

MISSOURI SUPPLEMENTS TO THE EFH INDEX

MO Notice No.	Date	Purpose of Transmittal	Contact
MO-1 thru MO-15	02/01/84	Consolidation of EFM Notices MO-1 thru MO-15	Hugh Curry
MO-16	02/20/85	Standard drawing for underground outlet inlets	Hugh Curry
MO-17	03/03/86	Change in design storage requirements for underground outlets	Hugh Curry
MO-18	10/22/91	Revision of Chapter 2 of the SCS EFM	Hugh Curry
MO-19	11/15/91	To correct the misnumbering of pages in Ch. 11	Neil Pellmann
MO-20	03/02/92	To remove obsolete material from Ch. 2	Neil Pellmann
MO-21	05/05/93	To transmit a new Ch. 18	Hugh Curry
MO-22	04/27/95	To replace existing material regarding dams	Neil Pellmann
MO-23	12/07/95	To replace current criteria for antiseep collar projection computation	Hugh Curry
MO-24	02/04/98	To update current criteria for box inlets for canopy or hood inlets	Neil Pellmann
MO-24	12/23/98	To show updates for hydrologic soil groups	Neil Pellmann
MO-25	01/13/00	Hydrologic soil groups – accessing info on Internet & estimating runoff example revised	Neil Pellmann
MO-26	04/19/00	Standard drawing details for Mo. Drawing Nos. 29-L-80A, 29-L-80B, & 29-L-81/	Neil Pellmann
MO-27	07/27/00	Alternative procedure for grassed waterway design when smaller drainage areas involved.	Neil Pellmann
MO-28	04/04/01	Appendix A to Ch.14-Drainage. Contains allowable earthfill loading for various types of pipe.	Rich Koenig
MO-29	06/04/02	Instructions on Screw Anchors – data developed by Hubbell-Chance Co.	Rich Koenig
MO-30	02/03/06	Guide for Suitability of Soils for Topsoiling During Terrace Construction for Ch. 8 – “Terraces” of the Engineering Field Handbook, NEH Part 650	Marty Comstock
MO-31	08/11/06	Topsoiling Criteria for Terrace Construction for Ch. 8 – “Terraces” Engineering Field Handbook, NEH Part 650	Dick Purcell
MO-32	01/24/07	Maximum Permissible Velocities for Conduit Lines in Feet Per Second	Brandon Viers
MO-33	1/29/10	Replace existing Part 650, Chapter-9 Diversions with new Part 650, Chapter-9	Mari Gilford
MO-34	4/16/10	Update Chapter 15 Irrigation	Mari Gilford
MO-35	12/03/15	Update Chapters 3, 7, 8, and 11	Dick Purcell

MO-36	7/15/16	Update Chapters 2 and 3	Dick Purcell

***Please be sure that all originals and extra copies are filed in a folder in the file next to Engineering Secretary's desk, 1 copy is filed in MO EFH Notices (this book), and 1 copy is file in front of the EFH section it pertains to.**



United States Department of Agriculture

Natural Resources Conservation Service

Parkade Center, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

May 8, 1997

MISSOURI BULLETIN NO. MO-210-7-7

SUBJECT: ENG - Distribution and Filing of Corrections/Revisions
National Engineering Handbook, Amendment 2

Purpose: To Clarify Filing of NEH Part 651 and NEH Part 650

Expiration Date: January 1, 1998

The "Agricultural Waste Management Field Handbook" was converted to Part 651 of the National Engineering Handbook when it was reprinted in April, 1992. Attached are corrections/revisions to NEH Part 651, dated October 30, 1996. Future changes will be sent out as NEH Part 651 AWMFH amendment No. 3, etc. Amendment 1, Chapter 13 was sent out August 29, 1996. Attached are covers for white 2 inch 3 ring notebooks; These covers are color coded to help simplify the transition from the old National Engineering Handbook series to the new series.

NEH Part 651 Agricultural Waste Management Field Handbook: Note book 1 - Chapter 1 - 10
Note book 2 - Chapter 11 -

For you information, attached is a copy of "National Engineering Handbook Series Table of Contents. If you do not have a copy of NEH Parts 650 and 651, or have questions, please contact Neil Pellman or Richard Koenig, State Office Engineering Section. The consolidated forms and distribution center has moved from Landover, Maryland to Fort Worth, Texas.

Also included is NEH part 650 Engineering Field Handbook: Note Book 1 - Chapter 1-6
(Covers Only) Note Book 2 - Chapter 7-14
Note Book 3 - Chapter 15

Michael R. Hansen
ACTING
ROGER A. HANSEN
State Conservationist

Attachments

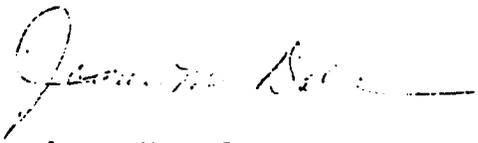
Dist: 30 - P&E Supply, Library, Pellman, Rastorfer, Baumer, Koenig
1 - Area Engineers, Gibson, Schneider, Riggs and Project Engineers
1 - Macon WQO, Dexter I&WQPO
1 - Field Office

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 459, Columbia, Missouri 65201

June 10, 1976

ENGINEERING FIELD MANUAL NOTICE MO-1

The attached pages MO-16-1 and MO-16-2 should be added to the Engineering Field Manual for Conservation Practices. These pages should be inserted in the field manual following page 16-21.



James M. Dale
State Conservation Engineer

Attachment

AO
All Eng.



UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

P. O. Box 459, Columbia, Missouri 65201

June 23, 1976

ENGINEERING FIELD MANUAL NOTICE MO-2

Attached pages MO-14-1, MO-14-2 and MO-14-3 should be added to the Engineering Field Manual for Conservation Practices. These pages should be inserted in the field manual following page 14-111.

James M. Dale

James M. Dale
State Conservation Engineer

Attachment

AO
A11 Eng.

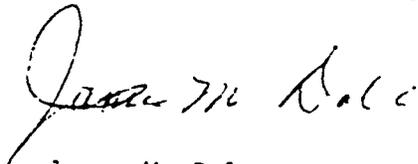


UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
555 Vandiver Drive, Columbia, Missouri 65201

February 23, 1977

ENGINEERING FIELD MANUAL NOTICE MO-3

Attached pages MO-8-1 through MO-8-16 and MO-2-1 through MO-2-7 should be added to the Engineering Field Manual for Conservation Practices. Pages MO-8-1 through MO-8-16 should be inserted following page 8-103 and pages MO-2-1 through MO-2-7 following page 2-76 in the field manual.



James M. Dale
State Conservation Engineer

Attachment

AO
All Eng.



UNITED STATES DEPARTMENT OF AGRICULTURE

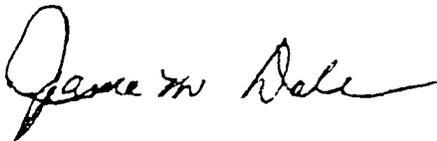
SOIL CONSERVATION SERVICE

555 Vandiver Drive, Columbia, Missouri 65201

May 2, 1977

ENGINEERING FIELD MANUAL NOTICE MO-4

Attached pages MO-8-17 through MO-8-60 should be added to the Engineering Field Manual for Conservation Practices.



James M. Dale
State Conservation Engineer

Attachments

AO
ENG



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SOIL CONSERVATION SERVICE

555 Vandiver Drive, Columbia, Missouri 65201

January 11, 1978

ENGINEERING FIELD MANUAL NOTICE MO-5

Attached pages MO-2-7 through MO-2-24 should be added to the Engineering Field Manual for Conservation Practices. These pages should be inserted in the back of chapter 2 following page MO-2-6 of Notice MO-3. Existing page MO-2-7, Notice MO-3 should be removed from the manual because it has been reprinted and attached to this notice.



Douglas C. Seibel
Acting State Conservation Engineer

Attachments

AO
All Engineers



UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

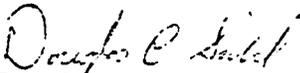
555 Vandiver Drive, Columbia, Missouri 65201

March 8, 1978

ENGINEERING FIELD MANUAL NOTICE MO-6

Attached pages MO-11-1 through MO-11-24 inclusive should be added to the Engineering Field Manual for Conservation Practices. These pages should be inserted in the back of Chapter 11. This notice provides the field with the necessary design aids to properly size the temporary storage and spillway(s) for ponds or reservoirs.

Additional copies are available on request for any personnel doing this type of design work.


Douglas C. Seibel
Acting State Conservation Engineer

Attachments

AO
All Engineers



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SOIL CONSERVATION SERVICE

555 Vandiver Drive, Columbia, Missouri 65201

March 21, 1978

ENGINEERING FIELD MANUAL NOTICE MO-7

Pages MO-11-11 through MO-11-14, inclusive, have been revised.

Remove

Pages MO-11-11 through
MO-11-14, dated 2-78

Insert

Pages MO-11-11 through
MO-11-14, dated 3-78

Heath B. Townsend for
Douglas C. Seibel
Acting State Conservation Engineer

Attachments

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All Engineers





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555 Vandiver Drive
Columbia, Missouri
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February 28, 1979

ENGINEERING FIELD MANUAL NOTICE MO-8

Pages MO-2-25 through MO-2-27 are new and should be added to the Engineering Field Manual (EFM) following page MO-2-24 at the end of chapter 2.

Pages MO-7-1 through MO-7-10 should be added to EFM following page 7-44 at the end of chapter 7.

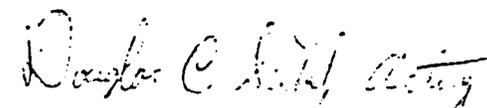
Pages MO-8-4, MO-8-5, MO-8-6, and MO-8-7 have been revised. Remove pages MO-8-5 through MO-8-8 dated January 1977 and insert the new pages.

Page MO-8-61 is new. It should be inserted following page MO-8-60 at the end of chapter 8.

Pages MO-9-1 through MO-9-5 should be added to the EFM following page 9-54 at end of chapter 9.

Page MO-11-1 is revised. Remove MO-11-1 and MO-11-2 dated February 1978 and insert the new page.

Pages MO-16-3 through MO-16-7 are new. They should be inserted in the EFM following page MO-16-2 at end of chapter 16.


Hugh Curry
State Conservation Engineer

Attachments

AO
All Engineers





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555 Vandiver Drive
Columbia, Missouri
65201

July 27, 1979

ENGINEERING FIELD MANUAL NOTICE MO-9

Pages MO-2-10.1 through MO-2-10.4 are new and should be added to the Engineering Field Manual (EFM) following page MO-2-10 in Chapter 2.

This notice transmits a procedure to estimate effects of conservation tillage on reducing direct runoff using the SCS curve number. It is an optional procedure which can be used where good conservation tillage is practiced.

The procedure was developed as a result of a cooperative effort between research staff from SEA-AR and the SCS Central Technical Unit and is adapted from a technique described in a recent paper entitled, "Residue and Tillage Effects on SCS Runoff Curve Numbers," by W. J. Rawls, C. A. Onstad and H. H. Richardson.

The procedure will be incorporated into the Engineering Field Manual and other appropriate references upon completion of a trial period.

Hugh Curry
State Conservation Engineer

Attachments

AO
All Engineers





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Columbia, Missouri
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January 30, 1980

ENGINEERING FIELD MANUAL NOTICE MO-10

Pages MO-3-1 through MO-3-6 are new and should be added to the EFM following page 3-111 of Chapter 3. These are tables to be used for culvert design and grade stabilization structures utilizing the same size conduit throughout. They are normally used in drainage to drop water into mains and laterals.

Pages MO-6-1 through MO-6-8 are new and should be added to the EFM following page 6-91 of Chapter 6. These relate to the designs and standard drawing for corrugated metal drop structures that are commercially available.

Pages MO-8-1 through MO-8-8 contain several revisions and some new material. Pages MO-8-1 through MO-8-8 supplied by previous notices should be removed from the EFM and insert the new pages.

Pages MO-10-1 through MO-10-4 are new and should be added to the EFM following page 10-16 of Chapter 10. This is a guide to determine sediment storage volume.

Page MO-11-25 is new and should be added to the EFM following page MO-11-24 at the back of Chapter 11. This is a guide for determining an adequate drainage area for a farm pond.

Hugh A. Curry

Hugh A. Curry
State Conservation Engineer

Attachments

AO
All Engineers





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555 Vandiver Drive
Columbia, Missouri
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April 1, 1980

ENGINEERING FIELD MANUAL NOTICE MO-11

Pages MO-2-28 through MO-2-33 are being added to provide field engineers with rainfall data needed to design structures that are class b or c, or class a over 3000. Page MO-2-27 has been reprinted. Remove page MO-2-27, dated 2, 1979, and insert new pages following page MO-2-26.

Page MO-3-1 and MO-3-2 have been reprinted to correct minor errors. Remove and destroy page MO-3-1 and MO-3-2, dated 1, 1980. Insert new pages.

Pages MO-3-7 through MO-3-20 are new and should be filed in Chapter 3 following page MO-3-6 at the end of Chapter 3.

Page MO-6-9 is new anti-seep collar design size criteria. It replaces previous material sent out under Missouri Engineering Advisory MO-ENG-2, dated March 8, 1977, and pages S-10, S-11, and S-13 in "References for Planning Engineering Practices for Soil and Water Conservation." Insert page MO-6-9 at the end of Chapter 6, following page MO-6-8.

Page MO-8-3 and MO-8-4 has been reprinted to correct a printing problem. Remove the old sheet and insert the new page.

Page MO-10-3 and MO-10-4 has been reprinted to correct two errors on page MO-10-4. Remove old sheet and insert new page.

Pages MO-14-1 through MO-14-9 should be filed at the end of Chapter 14. Remove and destroy pages MO-14-1 through MO-14-3, dated 5, 1979. Page MO-14-1 and MO-14-2 contains the material that was on MO-14-1 through MO-14-3 without change. Pages MO-14-3 through MO-14-9 are new tables to replace those in the old Missouri Drainage Guide. They were expanded and improved to meet changes requested from the field.

Hugh A. Curry
State Conservation Engineer

Attachments



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555 Vandiver Drive
Columbia, Missouri
65202

April 22, 1982

ENGINEERING FIELD MANUAL NOTICE MO-12

Pages MO-2-34 through MO-2-37 are being added to provide soil names and hydrologic classifications of Missouri soils. Some of the hydrologic classifications are different than shown on the national list of hydrologic soil groups. The changes were made to reflect soil characteristics in Missouri.

Page MO-2-33 has been reprinted. Remove page MO-2-33, dated March 1980 and insert the attached pages following page MO-2-32.

Hugh A. Curry

Hugh A. Curry
State Conservation Engineer

Attachments

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June 30, 1982

ENGINEERING FIELD MANUAL NOTICE MO-13

Procedures for the design of small ponds and structures involving dams have been revised. Changes should be made to the Engineering Field Manual as follows:

REMOVE THESE PAGES:

MO-2-37

This page is being reprinted.

MO-11-1 through 25

MO-11-1 and MO-11-2 are being reprinted. MO-11-3 through MO-11-14 have been replaced by Form Eng-MO-46 (Rev. 3-82) and the revised procedures. MO-11-15 through MO-11-24 have been replaced by the revised procedure. MO-11-25 is being reprinted.

ADD THESE PAGES:

MO-2-37 and MO-2-38

MO-2-37 is a reprint of an existing page. MO-2-38 explains the peak discharge tables.

Peak Discharge Tables

Following page MO-2-38 insert those tables needed for each location.

MO-11-1 through 11-11

MO-11-1 and 2 are reprints of existing pages. MO-11-3 and MO-11-4 are tables used to flood-route small dams. MO-11-5 through 10 are an example and explanation of the revised design procedure which illustrates the use of Form MO-ENG-40 (Rev. 5-82). MO-11-11 is a reprint of an existing page.

Hugh A. Curry

Hugh A. Curry
State Conservation Engineer

Attachments

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555 Vandiver Drive
Columbia, Missouri
65202

October 31, 1983

ENGINEERING FIELD MANUAL NOTICE MO-14

This notice transmits a guide for drainage recommendations for Missouri soils and a guide for determining the suitability of Missouri soils for irrigation. This information provides general planning and design data for most of Missouri soils that are used for cropland.

The data contained in these guides was based on soils information and mathematical equations and was supplemented by local experience when available.

Page MO-14-9 has been reprinted. Remove Page MO-14-9, dated March, 1980, and insert pages MO-14-9 through MO-14-26 following Page MO-14-8.

Pages MO-15-1 through MO-15-26 should be filed at the end of Chapter 15.

Note that Pages MO-14-26a through MO-14-26c and pages MO-15-26a through MO-15-26g concern soils that exist only in MLRA 131 (Bootheel). If they do not relate to soils in your area, these pages may be discarded.

Hugh A. Curry
State Conservation Engineer

Attachments

All Offices
All Engineers



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555 Vandiver Drive
Columbia, Missouri
65202

January 16, 1984

ENGINEERING FIELD MANUAL NOTICE MO-15

Pages MO-8-18 through MO-8-26 contain several revisions and some new material. Page MO-8-17 is reprinted with no changes. Pages MO-8-17 through MO-8-26 supplied by previous notices should be removed and replaced with these new pages.

This notice contains the following revisions:

1. Table 3 is deleted. Maximum terrace intervals will be included in the revised Standard and Specification for Terrace (600).
2. Tables showing guide dimensions for layout of steep backslope and narrow base terraces are added.
3. Maximum allowable grades for terrace channels are reduced.
4. Minimum terrace heights are slightly revised.

Hugh A. Curry
State Conservation Engineer

Attachments

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65202

February 1, 1984

CONSOLIDATION OF ENGINEERING FIELD MANUAL NOTICES MO-1 THRU MO-15

Attached are the Missouri Supplements to the SCS Engineering Field Manual issued prior to February, 1984. They include all current material issued by EFM Notices No. 1 (dated June, 1976) thru No. 15 (dated January, 1984).

In addition to these supplements, National EFM Notices 9 thru 12 should also be added to the 1979 editions of the Engineering Field Manual.

Note that all of the Missouri Supplements are now printed on 8½ x 11 inch paper. The entire Engineering Field Manual is in the process of being revised and reprinted on a larger paper size.

Hugh A. Curry ACTING
Hugh A. Curry
State Conservation Engineer

Attachments



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555 Vandiver Drive
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65202

February 20, 1985

ENGINEERING FIELD MANUAL NOTICE MO-16

Page MO-8-7 has been revised to reflect recent changes in the standard drawing for underground outlet inlets. Page MO-8-8 has been reprinted. Remove page MO-8-7 dated January, 1980 and insert page MO-8-7 dated January, 1985.

Hugh A. Curry
State Conservation Engineer

Attachment

All Engineers
All Offices



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555 Vandiver Drive
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March 3, 1986

ENGINEERING FIELD MANUAL NOTICE MO-17

Page MO-8-1 has been revised to reflect the change in design storage requirements for underground outlets. The format of the new chart is the same as the old chart. An addition to the new chart are horizontal lines indicating the flooding duration in hours. The new chart also has a maximum discharge rate of 0.50 cfs per acre. The old chart was cut off at 0.30 cfs per acre.

Page MO-8-2 has been reprinted without change.

Remove page MO-8-1, dated January, 1980, and insert page MO-8-1, dated March, 1986.

Hugh A. Curry

Hugh A. Curry
State Conservation Engineer

Attachment

All Engineers
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Parkade Center, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

October 22, 1991

ENGINEERING FIELD MANUAL NOTICE MO-18

Chapter 2 of the SCS Engineering Field Manual has been revised. This change also has an effect on some material in Chapter 11. Make the following changes as indicated below.

Remove Pages

Insert Pages

MO-2-7 thru 8,
dated January, 1977

Engineering Field Manual Notice - 15
See Filing Instructions

Engineering Field Manual Notice - 16
See Filing Instructions

MO-2-7 thru 8 (blank), dated
October, 1991

MO-2-33 thru 38,
dated March, 1982

MO-2-33 thru 40, dated October, 1991

Peak Discharge Rates, cfs
dated May, 1982 (following
previous page MO-2-38)

MO-2-41 thru 44, dated October, 1991

MO-11-5 thru MO-11-10,
dated May, 1982

MO-11-5 thru MO-11-12 (blank), dated
October, 1991

Hugh A. Curry
State Conservation Engineer

Attachments

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Parkade Plaza, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

November 15, 1991

ENGINEERING FIELD MANUAL NOTICE MO-19

This notice is to correct the misnumbering of pages in Chapter 11 as a result of ENGINEERING FIELD MANUAL NOTICE MO-18. Make the following changes as indicated below:

Remove Pages

Insert Page

MO-11-11, dated
October 1991

MO-11-11, dated
May 1982

MO-11-11 thru MO-11-12,
dated November 1991

Neil J. Hellmann

Hugh A. Curry *Acting For*
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices



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Parkade Plaza, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

ENGINEERING FIELD MANUAL NOTICE MO-20

March 2, 1992

This notice is to remove obsolete material from Chapter 2. New procedures have been developed to obtain more accurate estimates of runoff amounts. Make the following change as indicated below:

Remove Pages

Insert Pages

MO-2-33, dated March, 1980
and MO-2-34, dated October, 1991

MO-2-33 and -34,
dated March, 1992

Neil J. Pellmann

ACTING

HUGH A. CURRY
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices



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Package Center, Suite 11
601 Business Loop, West
Columbia, Missouri 65203

ENGINEERING FIELD MANUAL NOTICE MO-21

April 30, 1993

Attached is a new Chapter 18 for the National Engineering Handbook (NEH). Note that the National Engineering Handbook (NEH) was formerly known as the National Engineering Manual (NEM). This is a completely new chapter for the NEH.

Filing Instructions

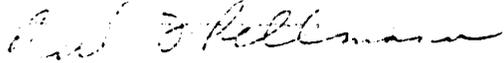
Take the book out of the shrink wrap binder and remove the 3 transmittal pages. They will be found at the front or back of the book.

The first page is a copy of the National Engineering Field Handbook Notice that distributed the new Chapter. It can be filed in your handbook if you are keeping National Notices. If not, it should be pitched.

The second page is a Table of Contents for what is known as the "National Engineering Handbook Series Table of Contents". This Table of Contents has been developed by SCS to file future engineering technical reference data. This Table of Contents can be kept for future reference or be pitched.

The third page is the distribution list of the new Chapter to the states and other SCS offices. It can be pitched.

File the remainder of Chapter 18 at the end of your National Engineering Handbook.


HUGH A. CURRY
State Conservation Engineer
ACTING

Attachments

Dist.
All Area Engineers
All Area Offices
All Field Offices



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AN EQUAL OPPORTUNITY EMPLOYER



April 27, 1995

ENGINEERING FIELD HANDBOOK NOTICE MO-22

This notice is to replace existing material with the following changes:

- 1) Uses overall height of dam rather than design height of dam
- 2) Dam height greater than 35 feet deleted
- 3) Expands example problem

Remove Pages

MO-6-9, dated March 1980

Insert Pages

MO-6-9 and MO-6-10,
dated March 1995

Neil O Bellmann
Acting

HUGH A. CURRY
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices
Midwest States
MNTC (Eng)





December 7, 1995

ENGINEERING FIELD HANDBOOK NOTICE MO-23

This notice is to replace current criteria for antiseep collar projection computation and incorporates the following changes:

- 1) Projection based on total pipe length rather than design height of dam
- 2) Projections are based on type of inlet - coefficient equal to 0.10 for hooded (or canopy) inlets and 0.15 for drop inlet spillways
- 3) Recognizes different projection needs for dry dams
- 4) Includes formula for making calculation of values not covered by table
- 5) Clarifies example problem

This seepage analysis is limited to dams of 35 feet or less in overall fill height.

Remove Pages

MO-6-9 and MO-6-10,
dated March 1995

Insert Pages

MO-6-9 and MO-6-10,
dated November 1995

HUGH A. CURRY
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices
Midwest States
Regional Office
NHQ - Cons. Eng.



February 4, 1998

ENGINEERING FIELD HANDBOOK NOTICE MO-24

This notice is to update current criteria for box inlets for canopy or hood inlets and incorporates the following changes:

1. The vertical splitter type baffle is not required for canopy inlets.
2. Minimum depth of the box inlet is 1.0 D and the maximum depth is 2.0 D. The maximum depth does not have to be less than 1.5 feet for small diameter pipes.
3. The box inlet shall have a steel baseplate or concrete base as needed to provide a safety factor of 1.5 against flotation.

Remove Pages

MO-3-11 and MO-3-12
dated March 1980

Insert Pages

MO-3-11b dated February 1998
MO-3-11a and MO-3-12 dated March 1980



NEIL F. PELLMANN, P.E.
Acting State Conservation Engineer

Attachment

Distribution: All Engineers
All Area Offices
All Field Offices
Midwest States
Regional Office
NHQ - Conservation Engineer

NOTE:

Discard the previous version on white paper, if received by your office, and insert this copy which is all on green paper.

December 23, 1998

ENGINEERING FIELD HANDBOOK NOTICE MO-24

ENGINEERING FIELD HANDBOOK (EFH), PART 650

The hydrologic soil groups have been updated for a number of soil series. Changes are indicated by vertical lines in the margin.

The unit peak discharge (qu) for NRCS Type II rainfall distribution is unchanged but only printed.

Remove Pages

MO-2-33 and MO-2-34,
dated March 1992

MO-2-35 thru MO-2-40,
dated October 1991

Insert Pages

MO-2-33 thru MO-2-39,
dated January 1999

MO-2-40,
dated October 1991



KEITH E. ADMIRE P.E.
State Conservation Engineer

Attachments

All Engineers
All Area Offices
All Field Offices



Parkade Center, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

January 13, 2000

ENGINEERING FIELD HANDBOOK NOTICE MO-25

This notice includes instructions for a procedure to access the most current information available on the Internet. This replaces the previous listing of Hydrologic Soil Groups for Missouri.

Also, the example for estimating runoff, using MO-ENG-C13 "VOLUME AND PEAK RATE OF RUNOFF" has been revised.

Remove Pages

MO-2-33 thru MO-2-39,
dated January 1999

MO-2-40 thru MO-2-44,
dated October 1991

Insert Pages

MO-2-33 thru MO-2-38,
dated January 2000

The 2 previous ENGINEERING FIELD HANDBOOK NOTICES were both labeled *MO-24*, one dated February 4, 1998 and the other December 23, 1998. There was an error in numbering; however, *no renumbering of notices will be done at this time*. **This is Engineering Field Handbook Notice MO-25.**

If you have any questions, contact Neil Pellmann on the Field Technical Services staff.

KEITH E. ADMIRE, P.E.
State Conservation Engineer

Attachments

All Engineers
All Area Offices
All Field Offices
All EFH Holders
Midwest Region States



Parkade Center, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

April 25, 2000

ENGINEERING FIELD HANDBOOK NOTICE MO-26

This notice includes standard drawing details for Lakeshore Watering Access (Missouri Drawing No. 29-L-80A), Streambank Watering Access (Missouri Drawing No. 29-L-80B) and Floating Electric Fence (Missouri Drawing No. 29-L-81). These are all associated with the Heavy Use Area Protection (561) standard and specification in Section IV of the Missouri Field Office Technical Guide.

Remove Pages

MO-16-7 dated February 1979

Insert Pages

MO-16-7, dated February 1979

MO-16-8 thru MO-16-13, dated May 2000

If you have any questions, contact Neil Pellmann, Agricultural Engineer on the Field Technical Services staff.

A handwritten signature in black ink, appearing to read "Keith E. Admire". The signature is fluid and cursive.

KEITH E. ADMIRE, P.E.
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices
All EFH Holders
Midwest Region States



Parkade Center, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

July 27, 2000

ENGINEERING FIELD HANDBOOK NOTICE MO-27

This notice includes an alternative procedure for grassed waterway design when smaller drainage areas are involved. The procedure can aid in conservation planning activities as well as grassed waterway applications across the State. Refer to Conservation Practice Standard (412) Grassed Waterway, Section IV, Missouri Field Office Technical Guide.

Assumptions were made to aid in developing the materials and keeping the procedure as simple as possible. These assumptions are a part of the material. If a proposed grassed waterway site exists with basic parameters differing substantially from those stated in the assumptions, use conventional methods to prepare the grassed waterway design.

This procedure is not intended to handle all grassed waterway applications but a majority of them. It is only an aid for providing technical assistance to our clients.

Remove Pages

Insert Pages

MO-7-11 thru MO-7-17,
dated July 2000

If you have any questions, contact Neil Pellmann, Agricultural Engineer on the Field Technical Services staff.

A handwritten signature in black ink, appearing to read "Keith E. Admire". The signature is fluid and cursive.

KEITH E. ADMIRE, P.E.
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices
All EFH Holders
Midwest Region States

April 4, 2001

ENGINEERING FIELD HANDBOOK NOTICE MO-28

This notice includes Appendix A to Chapter 14 - "Drainage" of the Engineering Field Handbook, National Engineering Handbook Part 650. This appendix contains allowable earthfill loading for various types of pipe - plastic, welded steel, and corrugated steel. Estimates are based on computations made with NRCS Technical Release 77 - Design and Installation of Flexible Conduits - Plastic Pipe. For flexible corrugated plastic tubing installed with a trencher, the earthfill loadings have been adjusted to reflect the trench condition. This appendix is referenced in the revised Conservation Practice Standard 606 Subsurface Drain and Conservation Practice Standard 620 Underground Outlet, Section IV, Missouri Field Office Technical Guide.

These tables do not cover all plastic pipe materials but the more commonly used types. If you have a situation where further analysis is needed, contact your Area Engineer who has a copy of Technical Release 77.

Remove Pages

Insert Pages

MO-14-27 thru MO-14-33,
dated February, 2001

If you have any questions, contact Richard Koenig, Head, Design Section on the Engineering Staff.



KEITH E. ADMIRE, P.E.
State Conservation Engineer

Attachment

All Engineers
All Area Offices
All Field Offices including S&WCD Offices
All EFH Holders
Midwest Region States



Parkade Center, Suite 250
601 Business Loop 70 West
Columbia, Missouri 65203

June 4, 2002

ENGINEERING FIELD HANDBOOK NOTICE MO-29

This notice covers instructions on use of Screw Anchors that are used to counteract buoyant forces on water regulating structures or uplift forces on wire fences. There are other uses of screw anchors, such as dead man anchors, etc. The use of screw anchors should be restricted to small low hazard structures or situations unless otherwise approved by the responsible NRCS engineer. Much of the data was taken from data developed by Hubbell-Chance Company located in Centralia, Missouri. Hubbell – Chance is the old A.B. Chance Company and they have been manufacturing screw anchors for many years.

Remove Pages

Insert Pages

Missouri Supplements to the EFH Index at
beginning of EFH
MO-6-11 through MO-6-13, dated June 2002

If you have any questions, contact Richard Koenig, Head, Design Section, on the Engineering staff.

KEITH E. ADMIRE, P.E.
State Conservation Engineer

Attachment

- All Engineers
- All Area Offices
- All Field Offices (including S&WCD Offices)
- All EFH Holders
- Midwest Region States



Natural Resources Conservation Service
Parkade Center, Suite 250, 601 Business Loop 70 West
Columbia, Missouri 65203

February 3, 2006

ENGINEERING FIELD HANDBOOK NOTICE MO-30

This notice includes a “Guide for Suitability of Soils for Topsoiling During Terrace Construction” for Chapter 8 – “Terraces” of the Engineering Field Handbook, National Engineering Handbook Part 650. The guide is to be used for determining when terrace topsoiling is to be required to comply with Conservation Practice Standard 600 – Terraces.

If you have questions about the use of this guide, please contact your Area Engineer or Area Resource Soil Scientist.

Please note that Missouri Notices to the Engineering Field Handbook are now available on the Missouri NRCS website. New pages MO-8-61 and MO-8-62 in *pdf* format can be accessed under the Technical Resources Tab, Engineering Tools and Resources, National Engineering Handbook Part 650 – Engineering Field Handbook, Missouri Supplements to Engineering Field Handbook, Chapter 8 – Terraces, Chapter 8 – Part 4.

Filing Instructions for hard copy of Engineering Field Handbook:

Remove Page
Page MO-8-61

Insert Pages
MO-8-61 and MO-8-62

A handwritten signature in black ink, appearing to read "Richard C. Purcell".

RICHARD C. PURCELL, PE
State Conservation Engineer

Attachments

DIST:

All Engineers
All Area Offices
All Field Offices (including S&WCD Offices)
All EFH Holders
State Conservation Engineers (AR, IL, IA, KS, NE, OK, TN, KY)



Natural Resources Conservation Service
Parkade Center, Suite 250, 601 Business Loop 70 West
Columbia, Missouri 65203

August 11, 2006

ENGINEERING FIELD HANDBOOK NOTICE MO-31

This notice includes “Topsoiling Criteria for Terrace Construction” for Chapter 8 – “Terraces” of the Engineering Field Handbook, National Engineering Handbook Part 650. These criteria replace the “Guide for Suitability of Soils for Topsoiling During Terrace Construction,” which was previously issued February 2006.

These Topsoiling Criteria should be used for determining when terrace topsoiling is to be required to comply with Conservation Practice Standard 600 – Terraces.

Please note that Missouri Notices to the Engineering Field Handbook are now available on the Missouri NRCS website. New page MO-8-62 in *pdf* format can be accessed under the Technical Resources Tab, Engineering Tools and Resources, National Engineering Handbook Part 650 – Engineering Field Handbook, Missouri Supplements to Engineering Field Handbook, Chapter 8 – Terraces, Chapter 8 – Part 4.

Filing Instructions for hard copy of Engineering Field Handbook:

Remove Page

Page MO-8-62, dated February 2006

Insert Page

MO-8-62, dated August 2006

A handwritten signature in black ink, appearing to read "Richard C. Purcell", with a vertical red line to its right.

RICHARD C. PURCELL
State Conservation Engineer

Attachments

DIST:

All Engineers

All Area Offices

All Field Offices (including S&WCD Offices)

All EFH Holders

State Conservation Engineers (AR, IL, IA, KS, NE, OK, TN, KY)

USDA:NRCS:RCPurcell:sns:08/10/06

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Natural Resources Conservation Service
Parkade Center, Suite 250, 601 Business Loop 70 West
Columbia, Missouri 65203

January 26, 2007

ENGINEERING FIELD HANDBOOK NOTICE MO-32

This notice includes Table 1, Maximum Permissible Velocities for Conduit Lines in Feet Per Second” for Chapter 8 – “Terraces” of the Engineering Field Handbook, National Engineering Handbook Part 650.

This table has been expanded to include the use of Dual Wall Corrugated Polyethylene Pipe. This technology allows conveyance of fluids at higher velocities than allowed in more commonly used polyethylene piping materials. The 20 feet per second limit is based on manufacturer recommendations. Please notice that joints and fittings are to be watertight. This table is referenced in Conservation Practice Standard 620, Underground Outlets, Section IV, Missouri Field Office Technical Guide.

Please note that Missouri Notices to the Engineering Field Handbook are now available on the Missouri NRCS website. New page MO-8-6 in *pdf* format can be accessed under the Technical Resources Tab, Engineering Tools and Resources, National Engineering Handbook Part 650 – Engineering Field Handbook, Missouri Supplements to Engineering Field Handbook, Chapter 8 – Terraces, Chapter 8 – Part 1.

Filing Instructions for hard copy of Engineering Field Handbook:

Remove Page

Page MO-8-5 and
MO-8-6, dated January 1980

Insert Page

MO-8-5, dated January 1980 and
MO-8-6, dated January 2007

A handwritten signature in black ink, appearing to read "Richard C. Purcell".

RICHARD C. PURCELL
State Conservation Engineer

Attachments

DIST:

All Engineers
All Area Offices
All Field Offices (including S&WCD Offices)
All EFH Holders
State Conservation Engineers (AR, IL, IA, KS, NE, OK, TN, KY)



Natural Resources Conservation Service
Parkade Center, Suite 250, 601 Business Loop 70 West
Columbia, Missouri 65203

February 4, 2010

ENGINEERING FIELD HANDBOOK NOTICE MO-33

This notice is to replace the existing Part 650, Chapter 9 – Diversions, with the new Part 650, Chapter 9 – Diversions, dated September 2009. The MO supplements to chapter 9 should also be removed.

Please note that Missouri Notices to the Engineering Field Handbook are now available on the Missouri NRCS website.

Filing Instructions for hard copy of Engineering Field Handbook:

Remove Page

EFH Chapter 9, and pages
MO-9-1 – 9-5, dated February 1979

Insert Page

EFH Chapter 9, dated September 2009

A handwritten signature in black ink, appearing to read "Richard C. Purcell".

RICHARD C. PURCELL
State Conservationist Engineer

DIST:

All Engineers
All Area Offices
All Field Offices (Including SWCD)
All EFH Holders
State Conservation Engineers (AR, IL, IA KS, NE, OK, TN, KY)

Attachment: Part 650, Chapter 9





Natural Resources Conservation Service
Parkade Center, Suite 250, 601 Business Loop 70 West
Columbia, Missouri 65203

April 16, 2010

ENGINEERING FIELD HANDBOOK NOTICE MO-34

This notice includes “Materials for Irrigation Pipe” for Chapter 15 – “Irrigation” of the Engineering Field Handbook, Part 650. This guide is to be used for determining pipe material requirements to comply with Conservation Practice Standard 430 – Irrigation Pipeline.

Please note that Missouri Notices to the Engineering Field Handbook are now available on the Missouri NRCS website. New pages MO-15-27 through MO-15-39 in *pdf* format can be accessed under the Technical Resources Tab, Engineering Tools and Resources, National Engineering Handbook Part 650 – Engineering Field Handbook, Missouri Supplements to Engineering Field Handbook, Chapter 15 – Part 3.

If you have questions about this guide, please contact your Area Engineer.

Filing Instructions for hard copy of Engineering Field Handbook:

Insert Page

MO-15-27 – 15-39, dated April 2010

A handwritten signature in black ink, appearing to read "Richard C. Purcell".

RICHARD C. PURCELL
State Conservationist Engineer

DIST:

All Engineers
All Area Offices
All Field Offices (Including SWCD)
All EFH Holders
State Conservation Engineers (AR, IL, IA KS, NE, OK, TN, KY)

Attachment: Part 650, Chapter 15





Natural Resources Conservation Service
 Parkade Center, Suite 250, 601 Business Loop 70 West
 Columbia, Missouri 65203

December 03, 2015

ENGINEERING FIELD HANDBOOK NOTICE MO-35

This notice is to replace the existing National Engineering Handbook Part 650, EFH Missouri Supplements for Chapter 3 – Hydraulics, Chapter 7 – Grassed Waterways, Chapter 8 – Terraces; Chapter 11 – Ponds and Reservoirs. All previous MO supplements to these chapters shall be removed.

Filing Instructions for hard copy of Engineering Field Handbook:

<u>Remove Page(s)</u>	<u>Insert Page(s)</u>
EFH Chapter 3, pages MO-3-1 to MO-3-20, dated prior to November 2014	EFH Chapter 3, pages MO-3-1 to MO-3-5, dated November 2014
EFH Chapter 7, pages MO-7-1 to MO-7-17, dated prior to November 2014	EFH Chapter 7, pages MO-7-1 to MO-7-2, dated November 2014
EFH Chapter 8, pages MO-8-1 to MO-8-62, dated prior to November 2014	EFH Chapter 8, pages MO-8-1 to MO-8-18, dated March 2015
EFH Chapter 11, pages MO-11-1 to MO-11-12, dated prior to November 2014	EFH Chapter 11, pages MO-11-1 to MO-11-6, dated April 2015

RICHARD C. PURCELL
 State Conservationist Engineer

DIST:

- All Engineers
- All Area Offices
- All Field Offices (Including SWCD)
- All EFH Holders
- State Conservation Engineers (AR, IL, IA KS, NE, IO, TN, KY)

Attachment: NEH Part 650, EFH Chapters, 3, 7, 8, and 11 Missouri Supplements



United States Department of Agriculture

July 15, 2016

ENGINEERING FIELD HANDBOOK NOTICE MO-36

This notice is to replace the existing National Engineering Handbook Part 650, EFH Missouri Supplements for Chapter 2 – Estimating Runoff and Chapter 3 – Hydraulics. All previous Missouri Supplements to these chapters shall be removed.

These Missouri Supplements have been posted on the Missouri Webpage under Technical Resources> Engineering> National Engineering Handbook Part 650 - Engineering Field Handbook> Missouri Supplements to National Engineering Manual.

A handwritten signature in black ink, appearing to read "Richard C. Purcell".

Richard C. Purcell
State Conservation Engineer

Attachments (2):

Missouri Supplement NEH Part 650, EFH Chapter 2

Missouri Supplement NEH Part 650, EFH Chapter 3

DIST: E

State Conservation Engineers (AR, IL, IA, KS, NE, IN, TN, KY)