PLANT ENGINEERING AND RECORD SYSTEM

CONTENTS

1. GENERAL

1.1 This section is to provide REA borrowers, consulting engineers, contractors, and other interested parties with information for use in the design, construction, and operation of REA borrowers' telephone systems. It discusses, in particular, considerations in the use of a flexible numbering system for all outside plant facilities and the adoption of a new concept in plant records prepared in a complete packet, designed particularly for circuit-by-circuit engineering of buried or aerial plant, and which is applicable to all types of outside plant facilities.

2. SCOPE

2.1 The intent is to provide engineering methods and a recording system having broad capabilities as follows:

2.11 Facilitate circuit-by-circuit design and cable pair allocation during the interval between partial completion of the detail maps, staking sheets, cable schematics, and actual cutover of the exchange or portion of an exchange.

2.12 Provide flexibility of plant by means of advance engineering allocation of cable pairs (designated by home count assignments -- see TE & CM 628, "Cable Plant Layout.")

2.13 Insure that transmission design criteria relative to bridge tap length, outer end sections, loading, etc., are met and controlled during staking, construction, at cutover, and throughout the subsequent operation of the system.

2.14 Provide a method keyed to all establishments in the exchange area rather than being limited to the existing, signed, and chosen A, B, C, potential. It will furnish means whereby subscriber development and resulting future plant requirements may be accurately determined with a minimum of plant reinforcement and rearrangement. Any establishment may be readily located for existing or future service needs.

2.15 Provide a sequential outside plant numbering system directly related to establishment location with respect to a pedestal, terminal, or pole, and route mile distance from the central office.

2.16 Provide a procedure that is not directly related to one type of plant, i.e., aerial, buried, underground, open wire, etc., and can be used on any system regardless of size. It will list essential data for every subscriber loop and interoffice trunk in the system.

2.17 To establish a well defined and workable method that may be effectively used during construction of the system to direct splicing, termination of pairs, installation of drops, loading, pair assignment, home count allocation, control of line fill, and to substantially reduce the requirements for using staking sheets and cable schematics for these activities. It will also provide a record of dead pairs, cut pairs, spare pairs, and working pairs, and denote the specific function of every exchange loop.

2.18 Provide working records (inside and outside plant facilities) that may be reproduced on local machines ($8\frac{1}{2}$" x 14") for functional use by field personnel, especially those not operating directly out of a main control center. The recording capacity per page over existing record forms is materially increased.

3. THE NUMBERING SYSTEM

3.1 The rapid development of buried plant and its associated electronic components has created a need to update the methods employed for outside plant identification and location. The practice of attempting to locate a buried plant pedestal by identifying it as so near or so far from some rural house or barn is antiquated. A numbering system is needed where the permanent plant location is fixed, is controlling, and the establishment is related to the known pedestal location. The numbering system presented herein meets the following objectives:

a. Is adaptable to all types of outside plant facilities, i.e., manholes, pedestals, aerial terminals, poles.

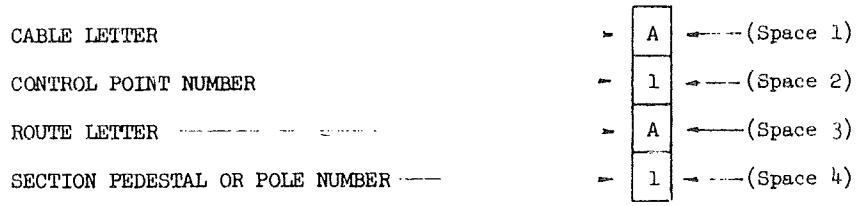
b. Has a minimum and fixed number of characters.

c. Requires a minimum of changes for plant expansion or rearrangements.

d. Provides accurate location information for operations and maintenance personnel.

e. Is easy to administer and record.

3.2 The numbering system consists of four characters: (1) a letter for cable, (2) a numeral for control point, (3) a letter for route, and (4) a number for manhole, pedestal, terminal, or pole. Pedestals, poles, etc., between two control points always count consecutively 1, 2, 3, etc., with no omissions.



3.21 Space 1 is always a letter. Cables from the central office are identified A, B, C, etc., generally from a point north, clockwise around the central office.

3.22 Space 2 is always one or two numerals (1-99) except those facility identifications between the central office and the first control point which will have a dash (A-A1) in this second space. Control points and load points are the exact same locations; the control points are established and carried throughout a cable even if no loading is required. Control points are also established on open wire leads. The spacing is made to coincide with the choice of loading system, i.e., D66 = 4.5 kf, H88 = 6.0 kf, etc., or if necessary a combination of loading systems.

3.23 Space 3 is always a letter A, B, C, etc. Laterals not containing a control point are treated numerically as a part of the main route. When laterals extend beyond a control point, they are assigned the next available route letter designation.

3.24 Space 4 is always one or two numerals (1-99) except when the pedestal is a control point; then this space will have a dash (A1A-). This dash can only occur when there is a numeral in space 2.

3.3 Since loading system sections are 4,500 feet (or 6,000 feet in length in older patterns), it may be assumed, for operational location purposes, that control points occur at roughly one mile intervals (5,280 feet); i.e., a maintenance man looking for pedestal A5A1 would know it was cable A, 5th control point from central office (approximately 4.5 miles), route A, and the first pedestal beyond the 5th control point (A5A-).

3.4 The numbering system will accommodate 26 separate cables from one central office; 99 control points on any given route; 26 separate routes on a given cable; and 99 pedestals, terminals, or poles between any two control points along the route. With this flexibility and potential, it should not be necessary to deviate from the plan.

3.5 The identifying characters used on pedestals and terminals should be at least one-inch, bright colored, weatherproof, and on a dark background. The top six-inch portion of control point housings may be treated with pressure sensitive, weatherproof material of a bright color for easy identification. Control point pedestals should be kept clear of undergrowth and be easily seen from the roadway.

3.6 The numbering system, when supported by a simple directional plant diagram (See Example - Page 1), provides ready location for any desired pedestal, pole, etc., in an exchange.

4. ENGINEERING APPLICATION

4.01 The Outside Plant Facility Record (OPFR) (Exhibit B) is presented for use to fill the needs set forth in paragraph 2. After the initial grouping of establishments to subscriber lines in the design procedure, the cable sizing and reduction points are tentatively located and posted on the ACD maps and/or detail maps. This data is made firm as staking progresses, along with the exact location of load (control) points and sectional pedestals. It is at this time period that the final circuit-by-circuit design engineering and the pair-by-pair allocations should be started and initial use of the Outside Plant Facility Record employed.

4.02 Where the initial engineering phases of cable loading are done on the ACD or detail maps, the pedestal numbering system is applied, and when stabilized during staking, it is entered on the Outside Plant Facility Record. The numbering is applied to manholes, pedestals, terminals, and certain poles. On long sections of open wire pole line, it generally is necessary to enter only those pole numbers at control points and where laterals or drops are separated.

4.03 The first step is to study the general layout of each cable leaving the central office. Keep in mind that the Outside Plant Facility Record is arranged to accommodate up to 50 cable pairs or any fraction thereof. Cables are therefore viewed in 50-pair segments within their distribution area (from the pedestal where a 50-pair cable emerges from a larger cable to the out or field end of all loops within that 50-pair count). Any manholes, pedestals, terminals, or poles between the reduction point pedestal and the central office that have loading or other plant components relating directly to the 50-pair count being studied must also be considered, and they are necessarily shown on the Outside Plant Facility Record. (Example Pages 4 and 6.)

4.04 When the pedestal numbering has become firm, all establishment numbers are related to their respective pedestal, etc., and listed on the Outside Plant Facility Record. The plant facility layout portion of the OPFR is then prepared. Laterals are shown as leaving the main route either right or left with back to central office. Reduction points, facility type, size, gauge and pair counts are shown. A space is left following the "pulloff" of a lateral and another space left beyond the end of the lateral. This is to facilitate the entries on the lower portion of the sheet. An arrow is drawn in the open space to indicate if the lateral is right or left from main route.

4.05 The 50-pair cable count, or fraction thereof, is entered in the cable pair column along the left side of the sheet. The control points are drawn in. It is essential to know exactly what cable pairs are to be loaded at a given load (control) point. The symbols are then filled in with pencil to represent loaded cable pairs.

4.06 Distance is not relative to the Outside Plant Facility Record, and is only determined by the number of pedestals, etc., recorded. The pedestal-to-pedestal sectional footages and the accumulated control point kilofeet are not entered until the "as built" measurements are available from the staking sheets.

4.07 The "Term. Type" column directly under the pedestal numbers may be MH for manhole, P for pole, HA, etc., for terminal type on aerial cable and BD2, etc., for pedestal housings. Where two pedestal housings are required for space, they are shown as 2BD4, etc.

4.08 The next step is to show by symbol the end section of each loop, fill in the double line to show only the exact pedestal or pedestals the loop has been engineered to serve. The selected pairs are included in the home count for the distribution area. The open circles should be drawn to show the allocation of the cable pair to a specific pedestal or pedestals to serve one or more establishments listed and associated with the pedestal or pedestals. The circles are filled in solid with pencil when the pair is actually placed in service. In allocating loaded pairs, caution should be exercised in keeping end-section lengths within the transmission limits as set forth in TE & CM Section 424, "Design of Subscriber Loop Plant." When the pedestal section footage figures have been posted on the Outside Plant Facility Record, each loop end section should be checked, and if transmission criteria have not been met, necessary adjustments must be made. Any such miscalculations will appear at this stage, and they should be immediately noted and necessary corrections made.

4.09 For multiparty exchanges, the line equipment number is controlling, and at time of final assignment is posted in the column "TEL. OR CIRCUIT NUMBER." For one-party exchanges, the four digit connector terminal number is controlling and is entered in this column.

4.10 Main frame bridging of cable pairs is posted to the appropriate cable pair on the Legend and Notes sheets. Load coil size and other similar information not covered by symbol on the Outside Plant Facility Record is also posted on the Legend and Notes sheet.

5. CENTRAL OFFICE FACILITY RECORD (EXAMPLE - Sheets 9 and 10)

5.1 The central office facility record is designed to replace the line and station card, and is sized to be an integral part of the overall exchange packet. The information contained thereon is keyed to the connector terminal numbers. The sheet is printed on both sides thereby providing space for recording 200 connector terminal assignments on each sheet. The size is $8\frac{1}{2}$" x 14".

5.2 For operational purposes, where a telephone number (connector terminal number) is provided, such as on a trouble ticket, the cross reference is from connector terminal number to cable and pair.

5.3 The column headed "Station Apparatus" is also used for recording special equipment such as transmitting amplifiers, key sets (wiring plans), extension bells, etc.

5.4 The trouble record portion of the present line and station card is replaced by filing the trouble tickets as set forth in TOM Section 1238, "Trouble Reporting."

5.5 In making the initial and subsequent connector terminal assignments, care should be taken to comply with the traffic considerations in TE & CM Section 221, "Assignment of Line and Station Numbers," (Terminal Per Station Systems).

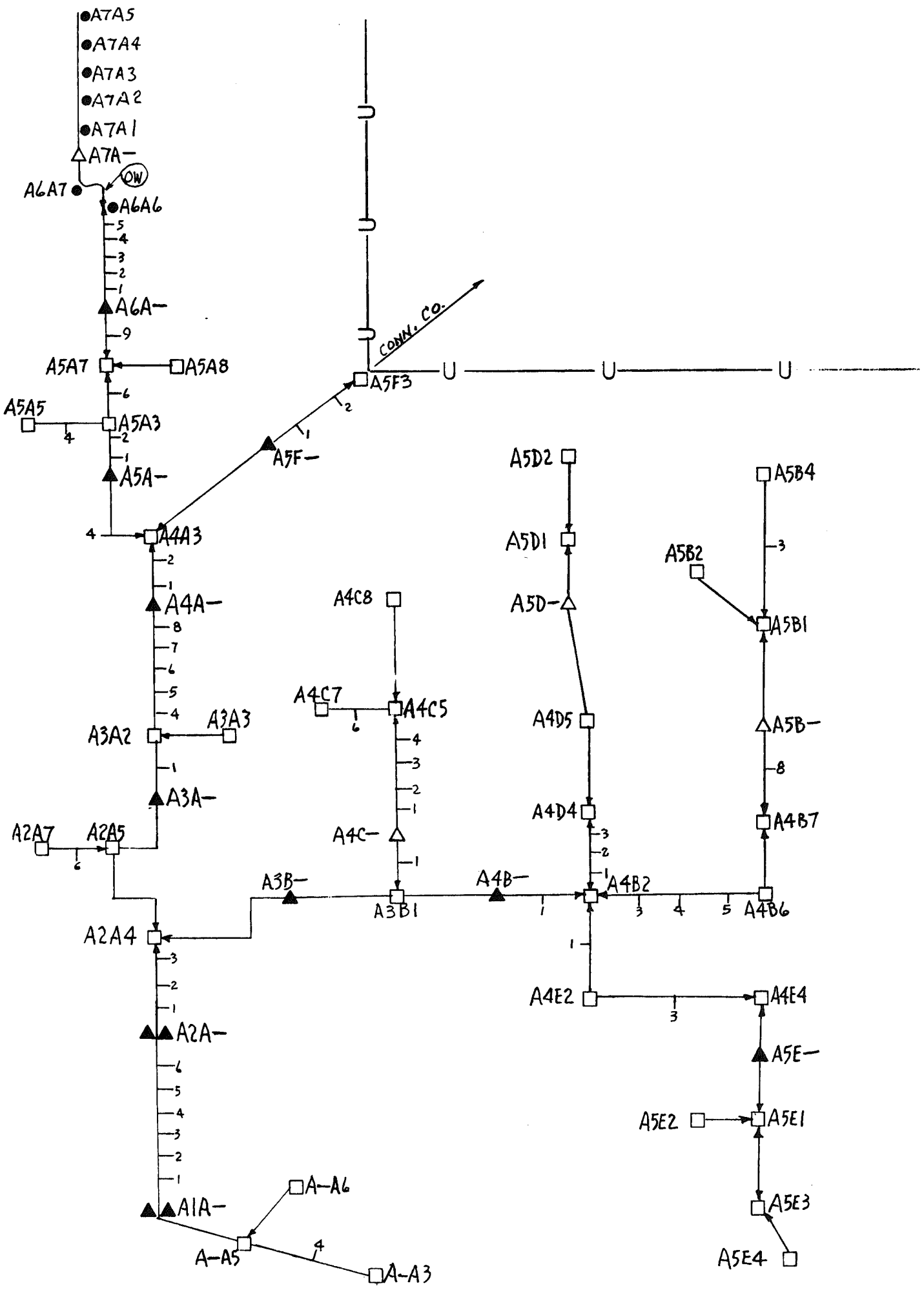
6. LINE EQUIPMENT RECORD (EXAMPLE - Sheets 11 and 12)

6.1 This form is cross-referenced to the Outside Plant Facility Record through the connector terminal numbers. The class of service does not appear elsewhere on these record forms.

6.2 The bunching block record is made a part of this form. The numbering system for bunching blocks differs with the type and make of C.O.E. and, therefore, must be obtained by the engineer from the manufacturers.

6.3 Where all one-party service is offered, the bunching block record would not be required; the line equipment record would become only a record of line equipment assigned and available, and the connector terminal numbers on the central office facility record would become all controlling for record purposes.

OUTSIDE PLANT L[illegible] ION DIAGRAM



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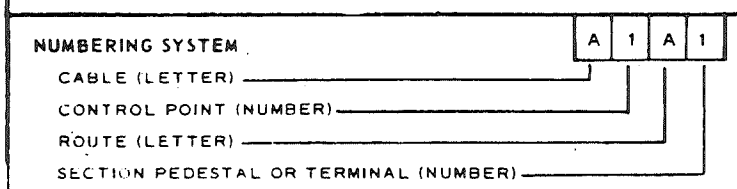
EXAMPLE - PAGE 1

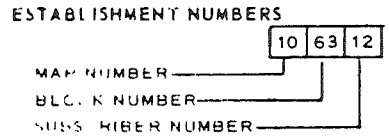
SYMBOLS
□ - PEDESTAL
△ - CONTROL POINT
▲ - CONTROL POINT - LOADING
● - POLE
⟷ FACILITY CHANGE
U - SYSTEM BOUNDARY
⊢² - SECTION PEDESTAL

LEGEND & NOTES

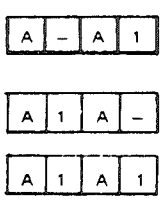
NUMBERING SYSTEM



ESTABLISHMENT NUMBERS



NUMBERING SYSTEM EXAMPLES

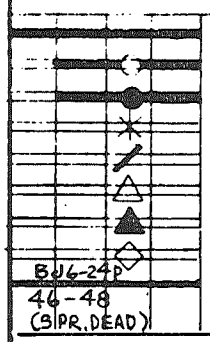


– CABLE A, ROUTE A, 1ST PEDESTAL FROM CENTRAL OFFICE

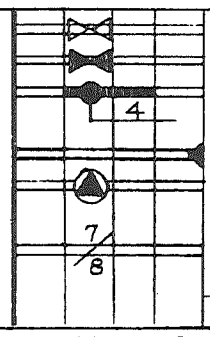
– CABLE A, 1ST CONTROL POINT, ROUTE A FROM C.O.

– CABLE A, 1ST CONTROL POINT, ROUTE A, PEDESTAL 1 BEYOND CONTROL POINT 1.

NOTE: *Numbering system always consists of a letter, a number, a letter & a number, except when dashes apply (see above).*



CABLE PAIR – IN ITS USAGE AREA
ALLOCATED PAIR
ASSIGNED PAIR
TEMPORARY PAIR ASSIGNMENT
PAIR CUT DEAD
CONTROL POINT
LOADING AT CONTROL POINT
CARRIER FILTER
IDENTIFYING DEAD PAIRS



CARRIER REPEATER
VOICE FREQUENCY REPEATER
CARRIER CHANNEL – INDICATE IF MORE THAN ONE CHANNEL.
FACILITY END
BUILDING-OUT CAPACITORS
OPEN WIRE PIN POSITIONS

STANDARD GROUP COLOR CODE - CABLE AND MPD WIRE

1	WHITE - BLUE	6	RED - BLUE	11	BLACK - BLUE	16	YELLOW - BLUE	21	VIOLET - BLUE
2	WHITE - ORANGE	7	RED - ORANGE	12	BLACK - ORANGE	17	YELLOW - ORANGE	22	VIOLET - ORANGE
3	WHITE - GREEN	8	RED - GREEN	13	BLACK - GREEN	18	YELLOW - GREEN	23	VIOLET - GREEN
4	WHITE - BROWN	9	RED - BROWN	14	BLACK - BROWN	19	YELLOW - BROWN	24	VIOLET - BROWN
5	WHITE - SLATE	10	RED - SLATE	15	BLACK - SLATE	20	YELLOW - SLATE	25	VIOLET - SLATE

NOTE 1. USE ABOVE COLOR CODE IN NUMERICAL ORDER FOR ALL COLOR - CODED CABLES SMALLER THAN TWENTY-FIVE PAIRS.
NOTE 2. USE ABOVE COLOR CODE IN NUMERICAL ORDER FOR GROUP BINDER - STRING COLOR CODE.
NOTE 3. THE ABOVE COLOR CODE IS APPLICABLE FOR ALL TWENTY-FIVE PAIR COLOR GROUPS.
NOTE 4. USE ABOVE COLOR CODE IN NUMERICAL ORDER FOR ALL SIZES OF MULTI-PAIRED DISTRIBUTION WIRE.

CABLE PAIR

NOTE 1: Following are some typical entries for this sheet. However, there is no set rule for any specific entry.

NOTE 2:
The loading for cable A, the type of loading units and the spare coils are as follows:

PAIRS LOADED	PEDESTAL NO'S	BG UNITS	SPARE COILS
1-38, 51-66, 68-96	A1A–	BG 22-100-66	17
1-38, 51-66, 68-96	A2A–	BG 22-100-66	17
1-38	A3A–	BG 32-25, 32-12, 32-1-66	0
1-36	A4A–	BG 32-25, 32-12-66	1
19-21	A5A–	BG 32-3-66	0
19-21	A6A–	BG 32-3-66	0
51-66, 68-96	A3B–	BG 32-25, 32-18, 32-3-66	1
51-53, 63-65, 76-78	A4B–	BG 3/32-3-66	0
1-18	A5F–	BG 32-18-66	0

NOTE 3:
PR. A67 has one LA carrier repeater with Auto. slope Control, 4 channel. mounted in pedestal A2A4.

NOTE 4: Pedestals A1A– and A2A– each have 2 BD4 housings to accomodate loading.

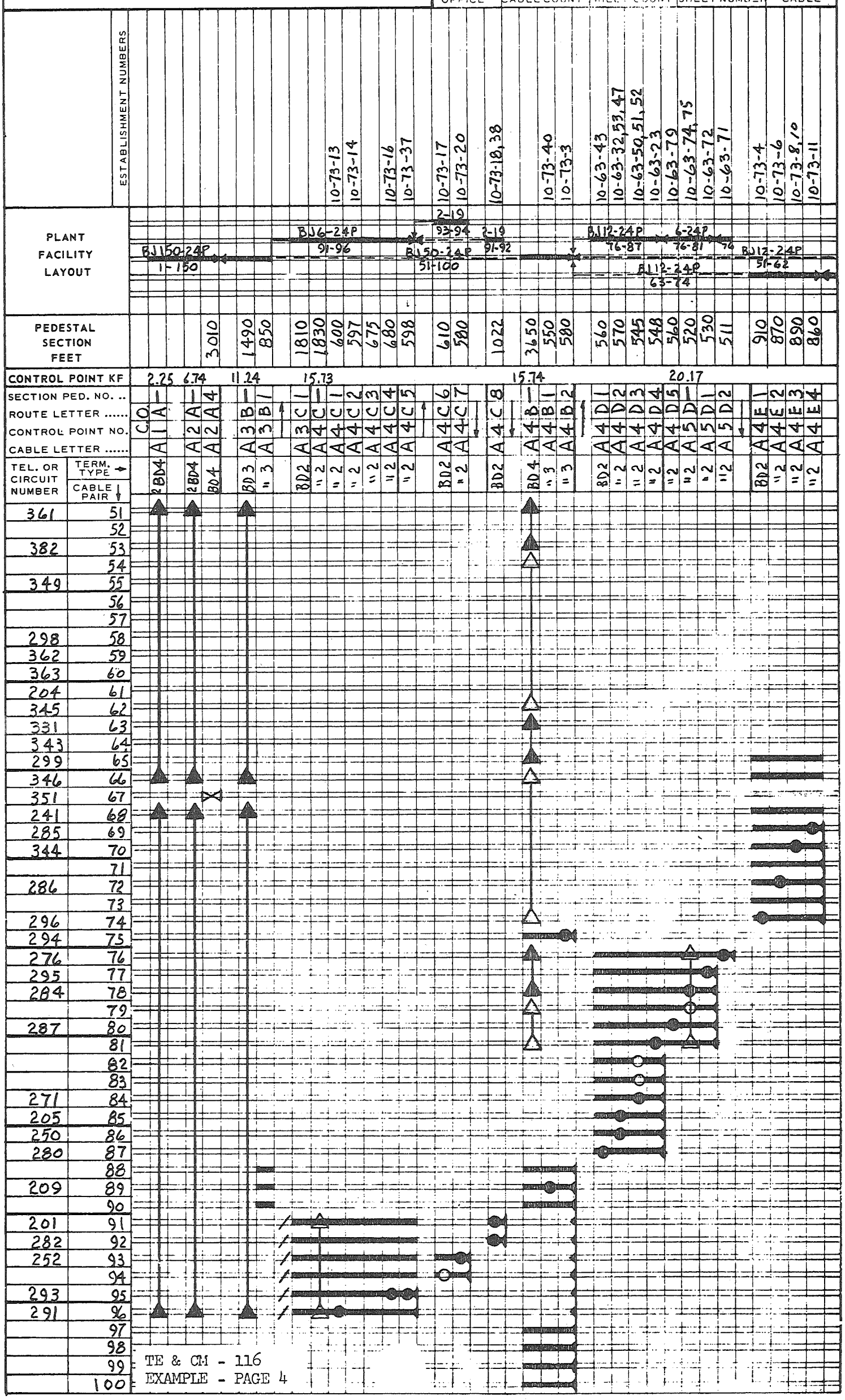
NOTE 5: There are four (4) each, 4 inch Transite conduit between C.O. and manhole A–A1. Windows 1, 2 and 3 are occupied while window No. 4 is vacant.

NOTE 6: The HA6 terminal shown at A5B3 is installed at the south end of a 40 foot aerial insert over Deer Creek.

NOTE 7: This sheet is to be used as required and inserted into the record binder as suits the occasion.

OUTSIDE PLANT FACILITY RECORD

262	1-150	51-100	2 OF 5	A
OFFICE	CABLE COUNT	SHEET COUNT	SHEET NUMBER	CABLE



OUTSIDE PLANT FACILITY RECORD

262	1-150	101-150	1 OF 5	A
OFFICE	CABLE COUNT	SHEET COUNT	SHEET NUMBER	CABLE

ESTABLISHMENT NUMBERS: 13-83-17; 13-83-12,25; 13-83-8,10; 13-83-7,9; 13-83-2; 13-83-29,31; 13-73-1,3; 10-73-30; 10-73-27,28; 10-72-58; 10-72-59; 13-73-37; 10-72-29; 10-72-25; 10-72-37; 10-73-38; 10-72-23

PLANT FACILITY LAYOUT: ID4; BJ 150-24P; 1-150; 6-19; 139-144; SEE 1-50 SHEET 4 OF 5; SEE 51-100 SHEET 2 OF 5

PEDESTAL SECTION FEET: 425; 405; 398; 310; 330; 536; 382; 635; 620; 705; 676; 600; 590; 652; 730; 765; 785; 730

CONTROL POINT KF: 2.25; 6.73; 9.74

SECTION PED. NO. ..		A1	A2	A3	A4	A5	A6	A1	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4							
ROUTE LETTER	CO	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A							
CONTROL POINT NO.		1	1	1	1			1	1	1	1	1	1	1	2	2	2	2							
CABLE LETTER		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A							
TEL. OR CIRCUIT NUMBER / TERM. TYPE		MH	BD4	"4	"4	"4	BD2	2/BD4	BD4	"4	"4	"4	"4	2/BD4	BD4	"4	"4	"4							
CABLE PAIR																									
		101																							
		102																							
		103																							
		104																							
		105																							
		106																							
		107																							
		108																							
		109																							
		110																							
SPARES		111																							
		112																							
		113																							
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		115																							
		116																							
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212		126																							
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215		128																							
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226		132																							
214		133																							
221		134																							
235		135																							
233		136																							
		137																							
228		138																							
217		139																							
		140																							
		141																							
		142																							
		143																							
		144																							
203		145																							
222		146																							
234		147																							
251		148																							
		149																							
262		150																							

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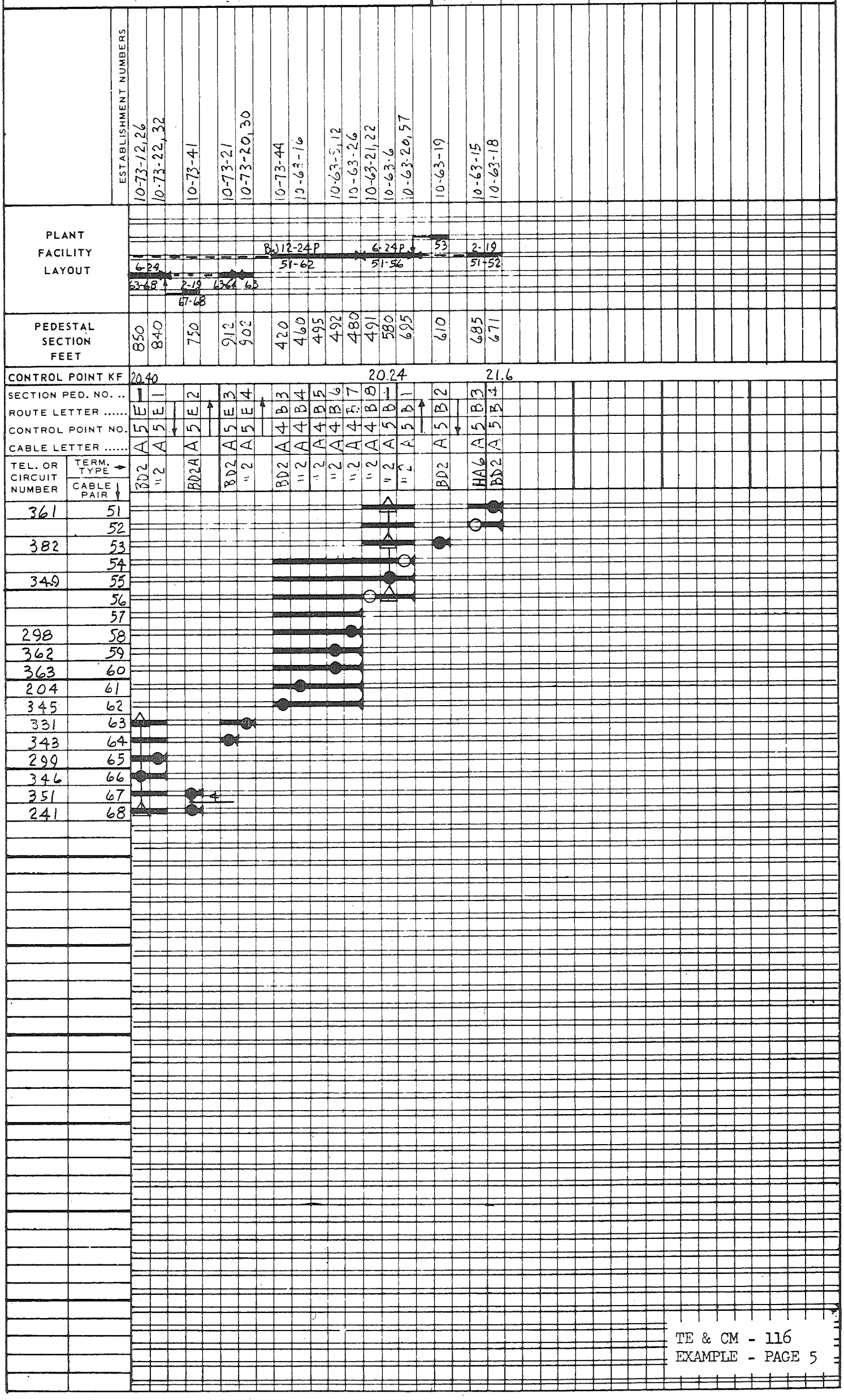
EXAMPLE - PAGE 3

OUTSIDE PLANT FACILITY RECORD

262	1-150	51-68	3 OF 5	A
OFFICE	CABLE COUNT	SHEET COUNT	SHEET NUMBER	CABLE

TEL. OR CIRCUIT NUMBER	TERM. TYPE → / CABLE PAIR ↓
361	51
	52
382	53
	54
349	55
	56
	57
298	58
362	59
363	60
204	61
345	62
331	63
343	64
299	65
346	66
351	67
241	68



OUTSIDE PLANT FACILITY RECORD

262	1-150	1-50	4 OF 5	A
OFFICE	CABLE COUNT	SHEET COUNT	SHEET NUMBER	CABLE

TEL. OR CIRCUIT NUMBER	TERM. TYPE → / CABLE PAIR ↓
311-AV1	1
312-AV2	2
313-AV3	3
314-AV4	4
315-AV5	5
SPARE	6
SPARE	7
321-EAS1	8
322-" 2	9
323-" 3	10
324-" 4	11
325-" 5	12
326-" 6	13
327-" 7	14
328-" 8	15
SPARE	16
SPARE	17
SPARE	18
274	19
263	20
243	21
236	22
237	23
	24
239	25
	26
254	27
223	28
218	29
219	30
253	31
275	32
264	33
266	34
268	35
	36
267	37
255	38
	39
	40
273	41
246	42
258	43
244	44
	45
245	46
216	47
242	48
247	49
256	50

ESTABLISHMENT NUMBERS: 10-72-24; 10-72-60; 10-72-20; 10-72-14,16; 10-72-13,15,17; 10-72-6,7; 10-72-4,12; 10-72-5; 10-72-3; 10-72-1,2; 10-72-8; 10-62-15; 10-62-12; 10-62-14; 10-62-10,19; 10-62-5,6; 10-62-9; 10-62-13

PLANT FACILITY LAYOUT: BJ150-24P 1-150 2-19 49-50; BJ50-24P 1-50 6-24 46-48 (3PR. DEAD); BJ18-24P 19-36 1-18 → CONN. CO.; BJ18-24P 2-19 29-30

PEDESTAL SECTION FEET: 3010; 800; 760; 510; 700; 572; 738; 1070; 610; 800; 370; 260; 650; 480; 970; 950; 1060; 1520; 1205; 1196; 1211; 1200; 900; 620; 610; 702; 720; 412

CONTROL POINT KF: 2.25; 6.74; 11.25; 15.72; 20.22; 20.14

SECTION PED. NO. ..: C.O. | A1 | A2 | A3 | A4 | A5 | A6 | A7 | A1 | A2 | A3 | A4 | A5 | A6 | A7 | A8 | A1 | A2 | A3 | A4 | F1 | F2 | F3 | A4 | A1 | A2 | A3 | A4 | A5

ROUTE LETTER .....: A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A

CONTROL POINT NO.: 1 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 4 4 4 4 5 5 5 5 1 2 3 4 5

CABLE LETTER .....: A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A

2BD4	2BD4	BD4	BD3	BD2	" 2	BD4	" 3	" 3	BD2	BD3	" 3	" 3	" 3	" 3	" 3	" 3	" 3	BD4	" 3	" 3	" 4	BD2	" 3	" 2	" 2	" 2	BD2	" 2
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

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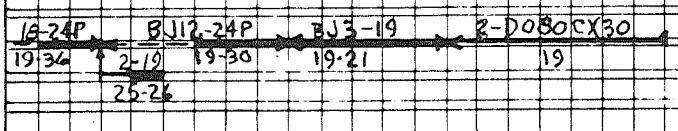
OUTSIDE PLANT FACILITY RECORD

262	1-150	19-36	5 OF 5	A
OFFICE	CABLE COUNT	SHEET COUNT	SHEET NUMBER	CABLE

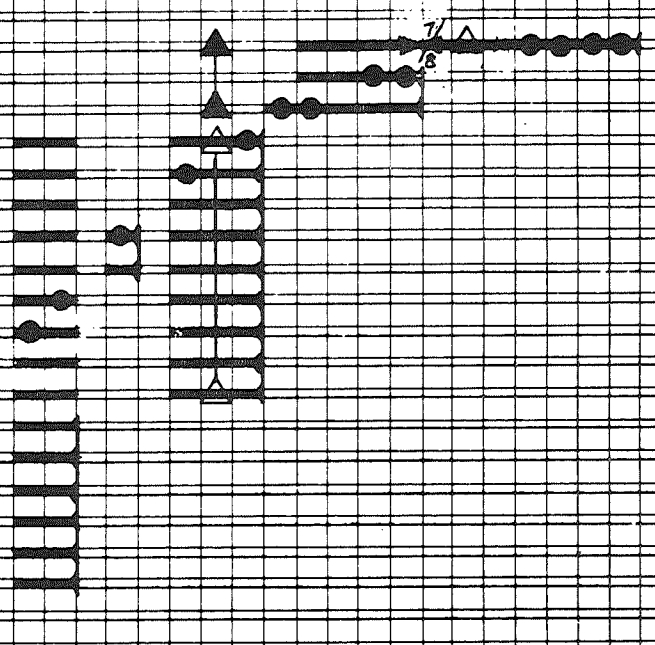
ESTABLISHMENT NUMBERS: 10-62-2 | 10-62-4, 20 | 10-62-18 | 10-62-3 | 10-61-2 | 10-61-4 | 10-61-1 | 10-61-3 | 10-61-5 | 10-75-7 | 10-75-5 | 10-75-3 | 10-75-1

PLANT FACILITY LAYOUT



PEDESTAL SECTION FEET	704	674	695	645	549	540	620	610	596	575	580	490	533	510	505	498	500	494
CONTROL POINT KF				24.64									29.18		31.69			
SECTION PED. NO. ..	6	7	8	9	1	2	3	4	5	6	7	—	1	2	3	4	5	
ROUTE LETTER	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
CONTROL POINT NO.	5	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7	
CABLE LETTER	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
TEL. OR CIRCUIT NUMBER — TERM. TYPE →	BD2	12	12	12	12	12	12	12	12	P	P	P	P	P	P	P	P	
CABLE PAIR ↓																		

274	19
263	20
243	21
236	22
237	23
	24
239	25
	26
254	27
223	28
218	29
219	30
253	31
275	32
264	33
266	34
268	35
	36



TE & CM - 116
EXAMPLE - PAGE 7

OUTSIDE PLANT FACILITY RECORD

OFFICE	CABLE COUNT	SHEET COUNT	OF SHEET NUMBER	CABLE

ESTABLISHMENT NUMBERS

PLANT FACILITY LAYOUT

PEDESTAL SECTION FEET

CONTROL POINT KF

SECTION PED. NO. ..

ROUTE LETTER .....

CONTROL POINT NO.

CABLE LETTER .....

TEL. OR CIRCUIT NUMBER	TERM. TYPE →
	CABLE PAIR ↓

OFFICE 262					CENTRAL OFFICE FACILITY RECORD						GROUP 2100		
CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS	CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS
50	243	21	A6A3	1-4	10-61-1	1-S1	00						
59							09	203	145	A-A5	-	13-83-2	1-S1
58							08						
57	243	21	A6A2	1-4	10-61-4	1-S1	07						
56	263	20	A6A6	1-3	10-61-5	1-S1	06	223	28	A5A6	1-6	10-62-2	1-S1
55							05						
54							04	346	66	A5E—	2-1	10-73-26	1-S1
53	247	49	A2A7	—	10-72-60	1-S1	03						
52	246	42	A3A6	-	10-72-12	1-S1	02	223	28	A5A3	1-6	10-62-5	1-S1
51	263	20	A6A5	1-3	10-61-3	1-S1	01						
40	221	134	A1A2	-	10-72-58	2-S1	90	275	32	A5A2	-	10-62-19	1-S1
49							99						
48	255	38	A4A1	-	10-72-1	1-S3	98	218	29	A5A5	-	10-62-13	1-S1
47	258	43	A3A5	-	10-72-7	1-S3	97	266	34	A5A1	-	10-62-14	1-S3
46	228	138	A1A—	-	10-73-30	1-S1	96	239	25	A5A8	—	10-62-18	1-S1
45							95						
44	267	37	A4A2	-	10-62-16	1-S1	94	268	35	A5A—	-	10-62-12	1-S1
43	274	19	A7A2	1-2	10-75-7	1-S1	93	254	27	A5A7	-	10-62-20	1-S1
42	226	132	A1A4	-	10-73-37	2-S1	92						
41							91	253	31	A5A3	-	10-62-6	1-S1
30	235	135	A1A1	-	10-73-27	1-S3	80	363	60	A4B6	-	10-63-9	1-S1
39	214	133	A1A4		10-72-59	1-S1	89						
38							88	219	30	A5A4	-	10-62-9	1-S1
37	244	44	A3A5	-	10-72-6	1-S1	87						
36	256	50	A2A6	-	10-72-24	1-S3	86	237	23	A5A9	1-5	10-62-3	1-S1
35	224	130	A1A6	-	10-72-25	1-S1	85						
34	274	19	A7A3	1-2	10-75-5	1-S3	84	242	*48	A3A1	-	10-72-20	1-S1
33	215	128	A2A1	-	10-72-37	1-S1	83	264	33	A5A2	-	10-62-10	1-S1, 1-S3
32	273	41	A3A6	1-7	10-72-4	1-S1	82						
31	216	47	A3A3	-	10-72-14	1-S1	81						
20	212	126	A2A3	-	10-72-23	1-S1	70	236	22	A6A1	-	10-61-2	1-S1
29	245	46	A3A3	-	10-72-16	1-S1	79						
28	233	136	A1A1	-	10-73-28	1-S1	78	285	69	A4E4	-	10-73-11	1-S1
27							77	293	95	A4C5	1-8	10-73-37	1-S1
26	274	19	A7A4	1-2	10-75-3	1-S1	76						
25	222	146	A—A4	-	10-83-7	2-S1	75	344	70	A4E3	2-2	10-73-8	1-S1
24	217	139	A—A6	-	10-73-29	1-S1	74	271	84	A4D3	1-1	10-63-51	2-S1
23							73						
22	234	147	A—A4	-	13-83-9	1-S1	72	384	63	A5E4	-	10-73-20	1-S3
21							71	241	68	A5E2	-	10-73-41	1-S3
10	251	148	A—A2	-	13-83-12	2-S1	60	343	64	A5E3	-	10-73-21	1-S1
19							69						
18	262	150	A—A1	-	13-83-17	2-S1, 1-S3	68	293	95	A4C4	1-8	10-73-16	1-S1
17	273	41	A3A7	1-7	10-72-5	1-S1	67						
16							66	364	66	A5E—	2-1	10-73-12	1-S1
15	274	19	A7A5	1-2	10-75-1	1-S1	65						
14							64	299	65	A5E1	-	10-73-32	2-S1
13							63						
12	237	23	A5A7	1-5	10-62-4	1-S1	62						
11							61						

OFFICE 262						CENTRAL OFFICE FACILITY RECORD						GROUP 2200	
CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS	CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS
50							00						
59							09						
58							08						
57							07						
56							06						
55	271	84	A4D3	1-1	10-63-50	1-S1	05						
54							04						
53							03						
52	295	77	A5D1	-	10-63-72	1-S1	02						
51	385	62	A4B3	-	10-73-44	1-S1	01						
40							90						
49	209	89	A4B1	-	10-73-40	1-S1	99						
48							98						
47	276	76	A5D2	-	10-63-71	2-S1	97						
46	204	61	A4B4	-	10-63-17	1-S1	96						
45							95						
44							94						
43	294	75	A4B2	-	10-73-3	1-S1, 1-S3	93						
42	362	59	A4B6	-	10-63-12	1-S1	92						
41	250	86	A4D2	-	10-63-32	1-S1	91						
30	376	55	A5B—	-	10-63-6	1-S1	80						
39	296	74	A4E1	-	10-73-4	1-S1	89						
38							88						
37	205	85	A4D2	-	10-63-53	1-S1	87						
36	298	58	A4B7	-	10-63-26	1-S1	86						
35	286	72	A4E2	-	10-73-6	1-S1	85						
34							84						
33	284	78	A5D—	-	10-63-74	1-S1	83						
32							82						
31	280	87	A4D1	-	10-63-43	1-S1	81						
20	287	80	A4E5	-	10-63-79	1-S1	70						
29	252	93	A4C7	-	10-73-20	1-S1	79						
28	282	92	A4C8	-	10-73-38	1-S1	78						
27	344	70	A4E3	2-2	10-73-10	1-S1	77						
26							76						
25	382	53	A5B2	-	10-63-19	1-S1	75						
24	283	81	A4D4	-	10-63-23	1-S1	74						
23							73						
22	291	96	A4C4	-	10-73-16	1-S1	72						
21							71						
10	201	91	A4C8	-	10-73-18	1-S1	60						
19	361	51	A5B4	-	10-63-18	1-S1, 1-S3	69						
18							68						
17							67						
16							66						
15	SPARE		A5E2	-	10-73-40		65						
14	354	67	A5E2	—	10-73-40	100 KEY	64						
13	353 ROTARY	67	A5E2	—	"	4 TRUNKS	63						
12	352	67	A5E2	-	"	8-S1-EXT.	62						
11	351	67	A5E2	-	"		61						

OFFICE 262 — LINE EQUIPMENT RECORD — GROUP 200

10	20	30	40	50 RI	60	70	80 RI	90	00
				2241			2231		

19 RI	29	39 RI	49	59	69	79	89	99 RI	09 RI
2188	TEST	2196						2164	2249

18 RI	28 RI	38	48	58 RI	68 RI	78	88	98 RI	08
2198	2146			2147	2194			2236	

17 B1	27	37 R2	47 RI	57	67 RI	77	87 RI	97	07
2124		2186	2153		2144		2220		
		2112							

16 RI	26 B1	36 RI	46 RI	56 RI	66 RI	76 RI	86 RI	96 RI	06
2131	2142	2170	2152	2136	2197	2247	2235	2239	

15 RI	25	35 B1	45 RI	55 RI	65	75 RI	85 RI	95 RI	05 RI
2133		2130	2129	2148		2190	2178	2252	2237

14 RI	24 RI	34 B1	44 RI	54 RI	64 RI	74 R4	84 RI	94 RI	04 RI
2139	2135	2122	2137	2193	2183	2115	2223	2243	2246
						2126			
						2134			
						2143			

13	23 R2	33 R1	43 R2	53 RI	63 R2	73 R2	83 RI	93 R2	03 RI
	2106	2128	2150	2191	2158	2117	2224	2168	2109
	2102		2157		2151	2132		2177	

12 RI	22 B1	32	42 RI	52 RI	62 B1	72	82 RI	92	02
2120	2125		2184	2229	2118		2228		

11	21 B1	31	41 B1	51 B1	61	71 R2	81	91 RI	01 RI
	2140		2171	2110		2174		2222	2210
						2255			

BUNCH BLOCK DATA

1-1	271	1-5	237	1-9		1-13		1-17		1-21									
1-2	274	1-6	223	1-10		1-14		1-18		1-22									
1-3	263	1-7	273	1-11		1-15		1-19		1-23									
1-4	243	1-8	293	1-12		1-16		1-20		1-24									

CLASS	B1	B2	B4	BR	R1	R2	R4	RR	PS	PBX
ALLOTTED THIS GROUP	15	X	X	X	61	15	8	X	X	X
-SSIGNED THIS GROUP	9				47	7	1			

NOTES:

OFFICE 262 — LINE EQUIPMENT RECORD — GROUP 300

10	20	30	40	50	60	70	80	90	00
19	29	39	49	59	69	79	89	99	09
18	28	38	48	58	68	78	88	98	08
17	27	37	47	57	67	77	87	97	07
16	26	36	46	56	66	76 R1	86	96	06
						2230			
15	25	35	45	55 TRK	65	75	85 R1	95	05
				SPARE			2251		
14	24	34	44 R2	54 TRK	64 R2	74	84 R1	94	04
			2175	2214	2104		2172		
			2227		2166				
13	23	33	43 R1	53 TRK	63 R1	73	83	93	03
			2160	2213	2180				
12	22	32	42	52 TRK	62 R1	72	82 R1	92	02
				2212	2242		2225		
11	21	31	41	51 TRK	61 R1	71	81	91	01
				2211	2219				

BUNCH BLOCK DATA

2-1	364	2-5																	
2-2	344	2-6																	
2-3		2-7																	
2-4		2-8																	

CLASS	B1	B2	B4	BR	R1	R2	R4	RR	PS	PBX
ALLOTTED THIS GROUP	20				50	20				10
ASSIGNED THIS GROUP	0				8	2				4

NOTES: ENTRIES REPRESENT ONLY THOSE STATIONS FROM CABLE A NOT ASSIGNED TO THE 200 GROUP.

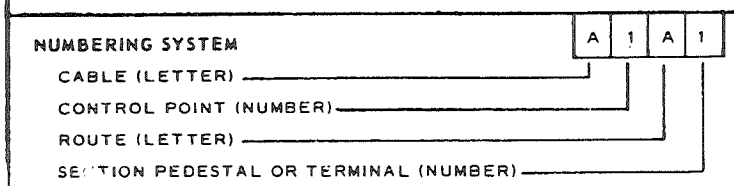
OUTSIDE PLANT LOCATION DIAGRAM

TE & CM - 116
EXHIBIT A - FRONT

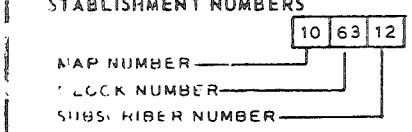
SYMBOLS
□ - PEDESTAL
△ - CONTROL POINT
▲ - CONTROL POINT - LOADING
● - POLE
⟵ FACILITY CHANGE
U - SYSTEM BOUNDARY
⊢² SECTION PEDESTAL

LEGEND [illegible]ES

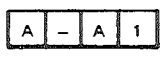
NUMBERING SYSTEM



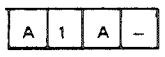
ESTABLISHMENT NUMBERS



NUMBERING SYSTEM EXAMPLES



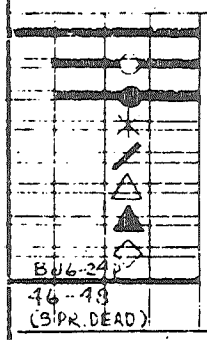
— CABLE A, ROUTE A, 1ST PEDESTAL FROM CENTRAL OFFICE



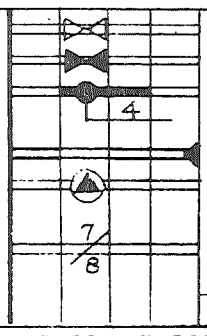
— CABLE A, 1ST CONTROL POINT, ROUTE A FROM C.O.

— CABLE A, 1ST CONTROL POINT, ROUTE A, PEDESTAL 1 BEYOND CONTROL POINT 1.

NOTE: *Numbering system always consists of a letter, a number, a letter & a number, except when dashes apply (see above).*



CABLE PAIR – IN ITS USAGE AREA
ALLOCATED PAIR
ASSIGNED PAIR
TEMPORARY PAIR ASSIGNMENT
PAIR CUT DEAD
CONTROL POINT
LOADING AT CONTROL POINT
CARRIER FILTER
IDENTIFYING DEAD PAIRS



CARRIER REPEATER
VOICE FREQUENCY REPEATER
CARRIER CHANNEL – INDICATE IF MORE THAN ONE CHANNEL.
FACILITY END
BUILDING-OUT CAPACITORS
OPEN WIRE PIN POSITIONS

STANDARD GROUP COLOR CODE - CABLE AND MPD WIRE

1	WHITE - BLUE	6	RED - BLUE	11	BLACK - BLUE	16	YELLOW - BLUE	21	VIOLET - BLUE
2	WHITE - ORANGE	7	RED - ORANGE	12	BLACK - ORANGE	17	YELLOW - ORANGE	22	VIOLET - ORANGE
3	WHITE - GREEN	8	RED - GREEN	13	BLACK - GREEN	18	YELLOW - GREEN	23	VIOLET - GREEN
4	WHITE - BROWN	9	RED - BROWN	14	BLACK - BROWN	19	YELLOW - BROWN	24	VIOLET - BROWN
5	WHITE - SLATE	10	RED - SLATE	15	BLACK - SLATE	20	YELLOW - SLATE	25	VIOLET - SLATE

NOTE 1. USE ABOVE COLOR CODE IN NUMERICAL ORDER FOR ALL COLOR - CODED CABLES SMALLER THAN TWENTY-FIVE PAIRS.
NOTE 2. USE ABOVE COLOR CODE IN NUMERICAL ORDER FOR GROUP BINDER - STRING COLOR CODE.
NOTE 3. THE ABOVE COLOR CODE IS APPLICABLE FOR ALL TWENTY-FIVE PAIR COLOR GROUPS.
NOTE 4. USE ABOVE COLOR CODE IN NUMERICAL ORDER FOR ALL SIZES OF MULTI-PAIRED DISTRIBUTION WIRE.

CABLE PAIR

TE & CM - 116
EXHIBIT A - BACK

OUTSIDE PLANT FACILITY RECORD

OFFICE	CABLE COUNT	SHEET COUNT	OF SHEET NUMBER	CABLE

ESTABLISHMENT NUMBERS

PLANT FACILITY LAYOUT

PEDESTAL SECTION FEET

CONTROL POINT KF

SECTION PED. NO. ..

ROUTE LETTER .....

CONTROL POINT NO.

CABLE LETTER .....

TEL. OR CIRCUIT NUMBER	TERM. TYPE →
	CABLE PAIR ↓

TE & CM - 116
EXHIBIT B - FRONT

OUTSIDE PLANT FACILITY RECORD

OFFICE	CABLE COUNT	SHEET COUNT	OF SHEET NUMBER	CABLE

ESTABLISHMENT NUMBERS

PLANT FACILITY LAYOUT

PEDESTAL SECTION FEET

CONTROL POINT KF

SECTION PED. NO. ..

ROUTE LETTER .....

CONTROL POINT NO.

CABLE LETTER .....

TEL. OR CIRCUIT NUMBER	TERM. TYPE →
	CABLE PAIR ↓

TE & CM - 116
EXHIBIT B - BACK

OFFICE						CENTRAL OFFICE FACILITY RECORD						GROUP
CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS	CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS
50							00						
59							09						
58							08						
57							07						
56							06						
55							05						
54							04						
53							03						
52							02						
51							01						
40							90						
49							99						
48							98						
47							97						
46							96						
45							95						
44							94						
43							93						
42							92						
41							91						
30							80						
39							89						
38							88						
37							87						
36							86						
35							85						
34							84						
33							83						
32							82						
31							81						
20							70						
29							79						
28							78						
27							77						
26							76						
25							75						
24							74						
23							73						
22							72						
21							71						
10							60						
19							69						
18							68						
17							67						
16							66						
15							65						
14							64						
13							63						
12							62						
11							61						

TE & CM - 116
EXHIBIT C - FRONT

OFFICE						CENTRAL OFFICE FACILITY RECORD						GROUP
CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS	CONN. TERM	LINE EQ. NO.	CABLE PAIR	PEDESTAL NUMBER	BU BLK	ESTAB. NUMBER	STATION APPARATUS
50							00						
59							09						
58							08						
57							07						
56							06						
55							05						
54							04						
53							03						
52							02						
51							01						
40							90						
49							99						
48							98						
47							97						
46							96						
45							95						
44							94						
43							93						
42							92						
41							91						
30							80						
39							89						
38							88						
37							87						
36							86						
35							85						
34							84						
33							83						
32							82						
31							81						
20							70						
29							79						
28							78						
27							77						
26							76						
25							75						
24							74						
23							73						
22							72						
21							71						
10							60						
19							69						
18							68						
17							67						
16							66						
15							65						
14							64						
13							63						
12							62						
11							61						

TE & CM - 116
EXHIBIT C - BACK

OFFICE	LINE EQUIPMENT RECORD	GROUP

10	20	30	40	50	60	70	80	90	00
19	29	39	49	59	69	79	89	99	09
18	28	38	48	58	68	78	88	98	08
17	27	37	47	57	67	77	87	97	07
16	26	36	46	56	66	76	86	96	06
15	25	35	45	55	65	75	85	95	05
14	24	34	44	54	64	74	84	94	04
13	23	33	43	53	63	73	83	93	03
12	22	32	42	52	62	72	82	92	02
11	21	31	41	51	61	71	81	91	01

BUNCH BLOCK DATA

CLASS	B1	B2	B4	BR	R1	R2	R4	RR	PS	PBX
ALLOTTED THIS GROUP										
ASSIGNED THIS GROUP										

NOTES:

TE & CM - 116
EXHIBIT D - FRONT

OFFICE				LINE EQU. ENT RECORD						GROUP	
10	20	30	40	50	60	70	80	90	00		
19	29	39	49	59	69	79	89	99	09		
18	28	38	48	58	68	78	88	98	08		
17	27	37	47	57	67	77	87	97	07		
16	26	36	46	56	66	76	86	96	06		
15	25	35	45	55	65	75	85	95	05		
14	24	34	44	54	64	74	84	94	04		
13	23	33	43	53	63	73	83	93	03		
12	22	32	42	52	62	72	82	92	02		
11	21	31	41	51	61	71	81	91	01		

BUNCH BLOCK DATA

CLASS	B1	B2	B4	BR	R1	R2	R4	RR	PS	PBX
ALLOTTED THIS GROUP										
ASSIGNED THIS GROUP										

NOTES:

TE & CM - 116
EXHIBIT D - BACK

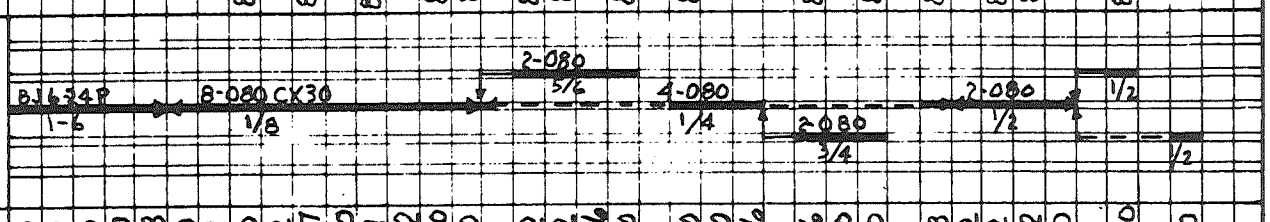
OUTSIDE PLANT FACILITY RECORD

OFFICE | CABLE COUNT | SHEET COUNT | SHEET NUMBER OF | CABLE

OPEN WIRE APPLICATION

ESTABLISHMENT NUMBERS: 8-12-30, 8-12-24, 8-12-18, 8-12-16, 8-12-12, 8-12-6, 8-12-4, 8-12-2, 8-12-15, 8-12-13, 8-12-11, 8-12-9, 8-12-7, 8-12-5, 8-12-3, 8-12-1

PLANT FACILITY LAYOUT



PEDESTAL SECTION FEET

530	602	510	460	198	210	612	1020	212	997	1070	1031	992	420	410	202	412	1006	420	200	410	1006	206	1060	810	198	1002	412	602	250	1000	610

CONTROL POINT KF: 20.27, 24.78, 29.29, 33.78

SECTION PED. NO. ..	B5	B6	7	1	1	B2	B5	B10	1	B5	B10	B15	B20	1	B3	B5	B10	B12	B13	B15	B20	B21	B25	B29	B30	B35	B37	B40	1	B5	B8
ROUTE LETTER	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
CONTROL POINT NO.	5	5	5	6	6	6	6	6	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9
CABLE LETTER	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B

TEL. OR CIRCUIT NUMBER	TERM. TYPE → / CABLE-PAIR ↓																															
	B12	2	2	2	2	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
350	1																															
298	2																															
260	3																															
229	4																															
	5																															
	6																															

NOTE: THIS EXAMPLE IS IN NO WAY RELATED TO THE EXAMPLE (CABLE A1) PRESENTED ON PAGES 1-12.

OUTSIDE PLANT FACILITY RECORD

2XX	1-200	1-25	1 OF 1	A
OFFICE	CABLE COUNT	SHEET COUNT	SHEET NUMBER	CABLE

THREE DIGIT OFFICE CODE
FULL M.D.F. COUNT OF CABLE
CABLE PAIRS RECORDED THIS SHEET ONLY
SHEET ONE THROUGH TOTAL NUMBER FOR A COMPLETE CABLE
DESIGNATION FOR CABLE - THIS SHEET

ESTABLISHMENT NUMBERS: 10-61-3 | 10-61-7,9,11,13 | 10-61-17,19,21 | 10-61-25 | 10-61-29 | 10-61-33 | 10-61-37 | 10-61-43 | 10-61-47 | 10-61-51 | 10-61-55 | 10-61-71 | 10-61-75 | 10-61-77

PLANT FACILITY LAYOUT

25-24P 1-25 | 18-24 1-18 | 2-19 13-14 | 3 | B 12-24P 1-12 | 6-24 1-6 | 3 | 2-19 1-12 | A

PEDESTAL SECTION FEET	482	513	498	612	530	575	671	620	632	710	596	680	612	650	612	830	712	810
CONTROL POINT KF					20.30								24.85				26.0	
SECTION PED. NO. ..	A4	A4	A4	A7	1	A1	A2	A3	A4	A5	A6	A7	A8	A1			A3	A4
ROUTE LETTER	A4	A4	A4	A7	A5	A5	A5	A5	A5	A5	A5	A5	A5	A6		A6	A6	A6
CONTROL POINT NO.	A4	A4	A4	A5	A5	A5	A5	A5	A5	A5	A5	A5	A5	A6		A6	A6	A6
CABLE LETTER	A	A	A	A	A	A	A	A	A	A	A	A	A	A		A	A	A
TEL. OR CIRCUIT NUMBER — TERM. TYPE	BD2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2	" 2
CABLE PAIR 1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
236 — 12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
2171 — 24																		
25																		

→ PAR. 4.04
→ PAR. 4.04
→ PAR. 4.06
→ PAR. 4.06
→ PAR. 3, 4.02, 4.04
→ PAR. 4.07
→ PAR. 4.08
→ PAR. 4.08
→ PAR. 4.05
→ PAR. 4.08
→ PAR. 4.08
→ PAR. 4.05
→ PAR. 4.09
→ PAR. 4.05
→ PAR. 4.09

NOTE: THE TIME PERIOD FOR ABOVE EXAMPLE IS BEFORE CUTOVER AND AT THE START OF ACTUAL CONNECTION OF STATIONS TO CABLE PAIRS AS PER PAIRS 12 AND 24, ABOVE.

TE & CM - 116
EXHIBIT E - FRONT