City of Berkeley

Standard Details

May 2024

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Standard Details

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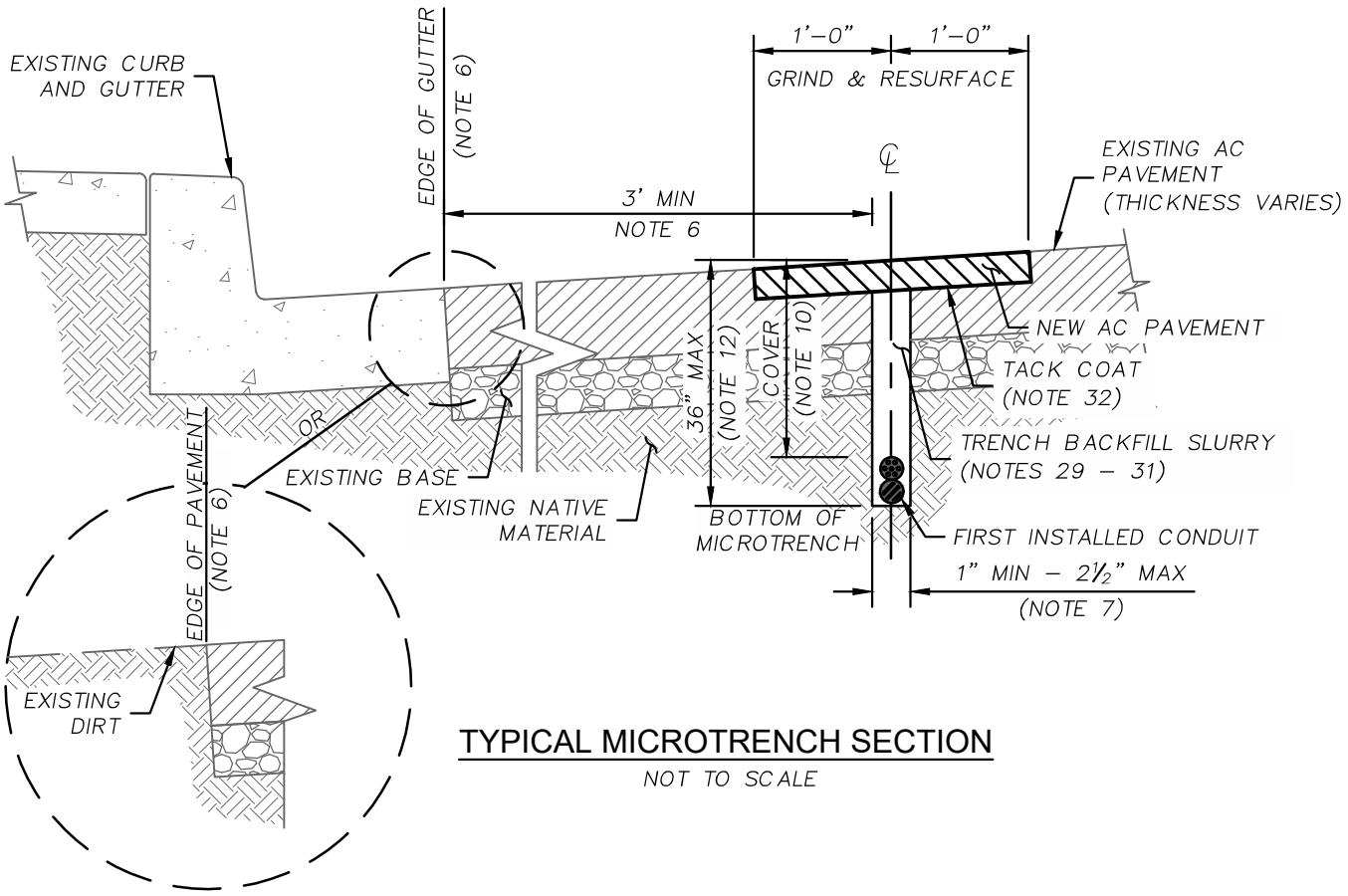
Public Works
Engineering Division

City of Berkeley

Standard Details

Streets and Sidewalks



TYPICAL MICROTRENCH SECTION

NOT TO SCALE

GENERAL NOTES

1. MICROTRENCH FOR FIBER OPTIC TELECOMMUNICATION FACILITIES MAY BE INSTALLED AS APPROVED BY THE CITY ENGINEER.

2. MICROTRENCHES SHALL BE INSTALLED WITHIN ASPHALT CONCRETE PAVED STREETS. MICROTRENCHES WITHIN CONCRETE PAVED STREETS AND SPECIAL PAVEMENT AREAS ARE NOT PERMITTED UNLESS APPROVED BY THE CITY ENGINEER. SPECIAL PAVEMENT AREAS INCLUDE, BUT ARE NOT LIMITED TO, BUS PADS, BULB–OUTS, RAISED CROSSWALKS, ISLANDS, ROUNDABOUTS, SPEED HUMPS, DECORATIVE OR STAMPED PAVEMENTS, AND OTHER SIMILAR FEATURES.

3. A MAXIMUM OF TWO (2) MICROTRENCH INSTALLATIONS ARE ALLOWED PER STREET AND SHALL BE INSTALLED ON OPPOSITE SIDES OF THE STREET. THIS DOES NOT INCLUDE LATERAL CROSSINGS.

4. MICROTRENCH SHALL ADHERE TO PAVING MORATORIUM REQUIREMENTS PER BMC SECTION 16.12.030.

5. DAMAGE TO EXISTING CONCRETE CURB, GUTTER, SIDEWALK, PAVEMENT, AND OTHER IMPROVEMENTS AS A RESULT OF MICROTRENCH ACTIVITIES SHALL BE REMOVED AND RESTORED IN–KIND AS DIRECTED BY THE CITY.

MICROTRENCH

6. MICROTRENCH SHALL BE LOCATED 3–FEET FROM THE LIP OF GUTTER OR EDGE OF PAVEMENT/FACE OF VERTICAL CURB WHEN NO GUTTER EXISTS. ANY MICROTRENCH LESS THAN 3–FEET FROM THE LIP OF GUTTER OR EDGE OF PAVEMENT SHALL BE APPROVED BY THE CITY ENGINEER.

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL MICROTRENCH SECTION

APPROVED:

RONALD A. NEVELS, RCE (62524)
CITY ENGINEER

05/10/24
DATE

WAHID A. AMIRI, RCE (70918)
DEPUTY PUBLIC WORKS DIRECTOR

05/10/24
DATE

DESIGN:
DRAWN:
CHECK:

DATE: 05/10/24
SCALE: N.T.S.

PLAN: ST–01
SHEET: 01 OF 03

7. MICROTRENCH WIDTH SHALL BE 1–INCH MINIMUM TO 2½–INCH MAXIMUM. MICROTRENCH WIDTHS GREATER THAN 2.5–INCHES REQUIRE APPROVAL FROM CITY ENGINEER.

8. MICROTRENCH CUTS SHALL HAVE THREE (3) MAXIMUM CUTS TO ACHIEVE A RADIAL BEND OR SWEEP.

9. MICROTRENCH CROSSINGS SHALL BE INSTALLED PERPENDICULAR TO THE STREET AND AT INTERVALS NO LESS THAN 300–FEET.

10. THE MINIMUM COVER FOR A MICROTRENCH LOCATED WITHIN A PAVED STREET OR PARKING LANE SHALL BE 12–INCHES ON RESIDENTIAL STREETS, 16–INCHES ON COLLECTOR STREETS, AND 23–INCHES ON ARTERIAL STREETS AS MEASURED FROM THE UPPER CONDUIT TO THE FINISHED GRADE SURFACE OF THE PAVED STREET OR PARKING LANE.

11. THE MINIMUM COVER FOR A MICROTRENCH LOCATED WITHIN A CONCRETE CURB, GUTTER, OR SIDEWALK SHALL BE 8–INCHES, AS MEASURED FROM THE UPPER CONDUIT TO THE BOTTOM OF CONCRETE.

12. THE MAXIMUM DEPTH OF A MICROTRENCH SHALL BE NO GREATER THAN 36–INCHES AS MEASURED FROM THE FINISHED GRADE SURFACE TO THE BOTTOM OF THE MICROTRENCH.

13. MICROTRENCH SHALL PROVIDE 5–FEET OF HORIZONTAL SEPARATION BETWEEN ANY EXISTING UTILITY ASSET (SANITARY SEWER MAIN, SANITARY SEWER LATERAL, WATER MAIN, FIRE HYDRANT, WATER SERVICE LATERAL, WATER METER, STORM INLET, STORM LINE, ETC.) AS MEASURED FROM THE OUTER EDGE OF THE MICROTRENCH CONDUIT TO THE OUTER EDGE OF THE EXISTING UTILITY ASSET.

14. ANY PROPOSED LOCATIONS NOT MEETING THE MINIMUM HORIZONTAL SEPARATION REQUIREMENTS BETWEEN THE MICROTRENCH CONDUIT AND EXISTING UTILITY ASSET SHALL BE CLEARLY IDENTIFIED ON PLANS. THE CITY MUST REVIEW AND APPROVE EACH SUCH OCCURRENCE PRIOR TO THE START OF CONSTRUCTION.

15. WHEN CROSSING A PUBLIC UTILITY ASSET, THE MICROTRENCH SHALL CROSS PERPENDICULAR TO THE PUBLIC UTILITY ASSET. CROSSINGS SHALL NOT BE LESS THAN 45–DEGREES.

16. PAVEMENT CUTS SHALL BE STRAIGHT AND CLEAN. TO FACILITATE STRAIGHT PAVEMENT CUTS, SPALLS AND POTHOLES WITHIN 12–INCHES OF THE MICROTRENCH SHALL BE REPAIRED PRIOR TO THE START OF CONSTRUCTION.

17. DURING MICROTRENCH EXCAVATION, SURFACE CUTTINGS AND GRINDINGS SHALL BE VACUUMED AND CLEANED WITH WATER. SHALL BE VACUUMED AND CLEANED WITH WATER. AFTER CLEANING WITH WATER, THE TRENCH SHALL BE DRIED WITH COMPRESSED AIR, FOLLOWED BY HOT AIR USING A BLOWPIPE.

18. IT IS THE RESPONSIBILITY OF THE MICROTRENCH UTILITY OWNER OR CONTRACTOR TO VERIFY THAT THE MINIMUM COVER, HORIZONTAL SEPARATION, VERTICAL CLEARANCE, AND MAXIMUM DEPTH CAN BE MAINTAINED WITHOUT CONFLICT TO ADJACENT EXISTING UTILITY ASSETS.

19. THE MICROTRENCH UTILITY OWNER OR CONTRACTOR SHALL IDENTIFY ALL EXISTING UTILITIES ASSETS, INCLUDING SERVICE CONNECTIONS IN THE FIELD. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A) AT 8–1–1 OR 1–800–422–4133 AT LEAST 48–HOURS PRIOR TO THE START OF CONSTRUCTION. THE MICROTRENCH UTILITY OWNER OR CONTRACTOR SHALL POTHOLE ALL CROSSING AND PARALLEL UTILITIES WITHIN 24–INCHES OF THE PROPOSED MICROTRENCH ALIGNMENT TO DETERMINE THE EXISTING UTILITY ASSET LOCATION AND DEPTH.

20. THE MICROTRENCH UTILITY OWNER OR CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING MICROTRENCH CONSTRUCTION ACTIVITIES WITH ANY POTENTIALLY AFFECTED EXISTING UTILITY ASSETS OWNERS.

21. MICROTRENCH UTILITY OWNER OR CONTRACTOR SHALL PROVIDE WRITTEN AUTHORIZATION FROM ALL EXISTING UTILITY ASSET OWNERS WITHIN 5–FEET OF THE PROPOSED MICROTRENCH ALIGNMENT PRIOR TO THE START OF CONSTRUCTION.

MICROTRENCH CONDUIT

22. CONDUIT SHALL BE 2–INCH (MAXIMUM) DIAMETER SCHEDULE 40 PVC/HDPE OR EQUIVALENT.

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
MICROTRENCH SECTION

APPROVED:

RONALD A. NEVELS, RCE (62524)
CITY ENGINEER

05/10/24
DATE

WAHID A. AMIRI, RCE (70918)
DEPUTY PUBLIC WORKS DIRECTOR

05/10/24
DATE

DESIGN:
DRAWN:
CHECK:

DATE: 05/10/24
SCALE: N.T.S.

PLAN: ST–01
SHEET: 02 OF 03

23. A MAXIMUM OF TWO (2) VERTICALLY STACKED CONDUITS SHALL BE PLACED WITHIN THE MICROTRENCH.

24. CONDUIT SHALL BE FIRMLY SECURED IN THE MICROTRENCH USING ANCHORS AND SPACERS TO PREVENT AIR GAPS BETWEEN THE CONDUIT/CABLE AND THE BOTTOM OF MICROTRENCH OR ANOTHER CONDUIT.

25. CONDUIT ANCHORS AND SPACERS SHALL BE PLACED AT 10-FOOT (MAX) INTERVALS ALONG THE CONDUIT TO ENSURE CONDUIT REMAINS AT REQUIRED DEPTHS DURING INSTALLATION AND BACKFILLING.

26. INSTALL FOLDED WARNING/IDENTIFICATION TAPE ALONG THE ENTIRE LENGTH OF THE CONDUIT.

27. MICROTRENCH SHALL BE IDENTIFIED WITH A CALLOUT ON THE PULL/JUNCTION BOX LID WITH THE NAME OF THE OWNER OF THE MICROTRENCH.

28. A CURB MARKER DISK (OPTIONAL) MAY BE ATTACHED TO THE TOP OF CURB TO PROVIDE WARNING OF SHALLOW CONDUIT.

MICROTRENCH BACKFILL

29. MICROTRENCH SHALL BE COMPLETELY BACKFILLED WITH A CEMENT SAND SLURRY (2,000 PSI MINIMUM) TO FINISHED GRADE.

30. MICROTRENCH UTILITY OWNER OR CONTRACTOR SHALL USE A VIBRATOR TO MINIMIZE VOIDS WITHIN THE SLURRY BACKFILL.

31. ALLOW SLURRY BACKFILL TO CURE A MINIMUM OF THREE (3) HOURS PRIOR TO OPENING THE STREET TO TRAFFIC AND PRIOR TO PERFORMING FINAL MICROTRENCH RESTORATION (SEE NOTES BELOW).

MICROTRENCH MILLING, RESURFACING, & RESTORATION

32. WITHIN SEVEN (7) DAYS OF PLACING THE SLURRY BACKFILL, THE SLURRY BACKFILL AND EXISTING PAVEMENT SHALL BE MILLED 12-INCHES (MINIMUM) ON EACH SIDE OF THE MICROTRENCH AT A DEPTH OF 4-INCHES. THE MILLED AREA SHALL BE CLEANED OF ALL DEBRIS, TACKED WITH AN ASPHALTIC EMULSION, AND RESURFACED WITH ½-INCH TYPE II AC.

33. MILL, RESURFACE, AND RESTORATION LIMITS SHALL EXTEND THE FULL WIDTH OF THE BIKE LANE WHEN MICROTRENCH INSTALLATION IS WITHIN A BIKE LANE.

34. RESTORE ALL EXISTING TRAFFIC STRIPING AND PAVEMENT MARKINGS IN-KIND.

35. RESTORE CONCRETE SURFACES TO NEAREST SCORE LINE AND DOWEL INTO EXISTING CONCRETE.

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
MICROTRENCH SECTION

APPROVED:

RONALD A. NEVELS, RCE (62524)
CITY ENGINEER

05/10/24
DATE

WAHID A. AMIRI, RCE (70918)
DEPUTY PUBLIC WORKS DIRECTOR

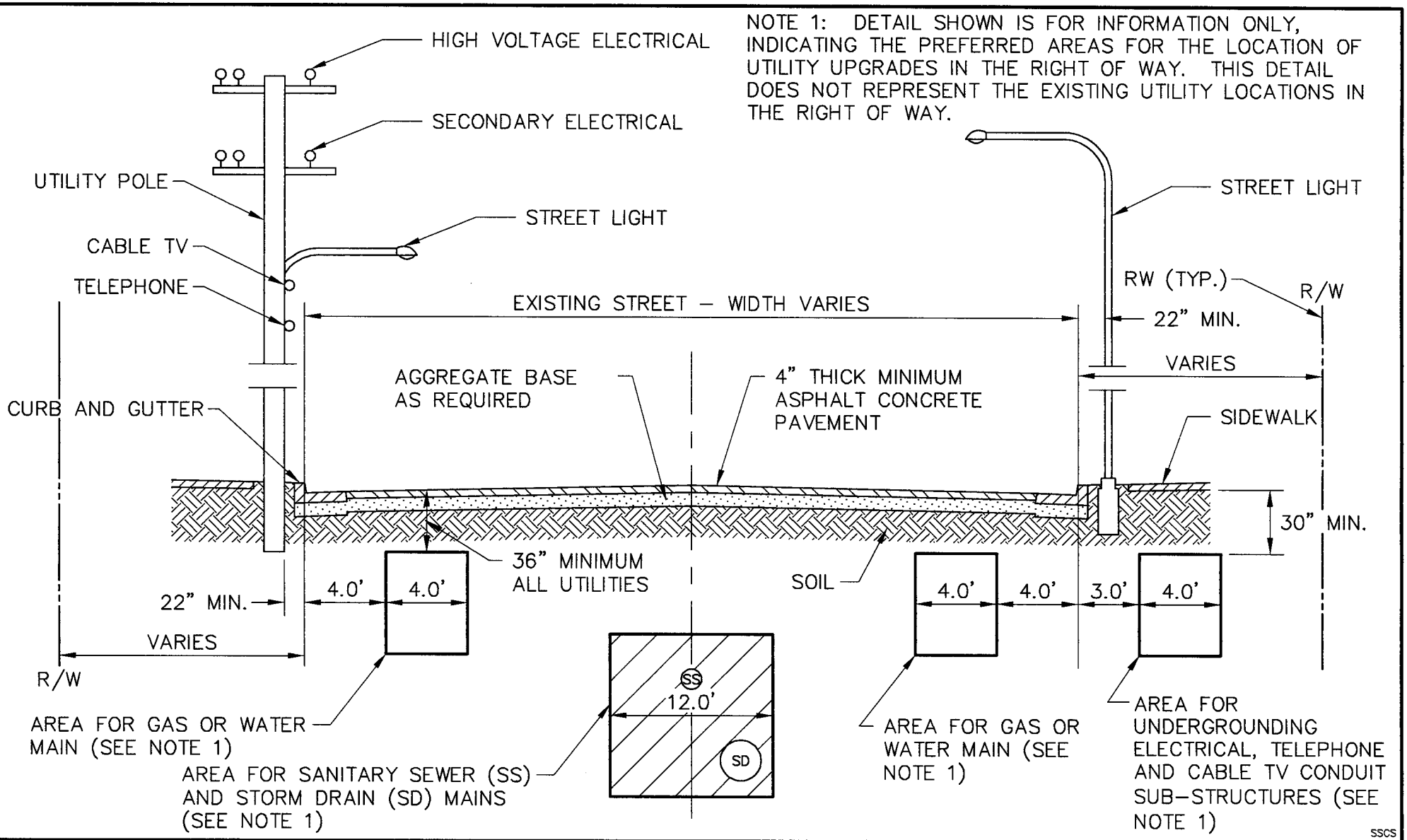
05/10/24
DATE

DESIGN:
DRAWN:
CHECK:

DATE: 05/10/24
SCALE: N.T.S.

PLAN: ST-01
SHEET: 03 OF 03

NOTE 1: DETAIL SHOWN IS FOR INFORMATION ONLY, INDICATING THE PREFERRED AREAS FOR THE LOCATION OF UTILITY UPGRADES IN THE RIGHT OF WAY. THIS DETAIL DOES NOT REPRESENT THE EXISTING UTILITY LOCATIONS IN THE RIGHT OF WAY.



SSCS

STANDARD DETAIL

STREET CROSS-SECTION FOR UTILITY PLACEMENT

SUBMITTED: Herbert J. Lotter
SUPERVISING CIVIL ENGINEER
DATE: 1/20/00
R.C.E. 18005
EXP. 6/30/01

APPROVED:
MANAGER OF ENGINEERING
DATE: 1/20/00
R.C.E. 23818
EXP. 12/31/01

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

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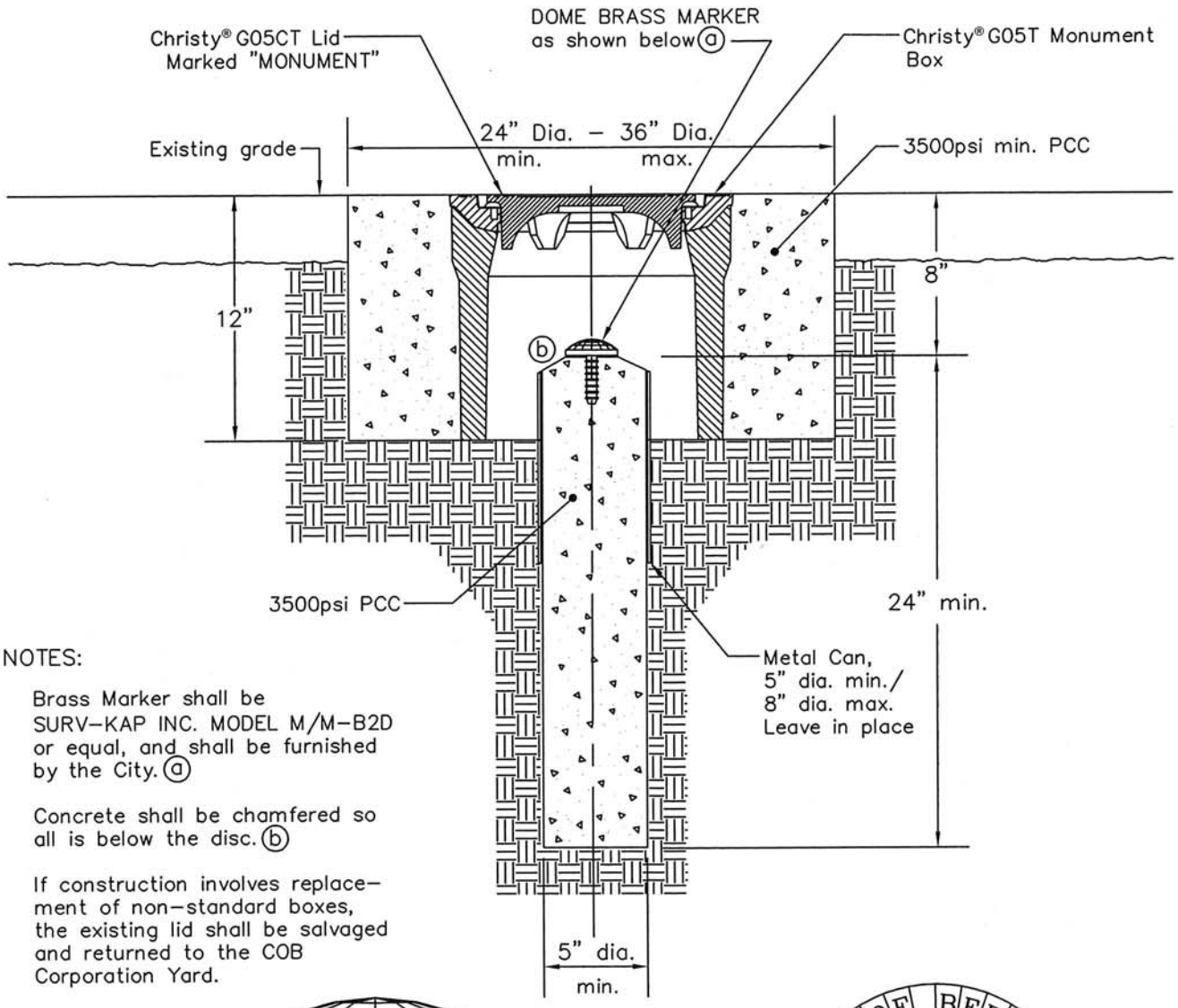
CHECK:	BOOK:	FILE: 20B-143

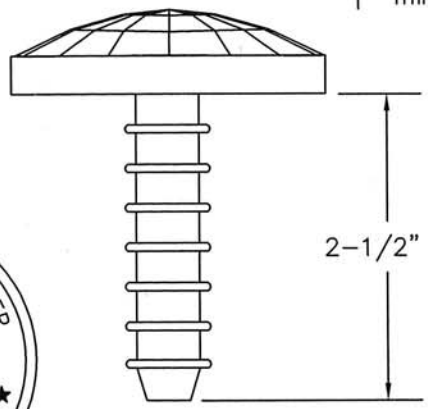


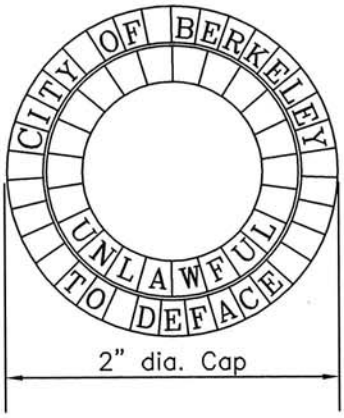
NOTES:

Brass Marker shall be SURV–KAP INC. MODEL M/M–B2D or equal, and shall be furnished by the City. ⓐ

Concrete shall be chamfered so all is below the disc. ⓑ

If construction involves replacement of non–standard boxes, the existing lid shall be salvaged and returned to the COB Corporation Yard.



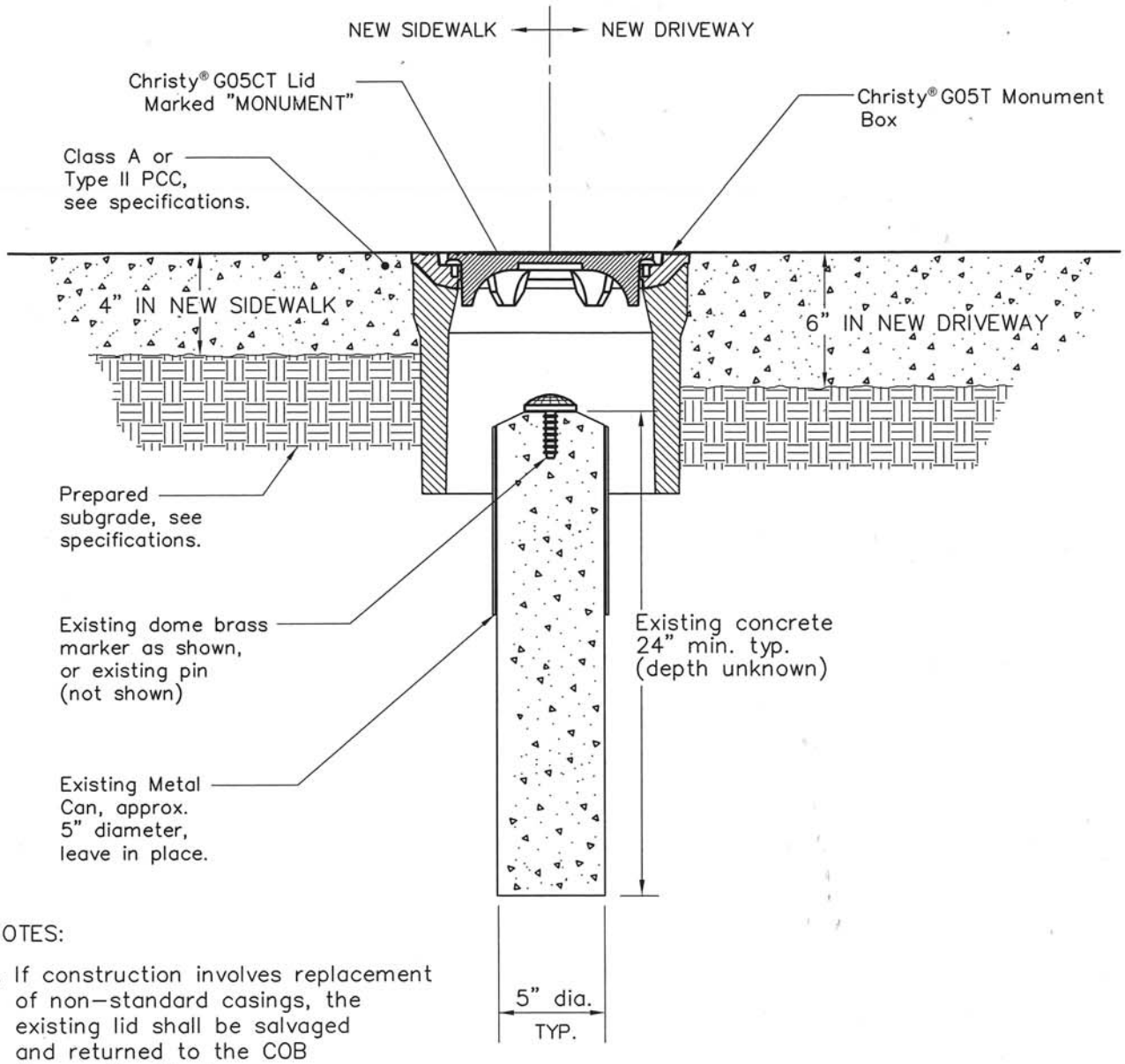


DOME BRASS MARKER

NOTE: This Drawing Supersedes COB Plan 7063, File: 20 B–120 MCT–12/2013

1	DOME BRASS MARKER TO BE FURNISHED BY THE CITY	DATE: 11/2010
2	REVISED DETAIL TO INCLUDE NEW STANDARD CHRISTY®G05T BOX & LID	DATE: 12/2013
3	UPDATE STANDARD SETTING AND REVISED TITLE BLOCK	DATE: 12/2015
4	REVISED STANDARD SETTING TO FULL CONCRETE COLLAR FLUSH w/EX. GRADE	DATE: 11/2017

DESIGN: MCT DRAWN: MCT CHECK: NAP	DATE: 11/2017 SCALE: N.T.S.	PLAN: 8090 FILE: 20–B–153	CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: 11-17-17 CITY ENGINEER DATE:			STANDARD CITY MONUMENT



NOTES:

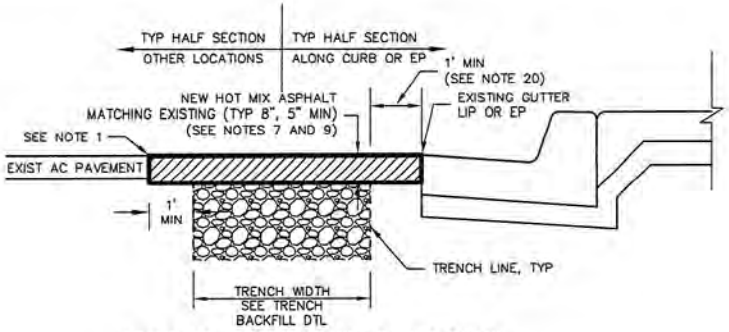
1. If construction involves replacement of non-standard casings, the existing lid shall be salvaged and returned to the COB Corporation Yard.

PROFESSIONAL ENGINEER
SEAN R. ROSE
C64314
EXP. 06/30/17
CIVIL
STATE OF CALIFORNIA

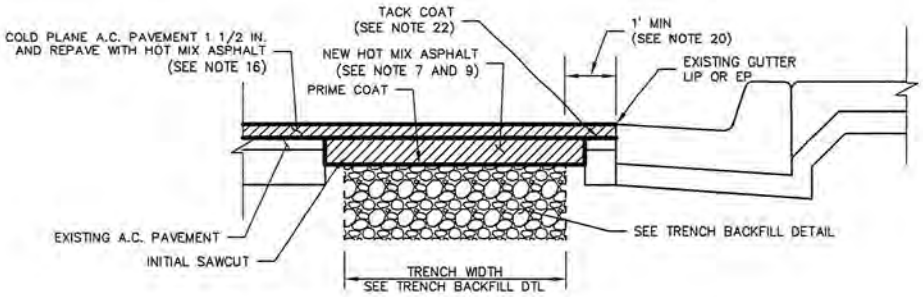
NOTE: This Drawing Supersedes COB Plan 7987, File: 20 B-150 MCT-12/2013

1	DOME BRASS MARKER TO BE FURNISHED BY THE CITY	DATE: 11/2010
2	REVISED DETAIL TO INCLUDE NEW STANDARD CHRISTY® G05T BOX & LID	DATE: 12/2013
3	UPDATE STANDARD SETTING AND REVISED TITLE BLOCK	DATE: 12/2015

DESIGN: EC/MCT DRAWN: EC/MCT CHECK: SRR	DATE: 12/2015 SCALE: N.T.S.	PLAN: 8091 FILE: 20-B-154	**CITY OF BERKELEY** **DEPARTMENT OF PUBLIC WORKS** **STANDARD DETAIL**
APPROVED: _____ 12/23/15 CITY ENGINEER DATE:			**CITY MONUMENT REHAB IN NEW SIDEWALK OR DRIVEWAY**

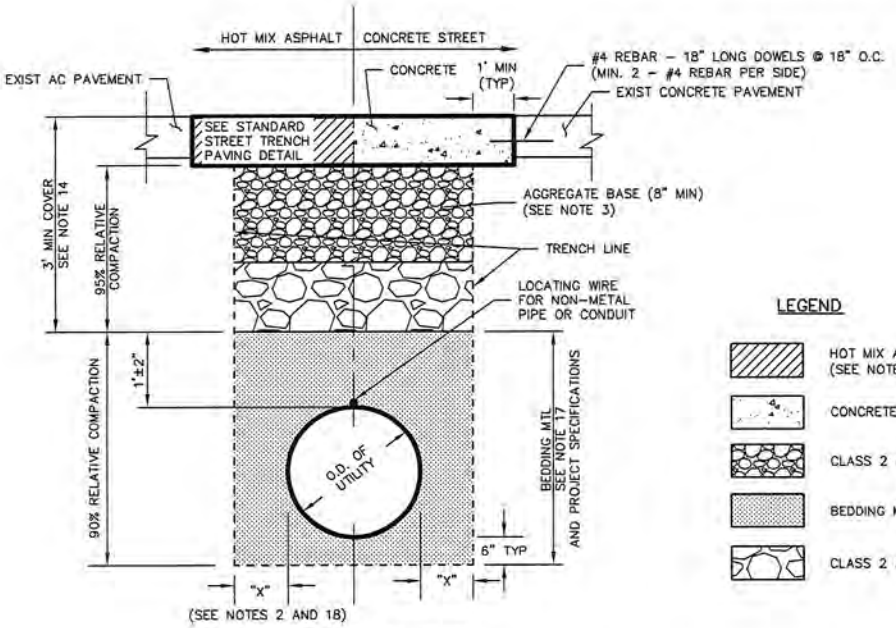


STANDARD STREET TRENCH PAVING DETAIL



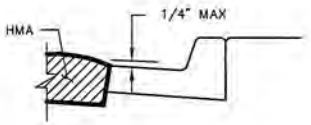
MORATORIUM STREET TRENCH PAVING DETAIL

(SEE NOTE 13 AND 16 FOR MORATORIUM STREETS)



TRENCH BACKFILL DETAIL

TYPICAL HALF SECTIONS



DETAIL A

GUTTER LIP PAVING

LEGEND

- HOT MIX ASPHALT (HMA) PAVING (SEE NOTE 9)
- CONCRETE PAVEMENT
- CLASS 2 AGGREGATE BASE (AB)
- BEDDING MATERIAL (SEE NOTE 17)
- CLASS 2 AGGREGATE BASE (AB)

STANDARD DETAIL
TRENCH EXCAVATION AND SURFACE RESTORATION

SUBMITTED: _____ DATE: 7/6/16
SUPERVISING CIVIL ENGINEER R.C.E. 64582

APPROVED: _____ DATE: 7/6/16
MANAGER OF ENGINEERING R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN: HEI
DRAWN: HEI
CHECK: _____

DATE: 06/2016
SCALE: _____
BOOK: _____

PLAN: 8136
FILE: 20-B-155
SHEET: 1 OF 2

NOTES:

1. TRENCH EXCAVATION IN THE PUBLIC RIGHT OF WAY SHALL CONFORM TO THE CITY OF BERKELEY GENERAL REGULATIONS FOR TRENCH EXCAVATION AND SURFACE RESTORATION IN THE PUBLIC RIGHT OF WAY. CUT THROUGH THE FULL DEPTH OF EXISTING SURFACING TO A NEAT STRAIGHT LINE AT LEAST 1.0 FOOT OUTSIDE THE TRENCH LINE. RECUT PAVEMENT EDGES DAMAGED DURING CONSTRUCTION TO NEAT LINES PRIOR TO PAVING. APPLY PAINT BINDER (TACK COAT) TO ALL VERTICAL SURFACES IN ACCORDANCE WITH THE LATEST EDITION OF CALTRANS STANDARD SPECIFICATIONS.

2. MINIMUM WIDTH OF TRENCH SHALL BE IN ACCORDANCE WITH THE DIMENSION SHOWN ON THE TRENCH BACKFILL DETAIL. DIMENSIONS "X" IS SHOWN BELOW FOR THE UTILITY "O.D."

UTILITY O.D.	"X" MIN
UNDER 1.0'	0.5'
1.0' TO 4.5'	1.0'
OVER 4.5'	2.0'

3. CLASS 2 AGGREGATE BASE (AB) SHALL BE INSTALLED IMMEDIATELY BELOW THE PAVEMENT SECTION TO BE REPLACED. THE AB QUALITY, GRADATION AND THE METHOD OF INSTALLATION SHALL BE IN CONFORMANCE WITH SECTION 26 OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION. THE DEPTH OF THE AB SHALL BE IN ACCORDANCE WITH THE TRENCH BACKFILL DETAIL. 95% RELATIVE COMPACTION IS REQUIRED.

4. RELATIVE COMPACTION SHALL BE DETERMINED BY CALIFORNIA TEST NUMBER 231 (NUCLEAR GAUGE) OR APPROVED EQUAL. PERMITTEE SHALL ARRANGE AND PAY FOR THE TEST FOR RELATIVE COMPACTION WHEN ORDERED BY THE ENGINEER. THE TEST SHALL BE PERFORMED BY A QUALIFIED MATERIAL TESTING LABORATORY AND TEST RESULTS BE SUBMITTED TO ENGINEERING FORTY-EIGHT (48) HOURS IN ADVANCE OF PERMANENT PAVING OPERATION.

5. PERMITTEE SHALL PLACE TEMPORARY BITUMINOUS RESURFACING TWO (2) INCHES IN THICKNESS OVER THE COMPACTED BACKFILL AREAS. GREATER THICKNESS MAY BE REQUIRED FOR MAJOR INTERSECTIONS AND OTHER CRITICAL AREAS BY THE ENGINEER AS NECESSARY. STEEL PLATES MAY BE USED AS AN ALTERNATIVE IF APPROVED BY ENGINEER.

6. TEMPORARY BITUMINOUS RESURFACING (CUT-BACK) SHALL BE MECHANICALLY COMPACTED IN PLACE TO A UNIFORM, EVEN SURFACE AND SHALL BE TRUE TO STREET GRADE AND CROSS SECTION. THE PERMITTEE SHALL REGULARLY INSPECT AND MAINTAIN THE TEMPORARY BITUMINOUS RESURFACING UNTIL THE EXCAVATION IS PERMANENTLY PAVED. THE SURFACING SHALL NOT VARY TO MORE THEN 1/2" FROM THE EDGE OF A 10 FOOT STRAIGHT EDGE. UPON NOTIFICATION, THE PERMITTEE SHALL CORRECT THE SURFACE DEFICIENCY WITHIN 48 HOURS. LOOSE ROCKS AND OTHER DEBRIS GENERATED FROM TEMPORARY RESURFACING OPERATIONS SHALL BE IMMEDIATELY REMOVED FROM THE WORKSITE.

7. TEMPORARY BITUMINOUS RESURFACING SHALL BE REMOVED BEFORE PLACEMENT OF FINAL PAVING. FINAL PAVING SHALL BE MINIMUM FIVE (5) INCHES THICK OR SAME AS THE EXISTING PAVEMENT, WHICHEVER IS GREATER. THE PAVEMENT SHALL BE PLACED ON UNDISTURBED PREVIOUSLY COMPACTED BACKFILL AREAS.

8. PAVEMENT OUTSIDE OF THE FINAL CUT LINE DAMAGED BY THE PERMITTEE'S OPERATIONS SHALL BE REMOVED BY SAW-CUTTING IN LINES PERPENDICULAR OR PARALLEL TO THE ORIGINAL TRENCH LINES. NO DIAGONAL CUTS WILL BE PERMITTED.

9. HOT MIX ASPHALT (HMA) SHALL BE TYPE A IN CONFORMANCE WITH SECTION 39 OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS, UNLESS OTHER WISE SPECIFIED IN THE ENCROACHMENT PERMIT CONDITIONS OR AS DIRECTED BY THE PUBLIC WORKS DEPARTMENT. HMA SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.

10. THE TOP 1 1/2" OF HMA SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 1/2" UNLESS OTHERWISE SPECIFIED. THE HMA BENEATH THE TOP LAYER SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 3/4".

11. UPON COMPLETION OF PAVING OPERATIONS THE PERMITTEE SHALL IMMEDIATELY REPLACE ALL PAVEMENT MARKING AND TRAFFIC STRIPING DAMAGED OR REMOVED BY HIS OPERATIONS. PAVEMENT MARKINGS AND TRAFFIC STRIPINGS SHALL BE REPLACED IN KIND OR WITH SUBSTITUTE MATERIAL APPROVED BY THE ENGINEER.

12. WHEN ANY PORTION OF THE CURB AT A LEGAL PEDESTRIAN CROSSWALK OR ANY PORTION OF THE SIDEWALK IN IMMEDIATE CONTACT WITH SUCH CURB IS REMOVED BY THE PERMITTEE OPERATIONS, THE PERMITTEE SHALL CONSTRUCT, AS PART OF HIS REPLACEMENT OPERATIONS, A CURB RAMP AS SHOWN IN CITY OF BERKELEY STANDARD DETAIL NO. 6780.

13. EXCAVATION ON STREETS RECONSTRUCTED OR RESURFACED WITHIN THE LAST 5 YEARS WILL NOT BE PERMITTED EXCEPT FOR CONDITIONS ENUMERATED IN THE CITY OF BERKELEY GENERAL REGULATIONS AND FOR TRENCH EXCAVATION AND SURFACE RESTORATION IN THE PUBLIC RIGHT OF WAY.

14. MINIMUM COVER OVER UTILITIES IS GOVERNED BY THE CALIFORNIA PUBLIC UTILITIES COMMISSION. UTILITY OWNERS SHALL CONSIDER PLACING THEIR UTILITY LINE AT A GREATER DEPTH TO AVOID FUTURE RELOCATION DUE TO STREET/ROAD RECONSTRUCTION. THE INCREASED DEPTH SHOULD INCLUDE SUFFICIENT CLEARANCE BETWEEN THE UTILITY AND PAVEMENT STRUCTURAL SECTION UPGRADE TO PREVENT DAMAGE BY CONSTRUCTION EQUIPMENT. THE PUBLIC WORKS DEPARTMENT RECOMMENDS A MINIMUM OF 36 INCHES OF COVER BELOW THE PAVEMENT SURFACE IN ROADWAYS AND 24 INCHES BELOW FINISH GRADE IN SIDEWALKS AND OTHER PUBLIC RIGHT OF WAY.

15. RESTORATION OF THE TRENCH EXCAVATION ON CALTRANS RIGHT OF WAY (SAN PABLO AVE., ASHBY AVE., AND TUNNEL RD.) SHALL BE IN ACCORDANCE WITH CALTRANS ENCROACHMENT PERMIT.

16. RESTORE PAVEMENT AS FOLLOWS: FOR TRENCHES PARALLEL WITH THE CENTERLINE OF THE STREET, COLD PLANE AND REPAVE THE LANE IN WHICH THE TRENCH LIES. FOR TRANSVERSE TRENCHES, COLD PLANE AND REPAVE 1/2 LANE WIDTH ON EACH SIDE OF THE TRENCH. FOR BELL HOLES, COLD GRIND AND PAVE 1 LANE WIDTH ON EACH SIDE OF THE EXCAVATION. PRIOR TO COLD PLANING, THE TRENCH SHALL BE PAVED IN 3 INCH MAXIMUM LIFTS TO THE ORIGINAL SURFACE GRADES OR TO WITHIN 1 1/2 INCHES OF THE EXISTING SURFACE. IF THE CONTRACTOR ELECTS TO PAVE WITHIN 1 1/2 INCHES OF THE EXISTING SURFACE, THE REMAINING 1 1/2 INCHES MUST BE PAVED WITH CUT BACK ASPHALT UNTIL THE SURFACE IS PLANED. FINAL PAVING SHALL COMMENCE WITHIN 3 DAYS AFTER COLD GRINDING. ALL LOOSE MATERIAL SHALL BE REMOVED FROM THE AREA TO BE REPAVED PRIOR TO REPAVING.

17. BEDDING MATERIAL SHALL BE CLASS 2 AB OR CRUSHED ROCK PER 2015 GREENBOOK, TABLE 200-1.2.1(A), 3/4" SIEVE SIZE. ALTERNATIVE MATERIALS SHALL BE APPROVED BY THE PUBLIC WORKS DEPARTMENT. IN NO CASE SHALL "PEA" GRAVEL BE ALLOWED. A MAXIMUM OF 6 INCHES OF SAND MAY BE USED AS A BEDDING MATERIAL FOR COMMUNICATION, GAS AND ELECTRIC CONDUITS ONLY.

18. FOR GAS, ELECTRIC AND COMMUNICATION CONDUITS WITH AN OUTSIDE DIAMETER EQUAL TO OR LESS THAN 4 INCHES, THE TRENCH WIDTH MAY BE REDUCED TO NO LESS THAN 12 INCHES.

19. UNSUITABLE NATIVE MATERIAL SHALL BE EXCAVATED BELOW THE LIMIT OF EXCAVATION AND REPLACED WITH SUITABLE BACKFILL MATERIAL WHEN DIRECTED BY THE PUBLIC WORKS DEPARTMENT.

20. WHERE THE TRENCH PARALLELS CURB AND THE NEAREST TRENCH LINE IS LESS THAN 3 FEET FROM THE GUTTER LIP, ALL EXISTING HMA SHALL BE REPLACED TO THE GUTTER LIP.

21. SLURRY CEMENT BACKFILL SHALL COMPLY WITH SECTION 19-3.02E OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS.

22. APPLY PAINT BINDER (TACK COAT) TO ALL EXISTING AC AND CONCRETE SURFACES IN ACCORDANCE WITH THE LATEST EDITION OF CALIFORNIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS.

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
TRENCH EXCAVATION AND SURFACE RESTORATION

SUBMITTED: _____ DATE: 7/6/16
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

APPROVED: _____ DATE: 7/6/16
MANAGER OF ENGINEERING — R.C.E. 66014

DESIGN:	HEI	DATE:	06/2016	PLAN:	8136
DRAWN:	HEI	SCALE:		FILE:	20-B-155
CHECK:		BOOK:		SHEET:	2 OF 2

GENERAL NOTES FOR CONCRETE FLAT WORK

1. CURB RAMPS SHALL CONFORM TO THE LATEST EDITION AND REVISED STANDARD PLAN (RSP) OF THE (CALIFORNIA DEPARTMENT OF TRANSPORTATION) STANDARD SPECIFICATIONS AND STANDARD PLAN A88A AND A88B.

2. PORTLAND CEMENT CONCRETE FOR SIDEWALK, CURB, DRIVEWAY, GUTTER AND VALLEY GUTTER SHALL BE MINOR CONCRETE CONFORMING TO THE REQUIREMENTS OF SECTION 90-2 "MINOR CONCRETE" OF THE (CALIFORNIA DEPARTMENT OF TRANSPORTATION) STANDARD SPECIFICATIONS. NO BAGGED MIX IS PERMITTED.

3. BUS PAD CONCRETE SHALL BE DESIGNED WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AND SHALL BE SAMPLED (3 CYLINDERS REQ'D) AND TESTED.

4. EXISTING SUBGRADE SURFACE SHALL BE RE-GRADED (IF NECESSARY) AND RE-COMPACTED (MIN 95% RELATIVE COMPACTION) TO CONFORM TO THE GRADES SHOWN ON THE PLANS.

5. NEW CONCRETE WORK SHALL MATCH EXISTING IN FINISH, SCORE PATTERN, AND COLOR, OR AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
   a) ROSE COLORED CONCRETE SHALL CONTAIN 6 POUNDS OF DAVIS #160 (ROSE) PER CUBIC YARD.
   b) ALL OTHER CONCRETE SHALL CONTAIN 1.5 POUND OF LAMPBLACK PER CUBIC YARD.

6. NO ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF THE ENGINEER.

7. CURBS, SIDEWALKS, DRIVEWAYS, AND CURB RAMPS SHALL HAVE FORMS REMOVED AND BE BACKFILLED WITHIN 3 DAYS AFTER PLACING CONCRETE. CONCRETE SHALL BE ALLOWED TO CURE FOR AT LEAST 48 HOURS PRIOR TO BACKFILLING.

8. MAXIMUM SLUMP OF FRESH CONCRETE PERMITTED IN THESE ITEMS SHALL BE 4 INCHES. SLUMP SHALL BE DETERMINED BY EITHER ASTM C-143 OR CALIFORNIA TEST METHOD NO. 520 AT THE ENGINEER'S DISCRETION. CONCRETE SHALL BE TRANSPORTED IN TRUCK MIXERS OR AGITATORS AND DISCHARGED WITHIN 70 MINUTES OF LEAVING THE PLANT.

9. WEAKENED PLANE JOINTS AT LEAST 1-1/2 INCHES DEEP AND 1/8 INCHES WIDE SHALL BE PLACED AT 10 FEET MAXIMUM SPACING.

10. EXPANSION JOINT FILLER FOR CONCRETE (BITUMINOUS TYPE) MUST BE IN COMPLIANCE WITH ASTM D 994.

11. ALL NEW CURB, SIDEWALK, VALLEY GUTTER AND DRIVEWAYS CONSTRUCTED ADJACENT TO EXISTING CONCRETE CURB OR SIDEWALK SHALL BE DOWELLED TO THE EXISTING CONCRETE. THE DOWELS SHALL BE #4 REBAR, 18 INCHES LONG AT 18 INCHES MAXIMUM SPACING. DOWELS SHALL BE EMBEDDED A MINIMUM OF 8-INCHES IN A 5/8 INCH DRILLED HOLE (EXIST. CONC.).

12. SIDEWALK SHALL BE CONSTRUCTED WITH EXPANSION JOINTS AT EACH BEGINNING OF CURVE (BC) AND END OF CURVE (EC).

13. CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS SHALL BE GIVEN A MEDIAN BROOM FINISH. THE SURFACE SHALL FIRST BE GIVEN A FLOATED FINISH AND FINAL TROWELING SHALL BE DONE WITH A STEEL TROWEL. THE FINISHED SURFACE SHALL BE FREE OF ALL TROWEL MARKS AND SHALL BE UNIFORM IN TEXTURE AND APPEARANCE, BROOM TEXTURE SHALL BE IN THE LONGITUDINAL DIRECTION.

14. CLASS 2 AGGREGATE BASE (CL 2 AB) SHALL CONFORM TO THE CALTRANS STANDARD SPECIFICATIONS (LATEST EDITION) AND SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% RELATIVE COMPACTION.

15. EXISTING ASPHALT CONCRETE SHALL BE SAWCUT, REMOVED AND RECONSTRUCTED FOR A MINIMUM OF 2-FEET WITHIN EDGES OF CONCRETE WORK. HOT MIX ASPHALT SHALL BE A MINIMUM THICKNESS OF 8" AND CL 2 AB SHALL MATCH EXISTING THICKNESS. AS APPROVED BY THE CITY ENGINEER. SEE PLAN 8148 "CURB AND GUTTER RETROFIT" FOR ADDITIONAL REQUIREMENTS.

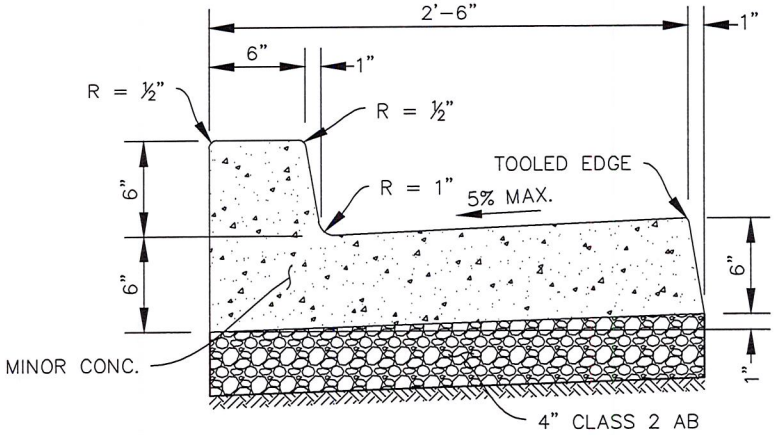
CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
CONCRETE WORK NOTES

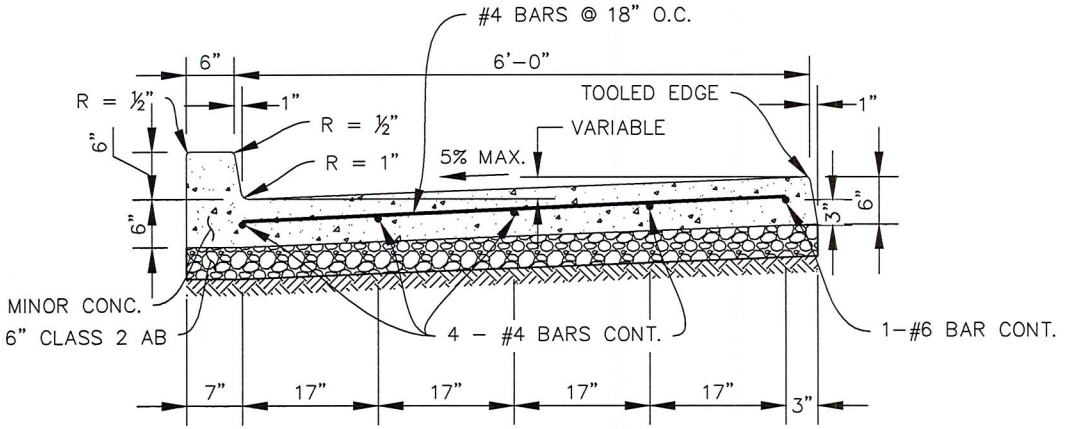
SUBMITTED: _____ DATE: 2/27/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

APPROVED: _____ DATE: 2/28/17
MANAGER OF ENGINEERING — R.C.E. 66014

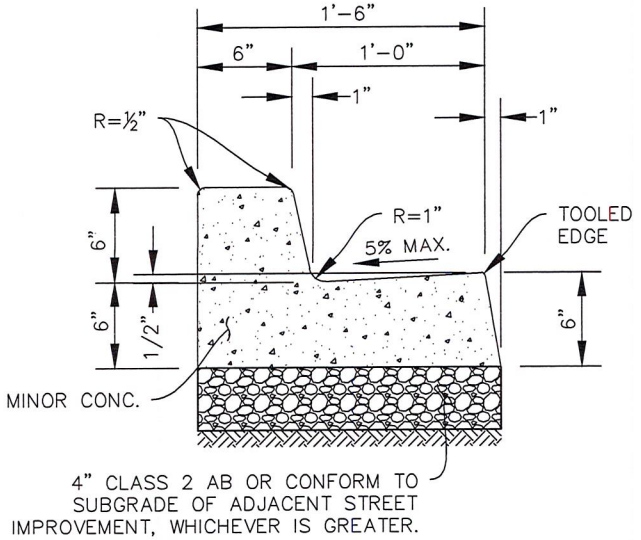
DESIGN:	HEI	DATE:	01/26/17	PLAN:	8144
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-156
CHECK:	MS	BOOK:		SHEET:	1 OF 1



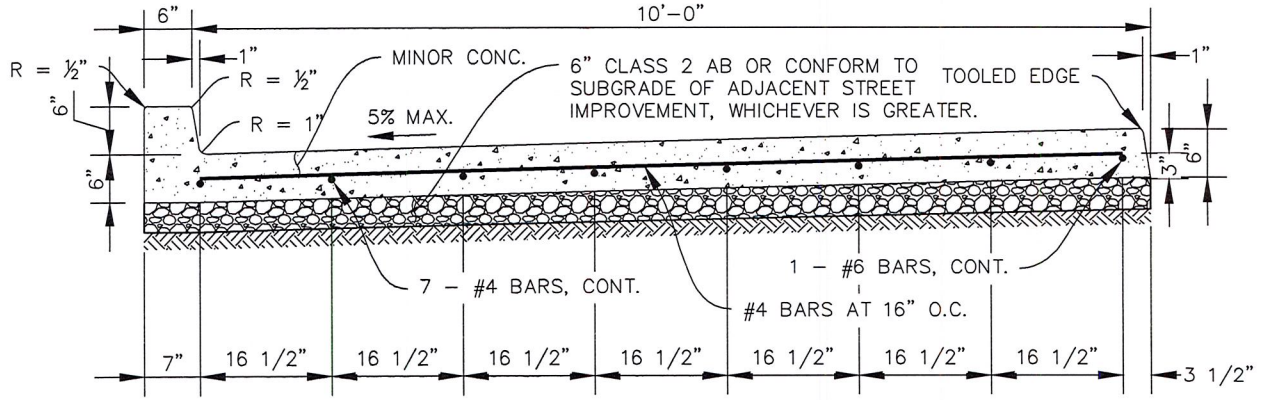
STANDARD CURB AND GUTTER DETAIL



CURB AND 6 FOOT GUTTER DETAIL



CURB AND 1 FOOT GUTTER DETAIL



CURB AND 10 FOOT GUTTER DETAIL

NOTE:
1. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

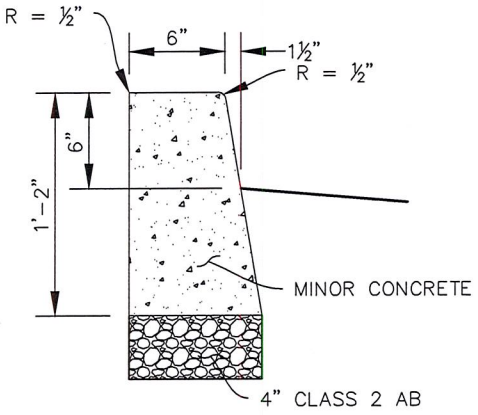
STANDARD DETAIL
CURB AND GUTTER

SUBMITTED: Don Ruby — DATE: 2/27/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

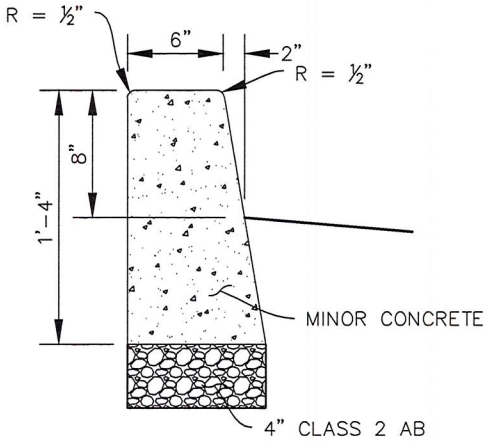
APPROVED: — DATE: 2/28/17
MANAGER OF ENGINEERING — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN:	HEI	DATE:	01/26/17	PLAN:	8145
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-157
CHECK:	MS	BOOK:		SHEET:	1 OF 1



STANDARD 6" VERTICAL CURB DETAIL



STANDARD 8" VERTICAL CURB DETAIL

NOTE:
1. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

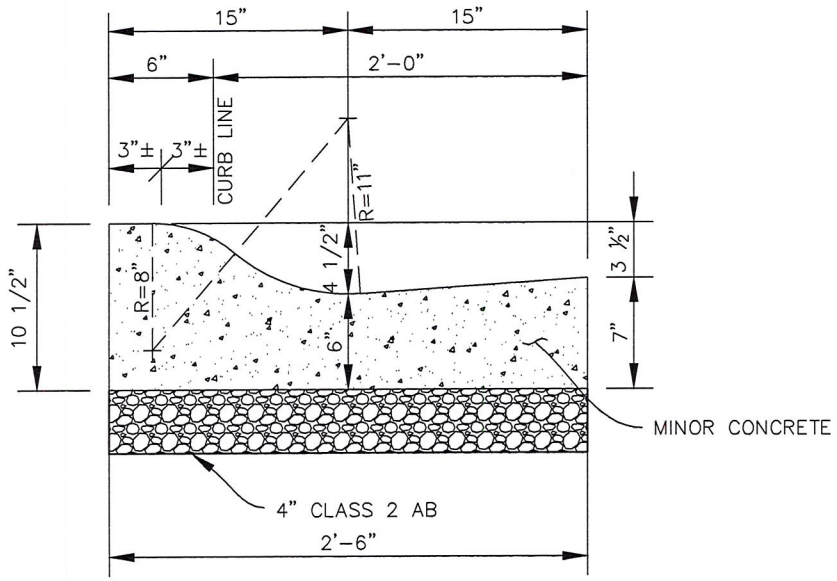
STANDARD DETAIL
VERTICAL CONCRETE CURB

SUBMITTED: Don Zerby — SUPERVISING CIVIL ENGINEER — DATE: 2/27/17 — R.C.E. 64582

APPROVED: — MANAGER OF ENGINEERING — DATE: 2/28/17 — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN:	HEI	DATE:	01/26/17	PLAN:	8146
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-158
CHECK:	MS	BOOK:		SHEET:	1 OF 1



ROLL TYPE DETAIL

NOTE:
1. TO BE USED ONLY WITH SPECIAL PERMISSION FROM THE CITY ENGINEER.
2. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

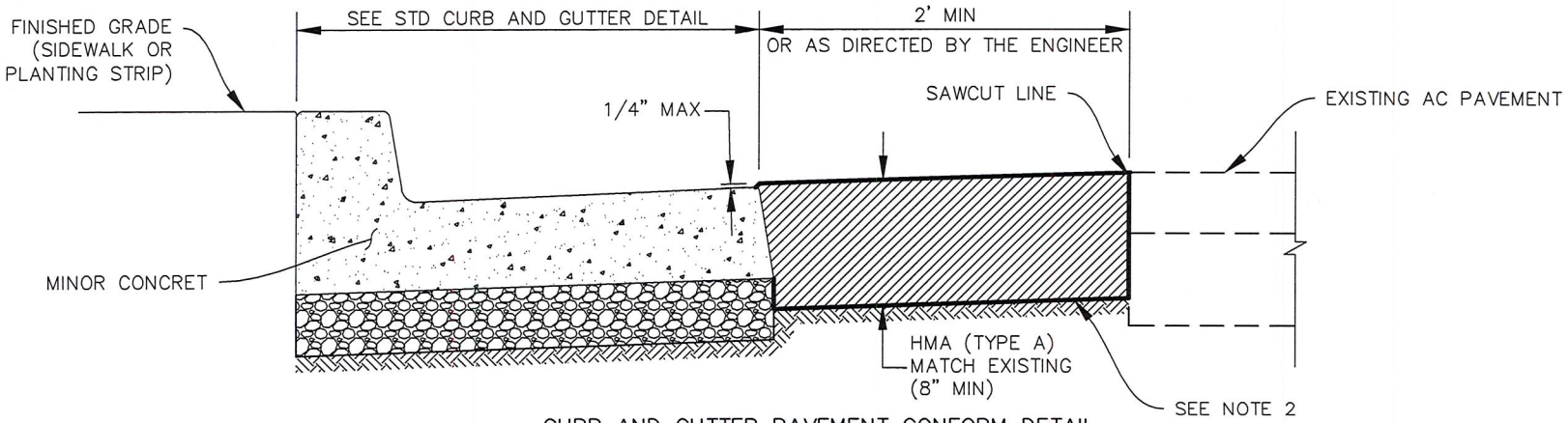
STANDARD DETAIL
ROLLED CURB

SUBMITTED: Don Irby — DATE: 2/27/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

APPROVED: — DATE: 2/28/17
MANAGER OF ENGINEERING — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN:	HEI	DATE:	01/26/17	PLAN:	8147
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-159
CHECK:	MS	BOOK:		SHEET:	1 OF 1



CURB AND GUTTER PAVEMENT CONFORM DETAIL

NOTES:

1. PAVEMENT CONFORM SHALL BE PAVED IN 2 INCH MAXIMUM LIFTS.
2. APPLY ASPHALTIC EMULSION PAINT BINDER (TACK COAT) TO ALL EXISTING AC AND CONCRETE SURFACES IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS.
3. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

STANDARD DETAIL
CURB AND GUTTER RETROFIT

SUBMITTED: Dan Irby — DATE: 2/27/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

APPROVED: — DATE: 2/28/17
MANAGER OF ENGINEERING — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN:	HEI	DATE:	01/26/17	PLAN:	8148
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-160
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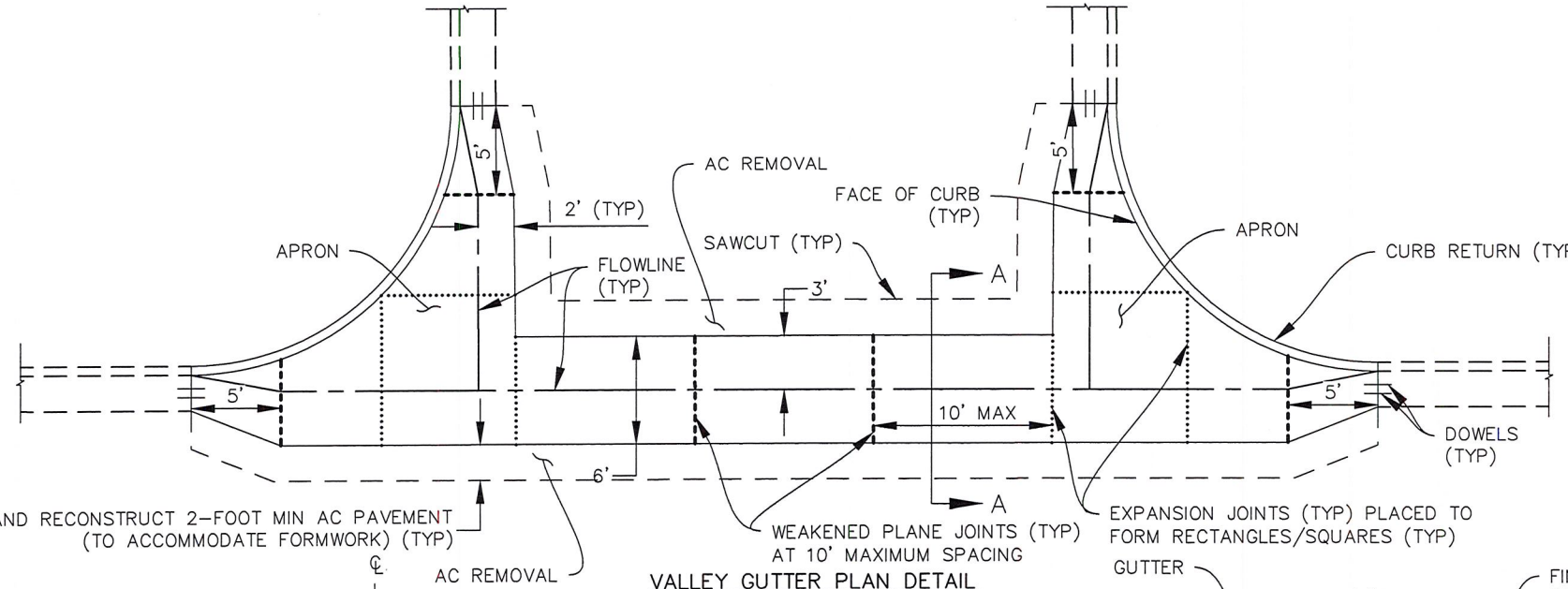
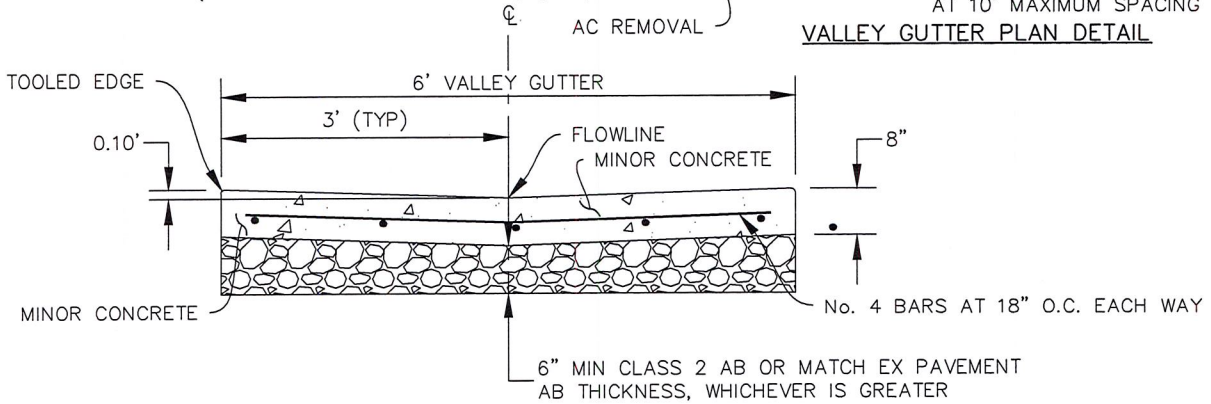
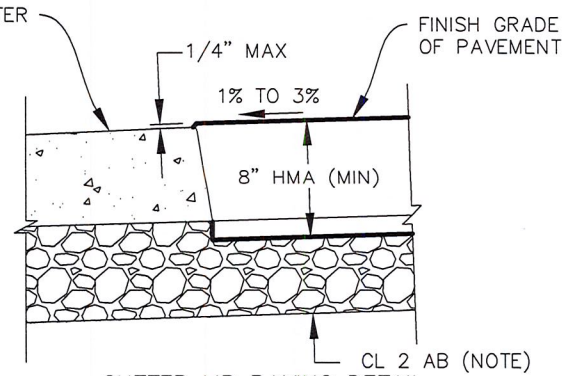


VALLEY GUTTER PLAN DETAIL



SECTION A-A



GUTTER LIP PAVING DETAIL

NOTE:
1. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

NOTE:
1. PAVEMENT SECTION SHALL BE AS APPROVED BY THE CITY ENGINEER. LAYERS SHALL NOT BE LESS THAN THE EXISTING THICKNESS.

STANDARD DETAIL
VALLEY GUTTER

SUBMITTED: Dan Ruby — DATE: 2/27/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

APPROVED: — DATE: 2/28/17
MANAGER OF ENGINEERING — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN: HEI	DATE: 01/26/17	PLAN: 8149
DRAWN: HEI	SCALE: N.T.S.	FILE: 20B-161
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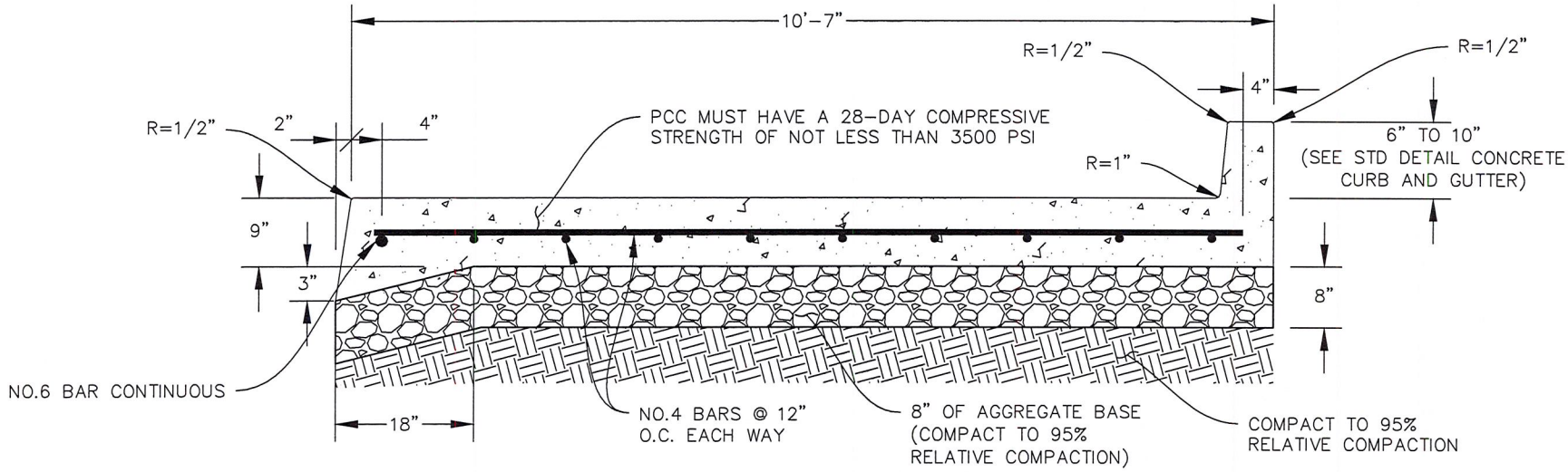

BUS PAD DETAIL

NOTES:

1. ALL FREE EDGES OF BUS PAD TO BE THICKENED AND REINFORCED WITH A #6 BAR.
2. ALL EXPOSED PCC CORNERS SHALL BE ROUNDED A 1/2" RADIUS.
3. CONSTRUCT TRANSVERSE WEAKENED-PLANE JOINTS IN BUS PAD PAVEMENT AT APPROXIMATELY 10' INTERVALS.
4. CONSTRUCT TRANSVERSE WEAKENED-PLANE JOINTS IN BUS PAD PAVEMENT AT ALL EXISTING CURB, CURB AND GUTTER CONSTRUCTION JOINTS AND WEAKENED-PLANE JOINTS.
5. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

STANDARD DETAIL
BUS PAD

SUBMITTED: Don Erby — SUPERVISING CIVIL ENGINEER — DATE: 2/27/17 — R.C.E. 64582

APPROVED: — MANAGER OF ENGINEERING — DATE: 2/28/17 — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN: HEI
DRAWN: HEI
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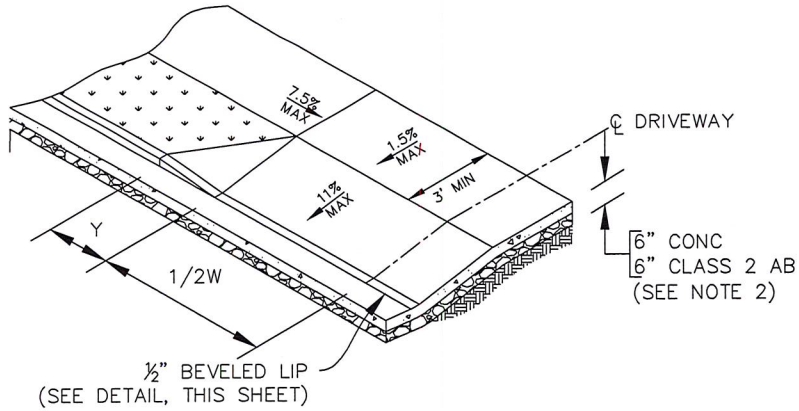
DATE: 01/26/17
SCALE: N.T.S.
BOOK:

PLAN: 8150
FILE: 20B-162
SHEET: 1 OF 1

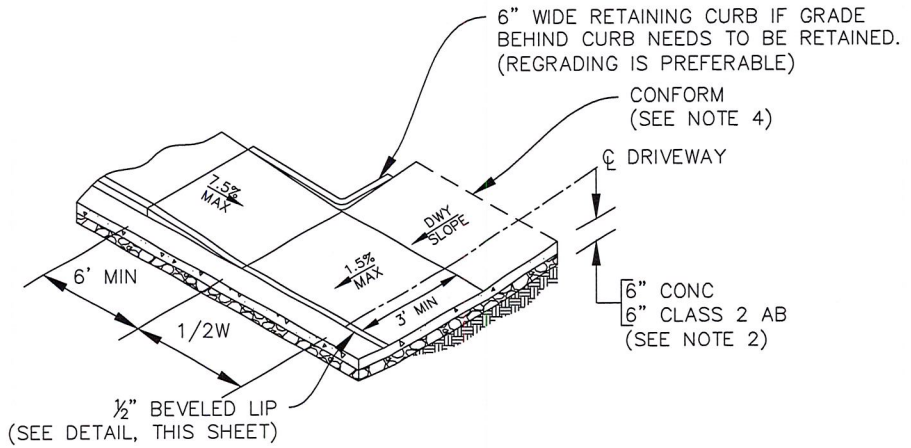


DRIVEWAY WITH SEPARATED SIDEWALK

W=DRIVEWAY WIDTH (SEPARATED SIDEWALK)

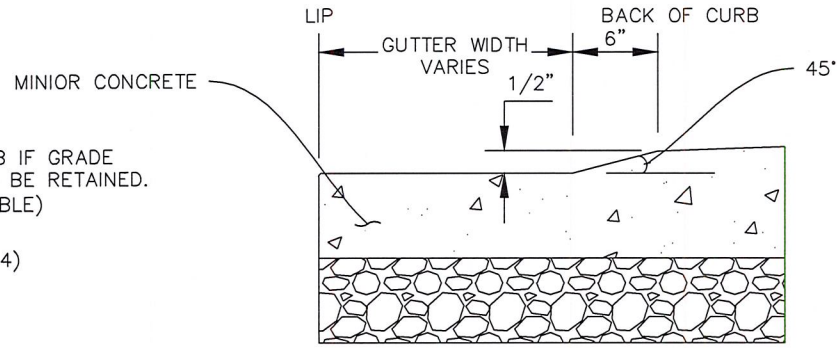
NOTES:

1. REFER TO GENERAL NOTES FOR CONCRETE WORK.
2. RESIDENTIAL DRIVEWAYS SHALL BE 6 INCHES THICK PORTLAND CEMENT CONCRETE (PCC). COMMERCIAL AND INDUSTRIAL DRIVEWAYS SHALL BE 6 INCHES THICK REINFORCED CONCRETE. REINFORCEMENT SHALL BE 6"X6" WELDED WIRE FABRIC, #10 GAUGE MESH OR #4 BARS AT 18 INCH O.C. EACH WAY. THE REQUIRED STRUCTURAL SECTION FOR ANY DRIVEWAY SHALL BE CONTINUOUS FROM THE CURB TO THE BACK OF SIDEWALK.
3. DEPTH OF GUTTER FLOWS SHALL BE CALCULATED AND COMPARED TO PROPOSED SIDEWALK ELEVATIONS DURING DESIGN TO ENSURE GUTTER FLOWS ARE CONTAINED AND RUNOFF WITHIN THE PUBLIC RIGHT OF WAY DOES NOT DRAIN ONTO PRIVATE PROPERTY.
4. RETAINING CURBS AND DRIVEWAY CONFORMS AS REQUIRED.
5. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."



DRIVEWAY WITH MONOLITHIC SIDEWALK

W=DRIVEWAY WIDTH (MONOLITHIC SIDEWALK)



BEVELED LIP

TABLE OF DRIVEWAY DIMENSIONS		
Dimension	Commercial & Industrial	Residential
Y	5' MIN	2' MIN
W	12' MIN	8' MIN

STANDARD DETAIL
DRIVEWAY

SUBMITTED: Dan Barb — SUPERVISING CIVIL ENGINEER — DATE: 2/27/17 — R.C.E. 64582

APPROVED: — MANAGER OF ENGINEERING — DATE: 2/28/17 — R.C.E. 66014

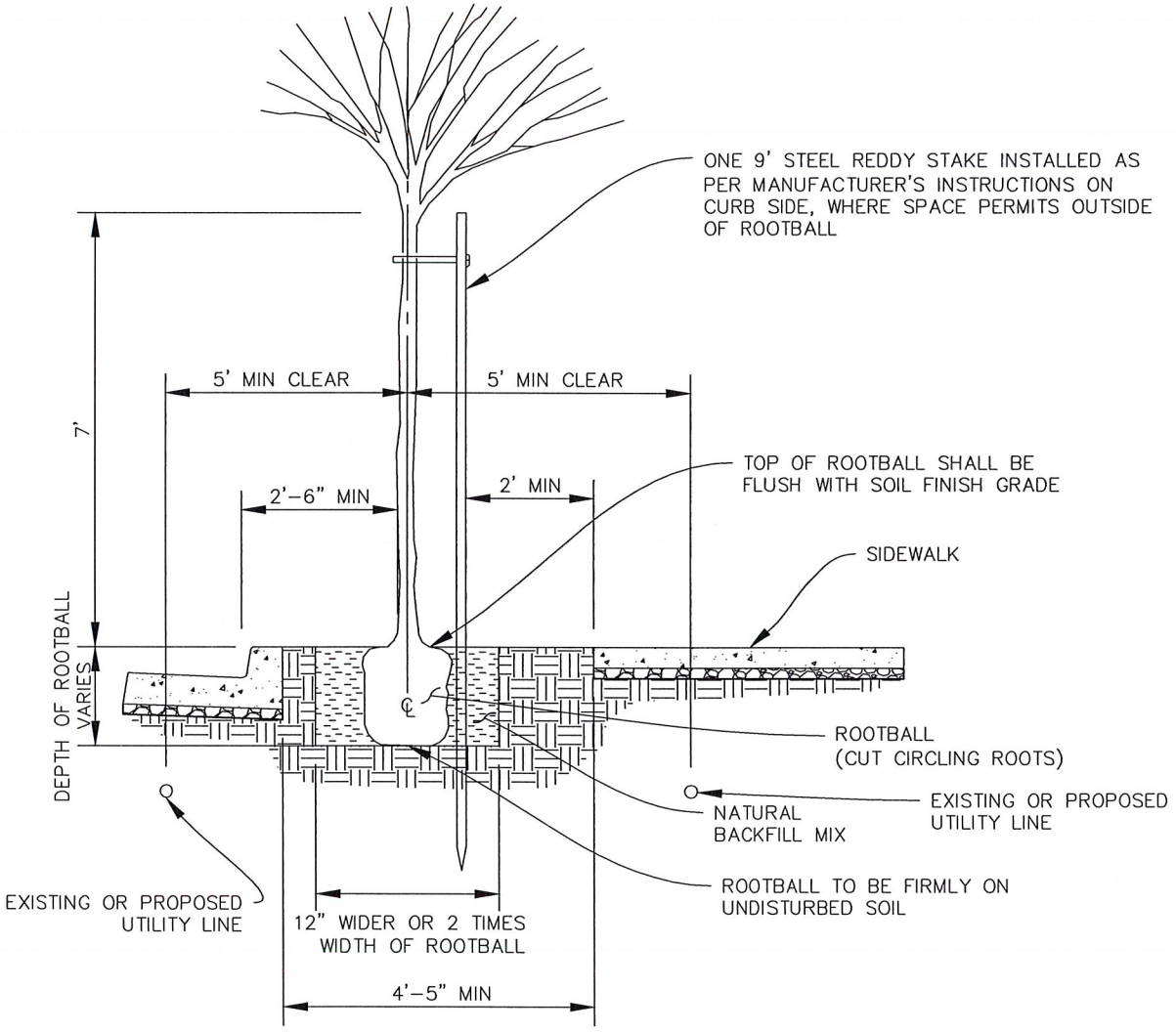
CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

DESIGN: HEI
DRAWN: HEI
CHECK: MS

DATE: 01/26/17
SCALE: N.T.S.
BOOK:

PLAN: 8151
FILE: 20B-163
SHEET: 1 OF 1

NOTE:
1. SPECIFIC TREE SPECIES SHALL BE APPROVED BY THE CITY OF BERKELEY'S MUNICIPAL URBAN FORESTRY UNIT.



SIDEWALK PLANTING DETAIL

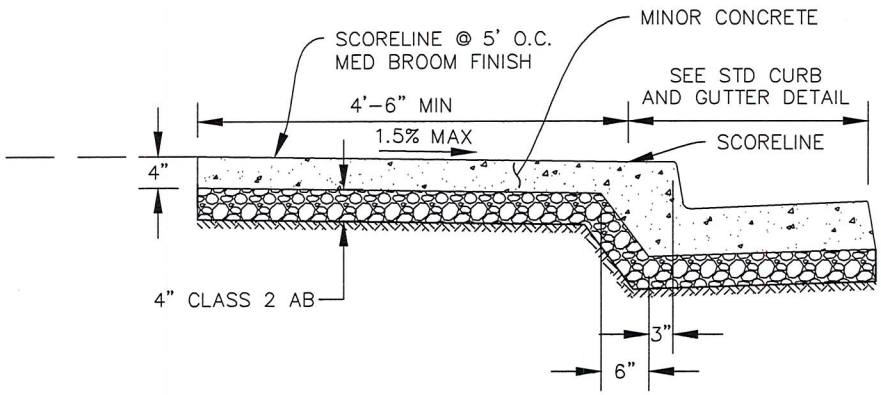
CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
SIDEWALK PLANTING

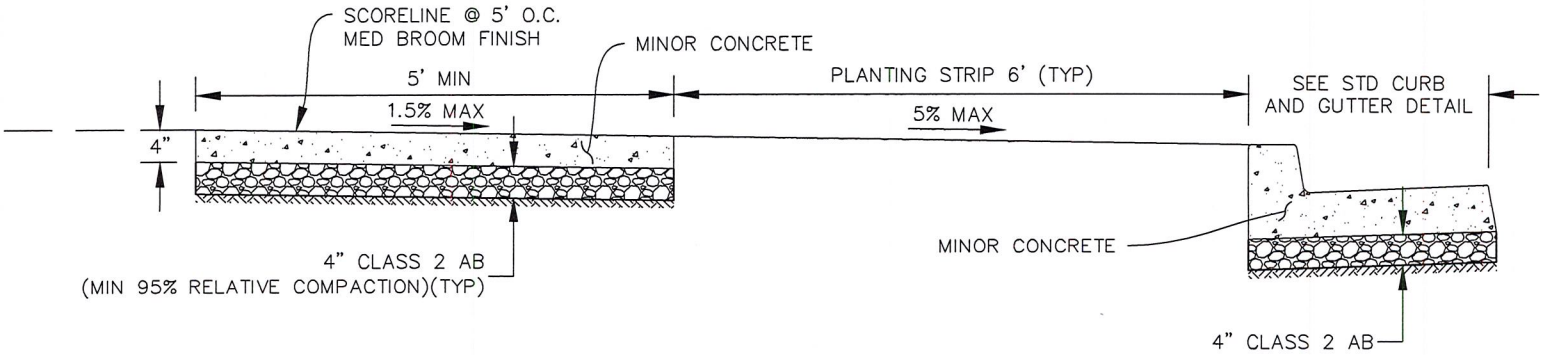
SUBMITTED: _____ DATE: 2/27/17
SUPERVISING CIVIL ENGINEER R.C.E. 64582

APPROVED: _____ DATE: 2/28/17
MANAGER OF ENGINEERING R.C.E. 66014

DESIGN:	HEI	DATE:	01/26/17	PLAN:	8152
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-164
CHECK:	MS	BOOK:		SHEET:	1 OF 1



STANDARD SIDEWALK DETAIL



STANDARD SIDEWALK WITH PLANTING STRIP DETAIL

NOTE:
1. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

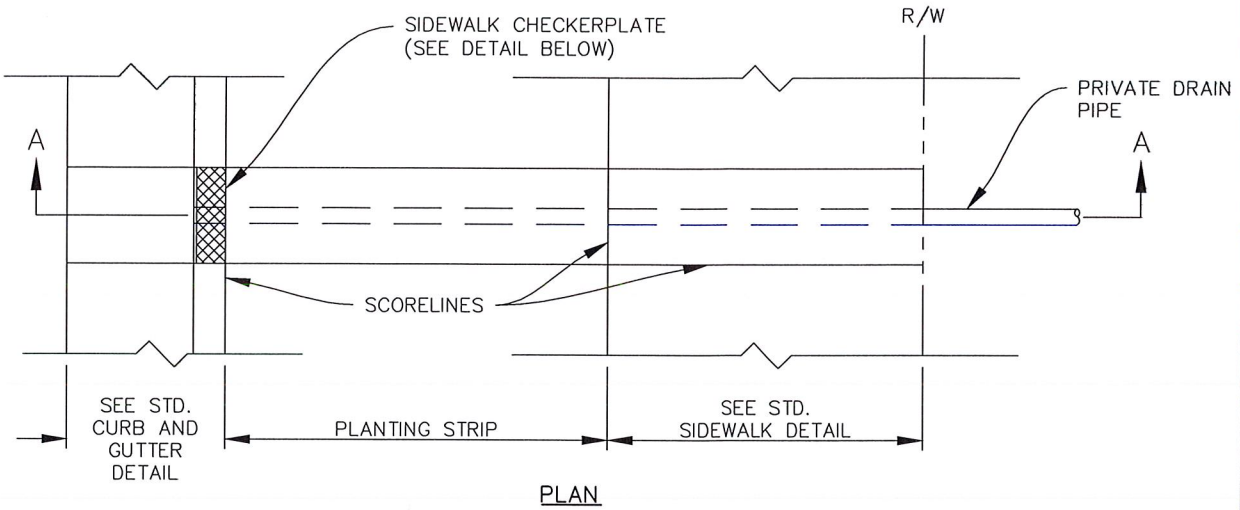
STANDARD DETAIL
SIDEWALK

SUBMITTED: Don Dod — SUPERVISING CIVIL ENGINEER — DATE: 2/27/17 — R.C.E. 64582

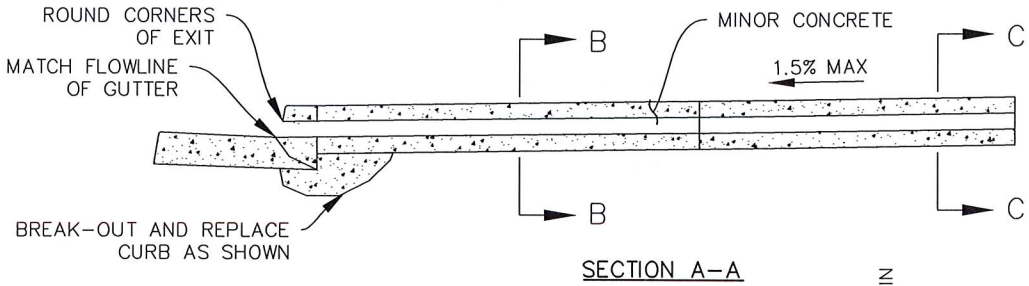
APPROVED: — MANAGER OF ENGINEERING — DATE: 2/28/17 — R.C.E. 66014

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

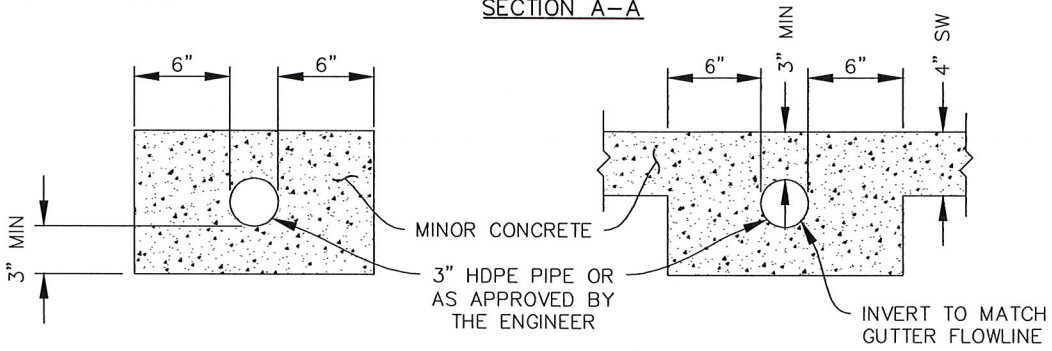
DESIGN:	HEI	DATE:	01/26/17	PLAN:	8153
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-165
CHECK:	MS	BOOK:		SHEET:	1 OF 1



PLAN



SECTION A–A



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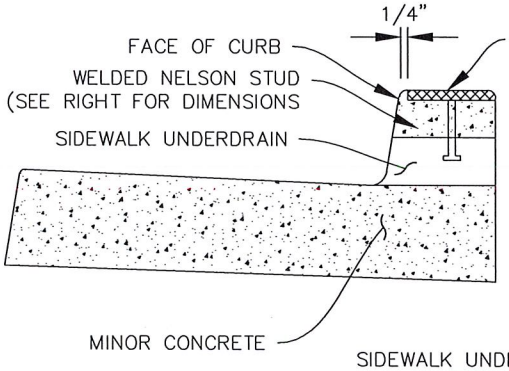

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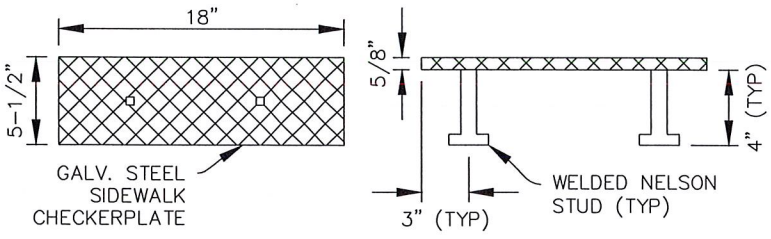


SIDEWALK UNDERDRAIN CHECKERPLATE SHALL BE GALVANIZED STEEL WITH AN EMBOSSED NONSKID PATTERN

SIDEWALK CHECKERPLATE DETAIL

NOTES:

1. WHERE SIDEWALK UNDERDRAINS ARE INSTALLED AT LOCATIONS WHERE CURB, GUTTER, AND SIDEWALK IS EXISTING, REMOVE 24" OF CURB AND SIDEWALK SHALL BE SAWCUT AND REMOVED BETWEEN SCORELINES.
2. MULTIPLE PARALLEL SIDEWALK UNDERDRAINS SHALL HAVE 4" CLEAR BETWEEN EDGE OF PIPES.
3. FOR ADDITIONAL REQUIREMENTS, SEE PLAN 8144, "CONCRETE WORK NOTES."

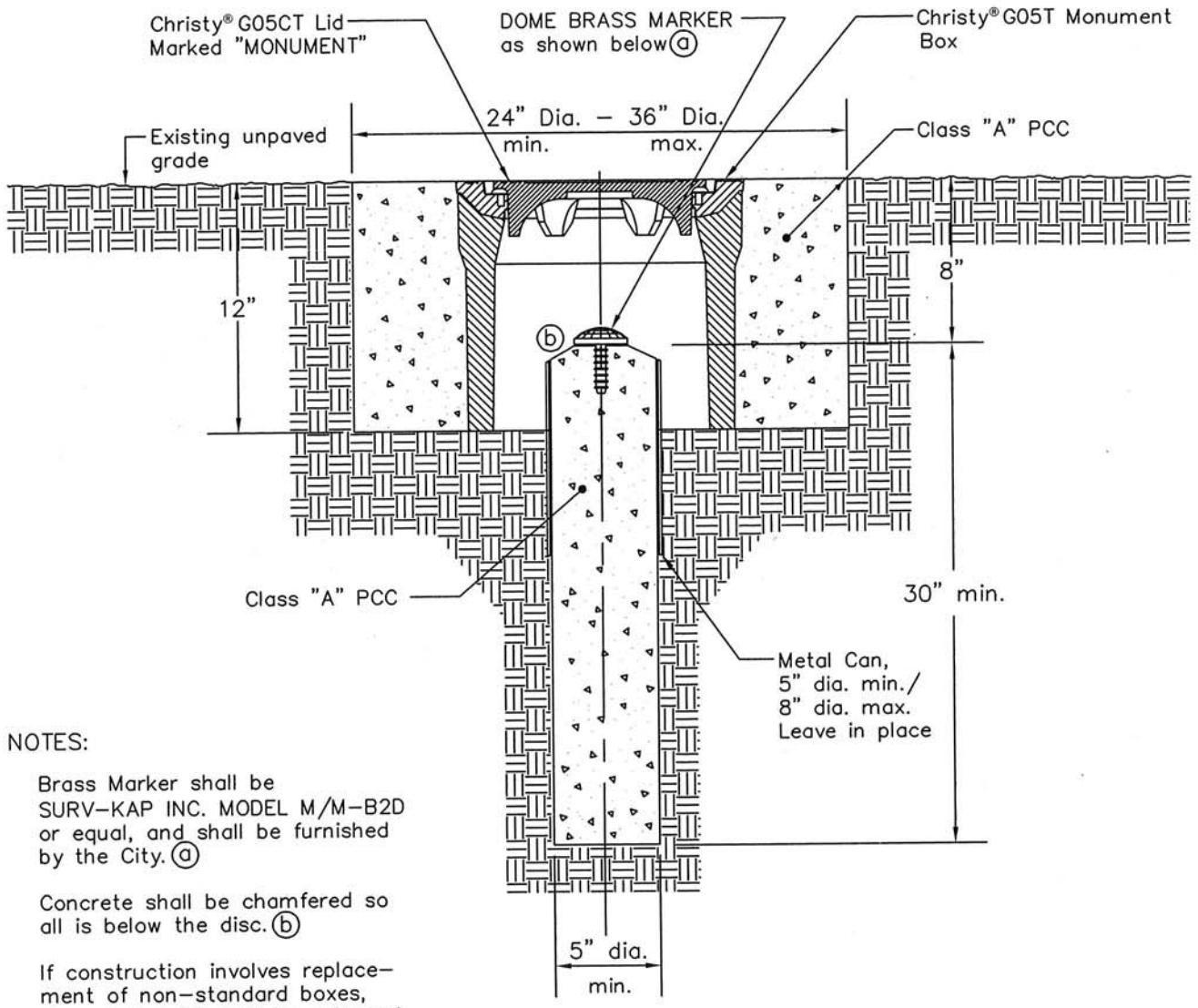
CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
SIDEWALK UNDERDRAIN

SUBMITTED: Don Erb — DATE: 2/27/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582

APPROVED: — DATE: 2/28/17
MANAGER OF ENGINEERING — R.C.E. 6004

DESIGN:	HEI	DATE:	01/26/17	PLAN:	8154
DRAWN:	HEI	SCALE:	N.T.S.	FILE:	20B-166
CHECK:	MS	BOOK:		SHEET:	1 OF 1

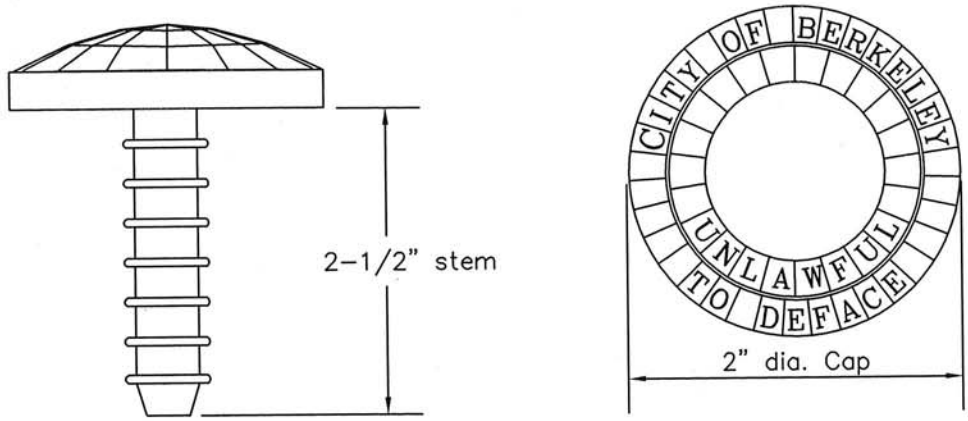


NOTES:

Brass Marker shall be SURV–KAP INC. MODEL M/M–B2D or equal, and shall be furnished by the City. ⓐ

Concrete shall be chamfered so all is below the disc. ⓑ

If construction involves replacement of non–standard boxes, the existing lid shall be salvaged and returned to the COB Corporation Yard.



DOME BRASS MARKER

PROFESSIONAL ENGINEER
NISHA A. PATEL
C72491
CIVIL
STATE OF CALIFORNIA

DESIGN: MCT DRAWN: MCT CHECK: NAP	DATE: 11/2017 SCALE: N.T.S.	PLAN: 8179 FILE: 20–B–167	CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: 11-17-17 CITY ENGINEER	DATE:		CITY MONUMENT INSTALLATION IN UNPAVED SURFACE

CURBS, GUTTERS, SIDEWALKS, AND DRIVEWAY APPROACHES CONSTRUCTED UNDER CITY PERMITS

DETAIL SPECIFICATIONS NO. 20A

2001 DESCRIPTION

2001.1A Construction between the lip of the gutter and the front property line under City permit and inspection shall be in conformity with these specifications, provided that with the approval of the Director of Public Works, special provisions attached to approved building plans, established good engineering practice, or special instructions given at the job site by the Engineering Inspector shall prevail when a conflict with these specifications is determined. Work not done according to these specifications, or work which undergoes failure at any time up to six months following installation when, in the judgment of the Director of Public Works said failure is the result of non-compliance with these specifications, shall be replaced by the permittee, or by the City at the permittee's expense.

2002 MATERIALS

2002.1A Portland Cement Concrete (hereinafter referred to as concrete) shall be five (5) sack, 1½" maximum aggregate and shall conform in all other particulars to City of Berkeley Detail Specification No. 50 or the current edition of Standard Specifications of the State of California of Transportation (hereinafter referred to as State Specs) except that the concrete whose slump exceeds 4" at the work site is prohibited in any case.

2002.2A Paving Brick and Paving Tile (pavers) shall have a surface which is sufficiently abrasive to insure pedestrian safety. A sample of the paver must be submitted to and approved by the Public Works Department prior to the start of construction.

2002.3A Cement Mortar shall consist of three (3) parts washed masonry sand, free of organic material, mixed with one (1) part of Portland cement. About ¼ part of lime or fire clay may be added if desired.

2002.4A Reinforcing Steel shall be ½" diameter (#4) deformed bars unless an alternate is specifically approved by the Engineering Inspector and shall conform to the current applicable State Specs.

2002.5A Concrete Additives other than 1½ pound of lampblack per cubic yard (required in concrete for standard finish sidewalks, widened sidewalks and driveways)

must be approved in advance by the Engineering Inspector. All additives, other than color additives, must be added at the batch plant. Rapid curing agents, such as NaCl or CaCl may not exceed 1% in any case and are strictly prohibited from concrete with reinforcing steel.

2002.6A Prohibited Material. The installation of any material other than standard finished concrete or soil in the area between the front property line and the curb is prohibited unless specifically authorized by the Director of Public Works or his representative.

2002.7A Untreated Base shall be granular, non-cohesive, well graded crusher run, ¾" to 1½" maximum aggregate. Bay sand, quarry wastes, or other suitable material may be used in place of crusher run if approved by the Engineering Inspector.

2002.8A Curing Compound shall conform to the current State Specs and when used, shall be sprayed on the concrete within one hour after finishing at the rate of one (1) gallon per two hundred (200) square feet.

2003 DESIGN SPECIFICATION

2003.1A Sidewalks shall have a minimum thickness of 3½" of concrete or other approved paving material. Sidewalk widths shall be those designated in the counter maps of the Department of Public Works, or as directed by the Engineering Inspector at the job site. Sidewalk cross slope shall be not less than 1/8" per lineal foot no more than ¾" per lineal foot unless authorized by the Engineering Inspector. The optimum cross slope is ¼" per lineal foot.

2003.2A Widened Sidewalk must be authorized by the Director of Public Works or his representative before installation is allowed. In those cases where the widened sidewalk is between the curb and the front of the established sidewalk line, the installation of one or more tree wells or tree well knockouts may be required by the city of Berkeley Forestry Supervisor. He should be contacted prior to the start of construction so that the number, location and size of the tree wells can be determined. All widened sidewalk shall be 3½" minimum thickness and shall not exceed 1½" per lineal foot cross slope unless authorized by the Engineering Inspector.

2003.3A Driveways. All driveway approaches shall be 6" minimum thickness of concrete. All driveway approaches which, in the opinion of the Director of Public Works or his representative, will receive sufficiently heavy truck use to qualify as a "commercial" driveway shall have ½" (#4) reinforcing bars on 18" centers, each way, embedded in the concrete 2" – 3" above the base. Driveway approach widths and dimensions shall conform to Standard Plan #8151. General notes for concrete flat work is available on Standard Plan #8144. The driveway apron shall be constructed in such a way that a minimum 6" water barrier is maintained between the gutter flowline and the front sidewalk line (or within 4 feet of the gutter flow line where no sidewalk exists) unless specifically exempted by the Engineering Inspector.

2003.4A Curb and Gutter shall be standard vertical curb and monolithic 24" wide gutter as shown on Standard Plan #8145. Curb shall be standard vertical curb as shown on Standard Plan #8146. General notes for concrete flat work is available on Standard Plan #8144. Where adjacent curb or curb and gutter is non-standard, or where authorized by the Engineering Inspector, an alternative design may be allowed provided permission is sought and obtained prior to the start of construction.

2003.5A Concrete Finish. Sidewalks and driveways shall be finished using a wood float applied with circular motion or, where the street slope or driveway slope is less than one (1) foot in 8 feet, with a medium soft broom stroke in a direction perpendicular to the curb. Where the existing adjacent sidewalk finish is still sufficiently visible to determine the method used, every effort should be made to match it as closely as possible except that steel trowel or slick finish concrete is strictly prohibited in any case. Curb and/or gutter shall be steel troweled and lightly brushed to remove the trowel marks. Any finish other than these standard concrete finishes must be approved by the Engineering Inspector prior to the start of work.

2003.6A Control Joints or weakened plan joints approximately 1/5 the thickness of the concrete in depth and ¼" maximum width shall be placed using standard commercially available tools or control joint filler material as directed by the Engineering Inspector and in conformity with the following standards: transversely (perpendicular to the curb) about every 10 - 12 feet in all sidewalks, widened be installed at edge of driveways, curbs and/or gutters. Additional transverse joints should be installed at edge of driveways where the thickness changes, at tree well corners, at beginning and end of curb returns and at projecting corners of existing sidewalk or other structures where contraction cracks are likely to occur. Longitudinal (parallel to curb) control joints shall be installed in driveways in alignment with front and back edges of sidewalk, in sidewalks, widened sidewalks and driveways to align with the back of curb, when curb and flat work are poured monolithically (together) and along back of sidewalk at entry walks. On long continuous sidewalk pours or in known earth movement areas, control joint filler material may be required by the Engineering Inspector in addition to the regular control joints. Wherever possible, control joints shall be placed to coincide or align with score marks.

2003.7A Score Lines shall conform to the same pattern established in the existing adjoining sidewalk or driveway. Where there are conflicting score patterns on the block, or where the entire frontage is being replaced, the Engineering Inspector may approve an alternate score pattern.

2003.8A Paving Brick or paving tile (pavers) shall be embedded in ½" thick minimum mortar over a minimum 3" thick concrete base when installed in the sidewalk (6" concrete base in driveways). The mortar joints between bricks shall be finished flush or only slightly depressed below the pavers' surface. In residential areas, or low pedestrian use areas, alternate installation methods may be approved by the Engineering Inspector for paver installation in the parking strip or behind the sidewalk.

2004 CONSTRUCTION METHODS

2004.1A Subgrades shall be compact and of an even grade. Soft spots shall be removed and backfilled with Untreated Base as directed by the Engineering Inspector. Subgrade shall be thoroughly wet prior to placing concrete.

2004.2A Base Construction, when required by the Engineering Inspector, shall consist of 2" minimum thickness of Untreated Base (see Materials). The base shall be compacted to an even grade with no pockets or irregularities and thoroughly wet prior to the placing of concrete.

2004.3A Existing Concrete curbs, gutters, sidewalks and driveways shall be saw cut to a minimum depth of 1½" (1" for sidewalks) along the nearest score line adjacent to the area being replaced where an existing control, expansion or cold joint does not exist to provide a neat edge from which to finish the new work. The existing flat work shall be under cut 2" minimum vertically horizontally to provide a "key" to decrease the possibility of future sidewalk lifting. Under certain conditions, dowelling may be required as described in Standard Specification #20.

2004.4A Forms shall be set at the correct line and grade in compliance with the Design Specifications above and in accordance with good Engineering practice.

WARNING: Concrete shall not be placed until forms have been inspected and approved by the Engineering Inspector, or when atmospheric temperature is less than 36° F, or when rainfall is imminent. The permittee is advised to have on hand plastic sheeting, ready to cover concrete surface, when working in threatening weather.

2004.5A Finishing Methods. For sidewalk or driveway construction, immediately after the concrete is placed and screened, concrete shall be bull floated or wood floated, edged and control jointed. When concrete has set long enough to evaporate all bleed water from the surface (2 – 4 hours after placement, depending on weather), the second floating may commence (the sprinkling of dry cement to absorb excess surface water is prohibited). The second floating should be done with a wood or metal alloy float. If a broom finish is desired, a third floating with a steel trowel is recommended. After completion of the floating operations, the score lines should be installed, using a straight board and/or snapped line as a guide, the edges and control joins re-done if necessary and the final surface finish installed.

For curb and gutter construction, the concrete, immediately after placing in the forms, should be rodded (rapid up and down movement with a piece of reinforcing steel or other rod in wet concrete) and the forms struck with a hammer to distribute and compact the loose concrete. The top should then be screeded, edged and control jointed.

As soon as concrete has gained sufficient rigidity to remain in place without slumping (24 hours after placement, depending on weather), the front curb form shall be removed and the curb face control jointed, steel troweled and brushed.

Special finishes, such as exposed aggregate, colored concrete, patterned broom, etc., shall be finished according to standard construction methods, which shall be discussed with and approved by the Engineering Inspector prior to the placing of concrete.

Curing compound should be sprayed on sidewalks and driveways when the outside temperature exceeds 70°, or if other atmospheric conditions make such treatment advisable.

2004.6A Form Removal and Clean Up. Forms, other than curb face forms, shall be removed no sooner than 12 hours after finishing has been completed adjacent to new concrete created by the installation and removal of forms shall be filled to the proper grade with soil or other suitable material. Any street paving removed to facilitate the construction of a curb, gutter or driveway shall be replaced by repaving the open area with asphalt concrete in accordance with standard City of Berkeley specifications or as directed by the Engineering Inspector. Any defaced concrete shall be repaired within 24 hours of the final finishing operation by rubbing with a stone and water and rebrushing or other method approved by the Engineering Inspector. If, in the inspector's opinion, the defacement is too severe to be repaired, the concrete shall be saw cut along the nearest score line to a minimum depth of 1½", removed and replaced with new concrete. All tools, barricades, debris, forms, etc., shall be removed from the site before traffic is allowed through the work area.

2004.7A Protection of Work. The installer shall protect his work in accordance with good engineering practice. Normally, new concrete should not be opened to foot traffic for 24 to 72 hours, nor to vehicular traffic within 72 hours, but in no case will concrete be opened either to pedestrian or vehicular traffic in less than 24 hours after finishing. The permittee or his installing agent is responsible for the protection of the work. The use of suitable signs, barricades and lights, and the maintenance of pedestrian and vehicular safety is required.

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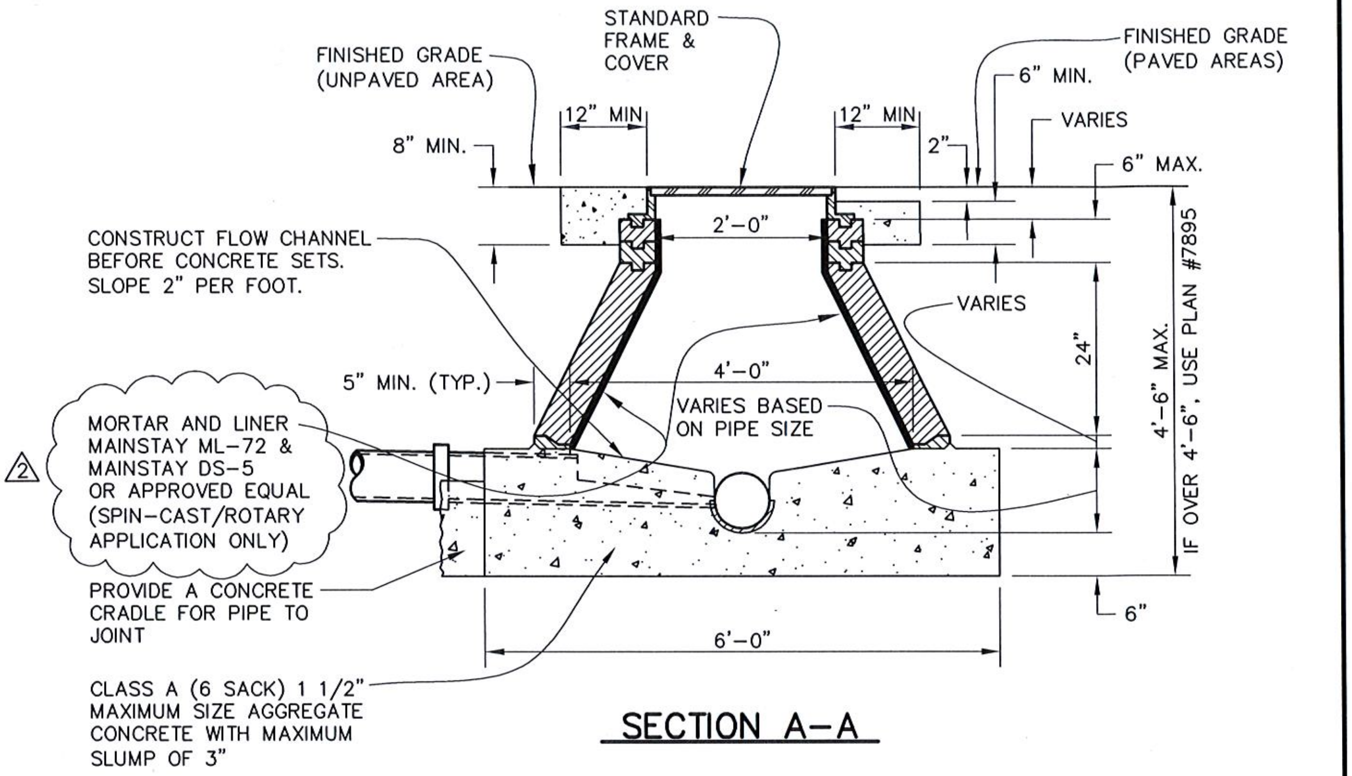
Public Works
Engineering Division

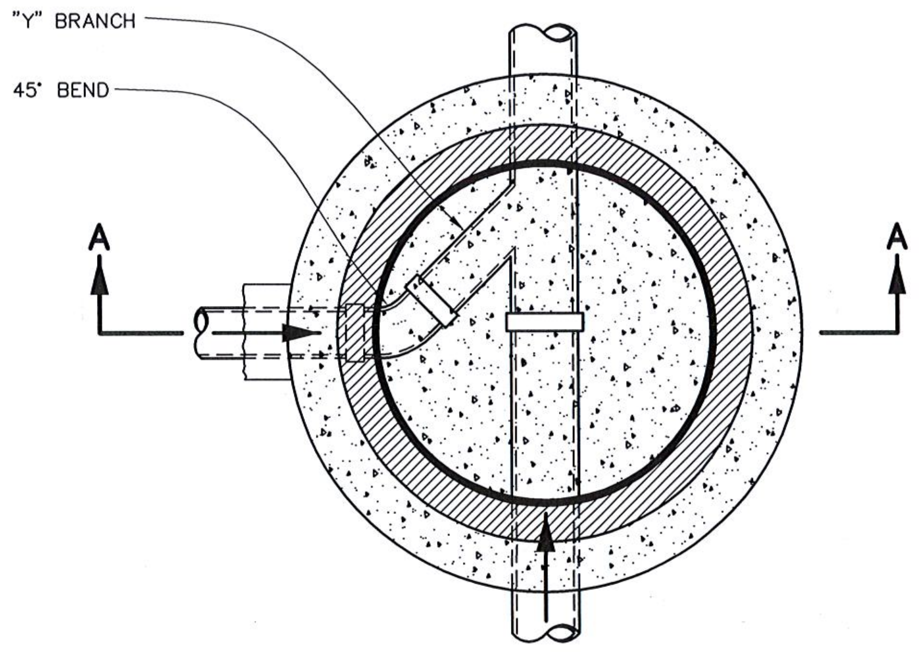
City of Berkeley

Standard Details

Sanitary Sewer



SECTION A-A



PLAN

2	4/20/15	ADDED MORTAR & LINER
1	10/8/08	UPDATE AND REVISED TITLE BLOCK

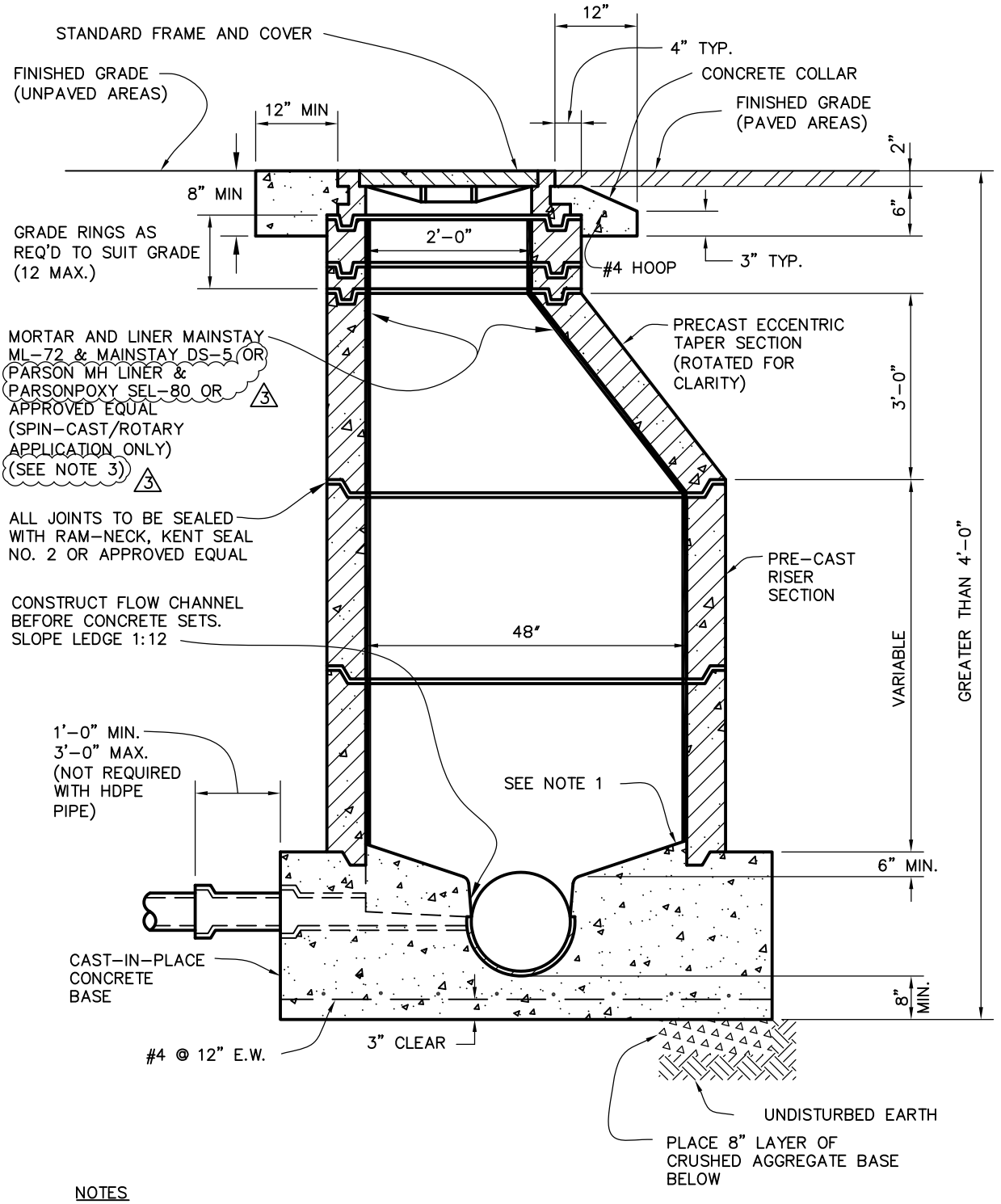
CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

SUBMITTED: [signature] DATE: 5/12/15 R.C.E. 54937 EXP. 6/30/16
SUPERVISING CIVIL ENGINEER

APPROVED: [signature] DATE: 5/12/15 R.C.E. 64314 EXP. 6/30/15
MANAGER OF ENGINEERING

STANDARD DETAIL
SHALLOW PRECAST
CONCRETE MANHOLE

DESIGN: JR	DATE: 2/97	PLAN: 6653
DRAWN: MS	SCALE: N.T.S.	FILE: 20-B-110
CHECK:	BOOK:	



UPDATED MORTAR & LINER REQUIREMENTS	8/18/20	3
ADDED MORTAR & LINER	4/21/15	2
UPDATE AND REVISED TITLE BLOCK	10/8/08	1

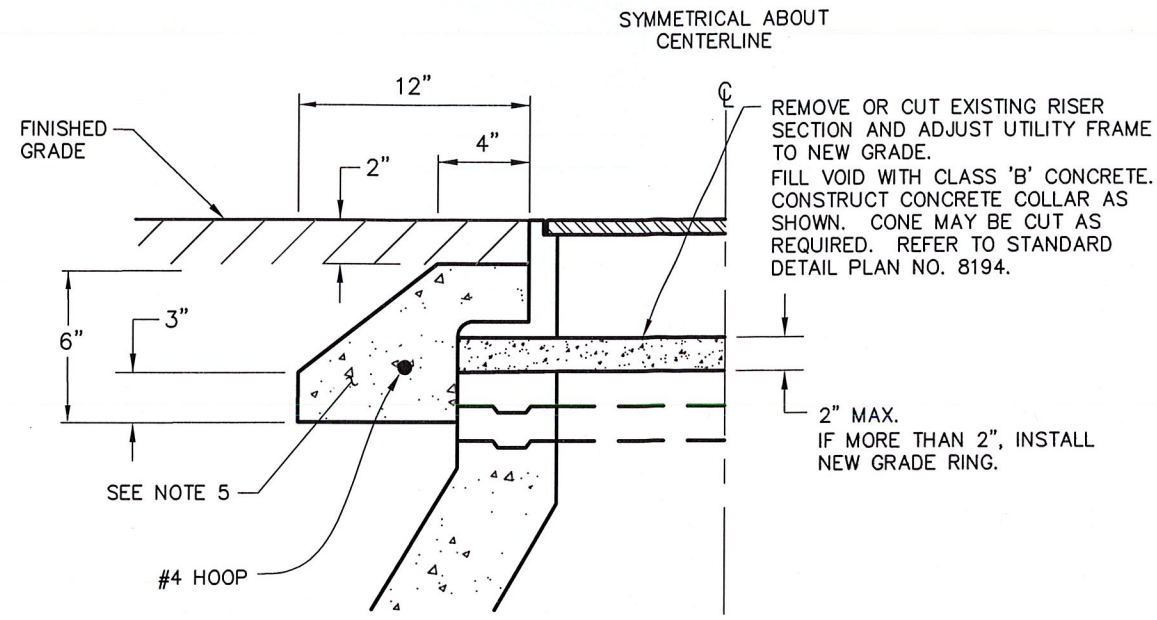
NOTES

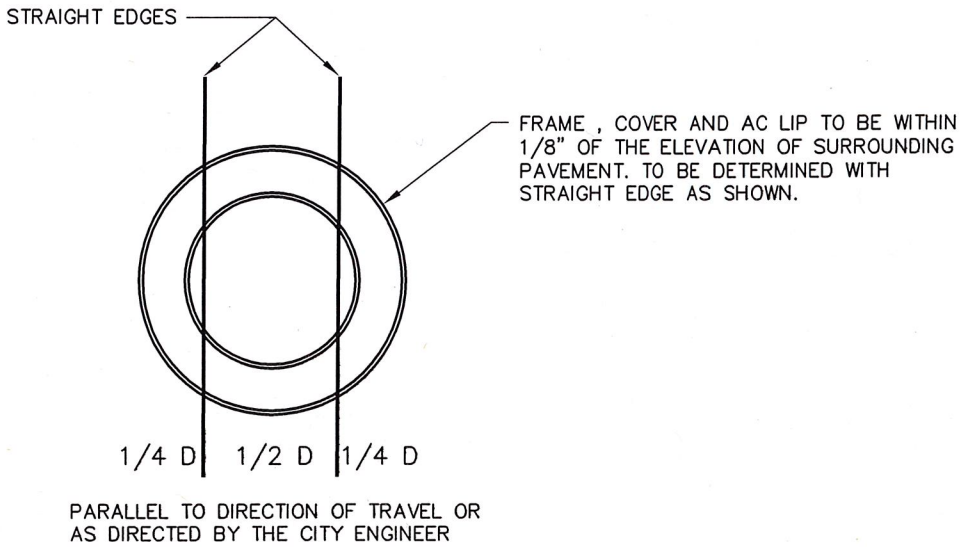
1. SET RISER SECTION IN 1:3 MORTAR MIX AND IN GROOVE FORMED IN BASE, OR POUR MONOLITHICALLY WITH BASE.
2. CAST-IN-PLACE CONCRETE FOR MANHOLE BASES AND CONCRETE COLLARS SHALL CONFORM TO SPEC. SECTION 201-1.1.2 AND BE CLASS 560-B-3250.
3. MH LINER AND COATING ONLY APPLY TO SANITARY SEWER MAINTENANCE HOLE. 3

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL PRECAST MANHOLE ECCENTRIC CONE

SUBMITTED:	DATE:				
	R.C.E. 37829				
SUPERVISING CIVIL ENGINEER	EXP. 3/31/21				
APPROVED:	DATE:	DESIGN: JR	DATE: 1/02	PLAN: 7895	
	R.C.E. 49027	DRAWN: MS	SCALE: N.T.S.		
MANAGER OF ENGINEERING	EXP. 9/30/20	CHECK:	BOOK:	FILE: 20-B-147	

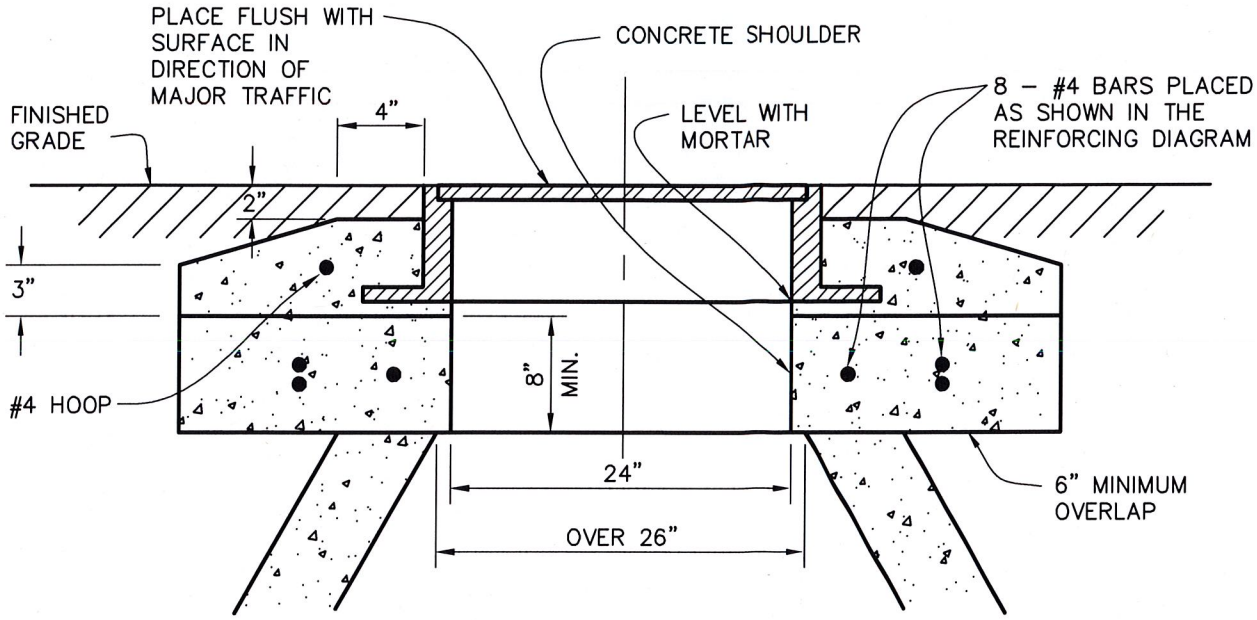




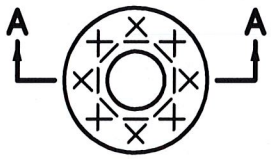
NOTES:

1. ALL SURFACE STRUCTURES EXTENDING 2" ABOVE THE NEW SUBGRADE OR MILLING PLANE SHALL BE LOWERED BY CONTRACTOR OR UTILITY OWNER TO THE NEW SUBGRADE BEFORE PAVING. STRUCTURES PROJECTING LESS THAN 2" ABOVE THE SUBGRADE MAY BE PAVED OVER AND LATER ADJUSTED TO GRADE.
2. ADJUST FRAME AND COVER TO FINISHED GRADE AFTER FINAL LIFT OF PAVING.
3. TRAFFIC CONTROL APPROVAL IS REQUIERED PRIOR TO ANY TRAFFIC LANE OBSTRUCTION.
4. PLACE TEMPORARY AC (CUT BACK) AROUND UTILITY FRAME UNTILL PERMANENT PAVING IS IN PLACED.
5. CAST-IN-PLACE CONCRETE COLLARS SHALL CONFORM TO STANDARD SPECIFCATIONS (GREENBOOK) SECTION 201-1.1.2 AND BE CLASS 560-B-3250.

DESIGN: TP DRAWN: LG CHECK: KE	DATE: 5/23 SCALE: N.T.S.	PLAN: 8193 FILE: 20B-169	**CITY OF BERKELEY** DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: 5-23-18 CITY ENGINEER	DATE:		**MANHOLE FRAME & COVER ADJUSTMENT**



SECTION A–A

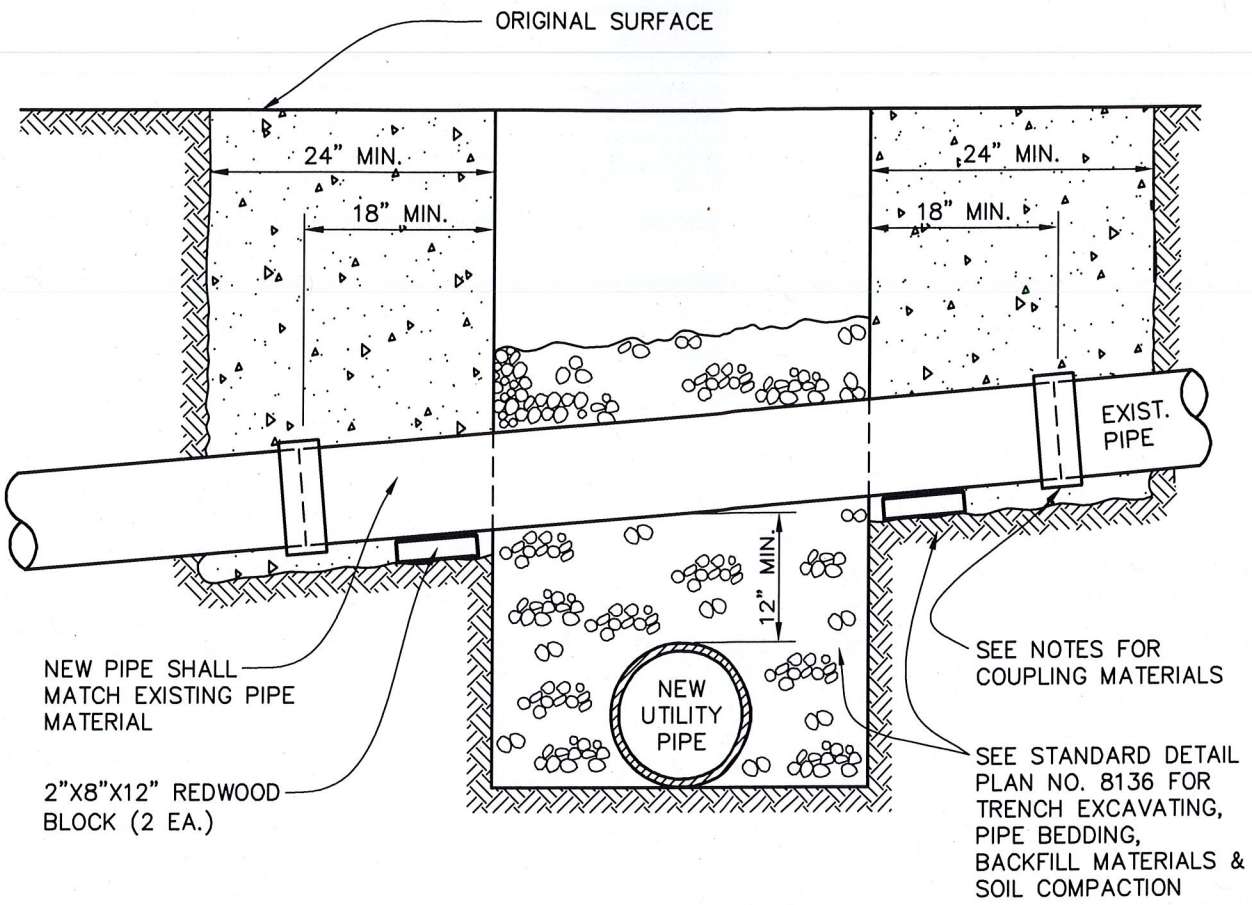


REINFORCING DIAGRAM

NOTES:

1. WHEN THE MANHOLE HAS TO BE CUT DOWN SO THAT THE TAPERED SECTION AT THE TOP OF THE EXISTING MANHOLE EXCEEDS 26 INCHES, A CONCRETE SHOULDER MUST BE CONSTRUCTED AS SHOWN ABOVE.
2. WHEN DIRECTED BY THE ENGINEER, THE EXISTING FRAME AND COVER SHALL BE SALVAGED AND RETURNED TO THE CITY CORPORATION YARD, 1326 ALLSTON WAY.
3. CAST–IN–PLACE CONCRETE COLLARS SHALL CONFORM TO SPECIFICATIONS (GREENBOOK) SECTION 201–1.1.2 AND BE CLASS 560–B–3250.

DESIGN: TP DRAWN: MS CHECK: KE	DATE: 5/18 SCALE: N.T.S.	PLAN: 8194 FILE: 20B–170	CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: 5-23-18 CITY ENGINEER DATE:			MANHOLE FRAME & COVER ADJUSTMENT – LOWERING



NOTES:

1. FOR HDPE PIPE USE ELECTROFUSION COUPLING.
2. FOR PIPE MATERIALS OTHER THAN HDPE USE FERNCO COUPLING STRONG BACK (RC) 5000 SERIES OR APPROVED EQUAL.
3. SEWER LATERAL SHALL REMAIN IN SERVICE AT ALL TIMES.

DESIGN: TP DRAWN: MS CHECK: NP	DATE: 4/2019 SCALE: N.T.S.	PLAN: 8214 FILE: 20B-174	CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: [signature] CITY ENGINEER	4-29-19 DATE:		SEWER LATERAL REPAIR

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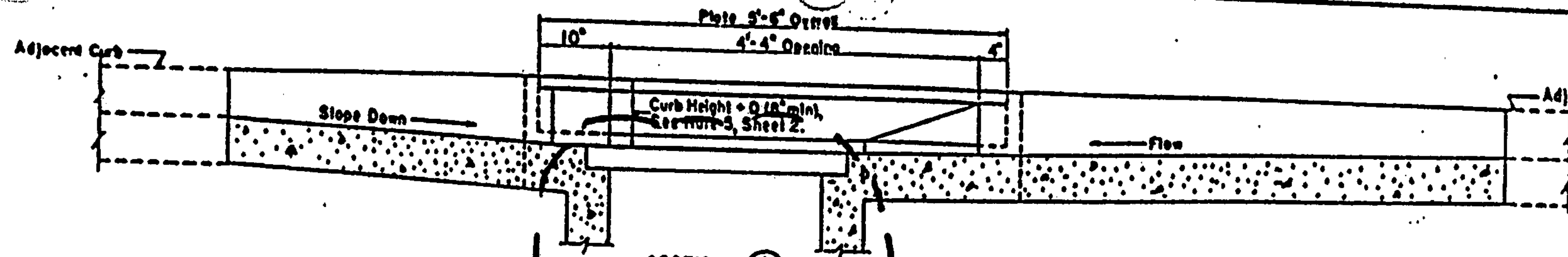
Public Works
Engineering Division

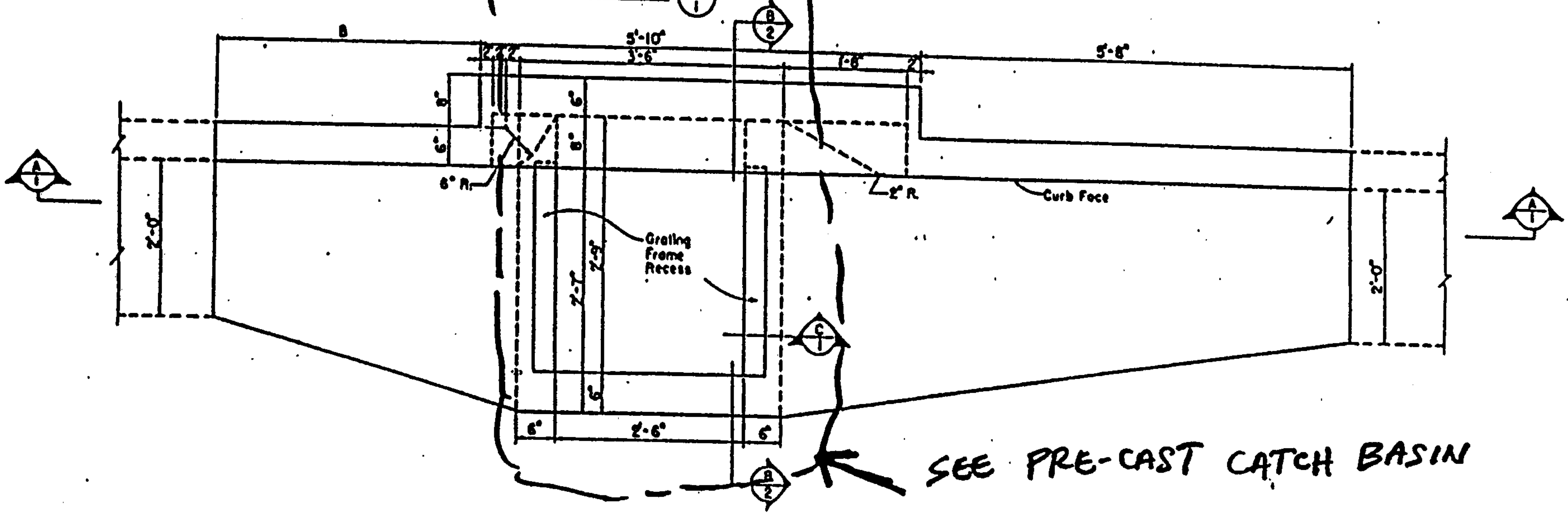
City of Berkeley

Standard Details

Storm Drainage



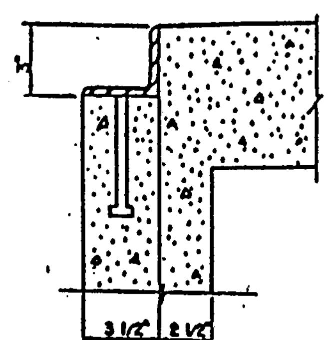
SECTION A/1



PLAN VIEW

CURB SLOPE %		D	B
GREATER THAN	TO AND INCLUDING	INCHES	FEET
0.0	2.5	2	3.5
2.5	4.0	3	3.5
4.0	5.5	3	3.5
5.5	7.5	3	2.5
7.5	9.0	3	2.0
9.0	12.0	3	1.5
12.0	16.0	4	1.5
16.0	20.5	5	1.5

Dimension "B" Not Applicable To Two-way Catch Basin — See Sheet 2.



SECTION C/1

NOTES:

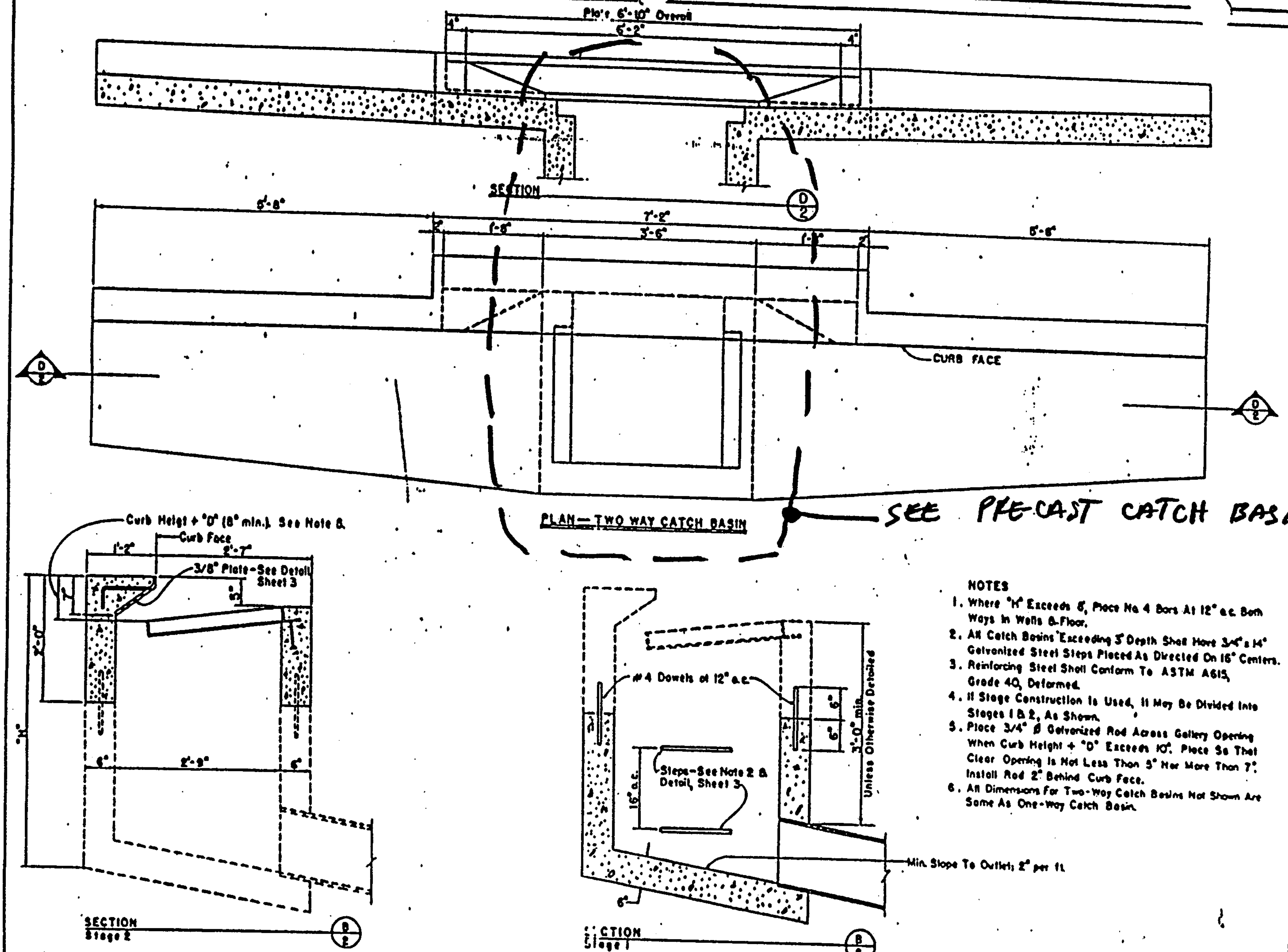
1. ALL CONCRETE SHALL BE 6-C-3000, 3" MAX. SLUMP.
2. ALL CURB AND GUTTER SHOWN BY SOLID LINE IS A PART OF THE CATCH BASIN FOR PAYMENT PURPOSES.
3. VIBRATE CONCRETE AS IT IS PLACED.
4. FOR 2 WAY CATCH BASINS, SEE SHEET 2.
5. ALL WORK TO BE IN ACCORDANCE WITH "APWA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION."

RECOMMENDED APPROVAL / APPROVED: DIRECTOR OF PUBLIC WORKS

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD CATCH BASIN
TOP & APRON DETAILS

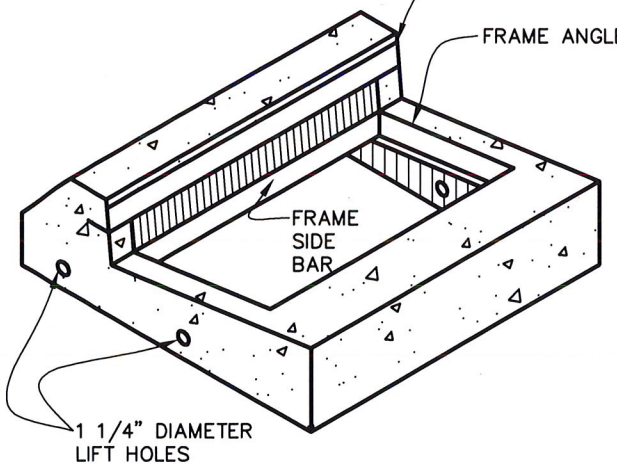
DESIGN / DRAWN EED / CHECK / AS BUILT — HORIZ. None / VERT. None / BOOK / DATE Oct '72 — PLAN 6166 / SHEET 1 of 3

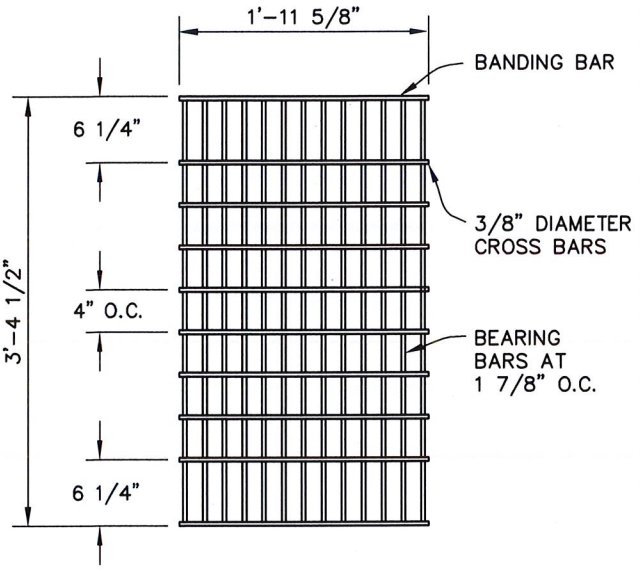


NOTES

1. Where "H" Exceeds 8', Place No. 4 Bars At 12" o.c. Both Ways In Walls & Floor.
2. All Catch Basins Exceeding 3' Depth Shall Have 3/4" x 14" Galvanized Steel Steps Placed As Directed On 16" Centers.
3. Reinforcing Steel Shall Conform To ASTM A615, Grade 40, Deformed.
4. If Stage Construction Is Used, It May Be Divided Into Stages 1 & 2, As Shown.
5. Place 3/4" ∅ Galvanized Rod Across Gallery Opening When Curb Height + "D" Exceeds 10". Place So That Clear Opening Is Not Less Than 5" Nor More Than 7". Install Rod 2" Behind Curb Face.
6. All Dimensions For Two-Way Catch Basins Not Shown Are Same As One-Way Catch Basin.

RECOMMENDED APPROVAL: City Engineer — APPROVED: Director of Public Works	[CI]TY OF BERKELEY — [DEPART]MENT OF PUBLIC WORKS	STANDARD CATCH BASIN — CONSTRUCTION DETAILS	DESIGN — DRAWN: EED — CHECK — SCALE: None — PLAN: 6166 — FILE — SHEET 2 of 3





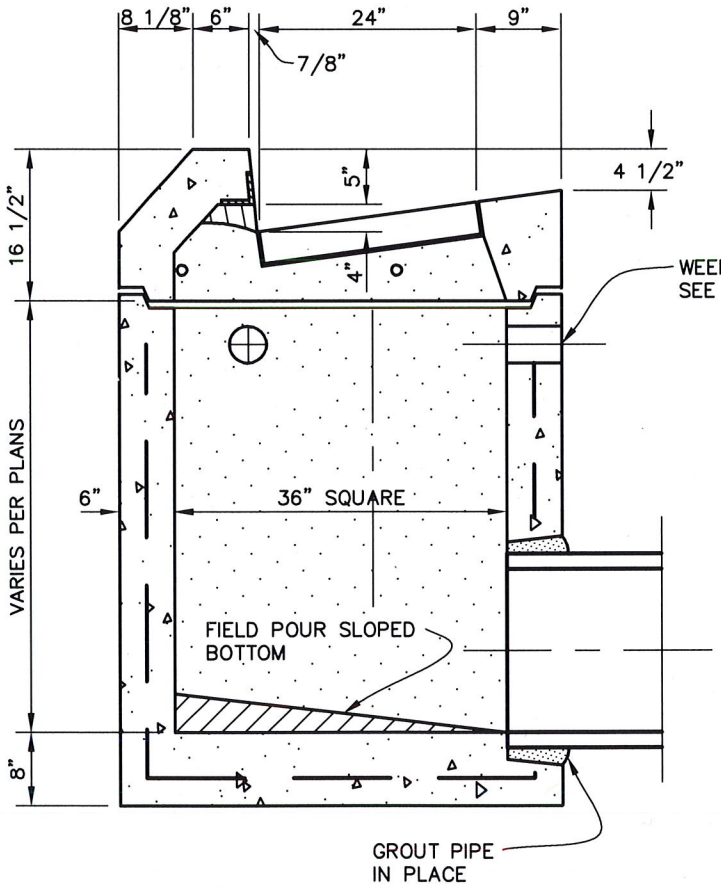
PRECAST TYPE V TOP

GRATE TYPE V

13 BEARING BARS 3 1/2" x 3/8"
2 BANDING BARS 2 1/2" x 3/8"

FRAME

4" x 3" x1/2" ANGLES
3 1/2" x 1/2" SIDE BARS



TYPICAL INSTALLATION ON PRECAST BASE

NOTES:

1. CONCRETE SHALL TEST 3000 PSI AT 28 DAYS.
2. ALL METAL SHALL BE STRUCTURAL GRADE STEEL AND BE GALVANIZED AFTER FABRICATION PER ASTM A123.
3. REQUIREMENTS FOR AND LOCATION OF 4" DIA. WEEP HOLES TO BE VERIFIED BY CONTRACTOR.
4. WALLS AND FLOOR ARE REINFORCED WITH 4"x4" W6–W6 WWF.
5. WEIGHT OF PRECAST TOP WITHOUT GRATE = 1350 LBS. GRATE = 210 LBS.

CBWCI

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
CATCH BASIN WITH CURB INLET

SUBMITTED: _____ DATE: 10/4/17
SUPERVISING CIVIL ENGINEER — R.C.E. 64582 — EXP. 6/30/19

APPROVED: _____ DATE: 10/6/17
MANAGER OF ENGINEERING — R.C.E. 72491 — EXP. 6/30/18

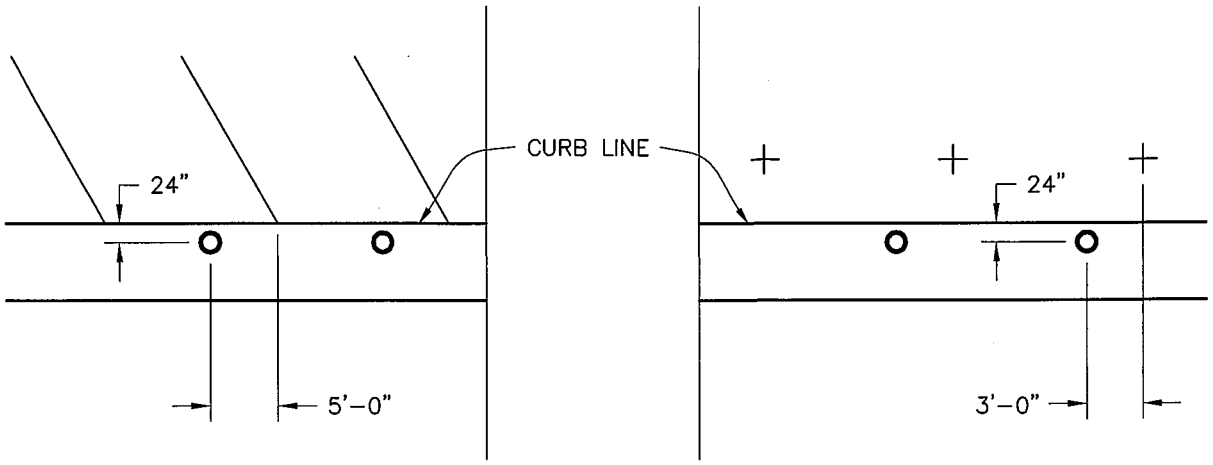
DESIGN: DA	DATE: 10/17	PLAN: 6166
DRAWN: JP	SCALE: N.T.S.	FILE: 20-B-105
CHECK:	BOOK:	

Public Works
Engineering Division

City of Berkeley

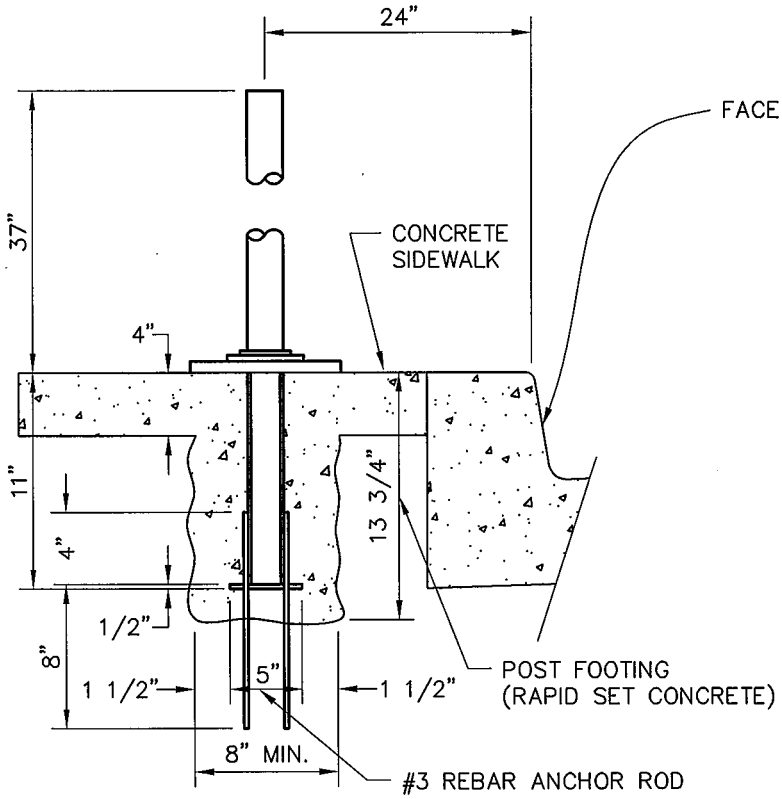
Standard Details

Transportation



METER LOCATION IN DIAGONAL STALL

METER LOCATION IN PARALLEL STALL



STANDARD SETTING

SPMP

1	REMOVE FLANGE SETTING DETAIL, REVISE STANDARD SETTING DETAIL	DATE: 8/1998
2	UPDATE AND REVISED TITLE BLOCK	DATE: 10/2008
3	UPDATE STANDARD SETTING AND REVISED TITLE BLOCK	DATE: 12/2015

DESIGN: KNE
DRAWN: MS
CHECK:

PROFESSIONAL ENGINEER SEAN R. ROSE C64314 EXP. 06/30/17 CIVIL STATE OF CALIFORNIA

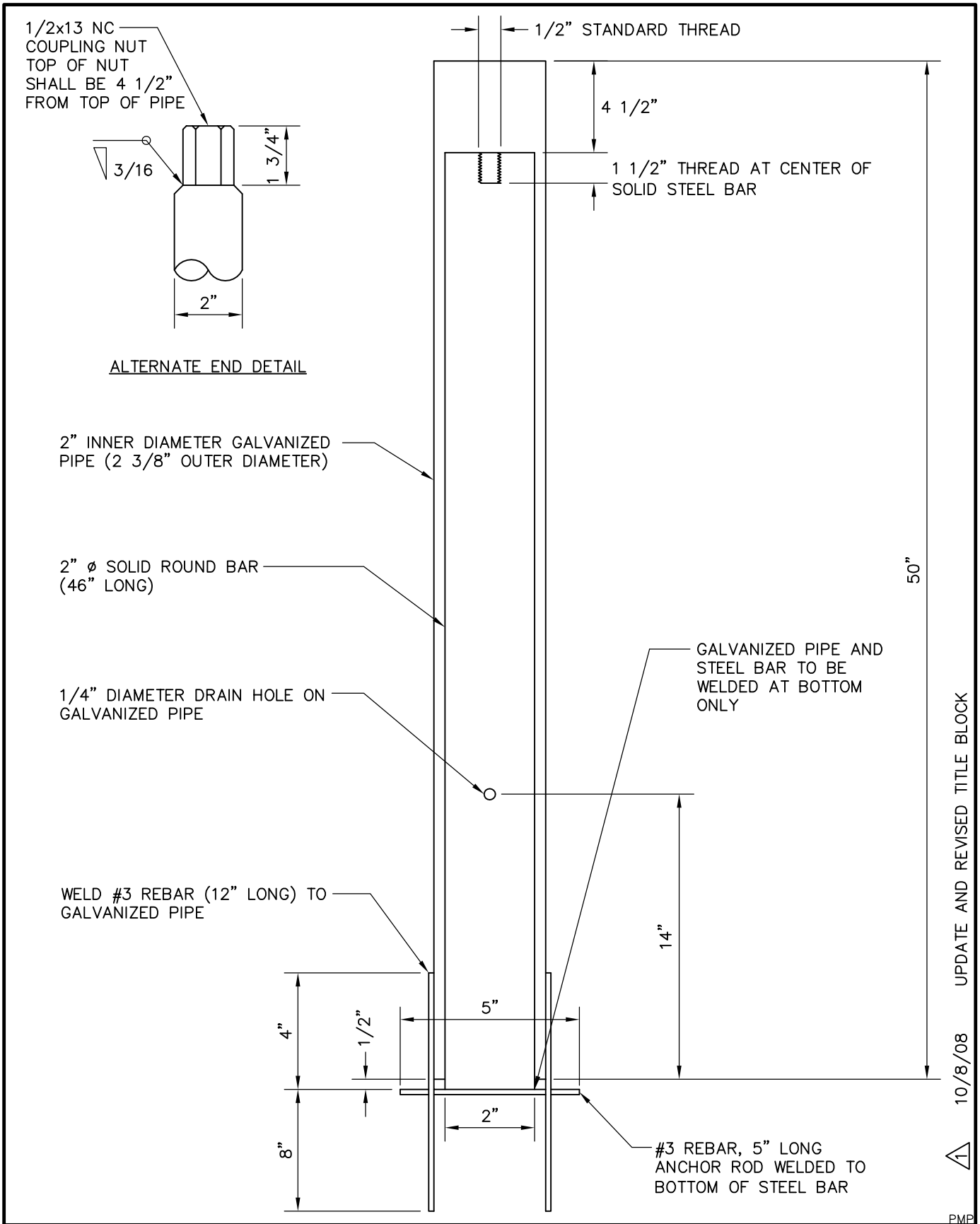
PLAN: 3524
FILE: 20-B-89

APPROVED:
CITY ENGINEER

DATE: 12/16/2015

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

SETTING PARKING METER POST

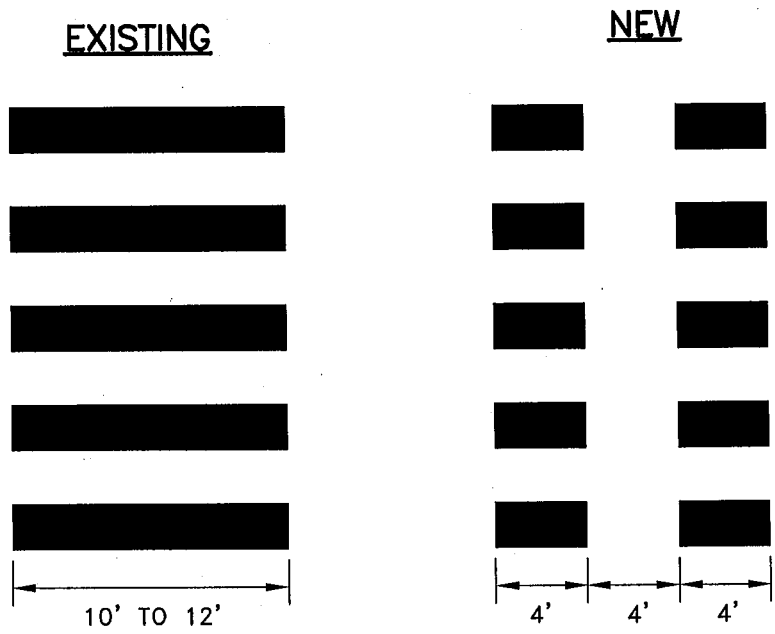


CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
PARKING METER POST

SUBMITTED:	DATE:				
	R.C.E.				
MANAGER OF ENGINEERING	EXP.				
APPROVED:	DATE:	DESIGN: KNE	DATE: 8/98	PLAN: 7556	
	R.C.E.	DRAWN: MS	SCALE: N.T.S.		
ASSISTANT CITY MANAGER	EXP.	CHECK:	BOOK: –	FILE: 20 B–130	

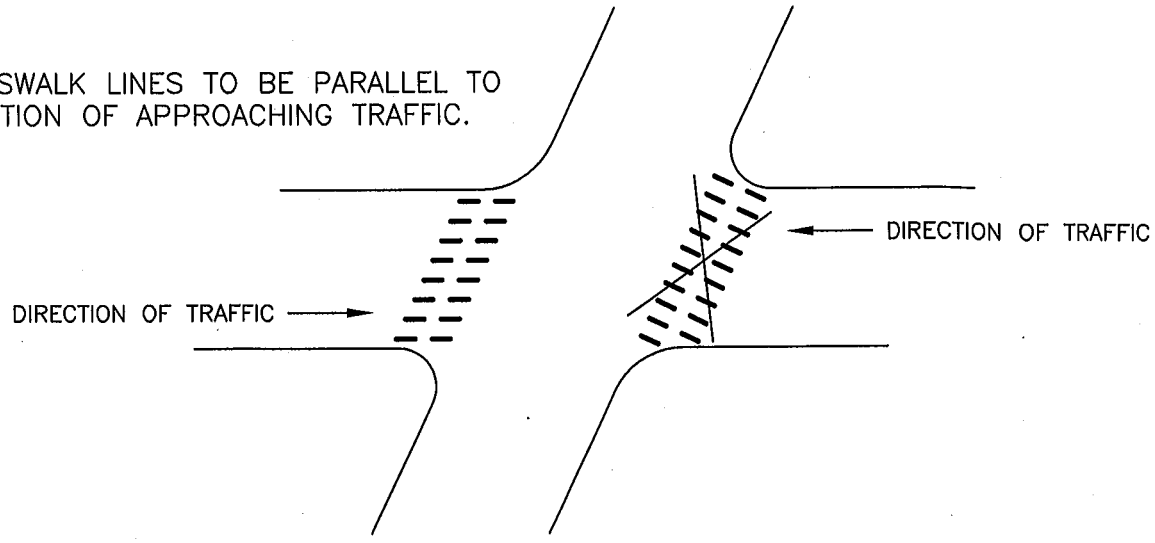
HIGH VISIBILITY CROSSWALK
STANDARD DETAIL



LINE WIDTH = 2'
GAP = 2'

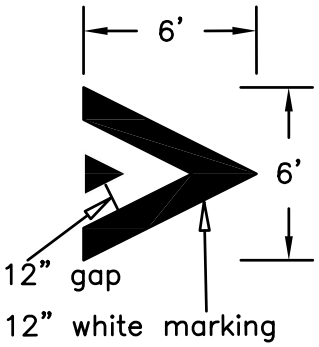
LINE WIDTH = 2'
GAP = 2'

NOTE:
CROSSWALK LINES TO BE PARALLEL TO DIRECTION OF APPROACHING TRAFFIC.

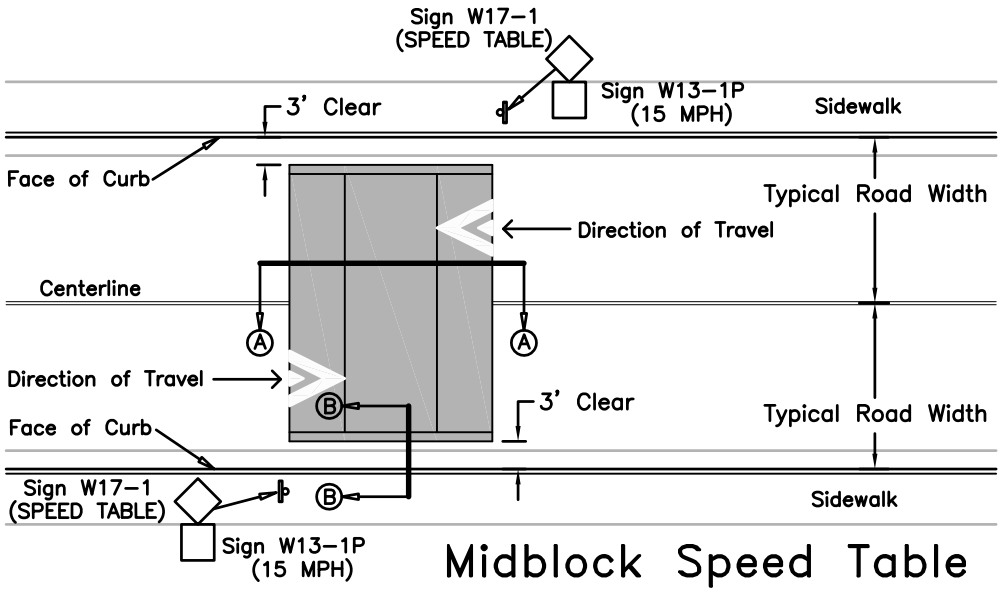


XW

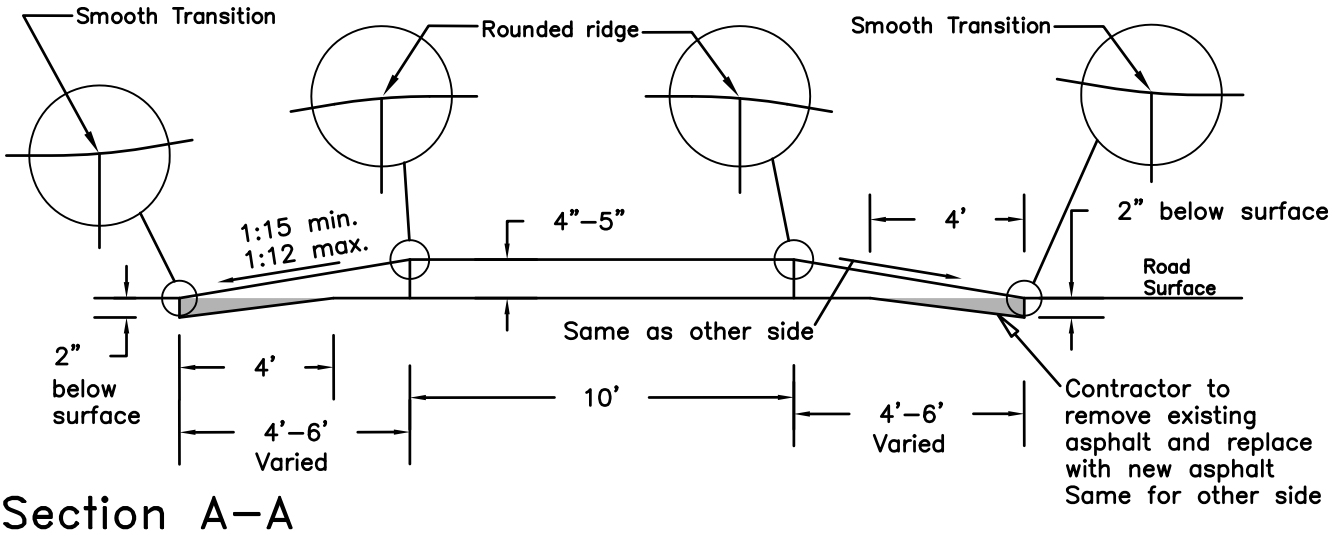
CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS		STANDARD DETAIL HIGH VISIBILITY CROSSWALK			
SUBMITTED: H. Montoya SUPERVISING TRAFFIC ENGINEER	DATE: 7/3/13 R.C.E. T.E. 2206 EXP. Sep 2013				
APPROVED: MANAGER OF PW–TRANSPORTATION	DATE: R.C.E. EXP.	DESIGN: ZT DRAWN: ZT CHECK: HM	DATE: 07–13 SCALE: NONE BOOK:	PLAN: 8072 FILE: 20B–151	



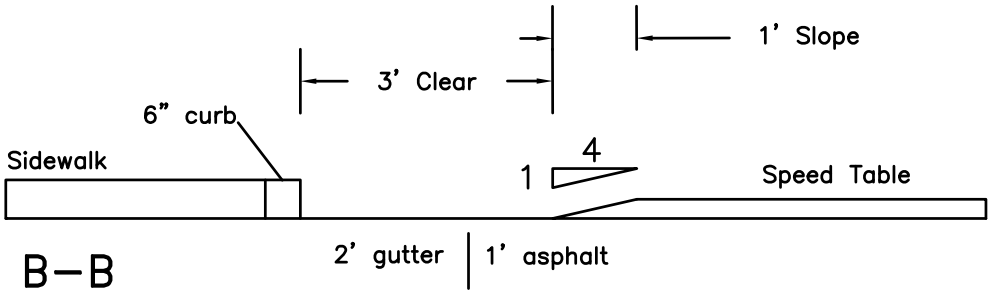
Marking Detail



Midblock Speed Table



Section A-A

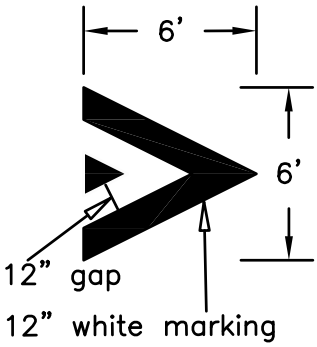


Section B-B

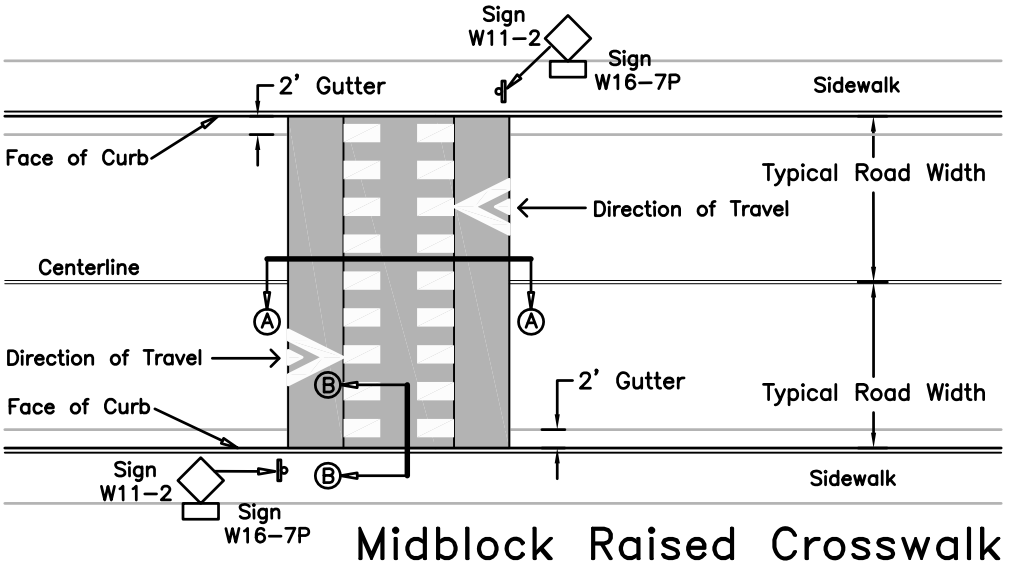
General Notes:

1. Speed tables shall not be placed over manholes, water gates, etc.
2. Edge of speed table shall be at least 4' away from edge of driveway.
3. Whenever possible speed table should be placed at extension of property lines instead of mid lot.
4. Whenever possible speed table should be placed adjacent to street lights.
5. All markings and signs shall be reflective.

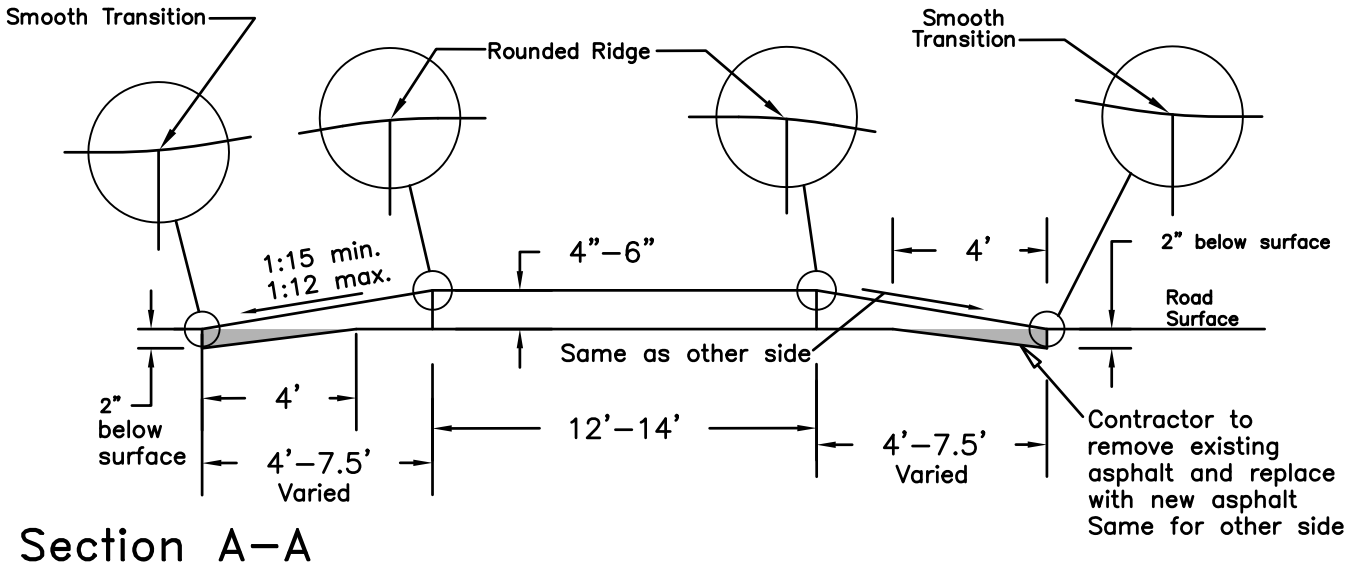
DESIGN: HM DRAWN: ZT CHECK: HM	DATE: 11/2021 SCALE: N.T.S.	PLAN: 8208 FILE: 20B-171	CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: Hamid Mostowfi CITY TRAFFIC ENGINEER	11/17/2021 DATE:		MIDBLOCK SPEED TABLE



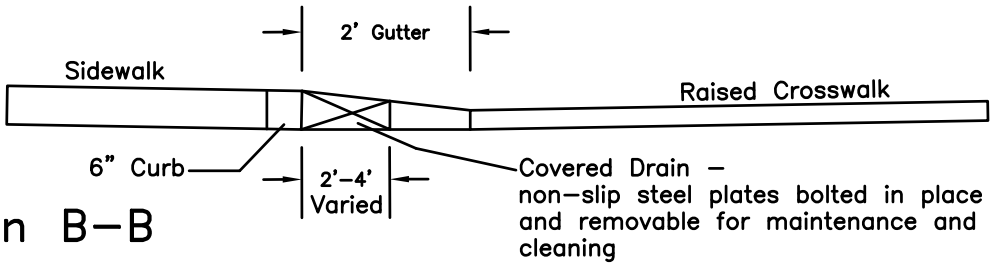
Marking Detail



Midblock Raised Crosswalk



Section A–A



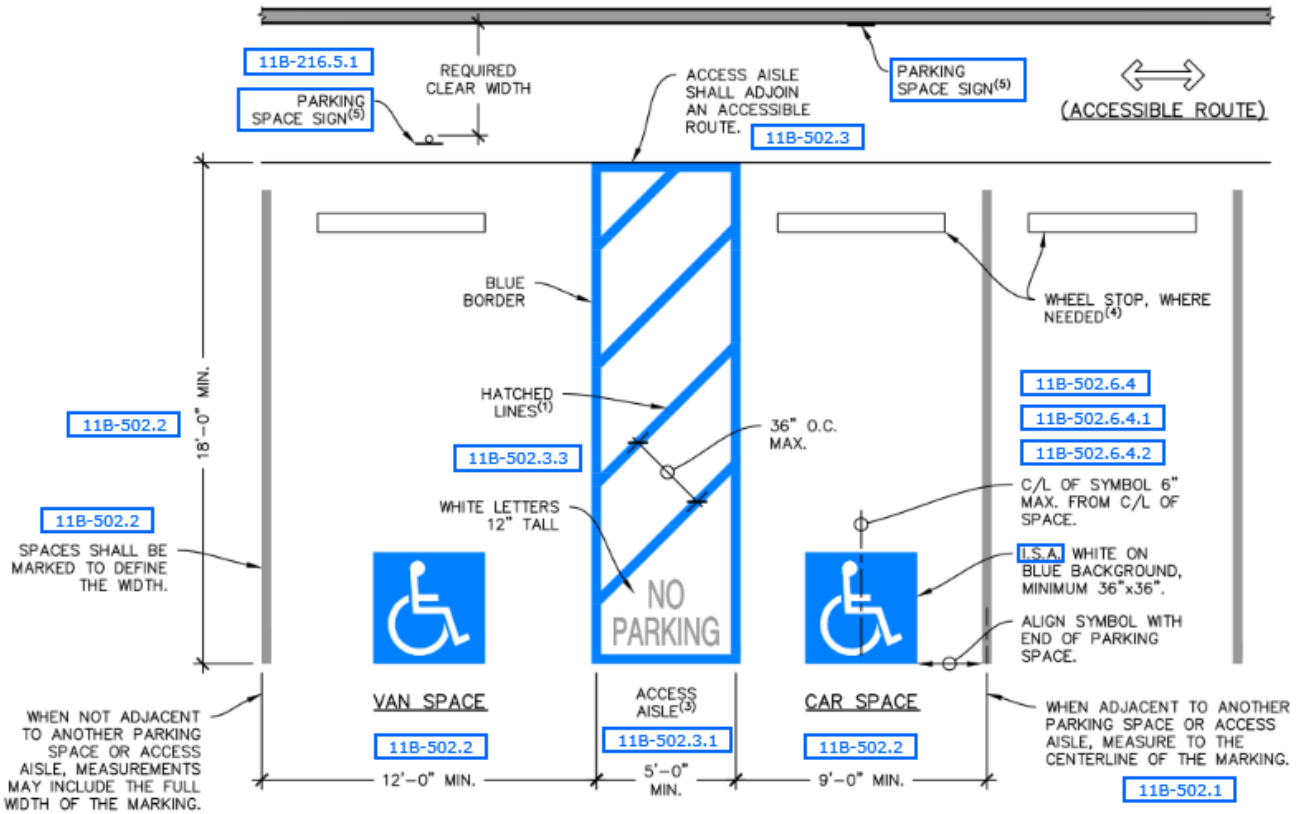
Section B–B

General Notes:

1. Raised crosswalks shall not be placed over manholes, water gates, etc.
2. Edge of raised crosswalk shall be at least 4' away from edge of driveway.
3. Whenever possible raised crosswalk should be placed at extension of property lines instead of mid lot.
4. Whenever possible raised crosswalk should be placed so that adjacent street lights illuminate the approach to the crosswalk and the profile of pedestrians in the crosswalk.
5. All markings and signs shall be reflective.

DESIGN: HM DRAWN: ZT CHECK: HM	DATE: 4/5/2022 SCALE: N.T.S.	PLAN: 8209 FILE: 20B–172	CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
APPROVED: CITY ENGINEER	DATE:		MIDBLOCK RAISED CROSSWALK

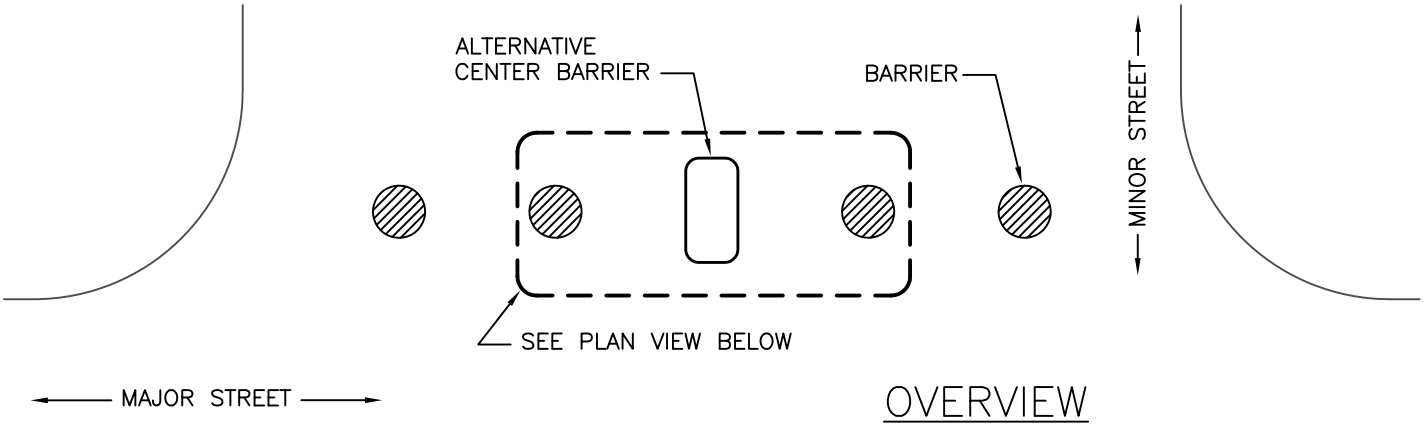
Accessible Parking Space Requirements



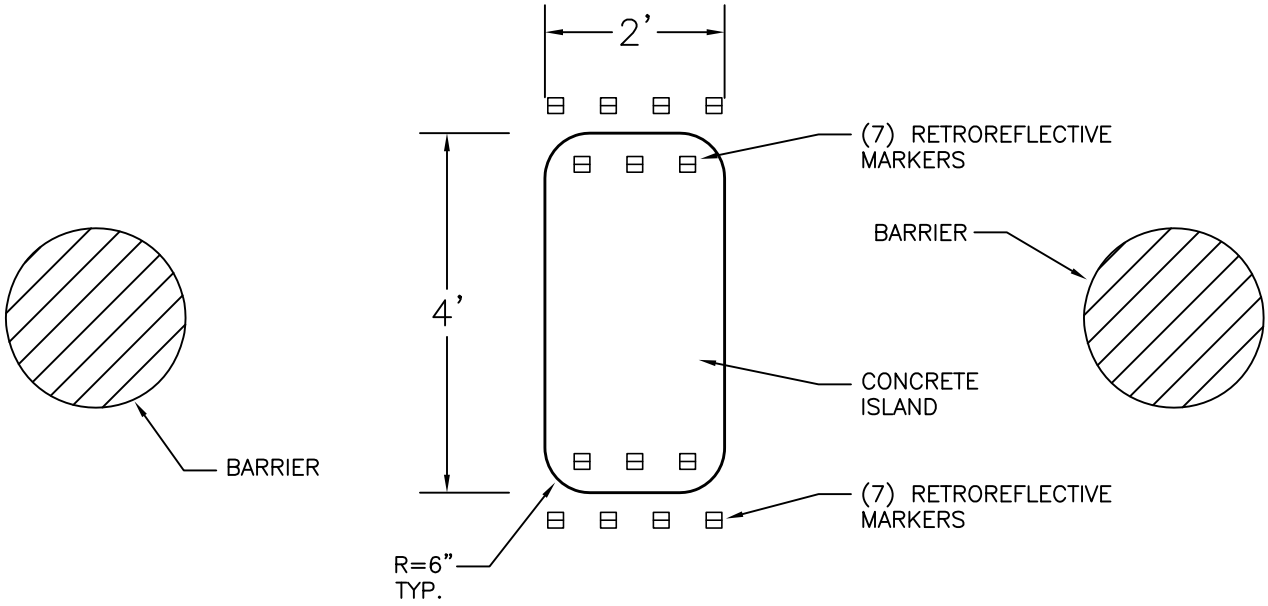
1. HATCHED LINES SHALL BE A COLOR CONTRASTING WITH THAT OF THE AISLE SURFACE, PREFERABLY BLUE OR WHITE. 11B-502.3.3
2. THE SLOPE OF PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 1:48 (2%). 11B-502.4, Exception
3. ACCESS AISLES SHALL BE ON THE PASSENGER SIDE OF VAN PARKING SPACES. ACCESS AISLES ARE PERMITTED ON EITHER SIDE OF CAR PARKING SPACES. ACCESS AISLES SHALL EXTEND THE FULL REQUIRED LENGTH OF THE PARKING SPACES THEY SERVE. 11B-502.3.4 11B-502.3.2
4. PARKING SPACES AND ACCESS AISLES SHALL BE DESIGNED SO THAT CARS AND VANS, WHEN PARKED, CANNOT OBSTRUCT THE REQUIRED CLEAR WIDTH OF ADJACENT ACCESSIBLE ROUTES. 11B-502.7 11B-502.7.2
5. SIGNS SHALL BE PERMANENTLY POSTED EITHER IMMEDIATELY ADJACENT TO THE PARKING SPACE OR WITHIN THE PROJECTED PARKING SPACE WIDTH AT THE HEAD END OF THE PARKING SPACE. SIGNS MAY ALSO BE PERMANENTLY POSTED ON A WALL AT THE INTERIOR END OF THE PARKING SPACE. 11B-502.6.3

ALTERNATIVE CENTER TRAFFIC BARRIER

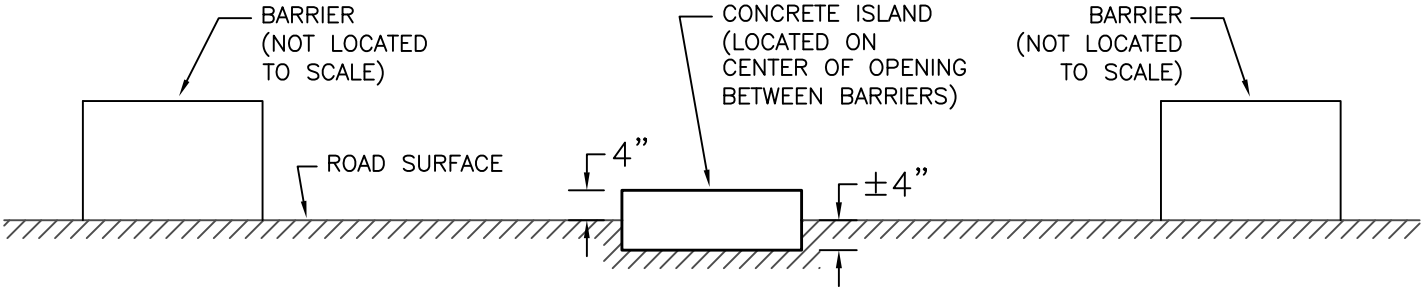
NOT TO SCALE



OVERVIEW

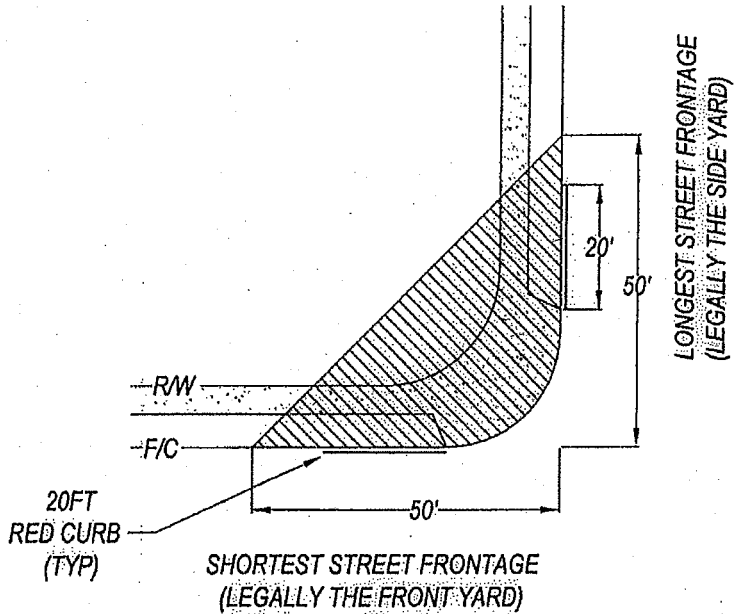


PLAN VIEW

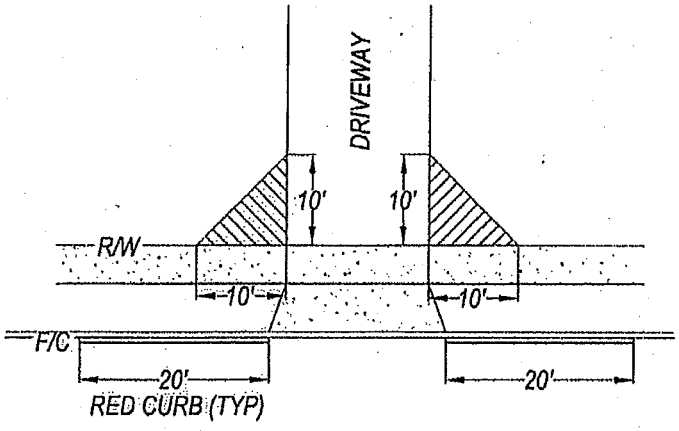


PROFILE

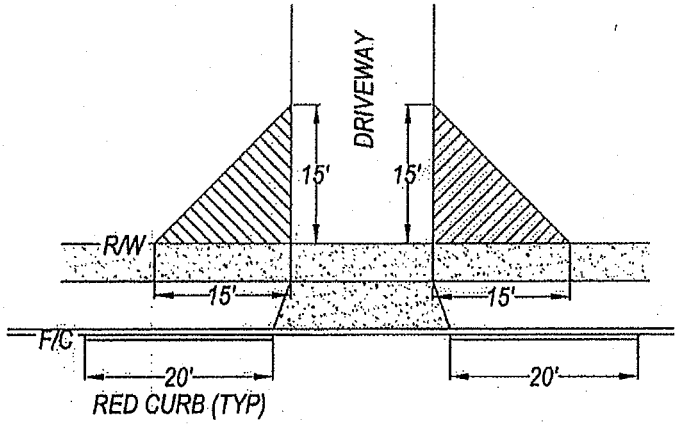
CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS	DESIGN: FJ DRAWN: ZT CHECK: HM	DATE: 5/20/2009 SCALE: N.T.S. BOOK:	PLAN: FILE:



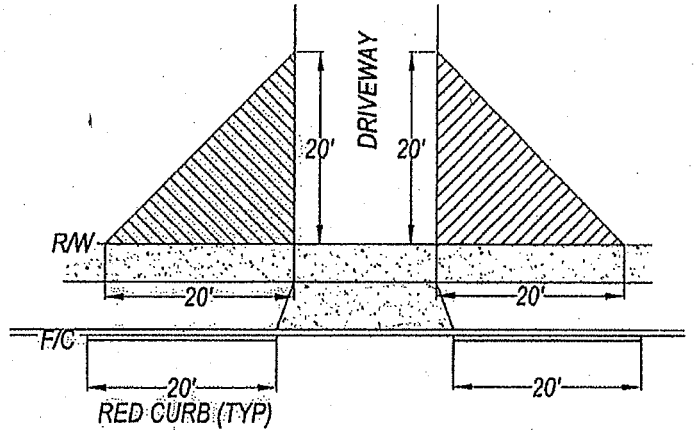
INTERSECTION



LOCAL STREET DRIVEWAY



COLLECTOR STREET DRIVEWAY



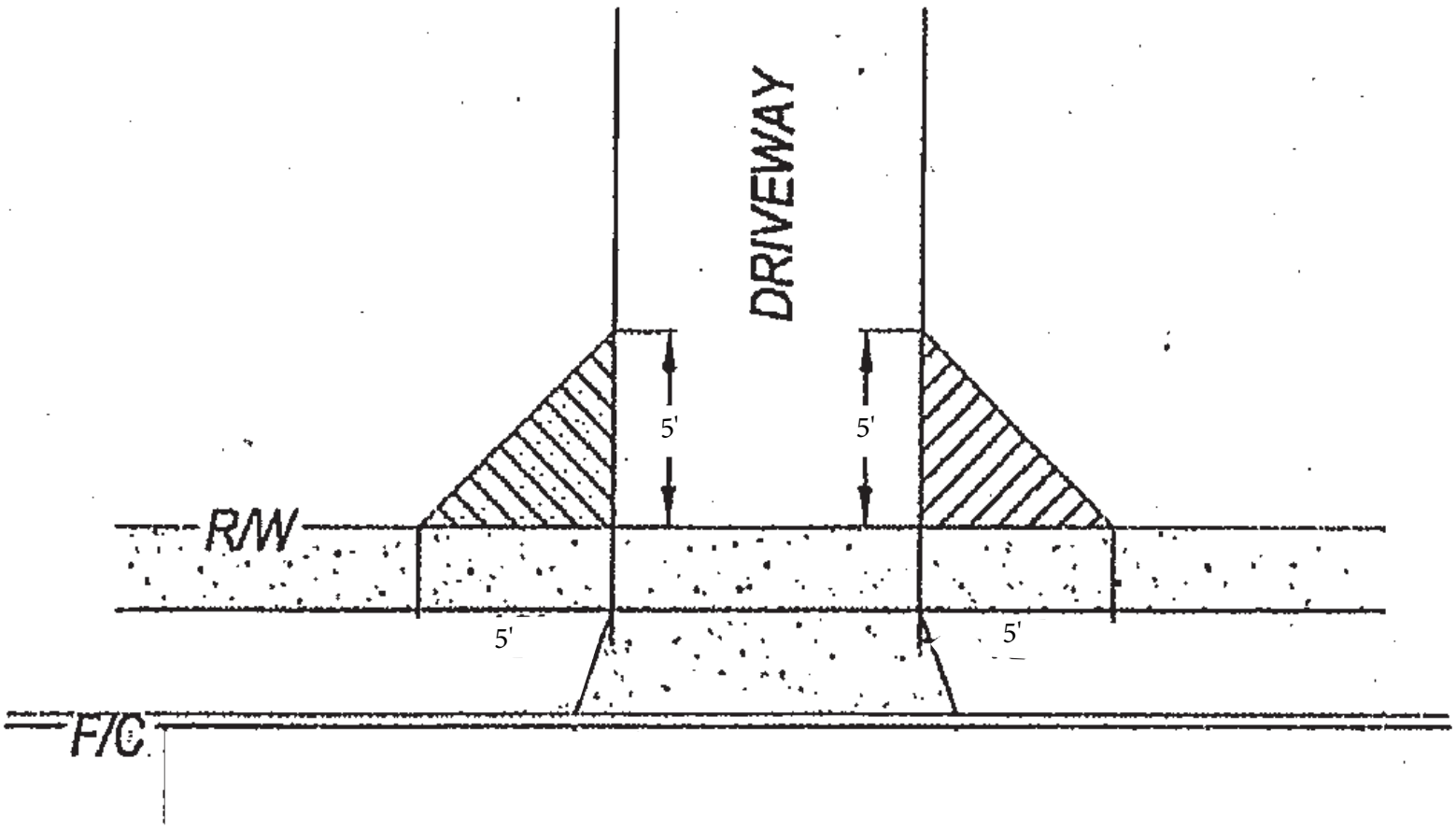
ARTERIAL STREET DRIVEWAY

WITHIN THIS AREA, ALL SHRUBS, BUSHES, SOLID FENCES, AND OTHER IMPROVEMENTS SHALL BE RESTRICTED TO A 2' MAX HEIGHT, FENCES THAT ARE 50% OPEN AND RETAINING WALLS SHALL NOT EXCEED 3' MAX HEIGHT AND TREES MAINTAINED TO A CLEARANCE OF 7.5' ABOVE GROUND (M.C. SEC. 10.32.020)

NOTES:

1. HEIGHT LIMITS ARE MEASURED FROM THE TOP OF CURB NEAREST TO THE OBSTRUCTION OR (ON STREETS WITH NO CURBS) THE NEAREST EDGE OF PAVEMENT.
2. 20 FT RED CURB FOR DRIVEWAY ACCESSIBILITY AND VISIBILITY DOES NOT INCLUDE THOSE DRIVEWAYS SERVING SINGLE FAMILY HOMES.
3. FOR STREETS WITH TRAFFIC CALMING CURB BULB-OUTS, THE VISIBILITY TRIANGLE IS MEASURED ALONG THE BULB-OUT FACE OF CURB.

CITY OF BERKELEY DEPARTMENT OF PUBLIC WORKS	DESIGN: _____ DRAWN: _____ CHECK: _____	DATE: 10/01/2012 SCALE: _____ BOOK: _____	PLAN: _____ FILE: _____	


DRIVEWAY
5'
5'
R/W
5'
5'
F/C

Public Works Department
Transportation Division

Parking and Driveway Design Guidelines

A. DEFINITIONS

- A "driveway approach" is that portion of the automotive vehicular access located in the public right-of- way between the curb line (or edge of pavement) and the front property line.
- A "driveway" is that portion of the automotive vehicular access located on private property between the front property line and the line which would be at the front of a vehicle when it begins its first maneuver to enter either the first parking space or the first lateral aisle.
- An "aisle" is that portion of the automotive vehicular access located on private property which is used for maneuvering between the driveway and the parking space (or stall).

B. WIDTHS

The widths of driveways vary depending upon the length of the driveway, the number of cars being served, the number of cars that must back out into the street, and the presence of obstructions adjacent to the driveway. The table below lists the City's width guidelines and the maximum number of cars that will be permitted to back out into the street. These guidelines apply only to residential parking areas.

Driveway Widths for Residential Units

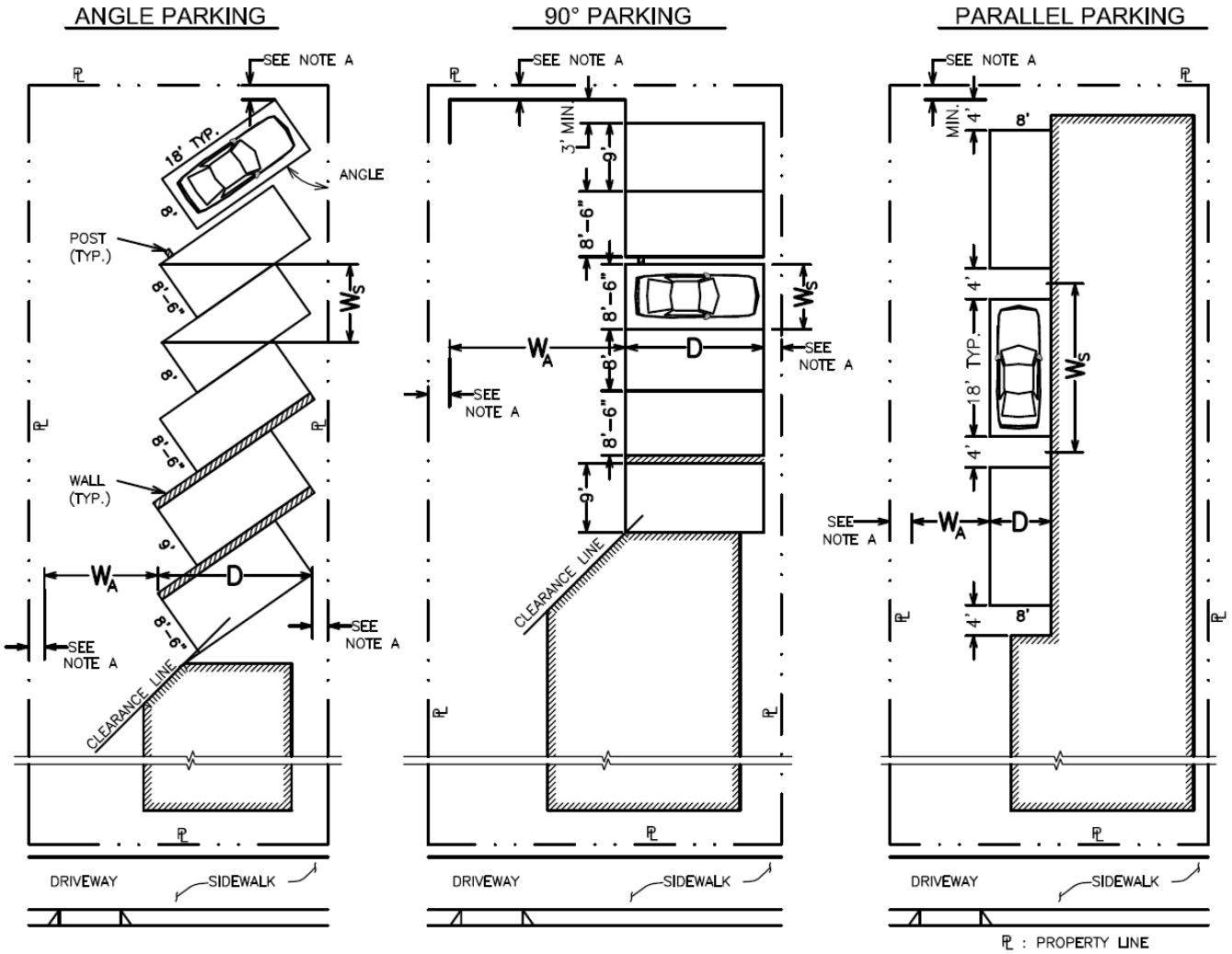
	Length of Driveway (front property line to aisle)				
	0' – 30'	31' – 60'	61' – 100'	101' & over	Max # of cars that can back into street
Number of cars served	Width in Feet				
1 - 3	8	9	10	11	3
4 – 6	9	10	11	12	0
7 – 25	10	11	12	15	0
26 – 35 a / b	9 / 18	9 / 19	10 / 20	10 / 20	0 / 0
36 – 50 a / b	9 / 19	10 / 20	10 / 20	10 / 20	0 / 0
51- 100 a / b	10 / 20	10 / 20	10 / 20	10 / 20	0 / 0

a. One-way circulation (2 driveways required)
b. Two-way circulation (1 driveway required)

C. OTHER GUIDELINES

- Generally, driveway slopes should be less than 15%. Though driveway slopes of up to 25% may be allowed, their approval is contingent upon a City Traffic Engineer's consideration of total driveway length, length of the 25% slope, width, topography, whether vehicles are driven, or are likely to be driven, in reverse at any time, existing or proposed fences or walls of any type, and other design issues relevant to the particular site.
- Driveway spacing on the same residential lot must be greater than 75 feet.
- Driveway widths must be less than or equal to 20 feet.
- Grade breaks of 10% are permitted and transition slopes must be 10 feet or longer.
- Commercial driveways are not permitted to serve a parking layout that results in vehicles backing out and into the street.

Parking Requirements

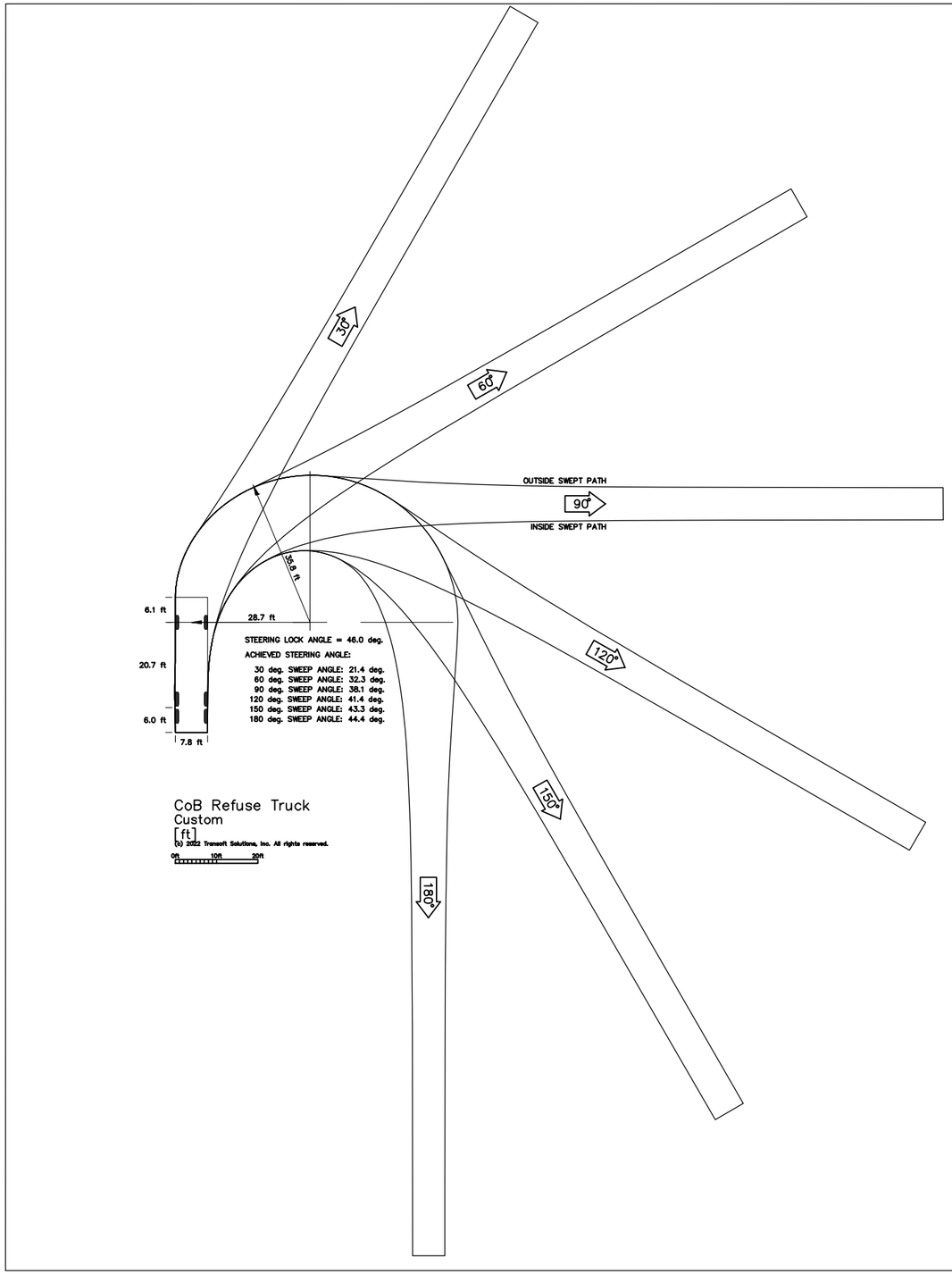


Angle of Parking	Depth of Stall (D)	Width of Aisle (W_A)	Width of Stall Parallel with Aisle (W_S)
Parallel	8’	12’	22.0’
30°	16’	12’	16.0’
45°	18’	12’	11.3’
60°	19.6’	18’	9.2’
75°	19.5’	21’	8.3’
90°	18’	24’	8.0’

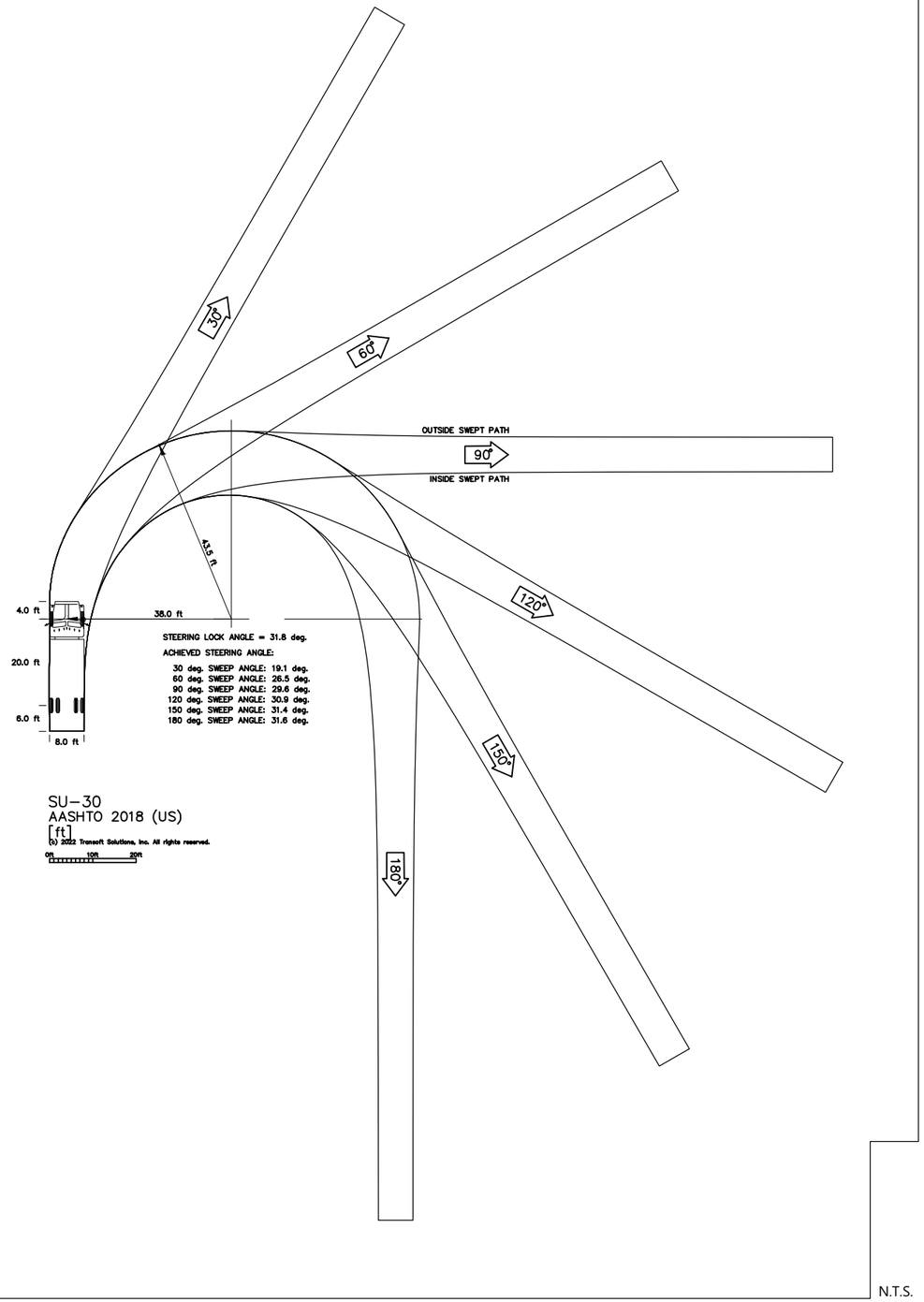
Notes:

A. The Berkeley Municipal Code, Zoning Sections 23D.12.080, 23D.04.70, and 23E.28.080, requires various screening, buffering, or landscaping treatments dependent upon location of parking (side or rear), number of spaces, and whether property is commercial or residential.
B. Add .5 foot if the parking space is adjacent to walls, posts, columns, landscaping, etc.
C. Vehicles are <u>not</u> permitted to maneuver, into or out of parking spaces, within the public right-of-way.
D. Parking pad slopes must be 2% maximum or as approved by a City Traffic Engineer.

Transportation Division, 1947 Center Street, 4th Floor, Berkeley, CA, 94704
Tel: 510.981.7010 TDD: 510.981.6903 Fax: 510.981.7060 E-mail: transportation@cityofberkeley.info
(Rev 11-2-2016 G:\CM-TRANSP\01- Development reviews\00 PROCESS\Guidelines\Parking Dwy Stds.docx)



REFUSE TRUCK

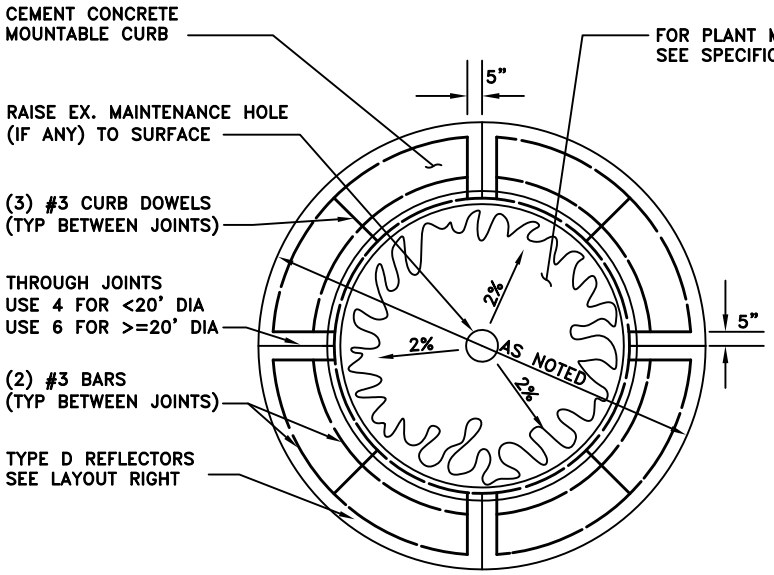


SU-30

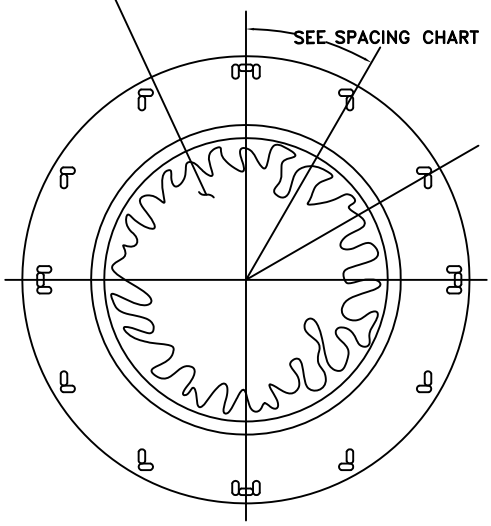
N.T.S.

Turning Templates
Berkeley Refuse Truck and SU-30
3/28/2022

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.



TYPICAL TRAFFIC CIRCLE

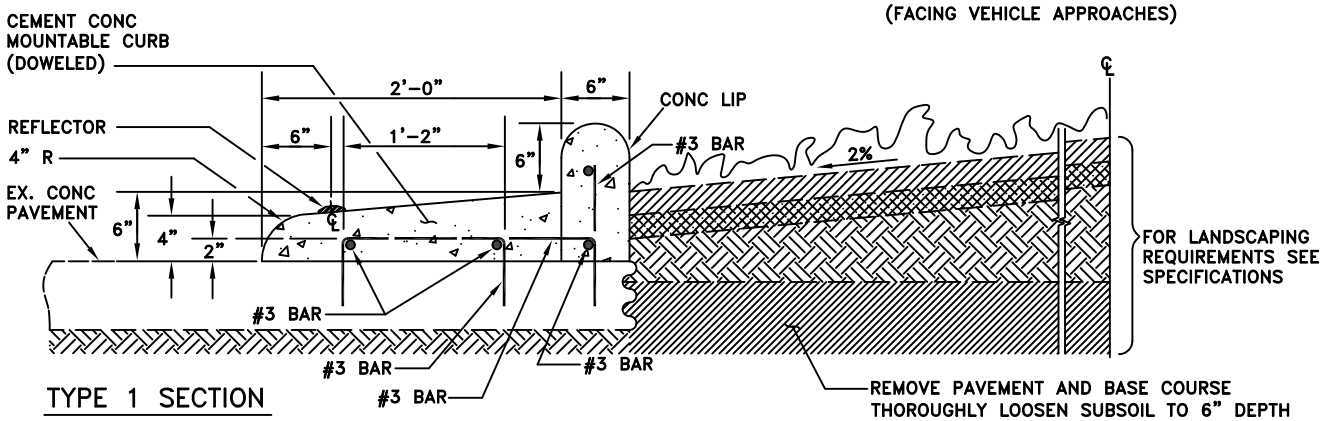


TRAFFIC CIRCLE REFLECTOR LAYOUT

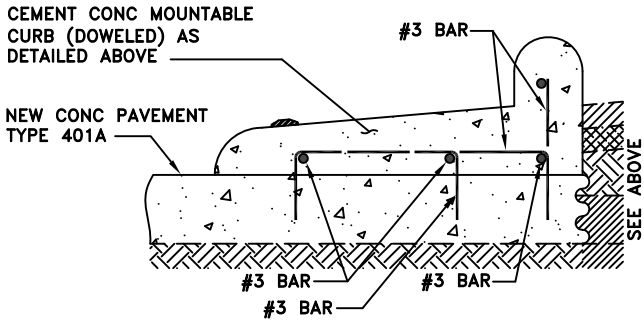
SPACING CHART

DIAMETER OF CIRCLE	DEGREE OF SPACING
<=12'	EVERY 45°
<20'	EVERY 30°
>20'	EVERY 22.5°

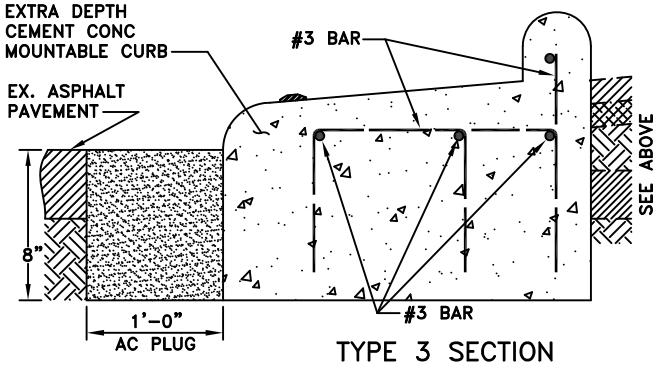
(FACING VEHICLE APPROACHES)



TYPE 1 SECTION



TYPE 2 SECTION
(SEE TYPE 1 SECTION FOR DIMENSIONS)



TYPE 3 SECTION
(SEE TYPE 1 SECTION FOR DIMENSIONS)

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

STANDARD DETAIL
TRAFFIC CIRCLE

SUBMITTED: DATE: _____
R.C.E. _____
SUPERVISING CIVIL ENGINEER EXP. _____

APPROVED: DATE: _____
R.C.E. _____
MANAGER OF ENGINEERING EXP. _____

DESIGN: HM
DRAWN: ZT
CHECK: _____

DATE: 8-2-2019
SCALE: N.T.S.
BOOK: X

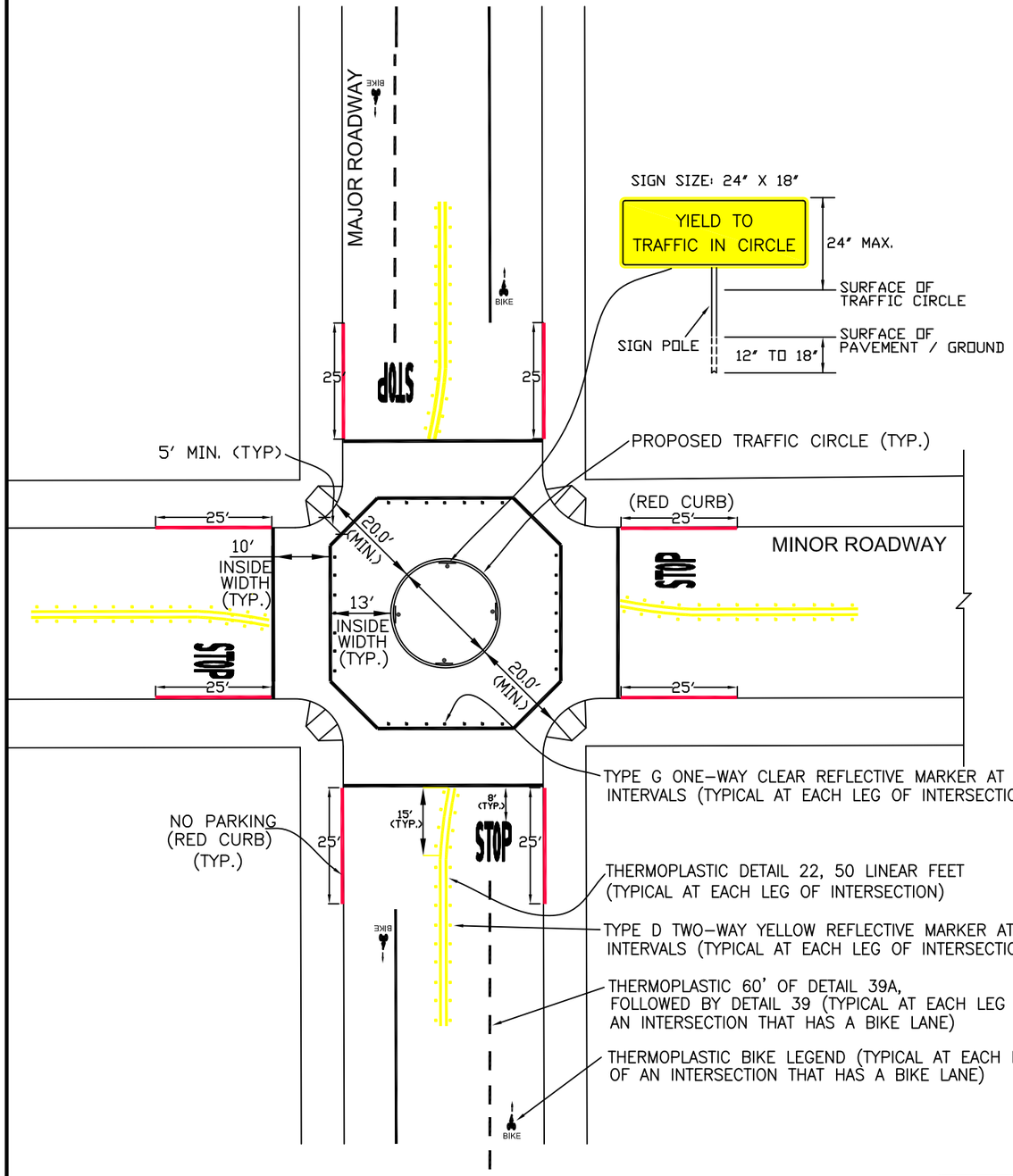
PLAN: X
FILE: X

"G:\CM-TRANSP\01- Traffic Calming\Tool Box\Traffic circles\Mountable Traffic circle - with planting surface - 2014-4-21.pdf"

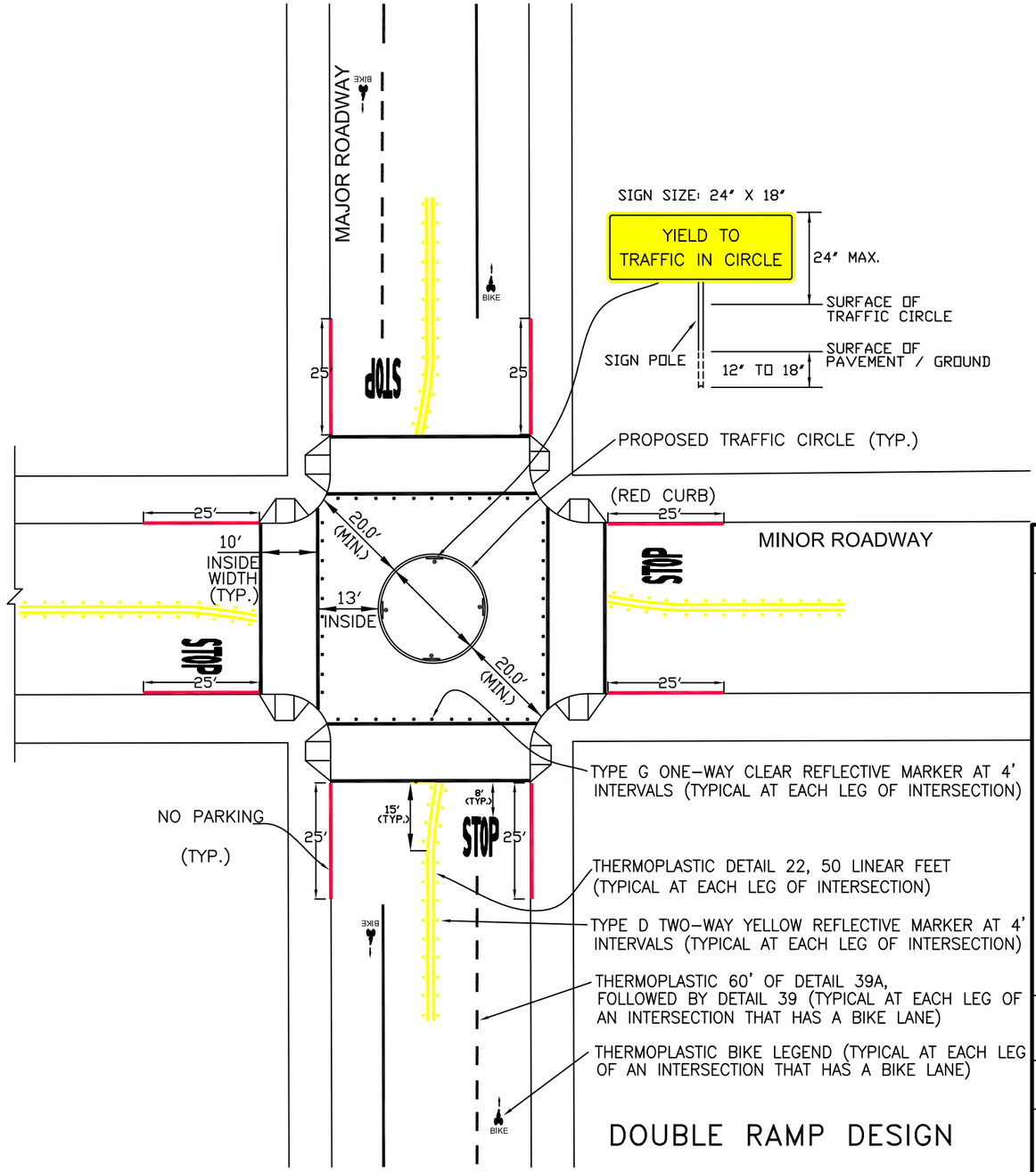
TYPICAL TRAFFIC CIRCLE DESIGN

NOTES:

1. Existing barriers at the intersection(if any)to be removed and taken to the Corporation Yard.
2. Existing traffic control device(s) at the intersection shall remain the same upon implementation of the new traffic circle (unless indicated differently by the Traffic Engineer).



SINGLE RAMP DESIGN



DOUBLE RAMP DESIGN

FOR REDUCED PLANS – ORIGINAL SCALE IS IN MILLIMETERS (0 20 40 60 80 100)

FOR REDUCED PLANS – ORIGINAL SCALE IS IN INCHES (0 1 2 3 4)

SUBMITTED: HAMID MOSTOWFI, SUPERVISING TRAFFIC ENGINEER — DATE — R.C.E. — EXP.

APPROVED: MANAGER OF ENGINEERING — DATE — R.C.E. — EXP.

DESIGN W.AMIRI | DRAWN Z. TAN | CHECK | REC.DWG | HORIZ. 1"=30' | VERT. | BOOK | DATE 11/18/19

CITY OF BERKELEY
DEPARTMENT OF PUBLIC WORKS

TYPICAL TRAFFIC CIRCLE DESIGN

PLAN | FILE | SHEET ___ OF ___

APPROVAL | REVISION | MARK | DATE | DESCRIPTION

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