

## **DISCLAIMER**

This manual includes Design & Construction Standards of the City of Santa Rosa. It is neither intended as, nor does it establish a legal standard for these functions.

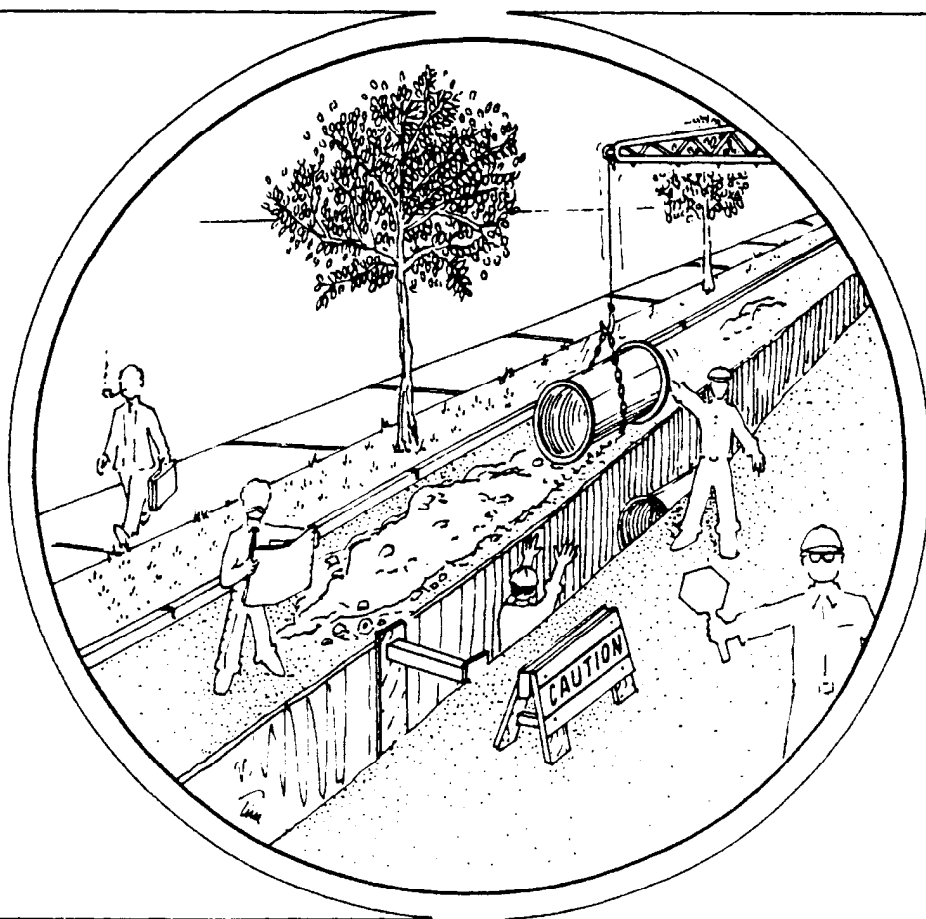
SUBDIVISION GENERAL NOTES

1. All materials, workmanship, and construction shall conform to the City of Santa Rosa Standard Plans and Specifications for Public Improvements.
2. The location of existing underground utilities as shown on these plans are based on the best information available; however, the City of Santa Rosa and the engineer assume no responsibility for the accuracy of the information shown, or for the inadvertent omission of any such information. The contractor shall cooperate with all utility companies and other contractors working within the limits of this project.
3. Street signs shall be provided and installed by the contractor at locations to be established by the City Engineer.
4. All new sewer mains are to be plugged at the existing sewer connection until the new sewer mains have been accepted by the City of Santa Rosa.
5. The contractor shall secure all Encroachment Permits from the City of Santa Rosa, Sonoma County Water Agency, and any other applicable agencies.
6. The contractor shall secure a Trench Permit from the California Division of Industrial Safety prior to excavation of any trench over five feet in depth.
7. All street lighting shall be constructed in such a manner and at the cost of the developer to provide for the LS-2A fee schedule to the City.
8. No construction shall commence without prior approval of the City of Santa Rosa's Chief Construction Engineer.
9. Underground Service Alert (USA)  
Call toll free 800-642-2444 at least 48 hours prior to excavation.
10. Contractor shall coordinate undergrounding of all utilities such as cable TV, telephone, and electricity with the appropriate utility company.

<b>CITY OF SANTA ROSA</b>		
SUBDIVISION		
GENERAL NOTES		
SCALE: NONE	DATE: MAY 1979	
DWN WM CHK E.N.	APPROVED <i>[Signature]</i>	FILE NO. STD- 100

THE CITY OF SANTA ROSA  
DEPARTMENT OF PUBLIC WORKS

**CONSTRUCTION SPECIFICATIONS**  
**for**  
**PUBLIC IMPROVEMENTS**



CONSTRUCTION SPECIFICATIONS FOR PUBLIC IMPROVEMENTS

CITY OF SANTA ROSA

Public improvements within the City of Santa Rosa shall be constructed in accordance with the Standard Specifications of the State of California, Department of Transportation, Division of Highways, dated July, 1984, which specifications are hereinafter referred to as the Standard Specifications, and in accordance with the following modifications and revisions, and City of Santa Rosa Standard Plans.

Whenever in the State Standard Specifications the terms, State of California, Department of Transportation, Director, Division of Highways, Engineer, or Laboratory are used, the following terms shall be understood and interpreted to mean and refer to such substituted terms as follows:

For State of California substitute City of Santa Rosa.

For Department - The Public Works Department of the City of Santa Rosa.

For Director - The City Engineer of the City of Santa Rosa.

For Division of Highways - The Engineering Department of the City of Santa Rosa.

For Engineer - The City Engineer, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

For Laboratory - The Laboratory of the City of Santa Rosa Engineering Department or such other laboratory as may be authorized by the City to test materials and work involved in the contract.

In the event of discrepancy between the contract documents, the order of precedence from highest to lowest shall be as follows: (1) Contract Change Order, (2) Permits from other agencies, as may be required by law, (3) Special Provisions, (4) Plans, (5) Standard Plans, (6) the modifications and revision contained herein, (7) Standard Specifications.

Specifications pertaining to the administration of the City contracts will be contained in the Special Provisions for the contract.

References to contract administration, measurement, and payment shall not apply to subdivisions.

MODIFICATIONS AND REVISIONS

to the

STANDARD SPECIFICATIONS

Introduction

Only those subsections which are modified or revised will be noted herein. The Standard Specifications numbering sequence will be followed.

Subsections to be modified will be noted as "(Subsection number) (Title)" followed by the modifications or additional requirements. In case of conflict between the Standard Specifications and the modification, the modification shall apply.

Subsections to be deleted without modification will be noted as "(Subsection number) (Title) (Deleted)".

Subsections which are completely revised will be noted as "(Subsection number) (Title) (The following shall apply in lieu of Sec. \_\_\_\_\_)".

An additional section titled "Water Main Construction" has been included to facilitate use of these specifications.

## SECTION 6. CONTROL OF MATERIALS

### 6-3.01 General

California Test 216 (Relative Compaction) is amended as follows:

A mechanical compactor (Ploog Engineering Co. Model M 100 or equal) with 10- pound hammer and split compaction molds will be used in lieu of the specified manual compaction equipment.

California Test 231 (Nuclear Gage Determination of In-Place Density) is amended as follows:

In-place density and relative compaction may be determined on the basis of individual test sites in lieu of the area concept, at the discretion of the Engineer.

### 6-3.02 Statistical Testing

(The following shall apply in lieu of Section 6 3.02.)

Statistical means will not be used for determination of specification compliance. Whenever both individual test results and moving average requirements are specified in these specifications, the moving average requirements shall apply to the individual test results.

## SECTION 16. CLEARING AND GRUBBING

16-1.01 Description (The following shall apply in lieu of Sec. 16-1.01)

This work shall consist of removing all objectionable material within the limits shown on the plans and as directed by the Engineer. Clearing and grubbing shall be performed in advance of grading operations and in accordance with the requirements of these specifications.

16-1.02 Preservation of Property

All existing street designation and traffic control signs and posts within the aforementioned limits of work shall be carefully removed, cleaned of excess earth, and delivered to the City Municipal Services Center at 55 Stony Point Rd. except those required for traffic control as determined by the Engineer.

16-1.03 Construction

The area to be cleared and grubbed shall be the area shown on the plans, unless otherwise specified in the Special Provisions.

All stumps, large roots, and other objectionable material shall be removed to a depth of 3 feet below finished grade in the area between curbs, and to a depth of 12 inches below finished grade in the area between curb and property line. The resulting spaces shall be backfilled with suitable material placed and compacted in accordance with the applicable provisions of Sec. 19-6.02.

16-1.04 Removal and Disposal of Materials

Combustible debris shall be disposed of away from the site of the work. Burning within the limits of the project will not be allowed.

## SECTION 19. EARTHWORK

### 19-1.01 Description

Unsuitable material may be removed and replaced, or may be stabilized in accordance with the provisions of Sec. 19-2.02, "Unsuitable Material."

### 19-1.03 Grade Tolerance

Immediately prior to placing subsequent layers of material thereon, the grading plane shall conform to one of the following:

- A. When aggregate subbase or aggregate base are to be placed on the grading plane, the grading plane shall not vary more than 0.05' above or 0.1' below the grade established by the Engineer.
- B. When asphalt concrete base is to be placed on the grading plane, the grading plane shall not vary more than 0.05' above or below the grade established by the Engineer.

### 19-2.02 Unsuitable Material

(The following shall apply in lieu of Section 19-2.02)

Material below the natural ground surface in embankment areas, and basement material below the grading plane in excavation areas, that is determined by the Engineer to be unsuitable for the planned use, shall be excavated and disposed of or stabilized as directed or approved by the Engineer.

The removal and disposal of such unsuitable material will be paid for as roadway excavation for the quantities involved.

When unsuitable material is removed and disposed of, the resulting space shall be filled with material suitable for the planned use. Such suitable material shall be placed and compacted in layers as hereinafter specified for constructing embankments.

Stabilization of unsuitable material shall comply with the following provisions:

- A. Unsuitable material may be processed in place, may be excavated and placed on the grade or other locations suitable for further processing, or may be partially excavated and partially processed in place.
- B. Processing may consist of drying to provide a stable replacement material, or mixing with hydrated lime or granular quicklime.
- C. Stabilized material shall be placed and compacted in layers as hereinafter specified for constructing embankments.

Excavations of material to be stabilized will be paid for at the contract unit price for roadway excavation. Such unit price shall include full payment for all work required to stabilize the unsuitable material, except that payment for lime and the spreading of lime will be paid for as extra work in accordance with the provisions of Sec. 4-1.03D, "Extra Work."



19-2.08 Measurement

Earthwork operations measured and paid for as roadway excavation for the quantities of material involved shall include excavating unsuitable materials when directed by the Engineer.

19-2.09 Payment

Payment for roadway excavation shall be in accordance with Sec. 19-2.09 except that overhaul shall not apply and that excess material from excavation which is not used for embankment construction shall become the property of the Contractor and shall be disposed of by him at his expense.

19-3.06 Structure Backfill

Specifications for pipe bedding, trench backfill and surfacing shall be as shown on Std. 215, "Standard Trench Detail" of the City of Santa Rosa Standard Plans.

Except for structure backfill placed at specific locations described and enumerated in Sec. 19 3.06, structure backfill material specifications and compaction requirements shall be as follows:

Structure backfill shall have a Sand Equivalent value of not less than 30 and shall conform to the following grading:

<u>Sieve Sizes</u>	<u>Percentage Passing</u>
3"	100
No.4	40 - 100

Structure backfill shall be compacted to not less than 90 percent relative compaction, except that when placed under any roadbed, relative compaction shall be not less than 95 percent within 3 feet of finished grade, as determined by California Test 216 and 231.

19-5.03 Relative Compaction

(95 percent - California Test 216 and 231) (The following shall apply in lieu of Sec. 19 5.03)

Relative compaction of not less than 95 percent shall be obtained for a minimum depth of 0.5-foot below the grading plane for the full width of the planned structural section, whether in excavation or embankment.

Any area of the subgrade determined by the Engineer to be unstable, as evidenced by excessive deflection under the movement of equipment, shall be brought to satisfactory stability by additional rolling, reworking, removal, and replacement of unsuitable material, or stabilization with lime, as directed by the Engineer.

Lime treated materials shall be compacted to not less than 95 percent relative compaction in accordance with the provisions of Section 24, except when lime is used to stabilize unsuitable material as specified in Sec. 19 2.02.

Relative compaction of not less than 95 percent shall be obtained for embankment under bridge and retaining wall footings without pile foundations within the limits established by incline planes sloping 1.5:1 out and down from lines one foot outside the bottom edges of the footing.

19-5.04      Relative Compaction

(90 percent - California Test 216 and 231) (The following shall apply in lieu of Sec. 19 5.04)

Relative compaction of not less than 90 percent shall be obtained in all materials in embankment except as specified herein to be 95 percent. Material placed in accordance with the provisions of Sec. 19 2.02, "Unsuitable Materials," shall be compacted to not less than 90 percent relative compaction.

## SECTION 20-4 HIGHWAY PLANTING

### 20-4.05 Planting

Trees shall have a minimum height of eight feet including root ball, and a minimum container size of fifteen gallons, with a caliper of 1" at 12" above the top of the root ball.

Condition of the plants shall be symmetrical, typical for variety and species, sound, healthy, vigorous, free from plant disease, insect pests or their eggs, and shall have healthy, normal root systems, well filling their containers, but not to the point of being root bound. Plants shall not be pruned to topped prior to delivery.

Each tree shall be tagged to indicate genus and species.

All plant material shall be subject of the inspection and approval of the City. The City has the right to reject any item offered.

- a. 48-hour notification shall be given prior to any inspection.
- b. Upon initial notification, the contractor shall indicate the number and sequences of planting phases necessary to complete the entire project.
- c. 24-hour notice shall be given the City prior to starting any additional phase.
- d. At the time of final inspection, the City may select at random one tree from each planting phase, to be removed and inspected for compliance to planting specification.

#### Parkway Tree Planting Operations

All pits shall be dug with bottoms level, the sidth equal to two times the diameter of the root ball, and the bottom 1-1/12 times the depth of the root ball. The City upon notification shall inspect pits prior to planting of trees.

Pits shall be backfilled with a thoroughly mixed "prepared soil" to the bottom of the root ball. When planting tablets are required, they shall be placed prior to placing the tree in the pit. Five (21 gram) planting tablets shall be evenly spaced around perimeter of pit on top of prepared soil.

"Prepared soil" mix for backfill of the pits for 15-gallon trees shall consist of excavated soil and the following:

- a. 50% by volume of nitrolized soil amendment.
- b. 50% by volume native soil.
- c. Five 21-gram planting tablets. (20-10-5 analysis)

- Note:
- (1) Nitrolized soil amendment shall be a composted wood biproduct combined with one pound of actual nitrogen per cubic yard of shavings.
  - (2) Planting tablets shall be a commercial fertilizer in tablet form yielding 20% nitrogen, 10% phosphorus and 5% potash. The tablet shall be compressed and yield a slow release of nutrient over a 12-month period.

Set plants in center of pit, in vertical position, so that crown of ball will be level with finish grade after allowing for watering and settling and shall bear the same relationship to finish grade that it did to soil surface in original place of growth.

Prepare a depressed earth water basin capable of holding 10 gallons of water. Water shall be applied in that quantity at time of planting.

Each tree must be properly supported by two Lodgepole Pine stakes. Stakes shall be a minimum of 2" x 2" and not less than eight feet in length. Stake all trees at time of planting by placing stake in prepared hole and driving stake a minimum of 30 inches into soil. Stakes shall be placed perpendicular to direction of prevailing winds.

All trees shall be secured to stakes as detailed (or approved equal).

Six penny scaffold nails shall be used to secure the ties to the stakes - two per side.

#### Guarantees

Fifteen-gallon tree shall be guaranteed as to growth and health for a period of six months after final acceptance by the City or until occupancy, whichever occurs first. In no case shall the guarantee period be less than three months.

Trees that fail to grow or are injured or damaged during planting operations, shall be replaced within 15 days after notification. Replacement material shall be guaranteed as specified as original guaranteed material.

Trees not installed according to the requirements will be rejected by the City.

## SECTION 24. LIME TREATMENT

### 24-1.01 Description

(The following shall apply in lieu of Sec. 24-1.01.)

This work consists of stabilizing basement soil, mixing in place material, lime and water, and spreading and compacting the mixture to the lines, grades, and dimensions shown on the plans and as specified in these specifications and the special provisions.

#### 24-1.01-A

Where designated by the Engineer, basement soil below the planned lime treated subgrade shall be stabilized in the following manner:

The material shall be excavated to the lines and grades specified by the Engineer and spread in a uniform layer over another portion of the grade.

Dry lime in the amount specified by the Engineer shall be spread and mixed into the material as provided in Sec. 24-1.04, "Mixing". The material shall then be used to backfill the original excavation in 6" compacted layers. Each layer below a plane 12" below the grading plane shall be compacted to not less than 90 percent relative compaction. Each successive 6" layer up to the bottom of the planned lime treated subgrade shall be compacted to not less than 92 percent relative compaction.

### 24-1.02 Materials

When permitted by the engineer in writing, and when accompanied by an adequate safety program to be proposed by the Contractor, granular quicklime conforming to the specifications of ASTM Designation C51 may be used in lieu of commercial hydrated lime. Hydrated lime shall be used only when permitted by the Engineer in writing.

When sampled by the Engineer at the point of delivery, the sample of quicklime shall contain not less than 90 percent Calcium Oxide, CaO, as determined by ASTM: C 25-67.

When granular quicklime is used, initial mixing shall continue until the quicklime is uniformly distributed throughout the material. Water shall be added as required to provide sufficient moisture for hydration. The mixture shall be cured for not less than 16 hours prior to final mixing.

The Contractor shall provide a grade checker to insure mixing to the full depth as specified. Water shall be added during the final mixing operations until the water content of the mixture is approximately two percent above the test optimum moisture content.

24-1.05      Spreading and Compacting

Lime treated material shall be compacted to not less than 95 percent, as determined by Test Method No. California 216 and 231. The sample of lime treated soil used for determining the maximum wet density shall be obtained from the test site at the time of testing.

The surface of the lime treated material shall not vary more than 0.05-foot above or below the grade established by the Engineer.

24-1.06      Curing

The curing seal requirement may be waived at the discretion of the Engineer when it can be shown that placement of a subsequent layer of aggregate base or asphalt concrete can proceed within 24 hours after the completion of final rolling.

24-1.08      Payment

(Paragraph 3 deleted)

## SECTION 25. AGGREGATE SUBBASES

### 25-1.01 Description

Aggregate Subbase shall be Class 4.

### 25-1.03 Materials

Aggregate Subbase - Class 4 shall have a minimum sand equivalent value of 21, a minimum R value of 50, and shall conform to the following gradings:

<u>Sieve Size</u>	<u>Percent Passing</u>
3"	100
1½"	90-100
¾"	50-90
#4	25-55
#200	2-11

The material retained on the #4 screen shall consist of 100% crushed particles.

### 25-1.03 Grade Tolerance

The subgrade to receive aggregate subbase, immediately prior to spreading, shall not vary more than 0.05-foot above or 0.1-foot below the grade established by the Engineer.

### 25-1.05 Compacting

The surface of the finished aggregate subbase shall be firm and unyielding. Any visible movement vertically or horizontally of the aggregate subbase under the action of construction equipment or other maximum legal axle loads shall be considered as evidence that the aggregate subbase does not meet this requirement.

## SECTION 26. AGGREGATE BASES

### 26-1.01 Description

Aggregate Base shall be Class 2, and the combined aggregate shall conform to either of the gradings specified in Sec. 26-1.02B, "Class 2 Aggregate Base".

### 26-1.02B Class 2 Aggregate Base

Quality Requirements: The minimum sand equivalent value shall be 31 for any individual test.

### 26-1.05 Compacting

The surface of the finished aggregate base shall be firm and unyielding. Any visible movement vertically or horizontally of the aggregate base under the action of construction equipment or other maximum legal axle loads shall be considered as evidence that the aggregate base does not meet this requirement.



SECTION 39. ASPHALT CONCRETE

39-1.01 Description

A minimum of two weeks prior to the placement of any Asphalt Concrete, the Contractor shall notify the Materials Laboratory of which asphalt plant will be used to supply the mix. For any job, Asphalt Concrete shall be supplied from a single plant.

39-2.01 Asphalts

Asphalt binder to be mixed with aggregate for Asphalt Concrete surface, leveling, or Open Graded courses shall be AR-4000 grade paving asphalt.

Asphalt binder to be mixed with aggregate for Asphalt Concrete Base shall be AR-8000 grade paving asphalt.

39-2.02 Aggregate

The aggregate grading of the various types of Asphalt Concrete shall conform to one of the following as directed by the Engineer:

Surface Course . . . . .	Type A-- 1/2" Maximum, Medium or Coarse, or 3/4" Maximum, Coarse
Leveling Course . . . . .	Type A--3/4" Maximum, Medium
Asphalt Concrete Base . . . . .	Type A or B--3/4" Maximum, Medium
Open Graded . . . . .	3/8" Maximum

39-4.01 Grade Tolerance

The subgrade to receive Asphalt Concrete or Asphalt Concrete Base immediately prior to applying prime coat, shall not vary more than 0.05-foot above or below the grade established by the Engineer.

39-4.02 Prime Coat and Tack Coat

Prime coat shall consist of either SC-70 or MC-70 grade liquid asphalt as directed by the Engineer and shall be furnished and applied in accordance with the provisions in Section 93, "Liquid Asphalts". Application shall be made when the surface is dry or but slightly damp, and when the air temperature in the shade is above fifty (50) degrees Fahrenheit, unless otherwise permitted by the Engineer. When approved by the Engineer, additional thickness of Asphalt Concrete (A.C.) may be substituted for the prime coat. An additional 0.04 foot would be required if the design thickness of A.C. is less than 0.25 foot and an additional 0.02 foot if the design thickness of A.C. is 0.25 foot or greater.

Following application of the prime coat, at least twenty-four (24) hours shall elapse before placing Asphalt Concrete. Any excess asphalt primer shall be blotted up with sand and removed from the grade.

Tack coat shall be diluted SS1 or CSS1, or undiluted RS-1 or CRS-1 type asphalt emulsion.

39-5            Hauling, Spreading, and Compacting Equipment

39-5.001       Haul Vehicles

Prior to loading Asphalt Concrete, the bed of the haul vehicle shall be clean and free from all soil, sand, gravel, and other deleterious substances.

All haul vehicles shall be equipped with tarps which are in working order. Tarps shall be used on haul vehicles unless prior approval is obtained from the Materials Laboratory.

When spraying diesel or other parting agents in the bed of the haul vehicle, the minimum amount necessary to moisten the surface shall be used. In no instance will the parting agent be allowed to accumulate in the bed of the vehicle.

39-5.01        Spreading Equipment

The Asphalt Concrete shall be deposited from the haul vehicle into the hopper of the paving machine.

The practice of depositing the material on the roadbed in a windrow and subsequently using a pick-up machine to deposit the material in the hopper of the asphalt paver will not be allowed.

39-5.02        Compacting Equipment

Compaction rollers shall be either 2-axle steel-tired rollers, pneumatic-tired rollers, or approved double-drum vibratory rollers. Steel-tired static compaction rollers shall weigh not less than 12 tons.

Double-drum vibratory rollers shall be operated at a maximum speed of 135-feet per minute (approximately 1.5 mph). Double drum-vibratory rollers shall have a minimum frequency of 2400 VPM and the amplitude shall be field-adjustable.

All pneumatic-tired rollers shall be equipped with an approved windskirt unless otherwise permitted by the Engineer. Pneumatic-tired rollers used for compaction of Asphalt Concrete Base shall be so equipped that the air pressure in all tires may be regulated uniformly by the operator while the roller is in motion.

Finish rollers shall be 2-axle steel-tired tandem rollers weighing not less than 8 tons.

39-6.01        General Requirements

Asphalt Concrete shall not be placed on any roadbed until all utility construction beneath the roadbed has been completed, sewer and water lines have been tested, and water lines chlorinated. The surface course of Asphalt Concrete shall not be placed until final utility connections have been made, unless otherwise permitted by the Engineer.

Asphalt Concrete shall not be placed after thirty (30) minutes before sunset, as established by weather bureau, except as otherwise authorized by the Engineer.

Asphalt Concrete or Asphalt Concrete Base shall not be placed during rainy weather or on a wet surface. Asphalt Concrete shall not be placed when the atmospheric temperature is below fifty (50) degrees Fahrenheit or conditions indicate it will drop below fifty (50) degrees Fahrenheit before the material can be satisfactorily compacted. Asphalt Concrete Base shall not be placed when the atmospheric temperature is below forty (40) degrees Fahrenheit or conditions indicate it will drop below forty (40) degrees Fahrenheit before the material can be satisfactorily compacted. Material which cannot be placed in compliance with these requirements shall be rejected.

The compacted thickness of Asphalt Concrete layers shall be as directed by the Engineer. The normal minimum and maximum compacted lift thickness for Asphalt Concrete surfacing are 0.17' and 0.25' respectively. The normal minimum and maximum compacted lift thickness for Asphalt Concrete Base are 0.25' and 0.50' respectively.

### 39-6.03      Compacting

The temperature of the Asphalt Concrete shall be specified by the Engineer. Unless lower temperatures are specified by the Engineer, all mixtures shall be spread, and the first coverage of initial or breakdown compaction shall be performed, when the temperature of the mixture is not less than 250°F at mid-depth, and all breakdown compaction shall be completed before the temperature of the mixture drops below 200°F at mid-depth. Additional rolling equipment shall be required or the rate of spread shall be reduced to permit compliance with this requirement.

#### A. Asphalt Concrete surface course and leveling courses.

##### 1. Equipment Required.

If production in any one hours exceeds the limits set forth below, the Contractor shall cease his paving operation until additional rolling equipment has arrived on the project.

##### a. 125 tons per hour or more.

The Contractor will be required to furnish a minimum of two approved double-drum vibratory rollers and one 8-ton tandem finish roller for each asphalt paver, with a separate operator for each roller.

A pneumatic roller may be substituted for one of the vibratory rollers if approved by the Engineer.

##### b. 50-125 tons per hour.

The required minimum rolling equipment specified above may be reduced to one approved double-drum vibratory roller and one 8-ton tandem roller for each asphalt paver, with a separate operator for each roller when the compacted thickness is not less than 0.17'.

- c. 50 tons per hour or less, at any location.  
The required minimum rolling equipment specified above may be reduced to one approved double-drum vibratory roller, weighing not more than 12 tons, for each paving machine.

2. Compaction Requirements.

Compaction rolling shall consist of a minimum of four complete vibratory coverages with an approved double-drum vibratory roller.

Finish rolling shall consist of one or more coverages with an 8-ton tandem roller immediately following completion of compaction rolling.

- B. Asphalt Concrete Base.

1. Equipment required.

The Contractor shall be required to furnish one approved double-drum vibratory roller and a minimum of one pneumatic-tired roller, with a separate operator for each roller.

An approved double-drum vibratory roller may be substituted for the pneumatic-tired roller specified above.

2. Compaction requirements.

Compaction rolling shall consist of the following: a minimum of two complete vibratory coverages with an approved double-drum vibratory roller, and two complete coverages with a pneumatic-tired roller. The order of rolling shall be specified by the Engineer.

Final rolling shall consist of one coverage with the vibrating units turned off.

Approval of vibratory rollers: The Engineer may approve initial use of a double-drum vibratory roller not previously approved on the basis of tests by other agencies or other information provided by the Contractor.

Approval for subsequent use of the roller shall be based on cores taken from test sections designated by the Engineer and compacted with different numbers of coverages.

Test sections shall be compacted under the following conditions:

1. Asphalt Concrete temperature at mid-depth shall be between 270 and 280 degrees Fahrenheit at the beginning of rolling. Rolling shall not continue after the mix temperature has dropped to 200 degree Fahrenheit. The compacted thickness shall be between 2" and 3.5".
2. The Contractor or manufacturer's representative shall specify the operating conditions of frequency and amplitude.

The basis for approval shall be the attainment of 97% relative compaction and satisfactory surface condition following final rolling. The number of coverages required shall be the minimum number required to obtain 97% relative compaction.

The mix will be sampled during paving of the test sections, and the test maximum density will be the average density of specimens compacted in accordance with California Test 304. The in-place density for each test section shall be the average of three core densities. Relative density will be the ratio of in-place density to test maximum density.

39-8.01        Measurement

Asphalt Concrete and Asphalt Concrete Base will be measured by weight. The quantity to be paid for shall be the combined weight of the mixture.

All weights shall be supported by State Certificates of Weights and Measures furnished by the Contractor.

39-8.02        Payment

The Contract price paid per ton for Asphalt Concrete and Asphalt Concrete Base shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in furnishing and placing Asphalt Concrete and Asphalt Concrete Base as specified, including furnishing and applying tack coat and saw cutting joints.

Full compensation for furnishing weighmaster's certificates shall be considered as included in the contract price paid per ton for Asphalt Concrete and Asphalt Concrete Base and no additional allowance will be made therefor.

## SECTION 73 - Concrete Curbs and Sidewalks

73-1.01            Description (The following shall apply in lieu of Sec. 73-1.01)

This work shall consist of construction curbs, sidewalks, gutter depressions, island paving, and driveways of the form and dimensions shown on the plans, and as specified in these specifications and the Special Provisions. The concrete shall attain a minimum compressive strength of 3000 psi at 28 days, and shall contain not less than six sacks of cement per cubic yard. Maximum slump of the concrete shall be 4 inches, as determined in accordance with ASTM C-143.

A pedestrian ramp shall be constructed in all curb returns in accordance with Std. 232 A/B, "Pedestrian Ramp", of the City of Santa Rosa Standard Plans.

Reinforcement shall conform to the provisions in Section 52, "Reinforcement".

73-1.02            Subgrade Preparation

The subgrade shall be constructed true to grade and cross section, as shown in the plans or directed by the Engineer. It shall be watered and thoroughly compacted, and unsuitable material removed and replaced, to provide a stable grade with above optimum moisture content for a minimum depth of 0.5-foot.

Base material under curb and gutter shall comply with the provisions of Section 26, "Aggregate Bases", and shall be a minimum of 4 inches in compacted thickness.

Sidewalk shall be placed on a 2 inch thick layer of clean sand, thoroughly consolidated by watering. Sidewalks constructed across driveways, and driveway ramps constructed between curb and edge of sidewalk, shall be six inches thick and shall be placed directly on the prepared subgrade.

The completed subgrade shall be tested for grade and cross section by means of a templet supported on the side forms, and shall not project into the planned concrete cross section at any point. The subgrade and forms shall be wet immediately in advance of placing concrete.

73-1.05            Curb Construction

Attention is directed to std. 241, "Curb and Gutter", and Std. 235, "Typical Spacing - Weakened Planes, Expansion Joints and Score Marks", of the Standard Plans.

Weakened plane joints shall be constructed at 15-foot intervals, except that when Portland Cement concrete pavement is adjacent thereto, the joints shall coincide with the weakened plane joints in the adjacent pavement. The joints shall be constructed to a minimum depth of 1-1/2 inches by scoring with a tool which will leave the corners rounded with a 1/4 inch radius and insure a free movement of the concrete at the joint.

Expansion joint filler strips shall have the top edge placed and securely held 1/4 inch below the surface. Expansion joints shall be edged with an edging tool having a radius of 1/4 inch.

The finished surface of the top of curb shall not vary more than 0.01 foot above or below the staked grade.

73-1.07            Sidewalk, Gutter Depression, Island Paving, and Driveway Construction

The surface of sidewalks shall be marked into rectangles as shown on Std. 235, "Typical Spacing - Weakened Planes, Expansion Joints and Score Marks".

Weakened plane joints shall be constructed to a minimum depth of one inch with a tool which will leave the corners rounded with a 1/4 inch radius and insure a free movement of concrete at the joint.

Expansion joint filler strips shall have the top edge placed and securely held 1/4 inch below the surface. Expansion joints shall be edged with an edging tool having a radius of 1/4 inch. Scoring lines shall be made with jointer tools having a radius of 1/4 inch.

73-1.08            Measurement

Curb and gutter will be measured by the linear foot, measured in place along the face of the curb.

Quantities of concrete in sidewalks, island paving, gutter depressions, or driveway areas will be measured by the cubic yard, computed on the basis of measurement of areas of completed work in place and the thickness shown on the plans.

73-1.09

Payment

Curb and gutter will be paid for at the contract price per linear foot, which price shall include full compensation for construction of pedestrian ramps for the handicapped.

Quantities of concrete in sidewalks, gutter depressions, island paving and driveways will be paid for at the contract price per cubic yard.



## SECTION 81. MONUMENTS

(The following shall apply in lieu of Section 81)

This work shall consist of furnishing and installing cast-in-place survey monuments at the locations shown on the plans and in accordance with Std. 281, "Brass Survey Marker" and Std. 282, "City Monument Cover", of the City of Santa Rosa Standard Plans.

The exact location of the monuments will be established by the City Engineer for City contracts and by the subdivider's Engineer for subdivisions, and upon completion, the monuments will be checked and the center point stamped by the City Engineer of the subdivider's Engineer.

Standard City brass markers shall be furnished by the Contractor and are available at the City Corporation Yard at City cost. They shall be placed in survey monuments before the concrete block has acquired its initial set and shall be firmly bedded in the concrete. The concrete block shall be so located that when the marker is installed, the reference point will fall within a one inch circle in the center of the marker.

City monuments will be paid for at the contract unit price each, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all the work involved in constructing monuments complete in place.

## **SECTION 90 CONCRETE**

### **90-1.01C(6) Mix Design:**

The proportions of the water, sand and aggregate shall be regulated so as to produce a plastic, workable and cohesive mixture.

### **90-1.01D(2) Cementitious Material Content:**

Concrete shall contain a minimum of 564 pounds of cementitious material per cubic yard. The amount of cement by weight of the specified cementitious material shall be 75 to 85 percent.

### **90-1.01D(5) Compressive Strength:**

The 28-day compressive strength of concrete shall be 4000 pounds per square inch (psi) or greater.

### **90-1.01D(6) Curing Compound:**

Unless otherwise directed by the Engineer, concrete shall be cured per Section 90-1.03B of the 2010 State of California Department of Transportation Standard Specifications. Pigmented curing compound or any other material that will leave a noticeable residue shall not be allowed.

### **90-1.02E(2) Chemical Admixtures:**

An admixture shall not be used to reduce the amount of cementitious material content.