ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	1	15

COUNTY OF SAN LUIS OBISPO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
DESIGN DIVISION

PLANS FOR THE
WATER DISTRIBUTION SYSTEM UPGRADES
COUNTY SERVICE AREA 10A
CAYUCOS, CA. CONTRACT No. 300383

To Be Supplemented By State Standard Plans Dated May, 2006

INDEX OF SHEETS

SHEET NO. 1 TITLE SHEET AND CONST. AREA SIGN PLAN
SHEET NO. 2 GENERAL CONSTRUCTION NOTES & LEGEND
SHEET NO. 3 WATERLINE PLAN & PROFILE – SHEARER AVE
SHEET NO. 4 WATERLINE PLAN & PROFILE – SHEARER AVE
SHEET NO. 5 WATERLINE PLAN & PROFILE – SHEARER AVE
SHEET NO. 6 WATERLINE PLAN & PROFILE – SHEARER AVE
SHEET NO. 7 WATERLINE PLAN & PROFILE – SHEARER AVE
SHEET NO. 8 WATERLINE PLAN & PROFILE – RICHARD AVE.
SHEET NO. 9 WATERLINE PLAN & PROFILE – STUART AVE.
SHEET NO. 10 CONNECTION DETAILS CD–1 – SHEARER AVE.
SHEET NO. 11 CONNECTION DETAILS CD–2 – SHEARER AVE.
SHEET NO. 12 CONNECTION DETAILS CD–3 – RICHARD AVE.
SHEET NO. 13 CONNECTION DETAILS CD–4 – STUART AVE.
SHEET NO. 14 STANDARD DETAILS
SHEET NO. 15 STANDARD DETAILS

APPROVED: April 10 ,20 13

Dave Flynn

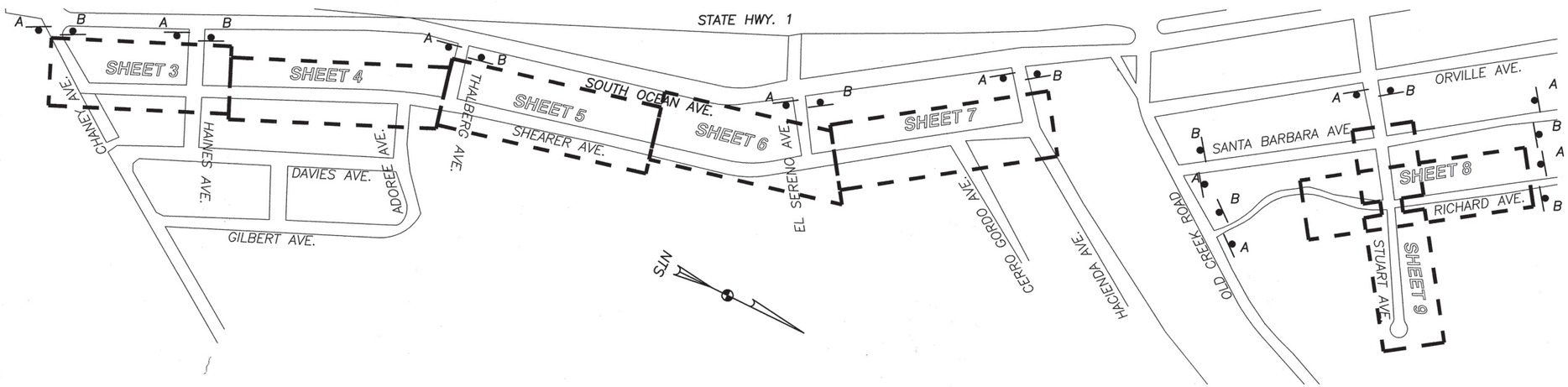
DEPUTY DIRECTOR OF PUBLIC WORKS
R.C.E. 43933 (Exp. 6/30/2013)

APPROVED: 4/10/2013 ,20

UTILITIES DIVISION MANAGER
R.C.E. 37892 (Exp. 3/31/2015)

LICENSE REQUIREMENTS

The successful bidder shall possess a Class A general engineering contractor's license at the time this contract is awarded. In the alternative, the successful bidder shall possess a specialty contractor's license at the time this contract is awarded that permits the successful bidder to perform with his or her own organization contract work amounting to not less than 30% of the original total contract price and to subcontract the remaining work in accordance with Section 8–1.01, "Subcontracting," of the Standard Specifications.



LOCATION MAP AND CONST. AREA SIGN PLAN

NO SCALE

LEGEND				
NO.	TYPE	SIZE	MESSAGE	QUANTITY
A	C18	36"x36"	"ROAD CONSTRUCTION AHEAD"	10
B	C13	36"X18"	"END ROAD WORK"	10

NOTES:

ALL SIGNS SHALL BE STATIONARY MOUNTED ON 4x4 WOOD POSTS, UNLESS NOTED OTHERWISE.

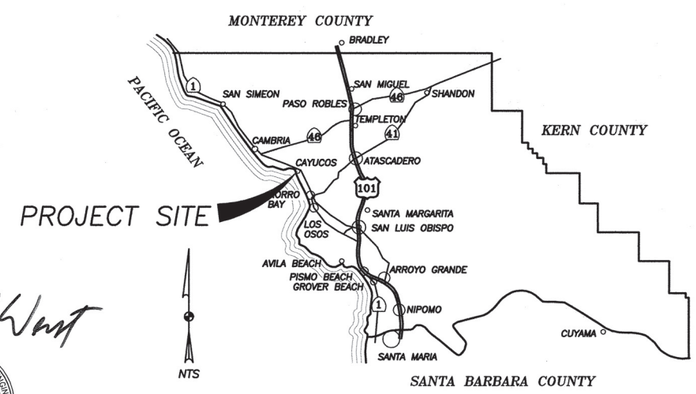
ALL CONSTRUCTION SIGNS SHALL BE PLACED APPROXIMATELY 4' OFF THE EDGE OF ROADWAY, THE EXACT LOCATION AND POSITION OF SIGNS SHALL BE DETERMINED BY THE ENGINEER.

UTILITY CONTACTS

COMPANY	CONTACT	PHONE NUMBER
CHARTER	ERIK EDEEN	(805)783–4950
PG&E	CLAIRE MASTIN	(805)546–3888
THE GAS COMPANY	VAGN PEDERSEN	(805)681–8048
AT&T	RALPH SOARES	(805)546–7315
WHALEROCK/CITY OF SLO	BOB HAMILTON	(805)995–3701

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
EXP 12–31–13
CIVIL
STATE OF CALIFORNIA

4/10/13



VICINITY MAP
No Scale

TITLE SHEET					
CSA10A WATERLINES					
CAYUCOS					
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell	JAN 2013	J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	2	15

GENERAL PIPELINE NOTES

1. THE CONTRACTOR SHALL VERIFY THE TYPE OF MATERIAL, THE EXACT OUTSIDE DIAMETER OF THE PIPE OR THE TYPE OF FITTING OR GATE VALVE AND SHALL HAVE ON HAND THE CORRECT SIZE OF COUPLINGS OR ADAPTERS TO CONNECT THE EXISTING MAIN OR SERVICES TO THE NEW SYSTEM PRIOR TO CUTTING INTO THE EXISTING MAINS OR SERVICES.
2. THE CONTRACTOR SHALL NOT OPERATE A GATE VALVE OR ANY WATERWORKS APPURTENANCES WITHOUT THE PERMISSION OF THE ENGINEER.
3. MINIMUM COVER OVER TOP OF PIPELINE SHALL BE 36" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. APPLY LUBRICANT WHEN INSTALLING ALL PIPING BOLTS AND NUTS PER COUNTY SPECIAL PROVISIONS.
5. WRAP ALL BURIED VALVES AND DUCTILE IRON FITTINGS PER COUNTY SPECIAL PROVISIONS.
6. FLUSHING AND DISINFECTION SHALL CONFORM TO THE COUNTY SPECIAL PROVISIONS. PRESSURE TEST PER COUNTY SPECIAL PROVISIONS AFTER ALL WATER SERVICES, METERS, FIRE HYDRANTS, BLOW-OFF ASSEMBLIES, AIR-VACUUM RELIEF ASSEMBLIES, WATER SAMPLING STATION HAVE BEEN INSTALLED AND CONNECTED TO THE TEST SECTION OF THE MAIN WATERLINE. PURGE CHLORINATED OR CLEANSING WATER AWAY FROM THE CONSTRUCTION AREA. NEUTRALIZE THE CHLORINE RESIDUAL REMAINING IN THE WATER DURING DISCHARGE. THE DISPOSAL OF DECHLORINATED DISINFECTION WATER SHALL NOT BE PERMITTED IN CREEKS.
7. THRUST RESTRAINT DEVICES SHALL BE PLACED AT ALL BENDS OF 22-1/2° OR MORE, BEHIND EACH TEE AND CROSS, ON FIRE HYDRANT BURYS, BEHIND EACH PLUG OR CAP, AND ON ALL REDUCERS. THRUST RESTRAINT DEVICES SHALL BE CONCRETE THRUST BLOCK UNLESS OTHERWISE APPROVED FOR A SPECIFIC LOCATION BY THE ENGINEER IN ADVANCE.
8. UNLESS NOTED OTHERWISE, EXISTING WATERLINES REPLACED UNDER THIS CONTRACT SHALL BE ABANDONED IN PLACE. THE ENDS OF THE ABANDONED WATERLINES SHALL BE CAPPED AND PLUGGED WITH CONCRETE.

GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL NOTIFY RESIDENTS 72 HOURS PRIOR TO INTERRUPTION OF SERVICE. WATER SERVICE SHALL NOT BE OUT OF SERVICE MORE THAN 8 TOTAL HOURS AND NEVER BEFORE 9 AM OR AFTER 5 PM.
2. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO THE ENGINEER PRIOR TO CUTTING INTO ANY EXISTING WATERLINE OR INSTALLING A HOT-TAP CONNECTION.
3. RESTORE ALL PAVEMENT, CONCRETE, ASPHALT, GRAVEL, AND DRIVEWAY SURFACES REMOVED OR DAMAGED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED ON THE PLANS.
4. INSTALL AND MAINTAIN EROSION CONTROL MEASURES DURING CONSTRUCTION.
5. THE ACTUAL LOCATION AND DEPTH OF EXISTING UTILITIES IS UNKNOWN. LATERALS ARE NOT SHOWN IN THE PROFILE VIEWS. APPROXIMATE LOCATIONS OF EXISTING UTILITIES SHOWN IN THE PLAN AND PROFILE VIEWS ARE INTENDED TO DIRECT THE CONTRACTOR'S ATTENTION TO POTENTIAL CONFLICTS.

TRAFFIC CONTROL SYSTEM NOTES

TRAFFIC CONTROL AND CONSTRUCTION AREAS SIGNS SHALL CONFORM TO CALTRANS DWG T13 AND THE FOLLOWING:

1. MAINTAIN A MINIMUM OF ONE 10-FOOT WIDE LANE FOR PUBLIC TRAFFIC.
2. FOR DETOURS, USE CA MUTCD TA-20.
3. FOR STEEL PLATE BRIDGING OVER TRENCHES, USE A "ROUGH ROAD" SIGN W33. STEEL PLATE BRIDGING OVER TRENCHES SHALL CONFORM TO COUNTY SPECIAL PROVISIONS REGARDING MAINTAINING TRAFFIC.

LEGEND

- EXIST. SAN. SEWER
- SAN. SEWER CLEAN OUT
- SAN. SEWER MH
- EXISTING WATERLINE
- EXISTING WATER VALVE
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- PROPOSED WATERLINE
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED BO OR ARV
- PROPOSED REDUCER
- PROPOSED BEND
- PROPOSED SERVICE TO EXIST. WM
- PROPOSED 1" SERVICE TO TWO WM'S
- ATT CABLE
- GAS PIPELINE
- PGE CABLE
- TV CABLE
- FENCE
- RIGHT OF WAY
- EXIST. EDGE OF PAVEMENT

ABBREVIATIONS

AC	ASBESTOS CEMENT
ACP	ASBESTOS CEMENT PIPE
ATT	PHONE/ CABLE UTILITY
ARV	AIR VACUUM VALVE
BELL MH	PACIFIC BELL UTILITY MANHOLE
BO	BLOW-OFF VALVE
BV	BALL VALVE
DI	DUCTILE IRON
DR	DIMENSION RATIO
EX	EXISTING
FH	FIRE HYDRANT
FL	FLANGE
GAS	GAS UTILITY
GV	GATE VALVE
LF	LINEAR FEET
JP	JOINT POLE
MJ	MECHANICAL JOINT
PE	POLYETHYLENE PLASTIC PIPE
PP	POWER POLE
PGE	PACIFIC GAS & ELECTRIC UTILITY
PVC	POLYVINYL CHLORIDE
R/W	RIGHT-OF-WAY
REQ'D	REQUIRED
RIS	REMAIN IN SERVICE
SCHD	SCHEDULE
TBA	TO BE ABANDONED
TOP	TOP OF PIPE
UG	UNDERGROUND
W	WATER UTILITY
WM	WATER METER
WSS	WATER SAMPLING STATION
WV	WATER VALVE

BENCHMARK

THE FOUND AERIAL TARGET AT102 (POINT NO.136) HAVING AN ELEV. OF 65.29 FT.
NAVD 88 DATUM
PER CONTROL DATA PROVIDED BY GOLDEN STATE AERIAL SURVEYS

BASIS OF BEARINGS

BEING THE CALCULATED LINE BETWEEN FOUND AERIAL TARGETS AT102 (POINT NO. 136) AND AT103 (POINT NO.2103) BEING N 27°22'03" W PER CONTROL DATA PROVIDED BY GOLDEN STATE AERIAL SURVEYS

FOUND MONUMENTS AND SURVEY CONTROL POINTS

SHEARER AVE. CONST. CL

Pt Num	Station	Offset	Elevation	Raw Desc	Northing	Easting
136	10+23.29	18.38	65.29	FDAT102 4CP136	2352177.6460	5704699.4180
135	13+00.68	15.21	75.07	SETMNT4CP135	2352430.6431	5704585.6518
36	13+23.62	0.00	74.32	FD 1.5 IP per 25LS2	2352445.5934	5704562.5417
134	18+82.94	-2.54	111.24	SETMNT4CP134	2352959.2146	5704340.8146
133	20+00.24	-12.85	95.02	SETMNT4CP133	2353070.6876	5704301.7988
132	24+97.89	7.24	95.56	FDMNT4CP132	2353559.7921	5704207.7934
35	26+35.15	-0.07	97.93	FDNALTAGLS8006	2353691.7598	5704169.3537
34	26+75.14	-0.07	100.1	FDNALTAGLS8006	2353730.6916	5704160.2295
31	27+53.86	0.00	104.22	FDPCAPNO	2353807.3488	5704142.3353
33	27+74.41	25.00	111.42	FDPCAPLS8759	2353833.9130	5704161.3586
131	27+85.68	-15.38	103.78	SETMNT4CP131	2353833.6862	5704119.4059
32	28+12.89	24.83	110.56	FDNAIL&TAG	2353872.2876	5704149.0602
130	30+19.85	-9.98	90.91	SETMNT4CP130	2354037.5342	5704015.5589
1481	30+29.89	25.00	92.69	FD0.75IPWTAGNO	2354065.6352	5704038.6761
1445	30+66.21	-0.04	88.15	FDSRVYSPK5702	2354081.3538	5703997.4553
1446	32+31.64	-24.94	82.52	FDPCAPLS5702	2354203.5046	5703883.1500
127	33+72.15	10.70	80.29	SETMNT4CP127	2354339.4561	5703832.8450
129	34+46.59	-0.03	72.29	FDSPK4CP129	2354394.6907	5703781.7955

RICHARD AVE. CONST CL

Pt Num	Station	Offset	Elevation	Raw Desc	Northing	Easting
30	4+05.20	24.06	92.86	FD.75IPWNAIL	2355396.7959	5703487.7587
2	7+27.92	-24.64	105.53	FDPCAPLS5702	2355669.7228	5703334.1334
3	7+94.21	24.91	125.69	FDRBAR	2355752.4284	5703337.3707
4	8+44.40	25.06	130.3	FDPCAPLS7318LNS	2355793.8521	5703309.0359
5	9+44.49	25.18	138.92	FD1INIPLS3877	2355876.3708	5703252.3851

STUART AVE. CONST CL

Pt Num	Station	Offset	Elevation	Raw Desc	Northing	Easting
29	13+01.66	25.47	170.34	FD.5INRBAR	2355716.2497	5703691.2323

OTHER CONTROL BEYOND CONST. CL'S

Pt Num	Station	Offset	Elevation	Raw Desc	Northing	Easting
115	-	-	61.55	SETMAGNTIN4CP115	2356350.3407	5702439.6256
117	-	-	52.84	FDLS38774CP117	2355962.8198	5702701.7508
120	-	-	105.03	FDSETPKWSHRCP120	2355579.8068	5703418.8650
121	-	-	169.98	SETMNT4CP121	2355744.5541	5703659.5301
122	-	-	81.08	SETMAGTIN4CP122	2355300.7640	5703524.1653
123	-	-	50.18	SETMAGTIN4CP123	2355176.3902	5703751.7531
124	-	-	36.44	FSMAGNTIN4CP124	2354701.1118	5703317.0821
125	-	-	50.21	FDSETMT4CP123	2355176.3962	5703751.6500
128	-	-	40.45	FDSPK4CP128	2354571.5453	5703660.0249
2103	-	-	63.18	AT103	2356548.6340	5702436.8700

REGISTERED PROFESSIONAL ENGINEER JEFF B. WERST C 47971 EXP 12-31-13 CIVIL STATE OF CALIFORNIA

4/10/13

CSA10 WATERLINES

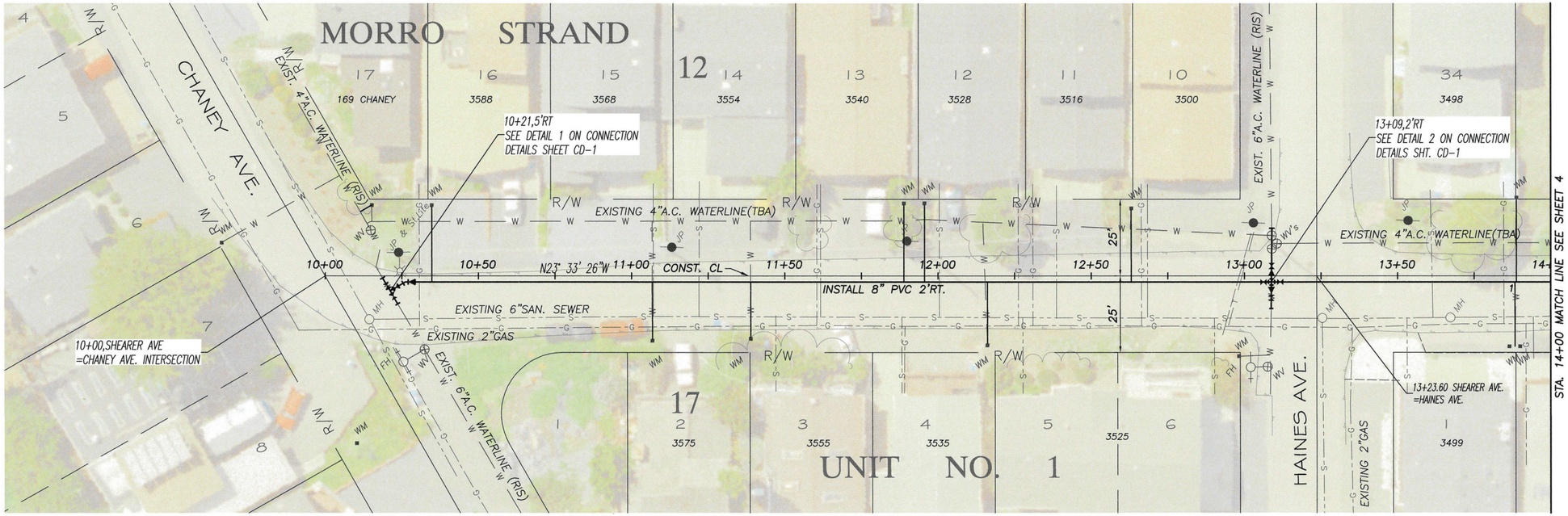
GENERAL CONST. NOTES AND LEGEND

CAYUCOS

Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell	JAN. 2013	J. WERST	JAN. 2013

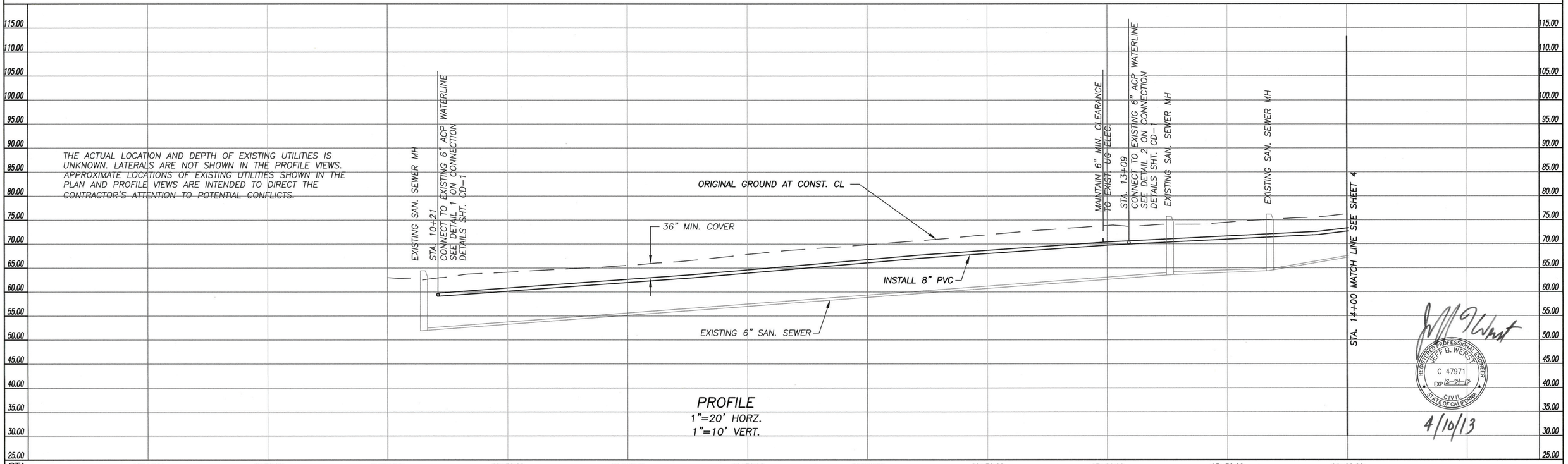
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
4218	300383	3	15



SCALE: 1 Inch = 20 Feet

0 20 40 60 80



REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

CU YDS	EXC	EMB

Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA 10A WATERLINE, SHEARER AVE. CAYUCOS
PLAN AND PROFILE STA. 10+00 TO 14+00

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
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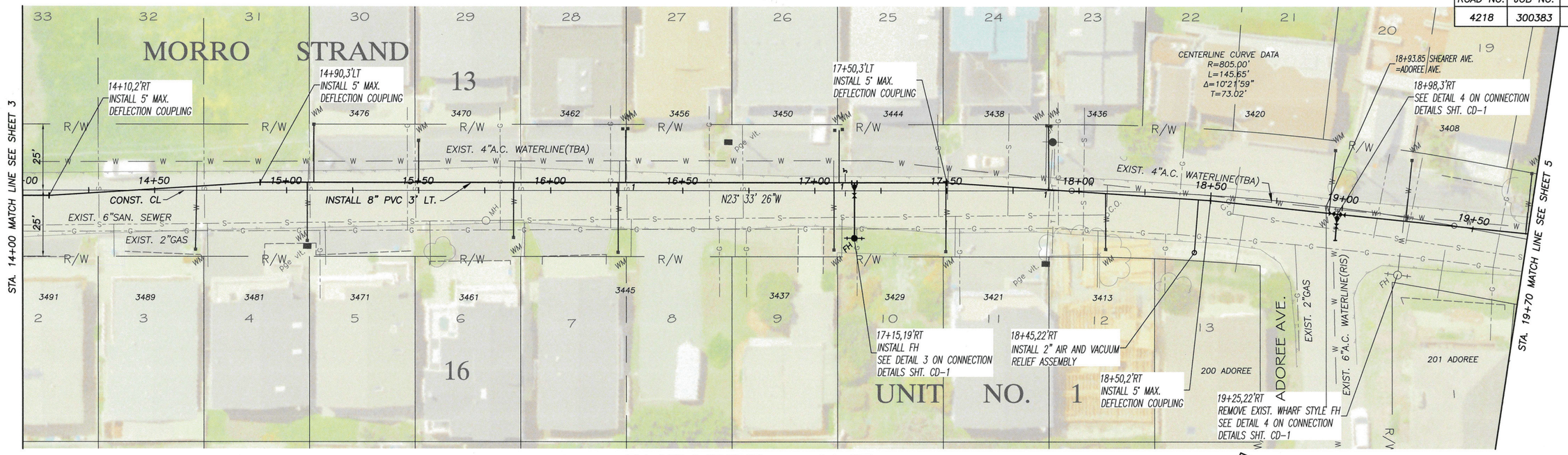

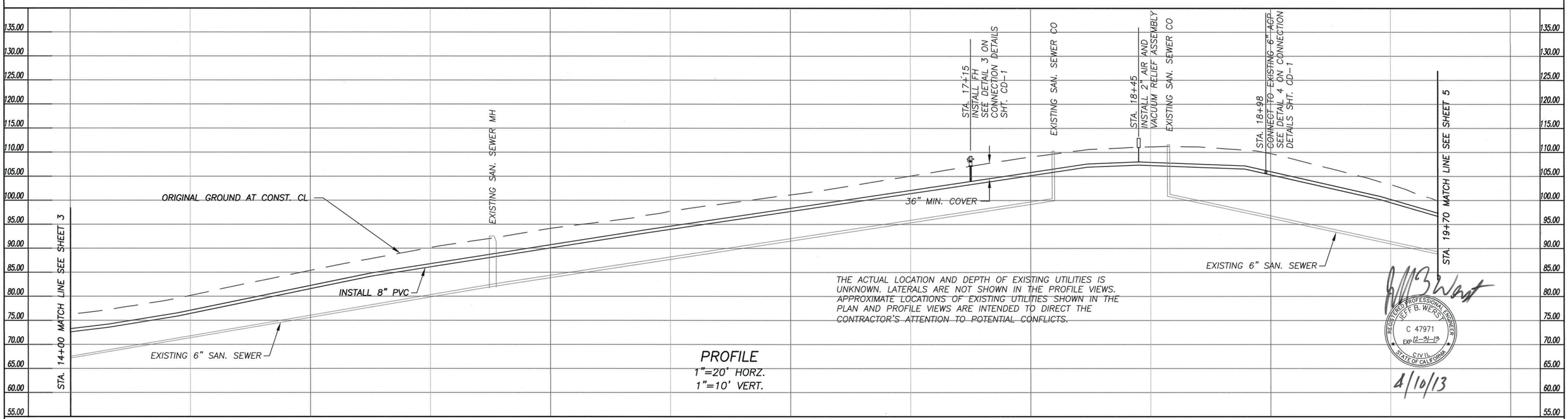

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
Exp 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA 10A WATERLINE, SHEARER AVE. CAYUCOS
PLAN AND PROFILE STA. 14+00 TO 19+70

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
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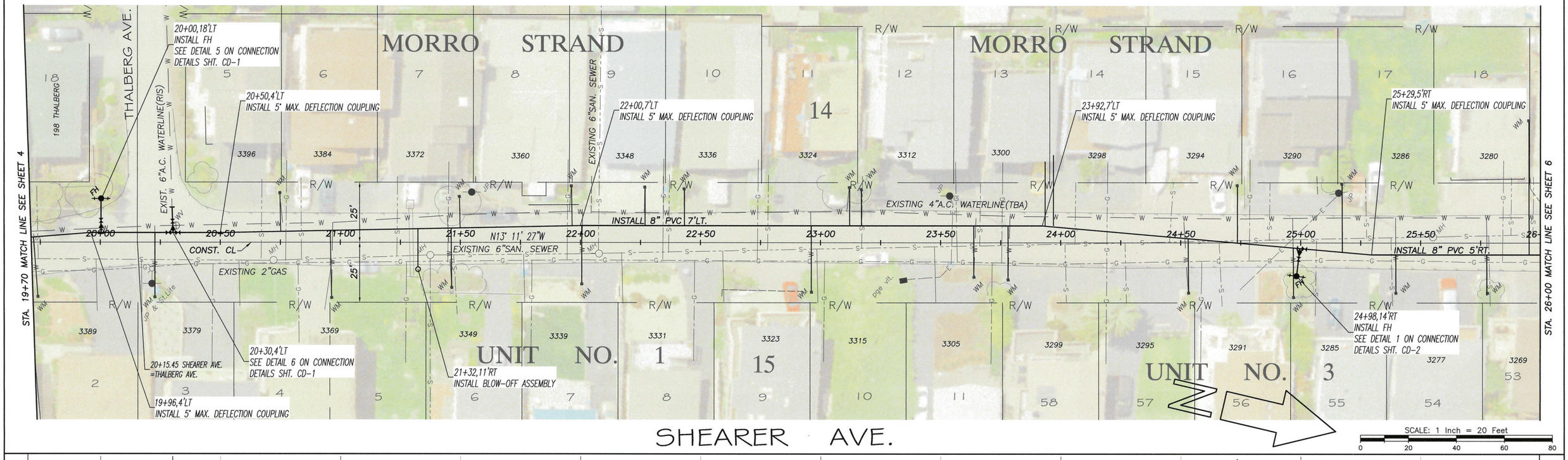
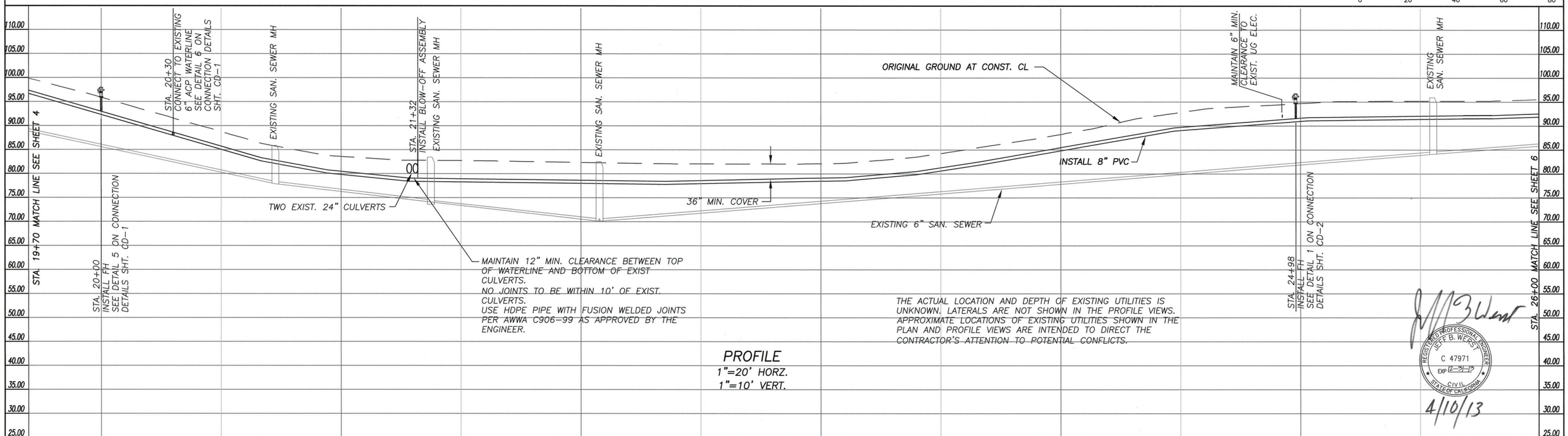




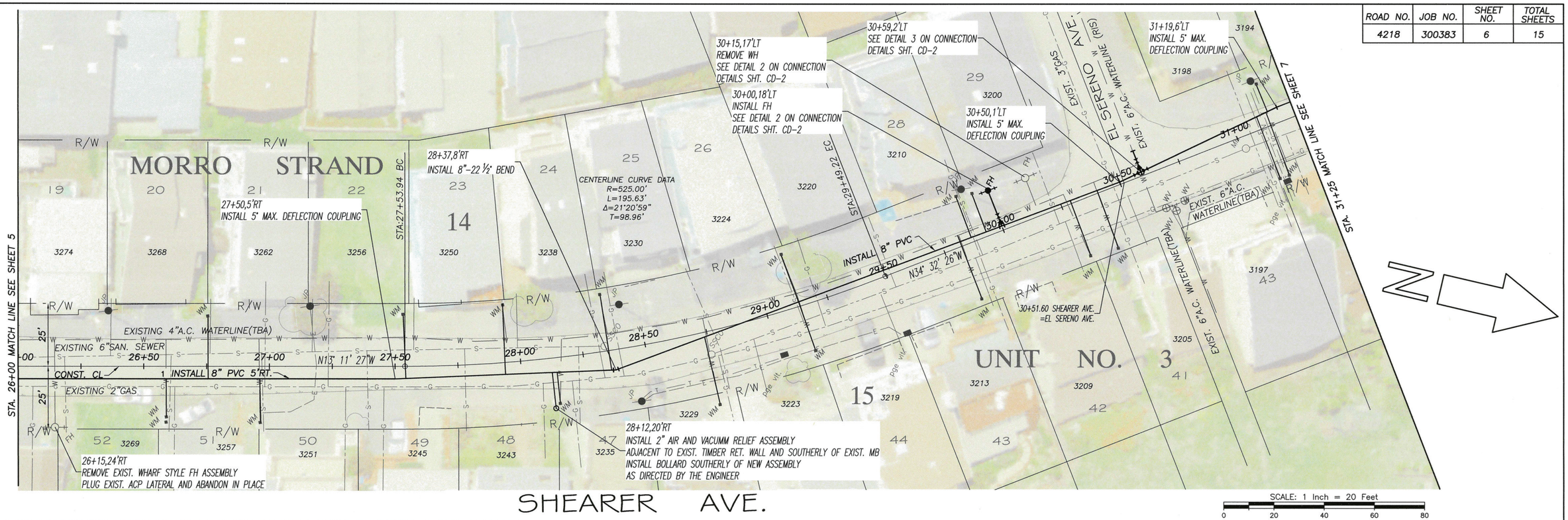
REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
Exp 12-31-13
CIVIL
STATE OF CALIFORNIA
4/10/13

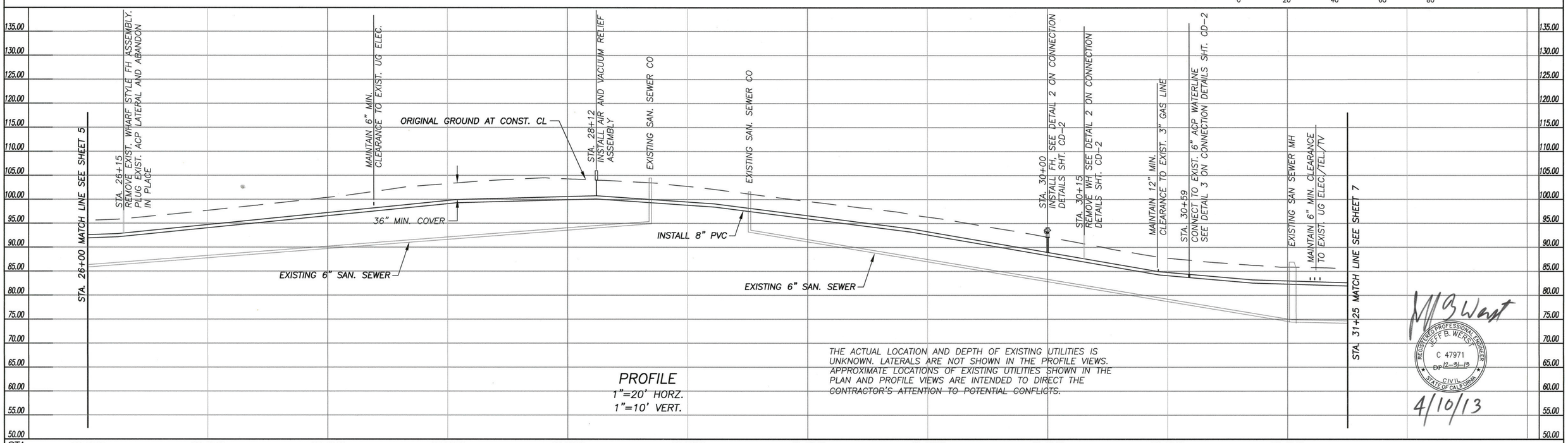
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA 10A WATERLINE, SHEARER AVE. CAYUCOS
PLAN AND PROFILE STA. 19+70 TO 26+00

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
4218	300383	6	15





PROFILE
1"=20' HORZ.
1"=10' VERT.

THE ACTUAL LOCATION AND DEPTH OF EXISTING UTILITIES IS UNKNOWN. LATERALS ARE NOT SHOWN IN THE PROFILE VIEWS. APPROXIMATE LOCATIONS OF EXISTING UTILITIES SHOWN IN THE PLAN AND PROFILE VIEWS ARE INTENDED TO DIRECT THE CONTRACTOR'S ATTENTION TO POTENTIAL CONFLICTS.

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

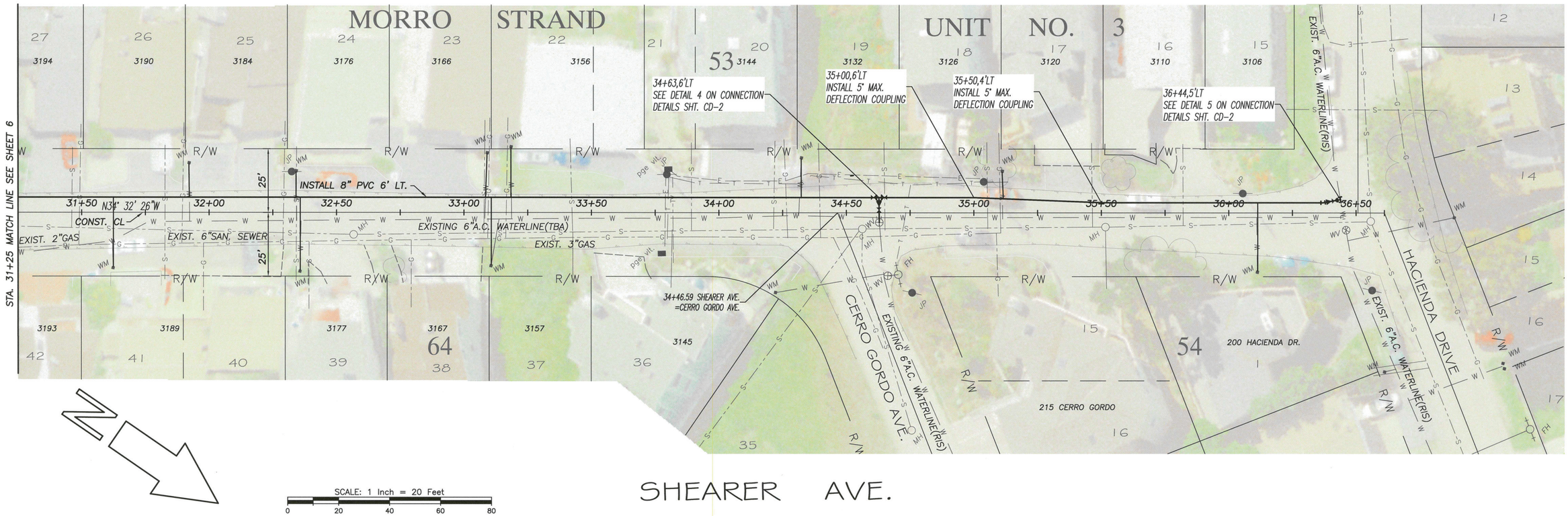
CU	EXC
YDS	EMB

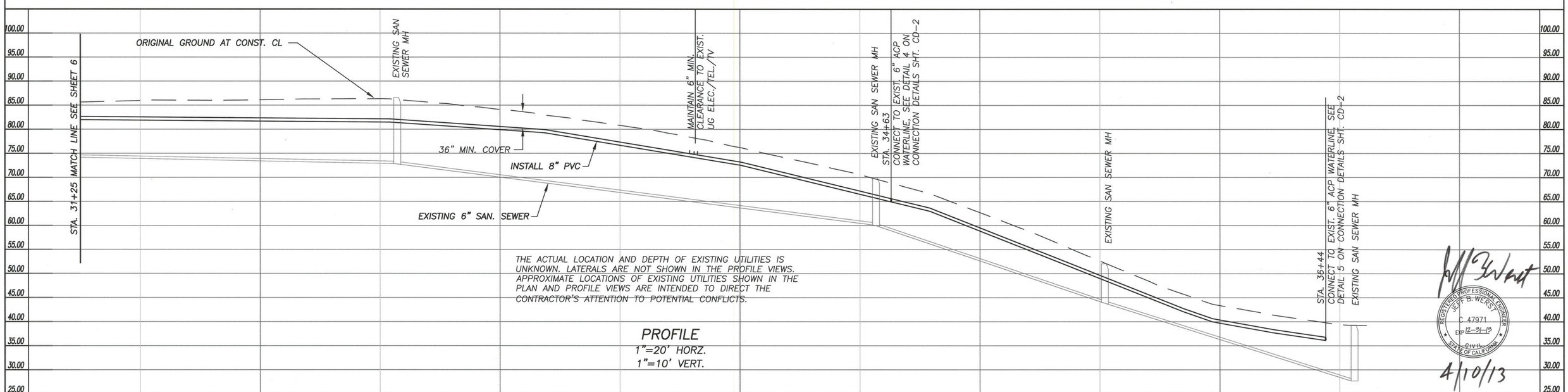
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA 10A WATERLINE, SHEARER AVE. CAYUCOS
PLAN AND PROFILE STA. 26+00 TO 31+25

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
4218	300383	7	15





REGISTERED PROFESSIONAL ENGINEER JEFF B. WERST C 47971 Exp 12-31-13 CIVIL STATE OF CALIFORNIA

4/10/13

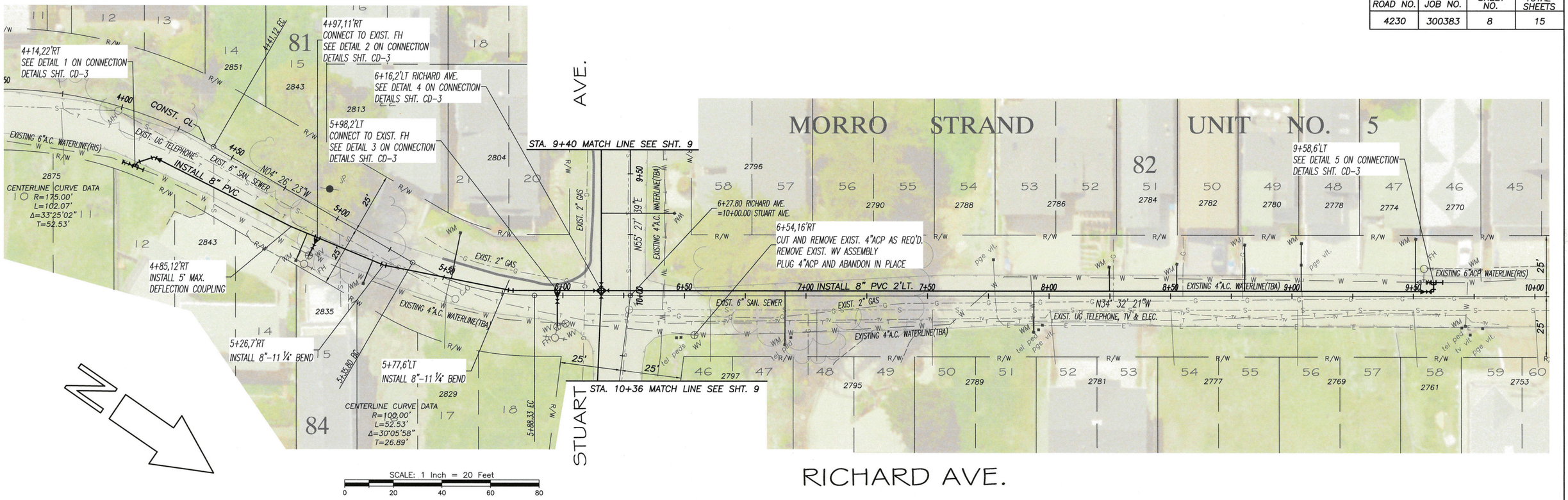
CU	EXC
YDS	EMB

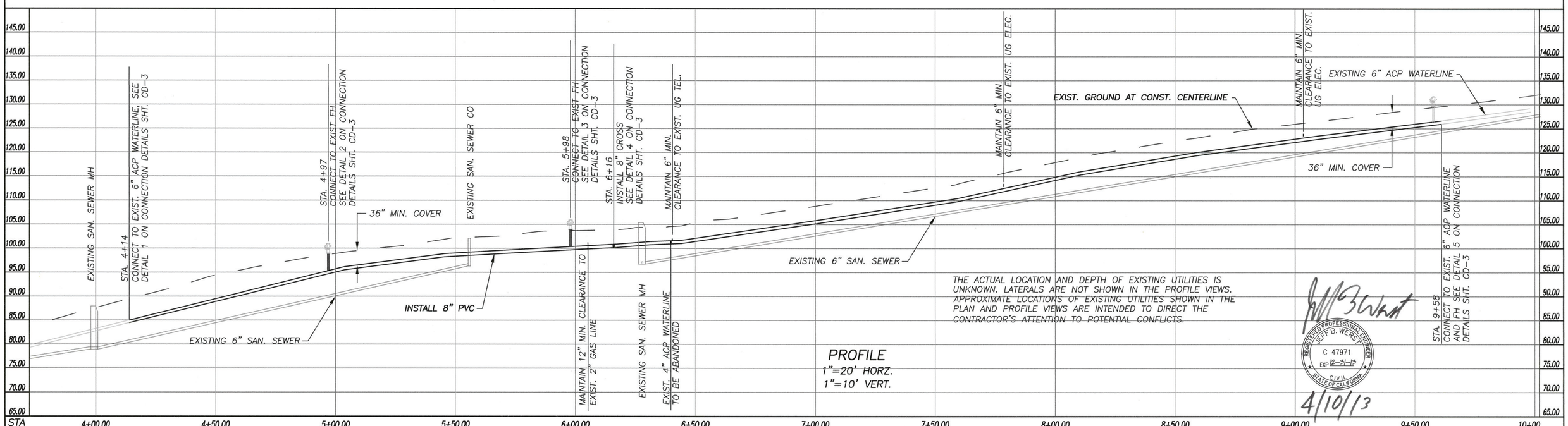
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA 10A WATERLINE, CAYUCOS
PLAN AND PROFILE STA. 31+25 TO 36+50

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
4230	300383	8	15





THE ACTUAL LOCATION AND DEPTH OF EXISTING UTILITIES IS UNKNOWN. LATERALS ARE NOT SHOWN IN THE PROFILE VIEWS. APPROXIMATE LOCATIONS OF EXISTING UTILITIES SHOWN IN THE PLAN AND PROFILE VIEWS ARE INTENDED TO DIRECT THE CONTRACTOR'S ATTENTION TO POTENTIAL CONFLICTS.

PROFILE
1"=20' HORZ.
1"=10' VERT.

REGISTERED PROFESSIONAL ENGINEER JEFF B. WERST C 47971 EXP 12-31-13 CIVIL STATE OF CALIFORNIA

4/10/13

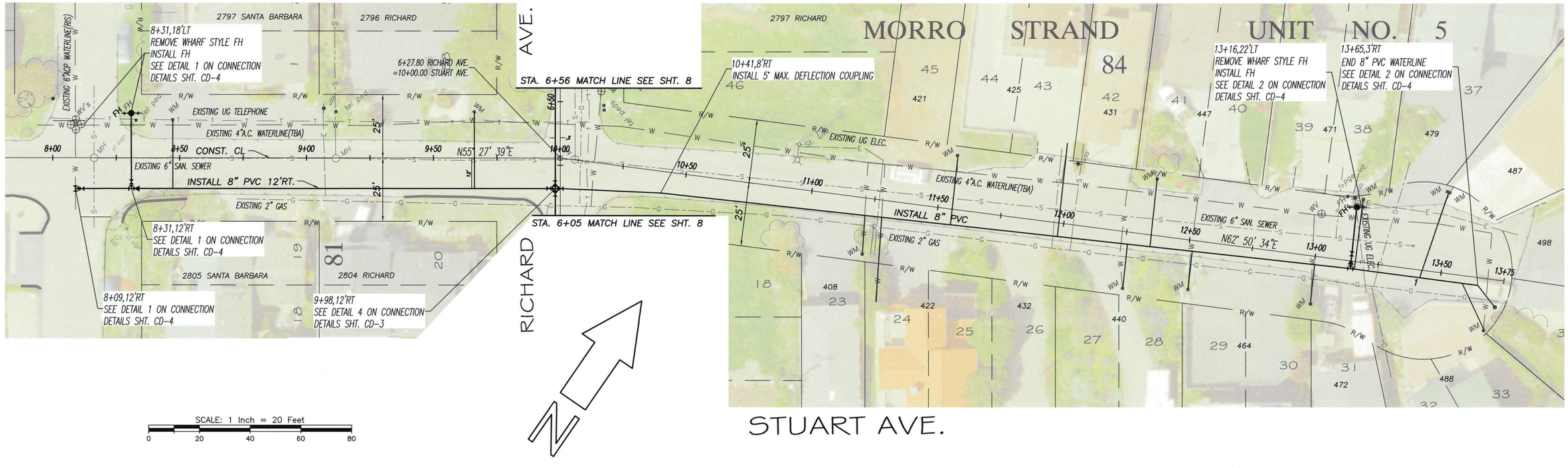
CU YDS	EXC EMB

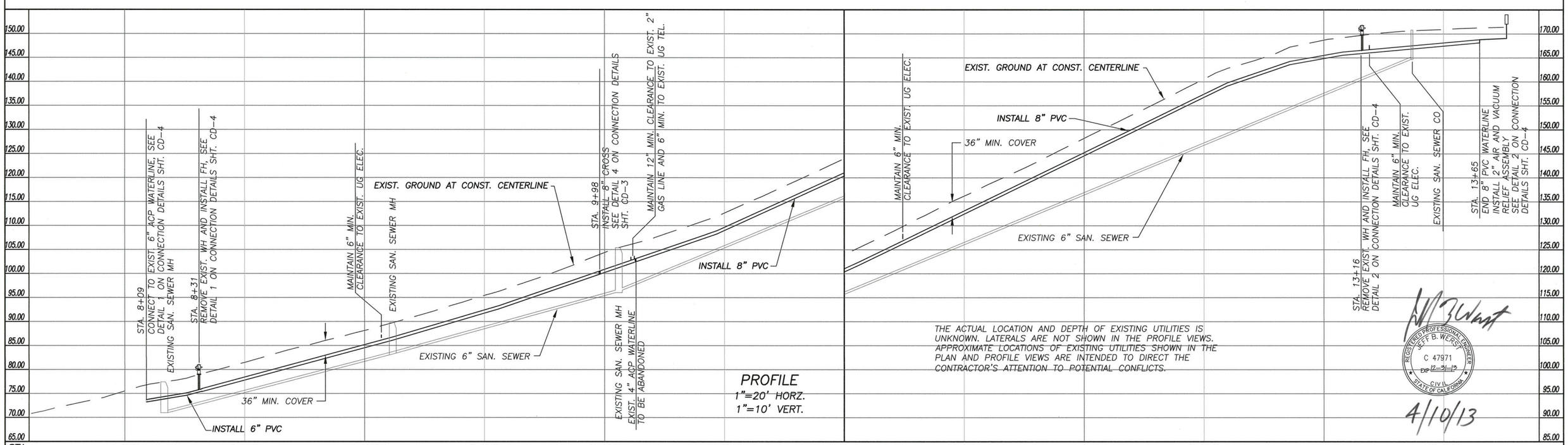
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA10A WATERLINE, RICHARD AVE. CAYUCOS
PLAN AND PROFILE

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
4232	300380	9	15





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JEFF B. WERST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

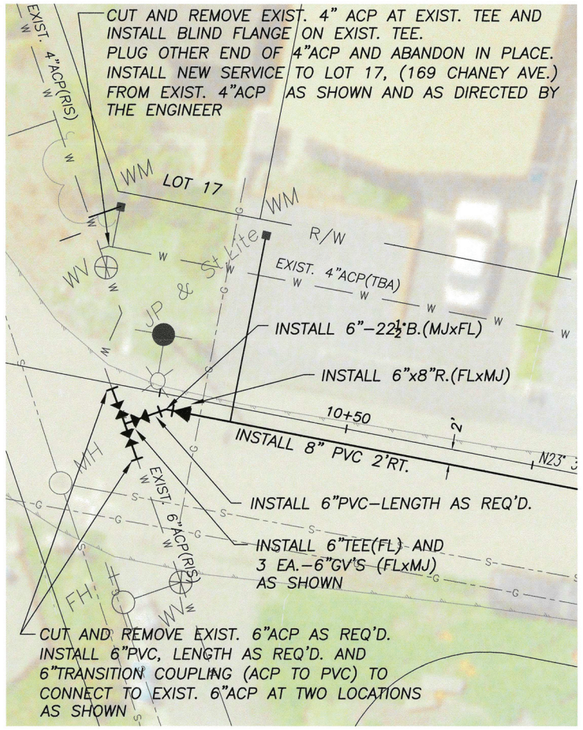
CU	EXC
YDS	EMB

Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell		J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA10A WATERLINE, STUART AVE. CAYUCOS
PLAN AND PROFILE

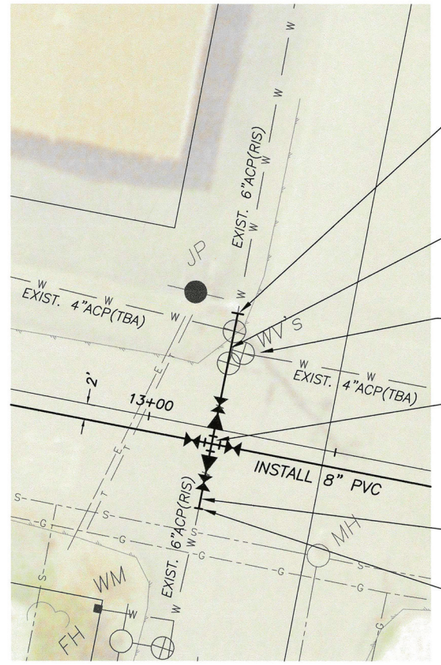
ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	10	15



1 SHEARER AVE. AT CHANEY AVE.

1"=10'

0 10' 20'



STA. 13+09, 15'LT.
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
INSTALL 6" TRANSITION COUPLING(ACP TO PVC) AND CONNECT TO EXIST.

INSTALL 6" PVC-LENGTH AS REQ'D.

CUT AND REMOVE EXIST. 4"ACP EA. WAY AS REQ'D.
REMOVE 3 EA.-GATE VALVE ASSEMBLIES
PLUG 4"ACP ENDS AND ABANDON IN PLACE

STA. 13+09, 2'RT.
INSTALL 8"CROSS(FL)
2 EA.-8"GV(FLxMJ) ON NEW MAINLINE AND
2 EA.-6"x8"R.(FL) WITH
2 EA.-6"GV(FLxMJ) TO CONNECT TO EXIST.
AS SHOWN

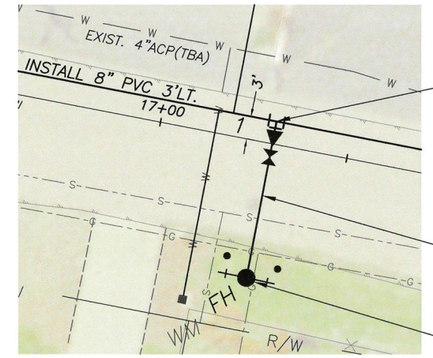
INSTALL 6" PVC-LENGTH AS REQ'D.

STA. 13+09, 11'RT.
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
INSTALL 6" TRANSITION COUPLING (ACP TO PVC) AND CONNECT TO EXIST.

2 SHEARER AVE. AT HAINES AVE.

1"=10'

0 10' 20'



STA. 17+15. 3'LT.
INSTALL 8"TEE(MJxMJxFL) 8"x6"R.(FL) AND 6"GV(FLxMJ)

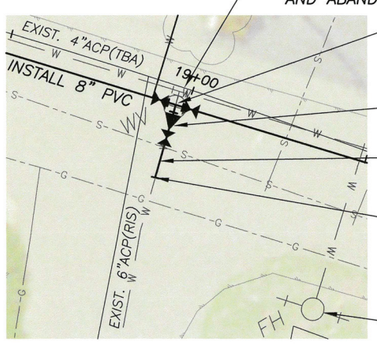
INSTALL 6"PVC LENGTH AS REQ'D.

STA. 17+15.18'RT.
INSTALL FH AND INSTALL 2 EA. BOLLARDS AS SHOWN AND AS DIRECTED BY THE ENGINEER.
PROTECT EXIST. GAS AND SEWER LATERALS IN PLACE

3 SHEARER AVE. FIRE HYDRANT STA 17+15

1"=10'

0 10' 20'



CUT AND REMOVE EXIST. 4"ACP AS REQ'D.
REMOVE EXIST. GATE VALVE ASSEMBLY AND PLUG TEE OR INSTALL BLIND FLANGE AND ABANDON IN PLACE

STA. 18+98, 2.5'RT.
INSTALL 8"TEE(FL) AND
2 EA.-8"GV(FLxMJ) AS SHOWN

INSTALL 8"x6"R.(FL) AND 6"GV(FLxMJ)

INSTALL 6"PVC LENGTH AS REQ'D.

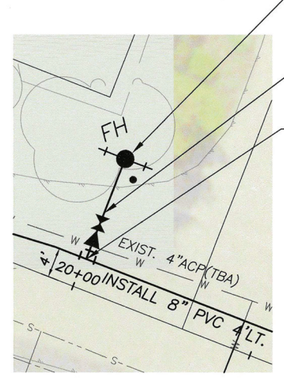
STA. 18+98, 13'RT.
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
INSTALL 6" TRANSITION COUPLING (ACP TO PVC) AND CONNECT TO EXIST.

STA. 19+25, 22'RT.
REMOVE EXIST. WHARF STYLE FH ASSEMBLY
PLUG EXIST. ACP LATERAL AND ABANDON IN PLACE

4 SHEARER AVE. AT ADOREE AVE.

1"=10'

0 10' 20'



STA. 20+00, 18'LT.
INSTALL FH AND BOLLARD AS SHOWN AND AS DIRECTED BY THE ENGINEER.

INSTALL 6"PVC LENGTH AS REQ'D.

STA. 20+00, 4'LT.
INSTALL 8"TEE(MJxMJxFL) 8"x6"R.(FL) AND 6"GV(FLxMJ)

5 SHEARER AVE. FIRE HYDRANT STA. 20+00

1"=10'

0 10' 20'

STA. 20+31, 15'LT.
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
INSTALL 6" TRANSITION COUPLING (ACP TO PVC) AND CONNECT TO EXIST.

INSTALL 6"PVC LENGTH AS REQ'D.

CUT AND REMOVE EXIST. 4"ACP AS REQ'D.
REMOVE EXIST. GV ASSEMBLY AND PLUG 4"ACP ENDS AND ABANDON IN PLACE

INSTALL 8"x6"R.(FL) AND 6"GV(FLxMJ)

STA. 20+31, 4'LT.
INSTALL 8"TEE(FL) AND
2 EA.-8"GV(FLxMJ) AS SHOWN

6 SHEARER AVE. AT THALBERG AVE.

1"=10'

0 10' 20'

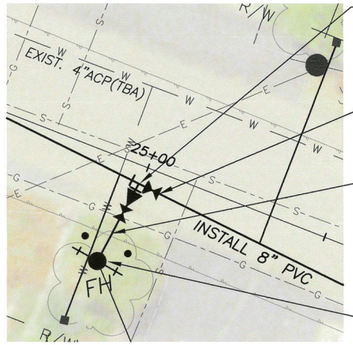
REGISTERED PROFESSIONAL ENGINEER JEFF B. WERST C 47971 EXP 12-31-13 CIVIL STATE OF CALIFORNIA

4/10/13

CSA10A WATERLINE					
CONNECTION DETAILS SHEET CD-1					
CAYUCOS, CA					
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell	JAN 2013	J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	11	15



STA. 25+00, 2.5'RT.
INSTALL 8"TEE(MJxFLxFL)
8"x6"R.(FL) AND
6"GV(FLxMJ)

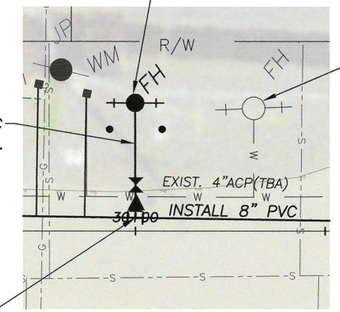
INSTALL 8"GV ON NEW MAINLINE

INSTALL 6"PVC
LENGTH AS REQ'D.

STA. 25+00, 14'RT.
INSTALL FH
AND INSTALL 2 EA. BOLLARDS AS
SHOWN AND AS DIRECTED BY THE
ENGINEER

1 SHEARER AVE. FIRE HYDRANT STA. 25+00

1"=10'
0 10' 20'



STA. 30+00, 18'LT.
INSTALL FH
AND INSTALL 2 EA. BOLLARDS AS SHOWN AND
AS DIRECTED BY THE ENGINEER

STA. 30+16, LT.
REMOVE EXIST. WHARF STYLE FH ASSEMBLY
AND BOLLARDS, PLUG EXIST. ACP LATERAL
AND ABANDON IN PLACE

INSTALL 6"PVC
LENGTH AS REQ'D.

STA. 30+00, 2'LT.
INSTALL 8"TEE(MJxMJxFL)
8"x6"R.(FL) AND
6"GV(FLxMJ)

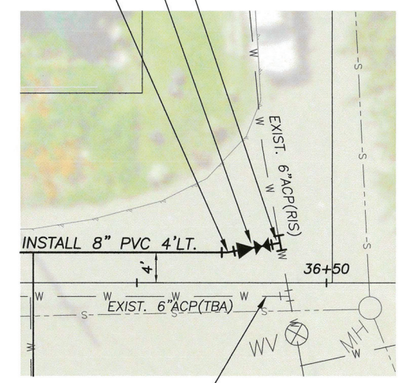
2 SHEARER AVE. FIRE HYDRANT STA. 30+00

1"=10'
0 10' 20'

STA. 36+44, 5'LT.
INSTALL 6" HOT TAP TEE(FL)
ON EXIST. 6"ACP

INSTALL 6"x8"R.(FL) AND
6"GV(FL)

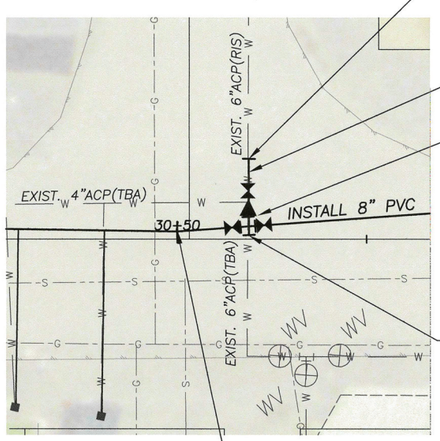
INSTALL 8"-11 1/4° BEND(MJxFL)



CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
PLUG 6"ACP AND ABANDON IN PLACE
INSTALL BLIND FLANGE ON EXIST. TEE

5 SHEARER AVE. AT HACIENDA DRIVE

1"=10'
0 10' 20'



STA. 30+59, 10'LT.
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
INSTALL 6" TRANSITION COUPLING (ACP TO PVC)
AND CONNECT TO EXIST.

INSTALL 6"PVC
LENGTH AS REQ'D.

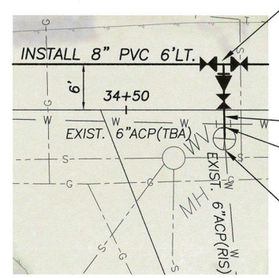
STA. 30+59, 2'LT.
INSTALL 8"CROSS(FL)
2 EA.-8"GV's(FLxMJ) ON NEW MAINLINE AND
6"x8"R.(FL) WITH
6"GV(FLxMJ) TO CONNECT TO EXIST.
AS SHOWN

STA. 30+59
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
PLUG END OF ACP AND ABANDON IN
PLACE
INSTALL BLIND FLANGE ON NEW 8" CROSS
FOR FUTURE USE

STA. 30+50, 1'LT.
INSTALL 5° MAX. DEFLECTION COUPLING

3 SHEARER AVE. AT EL SERENO AVE.

1"=10'
0 10' 20'



STA. 34+63, 6'LT.
INSTALL 8"TEE(FL)
2 EA.-8"GV(FLxMJ) ON NEW MAINLINE AND
8"x6"R.(FL) WITH
6"GV(FLxMJ) TO CONNECT TO EXIST.
AS SHOWN

INSTALL 6"PVC-LENGTH AS REQ'D.

CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
REMOVE EXIST. TEE AND GV ASSEMBLY
PLUG 6"ACP ENDS AND ABANDON IN PLACE

STA. 34+63, 5'RT.
CUT AND REMOVE EXIST. 6"ACP AS REQ'D.
INSTALL 6" TRANSITION COUPLING (ACP TO PVC)
AND CONNECT TO EXIST.

4 SHEARER AVE. AT CERRO GORDO

1"=10'
0 10' 20'

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

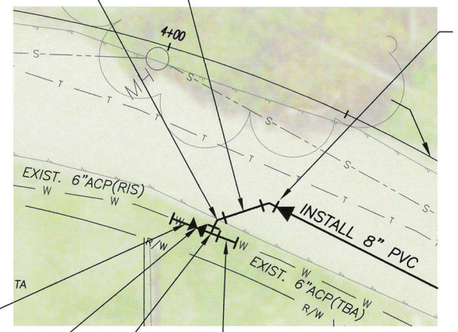
CSA10A WATERLINE					
CONNECTION DETAILS SHEET CD-2					
CAYUCOS, CA					
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell	JAN 2013	J. WERST	JAN. 2013

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	12	15

INSTALL 6"-45° BEND(FLxMJ)

INSTALL 6"PVC-LENGTH AS REQ'D.

INSTALL 6"-45° BEND(MJxFL) AND 6"x8"R.(FLxMJ)



CUT AND REMOVE EXIST. 6"ACP AS REQ'D. INSTALL 6"PVC-LENGTH AS REQ'D. AND 6"TRANSITION COUPLING (ACP TO PVC) TO CONNECT TO EXIST.

INSTALL 6"GV(MJxFL)

INSTALL 6"TEE(FLxFLxMJ)

CUT AND REMOVE EXIST. 6"ACP AS REQ'D. INSTALL 6"PVC-LENGTH AS REQ'D. AND 6"TRANSITION COUPLING (PVC TO ACP) TO CONNECT TO EXIST. UPON COMPLETION OF NEW WATERLINE REMOVE NEW PVC, INSTALL BLIND FLANGE ON NEW TEE AND PLUG EXIST. ACP AND ABANDON IN PLACE

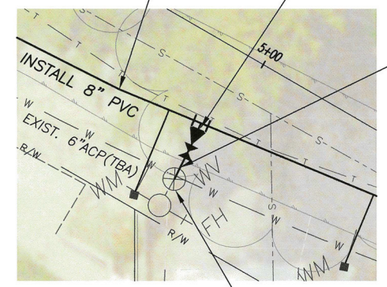
1 RICHARD AVE AT STA 4+15

1"=10'

0 10' 20'

STA. 4+85, 12'RT. INSTALL 5° MAX. DEFLECTION COUPLING

STA. 4+98, 11'RT. INSTALL 8"TEE(MJxMJxFL) 8"x6"R.(FL) AND 6"GV(FLxMJ)



INSTALL 6"PVC-LENGTH AS REQ'D. AND 6"TRANSITION COUPLING (PCV TO ACP) AND CONNECT TO EXIST. 6"ACP AND FH

CUT AND REMOVE EXIST. 6"ACP AS REQ'D. REMOVE EXIST. TEE AND GATE VALVE ASSEMBLY PLUG 6"ACP ENDS AND ABANDON IN PLACE

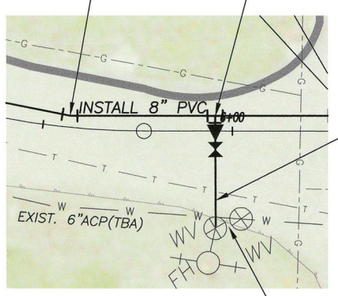
2 RICHARD AVE. FIRE HYDRANT STA. 4+98

1"=10'

0 10' 20'

STA. 5+78, 1.5'LT. INSTALL 5° MAX. DEFLECTION COUPLING

STA. 5+98, 2'LT. INSTALL 8"TEE(MJxMJxFL) 8"x6"R.(FL) AND 6"GV(FLxMJ)



INSTALL 6"PVC-LENGTH AS REQ'D. AND 6"TRANSITION COUPLING (PCV TO ACP) AND CONNECT TO EXIST. 6"ACP AND FH

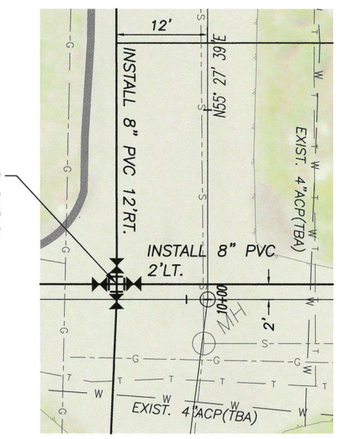
CUT AND REMOVE EXIST. 6"ACP AS REQ'D. REMOVE EXIST. TEE AND 2 EA. GATE VALVE ASSEMBLIES PLUG 6"ACP ENDS AND ABANDON IN PLACE

3 RICHARD AVE. FIRE HYDRANT STA. 5+98

1"=10'

0 10' 20'

STA. 6+16, 2'LT. RICHARD INSTALL 8"CROSS(FL) AND 4 EA.-8"GV(FLxMJ) AS SHOWN



4 RICHARD AVE. AT STUART AVE.

1"=10'

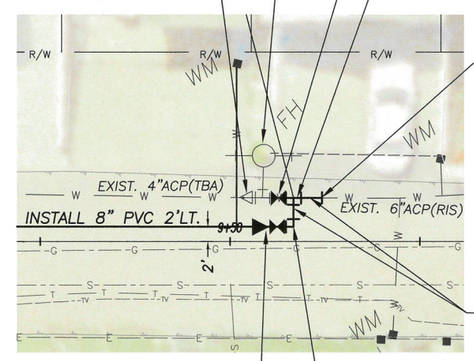
0 10' 20'

UPON COMPLETION OF NEW WATERLINE CUT AND REMOVE EXIST. 4"ACP AS REQ'D. REMOVE EXIST. 4"x6"REDUCER AND INSTALL BLIND FLANGE ON EXIST. TEE (TO FH) PLUG 4"ACP AND ABANDON IN PLACE

EXIST. FH TO REMAIN IN SERVICE

INSTALL 6"GV(FL) CONNECT TO EXIST. 6"TEE (TO FH) AND NEW 6"TEE

INSTALL 6"TEE(FLxMJxMJ)



STA. 9+62, 6'LT. CUT AND REMOVE EXIST. 6"ACP AS REQ'D. INSTALL 6" TRANSITION COUPLING (PVC TO ACP) AND CONNECT TO EXIST.

INSTALL 6" PVC LENGTH AS REQ'D. (TWO LOCATIONS)

INSTALL 6"x8"R.(MJxFL) AND 6"GV(FL)

STA. 9+59, 2'LT. INSTALL 6"-90° BEND(MJxFL)

5 RICHARD AVE. STA 9+59

1"=10'

0 10' 20'

REGISTERED PROFESSIONAL ENGINEER JEFF B. WERST C 47971 EXP 12-31-13 CIVIL STATE OF CALIFORNIA

4/10/13

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CSA10A WATERLINE

CONNECTION DETAILS SHEET CD-3

CAYUCOS, CA

Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell	JAN 2013	J. WERST	JAN. 2013

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	13	15

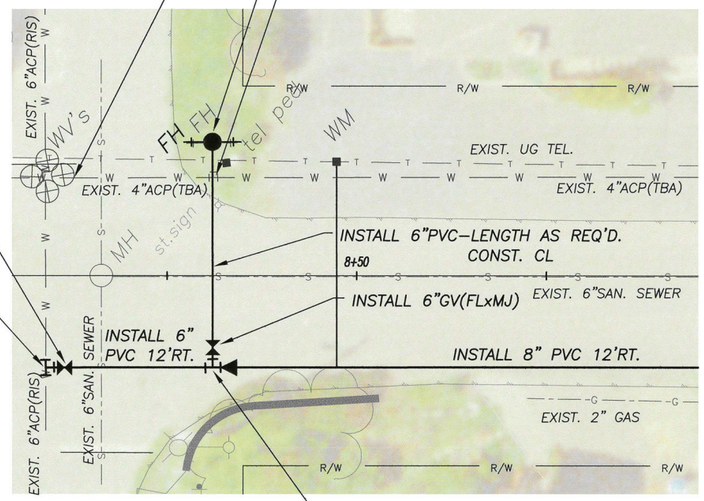
CUT AND REMOVE EXIST. 4"ACP AS REQ'D.
REMOVE (ONE ONLY) GATE VALVE ASSEMBLY
FROM CLUSTER
INSTALL BLIND FLANGE ON EXIST. 6" CROSS.
PLUG 4"ACP AND ABANDON IN PLACE

STA. 8+31, 18'LT.
INSTALL FH

CUT AND REMOVE EXIST. 4"ACP AS REQ'D.
REMOVE EXIST. TEE, 4"ACP AND WHARF STYLE
FH ASSEMBLY
PLUG ACP AND ABANDON IN PLACE
REMOVE AND RECONSTRUCT EXIST. STREET NAME
SIGN AS DIRECTED BY THE ENGINEER

INSTALL 6" GV(FLxMJ)

STA. 8+09, 12'RT. STUART AVE.
INSTALL 6" HOT TAP TEE(FL)
ON EXIST. 6"ACP



STA. 8+31, 12'RT.
INSTALL 6"TEE(MJxFLxFL) AND
6"x8"R.(FLxMJ) ON NEW MAINLINE AS SHOWN

1 STUART AVE. AT SANTA BARBARA AVE.

1"=10'
0 10' 20'

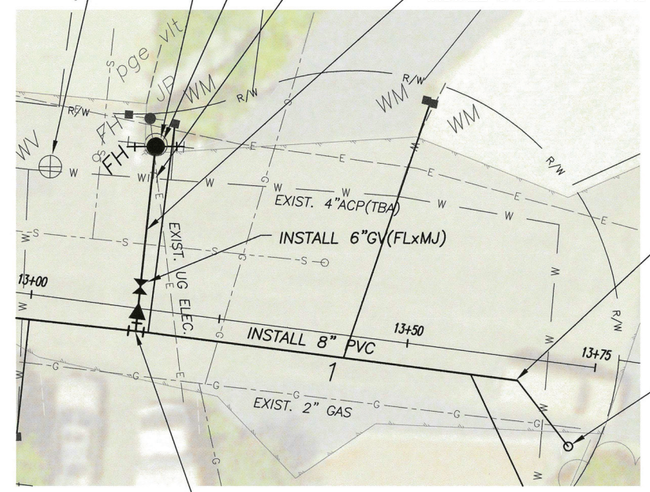
REMOVE EXIST. WV ASSEMBLY
PLUG ACP AND ABANDON IN PLACE

STA. 13+13, 22'LT.
INSTALL FH

REMOVE AND RECONSTRUCT EXIST.
MAIL BOXES AS REQ'D AND AS
DIRECTED BY THE ENGINEER

CUT AND REMOVE EXIST. 4"ACP AS REQ'D.
REMOVE EXIST. TEE, 4"ACP AND WHARF STYLE
FH ASSEMBLY
PLUG ACP AND ABANDON IN PLACE

INSTALL 6"PVC-LENGTH AS REQ'D.



STA. 13+65, 3'RT.
END 8" PVC AND INSTALL
BLIND FLANGE

STA. 13+73, 10'RT.
INSTALL 2" AIR AND VACUUM
RELIEF ASSEMBLY

STA. 13+13, 4'RT.
INSTALL 8"TEE(MJxMJxFL) AND
6"x8"R.(FLxMJ) AS SHOWN

2 STUART AVE. CUL-DE-SAC DETAIL

1"=10'
0 10' 20'

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

CSA10A WATERLINE					
CONNECTION DETAILS SHEET CD-4					
CAYUCOS, CA					
Designer	Date	Drawn By	Date	Design Engineer	Date
J. WERST	JAN. 2013	b isbell	JAN 2013	J. WERST	JAN. 2013

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	14	15

Revisions

Description	Approved	Date	Description	Approved	Date

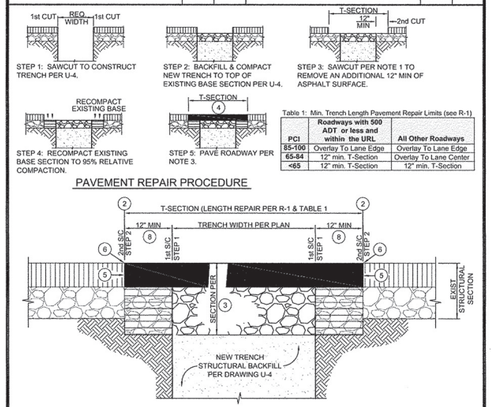


Table 1: Min. Trench Length Pavement Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Overlay To Lane Edge	Overlay To Lane Edge
65-84	12" min. T-Section	Overlay To Lane Center
<65	12" min. T-Section	12" min. T-Section

NOTES:
1. TRENCHING IN A ROADWAY IS ONLY ALLOWED WHEN BORING IS SHOWN TO THE DEPARTMENT AS BEING INFEASIBLE.
2. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF TRENCH AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. SEAMS SHALL NOT BE ALLOWED WITHIN DESIGNATED BICYCLE LANES. ALL CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE. ALL SAWCUTS SHALL BE TO MINIMUM SHOWN OR TO COMPETENT PAVEMENT SECTION.
3. THE STRUCTURAL ROAD REPAIR SECTION SHALL MATCH THE EXISTING STRUCTURAL SECTION THICKNESS OR AS REQUIRED BY THE DEPARTMENT. TYPICAL ROAD WIDENING SECTION SHALL BE:
   - 2" MINIMUM HOT MIX ASPHALT CONCRETE PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - 6" MINIMUM CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - TRENCH SECTION PER DRAWING U-4 (STRUCTURAL BACKFILL TO 95% MIN RELATIVE COMPACTION)
4. NEW PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED).
5. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
6. AFTER PAVING, APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
7. THE DEPARTMENT SHALL PROVIDE ADDITIONAL REQUIREMENTS WHEN TRENCHING IN EXISTING ROADS HAVING CONCRETE STRUCTURAL SECTIONS.
8. T-SECTION WIDTHS SHALL BE INCREASED AS DIRECTED BY THE DEPARTMENT FOR UTILITY PIPES EXCEEDING 36" IN DIAMETER.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
TRENCH REPAIR
TRANSVERSE TRENCHES AND BORE PITS

Scale: NTS | Adopted: 2011 | Drawing No: R-3 | Sheet No: 1 OF 1

Revisions

Description	Approved	Date	Description	Approved	Date
NOTES 1, 3 & 5, STEP 6-ALT, GRIND & OVERLAY TRAVEL LANE	GDM	JAN 11			

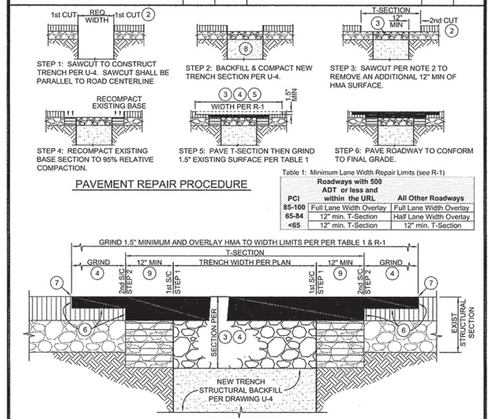


Table 1: Minimum Lane Width Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Full Lane Width Overlay	Full Lane Width Overlay
65-84	12" min. T-Section	Half Lane Width Overlay
<65	12" min. T-Section	12" min. T-Section

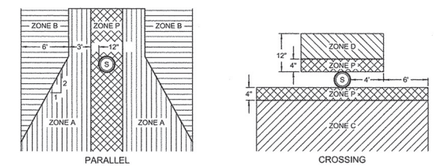
NOTES:
1. TRENCHING IN A ROADWAY IS ONLY ALLOWED WHEN BORING IS SHOWN TO THE DEPARTMENT AS BEING INFEASIBLE.
2. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF TRENCH AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE. ALL SAWCUTS SHALL BE TO MINIMUM SHOWN OR TO COMPETENT PAVEMENT SECTION.
3. THE STRUCTURAL ROAD REPAIR SECTION SHALL MATCH THE EXISTING STRUCTURAL SECTION THICKNESS OR AS REQUIRED BY THE DEPARTMENT. THE MINIMUM STRUCTURAL SECTION SHALL BE:
   - 2-INCH MINIMUM HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - 6-INCH MINIMUM CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - TRENCH SECTION PER DRAWING U-4 (STRUCTURAL BACKFILL TO 95% MIN RELATIVE COMPACTION)
4. LONGITUDINAL: GRIND 1.5-INCHES (MINIMUM) FROM THE EXISTING ADJACENT HMA PAVEMENT SO THAT FINAL HMA SEAMS ARE LOCATED IN ACCORDANCE WITH TABLE 1 & DRAWING R-1, OR AS DIRECTED BY THE DEPARTMENT.
5. NEW HMA PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED) AND SHALL BE ALLOWED TO COOL PER STATE SPECIFICATIONS PRIOR TO APPLICATION OF SUBSEQUENT LIFTS.
6. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
7. AFTER PAVING APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
8. THE DEPARTMENT SHALL PROVIDE ADDITIONAL REQUIREMENTS WHEN TRENCHING IN EXISTING ROADS HAVING CONCRETE STRUCTURAL SECTIONS.
9. T-SECTION WIDTHS SHALL BE INCREASED AS DIRECTED BY THE DEPARTMENT FOR UTILITY PIPES EXCEEDING 36" IN DIAMETER.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
TRENCH REPAIR
LONGITUDINAL TRENCHES

Scale: NTS | Adopted: 2011 | Drawing No: R-3a | Sheet No: 1 OF 1

Revisions

Description	Approved	Date	Description	Approved	Date



ZONE	SPECIAL CONSTRUCTION REQUIRED FOR WATER:
A	NO WATER MAINS PARALLEL TO SEWERS SHALL BE CONSTRUCTED WITHOUT APPROVAL FROM THE HEALTH AGENCY.
B	IF THE SEWER PARALLELING THE WATER MAIN DOES NOT MEET THE CASE 1, ZONE B REQUIREMENTS, THE WATER MAIN SHALL BE CONSTRUCTED OF: 1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING. 2. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 PER AWWA C900) OR EQUIVALENT.
C	IF THE SEWER CROSSING THE WATER MAIN DOES NOT MEET THE CASE 1, ZONE C REQUIREMENTS, THE WATER MAIN SHALL HAVE NO JOINTS IN ZONE C AND BE CONSTRUCTED OF: 1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING. 2. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 PER AWWA C900) OR EQUIVALENT.
D	IF THE SEWER CROSSING THE WATER MAIN DOES NOT MEET THE CASE 1, ZONE D REQUIREMENTS, THE WATER MAIN SHALL HAVE NO JOINTS WITHIN 4-FEET FROM EITHER SIDE OF THE SEWER AND SHALL BE CONSTRUCTED OF: 1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING. 2. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 PER AWWA C900) OR EQUIVALENT.
P	ZONE P IS A PROHIBITED ZONE, SECTION 64630(E)(2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22.

CASE 2: NEW WATER MAIN

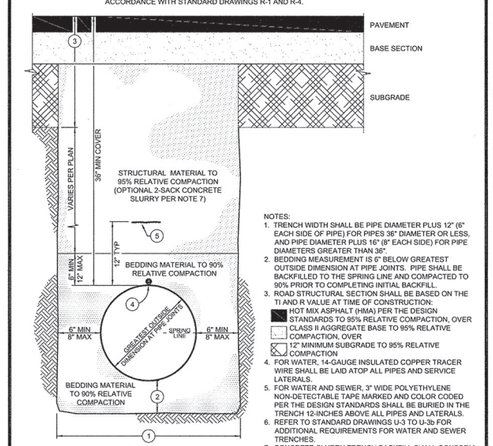
ALTERNATIVE CONSTRUCTION CRITERIA
APPLIES TO NEW WATER MAINS OR EXISTING SEWER MAINS

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
UTILITY SEPARATION CRITERIA
CASE 2: NEW WATER MAINS

Scale: NTS | Adopted: 2011 | Drawing No: U-3b | Sheet No: 3 OF 3

Revisions

Description	Approved	Date	Description	Approved	Date
LOCATION OF DETECTOR WIRE & TAPE, NOTES 4 & 5	REM	NOV 07	NOTE 7 & REPLACE AC W/ HMA	GDM	JAN 11
MISC CLARIFICATION	GDM	NOV 08			



BEDDING MATERIAL		STRUCTURAL MATERIAL	
SIEVE SIZES	PERCENT PASSING	SIEVE SIZES	PERCENT PASSING
1"	100%	3"	100%
No. 4	80% - 100%	No. 4	35% - 100%
No. 200	0% - 15%	No. 30	20% - 100%

NOTES:
1. TRENCH WIDTH SHALL BE PIPE DIAMETER PLUS 12" (6" EACH SIDE OF PIPE) FOR PIPES 36" DIAMETER OR LESS, AND PIPE DIAMETER PLUS 16" (8" EACH SIDE) FOR PIPE DIAMETERS GREATER THAN 36".
2. BEDDING MEASUREMENT IS 6" BELOW GREATEST OUTSIDE DIMENSION AT PIPE JOINTS. PIPE SHALL BE BACKFILLED TO THE SPRING LINE AND COMPACTED TO 90% PRIOR TO COMPLETING INITIAL BACKFILL.
3. ROAD STRUCTURAL SECTION SHALL BE BASED ON THE TI AND R VALUE AT TIME OF CONSTRUCTION:
   - HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - 12" MINIMUM SUBGRADE TO 95% RELATIVE COMPACTION
4. FOR WATER, 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID ATOP ALL PIPES AND SERVICE LATERALS.
5. FOR WATER AND SEWER, 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED AND COLOR CODED PER THE DESIGN STANDARDS SHALL BE BURIED IN THE TRENCH 12-INCHES ABOVE ALL PIPES AND LATERALS.
6. REFER TO STANDARD DRAWINGS U-3 TO U-3b FOR ADDITIONAL REQUIREMENTS FOR WATER AND SEWER TRENCHES.
7. CONCRETE SLURRY TRENCH BACKFILL SHALL CONFORM TO STATE STANDARD 90-1.01, 188 LBS/CY CEMENTITIOUS MATERIAL (2 SACK), TO SURFACE OF THE COURSE SECTION. DO NOT PLACE AGGREGATE BASE ABOVE SLURRY BACKFILL.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
TRENCH DETAIL
PAVED SURFACES

Scale: NTS | Adopted: 2011 | Drawing No: U-4 | Sheet No: 1 OF 1

Revisions

Description	Approved	Date	Description	Approved	Date
ADDED NOTE 3	REM	NOV 07			
TABLES 1 & 2, NOTE 4, SHT 1/2	GDM	JAN 11			

TABLE 1

Pipe Dia (in)	Pipe Class	Nom. I.D. (in)	Area (A) (sq in)	THRUST (T) AT FITTING, lbs: TEES	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4"	PVC Class 165 (DR 25)	4.39	15	3,254	4,602	2,491	1,270	638
4"	PVC Class 235 (DR 18)	4.23	14	4,005	5,664	3,065	1,563	785
4"	PVC Class 305 (DR 14)	4.07	13	4,619	6,532	3,535	1,802	905
6"	PVC Class 165 (DR 25)	6.31	31	6,723	9,508	5,146	2,623	1,318
6"	PVC Class 235 (DR 18)	6.09	29	8,302	11,740	6,354	3,239	1,627
6"	PVC Class 305 (DR 14)	5.86	27	9,574	13,540	7,328	3,736	1,877
8"	PVC Class 165 (DR 25)	8.28	54	11,577	16,372	8,861	4,517	2,269
8"	PVC Class 235 (DR 18)	7.98	50	14,254	20,158	10,910	5,562	2,794
8"	PVC Class 305 (DR 14)	7.68	46	16,445	23,257	12,587	6,417	3,224
10"	PVC Class 165 (DR 25)	10.16	81	17,431	24,651	13,341	6,801	3,417
10"	PVC Class 235 (DR 18)	9.79	75	21,454	30,340	16,420	8,371	4,206
10"	PVC Class 305 (DR 14)	9.42	70	24,741	34,989	18,936	9,654	4,850
12"	PVC Class 165 (DR 25)	12.08	115	24,641	34,848	18,860	9,615	4,831
12"	PVC Class 235 (DR 18)	11.65	107	30,380	42,964	23,252	11,854	5,956
12"	PVC Class 305 (DR 14)	11.2	99	34,975	49,462	26,768	13,646	6,856
	AWWA PVC C-900 PIPE			BASED ON P = 165 + 50 = 215 psi BASED ON P = 235 + 50 = 285 psi BASED ON P = 305 + 50 = 355 psi				

TABLE 2

HORIZONTAL BEARING STRENGTHS FOR COMMON SOILS	
SOIL TYPE	HORIZONTAL BEARING STRENGTH (Sb), lbs/sf
MUCK	0
SOFT CLAY	500
SAND	1,000
SAND & GRAVEL	1,500
SAND & GRAVEL CEMENTED WITH CLAY	2,000

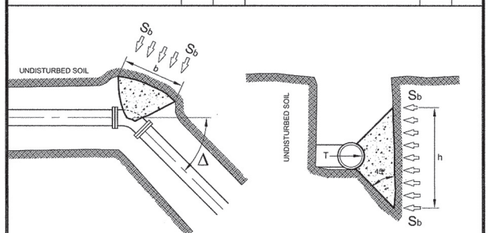
NOTES:
1. ALTHOUGH THE ABOVE BEARING STRENGTH VALUES HAVE BEEN USED SUCCESSFULLY IN THE DESIGN OF THRUST BLOCKS AND ARE CONSIDERED TO BE CONSERVATIVE, THEIR ACCURACY IS TOTALLY DEPENDENT ON ACCURATE SOIL IDENTIFICATION AND EVALUATION. THE ULTIMATE RESPONSIBILITY FOR SELECTING THE PROPER BEARING STRENGTH OF A PARTICULAR SOIL TYPE SHALL BE THE RESPONSIBILITY OF THE PROJECT ENGINEER.
2. ALL THRUST BLOCK AREAS SHALL BE PROVIDED ON THE APPROVED PLANS.
3. CONCRETE THRUST BLOCKS SHALL CONFORM TO STATE STANDARD 90-1.01, 470 LBS/CY CEMENTITIOUS MATERIAL [5 SACK].
4. THRUST RESTRAINT FOR VERTICAL BENDS SHALL USE RESTRAINED JOINT FITTINGS INSTEAD OF THRUST BLOCKS.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
THRUST BLOCK REQUIREMENTS

Scale: | Adopted: 2011 | Drawing No: W-1 | Sheet No: 1 OF 2

Revisions

Description	Approved	Date	Description	Approved	Date
LEGEND, EQUATIONS, EXAMPLE, SHT 2/2	GDM	JAN 11			



LEGEND:
T = THRUST AT FITTING (lbs) [TABLE 1]
Sb = SOIL BEARING PRESSURE (psf) [TABLE 2]
A = INTERNAL AREA (sq in) [TABLE 1]
P = INTERNAL PRESSURE (psi)
Δ = HORIZONTAL DEFLECTION ANGLE (degrees)
Sf = FACTOR OF SAFETY [1.5 FOR THRUST BLOCK DESIGN, TYP]
h = THRUST BLOCK HEIGHT (ft)
b = THRUST BLOCK WIDTH (ft)
Ab = MINIMUM THRUST BLOCK AREA (sq ft)

EQUATIONS:
THRUST AT FITTINGS:
[1] T = (P)(A)

THRUST AT HORIZONTAL BEND:
[2] T = 2(P)(A) sin(Δ/2)

MINIMUM BEARING (THRUST) BLOCK AREA:
[3] Ab = (h)(b) = [(Sf)(T)]/Sb

EXAMPLE: DETERMINE THE THRUST BLOCK AREA FOR A 90° BEND, 8" CLASS 165 PIPE IN SAND.

(STEP 1): PRESSURE = 165 + 50 (TEST PRESSURE) = 215 psi. CHOOSE T = 16,372 lbs FROM TABLE 1 SHEET 1/2 (USE EQUATION [2] IF PIPE HAS DIFFERENT INSIDE DIAMETER).

(STEP 2): DETERMINE Sb FROM TABLE 2, SHEET 1/2.

(STEP 3): USE INFORMATION TO CALCULATE Ab USING EQUATION [3]

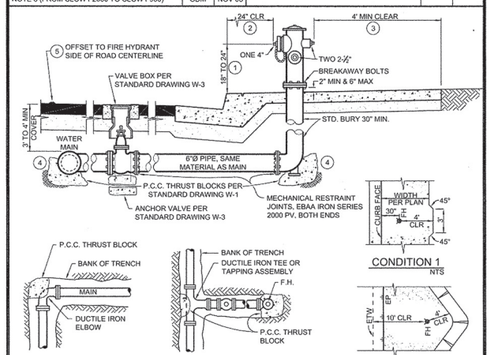
RESULT: Ab = [(Sf)(T)/Sb = [(1.5)(16,372)]/1,000] = 24.6 sq ft

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
THRUST BLOCK REQUIREMENTS

Scale: NTS | Adopted: 2011 | Drawing No: W-1a | Sheet No: 2 OF 2

Revisions

Description	Approved	Date	Description	Approved	Date
NOTE 4	REM	NOV 07	CLARIFIED MJ CONNECTIONS, NOTE 2	GDM	JAN 11
NOTE 8 (FROM CLOW F2060 TO CLOW F960)	GDM	NOV 08			



DETAIL AT BEND NTS | DETAIL AT FIRE HYDRANT NTS

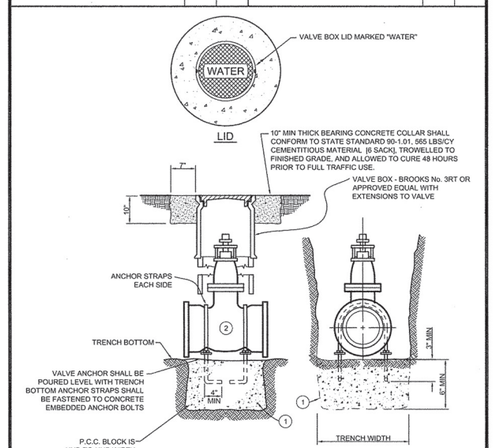
NOTES:
1. HEIGHT SHALL BE MEASURED FROM EDGE OF PAVEMENT WHEN CONCRETE CURB OR ASPHALT DIKE ARE NOT REQUIRED PER THE DESIGN STANDARDS.
2. DISTANCE SHALL BE INCREASED TO 10-FEET CLEAR FROM THE EDGE OF TRAVELED WAY (ETW) ON RURAL ROADS (SEE U-1).
3. IN RURAL AREAS A 4' MINIMUM RADIUS CLEAR AND LEVEL ZONE SURROUNDING THE FIRE HYDRANT SHALL BE REQUIRED.
4. CONCRETE THRUST BLOCKS SHALL CONFORM TO STATE STANDARD 90-1.01, 470 LBS/CY CEMENTITIOUS MATERIAL [5 SACK], POURED AGAINST UNDISTURBED SOIL AND SHIELDED FROM FLANGES AND BOLTS.
5. EACH HYDRANT SHALL BE IDENTIFIED BY A REFLECTORIZED BLUE RAISED PAVEMENT MARKER PER SECTION 10.301c OF THE UNIFORM FIRE CODE.
6. THE HYDRANT CAP AND OUTLET NOZZLE SHALL BE PAINTED IN ACCORDANCE WITH TABLE 6.6 OF 6.2.1.D.2.
7. THE CONCRETE CURB OR ASPHALT DIKE SHALL BE PAINTED RED 15-FEET EITHER SIDE OF THE FIRE HYDRANT.
8. HYDRANT SHALL BE CLOW F960, OR APPROVED EQUAL.
9. EACH HYDRANT SHALL HAVE TWO 2-1/2" OUTLETS AND ONE 4" OUTLET WITH EXTERNAL NSF THREAD.
10. ALL FITTINGS SHALL BE CEMENT MORTAR LINED IN ACCORDANCE WITH AWWA STANDARD C-104.
11. HYDRANT LATERAL SHALL BE OF THE SAME MATERIAL AS THE MAIN.
12. 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID IN THE TRENCH ABOVE THE PIPE, BROUGHT ABOVE GRADE AND SECURED TO THE HYDRANT BOLT FLANGE.
13. COLOR CODED BLUE 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED "CAUTION BURIED WATER LINE BELOW" SHALL BE BURIED IN THE TRENCH AND ABOVE THE PIPE AND TRACER WIRE.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
FIRE HYDRANT INSTALLATION

Scale: 1"=2' | Adopted: 2011 | Drawing No: W-2 | Sheet No: 1 OF 1

Revisions

Description	Approved	Date	Description	Approved	Date
NOTE 1, CONCRETE COLLAR NOTE	REM	NOV 07			



NOTES:
1. CONCRETE THRUST BLOCKS SHALL CONFORM TO STATE STANDARD 90-1.01, 470 LBS/CY CEMENTITIOUS MATERIAL [5 SACK], AND POURED AGAINST UNDISTURBED NATIVE SOIL.
2. VALVES SHALL HAVE NON-RISING STEM, RESILIENT WEDGE, RESILIENT SEAT, AND BE EPOXY COATED.
3. ALL MATERIALS AND INSTALLATION SHALL CONFORM WITH THE APPLICABLE SECTIONS OF THE DESIGN STANDARDS.
4. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE SHEET AND ALL FLANGES AND BOLTS SHALL BE SHIELDED FROM CONCRETE PER THE DESIGN STANDARDS.
5. UNDER NO CIRCUMSTANCES SHALL UTILITY LIDS AND CONCRETE COLLARS BE LOCATED WITHIN CURBS, GUTTERS, SIDEWALKS, DRIVEWAY APRONS, CURB RAMPS, OR CROSS GUTTERS.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
VALVE ANCHOR & BOX

Scale: NTS | Adopted: 2011 | Drawing No: W-3 | Sheet No: 1 OF 1

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WEAST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

CSA10 WATERLINES
DETAILS SHEET D-1
CAYUCOS

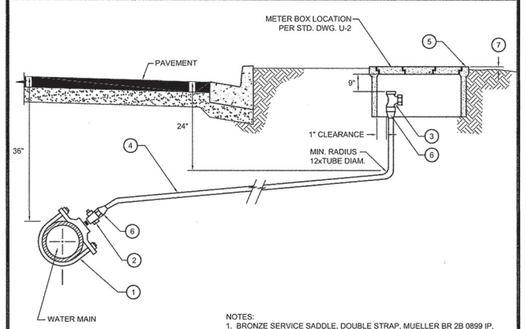
Designer	Date	Drawn By	Date	Design Engineer	Date
		b isbell	JAN 2013		

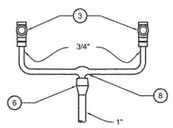
0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

ROAD NO.	JOB NO.	SHEET NO.	TOTAL SHEETS
VARIOUS	300383	15	15

Revisions

Description	Approved	Date	Description	Approved	Date





DOUBLE SERVICE CONNECTION

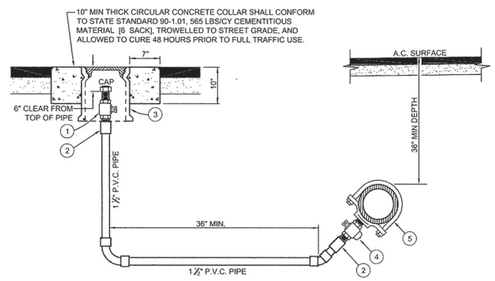
NOTES:
1. BRONZE SERVICE SADDLE, DOUBLE STRAP, MUELLER BR 2B 0899 IP, 075 or 100, O.A.E.
2. CORPORATION STOP w/ IP THREADS, MUELLER H-10012, O.A.E.
3. ANGLE METER STOP, JONES J-1966W, 3/4" or 1", O.A.E.
4. POLYETHYLENE PIPE, 3/4" MIN. I.D. FOR SINGLE SERVICE 1" MIN. I.D. FOR DOUBLE SERVICE.
5. METER BOX, BROOKS PRODUCT 37-S, O.A.E.
6. MUELLER INSTA-TITE CONNECTION H-15426(male) O.A.E. H-15456 (female).
7. IN UNPAVED AREA SET METER BOX 1" to 1-1/2" ABOVE FINISHED GRADE.
8. U-BRANCH CONNECTION, MUELLER H-15365, O.A.E.
9. O.A.E. = "OR APPROVED EQUAL".
10. WATER METER AND CUSTOMER SIDE SHUT OFF VALVE TO BE INSTALLED BY THE WATER PURVEYOR.
11. CORPORATION STOPS SHALL NOT BE SPACED CLOSER THAN 12" MEASURED ALONG THE CENTERLINE OF THE PIPE.
12. 3/4" SINGLE SERVICE LINE. 1" DOUBLE SERVICE LINES, USE 16" X 21" DUAL METER BOX (BROOKS PRODUCT OR APPROVED EQUAL) FOR DOUBLE SERVICE.
13. SERVICES LARGER THAN 1" MAY BE PVC SCHEDULE 80 PIPE.
14. 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID IN THE TRENCH ABOVE THE PIPE AND BROUGHT ABOVE GRADE THROUGH ANY METER OR VALVE BOXES.
15. COLOR CODED BLUE 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED "CAUTION BURIED WATER LINE BELOW" SHALL BE BURIED IN THE TRENCH AND ABOVE THE PIPE AND TRACER WIRE.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
WATER SERVICE CONNECTION

Scale: NTS	Adopted: 2011
Drawing No: W-4	
Sheet No: 1 OF 1	

Revisions

Description	Approved	Date	Description	Approved	Date
CONCRETE COLLAR NOTE. REMOVE THRUST BLOCK	REM	NOV 07			



ON-RUN CONNECTION OR DEAD END

NOTES:
1. 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID IN THE TRENCH ABOVE THE PIPE AND BROUGHT ABOVE GRADE THROUGH ANY METER OR VALVE BOXES.
2. COLOR CODED BLUE 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED "CAUTION BURIED WATER LINE BELOW" SHALL BE BURIED IN THE TRENCH AND ABOVE THE PIPE AND TRACER WIRE.
3. UNDER NO CIRCUMSTANCES SHALL UTILITY LIDS AND CONCRETE COLLARS BE LOCATED WITHIN CURBS, GUTTERS, SIDEWALKS, DRIVEWAY APRONS, CURB RAMPS, OR CROSS GUTTERS.

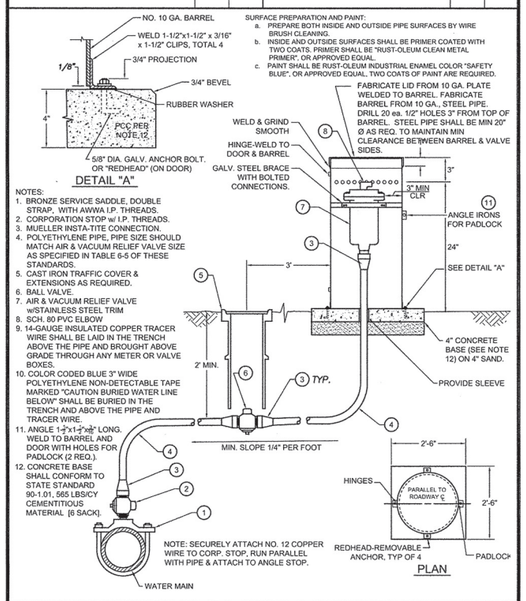
ITEM NO.	NO. REQ'D.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATION
1	1	1-1/2" CURB STOP	JAMES JONES J-182 WITH LOCKWING, MUELLER, OR APPROVED EQUAL
2	2	1-1/2" ADAPTER	I.P. THREAD-P.V.C. SLIP
3	1	VALVE BOX WITH CAST IRON LID	CHRISTY G-8, BROOKS 3-RT, OR APPROVED EQUAL
4	1	1-1/2" CORPORATION STOP	JAMES JONES J-40, MUELLER H-10012, OR APPROVED EQUAL
5	1	SERVICE SADDLE	MUELLER BRONZE DOUBLE STRAP BR 2B 0899 IP 200, O.A.E.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
1-1/2" BLOW-OFF ASSEMBLY

Scale: NTS	Adopted: 2011
Drawing No: W-5	
Sheet No: 1 OF 1	

Revisions

Description	Approved	Date	Description	Approved	Date
NOTES 1-7, ADDED NOTES 11 & 12, MISC NOTES, & DRAFTING	REM	NOV 07			



SURFACE PREPARATION AND PAINT:
a. PREPARE BOTH INSIDE AND OUTSIDE PIPE SURFACES BY WIRE BRUSH CLEANING.
b. INSIDE AND OUTSIDE SURFACES SHALL BE PRIMER COATED WITH TWO COATS. PRIMER SHALL BE "RUST-OLEUM CLEAN METAL PRIMER", OR APPROVED EQUAL.
c. PAINT SHALL BE RUST-OLEUM INDUSTRIAL ENAMEL COLOR "SAFETY BLUE", OR APPROVED EQUAL. TWO COATS OF PAINT ARE REQUIRED.

FABRICATE LID FROM 10 GA. PLATE WELDED TO BARREL. FABRICATE BARREL FROM 10 GA., STEEL PIPE. DRILL 20 ea. 1/2" HOLES 3" FROM TOP OF BARREL. STEEL PIPE SHALL BE MIN 20" Ø AS REQ. TO MAINTAIN MIN CLEARANCE BETWEEN BARREL & VALVE SIDES.

NOTES:
1. BRONZE SERVICE SADDLE, DOUBLE STRAP, WITH AWWA I.P. THREADS.
2. CORPORATION STOP w/ I.P. THREADS.
3. MUELLER INSTA-TITE CONNECTION.
4. POLYETHYLENE PIPE, PIPE SIZE SHOULD MATCH AIR & VACUUM RELIEF VALVE SIZE AS SPECIFIED IN TABLE 6-5 OF THESE STANDARDS.
5. CAST IRON TRAFFIC COVER & EXTENSIONS AS REQUIRED.
6. BALL VALVE.
7. AIR & VACUUM RELIEF VALVE w/STAINLESS STEEL TRIM
8. SCH. 80 PVC ELBOW
9. 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID IN THE TRENCH ABOVE THE PIPE AND BROUGHT ABOVE GRADE THROUGH ANY METER OR VALVE BOXES.
10. COLOR CODED BLUE 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED "CAUTION BURIED WATER LINE BELOW" SHALL BE BURIED IN THE TRENCH AND ABOVE THE PIPE AND TRACER WIRE.
11. ANGLE 1-½"x1-½"x⅛" LONG. WELD TO BARREL AND DOOR WITH HOLES FOR PADLOCK (2 REQ.).
12. CONCRETE BASE SHALL CONFORM TO STATE STANDARD 90-1.01, 565 LBS/CY CEMENTITIOUS MATERIAL (6 SACK).

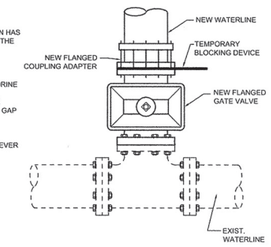
DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
AIR and VACUUM RELIEF ASSEMBLY

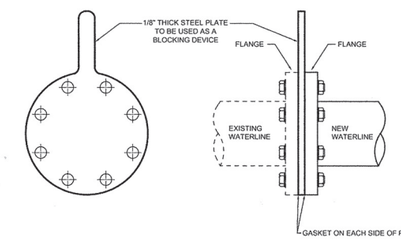
Scale: NTS	Adopted: 2011
Drawing No: W-6	
Sheet No: 1 OF 1	

Revisions

Description	Approved	Date	Description	Approved	Date

NOTES:
1. DIRECT CONNECTION TO THE EXISTING WATER SYSTEM SHALL NOT BE PERMITTED UNTIL THE NEW INSTALLATION HAS PASSED BACTERIA TESTING AND A PHYSICAL CHECK BY THE WATER QUALITY MANAGER. SEPARATION SHALL BE ACHIEVED BY THE INSTALLATION OF THE TEMPORARY BLOCKING DEVICE AS SHOWN HEREON.
2. PRESSURE TESTING AGAINST VALVES SHALL NOT BE ALLOWED. NEW VALVES SHALL BE SWABBED WITH CHLORINE PRIOR TO INSTALLATION.
3. WHEN TEMPORARY BLOCKING DEVICE IS REMOVED, THE CONTRACTOR SHALL ADJUST FITTING TO ELIMINATE 1/8" GAP WITHOUT FORCING THE JOINT TOGETHER.
4. TEST PRESSURE SHALL BE 50 PSI GREATER THAN THE WORKING PRESSURE OF THE PIPE MEASURED AT THE LOWEST ELEVATION OF THE SYSTEM OR 150 PSI, WHICHEVER IS GREATER.





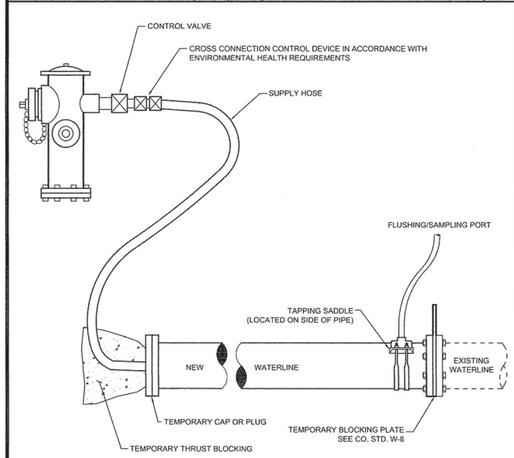
PROCEDURE FOR CONNECTING NEW WATERLINES TO EXISTING SYSTEM (ALTERNATIVE TO THE OLD INDUSTRIAL STANDARD METHOD): AT THE POINT OF CONNECTION TO THE EXISTING SYSTEM, ALL JOINTS BETWEEN FITTINGS AND VALVES SHALL BE FLANGED. ANY CHANGE REQUIRES WRITTEN APPROVAL FROM THE DEPARTMENT. AT THE JOINT THAT CONNECTS THE EXISTING SYSTEM TO THE NEW LINE, A BLOCKING DEVICE SHALL BE INSTALLED. THIS DEVICE SHALL BE CONSTRUCTED OF 1/8" THICK STEEL PLATE. IT SHALL BE INSTALLED BETWEEN THE TWO FLANGES WITH A GASKET ON EACH SIDE. THIS WILL ALLOW ALL FITTINGS, VALVES, AND THE PIPELINE TO BE DISINFECTED AND PRESSURE TESTED AS ONE UNIT. AFTER THE NEW SYSTEM HAS MET ALL REQUIREMENTS, THE DEPARTMENT WILL ALLOW THE CONTRACTOR TO REMOVE THE BLOCKING DEVICE. THE DEVICE AND BOTH GASKETS ARE TO BE REMOVED AND A NEW GASKET SHALL BE INSTALLED BETWEEN THE FLANGES. THE NEW SYSTEM IS THEN IN SERVICE.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
NEW WATERLINE
CONNECTION DETAILS

Scale: NTS	Adopted: 2011
Drawing No: W-8	
Sheet No: 1 OF 1	

Revisions

Description	Approved	Date	Description	Approved	Date



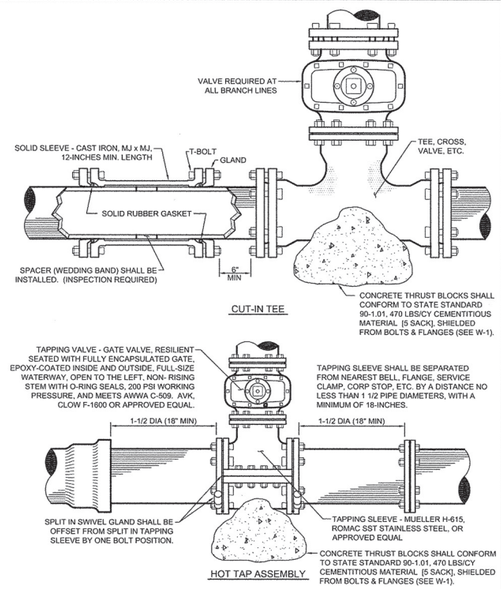
NOTES:
1. DIRECT CONNECTION TO THE EXISTING WATER SYSTEM SHALL NOT BE PERMITTED UNTIL THE NEW INSTALLATION HAS PASSED BACTERIA TESTING. MAINTAIN AIR GAP PER AWWA STD. C651

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
NEW WATERLINE
FLUSHING DETAIL

Scale: NTS	Adopted: 2011
Drawing No: W-9	
Sheet No: 1 OF 1	

Revisions

Description	Approved	Date	Description	Approved	Date
THRUST BLOCK NOTES	REM	NOV 07			

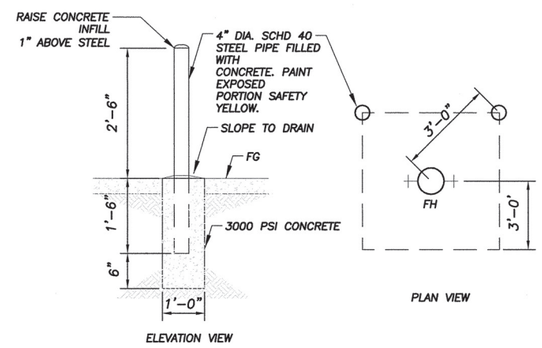


CUT-IN TEE

HOT TAP ASSEMBLY

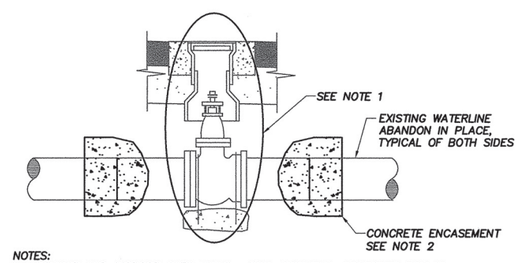
DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
WATERLINE CUT-IN TEE
& HOT TAP ASSEMBLY

Scale: NTS	Adopted: 2011
Drawing No: W-10	
Sheet No: 1 OF 1	



BOLLARD DETAIL

NTS



NOTES:
1. REMOVE AND DISPOSE GATE VALVE, BOX ASSEMBLY, CONCRETE COLLAR, EXISTING PIPE AND ANCHOR BLOCK.
2. SAWCUT EXISTING PIPE AND PLUG PIPE END WITH CONCRETE ENCASEMENT.
3. RESTORE EXISTING AC PAVEMENT SURFACE WITH HOT MIX ASPHALT CONCRETE 3.5" THICK OR 2" PLUS EXISTING AC PAVEMENT THICKNESS, WHICHEVER IS GREATER. AGGREGATE BASE SHALL BE 12" MINIMUM THICKNESS.

REMOVE GATE VALVE

NTS

REGISTERED PROFESSIONAL ENGINEER
JEFF B. WERST
C 47971
EXP 12-31-13
CIVIL
STATE OF CALIFORNIA

4/10/13

CSA10 WATERLINES

DETAILS SHEET D-2

CAYUCOS

Designer	Date	Drawn By	Date	Design Engineer	Date
		b isbell	JAN 2013		

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS