

DEPARTMENT OF THE ARMY
Corps of Engineers, Portland District
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CENWP-EC
Regulation
No. 1110-2-7

15 February 2002

Engineering and Design
PROJECT DRAWINGS

History. This issue is a revision of NPPR 1110-2-7.

Summary. This regulation on preparation and disposition of project drawings is revised to change many office symbols and forms to be used in this procedure.

1. PURPOSE. Establish policy and procedures for preparation and disposition of project drawings.
2. APPLICABILITY. Applicable to all District elements involved in preparation, review, distribution, and filing of project drawings (excluding Navigation under Operations Division, **CENWP-OP-NW**).
3. REFERENCES.
 - a. Required Publications.
 - (1) AR 25-400-2 (The Modern Army Recordkeeping System [MARKS]). Cited in paragraph 8e.
 - (2) ER 37-2-10 (Accounting and Reporting Civil Works Activities). Cited in paragraph 11.
 - (3) ER 37-345-10 (Accounting and Reporting Military Activities). Cited in paragraph 11.
 - (4) ER 415-1-10 (Contractor Submittal Procedures). Cited in paragraph 7a.
 - (5) ER 1110-2-109 (Hydro-Electric Design Center). Cited in paragraph 5a(1).
 - (6) ER 1110-2-1200 (Plans and Specifications). Cited in paragraph 5a(1) and 6a.

*This regulation supersedes NPPR 1110-2-7, 1 April 1996.

b. Related Publication. **AR 25-1 (The Army Information Resources Management Program)**.

4. DEFINITIONS.

a. Contract Drawings are part of a contract. Included are informational drawings such as exploration drill logs and as-constructed drawings from previous projects.

b. Contractor Submittals are required by contract documents and include shop drawings, samples, letters of certification, tests and other engineering information.

c. As-Constructed Drawings are contract drawings and contractor submittals revised to indicate conditions existing at the time of physical contract completion.

d. Operation and Maintenance Drawings are revised contract drawings, revised shop drawings, or new drawings showing as-constructed (installed) conditions.

e. Operation and Maintenance Manuals are documents containing data consisting of operating instructions, maintenance and repair instructions, parts lists, and dismantling, assembly, adjusting, and startup-shutdown procedures for specific equipment or systems.

f. **Technical Lead (TL)** is a designated person from a technical branch responsible for the technical aspects of a product or project. The product is essentially related to accomplishing a design task such as a design memo, study, or plans and specifications.

g. Contracting Officer Representative (COR) is an individual designated authority by the Contracting Officer to administer specific contract requirements as outlined in the letter of appointment. For the purpose of this regulation, the COR duties include the approval of contractor drawing submittals and operation and maintenance manuals. In case a COR is not designated, the Contracting Officer or Administrative Contracting Officer (ACO) will perform the contract actions.

5. RESPONSIBILITIES.

a. **Engineering and Construction (EC) Division will:**

(1) Prepare and issue contract drawings using ER 1110-2-1200. (Refer to ER 1110-2-109 for hydroelectric design requirements).

(2) **Issue all project drawing numbers for new drawings from CENWP-EC-CR-R and review for completeness and compliance with regulatory requirements.**

(3) **Retain either on-site or archived at the Federal Records Center, all original project drawings. Transmit paper and electronic copies of contract and as-constructed drawings to the appropriate offices.**

(4) **Maintain the CADD system drawing files and Portland District CADD Standards in CENWP-EC-CR-E.**

(5) Review contractor submittals designated on ENG Form 4288-R (Submittal Register) or DD Form 1423 (Contract Data Requirements List) and Operation and Maintenance (O&M) manuals.

(6) Process and transfer by DA Form 200 (Transmittal Record) as-constructed drawings, O&M manuals and drawings from EC Division Branch Offices or **CENWP-EC-CR-R** office to the Operations Division (**CENWP-OP**) Project Field Offices, or by letter to other customers, and send copy of DA Form 200 to Chief, **CENWP-OP** (except other customers as-constructed information).

b. **Operations (OP) Division will:**

(1) Receive from EC and distribute Operation and Maintenance manuals to appropriate project field offices.

(2) Receive copy of DA Form 200 as record of transfer of final approved as-constructed drawings sent to appropriate project field offices by **CENWP-EC**.

c. **Construction Branch (CENWP-EC-C) will:**

(1) Monitor the contractor's management control to assure that the contractor's submittals are timely and appropriately certified.

(2) Review designated contractor submittals and obtain review comments from EC Division as appropriate. Approve all contractors' construction submittals required by the contract to be submitted for approval.

(3) Review, revise for field clarification, and approve as-constructed drawings and furnish a copy of this information to Chief, EC Division.

d. **Contracting Division (CT) will:** Maintain the official contract file which should include shop drawing submittals for supply contracts.

6. CONTRACT DRAWINGS.

a. General format and guidelines are found in ER 1110-2-1200 **specific requirements are as indicated in the Portland District CADD Standards.** Drawings are prepared by manual or Computer Aided Drafting and Design (CADD) methods.

b. Refer to Appendix A for guidance on assignment of drawing numbers.

c. Full size informational drawings will not be available for standard distribution.

d. The original prints that are completed using manual methods will be retained by the **TL** or in the office of origin, until they become as-constructed drawings. After they become as-constructed drawings, a half size paper set will be maintained by **CENWP-EC-CR-R**, except for drawings prepared in **CENWP-HDC**, **which** will be filed by them.

e. All drawings produced on the **EC** Division CADD System will be retained by **CENWP-EC-CR-R as permanent record, with electronic files retained** under the auspice of the CADD System Manager. The permanent as-constructed contract drawings will also be **retained by CENWP-EC-CR-R as permanent record, with electronic files retained** in the CADD system. All **electronically** archived CADD drawings will be retained on permanent **storage** under the auspice of the CADD System Manager and field offices. Changes will be sent as they occur by paper copy to the CADD system manager to keep CADD files current.

f. The original exploration drill logs will be retained by **CENWP-EC-HG**.

7. CONTRACTOR SUBMITTALS.

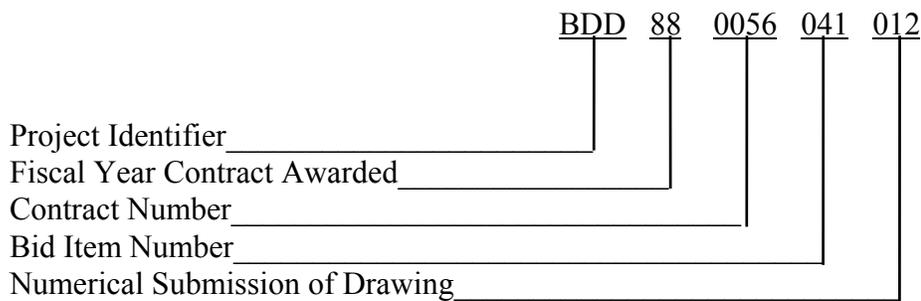
a. Construction Contract Submittals. ER 415-1-10 provides general policy and procedures. Refer to Appendix B for flow diagrams.

(1) During the design review phase for each construction contract, a list of all required submittals, that are an extension of design and contractor's compliance as referred to in Section **01330** of each contract, will be indicated on ENG Form 4288-R (Submittal Register). This list will be included in the Biddability, Constructibility, Operability and Environmental (BCOE) Review. **EC** Division, in coordination with **OP** Division, will determine the appropriate reviewing element **and timeframe** for each submittal.

(2) The contractor will expand and complete the detail on the ENG Form 4288-R. **CENWP-EC-C** field activities will coordinate with the **TL** on the review of submittals to assure that all required submittal schedules, review times, and procurement lead times are reasonable.

(3) In accordance with the contract provisions, the contractor will transmit submittals attached to ENG Form 4025-**R** (Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance). For routing government review actions, the COR office will utilize ENG Form 4026 (Routing of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance) to transmit contractor submittals. A minimum of two copies of ENG Form 4025-**R** with attachments will be provided with ENG Form 4026 to the reviewing office. One copy of the COR final approved ENG Form 4025-**R** with attachments, will be provided to the **TL** in **CENWP-EC**; and in the case where **CENWP-HDC** is the reviewing office, a copy of the final approved ENG Form 4025-**R** without attachments will be provided both **CENWP-HDC** and the **TL** in **CENWP-EC**. In lieu of sending informational copies of completed ENG Form 4025-**R** and/or 4026's to the **TL** in **CENWP-EC**, a copy of the COR Office Submittal Register may be forwarded on a minimum bi-weekly basis. The submittal register must contain, at a minimum, the transmittal number, the date received, the date returned, and the action on each item. Contractor approved submittals will be handled similarly.

(4) The COR will assign a number to each item transmitted as follows:



(5) **EC** Division review of submittals will be performed by individuals who do not have "delegated" approval authority. Individuals performing the review will stamp or otherwise indicate on the submittals "Approval Recommended" with the signature of the person(s) who performed the technical review and date of action, and forward for approval to the COR. In the event submittals are recommended for conditional approval, the person(s) performing the technical review will furnish concise comments on the conditions of approval written in a form that can be transmitted directly to the contractor. In a like manner the review(s) will include comments for the COR's reply to the contractor when disapproval action is recommended.

(6) **EC** Division review will be coordinated by the **TL**. The **TL** will distribute the submittals to the appropriate technical section(s) to perform the review and monitor the progress.

The reviewer will mark-up, stamp, date, and sign the prints and will prepare the ENG Form 4026 and remarks for signature by the Section Chief. The **TL** will review and/or monitor all actions, forward the package to the appropriate office and keep a review file of all documents. Resubmittals will be handled the same as original submittals. Previous submittal documents will be available from the **TL**'s review file.

(7) The COR will process the submittal for return to the contractor and the original or reproducible of the data retained by the COR. One copy of forms and data, revised by the construction office subsequent to **EC** Division review, will be forwarded to the **TL** for future reference and filing.

(8) A review file will be maintained by the **TL** for reference during the life of the contract and for review of the as-constructed drawings. This review file will be destroyed or sent to **OP** project office if **desired** within one year after final completion of the contract or when the as-constructed drawings are transferred by **CENWP-EC-CR-R** to **OP** Division or customer, whichever is later. The active contract file will be maintained by the COR, who may distribute additional copies as needed or requested. The file will be transferred to **OP** Division after contract completion.

b. Supply Contract Submittals. Refer to Appendix C for flow diagram.

(1) During the design review phase, submittal requirements will be incorporated in the specifications. The address of the COR will be included and DD Form 1423 will be attached.

(2) The COR will receive from the contractor submittals attached to ENG Form 4025-**R** for approval. In the case of submittals for Hydroelectric Design Center (**CENWP-HDC**) review, a copy of the ENG Form 4025-**R** will be sent to the **TL**.

(3) **EC** Division review will be coordinated by the **TL**. The **TL** will distribute the submittals to the appropriate technical section(s) to perform the review and monitor the progress. The reviewer will mark, stamp, date, and sign the prints and will prepare the ENG Form 4025-**R** and remarks for signature by the COR. The **TL** will keep a review file of all documents. Resubmittals will be handled the same as original submittals. Previous submittal documents will be available from the **TL**'s review file.

(4) The COR will process the submittal for return to the contractor. One copy of the transmittal documents will be sent to **CENWP-CT-S** and retained in the official contract file, and the original or reproducible of the data **will be** retained by the COR/**TL**. Copies of transmittal forms and approved drawings will be distributed to **TL** and **CENWP-EC-C** field office as designated in Appendix C.

(5) A review file will be maintained by the COR/TL for reference during the life of the contract and for review of the as-constructed drawings. This review file will be destroyed or sent to **OP** project office responsible, if they want it, within one year after final completion of the contract or when the as-constructed drawings are transferred by **CENWP-EC-CR-R** to **OP** Division Project Field Offices whichever is later. The active contract correspondence file will be maintained by **CENWP-CT-C**.

8. AS-CONSTRUCTED DRAWINGS.

a. General. A **printed** record of completed projects as actually constructed will be permanently filed in **CENWP-EC-CR-R, either on-site or archived at the Federal Records Center.** The record will consist of all appropriate Contract Drawings, Supply Contract shop drawings, Construction Contract shop drawings, **which contain** any necessary revisions to reflect the as-constructed condition. **Electronic as-constructed drawings will be provided in the same format as the original contract drawings.** When operation of the project begins, the original file of as-constructed drawings also becomes the original file of Operation and Maintenance Drawings. As subsequent modifications to a project occur, the Operations and Maintenance drawings will be revised to reflect the changes; however, in every case, either the original as-constructed drawing or a suitable copy will be placed in a "Retired: As-Constructed File" and permanently held by **OP** Division, Project Field Offices, before modification changes are made for "original" record.

b. Preparation of As-Constructed Contract Drawings. When the marked-up copies of contract drawings are received, responsible **EC** offices will review the corrections and additions, and the original tracings will be appropriately corrected and stamped "As-Constructed." **CENWP-HDC** will revise and stamp their tracings and furnish them to the **TL** in **EC** Division.

c. Preparation of As-Constructed Shop Drawings.

(1) Construction Contract Shop Drawings. The COR will receive from the contractor the original tracings of contract shop drawings when required by the Contract (Section 01307) appropriately revised to show the final "As-Constructed" construction. Those tracings will be stamped "As-Constructed" by the contractor. The tracings will then be delivered through **CENWP-EC-C** to the **TL**. Only those shop drawings will be revised to be as-constructed drawings that are necessary to complete details not shown on the as-constructed contract drawings.

(2) Supply Contract Shop Drawings. The supply contract should provide for the supplier to stamp the final Supply Contract shop drawing tracings "As-Constructed."

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(3) Catalog Data, Samples, Certification, Calculations, and Warranties (other than drawings). This information is not normally stamped "As-Constructed" or made a part of the as-constructed record file.

d. Distribution. Half-size prints of As-Constructed Contract Drawings from the CADD will be made and distributed to **OP** Division Project Field Office, and the using agencies (State, County, etc.), if applicable, on the basis of need determined when the as-constructed revisions for a contract are first completed. The need will be determined in each case by an inquiry to the office involved, except that when **OP** Division is involved they will be separately furnished the following:

(1) **One half-size prints and electronic file** of each as-constructed drawing for all multiple purpose projects with power generation, transferred by **CENWP-EC-CR-R** by DA Form 200 to the **OP** Division Project Field Offices.

(2) **One half-size and electronic file** prints of each as-constructed drawing for all multiple purpose projects with no power transferred by **CENWP-EC-CR-R**, by DA Form 200 to the **OP** Division Project Field Offices.

e. Disposition. Upon completion of a contract, all of the original as-constructed drawings, reproducibles of shop drawings not converted to as-constructed drawings, and catalog data etc., will be **copied and** transferred by **CENWP-EC-CR-R**, using DA Form 200, to the responsible **OP** Division, Project Field Office for filing in accordance with AR 25-400-2 (MARKS) file No. 11-2-240a. Disposition of as-constructed drawings produced on the **EC** Division CADD system will also be retained by **EC** Division by permanent **storage** under the auspice of the CADD System Manager. **OP** Division's responsible project field office will receive one set of CADD drawings prints as their original as-constructed set. The half size sets of manually produced drawings will be retained by **CENWP-EC-CR-R**. Insofar as practicable, the work by **EC** Division (including work performed by **CENWP-HDC**) will be such as to provide transfer of the as-constructed drawings to the **OP** Division within one calendar year after completion of the project. The **EC** Division **TL** is responsible to see that as-constructed information is properly transferred to drawings and the original tracings, and then transferred by **CENWP-EC-CR-R** to the responsible **OP** Division Project Field Office per paragraph d. above. **OP** Division Project Field Offices are responsible to send any future as-constructed changes to **EC** division for filing in the CADD system.

9. OPERATION AND MAINTENANCE DRAWINGS. The original file of Operation and Maintenance drawings may be revised or redrawn to show changes to a facility after completion of the project. If an original drawing is not available for revision, a new drawing will be prepared

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and the old drawing superseded. The new drawing will retain the original drawing number and will have the word "Redrawn" placed in the revision block. Drawing numbering will be in accordance with Appendix A. Distribution and filing will be as required by OP Division.

10. OPERATION AND MAINTENANCE MANUALS. The Contractor will normally submit three preliminary copies of the Operation and Maintenance Manuals in accordance with Section 01306 in the contract. The COR will keep one manual and forward the other two to the TL in the EC Division. TL will be responsible for obtaining OP Division review of the manual in a timely manner. After the manuals are reviewed, one will be returned to the COR for the contractor. The contractor will be requested to make the indicated corrections and furnish two sets of corrected material to update the manuals retained by the District. After approval of the manual, the contractor will furnish additional manuals as required by the contract. These approved manuals will be forwarded to OP Division by EC Division. One copy of all approved O&M manuals will be retained in CENWP-EC-D or CENWP-EC-DE or -DM (Design Branch, Electrical Section or Mechanical Section) files. All further distribution will be by OP Division.

11. COST ACCOUNTS. All labor and reproduction costs are chargeable to the following feature accounts (References in paragraph 3a(2) and (3)).

	<u>CG</u> <u>Account</u>	<u>O&M</u> <u>Account</u>
Contract Drawings	30	34
Contractor Submittal - compliance	31	35
- new design or variance	30	4
As-Constructed Drawings	52	52
Operation and Maintenance Drawings	20	35
Operation and Maintenance Manuals	20	35

FOR THE COMMANDER:

3 Appendices
 App A - Project Drawing Index Code
 App B - Contractor Submittals
 Construction Contract
 App C - Contractor Submittals
 Supply Contract


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 Branches and Field
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APPENDIX A

PROJECT DRAWING INDEX CODE

GENERAL STANDARDS OF THE PORTLAND DISTRICT

Drawing numbers for new drawings will be assigned by CENWP-EC-CR-R. The first two letters of the drawing number identify the project, i.e.: EC(Elk Creek) etc. The third letter stands for the type of structure and are the first letters to be shown in the drawing number:

ECD	Concrete Dam, Spillway, Intake and Outlet Structures
ECE	Earth and Rockfill Dam
ECF	Fish Facilities
ECG	General
ECP	Powerhouse
ECR	Civil and Landscape
ECX	Informational
ECW	Recreation (Landscape)

The first series of numbers are indicative of the design section that is preparing the drawing and are shown next:

0	General plans and layouts
1	Excavation and embankments
2	Architectural and structural
3	Mechanical
4	Hydrology/ Hydraulics

Appendix A
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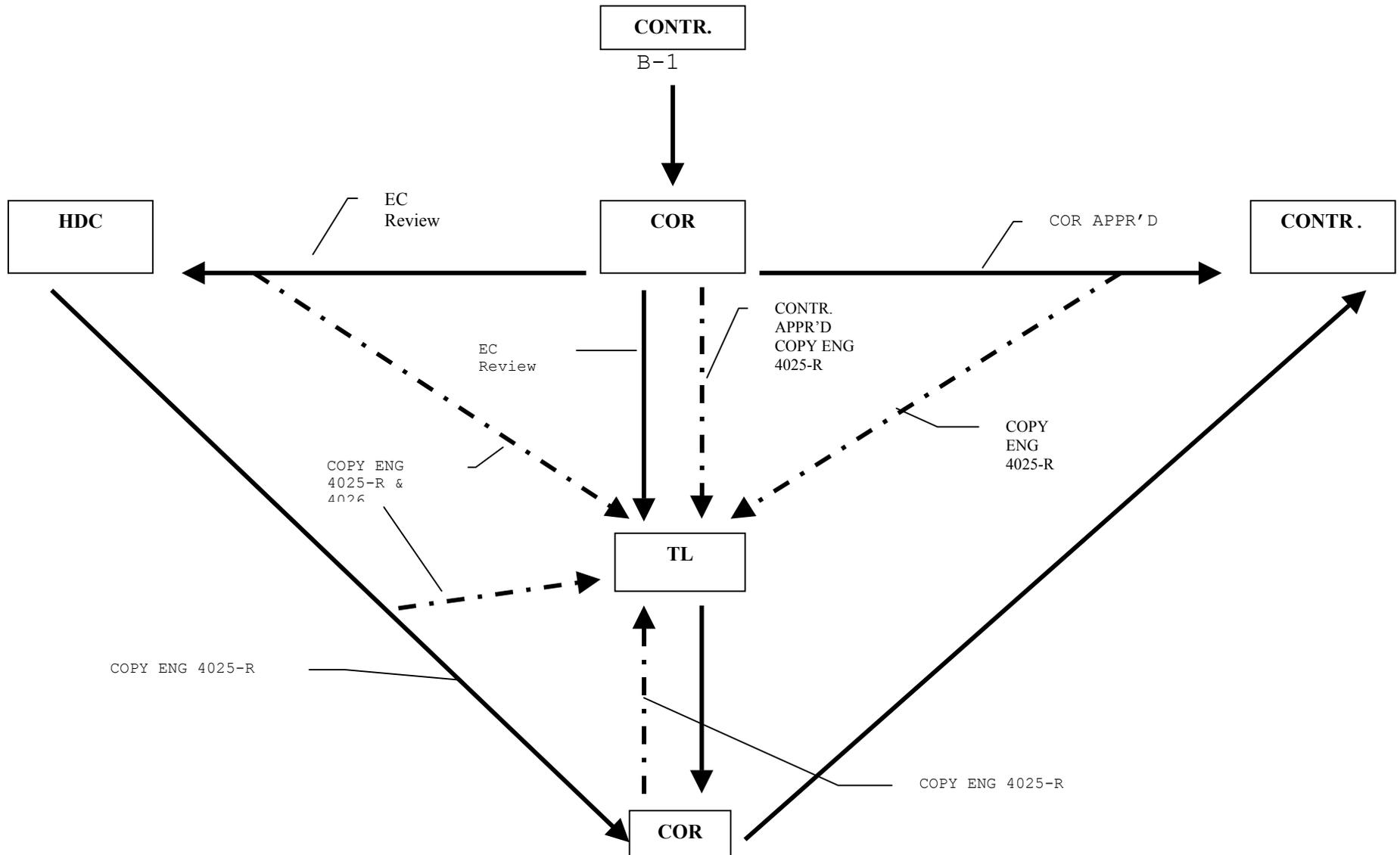
- 5 Geology
- 6 Electrical
- 7 Civil
- 8 Landscaping
- 9 Field sketches
- 10 Operations

The second set of numbers is the series numbers of the item and the first number denotes the number of sets of drawings issued followed by the consecutive number of drawings issued in the set:

EXAMPLE ECG-0-1/1 This is a general drawing usually shown at the start of the drawing set and is the first in the series.

APPENDIX B

CONTRACTOR SUBMITTALS CONSTRUCTION CONTRACT



APPENDIX C

CONTRACTOR SUBMITTALS SUPPLY CONTRACT

EC ADMINISTERED
CONTRACTS

HDC ADMINISTERED
CONTRACTS

