


**SAN FRANCISCO PUBLIC UTILITIES COMMISSION
WATER SYSTEM IMPROVEMENT PROGRAM
CONSTRUCTION MANAGEMENT PROCEDURES**

SECTION: WSIP CONSTRUCTION MANAGEMENT	APPROVED: 
PROCEDURE NO.: 033 TITLE: RECORD DOCUMENTS MAINTENANCE AND SUBMITTAL	DATE: 05/26/10 REVISION NO.: 1

1.0 Policy

This procedure applies to all personnel involved in the maintenance, modification and submittal of Record Documents to produce Final Contractor Record Documents which accurately reflect conditions of the site after construction is completed, and to transfer these sets to the City in electronic and hard copy.

This procedure applies to all personnel working on the Water System Improvement Program (WSIP) to the extent that their work is affected by these WSIP Construction Management (CM) Procedures and does not conflict with specific San Francisco Public Utilities Commission (SFPUC) Policies or the contract under which the work is executed.

2.0 Description

This procedure specifies the process by which record information is collected and documented in Construction Drawings and at completion of the project, and by which the Final Project Record Documents are produced, certified and archived.

3.0 Definitions

3.1 Record Shop Drawings

Record Shop Drawings consist of approved Contractor's proposed installation and equipment details based on field conditions and requirements, and considered and/or acknowledged as Record Drawings, provided the Contractor has stamped them "Record" and submitted them as such.

3.2 **Conformed Construction Drawings**

Conformed Construction Drawings are issued for construction by the Project Engineer (PE), incorporating all changes to bid drawings via addenda during the bid period. Conformed Construction Drawings shall be stamped by the PE "Issued for Construction".

3.2 **Interim Contractor Record Documents**

Interim Contractor Record Documents are Construction Drawings issued to and used by the Contractor during construction red-line and document changes or variations between designed and final site as conditions.

3.3 **Final Contractor Record Documents**

Final Contractor Record Documents are the record documents including Contract drawings, specifications, shpt drawings, submittals, RFIs, Change Orders, Field Orders, etc., certified by the Contractor and Project CM, at the completion of the project, representing the site and all conditions at completion of the project. .

3.4 **Final Project Record Documents**

Final Project Record Documents are AutoCAD files of conformed documents incorporating all the field condition changes and conditions as described in the Final contractor Record Documents. . The PE certifies that Conformed Construction Drawings were correctly transcribed from the Final Contractor Record Documents and the changes were previously approved by the PE.

3.5 **Drawing Register**

The Drawing Register is a log of the drawings entered into the CMIS. The Drawing Register groups the drawings by Drawing Set (for specific purpose) and sorts them by Drawing Number, listing the Drawing Number, latest Revision Number, Title, project work area, discipline and dates received or sent.

3.6 **Construction Management Information System (CMIS)**

The WSIP Construction Management Information System (CMIS) is an on-line management tool for the processing of contract documents based on established construction management business processes. It serves as a tool for effective storage and retrieval of various documents generated during a construction project.

4.0 **Responsibilities**

4.1 **Project Construction Manager**

The Project CM is responsible for ensuring control of all project and contract documentation and for the periodic review of Interim Contractor Record Documents to ensure that they are current, accurate and

complete. The Project CM is responsible to review and certify the Final Contractor Record Documents as a precedent to award of Final Completion.

4.2 **Office Engineer**

The Office Engineer (OE) is responsible to oversee the production and processing of Interim Contractor Record Documents and other related documents by performing monthly document audits to ensure that the Contractor and Project CM staff are properly maintaining and storing accurate record information in accordance with each project's Contract. The OE is responsible to document impacts of project documents (e.g., Requests for Information or Substitution and Contract Modifications) on the Construction Drawings at the Project CM team job site offices.

4.3 **Project Quality Assurance (QA) Inspector**

The Project QA Inspectors are responsible to document field conditions in their discipline on the Construction Drawings at the Project CM team job site offices on a daily basis. Record information shall be collected from the Contractor's representative, from field observations, or from other work progress surveillance services. Each QA inspector shall compare the Interim Contractor Record Documents to the redline in the QA Inspector's field drawings and discrepancies shall be documented in the Daily QA Inspection Report (showing a description and sheet number) and reported to the Lead QA Inspector.

4.4 **Project Engineer/Engineer of Record**

The PE may be the Engineer of Record. The Engineer of Record is the discipline engineer who was responsible for the production of the respective Contract Construction Documents. The Engineer of Record is responsible for creating Final Project Record Documents from Final Contractor Record Documents, submitting a set of back-check drawings for review by the Project CM, and submitting the Final Project Record Documents.

4.5 **Contractor**

The Contractor shall maintain in accurate, indexed and easily accessible manner both at the Contractor's job site offices and at an offsite location an orderly, clean, complete, accurately marked, up-to-date set of Interim Contractor Record Documents that accurately indicate all site conditions as detailed in Paragraph 5.1.6. The Interim Contractor Record Documents shall contain a complete history of the drawings, including all revisions due to Contract Modifications and shall be clearly marked to record accurately the Work as actually constructed, including changes, adjustments and other information relevant to the Work. The Contractor

shall identify a staff member to be responsible for maintaining and updating the Interim Contractor Record Documents.

The Contractor Site Representative shall meet with the Project CM's QA Inspectors daily to identify and provide information regarding any changed project conditions, locations, configurations, and any other changes or deviations that vary from the details represented on the Construction Drawings, including buried or concealed construction and utility features that are revealed during the course of construction.

The Contractor Site Representative shall meet with the Project CM at least once per month to verify all such changes. The Contractor shall also be responsible for updating all OEM Manuals before close-out of the contract with any record conditions including, but not limited to wiring schematics, panel drawings, control logic, and other items required for trouble shooting, repair, and maintenance of the equipment.

The Contractor Site Representative shall certify and submit the Final Contractor Record Documents at the completion of the project. The Contractor is not responsible for maintenance of the Drawing Register in CMIS.

5.0 Implementation

5.1 Contractor's Maintenance of Interim Contractor's Record Documents

During the course of the project, the Contractor shall maintain the Interim Contractor Record Documents to show all current field conditions.

- 5.1.1 The Contractor shall designate a staff member to be responsible for updating and maintaining the Interim Contractor Record Documents
- 5.1.2 The Contractor shall maintain accurately marked, up-to-date Interim Contractor Record Documents to document work actually installed and conditions encountered during the entire progress of the work; these drawings shall be available to the Project CM at any time.
- 5.1.3 The Contractor shall update Interim Contractor Record Documents not more than five (5) working days after changes in the work are made.
- 5.1.4 The Interim Contractor Record Documents shall be kept in a safe place and protected from damage. The Contractor shall store Interim Contractor Record Documents apart from documents used for performing the work in a secure off-site location as well as in the Contractor's site office so that the Interim Contractor Record Documents can be accurately reconstructed in the event of loss.

- 5.1.5 Drawings in the form of addenda or revisions due to a change of the Contract Documents shall be inserted into the Contractor's Interim Record Drawings in front of the prior revision sheet. The prior revision sheet shall be stamped "OBSOLETE" with the date of the stamp and the signature of the drawing custodian; the title block shall be crossed out and a redline note shall be added under the page number: "See Revision No. [latest revision number]". Any redline markups on the old sheet need not be transferred to the addenda as long as the old sheet remains in the record set. All obsolete drawings shall be retained until after the Final Contractor Record Documents have been certified.
- 5.1.6 The Contractor shall accurately indicate on the Interim Contractor Record Documents all site conditions, measurements, dimensions, locations of utilities, all changes made by clarifications, Change Orders, and other modifications to the Contract Documents and details as approved by the Project CM.
- 5.1.7 All lines and notations on the up-to-date Interim Contractor Record Documents shall be neat, accurate, legible, and capable of being scanned into "TIFF" format (or other electronic media file format as specified in Specification Section 01720 of the project's Contract) such that copies made from the scanned files are as legible as the original. Mark-ups shall be made with a fine tip, red ink pen and include but not be limited to the following:
- Field changes or adjustments in the final location or in the final dimensions or details of the Contract work relative to actual existing site conditions.
 - Changes resulting from requests for information.
 - Changes made by Change Order work.
 - Changes made by field order work.
 - Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to visible and accessible features of the Work.
 - Details not included on the original Contract Drawings but incorporated into the work by reference to approved shop drawings, product data, samples, calculations or other submittals.
 - Location of items imbedded in concrete such as conduits, cables, junction boxes, piping, re-bar, etc.
 - Measured depths of foundations in relation to finish main floor datum.

- Measured locations of internal utilities and appurtenances, referenced to visible and accessible locations features of the Work.
- Location (to within 1-inch) of the centerline of each run of conduits, circuits, piping, ducts and similar items which are shown schematically on the drawings, but where the final physical arrangement is determined by field conditions.
- Other applicable technical information.

5.1.8 The Interim Contractor Record Documents shall be prepared as follows:

- Clearly describe changes on drawings by note as required.
- Date all entries, calling attention to the entry by a “cloud” drawn around the area or areas affected.
- Record for each piece of equipment incorporated into the Work the manufacturer, trade name, catalog number, model number, serial number, date of installation and supplier of each product and equipment item incorporated into the Work.
- All lines and leaders shall be straight.
- All text shall be done in printed capital letters.
- All markups shall be dated and signed by the contractor staff making the change.
- Redline corrections should be done using white correction fluid (“White-out”).
- Redlines shall show enough detail and information to allow the Engineer of Record to correctly interpret the changes.
- References to other construction documents shall be indicated by redline.

5.1.9 Special attention shall be given to the precise location and depth of buried pipes if they are installed differently than shown on the Design Drawings (if different by plus or minus 6-inches), or which are not indicated on the Construction Drawings. Buried or concealed construction and utility features that are discovered during the course of construction shall also be recorded in the Interim Contractor Record Documents.

5.1.10 The Construction Manager’s field inspector shall take the required measurements or coordinate services with the OE. Measurements to the center of pipe must be taken at the time the pipe is installed or discovered and prior to it being backfilled.

- 5.1.11 When the piping schedule in the Construction Drawings provides a list of piping material from which the Contractor may choose, the Contractor shall specify on the piping schedule the type of pipe material selected and installed.
- 5.1.12 All markups that are supported by other contract documents shall reference the number of the RFI, RFS, VECP, Change Order, or Field Order.
- 5.1.13 Shop drawings, sketches, addenda or other related record documents that cannot be properly attached to the Record Documents should be stored in a file cabinet in the Contractor's job site office until they are transferred to the Interim Contractor's Record Documents.
- 5.1.14 Interim Contractor Record Documents shall be supplemented by detailed sketches as necessary, or as directed by the OE, to fully indicate the work as actually constructed. In the case of those drawings which specify detail requirements for equipment to be assembled and wired in the factory, the Interim Contractor Record Documents shall be updated by indicating those portions which are superseded by Change Order drawings or final shop drawings.
- 5.1.15 All equipment tags that are determined via the submittal process shall be redlined on the Interim Contractor Record Documents. This paragraph applies especially to pipeline projects.

5.2 **Office Engineer Duties**

During the project, The OE shall perform an on-site audit of the Interim Contractor Record Documents and off-site backup set once per month as part of the progress payment process.

- 5.2.1 The audit may entail interviews with the Contractor, the Project CM, and Field Inspectors and shall include the inspection of all Interim Contractor Record Documents the degree of detail and accuracy in the redline mark-ups on the Interim Contractor Record Documents and other related documents. The OE shall also inspect storage of the Contractor's contract documents for security and accuracy.
- 5.2.2 To complete an audit, the OE shall prepare a Record Audit Report evaluating a project's compliance with the Record procedure.
- 5.2.3 A copy of each Record Audit Report shall be sent to the Contractor, Project CM and the Regional Construction Manager (RCM).
- 5.2.4 The Project CM shall use the Record Audit Report as a tool to correct and enhance project documentation.

5.3 **Closeout and Completion**

- 5.3.1 Prior to Final Completion, the Contractor shall prepare Final Contractor Record Documents by transposing all information from

the updated Interim Contractor Record Documents . The Interim Contractor Record Documents shall conform to the standards delineated in Paragraphs 5.1.7 and 5.1.8. On every sheet, Contractor will affix stamp shown in Attachment 033-5, and wet-sign, print the Contractor's company name and date in the appropriate spaces on the stamp. The Contractor transmits as a Submittal the following documents to the Project CM for review following procedures defined for Submittal: Original set of Final Contractor Record Documents

- Shop Drawings
- Features Call-out Sheet (for pipelines only)
- Any other related record document, e.g., certificates and documentation of test results required in Technical Specifications

- 5.3.2 The Project CM shall review the Final Contractor Record Documents and reject them or approve them for Contractor's certification.
- 5.3.3 On approval of the Final Contractor Record Documents, the Project CM will certify on each drawing that the Final Contractor Record Documents represent the facilities as constructed, by wet-signing and dating within the stamp used in paragraph 5.3.1. The City will require 15 days to perform certification.
- 5.3.4 If the Final Contractor Record Documents do not meet the approval of the Project CM or if the drawings have deteriorated that they are no longer suitable for use as documentation, the Contractor may request, at the Contractor's expense, that the City provide replacements. The Contractor must designate the Plan Number and Revision Number of each drawing to be provided.
- 5.3.5 The Contractor shall furnish one original set of the "Final Contractor Record Documents," including the certification by the Project CM, in reproducible format together with a scanned set and a CD-ROM with the electronically scanned files in a "tiff" file at 400 dpi resolution. The drawings shall be converted into "vector graphic files" capable of being edited in a CAD application. As defined in CM Procedure No. 014 paragraphs 4.3, 4.4 and 4.5.
- 5.3.6 The OE transmits the Final Contractor Record Documents set to the PE.
- 5.3.7 The PE creates Final Project Record Documents in AutoCAD.
- 5.3.8 The PE transmits to the Project CM two (2) copies of a back-check set of Final Project Record Documents in half (½) size (11"x 17"), along with the original Final Contractor Record Documents.

- 5.3.9 The OE reviews back-check Final Project Record Documents against the Contractor's Interim Record Documents and returns the back-check set to the PE with comments.
- 5.3.10 The PE produces and transmits to the Project CM two (2) copies of the revised back-check set in half (½) size (11"x 17") prints.
- 5.3.11 The OE reviews and verifies the back-check set of Final Project Record Documents and forwards the revised back-check set and Contractor's Drawings to the Project CM.
- 5.3.12 The Project CM reviews the revised set of Final Project Record Documents to ensure high quality and to provide uniformity throughout all projects. Conformed Documents shall conform to the standards set forth in Attachment 033 -3. If the revised Final Project Record Documents are acceptable, the Project CM notifies the Engineer of Record and sends the Final Contractor Record Documents to the ADCS for filing in the Project hardcopy files.
- 5.3.13 The Engineer of Record produces a set of the Final Project Record Documents on Mylar, and certifies the Final Project Record Documents by affixing the stamp shown in Attachment 033-6, signing and dating the hardcopy drawings on Mylar. The PE submits the approved Final Project Record Documents to the Central Records Management Center for archiving. The submitted package shall consist of the following:
- Mylar certified Final Project Record Documents (1 set).
 - CD/DVDs containing scanned (.pdf) files of the certified Final Project Record Documents and AutoCAD files of the Final Project Record Documents.
- 5.3.14 The PE transmits to the Project CM a half size print of the certified Final Project Record Documents and CD/DVD containing the scanned (.pdf) files.
- 5.3.15 The ADCS attaches the scanned (.pdf) certified Final Project Record Documents to the drawing records in CMIS, and files the half size hardcopy prints in the Project hardcopy files.

6.0 Other Procedural Requirements

The procedures for the issuance and control of Contract Construction Drawings are described in CM Procedure No. 014, Drawing Control.

7.0 Other Procedural Requirements

The procedures for the issuance and control of Contract Construction Drawings are described in CM Procedure No. 014, Drawing Control.

The procedures for the submittal and processing for review and approval of the Contractor Final Record Documents follow the procedures for Submittals, described in CM Procedure No. 004, Submittals.

Procedures for receiving, transmitting and control of project documentation are defined in CM Procedure No. 006, Project Document and Correspondence Control.

8.0 References

- No. 002 Requests for Information (RFI)
- No. 004 Submittals
- No. 006 Project Document and Correspondence Control
- No. 010 Applications for Payment
- No. 014 Drawing Control
- No. 016 Construction Change Management

WSIP Project Technical Specifications Section 00700, General Conditions

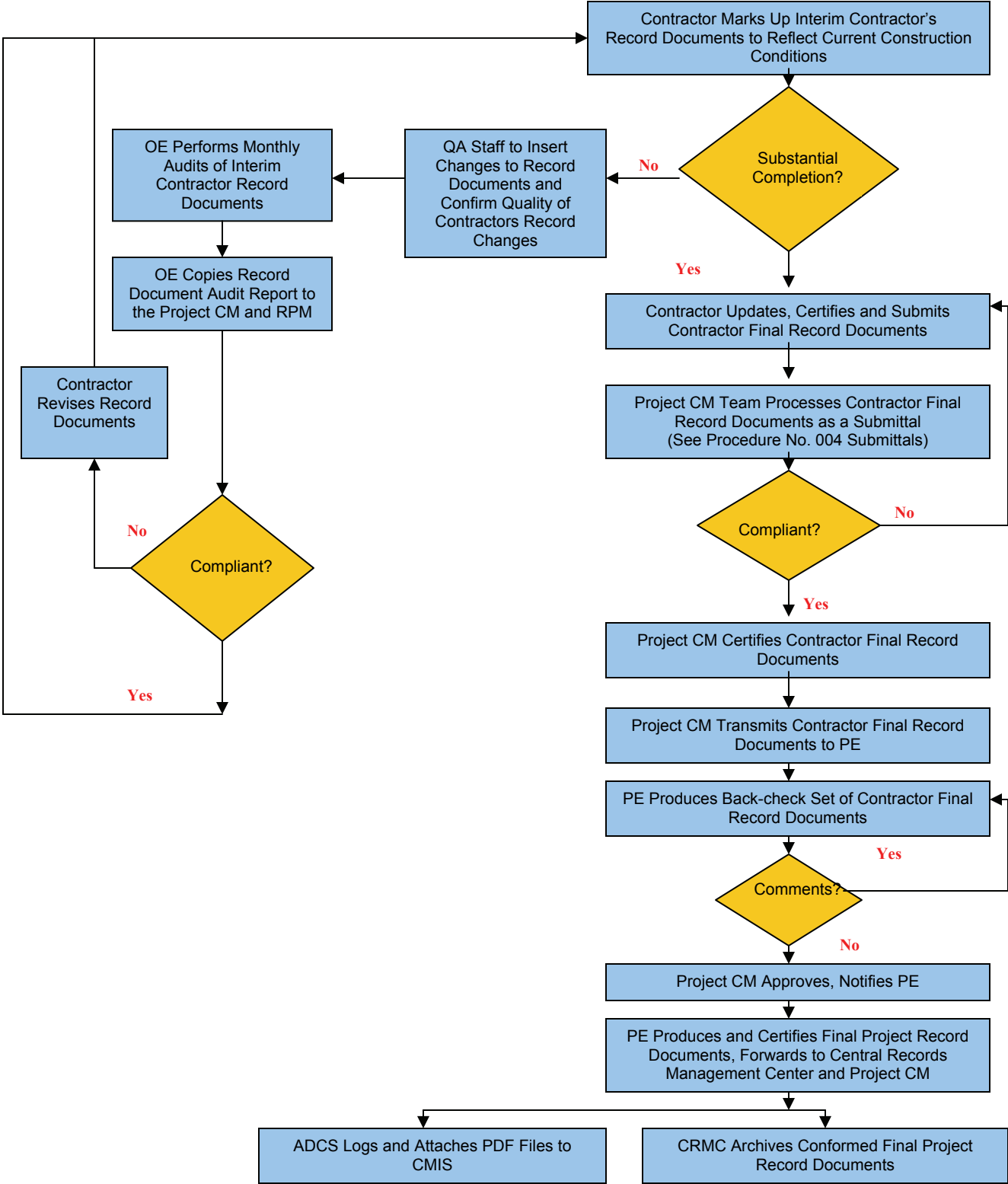
WSIP Project Technical Specifications Section 01720, Project Record Documents

9.0 Attachments

- 033 -1 WSIP CM Procedure Record Documents Flow Chart
- 033 -2 Record Documents Audit Report Form
- 033 -3 Conformed Record Document Standards - Review Check List
- 033 -4 Transmittal Form
- 033 -5 Certification of Contractor Record Documents by Contractor and Project CM
- 033 -6 Certification of Contractor Final Record Documents by PE
- 033 - 7 Revision Control Log

Attachment 033 -1

WSIP CM Procedure Record Document Flow Chart



Attachment 033 -2



Record Document Audit Report



San Francisco Public Utilities Commission

(Insert Project Construction Manager Name
Office Address and Contact Information Here)

CONTRACT NO: _____ AUDIT DATE: _____

CONTRACT DESCRIPTION: _____ LAST AUDIT: _____

RECORD SPEC. REFERENCE: _____

CONSTRUCTION MANAGER: _____

PRIME CONTRACTOR: _____

DESCRIPTION	CHECKED
The Record Documents Are Being Maintained for Designated Areas And All Disciplines	
Record Documents Show Sufficient Detail	
Addendums Are Being Incorporated Into Record Documents	
RFI's and RFS's Are Being Incorporated Into Record Documents	
Change /Field Orders Are Incorporated Into Record Documents	
All Record Document Records Show Progress From Last Audit	
All Record Document Records Are Being Properly Stored and Filed	

COMMENTS:

CORRECTIONS:

RECOMMENDATIONS:

<Name>
Office Engineer

cc: Project CM, Regional CM

Attachment 033 -3

**Contractor Final Record Documents
STANDARDS REVIEW CHECK-LIST**

Before the Engineer produces the s Contractor Final Record Document set, the Engineer shall send the Construction Manager a back-check set of drawings to proof read and to check the following:

1. Revision clouds and triangles DO NOT appear on Record Documents.	
2. The title block of all pages indicate “ Interim Contractor Record Documents or Final Contractor Record Documents.	
3. The title block of all pages must have a revision number of “1”.	
4. All of the redline data in the Contractor’s Final Record Documents are incorporated.	
5. There are no missing sheets.	
6. All of the sheets of the original Contract Drawings are included in the back-check set.	
7. The drawing index is correct. All drawings/plans are listed in the index by both drawing number and plan number.	
8. All old images are removed from the Contractor Final Record Document set and replaced by images of current facilities.	
9. All text boxes for equipment manufacturer name and model number are filled in.	
10. No objects that are shown to be demolished in the Contract Drawings appear in the Final Contractor Record Documents. (note hatch marks, shading, old text, etc.)	
11. No references to “Existing (E)” or “New (N)” objects in the drawings.	

Attachment 033 - 4

TRANSMITTAL



SAN FRANCISCO PUBLIC UTILITIES COMMISSION
WATER SYSTEM IMPROVEMENT PROGRAM



CONTRACT NAME:
TO:
FROM:

NO:
DATE:
REF:

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input type="checkbox"/> Other:	<input type="checkbox"/> Separate Cover Via:	<input type="checkbox"/> Due Date:

ITEM NO	COPIES	DATE	ITEM NUMBER	REV #	DESCRIPTION	STATUS
<p align="right">Signed: _____</p>						

Attachment 033 -5
Certification of Final Contractor Record Documents
by Contractor and Project CM

**Certified that these
Final Contractor's
Record Documents
represent the
facilities as
constructed**

Contractor Site Representative Date

Contractor Company Name

City Representative Date

**Attachment 033 -6
Certification of Final Project Record Documents by PE**

**Certified that the
Final Contractor's
Project Record
Documents, provided
by the Project
Construction
Manager, have been
correctly transcribed
into AutoCAD**

Attachment 033 - 7
Revision Control Log

Revision No.	Revision Date	What changed?
Rev 1	May 26, 2010	<ul style="list-style-type: none">• <i>As-Built Drawings</i> has been superseded by <i>Record Documents</i>; deleted as-built drawings and replaced with record documents• Changes made through out the entire document including attachments
Rev 0	June 17, 2009	Signed