

Design Standards Letter

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Section/Plan No.: P203.02, P604.21, P616.10, P617.00, P902.00, P902.15, P902.21, P902.40, P902.50, P903.01, P903.02, P903.03, P903.04, P903.05, P903.06, P903.07, P903.08, P903.09, P903.10, P903.12, P903.60

Subject: Metric Standard Plans

Body

Attached are copies of the Missouri Standard Plans which have been converted to metric units. This distribution includes 19 standard plans of a total of approximately 130. Currently, 76 standard plans have been converted. The remainder are in progress by this division and the bridge division. They should be completed and distributed to the districts later this year.

Two standard plans, M203.02A and M604.21A, have had minor revisions and are included with this letter.

The drawings have a "M" prefix and the letter suffix has been deleted. Therefore when the first revisions are made they will have a "M" prefix and a "LETTER" suffix added to them as has been done before.

Example: issued M203.00

1st rev. M203.00A

2nd rev. M203.00B

The distribution date is 6-1-95.

The title block was changed to allow for an engineer's seal to be added to the plans.

Hard conversion was used where possible. Anything formed or built in the field was hard converted (typically 1"=25 mm; 1'=0.3 m). Manufactured or precast items were soft converted.

The note sizes on all the drawings have been standardized. A note "ALL DIMENSIONS

SHOWN ARE IN mm UNLESS OTHERWISE NOTED" has been included on all

drawings.

ASTM and AASHTO metric specifications have been followed. Metric reinforcing steel

was used, so steel quantities have changed. Gage thickness is in dual units. Metric wire fabric was used. All sign sizes are hard converted (1"=25 mm). AWG was hard converted to mm². Steel shapes and angels were converted as per Draft Metric Steel Manual. Bolts were soft converted. Nominal electrical conduit sizes were assigned by the National Electrical Manufacturers Association.

These metric standard plans can be kept in the binder that was provided earlier.

Following is a description detailing each drawing.

M203.02A Undergrading

An error was corrected on the typical section of "In Rock Over Entire Width of Roadbed, Without Aggregate Base."

M604.21A Drop Inlet - Type C

A section line was removed from S-Bars of Bending Diagrams.

M616.10 Traffic Control Devices

Sheet 1 of 4

Hard converted (1"=25 mm).

Sheet 2 of 4

Hard converted (1"=25 mm).

Sheet 3 of 4

Hard converted (1"=25 mm). Speed limits will remain in MPH.

Sheet 4 of 4

Hard converted (1"=25 mm). Text on signing remains English. "No Passing Zones Unmarked" changed to "No Center Stripe".

M617.00 Concrete Traffic Barrier

Sheet 1 of 3

Soft and Hard converted. Delineator spacing general note - curves were hard converted.

Sheet 2 of 3

Soft and Hard converted.

Sheet 3 of 3

Soft and Hard converted. The "Paint Detail" refers to metric bid item numbers

M902.00 Signal Heads, Lenses and Mounting

Combination of hard and soft conversions. Views were rearranged.

M902.15 Power Supply Assembly

Combination of hard and soft conversions.

M902.21 Telephone Interconnect

Hard converted.

M902.40 Tubular Steel Post

Combination of hard and soft conversions. Mast arms were converted to nearest 0.1m.

M902.50 Detectors

Combination of hard and soft conversions.

M903.01 Alphabets

Sheet 1 of 1

Will be released later.

Sheet 2 of 2

Hard and soft converted. Corners and borders: sizes were hard converted, dimensions were soft converted and rounded to nearest 5 mm. Arrows: radii and reflectors were soft converted, other dimension to nearest 5 mm or hard converted. 10.67" letter ht. = 270 mm, 13.33" letter ht. = 335 mm.

M903.02 Highway Signing

Sheet 1 of 8

Hard Converted (1" = 25 mm).

Sheet 2 of 8

Hard Converted (1" = 25 mm).

Sheet 3 of 8

Hard converted (1" = 25 mm).

Sheet 4 of 8

Hard converted (1" = 25 mm).

Sheet 5 of 8

Hard converted (1" = 25 mm).

Sheet 6 of 8

Hard converted (1" = 25 mm).

Sheet 7 of 8

Hard converted (1" = 25 mm). Views were rearranged.

Sheet 8 of 8

Hard converted (1" = 25 mm). Notes were moved. Dividing lines deleted.

M903.03 Sign Mounting Details

Sheet 1 of 5

Combination of hard and soft conversion. Tables were soft converted.

Sheet 2 of 5

Combination of hard and soft conversion. Tables were soft converted.

Sheet 3 of 5

Hard converted (1" = 25 mm). Extruded aluminum panels were designated as nominal 300 mm.

Sheet 4 of 5

Combination of hard and soft conversions.

Sheet 5 of 5

Hard converted. Delineator spacing hard converted. Main line delineator spacing is 0.1 mile (161 m).

M903.04 Weigh Station Signing

Signs hard converted (1" = 25 mm).

M903.05 Tubular Span Support-One Tube. Type S

Combination of hard and soft converted (many dimensions rounded to nearest 5 mm). Spread and Span A were both soft converted to 0.1 m.

M903.06 Tubular Span Support-Two Tube. Type S

Combination of hard and soft conversions. Spread, Span and Post length was soft converted to 0.1 m. Clearances soft converted to 0.1m. Base data soft converted.

Footings dimensions were soft converted and rounded to nearest 5mm.

M903.07 Tubular Cantilever Supports. Type C

Combination of hard and soft conversions. Clearances soft converted to 0.1 m. Base dimensions rounded to nearest 5 mm.

M903.08 Tubular Butterfly Supports. Type B

Combination of hard and soft conversions. Clearances soft converted to 0.1 m. Base dimensions rounded to nearest 5 mm.

M903.09 Lighting Support Bracket

Combination of hard and soft conversions. All steel shapes and angles are per Draft Steel Manual. Bolts were soft

converted.

M903.10 Sign Trusses-Overhead Aluminum

Sheet 1 of 8

Combination of hard and soft conversions. Clearances soft converted to 0.1m. Truss variables soft converted.

Sheet 2 of 8

Combination of hard and soft conversions.

Sheet 3 of 8

Combination of hard and soft conversions.

Sheet 4 of 8

Combination of hard and soft conversion. Some views were rearranged.

Sheet 5 of 8

Combination of hard and soft conversions

Sheet 6 of 8

Combination of hard and soft conversions.

Sheet 7 of 8

Combination of hard and soft conversions.

Sheet 8 of 8

Combination of hard and soft conversions.

M903.12 Sign Trusses-Butterfly & Cantilever-Steel

Sheet 1 of 7

Combination of hard and soft conversions. Views were rearranged

Sheet 2 of 7

Combination of hard and soft conversions.

Sheet 3 of 7

Combination of hard and soft conversions.

Sheet 4 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

Sheet 5 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

Sheet 6 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm). Details were renumbered to coincide with other standards (M903.10 & M903.60).

Sheet 7 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

M903.60 Sign Trusses-Overhead Steel

Sheet 1 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm). Span lengths rounded to 0.1 m.

Sheet 2 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm). Span lengths rounded to 0.1 m.

Sheet 3 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

Sheet 4 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

Sheet 5 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

Sheet 6 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

Sheet 7 of 7

Combination of hard and soft conversions (rounded to nearest 5 mm).

tea/lm

Attachment