7.1 Control

Within ODOT, the development of the Traffic Control design is currently being regulated by the Traffic Control Plans Team in Salem. Traffic Control Plans (TCP), special provisions and estimates will be reviewed by this unit whether the design is being done by ODOT or by outside sources. The Traffic Control Plans can also be created by ODOT Region Designers or by private consultants. In these cases, the TCP Team reviews and advises in the development of these plans. The TCP designer receives a road design basemap CAD file from the staging (road) designer to begin the design of the Traffic Control Plans. The TCP designer then produces the TCP plan in accordance with the *Manual of Uniform Traffic Control Devices* (MUTCD).

Review of the Traffic Control section of the contract plans is accomplished at the preliminary, advance, and final submittal stages. Normally a registration seal is placed within the signature block of the first sheet of the traffic control portion of the plans and is signed by the traffic control engineer responsible for the design. If the engineer is the same as for the roadway portion of the contract plans, and he has stamped and signed the first sheet of typical sections, then no seal is required on the Traffic Control portion of the contract plans.

Tip

Depending on the project, it may not be appropriate or timely to provide the TCP with the rest of the "preliminary" contract plans review package.

Early submittal to the TCP engineer is key to the successful development of Traffic Control Plans.

7.2 Development

It is the responsibility of the Road Designer to develop the Traffic Control base sheets. The drafter assigned to the project should set up the Traffic Control drawings to include basic topographic features and intended Traffic Control features.

Tip

If other roadway plan sheets have already been created, it may be easier to copy the active file *to a new* active file *for Traffic Control and modify as necessary. If this is the case, move on to step 5, 7, or 8 as appropriate.*

7.2.1 Sheet Setup

Set up the Traffic Control plan and detail sheets as described in steps 1-5 and then follow or use steps 6 and 7 for plan sheets or step 8 for detail and note sheets. General information to help you create the sheets follows the detailed steps.

Step 1 — Create an "Active File"

Create a new MicroStation™ file from the seed file named SEED2D.DGN found at:

Internal ODOT staff	http:\\SCDATA3\ODOT_space\standards\seed
External	ftp://ftp.odot.state.or.us/isb/appeng/Microstation/Version8/

7.2.1 Sheet Setup (Cont'd)

and name it KEYNUF.TP1, where "KEYNU" represents your project key number assigned by ODOT (to be filled in by you), "F" represents that this file is part of the final contract plans, and "TP1" is the appropriate extension for the first file of the Traffic Control Plans. Subsequent files of Traffic Control Plans shall have extensions "TP2", "TP3," etc. ("TC" or "ST" are used for stages). This is your ***active file***.

Tip

Step 3 may have been completed as part of another section of the contract plans. If it has, use it here and go on to Step 4.

Step 2 — Add Sheet Borders

Enter ODOT's proprietary software, "Plotypus," to automatically place borders (*File/Plotypus*). "Plotypus" automatically creates the borders at a pre-designated location in the design file. Choose the intended scale and sheet size, placing up to ten borders per design file. See Appendix D, "A Quickguide To Plotypus," for more information on placing borders.

Step 3 — Creat the Project Title and "V" Number Reference File

Create a new MicroStation™ file from the seed file named SEEDV8.NAM found at:

Internal ODOT staff	http:\\SCDATA3\ODOT_space\standards\seed
External	ftp://ftp.odot.state.or.us/isb/appeng/Microstation/Version8/

and name it KEYNUF.NAM, where "KEYNU" represents your project key number (to be filled in by you), "F" represents that this file is part of the final contract plans, and "NAM" represents that this generic file is for the project title information. For example, a new file name might be 01234F.NAM.

Note: For information about title block text, see Section 2.9, Volume 1.

Title block text is provided in two scales within SEEDV8.NAM for convenient editing.

Note: For additional information on signature blocks, see Sections 2.9, Volume 1.

Edit the project title text in the appropriate place within the title block. When the contract plans are complete and ready to be advertised for bid, the "V" number will be added to this file in the upper right hand corner of each plan sheet. For preliminary, advance and final review submittals, the appropriate block shall be placed here rather than the "V" number (from the cell library ODOT.cel).

Tip

A signature block is not necessary if the designer and engineer are the same as for the roadway portion of the contract plans, and the typical sections have been stamped and signed by these people.

Step 4 — Attach Reference Files

Open the new *active file* created in Step 1. Attach KEYNUF.NAM as a reference file and assign a logical name as appropriate for your plan sheet. The active file should now have blank plan sheets with the title blocks filled in.

Attach PLANSV8.DGN for helpful patterning information.

Figure 7-1 Reference Files - Traffic Control

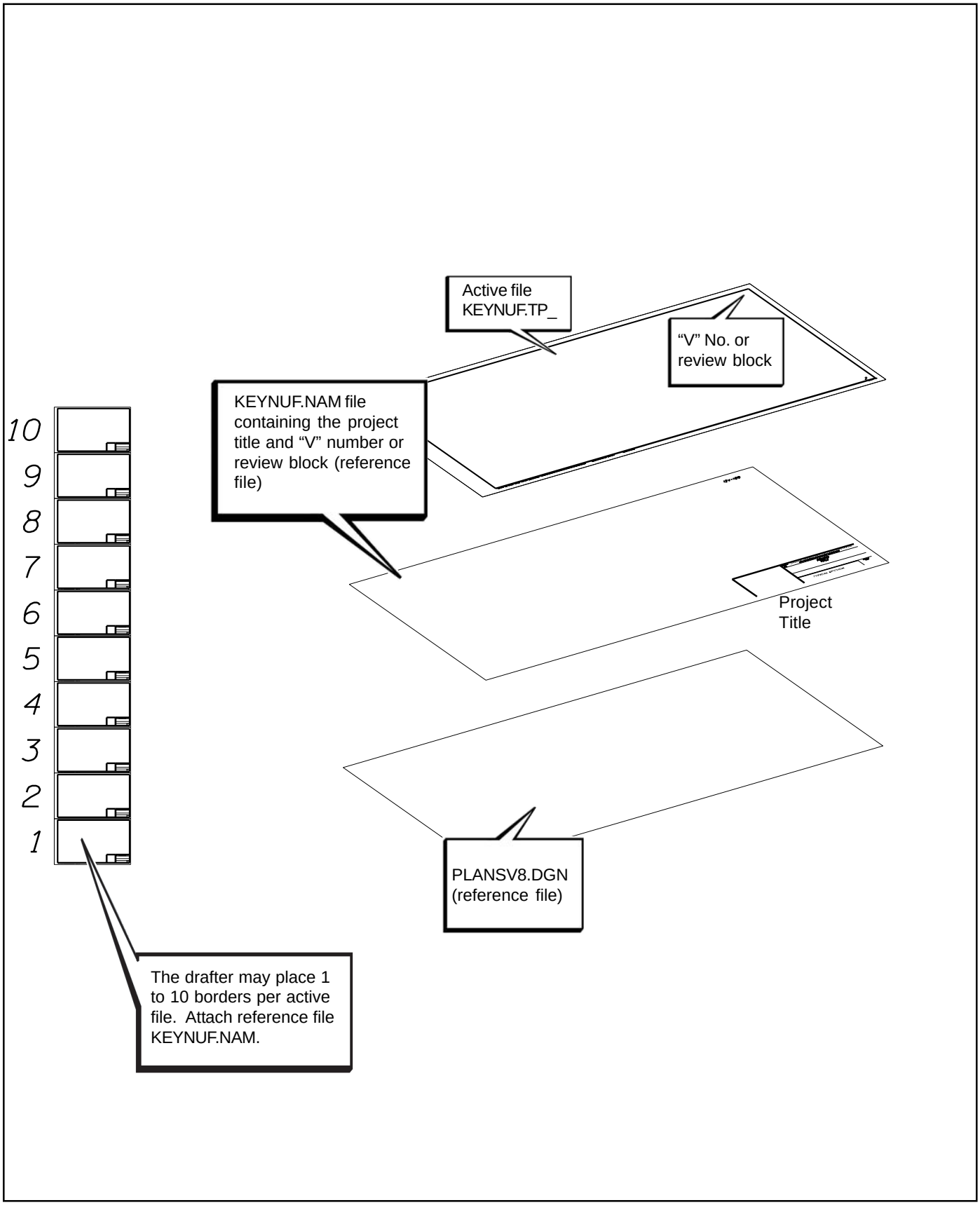
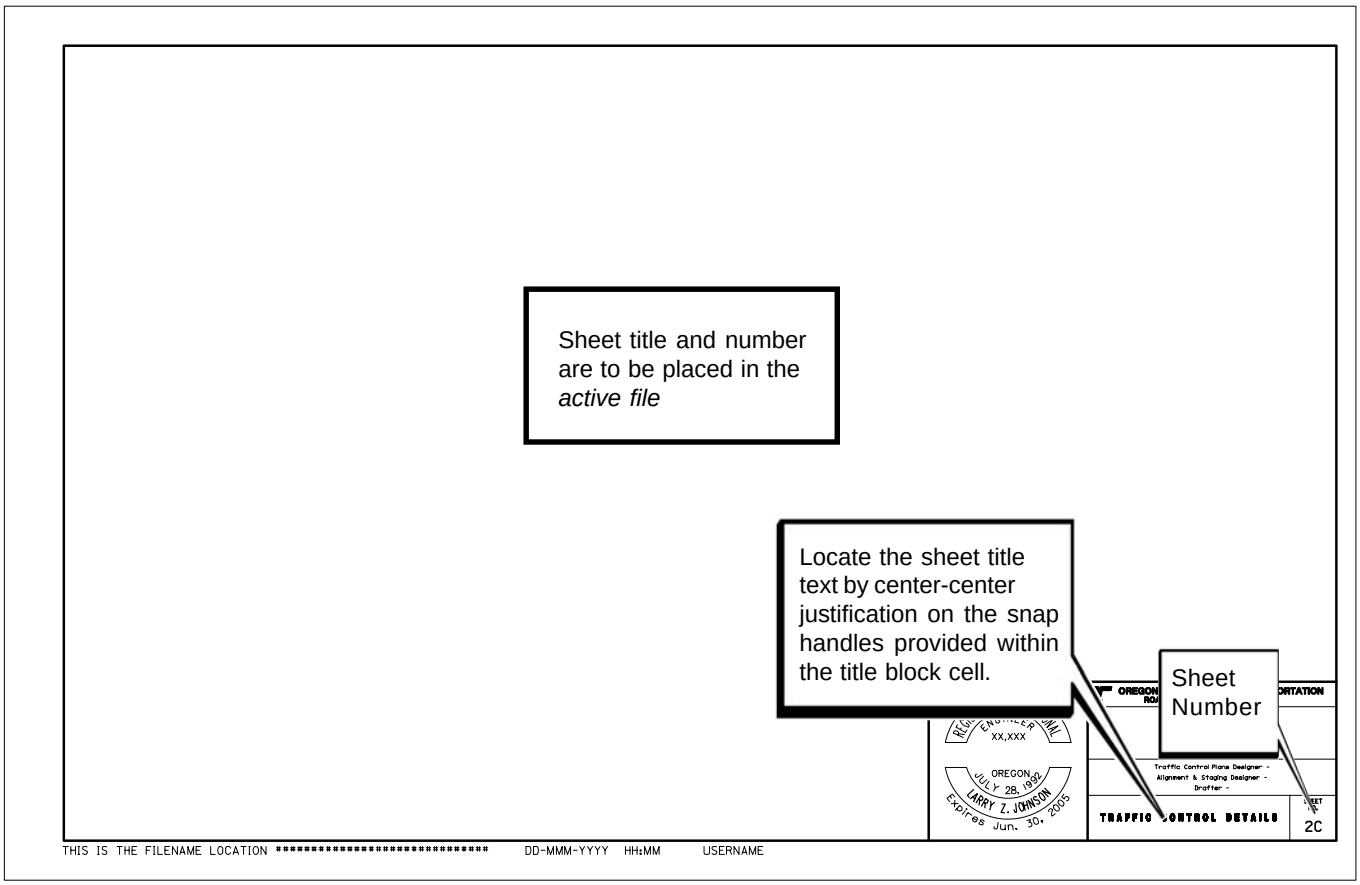


Figure 7-2 Sheet Titles - Traffic Control



Note: For information on preparing the basemaps for use, see Basemaps, Section 2.7, Volume 1.

7.2.1 Sheet Setup (Cont'd)

Step 5 — Add Sheet Titles and Numbers

While in the *active file*, add the title "TRAFFIC CONTROL PLAN" in the title block by turning on Level 12 in the KEYNUF.NAM reference file created in Step 3. Also turn on level 59 in the KEYNUF.NAM reference file to set the signature area appropriately for the Traffic Control Plans Designer, Alignment and Staging Designer and Drafter. See Figure 2-7 for a listing of the sheet titles and the levels on which they can be found.

While in the *active file*, add the sheet numbers, snapping to the point provided in the space.

Step 6 — Add Professional Engineer Stamp

While in the *active file*, add the Professional Engineer's Stamp cell for the person signing the plans, snapping the cell to the point provided.

7.2.1 Sheet Setup (Cont'd)

Step 7 — Sheet Information

The location, name and date of the *active file* are to appear in the lower left corner of the sheet as shown in Figure 7-4. For ODOT users, this will update automatically. Users outside ODOT must use an appropriate pen table.

Tip

The TCP files can be converted to 2D CAD files at the discretion of the drafter, to make them easier to work with.

7.2.2 Plan Sheet

Production of plan sheets involves the attachment and use of the same existing topography and design files as used in the development of the roadway plans. These can be copied into the active file and modified as explained in steps 8 and 9.

Step 8 — Create the TCP "Basemap" Within the "KEYNUF.TP1" Active File

Attach the desired existing and design basemap reference files to this file. Turn off all levels except the following:

a. Existing edge of pavement or curb
b. Alignment centerline
c. Stationing and text
d. Structures, such as bridges, and new construction items, such as curbs, approaches and driveways (judgement is required here, as the goal is to define the limits of the existing and proposed roadway)
e. Street or road names
f. Any other information that adds to the clarity of the TCP portion of the project (railroads, barriers, etc.)

Note: For Traffic Control sheet examples showing required items, see Section 7, Volume 2.

Note: For a detailed list of element attributes and levels, see Appendix D.

Fence and copy this TCP basemap information into the *active file*. Remove any unnecessary data, such as drainage and utilities. Normally, the TCP basemap is one half the scale of the roadway plans. In such a case, the TCP basemap is relocated to an area chosen by the drafter, close to the plan sheet borders. Control between this newly chosen TCP basemap location and the original reference file(s) location can be accomplished with a single line locked in position and of sufficient weight to be clearly identifiable.

Step 9 — TCP "Basemap" to Plan Sheets

Warning

Clip masking and rotated views should be avoided.

Divide the TCP basemap into plan sheets by:

1. Attaching KEYNUF.TP1 as a reference file to itself.
2. Assign a logical name for each sheet attachment associated with the view in which it is placed (ie. v1, v2, v3, etc.).

7.2.2 Plan Sheet (Cont'd)

3. Clip, rotate and move the data for each appropriate sheet location on the plan sheet borders (each reference file becomes one plan sheet).
4. Reattach KEYNUF.TP1 for each plan sheet in Stage I and make any modifications to the information in KEYNUF.TP1 so that the appropriate data is displayed on each sheet.

Step 10 — Make Modifications

Prints of the basemap information are provided to the Traffic Control Engineer to redline the traffic control design. The engineer then returns them to the drafter to make the CAD drawing modifications for Stage 1, such as:

a. Stippling, hatching and stippling/hatching shapes to show "under traffic", "construction", and "construction under traffic areas" are placed in the TCP basemap file. Lines with appropriate line codes for tubular markers, traffic delineators and drums are also placed in the TCP basemap file.
b. Signs and text are placed in the active file on the correct sheet location.

Step 11 — Develop Stage II Files

To develop Stage II drawing files, KEYNUF.TP1 is copied and renamed to KEYNUF.TP2. The associated reference files, in their view locations are retained. Information for Stage II is placed in this new active file. Often, the work areas shown in Stage I become the new edge of pavement for Stage II, so work is minimized by this process.

Step 12 — Develop Stage III Files

Copy KEYNUF.TP2 and rename it to KEYNUF.TP3. This becomes the Stage III file. Continue with the above process for each additional stage.

Some general guidelines to be considered while preparing Traffic Control Plan sheets are:

a. Work areas are outlined with solid lines to separate the patterns.
b. Look for ways to reduce the number of sheets by using breaklines and not showing some areas unless it is necessary for clarity to show signs.
c. Omit end panels on bridges.
d. Do not show reconstructed guardrail. It looks like tubes and drums, so instead, show it as existing guardrail.
e. Cut-aways can be used to show features under structures, if required.

7.2.3 Detail and Note Sheets

Building on steps 1 through 7, creation of detail and note sheets involves the same general procedure as follows:

Note: For a detailed list of text fonts and sizes, see Table 2-2, Volume 1.

7.2.4 General Information

Scale

In developing Traffic Control Plan sheets, choose an appropriate scale which will maximize clarity for the amount of data you wish to show, but create only as many sheets as needed for clear and readable plans. Typically, an appropriate scale is half the scale of the roadway plans portion of the project. The most commonly used scales are 1"=100' and 1"=200', with 1"=200' scale being the most desirable for a project with 1"=100' scale roadway plan sheets. Detour plan sheets may have independent scales or are not to scale.

Text

The use of standard text fonts and sizes help maintain the look and consistency of the plans. The most typical text fonts and sizes used for Traffic Control Plans are the same as within the rest of the roadway contract plan set.

Sheet Order

The order of the Traffic Control Plan sheets within the roadway contract plans set must be consistent from project to project. The order of sheets shall be:

1. Details
2. Detour
3. TCP (including cross sections)

Work Zone Signs

Traffic Control Plans often require the use of temporary guide signs to warn and inform the motorist of upcoming changes in traffic flow due to construction. These signs must be shown and detailed on Traffic Control Plan and detour sheets with the correct sizes. Usually, these signs are shown in greatest detail on the TCP detail plan sheets. Within ODOT, the TCP team uses a program called GUIDSIGN™ to design temporary guide signs.

Note: For Traffic Control sheet examples showing temporary surfacing, see Section 7, Volume 2.

Cross Sections

To properly show staged construction on TCP sheets, it may be necessary to include cross sections either on the plan sheet, or on the sheet immediately after the plan sheet. Cross sections should include enough information so that the contractor can allow appropriate traffic flow during construction. Existing ground, final construction, immediate construction, temporary surfacing, and the area to

Figure 7-3 Stage Construction Cross Sections

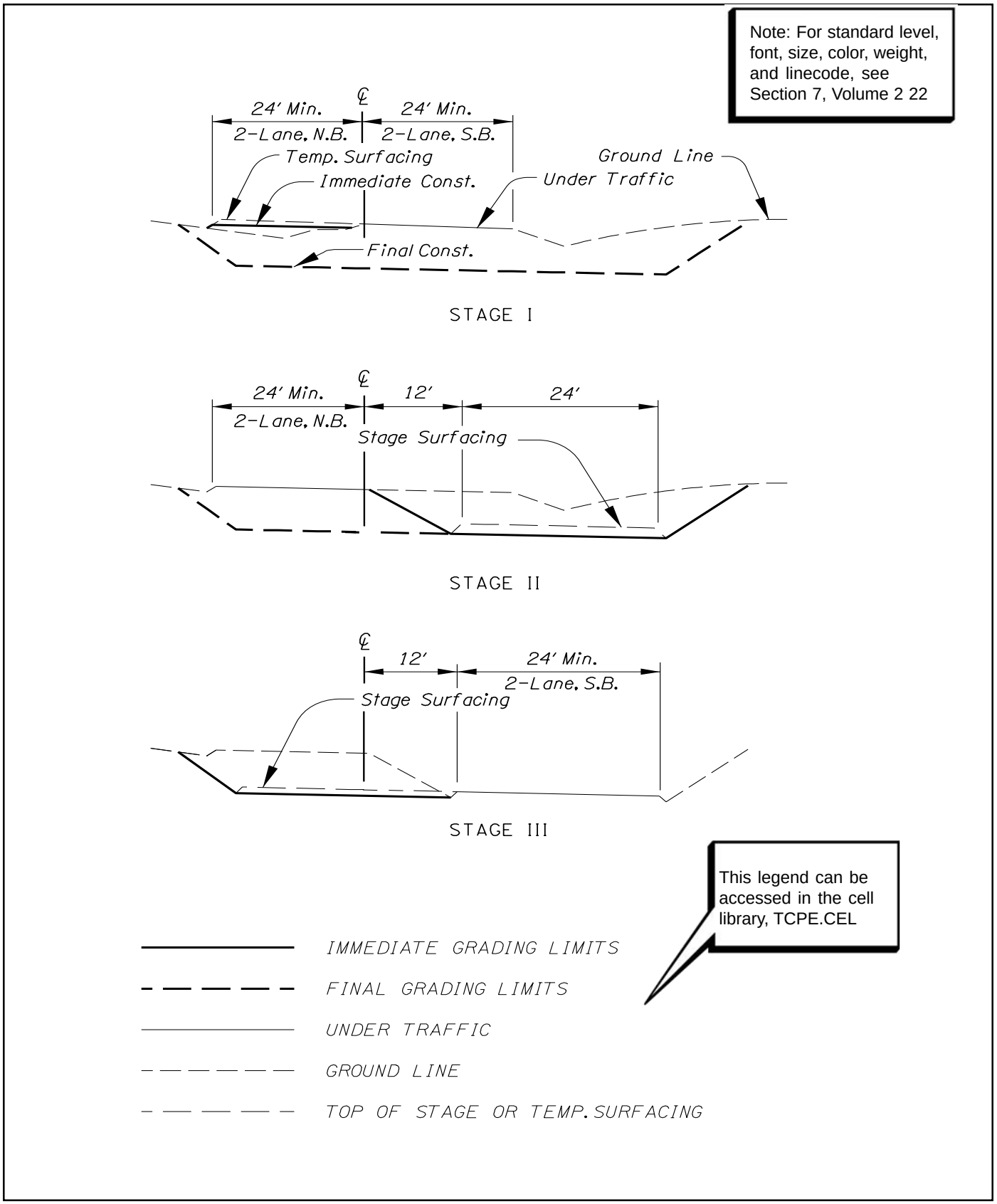
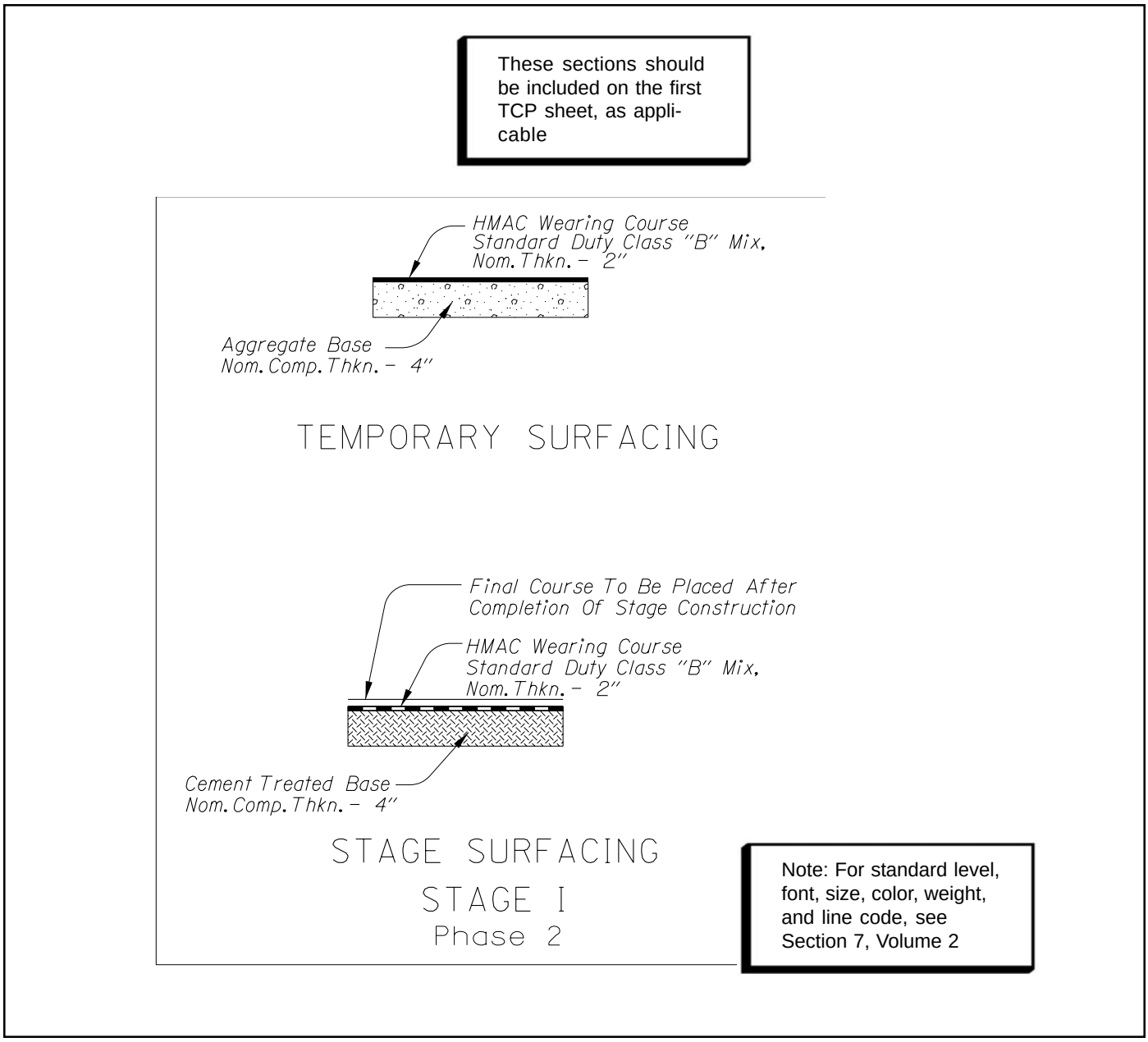


Figure 7-4 TCP Surfacing



7.2.4 General Information (Cont'd)

be under traffic should be shown on the cross section for each stage and phase of construction. See Figure 7-4.

The cross section scale should be 4 to 5 times larger than the plan scale. For example, if a plan scale of 1"=100' is used, then the cross sections should be at a scale of 1"=25' or 1"=20'. Typically, the designer will provide the drafter with their cross section file showing existing ground and subgrade lines for each stage.

Note: For all cell library symbols including TCPE.CEL, see Volume 3.

7.3 Coordination With Specifications and Special Provisions

The drafter then removes the grid and makes appropriate changes to meet the drafting standards.

Note: For additional information on special provisions, see Section 17, Volume 1.

Temporary Surfacing

To construct or repair a roadway, it may be necessary to construct temporary surfacing to allow for proper travel lane widths through the work area. Alignment and details should be shown on the TCP sheet to direct the contractor on how to construct the temporary paving. For temporary surfacing details, see Figure 7-4.

Cell Libraries

The cell libraries contain the symbols used on the plans, with the correct symbology and level definitions. The cell library used for specialized symbols, particularly of signs, devices, etc. is called TCPE.CEL and can be located in the ODOT workspace:

...\ODOT_SPACE\STANDARS\CELL

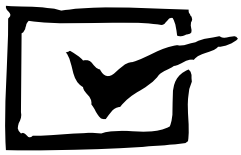
The Section numbers that correspond with the Traffic Control Plans and the *Standard Specifications for Construction, 2002*, can be located in Part 00200 - Mobilization and Traffic Control, and may include the following sections:

Section 00220 -- Accommodations for Public Traffic
Section 00225 -- Work Zone Traffic Control

Many of these cells can also be accessed through the ODOT Menu. For a description of the Traffic Control menu, see Appendix "C".

7.4 Checklist

The Traffic Control Plan sheets that are included in the contract plan documents should show any or all of the following information:



Plan Sheet

- ☐ Sheet title, sheet number and "V" number
- ☐ Plan sheet (Border, title block and PLANSV8.DGN)
- ☐ Notes in lower right corner (if necessary)
- ☐ Reference to standard drawings (if necessary and on first Traffic Control sheet only)
- ☐ Engineer's stamp
- ☐ Proposed Traffic Control items
- ☐ Traffic Control construction notes and reference bubbles
- ☐ Alignment showing centerline labels and stationing ahead on line
- ☐ Road names
- ☐ North arrow
- ☐ Legend of ODOT standard symbols actually used per plan sheet
- ☐ Existing and proposed structures (as appropriate)
- ☐ Stage and phase callout
- ☐ Cross sections
- ☐ Signage
- ☐ Special notes

Detail Sheet

- ☐ Sheet title, sheet number and "V" number
- ☐ Plan sheet (Border, title block and PLANSV8.DGN)
- ☐ Notes in lower right corner (if necessary)
- ☐ Reference to standard drawings (if necessary and on first Traffic Control sheet only)