SECTION 91 FIELD REVISIONS AND AS-BUILTS

I. GENERAL
It is sometimes necessary to change an existing sheet(s) in the contract plans or to add a new sheet(s) to the contract plans. In order to comply with New York State Education Law, alterations to sealed documents must be made under the direction of and sealed by a licensed professional. Alterations to documents that are not professionally sealed do not need to be made by a licensed professional.

Final As-Built Record Plans are created to document the features constructed or installed under a construction contract at the time of completion.

II. PROFESSIONALLY SEALED DOCUMENTS
Contract plans and other materials that were developed by a licensed professional in accordance with NYS Education Law will have the note below on each sealed sheet, with the seal and signature of the professional that was responsible for its production.

“It is a violation of law for any person, unless they are acting under the direction of a licensed Professional Engineer, Architect, Landscape Architect, or Land Surveyor, to alter an item in any way. If an item bearing the stamp of a licensed professional is altered, the altering Engineer, Architect, Landscape Architect, or Land Surveyor shall stamp the document and include the notation "Altered By" followed by their signature, the date of such alteration, and a specific description of the alteration.”

III. FIELD REVISIONS
Changes to contract plans and documents are considered field revisions, which must include appropriate approvals. Some revisions require significant additional design or re-design, some require modifications to professionally sealed documents, some simply record information discovered during construction, and some include information provided by others during construction.

There are three types of field revisions:
1. Field Change Sheets.
2. Revisions made to original or supplemental sheets, signed and sealed by a Licensed Professional.
3. Revision that does not require signing and sealing by a Licensed Professional.

A. Field Change Sheets
Field Change Sheets are prepared at the request of the Regional Construction Engineer (RCE) if a major change is desired, in order to obtain regulatory and/or programmatic approvals of a significant change in project scope, limits or cost. Field Change Sheets require significant design effort and provide significant information to the Contractor. Examples of circumstances that require Field Change Sheets are changes in structure type, extension of contract limits, reducing or adding traffic lanes, significant changes in alignment, pavement reconstruction instead of mill and fill, the installation of a traffic signal instead of an unsignalized intersection, the addition of large retaining walls in lieu of cut slopes, changes that require a SEQRA or NEPA re-evaluation, or changes requiring the acquisition of additional right of way, or significant additional work that was not in the original contract documents.

For significant changes that require Field Change Sheets, the RCE should obtain the concurrence of the Deputy Chief Engineer (Construction) prior to the preparation of Field Change Sheets to ensure that the change order (CO) will be approved by the Office of the State Comptroller (OSC).

Field Change Sheets must be sealed by the licensed professional that was responsible for their production. Field Change Sheets containing changes in design or specifications should be reviewed and granted programmatic approval using a process similar to that used for approval of the original PS&E, and obtain the concurrence of the RCE, the Regional Design Engineer (RDE), the Regional Structures Engineer, the Regional Maintenance Engineer, the Regional Traffic Engineer, Office of Structures, Office of Technical Services etc. as appropriate. Any major changes to a bridge structure must be approved by the Deputy Chief Engineer (Structures). The Deputy Chief Engineer (Construction) will not sign the Field Change Sheets. Programmatic approval by a reviewer does not require an additional professional seal on the sheets. Modifications to RFA contracts require programmatic approval from the FHWA. Changes may require approval or permits from municipalities, public authorities, or other regulatory agencies.
Increased costs may require justification/authorizations from outside Agencies such as the FHWA, Municipalities, Utilities, etc. to be coordinated by the Regional Construction Group.

B. Major Changes to Professionally Sealed Contract Plans/Documents
Major changes to professionally sealed contract plans and documents must be implemented prior to construction of the affected element(s). In order to streamline implementation of field revisions requiring sealing and signing by the original designer, it is strongly advised that the RCE and RDE (or other regional management responsible for the project design) agree on how these changes are to be implemented during the project transfer phase. The definition of a major change will vary depending on the nature of the project, nature and scope of proposed field change, design intent, and other relevant factors. Examples of what can be considered major changes include, but are not limited to:

- Changes that decrease the clear zone as shown in the plans
- Reduction in the length, changing the type, or eliminating guiderail
- Changes to Typical sections such as pavement thickness, lane or shoulder width, cross slope
- Changes to plan vertical alignment, horizontal alignment, or super-elevation
- Changes to closed drainage systems, such as elimination of catch basins, decreasing pipe size, or tying in existing drainage not shown on plans
- Any changes to structural steel not shown on approved shop drawings
- Significant changes in bar reinforcement or structural concrete dimensions
- Significant changes to Traffic Control Plans, such as changing phases or sequencing
- Changes to pavement markings as shown in the plans
- Changes to signal pole type, foundation, or location
- Changes that decrease the vertical clearance which respect to any overhead structure

Major changes to a design presented on a professionally sealed document must be authorized by the licensed professional who originally sealed and signed the document, or by another licensed professional. Major changes may be implemented by altering existing plan sheets and having them sealed and signed by another licensed professional using the Altered By: block or by issuing new plan sheets or other contract documents sealed and signed by the licensed professional that was responsible for their production. Orders-on-contract and field change payments are administrative processes to make payments to contractors, and need not be sealed.

Any major changes to a bridge structure must be approved by the Deputy Chief Engineer (Structures). Major changes to Federal-Aid contracts with full oversight (coded as RFA) require prior approval by FHWA. See CAM 104-02 IV Pre Approval of Major Changes.

C. Minor Changes to Professionally Sealed Contract Plans/Documents
Minor changes to sealed plan sheets must be implemented under the direction of the Regional Construction Engineer (RCE), Construction Area Supervisor (CAS) or other licensed professional. Minor changes may be implemented by altering existing plan sheets or other contract documents, or by issuing new plan sheets or other contract documents. The associated new or altered plan sheets must be signed and sealed by the licensed professional authorizing the change in an appropriate time frame as determined by the CAS. New or altered plan sheets for minor changes do not necessarily have to be signed and sealed prior to implementation of the approved change. Minor changes are distinguished from major changes in that typically licensed professionals in the Construction Group are qualified to make the change without the formal review and approval of another office, and the change is not a significant departure from the original design intent.
D. Contractor Submitted Documents
Contractors must submit plans for structural erection, demolition, lifting, cofferdams, temporary erosion and sediment control, nighttime temporary lighting, etc. Plans or drawings submitted by the contractor that require the practice of engineering or other profession must be sealed and signed by the licensed professional who was responsible for its production. Documents should not be sealed by reviewer(s). It is acceptable for Department reviewers to indicate minor changes to the proposed plans by indicating the submittal is “Approved-as-Noted” provided that the marked-up document is returned to the sealing professional. No further action would be required unless the sealing professional disagrees with the minor nature of the as-noted comments. Any submittal returned “Disapproved-Resubmit” will be returned to the sealing professional for revision and resubmitted to the Department.

Value Engineering Change Proposals are proposals submitted by a contractor to alter the original design. Formal submittals involving major changes to professionally sealed documents must be sealed by a licensed professional who was responsible for its production employed by or working for the contractor.

E. Work Zone Traffic Control Modifications
Work Zone Traffic Control drawings that are presented in the MUTCD as typical(s) or on Work Zone Traffic Control Standard Sheets are not professionally sealed. Adjustments in the field to match existing conditions, as long as they meet minimum criteria established in the MUTCD (taper length, etc.), need not be sealed by a licensed professional. Required major changes to project specific Traffic Control Plans that are professionally sealed must be documented and implemented as revisions to a professionally sealed document. Examples of major changes to project specific Traffic Control Plans that should be documented prior to changing the affected element(s) and subsequently implemented as revisions to professionally sealed documents include, but are not limited to:

- Changes to staged or phased construction defining work zone areas, roadway widths, and work to be performed during that particular stage or phase.
- Changes to proposed roadway detour and associated signing.
- Changes to proposed pedestrian and/or non-motorized vehicle access.

IV. SHEET PREPARATION
A. Field Change Sheets
Field Change Sheets should be prepared and professionally sealed, as required, in the same manner as the original contract plan sheets. A brief description of the change should be shown on the sheet in the form of a note. For a field change with multiple sheets, a Field Change Cover Sheet should be prepared for approval signatures by the Program Managers, and should contain the description of the change. Field Change Sheets may be either replacements, supplemental, or new sheets. The words FIELD CHANGE SHEET must be shown on each new sheet.

To replace or supplement plan sheet 42, a single FCS sheet should be numbered 42F1. Multiple sheets to replace sheet 42, should be numbered 42F1, 42F2, etc.

New sheets that do not supplement or replace any previously submitted sheet should be numbered starting with the last sheet in the contract document set. If sheet 50 was the last sheet in the contract, the new sheets would be numbered 50F1, 50F2, 50F3, etc.

- For a replacement sheet, use the note: THIS SHEET SUPERSEDES SHEET ___
- For a supplemental sheet, use the note: THIS SHEET SUPPLEMENTS SHEET ___
- For a new sheet, use the note: THIS SHEET DOES NOT SUPERSEDE OR SUPPLEMENT ANY SHEET.
B. Field Revisions to Professionally Sealed Contract Plans/Documents

Field Revisions should be prepared and professionally sealed, as required, in the same manner as the original contract plan sheets. A brief description of the change should be shown on the sheet in the form of a note.

Field Revisions may be either replacements or supplemental sheets. The words FIELD REVISION SHEET must be shown on each sheet, with one of the following notes:

- For a replacement sheet, use: THIS SHEET SUPERSEDES SHEET __
- For an additional/supplemental sheet, use: THIS SHEET SUPPLEMENTS SHEET .
- When a revision sheet needs to be replaced with a subsequent revision sheet, use the note: THIS SHEET SUPERSEDES ALL PREVIOUS REVISION SHEETS __

To replace or supplement plan sheet 42, a single sheet should be numbered 42R1. Multiple sheets to replace sheet 42, should be numbered 42R1, 42R2 etc. Subsequent revisions would be shown as 42R3, 42R4, etc. and use an appropriate note shown above. New sheets that do not supplement or replace any previously submitted sheet should be numbered starting with the last sheet number. (e.g. If the last sheet is 50, 50R1, 50R2, etc.)

V. FIELD REVISION IMPLEMENTATION PLAN/PROCESS

Prior to the Pre-Construction meeting with the Contractor, a Project Transfer Meeting between the Designers of Record, Engineer-In-Charge, and Construction Supervisor should be held to go over how to address changes to the contract documents, and agree on time frames for responses to requests for information and other reviews. It is strongly recommended that the Regional Construction Engineer along with the respective Regional Manager responsible for the Design, formulate an informal agreement or plan/process, which, based on the nature, size, and level of complexity of the project, will address roles and responsibilities, communication protocols and any required participation from the designer(s) of record that may be required to implement major changes to the construction documents.

In most cases, Designers will work with electronic files within ProjectWise. After making field revisions, Designers must ensure that revised electronic CADD files are available to Construction for use in the development of As-Built Record Plans.

The Regional Construction Engineer will establish a process for the approval of field revisions in cases where staff such as Regional Geotechnical Engineer, Regional Materials Engineer, Environmental Specialist(s), etc. involved in the approval of field revisions are not licensed professionals.

A. Field Change Sheets

Field Change Sheets should be incorporated into a contract by a CO that incorporates the changes in contract pay items, and become part of the contract documents. The approval by the Deputy Chief Engineer (Construction) of the CO will signify concurrence of the Office of Construction. Field Change Sheets should be referenced in the CO that revises the associated work items or creates a Force Account Estimate (FE), with a note:

“This order-on-contract incorporates the following Field Change Sheets into the contract:

<table>
<thead>
<tr>
<th>FCS Sheet No.</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>42F1</td>
<td>Structures Details</td>
<td>April 2015</td>
</tr>
</tbody>
</table>

Copies of the Field Change Sheets should not be attached to the CO.

B. Changes to Professionally Sealed Contract Plans/Documents

Copies of Field Revision sheets need not be incorporated into a Change Order, nor do they need to be sent to DQAB for record retention purposes, even for new/supplemental sheets, until the completion of As-Built Plans. Copies of all sealed Field Revision sheets must be included in the As-Built Plans to record the authorization by a licensed professional of each change.
VI. AS-BUILT PLANS
The As-Built record includes:

- As Let/Awarded Plan Sheets (As Designed and Amended prior to Letting)
- Shop Drawings
- Field Change Sheets (If Created)
- Final Field Revision/As-Built Plan Sheets

During the course of construction, record revised and additional information on the draft As-Built Record Plan Sheets. Field revisions sheets may function as the draft As-Built Record Plan Sheets.

The As-Built plan sheets, and all approved Field Change Sheets should be completed and available for Regional Construction Group review no later than 30 days after the contract final acceptance date. The title sheet must be signed by the Regional Construction Engineer or designee. The Regional Construction Group will review and approve the As-Built plan sheets and then transmit them to the Regional Design Group within 60 days of the contract final acceptance.

As-Built plan sheets, and all approved Field Change Sheets, must be sent to the Design Quality Assurance Bureau (DQAB) Record Plans Unit. As-Built plan sheets must be legible and submitted to the Record Plans Unit in an acceptable format. The standard format is .pdf files with a minimum resolution of 300 dpi. Other formats (e.g., .tiff files) may be allowed with approval by the Record Plans Unit. The As-Built plan sheets are to be prepared in the same manner as the original plan sheets, which may include color, shaded areas, and other display attributes.

VII. AS-BUILT PLAN DEVELOPMENT
As-Built Plans are critical to document the location of utility facilities and other underground information during construction, because the information cannot be collected later without excavation, restoration, etc. As-Built Plans are used to document field revisions which have already occurred, but are not the mechanism to authorize the revision.

As-Built Plans should be developed using CADD whenever possible. Upon completion of the PS&E, electronic files are archived within ProjectWise, and a Construction folder is created to provide Inspection staff with copies of needed files. As-Builts should typically be developed using a new electronic file with the original design files attached as references. Regional Construction Groups may also use hard copies to create As-Built Record plans, based on availability of trained staff and Regional policy.

Any sheet which contains a field revision or has been revised with "as-built" features should be numbered in accordance with §91.IV.A Field Change Sheets or §91.IV.B. Field Revisions to Professionally Sealed Contract Plans.
SECTION 91 FIELD REVISIONS AND AS-BUILTS

The As-Built Plans are prepared from the draft As-Built plans maintained during construction. To ensure the clarity of As-Built Plans for both viewing and reproduction purposes:

1. Title Sheet
   a. Place the words RECORD PLANS in at least 1 inch letters on D size or ½ inch letters on B size across the top of the title sheet to the left or right of the State Logo.
   b. Show the following in tabular form on the title sheet of the Record Plans: Regional Director's name, EIC's name, Contractor's name, date of award, and date of contract final acceptance.

2. As-Built Revisions / Signature Box
   a. Note all "as-built" revisions made in the box provided on each sheet, i.e., “Alignment Revision, Sta. 10,” etc. If no as-built changes were made, write the words “No As-Built Revisions”.
   b. All "as-built" record plan sheets must be signed and dated by the Regional Construction Engineer or designee (typically the Construction Area Supervisor or EIC).

3. The list of standard sheets should reflect corrections/additions made by amendment or Change Order.

4. Do not erase original lines or lettering when making revisions. Line revisions should be made by using heavy weighted lines which stand out clearly.

5. Make revisions to the notes and written matter by crossing out the original and inserting the revision as close to the original as is possible without impairing the legibility of the original. New lettering should be similar in size and spacing to the original lettering so that it will be legible. Orient notes with, and make them readable from, the bottom edge or right margin.


7. If as-built changes are shown on other plans and adequately labeled, do not update tables. If the changes are not shown elsewhere, revise tables by strikeout and replacement or by inserting a new table.