



**CITY OF WEST RICHLAND
STANDARD DETAILS**

ISSUED BY:

PUBLIC WORKS DEPARTMENT

REVISED:

06/2018

DETAIL	DESCRIPTION
GENERAL	
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2 - 3 B	OPTIONAL TYPICAL CROSS SECTION (NEIGHBORHOOD COLLECTOR)
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CATEGORY: GENERAL

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ADOPTED: 02/14

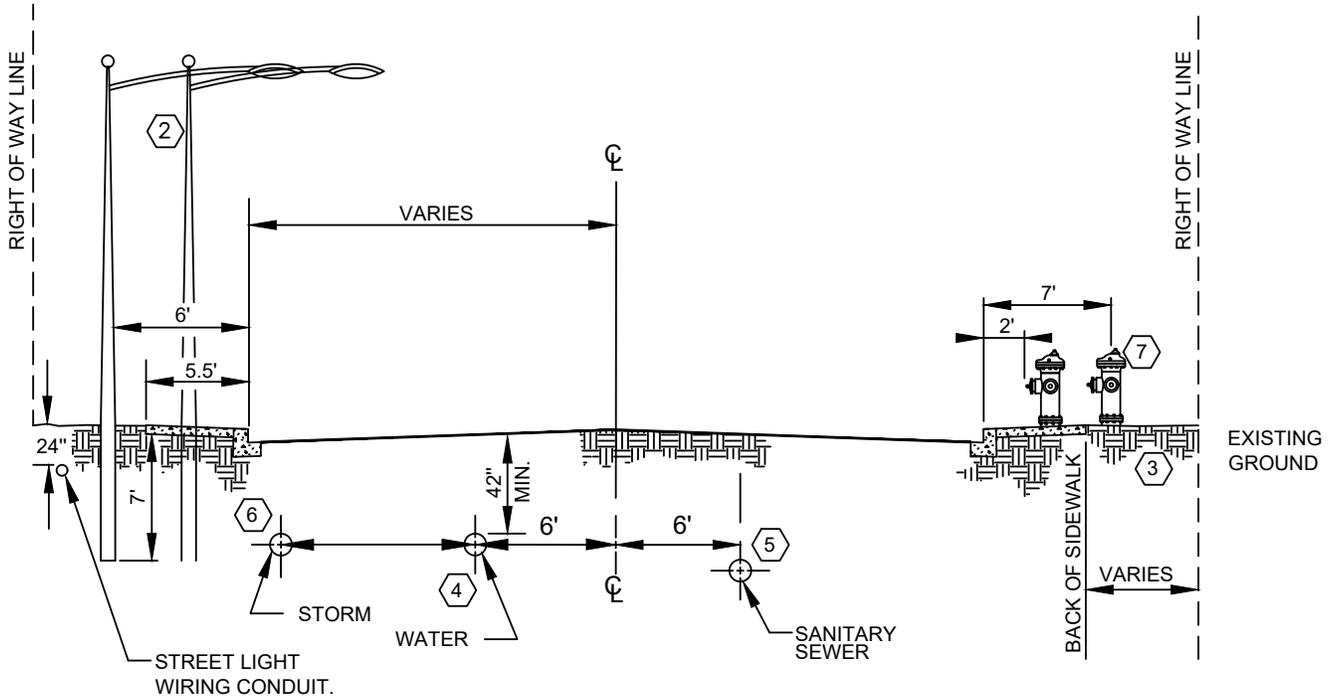
FILENAME: SD 0-0.dwg

REVISED BY: AFW

REVISED: 05/18

0-0

DRAWING NO.



NOTES:

1. DEVELOPER OR CONTRACTOR IS REQUIRED TO CALL 811 A MINIMUM OF 2 BUSINESS DAYS PRIOR TO DIGGING WITHIN THE LIMITS OF CITY RIGHT-OF-WAY FOR THE LOCATION MARKING OF ALL UNDERGROUND UTILITIES.
2. STREET LIGHT POLES TYPICALLY WILL BE INSTALLED ON ALTERNATING SIDES OF THE STREET AND SPACED AS INDICATED ON STANDARD DETAIL 6-2. WHEN THE SIDEWALK IS SEPARATED BY A PLANTER STRIP, PLACE FACE OF POLE 2 FEET FROM FACE OF CURB.
3. WATER METER BOXES WILL BE INSTALLED AT THE BACK OF NEW OR EXISTING SIDEWALKS. WHEN SIDEWALKS ARE SEPARATED BY A PLANTER STRIP SET FRONT OF METER BOX 18 INCHES FROM THE FACE OF CURB. STUB WATER SERVICE LINE TO BACK OF EASEMENT.
4. POTABLE WATER LINES TYPICALLY SHALL BE INSTALLED 6 FEET FROM AND PARALLEL TO THE CENTERLINE OF THE RIGHT-OF-WAY.
5. SANITARY SEWER LINE TYPICALLY SHALL BE INSTALLED 6 FEET FROM AND PARALLEL TO THE CENTERLINE OF THE RIGHT-OF-WAY.
6. STORMWATER LINES TYPICALLY SHALL BE INSTALLED UNDER THE GUTTER PAN, OR UNDER THE CENTER OF THE ROADWAY IF APPROVED BY CITY ENGINEER.
7. FIRE HYDRANTS TYPICALLY WILL BE INSTALLED ON ALTERNATING SIDES OF THE STREET ON 300 FOOT SPACING IN INDUSTRIAL AND COMMERCIAL AREAS AND ON 400 FOOT SPACING IN RESIDENTIAL AREAS AND/OR EVERY INTERSECTION. UNLESS OTHERWISE SPECIFIED IN THE PLANS, OR CONTRACT.
8. IF CONFLICTS REQUIRE ALTERNATE WATER OR SEWER MAIN LOCATIONS, APPROVAL SHALL BE OBTAINED FROM THE CITY ENGINEER FOR THE LOCATION. A MINIMUM 3 FOOT SEPARATION FROM THE FACE OF CURB IS REQUIRED.

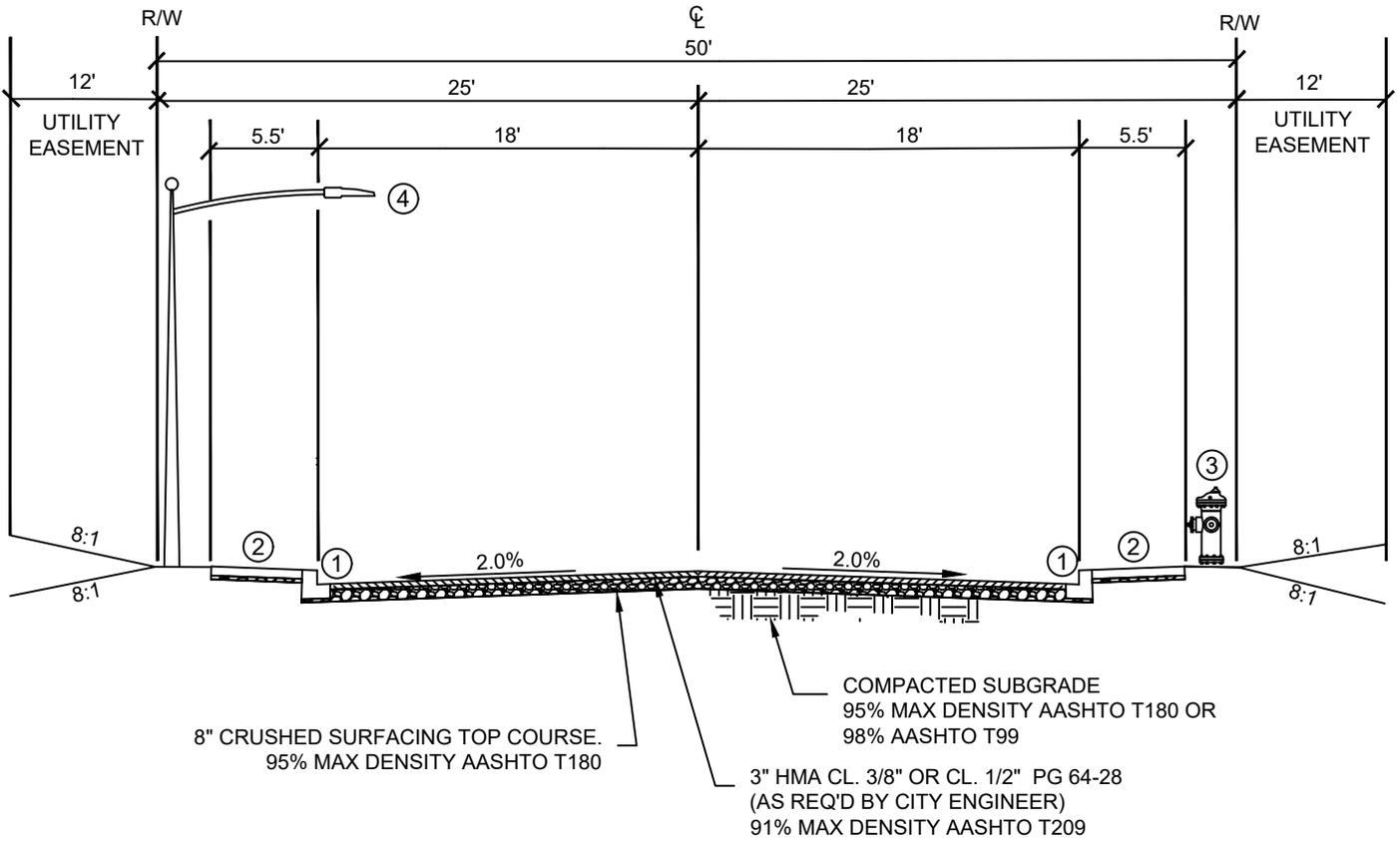


TYPICAL CITY UTILITY LOCATIONS

CATEGORY:	GENERAL	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 1-1.dwg	REVISED BY:	AFW	REVISED:	05/18

1-1

DRAWING NO.



NOTES:

1. CONCRETE CURB AND GUTTER - STAB JOINTS EVERY 10 FEET, MASTIC AT PC/PT & CATCH BASINS.
2. CONCRETE SIDEWALK - DUMMY JOINTS EVERY 5 FEET, EXPANSION JOINT EVERY 30 FEET. 2" COMPACTED CSTC UNDER SIDEWALK. CONCRETE THICKNESS OF SIDEWALKS AT DRIVEWAY APPROACHES SHALL BE 6".
3. SEE STD. DETAIL 1-1 FOR HYDRANT AND STREET LIGHT LOCATIONS.
4. ROADWAY SECTION ABOVE IS CONSIDERED MINIMUM DEPTHS. DEVELOPERS SHALL MAY BE REQUIRED TO CONDUCT A GEOTECHNICAL ANALYSIS OF SITE SOILS AND HAVE A ROADWAY SECTION DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SATISFY THE CITY ROADWAY DESIGN CONDITIONS AT THE DISCRETION OF THE CITY ENGINEER.
5. MINIMUM CENTERLINE RADII FOR LOCAL STREETS SHALL BE DESIGNED PER THE LOW-SPEED URBAN STREETS STANDARDS IN THE MOST RECENT AASHTO EDITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. WHEN APPROVED BY THE CITY ENGINEER, MINOR LOOPS ON LOCAL STREETS WHERE THE STREET MAKES A 90° PLUS OR MINUS 5° TURN, THE MINIMUM CENTERLINE RADIUS SHALL BE 100'.

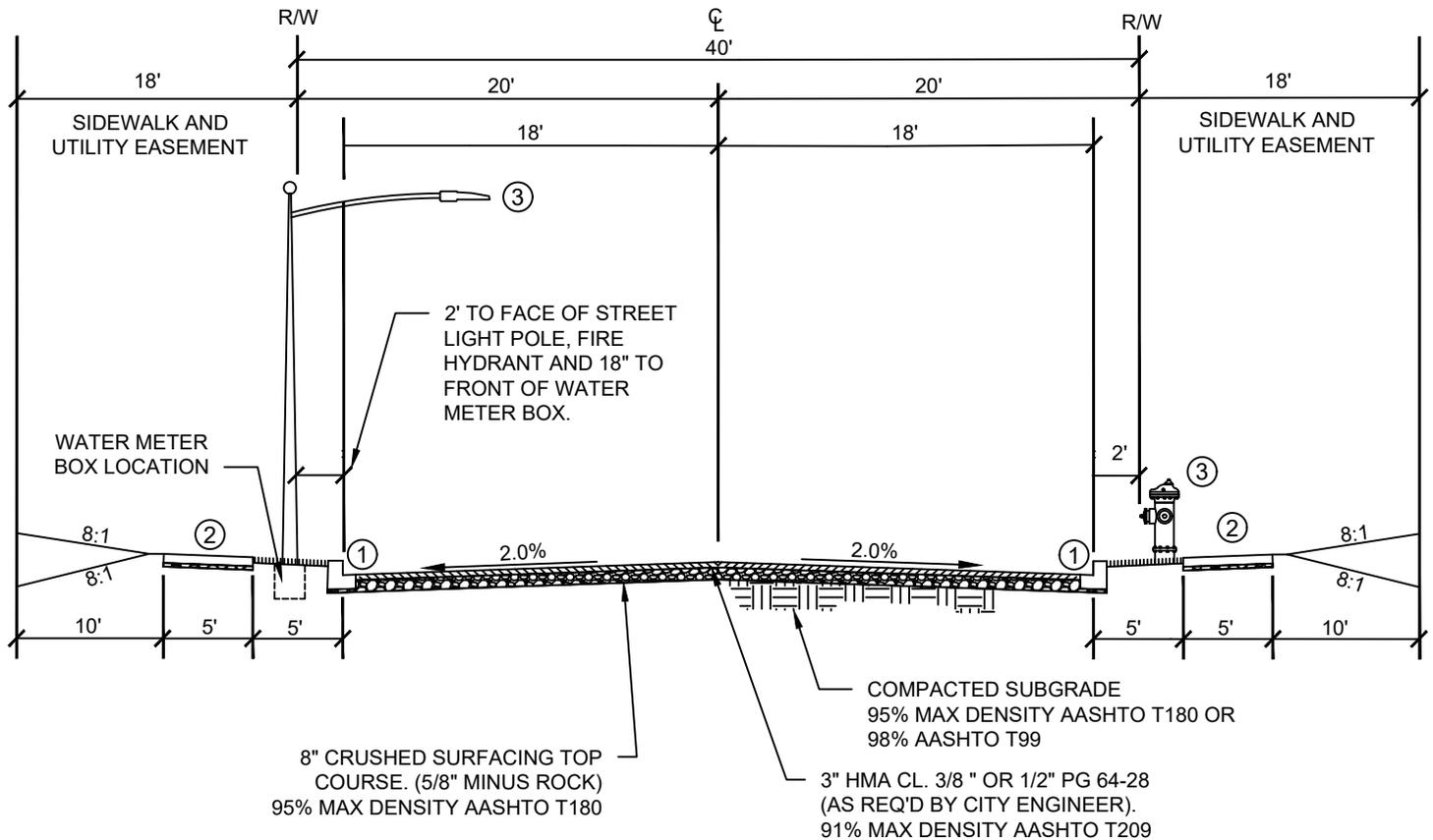


**TYPICAL CROSS SECTION
(LOCAL STREETS)**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-1.dwg	REVISED BY:	AFW	REVISED:	05/18

2-1

DRAWING NO.



NOTES: (***USE OF THIS ROADWAY SECTION MUST BE APPROVED BY THE CITY COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS***)

1. CONCRETE CURB AND GUTTER - STAB JOINTS EVERY 10 FEET, MASTIC AT PC/PT & CATCH BASINS.
2. CONCRETE SIDEWALK - DUMMY JOINTS EVERY 5 FEET, EXPANSION JOINT EVERY 30 FEET. 2" COMPACTED CSTC UNDER SIDEWALK. CONCRETE THICKNESS OF SIDEWALKS AT DRIVEWAY APPROACHES SHALL BE 6".
3. SEE STD. DETAIL 1-1 FOR HYDRANT AND STREET LIGHT LOCATIONS.
4. SIDEWALK, LANDSCAPE ELEMENTS, AND IRRIGATION SYSTEM SHALL BE COMPLETED BY THE HOME BUILDER AND MAINTAINED BY THE INDIVIDUAL PROPERTY OWNER. ONLY ROCK AND/OR GRASS IS ALLOWED BETWEEN LANDSCAPING STRIP BETWEEN BACK OF CURB AND SIDEWALK. HOMEBUILDER SHALL INSTALL 1 1/2"CL 160 PVC CAPPED AND MARKED IRRIGATION CONDUIT 12 " UNDER SIDEWALK ON EACH SIDE OF THE DRIVEWAY. ROADSIDE EDGE OF SIDEWALK SHALL BE SET 2% HIGHER THAN TOP OF CURB.
5. ROADWAY SECTION ABOVE IS CONSIDERED MINIMUM DEPTHS. DEVELOPERS SHALL BE REQUIRED TO CONDUCT A GEOTECHNICAL ANALYSIS OF SITE SOILS AND HAVE A ROADWAY SECTION DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SATISFY THE CITY ROADWAY DESIGN CONDITIONS.
6. MINIMUM CENTERLINE RADII FOR LOCAL STREETS SHALL BE DESIGNED PER THE LOW-SPEED URBAN STREETS STANDARDS IN THE MOST RECENT AASHTO EDITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. WHEN APPROVED BY THE CITY ENGINEER, MINOR LOOPS ON LOCAL STREETS WHERE THE STREET MAKES A 90° PLUS OR MINUS 5° TURN, THE MINIMUM CENTERLINE RADIUS SHALL BE 100'.

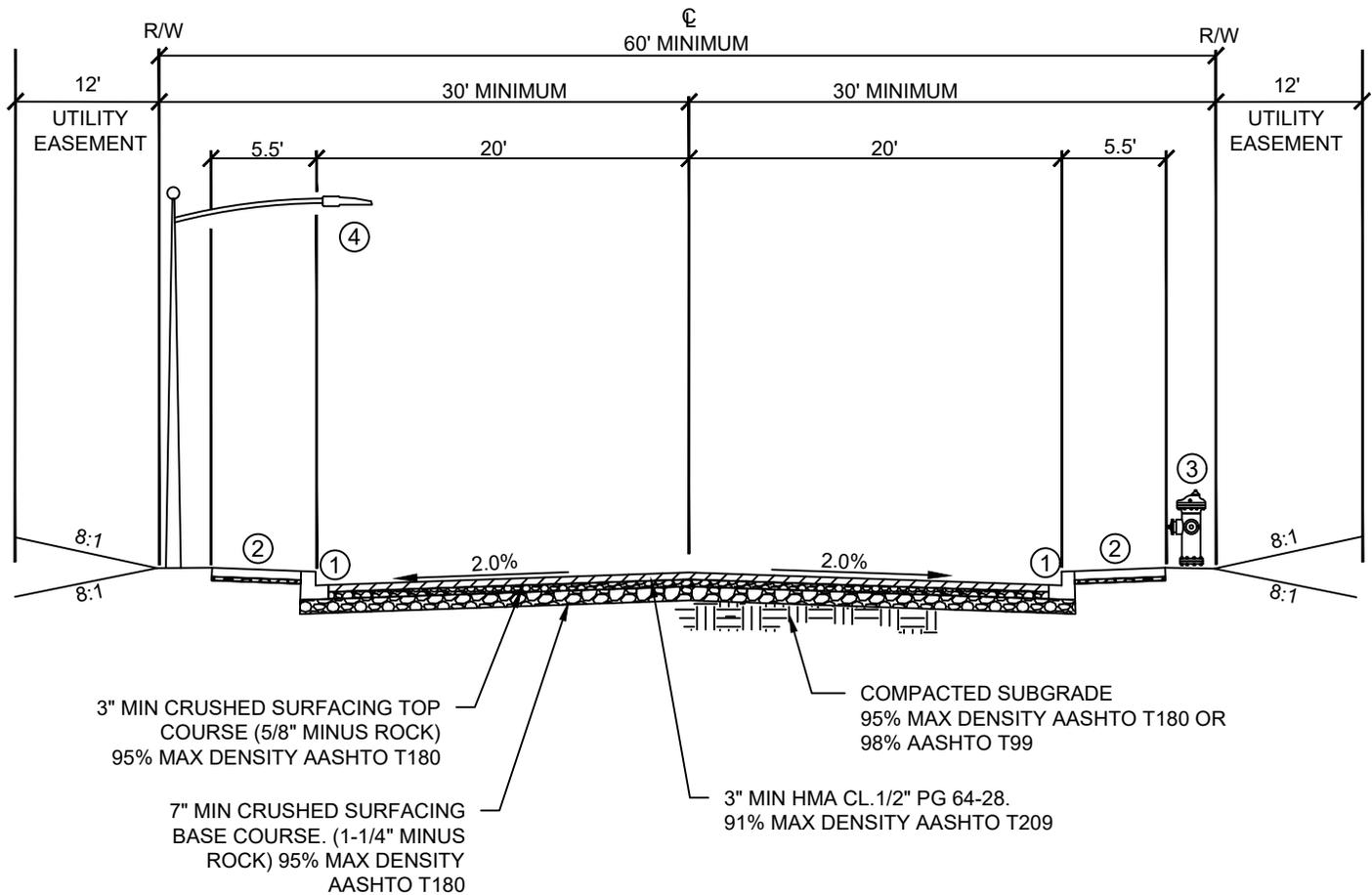


**OPTIONAL TYPICAL CROSS SECTION
(LOCAL STREETS W/ SEPARATED SIDEWALK)**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-2.dwg	REVISED BY:	AFW	REVISED:	05/18

2-2

DRAWING NO.



NOTES:

1. ROADWAY SECTION ABOVE IS CONSIDERED MINIMUM DEPTHS. DEVELOPERS SHALL BE REQUIRED TO CONDUCT A GEOTECHNICAL ANALYSIS OF SITE SOILS AND HAVE A ROADWAY SECTION DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SATISFY THE CITY ROADWAY DESIGN CONDITIONS.
2. CONCRETE CURB AND GUTTER - STAB JOINTS EVERY 10 FEET, MASTIC AT PC/PT & CATCH BASINS
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4. SEE STD. DETAIL 1-1 FOR HYDRANT AND STREET LIGHT LOCATIONS.
5. MINIMUM CENTERLINE RADII FOR NEIGHBORHOOD COLLECTOR STREETS SHALL BE DESIGNED PER THE LOW-SPEED URBAN STREETS STANDARDS IN THE MOST RECENT AASHTO EDITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
6. ON ROADWAYS DESIGNATED LIMITED ACCESS, NO PARKING SIGNS WILL BE INSTALLED AND NO PARKING WILL BE ALLOWED ALONG THE ROADWAY.

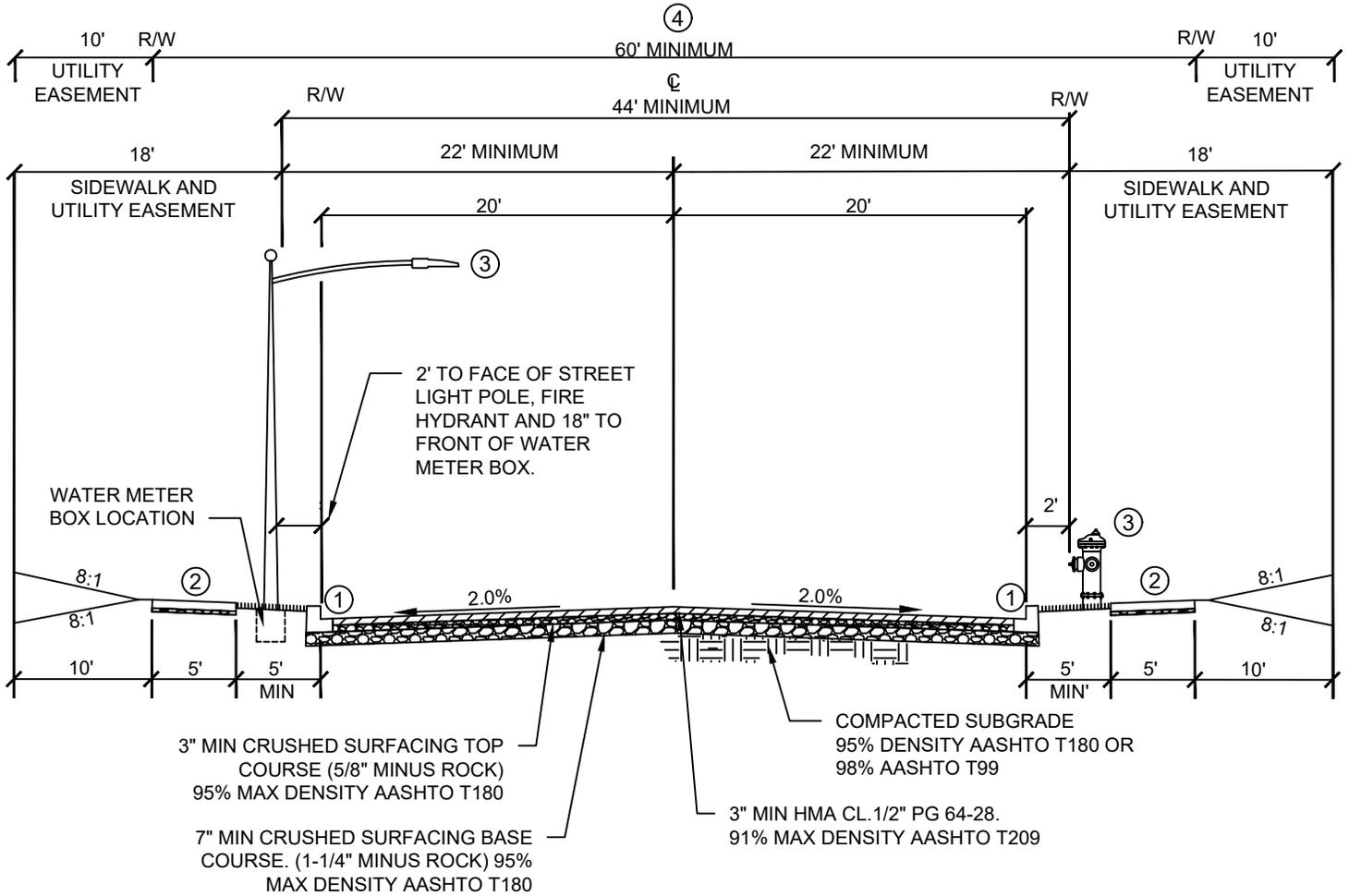


**TYPICAL CROSS SECTION
(NEIGHBORHOOD COLLECTOR)**

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-3A.dwg	REVISED BY: AFW	REVISED: 05/18

2-3A

DRAWING NO.



NOTES: (***USE OF THIS ROADWAY SECTION MUST BE APPROVED BY THE CITY COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS***)

1. ROADWAY SECTION ABOVE IS CONSIDERED MINIMUM DEPTHS. DEVELOPERS SHALL BE REQUIRED TO CONDUCT A GEOTECHNICAL ANALYSIS OF SITE SOILS AND HAVE A ROADWAY SECTION DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SATISFY THE CITY ROADWAY DESIGN CONDITIONS.
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4. SEE STD. DETAIL 1-1 FOR HYDRANT AND STREET LIGHT LOCATIONS.
5. WHEN DESIGNATED A LIMITED ACCESS ROADWAY THE DEPICTED RIGHT OF WAY AND EASEMENT TYPICAL SECTION SHALL BE USED. IN THESE SITUATIONS THE DEVELOPER SHALL BE REQUIRED TO INSTALL SIDEWALK AS PART OF PLAT DEVELOPMENT. ON ROADWAYS DESIGNATED LIMITED ACCESS, NO PARKING SIGNS WILL BE INSTALLED AND NO PARKING WILL BE ALLOWED ALONG THE ROADWAY. ADDITIONAL ROADWAY STRIPING MAY BE REQUIRED.
6. SIDEWALK, LANDSCAPE ELEMENTS, AND IRRIGATION SYSTEM SHALL BE COMPLETED BY THE HOME BUILDER AND MAINTAINED BY THE INDIVIDUAL PROPERTY OWNER. ONLY ROCK AND/OR GRASS IS ALLOWED BETWEEN LANDSCAPING STRIP BETWEEN BACK OF CURB AND SIDEWALK. HOME BUILDER SHALL INSTALL 1 1/2" CL 160 PVC CAPPED AND MARKED IRRIGATION CONDUIT 12" UNDER SIDEWALK ON EACH SIDE OF THE DRIVEWAY. ROADSIDE EDGE OF SIDEWALK SHALL BE SET 2% HIGHER THAN TOP OF CURB.
7. MINIMUM CENTERLINE RADII FOR NEIGHBORHOOD COLLECTOR STREETS SHALL BE DESIGNED PER THE LOW-SPEED URBAN STREETS STANDARDS IN THE MOST RECENT AASHTO EDITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

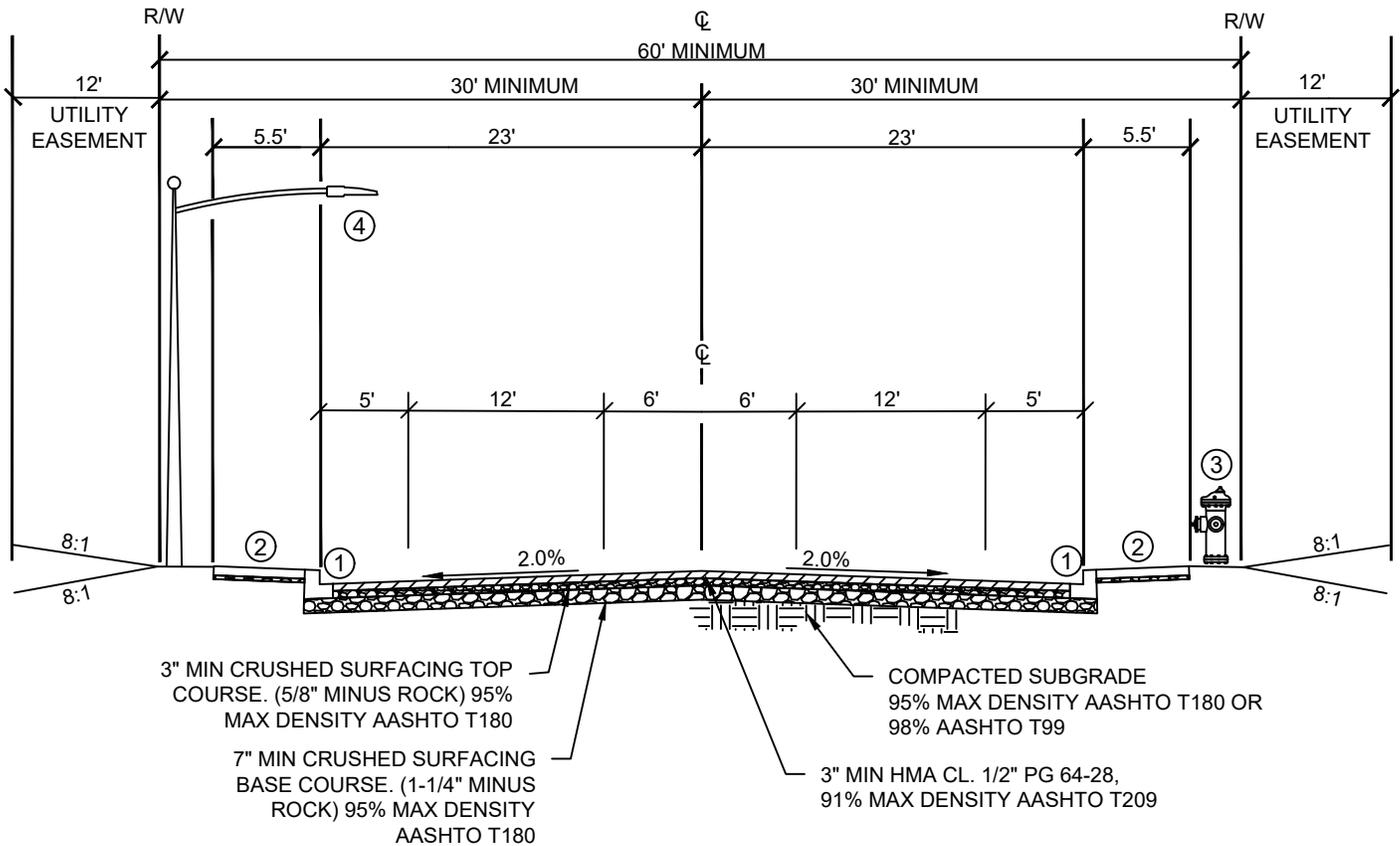


**OPTIONAL TYPICAL CROSS SECTION
(NEIGHBORHOOD COLLECTOR)**

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-3B.dwg	REVISED BY: AFW	REVISED: 05/18

2-3B

DRAWING NO.



NOTES:

- ROADWAY SECTION ABOVE IS CONSIDERED MINIMUM DEPTHS. DEVELOPERS SHALL BE REQUIRED TO CONDUCT A GEOTECHNICAL ANALYSIS OF SITE SOILS AND HAVE A ROADWAY SECTION DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SATISFY THE CITY ROADWAY DESIGN CONDITIONS.
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- SEE STD. DETAIL 1-1 FOR HYDRANT AND STREET LIGHT LOCATIONS.
- WHEN DESIGNATED A LIMITED ACCESS ROADWAY THE DEVELOPER SHALL BE REQUIRED TO INSTALL SIDEWALK AS PART OF PLAT DEVELOPMENT.
- MINIMUM CENTERLINE RADII FOR ARTERIAL STREETS UP TO 45 MPH SHALL BE DESIGNED PER THE LOW-SPEED URBAN STREETS STANDARDS IN THE MOST RECENT AASHTO EDITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. STREETS IN EXCESS OF 45 MPH SHALL USE $e_{max}=4\%$ TABLES IN THE LATEST AASHTO EDITION TO DETERMINE MINIMUM RADII FOR DESIGN SUPER ELEVATION RATES UNLESS APPROVED OTHERWISE BY CITY ENGINEER.
- ON ROADWAYS DESIGNATED LIMITED ACCESS, NO PARKING SIGNS WILL BE INSTALLED AND NO PARKING WILL BE ALLOWED ALONG THE ROADWAY.

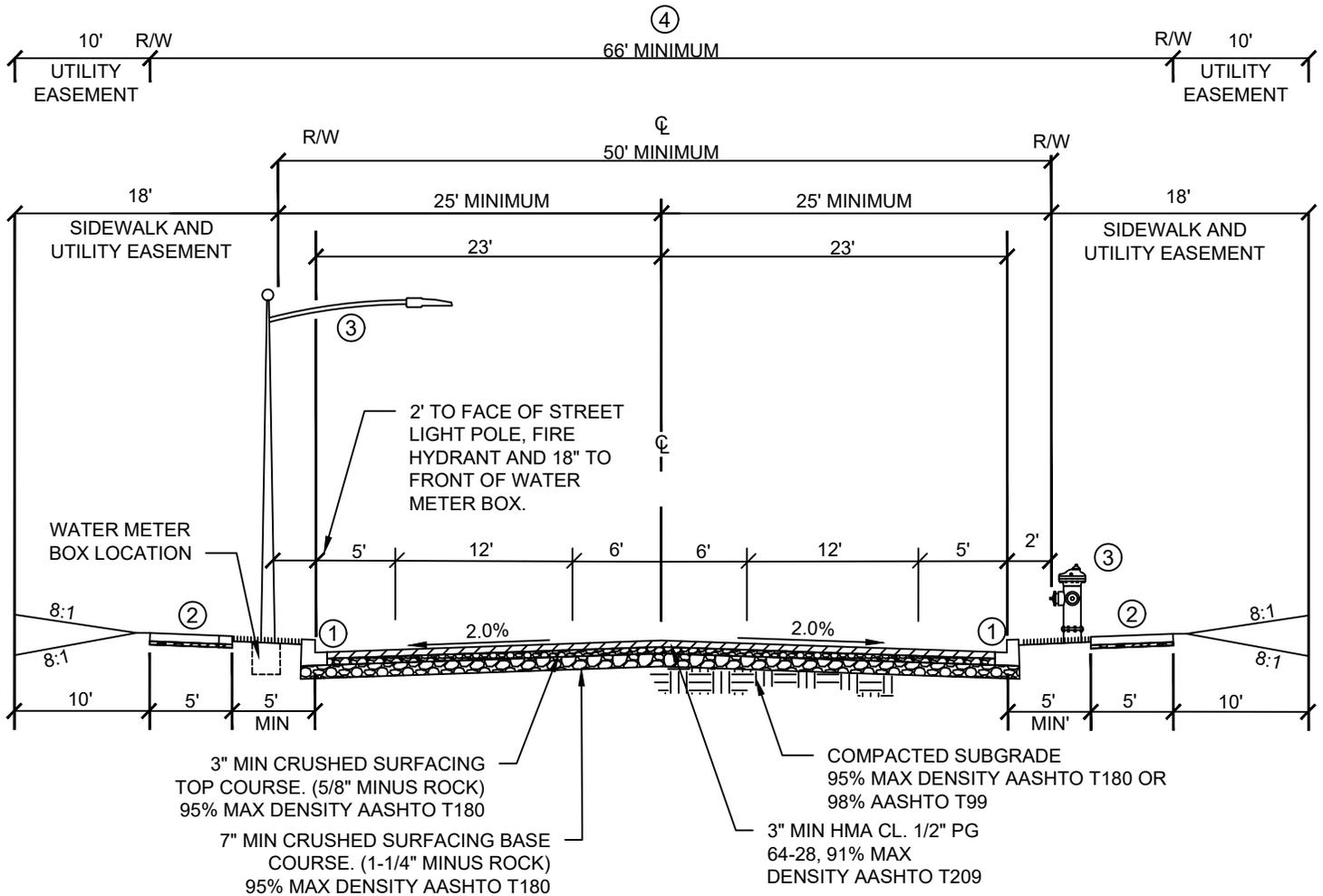


**TYPICAL CROSS SECTION
(MINOR ARTERIAL/ARTERIAL COLLECTOR)**

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-4A.dwg	REVISED BY: AFW	REVISED: 05/18

2-4A

DRAWING NO.



NOTES: (***USE OF THIS ROADWAY SECTION MUST BE APPROVED BY THE CITY COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS***)

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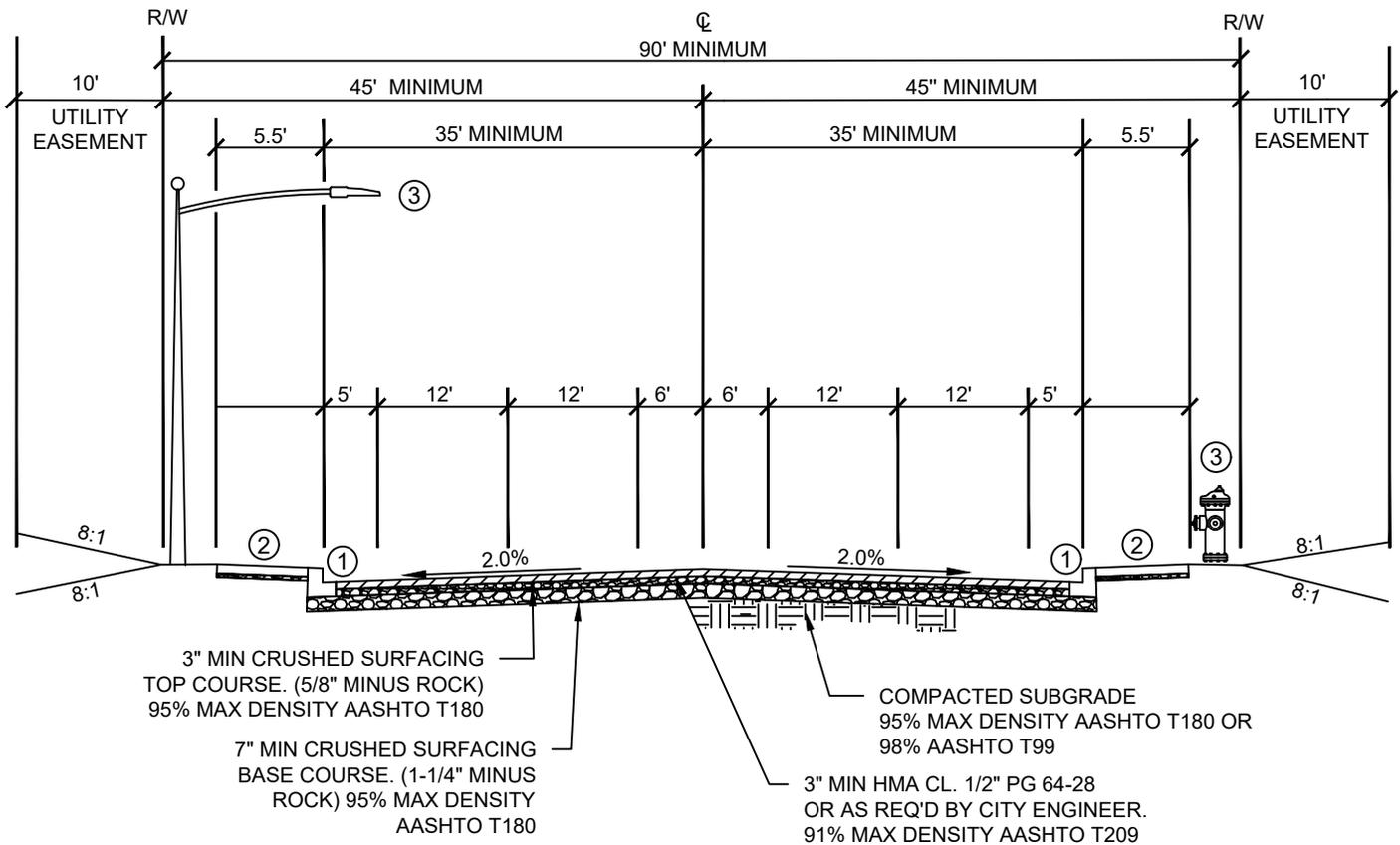


**OPTIONAL TYPICAL CROSS SECTION
(MINOR ARTERIAL/ARTERIAL COLLECTOR)**

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
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2-4B

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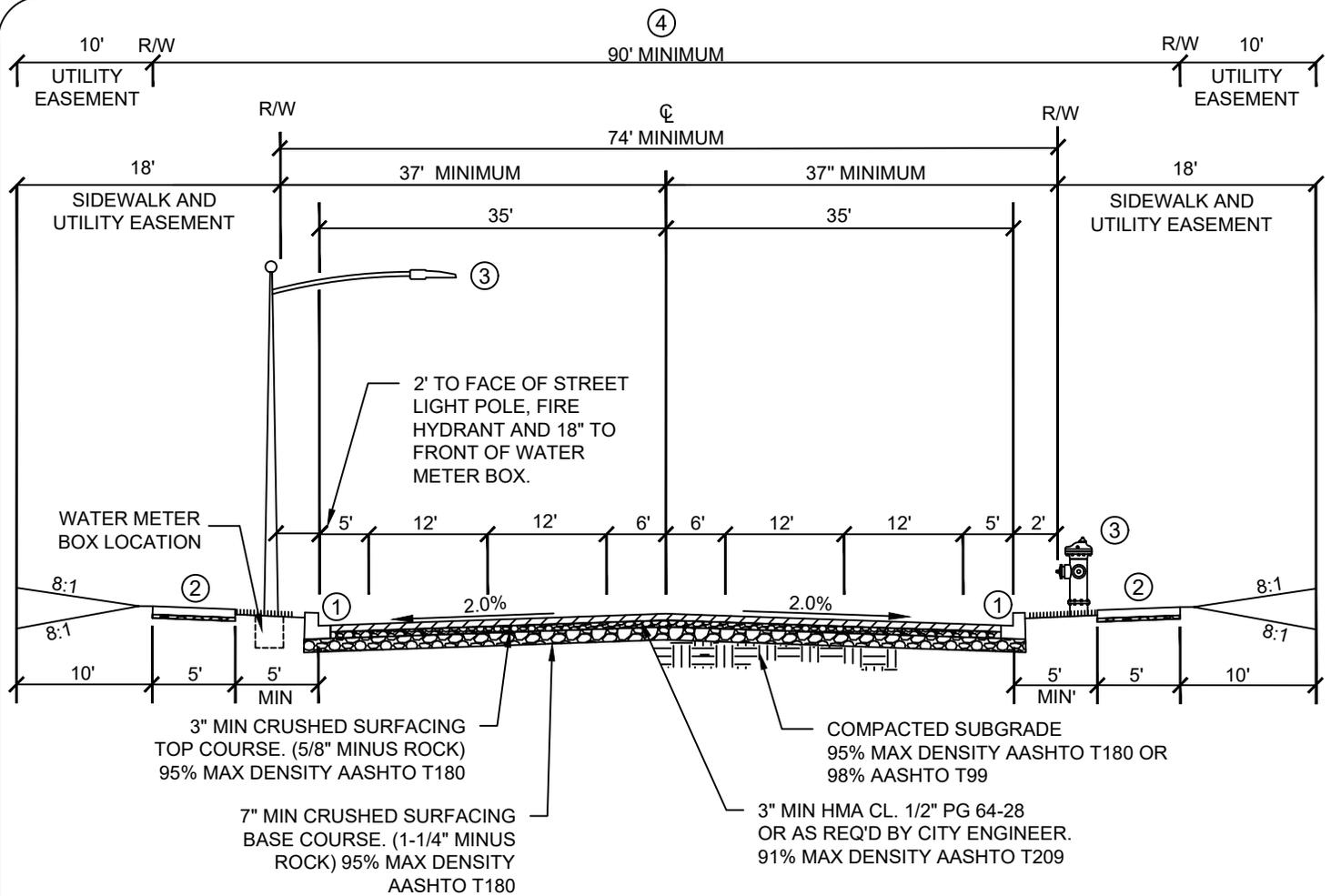


**TYPICAL CROSS SECTION
(PRINCIPLE ARTERIAL)**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-5A.dwg	REVISED BY:	AFW	REVISED:	05/18

2-5A

DRAWING NO.



NOTES: (***USE OF THIS ROADWAY SECTION MUST BE APPROVED BY THE CITY COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS***)

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6. SIDEWALK, LANDSCAPE ELEMENTS, AND IRRIGATION SYSTEM SHALL BE COMPLETED BY THE HOME BUILDER AND MAINTAINED BY THE INDIVIDUAL PROPERTY OWNER. ONLY ROCK AND/OR GRASS IS ALLOWED BETWEEN LANDSCAPING STRIP BETWEEN BACK OF CURB AND SIDEWALK. HOMEBUILDER SHALL INSTALL 1 1/2"CL 160 PVC CAPPED AND MARKED IRRIGATION CONDUIT 12 " UNDER SIDEWALK ON EACH SIDE OF THE DRIVEWAY. ROADSIDE EDGE OF SIDEWALK SHALL BE SET 2% HIGHER THAN TOP OF CURB.
- 7.
8. MINIMUM CENTERLINE RADII FOR ARTERIAL STREETS UP TO 45 MPH SHALL BE DESIGNED PER THE LOW-SPEED URBAN STREETS STANDARDS IN THE MOST RECENT AASHTO EDITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. STREETS IN EXCESS OF 45 MPH SHALL USE $e_{max}=4\%$ TABLES IN THE LATEST AASHTO EDITION TO DETERMINE MINIMUM RADII FOR DESIGN SUPER ELEVATION RATES UNLESS APPROVED OTHERWISE BY CITY ENGINEER.

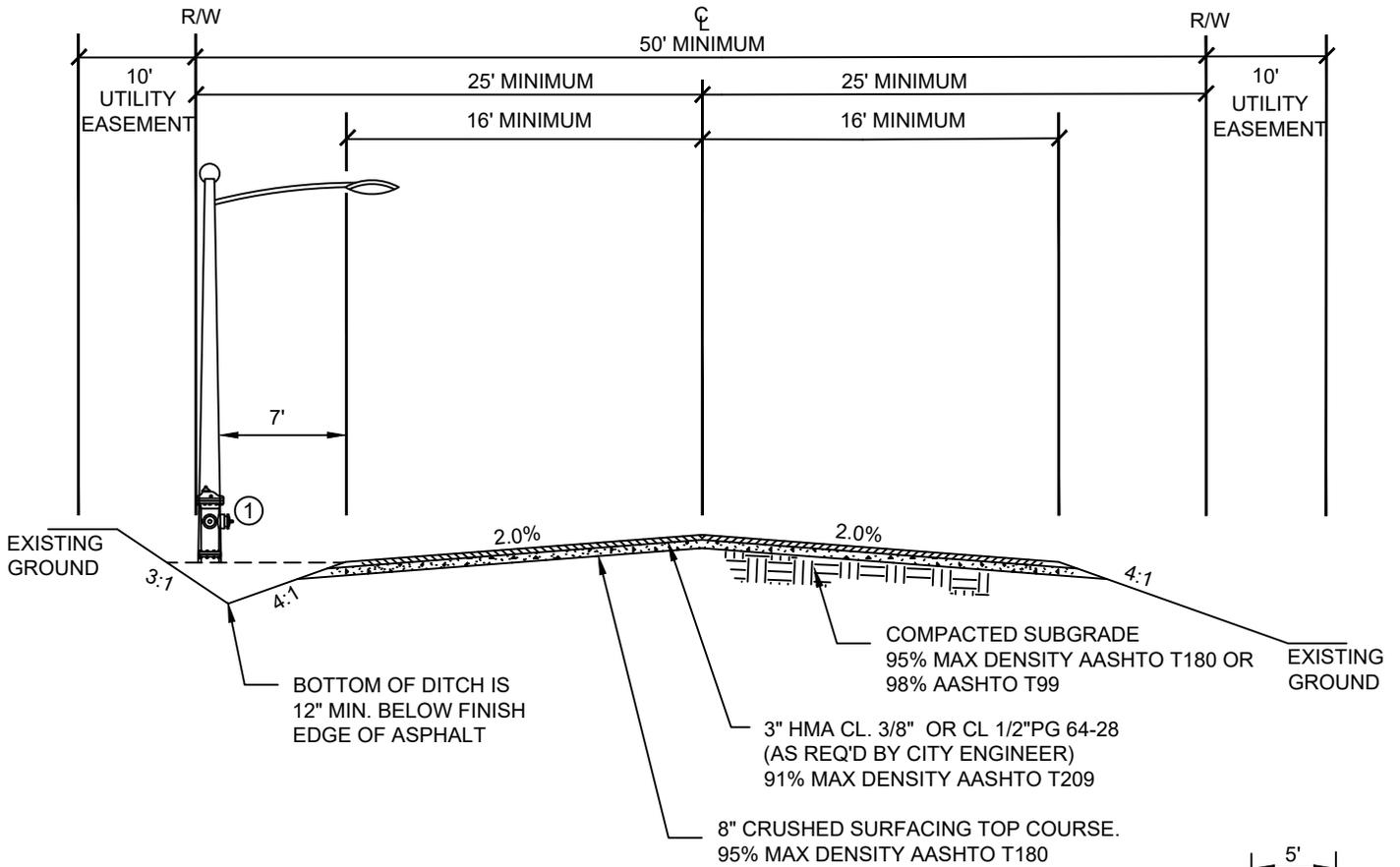


**OPTIONAL TYPICAL CROSS SECTION
(PRINCIPLE ARTERIAL)**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-5B.dwg	REVISED BY:	AFW	REVISED:	05/18

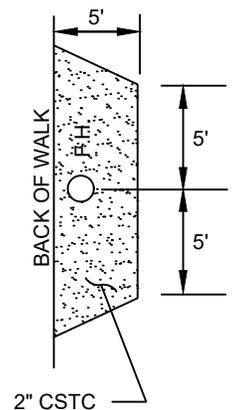
2-5B

DRAWING NO.



NOTES:

1. FIRE HYDRANT BASE FLANGE SHALL BE SET 0.5' ABOVE THE EDGE OF THE ASPHALT AND INCLUDE INSTALLATION OF GUARD POSTS PER STD. DETAIL 4-4B. AT LOCATIONS OF HYDRANTS AND WATER METER BOXES, DITCH SHALL BE FILLED.
2. ROADWAY SECTION ABOVE IS CONSIDERED MINIMUM DEPTHS. DEVELOPERS MAY BE REQUIRED TO CONDUCT A GEOTECHNICAL ANALYSIS OF SITE SOILS AND HAVE A ROADWAY SECTION DESIGNED BY A LICENSED PROFESSIONAL ENGINEER TO SATISFY THE CITY ROADWAY DESIGN CONDITIONS AT THE DISCRETION OF THE CITY ENGINEER



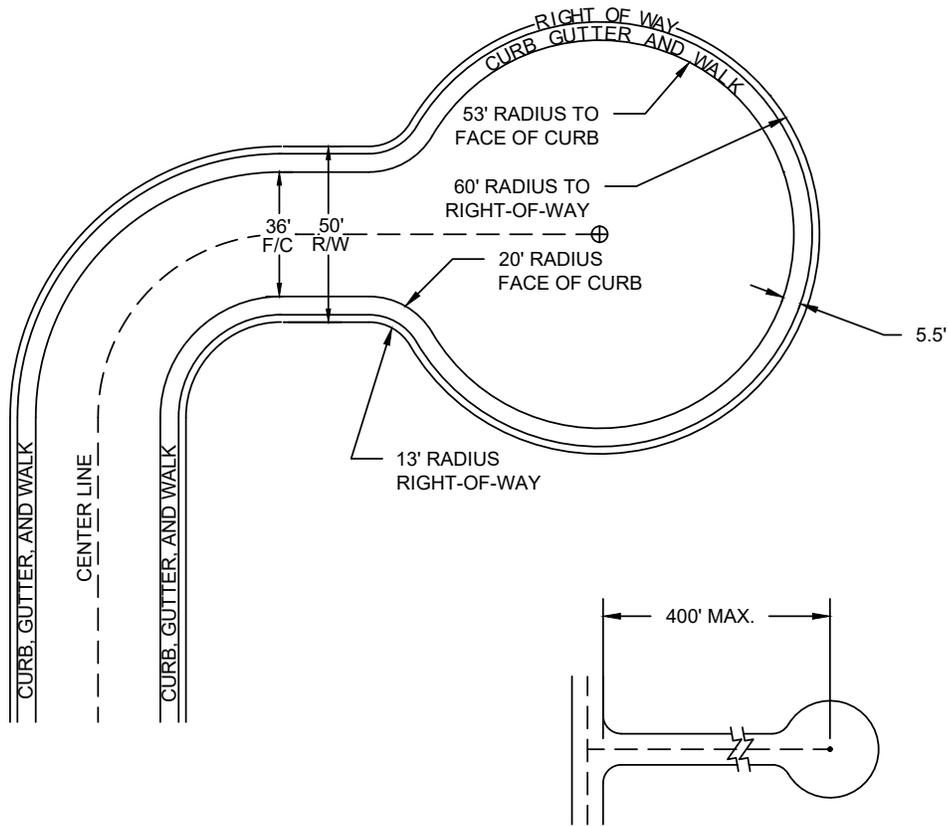
**TYPICAL CROSS SECTION
RURAL ROADWAY**



CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-6.dwg	REVISED BY:	AFW	REVISED:	05/18

2-6

DRAWING NO.



NOTES:

1. CONCRETE CURB AND GUTTER - STAB JOINTS EVERY 10 FEET, MASTIC AT PC/PT & CATCH BASINS.
2. CONCRETE SIDEWALK - DUMMY JOINTS EVERY 5 FEET, EXPANSION JOINT EVERY 30 FEET.
3. SEE STD. DETAIL 1-1 FOR HYDRANT AND STREET LIGHT LOCATION.
4. THE MAXIMUM CUL-DE-SAC LENGTH IS 400' AS SHOWN IN DRAWING.

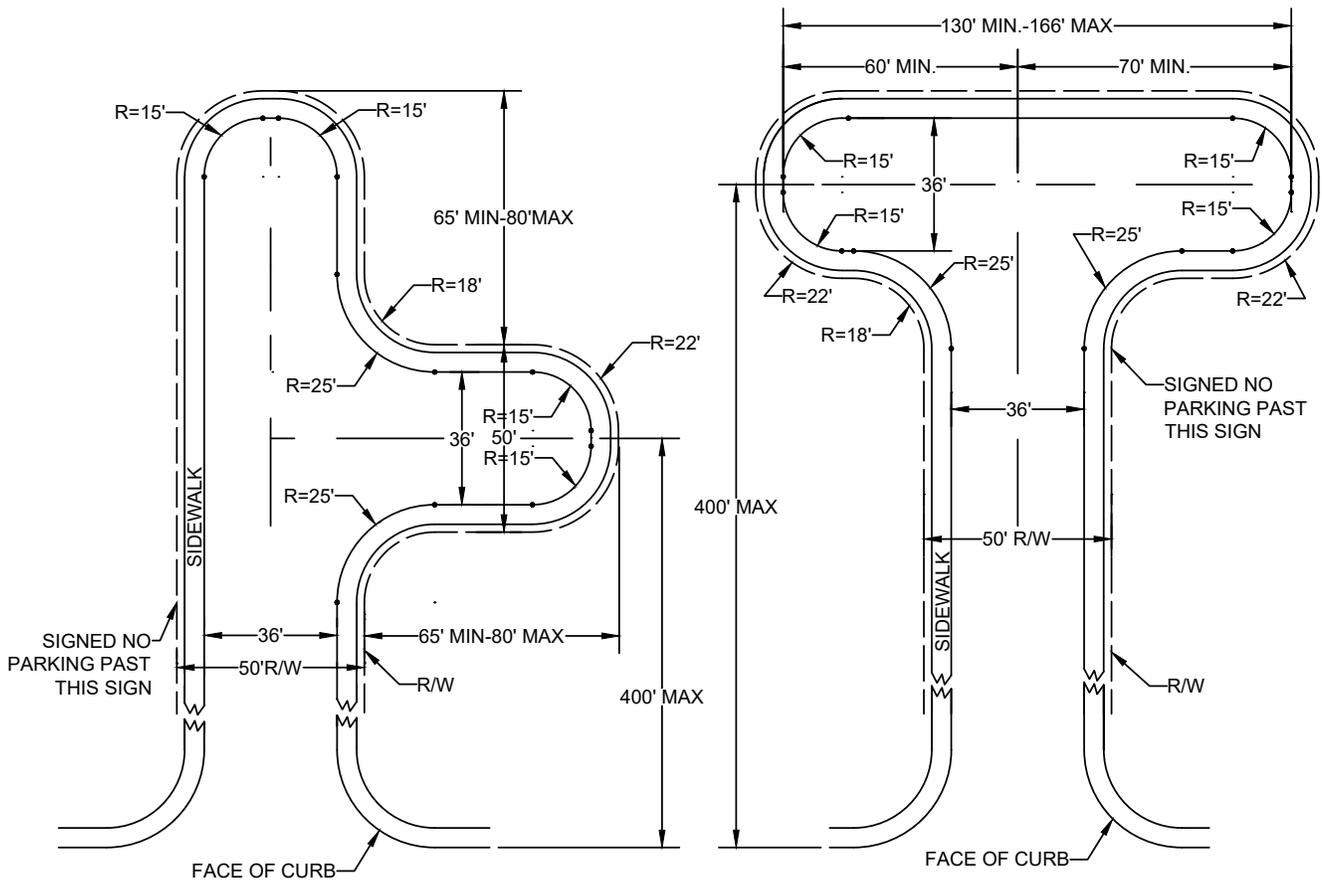


CUL-DE-SAC

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-7A.dwg	REVISED BY:	AFW	REVISED:	05/18

2-7A

DRAWING NO.



NOTES:

(WITH THE PRIOR APPROVAL OF BOTH THE CITY ENGINEER AND FIRE MARSHALL, AN ALTERNATE TURN AROUND MAY BE USED. APPROVAL WILL BE CONSIDERED ONLY WHEN THE FOLLOWING MINIMUM CRITERIA ARE MET.)

1. MUST BE AN IN-FILL AREA BETWEEN DEVELOPED RESIDENTIAL LOTS WHERE, A FULL SIZED CUL-DE-SAC WOULD NOT BE PRACTICAL AS DETERMINED BY THE CITY ENGINEER AND FIRE MARSHAL; OR MUST BE AN IN-FILL AREA BETWEEN LOTS ZONED FOR OTHER THAN RESIDENTIAL USE, WHERE A FULL SIZED CUL-DE-SAC WOULD NOT BE PRACTICAL, AS DETERMINED BY THE CITY ENGINEER AND FIRE MARSHALL; AND THE UNDEVELOPED LOT MUST HAVE A MAXIMUM LOT WIDTH OF 180'
2. THE MAXIMUM LENGTH OF THE DEAD END STREET WILL BE 400'
3. AN ALTERNATE DESIGN, SIMILAR TO THIS DRAWING, MAY BE SUBMITTED FOR CONSIDERATION OF APPROVAL BY BOTH THE CITY ENGINEER AND FIRE MARSHALL
4. THE TURN AROUND AREA SHALL BE SIGNED FOR NO PARKING.

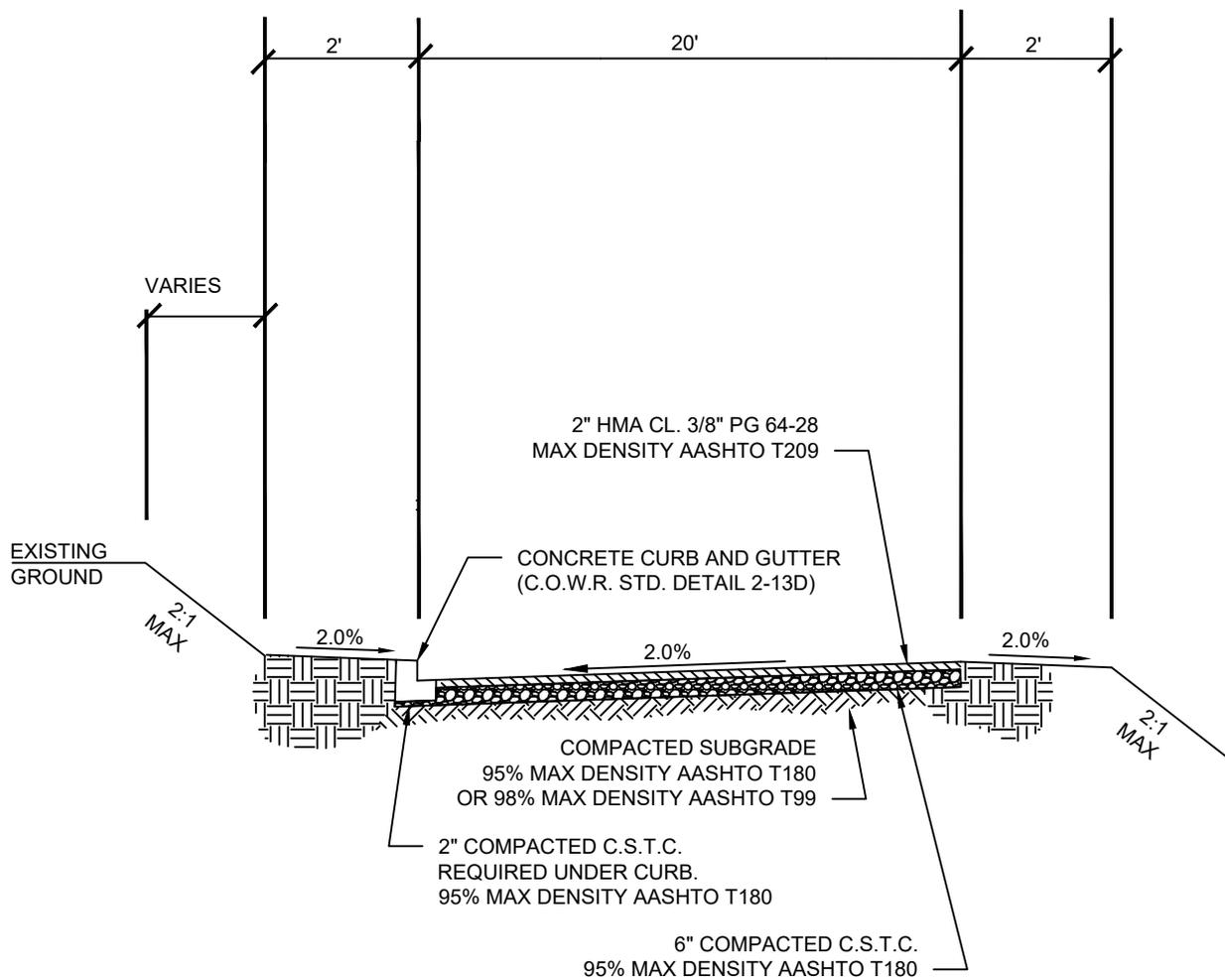


ALTERNATE TURN-AROUND

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-7B.dwg	REVISED BY:	AFW	REVISED:	05/18

2-7B

DRAWING NO.



NOTES:

1. CONCRETE CURB AND GUTTER REQUIRED ON ONE SIDE ONLY.
2. ALLEYWAY GRADE 0.5% - 10%.
3. ALLEYWAY CROSS SLOPE 2% INTO HILLSIDE.
4. NO PARKING ON EITHER SIDE OF ALLEYWAY. "FIRE LANE, NO PARKING" SIGNS REQUIRED EVERY 400' ON BOTH SIDES OF ROADWAY.
5. STORM DRAINAGE SHALL BE DESIGNED IN ALLEYWAY FOR 25 YR. STORM EVENT, UTILIZING CATCH BASINS, PERCOLATION TRENCHES/SWALES. EMERGENCY OVERFLOW MAY BE REQUIRED.
6. ALLEYWAY SHALL CONNECT TO CITY ROADWAYS - NO DEAD END ALLEYWAYS.
7. ALLEYWAYS ARE PRIVATELY OWNED AND MAINTAINED. CITY OF WEST RICHLAND ACCEPTS NO RESPONSIBILITIES FOR MAINTAINING ALLEYWAYS OR STORM DRAINAGE FACILITIES INSTALLED IN ALLEYWAYS.
8. ALLEYWAYS SHALL HAVE CITY STANDARD DRIVEWAY ENTRANCES WHERE THEY EXIT OFF THE PUBLIC RIGHT OF WAY. (CURB, GUTTER AND SIDEWALK)

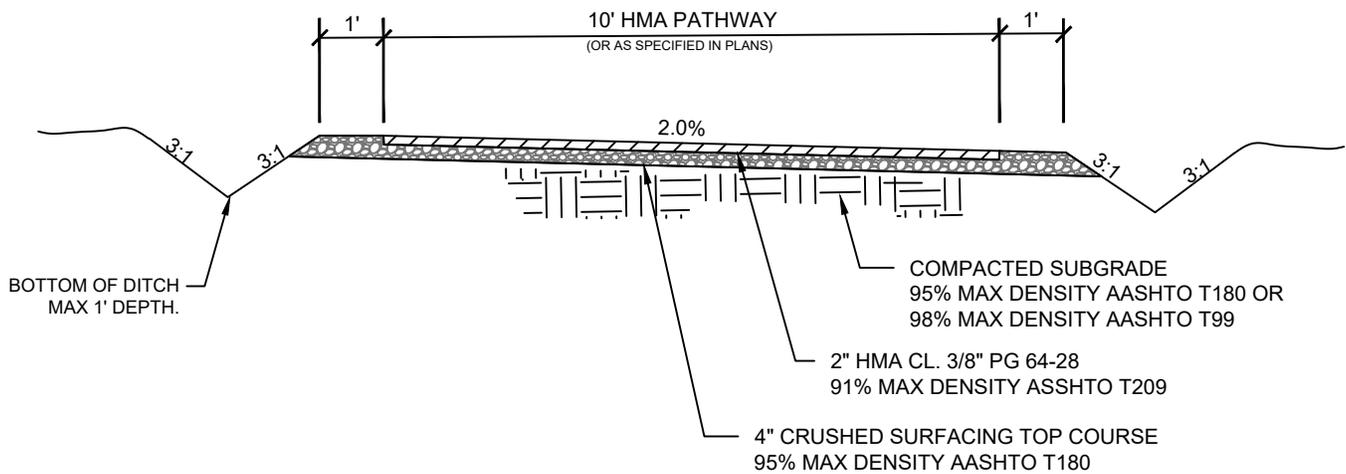


ALLEYWAY / HILLSIDE DEVELOPMENT

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-7C.dwg	REVISED BY: AFW	REVISED: 05/18

2-7C

DRAWING NO.



NOTES:

1. PROVIDE 1' SHOULDER ON CUT/FILL SLOPE EDGES.
2. FOR PATHWAYS RUNNING PARALLEL TO ROADWAY IN NON-LIMITED ACCESS AREAS, PATHWAY SHALL BE 4" THICK CONCRETE UNLESS APPROVED OTHERWISE BY CITY ENGINEER.
3. SUBGRADE SHALL BE TREATED WITH SOIL RESIDUAL HERBICIDE PRIOR TO PLACEMENT OF ROCK.

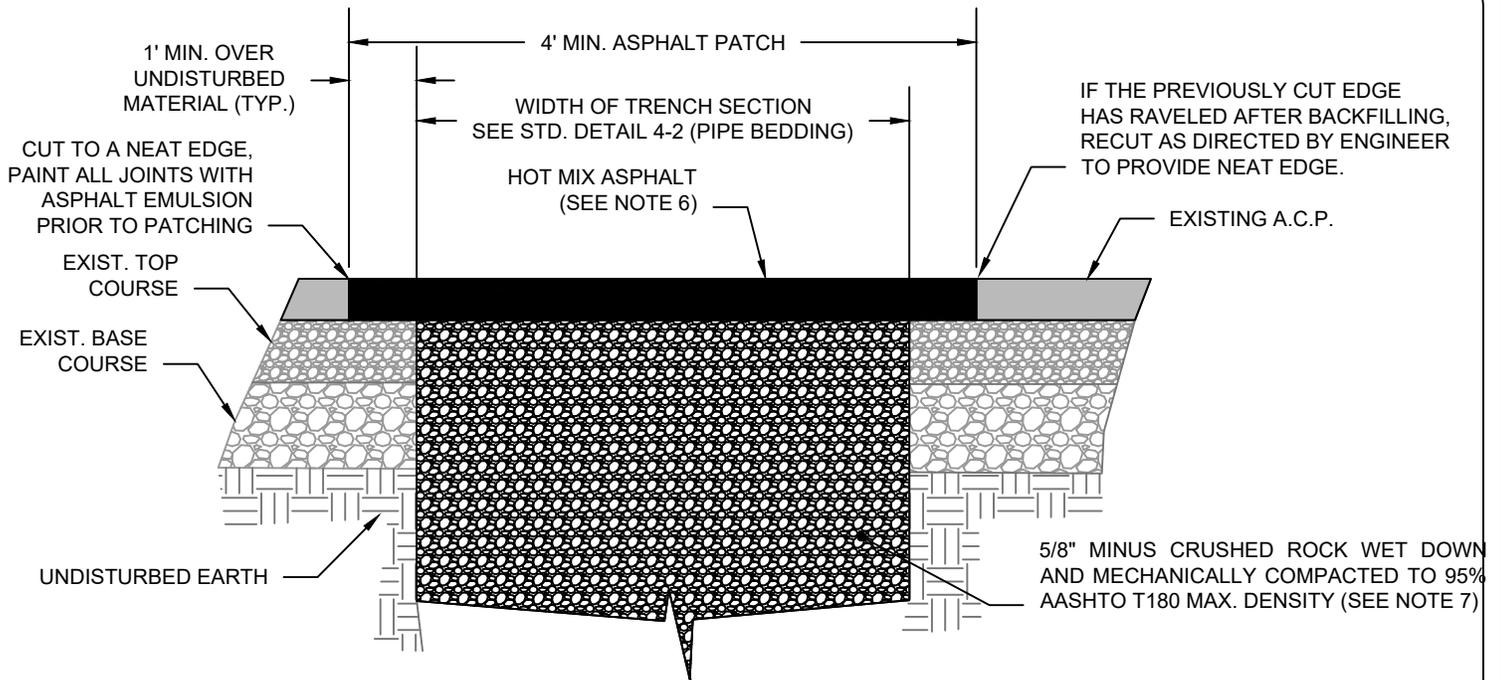


**TYPICAL CROSS SECTION
(BIKE/PEDESTRIAN PATHWAY)**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-7D.dwg	REVISED BY:	AFW	REVISED:	05/18

2-7D

DRAWING NO.



ASPHALT CONCRETE PAVEMENT REQUIREMENTS

1. HOT MIX ASPHALT HMA CL 1/2" OR 3/8" PG 64-28, 91% AASHTO T209 (AS DETERMINED BY CITY ENGINEER)
2. HOT MIX ASPHALT SHALL BE PLACED IN LIFTS NOT TO EXCEED 2" IN DEPTH UNLESS APPROVED OTHERWISE BY CITY ENGINEER.

NOTES:

1. ALL ROADWAY ACCESSORIES, INCLUDING SIGNS, ARE TO REMAIN IN PLACE AND BE PROTECTED. ONE WAY TRAFFIC IS TO BE MAINTAINED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. CONTRACTOR SHALL INSTALL TEMPORARY LANE STRIPING AS PER SWSS 8-23 WHERE DIRECTED BY CITY ENGINEER. DISTURBED STRIPING SHALL BE REPLACED WITH PAINT, OR PLASTIC AS PREVIOUSLY EXISTED.
2. DO NOT BEGIN STREET CUT UNTIL COMPACTION EQUIPMENT IS ON SITE.
3. DO NOT BEGIN STREET CUT UNTIL WATER (TRUCK OR HOSE) IS ON SITE.
4. WATER SETTLING PERMITTED ONLY WITH APPROVAL OF THE ENGINEER.
5. PERMANENT HOT MIX ASPHALT (HMA) PATCHES SHALL ONLY BE PLACED AND ACCEPTED BETWEEN THE DATES OF APRIL 1ST AND NOVEMBER 1ST. IF A PERMANENT PATCH CANNOT BE PLACED DUE TO THESE PAVING RESTRICTIONS, WEATHER, OR OTHER CONCERNS, A TEMPORARY COLD MIX OR HMA PATCH SHALL BE USED. TEMPORARY PATCHES SHALL BE PLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OPERATIONS AND BE CONTINUALLY MAINTAINED BY THE CONTRACTOR OR UTILITY UNTIL PAVING RESTRICTIONS ALLOW A PERMANENT HMA PATCH. ANY DEVIATIONS FROM THE CITY'S STANDARD PRACTICE MUST BE APPROVED BY THE CITY ENGINEER OR STATED OTHERWISE IN THE SPECIAL PROVISIONS OF THE CONTRACT DOCUMENTS.
6. THE DEPTH OF THE ASPHALT PATCH SHALL BE TWO INCHES (3" MIN) DEEP ON ALL STREETS UNLESS OTHERWISE NOTED BY ENGINEER.
7. COMPACTED C.S.T.C. ROCK SHALL EXTEND DOWN TO PIPE BEDDING. LIFTS SHALL BE COMPACTED IN 1 FOOT INCREMENTS AND TESTED AT THE DISCRETION OF THE ENGINEER.

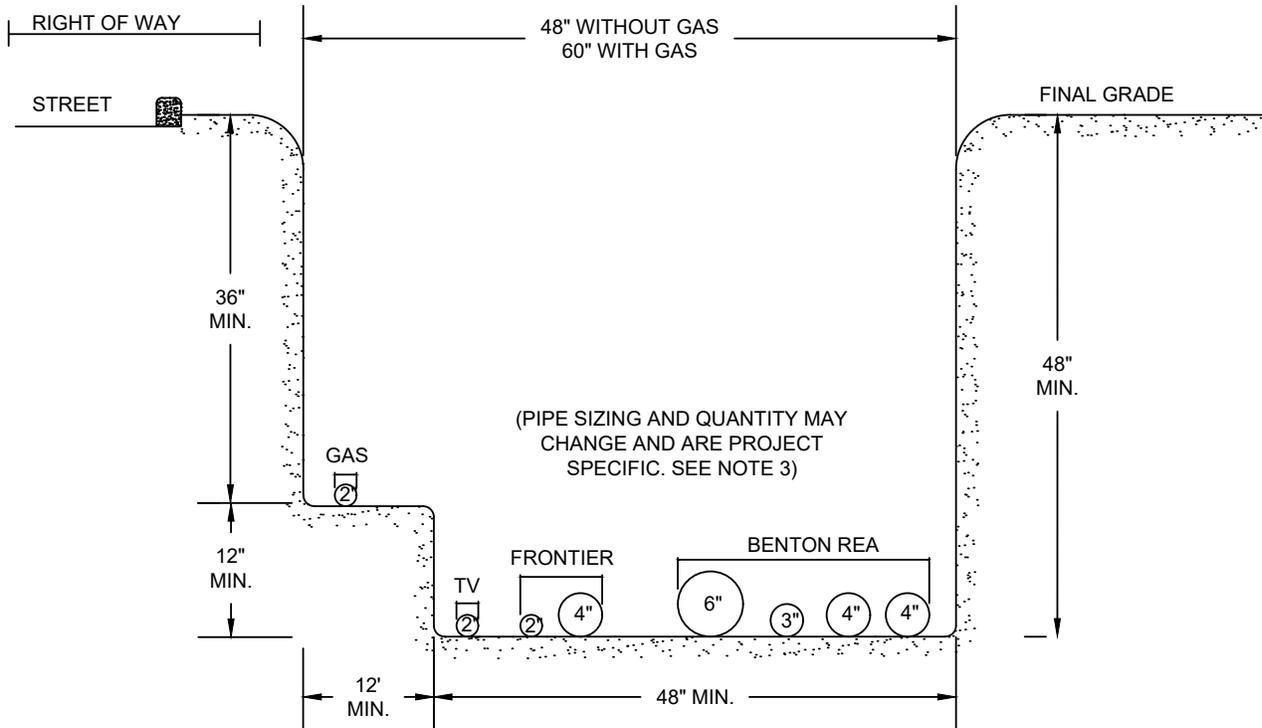


TRENCH PAVEMENT RESTORATION

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-8.dwg	REVISED BY:	AFW	REVISED:	05/18

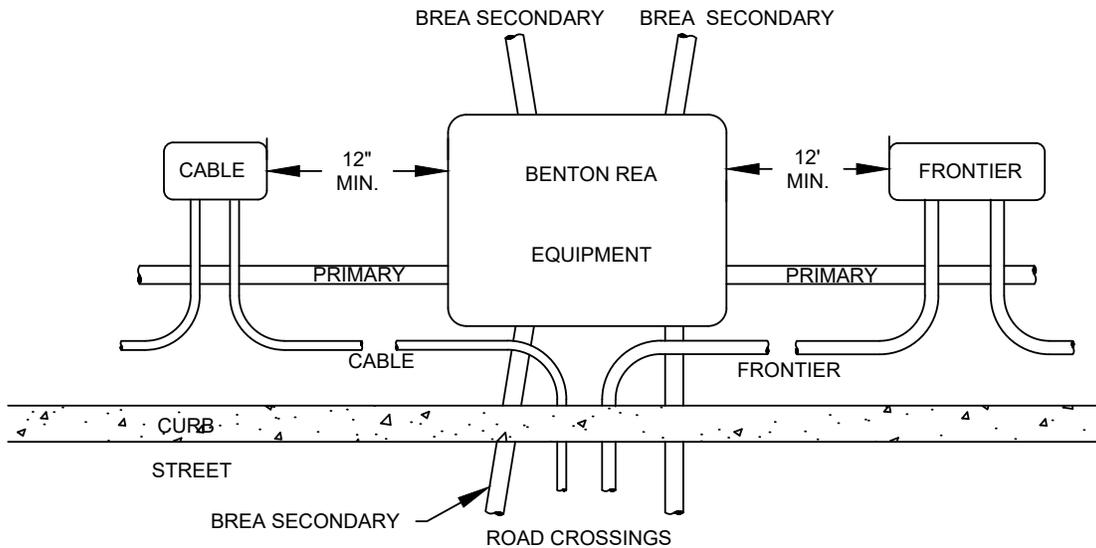
2-8

DRAWING NO.



NOTES:

1. BENTON REA SHALL BE THE FIRST UTILITY IN THE TRENCH IN ORDER TO ASSURE THE DEEPEST POSSIBLE DEPTH DUE TO THE HIGHER VOLTAGE
2. BOTH CABLE TELEVISION AND TELEPHONE ARE TO RUN CONDUIT TO THE CURB SIDE OF THE TRENCH, ROAD SIDE OF BENTON REA'S EQUIPMENT. THE CITY OF WEST RICHLAND IS TO RUN STREET LIGHT CIRCUITS USING THE SAME ORIENTATION AS THE TELEPHONE AND CABLE TELEVISION
3. PIPE SIZING SHALL BE COORDINATED WITH THE ASSOCIATED UTILITY IF NOT DESIGNATED IN THE PLANS.

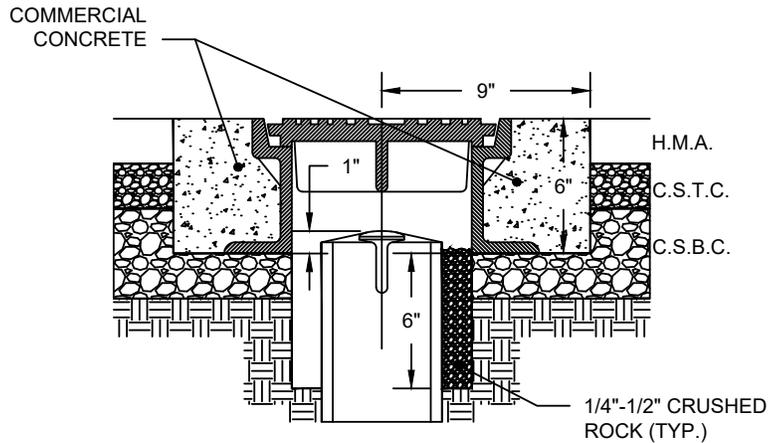
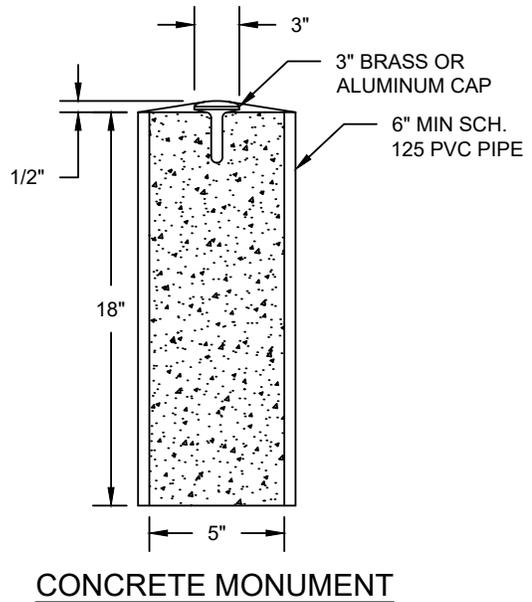
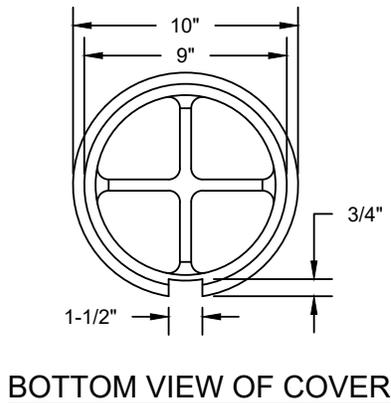
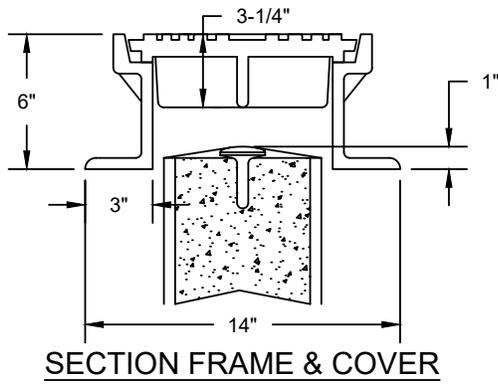


**TRENCHING AND UTILITY LAYOUT DETAIL
FOR RESIDENTIAL PROPERTY**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-9.dwg	REVISED BY:	AFW	REVISED:	05/18

2-9

DRAWING NO.



NOTES:

1. MONUMENT TO BE SET AT ALL STREET CENTERLINE INTERSECTION, POINTS OF CURVATURE, CHANGE IN BEARING OR AS DESIGNATED IN THE PLANS OR BY CITY ENGINEER..
2. WASHINGTON LICENSED PROFESSIONAL LAND SURVEYOR OR PARTY UNDER THE LICENSED LAND SURVEYOR'S DIRECT SUPERVISION TO REFERENCE MONUMENT LOCATION FOR INSTALLATION AND PUNCH BRASS CAP AFTER INSTALLATION INCLUDING THE PLS NUMBER. PLS NUMBER SHALL BE STAMPED ON THE SOUTHSIDE OF MONUMENT. THE CAP SHALL BE SET IN SUCH A FASHION AS TO INSURE THAT THE PUNCH MARK MAY BE SET WITHIN A MAXIMUM DISTANCE OF 1/2-INCH FROM THE CENTER OF THE CAP. CAP TO BE SUPPLIED AND SET BY CONTRACTOR USING SURVEY CROSS TIES.
3. AT THE CONTRACTORS OPTION, THE CONCRETE MAY BE LEFT 1-1/2" BELOW FINISH GRADE, AND THE TOP FINISHED WITH COMMERCIAL CL. 3/8" PG 64-28 HMA.

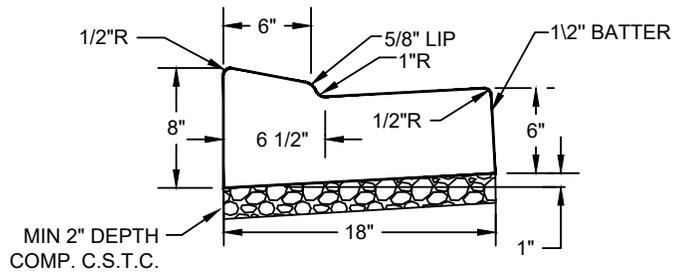


SURVEY MONUMENT

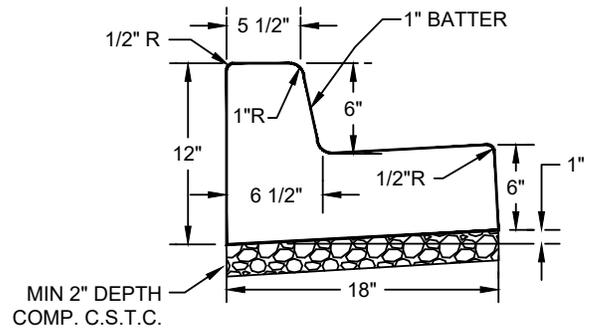
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FILENAME:	SD 2-10.dwg	REVISED BY:	AFW	REVISED:	05/18

2-10

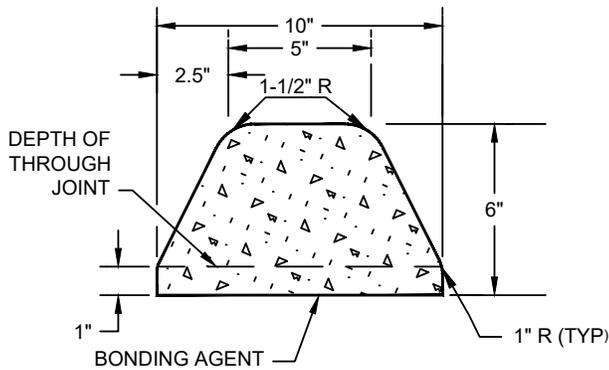
DRAWING NO.



TYPICAL SECTION FOR DRIVEWAY DEPRESSED CURB AND GUTTER

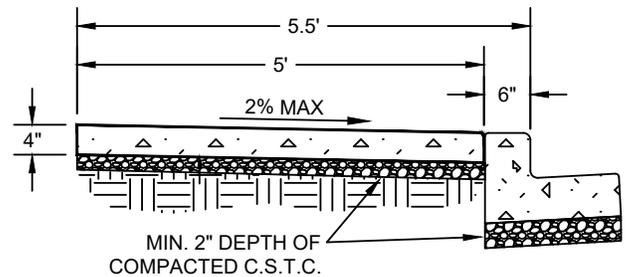


TYPICAL SECTION FOR CURB & GUTTER



EXTRUDED CONCRETE CURB

SEE DETAILS 2-13 A,B AND C FOR DRIVEWAY SECTIONS AND DETAILS



TYPICAL SECTION FOR SIDEWALKS

NOTES:

1. CURBING SHALL HAVE FULL STAB JOINTS ON 10' CENTERS.
2. CURBING SHALL HAVE FULL DEPTH 1/2" THICK MASTIC MATERIAL AT POINTS OF TANGENCY ON ALL CURB RETURNS AND AT ALL POINTS OF TERMINUS.
3. SIDEWALK SHALL HAVE CONTROL JOINTS EVERY 5 FEET WITH EVERY 10 FOOT JOINT MATCHING CURB JOINT.
4. SIDEWALK SHALL HAVE 1/2" THICK MASTIC MATERIAL EVERY 30 FEET, POINTS OF CONNECTION WITH ADA RAMPS, TOP OF DRIVEWAY APPROACHES, AND ANY CONNECTION TO EXISTING SIDEWALK.
5. COMMERCIAL CONCRETE, 564 LBS CEMENT / CY. SEE SWSS SECTION 6-02.3(2)B



CURB AND SIDEWALK DETAILS

CATEGORY: STREETS

REVIEWED BY: AFW

ADOPTED: 02/14

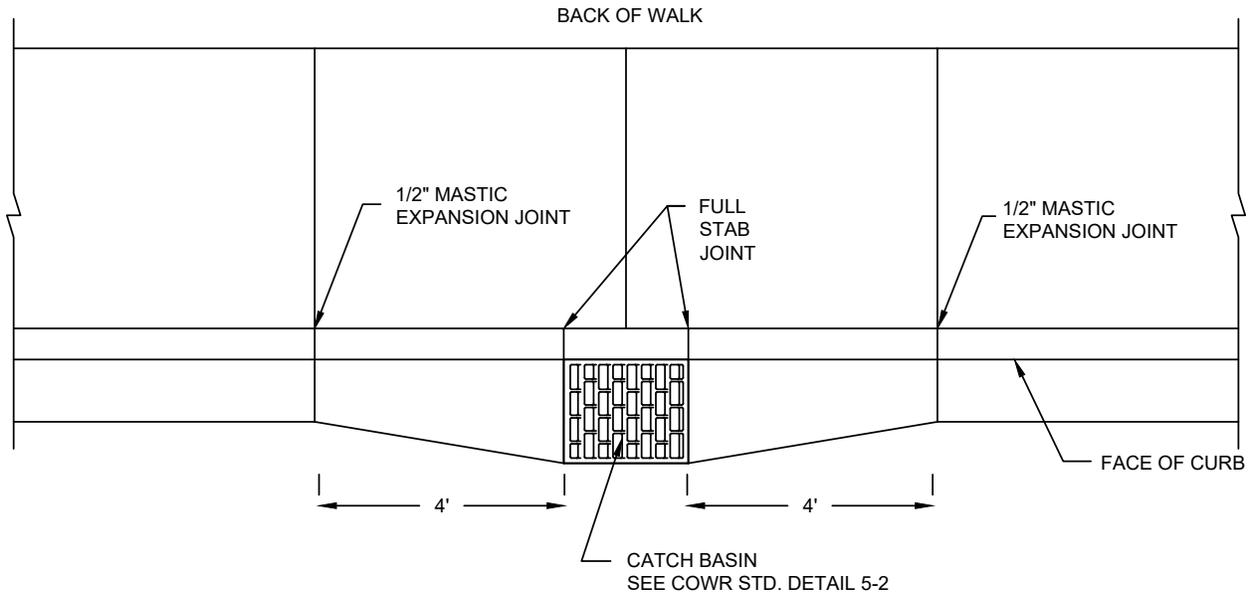
FILENAME: SD 2-11A.dwg

REVISED BY: AFW

REVISED: 05/18

2-11A

DRAWING NO.



NOTE:

1. COMMERCIAL CONCRETE, 564LBS CEMENT /CY. SEE SWSS SECTION 6-02.3(2)B.

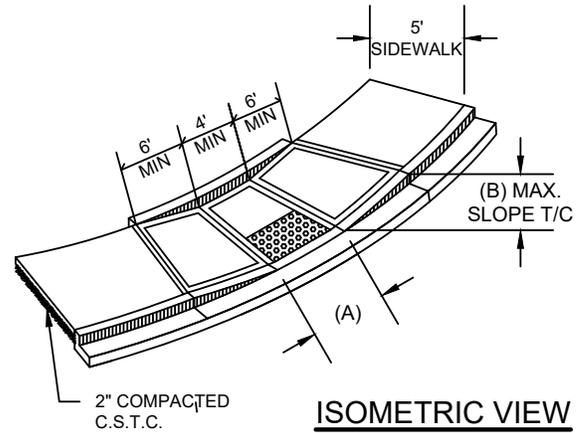
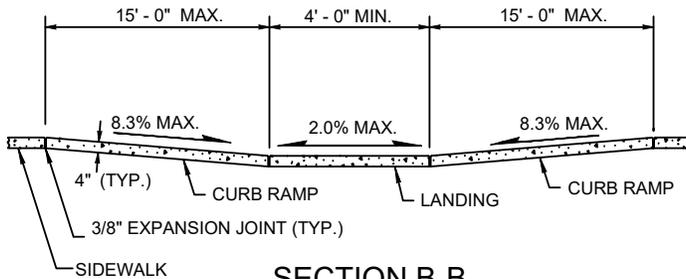
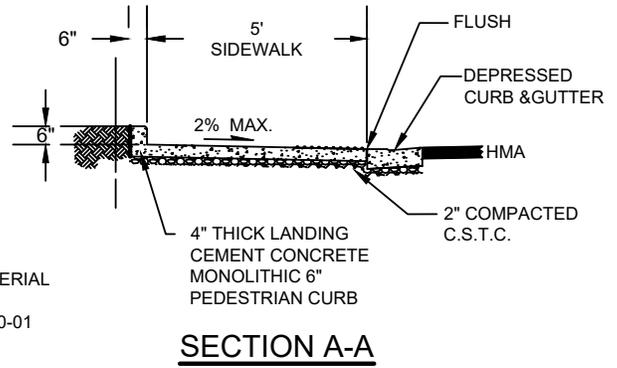
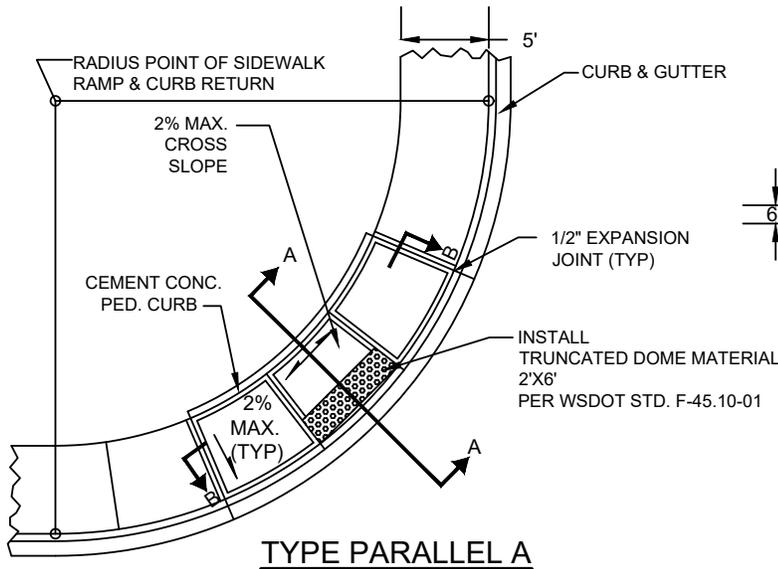


CATCH BASIN GUTTER WIDENING

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-11B.dwg	REVISED BY: AFW	REVISED: 05/18

2-11B

DRAWING NO.



RADIUS @ FACE OF CURB	A	B
20'	7'-0"	6.00%
25'	6'-6"	6.45%
30'	6'-2"	6.74%

LISTED ARE MINIMUM GRADES AND ONLY APPLY FOR SIDEWALK WIDTHS AS SHOW ON THIS DETAIL

NOTES:

1. PEDESTRIAN LANDING AND RAMP SHALL BE CONSTRUCTED PER THIS DWG IN NEW SUBDIVISIONS, SHORT PLATS AND ALL NEW STREET CONSTRUCTION, AND RECONSTRUCTION. LOCATE RAMPS AS DIRECTED BY ENGINEER, TWO EACH CORNER, OR AS DIRECTED.
2. BEVEL THE RAMP TO THE GUTTER FLOW LINE (NO LIP), 1/2" BEVEL RISE FROM FACE OF CURB TO BACK OF CURB.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. DETECTABLE WARNING SURFACE TO BE ARMOR TILE CAST IN PLACE SYSTEM DETECTABLE WARNING TILES, OR AN APPROVED EQUAL.
5. THE CURB RAMP MAXIMUM RUNNING SLOPE EITHER DIRECTION OF THE RAMP LANDING SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPE OF 8.3%. HOWEVER IF THE MAXIMUM ALLOWABLE SLOPE CANNOT BE ACHIEVED IN 15 FEET, THE SIDEWALK SHALL BE INSTALLED AT A CONSISTENT SLOPE FOR THE FIRST 15 FEET IN BOTH DIRECTIONS.
6. MAXIMUM RUNNING SLOPE OF THE RAMP LANDING SHALL NOT EXCEED 2% IN BOTH DIRECTIONS.
7. RAMPS SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (SWSS SECTION 6-02.3(2)B)

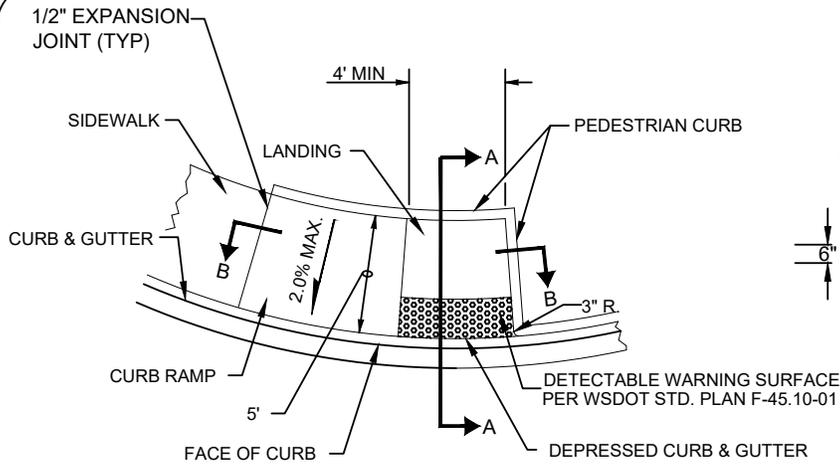


**PUBLIC SIDEWALK PEDESTRIAN RAMP
TYPE PARALLEL A**

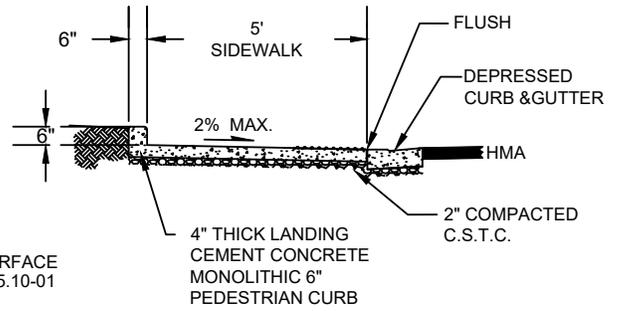
CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-12A.dwg	REVISED BY: AFW	REVISED: 05/18

2-12A

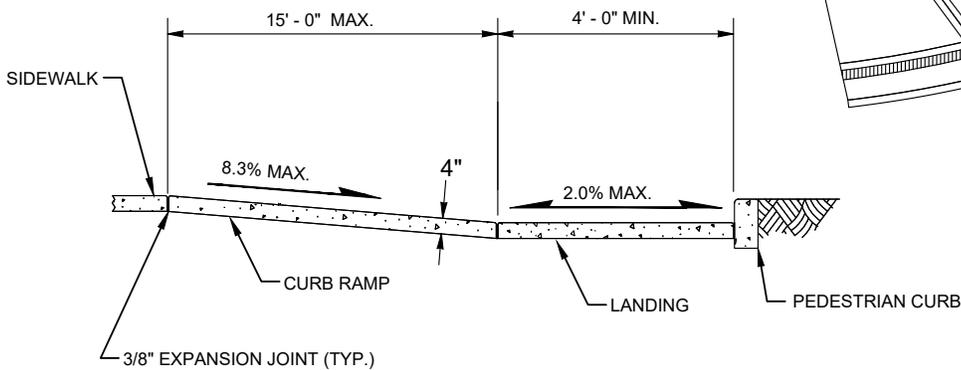
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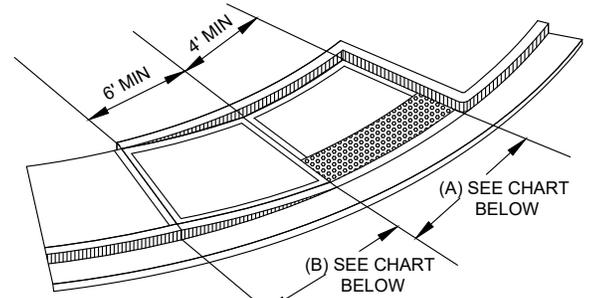
TYPE PARALLEL B



SECTION A-A



SECTION B-B



ISOMETRIC VIEW

RADIUS @ FACE OF CURB	A	B
20'	7'-0"	6.00%
25'	6'-6"	6.45%
30'	6'-2"	6.74%

LISTED ARE MINIMUM GRADES AND ONLY APPLY FOR SIDEWALK WIDTHS AS SHOWN ON THIS DETAIL

NOTES:

1. PEDESTRIAN LANDING AND RAMP SHALL BE CONSTRUCTED PER THIS DWG IN NEW SUBDIVISIONS, SHORT PLATS AND ALL NEW STREET CONSTRUCTION, AND RECONSTRUCTION. LOCATE RAMPS AS DIRECTED BY ENGINEER, TWO EACH CORNER, OR AS DIRECTED.
2. BEVEL THE RAMP TO THE GUTTER FLOW LINE (NO LIP). 1/2" BEVEL RISE FROM FACE OF CURB TO BACK OF CURB.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. DETECTABLE WARNING SURFACE TO BE ARMOR TILE CAST IN PLACE SYSTEM DETECTABLE WARNING TILES, OR AN APPROVED EQUAL.
5. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPE OF 8.3%. HOWEVER IF THE MAXIMUM ALLOWABLE SLOPE CANNOT BE ACHIEVED IN 15 FEET, THE SIDEWALK SHALL BE INSTALLED AT A CONSISTENT SLOPE FOR THE FIRST 15 FEET.
6. MAXIMUM RUNNING SLOPE OF THE RAMP LANDING SHALL NOT EXCEED 2% IN BOTH DIRECTIONS.
7. RAMPS SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (SWSS SECTION 6-02.3(2)B)

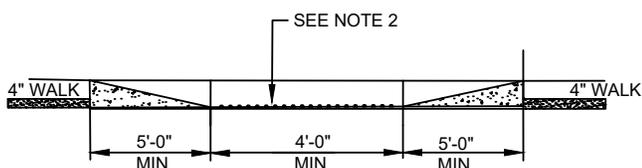
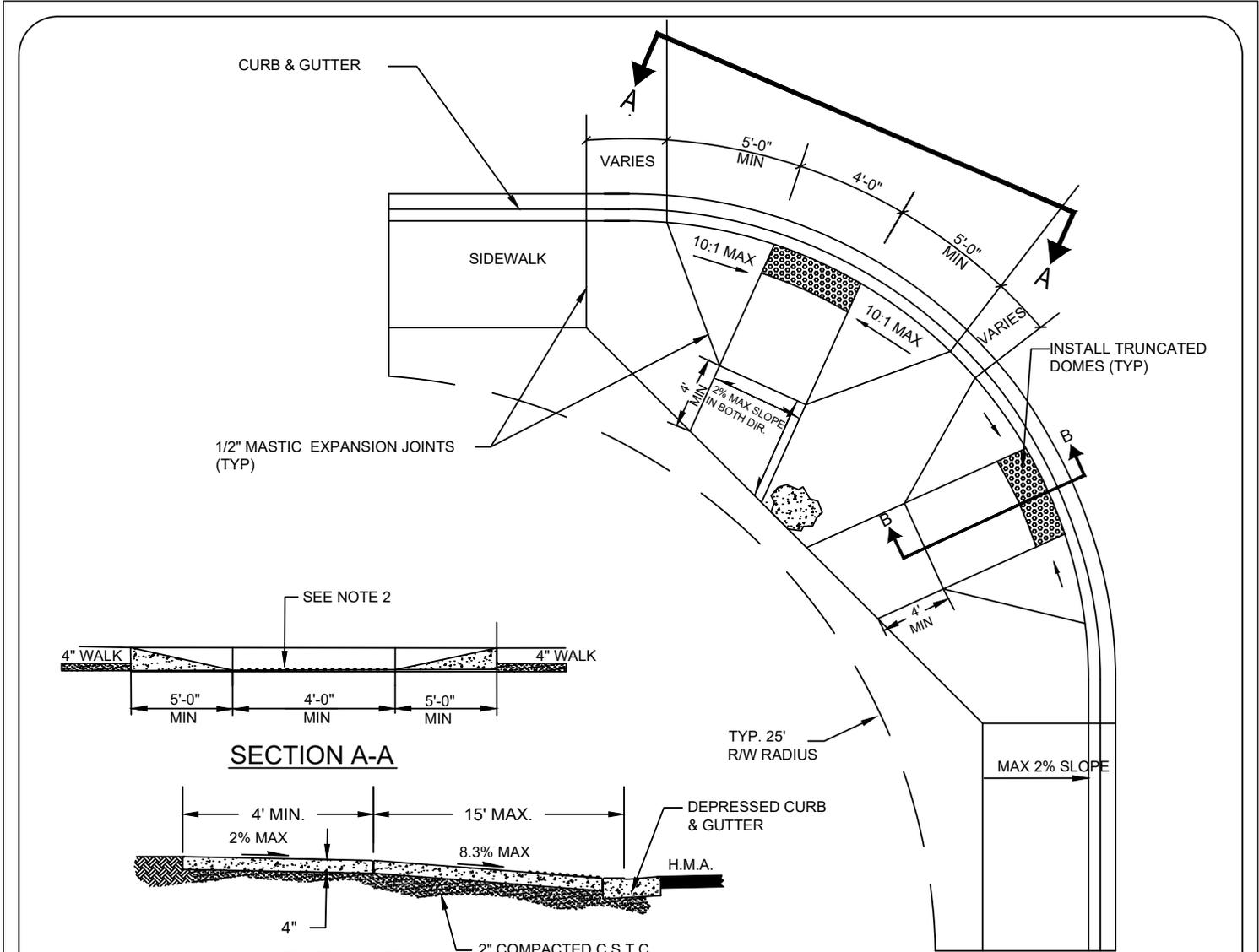


**PUBLIC SIDEWALK PEDESTRIAN RAMP
 TYPE PARALLEL B**

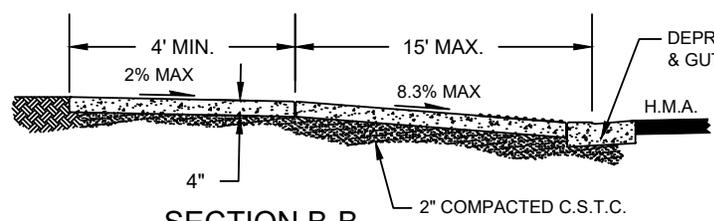
CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-12B.dwg	REVISED BY: AFW	REVISED: 05/18

2-12B

DRAWING NO.



SECTION A-A



SECTION B-B

NOTES:

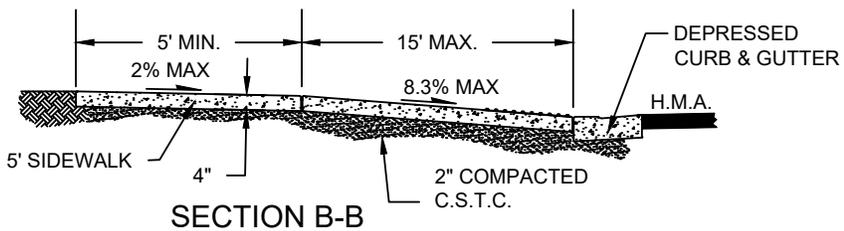
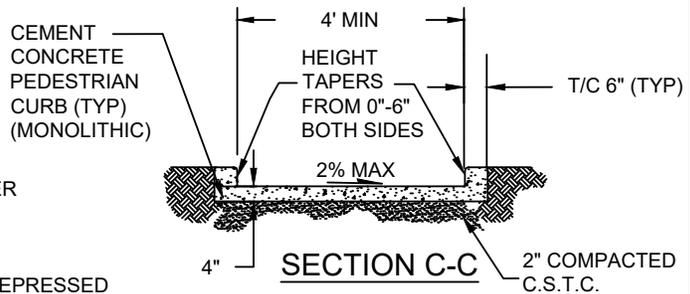
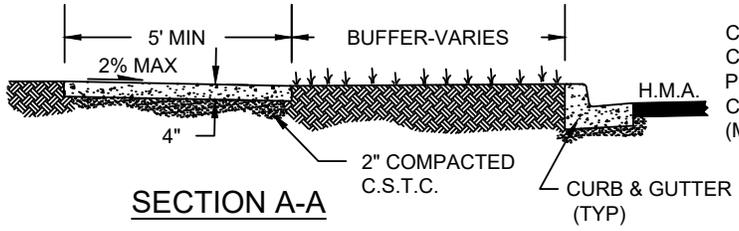
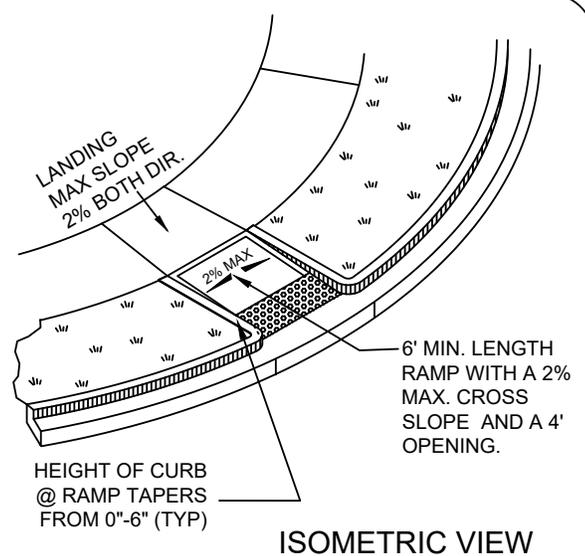
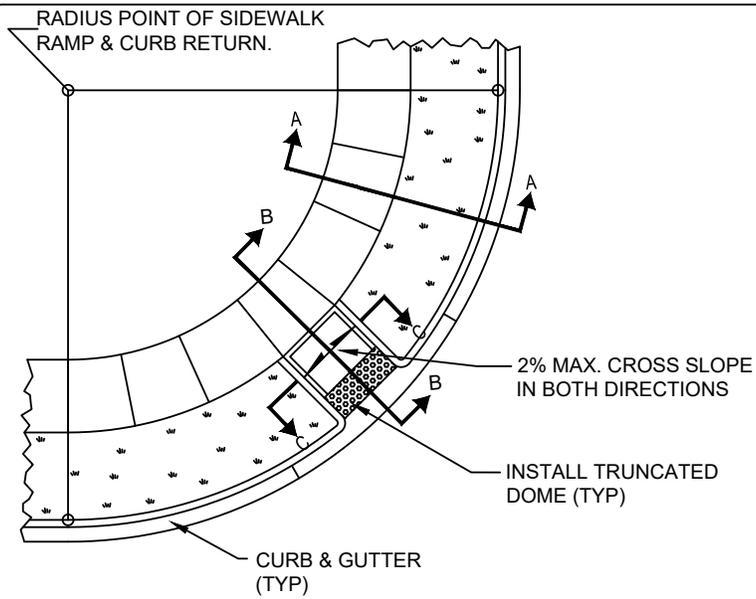
1. PEDESTRIAN LANDING AND RAMP SHALL BE CONSTRUCTED PER THIS DWG IN NEW SUBDIVISIONS, SHORT PLATS AND ALL NEW STREET CONSTRUCTION, AND RECONSTRUCTION. LOCATE RAMPS AS DIRECTED BY ENGINEER, TWO EACH CORNER, OR AS DIRECTED.
2. BEVEL THE RAMP TO THE GUTTER FLOW LINE (NO LIP). 1/2" BEVEL RISE FROM FACE OF CURB TO BACK OF CURB.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. DETECTABLE WARNING SURFACE TO BE ARMOR TILE CAST IN PLACE SYSTEM DETECTABLE WARNING TILES, OR AN APPROVED EQUAL.
5. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPE OF 8.3%. HOWEVER IF THE MAXIMUM ALLOWABLE SLOPE CANNOT BE ACHIEVED IN 15 FEET, THE SIDEWALK SHALL BE INSTALLED AT A CONSISTENT SLOPE FOR THE FIRST 15 FEET.
6. MAXIMUM RUNNING SLOPE OF THE RAMP LANDING SHALL NOT EXCEED 2% IN BOTH DIRECTIONS.
7. RAMPS SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (SWSS SECTION 6-02.3(2)B).



**PUBLIC SIDEWALK PEDESTRIAN RAMP NEW
TYPE PERPENDICULAR A**

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-12C.dwg	REVISED BY: AFW	REVISED: 05/18

2-12C
DRAWING NO.



NOTES:

1. PEDESTRIAN LANDING AND RAMP SHALL BE CONSTRUCTED PER THIS DWG IN NEW SUBDIVISIONS, SHORT PLATS AND ALL NEW STREET CONSTRUCTION, AND RECONSTRUCTION. LOCATE RAMPS AS DIRECTED BY ENGINEER, TWO EACH CORNER, OR AS DIRECTED.
2. BEVEL THE RAMP TO THE GUTTER FLOW LINE (NO LIP). 1/2" BEVEL RISE FROM FACE OF CURB TO BACK OF CURB.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. DETECTABLE WARNING SURFACE TO BE ARMOR TILE CAST IN PLACE SYSTEM DETECTABLE WARNING TILES, OR AN APPROVED EQUAL.
5. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPE OF 8.3%. HOWEVER IF THE MAXIMUM ALLOWABLE SLOPE CANNOT BE ACHIEVED IN 15 FEET, THE SIDEWALK SHALL BE INSTALLED AT A CONSISTENT SLOPE FOR THE FIRST 15 FEET.
6. MAXIMUM RUNNING SLOPE OF THE RAMP LANDING SHALL NOT EXCEED 2% IN BOTH DIRECTIONS.
7. RAMPS SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (SWSS SECTION 6-02.3(2)B).

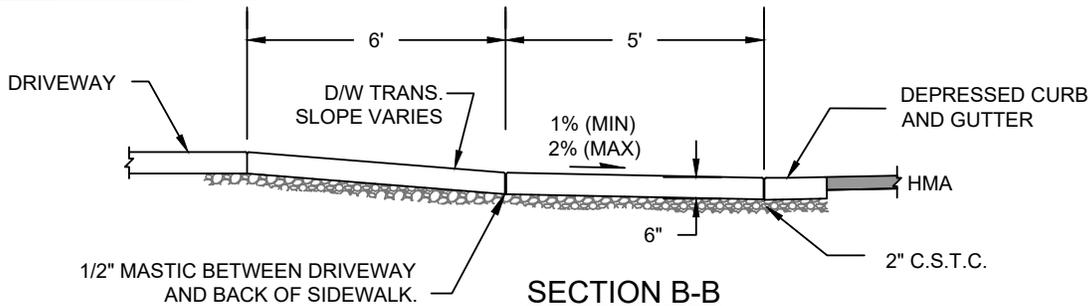
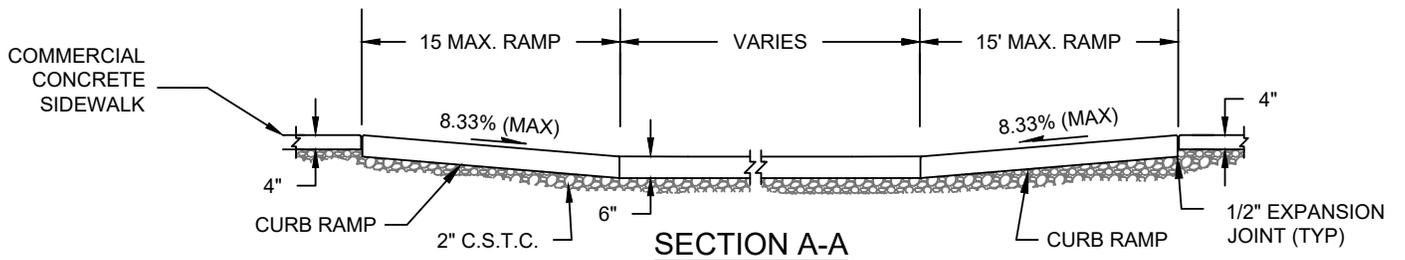
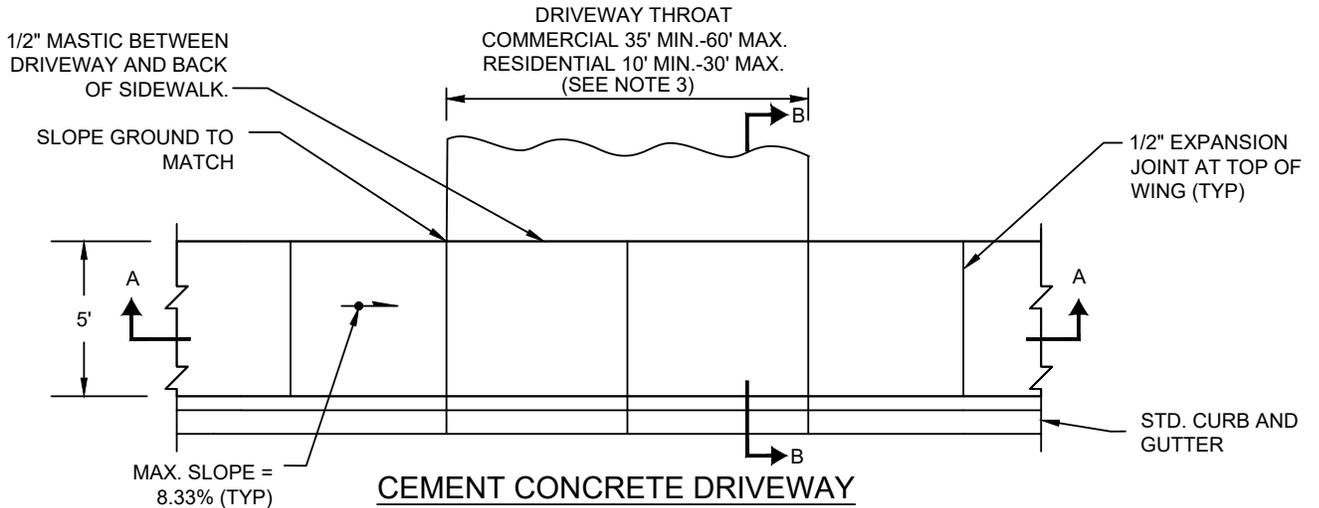


**PUBLIC SIDEWALK PEDESTRIAN RAMP
TYPE PERPENDICULAR B**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-12D.dwg	REVISED BY:	AFW	REVISED:	05/18

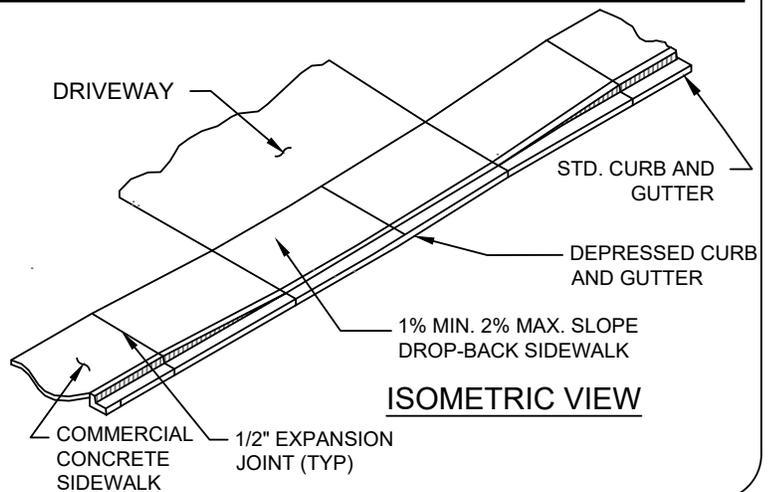
2-12D

DRAWING NO.



NOTES:

1. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15' TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTION TO STEEP GRADES.
2. IF CHASING CURB RAMP SLOPES WOULD ENCROACH WITHIN 5 FEET OF PROPERTY LINE, ADA BYPASS DRIVEWAY MUST BE USED (COWR STD DETAIL 2-13B).
3. DRIVEWAY THROAT WIDTHS ARE 20' - 2 CAR GARAGE, 30' - 3 CAR GARAGE. CURB CUTS FOR DRIVEWAY THROATS CAN BE EXTENDED 5' IF NECESSARY TO LINE UP THE WINGS WITH THE 5' SIDEWALK PANELS AND THE DRIVEWAY IF POURED TO THE OUTSIDE OF THE GARAGE, WITH APPROVAL OF CITY ENGINEER.
4. SIDEWALKS AND DRIVEWAY APPROACHES SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (SWSS SECTION 6-02.3(2)B).

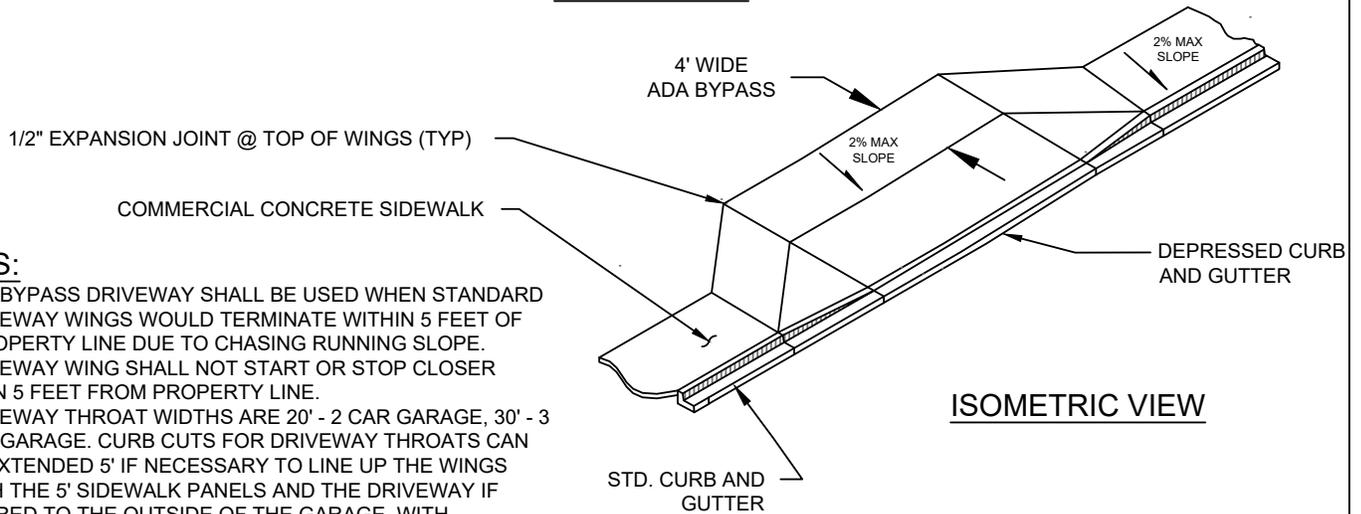
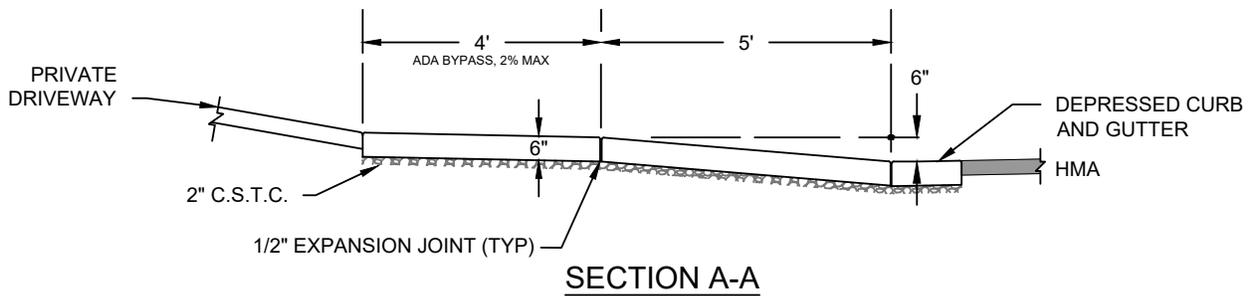
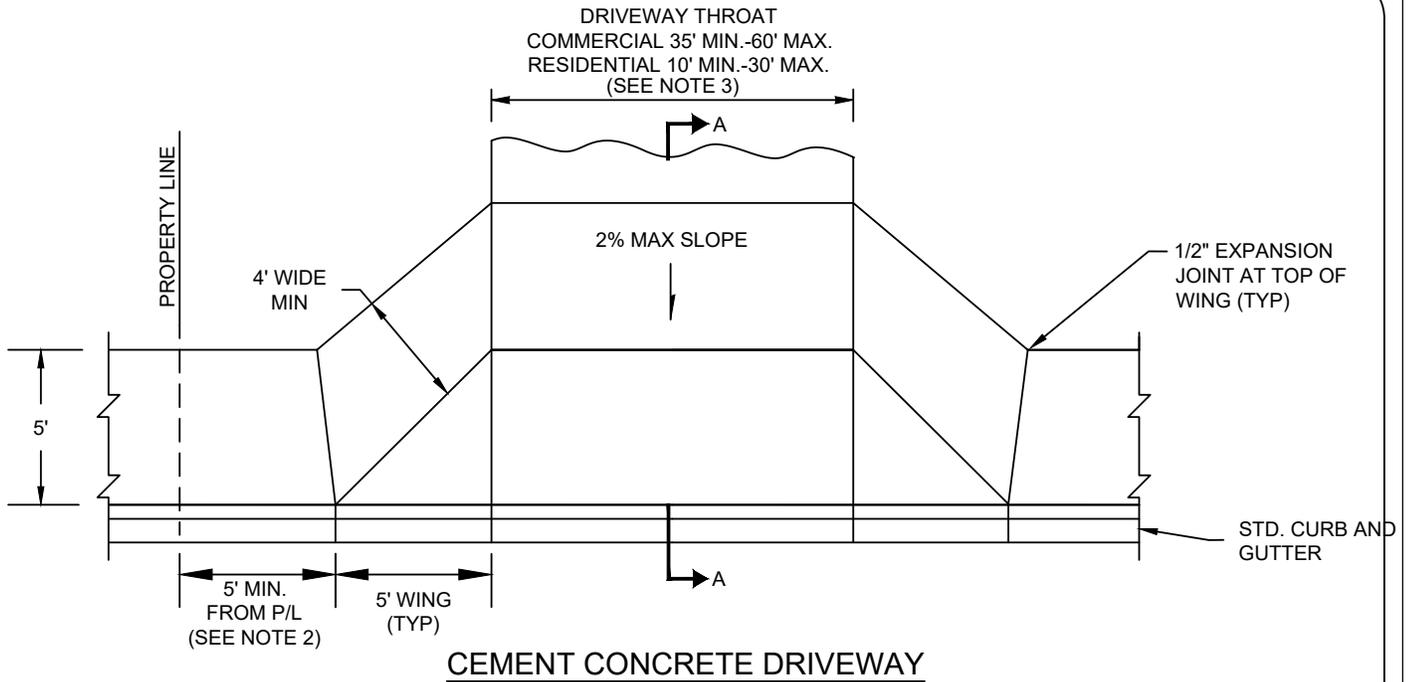


STANDARD DRIVEWAY

CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-13A.dwg	REVISED BY: AFW	REVISED: 05/18

2-13A

DRAWING NO.



NOTES:

1. ADA BYPASS DRIVEWAY SHALL BE USED WHEN STANDARD DRIVEWAY WINGS WOULD TERMINATE WITHIN 5 FEET OF PEROPERTY LINE DUE TO CHASING RUNNING SLOPE.
2. DRIVEWAY WING SHALL NOT START OR STOP CLOSER THAN 5 FEET FROM PROPERTY LINE.
3. DRIVEWAY THROAT WIDTHS ARE 20' - 2 CAR GARAGE, 30' - 3 CAR GARAGE. CURB CUTS FOR DRIVEWAY THROATS CAN BE EXTENDED 5' IF NECESSARY TO LINE UP THE WINGS WITH THE 5' SIDEWALK PANELS AND THE DRIVEWAY IF POURED TO THE OUTSIDE OF THE GARAGE, WITH APPROVAL OF CITY ENGINEER.
4. SIDEWALKS AND DRIVEWAY APPROACHES SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (SWSS SECTION 6-02.3(2)B).

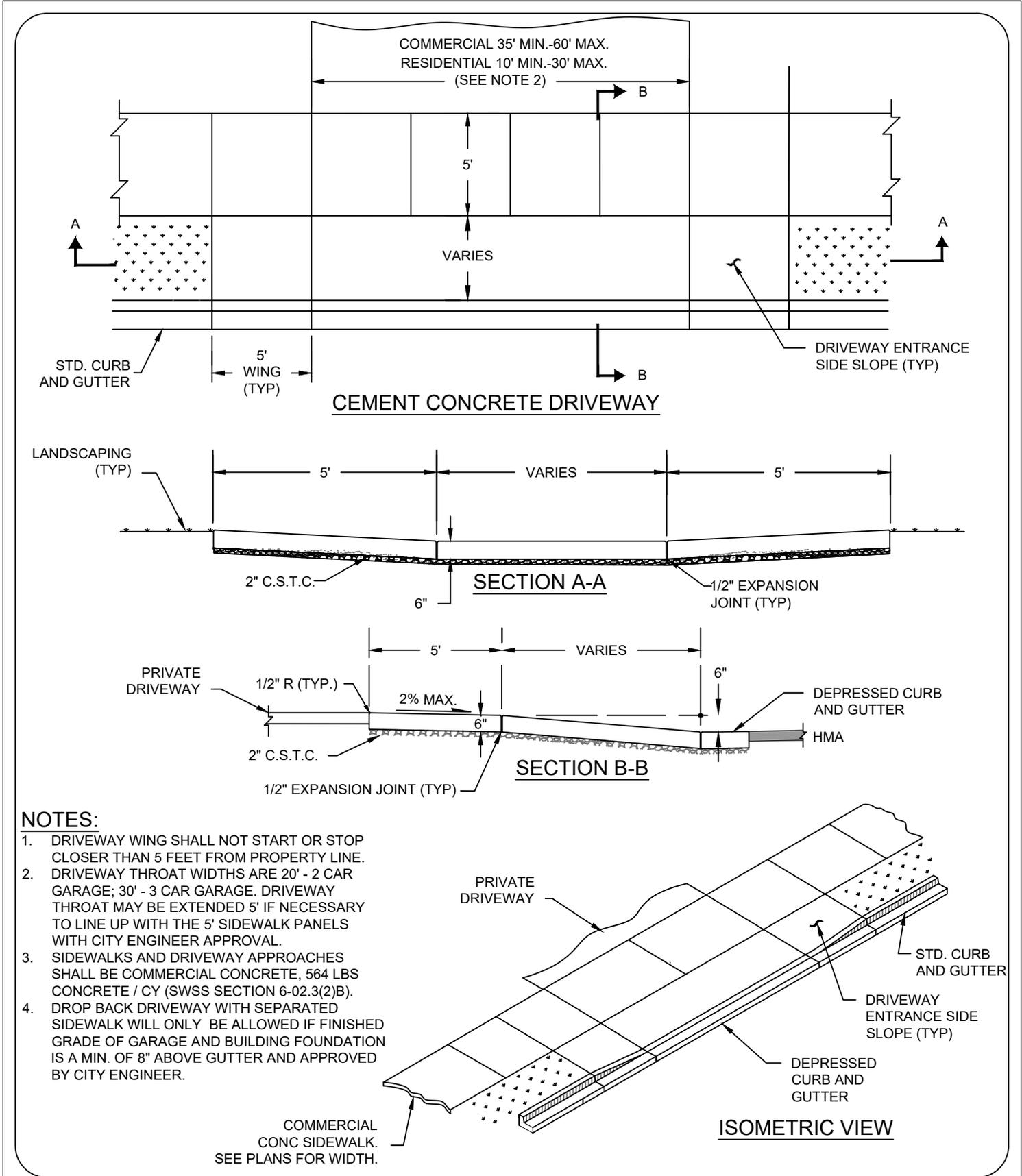


ADA BYPASS DRIVEWAY

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-13B.dwg	REVISED BY:	AFW	REVISED:	05/18

2-13B

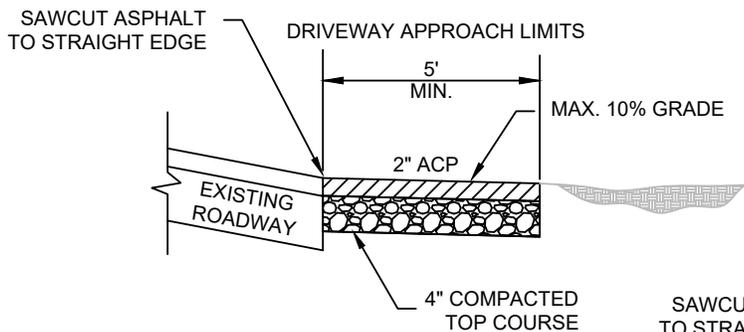
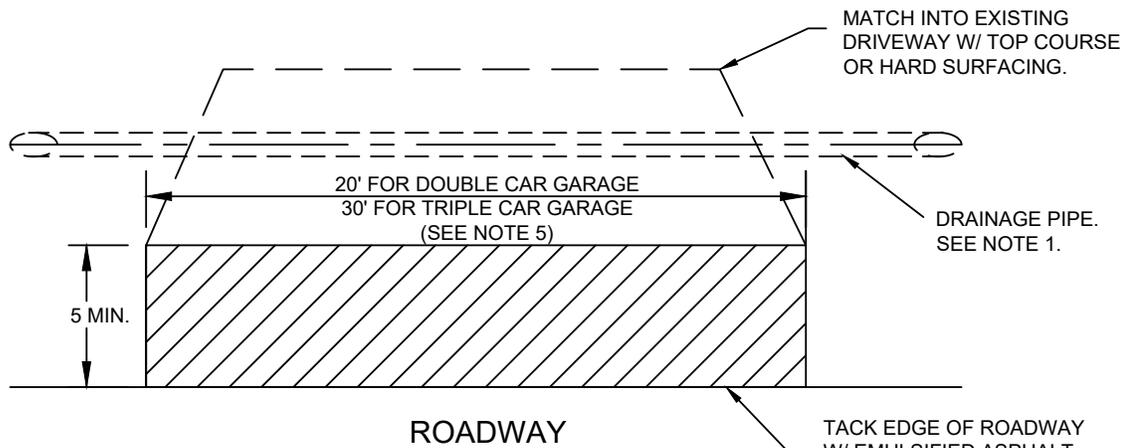
DRAWING NO.



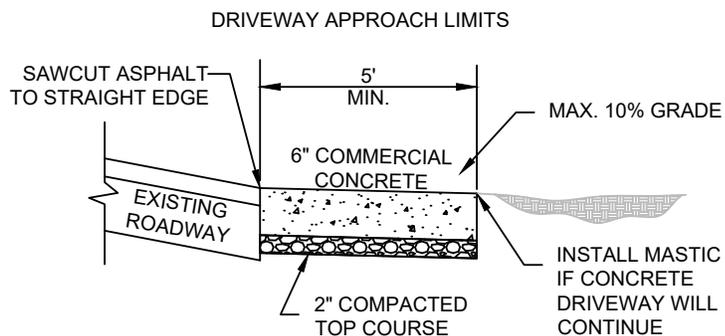
DRIVEWAY WITH SEPARATED SIDEWALK		
CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-13C.dwg	REVISED BY: AFW	REVISED: 05/18

2-13C

DRAWING NO.



ASPHALT APPROACHES



CONCRETE APPROACHES

NOTES:

1. NEED FOR A CORRUGATED METAL DRAINAGE PIPE WITH BEVELED ENDS SHALL BE ASSESSED BY THE CITY ENGINEER ON A CASE-BY-CASE BASIS.
2. WHEN THERE IS A DITCH 1' OR LESS IN DEPTH ADJACENT TO THE CITY ROADWAY, DRIVEWAY SHALL MATCH PROFILE OF DITCH FOR THE PURPOSES OF ROADWAY DRAINAGE.
3. FOR CONCRETE APPROACHES AND DRIVEWAYS, EXISTING ASPHALT EDGE SHALL BE CUT TO A CLEAN STRAIGHT EDGE. NO MASTIC SHALL BE INSTALLED WHERE CONCRETE APPROACH TRANSITIONS INTO EDGE OF CITY ROADWAY. HOWEVER, A MASTIC EXPANSION JOINT SHALL BE INSTALLED IN CONCRETE 5' FROM TRANSITION TO THE ASPHALT IF CONCRETE DRIVEWAY WILL CONTINUE FROM APPROACH. ANY UNDERMINED ASPHALT SHALL BE REQUIRED TO BE SAWCUT MIN. 1' INTO EXISTING ASPHALT, AND REPLACED WITH CLASS 3/8" HOT MIX ASPHALT.
4. ALL ROADWAY APPROACHES REQUIRE A STREET CUT PERMIT ISSUED BY THE CITY ENGINEER.
5. WHEN DEEMED NECESSARY, THE DRIVEWAY APPROACH MAY BE WIDENED WITH CITY ENGINEER APPROVAL.

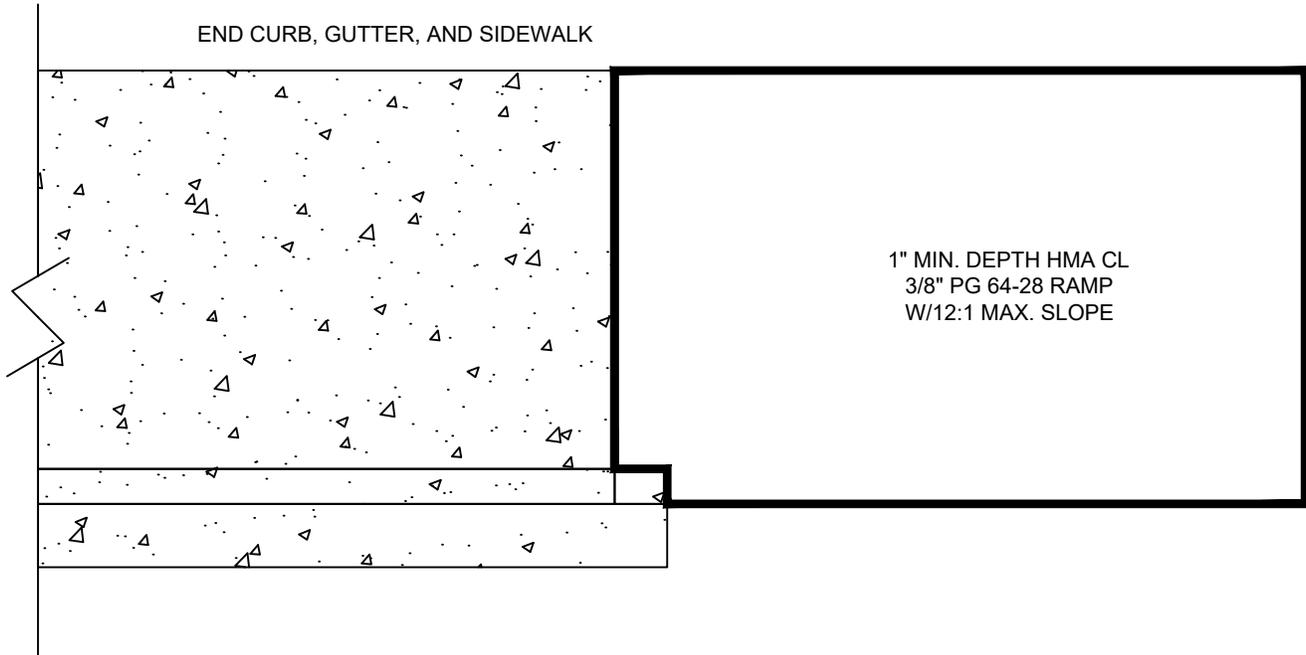


RURAL ROADWAY DRIVEWAY APPROACH

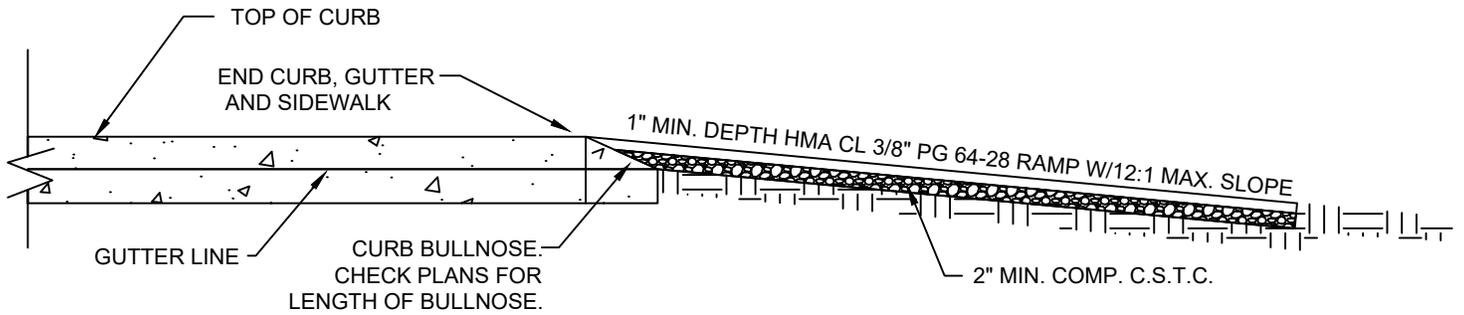
CATEGORY: STREETS	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 2-13D.dwg	REVISED BY: AFW	REVISED: 05/18

2-13D

DRAWING NO.



TOP VIEW



SIDE VIEW

SIDEWALK HMA RAMP



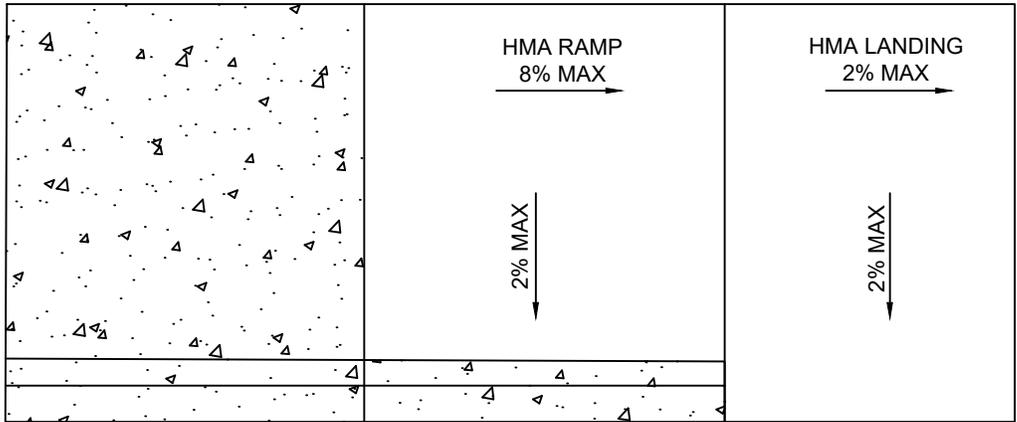
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 FILENAME: SD 2-14.dwg

REVIEWED BY: AFW
 REVISED BY: AFW

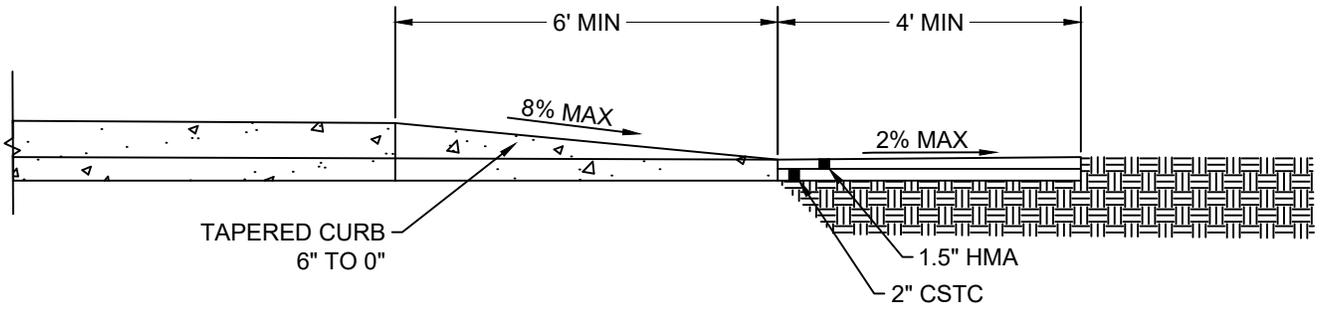
ADOPTED: 02/14
 REVISED: 05/18

2-14A

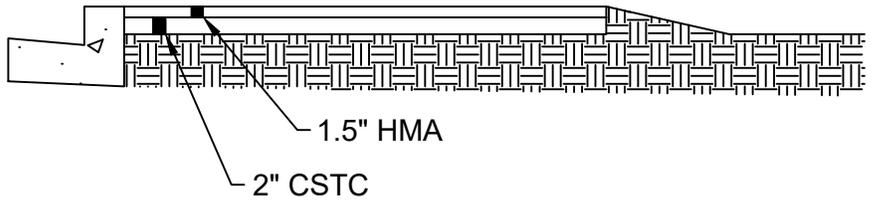
DRAWING NO.



PLAN VIEW



ELEVATION VIEW



SECTION VIEW



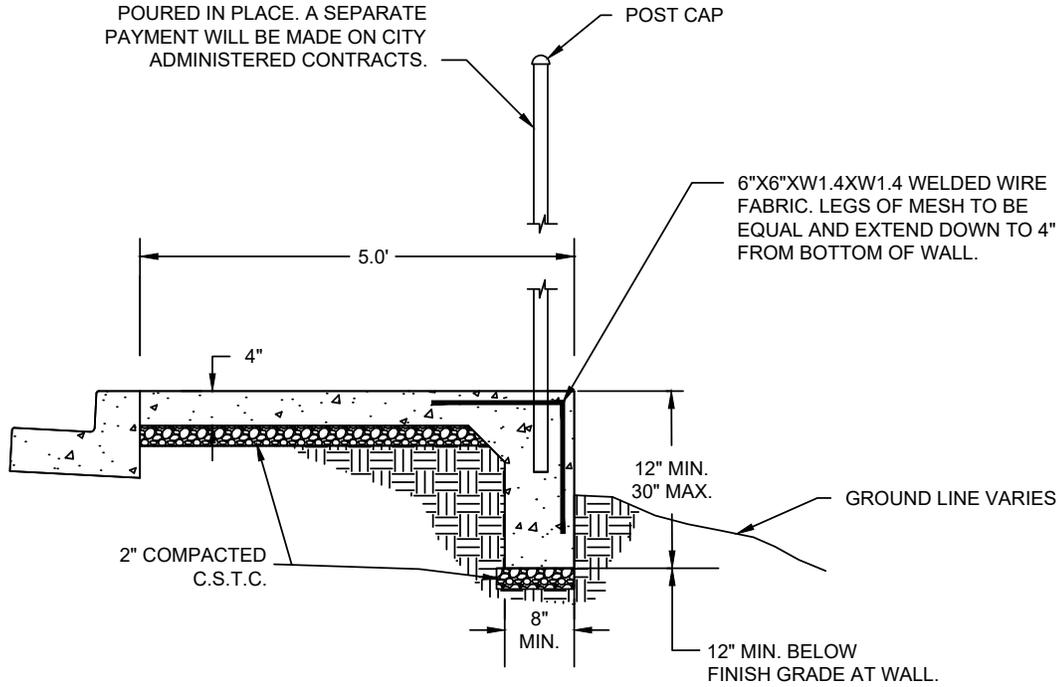
SIDEWALK HMA RAMP - 6' BULLNOSE

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-14.dwg	REVISED BY:	AFW	REVISED:	05/19

2-14B

DRAWING NO.

WHERE CALLED OUT, INSTALL 2" SCH. 40 GALV. POST. POST TO BE POURED IN PLACE. A SEPARATE PAYMENT WILL BE MADE ON CITY ADMINISTERED CONTRACTS.



NOTE:

1. ON CITY ADMINISTERED CONTRACTS, DROP BACK SIDEWALK LOCATIONS WILL BE STAKED IN THE FIELD BY THE ENGINEER IN AREAS WHERE A SLOPED YARD TRANSITION IS DETERMINED TO BE UNDESIRABLE.
2. CONCRETE SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (PER SWSS SECTION 6-02.3(2)B)

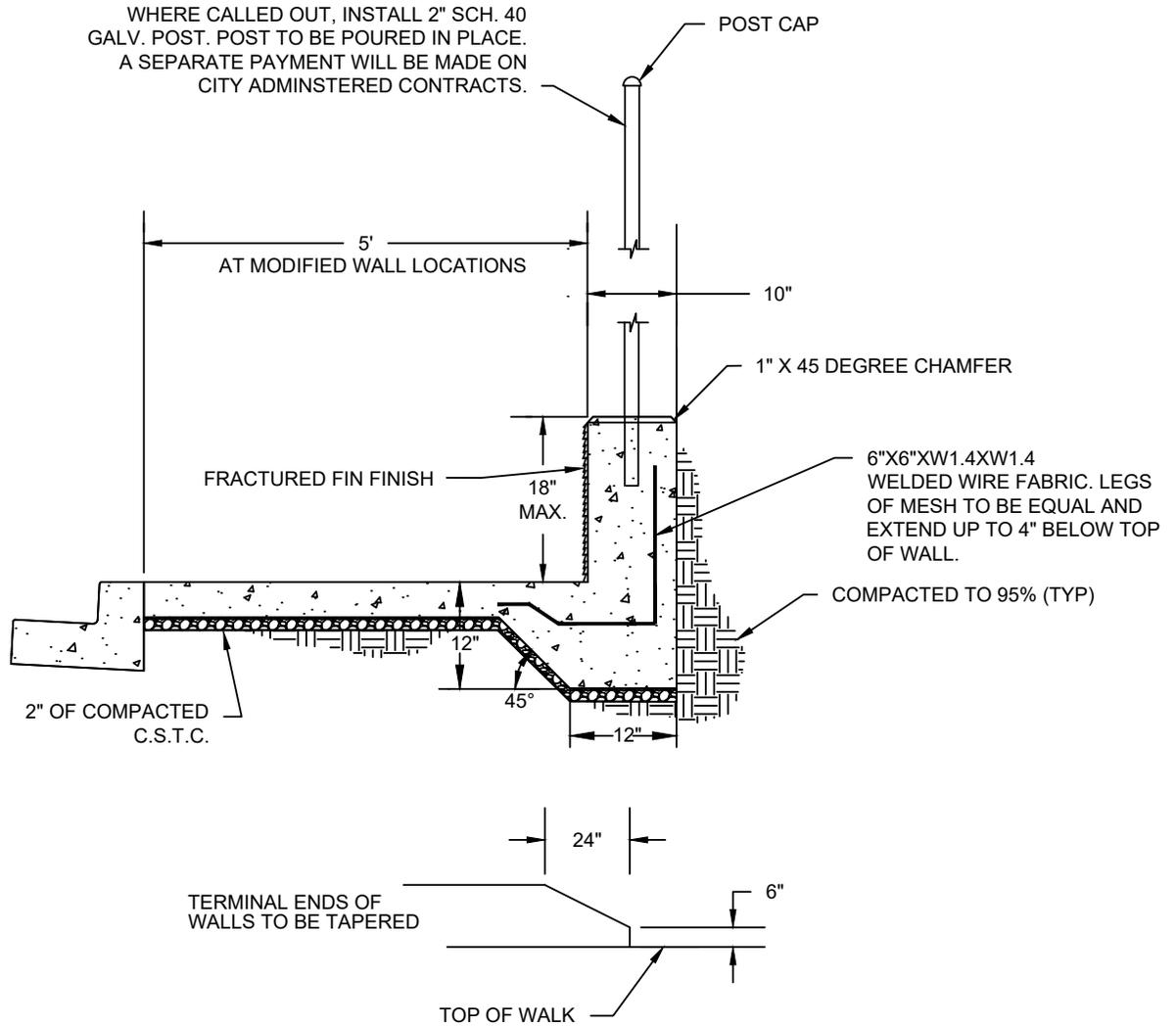


DROPPED BACK SIDEWALK WALL DETAIL

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-15.dwg	REVISED BY:	AFW	REVISED:	05/18

2-15

DRAWING NO.



NOTE:

1. ON CITY ADMINISTERED CONTRACTS, MODIFIED RETAINING WALL LOCATIONS WILL BE STAKED IN THE FIELD BY THE ENGINEER IN AREAS WHERE A SLOPED YARD TRANSITION IS DETERMINED TO BE UNDESIRABLE.
2. CONCRETE SHALL BE COMMERCIAL CONCRETE, 564 LBS CEMENT / CY (PER SWSS 6-02.3(2)B).

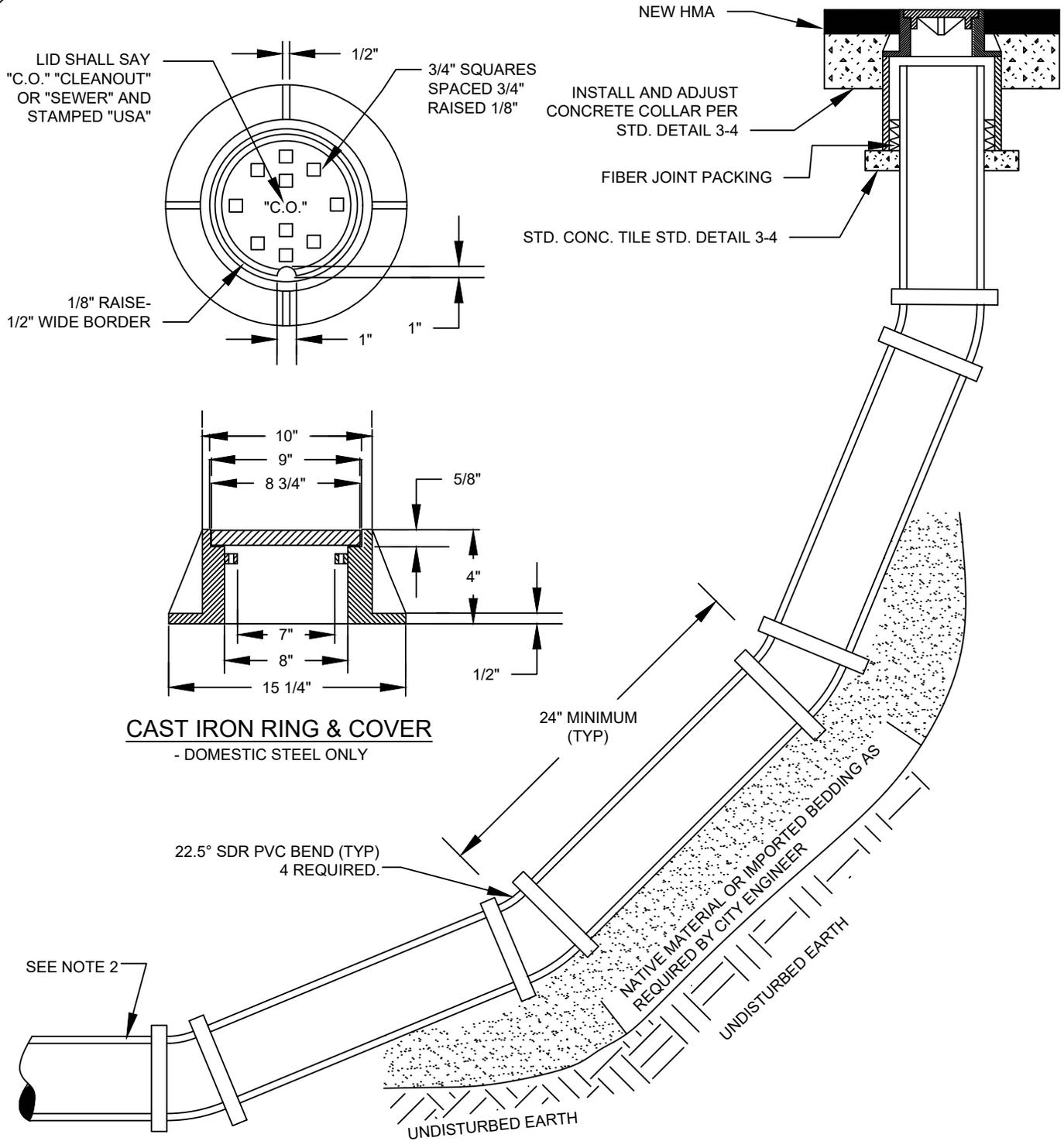


**MODIFIED SIDEWALK RETAINING WALL
DETAIL**

CATEGORY:	STREETS	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 2-16.dwg	REVISED BY:	AFW	REVISED:	05/18

2-16

DRAWING NO.



CAST IRON RING & COVER
- DOMESTIC STEEL ONLY

NOTES:

1. CONTRACTOR HAS THE OPTION TO USE (2) 45° BENDS THE SAME SIZE OF THE MAIN LINE INSTEAD OF (4) 22.5° BENDS.
2. CLEANOUT PIPE TO BE SAME SIZE AS MAIN LINE. FOR MAIN LINES LARGER THAN 8" AN ECCENTRIC REDUCER SHALL BE INSTALLED ON MAINLINE FROM MAINLINE SIZE TO 8" AND CLEAN OUT INSTALLED PER THIS DETAIL. REDUCERS SHALL BE GASKETED SDR35 PVC FITTING.



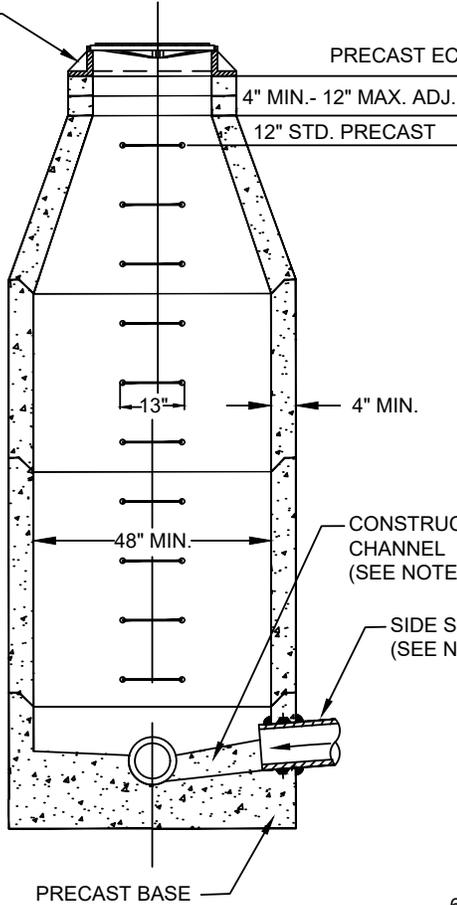
SEWER CLEANOUT

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-1.dwg	REVISED BY:	AFW	REVISED:	05/18

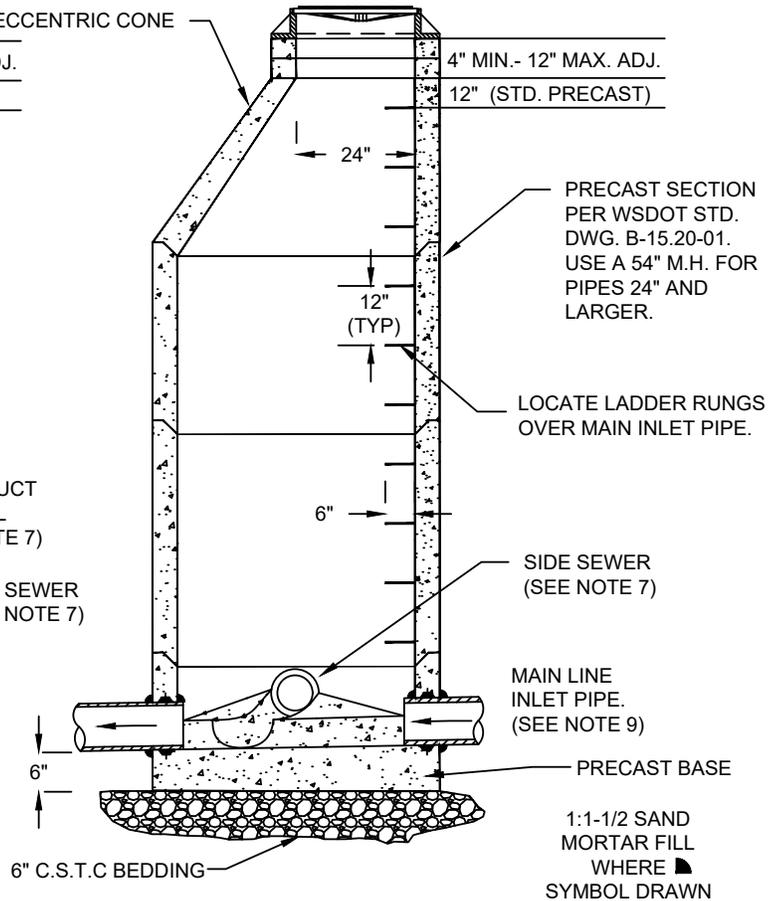
3-1

DRAWING NO.

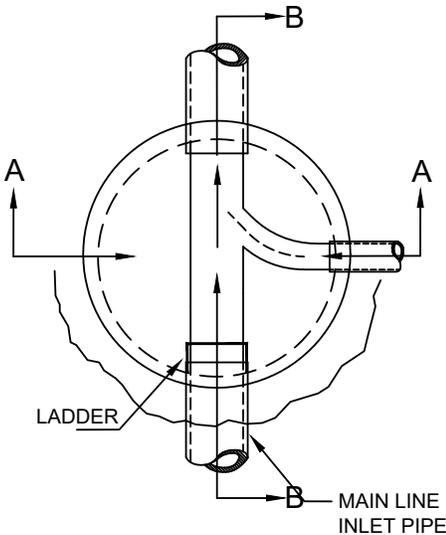
STANDARD FRAME AND COVER. SEE STD. DETAIL 3-4 FOR ADJUSTMENT REQUIREMENTS.



SECTION A-A



SECTION B-B



NOTES:

1. A RUBBER RING ENTRY COUPLING SHALL BE USED WITH P.V.C. PIPE.
2. ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET.
3. ADJUSTMENTS OVER 2" UTILIZE PRECAST CONCRETE RINGS. GROUT BETWEEN EACH RING AND FRAME AND FINISH GROUT INSIDE. REMOVE ALL WOOD SHIMS.
4. ALL CHANNELIZATION OF MANHOLE BASES SHALL BE COVERED BY A RIGID MATERIAL, SUCH AS PLYWOOD OR HEAVY GAUGE METAL, DURING CONSTRUCTION OF ROAD SURFACES TO PREVENT FOREIGN MATERIALS FROM ENTERING SYSTEM PER 7-05.3 OF CITY SPECIAL PROVISIONS.
5. PRIOR TO INSTALLING NEW SEWER MAIN, THE DOWNHILL STREAM SIDE OF THE NEXT EXISTING MANHOLE SHALL BE PLUGGED TO PREVENT ANY WATER AND/OR DEBRIS FROM ENTERING THE CITY'S SEWER SYSTEM.
6. PROVIDE A MINIMUM 0.1 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.2 FOOT IN-OUT DROP FOR ANGLE RUNS.
7. WHEN CONNECTING TO AN EXISTING MANHOLE, PIPE HOLE TO BE CORE-DRILLED.
8. ALL INLETS AND OUTLETS SHALL BE GROUTED SMOOTH TO INSIDE WALLS.
9. ROTATE MANHOLE SO THAT THE LADDER RUNGS ARE DIRECTLY OVER THE MAIN LINE INLET PIPE.



STANDARD MANHOLE DETAIL

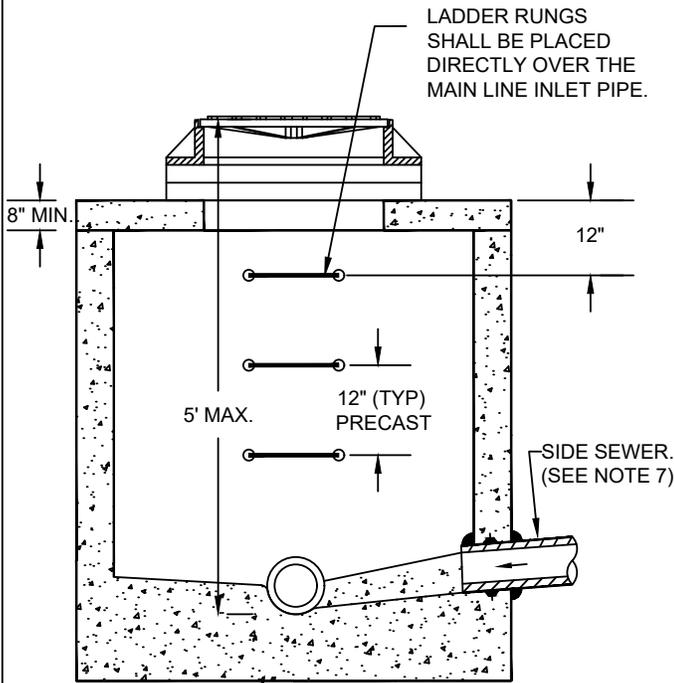
(MINIMUM 5' INVERT TO COVER)

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-2A.dwg	REVISED BY:	AFW	REVISED:	05/18

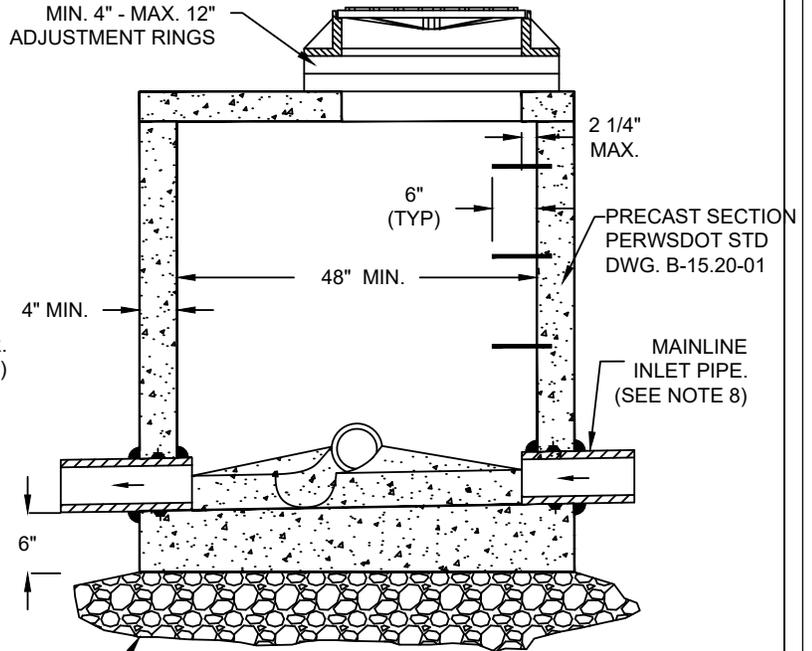
3-2A

DRAWING NO.

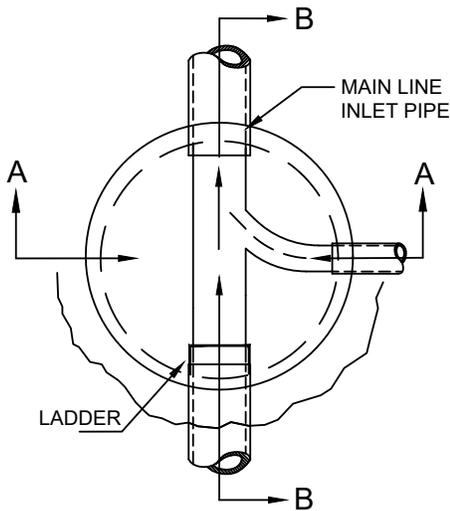
UNDER 5' INVERT TO COVER



SECTION A-A



SECTION B-B



NOTES:

1. A RUBBER RING ENTRY COUPLING SHALL BE USED WITH P.V.C. PIPE.
2. PRE CAST MANHOLE SECTION AND FLAT SLAB COVER SHALL CONFORM TO WSDOT STD DWG B-15.60-01.
3. ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET.
4. ALL CHANNELIZATION OF MANHOLE BASES SHALL BE COVERED BY A RIGID MATERIAL, SUCH AS PLYWOOD OR HEAVY GAUGE METAL SHEETING, DURING CONSTRUCTION OF ROAD SURFACES TO PREVENT FOREIGN MATERIALS FROM ENTERING SYSTEM PER SECTION 7-05.3 OF THE CITY SPECIAL PROVISIONS.
5. PRIOR TO INSTALLING NEW SEWER MAIN, THE DOWNHILL STREAM SIDE OF THE NEXT EXISTING MANHOLE SHALL BE PLUGGED TO PREVENT ANY WATER AND/OR DEBRIS FROM ENTERING THE CITY'S SEWER SYSTEM.
6. ALL INLETS AND OUTLETS SHALL BE GROUTED SMOOTH TO INSIDE WALLS.
7. WHEN CONNECTING TO AN EXISTING MANHOLE, PIPE HOLE TO BE CORE DRILLED.
8. ROTATE MANHOLE SO THAT THE LADDER RUNGS ARE DIRECTLY OVER THE MAIN LINE INLET PIPE.



SHALLOW MANHOLE DETAIL

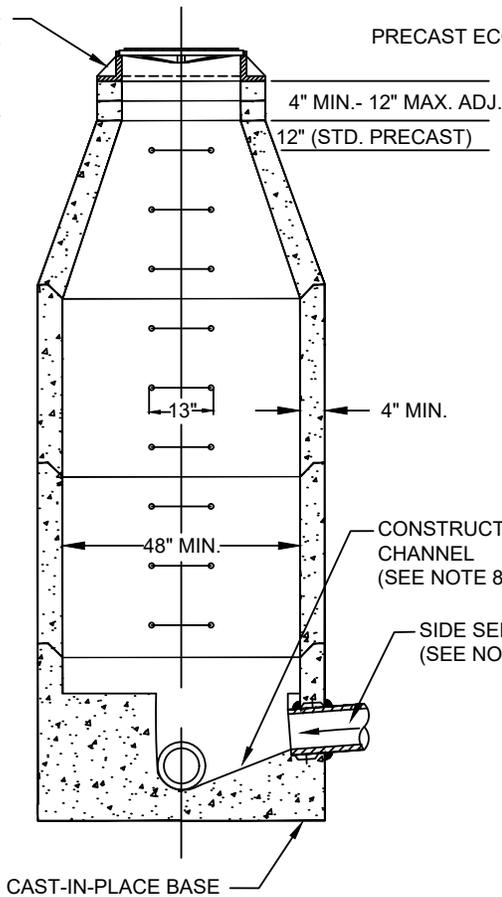
(UNDER 5' INVERT TO COVER)

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-2B.dwg	REVISED BY:	AFW	REVISED:	05/18

3-2B

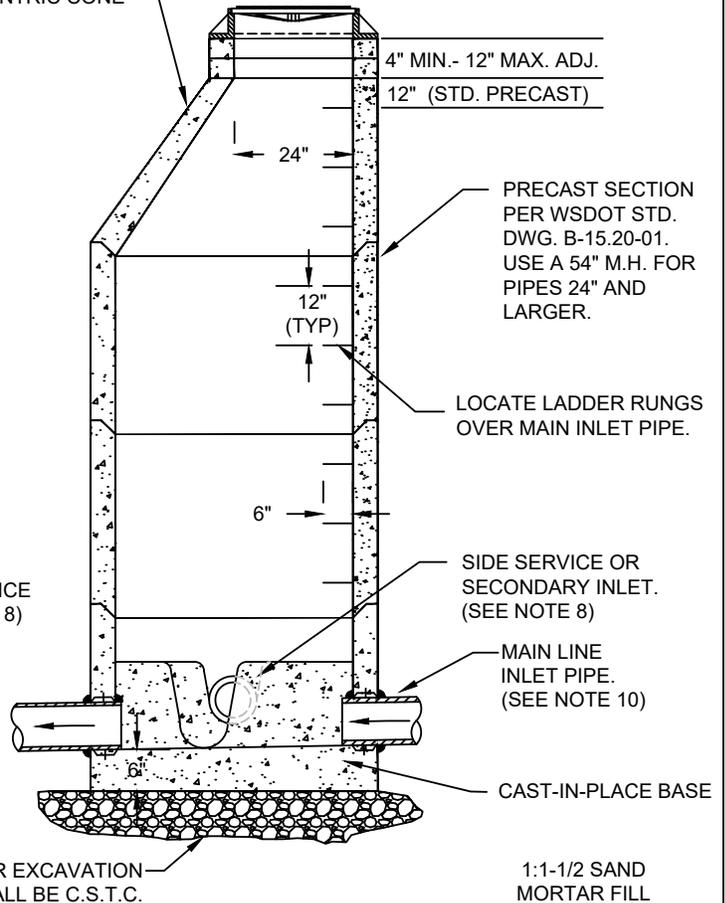
DRAWING NO.

STANDARD FRAME AND COVER. SEE STD. DETAIL 3-4 FOR ADJUSTMENT REQUIREMENTS.



SECTION A-A

PRECAST ECCENTRIC CONE



SECTION B-B

4" MIN.- 12" MAX. ADJ.
12" (STD. PRECAST)

4" MIN.

13"

48" MIN.

CONSTRUCT CHANNEL (SEE NOTE 8)

SIDE SERVICE (SEE NOTE 8)

CAST-IN-PLACE BASE

4" MIN.- 12" MAX. ADJ.
12" (STD. PRECAST)

24"

12" (TYP)

6"

PRECAST SECTION PER WSDOT STD. DWG. B-15.20-01. USE A 54" M.H. FOR PIPES 24" AND LARGER.

LOCATE LADDER RUNGS OVER MAIN INLET PIPE.

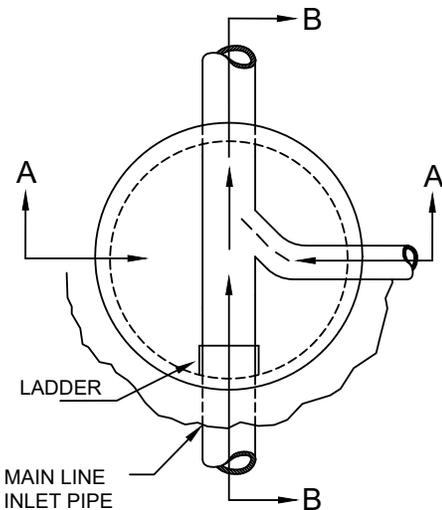
SIDE SERVICE OR SECONDARY INLET. (SEE NOTE 8)

MAIN LINE INLET PIPE. (SEE NOTE 10)

CAST-IN-PLACE BASE

OVER EXCAVATION BEDDING SHALL BE C.S.T.C.

1:1-1/2 SAND MORTAR FILL WHERE SYMBOL DRAWN



NOTES:

1. A RUBBER RING ENTRY COUPLING SHALL BE USED WITH P.V.C. PIPE.
2. ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET.
3. ADJUSTMENTS OVER 2" UTILIZE PRECAST CONCRETE RINGS. GROUT BETWEEN EACH RING AND FRAME AND FINISH GROUT INSIDE. REMOVE ALL WOOD SHIMS.
4. ALL CHANNELIZATION OF MANHOLE BASES SHALL BE COVERED BY A RIGID MATERIAL DURING CONSTRUCTION OF ROAD SURFACES TO PREVENT FOREIGN MATERIALS FROM ENTERING SYSTEM PER 7-05.3 OF CITY SPECIAL PROVISIONS.
5. PRIOR TO INSTALLING NEW SEWER MAIN, THE DOWNHILL STREAM SIDE OF THE NEXT EXISTING MANHOLE SHALL BE PLUGGED TO PREVENT ANY WATER AND/OR DEBRIS FROM ENTERING THE CITY'S SEWER SYSTEM.
6. WHEN CONSTRUCTING MANHOLE OVER AN EXISTING MAIN, SUPPORT PIPE(S) WITH CONCRETE. BLOCK AND POUR BASE AS SHOWN. REMOVE TOP 1/2 OF MAIN PIPE AND FORM SIDE CHANNEL(S) AS REQUIRED.
7. PROVIDE A MINIMUM 0.1 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.2 FOOT IN-OUT DROP FOR ANGLE RUNS.
8. WHEN CONNECTING TO AN EXISTING MANHOLE, PIPE HOLE TO BE CORE-DRILLED.
9. ALL INLETS AND OUTLETS SHALL BE GROUTED SMOOTH TO INSIDE WALLS.
10. ROTATE MANHOLE SO THAT THE LADDER RUNGS ARE DIRECTLY OVER THE MAIN LINE INLET PIPE.



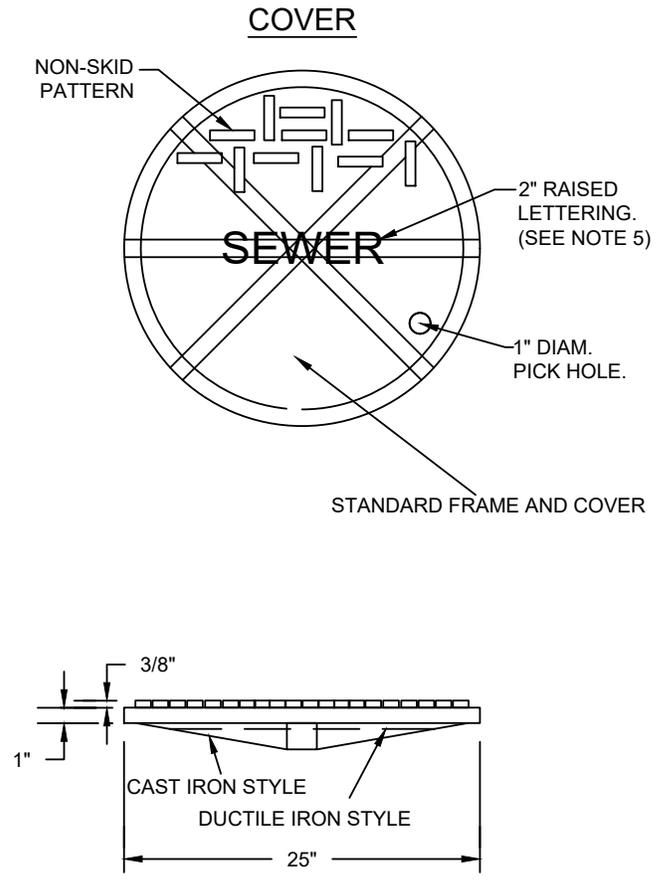
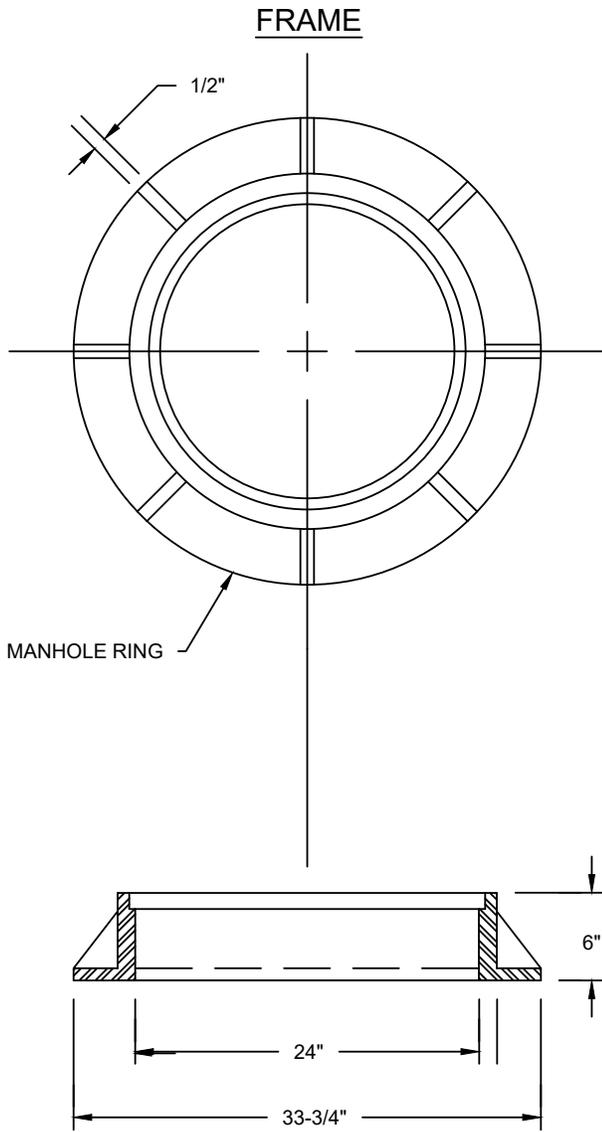
SADDLE MANHOLE DETAIL

(MINIMUM 5' INVERT TO COVER)

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/16
FILENAME:	SD 3-2C.dwg	REVISED BY:	AFW	REVISED:	05/18

3-2C

DRAWING NO.



NOTES:

1. FRAME AND COVER SHALL BE CAST OR DUCTILE IRON AND SHALL BE STAMPED "USA"
2. COVER WEIGHT-MIN 147 LBS. / FRAME WEIGHT-MIN 210 LBS.
3. MACHINE COVER SEAT & COVER FACE
4. LOADING- 40,000 LBS. HEAVY TRAFFIC LOADING
5. MANHOLE COVERS TO BE LETTERED AS "WATER," "SEWER," OR "STORM" AS REQUIRED BY TYPE OF APPLICATION.
6. ALL FRAME AND COVERS SHALL BE ADJUSTED TO FINISH GRADE. SEE STD. DETAIL 3-4.

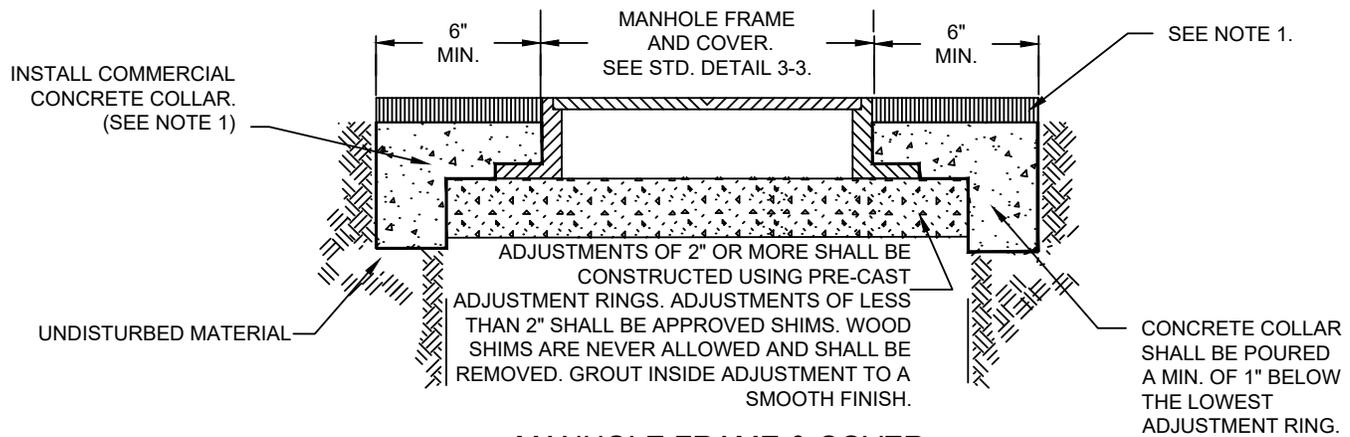


MANHOLE FRAME AND COVER

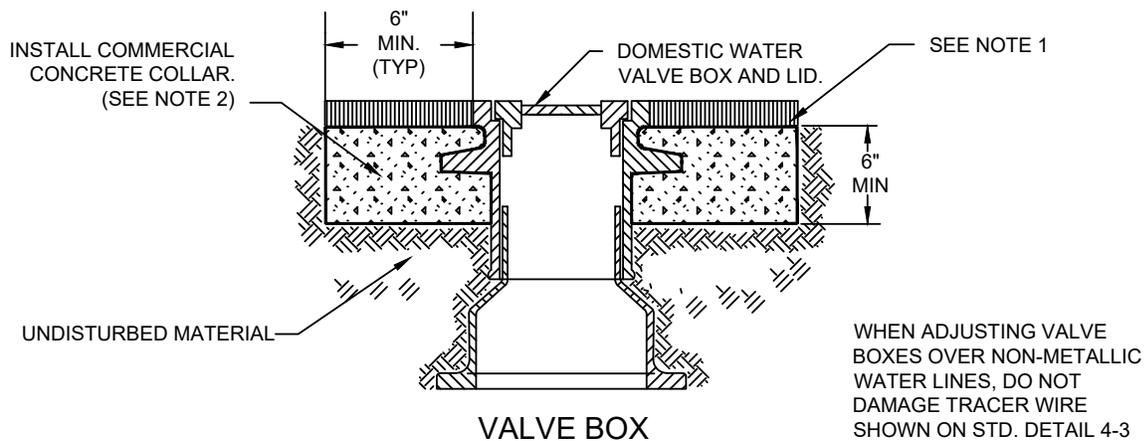
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FILENAME:	SD 3-3.dwg	REVISED BY:	AFW	REVISED:	05/18

3-3

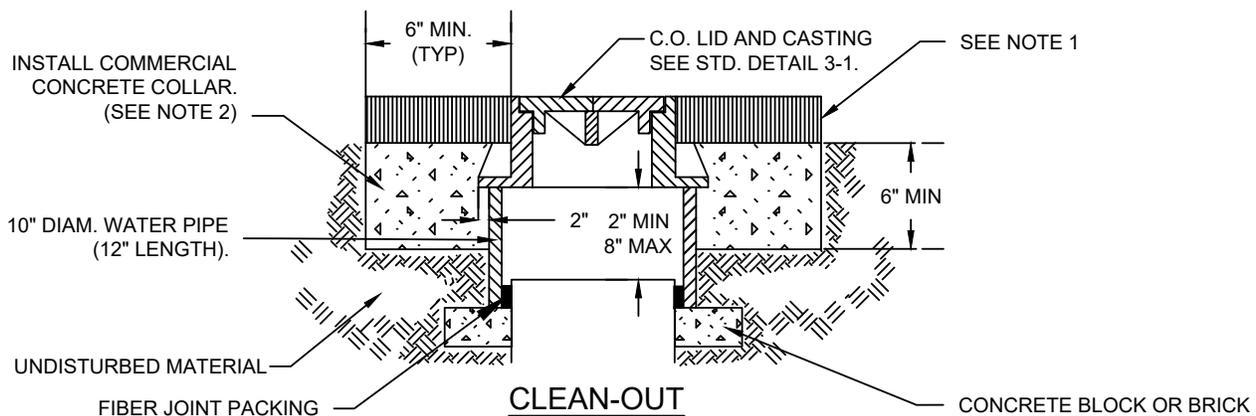
DRAWING NO.



MANHOLE FRAME & COVER



VALVE BOX



CLEAN-OUT

NOTES:

1. INSTALL $\frac{3}{8}$ " COMMERCIAL HMA. DEPTH SHALL MATCH EXISTING ACP DEPTH BUT NOT LESS THAN 2 INCHES. MATCH WITH EXISTING ACP GRADE AND VALVE BOX. TACK EDGE OF EXISTING ACP AND CONCRETE COLLAR PRIOR TO PLACING HMA.
2. A COMMERCIAL CLASS 3000 MIN CONCRETE COLLAR IS REQUIRED ON ALL INSTALLATIONS. IN UNIMPROVED OR UNPAVED AREAS INSTALL AN 8" THICK COLLAR AS FOLLOWS: 24" DIAM. 8" DEEP FOR VALVE AND CLEANOUT COVERS AND A MIN. 42"X42"X8" DEEP FOR MANHOLE COVERS. HAND MIXING OF CONCRETE IS NOT PERMITTED.
3. DOMESTIC IRON ONLY



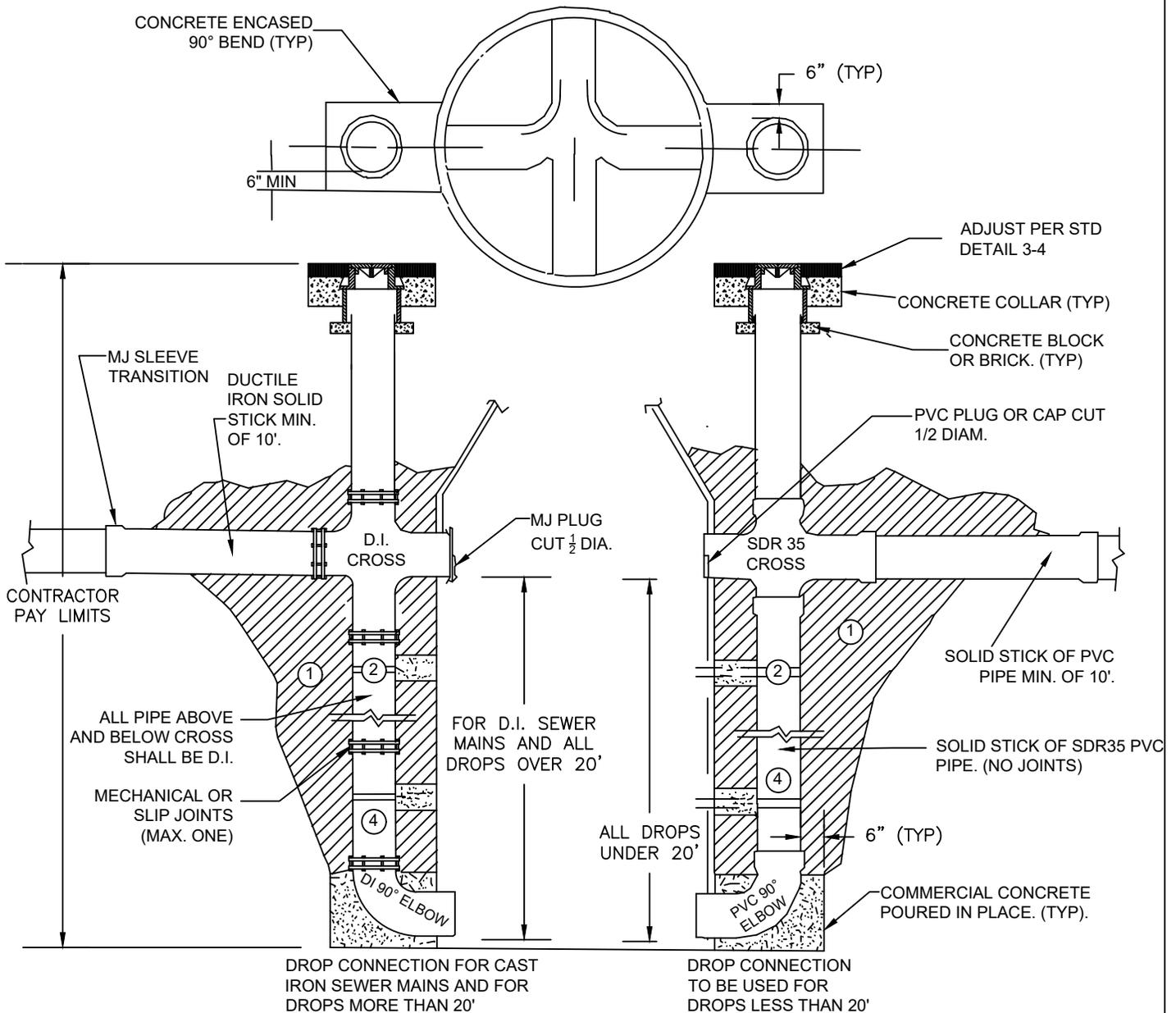
ADJUSTMENTS

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-4.dwg	REVISED BY:	AFW	REVISED:	05/18

3-4

DRAWING NO.

TYPICAL MANHOLE



NOTES:

1. SELECT NATIVE BACKFILL MATERIAL OR IMPORTED BACKFILL MATERIAL COMPACTED PER SPECIFICATIONS.
2. STAINLESS BANDS WITH CONCRETE SPACER TO MANHOLE (5' MAX. SPACING, 1' MIN).
3. SEE STD DETAIL 3-1 FOR CLEANOUT DETAILS.
4. DROP CONNECTION PIPE DIAMETER AND FITTINGS SHALL BE EQUAL TO OR GREATER THAN THE DIAMETER OF THE SEWER MAIN.

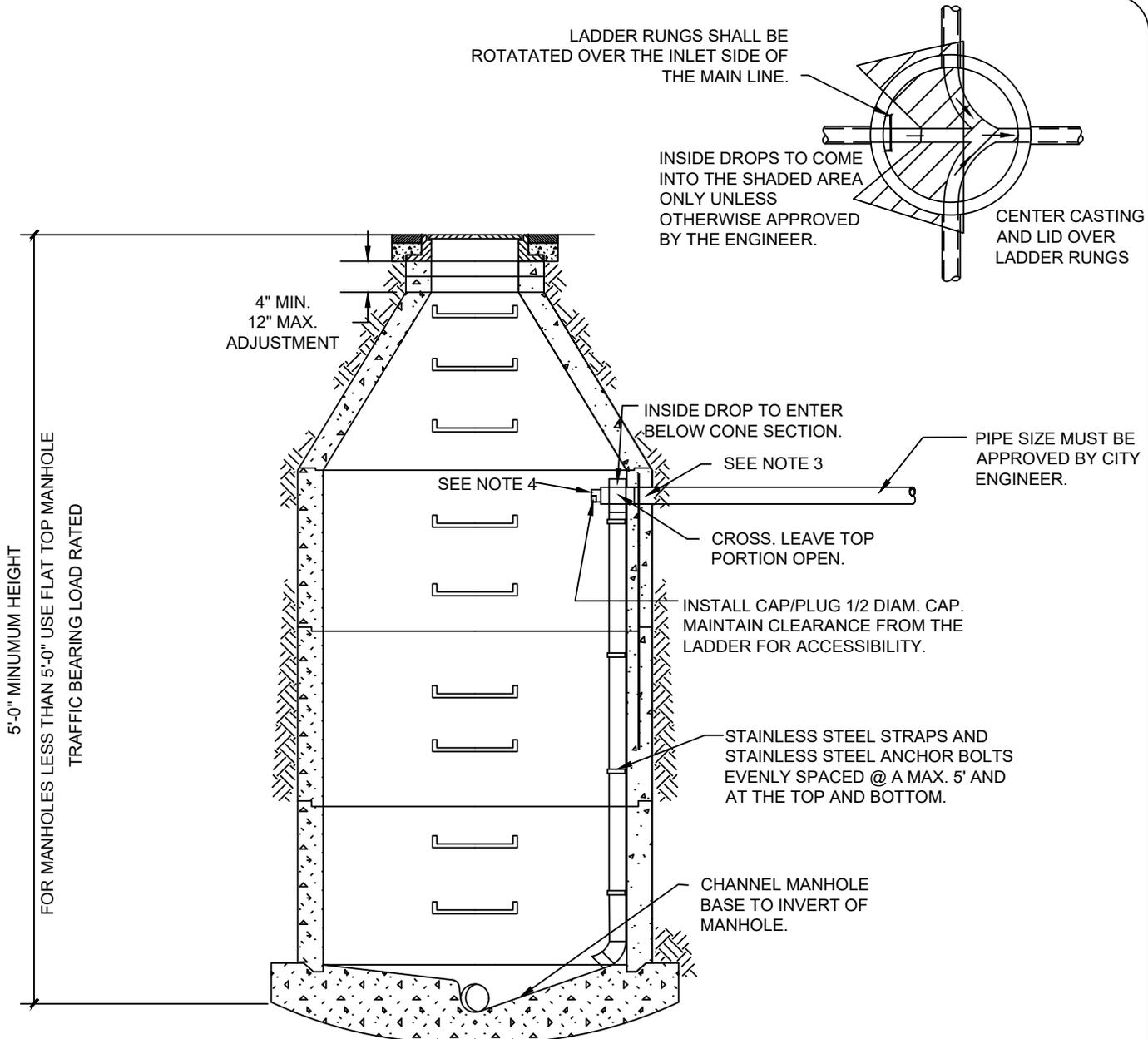


OUTSIDE DROP CONNECTION REQUIRED FOR INVERT DROPS OF OVER 2'

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-5A.dwg	REVISED BY:	AFW	REVISED:	05/18

3-5A

DRAWING NO.



NOTES:

1. INSIDE DROP CONNECTION WILL TYPICALLY NOT BE ALLOWED. WHEN EXTENUATING CIRCUMSTANCES OR UNUSUALLY DEEP SEWER MAINS ARE ENCOUNTERED, THE CITY ENGINEER MAY APPROVE. IF APPROVED, ALL CONSTRUCTION MUST BE COMPLETED PER THIS DETAIL AND AS DIRECTED BY THE ENGINEER.
2. DROP CONNECTION PIPE DIAMETER AND FITTINGS SHALL BE EQUAL TO OR GREATER THAN THE DIAMETER OF THE SEWER SERVICE. PIPE MATERIALS AND FITTINGS SHALL MEET THE CITY REQUIREMENTS FOR SEWER SERVICE LINES.
3. WHEN CONNECTING TO AN EXISTING MANHOLE PIPE HOLE TO BE CORE-DRILLED. WHEN DETERMINING SIZE OF HOLE TO CORE-DRILL TAKE INTO ACCOUNT THE OUTSIDE DIAMETER OF THE BELL OF THE CROSS YOU WILL BE USING. ONE END OF THE CROSS WILL NEED TO BE INSERTED IN THE CORE-DRILLED HOLE FROM INSIDE THE EXISTING MANHOLE.
4. INSTALL A CAP/PLUG CUT 1/2 DIAM. ENSURE ADEQUATE SPACE IS MAINTAINED BETWEEN THE CROSS CAP/PLUG AND THE LADDER RUNGS FOR MANHOLE ACCESSIBILITY.

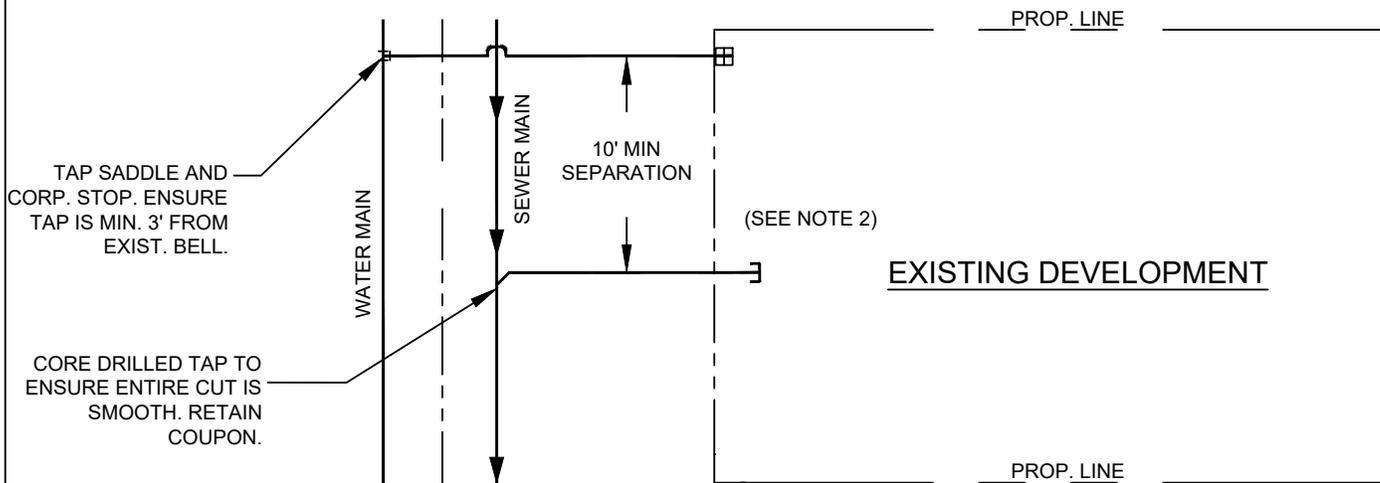
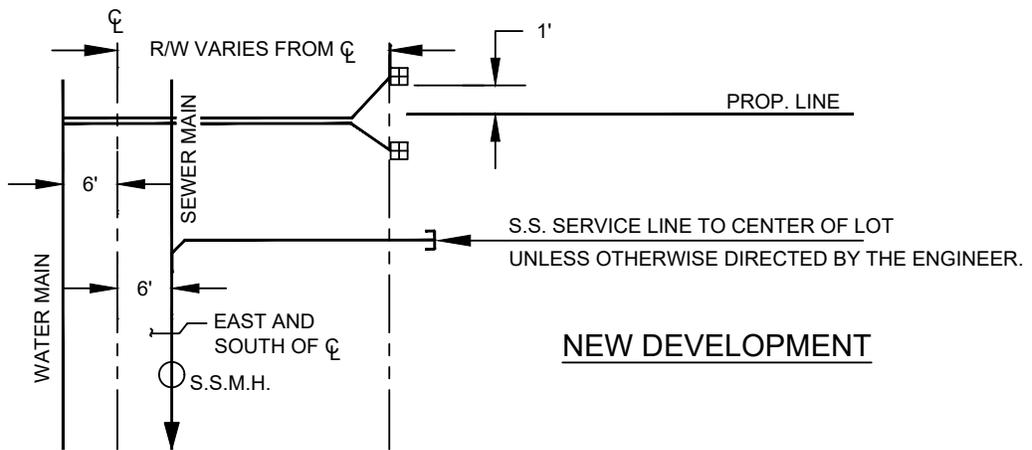


INSIDE DROP CONNECTION

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:
FILENAME:	SD 3-5B.dwg	REVISED BY:	REVISED:

3-5B

DRAWING NO.



NOTES:

1. WHEN MINIMUM HORIZONTAL & VERTICAL SEPARATIONS CANNOT BE MAINTAINED, DEPARTMENT OF HEALTH CRITERIA FOR SEWAGE WORKS DESIGN (ORANGE BOOK) REQUIREMENTS SHALL APPLY.
2. DISTANCES FROM PROPERTY LINES TO EXISTING WATER OR SEWER SERVICE LINES MAY VARY DUE TO FIELD CONDITIONS. WATER SERVICES SHALL TYPICALLY BE INSTALLED WITHIN 5 FEET OF A PROPERTY CORNER AND SEWER SERVICES IN THE MIDDLE OF LOT FRONTAGE. WHENEVER A NEW WATER/SEWER SERVICE LINE IS INSTALLED IT SHALL NOT BE PLACED ANY CLOSER TO AN EXISTING WATER/SEWER SERVICE LINE THAN AS INDICATED BY THE TRENCH DETAIL WITHOUT WRITTEN PERMISSION BY THE CITY ENGINEER.
3. WATER SERVICES SHALL NOT SHARE A COMMON PROP. CORNER AS A POWER TRANSFORMER UNLESS APPROVED BY CITY ENGINEER..
4. SEWER SERVICE MINIMUM DEPTH WHERE THE SEWER MAIN DEPTH ALLOWS, SEWER SERVICE TO EXISTING BUILDING SHALL BE A MINIMUM 6 FEET BURY WITHIN THE STREET RIGHT-OF-WAY OR 4' BELOW THE LOWEST FLOOR ELEVATION, WHICHEVER IS DEEPER. WHERE THE DEPTH OF THE SEWER MAIN ALLOWS, SEWER SERVICES TO VACANT LOTS SHALL BE AS DEEP AS POSSIBLE OR PRACTICAL TO PROVIDE FULL BASEMENT SERVICE TO THE PROPERTY, TYPICALLY THE INVERT SHALL BE 12 FEET BELOW THE PROPERTY GROUND ELEVATION AT A 25' FRONT SETBACK, PROVIDING HOWEVER, THAT THE MINIMUM DEPTH IN THE RIGHT-OF-WAY EVEN FOR UPHILL LOTS, SHALL BE 6' BURY UNLESS APPROVED BY CITY ENGINEER.
5. THE REQUIREMENTS OF THIS STANDARD DRAWING SHALL BE BINDING UPON ALL PUBLIC OR PRIVATE WATER/SEWER SERVICE LINES THAT CONNECT INTO A CITY WATER OR SEWER MAIN AND IS INTENDED FOR THE SOLE PURPOSE OF PROVIDING PROTECTION FROM CONTAMINATION TO THE POTABLE WATER DISTRIBUTION SYSTEM.

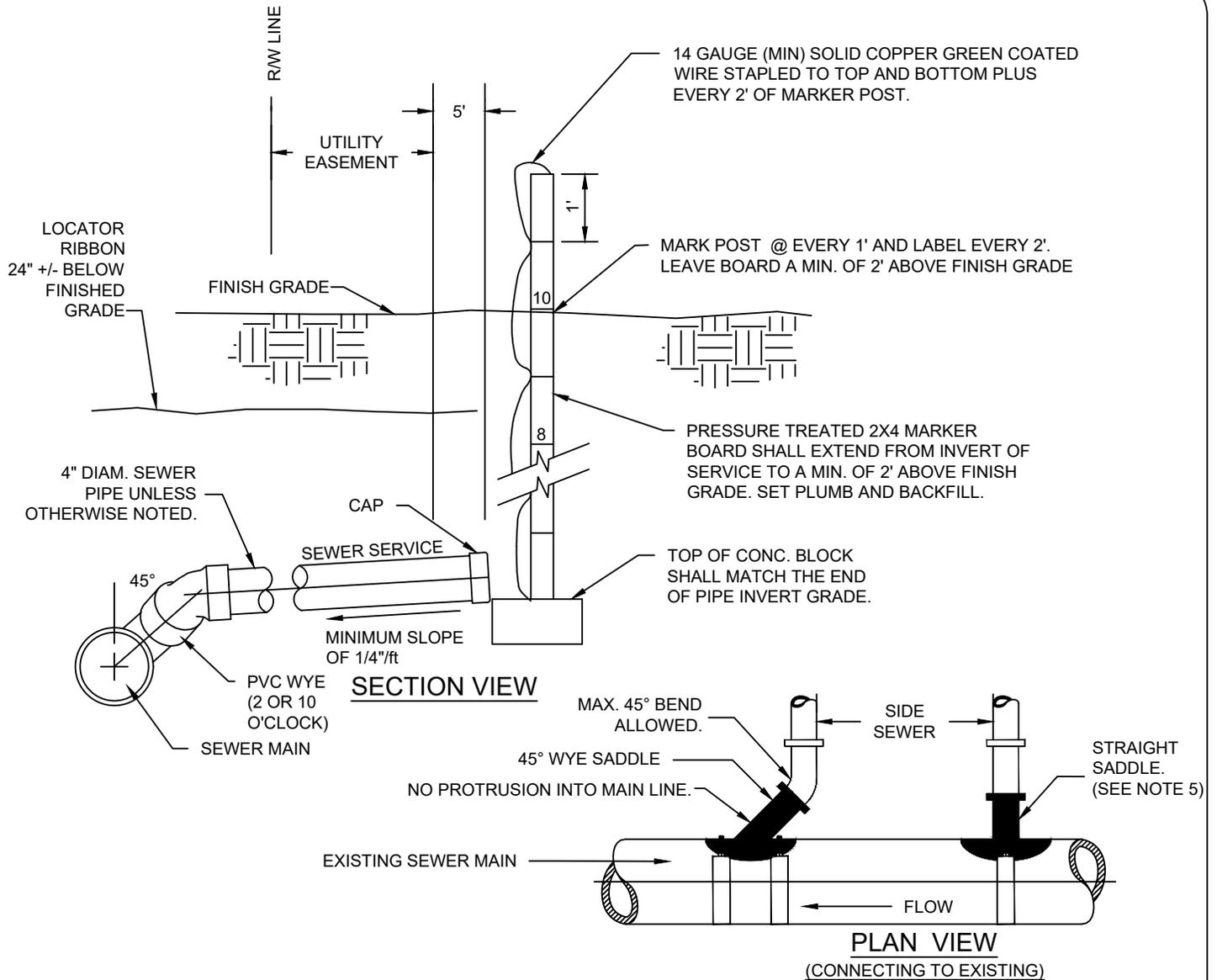


SEWER SERVICE INSTALLATION

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-6A.dwg	REVISED BY:	AFW	REVISED:	05/18

3-6A

DRAWING NO.



NOTES:

1. INSTALL ALL SEWER SERVICES BENEATH WATER MAIN WHERE POSSIBLE. IF THE SEWER SERVICE MUST CROSS ABOVE THE WATER MAIN ALL JOINTS IN THE SEWER SERVICE SHALL BE A MIN DISTANCE OF 10 FEET FROM THE WATER. THE ENGINEER WILL HAVE TO APPROVE ALL THE CROSSINGS ABOVE THE WATER MAIN.
2. SEWER SERVICES INSTALLED ON NEW SEWER MAINS SHALL BE PVC SEWER WYE'S AND INSTALLED DURING THE INSTALLATION OF THE MAINLINE.
3. WHEN CONNECTING TO AN EXISTING SEWER MAIN, PIPE HOLE TO BE CORE-DRILLED AND COUPON RETAINED. CONNECT TO PVC MAIN WITH A RUBBER GASKETED SEWER SADDLE WYE WITH STAINLESS STEEL HOSE CLAMPS.
4. TAPPED HOLE IN MAIN SHALL BE THE SAME SIZE AS THE SIDE SEWER. THE HOLE SHALL BE CUT OR DRILLED NOT BROKEN OUT.
5. STRAIGHT SADDLE CAN BE USED ON 12" OR LARGER PIPE ONLY.
6. SEWER SADDLES ON MAINLINE MATERIAL OTHER THAN PVC SHALL BE PRE-APPROVED BY CITY ENGINEER.
7. 2" MINIMUM WIDTH GREEN PLASTIC COATED ALUMINUM PIPE LOCATOR RIBBON OVER THE TOP OF THE SEWER SERVICE MARKED "CAUTION BURIED SEWER LINE" CONTINUOUSLY ALONG THE LENGTH OF THE SERVICE SHALL BE PLACED APPROXIMATELY 24" BELOW FINISH GRADE.

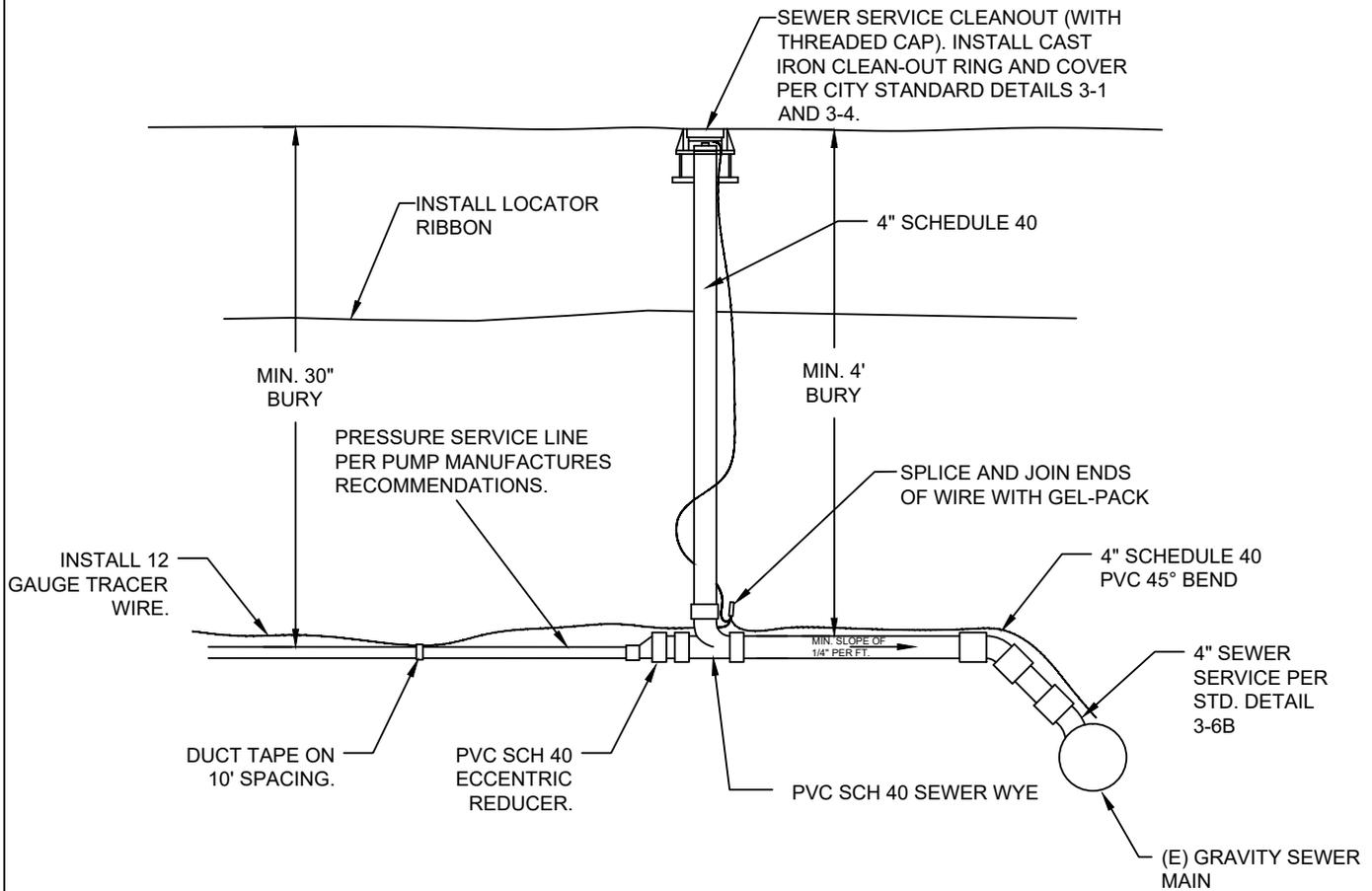


SEWER SERVICE AND MARKER POST DETAIL

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 3-6B.dwg	REVISED BY:	AFW	REVISED:	05/18

3-6B

DRAWING NO.



NOTES:

1. TAP AND SADDLE SHALL BE PER COWR STANDARD 3-6B.
2. 10' MINIMUM SECTION OF 4" SEWER SERVICE PIPE SHALL BE LAID AT A MIN. 1/4"/FT AT WHICH POINT THE PRESSURE SEWER IS TO BE CONNECTED TO SEWER SERVICE LINE WITH AN ECCENTRIC REDUCER.
3. A SERVICE CLEAN-OUT SHALL BE INSTALLED IN 4" SERVICE LINE JUST DOWNSTREAM OF THE REDUCER.
4. PRIVATE PRESSURE SERVICE LINE SHALL BE OF MATERIAL AND SIZE PER PUMP MANUFACTURERS RECOMMENDATIONS. ANY PRESSURE SEWER LINE LARGER THAN 2 INCHES MUST BE APPROVED BY THE CITY ENGINEER.
5. 2" MINIMUM WIDTH GREEN PLASTIC COATED ALUMINUM PIPE LOCATOR RIBBON OVER THE TOP OF THE PRESSURE SEWER SERVICE MARKED "CAUTION BURIED SEWER LINE" CONTINUOUSLY ALONG THE LENGTH OF THE SEWER SERVICE SHALL BE PLACED APPROXIMATELY 24" BELOW FINISHED GRADE.
6. 12 GAUGE SOLID COOPER WIRE, 600V WITH GREEN UF INSULATION NOMINAL THICKNESS 0.06". WIRE SHALL BE BROUGHT TO SURFACE AT PUMP LOCATION AND CLEAN OUT AT TRANSITION FROM 4" SERVICE LINE.

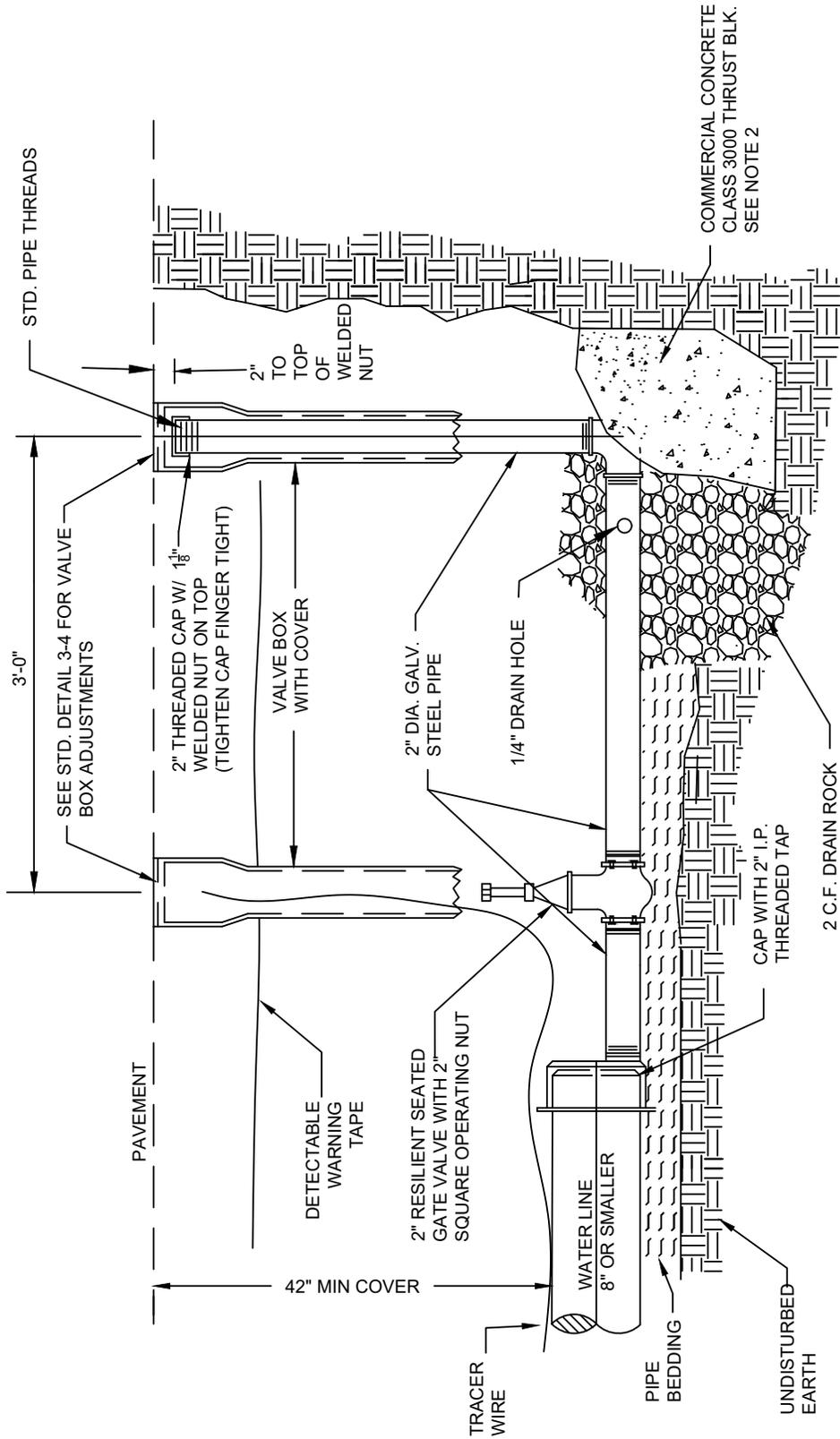


PRESSURE SEWER CONNECTION

CATEGORY:	SEWER	REVIEWED BY:	AFW	ADOPTED:	07/14
FILENAME:	SD 3-7.dwg	REVISED BY:	AFW	REVISED:	05/18

3-7

DRAWING NO.



NOTES:

1. VALVE, VALVE BOX & COVER SHALL BE PER SECTION 7-12 OF THE SWSS, CITY SPECIAL PROVISIONS AND STD DETAIL 4-3.
2. THE THRUST BLOCK SHALL BE SIZED TO PROVIDE THRUST FOR THE LATERAL WATER LINE. ALL NOTES SHOWN ON STD. DETAIL 4-6A SHALL APPLY.
3. CONTRACTOR TO PROVIDE BLOW-OFF CAP TO CITY WATER CREW. CITY CREW WILL PROVIDE CONTRACTOR WITH A REPLACEMENT CAP WITH WELDED NUT.

WATER LINE SIZE	THRUST* BLK. SIZE
6"	1.9 S.F.
8"	3.3 S.F.

* BEARING AREA AGAINST THE TRENCH WALL

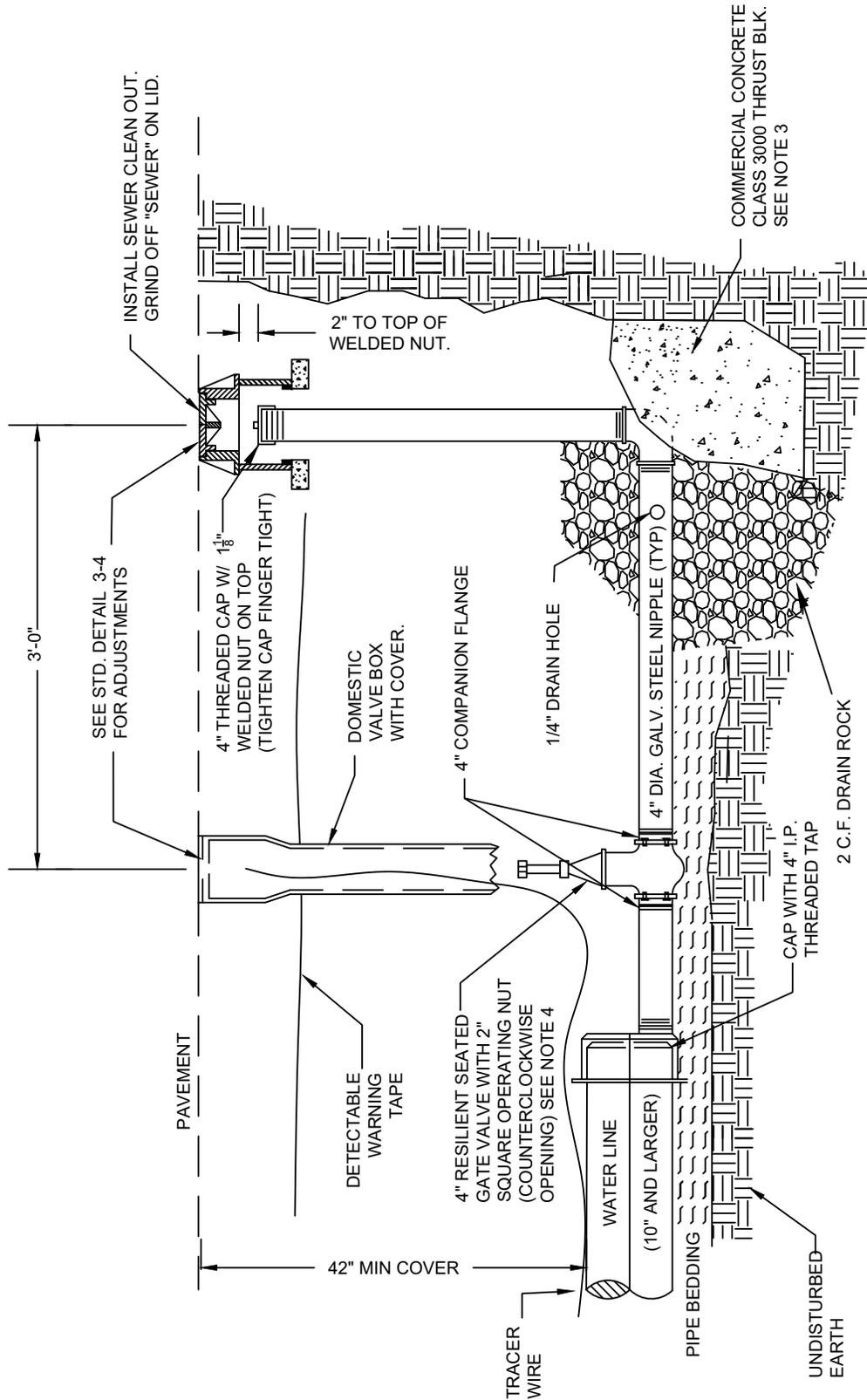


**2" TEMPORARY BLOW-OFF
(8" OR SMALLER WATER MAIN)**

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-1A.dwg	REVISED BY:	AFW	REVISED:	05/18

4-1A

DRAWING NO.



NOTES:

1. FOR USE ON 10" WATERLINE AND LARGER AT THE REQUEST OF THE CITY ENGINEER.
2. VALVE, VALVE BOX & COVER SHALL BE PER SECTION 7-12 OF THE SWSS, CITY SPECIAL PROVISIONS, AND STD DETAIL 4-3.
3. THE THRUST BLOCK SHALL BE SIZED TO PROVIDE THRUST FOR THE LATERAL WATER LINE. ALL NOTES SHOWN ON STD. DETAIL 4-6A SHALL APPLY.
4. CONTRACTOR TO PROVIDE BLOW-OFF CAP TO CITY WATER CREW. CITY CREW WILL PROVIDE CONTRACTOR WITH A REPLACEMENT CAP WITH WELDED NUT.

WATER LINE SIZE	THRUST* BLK. SIZE
10"	5.4 S.F.
12"	7.7 S.F.

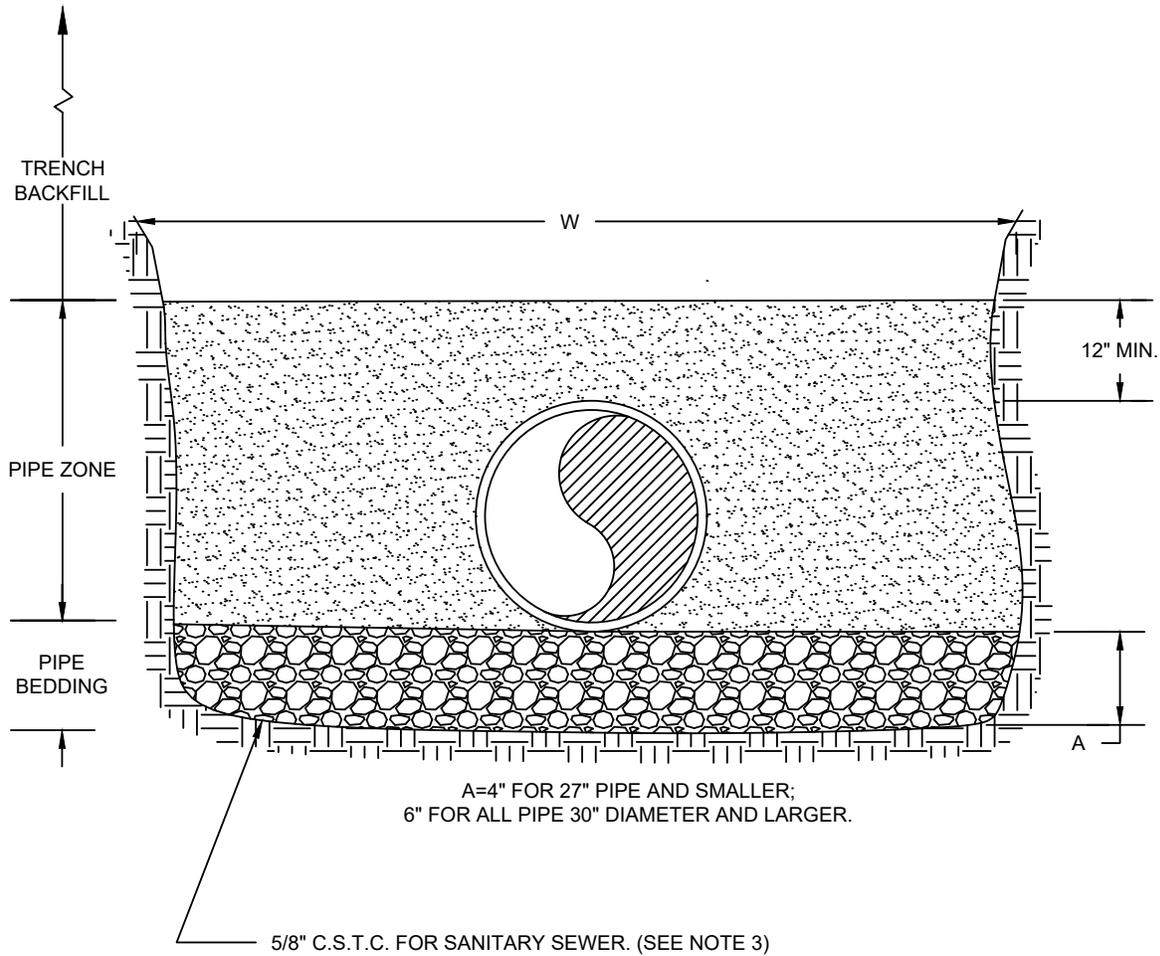
* BEARING AREA AGAINST THE TRENCH WALL



**TEMPORARY 4" BLOW-OFF
(10" AND LARGER WATER MAIN)**

CATEGORY: WATER	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 4-1B.dwg	REVISED BY: AFW	REVISED: 05/18

4-1B
DRAWING NO.



NOTES:

1. PIPE ZONE BEDDING MATERIAL ABOVE THE BOTTOM OF PIPE FOR STORM DRAINAGE PIPE, SANITARY SEWER AND WATER MAINS SHALL BE WELL GRADED EARTH OR SAND FREE FROM ORGANIC MATERIALS, CLAY, FROZEN LUMPS, PAVEMENT DEBRIS, ROOTS, OR MOISTURE IN EXCESS OF THAT PERMITTING REQUIRED COMPACTION. ROCKS OR LUMPS GREATER THAN 1-INCH MAXIMUM SHALL NOT BE USED FOR PIPE ZONE BACKFILL.
2. TRENCH BACKFILL IN NEW ROADWAYS AND OUTSIDE ROAD PRISM SHALL MATCH REQUIREMENTS OF PIPE ZONE BEDDING BUT WITH NO ROCKS OR LUMPS GREATER THAN 6-INCH MAXIMUM SHALL BE USED FOR TRENCH BACKFILL.
3. PIPE BEDDING MATERIAL SHALL BE 5/8" MINUS CRUSHED ROCK FOR SANITARY SEWER PIPES. PIPE BEDDING MATERIAL FOR STORM DRAINAGE PIPE AND WATER MAINS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NOTE 1.
4. WHEN PIPING IS PLACED IN AN EXISTING ROADWAY PRISM, PIPE ZONE AND TRENCH BACKFILL SHALL BE COMPACTED 5/8" MINUS CRUSHED SURFACING TOP COURSE. SEE STD DETAIL 2-8
5. TRENCH WIDTH "W" SHALL BE 40 INCHES MAXIMUM FOR PIPE 15 INCHES I.D. OR SMALLER AND 1-1/2 TIMES I.D. PLUS 18 INCHES FOR PIPE 18 INCHES OR LARGER.
6. HAND TAMP UNDER PIPE HAUNCHES AND PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.
7. SEE SWSS AND CITY SPECIAL PROVISIONS 7-08 AND 7-09 FOR INSTALLATION AND COMPACTION REQUIREMENTS.
8. PAVEMENT WIDTH FOR EXCAVATION AND PAVEMENT REPAIR SHALL BE A MIN. OF 4' WIDE. SEE CITY STANDARD DETAIL 2-8.

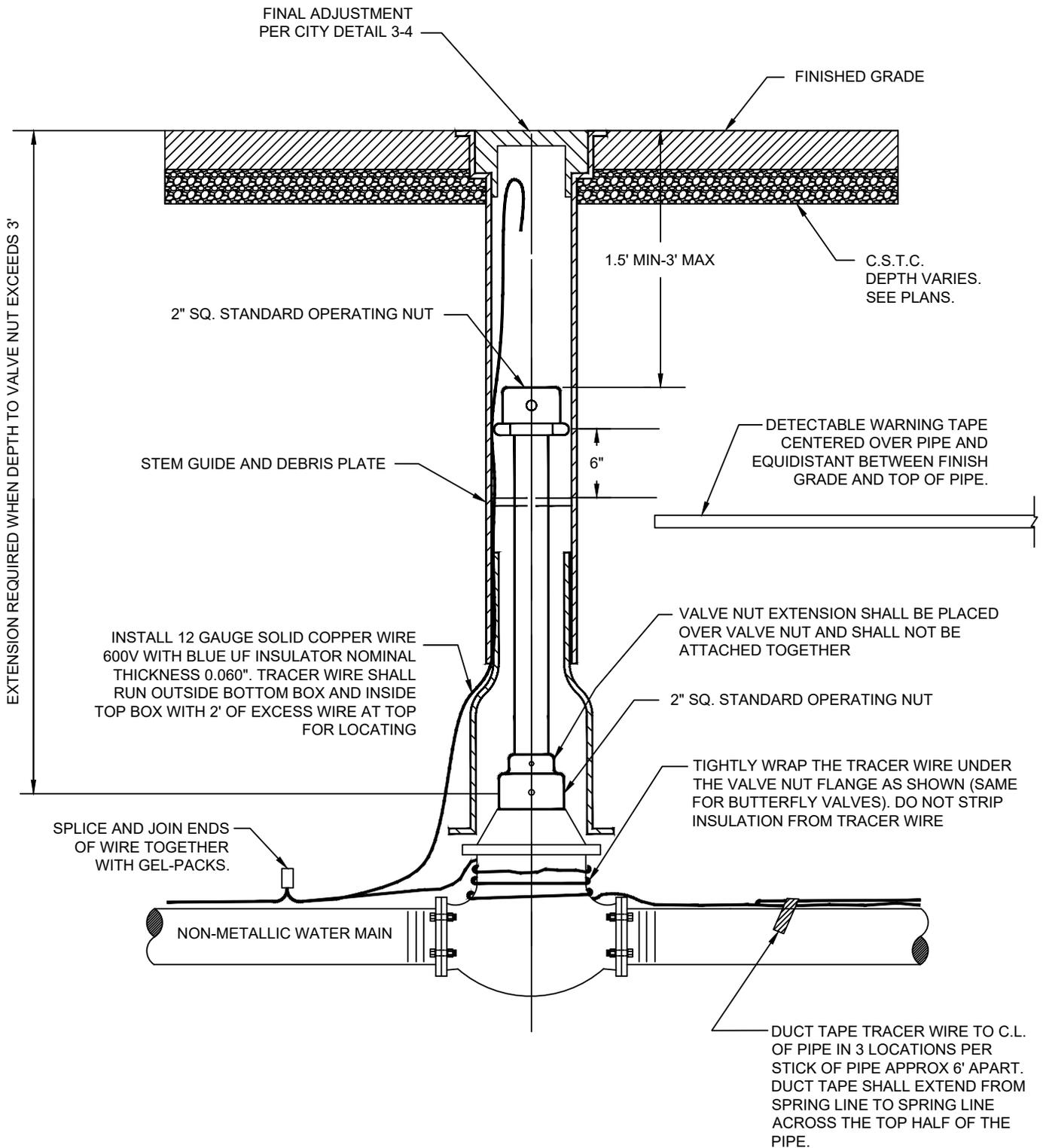


**PIPE BEDDING DETAIL
FOR SANITARY SEWER, STORM, AND WATER MAINS**

CATEGORY:	WATER	REVIEWED BY:	AFW
FILENAME:	SD 4-2.dwg	REVISED BY:	AFW
		ADOPTED:	02/14
		REVISED:	05/18

4-2

DRAWING NO.

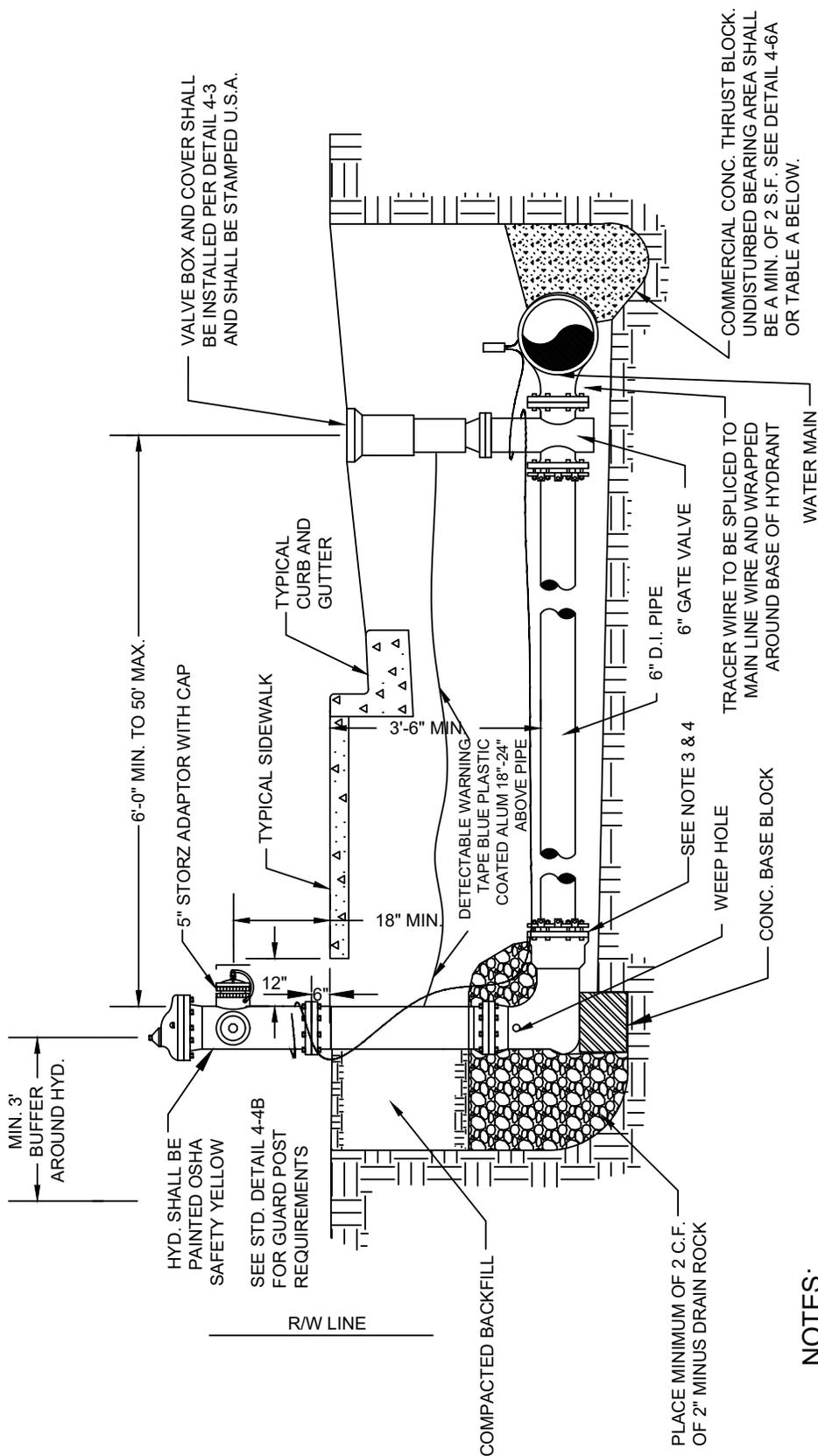


TRACE WIRE INSTALLATION AND VALVE EXTENSION DETAIL

CATEGORY:	WATER	REVIEWED BY:	AFW
ADOPTED:	02/14	REVISED BY:	AFW
FILENAME:	SD 4-3.dwg	REVISED:	05/18

4-3

DRAWING NO.



NOTES:

1. HYDRANTS SHALL HAVE 3 PORTS.
2. HYDRANT OPERATING NUTS AND HYDRANT CAPS SHALL BE 1 1/2".
3. HYDRANTS SHALL BE PER SECTION 7-14 OF SWSS AND THE CITY SPECIAL PROVISIONS.
4. ALL JOINTS AND FITTINGS SHALL BE FULLY RESTRAINED FROM MAINLINE TO HYDRANT. SHACKLE RODS NOT ALLOWED.
5. WRAP STORZ ADAPTER WITH BLUE ULINE REFLECTIVE TAPE (MODEL#S-12905)
6. HYDRANTS SHALL BE HOODED UNTIL OPERATIONAL
7. SEE STD. DETAIL 4-4B FOR GUARD POST REQUIREMENTS.

TABLE A	
WATER MAIN	THRUST BLOCK SIZE
6"	2.12 S.F. *
8"	3.77 S.F. *
10"	5.89 S.F. *
12"	8.48 S.F. *

BEARING AREA AGAINST THE TRENCH WALL.

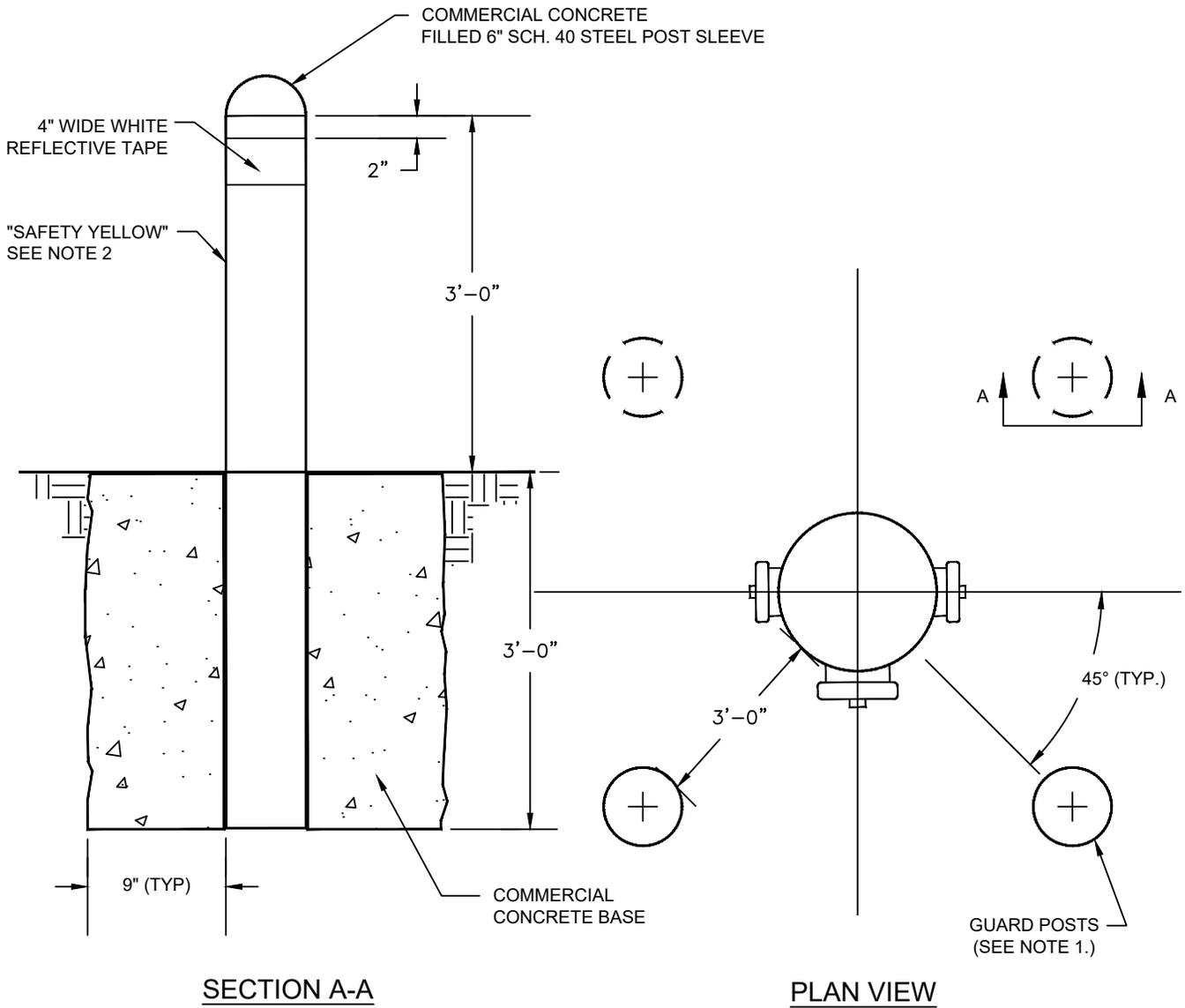


TYPICAL FIRE HYDRANT INSTALLATION

CATEGORY: WATER	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 4-4A.dwg	REVISED BY: AFW	REVISED: 05/18

4-4A

DRAWING NO.



NOTES:

1. WHERE CONCRETE CURBING IS NOT INSTALLED, GUARD POSTS (2 EA. MIN) SHALL BE INSTALLED ON SIDE FACING PAVED SURFACE AND/OR AS DIRECTED BY CITY ENGINEER
2. GUARD POSTS TO BE PAINTED OSHA SAFETY YELLOW PER SPECIFIED COLOR IN CITY MATERIALS LIST.



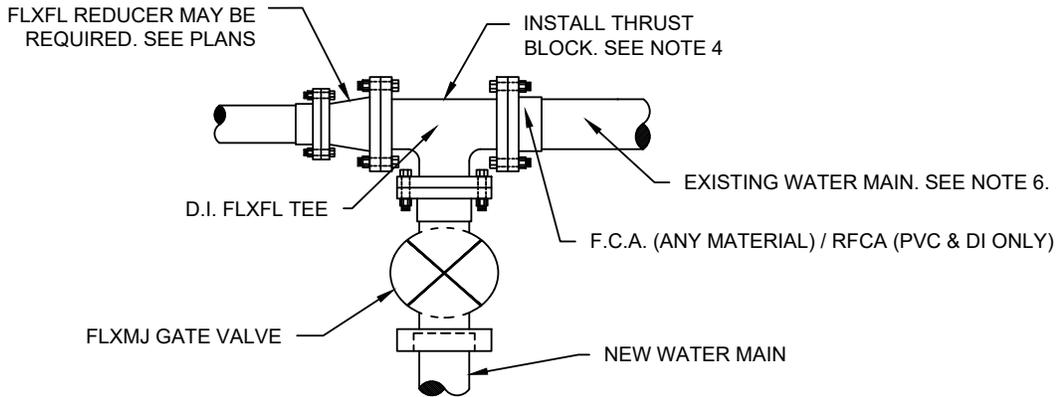
GUARD POST

CATEGORY: CATEGORY	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 4-4B.dwg	REVISED BY: AFW	REVISED: 05/18

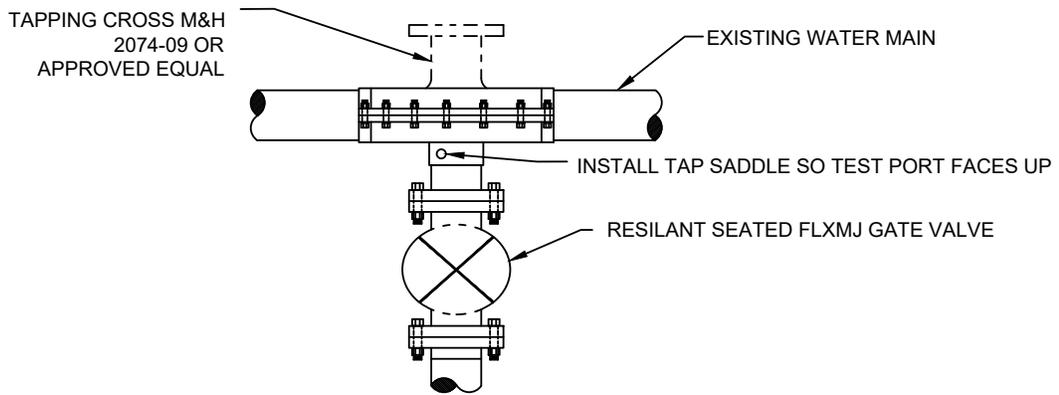
4-4B

DRAWING NO.

WHEN EXISTING WATERLINE REQUIRES THE IN-LINE INSTALLATION OF A VALVE, REDUCER OR FLANGE ADAPTER, THEN ALL CONNECTIONS TO THE TEE OR VALVE SHALL BE FLANGED.



CUT-IN TEE



TAPPING SLEEVE AND VALVE
(SEE NOTE 4 FOR THRUST BLOCK REQUIREMENTS)

NOTES:

1. CONTRACTOR TO DIG & VERIFY MAIN SIZE AND PIPE PRIOR TO ORDERING MATERIALS.
2. CHLORINATE AND TAG VALVE & FITTINGS PER SECTION 7-09 OF THE SWSS AND CITY SPECIAL PROVISIONS.
3. MATERIALS TO BE ON THE THE JOB PRIOR TO SCHEDULING SHUTDOWNS OR TAPS.
4. INSTALL THRUST BLOCKS PER STD. DETAIL 4-6A. TEMPORARY THRUST BLOCKING MAY BE REQUIRED.
5. CONTRACTOR WILL COMPLETE TAP PER SECTION 7-12 OF SWSS AND CITY SPECIAL PROVISIONS.
6. ENSURE TAPPING SADDLE IS MIN. 3' FROM EXISTING BELL AND A MIN. 1' FROM SPIGOT END INSERTION POINT AT NEXT BELL.
7. VERIFY SADDLE TEST PORT IS FACING UP. TEST SADDLE AND VALVE WITH 15 PSI AIR OR 150 PSI HYDROSTATIC FOR 5 MINUTES.

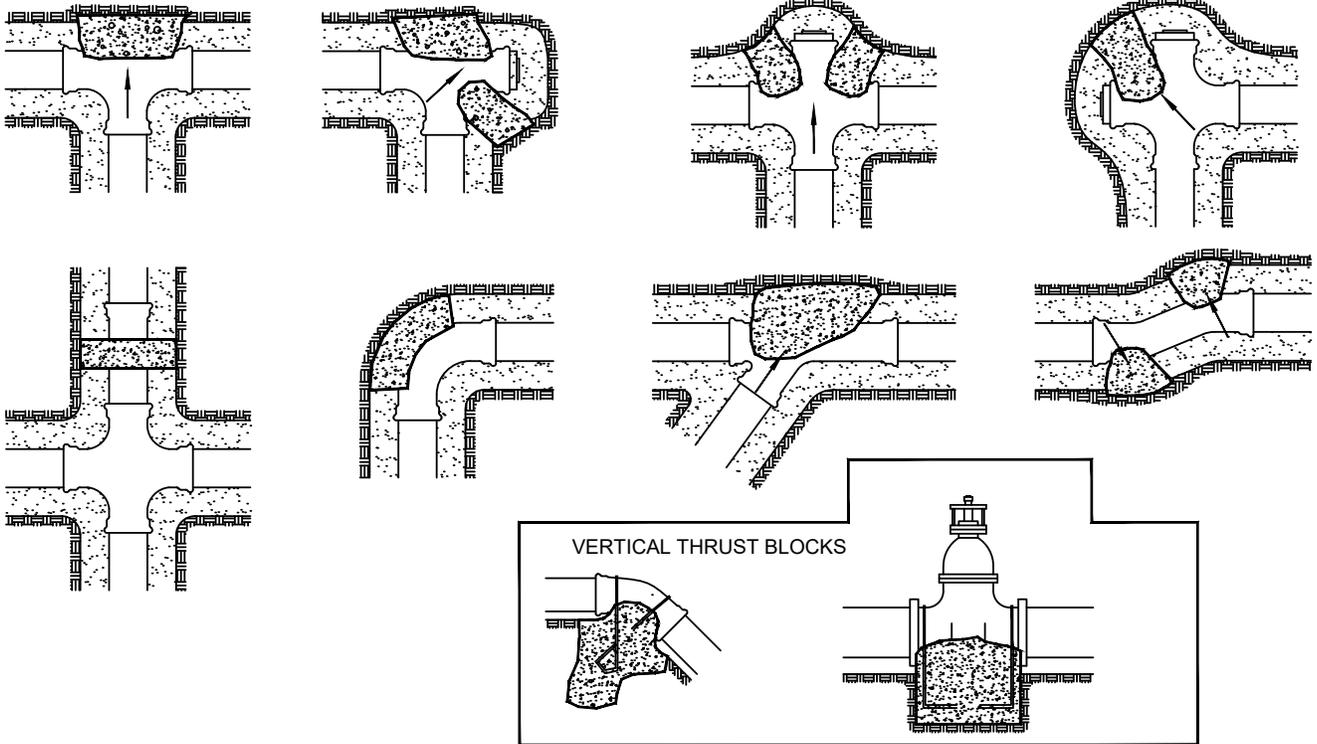


**DETAILS FOR
TAPPING WATER MAINS**

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-5.dwg	REVISED BY:	AFW	REVISED:	05/18

4-5

DRAWING NO.



Pipe Size in Inches	HORIZONTAL THRUST BLOCKS				VERTICAL THRUST BLOCKS		
	MIN. BEARING AREA IN SQUARE FEET				MIN. VOLUME IN CUBIC YARDS		
	Tees, Wyes & Dead Ends	90° Bend	45° Bend	11 1/4° 22 1/2° Bend	45° Vertical Bend	11-1/4° 22-1/2° Vert. Bend	Restrained Valve (see note 5)
4 & Smaller	0.94	1.33	0.72	0.37	0.37	0.19	0.48
6	2.12	3.00	1.62	0.83	0.83	0.42	1.08
8	3.77	5.33	2.89	1.47	1.47	0.75	1.93
10	5.89	8.33	4.51	2.30	2.30	1.17	3.01
12	8.48	12.00	6.49	3.31	3.32	1.69	4.33
14	11.55	16.33	8.84	4.50	4.51	2.30	5.90
16	15.08	21.33	11.54	5.88	5.90	3.01	7.70
18	19.09	26.99	14.61	7.45	7.46	3.80	9.75
20	23.56	33.32	18.03	9.19	9.21	4.70	12.04
24	33.93	47.98	25.97	13.24	13.27	6.76	17.33

NOTES:

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH WITH COMMERCIAL CONCRETE.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. ABOVE BEARING AREAS AND VOLUMES ARE CALCULATED AT A SOIL BEARING CAPACITY OF 2000 PSF AND A TEST PRESSURE OF 150 PSI.
4. THRUST BLOCKS FOR VERTICAL UPWARD BENDS SHALL BE THE SAME AS FOR HORIZONTAL BENDS.
5. WHEN CALLED FOR ON THE CONSTRUCTION DRAWINGS OR CONTRACT SPECIAL PROVISIONS, VALVES SHALL HAVE CONCRETE RESTRAINT BLOCKS AS SPECIFIED ABOVE UNLESS THE VALVE IS FLANGED TO A TEE, CROSS OR SIMILAR FITTING OR ANOTHER METHOD OF RESTRAINT ACCEPTABLE TO THE ENGINEER IS PROVIDED.

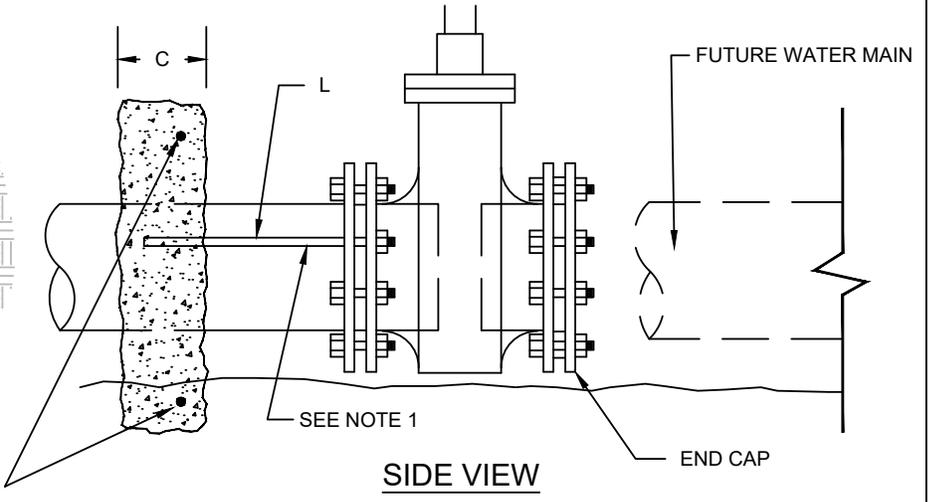
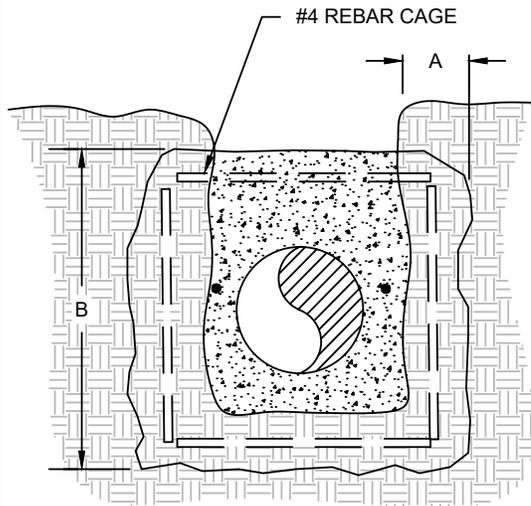
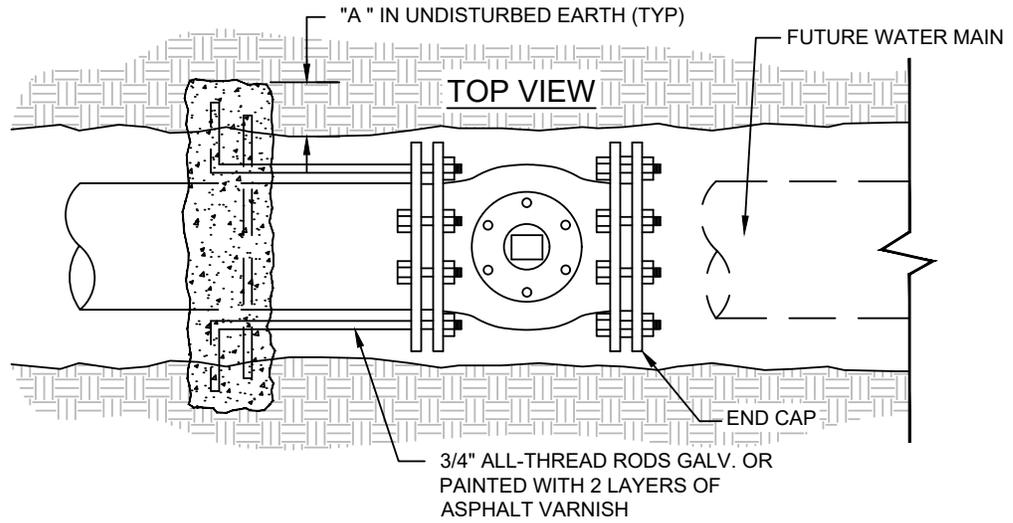


THRUST BLOCK DETAILS

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-6A.dwg	REVISED BY:	AFW	REVISED:	05/18

4-6A

DRAWING NO.



PIPE DIAMETER	RODS REQUIRED	DIMENSIONS		
		A	B	C
6"	2	1	2'	8"
8"	2	1	2'	8"
10"	2	1.5	2'	12"
12"	4	1.5	3'	12"
16"	4	2	4'	16"
18"	4	2.5	4'	20"
20"	6	3	4'	24"
24"	8	3.5	5'	24"

MINIMUM BEARING AREA OF THRUST BLOCK IN SQ. FEET (BASED ON 2,000 P.S.F. SOIL BEARING CAP)

NOTES:

1. THE LENGTH OF RODS "L" SHALL BE 10 FEET MINIMUM OR AS DIRECTED BY THE ENGINEER.
2. CONCRETE SHALL BE COMMERCIAL CLASS 3000



SADDLE THRUST BLOCK

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-6B.dwg	REVISED BY:	AFW	REVISED:	05/18

4-6B

DRAWING NO.

RESTRAINED PIPE LENGTH (FEET)

TEE BRANCH AND LENGTH EACH SIDE OF BEND

PIPE DIAMETER	TYPE OF FITTINGS											
	TEE BRANCH		90° BEND		45° BEND		22 1/2° BEND		11-1/4° VERTICAL BEND		DEAD END VALVE OR PLUG, AND FIRE HYD.	
STATIC PSI	150	200	150	200	150	200	150	200	150	200	150	200
6" P.V.C.	60	84	27	36	11	15	5	7	3	4	65	87
6" D.I.P.	46	63	23	31	10	13	5	6	2	3	49	65
8" P.V.C.	81	110	34	46	14	19	7	9	3	5	84	112
8" D.I.P.	61	82	30	40	12	17	6	8	3	4	63	84
12" P.V.C.	118	158	48	64	20	26	10	13	5	6	120	159
12" D.I.P.	88	118	42	56	18	23	8	11	4	6	90	119
16" D.I.P.	113	152	152	71	22	30	11	14	5	2	T.B.	T.B.
20" D.I.P.	137	184	184	85	26	35	13	17	6	8	T.B.	T.B.
24" D.I.P.	161	216	216	98	30	41	15	20	7	10	T.B.	T.B.
30" D.I.P.	149	260	260	116	36	48	17	23	9	12	T.B.	T.B.
36" D.I.P.	223	300	100	132	41	55	20	26	10	13	T.B.	T.B.

"T.B." DENOTES: THRUST BLOCK.

NOTES:

1. FOR DESIGN FORMULAS, CALCULATIONS AND ADDITIONAL INFORMATION, THE TABLE IS BASED ON THE RESTRAINT CALCULATIONS FOUND AT WWW.ROMAC.COM/RESTRAINT/INDEX.HTM. THE RESTRAINED PIPE LENGTH APPLIES TO CONDITIONS WHERE A CONCRETE THRUST BLOCK IS NOT USED.
2. IF POLYETHYLENE WRAPPED D.I.P. IS SPECIFIED, INDEPENDENT CALCULATIONS ARE REQUIRED. DO NOT USE THE ABOVE TABLE, WHICH IS FOR STANDARD D.I.P. ONLY.
3. EVERY JOINT WITHIN THE DESIGNATED RESTRAINT LENGTH MUST BE RESTRAINED. IF THE REQUIRED RESTRAINT LENGTH IS SHORTER THAN A SINGLE STICK OF PIPE BEING USED, ONLY THE FITTING CONNECTION REQUIRES RESTRAINT. THE RESTRAINT LENGTH GIVEN IN THE TABLE, IS THE REQUIRED LENGTH ON EACH SIDE OF THE BEND, OR ON THE TEE BRANCH AS APPLICABLE.
4. THRUST BLOCKS ARE REQUIRED FOR ALL CONNECTIONS TO AC PIPE AND WHEN AN AC PIPE CONNECTION IS LOCATED ANYWHERE WITHIN THE DESIGNATED RESTRAINT LENGTH.
5. THRUST BLOCKS ARE REQUIRED IF THE DESIGNATED RESTRAINT LENGTH CANNOT BE OBTAINED. SPECIAL ATTENTION NEEDS TO BE GIVEN TO DEAD END STUBS AND FIRE HYDRANT INSTALLATIONS. IF THE LENGTH OF THE FEEDER PIPE, FROM THE MAIN LINE TEE TO THE END CAP, OR HYDRANT, IS LESS THAN THE DESIGNATED DEAD END RESTRAINT LENGTH, THRUST BLOCKS ARE REQUIRED AT BOTH THE TEE AND AT THE END CAP, OR HYDRANT, WHEN THE SPECIFIED CONDITIONS ALLOW THE USE OF MECHANICAL RESTRAINTS, THE RESTRAINT LENGTH REQUIREMENTS FOR BOTH THE TEE AND THE END CAP, OR HYDRANTS MUST BE MET.
6. APPROVED METHODS OF RESTRAINED PIPE SHALL BE:

SERIES 2000PV MEGALUG RESTRAINTS AND FOR SLIP JOINTS, SERIES 1500TD BELL RESTRAINT HARNESS, OR	A) FOR PVC PIPE,
	APPROVED EQUAL.
B) FOR DUCTILE IRON PIPE, SERIES 1100 MEGALUG RESTRAINTS AND FOR SLIP JOINTS, SERIES 1500 RESTRAINT HARNESS THROUGH 12 INCH, OR SERIES 1700 RESTRAINT HARNESS FOR LARGER PIPE, OR APPROVED EQUAL.	

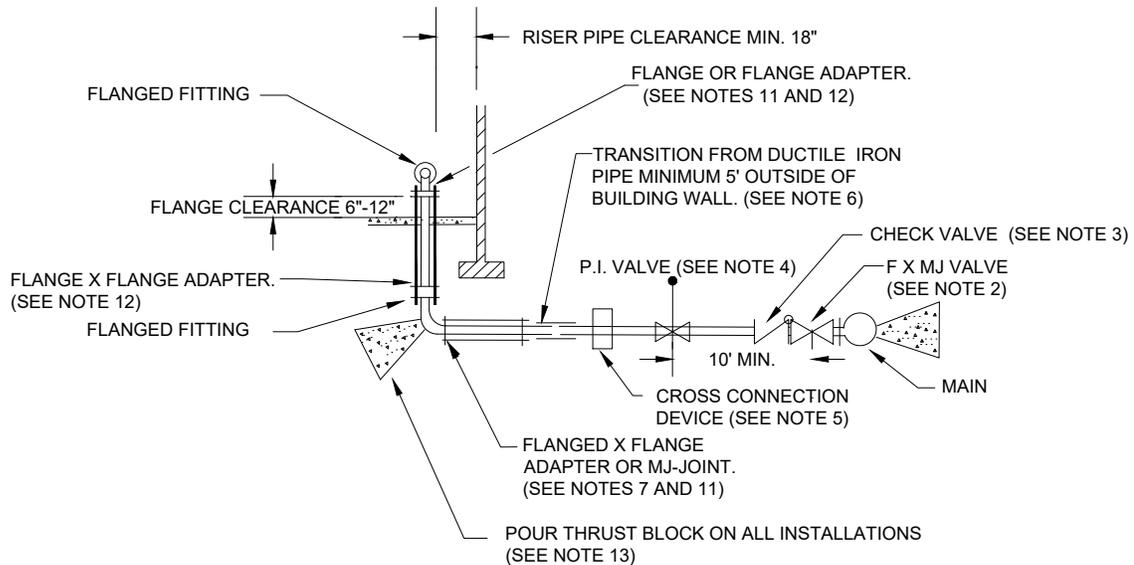


MECHANICAL RESTRAINT

CATEGORY: WATER	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 4-6C.dwg	REVISED BY: AFW	REVISED: 05/18

4-6C

DRAWING NO.



NOTES:

1. ENGINEERING INSPECTOR WILL INSPECT TO THE BACK FLOW DEVICE OUTSIDE OF THE BUILDING, OR TO THE FLANGE ABOVE THE BUILDING FLOOR.
2. CITY STANDARD VALVE AND VALVE BOX REQUIRED AT CONNECTION TO CITY MAIN LINE. CITY ENGINEER MAY DELETE MAINLINE VALVE WHEN DISTANCE TO THE BUILDING IS LESS THAN 15 FEET.
3. SINGLE SOFT SEAT CHECK VALVE REQUIRED WHEN THE DISTANCE (LENGTH) FROM THE MAIN TO THE FLANGE ABOVE THE FLOOR IS GREATER THAN 15 FT.
4. FIRE DEPT. APPROVED POST INDICATOR (P.I.) VALVE REQUIRED A MINIMUM OF 10 FEET FROM THE CITY MAIN LINE ISOLATION VALVE.
5. INSTALL APPROVED CROSS CONNECTION DETECTION ASSEMBLY PER CITY CROSS CONNECTION SPECIALIST. (LOCATION VARIES). METER SHALL BE COMPATIBLE WITH NEPTUNE RADIO SYSTEM.
6. FITTINGS AND PIPE WITHIN THE BUILDING LIMITS, AND TO A MINIMUM 5 FEET OUTSIDE OF THE BUILDING, SHALL BE AWWA CAST OR DUCTILE IRON.
7. JOINT TO BE FLANGED, OR FLANGE ADAPTER, EXCEPT MJ JOINT MAY BE USED WHEN BEND IS SHACKLED TO A RETAINER GLAND LOCATED A MINIMUM OF 5 FEET OUTSIDE OF THE BUILDING.
8. ALL FIRE LINE PIPING SHALL BE INSTALLED BY A "U" LISTED CONTRACTOR.
9. CONDUIT FOR FIRE ALARM SYSTEM SHALL BE RUN FROM POST INDICATOR VALVE TO BUILDING. SIZING SHALL BE DETERMINED BUILDING FIRE ENGINEER.
10. REMOTE FIRE DEPARTMENT CONNECTION (FDC) LOCATION WILL BE DETERMINED BY FIRE ENGINEER AND APPROVED BY THE CITY FIRE MARSHAL. FDC'S ATTACHED TO BUILDING IS NOT ALLOWED. FDC MUST BE LOCATED WITHIN 50 FEET OF AN FIRE HYDRANT, BE PAINTED RED AND HAVE KNOX BRAND LOCKS ON EACH INTAKE OPENING.
11. ALTERNATE MJ FITTING MAY BE USED PROVIDED THAT 250 PSI RATED STEEL TIE RODS ARE UTILIZED TO BELOW FLOOR FITTING. USE 2 RODS FOR 4"-6" PIPE, 3 RODS FOR 8", AND 4 RODS FOR 10"+. FOLLOWING ASSEMBLY, COAT ALL ROD ASSEMBLIES WITH BITUMASTIC SEALANT.
12. FLANGE ADAPTER TO BE 250 PSI RATED DUCTILE "UNION FLANGE" AS MFG. BY UNION FOUNDRY CO., UNIFLANGE OR EQUAL.
13. CONSTRUCT A THRUST BLOCK ON THE 90° BEND UNDER THE FLOOR SIZED FOR THE SIZE OF PIPE AND TYPE OF FILL. SIZE TO BE 1.34 TIMES THAT CALLED FOR IN STD. DETAIL 4-6A.
14. AFTER SATISFACTORY HEALTH SAMPLES, ALL FIRE LINE INSTALLATIONS SHALL BE TESTED AT 200 PSI FOR 2 HOURS, WITH NO LOSS.
15. CONTRACTOR TO PROVIDE PITOT TUBE FOR MEASURING FLOW DURING FLUSHING, IF A REDUCED SIZE FLUSH PIPE IS USED. THE CONTRACTOR IS RESPONSIBLE TO CONTROL ALL FLUSH WATER.
16. FIRE ENGINEER MAY SUBMIT A FIRE DESIGN FOR REVIEW AND APPROVAL THAT VARIES FROM THESE REQUIREMENTS.

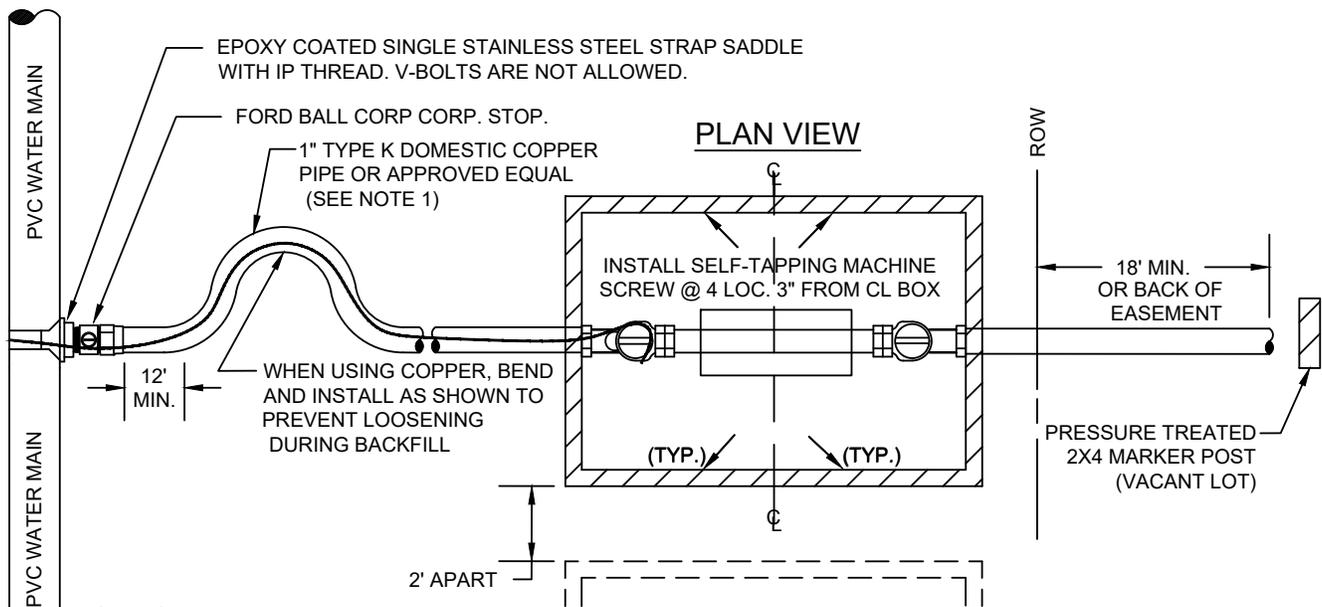


**FIRE LINE TO
MULTI-FAMILY/COMMERCIAL BUILDING**

CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-8.dwg	REVISED BY:	AFW	REVISED:	05/18

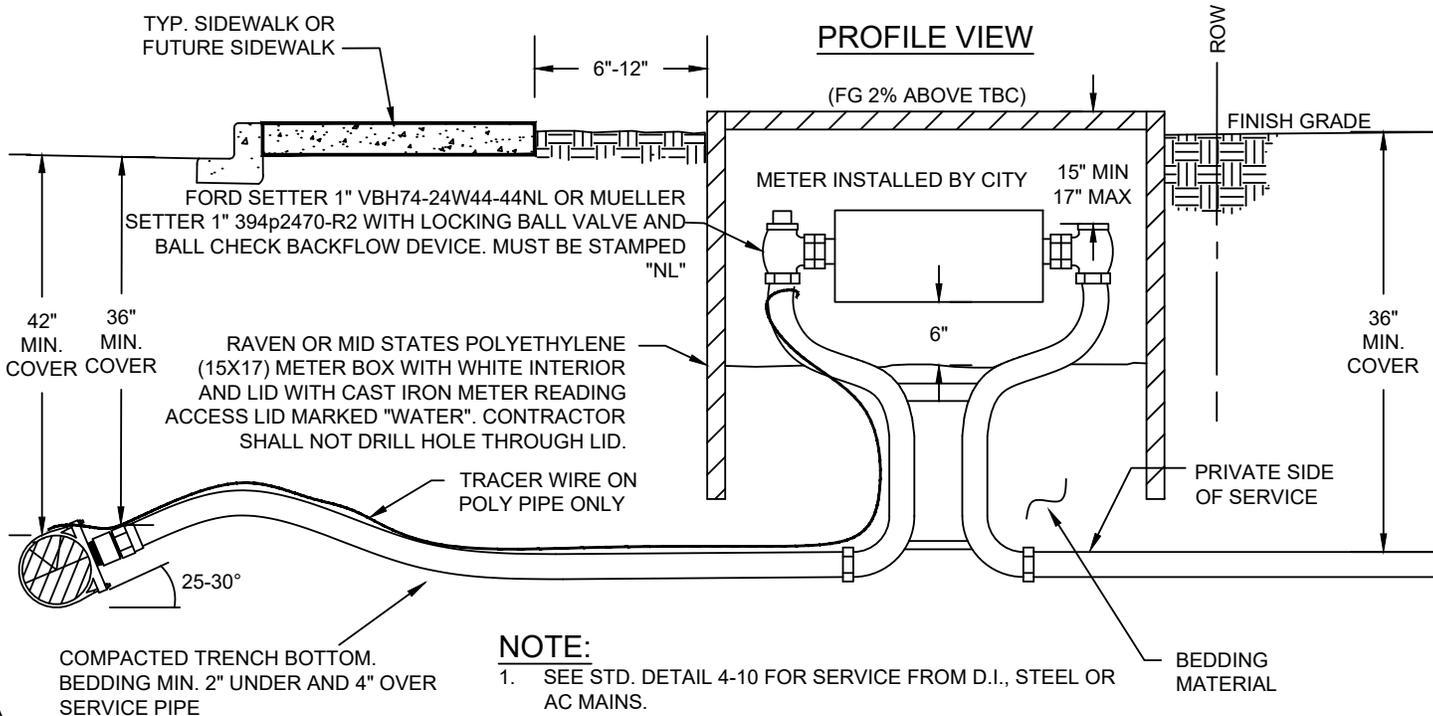
4-8

DRAWING NO.



NOTES:

1. COPPER MAY BE SUBSTITUTED WITH POLYETHYLENE PRESSURE PIPE P.R.200 PSI-SDR 9, MEETING REQ.S OF ASTM D 2737 AND AWWA C901 WITH COPPER TUBE SIZE OD. INSULATED #12 GAUGE TRACER WIRE IS REQUIRED WITH ALL POLY PIPE INSTALLATION.
2. ALL BENDS TO BE A MINIMUM OF ONE FOOT FROM ALL SERVICE LINE FITTINGS.
3. ALL SETTERS SHALL BE BROUGHT TO THE CITY MAINTENANCE SHOP FOR ADJUSTMENTS.
4. METER BOX INSTALLED ELEVATION SAME AS BACK OF SIDEWALK.
5. TAPS SHALL BE 18-INCHES APART WHEN STAGGERED ON EITHER SIDE OF THE MAIN. TAPS MUST BE 36-INCHES APART WHEN ON SAME SIDE OF MAIN.
6. METER BOXES INSTALLED IN TRAFFIC AREAS WHERE NOT PROTECTED BY CURB AND GUTTER, SHALL REQUIRE AN APPROVED CAST IRON TRAFFIC RATED LID WITH NO CIRCULAR CUT OUT FOR METER READING DEVICE.



NOTE:

1. SEE STD. DETAIL 4-10 FOR SERVICE FROM D.I., STEEL OR AC MAINS.



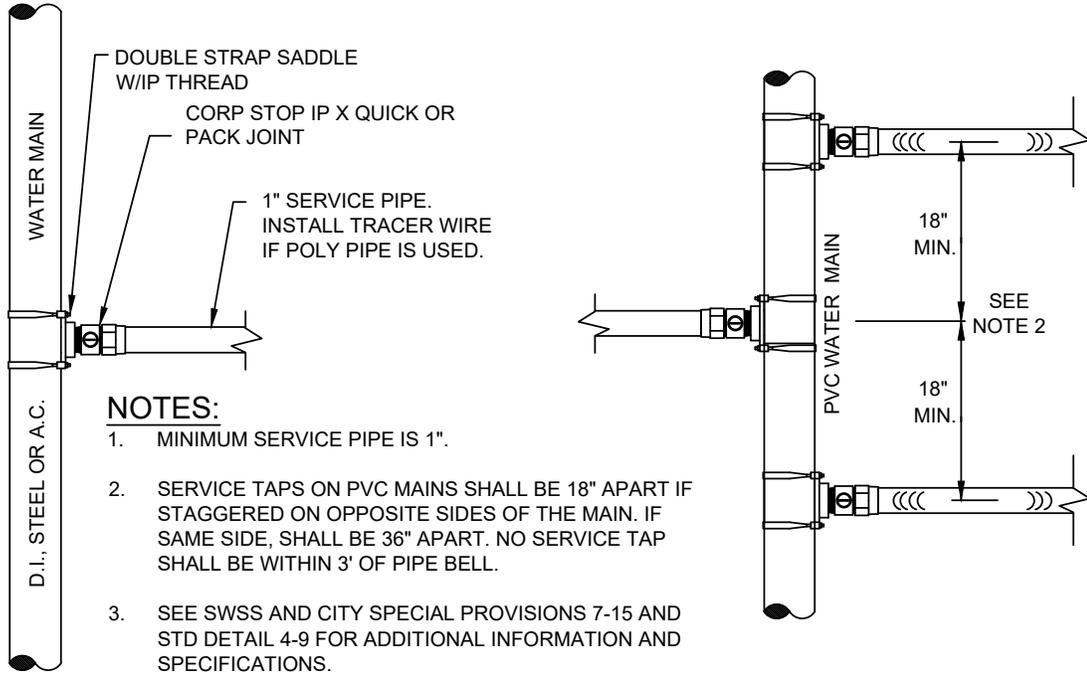
**SINGLE WATER SERVICE - 1"
FROM PVC WATER MAIN**

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-9.dwg	REVISED BY:	AFW	REVISED:	05/18

4-9

DRAWING NO.

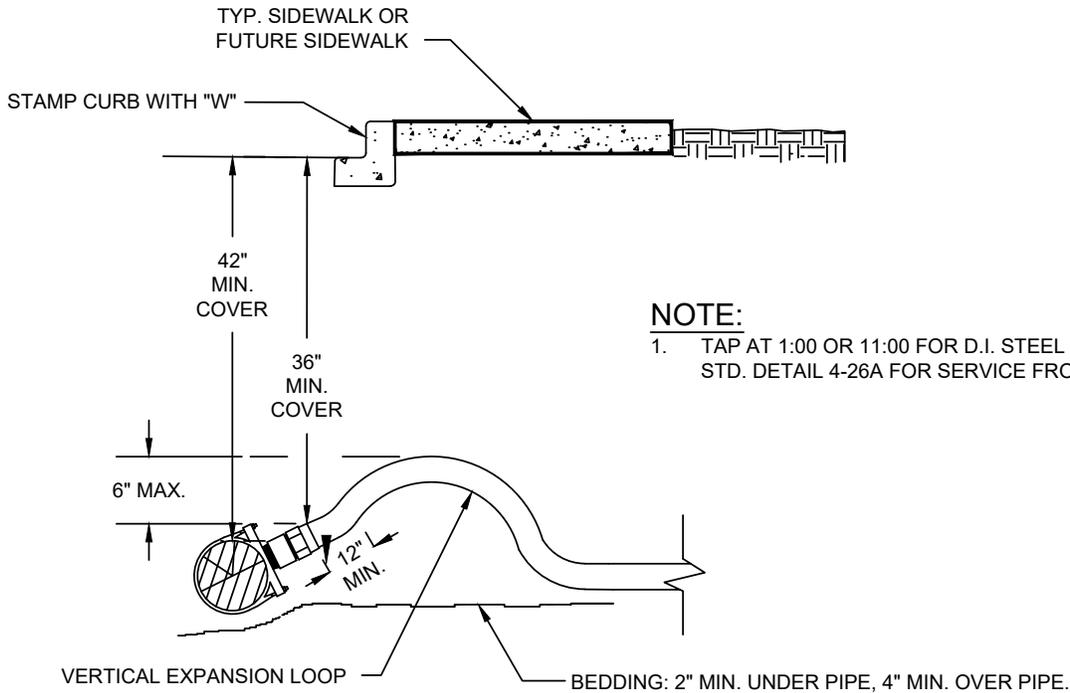
PLAN VIEW



NOTES:

1. MINIMUM SERVICE PIPE IS 1".
2. SERVICE TAPS ON PVC MAINS SHALL BE 18" APART IF STAGGERED ON OPPOSITE SIDES OF THE MAIN. IF SAME SIDE, SHALL BE 36" APART. NO SERVICE TAP SHALL BE WITHIN 3' OF PIPE BELL.
3. SEE SWSS AND CITY SPECIAL PROVISIONS 7-15 AND STD DETAIL 4-9 FOR ADDITIONAL INFORMATION AND SPECIFICATIONS.
4. ALL BENDS TO BE A MINIMUM OF ONE FOOT FROM ALL SERVICE LINE FITTINGS.

PROFILE VIEW



NOTE:

1. TAP AT 1:00 OR 11:00 FOR D.I. STEEL OR A.C. MAINS SEE STD. DETAIL 4-26A FOR SERVICE FROM PVC MAINS.

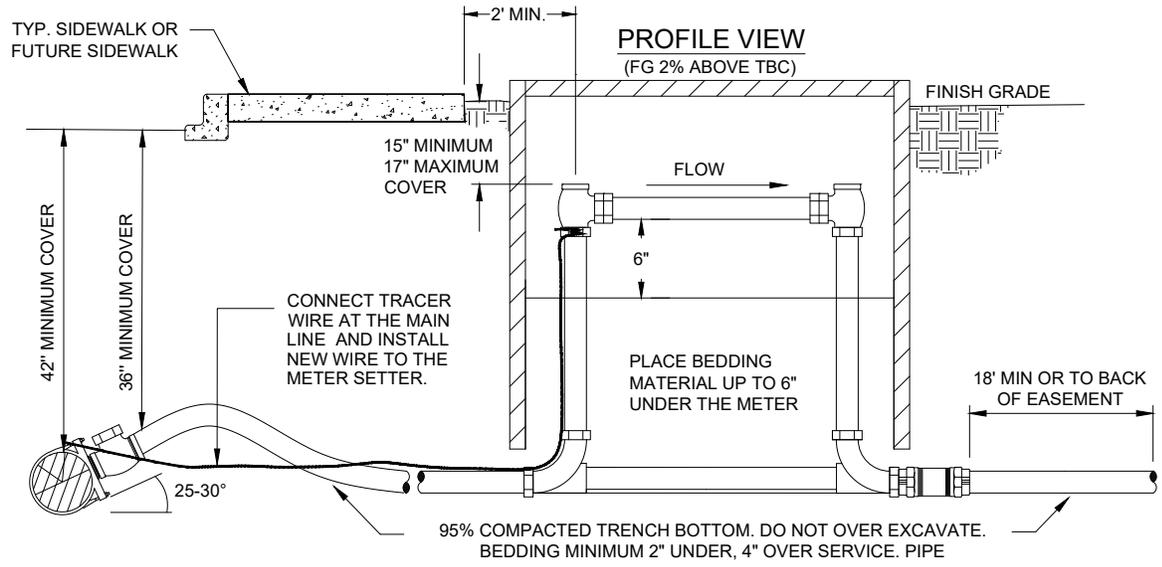
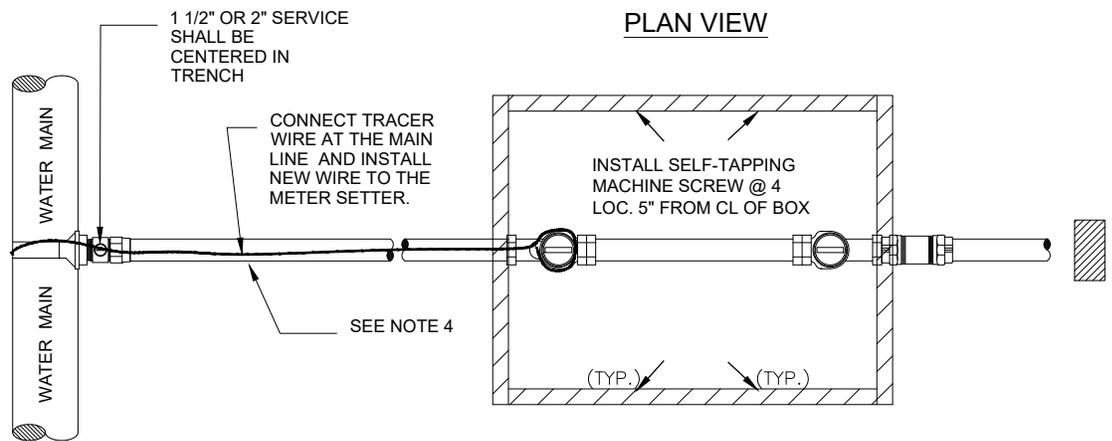


1" TAP FOR D.I. STEEL AND A.C. WATER MAINS

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-10.dwg	REVISED BY:	AFW	REVISED:	05/18

4-10

DRAWING NO.



NOTES:

1. METER BOX SHALL BE A RAVEN MODEL OR MID STATES 17X30-18 OR 17X30-12 W/ WHITE INTERIOR. LID SHALL BE CAST IRON WITH READING ACCESS LID MARKED "WATER". NO CIRCULAR HOLE FOR METER READING DEVICE SHALL BE IN LID.
2. METER BOX INSTALLED ELEVATION SHALL BE SAME AS BACK OF SIDEWALK.
3. FORD 70 SERIES COPPER SETTER WITH NO BYPASS FOR A 1 1/2-INCH OR 2-INCH FLANGED METER. (BALL VALVE INLET AND ANGLE CHECK VALVE OUTLET) 1 1/2": VBH 76-24-11-66 2":VBH 77-24-44-77.
4. 2" POLYETHYLENE PIPE WITH TRACER WIRE (2" PIPE IS REQUIRED FOR BOTH 1.5" AND 2" SERVICES).
5. CONTRACTOR TO INSTALL GROUND CONTACT PRESSURE TREATED 2"x4"x6' MARKER POST. SET TOP 3' ABOVE FINISH GRADE, PAINTED BLUE, USING EXTERIOR GRADE PAINT.
6. WHEN INSTALLING 1 1/2" SERVICE, INSTALL FORD C84-67 TRANSITION FITTING FROM 2" POLY SERVICE LINE TO 1 1/2" SETTER.
7. 2" TAPPING SADDLE STYLE FORD FC202 EPOXY COATED SINGLE STAINLESS STEEL STRAP WITH IP THREAD WITH 2-INCH BALLCORP STOP.
5. TAPS SHALL BE 18-INCHES APART WHEN STAGGERED ON EITHER SIDE OF THE MAIN. TAPS MUST BE 36-INCHES APART WHEN ON SAME SIDE OF MAIN.
6. LOCATE WIRE-CONNECT TO METALLIC MAIN LINE OR MAIN LINE LOCATE WIRE AND TERMINATE AT METER LOCATION. WIRE SHALL BE INSULATED #12 GAGE.
7. SEPARATE METER BOXES A MINIMUM OF 3'-0" APART WHEN STRADDLING A PROPERTY LINE.
8. ADDITIONAL FEE WILL APPLY AT TIME OF SERVICE IF 1 1/2" METER IS REQUESTED IN 2" WATER SETTER DUE TO ADDITIONAL FITTING COSTS.

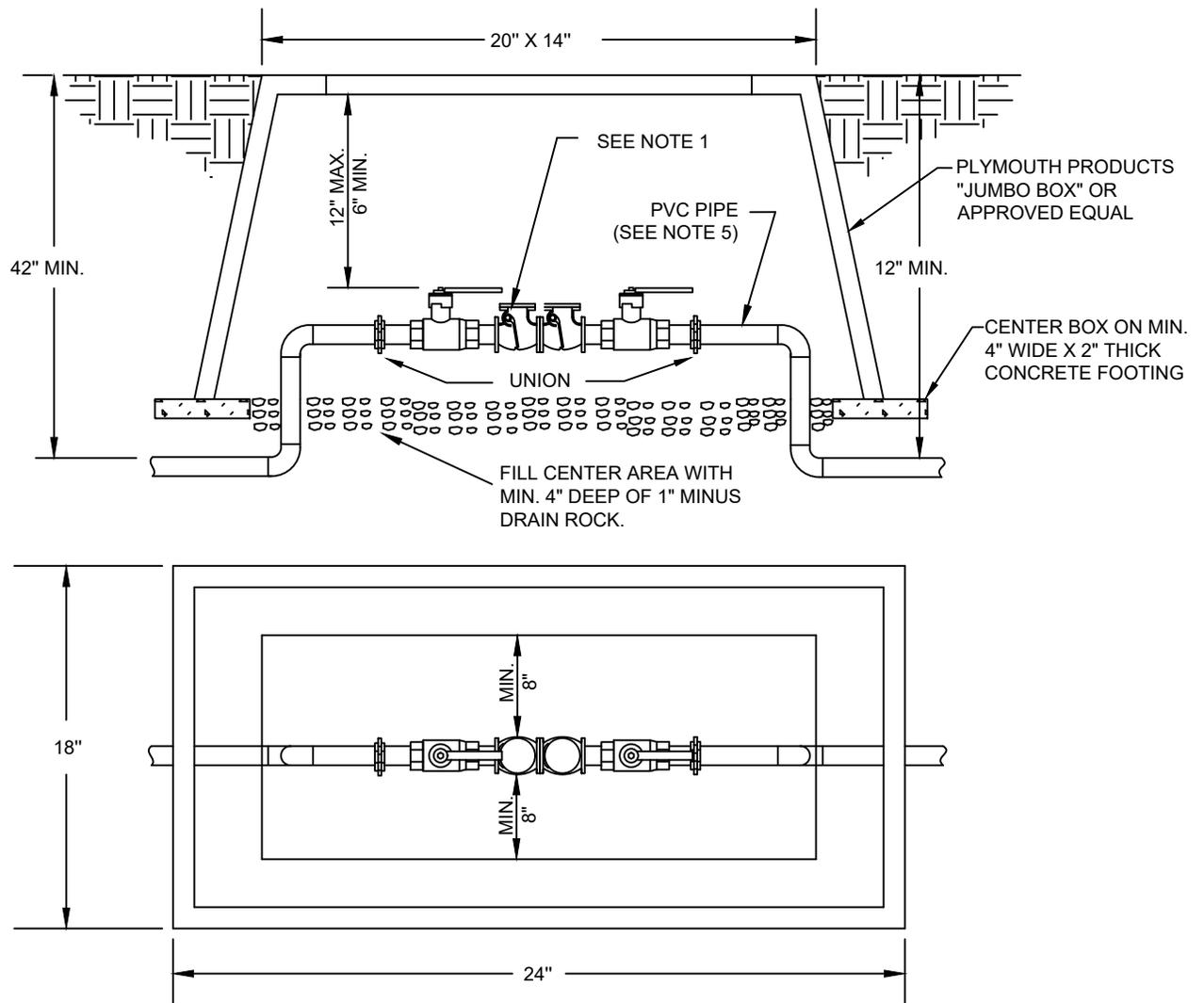


1 1/2" AND 2" WATER SERVICES

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-11.dwg	REVISED BY:	AFW	REVISED:	05/18

4-11

DRAWING NO.



NOTES:

1. MUST BE ON THE LATEST DEPARTMENT OF HEALTH APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. MAY BE INSTALLED BELOW GROUND IN AN APPROVED VAULT.
3. A CITY OF WEST RICHLAND CROSS CONNECTION SPECIALIST MUST BE PRESENT DURING INSTALLATION.
4. FREEZE PROTECTION IS THE RESPONSIBILITY OF THE OWNER.
5. RISERS AND ALL PIPE IN BOX TO BE SCH 40 PVC MINIMUM.
6. A LADDER IS REQUIRED IF ACCESS OPENING TO FLOOR EXCEEDS 36".

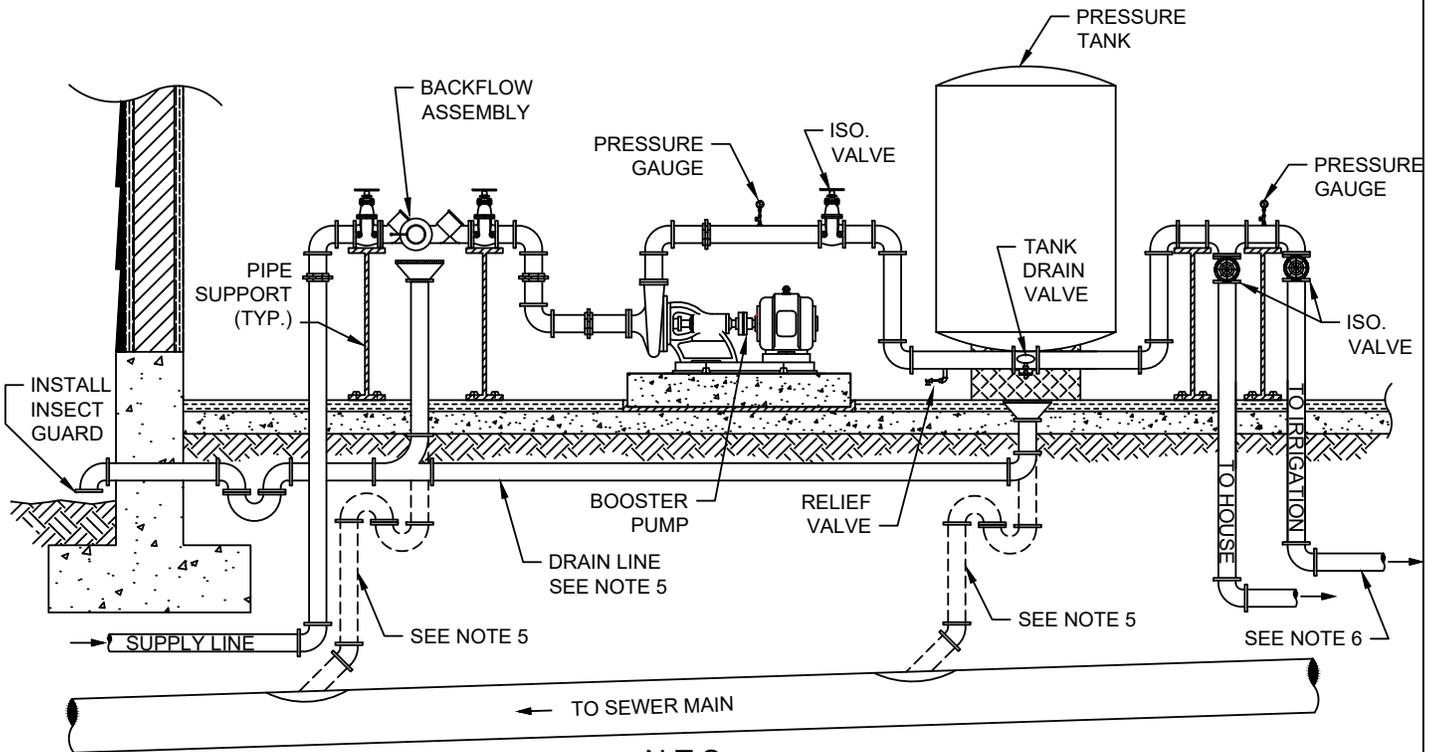


**DOUBLE CHECK VALVE ASSEMBLY
INSTALLATION FOR ASSEMBLIES 3/4" TO 1"**

CATEGORY:	WATER	REVIEWED BY:	AFW	DATE:	07/14
FILENAME:	SD 4-12.dwg	REVISED BY:	AFW	REVISED:	05/18

4-12

DRAWING NO.



N.T.S.

NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLIES (RPBA) SHALL COMPLY WITH CURRENT STANDARDS AND SPECIFICATIONS FROM THE DEPARTMENT OF HEALTH (DOH) AND BE ON THE APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. THE BACKFLOW ASSEMBLY SHALL BE APPROVED BY CITY CROSS CONNECTION SPECIALIST AND SHALL BE INSTALLED A MINIMUM OF 12" ABOVE GROUND.
3. PROPERTY OWNERS ARE RESPONSIBLE FOR PROTECTING CHECK VALVE ASSEMBLIES FROM FREEZING AND FOR ANNUAL MAINTENANCE AND TESTING OF THESE ASSEMBLIES FOR PROPER FUNCTION BY A CERTIFIED TESTER.
4. ENCLOSURES USED TO PROTECT ASSEMBLIES FROM FREEZING, OR DAMAGE, MUST PROVIDE ADEQUATE CLEARANCE FOR TESTING AND MAINTENANCE. 12" MINIMUM FOR NON TEST SIDES AND 24" MINIMUM FOR TEST SIDES.
5. ADEQUATE DRAINAGE FROM THE ASSEMBLY MUST BE PROVIDED. IDEALLY DRAINS SHALL RUN TO EXTERIOR OF BUILDING AS SHOWN. IF CONNECTING DRAINS TO CITY SEWER, GARAGE FLOOR DRAINS REQUIRE OIL / SAND SEPARATORS WITH DRAINS CONFORMING TO CURRENT GOVERNING PLUMBING CODES.
6. IRRIGATION SYSTEMS CONNECTED TO POTABLE WATER SOURCES SHALL COMPLY WITH THE CITY'S CURRENT CROSS CONNECTION CONTROL PROGRAM AND THE DOH STANDARDS AND SPECIFICATIONS. THE CITY CROSS CONNECTION SPECIALIST MUST APPROVE ALL CONNECTIONS AND BACKFLOW ASSEMBLIES, PRIOR TO USE.
7. INSTALLATION OF IRRIGATION SYSTEMS REQUIRES AN UNDERGROUND SPRINKLER INSTALLATION PERMIT FROM THE CITY TO BE FILED WITH THE CITY CROSS CONNECTION SPECIALIST PRIOR TO INSTALLATION.
8. ELECTRICAL CONNECTION TO BOOSTER PUMP SHALL MEET CURRENT GOVERNING ELECTRICAL CODES.
9. PIPE MATERIAL SHALL CONFORM TO THE CURRENT GOVERNING EDITION OF THE UNIFORM PLUMBING CODE (UPC) FOR ALL WATER LINES AND DRAIN LINES COMPRISING THE BOOSTER PUMP SYSTEM.
10. DETAIL IS TO BE USED AS A GENERAL DEPICTION OF A BOOSTER PUMP SETUP. VARIATIONS MAY BE ACCEPTED WITH APPROVAL FROM PUBLIC WORKS AND BUILDING DEPARTMENTS.

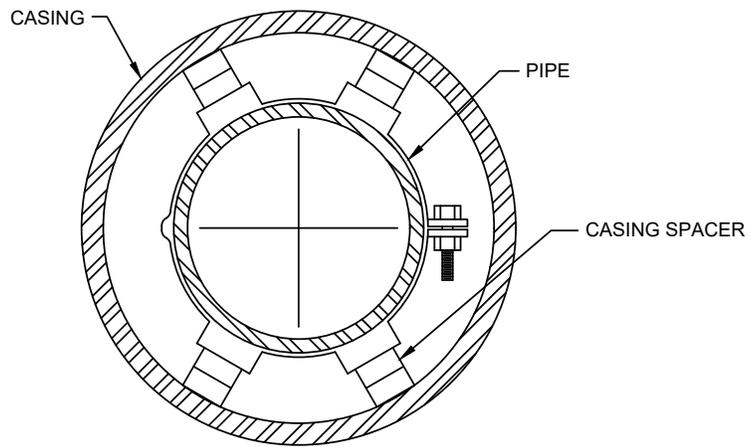
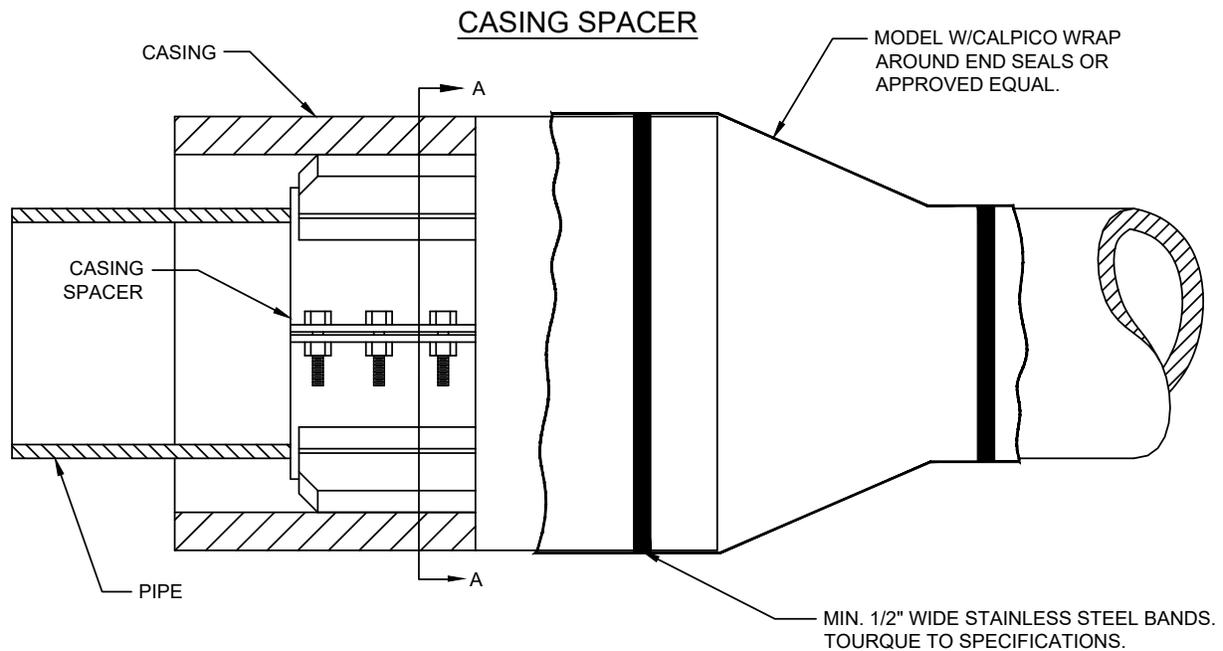


BOOSTER PUMP SYSTEM - RESIDENTIAL

CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-13.dwg	REVISED BY:	AFW	REVISED:	05/18

4-13

DRAWING NO.



SECTION A-A

NOTES:

1. PIPE JOINTS TO BE RESTRAINED PER APPROVAL OF CITY ENGINEER.
2. FOR PIPES 12" & SMALLER, 2 SPACERS PER JOINT OF 13' SEWER. 4 SPACERS PER JOINT OF 18' OR 20' WATER
3. MINIMUM 3/8" STEEL. THICKER CASINGS MAY BE REQUIRED BY THE RAILROAD OR IRRIGATION UTILITY.
4. CASING SPACERS SHALL BE MANUFACTURED GALVANIZED, OR STAINLESS STEEL OR POLYETHYLENE, SIZED FOR THE TYPE OF PIPE & CASING SIZE.
5. CASING TO BE SIZED TO PROVIDE MINIMUM 2 INCH CLEAR FOR THE TYPE OF JOINT APPROVED BY THE CITY ENGINEER.
6. PIPE JOINTS WITHIN CASING TO BE RESTRAINED JOINT AS APPROVED BY THE ENGINEER.

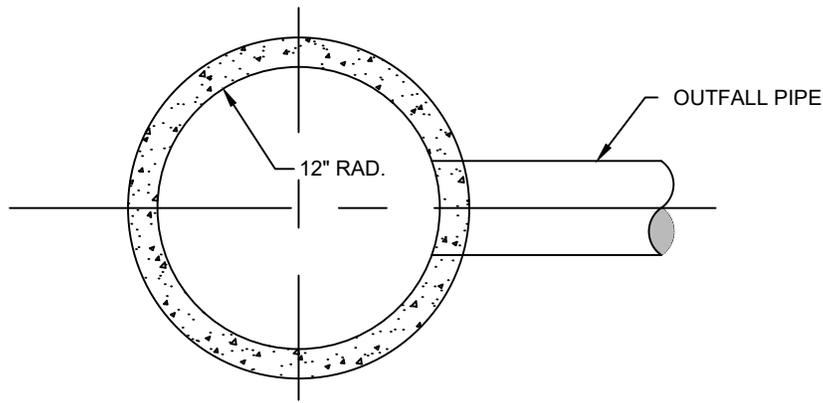


CASING WITH SPACER

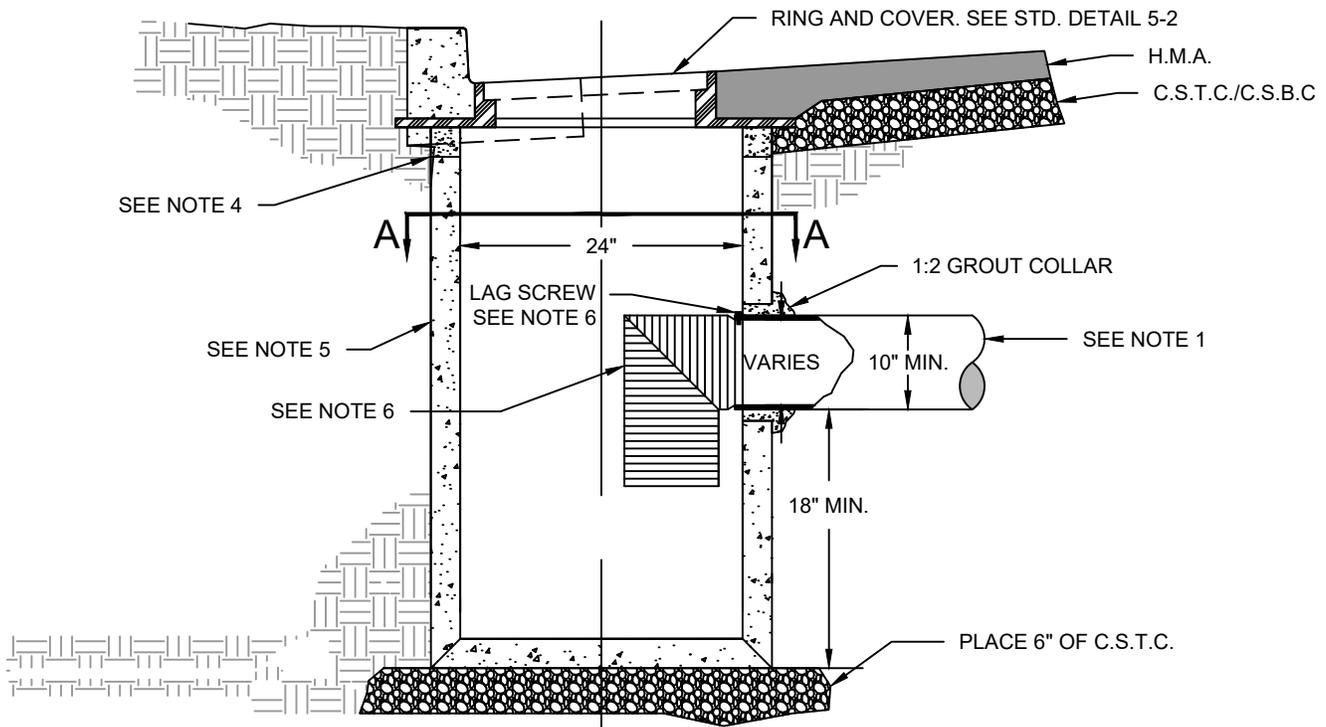
CATEGORY:	WATER	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 4-14.dwg	REVISED BY:	AFW	REVISED:	05/18

4-14

DRAWING NO.



SECTION A-A



NOTES:

1. MIN. PIPE BURY TO BE 18", SEE PIPE SPECIFICATIONS FOR ADDED REQUIREMENTS. MAXIMUM NUMBER AND SIZE OF PIPE CONNECTING INTO CATCH BASIN SHALL NOT EXCEED 3-10" PIPES (SEE NOTE 5).
2. FILTER FABRIC BAG TO BE INSTALLED UNDER GRATE. REMOVE ONLY WHEN DIRECTED BY ENGINEER.
3. PRECAST CATCH BASIN SHALL CONFORM TO CITY SPECIAL PROVISIONS.
4. 1:2 GROUT BETWEEN CATCH BASIN RING AND CONCRETE TILE, BOTH INSIDE AND OUTSIDE. ADJUSTMENTS 2" AND GREATER TO BE MADE WITH PRECAST CONCRETE RINGS.
5. WIRE REINFORCED PRECAST CATCH BASIN SHALL BE REQUIRED WHEN 3-12" PIPES ARE TO BE CONNECTED.
6. INSTALL ADS 90° BEND WITH TAPERED END FOR OIL/WATER SEPARATION IN LAST CATCH BASIN BEFORE DISCHARGE TO DRYWELL STRUCTURE OR POND OR INSTALLED PER CITY ENGINEER DIRECTION. STORM PIPE SHALL BE STUBBED INTO CATCH BASIN 2 INCHES AND A STAINLESS STEEL 3/8" DIAMETER LAG SCREW 1-1/2" LONG WITH A 1/2" SOCKET FIT HEX HEAD SHALL BE USED TO ANCHOR ADS 90 TO STORM PIPE.

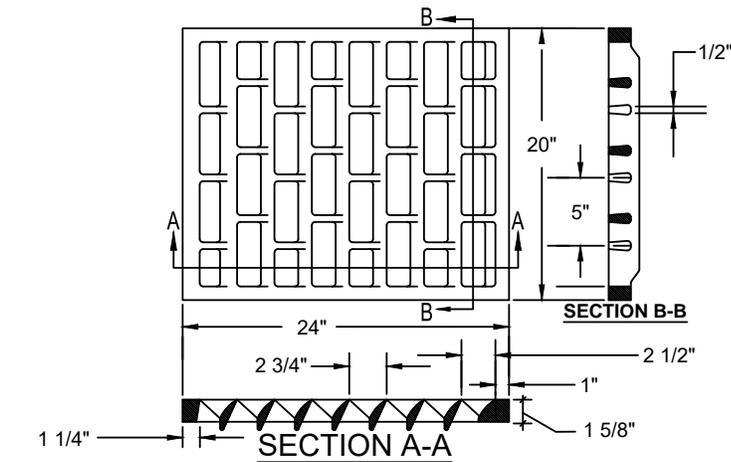


TYPE 1 CATCH BASIN

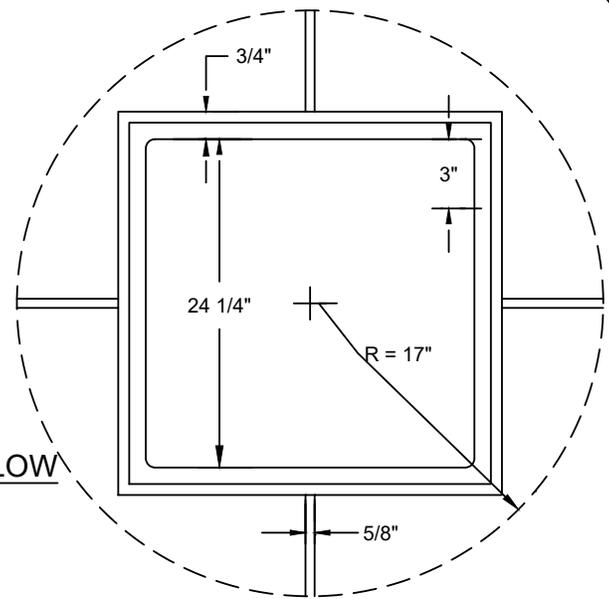
CATEGORY:	STORM	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 5-1.dwg	REVISED BY:	AFW	REVISED:	05/18

5-1

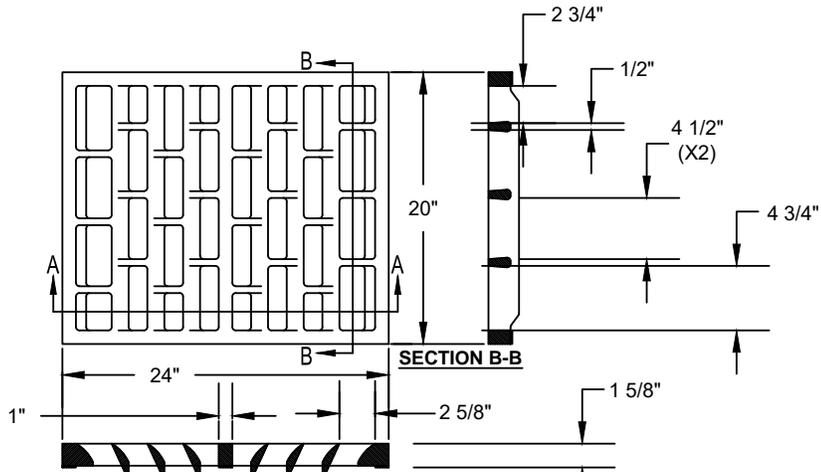
DRAWING NO.



DOMESTIC VANED STYLE SINGLE DIRECTIONAL FLOW



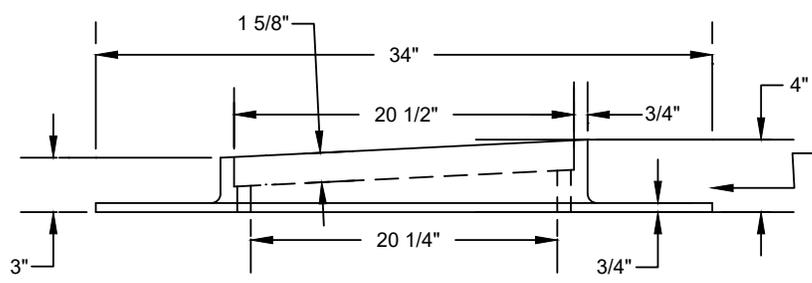
TYPE "A" FRAME



DOMESTIC VANED STYLE BI-DIRECTIONAL FLOW

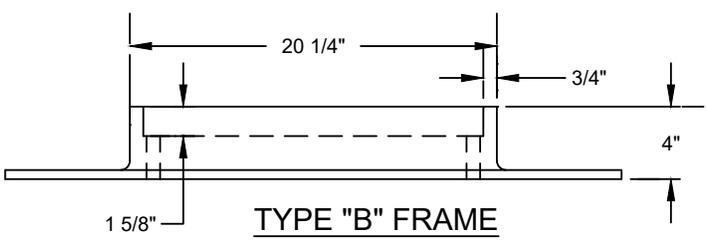
NOTES:

1. RECTANGULAR VANED STYLE GRATE. USE AT CONTINUOUS GRADE LOCATIONS
2. RECTANGULAR BI-DIRECTIONAL VANED STYLE GRATE. USE AT CURB LOW POINTS
3. FRAME AND GRATES SHALL BE DOMESTIC



TYPE "A" FRAME

DOMESTIC FRAME ABLE TO ACCOMMODATE A 20"X24" GRATE AND DESIGNED TO BE USED IN CONJUNCTION WITH A 24" DIAM CATCH BASIN.



**TYPE "B" FRAME
(SPECIAL USE ONLY)**

DOMESTIC FRAME ABLE TO ACCOMMODATE A 20"X24" GRATE AND DESIGNED TO BE USED IN CONJUNCTION WITH A 24" DIAM CATCH BASIN.

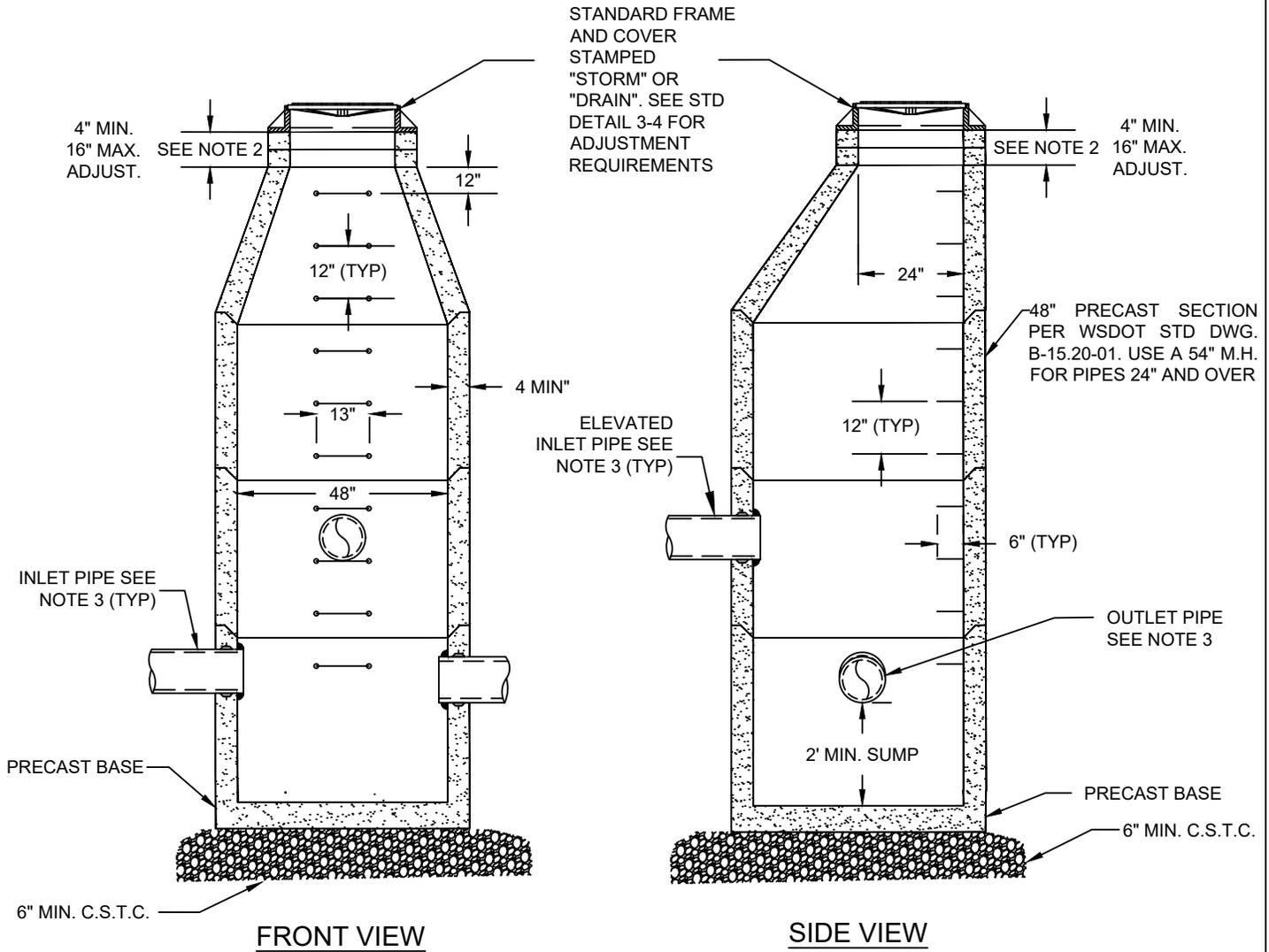


CATCH BASIN FRAME AND GRATE

CATEGORY:	STORM	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 5-2.dwg	REVISED BY:	AFW	REVISED:	05/18

5-2

DRAWING NO.



NOTES:

1. ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET, OR FULL BED GROUT JOINT.
2. ADJUSTMENTS OVER 2" UTILIZE PRECAST CONCRETE RINGS. GROUT BETWEEN EACH RING AND FRAME AND FINISH GROUT INSIDE. REMOVE ALL WOOD SHIMS.
3. ALL INLETS AND OUTLETS SHALL BE GROUTED SMOOTH TO INSIDE WALLS.
4. INSTALL LADDER TO AVOID CONFLICT WITH INLET AND OUTLET PIPES AND ROTATE CONE SECTION ACCORDINGLY.
5. WHEN PLANS CALL FOR CHANNELIZED BASE, REFER TO STD DETAIL 3-2A. TRUNK LINE STORM SYSTEMS SHALL HAVE CHANNELIZED BASES UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.

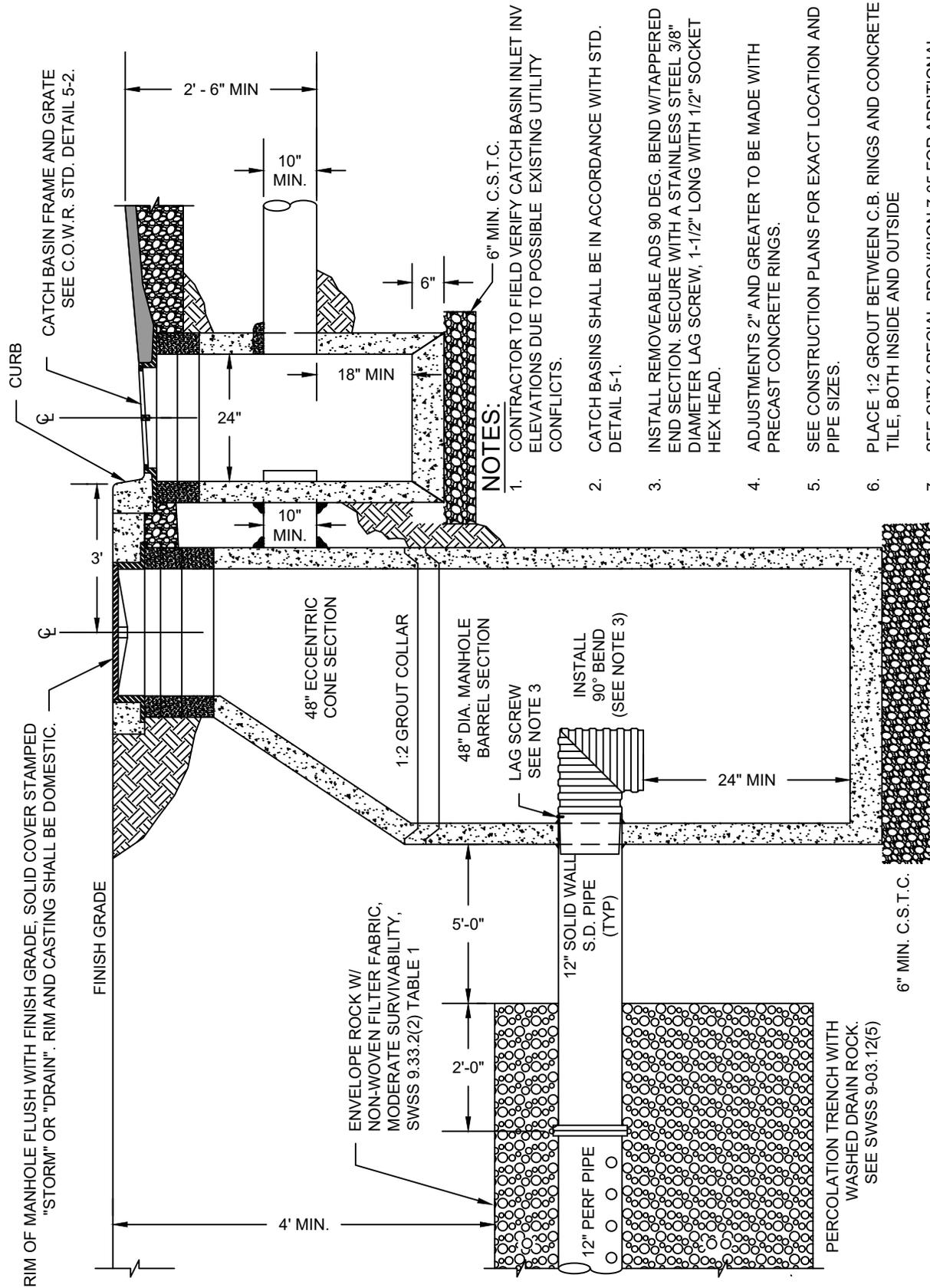


STANDARD 48" STORM DRAIN MANHOLE

CATEGORY:	STORM	REVIEWED BY:	AFW	ADOPTED:	07/14
FILENAME:	SD 5-3.dwg	REVISED BY:	AFW	REVISED:	05/18

5-3

DRAWING NO.



- NOTES:**
1. CONTRACTOR TO FIELD VERIFY CATCH BASIN INLET INV ELEVATIONS DUE TO POSSIBLE EXISTING UTILITY CONFLICTS.
 2. CATCH BASINS SHALL BE IN ACCORDANCE WITH STD. DETAIL 5-1.
 3. INSTALL REMOVEABLE ADS 90 DEG. BEND W/TAPERED END SECTION. SECURE WITH A STAINLESS STEEL 3/8" DIAMETER LAG SCREW, 1-1/2" LONG WITH 1/2" SOCKET HEX HEAD.
 4. ADJUSTMENTS 2" AND GREATER TO BE MADE WITH PRECAST CONCRETE RINGS.
 5. SEE CONSTRUCTION PLANS FOR EXACT LOCATION AND PIPE SIZES.
 6. PLACE 1:2 GROUT BETWEEN C.B. RINGS AND CONCRETE TILE, BOTH INSIDE AND OUTSIDE
 7. SEE CITY SPECIAL PROVISION 7-05 FOR ADDITIONAL INFORMATION REGARDING PERCOLATION TRENCHES

PERCOLATION TRENCH DETAIL



PERCOLATION TRENCH DETAIL

CATEGORY:	STORM	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 5-4.dwg	REVISED BY:	AFW	REVISED:	05/18

5-4

DRAWING NO.

DRAINFIELD ENVELOPE

CATCH BASIN AS PER CITY OF WEST RICHLAND STD. DETAIL 5-1 TO BE PAID FOR AS SEPARATE BID ITEM.

FRAME & GRATE CITY OF WEST RICHLAND STD. DETAIL 5-2

CONCRETE CURB AND GUTTER.

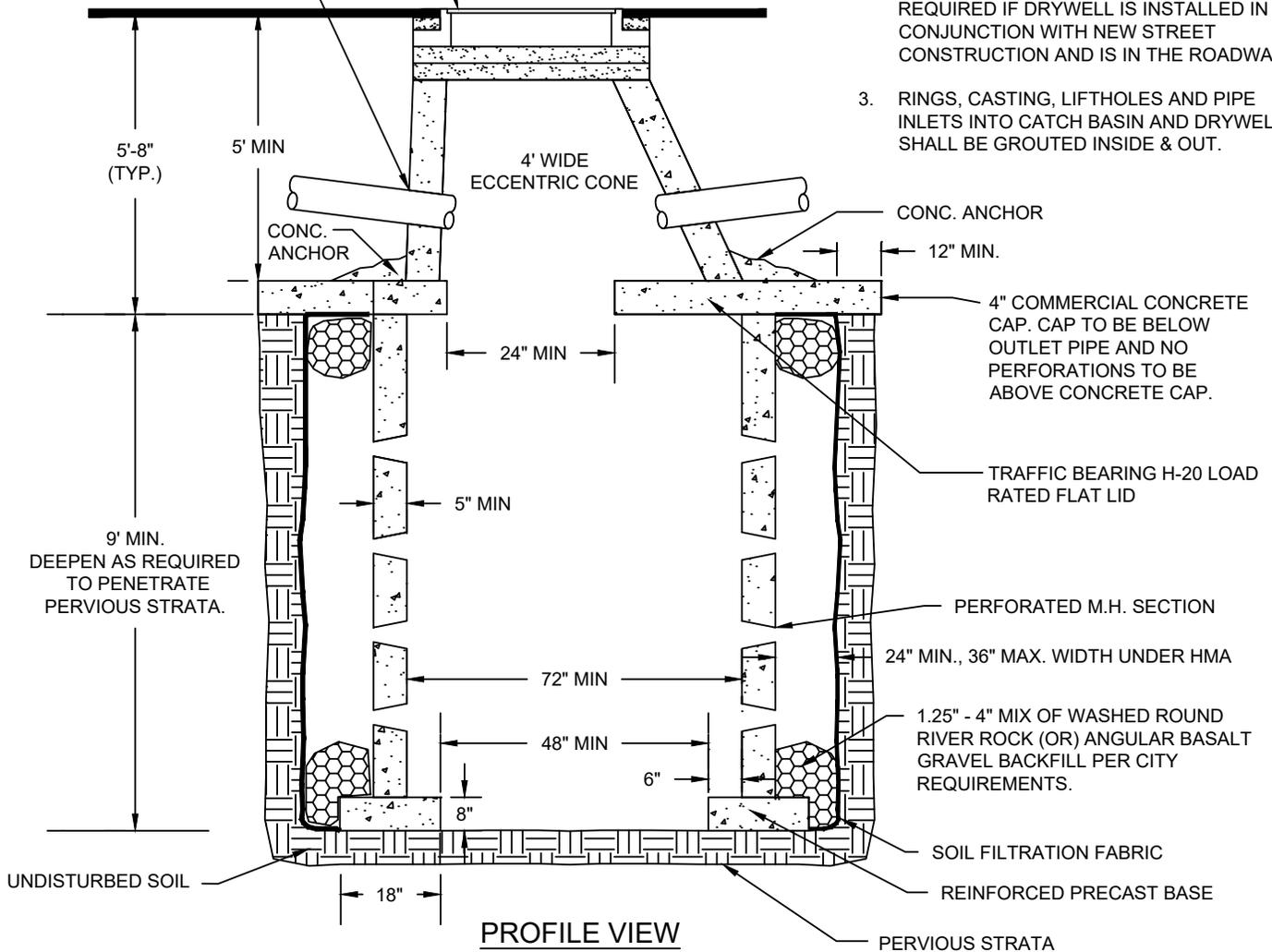
24" M.H. RING & SOLID COVER CITY OF WEST RICHLAND STD. DETAIL 3-3 WORD "STORM" OR "DRAIN" STAMPED ON COVER ACCESS TO LINE UP WITH FLAT TOP ACCESS. ADJUSTMENT PER STD. DETAIL 3-4.

PLAN VIEW

NOTES:

1. PRECAST CONCRETE ADJ. RINGS 18" TO 24" TO WITHIN 2" OF CASTING. GROUT INSIDE OF RINGS TO A SMOOTH FINISH.
2. WHEN INSTALLED IN EXISTING ROADWAY, ALL BACKFILL ABOVE THE CONCRETE CAP TO BE 5/8" MINUS CRUSHED ROCK 98% MIN. DENSITY. ROCK BACKFILL NOT REQUIRED IF DRYWELL IS INSTALLED IN CONJUNCTION WITH NEW STREET CONSTRUCTION AND IS IN THE ROADWAY.
3. RINGS, CASTING, LIFTHOLES AND PIPE INLETS INTO CATCH BASIN AND DRYWELL SHALL BE GROUTED INSIDE & OUT.

10" MIN. STORM DRAIN PIPE FROM CATCH BASIN



PROFILE VIEW



PRECAST CONCRETE DRYWELL, 9 FEET DEPTH

CATEGORY: STORMDRAINAGE	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 5-5.dwg	REVISED BY: AFW	REVISED: 05/18

5-5

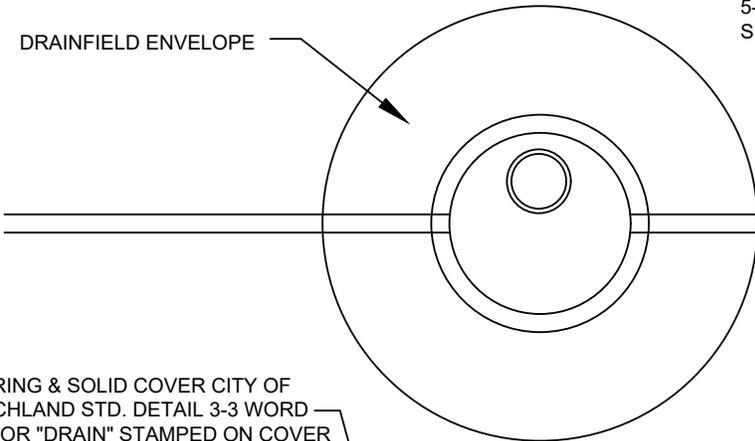
DRAWING NO.

DRAINFIELD ENVELOPE

CATCH BASIN AS PER CITY OF WEST RICHLAND STD. DETAIL 5-1 TO BE PAID FOR AS SEPERATE BID ITEM

FRAME & GRATE CITY OF WEST RICHLAND STD. DETAIL 5-2

CONCRETE CURB AND GUTTER.



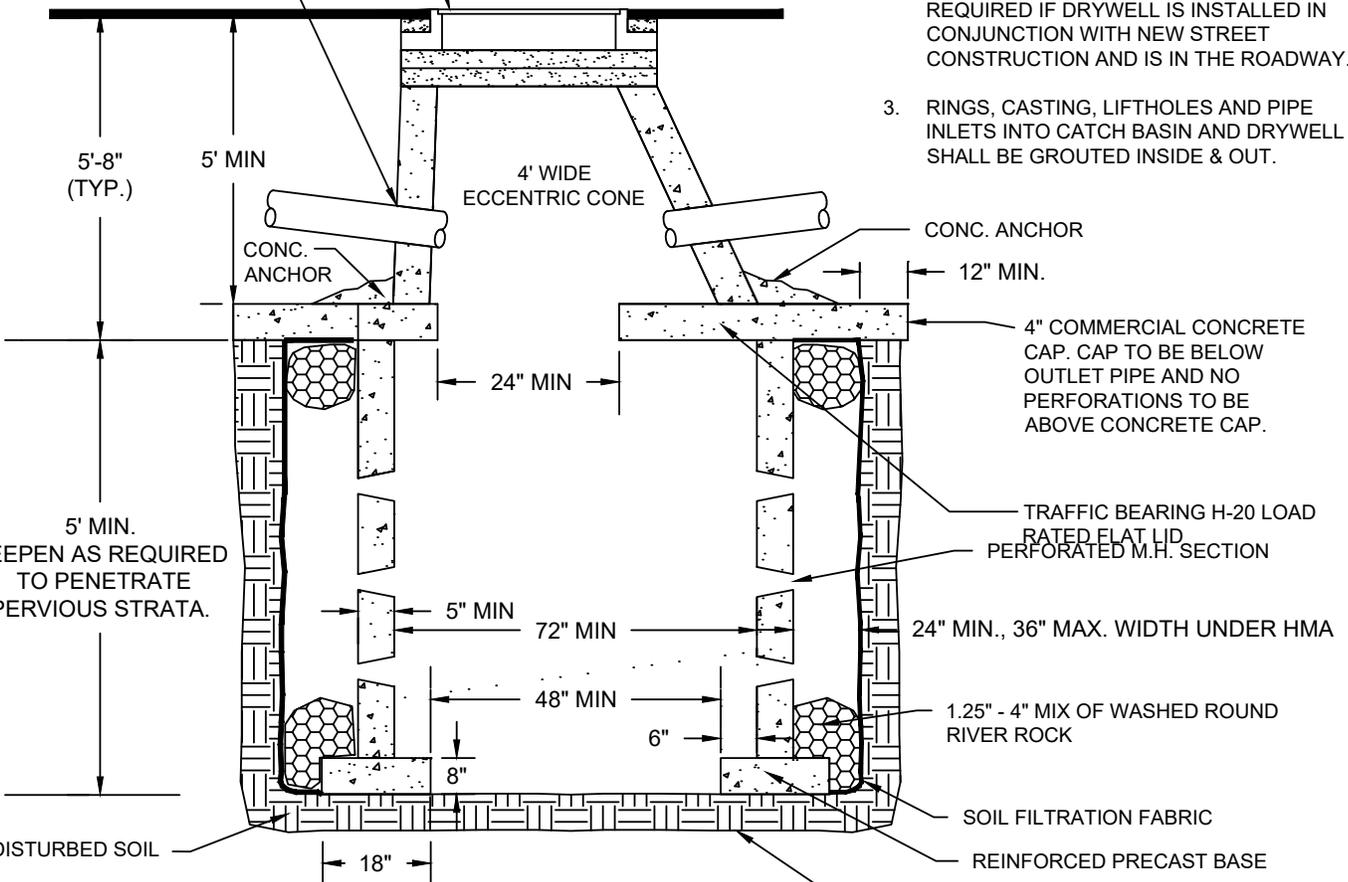
PLAN VIEW

24" M.H. RING & SOLID COVER CITY OF WEST RICHLAND STD. DETAIL 3-3 WORD "STORM" OR "DRAIN" STAMPED ON COVER ACCESS TO LINE UP WITH FLAT TOP ACCESS. ADJUSTMENT PER STD. DETAIL 3-4.

NOTES:

1. PRECAST CONCRETE ADJ. RINGS 18" TO 24" TO WITHIN 2" OF CASTING. GROUT INSIDE OF RINGS TO A SMOOTH FINISH.
2. WHEN INSTALLED IN EXISTING ROADWAY, ALL BACKFILL ABOVE THE CONCRETE CAP TO BE 5/8" MINUS CRUSHED ROCK 98% MIN. DENSITY. ROCK BACKFILL NOT REQUIRED IF DRYWELL IS INSTALLED IN CONJUNCTION WITH NEW STREET CONSTRUCTION AND IS IN THE ROADWAY.
3. RINGS, CASTING, LIFTHOLES AND PIPE INLETS INTO CATCH BASIN AND DRYWELL SHALL BE GROUTED INSIDE & OUT.

10" MIN. STORM DRAIN PIPE FROM CATCH BASIN



PROFILE VIEW

5'-8" (TYP.)
5' MIN.
5' MIN. DEEPEN AS REQUIRED TO PENETRATE PERVIOUS STRATA.

UNDISTURBED SOIL

PERVIOUS STRATA

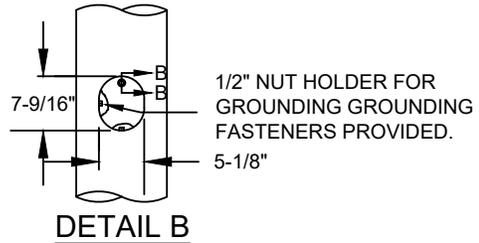
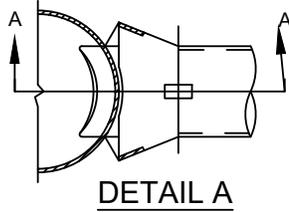
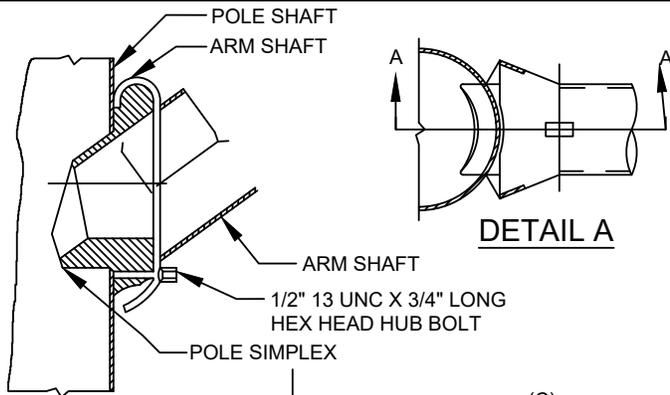


MODIFIED DRYWELL DETAIL

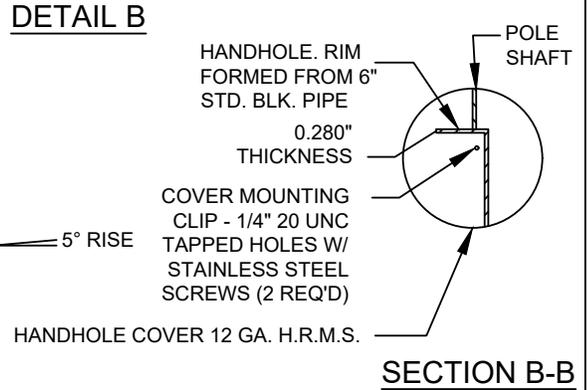
CATEGORY:	CATEGORY	REVIEWED BY:	ADOPED:
FILENAME:	SD 5-6.dwg	REVISED BY:	REVISED:
		AFW	02/14
		AFW	05/18

5-6

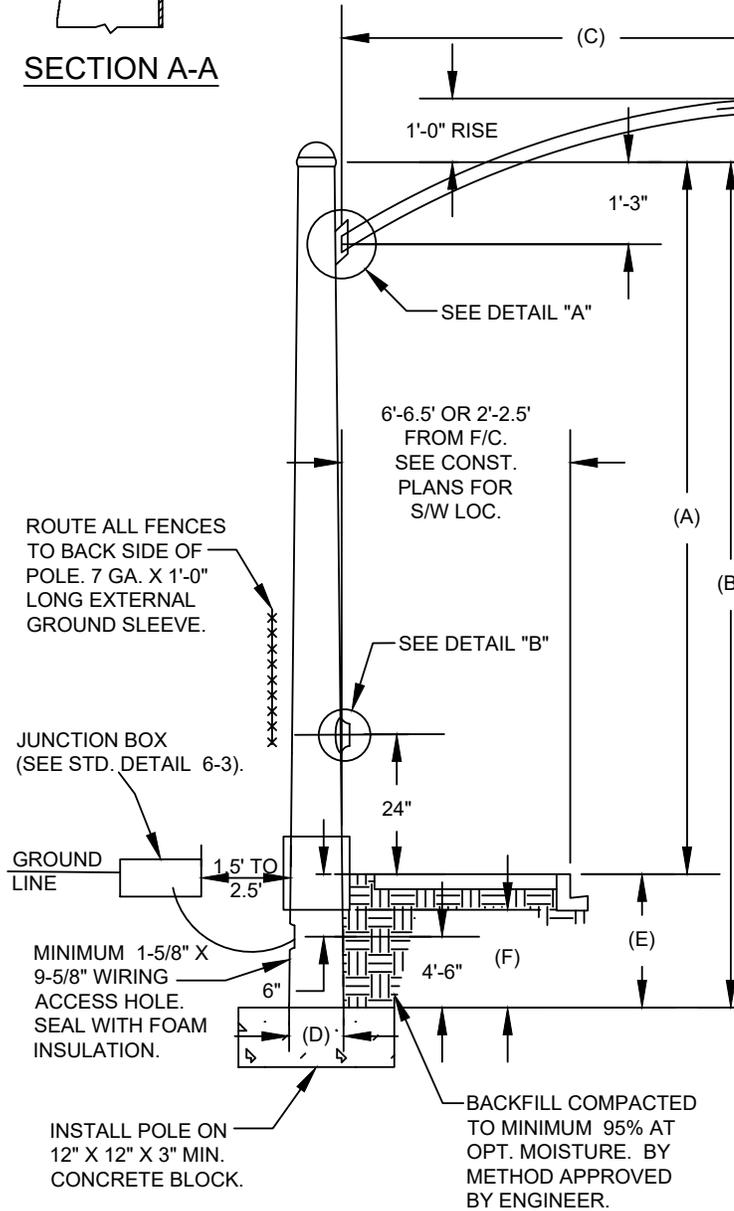
DRAWING NO.



SECTION A-A



SECTION B-B



EMBEDDED STREET LIGHT STANDARD REQUIREMENTS POLE TYPE

MTA. HT.	TYPE I	TYPE II
(A)	35'0"	30'6"
(B)	41'0"	35'0"
(C)	8'0"	6'0"
(D)	9"	8.5"
(E)	7'0"	6'0"
(F)	6'6"	5'6"

NOTES:

1. POLE SHAFT - HOT ROLLED COMMERCIAL QUALITY CARBON STEEL WITH 55,000 P.S.I. MINIMUM YIELD STRENGTH. LINEAR TAPER - 0.14"/FT.
2. ARM CONNECTION - ARM SIMPLEX IS FORMED HOT ROLLED COMMERCIAL QUALITY CARBON STEEL AND POLE SIMPLEX IS ASTM DESIGNATION : A27 GRADE 65-35
3. CAST IRON POLE TOP CAP - ASTM DESIGNATION : A48 CLASS 30 - SECURED IN PLATE WITH 3 SET SCREWS (PLATED SCREWS).
4. ARM SHAFTS - 2-3/8" O.D. X 0.121" WALL MINIMUM STEEL TUBING - 36,000 P.S.I. MINIMUM YIELD STRENGTH (UNLESS OTHERWISE NOTED).
5. POLE AND ARM GALVANIZED TO ASTM DESIGNATION: A123.
6. ACCESSORIES GALVANIZED TO ASTM DESIGNATION : A153.
7. ALL THREADED FASTENERS TO BE GALVANIZED UNLESS OTHERWISE NOTED.
8. "J"-BOX SHOWN FOR CLARITY, LOCATE AT 90 DEGREES FROM SHOWN POSITION.
9. INSTALL WIRE BETWEEN "J"-BOX AND POLE IN CARFLEX OR EQUAL LIQUID TIGHT FLEXIBLE NON-METALIC CONDUIT.
10. POLE TO BE INSTALLED OFFSET PARALLEL TO CURB/STREET FROM PROPERTY PINS (WHEN PRESENT)

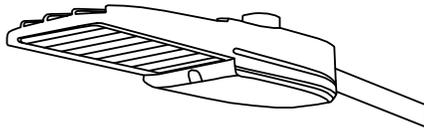


STREET LIGHT STANDARD

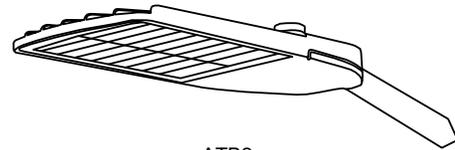
CATEGORY:	LIGHTING	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 6-1.dwg	REVISED BY:	AFW	REVISED:	05/18

6-1

DRAWING NO.



ATBO



ATB2

LUMINAIRE REQUIREMENTS:

STREET WIDTH*	STREET LIGHT STANDARD	GENERAL STREET CLASSIFICATION	LAMP WATTAGE (NOT TO EXCEED)	LIGHT DISTRIBUTION	CONTROLS (SEE NOTE 3)	DELIVERED LUMENS (MINIMUM)	MAXIMUM POLE SPACING
70'	TYPE I 35.0'	5-LANE ARTERIAL HIGH DENSITY COMMERCIAL	220	TYPE III	VE ²	18,600	125'
70'	TYPE I 35.0'	5-LANE ARTERIAL	110 220 (XING)	TYPE III	VE ²	9300 18,600	150'
58'	TYPE I 35.0'	4-LANE ARTERIAL	110 220 (XING)	TYPE III	VE ²	9300 18,600	200'
46'	TYPE II 30-6'	3-LANE COLLECTOR/ARTERIAL	110	TYPE II	VE ²	9300	200'
32'-36'	TYPE II 30'-6'	RESIDENTIAL	50 110 (XING)	TYPE II	VE ²	4200 9300	300'

* MEASURED FROM FACE OF CURB TO FACE OF CURB OR EDGE OF PAVEMENT TO EDGE OF PAVEMENT.

NOTES:

1. LUMINAIRES SHALL BE LED (LIGHT-EMITTING-DIODE) AND MANUFACTURED BY AEL (AMERICAN ELECTRIC LIGHTING)

WATTS (NTE)	MANUFACTURE	MODEL/SERIES	PERFORMANCE PACKAGE
50 W	AEL	ATBO	20BLEDE70, 20B CHIPS, 700 mA DRIVER
110 W	AEL	ATBO	30BLEDE10, 30B CHIPS, 1000 mA DRIVER
220 W	AEL	ATB2	60BLEDE10, 60B CHIPS, 1000 mA DRIVER

- LUMINAIRES SHALL HAVE THE FOLLOWING CHARACTERISTICS:
 - CAPABLE OF USING MULTI-VOLT 120-277V, 60 Hz POWER SOURCE
 - ROADWAY DISTRIBUTION AS STATED ABOVE, IP66 RATED LIGHT ENGINES WITH 0% UPLIGHTING.
 - PROVIDE CORRELATED COLOR TEMPERATURE (CCT) OF 4000K, 70 CRI MINIMUM.
 - EXPECTED LIFE: LED LIGHT ENGINE RATED > 100,000 HOURS AT 25°C, L70
 - EXPECTED LIFE (DRIVER): 100,000 HOURS AT 25° AMBIENT
 - EQUIPPED WITH DIMMABLE DRIVER COMPATIBLE WITH ROAM SMART CONTROLS SYSTEM.
 - HOUSING SHALL BE DIE CAST ALUMINUM, POLYESTER POWDER COATED, AND GRAY IN COLOR.
 - NEMA 5 OR 7 PIN PHOTOCONTROL RECEPTACLE
 - NEMA LABEL PER ANSI C136.15-2011
 - SHALL HAVE TOOL-LESS ENTRY, TOOL-LESS NEMA PHOTOCONTROL RECEPTACLE, TERMINAL BLOCK, QUICK DISCONNECTS, AND BUBBLE LEVEL INSIDE ELECTRICAL COMPARTMENT FOR EASY LEVELING AT INSTALLATION.
- PHOTO ELECTRIC CONTROL PER EACH LUMINAIRES SHALL BE PLUG IN TYPE AND MUST BE ACUITYBRANDS ROAM REN 127 DV1, WITH 0-10V DIMMING AND COMPATIBLE WITH ROAMVIEW DIMMING CONTROLS. PROGRAMING OF PHOTOCELL SHALL BE PERFORMED BY THE CITY AFTER INSTALLATION.
- LUMINAIRES SHALL BE PACKAGED IN CONTAINERS WHICH WILL PREVENT SHIPPING AND HANDLING DAMAGE. EACH CONTAINER SHALL BE MARKED WITH THE MANUFACTURE'S NAME, NAME OF ITEM, WATTAGE AND CATALOG NUMBER
- LUMINAIRES SHALL HAVE A MINIMUM OF A 10 YEAR WARRANTY. LUMINAIRES IN SERVICE FOR LESS THAN ONE YEAR ARE UNDER THE WARRANTY OF THE CONTRACTOR AND SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
- SEE CITY OF WEST RICHLAND STANDARD DETAIL 6-1 FOR POLE AND MAST ARM REQUIREMENTS.
- SPACING TO BE STAGGERED OPPOSITE SIDES OF THE STREETS. ALL INTERSECTION SHALL HAVE MINIMUM (1) LIGHT. ADDITIONAL LIGHTING MAY BE REQUIRED BY THE CITY ENGINEER AT INTERSECTIONS AS WELL OTHER LOCATIONS ALONG ANY GIVEN ROADWAY.

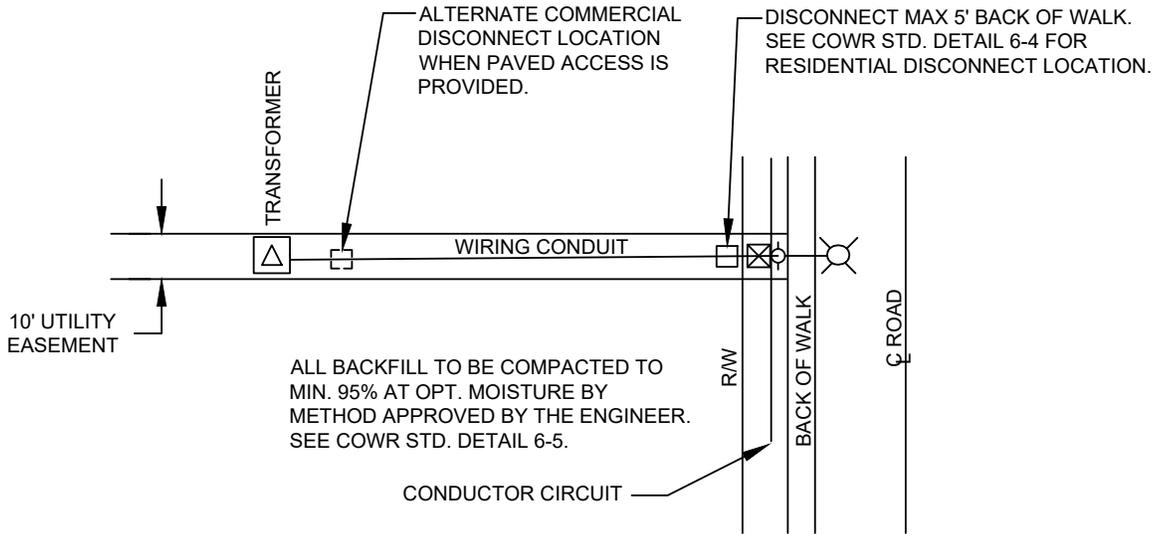


**TYPICAL LIGHT-EMITING-DIODE (LED)
LUMINAIRE**

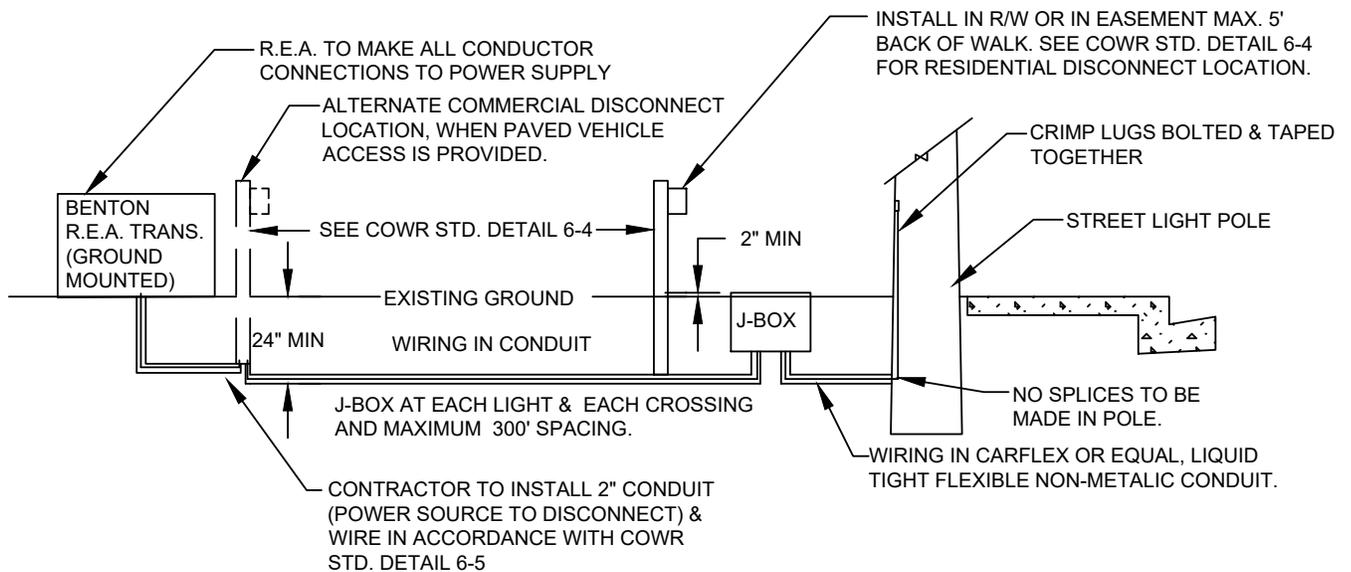
CATEGORY: LIGHTING	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 6-2.dwg	REVISED BY: AFW	REVISED: 05/18

6-2

DRAWING NO.

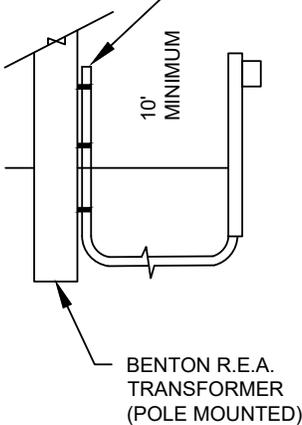


PLAN VIEW



R.E.A. TRANSFORMER (POLE MOUNTED)

CONTRACTOR TO FURNISH TO THE BENTON R.E.A. 2" SCH. 80 P.V.C. CONDUIT AND GALVANIZED WEATHER HEAD AND WIRING CONDUCTORS FROM THE TOP OF GALVANIZED WEATHERHEAD TO THE POWER SOURCE.



NOTES:

1. ALL MATERIALS AND CONSTRUCTION TO CONFORM TO SECTION 8-20 OF THE SWSS AND CITY SPECIAL PROVISIONS.
2. AN IN-LINE, FUSED, WATERTIGHT ELECTRICAL DISCONNECT KIT SHALL BE INSTALLED IN THE JUNCTION BOX FOR EVERY CONDUCTOR ABOVE GROUND POTENTIAL.
3. PROVIDE ADDITIONAL CONDUCTOR LENGTH IN ALL JUNCTION BOXES EQUAL TO A LOOP HAVING A DIAMETER OF 1 FOOT.
4. CONTRACTOR SHALL PLACE 4" OF 5/8" MINUS CRUSHED ROCK IN BOTTOM OF JUNCTION BOX AFTER INSTALLING CONDUIT AND WIRING.
5. THE CONTRACTOR SHALL BE REQUIRED TO SECURE, AT HIS OWN EXPENSE, FROM THE CITY AND FROM THE STATE OF WASHINGTON ELECTRICAL INSPECTION DEPT., ALL INSPECTION PERMITS REQUIRED TO CONSTRUCT THE LIGHTING SYSTEM.



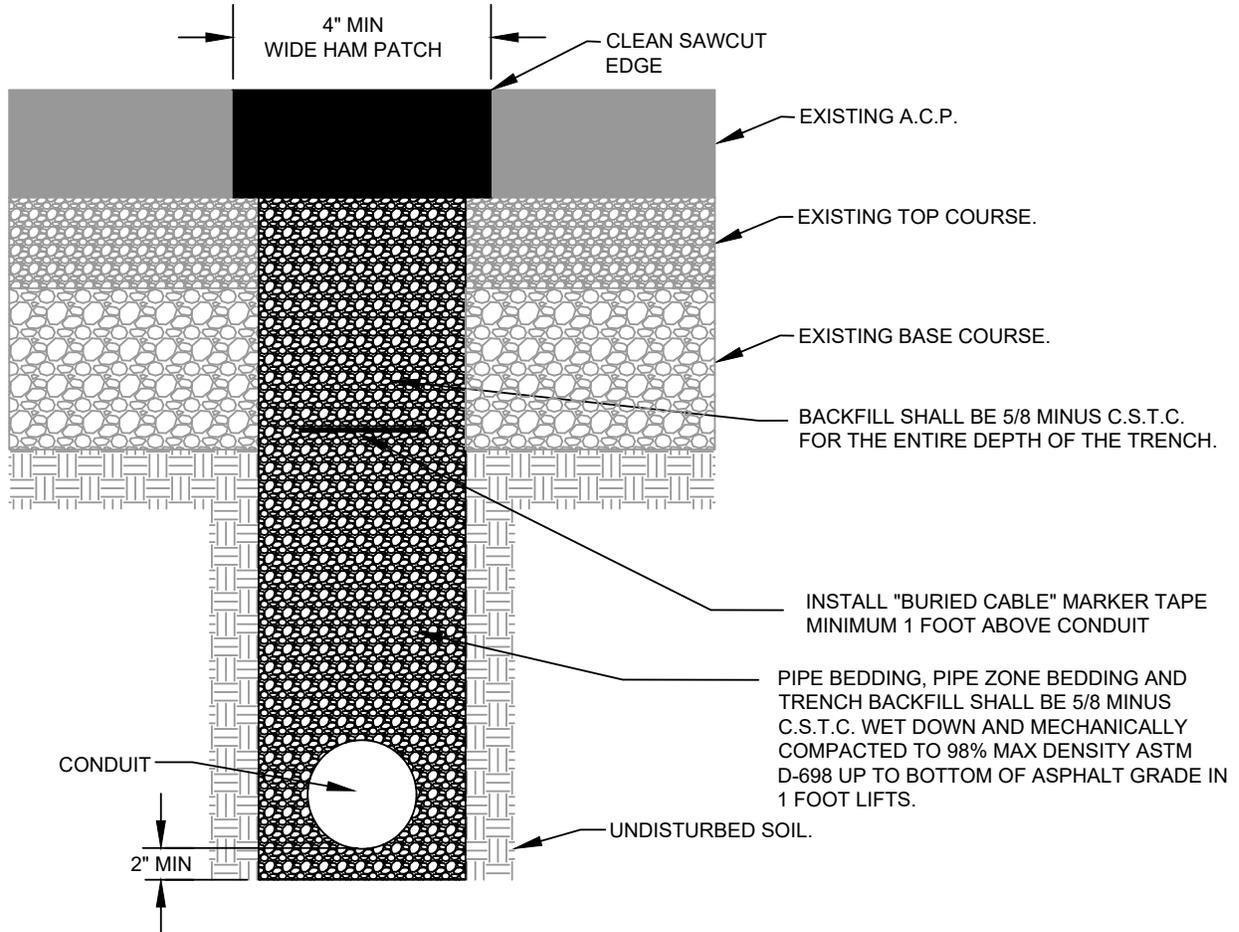
TYPICAL STREET LIGHT CIRCUIT

CATEGORY:	LIGHTING	REVIEWED BY:	AFW	ADOPTED:	06/14
FILENAME:	SD 6-3.dwg	REVISED BY:	AFW	REVISED:	05/18

6-3

DRAWING NO.

PAVEMENT RESTORATION PER STANDARD DETAIL 2-8



NOTES:

1. TRENCH DEPTH SHALL PROVIDE A MINIMUM COVER OF 24" OVER TOP OF CONDUIT. TELEPHONE AND POWER TO BE MIN. 30" AT NON CURBED STREET CROSSINGS OR AS REQUIRED BY THE PERMIT.
2. MINIMUM ONE-WAY TRAFFIC TO BE MAINTAINED.
3. ALL ROADWAY APPURTENANCES TO BE PROTECTED AND ROAD SIGNS LEFT AS FOUND.
4. PAVEMENT REPAIR TO BE MADE WITHIN 24 HOURS OF TRENCH BACKFILL.
5. PATCH TO BE HMA 3/8" PG 64-28. H.M.A. SHALL BE A MINIMUM OF 2" DEPTH AND PLACED IN LIFTS NOT TO EXCEED 2" IN DEPTH.
6. PERMIT REQUIRED ON ALL PROJECTS NOT CONTRACT ADMINISTERED BY THE CITY PUBLIC WORKS DEPARTMENT.

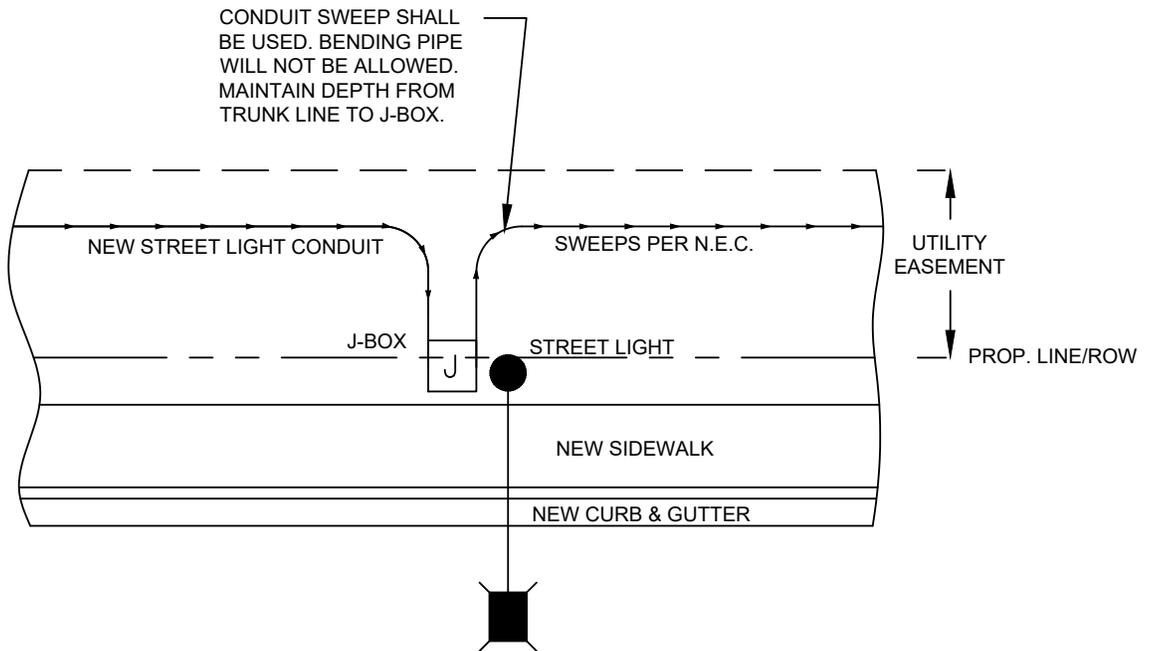


**STREET CUT AND PATCH DETAIL FOR
SIGNALS, LIGHTING AND CONDUITS**

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:
FILENAME:	SD 6-5.dwg	REVISED BY:	REVISED:
		AFW	02/14
		AFW	05/18

6-5

DRAWING NO.



NOTE:

1. A TOTAL OF FOUR 90° BENDS, OR AN EQUIVALENT OF 360° MAXIMUM IS PERMITTED IN A CONDUIT RUN PER NEC SECTION 347-14. SINCE EACH "J" BOX REQUIRES ONE 90° BEND TO ENTER THE BOTTOM OF THE BOX, A MAXIMUM OF TWO ADDITIONAL 90° BENDS CAN BE INSTALLED BETWEEN BOXES OR NO MORE THAN 180°
2. EXACT CONDUIT LOCATION IN THE UTILITY EASEMENT SHALL BE COORDINATED WITH THE CITY FRANCHISED UTILITIES TO ENSURE NO CONFLICTS ARE CREATED.
3. DEPTH OF CONDUIT SHALL SATISFY N.E.C. REQUIREMENTS.



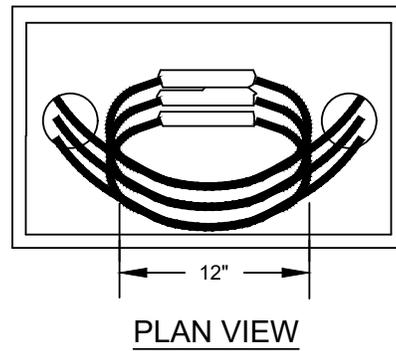
STREET LIGHT CONDUIT SINGLE AND MULTI-LIGHT CIRCUIT

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:
FILENAME:	SD 6-6.dwg	REVISD BY:	REVISED:
		AFW	02/14
		AFW	05/18

6-6

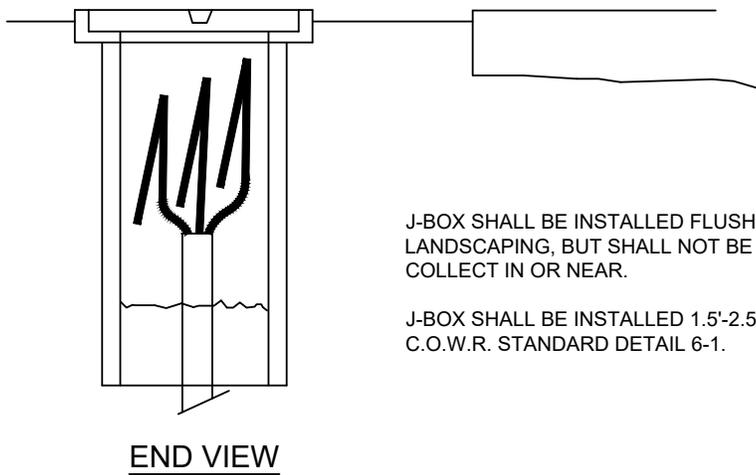
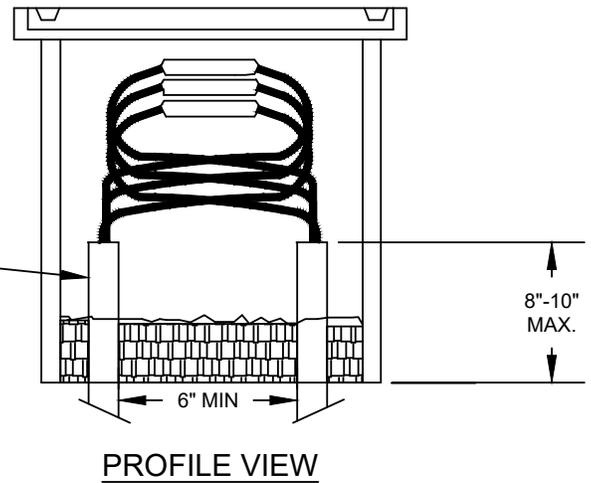
DRAWING NO.

FUSED, WATERTIGHT, QUICK DISCONNECT GROUND WIRE TO BE COLOR-CODED GREEN CONDUCTOR LOOP MIN. 12".



MINIMUM OF 4 INCHES OF 5/8" GRAVEL TO BE PLACED IN BOTTOM OF J-BOX AFTER INSTALLING THE CONDUIT AND WIRING.

CUT CONDUITS 4" TO 6" MAXIMUM ABOVE 5/8" MINUS ROCK



J-BOX SHALL BE INSTALLED FLUSH WITH SIDEWALK OR LANDSCAPING, BUT SHALL NOT BE PLACED WHERE DRAINAGE WILL COLLECT IN OR NEAR.

J-BOX SHALL BE INSTALLED 1.5'-2.5' FROM LIGHT STANDARD. SEE C.O.W.R. STANDARD DETAIL 6-1.

NOTES:

1. ALL MATERIALS AND CONSTRUCTION TO CONFORM TO SWSS, CITY OF WEST RICHLAND STANDARD SPECIAL PROVISIONS, AND CITY APPROVED MATERIALS LIST.
2. ALL BACKFILL TO BE COMPACTED TO MINIMUM OF 95% OF MAXIMUM DENSITY OR AS REQUIRED TO PRECLUDE FUTURE SETTLEMENT.

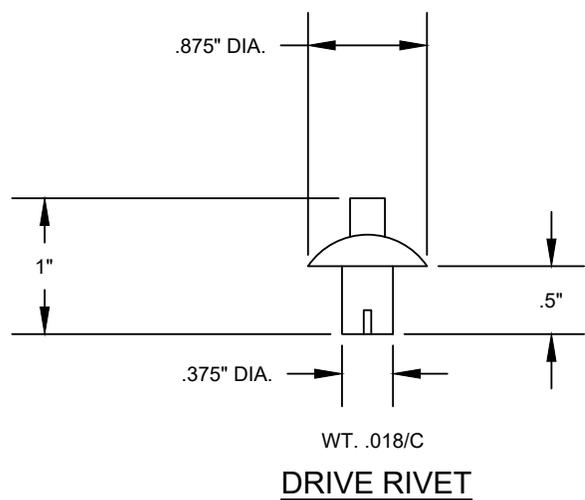
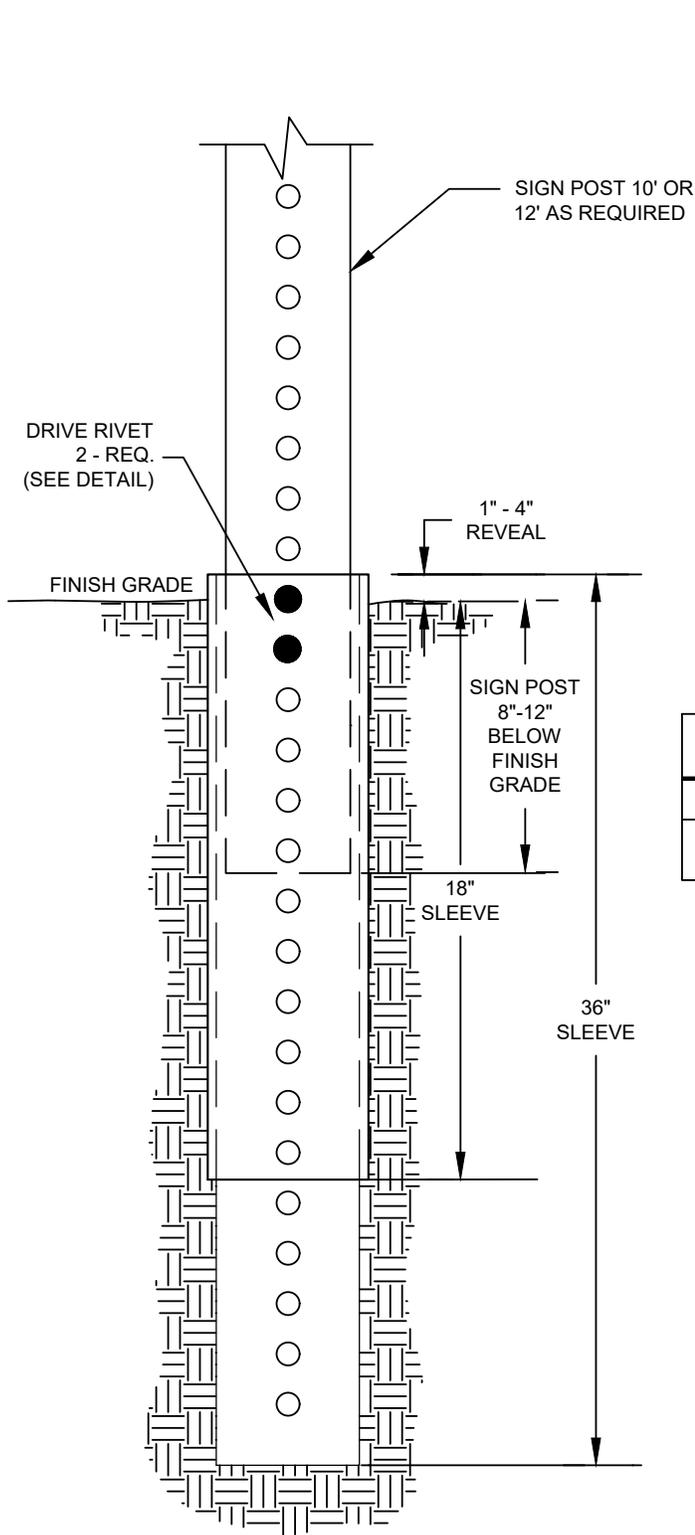


STREET LIGHT J-BOX INSTALLATION

CATEGORY: LIGHTING	REVIEWED BY: AFW	ADOPTED: 06/14
FILENAME: SD 6-7.dwg	REVISED BY: AFW	REVISED: 05/18

6-7

DRAWING NO.



PART	TUBE SIZE	MIN. WALL THICKNESS	LENGTH
BASE POST	2.25" X 2.25"	12 GAGE	36 INCH
SIGN POST	2" X 2"	12 GAGE	10', 12' OR 14' AS REQ'D.

NOTES:

1. POSTS SHALL BE TELES PAR BRAND SQUARE TUBING OR APPROVED EQUAL. SIGN POST MUST BE BREAK AWAY AND ACCEPTABLE PER NCHRP 350.
2. POSTS SHALL BE COLD ROLLED STEEL WITH PERFORATIONS OF .4375 INCH DIAMETER ON ONE INCH CENTERS ON ALL FOUR SIDES.
3. POSTS SHALL EMPLOY A YIELDING BREAKAWAY SYSTEM CONSISTING OF A BASE POST AND SIGN POST.
4. ALL FASTENINGS OF TUBING JOINTS AND CONNECTIONS SHALL UTILIZE A MINIMUM OF TWO DRIVE RIVETS UNLESS OTHERWISE SPECIFIED.
5. GALVANIZED COATING SHALL CONFORM TO A.S.T.M. SPECIFICATION A-525, DES. G-90.
6. BASE POST MUST BE DRIVEN WITH A MECHANICAL DRIVER OR POURED IN CONCRETE.
7. IF CONCRETE IS USED WRAP SLEEVE WITH DUCT TAPE TO ALLOW FOR REINSTALLATION.

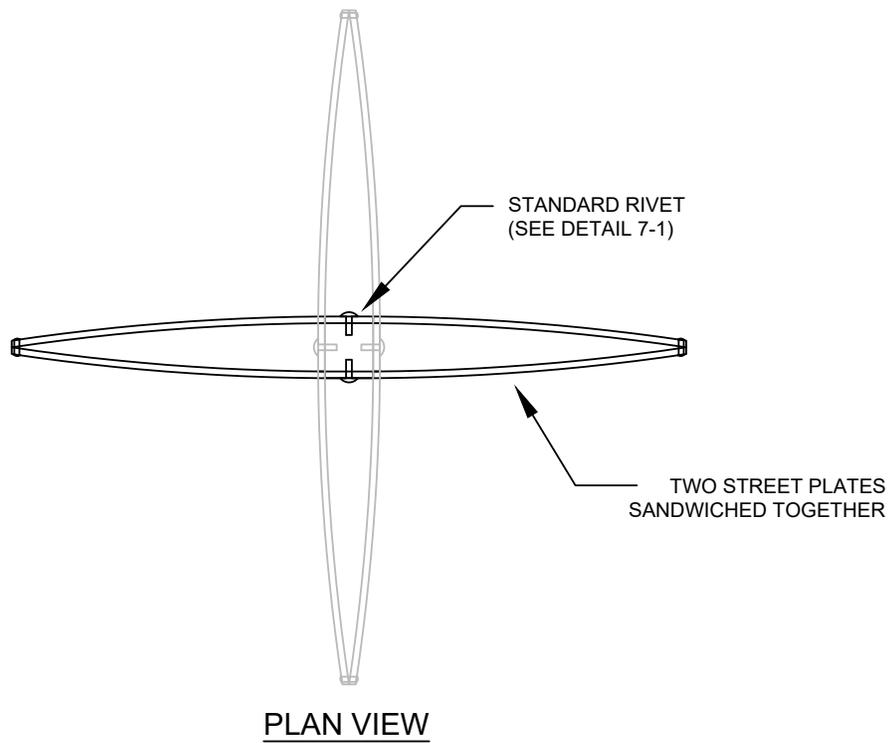
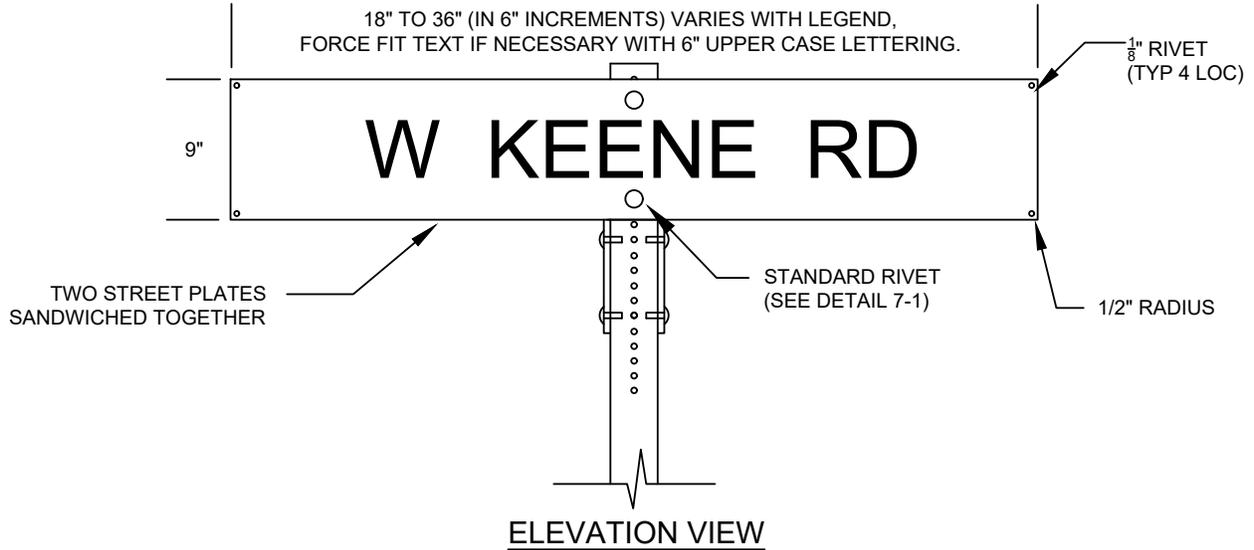


TYPICAL SIGN POST

CATEGORY: CATEGORY	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 7-1.dwg	REVISED BY: AFW	REVISED: 05/18

7-1

DRAWING NO.



NOTES:

1. REFLECTORIZED WHITE LETTERS AND NUMBERS ON REFLECTIVE GREEN BACKGROUND. LETTERS ARE TO BE HIGHWAY GOTHIC, SERIES "C". LETTERS AND SPACING TO BE PER THE STATE OF WASHINGTON SIGN FABRICATION MANUAL.
2. LETTERS, NUMBERS, AND BACKGROUND ARE TO BE 3M SCOTCHLITE REFLECTIVE DIAMOND GRADE VIP SERIES 981.
3. EXTRUDED ALUMINUM PLATE 6061-P61 WITH ALODINE FINISH.
4. STREET NAME SIGNS SHALL BE INSTALLED ON THE SIGN POST OR STREET LIGHT STANDARD BY MEANS APPROVED BY THE CITY ENGINEER.

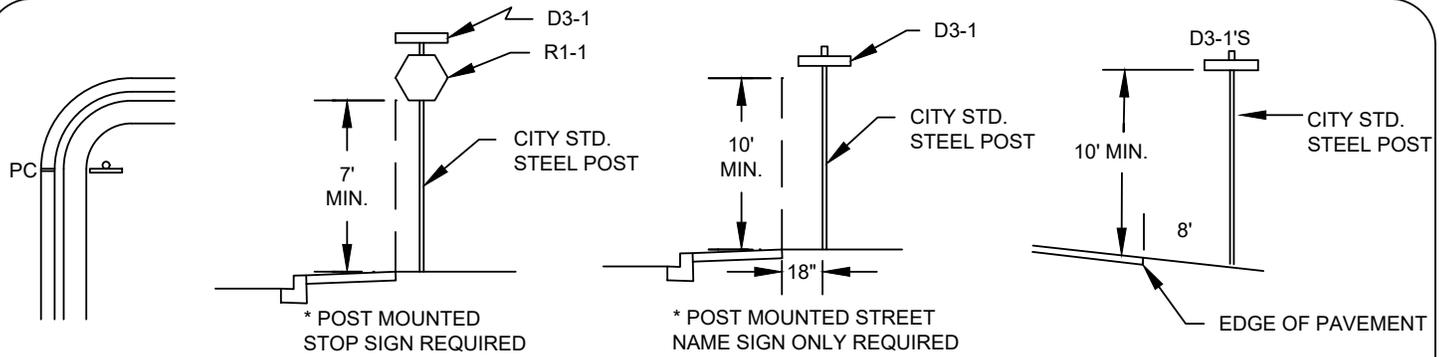


STREET NAME SIGN

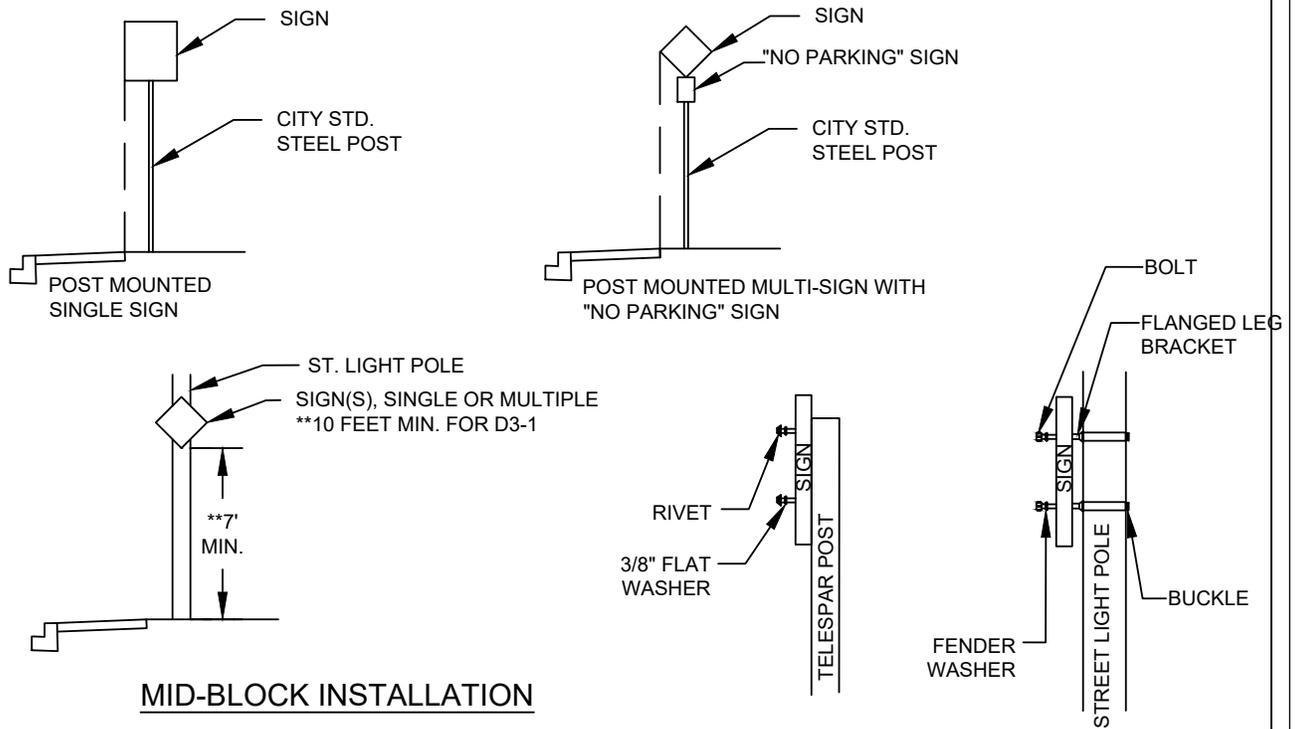
CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 7-2.dwg	REVISED BY:	AFW	REVISED:	05/18

7-2

DRAWING NO.



CORNER INSTALLATION
 (* AS DETERMINED BY CITY ENGINEER)



MID-BLOCK INSTALLATION

SIGN ASSEMBLY

NOTES:

1. EDGE OF SIGN TO BE EVEN WITH BACK OF SIDEWALK.
2. SIGNS TO BE INSTALLED BACK OF SIDEWALK UNLESS OTHERWISE NOTED ON PLANS.
3. SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND SHALL BE THE STANDARD SIZE AND LETTERING APPROPRIATE FOR URBAN AREAS UNLESS OTHERWISE NOTED.
4. ALL SIGN PLAQUES SHALL BE MADE OF ALUMINUM HAVING A MINIMUM THICKNESS OF 0.10 INCHES.
5. BOLTS, NUTS AND METAL WASHERS SHALL BE GALVANIZED OR CADMIUM PLATE STEEL.
6. POSTS SHALL CONFORM TO CITY OF WEST RICHLAND STD. DETAIL 7-1.
7. REFLECTIVE SHEETING SHALL BE AS A MINIMUM 3-M HIGH INTENSITY GRADE UNLESS A HIGHER GRADE IS SPECIFIED OR DIRECTED BY THE TRAFFIC ENGINEER.
8. ALL SIGNS AND PLACEMENT MUST HAVE APPROVAL OF THE CITY ENGINEER.
9. ALL MOUNTING HARDWARE FOR STREET LIGHT POLES MUST BE BAND-IT OR APPROVED EQUAL. THE HARDWARE REQUIRED IS 3/4" X 0.030 STAINLESS STEEL BANDS, 3/4" STAINLESS STEEL EAR LOCK, BUCKLES, STAINLESS STEEL FLARED LEG BRACKETS WITH ONE BOLT AND METAL FENDERS WASHER.

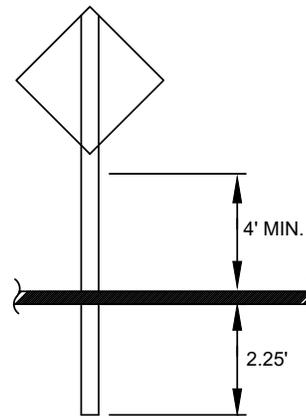
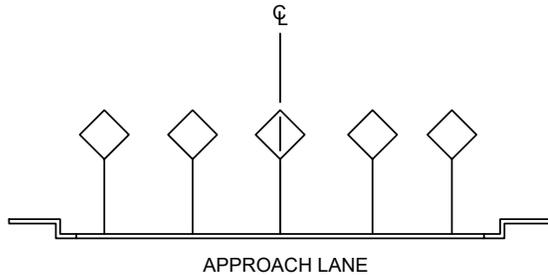
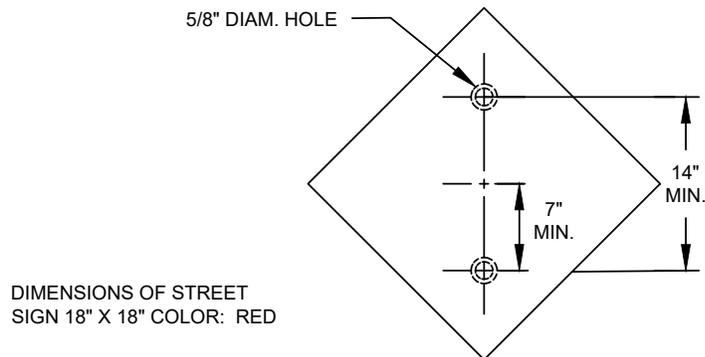


TYPICAL SIGN INSTALLATION

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPED:
FILENAME:	SD 7-3.dwg	REVISED BY:	REVISED:

7-3

DRAWING NO.



NOTES:

1. REFLECTORIZED 3M HIGH INTENSITY OR DIAMOND GRADE RED SHEETING OR CITY ENGINEER APPROVED EQUAL.
2. ONE-TENTH GAUGE ALUMINUM PLATE.
3. POST SHALL BE AS PER CITY OF WEST RICHLAND STANDARD DETAIL 7-1 EXCEPT 6 FT. SIGN POSTS MAY BE USED.
4. THE NUMBER OF SIGNS REQUIRED FOR ANY STREET SHALL BE DETERMINED BY THE CITY ENGINEER.
5. SIGNS ARE TO BE INSTALLED IN THE CENTER OF TRAVEL AND/OR PARKING LANE.



END OF ROADWAY MARKERS

CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 7-4.dwg	REVISED BY:	AFW	REVISED:	05/18

7-4

DRAWING NO.

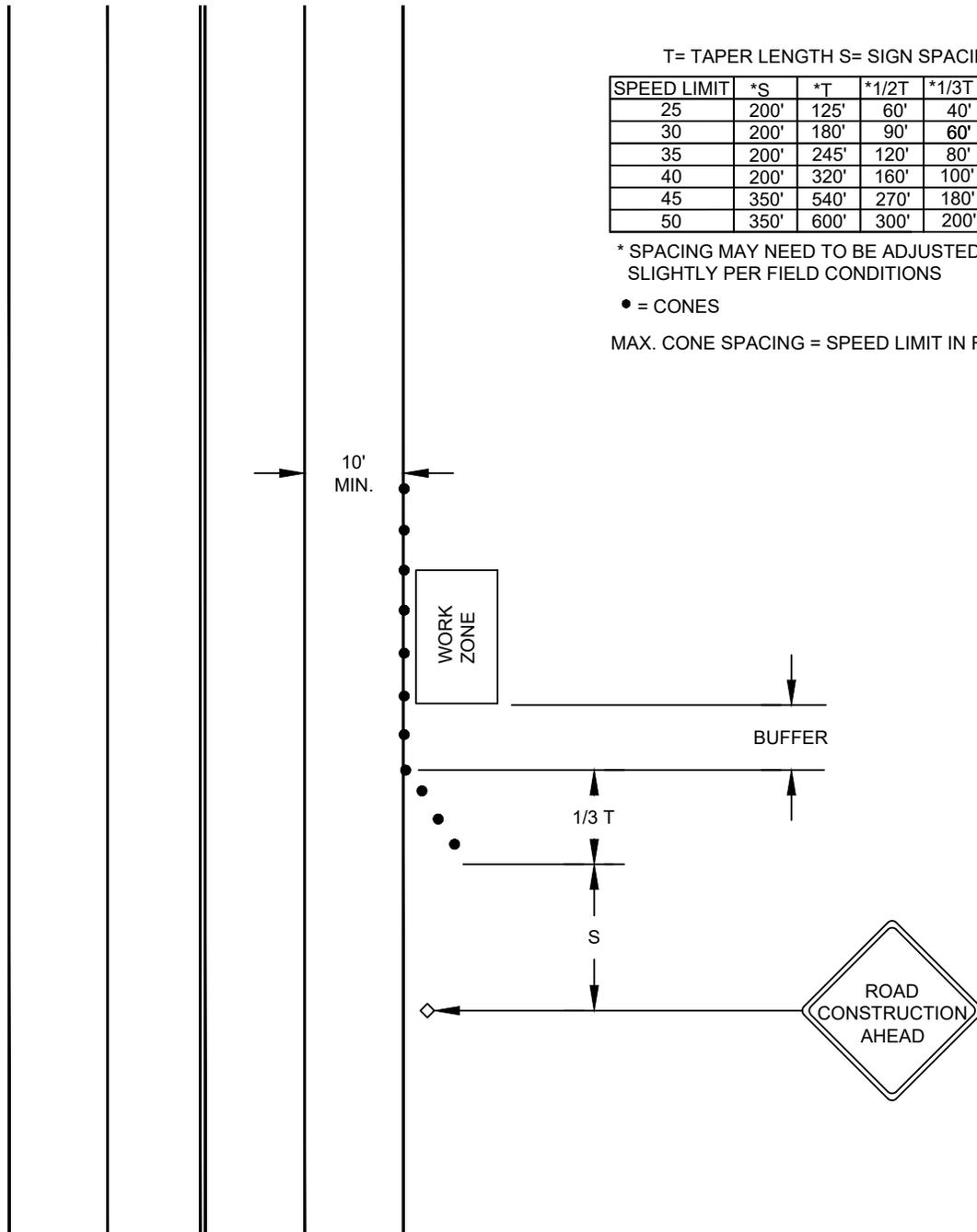
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



ALL CHANGES MUST BE APPROVED BY CITY ENGINEER



SHOULDER WORK FOR ANY ROADWAY

CATEGORY: CATEGORY

REVIEWED BY: AFW

ADOPTED: 02/14

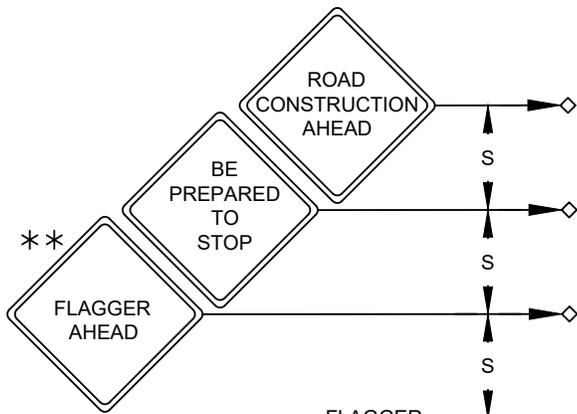
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REVISED BY: AFW

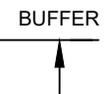
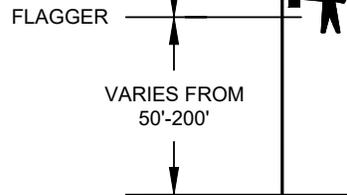
REVISED: 05/18

7-5

DRAWING NO.



** ALSO ACCEPTABLE



FLAGGER

100' MAX.

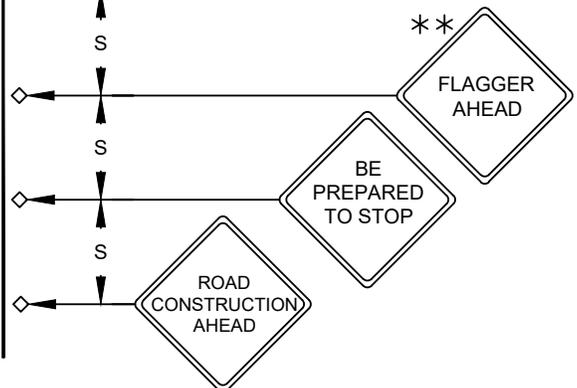
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



ALL CHANGES MUST BE APPROVED BY CITY ENGINEER



TYPICAL LANE CLOSURE 2 LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADAPTED:
SD 7-6.dwg		AFW	02/14
FILENAME:	SD 7-6.dwg	REVISED BY:	REVISED:
		AFW	05/18

7-6

DRAWING NO.

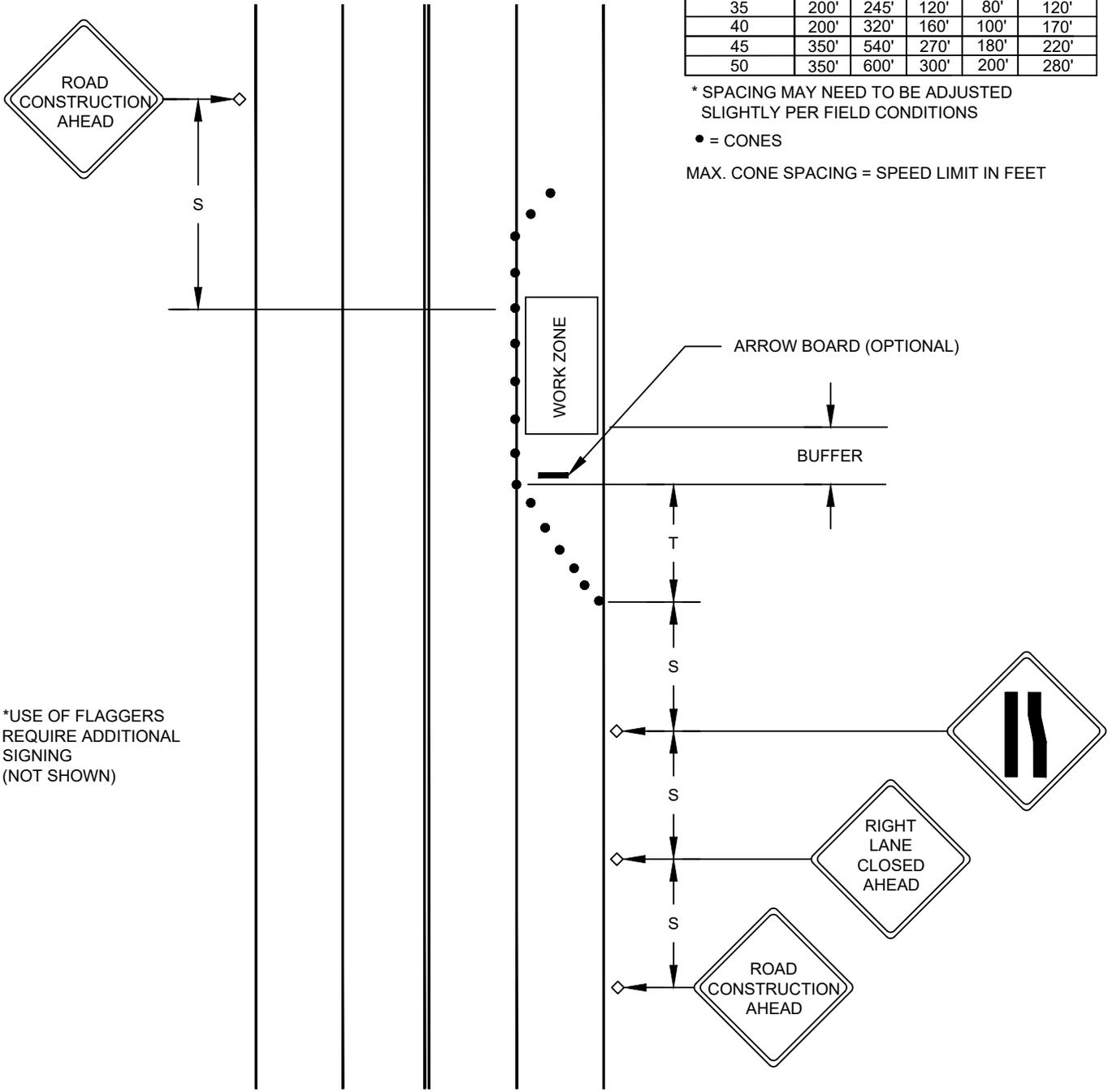
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



*USE OF FLAGGERS REQUIRE ADDITIONAL SIGNING (NOT SHOWN)

(WITH OR WITHOUT 2-WAY TURN LANE)

ALL CHANGES MUST BE APPROVED BY CITY ENGINEER



TYPICAL 1-LANE CLOSURE ON A 4-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:	02/14
FILENAME:	SD 7-7.dwg	REVISED BY:	REVISED:	05/18

7-7

DRAWING NO.

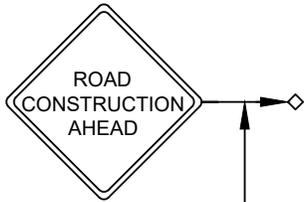
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



S

WORK ZONE

ARROW BOARD (OPTIONAL)

BUFFER

T

S

S

S

*USE OF FLAGGERS REQUIRE ADDITIONAL SIGNING (NOT SHOWN)



(WITH OR WITHOUT 2-WAY TURN LANE)

ALL CHANGES MUST BE APPROVED BY CITY ENGINEER



TYPICAL LEFT LANE CLOSURE FOR A 4-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:	02/14
FILENAME:	SD 7-8.dwg	REVISED BY:	REVISED:	05/18

7-8

DRAWING NO.

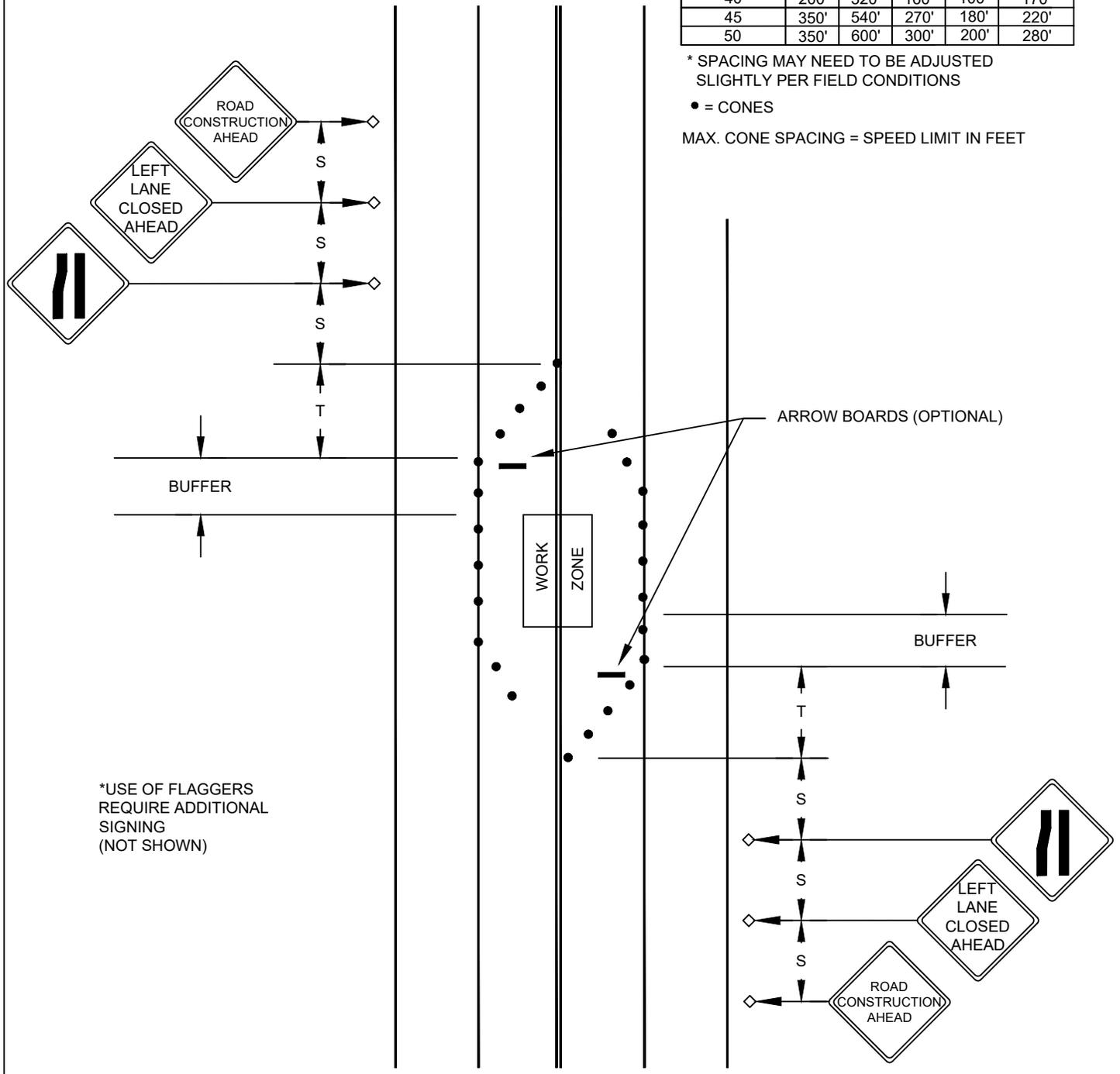
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



*USE OF FLAGGERS REQUIRE ADDITIONAL SIGNING (NOT SHOWN)

ALL CHANGES MUST BE APPROVED BY THE TRAFFIC ENGINEER



TYPICAL DOUBLE LANE CLOSURE INSIDE 4-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:	02/14
FILENAME:	SD 7-9.dwg	REVISED BY:	REVISED:	05/18

7-9

DRAWING NO.

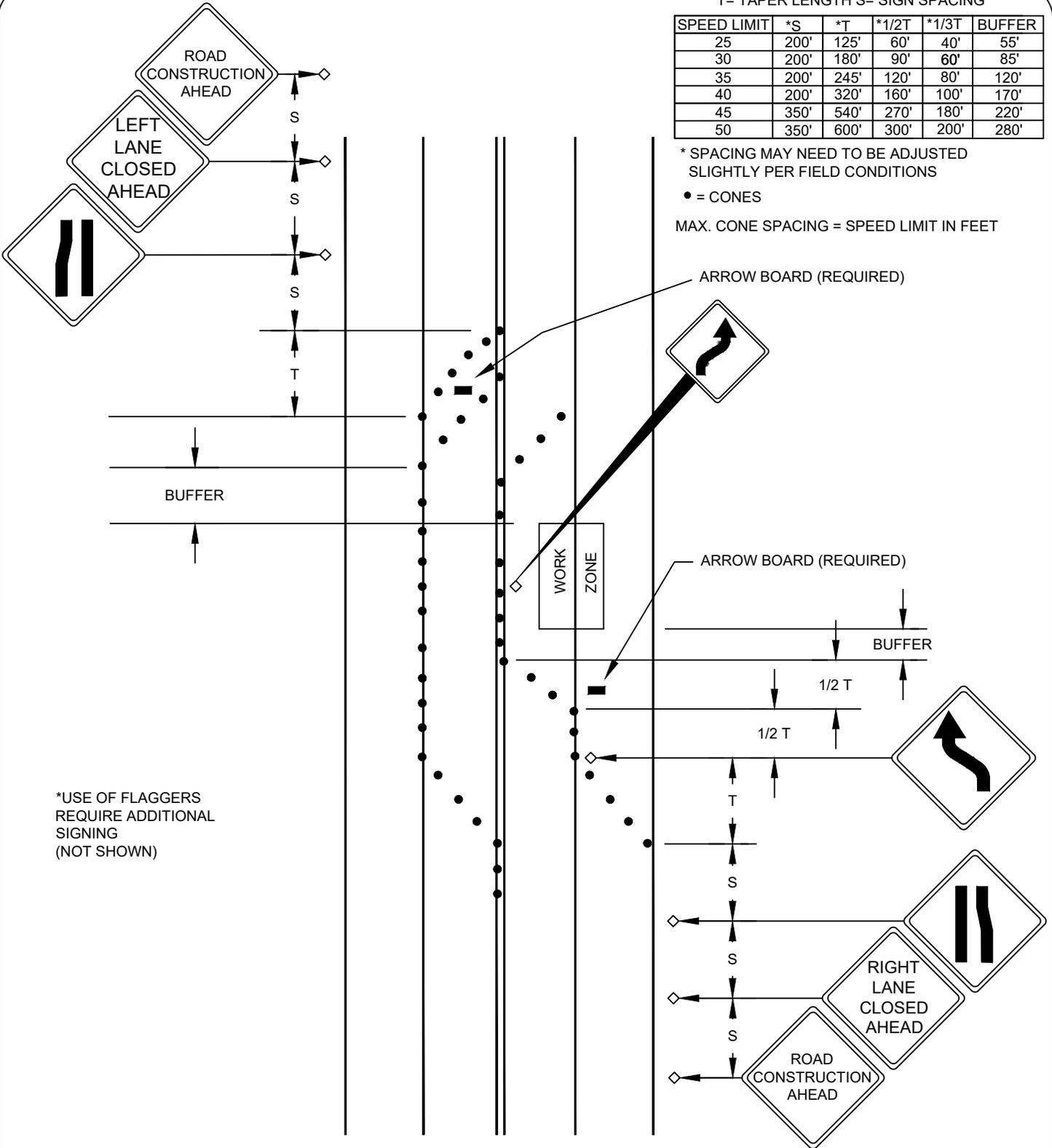
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



*USE OF FLAGGERS REQUIRE ADDITIONAL SIGNING (NOT SHOWN)

ALL CHANGES MUST BE APPROVED BY THE TRAFFIC ENGINEER



TYPICAL 2-LANE CLOSURE ON A 4-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:
FILENAME:	SD 7-10.dwg	REVISED BY:	REVISED:
		AFW	02/14
		AFW	05/18

7-10

DRAWING NO.

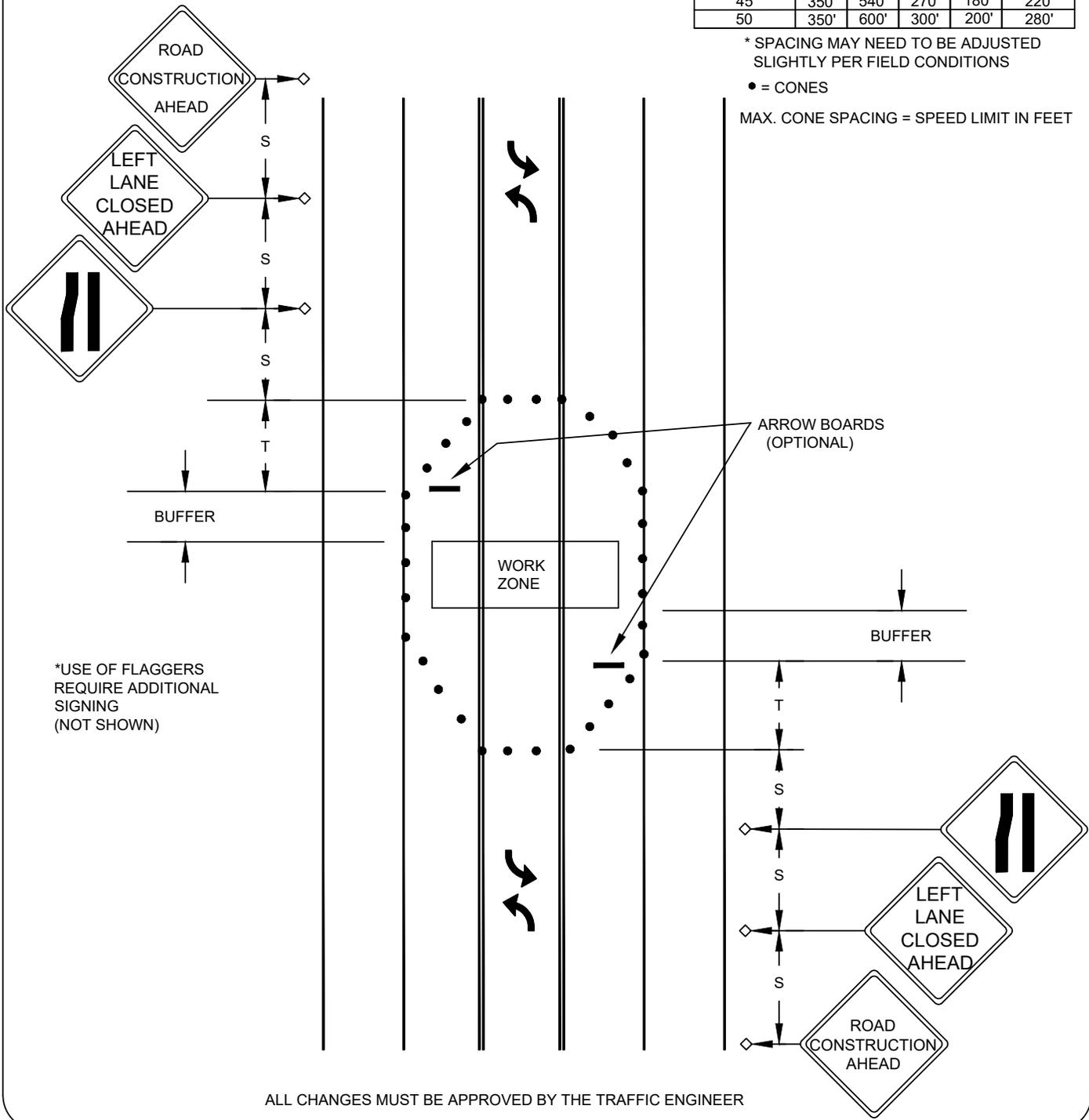
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



ALL CHANGES MUST BE APPROVED BY THE TRAFFIC ENGINEER



TYPICAL 3-LANE CLOSURE INSIDE A 5-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTED:
SD 7-11.dwg		AFW	02/14
FILENAME:	SD 7-11.dwg	REVISED BY:	REVISED:
		AFW	05/18

7-11

DRAWING NO.

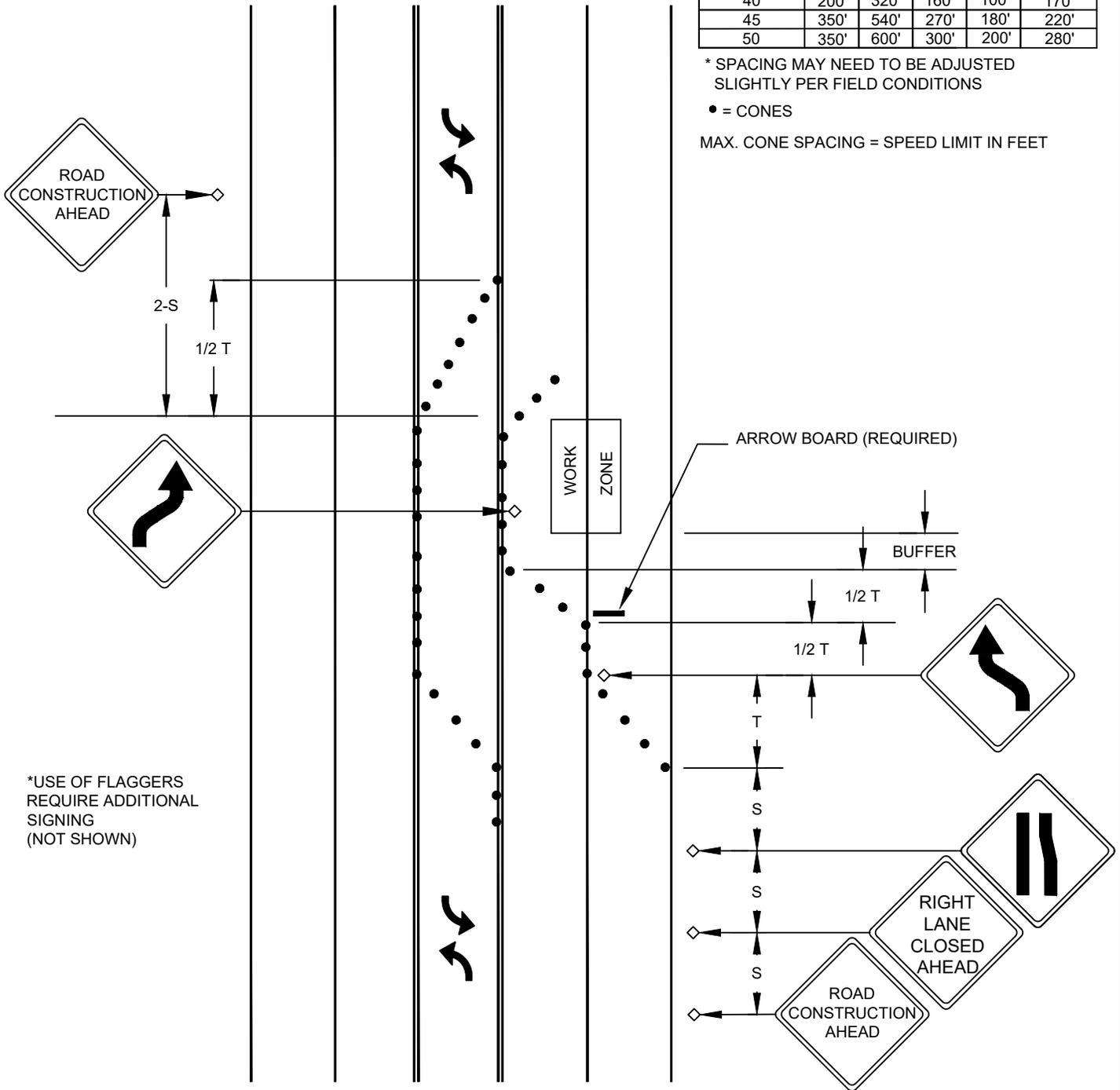
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



*USE OF FLAGGERS REQUIRE ADDITIONAL SIGNING (NOT SHOWN)

ALL CHANGES MUST BE APPROVED BY THE TRAFFIC ENGINEER



TYPICAL 2-LANE CLOSURE ON A 5-LANE ROADWAY

CATEGORY: CATEGORY	REVIEWED BY: AFW	ADOPTED: 02/14
FILENAME: SD 7-12.dwg	REVISED BY: AFW	REVISED: 05/18

7-12

DRAWING NO.

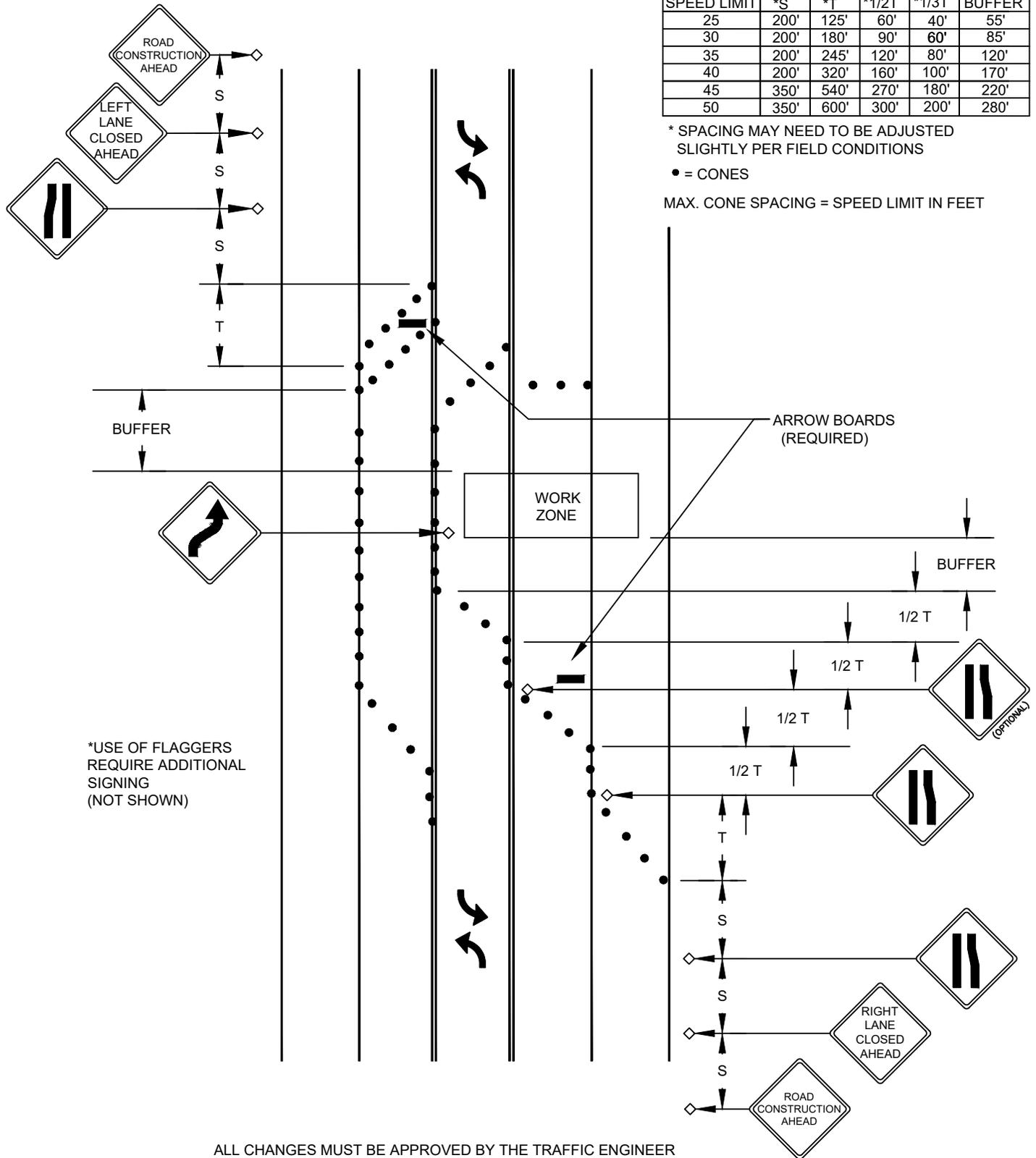
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



ALL CHANGES MUST BE APPROVED BY THE TRAFFIC ENGINEER

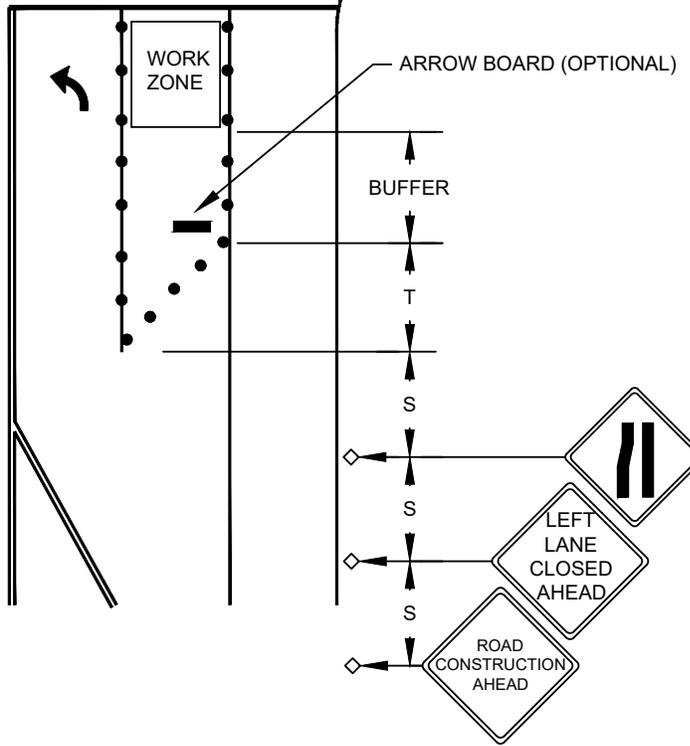
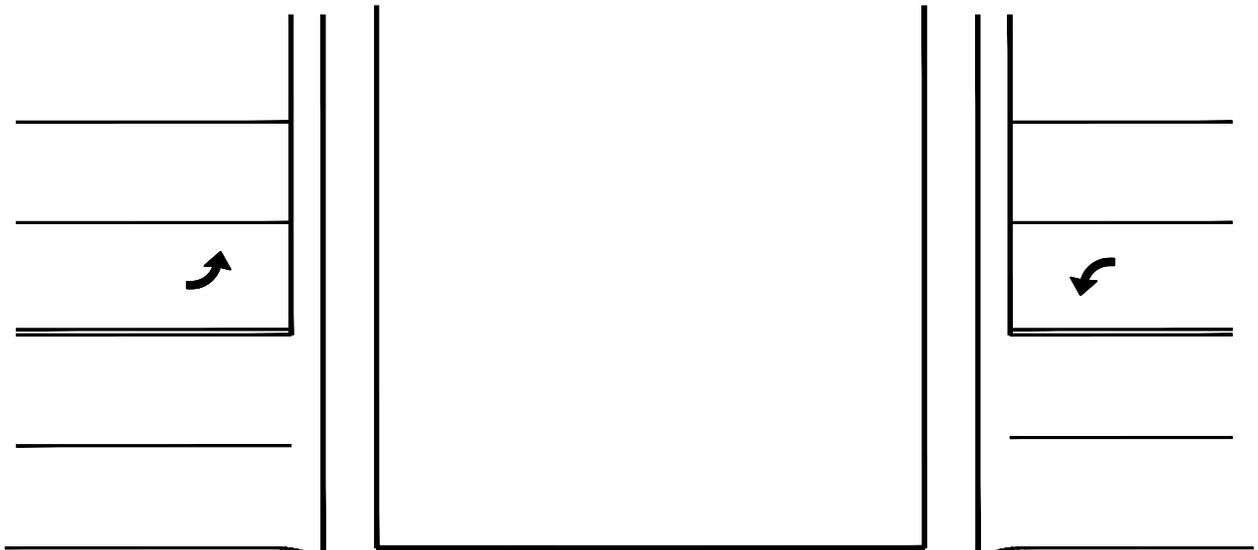


TYPICAL 3-LANE CLOSURE OUTSIDE 5-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	ADOPTE:
FILENAME:	SD 7-13.dwg	REVISED BY:	REVISED:

7-13

DRAWING NO.



T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET

ALL CHANGES MUST BE APPROVED BY THE TRAFFIC ENGINEER

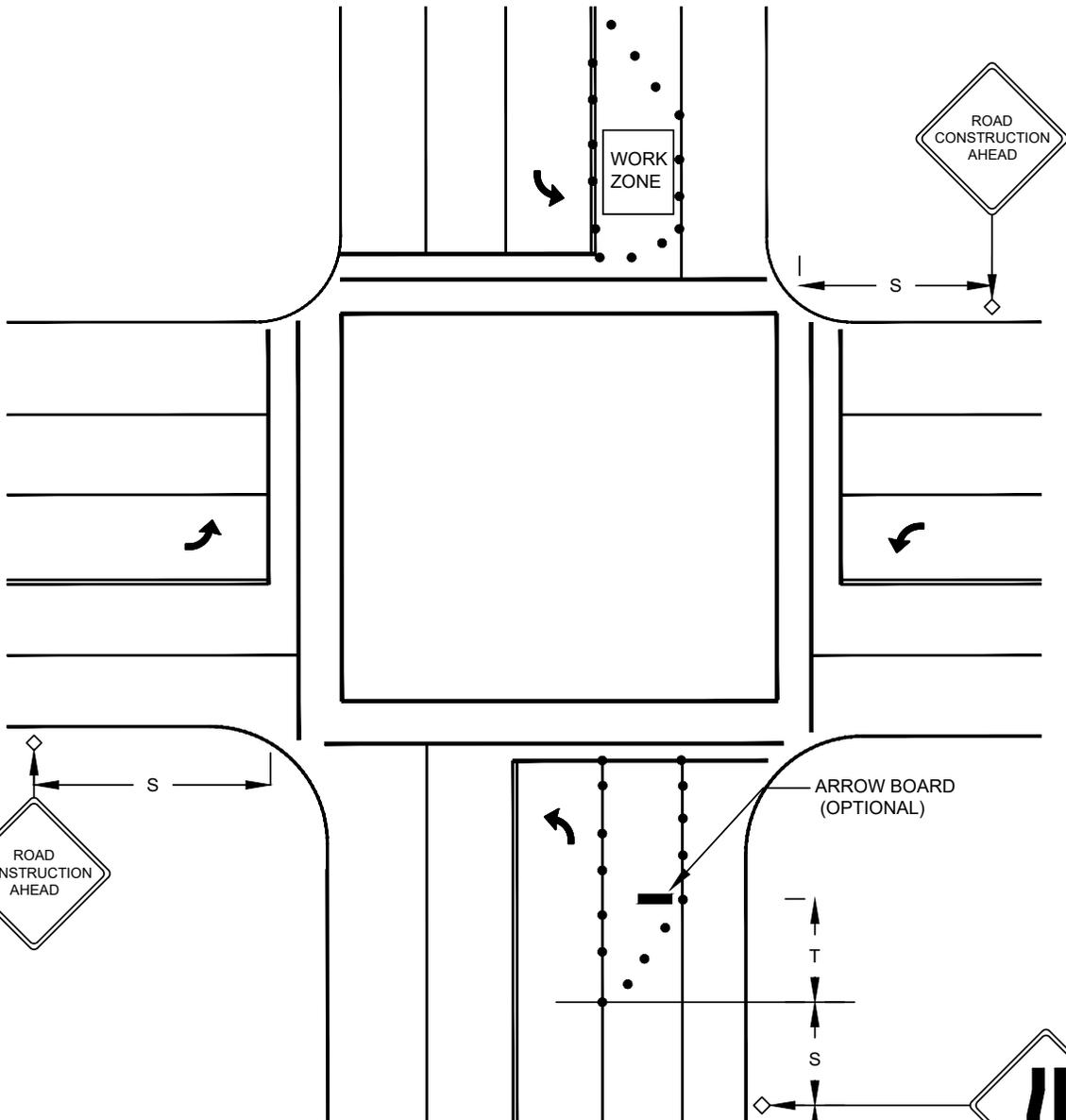


INSIDE LANE CLOSURE NEAR SIDE OF INTERSECTION

CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 7-14.dwg	REVISED BY:	AFW	REVISED:	05/18

7-14

DRAWING NO.



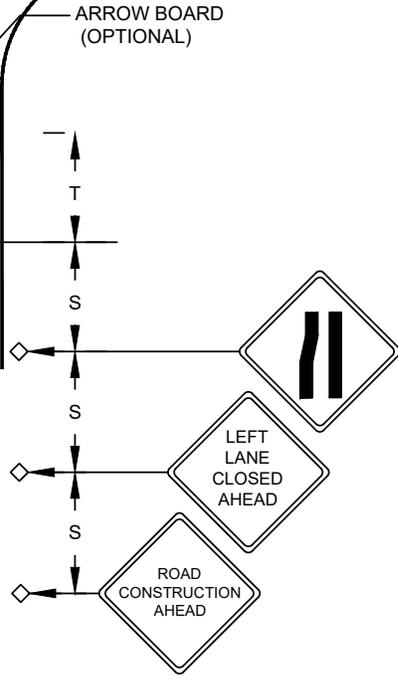
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



ALL CHANGES MUST BE APPROVED BY THE CITY ENGINEER

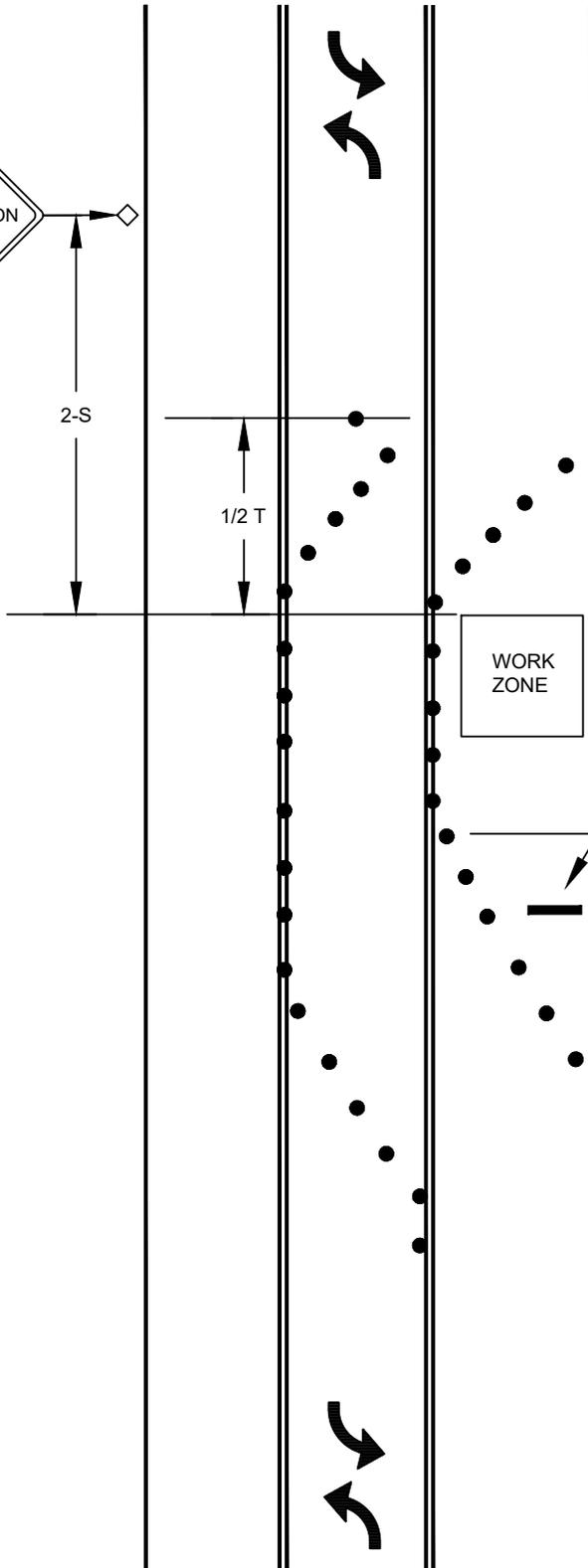
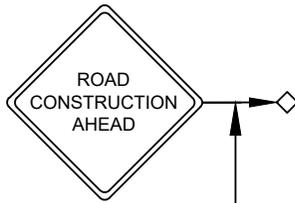


INSIDE LANE CLOSURE FAR SIDE OF INTERSECTION

CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 7-15.dwg	REVISED BY:	AFW	REVISED:	05/18

7-15

DRAWING NO.



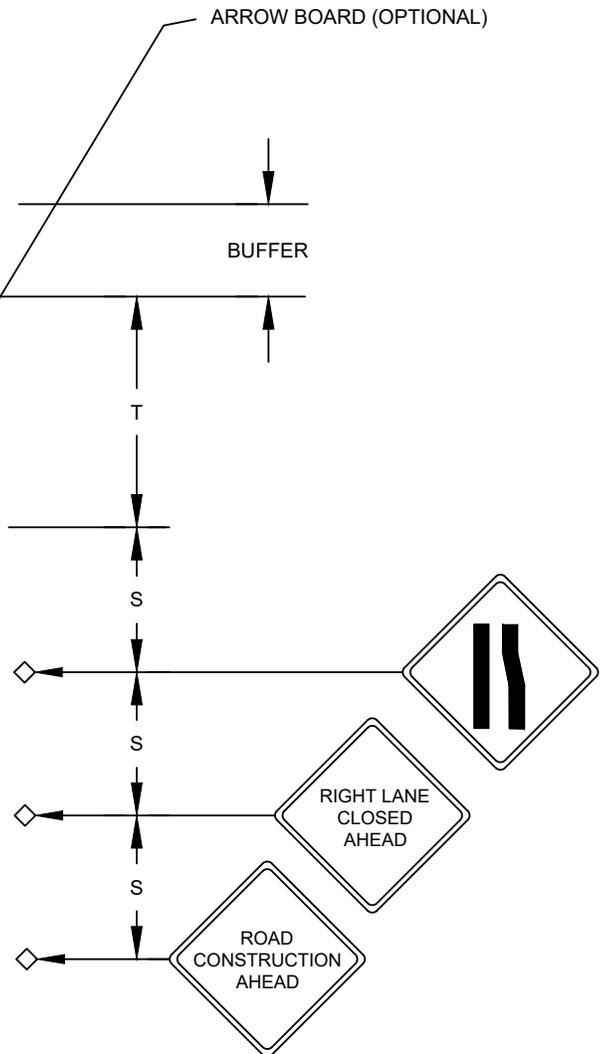
T= TAPER LENGTH S= SIGN SPACING

SPEED LIMIT	*S	*T	*1/2T	*1/3T	BUFFER
25	200'	125'	60'	40'	55'
30	200'	180'	90'	60'	85'
35	200'	245'	120'	80'	120'
40	200'	320'	160'	100'	170'
45	350'	540'	270'	180'	220'
50	350'	600'	300'	200'	280'

* SPACING MAY NEED TO BE ADJUSTED SLIGHTLY PER FIELD CONDITIONS

• = CONES

MAX. CONE SPACING = SPEED LIMIT IN FEET



ALL CHANGES MUST BE APPROVED BY THE CITY ENGINEER

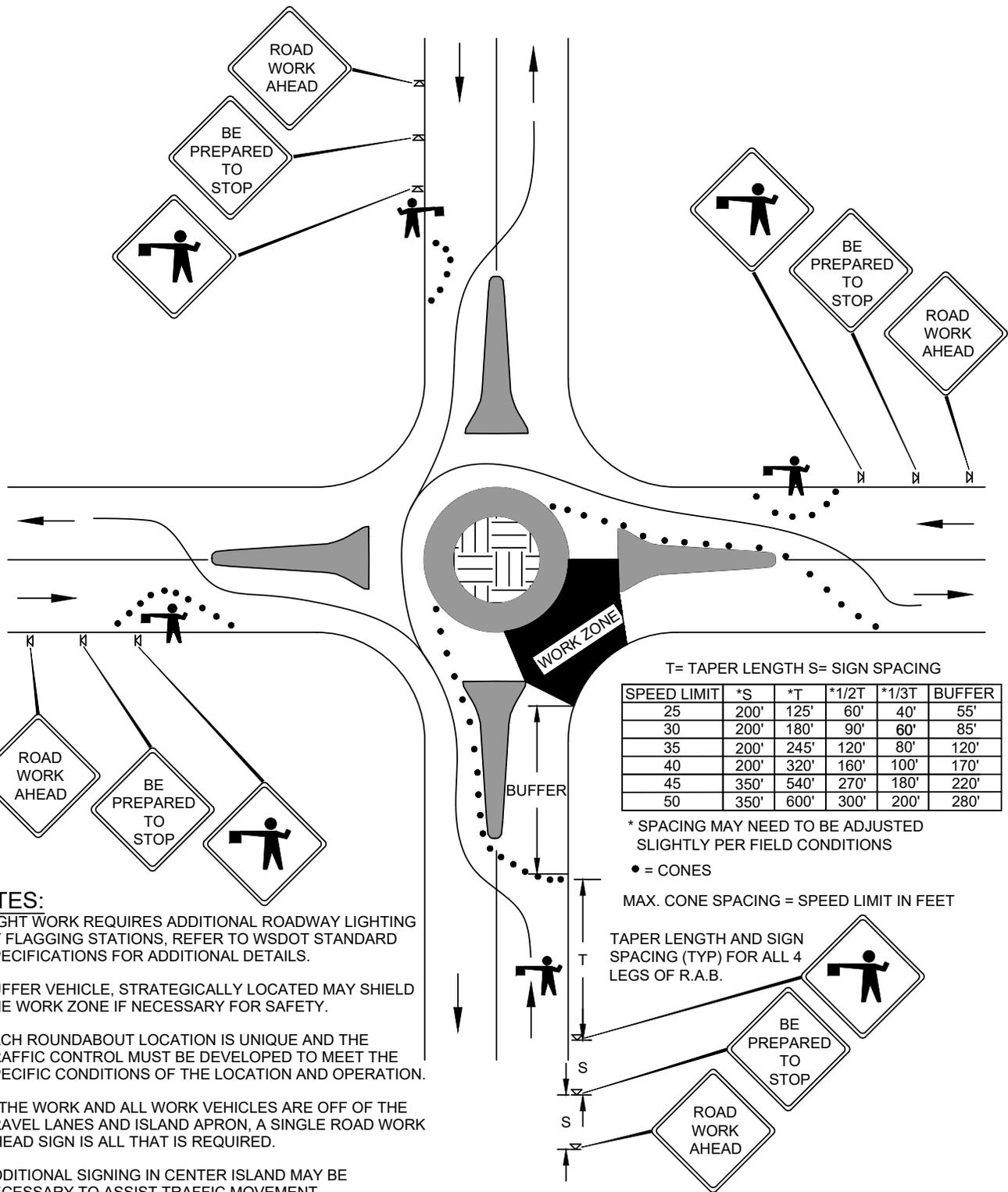


TYPICAL 1-LANE CLOSURE ON A 3-LANE ROADWAY

CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	02/14
FILENAME:	SD 7-16.dwg	REVISED BY:	AFW	REVISED:	05/18

7-16

DRAWING NO.



NOTES:

1. NIGHT WORK REQUIRES ADDITIONAL ROADWAY LIGHTING AT FLAGGING STATIONS, REFER TO WSDOT STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
2. BUFFER VEHICLE, STRATEGICALLY LOCATED MAY SHIELD THE WORK ZONE IF NECESSARY FOR SAFETY.
3. EACH ROUNDABOUT LOCATION IS UNIQUE AND THE TRAFFIC CONTROL MUST BE DEVELOPED TO MEET THE SPECIFIC CONDITIONS OF THE LOCATION AND OPERATION.
4. IF THE WORK AND ALL WORK VEHICLES ARE OFF OF THE TRAVEL LANES AND ISLAND APRON, A SINGLE ROAD WORK AHEAD SIGN IS ALL THAT IS REQUIRED.
5. ADDITIONAL SIGNING IN CENTER ISLAND MAY BE NECESSARY TO ASSIST TRAFFIC MOVEMENT .



**TYPICAL LANE CLOSURE
INSIDE A ROUND-ABOUT**

CATEGORY:	CATEGORY	REVIEWED BY:	AFW	ADOPTED:	11/14
FILENAME:	SD 7-17.dwg	REVISED BY:	AFW	REVISED:	05/18

7-17

DRAWING NO.