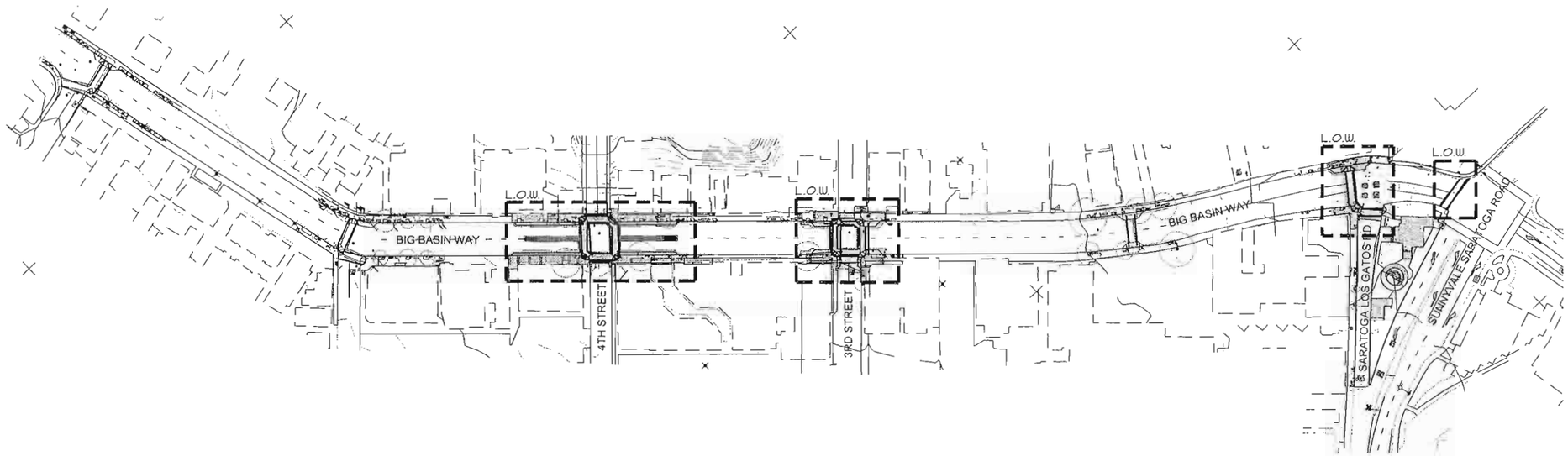
SARATOGA VILLAGE PEDESTRIAN ENHANCEMENT

FEDERAL NO. CML - 5332 (013)

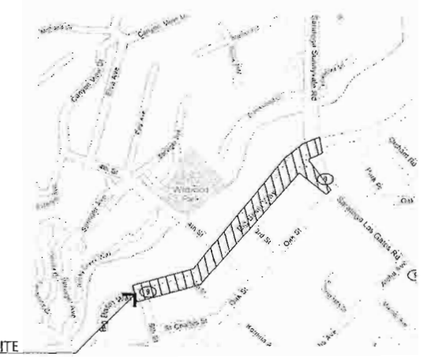
CITY OF SARATOGA **SARATOGA, CALIFORNIA**



INDEX OF SHEETS

DESCRIPTION	
TITLE SHEET	TS-1
GENERAL NOTES	GN-1
DEMOLITION PLAN	DM-1/DM-3
TYPICAL CROSS SECTION	X-1
LAYOUT PLAN	L-1/L-3
UTILITY PLAN	U-1/U-3
CONSTRUCTION DETAILS	C-1/C-2
SIGNING AND STRIPING	SS-1
ELECTRICAL PLAN	E-1
LANDSCAPE LEGEND & NOTES	LA 1.0
LANDSCAPE PLAN	LA 1.1/LA 1.6
PLANTING PLAN	LA 2.1/LA 2.3
IRRIGATION PLAN	LA 3.1/LA 3.3
IRRIGATION NOTES & LEGEND	LA 3.4
IRRIGATION DETAILS	LA 3.5
IRRIGATION CALCS	LA 3.6
LANDSCAPE DETAILS	LA 4.1/LA 4.6

LOCATION MAP



REGISTERED PROFESSIONAL ENGINEER MACEDONIO NUNEZ Exp: 06/30/11 CIVIL STATE OF CALIFORNIA

APPROVED BY: Macedonio Nunez
MACEDONIO NUNEZ, P.E.
ASSOCIATE ENGINEER
CITY OF SARATOGA - PUBLIC WORKS
R.C.E. NO. 67482, LIC. EXP. 06-30-11

DATE: 3/18/10

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.0001
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT D. GATES 3-18-10 LA 1571 STATE OF CALIFORNIA

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	D:\5-SARATOGA VILLAGE.DWG
DRAWN:	GLC/JS
CHECK:	KC
DATE:	MARCH 18, 2010

SCALE: 1"=10'-0" 0 5 10 20

COVER

TS-1

PROJECT NORTH 1 OF 38 SHEETS

GENERAL NOTES

GENERAL

1. ALL WORK AND MATERIALS SHALL COMPLY WITH STANDARD SPECIFICATIONS, CONSTRUCTION DETAILS, AND STANDARD DRAWINGS OF THE CITY OF LOS ALTOS AVAILABLE IN THE CITY ENGINEER'S OFFICE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE IMPROVEMENTS IN THESE PLANS FROM THE APPROPRIATE AGENCIES AND TO COMPLY WITH THE AGENCIES' REQUIREMENTS. ALL PLANS SHALL BE PREPARED ON CITY'S IMPROVEMENTS TITLE BLOCK. THE CONTRACTOR MUST COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL LAWS.

2. PLANS USED FOR CONSTRUCTION OF PUBLIC FACILITIES PURPOSES MUST BE SIGNED BY THE CITY ENGINEER OR HIS REPRESENTATIVE. ANY SUBSEQUENT CHANGES SHALL BE APPROVED BY THE CITY ENGINEER OR HIS REPRESENTATIVE PRIOR TO THEIR CONSTRUCTION.

3. THE OFFICIAL COPY OF THESE PLANS ARE ON FILE IN THE OFFICE OF THE CITY ENGINEER IN LOS ALTOS.

4. THIS PLAN IS SUBJECT TO REVIEW AND SUBSEQUENT APPROVAL IN THE EVENT THE WORK HAS NOT COMMENCED WITHIN SIX (6) MONTHS OF THE DATE OF PLAN APPROVAL.

5. ALL UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CITY ENGINEER.

6. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (U.S.A.) AT (800) 227-2600 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES, AND OBTAIN A REFERENCE NUMBER.

7. THE CONTRACTOR SHALL CALL CITY OF LOS ALTOS PUBLIC WORKS FACILITIES INSPECTION AT (650) 947-2780 TO SCHEDULE INSPECTIONS, 48 HOURS PRIOR TO START OF CONSTRUCTION.

8. PRIOR TO ANY WORK, THE CONTRACTOR SHALL OBTAIN A CITY BUSINESS LICENSE AND A PUBLIC WORKS CONSTRUCTION OR ENCROACHMENT PERMIT.

9. THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION AND OR PERPETUATION OF ALL EXISTING MONUMENTS AND STAKES WITHIN THE CONTRACTOR'S AREA OF WORK. THE CONTRACTOR SHALL NOT DISTURB OR REMOVE ANY MONUMENTS OR STAKES WITHOUT THE PERMISSION OF THE CITY ENGINEER, AND HE SHALL BEAR THE EXPENSE OF RESETTING ANY MONUMENTS OR STAKES WHICH MAY BE DISTURBED OR REMOVED WITH OR WITHOUT PERMISSION. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 15 WORKING DAYS NOTICE TO THE CITY ENGINEER PRIOR TO DISTURBANCE OR REMOVAL OF EXISTING MONUMENTS OR STAKES. THE CONTRACTOR SHALL UTILIZE THE SERVICES OF A CALIFORNIA LICENSED LAND SURVEYOR TO RESET ALL DISTURBED OR REMOVED MONUMENTS AND STAKES OR PROVIDE WITNESS MONUMENTS, AND FILE THE REQUIRED DOCUMENTATION WITH THE COUNTY SURVEYOR PURSUANT TO THE BUSINESS AND PROFESSIONS CODE SECTION 8771.

10. CONTRACTOR SHALL COORDINATE WITH PACIFIC GAS AND ELECTRIC COMPANY FOR THE DESIGN AND INSTALLATION OF ALL GAS AND ELECTRIC FACILITIES.

11. CONTRACTOR SHALL COORDINATE WITH PACIFIC BELL FOR THE DESIGN AND INSTALLATION OF ALL TELEPHONE FACILITIES.

12. RECORD DRAWINGS ORIGINAL PLANS, INCLUDING A COPY OF THE AUTOCAD FILES (DIGITAL FORMAT) SHALL BE FURNISHED TO THE CITY ENGINEER WITHIN 30 DAYS OF THE COMPLETION OF CONSTRUCTION AND PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS.

13. CITY APPROVAL OF PLANS DOES NOT RELIEVE THE CONTRACTOR FROM HIS/HER RESPONSIBILITY TO CORRECT ERRORS AND OMISSIONS DISCOVERED DURING CONSTRUCTION. UPON REQUEST, ANY REQUIRED PLAN REVISIONS SHALL BE PROMPTLY SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

14. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE CITY AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

15. EXCAVATIONS SHALL BE ADEQUATELY SHORED, BRACED AND SHEERED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING, AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL EFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE ONE EXCAVATION FOR A CONDUIT, TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING AND BRACING OR EQUIVALENT METHOD, FOR THE PROTECTION OF LIFE OR LIMB, WHICH SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE STATE OF CALIFORNIA. THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.

16. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE WORK SHOWN IN THESE PLANS FROM THE APPROPRIATE AGENCIES, AND TO COMPLY WITH THEIR CONDITIONS AND REQUIREMENTS.

17. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF AN AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM HIS FAILURE TO DO SO.

18. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION.

19. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR SAFETY.

20. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF JOB SITE.

21. ALL CURB DATA ARE TO FACE OF CURB.

22. ALL QUANTITIES AND BID ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.

23. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY COMPANIES AT LEAST 2 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT (800) 227-2600. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COST INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR AND IS DEEMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.

24. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE LOCAL AGENCY ENGINEER, AT THE CONTRACTOR'S SOLE EXPENSE.

25. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY, INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC. PG&E IS RESPONSIBLE FOR THE WORK IN THE RIGHT-OF-WAY (MATERIALS AND INSTALLATION). THE OWNER SHALL PAY THE FEES, BONDS, AND FILE THE APPROPRIATE PERMITS FOR ALL SUCH WORK. ALL ON-SITE UTILITY WORK IS THE RESPONSIBILITY OF THE CONTRACTOR (MATERIALS AND INSTALLATION).

26. IF ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.

27. BKF ENGINEERS DOES NOT SPECIFY NOR RECOMMEND THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS. ANY PARTY INSTALLING OR USING SUCH MATERIALS OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGES, OR LIABILITIES, OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIALS, OR EQUIPMENTS.

28. A NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES CONSTRUCTION PERMIT) IS REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY RELATED TO THIS SITE AND SHALL BE OBTAINED BY THE CONTRACTOR AS APPROPRIATE. ANY DISCHARGE (DURING CONSTRUCTION) OF GROUNDWATER INTO THE DOWNSTREAM STORM SYSTEM MUST BE UNCONTAMINATED. THE CONTRACTOR SHALL MAKE THIS DETERMINATION PRIOR TO ANY DISCHARGE.

29. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT BKF ENGINEERS AT (925) 396-7700 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

PROJECT SPECIFIC NOTES:

1. PRIOR TO ANY CONSTRUCTION OR INSTALLATION OF PUBLIC FACILITIES, THE DEVELOPER'S ENGINEER SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE CONTRACTORS AND THE CITY PUBLIC WORKS INSPECTOR. THIS SHALL TAKE PLACE A MINIMUM OF 7 DAYS PRIOR TO THE SCHEDULED START OF WORK. AT THE CONFERENCE, THE DEVELOPER'S ENGINEER SHALL PRESENT THE PUBLIC WORKS INSPECTOR WITH A CERTIFIED COPY OF A MATERIAL LIST AND SPECIFICATIONS FOR INSTALLATION. PRIOR TO THE INSTALLATION, APPROVAL BY THE CITY ENGINEER IS REQUIRED OF ANY NON-STANDARD MATERIALS. ANY NON-STANDARD MATERIALS SHALL BE DEMONSTRATED BY THE DEVELOPER'S ENGINEER AND CONTRACTOR TO EQUAL OR EXCEED CITY STANDARDS.

2. THE CONTRACTOR SHALL PROCURE FROM THE CITY OF SARATOGA AND ALL OTHER APPLICABLE AGENCIES, ALL PERMITS AND LICENCES, PAY ALL CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY (TWO WORKING DAYS MINIMUM) FOR INSTALLATION OF APPLICABLE IMPROVEMENTS DELINEATED HEREON.

3. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER AND THE CITY INSPECTOR AT LEAST 24 HOURS PRIOR TO STARTING WORK.

4. CONSTRUCTION HOURS SHALL BE LIMITED TO THE HOURS OF 7:00 A.M. TO 6:00 P.M., MONDAY THROUGH FRIDAY FOR ANY ON-SITE OR OFF-SITE WORK. THE CONTRACTOR SHALL ARRANGE FOR DAYS AND HOURS BESIDES THOSE TIMES NOTED ABOVE, WITH THE CITY OF LOS ALTOS.

5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL DURING WORK PERFORMED IN THE RIGHT-OF-WAY. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL SCHEDULE AND PLAN TO THE CITY INSPECTOR 2 WEEKS PRIOR TO COMMENCEMENT OF WORK IN THE PUBLIC RIGHT-OF-WAY.

6. CONTRACTOR SHALL EXERCISE ALL NECESSARY CAUTION TO AVOID DAMAGE TO ANY EXISTING TREES AND SURFACE IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE AND SHALL BEAR FULL RESPONSIBILITY FOR ANY DAMAGE THEREIN.

7. ALL TRASH, DEBRIS, ROOTS, TREE REMAINS AND OTHER RUBBISH FROM DEMOLITION WORKS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE SO AS TO LEAVE THE CONSTRUCTION AREAS NEAT WITH THE FINISHED APPEARANCE FREE FROM UNSIGHTLY DEBRIS. NO BURNING SHALL BE PERMITTED. TREE STUMPS SHALL BE COMPLETELY REMOVED TO A MINIMUM 24" BELOW EXISTING GRADE.

8. EXISTING TOPOGRAPHIC SURVEY PROVIDED BY BKF ENGINEERS. CONTRACTOR SHALL NOTIFY THE CITY ENGINEER OF ANY DISCREPANCIES FOUND PRIOR TO STARTING WORK.

9. ALL EXISTING FACILITIES AFFECTED BY THE NEW CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE AND/OR RELOCATED AS DIRECTED BY THE APPROPRIATE UTILITY AGENCY. TOP OF EXISTING MANHOLE, WATER VALVE/METER BOXES, CLEAN OUT BOXES, ELECTRICAL BOXES, ETC. TO REMAIN SHALL BE BROUGHT TO FINISHED GRADE BY THE CONTRACTOR AFTER PAVING IS COMPLETED.

GRADING NOTES

1. THE BOTTOM OF ALL FOUNDATION EXCAVATIONS SHOULD BE CLEANED OF ANY LOOSE MATERIAL PRIOR TO PLACING STEEL OR CONCRETE.

2. ALL GRADING SHALL BE PERFORMED IN SUCH A MANNER AS TO COMPLY WITH THE STANDARDS ESTABLISHED BY THE AIR QUALITY MAINTENANCE DISTRICT FOR AIRBORNE PARTICULATES.

3. ALL GRADING SHALL CONFORM TO APPROVED SPECIFICATIONS PRESENTED HEREON OR ATTACHED HERETO. ALL GRADING WORK SHALL BE OBSERVED AND APPROVED BY THE SOIL ENGINEER. UNOBSERVED AND UNAPPROVED GRADING WORK SHALL BE REMOVED AND REPLACED UNDER OBSERVATION.

4. GRADING WORK SHALL CONSIST OF ALL CLEARING, GRUBBING AND STRIPPING, IMPORT/EXPORT OF SOIL, EMBANKMENT EXCAVATION, SPREADING, COMPACTION AND CONTROL OF FILL AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING TO CONFORM TO THE LINES, GRADES AND SLOPES AS SHOWN ON THE PLANS.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT, FILL AND EXPORT OPERATIONS NECESSARY TO MEET THE DESIGN GRADES AND CONSTRUCTION OF FACILITIES SHOWN ON THE PLANS. ANY EXCESS MATERIAL RESULTING FROM GRADING OPERATIONS BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.

PAVING NOTES

1. A PRIME COAT OF SS-1H LIQUID ASPHALT, CONFORMING TO SECTION 39 OF THE STANDARD SPECIFICATIONS, SHALL BE APPLIED TO ALL AREAS RECEIVING ASPHALT CONCRETE AT THE RATE OF 0.25 GALLONS PER SQUARE YARD.

2. ASPHALT CONCRETE (AC) SHALL CONSIST OF A MIXTURE OF SAND, MINERAL AGGREGATE, AND LIQUID ASPHALT CONFORMING TO STANDARD SPECIFICATIONS TYPE "A", 1/2" MAXIMUM, MEDIUM GRADING. PAVING ASPHALT SHALL HAVE VISCOSITY GRADE AR4000. ASPHALT CONCRETE SHALL BE PLACED IN LIFTS NOT TO EXCEED 2" IN DEPTH.

3. EDGE OF EXISTING PAVEMENT SHALL BE TACK COATED PRIOR TO CONSTRUCTING NEW PAVEMENT. TACK COAT OF SS-1H ASPHALT EMULSION, CONFORMING TO STANDARD SPECIFICATIONS, SHALL BE APPLIED TO EXISTING ASPHALT CONCRETE SURFACES. VERTICAL CONCRETE SURFACES TO RECEIVE ADDITIONAL LIFTS OF ASPHALT CONCRETE, WHEN REQUIRED BY THE STANDARD SPECIFICATIONS.

4. SEAL COAT SHALL BE DILUTED WITH AN EQUAL AMOUNT OF WATER AND APPLIED AT THE RATE OF 0.06 GALLONS PER SQUARE YARD TO THE SURFACE OF ALL NEW ASPHALT CONCRETE PAVEMENT, WHICH SHALL BE FREE OF DUST AND LOOSE MATERIAL PRIOR TO APPLICATION.

5. MATERIALS AND INSTALLATION OF PORTLAND CEMENT CONCRETE CURB, GUTTER AND SIDEWALK SHALL CONFORM TO CITY STANDARD SPECIFICATIONS AND STANDARD DETAILS.

6. EXISTING AC SURFACE SHALL BE SAW CUT TO A NEAT, STRAIGHT LINE. WHERE EXISTING PAVEMENT IS TRENCHED, REPLACE WITH APPROPRIATE ON-SITE DESIGNED PAVEMENT SECTION. THE EXPOSED BASE MATERIAL SHALL BE GRADED, RECOMPACTED AND RESEALED PRIOR TO REPAVING.

7. AGGREGATE BASE SHALL BE CLASS 2 AND SHALL BE SPREAD AND COMPACTED TO 95% RELATIVE COMPACTION TO CONFORM TO SECTION 26 OF THE STANDARD SPECIFICATIONS.

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AS	AGGREGATE SUBBASE
BC	BEGINNING OF CURVE
℄	CENTERLINE
C&G	CURB AND GUTTER
CONC	CONCRETE
EC	END OF CURVE
EX.	EXISTING
GV	GAS VALVE
HC	HANDICAP
HMA_A	HOT MIX ASPHALT (TYPE A)
LF	LINEAR FEET
LG	LIP OF GUTTER
LS	LANDSCAPING
LT	LEFT
N	NORTH
NE	NORTH EAST
PROP.	PROPOSED
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH
SD	STORM DRAIN
STA	STATION
STD	STANDARD
SHLDR	SHOULDER
TYP	TYPICAL
W	WEST
WV	WATER VALVE

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8001
WWW.GGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

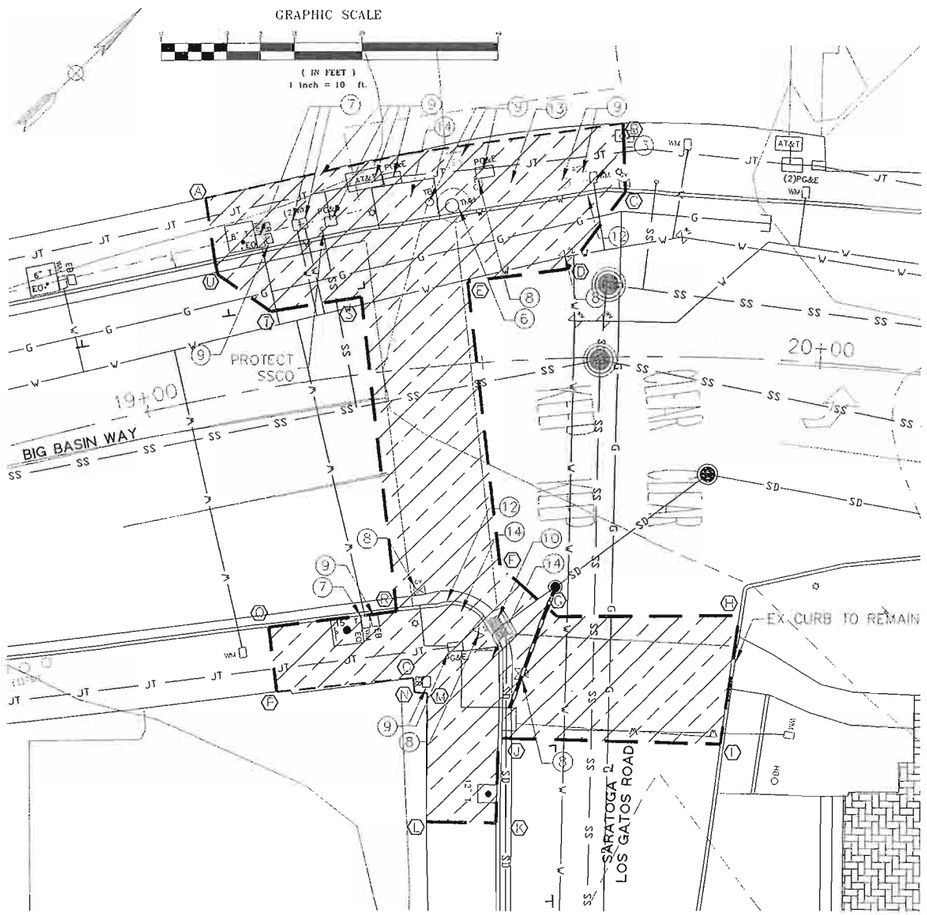
REVISION:	DESCRIPTION:	DATE:

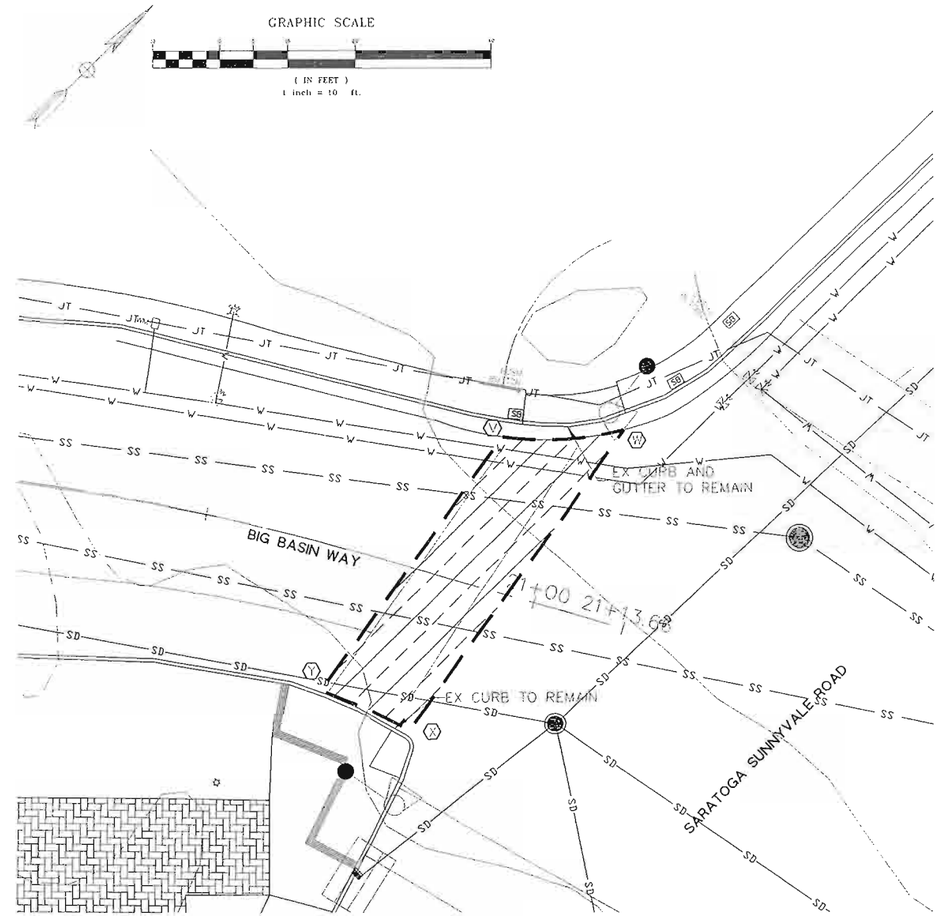
PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: 06 C-SARATOGA VILLAGE.DWG
DRAWN: MK/AL
CHECK: CR
DATE: MARCH 16, 2010
SCALE: NA

GENERAL NOTES

GN-1

PROJECT NORTH 2 OF 38 SHEETS





LEGEND

- REMOVE EXISTING IMPROVEMENTS
- SAWCUT (1 / C-2)
- LIMIT OF SIDEWALK REMOVAL

NOTES:

PROTECT ALL STREET LIGHTS AND SIGNS WITHIN DEMOLITION LIMITS UNLESS OTHERWISE SPECIFIED ON PLAN.

1. RELOCATE STREET LIGHT (PER LANDSCAPE PLAN)
2. RELOCATE TRASH RECEPTACLE (PER LANDSCAPE PLAN)
3. RELOCATED WATER METER BY OTHERS. CONTRACTOR TO COORDINATE WITH SAN JOSE WATER DISTRICT
4. RELOCATE FIRE HYDRANT
5. NOT USED
6. PROTECT MANHOLE
7. PROTECTWATER METER
8. PROTECT VALVE
9. PROTECT UTILITY VAULT/BOX
10. REMOVE CATCH BASIN
11. REMOVE UTILITY PIPE
12. REMOVE EXISTING CURB AND GUTTER WITHIN SAWCUT LIMITS
13. REMOVE EXISTING SIDEWALK WITHIN SAWCUT LIMITS
14. REMOVE EXISTING CURB RAMP
15. REMOVE WATER VALVE

DEMOLITION LIMITS:

LIMIT	STATION	LIMIT	STATION
A	19+13.66, 29.11 LT	N	19+34.70, 47.48 RT
B	19+71.08, 34.21 LT	O	19+34.76, 45.34 RT
C	19+71.24, 24.13 LT	P	19+11.57, 44.38 RT
D	19+62.83, 13.05 LT	Q	19+12.12, 34.79 RT
E	19+48.68, 11.99 LT	R	19+33.30, 34.30 RT
F	19+50.57, 30.13 RT	S	19+33.34, 11.28 LT
G	19+59.57, 37.98 RT	T	19+20.27, 11.03 LT
H	19+89.81, 37.87 RT	U	19+13.67, 17.61 LT
I	19+87.50, 56.97 RT	V	20+88.74, 22.20 LT
J	19+48.31, 55.41 RT	W	21+05.65, 28.12 LT
K	19+46.82, 67.94 RT	X	20+87.74, 23.05 RT
L	19+34.20, 66.78 RT	Y	20+73.62, 21.02 RT
M	19+36.84, 47.82 RT		

*ACTUAL DEMOLITION LIMIT AT V, W, X, AND Y WILL BE IDENTIFIED IN FIELD BY ENGINEER TO AVOID CONFLICT WITH EXISTING SIGNAL LOOP DETECTOR.

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

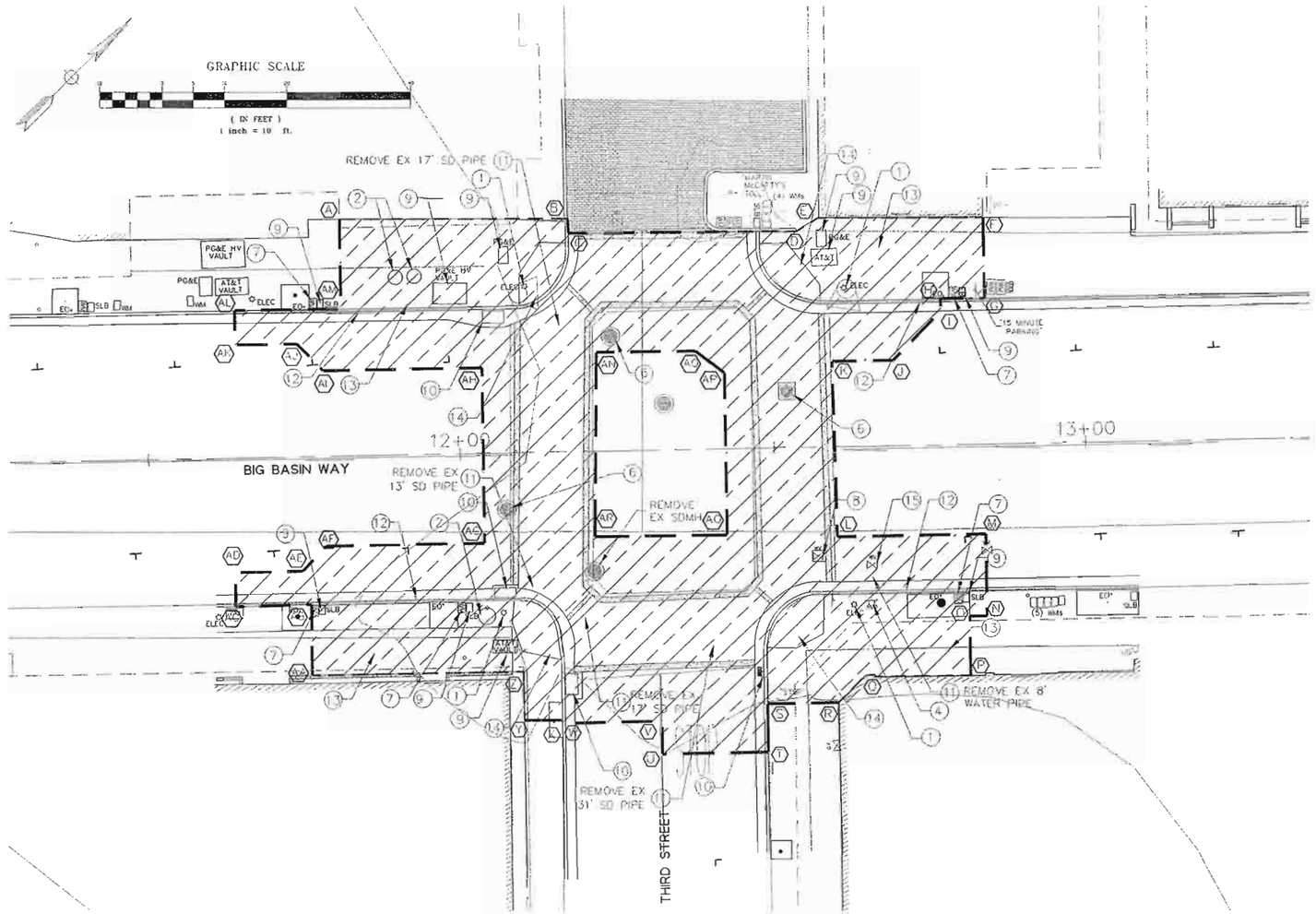
BID SET

REVISION:	DESCRIPTION:	DATE:

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	09 C-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010
SCALE: 1"=10'	0 5 10 20

DEMOLITION SHEET

DM-1



LEGEND

- REMOVE EXISTING IMPROVEMENTS
- SAWCUT (1 / C-2)
- LIMIT OF SIDEWALK REMOVAL

NOTES:

PROTECT ALL STREET LIGHTS AND SIGNS WITHIN DEMOLITION LIMITS UNLESS OTHERWISE SPECIFIED ON PLAN.

1. RELOCATE STREET LIGHT (PER LANDSCAPE PLAN)
2. RELOCATE TRASH RECEPTACLE (PER LANDSCAPE PLAN)
3. RELOCATED WATER METER BY OTHERS. CONTRACTOR TO COORDINATE WITH SAN JOSE WATER DISTRICT
4. RELOCATE FIRE HYDRANT
5. NOT USED
6. PROTECT MANHOLE
7. PROTECTWATER METER
8. PROTECT VALVE
9. PROTECT UTILITY VAULT/BOX
10. REMOVE CATCH BASIN
11. REMOVE UTILITY PIPE
12. REMOVE EXISTING CURB AND GUTTER WITHIN SAWCUT LIMITS
13. REMOVE EXISTING SIDEWALK WITHIN SAWCUT LIMITS
14. REMOVE EXISTING CURB RAMP
15. REMOVE WATER VALVE

DEMOLITION LIMITS:

LIMIT	STATION	LIMIT	STATION	LIMIT	STATION
A	11+81.35, 37.89 LT	P	12+80.85, 37.05 RT	AD	11+63.58, 18.26 RT
B	12+17.82, 37.23 LT	Q	12+64.14, 36.78 RT	AE	11+74.35, 18.24 RT
C	12+17.91, 34.92 LT	R	12+59.67, 41.02 RT	AF	11+78.27, 14.32 RT
D	12+54.15, 34.47 LT	S	12+48.30, 41.00 RT	AG	12+03.58, 14.37 RT
E	12+57.86, 36.57 LT	T	12+48.30, 48.70 RT	AH	12+03.67, 13.63 LT
F	12+84.19, 36.15 LT	U	12+31.61, 48.69 RT	AI	11+78.31, 13.68 LT
G	12+84.18, 23.35 LT	V	12+31.61, 43.42 RT	AJ	11+74.07, 18.06 LT
H	12+77.09, 23.34 LT	W	12+15.57, 43.41 RT	AK	11+64.17, 18.10 LT
I	12+77.09, 21.35 LT	X	12+13.51, 42.96 RT	AL	11+64.19, 23.64 LT
J	12+69.36, 13.58 LT	Y	12+09.55, 42.91 RT	AM	11+81.33, 23.56 LT
K	12+59.60, 13.58 LT	Z	12+09.51, 35.15 RT	AN	12+22.02, 15.75 LT
L	12+59.90, 14.42 RT	AA	11+75.66, 35.05 RT	AO	12+37.97, 15.64 LT
M	12+83.66, 14.40 RT	AB	11+75.68, 23.62 RT	AP	12+42.38, 12.06 LT
N	12+83.65, 27.52 RT	AC	11+63.58, 23.74 RT	AQ	12+42.29, 13.81 RT
O	12+80.85, 27.52 RT			AR	12+21.24, 13.67 RT

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.0176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

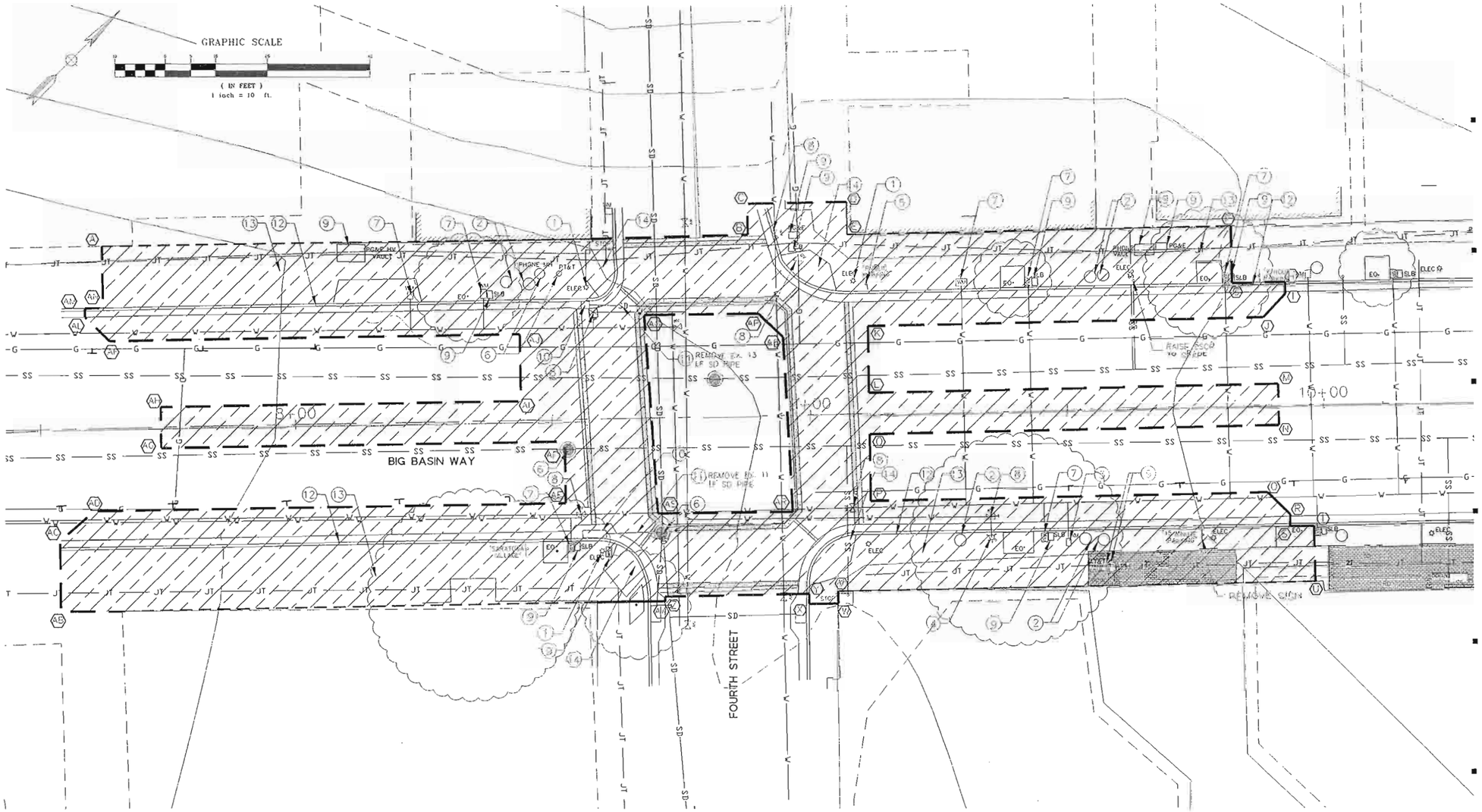
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	06 C-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010
SCALE:	1"=10'

DEMOLITION SHEET

DM-2

PROJECT NORTH 4 OF 38 SHEETS



LEGEND

- REMOVE EXISTING IMPROVEMENTS
- SAWCUT (1/C-2)
- LIMIT OF SIDEWALK REMOVAL

NOTES:

PROTECT ALL STREET LIGHTS AND SIGNS WITHIN DEMOLITION LIMITS UNLESS OTHERWISE SPECIFIED ON PLAN.

1. RELOCATE STREET LIGHT (PER LANDSCAPE PLAN)
2. RELOCATE TRASH RECEPTACLE (PER LANDSCAPE PLAN)
3. RELOCATED WATER METER BY OTHERS. CONTRACTOR TO COORDINATE WITH SAN JOSE WATER DISTRICT
4. RELOCATE FIRE HYDRANT
5. NOT USED
6. PROTECT MANHOLE
7. PROTECTWATER METER
8. PROTECT VALVE
9. PROTECT UTILITY VAULT/BOX
10. REMOVE CATCH BASIN
11. REMOVE UTILITY PIPE
12. REMOVE EXISTING CURB AND GUTTER WITHIN SAWCUT LIMITS
13. REMOVE EXISTING SIDEWALK WITHIN SAWCUT LIMITS
14. REMOVE EXISTING CURB RAMP
15. REMOVE WATER VALVE

DEMOLITION LIMITS:

LIMIT	STATION	LIMIT	STATION	LIMIT	STATION
A	7+62.56, 35.41 LT	P	9+11.51, 16.97 RT	AE	8+52.22, 16.28 RT
B	8+88.67, 35.22 LT	Q	9+88.66, 16.97 RT	AF	8+52.26, 4.28 RT
C	8+88.62, 41.23 LT	R	9+93.06, 21.36 RT	AG	7+33.58, 4.09 RT
D	9+07.90, 41.18 LT	S	9+92.97, 23.68 RT	AH	7+73.60, 3.91 LT
E	9+07.85, 34.85 LT	T	9+97.53, 23.69 RT	AI	8+43.95, 3.74 LT
F	9+82.44, 34.82 LT	U	9+97.65, 34.46 RT	AJ	8+43.99, 16.72 LT
G	9+82.50, 23.80 LT	V	9+04.80, 34.36 RT	AK	7+63.75, 16.94 LT
H	9+93.00, 23.77 LT	W	9+04.81, 36.79 RT	AL	7+58.94, 21.74 LT
I	9+92.97, 21.43 LT	X	8+99.07, 36.75 RT	AM	7+58.97, 23.44 LT
J	9+88.57, 17.03 LT	Y	8+99.14, 34.76 RT	AN	7+62.54, 23.44 LT
K	9+11.63, 17.03 LT	Z	8+71.25, 34.75 RT	AO	8+68.21, 20.05 LT
L	9+11.58, 4.03 LT	AA	8+71.25, 35.68 RT	AP	8+90.41, 19.90 LT
M	9+91.17, 4.03 LT	AB	7+53.38, 35.42 RT	AQ	8+95.08, 15.23 LT
N	9+91.17, 3.97 RT	AC	7+53.38, 21.71 RT	AR	8+96.16, 18.76 RT
O	9+11.55, 3.97 RT	AD	7+60.17, 16.05 RT	AS	8+70.08, 18.56 RT

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	DG C:\SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 15, 2010
SCALE: 1"=10'	0 5 10 20

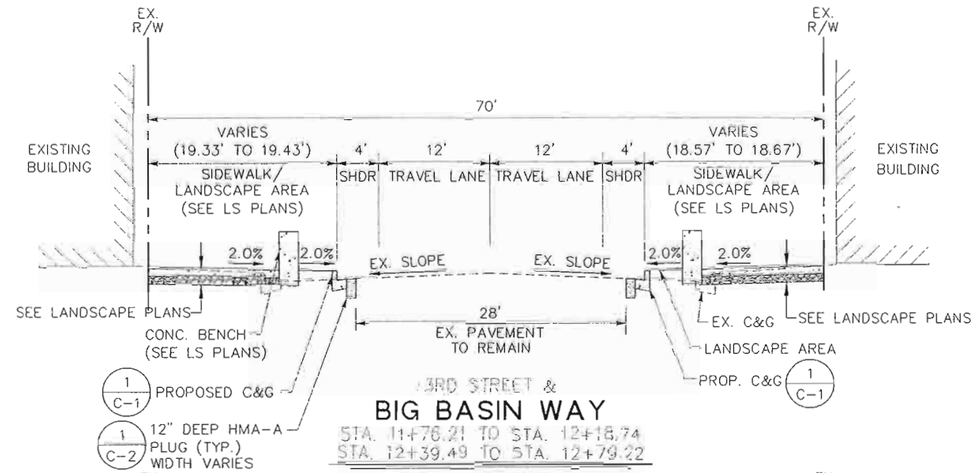
DEMOLITION SHEET

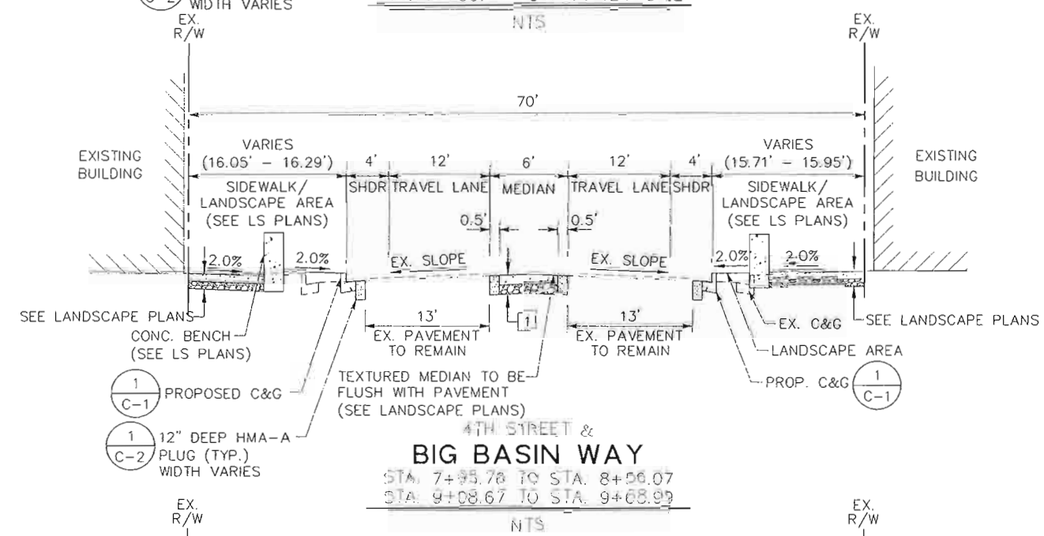
DM-3

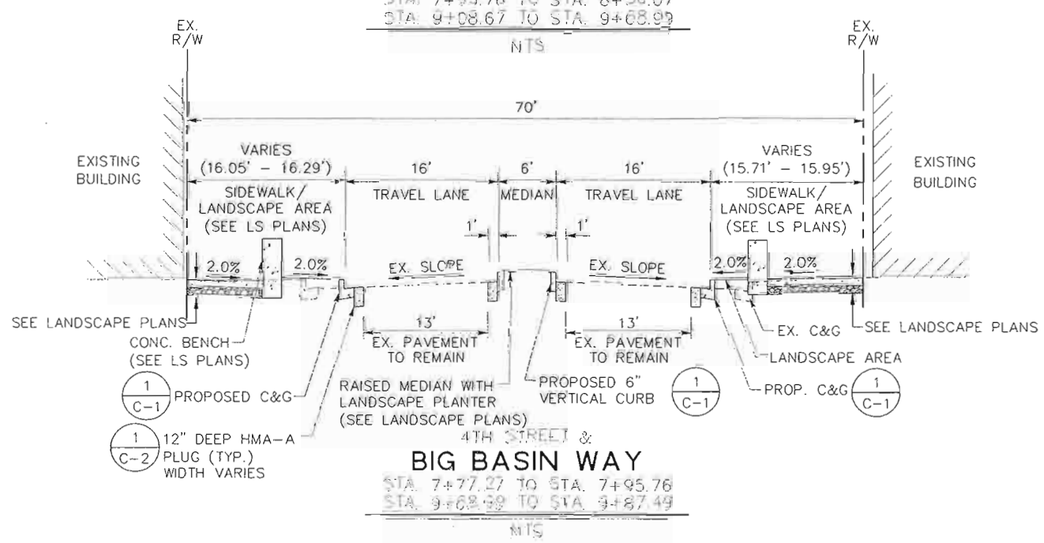
PROJECT NORTH

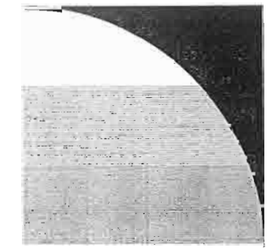
NOTES:

1. UPPER 6" OF SUBGRADE FOR ALL IMPROVEMENTS SHALL BE COMPACTED TO 95% RC. LOWER 6" OF SUBGRADE (6" DEPTH TO 12" DEPTH) SHALL BE COMPACTED TO 90% RC. AB AND AS SHALL BE COMPACTED TO 95% RC.
2. CONTRACTOR TO VERIFY STRUCTURAL SECTION BEFORE ALL EXCAVATION OPERATIONS.
3. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY SIDEWALK DEMOLITION AND REPLACEMENT LIMITS WITH THE ENGINEER. CONTRACTOR SHALL VERIFY SAWCUT LIMITS, EXISTING APPURTENANCES TO REMAIN IN PLACE (PROTECT), AND CONSTRUCTION OPERATIONS, METHODOLOGIES AND ACTUAL PROPOSED IMPROVEMENTS TO BE CONSTRUCTED.









GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

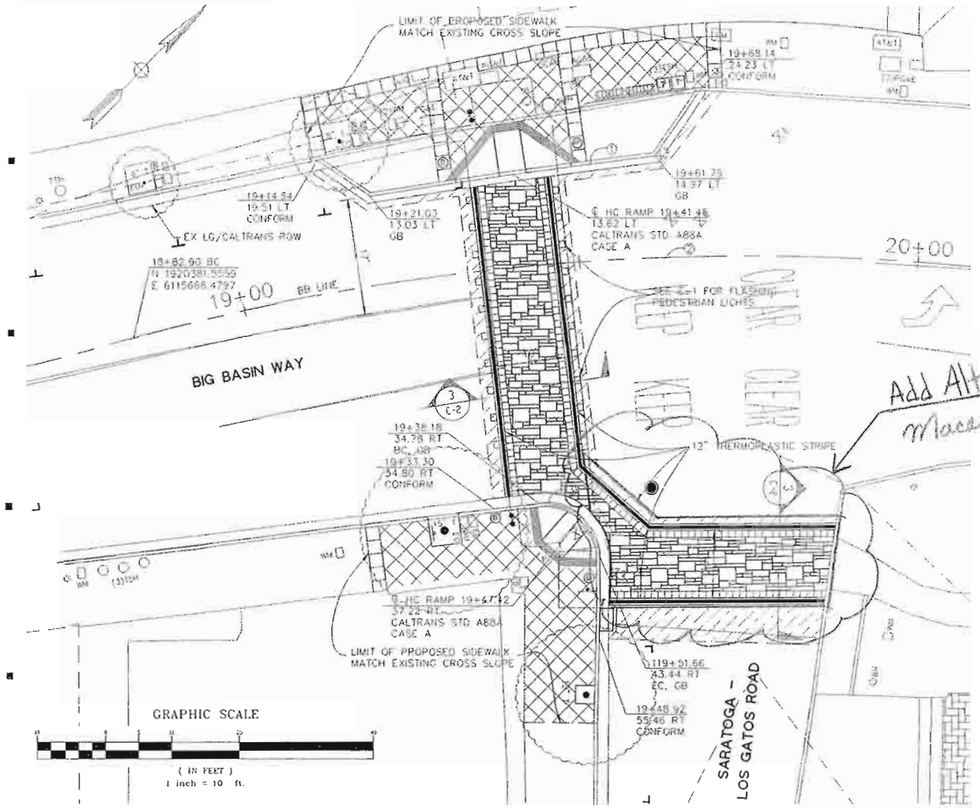
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	GG C-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010

SCALE: NTS

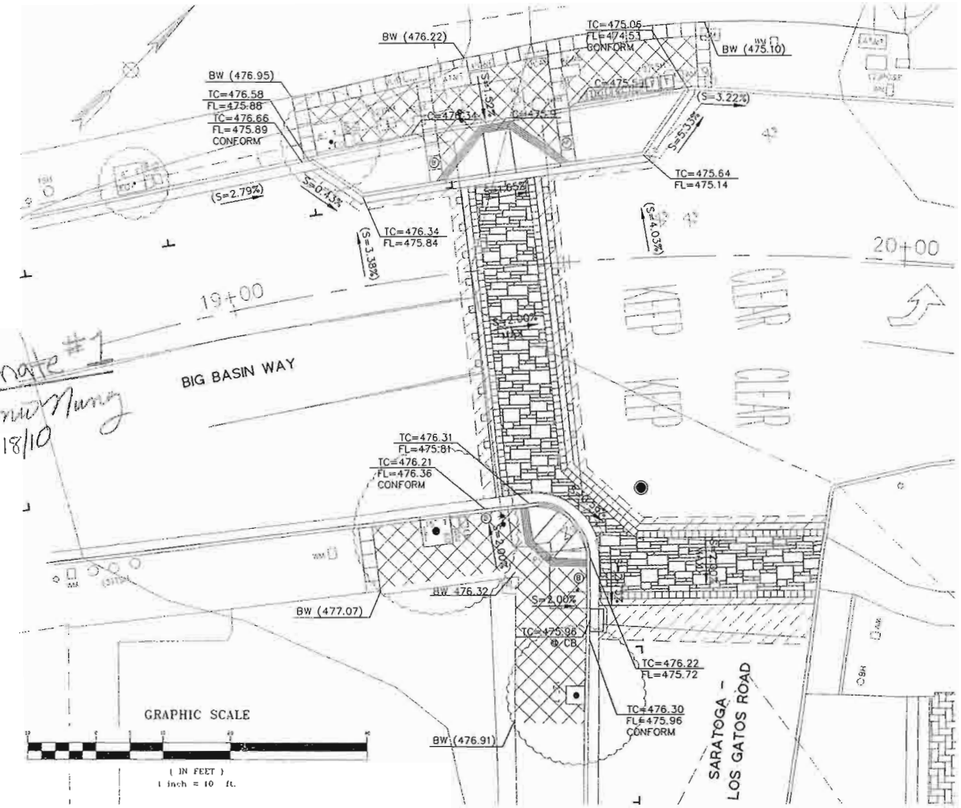
TYPICAL CROSS SECTIONS

X-1

PROJECT NORTH 6 OF 38 SHEETS

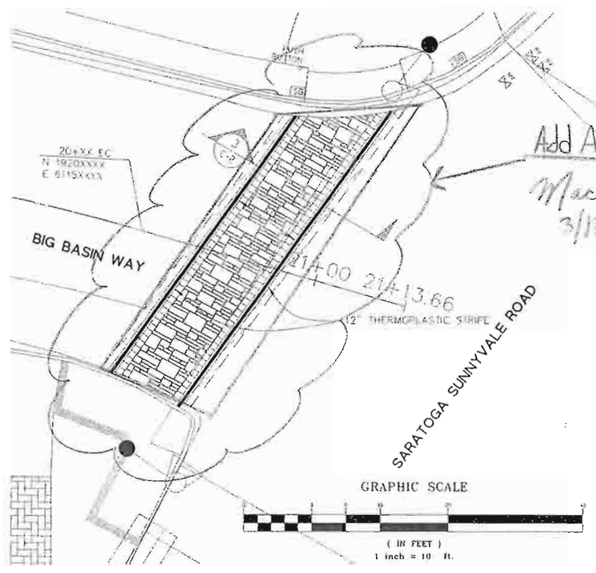


BIG BASIN WAY & SARATOGA LOS GATOS ROAD
LAYOUT PLAN

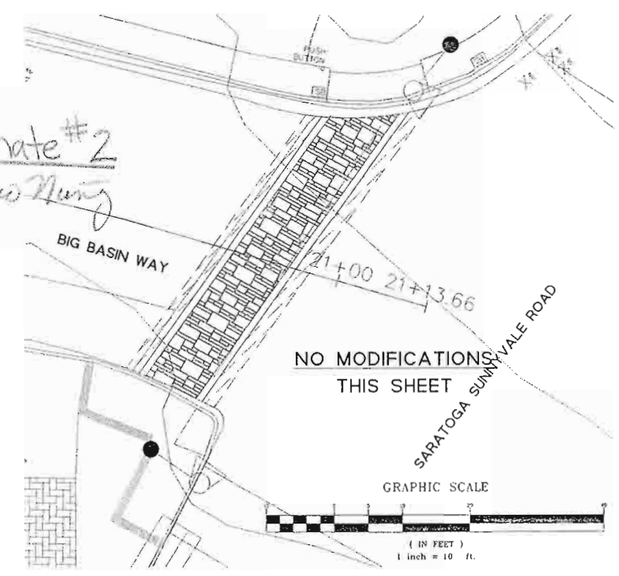


BIG BASIN WAY & SARATOGA LOS GATOS ROAD
GRADING PLAN

CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	DELTA	NORTHING	EASTING
①	42.42	958.00	21.21	2°32'12"	1919863.54	6116452.39
②	190.70	350.00	97.78	31°13'04"	1920203.57	6115964.04
③	13.45	8.00	8.94	96°19'27"	1920396.81	6115725.14



BIG BASIN WAY & SARATOGA SUNNYVALE ROAD
LAYOUT PLAN



BIG BASIN WAY & SARATOGA SUNNYVALE ROAD
GRADING PLAN

LEGEND

- PROPOSED CROSSWALK (SEE LANDSCAPE PLANS FOR DETAIL)
- PROPOSED MEDIAN PLANTER (SEE LANDSCAPE PLANS FOR DETAIL)
- PROPOSED TEXTURED MEDIAN (SEE LANDSCAPE PLANS FOR DETAIL)
- PROPOSED HMA-A PLUG, 12" DEPTH

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.0176 FAX: 925.030.0901
WWW.GGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

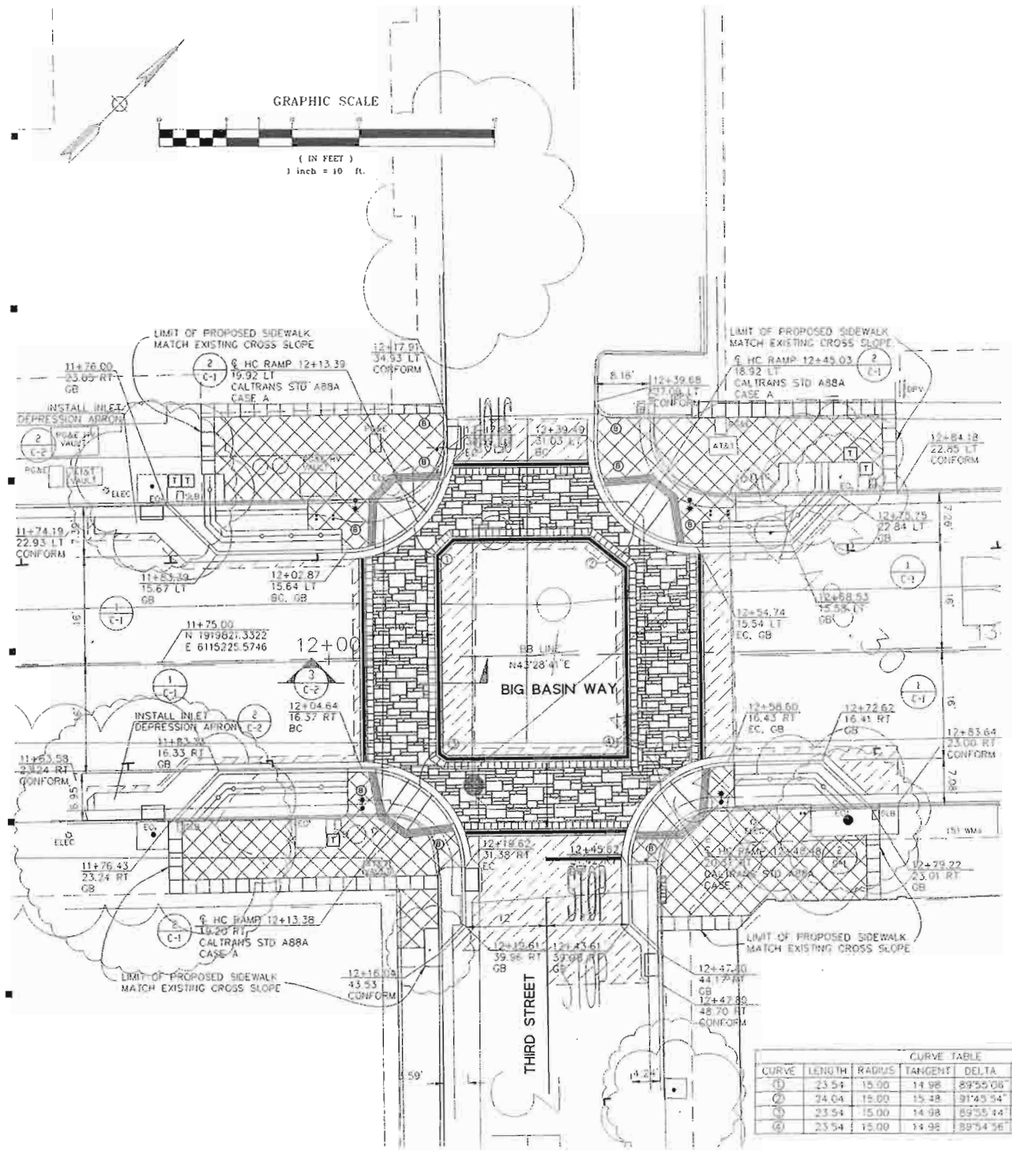
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	08 C:\SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010

SCALE: 1" = 10' (0 5 10 20)

LAYOUT & DRAINAGE PLAN

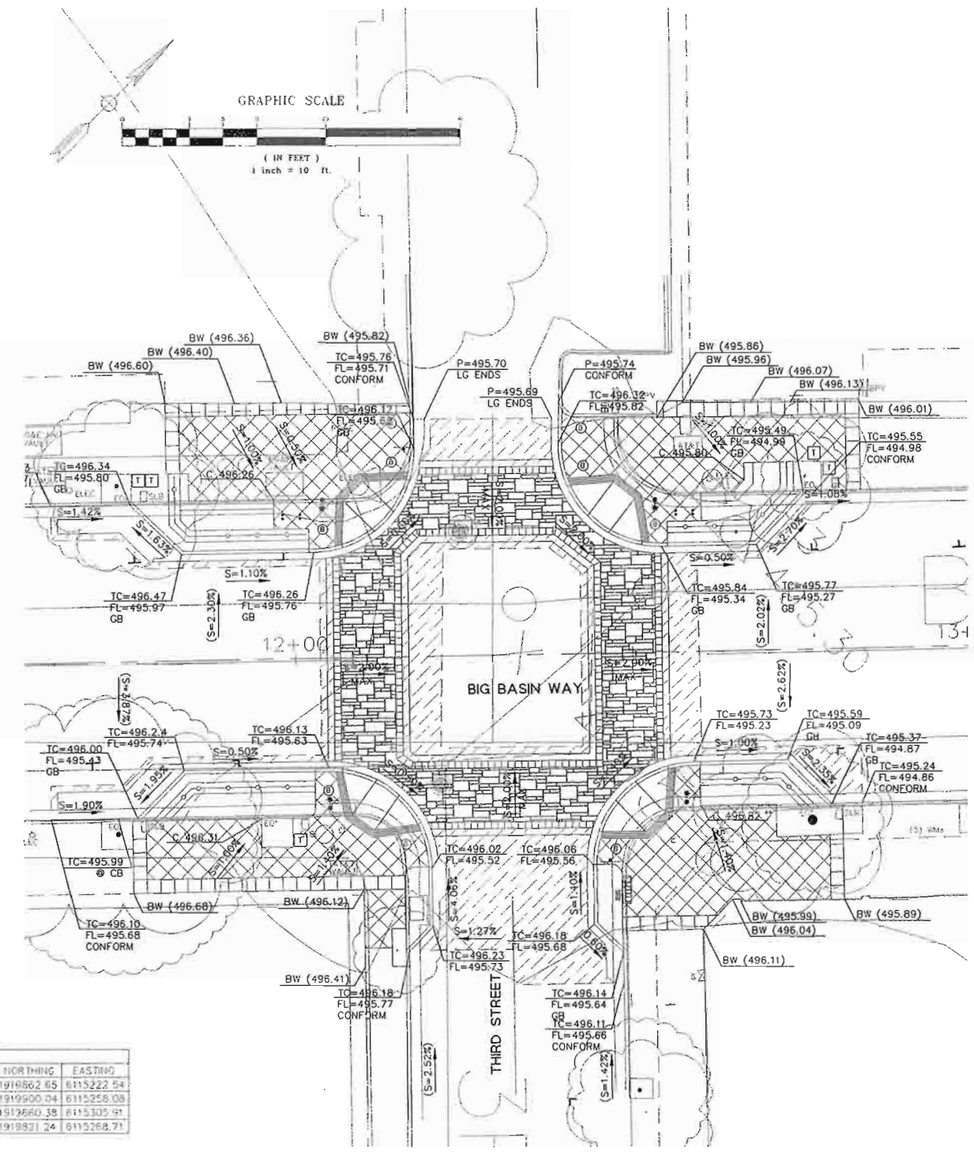
L-1

PROJECT NORTH 7 OF 38 SHEETS



CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	DELTA	NORTHING	EASTING
①	23.54	15.00	14.98	89°55'06"	1919862.65	6115222.54
②	24.04	15.00	15.48	91°43'54"	1919900.04	6115258.08
③	23.54	15.00	14.98	89°55'14"	1919860.38	6115305.91
④	23.54	15.00	14.98	89°54'56"	1919821.24	6115288.71

BIG BASIN WAY & THIRD STREET
LAYOUT PLAN



BIG BASIN WAY & THIRD STREET
GRADING PLAN

PROPOSED CROSSWALK (SEE LANDSCAPE PLANS FOR DETAIL)

PROPOSED MEDIAN PLANTER (SEE LANDSCAPE PLANS FOR DETAIL)

PROPOSED TEXTURED MEDIAN (SEE LANDSCAPE PLANS FOR DETAIL)

PROPOSED HMA-A PLUG, 12" DEPTH

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

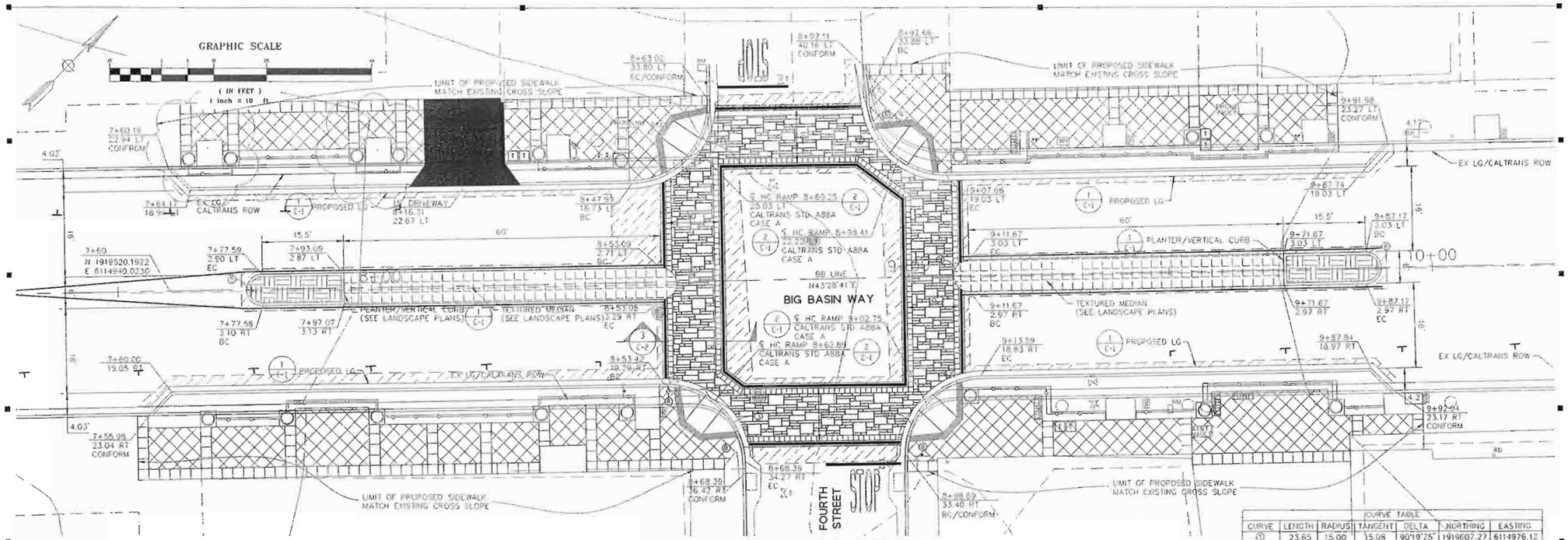
BID SET

REVISION:	DESCRIPTION:	DATE:

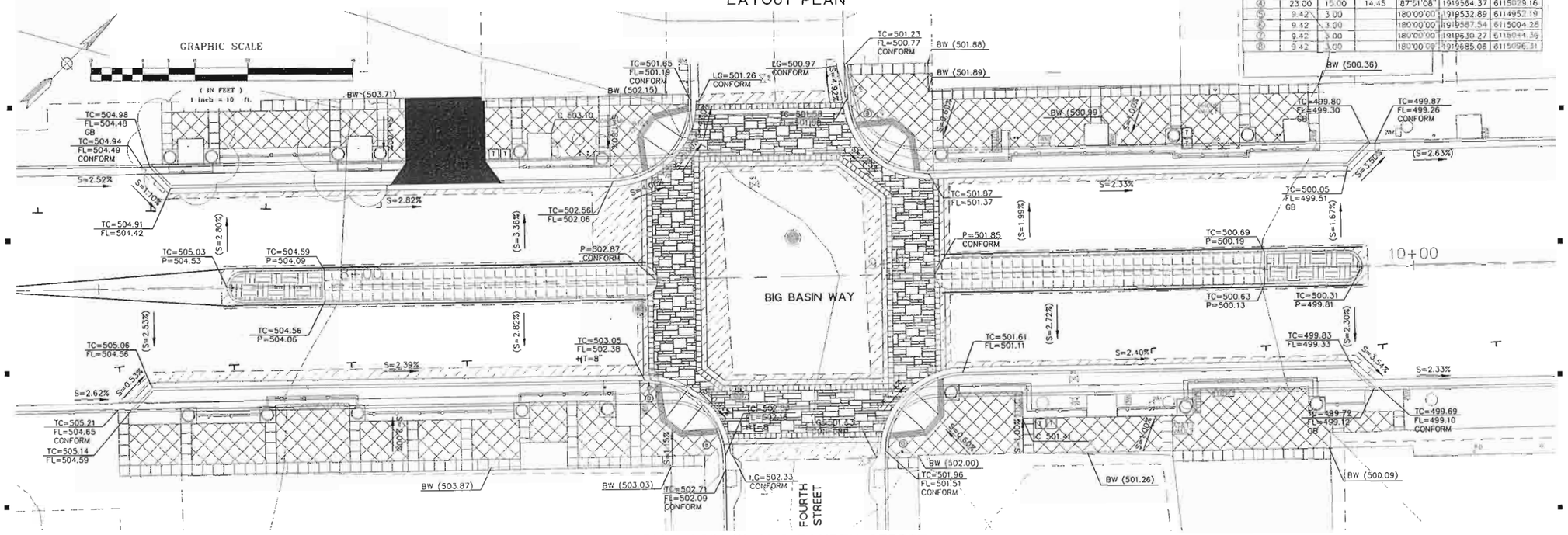
PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: DG C-SARATOGA VILLAGE.DWG
DRAWN: MK/AL
CHECK: CR
DATE: MARCH 16, 2010
SCALE: 1" = 10' (0 5 10 20)

LAYOUT & DRAINAGE PLAN

L-2



CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	DELTA	NORTHING	EASTING
1	23.65	15.00	15.08	90°19'25"	1919607.27	6114976.12
2	23.41	15.00	14.84	89°25'04"	1919650.76	6115016.93
3	23.50	15.00	14.94	89°46'24"	1919608.34	6115070.42
4	23.00	15.00	14.45	87°51'08"	1919564.37	6115029.16
5	9.42	3.00		180°00'00"	1919532.89	6114952.19
6	9.42	3.00		180°00'00"	1919587.54	6115004.28
7	9.42	3.00		180°00'00"	1919630.27	6115044.36
8	9.42	3.00		180°00'00"	1919685.08	6115096.31



LEGEND

- PROPOSED CROSSWALK (SEE LANDSCAPE PLANS FOR DETAIL)
- PROPOSED MEDIAN PLANTER (SEE LANDSCAPE PLANS FOR DETAIL)
- PROPOSED TEXTURED MEDIAN (SEE LANDSCAPE PLANS FOR DETAIL)
- PROPOSED HMA-A PLUG, 12" DEPTH

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.6176 FAX: 925.830.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

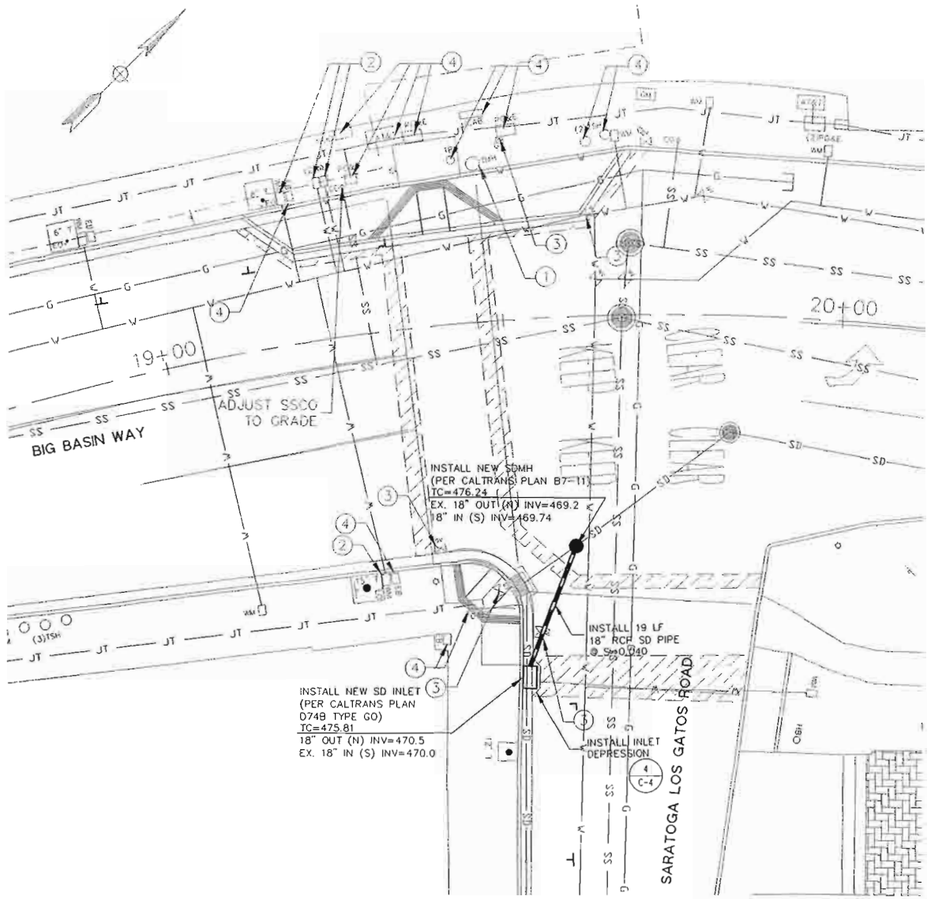
REVISION:	DESCRIPTION:	DATE:

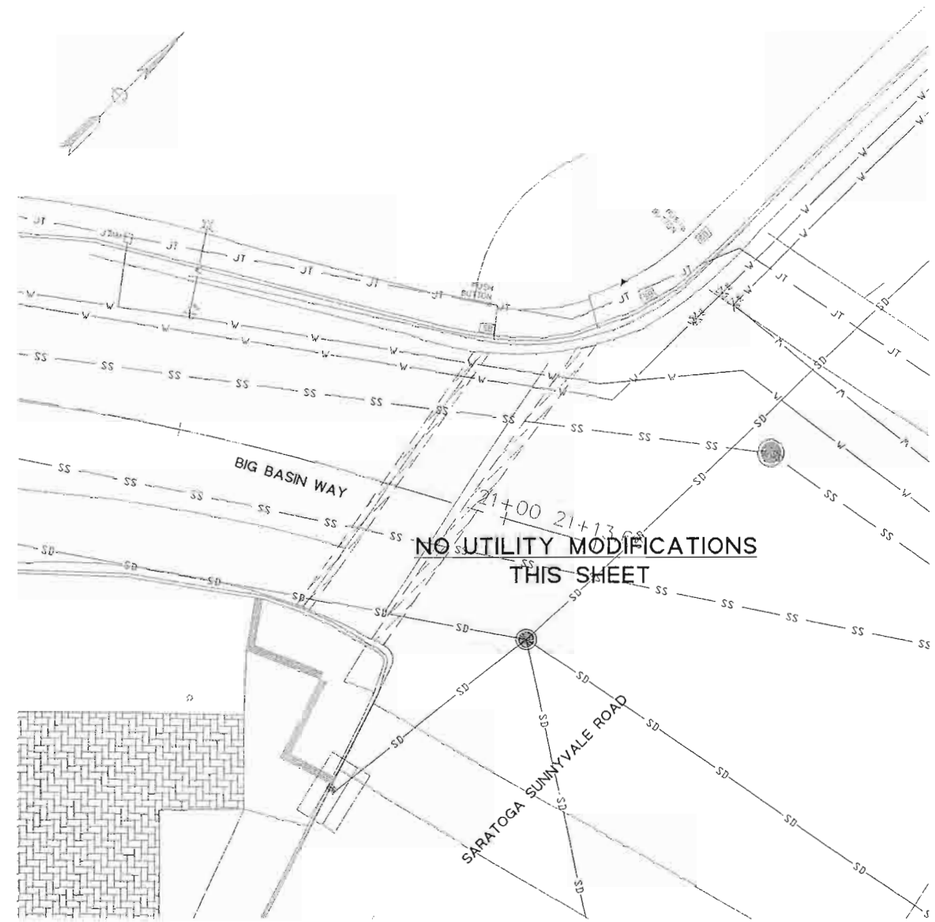
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	GG C:\SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010

SCALE: 1" = 10' (0 5 10 20)

LAYOUT & DRAINAGE PLAN

L-3





LEGEND

—S—	(E) SANITARY SEWER MAIN
—W—	(EX) WATER MAIN
—SD—	(EX) STORM DRAIN
—JT—	(EX) JOINT TRENCH
WV, WM	(EX) WATER VALVE, WATER METER
FH	(EX) FIRE HYDRANT
	(EX) SANITARY SEWER MANHOLE
	(EX) STORM DRAIN MANHOLE
	(EX) TREE
SSCO	(EX) SANITARY SEWER CLEANOUT (SSCO)
	(EX) STORM DRAIN INLET
	(PR) STORM DRAIN
	(PR) STORM DRAIN INLET
FH	(PR) FIRE HYDRANT
	(PR) STORM DRAIN MANHOLE

NOTES:

1. ALL NEW INLETS SHALL BE PER CALTRANS STANDARD PLAN D74B TYPE GO.

(1) ADJUST MANHOLE TO GRADE

(2) ADJUST METER TO GRADE

(3) ADJUST VALVE TO GRADE

(4) ADJUST UTILITY VAULT/BOX TO GRADE

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN

2671 CROW CANYON RD, SAN RAMON, CA, 94583
TEL: 925.735.8176 FAX: 925.838.8901
WWW.DGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

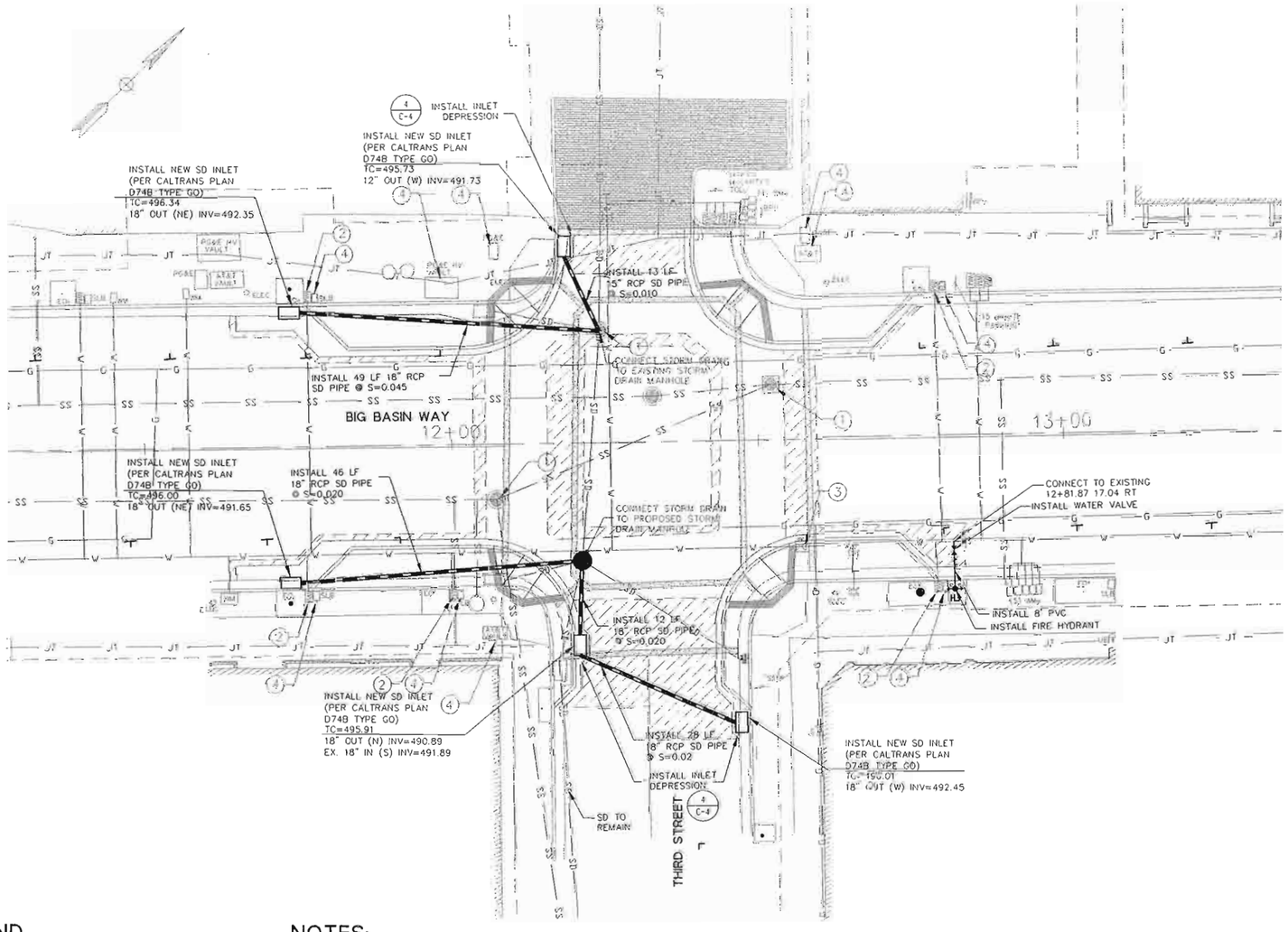
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	DG C-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010

SCALE: 1" = 10' 0 5 10 20

UTILITY PLAN

U-1

PROJECT NORTH



LEGEND

- (E) SANITARY SEWER MAIN
- (EX) WATER MAIN
- (EX) STORM DRAIN
- (EX) JOINT TRENCH
- (EX) WATER VALVE, WATER METER
- (EX) FIRE HYDRANT
- (EX) SANITARY SEWER MANHOLE
- (EX) STORM DRAIN MANHOLE
- (EX) TREE
- (EX) SANITARY SEWER CLEANOUT (SSCO)
- (EX) STORM DRAIN INLET
- (PR) STORM DRAIN
- (PR) STORM DRAIN INLET
- (PR) FIRE HYDRANT
- (PR) STORM DRAIN MANHOLE

NOTES:

1. ALL NEW INLETS SHALL BE PER CALTRANS STANDARD PLAN D74B TYPE GO

(1) ADJUST MANHOLE TO GRADE

(2) ADJUST METER TO GRADE

(3) ADJUST VALVE TO GRADE

(4) ADJUST UTILITY VAULT/BOX TO GRADE

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATEO.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

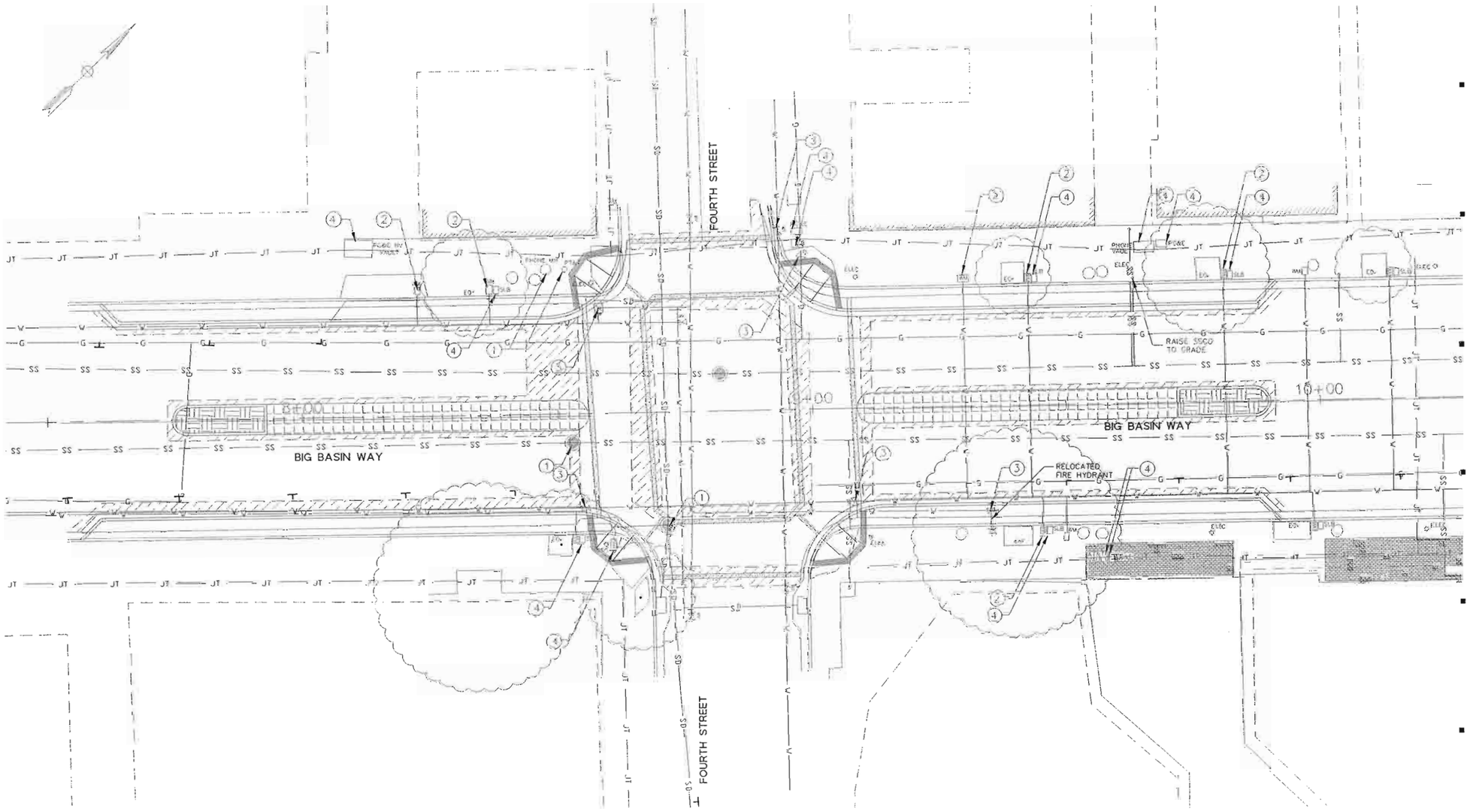
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: DG C-SARATOGA VILLAGE.DWG
DRAWN: MK/AL
CHECK: CR
DATE: MARCH 10, 2010
SCALE: 1" = 10' 0 5 10 20

UTILITY PLAN

U-2

PROJECT NORTH



LEGEND

- (E) SANITARY SEWER MAIN
- (EX) WATER MAIN
- (EX) STORM DRAIN
- (EX) JOINT TRENCH
- (EX) WATER VALVE, WATER METER
- (EX) FIRE HYDRANT
- (EX) SANITARY SEWER MANHOLE
- (EX) STORM DRAIN MANHOLE
- (EX) TREE
- (EX) SANITARY SEWER CLEANOUT (SSCO)
- (EX) STORM DRAIN INLET
- (PR) STORM DRAIN
- (PR) STORM DRAIN INLET
- (PR) FIRE HYDRANT
- (PR) STORM DRAIN MANHOLE

NOTES:

1. ALL NEW INLETS SHALL BE PER CALTRANS STANDARD PLAN D74B TYPE GO

(1) ADJUST MANHOLE TO GRADE

(2) ADJUST METER TO GRADE

(3) ADJUST VALVE TO GRADE

(4) ADJUST UTILITY VAULT/BOX TO GRADE

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.0001
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

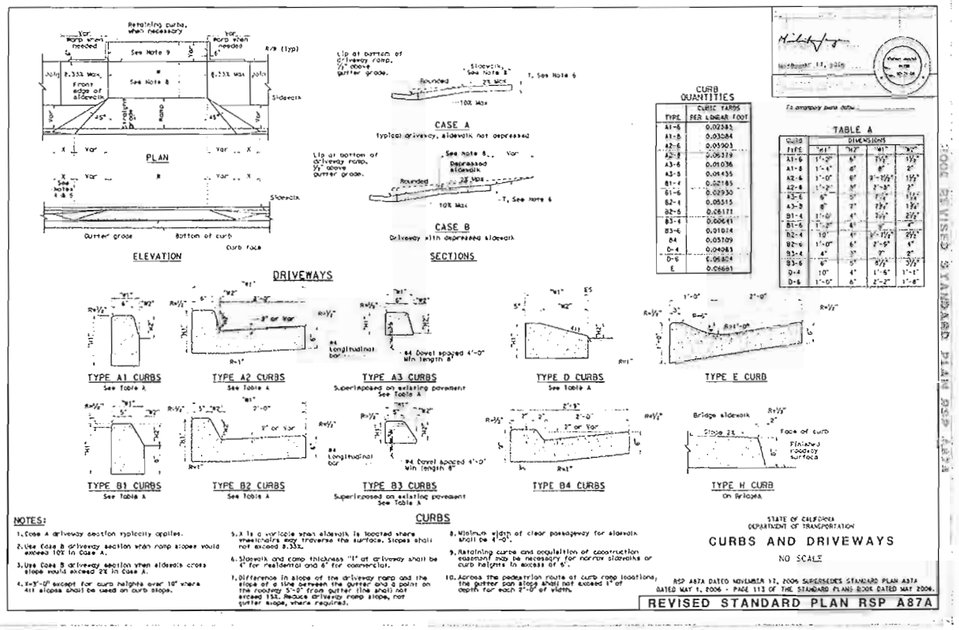
BID SET

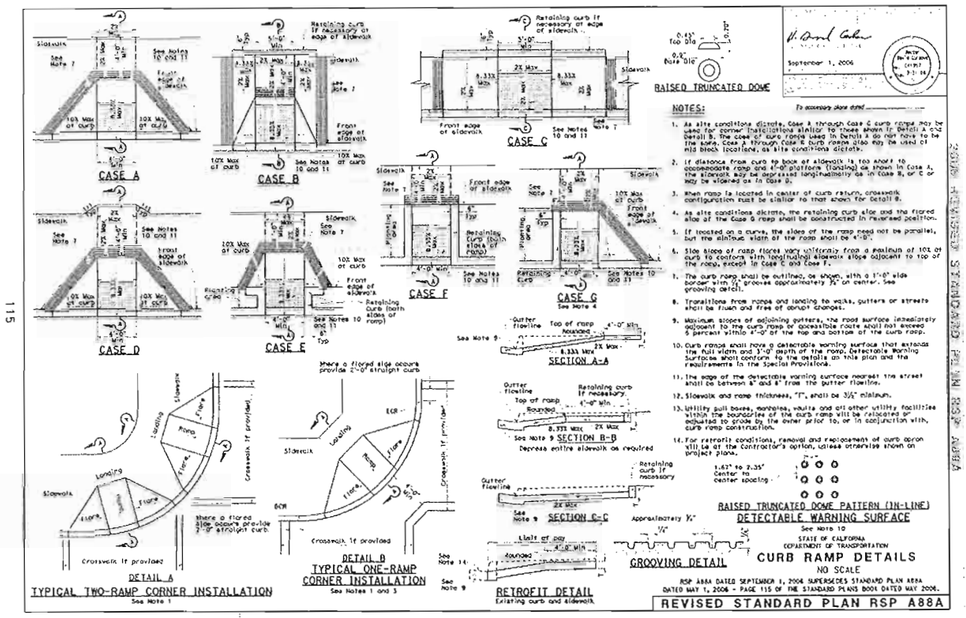
REVISION:	DESCRIPTION:	DATE:

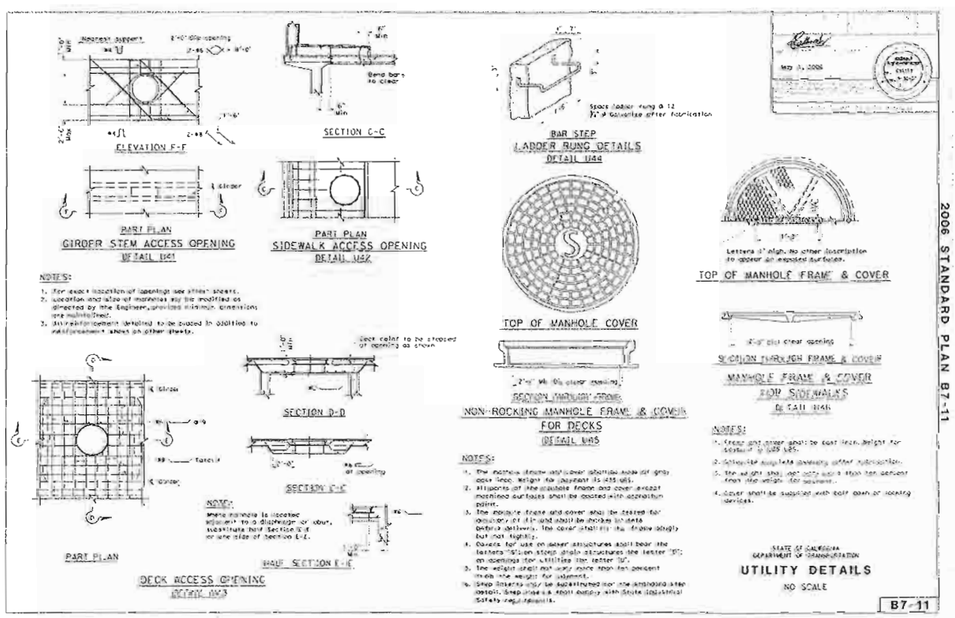
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	06 C-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010
SCALE: 1" = 10'	0 5 10 20

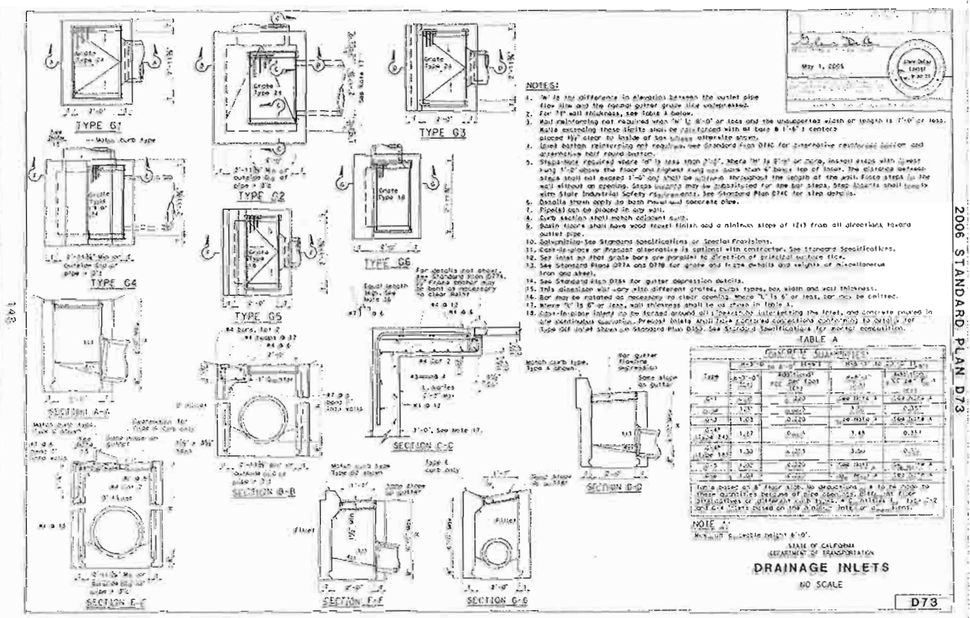
UTILITY PLAN

U-3









GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN

2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.730.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

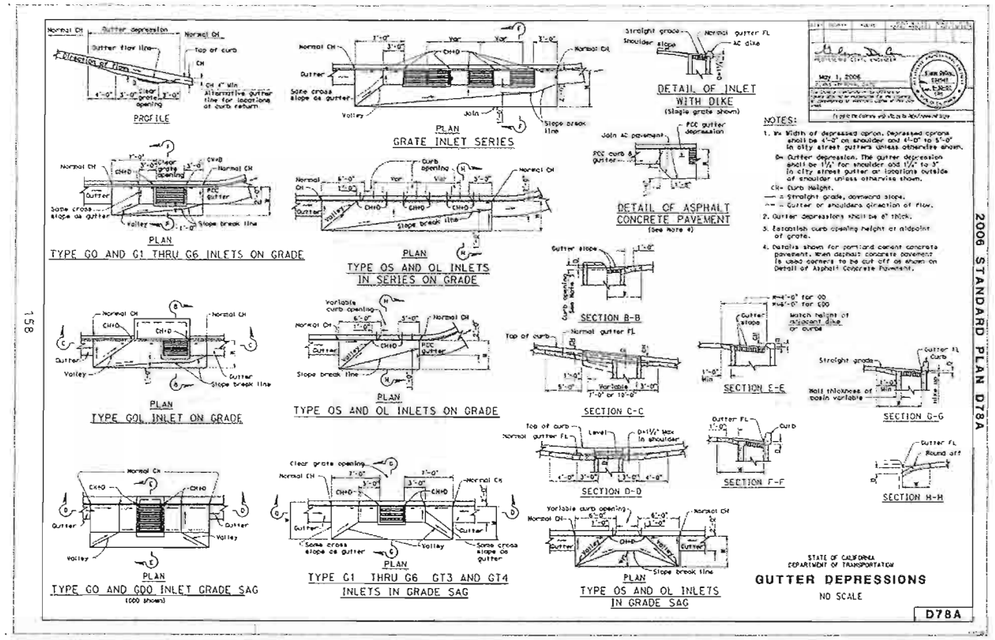
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: GG C-SARATOGA VILLAGE.DWG
DRAWN: MK/AL
CHECK: CR
DATE: MARCH 16, 2010
SCALE: NTS

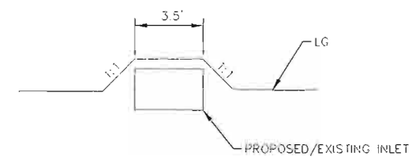
CONSTRUCTION DETAILS

C-1

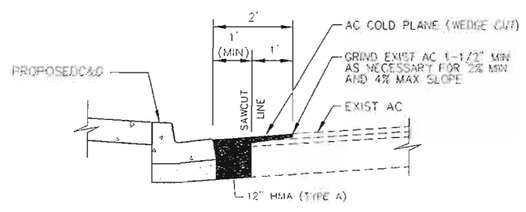
PROJECT NORTH 13 OF 38 SHEETS



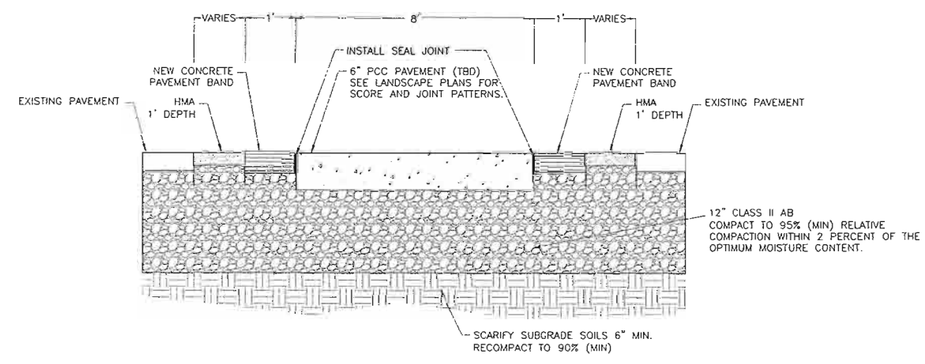
GUTTER DEPRESSION (4)
NTS



GUTTER DEPRESSION (4)
NTS



AC SAWCUT DETAIL (1)
NTS



CROSSWALK CROSS SECTION (3)
NTS

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.0901
WWW.GGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

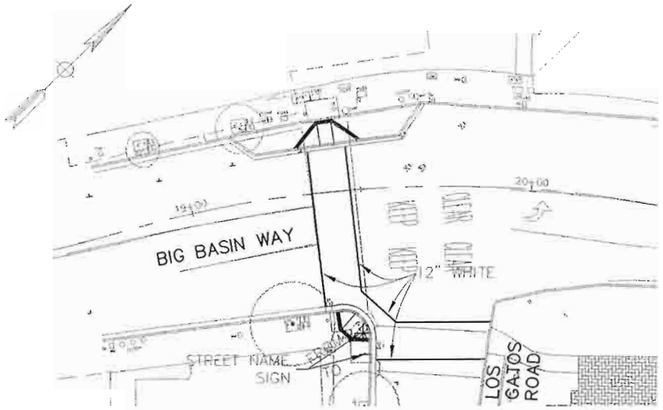
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	00 C-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010
SCALE: NTS	

CONSTRUCTION DETAILS

C-2

PROJECT NORTH 14 OF 38 SHEETS



BIG BASIN WAY & SARATOGA LOS GATOS ROAD

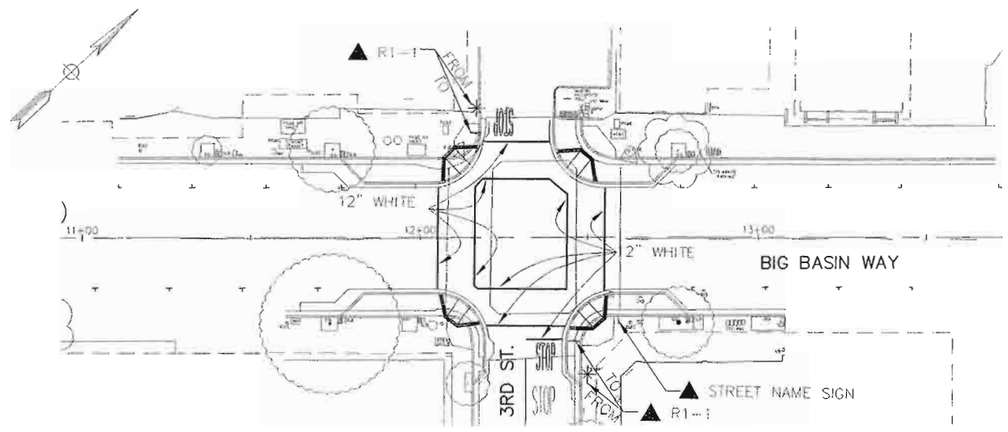
BIG BASIN WAY & SARATOGA SUNNYVALE ROAD

GENERAL NOTES

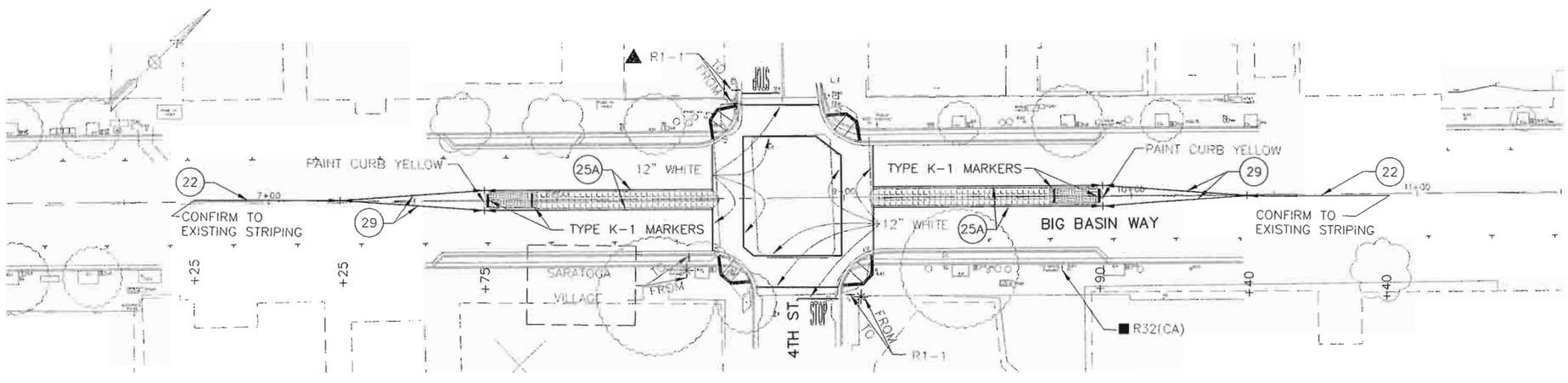
1. ALL ROADSIDE SIGNS ARE BASED ON THE 2006 CALIFORNIA MUTCD.
2. CONTRACTOR SHALL REMOVE EXISTING PAVEMENT DELINEATION WHICH CONFLICT WITH THIS PLAN.
3. SIGN LOCATION SHOWN IS APPROXIMATE. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

LEGEND

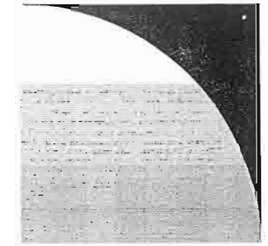
- (No.) PAVEMENT DELINEATION DETAIL PER CALTRANS STANDARD PLANS 2004
- NEW ROADSIDE SIGN TO BE INSTALLED (ONE POST)
- RELOCATE EXISTING ROADSIDE SIGN
- REMOVE EXISTING ROADSIDE SIGN
- EXISTING ROADSIDE SIGN TO REMAIN
- STOP PAVEMENT MARKING "STOP"
- MARKER (TYPE K-1 (CA))



BIG BASIN WAY & 3RD STREET



BIG BASIN WAY & 4TH STREET



GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	DG E-SARATOGA VILLAGE.DWG
DRAWN:	MK/AL
CHECK:	CR
DATE:	MARCH 16, 2010

SCALE: 1" = 30' 0 15 30 60

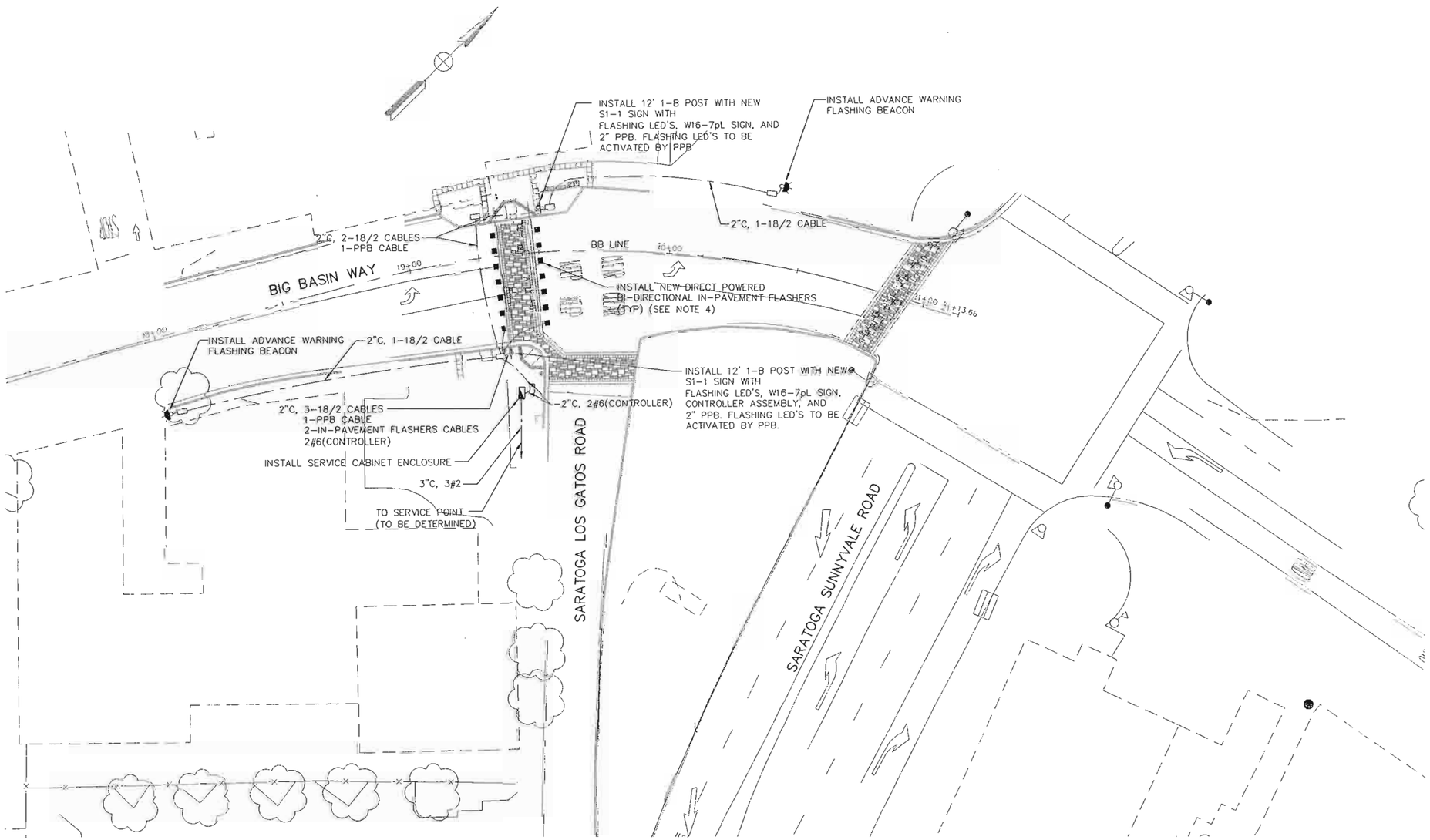
SIGNING & STRIPING PLAN

SS-1

PROJECT NORTH 15 OF 38 SHEETS

NOTES:

1. ALL ELECTRICAL WORK AND LIGHTING EQUIPMENT SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS AND STANDARD PLANS DATED JULY 2006. SEE TECHNICAL PROVISIONS FOR ADDITIONAL INFORMATION.
2. ALL ROADWAY SIGNING SHALL CONFORM TO CALTRANS STANDARD PLANS DATED JULY 2006, STANDARD SPECIFICATIONS, AND THE MUTCD CALIFORNIA SUPPLEMENT.
3. EXACT LOCATION OF FLASHING WARNING SIGNS AND BEACON SHALL BE DETERMINED BY THE ENGINEER.
4. IN-PAVEMENT LIGHTING SYSTEM SHALL BE MODEL NO. RS320 BY SPOT DEVICES OR APPROVED EQUAL.
5. CABLES CONNECTING ADVANCE FLASHING BEACON AND FLASHING LED'S SHALL BE 18/2 SO BURIAL PERIPHERAL CABLE MANUFACTURED BY SPOT DEVICES OR APPROVAL EQUAL.
6. CONTRACTOR SHALL REMOVE ALL PAVEMENT MARKERS AT THE CROSSWALK PRIOR TO CONSTRUCTION.



GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD, SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.DGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: DG-C-SARATOGA VILLAGE.DWG
DRAWN: MK/AL
CHECK: CR
DATE: MARCH 16, 2010
SCALE: 1" = 20' (0 5 10 20)

IN-PAVEMENT LIGHTING SHEET

E-1

PROJECT NORTH 16 OF 38 SHEETS

LAYOUT LEGEND

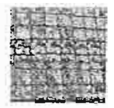
PEDESTRAIN CONCRETE PAVING
FINISH: SALT FINISH
SALT FINISH TO MATCH (E) BANDS AT CROSSWALK AT SUNNYVALE - SARATOGA
COLOR: TO MATCH (E) GREY CONCRETE SIDEWALK

PEDESTRIAN CONCRETE PAVING
FINISH: MEDIUM SANDBLAST
COLOR: TO MATCH (E) GREY CONCRETE SIDEWALK

VEHICULAR CONCRETE PAVING
FINISH: MEDIUM SANDBLAST
COLOR: TO MATCH (E) GREY CONCRETE SIDEWALK

VEHICULAR STAMPED CONCRETE PAVING AT CROSSWALK, S.C.D.
PATTERN: COBBLESTONE--RANDOM INTERLOCKING 300C
MFR: LITHOTEX PAVERCRAFTERS BY L.M. SCHOFIELD CO.
PH. 800-800-3000, OR APPROVED EQUAL.
COLOR OPTIONS (3):
A - 50 SLATE GREY
A - 29 TERRA COTTA
A - 59 BEIGE CREAM
CONTRACTOR TO PROVIDE 4'X4' MOCK UP FOR EACH COLOR FOR REVIEW, FINAL COLOR SELECTION AND APPROVAL.

VEHICULAR STAMPED CONCRETE AT MEDIAN
MFR: L.A. SCHOFIELD
PH.: 800-800-900-
PATTERN/ FINISH: CLASSIC 4" COBBLE STONE 3170
COLOR: TO MATCH THE SELECTED COLOR OF THE STAMPED CONCRETE AT CROSSWALK



BENCH
MFR: DUMOR
1-800-598-4018 OR APPROVED EQUAL
MODEL: REDWOOD BENCH 57-60r 6' LONG
MOUNT: EMBEDDMENT
METAL ARM FINISH: POWDER COATED GREEN
INSTALL PER MANUFACTURE'S SPECIFICATIONS

POTS: (9 / LA4.1)
MFR: ARCHITECTURAL POTTERY
PH. (714)895-3359
MODEL: DANA HOUSE VASE, FLWDH-34 (33.5" O.D., 30" I.D., 13.5" HT.)
COLOR FINISH: CREAM
INSTALL PER DETAIL
CONTRACTOR TO SUBMIT COLOR SAMPLE FOR REVIEW AND APPROVAL

BIKE RACK:
MFR: DUMOR
1-800-598-4018 OR APPROVED EQUAL
MODEL: 83-00 POWDER COATED LOOP, S-1 EMBEDMENT
COLOR: GREEN, SUBMIT COLOR SAMPLE FOR APPROVAL
INSTALL PER MFG SPECS

CONCRETE WALL WITH PRECAST CONCRETE CAP AND WOOD RAILING (SIM. TO 1 / LA4.2)
CONCRETE SEATWALL FINISH: MEDIUM SANDBLAST ALL VISIBLE FACES
CONCRETE SEATWALL COLOR: DAVIS COLORS -PEWTER 860
CONCRETE CAP COLOR: DAVIS COLORS -SANDSTONE 5237
PH.: 800-356-4848

CONCRETE SEATWALL WITH PRECAST CONCRETE CAP AND WOOD RAILING (1 / LA4.2)
CONCRETE SEATWALL FINISH: MEDIUM SANDBLAST ALL VISIBLE FACES
CONCRETE SEATWALL COLOR: DAVIS COLORS -PEWTER 860
CONCRETE CAP COLOR: DAVIS COLORS -SANDSTONE 5237
PH.: 800-356-4848

CONCRETE SEATWALL WITH PRECAST CONCRETE CAP (SIM. TO 1 / LA4.2)
CONCRETE SEATWALL FINISH: MEDIUM SANDBLAST ALL VISIBLE FACES
CONCRETE SEATWALL COLOR: DAVIS COLORS -PEWTER 860
CONCRETE CAP COLOR: DAVIS COLORS -SANDSTONE 5237
PH.: 800-356-4848

LIGHT POLE WITH BRACKETS (4 / LA4.2)
MFR: HADCO OR APPROVED EQUAL
AVAIALBE FROM: ASSOCIATED LIGHTING REPS
PH: 510-638-3800
POLE MODEL: 6063-T6
BASE MODEL: 74494-002
BRACKETS: ALUMINUM PLANT HANGER
INSTALL PER MANUFACTURER SPECIFICATIONS. LIGHT FIXTURE TO BE PROVIDED BY CITY OF SARATOGA. CONTRACTOR TO COORDINATE PICK UP AND INSTALLATIONOF LIGHT FIXTURE WITH CITYOF SARATOGA PROJECT REPRESENTATIVE.

HANGING BASKETS, 14" WITH CHAIN HANGERS
MFR: BLOOMMASTER OF COLORADO, INC
PH: 800.253.6008 OR APPROVED EQUAL
ANNUAL PLANT PALETTE: COLEUS, SCAEVOLA, IVY GERANIUM, CASCADING PETUNIA, NEMESIA, TRAILING LOBELIA OR MATCH PLANT PALETTE TO IMAGE
NOTE: AT THE BEGINNING OF THE CONSTRUCTION, CONTRACTOR TO CONTRACT WITH NURSERY TO GROW PLANT PER THE ANNUAL PLANT PALETTE FOR HANGING BASKETS AND ENSURE THE PLANTS ARE AS MATURE AS POSSIBLE WHEN DELIVERED TO THE SITE. THE HANGING BASKETS WILL BE MANUAL IRRIGATED.

LAYOUT LEGEND, CONT.

BOLLARD:
MFR: DUMOR
1-800-598-4018 OR APPROVED EQUAL
MODEL: STEEL BOLLARD 402, 36" HIGH, S-1 EMBEDMENT
COLOR: POWDER COATED 'ARGENTO'
SUBMIT COLOR SAMPLE FOR APPROVAL.
INSTALL PER MFR'S SPECS.

REMOVABLE BOLLARD:
MFR: DUMOR
PH: 800-598-4018 OR APPROVED EQUAL
MODEL: STEEL BOLLARD 402-36, 36" HIGH, S-15L
COLOR: POWDER COATED 'ARGENTO'
SUBMIT COLOR SAMPLE FOR REVIEW AND APPROVAL.
INSTALL PER MFR'S SPECS.

RELOCATED STREET SIGN, S.C.D.

RELOCATED TRASH RECEPTACLE

RELOCATED HYDRANT, S.C.D.

LAYOUT NOTES

1. CONTRACTOR SHALL VERIFY ALL GRADES, EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK. ALL DISCREPANCIES OR QUESTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR RESOLUTION.
2. ALL WRITTEN DIMENSIONS SUPERSEDE ALL SCALED DISTANCES AND DIMENSIONS. DIMENSIONS SHOWN ARE FROM THE FACE OF THE BUILDING, WALL, BACK OF CURB, EDGE OF WALK, PROPERTY LINE, OR CENTERLINE OF COLUMN UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. ALL DIMENSIONS AT BUILDING ARE TO FACE OF BUILDING. ALL DIMENSIONS AT ROADWAY ARE TO FACE OF CURB.
4. ALL ANGLES ARE 45 DEGREE, 90 DEGREE, OR 135 DEGREE UNLESS OTHERWISE NOTED.
5. ALL CURVES AND ALL TRANSITIONS BETWEEN CURVES AND STRAIGHT EDGES SHALL BE SMOOTH.
6. SEE IRRIGATION SCHEMATIC FOR GENERAL SYSTEM REQUIREMENTS AND FOR LOCATION OF IRRIGATION MAINLINE PIPING. SLEEVES TO ACCOMMODATE IRRIGATION PIPING, SIZED AS NEEDED, SHALL BE IN PLACE UNDER AND THROUGH SLABS AND WALLS, PRIOR TO POURING.
7. SCORE LINES IN SIDEWALKS SHALL BE SPACED TO EQUAL THE WIDTH OF THE WALKWAY, UNLESS OTHERWISE SHOWN. EXPANSION JOINTS IN SIDEWALKS SHALL BE 30' ON CENTER MAXIMUM.
8. EXPANSION JOINTS IN CONCRETE WALLS SHALL BE AT 100' O.C. MAXIMUM. CONTRACTION JOINTS SHALL BE AT 25' O.C. MAXIMUM.
9. BUILDING LAYOUT AND LOCATION, SIDEWALK, CURB AND GUTTER, GRADING AND DRAINAGE IS BASED ON DRAWINGS PREPARED BY THE CIVIL ENGINEER.

EJ	EXPANSION JOINT LOCATE AS SHOWN, AT ALL JOINTS BETWEEN PAVING & WALLS, AND AT ALL CHANGES IN PAVING MATERIAL.
	SCORELINE
TBD	TO BE DETERMINED
SP	SPACING
	POINT OF BEGINNING
F.O.B.	FACE OF BUILDING
TYP.	TYPICAL
EQ	EQUAL
CONT.	CONTINUOUS
S.C.D.	SEE CIVIL'S DRAWINGS
S.S.D.	SEE STRUCTURAL'S DRAWINGS
SIM	SIMILAR
R	RADIUS - ALL RADII GIVEN FOR WALLS ARE DIMENSIONED TO OUTSIDE OF WALLS.
	ALIGN
℄	CENTER LINE
EQ	EQUAL
PA	PLANTING AREA
— — —	LIMIT OF WORK

GENERAL NOTES

1. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF ENGINEER.
2. EXCAVATIONS SHALL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL EFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING AND BRACING OR EQUIVALENT METHOD, FOR THE PROTECTION OF LIFE, OR LIMB, WHICH SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE STATE OF CALIFORNIA, THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE WORK SHOWN IN THESE PLANS FROM THE APPROPRIATE AGENCIES.
4. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF AN AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM HIS FAILURE TO DO SO.
5. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGGERS OR OTHER DEVICES NECESSARY TO PROVIDE FOR SAFETY.
7. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF JOB SITE.
8. ANY EXTRA CONSTRUCTION STAKING NECESSITATED SOLELY BY THE CONTRACTOR'S NEGLIGENCE WILL BE CHARGED TO THE CONTRACTOR ON A TIME AND EXPENSES BASIS AND PAID FOR BY THE CONTRACTOR.
9. STATIONING HEREON IS ALONG CONSTRUCTION CENTERLINE UNLESS OTHERWISE SHOWN OR INDICATED.
10. ALL RETURN RADII AND CURB DATA ARE TO FACE OF CURB.
11. WHENEVER BOTTOM OF WALL (BW) ELEVATION IS GIVEN, IT IS FINISH PAVEMENT OR GRADE ELEVATION AT FACE OF WALL.
12. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.
13. LENGTHS OF SANITARY SEWERS AND STORM DRAINS ARE HORIZONTAL DISTANCES FROM CENTER TO CENTER OF STRUCTURES, ROUNDED OFF TO THE NEAREST FOOT.
14. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 800-227-2600. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.
15. THE CONSTRUCTION OF ALL GRAVITY UNDERGROUND LINES (SANITARY SEWERS AND STORM DRAINS) SHALL BEGIN AT THE MOST DOWNSTREAM END, UNLESS OTHERWISE SPECIFICALLY APPROVED BY ENGINEER OR BY THE CITY.
16. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CITY ENGINEER OR UTILITY AGENCY REPRESENTATIVE, AT THE CONTRACTOR'S SOLE EXPENSE.
17. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY REPRESENTATIVE INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC. THIS WORK SHALL BE DONE AT NO EXPENSE TO THE UTILITY COMPANY. THE OWNER SHALL PAY THE COST OF ALL SUCH RELOCATION WORK INCLUDING FEES, BONDS, PERMITS, ETC.
18. IF ARCHEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 50 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.
19. THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS, IS NEITHER SPECIFIED NOR RECOMENDED. ANY PARTY INSTALLING OR USING ANY PARTY SUCH MATERIALS OR EQUIPMENT SHALL BE SOLELY RESPONSIBILE FOR ALL INJURIES, DAMAGES, OR LIABILITIES OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIALS OR EQUIPMENT.
20. THE CONTRACTOR SHALL MEET AND FOLLOW ALL NPDES REQUIREMENTS IN EFFECT AT THE TIME OF CONSTRUCTION.
21. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT GATES & ASSOCIATES AT (925) 736-8176 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
22. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PUBLIC SAFETY AND SAFETY OF EXISTING STRUCTURES. THE CONTRACTOR SHALL PROVIDE ADEQUATE BARRICADES, TRAFFIC CONTROLS, SHORINGS, BRACING AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE SPECS AND LOCAL SAFETY ORDINANCES.
23. ALL APPLICABLE REQUIREMENTS OF THE CALIFORNIA CONSTRUCTION AND GENERAL INDUSTRY SAFETY ERRORS, THE OCCUPATIONAL SAFETY AND HEALTH ACT AND THE CONSTRUCTION SAFETY ACT SHALL BE MET.
24. ALL CONSTRUCTION PROCEDURES SHALL CONFORM TO CAL-OSHA STANDARDS. ANY DEVIATION MUST BE APPROVED BY CAL-OSHA PRIOR TO CONSTRUCTION.

TREE PROTECTION NOTES:

1. PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITY IN THE AREA, INCLUDING GRADING, TEMPORARY PROTECTIVE FENCING SHALL BE INSTALLED AT EACH SITE TREE. FENCING SHALL BE LOCATED AT OR BEYOND THE CANOPY DRIP LINE SO THAT 100% OF THE DRIP LINE WILL BE PROTECTED BY FENCING. TO REDUCE SOIL CAMPACTION FROM EQUIPMENT, A MULCH OF 1-2 INCH SIZED WOOD CHIPS SHALL BE PLACED AT A DEPTH OF 4 INCHES WHERE NO EXCAVATION IS TO OCCUR IN THE VICINITY OF THE TREES TO BE PROTECTED.
2. THE TREE PROTECTION FENCE SHALL BE 6' HIGH CHAIN LINK WITH IMMOVABLE POSTS. THE FENCING SHALL FORM A CONTINUOUS BARRIER WITHOUT ENTRY POINTS AROUND EACH TREE. ANY ENCROACHMENT INTO THE DRIP LINE FOR FENCING OR CONSTRUCTION PURPOSES SHALL NOT BE PERMITTED.
3. LOW HANGING LIMBS OF SAVED TREES SHALL BE PRUNED PRIOR TO GRADING, OR ANY EQUIPMENT MOBILIZATION ON SITE. THE PURPOSE OF THIS REQUIREMENT IS TO AVOID TEARING LIMBS BY HEAVY EQUIPMENT. ALL LIMBS TO BE PRUNED SHALL BE SUPERVISED BY THE ARBORIST OF RECORD FOR THE JOB.
4. THIS FENCING SHALL SERVE AS A BARRIER TO PREVENT DRIP LINE ENCROACHMENT OF ANY TYPE OF CONSTRUCTION ACTIVITIES AND EQUIPMENT. NO OILS, GAS, CHEMICALS, LIQUID WASTE, SOLID WASTE CONSTRUCTION MACHINERY OR CONSTRUCTION MATERIALS SHALL BE STORED OR ALLOWED TO STAND FOR ANY PERIOD OF TIME WITHIN THE DRIP LINE OF THE TREE. FURTHER, NO ONE SHALL ENTER THE FENCE PERIMETER FOR ANY REASON EXCEPT FOR THE PURPOSE OF MONITORING THE HEALTH OF THE TREE. ACCIDENTAL DAMAGE TO BARK, ROOT CROWN, OR LIMBS MAY INCREASE POTENTIAL FOR FUTURE DECLINE.
5. CONTRACTORS AND SUBCONTRACTORS SHALL DIRECT ALL EQUIPMENT AND PERSONNEL TO REMAIN OUTSIDE THE FENCED AREA AND AT ALL TIMES UNTIL PROJECT IS COMPLETE, AND SHALL INSTRUCT EMPLOYEES AS TO THE PURPOSE AND IMPORTANCE OF FENCING.
6. A WARNING SIGN SHALL BE POSTED AT EACH TREE INDICATING THE PURPOSE OF THE FENCING.
7. THE ARBORIST OF RECORD FOR THE JOB OR THE CITY ARBORIST SHALL BE RESPONSIBLE FOR INSPECTION AND APPROVAL OF THE FENCING PRIOR TO ANY GRADING OPERATIONS.
8. FENCING MUST REMAIN IN PLACE AND SHALL NOT BE REMOVED UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETED. THIS SHALL INCLUDE GRADING AND COMPACTION ACTIVITIES, INSTALLATION OF UNDERGROUND, ALL CONSTRUCTION ACTIVITIES AND ANY OTHER CONSTRUCTION OR ACTIVITY WHICH IS SCHEDULED PRIOR OR LANDSCAPE INSTALLATION.
9. ROOTS OF SINGLE STANDING TREES OFTEN EXTEND UP TO THREE TIMES THE DISTANCE OF THE ACTUAL DRIP LINE AND FUNCTION PRIMARILY IN THEY UPTAKE OF NUTRIENTS AND WATER. THE DRIP LINE IS ARBITRARILY ESTABLISHED AS THE MINIMUM ROOT AREA GENERALLY REQUIRED TO PRESERVE TREE HEALTH. AS MUCH AREA AROUND THE CIRCUMFERENCE OF THE TREE SHOULD HAVE MINIMUM INTRUSION TO FURTHER INSURE TREE SURVIVAL AND HEALTH.
10. UNAUTHORIZED TREE REMOVAL IS SUBJECT TO IN-KIND REPLACEMENT EQUAL TO THE MATURE RESOURCE LOST, AS DETERMINED BY THE CITY OF WALNUT CREEK.
11. THE CONTRACTOR IS REQUIRED TO WATER, FERTILIZE AND ATTEND TO OTHER MAINTENANCE NEEDS OF EXISTING TREES AS NEEDED PER ARBORIST'S RECOMMENDATIONS TO MAINTAIN HEALTHY GROWTH THROUGHOUT THE CONSTRUCTION PERIOD. SIX FEET DIAMETER, MINIMUM, BY SIX INCH TALL EARTH BERMS SHALL BE CONSTRUCTED AT THE BASE OF EACH TREE TO FUNCTION AS TEMPORARY WATERING BASINS DURING THE CONSTRUCTION PERIOD. TREES SHALL BE WATERED ACCORDING TO WEATHER AND TREE REQUIREMENTS.
12. RELOCATION OF EXISTING TREES SHALL OCCUR UNDER THE OBSERVATION AND DIRECTION OF A CERTIFIED ARBORIST APPROVED BY THE CITY OF WALNUT CREEK. CONTACT CITY FOR ADDITIONAL NOTES REGARDING TREE RELOCATION.
13. PLEASE CONSULT SPECIFICATIONS CONCERNING TREE PROTECTION AND MAINTENANCE PREPARED BY HORTICULTURAL SCIENCES FOR MORE INFORMATION.
14. NO TRENCHING SHALL OCCUR WITHIN THE TREE PROTECTION ZONE. ALL UTILITIES SHALL BE HUNG FROM THE DECK OR PLACED ON TOP OF SUBGRADE BELOW BEDDING AND PERVIOUS PAVING. FOOTINGS SHALL EXTEND TO THE DEPTH OF THE EXISTING SUBGRADE.

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.DGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS
SARATOGA, CA
BID SET

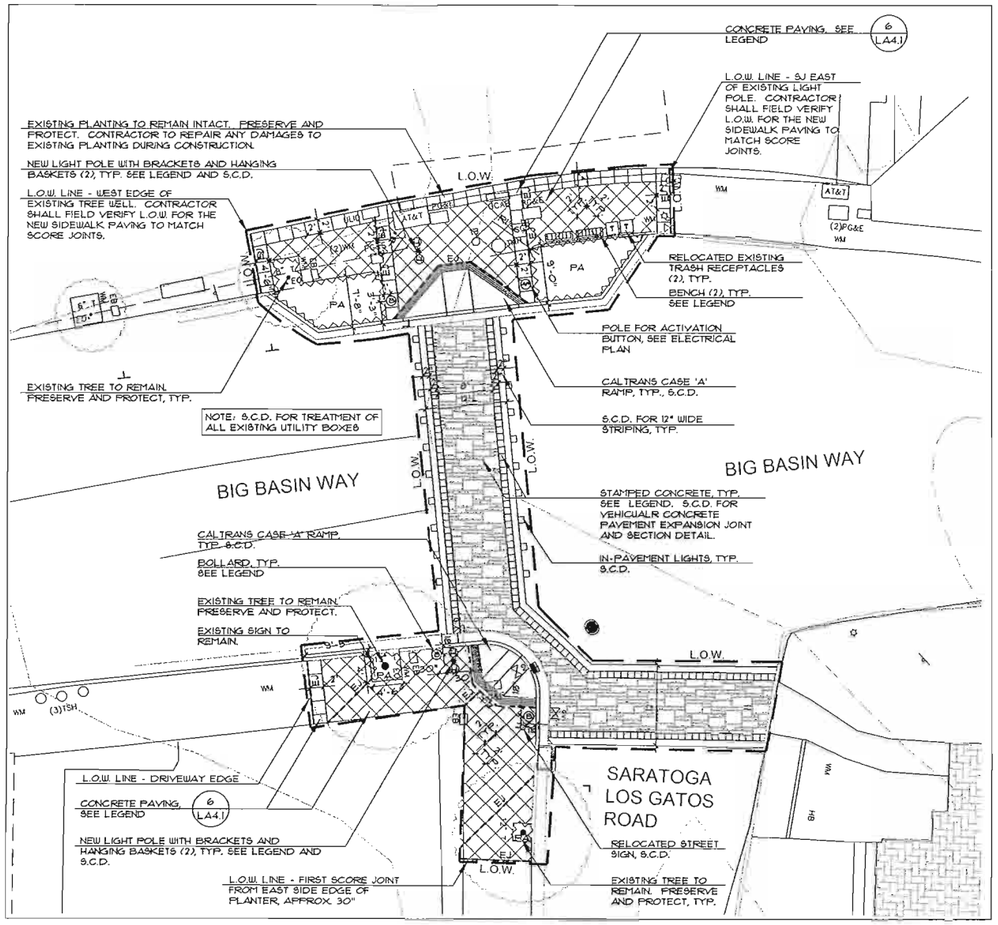
REVISION: DESCRIPTION: DATE:

LANDSCAPE ARCHITECT — STATE OF CALIFORNIA — LA4 — 3-16-10

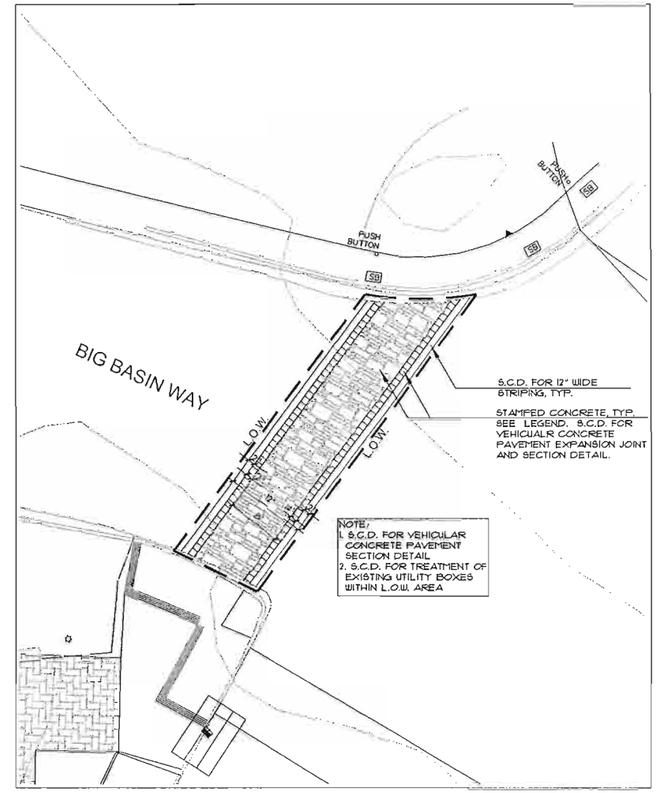
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	
DRAWN:	GL-CJS
CHECK:	KC
DATE:	MARCH 16, 2010
SCALE:	

NOTES AND LEGENDS

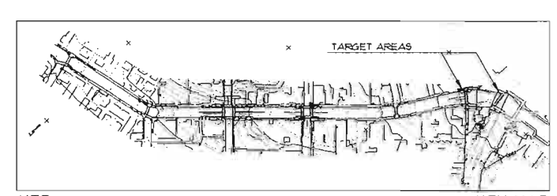
LA1.0



BIG BASIN WAY @ SARATOGA LOS GATOS ROAD
LAYOUT PLAN



BIG BASIN WAY @ SARATOGA SUNNYVALE
LAYOUT PLAN



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
(2P7) CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.649.9901
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT
DAVID GATES & ASSOCIATES
3-16-10
LA 3816
STATE OF CALIFORNIA

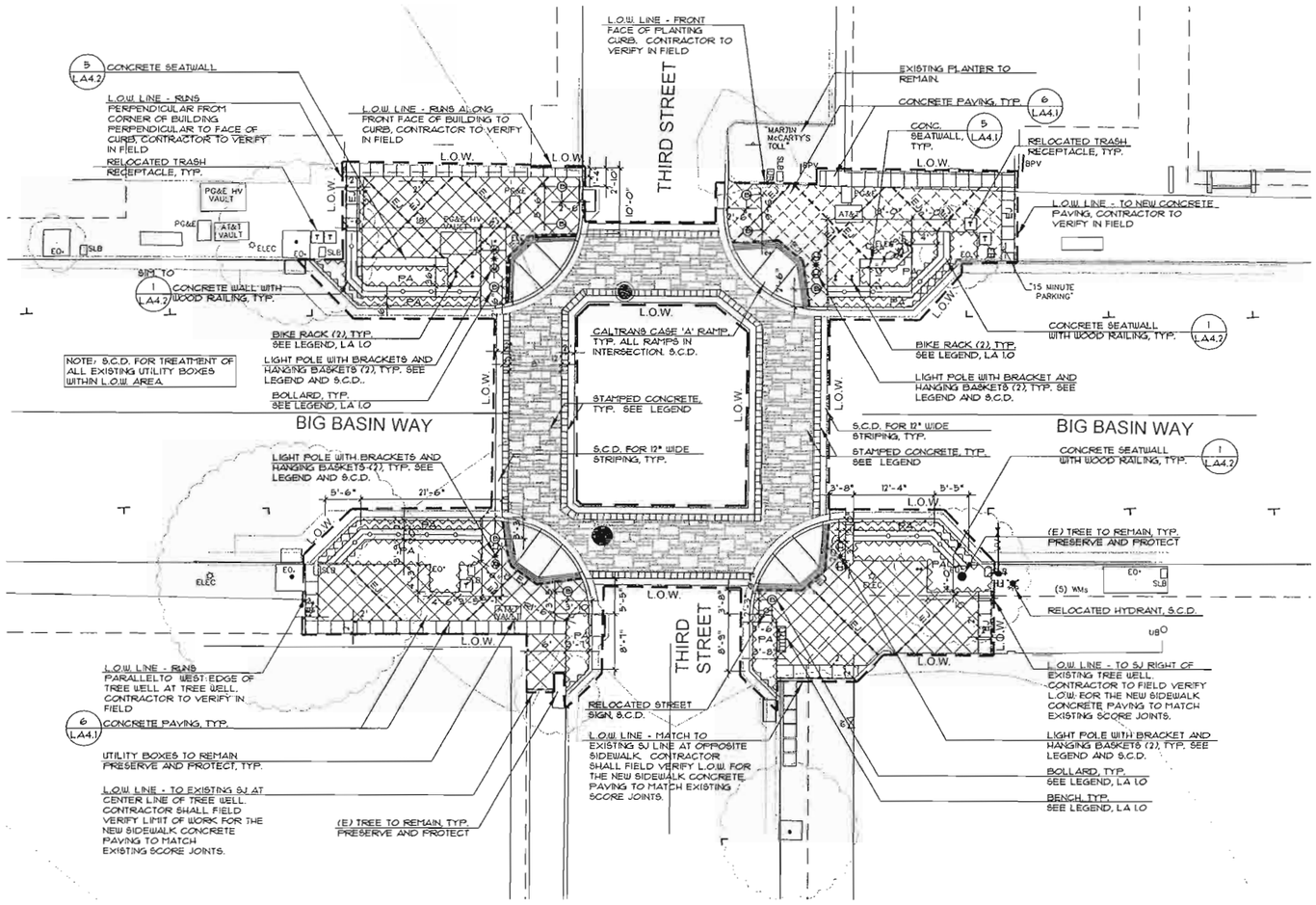
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	00 L-SARATOGA VILLAGE.DWG
DRAWN:	G L-C/JS
CHECK:	KC
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" (0 5 10 20)

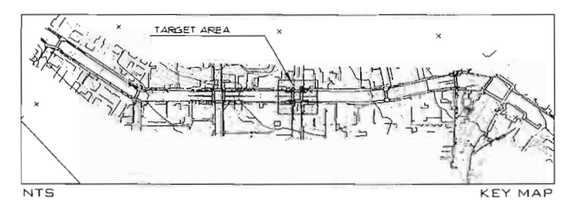
LANDSCAPE PLAN

LA1.1

PROJECT NORTH



BIG BASIN WAY @ THIRD STREET LAYOUT PLAN



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8150 FAX: 925.838.0901
WWW.DGATES.COM

SARATOGA VILLAGE
PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

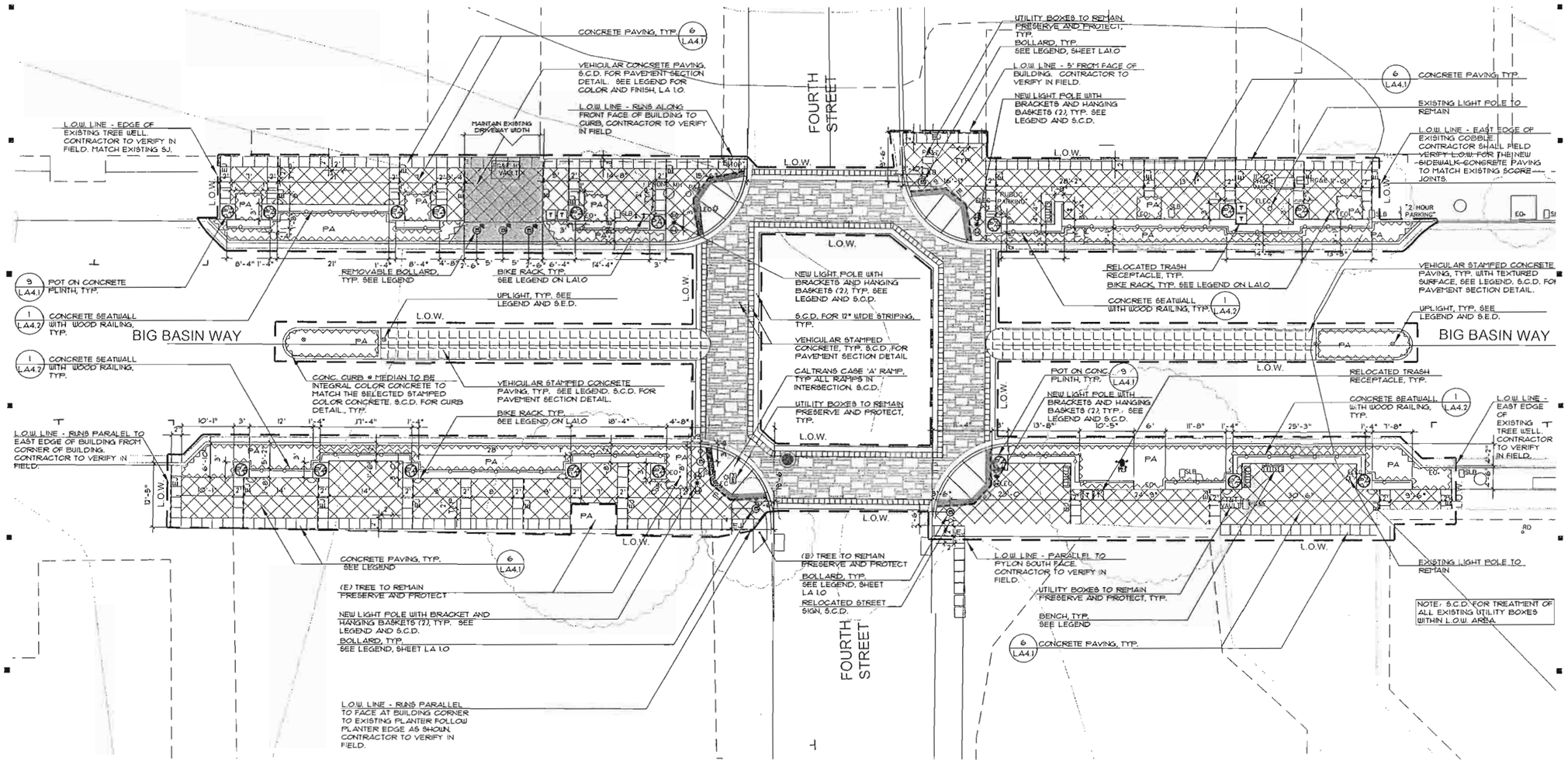
REGISTERED LANDSCAPE ARCHITECT DAVID GATES
3-16-10
STATE OF CALIFORNIA

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3966
PROJECT FILE: DG-L-SARATOGA VILLAGE.DWG
DRAWN: GLC/JS
CHECK: KC
DATE: MARCH 16, 2010
SCALE: 1" 10'-0" 0 5 10 20

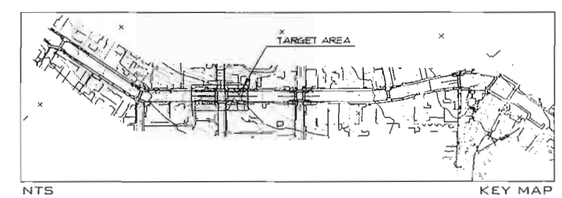
LANDSCAPE PLAN

LA1.2

PROJECT NORTH 19 OF 38 SHEETS



BIG BASIN WAY @ FOURTH STREET DIMENSIONAL LAYOUT PLAN



NTS KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA 94583
TEL: 925.736.8176 FAX: 925.838.0801
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT — STATE OF CALIFORNIA — 3-16-10

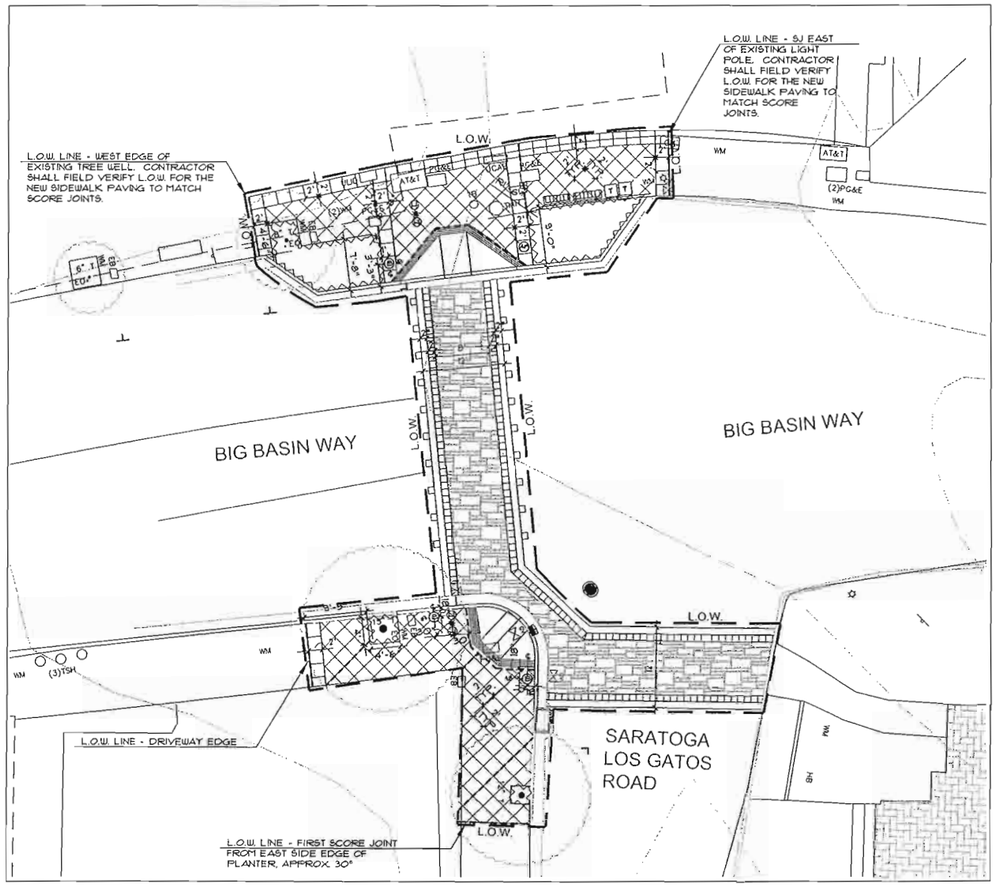
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	GG L-SARATOGA VILLAGE DWG
DRAWN:	G.L-CJS
CHECK:	KC
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" 0 5 10 20

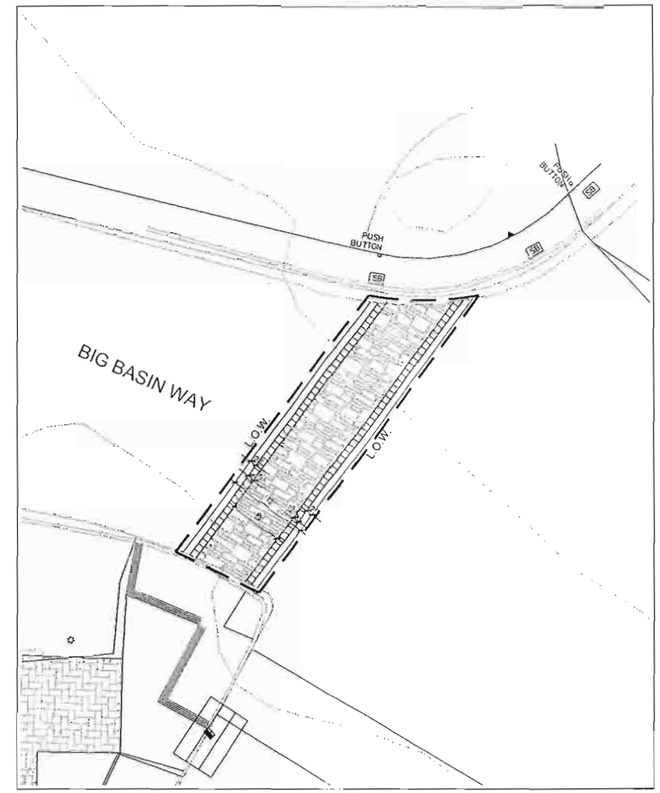
LANDSCAPE PLAN

LA1.3

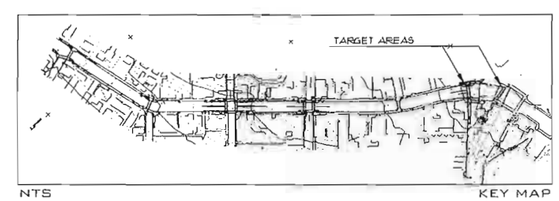
PROJECT NORTH



BIG BASIN WAY @ SARATOGA LOS GATOS ROAD
DIMENSIONAL LAYOUT PLAN



BIG BASIN WAY @ SARATOGA SUNNYVALE
DIMENSIONAL LAYOUT PLAN



NTS KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
3471 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.9176 FAX: 925.839.8901
WWW.DGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

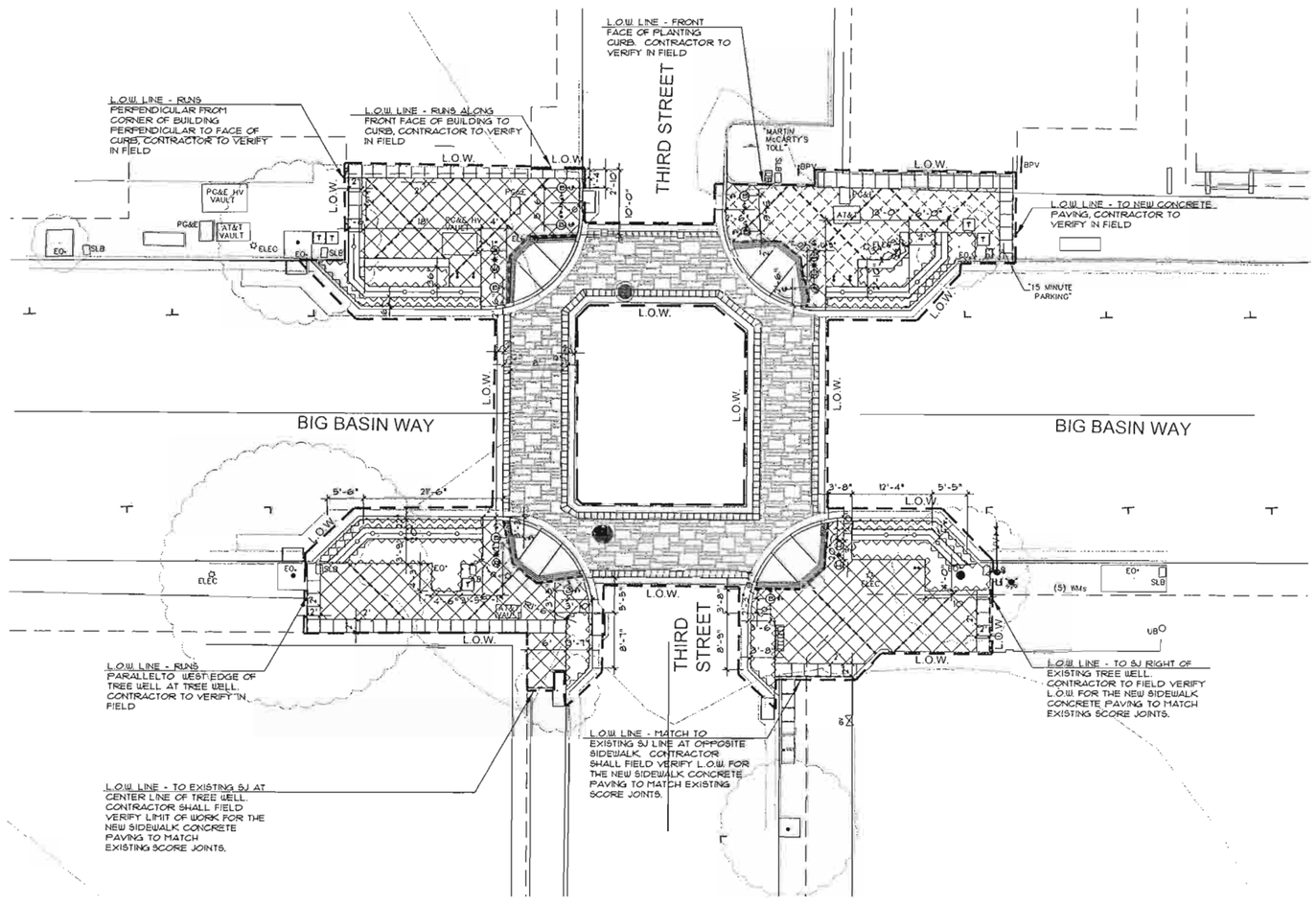
REGISTERED LANDSCAPE ARCHITECT
DAVID GATES - No. 2499
3-16-10
STATE OF CALIFORNIA

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3066
PROJECT FILE: 06 SARATOGA VILLAGE.DWG
DRAWN: G.L.C/JS
CHECK: KC
DATE: MARCH 16, 2010
SCALE: 1"=10'-0" 0 5 10 20

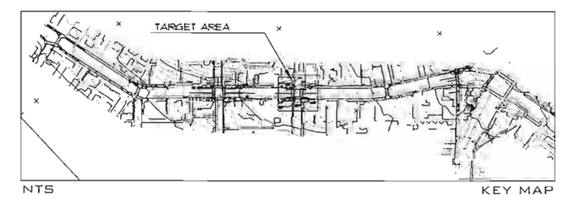
LANDSCAPE PLAN

LA1.4

PROJECT NORTH 21 OF 38 SHEETS



BIG BASIN WAY @ THIRD STREET DIMENSIONAL LAYOUT PLAN



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.6901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

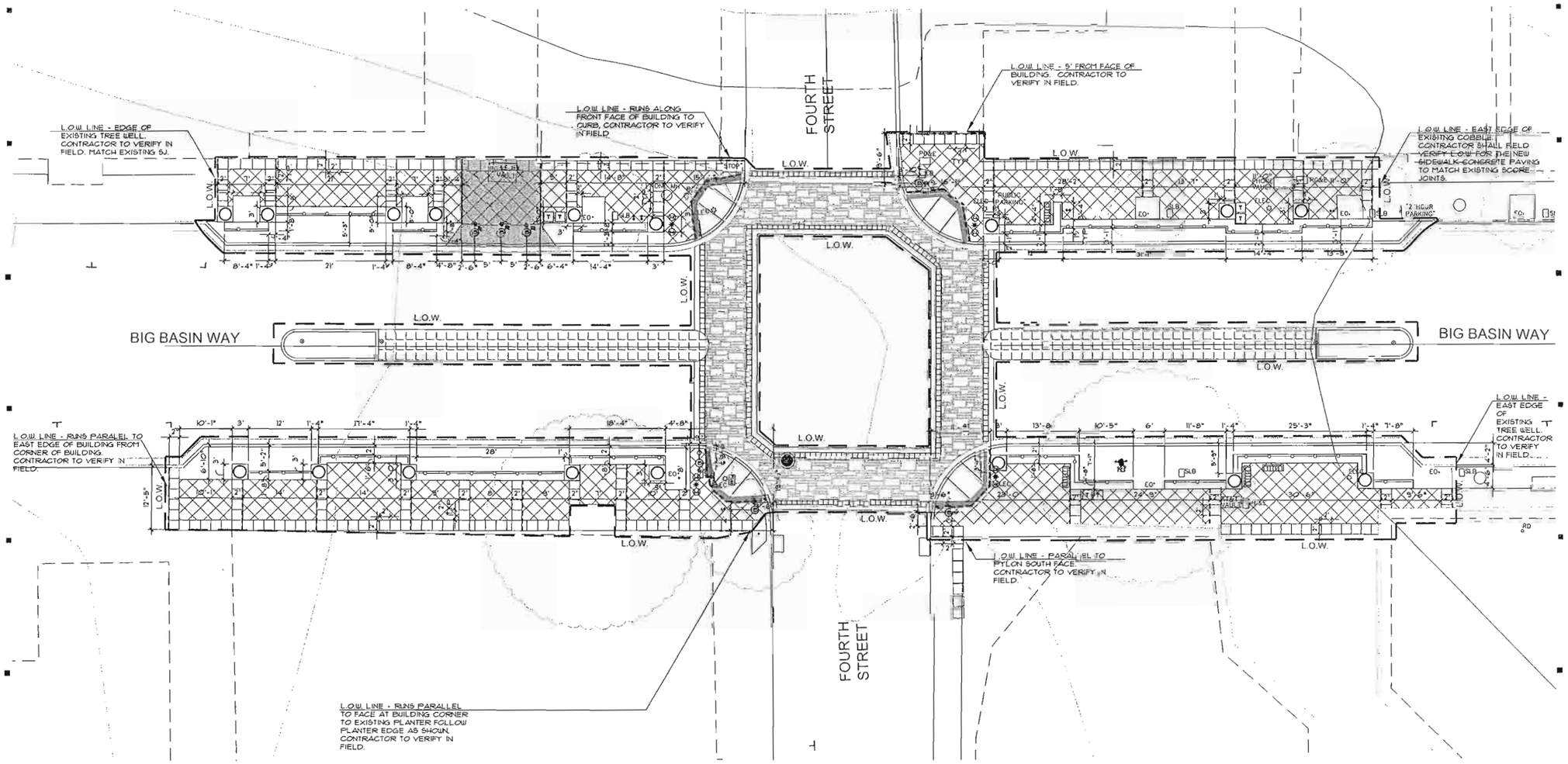
REGISTERED LANDSCAPE ARCHITECT
GARY GATES
3-16-10
LA 3113
STATE OF CALIFORNIA

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: 08 SARATOGA VILLAGE.DWG
DRAWN: GLC/JS
CHECK: KC
DATE: MARCH 16, 2010
SCALE: 1"=10'-0" 0 5 10 20

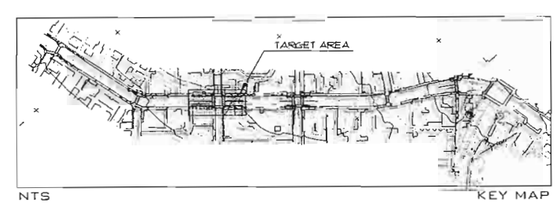
LANDSCAPE PLAN

LA1.5

PROJECT NORTH 22 OF 38 SHEETS



BIG BASIN WAY @ FOURTH STREET DIMENSIONAL LAYOUT PLAN



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD., SAN RAMON, CA. 94583
TEL: 925.736.0176 FAX: 925.938.8901
WWW.GRATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT JAMES GATES 9-16-10 STATE OF CALIFORNIA

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	00 L SARATOGA VILLAGE.DWG
DRAWN:	GL-CJS
CHECK:	KC
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" 0 5 10 20

LANDSCAPE PLAN

LA-1.6

PROJECT NORTH 23 OF 38 SHEETS

PLANT LIST

SYMBOL				
TREES	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**O.C. SPACING**
OE	Olea europaea 'Swan Hill' - Single Trunk	Swan Hill Olive Tree	24" BOX	AS SHOWN
SHRUBS	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**O.C. SPACING**
DV	Dietes grandiflora 'Variegata'	Striped Fortnight Lily	1 GAL	3'-0" O.C.
ES	Epilobium septentrionalis	California Fuchsia	1 GAL	2'-0" O.C.
EK	Erigeron karvinskianus	Mexican Daisy	1 GAL	3'-0" O.C.
HA	Hemerocallis 'Aztec Gold'	Evergreen Daylily	1 GAL	18" O.C.
HH	Hemerocallis hybrids 'Apricot'	Evergreen Daylily	1 GAL	2'-0" O.C.
ID	Iris douglasiana	Pacific Coast Iris	1 GAL	2'-0" O.C.
LA	Lavandula angustifolia 'Twickel Purple'	English Lavender	1 GAL	3'-0" O.C.
LV	Lavandula sp.	Lavender	1 GAL	2'-0" O.C.
MA	Mimulus aurantiacus	Sticky Monkey Flower	1 GAL	3'-0" O.C.
PM	Phormium 'Maori Maiden'	Phormium	5 GAL	3'-6" O.C.
PJ	Phormium 'Jack Spratt'	Phormium	5 GAL	2'-0" O.C.
RNP	Rosa x noatrum 'Pink'	Pink Flowering Carpet Rose	1 GAL	2'-0" O.C.
RP	Rosa 'Peach Drift'	Peach Drift Rose	1 GAL	2'-0" O.C.
RR	Rosa rugosa	Rugosa Rose	1 GAL	3'-6" O.C.
RO	Rosmarinus officinalis 'Irene'	Rosemary	1 GAL	2'-0" O.C.
SC	Salvia chamaedryoides	Germander Sage	1 GAL	3'-0" O.C.
SO	Salvia officinalis	Garden Sage	1 GAL	18" O.C.
SR	Santolina rosmarinifolia 'Morning Mist'	Santolina	1 GAL	2'-6" O.C.
SS	Sedum spathulifolium 'Purpureum'	Stonecrop	1 GAL	12" O.C.
TF	Teucrium fruticans 'Compactum'	Bush Germander	5 GAL	3'-0" O.C.
ORNAMENTAL GRASSES	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**O.C. SPACING**
HM	Hakonechloa macra 'Aureola'	Hakone Grass	1 GAL	8" O.C.
MR	Muhlenbergia rigens	Deer Grass	1 GAL	3'-0" O.C.
SB	Sisyrinchium bellum	Blue Eyed Grass	4" POT	0'-6" O.C.
SY	Sisyrinchium californicum	Yellow Eyed Grass	4" POT	0'-6" O.C.

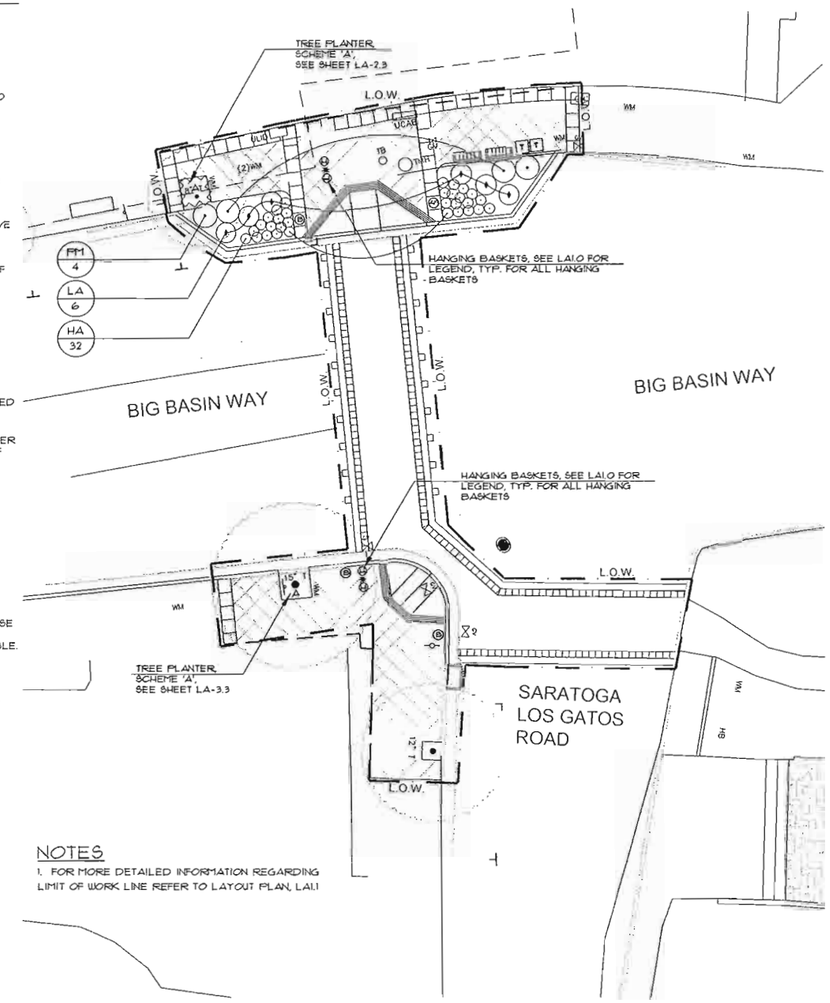
PLANT LEGEND

LI / 2	TREE NAME / QUANTITY	SEE PLANT LIST FOR ADDT'L. INFO.
DV / 6	SHRUB NAME / QUANTITY	SEE PLANT LIST FOR ADDT'L. INFO.
	EXISTING TREE TO REMAIN	
A	TREE PLANTER PLANTING	CONFIGURATION DESIGNATION A, B, OR B1.

PLANTING NOTES

1. ALL WORK SHALL BE PERFORMED BY PERSONS FAMILIAR WITH PLANTING WORK AND UNDER THE SUPERVISION OF A QUALIFIED PLANTING FOREMAN.
2. THE LANDSCAPE CONTRACTOR IS TO PROVIDE AN AGRICULTURAL SUITABILITIES ANALYSIS FOR ON-SITE AND IMPORTED TOPSOIL. RECOMMENDATIONS FOR AMENDMENTS CONTAINED IN THIS ANALYSIS ARE TO BE CARRIED OUT BEFORE PLANTING OCCURS.
3. PLANT COUNT IS FOR THE CONVENIENCE OF THE CONTRACTOR. IN CASE OF DISCREPANCIES, THE PLAN SHALL GOVERN.
4. PLANT MATERIAL LOCATIONS SHOWN ARE DIAGRAMMATIC AND MAY BE SUBJECT TO CHANGE IN THE FIELD BY THE LANDSCAPE ARCHITECT. PLANT LOCATIONS ARE TO BE ADJUSTED IN THE FIELD AS NECESSARY TO SCREEN UTILITIES BUT NOT TO BLOCK WINDOWS, SIGNS NOR IMPEDE ACCESS.
5. ALL TREES ARE TO BE STAKED AS SHOWN ON THE TREE STAKING/GUYING DIAGRAMS. BRANCHING HEIGHT OF TREES SHALL BE A 6'-0" MINIMUM ABOVE FINISH GRADE. ALL TREES IN A FORMAL GROUP PLANTING SHALL BE MATCHING IN SIZE AND SHAPE. ALL STREET TREES TO BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY. LANDSCAPE ARCHITECT SHALL BE CONSULTED REGARDING ORIENTATION OF TREES PRIOR TO PLANTING AND/OR BACKFILLING.
6. PLANT TREES 3'-0" MINIMUM FROM FACE OF CURB AT PARKING, AND FROM EDGES OF PAVING. ALL TREES WITHIN 5' OF PAVING AREAS SHALL HAVE DEEP ROOT BARRIERS INSTALLED. SEE ROOT BARRIER DETAIL. DEEP ROOT BARRIER MODEL NO. UB 24.2. (415) 344-1464. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
8. ON GRADE PLANTING BACKFILL MIX SHALL CONSIST OF 2 PARTS NATIVE TOPSOIL AND 1 PART NITRIFIED REDWOOD SOIL CONDITIONER.
9. ALL PLANTING AREAS SHALL BE TOP-DRESSED WITH 2" LAYER OF RECYCLED ORGANIC MULCH PER SPECS. SUBMIT SAMPLE TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO ORDERING.
10. ALL SLOPES GREATER THAN 2.5:1 SHALL BE COVERED WITH JUTE NETTING PER THE MANUFACTURER'S SPECIFICATIONS. OVERLAP ALL EDGES A MINIMUM OF 2" AND SECURE AS REQUIRED WITH METAL STAPLES.
11. PROVIDE 4" BERM AROUND TREE FOR WATER BASIN. SEE TREE STAKING DETAIL. BERM TO BE REMOVED IN LAWN AREA AFTER INITIAL WATERING. MULCH TREEWELL WITH 2" LAYER OF RECYCLED ORGANIC MULCH. KEEP MULCH AWAY FROM TREE TRUNK.
12. EACH PLANT SHALL RECEIVE AGRIFORM SLOW RELEASE PLANT TABLETS, 20-10-5 COMPOSITION. APPLY PER MANUFACTURER'S SPECIFICATIONS. PLACE NEAR ROOTBALL:

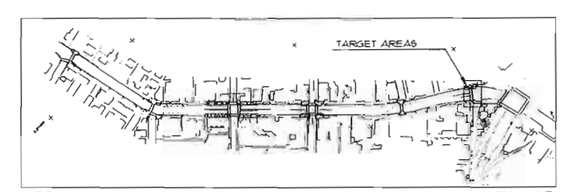
    6 FOR 24" BOX TREES - 2 BELOW AND 4 ON SIDES OF ROOTBALL.
    5 FOR 15 GALLON CAN TREES - 1 BELOW AND 4 ON SIDES OF ROOTBALL.
    4 FOR 5 GALLON CAN TREES - 1 BELOW AND 3 ON SIDES OF ROOTBALL.
13. TREES MUST HAVE AN UNCUT LEADER THAT HAS A UNIFORM TAPER FROM BASE TO TIP. TREES MUST MEET AT LEAST NORMAL CALIPER AND HEIGHT FOR CONTAINERSIZE. OVERGROWN OR ROOT BOUND TREES ARE NOT ACCEPTABLE.
14. GROUNDCOVER SHALL BE PLANTED AS SHOWN ON THE PLAN, INCLUDING UNDER SHRUBS AND IN TREE WATERING BASINS.
15. ALL SHRUBS AND PERENNIAL PLANTINGS SHALL BE SET BACK 12" FROM THE EDGE OF HARDSCAPE, INCLUDING CURBS. TOP DRESS THE 12" AREA WITH MULCH.



NOTES

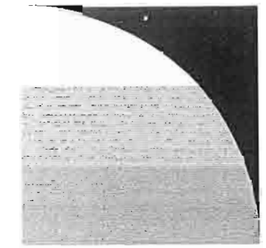
1. FOR MORE DETAILED INFORMATION REGARDING LIMIT OF WORK LINE REFER TO LAYOUT PLAN, LA1.1

BIG BASIN WAY @ SARATOGA LOS GATOS RD.



NTS

KEY MAP



GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
3671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.0633
WWW.GGATES.COM

SARATOGA VILLAGE

PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT — STATE OF CALIFORNIA — 3-16-10

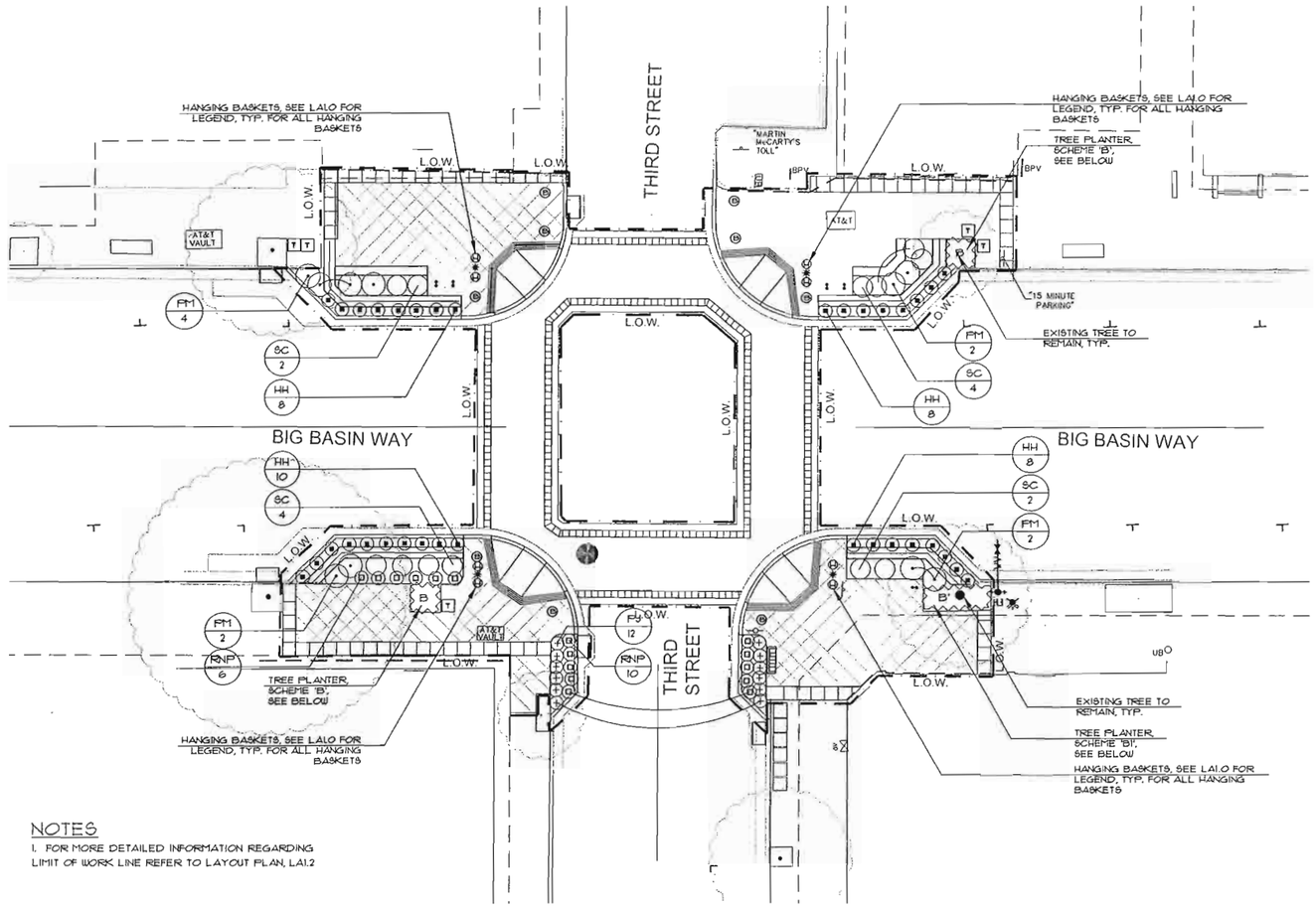
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	3G L-SARATOGA VILLAGE DWG
DRAWN:	G L-CUS
CHECK:	KC
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" (0 5 10 20)

PLANTING PLAN

LA2.1

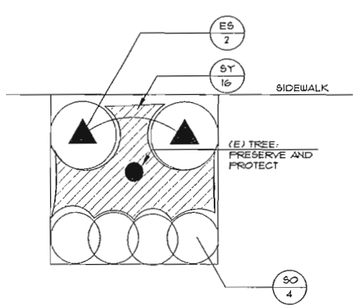
PROJECT NORTH 24 OF 38 SHEETS



NOTES

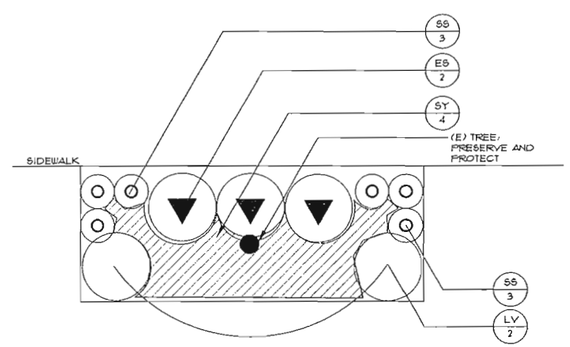
1. FOR MORE DETAILED INFORMATION REGARDING LIMIT OF WORK LINE REFER TO LAYOUT PLAN, LA1.2

BIG BASIN WAY @ 3RD STREET



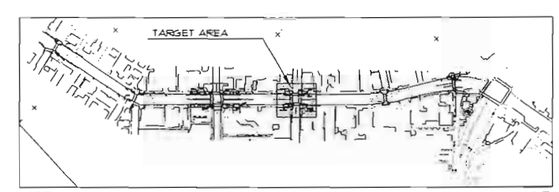
TREE PLANTER 'B' CONFIGURATION

SCALE: $\frac{1}{2}$" = 1'-0"



TREE PLANTER 'B1' CONFIGURATION

SCALE: $\frac{1}{2}$" = 1'-0"



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT — STATE OF CALIFORNIA — LA3786

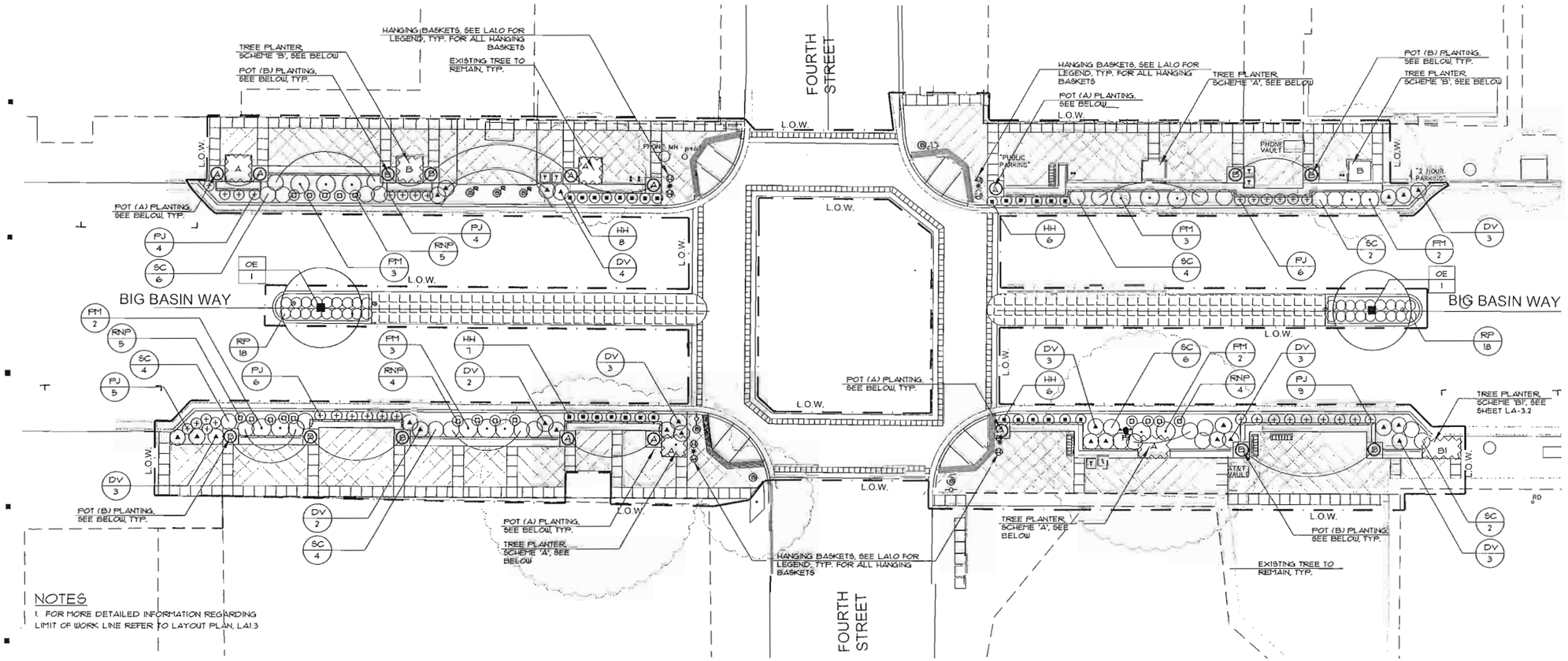
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	DWG SARATOGA VILLAGE.DWG
DRAWN:	GL/CJS
CHECK:	KC
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" (0 5 10 20)

PLANTING PLAN

LA2.2

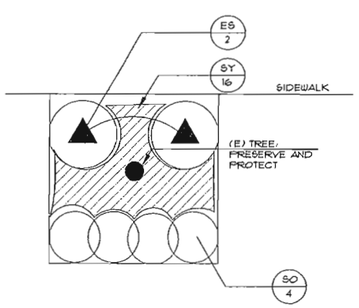
PROJECT NORTH



NOTES

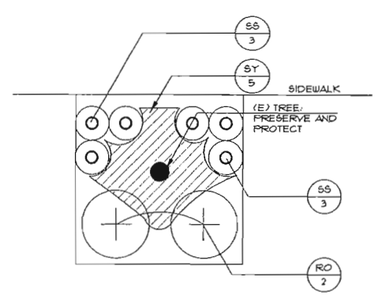
1. FOR MORE DETAILED INFORMATION REGARDING LIMIT OF WORK LINE REFER TO LAYOUT PLAN, LA1.3

BIG BASIN WAY @ 4TH STREET



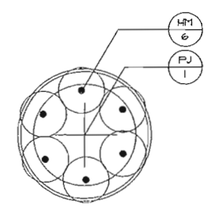
TREE PLANTER 'A' CONFIGURATION

SCALE: 1/2"=1'-0"



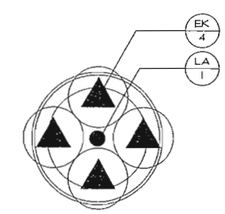
TREE PLANTER 'B' CONFIGURATION

SCALE: 1/2"=1'-0"



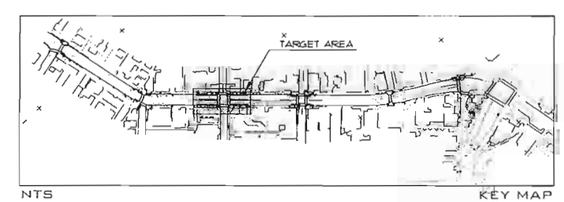
POT (A) PLANTING

SCALE: 1"=1'-0"

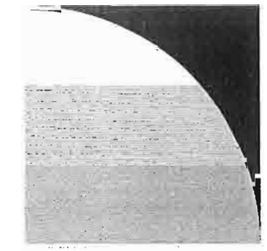


POT (B) PLANTING

SCALE: 1"=1'-0"



NTS KEY MAP



GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL 925 735 8172 FAX 925 838 8901
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT — DAVID GATES — No. 1962 — STATE OF CALIFORNIA — 3-16-10

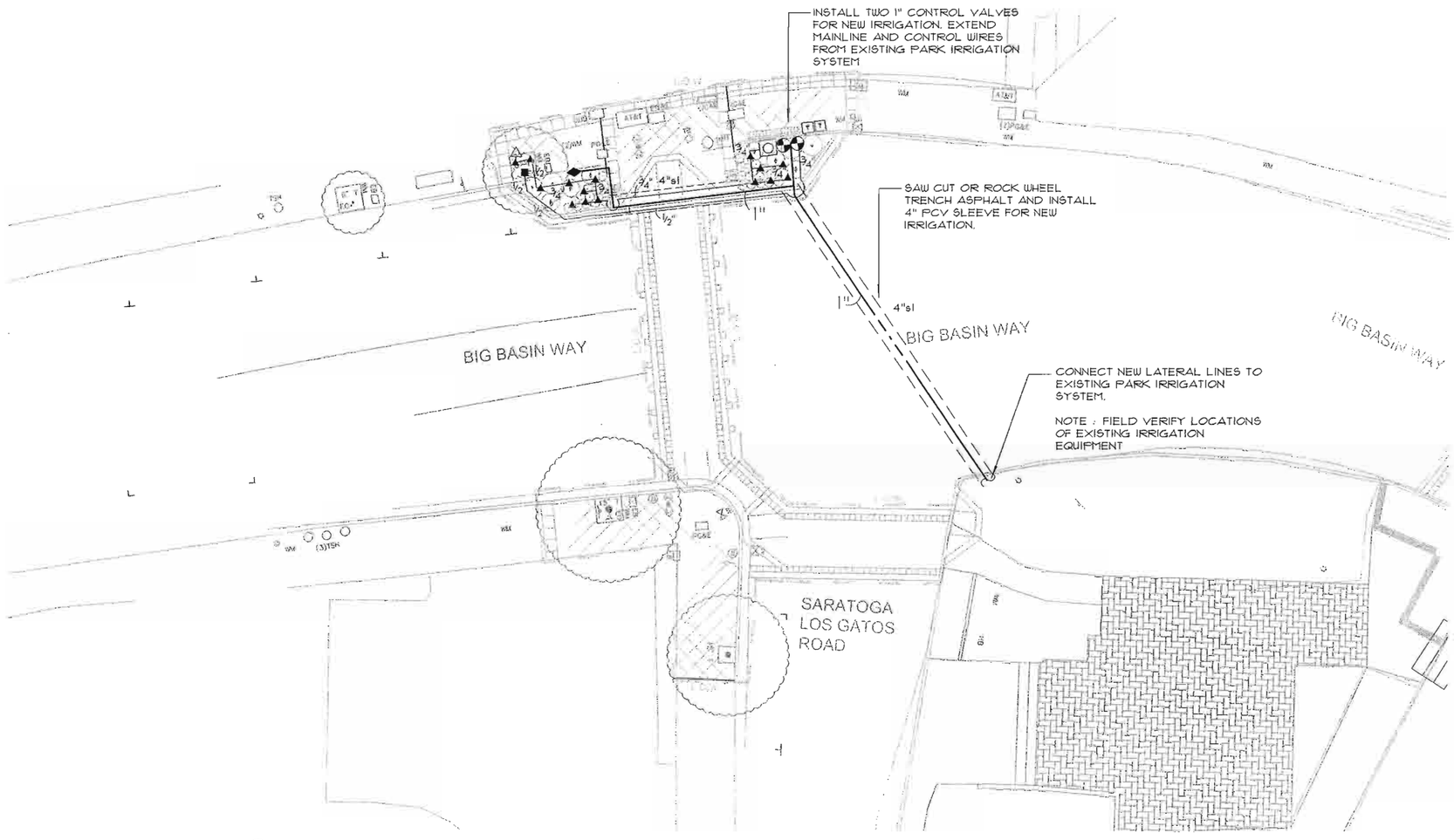
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P38 6
PROJECT FILE:	G:\L-C\JS\SARATOGA VILLAGE.DWG
DRAWN:	G L-C/JS
CHECK:	KC
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" (0 5 10 20)

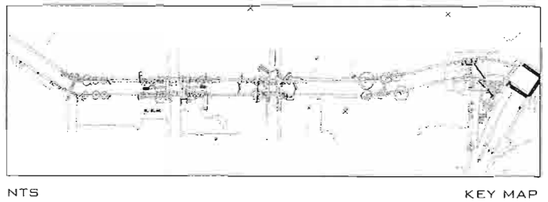
PLANTING PLAN

LA2.3

PROJECT NORTH 26 OF 38 SHEETS



BIG BASIN WAY @
SARATOGA SUNNYVALE AND
SARATOGA LOS GATOS



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.735.8176 FAX: 925.838.8901
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT
DAVID GATES
STATE OF CALIFORNIA

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	00 L-SARATOGA VILLAGE.DWG
DRAWN:	JB
CHECK:	JB
DATE:	MARCH 16, 2010

SCALE: 1"=10'-0" 0 5 10 20

IRRIGATION PLAN

LA3.1

PROJECT NORTH

IRRIGATION DEMAND: 20 GPM AT 60 PSI. VERIFY PRESSURE PRIOR TO STARTING WORK. IF PRESSURE IS LOWER THAN REQUIRED CONTACT LANDSCAPE ARCHITECT FOR FURTHER DIRECTION.

MAINTAIN EXISTING IRRIGATION SYSTEM. REPAIR/REPLACE ANY EXISTING IRRIGATION AND LANDSCAPE MATERIALS DAMAGED DURING DEMOLITION AND/OR CONSTRUCTION.

EXISTING 36 STATION CALSENCE CONTROLLER INSTALLED BY CITY

EXISTING FLOW SENSOR AND MASTER VALVE INSTALLED BY CITY

EXISTING WATER METER AND REDUCED PRESSURE BACKFLOW ASSEMBLY FOR IRRIGATION TO REMAIN.

EXISTING MAINLINE TO REMAIN

CONNECT EXISTING (4) RCVS TO STATION 1 THRU 4 AT CONTROLLER "C1". UTILIZE EXISTING CONTROL WIRES FROM RCVS FOR NEW CONTROLLER.

IRRIGATION POINT OF CONENCTION TO EXISTING MAINLINE AND STUBOUT PROVIDED BY CITY.

SAW CUT OR ROCK WHEEL TRENCH ASPHALT AT EDGE OF CONCRETE APRON AND INSTALL 4" PCV SLEEVE FOR NEW MAINLINE AND WIRES.

STUB OUT 1 ½" PVC MAINLINE AND GATE VALVE INSIDE VALVE BOX IN NEW PLANTING AREA. EXTEND 6 #14 CONTROL WIRES, 1 #12 COMMON WIRE AND 2 #14 SPARE WIRES FROM CONTROLLER "A" INSIDE VALVE BOX FOR FUTURE USE

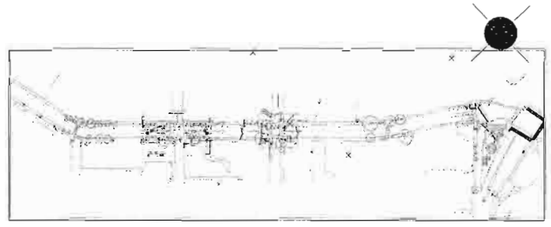
EXISTING 1½" LATERAL LINE FOR TREE CUT OUTS IRRIGATION TO REMAIN

EXISTING LATERAL LINE FOR TREE CUT OUTS IRRIGATION TO REMAIN

REPLACE EXISTING 1½" SCHEDULE 40 PVC LATERAL LINE WITHIN SCOPE OF NEW PLANTING AREA LOCATED AT FACE OF CURB FOR EXISTING TREE CUT OUT IRRIGATION. CONNECT NEW 1½" LATERAL LINE TO EXISTING LATERAL LINE AT APPROXIMATELY THIS LOCATION INSIDE PLANTING AREA. REFER TO AS-BUILT IRRIGATION PLANS FOR MORE INFORMATION REGARDING EXISTING STREETSCAPE IRRIGATION SYSTEMS.

MATCHLINE - SEE LA4.3

BIG BASIN WAY @ THIRD STREET



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2691 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.838.8128 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

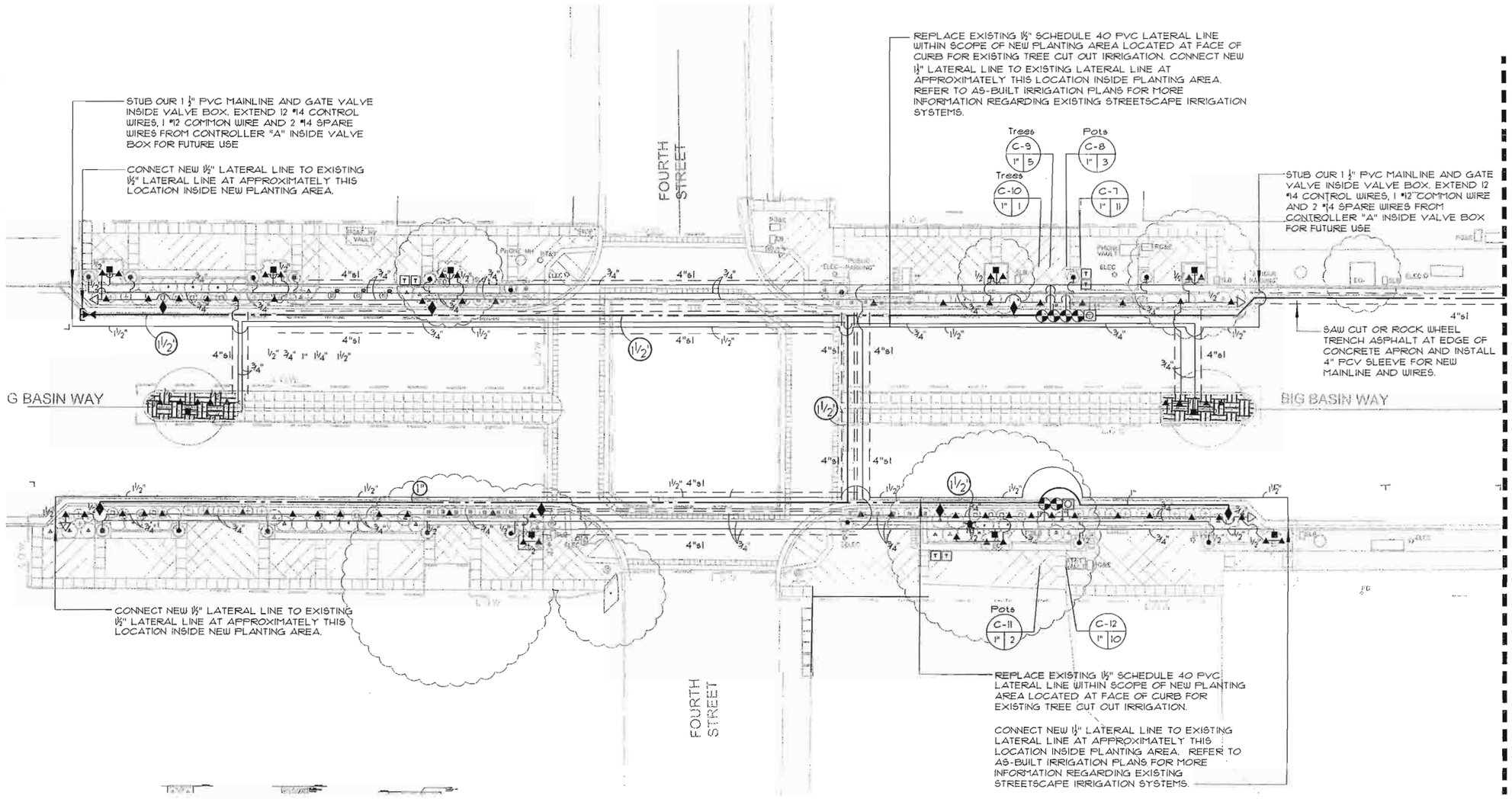
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: 06 C-SARATOGA VILLAGE.DWG
DRAWN:
CHECK:
DATE: MARCH 15, 2010
SCALE: 1"=10'-0" 0 5 10 20

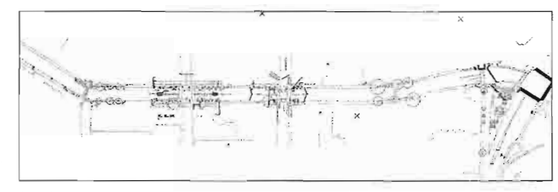
IRRIGATION PLAN

LA3.2

PROJECT NORTH 28 OF 38 SHEETS



BIG BASIN WAY @
FOURTH STREET



NTS

KEY MAP

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.9176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: 08 L SARATOGA VILLAGE.DWG
DRAWN:
CHECK:
DATE: MARCH 16, 2010
SCALE: 1"=10'-0" 0 5 10 20

IRRIGATION PLAN

LA3.3

PROJECT NORTH

IRRIGATION NOTES

1. THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, ETC. SHOWN WITHIN PAVED AREAS IS FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN PLANTING AREAS WHERE POSSIBLE. AVOID ANY CONFLICTS BETWEEN THE SPRINKLER SYSTEM, PLANTING AND ARCHITECTURAL FEATURES.

2. DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT THAT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.

3. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, RETAINING WALLS, ETC. HE SHALL COORDINATE HIS WORK WITH THE GENERAL CONTRACTOR AND OTHER SUBCONTRACTORS FOR THE LOCATION AND THE INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER ROADWAYS, PAVING, STRUCTURES, ETC.

4. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC., WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF HIS WORK AND PLAN HIS WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC., AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. THEN WORK SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID CONFLICTS BETWEEN IRRIGATION SYSTEMS, PLANTING, AND ARCHITECTURAL FEATURES.

5. ELECTRICAL CONTRACTOR TO SUPPLY 120 VOLT A.C. (2.5 AMP) SERVICE TO CONTROLLER LOCATION. IRRIGATION CONTRACTOR TO MAKE FINAL CONNECTION FROM ELECTRICAL STUB-OUT TO CONTROLLER.

6. EACH CONTROLLER SHALL HAVE ITS OWN INDEPENDENT GROUND WIRE.

7. VALVE LOCATIONS SHOWN ARE DIAGRAMMATIC. INSTALL IN GROUND COVER/SHRUB AREAS WHERE POSSIBLE (NOT IN LAWN AREA).

8. SPLICING OF 24 VOLT WIRES WILL NOT BE PERMITTED EXCEPT IN VALVE BOXES. LEAVE A 24" COIL OF EXCESS WIRE AT EACH SPLICE AND 100 FEET ON CENTER ALONG WIRE RUN. TAPE WIRE IN BUNDLES 10 FEET ON CENTER. NO TAPING PERMITTED INSIDE SLEEVES.

9. INSTALL SIX (6) SPARE CONTROL WIRES OF A DIFFERENT COLOR ALONG THE ENTIRE MAIN LINE. LOOP 36" EXCESS WIRE INTO EACH SINGLE VALVE BOX AND INTO ONE VALVE BOX IN EACH GROUP OF VALVES.

10. THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVERSPRAY ONTO WALKS, ROADWAYS AND/OR BUILDINGS AS MUCH AS POSSIBLE. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT THE EXISTING SITE CONDITIONS AND TO THROTTLE THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING PRESSURE FOR EACH SYSTEM.

11. NOTIFY ARCHITECT OF ANY ASPECTS OF LAYOUT WHICH WILL PROVIDE INCOMPLETE OR INSUFFICIENT WATER COVERAGE OF PLANT MATERIAL AND DO NOT PROCEED UNTIL HIS INSTRUCTIONS ARE OBTAINED.

12. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE DESIGNATED ON THE PLANS.

13. INSTALL A VALCON 5000 SERIES SPRING LOADED CHECK VALVE BELOW THOSE SPRINKLERS WHERE LOW HEAD DRAINAGE WILL CAUSE EROSION AND EXCESS WATER.

14. INSTALL VALVE BOXES 12" FROM AND PERPENDICULAR TO WALK, CURB, BUILDING OR LANDSCAPE FEATURE. AT MULTIPLE VALVE BOX GROUPS, EACH BOX SHALL BE AN EQUAL DISTANCE FROM THE WALK, CURB, ETC. AND EACH BOX SHALL BE 12" APART. SHORT SIDE OF VALVE BOX SHALL BE PARALLEL TO WALK, CURB, LAWN, ETC.

15. THE SPRINKLER SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE SHOWN ON THE IRRIGATION DRAWINGS. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE.

16. OPERATE IRRIGATION CONTROLLER(S) BETWEEN THE HOURS OF 10:00 PM AND 7:00 AM.

17. IRRIGATION CONTRACTOR TO NOTIFY ALL LOCAL JURISDICTIONS FOR INSPECTION AND TESTING OF INSTALLED BACKFLOW PREVENTION DEVICE.

18. PRIOR TO TRENCHING, CALL UNDERGROUND SERVICE ALERT, (1-800) 642-2444 FOR NORTHERN CALIFORNIA

19. WHEN VERTICAL OBSTRUCTIONS (STREET LIGHTS, TREES, FIRE HYDRANTS, ETC.) INTERFERE WITH THE SPRAY PATTERN OF THE HEADS SO AS TO PREVENT PROPER COVERAGE, THE IRRIGATION CONTRACTOR SHALL FIELD ADJUST THE SPRINKLER SYSTEM BY INSTALLING A QUARTER, THIRD OR HALF CIRCLE HEAD AT THE SIDES OF THE OBSTRUCTION SO AS TO PROVIDE PROPER COVERAGE. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

20. ENGRAVE OR HOT STAMP REMOTE CONTROL VALVE BOXES WITH CONTROLLER STATION NUMBERS.

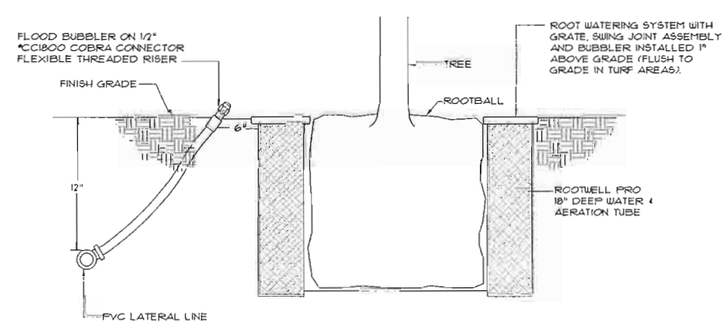
21. PROVIDE PLASTIC LAMINATED COLOR-CODED IRRIGATION LAYOUT DIAGRAMS.

22. PROVIDE TWO (2) SETS OF Q.C. KEYS AND CONTROLLER.

23. REFER TO IRRIGATION SPECIFICATIONS FOR ADDITIONAL INFORMATION, PRESSURE TESTING AND TURN OVER ITEMS.

IRRIGATION LEGEND

SYMBOL	MODEL NUMBER	DESCRIPTION	PSI	GPM	RADIUS
■	514-20	TORO BUBBLER ON FLEX RISER	30	.50	–
▲	5633	PEPCO QUADRA BUBBLER-SHRUBS	30	6 GPH	–
●	1402	RAINBIRD FLOOD BUBBLER	30	.50	–
	M64/AP100	SPEARS FLUSHING END PLUG			
	1-1201-1151-8130 PMR-MF-30-1"	AMIAD 1" FILTER WITH 130 MESH SCREEN WITH SENNINGER 1" IN-LINE PRESSURE REDUCING VALVE (1-22 GPM)			
	PEB SERIES	RAIN BIRD REMOTE CONTROL VALVE			
	EXISTING	HYDRORAIN 1" REMOTE CONTROL VALVES			
	EXISTING	1 1/2" WILKINS 575RP REDUCED PRESSURE BACKFLOW PREVENTER			
	T-113-K	NIBCO GATE VALVE (LINE SIZE) IN ROUND BOX			
	44 DLRC	RAIN BIRD QUICK COUPLING VALVE			
		EXISTING CALSENSE FLOW SENSOR AND MASTER VALVE INSTALLED BY CITY			
		EXISTING CALSENSE ET2000 SERIES CONTROLLER INSTALLED BY CITY.			
C-1		STATION NUMBER			
1" 15		GALLONS PER MINUTE VALVE SIZE			
		MAINLINE: 1120-SCHEDULE 40 PVC PLASTIC PIPE WITH SCHEDULE 40 PVC SOLVENT WELD FITTINGS. 18" COVER.			
		LATERAL LINE: 1120-SCHEDULE 40 PVC PLASTIC PIPE WITH SCHEDULE 40 PVC SOLVENT WELD FITTINGS. 12" COVER.			
		EXISTING PVC LATERAL LINE TO REMAIN IN SERVICE. REFER TO PLANS AND IRRIGATION AS-BUILT PLANS PROVIDED BY CITY FOR MORE INFORMATION			
		SLEEVE:1120-200 PSI PVC PLASTIC PIPE WITH SCHEDULE 40 PVC PLASTIC FITTINGS. 24" COVER.			



NOTES:
1. TWO (2) ROOTWELL TUBES PER TREE TO BE PLACED OPPOSITE EACH OTHER.

1 TREE BUBBLER INSTALLATION
NTS

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
3671 CROW CANYON RD. SAN RAMON, CA 94583
TEL: 925.938.1176 FAX: 925.838.8901
WWW.GGATES.COM

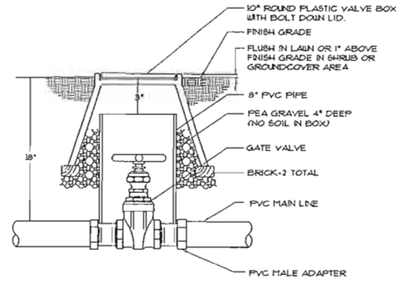
SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS
SARATOGA, CA
BID SET

REVISION:	DESCRIPTION:	DATE:

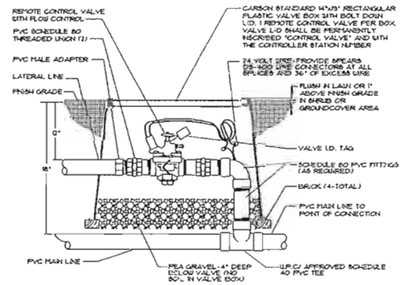
PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P0866
PROJECT FILE:
DRAWN:
CHECK:
DATE: MARCH 16, 2010
SCALE:

IRRIGATION
NOTES & LEGEND

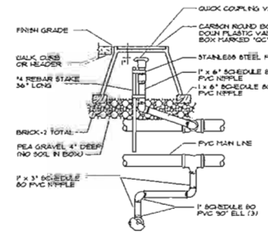
LA3.4



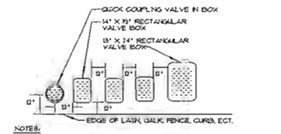
1 GATE VALVE INSTALLATION
NTS



2 REMOTE CONTROL VALVE INSTALLATION
NTS



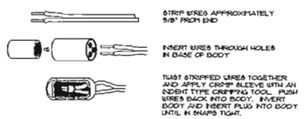
3 1" QUICK COUPLER IN BOX
NTS



NOTES:

1. CENTER BOX OVER REMOTE CONTROL VALVE TO FACILITATE SERVICING VALVE.
2. SET BOXES 1" ABOVE FINISH GRADE OR MULCH COVER IN GROUND COVER/SHRUB AREA AND FLUSH WITH FINISH GRADE IN TURF AREA.
3. SET RCV AND VALVE BOX IMMEDIATELY IN GROUND COVER/SHRUB AREA WHERE POSSIBLE. INSTALL IN LAWN AREA ONLY IF GROUND COVER DOES NOT EXIST ADJACENT TO LAWN.
4. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
5. AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOX EDGES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOX SIDES.
6. ALL VALVE BOXES SHALL HAVE BOLT DOWN LIDS.
7. VALVE LID SHALL BE PERMANENTLY INSCRIBED "CONTROL VALVE" AND WITH THE CONTROLLER STATION NUMBER.

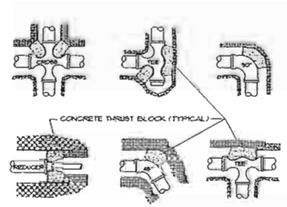
4 VALVE BOX INSTALLATION
NTS



NOTES:

1. ONE CONNECTOR HANDLES #10 AWG, #12 AWG AND #14 AWG WIRES.
2. WIRE CONNECTORS WILL ACCEPT THREE WIRE OR TWO WIRE CONNECTIONS.
3. MANUFACTURED BY 3M CORP.

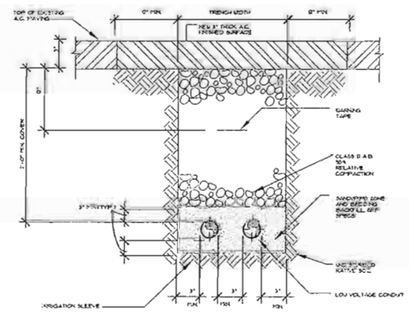
5 WIRE CONNECTION
NTS



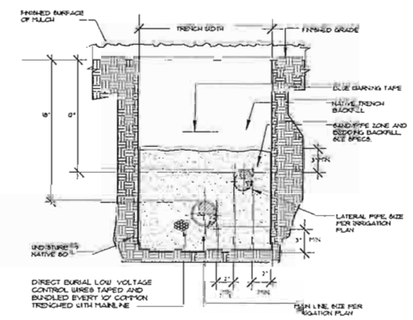
NOTES:

1. SUPPLY LINES 2"-3" IN DIAMETER SHALL RECEIVE CONCRETE THRUST BLOCKS.
2. SUPPLY LINES OVER 3" SHALL HAVE IRON DUCTILE RESTRAINT SYSTEM.
3. A MINIMUM OF 6" OF CONCRETE SHALL BE POURED ON VIRGIN OR COMPACTED SOIL BENEATH EACH INSTALLATION.
4. CONCRETE SHALL BE 3 SACK MIX SLURRY CONTAINING NO GRAVEL.
5. WHERE CONCRETE AND PVC ARE IN CONTACT TOGETHER PVC SHALL BE PROTECTED WITH PIPE WRAP.

6 THRUST BLOCK INSTALLATION
NTS



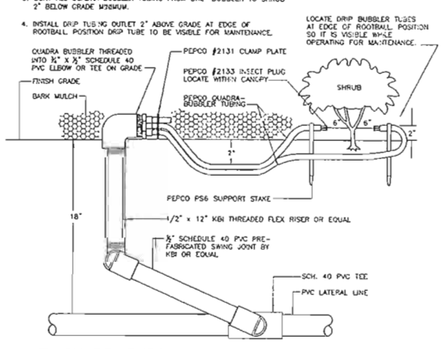
7 TRENCHING UNDER ROADWAY DETAIL
NTS



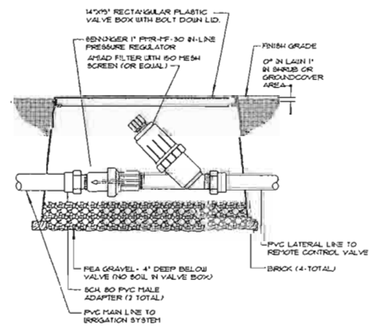
8 TYPICAL COMBINATION TRENCH
NTS

NOTES:

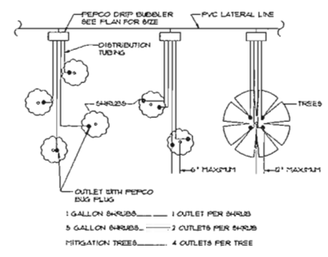
1. INSTALL PEPCO #2135 PLUG ON UNUSED OUTLETS.
2. ALL FITTINGS DOWNSTREAM OF LATERAL LINE SHALL BE THREADED, NOT GLUED. APPLY TEFLON TAPE TO ALL THREADED CONNECTIONS.
3. BURY ALL QUADRA BUBBLER TUBING FROM DRIP BUBBLER TO SHRUB 2" BELOW GRADE MINIMUM.
4. INSTALL DRIP TUBING OUTLET 2" ABOVE GRADE AT EDGE OF ROOTBALL. POSITION DRIP TUBE TO BE VISIBLE FOR MAINTENANCE.



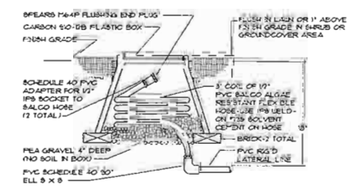
9 QUADRA BUBBLER INSTALLATION
NTS



10 FILTER INSTALLATION
NTS



11 DRIP LAYOUT DETAIL
NTS



12 FLUSHING END PLUG INSTALLATION
NTS

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2571 CROW CANYON RD. SAN RAMON, CA 94583
TEL: 925.735.8176 FAX: 925.833.8901
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: 03-P-P-SARATOGA VILL
DRAWN:
CHECK:
DATE: MARCH 15, 2010
SCALE:

IRRIGATION DETAILS

LA3.5

IRRIGATION WATER USE CALCULATIONS

Maximum Applied Water Allowance (MAWA)

MAWA=(Eto) (0.62) (LA) (0.70) + (SLA)(0.3)

MAWA =Maximum Applied Water Allowance (gallons per year)
ETO =Reference Evapotranspiration (inches per year)
0.62 =conversion factor (to gallons per square foot)
LA =Landscaped area (square feet)
SLA =Special Landscaped area (square feet)
0.7 =ET adjustment factor

MAWA =(42.9) (.62) (2,145) (.70) + (0) (0.3)

MAWA =39,937 Gallons per year

Estimated Total Water Use (ETWU)

EWU =(ETo) (.62) [(PF)(HA) / IE + SLA]

EWU =Estimated Applied Water Use (EWU) (gallons per year)
ETo =Reference Evapotranspiration (inches per year/month)
.62 =conversion factor (to gallons per square foot)
PF =Plant Factor (per WUCOLS)
HA =Hydrozone area (square feet)
IE =Irrigation System Efficiency in decimal form
SLA =Special Landscaped Area

ETWU:

Shrubs – Medium water use – drip irrigation

ETWU = (42.9) (.62) [(.50) (2,145) / .85] + 0

= Gallons per year

Total ETWU = 33,560 Gallons per year

IRRIGATION CONTROLLER SCHEDULE

Program: A	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cycles Per Day:	1	1	1	1	1	1	1	1	1	1	1	1
Days To Skip:	20	15	8	6	4	3	3	3	4	8	15	30
Station 6												
Minutes Per Cycle:	15	20	20	20	20	20	20	20	20	20	20	15
Precipitation Rate: 0.45												
Description: Drip irrigation to shrubs												
Total Flow of Valve (GPM): 9												
Station 7												
Minutes Per Cycle:	15	20	20	20	20	20	20	20	20	20	20	15
Precipitation Rate: 0.45												
Description: Drip irrigation to shrubs												
Total Flow of Valve (GPM): 11												
Station 12												
Minutes Per Cycle:	15	20	20	20	20	20	20	20	20	20	20	15
Precipitation Rate: 0.45												
Description: Drip irrigation to shrubs												
Total Flow of Valve (GPM): 16												

Program: B	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cycles Per Day:	1	1	1	1	1	1	1	1	1	1	1	1
Days To Skip:	20	13	8	4	3	2	2	2	3	5	16	30
Station 5												
Minutes Per Cycle:	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Rate: 1.5												
Description: Trees-bubblers												
Total Flow of Valve (GPM): 2												
Station 9												
Minutes Per Cycle:	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Rate: 1.5												
Description: Trees-bubblers												
Total Flow of Valve (GPM): 6												
Station 10												
Minutes Per Cycle:	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Rate: 1.5												
Description: Trees-bubblers												
Total Flow of Valve (GPM): 1												

Program: C	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cycles Per Day:	1	1	1	1	1	1	1	1	1	1	1	1
Days To Skip:	22	15	9	5	3	3	2	3	4	6	18	30
Station 8												
Minutes Per Cycle:	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Rate: 1.5												
Description: Pots - Bubblers												
Total Flow of Valve (GPM): 3												
Station 11												
Minutes Per Cycle:	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Rate: 1.5												
Description: Pots - Bubblers												
Total Flow of Valve (GPM): 2												

Program: D	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cycles Per Day:	1	1	1	1	1	1	1	1	1	1	1	1
Days To Skip:	22	15	9	5	3	3	2	3	4	6	18	30
Station 1 thru 4												
Minutes Per Cycle:	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Rate: 1												
Description: Shrubs - existing spray												

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.735.9176 FAX: 925.838.8901
WWW.GAGGA.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS
SARATOGA, CA
BID SET

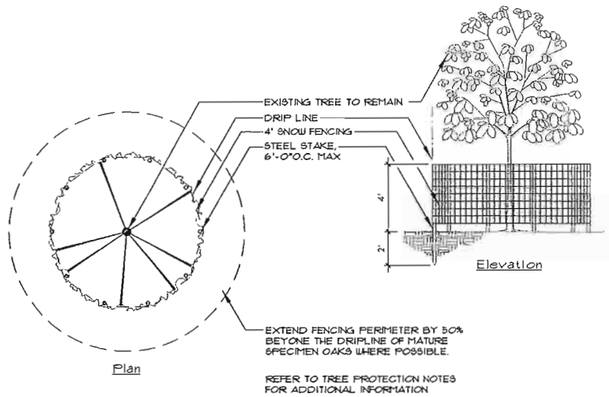
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE:
DRAWN:
CHECK:
DATE: MARCH 16, 2010
SCALE:

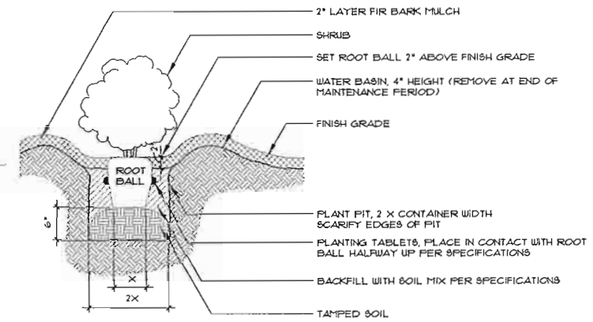
IRRIGATION CALCULATIONS

LA3.6

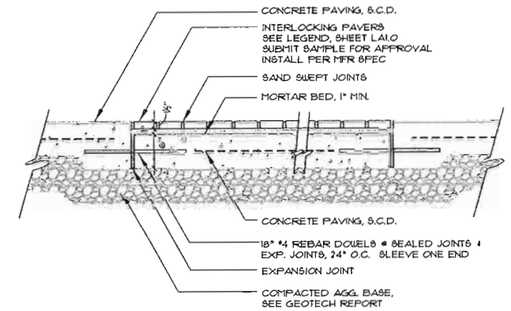
PROJECT NORTH 32 OF 38 SHEETS



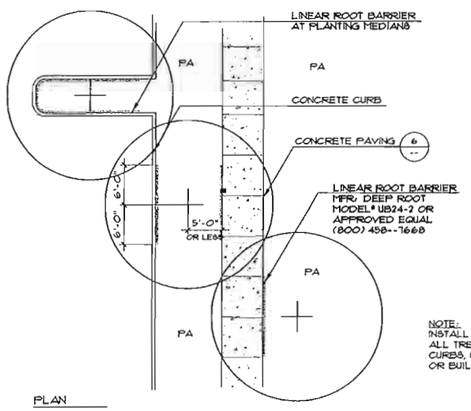
1 EXISTING TREE PROTECTIVE FENCING
SCALE: 1/4" = 1'-0"



4 SHRUB PLANTING
SCALE: 1" = 1'-0"

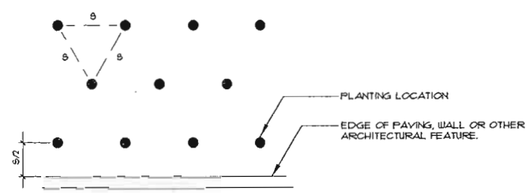


7 INTERLOCKING PAVERS ON CONCRETE AT MEDIAN
SCALE: 1" = 1'-0"



NOTE:
INSTALL ROOT BARRIERS AT ALL TREES WITHIN 5' OF ALL CURBS, SIDEWALKS, ROADS OR BUILDINGS.

2 LINEAR ROOT BARRIER
SCALE: 1" = 10'-0"



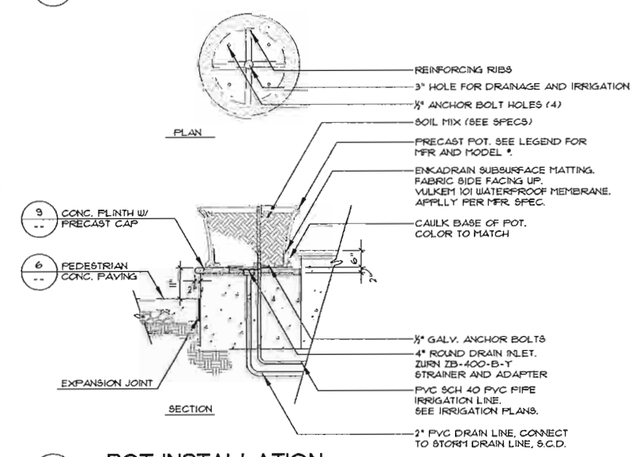
NOTES:

A. S = PLANT SPACING DISTANCE ON CENTER, SEE CHART

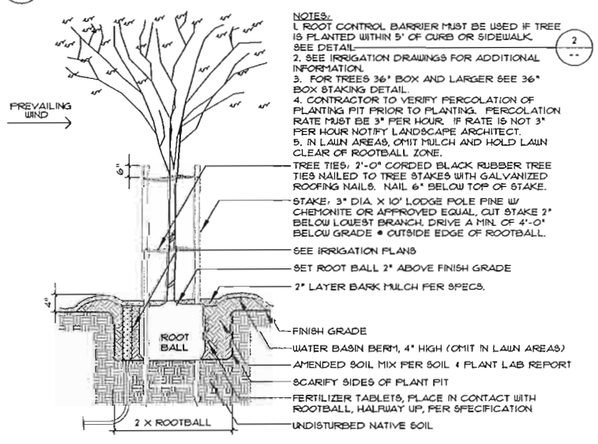
B. FOR USE AS A GUIDE FOR SHRUBS AND GROUNDCOVER WHEN PLANTS ARE SPACED EQUIDISTANT FROM EACH OTHER.

Plant Quantity Chart	
Spacing	# of Plants/S.F.
6" o.c.	4.60
8" o.c.	2.60
12" o.c.	1.15
18" o.c.	.512
24" o.c.	.290
30" o.c.	.185
36" o.c.	.128
42" o.c.	.081
48" o.c.	.063

5 PLANT SPACING
SCALE: N.T.S.



8 POT INSTALLATION
SCALE: 1/2" = 1'-0"



NOTES:
1. ROOT CONTROL BARRIER MUST BE USED IF TREE IS PLANTED WITHIN 5' OF CURB OR SIDEWALK. SEE DETAIL 2 --
2. SEE IRRIGATION DRAWINGS FOR ADDITIONAL INFORMATION.
3. FOR TREES 36" BOX AND LARGER SEE 36" BOX STAKING DETAIL.
4. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO PLANTING. PERCOLATION RATE MUST BE 3" PER HOUR. IF RATE IS NOT 3" PER HOUR NOTIFY LANDSCAPE ARCHITECT.
5. IN LAWN AREAS, OMIT MULCH AND HOLD LAWN CLEAR OF ROOTBALL ZONE.

TREE TIES: 2'-0" CORDED BLACK RUBBER TREE TIES NAILED TO TREE STAKES WITH GALVANIZED ROOFING NAILS. NAIL 6" BELOW TOP OF STAKE.

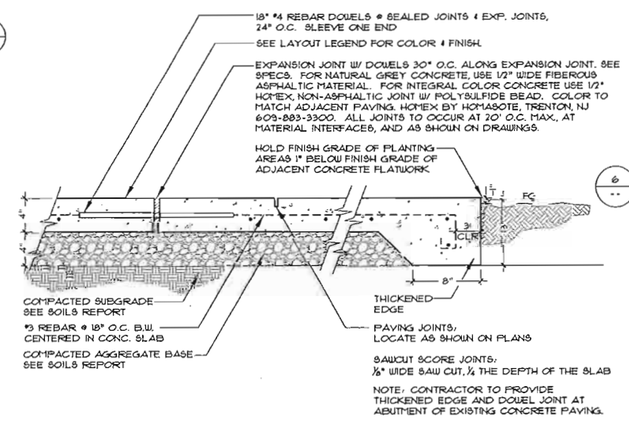
STAKE: 3" DIA. X 10' LODGE POLE PINE W/ CHEMONITE OR APPROVED EQUAL, CUT STAKE 2" BELOW LOWEST BRANCH, DRIVE A MIN. OF 4'-0" BELOW GRADE @ OUTSIDE EDGE OF ROOTBALL.

SEE IRRIGATION PLANS

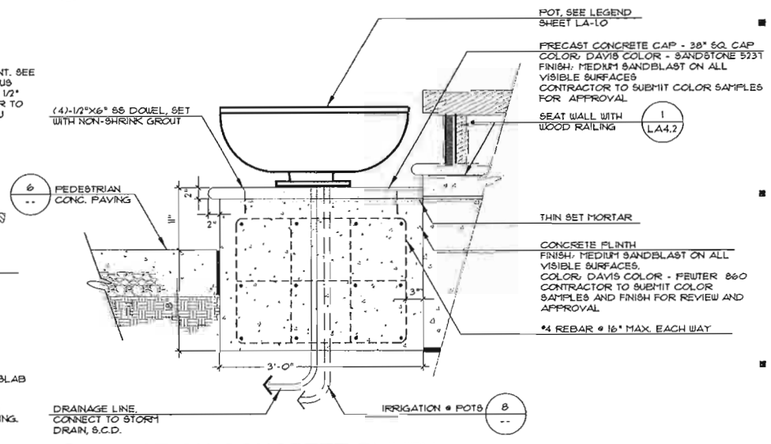
SET ROOT BALL 2" ABOVE FINISH GRADE

2" LAYER BARK MULCH PER SPECS.

3 TREE STAKING DETAIL
SCALE: 3/8" = 1'-0"



6 PEDESTRIAN CONCRETE PAVING
SCALE: 1 1/2" = 1'-0"



9 POT ON CONCRETE PLINTH
SCALE: 1" = 1'-0"

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.735.0176 FAX: 925.838.0001
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

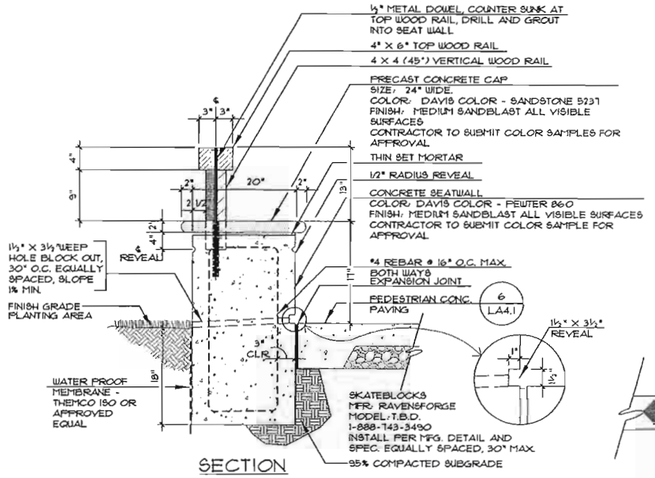
REGISTERED LANDSCAPE ARCHITECT — GARY O. GATES — 3-16-10 — STATE OF CALIFORNIA

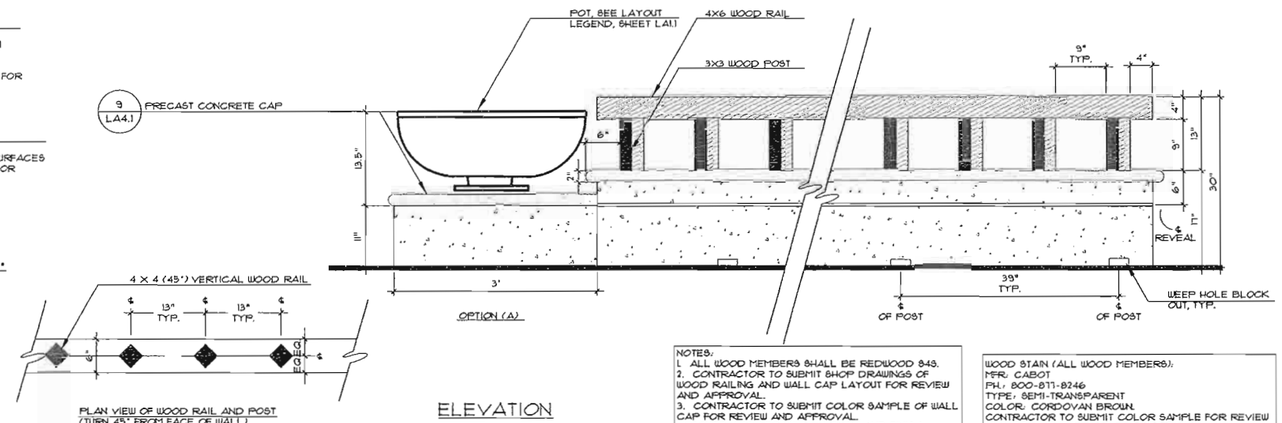
PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	09 0 SARATOGA VILLAGE.DWG
DRAWN:	G.L.CUS
CHECK:	KC
DATE:	MARCH 16, 2010
SCALE:	0

DETAILS

LA4.1

PROJECT NORTH 33 of 38 SHEETS

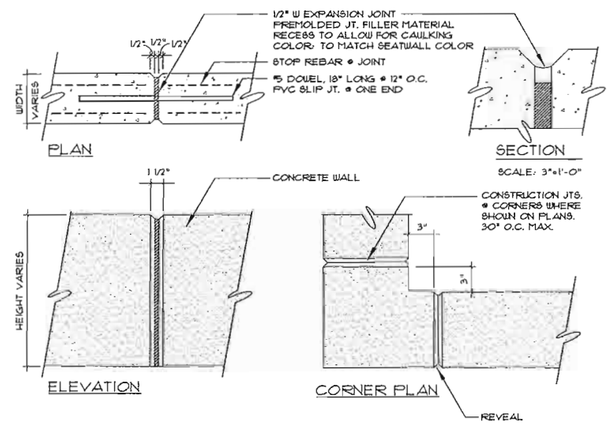




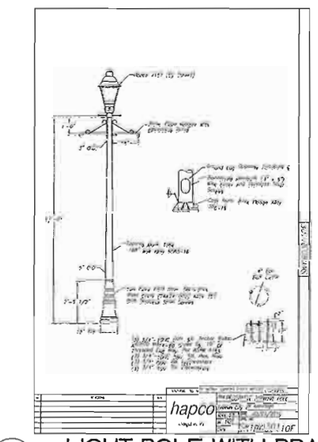
NOTES:
1. ALL WOOD MEMBERS SHALL BE REDWOOD #48.
2. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF WOOD RAILING AND WALL CAP LAYOUT FOR REVIEW AND APPROVAL.
3. CONTRACTOR TO SUBMIT COLOR SAMPLE OF WALL CAP FOR REVIEW AND APPROVAL.
4. CONTRACTOR TO SUBMIT COLOR AND FINISH SAMPLES OF THE CONCRETE SEATWALL FOR REVIEW AND APPROVAL

WOOD STAIN (ALL WOOD MEMBERS):
MFR: CABOT
PH.: 800-877-8246
TYPE: SEMI-TRANSPARENT
COLOR: CORDOVAN BROWN
CONTRACTOR TO SUBMIT COLOR SAMPLE FOR REVIEW AND APPROVAL PRIOR RO COMMENCEMENT OF WORK.

1 CONCRETE SEATWALL WITH WOOD RAILING
SCALE: 1" = 1'-0"

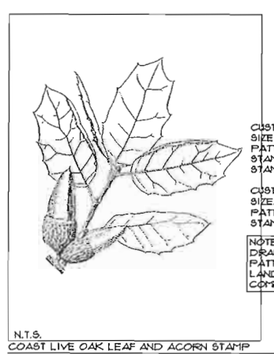


3 EXPANSION JOINT @ SEAT WALL
SCALE: 1 1/2" = 1'-0"



LIGHT FIXTURE TO BE PROVIDED BY THE CITY OF SARATOGA. CONTRACTOR TO COORDINATE PICK UP AND INSTALLATION OF LIGHT FIXTURE WITH CITY OF SARATOGA PROJECT REPRESENTATIVE.

4 LIGHT POLE WITH BRACKETS
SCALE: 1" = 1'-0"

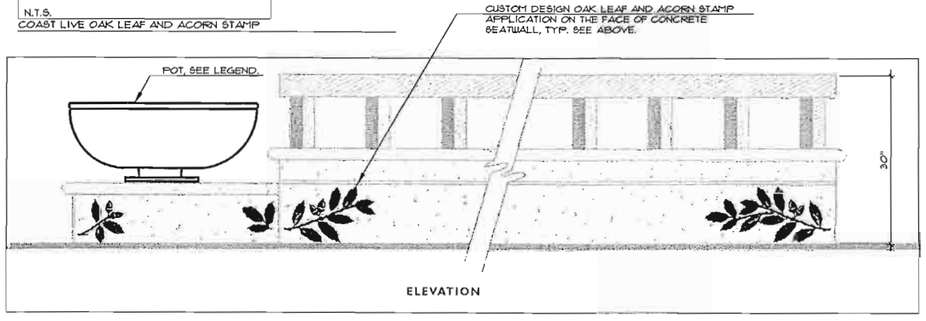


CUSTOM COAST LIVE OAK LEAF STAMPS (2)
SIZE: 6"X3" AND 4"X2"
PATTERN AS SHOWN
STAMP DEPTH: 1/8" DEPTH
STAMP PATTERN TO MATCH GRAPHIC BELOW

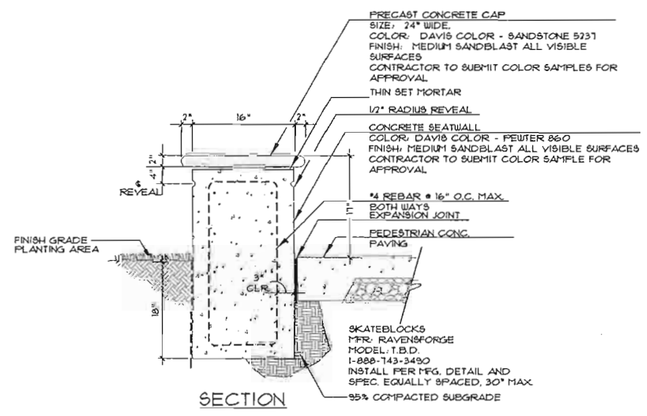
CUSTOM COAST LIVE OAK ACORN STAMPS (2)
SIZE: 3"X1" AND 2"X1 1/2"
PATTERN AS SHOWN
STAMP DEPTH: 1/8" DEPTH

NOTE: CONTRACTOR TO PROVIDE SHOP DRAWINGS OF OAK LEAF AND ACORN PATTERNS FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.

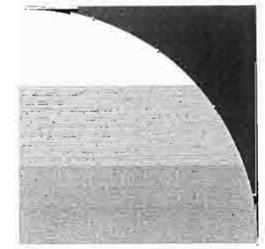
N.T.S.
COAST LIVE OAK LEAF AND ACORN STAMP



2 CUSTOM STAMP ON CONCRETE SEATWALL
SCALE: 1" = 1'-0"



5 CONCRETE SEATWALL PRECAST CONC. CAP
SCALE: 1" = 1'-0"



GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

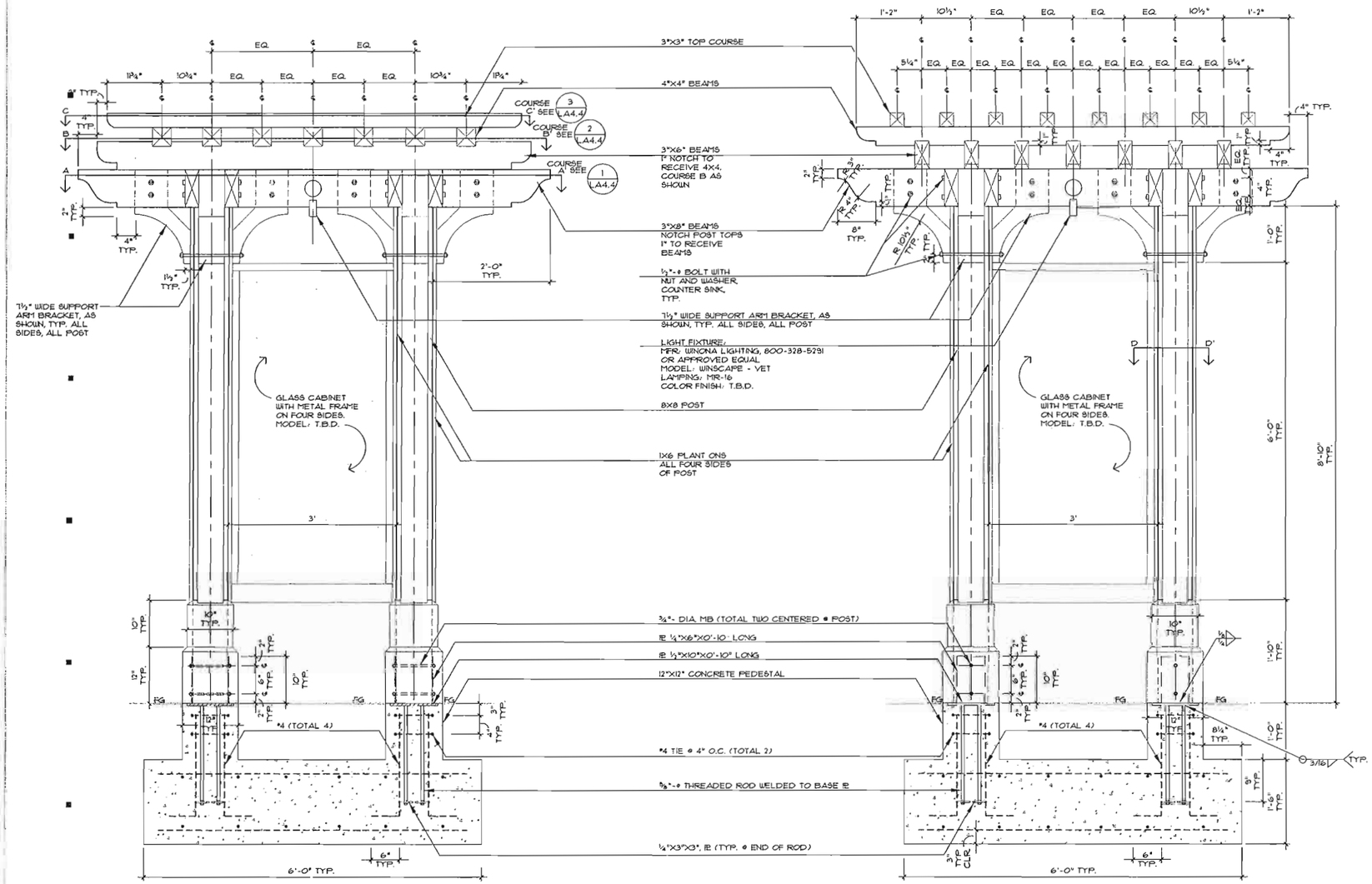
REGISTERED LANDSCAPE ARCHITECT — GARY GATES — 3-16-10 — LA 2671 — STATE OF CALIFORNIA

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3066
PROJECT FILE:	06 0 SARATOGA VILLAGE.DWG
DRAWN:	GL-CJS
CHECK:	KC
DATE:	MARCH 16, 2010
SCALE:	0

DETAILS

LA4.2

PROJECT NORTH 34 OF 38 SHEETS

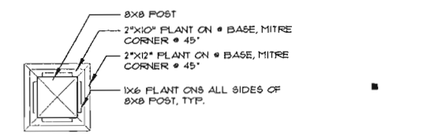


1 WOOD TRELLIS KIOSK - FRONT ELEVATION
SCALE: 1" = 1'-0"

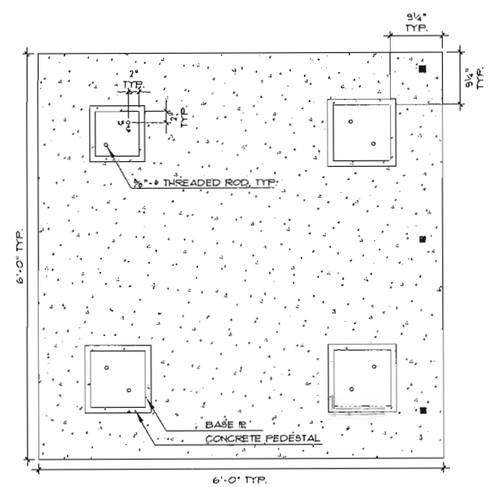
WOOD TRELLIS KIOSK - SIDE ELEVATION
SCALE: 1" = 1'-0"

WOOD STAIN (ALL WOOD MEMBERS):
MFR: CABOT
PH: 800-877-8246
TYPE: SEMI-TRANSPARENT
COLOR: CORDOVAN BROWN.
CONTRACTOR TO SUBMIT COLOR SAMPLE FOR REVIEW AND APPROVAL PRIOR RO COMMENCEMENT OF WORK.

NOTES:
1) ALL WOOD MEMBERS TO BE REDWOOD S4S SELECT.
2) ALL CONNECTORS TO BE HOT DIPPED GALVANIZED PLATES.
3) ALL WOOD MEMBERS WITHOUT INCH MARKS ARE NOMINAL WOOD MEMBER SIZES. WOOD MEMBERS SHOWN WITH INCH MARK DESIGNATIONS ARE CUSTOM MILLED DIMENSIONS.



POST AND POST PLANT ONS
CROSS SECTION D-D'



FOOTING PLAN

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.0176 FAX: 925.838.6901
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

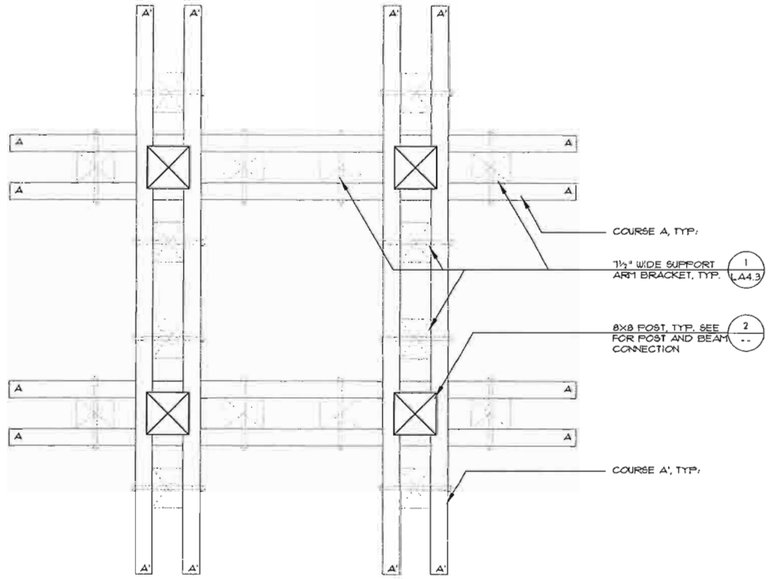
REVISION:	DESCRIPTION:	DATE:

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: P:\P3866 SARATOGA VILLAGE.DWG
DRAWN: G L-CJS
CHECK: KC
DATE: MARCH 16, 2010
SCALE:

DETAILS

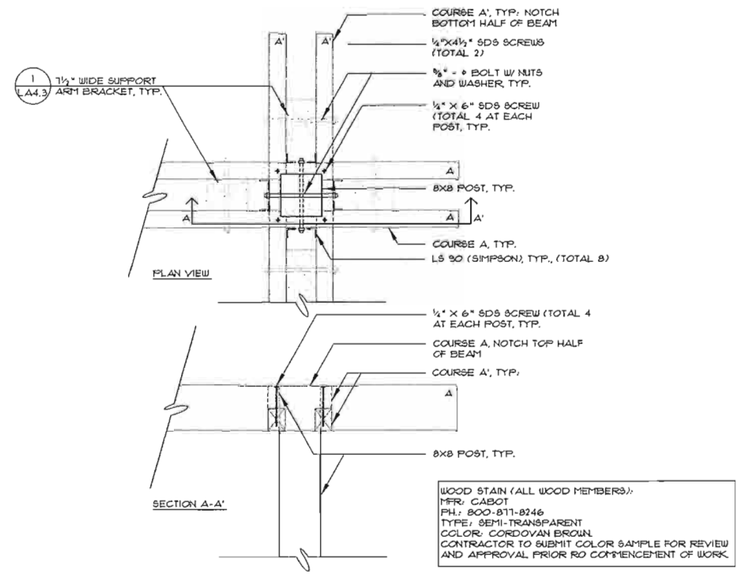
LA4.3

PROJECT NORTH 35 OF 38 SHEETS



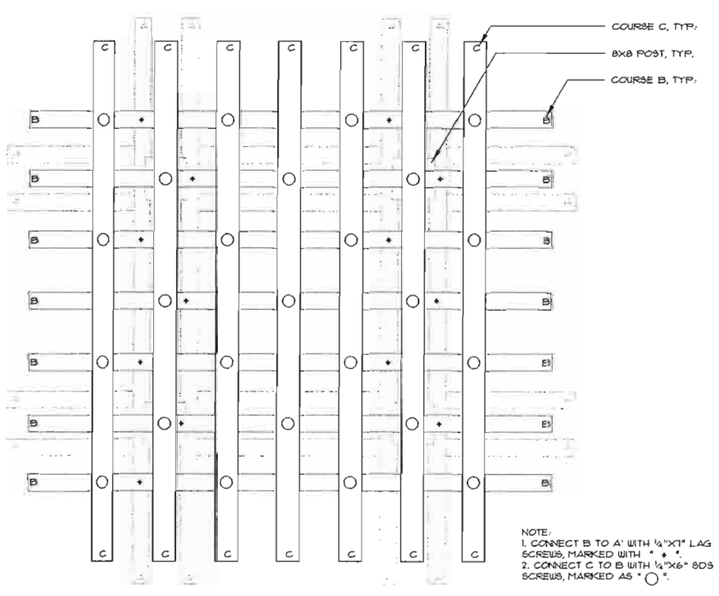
1 WOOD TRELLIS KIOSK - RAFTER PLAN VIEW A-A'

SCALE: 1" = 1'-0"



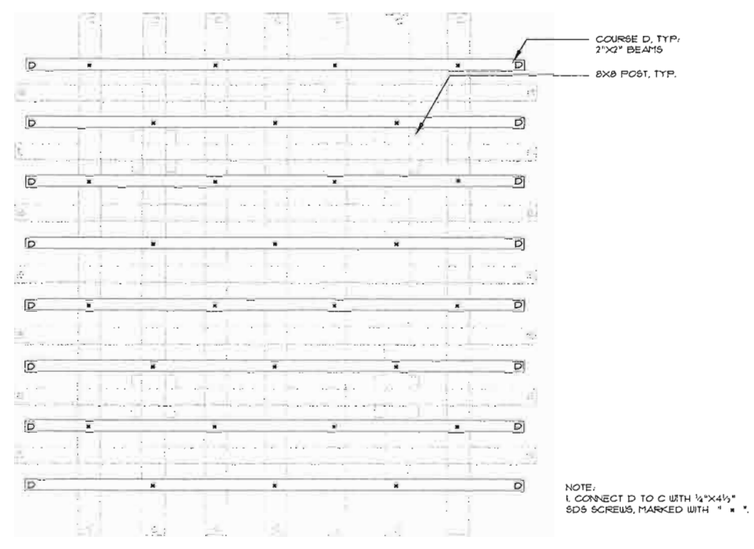
2 WOOD TRELLIS KIOSK - RAFTER PLAN VIEW A-A' CORNER DETAIL

SCALE: 1" = 1'-0"



3 WOOD TRELLIS KIOSK - RAFTER PLAN VIEW B-B'

SCALE: 1" = 1'-0"



WOOD TRELLIS KIOSK - RAFTER PLAN VIEW C-C'

SCALE: 1" = 1'-0"

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.838.8801
WWW.GGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

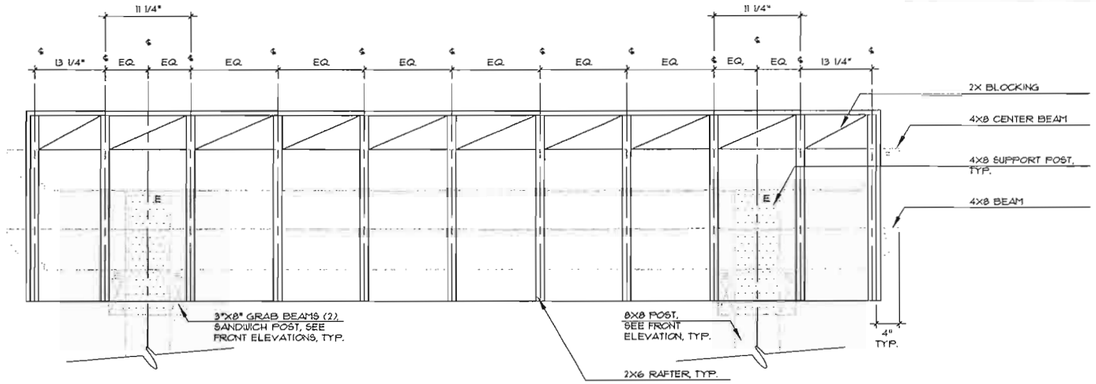
REGISTERED LANDSCAPE ARCHITECT
GARY GATES
3-16-10
LA
STATE OF CALIFORNIA

PROJECT NAME: SARATOGA VILLAGE
PROJECT NUMBER: P3866
PROJECT FILE: [illegible]
DRAWN: GL-GJS
CHECK: KC
DATE: MARCH 16, 2010
SCALE: 0

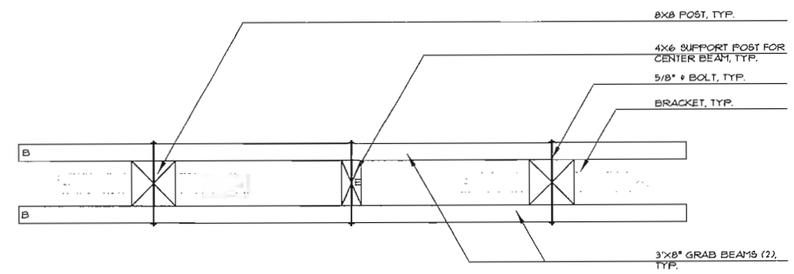
DETAILS

LA4.4

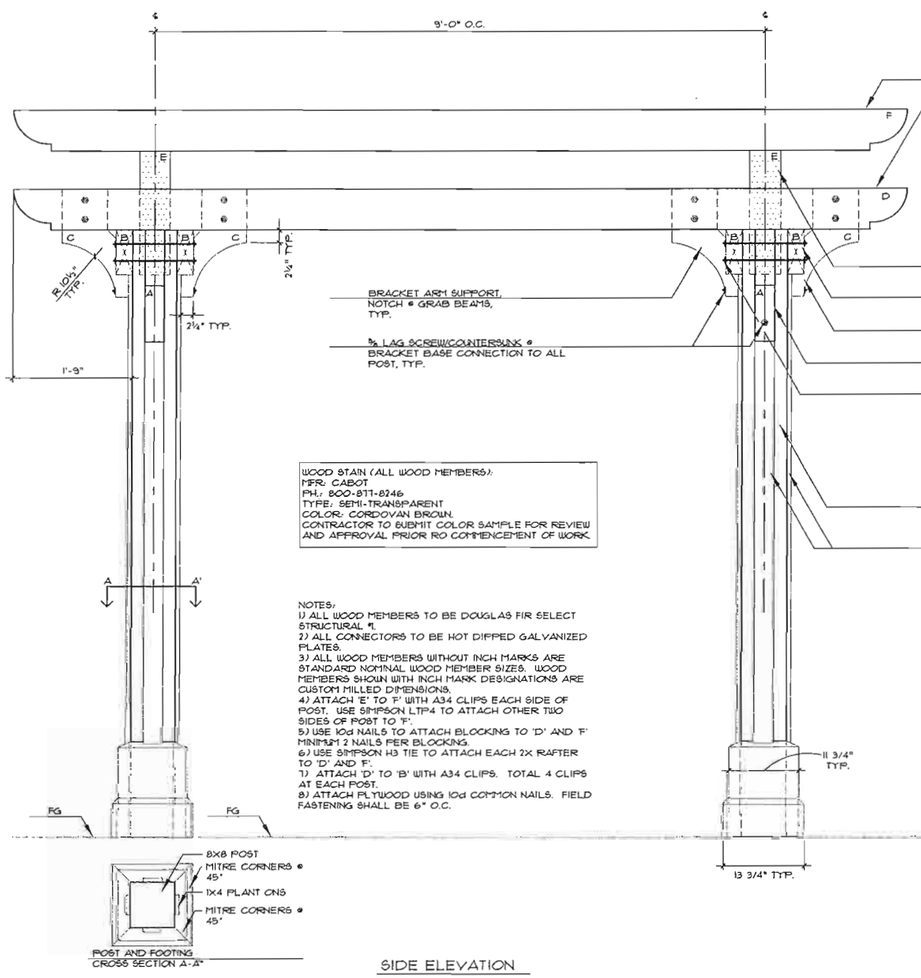
PROJECT NORTH 36 OF 38 SHEETS



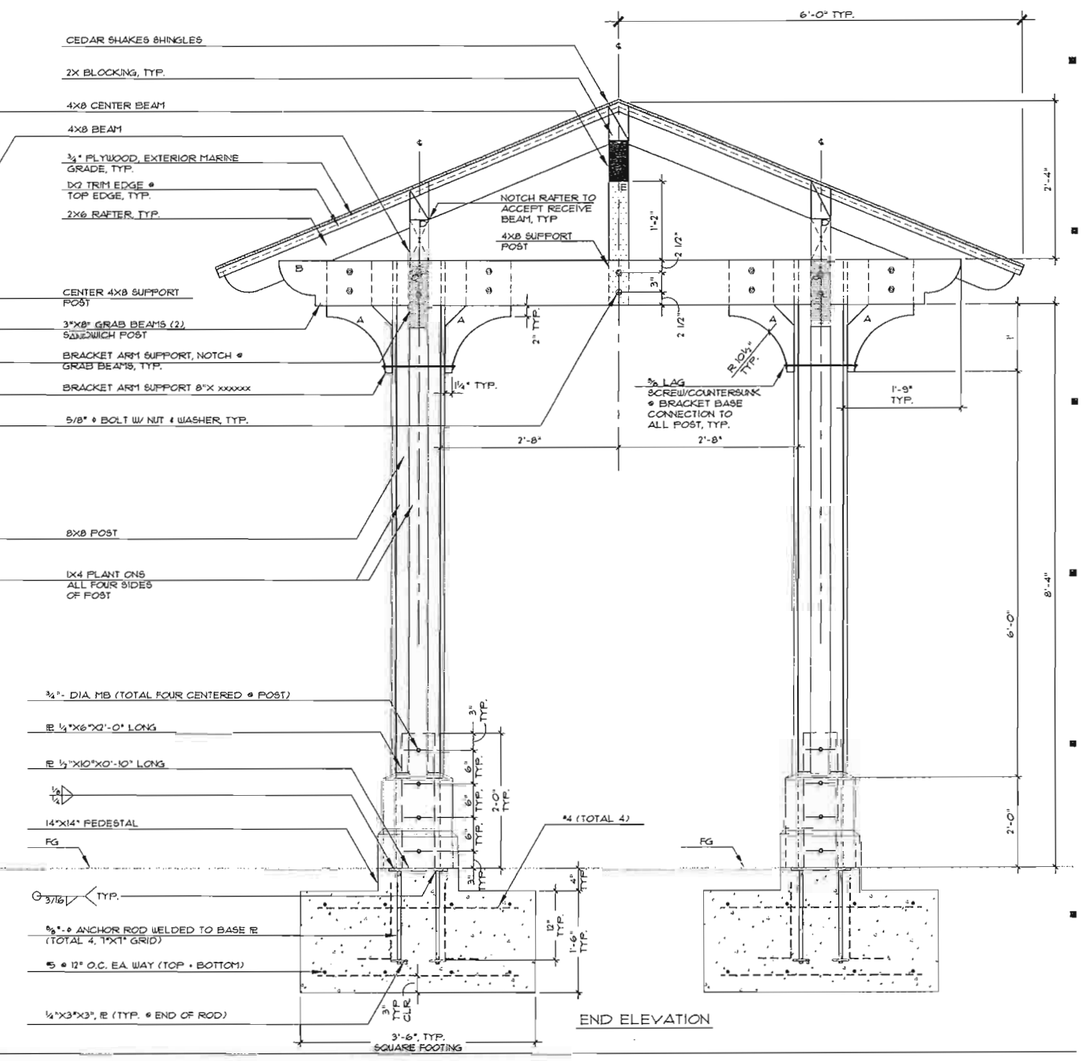
RAFTER LAYOUT
FRONT ELEVATION



GRAB BEAMS PLAN VIEW



SIDE ELEVATION



END ELEVATION

WOOD STAIN (ALL WOOD MEMBERS):
PER: CABOT
PH.: 800-877-8246
TYPE: SEMI-TRANSPARENT
COLOR: CORDOVAN BROWN.
CONTRACTOR TO SUBMIT COLOR SAMPLE FOR REVIEW AND APPROVAL PRIOR RO COMMENCEMENT OF WORK.

NOTES:
1) ALL WOOD MEMBERS TO BE DOUGLAS FIR SELECT STRUCTURAL #1.
2) ALL CONNECTORS TO BE HOT DIPPED GALVANIZED PLATES.
3) ALL WOOD MEMBERS WITHOUT INCH MARKS ARE STANDARD NOMINAL WOOD MEMBER SIZES. WOOD MEMBERS SHOWN WITH INCH MARK DESIGNATIONS ARE CUSTOM MILLED DIMENSIONS.
4) ATTACH 'E' TO 'F' WITH A34 CLIPS EACH SIDE OF POST. USE SIMPSON LTP4 TO ATTACH OTHER TWO SIDES OF POST TO 'F'.
5) USE 10d NAILS TO ATTACH BLOCKING TO 'D' AND 'F' MINIMUM 2 NAILS PER BLOCKING.
6) USE SIMPSON H3 TIE TO ATTACH EACH 2X RAFTER TO 'D' AND 'F'.
7) ATTACH 'D' TO 'B' WITH A34 CLIPS. TOTAL 4 CLIPS AT EACH POST.
8) ATTACH PLYWOOD USING 10d COMMON NAILS. FIELD FASTENING SHALL BE 6" O.C.

1 BUS SHELTER
SCALE: 1" = 1'-0"

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
5971 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.736.8176 FAX: 925.736.8901
WWW.DGATES.COM

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

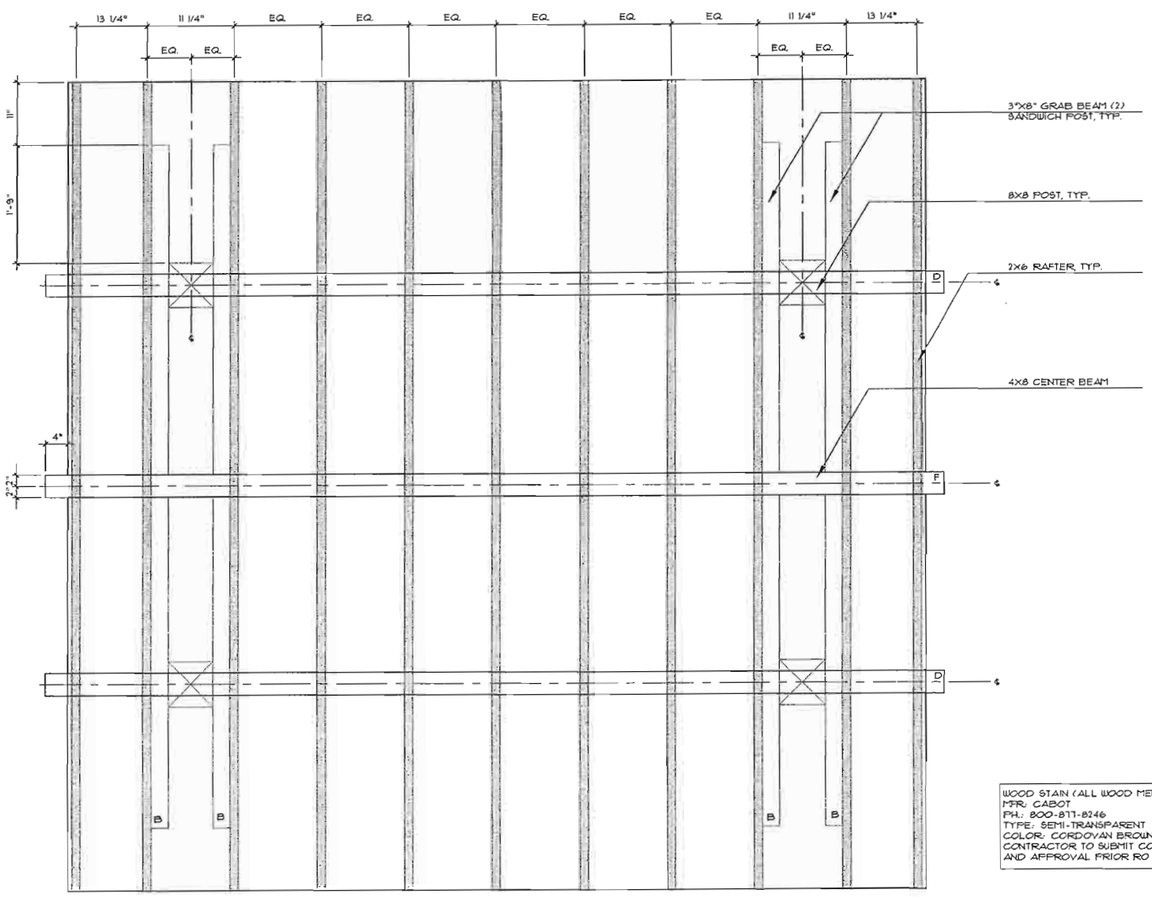
REGISTERED LANDSCAPE ARCHITECT
DAVID GATES - INC.
3-16-10
STATE OF CALIFORNIA

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	DG G-SARATOGA VILLAGE.DWG
DRAWN:	G L-C/JS
CHECK:	KC
DATE:	MARCH 16, 2010
SCALE:	0

DETAILS

LA4.5

PROJECT NORTH 37 OF 38 SHEETS



WOOD STAIN (ALL WOOD MEMBERS):
MFR: CABOT
PH.: 800-877-8246
TYPE: SEMI-TRANSPARENT
COLOR: CORDOVAN BROWN.
CONTRACTOR TO SUBMIT COLOR SAMPLE FOR REVIEW AND APPROVAL PRIOR RO COMMENCEMENT OF WORK.

1 BUS SHELTER - PLAN VIEW - TOP
SCALE: 1" = 1'-0"

GATES & ASSOCIATES
LANDSCAPE ARCHITECTURE
LAND PLANNING URBAN DESIGN
2671 CROW CANYON RD. SAN RAMON, CA. 94583
TEL: 925.838.8176 FAX: 925.838.8901
WWW.DGATES.COM

SARATOGA VILLAGE
PEDESTRIAN
ENHANCEMENTS

SARATOGA, CA

BID SET

REVISION:	DESCRIPTION:	DATE:

REGISTERED LANDSCAPE ARCHITECT
DAVID GATES
3-16-10
L.A.
STATE OF CALIFORNIA

PROJECT NAME:	SARATOGA VILLAGE
PROJECT NUMBER:	P3866
PROJECT FILE:	DG & SARATOGA VILLAGE.DWG
DRAWN:	GL-CJS
CHECK:	KC
DATE:	MARCH 16, 2010
SCALE:	0

DETAILS

LA4.6

PROJECT NORTH 38 OF 38 SHEETS

TECHNICAL SPECIFICATIONS

SARATOGA VILLAGE PEDESTRIAN ENHANCEMENTS

FEDERAL PROJECT ID: CML-5332(013)

List of Specifications

SECTION 19 MOBILIZATION

SECTION 21 STORM WATER POLLUTION PREVENTION

SECTION 22 TEMPORARY EROSION AND SEDIMENT CONTROL

SECTION 01170 ACCIDENT PREVENTION

SECTION 01200 PROJECT MEETINGS

SECTION 01300 SUBMITTALS

SECTION 01530 TRAFFIC CONTROL/BARRIERS

SECTION 01560 TEMPORARY CONTROLS

SECTION 01700 PROJECT CLOSE OUT

SECTION 02050 REMOVAL OF PAVEMENTS AND CONCRETE SLABS

SECTION 02230 TREE REMOVAL, SITE CLEARING, AND STRIPPING AND GRUBBING

SECTION 2300 EARTHWORK

SECTON 02310 UTILITY TRENCHING AND BACKFILL

SECTION 02320 PAVEMENT SUBBASE AND BASE COURSES

SECTION 02510 WATER SYSTEM

SECTION 02630 STORM DRINAGE SYSTEM

SECTION 02750 ASPHALT CONCRETE PAVEMENT

SECTION 02785 SIGNS, OBJECT MARKERS, TRAFFIC STRIPES, PAVEMENT MARKINGS AND MARKERS AND MARKERS

SECTION 02810 IRRIGATION

SECTION 02870 SITE FURNISHING

SECTION 02900 PLANTING

SECTION 03301 PORTLAND CEMENT CONCRETE

SECTION 03320 SITE CONCRETE

SECTION 26 56 19 ROADWAY LIGHTING SYSTEM

SECTION 03500 DUST CONTROL

SECTION 03750 STREET SWEEPING

CITY OF SARATOGA DETAILS GENERAL CONSTRUCTION SPECIFICATIONS

SECTION 19
MOBILIZATION

PART 1: GENERAL

1.1 DESCRIPTION: Mobilization shall conform to the provisions of Section 11, "Mobilization", of Caltrans Standard Specifications 2006.

Payment for compliance with this section shall be deemed included in the various other items of work, and no additional compensation will be allowed therefore.

END OF SECTION 19

SECTION 21 STORM WATER POLLUTION PREVENTION

1.1 DESCRIPTION: **STORM WATER POLLUTION PREVENTION:** To control erosion during and after project implementation, the contractor shall implement a Stormwater Pollution Prvention Plan (SWPPP) with appropriate Best Management Practices (BMPs), in accordance with San Francisco Bay Regional Water Quality Board (RWQCB) guidelines

Section 21 Storm Water Pollution Prevention. - Storm Water Pollution Prevention will be applicable to any construction activity that involves **one acre or more of Total Area to be Disturbed**. For projects involving linear construction (such as installation of sewer pipeline and conduits), the following formula may be used to calculate the total area to be disturbed including the trenching activity:
Total Area to be Disturbed = [(A + B) x C] + D + E
A = *Width of disturbance (including trench width)*
B = *Immediate access width*
C = *Length of pipe diameter*
D = *Areas of project-related activity (such as equipment and material storage) occur*
E = *Number of bore holes x (Bore hole diameter + 'B')*

21-2.01 Plan Preparation and Compliance. – The Contractor shall conform to Section 7-1.01 G, "Water Pollution," of Caltrans Standard Specifications and these Special Provisions.

Within thirty (30) calendar days after execution of the contract, the Contractor shall submit a Storm Water Pollution Prevention Plan (SWPPP) and a draft of the Notice of Intent (NOI) to be filed by the City with the California State Water Resources Control Board (SWRCB). The annual permit fee(s) shall be paid by the City.

The SWPPP shall conform to Provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the details, operating procedures, and maintenance guidelines of the California Regional Water Quality Control Board San Francisco Bay Region's "Guidelines for Construction Projects" (Guidelines), the California Regional Water Control Board San Francisco Bay Region's "Erosion and Sediment Control Field Manual" (Manual), the project plans and these SpecialProvisions. Upon the Engineer's review and acceptance of the SWPPP, the SWPPP shall be deemed to fulfill the requirements set forth in Section 7-1.01G of the Standard Specifications for development and submittal of a Water Pollution Control Program.

The Notice to Proceed may be withheld until the Engineer has reviewed and accepted the SWPPP, the State Notice of Intent has been filed, and a NOI receipt letter is received from the SWRCB authorizing coverage of this project under the Construction Activity General Permit.

21-2.02 Construction Requirements. – The Contractor shall implement and maintain the SWPPP for the project in full compliance with the revised state regulations to control the discharge of storm water pollutants. The Contractor shall provide the monitoring or reporting required to comply with all the state regulations regarding the SWPPP for the project.

21-2.02A Storm Water Pollution Prevention Plan. – The SWPPP shall identify construction activities that may adversely affect the quality of storm water discharges associated with the project and shall identify water pollution control measures, hereinafter referred to as control measures, to be constructed, implemented, and maintained in order to reduce, to the maximum extent feasible, storm water discharges from the construction site both during and after construction is completed under this contract.

The Contractor shall amend the SWPPP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems or when deemed necessary by the Engineer. The SWPPP shall be amended if, at any time, the implementation of the SWPPP is not effectively achieving the objective of maximum feasible reduction of pollutants in storm water discharges. Amendments shall show additional control measures or revised operations, including those in areas not shown in the initial SWPPP, which are required on the project to control water pollution effectively. Amendments to the SWPPP shall be dated and logged in the SWPPP and submitted to the Engineer within five (5) working days. Upon the Engineer's review and acceptance of the amendment, the Contractor shall implement the additional control measures or revised operations. In emergency situations that require immediate changes at the project site, the Contractor shall implement the necessary measures and notify the Engineer of the changes.

The Contractor shall give immediate notice to the Engineer of any planned changes in construction activity that may result in non-compliance with these Special Provisions.

By the last day of each month, the Contractor shall submit an affidavit to the Engineer certifying conformance with the SWPPP. The monthly partial payment may be withheld if the affidavit is not received and accepted by the Engineer. If at any time the project is in non-compliance with the SWPPP, the Contractor shall submit a written report to the Engineer within two (2) days of identifying the noncompliance.
The report shall specify the time and nature of the non-compliance and include a course of action to correct the deficiency.

The Contractor shall keep a copy of the State of California Construction Activity General Permit (SWRCB Order No. 99-08-DWQ), the SWPPP, and any approved amendments at the project site. The SWPPP shall be made available upon request of any representative of the Regional Water Quality Control Board, State

Water Resources Control Board, United States Environmental Protection Agency, or any City representative. Public requests for copies of the SWPPP shall be directed to the Engineer.

21-2.02B Erosion and Sediment Control. – The facilities shown on the SWPPP are designed to control erosion and sediment during the Rainy Season, from October 15 to April 15. Facilities are to be operable prior to October 1 of each year (hereinafter "Rainy Season"). During the Non-Rainy Season, from April 16 to October 14 (hereinafter "Non-Rainy Season"), the Contractor shall use effective Best Management Practices (BMPs) at the project site.

(1) Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. Contractor shall comply with state and local laws concerning pollution abatement.

(2) Contractor shall be responsible for monitoring erosion and sediment control measures prior, during, and after storm events.

(3) Reasonable care shall be taken when hauling any earth, sand, gravel, stone, debris, paper, or any other substance over any public street, alley or other public place. Should any material blow, spill, or track over and upon said public or adjacent private property, immediate remedy shall occur.

(4) Inlet protection shall be installed at open inlets to prevent sediment from entering the storm drain system. Inlets not used in conjunction with erosion control are to be blocked to prevent entry of sediment.

(5) During the Rainy Season, all paved areas shall be kept clear of earth material and debris. The site shall be maintained so as to minimize sediment-laden runoff to any storm drainage system, including existing drainage swales and watercourses.

(6) Contractor shall install and maintain construction entrances prior to commencement of grading. All construction vehicle traffic entering onto the paved roads must cross stabilized construction entrance ways. Entrance ways may be constructed of two-inch to six-inch drain rock, metal grating, or metal cattle-guard, or equivalent material, or may include vehicle wash stations as needed, in sufficient quantity and size to prevent tracking of mud and debris from the construction site. Any mud or debris tracked onto public streets, or onto adjacent public or private property, shall be removed immediately as required by the City.

(7) Grading operations during the Rainy Season which leave denuded slopes shall be protected with erosion control measures immediately following grading on the slopes. If hydroseeding is not used or is not effective by October 10,

then other immediate methods shall be implemented, such as erosion control blankets, blown straw, or a three-step application of 1) seed, mulch, fertilizer, 2) blown straw, and 3) tackifier and mulch.

(8) Sanitary facilities shall be maintained on the site in a manner to prevent inadvertent discharge or leakage of sanitary wastes into the storm drain system either by placing sanitary facilities in locations that do not drain to the storm drain system or by providing secondary containment systems to capture leaked wastes.

(9) Contractor shall provide dust control as required by the appropriate federal, state and City requirements and Section 10, "Dust Control," of Caltrans Standard Specifications.

The erosion and sediment control plan may not cover all the situations that may arise during construction due to unanticipated field conditions. Variations and additions may be made to the plan in the field. Notify the City Representative of any field changes.

21-2.03 Maintenance. – The SWPPP shall include a plan for maintenance that shall include at a minimum:

(A) Immediate repair of damage caused by soil erosion or construction.

(B) Inspection of sediment traps, berms, rills, gullies, and swales after each storm event and repair or cleaning as needed.

(C) Removal of sediment from sediment traps and restoration to original dimensions when sediment has accumulated to a depth of one foot. Sediment removed from trap shall be deposited in a suitable area and in such a manner that it will not erode.

(D) Regular cleaning of gravel bag inlet protection so that sediment depth never exceeds a maximum of three inches.

21-2.04 Payment. – Payments for Storm Water Pollution Prevention will be made as follows:

(A) When the monthly partial payment estimate of the amount earned, not including the amount earned for Storm Water Pollution Prevention, is 5 percent or more of the original contract amount, 20 percent of the contract item price for Storm Water Pollution Prevention will be included in said estimate for payment.

(B) When the monthly partial payment estimate of the amount earned, not including the amount earned for Storm Water Pollution Prevention, is 10 percent or more of the original

contract amount, 30 percent of the contract item price for Storm Water Pollution Prevention less all previous payments will be included in said estimate for payment.

(C) When the monthly partial payment estimate of the amount earned, not including the amount earned for Storm Water Pollution, is 20 percent or more of the original contract amount, 40 percent of the contract item price for Storm Water Pollution Prevention less all previous payments will be included in said estimate for payment.

(D) When the monthly partial payment estimate of the amount earned, not including the amount earned for Storm Water Pollution Prevention, is 50 percent or more of the original contract amount, 60 percent of the contract item price for Storm Water Pollution less all previous payments will be included in said estimate for payment.

(E) When the monthly partial payment estimate of the amount earned, not including the amount earned for Storm Water Pollution Prevention, is 90 percent or more of the original contract amount, 90 percent of the contract item price for Storm Water Pollution Prevention less all previous payments will be included in said estimate for payment.

(F) After acceptance of the contract pursuant to Section 7-1.17, "Acceptance of Contract," the amount, if any, of the contract item price for Storm Water Pollution Prevention in excess of 10 percent of the original contract amount will be included for payment in the first estimate made in accordance with said Section 9-1.07.

The contract lump sum price paid for Storm Water Pollution Prevention shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Storm Water Pollution Prevention as specified herein. Measurement and payment shall be as specified in the project's Technical
Specifications.

The City will not pay for erosion and sediment control items that are required due to
the Contractor's negligence, carelessness, failure to properly install controls, or failure to abide by the provisions of the SWPPP, the Standard Specifications and these Special Provisions. The Contractor shall install such work at no expense to the City.

All penalties from regulatory agencies attributable to the Contractor as a result of the Contractor's negligence, carelessness, failure to properly install controls, or failure to abide by the provisions of the SWPPP, the Standard Specifications and these Special Provisions shall be paid at Contractor's sole expense.

If the contract is extended to the next Rainy Season due to unanticipated field conditions and not due to Contractor's fault, payments will be made under a revocable item.

Measurement and payment shall be as specified in the project's Technical Specifications.

END OF SECTION 21

SECTION 22 TEMPORARY EROSION AND SEDIMENT CONTROL

22-1.01 Temporary Erosion and Sediment Control. – Temporary erosion and sediment control within the total project shall conform to the Provisions in Section 20-5, "Erosion Control," of the Standard Specifications, these Special Provisions and the Plans. The Contractor's attention is directed to Section 21, "Storm Water Pollution Prevention," of these Special Provisions.

Temporary erosion and sediment control work shall consist of applying erosion control materials to embankment slopes, excavation slopes and other areas designated on the plans, installing silt fence, inlet protection, gravel bags, headwall protection and stabilized construction entrance ways.

22-1.02 Measurement and Payment. – Full compensation for "Temporary Erosion and Sediment Control" shall be considered as included in the contract lump sum price for Storm Water Pollution Prevention (Section 10-2 of these Special Provisions) and no separate payment shall be made therefore.

END OF SECTION 22

SECTION 01170 ACCIDENT PREVENTION

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consist of establishing an effective accident prevention program and providing a safe environment for all the public and workers within the construction zone.

1.2 SUBMITTALS:

A. Accident Prevention Program: Before on-site work begins, submit for review and comment an accident prevention program. The Engineer will review the proposed program for compliance with OSHA and project requirements. If the program requires any revisions or corrections, the Contractor shall resubmit the program within 10 days. No progress payments will be processed until the program is approved. The program shall include:

1. Name of responsible supervisor to carry out the program.

2. Weekly and monthly safety meetings.

3. First aid procedures

4. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to ensure property protection and safety of the public, and Contractor's employees. Identify the work included under each phase by reference to specification section or division numbers

5. Training, both initial and continuing.

6. Planning for possible emergency situations, such as floods, fires, cave-ins, slides, explosions, power outages, and wind storms. Such planning shall take into consideration the nature of construction, site conditions, and degree of exposure of persons and property.

7. Housekeeping

8. Fire Protection

B Certificates: Certify that all mechanical equipment has been inspected and meets OSHA requirements.

C. Submit a copy of test reports, as required by OSHA, for personnel working with hazardous materials.

D. Submit a report of safety meetings and of inspections.

E. Upon request, submit proof of employees' qualifications to perform assigned duties in a safe manner.

F. Confined Space Training Certification

1.3 QUALITY ASSURANCE:

A. Clauses entitled "Accident Prevention" and "Permits and Responsibilities" of the General Provisions. In case of conflicts between Federal, state, and local safety and health requirements, the most stringent shall apply. Equipment or tools not meeting OSHA requirements will not be allowed on the project sites. Failure to comply with the requirements of this section and related sections may result in suspension of work.

B. Qualification of Employees:

1. Ensure that employees are physically qualified to perform their assigned duties in a safe manner.

2. Do not allow employees to work whose ability or alertness is impaired because of drugs, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.

3. Operators of vehicles, mobile equipment, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, and operating instructions, and be capable of operating such equipment. Provide operating instructions for all equipment. Newly hired operators shall be individually tested by an experienced operator or supervisor to determine if they are capable of safely operating equipment.

1.4 ACCIDENT REPORTING:

A. Reportable Accidents: A reportable accident is defined as death, occupational disease, traumatic injury to employees or the public, property damage by accident in excess of $100, and fires. Notify the City and appropriate regulatory agencies within 24 hours of the reportable accident.

B. All other Accidents: The Contractor shall report all other accidents to the City and appropriate regulatory agencies as soon as possible and assist the City and other officials as required in the investigation of the accident.

PART 2: PRODUCTS

2.1 FIRST AID FACILITIES: Provide adequate facilities for the number of employees and the type of construction at the site.

2.2 PERSONNEL PROTECTIVE EQUIPMENT: Meet requirements of NIOSH and MSHA, where applicable, as well as ANSI.

2.3 BARRIERS: Section 01530.

PART 3: EXECUTION

3.1 EMERGENCY INSTRUCTIONS: Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.

3.2 ESCAPE ROUTES: Provide and maintain adequate escape routes at all times in accordance with the Life Safety Code (NFPA 101-85). No corridor, aisle, stairway, door, or exit shall be obstructed or used in a manner that interfered with escape routes.

3.3 PROTECTIVE EQUIPMENT:

A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair, as appropriate, personal items before issuing them to another individual.

B. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.

3.4 SAFETY MEETINGS:

A. As a minimum, conduct weekly 15-minute "toolbox" safety meetings. These meetings shall be conducted by a foreman and attended by all construction personnel at the worksite.

B. Conduct monthly safety meetings for all levels of supervision. Notify the Contracting Officer so that he may attend. These meetings shall be used to review the effectiveness of the Contractor's safety effort, to resolve current health and safety problems, to provide a forum for planning safe construction activities, and for updating the accident prevention program. The Contracting Officer will enter the results of the meetings into his daily log.

3.5 HARD HATS AND PROTECTIVE EQUIPMENT AREAS:

A. A hard hat areas shall be designated and posted by the Contractor in a manner satisfactory to the City.

B. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary protective equipment at all times. As a minimum, provide six hard hats for use by visitors. Change liners before reissuing hats.

C. The contractor shall provide barricades and warning signs, or other warning devices as necessary prevent unauthorized access into the construction work area.

3.6 TRAINING:

A. First Aid: Provide adequate training to ensure prompt and efficient first aid.

B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage. Hazardous materials are defined as explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

C. OSHA Confined Space Training: The Contractor shall be required to submit their written policy for confined space entry. The policy shall include a copy of the permit used by the Contractor and identification of their safety/confined space entry equipment

END OF SECTION 01170

SECTION 01200 PROJECT MEETINGS

PART 1: GENERAL

1.1 PRECONSTRUCTION CONFERENCE: Before start of construction, the Contractor shall arrange an on-site pre-construction meeting with City of Saratoga.

1.2 PROGRESS MEETINGS:

A. The City will require, as a minimum, the Contractor to conduit weekly meetings with appropriate subcontractors, utility companies as required, and the Engineer and staff. The city reserves the right to require progress meeting on a more frequent basis during crucial periods of the project which require extra coordination efforts.

B. The Contractor shall be required to update his project schedule prior to the weekly progress meetings. The schedule shall include, as a minimum, activity ID numbers, task descriptions, task duration's, start and finish dates, identification of Critical Path tasks, % complete for each activity, total estimated cost for each activity, and float or slack time. The Contractor shall provide ten copies to the City prior to the Status meeting.

C. The Engineer will take meeting minutes for each meeting and assign actions accordingly. Meeting minutes will include action assignments to specific personnel and a completion date.

PART 2: PRODUCTS Not used.

PART 3: EXECUTION Not used.

END OF SECTION 01200

SECTION 01300
SUBMITTALS

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of submittal requirements before and during construction.

1.2 RELATED REQUIREMENTS: Closeout submittals - Section 01700.

1.3 SCHEDULES: As soon as possible after Notice of Award and before beginning any work, submit Progress Schedule and Schedule of Values as a package. The City will review the Progress Schedule and the Schedule of Values for format and content.

A. Progress Schedule: Submit to the Engineer for approval, four copies of a Critical Path Method Progress Schedule (normally in bar chart form) showing estimated starting and completion dates for each part of the work. The Critical Path method schedule shall be prepared using computer scheduling programs such as Primavera, Microsoft Project, Suretrak, P3, or others. The progress payment will not be approved by the City until an acceptable, up to date progress schedule is provided to the Engineer. The purpose of the schedule will be to assure adequate planning and execution of the work by the Contractor; to assure coordination of the work of the various subcontractors and utility companies; to assist the contractor, City and Engineer in monitoring the progress of the work and evaluating proposed changes to the contract and schedule; to assist the Engineer, City, and Contractor in the preparation and evaluation of the Contractor's monthly progress payments; and to alert the City as to the proposed closure of streets and other public facilities.

B. Schedule of Values: Submit a schedule values for the dollar values based on the Contract Bid Schedule including all bid items, and for the work activities identified in the project schedule. Break down into component parts each bid item involving a series of operations for which progress payments may be requested. The total costs for the component parts shall equal the bid amount for that item, and the total cost of all items shall equal the contract sum. The City may request additional tasks be identified in the schedule of values or

data to verify accuracy of dollar values. The Schedule of Values will form the basis for progress payments as provided for in the General Provisions.

1.4 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES:

A. General Procedures:

1. As specified in the individual sections, forward submittals to the City at least 15 days before need for review. Unless a different number is specified, submit five copies of each shop drawing, three specimens of each sample, and five copies of all other submittals requested, all of which will be retained by the City. Submit any additional copies that are to be returned.

2. Coordinate all submittals and review them for legibility, accuracy, completeness, and compliance with contract requirements. Forward submittals that are related to or affect one another as a package to facilitate coordinated review.

3. Submittals will not be accepted for review if they are not on the correct form, an incorrect amount of submittals are submitted, the transmittal form is incorrectly filled out, submittals are not coordinated, or submittals do not show evidence of Contractor's approval.

4. The City reserves the right to require submittals in addition to those called for in individual sections.

B. Specific Procedures:

1. Shop Drawings: Identify each copy of shop drawings with contract drawing number in lower right hand corner.

2. Samples: Samples shall be large enough to illustrate clearly the functional characteristics and full range of color, texture, or pattern.

3. Manufacturers' Literature: Submit only pertinent pages; mark each copy of standard printed data to identify products referenced in specification section.

C. The City's Review:

1. After approving submittals, The City will return Contractor's copies.

2. If submittals are not approved, The City will return all copies to Contractor with reasons for rejection. Resubmit, identifying changes.

3. Any work done before approval shall be at Contractor's own risk.

1.5 APPROVED EQUALS:

A. For each item proposed as an "approved equal," submit a separate request. With each request submit supporting data, including:

1. Drawings and samples as appropriate.

2. Comparison of the qualities of the proposed item with that specified.

3. Changes required in other elements of the work because of the substitution.

4. Name, address, and telephone number of vendor.

5. Manufacturer's literature regarding installation, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts list. Describe availability of maintenance service, and state source of replacement materials.

B. A request for approval constitutes a representation that Contractor:

1. Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.

2. Will provide the same warranties for the proposed item as for the item specified.

3. Has determined that the proposed item is compatible with interfacing items.

4. Will coordinate the installation of an approved item and make all changes required in other elements of the work because of the substitution.

5. Waives all claims for additional expenses that may be incurred as a result of the substitution.

C. The Engineer has the final determination as to whether the proposed substitute product is equal. If the determination is made the product is not equal, the contractor shall be required to provide a product which meets the specifications.

1.6 MANUFACTURER'S INSTALLATION INSTRUCTIONS: When contract documents require compliance with manufacturer's printed instructions, provide one complete set of instructions for The City and keep another complete set of instructions at the project site until substantial completion.

1.7 MATERIAL SUBMITTAL LIST- The names of the manufactures/producers of the materials proposed by the Contractor for use under this contract shall be submitted to the Engineer, for review, within (30) calender days after the award of the contract prior to beginning work. The manufacture's producers specifications and or certificates of compliance shall be submitted for all applicable products on the list.

ITEM DESCRIPTION

- Construction Schedule
- Storm Water Pollution Prevention Plan
- Material Submittal List
- Site Inspection photo/pictures
- Notices to Residents, Businesses and Schools
- Traffic Control Plan
- Class 2 Aggregate Base
- Asphalt Concrete (Caltrans) Type A Medium ½ inch maximum aggregate size, medium graded. Recycle Asphalt Product (RAP) will not be accepted
- Class B Portland Cement Concrete (5 sack mix with 1 pint lampblack /cubic yard
- Truncated Domes for Wheelchair Ramp (Color Armor Title Dark Grey Federal Color No. 36118
- Thermoplastic stripping
- Bollards
- Signs

END OF SECTION 01300

SECTION 01530 TRAFFIC CONTROL/BARRIERS

PART 1: GENERAL

1) 1.1 DESCRIPTION: The work of this section consists of furnishing, installing, and maintaining barriers to protect existing facilities and the public from construction operations. Per Section 7-1.08, "Public Convenience," and 7-1.09, "Public Safety", of the Caltrans Standard Specifications for Construction of Local Streets and Roads, May 2006 Edition Caltrans, set forth the Contractor's responsibilities for public convenience and public safety. A safe minimum passage of four (4) feet shall be maintained through the work area at the existing pedestrian. At no time shall pedestrian be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades shall be installed at the limit of construction and in advance of the construction at the nearest crosswalk or intersection to detour pedestrian to facilities across the street.

1.2 SUBMITTALS

A. A copy of the Traffic Control Supervisor's Certification

B. Traffic Control Plan

PART 2: PRODUCTS

2.1. GENERAL: Material may be new or used, but shall be suitable for intended purpose. Fences and barriers shall be structurally adequate and neat in appearance.

2.2. FENCING: Chain link, 2-inch mesh, minimum height, 6 feet.

2.3. BARRICADES AND SIGNS: ANSI D6.1-78, "Manual on Uniform Traffic Control Devices" (MUTCD), Part VI.

2.4. LUMBER: Free of nails, large knot holes and splinters.

2.5. BARRIER TAPE: Banner Guard, imprinted with "CAUTION: CONSTRUCTION AREA", or approved equal.

2.6. FLASHING ARROW SIGNS: Per section 12-3.03 of the Caltrans Standard Specifications for Construction of Local Streets and Roads, May 2006 Edition Caltrans. Provide electric arrow board(s) for lane reduction.

2.7. SIGNS: Overhead Lines Above

PART 3: EXECUTION

3.1 GENERAL

A. The Contractor shall provide all barricades, flagmen, control devices, etc. necessary to control traffic and protect areas under construction. All traffic control procedures, signing, lighting, barricading, etc., shall conform to the latest edition of the Manual of Uniform Traffic Control Devises.

B. The Contractor shall submit to the City for approval, a Traffic Control Plan (TCP) prepared by a Certified Traffic Control Supervisor. No demolition or construction activities may commence until the TCP has been approved.

C. The Traffic Control Supervisor shall be certified as a Worksite Traffic Supervisor by the American Traffic Safety Services Association (ATSSA).

D. All barricading and signage shall be left in place until the work has been constructed, inspected and approved by the City.

E. The Contractor shall provide the name, address, and phone number of his representative who may be reached at any time during the life of the project regarding repairs, detours, barricading, etc. This information shall be furnished in writing to the City, Fire Department, and Police Department.

F. The Contractor shall be responsible for informing the public of the traffic conditions existing within the construction area at all times by placement of appropriate warning and advisory signs. The Contractor shall provide and maintain all traffic control and safety items. The Contractor assumes sole and complete responsibility for the job and site conditions including safety of all persons and property, from start until final acceptance of construction of construction. This requirement shall apply continuously twenty-four (24) hours/day and shall be limited to normal work hours.

G. Notify the police and fire department 24 hours prior to any road closure.

3.2 PROTECTION OF PUBLIC:

A. Fence, barricade, or otherwise block off the immediate work area to prevent unauthorized entry to the work area.

B. Erect and maintain barricades, lights, danger signals, and warning signs in accordance with ANSI D6.1-78.

C. Illuminate barricades and obstructions at night; keep safety lights burning from sunset to sunrise.

D. Adequately barricade and post open cuts in or adjacent to thoroughfares.

E. Protect pedestrian traffic by guardrails or fences.

F. When pedestrian traffic is detoured into a roadway, provide temporary walkways with any necessary protection at ends and overhead. For walkways, use lumber running parallel to direction of traffic movement and provide ramps at changes of elevation.

G. Cover pipes, hoses, and power lines crossing sidewalks and walkways with troughs using beveled edge boards.

H. Erect and maintain sufficient detour signs at road closures and along detour routes.

3.3 BARRIER TAPE: Install where directed by the City. Keep a minimum of two rolls on site at all times.

3.4 REMOVAL: Completely remove barriers no longer needed and when approved by the City.

END OF SECTION 1530

SECTION 01560 TEMPORARY CONTROLS

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of providing temporary controls and disposal of construction wastes and debris. The Contractor shall pay for all disposal costs unless otherwise indicated in the Contract Documents.

1.2 SUBMITTALS:

A. Location and Operator of the Contractor's Solid Waste Disposal Facility to be utilized for construction all materials disposed of off the project site.

PART 2: PRODUCTS Not used.

PART 3: EXECUTION

3.1 HOUSEKEEPING:

A. Keep project neat, orderly, and in a safe condition at all times.

B. Provide enough refuse containers for collecting construction debris. Refuge containers shall be emptied as required to maintain a neat and orderly environment.

C. Wet down dry materials and rubbish to prevent blowing dust.

D. Keep volatile wastes in covered containers.

E. Utilize or remove excavated material as soon as possible.

3.2 DISPOSAL:

Soil Evaluation: All soil materials excavated within the project area will be evaluated upon removal. Soil materials will be visually screened for debris and staining by the Engineer. The Contractor shall separate out all trash and debris for soils to be reused onsite.

All trash and debris encountered during excavation shall be stored separately or disposed of at a lawfully permitted landfill facility.

Unless otherwise specified, all removed materials becomes the property of the Contractor and shall be properly disposed of offsite. Immediately remove hazardous rubbish from project site. Place other construction debris in refuse containers at least daily. Dispose of refuse at least weekly, in a legal manner, at approved public or private dumping areas.

3.3 ITEMS IDENTIFIED TO BE REMOVED OR SALVAGED

A. All items identified to be removed or salvaged shall be removed in a manner to minimize damage to the item to be salvaged.

3.4 AIR AND WATER POLLUTION CONTROL:

3 Take all necessary reasonable measures to reduce air and water pollution by any material or equipment used during construction.

4 To control erosion during and after project implementation, the contractor shall implement a Stormwater Pollution Prvention Plan (SWPPP) with appropriate Best Management Practices (BMPs), in accordance with San Francisco Bay Regional Water Quality Board (RWQCB) guidelines

5 Do not dispose of any volatile wastes or oils in storm or sanitary drains.

6 Do not allow waste materials to be washed into streams or bodies of water.

7 Sod or seed slopes, as specified in Section 02950, as soon as possible to prevent erosion. If it is impossible to prevent erosion, the City may require construction of sedimentation basins to prevent water pollution.

8 The Contractor shall comply with all of the State of California Construction De-watering Permit requirements.

3.5 DUST PREVENTION

A. During the construction and until final acceptance by the City, the Contractor shall be responsible for controlling dust emissions in the construction area.

B. No earthwork activities shall be performed when the sustained wind speed exceeds thirty (30) miles per hour.

C. All fill areas shall be compacted on a daily basis as required in the project.

D. Any mud or dirt carried out onto paved surfaces shall be cleaned up in a daily basis.

E. The Contractor shall promptly comply will all directives from the City relating to dust control. If the Contractor fails to comply or provide adequate means to control dust, a stop work order will be \issued until the problems have been corrected.

END OF SECTION 01560

SECTION 01700 PROJECT CLOSE OUT

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consist of final cleanup, closeout submittals, and final inspection procedures.

1.2 SUBMITTALS

A. As specified in this section.

PART 2: PRODUCTS - Not Used

PART 3: EXECUTION

3.1 POSTED OPERATING INSTRUCTIONS: As specified in the individual sections. Furnish operating instructions attached to or posted adjacent to equipment. Include wiring diagrams, control diagrams, control sequence, start-up, adjustment, operation, lubrication, shut-down, safety precautions, procedures in the event of equipment failure, and other items of instruction recommended by the manufacturer.

3.2 CLEANING: Remove all tools, equipment, surplus materials, and rubbish. Restore or refinish surfaces of existing facilities that are marred, scratched, or damaged due to the work of this contract to match original condition. Remove grease, dirt, stains, foreign materials, and labels from interior and exterior finished surfaces. Do any required waxing and polishing. Sweep paved areas; rake grounds. At time of final inspection, project shall be thoroughly clean and ready for use.

3.3 PROJECT RECORD DRAWINGS:

A. The contractor shall maintain an up to date set of red-lined record drawings which indicate all changes and revisions to the original design that affect the permanent structures and will exist in the completed work. The contractor shall also reference all underground utilities to semi-permanent or permanent physical objects. Reference water, sewer, telephone, and electric lines to corners of buildings. Include schematic diagrams showing terminal numbers for all electrical equipment.

B. Keep record drawings current. Inspection will be made monthly. Certification of accuracy and completeness will be required on monthly payment requisitions. Project record drawings are the property of the City and shall be delivered to the City before closeout.

3.4 CLOSEOUT SUBMITTALS: Submit before final inspection request

A. Project Record Drawings: As specified above.
B. Guarantees and Bonds: As specified in individual sections.

C. Spare Parts and Materials: As specified in individual sections.

D. Operation and Maintenance Data: As specified in Section 01730.

E. Operation and Maintenance Data: Provide four complete sets of the following data. Data shall be on 8½-inch by 11-inch sheets or manufacturers' standard catalogs, suitable for side binding. Include the following as applicable:

1. Replacement parts list
2. Wiring diagrams
3. Manufacturers' model numbers
4. Name, address, and telephone number of local representative
5. Basic operational features
6. Schedule of maintenance work
7. Lubricants
8. Emergency procedures
9. Starting, operating, and shut-down procedures
10. Seasonal shut-down procedures
11. Cleaning agents and methods
12. Color and texture designations.

F. Operating Tools: As specified in the individual sections.

G. Special Tools: One set of special tools required to operate, adjust, dismantle, or repair equipment. Special tools are those not normally found in possession of mechanics or maintenance personnel.

3.5 SUBSTANTIAL COMPLETION AND FINAL INSPECTION: Submit written certification that project, or designated portion of project, is substantially complete, and request in writing a final inspection. The City will make an inspection within 10 days of receipt of request.

A. When the City determines that the work is substantially complete, he will prepare a list of deficiencies to be corrected before final acceptance and issue a Letter of Substantial Completion.

B. If the City determines that the work is not substantially complete, he will immediately notify Contractor in writing, stating reasons. After completing work, Contractor shall resubmit certification and request a new final inspection.

3.6 ACCEPTANCE OF THE WORK: After all deficiencies have been corrected, a Letter of Acceptance will be issued.

3.7 POST-CONSTRUCTION INSPECTION: Before expiration of warranty period, the City will inspect the project and notify Contractor in writing of all deficiencies.

END OF SECTION 01700

SECTION 02050 REMOVAL OF PAVEMENTS AND CONCRETE SLABS

PART 1: GENERAL

1.1 DESCRIPTION: The work of this section consists of demolition and removal of pavements and concrete slabs. The work includes filling and grading.

1.2 QUALITY ASSURANCE: Comply with safety requirements for demolition, ANSI A10.6-83.

1.3 PROJECT CONDITIONS:

A. Keep dust to a minimum at removal site and on haul roads. Use sprinklers or water trucks as necessary.

B. Ensure safety of persons in demolition area.

C. **Historical concrete slab/block** located in the sidewalk on the intersection of Big Basin Way and 3rd street shall be saw cut and safely removed from the sidewalk. The Historical concrete slab/block shall be delivered to the City.

PART 2: PRODUCTS

PART 3: EXECUTION

3.1 PREPARATION: Protect buildings, structures, utilities, concrete/asphalt and vegetation to remain.

A. Provide Pedestrian and Traffic Control as necessary to ensure safe public access through the construction / demolition area.

3.2 DEMOLITION:

A. Pavement and Slabs: Scarify or rip bituminous pavement; break up concrete. Saw cut concrete and asphalt adjacent to new construction. Remove completely.

3.3 DISPOSAL:

A. Dispose of unsuitable and excess material offsite at approved facilities.

B. Salvaged Material: All salvaged material remains the property of the City. Store where directed by City.

END OF SECTION 02050

SECTION 02230

TREE REMOVAL, SITE CLEARING, STRIPPING AND GRUBBING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Protecting existing trees and vegetation to remain.

B. Trimming tree limbs and roots.

C. Removing trees as designated.

D. Clearing vegetation, debris, trash and other materials within limits indicated.

E. Grubbing of vegetation within limits indicated.

F. Stripping of topsoil within limits indicated.

G. Removing above-grade site improvements within limits indicated.

H. Disconnecting, capping or sealing, and abandoning site utilities in place.

I. Disconnecting, capping or sealing, and removing site utilities.

J. Disposing of objectionable material.

1.2 RELATED SECTIONS

A. Section 02300, Earthwork.

1.3 RELATED DOCUMENTS

A. Caltrans Standard Specifications.

1. Section 15, Existing Highway Facilities
2. Section 16, Clearing and Grubbing.
3. Section 19, Earthwork

1.4 DEFINITIONS

A. ANSI: American National Standards Institute.

B. CAL-OSHA: California Occupational Safety and Health Administration.

1.5 SUBMITTALS

A. Follow Submittal procedure outlined in Section 02000.

B. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

1.6 QUALITY ASSURANCE

A. Do not remove or prune trees without first securing a permit from the appropriate agency.

B. Prune to the standards of the International Society of Arborists and to ANSI 300.

1.7 PROJECT CONDITIONS

A. Except for materials indicated to be stockpiled or to remain the Owner's property, cleared materials are the Contractor's property. Remove cleared materials from site and dispose of in lawful manner.

B. Salvable Improvements: Carefully remove items indicated to be salvaged and store where indicated on plans or where designated by the Owner's Representative. Avoid damaging materials designated for salvage.

C. Unidentified Materials;

1. If unidentified materials are discovered, including hazardous materials that will require additional removal other than is required by the Contract Documents, immediately report the discovery to the Owner's Representative.

2. If necessary, the Owner's Representative will arrange for any testing or analysis of the discovered materials and will provide instructions regarding the removal and disposal of the unidentified materials.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

A. Backfill excavations resulting from demolition operations with on-site or import materials conforming to structural backfill defined in Section 02300 and Caltrans Standard Specifications, Section 19, Earthwork.

PART 3 EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain during construction.

3.2 TREE PROTECTION

A. Erect and maintain temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.

B. Do not store construction materials, debris, or excavated material within drip line of remaining trees.

C. Do not permit vehicles or equipment within drip line of remaining trees.

D. Do not excavate within drip line of remaining trees, unless otherwise indicated.

E. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation edge as possible.

1. Cover exposed roots with burlap and water regularly.

2. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3. Coat cut faces of roots more than 1-1/2-inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.

4. Cover exposed roots with wet burlap to prevent roots from drying out. Backfill with soil as soon as possible.

3.3 TREE PRUNING

A. Prune trees to balance the crown, and eliminate hazards. Perform main work to reduce sail effect through thinning, reducing end weights, shortening long heavy limbs, removing deadwood, weak limbs and sucker growth. Prune limbs back to an appropriate lateral branch.

B. Make final cuts at the outer edge of the branch collar in accordance with the arborist's recommendations.

C. Perform pruning work in a safe and proper manner, adhering to CAL-OSHA and ANSI Standards.

3.4 ROOT PRUNING

A. Do not cut tree roots greater than 3-inch in diameter and less than 12-inches below ground level without approval of the Owner's Representative.

B. Cut tree roots cleanly, as far from the trunk as possible, and not underneath any area where walkways are to be constructed. Root pruning shall be to a depth of 18-inches.

C. Tree root prune using a Vermeer root-cutting machine. Obtain the Owner's Representative's approval before using alternate equipment or techniques.

D. Complete tree root pruning prior to any excavation adjacent to the tree.

E. Do not expose tree roots to drying out. Cover root ends with soil or burlap and keep moist until the final backfill is completed.

3.5 TREE REMOVAL

A. Remove trees designated for removal prior to the construction of new improvements.

B. Perform tree removal work in a safe and proper manner, adhering to CAL-OSHA and ANSI Standards.

C. Remove or grind stumps to a minimum of 18-inches below finish subgrade. Remove surface roots to this depth within 24-inches of the tree trunk.

3.6 RESTORATION

A. Restore damaged improvements to their original condition, as acceptable to the Owner's Representative.

B. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, as directed by the Owner's Representative.

1. Employ a qualified arborist, licensed in jurisdiction where the Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.

2. Replace trees that cannot be repaired and restored to full-growth status, as determined by the Owner's Representative.

3.7 UTILITIES

A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed or abandoned.

B. Arrange to shut off indicated utilities with utility companies or verify that utilities have been shut off.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner's Representative or others unless authorized in writing by the Owner's representative, and then only after arranging to provide temporary utility services according to requirements indicated.

D. Coordinate utility interruptions with utility company affected.

E. Do not proceed with utility interruptions without the permission of the Owner's Representative's and utility company affected. Notify Owner's Representative and utility company affected two working days prior to utility interruptions.

F. Excavate and remove underground utilities that are indicated to be removed.

G. Securely close ends of abandoned piping with tight fitting plug or wall of concrete minimum 6-inches thick.

3.8 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

B. Remove trash, debris, logs, concrete, masonry and other waste materials.

C. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.

D. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18-inches below subgrade.

E. Use only hand methods for grubbing within drip line of remaining trees.

3.9 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Remove trash, debris, weeds, roots, and other waste materials.

D. Stockpile topsoil materials designated to remain on site at a location approved by the Owner's Representative at a location away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

E. Do not stockpile topsoil within drip line of remaining trees.

3.10 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, and gutters, as indicated. Where concrete slabs, curb, gutter and asphalt pavements are designated to be removed, remove bases and subbase to surface of underlying, undisturbed soil.

C. Unless the existing full-depth joints coincide with line of pavement demolition, neatly saw-cut to full depth the length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

D. Remove driveways, curbs, gutters and sidewalks by saw cutting to full depth. If saw cut falls within 30-inches of a construction joint, expansions joint, score mark or edge, remove material to joint, mark or edge.

3.11 BACKFILL

A. Place and compact material in excavations and depressions remaining after site clearing in conformance with Section 02300.

3.12 DISPOSAL

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off the Owner's property.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Clearing and Grubbing will be measured as:

1. Clearing and Grubbing of trees, vegetation, and associated topsoil material, tree pruning and root pruning, above ground structures other than as identified in 4.2 below, shall be measured at

a lump sum quantity.

2. a. Removal of curb and gutter shall measured at a linear foot quantity

b. Removal of sidewalk shall be measured at a square foot quantity.

c. Removal of ramps shall be measured at a per unit quantity.

d. Removal of drainage inlets shall be measured at a per unit quantity

e. Removal of utility pipe shall be measured at a linear foot quantity.

f. Removal of concrete stripe at crosswalks shall be measured at a linear foot quantity.

g. Removal of special pavers at crosswalks shall be measured at a square foot quantity.

h. Removal of AC paving shall be measured at a square foot quantity.

i. Remove water valve shall be measured at a per unit quantity.

4.2 PAYMENT

A. Clearing and grubbing shall be at the contract unity price paid per Engineers Estimate.

B. 1. Removal of curb and gutter shall be paid at the contract unity price per linear foot.

2. Removal of sidewalk shall be paid at the contract unity price per square foot.

3. Removal of ramps shall be paid at the contract unity price per unit.

4. Removal of drainage inlets shall be paid at the contract unity price per unit

5. Removal of utility pipe shall be paid at the contract unity price per linear foot.

6. Removal of concrete stripe at crosswalks shall be paid at the contract unity price per linear foot.

7. Removal of special pavers at crosswalks shall be paid at the contract unity price per square foot.

8. Removal of AC paving shall be paid at the contract unity price per square foot.

9. Remove water valve shall be paid at the contract unity price per unit.

C.

D. The contract unity price paid for clearing and grubbing shall include full compensation for furnishing all labor, material, tool, equipment and incidentals, and for doing all work involved in clearing and grubbing as shown on the plans, and as specified in those specifications and the special provisions, and as directed by the Engineer, including disposal of the resulting material.

END OF SECTION 02230

SECTION 02300

EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Excavation and/or embankment from existing ground to subgrade, including soil sterilant, for roadways, driveways, parking areas, walks, paths, or ramps and any other site improvements called for on the Plans.

1.2 SECTION EXCLUDES

A. Earthwork related to underground utility installation, see Section 02310.

1.3 RELATED SECTIONS

A. Section 02230, Tree Removal, Site Clearing Stripping and Grubbing.

B. Section 02310, Utility Trenching and Backfill.

C. Section 02320, Pavement Subbase and Base Courses.

1.4 RELATED DOCUMENTS

A. California Building Code, California Code of Regulations, Title 24, Part 2, Chapter 18, Foundations, and Retaining Walls and Chapter 33, Site Work, Demolition and Construction.

B. Caltrans Standard Specifications:

1. Section 17, Watering.

2. Section 19, Earthwork.

C. CAL/OSHA, Title 8.

1.5 DEFINITIONS

A. Borrow: Approved soil material imported from off-site for use as Structural Fill or Backfill.

B. Excavation: Removal of material encountered above subgrade elevations.

1. Authorized Over-Excavation: Excavation below subgrade elevations or beyond indicated horizontal dimensions as shown on plans or authorized by the Geotechnical Consultant.

2. Unauthorized Over-Excavation: Excavation below subgrade elevations or beyond indicated horizontal dimensions without authorization by the Geotechnical Consultant. Unauthorized excavation shall be without additional compensation.

C. Geotechnical Testing Agency: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock definition testing, as documented according to ASTM D 3740 and ASTM

E 548.

D. Structural Backfill: Soil materials approved by the Geotechnical Consultant and used to fill excavations resulting from removal of existing below grade facilities, including trees. See Section 02310 for trench backfill.

E. Structural Fill: Soil materials approved by the Geotechnical Consultant and used to raise existing grades.

F. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material ¾-cubic yards or more in volume that when tested by an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2-inches.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man made stationary features constructed above or below grade.

H. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, base or topsoil materials.

I. Unsuitable Material: Any soil material that is not suitable for a specific use on the Project. The Geotechnical Consultant will determine if a soil material is unsuitable.

J. Utilities: onsite underground pipes, conduits, ducts and cables.

1.6 SUBMITTALS

A. Follow submittal procedure outlined in Section 02000.

B. Samples:

1. If required by the Geotechnical Consultant, provide 40-pound samples sealed in airtight containers, tagged with source locations and suppliers of each proposed soil material from on-site or borrow sources. Do not import materials to the Project without written approval of the Geotechnical Consultant.

2. Provide materials from same source throughout work. Change of source requires approval of the Geotechnical Consultant.

C. Material Test Reports: Provide, from a qualified testing agency, the following test results showing compliance with the project requirements:

1. Classification according to ASTM D 2487 of each onsite or borrow soil material proposed for fill and backfill.

2. Laboratory compaction curve in conformance with ASTM D 1557 for each onsite or borrow soil material proposed for fill and backfill.

1.7 QUALITY ASSURANCE

A. Provide an independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock definition testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Conform all work and materials to the recommendations or requirements of the Geotechnical Report and meet the approval of the Geotechnical Consultant.

C. Conform all work to the appropriate portion(s) of Caltrans Standard Specifications, Section 17 and 19.

D. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM D 1557.

E. Perform excavation, filling, compaction and related earthwork under the observation of the Geotechnical Consultant. Materials placed without approval of the Geotechnical Consultant will be presumed to be defective and, at the discretion of the Geotechnical Consultant, shall be removed and replaced at no cost to the Owner. Notify the Geotechnical Consultant at least 24-hours prior to commencement of earthwork and at least 48 hours prior to testing.

F. The Geotechnical Consultant will perform observations and tests required to enable him to form an opinion of the acceptability of the Project earthwork. Correct earthwork that, in the opinion of the Geotechnical Consultant, does not meet the requirements of these Technical Specifications and the Geotechnical Report.

G. Upon completion of the construction work, certify that all compacted fills and foundations are in place at the correct locations, and have been constructed in accordance with sound construction practice. In addition, certify that the materials used are of the types, quality and quantity required by these Technical Specifications and the Geotechnical Report. The Contractor shall be responsible for the stability of all fills and backfills constructed by his forces and shall replace portions that in the opinion of the Geotechnical Consultant have been displaced or are otherwise unsatisfactory due to the Contractor's operations.

H. Finish subgrade tolerance at completion of grading:

1. Paved areas: ±0.05

2. Other areas: ±0.10 feet.

1.8 PROJECT CONDITIONS

A. Promptly notify the Owner's Representative of surface or subsurface conditions differing from those disclosed in the Geotechnical Report. First notify the Owner's Representative verbally to permit verification and extent of condition and then in writing. No claim for conditions differing from those anticipated in the Contract Documents and disclosed in the Geotechnical Report will be allowed unless the Contractor has notified the Owner's Representative in writing of differing conditions prior to the Contractor starting work on affected items.

B. Protect open excavations, trenches, and the like with fences, covers and railings to maintain safe pedestrian and vehicular traffic passage.

C. Prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

D. Temporarily stock-pile fill material in an orderly and safe manner and in a location approved by the Owner's Representative.

E. Provide dust and noise control in conformance with Section 02000.

F. Environmental Requirements: When unfavorable weather conditions necessitate interrupting earthwork operation, areas shall be prepared by compaction of surface and grading to avoid collection of water.

Provide adequate temporary drainage to prevent erosion. After interruption, compaction specified in last layer shall be re-established before resuming work.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from on-site excavations.

B. Obtain approval of on-site soil materials and borrow materials to be used for structural fill or structural backfill from the Geotechnical Consultant.

C. On-Site Structural Fill and Structural Backfill: Soil or soil-rock mixture from on site excavations, free of deleterious substances. On-site structural fill and backfill shall not contain rocks or rock fragments over 6 inches in greatest dimension and not more than 15 percent shall be over 2-1/2 inches in greatest dimension and with an organic content less than 3.0 percent by weight.

D. Imported Structural Fill and Structural Backfill: Conform to the requirements of on-site structural fill. Material shall also be a non-expansive and predominantly granular soil or soil-rock mixture with plasticity index of 15 or less in accordance with ASTM D 4318 and an R-Value of 25 or greater.

2.2 SOIL STERILANT

A. Commercial chemical for weed control, registered by EPA. Provide granular, liquid or wet-able powder form.

PART 3 EXECUTION

3.1 GENERAL

A. Conform to Section 19, Earthwork, Caltrans Standard Specifications as modified by the Contract Documents.

B. Placement and compaction of material by flooding, ponding, or jetting will not be permitted.

C. The use of explosives will not be permitted.

3.2 CONTROL OF WATER AND DEWATERING

A. Conform to Section 17, Watering, Caltrans Standard Specifications as modified by the Contract Documents

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding the site and surrounding area. Provide dewatering equipment necessary to drain and keep excavations and site free from water.

C. Dewater during backfilling operation so that groundwater is maintained a least one foot below level of compaction effort.

D. Obtain the Geotechnical Consultant's approval for proposed control of water and dewatering methods.

E. Protect subgrades from softening, undermining, washout and damage by rain or water accumulation.

F. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations.

G. Maintain dewatering system in place until dewatering is no longer required.

3.3 WET WEATHER CONDITIONS

A. Do not prepare subgrade, place or compact soil materials if subgrade or materials are above optimum moisture content.

B. If the Geotechnical Consultant allows work to continue during wet weather conditions, conform to supplemental recommendations provided by the Geotechnical Consultant.

3.4 BRACING AND SHORING

A. Conform to California and Federal OSHA requirements.

B. Place and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; to prevent damage to the facility being constructed; and to prevent damage to adjacent structures or facilities. Remove all bracing and shoring upon completion of the work.

C. Be solely responsible for all bracing and shoring and, if requested by the Owner's Representative, submit details and calculations to the Owner's Representative. The Owner's Representative may forward the submittal to the Geotechnical Consultant, the Consulting Engineer and/or the California Division of Industrial Safety for their review. The Contractor's submittal shall include the basic design, assumed soils conditions and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used, and shall be prepared by a civil engineer or structural engineer registered in California. No excavations related to the proposed facility shall precede a response to the submittal by the Owner's Representative.

D. Be solely responsible for installing and extracting the sheathing in a manner which will not disturb the position or operation of the facility being constructed or adjacent utilities and facilities.

3.5 EXCAVATION

A. Excavate earth and rock to lines and grades shown on drawings and to the neat dimensions indicated on the Plans, required herein or as required to satisfactorily compact backfill.

B. Remove and dispose of large rocks, pieces of concrete and other obstructions encountered during excavation.

C. Where forming is required, excavate only as much material as necessary to permit placing and removing forms.

D. Provide supports, shoring and sheet piles required to support the sides of excavations or for protection of adjacent existing improvements.

3.6 REMOVAL OF EXISTING FILLS AND UNSUITABLE MATERIAL

A. Over-excavate areas of existing fills and other unsuitable material encountered during mass grading as directed by the Geotechnical Consultant.

B. Compensation for increased removal widths and depths that are not required by the Geotechnical Consultant will not be considered, except when such increase is necessary for protection of life and property as determined by and approved by the Owner.

C. The Geotechnical Consultant will provide written approval for each excavation prior to placement of fill. Allow adequate time after excavation and before filling for the Geotechnical Consultant's review and written approval and, if necessary, time for the Owner's Representative to conduct as built survey prior to placing fill. Basis for calculating the quantity of material excavated or placed may be the difference between the grading shown on the Plan and an as built survey of the grading.

3.7 GRADING

A. Uniformly grade the Project to the elevations shown on plans

B. Finish gutters to the sections, lines and grades indicated and to permit proper surface drainage.

C. Round tops and bottoms of slopes as indicated or to blend with existing contours.

3.8 SUBGRADE PREPARATION

A. Install underground utilities and service connections prior to final preparation of subgrade and placement of base materials for final surface facilities. Extend services so that final surface facilities are not disturbed when service connections are made.

B. Prepare subgrades under the structural section of paved areas, curbs, gutters, walks, structures, other surface facilities and areas to receive structural fill.

C. Prepare subgrades for the structural section of paved areas, curbs and gutters by plowing or scarifying surface at least 6 inches below final subgrade elevations. Uniformly moisture condition to obtain optimum moisture contents. Break clods and condition surface by harrowing or dry rolling. Remove boulders, hard ribs and solid rock. Prepare earth uniform for full depth and width of subgrade.

D. Protect utilities from damage during compaction of subgrades and until placement of final pavements or other surface facilities.

E. Obtain the Geotechnical Consultant's approval of subgrades prior to placing pavement structural section.

3.9 PLACEMENT OF STRUCTURAL FILL

A. Obtain the Geotechnical Consultant's approval of surface to receive structural fill prior to placement of structural fill material.

B. Place structural fill on prepared subgrade, conforming to Caltrans Standard Specifications, Section 19, Earthwork, as modified by the Contract Documents.

C. Spread structural fill material in uniform lifts not more than 8-inches in un-compacted thickness and compact.

D. Place structural fill material to suitable elevations above grade to provide for anticipated settlement and shrinkage.

E. Overbuild fill slopes, as required by the Geotechnical Consultant, to obtain required compaction. Remove excess material to lines and grades indicated.

F. Do not drop fill on structures. Do not backfill around, against or upon concrete or masonry structures until structure has attained sufficient strength to withstand loads imposed and the horizontal structural system had been installed.

3.10 COMPACTION AND TESTING

A. Do not compact by ponding, flooding or jetting.

B. Compact soils at optimum water content. Aerate material if it is too wet. Add water to material if it is too dry. Thoroughly mix lifts before compaction to ensure uniform moisture distribution.

C. Perform compaction using rollers, pneumatic or vibratory compactors or other equipment and mechanical methods approved by the Geotechnical Consultant.

D. Compaction requirements:

1. Conform to Caltrans Standard Specifications, Section 19-5

3.11 SOIL STERILIZATION

A. Apply soil sterilant to areas indicated, such as beneath asphalt concrete pavement, brick pavement, concreter pavement and at grade concrete slabs, including sidewalks, curbs and gutters. Also where indicated apply soil sterilant below expansion and control joints and at areas where pipes, ducts or other features penetrate slabs.

B. Apply soil sterilant uniformly and at the rates recommended by the manufacturer.

C. Apply soil sterilant to prepared subgrade, or after installation of aggregate base as recommended by the manufacturer.

3.12 DISPOSAL

A. Lawfully dispose of all unsuitable and excess or surplus material off-site at no cost to the Owner.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement of earthwork shall be included in separate sections.

4.2 PAYMENT

Payment for the earthwork shall be included in separate work items in separate sections.

END OF SECTION 02300

SECTION 02310

UTILITY TRENCHING AND BACKFILL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Excavation, bedding, and backfill of underground storm drain, and associated structures.

1.2 SECTION EXCLUDES

A. Drainage fill material and placement around subdrains. See Section 02620.

B. Trenching and backfill for other utilities such as underground electric, telephone, gas, cable TV, etc.

1.3 RELATED SECTIONS

A. Section 02300, Earthwork.

B. Section 02630, Storm Drainage System.

1.4 RELATED DOCUMENTS

A. California Building Code, California Code of Regulations, Title 24, Part 2 - Chapter 18, Foundations, and Retaining Walls, and Chapter 33, Site Work, Demolition and Construction.

B. Caltrans Standard Specifications:

1. Section 17, Watering.
2. Section 19, Earthwork.
3. Section 26, Aggregate Bases.

C. CAL/OSHA, Title 8.

1.5 DEFINITIONS

A. AC: Asphalt Concrete.

B. ASTM: American Society for Testing and Materials.

C. Bedding: Material from bottom of trench to bottom of pipe.

D. CDF: Controlled Density Fill.

E. Initial Backfill: Material from bottom of pipe to 12-inches above top of pipe.

F. PCC: Portland Cement Concrete.

G. RCP: Reinforced Concrete Pipe.

H. Springline of Pipe: Imaginary line on surface of pipe at a vertical distance of ½ the outside diameter measured from the top or bottom of the pipe.

I. Subsequent Backfill: Material from 12-inches above top of pipe to subgrade of surface material or subgrade of surface facility or to finish grade.

J. Trench Excavation: Removal of material encountered above subgrade elevations and within horizontal trench dimensions.

1. Authorized Trench Over-Excavation: Excavation below trench subgrade elevations or beyond indicated horizontal trench dimensions as shown on plans or authorized by the Geotechnical Consultant.

2. Unauthorized Trench Over-Excavation: Excavation below trench subgrade elevations or beyond indicated horizontal trench dimensions without authorization by the Geotechnical Consultant. Unauthorized excavation shall be without additional compensation.

K. Utility Structures:

1. Storm drainage manholes, catch basins, drop inlets, curb inlets, vaults, etc.

1.6 SUBMITTALS

A. Follow submittal procedure outlined in Section 02000.

B. Product Data:

1. Grading and quality characteristics showing compliance with requirements for the Work.

2. Certify that material meets requirements of the Project.

C. Samples:

1. If required by the Geotechnical Consultant, provide 40-pound samples of all imported trench bedding and backfill material sealed in airtight containers, tagged with source locations and suppliers of each proposed material. Do not import materials to Project without written approval of the Geotechnical Consultant.

2. Provide materials from same source throughout work. Change of source requires approval of the Geotechnical Consultant and the Owner's Representative's.

D. Material Test Reports: Provide, from a qualified testing agency, the following test results showing compliance with the project requirements:

1. Classification according to ASTM D 2487 of each imported trench bedding and backfill material.

2. Laboratory compaction curve in conformance with ASTM D 1557 for each imported trench bedding and backfill material

1.7 QUALITY ASSURANCE

A. Provide an independent testing agency qualified according to ASTM E 329 to conduct soil materials and

rock definition testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Conform all work and materials to the recommendations or requirements of the Geotechnical Report and meet the approval of the Geotechnical Consultant.

C. Conform all work to the appropriate portion(s) of the Caltrans Standard Specifications, Section 19.

D. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM D 1557.

E. The Geotechnical Consultant will perform observations and tests required to enable him to form an opinion of the acceptability of the trench backfill. Correct the trench backfill that, in the opinion of the Geotechnical Consultant, does not meet the requirements of these Technical Specifications and the Geotechnical Report.

1.8 PROJECT CONDITIONS

A. Promptly notify the Owner's Representative of surface or subsurface conditions differing from those disclosed in the Geotechnical Report. First notify the Owner's Representative verbally to permit verification and extent of condition and then in writing. No claim for conditions differing from those anticipated in the Contract Documents and disclosed in the Geotechnical Report will be allowed unless Contractor has notified the Owner's Representative in writing of differing conditions prior to contractor starting work on affected items.

B. Protect open, trenches, and utility structure excavations with fences, covers and railings to maintain safe pedestrian and vehicular traffic passage..

C. Stockpile on-site and imported backfill material temporarily in an orderly and safe manner.

D. Provide dust and noise control in conformance with Section 02000.

PART 2 PRODUCTS

2.1 PIPE BEDDING AND INITIAL BACKFILL

A. Class 2 Aggregate Base: Conform to of Caltrans Standard Specifications, Section 26, Aggregate Bases, ¾-inch maximum.

B. Sand: Conform to of Caltrans Standard Specifications, Section 19-3.025B, Sand Bedding.

2.2 SUBSEQUENT BACKFILL

A. Conform to on-site or imported structural backfill in Section 02300, Earthwork.

2.3 CONCRETE STRUCTURE BEDDING AND BACKFILL

A. Conform to Caltrans Standard Specifications, Section 19, Earthwork.

PART 3 EXECUTION

3.1 TRENCHING AND EXCAVATION

A. Conform to Caltrans Standard Specifications, Section 19, Earthwork.

B. Existing PCC or AC Areas: Cut PCC or AC to full depth at a minimum distance of 12-inches beyond the edge of the trench.

C. Excavate by hand or machine. For gravity systems begin excavation at the outlet end and proceed upstream. Excavate sides of the trench parallel and equal distant from the centerline of the pipe. Hand trim excavation. Remove loose matter.

D. Excavation Depth for Bedding: Minimum of 4-inches below bottom of pipe or as otherwise allowed or required by the Geotechnical Consultant, except that bedding is not required for nominal pipe diameters of 2-inches or less.

E. Excavation Width at Springline of Pipe:

1. Up to a nominal pipe diameter of 24-inches: Minimum of twice the outside pipe diameter, or as otherwise allowed or required by the Geotechnical Consultant.

2. Nominal pipe diameter of 30-inches through 36-inches: Minimum of the outside pipe diameter plus 2-feet, or as otherwise allowed or required by the Geotechnical Consultant.

3. Nominal pipe diameter of 42-inches through 60-inches: Minimum of the outside pipe diameter plus 3-feet, or as otherwise allowed or required by the Geotechnical Consultant.

F. Over-Excavations: Backfill trenches that have been excavated below bedding design subgrade, with approved bedding material.

G. Comply with the Owner's Representative's limitations on the amount of trench that is opened or partially opened at any one time. Do not leave trenches open overnight without the approval of the Owner's Representative.

H. Where forming is required, excavate only as much material as necessary to permit placing and removal of forms.

I. Bottoms of trenches will be subject to testing by Geotechnical Consultant. Correct deficiencies as directed by the Geotechnical Consultant.

J. Grade bottom of trench to provide uniform thickness of bedding material and to provide uniform bearing and support for pipe along entire length. Remove stones to avoid point bearing.

3.2 CONTROL OF WATER AND DEWATERING

A. Be solely responsible for dewatering trenches and excavations and subsequent control of ground and surface water. Provide and maintain such pumps or other equipment as may be necessary to control ground water and seepage to the satisfaction of the Geotechnical Consultant and the Owner's Representative until backfilling is completed.

B. Dewater during backfilling operation so that groundwater is maintained a least one foot below level of compaction effort.

C. Obtain the Geotechnical Consultant's approval for proposed control of water and dewatering methods.

D. Reroute surface water runoff away from open trenches and excavations. Do not allow water to accumulate in trenches and excavations.

E. Maintain dewatering system in place until dewatering is no longer required.

F. Conform to Caltrans Standard Specifications, Section 17, Watering.

3.3 BRACING AND SHORING

A. Conform to California and Federal OSHA requirements.

B. Place and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; to prevent damage to the pipes and appurtenances being constructed; and to prevent damage to adjacent structures or facilities. Remove all bracing and shoring upon completion of the work.

C. Be solely responsible for all bracing and shoring and, if requested by the Owner's Representative, submit details and calculations to the Owner's Representative. The Owner's Representative may forward the submittal to the Geotechnical Consultant, the Consulting Engineer and/or the California Division of Industrial Safety for their review. The Contractor's submittal shall include the basic design, assumed soils conditions and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used, and shall be prepared by a civil engineer or structural engineer registered in California. No excavations in trench section or around structures shall precede a response to the submittal by the Owner's Representative.

D. Be solely responsible for installing and extracting the sheathing in a manner which will not disturb the line, grade, or backfill compaction or operation of the utility being installed or adjacent utilities and facilities.

3.4 PIPE BEDDING

A. Obtain approval of bedding material from the Geotechnical Consultant.

B. Conform to Caltrans Standard Specifications, Section 19-3, Structural Excavation and Backfill

3.5 BACKFILLING

A. Obtain approval of backfill material from Geotechnical Consultant.

B. Conform to Caltrans Standard Specifications, Section 19-3, Structural Excavation and Backfill.

3.6 CLEANUP

A. Upon completion of utility earthwork all lines, manholes catch basins, inlets, water meter boxes and other structures shall be thoroughly cleaned of dirt, rubbish, debris and obstructions of any kind to the satisfaction of the Owner's Representative.

B. See Section 02000 for further cleanup requirements.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement for utility trenching and backfill shall be included in separate sections.

4.2 PAYMENT

A. Payment for the utility trenching and backfill shall be included in separate work items in separate sections.

END OF SECTION 02310

SECTION 02320

PAVEMENT SUBASE AND BASE COURSES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aggregate subbase and base.

1.2 RELATED SECTIONS

A. Section 02300, Earthwork.

B. Section 02750, Asphalt Concrete Pavement.

1.3 RELATED DOCUMENTS

A. Caltrans Standard Specifications:

1. Section 25, Aggregate Subbases.

2. Section 26, Aggregate Bases.

1.4 DEFINITIONS

A. ASTM: American Society for Testing Materials.

1.5 SUBMITTALS

A. Follow submittal procedure outlined in Section 02000.

B. Submit material certificates signed by the material producer and the Contractor, certifying that that each material item complies with, or exceeds the specified requirements.

1.6 QUALITY ASSURANCE

A. Do not mix or place cement treated base when the temperature is below is below 36 degrees F or when the ground is frozen.

B. Conform to the appropriate portions of the Geotechnical Report, these Specifications and Section 19 of Caltrans Standard Specifications.

C. Finish surface of the prepared subgrade to receive aggregate subbase, aggregate base or cement treated base, shall be as specified in Section 02300 and Caltrans Standard Specifications, Section 19, Earthwork.

D. Do not project the finish surface of aggregate subbase above the design subgrade.

E. Finish surface of aggregate base shall be 0 to - 0.05-feet.

F. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio

of the dry density of the compacted material to the maximum dry density of the material as determined by the procedure set forth in ASTM Designation D1557.

PART 2 PRODUCTS

2.1 FILL MATERIAL

A. If fill material is required to restore the previously constructed subgrade to its proper elevation, provide structural fill material specified in Section 02300.

2.2 AGGREGATE SUBBASE

A. Material: Caltrans Standard Specification Section 25.

1. Class 1, 2, or 3: Section 25-1.02A.

2.3 AGGREGATE BASE

A. Material: Caltrans Standard Specification ,Section 26 Aggregate Bases.

1. Class 2, 3/4-inch Maximum: Section 26-1.02A.

PART 3 EXECUTION

3.1 SOIL STERILANT

A. Furnish and apply to areas indicated in accordance with Section 02300.

3.2 AGGREGATE SUBBASE

A. Spreading and Compacting: Conform to Caltrans Standard Specifications, Sections 25-1.04 and 25-1.05.

3.3 AGGREGATE BASE

A. Watering, Spreading and Compacting: Caltrans Standard Specifications, Section 26-1.035, 26-1.04 and 26-1.05.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Quantities of Aggregate Subbase to be measured by the cubic yard and will be determined in conformance with the provision of Caltrans Standard Specifications, Section 9-1.01, Measurement of Quantities.

B. Quantities of Aggregate Base to be measured by the cubic yard and will be determined in conformance with the provision of Caltrans Standard Specifications, Section 9-1.01, Measurement of Quantities.

4.2 PAYMENT

A. Quantities of aggregate subbase and aggregate base will be paid for the contract price per cubic yard for the class or classes involved.

B. The above prices and payments shall include full compensation for furnishing all labor, material (or processing selected materials), tools, equipment, and incidentals, and for doing all the work involved in hauling and construction aggregate subbase and aggregate base, complete in place, as shown on the plans, and as specified in the Caltrans Standard Specifications and the special provisions, and as directed by the Engineer.

END OF SECTION 02320

SECTION 02510

WATER SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Domestic water and fire protection water transmission or distribution system within a roadway or street right-of-way.

1.2 RELATED SECTIONS

A. Section 02310, Utility Trenching and Backfill.

B. Section 03301 Portland Cement Concrete.

1.3 RELATED DOCUMENTS

A. ASTM:
1. D 1785: Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
2. D 2564: Specifications for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems.

B. AWWA:
1. C605: Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings.
2. C651: Disinfecting Water Mains.
3. C800: Underground Service Line Valves and Fittings.
4. C900: Polyvinyl Chloride (PVC) Pressure Pipe and Fittings, 4 In. Through 12 In. (100mm Through 300mm) for Water Distribution.
5. C901: Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13mm) Through 3 In. (76mm) for Water Service.
6. C907: Polyvinyl Chloride (PVC) Pressure Fittings for Water – 4 In. through 8 In. (100 mm Through 200 mm).
7. C908: PVC Self-Tapping Saddle Tees for Use on PVC Pipe.
8. M23: PVC Pipe – Design and Installation.

1.4 DEFINITIONS

A. AASHTO: American Association of State Highway and Transportation Officials.

B. ASTM: American Society for Testing Materials.

C. AWWA: American Waterworks Association

D. FM: Factory Mutual.

E. NFPA: National Fire Protection Association.

F. NSF: National Sanitation Foundation.

G. PCC: Portland cement concrete.

H. PE: Polyethylene.

I. PVC: Polyvinyl Chloride.

J. UL: Underwriters Laboratory.

1.5 SYSTEM PERFORMANCE REQUIREMENTS

A. External Load: Earth load indicated by depth of cover plus AASHTO H20 live load unless indicated otherwise.

1.6 SUBMITTALS

A. Follow submittal procedure outlined in Section 02000.

B. Product Data: For the following:
1. Piping materials and fittings.
2. Pipe couplings.
3. Flexible pipe fittings.
4. Restrained pipe fittings.
5. Gate valves.
6. Fire hydrants.
7. Precast valve boxes and box covers.

C. Shop drawings: Include plans, elevations, details and attachments.
1. Precast and cast in-place vaults and covers.

D. Field test reports: Indicate and interpret test results for compliance with the Project requirements.

1.7 QUALITY ASSURANCE

A. Comply with requirements of utility supplying water. Do not operate existing valves or tap existing piping without written permission and/or presence of utility company representative.

B. Comply with the following requirements and standards:
1. NSF 61: "Drinking Water System Components-Health Effects" for materials for potable water.

C. Provide listing/approval stamp, label, or other marking on piping and specialties made to a specified standard.

1.8 MATERIAL DELIVERY, STORAGE AND HANDLING

A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:
   1. Ensure that valves are dry and internally protected against rust and corrosion.
   2. Protect valves against damage to threaded ends and flange faces.
   3. Set Valves in best position for handling. Set valves closed to prevent rattling.

B. Deliver piping with factory-applied end-caps. Maintain end-caps through shipping, storage and handling to prevent pipe end damage and to prevent entrance of dirt, debris and moisture.

C. During Storage: Use precautions for valves, including fire hydrants according to the following.
   1. Do not remove end protectors, unless necessary for inspection, then reinstall for storage.
   2. Protection from Weather: Store indoors and maintain temperature higher than ambient dew-point temperature. Store indoors and maintain temperature higher than ambient dew point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

D. Do not store plastic pipe and fittings in direct sunlight.

E. Protect pipe, fittings, flanges, seals and specialties from moisture, dirt and damage.

F. Protect linings and coatings from damage.

G. Handle precast boxes, vaults and other precast structures according to manufacturer's written instructions.

H. Protect imported bedding and backfill material from contamination by other materials.

1.9 COORDINATION

A. Coordinate connection to existing water mains with water utility supplying water.

B. Coordinate piping materials, sizes, entry locations, and pressure requirements with building domestic water distribution piping and fire protection piping.

PART 2 PRODUCTS

2.1 LARGE SIZE SERVICE AND DISTRIBUTION PIPES

A. PVC Pipe: Sizes 4-inch through 48-inch.
   1. Pipe:
      a. 4-inch through 12-inch: AWWA C900.
   2. Unrestrained Joints:
      a. Push-On Bell and Spigot Joint: AWWA C900.
   3. Restrained Joints:
      a. Push-On Bell and Spigot Joint: Harness assembly as manufactured by Ebaa Iron (Eastland, Tx) (Tel. 800-433-1716) or approved equal.
      b. Plain End PVC to DI Mechanical Joint: Ebaa Iron (Eastland, Tx) (Tel. 800-433-1716) or approved equal.

2.2 HIGH DEFLECTION FITTINGS/BALL JOINTS

A. Mechanical or Flanged Joint: Flex 900, 4-inch through 12-inch, Ebaa Iron Sales, (Eastland, TX) (Tel. 800-433-1716) or approved equal.

2.3 EXPANSION JOINTS

A. TR Flex Joints: TR Flex Telescoping Sleeve, 4-inch through 64 inch, U. S. Pipe, (Birmingham, AL) (Tel. 205-254-7442).

B. Mechanical or Flanged Joint: Ex-Tend 200, 4-inch through 36-inch, EBAA Iron Sales, (Eastland, TX) (Tel. 800-433-1716) or approved equal.

2.4 FLEXIBLE EXPANSION JOINTS

A. Plain End to Plain End Pipe: "Xtra Flex," sizes 4-inch through 24-inch, U. S. Pipe, (Birmingham AL) (Tel. 205-254-7442) or approved equal.

B. Flanged or mechanical Joint: "Flex-Tend," sizes 3-inch through 48-inch, Ebaa Iron (Eastland TX) (Tel. 800-433-1716) or approved equal.

C. Flanged Joint: Starflex, Series 500, Star Pipe Products, (Tel. 800-999-3009) or approved equal.

2.5 SERVICE LINE VALVES AND FITTINGS

A. General: AWWA C-800

B. Includes service lines, ½ inch through 2 inch, from main to meter valve, including corporation stops and curb stops.

2.6 GATE VALVES

A. Provide on lines 10-inch and smaller.

B. Valves, 3-Inch through 20-Inch: AWWA C509, resilient-seated, non-rising stem, gray or ductile-iron body and bonnet, with bronze or gray or ductile-iron gate, bronze stem and square stem operating nut unless noted otherwise.All bolts, nuts and washers, except operating nut, shall be stainless steel. Stem operating nut to be 2-inches square and open counter-clockwise. Stem extensions shall be installed to bring the stem operating nut to within 2-feet of finish grade where the depth from finish grade to the stem operating nut exceeds 4-feet.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Project include, but are not limited to, the following:
   1. Mueller Company (Decatur, IL) (Tel.800-423-1323).
   2. M&H Valve Company (Anniston, AL) (Tel. 205-237-3521).
   3. Crane Company (New York, NY).

D. Valve Box and Cover: 9-inch minimum diameter PCC box with extensions of length required for depth of bury of valve, and cast iron or ductile iron cover with lettering "WATER". Both the box and the cover shall be rated for AASHTO H20 loading.

2.7 SERVICE CONNECTIONS AND WATER METERS

A. Service connections and water meter details and boxes as indicated.

2.8 FIRE HYDRANTS

A. Wet Barrel: AWWA C503, details as indicated.

2.9 UNDERGROUND VAULTS/PITS

A. General: Portland cement concrete, precast or cast-in-place as indicated.

B. Portland Cement Concrete and Reinforcing Steel: Section 03301.

C. Access Openings: As indicated.

D. External Load: Earth load plus AASHTO H20 live load if located in traffic area.

2.10 TRACER WIRE

A. General: Minimum #12 AWG stranded copper wire with blue THW, THWN, or THHN rated insulation.

2.11 WARNING TAPE

A. General: Non-detectable 3-inch warning tape made of solid blue film with continuously printed black-letter message reading "CAUTION—WATER LINE BURIED BELOW."

2.12 PCC THRUST BLOCKS

A. Portland Cement Concrete and Reinforcing Steel: Section 03301.

PART 3 EXECUTION

3.1 PIPE INSTALLATION

A. General: Install pipe, fittings, and appurtenances utilizing best practices, manufacturer's instructions, and in accordance with the following:
   1. PVC pipe: AWWA M23 and AWWA C605.

B. Pipe Depth and Trench Configuration: Conform to elevations, profiles and typical trench section(s) indicated.

C. Excavation, Bedding, Backfill, and Compaction: Section 2310.

D. Handling: Carefully handle during loading, hauling, unloading and placing operations to avoid breakage or damage. Use strap type slings for lifting and placing; no chains or hooks will be permitted. Comply with manufacturer's recommendations.

E. Laying: Before lowering pipe into the trench, remove all stakes, debris, loose rock and other hard materials from the bottom of the trench. Lay accurately in conformance with lines and grades indicated. Lay pipe on a bed of bedding material specified and prepared by handwork, dug true to grade. Furnish firm bearing for pipe throughout it's entire length with bell holes provided at the ends of each pipe length of sufficient size to permit making up the particular type of joint being used. Adjust pipe to line and grade by scraping away or filling and tamping material under the body of the pipe for the entire pipe length and not by blocking or wedging. After final positioning, hold pipe in place in trench with backfill material placed equally on both sides of the pipe at as many locations as required to hold the pipe section in place.

F. Closure: Close open ends of pipes and appurtenance openings at the end of each days work or when work is not in progress.

3.2 CONNECTING TO EXISTING MAINS

A. Pressure Tap Connections: Perform in accordance with the requirements of the owner of the system being tapped. Maintain a positive pressure flow from the main being tapped to the tapping device to flush plastic chips, metal ribbons, etc. into the tapping devise and not into the pipe being tapped.

B. Other Connections: As indicated and in accordance with the requirements of the owner of the line being connected to.

3.3 ANCHORAGE INSTALLATION

A. Mechanically Restrained Joints: Install where indicated for lengths indicated in accordance with manufacturer's instructions.

B. PCC Thrust Blocks: Install where required and as indicated. Bearing area indicated is to be against undisturbed earth. Allow a minimum of 24-hours curing time before introducing water into the pipeline and allow a minimum of 7-days curing time before pressure testing.

3.4 VALVE INSTALLATION

A. Install all valves in accordance with the manufacturer's instructions and the following:
   1. General:
      a. Gate Valves: Appendix A of AWWA C509.
   2. Joints:
      a. Valves on PVC Pipe: Mechanical joint valves for buried locations. Flanged-end valves for installation in vaults/pits.

3.5 SERVICE CONNECTIONS INSTALLATION

A. Install as indicated and in accordance with the requirements of the owner of the system.

3.6 WATER METER INSTALLATION

A. Install as indicated and in accordance with the requirements of the owner of the system.

3.7 FIRE HYDRANT INSTALLATION

A. Install as indicated and in accordance with the requirements of the owner of the system and the fire department.

3.8 UNDERGROUND VAULT/PIT INSTALLATION

A. Install as indicated.

B. Excavation and Backfill: Section 02310.

3.9 TRACER WIRE INSTALLATION

A. Place and secure to top of pipe and fittings at about 3-foot intervals with 6" length of 1" wide filament tape, Scotch brand No. 898 or equal.

B. Form a mechanically and electrically continuous line throughout the pipeline, extending to the nearest valve or other pipeline appurtenance designated by the owner of the system or the Owner's Representative. Extend the wire up the outside of the valve box/riser and cut a hole that is 8-inches from the top, extend a 12-inch wire lead to the inside of the box. At other pipeline appurtenances, designated by the owner of the system or the Owner's Representative, terminate the 12-inch wire lead inside the enclosure.

C. Splice wire with a splicing device consisting of and electro-tin plated seamless copper sleeve conductor. Install as recommended by the manufacturer. Wrap splices and damaged insulation with electrician's tape.

3.10 WARNING TAPE INSTALLATION

A. Install tape approximately 1-foot above and along the centerline of the pipe.

B. Where tape is not continuous, lap tape ends a minimum of 2-feet.

3.11 HYDROSTATIC PRESSURE AND LEAKAGE TEST

A. General:

1. Provide all necessary materials and equipment, including water.
2. Backfill all trenches sufficient to hold pipe firmly in position.
3. Allow time for thrust blocks to cure prior to testing.
4. Flush all pipes prior to testing to remove all foreign material.
5. Perform pressure and leakage test concurrently.
6. Test pressure: See Subsection titled "System Performance Requirements."
7. Apply test pressure by means of a pump connected to the pipe.
8. Base test pressure on the elevation of the lowest point in the line.
9. Fill each closed valve section or bulk-headed section slowly. Expel air from section being tested by means of permanent air vents installed at high points or by means of temporary corporation cocks installed at such points. Remove and plug the temporary corporation cocks at the conclusion of the test.
10. Allow the system to stabilize at the test pressure before conducting the leakage test.
11. Do not operate valves in either the opening or closing direction at differential pressures above the valves rated pressure.
12. Maintain test pressure as specified for type of pipe being tested.
13. Pressure Test: Examine any exposed pipe, fittings, valves, hydrants and joints during the test, if no leaks are observed the section of line has passed the pressure test. If leaks are observed, repair any damaged or defective pipe, fittings, valves, or hydrants, and repeat the pressure test.
14. Leakage Test: Perform as specified hereafter for the type of pipe being installed.

B. PVC Pipe Leakage Test: Perform in accordance with AWWA M23. Selected requirements of AWWA M23 are repeated as follows:

C.

1. Maintain the test pressure, +/- 5 psi, for a minimum of two hours.
2. No piping will be accepted if the leakage is greater than that determined by the following formula:

$$L = (N \times D \times P^{1/2})/7{,}400$$

L = Allowable leakage, gallons per hour.
N = Number of joints in the length of the pipeline tested.
D = Nominal diameter of pipe, inches.
P = Average test pressure during the leakage test, pounds per square inch (gauge).

3.12 DISINFECTION

A. All New Pipelines shall be disinfected in accordance with one of the three methods specified in AWWA C651 and the following:

1. Disinfect after pressure and leakage test have been performed and accepted.
2. The method used shall be at the Contractor's option, unless specified by the owner of the water system.
3. Engage the services of a commercial testing laboratory, approved by the owner of the water system, to perform the bacteriological tests specified in Section 5.1 of AWWA C651. Direct the testing laboratory to send the original report of the bacteriological testing to the owner of the water system. Should the laboratory report show that any sample taken was not acceptable, repeat the sterilization process shall until a satisfactory sterilization is accomplished.
4. Lawfully dispose of the chlorinated water.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Water Valve shall be measured per unit.

B. PVC pipe shall be measured per linear foot.

C. Fire hydrant shall be measure per unit.

4.2 PAYMENT

A. Water system items shall be at the contract unity price paid per Engineers Estimate.

B. The contract unity price paid for clearing and grubbing shall include full compensation for furnishing all labor, material, tool, equipment and incidentals, and for doing all work involved in clearing and grubbing as shown on the plans, and as specified in those specifications and the special provisions, and as directed by the Engineer, including disposal of the resulting material.

END OF SECTION

SECTION 02630

STORM DRAINAGE SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roadway and storm drainage facilities.

1.2 RELATED SECTIONS

A. Section 02310, Utility Trenching and Backfill.

B. Section 03301, Portland Cement Concrete.

1.3 RELATED DOCUMENTS

A. Caltrans Standard Specifications:

1. Section 51, Concrete Structures.
2. Section 52, Reinforcement.
3. Section 65, Reinforced Concrete Pipe.
4. Section 70. Miscellaneous Facilities.
5. Section 75 Miscellaneous Metal.

1.4 DEFINITIONS

A. AASHTO: American Association of State Highway and Transportation Officials.

B. ABS: Acylonitrile-butadiene-styrene.

C. ASTM: American Society for Testing Materials.

D. AWWA: American Water Works Association.

E. NPS: Nominal pipe size.

F. RCP: Reinforced concrete pipe.

1.5 SUBMITTALS

A. Follow submittal procedure outlined in Section 02000.

B. Product Data Shop Drawings, Etc.: For the following:

1. Piping materials and fittings.

2. Special pipe couplings.

3. Joint sealants.

4. Cleanout plugs or caps.

5. Precast concrete catch basins, inlets, curb inlets, junction structures and area drains, including frames and grates.

6. Precast clean out boxes and box covers.

C. Design Mix Reports and Calculations: For each class of cast in place concrete.

D. Field Test Reports: Indicate and interpret test results for compliance with performance.

1.6 DELIVERY, STORAGE AND HANDLING

A. Do not store plastic structures, pipe and fittings in direct sunlight.

B. Protect pipe, fittings, and seals from dirt and damage.

C. Handle precast concrete pipe, manholes and other precast structures according to manufacturer's written instructions.

D. Protect imported bedding and backfill material from contamination by other materials.

PART 2 PRODUCTS

2.1 PIPING MATERIALS

A. Reinforced Concrete Pipe: Designated by Class, rubber gasketed joints.

1. Circular Reinforced Concrete Pipe: Caltrans Standard Specifications, Section 65-1.02A(1). Class III.

2. Oval shaped (Elliptical) Reinforced Concrete Pipe: Caltrans Standard Specification Section 65-1.02B. Class HE-III and VE-III. [Check external load and laying condition, Classes HE-IV, and VE-IV, V and VI are available if stronger pipe is required.]

3. Reinforced Concrete Pipe Arch: Caltrans Standard Specification Section 65-1.02C.

4. Rubber Gasketed Joints: Caltrans Standard Specification Section 65-1.06.

2.2 CURB INLETS, CATCH BASINS, DROP INLETS, JUNCTION STRUCTURES, AREA DRAINS, ETC.

A. General: Size, shape, configuration, depth, etc. of structure and frame, grate, or cover shall be as indicated.

B. Portland Cement Concrete and Reinforcing: Section 03301 and Caltrans Standard Specifications, Section 65, Reinforced Concrete Pipe.

C. Precast Structure: Rate for AASHTO H20 loading in traffic areas.

D. Steps: ASTM C 478 or AASHTO M 199. Manufacture from deformed, ½-inch steel reinforcement rod complying with ASTM A 615 and encased in polypropylene complying with ASTM D4101. Include pattern designed to prevent lateral slippage off step. Acceptable manufacturer is Hanson Concrete Products, (Milpitas, CA) (Tel 408-262-1091).

E. Frames, Grates and Covers: Caltrans Standard Specifications, Sections 75-1.02, 75-1.03 and 75-1.05.

1. Galvanize steel frames, grates and covers.

2. Grates and covers shall be non-rocking.

3. Rate for AASHTO H20 loading in traffic areas.

2.3 MANHOLES

A. General: Size, shape, configuration, depth, etc. of manhole and frame and cover shall be as indicated.

B. Portland Cement Concrete and Reinforcing:

1. Poured-in-Place Portion: Section 03301 and Caltrans Standard Specification, Section 51, Concrete Structures.

2. Precast Portion: ASTM C 478 or AASHTO M199. Rate for AASHTO H20 loading in traffic areas.

C. Frames and Covers: As indicated and in accordance with Caltrans Standard Specification Section 75-1.02.

D. Steps: Manufacture from deformed, ½-inch steel reinforcement rod complying with A 615/A 615M and encased in polypropylene complying with ASTM D 4101. Include pattern designed to prevent lateral slippage off step. Acceptable manufacturer is Hanson Concrete Products, (Milpitas, CA) (Tel 408-262-1091) or equal.

2.4 JOINT SEALANT FOR PRECAST STRUCTURES AND MANHOLES

A. Mortar: Caltrans Standard Specification Section 51-1.135.

1. Use to seal around pipes at connections to structures and manholes. Also use to seal joints between precast sections of structures and manholes.

B. Gaskets: Preformed flexible rubber or plastic gasket.

1. Rubber Gaskets: ASTM C 443.

2. Plastic Gaskets: Federal Specification SS-S-00210 (GSA-FSS), Type I, Rope Form; or alternate standard which may exist. Acceptable material is "Ram-Nek" as manufactured by the K. T. Snyder Company (Houston TX) or equal.

C.

PART 3 EXECUTION

3.1 PIPE INSTALLATION

A. General: Install pipe, fittings, and appurtenances utilizing best practices, manufacturer's instructions, and

in accordance with Caltrans Standard Specifications, Section 65-1.07 for reinforced concrete pipe.

B. Pipe Depth and Trench Configuration: Conform to typical trench section(s) indicated.

C. Excavation, Bedding, Backfill, and Compaction: Section 2310 and Caltrans Standard Specifications, Section 19, Earthwork.

D. Handling: Carefully handle during loading, hauling, unloading and placing operations to avoid breakage or damage. Use strap type slings for lifting and placing; no chains or hooks will be permitted. Comply with manufacturer's recommendations.

E. Laying: Before lowering pipe into the trench, remove all stakes, debris, loose rock and other hard materials from the bottom of the trench. Lay accurately in conformance with lines and grades indicated. Start laying the pipeline at the low end and proceed upstream. Lay bell and spigot pipe with the bell end facing upstream. Lay pipe on a bed prepared by handwork, dug true to grade. Furnish firm bearing for pipe throughout it's entire length with bell holes provided at the ends of each pipe length of sufficient size to permit making up the particular type of joint being used. Adjust pipe to line and grade by scraping away or filling and tamping material under the body of the pipe for the entire pipe length and not by blocking or wedging. After final positioning, hold pipe in place in trench with backfill material placed equally on both sides of the pipe at as many locations as required to hold the pipe section in place.

F. Curved Alignment: When necessary to conform to the alignment specifically indicated, lay pipe on a curved alignment by means of asymmetrical closure of joints or bending of the pipe barrel. Use shorter lengths of pipe than the standard length if necessary to achieve curvature specified. Do not exceed the recommendations of the pipe manufacture for deflections at the joints or pipe bending.

G. Closure: Close open ends of pipes and appurtenance openings at the end of each days work or when work is not in progress.

3.2 INSTALLATION OF CURB INLETS, CATCH BASINS, DROP INLETS, JUNCTION STRUCTURES, AREA DRAINS, ETC. AND MANHOLES

A. Excavation, Bedding, Backfill, and Compaction: Section 2310 and Caltrans Standard Specifications, Section 19, Earthwork.

B. Poured in Place Structures: Install as indicated and Caltrans Standard Specification Section 51.

1. Shape bottoms to convey flows as indicated.

C. Precast Structures: Install as indicated.

1. Seal all joints and pipe entrances and exits.

2. Place concrete in bottom and shape to convey flows as indicated.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. The length of pipe by size and class to be paid for will be the slope length designated by the Engineer.

B. Drainage inlet quantities shall be measured per each and to include concrete joints, sealants, grates, and lids.

C. Manholes shall be measured per each and include joints, sealants and cover.

4.2 PAYMENT

A. Storm Drain pipes shall be paid for at a contract price per linear foot for different sizes and classes.

B. Drainage inlets shall be paid for at a contract price per unit.

C. Manholes shall be paid for at a contract price per unit.

D. The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing and constructing items within this Section, complete in place, as shown on the plans, and as specified in the Caltrans Standard Specifications and the special provisions, and as directed by the Engineer.

END OF SECTION 02630

SECTION 02750

ASPHALT CONCRETE PAVEMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Prime coat.

B. Tack coat.

C. Asphalt concrete paving.

D. Asphalt concrete overlay.

E. Pavement grinding.

F. Adjusting manholes, valves, monument covers and other structures to grade.

1.2 RELATED SECTIONS

A. Section 02320, Pavement Subbase and Base Courses.

1.3 RELATED DOCUMENTS

A. Caltrans Standard Specifications.

1. Section 39: Asphalt Concrete.

2. Section 92: Asphalts.

3. Section 93: Liquid Asphalts.

4. Section 94: Asphaltic Emulsions.

1.4 DEFINITIONS

A. ASTM: American Society for Testing Materials.

1.5 QUALITY ASSURANCE

A. Testing Agency: Owner's Representative will engage a qualified independent testing agency to perform field inspections and tests and to prepare test reports.

1. Testing agency will conduct and interpret tests and state in each report whether tested work complies with or deviates from specified requirements.

B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with specified requirements.

C. Thickness of Asphalt Concrete: In-place compacted thickness of asphalt courses will be determined according to ASTM D 3549.

D. In-Place Density: Samples of uncompacted paving mixtures and compacted pavement will be secured by testing agency according to ASTM D 979.

1. Reference maximum theoretical density will be determined by averaging results from 4 samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.

2. In-place density of compacted pavement may be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.

a. One core sample may be taken for every 1000 sq. yd. or less of installed pavement, but in no case will fewer than 3 cores be taken.

b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

1.6 SUBMITTALS

A. Follow submittal procedure outlined in Section 02000.

B. Job-Mix Designs: Certificates signed by manufacturers certifying that each asphalt concrete mix complies with requirements.

C. Material Certificates: Certificates signed by manufacturers certifying that each material complies with requirements.

1.7 PROJECT CONDITIONS

A. Environmental Limitations:

1. Prime Coat: Minimum surface temperature of 60 deg F at application.

2. Tack Coat: Minimum surface temperature of 60 deg F at application.

3. Asphalt Concrete: Minimum atmospheric temperature of 50 deg F at application.

4. Reinforcing Fabric: Air temperature is 50 deg F and rising and pavement temperature is 40 deg F and rising.

PART 2 PRODUCTS

2.1 ASPHALT CONCRETE

A. Caltrans Standard Specifications Section 39, Type B.

B. Asphalt Materials:

1. Asphalt Binder: Performance Graded in accordance with Caltrans Standard Specifications, Section 92.

2. Prime Coat: Caltrans Standard Specifications, Section 93, MC-70.

3. Tack Coat: Caltrans Standard Specifications, Section 94, SS1

C. Aggregates: Conform to Caltrans Standard Specifications, Section 39-2.02.

D. Storing, Proportioning and Mixing Materials: Caltrans Standard Specifications, Section 39-3.

E. Sand: ASTM D 1073, Grade No. 2 or 3.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.

B. Proof-roll subbase using heavy pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

C. Notify Owner's Representative in writing of any unsatisfactory conditions. Do not begin paving until these conditions have been satisfactorily corrected.

3.2 PAVEMENT GRINDING

A. Clean existing paving surface of loose or deleterious material immediately before pavement grinding.

B. Grind conforms as indicated.

3.3 SOIL STERILANT

A. Furnish and apply to areas indicated in accordance with Section 02300.

3.4 SURFACE PREPARATION FOR AGGREGATE BASE MATERIALS

A. General: Immediately before placing asphalt materials remove loose and deleterious material from substrate surfaces and ensure that prepared subgrade is ready to receive paving according to the Caltrans Standard Specification Section 39-4.01.

B. Prime Coat: Apply uniformly over surface of compacted-aggregate base according to the Caltrans Standard Specification Section 39-4.02. Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 24 hours minimum.

1. If prime coat is not entirely absorbed within 8 hours after application, spread excess prime coat with hand tools and broadcast sand over surface to blot excess asphalt. Use just enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.

2. Protect primed substrate from damage until ready to receive paving.

C. Tack Coat: Apply uniformly to all vertical surfaces against which asphalt concrete is to be placed, including existing surfaces of previously constructed asphalt or portland cement concrete paving and

to surfaces abutting or projecting into new asphalt pavement, according to the Caltrans Standard Specification Section 39-4.02.

1. Allow tack coat to cure undisturbed before paving.

2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.5 SURFACE PREPARATION FOR PAVEMENT AT ASPHALT CONCRETE OVERLAYS

A. Pavement Irregularities: Level with asphalt concrete, Type B, No. 4 maximum.

B. Pavement Cracks:

1. Less than ¼-inch wide: Clean of all dirt by compressed air jet, spray and seal with RS-1 asphaltic emulsion.

2. Wider than ¼-inch: Clean of all dirt by compressed air jet, spray and seal with RS-1 asphaltic emulsion and skin patch.

C. Clean surface of all material, such as leaves, dirt, sand, gravel, water and vegetation prior to applying binder of paving asphalt to existing surface.

3.6 ASPHALT CONCRETE SPREADING AND COMPACTING EQUIPMENT

A. Spreading Equipment: Caltrans Standard Specification Section 39-5.01.

B. Compaction Equipment: Caltrans Standard Specification Section 39-5.02.

3.7 ASPHALT CONCRETE PLACEMENT

A. Place, spread and compact asphalt concrete to required grade, cross section, and thickness according to the Caltrans Standard Specification Sections 39-6.01, 39-6.02 and 39-6.03.

B. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.8 JOINTS

A. Construct joints to ensure continuous bond between adjoining paving sections according to the Caltrans Standard Specification Sections 39-6.01 and 39-6.02.

1. Construct joints free of depressions with same texture and smoothness as other sections of asphalt course.

2. Clean contact surfaces and apply tack coat.

3. Offset longitudinal joints in successive courses a minimum of 6 inches.

4. Offset transverse joints in successive courses a minimum of 24 inches.

5. Compact joints as soon as asphalt concrete will bear roller weight without excessive displacement.

3.9 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact according to the Caltrans Standard Specification Sections 39-6.01 and 39-6.03.

B. Compaction Requirements: Average Density to be 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

C. Finish Rolling: Finish roll paved surfaces to remove roller marks while asphalt is still warm.

D. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method.

E. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh asphalt. Compact by rolling to specified density and surface smoothness.

F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

G. Compact speed bumps with 8 ton static roller.

3.10 ADJUSTING MANHOLES, VALVES, MONUMENT COVERS AND OTHER STRUCTURES TO GRADE

A. Remove pavement, using vertical cuts, as needed to remove frame and provide for concrete collar. Do not damage adjacent pavement.

1. Circular Covers: Cut circle with radius 6 inches larger than cover and concentric with cover.

2. Rectangular Covers: Cut rectangle 6 inches larger than cover on all sides.

B. Install grade rings or blocking as needed to raise cover to finish grade.

C. Pour concrete collar:

1. Bottom of Collar: Top of existing collar or 6 inches below top of proposed collar, whichever is at a higher elevation.

2. Top of Collar: Bottom of existing asphalt pavement.

3. Apply tack coat to all exposed surfaces.

4. Fill excavation with asphalt concrete and, while still hot, compact flush with adjacent surface.

3.11 INSTALLATION TOLERANCES

A. Asphalt Pavement:

1. Course thickness and surface smoothness within the tolerances specified in Caltrans Standard Specification Sections 39-6.01, 39-6.02 and 39-6.03.

2. Total Thickness: Not less than indicated.

B. Trench Patch:

1. Compacted surface: Within 0.01 foot of adjacent pavement.

2. Do not create ponding.

C. Adjust Covers:

1. Compacted surface: Up to 0.01 foot higher, and no lower, than adjacent pavement.

2. Do not create ponding.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Asphalt Concrete will be measured by weight. The quantity to be paid for will be the combined weight of the mixture as indicated in the Engineers estimate. The weight of the material will be determined as provided in Caltrans Standard Specifications, Section 9-1.01, Measurement of Quantities.

B. Adjusting manholes, valves, monument covers and other structures to grade shall be measured by each and type.

4.2 PAYMENT

A. Asphalt Concrete place in the work unless otherwise specified will be paid for at the contract price per ton.

B. Adjusting manholes, valves, monument covers and other structures to grade shall be paid at a contract price per each and type.

END OF SECTION 02750

SECTION 02785

SIGNS, OBJECT MARKERS, TRAFFIC STRIPES, PAVEMENT MARKINGS AND MARKERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Removal of existing traffic stripes and pavement markers.

B. Removal of existing signs.

C. Cleaning and sweeping of streets before application of traffic stripes and pavement markings.

D. Materials and application for traffic stripes and pavement markings.

E. Materials and application for pavement markers.

F. Traffic control signs and street name signs.

G. Object markers.

1.2 RELATED SECTIONS

A. Section 02750, Asphalt Concrete Pavement.

1.3 RELATED DOCUMENTS

A. Caltrans Standard Specifications:

1. Section 15, Existing Highway Facilities

2. Section 56, Signs

3. Section 81, Monuments

4. Section 82, Markers and Delineators

5. Section 84, Traffic Stripes and Pavement Markings

6. Section 85, Pavement Markers

B. The State of California Traffic Manual, edition in effect at time of date on plans.

C. The regulations, standards, and tests of the State of California Department of Transportation Materials and Research Division, edition in effect at time of date on plans.

1.4 QUALITY ASSURANCE

A. Deliver certificates showing conformance with this specification to the Owners Representative with each shipment of materials and equipment to the Project site.

1.5 PROJECT CONDITIONS

A. Do not apply traffic striping or pavement markings to the pavement until after approval to proceed has been given by the Owners Representative.

B. Thoroughly cure new asphalt concrete and portland cement concrete before application of stripes, markings or markers.

PART 2 PRODUCTS

2.1 THERMOPLASTIC STRIPES AND MARKING

A. Conform thermoplastic striping and marking materials to Section 84-2.02 of Caltrans Standard Specifications, unless noted otherwise herein or on the Plans.

2.2 PAINTED STRIPES AND MARKINGS

A. Conform painted striping and marking materials to Section 84-3.02 of Caltrans Standard, Specifications, unless noted otherwise herein or on the Plans.

2.3 PAVEMENT MARKERS

A. Types: Section 85-1.02 of Caltrans Standard Specifications and as indicated.

B. Sampling, Tolerances and Packaging: Section 85-1.03 of Caltrans Standard Specifications.

C. Material

1. Non-reflective: Caltrans Standard Specifications, Section 85-1.04.

2. Retroreflective: Caltrans Standard Specifications. Section 85-1.05

2.4 TRAFFIC CONTROL SIGNS

A. General: Caltrans Standard Specifications, Section 56-2 .

B. Sign Panels: Conform type (regulatory or warning), size, shape and pattern to the State of California, Department of Transportation, Traffic Manual, edition in effect at the date of the Plans. Sign faces to be of reflectorized porcelain enamel.

C. Posts: Metal: Two (2) inch inside diameter steel pipe. Conform to Caltrans Standard Specifications, Section 56-2.02A, unless otherwise specified.

1. Wood: Conform to Section 56-2.02B.

D. Mounting Hardware: Section 56-2.02D of Caltrans Standard Specifications, unless otherwise specified.

E. Post Foundations: Portland cement concrete conforming to Section 03301.

2.5 REFLECTORIZED OBJECT MARKERS

A. Reflectorized Metal Object Markers: Conform to the applicable requirements of Section 82 of Caltrans Standard Specifications for target plates and reflectors, and Caltrans Standard Plan A73A for type L-1 or L-2 object markers.

B. Posts: Metal posts conforming to the applicable requirements of Section 82-1.02B of Caltrans Standard Specifications and Caltrans Standard Plan A73B.

C. Mounting Hardware: Conform to the applicable requirements of Section 82-1.02G of Caltrans Standard Specifications.

PART 3 EXECUTION

3.1 REMOVAL OF TRAFFIC STRIPES, PAVEMENT MARKINGS AND PAVEMENT MARKERS

A. Where blast cleaning is used for the removal of painted traffic stripes and pavement markings, or for removal of objectionable material, remove the residue, including dust and water, immediately after contact with the surface being treated. Remove by a vacuum attachment operating concurrently with the blast cleaning operation.

B. Where grinding is used for the removal of thermoplastic traffic stripes and pavement markings; remove the residue by means of a vacuum attachment to the grinding machine. Do not allow the residue to flow across or be left on, the pavement.

C. Where markings are to be removed by blast cleaning or by grinding, the removed area shall be approximately rectangular so that no imprint of the removed marking remains on the pavement.

D. Contractor will be responsible for repairing any damage to the pavement during removal of pavement markers. Damage to the pavement, resulting from removal of pavement markers, shall be considered as any depression more than 1/4-inch deep.

3.2 TEMPORARY PAVEMENT MARKERS

A. If permanent pavement markers cannot be installed immediately, and the street or road is to be placed in service, install short term, temporary pavement markers on the new pavement prior to opening the street or road to traffic.

B. Place markers at a maximum of 24 feet on centers. or as required by the governmental agency having jurisdiction, in the appropriate colors to delineate centerlines and travel lanes on multi-lane roadways.

3.3 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

A. Apply in conformance with the manufacturer's instructions and the applicable requirements of Section 84-2.04 of Caltrans Standard Specifications and Caltrans Standard Plans A20A through A20D, and A24A through A24E.

3.4 PAINTED TRAFFIC STRIPES AND PAVEMENT MARKINGS

A. Apply in conformance with the manufacturer's instructions and the applicable requirements of Section 84-3.03, 3.04 and 3.05 of Caltrans Standard Specifications and Caltrans Standard Plans A20A through A20D, and A24A through A24E.

3.5 PAVEMENT MARKERS

A. Place in conformance with the requirements of Section 85-1.06 of the Caltrans Standard Specifications.

B. Pavement recesses are not required. Markers shall be installed accurately to the line established by the Engineer. No markers shall be installed until the surface has been approved by the Owner's Representative.

3.6 TRAFFIC CONTROL SIGNS

A. Install in conformance with Sections 56-2.03 and 2.04 of Caltrans Standard Specifications, Caltrans Standard Plan RS1, the applicable requirements of the State of California Department of Transportation Maintenance Manual and the details shown on the Plans. The horizontal locations shown on Caltrans Standard Plan RS1 shall not be applicable, the horizontal location shall be as shown on the Plans.

B. Portland cement concrete for post foundations shall be of the configuration shown on the Plans.

C. After erection, damage to traffic sign faces shall be touched up or the sign replaced.

3.7 REFLECTORIZED OBJECT MARKERS.

A. Install in conformance with the requirements of Section 82-1.03 of Caltrans Standard Specifications, except that the metal marker posts shall not be driven in place without prior approval of the Owner's Representative.

B. Install at locations shown on the Plans.

3.8 PROTECTION

A. Protect the newly installed traffic stripes and pavement markings from damage until the material has cured.

B. Replace any traffic stripes or pavement markings or markers broken, misaligned or otherwise disturbed prior to opening roadway to traffic.

3.9 RESTORATION OF EXISTING IMPROVEMENTS

A. Existing signs, striping or other markings removed or damaged due to the installation of new facilities shall be replaced in kind.

B. Existing landscaping or planting removed, damaged or disturbed due to the installation of traffic control signs or street name signs shall be replaced in kind.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement for traffic stripes, pavement markings, pavement markers, object markers and removal or relocating street signs shall be measured as a lump sum.

4.2 PAYMENT

A. Payment for traffic stripes, pavement markings, pavement markers, object markers and removal or relocating street signs shall be measured as a lump sum pavement traffic stripes and markings will be paid as a lump sum.

END OF SECTION 02785

SECTION 02810

IRRIGATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. The General and Supplementary Conditions and General Requirements apply to the work herein specified.

1.2 DESCRIPTION:

A. Contractor shall furnish all labor, tools, equipment, product, materials and transportation and perform all operations necessary to properly execute and complete all work in accordance with the Drawings and these Specifications. The intent is to accomplish the work of installing an irrigation system, which will operate in an optimum manner. This intention is to be met foregoing any deficiency in setting a complete detailed description of the work to be done.

B. Related Work Specified Elsewhere:

1. Section 02300: Earthwork

2. Section 02900: Landscape Planting

3. Division 22: Plumbing

4. Division 26: Electrical

6. Section 01810 Commissioning Requirements

1.3 QUALITY ASSURANCE:

A. Reference Standards:

1. ASTM: American Society for Testing and Materials

a. D1785: Standard Specification for polyvinyl chloride (PVC) plastic pipe, Class 200, Class 315.

b. D2446: Standard Specification for polyvinyl chloride (PVC) plastic pipe fittings, Schedule 40 and Schedule 80.

2. NSF: National Sanitation Foundation

B. Drawings:

1. For purposes of clarity and legibility, drawings are essentially diagrammatic to the extent that many offsets, bend, unions, special fittings, and exact locations of items are not indicated, unless specifically dimensioned.

2. Exact routing of piping, etc., shall be governed by structural conditions, obstructions. Contractor shall make use of data in Contract Documents.

3. The contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that unknown obstructions, grade difference or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences shall be brought to the attention of the irrigation consultant. In the event this notification is not performed, the contractor shall assume full responsibility for any revision necessary.

1.4 VISIT TO THE SITE:

The contractor shall visit the construction site and shall take all measurements and obtain any other information as may be necessary for a complete and conclusive bid.

1.5 SUBMITTALS:

A. Substitutions:

Prior to installation, any proposed substitution from the plans or these specifications is to be forwarded, in writing, to the irrigation consultant for approval.

B. Record Drawings:

Provide record drawings as follows:

1. The contractor shall maintain in good order in the field office one complete set of prints of all sprinkler drawings, which form a part of this contract. In the event any work is not installed as indicated on the drawings, such work shall be indicated and dimensioned accurately on record drawings as changes occur. Dimension from two permanent points of reference, building corner, sidewalk, road intersections, etc., the location of the following items.

   a. Connection to existing water lines
   b. Connection of existing electrical power
   c. Routing of pressure lines (dimension max. 100 feet lone along routing)
   d. Electrical control valves
   e. Routing of control wires
   f. Quick-coupling valves
   g. Underground stub-outs
   h. Other related equipment as directed by the irrigation consultant

2. Upon completion of the work, obtain reproducible mylars from the landscape architect and neatly correct the plans (to be done by a competent draftsperson) to show the as-built conditions. After the as-builts are reviewed and approved by the irrigation consultant, obtain reduced copies of "as-built" mylars (8-1/2" x 11" sheets or to the smallest readable size), and laminate with weather proofing coating.

C. Operation and Maintenance Manuals:

1. Prior to the final inspection of the irrigation system, furnish two (2) individually bound Service Manuals to the owner. The manuals shall contain the following:

a. Index sheet indicating the contractor's name, address, and phone number.

b. A copy of the completed guarantee following the form in these specifications.

c. Certificate of insurance verifying coverage for completed operations.

d. List of equipment with names, addresses and telephone numbers of all local manufacturers' representatives.

e. Copies of equipment warranties and certificates.

f. Complete operating and maintenance instructions of all equipment including exploded drawings and spare parts list.

2. Provide instruction in operation of system to owner's personnel.

D. Hardware Items:

1. Two (2) sets of matching Q.C.V. keys and hose swivels.

2. Two (2) sets of any special tool required for the maintenance of each type of component used in the sprinkler system.

1.6 PROJECT COORDINATION:

A. Sequencing and Scheduling:

Coordinate irrigation installation work with the installation of other site improvements, including utility installation work and landscape installation.

B. Environmental Conditions:

Site work such as trenching and backfilling shall not be performed during wet, muddy or frozen conditions.

C. Rules and Regulations:

All work and materials shall be in full accordance with the latest rules and regulations of the National Electric Code; the Uniform Plumbing Code and other applicable state or local laws or regulations. Nothing in these drawings or specifications is to be construed to permit work not conforming to these codes.

1. The contractor shall furnish any additional material and labor required to comply with these rules and regulations, though the work is not mentioned in these particular specifications or shown on the drawings.

2. When the specifications call for materials or construction of a better quality or larger size than required by the above mentioned rules and regulations, the provision of the specifications shall take precedence over the requirements of the said rules and regulations.

D. Safety:

1. The contractor shall erect and maintain barricades, guards, warning signs, and lights as required for the protection of the public and workmen.

2. All work shall be performed in a safe manner. All regulations, all OSHA requirements and other authoritative agencies shall be followed.

3. Prior to commencement of work, locate all underground utilities so that proper precautions may be taken not to damage such improvements.

E. Maintaining Traffic:

It is the responsibility of the contractor to ensure adequate protection and controls for pedestrian and vehicular traffic in the vicinity of the project areas. The contractor shall provide all signs, barricades, flagmen, etc., necessary to meet all traffic requirements for this project at his own expense.

F. Permits and Fees:

The contractor shall obtain all permits and pay all required fees to any governmental agency having jurisdiction over the work and arrange for inspections specified by local ordinances during the course of construction as necessary.

PART 2 - PRODUCTS

2.1 PRODUCT DELIVERY, STORAGE AND HANDLING:

Handling of pipe and fittings: The contractor is cautioned to exercise care in handling, loading, unloading, and storing of pipe and fittings. Cracks can occur from sudden impact. Protect all plastic products from excessive exposure to sunlight. Any section of pipe that has been dented or damaged shall be removed from the site and, if installed, shall be replaced with new undamaged piping.

2.2 MATERIALS:

A. PVC Pressure main line piping and fittings:

1. Pressure main line piping: 1120-Schedule 40 PVC plastic pipe with schedule 40 PVC solvent weld plastic fittings.

2. Pipe shall be made from NSF approved, Type 1, Grade 1 PVC compound conforming ASTM D1784. All pipe shall meet requirements set forth in ASTM D2441 with an appropriate standard dimension ratio.

3. All PVC pipe shall bear the following markings:

a. Manufacturer's name
b. Nominal pipe size
c. Schedule or class
d. Pressure rating in PSI
e. NSF

f. Date of extrusion

4. All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable I.P.D. schedule and NSF seal of approval.

B. PVC non-pressure lateral line piping and fittings:

1. Non-pressure buried lateral line piping shall be 1120 – Schedule 40 PVC with Schedule 40 PVC solvent-weld joints.

2. Pipe shall be made from NSF approved, Type 1, Grade 1 PVC compound conforming to ASTM D1784. All pipe shall meet requirements set forth in ASTM D2441 with an appropriate standard dimension ratio.

3. Except as heretofore specified, all requirements for non-pressure lateral line pipe and fittings shall be the same as for solvent-weld pressure main line pipe and fittings as specified.

C. Sleeving and Conduit: Material shall be polyvinyl chloride (PVC) Schedule 40, type 1120/1220 with solvent weld.

D. Galvanized steel pipe shall be Schedule 40; ASTM (A120) and steel fittings shall be Schedule 40 hot dipped, double banded malleable steel.

E. PVC Schedule 80 nipples shall be used with molded threads. Machined threaded nipples will not be allowed.

F. Connections between supply line and R.C.V.'s shall be as specified or detailed on the drawings.

G. Riser assemblies shall be as specified or detailed on the drawings.

H. Controller(s), valves, backflow preventer(s) and sprinkler heads shall be specified and/or detailed on the drawings.

K. Control wires shall be UL approved copper single strand type UF direct burial 14 gauge red in color. Common wires shall be UL approved copper single strand type UF direct burial 12 gauge white in color. Spare control wires shall be UL approved copper single strand type UF direct burial 14 gauge blue in color.

L. Miscellaneous installation materials:

1. Solvent weld joints shall be of make and type approved by manufacturer (s) of pipe and fittings. Solvent cement shall be a proper consistency throughout use. Mixing thinner with solvent will not be allowed.

2. Pipe joint compound shall be non-hardening, non- toxic materials designed specifically for use on threaded connections in water carrying pipe.

3. Wire connections shall be 3M #3750 Scotch Lok Seal Packs, or approved equal.

M. Thrust Blocks: Concrete thrust blocks shall be as detailed on the plans.

N. Control or Valve Boxes:

1. Provide plastic rectangular control valve box with bolt down plastic lid for each electrical control valve as indicated in installation details shown on plans. Hot stamp or permanently engrave irrigation controller station number onto valve box lid.

2. For gate valves and quick coupling valves: Use 9-inch plastic round box. Add extensions for gate valves as required. Hot stamp or permanently engrave "GV" for gate valve and "QCV" for quick coupler valves onto valve box lid.

PART 3 - EXECUTION

3.1 GENERAL:

A. Irrigation system shall be installed in accordance with all applicable local and state codes and ordinances by a licensed landscape contractor.

B. Follow manufacturer's direction except as shown or specified.

3.2 INSPECTION OF SITE CONDITIONS:

A. All scaled dimensions are approximate. The contractor shall check and verify all size dimensions prior to proceeding with work under this Section.

B. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities, which are caused by his operations or neglect. Check existing utilities drawings for existing utility locations.

C. Coordinate installation of irrigation materials, including pipe, so there shall be no interference with utilities or other construction or difficulty in planting trees, shrubs, and groundcover.

D. Avoid trenching within drip line of trees where possible. When not possible, all damaged roots over 1-1/2" in diameter shall be cut leaving clean face, seal cuts with tree seal, then immediately install pipe, wire, etc., refill trench and soak.

E. The contractor shall carefully check all grades to satisfy himself that he may safely proceed before starting work on the irrigation installation.

F. Coordinate the work of this Section with that of other Sections for the location of pipe sleeves through walls, paving, etc.

G. The landscape contractor shall verify water pressure and available gallonage prior to construction. If deficiencies are noted that will hinder the system's performance, notify the irrigation consultant for directions to correct deficiencies.

H. The design is diagrammatic. All piping, valves, etc., shown within paved areas is design clarification only. Install piping, valves, etc., in planting areas.

3.3 PREPARATION - LAYOUT OF WORK:

Prior to installation, stake out all pressure supply lines, routing and location of sprinkler heads and notify irrigation consultant for reviewing layout when area or grade differences or obstructions are not as indicated on the plans.

3.4 INSTALLATION:

A. Trenching:

1. Dig trench straight and support pipe continuously on bottom of trench. Lay pipe to an even grade. Trenching excavation shall follow layout shown on drawings.

2. Provide for a minimum of 18 inches cover for all pressure supply lines.

3. Provide for a minimum cover of 12 inches for all non-pressure lines to spray heads.

4. Provide for a minimum cover of 18 inches for all control wiring.

5. Provide a minimum cover of 24 inches over pipe and wiring under asphalt pavement.

B. Backfilling:

1. In accordance with requirements of SECTION 02310 UTILITY TRENCHING AND BACKFILLING".

2. Do not backfill trenches until all required tests are performed. Carefully backfill trenches with specified excavated materials for backfilling, consisting of earth, loam, sandy clay, sand, or other acceptable materials, free from large clods of earth or stones. Backfill shall be mechanically compacted in landscaped areas to a dry density equal to adjacent undisturbed soil in planting areas. Backfill shall conform to adjacent grades without dips, sunken areas, humps or other surface irregularities.

3. Surround pipe with sand in rocky terrain with a 4" bed and 4" cover.

4. Backfill in proposed asphalt paved areas shall have sand covering pipe with a 6" minimum depth.

C. Pipe and Fitting Installation and Connections:

1. Install no multiple assemblies on plastic lines. Provide each assembly with its own outlet.

2. Install all assemblies specified herein in accordance with details shown on drawings.

3. Thoroughly clean PVC pipe and fittings of dirt, dust and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.

4. On PVC to metal connections, the contractor shall work the metal connections first. Use Teflon tape, or equal, on all threaded PVC to PVC, and on all treaded PVC to metal joints.

5. Install piping under existing walks by boring whenever possible. Where any cutting or breaking of sidewalks and/or concrete is necessary, it shall be done and replaced at no

increase in contract sum. Obtain permission to cut or break sidewalks and/or concrete from the architect before proceeding. No hydraulic driving will be permitted under concrete paving.

D. Line clearance:

All lines shall have a minimum clearance of 6 inches from each other and from lines of other trades. Parallel lines shall not be installed directly over one another.

E. Automatic Controller:

1. Controller has been installed by City.

F. Remote Control Valves:

Install where shown on drawings. When grouped together, allow at least 12 inches between valves. Install each remote control valve in a separate valve box. Locate boxes in groundcover areas whenever possible, and a minimum of12 inches from paving or curbs.

G. Control Wiring:

1. Make connections between existing automatic controls and electrical control valves with direct burial copper wire. Common wires shall be white. Install in accordance with valve manufacturer's specifications and wire charts.

2. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines wherever possible. When not possible, house wiring in PVC conduit as described in "Sleeving and Conduit" section.

3. Where more than one wire is placed in a trench the wiring shall be taped together at intervals of 10 feet.

4. Provide 2-foot expansion coil at each wire connection and at least every 100 feet of wire length on runs more than 100 feet in length. Form expansion coils by wrapping at least five turns of wire around a 1-inch diameter pipe, then withdrawing the pipe.

5. Splicing on runs shall be placed in junction boxes. Indicate all splices on the <u>As-Built Plan.</u>

6. All below grade wire connections shall be made by using heat shrink tubing with interwall sealer following manufacturers recommended procedures.

7. Install separate common wire for each controller. Install extra control wires of a different color through all valve boxes to controller as indicated in irrigation notes on plans.

H. Sleeving and Conduit:

1. Control wiring passing under proposed concrete and paving shall pass through Schedule 40 PVC conduit-size as required.

2. Sleeving and conduit shall extend six (6") beyond farthest edge of pavement or curb.

3. Provide removable non-decaying plug at ends of sleeves and conduits to prevent entrance of earth.

I. Flushing of System:

1. After all new pipelines and risers are in place and connected, all necessary diversion work has been completed, and prior to installation of sprinkler heads, open control valves and use a full head of water to flush out the system.

2. Install sprinkler head only after flushing of system has been accomplished.

J. Drip Bubblers:

1. Install drip bubblers as shown on Drawings.

2. Spacing of heads shall not exceed maximum shown on Drawings. In no case shall spacing exceed maximum recommended by manufacturer.

3.5 FIELD QUALITY CONTROL:

A. Adjustment of the System:

1. Flush and adjust all drip bubblers for optimum performance.

2. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, the contractor shall make such adjustments prior to planting. Adjustments may also include changes in nozzles sizes and degrees of arc as required.

B. Testing of Irrigation System:

1. Notify the irrigation consultant at least three (3) days in advance of testing.

2. Test to be done at no extra cost to the Owner.

3. Center load piping with sufficient amount of backfill to prevent arching or slipping under pressure. No fitting shall be covered.

4. Testing of pressure main lines shall occur prior to installation of electrical control valves.

5. Pressure Test for Solvent Weld Pipes:

a. Apply test for solvent welded plastic pipe after joints have cured at least 4 hours or more it manufacturer of solvent cement requires.

b. Test supply lines per ASTM-F690 as follows: (1) add water slowly to pipe to avoid water hammer damage, (2) bleed system to insure all air is out of pipes, (3) pressurize system to 125 PSI for two (2) hours. Visually inspect for leaks while system is holding pressure constant. Note – use hydraulic pump or other safe method – do not use air compressor.

c. Test sprinkler lines at line pressure and visually inspect for leaks.

6. When the irrigation system is completed, perform a coverage test to determine if the water coverage for planting areas is complete and adequate. Furnish all materials and perform all work required to correct any inadequacies of coverage due to deviation from drawings. This test shall be accomplished before any plant material is planted.

7. Upon completion of each phase of work, test and adjust entire system to meet site requirements.

3.6 CLEAN-UP:

Clean-up shall be made as each portion of work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be broomed or washed down, and any damage sustained on the work of others shall be repaired to original conditions.

3.7 FINAL REVIEW PRIOR TO ACCEPTANCE:

A. Operate each system in its entirety at time of final review. Any items deemed not acceptable shall be reworked to the satisfaction of the irrigation consultant.

B. Final review shall take place after submission of all specified lists, record drawings, and manuals.

3.8 INSPECTIONS:

The contractor shall be subject to inspections at any and all times by authorized representatives of the Owner.

3.9 MAINTENANCE:

The contractor is to make all repairs and maintain the entire sprinkler system from the time of installation through the landscape maintenance period.

GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM

WE HEREBY GUARANTEE THAT THE SPRINKLER IRRIGATION SYSTEM WE HAVE FURNISHED AND INSTALLED IS FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP, AND THE WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. WE AGREE TO REPAIR OR REPLACE ANY DEFECTS IN MATERIAL OR WORKMANSHIP, ANY SETTLING OF BACKFILLED TRENCHES, WHICH MAY DEVELOP DURING THE PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE AND ALSO TO REPAIR OR REPLACE ANY DAMAGE CAUSED BY ANY DEFECTS IN THE IRRIGATION SYSTEM OR RESULTING FROM THE REPAIRING OR REPLACING OF SUCH DEFECTS AT NO ADDITIONAL COST TO THE OWNER. ORDINARY WEAR AND TEAR, UNUSUAL ABUSE OR NEGLECT ARE EXCEPTED. WE SHALL MAKE SUCH REPAIRS OR REPLACEMENTS, INCLUDING COMPLETE RESTORATION OF ALL DAMAGED PLANTING, PAVING, OR OTHER IMPROVEMENTS OF ANY KIND, WITHIN A REASONABLE TIME, AS DETERMINED BY THE OWNER, AFTER RECEIPT OF WRITTEN NOTICE. IN THE EVENT OF OUR FAILURE TO MAKE SUCH REPAIRS OR REPLACEMENTS WITHIN A REASONABLE TIME AFTER RECEIPT OF WRITTEN NOTICE FROM THE OWNER, WE AUTHORIZE THE OWNER TO PROCEED TO HAVE SAID REPAIRS OR REPLACEMENTS MADE AT OUR EXPENSE AND WE WILL PAY THE COSTS AND CHARGES THEREFORE UPON DEMAND.

PROJECT: _____

LOCATION: _____

CONTRACTOR: _____

LICENSE NO: _____

ADDRESS: _____

TELEPHONE: _____

GUARANTEE TO: _____

_____

_____

DATE OF ACCEPTANCE: _____

AUTHORIZED REPRESENTATIVE: _____

END OF SECTION 02810

SECTION 02870

SITE FURNISHING

PART 1 - GENERAL

1.1 SUMMARY

A. The General Conditions and all other Contract Documents for this project are complementary and applicable to this Section of the Specifications.

B. Work Included: Furnish all labor, materials, equipment and services necessary to provide and construct, repair, or install the site elements, complete in place, as shown and specified, including, but not limited to:

1. Benches
2. Bollards
3. Pots
4. Hanging Baskets
5. Light Poles with built-in brakets
6. Bike Racks
7. Seat Wall with Wood Railing
8. Kiosks
9. Bus Shelter

C. Related Work:

1. Section 03320: Site Concrete

1.2 SUBMITTALS

A. Submit seven (7) copies shop drawings where noted to the City for approval before installing any manufactured items. Plans shall include dimensions, color, finish, structural design (custom items), and connection details.

B. Submit seven (7) copies catalog cuts, samples and manufacturers literature of all manufactured items in this section to the City for approval before installation.

1. Provide color samples, brush-outs, or charts for all items. Final colors to be selected by City and a sample submitted for approval.

PART 2 - PRODUCTS

2.1 MANUFACTURED ITEMS

A. Bike Rack: Per plan, see Sheet LA1.0.

B. Bollard: Per plan, see Sheet LA1.0.

C. Bench: Per plan, see Sheet LA 1.0.

D. Pots: Per plan and detail. See Sheet LA1.0.

F. Hanging Baskets: Per plan, see Sheet LA1.0.

G. Light Poles with Built-in Brackets: Per plan and detail.

2.2 NON-MANUFACTURED ITEMS

A. Seat Wall with Metal Railing: Per plan and detail

B. Kiosk: Per plan and details.

C. Bus Shelter: Per plan and details.

2.3 MISCELLANEOUS MATERIALS

A. All other materials for site elements shall be as specified on the plans and these specifications.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Verify that conditions are satisfactory for installation of each items of site elements. If unsatisfactory conditions exist, do not begin installation until such conditions have been corrected.

3.2 PREPARATION:

A. Provide footings, sleeves, frames and anchorages. Furnish templates, setting drawings, and instructions for installation of sleeves and anchorages built into other work.

B. Locate and layout all furniture, accessories and equipment items. Obtain the Owner's written approval of the layout prior to installation.

3.3 INSTALLATION OF MANUFACTURED AND CUSTOM FABRICATED ITEMS

A. Assemble and install site and street furnishings in accordance with approved shop drawings and manufacturer's printed instructions.

B. Perform fitting required for installation. Set the work accurately in location, alignment, and elevation free of rack, measured from established lines and levels. Assembled furnishings shall be firm, rigid, free of rattle, and provide maximum protection against tampering and vandalism.

3.4 GUARANTEE

A. At completion of project, Contractor shall provide City with written guarantee from each manufacturer identifying the nature of warranty for each product component.

B. Contractor shall provide City with two (2) bound maintenance manuals identifying each piece of equipment on manufacturer's recommended maintenance program including, but not limited to, daily, weekly, and monthly check lists.

C. Contractor to provide City with minimum of two (2) gallons each type and color of paint used on apparatus with recommended surface preparation and application guidelines.

END OF SECTION 02870

SECTION 02900

PLANTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General and Supplementary Conditions and General Requirements apply to the work herein specified.

1.2 DESCRIPTION

A. Work to be Included:

1. Furnish and place topsoil, fertilizer, organic materials, and all other materials incidental to planting work.

2. Furnish all plant materials (trees, shrubs, seed, ground covers, and plant labels).

3. Furnish all labor, equipment and materials necessary for the installation of plant materials according to these Specifications.

B. Related Work Described Elsewhere:

1. Section 02810 Irrigation: Irrigation system shall be installed and operative before beginning planting operation.

2. Section 02630 Storm Drainage System: Contractor shall fully acquaint himself with the existing conditions particularly in reference to underground piping. Any damage caused by the Contractor to work of other trades shall be repaired by him at no cost to the Owner.

3. Section 02300 Earthwork: Close coordination shall be maintained with those Contractors performing rough grading operations and installing utilities and pavement to insure proper timing of the work.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

A. Perform work in accordance with all applicable laws, codes, and regulations required by City of Saratoga and any other authorities having jurisdiction over such work. Provide for all inspections and permits required by Federal, State, and local authorities in furnishing, transporting, and installing materials.

B. Certificates of inspection required by law for transportation shall accompany invoice for each shipment of plants. File copies of certificates with Owner's Representative after

acceptance of material. Inspection by Federal or State Governments at place of growth does not preclude rejection of plants at project site.

1.4 QUALITY ASSURANCE

A. Personnel: All planting and lawn work shall be performed by personnel familiar with lawn and planting procedures under the supervision of a qualified foreman with 5 years of landscape installation experiences on projects of equal size and scope.

B. Codes and Standards: Nursery stock shall meet the standards of the current edition of the "Agricultural Code of California" and the "Regulations of the Director of Agriculture Pertaining to Nursery Stock" as to grading and quality. They shall be true to type and name in accordance with "Standardized Plant Names", Second Edition.

C. Substitutions: Substitutions of plant materials will not be permitted unless authorized in writing by Owner's Representative. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. Such proof shall be substantiated and submitted in writing to Owner's Representative at least 30 days prior to start of work under this Section. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials.

The Landscape Architect reserves the right to require the Contractor to replace at the Contractor's cost any plants which the Contractor has installed without the Landscape Architect's approval.

D. Plants shall be subject to inspection and approval of the Landscape Architect at place of growth or upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Wherever the terms "approve", "approval" or "approved" are used herein they mean approval of the Landscape Architect in writing.

E. Plant Certification: All plants must meet specifications of Federal, State, and County laws requiring inspection for plant disease and insect infestations. Inspection certifications required by law shall accompany each shipment, invoice and order for stock.

1.5 SUBMITTALS

A. Furnish 6 copies of manufacturers' literature for the following items:

1. Organic Fertilizer
2. Mulch
3. Certificates of Inspection

B. Provide analysis from an approved testing laboratory for:

1. Topsoil
2. Organic Compost

3. Provide agricultural analysis from an approved testing laboratory including pH, salinity, sodium hazard, boron hazard, lime content, organic matter, soil texture and available nutrient levels per Section 2.1-A.

C. Submit one (1) quart sample each of mulch and organic compost.

D. Foreman's Qualification Statement

E. All submittal data shall be forwarded in a single package to the Landscape Architect within 60 days of award of the contract.

1.6 SAMPLES AND TESTS

A. Landscape Architect reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by Landscape Architect. Rejected materials shall be immediately removed from the site at Contractor's expense. Cost of testing of materials not meeting specifications shall be paid by Contractor.

1.7 SELECTION AND TAGGING OF PLANT MATERIAL

A. Plants shall be subject to inspection and approval by Landscape Architect at place of growth if the Landscape Architect so chooses, and upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Submit written request for inspection of plant material at place of growth to Landscape Architect. Written request shall state the place of growth and quantity of plants to be inspected. Landscape Architect reserves right to refuse inspection at this time if, in his judgment, a sufficient quantity of plants is not available for inspection.

1.8 JOB CONDITIONS

A. Delivery:

1. Deliver standard products to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade mark and conformance to state law.

2. Deliver plants with identification labels.
   a. Labels should state correct name and size.
   b. Use durable, water-proof labels with water resistant ink that will remain legible for at least 60 days.

3. Protect plant materials during transport to prevent damage to rootball or desiccation of leaves.

4. Remove unacceptable plant materials immediately from job site.

B. Storage:

1. Contractor shall maintain the plant material properly between delivery and planting. This includes protection from animals and vandals, proper watering, and feeding if necessary.

2. Shade plants shall be stored in the shade, and sun plants shall be stored in the sun.

C. Timing: Under no circumstances shall any work be performed if the temperature exceeds 90 degrees or is below 40 degrees. No planting shall be done with the soil saturated with water.

1.9 PROTECTION OF EXISTING PLANTS TO REMAIN:

A. Do not store materials or equipment, permit burning, or operate or park equipment under the branches of any existing plant to remain except as actually required for construction in those areas.

B. Provide barricades, fences or other barriers as necessary at the drip line to protect existing plants to remain from damage during construction.

C. Notify Owner's Representative in any case where Contractor feels grading or other construction called for by Contract Documents may damage existing plants to remain.

D. If existing plants to remain are damaged during construction, Contractor shall replace such plants of the same species and size as those damaged at no cost to Owner. Determination of extent of damage and value of damaged plant shall rest solely with Owner's Representative.

PART 2 – PRODUCTS

2.1 SOIL AMENDMENTS

A. The organic amendments, and fertilizer rates and quantities listed in Part Three are to be used for bid basis only. Contractor shall arrange and pay for testing by an accredited soils laboratory approved by the Owner. Test the existing site soil after demolition and rough grading operations are completed. Take samples from three site locations to be selected by Landscape Architect. Mark location of each sample on field set plan for reference and label each sample. Adjust the quantities of soil amendments and fertilizer per soil lab written report recommendation. Submit lab report and any proposed soil amendments and cost adjustments to Owner for written approval. After review and written approval by the Owner, amend the soils according to said laboratory's recommendations. The approved soils laboratory recommendations shall be considered a part of this specification.

The base bid shall include cost of testing site soil and organic amendments noted in this spec section. Adjustments to project costs resulting from the soil report recommendation shall be submitted as a modification to the base bid.

B. Imported Recycled Organic Topsoil: Topsoil shall be tested by an approved soils laboratory for compatibility with existing on-site soils and fertility. Contractor shall submit soil laboratory's analysis and amendment recommendations. Imported topsoil shall be subject to inspection by Landscape Architect at the project site. Remove rejected topsoil immediately at Contractor's expense. The imported recycled organic topsoil shall be blended on site with the following ratio:
1/3 of compost blended with 2/3 of native soil.

C. Organic Compost:

Compost: Feedstock shall be no longer recognizable. Compost shall contain fairly uniform particle size, no weed sprouts. Submit a nutrient analysis and testing data from a third party or soil lab, such as the STA Seal of Testing Assurance by the US Composting Council; or OMRI, Organic Materials Review Institute. Compost shall be Super Humus Compost, available from BFI Organics: 408-945-2836, or approved equal.

Compost shall meet the following criteria:

1. Particle size: 100% passing a 1" screen or smaller

2. Salt Concentration: Must be reported; may vary but < 4.0 mmhos/cm preferred. Soil should be test. <2.5 mmhos/cm preferred for soil/compost blend.

3. Feedstock Materials shall be specified and include at one or more of the following: landscape/yard trimmings, grass clippings, food scraps, and agricultural crop residues.

4. Nutrient Content: provide analysis detailing nutrient content including N-P-K; Ca; Mg; S; and Bo[i]. Nitrogen content 1% or above preferred.

5. Trace Contaminants Metals (Lead, Mercury, Etc.) Product must meet US EPA, 40 CFR 503 regulations.

6. pH: pH shall be between 5.5 and 8.

7. Visible Contaminants: compost shall be relatively free of inert ingredients, including glass, plastic and paper, < 0.1 % by weight or volume.

8. Moisture Content shall be between 35% - 55% of dry solids.

9. Organic Matter Content: 50% - 60% by dry wt. preferred, 30-70% acceptable.

10. Carbon and Nitrogen Ratio: C:N < 20:1

11. Stability/Maturity: shall have a dark brown color and a soil-like odor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or is hot (120F) upon delivery or rewetting is not acceptable.

12. Weed seed/pathogen destruction: provide proof of process to further reduce pathogens (PFRP). For example, turned windrows must reach min. 55C for 15 days with at least 5 turnings during that period.

D. Fertilizer: Synthetic, quick-release fertilizers shall not be permitted. Fertilizers prohibited by OMRI are prohibited in the project. Organic fertilizers as recommended by the soils report.

2.2 Recycled TOP MULCH: Medium Decorative Mulch (2 inch grind – all product passes 2 inch screen) or approved equal. Available from: BFI Organics 408-945-2836.

2.3 GROUNDCOVERS, TREES, AND SHRUBS

A. All plant materials shall be nursery grown in accordance with the best known horticulture practices and under climatic conditions similar to those in the locality of the project. Container stock shall have grown in the containers in which delivered for at least six (6) months, but not over two years. No container plants that have cracked or broken balls of earth when taken from container shall be planted except upon special approval by Landscape Architect.

B. Plants shall be vigorous and shall have a normal habit of growth. Plants shall be free of damage by insects, pests, diseases or wind; burns from insecticides or fertilizer; and stunted growth due to lack of water, lack of food, diseases, or other causes. Plants shall be in conformity with the sizes shown on the drawings.

C. Trees: Unless otherwise specified, tree trunks shall be straight with leader intact, undamaged, and uncut. All old abrasions and cuts are acceptable only if completely callused over.

D. Quantities: Quantities necessary to complete the work as shown on the drawings shall be furnished.

E. Root Systems: All shrubs and trees shall have a normal root system. No plants with roots that have encircled themselves will be accepted. In case of any unsatisfactory root system, a total group of plants may be rejected.

2.4 WATER SOURCE

A. Irrigation Water source shall be part of contract. Contractor shall provide transport of additional supply if required.

2.5 ROOT GUARDS: Deep Root Model UB 24-2 shall be used on all trees 5' or closer to pavement, utilities, curbs, etc. Deep Root (415) 344-1464.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspections by the Landscape Contractor:

1. Prior to all work in this section, verify grades and carefully inspect the installed work of all other trades. Verify that all such work is complete to the point where the installation may properly commence.

2. In the event of discrepancy, immediately notify the Landscape Architect. Do not proceed with this installation in areas of discrepancies until all such discrepancies have been fully resolved.

3. Inspect trees, shrubs and ground cover plants for injury, insect infestations, and proper pruning.

4. General contractor shall coordinate rough grading of site to ensure the Landscape Contractor receive all planting areas graded to ±0.10 ft. of finish grades shown on the Drawings. Allow for depth of soil amendments and mulch in determining the difference between finished subgrade in groundcover and shrub beds. Verify that subgrades are not compacted. Do not proceed until detrimental conditions are corrected.

3.2 SOIL PREPARATION

A. The Contractor shall prepare the site for landscaping. In the areas designated for landscaping on the plans, he shall, prior to placing imported material, replacing existing topsoil, or doing any planting, clear the areas of weeds, roots, debris, rocks, and underground obstructions, and construction debris to a depth acceptable for planting. Scarify the subgrade to a 6" minimum depth prior to spreading topsoil.

B. The Contractor shall alleviate compacted soils before planting, for all landscaped areas that cannot be protected during construction.

1. Scarification: Scarify all planting areas prior to fine grading in order to ensure relative compaction of 85% or less. Any planting areas which become compacted in excess of 85% due to construction activites shall be thoroughly cross-ripped to the maximum depth feasible to alleviate that condition, taking care to avoid all existing drainage and subsurface utility lines.

C. Soil shall not be worked when wet, generally between October an April.

D. A minimum of 1" of quality compost is tilled into all planting areas. Quality to be per Soils Test Lab recommendations.

E. Contractor shall compact 12" of blended imported recycled organic top soil.

F. Cultivation and Placement of Amendment:

1. In areas to be planted with shrubs cultivate to a depth of 12".

2. In groundcover areas, cultivate soil to a depth of 8". Incorporate 6 cubic yards per 1000 square feet of organic compost. Prior to planting incorporate to a depth of 6" the following fertilizers, per 1000 square feet:

   Organic fertilizers as recommended by the soils report.

3. Areas within the driplines of existing trees shall be hand cultivated.

G. Soil Mix for Backfill of Shrubs and Trees: The following ingredients shall be tumbled to achieve a homogeneous mix:

Organic compost	1 cubic yard
Topsoil	3 cubic yards

H. Finish Grading:

1. Finely finish surfaces by raking smoothly and evenly. Remove all exposed, extraneous matter one inch or larger in size to facilitate natural runoff. Drag to smooth surface.

2. Finish grades will slope to drain, without water pockets or irregularities (humps or hollows). Finish grades will meet all existing controls and shall be 1 ½ inches below adjacent top of paving, curbs, sidewalks and planters, unless otherwise noted on plans. Grades will be of uniform slope between points of fixed elevation. Establish vertical curves or rounding at abrupt changes in slope.

3. All finish grades will be approved by the engineer prior to commencing the planning operations.

3.3 SHRUBS AND TREES

A. Preparation:

1. Stake out location for plants and outline of planting beds on ground and obtain the approval of Landscape Architect before digging.

2. The Contractor shall protect all utilities, vegetation, and structures during work.

3. Trees shall be located a minimum of 3' from walls, overheads, walks, headers, and other trees within the project. If conflicts arise between size of areas and plans, Contractor shall contact Landscape Architect for resolution. Failure to make such conflicts known to the Landscape Architect will result in Contractor's liability to relocate the materials.

B. Excavation:

1. All plant pits shall be dug with vertical walls. The sides and bottoms of all planting pits shall be thoroughly scarified.

2. Holes for one (1) gallon size plants: Twelve (12) inches wider than the can and six (6) inches minimum deeper.

3. Holes for (5) gallon size plants: eighteen (18) inches wider than the can or root ball, and eight (8) inches deeper than can or root ball.

4. Holes for fifteen (15) gallon size plants or larger: Twenty-four (24) inches wider than the can or root ball, and twelve (12) inches deeper than the can or root ball.

C. Plants in Containers:

1. Plants shall be removed carefully from their containers after the containers have been cut on two sides minimum; fifteen-gallon containers shall be opened in three places. In the case of boxed plant specimens, the wood shall be removed at the sides and at the bottom of the box.

2. After removing plant material from its container, stimulate root growth by making four or five vertical cuts 1" deep around the circumference of the root ball.

3. Do not lift or handle plants by the top, stems, or trunk at any time. All plants shall be lifted in such a manner that the root ball is supported from the underside.

4. The Contractor shall check all plants for adequate root systems. If the root system is defective, he shall remove deficient plants from the site and replace them with new ones.

D. Planting:

1. Center plant in pit or trench over tamped mound.

2. Face for best effect.

3. Set plant plumb and hold rigidly in position.

4. All plants shall be set in the ground so that the root ball will be flush with the finish grade. All plants that settle below the finish grade within 30 days of acceptance of the work shall be replanted in the proper position. In case a total section of planting area settles, the Contractor shall lift the plants, import additional soil mix, regrade, and replant, at no additional cost to the Owner.

5. Use soil mix only for backfill. Backfill pit with soil mix in 9" layers and water each layer thoroughly to settle soil. The filled pit shall be flush with surrounding grade when complete.

6. When the plant pit has been approximately one half filled, place planting tablets according to the manufacturer's schedule.

7. Apply post-planting organic fertilizer, per soils report.

8. In shrub mass areas, mulch area between plant pits with 2" layer of Pro-Chip manufactured by BFI Organics or equivalent recycled wood chip mulch.

9. Planting operation for plants in raised concrete planters is same as above except that finish grade of soil mix shall be 1 1/2" below top of planter walls. Planters may be backfilled with excess topsoil up to the depth specified for plant pits above which backfill shall be soil mix.

10. Planting operations for plants in precast planters is the same as stated in paragraph 9 above. Fill entire planter with soil mix. Place planters as shown on planting plans.

3.4 GROUNDCOVER AREAS

A. Planting:

1. Space plants equally and uniformly at spacings indicated on the Drawings, which are the maximum and in a triangular pattern.

2. Plant pits shall be sufficiently large so that the root can be freely suspended in the pit. After backfilling the pit, firm the soil so that there will be no air space around the roots.

3. Apply post-planting organic fertilizer, per soils report.

4. Mulch all ground cover areas with 2" layer of Pro-Chip manufactured by BFI Organics or equivalent recycled wood chip mulch.

3.5 TREE STAKING

A. Stake trees as indicated on the Drawings.

B. Tying: Find the proper support height by holding the trunk in one hand and pulling the top to one side and releasing it. The lowest height at which the trunk will return to the upright position when the top is released, is the height at which to attach tree ties.

3.6 PRUNING

A. Tree and Shrub: Pruning shall be performed as required to maintain a natural appearance, promote healthy and vigorous growth, and eliminate diseased or damaged growth.

B. Trees shall be pruned to thin crown and avoid wind damage, eliminate narrow V-shaped branch forks that lack strength, eliminate sucker growth, and maintain a radial branching pattern to avoid crossing branches.

C. Under no circumstances will stripping of lower branches ("raising-up") of young trees be permitted. Lower branches shall be retained in a "tipped back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk).

D. Major pruning of trees to compensate for root loss or for aesthetic reasons shall be done only with approval of the Landscape Architect.

E. Shrubs shall not be clipped into balled or boxed forms, unless such is required by the design and directed by the Landscape Architect.

F. All pruning shall be made flush to lateral branches, buds, or trunk. "Stubbing" will not be permitted.

G. Damage: All cuts over 1" resulting from pruning or wind breakage shall be inspected periodically for insect infestation or disease.

3.7 CLEAN UP

A. Keep all areas of work clean and neat at all times. Upon completion of planting, all cans, boxes, and other debris that is a part of the planting operation shall be removed from the site.

B. All pavements shall be washed off, and site shall be left in an absolutely clean condition. All planting areas shall be cultivated and weed free before final inspection. Clean-up operations shall take place throughout the course of work so that walks and drives are clean at all times.

3.8 INSPECTIONS

A. Notification: The Contractor shall notify the Landscape Architect a minimum of 72 hours before requiring a visit by the Landscape Architect or his duly appointed representative to the site.

B. Check Points: The following shall be considered check points and the Contractor shall only proceed with the work after the Landscape Architect has visited the site and determined that the work is proceeding satisfactorily.

1. Completion of placement of soil mix and fine grading.

2. When plant material is placed in the configuration shown on the Drawings before planting.

3. A check visit shall be made to begin the maintenance period. At this time the Contractor shall have completed all phases of the Plans and Specifications. Any discrepancies shall be noted at that time and the Contractor shall make appropriate corrections before the acceptance of the work.

4. A conference including the Owner shall be held at the completion of the work, provided that all deficiencies brought out in the check visit which began the maintenance period have been corrected by this time. The Contractor shall continue to maintain the project at his own expense until all deficiencies have

been corrected, at which time the Contractor shall request the Landscape Architect to visit the site and approve the project as complete. The Landscape Architect will accept the landscape project in writing. The date of the acceptance letter shall be the first day of the guarantee period.

C. Should it be determined at the Final Inspection or Final Acceptance visit that any punchlist item is incomplete, any further review of the site will be terminated until all items are guaranteed, in writing, to be complete by the Contractor. The cost of additional site visits by the Landscape Architect to verify completion of work shall be paid for by the Contractor.

3.9 MAINTENANCE

A. Contractor shall furnish all labor, material, equipment, and services required to maintain the landscape in a healthy and attractive condition for a period of 90 days.

B. Maintenance shall include fertilization, watering, insect and disease control (IPM), and weed control using IPM, weekly trash removal, mulching, restaking trees, tightening of guys, resetting plants to proper grades or upright position, and restoration of watering basins. Refer to Bay Friendly Landscape Specifications.

C. Maintenance period shall not start until all elements of construction, planting, and irrigation for the entire project are complete. Project will not be segmented into maintenance phases, unless specifically authorized in writing by the Owner's authorized representative.

D. The Contractor shall request an inspection to begin the plant maintenance period after all planting and related work has been completed in accordance with the Contract documents. A prime requirement is that all groundcover and lawn areas be planted. If such criteria is met to the satisfaction of the Architect, a field notification will be issued to the Contractor to establish the effective beginning date of the period.

E. The Contractor's maintenance period will be extended if the provisions required within the plans and specifications are not filled.

F. Watering:

1. All plants shall be kept watered as often as it is necessary to keep them in optimum, vigorous growth. Watering shall be done preferably during the early morning hours. Check soil moisture levels with a soil probe before watering and adjust watering schedule to match weather conditions.

2. Water shall be controlled so that there will be no excessive run-off, ponding, or overwatering. Check and adjust irrigation system on a weekly basis.

3. Root Growth: Periodically the Contractor shall check the progress of the root growth within the back fill area. As the root growth increases beyond the root

ball, the frequency of watering shall be reduced so that the roots are encouraged to grow to a lower soil depth. Watering then shall be less frequent, but applications shall be very slow and the Contractor shall assure himself that water does penetrate to the depth of the former plant pit.

4. Replace broken equipment immediately with equal or superior materials.

G. Spraying:

1. Utilize IPM practices for plant care, as outlined in the Bay Friendly Landscape maintenance specificiations. Spraying shall only be performed as a last resort.

2. All shrubs and trees shall be inspected at least twice a month during the growing period to determine the need for spraying to control insect damage, fungus development or any other disease that might be attacking the plants. Preventative spraying shall be done only with the approval of the Landscape Architect.

3. Operators of spray equipment shall take all reasonable precautions to protect themselves, other people and buildings from spray. The Contractor shall have all permits and licenses required for such an operation. Where applicable, dormant spray shall be applied to shrubs and trees during the winter period.

4. All equipment shall be properly washed before and after use.

5. No spraying shall take place during windy or gusty days.

H. Staking and Guying: Stakes and guys shall be inspected a minimum of two times a month to assure that the wires and ties are tight and no damage has occurred to the tree trunk or branches.

I. Weed Control:

1. Weeds shall be kept under control, preferably either by hand or by IPM methods outlined in the Bay Friendly Landscape maintenance specifications. The application of herbicides shall be as last resort..

2. All equipment used for herbicides, if utilized, shall be properly cleaned before it is used on this project. Herbicides shall be applied at temperatures recommended by the manufacturers. Herbicides shall not be used during windy or gusty days. All possible precautions shall be taken to protect vegetation which is susceptible to damage from the particular herbicides to be used.

3. The bases of all plants shall be kept completely free of weeds. Periodically, the base of the trees and shrubs shall be cultivated in order to allow better penetration of water, but such cultivation shall be carefully done in order not to destroy surface roots.

J. Fertilization: Top dress all areas at 45 day intervals from time of planting with organic fertilizer or compost tea as recommended by soils report.

K. Litter: The Contractor shall remove promptly after pruning, trimming, and weeding or other work required under the contract, all debris generated by his performance of the work. Immediately after working in the areas of public walks, driveways or paved areas, they shall be vacuumed clean with suitable equipment. All areas covered by this contract shall be kept free of the following items: bottles, cans, paper cardboard or metallic items. Common debris and litter shall be disposed of in an appropriate manner.

L. Pruning: Prune as necessary to remove injured twigs and branches, dead wood, and suckers.

M. All green waste shall be taken to a certified green waste facilitiy for utilization in organic compost or mulch.

3.10 GUARANTEE AND REPLACEMENT

A. Guarantee period shall be extended for a period of one year from the date of written acceptance.

B. All plants shall be guaranteed to be alive and healthy as determined by the Landscape Architect at the end of the guarantee period.

D. The Contractor shall replace, in accordance with the Drawings and Specifications throughout the guarantee period, any plants that die, or in opinion of the Landscape Architect, are in an unhealthy or unsightly condition, and or have lost their natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, or any other causes due to the Contractor's negligence. The Contractor shall not be held responsible for acts of vandalism occurring after the beginning of the guarantee period.

END OF SECTION 2900

SECTION 03301

PORTLAND CEMENT CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials for portland cement concrete.

B. Aggregate and aggregate grading for portland cement concrete.

C. Water for portland cement concrete.

D. Admixtures for portland cement concrete.

E. Proportioning for portland cement concrete.

F. Mixing and transporting portland cement concrete.

G. Formwork for cast in place portland cement concrete.

H. Embedded materials for portland cement concrete.

I. Steel reinforcement for portland cement concrete.

J. Placing and finishing portland cement concrete.

K. Curing portland cement concrete.

L. Protecting portland cement concrete.

1.2 RELATED SECTIONS

A. Section 02300, Earthwork

1.3 RELATED DOCUMENTS

A. Caltrans Standard Specifications:

1. Section 51: Concrete Structures.
2. Section 52: Reinforcement
3. Section 70, Miscellaneous Facilities
4. Section 73: Concrete Curbs and Sidewalks.
5. Section 90: Portland Cement Concrete.

1.4 DEFINITIONS

A. ASTM: American Society for Testing Materials

1.5 SUBMITTALS

A. Submittal procedure shall be as outlined in Section 02000.

B. Concrete Mix Design: Have all concrete mixes designed by a testing laboratory and approved by the Consulting Engineer. Conform all mixes to the applicable building code requirement, regardless of other minimum requirements listed herein or on the drawings. Submit mix designs for review before use. Show proportions and specific gravities of cement, fine and coarse aggregate, and water and gradation of combined aggregates.

1.6 QUALITY ASSURANCE

A. Concrete shall be subject to quality assurance in accordance with Caltrans Standard Specifications, Section 90.

B. Unless specified otherwise herein or on the Plans, portland cement concrete for this Project shall be Class 2, not less than 590 pounds of portland cement/cubic yard of concrete, as specified in Section 90-1.01 of the Caltrans Standard Specifications.

PART 2 PRODUCTS

2.1 PORTLAND CEMENT

A. General: Type II (modified) cement conforming to the Caltrans Standard Specifications, section 90-2.01.

2.2 AGGREGATE AND AGGREGATE GRADING

A. General: Conform to the requirements of Caltrans Standard Specifications, Sections 90-2.02, 2.02A and 2.02B.

B. Aggregate Size and Gradation: Conform to the requirements of Section 90-3 of the Caltrans Standard Specifications for 1-inch maximum combined aggregate.

2.3 WATER

A. General: Conform to the requirements of section 90-2.03 of the Caltrans Standard Specifications. For mixing and curing portland cement concrete and for washing aggregates.

2.4 EXPANSION JOINT MATERIAL

A. Material for expansion joints in portland cement concrete improvements shall be premolded expansion joint fillers conforming to the requirements of ASTM Designation D 1751. Expansion joint material shall be shaped to fit the cross section of the concrete prior to being placed. Suppliers certificates showing conformance with this specification shall be delivered with each shipment of materials delivered to the job site. Unless noted otherwise herein or on the Plans expansion joint thickness shall be as follows:

1. Curbs, Curb Ramps, Island Paving, Sidewalks, Driveways and Gutter Depressions: ¼-inch.

2. Concrete Slope Protection, Gutter Lining, Ditch Lining and Channel Lining: ½-inch.

3. Structures: As indicated.

2.5 REINFORCEMENT AND DOWELS

A. Conform to Caltrans Standard Specifications, Section 52 as modified in the contract documents.

2.6 ACCESSORY MATERIALS

A. Conform water stops and other items required to be embedded in of portland cement concrete structures to the applicable requirements of Section 51 of the Caltrans Standard Specifications unless otherwise specifically noted or called for on the Plans or detail drawings.

B. Curing Compounds:

1. Regular Portland Cement Concrete: "Non-Pigmented Curing Compound - Chlorinated Rubber Base-Clear" conforming to the requirements contained in Section 90-7.01B, of the Caltrans Standard Specifications.

2. Color Conditioned Decorative Portland Cement Concrete: LITHOCHROME colorwax as manufactured by the L. M. Scofield Company or approved equal.

2.7 FORMS

A. Conform to the requirements of Section 51-1.05 and Section 73 of the Caltrans Standard Specifications.

2.8 PRECAST CONCRETE STRUCTURES

A. Conform to the following Sections of Caltrans Standard Specifications:

1. 51-1.02, Minor Structures.

2. 70-1.02H, Precast Concrete Structures.

PART 3 EXECUTION

3.1 STRUCTURAL EXCAVATION

A. Conform to Caltrans Standard Specifications, Section 19, Earthwork.

3.2 SOIL STERILANT

A. Furnish and apply to areas indicated in accordance with Section 02300.

3.3 BRACING AND SHORING

A. Conform to California and Federal OSHA requirements.

B. Place and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; to prevent damage to the facility being constructed; and to prevent damage to adjacent structures or facilities. Remove all bracing and shoring

upon completion of the work.

C. Be solely responsible for all bracing and shoring and, if requested by the Owner's Representative, submit details and calculations to the Owner's Representative. The Owner's Representative may forward the submittal to the Geotechnical Consultant, the Consulting Engineer and/or the California Division of Industrial Safety for their review. The Contractor's submittal shall include the basic design, assumed soils conditions and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used, and shall be prepared by a civil engineer or structural engineer registered in California. No excavations related to the proposed facility shall precede a response to the submittal by the Owner's Representative.

D. Be solely responsible for installing and extracting the sheathing in a manner which will not disturb the position or operation of the facility being constructed or adjacent utilities and facilities.

3.4 PLACING CONCRETE FORMS

A. Conform to Caltrans Standard Specifications, Section 51-1.05 and Section 73 as modified in the contract documents.

B. Form concrete improvements with a smooth and true upper edge. Side of the form with a smooth finish shall be placed next to concrete. Construct forms rigid enough to withstand the pressure of the fresh concrete to be placed without any distortion.

C. Thoroughly clean all forms prior to placement and coat forms with an approved form oil in sufficient quantity to prevent adherence of concrete prior to placing concrete.

D. Carefully set forms to the alignment and grade established and conform to the required dimensions. Rigidly hold forms in place by stakes set at satisfactory intervals. Provide sufficient clamps, spreaders and braces to insure the rigidity of the forms.

E. Provide forms for back and face of curbs, lip of gutters and edge of walks, valley gutters or other surface slabs that are equal to the full depth of the concrete as shown, noted or called for on the Plans. On curves and curb returns provide composite forms made from benders or thin planks of sufficient ply to ensure rigidity of the form.

3.5 PLACING STEEL REINFORCEMENT

Conform to Caltrans Standard Specifications, Section 52-1.07, Reinforcement as modified in the contract documents.

A. Bars shall be free of mortar, oil, dirt, excessive mill scale and scabby rust and other coatings of any character that would destroy or reduce the bond. All bending shall be done cold, to the shapes shown on the plans. The length of lapped splices shall be as follows:

1. Reinforcing bars No. 8, or smaller, shall be lapped at least 45 bar diameters of the smaller bar joined, and reinforced bars Nos. 9, 10, and 11 shall be lapped at least 60 bar diameters of the smaller bars joined, except when otherwise shown on the plans.

2. Splice locations shall be made as indicated on the plans.

B. Accurately place reinforcement as shown on the plans and hold firmly and securely in position by wiring at intersections and splices, and by providing precast mortar blocks or ferrous metal chairs, spacers, metal

hangers, supporting wires, and other approved devices of sufficient strength to resist crushing under applied loads. Provide supports and ties of such strength and density to permit walking on reinforcing without undue displacement.

C. Place reinforcing to provide the following minimum concrete cover:

1. Surfaces exposed to water: 4-inches.

2. Surfaces poured against earth: 3-inches.

3. Formed surfaces exposed to earth or weather: 2-inches.

4. Slabs, walls, not exposed to weather or earth: 1-inch.

D. Minimum spacing, center of parallel bars shall be two and one half (2-1/2) times the diameter of the larger sized bar. Accurately tie reinforcing securely in place prior to pouring concrete. Placing of dowels or other reinforcing in the wet concrete is not permitted.

3.6 MIXING AND TRANSPORTING PORTLAND CEMENT CONCRETE

A. Transit mix concrete in accordance with the requirements of ASTM Designation C 94. Transit mix for not less than ten (10) minutes total, not less than three (3) minutes of which shall be on the site just prior to pouring. Mix continuous with no interruptions from the time the truck is filled until the time it is emptied. Place concrete within one hour of the time water is first added unless authorized otherwise by the Owner's Representative.

B. Do not hand mix concrete for use in concrete structures

3.7 PLACING PORTLAND CEMENT CONCRETE

A. Conform to Caltrans Standard Specifications, Section 51-1.09 as modified in the contract documents.

B. Thoroughly wet subgrade when concrete is placed directly on soil. Remove all standing water prior to placing concrete.

C. Do not place concrete until the subgrade and the forms have been approved.

D. Convey concrete from mixer to final location as rapidly as possible by methods that prevent separation of the ingredients. Deposit concrete as nearly as possible in final position to avoid re-handling.

E. Place and solidify concrete in forms without segregation by means of mechanical vibration or by other means as approved by the Owner's Representative. Continue vibration until the material is sufficiently consolidated and absent of all voids without causing segregation of material. The use of vibrators for extensive shifting of fresh concrete will not be permitted.

F. Concrete in certain locations may be pumped into place upon prior approval by the Owner's Representative. When this procedure requires redesign of the mix, such redesign shall be submitted for approval in the same manner as herein specified for approval of design mixes.

3.8 PLACING ACCESSORY MATERIALS

A. Place water stops and other items required to be embedded in of portland cement concrete structures at

locations shown or required in accordance with Section 51 of the Caltrans Standard Specifications unless otherwise specifically noted or called for on the Plans.

B. Curing Compounds:

1. Regular Portland Cement Concrete: Apply "Non-Pigmented Curing Compound - chlorinated Rubber Base-Clear" in accordance with Section 90-7.01B, 7.01D and 7.03 of the Caltrans Standard Specifications.

2. Color Conditioned Decorative Portland Cement Concrete: Apply LITHOCHROME colorwax in accordance with the manufactures instructions.

3.9 EXPANSION JOINTS

A. Construct expansion joints incorporating premolded joint fillers at twenty (20) foot intervals in all concrete curbs, gutters, sidewalks, median/island paving, valley gutters, driveway approaches and at the ends of all returns. At each expansion joint install one-half inch by twelve inch (1/2" x 12") smooth slip dowels in the positions shown or noted on the detail drawings.

B. Orient slip dowels at right angles to the expansion joint and hold firmly in place during the construction process by means of appropriate chairs.

3.10 WEAKENED PLANE JOINTS

A. Construct weakened plane joints in concrete curbs, gutters, sidewalks, median/island paving and valley gutters between expansion joints at ten (10) foot intervals throughout, or as otherwise indicated. Depth of joint score depth to be one-fourth (25%) the thickness of the concrete.

1. Grooved Joints: Form weakened plane joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8-inch. Repeat grooving of weakened plane joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

3.11 FORM REMOVAL

A. Remove forms without damage to the concrete. Remove all shores and braces below the ground surface, before backfilling.

B. Do not backfill against concrete until the concrete has developed sufficient strength to prevent damage.

C. Leave forms for cast-in-place walls in place at least 72 hours after pouring.

D. Leave edge forms in place at least 24 hours after pouring.

3.12 CONSTRUCTION

A. Form, place and finish concrete curbs, walkways, island paving, valley gutters and driveway approaches in conformance with the applicable requirements of Section 73-1.04, 73-1.05, 72-1.05A and 73-1.06 of the Caltrans Standard Specifications as modified herein.

B. Provide a medium broom finish to all horizontal surfaces unless otherwise shown.

C. Construct new concrete curb, curb and gutter and valley gutters against existing asphalt concrete by removing a minimum of 12-inches of the asphalt concrete to allow placement of curb or gutter forms. Patch pavement with a 6-inch deep lift of asphalt concrete after gutter form is removed.

D. Where monolithic curb, gutter and sidewalk is specified, separate concrete pours will not be allowed.

3.13 CONNECTING TO EXISTING CONCRETE IMPROVEMENTS

A. New curb, gutter, or sidewalk is to connect to existing improvements to remain by saw cutting to existing sound concrete at the nearest score line, expansion joint or control joint. Drill and insert ½-inch diameter by 12-inch long dowels at 24-inches on center into existing improvements. Install pre-molded expansion joint filler at the matching joint.

B. A cold joint to the existing curb is not acceptable.

3.14 FIELD QUALITY CONTROL

A. Finish subgrade for concrete improvements shall be subject to approval prior to placement of forms.

B. No concrete shall be placed prior to approval of forms.

C. Concrete improvements constructed shall not contain "bird baths" or pond water and shall be smooth and ridge free.

D. Conform the finish grade at top of curb, flow line of gutter, and the finish cross section of concrete improvements to the design grades and cross sections.

E. Variation of concrete improvements from design grade and cross section as shown or called for on the plans shall not exceed the tolerances established in Sections 73-1.05 and/or 73-1.06 of the Caltrans Standard Specifications.

3.15 RESTORATION OF EXISTING IMPROVEMENTS

A. Replace in kind all pavement or other improvements removed or damaged due to the installation of concrete improvements.

B. Remove, landscaping or plantings damaged or disturbed due to the installation of concrete improvements. Replace in kind.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Measurement of curb, curbs and gutter, sidewalk, and ramps shall be as follows:

1. Curb and Curb and Gutter will be measured in linear feet.

2. Sidewalk will be measured in square feet.

3. Special concrete paving at median shall be measured per square foot.

4. Ramps will be measured per each unit.

   a. Detectable warning surface shall be measured per each unit.

4.2 PAYMENT

A. Contract unit price per individual item as measured in 4.1.A shall be as designated in the Engineer's Estimate.

END OF SECTION 03301

SECTION 03320

SITE CONCRETE

PART 1 - GENERAL

1.1 SCOPE:

A. Provide pedestrian concrete walks, landscape curbs, granite footings, and fence footings, complete and in place, as shown and specified. The work includes but is not limited to:

1. Final subgrade preparation and paving base
2. Concrete curbs, walks, paving, walls
4. Concrete footings forLandscape site furniture.

1.2 RELATED DOCUMENTS:

A. The General Conditions of the Contract, including General and Special Provisions and General Requirements apply to the work in this section.

B. Related Work:

1. Section 02300: Earthwork
2. Section 02230: Site Clearing
3. Section 02810: Irrigation
4. Section 02870: Site Furnishing

1.3 QUALITY ASSURANCE:

A. Materials and methods of construction shall comply with the following standards:

1. American Society of Testing and Materials, (ASTM).
2. American Concrete Institute, (ACI).
3. Alameda County Standard Specification
4. State Standard Specifications, California Department of Transportation.
5. American National Standards Institute, (ANSI).
6. Bay Area Air Quality Management District, Sandblasting Guidelines.

B. Maintain field records of time, date of placing, curing and removal of forms of concrete in each portion of work.

C. Samples:

1. Sample panel: Before ordering material for concrete, provide sample panel, minimum 4' x 4' of each color and finish, using specified materials. Show color, texture, pattern, edging, and joint treatments.

a. Provide sample panel of the three (3) specified colors for the stmped

concrete for the crosswalks andstreet median per plan LA1.0 for City to review and select the final color finish.

b. Where applicable, the approved sample panel may be a portion of the work and remain in place. Location as directed by the Landscap Architect. Contractor will be required to provide additional panels as necessary, until approved.

1.4 SUBMITTALS

A. Submit concrete mix designs to City. Obtain approval before placing concrete.

B. Product data:

1. Submit complete materials list of items proposed for the work. Identify materials source.

2. Submit admixture, curing compound, retarder, and accessory item product data, if used.

3. Submit material certificates for aggregates, reinforcing, and joint fillers.

C. Submit concrete deliverytickets. Show the following:

1. Batch number.
2. Mix by class or sack content with maximum size aggregate.
3. Admixtures.
4. Slump.
5. Time of loading at supplier's source.

D. Submit concrete test reports.

E. Submit stamped concrete pattern template.Obtain approval before the commencement of work.

1.5 GENERAL REQUIREMENTS

A. All concrete work shall be true to line and grade as indicated on the drawings.

B. Anchor plates, inserts and other items embedded in concrete shall be accurately secured so that they will not be displaced during placement of concrete.

C. Surface Tolerance: Finished paving surfaces shall not vary more than 1/4 in. measured with a 10 ft. metal straightedge, except at grade changes. No birdbaths or other surface irregularities will be permitted. Correct irregularities to the satisfaction of Architect.

D. The Architect will select a qualified testing laboratory to take samples for testing during the course of the work as considered necessary. Costs of such tests will be paid for by the Owner. Contractor shall cooperate in making tests and shall be responsible for notifying the designated laboratory in sufficient time to allow taking samples at time of pour.

E. Should tests show that concrete is below specified strength,Contractor shall remove all such concrete, as directed by Architect. Full cost of removal of low strength concrete, its replacement with concrete of proper specified strength and testing shall be borne by the Contractor.

1.6 DELIVERY, STORAGE AND HANDLING:

A. Work notification: Notify City PublicWorks at least 24 hours prior to installation of concrete.

B. Establish and maintain required lines and grade elevations. All concrete shall slope to drain with no ponding of water.

C. Do not install concrete work over wet, saturated, muddy, or frozen subgrade.

D. Do not install concrete when air temperature is below40 degrees F. Use of calcium chloride, salt, or any other admixture to prevent concrete from freezing is prohibited.

E. Protect adjacent work.

F. Provide temporary barricades and warning lights as required for protection of project work and public safety.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C150, Type 1, natural color, unless otherwise noted.

B. Aggregate: Provide ASTM C33 normal weight aggregates, 3/4" maximum size, clean, uncoated crushed stone or gravel coarse aggregate free of materials which cause staining or rust spots; fine aggregate shall be clean natural sand.

C. Water: Clean, fresh, and potable.

D. Concrete Admixtures and Color Additives: Standard color by Davis Colors or approved equal, as approved by the Landscape Architect.Color: Standard Gray.

E. Stamped Concrete Template andPattern for the crosswalksand street median: See plan for pattern. Contractor to submit shop drawings of the template for review and approval by Landscape Architect.

2.2 MIXES:

A. Provide Class A ready-mixed concrete. Batch mixing at site not acceptable.

2. For all Landscape site concrete: Use Portland Cement Concrete containing not

less than 564 pounds of Portland Cement per cubic yard, with a compressive strength of not less than 3000 p.s.i.Replace up to 20% of cementitous material with slag cementer fly Ash as provided by: Central Concrete 408293-6272.

B. Indicate water added to mix at job site on each delivery ticket. Show quantity of water added. Site water tempered mixes exceeding specified slump range will be rejected as not complying with specification requirements.

C. Color for pedestrian concrete paving– Per plan, see Sheet LA1.0.

D. Color for stamped concretefor crosswalks and street median– Per plan, see Sheet LA1.0.

2.3 ACCESSORIES:

A. Granular base: Class II Aggregate Base.

B. Forms: Wood or metal of sufficient strength to resist concrete placemenpressure and to maintain horizontal and vertical alignment during concrete placement. Provide forms straight, free of defects and distortion, and height equal to full depth of concrete work.

1. Provide 2" nominal thickness, surfaced plank wood forms forstraight sections. Use flexible metal, 1" lumber or plywood forms to form radius bends.

C. Joint Filler: ASTM D1751, pre-molded non-extruding asphalt-impregnated fiberboard, thickness indicated.

D. Curing compound: ASTM C309, non-yellowing, non-staining liquid membrane-forming type containing a fugitive dye. Chlorinated rubber compounds not acceptable for exterior use.

E. Joint Sealants: Two-components polysulfide or polyurethane elastromeric type complying with FS TT-S-00227, self-leveling, designed for foot traffic. Colors to match adjacent concrete paving.

F. Reinforcing steel: ASTM A615, A616, or A617, Grade 60, new domestic deformed steel bars.

G. Welded wire fabric: ASTM A185, welded plain cold-drawn steel wire fabric as indicated.

H. Form release agent: Non-staining chemical form release agent free of oils, waxes, and other materials harmful to concrete.

I. Provide all stirrups, ties, anchors, shown or required to be cast into precast members.

J. Glare Reducing Agents:

1. Lampblack in dry form, in accordance with the requirements of ASTM "Standard Specifications for Lampblack", Designation D 209, in the proportion of from 1/2 to 3/4 pound over cubic yard of concrete.

2. An approved liquid or semi-paste black colorant intended for use integally in concrete mixes. The proportion required, generally from 10 to 40 ounces liquid measure per cubic yard of concrete, may be affected by the colorant used. Curing in this case shall be by the pigmented curing compound method.

K. Bolts, Nuts, and Washers: ASTM A307. Provide hot-dip galvanized fasteners for exterior use. Paint to match adjacent metal work.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Examine sub-grades and installation conditions. Do not start concrete work until unsatisfactory conditions are corrected.

3.2 PREPARATION:

A. Proof roll the subgrade and do all necessary rolling and compacting to obtain firm, even subgrade surface. Fill and consolidate depressed areas. Remove uncompactable materials, replace with clean fill and compactto 90% of the maximum dry density in accordance with ASTM D1557-70.

B. Provide minimum 3" depth of compacted base material at walks. Compact base to 95% of the maximum dry density in accordance with ASTM D155770.

C. Remove loose material and debris from base surface before placing concrete.

D. Install, align, and level forms. Stake and brace forms in place. Maintain following grade and alignment tolerances:

1. Top of form: Maximum 1/8" in 10'-0".
2. Vertical face: Maximum ½" in 10'-0".

E. Coat form surfaces in contact with concrete with form release agent. Clean forms after each use and coat with form release agent as necessary to assure separation from concrete without damage.

F. Install, set, and build-in work furnished under other specificationsections. Provide adequate notification for installation of necessary items.

G. Install pipe sleeves for irrigation system furnished under Section 02810. Stake location of irrigation sleeves.

3.3 PLACING REINFORCEMENT:

A. Place all reinforcement as shown on the drawings. Place accurately and securely fasten and support reinforcement to prevent displacement before or during pouring. Hang footing bars from forms. Support wire mesh with suitable metal cradles or dobies.

B. Clean, bend and place reinforcement in accordance with current requirements of the ACI Manual of Concrete Practice.

C. Reinforcement Splices:
Welded wire fabric - one mesh minimum.
Reinforcing bars - 24 bar diameter minimum, except as otherwise noted.

3.4 INSTALLATION:

A. Concrete placement:

1. Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as specified.

2. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placing, and curing. In cold weather comply with ACI 306, "Recommended Practice for Cold Weather Concreting". In hot weather comply with ACI 305, "Recommended Practice for Hot Weather Concreting".

3. Moisten base to provide a uniform dampened condition at the time concrete is placed. Verify structures are at required finish elevation and alignment before placing concrete.

4. Place and spread concrete to the full depth of the forms. Use only square-end shovels or concrete rakes for hand-spreading and consolidating operations to prevent segregation of aggregate and dislocation of reinforcement.

5. Place concrete in a continuous operation between expansion joints. Provide construction joints where sections cannot be placed continuously.

6. Place concrete as indicated onthe plans in one course, monolith construction, for the full width and depth of concrete work.

7. Strike-off and bull-float concrete after consolidating. Level ridges and fill voids. Check surface with a 10'-0" straightedge. Fill depressions and refloat repaired areas. Darby the concrete surface to provide a smooth level surface ready for finishing.

B. Joints:

1. Provide expansion joints using pre-molded joint filler at concrete work abutting curbs, walls, structures, walks, and other fixed objects.

a. Locate expansion joints as indicated.

b. Install joint fillers full-width and depth of joint. Recess top edge below finish grade for joint sealants.

c. Provide joint fillers in single lengths for the full slab width, whenever possible. Fasten joint filler sections together when multiple lengths are required.

d. Protect the top edge of the joint filler during concrete placement.

e. Brooming. After the curing period, expansion joints shall be carefully cleaned and filled with approved joint sealantto just below adjacent paved surface in such a manner as to avoid spilling on paved surfaces or overflow from joint.

C. Finishes:

1. Medium Broom Finish: Shall be obtained by drawing a stiff bristled broom across a floated finish. Direction of broomingto be perpendicular to direction of work or otherwise shown on drawings.

2. Medium Sand Blast Finish:

a. Perform in as continuous an operation as possible, utilizing the same work crew to maintain continuity of finish.

b. Depth of Cut: Use an abrasivegrit of the proper type and gradation to expose the aggregate and surrounding matrix surfaces to match approved sample panel.

c. Blast corners and edge patterns carefully, using backup boards, in order to maintain a uniform corner or edge line.

d. Use same nozzle, nozzle pressure and blasting technique as used for sample panel.

e. Maintain control of abrasive grit and concrete dust in each area of blasting. Clean up an remove all expended abrasive grit, concrete dust, and debris at the end of each day of blasting operations.

3. L.M Scofield or approved equal impressed concrete– pattern per plan and detail, see Sheet LA1.0. The contractor shall ensure the stamped depth is ADA compliant and free of trip hazard.

a. Preparation work, including finishgrading, setting of forms and screeds, and furnishing and installing of reinforcing wire (or bar) shall be done by the general contractor.

b. The Contractor shall:

1) Provide materials, concrete, color hardener, wax, sealer, and special forming tools.

2) Place concrete.

3) Apply color hardener.

3) Apply patented forming tools.

5) Apply color wax curing membrane.

6) Apply final surface treatment.

D. Curing:

1. Cure concrete with a clear, non-staining liquid membrane-forming compound. Spray apply in accordance with manufacturer's recommended coverage rate. Apply curing compound immediately after completing surface finish.

3.5 TESTING:

A. Provide slump test on first load of concrete delivered each day and whenever requested due to changes in consistency or appearance of concrete.

3.7 PROTECTION:

A. Protect concrete work from damage due to construction and vehicular traffic until Final acceptance. Exclude construction and vehicular traffic from concrete pavements for at least 14 days.

B. Protection: Protect precast concrete items from chipping, spalling, cracking, or other damage until the Work is accepted by the Owner.

3.8 CLEANING & PATCHING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from concrete operations.

B. Sweep concrete sidewalks and pavement, wash free of stains, discoloration, dirt, and other foreign material immediately prior to final acceptance.

END OF SECTION 03320

SECTION 265619

ROADWAY LIGHTING SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Lighted Crosswalk Warning System

PART 2 PRODUCTS

2.1 Lighted Crosswalk Warning System

A. SC 320 Crosswalk Lighting System By Spot Devices

PART 3 EXECUTION

3.1 General Product Specification

A. This in-road warning light system shall consist of the Spot Devices RS320 in-road warning lights (IRWLs) and the Spot Devices SC320 controller, or written engineering approved equivalent prior to bid.

B. IRWLs shall be wired, bi-directional, low-profile, and self-clearing. The LED modules shall accommodate at least six LEDs with a minimum luminance of 2.5 million cd/m^2 per LED and a minimum total simultaneous light output potential unit of 12,000 candelas. The IRWL system shall be of a modular design, such that individual LED modules can be installed without the need for in-field wire termination, and can be replaced easily, with the removal of two security screws. Each LED module shall be permanently sealed and shall connect to the power and control cable using a wet-mateable, self-purging plug. The IRWLs shall be secured with security screws and washers constructed of cast stainless steel.

C. The system controller, which shall manage the activation and flash pattern of the IRWLs and the activation and content of the audible announcement, shall be capable of being configured via remote network. System server complex shall be housed in independent facility with 24/7 staffed security, system redundancy, and generator backup. Communication from system server to controller shall be by virtual private network (or VPN) for security purposes. The controller shall have multiple activation input channels, remote data and automatic outage reporting capabilities.

D. Remote network service and warranty shall be provided with the system for a minimum period of two years. Contact information: Spot Devices, (888) 520-0008 within the United States, (775) 353-8396 from any location, or via the internet at www.spotdevices.com.

3.2 In-Road Warning Lights (IRWLs)

A. Wiring Fixture

The power/signal cable shall not require any in-field terminations. Connections made between LED modules shall be hermetic. Connections made between the permanent anchor and the removable LED

modules shall be self-purging and wet-mateable, so that LED modules can be installed in rain and standing water.

B. Modular Design

The IRWL system shall be of a modular design, such that individual LED modules can be removed from the anchor and replaced by one person in less than five minutes, in rain or standing water. The replacement procedure should be as follows: (1) power the system down, (2) remove two security screws, (3) replace the plug-in LED module, (4) reinsert two security screws, and (5) power the system up.

C. Light source

The lights shall accommodate at least six LEDs, with a minimum luminance of 2.5 million cd/m^2 per LED and a minimum total simultaneous light output potential per IRWL of 12,000 candelas. The lights shall draw attention while pointing along the vector of oncoming traffic during bright sunshine at 500 feet. The LEDs shall be rated for 100,000 hours of use.

D. IRWL Control

The flash pattern, activation duration and/or activation schedule shall be determined by the system controller.

E. Sealing

The LED module part of the IRWL shall be completely sealed and immune to water intrusion.

F. Durability

The IRWL shall be able to withstand the impact of all road traffic, including trucks and buses at full load and at highway speeds, without failure.

G. IRWL Anchors

The LED modules shall be mounted to corrosion-proof, 1.7cm (3/4") thick, 3 lb aluminum anchors with vandal-resistant stainless steel security screws. This anchored mounting approach shall permit removal and replacement of the LED module without wiring or disassembling the LED module. Furthermore, threaded inserts used to mount the LED Module to the anchor shall be field replaceable.
The anchors shall be adhered to the roadway per the manufacturer's recommendations.

H. LED Module

The LED Module casing shall be constructed completely of stainless steel. The surface plate of the LED module shall be constructed of 1cm (3/8") thick cast stainless steel, with a 1.5 cm (5/8") thick cast stainless steel internal bridge.

The LED module will contain a wet-matable plug allowing it to quickly and easily connect to a corresponding connector in the anchor without the need for field termination or re-wiring.

I. Installation Depth

The device, including anchor and cables, shall not extend more than 3.5 inches into the pavement.

J. Self-Clearing Design

The lighting fixtures shall have a self-clearing design to prevent debris accumulation.

3.3 Controller

A. Enclosure Options

The controller unit shall be housed in either a NEMA 4X rated, pole mounted, 304 stainless steel cabinet; a NEMA 4X rated, 304 stainless steel enclosure within an extruded 3/4" thick aluminum bollard with a 3/4" thick polycarbonate faceplate; or a rack-mount enclosure that fits in an industry-standard 332 traffic control cabinet.

B. Power Option

The controller unit shall be available in AC-powered options. The operating electrical power for AC-powered controller systems shall be 120V.

C. Remote configuration Capable

All systems shall contain GPRS + GPS cell modems. With this option, system management shall be conducted via an internet-accessible secure server, which is in turn connected via Virtual Private Network (VPN).

In this configuration, the equipment shall provide accurate and secure system location and identification reporting, status monitoring, and proactive outage notification via the network. System configuration and schedule changes shall be able to be done via the network. Configuration options shall allow for IRWL custom flash patterns.

Local configuration and control is selectable after the warranty period has ended.

D. System Notification Capable

The system shall be able to automatically transmit system notifications and warnings via e-mail.

E. Remote Data Available

Data including but not limited to activation logs (time and date), administrator activity logs and system user's manual shall be accessible remotely via the network. Activation and administrator activity logs shall be downloadable and printable.

F. Multi-Activation output Capable

The controller shall be capable of activating up to four peripheral devices upon activation of the system.

G. Multi-Activation input Capable

The controller shall accept momentary or latched-contact closure inputs for activation purposes. It shall be able to distinguish at least two distinct input signals and associate them with different activation behaviors.

The remotely configurable controller shall be able to send an activation signal to other remotely configurable controllers. This activation signal shall be transmitted via a GPRS cellular modem over a VPN to a centralized server. The server shall respond by sending the activation signal to initiate the appropriate preconfigured flash duration and/or audible announcement on the appropriate endpoint controller.

H. Calendar Capable

The remote configuration controller shall be designed to support calendar-based activations.

3.4 Installation

Lighting fixtures shall be installed with a concrete saw, using a single plunge motion. Cabling shall use hermetically sealed connectors between fixtures and wet-matable connectors between anchors and lighting fixtures. Installation of lights in the roadway shall require no in-field wire terminations.

The system shall be installed to the recommended practices specifications of the manufacturer

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. The Lighted Crosswalk Warning System shall be measured at a per unit quantity.

4.2 PAYMENT

B. The Lighted Crosswalk Warning System shall be paid at a contract price per unit quantity.

END OF SECTION 265619

SECTION 03500 DUST CONTROL

Dust control shall conform to the provisions in Section 10, "Dust Control," of the Standard Specifications and these special provisions.

SECTION 03750 STREET SWEEPING

Street sweeping shall be conducted where sediment is tracked from the job site onto paved roads, as described in the approved Storm Water Pollution Prevention Plan (SWPPP) in accordance with "Water Pollution Control" of these special provisions, and as directed by the Engineer.

Street sweeping shall be one of the water pollution control practices for sediment control. The SWPPP shall include the use of street sweeping. Street sweeping shall be performed in accordance with Section 4, SC-7 in the Construction Site Best Management Practices Manual of the Caltrans Storm Water Quality Handbooks.

The number of street sweepers shall be as designated in the approved SWPPP. The Contractor shall maintain at least one sweeper on the job site at all times during the period that sweeping work is required. Sweepers shall be self-loading, motorized, and shall have spray nozzles. Sweepers may include a vacuum apparatus.

Street sweeping shall start at the beginning of clearing and grubbing and shall continue until completion of the project, or as directed by the Engineer. Street sweeping shall be performed immediately after soil disturbing activities occur or offsite tracking of material is observed. Street sweeping shall be performed so that dust is minimized. If dust generation is excessive or sediment pickup is ineffective as determined by the Engineer, the use of water or a vacuum will be required.

At the option of the Contractor, collected material may be temporarily stockpiled in accordance with the approved SWPPP. Collected material shall be disposed of at least once per week.

Material collected during street sweeping operations shall be disposed of in conformance with Section 7-1.13, "Disposal of Material Outside The Highway Right Of Way," of the Standard Specifications.

MEASUREMENT AND PAYMENT (SHALL BE PAID AS PART OF MOBOLIZATION ITEM #1)

CITY OF SARATOGA

GENERAL CONSTRUCTION SPECIFICATIONS

1. Construction work and operations shall conform to the prevailing State of California Standard Specifications 2006, supplemented by special provisions required by the City of Saratoga Engineer's Office. The performance and completion of all work must be to the satisfaction of the City Engineer.

2. Construction details shall be in accordance with provision of the current City of Saratoga Standard Details as appropriate. In the event of conflict, the matter shall be resolved by the City Engineer.

3. Contractor shall provide adequate dust control as required by the City Engineer.

4. Accurate verification as to size, location and depth of existing underground conduits or facilities shall be the individual contractors responsibility Plan locations are approximate and for general information only. Contractors shall contact utility companies for exact locations of utilities.

5. Concrete used for structural purposes shall be Class "A" (6 sack per c.y.) as specified in the State Standard Specifications. Concrete placed must develop a minimum strength factor of 2200 p.s.i. in a seven day period and 3000 p.s.i. in 28 days.

6. Portland Cement Concrete (P.C.C.) shall conform to Section 90 of the State of California Standard Specifications, May 2006 and shall be designated by class as follows:
7. Class A- 6 sack mix with a minimum compressive strength of 3000 p.s.i. at 28 days
8. Class B- 5 sack mix with a minimum compressive strength of 2500 p.s.i. at 28 days

9. All exposed concrete such as used in sidewalks, curb and gutters, etc., shall contain 1 pint of lampblack per cubic yard.

10. Asphalt concrete (A.C.) shall be Type B conforming to Section 39 of the State of California Standard Specifications, May 2006. Aggregate for asphaltic concrete shall be ½" maximum medium grade or as specifically approved by the City Engineer. Cross sections of A.C 4" or greater in thickness shall be placed in multiple lifts of not more than 4" thickness. ½" median, class B, Prime oil, SC70 Seal oil, SS1H.

11. Reinforced concrete pipe (R.C.P.) for storm drains shall conform to American Society for testing and Materials (A.S.T.M.) C76 and shall be Class II, III or Class IV as specified.

12. Street pavements shall be designed on the basis of the R-Value, Traffic Index method, as shown in the State of California, Division of Highway Planning Manual, Part 7. Minimum standard pavement sections are shown on Street Standard Drawings, No's. 16 to 21. These minimum standards may be used only where the design method does not require a thicker structural section.

13. Curb drop inlets on streets with a slope greater than 6% shall be designed for each particular location. Inlets on streets with a slope of 6% or less shall use the standard design shown on sheet 7 of the street standard drawings.

14. Weakened plane joints may be formed or saw cut but in any case must be to 1/3 of depth of the depth of the concrete section. Formed joints may be accomplished by inspection of a thin (1/4" or less in thickness) sheet of steel, plastic or other suitable material to the proper depth in work able concrete. This wedge should not be removed until the concrete has "set". The concrete on both sides of this wedge shall be finished with a ¼" radius edge.

15. Encroachment permits: Encroachment permits shall be secured from the Santa Clara County Flood Control and Water District in cases where needed. Encroachment permits shall be secured from Caltrans where needed.

16. Contractors or the Developer must notify the Public Works Department before beginning any of the activities listed below. Failure to do so may provide cause for rejection of the work done and the necessity for either; 1.) removing and redoing the work; 2.) special testing such as coring, etc. 3.) a long- term performance bond or 4.) all or any of the above. The critical stages include:

    a. Commencement of work
    b. Beginning cut or fill
    c. Completion of excavation and/or subgrade
    d. Placement of aggregate base rock
    e. Application of prime coat or track coat
    f. Placement of Portland cement concrete in any structure
    g. Placement of asphalt concrete or other roadway material
    h. Completion of any drainage structure
    i. Backfill of any trench
    j. Placement of any structure or roadway over a backfill trench
    k. Completion of a project

17. The city requires a minimum of 24 hours advance notice for general inspection, 48 hours for asphalt concrete construction.

18. The Contractor and/or his authorized representative must submit written request for final inspection and acceptance. Such requests shall be directed to the City of Saratoga Engineering Dept., 13777 Fruitvale Avenue, Saratoga.

19. Routes used by construction traffic to be approved by City Engineer.

20. Field Engineer: Contractors or their engineer shall designate or provide a Field Engineer to act as a liaison with the contractors, subcontract and the City with regard to construction activities. Name(s) and phone number(s) of the individual(s) designated as Field Engineer shall be provided to the City and to all contractors and subcontractors working on the job. All questions as to the meaning and intent of the plans should be taken to the Field Engineer.

Construction work and operations shall conform to the prevailing State of California Standard Specifications 2006, supplemented by special provisions required by the City of Saratoga Engineer's Office. The performance and completion of all work must be to the satisfaction of the City Engineer.

END OF SECTION: CITY OF SARATOGA DETAILS GENERAL CONSTRUCTION SPECIFICATIONS