2015

SCDOT AS-BUILT MANUAL



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Section 1: Introduction

"As-built" definition: A revised set of drawings submitted upon completion of a project or a particular job which reflects all changes made in the specification and working drawings during the construction process. The revised drawings show the exact dimensions, geometry, and surveyed location of all elements of the work completed under a contract.

As-built plans are the final product of an accurately red-lined and up to date set of as-let construction plans. The As-built plans represent the work performed in the field by clearly and accurately documenting, in red, any changes to the as-let plan documents. Each office shall have a set of plans specifically for the purpose of recording As-built information. This set of As-built plans is to be kept up to date throughout the entire duration of the construction project. Any modifications, additions, or deletions made during construction shall be documented on the As-built plans as soon as practical. It is imperative that as the project is constructed, so are the As-built plans. Having a comprehensive, all-inclusive As-built set of plans is vital to the success of this process.

Section 2: Plan Sets

The Resident Construction Engineer shall produce and deliver to the Plans Storage Office the final As-built plans for each contract *within 45 days of project acceptance*. All changes to the original as-let plan documents are to be shown in red. The As-built plans shall show all approved revisions to the contract design including but not limited to: revised roadway alignments, profiles and cross sections, revised typical sections, revised drainage installations, any changes to the demolition and removal items, utility locations, and any other changes to the original design. In addition, Pile logs, Drill Shaft logs, Borrow quantity calculations, Right of Way Plats, Utility Plans, and Shop Plans are to be submitted with the As-built plans. The final As-built plans shall be signed and sealed by a Professional Engineer. The As-built plans shall certify a true and correct representation of the work as constructed.

As-built plans are to mirror as-let plans as closely as possible. The only difference shall be limited to any revised sheets added during construction and any other required sheets added at the end of the As-built plans.

As-built plans are to be submitted at the same scale and size as the as-let plans. Full size plans are $22'' \times 36''$. Small format plans are $8.5'' \times 11''$.

Requirements for As-built Plans are subject to change as policy and technology improves. Please utilize the web site for all information. All information is found at:

http://www.scdot.org/doing/constructionLetting_AsBuilt.aspx

Section 3: Forms needed for As-built plans

The only required form for the As-built set of plans is the AB-201 Cover Sheet. The AB-201 form has been created in PDF format and comes in two standards: the AB201_LARGE, to be used with full size plans and the AB201_SMALL to be used with 8.5" x 11" plans. In some cases, miscellaneous plans and/or plans that do not fall into these categories may be submitted and can utilize which form is conducive.

The AB201_LARGE Cover Sheet will be properly indexed and included for each set of Asbuilt plans. A description of the information to be included on the cover sheet is as follows:

A) The Index

The Index of Sheets should only include the added items to the plan set. The as-let plans will have an index on the Title Sheet or the Index Layout Sheet for the as-let plans. This information **should not be duplicated on the AB201 Cover Sheet**. Added, omitted, or deleted sheets from the as-let plans will be redlined on the Title Sheet or the Index Layout Sheet. A more in-depth explanation of the index can be found in the example section of this document.

- B) County
- C) Contract ID
- D) Project ID
- E) Project Length
- F) Letting Date
- G) Project Accepted Date
- H) Contractor's Name
- I) Total Sheets include the total number of as-let sheets in this total
- J) Signature and Date (including PE seal)

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| | | SIGNATURE AND DATE |

The AB201_SMALL Cover Sheet will include the following information:

- A) Total Sheets
- B) County or District
- C) Contract ID
- D) Project ID
- E) Total Length
- F) Letting Date
- G) Project Accepted Date
- H) Contractor Name
- I) Road/Route Numbers of additions/deletions to the contract
- J) Signature and Date (including PE seal)

| AB201_SMALL | AB 201 Total Sector Control Sector C |
|-------------|---|
| | CONTRACT ID LETTING DATE PROJECT ID LENGTH CONTRACTOR CONTRACTOR |
| | SIGNATURE AND DATE |

All other forms have been compiled into the As-built plan process and will be covered further in the General Procedure section of this manual.

Section 4: General Procedures

Under a single Contract ID designation there may be multiple Project ID designations. Project ID's will have separate sets of plans associated with them. Each of these sets of plans is to be treated as individual sets of As-built plans, **each** with their own AB201 Cover Sheet. When necessary, please contact the Plans Storage Office for assistance to determine the requirements. Plans should not be printed from the Plans Library for As-builts to avoid altering the plan scale and size. If additional plan sets are needed for the creation of As-built plans, please contact the Plans Storage Office for support. Additionally, an electronic pdf can be provided by the Plans Storage Office for electronically redlining the As-built plans. Every As-built plan, profile, and cross-section sheet along with all added sheets during construction shall be designated by stamping "AS-BUILT" in the upper right area of the plan sheets. This process can be expedited by the Plans Storage Office by watermarking the sheets with "AS-BUILT" when the pdf is created.

Each set of As-built plans shall reflect the final product of what was constructed in the field. Any sheet that has been altered during construction will have the altered item or items clearly noted in red.

Listed below is a comprehensive account of items that shall be included and/or redlined in the final As-built set of plans.

- Include the completed AB201, properly indexed, and signed and sealed by a PE.
- New or revised as-let sheets shall, upon receipt, be placed in the As-built plans. Any sheets being replaced need to be removed. These items need to be included in the index of the AB201 or red-lined on the title sheet or index layout sheet in the construction plans.
- Include change order information and any adjustments to quantities. Red-line these items on the quantity sheet.
- Include any moving or removal and disposal items added, deleted or revised during construction and red-line this in the plans on the correct sheet.
- Include all final plan, profile and cross-section sheets.
- Red-line all revisions to roadway alignments and typical sections.
- Profile elevations shall be verified with a checkmark or red-lined every 50 feet.
- Cross-sections shall be verified with a note designating all sections were built according to plans or red-lined for modifications to sections, especially cross slopes and ditch changes.
 - Red-line earthwork changes on cross-sections.
 - Red-line any changes to the cross-section design and add elevations at break points.
 - Include revisions to muck and undercut on the cross-sections, these revisions are to be blue-lined.
- All revisions to drainage installations including pipe, catch basins, manholes, drop inlets, paved ditches, rip rap, etc. shall be red-lined on the plan sheets, drainage sheets or cross-section sheets.
- Red-line every deviation from the plans on bridge sheets. When applicable, include bridge utility attachment sheets.

- Include the Drilled Shaft Report/Logs as 8.5 x 11 sheets. These will be incorporated at the end of the plan set as a multipage pdf in Plans Library. A full size sheet is not required.
 - For paper submissions, clip at the front of the plan set.
 - For electronic submissions, include as a multipage pdf at the end of plan set.
- Include the full size pile record log with completed pile & equipment data.
 - Include the 8.5 x 11 forms.
 - $\circ~$ The Pile record log can be created in Excel and converted to a PDF for submittal.
- Include required signal and signage documents. Any change in signal pole locations, additions or deletions of signal equipment and signage needs to be red-lined.
- Include final utility locations and underground items. These sheets may be submitted in the size format as provided by the utility company. Submit full size when available.
- Include Borrow Pit Sheets as full size plan sheets that include all calculations, truck counts, survey notes, pit location area, design and final payment quantities.
- Include all R/W plats. Ensure plats have the recorded stamp from the Register of Deeds office and are signed and sealed by a PLS.
- The RCE will attach all AS-1 sheets to the final estimate in Site Manager.

In addition to the applicable items above, small format projects need to include the following:

- AB-201_SMALL Cover Sheet
- Contract Cover Sheet
- Road Summary
- Summary of Quantities for project
- Individual Quantity Summary for each road
- Individual Strip Map for each road
- Change Orders

An electronic process for developing the small format As-builts can be found in the Appendix section of this manual.

Site Manager and Plans Library are to be utilized to verify all change order information and construction change sheets have been transferred to the As-built plans and the proper sheets have been inserted. The use of ProjectWise to centrally locate this information is highly encouraged. The final submittal of these plans shall be signed and sealed by a PE.

Section 5: Examples

The following examples of As-built documents are provided to help demonstrate the proper appearance and arrangement of an As-built set of plans and illustrate the red-line process.

Example Index for AB-201 Cover Sheet

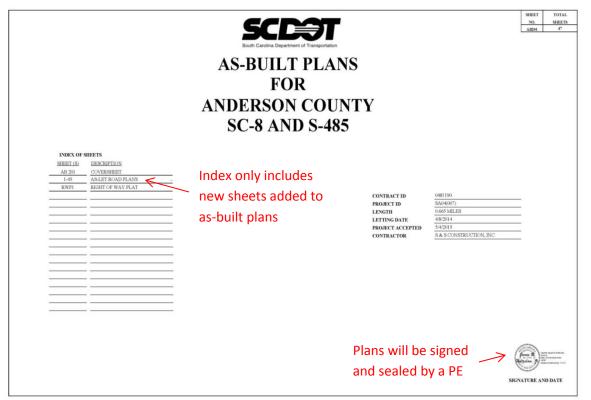
| SHEET | DESCRIPTION |
|-------|-------------------|
| AB201 | AB201 Cover Sheet |
| 1-45 | As-let Road Plans |
| RWP1 | Right of Way Plat |

The As-Let set of plans has 45 pages. The As-let Road plans index is not duplicated on the AB-201 Cover Sheet. This information will be red-lined on the Title Sheet or Index Layout Sheet as necessary.

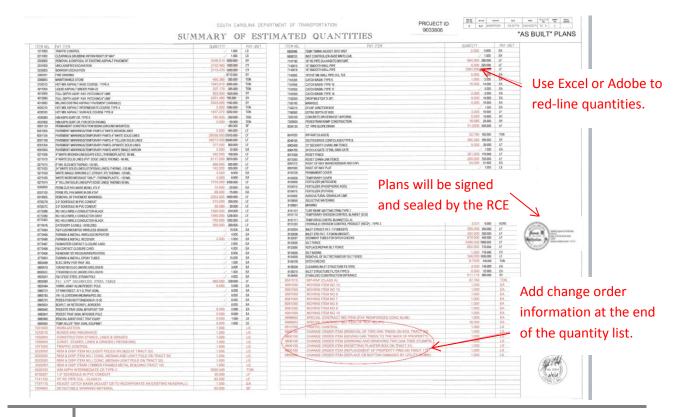
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AB201 Cover Sheet



Quantity Sheet



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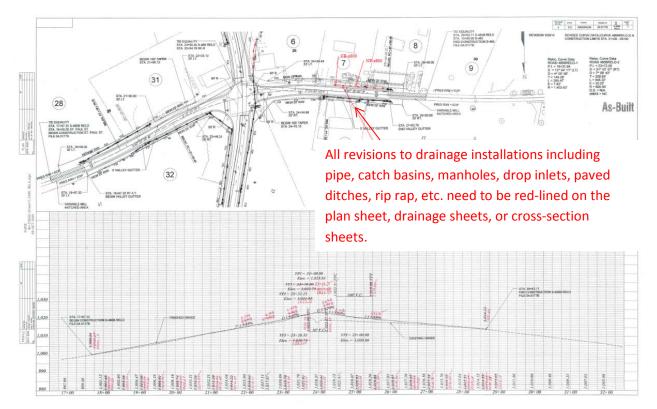
Adobe Acrobat Pro or Revu Bluebeam software can be used to red-line electronically. (Hand red-lines are still acceptable.)

| ITEM NO. | PAY ITEM | QUANTITY | | QUANTITY | | PAY UNIT |
|----------|---|----------|------------|----------|--|----------|
| 1071000 | TRAFFIC CONTROL | | 1.000 | LS | | |
| 2011000 | CLEARING & GRUBBING WITHIN RIGHT OF WAY | | 1.000 | LS | | |
| 2025000 | REMOVAL & DISPOSAL OF EXISTING ASPHALT PAVEMENT | 3438.510 | -3000.000- | SY | | |
| 2031000 | UNCLASSIFIED EXCAVATION | 2102.900 | -1000.000- | СҮ | | |

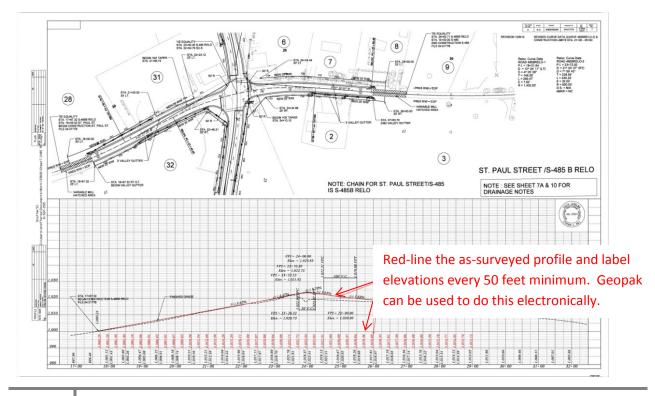
The new Moving Item sheet includes columns for Completed and Deleted and additional space for revisions and comments.

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Plan sheet (Drainage)



Plan sheet (Profiles)

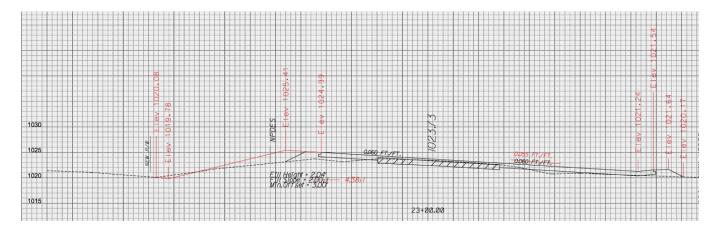


SCDOT AS-BUILT MANUAL

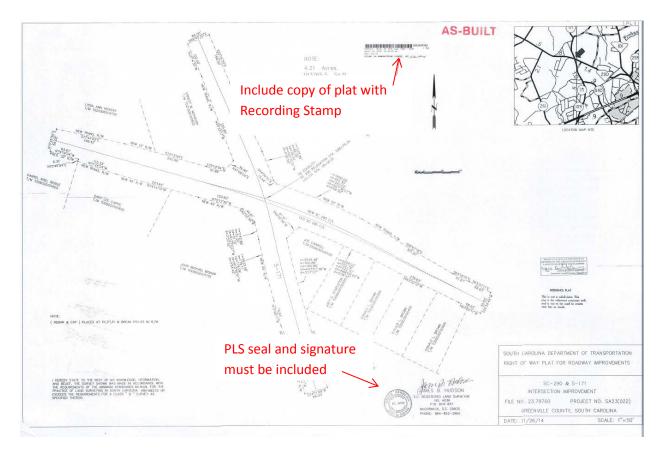
Cross sections



Cross section sheet depicting electronic redlining and elevations at breakpoints.



Right of Way Plat



Section 6: Sign and Seal policy

The Resident Construction Engineer (or other licensed Professional Engineer overseeing the construction) will sign and seal **each** as-built plan sheet that includes red-lined changes to the design of the as-let plans. When design changes are issued by the as-let Engineer of Record during the construction process, the signed and sealed revision sheets provided will be incorporated into the as-built plans.

It is the policy of the SCDOT to have a Professional Engineer (PE) sign and seal the Asbuilt plans. A Professional Land Surveyor (PLS) may sign and seal sheets in the As-built plans to verify as-surveyed construction data only. All design or construction changes to the project must be signed and sealed by a PE.

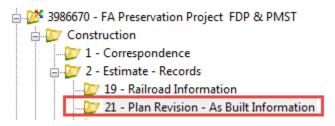
This manual applies to and authorizes the submittal of electronic documents signed and sealed using digital signatures. It does not disallow the submittal of traditional paper documents signed and sealed by hand.

This manual also encourages the redlining of the changes electronically using Adobe Acrobat, Bluebeam, and MicroStation/Geopak. Hand drawn changes are still accepted.

Section 7: Submittal

The Resident Construction Engineer will ensure that all of the guidelines have been met according to this As-Built Manual prior to submitting. The RCE may submit the As-built plans by the following methods:

 Electronically red-line, digitally sign and seal, and archive the Adobe pdfs for the As-built plan set in ProjectWise. Add the files to the 21 – Plan Revision – As-Built Information folder. Email the link to the project folder to <u>PlanStorage@scdot.org</u>. Plans **MUST** be submitted as **single** page pdfs to meet the digital signature requirements.



 Paper submittals may be delivered in person to the Plans Storage Office in Room G-21 from 8:00 am to 5:00 pm, Monday thru Friday. Paper submittals may also be sent via courier to the Plans Storage Office.

The Design Automation Office of Preconstruction Support is responsible for receipt, approval, and scanning of the As-built plans. The following personnel can assist you:

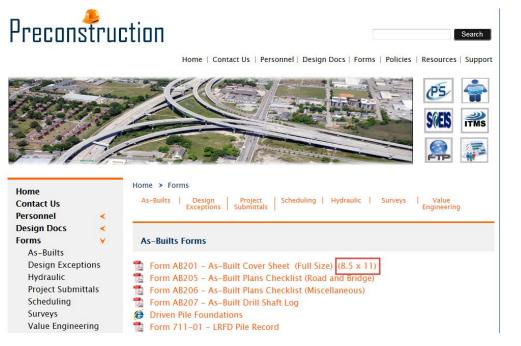
| Iris Neal | CADD Support Engineer | 803-737-9964 |
|---------------|-------------------------------|--------------|
| Scott Shaffer | CADD Support Engineer | 803-737-1090 |
| Mark Lorick | Engineering Documents Manager | 803-737-7236 |
| Peter Yeh | Design Automation Engineer | 803-737-1904 |

Please contact the Design Automation Office with any questions or assistance required to complete the As-built plans. We can provide you with the most up to date electronic files to begin the electronic red-line process including Adobe pdfs, CADD files, and Excel files. We can also provide you with the most up to date paper plans to begin the manual red-line process. Please contact us as needed for assistance.

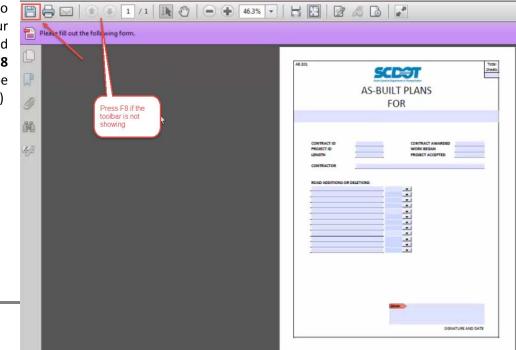
Appendix A: Small Format Contract Electronic Process

Preparing the Contract

- 1. Create a new folder on the network sever by right clicking and selecting **New > Folder** in the appropriate location. Enter a **File Name** for the Contract folder.
- Navigate to the <u>Preconstruction</u> intranet site to locate the AB 201 form. (Intranet Home Page > Departments > Preconstruction > Forms > As-Builts)
- 3. Choose the Form AB201 (8.5 x 11) small format pdf.



 Select the Save icon to save the pdf to your working folder created in step 1. (Press the F8 button if the Adobe toolbar is not showing.)



5. Next, navigate to the <u>Plans Library</u> by selecting the "Plans Man" icon on the Preconstruction intranet page. On the left, select **Contract Info**.

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|-------------------------|-------------------|---|
| Preconstruction | PLANS LIBRARY | |
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6. Enter the **Contract ID** (or applicable search criteria) and press the **Submit Search** button.

| Proposals - Quick Scal | | |
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| Back Search Clear Help | | |
| County | 9 | |
| Contract ID | 2880890 | |
| Document Type | 93 | |
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| District | Ē | |
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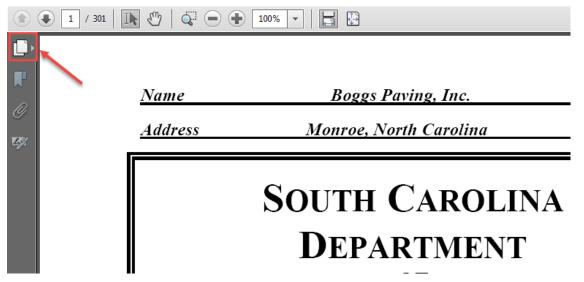
Proposals - Quick Search Form

7. Locate the Contract document from the list of search results and press the **magnifying glass** icon to open the document.

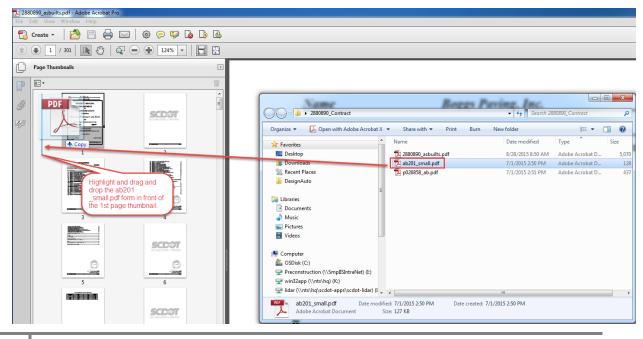
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| Q 👔 | KERSHAW | 2880890 | P026858 | addendum 1 | 2014-03-11 |
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| Q 👔 | KERSHAW | 2880890 | P026858 | schedule of prices | 2014-03-11 |
| Q 👔 | KERSHAW | 2880890 | P026858 | award letter | 2014-03-11 |
| Q 👔 | KERSHAW | 2880890 | P026858 | contract | 2014-03-11 |

Proposals - Search Results

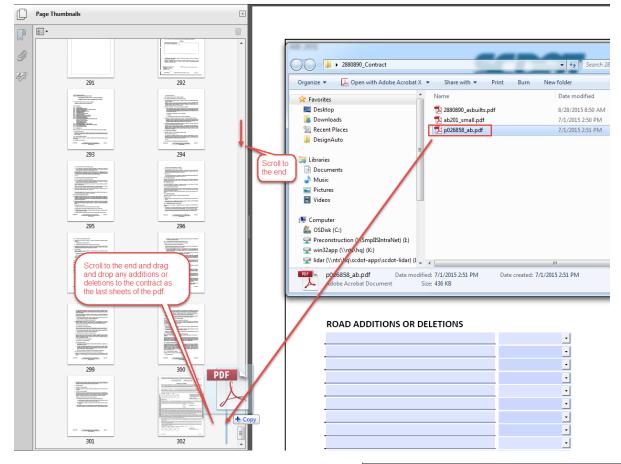
- 8. Select the **Save** icon to save the pdf to your working folder created in step 1. Name the file **ContractID_asbuilts.pdf** as this will be the final file you submit to the Plans Storage Office electronically. (Select File > Save as > PDF if the icon is greyed out.)
- 9. If you have any change orders, deletions or additions to the contract, add those pdf documents into the contract folder at this time. This should include correspondence for deletion and/or a strip map and summary of quantities for an addition.
- 10. Open the **ContractID_asbuilts.pdf** in the folder. On the left, press the "paper icon" button to open the "Page Thumbnails" to show small images of the pdf sheets.



11. With Windows Explorer open with the contract, **highlight** and **drag and drop** the AB201_small.pdf in front of the 1st page thumbnail to insert the form into the ContractID_asbuilts.pdf.



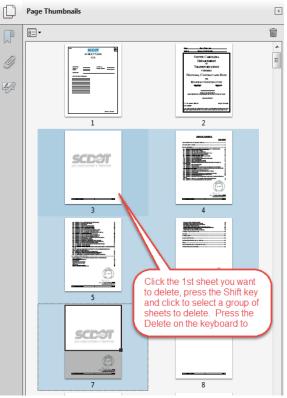
12. On the ContractsID_asbuilts "Page Thumbnails" window, **scroll** all the way **to the end** of the contract. **Highlight** and **drag and drop** any additions or deletions to the very end of the pdf document.



13. Scroll back to the beginning of the pdf, start highlighting the page thumbnails of the pages you do not need to keep. Use the **shift + click** to select multiple sheets at once. Press the **delete** button on the keyboard to remove those pages. Keep scrolling and selecting the pages you do not need and delete.

You will need to keep the following:

- a. AB201 Cover Sheet
- b. Contract Cover Sheet
- c. Road Summary
- d. Summary of Quantities for project
- e. Individual Quantity Summary for each road
- f. Individual Strip Map for each road
- g. Change Orders
- 14. Press the **Save** button to save the changes to the ContractID_asbuilts.pdf.



18

Exporting from Site Manager

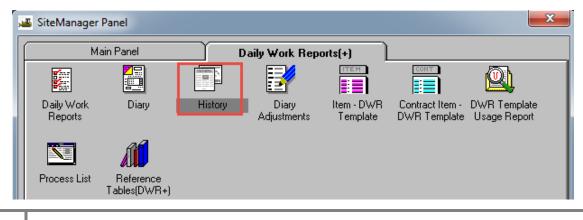
1. Login to Site Manager.

| SiteManager Logon |
|--|
| Import SiteManager Construction Management System |
| User ID: shaffess |
| Password: ****** |
| Connect to: Server |
| Logon Change Password Close |
| Download RTF Templates |
| Copyright © 2012, the American Association of State Highway & Transportation Officials, Inc. ("AASHTO"). All rights reserved. This software or parts thereof may not be reproduced in any form without written permission of AASHTO. Produced in the United States of America. |
| Enter the User Password. |

2. On the Main Panel tab, select Daily Work Reports.

| 2 | 🛎 SiteManager P | anel | | | | | — × | - |
|---|-------------------------------|--------------------------|-------------|---------------------------|---------------------|-----------------|----------------------------|---|
| | Mair | n Panel | | Daily Work Repo | ts(+) | | | |
| | | | _ | | 2 | 4 <u>1</u> 4 | ₹ | |
| | Contract Administration(+) | Daily Work Reports(+) | Pipeline(+) | Contractor Payments(+) | Change Orders(+) | Civil Rights(+) | Materials Management(+) | |
| | Accessories(+) | Manuals(+) | | | | | | |

3. On the Daily Work Reports tab, select History.



4. When prompted, scroll down and find the Contract Id. **Highlight** the contract id and press the **OK** button to load the contract.

| Selection | | | | | | | | | |
|-------------|-----------|--------------------|--------|--------|-------|-------|-------|-----------------------|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | _ | | | | | |
| ind : | | | | | | | | | |
| Contract ID | | | | | | | | | |
| Contract ID | Vendor ID | Fed State Proj Nbr | Status | County | Lvl 2 | Lvl 3 | Lvl 4 | Loca | * |
| 2840.040613 | 1PA005 | SA88(030) | ACTV | C028 | 1 | 1 | 28 | S-955/S-1041 & S | |
| 2880890 | 180002 | P026858 | ACTV | C028 | | 1 | 28 | S-38 E, 446 E, 454 | L |
| 2881080 | 1DE003 | BR28025 | ACTV | C028 | 1 | 1 | 28 | S-20 Bridges over | |
| 2888170 | 1LY003 | P028195 | ACTV | C028 | 1 | 1 | 28 | District 1 - 2015 C | |
| 2889720 | 1CR001 | P027995 | ACTV | C028 | 1 | 1 | 28 | District 1 - Safety 9 | |
| 29.031125A | 1EA001 | SA29007 | ACTV | C029 | 2 | 4 | 29 | LANCASTER COL | |
| | | | | | | | | | Ŧ |
| < [| | | | | | | | | |

5. Select the Work Item History tab.

| 🚢 AASHTO SiteManager | - | _ | | | |
|------------------------------|-------------------|------------------------------|----------------|------------|--|
| File Edit Services Window | Help | | | | |
| 🔟 🔛 🗣 😤 🖆 🛨 | | | | | |
| 📕 History | | | | | |
| DWR History | ∀ork Item History | Contractor Histor | y) | | |
| Contract ID: 2880890 |] | | | | |
| | | | | | |
| RPT-ID: DWRHWIH | i sol | UTH CAROLINA | DATE: | 08/28/2015 | |
| USER: shaffess | Departm | nent of Transportati | ion PAGE: | 1 of 68 | |
| | | ISTORY FOR CONT P BY DATE | TRACT: 2880890 | | |
| Calent File & Drint Draview | | | | | |
| Select File > Print Preview. | AASHTO SiteMar | - | | | |
| | File Edit Service | s Window H | | | |
| | Close | Ctrl+F4 | | | |
| | Print Setup | Ctrl+U | | | |
| | Print Preview | Ctrl+W | | | |
| | Print | Ctrl+P | | | |
| | Main Panel | Ctrl+M | | | |
| | Evit | Δlt+F4 | | | |

6.

7. Press the Save As button.

| Print Prev | ew | | | | | | X |
|------------|-------------|-------|-------|------|---------|----------------|----------|
| Next | Prior | Print | Setup | Zoom | Save As | Close | ✓ Rulers |
| | | | | | 4 | <mark>5</mark> | |
| BP | T-ID: DWRH | WIH | | | | DATE: 0 | |
| | ER: shaffes | | | | | PAGE: 1 | |

8. Ensure that Text with headers is listed in the Save as type. Enter a file name with the **ContractId_WorkHistory**. Press the **Save** button. (The txt file will be created in the contract folder.)

| 🚢 Save As | | × | |
|---------------|---------------------------|-----------------|---|
| Save in: 🚺 | 2880890_Contract 🗨 | ← 🗈 📸 🖬 - | |
| Name | * | Date modified T | i |
| | No items match your searc | :h. | |
| | | | |
| | | | |
| | | | |
| • | III | • | |
| File name: | 2880890_WorkHistory.txt | Save | |
| Save as type: | Text with headers | Cancel | |
| Encoding: | ANSI/DBCS | • | |

9. On the Main Panel, select Contract Administration.

| 5 | 🚢 SiteManager P | anel | | | | | | |
|---|-------------------------------|--------------------------|-------------|----------------------------|---------------------|--|--|--|
| | Main | Main Panel | | Contract Administration(+) | | | | |
| | | | | | 0 | | | |
| | Contract Administration(+) | Daily Work Reports(+) | Pipeline(+) | Contractor Payments(+) | Change Orders(+) | | | |
| | | Q. | | | | | | |
| | Accessories(+) | Manuals(+) | | | | | | |

10. On the Contract Administration tab, select **Reports.**

| 2 | 🚢 SiteManager 🛛 | Panel | | | |
|---|--------------------------|------------------------|-----------------------------|----------------|--------------|
| | Ma | in Panel | Con | tract Administ | ration(+) |
| | Â | | _ | | |
| 1 | Reference Tables(CA+) | Contract Records(+) | Contractor Management(+) | Reports (CA+) | Process List |

-

11. On the Reports tab, select Item Quantity.

| k | 📱 SiteManager P | anel | | | | | X |
|---|-----------------|-----------------------|---------------|---------------------|---|----------------------|------------------------------|
| | Mai | in Panel | | ontract Administ | ration(+) | Repo | orts (CA+) |
| | GRAPH + | | | | i initia | 5 | GRAFH + |
| | Contract Status | Required Documents | Item Quantity | Item Work Report | Dispute/Claim Summary | Subcontract Value | Contractor Current Status |

12. Right click and click on **Search**. Scroll down to locate the contract id. **Highlight** and press the **OK** button to load the contract.

| Contr | act Item Quantity Criteria | Search Window | | | | | |
|--------------|----------------------------|---------------|-----------|--------------------|--------|--------|-------|
| | | Contract ID | Vendor ID | Fed State Proj Nbr | Status | County | Lvl 2 |
| | | 28.7805.01 | 160009 | PPP-PP05 | ACTV | C028 | 1 |
| a | | 28.7905.01 | 1AP002 | PPP-PP05 | ACTV | C028 | 1 |
| Contract ID: | | 2831.038088 | 1TR004 | SPSA(004) | ACTV | C028 | 1 |
| | Search | 2840.040613 | 1PA005 | SA88(030) | ACTV | C028 | 1 |
| Item Status: | Eller Court | 2880890 | | | ACTV | C028 | |
| | Filter Search | 2881080 | 1DE003 | BR28025 | ACTV | C028 | 1 |
| | | 2888170 | 1LY003 | P028195 | ACTV | C028 | 1 |
| | Show Details | 2889720 | 1CR001 | P027995 | ACTV | C028 | 1 |
| | | • | | | | | + |

13. Check on All Item Status and press OK to continue.

| | Report Criteria | | x |
|--------|------------------------------------|---------------------------------|---|
| | | Contract Item Quantity Criteria | |
| | Contract ID: Item Status: | 2880890 | |
| [[| Generate Off-li Generate Off-li | OK Parameters Cancel Help | |

14. Select Services > Export. Navigate to the contract folder and name the file ContractID_ItemQuantities.txt. Press the Save button.

| 🚢 AASHTO | SiteManager | |
|-----------|----------------|--------------|
| File Edit | Services Windo | ow Help |
|] 💷 🔡 🏾 | Process Sta | tus |
| 📕 Item Q | Export | Ctrl+Shift+X |
| 22 | | |

| 🚢 Export File To: | × |
|---------------------------------------|----------------------|
| Save in: 🔒 2880890_Contract 💌 | ← 🗈 💣 📰▼ |
| Name | Date modified Ty |
| 2880890_WorkHistory.txt | 8/28/2015 9:39 AM Te |
| ۰ III | 4 |
| File name: 2880890_ItemQuantities.txt | Save |
| Save as type: Text File (*.TXT) | Cancel |

15. On the Main Panel, select Materials Management.

| 🚢 SiteManager P | anel | | | | | | 23 |
|-------------------------------|--------------------------|-------------|---------------------------|---------------------|-----------------|----------------------------|----|
| Mair | n Panel | N | faterials Managem | ient(+) | | | |
| | | _ | | 0 | <u>at</u> a | ▶ | |
| Contract Administration(+) | Daily Work Reports(+) | Pipeline(+) | Contractor Payments(+) | Change Orders(+) | Civil Rights(+) | Materials Management(+) | |

16. On the Materials Management tab, select Sampling and Testing.

| 2 | SiteManager F | anel | | | | | | 23 |
|---|----------------------------|--------------------------|----------------------|------------------------------|---------------|--------------------------|----------------------------|----|
| | Ма | in Panel | Ma | aterials Manage | ment(+) | Sampling | ; and Testing(+) | |
| | Ð | * | L15 T | | <u>iiiii</u> | | 5 | |
| | Material Information(+) | Contract Materials(+) | Approved Lists(+) | Approved Lists Reports(+) | Mix Design(+) | Mix Design Reports(+) | Sampling and Testing(+) | |

17. On the Sampling and Testing tab, select Find Sample.

| ŝ | SiteManager | Panel | | | | X |
|---|-----------------------|-------------|---------------------------------------|----------------------------|---|-------------------------|
| | м | ain Panel | | Materials Management(+) | Υ | Sampling and Testing(+) |
| | Sample Information | Eind Sample | Sampling & Testing Requirements | Standard Sample Remarks | | |

18. Check on Contract Id, right click to Search. Scroll down to find the contract id. Highlight and press **OK** to continue. Press **OK** to load the Contract information.

| Eind Sample Parameters | | |
|--------------------------------|---|----------|
| | ers for the Find Samp meet all criteria spec | |
| Geographic Area: | | - |
| Sampled By: | | |
| Material Code: | | |
| Producer/Supplier Code: | | |
| Sample Date: 00/00/0 | 000 till 00/00/0000 | |
| Contract ID: | | _ |
| Project: | Search | |
| Line Ite | m: Filter Search | |
| . Select File > Print Preview. | 🛎 AASHTO SiteMana | ger |
| | File Edit Services | Window H |
| | Close | Ctrl+F4 |
| | Print Setup | Ctrl+U |
| | Print Preview | Ctrl+W |
| | Print | Ctrl+P |
| | Main Panel | Ctrl+M |
| 3 | Exit | Alt+F4 |

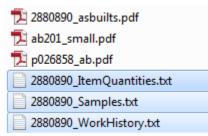
20. Select Save As.

| Next | Prior | Print | Setup | Zoom | Save As | Close | Rulers |
|------|-------|-------|-------|------|---------|-------|--------|
| | | | | | | | - |

21. Ensure that Text with headers is listed in the Save as type. Enter a file name with the **ContractId_Samples**. Press the **Save** button. (The txt file will be created in the contract folder.)

| Save As | × |
|---------------------------------|----------------------|
| Save in: 2880890_Contract | - 🗈 📸 🖬 - |
| Name 🔷 🔻 | Date modified Ty |
| 2880890_ItemQuantities.txt | 8/28/2015 9:46 AM Te |
| 2880890_WorkHistory.txt | 8/28/2015 9:39 AM Te |
| < | • |
| File name: 2880890_Samples.txt | Save |
| Save as type: Text with headers | - Cancel |
| Encoding: ANSI/DBCS | • |

22. You should now have 3 txt files in the contract folder.

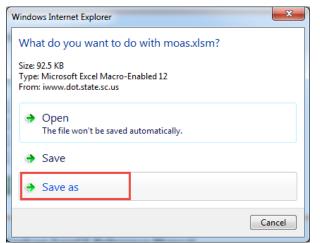


Excel Spreadsheet and Quantity Report

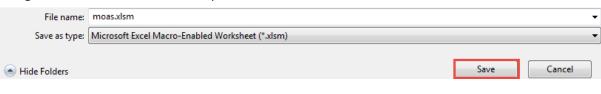
1. On the Preconstruction intranet site, under <u>Support > Construction Support</u>, and click on the MOAS Excel Spreadsheet.xlsx link.



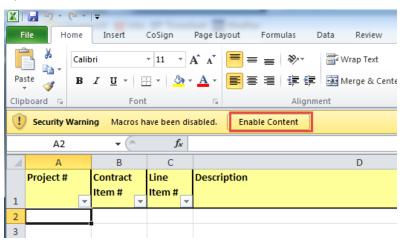
2. When prompted, select Save As.



3. Navigate to the contract folder and press the Save button to continue.



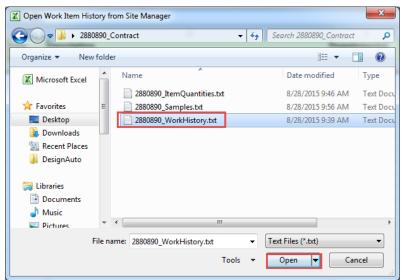
4. Open the moas.xlsm file in Excel. Click Enable Content to start the Macros.



5. Select All Sheets and press OK.

| Update Sheets (Ctrl-D to reopen) | × |
|---|---|
| - Import .txt and Update | - Update |
| ✓ All Sheets ✓ Line Item History ✓ Line Item Tracking ✓ Sample Log | All Sheets Sample Tracking Statistics |
| Add Sample Frequencies | OK Cancel |

6. Navigate to the contract folder and select the ContractID_WorkHistory.txt file and press Open.



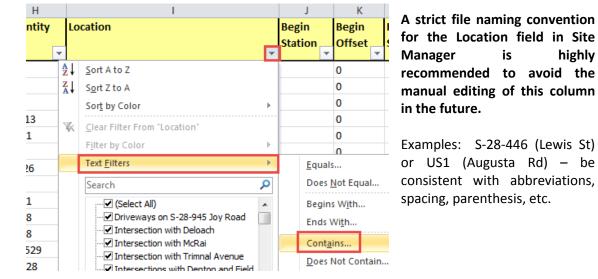
7. Select the ContractID_ItemQuantities.txt and press Open.

| 🗶 Open Item Quantity | y Report fro | om Site Manager | | 9.0 | × |
|----------------------|--------------|----------------------------|--------------|-------------------------|-----------|
| O C C C C C | esktop 🕨 2 | 880890_Contract | ▼ 4 9 | Search 2880890_Contract | P |
| Organize 🔻 Ne | w folder | | | = | |
| Microsoft Excel | ^ N | lame | | Date modified | Туре |
| | | 2880890_ItemQuantities.txt | | 8/28/2015 9:46 AM | Text Docu |
| 🔆 Favorites | = | 2880890_Samples.txt | | 8/28/2015 9:56 AM | Text Docu |
| 🧮 Desktop | Ĩ | 2880890_WorkHistory.txt | | 8/28/2015 9:39 AM | Text Docu |
| 🗼 Downloads | | | | | |
| 📃 Recent Places | | | | | |
| 퉬 DesignAuto | | | | | |
| | | | | | |
| 📜 Libraries | | | | | |
| Documents | | | | | |
| J Music | | | | | |
| Pictures | | | | | P. |
| | File name: | 2880890_ItemQuantities.txt | - T | ext Files (*.txt) | - |
| | | Тоо | ls 🔻 | Open 🔻 Ca | incel |

8. Select the **ContractID_Samples.txt** and press **Open**.



- 9. Review all of the tabs for the data that was imported from Site Manager.
- 10. On the Line Item History worksheet, edit the roads in the Location column (I) by using the filters and copy/pasting to clean up the data so each road has only one spelling and format. Continue until all roads are assigned. You may need to refer back to Site Manager to determine any discrepancies.



To filter, click on the drop down arrow next to Location. Select Text Filters, Contains – enter Contains and enter the road name and then toggle the Or and select contains from the drop down on the second item. In this contains enter the road number. Press **Ok** to filter. This will return all rows that have the road name or number. Pick one format that is acceptable and right click to **copy/paste** this format to all of the other rows that contain this road name and number combination. **Repeat** for each road on the contract until there is only one format for each unique road summary.

| Custom AutoFilter | ? <mark>x</mark> | l. | J K |
|---|------------------|-----------------------------------|--------------------------|
| Show rows where: | | Location | libri - 11 - A A \$ |
| Location | | B | _ I 冨 🦄 - 🗛 - 🔟 - ' |
| contains 💌 sandy | | S-28-829 - Sandy Springs Drive | 0 |
| © <u>A</u> nd <mark>● <u>Q</u>r</mark> | | S-28-829 - Sandy Springs Drive | Cu <u>t</u> |
| contains | | S-28-829 - Sandy Springs Drive | <u>с</u> ору |
| Use ? to represent any single character | | S-28-829 - Sandy Springs Drive | Paste Options: |
| Use * to represent any series of characters | | S-28-829 - Sandy Springs Drive | 123 fx 🛃 % |
| | OK Cancel | S-28-829 - Sandy Springs Drive | Paste Special |
| | | S-28-829 - Sandy Springs Drive | |
| | | S-28-829 - Sandy Springs Drive | Insert Row |
| | | S-28-829 - Sandy Springs Drive | Delete Row |
| | | S-28-829 - Sendy Springs Drive | Clear Co <u>n</u> tents |
| | | S-28-829 - Sandy Spr | |
| | | S-28-829 - Sandy S Copy and paste | a T |
| | | S-28-829 - Sandy S the same forma | .t |
| | | S-28-829 - Sandy Store ach road | rt Co <u>m</u> ment |
| | | S-28-829 - Sandy Springs Drive | _ormat Cells |
| | | S-28-829 - Sandy Springs Drive | Pick From Drop-down List |
| | | S-28-829 - Sandy Springs Drive | Define Name |
| | | S-28-829 - Sandy Springs Drive | Hyperlink |
| | | S-28-829 - Sandy Springs Drive | 11+30.00 10 LI |
| | | S-28-829 - Sandy Springs Drive | 12+94.00 6.5 RT |
| | | S-28-829 - Sandy Springs Drive | 12+94.00 10 LT |
| 27 | | S-28-829 - Sandy Springs Drive | +56.00 11 LT |

11. Highlight Columns A, B, C, D, H, and I using the Control button to add the H and I columns. Right click and select **Copy**.

| | 🔄 🕑 🕶 🗁 👘 moas.xlsm - Microsoft Excel | | | | | | | | | | |
|---------|---------------------------------------|--|-----------------------------|--|-----------------|------------------|----------------------------|---|-----------------------------------|---|---------------|
| F | ile Hom | le Home Insert CoSign Page Layout Formulas Data Review View Add-Ins Bluebeam Acrobat | | | | | | | | | |
| ľ | e م | alibri | × 11 × | · A A ■ ≡ = ≫ | Wrap Text | General | - | ≤ ≸ | | | Σ - - - |
| Pa | | BI <u>U</u> - | 🗄 🔺 🔕 | • <u>A</u> · E = = # # | 📑 Merge & Cente | r * * % , | 00. 0.≯ 0.€ 00. | | Format Cell s Table ≠ Styles ≠ | Insert Delete Format | t 🖉 - |
| Clip | board 🕞 | Fo | ont | Alignm | ient | 5 Number | - Ea | Stj | yles | Cells | |
| | H1 | - (e | f_x | Quantity | | | | | | | |
| | | | | | | | | | | | |
| | А | В | С | D | E | F | G | Н | | I. | |
| | A Project # | B Contract | C Line | D Description | | | | - | Location | I | |
| 1 | A Project # | Contract | Item # | | Supplemental | | | Quantity | | 1 | Ţ, |
| 1 24 | A Project # P026858 | Contract Item # | Item # | Description | Supplemental | | Contracto r | Quantity | | I addy Springs Drive | ,Τ |
| 1 | · · | Contract Item # | Item # | Description | Supplemental | | Contracto r | Quantity | S-28-829 - San | I ndy Springs Drive ndy Springs Drive | ्र |
| 1 24 | P026858 | Contract Item # 4030340 | Item # 960 750 | Description HOT MIX ASPHALT SURFACE (| Supplemental | Supplemental | Contracto r BOGGS PA | Quantity • • • • • • • • • • • • • | S-28-829 - San S-28-829 - San | | Ţ |

12. Click on the New Worksheet tab and double click to rename it to Final Quantities.

| 1.4. 7 | | | |
|--------|-----------------|--------------------|--|
| / 🚰 / | Line Item Chart | Final Quantities 📝 | |
| | | | |
| | | | |

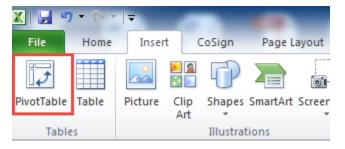
13. In the first cell A1, right click and select **paste** to paste the columns from the Line Item History Tab.

| | А | В |
|---|-----------|-----------|
| | Project # | Contract |
| 1 | - | ltem # 👻 |
| 2 | P026858 | 8109901 |
| 3 | P026858 | 8109901 |

14. **Highlight** from cell A1 to the last cell with data in the F### column by using the Shift plus click to select the last column/row.

| | А | В | С | D | E | F |
|---|-----------|------------|----------|-------------------------------|----------|---------------------|
| | Project # | Contract | Line | Description | Quantity | Location |
| 1 | - | Item # 🛛 👻 | ltem # 👻 | ✓ | • | |
| 2 | P026858 | 8109901 | 325 | MOWING | 1.3 | S-28-945 - Joy Road |
| 3 | P026858 | 8109901 | 325 | MOWING | 2.3 | S-28-38 - Ward Road |
| 4 | P026858 | 4011004 | 100 | LIQUID ASPHALT BINDER PG64-22 | 0.06 | S-28-38 - Ward Road |
| 5 | P026858 | 4011004 | 100 | LIQUID ASPHALT BINDER PG64-22 | -0.813 | S-28-38 - Ward Road |

15. On the Insert tab, select the Pivot Table button.



- 16. Ensure that the Select a table or range contains the 'Final Quantities'!\$A\$1:\$F\$### and includes all the way to the end of the data.
- 17. Toggle on **Existing Worksheet** and press the Location button. Select the H1 cell to insert the data. Press **OK** to create the pivot table.
- 18. **Check on** the Project, Contract Item, Description, Quantity, and Location.

| PivotTable Field List | |
|---------------------------------|----------|
| Choose fields to add to report: | • |
| Project # | |
| Contract Item # | - |
| Line Item # | |
| Description | |
| Quantity | |
| Location | |

| Create PivotTable | ? × | | | | | | | |
|---|------------------------------------|--|--|--|--|--|--|--|
| Choose the data that yo | u want to analyze | | | | | | | |
| <u> <u> </u> </u> | | | | | | | | |
| <u>T</u> able/Range: | 'Final Quantities'!\$A\$1:\$F\$209 | | | | | | | |
| 🔘 Use an external dat | ta source | | | | | | | |
| Choose Conne | ection | | | | | | | |
| Connection nam | ne: | | | | | | | |
| Choose where you want | the PivotTable report to be placed | | | | | | | |
| New Worksheet | | | | | | | | |
| Existing Worksheet | | | | | | | | |
| Location: 'Fin | al Quantities'!\$H\$1 🔣 | | | | | | | |
| | OK Cancel | | | | | | | |

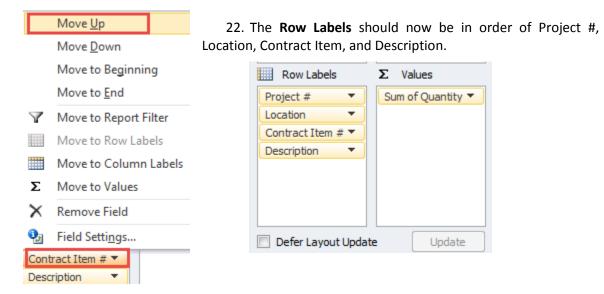
19. Click on the Summary of Contract item and select Move to Row Labels.

| | | Mov | e to Row Labels | | |
|------------|------------------|-----------------------|---------------------------|--|--|
| | | Move to Column Labels | | | |
| | Σ Move to Values | | | | |
| Row L | × | Remove Field | | | |
| Project # | 9 | Valu | e Field Setti <u>n</u> gs | | |
| Location | | • | Sum of Contr 🔻 | | |
| Descriptio | n | - | | | |

20. Click on Location and Move Up below Project #.

| | Move <u>U</u> p |
|--------------|-------------------------|
| | Move <u>D</u> own |
| | Move to Beginning |
| | Move to <u>E</u> nd |
| \mathbf{Y} | Move to Report Filter |
| | Move to Row Labels |
| | Move to Column Labels |
| Σ | Move to Values |
| × | Remove Field |
| 0_ | Field Setti <u>n</u> gs |
| Loca | tion 🔻 |
| Desc | ription 🔻 |
| Cont | ract Item # 🔻 |

21. Click on **Contract Item** to Move Up above Description.



23. Highlight the Column I, right click to select Format Cells, Select **Number** and increase to 3 decimal places. Press **OK** to continue.

| — I, | | J | Format Cells |
|------------|--------------|---|--|
| | ₩ | Cu <u>t</u> | Number Alianment Font Border Fill Protection |
| Sum of Qua | | <u>С</u> ору | Category: |
| 22223 | | Paste Options: | General Sample |
| | | Ê | Number Currency Sum of Quantity |
| 10851 | 10851 Insert | Paste <u>S</u> pecial Insert Delete Clear Contents | Accounting Date Time Fraction Scientific Text Special Decimal places: 3 |
| | | | Custom (1234.210) |
| | Ш° | <u>Format Cells</u> Column Width | |

24. Highlight Columns H & I, select the **Design** tab at the top of Excel.

| | PivotTable Tools | | | |
|---|------------------|----------|--|--------------|
| Bluebeam Acrobat | Options Design | | | |
| | | * | | |
| PivotTable Styles | | - | | |
| | | | | |
| | Н | | | 1 |
| Row Labels | Н | | | ▼ Sum of Qua |
| | Н | | | Sum of Qua |
| | | | | |
| Row Labels - P027448 - S-39-18 Eighteen Mi - 1031000 | | | | 17139 |

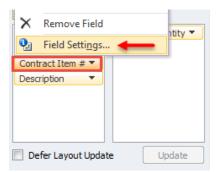
25. On the left of the Design tab, select **Subtotals > Do Not Show Subtotals** (This turns off the unnecessary totals on the right column.)

| 🗶 🛃 🕒 | १ र (थ ∗ ╤ | | I I |
|----------------|--|----------|-----------------|
| File | Home Insert Co | | |
| | | Row H | Sum of Quantity |
| | | M KOW H | |
| Subtotals * | Grand Report Blank Totals - Layout - Rows - | Columr | |
| | | | 0.500 |
| | o Not Show Subtotals | | 0.000 |
| s | how all Subtotals at <u>B</u> ottom | of Group | |

26. In the PivotTableStyles box, scroll down a couple of times and select one of the **pre-defined templates** to apply to format the table with banded colors and lines. This step is optional to increase legibility.

| aved by user] - Microsoft Excel | PivotTab | le Tools |
|--------------------------------------|----------|----------|
| Review View Add-Ins Bluebeam Acrobat | Options | Design |
| | | |
| | | |
| | ===== | |

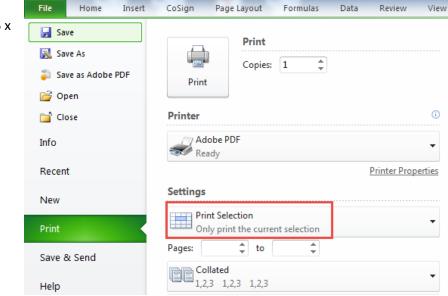
27. In the bottom right corner in the PivotTable – Row Labels, left click on **Contract Item #** and select **Field Settings**.



28. On the Layout & Print tab, select Show item labels in tabular form. This combines the pay item and description into one line. (This will create an extra column J)

| Field Settings | <u> १</u> × |
|-----------------------------------|---|
| Source Name: Contract Item # | |
| Custom Name: Contract Item # | |
| Subtotals & Filters Layout & Prir | t |
| Layout | |
| Show item labels in outline form | |
| Display labels from the next | t field in the same column (compact form) |
| Display subtotals at the top | of each group |
| Show item labels in tabular form | 1 |
| | |

29. Highlight columns H, I, & J and select File > Print. Select an 8.5 x 11 printer (or Adobe pdf) and choose Print Selection.



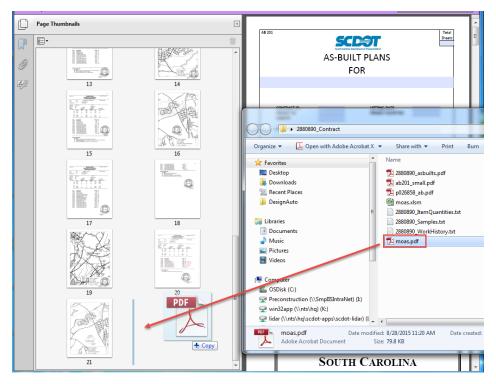
30. Press the Save & Send and press Create Adobe Pdf. Press Create Adobe Pdf on the right.

| File Home Insert | CoSign | Page Layout | Formulas | Data | Review | View | Add-Ins | Bluebeam | Acrobat | Options | Design | | |
|-----------------------|----------|------------------|--------------------|------|---|---|--|--------------|--|--------------|------------|--------|--|
| 🖌 Save | Save & | Send | | | Crea | ate Adobe | PDF | | | | | | |
| 🐹 Save As | | Send Using E-m | ail | | Convert to PDF using Adobe Acrobat Uiewable and printable on most platforms Reliable and secure way of exchanging and archiving documents | | | | | | | | |
| 🚰 Open 首 Close | - | | Create lobe PDF | | | re way of exch I document loo | | rchiving doo | tuments | | | | |
| Info | | Save to Web | | | | | | | | | | | |
| Recent | | Save to SharePo | int | | | | | | | | | | |
| New | | | | | | | | | | | | | |
| Print | | Send by Instant | Message | | | | | | | | | | |
| Save & Send | Ę, | Share Workbook | Window | | | | | | | | | | |
| Help | File Typ | pes | | | | | | | | | | | |
| Options Exit | N | Change File Typ | e | | | | | | | | | | |
| | - | Create Adobe Pl | DF | | 🖪 | Acrobat P | DFMaker | | | | | × | |
| | | Create PDF/XPS | Document | | | onversion | - | | | | | | |
| | | | | | | Selection Sheet(state) | | | | | | | |
| 1. Press Selection an | nd then | press Con | vert to F | DF. | | eets in Exc | | Shee | t Selection | Sheet | s in PDF | | |
| 32 | | | | | Lii Să Să Că Rê St | ample Lo ample Tr ample Fr oncrete M ebar catistics ne Item nal Quar | Tracking og racking requency Mix Desigr Chart | Arrar | Add > < Remove Add All >> mge Move Up Move Down | Fina | l Quantiti | es | |
| | | | | | | | | | Con | ivert to PDF | | Cancel | |

32. Enter a file name and press Save.

| File name: | moas.pdf | • | Save |
|---------------|-------------|---|---------|
| Save as type: | PDF files | ▼ | Cancel |
| | View result | : | Options |

- 33. **Open** the ContractID_asbuilts.pdf and scroll down to the very end.
- 34. **Highlight** the moas.pdf and **drag and drop** it to the end of the pdf in the "page thumbnails view".
- 35. Review that you have all the pages in the as-builts pdf.

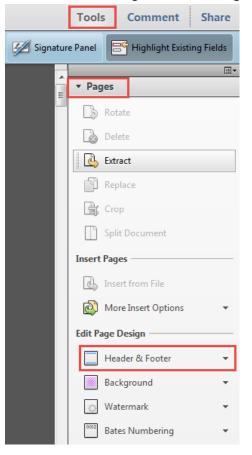


Complete the Final Submittal

- 1. In the ContractID_asbuilts.pdf, **fill out** the form fields on the AB201 Cover Sheet:
 - a. Enter the Total Sheets
 - b. Enter the County or District designation in the large box under "As-Built Plans For"
 - c. Enter the Contract and Project Ids, Total Length, Letting Date, and Project Accepted Date
 - d. Enter the Contractor name
 - e. Enter the Road/Route numbers and designate if they are Additions/Deletions to the contract

| 201 | South Carolina Dep | artment of Transportation | | Shee 25 |
|-------------------------------------|----------------------------------|----------------------------------|--------------------------|------------|
| | AS-BUIL | T PLANS | | |
| | F | OR | | |
| | KERSHAV | V COUNTY | | |
| | | | | |
| CONTRACT ID PROJECT ID LENGTH | 2880890 P026858 4.00 MILES | LETTING DATE PROJECT ACCEPTED | 03/01/2014 04/15/2015 | |
| CONTRACTOR | BOGGS PAVING IN | IC. | | |
| ROAD ADDITIONS | | | | |
| S-28-830 POPLA | R LANE ADD | | | |

2. Select **Tools** on the right and select **Pages**. Click on **Header & Footer**.



3. Under Font, set the size as **12** and color to **Red.**

| | Font Name: Arial | ▼ Size: 12 ▼ U | 4. In the Right Header Text box, add the text "AS-BUILT |
|----|--|--|---|
| | PLANS" in capital letters. | | |
| | | Header Text UILT PLANS | |
| 5. | Click in the Left Footer Text box to activate and then select Page Number and Date Format. | Page Number and Date Format Date Format: m/d | Page Number and Date Format |
| 6. | From the drop down, select the Page 1 of n format and press OK to continue. | Page Number Format: Start Page Number: 1 of n 1/n OK Page 1 Page 1 of n Page 1 | Page Range Options BUILT PLANS Total Sheets 25 |

7. Click in the Left Footer Text box to activate. Then press the Insert Page Number button below.

| Left Footer Text | |
|----------------------------------|--------------------|
| < <page1 n="" of="">></page1> | |
| , | Insert Page Number |

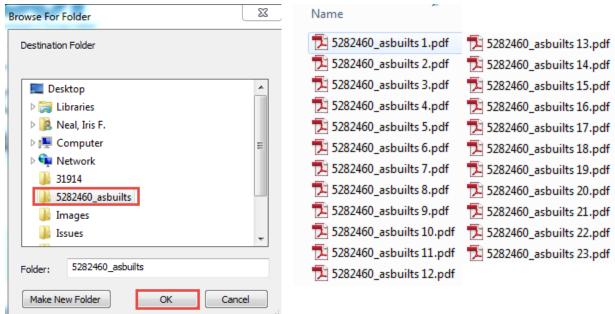
8. Press the **OK** button to apply. Press the **Save** button to save the pdf.

To meet the digital signature requirements, this pdf will need to be extracted to a series of single page pdfs.

In Adobe, select **Tools > Pages > Extract**.

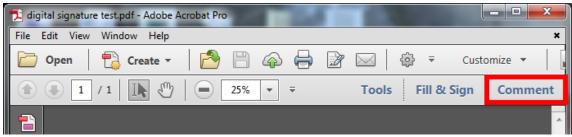
| Tools Comment Share | On the Extract Pages dialog, enter the last page number and check on Extract Pages As Separate Files. Press OK to start the process. |
|---------------------|--|
| ▼ Pages | Extract Pages |
| Rotate | From: 1 To: 23 of 23 Delete Pages After Extracting Extract Pages As Separate Files |
| Delete | OK Cancel |

Highlight the folder to extract the files to and press the **OK** button. You will now have single page pdfs in this working folder.

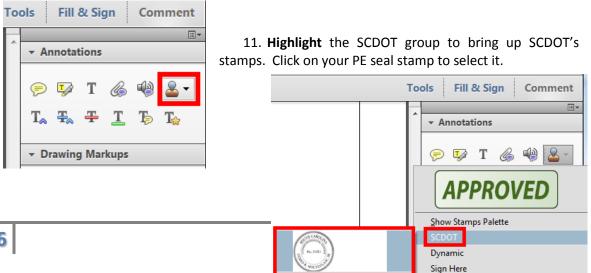


In order to complete the digital signature steps outlined below, you will need to have previously set up your "Stamp" and have had "CoSign" installed by your IRC. Please contact Design Automation for more information.

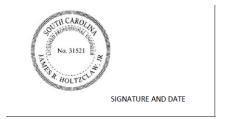
9. Open the "Comment" tools in the upper right corner of Adobe.



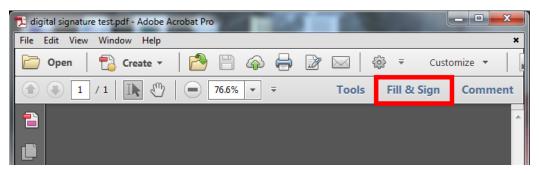
10. Click on the "Add Stamp" tool in the Annotations list to bring up the list of available stamps.



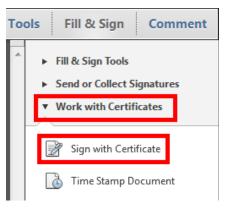
12. Click on the PDF document to place the seal.



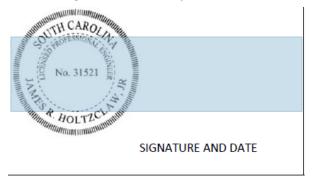
13. Open the "Fill & Sign" tools in the upper right corner of Adobe.



14. Expand the "Work with Certificates" menu and click on "Sign With Certificate" to enable the drawing tool. (You must have a Co-Sign Digital Signature Certificate to submit electronically. If you do not have a certificate, you can print the first page, manually sign, scan and add this sheet back to the document to submit electronically.)



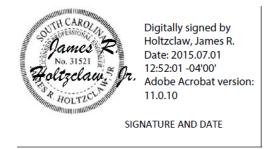
15. Click and drag on the pdf to create the signature field. If a PE Seal was placed, the form should begin on the left side of the seal three-quarters of the way up, extending three-quarters of the way down the seal and right to the edge of the white space of the stamp. If a PE seal was not placed, the signature field needs to be large enough for the signature and all accompanying text to be legible. It can be adjusted later if it is too large or small.



16. The Sign Document window should appear. Choose your name in the Sign As box and the signature labeled "No Seal" in the Appearance box, and then click Sign.

| Sign Document | ✓ LM |
|--|----------|
| Certificate Issuer: SCDOT Cosign Info | Lee S |
| Appearance: ARX signature - Ja | |
| James R. James R. Holtzclaw, ARX signature - James R. Holtzclaw, Jr Holtzclaw, ARX signature - JRH Date: 2015 ARX signature - JRH Date: 2015 ARX signature - JRH Cotroor Create New Appearance 11.0.10 | |
| Lock Document After Signing | |

17. Adobe will ask you to save the file. You can overwrite the unsigned version of the document or save it as a new document with a revised name (recommended).



- 18. **REPEAT** the digital signature process for **EACH** sheet that was modified from the original contract with your PE Seal and digital signature.
- Place the digitally signed and sealed single page pdf files into ProjectWise in folder 21 Plan Revision. Email the URN link to <u>PlanStorage@scdot.org</u> for inclusion in the Plans Library and archiving.

| 🚊 💯 3986670 - FA Preservation Project FDP & PMST |
|--|
| 🖃 💯 Construction |
| |
| 🖃 💯 2 - Estimate - Records |
| 19 - Railroad Information |
| 21 - Plan Revision - As Built Information |
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