

## SUMMARY OF REA CONSTRUCTION PROCEDURES

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CHART - Summary of REA Construction Procedures Following Loan Approval

#### 1. PURPOSE

1.1 To present in outline form the step-by-step procedures and REA Forms to use, as described in REA Publications, to design and construct REA Financed Telephone Plant facilities.

#### 2. GENERAL

2.1 REA program policies, procedures, and technical information are issued in the REA Bulletin Series. There is available the "Index and List of Current REA Bulletins" which is an index by subject matter. The attached "Summary of Procedures" is by plant items and shows the steps to be followed for the installation and construction of central office equipment, outside plant, buildings and special equipment. It also lists REA Bulletins and TE&CM Sections, as well as Forms to be used, for preparation and completion of plans and specifications, bid requests, contracts, construction and contract closeout of Central Office Equipment, Outside Plant, Buildings, Special Equipment, Force Account and Engineering Services. Step 3 of the summary under the plans and specification category lists telephone plant that the Central Office Equipment, Building or Special Equipment contracts should include. Steps 3, 4, 5, and 6 list bulletins, TE&CM Sections, and Forms that are necessary for the preparation and completion of plans and specs, contracts, construction and the closeout of Central Office Equipment, Outside Plant, Building, Special Equipment, and engineer service contracts as well as force account proposals.

The following procedure should be followed for obtaining REA approval of various documents:

REA TE & CM 105

<u>DOCUMENT</u>	<u>COE</u>	<u>O.P.</u>	<u>BUILDING</u>	<u>SPECIAL EQUIPMENT</u>	<u>F.A.</u>
Plans and Specifications	A	B	C	C	N.A.
Bids or Proposals	D	D	D	D	N.A.
Contracts or F.A. Proposal	E	E	E	E	E
Final Documents	A	A	A	A	A

- A. Field Engineer reviews and sends to REA\* for approval.
- B. Field Engineer reviews and approves.
- C. Field Engineer approves or submits to REA\* for approval.
- D. Request REA\* approval.
- E. Submit to REA\* for approval.

\*REA refers to Chief, Area Engineering Branch

CENTRAL OFFICE EQUIPMENT

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-340-3		Coordination of Borrowers' Activities with Connecting Systems
B-384-1		Purchasing and Installing Central Office Equipment
B-384-3		Central Office Equipment Contracts and Specifications
	558	General Specifications, Direct Acting
	524	General Specifications for Common Control Central Office Equipment
	522	General Specification for Digital, Stored Program Controlled COE
	537	REA Specifications of Equipment for Automatic Number Identification - CAMA
	528	Specifications for Private Automatic Branch Exchanges
	538	General Specification, Equipment for Direct Distance Dialing
	542	General Specifications, Toll Office Equipment
T-325		Application Guide for the Preparation of Detailed Dial Central Office Equipment Requirements
T-335		Application Guide for the Preparation of Detailed Common Control Central Office Equipment Requirements
T-322		Application Guide for the Preparation of Detailed Digital Central Office Equipment Requirements (Part III of Form 522)
T-328		Application Guide for the Preparation of Detailed Equipment Requirements for Automatic Number Identification Equipment

CENTRAL OFFICE EQUIPMENT (Cont'd.)

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
T-750		Application Guide for the Preparation of Detailed PABX Equipment Requirements
T-327		Application Guide for the Preparation of Detailed Equipment Requirements for Direct Distance Dialing Equipment
T-326		Application Guide for the Preparation of Part III Specifications - Detailed Toll Office Equipment Requirements
	810	Central Office Equipment Engineering Information
	525	Central Office Equipment Contract
	545	Central Office Equipment Contract (Not Including Installation)
	400	Telephone Equipment Contract (Installation Only)
B-344-2		List of Materials Acceptable for Use on Telephone Systems of REA Borrowers
B-344-3		"Buy American" Requirements
B-345-45		Field Trials of Telephone Construction Materials and Equipment
B-320-15		Equal Employment Opportunity in Construction Financed with REA Loans
	270	Equal Opportunity Addendum
	525a	Contractors Bond
	399	Supplement Agreement to Equipment Contract for Field Trial

CENTRAL OFFICE EQUIPMENT (Cont'd.)

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-381-9		Amendments to Contracts for Construction or Installation of Telephone Borrowers' Facilities
B-384-2		Closeout Documents, Central Office Equipment Contracts
	238	Construction/Equipment Contract Amendment Bond Extension (20%)
	754	Certificate of Completion (Including Installation)
	517	Results of Acceptance Tests
	752a	Certificate of Completion (Not Including Installation)
	213	Certificate, (Buy American)
	400b	Certificate of Contractor and Indemnity Agreement
	400c	Certificate of Completion, Telephone Equipment Contract (Installation Only)

OUTSIDE PLANT

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-381-7		Methods of Construction of Telephone Borrowers' Initial System Outside Plant Facilities
B-381-8		Contract Construction, Telephone Borrowers' Initial System Outside Plant Facilities
B-383-1		Preparation of Telephone System Plans and Specifications for Construction of Outside Plant
B-381-2		Telephone System Construction Contract, Labor and Material Form 515
B-305-1		Joint Use of Facilities for Telephone and Electric Service
	515	Telephone System Construction Contract
	515a	Specifications & Drawings for Construction of Direct Buried Plant
	515c	Specifications & Drawings for Conduit & Manhole Construction
	515d	Specifications & Drawings for Underground Cable Installation
	515f	Specifications & Drawings for Construction of Pole Lines, Aerial Cables & Wires
	515g	Specifications & Drawings for Service Entrance & Station Protector Installation
	263	General Agreement Joint Use of Wood Poles
	777	Agreement for Joint Use of Electric System Poles
B-381-1		Tabulation of Bids for Contract Construction of Telephone Outside Plant Facilities
B-381-13		Bidders Qualifications

OUTSIDE PLANT (Cont'd.)

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-344-2		List of Materials Acceptable for Use on Telephone Systems of REA Borrowers
B-381-9		Amendments to Contracts for Construction or Installation of Telephone Borrowers' Facilities
B-381-10		Subcontracts Under Contracts for Construction or Installation of Telephone Borrowers' Facilities
B-382-2		Construction of Telephone System Improvements and Extensions by Work Order or Contract
	282	Subcontract (Under Construction or Equipment) Contract
	787	Supplement A to Construction Contract
	798	List of Owner's Materials on Hand
	798a	List of Materials ordered by Owner but not Delivered
	168b	Contractors Bond
	756	Telephone Line Extension Construction Contract (Labor and Material)
	778a	Summary of Construction Completed by Line Extension Contract (Inspected by Licensed Engineer or Borrower's Staff Engineer)
	796	Pre-Construction Conference
B-380-3	521	Biweekly Progress Report of Telephone Construction and Engineering Services
B-381-11		Changes or Corrections in Line Construction
B-381-9		Amendments to Contracts for Construction or Installation of Telephone Borrowers' Facilities

OUTSIDE PLANT (Cont'd.)

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-381-4		Closeout Documents, Telephone Construction Contract Labor and Materials (Outside Plant)
	526	Construction Contract Amendment Bond Extension (20%)
	724	Final Inventory, Telephone Construction Contract
	724a	Final Inventory, Telephone Construction Col. 1-8
	724b	Final Inventory, Telephone Construction Col. 9 - 14
	281	Tabulation of Materials Furnished by Borrower
	213	Certificate, (Buy American)
	216	Construction Change Order
	224	Waiver & Release of Lien
	231	Certificate of Contractor
	527	Statement of Construction, Telephone System Outside Plant

BUILDING

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-387-1		Preparation of Plans and Specification for Construction of Telephone Borrower's Buildings
B-387-2		Contract to Construct Buildings, REA Form 257
B-387-4		Presentation of Building Plans and Specifications
B-320-5		Headquarters Facilities for Telephone Borrowers
B-380-1		Right-of-Way and Title Procedures
	772	Specification for Construction of Unattended Telephone Central Office Building
	772a	Plan of Unattended Telephone Central Office Building, Masonry Type
	772b	Details for Connection of an Addition to Central Office Building (REA Form 772)
	257	Contract to Construct Buildings
	257a	Contractor's Bond
B-387-5		Contract Construction, Telephone Borrowers' Buildings
	278	Tabulation of Bids
	238	Construction/Equipment Contract Amendment
B-381-9		Amendments to Contracts for Construction or Installation of Telephone Borrower's Facilities
B-387-3		Final Documents Required to Close Out Construction of Buildings, Telephone Program
	181	Certificate of Completion, Contract Construction Buildings
		Bond Extension (20%)

BUILDING (Cont'd.)

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
	231	Certificate of Contractor
	224	Waiver & Release of Lien
	213	Certificate, (Buy American)

SPECIAL EQUIPMENT CONTRACTS

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-385-2		Purchasing and Installing Special Electronic Equipment
B-344-2		List of Materials Acceptable for Use on Telephone Systems of REA Borrowers
B-385-4		Special Equipment Contracts and Specifications
	397b	REA Design Specifications for Wire Line Trunk Carrier Systems
	397c	Subscriber Carrier Specifications
	397d	REA Design Specifications for Point-to-Point Microwave Radio Systems
	397e	Mobile and Fixed Dial Radiotelephone Equipment Specifications
	397g	Performance Specification for Subscriber Line Concentrators
	397a	Voice Frequency Repeaters and Voice Frequency Repeated Trunk Specifications
T-904		Application Guide for Trunk Carrier Specifications
T-903		Application Guide for Subscriber Carrier Specifications
T-933		Application Guide for Point-to-Point Radio (Microwave) Specifications
T-943		Application Guide for Mobile and Fixed Dial Radiotelephone Specifications
T-341		Application Guide for the Preparation of Detailed Subscriber Line Concentrator Requirements

SPECIAL EQUIPMENT CONTRACTS (Cont'd.)

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
	397	Special Equipment Contract (Including Installation)
	398	Special Equipment Contract (Not Including Installation)
	400	Telephone Equipment Contract (Installation Only)
B-344-3		"Buy American" Requirements
B-320-15		Equal Employment Opportunity in Construction Financed with REA Loans
B-345-45		Field Trials of Telephone Construction Materials and Equipment
	397f	Contractor's Bond (Special Telephone Equipment)
	270	Equal Opportunity Addendum
	399	Supplemental Agreement to Equipment Contract for Field Trial
B-385-3		Closeout Documents for Special Equipment Contracts
B-381-9		Amendments to Contracts for Construction or Installation of Telephone Borrower's Facilities
	238	Construction Equipment Contract Amendment (Bond Extension 20%)
	396	Certificate of Completion - Special Equipment Contracts (Including Installation)
	396a	Certificate of Completion - Special Equipment Contracts (Not Including Installation)
	744	Certificate of Contractor and Indemnity Agreement
	213	Certificate (Buy American)
	400b	Certificate of Contractor & Indemnity
	400c	Certificate of Completion, Telephone Equipment Contract (Installation Only)

FORCE ACCOUNT PROPOSAL

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-382-1		Force Account Construction, Telephone Borrowers' Initial Systems
B-344-2		List of Materials Acceptable for Use on Telephone Systems of REA Borrowers
	515	Telephone System Construction Contract
B-380-3		Weekly Progress Report of Telephone Construction and Engineering Services
B-382-2		Final Inventory Documents, Force Account Construction, Telephone Borrowers' Initial System
	521	Biweekly Progress Report of Telephone Construction and Engineering Services
	817	Final Inventory, Telephone Force Account Construction
	817a	Final Inventory, Telephone Force Account Construction, Cols. 1 - 8
	817b	Final Inventory, Telephone Force Account Construction, Cols. 9 - 14
	527	Statement of Construction
	213	Certificate, (Buy American)

ENGINEERING AND ARCHITECTURAL  
SERVICE CONTRACTS

TITLE OF PUBLICATION

Bulletin or TE&CM	Form No.	
B-341-3		Engineering Services for Telephone Borrowers
B-342-1		Architectural Services for Telephone Borrowers
	217	Postloan Engineering Services Contract Telephone Systems
	165	Architectural Services Contract - Telephone
	506	Statement of Engineering Fee - Telephone
	179	Architects and Engineers Qualifications
	223	Amendment of Telephone Engineering Service Contract - Additional Project
	241	Amendment of Engineering Service Contract
	245	Engineering Services Contract, Special Services
	242	Assignment of Engineering Services Contract
B-341-1		Final Statement of Engineering Fee and Certificate of Engineer, Telephone Engineering Service Contract
B-387-3		Final Documents Required to Closeout Construction of Buildings, Telephone Program
	284	Statement of Architect's Fee

SUMMARY OF REA CONSTRUCTION PROCEDURES  
FOLLOWING LOAN APPROVAL

	CENTRAL OFFICE EQUIPMENT CONTRACTS	OUTSIDE PLANT CONTRACTS	BUILDING CONTRACTS	SPECIAL EQUIPMENT CONTRACTS	FORCE ACCOUNT PROPOSALS	ENGINEERING AND ARCHITECTURAL CONTRACTS
STEP 1 For "A" Loans	Review ACS & ACD as basis for plans and specs.	Review ACS & ACD as basis for staking and P&S. Follow SAVE design TE&CM 230, 231 & 232	Review ACD as the basis for building plans and specs.	Review ACD as the basis for special equipment P&S.	Review ACD as the basis for staking and FA Prop. Follow SAVE design TE&CM 230, 231, 232	Borrower negotiate engr. fee. Execute post loan engineering service contract and or Arch. Serv. Contract Bulletin 341-3, 342-1
STEP 2 For other than "A" Loans	Review ACS (REA Bulletin 383-4)	Where required prepare an outside plant layout (Bulletin 383-4) and obtain REA approval. Follow SAVE design TE&CM 230, 231 & 232	SLP is the basis for building plans and specs.	OP layout & SLP is the basis for special equip. P&S	Where required prepare an outside plant layout (Bulletin 383-4) and obtain REA approval. Follow SAVE design TE&CM 230, 231, 232	SAME AS ABOVE
STEP 3 For all Loans	Prepare COE plans and specs.	Stake 100% of OP to be constructed and prepare OP plans and specs.	Check land title clearance and prepare plans and specs.	Prepare special equipment plans and specifications	Stake outside plant to be constructed	
	1. Direct Acting COE Form 558 TE&CM 325 2. Common Control COE Form 524 TE&CM 335 3. Digital COE Form 522, TE&CM 322 4. ANI Equipment Form 537 TE&CM 328 5. PABX Equipment Form 528 TE&CM 750 6. Direct Distance Dial Equip. (ATT Equip.) Form 538 TE&CM 327 7. Toll Office Equip. Form 542 TE&CM 326 (Bulletin 340-3, 384-1 384-3) Form 810 Contract Form No. 525, 545, 400	1. Buried Plant Form 515a 2. Aerial Plant Form 515f 3. Service Installations Form 515g 4. Manhole & Conduit Form 515c 5. Underground Form 515d  (Bulletin 381-7, 381-8 383-1, 381-2, 305-1) Contract Form 515 Form 263, 777	1. Headquarters Bldg. 2. CDO Building 3. Building Additions 4. Garage and Warehouse 5. Carrier Hut  Bulletin 387-1 Bulletin 387-2 Bulletin 387-4 Bulletin 320-5 Bulletin 380-1  Specification Form 772, 772a, 772b  Contract Form 257	1. Voice Freq. Repeaters Form 397a 2. Trunk Carrier Form 397b TE&CM 904 3. Subscriber Carrier Form 397c TE&CM 903 4. Microwave (Radio Equip) Form 397d TE&CM 933 5. Mobile Radio Equip Form 397e TE&CM 943 6. Line Concentrator Form 397g TE&CM 341 (Bulletin 385-2, 385-4)  Contract Form 397, 398, 398a, 400	1. Buried Plant 2. Aerial Plant 3. Service Entrance 4. Manhole & Conduit 5. Underground 6. Station Carrier  Bulletin 382-1 Form 515  Specification Form 515a (Buried Plant) 515f (Aerial Plant) 515g (Service Entrance) 515c (Manhole & Conduit) 515d (Underground)	
STEP 4 For All Loans	REQUEST BIDS OR QUOTATIONS Bulletin 384-1, 344-2, 345-45	REQUEST BIDS Bulletin 381-1, 381-8 381-13, 344-2 C sheets 515 Form	REQUEST BIDS Bulletin 387-5 Form 278	REQUEST QUOTATIONS Bulletin 385-2, 344-2, 345-45	N/A	N/A
STEP 5 For All Loans	PREPARE CONTRACTS Bulletin 384-3, 344-3 345-45, 320-15, Form 525, 545, 400, 270, 525a, 399	PREPARE CONTRACTS Bulletin 381-8, 381-10 382-2, Forms 515, 282, 787, 798, 798a 168b, 756, 778a	PREPARE CONTRACTS Bulletin 387-5, Form 257, 257a	PREPARE CONTRACTS Bulletin 385-4, 344-3, 320-15, 345-45, Form 397 398, 400, 397f, 270, 399	PREPARE F. A. PROPOSAL Bulletin 382-1, 344-2, 515, 515a, 515f, 515g, 515c, 515d	ENGINEERING & ARCHITECTURAL SERVICE CONTRACT Bulletin 341-3, 342-1, Form 217, 165, 506, 179, 223, 241, 245, 242
STEP 6 For All Loans	INSTALL COE AND CLOSE OUT CONTRACT Bulletin 381-9, 384-2, Form 238, Bond Ext. (20%), 754, 517, 752a, 213, 400b, 400c	INSTALL OP AND CLOSE OUT CONTRACT Pre-Construction Conference, Bulletin 380-3, 381-11, 381-9 381-4, Forms 796, 521, 526, Bond Ext. (20%) 724, 724a, 724b, 281, 213, 216, 224, 527 221	CONSTRUCT BUILDING AND CLOSE OUT CONTRACT Bulletin 381-9, 387-3, Form 238, Bond Ext. (20%) 181, 231, 224, 213 as built P&S or Architect's Statement	INSTALL SPECIAL EQUIPMENT AND CLOSE OUT CONTRACT Bulletin 385-3, 381-9, Form 238, Bond Ext. (20%) 396, 396a, 744, 213, 400b, 400c	CONSTRUCT O.P. AND CLOSE OUT F.A. PROPOSAL Bulletin 380-3, 382-3, Form 521, 817, 817a, 817b, 527, 213	CLOSE OUT ENGINEERING SERVICE CONTRACT Bulletin 341-1, 387-3 Form 506, 284