



Roads &  
Maritime

# Drawings management process guide

RDE-SOP-004

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## About this document

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# 1. Purpose

The purpose of this document is to:

- Ensure that drawings related to any Roads and Maritime Services project, whether produced in-house or by external contractors, are managed effectively throughout the course of the project
- Ensure compliance of drawings with Roads and Maritime Services records management policies and relevant legislative requirements
- Provide a consistent procedure (suitable for audits) for drawings management from initial registration through to handover of Work As Executed (WAE) drawings
- Provide a consistent procedure for
  - The filing and naming conventions of plans/drawings
  - Requesting drawing set registration numbers
  - Registering drawing sheets into drawing set files
  - Search and retrieval of archived drawings
  - Packaging of CADD files for archiving.

## 2. Scope

This procedure is applicable to:

- All types of projects and management of drawings throughout the entire project cycle.
- Plans and drawings (regardless of format) prepared for the construction and maintenance of Roads and Maritime Services physical infrastructure in New South Wales. It includes any technical document of an illustrative nature, including plans and sketches.
- All such documents, whether produced in-house or by external contractors or consultants for works under the control of Roads and Maritime Services.

## 3. Summary

Plans and drawings created for or by Roads and Maritime Services during the course of infrastructure projects must be effectively managed from the point of creation through to the point of final disposition.

Almost every project completed by or for Roads and Maritime Services will begin with a idea that is developed over time into a final design. As the design is developed, drawings will be produced. Some drawings will simply be sketches of an idea, developed from there into a Strategic then Concept Design. If the project proceeds to construction, a Detailed Design will be prepared. After construction, Work-As-Executed drawings are provided from the Detailed Design drawings. By the end of a project, there may be several versions of plans or drawings in existence.

Such drawings, especially Work As Executed drawings, represent the ongoing permanent record of a project and as such must be carefully catalogued, preserved and managed according to the Roads and Maritime Services recordkeeping policies and procedures.

## 4. Responsibilities

Project managers are responsible for:

- Requesting drawing registration numbers and ensuring all sheets are marked with the correct drawing registration number
- Providing accurate registration details to designers (internal or external)
- Handing over full and accurate drawing sets to be maintained in Objectives Drawings repository at sign off of each stage.

Plan Management Centre is responsible for:

- Allocating drawing registration numbers
- Ensuring drawings are captured and stored in accordance with RMS Recordkeeping Policies
- Keep filing guides and procedures up to date
- Checking and processing Drawing Set tasks within Objective
- Assist with searching where necessary
- Providing advice and training when required.

Users are responsible for:

- Providing correct and accurate metadata for registration requests
- Diligently updating Drawing Set metadata as the project changes
- Searching for plans/drawings unassisted
- Archiving of approved drawings.

## 5. Drawing stages

Roads and Maritime Services drawing management process is defined by the below stages.

<b>Strategic Design</b>	<b>Concept Design</b>	<b>Detailed Design</b>	<b>Work As Executed</b>
-------------------------	-----------------------	------------------------	-------------------------

Drawings should be captured into Objective at all stages shown above.

- Design review stages (including 20% and 80%) are to be stored within the project file and versioned accordingly.
- 100% Designs and signed off authorised drawings (Issued For Construction and Work As Executed) should be archived in the Corporate Repository for Drawings.

# 6. Drawing registration

A registration number (DS Number) is required for all Roads and Maritime Services drawings, whether designed and drawn within Roads and Maritime Services or by a contractor as part of a design and construct package.

Registration of sketches is optional except where sketches have historical significance or contain information not appearing in drawings. Sketches must be registered if they are to be archived for historic, maintenance or legal purposes.

There are two ways to obtain a registration number.

- 1) Complete Form - Request for Drawing Set Number, ensuring **all** Mandatory fields are populated, and submit it electronically to [PlanManagementCentre@rms.nsw.gov.au](mailto:PlanManagementCentre@rms.nsw.gov.au).
- 2) Submit a Drawing Set creation request through Objective

NOTE: For external works, the RMS Project Manager must submit the Drawing Registration request. Any requests from individuals external to Roads and Maritime Services will not be processed.

## 6.1. Registration stages

A new registration number is required for each project. This number can be maintained throughout the various drawing stages of the project, ensuring that the designer updates the drawing **Issue Status** on the plan (As shown below).

LIVERPOOL COUNCIL HW02 - HUME HIGHWAY RIGHT TURN BAY EXTENSION ON HUME HIGHWAY AT REILLY STREET INTERSECTION, LIVERPOOL		A3
RMS PROJECT No. P.0014222.02.100	DESIGN PROJECT No. SF2016/182970	
RMS REGISTRATION No. <b>DS2016/001843</b>		
<b>ISSUE STATUS</b> <b>DETAIL DESIGN</b>	EDMS No.	SHEET No. GE-0001

The metadata in Objective should also be updated to include multiple stages. This can be done by informing Plan Management Centre of the next stage or alternatively you can add multiple stages in the Objective metadata by following the steps detailed in Section 6.3 step 4.

There are exceptions for carrying the same registration number across a project. This includes if:

- the project scope changes to include additional works/zones
- the project is split into various sections; or
- the project design company changes (this is because Objective is only able to capture one creating organisation within the metadata).

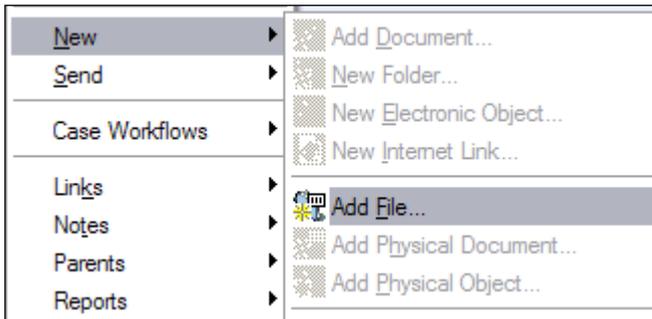
## 6.2. Secured drawings

On request of a registration number, Project Managers must advise whether the drawings will be for a project involving secure infrastructure. Secured drawings, regardless of infrastructure type, will sit under the Objective grouping folder *Secured Drawings*. All staff will have access to see the file, but they will not be able to access the drawings or change the metadata associated with it.

For retrieval of secured drawings, *Procedure for Release of Secure Drawings (RDE-SOP-006)* must be followed.

### 6.3. Requesting a Drawing Set File

1. To request creation of a Drawing Set in Objective, locate the appropriate grouping folder for your infrastructure type.
2. Right click on the grouping folder, select **New** then **Add File**.



(This will bridge up a new window titled **Add File to Objective**)

3. The fields below need to be filled in. The remainder are pre-populated by the system.

a. Name:

(Refer to the naming conventions details above)

b. File Type:

c. Creation State:

d. Delegate to:

- To fill out the catalogue, all fields with an **M** must have a value as they are mandatory fields. If no information is supplied, the **OK** button will be greyed out and you will not be able to submit the request.

**Drawing Set Type Catalogue**

Further Description:

Longitude/Latitude: -33.88812856, 151.1648791

Road Number: 0005 - GREAT WESTERN HIGHWAY

LGA: 255 - Leichhardt (Mun) (Mun: 9-9-1994)

Infrastructure Type: Traffic Signal

Stage: Detail

Drawing Type: Drawing/Plans

External Reference: 0005.255.VV.0033

Project Number:

Special Security If Required:

Creating Organisation: Design Engineering - Engineering Services - Asset Maintenance

Bridge Number:

Traffic Signal Number: 0033

Other Asset Number:

Callout boxes explain:
 

- Further description of the Drawing Set (Optional)
- Longitude/Latitude to be captured as decimal degrees. Use the exact location or centre of works for larger projects.
- Drop down list of Road Numbers
- Drop down list of Local Government Area's.
- Drop-down list of Infrastructure Types
- Drop-down list of design stages
- Drop-down list of design stages
- External Reference e.g. old registration numbers
- Note to state whether the drawings should be listed as secured.
- Project Number e.g. WBS details
- Searchable list of internal teams and external organisations
- Free text fields for Bridge, Traffic Signal and Other Asset Numbers (including culvert and sign ID's)

Clicking this symbol allows you to add multiple values.

- Once all information has been entered, click **OK**. Your request will then be submitted to the Drawings Coordinators where staff will process and commit your file to the system giving you a registration number.

Note: If you are not comfortable requesting registrations through Objective, you can still use Form 853 *Request for Drawing Set Number* to request a registration number.

## 7. Naming conventions

Naming conventions assist with the overall searching and retrieval of records within Objective. If there is a consistent approach, then this will bring better efficiency when searching for information in the future.

### 7.1. Road Infrastructure Drawings

#### Road Infrastructure Drawings

[Road Number] [Road Name] – [Short Description of works] at [Location], [Locality]

For example: HW5 Great Western Highway – Upgrade at Intersection with Pitt Street, Parramatta

### 7.2. Traffic Signal Drawings

#### Traffic Signal Drawings

TCS [Asset Number] Traffic Signal at [Road Name] and [Road Name], [Locality]

For example: TCS 4357 Traffic Signal at Knox Road and Cross Street, Doonside

### 7.3. Bridge Drawings

#### Bridges and Structures Drawings

 *[Bridge Number] Bridge on [Road Number] over [Road/Waterway Name] [Location] at [Locality] – [Description of works] – [Allocated DS Number]*

For example:  B01575 Bridge on HW28 over Hunter River 77.38km West of Singleton – Repair of Damaged Truss Members – DS2016/012345

Note: Bridge Numbers must equal 5 digits (e.g. if the Bridge Number is 1575 it must read B01575)

### 7.4. Sign Drawings

#### Bridges and Structures Drawings

 *[Asset Number] [Type of Sign Structure] on [Road Name] [Location] at [Locality]*

For example:  ME16786 Major Sign Structure on General Holmes Drive 0.20km North of Foreshore Road at Mascot

### 7.5. Standard Drawings

#### Standard Drawings

 *[Title of Standard Drawing]*

For example:  Batter Outlet Structures for Subsurface Drains

Note: The metadata fields for 'Road Number' and 'LGA' will be set to 'Not Applicable'.

### 7.6. Surveying Drawings

#### Surveying Drawings

 *[Job Number] [Type of Survey] for [Description of works] at [Intersection], [Locality]*

For example:  UT2588 Utility Investigation for Road Reconstruction at Narellan Road and Kellicar Road, Campbelltown

## 8. Drawing handover

As part of the handover process, Project Managers are to submit approved drawings at each design stage to Plan Management Centre for archiving in the Drawings Repository.

Form 859 - Request for Production of Digital Images and Prints must be filled out and submitted alongside hardcopy drawings.

Plan Management Centre will incorporate electronic drawings immediately. However, hardcopy plans will be processed and sent to our RMS Scanning Contractor for digitisation. On return, scans will be quality checked and registered into the corresponding Drawing Set file.

Drawings will be archived/destroyed as per the Transport Digital Imaging (Scanning) of Records Procedure.

### 8.1. Drawing submission format

Drawings are to be submitted to the Plan Management Centre as either a soft or hardcopy. Drawings submitted electronically must be in the format of a multipage PDF.

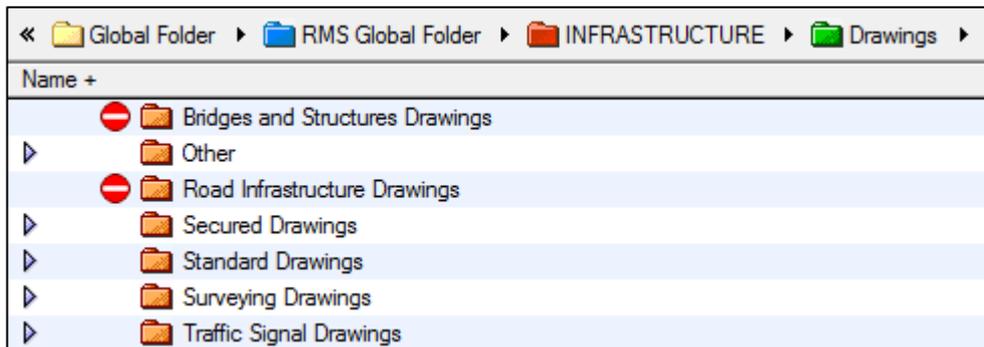
## 8.2. Design Models and CADD Files

Design models and CADD files held on a network drive outside the corporate recordkeeping system should be packaged and archived into Objective at the sign-off stage of authorised drawings.

These files are held outside the corporate recordkeeping system while they are being developed as reference files cannot be opened from within Objective. You can refer to *RDE-SOP-005-G01* for step by step instructions for packaging and restoring of CADD files and design models.

# 9. Drawing repository

All drawings are to be filed in one location within the Objective Business Classification Scheme, as shown in Figure 1 below.

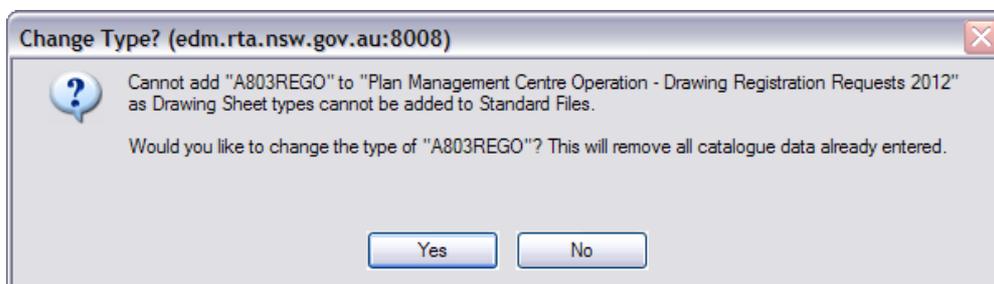


# 10. Drawing archival and retrieval

## 10.1. Archival of drawing sheets

On completion and sign off of approved designs, they must be registered within the corresponding Drawing Set file. To register the multipage PDF drawings you can follow the below steps. Alternatively, drawings can be forwarded to Plan Management Centre where plan staff can archive the drawings on your behalf.

1. Locate the multipage PDF drawings and the file you want to register them in.
2. Drag and drop the PDF document into the file.
3. A new window titled **Add Document to Objective** will appear. You may get a message similar to the one below. If so, click **Yes**.



4. Change the name of the document to reflect the drawing stage, number of sheets and the registration number e.g. *For Construction – 33 Sheets – DS2013\_002100*
5. An optional comment can also be added.
6. Change the document type to **Document**.
7. Under **Options**, make sure **Publish documents immediately** and **Corporate Value** are both ticked. You can also click **Delete originals after registering** to prevent future duplication.



- Click **OK**. Your drawing is now registered and (if ticked) the original document will be deleted.

Note: All drawings are stored as a multipage PDF only, therefore, **Drawing Sheet Type Catalogue** does not need to be filled out.

## 10.2. Archiving CADD Files

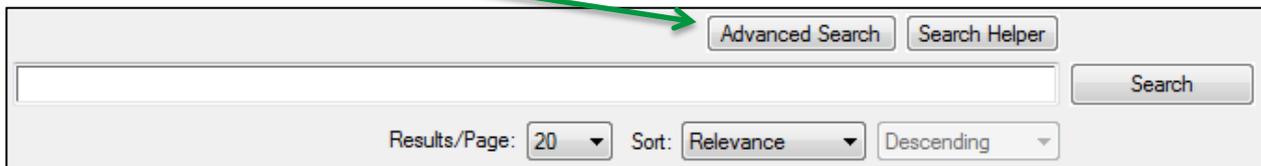
CADD Files are not supported by the Corporate Records System, so they need to be packaged before being stored in Objective. The packaging ensures references files are available to enable design models to open unchanged in the future.

For instructions on packaging and restoring CADD and design model files, you can refer to *RDE-SOP-005-G01 Filing Guide for Road Design* where there is a section for this.

## 10.3. Retrieval of drawings

Large volumes of information can make it challenging to browse through the Business Classification Scheme in Objective to locate the file, document or drawing set that you need. Using the search functionality in Objective will make it easier to find all required documents.

To start searching click the magnifying glass  located at the top right of your Objective window. There are two main ways that you can search in Objective and that includes using a text keyword search or a metadata search. To search according to the below instructions make sure you are searching using the Advanced Search capability.



## 10.4. Retrieval of CARMS drawing set

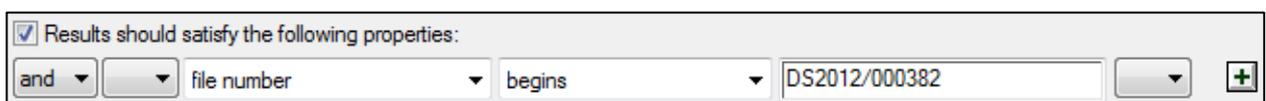
- To find a CARMS Drawing Set using an old registration number, change the **Criteria** to find **CARMS Drawing Sets**.
- Tick the **Search for properties** box and change the drop down boxes to reflect the following:



- Type the registration number in the format of 0005.354RC0151 into the text box.
- Click **Search** and your results will appear.

## 10.5. Retrieval of Objective drawing set

- To find a Drawing Set using the Objective registration number, change the **Criteria** to find **Drawing Sets**.
- Tick the **Search for properties** box and change the drop down boxes to reflect the following:



- Type the registration number in the text box and click **Search**

## 10.6. Retrieval of CARMS and Objective drawing set together

1. To search all drawing sets using a registration number, change the Criteria to find **CARMS Drawing Sets**.
2. Click the edit button  and choose **Drawing Set** from the drop down. Click **Add** then **OK**.
3. Make sure that the **Search for properties** box is ticked. Change the third drop down box by selecting **CARMS Id**.
4. Type the old CARMS registration in the text box using the format 0010.196BC6565
5. Click the plus icon  to insert a new criteria row. Change the first drop down box to **or** and the third drop down box to **External Reference**. In the text box type the same registration number using dots to separate the numbers. e.g. 0010.196.BC.6565.
6. Click **Search** and all plans that match the criteria will be found (as shown below).

Criteria

Find: CARMS Drawing Sets  Maximum results: 1000

Search for words or phrases Easy Search

Results should satisfy the following properties:

and CARMS Id begins 0010.196BC6565 - +

or External Reference begins 0010.196.BC.6565 - +

Search Save Search Recent Objects Reset Criteria Hide Criteria

Results (2 objects found)

Name +		File Number
 B10407 Bridge on HW10 Southbound Carriageway over Stony Creek at 40.7km North of Tare...		DS2012/000382
 STONEY CREEK SOUTHBOUND AT 40.7KM NORTH OF TAREE	BC110407	0010.196BC6565-1

## 10.7. Retrieval using metadata and keyword

To search for Drawing Sets where you do not know the registration number, you can search using multiple metadata fields and incorporate a keyword into the search as shown below. By searching using metadata, you are able to further narrow down your results making it faster and easier than browsing.

Criteria

Find: CARMS Drawing Sets  Maximum results: 1000

Search for the following words or phrases: Easy Search Search Helper

Pitt

Results should satisfy the following properties:

and Infrastructure Type begins Road - +

and Road Number begins 0005 - GREAT WESTERN HIGHW - +

and LGA begins 354 - Parramatta (City) - +

Search Save Search Recent Objects Reset Criteria Hide Criteria

Results (3 objects found)

Score -	Name		File Number
<div style="width: 100%; height: 10px; background-color: green;"></div>	 GREAT WESTERN HIGHWAY & PITT STREET PARRAMATTA		0005.354RC3079.0368-1
<div style="width: 100%; height: 10px; background-color: green;"></div>	 TEMPORARY TRAFFIC ARRANGEMENT DURING CLOSURE OF PITT STREET PARRAM...		0005.354RC3063.1066-1
<div style="width: 100%; height: 10px; background-color: green;"></div>	 HW5 Great Western Highway - Upgrade between Pitt Street and Marsden Street, Parramatta		DS2016/000415

## 10.8. Retrieval using asset numbers

### Bridge Numbers

To search for bridge drawings using the bridge asset number, you can set up the below search and change the asset number accordingly. Keep in mind that the bridge numbers were entered differently in previous Record Keeping Systems, therefore you need to search for bridges using both formats.

The screenshot shows a search criteria window. The 'Find' section has two options: 'CARMS Drawing Sets' and 'Drawing Sets'. The 'Maximum results' is set to 1000. The 'Search for the following words or phrases' checkbox is checked, and the search term is 'BC1172'. The 'Search for properties' checkbox is also checked. The property search is set to 'or', 'Bridge Number', and 'begins' with the value 'B00172'. There are 'Easy Search' and 'Search Helper' buttons.

### Other Assets

Other asset numbers can be searched using the text box. Objective searches bring back 'like' values so by ensuring that the number is in quotation marks, it allows Objective to bring back exact results.

The screenshot shows a search criteria window. The 'Find' section has two options: 'CARMS Drawing Sets' and 'Drawing Sets'. The 'Maximum results' is set to 1000. The 'Search for the following words or phrases' checkbox is checked, and the search term is 'ME15018'. The 'Search for properties' checkbox is unchecked. There are 'Easy Search' and 'Search Helper' buttons.

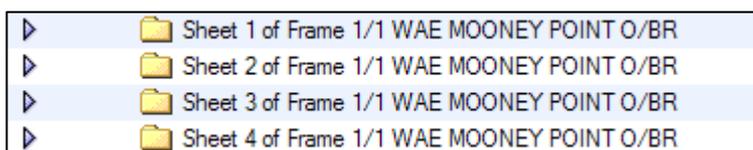
The screenshot shows a search criteria window. The 'Find' section has two options: 'CARMS Drawing Sets' and 'Drawing Sets'. The 'Maximum results' is set to 1000. The 'Search for the following words or phrases' checkbox is checked, and the search term is 'UT4330'. The 'Search for properties' checkbox is unchecked. There are 'Easy Search' and 'Search Helper' buttons.

## 11. Exporting drawing sets

In order to save or send a plan/drawing to an external individual, each drawing will need to be exported from Objective and combined into a multipage PDF.

1. After locating the Drawing Set, double click the file to open the list of drawing images.

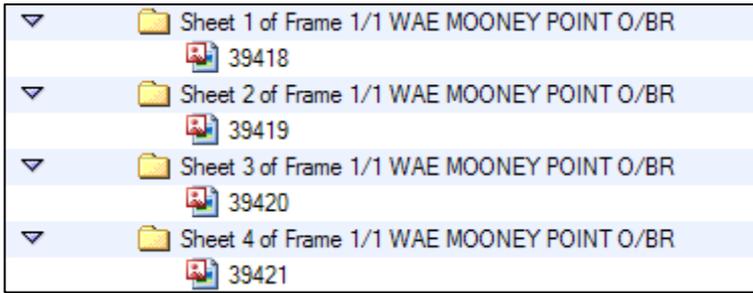
If it is a CARMS Drawing Set, then you will see the below example.



If it is a Drawing Set, you will see the below example.



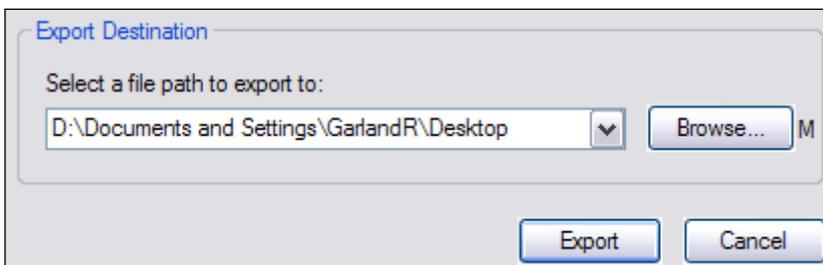
2. If you have searched a CARMS Drawing Set, you will need to click the reveal triangles down the left to open each drawing sheet folder (some drawing entries have the image icons shown immediately).



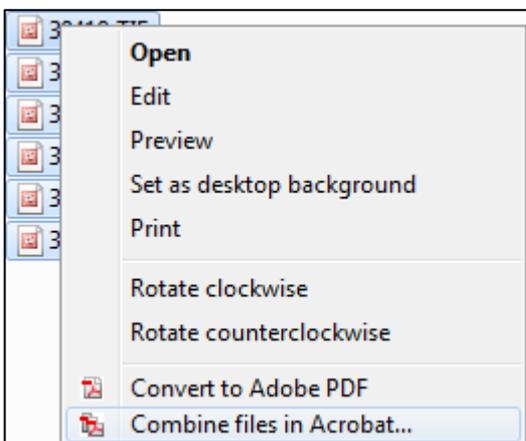
3. Once the drawing images have been revealed (if applicable), select all the TIFF or PDF images by holding down **Ctrl** and clicking each image.
4. Once selected, right click on one of the highlighted images and select **Export**.



5. An export window will appear. Select your desired destination and click **Export**.



6. Go to the folder where the drawings have been exported and select all images. (This step is not necessary for a drawing set with a DS registration number).
7. Right click and select **Combine files in Acrobat...**



8. In the **Combine Files** window, order the image numbers and click **Combine Files**.
9. Adobe will combine the document as a multipage PDF. Once assembled, save and rename the document.

## 12. Advice and training

For all plan related advice or training, please contact [Plan Management Centre](#) staff.