

# SOLANO COUNTY

## ROAD IMPROVEMENT STANDARDS AND LAND DEVELOPMENT REQUIREMENTS

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# TABLE OF CONTENTS

<b>FOREWORD</b> .....	<b>1</b>
<b>SECTION 1 - ROAD IMPROVEMENT STANDARDS</b> .....	<b>2</b>
<b>Sec. 1-1 – GENERAL</b> .....	<b>2</b>
Sec. 1-1.1 – Definitions.....	2
Sec. 1-1.2 – Modification of Standards.....	3
Sec. 1-1.3 – Design Plans.....	3
Sec. 1-1.4 – Design Specifications.....	3
Sec. 1-1.5 – Construction Specifications.....	4
<b>Sec. 1-2 - PUBLIC ROAD IMPROVEMENT STANDARDS</b> .....	<b>4</b>
Sec. 1-2.1 – Traffic Projections.....	4
Sec. 1-2.2 – Design Speeds.....	4
Sec. 1-2.3 – Traveled Way.....	4
Sec. 1-2.4 – Vertical Alignment.....	4
Sec. 1-2.5 – Horizontal Alignment.....	5
Sec. 1-2.6 – Clear Areas.....	5
Sec. 1-2.7 – Roadway Standards.....	5
Sec. 1-2.8 – Structural Section.....	6
Sec. 1-2.9 – Intersections.....	6
Sec. 1-2.10 – Medians.....	6
Sec. 1-2.11 – Cul-de-Sacs.....	6
Sec. 1-2.12 – Berms, Dikes and Overside Drains.....	6
Sec. 1-2.13 – Guardrails.....	7
Sec. 1-2.14 – Utility Poles.....	7
Sec. 1-2.15 – Tree Replacement and Planting of Slopes.....	7
Sec. 1-2.16 – Erosion Control Measures.....	7
Sec. 1-2.17 – Curbs, Gutters and Sidewalks.....	8
Sec. 1-2.18 – Road Maintenance.....	8
Sec. 1-2.19 – Miscellaneous Standards.....	8
<b>Sec. 1 3 - PRIVATE ROADS</b> .....	<b>8</b>
Sec. 1-3.1 – Roadway Standards.....	9
Sec. 1-3.2 – Intersections.....	9
Sec. 1-3.3 – Easement Requirements.....	9
Sec. 1-3.4 – Road Maintenance.....	9
Sec. 1-3.5 – Adequate Access.....	10
<b>Sec. 1-4 – LEVEL OF SERVICE STANDARD</b> .....	<b>10</b>
<b>Sec. 1-5 – TRAFFIC CONTROL DEVICES AND ROAD LIGHTING</b> .....	<b>10</b>
Sec. 1-5.1 – Signs, Signals and Striping.....	10
Sec. 1-5.2 – Road Lighting.....	11
Sec. 1-5.3 – Pavement Undulations.....	11

<b>Sec. 1-6 – DRAINAGE</b> .....	<b>12</b>
Sec. 1-6.1 – Open Channels .....	12
Sec. 1-6.2 – Culverts .....	13
Sec. 1-6.3 – Subsurface Drainage Systems .....	13
Sec. 1-6.4 – Minimum Cover .....	13
Sec. 1-6.5 – Curbs and Gutters .....	13
Sec. 1-6.6 – Increased Runoff .....	14
<b>Sec. 1-7 – BRIDGES</b> .....	<b>14</b>
<b>Sec. 1-8 – EMERGENCY ACCESS REQUIREMENTS</b> .....	<b>15</b>
<b>Sec. 1-9 – BICYCLE AND PEDESTRIAN FACILITIES</b> .....	<b>15</b>
<b>TABLE 1 – SUMMARY OF ROAD IMPROVEMENT STANDARDS</b> .....	<b>16</b>
<b>EMERGENCY ACCESS ROADS</b> .....	<b>17</b>
<b>Sec. 1-10 – FIGURES</b> .....	<b>18</b>
Figure 1 - ADT to Traffic Index Conversion .....	19
Figure 2 – House Count to Traffic Index Conversion .....	20
Figure 3 – Typical Road Section .....	21
Figure 4 – Cul-de-Sac .....	22
Figure 5 – Curb, Gutter, Sidewalk and Driveway Approach .....	23
Figure 6 – Valley Gutter .....	24
Figure 7 – Driveway Connection .....	25
Figure 8 – Commercial Driveway Connection .....	26
Figure 9 – Trench Across County Road .....	27
Figure 10 – Survey Monument Well .....	28
Figure 11 – Utility Access Cover .....	29
Figure 12 – Typical Pavement Undulation (Speed Hump) Dimensions .....	30
<b>SECTION 2 - SURVEYING AND MAPPING</b> .....	<b>31</b>
<b>Sec. 2-1 – SURVEYING AND SURVEYING REQUIREMENTS</b> .....	<b>31</b>
Sec. 2-1.1 – Parcel Maps Require Field Survey .....	31
Sec. 2-1.2 – Basis of Bearings .....	31
Sec. 2-1.3 - Type of Monuments .....	31
Sec. 2-1.4 - Monumentation of All Corners .....	31
Sec. 2-1.5 - Time of Monumentation .....	32
Sec. 2-1.6 - Description of Monuments Found .....	32
Sec. 2-1.7 - Monuments Accepted .....	32
Sec. 2-1.8 - Lot Dimensions and Size .....	32
Sec. 2-1.9 - Inter-Visible Monuments .....	32
Sec. 2-1.10 - Monument Right-of-Way Lines .....	32
Sec. 2-1.11 - Survey Accuracy .....	32
Sec. 2-1.12 – Close Final Plat .....	33

<b>Sec. 2-2 – MAPPING AND MAPPING REQUIREMENTS</b> .....	<b>33</b>
Sec. 2-2.1 – Signatures .....	33
Sec. 2-2.2 – Boundary Line .....	33
Sec. 2-2.3 – Key Map .....	33
Sec. 2-2.4 – Right-of-Way Data .....	33
Sec. 2-2.5 – Data for Lots .....	33
Sec. 2-2.6 – Easements .....	33
Sec. 2-2.7 – Labeling Easements .....	34
Sec. 2-2.8 – Lot Identifier .....	34
Sec. 2-2.9 – Orientation .....	34
Sec. 2-2.10 – Additional Information .....	34
Sec. 2-2.11 – Dedications .....	34
Sec. 2-2.12 – Reference Adjoining Surveys .....	35
Sec. 2-2.13 – Show Discrepancies .....	35
Sec. 2-2.14 – Identify Roads .....	35
Sec. 2-2.15 – Identify Survey .....	35
Sec. 2-2.16 – Township Surveys .....	35
<b>SECTION 3 - STATEMENTS AND RELATED ITEMS</b> .....	<b>36</b>
<b>Sec. 3-1 – STATEMENTS</b> .....	<b>36</b>
Sec. 3-1.1 – Owner’s Statement .....	36
Sec. 3-1.2 – Engineer’s or Surveyor’s Statement .....	36
Sec. 3-1.3 – County Surveyor’s Statement .....	37
Sec. 3-1.4 – Recorder’s Statement .....	37
Sec. 3-1.5 – County Tax Collector’s Statement .....	38
Sec. 3-1.6 – Board of Supervisor’s Statement .....	38
Sec. 3-1.7 – Director of Resource Management’s Statement .....	39
Sec. 3-1.8 – Owner’s Statement .....	39
Sec. 3-1.9 – Trustee’s Statement .....	40
Sec. 3-1.10 – Engineer’s (Surveyor’s) Statement .....	40
Sec. 3-1.11 – Subdivider’s Statement .....	41
Sec. 3-1.12 – Improvements Statement .....	41
Sec. 3-1.13 – Dedication Statement .....	42
Sec. 3-1.14 – Notary Public Certificate .....	42
Sec. 3-1.15 – Explanation of Footnotes for Statements .....	43
<b>SECTION 4 - AGREEMENTS</b> .....	<b>44</b>
<b>Sec. 4-1 – PUBLIC IMPROVEMENTS</b> .....	<b>44</b>
<b>Sec. 4-2 – PRIVATE IMPROVEMENTS</b> .....	<b>48</b>

## ROAD IMPROVEMENT STANDARDS AND LAND DEVELOPMENT REQUIREMENTS

The following are the Road Improvement Standards and Land Development Requirements (“Standards”) as required by Chapter 28, of the Solano County Code (commonly called the “Zoning Regulations”) and referred to in Chapter 26 of the Solano County Code (commonly called the “Subdivision Ordinance”) and Chapter IX of the Land Use and Circulation Element of the General Plan.

The Standards contain conditions and standards pertaining to public and private roads, emergency access roads and associated drainage facilities.

The Standards contain conditions and standards pertaining to Use Permits, Development and Performance Standards as defined in Chapter 28 of the Solano County Code.

The Standards contain conditions and standards pertaining to Subdivisions as defined in Chapter 26 of the Solano County Code.

The Standards shall apply unless the Zoning Administrator, the Planning Commission or the Board of Supervisors determines that different conditions and standards should apply to a particular development or application. Other elements or plans approved by the Board of Supervisors may supersede these Standards.

The Standards are in conformance with good engineering principles and practice.

The Road Improvement Standards and Land Development Requirements were prepared under my direction.

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## SECTION 1 - ROAD IMPROVEMENT STANDARDS

### Sec. 1-1 - GENERAL

#### Sec. 1-1.1 - DEFINITIONS

AASHTO - The American Association of State Highway and Transportation Officials.

ADT - Average Daily Traffic. The average number of vehicles that travel a segment of road in a 24-hour period.

Arterial Road - A high speed, high volume road for travel between major points in both rural and urban areas.

Caltrans - The State of California Department of Transportation.

Clear Width - The width between obstructions. For bridges, typically the distance between the barrier rails or sidewalks.

Collector Road - A road that links local and collector roads with arterial and other collector roads. It is usually of moderate traffic volume.

Developer - The proponent of a subdivision or other development, typically the property owner or his/her representative.

Director - The Director of Transportation for Solano County, or his/her designee. This position is held ex-officio by the Director of Resource Management.

Enhanced Width Road – A road that requires a higher design standard because of the presence of a large volume of truck traffic, or for other specific reasons. Enhanced width roads shall be designated by the Director.

Local Road - A road used primarily for access to residences, businesses, or other abutting property.

Public Road - A road that has been accepted into the County's maintained mileage by the Solano County Board of Supervisors.

R-Value - The resistance of a construction material to deformity.

Shoulder - The portion of a roadway contiguous with the traveled way. It is used by stopped vehicles, for pedestrians and bicyclists, and for lateral support of the roadway.

TI - Traffic Index. A measure of the number of equivalent single axle loads expected in the design lane over the design period.

Traveled Way - The portion of the roadway for the movement of vehicles, exclusive of

shoulders.

Urban Road - A road located in an urban or urbanized area, characterized by a high density of residences or businesses.

Volume - The number of vehicles passing a given point during a specified period of time.

#### Sec. 1-1.2 - MODIFICATION OF STANDARDS

Subject to the provisions of Chapter 26 of the Solano County Code (Solano County Subdivision Ordinance), the Director may, where warranted, impose additional or more stringent requirements beyond those contained in these standards, and also may waive or modify the requirements contained in these standards.

#### Sec. 1-1.3 - DESIGN PLANS

All improvements performed in accordance with this section shall be based on plans prepared by a civil engineer licensed to practice in the State of California. These plans shall be submitted to the Department of Resource Management for approval in both hard copy and electronic form, in a format approved by the Director. Construction shall not start until the Director has approved the plans.

Where applicable, the following figures shall be used: (refer to Section 1-10)

- Figure 1 - ADT to Traffic Index Conversion
- Figure 2 - House Count to Traffic Index Conversion
- Figure 3 - Typical Road Section
- Figure 4 - Cul-de-Sac
- Figure 5 - Curb, Gutter, Sidewalk and Driveway Approach
- Figure 6 - Valley Gutter
- Figure 7 - Driveway Connection
- Figure 8 - Commercial Driveway Connection
- Figure 9 - Trench Across County Road
- Figure 10 - Survey Monument Well
- Figure 11 - Utility Access Cover
- Figure 12 - Typical Pavement Undulation (Speed Hump) Dimensions

Where the County does not have a standard detail the designer shall use the current Caltrans Standard Plans.

#### Sec. 1-1.4 - DESIGN SPECIFICATIONS

Unless otherwise specifically indicated in these standards, all work shall be designed in accordance with the current Caltrans Highway Design Manual, the AASHTO Policy on Geometric Design of Highways and Streets, the Manual on Uniform Traffic Control Devices (MUTCD) and the MUTCD California Supplement, and the Solano County Subdivision Ordinance. In the event of a difference between these references, the most stringent requirement shall apply.

## Sec. 1-1.5 - CONSTRUCTION SPECIFICATIONS

Construction specifications shall be as contained in the current Caltrans Standard Specifications and applicable Special Provisions.

## Sec. 1-2 - PUBLIC ROAD IMPROVEMENT STANDARDS

### Sec. 1-2.1 - TRAFFIC PROJECTIONS

The ADT to be used for design shall be based on the traffic volume projected for twenty years after completion of construction. Subdivision road design shall be based on the traffic volume projected at ultimate development of the area.

The TI to be used for design shall be determined by the type of vehicles and traffic volume projected for the proposed road. In the absence of detailed traffic information, the TI to be used for design may be based on the ADT (see Figure 1) or, for residential subdivisions, on house count (see Figure 2). The truck traffic to be used for design may generally be taken to be five percent of ADT.

Traffic volume projections shall be based on methods approved by the Director. Projections for local roads in residential subdivisions shall be based on an average of ten trips (one-way) per day per home site.

### Sec. 1-2.2 - DESIGN SPEEDS

Design speeds shall normally be based on the AASHTO Policy on Geometric Design of Highways and Streets, except as modified in this section. Rural roads in rolling or mountainous areas (except in residential areas) shall generally have a design speed of 45 mph or greater, and shall not be less than 35 mph except where the terrain and physical constraints prevent that speed from being reasonably obtained. Roads in rural residential areas shall generally have a design speed of from 25 to 35 mph (the lower speed shall be used for roads that are fairly short, or where the residences are closely spaced or located close to the road), and shall not be less than 25 mph except where the terrain and physical constraints prevent that speed from being reasonably obtained. Local urban residential roads shall generally have a minimum design speed of 25 miles per hour, and urban collector roads shall generally have a minimum design speed of 35 miles per hour. In some locations, environmental concerns may dictate lower design speeds to preserve the scenic values of a particular roadway. Safety considerations may also require a lower design speed in some locations.

### Sec. 1-2.3 - TRAVELED WAY

The traveled way is the minimum width to be paved in all cases.

### Sec. 1-2.4 - VERTICAL ALIGNMENT

Maximum road grades shall generally be based on the AASHTO Policy on Geometric

Design of Highways and Streets. However, road grades shall not exceed 18 percent (12 percent if unpaved). The minimum grade for roads with curb and gutter, dikes or berms shall be 0.50 percent. Parabolic curves shall be provided at all locations where the algebraic change in grade is greater than one percent.

Sec. 1-2.5 - HORIZONTAL ALIGNMENT

Changes in horizontal alignment shall be accomplished with circular curves.

Sec. 1-2.6 - CLEAR AREAS

Sight distances and visibility clear zones shall be subject to the requirement of the Director. They shall generally be based on stopping sight distances for approaching vehicles traveling at the speed limit (if posted), or at a reasonable speed (if no speed limit is posted).

Sec. 1-2.7 - ROADWAY STANDARDS

The width of the traveled way and shoulder shall be in accordance with the AASHTO Policy on Geometric Design of Highways and Streets, except that the following minimums shall apply:

Width of Traveled Way (plus Paved Shoulders on each side) and Right of Way in Feet

ADT	Standard Roads ≤ 30 mph	Standard Roads ≥ 35 mph	Enhanced Width Roads	Right of Way
less than 250	20	22	24 (2)	60
251 - 750	22	24	24 (2)	60
751 - 4,000	24	24	24 (4)	70
4,001 - 10,000	24 (4)	24 (4)	24 (8)	80
> 10,000	48 (8)	48 (8)	48 (8)	100

In addition, all roads shall generally have 4 foot graded shoulders on both sides. This width may be reduced to accommodate existing trees, drainage facilities, slopes, and other features as determined by the Director.

The speeds to be used to determine the roadway width shall be the speed limit (if posted), or at a reasonable speed (if no speed limit is posted), as determined by the Director. For most urban residential roads, and for most rural residential roads with a length of one-quarter mile or less, the speed will be 30 mph or less, while for most other roads the speeds will be 35 mph or more.

An enhanced width road is a road that requires a higher design standard because of the presence of a large volume of truck traffic, or for other specific reasons. Enhanced width roads shall be designated by the Director.

The right-of-way shown above is the minimum requirement. The actual right-of-way width shall be increased where necessary to accommodate all elements of a roadway, including cut and fill slopes, roadside drainage facilities, medians, bridges (including sufficient width to

allow maintenance personnel and equipment to get under the bridge), and public utilities. At intersections, the right-of-way shall include connecting curves with the same radii as the edge of pavement connections. Rights-of-way shall generally be obtained in fee title.

Roadway and right-of-way widths shall be increased to accommodate on-road parking, bicycle traffic and pedestrian traffic, where warranted. Roads in areas planned or zoned for commercial or industrial uses shall have a width of traveled way and right-of-way four feet greater than the minimums shown in the table above.

#### Sec. 1-2.8 - STRUCTURAL SECTION

Road structural sections shall be designed in accordance with the procedure outlined in the Caltrans Highway Design Manual, and based on the R-value of the underlying material and the traffic index. In lieu of testing, a design R-value of 5 may be used.

The structural section of paved shoulders shall be the same as that of the traveled way.

The minimum structural section shall be one of the following:

- a) 0.25' asphalt concrete and 0.75' aggregate base
- b) 0.5' asphalt concrete

For an illustration of a typical road section, see Figure 3.

#### Sec. 1-2.9 - INTERSECTIONS

Connecting radii at public road intersections, both for the edge of pavement and for the right of way limit shall generally be not less than 30 feet. Where both of the connecting roads are arterial or major collector roads, the connecting radii shall be not less than 40 feet. However, where significant truck right-turn movements are anticipated, the standard for a commercial driveway shall apply.

#### Sec. 1-2.10 - MEDIANS

Roads with four or more lanes may require a center median, as determined by the Director. The standard median width shall be 16 feet. The minimum median width shall be four feet. Additional paved shoulder width may be required adjacent to the median.

#### Sec. 1-2.11 - CUL-DE-SACS

Wherever a dead-end road is permitted, an adequate turning area will be provided (see Figure 4).

#### Sec. 1-2.12 - BERMS, DIKES and OVERSIDE DRAINS

Berms, dikes, and/or overside drains may be required to concentrate the flow of water from the pavement to a desired location.

### Sec. 1-2.13 - GUARDRAILS

Guardrails may be required in areas having hazardous roadside slopes or obstacles that cannot be eliminated or mitigated by other means.

### Sec. 1-2.14 - UTILITY POLES

Utility poles to be located within the road right-of-way shall be placed as close to the edge of the right-of-way as practical. A utility plan shall be submitted to the Department of Resource Management as part of the encroachment permit application. No utility poles shall be installed until the utility plan has been approved.

Placement of utility poles shall adhere to the following criteria:

1. The horizontal clear distance from the edge of the traveled way to a pole shall conform to the requirements of the Caltrans Highway Design Manual (309.1 Horizontal Clearances). In no case shall the clear distance be less than four feet. On roads with an ADT greater than 250 vehicles per day and a speed limit (if posted) or reasonable speed (if not posted) of 35 mph or greater, the desired clear distance shall be eight feet.
2. Poles shall not be placed on the outside of curves in the road.
3. Poles shall not be placed opposite the dead-end leg of T-intersections.

### Sec. 1-2.15 – TREE REPLACEMENT AND PLANTING OF SLOPES

Road projects shall be designed to minimize the removal of existing trees, especially large native trees, and other vegetation where practical and consistent with traffic safety. The standards for graded shoulder widths may be reduced to permit the preservation of existing trees and vegetation. When trees must be removed as part of a project, they shall be replaced at a minimum 2:1 ratio with the tree type, size and location determined by the Director. The Director may set a higher standard for tree replacement based on environmental requirements, acceptability to the community and the traveling public, aesthetic impacts, and other reasons and determined solely by the Director.

Each replacement tree shall be at least a 15-gallon sapling. Initial planting shall be in a hole at least twice the size of the root ball, and planting shall be accompanied with soil conditioners sufficient to reasonably insure survival of the tree. Each replacement tree must be double staked, and shall be regularly watered for a period of not less than 24 months.

In addition to the planting of replacement trees, the Director may require the planting of additional trees or other vegetation to mitigate the impact of construction and enhance the appearance of a road. Such planting may include the planting of acorns and walnuts, as approved by the Director.

### Sec. 1-2.16 – EROSION CONTROL MEASURES

All cut and fill slopes, and exposed or bare dirt areas, shall be seeded with a suitable cover

and matted, and other appropriate erosion control measures shall be installed, in accordance with County standards and as approved by the Director.

#### Sec. 1-2.17 - CURBS, GUTTERS and SIDEWALKS

Residential roads in areas zoned for RE-1/2 or greater density shall generally have concrete curbs, gutters and sidewalks. Concrete curbs, gutters and sidewalks shall also be installed where a significant number of other properties in the neighborhood have existing curbs, gutters and/or sidewalks, in commercial and industrial areas where warranted, and in other areas where required by the Director. Roadway widths in areas with curbs, gutters and sidewalks shall be increased to accommodate on-road parking, when warranted. Curbs, gutters and sidewalks, where required, shall be constructed in accordance with Figure 5. Sidewalks shall generally have a minimum width of 5 feet, to encourage walkability. Greater widths may be required in commercial or other areas with significant pedestrian traffic.

#### Sec. 1-2.18 – ROAD MAINTENANCE

The cost of maintaining public improvements constructed in conjunction with a subdivision or other private development, including plantings, shall be the responsibility of the developer for a period of one year after acceptance of the improvements by the Director. The developer shall provide the County with a bond or other security acceptable to the Director in an amount of ten percent of the total value of the public improvements that were constructed, as determined by the Director. Any repair work to be done to the public improvements within the one-year period shall be performed by the developer to the satisfaction of the County.

#### Sec. 1-2.19 - MISCELLANEOUS STANDARDS

Valley gutters, where permitted, shall be constructed in accordance with Figure 6. Private driveway connections shall be constructed in accordance with Figure 7. Commercial driveway connections shall be constructed in accordance with Figure 8. Any trenching across County roads shall be performed in accordance with Figure 9. Installation of survey monument wells shall be performed in accordance with Figure 10. Utility access covers shall be installed in accordance with Figure 11.

### **Sec. 1-3 - PRIVATE ROADS**

Private road standards, including plantings and erosion control measures, are the same as those for public roads except as specified in this section.

Solano County desires to minimize the number of connections to public roads. Therefore, where practical, connections to public roads shall be shared by more than one lot, and lots that have a suitable connection to a private road shall utilize the private road for access, and not make an additional public road connection.

The following requirements shall apply to projects where access is provided by an existing private road, or by a private road that is to be constructed as a condition of approval of a subdivision or other development.

### Sec. 1-3.1 - ROADWAY STANDARDS

For projects serving one potential parcel, the road (also called a driveway) shall be built as required by the provisions of the California Fire Code Section 902 - Fire Department Access (including Appendix III-D), or Public Resources Code Section 4290 - Fire Safe Regulations, whichever applies. The road shall be constructed of 0.67 feet of compacted Class 2 aggregate base. The width of the road shall be 12 feet, with 60 foot long by 8 foot wide turnouts every 300 feet (for roads over 300 feet long), plus 2 foot graded shoulders, and shall also have an unobstructed width of 20 feet.

For projects serving two to ten potential parcels, the structural section shall be a 20-foot wide double chip seal coat over 0.67 feet of compacted Class 2 aggregate base, with 4 foot graded shoulders. For projects serving more than ten potential parcels, the structural section shall be the same as that required for public roads. The number of potential parcels shall be determined based on the County General Plan.

The maximum grade of all roads shall be 18 percent (12 percent if unpaved).

### Sec. 1-3.2 - INTERSECTIONS

Connecting radii at the intersection of a private road with a public road or with another private road, both for the edge of pavement and for the right of way limit, shall generally be not less than 20 feet. Where a private road connects to a County road, the developer of the private road shall obtain an encroachment permit and comply with all of its requirements. Provisions shall be made for drainage along the affected County road.

### Sec. 1-3.3 - EASEMENT REQUIREMENTS

All private road construction shall be located within an easement established by an instrument of record. The Director shall determine the easement width. The minimum easement width shall be 50-feet for roads with the potential of serving four or fewer parcels, and 60-feet for roads with the potential of serving five or more parcels, based on existing zoning for those parcels. The easement width shall be increased where necessary to accommodate all elements of the roadway, including cut and fill slopes, roadside drainage facilities, medians, bridges (including sufficient width to allow maintenance personnel and equipment to get under the bridge), and public utilities. At intersections, the right-of-way shall include connecting curves with the same radii as the edge of pavement connections. All road easements shall provide for access by utility companies and public safety operations, and shall be designated as "Public Utility and Access Easements".

### Sec. 1-3.4 - ROAD MAINTENANCE

The cost of maintaining private roads and other facilities constructed in conjunction with a subdivision or other private development, including plantings and erosion control measures, shall be the responsibility of the developer for a period of one year after approval of the improvements by the Director. The developer shall provide the County with a bond or other security acceptable to the Director in an amount of ten percent of the total value of the improvements that were constructed, as determined by the Director. Any repair work to be

done within the one-year period shall be performed by the developer to the satisfaction of the County.

Prior to recordation of the final map or parcel map, a road maintenance agreement that requires all lot owners in the subdivision to participate in the maintenance of private roads and associated facilities serving the subdivision shall be recorded. The maintenance agreement shall be submitted to the Director for review and approval prior to recordation.

#### **Sec. 1-3.5 - ADEQUATE ACCESS**

The following requirements shall apply where parcels are required to have adequate access in the Solano County Subdivision Ordinance.

Adequate access shall consist of an easement established by an instrument of record and to the benefit of all those properties intended to use the easement for access. This easement shall be at least 60 feet in width except where the potential parcels do not exceed four, in which case the easement shall be at least 50 feet in width. The easement shall be shown, together with the recording information, on the Parcel Map or Final Map. The easement shall be improved, at a minimum, as required by the provisions of the Uniform Fire Code Section 902 - Fire Department Access, or Public Resources Code Section 4290 - Fire Safe Regulations, whichever applies.

#### **Sec. 1-4 - LEVEL OF SERVICE STANDARD**

The goal of Solano County is to maintain a Level of Service C on all roads and intersections. In addition to meeting the design widths and standards contained in this document, all projects shall be designed to maintain a Level of Service C, except where the existing level of service is already below C, the project shall be designed such that there will be no decrease in the existing level of service. Levels of Service shall be calculated using the Transportation Research Board's most recent Highway Capacity Manual.

#### **Sec. 1-5 - TRAFFIC CONTROL DEVICES AND ROAD LIGHTING**

The following requirements shall generally apply to projects with a frontage along existing County roads that are to be improved, and to new roads to be dedicated to the County for public use. The Director may also impose these requirements on other projects.

##### **Sec. 1-5.1 - SIGNS, SIGNALS, and STRIPING**

Road name signs shall be provided and installed at all road intersections, including the intersection of two private roads.

Traffic control signs, signals, and pavement striping shall be installed in accordance with a plan prepared by the developer and approved by the Director.

In general, rural roads with a prevailing speed of 35 mph or greater, a pavement width of at

least 18 feet, a length of at least one-half mile and an ADT of at least 100 should have a centerline. If the ADT of a road is greater than 250, the centerline should include raised markers. However, if the pavement width is less than 19 feet, one-way or two-way no passing centerlines should consist of all raised markers, or should have no raised markers.

In general, rural roads with a prevailing speed of 35 mph or greater, a length of at least one-half mile and an ADT of 250 or greater should have edge lines. In areas subject to frequent heavy fog, edge lines should be considered even for roads that do not meet these criteria. Edge lines may be used on roads that do not have a centerline.

Striping and pavement markings shall generally consist of thermoplastic, with raised markers where appropriate.

Where traffic signals are required, the developer shall pay the total or a pro-rata share of the cost for the installation as determined by the Director. The County shall pay the cost of energizing and maintaining the traffic signal if the signal is serving County roads exclusively. If the traffic signal serves an intersection of County and private roads, the cost shall be pro-rated between the County and the subdivision served by the private road as the number of private road legs served by the intersection bears to the number of County road legs.

#### Sec. 1-5.2 - ROAD LIGHTING

Road lighting shall be installed along streets in areas designated as "RE-1" (Residential estate district) or greater density.

The Director may require individual road lighting at adjacent road intersections or other locations where necessary for public safety.

The design, intensity, and location of road lighting shall be determined by the Director based on existing lighting conditions, existing and projected level of development, and factors necessary for the public safety. In general, lights on two lane roads should be spaced at 250-foot intervals, alternating on opposite sides of the road. They shall typically consist of 70-watt high pressure sodium luminaries on residential roads, and 100 watt high pressure sodium luminaries at all other locations. Where lights are being installed primarily as a traffic safety measure, such as lighting an intersection, full cutoff lights (where the lens is flush with the bottom of the light fixture) should be used. Where lights are being installed primarily to enhance general safety and security, semi-cutoff lights (where the lens extends slightly below the bottom of the light fixture) should be used.

#### Sec. 1-5.3 – PAVEMENT UNDULATIONS

The installation of pavement undulations (speed humps) as a method of controlling traffic speeds will be considered on County roads that meet the following conditions:

1. It is a residential road having a speed limit not greater than 25 mph.
2. The total paved width is 40 feet or less.

3. The grade of the road approaching the undulation is 8 percent or less.
4. The road approaches have horizontal curve radii of at least 300 feet.
5. The road approaches meet the minimum safe stopping sight distance as defined by the AASHTO Policy on Geometric Design of Highways and Streets.
6. The road is not a primary emergency vehicle route.
7. The road is not located on an established transit route.
8. At least two-thirds of the residents in the block within which a pavement undulation is proposed support the installation.
9. All residents immediately abutting the location where a pavement undulation is proposed support the installation.
10. The California Highway Patrol, the County Sheriff, and the agencies that provide fire and ambulance service to the area support the installation.

Pavement undulations (speed humps) shall be constructed in accordance with Figure 12, and signed and striped as specified by the Manual on Uniform Traffic Control Devices.

## **Sec. 1-6 - DRAINAGE**

Drainage which affects public or private roads, and which is generated from within a project or is traversing a project site shall be accommodated by an engineered drainage system, natural watercourse, or a combination of both. In addition, in some circumstances off-site drainage improvements may be required. Both on-site and off-site drainage improvements shall be coordinated with drainage facilities located within road rights-of-way and easements, to ensure that the improvements do not adversely affect the road or other properties.

An engineered drainage system shall consist of open channels or subsurface drainage systems, plus their appurtenant facilities. Open channels are generally appropriate for use in rural areas. In urban areas, subsurface drainage systems shall be used to accommodate runoff.

All drainage facilities or improvements shall be subject to the approval of the Director.

The data for calculating runoff shall be taken from the Solano County Water Agency Hydrology Manual.

### **Sec. 1-6.1 - OPEN CHANNELS**

All open channels shall be designed to convey the flows from a storm with a return period of 100 years with 0.5 feet of freeboard. The design period shall be based on the basin time of concentration, or the 24-hour storm, whichever is more conservative.

All conveyance calculations shall be based on ultimate development of the project site.

The minimum channel slope shall be 0.50 percent. When an unpaved channel is subject to erosion, the channel shall be paved or other erosion control methods installed as approved by the County.

#### Sec. 1-6.2 - CULVERTS

Culverts shall be designed to pass a ten-year storm without head on the inlet under free outfall conditions, and a one hundred-year storm with a head not higher than the outside edge of the graded shoulder and such that no significant localized flooding problems occur. Culverts installed in conjunction with an open channel drainage system shall also conform to the requirements for that system.

Cross-road drainage culverts shall be at least 18 inches in diameter. All other culverts shall be at least 15 inches in diameter. An arch pipe with an equivalent capacity may be used in both cases.

Corrugated steel or corrugated polyethylene pipe may be used for road culverts. Corrugated steel pipes shall have a 50-year service life in accordance with California Test Method No. 643.B. Corrugated polyethylene pipes shall meet specifications in accordance with AASHTO M294, Type S.

Erosion protection (such as rock slope protection, sack concrete, or a headwall) shall be placed at all culvert inlets and outlets where the channel is subject to erosion, and at culvert inlets and outlets where abrupt changes in channel alignment occur.

Paved inverts are required for metal pipe culverts when the velocity in the channel is five feet per second or more unless it can be shown that the stream does not carry abrasive materials.

#### Sec. 1-6.3 - SUBSURFACE DRAINAGE SYSTEMS

Subsurface drainage systems shall be designed to carry a ten-year storm without head and a one-hundred-year storm using the head available in the appurtenant structures. Discharges to a creek shall assume a one-hundred-year hydraulic gradient in the creek when calculating the gradient of a storm drainage system.

Concrete pipe shall be used for subsurface drainage systems. Concrete pipe shall be Class III minimum. All pipes shall be at least 15 inches in diameter. The minimum velocity in the pipe shall be 2.5 feet per second at a ten-year storm design flow.

#### Sec. 1-6.4 - MINIMUM COVER

The minimum cover over pipes installed within the road right-of-way shall not be less than that required by the manufacturer.

#### Sec. 1-6.5 - CURBS and GUTTERS

Where curbs and gutters are required, as described in Section 1-2.15, they shall be designed to carry a ten-year storm without water encroaching upon the traveled way, and a hundred-year storm without overtopping the curb. In all cases, drainage water will not be allowed to travel more than 400 feet in gutters.

#### Sec. 1-6.6 - INCREASED RUNOFF

Peak runoff from the project area shall be calculated for the before development and after development conditions. The return period used shall be as shown under the heading "Open Channels" in this section, or such other procedure as shall be approved by the County. If the before and after development calculations show an increase in runoff, the preparation of a drainage plan shall be required. This plan shall recommend mitigation measures that result in no net increase in peak runoff due to the development.

Mitigation measures normally include installation of a retention basin or a detention basin. In some instances downstream drainage improvements may be installed in lieu of providing for no net increase in runoff.

#### Sec. 1-7 - BRIDGES

The clear width of bridges located on public roads shall comply with the current edition of the AASHTO Policy on Geometric Design of Highways and Streets, except that the width of the traveled way upon which the bridge width is based shall be as described in these Standards, and that the clear width shall be 28 feet minimum. The clear width of bridges located on private roads shall equal the traveled way width plus two feet on each side, but with a clear width not less than 28 feet.

Bridges shall be designed in accordance with the latest revision of the Caltrans manuals entitled Bridge Design Specifications, Bridge Design Aids, and Bridge Design Details, and the Caltrans Standard Plans and Standard Specifications.

Bridges shall be designed to pass a fifty-year storm with a minimum of two feet of freeboard, and pass a one-hundred-year storm with no freeboard. Streams, which carry large floating debris, may require greater freeboard. Abutments shall be protected from erosion damage. This may necessitate the use of rock slope protection or other suitable materials and methods. Abutments on fill material will not be allowed unless supported on piles and the fill is adequately protected from erosion.

Bridges shall be protected with Type 80 concrete barriers and metal beam guardrails at all approaches in accordance with Caltrans Standard Plans and practice. Metal tube bridge railings will be installed in all locations where significant bicycle or pedestrian traffic is anticipated.

Road rights-of-way and easements shall provide sufficient width to accommodate bridges, where necessary. This width shall include adequate area both upstream and downstream of a bridge in order to construct and maintain associated channel improvements. In addition, sufficient area shall be provided to allow for future maintenance of the improvements. This shall include a minimum of 20 feet from the top of the bank along channel areas to be

maintained, and sufficient area for personnel and equipment to be able to access the bridge, including the bridge abutments and underside, and the channel flowline.

#### **Sec. 1-8 - EMERGENCY ACCESS REQUIREMENTS**

In subdivisions that create five or more lots, the maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths regardless of the number of lots served, unless a separate emergency access is provided:

one mile - lots zoned for one unit per 20 acres or greater

one-half mile - lots zoned for one unit per 5 acres to 19.99 acres

one-fourth mile - lots zoned for one unit per acre to 4.99 acres

800 feet - lots zoned for greater than one unit per acre

Where such a dead-end road(s) crosses areas with varying zoning densities, the shortest allowable length of road shall apply.

Emergency access roads shall be constructed and maintained to support a minimum 40,000-pound load. These roads shall have a minimum unobstructed width of not less than 20 feet, and shall be located within an easement of record that will accommodate the minimum unobstructed width or a minimum width of 30 feet, whichever is wider, increasing in width to accommodate cut and fill slope. The roads shall have a structural section consisting of not less than six inches of compacted Class 2 aggregate base twelve feet wide. Where emergency access roads exceed one-half mile in length, sixty foot long by eight foot wide vehicle turnouts shall be provided at not more than one-fourth mile intervals.

#### **Sec. 1-9 - BICYCLE AND PEDESTRIAN FACILITIES**

The Solano Countywide Bicycle Plan prepared by the Solano Transportation Authority shall generally guide the location of bicycle facilities. The Solano Countywide Pedestrian Plan prepared by the Solano Transportation Authority shall generally guide the location of pedestrian facilities.

Bicycle facilities shall be designed in accordance with Class 1, Class 2 or Class 3 bikeway standards contained in the Caltrans Highway Design Manual.

Bridges that carry significant bicycle or pedestrian traffic shall have tubular hand railing installed on the barrier rails.

# TABLE 1

## SUMMARY OF ROAD IMPROVEMENT STANDARDS

### PUBLIC ROADS (Standard, ≤ 30 mph)

<u>Average Daily Traffic</u>	<u>Traveled Way</u>	<u>Paved Shoulder</u>	<u>Graded Shoulder</u>	<u>Total Width</u>	<u>Surface Type</u>	<u>Right of Way</u>
less than 250	20	0	4	28	AC	60
251 - 750	22	0	4	30	AC	60
751 - 4,000	24	0	4	32	AC	70
4,001 - 10,000	24	4	4	40	AC	80
> 10,000	48	8	4	72	AC	100

### PUBLIC ROADS (Standard, ≥35 mph)

<u>Average Daily Traffic</u>	<u>Traveled Way</u>	<u>Paved Shoulder</u>	<u>Graded Shoulder</u>	<u>Total Width</u>	<u>Surface Type</u>	<u>Right of Way</u>
less than 250	22	0	4	30	AC	60
251 - 750	24	0	4	32	AC	60
751 - 4,000	24	0	4	32	AC	70
4,001 - 10,000	24	4	4	40	AC	80
> 10,000	48	8	4	72	AC	100

### PUBLIC ROADS (Enhanced Width)

<u>Average Daily Traffic</u>	<u>Traveled Way</u>	<u>Paved Shoulder</u>	<u>Graded Shoulder</u>	<u>Total Width</u>	<u>Surface Type</u>	<u>Right of Way</u>
less than 250	24	2	4	36	AC	60
251 - 750	24	2	4	36	AC	60
751 - 4,000	24	4	4	40	AC	70
4,001 - 10,000	24	8	4	48	AC	80
> 10,000	48	8	4	72	AC	100

### PRIVATE ROADS

<u>Potential No. of Parcels</u>	<u>Traveled Way</u>	<u>Paved Shoulder</u>	<u>Graded Shoulder</u>	<u>Total Width</u>	<u>Surface Type</u>	<u>Right of Way</u>
1 parcel	12 + TOs	0	4	20 + TOs	AB	50
2 – 10 parcels	20	0	4	28	CS	50 – 60
11 or more parcels		(same as public road requirements)				

### EMERGENCY ACCESS ROADS

<u>Traveled Way</u>	<u>Paved Shoulder</u>	<u>Graded Shoulder</u>	<u>Total Width</u>	<u>Surface Type</u>	<u>Right of Way</u>
12 + TOs	0	0	12 + TOs	AB	30

Notes:

1. All widths are in feet.
2. All widths shown above are minimums. Roadway and right-of-way widths shall be increased to accommodate on-road parking, bicycle traffic and pedestrian traffic, where warranted. Roads in areas planned or zoned for commercial or industrial uses shall have a width of traveled way and right-of-way four feet greater than the minimums shown in the table above. Actual right-of-way widths shall also be increased where necessary to accommodate all elements of a roadway, including cut and fill slopes, roadside drainage facilities, medians, bridges (including sufficient width to allow maintenance personnel and equipment to get under the bridge), and public utilities. Rights-of-way shall generally be obtained in fee title, where possible. The Director of Transportation may, where warranted, impose additional or more stringent standards beyond those shown here.
3. For surface type, AC indicates asphalt concrete pavement, CS indicates double chip seal, and AB indicates compacted Class 2 aggregate base. For road width, TO indicates turnout.
4. Residential roads in areas zoned for RE-1/2 or greater density shall have concrete curbs, gutters and sidewalks. Concrete curbs, gutters and sidewalks shall also be installed where a significant number of other properties in the neighborhood have existing curbs, gutters and/or sidewalks, in commercial and industrial areas where warranted, and in other areas where required by the Director. Roadway widths in areas with curbs, gutters and sidewalks shall be increased to accommodate on-road parking, when warranted.
5. This table is intended to be a quick reference of information contained in the Road Improvement Standards. Refer to the Road Improvement Standards for further information. In the event of a conflict between this chart and the text of the Road Improvement Standards, the text shall control.

## Sec. 1-10 - FIGURES

Where applicable, the following figures shall be used:

- Figure 1 - ADT to Traffic Index Conversion
- Figure 2 - House Count to Traffic Index Conversion
- Figure 3 - Typical Road Section
- Figure 4 - Cul-de-Sac
- Figure 5 - Curb, Gutter, Sidewalk and Driveway Approach
- Figure 6 - Valley Gutter
- Figure 7 - Driveway Connection
- Figure 8 - Commercial Driveway Connection
- Figure 9 - Trench Across County Road
- Figure 10 - Survey Monument Well
- Figure 11 - Utility Access Cover
- Figure 12 - Typical Pavement Undulation (Speed Hump) Dimensions

Where the County does not have a standard detail the designer shall use the current Caltrans Standard Plans.

CONVERSION CHART  
 AVERAGE DAILY TRAFFIC TO TRAFFIC INDEX

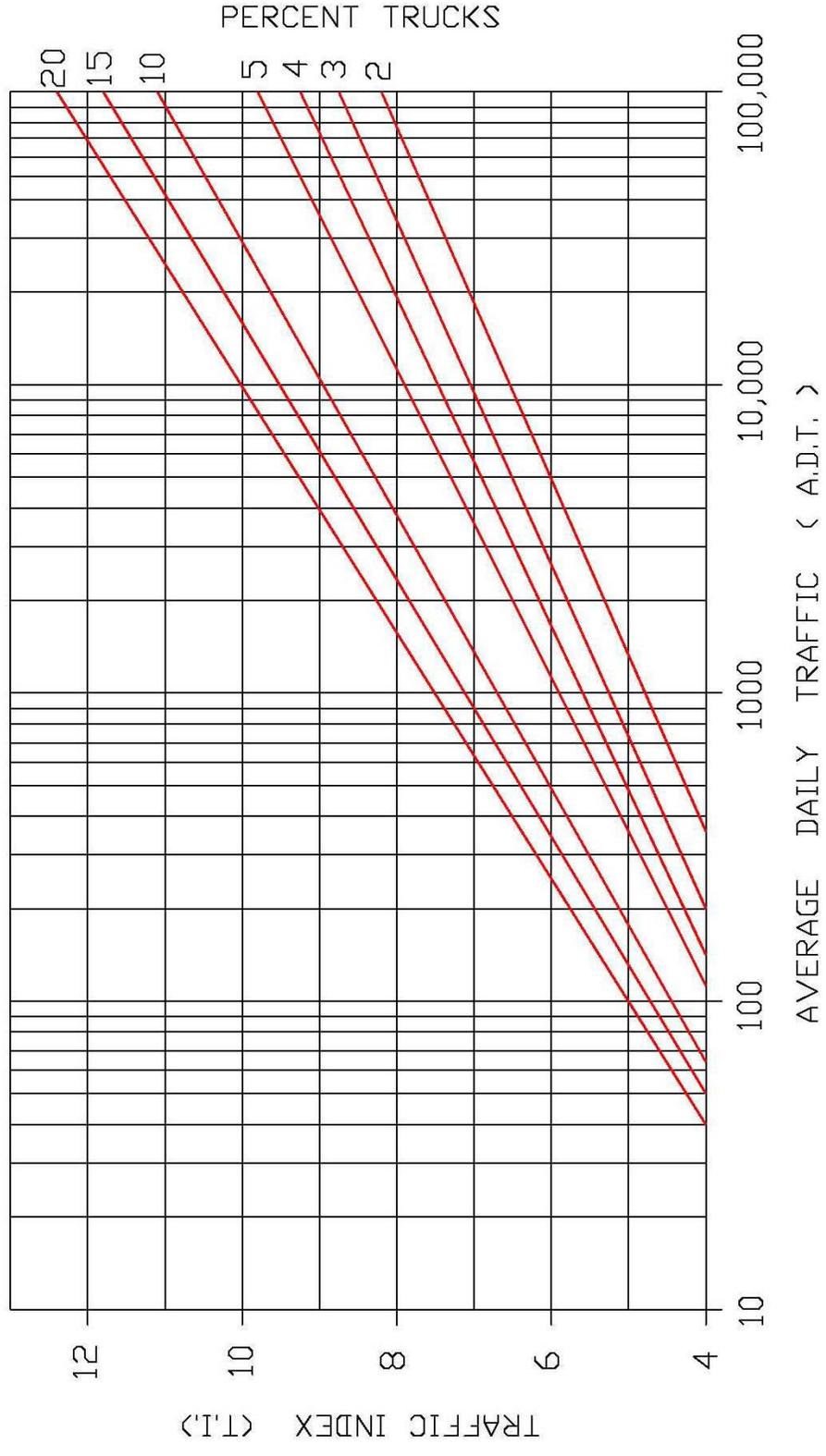
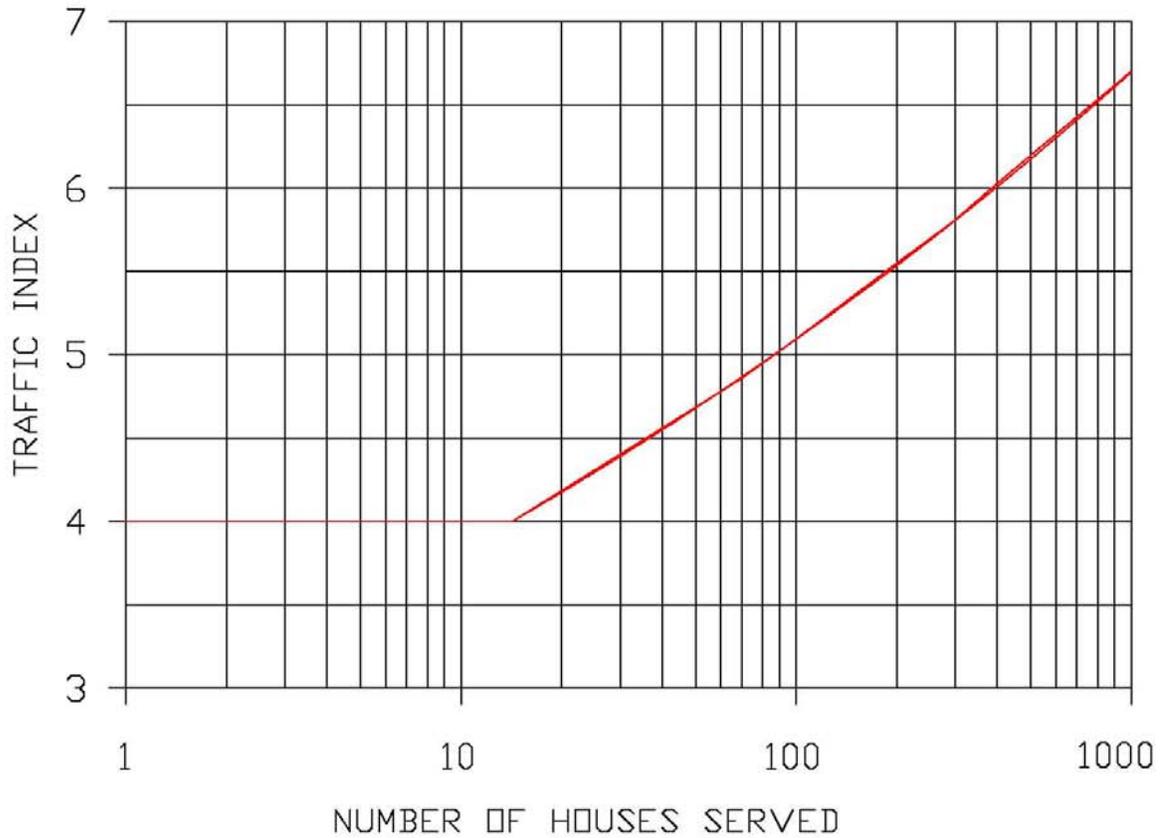


FIGURE 1  
 ADT TO TRAFFIC  
 INDEX CONVERSION

DATE: 01/20/2006  
 FILE: ADTCONVERSIONINDEX.DWG  
 DRAWN BY: CPP

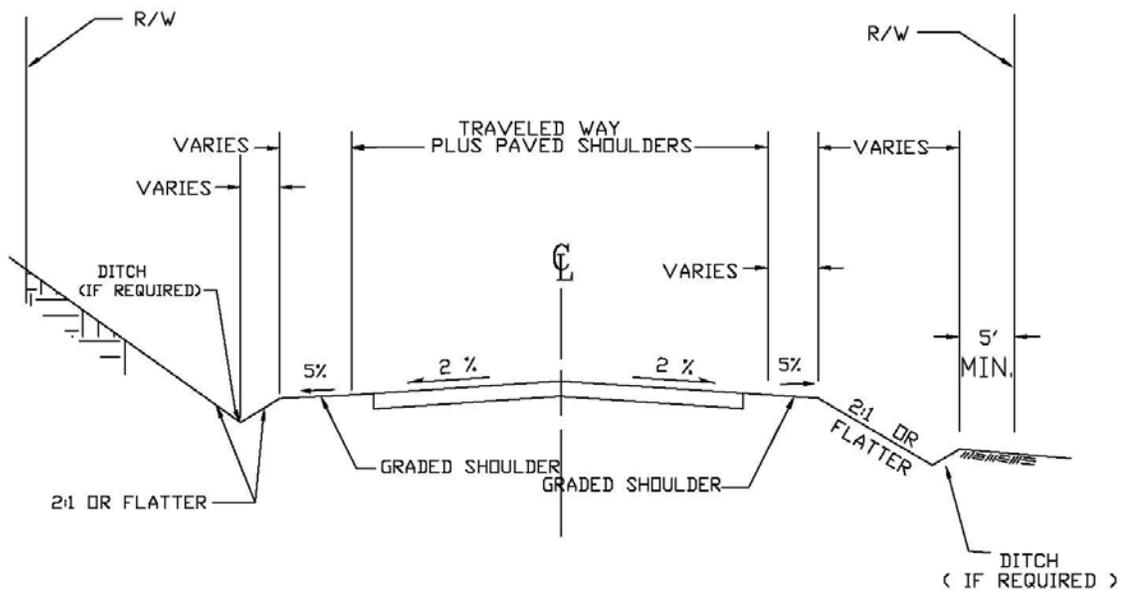
CHART FOR ESTIMATION OF TRAFFIC INDEX  
USING A HOUSE COUNT



NOTES: FOR USE ONLY WITHIN SUBDIVISIONS FOR  
RESIDENTIAL AND RESIDENTIAL COLECTOR  
STREETS.

FIGURE 2  
HOUSE COUNT TO TRAFFIC  
INDEX CONVERSION

DATE:01/20/2006
REVISION: CPP
FILE:TrafficIndexHouseCount.DWG
DRAWN BY: CPP

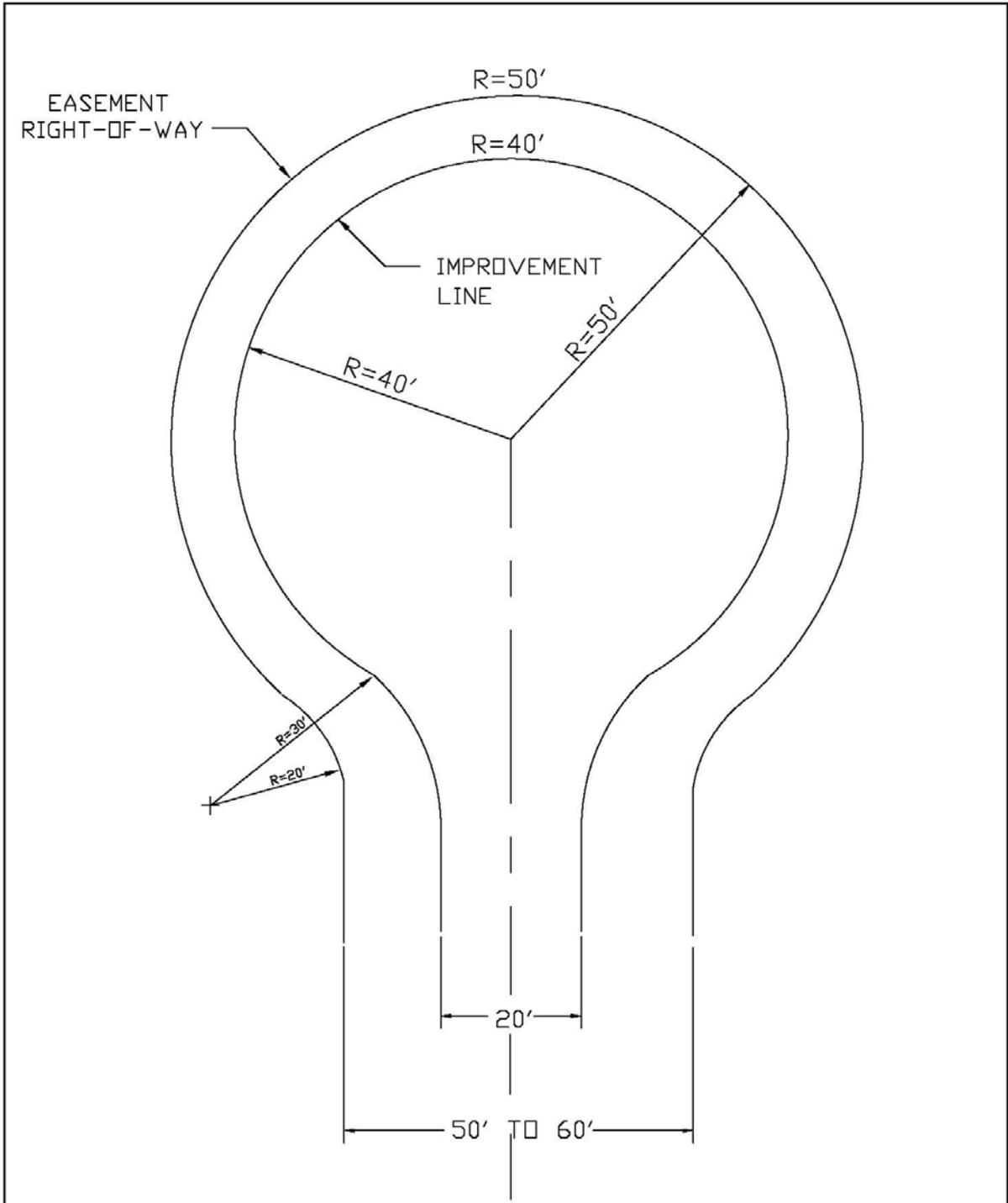


TYPICAL ROAD SECTION

- NOTES: 1. Cut or fill slopes steeper than as shown are to be justified by a soils analysis.
2. Use curb, gutter and sidewalk detail where required by applicable standards.
3. Where road profile grade exceeds 5% in erosive material, ditch paving and shoulder protection are required.

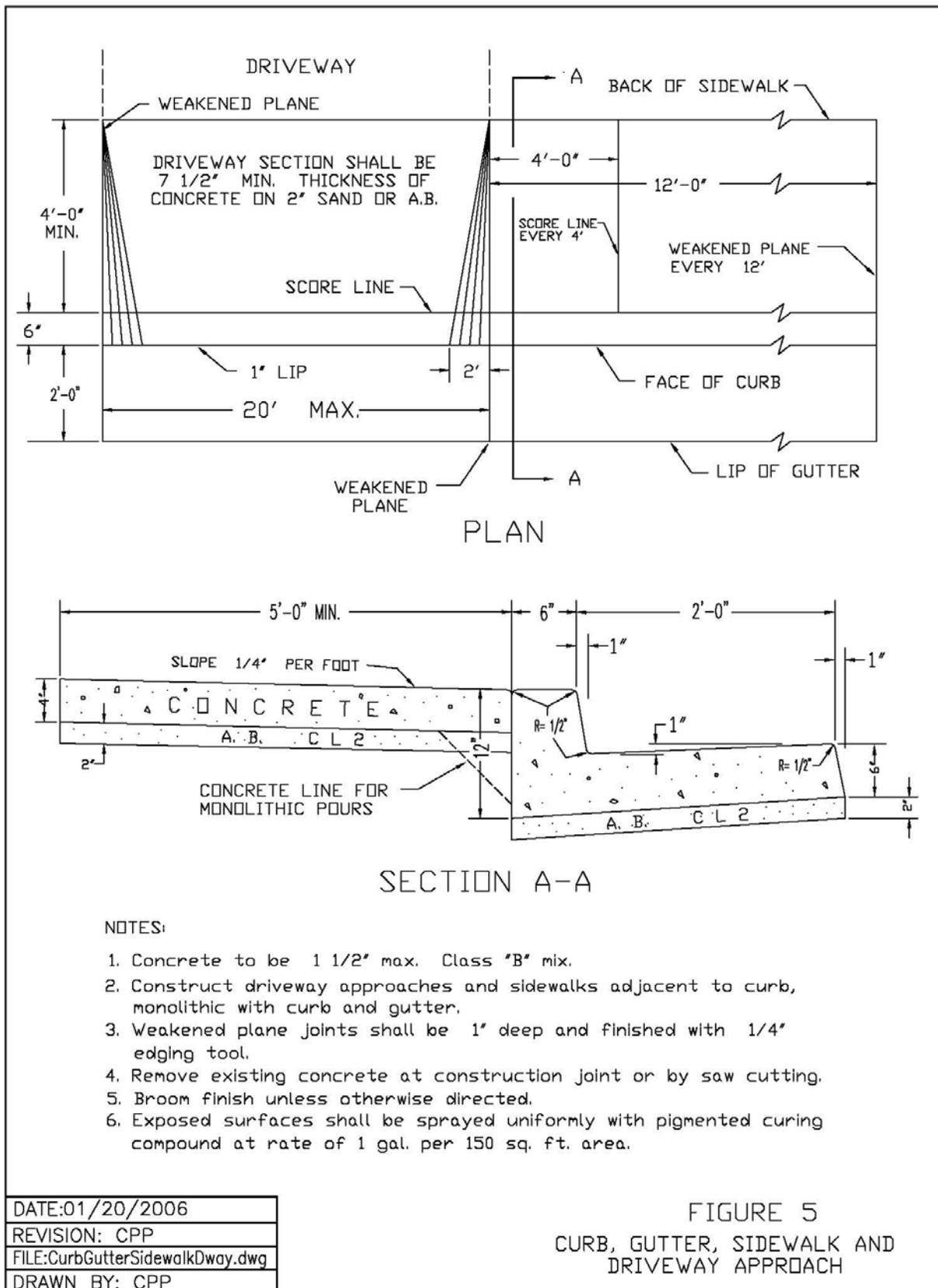
DATE: 01-20-2006
REVISION: G.L.M.
FILE: TypicalRoadSection.dwg
DRAWN BY: CPP

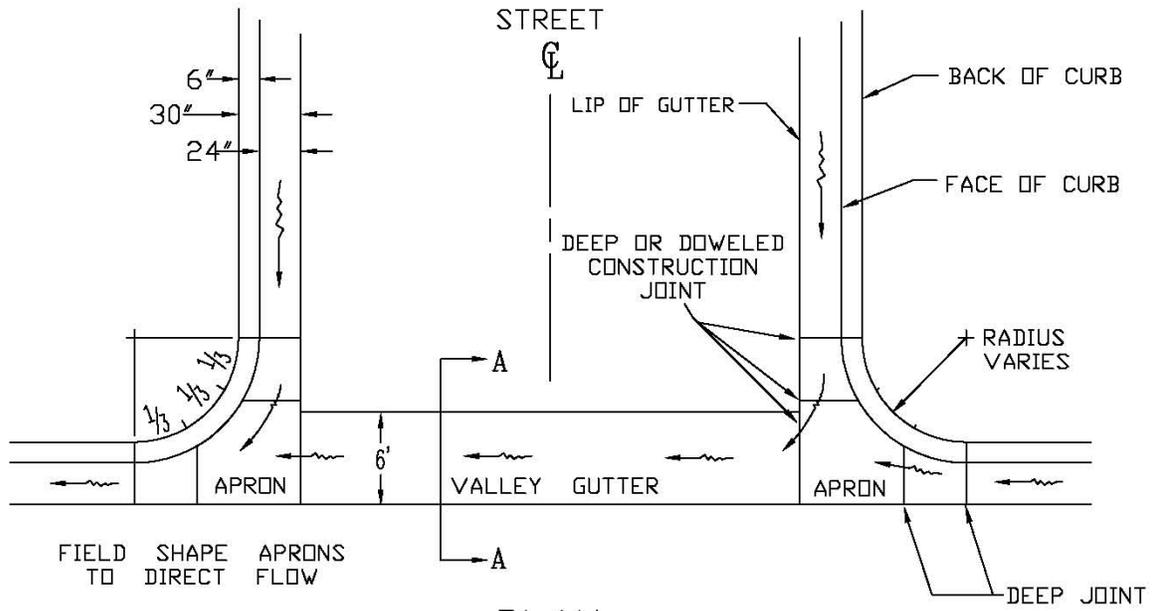
FIGURE 3  
TYPICAL ROAD SECTION



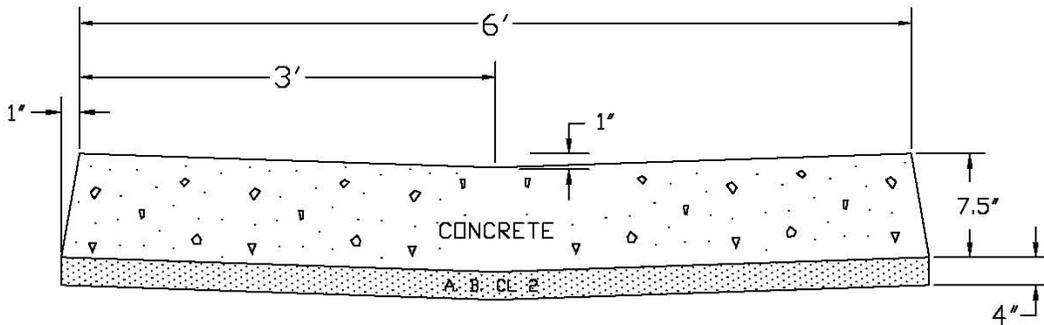
DATE:01/20/2006
REVISION: CPP
FILE:TypicalCulDeSac.dwg
DRAWN BY: CPP

FIGURE 4  
 CUL-DE-SAC





PLAN



SECTION A - A

NOTES:

1. All APRONS shall be 7 1/2" thick, CLASS "B" concrete, constructed monolithically with curb and gutter.
2. Joints shall be constructed at right angles to back of walk, curb face and edge of apron.
3. Dowels if required shall be min. #4 bars, 24" long, 3 per joint.
4. Broom finish unless otherwise directed.
5. Exposed surfaces shall be sprayed uniformly with pigmented curing compound at rate of 1gal. per 150 sq. ft. area.
6. The minimum slope of a valley gutter shall be 0.5%.

DATE: 01/20/2006
REVISION: CPP
FILE: ValleyGutterIntersection.dwg
DRAWN BY: CPP

FIGURE 6  
VALLEY GUTTER

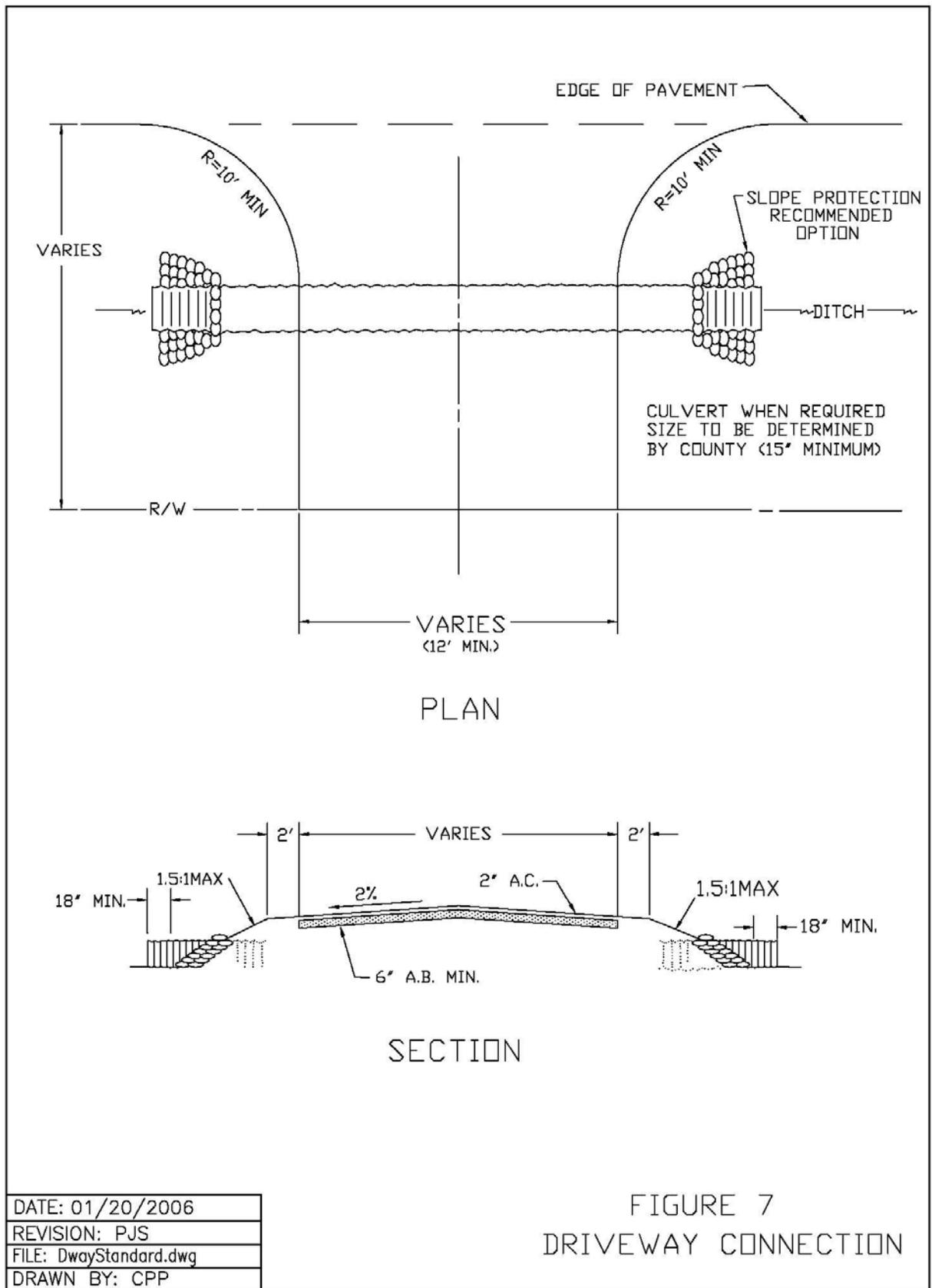
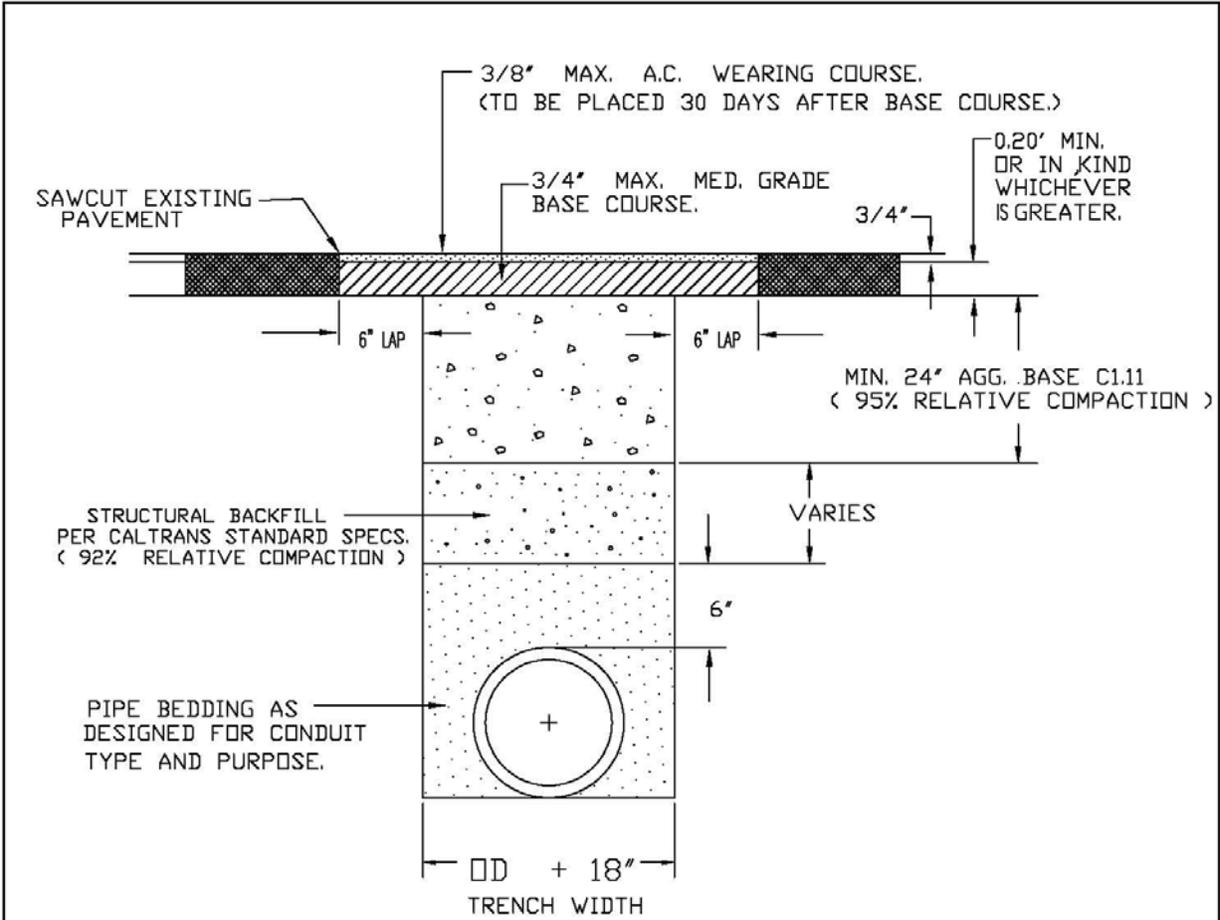


FIGURE 7  
DRIVEWAY CONNECTION



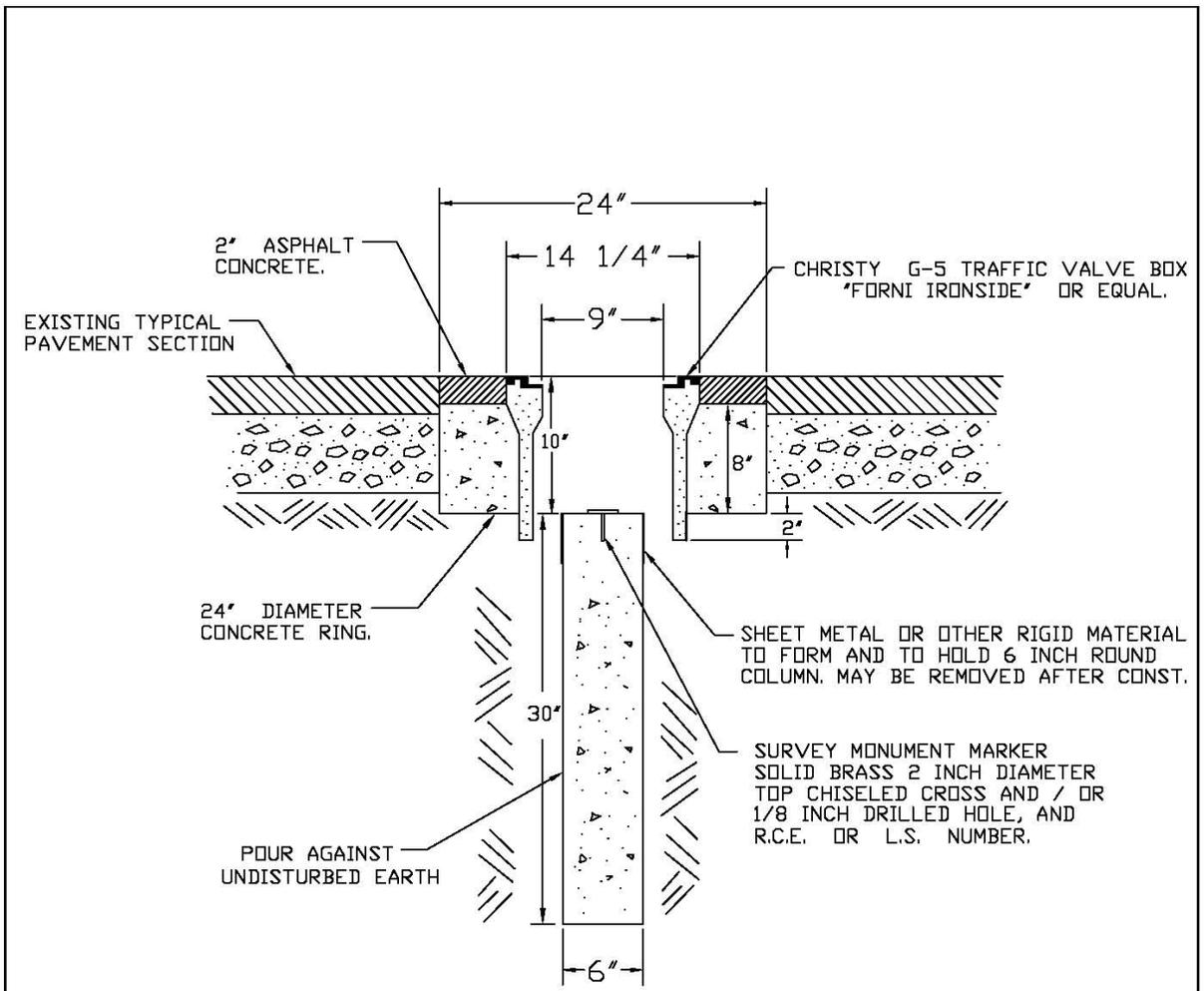


NOTES:

1. Submit suitable construction plans for the engineer's approval before beginning excavation.
2. Obtain all required permits prior to work.
3. Furnish and install advance warning and informational signs as directed by the engineer.
4. Provide at least one traffic lane during working hours. Supplement with signs, traffic cones and flagmen as required.
5. Provide two lane traffic, properly signed, directed by barricades with lamps, all other times.
6. Provide driveway access at all times.
7. Trenches five feet or more in depth shall comply with the California Division of Industrial Safety Orders.

DATE:01/20/2006
REVISION: CPP
FILE:TrenchStandard.dwg
DRAWN BY: CPP

FIGURE 9  
TRENCH ACROSS COUNTY ROAD

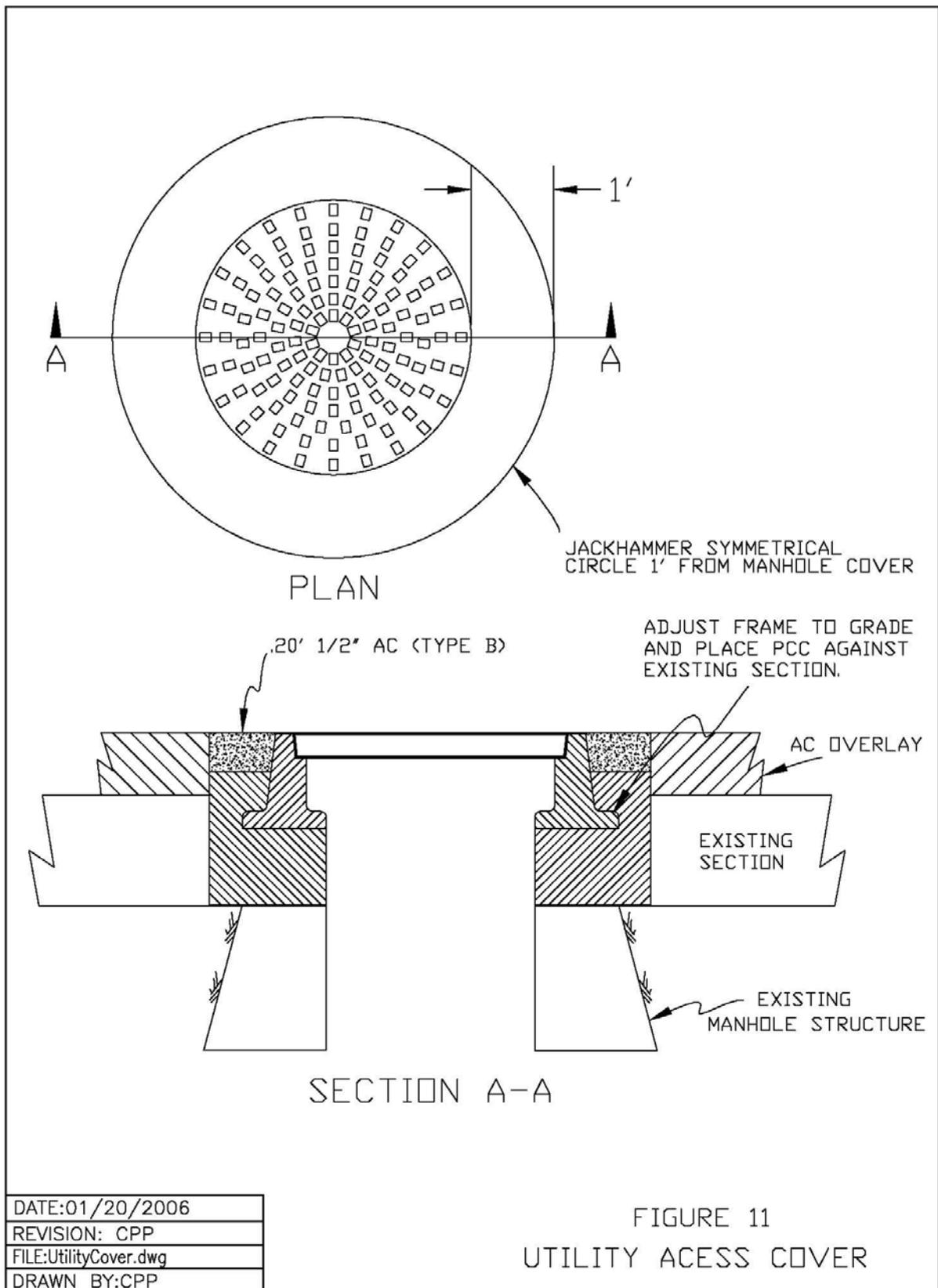


NOTE:

1. COVER SHALL BE MARKED "MONUMENT".
2. CONCRETE SHALL BE A 5 SACK MIX.

DATE: 01/20/2006
REVISION: CPP
FILE: SurveyMonumentWell.dwg
DRAWN BY: CPP

FIGURE 10  
SURVEY MONUMENT WELL



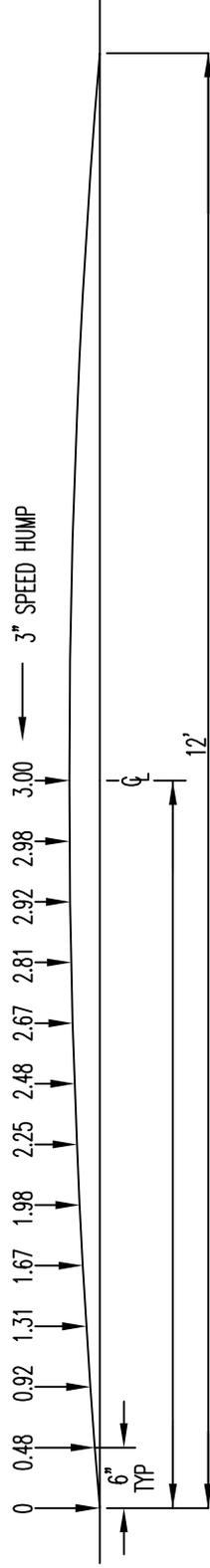


FIGURE 12

TYPICAL PAVEMENT UNDULATION (SPEED HUMP) DIMENSIONS

DATE: 04-12-2006
REVISION:
FILE: SpeedHump.dwg
DRAWN BY: PJS

## SECTION 2 - SURVEYING AND MAPPING

The following requirements are intended to supplement and clarify the requirements of pertinent laws. Compliance with all provisions of the Professional Land Surveyors Act (Business and Professions Code Chapter 15, commencing with Section 8700), Subdivision Map Act (Government Code commencing with Section 66410) and the Solano County Subdivision Ordinance not covered in these requirements shall also be required.

### Sec. 2-1 – SURVEYING AND SURVEYING REQUIREMENTS

#### Sec. 2-1.1 - PARCEL MAPS REQUIRE FIELD SURVEY

All Parcel Maps filed within unincorporated Solano County shall be based upon a field survey.

#### Sec. 2-1.2 - BASIS OF BEARINGS

The basis of bearings must be identified by a statement on the map and shall be taken from a line between two (2) monuments wherever possible. The basis of bearings should be obtained from one of the following:

- (a) A filed map
- (b) An astronomical observation
- (c) California coordinate system
- (d) County Surveyor's or Recorder's records.
- (e) Global Positioning Survey

Where no monuments exist (artificial or natural), it is permissible to use the best available evidence such as old existing fences commonly accepted as being the property line. In any case the County Surveyor will use his/her discretion to accept or reject said lines used as the basis of bearings.

#### Sec. 2-1.3 - TYPE OF MONUMENTS

The Professional Land Surveyors Act and the Subdivision Map Act require that set monuments be durable. It is recommended that all monuments be not less than 5/8 inch re-bars, or 1 inch O.D. pipe or 4 inch x 4 inch concrete monument, or other suitable permanent points established in bedrock or concrete. Minimum length shall be twenty-four (24) inches unless surface conditions dictate a different length. The use of less durable or conspicuous types of monuments may be allowed only in unique situations. All set monuments shall be physically identified on the plat giving their material composition, outside dimensions, including length and the certificate number of the Land Surveyor or registered Civil Engineer.

#### Sec. 2-1.4 - MONUMENTATION OF ALL CORNERS

All parcel, lot, block or boundary lines surveyed, shall be monumented at every change of direction. If it is impractical to maintain a monument at the corner itself, then a witness corner shall be set.

#### Sec. 2-1.5 - TIME OF MONUMENTATION

Prior to submitting the final map for a land division to the County Surveyor's Office for recordation, the field survey shall be complete and all points and lines shall be established as per Section 8771 of the Land Surveyor's Act. Monumentation of Subdivisions shall conform to Section 66495 of the Subdivision Map Act.

#### Sec. 2-1.6 - DESCRIPTION OF MONUMENTS FOUND

All found monuments must be physically identified and any information relating to all such found monuments must be noted with a statement such as "no record" in cases where no record exists or "found \_\_\_\_\_ with tag number of L.S. or R.C.E." along with reference to the particular survey.

#### Sec. 2-1.7 - MONUMENTS ACCEPTED

If found monuments are accepted as actual corners or line monuments, they must be so noted on the map.

#### Sec. 2-1.8 - LOT DIMENSIONS AND SIZE

Sufficient data must be shown to determine readily the bearing and length of every lot, block, or boundary line. Dimensions of lots shall be given as total dimensions, corner to corner, and shall be shown in feet and hundredths of a foot, or in meters and decimals of a meter. Lots shall show total acreage to the nearest hundredth of an acre. Bearing and length of straight lines, and radii and arc length for all curves as may be necessary to determine the location of the centers of curves and tangent point shall be shown.

#### Sec. 2-1.9 - INTER-VISIBLE MONUMENTS

In open country the line of sight between 1/4 corners is sufficient for practical survey retracement, however, in hilly country, monuments should be set so that at least two points are inter-visible.

#### Sec. 2-1.10 - MONUMENT RIGHT-OF-WAY LINES

Where the line being surveyed falls within the road right-of-way, monuments shall be set on the right-of-way line and referenced to the line being surveyed.

#### Sec. 2-1.11 - SURVEY ACCURACY

Generally, the degree of accuracy of the fieldwork shall not be less than 1:10,000. The County Surveyor may determine that due to severe terrain problems, a lesser degree of accuracy is permitted.

#### Sec. 2-1.12 - CLOSE FINAL PLAT

All traverses should be adjusted to close on the final plat.

### **Sec. 2-2 - MAPPING AND MAPPING REQUIREMENTS**

#### Sec. 2-2.1 – SIGNATURES

All signatures shall be made in waterproof black opaque ink.

#### Sec. 2-2.2 - BOUNDARY LINE

The exterior boundary line of a subdivision shall be shown on final maps and parcel maps as a black opaque ink line that is at least three times the width of any other line on the map excluding the one-inch border lines.

#### Sec. 2-2.3 - KEY MAP

When the final map or parcel map consists of more than two sheets exclusive of the title sheet, a key map with lot lines showing the relation of the sheets shall be placed on the first map sheet. Every sheet comprising the map shall bear a sheet number and shall indicate the total number of sheets comprising the map. A location map indicating the geographical location of the proposed subdivision and the access roads thereto shall be placed on the first map sheet.

#### Sec. 2-2.4 - RIGHT-OF-WAY DATA

Final maps and parcel maps shall show the total width of each road, the width of the portion of each road offered for dedication, the width of the existing right-of-way of each road, the width on each side of the centerline of each road, and the width of rights-of-way of railroads, flood control or drainage channels and any other rights-of-way, in the form of easements or fee, appearing on the map.

#### Sec. 2-2.5 - DATA FOR LOTS

Sufficient data shall be shown on the final map or parcel map to determine readily the bearing and length of each lot line, and the bearing of radial lines on each lot corner or curve. Each lot shall be shown entirely on one sheet. If a remainder parcel is indicated by deed reference in lieu of a field survey, that reference shall appear on the final map or parcel map.

#### Sec. 2-2.6 – EASEMENTS

The location on the final map or parcel map of all existing or proposed easements which are to remain after recordation, including any required easements outside of the subdivision, shall be shown by means of appropriate broken lines, together with the name of the owner, the use of the easement and the record reference, if any. The owner's certificate on the final map or parcel map shall indicate the easements being offered for dedication. A statement

identifying any easements of record to be vacated pursuant to Section 66499.20-3 and 66499.20- 2 of the Subdivision Map Act shall be placed on the Title Sheet.

#### Sec. 2-2.7 - LABELING- EASEMENTS

For lots having a net area of less than ten acres, the widths of easements, the lengths and bearings of the lines thereof and sufficient ties to locate the easements shall be clearly labeled and identified on the final map or parcel map. For lots having a net area of ten acres or more, only easement widths need be shown.

#### Sec. 2-2.8 - LOT IDENTIFIER

Each lot on the final map or parcel map shall be identified by the same number or other designation used to identify it on the tentative map.

#### Sec. 2-2.9 – ORIENTATION

Each sheet of the final map or parcel map shall be so oriented that the north arrow points toward the top of the sheet or toward the left of the sheet. The title block shall be readable from the bottom of the sheet and all other lettering and data shall be readable from the bottom of the sheet or from the right side of the sheet.

#### Sec. 2-2.10 - ADDITIONAL INFORMATION

The final map or parcel map shall also contain the following information:

- (a) Date of preparation, north point and scale;
- (b) Dimensions in feet and hundredths of a foot or in meters and decimals of a meter;
- (c) Dimensions of all lots;
- (d) Bearings and distances for the center lines of all roads adjoining the survey;
- (e) Radius, arc length and central angle of all curves, except that where arc segments of a larger curve are shown, only the arc length and central angle need to be indicated;
- (f) Precise locations of all permanent monuments;
- (g) Ties to all adjacent subdivisions, together with record references;
- (h) Net area of all lots having a gross area of at least one acre to the nearest one hundredth of an acre;
- (i) References to all controlling recorded maps and deeds for all or any portion of the existing boundaries of the parent parcel.

#### Sec. 2-2.11 – DEDICATIONS

Dedications or offers to dedicate real property for public purposes shall be made by certificate on the final map or the parcel map, provided that with dedications or offers to dedicate to an entity not controlled by the Solano County Board of Supervisors, or that involve real property located outside the subdivision, they may be by separate instrument recorded prior to or simultaneously with the final or parcel map.

#### Sec. 2-2.12 - REFERENCE ADJOINING SURVEYS

When a survey is in or adjacent to a Record of Survey, Parcel Map, or Final Map, the map and lot numbers should be shown by "ghosting" or shadow lettering, and the survey shall show bearing and distance ties to said map or maps.

#### Sec. 2-2.13 - SHOW DISCREPANCIES

Where an apparent discrepancy occurs with a previously recorded survey map, deed or adjoining deeds, the record distance and related record bearing shall be shown in parenthesis along with the recording data of said documents.

#### Sec. 2-2.14 - IDENTIFY ROADS

All Parcel Maps and Final Maps shall show the names and numbers of all public roads. Private roads shall be so labeled and shall show the name approved by the County.

#### Sec. 2-2.15 - IDENTIFY SURVEY

The name and legal designation of the tract or grant being surveyed must be shown in the title. This would include any or all of the following: Subdivision, Rancho, Section, Township, County, State or any other pertinent designation to positively identify the area being surveyed.

#### Sec. 2-2.16 - TOWNSHIP SURVEYS

The establishment of all corners and lines of government lots, sections, ranchos, and townships should conform to the practice and instructions as stated in the "Manual of Instructions for the Survey of the Public Lands of the United States."

SECTION 3 - STATEMENTS AND RELATED ITEMS

Sec. 3-1 - STATEMENTS

The following statements shall appear in the format indicated on all Parcel Maps and Final Maps as applicable. The numbers in parentheses refer to footnotes as indicated in the listing in Sec. 4-1.15.

Sec. 3-1.1 – OWNER'S STATEMENT (Government Code Sec. 66436 and 66439 - Final Map)

OWNER'S STATEMENT

The undersigned, \_\_\_\_\_ (1) \_\_\_\_\_, hereby state \_\_\_\_\_ (2) \_\_\_\_\_ (are)(is) the only entity having any record title interest in all the land delineated within the distinctive border of this map, consisting of \_\_\_\_\_ sheet(s), and hereby consent to the preparation and recordation of said map.

The same undersigned hereby dedicate to the County of Solano, in fee, for public use, the parcel(s) of land designated herein as \_\_\_\_\_ (3) \_\_\_\_\_. The streets are hereby designated by the words \_\_\_\_\_ (4) \_\_\_\_\_ and include all those portions thereof within the distinctive border.

IN WITNESS THEREOF, the undersigned (has)(have) caused \_\_\_\_\_ (5) name(s) to be subscribed on this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
(Signed)

ACKNOWLEDGMENT (7)

Sec. 3-1.2 – ENGINEER'S OR SURVEYOR'S STATEMENT (Gov't Code Sec. 66441 - Final Map)

ENGINEER'S OR SURVEYOR'S STATEMENT

I, \_\_\_\_\_ (11) \_\_\_\_\_, do hereby state that this map, consisting of \_\_\_\_\_ sheet(s), correctly represents a true and complete survey made by me or under my direction on \_\_\_\_\_, \_\_\_\_\_ that all of the monuments shown thereon (are of the character and occupy the positions indicated)(will be of the character and occupy the positions indicated on or before the \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_) that said monuments (are)(will be), sufficient to enable the survey to be retraced.

Dated: \_\_\_\_\_, \_\_\_\_\_  
\_\_\_\_\_  
(Signed and Sealed)  
(R.C.E.)(L.S.) No. \_\_\_\_\_  
License Expiration Date \_\_\_\_\_

Sec. 3-1.3 - COUNTY SURVEYOR'S STATEMENT (Gov't Code Sec. 66442 - Final Map, Parcel Map)

COUNTY SURVEYOR'S STATEMENT

I, (10), County Surveyor of the County of Solano, State of California, do hereby state that I have examined this final map; that the subdivision as shown herein is substantially the same as it appeared on the tentative map and any approved alterations thereof; and that all provisions of the Subdivision Map Act and any local ordinances applicable at the time of approval of the tentative map have been complied with; and that said final map is technically correct.

Dated: \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_  
(Signed and Sealed)  
(R.C.E.)(L.S.) No. \_\_\_\_\_  
License Expiration Date \_\_\_\_\_  
County Surveyor of Solano County  
State of California

Sec. 3-1.4 – RECORDER'S STATEMENT (Gov't Code Sec. 66449(b), 66466 - Final Map, Parcel Map)

RECORDER'S STATEMENT

Filed this \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, at \_\_\_\_\_ M. in Book \_\_\_\_\_ of (14),  
at Page \_\_\_\_\_, at the request of (fill in).

(21) County Assessor/Recorder,  
County of Solano, State of California

By: \_\_\_\_\_  
Deputy

Sec. 3-1.5 - COUNTY TAX COLLECTOR'S STATEMENT (Gov't Code Sec. 66492 - Final Map, Parcel Map)

COUNTY TAX COLLECTOR'S STATEMENT

I, \_\_\_\_\_ (12) \_\_\_\_\_, County Tax Collector of Solano County, California, do hereby state that according to the records of this office, there are no liens against this Subdivision or any part thereof for unpaid State, County, Municipal, Local Taxes, or Special Assessments collected as taxes, except taxes or special assessments not yet payable.

I also state that a good and sufficient bond to the benefit of Solano County has been filed with this office in the sum of \$ \_\_\_\_\_, which is the amount estimated by the Assessor of Solano County as being a lien, but not yet payable for taxes and special assessments against the land constituting this subdivision; and that all certificates required under the provisions of Sections 66492 and 66493 of the Government Code have been filed. This certificate is void after \_\_\_\_\_.

Dated: \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_  
County of Solano, State of California  
By: \_\_\_\_\_  
Deputy

Sec. 3-1.6 - BOARD OF SUPERVISOR'S STATEMENT (Gov't Code Sec. 66440 - Final Map, Parcel Map)

BOARD OF SUPERVISOR'S STATEMENT

I, \_\_\_\_\_ (7) \_\_\_\_\_, Clerk to the Board of Supervisors of Solano County, California, do hereby state that said Board of Supervisors did on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ approve said \_\_\_\_\_ (8) \_\_\_\_\_ and \_\_\_\_\_ (9) \_\_\_\_\_ on behalf of the public, any real property offered for dedication for public use in conformity with the terms of the offer of dedication.

IN WITNESS WHEREOF, I have hereto set my hand this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Clerk of the Board of Supervisors,  
County of Solano, State of California  
By: \_\_\_\_\_  
Deputy

Sec. 3-1.7 - DIRECTOR OF RESOURCE MANAGEMENT'S STATEMENT (County Ordinance, Final Map, Parcel Map)

DIRECTOR OF RESOURCE MANAGEMENT'S STATEMENT

This map has been examined this \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, and conforms to the tentative map reviewed and approved or conditionally approved by the \_\_\_\_\_ (13) on \_\_\_\_\_, \_\_\_\_\_ as (S/MS- \_\_ - \_\_).

Dated: \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_  
Director, Dept. of Resource Management  
County of Solano, State of California

Sec. 3-1.8 – OWNER'S STATEMENT (Gov't Code Sec. 66445(f)(e) and 66436 - Parcel Map)

OWNER'S STATEMENT

The undersigned, \_\_\_\_\_ (1) \_\_\_\_\_, hereby state \_\_\_ (2) \_\_\_ (are)(is) the only entity having any record title interest in all the land delineated within the distinctive border of this Parcel Map, and hereby consents to the preparation and recordation of said map.

The same undersigned hereby dedicates to the County of Solano, in fee, for public use, the parcel(s) of land designated herein as "Parcel \_\_\_".

(Use the following paragraph only when establishing private roads and utility easements.)

The same undersigned hereby declare the parcel(s) of land designated herein as "Private Road(s) and Utility Easement(s)" shall be for the benefit of and may be used by all persons who may hereinafter become owners of the land herein designated within the distinctive border of this map or any parts or portions hereof. Said private road(s) and utility easement(s) shall be for the purposes of ingress thereto and egress there from, use by public safety agencies, and construction and maintenance of public utilities.

IN WITNESS THEREOF, the undersigned (has) (have) caused \_\_\_\_\_ (5) name(s) to be subscribed on this \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
(Signed)

ACKNOWLEDGMENT(7)

Sec. 3-1.9 – TRUSTEE'S STATEMENT (Gov't Code Sec. 66436(a)(2) and 66445(e) – Final Map and Parcel Map)

TRUSTEE'S STATEMENT

\_\_\_\_\_ (1) \_\_\_\_\_ as Trustee under Deed of Trust, recorded \_\_\_\_\_, \_\_\_\_\_ in Book \_\_\_\_\_ of Official Records of \_\_\_\_\_ County, California, at Page (or Series) \_\_\_\_\_, hereby consents to the preparation and filing of this Parcel Map, and joins in all offers of dedication therein.

Dated: \_\_\_\_\_, \_\_\_\_\_ (Signed) \_\_\_\_\_

ACKNOWLEDGMENT (6)

Sec. 3-1.10 – ENGINEER'S (SURVEYOR'S) STATEMENT (Gov't Code Sec. 66449, 66445(I) - Parcel Map)

ENGINEER'S (SURVEYOR'S) STATEMENT

This map was prepared by me or under my direction and is based upon a field survey in conformance with the requirements of the Subdivision Map Act and local ordinance at the request of (Name of Person Authorizing Map) on (Date). I hereby state that this parcel map substantially conforms to the approved or conditionally approved tentative map, if any; (that all monuments are of the character and occupy the positions indicated) (will be of the character and occupy the positions indicated on or before the \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_); and that said monuments (are) (will be), sufficient to enable the survey to be retraced.

Dated: \_\_\_\_\_, \_\_\_\_\_ (Signed and Seal) \_\_\_\_\_  
(R.C.E.) (L.S.) No. \_\_\_\_\_  
License Expiration Date \_\_\_\_\_

Sec. 3-1.11 – SUBDIVIDER'S STATEMENT (Gov't Code Sec. 66445 (e) - Parcel Map)

SUBDIVIDER'S STATEMENT

The undersigned (1) subdivider of all the land delineated within the distinctive border of this parcel map, hereby consent(s) to the preparation and recordation of said map.

IN WITNESS THEREOF, the undersigned have caused (5) names(s) to be subscribed on this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
(Signed)

ACKNOWLEDGMENT (6)

Sec. 3-1.12 - IMPROVEMENTS STATEMENT (Gov't Code Sec. 66411.1 - Parcel Map)

IMPROVEMENTS STATEMENT

Improvements are required for this subdivision as contained in an agreement between the County and the Subdivider. The improvements will be required prior to the issuance of a zoning-building permit for a dwelling on any part of the parcels created by this Subdivision and are generally described as follows:

Sec. 3-1.13 - DEDICATION STATEMENT (Gov't Code Sec. 66477.5 - Final Map, Parcel Map)

DEDICATION STATEMENT

Name and address of subdivider:

Description of property dedicated in fee:

Pursuant to Section 66477.5 of the California Government Code, the County of Solano shall reconvey the dedicated property described above to the above named subdivider if the County makes a determination pursuant to Section 66477.5 that the same public purpose for which the property was dedicated does not exist, or the property or any portion thereof is not needed for public utilities as specified in subsection (c) of Section 66477.5.

Sec. 3-1.14 - NOTARY PUBLIC CERTIFICATE:

NOTARY PUBLIC CERTIFICATES

STATE OF CALIFORNIA  
COUNTY OF SOLANO

On \_\_\_\_\_, \_\_\_\_\_ before me, \_\_\_\_\_  
personally appeared \_\_\_\_\_,

personally known to me - **OR** - proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

\_\_\_\_\_  
SIGNATURE OF NOTARY

Sec. 3-1.15 - EXPLANATION OF FOOTNOTES FOR STATEMENTS:

1. Insert name of individual, individuals, firm, partnership or corporation.
2. Insert He, She, They, or It.
3. Insert street(s), drainage easement(s), public utility easement(s), etc.
4. Insert names of streets.
5. Insert His, Her, or Their.
6. Use appropriate notary certificate.
7. Insert Clerk of the Board of Supervisors name.
8. Insert Final Map or Parcel Map.
9. Insert Accepted or Accepted Subject to Improvement or Rejected.
10. Insert County Surveyor's name.
11. Insert Name of Civil Engineer or Land Surveyor responsible for the survey.
12. Insert County Tax Collector's name.
13. Zoning Administrator, Planning Commission, or Board of Supervisors.
14. Insert Maps or Parcel Maps.
15. Insert Assessor/County Recorder's name.

## SECTION 4 - AGREEMENTS

The Solano County Subdivision Ordinance provides for the execution of various types of agreements between subdividers and the County of Solano. The wording in the agreements listed below has been found to be acceptable in the past. These forms are for information purposes only and the actual agreement for a particular subdivision may be different.

### Sec. 4-1 - PUBLIC IMPROVEMENTS

This agreement is used when public improvements in a subdivision are to be constructed subsequent to the filing of a final map or parcel map for record. The agreement must be secured by means of a security that is acceptable to the County.

#### AGREEMENT IN REFERENCE TO IMPROVEMENTS

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between \_\_\_\_\_ (hereinafter referred to as "SUBDIVIDER"), first party, and COUNTY OF SOLANO, (hereinafter referred to as "COUNTY"), second party.

#### WITNESSETH

THIS AGREEMENT is based upon the following premises:

This Agreement is executed pursuant to the provisions of the Subdivision Map Act of the State of California and Chapter 26, Solano County Code, adopting regulations for the development of land as subdivisions in said County and providing procedures thereof.

NOW THEREFORE, Subdivider for and in consideration of the approval of the (final) (parcel) map number \_\_\_\_\_ provides and agrees with County as follows:

#### 1. Performance of Work

Subdivider will cause to be done and performed in a good and professional manner, in accordance with the Solano County Road Improvement Standards and Land Development and Subdivision Requirements, and under the direction and to the satisfaction of the Solano County Director of Transportation all of the following work and improvements:

Streets, street name signs, traffic signs, pavement markings, storm drainage facilities, survey monuments and all other improvements for the above named subdivision as shown on the improvement plans titled \_\_\_\_\_ approved by the Director of Transportation on \_\_\_\_ (Date) \_\_\_\_.

#### 2. Work: Places and Grades

All of said work is to be done at the places, of the materials, in the manner, and at the grades shown upon the plans and specifications therefore, and to the satisfaction of the Director of

Transportation.

### 3. Work: Time for Commencement and Performance

County hereby fixes the time for the commencement of said work to be on the \_\_\_\_\_ day of \_\_\_\_\_, and for its completion to be within \_\_\_\_ calendar days thereafter. At least five (5) days prior to the commencement of work hereunder, Subdivider shall notify the Director of Transportation, in writing, of the date fixed by it for commencement thereof, so that Director of Transportation, or other authorized personnel, shall be able to provide services of inspection thereof.

The estimated cost of improvements is \$\_\_\_\_\_. The total plan check and inspection costs are \$\_\_\_\_\_ of which \$\_\_\_\_\_ has been paid. The remaining plan check and inspection costs are due and payable prior to consummating this Agreement.

Subdivider shall comply with Article XI of the Solano County Subdivision Ordinance relative to providing security acceptable to County, and it is further understood and agreed that the security must guarantee the completion of said improvements and the payment therefore. The security in the case of failure to perform shall be in the penal sum of \$\_\_\_\_\_ being \_\_\_\_ times the estimated cost of the improvements.

Whenever any work is being done contrary to the provisions of this Agreement, the Director of Transportation may order the work stopped by notice in writing served on any persons engaged in the doing or causing such work to be done, and any such persons shall forthwith stop such work until authorized by the Director of Transportation or his or her authorized representative to proceed with the work.

### 4. Repairs and Replacements

Subdivider shall replace, or have replaced, or repair, or have repaired, as the case may be, or pay to the owner, the entire cost of replacement or repairs, of any and all property damaged or destroyed by reason of any such work done, whether such property be owned by the United States or any agency thereof, or the State of California, or any agency or political subdivision thereof, or by the County or by any public or private corporation, or by any person whomsoever, or by any combination of such owners. Written proof satisfactory to the Director of Transportation of the County shall be submitted to him or her showing Subdivider has a liability insurance policy that will guarantee to the County the performance of this paragraph.

### 5. Utility Deposit-Statement

Subdivider shall file with the Director of Transportation prior to the commencement of any work to be performed within the area shown on the Improvement Plans, a written statement signed by Subdivider and each public utility corporation involved to the effect that the Subdivider has made the deposit legally required by such public utility corporation for the connection of any and all public utilities to be supplied by such corporation within such subdivision.

### 6. Default in Performance of Agreement

If Subdivider refuses or fails to obtain execution of the work, or any severable part thereof, with such diligence as will insure its completion within the time specified, or any extensions thereof, or fails to obtain completion of said work within such time, or if the Subdivider should be adjudged a bankrupt, or it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed in the event of its insolvency, or it, or any Contractor employed by it, should violate any of the provisions of this Agreement, the Director of Transportation or the Board of Supervisors may serve written notice upon it and its sureties of its intention to declare this contract in default. Such notice shall contain the reasons for such intention to declare this contract in default. Unless within fifteen (15) days after the serving of such notice, such violation shall have ceased and satisfactory arrangements for the correction thereof shall have been made, this Agreement may, at the option of the County, upon expiration of said time, be in default.

#### 7. Performance by Sureties or County

In the event of any such default, the County shall immediately serve written notice thereof upon the Subdivider and its sureties, and the sureties shall have the right to take over and complete the work and the improvement herein specified; provided, however, that if the sureties within fifteen (15) days after the serving of said notice of default do not give the County written notice of their intention to take over the performance of the contract, and do not commence performance thereof within fifteen (15) days after notice by the County of said election, the County may take over the work and prosecute the same to completion, by contract or by any other method it may deem advisable, for the account, and at the expense of Subdivider, and its sureties shall be liable to the County thereby; and in such event, the County, without liability for so doing, may take possession of and utilize in completing the work, such materials, appliances, plant and other property belonging to the Subdivider as may be on the site of the work and necessary thereof.

#### 8. Notices

Any notice herein required to be given by Subdivider or sureties to County shall be given to the Director of Transportation. Any notice to be given by County shall be signed by said Director of Transportation, served personally upon Subdivider or its sureties, or deposited in the United States Post Office in the City of Fairfield or Suisun City registered mail and postage prepaid, addressed as follows: \_\_\_\_\_, or as said address may be changed by notice in writing to County.

#### 9. Rights and Remedies Cumulative

The foregoing provisions are in addition to, and not in limitation of, any other rights or remedies available to the County.

#### 10. Repair of Defective Work

The acceptance of the work by Solano County shall not relieve the Contractor of responsibility for faulty materials or workmanship, as determined by the Director of Transportation, and he or she shall remedy any defects thereto and pay for any damage to other work resulting there from which shall appear within a period of one (1) year from the

date of acceptance by Solano County. The remedying of any defects shall also include bringing to grade the settlement of any trenches and the repairing of any paving. The County shall retain ten (10) percent of the penal bond for one (1) year after completion and acceptance by the Board of Supervisors of all public improvements specified in the contract or agreement.

11. Hold-Harmless Clause

The Subdivider hereby releases and agrees to indemnify and save the County harmless from and against any and all injuries to and deaths of persons and injuries to property, and all claims, demands, costs, loss, damage and liability, howsoever the same may be caused and whensoever the same may appear, resulting directly or indirectly from the performance or nonperformance of any or all work to be done in and upon the street rights-of-way in said subdivision and upon the premises adjacent thereto pursuant to this Agreement, and also from any and all injuries to and deaths of persons and injuries to property or other interests, and all claims, demands, costs, loss, damage, and liability, howsoever same may be caused and whensoever the same may appear, either directly or indirectly made or suffered by the Subdivider, the Subdivider's agents, employees, and subcontractors, while engaged in the performance of said work, and from liability resulting from the design or construction of public or private improvements constructed under this Agreement.

12. Insurance

Subdivider hereby agrees to obtain and carry comprehensive public liability insurance with bodily injury limits of \$1,000,000 each person and \$1,000,000 each occurrence, and property damage limit of \$1,000,000. Contractual liability to include coverage on the Hold-Harmless Clause contained in the Agreement will be included and a certificate of insurance furnished to the County.

Subdivider shall also show proof of Workman's Compensation Insurance coverage for all work performed under this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, the day and year first hereinabove written.

COUNTY OF SOLANO

SUBDIVIDER

By \_\_\_\_\_  
Chairman,  
Board of Supervisors

\_\_\_\_\_  
(NOTARY ATTACHED)

**Sec. 4-2 - PRIVATE IMPROVEMENTS**

This agreement is used when private road improvements in a subdivision are to be constructed subsequent to filing a final map or parcel map for record. The agreement must be secured by means of a security that is acceptable to the County.

AGREEMENT

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, by and between COUNTY OF SOLANO, State of California, hereinafter called "COUNTY", and \_\_\_\_\_ hereinafter called "SUBDIVIDER":

- A. This Agreement is based upon the following facts:
  - 1. SUBDIVIDER seeks approval of (project application number) hereinafter called "PROJECT".
  - 2. As and for a condition for the approval of said project, SUBDIVIDER is obligated to initiate and complete certain acts of improvements. Such improvements are more particularly described as follows:
- B. Pursuant to the foregoing facts, it is hereby agreed by and between the respective parties as follows:
  - 1. As a condition of COUNTY approval of (PROJECT), SUBDIVIDER agrees to initiate and complete, prior to the issuance of a building permit for any of the lots shown on the tentative map for (PROJECT) or within \_\_\_\_ days of the date of execution of this Agreement, whichever comes first, the improvements listed in paragraph A-2 above at his/her/their own expense.
  - 2. To guarantee the construction of said improvements, SUBDIVIDER shall furnish improvement security conforming to the requirements in Sec. 26-121 of the Solano County Subdivision Ordinance. The improvement security shall be in the penal sum of \_\_\_\_\_ being \_\_\_\_ times the estimated cost of improvements at the anticipated time of completing the improvements. If an interest accruing account is used for security, the interest shall be added to the account balance as additional security.
  - 3. In the event SUBDIVIDER fails to complete these improvements, the Director of Transportation may declare the security and any accrued interest forfeited to be used to complete the improvements. In such event, the COUNTY may complete the improvements through contract or otherwise and apply the amount of forfeited security to the cost of said construction. In addition, with or without having so completed the improvements, COUNTY may bring legal action to enforce the terms of this Agreement. In such event damages shall be the actual cost of completing the improvements if the improvements have been completed less the amount of forfeited security. Otherwise, damages shall be the anticipated cost of completing the

improvements less the amount of forfeited security. The prevailing party may recover attorney fees.

Dated this \_\_\_\_ day of \_\_\_\_\_, at \_\_\_\_\_, California.

COUNTY OF SOLANO

SUBDIVIDER

By: \_\_\_\_\_  
(Title)

\_\_\_\_\_  
(NOTARY ATTACHED)

February 17, 2006  
U:/users/pwiese/data/word/Road Impvt Standards 2006.doc