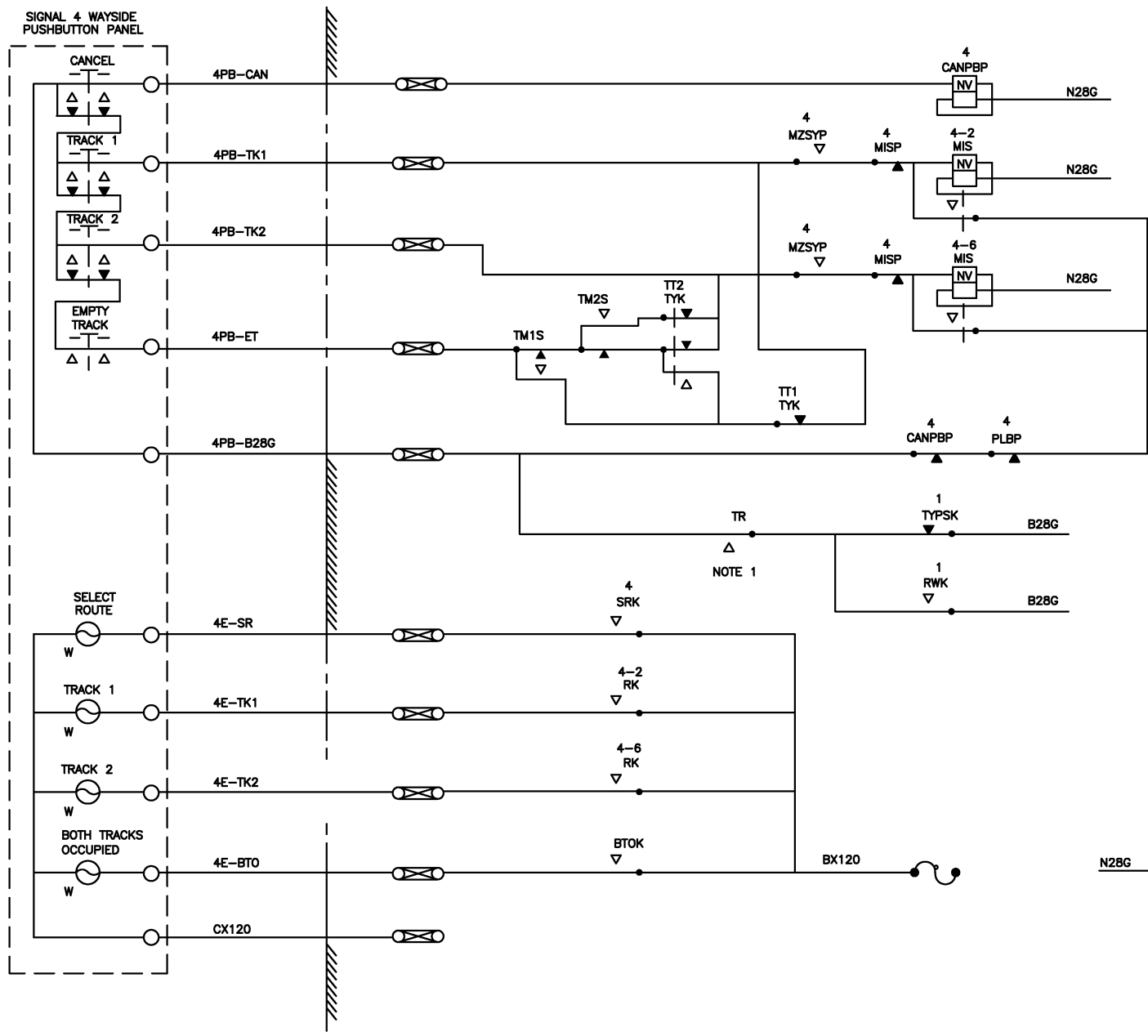
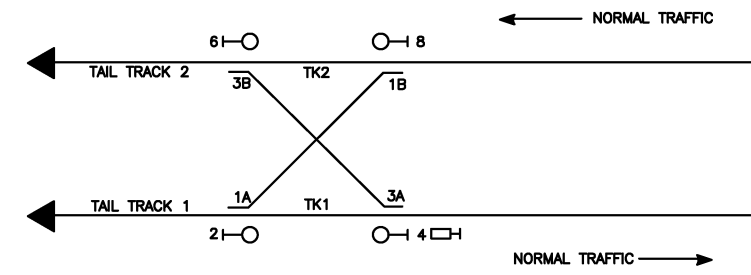
SCALE NONE DRAWING NO. ST-TC-I-002

NOTES:
 1. TR CONTACT SHALL BE THE FIRST TRACK CIRCUIT UPSTREAM FROM SIGNAL 4.

UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GWH</u> 2-00 DATE	<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> <th colspan="2">REVISIONS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>08/2001</td> <td>SYSP</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	REFERENCE DRAWINGS		REVISIONS		NUMBER	DESCRIPTION	DATE	BY			08/2001	SYSP									<table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>Revised and issued by the Authority</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	DATE	BY	DESCRIPTION			Revised and issued by the Authority									
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UPDATED _____ DATE																																					

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
 OFFICE OF SYSTEMS

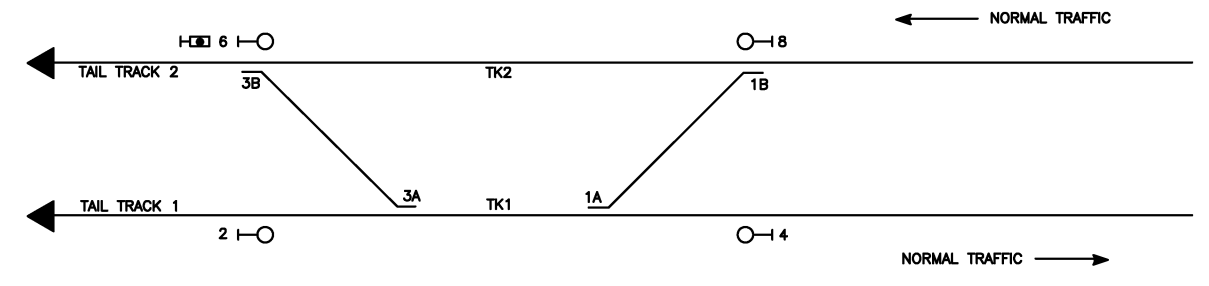
SUBMITTED _____ DATE APPROVED *[Signature]* May 3, 2001 DATE

TYPICAL WAYSIDE PUSHBUTTON STORAGE CIRCUITS - SIGNAL 4

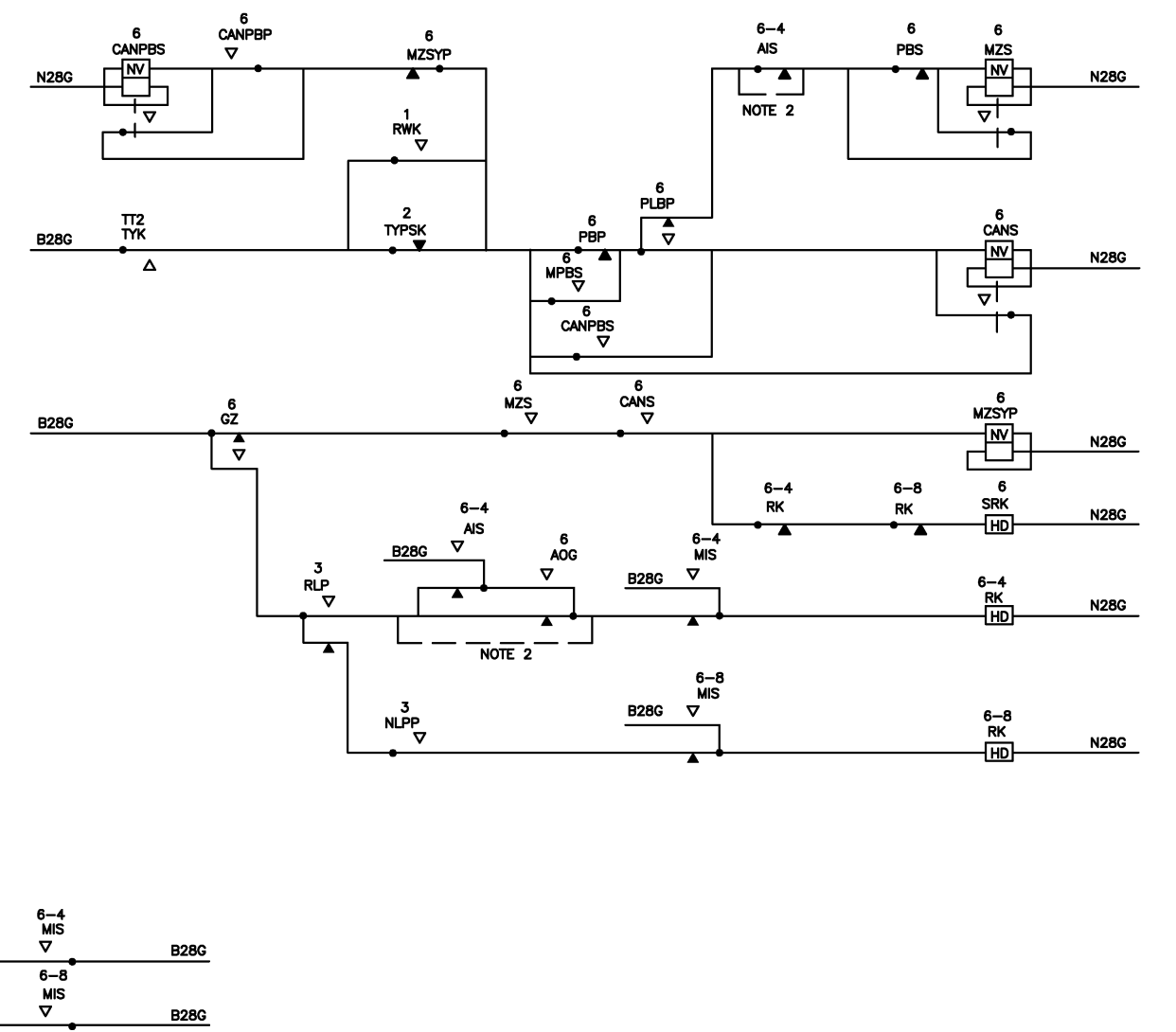
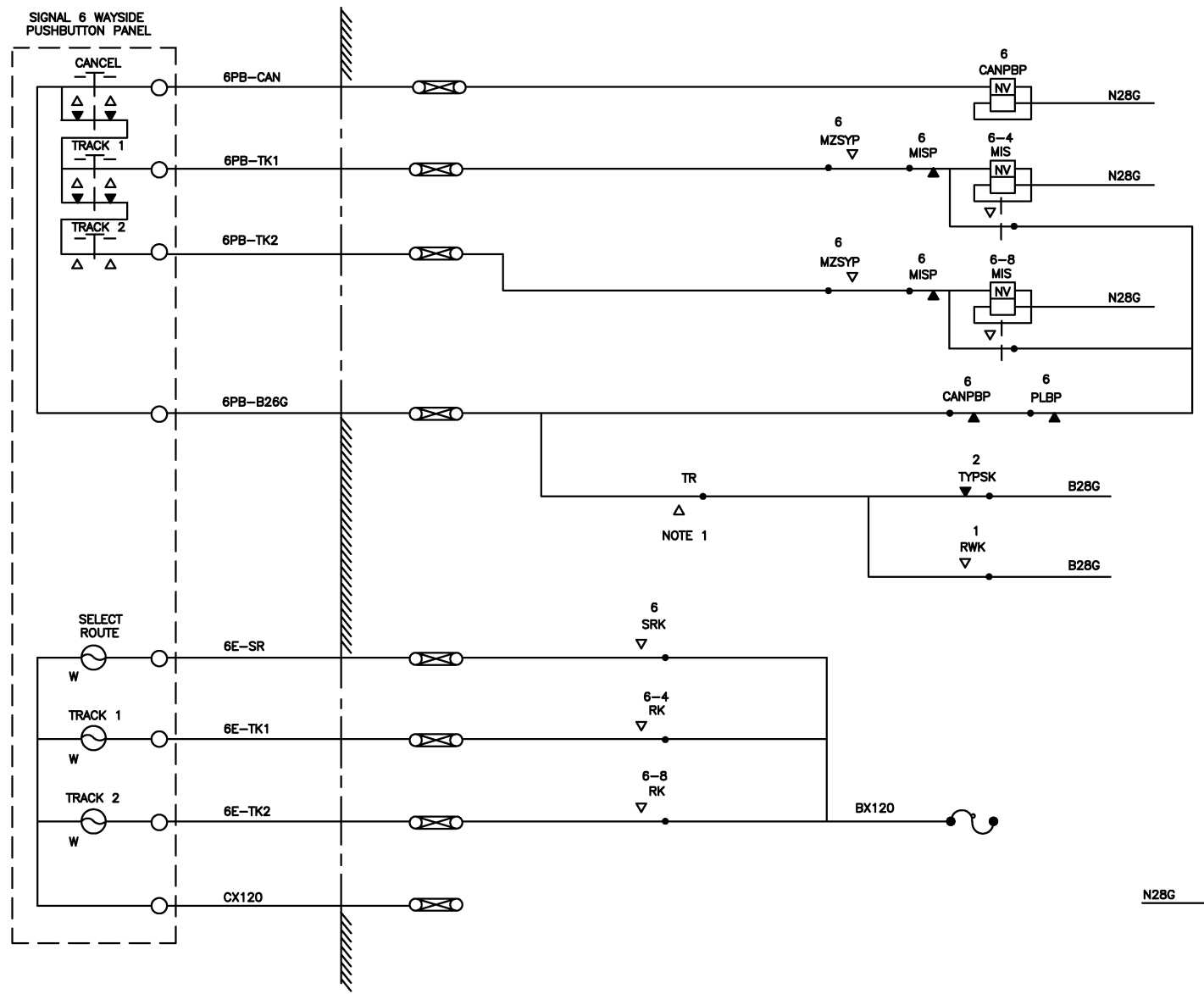
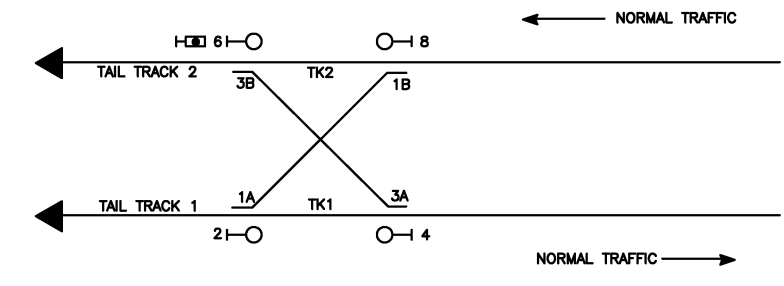
SCALE NONE DRAWING NO. ST-TC-I-008

- NOTES:
1. TR CONTACT SHALL BE THE FIRST TRACK CIRCUIT UPSTREAM FROM SIGNAL 6.
 2. CONTRACTOR SHALL PROVIDE FACILITY FOR JUMPERING OUT AUTOMATIC INITIATION CONTACTS IN THE FUTURE.

UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	2-00	DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN	JMR	2-00	DATE	NUMBER	DESCRIPTION	DATE	BY
CHECKED			DATE			08/2001	SYSP
APPROVED			DATE				
UPDATED			DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
 OFFICE OF SYSTEMS

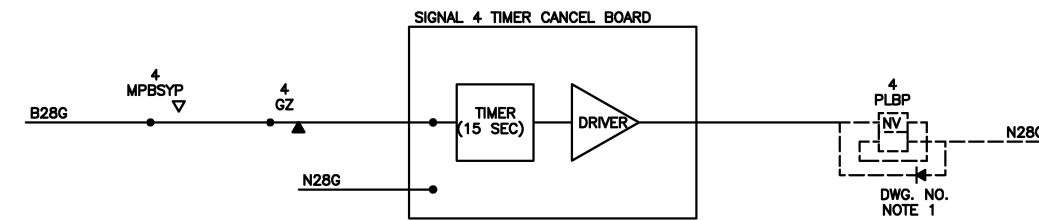
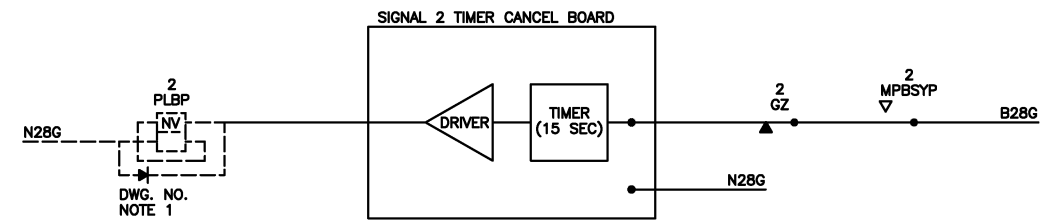
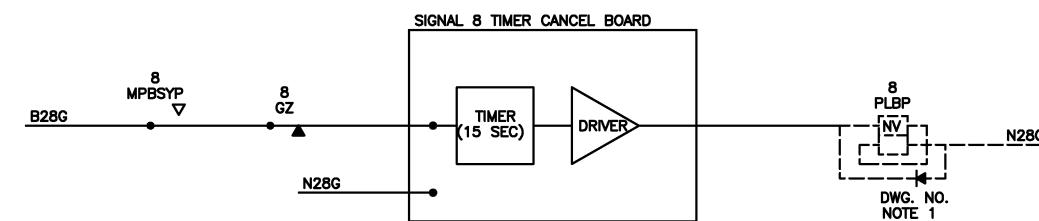
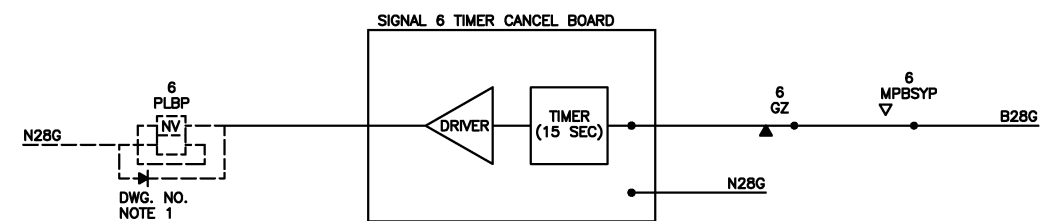
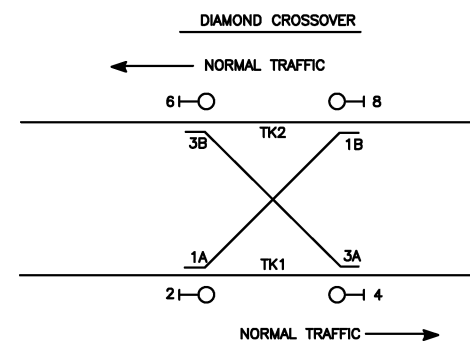
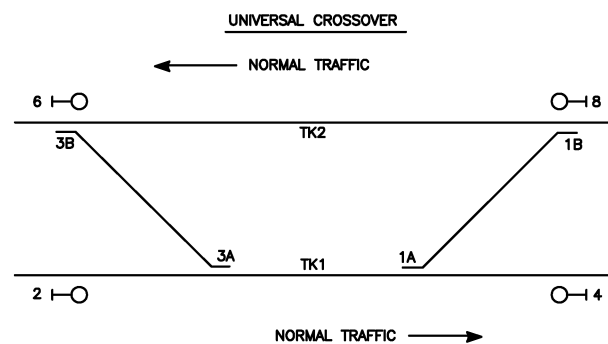
SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

TYPICAL WAYSIDE PUSHBUTTON STORAGE CIRCUITS - SIGNAL 6

SCALE NONE DRAWING NO. ST-TC-1-009

NOTES:

1. DWG. NO. CROSS REFERENCE SHALL BE SHOWN FOR CONTRACTOR'S APPLICABLE ROUTE SELECTION PUSHBUTTON CONTROL CIRCUIT DRAWINGS.
2. CIRCUITS SHOW CONCEPT FOR SIMPLE DOUBLE-CROSSOVER INTERLOCKINGS. CONTRACTOR SHALL PROVIDE TIMER CANCEL CIRCUITRY FOR ALL WAYSIDE SIGNALS HAVING WAYSIDE PUSHBUTTON CONTROL.
3. AS AN OPTION, A SINGLE TIMER CANCEL BOARD SHALL BE PROVIDED FOR COMMON USE BY PAIRED OPPOSING SIGNALS WHEREVER POSSIBLE.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	2-00	DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN	JMR	2-00	DATE	NUMBER	DESCRIPTION	DATE	BY
CHECKED			DATE			08/2001	SYSP
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UPDATED			DATE				

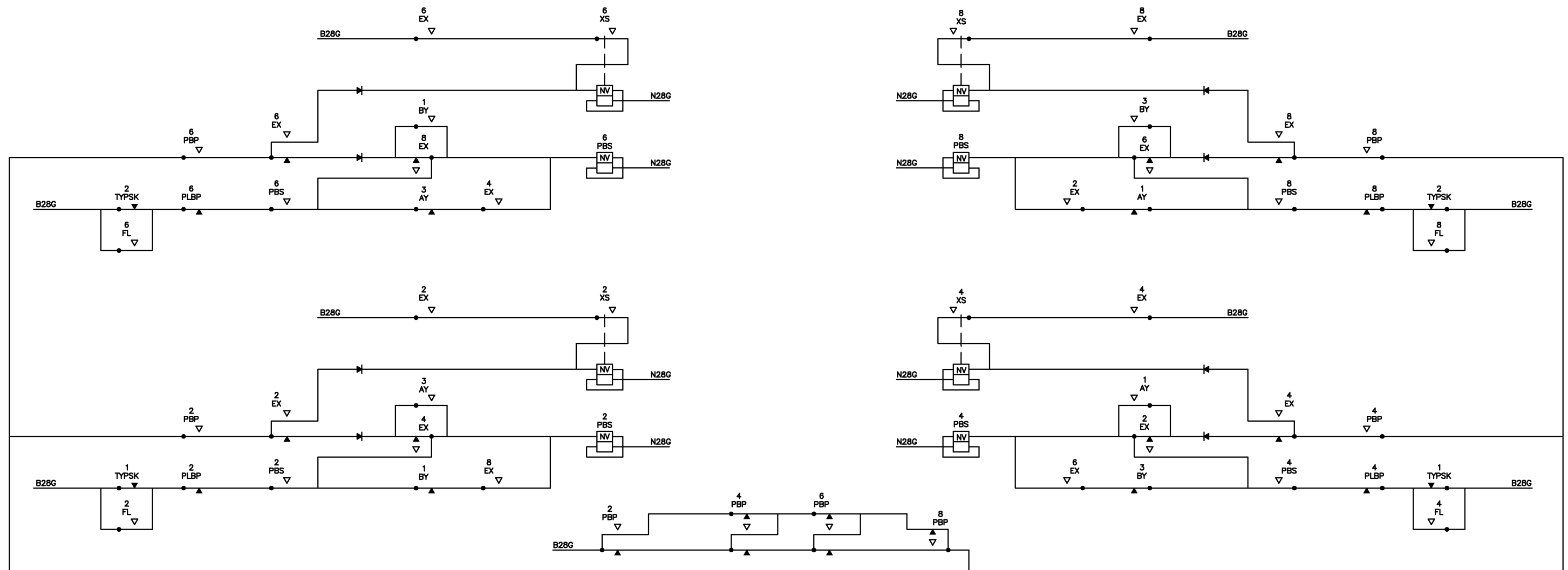
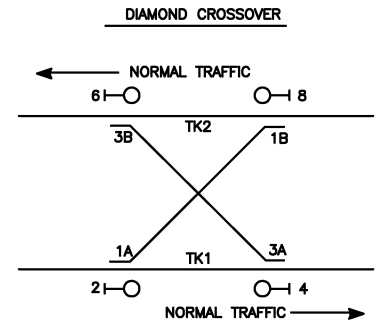
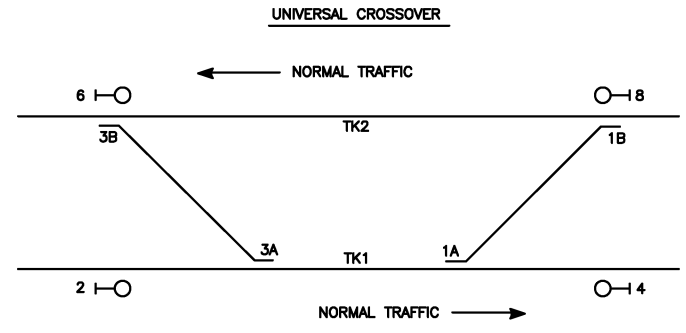
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DATE May 3, 2001
DIRECTOR

TYPICAL TIMER CANCEL CIRCUITS FOR SIGNALS HAVING WAYSIDE PUSHBUTTON CONTROL

SCALE NONE DRAWING NO. ST-TC-1-011



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

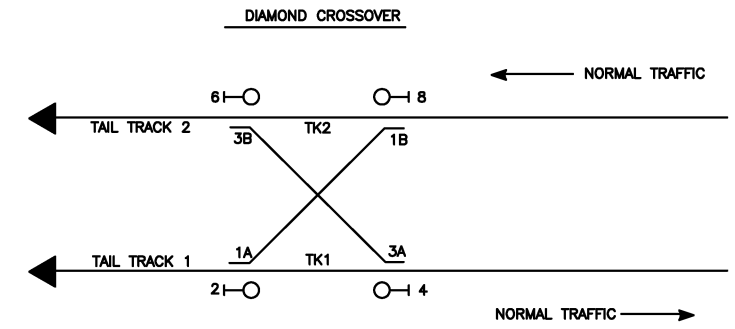
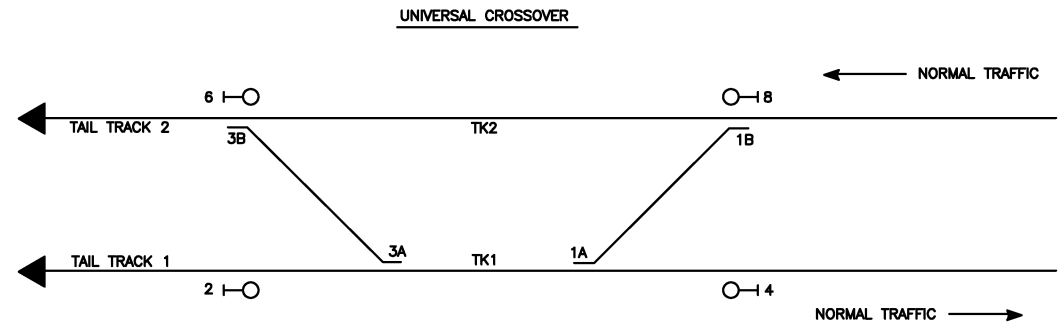
DESIGNED	DATE	NUMBER	DESCRIPTION	DATE	BY	DESCRIPTION
GAM	2-00			08/2001	SYSP	Revised and issued by the Authority
DRAWN	JMR					
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APPROVED						
UPDATED						

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

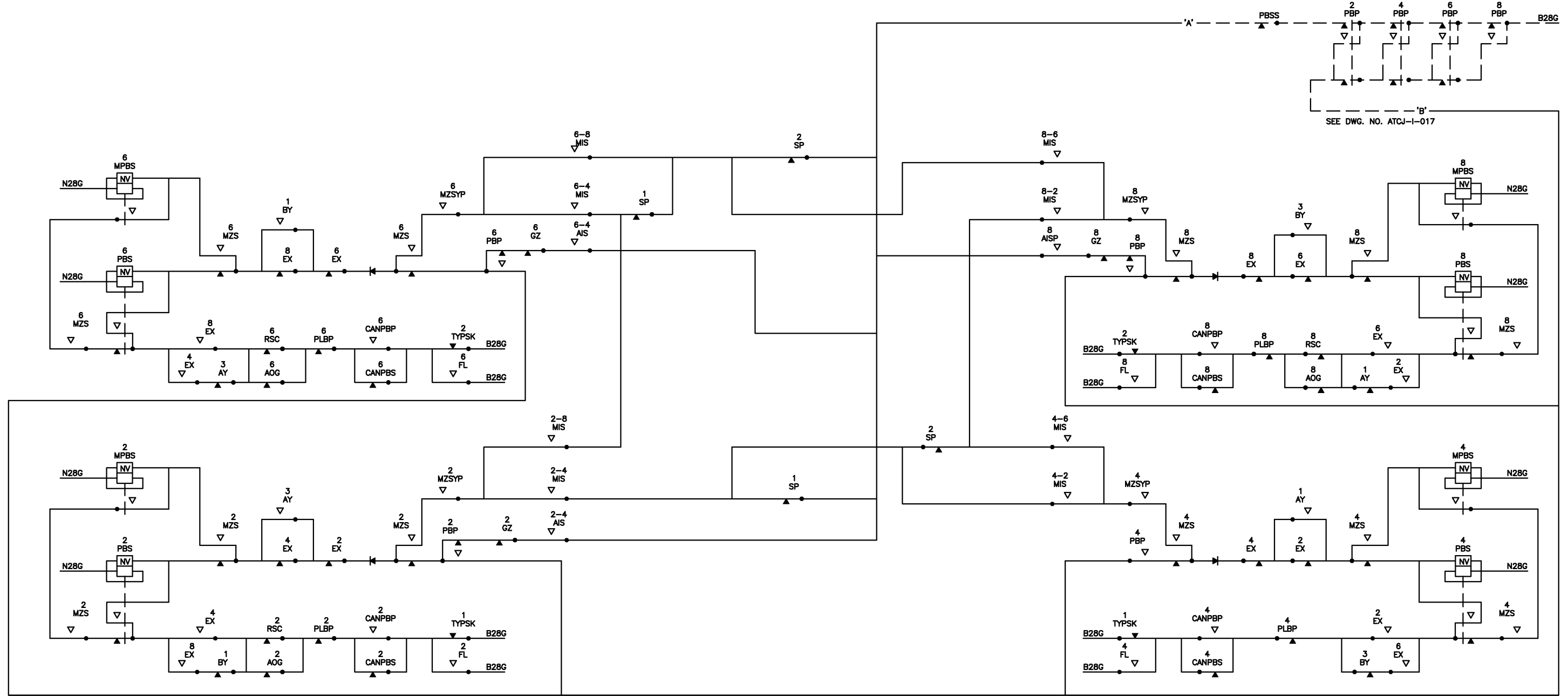
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED DIRECTOR *respat* May 3, 2001 DATE _____

TYPICAL ROUTE STORAGE CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-1-013



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy



DESIGNED	GAH	2-00
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UPDATED		

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	SYSP	Revised and issued by the Authority

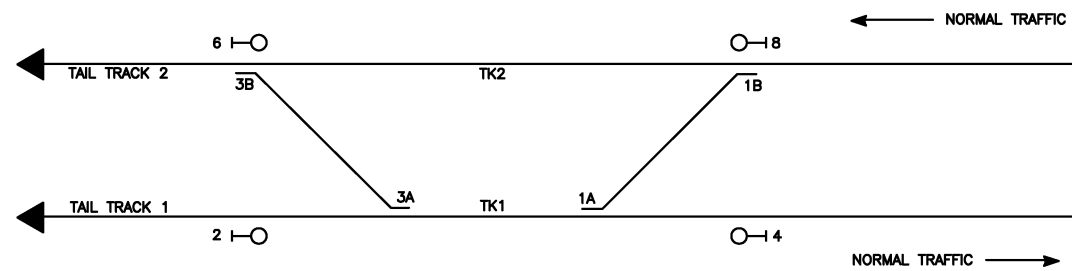
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
 OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE

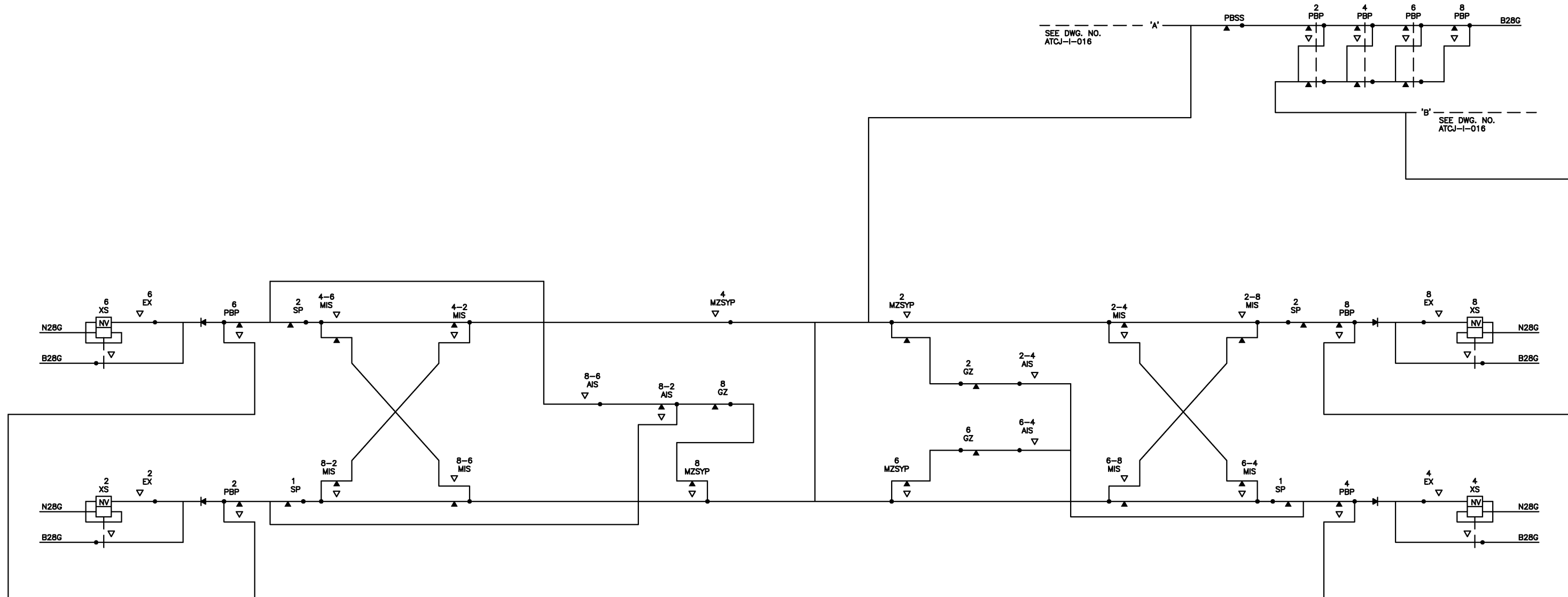
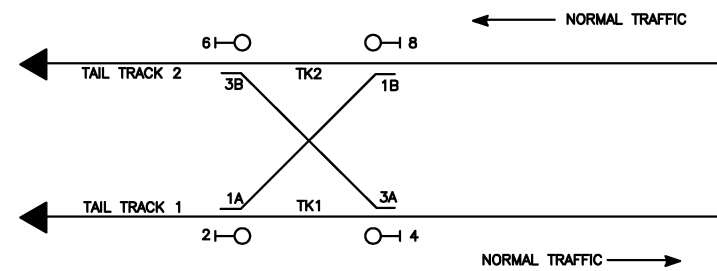
TYPICAL ROUTE STORAGE CIRCUITS
(SHEET 1 OF 2)

SCALE NONE DRAWING NO. ST-TC-1-016

UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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DRAWN	JMR	2-00	DATE	NUMBER	DESCRIPTION	DATE	BY
CHECKED			DATE			08/2001	SYSP
APPROVED			DATE				
UPDATED			DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

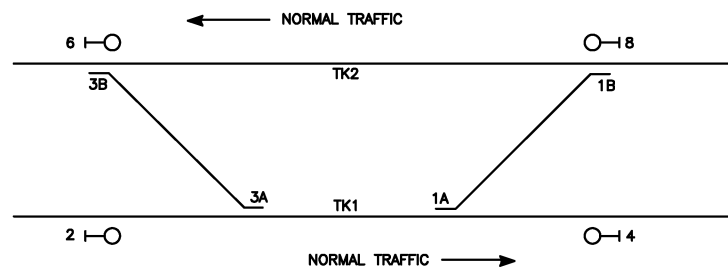
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE

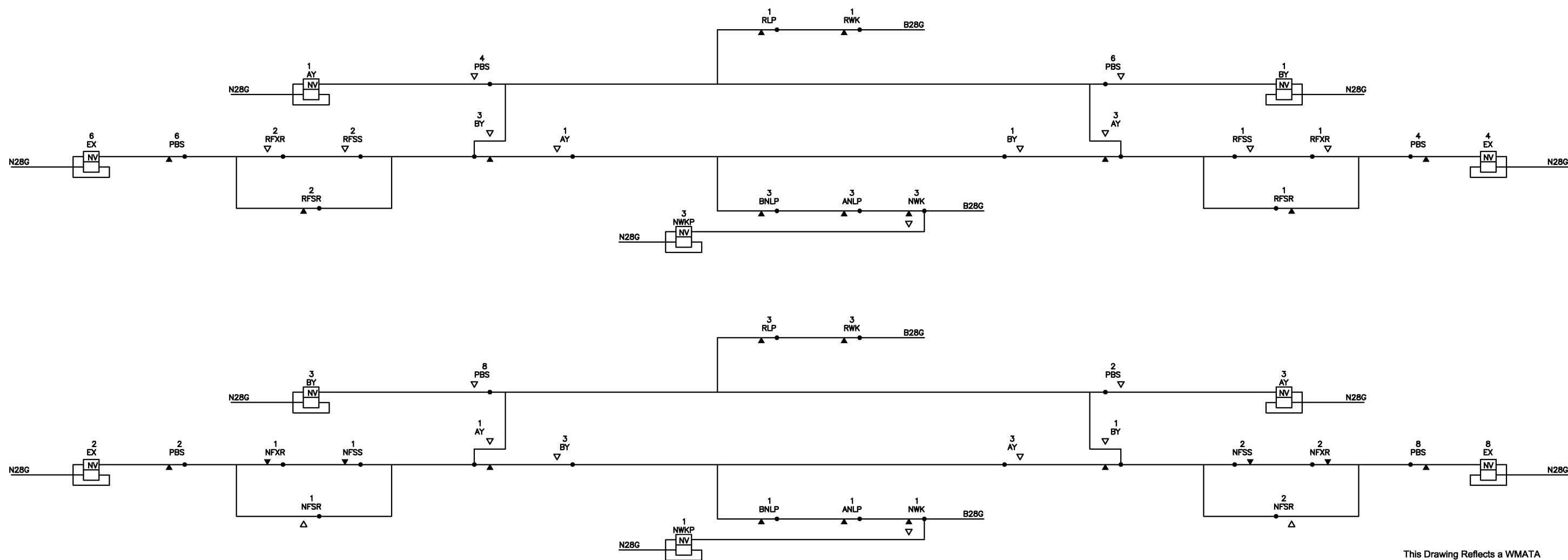
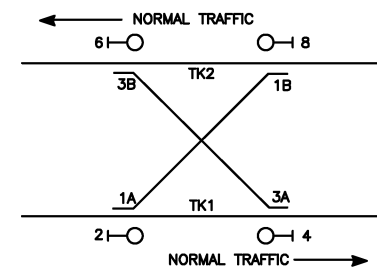
TYPICAL ROUTE STORAGE CIRCUITS
(SHEET 2 OF 2)

SCALE NONE DRAWING NO. ST-TC-1-017

UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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DRAWN	JMR	2-00
		DATE
CHECKED		DATE
APPROVED		DATE
UPDATED		DATE

REFERENCE DRAWINGS	
NUMBER	DESCRIPTION

REVISIONS		
DATE	BY	DESCRIPTION
08/2001	SYSP	Revised and issued by the Authority

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

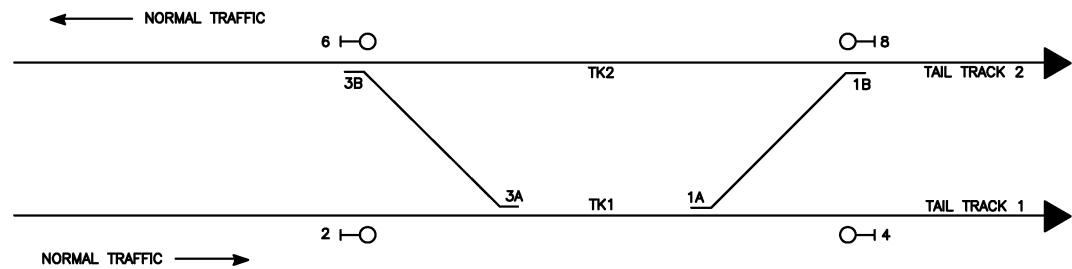
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *[Signature]* DIRECTOR May 3, 2001 DATE

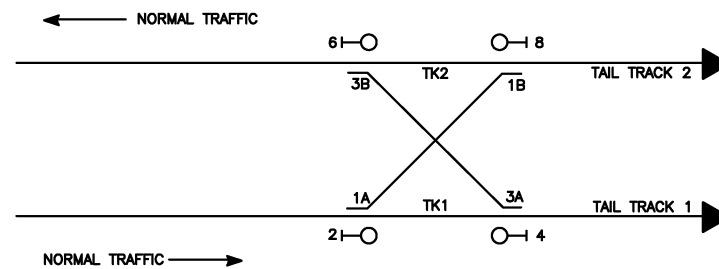
TYPICAL ROUTE INITIATION CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-021

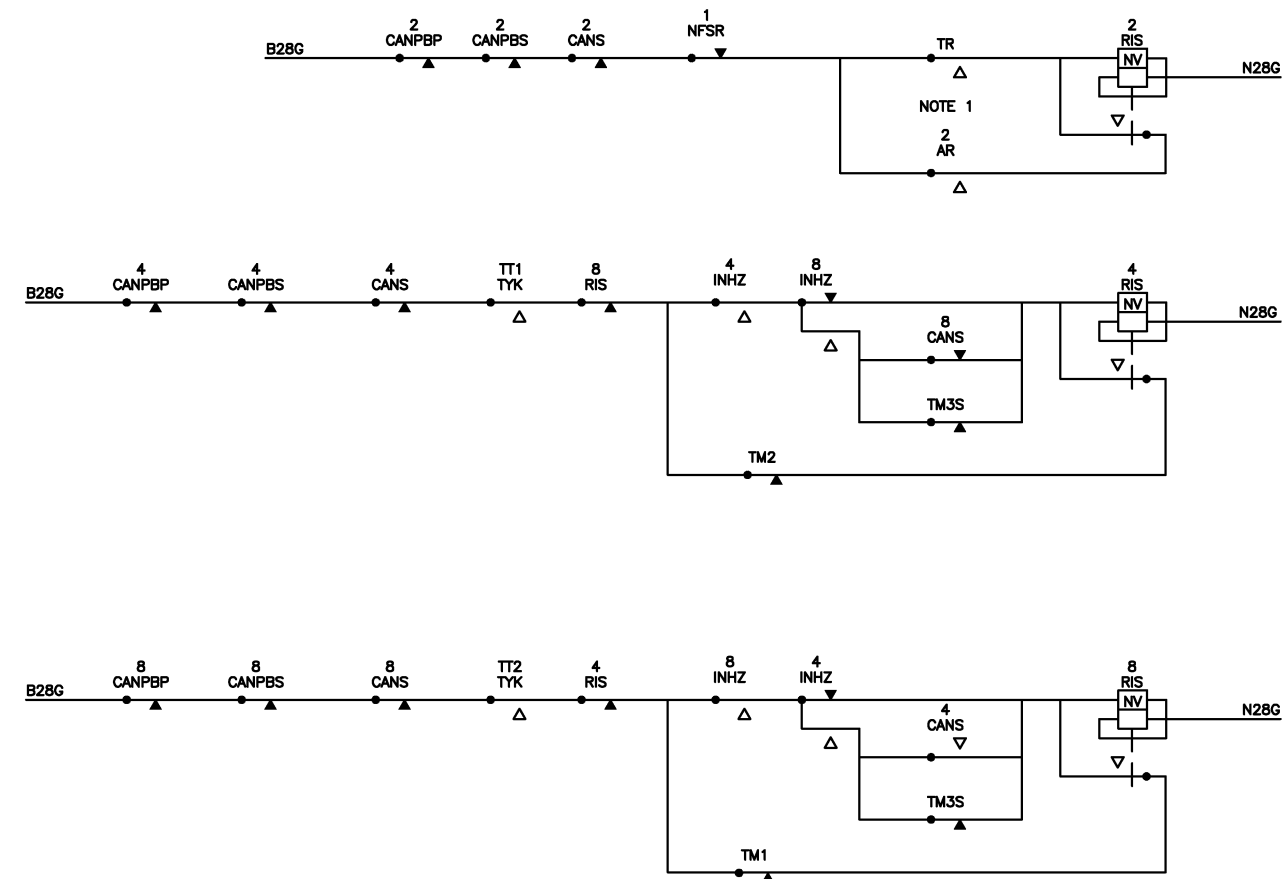
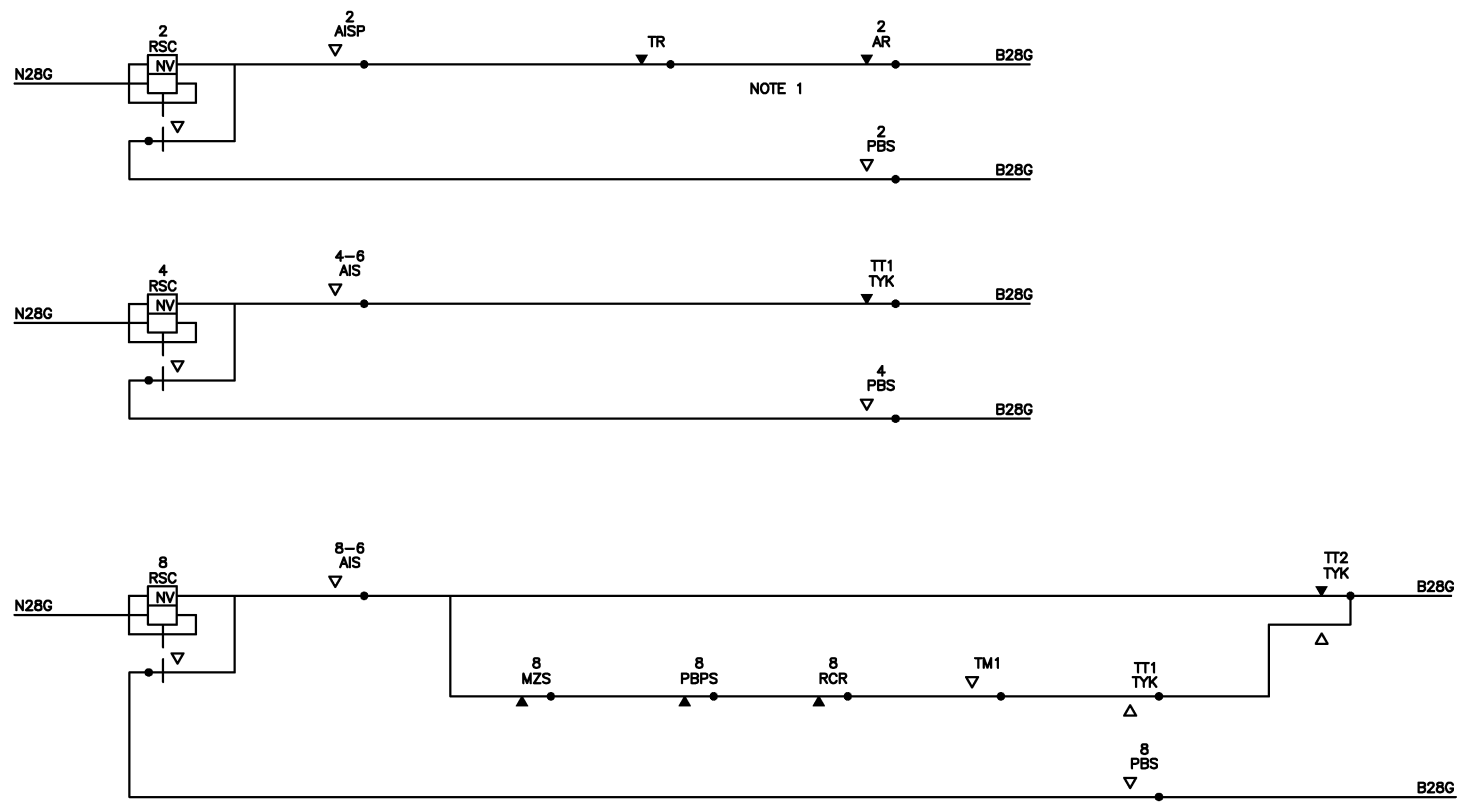
UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



NOTES:
1. CIRCUIT SHALL INCLUDE THE APPROACH AND ADVANCE APPROACH TRACKS AS INDICATED ON THE ROUTE CHART FOR SIGNAL 2.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	11-99	DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN	JMR	11-99	DATE	NUMBER	DESCRIPTION	DATE	DESCRIPTION
CHECKED			DATE			08/2001	SYSP Revised and issued by the Authority
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UPDATED			DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

TYPICAL ROUTE INITIATION & RESET STICK CANCEL CIRCUITS

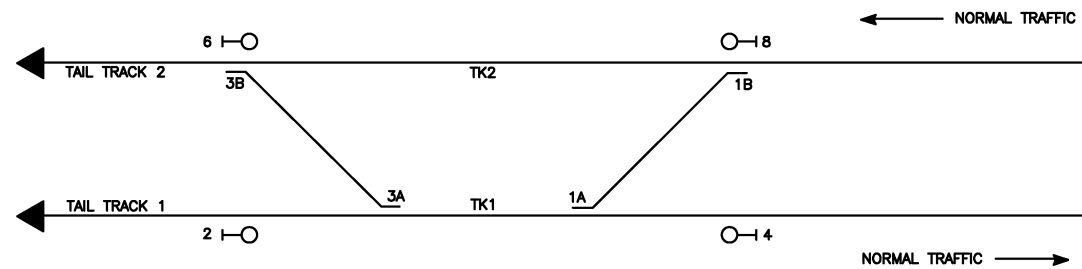
SUBMITTED _____ DATE _____

APPROVED DIRECTOR *respat* May 3, 2001 DATE

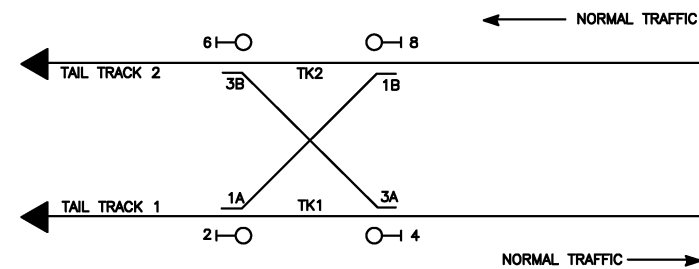
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DRAWING NO. ST-TC-1-024

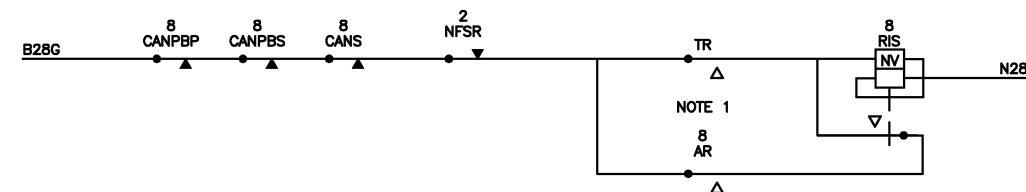
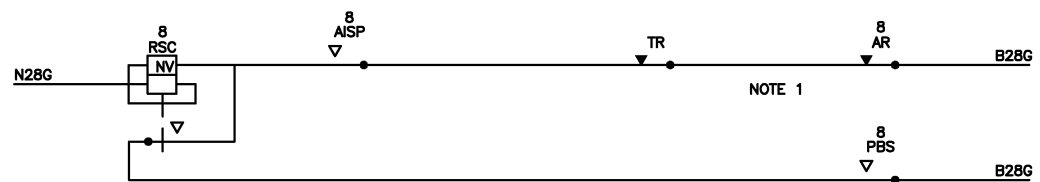
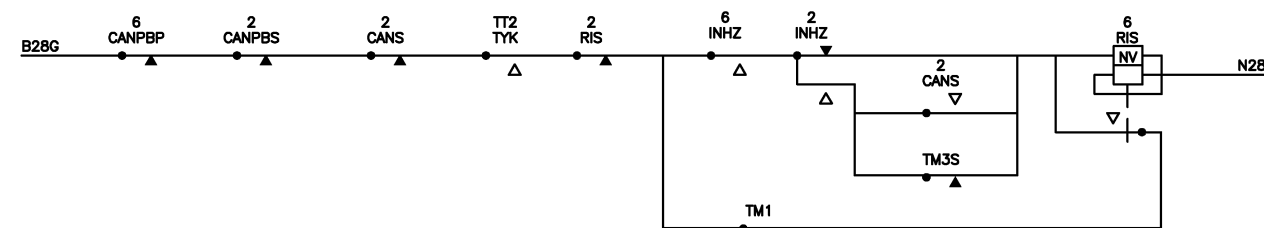
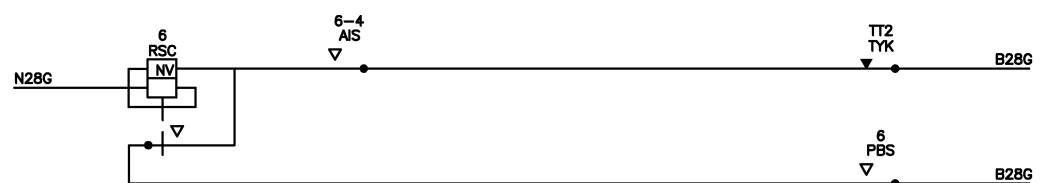
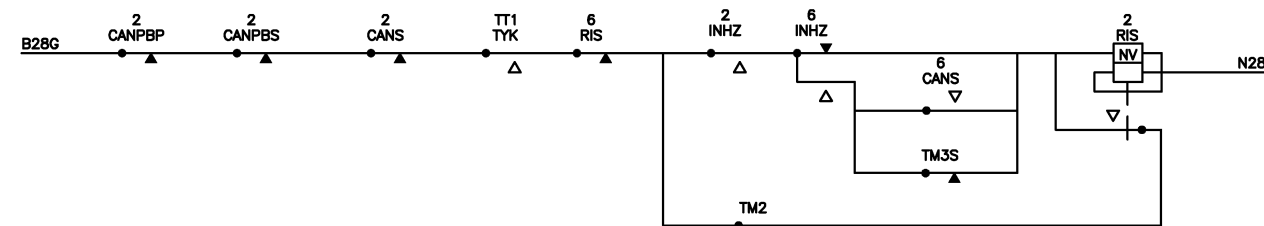
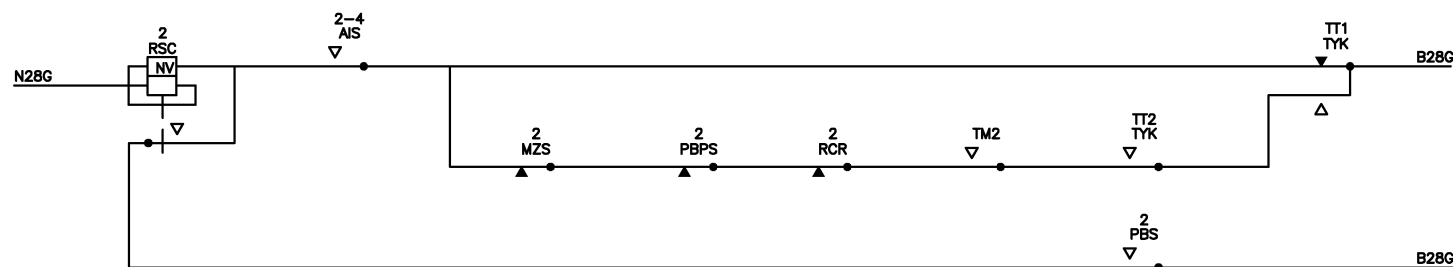
UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



- NOTES:
1. CIRCUIT SHALL INCLUDE THE APPROACH AND ADVANCE APPROACH TRACKS AS INDICATED ON THE ROUTE CHART FOR SIGNAL 8.
 2. ALL RELAYS AND CIRCUITRY SHOWN ON THIS DRAWING ARE TO BE REMOVED WHEN LINE IS EXTENDED.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	DATE	REFERENCE DRAWINGS	REVISIONS
GAM	2-00	NUMBER DESCRIPTION	DATE BY DESCRIPTION
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UPDATED	DATE		

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

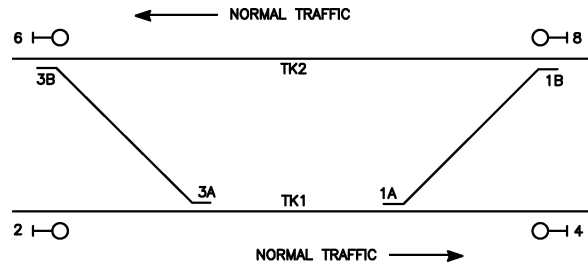
TYPICAL ROUTE INITIATION & RESET STICK CANCEL CIRCUITS

SCALE: NONE

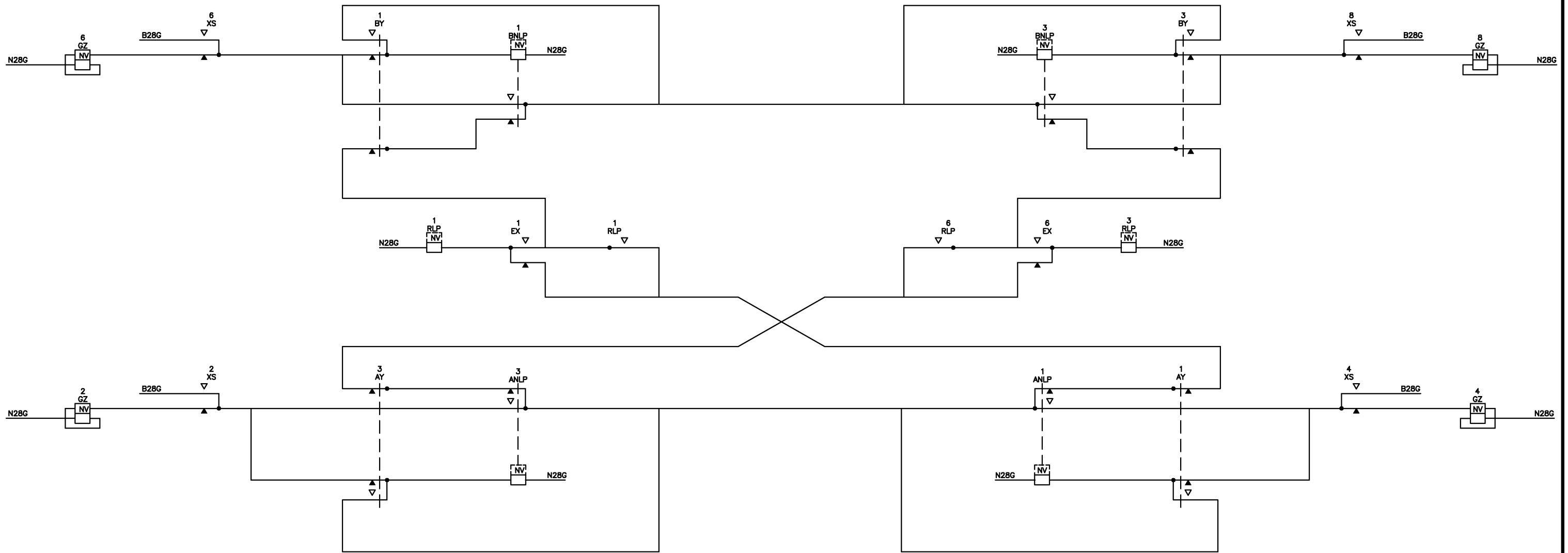
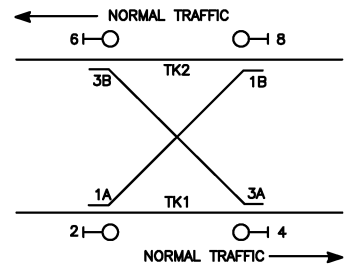
DRAWING NO. ST-TC-1-025

SUBMITTED: _____ DATE: _____ APPROVED DIRECTOR: *pejpat* May 3, 2001 DATE: _____

UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	2-00	DATE	REFERENCE DRAWINGS		REVISIONS	
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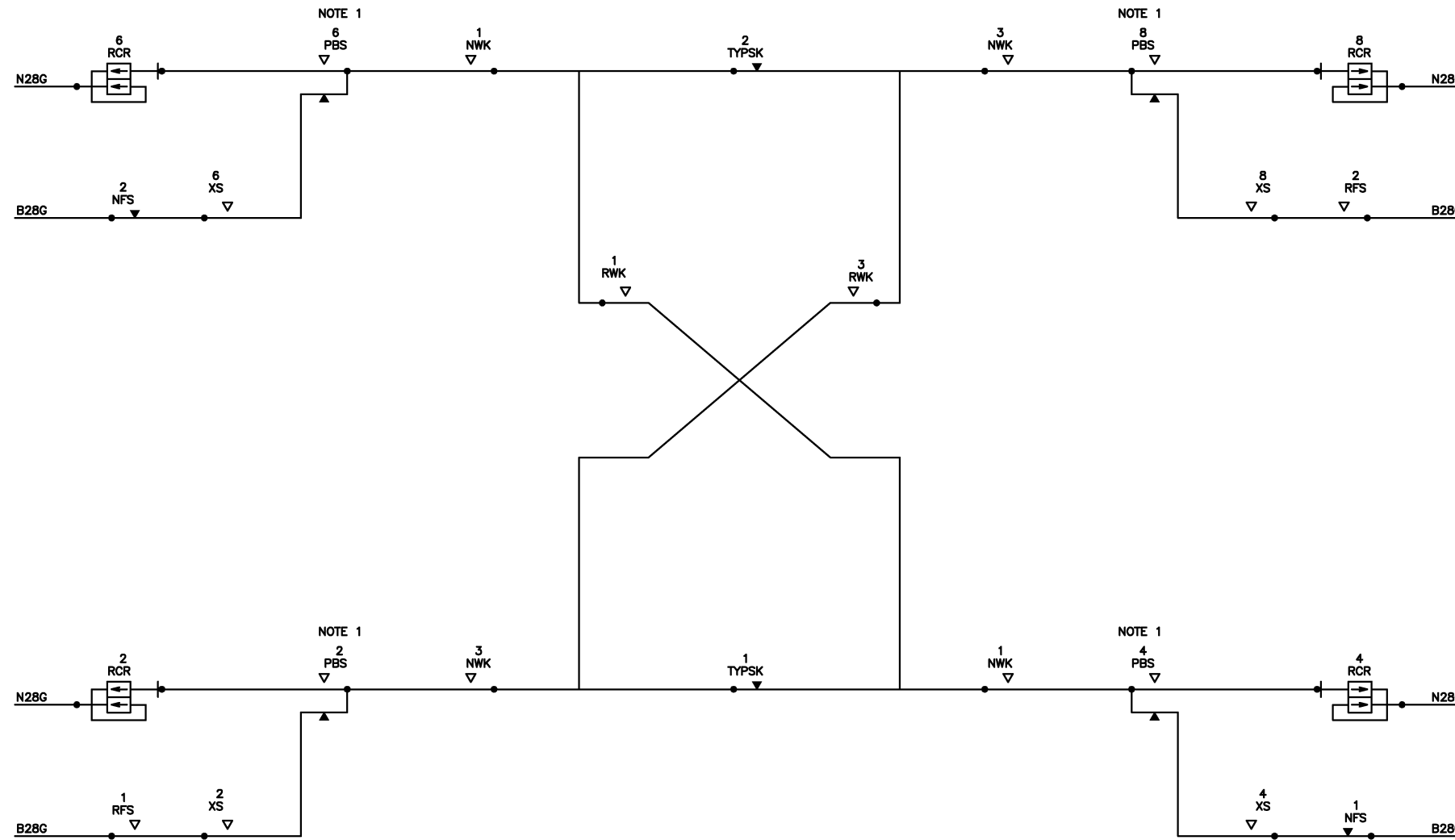
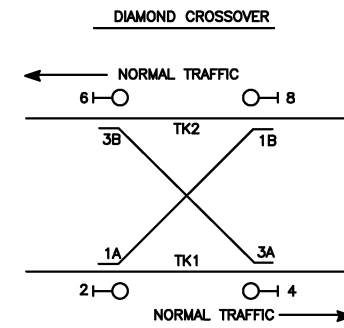
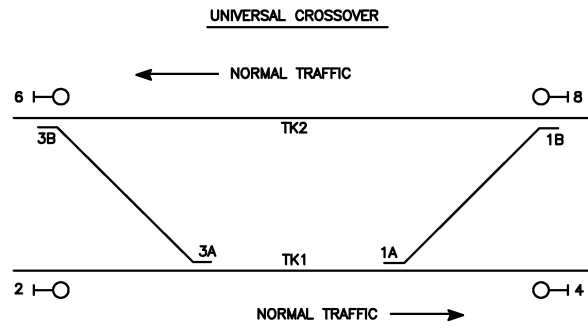
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
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SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
 DIRECTOR DATE

TYPICAL ROUTE COMPLETION CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-029

- NOTES:
1. USE "MPBSYB" RELAY CONTACTS INSTEAD OF "PBS" CONTACTS AT TERMINAL CROSSOVER LOCATIONS.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GAH</u> 2-00 DATE	<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	REFERENCE DRAWINGS		NUMBER	DESCRIPTION									<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> <tr> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>08/2001</td> <td>Revised and issued by the Authority</td> </tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		REVISIONS		DATE	DESCRIPTION	08/2001	Revised and issued by the Authority						
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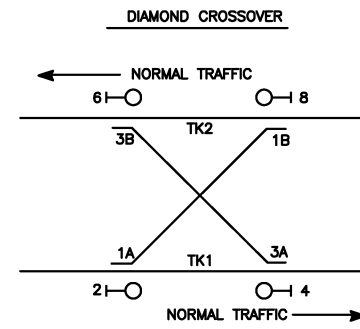
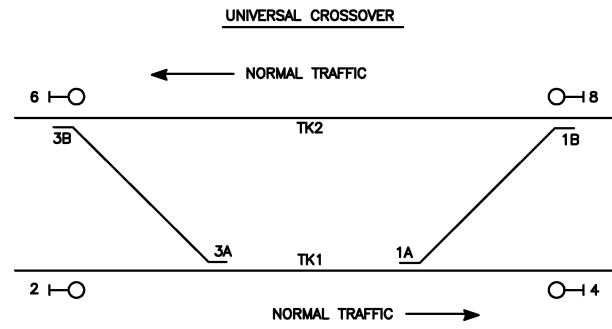
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE

APPROVED *respath* May 3, 2001 DATE
DIRECTOR

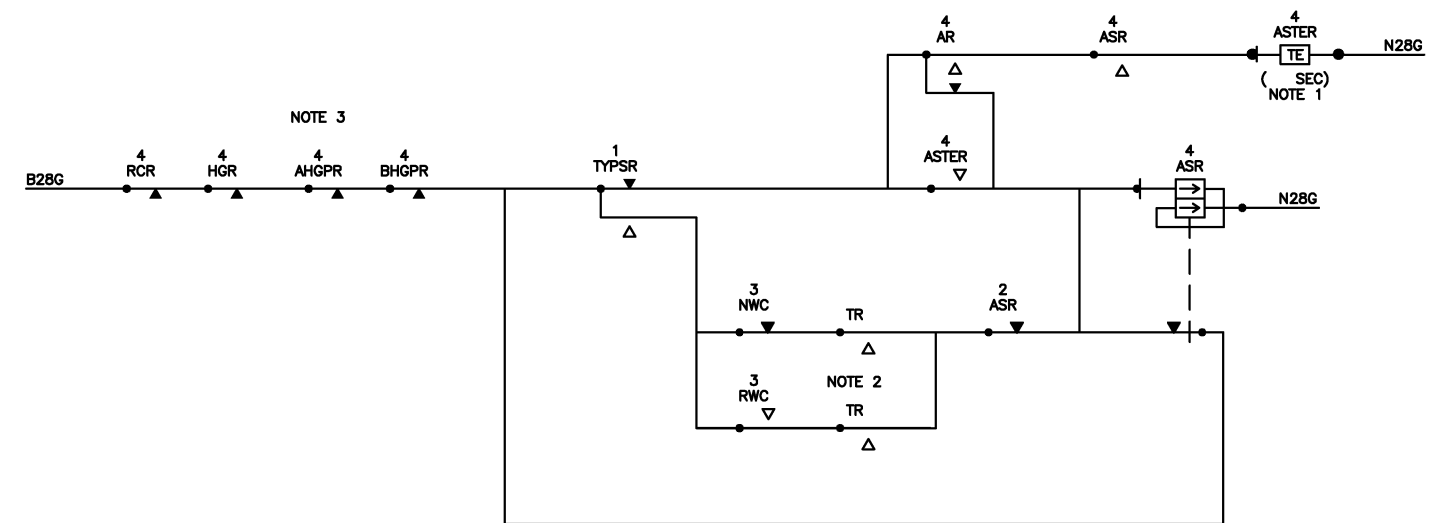
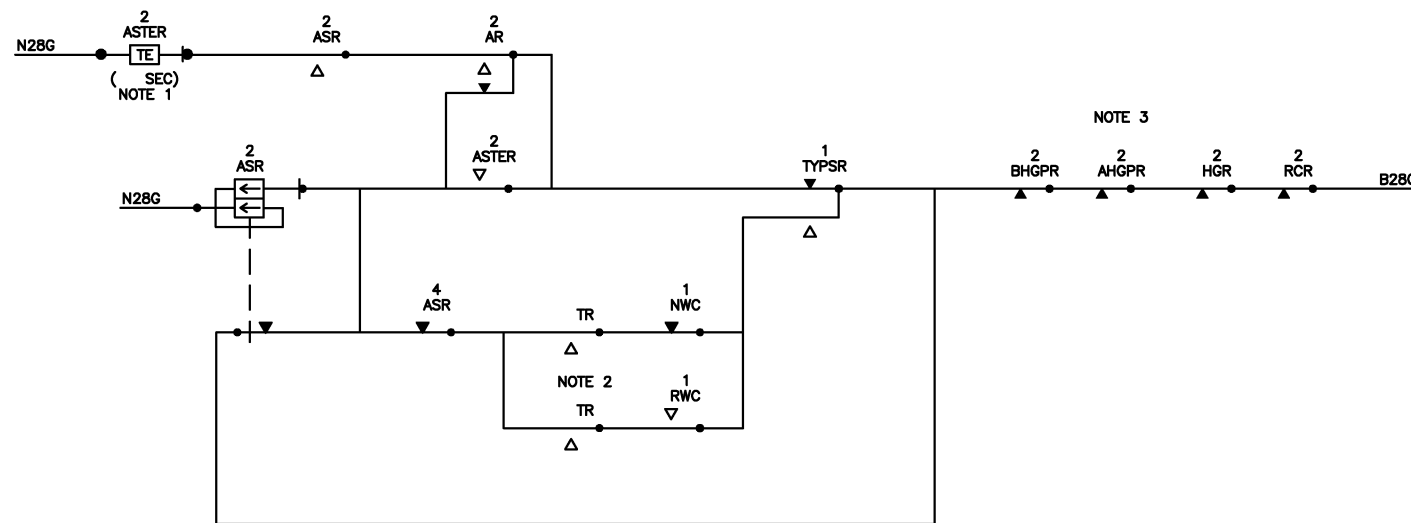
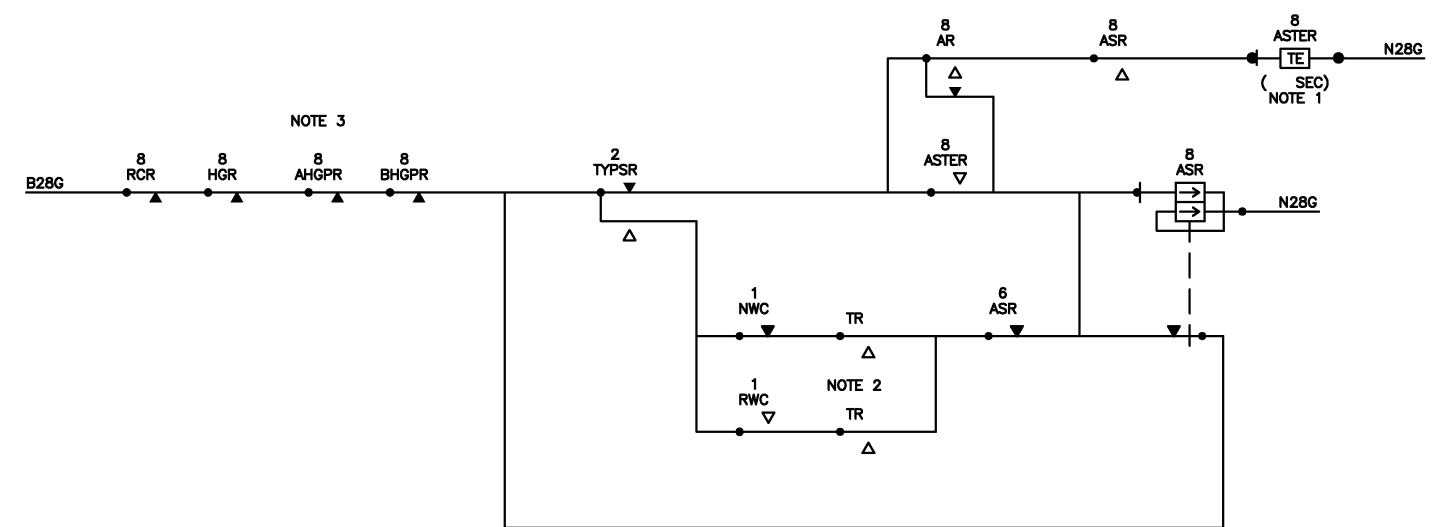
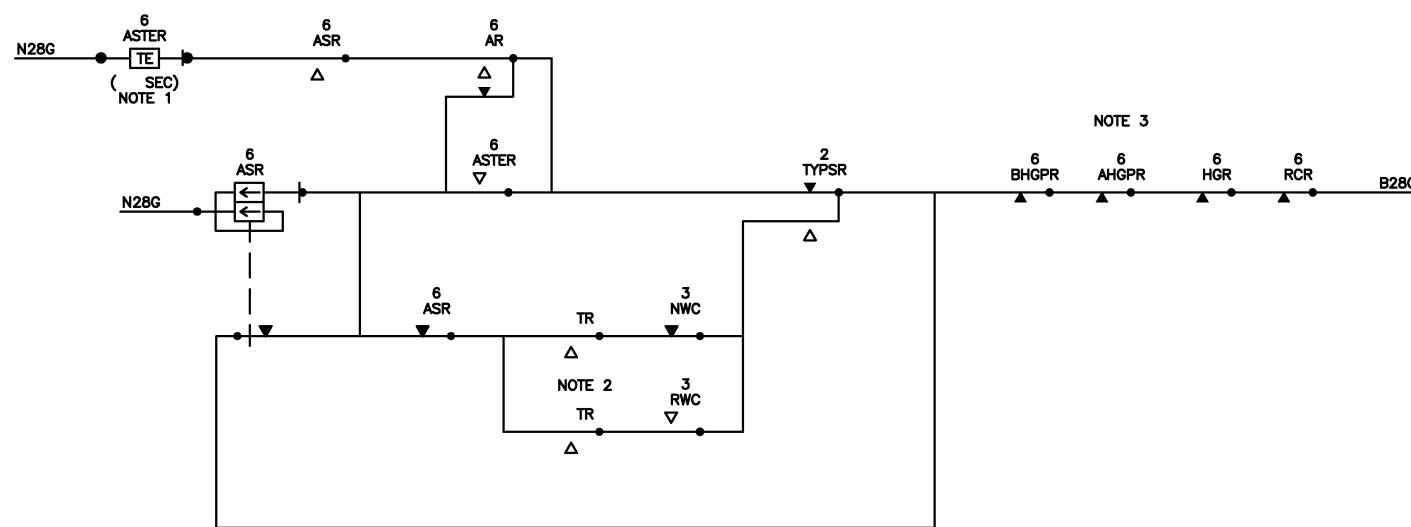
TYPICAL ROUTE CHECK CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-1-031



NOTES:

1. ASTER TIMER SETTINGS SHALL BE DETERMINED BY THE CONTRACTOR.
2. TRACK CIRCUITS REQUIRED FOR THE RELEASE OF THE ASR'S ARE INDICATED ON ROUTE CHARTS.
3. ALL THE REPEATERS OF THE HGR, AHGPR AND BHGPR RELAYS SHALL ALSO BE BACK CHECKED.

This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy



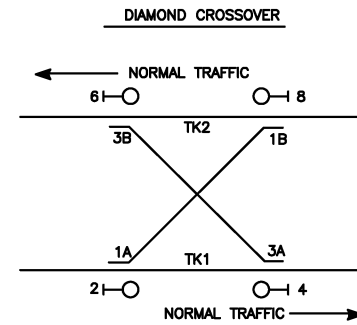
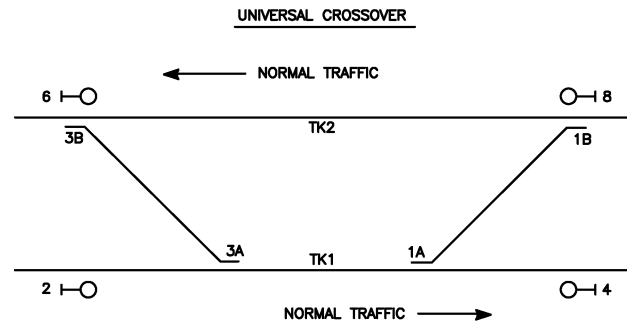
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DRAWN <u>JMR</u> 2-00	NUMBER	DESCRIPTION	DATE	DESCRIPTION
CHECKED _____			08/2001	SYSP Revised and issued by the Authority
APPROVED _____				
UPDATED _____				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
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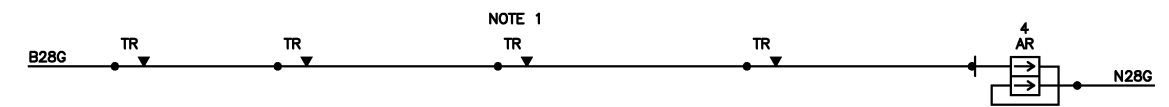
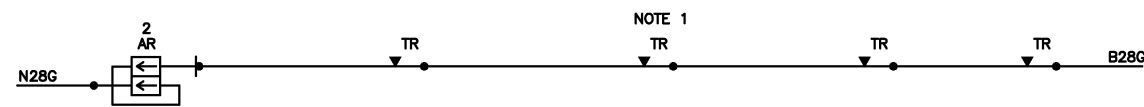
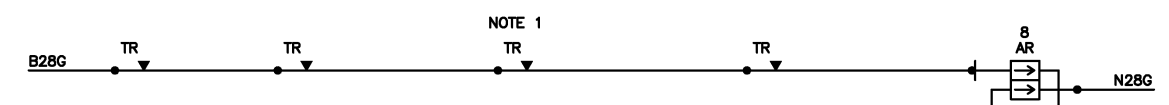
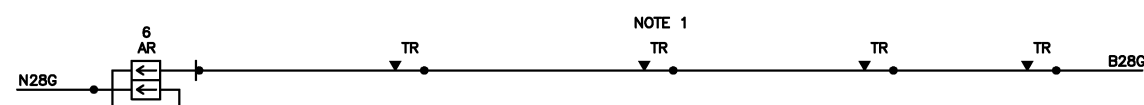
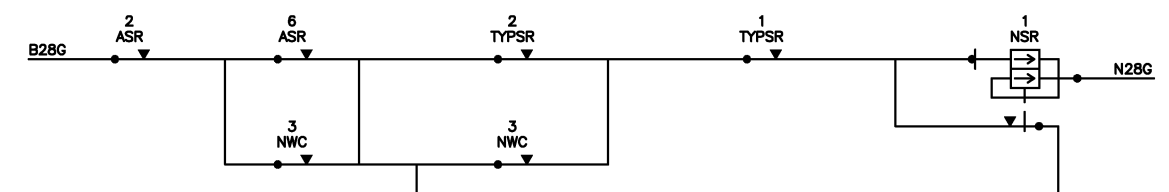
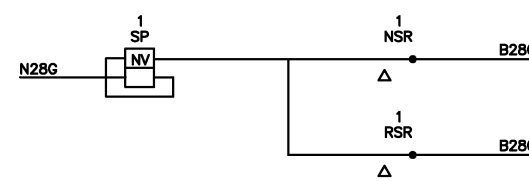
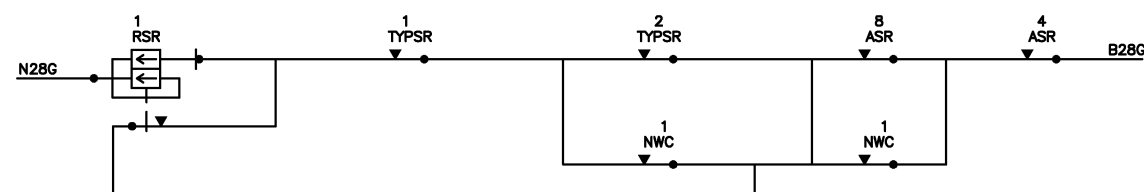
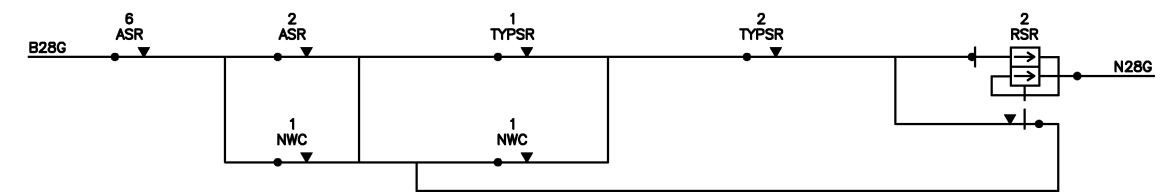
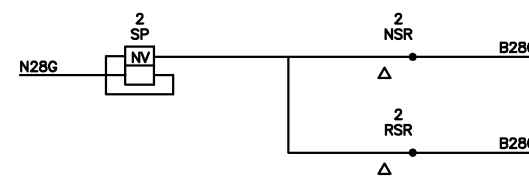
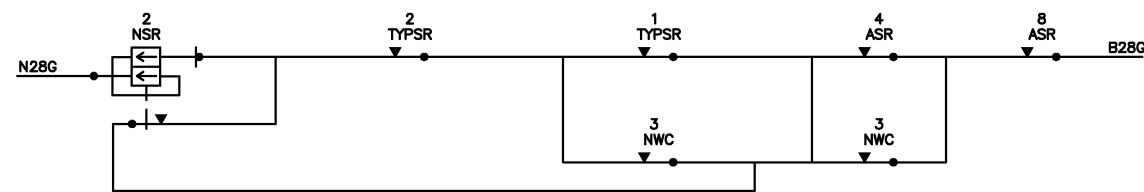
SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
 DIRECTOR DATE

TYPICAL APPROACH STICK CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-035



NOTES:
1. TRACK CIRCUITS TO BE INCLUDED IN THE APPROACH CIRCUIT SHALL BE DETERMINED BY THE CONTRACTOR.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

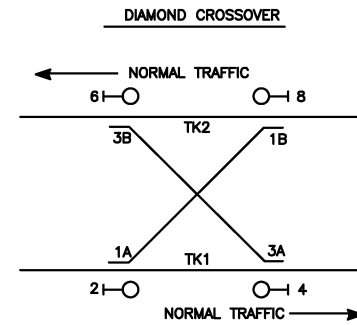
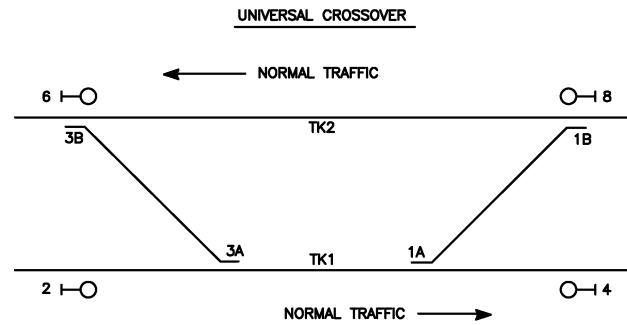
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

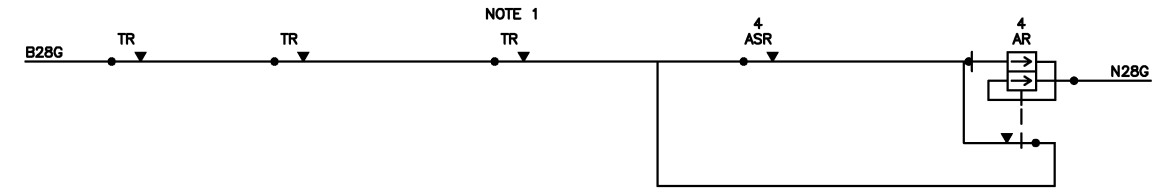
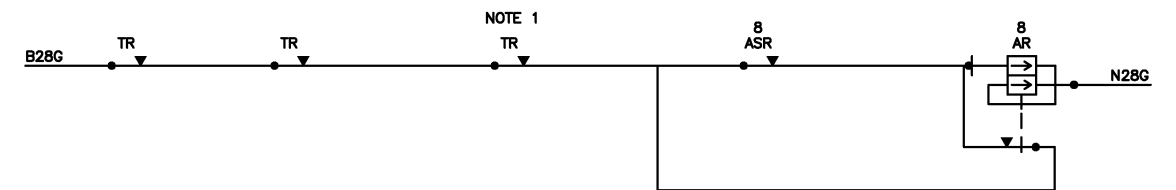
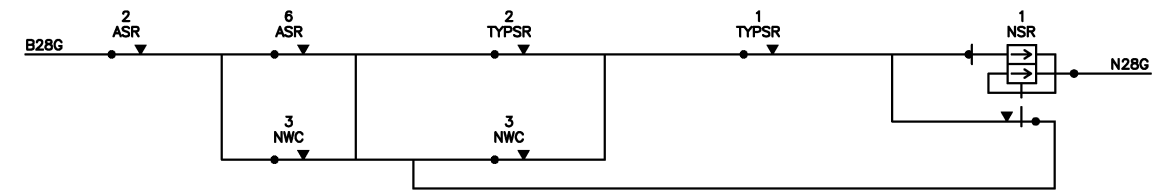
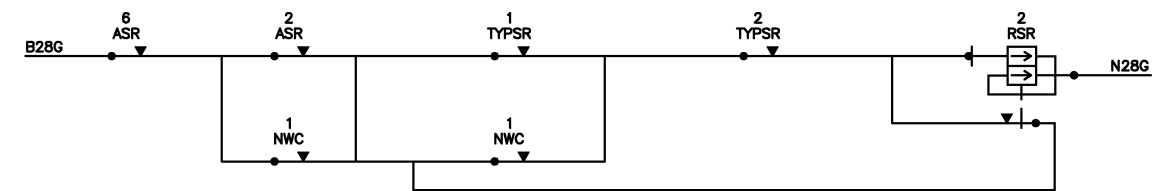
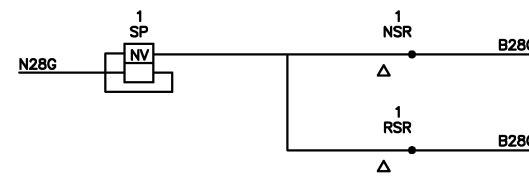
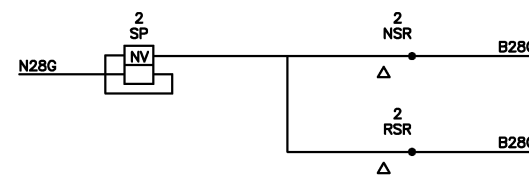
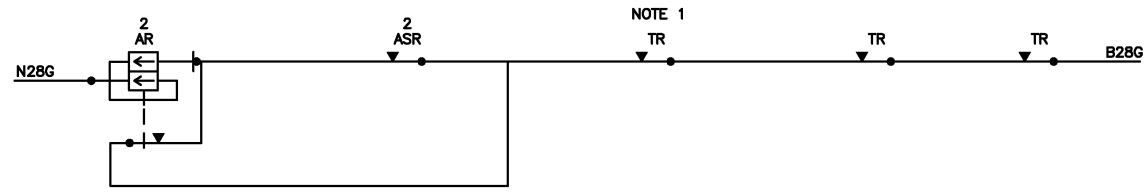
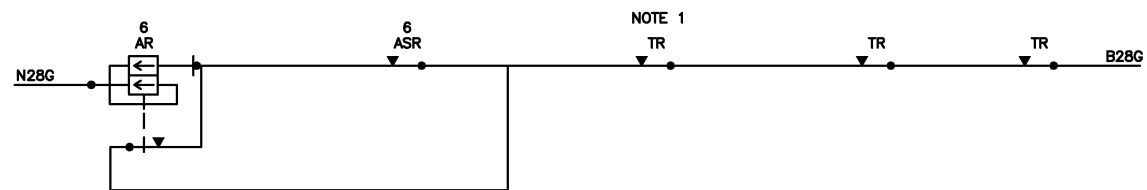
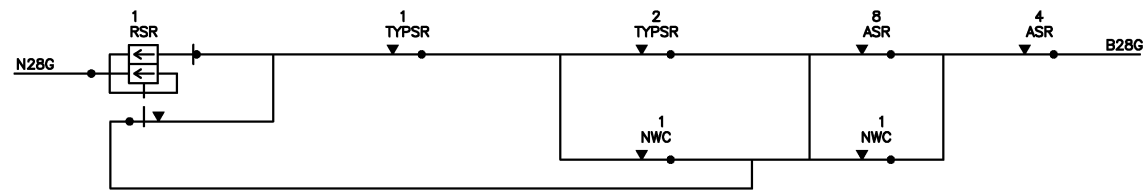
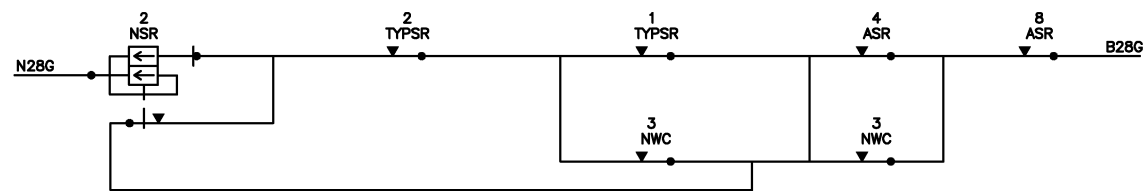
SUBMITTED _____ DATE APPROVED *[Signature]* May 3, 2001 DATE
DIRECTOR

TYPICAL ROUTE STICK & APPROACH CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-036



NOTES:
1. TRACK CIRCUITS TO BE INCLUDED IN THE APPROACH CIRCUIT SHALL BE DETERMINED BY THE CONTRACTOR.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	2-00	DATE	REFERENCE DRAWINGS		REVISIONS	
DRAWN	JMR	2-00	DATE	NUMBER	DESCRIPTION	DATE	BY
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

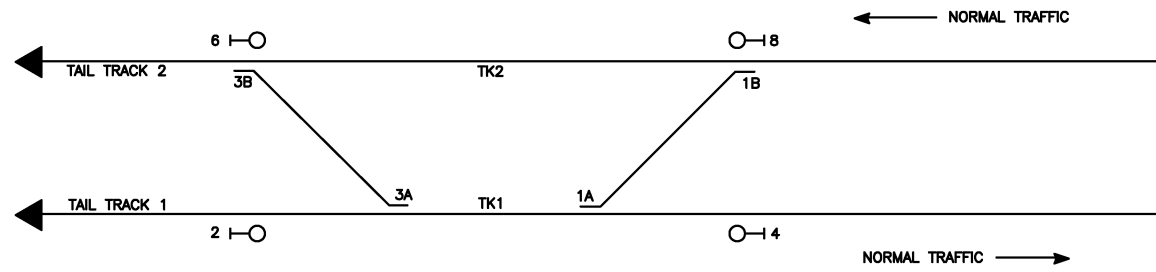
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED DIRECTOR *[Signature]* May 3, 2001 DATE _____

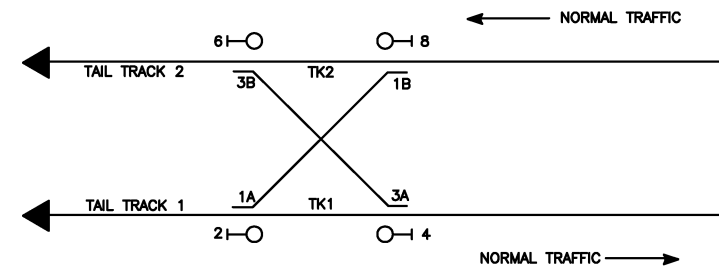
TYPICAL ROUTE STICK & APPROACH CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-037

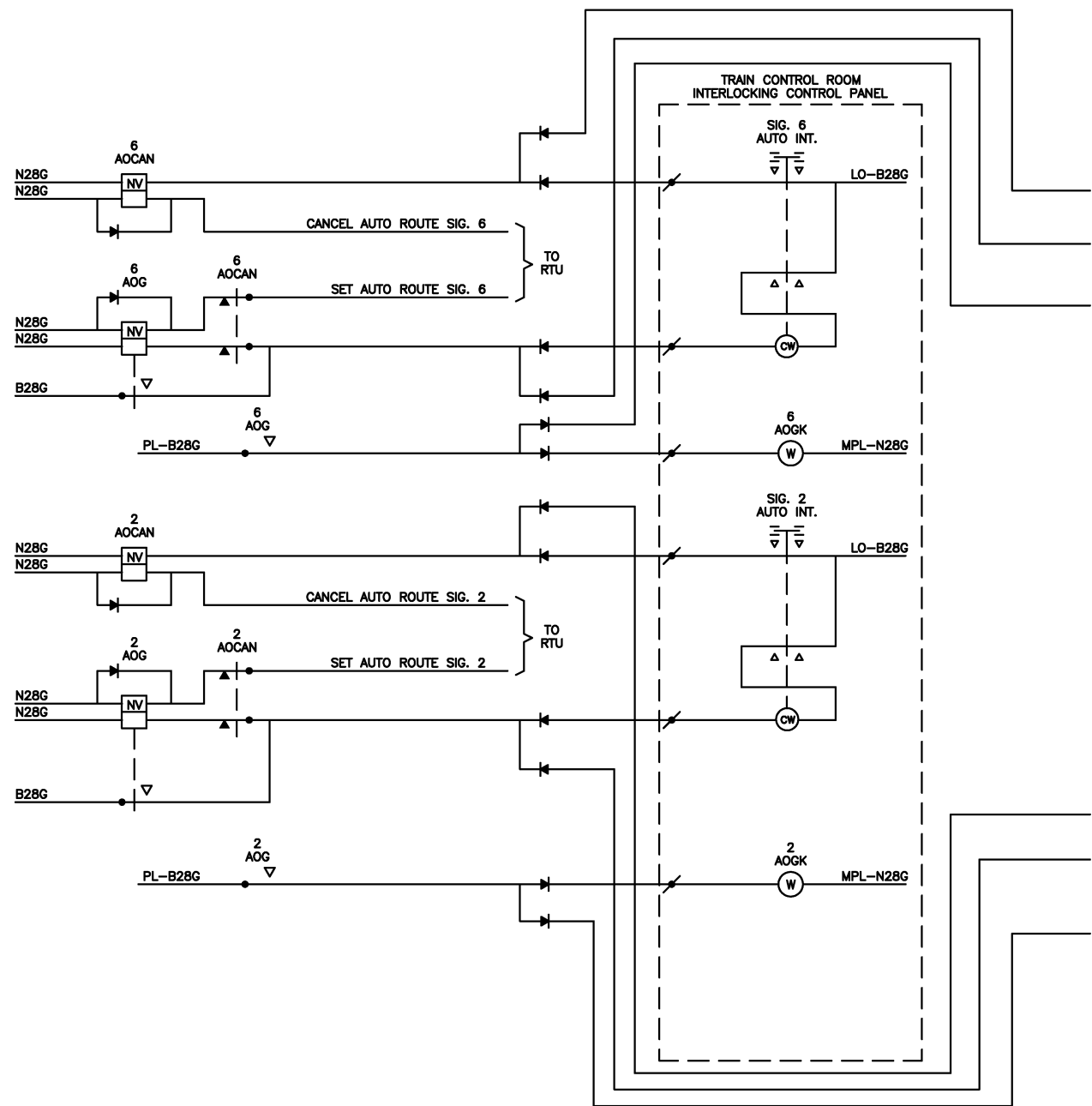
UNIVERSAL CROSSOVER



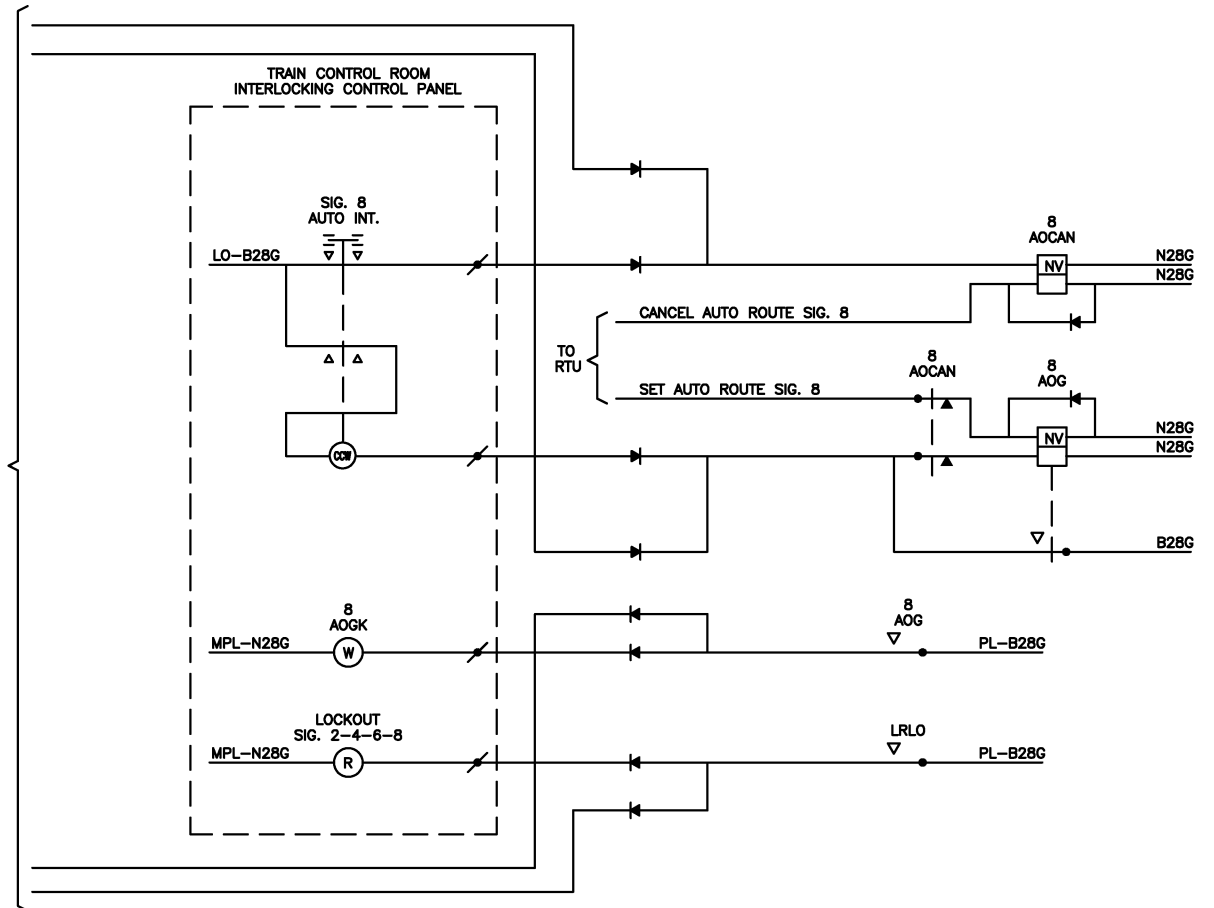
DIAMOND CROSSOVER



NOTES:
1. ALL RELAYS SHOWN ON THIS DRAWING TO BE REMOVED WHEN LINE IS EXTENDED.



TO SIMILAR PUSHBUTTON AND INDICATOR LIGHTS ON DISPATCHER'S INTERLOCKING CONTROL PANEL



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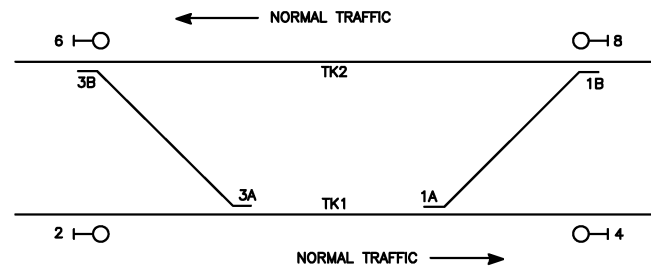
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

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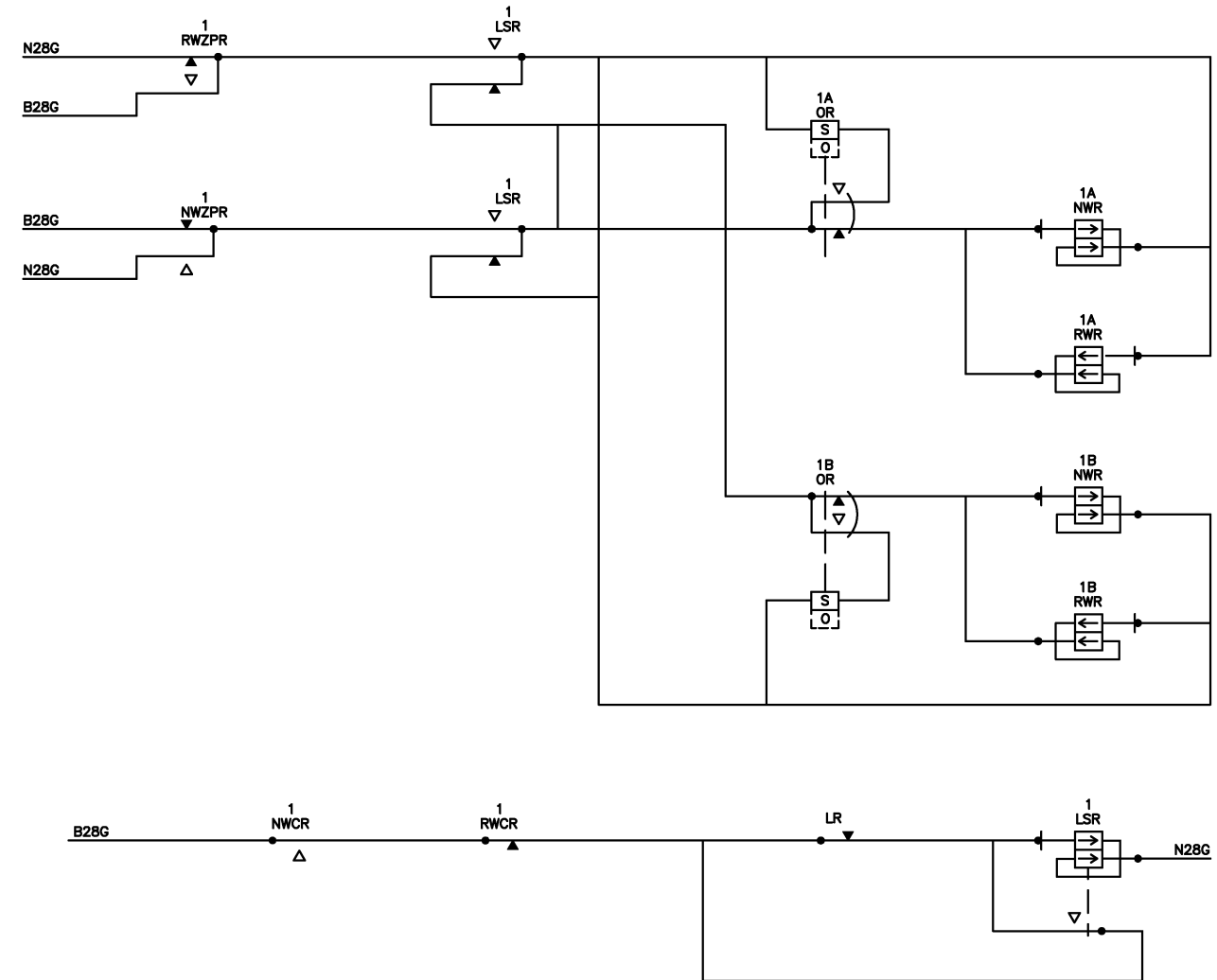
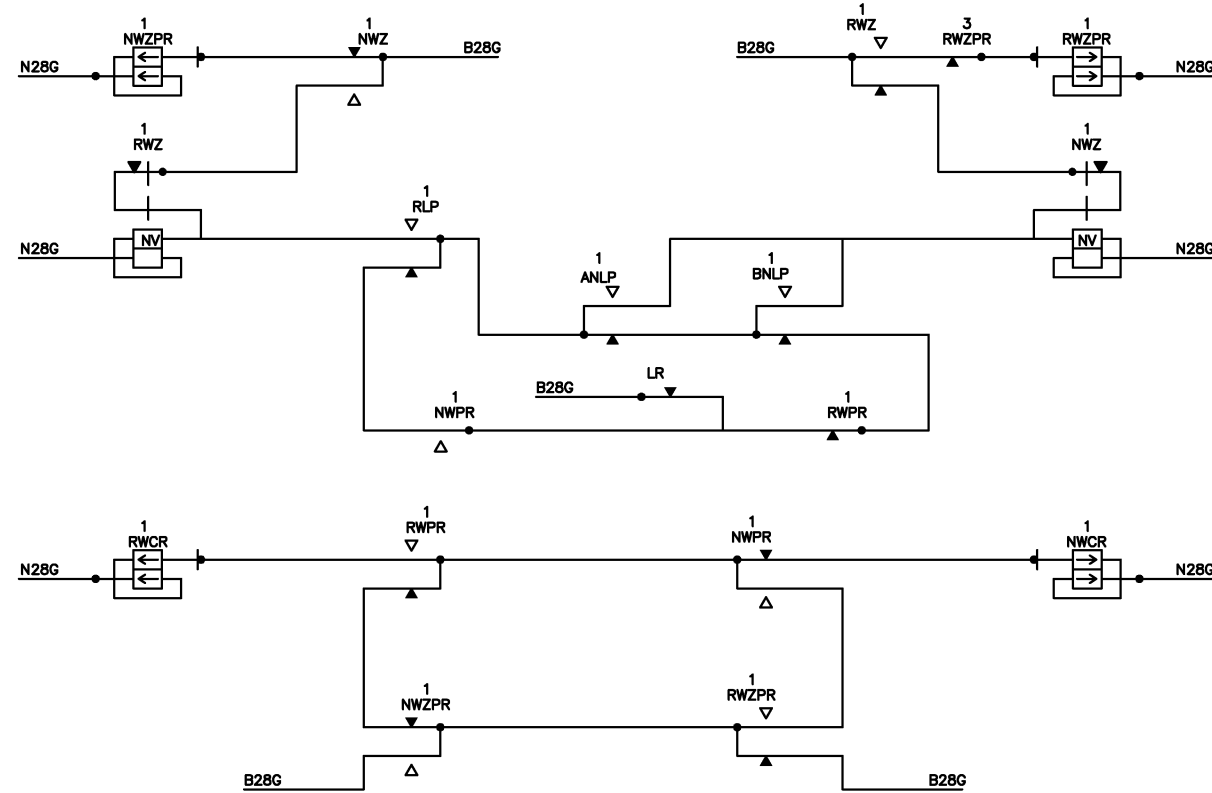
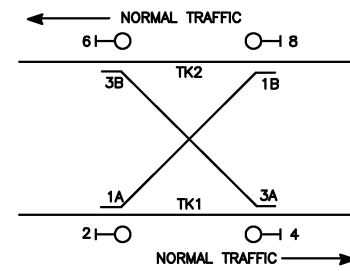
TYPICAL AUTOMATIC SIGNAL OPERATION
SELECTION CIRCUITS - SIGNALS 2, 6 & 8

SCALE NONE DRAWING NO. ST-TC-I-039

UNIVERSAL CROSSOVER



DIAMOND CROSSOVER



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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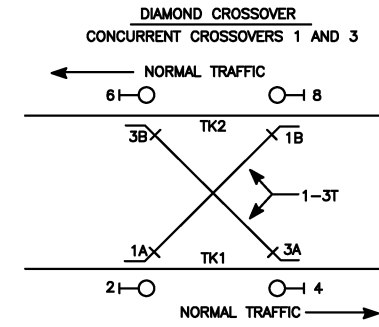
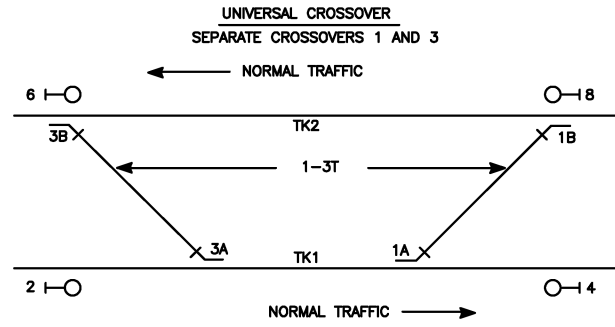
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

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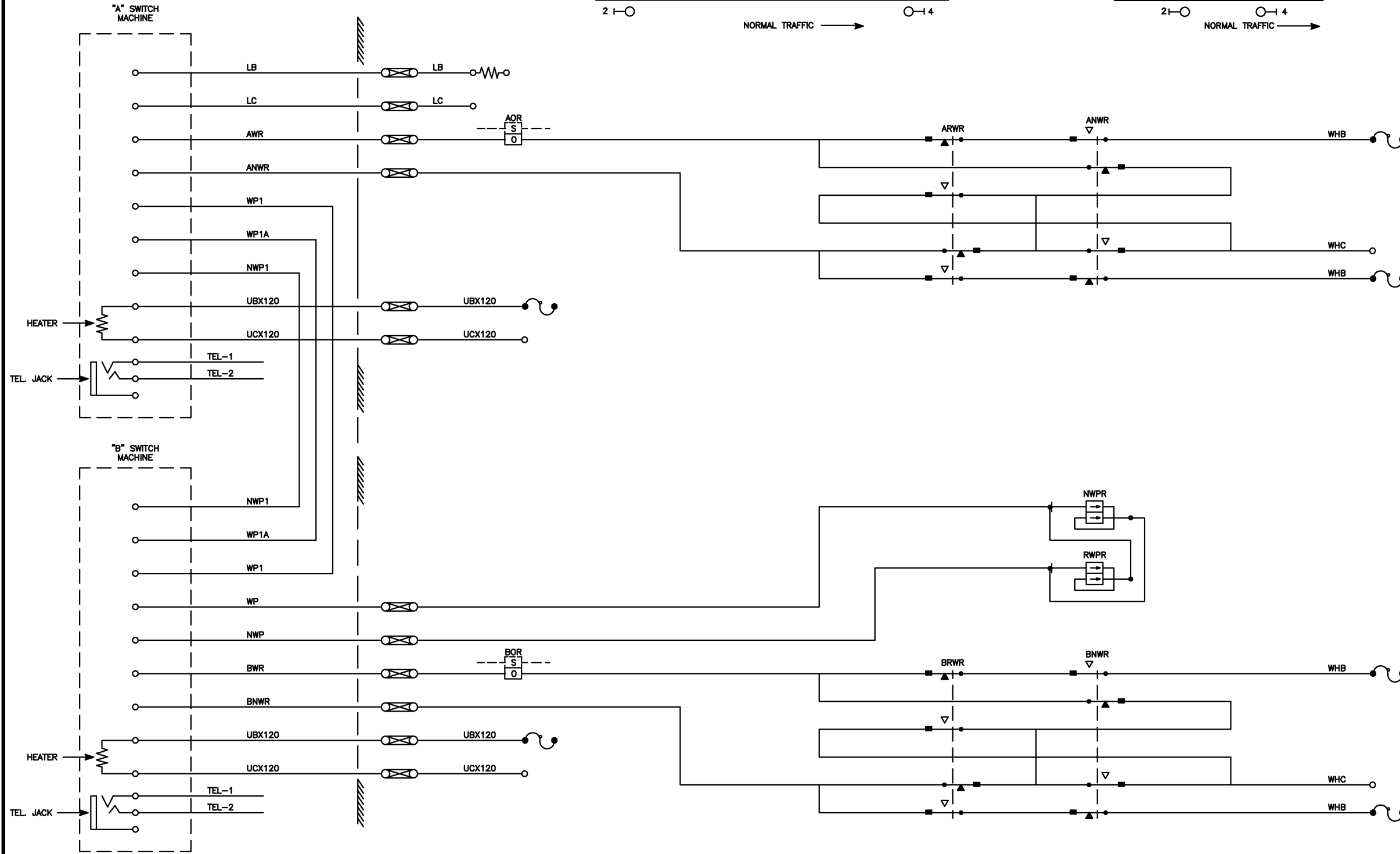
SUBMITTED _____ DATE _____ APPROVED *pejpat* DIRECTOR May 3, 2001 DATE

TYPICAL SWITCH CONTROL & CORRESPONDENCE
CIRCUITS - CROSSOVER 1

SCALE NONE DRAWING NO. ST-TC-1-041



NOTES:
1. CIRCUITS SHOWN FOR SINGLE CROSSOVER; SIMILAR CIRCUIT REQUIRED FOR SECOND CROSSOVER.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

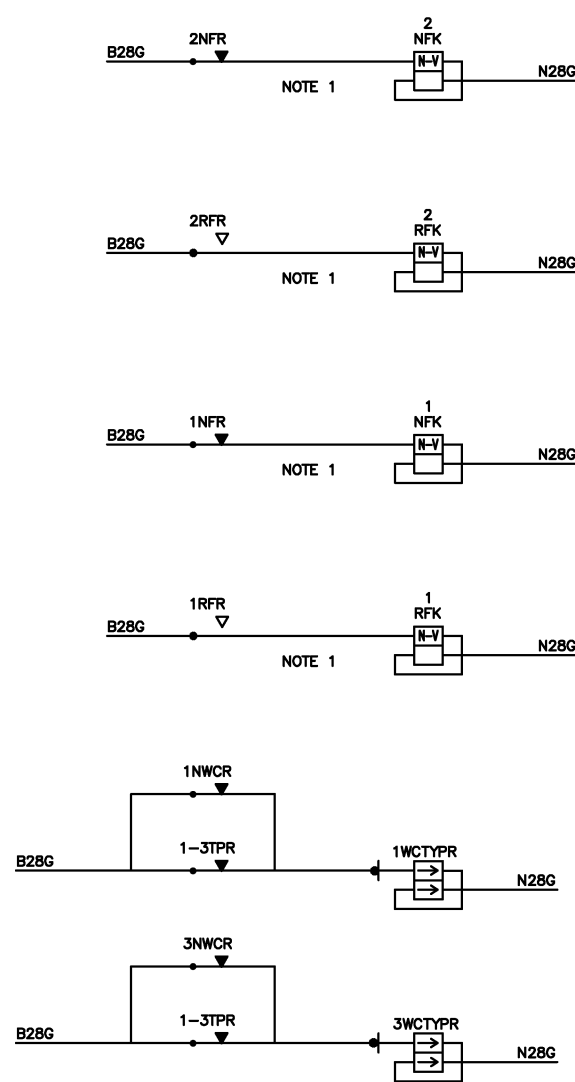
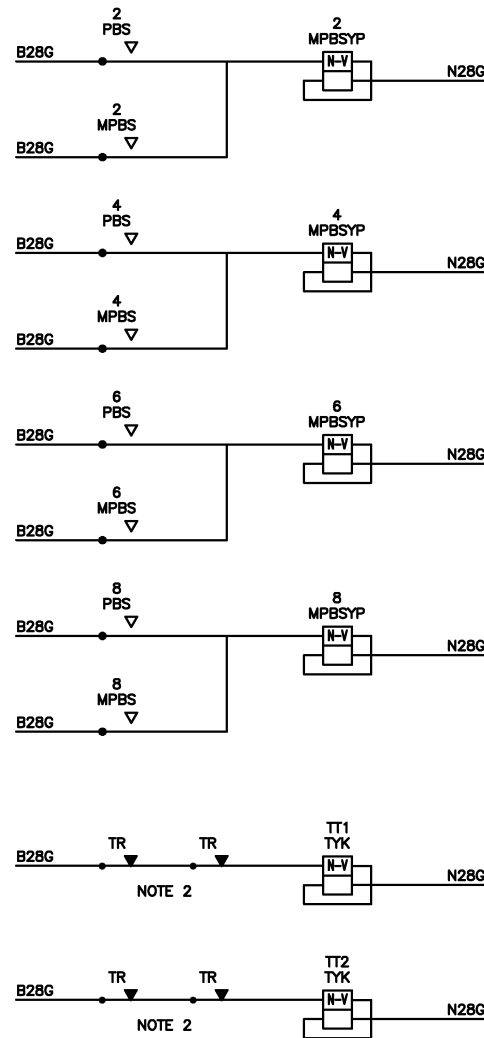
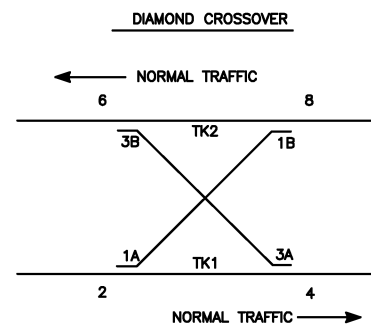
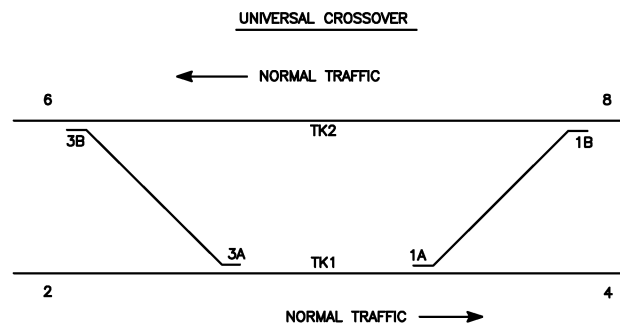
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UPDATED _____	DATE				

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

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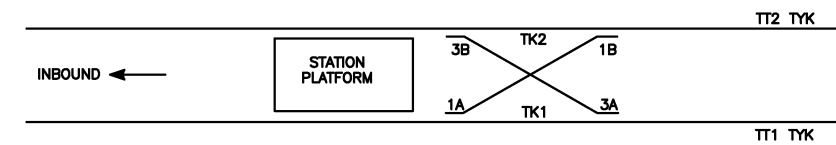
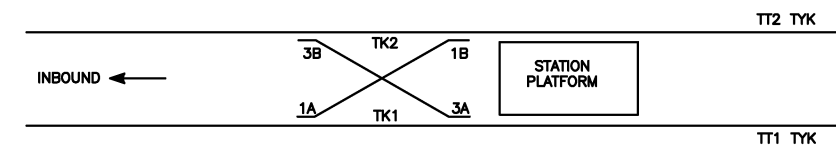
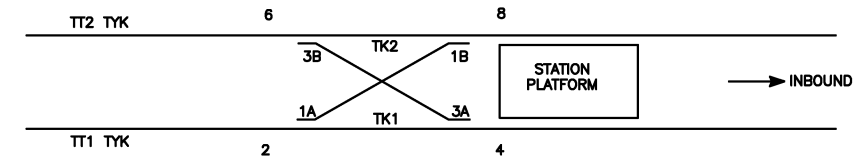
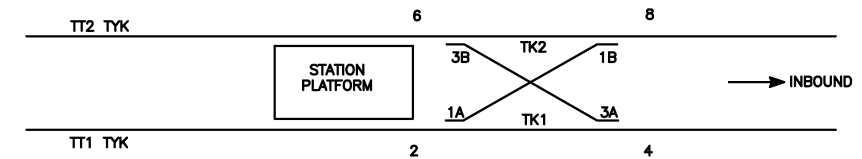
TYPICAL SWITCH OPERATING & REPEATER CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-043



NOTES:

1. FK RELAYS ARE REQUIRED AT ALL CROSSOVER LOCATIONS. THE REMAINING RELAYS ON THIS PAGE ARE ONLY REQUIRED AT TERMINALS.
2. FOR TERMINAL ARRANGEMENTS HAVING THE "TURNBACK" CROSSOVERS LOCATED OUTBOUND OF THE TERMINAL PLATFORM, THE TT1 & TT2 TYK CIRCUITS SHALL INCLUDE ALL TRACKS FROM THE "INBOUND" TERMINAL INTERLOCKING SIGNALS TO THE BUMPING POST (OR THE NEXT INTERLOCKING); FOR TERMINAL ARRANGEMENTS HAVING THE TERMINAL PLATFORM LOCATED ON THE TAIL TRACKS, THE TT1 & TT2 TYK CIRCUITS SHALL INCLUDE ALL TRACKS FROM THE "INBOUND" TERMINAL INTERLOCKING SIGNALS TO THE BUMPING POST OR THE NEXT INTERLOCKING OR TAIL-TRACK STORAGE HOLD-OUT SIGNALS, AS APPLICABLE.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED	GAH	11-00
DRAWN	JMR	11-00
CHECKED		
APPROVED		
UPDATED		

REFERENCE DRAWINGS	
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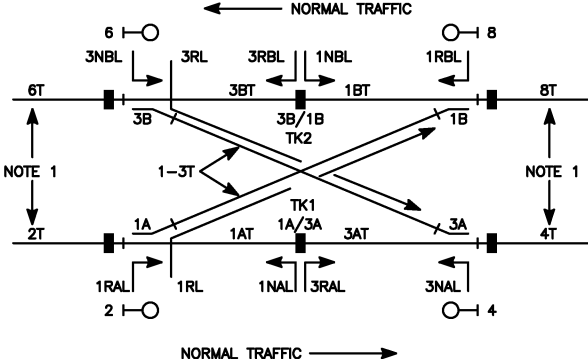
REVISIONS		
DATE	BY	DESCRIPTION
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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

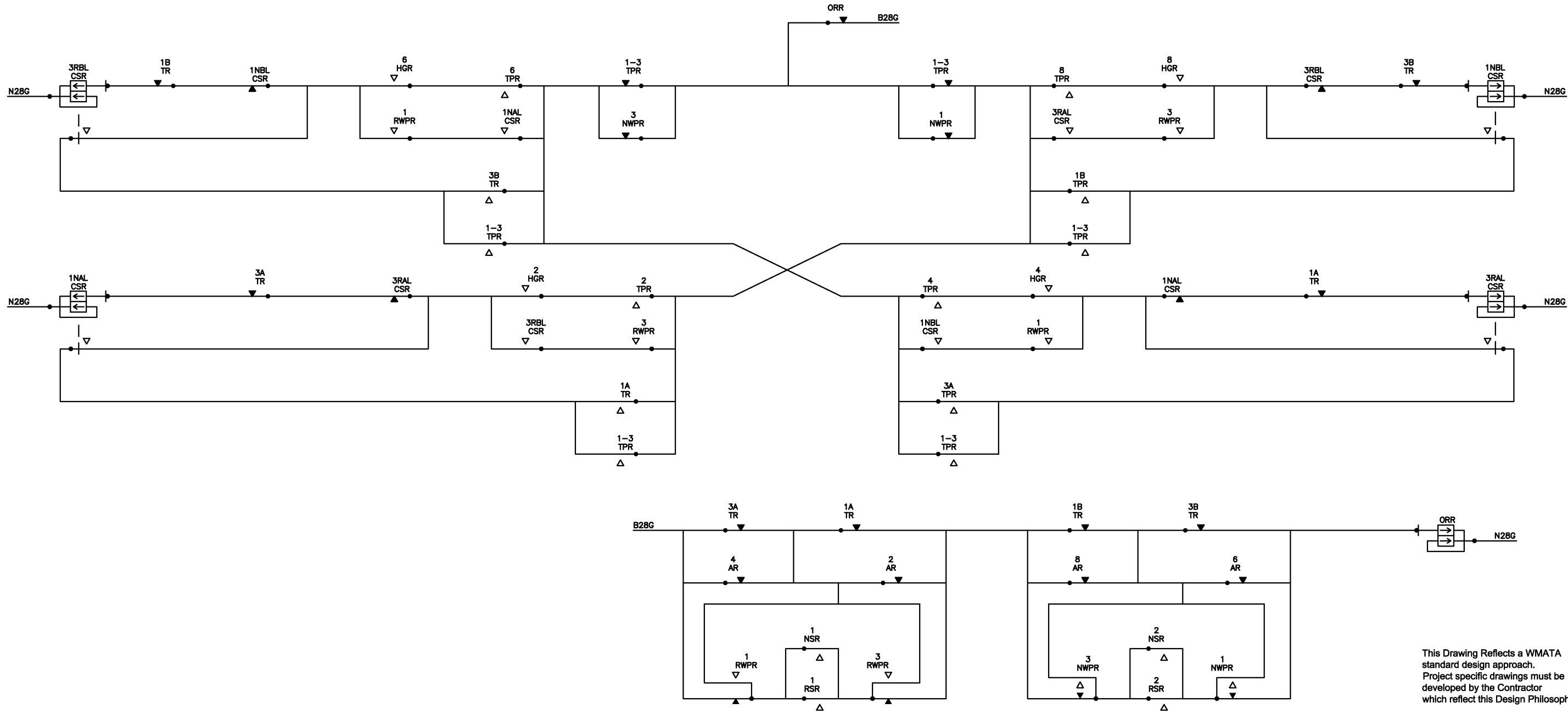
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

SUBMITTED _____ DATE _____ APPROVED *respat* DIRECTOR May 3, 2001 DATE _____

TYPICAL REPEATER CIRCUITS	
SCALE NONE	DRAWING NO. ST-TC-1-045



NOTES:
 1. TRACK CIRCUITS LABELED FOR REFERENCE ONLY, ACTUAL NAMES OF TRACK CIRCUITS SHALL BE USED AS SHOWN ON THE CONTRACTOR'S APPROVED TRACK PLAN.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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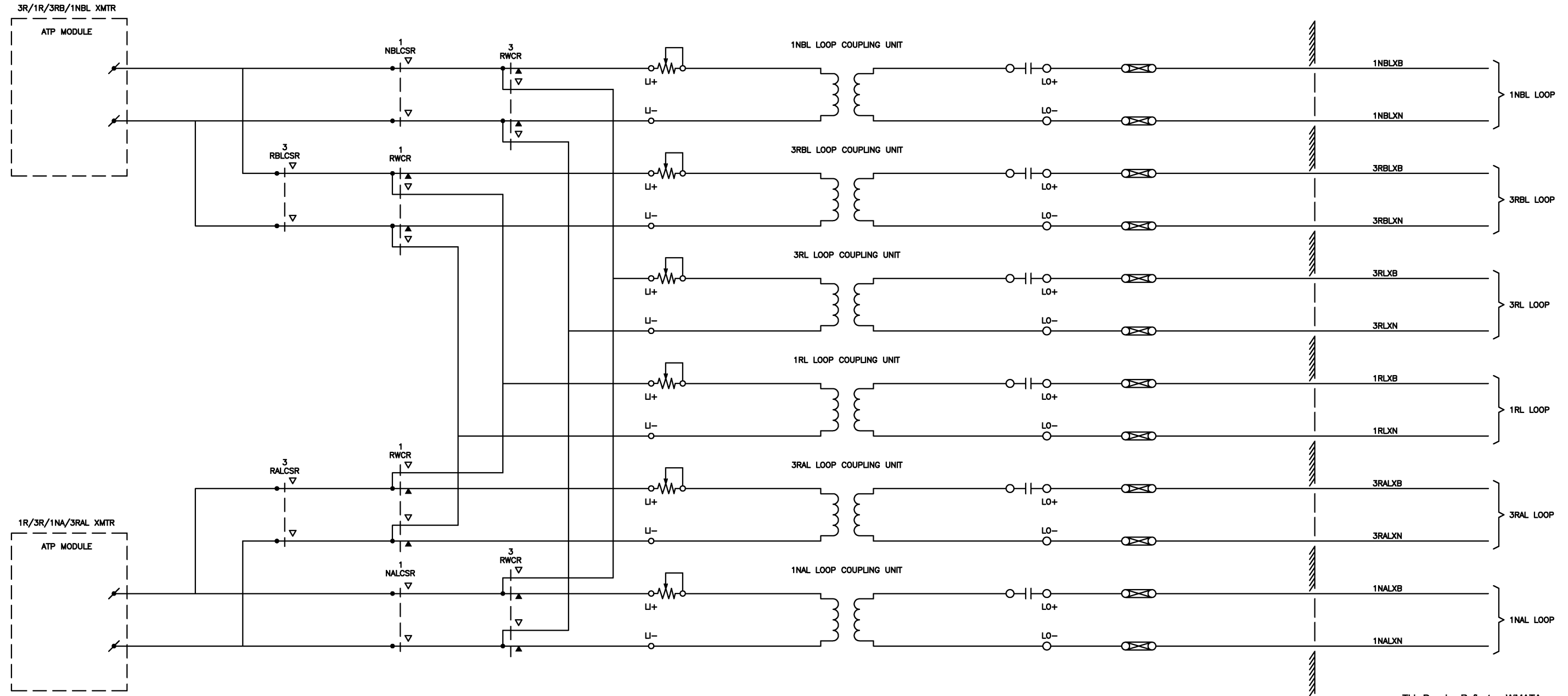
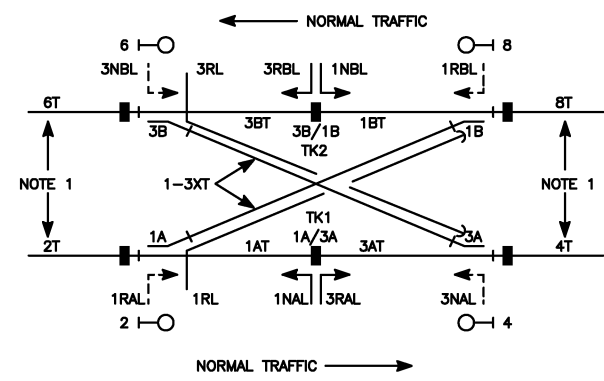
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
OFFICE OF SYSTEMS

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TYPICAL SPEED COMMAND LOOP CONTROL STICK CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-046

NOTE: 1. ALL WIRE TWISTED PAIR.
SEE DWG. I-101.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

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WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

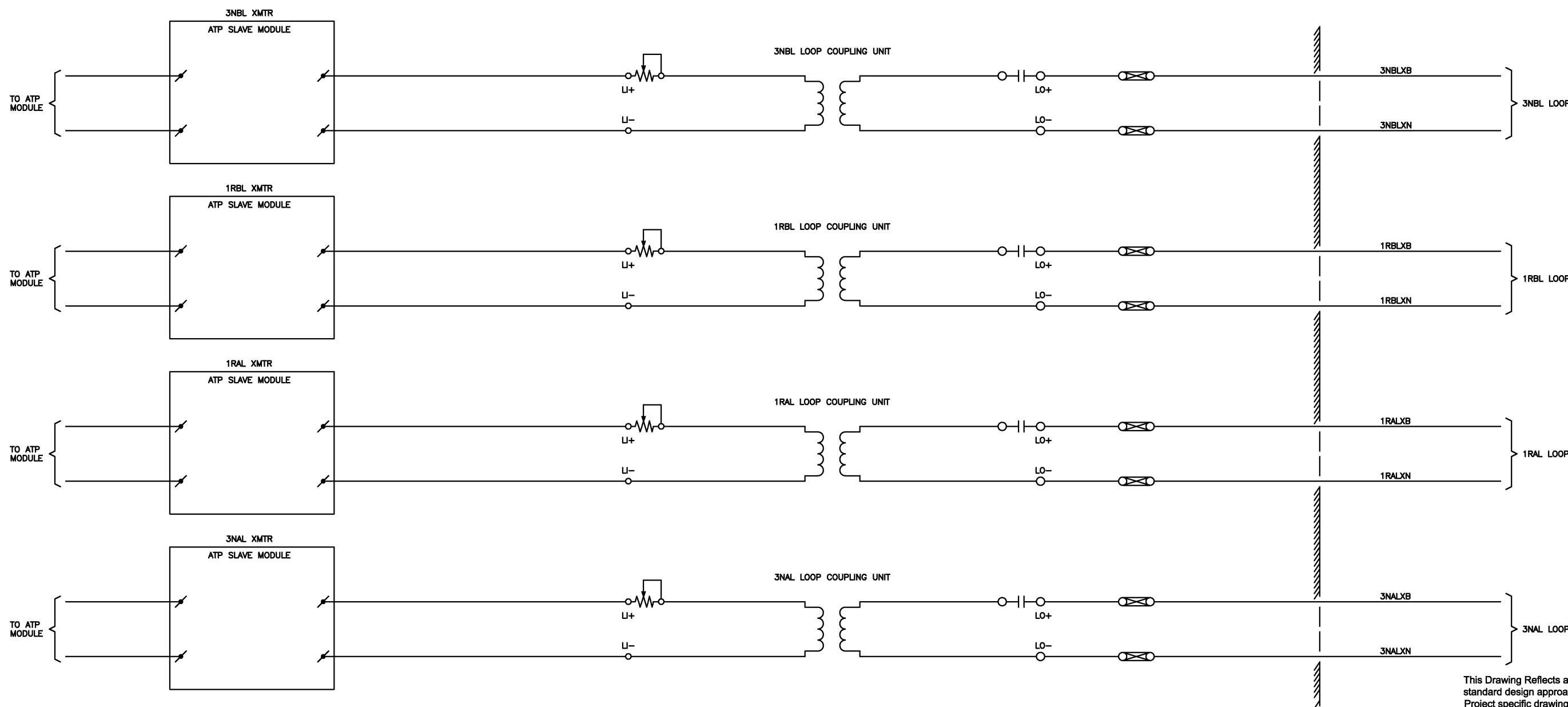
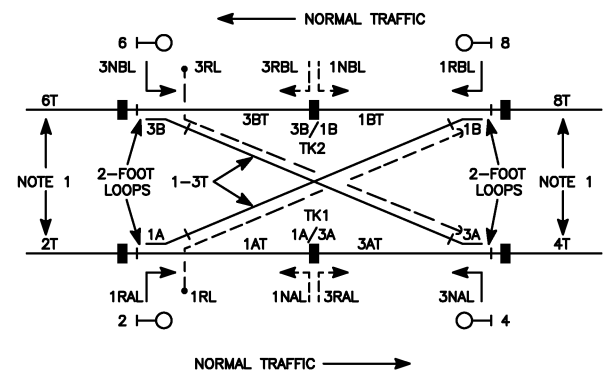
DEPARTMENT OF TRANSIT SYSTEM DEVELOPMENT
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**TYPICAL SPEED COMMAND LOOP SELECTION CIRCUITS
4 FT. LOOPS AND CROSSOVER LOOPS**

SCALE NONE DRAWING NO. ST-TC-I-047

NOTE: 1. ALL WIRE TWISTED PAIR.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

DESIGNED <u>GAM</u> 11-00 DATE	<table border="1"> <thead> <tr> <th colspan="2">REFERENCE DRAWINGS</th> </tr> <tr> <th>NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	REFERENCE DRAWINGS		NUMBER	DESCRIPTION							<table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> <tr> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>08/2001</td> <td>Revised and issued by the Authority</td> </tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		REVISIONS		DATE	DESCRIPTION	08/2001	Revised and issued by the Authority						
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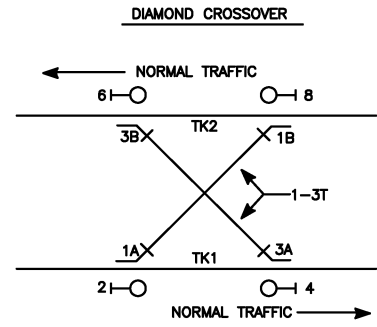
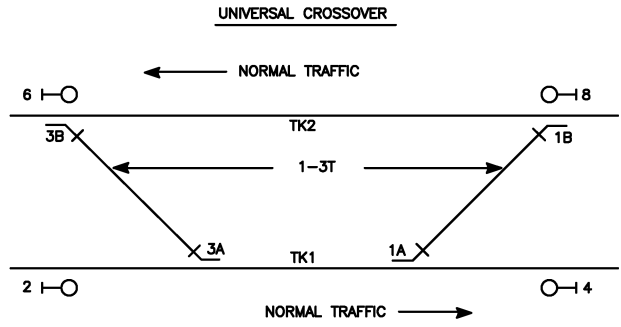
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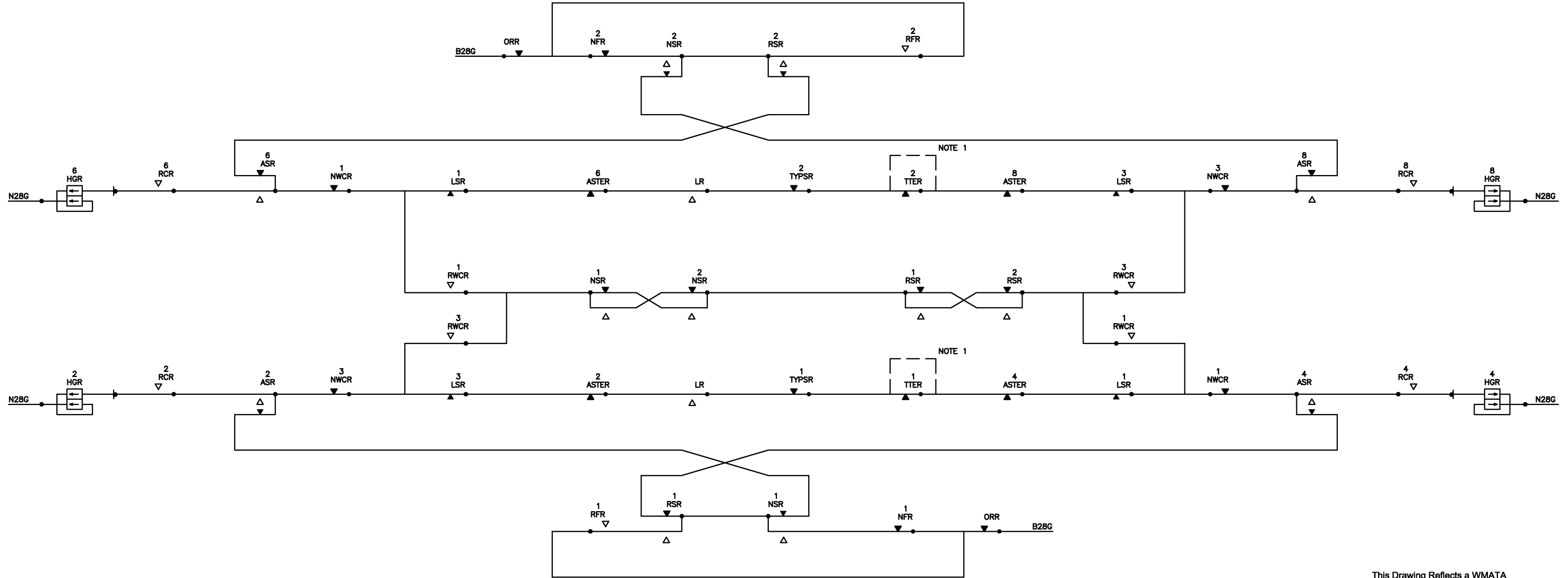
SUBMITTED _____ DATE _____ APPROVED *[Signature]* May 3, 2001
DIRECTOR DATE

TYPICAL TRACK AND SPEED COMMAND LOOP CIRCUITS - 2 FOOT LOOPS

SCALE NONE DRAWING NO. ST-TC-1-048



NOTES:
 1. TER BACK CONTACT IS REQUIRED AT AUTOMATIC INTERLOCKINGS. WHEN THE INTERLOCKING IS AT A TERMINAL STATION, PROVISION SHALL BE MADE TO JUMPER OUT THIS TER CONTACT WHEN THE LINE IS EXTENDED AND THE INTERLOCKING IS NO LONGER AUTOMATIC.



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

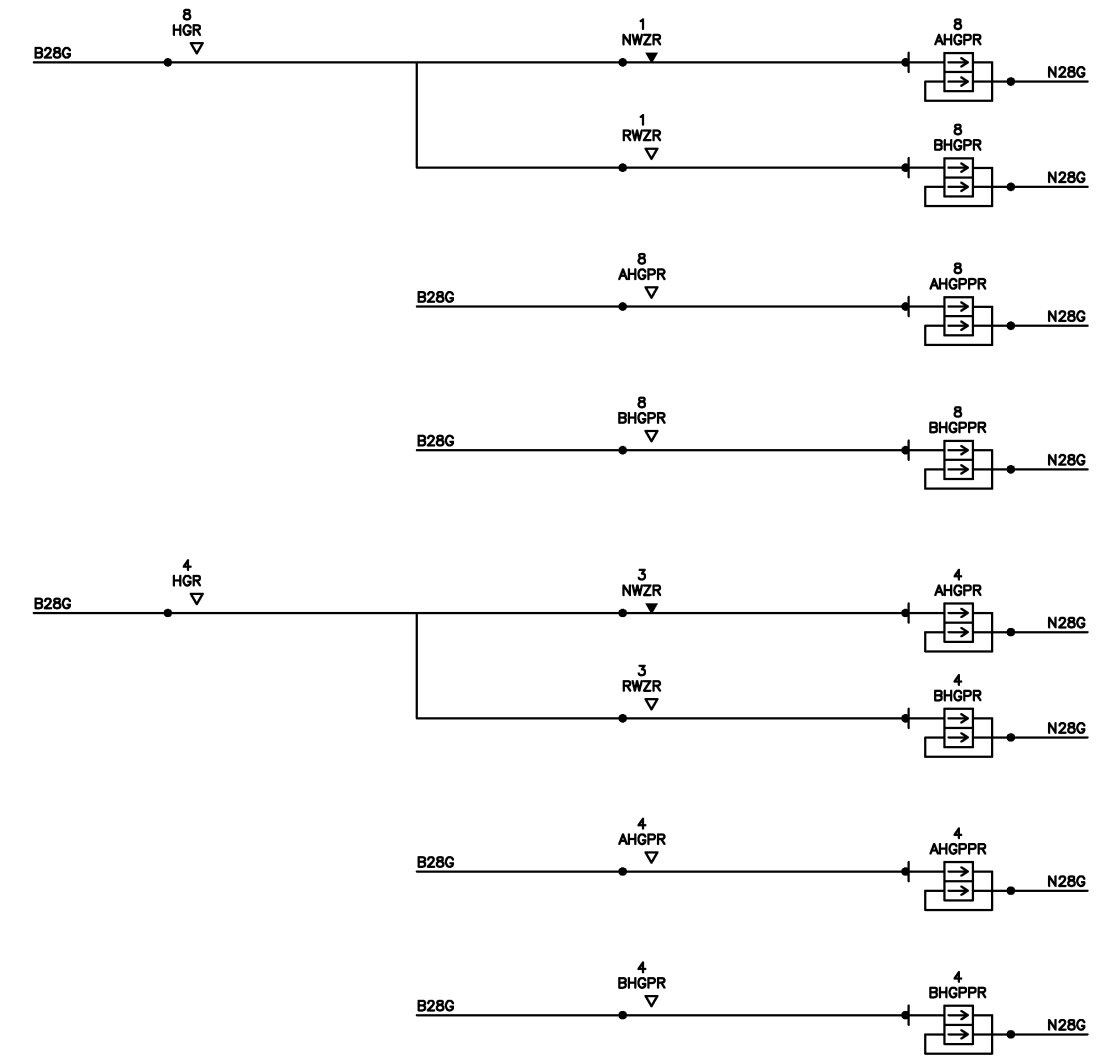
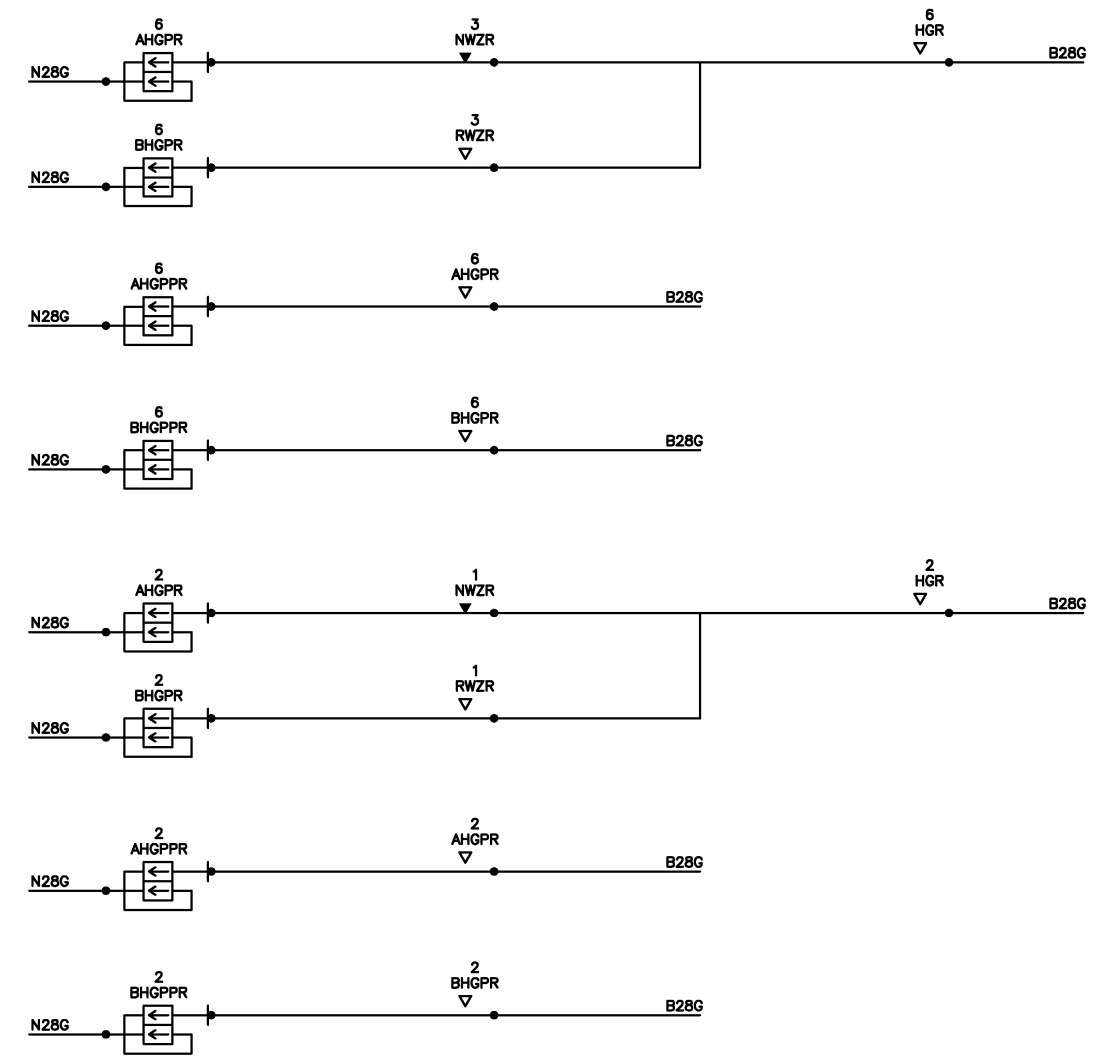
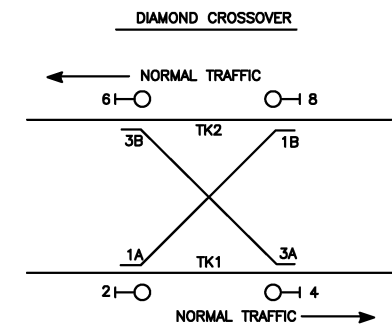
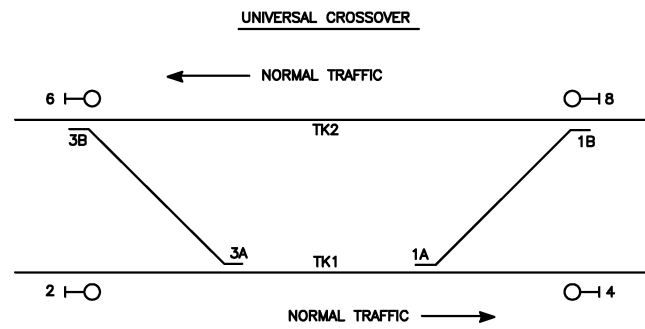
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**TYPICAL SIGNAL CONTROL CIRCUITS
 (CROSSOVER INTERLOCKINGS)**

SCALE NONE DRAWING NO. ST-TC-1-061



This Drawing Reflects a WMATA standard design approach. Project specific drawings must be developed by the Contractor which reflect this Design Philosophy

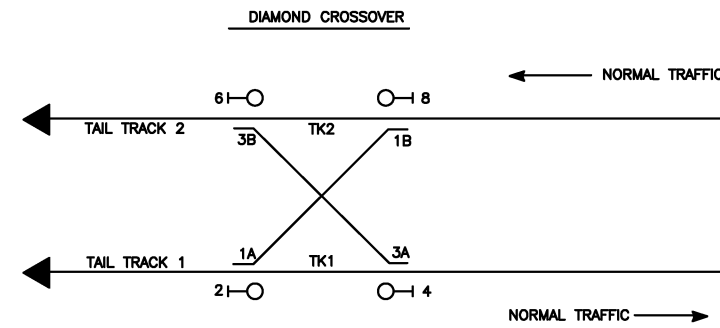
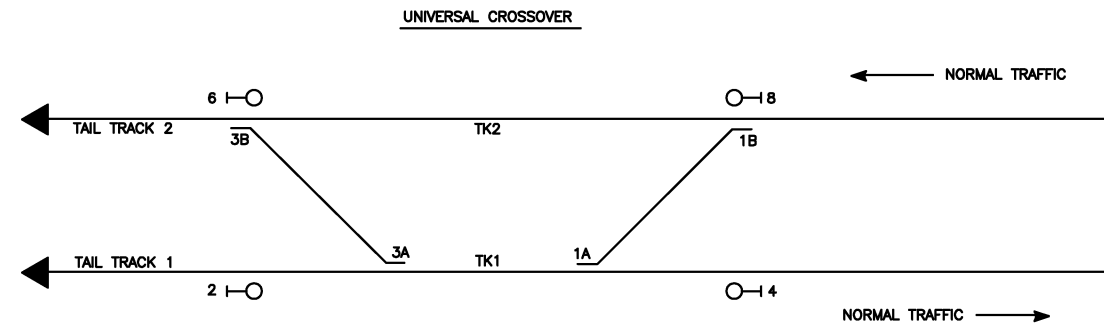
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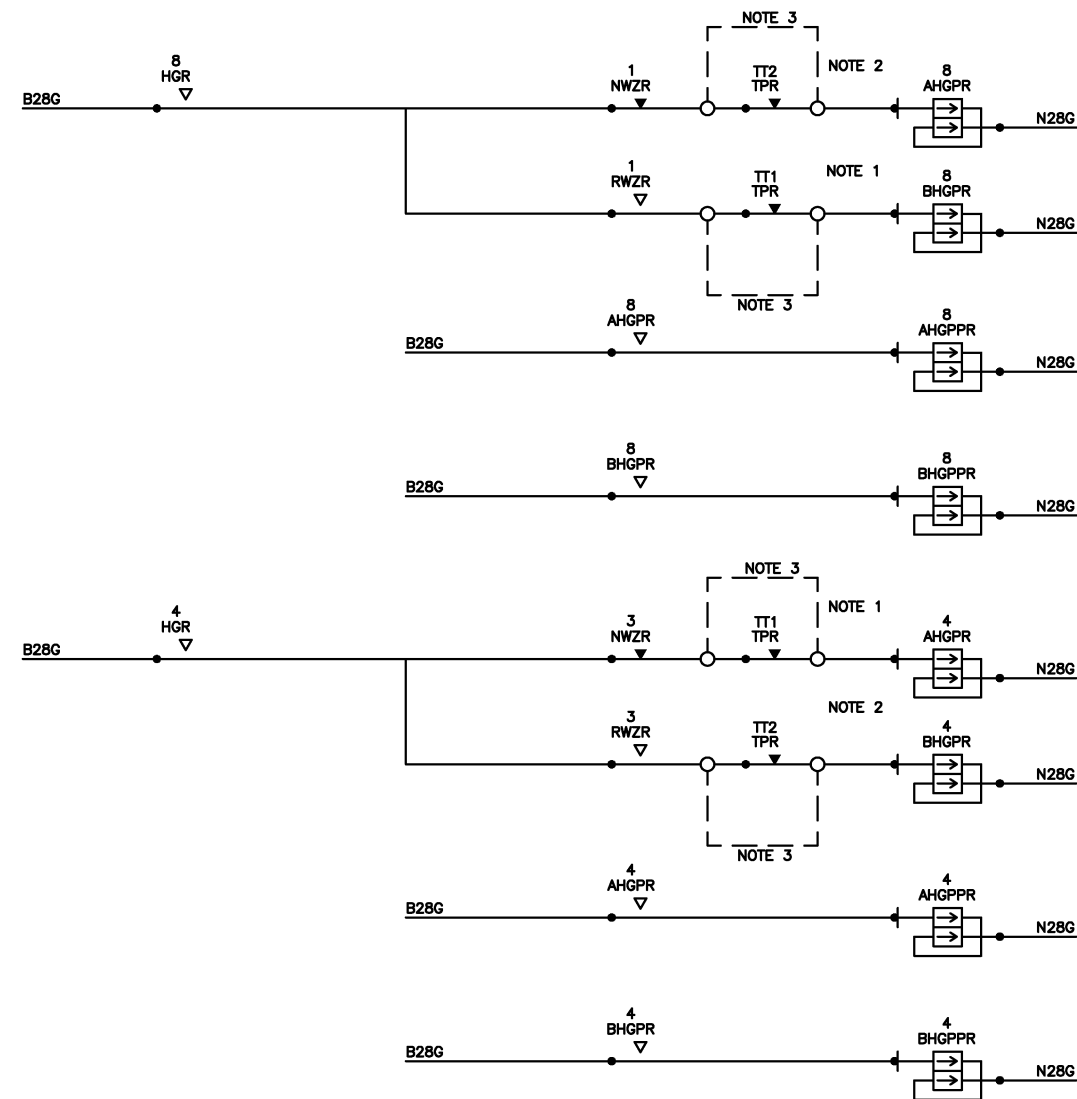
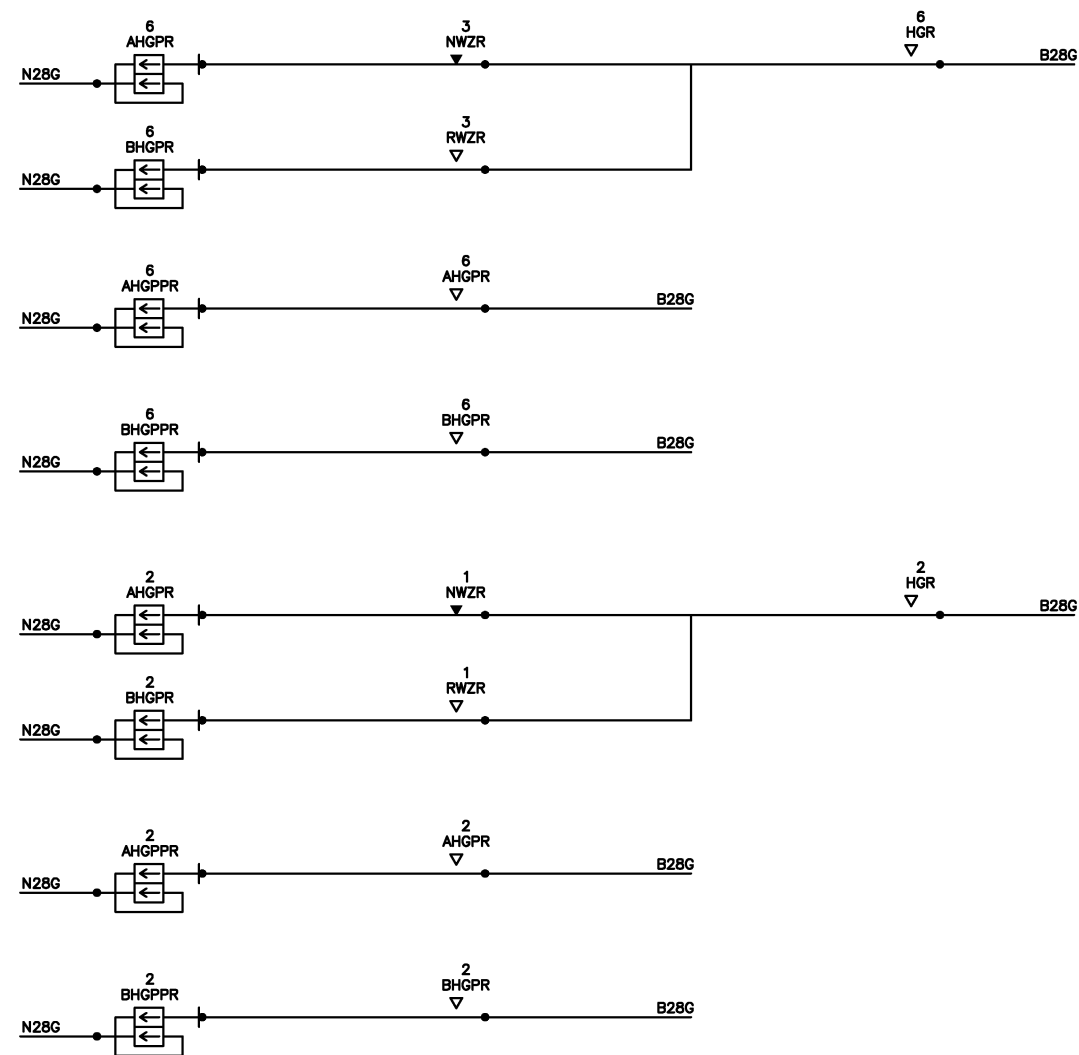
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TYPICAL SIGNAL REPEATER CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-062



- NOTES:
1. TPR SHALL INCLUDE ALL TRACK CIRCUITS FROM SIGNAL 2 TO BUMPING POST ON TRACK 1.
 2. TPR SHALL INCLUDE ALL TRACK CIRCUITS FROM SIGNAL 6 TO BUMPING POST ON TRACK 2.
 3. THE CONTRACTOR SHALL INCLUDE FACILITIES FOR THE FUTURE JUMPING OUT OF THESE CONTACTS WHEN ROUTE IS EXTENDED.



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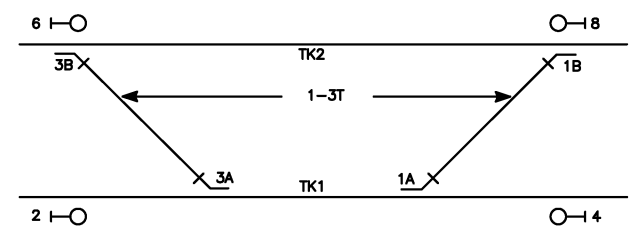
APPROVED *[Signature]* May 3, 2001
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TYPICAL SIGNAL REPEATER CIRCUITS

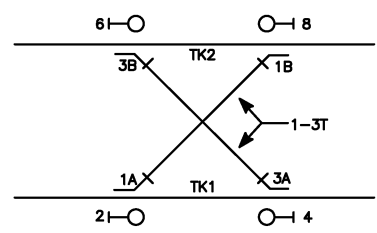
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DRAWING NO. ST-TC-1-064

UNIVERSAL CROSSOVER

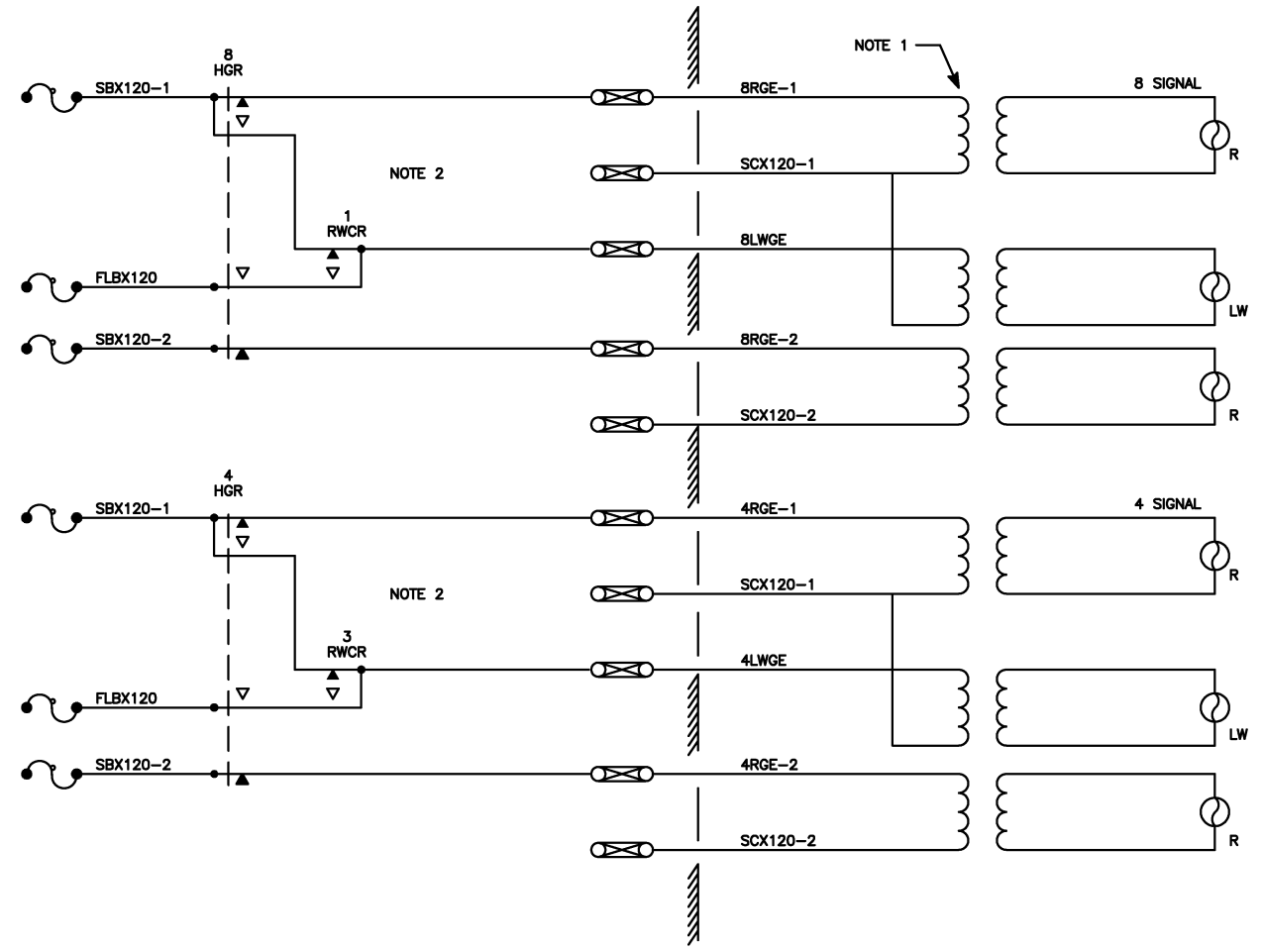
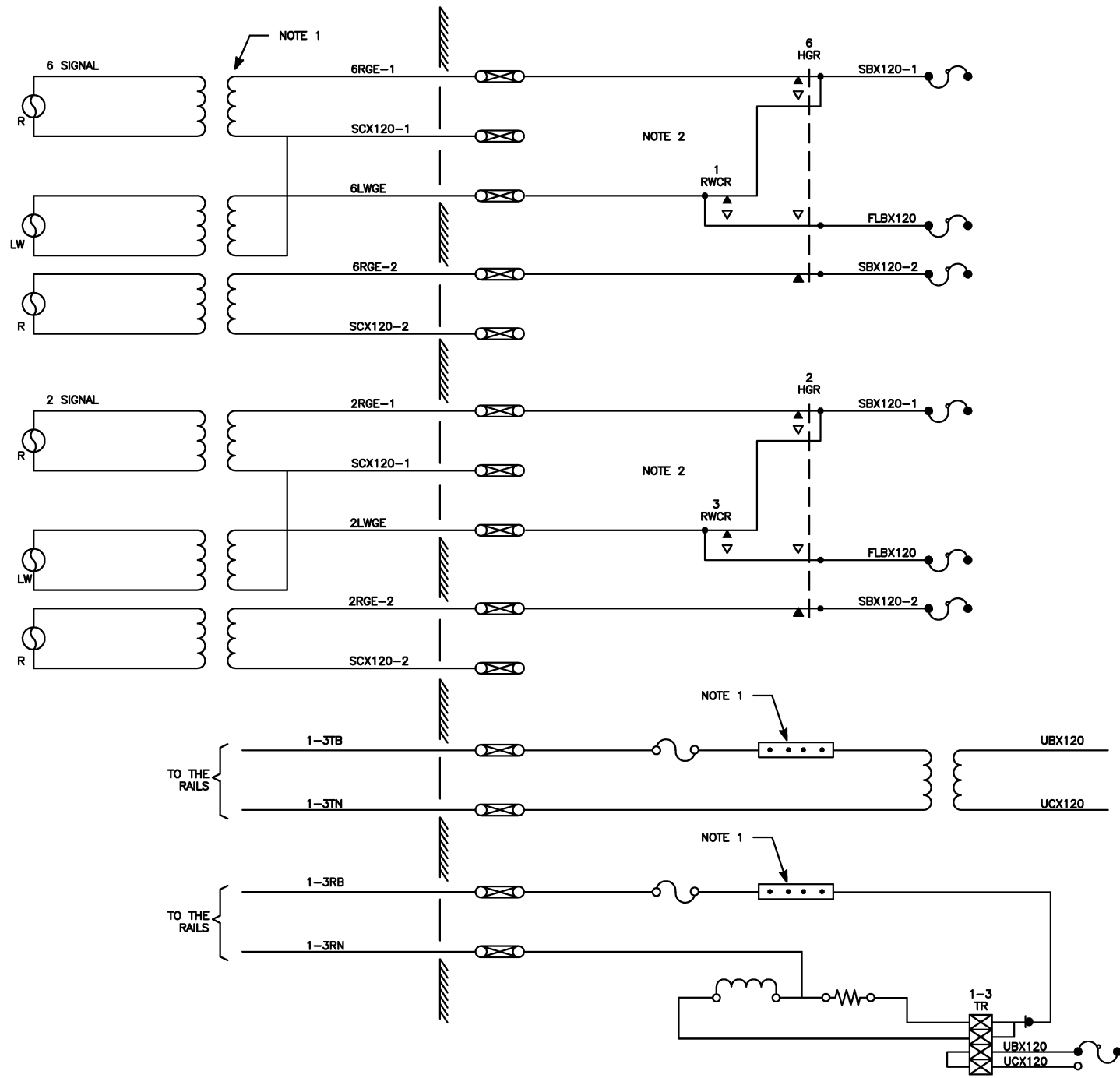


DIAMOND CROSSOVER



NOTES:

1. TRANSFORMER LOCATED IN SIGNAL SHALL HAVE VARIOUS TAPS ON THE INPUT AND OUTPUT. ALSO RESISTORS FOR THE FEED AND RELAY END OF THE AC TRACK CIRCUIT SHALL HAVE VARIOUS TAPS.
2. THE CONTRACTOR SHALL USE CONTACTS ON EITHER VITAL SWITCH REPEATER OR VITAL SWITCH CORRESPONDENCE RELAYS TO DETERMINE WHETHER THE LUNAR WHITE ASPECT IS FLASHING OR STEADY, BUT THE SAME TYPE OF RELAY (WPR OR WCR) SHALL BE USED EXCLUSIVELY THROUGHOUT THE CONTRACT AREA FOR THIS PURPOSE.
3. THE RELAY CONTACTS OF THE HGR RELAYS AND REPEATERS USED FOR SIGNAL LIGHTING SHALL BE RATED FOR A MINIMUM OF 150VAC OPERATION AT TWO (2) AMPS.



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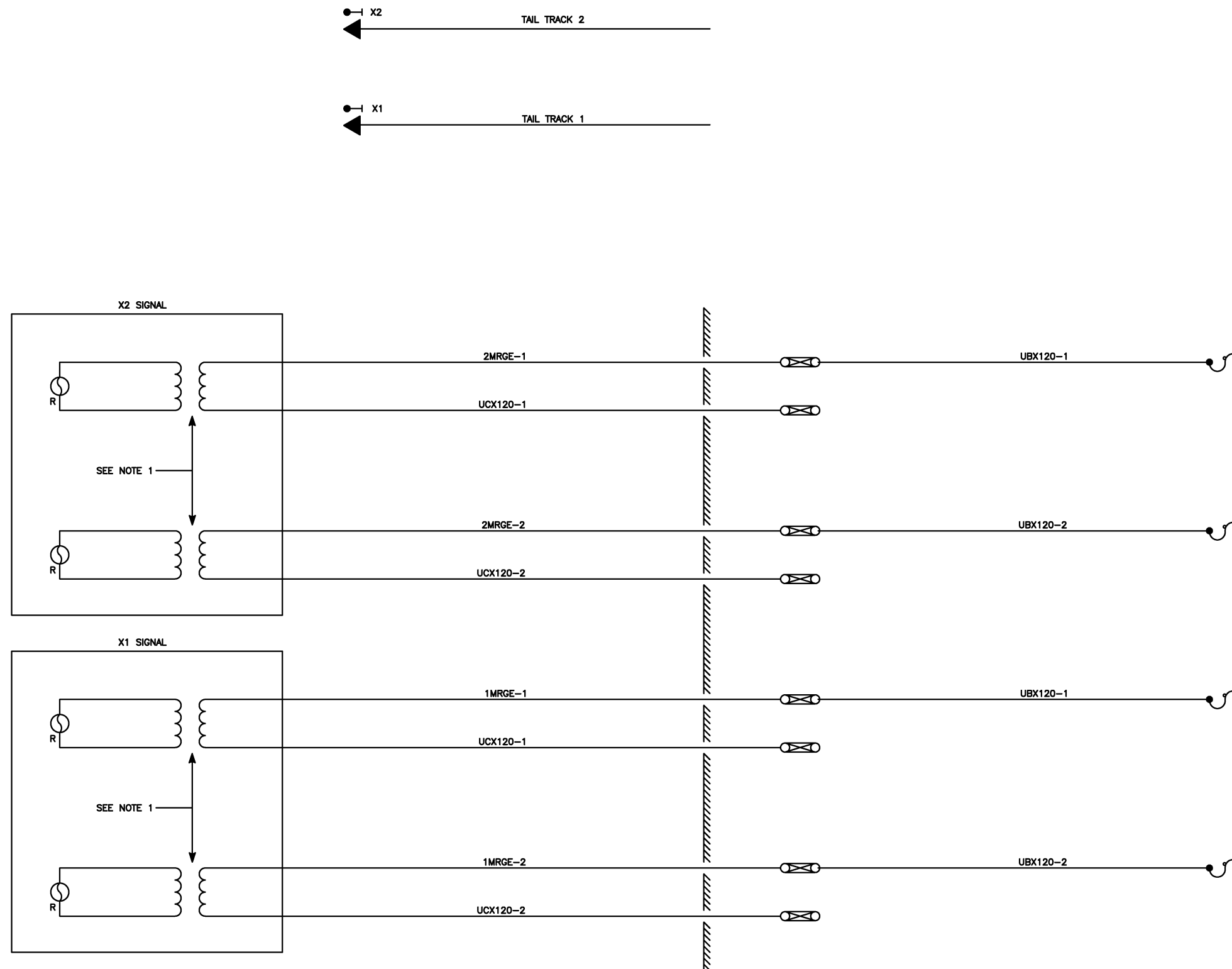
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TYPICAL SIGNAL LIGHTING & AC TRACK RELAY CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-066

- NOTES:
1. TRANSFORMERS LOCATED IN SIGNAL HEAD SHALL HAVE VOLTAGE TAPS ON THE INPUT AND OUTPUT AS SPECIFIED IN SECTION 16965.



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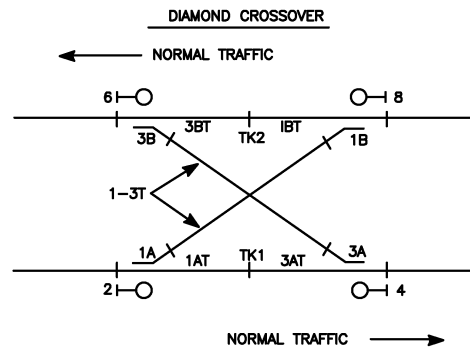
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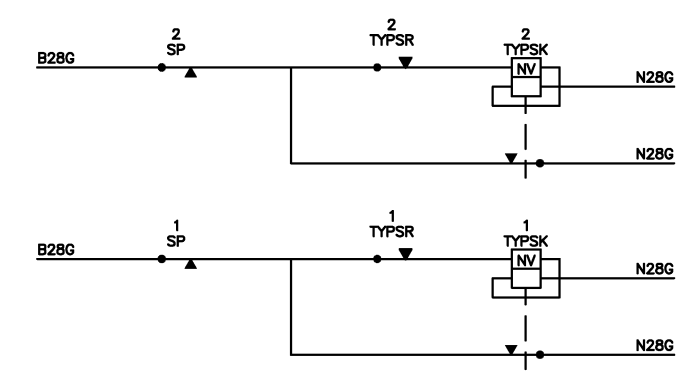
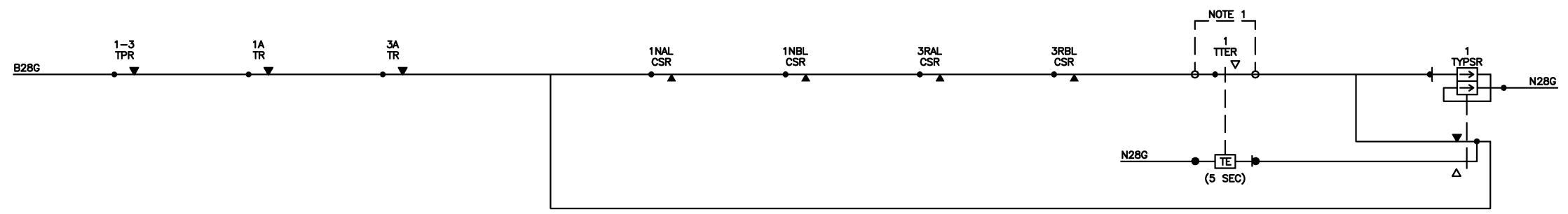
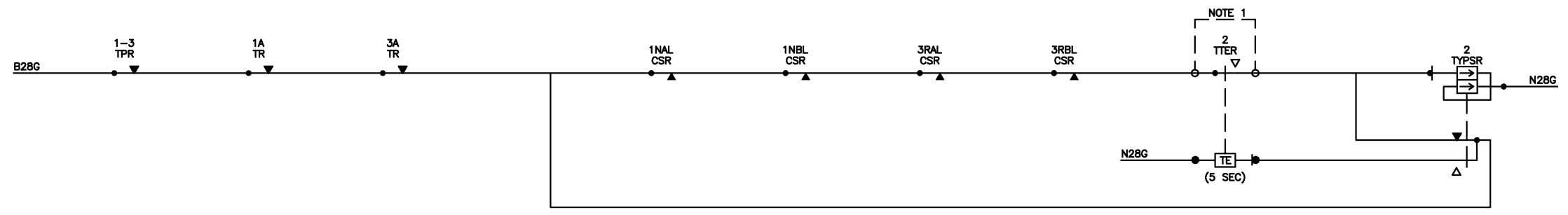
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TYPICAL MARKER SIGNAL LIGHTING CIRCUITS

SCALE NONE DRAWING NO. ST-TCI-067



NOTES:
 1. TTER RELAY IS REQUIRED AT AUTOMATIC INTERLOCKINGS. IF THE INTERLOCKING IS A TEMPORARY TERMINAL, PROVISION SHALL BE MADE FOR JUMPING OUT THE TTER CONTACT AND REMOVING THE TTER WHEN LINE IS EXTENDED AND INTERLOCKING IS NO LONGER AUTOMATIC.



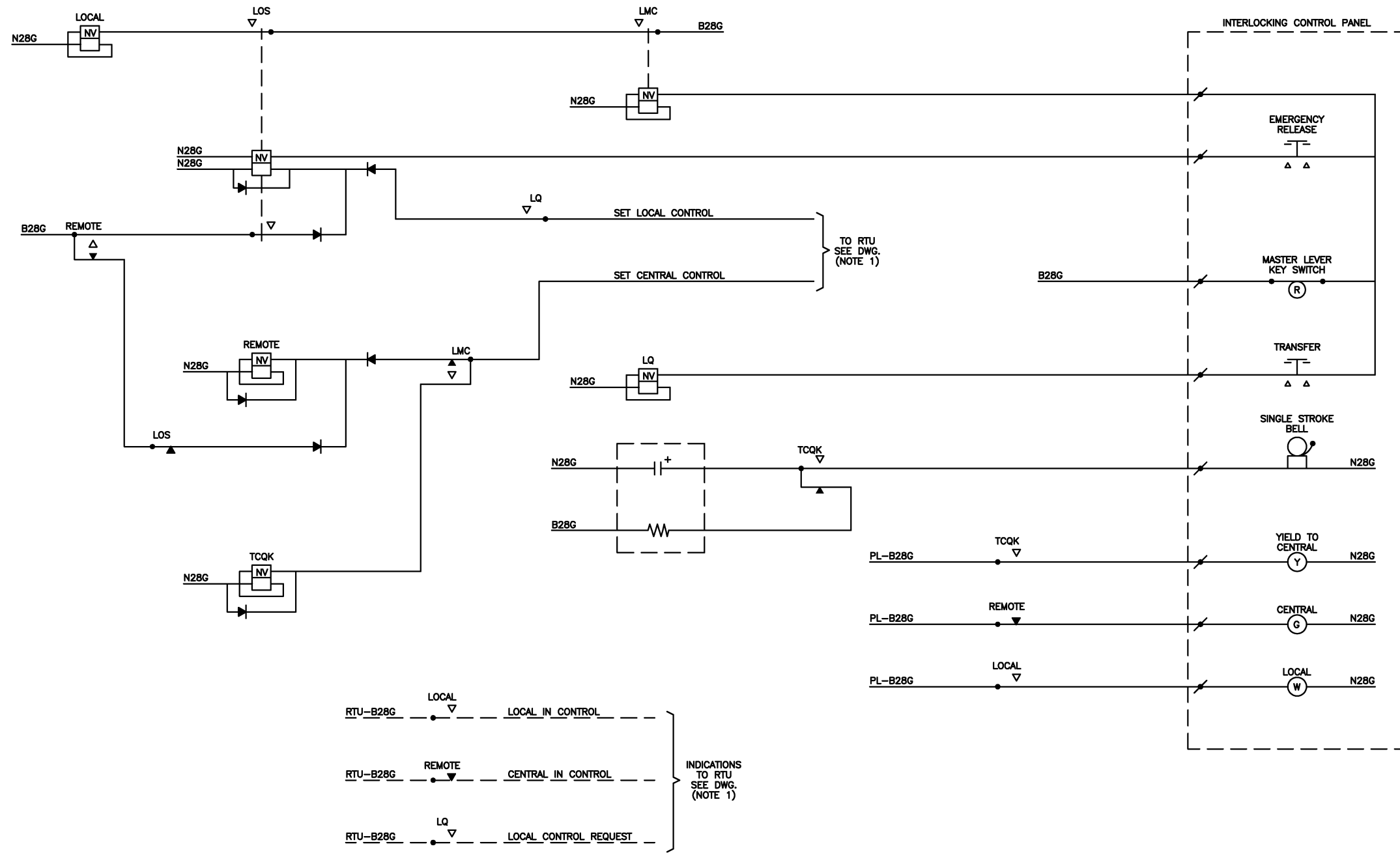
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TYPICAL DETECTOR TRACK REPEATER CIRCUITS
 SCALE NONE DRAWING NO. ST-TC-1-069

NOTES:
 1. CONTRACTOR SHALL PROVIDE APPROPRIATE DWG. NO.



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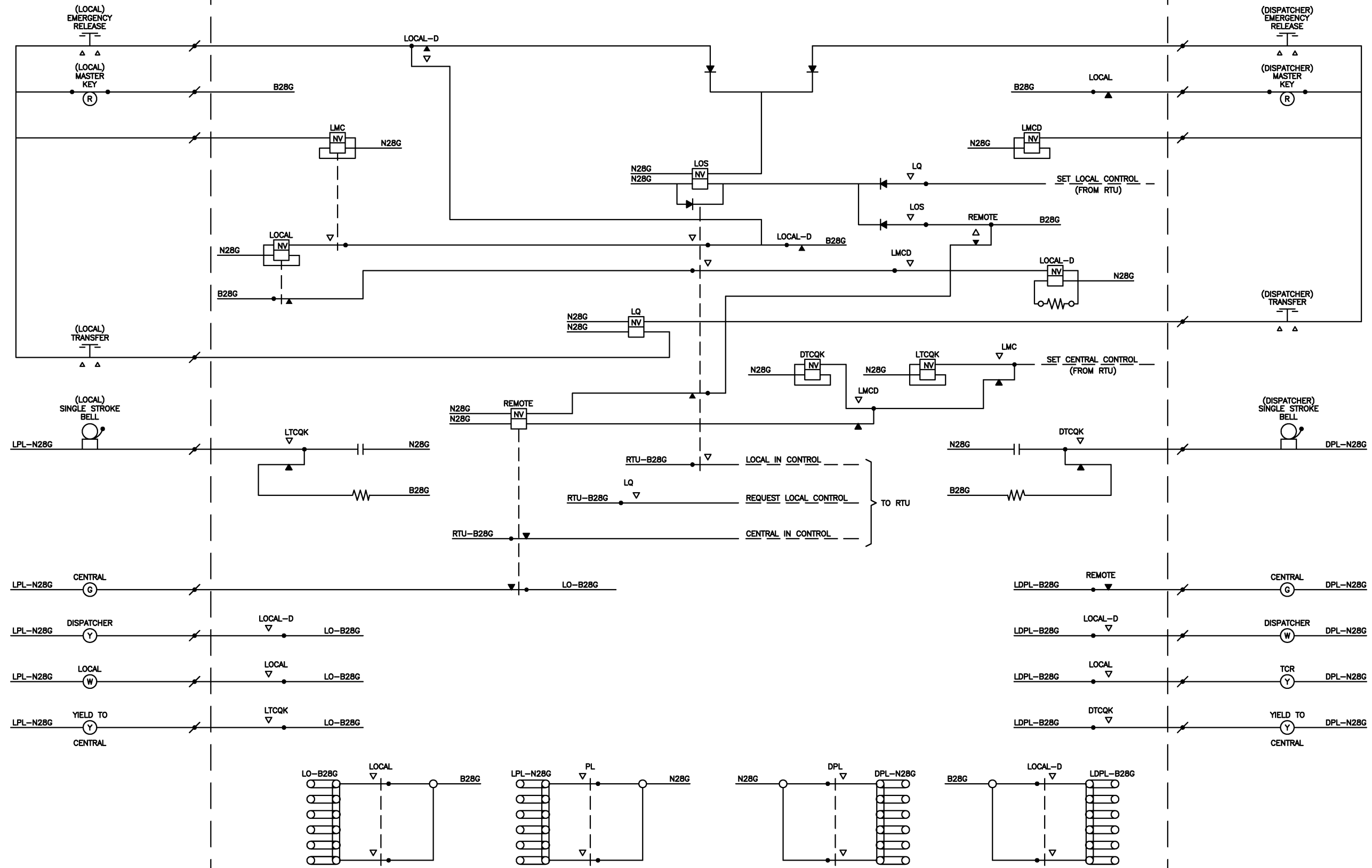
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TYPICAL LOCAL/REMOTE SELECTION CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-071

LOCAL (TCR) PANEL

DISPATCHER'S PANEL



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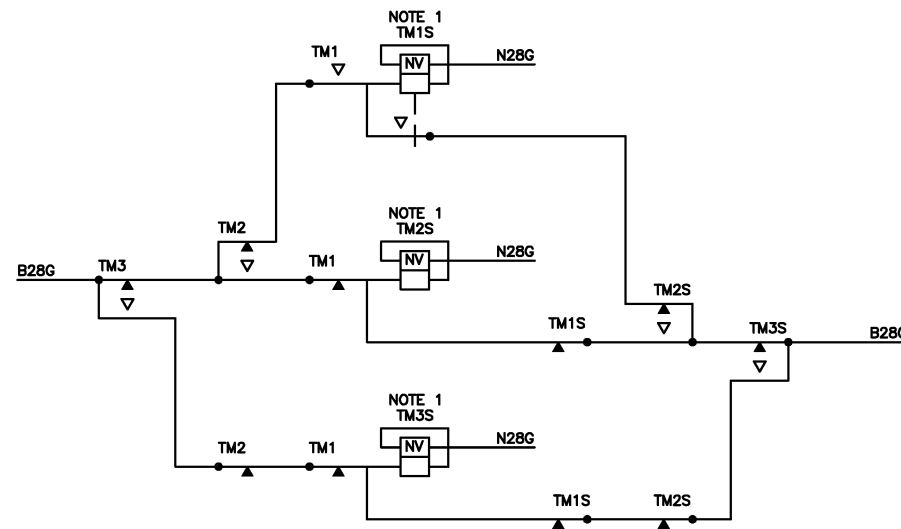
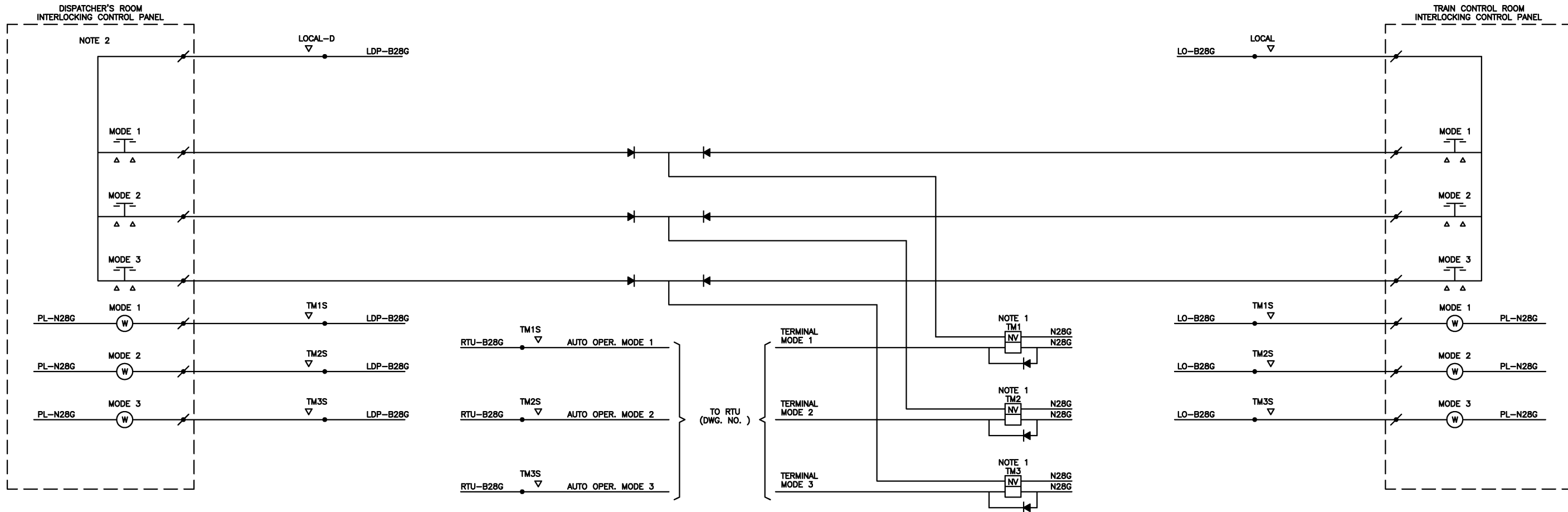
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TYPICAL LOCAL/REMOTE SELECTION CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-072

- NOTES:
1. RELAYS TO BE REMOVED WHEN LINE IS EXTENDED.
 2. DISPATCHER'S INTERLOCKING CONTROL PANEL TO BE REMOVED WHEN LINE IS EXTENDED.



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TYPICAL TERMINAL MODE SELECTION CIRCUITS

SCALE NONE DRAWING NO. ST-TC-1-074