



CONSTRUCTION STANDARD DETAIL DRAWINGS

RESOLUTION NO. R2009-13

FEBRUARY 2009

Prepared By:
City of Yuma
City Engineering Department

RESOLUTION NO. R2009-13

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF YUMA, ARIZONA, REPEALING RESOLUTION NO. R2002-02, RELATED TO "CONSTRUCTION STANDARD DETAIL DRAWINGS, DATED OCTOBER 2001", AND ADOPTING THE REVISED "CONSTRUCTION STANDARD DETAIL DRAWINGS, DATED FEBRUARY 2009"

WHEREAS, it is necessary to periodically review and update the Construction Standard Detail Drawings (Drawings) of the City of Yuma, Arizona (City); and,

WHEREAS, the Drawings set forth the minimum quality and criteria for City infrastructure construction that are acceptable to the City and for use by the Public; and

WHEREAS, adoption of this Resolution will repeal and replace the "Construction Standard Detail Drawings, dated October 2001" and adopted by Resolution No. R2002-02, with the attached "Construction Standard Detail Drawings, dated February 2009".

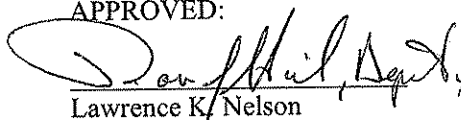
NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Yuma, Arizona as follows:

SECTION 1: Resolution No. R2002-02, related to "Construction Standard Detail Drawings, dated October 2001", is hereby repealed.

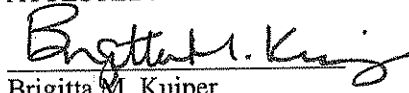
SECTION 2: The "Construction Standard Detail Drawings, dated February 2009", attached hereto as Exhibit A and by this reference made a part hereof, is adopted for the City of Yuma, Arizona.

Adopted this 4th day of March, 2009.

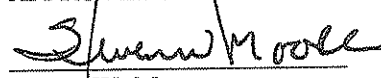
APPROVED:


Lawrence K. Nelson
Mayor

ATTESTED:


Brigitta M. Kuiper
City Clerk

APPROVED AS TO FORM:


Steven W. Moore
City Attorney

CITY OF YUMA
CONSTRUCTION STANDARD
DETAIL DRAWINGS
RESOLUTION NUMBER R2009-13

**STANDARD
NUMBER**

DESCRIPTION

1-000's

SHEET SIZES & SYMBOLS

1-010	Standard Drawing Sizes
1-030	Standard Drawing Symbols(3 Sheets)

2-000's

ROADWAY CLASSIFICATIONS

2-005	Expressway
2-010	Principal Arterial Street
2-020	Minor Arterial Street
2-030	Collector Street
2-031	Residential Collector Street
2-032	Constrained Collector Street
2-050	Local Two Lane Street
2-060	Local Commercial/Industrial Street
2-085	Bikeway Standards
2-094	Speed and Intersection Control, New & Replaced Residential Streets (2 sheets)
2-096	Schematic Street Layout Requirements
2-100	Guidelines for Traffic Impact Studies

3-000's

ENGINEERING DESIGN STANDARDS

3-010	Depth of Aggregate Base Course for Local Two Lane Streets
3-025	Depth of Aggregate Base Course for Collector Streets
3-026	Depth of Aggregate Base Course for Principal, Expressway and Minor Arterial Streets
3-030	Typical Alley
3-031	Access Gate
3-060	Parkway Grading
3-080	Cul-de-sac
3-100	Standard Local Street Knuckle
3-110	Median Options
3-112	Safety Nose Median
3-120	Vertical Curb and Gutter
3-130	A.D.O.T. Type Vertical Curb and Gutter
3-140	Roll Curb and Gutter
3-150	Vertical Curb and Typical Curb Termination
3-160	Residential Addressing for Vertical and Roll Curb

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STANDARD NUMBER

DESCRIPTION

3-170	Cross Gutter Layout
3-180	Cross Gutter
3-181	Intersection with Standard Cross Gutters
3-190	Transition from A.D.O.T. Type Curb & Gutter to City Curb & Gutter (2 Sheets)
3-210	Driveway Entrance with Sidewalk Adjacent to Curb
3-211	Driveway Entrance with Parkway
3-212	Residential Driveway with Roll Curb and Gutter
3-225	Driveway Entrances with Curb Returns
3-250	Driveway Entrance Locations
3-251	Trash Enclosures
3-252	Trash Enclosure Access
3-260	Sidewalk and Parkway Locations
3-270	Sidewalks
3-271	Sidewalk Handicapped Passing Zone
3-280	Sidewalk Ramp (2 Sheets)
3-290	Sidewalk Ramp (Straight Section)
3-291	Sidewalk Ramp Detectable Warning Strip (2 Sheets)
3-292	Curb Ramp and Island Passageway Details
3-300	Non-Retaining 8' Tall CMU Site Wall (2 Sheets)
3-310	Non-Retaining Concrete Block Wall
3-320	6' Chain Link Fence and Gate (Industrial Use Only)
3-321	Steel Tube Fencing
3-330	Reverse Curves
3-340	Angle of Intersections
3-350	Local Street Jogs
3-351	Hammerhead Tee Turnaround
3-352	Turn Lane Treatment (3 Sheets)
3-355	Right Turn Channelizations with Separate Turn Lane (2 Sheets)
3-357	Driveway Channelization (7 sheets)
3-360	Type III Barricade
3-391	Bus Bay Design
3-400	Clear Sight Triangles at Typical Stop Intersections
3-500	Speed Table (2 Sheets)

4-000's

MONUMENTATION

4-010	Survey Monument Specifications
4-020	Typical Subdivision Monuments
4-030	Boundary Monument
4-040	Survey Monument with Frame and Cover - Type "A"
4-050	Survey Monument with Frame and Cover - Type "B"
4-060	Monument Referencing Standard
4-070	Reference Point Monument

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STANDARD NUMBER

DESCRIPTION

4-080	Street Monument Placement
4-090	Survey Monument with Frame and Cover- Type "C"
4-100	Street Monuments

5-000's

DRAINAGE AND UTILITIES

5-010	Sanitary Sewer Cleanout
5-015	Forcemain Pressure Cleanout
5-020	Lateral Connection to Wastewater System with 45 Degree Bend
5-021	Lateral Connection to Wastewater System with Sanitary Wye
5-022	Typical Water & Sewer Crossings
5-029	Pre-Cast Concrete Manhole
5-030	Pre-Cast Concrete Manhole (15'-40' Deep)
5-031	Adjusting Techite Manhole Liners or Brick Manholes to Finished Grade
5-032	Techite Manhole Liner Top Collar
5-040	Standard Manhole Frame and Cover
5-041	Type "A" Drop Sewer Connection
5-042	Type "B" Drop Sewer Connection
5-044	Adjusting Manholes to Final Grade
5-050	Sanitary Sewer Lift Station (2 Sheets)
5-051	Storm Sewer Lift Station (2 Sheets)
5-052	Stormwater Well Gate Detail
5-060	Typical Water & Sewer Crossings
5-070	Pavement Replacement
5-075	Pavement Repair Longitudinal Utility Cut Next to Curb or Gutter
5-080	Typical Water & Sewer Main Trench Backfill
5-081	Typical Water & Sewer Service Line Trench Backfill
5-090	Typical Thrust Block Installation
5-100	Thrust Block Data
5-101	Concrete Base for Valves 20" and Larger
5-110	Valve Anchors
5-112	Temporary Construction Anti-Backflow Assembly
5-113	Air Gap Separation Backflow Prevention
5-114	Double Check Valve (D.C.V.A.) Backflow- Prevention Assembly for 3" and Smaller Water Line
5-115	Double Check Valve (D.C.V.A.) Backflow- Prevention Assembly for 4" and Larger Water Line
5-116	Reduced Pressure Assembly (R.P.A.) for 3" and Smaller Water Line
5-117	Reduced Pressure Assembly (R.P.A.) for 4" and Larger Water Line
5-118	Pressure Vacuum Breaker Assembly (All Sizes)
5-120	Utility Locations for Principal Arterial Street Fire Hydrants

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STANDARD NUMBER

DESCRIPTION

5-125	Fire Hydrant Street Markers
5-130	Fire Hydrant and Flexstake Locations
5-131	Fire Line Valving
5-132	Private Fire Sprinkler Line Installation
5-133	Fire Department Connections
5-140	Watermain Blowoff
5-142	Air Release Valve Manhole
5-148	Approved Water Service Components
5-149	Water Meter Installation 1" & Smaller
5-150	2" Water Service
5-152	Concrete Water Meter Box for 1" Meter and Smaller
5-153	Concrete Water Meter Box for 1-1/2" and 2" Meter and 3" Turbine Meter
5-154	Water Meter Vault 4" through 8" Meters
5-160	Utility Locations for Principal Arterial Streets
5-170	Utility Location for Minor Arterial Streets
5-180	Utility Location for Collector Streets
5-190	Utility Location for Local Two Lane Streets
5-200	Valve Box Cover, Drop In
5-210	Valve Box Installation
5-211	8" Cast Iron Frame and Cover
5-212	Steel Casing end Seals with 2" Schedule 80 PVC Vent Pipe
5-225	Type "A" Catch Basin -For Use without Curb and Gutter
5-230	Type "B" Catch Basin -5' to 6' Curb Opening with Access
5-240	Type "C" Catch Basin -8' Curb Opening with Access
5-250	Type "D" Catch Basin
5-260	Type "E" Catch Basin -Single/Triple Grate)
5-270	Type "F" Catch Basin -Curb Opening with Single/Triple Grate
5-275	Catch Basin with HDPE Structure
5-280	Cover for Access Opening Type "B" and "C" Catch Basins
5-290	Curb Opening Inlet and Pipe Entry Detail
5-310	Drain Under Sidewalk
5-320	Concrete Scupper
5-350	Concrete Pipe Collar
5-360	End Section - Reinforced Concrete Pipe
5-370	Spillway Inlet and Outlet
5-390	Erosion Protection/Riprap
5-500	Irrigation Sprinkler System (3 Sheets)
5-510	Cage for Backflow Preventer
5-520	Two Stage Grease Interceptor

6-000's

TRAFFIC SIGNALS

6-005	Type "O" Controller Cabinet Layout (2 sheets)
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STANDARD NUMBER

DESCRIPTION

6-006	Electric Service Enclosure on Controller Cabinet (2 sheets)
6-010	Traffic Signal Control Cabinet Foundation
6-030	Pull Box Installation
6-031	Pull Box for Fiber Optic Cable, Type FO
6-040	Cabinet, Pole and Pedestal Grounding
6-100	Internally Illuminated Street Name Signs (2 sheets)
6-101	Location of Internally Illuminated Street Name Signs (2 sheets)
6-102	Mast Arm Signal Mounting Assembly, 3 to 5 Section, Straight
6-103	Mast Arm Signal Mounting Assembly, 5 Section Cluster Mount
6-104	Signal Mounting Assemblies for Poles and Pedestals (4 sheets)
6-105	Illuminated Sign Mounting Bracket (2 sheets)
6-200	Signal Pole Foundations (2 sheets)
6-201	Type SP-1A and SP-1B Traffic Signal Pole and Mast Arm (4 sheets)
6-202	Type I and Type II Traffic Signal Pole and Mast Arm (4 sheets)
6-203	Type III Traffic Sign Pole and Mast Arm (4 sheets)
6-210	Pedestrian Push-button on Street Name Sign Assembly
6-300	Traffic Signal Phase Assignments
6-301	Traffic Signal Set-up Design for 2-Phase Intersection with Advance Detection (2 sheets)
6-310	Conduits and Pull Boxes at Controller Cabinet
6-350	Traffic Signal Fiber Optic Cable Connections
6-351	Schematic Traffic Signal Fiber Optic Channel Connections
6-352	Typical Traffic Signal Fiber Optic Channel Complex Splices
6-400	Loop System Installation (5 sheets)
6-610	Example of Traffic Signal Layout for Conduit and Electrical Connections Design (4 sheets)
6-700	Wi-fi installation on Traffic Signal (2 sheets)
6-900	Speed Limit Beacon Assembly
6-910	Temporary Traffic Signal Assembly-Typical Span

7-000's

STREET LIGHTS

7-010	Street Light Assembly 8'x36' Mast Arm for Wood Pole
7-020	Street Light Assembly 8'x8' High Rise Mast Arm for Wood Pole
7-030	Street Light Assembly 72"x20" Mast Arm for Wood Pole
7-040	Street Light Assembly 8'x8' Hi-Rise Mast Arm(s) on Self Supporting or Non-Self-Supporting on 32" Steel Pole
7-050	Street Light Assembly 72"x20" Mast Arm and 25' Steel Pole

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DESCRIPTION

7-060	Street Light Assembly Architectural Square Brown Steel Pole with 8' High Rise Arm (Single or Double)
7-070	Street Light Assembly Architectural Square Brown Steel Pole with 2' Arm (Single or Double)
7-080	Street Light Assembly Architectural 28' Square Brown Steel Pole
7-090	Street Light Assembly Colonial 18' Square Brown Steel Pole
7-100	Street Lighting Design Standards
7-101	Typical Street Light Layout Configuration
7-110	Street Light Assembly Detail Internal Pole Wiring for Underground Circuit
7-120	Transitions Secondary, Underground Circuit to Street Light on Wood Pole
7-125	Protective Coating for Steel Light Poles
7-130	Street Light Fixtures High Pressure Sodium Luminaries
7-131	Street Light Luminaries List
7-140	Street Light Details Lamps and Photoelectric Controllers
7-150	Junction Box Heavy Duty Polymer for Street Light Service
7-160	Street Light Material Specifications Mast Arm Connection Detail
7-170	Street Light Material Specifications Round Pole Hand Hole Detail
7-180	Street Light Material Specifications Square Pole Hand Hole Detail
7-190	Street Light Material Specifications Base Plate Display
7-200	Street Light Material Specifications Pole Step-Down Detail
7-210	Street Light Material Specifications Structural Notes
7-220	Street Light Material Specifications Pole Footing Detail
7-230	Street Light Material Specifications Wood Pole Mast Arm Connection Detail
7-240	Street Light Material Specifications Mast Arm Details (4 sheets)
7-250	Street Light Material Specifications 32' Steel Pole
7-260	Street Light Material Specifications 25' Steel Pole
7-270	Street Light Material Specifications Architectural Square Brown Steel Pole

8-000's

TRAFFIC SIGNING

8-010	Minimum Placement Requirements for Traffic Signs (2 sheets)
8-011	Stop Sign and Street Name Sign Placement
8-012	All-way STOP to Normal 2-way STOP Transition
8-020	Traffic Sign Mounting (4 sheets)
8-021	Street Name Sign Mounting Brackets (2 sheets)

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DESCRIPTION

8-040	Guidelines for Warning Sign Replacement
8-041	Stop Sign Visibility and Advance Warning
8-042	Signing of One-way Exit Driveways
8-100	Work Zone Identification Sign (2 sheets)
8-200	Street Name Sign Layout and Design (6 sheets)
8-205	Pedestrian Push-button Identification Sign (SP-1)
8-210	Parking Regulation Signs (2 sheets)
8-215	Ground-mounted Lane Use Signs (2 sheets)
8-230	Ground-mounted Work Zone Lane Use Signs (4 sheets)
8-350	Cross Street Closed Ahead Sign (W20-3YS)
8-352	Parade Ahead Sign (W50-1Y)
8-370	Advance Detour Sign (M4-9Y)

9-000's

PAVEMENT MARKING

9-010	Taper Lengths for Use in Pavement Marking and Work Zone/ Special Event Traffic Control
9-020	Approach End Treatment for Medians (2 sheets)
9-021	Lane Drop Signing and Marking
9-022	School Crossing Signing and Marking (13 sheets)
9-100	Intersection Pavement Markings
9-110	Pavement Marking Definitions

10-000's

DRAINAGE EROSION CONTROL

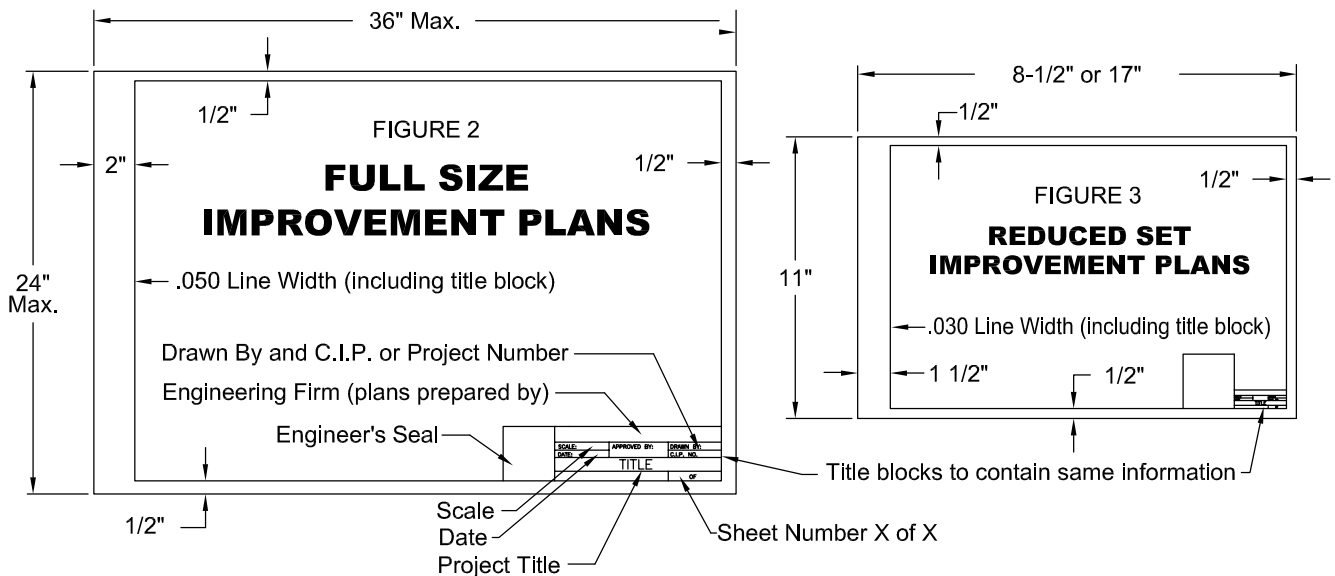
10-010	Stabilized Construction Exit/ Entrance
10-020	Silt Fence
10-030	Sediment Logs (Wattles)
10-040	Gravel Filter Bern
10-050	Pipe Outlet Protection
10-060	Temporary Diversion Dike
10-070	Temporary Drainage Swale
10-080	Standard Concave Median
10-090	Inlet Protection
10-110	Inlet Protection
10-120	Concrete Wash Area

11-000's

OVERHEAD UTILITIES

11-010	Overhead Wire and Cable Clearance at Significant Intersections (3 sheets)
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NOTES & COMMENTS



**COVER SHEET
FIGURE 1**

BID NO. xxxxxxxxxxxx
C.I.P. NO. x.xxxx
PROJECT TITLE
MAYOR
xxxxxxxxxxxxxx
CITY COUNCIL
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
xxxxxxxxxxxx
CITY ADMINISTRATOR
xxxxxxxxxx
APPROVED: _____
CITY ENGINEER
APPROVED: _____
DIRECTOR, xxxx DEPARTMENT
COUNTY/ADEQ FILE NO.
"BLUE STAKE" Notification
Project Name, C.I.P. Number, and Bid Number
Department Head's Signature Sponsoring Project
City Engineer's Signature
Members of the City Council (listed alphabetically)
Bid Number

County / ADEQ File Number (Water & Sewer Projects only)

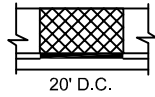
NOTES

1. Drawing sheets for each set of project plans are to be consecutively numbered.
2. The North arrow is to be directed towards the top or to the right on each sheet.
3. The cover (first) sheet of a set of plans, full size or reduced, shall be sized and drawn as shown above (Figures 1, 2 and 3).
4. Sheet Number 2 (not shown) will contain Construction Notes, Standard Detail Drawings, a Project Location Map, Project Survey Control Data, a Legend explaining symbols used for the Project and any other information necessary for the Project. If needed, additional sheets are used to complete this information.
5. All sheets, excluding the Cover Sheet, shall be laid out as shown in Figure 2 with regard to borders (full size) or Figure 3 (half size).
6. Design firm information is not included on the cover sheet but is permitted on subsequent sheets.

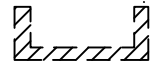
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 1-010
STANDARD DRAWING SIZES

ENGINEERING SYMBOLS



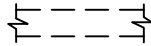
New Driveway entrance with depressed curb



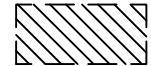
Existing structure



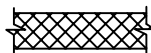
New asphalt pavement



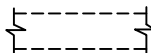
Existing asphalt pavement



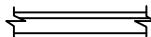
Exist. construction to be removed



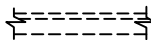
New Portland Cement Concrete sidewalk



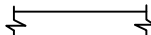
Exist. Portland Cement Concrete sidewalk



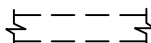
New vertical curb and gutter (V.C. & G.)



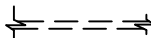
Exist. Vertical curb & Gutter



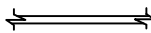
New roll curb & Gutter (R.C. & G.)



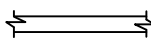
Existing roll curb & gutter



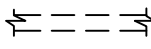
Existing single curb



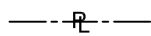
New single curb



New Portland Cement Concrete valley gutter



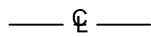
Existing Portland Cement Concrete valley gutter



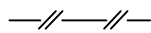
Existing property line



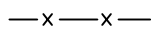
Right-of-Way line (heavy line)



Centerline (C.L.)



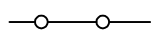
Wood fence



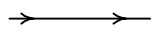
Wire fence



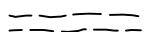
Masonary / brick fence



Chain link fence



New ditch



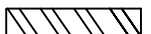
Existing ditch



Exist. building setback (As Noted)



New Barricade



Existing Barricade



New Riprap (rock)



Exist. Riprap (rock)



New Guard rail & break-a-way cable terminal



Existing mail box (M.B.)



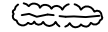
Exist. mailbox to be relocated



Existing tree or shrub



Tree/shrub to be removed



Existing hedge



Hedge to be removed

MONUMENT SYMBOLS



New survey monument (Std. Dt. 4-030)



New survey monument (Std. Dt. 4-080)



Bench mark (B.M.)



Measured data



Recorded data



Proportional data



New elevation



Existing elevation



New monument and cover



Exist. monument and cover



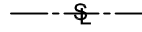
Set monuments (As per note)



Found monuments (As per note)

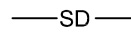


Calc. points, nothing found, nothing set

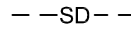


Section Line

DRAINAGE & IRRIGATION SYMBOLS



New storm drain pipe



Existing storm drain pipe



New Catch basin (installed in gutter)



New Catch basin (flush mount)



New irrigation pipe



Existing irrigation pipe



New irrigation stand pipe



Existing irrigation stand pipe



New irrigation or drainage junction box



Exist. irrigation or drainage junction box

Issued: February 2009

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-030
STANDARD DRAWING SYMBOLS

WATER & SEWER

W.M.■	New water meter and meter box (W.M.)
W.M.□	Existing water meter and meter box
W.M.▣	Exist. water meter and meter box to be relocated
W.V.⊗	New water valve, box, and cover (V.B. & C.)
W.V.⊗	Existing water valve, box, and cover
F.H.●	New fire hydrant (F.H.)
F.H.○	Existing fire hydrant
■	New end cap w/ blow-off (Type "A" or Type "B")
□	Existing end cap w/ blow-off (Type "A" or Type "B")
B.O.⊙	New blow off valve (B.O.)
B.O.⊙	Exist. blow off valve
▶	New thrust block
— W —	New water main
- - W - -	Existing water main
▬▬▬▬▬	New pipe 12" and larger
▬▬▬▬▬	Existing pipe 12" and larger
▬▬▬▬▬	New pipe to be encased
— S —	New sanitary sewer main
- - S - -	Existing sanitary sewer main
M.H.⊙	New manhole (M.H.)
M.H.⊙	Existing manhole
C.O.⊙	New clean out (C.O.)
C.O.⊙	Exist. clean out

TRAFFIC & UTILITY (LINE) SYMBOLS

T.S.●	New traffic sign (T.S.)
T.S.○	Existing traffic sign
S.N.⬇	New street name sign (S.N.)
S.N.⬇	Existing street name sign
T.Signal	New traffic signal (T.Signal)
T.Signal	Existing traffic signal
L.P.●	New light pole (L.P.)
L.P.○	Existing light pole

P.A.→	Existing pole anchor (P.A.)
P.P.■	New power pole (P.P.)
P.A.□	Existing power pole
T.P.●	New telephone pole (T.P.)
T.P.○	Existing telephone pole
G⊗	Existing gas valve
— G —	New natural gas line
- - G - -	Exist. natural gas line
TELEPHONE	New telephone line
TELEPHONE	Exist. telephone line
U/G ELEC.	New underground electric
U/G ELEC.	Exist. underground electric
O/H ELEC.	New overhead electric
O/H ELEC.	Exist. overhead electrical lines
TV LINES	Existing cable TV lines
U/G CABLE	Exist. underground cable
O/H CABLE	Exist. overhead cable

GENERAL SYMBOLS & ABBREVIATIONS

1	Adjust water valve to new grade
2	Adjust sewer manhole to new grade
3	Adjust clean-out to new grade

A. C.	Asphaltic Concrete
B. M.	Bench Mark
B. O.	Blow Off
C. B.	Catch Basin
C. L.	Center Line
C. O.	Clean Out
Conc.	Concrete
D / W	Driveway
D.I.P	Doctor iron pipe
F. L.	Flow Line
F.H.	Fire Hydrant
GR.	Grade
H. H.	Hand Hole
L.P.	Light pole
M.H.	Manhole

Issued: February 2009

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-030
STANDARD DRAWING SYMBOLS

GENERAL SYMBOLS & ABBREVIATIONS (CONT.)

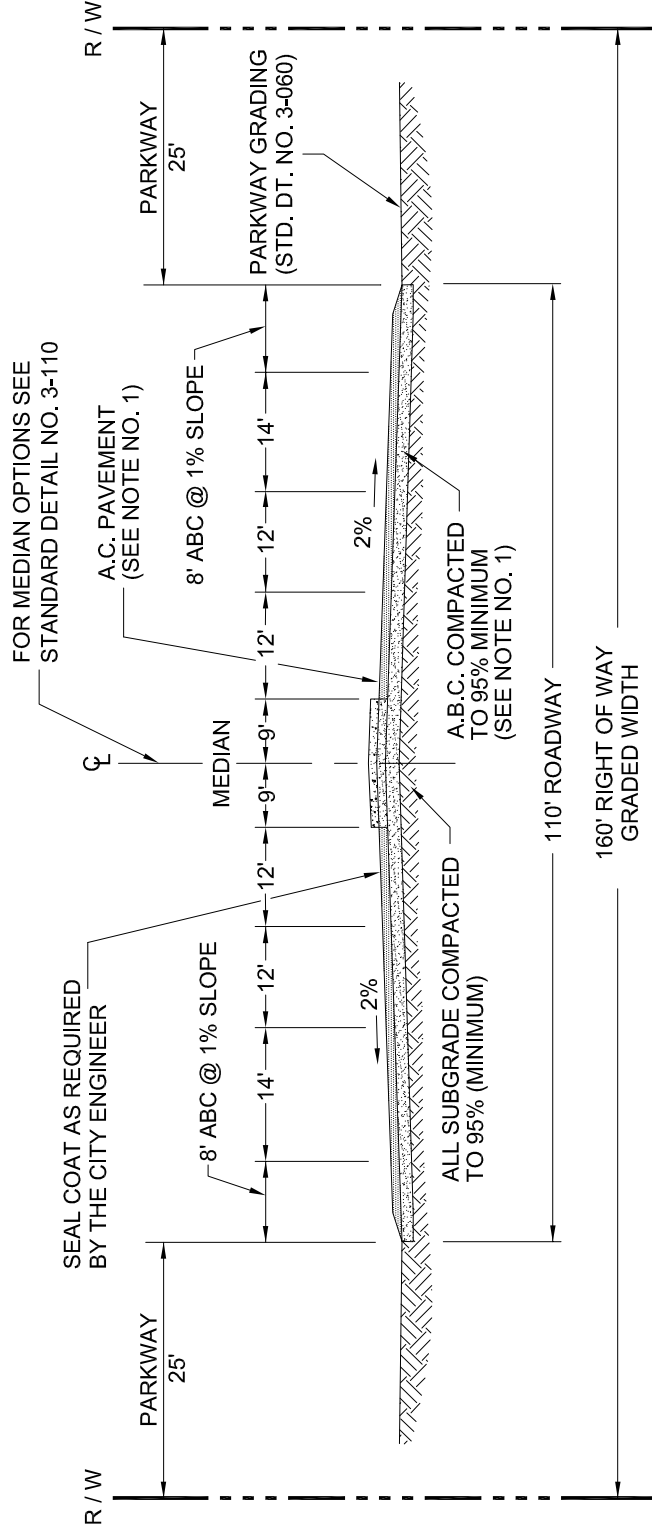
DIA.	Diameter	TDS	Temporary Drainage Swale
D.I.P	Doctor iron pipe	TDD	Temporary Diversion Dike
D / W	Driveway	GFB	Gravel Filter Berm
E	East	S.F.	Silt Fence
ELEC.	Electrical	SL-1 & SL-2	Sediment Logs (Wattles)
EL.	Elevation	SCE	Stabilized Construction Exit/Entrance
F. L.	Flow Line	POP	PIPE OUTLET PROTECTION
F.H.	Fire Hydrant	T.C.E.	TEMPORARY CONSTRUCTION EASEMENT
G.P.S.	Global Positioning System	P.E.	PROFESSIONAL ENGINEER
GR.	Grade		
GTR	Gutter		
H. H.	Hand Hole		
L.P.	Light pole		
M.H.	Manhole		
N	North		
N.A.D. 27	North American Horizontal Datum of 1927		
N.A.D. 83	North American Horizontal Datum of 1983		
O/S	Offset		
P.A.	Pole Anchor		
P.C.C.	Portland Cement Concrete		
P.P.	Power Pole		
P.R.L.S.,	Professional Registered		
L.S., R.L.S.	Land Surveyor		
R/W	Right of Way		
R.C. & G.	Roll Curb & Gutter		
SEC.	Section		
SMH	Sewer Manhole		
S / W	Sidewalk		
S	South		
SSMH	Storm Sewer Manhole		
S.N.	Street name sign		
SM	Survey Monument		
TEL.	Telephone		
T.B.	Thrust block		
T.P.	Telephone Pole		
T.C.	Top of Curb		
T.Signal	Traffic signal		
T.S.	Traffic sign		
TYP.	Typical		
V. G.	Valley Gutter		
V.C. & G.	Vertical Curb & Gutter		
V.B. & C.	Water valve, box & cover		
W.M.	Water meter		
W	West		

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 1-030
STANDARD DRAWING SYMBOLS



6 TRAVEL LANE DESIGN

NOTES

1. Structural design of combined thickness of base and surface to be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: four inch (4") for plant hot mix asphalt surfacing over twelve inches (12") of A.B.C. compacted to 95% (minimum).
2. Sidewalk location adjacent to curb or as approved by the City Engineer.
3. Utility locations are shown in Standard Detail 5-160.
4. All pavement striping/markings and/or raised pavement markers shall be in accordance with the ADOT manual for signing and marking, latest edition, with the exception of bikeways which shall be marked and signed in accordance with Standard Detail 2-085.
5. 4" white edge road stripe at 1 1/2' from edge of pavement.

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-005

EXPRESSWAY



1. Structural design of combined thickness of base and surface to be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: four inch (4") for plant hot mix asphalt surfacing over twelve inches (12") of A.B.C. compacted to 95% (minimum).
2. Sidewalk location adjacent to curb or as approved by the City Engineer.
3. Utility locations are shown in Standard Detail 5-160.
4. All pavement striping/markings and/or raised pavement markers shall be in accordance with the ADOT manual for signing and marking, latest edition, with the exception of bikeways which shall be marked and signed in accordance with Standard Detail 2-085.

5. Bike paths adjacent to Principal Arterial streets may require shifting of street centerline 16' to accommodate 10' minimum width for two-way bike path. Bike path right-of-way may overlap the utility corridor. This may increase right-of-way needed for Principal Arterial plus bike path beyond 122' shown.

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 2-010
PRINCIPAL ARTERIAL STREET



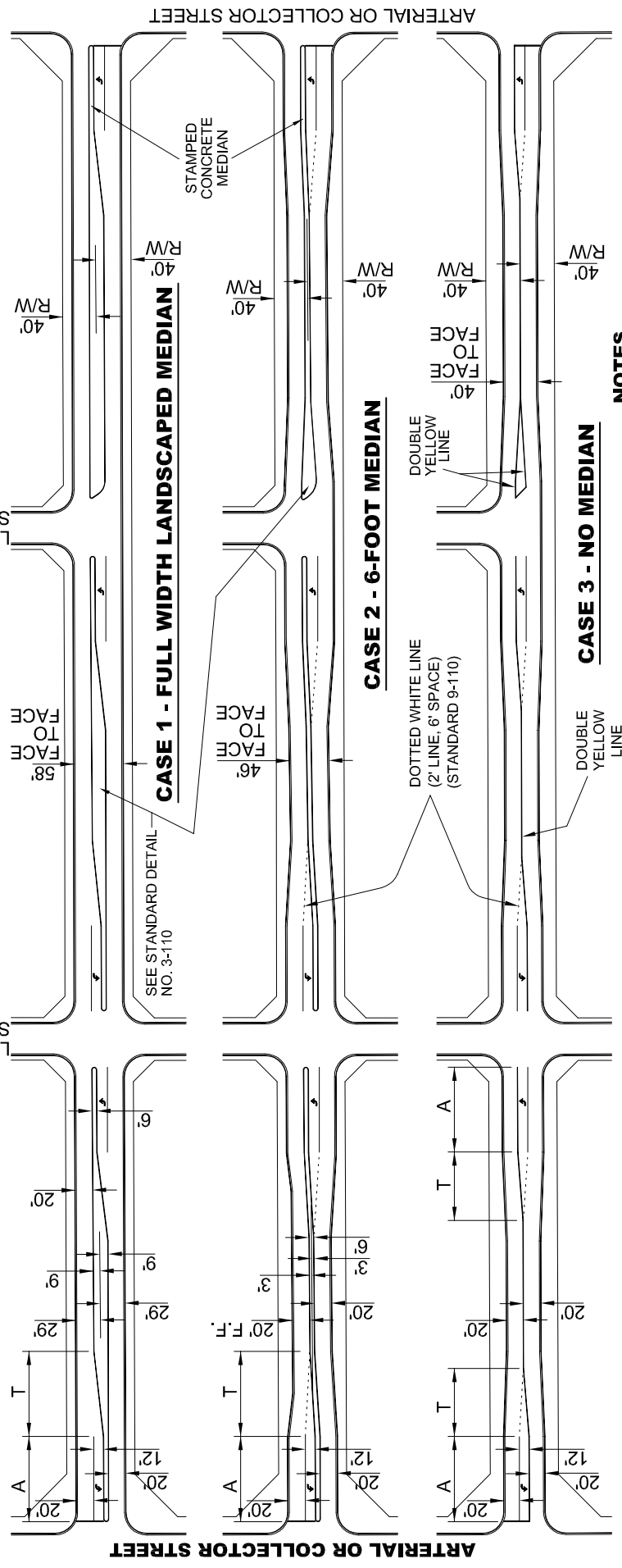
1. Structural design of combined thickness of base and surface to be determined by soil tests. While the soil test may require a greater paving thickness, the following minimum paving thickness is required: four inch (4") for plant hot mix asphalt surfacing over twelve inches (12") of A.B.C. compacted to 95% (minimum).
2. Sidewalk location adjacent to curb or as approved by the City Engineer.
3. All pavement striping/markings and/or raised pavement markers shall be in accordance with ADOT manual for signing and marking, latest edition, with the exception of bikeways which shall be marked and signed in accordance with Standard Detail 2-085.
4. Refer to Standard Detail 2-010 for bike path information.
5. Bike paths adjacent to Minor Arterial streets may require shifting of street centerline 16' to accommodate 10' minimum width for two-way bike path. Path right-of-way may overlap utility corridor. This may increase right-of-way width needed for a Minor Arterial plus bike path beyond the 98' shown.

STANDARD NO. 2-020 MINOR ARTERIAL STREET

NOT TO SCALE

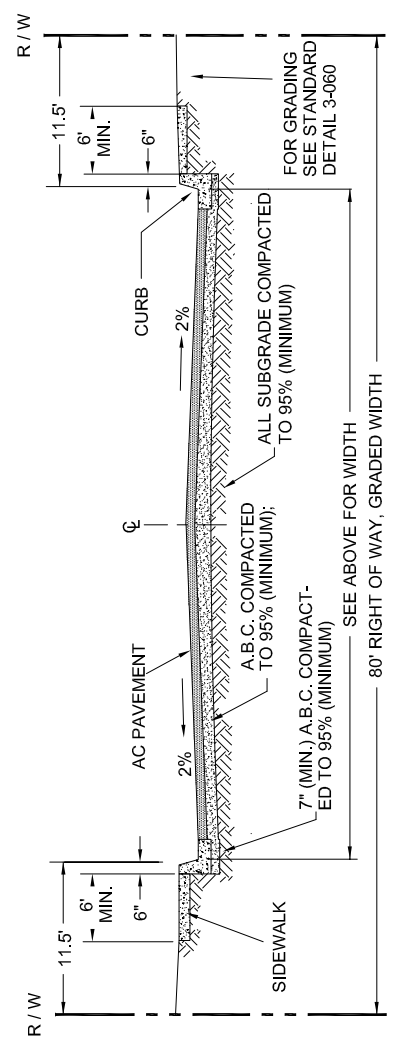
LOCAL STREET LOCAL STREET

DIMENSIONS:
A & T- SEE STANDARD 3-352



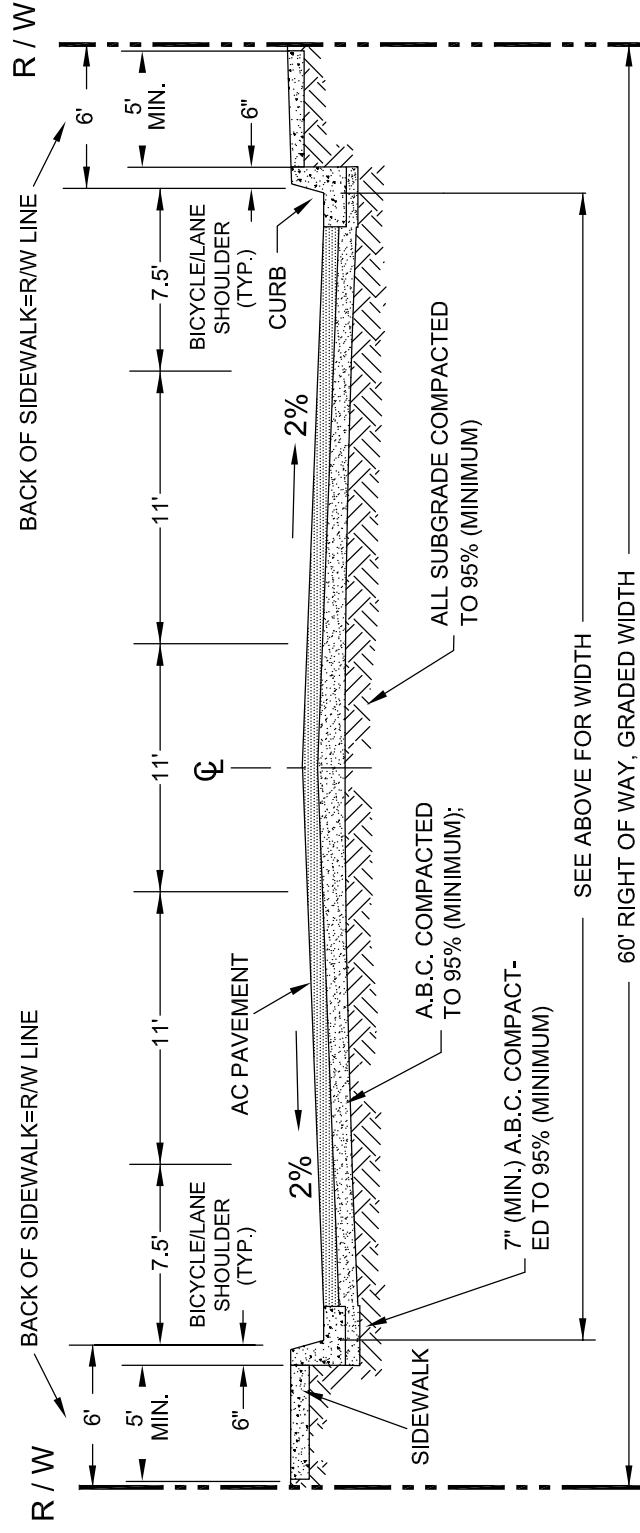
NOTES

1. STRUCTURAL DESIGN OF COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOILS TEST.
2. MINIMUM PAVING THICKNESS - 3" FOR PLANT HOT MIX ASPHALT SURFACING OVER 10" OF A.B.C. COMPACTED TO 95% (MINIMUM).
3. SIDEWALK LOCATION ADJACENT TO CURB OR AS APPROVED BY THE CITY ENGINEER.
4. ALL PAVEMENT MARKING AND RAISED PAVEMENT MARKER MATERIAL MUST BE IN ACCORDANCE WITH A.D.O.T. MANUAL FOR SIGNING AND MARKING, LATEST EDITION.
5. CASE 1 OR 2 MUST BE USED WHEN THERE ARE DRIVEWAYS ALONG COLLECTOR.
6. CASE 3 MAY BE USED WHEN THERE ARE NO DRIVEWAYS ALONG COLLECTOR.
7. BIKE LANES PROVIDED BUT NOT STRIPED.



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 2-030
COLLECTOR STREET



NOTES

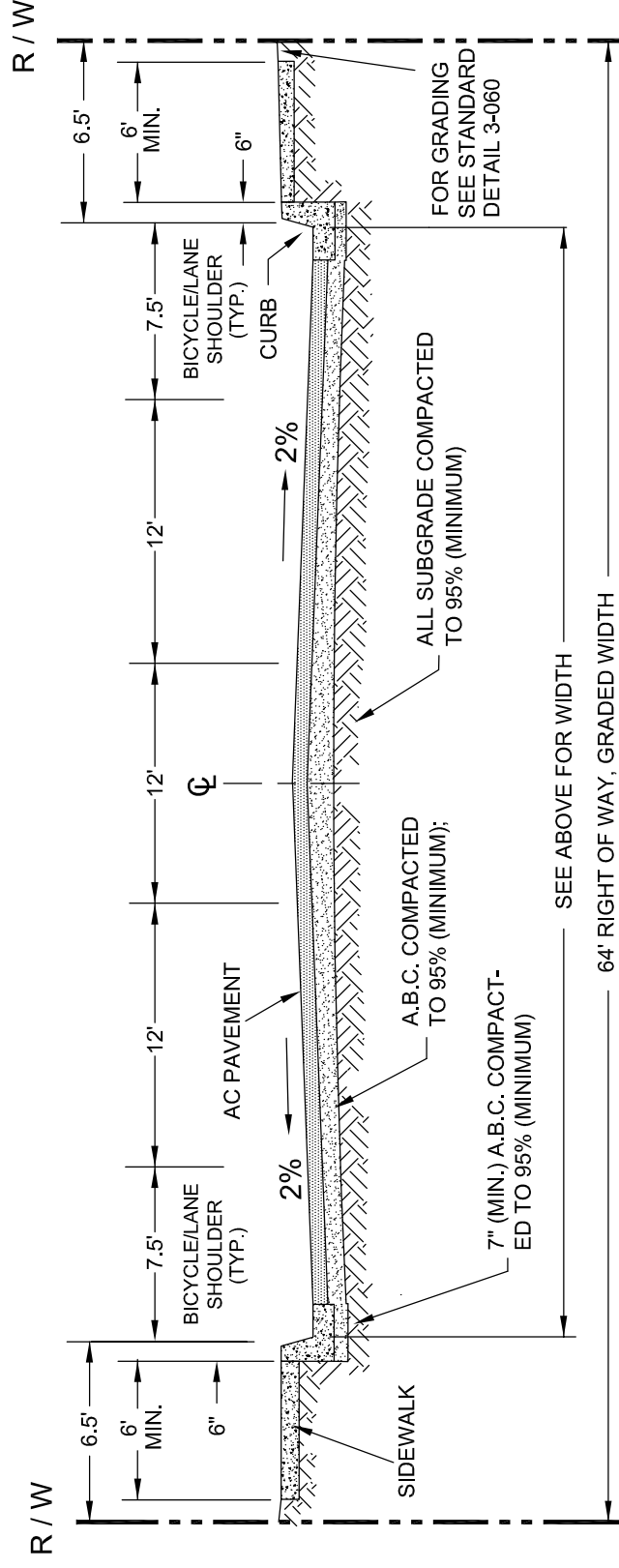
1. STRUCTURAL DESIGN OF COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOILS TEST.
2. MINIMUM PAVING THICKNESS - 3" FOR PLANT HOT MIX ASPHALT SURFACING OVER 10" OF A.B.C. COMPACTED TO 95% (MINIMUM).
3. SIDEWALK LOCATION ADJACENT TO CURB OR AS APPROVED BY THE CITY ENGINEER.
4. ALL PAVEMENT MARKING AND RAISED PAVEMENT MARKER MATERIAL MUST BE IN ACCORDANCE WITH A.D.O.T. MANUAL FOR SIGNING AND MARKING, LATEST EDITION.
5. FOR STREET RECONSTRUCTION PROJECTS ONLY WHEN DESIGNATED BY THE CITY ENGINEER.

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-031
RESIDENTIAL
COLLECTOR STREET



NOTES

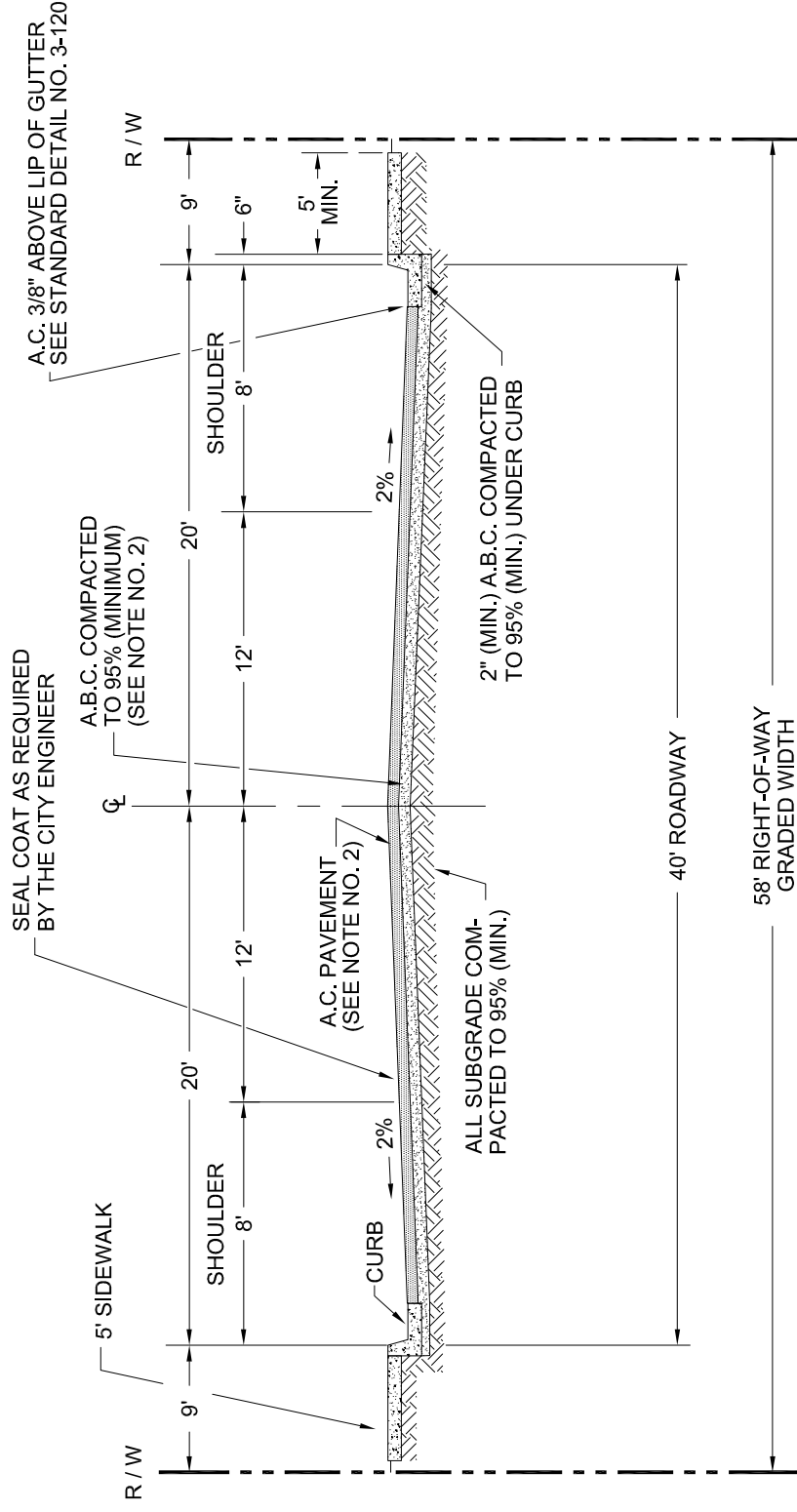
1. STRUCTURAL DESIGN OF COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOILS TEST.
2. MINIMUM PAVING THICKNESS - 3" FOR PLANT HOT MIX ASPHALT SURFACING OVER 10" OF A.B.C. COMPACTED TO 95% (MINIMUM).
3. SIDEWALK LOCATION ADJACENT TO CURB OR AS APPROVED BY THE CITY ENGINEER.
4. ALL PAVEMENT MARKING AND RAISED PAVEMENT MARKER MATERIAL MUST BE IN ACCORDANCE WITH A.D.O.T. MANUAL FOR SIGNING AND MARKING, LATEST EDITION.
5. FOR STREET RECONSTRUCTION PROJECTS ONLY WHEN DESIGNATED BY THE CITY ENGINEER.

Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-032 CONSTRAINED COLLECTOR STREET



LOCAL TWO LANE STREET

NOTES

1. STRUCTURAL DESIGN OF COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOILS TEST.
2. MINIMUM PAVING THICKNESS SHALL BE 2" FOR PLANT HOT MIXED ASPHALT SURFACING OVER 6" OF A.B.C. COMPACTED TO 95% (MINIMUM).
3. SIDEWALK LOCATION ADJACENT TO CURB OR AS APPROVED BY THE CITY ENGINEER.
4. SEE STANDARD DETAIL 3-060 FOR GRADING BEHIND SIDEWALK.
5. EXTEND AGGREGATE BASE COURSE BENEATH CURB & GUTTER

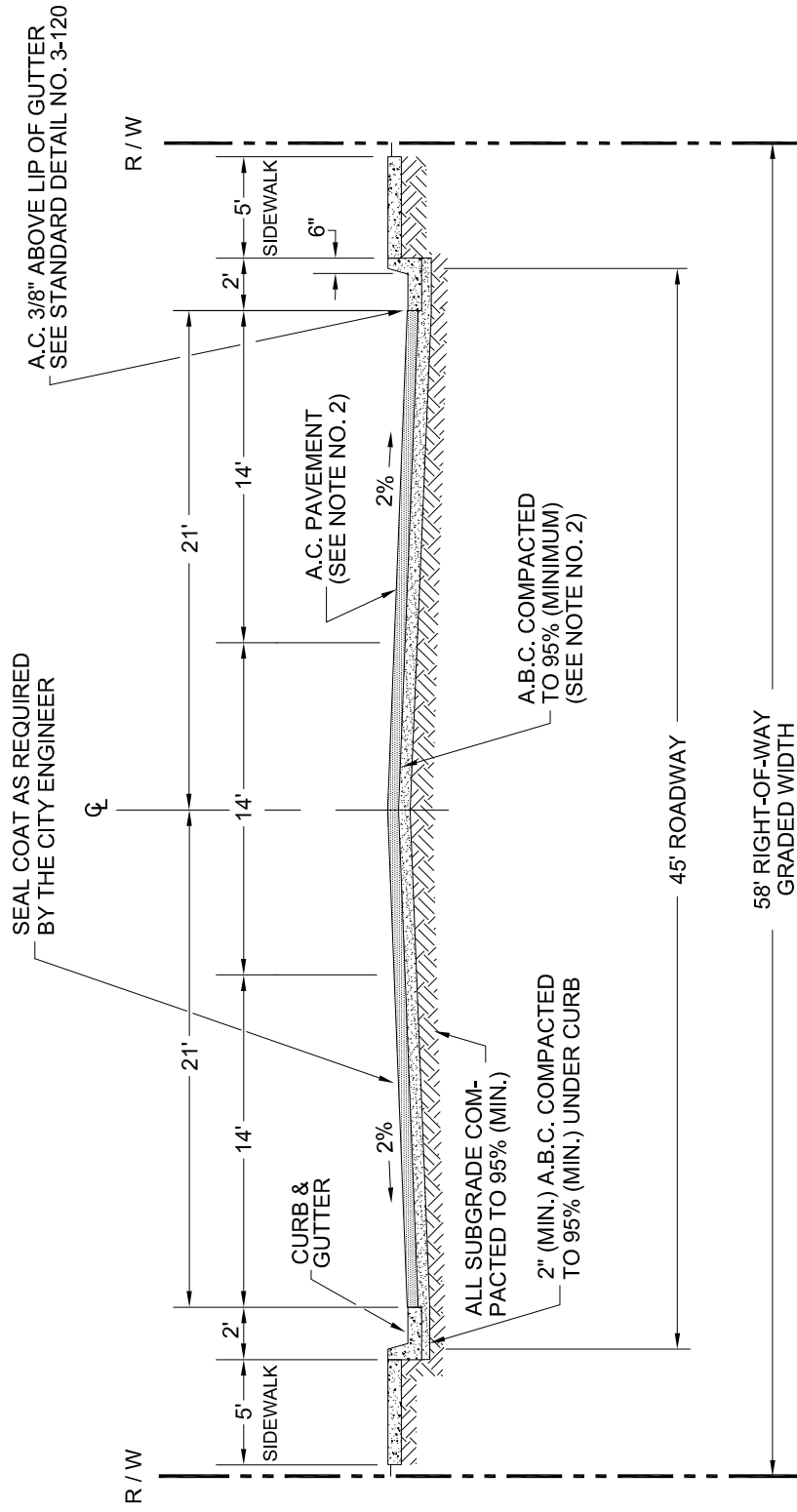
Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-050

LOCAL TWO LANE STREET



LOCAL COMMERCIAL/INDUSTRIAL STREET

NOTES

1. STRUCTURAL DESIGN OF COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOILS TEST.
2. MINIMUM PAVING THICKNESS SHALL BE 3" FOR PLANT MIXED SURFACING OVER 10" OF A.B.C. COMPACTED TO 95% (MINIMUM).
3. SIDEWALK LOCATION ADJACENT TO CURB OR AS APPROVED BY THE CITY ENGINEER.
4. SEE STANDARD DETAIL 3-060 FOR GRADING BEHIND SIDEWALK.
5. EXTEND AGGREGATE BASE COURSE BENEATH CURB & GUTTER

Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-060

**LOCAL COMMERCIAL/
INDUSTRIAL STREET**

CITY OF YUMA BIKEWAY STANDARDS

Bike paths, bike lanes and other bicycle facilities shall be, at a minimum, designed to the recommended standards found in the "ARIZONA BICYCLE FACILITIES PLANNING AND DESIGN GUIDELINES", latest edition, or in the City Standards, as determined by the City Engineer.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-085
BIKEWAY STANDARDS

SPEED CONTROL

1. This Standard applies to new roadways and those where the majority of the pavement is being replaced.
2. If roadway curvature is not sufficient to control the speed of traffic so that the *running (85th percentile)* speed is at or below the target speed, the devices used will be as follows.
 - If the speed control is to be applied at intersections, the devices for controlling speed must be roundabouts designed to City requirements.
 - If speed control is to be applied mid-block, the devices used must generally be speed tables designed to Standard 3-500. Other devices will be considered if approved by the City in each instance.
3. STOP signs may only be installed when required to control the right of way at intersections. While they may not be installed for speed control when they are not otherwise needed, their presence does assist in speed control. Therefore, where necessary STOP signs exist or are planned, they are considered speed control devices for purposes of establishing the spacing of physical speed control devices.
4. Roadway knuckles are considered speed control devices.
5. Roadway curves that have a maximum safe speed equal to or less than the target speed are considered speed control devices.

STOP SIGN APPLICATION

1. STOP signs will generally be placed at all unsignalized intersections involving roadways classified as collectors, minor arterials, principal arterials and expressways. Unless otherwise required by the City's Traffic Engineer, the STOP signs will generally be placed on the roadway having the lower classification. If both roadways have the same classification, the STOP signs will generally be placed on the roadway having the lesser amount of traffic.
2. At the cross-type intersection of two local roadways, STOP signs must be placed on one of the roadways. This will generally be the roadway with the lesser amount of traffic; however, other issues such as cross-corner visibility and the use of STOP signs at other intersections along each roadway may cause this placement to be reversed.
3. STOP signs will generally *not* be used at the T-intersection of local roadways. Section 28-771.A of the Arizona Revised Statutes is adequate to govern motorists' behavior at such intersections. If *actual* accident experience shows a *pattern* of accidents at such an intersection that is susceptible to correction by the addition of a STOP sign on the stem of the T, such a sign may be installed.
4. STOP signs may *not* be used as speed control devices.
5. ALL-WAY stop intersections will *not* be permitted without the specific direction of the City's Traffic Engineer for controlling unusual conditions.

Issued: February 2009

Sheet 2 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-094

**SPEED AND INTERSECTION CONTROL
NEW & REPLACED RESIDENTIAL STREETS**

CITY OF YUMA GUIDELINES FOR TRAFFIC IMPACT STUDIES

A traffic impact study may be required for new and expanded or changed developments at the rezoning stage, the platting or lot tie / lot split stage, and for conditional use permits. When state roads are adjacent, such studies must satisfy the requirements of the Arizona Department of Transportation's publication "Traffic Impact Analysis for Proposed Development" (current edition) and to those additional requirements specified in the City Engineering Department "Traffic Impact Study Guidelines". If no State roads are involved, only the City's Engineering Department guidelines need to be satisfied.

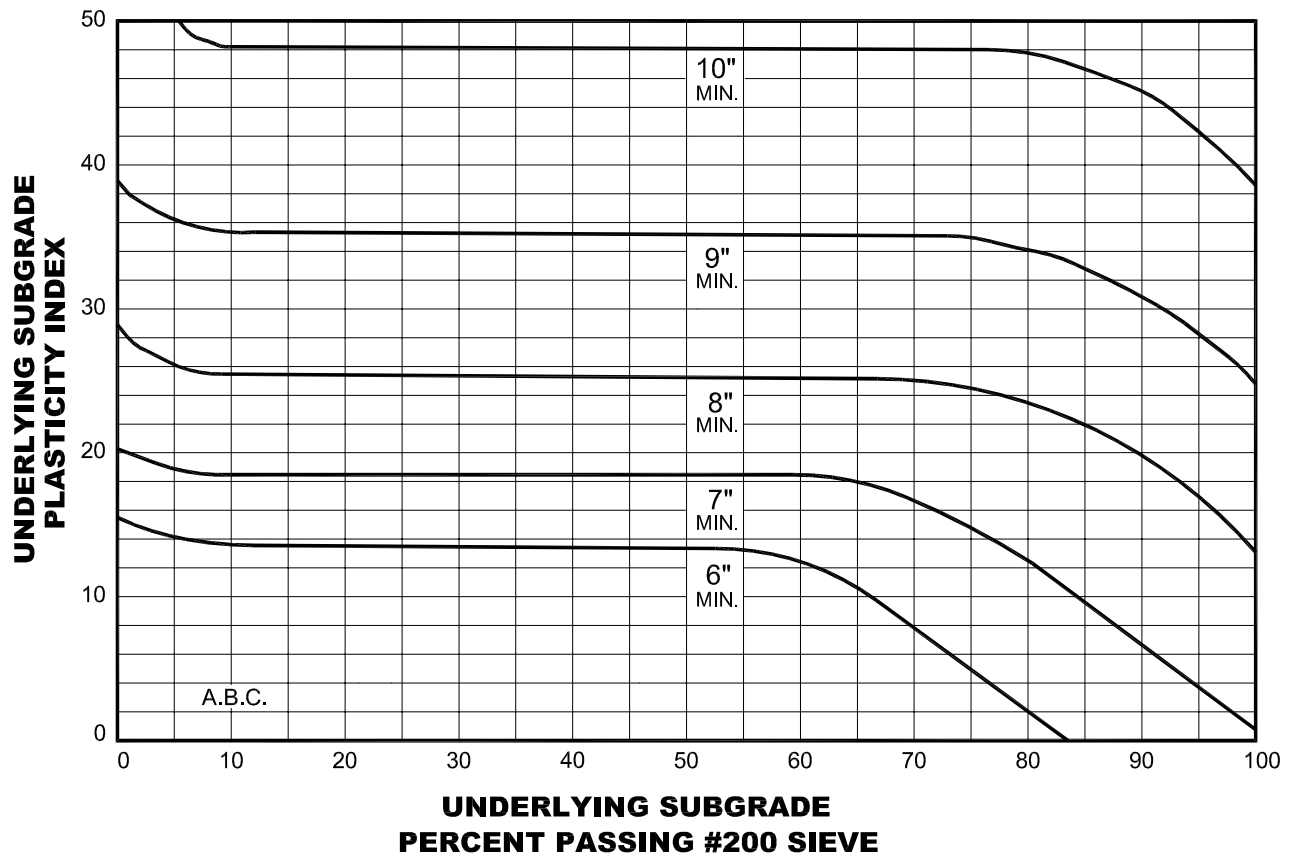
Traffic impact studies may be required for all developments and modifications to developments that are expected to generate 100 or more additional trips during any hour. Where staged or phased development is planned, the traffic impact study must include all development phases. If it becomes apparent that a request is being made for a development that is, in fact, an extension of a recent (less than 5 years) development that already exists or is in progress, and no traffic impact study has been accepted for the original development, the traffic impact study must also include the original development.

The amount of traffic expected to be generated by the development must be determined using the procedures set forth in "Trip Generation", current edition, published by the Institute of Transportation Engineers. In all cases, the trip data for a given land use must be at least the average rate for that land use as shown in the tables associated with the land use (the fitted curves data may not be used). The City Engineer may require that a value higher than the average rate be used depending on the specific use or business planned for the site. Said higher value, if required, will not exceed the average rate plus fifty percent (50%) of the difference between the average rate and the maximum rate for the range.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 2-100 GUIDELINES FOR TRAFFIC IMPACT STUDIES

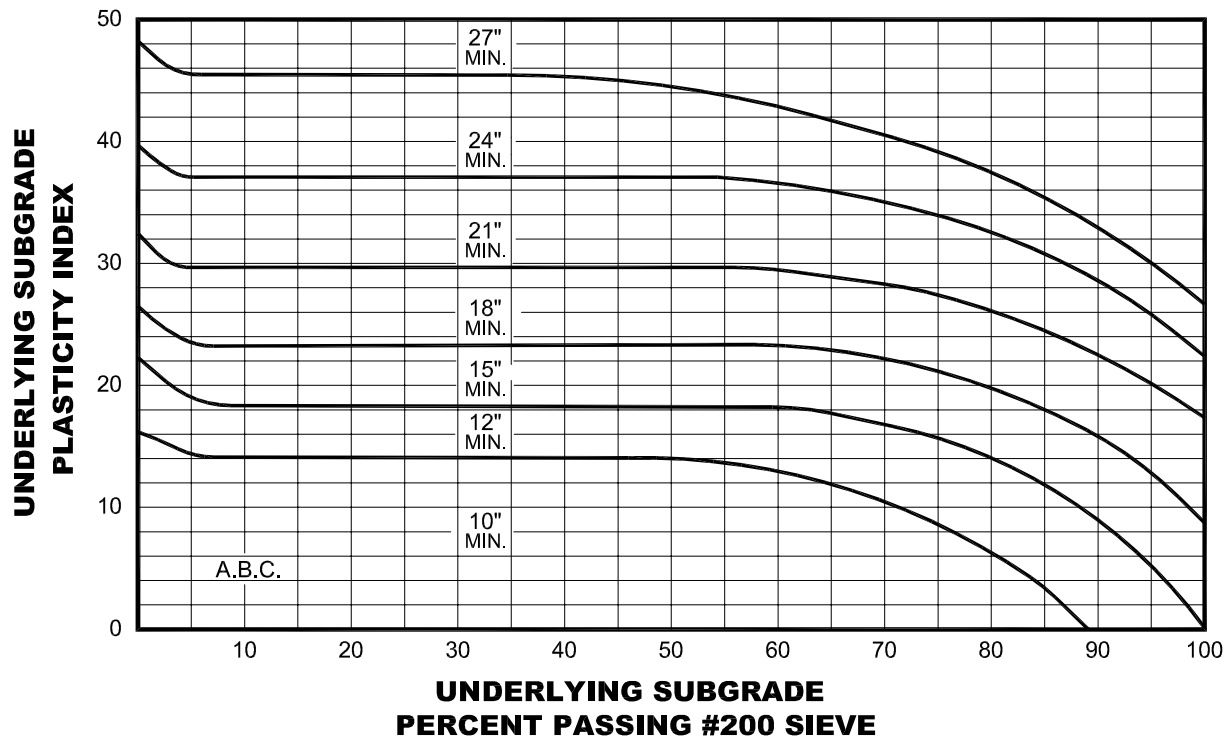


NOTES

1. Aggregate base course (A.B.C.) depth required under 2" (minimum) asphalt concrete hot plant mix surface course.
2. A.B.C. shall be compacted to 95% of the maximum density determined by A.S.T.M D1557, method D.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-010
DEPTH OF AGGREGATE BASE COURSE
FOR LOCAL TWO LANE STREETS



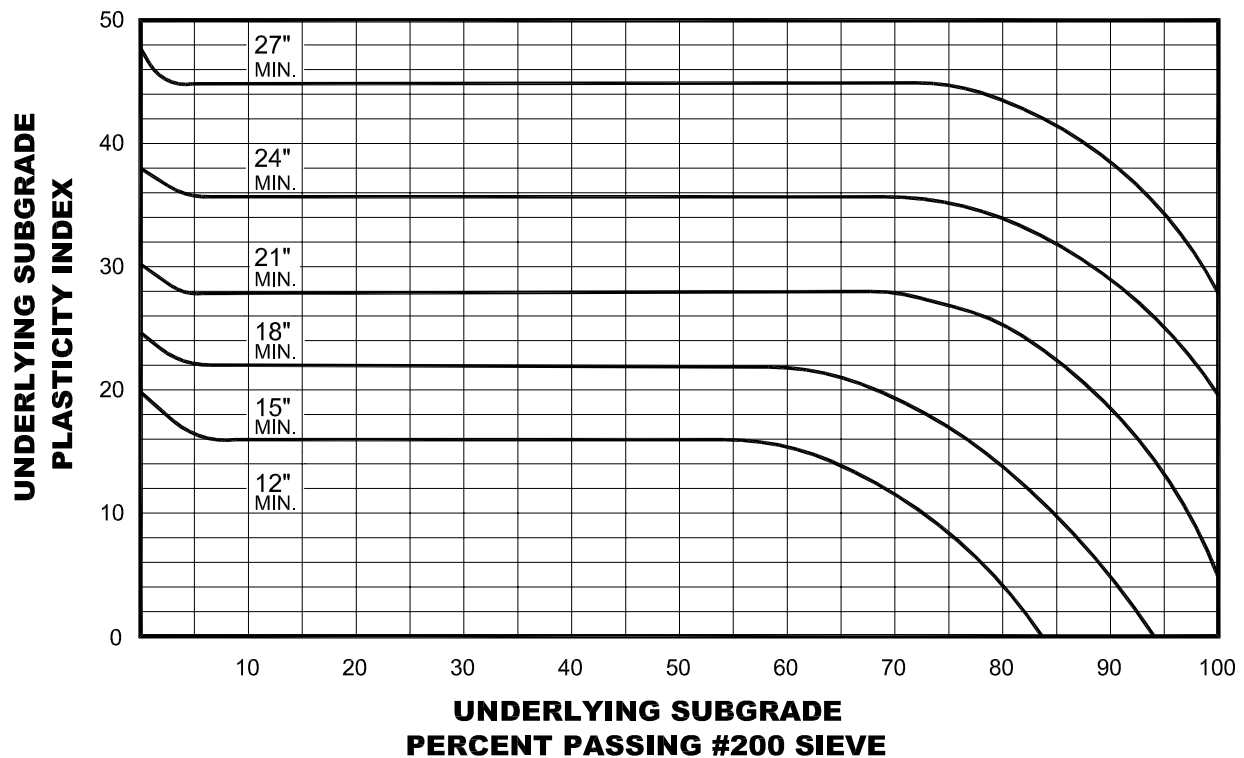
NOTES

1. Aggregate base course (A.B.C.) depth required under 3" (minimum) asphalt concrete hot plant mix surface course.
2. A.B.C. shall be compacted to 95% of the maximum density determined by A.S.T.M D1557, method D.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-025
DEPTH OF AGGREGATE BASE COURSE
FOR COLLECTOR STREETS



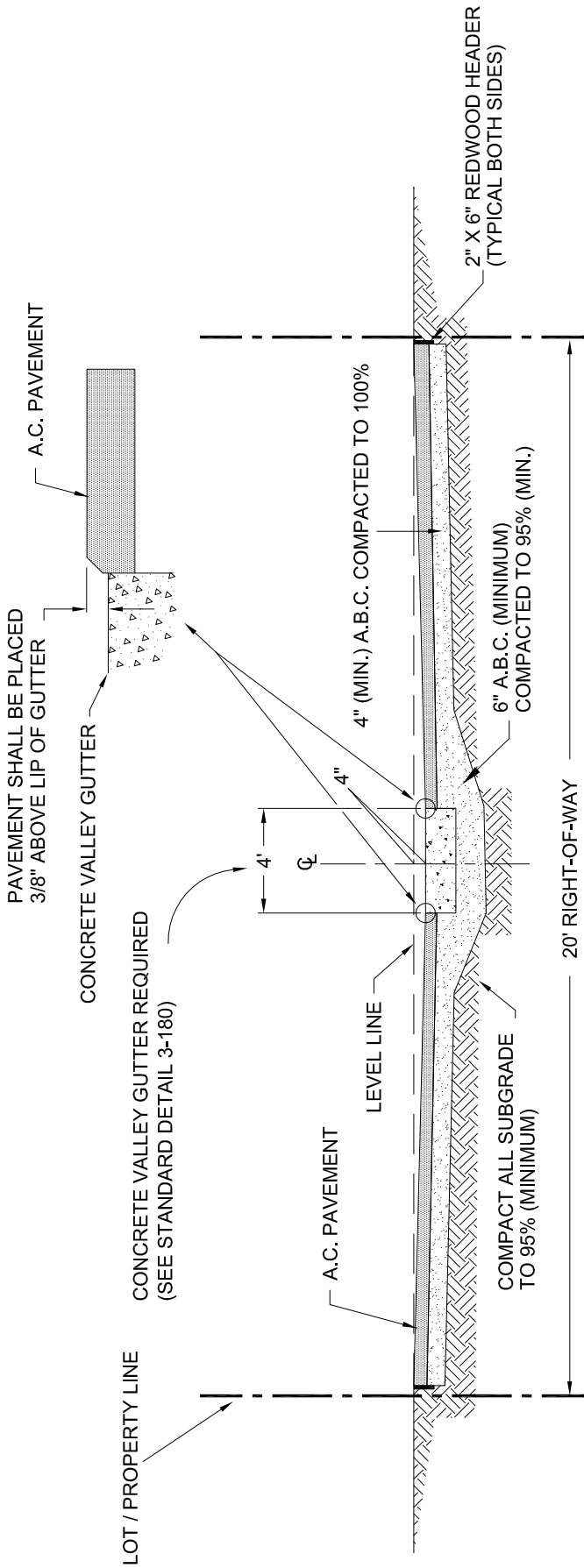
NOTES

1. Aggregate base course (A.B.C.) depth required under 4" (minimum) asphalt concrete hot plant mix surface course.
2. A.B.C. shall be compacted to 95% of the maximum density determined by A.S.T.M D1557, method D.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-026
DEPTH OF AGGREGATE BASE COURSE
FOR PRICIPAL, EXPRESSWAY AND
MINOR ARTERIAL STREETS



NOTES

1. Reference Standard Detail 3-010.
2. Structural design of combined thickness of base and surface to be determined by soil test.
3. Minimum paving thickness: 3" for asphalt concrete hot plant mix surface course.
4. Fog seal coat required.

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-030 TYPICAL ALLEY



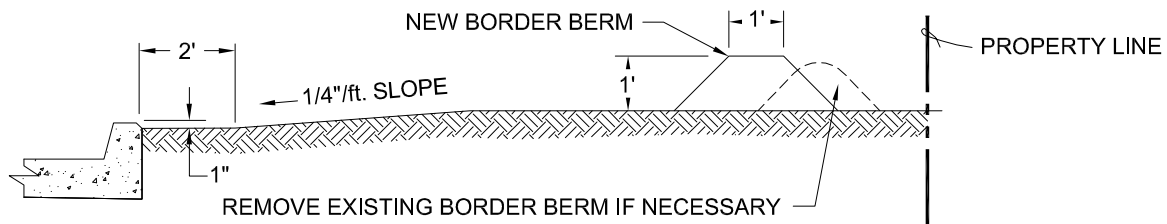
1. Gate shall be installed 2° off vertical as shown so it will remain open when unlocked.
2. This gate is for alley, emergency and commercial access.
3. Gate shall swing in the direction of access.
4. Completed assembly shall be painted "Safety Yellow" utilizing paint designed for this purpose.

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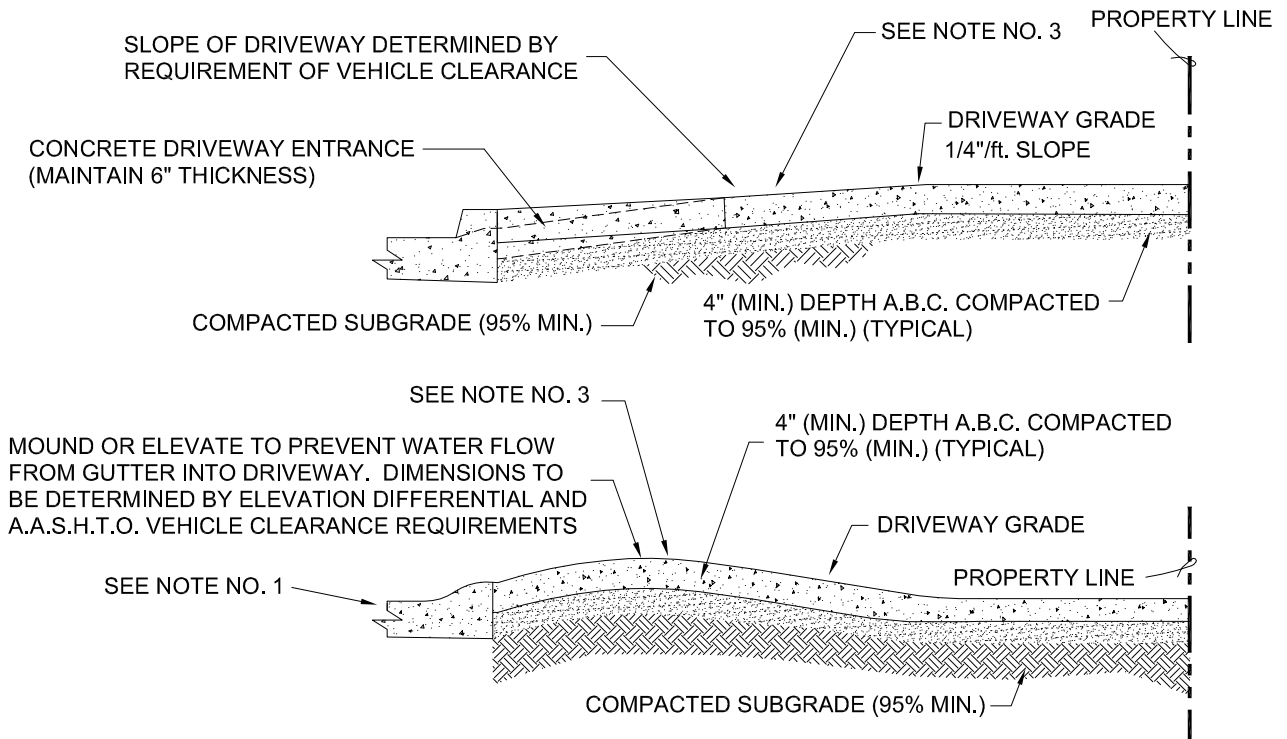
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

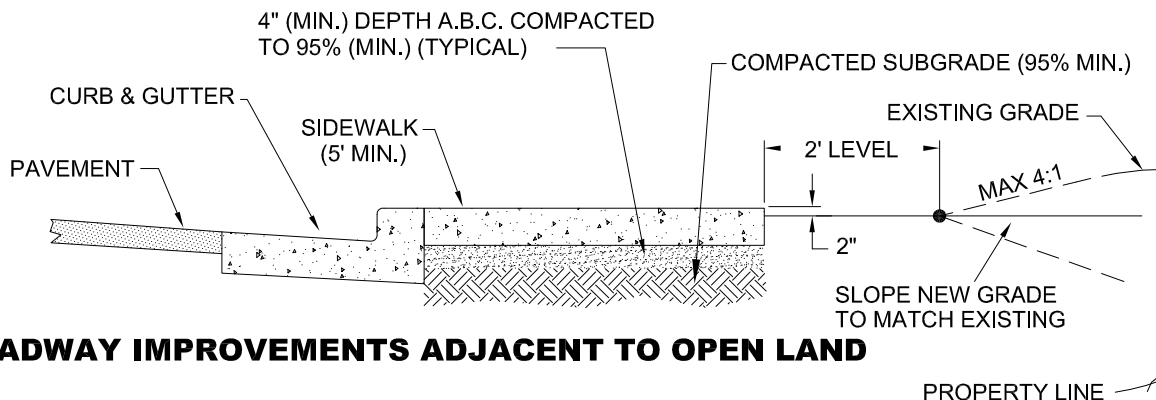
STANDARD NO. 3-031
ACCESS GATE



ROADWAY IMPROVEMENT ADJACENT TO IRRIGATED LAND



ROADWAY IMPROVEMENT ADJACENT TO EXISTING DRIVEWAY



ROADWAY IMPROVEMENTS ADJACENT TO OPEN LAND

NOTES

1. Roll curb only allowed with approval of the City Engineer.
2. These details apply to all curb types with or without sidewalks.
3. All driveways located within City right-of-way shall be constructed of 6" thick (minimum) Class B concrete and shall extend to the right-of-way and/or property line.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-060
PARKWAY GRADING

PROPERTY LINE

DRAINAGE IN THE CUL-DE-SAC.
SLOPE OF 0.40% RECOMMENDED
MIN. SLOPE OF 0.25% REQUIRED

SURVEY MONUMENT
(STD. DT. 4-080 TYPE 'B')

VARIABLE

600' MAXIMUM

R = 55' RADIUS MINIMUM
 R_1 = 45' RADIUS MINIMUM
 R_2 = 25' RADIUS MINIMUM
(COMMERCIAL & RESIDENTIAL)
 R_2 = 30' RADIUS MIN. (INDUSTRIAL)

NOTE:
 R_1 & R_2 MEASURED TO FRONT FACE
OF CURB

8' PUBLIC UTILITY EASEMENT
(TYPICAL)

DRAINAGE

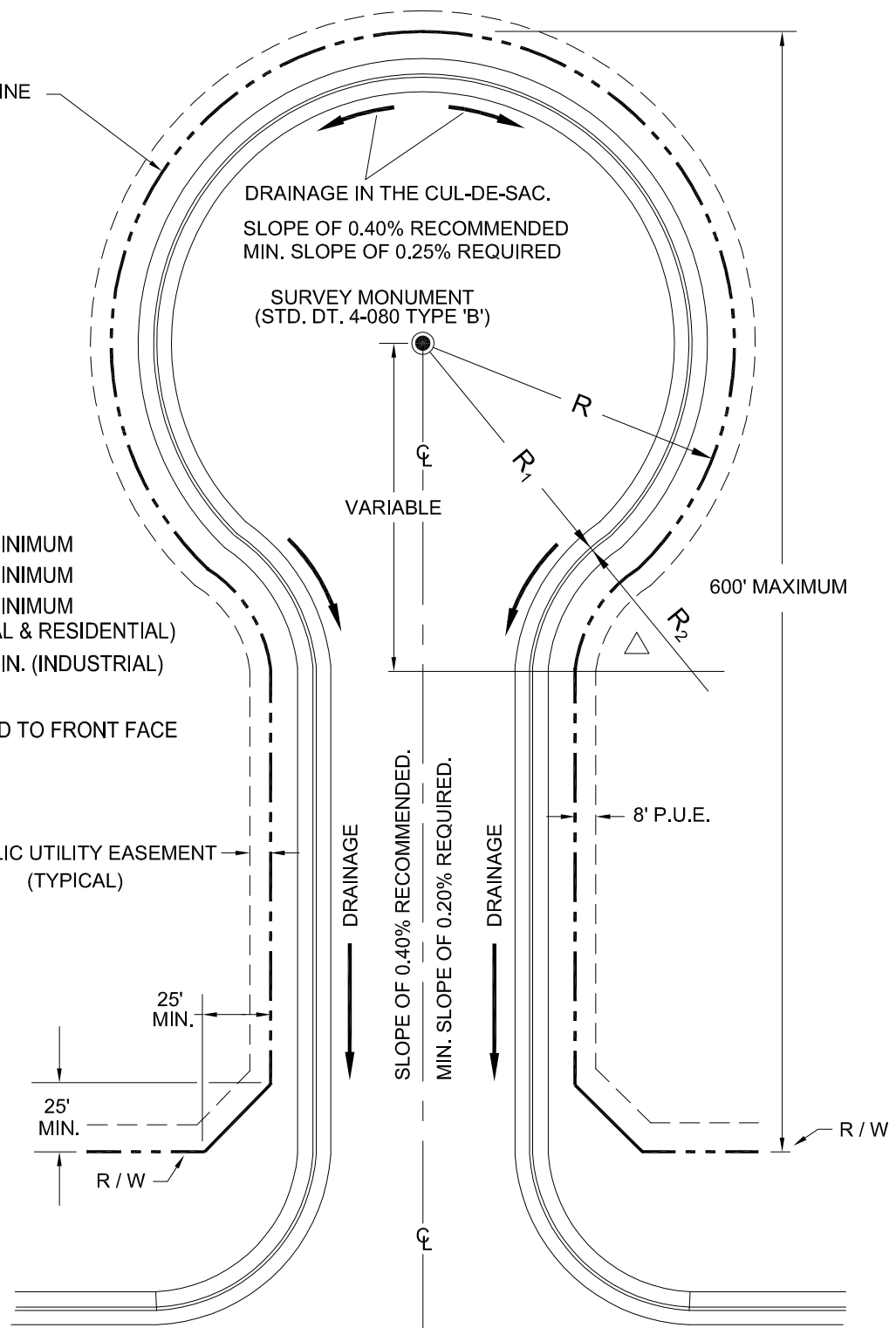
SLOPE OF 0.40% RECOMMENDED.

MIN. SLOPE OF 0.20% REQUIRED.

DRAINAGE

8' P.U.E.

R / W



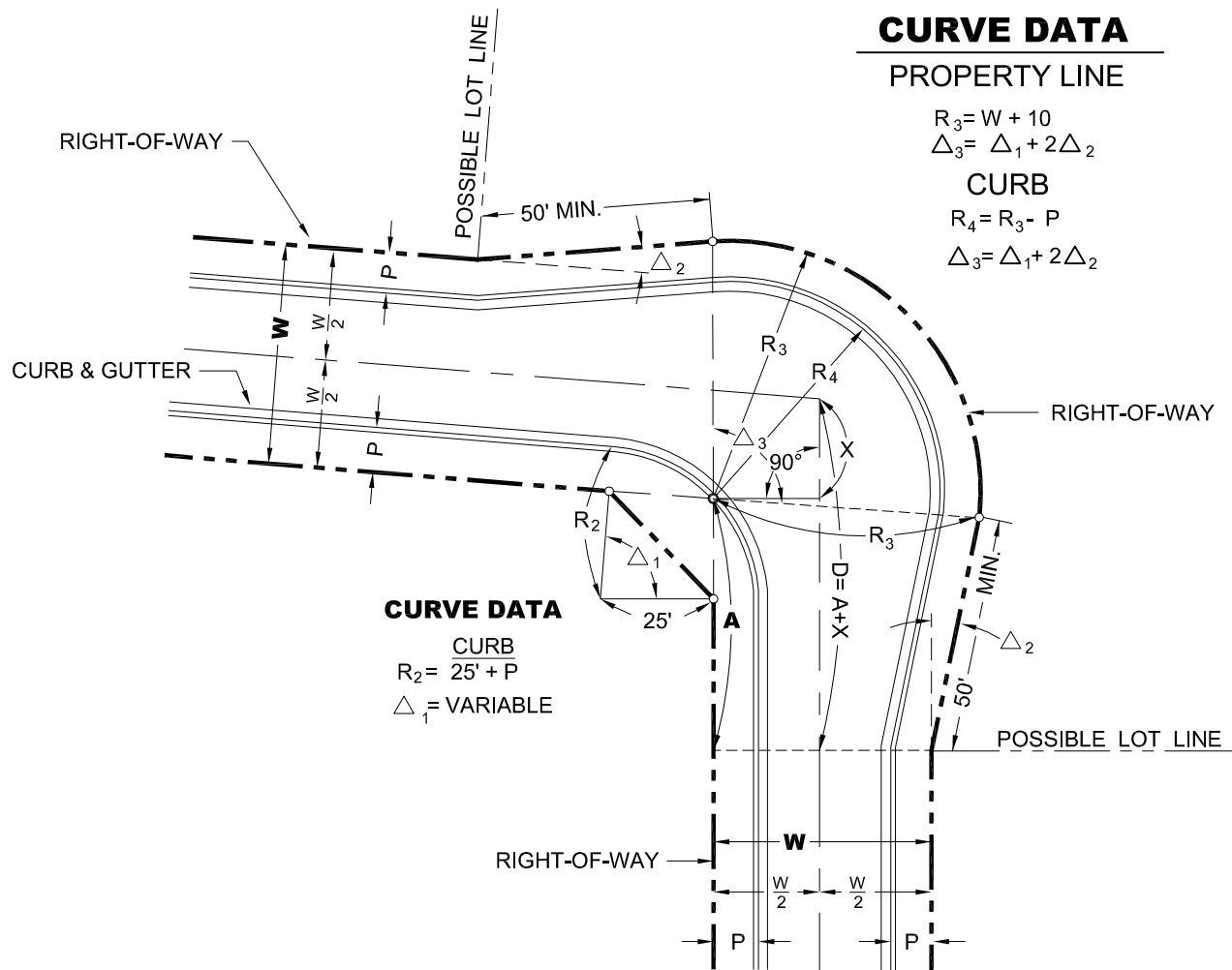
NOTE

SHOW R , $\triangle$ & L FOR ALL CURVES
ON DESIGN DRAWINGS.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-080
CUL-DE-SAC



W	A	Δ_2
58'	59.58'	10° 14' 43"

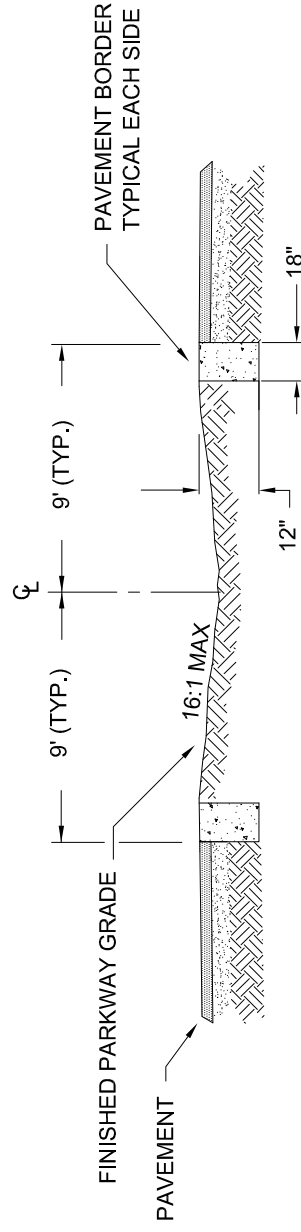
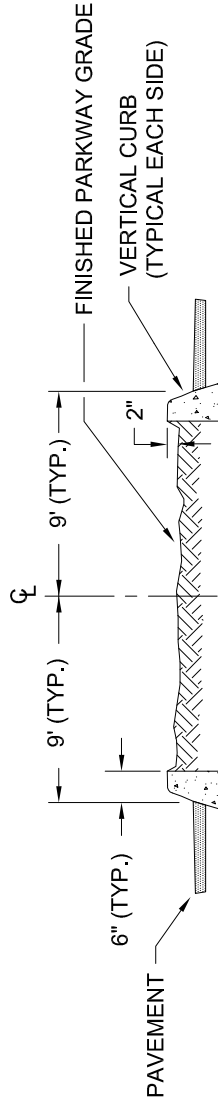
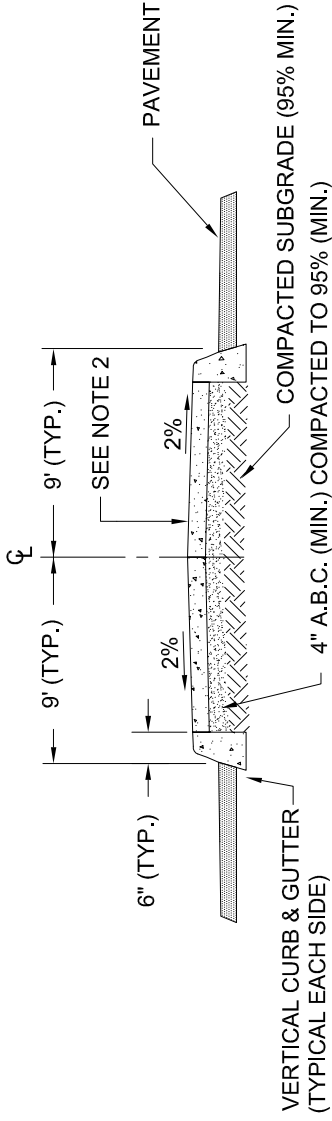
NOTE

1. This design to be used with local two-lane streets only.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-100
STANDARD LOCAL
STREET KNUCKLE



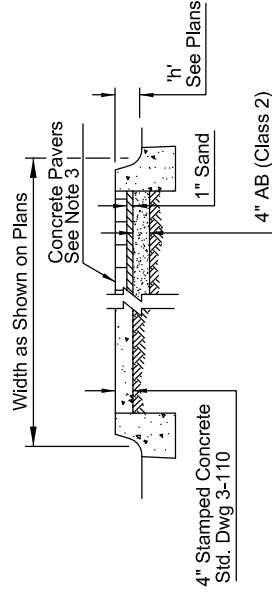
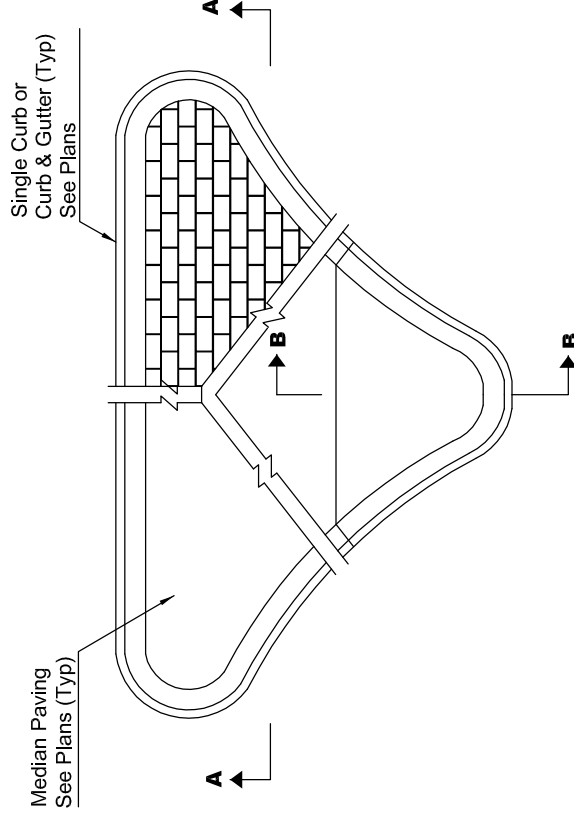
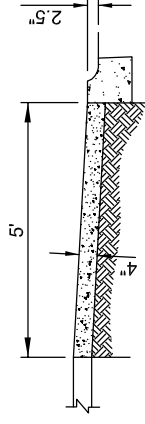
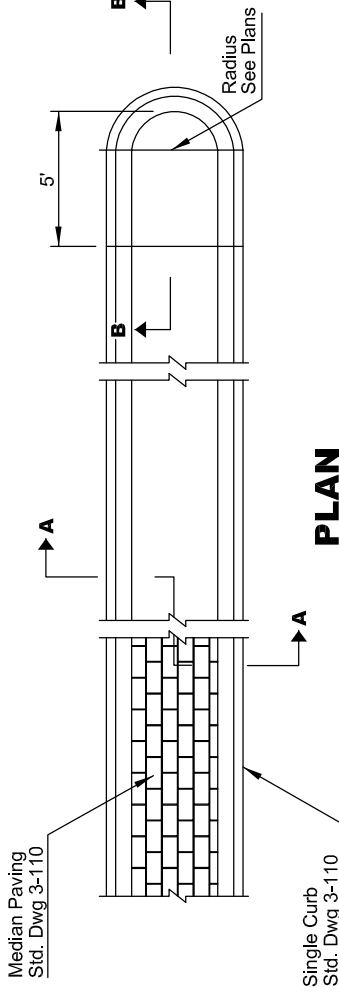
NOTES

1. Unpaved medians shall be landscaped.
2. Median paving: decorative block / brick or integral colored stamped concrete (4" thick minimum).
3. All concrete shall be Class 'B'.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-110 MEDIAN OPTIONS



NOTES

1. Traffic signal foundations, traffic sign foundations and pull boxes for traffic signs and traffic signals shall be installed prior to placement of median paving.
2. Decorative median paving may be stamped concrete, concrete pavers, or as specified on the project plans.
3. Decorative median paving shall not be placed on a median nose transition or on a median island on a structure.
4. A 4"x6" concrete header shall be used to end decorative paving at locations when concrete sidewalk ramps are not present.
5. Median nose transitions shall not be place on departure ends of raised medians.
6. Median paving shall be class B concrete.

Issued: February 2009

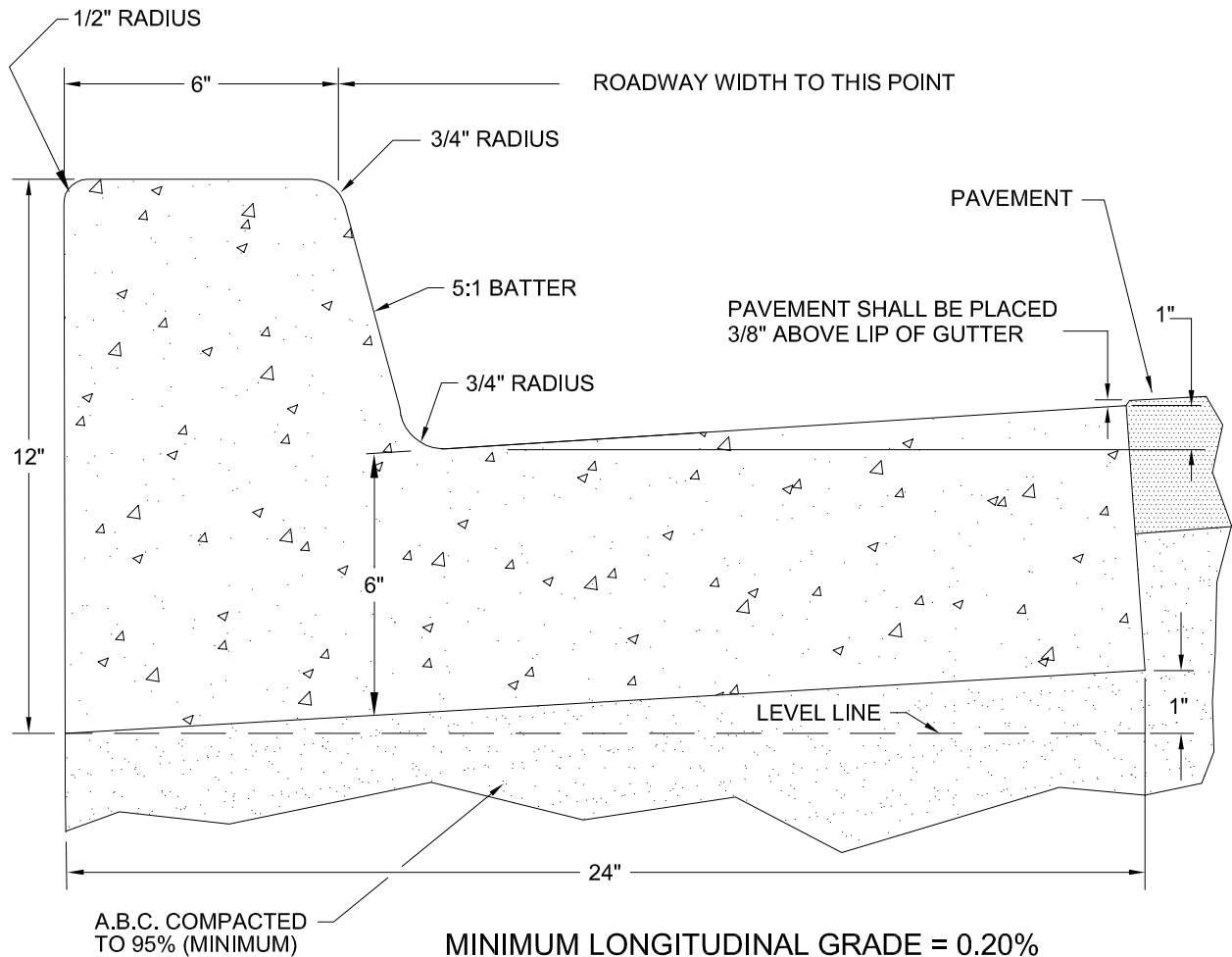
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-112

SAFETY NOSE MEDIAN

CLASS "B" CONCRETE CONSTRUCTION

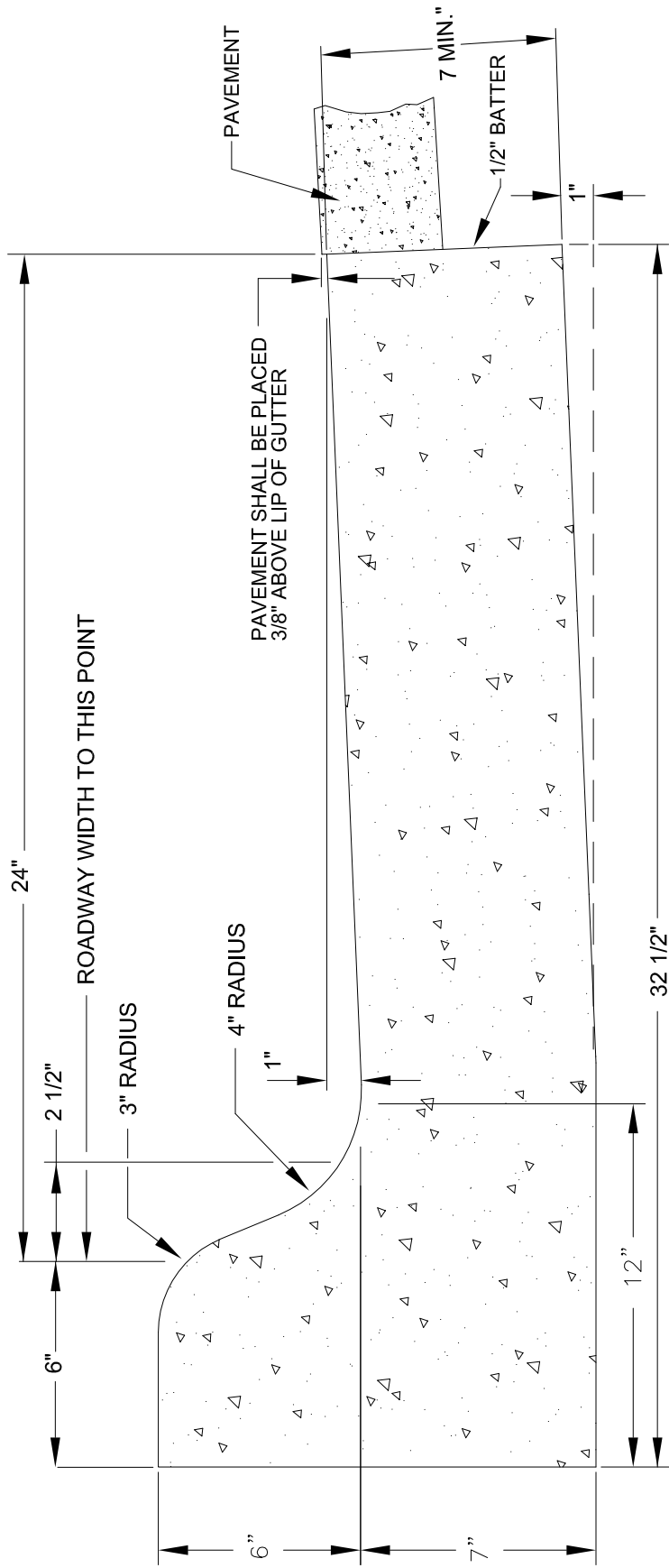


NOTES

1. Vertical curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression and 3/8" pavement above lip of gutter will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart. Contraction joint shall have a minimum depth of two inches (2").
4. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum of twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
5. Curb & gutter shall be finished with steel trowel followed by a longitudinal brush broom finish. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
6. City of Yuma vertical curb & gutter shall be used on all city streets unless otherwise approved by the City Engineer.
7. Additional information regarding joint construction can be seen in Standard Detail 3-270.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-120
VERTICAL CURB AND GUTTER



MINIMUM LONGITUDINAL GRADE = 0.20%

CLASS "B" CONCRETE CONSTRUCTION

NOTES

1. Vertical curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression and 3/8" pavement above lip of gutter will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart. Depth of the contraction joint shall have a minimum depth of two inches (2").
4. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
5. Curb & gutter shall be finished with steel trowel followed by a longitudinal brush broom finish. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is indicated in the construction plans.
6. City of Yuma vertical curb & gutter shall be used on all city streets unless otherwise approved by the City Engineer.
7. Additional information regarding joint construction can be seen in Standard Detail 3-270.

Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

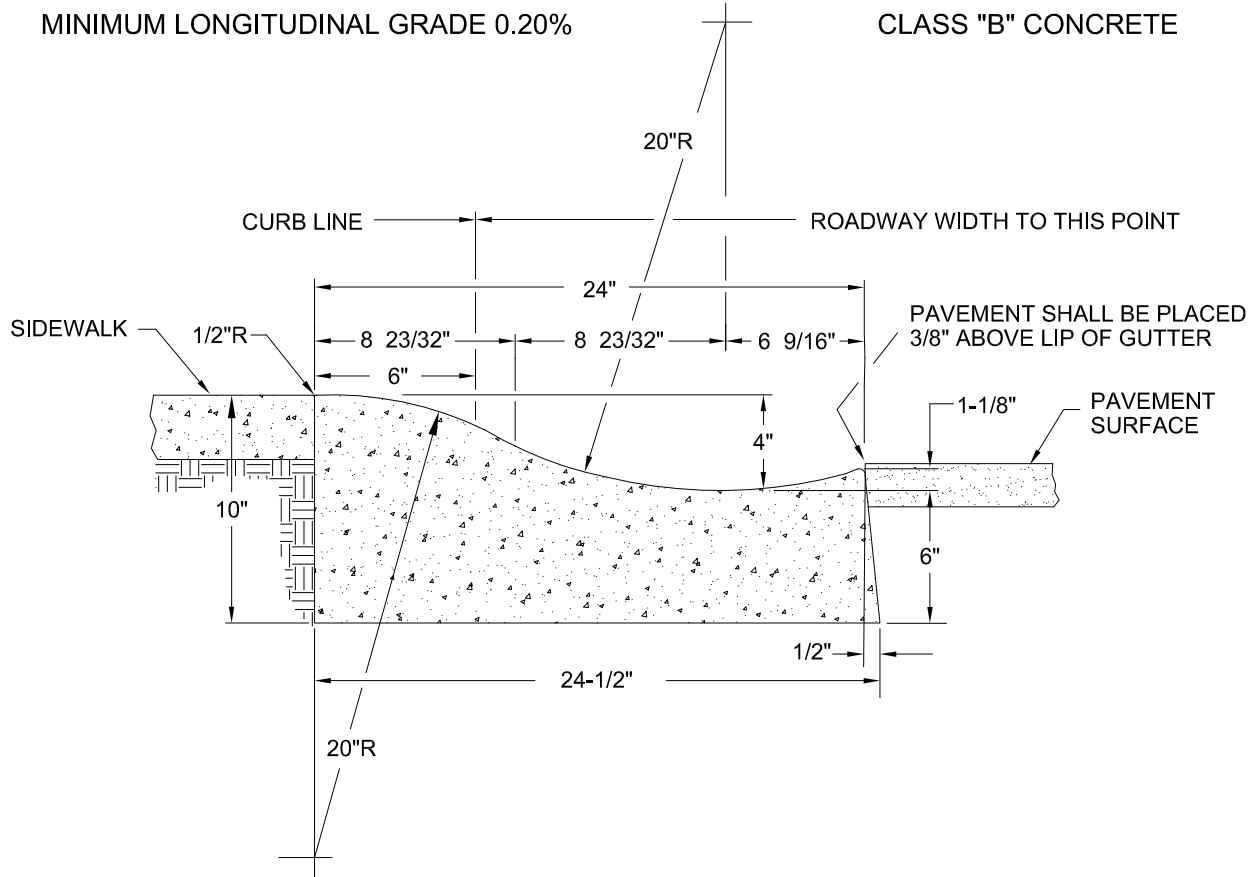
STANDARD NO. 3-130

A.D.O.T. TYPE

VERTICAL CURB AND GUTTER

THIS CURB IS FOR REPLACEMENT ONLY

(See note 8)



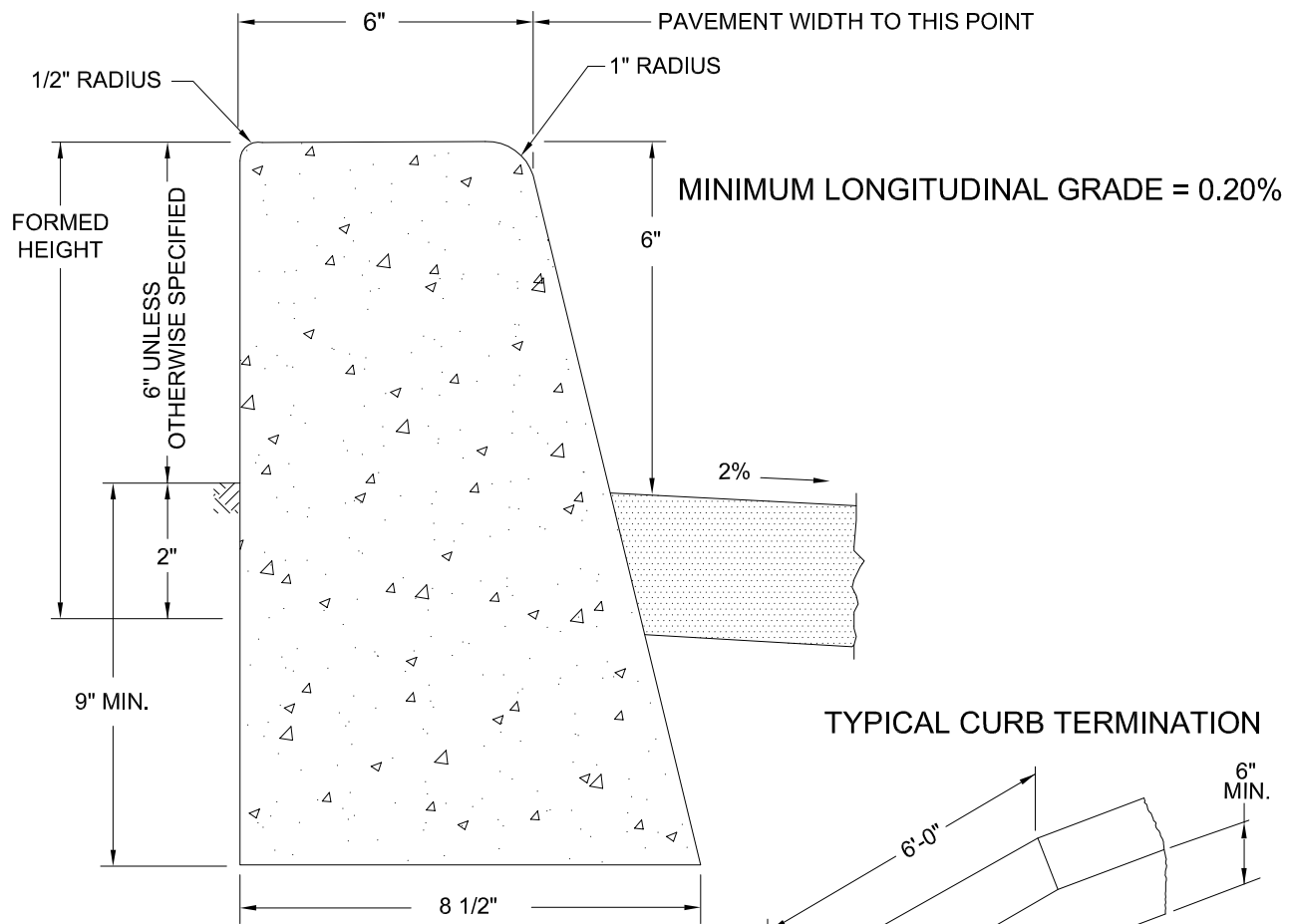
NOTES

1. Roll curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression and 3/8" pavement above lip of gutter will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart. Contraction joint shall have a minimum depth of two inches (2").
4. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum of twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
5. Curb & gutter shall be finished with steel trowel followed by a longitudinal brush broom finish. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
6. New roll curb & gutter shall only be used to replace existing roll curb & gutter unless otherwise approved by the City Engineer.
7. Additional information regarding joint construction can be seen in Standard Detail 3-270.

Issued: February 2009

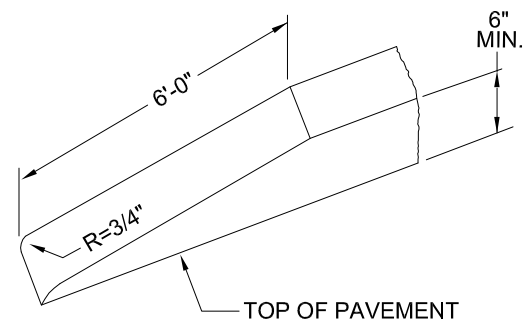
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-140
ROLL CURB & GUTTER



CLASS "B" CONCRETE CONSTRUCTION

TYPICAL CURB TERMINATION



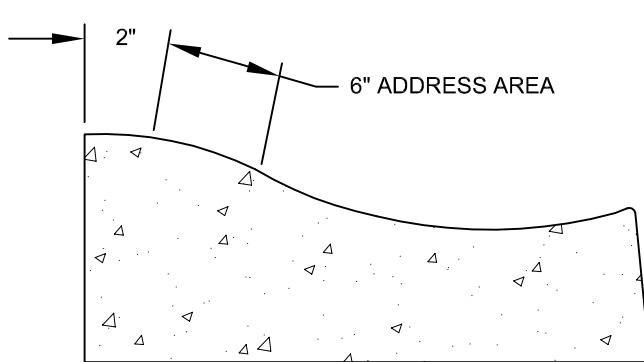
NOTES

1. Vertical curb may be constructed by the use of forms or the concrete may be machine extruded.
2. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart. Contraction joint shall have a minimum depth of two inches (2").
3. Expansion joints shall be located at tangent points, in curb returns, at structures and at a maximum of twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
4. Vertical curb shall be finished with steel trowel followed by a longitudinal brush broom finish. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
5. Additional information regarding joint construction can be seen in Standard Detail 3-270.

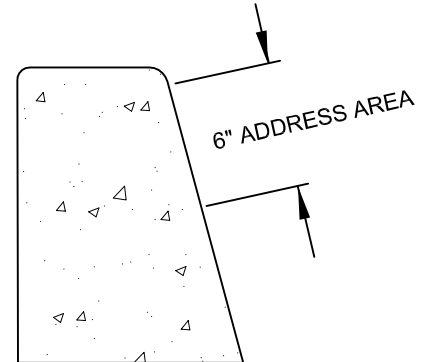
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

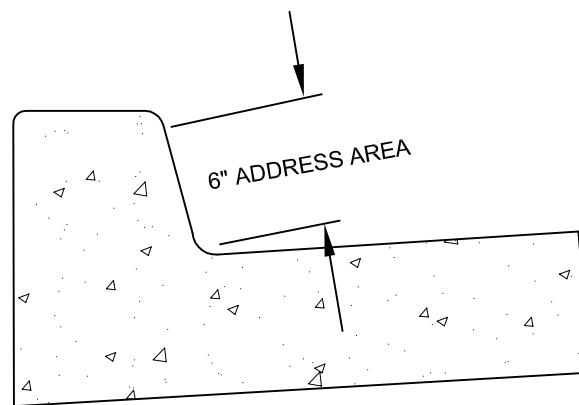
STANDARD NO. 3-150
VERTICAL CURB
AND
TYPICAL CURB TERMINATION



ROLL CURB & GUTTER

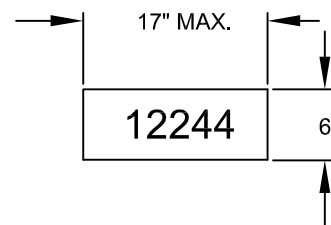
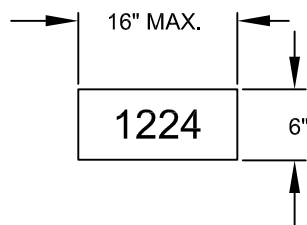


VERTICAL CURB



VERTICAL CURB & GUTTER

ADDRESS AREA:
4" BLACK NUMBERS ON A SOLID WHITE BACKGROUND



NOTES

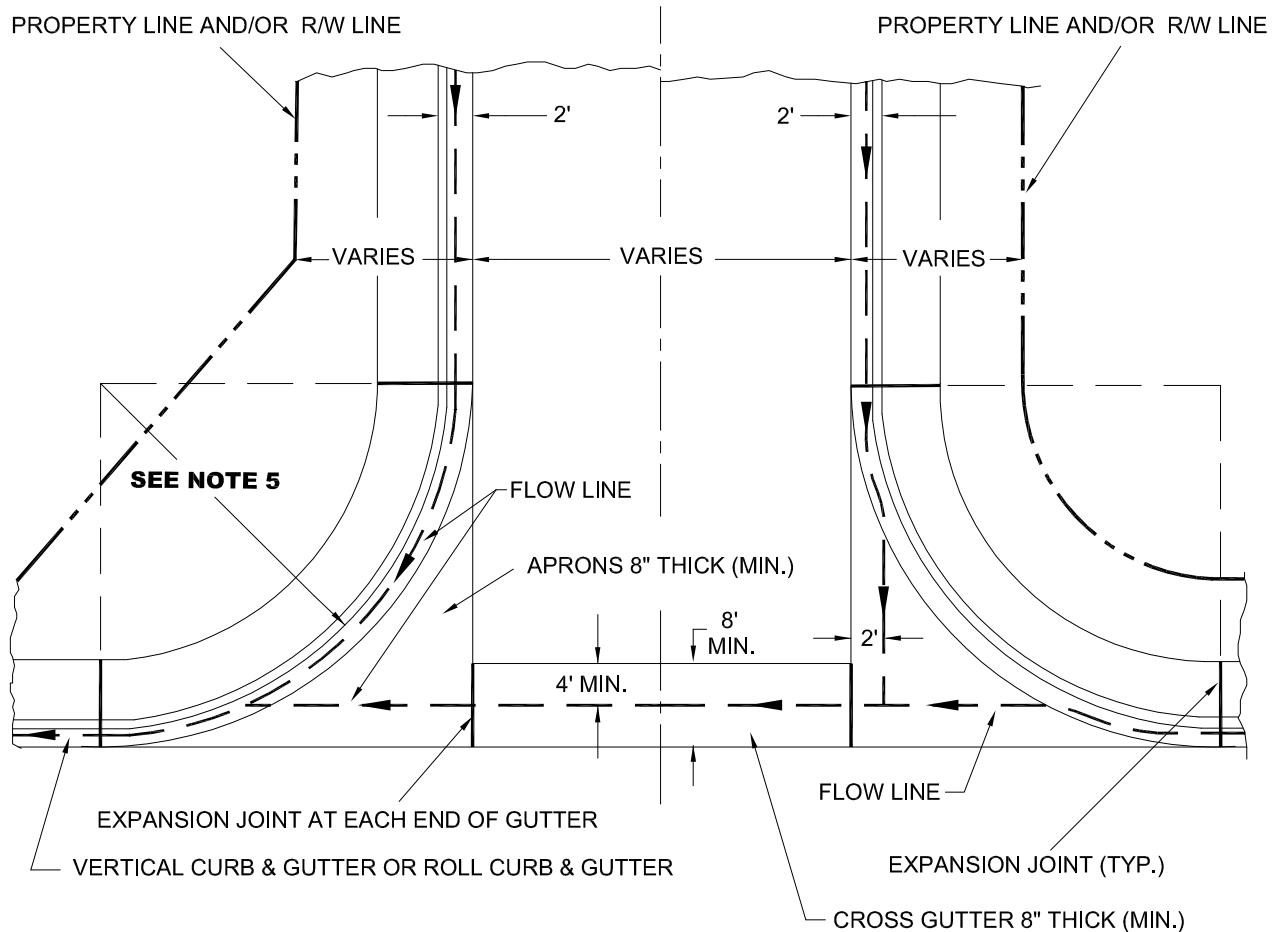
1. Alternate location: adjacent to curbside mailbox.
2. Paint shall conform to A.D.O.T. specifications for street paint.
3. An encroachment permit is required.
4. If markings are put in for pay, then a business permit is required from the City Clerk.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-160
RESIDENTIAL ADDRESSING
FOR
VERTICAL AND ROLL CURB

APRONS & GUTTERS TO BE CONSTRUCTED OF CLASS "B" CONCRETE



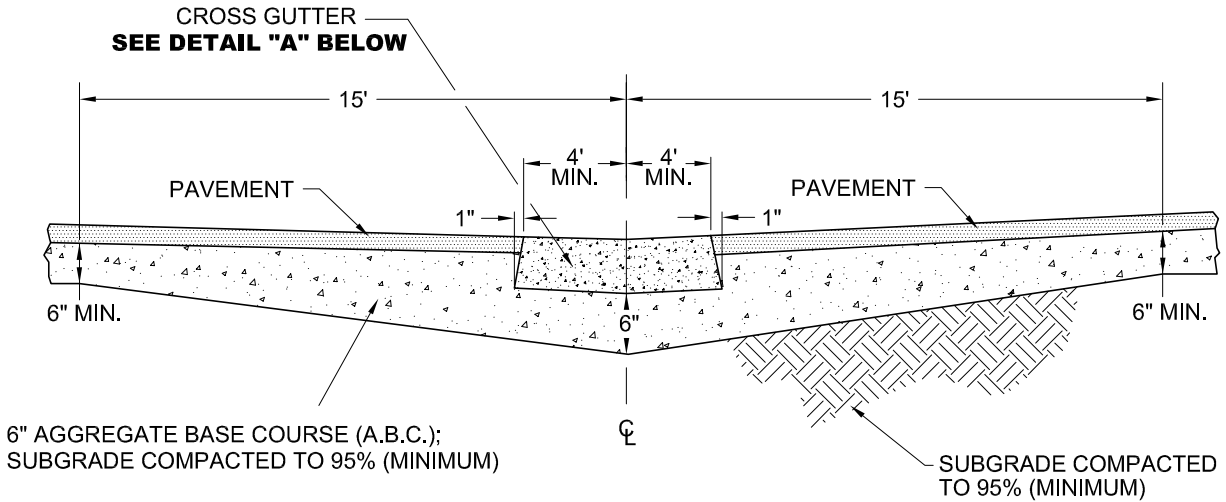
NOTES

1. Concrete shall receive a longitudinal broom finish on all exposed surfaces.
2. Asphalt cross gutters are not allowed.
3. Six inches (6") of A.B.C. shall be placed under both aprons and cross gutter and shall be compacted to 95% density (minimum). (See Standard Drawing No. 3-180)
4. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete. Expansion joints shall not be placed in front of sidewalk ramp landings.
5. Radius requirements (face of curb):
 - A. Local streets: 25' minimum
 - B. Collector streets: 40' minimum
 - C. Arterial streets: 50' minimum
6. The curb return and apron construction shall be a monolithic pour.

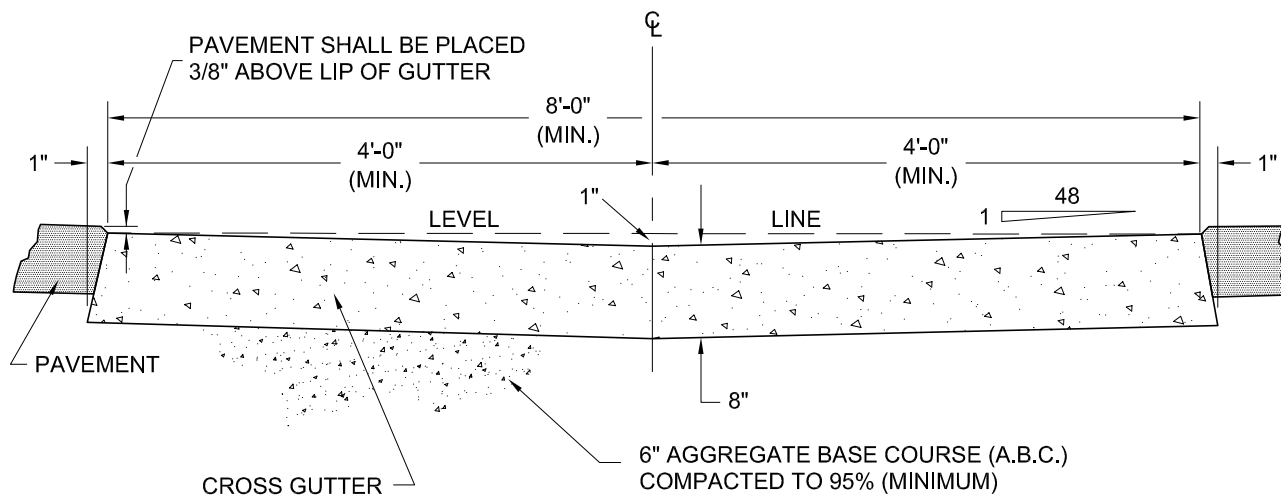
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-170
CROSS GUTTER LAYOUT



NOTE: 48:1 (RUN : RISE) MAXIMUM GRADE THROUGH CROSS GUTTER CROSS SECTION



DETAIL "A"

TYPICAL CROSS SECTION
THROUGH CROSS GUTTER

NOTES

1. Broom finish all exposed surfaces.
2. Asphalt cross gutters are not allowed.
3. Cross gutters to be constructed of class "B" concrete.

Issued: February 2009

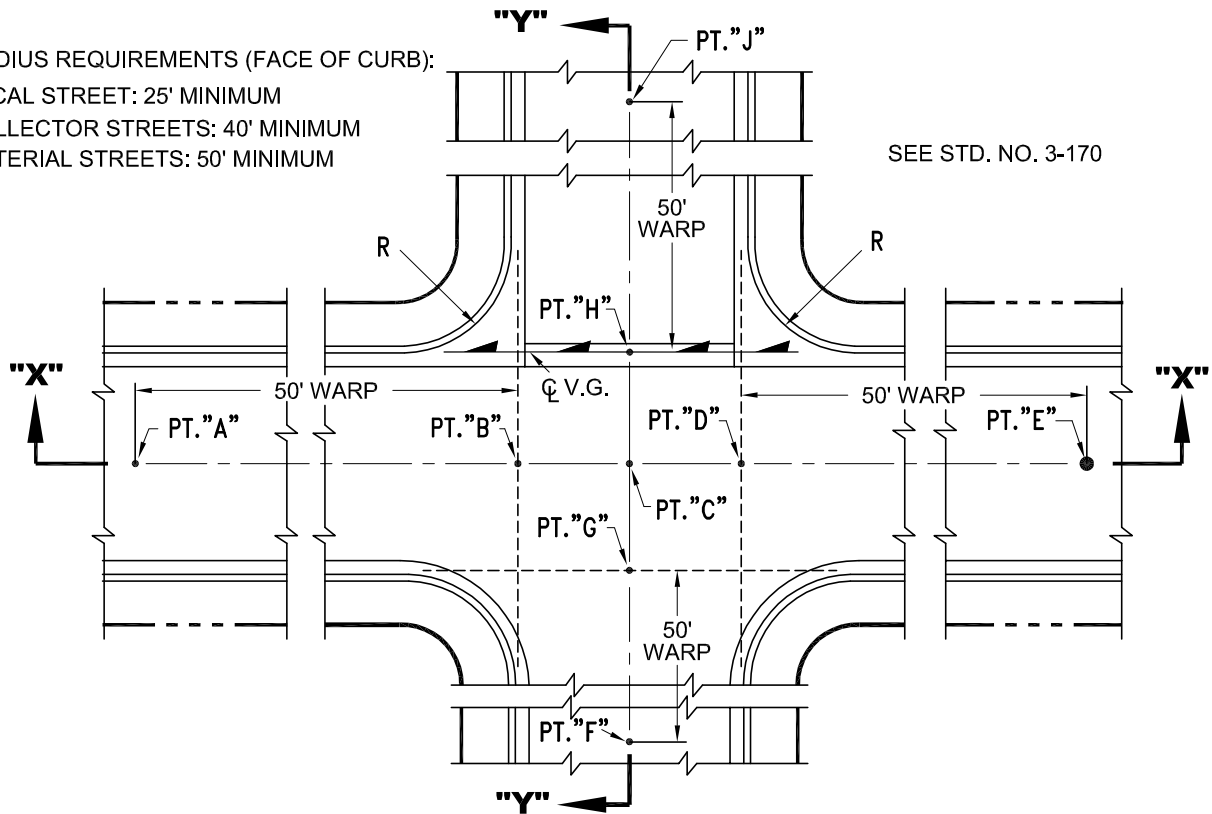
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-180
CROSS GUTTER

MIN RADIUS REQUIREMENTS (FACE OF CURB):

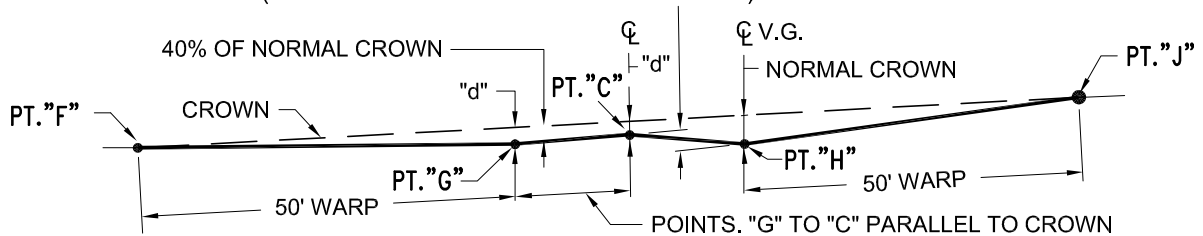
- A. LOCAL STREET: 25' MINIMUM
- B. COLLECTOR STREETS: 40' MINIMUM
- C. ARTERIAL STREETS: 50' MINIMUM

SEE STD. NO. 3-170

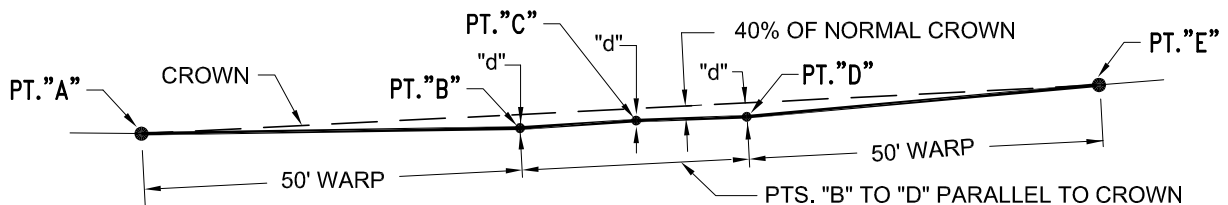


DEPRESSED CROWN (EQUALS 60% OF THE NORMAL CROWN)

"d" = 40% NORMAL CROWN



SECTION "Y-Y"



SECTION "X-X"

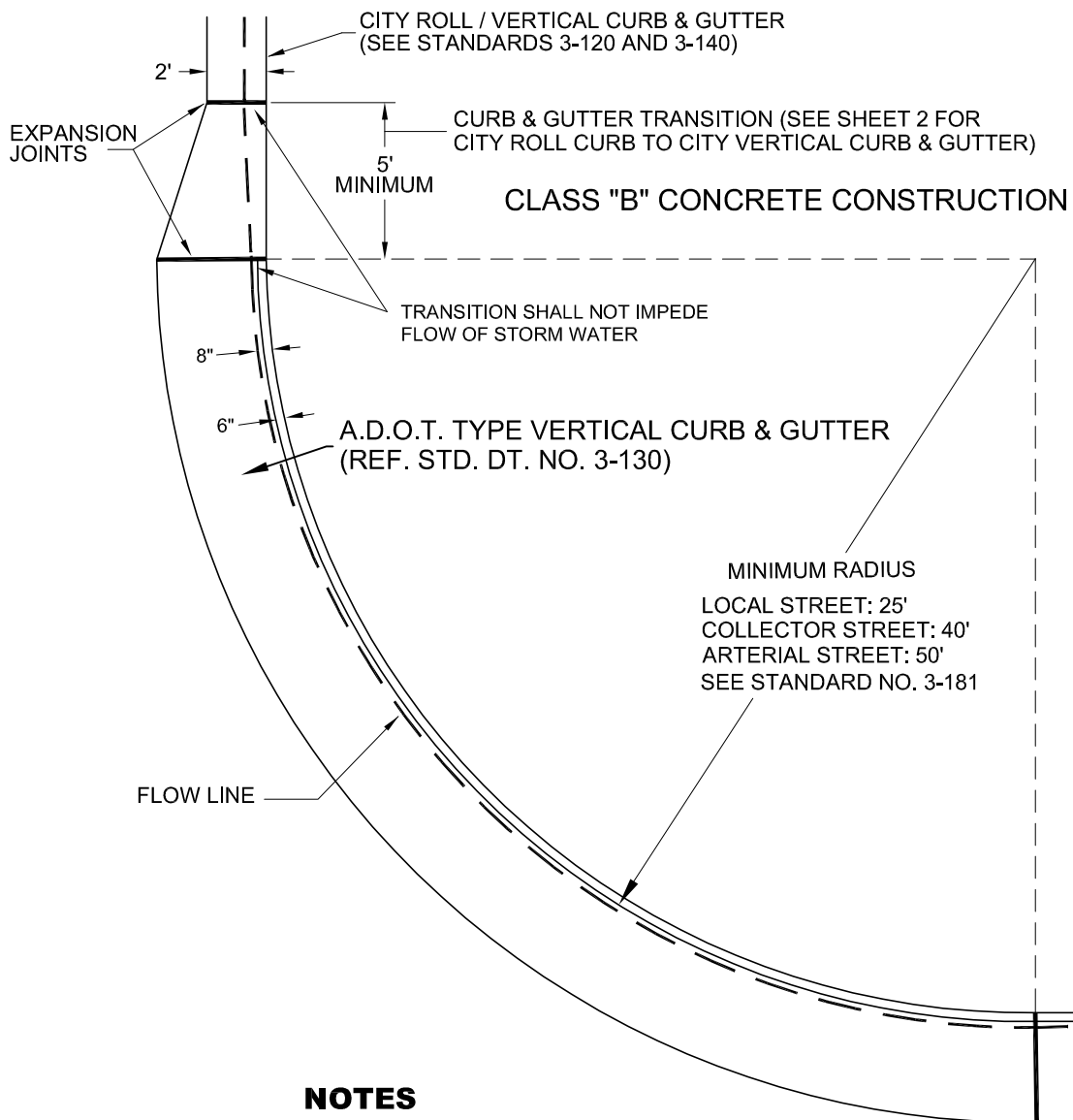
NOTES

1. Crown on centerline of intersection (PT's. "B" to "D") shall be depressed 40% of the normal crown and pavement shall be warped linearly parallel to the valley gutter 50' approaching and leaving points "B" and "D".
2. Show centerline profile of matching streets perpendicular to the valley gutter on the respective plan and profile sheets.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-181
INTERSECTION WITH
STANDARD CROSS GUTTERS



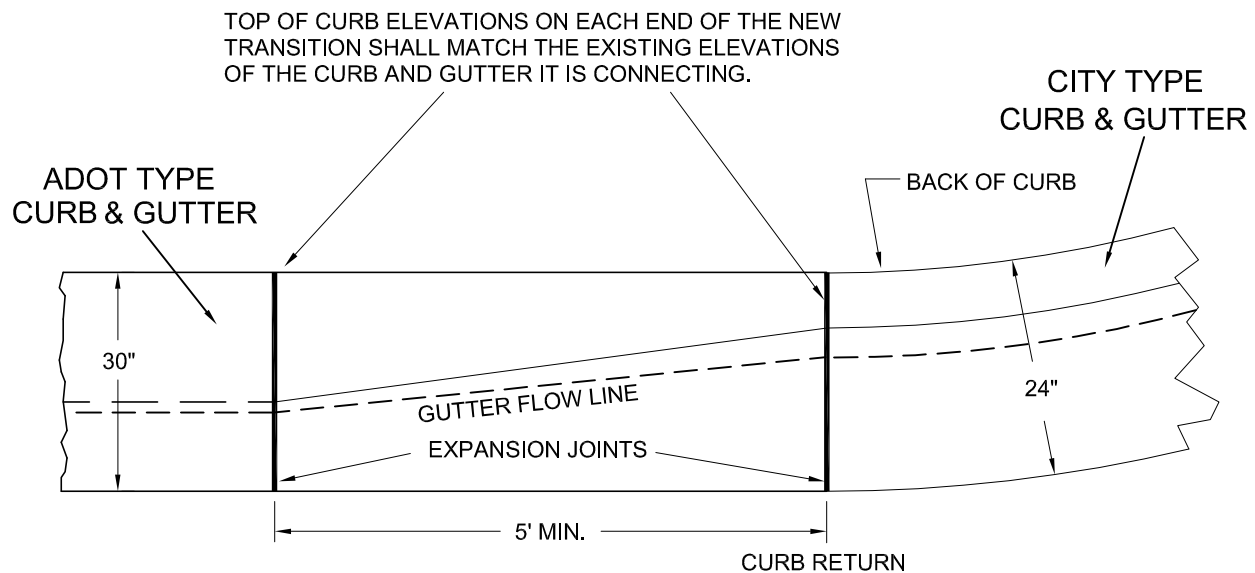
NOTES

1. Vertical curb & gutter may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart. Contraction joint shall have a minimum depth of two inches (2").
4. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum of twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
5. Curb & gutter shall be finished with steel trowel followed by a longitudinal brush broom finish. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
7. Additional information regarding joint construction can be seen in Standard Drawing No. 3-270.

Issued: February 2009

Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-190
TRANSITION FROM A.D.O.T. TYPE CURB & GUTTER
TO CITY CURB & GUTTER



NOTES

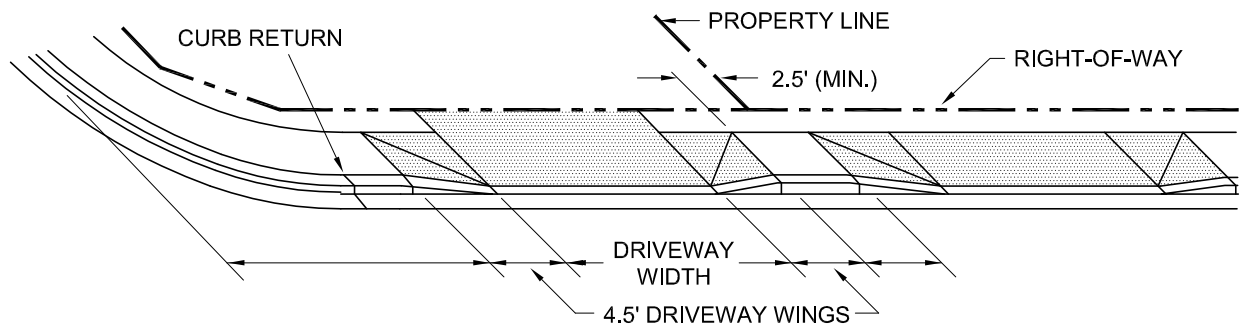
1. Curb & gutter transition may be constructed by the use of forms or the concrete may be machine extruded.
2. When the pavement slopes away from the gutter, the slope of the gutter will match the pavement's cross slope. Gutter depression will not be needed.
3. Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart. Contraction joint shall have a minimum depth of two inches (2").
4. Expansion joints shall be located at tangent points in curb returns, at structures and at a maximum of twenty foot (20') intervals. The one-half inch (1/2") joint filler material shall be the bituminous type meeting the A.A.S.H.T.O. M-33 or the A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
5. Curb & gutter shall be finished with steel trowel followed by a longitudinal brush broom finish. All exposed edges and hand tooled joints shall have a one-quarter inch (1/4") radius unless a larger radius is called for in the construction plans.
6. Additional information regarding joint construction can be seen in Standard Drawing No. 3-270.

Issued: February 2009

Sheet 2 of 2

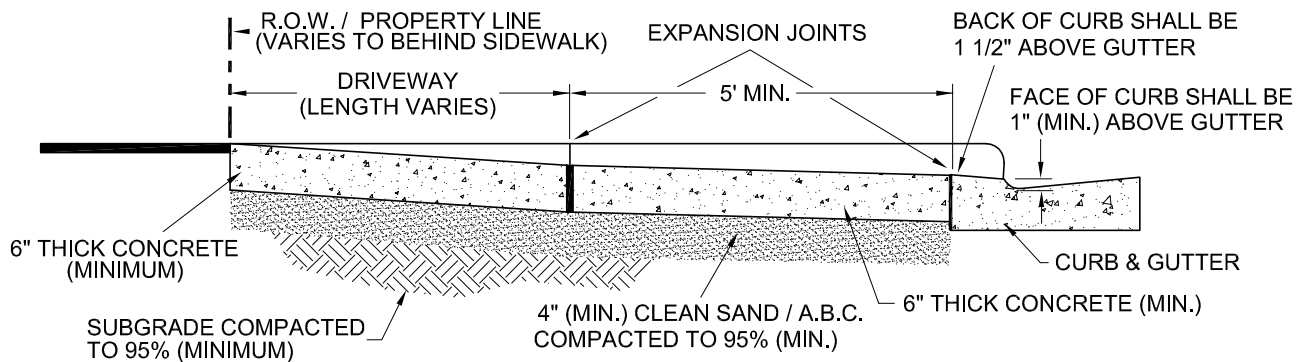
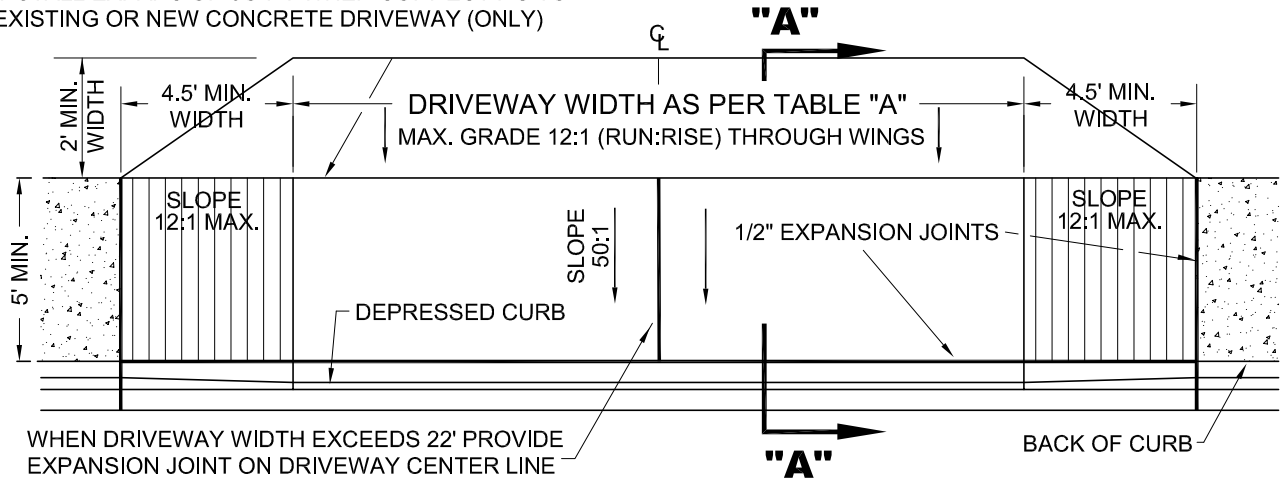
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-190
TRANSITION FROM A.D.O.T. TYPE CURB & GUTTER
TO CITY CURB & GUTTER



SEE STANDARD 3-250

INSTALL EXPANSION JOINT WHEN CONNECTING TO EXISTING OR NEW CONCRETE DRIVEWAY (ONLY)



SECTION "A - A"

CLASS "B" CONCRETE CONSTRUCTION

NOTES

- Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). The one-half inch (1/2") joint filler shall be the bituminous type meeting A.A.S.H.T.O. M-33 or ASTM D-1751 specifications and shall extend the full depth of the concrete.
- Approved driveway locations can be found in Standard Detail 3-250.

TABLE "A"		
DRIVEWAY WIDTHS	MIN.	MAX.
COMMERCIAL	16'	40'
INDUSTRIAL	16'	40'
RESIDENTIAL	16'	30'

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-210
DRIVEWAY ENTRANCE WITH
SIDEWALK ADJACENT TO CURB

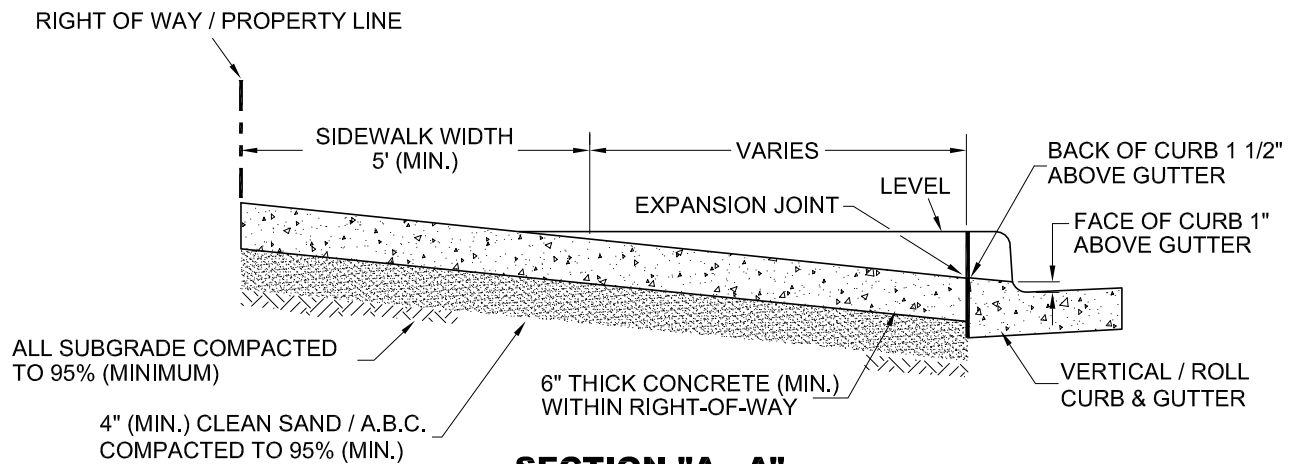
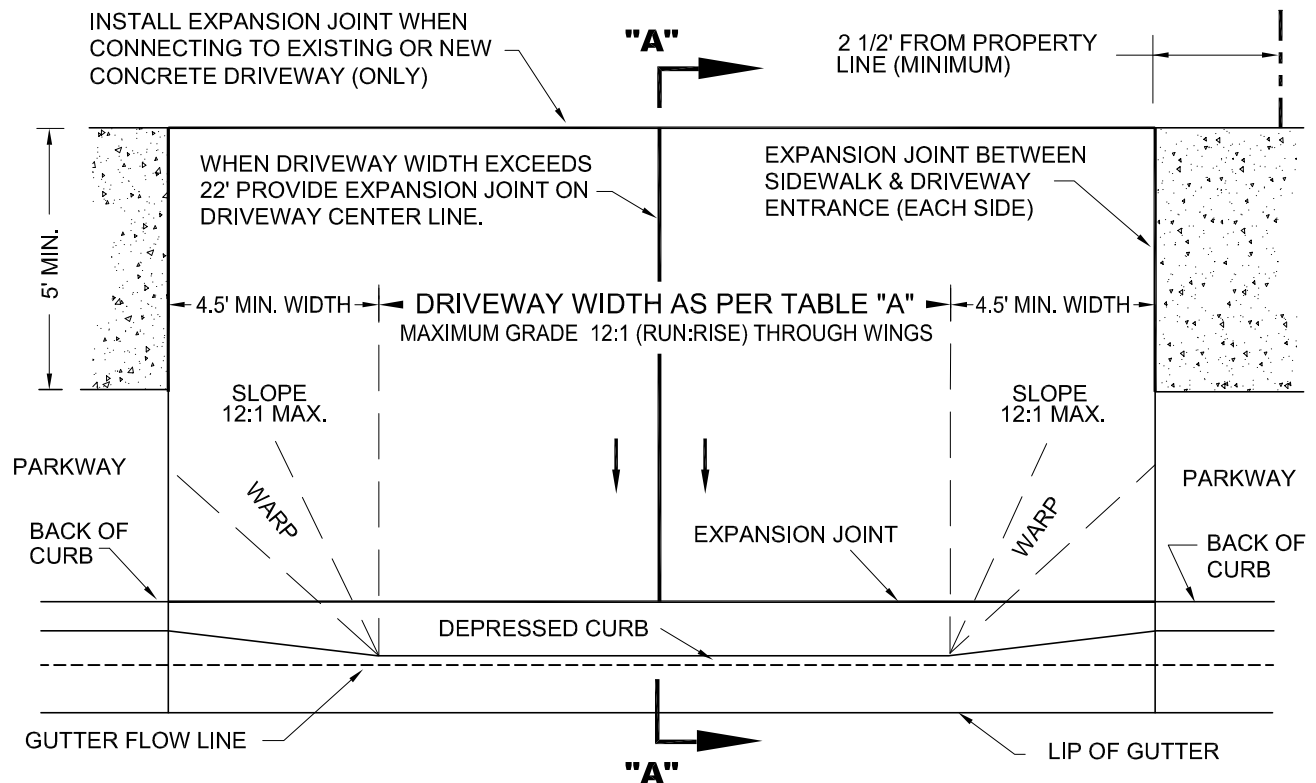


TABLE "A"		
DRIVEWAY WIDTHS	MIN.	MAX.
COMMERCIAL	16'	40'
INDUSTRIAL	16'	40'
RESIDENTIAL	16'	30'

NOTES

- Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). The one-half inch (1/2") joint filler shall be the bituminous type meeting A.A.S.H.T.O. M-33 or ASTM D-1751 specifications and shall extend the full depth of the concrete.
- Approved driveway locations can be found in Standard Detail 3-250.

CLASS "B" CONCRETE CONSTRUCTION

Issued: February 2009

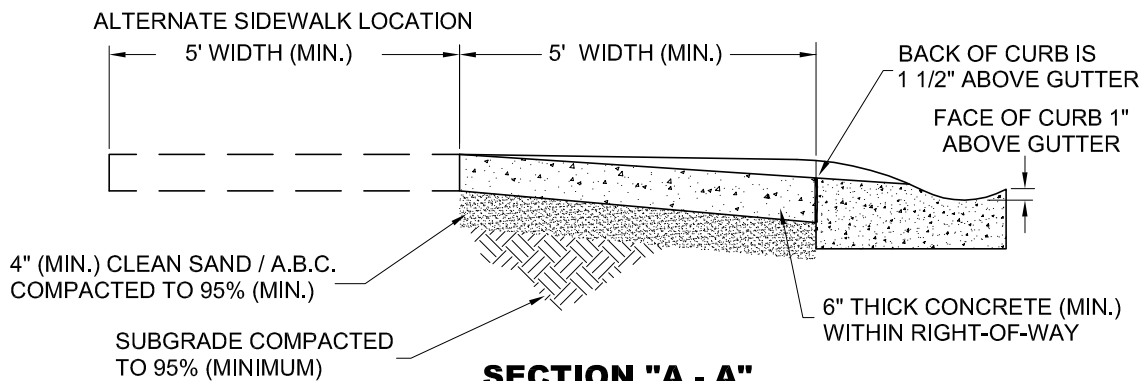
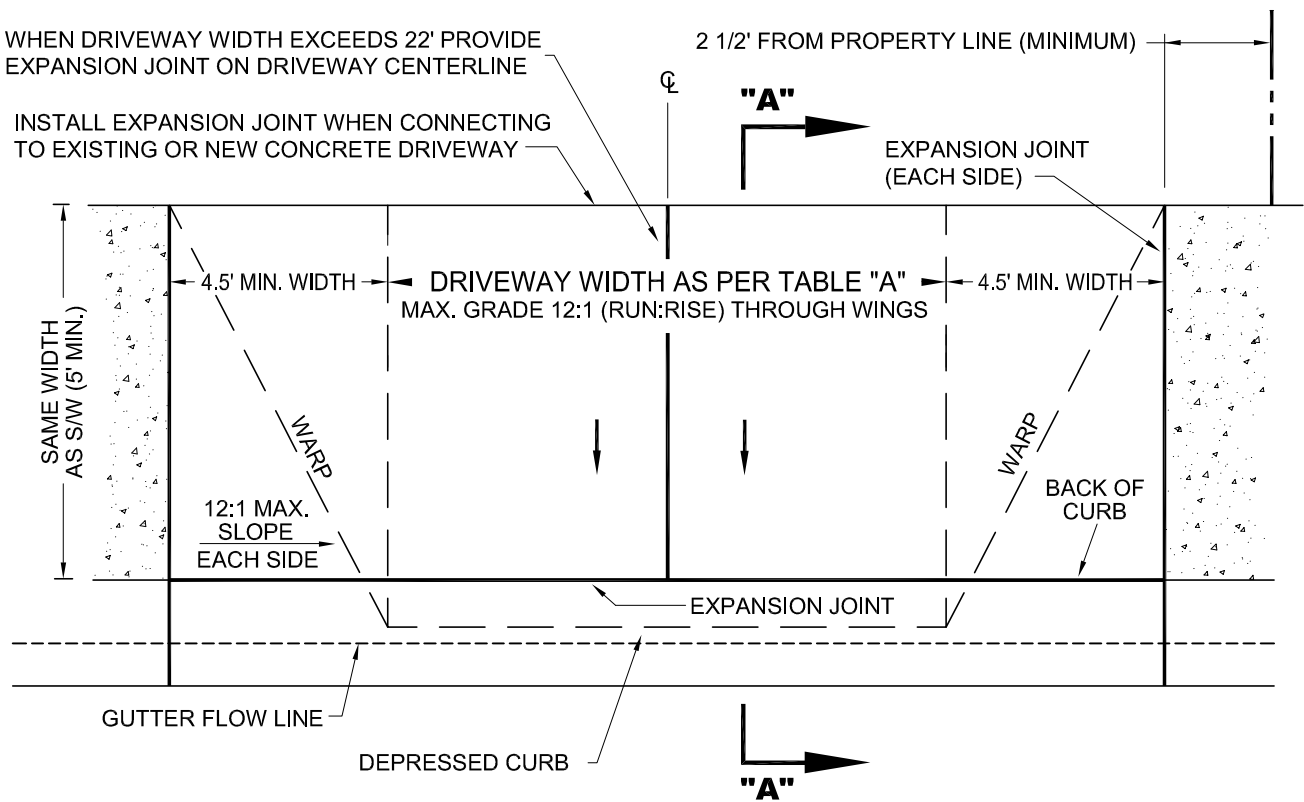
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-211 DRIVEWAY ENTRANCE WITH PARKWAY

WHEN DRIVEWAY WIDTH EXCEEDS 22' PROVIDE
EXPANSION JOINT ON DRIVEWAY CENTERLINE

INSTALL EXPANSION JOINT WHEN CONNECTING
TO EXISTING OR NEW CONCRETE DRIVEWAY

2 1/2' FROM PROPERTY LINE (MINIMUM)



NOTES

1. Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). The one-half inch (1/2") joint filler shall be the bituminous type meeting A.A.S.H.T.O. M-33 or ASTM D-1751 specifications and shall extend the full depth of the concrete.
2. Approved driveway locations can be found in Standard Detail 3-250.
3. New roll curb and gutter can only be used to replace existing roll curb or with the approval of the City Engineer.
4. Class "B" Concrete Construction

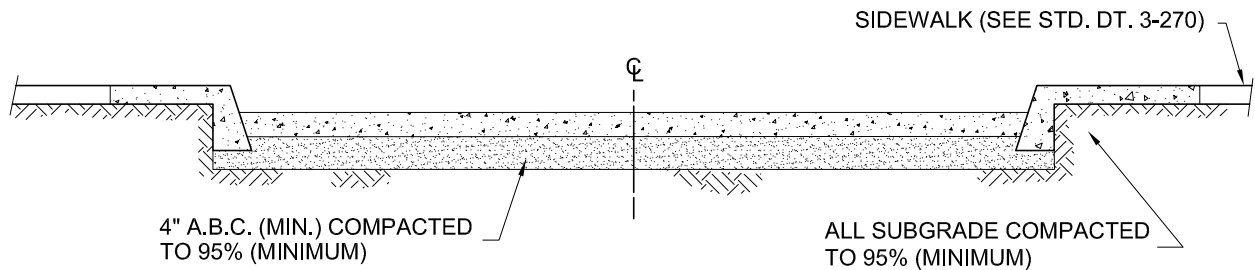
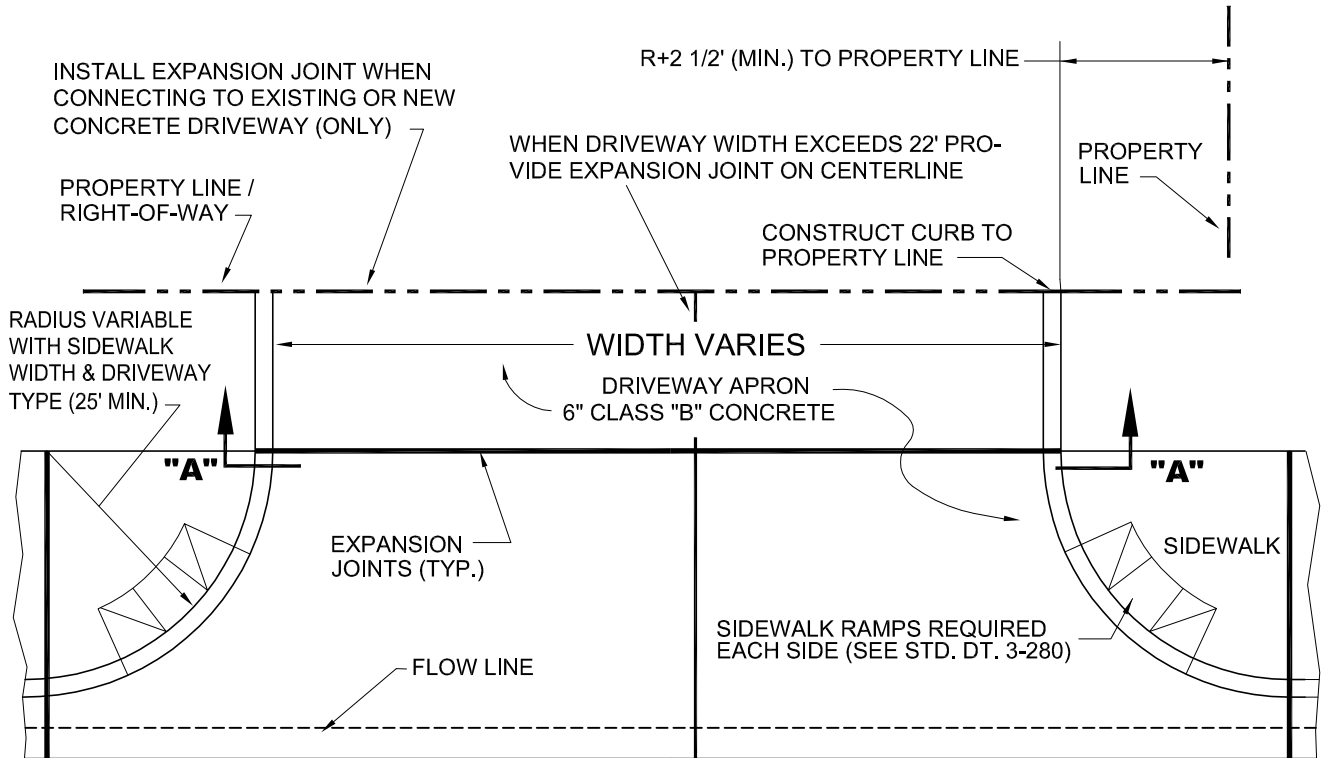
TABLE "A"		
DRIVEWAY WIDTHS	MIN.	MAX.
COLLECTOR STREET	16'	30'
LOCAL STREET	16'	40'

Issued: February 2009

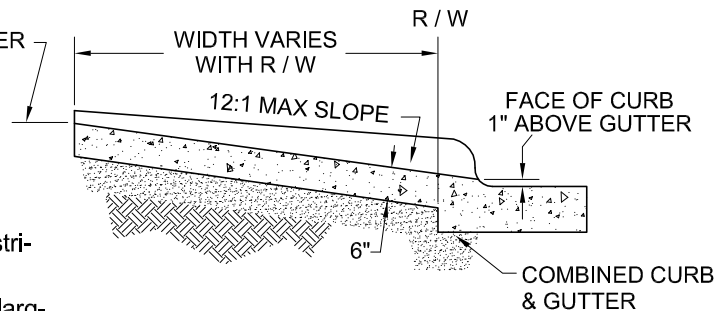
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-212
RESIDENTIAL DRIVEWAY
WITH ROLL CURB & GUTTER

CLASS "B" CONCRETE CONSTRUCTION



6" MAX. / 4" MIN. ABOVE GUTTER



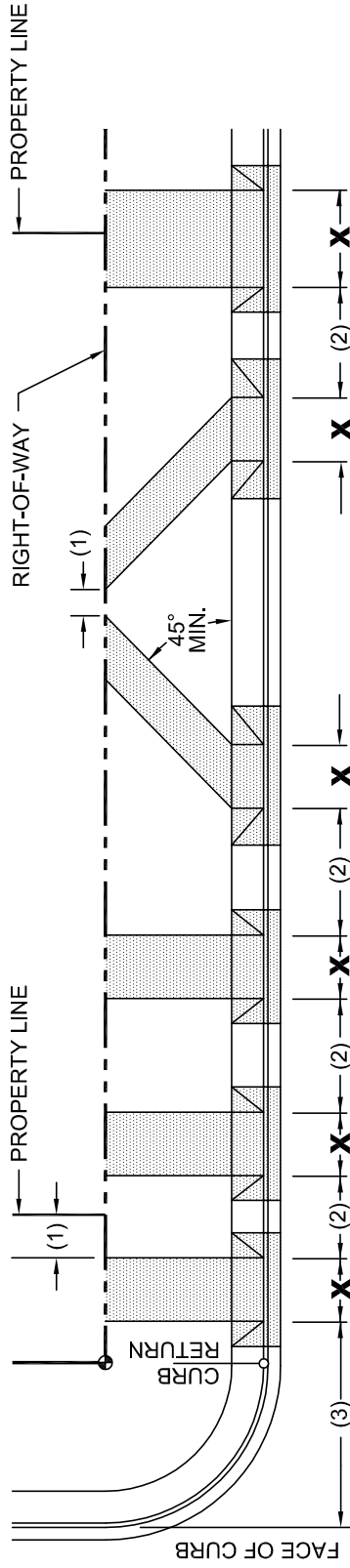
NOTES

1. This standard is to be used on commercial, industrial and emergency access driveways.
2. The access turning radii shall accommodate the largest vehicle using this access on a daily basis.
3. Expansion joints shall be located at tangent points in curb returns, at structures and placed at 20' intervals (maximum). The one-half inch (1/2") joint filler shall be the bituminous type meeting A.A.S.H.T.O. M-33 or ASTM D-1751 specifications and shall extend the full depth of the concrete.
4. A minimum of four inches (4") of A.B.C., compacted to a minimum of 95% shall be used under aprons, curb and gutter.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-225
DRIVEWAY ENTRANCES
WITH CURB RETURNS



MINIMUM DIMENSION

STREET CLASSIFICATION	(1)	(2)	(3)
LOCAL	7'	25'	40'
COLLECTOR	10'	100'	150'
ARTERIAL	25'	150'	300'
PRIME ARTERIAL	25'	350'	500'

X DIMENSION

RESIDENTIAL:

PRIMARY DRIVEWAY: 16' MIN, 30' MAX.
SECONDARY DRIVEWAY: 12' MIN, 30' MAX.

COMMERCIAL: ONE WAY: 15' MIN., 30' MAX.
TWO WAY: 30' MIN., 40' MAX.

INDUSTRIAL: 16' MIN., 40' MAX.
JOINT USE: 40' MAX.

NOTES

1. Driveway definitions:

Residential - providing access to a single family residence, duplex or to an apartment building containing five or fewer dwelling units.

Commercial - providing access to an office, retail or institutional building or to an apartment building having more than five dwelling units.

Industrial - directly serves a substantial number of truck movements to and from loading docks of an industrial facility, warehouse or truck terminal.

2. Joint use driveways may become desirable for land owners of adjacent properties to service both properties. Should this be the case only one of the two adjacent land owners need apply for the encroachment permit. A notarized written mutual agreement, signed by all parties involved, must accompany the application form and will be recorded by the City Engineer.

3. Driveway designs are subject to review and approval by the City Engineer.

4. Commercial and industrial driveways shall have curb returns (see Standard Detail 3-225).

5. Driveways and depressed curbs shall be located as noted or as directed by the City Engineer.

6. Drainage structures shall be provided under driveways where necessary.

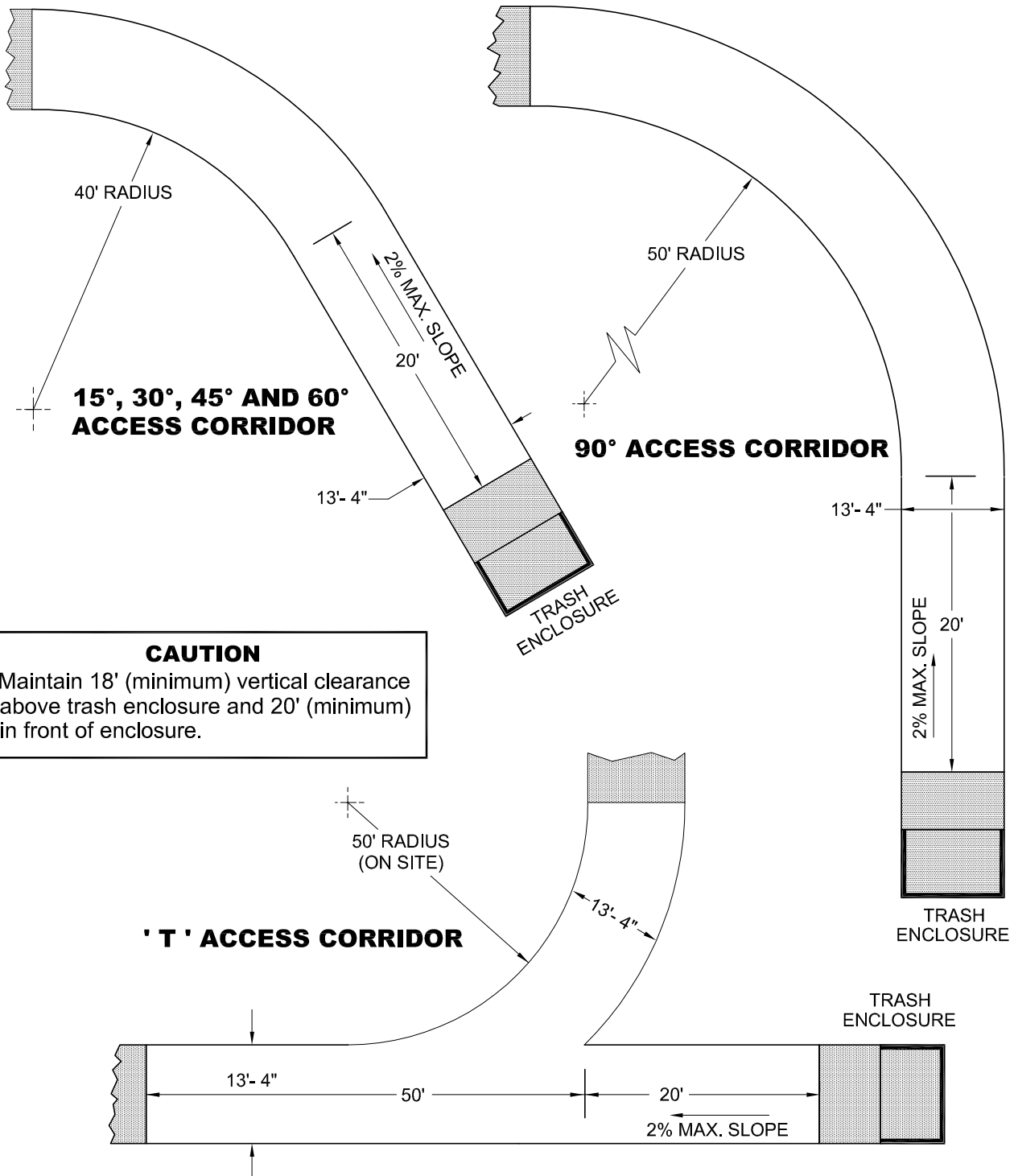
7. Base material shall be the same as that shown for main roadways unless otherwise noted. All subgrade shall be compacted to 95% (minimum). Clean sand and A.B.C. shall also be compacted to 95% (minimum).

Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 3-250
DRIVEWAY ENTRANCE
LOCATIONS**



CAUTION

Maintain 18' (minimum) vertical clearance above trash enclosure and 20' (minimum) in front of enclosure.

NOTES

1. Backing from the access corridors onto a street or alley is not permitted.
2. See Standard Detail 3-251 for approved trash enclosure.

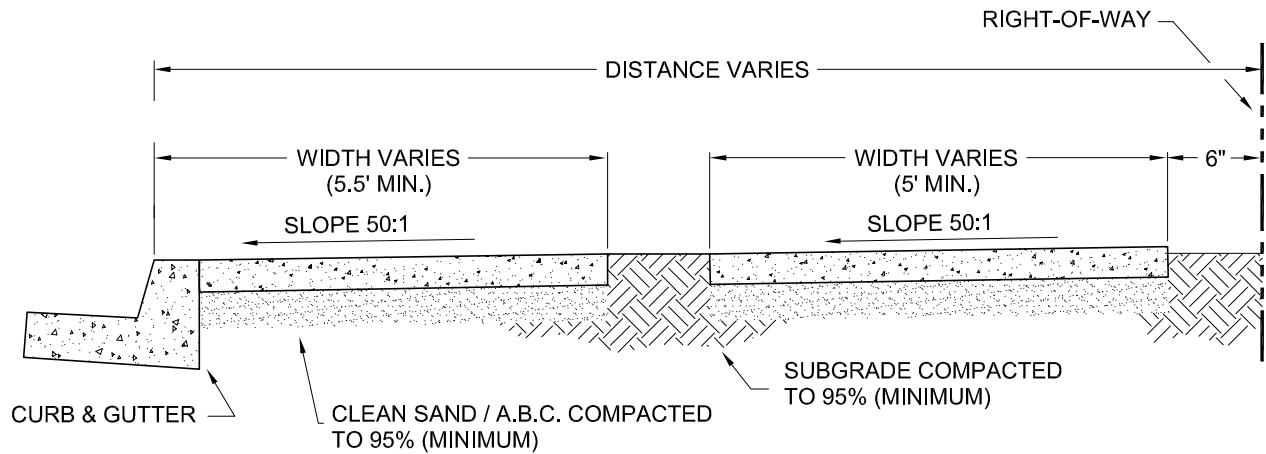
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-252 TRASH ENCLOSURE ACCESS

ALL SIDEWALK 4" (MIN.) CLASS "B" CONCRETE CONSTRUCTION

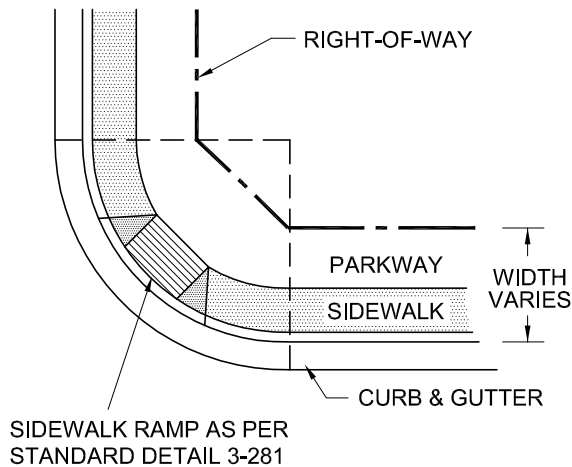
OPTIONAL SIDEWALK LOCATIONS



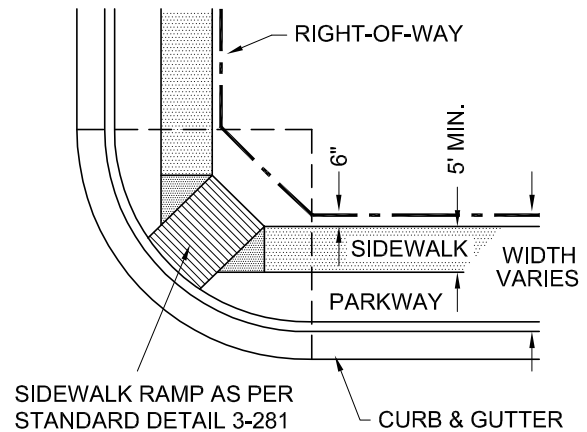
PREFERRED SIDEWALK LOCATION

ALTERNATE SIDEWALK LOCATION

PROFILE VIEW



PREFERRED SIDEWALK LOCATION



ALTERNATE SIDEWALK LOCATION

PLAN VIEW

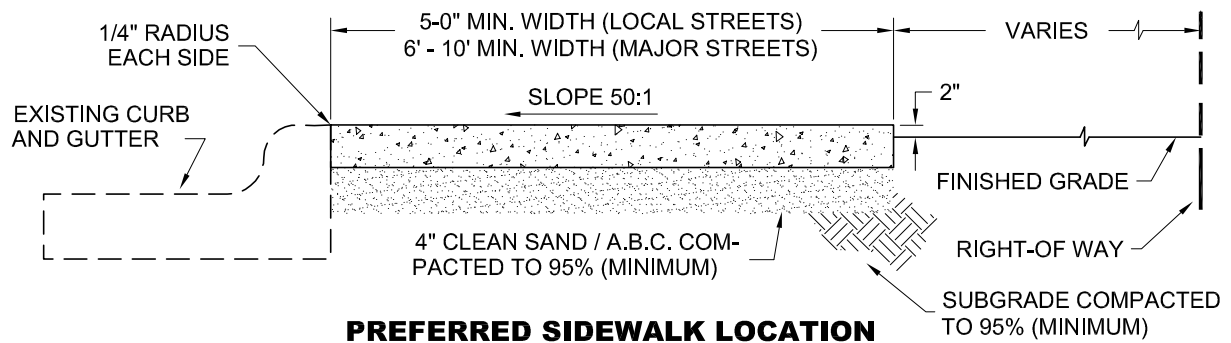
NOTES

1. A 50:1 cross slope per A.D.A. requirements is required for drainage from back of sidewalk to curb.
2. Sidewalk shall be a minimum of 4" thick.
3. Sidewalks containing power poles, light standards, mailboxes or other such obstructions shall be widened sufficiently to meet current A.D.A. clearance requirements.
4. Reconfigure sidewalk in intersection so that ramp slope and lengths achieve no steeper than a 12:1 (run:rise) slope approaching/departing ramp.
5. All new development shall be required to construct sidewalks adjacent to all streets.
6. Expansion joint material shall be placed between curb and gutter and sidewalk when the back of the sidewalk abuts concrete driveways or other concrete driveways or other concrete paving.

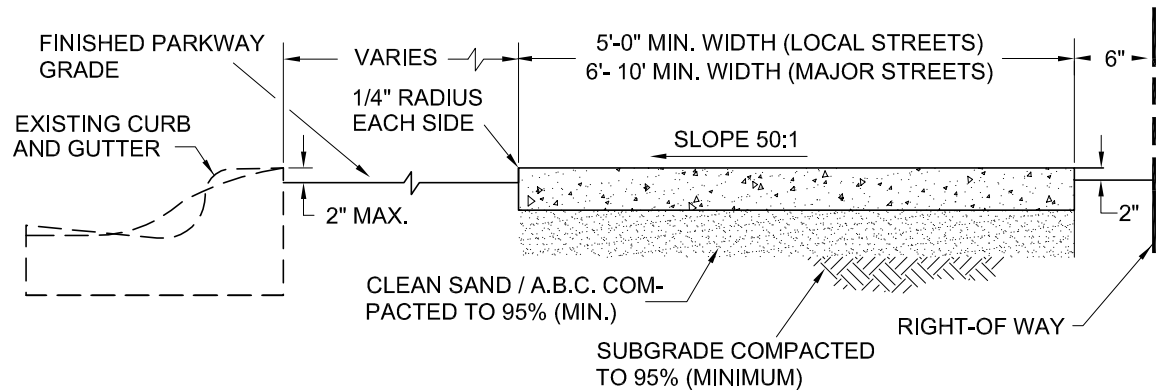
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

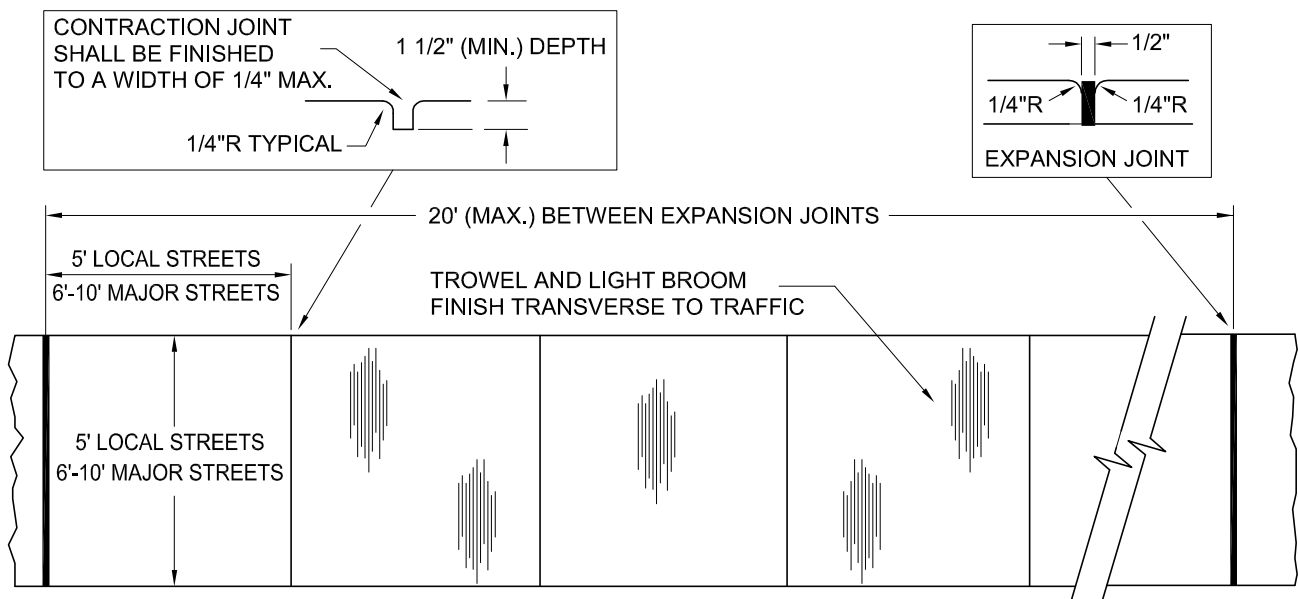
STANDARD NO. 3-260 SIDEWALK AND PARKWAY LOCATIONS



PREFERRED SIDEWALK LOCATION



ALTERNATE SIDEWALK LOCATION



ALL SIDEWALKS: 4" (MIN.) CLASS "B" CONCRETE CONSTRUCTION

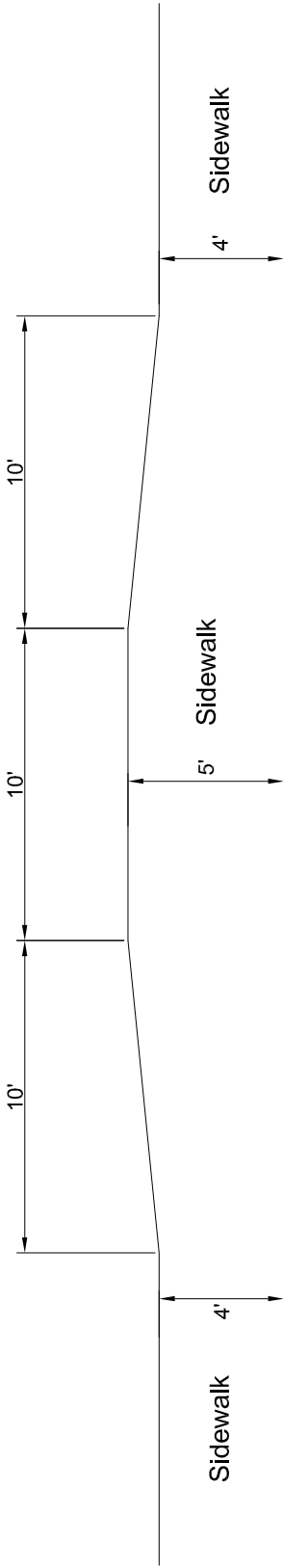
NOTES

1. Expansion joints shall be located at tangent points, in curb returns, at structures and placed at 20' intervals (maximum). The one-half inch (1/2") joint filler shall be the bituminous type meeting A.A.S.H.T.O. D-1751 specifications and shall extend the full depth of the concrete.
2. Expansion joint material shall be placed between curb & gutter and sidewalk when the back of the sidewalk abuts concrete driveways, other concrete paving or structures.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-270
SIDEWALKS

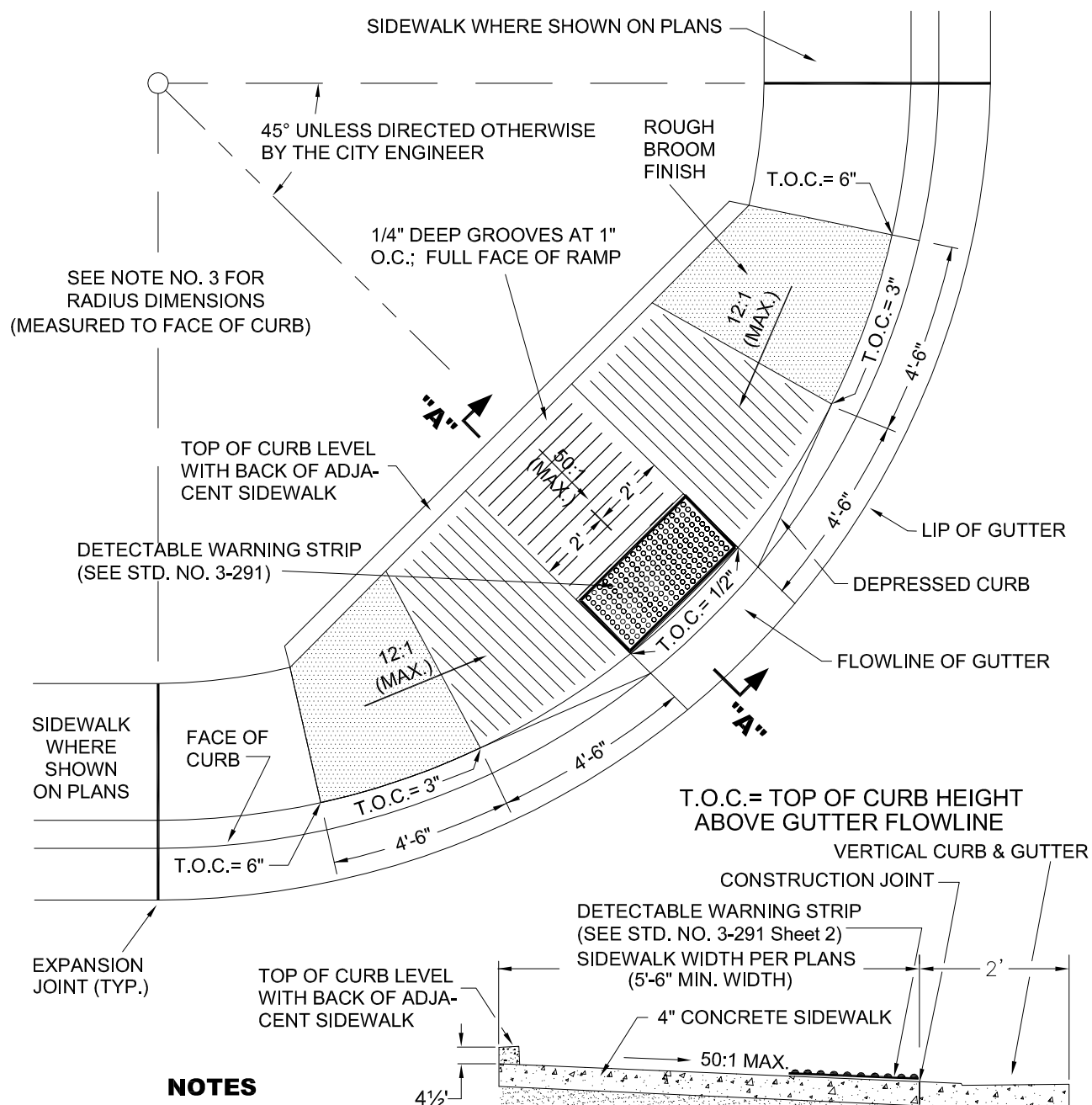


PLAN VIEW

NOTES: Located every 200' (Maximum)

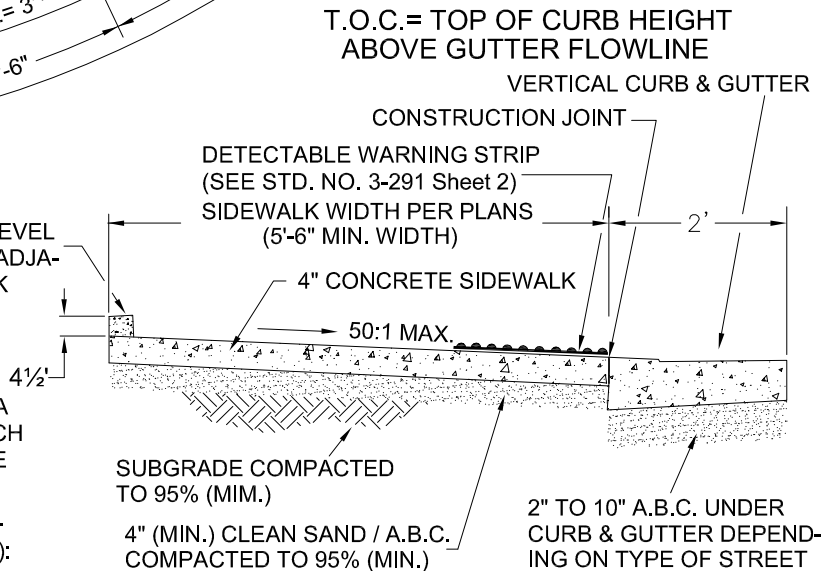
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-271
SIDEWALK HANDICAPPED
PASSING ZONE



NOTES

1. FOR COLLECTORS, ARTERIALS AND AREA SERVICE HIGHWAYS PLACE RAMP AT EACH CROSSWALK LOCATION, IN ACCORDANCE WITH A.D.A. REQUIREMENTS.
2. CONSTRUCT WITH CLASS "B" CONCRETE.
3. RADIUS REQUIREMENTS (FACE OF CURB):
 - A. LOCAL STREET: 25' MINIMUM
 - B. COLLECTOR STREETS: 40' MINIMUM
 - C. ARTERIAL STREETS: 50' MINIMUM
 - D. SERVICE HIGHWAYS: 50' MINIMUM
4. EXPANSION JOINTS SHALL BE LOCATED AT TANGENT POINTS IN CURB RETURNS, AT STRUCTURES AND AT A MAXIMUM 20 FOOT INTERVAL. THE ONE-HALF INCH JOINT FILLER SHALL BE THE BITUMINUS TYPE MEETING A.A.S.H.T.O. M-33 OR THE A.S.T.M. D-1751 SPECIFICATIONS AND SHALL EXTEND THE FULL DEPTH OF THE CONCRETE.
5. BACK OF CURB AND GUTTER SHALL BE DEPRESSED (NO LIP)



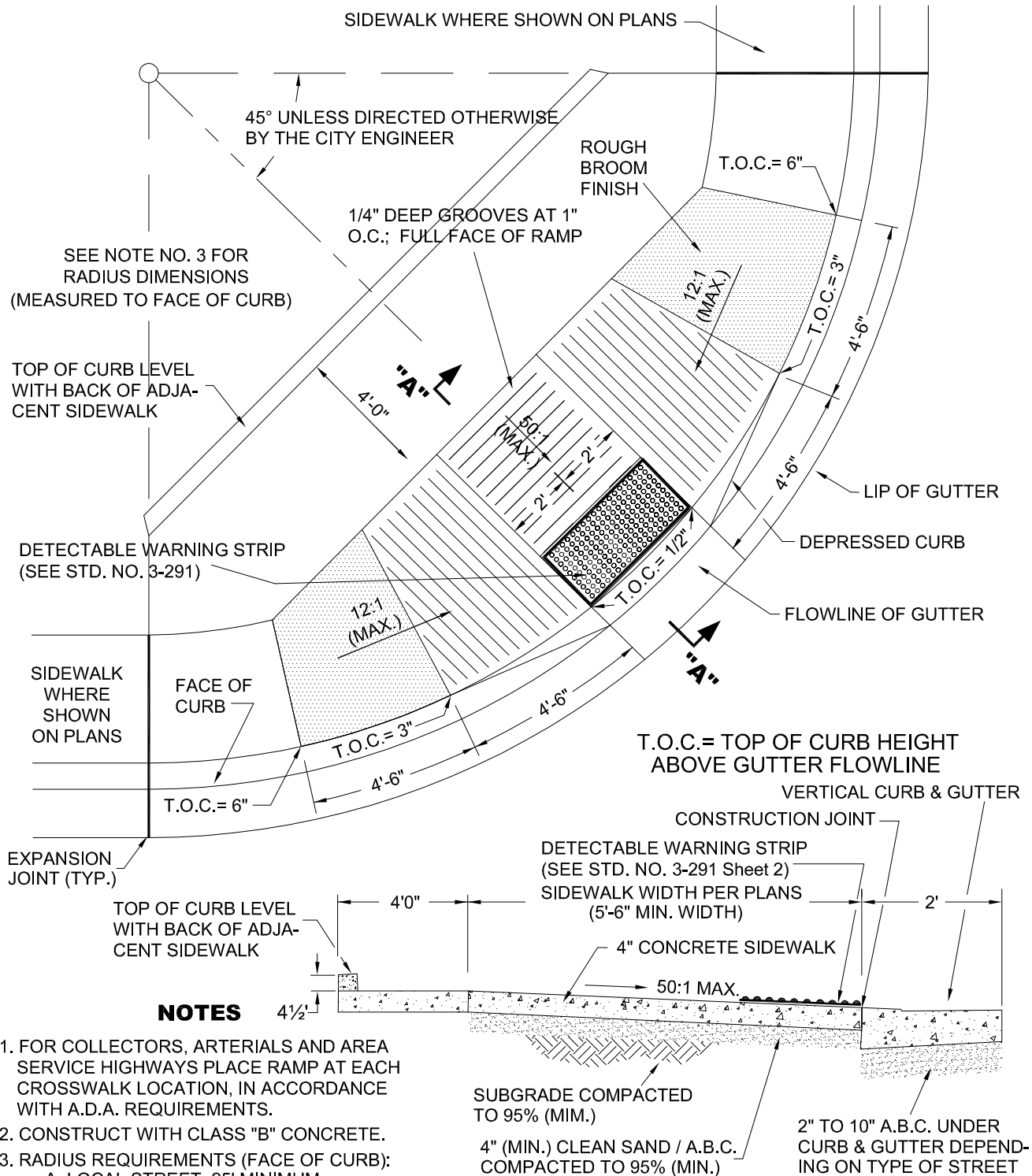
SECTION "A-A"

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Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-280 SIDEWALK RAMP



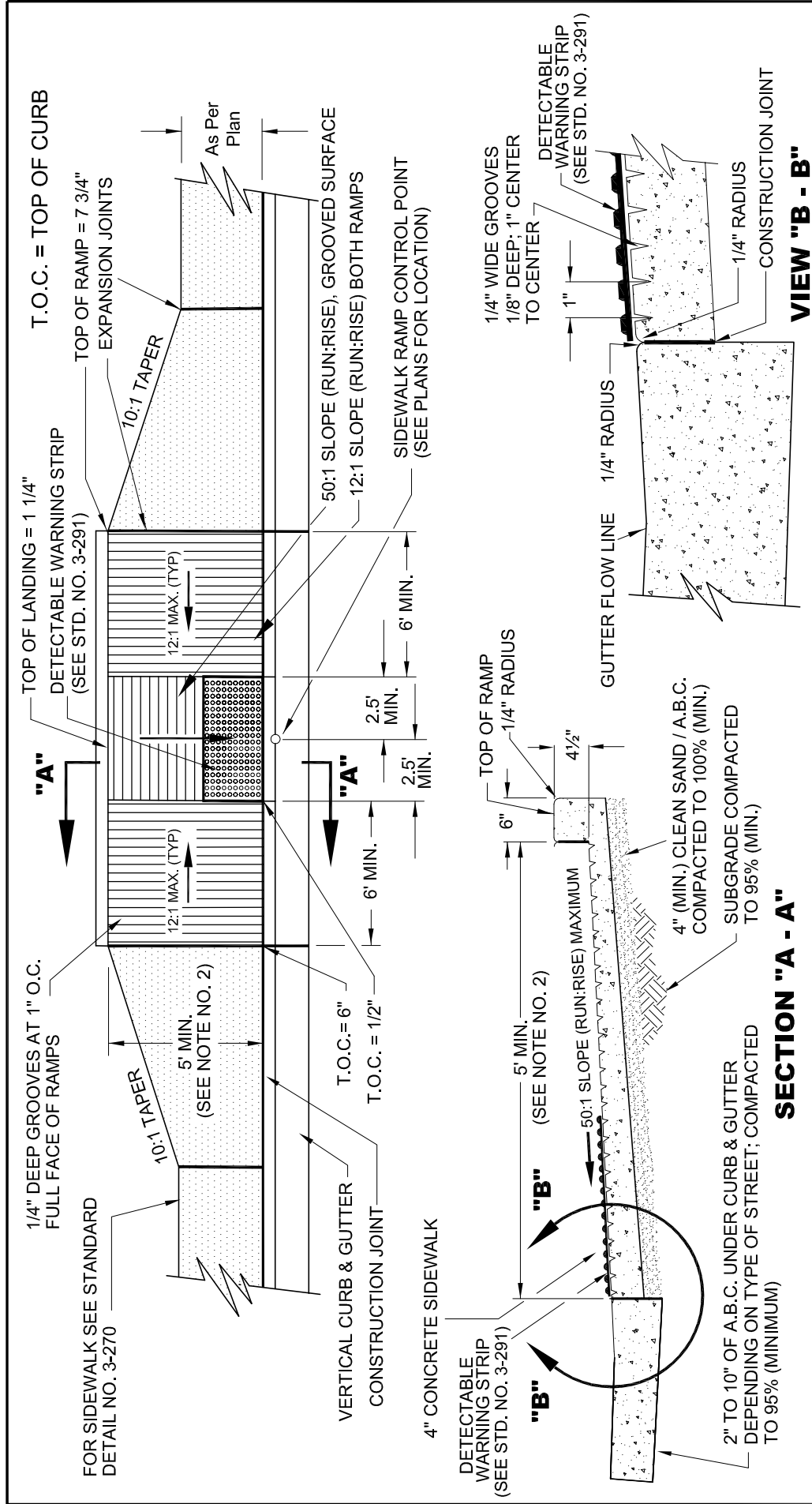
SECTION "A-A"

Issued: February 2009

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-280
SIDEWALK RAMP

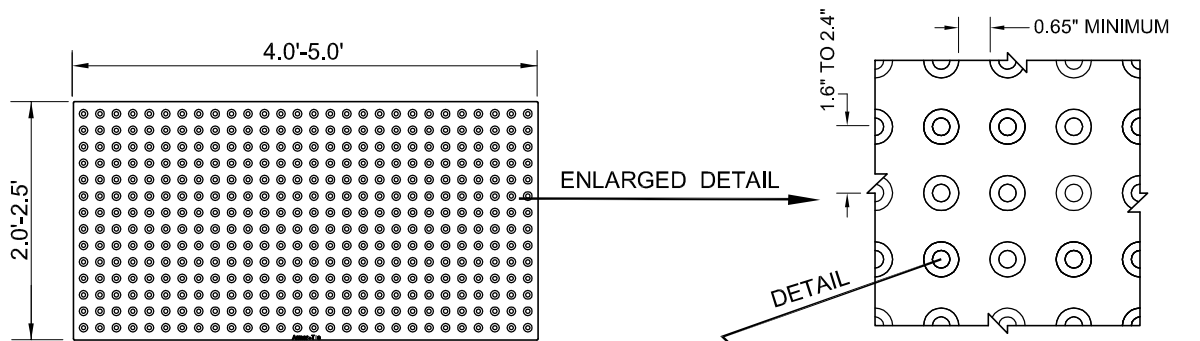


NOTES

1. Top of curb (T.O.C.) and top of ramp elevations shown are measured from the flow line of the gutter. Gutter elevation = 0.00.
2. Sidewalks greater in width than five feet (5') the overall sidewalk ramp length shall match the sidewalk width.
3. Expansion joints shall be located at tangent points, in curb returns, at structures and placed at 20' intervals (maximum). The one-half inch (1/2") joint filler material shall be the bituminous type meeting A.A.S.H.T.O. D-1751.
4. Ramp and sidewalks shall be constructed of Class "B" concrete.

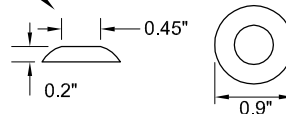
Issued: February 2009

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-290
SIDEWALK RAMP
(STRAIGHT SECTION)



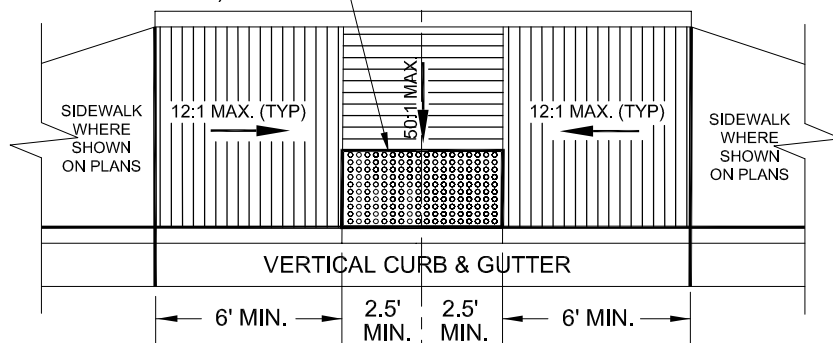
DETECTABLE WARNING STRIP PLAN VIEW (TRUNCATED)

TEXTURE PATTERN DETAIL

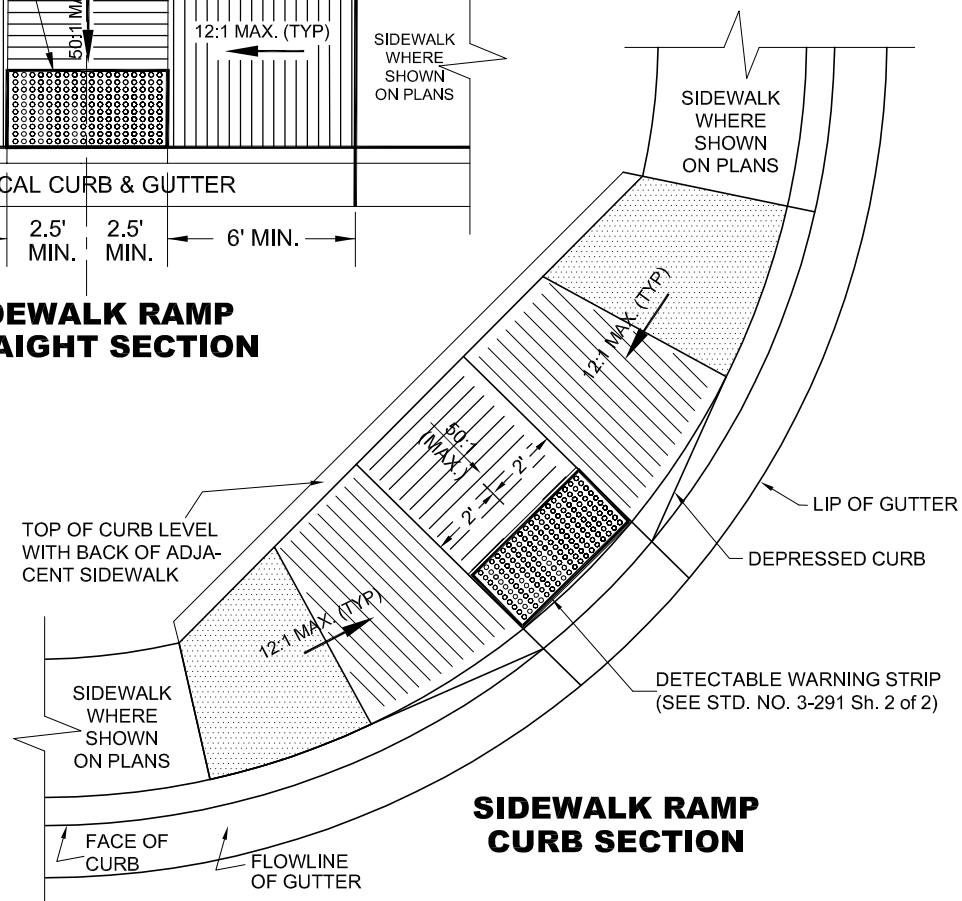


TRUNCATED DOME DETAIL

DETECTABLE WARNING STRIP
(SEE STD. NO. 3-292)



SIDEWALK RAMP STRAIGHT SECTION



SIDEWALK RAMP CURB SECTION

NOTES:

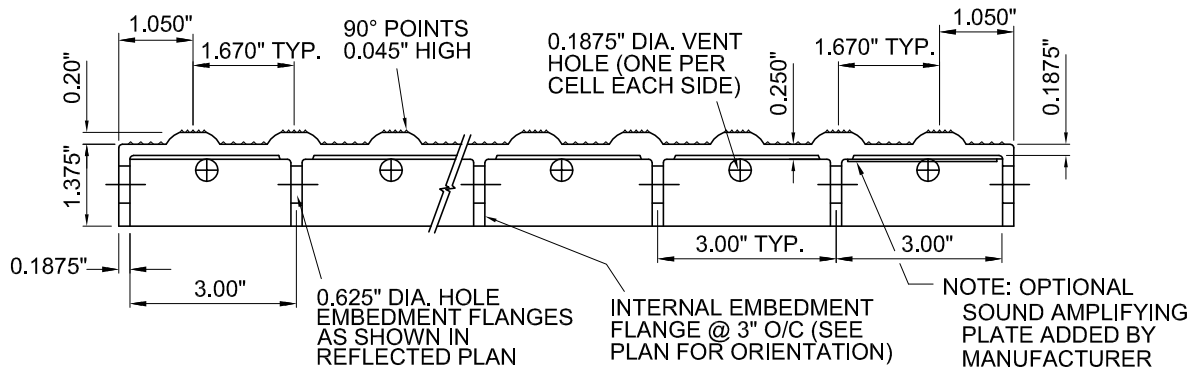
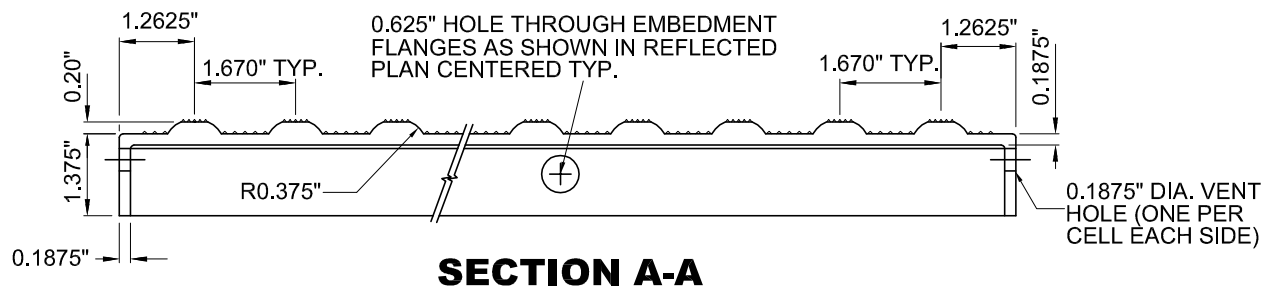
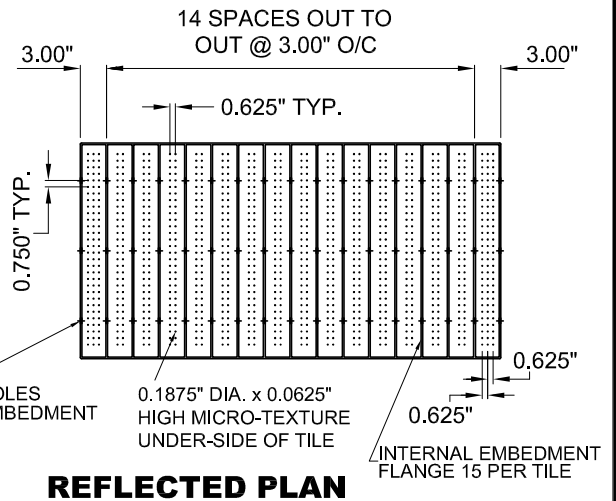
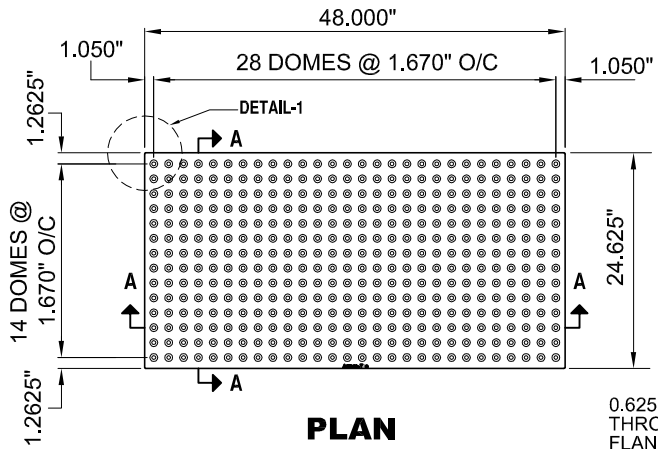
1. SEE STD. DETAIL NO. 3-291 Sh. 2 of 2 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING STRIP

Issued: February 2009

Sheet 1 of 2

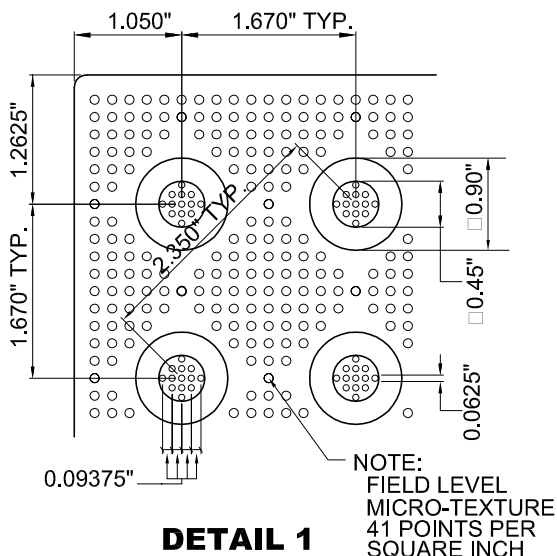
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-291
SIDEWALK RAMP
DETECTABLE WARNING STRIP



NOTES

1. ADA Solutions, Inc., Trekway Dome Tiles and Rampdome systems are approved commercial products.
2. The approved items are not necessarily exclusive. If a similar product of comparable and equal quality and performance is desired, a request supported by appropriate information and data may be submitted to the City Engineer for review.
3. Embedments shall be as per manufacturers recommendations.

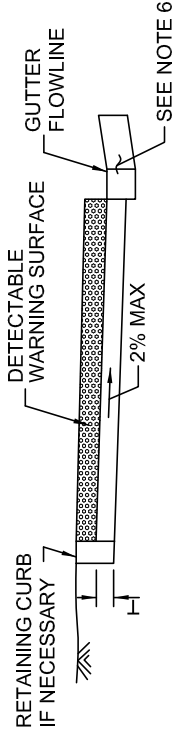


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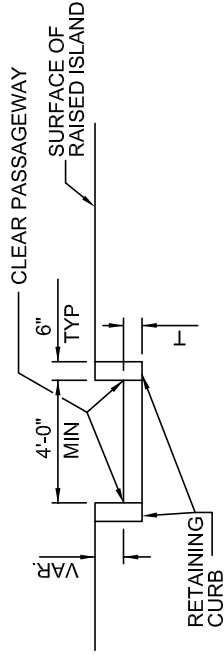
Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

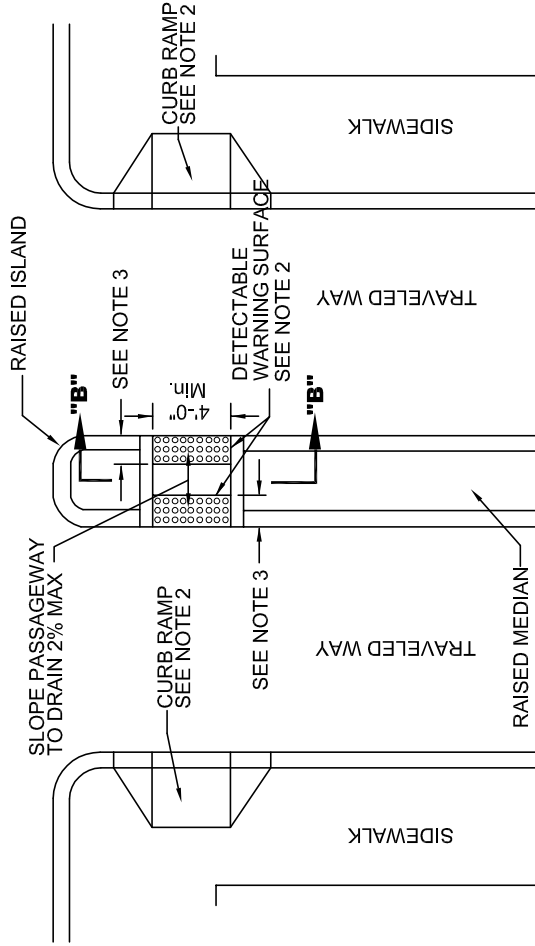
STANDARD NO. 3-291
SIDEWALK RAMP
DETECTABLE WARNING STRIP



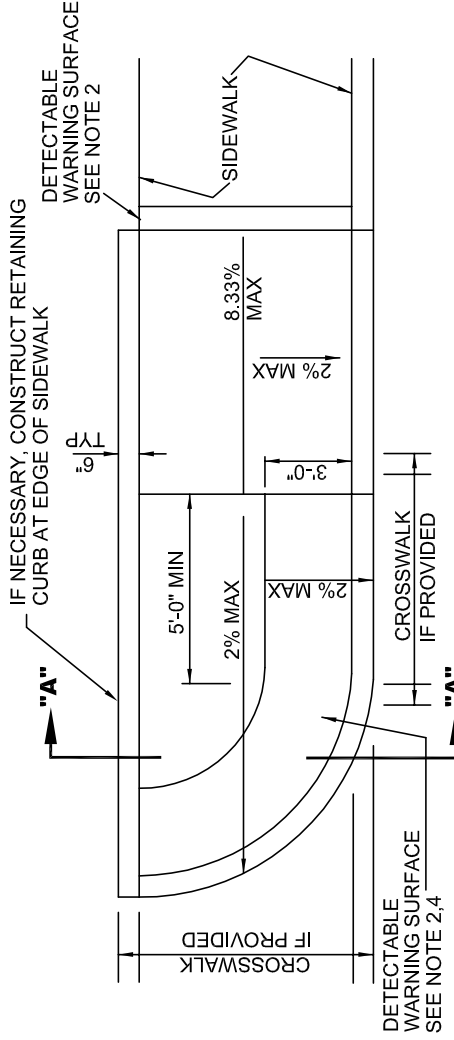
SECTION A-A



SECTION B-B



TYPE A PASSAGEWAY



CASE CM CURB RAMP

NOTES

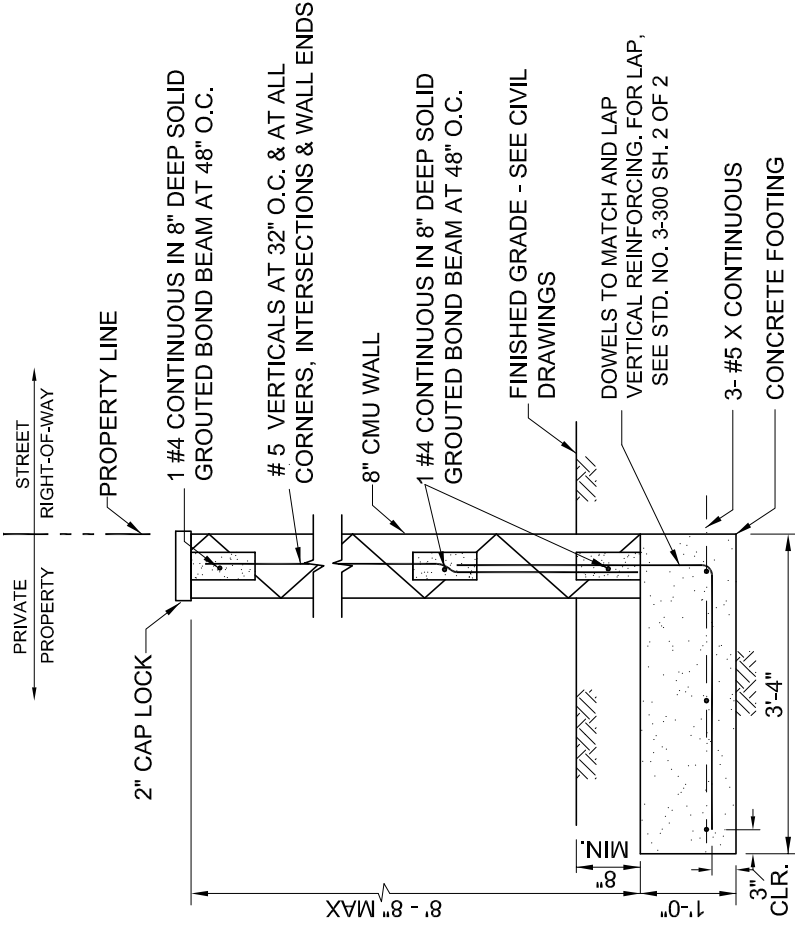
1. Sidewalk, ramp and passageway thickness, "T", shall be 3½" minimum.
2. For details of detectable warning surfaces, see Standard No. 3-291.
3. Where an island is less than 6'-0" wide, the detectable warning surface shall extend the full width and full length of the passage way. Where an island width is greater than or equal to 6'-0", but less than 8'-0", each detectable warning surface shall extend the full width of the passageway for a distance of 2' from each curb face. Where an island width is greater is greater than or equal to 8'-0", each detectable warning surface shall extend the full width of the passageway for a distance of 3' from each curb face.
4. For Case CM curb ramp, the edge of the detectable warning surface shall be between 6" and 8" from the gutter flowline.
5. Transitions from ramps to walks, gutters or streets shall be flush and free of abrupt changes.
6. Max slopes of adjoining gutters, the road surface immediately adjacent to the curb ramp or accessible route shall not exceed 5 percent within 4'-0" of the top and bottom of the curb ramp.
7. Utility pullboxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the facility owner prior to, or in conjunction with, curb ramp construction.

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

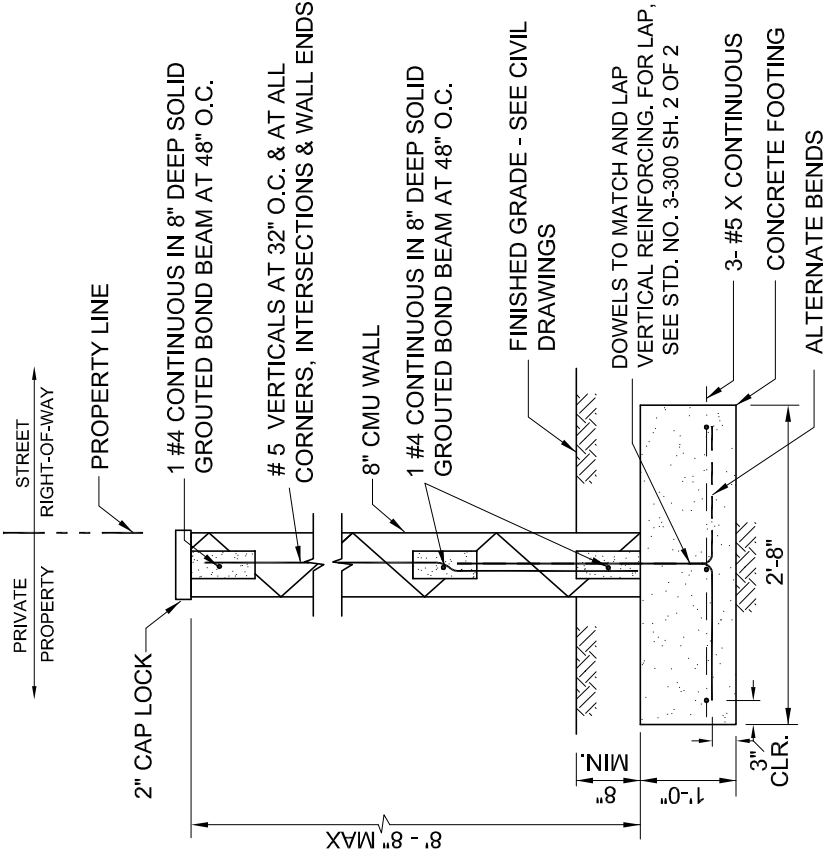
STANDARD NO. 3-292 CURB RAMP & ISLAND PASSAGEWAY DETAILS



FREESTANDING CMU WALL

NOTES:

1. For location of site walls, see architectural and/or civil drawings.
2. Provide masonry control joints at 24'-0" o.c. max in site walls.
Bond beam shall be continuous through MCJ at top & bottom bond beam.
3. This wall is designed as a freestanding site wall with no retaining.
4. No utilities shall pass through footing.
5. Eliminate mortar in all vertical joints in first course above grade.



FREESTANDING CMU WALL w/ ALTERNATE BENDS

Issued: February 2009

Sheet 1 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-300
NON-RETAINING
8' TALL CMU SITE WALL

1. All work shall conform to the 2003 international building code.
2. Notes and details on drawings shall take precedence over general structural notes and typical details. Where no specific details are shown, construction shall conform to similar work on the project.
3. Verify all dimensions with civil drawings prior to start of construction- resolve any discrepancy with the civil engineer. Do not scale drawings.
4. All footings shall bear on firm, undisturbed native soil. All soil below footings and slabs shall be compacted to 95% minimum in accordance to ASTM D698. Design soil bearing pressure=1500 PSF. The City of Yuma accepts no responsibility for existing soil conditions. Footing design is based upon minimum international building code soil bearing values as required by the building codes department in the absence of a soil report. It shall be the contractor's responsibility to verify the soil bearing pressure and to determine whether unsuitable soil conditions (I.E., expansive or collapsible soils, loose fill, etc.) exist.
5. The contractor shall take all measures necessary to protect the structure during construction, including, but not limited to, bracing, shoring, etc. the contractor shall be responsible for the design and implementation of all scaffolding, bracing and shoring. Observation visits to the site by the structural engineer shall not include inspection of the above items. The City will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction nor will the structural engineer be responsible for construction site safety, or the safety precautions and the programs incident thereto.
6. The contract structural drawings represent the finished structure. They do not indicate the method of construction.
7. Provide bent corner bars to match and lap horizontal reinforcing at corners and intersections in masonry wall bond beams and footings.
8. Design loads:
 - a. assumed soil properties
 - i. allowable soil bearing pressure= 1,500 PSF
 - b. wind pressure= 16.0 PSF (based on 90 mph, exposure C, $I_w = 1.0$)
 - c. seismic design force= 0.22W (working stress level based on $SDS=0.784$
 $SDS = D_e / I_e = 1.0$, category II

9. Materials of construction:

- a. concrete:
 - i. ASTM C94, $F'_c = 300$ PSI at 28 days (design is based on 2,500 PSI).
- b. reinforcing:
 - i. ASTM A 615 grade 40 for #3 and smaller
 - ii. ASTM A 615 grade 60 for #4 and larger
 - iii. Lap length for #4 bars in concrete is 29"
 - iv. Lap length for #4 bars in CMU is 24"
 - v. Lap length for #5 bars in concrete is 36"
 - vi. Lap length for #5 bars in CMU is 30"
 - vii. Lap length for #6 bars in concrete is 43"

- c.CMU: Masonary work shall conform to ACI 530 "Building code requirements for masonry structures" and the 2003 international building code.
 - i. ASTM C90, grade N, type I, $F'_m=1500$ PSI, laid in running bond.
- d. Grout:
 - i. ASTM C476, 2000 PSI at 28 days, tested per ASTM C1019.
 - ii. grout all cells and courses containing reinforcing.
- e. Mortar:
 - i. ASTM C270, Type S, 1800 PSI at 28 days, per ASTM C270 proportion specification.
10. All walls shall be plumb.
11. Back fill shall be compacted to a minimum of 95%.
12. Walls shall not extend into visibility triangles at alleys, driveways and street intersections.
13. Graffiti inhibiting coating required if wall is permitted within city or abutting right-of-way. FOR ALL WALLS OVER 6'
14. Building permit required from city building official.
15. Building safety inspection required prior to placing footing concrete and grouting activities.
16. Special Inspections: special inspections shall be performed by a qualified inspector approved by the building official. The contractor shall be responsible for providing a minimum of 24 hours notice to the special inspector and the testing laboratory prior to beginning any work for which special inspection or testing is required.
 - a. Special inspection is required during the following operations per IBC chapter 17:
 - i. Structural masonry: during preparation of prisms, placement of reinforcing, inspection of footing rebar and vertical dowels prior to pouring footing concrete, inspection of grout space immediately prior to closing of cleanouts and during placement of all grout. Special inspection for placing of units may be performed on a periodic basis.
 - b. Duties and responsibilities of the special inspector:
 - i. The special inspector shall observe the work assigned for conformance with the approved design drawings and specifications.
 - ii. The special inspector shall furnish inspection reports to the building official. All discrepancies shall brought to the immediate attention of the contractor for correction, then, if uncorrected, to the building official.
 - iii. Upon completion of the assigned work, the special inspector shall complete and sign a final report certifying that to the best of the inspector's knowledge, the work is in conformance with the approved plans and specifications, and the applicable workmanship provisions of the code.

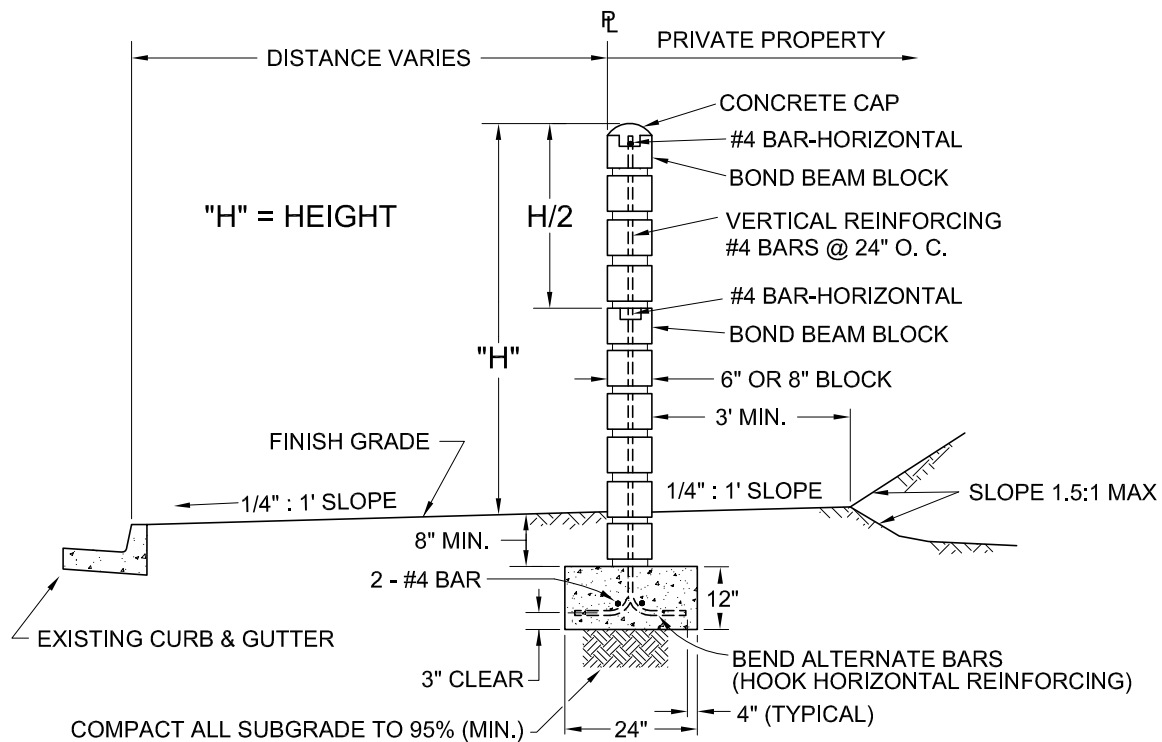
Issued: February 2009

Sheet 2 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-300 **GENERAL STRUCTURAL** **NOTES- FREESTANDING WALL**



NOTES

1. All blocks below grade and vertical cells containing reinforcing steel shall be filled with grout. In addition, where 6" blocks are used, all cells without vertical reinforcing steel shall be filled with grout to top of bond beam, at mid-height of wall.
2. The block wall courses and footings may be built parallel with the street grade (7% maximum) or stepped.
3. All walls shall be plumb.
4. Backfill shall be compacted to a minimum of 95%.
5. Footings shall be constructed of Class "B" concrete.
6. Concrete block shall be Grade "A" units conforming to A.S.T.M. designation No. C-90.
7. Reinforcing steel, grout mortar and Class "B" concrete shall be conform to the City of Yuma Standard Specifications
8. Eliminate mortar in all vertical joints in first course above finish grade.
9. One-half inch (1/2") open expansion joints extending through the footing and entire height of the block wall shall be spaced at a maximum of 50'.
10. Horizontal steel reinforcing shall discontinue through expansion joints and instead shall be doweled for movement.
11. Eliminate mid-height bond beam in walls where "H" dimension is four feet (4') or less.
12. Walls shall not extend into visibility triangles at alleys, driveways and street intersections.
13. A building permit is required for walls taller than six feet (6'). Building Safety inspection is required prior to placing footing concrete and grouting activities.
14. This detail drawing is only applicable for walls within or adjacent to City of Yuma street rights-of-way.
15. Graffiti inhibiting coating required.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-310
NON-RETAINING
CONCRETE BLOCK WALL

END POST: 4" x 4" x 3/8" THICK STEEL SQ. STEEL TUBE WITH WELDED CAP

2" x 2" x 1/8" THICK SQ. STEEL TUBE

8' - 0" O.C.

4" MAXIMUM BETWEEN ALL POSTS

INTERMEDIATE POST: 3" x 3" x 1/4" THICK SQUARE STEEL TUBE WITH WELDED CAP

PICKET: 1" x 1" x 1/16" THICK SQUARE STEEL TUBE

1" x 1/4" STEEL FLAT STRAP WELDED TO ALL PICKETS AND FRAME

SEE NOTE NO. 3

ANTI-LIFTOFF TYPE HINGES (EACH SIDE FOR DBL. GATES)

2" TYPICAL

GROUND PLANE

30"

42"

3"

42"

4"

20"

36"

3"

2" x 2" x 1/4" THICK SQ. STEEL TUBE

12"

3"

42"

3"

42"

3"

42"

3"

42"

3"

42"

3"

42"

3"

42"

3"

SLIDING BAR TYPE LOCKABLE LATCH (See Note 5)

ALL FOOTINGS SHALL CONSIST OF CLASS "B" CONCRETE

NOTES

1. All welded joints shall be free of sharp edges and/or burrs.
2. All metal surfaces shall receive one shop coat of metal primer and two coats of INDUSTRON rust resistant paint (or approved equal). Color to match site metal work.
3. Single access gate shall be four feet (4') wide (minimum) and vehicle access shall require two ten foot (10') wide gates (minimum).
4. Field verify all gate openings and fabricate gates to fit.
5. Contractor shall submit design drawings of the gate locking system to the City Engineer for approval.
6. Panels shall be welded to posts. Bolt-up assembly is not permitted.

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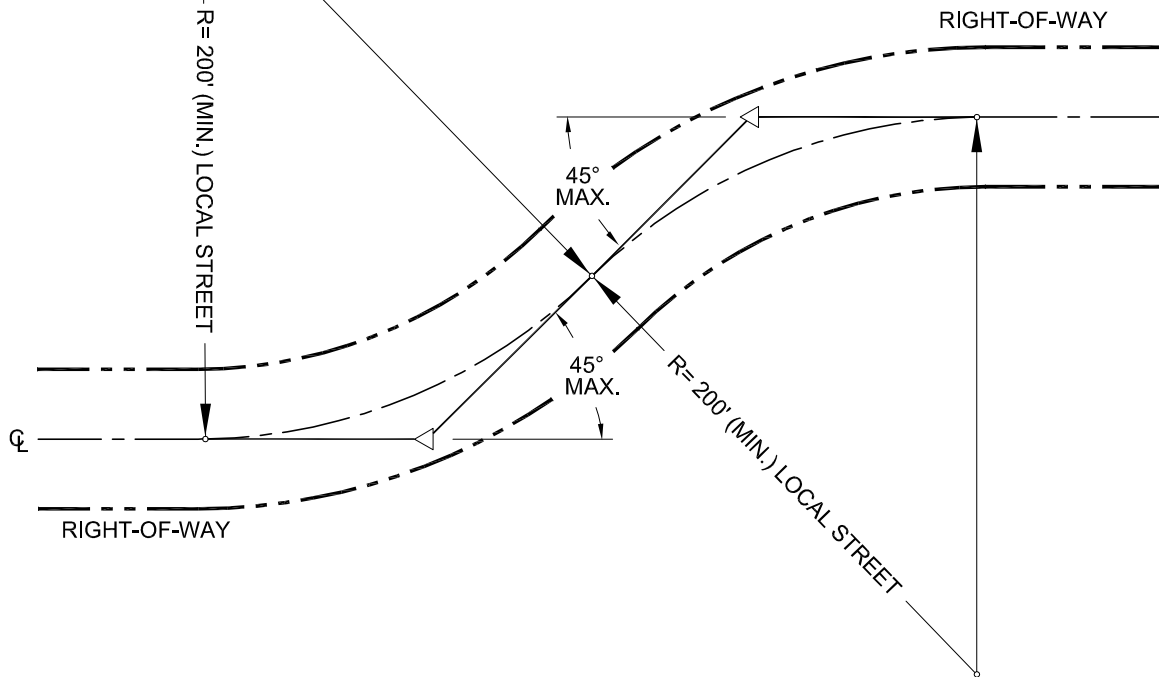
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

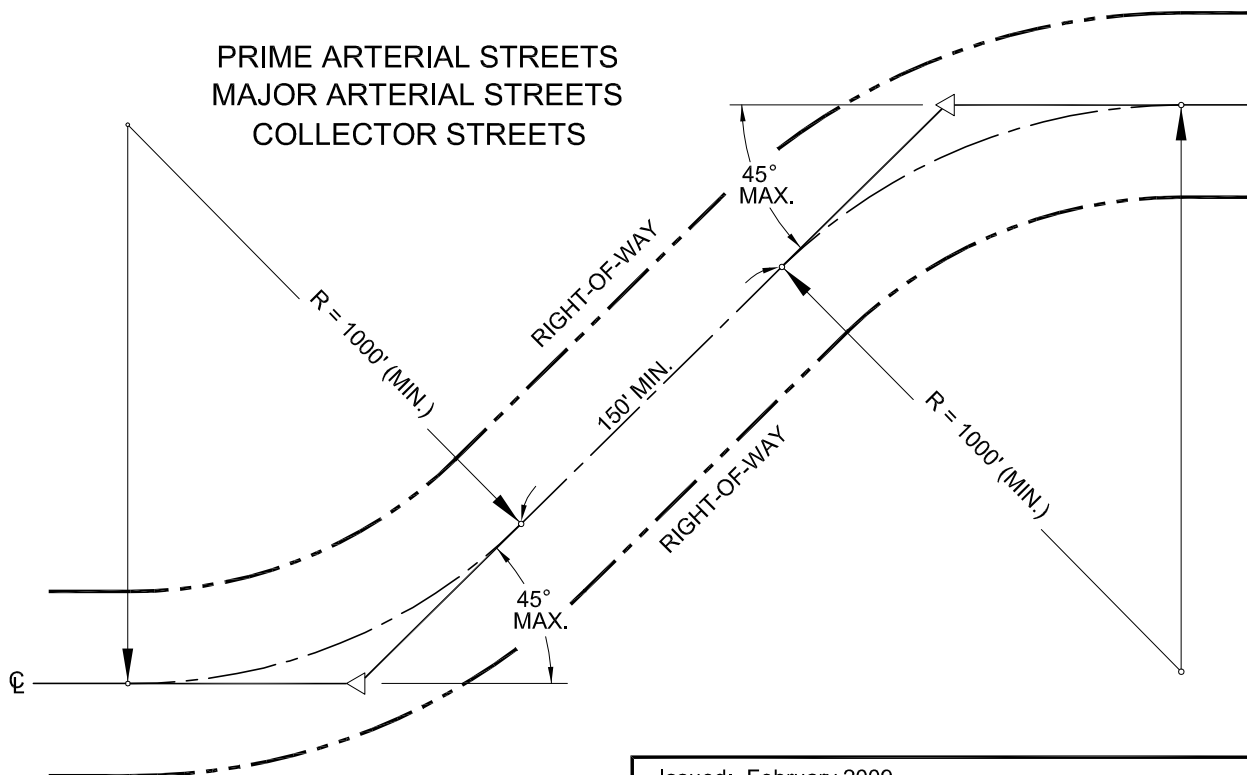
STANDARD NO. 3-321 STEEL TUBE FENCING

LOCAL STREETS

RESIDENTIAL STREETS IN HILLSIDE LOCATIONS
REQUIRE A SMALLER C/L RADIUS AS APPROVED
BY CITY ENGINEER.



PRIME ARTERIAL STREETS MAJOR ARTERIAL STREETS COLLECTOR STREETS



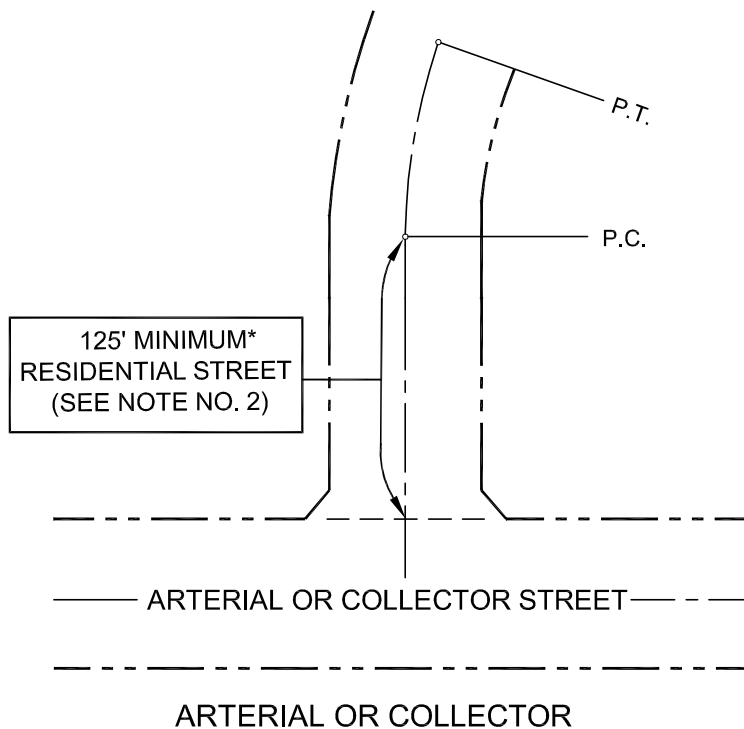
NOTE

1. Arterial and collector streets shall have a minimum centerline radius of 1,000'.

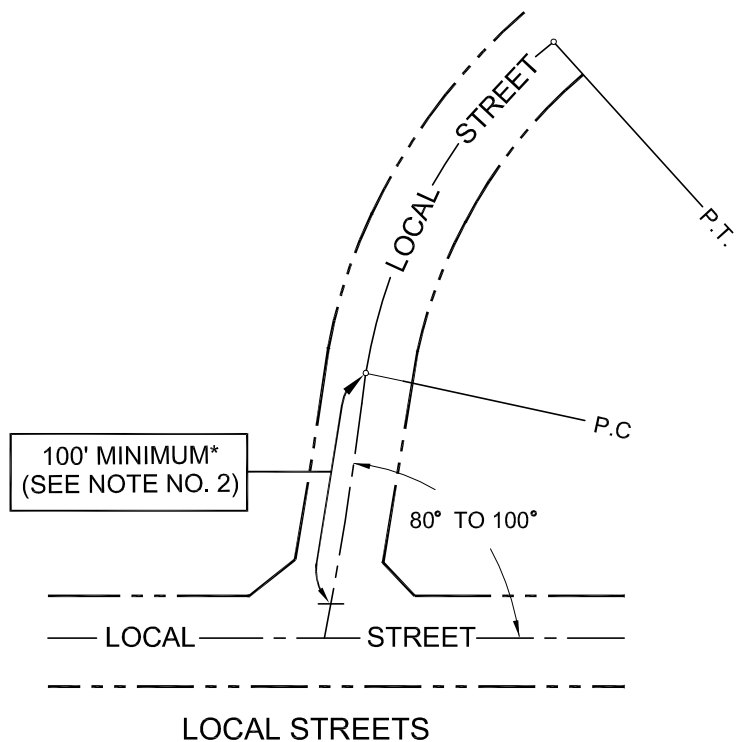
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-330
REVERSE CURVES



DESIGN SPEED (MPH)	DISTANCE
20	125'
25	150'
30	200'
35	225' - 250'
40	275' - 325'
45	325' - 400'
50	400' - 475'
55	450' - 550'



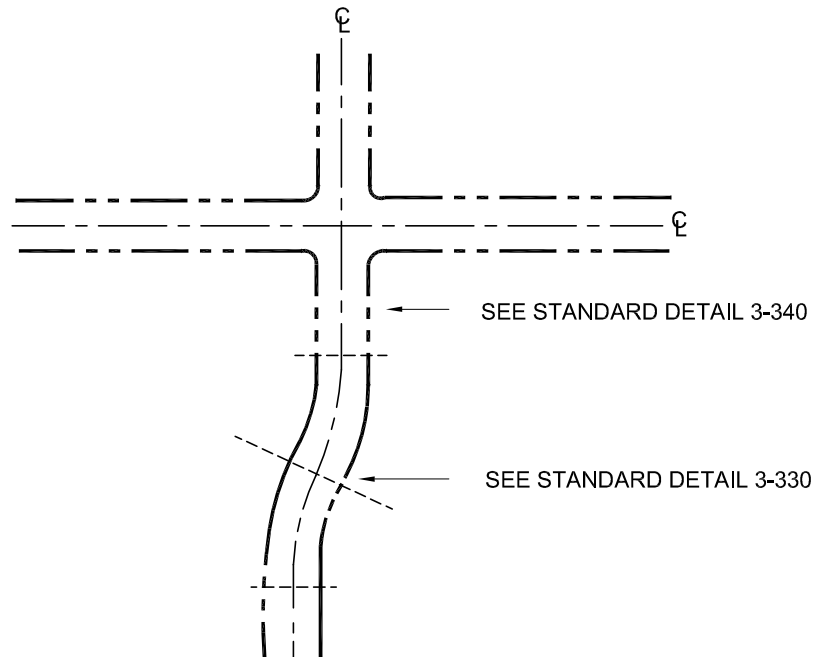
NOTES

1. All intersections with arterials or collector streets shall be at right angles.
2. Denotes minimum centerline distance from cross street right-of-way line to point of curvature.
3. Street intersections shall be carefully designed as to eliminate conflicting traffic movements and odd shaped lots.

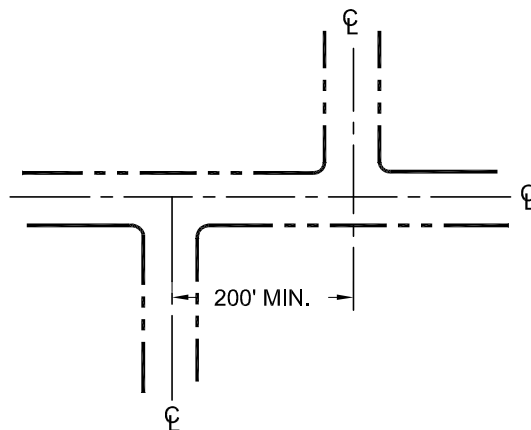
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-340
ANGLE OF INTERSECTIONS



PREFERRED



ACCEPTABLE - LOCAL STREETS ONLY

NOTE

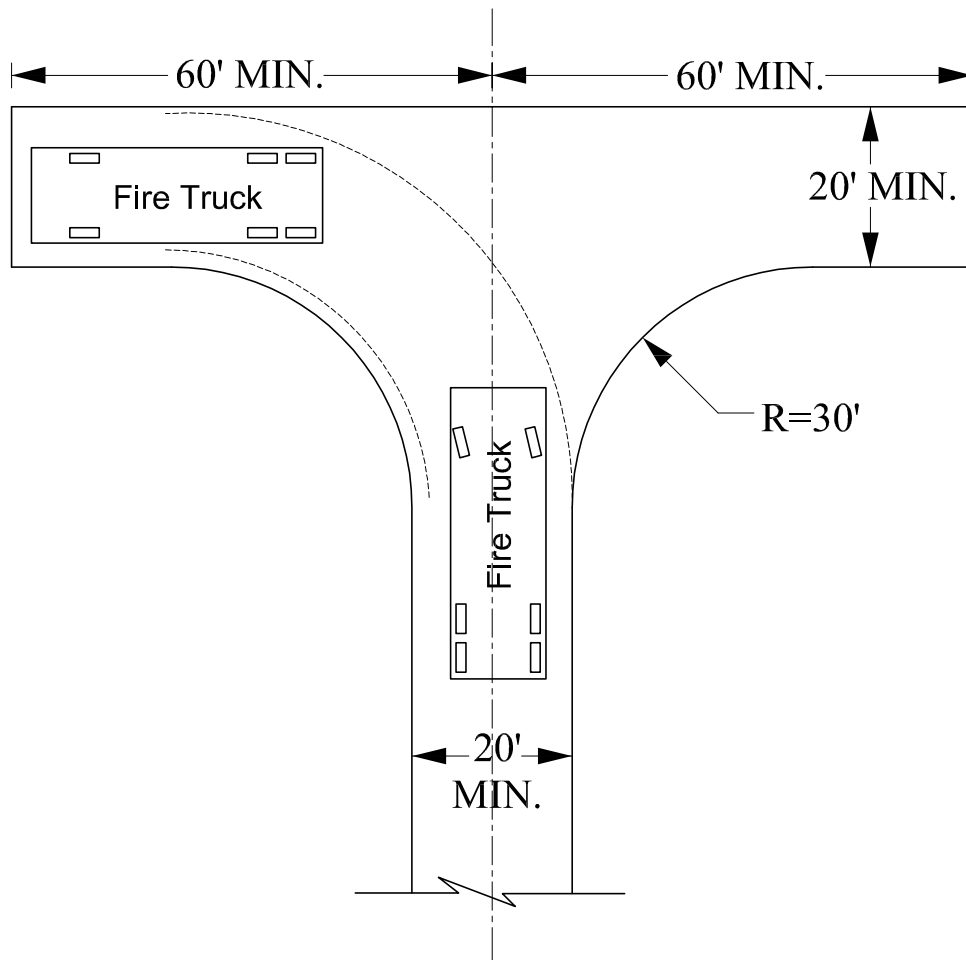
1. Arterial and collector streets shall not have offsets.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-350
LOCAL STREET OFFSETS

Hammerhead Tee Turnaround



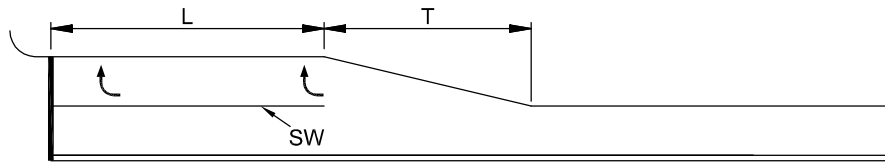
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

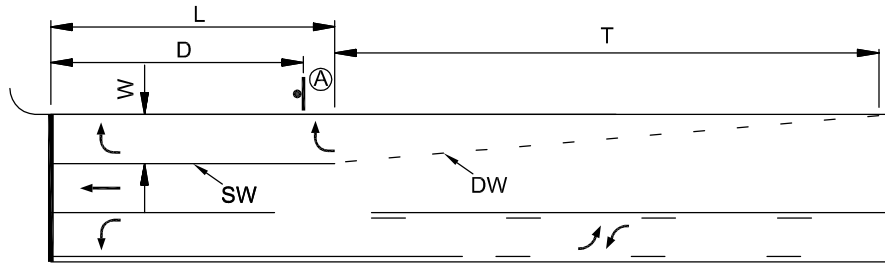
**STANDARD NO. 3-351
HAMMERHEAD TEE
TURNAROUND**

RIGHT TURN LANES

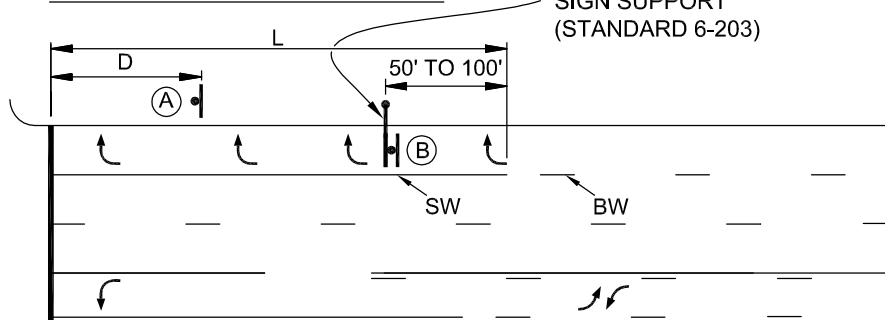
CASE 1R - RECESSED RIGHT-TURN LANE



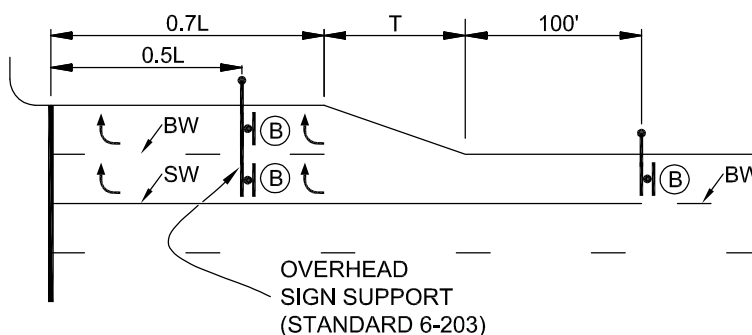
CASE 2R - CREATED RIGHT-TURN LANE



CASE 3R - RIGHT-TURN TRAP LANE



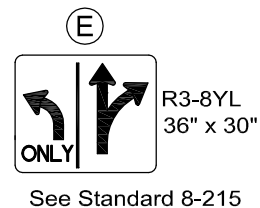
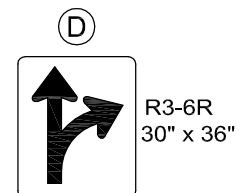
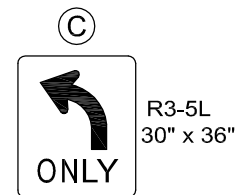
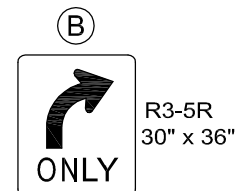
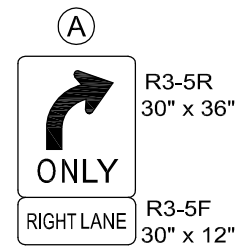
CASE 4R - DUAL RIGHT-TURN LANE



NOTES:

1. Drawings are schematic, not to scale.
2. Adapt as necessary for specific sites.
3. Do not use ONLY pavement message.
4. Pavement arrows to be 75' to 100' apart.
5. Normal 2-lane approaches on the stem of a T-intersection do not require lane use signs or pavement arrows.
6. Lanes are typically 12' wide to lip of gutter. Use 13.5' where no gutter.
7. See sheet 3 for dimensions.

SIGN LEGEND



LINE LEGEND (See Standard 9-110)

SW = 4" SOLID WHITE
 DW = 4" DOTTED WHITE, 2' LINE, 6' SPACE
 BW = 4" BROKEN WHITE, 10' LINE, 30' SPACE
 2Y = DOUBLE 4" SOLID YELLOW
 8W = 8" SOLID WHITE
 12W = SOLID WHITE
 CY = COMBINATION YELLOW LINE

Issued: February 2009

Sheet 1 of 3

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-352
TURN LANE TREATMENT

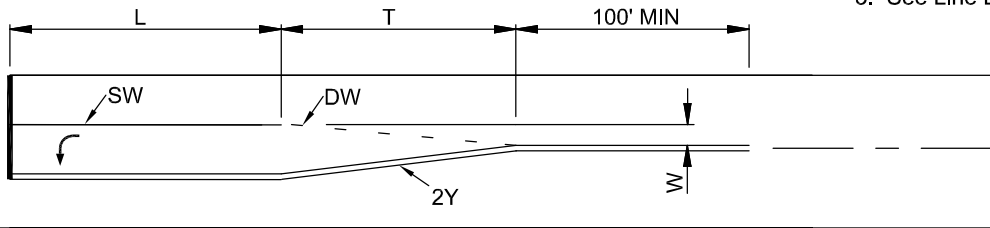
LEFT TURN LANES

(Continued on Sheet 3)

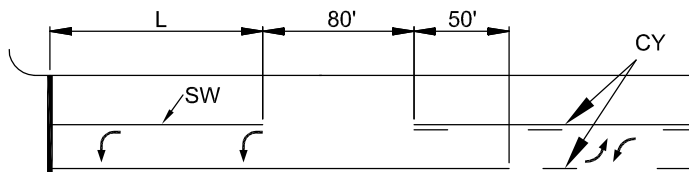
NOTES:

1. See Sheet 1 notes.
2. Median tapers are to be straight. Do not use reverse curves.
3. See Line Legend on Sheet 1.

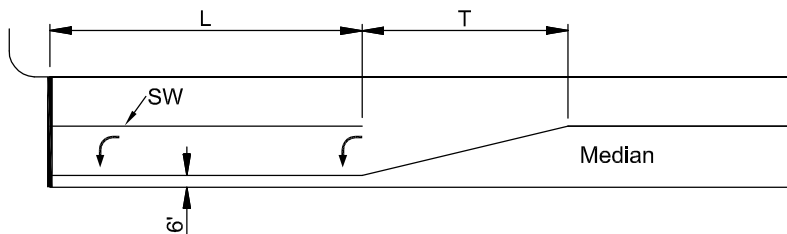
CASE 1L-LEFT - TURN LANE ON STREET WITH NO CENTER LINE



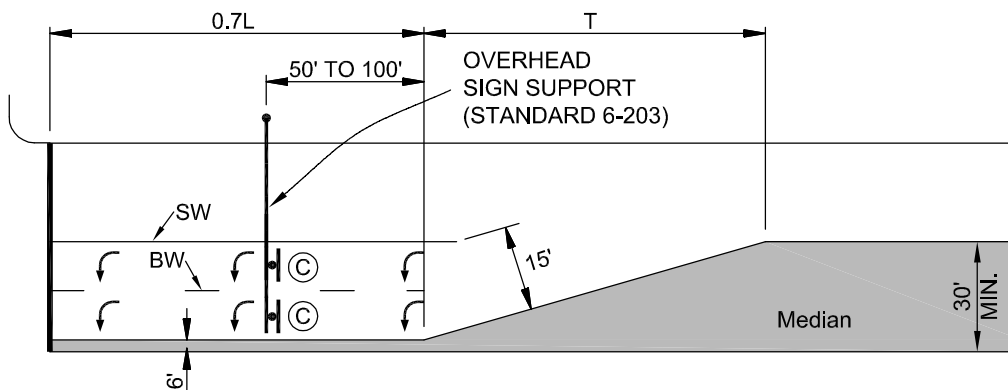
CASE 2L - 2 - WAY LEFT-TURN LANE CHANGES TO DEDICATED LEFT-TURN LANE



CASE 3L - SINGLE LEFT-TURN LANE IN MEDIAN



CASE 4L - DUAL LEFT-TURN LANES IN MEDIAN



Issued: February 2009

Sheet 2 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-352
TURN LANE TREATMENT

(Continued)

The diagram illustrates a cross-section of a bridge deck with a central island and two side medians. The total width of the deck is labeled L , and the total depth is labeled T . The central island has a width of 10' and a depth of 14'. The side medians have a width of 30' MIN. The diagram shows various dimensions and forces: 12W and 8W are forces acting on the island and medians respectively, and 18' is a dimension on the median. A point C is marked on the median.

The diagram illustrates a cross-section of a two-lane highway. A vehicle is shown on the left lane, at a distance D from a point E^* on the right lane. The total distance from the vehicle to a point C on the right lane is L . A distance of $50' \text{ TO } 100'$ is indicated from the vehicle to the point C . Arrows indicate the direction of travel.

NOTES:

1. See Sheet 1 notes.
2. Median tapers are to be straight. Do not use reverse curves.
3. See Line Legend on Sheet 1.

Type Lane	Case	Dimension (feet)		
		L	T	D
Right-Turn	1R	0.65V, 100 min.	100, 80 min.	
	2R	0.65V, 100 min.	See Taper Lengths table in Standard 9-010	0.75L
	3R	0.65V, 100 min.		100
	4R	0.6V, 500 min.	200, 160 min.	
Left-Turn	1L	0.87V, 100 min.	100, 80 min.	
	2L	0.87V, 100 min.		
	3L	0.87V, 100 min.	100, 80 min.	
	4L	0.6V, 100 min.	200, 160 min.	
	5L	0.87V	200 min.	
	6L	0.87V, 500 min.	200 min.	100

V = design turning volume in vehicles per hour.
S = estimated 85th-percentile speed, mph
W = width of transition, feet

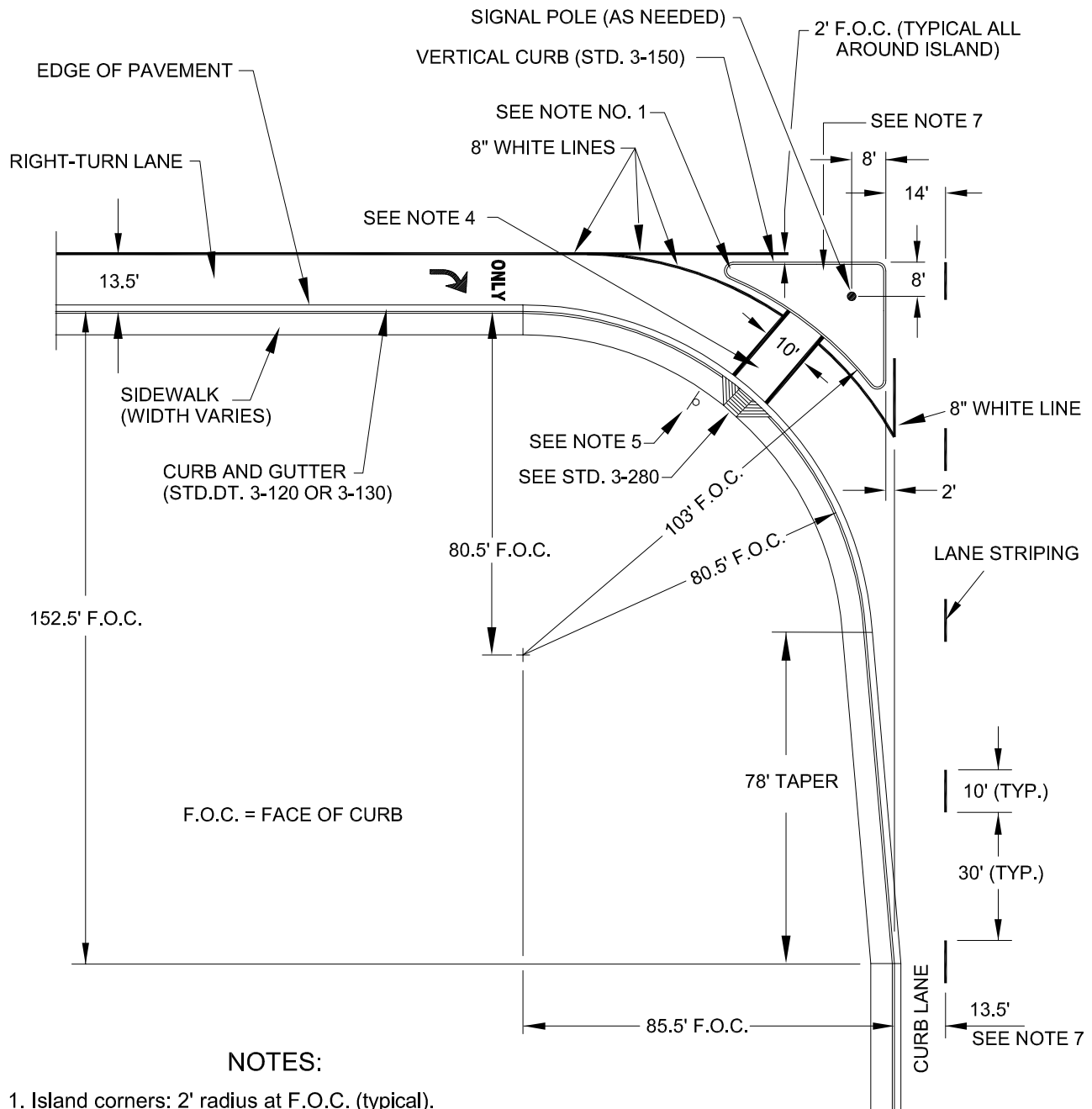
V = design turning volume in vehicles per hour.

S = estimated 85th-percentile speed, mph

W = width of transition, feet

Sheet 3 of 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-352
TURN LANE TREATMENT



NOTES:

1. Island corners: 2' radius at F.O.C. (typical).
2. Adapt design as necessary to accommodate WB-50 design vehicles where intersection angle is other than 90 degrees.
3. Refer to Standard Detail 9-110 for crosswalk markings.
4. Bicycle lane permitted with approval by the City Engineer.
5. STOP or YIELD sign as approved by the City Engineer.
6. The location of ramps may vary depending upon the site conditions.
7. If bike lane, add 6' to curb lane.

CASE 1: YIELD OR STOP CONDITION
RIGHT-TURNING VEHICLE MAY NOT ENCROACH BEYOND CURB LANE OF INTERSECTING STREET

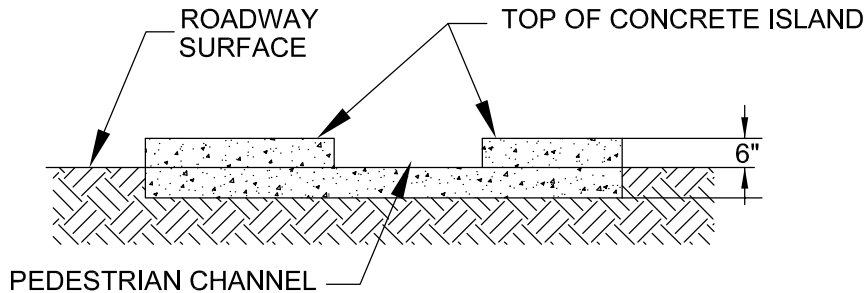
Issued: February 2009

SHEET 1 OF 2

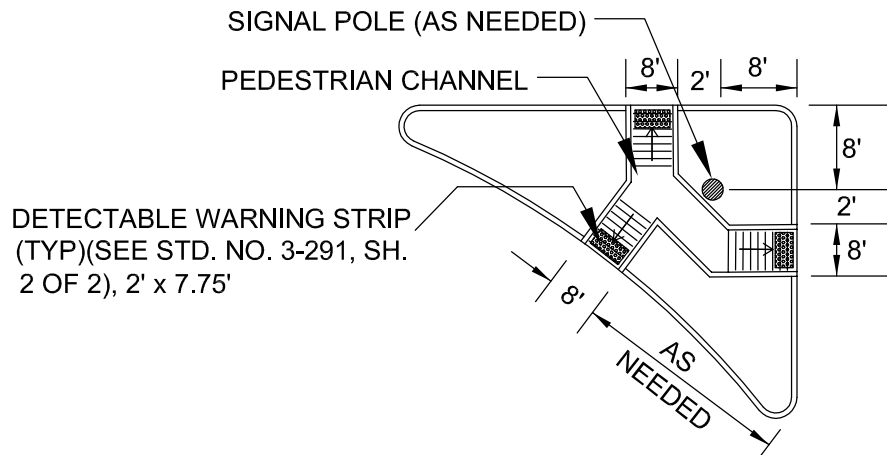
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-355 **RIGHT TURN** **CHANNELIZATION**

PEDESTRIAN CHANNEL REQUIREMENTS



SCHEMATIC ELEVATION



NOTES:

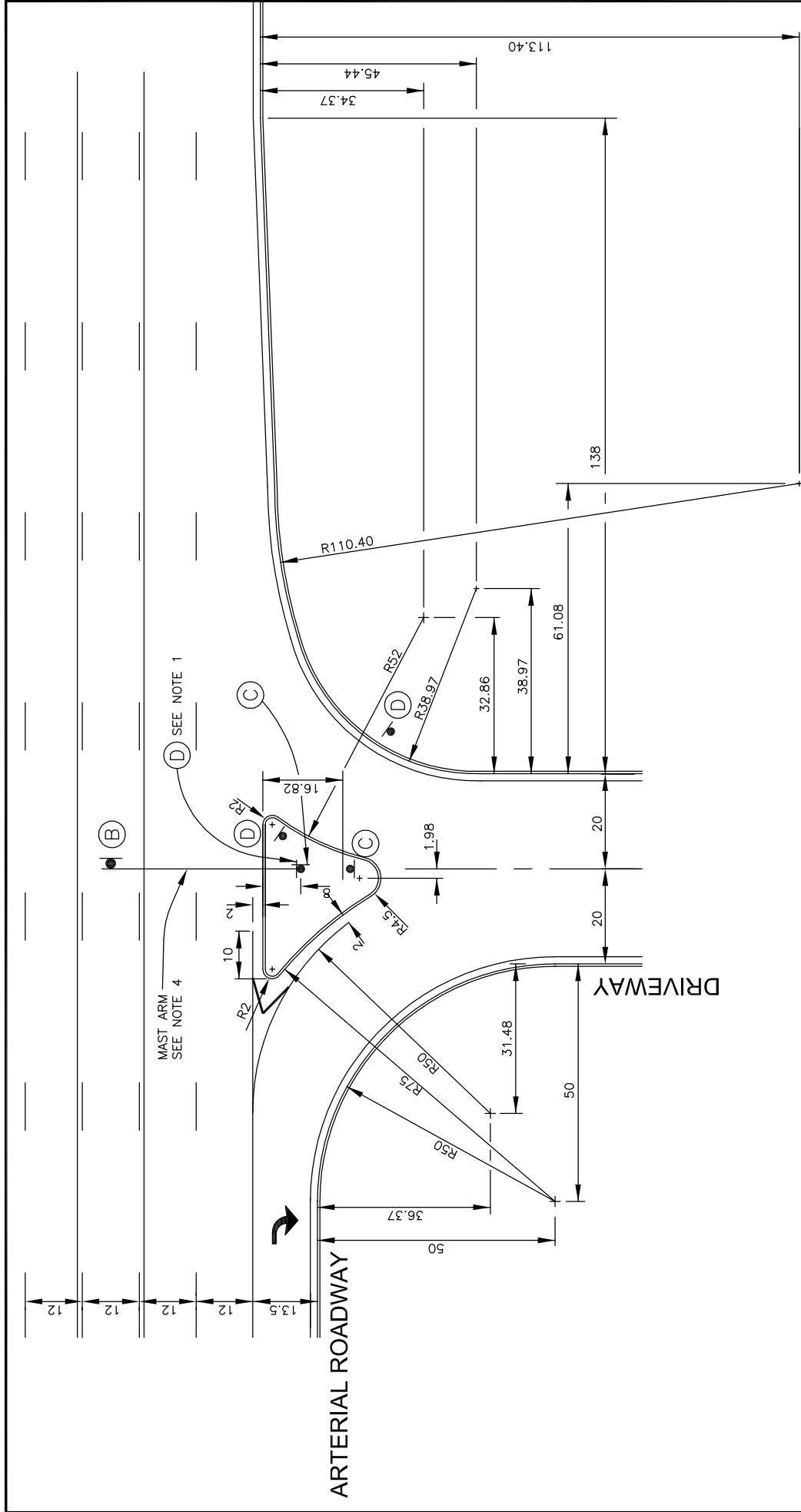
1. Pedestrian channels in island must be a minimum of 8' wide with the ends centered on the associated crosswalks. The center of the traffic signal pole, if needed, must be within 2.5' of the face of the channel edges. The location of ramps may vary depending upon the site conditions.
2. Island corners: 2' radius at F.O.C. (typical).
3. Pedestrian channel to match slope of adjacent pavement. Adjust slightly as directed by Engineer to achieve drainage.
4. Ramp interconnection-S/W 1" Above highest adjacent gutter.

Issued: February 2009

SHEET 2 OF 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-355
RIGHT TURN
CHANNELIZATION



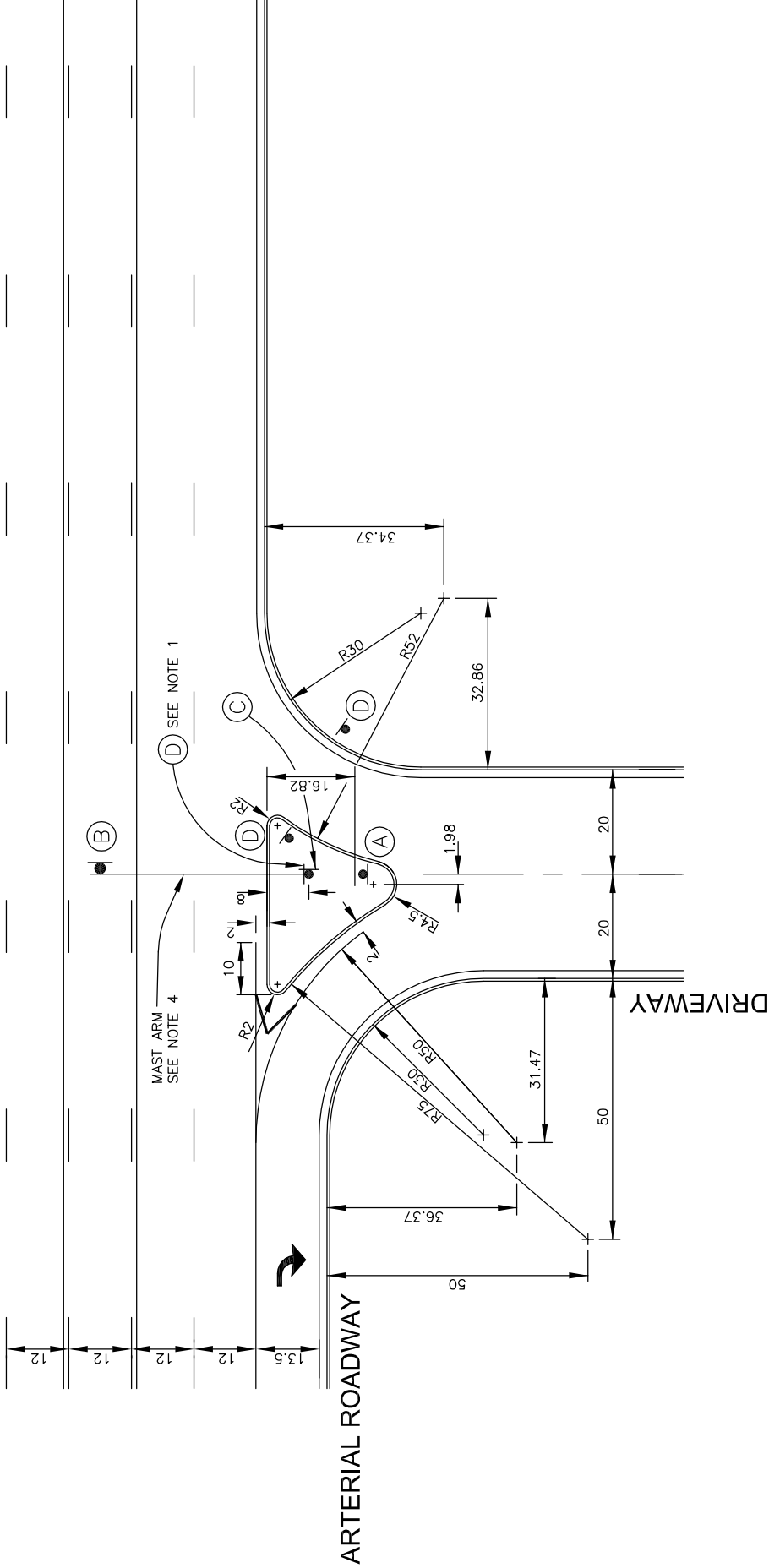
NOTES:

1. USE "DO NOT ENTER" SIGN FACING PERPENDICULAR TO ARTERIAL TRAFFIC FLOW ONLY IF THERE IS A ROADWAY OR DRIVEWAY DIRECTLY OPPOSITE THE SUBJECT DRIVEWAY.
2. ADAPT AS NEEDED TO MATCH SITE CONDITIONS.
3. ALL DIMENSIONS IN FEET AND TO FACE OF CURB.
4. SEE STANDARD 6-203 FOR OVERHEAD SIGN POLE AND MAST ARM.
5. SEE SIGN LEGEND ON SHEET 7 OF 7.
6. SEE STANDARD 9-110 FOR PAVEMENT MARKINGS.

CASE 1
 DRIVEWAY TO MAJOR TRAFFIC GENERATOR
 WITH ARTERIAL RIGHT-TURN LANE - NO LEFT TURNS
 WB-50 DESIGN VEHICLE

Issued: February 2009 Sheet 1 of 7

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-357
DRIVEWAY CHANNELIZATION

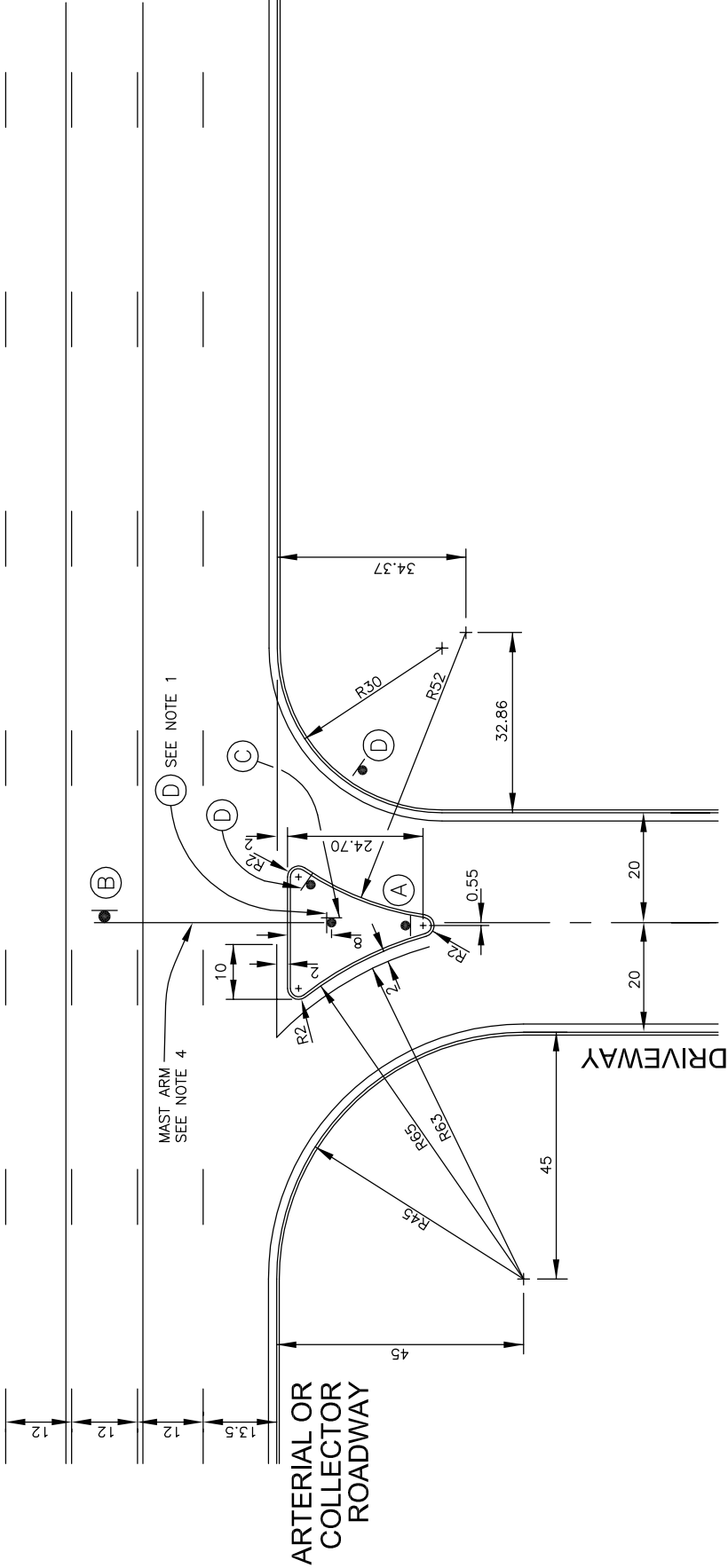


CASE 2
DRIVEWAY TO MAJOR TRAFFIC GENERATOR WITH ARTERIAL RIGHT-TURN LANE - NO LEFT TURNS
SU-30 DESIGN VEHICLE

- NOTES:
1. USE "DO NOT ENTER" SIGN FACING PERPENDICULAR TO ARTERIAL TRAFFIC FLOW ONLY IF THERE IS A ROADWAY OR DRIVEWAY DIRECTLY OPPOSITE THE SUBJECT DRIVEWAY.
 2. ADAPT AS NEEDED TO MATCH SITE CONDITIONS.
 3. ALL DIMENSIONS IN FEET AND TO FACE OF CURB.
 4. SEE STANDARD 6-203 FOR OVERHEAD SIGN POLE AND MAST ARM.
 5. SEE SIGN LEGEND ON SHEET 7 OF 7.
 6. SEE STANDARD 9-110 FOR PAVEMENT MARKINGS.

Issued: February 2009 Sheet 2 of 7

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-357
DRIVEWAY CHANNELIZATION



CASE 3

DRIVEWAY TO MAJOR TRAFFIC GENERATOR
WITH ARTERIAL OR COLLECTOR WITH NO
RIGHT-TURN LANE - NO LEFT TURNS

SU-30 DESIGN VEHICLE

NOTES:

1. USE "DO NOT ENTER" SIGN FACING PERPENDICULAR TO ARTERIAL TRAFFIC FLOW ONLY IF THERE IS A ROADWAY OR DRIVEWAY DIRECTLY OPPOSITE THE SUBJECT DRIVEWAY.
2. ADAPT AS NEEDED TO MATCH SITE CONDITIONS.
3. ALL DIMENSIONS IN FEET AND TO FACE OF CURB.
4. SEE STANDARD 6-203 FOR OVERHEAD SIGN POLE AND MAST ARM.
5. SEE SIGN LEGEND ON SHEET 7 OF 7.
6. SEE STANDARD 9-110 FOR PAVEMENT MARKINGS.

Issued: February 2009

Sheet 3 of 7

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-357

DRIVEWAY CHANNELIZATION

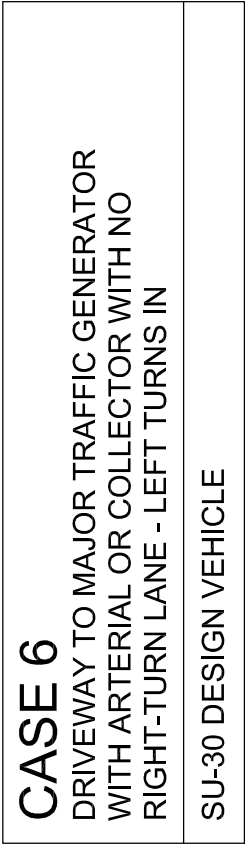


DRIVEWAY CHANNELIZATION



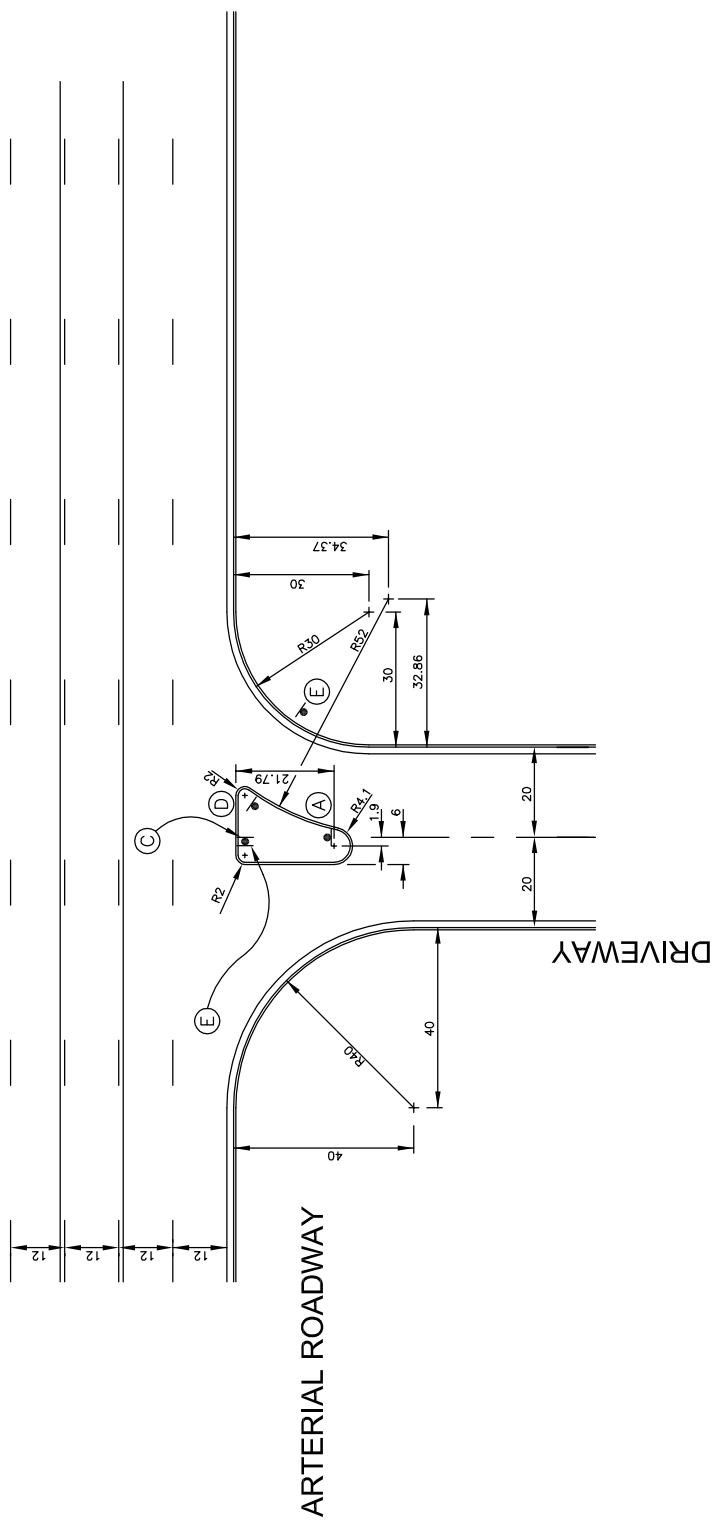
1. ADAPT AS NEEDED TO MATCH SITE CONDITIONS.
2. ALL DIMENSIONS IN FEET AND TO FACE OF CURB.
3. SEE SIGN LEGEND ON SHEET 7 OF 7.
4. SEE STANDARD 9-110 FOR PAVEMENT MARKINGS.

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-357
DRIVEWAY CHANNELIZATION



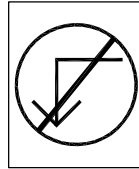
1. ADAPT AS NEEDED TO MATCH SITE CONDITIONS.
2. ALL DIMENSIONS IN FEET AND TO FACE OF CURB.
3. SEE SIGN LEGEND ON SHEET 7 OF 7.

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 3-357
DRIVEWAY CHANNELIZATION



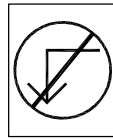
A

R3-5R
30" x 36"



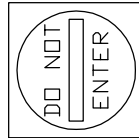
B

R3-2
30" x 30"



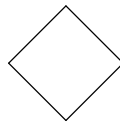
C

R3-2
24" x 24"



D

R5-1
30" x 30"



E

OM1-3
18" x 18"
MOUNT WITH
BOTTOM 4"
ABOVE ISLAND

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Sheet 7 of 7

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

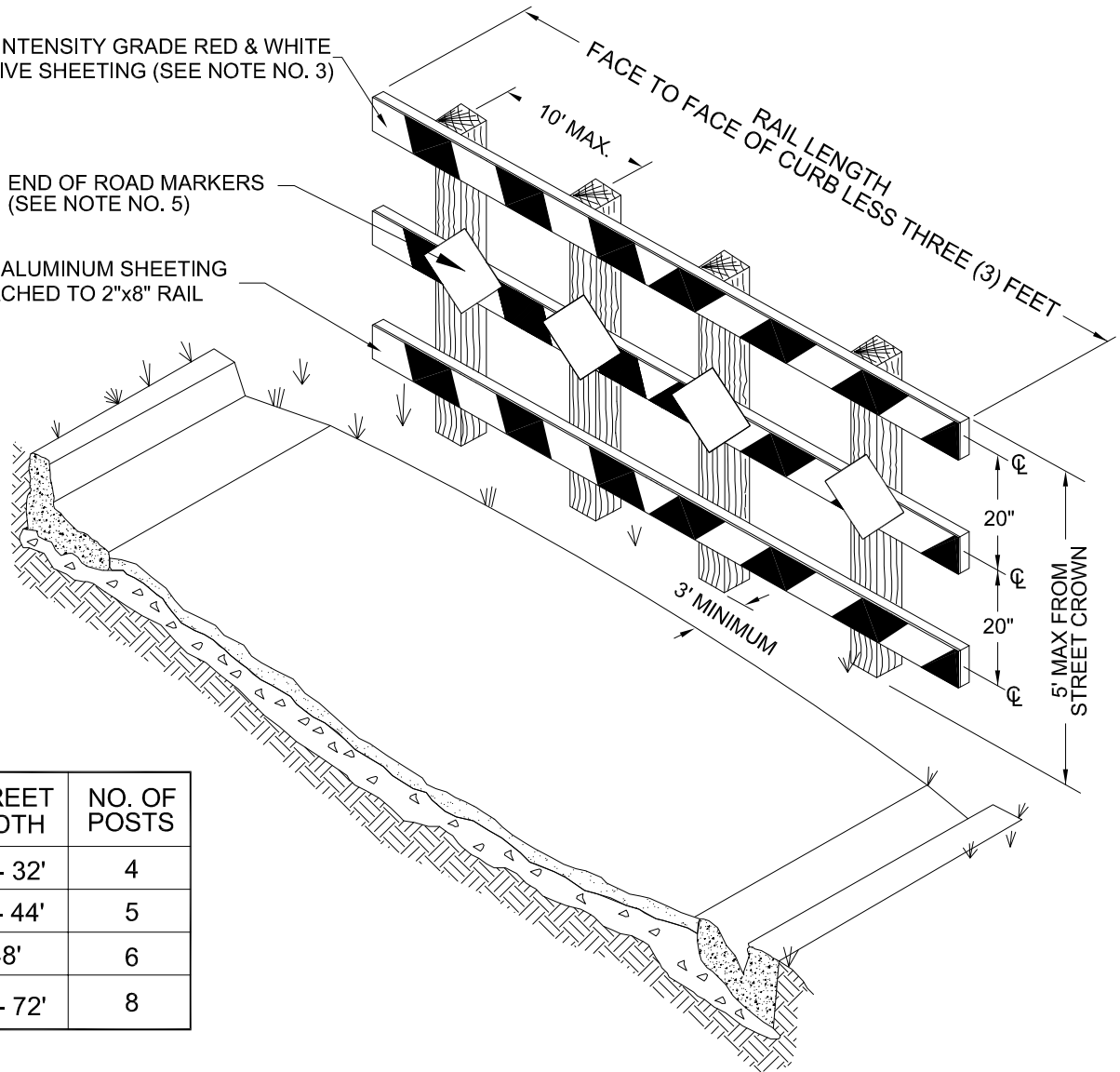
STANDARD NO. 3-357

DRIVEWAY CHANNELIZATION

3M HIGH INTENSITY GRADE RED & WHITE
REFLECTIVE SHEETING (SEE NOTE NO. 3)

END OF ROAD MARKERS
(SEE NOTE NO. 5)

.080" ALUMINUM SHEETING
ATTACHED TO 2"x8" RAIL

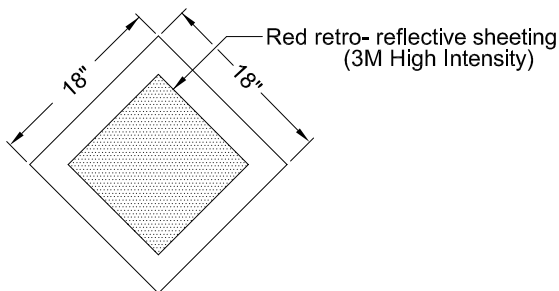


STREET WIDTH	NO. OF POSTS
26' - 32'	4
38' - 44'	5
48'	6
68' - 72'	8

NOTES

1. Barricade posts shall be 6" x 6" x 8' long (minimum) redwood, S4S, and shall be treated for direct burial. Posts shall be buried a minimum of two feet (2') deep and backfill shall be compacted to a minimum of 95%.
2. Rail timber shall be 2" x 8" No. 1 D.F., S4S, and shall receive two coats of exterior grade paint on all surfaces.
3. Barricade stripes shall be 3M Brand, engineer grade, reflective tape applied on .080" thick aluminum sheeting or approved equal. Alternate six inch (6") wide red and white reflector tape at a 45° angle (stripes shall slope towards the center of the pavement from each side).
4. Barricade rails are to be attached to the posts using two 3/8" x 10" long steel lag bolts at each contact point.
5. Install end of road markers (see detail below) on every post as per OM4-3 of the "Manual On Uniform Traffic Control Devices".

END OF ROAD MARKER (OM4-3)



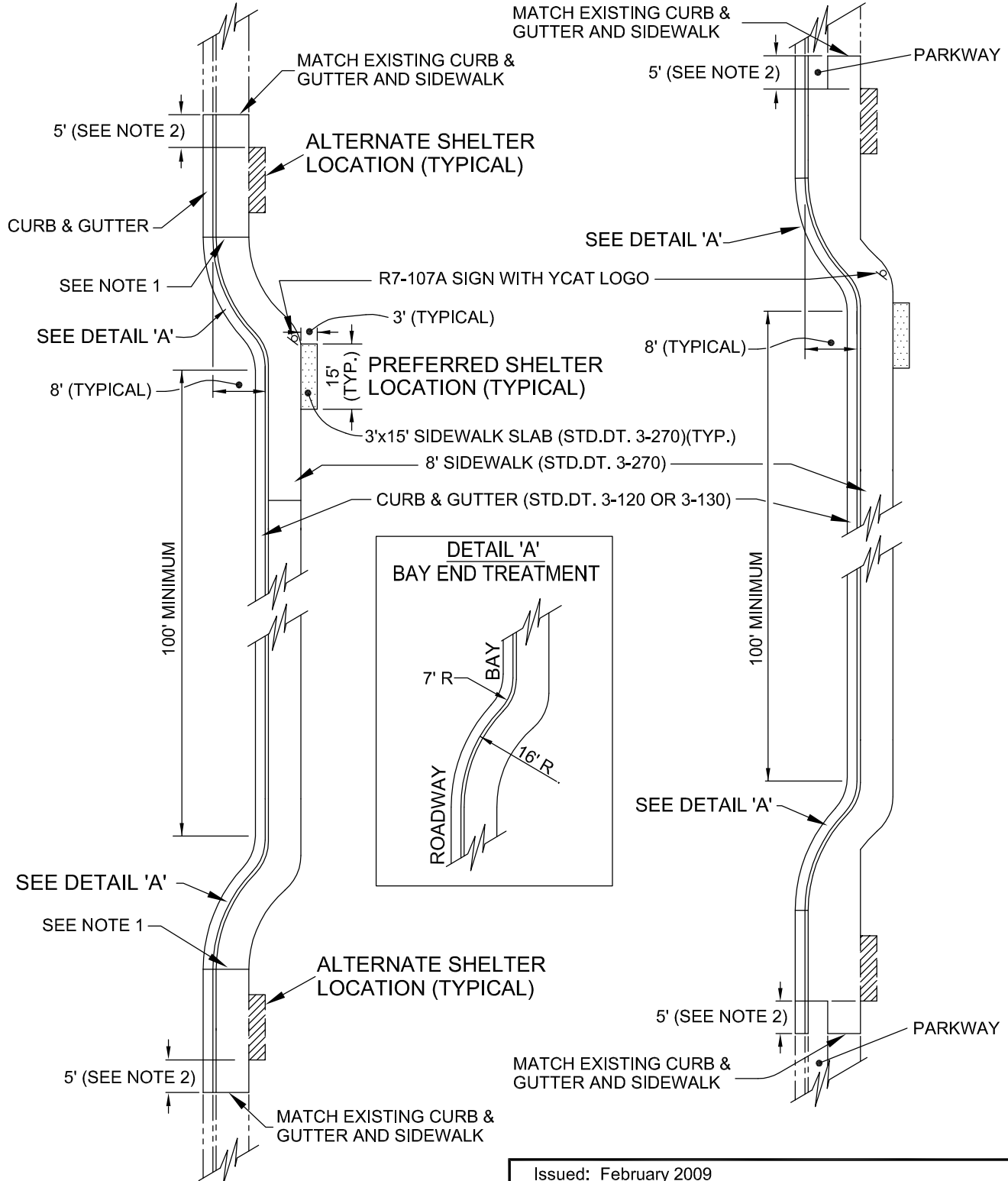
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-360
TYPE III BARRICADE

SIDEWALK ADJACENT TO CURB

PARKWAY BETWEEN CURB AND SIDEWALK



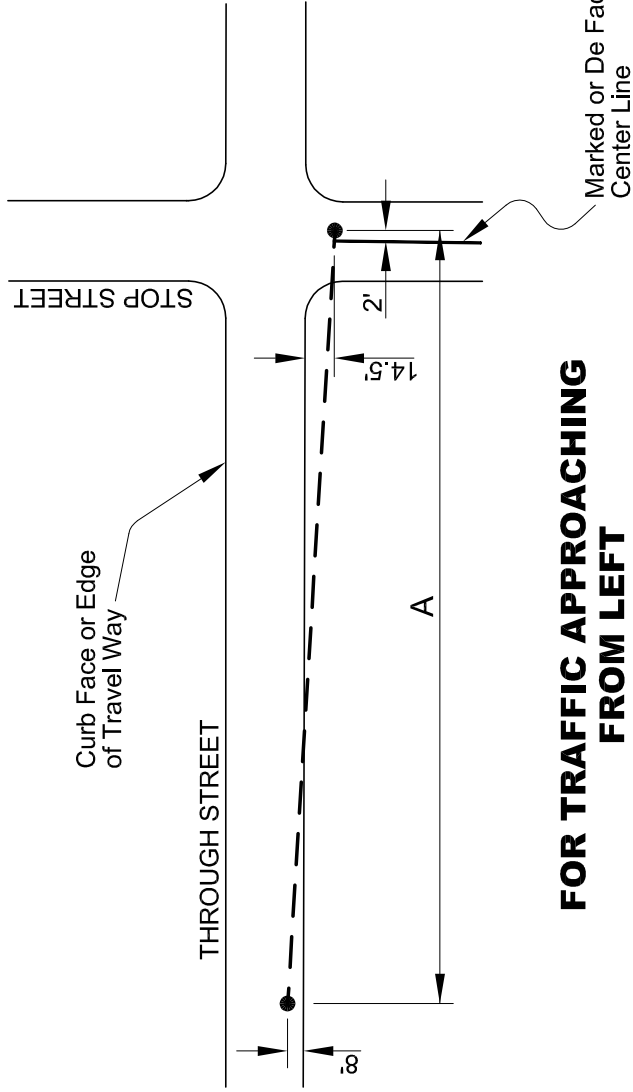
NOTES

1. If no existing sidewalk, the new sidewalk must extend to where the curb return ends.
2. If a bus bay is constructed in an area where sidewalk does not exist and the ALTERNATIVE SHELTER is used, the new sidewalk must extend five feet (5') past the ALTERNATIVE SHELTER.

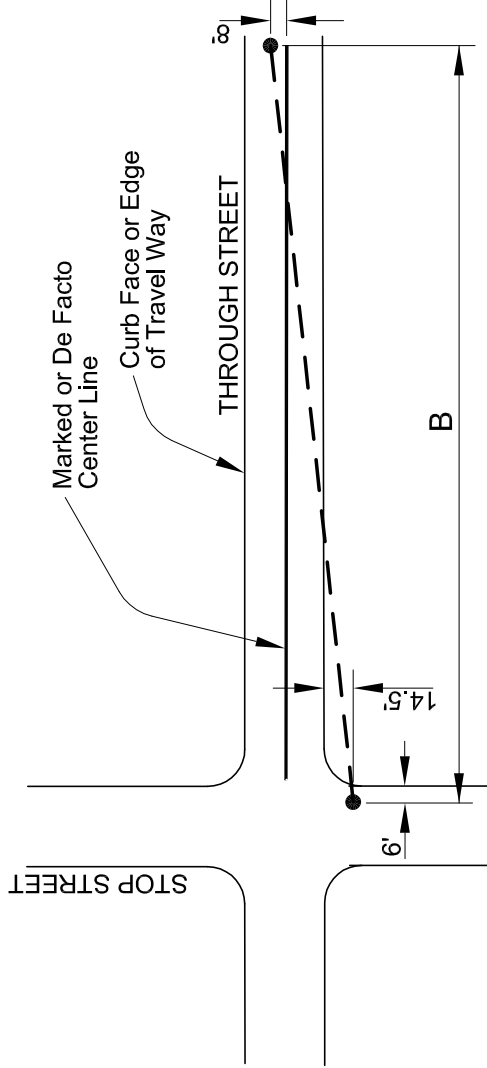
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-391
BUS BAY DESIGN



**FOR TRAFFIC APPROACHING
FROM LEFT**



**FOR TRAFFIC APPROACHING
FROM RIGHT**

85%-ile or Design Speed (mph)	Intersection sight distance for passenger cars (A) - left	Intersection sight distance for passenger cars (B) - right
15	170	145
20	225	195
25	280	240
30	335	290
35	390	335
40	445	385
45	500	430
50	555	480
55	610	530
60	665	575
65	720	625
70	775	670
75	830	720
80	885	765

NOTES

1. Good for up to 3% grade. Use for grade < or = to 3%.
2. For existing conditions, base on 85th-percentile speed, not speed limit.
3. Adapted from "A Policy on Geometric Design of Streets and Highways," American Association of State Highway and Transportation Officials, 2001.

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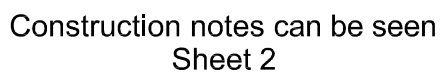
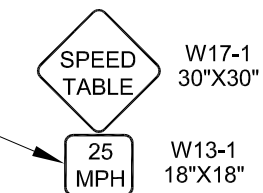
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-400

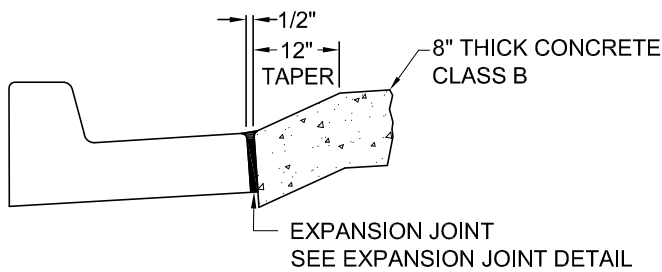
CLEAR SIGHT TRIANGLES

AT TYPICAL STOP INTERSECTIONS

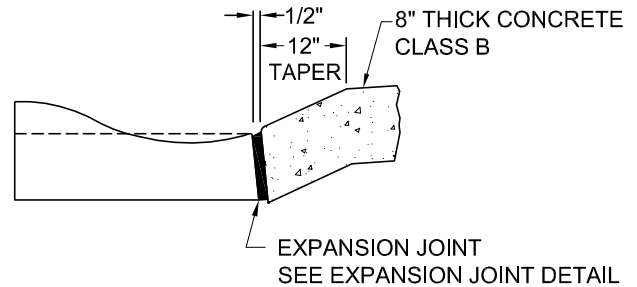


STANDARD NO. 3-500

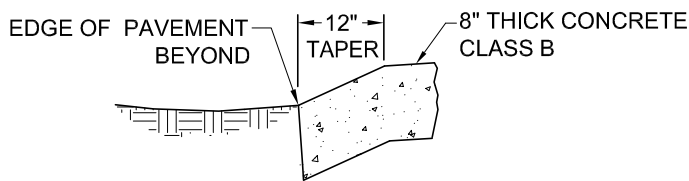
SPEED TABLE



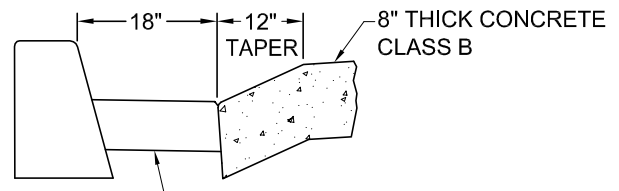
CURB & GUTTER



FLAT/ROLL CURB & GUTTER

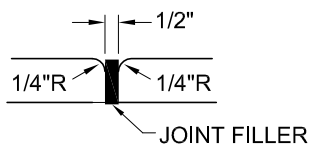


EDGE OF PAVEMENT

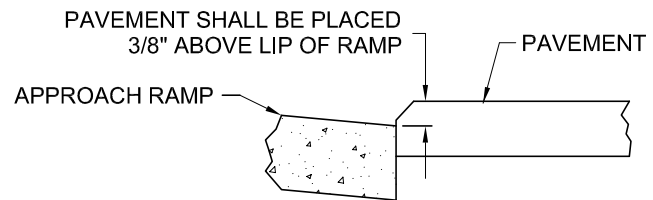


VERTICAL CURB

EDGE TAPER DETAILS



EXPANSION JOINT DETAIL



APPROACH/DEPARTURE DETAIL

NOTES

- Speed table shall follow roadway grade and crown.
- Speed table shall not be installed in a location that drainage or accessibility is compromised.
- Speed tables shall not be placed over manholes, water valves, survey monuments, etc.
- Speed table shall be placed at least twenty-five feet (25') from fire hydrants and manholes.
- Where possible speed table should be placed adjacent to street lights.
- Where possible, edge of speed table should have a minimum ten feet (10') from edge of driveways.
- For use in existing roadways full depth asphalt replacement shall extend five feet (5') on both approaches.
- Expansion joints shall be placed no further than twenty feet (20') apart. One-half inch (1/2") joint filler shall be the bituminous type meeting A.A.S.H.T.O. M-33 or A.S.T.M. D-1751 specifications and shall extend the full depth of the concrete.
- Contraction joint spacing shall be either hand tooled and/or saw cut and shall be placed no further than ten feet (10') apart beginning at centerline. Contraction joint shall have a minimum depth of two inches (2").
- Surfaces outside approved work areas shall be kept clean and free of bituminous and asphaltic material and debris.
- Where possible, place warning sign on common lot line within specified range.
- See Standard Detail 8-020 for sign mounting details.

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Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 3-500
SPEED TABLE

SURVEY MONUMENTS

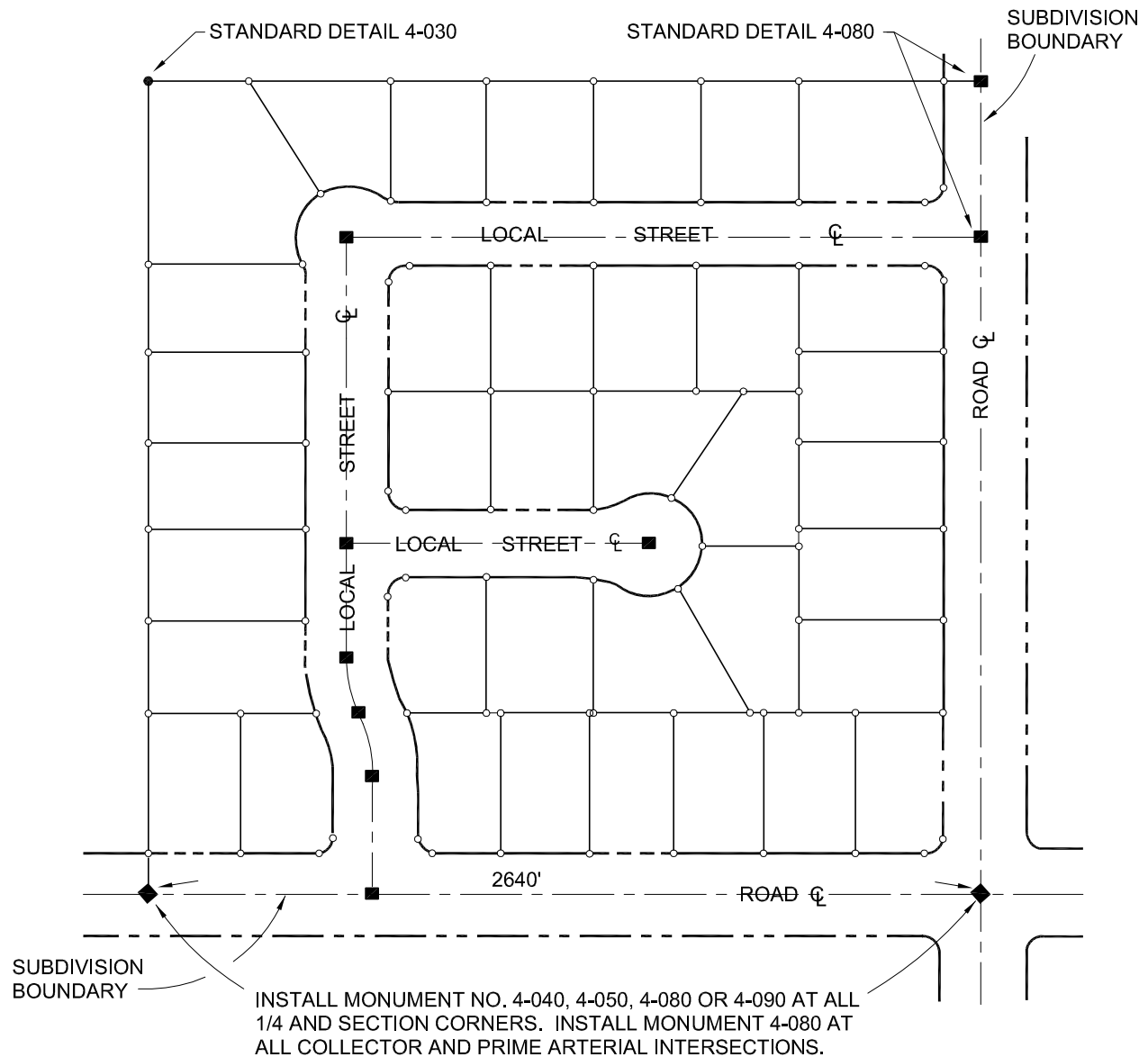
1. ALL STREET CENTERLINE INTERSECTIONS, STREET CENTERLINE ANGLE POINTS, STREET CENTERLINE BEGINNING OF CURVE POINTS, STREET CENTERLINE END OF CURVE POINTS AND PUBLIC LAND SURVEY SYSTEM, (PLSS), CORNERS SHALL BE MONUMENTED AS SHOWN IN STANDARD DETAIL NO. 4-020.
2. ALL SUBDIVISION BOUNDARY CORNERS NOT IN PAVEMENT SHALL BE MONUMENTED AS SHOWN ON STANDARD DETAIL NO. 4-020 USING STANDARD DETAIL NO. 4-030, (BOUNDARY MONUMENT).
3. SUBDIVISION BOUNDARY MONUMENTS NOT IN ROADWAYS SHALL BE SUBSURFACE AS SHOWN IN STANDARD DETAIL NO. 4-030, (BOUNDARY MONUMENT).
4. IN LOCATIONS WHERE A STANDARD SURVEY MONUMENT CANNOT BE CONSTRUCTED, MONUMENT LOCATION SHALL BE REFERENCED AS SHOWN IN STANDARD DETAIL NO. 4-060, (MONUMENT REFERENCING STANDARDS), USING DETAIL NO. 4-070, (REFERENCE POINT MONUMENT).
5. UPON COMPLETION OF ALL REQUIRED IMPROVEMENTS, AN ARIZONA LICENSED SURVEYOR SHALL FURNISH TO THE CITY ENGINEER A COMPLETE AND ACCURATE SET OF FIELD NOTES, OR FIELD SKETCHES, WILL CLEARLY INDICATE THE TIES BETWEEN THE SUBSURFACE MONUMENT AND THE SURFACE MONUMENTS.
6. ANY SUBDIVISION BOUNDARY, STREET CONTROL LINE, OR RIGHT OF WAY CENTERLINE SURVEY MONUMENT HAVING CHARACTERISTICS OTHER THAN AS DESCRIBED AND SHOWN IN STANDARD DETAIL NO. 4-020, (TYPICAL SUBDIVISION MONUMENTS), MAY ONLY BE SET UPON WRITTEN APPROVAL FROM THE CITY ENGINEER.
7. IN LOCATIONS WHERE PAVEMENT HAS BEEN LAID BUT THERE WILL BE A "SIGNIFICANT" TIME DELAY IN SETTING EITHER A STANDARD NO. 4-080 SURVEY MONUMENT OR A STANDARD NO 4-081 SURVEY MONUMENT, THE CONTRACTOR WILL HAVE AN ARIZONA LICENSED LAND SURVEYOR DEFINE THE CORRECT PRECISE POSITION OF THE FUTURE SURVEY MONUMENT LOCATION BY SETTING A STANDARD NO. 4-070 REFERENCE POINT MONUMENT.
8. ALL SURVEY MONUMENTS SET, WHETHER AS "NEW" OR AS "REPLACEMENT", SHALL BE SET, PLATTED AND RECORDED, MEETING THE MINIMUM CRITERIA AS LISTED IN THE "ARIZONA BOUNDARY SURVEY MINIMUM STANDARDS", AS ADOPTED BY THE ARIZONA STATE BOARD OF TECHNICAL REGISTRATION, STATED IN THE ARIZONA ADMINISTRATIVE CODE R4-30-301, AND FURTHER DEFINED IN THE BOARD'S SUBSTANTIVE POLICY STATEMENTS NUMBER 9 AND NUMBER 10, WITH THE FOUNDATION REFERENCE MADE TO ARS 33-103 THROUGH ARS 33-106.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-010 SURVEY MONUMENT SPECIFICATIONS

TYPICAL SUBDIVISION MONUMENTING BOUNDARY, STREET, and LOTS



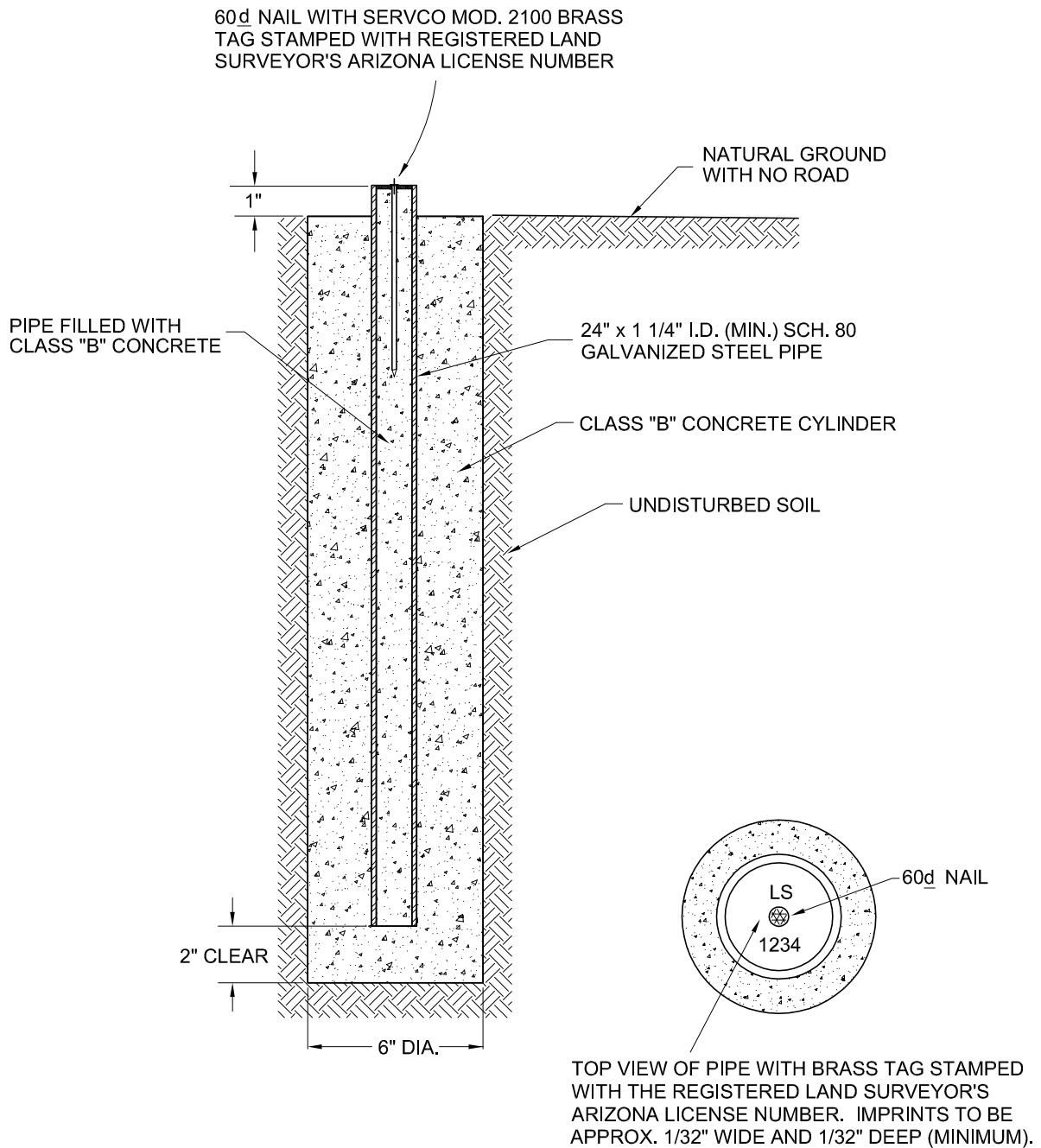
LEGEND

- Indicates tagged property corner rebar or wooden stake
- ◆ Indicates standard survey monument (Standard Detail 4-040 Type "A" or Standard Detail 4-050 Type "B")
- Indicates standard subdivision monument (Standard Detail 4-030 Boundary Monument)
- Indicates standard street monument (Standard Detail 4-080 Street Monument)

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-020
TYPICAL
SUBDIVISION MONUMENTS



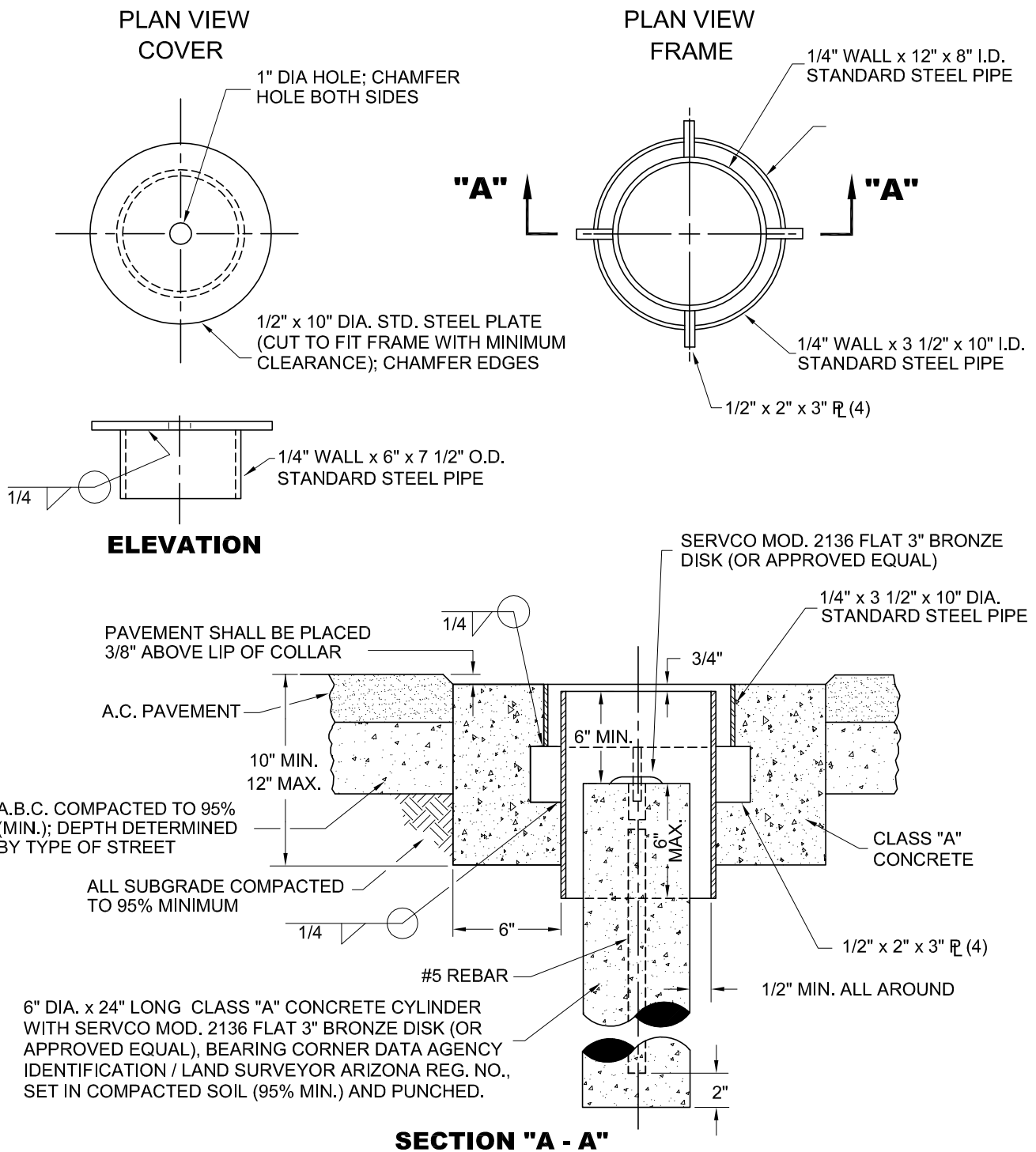
NOTE

1. Top of concrete shall be set 14" below surface when constructed in an unpaved street or road.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

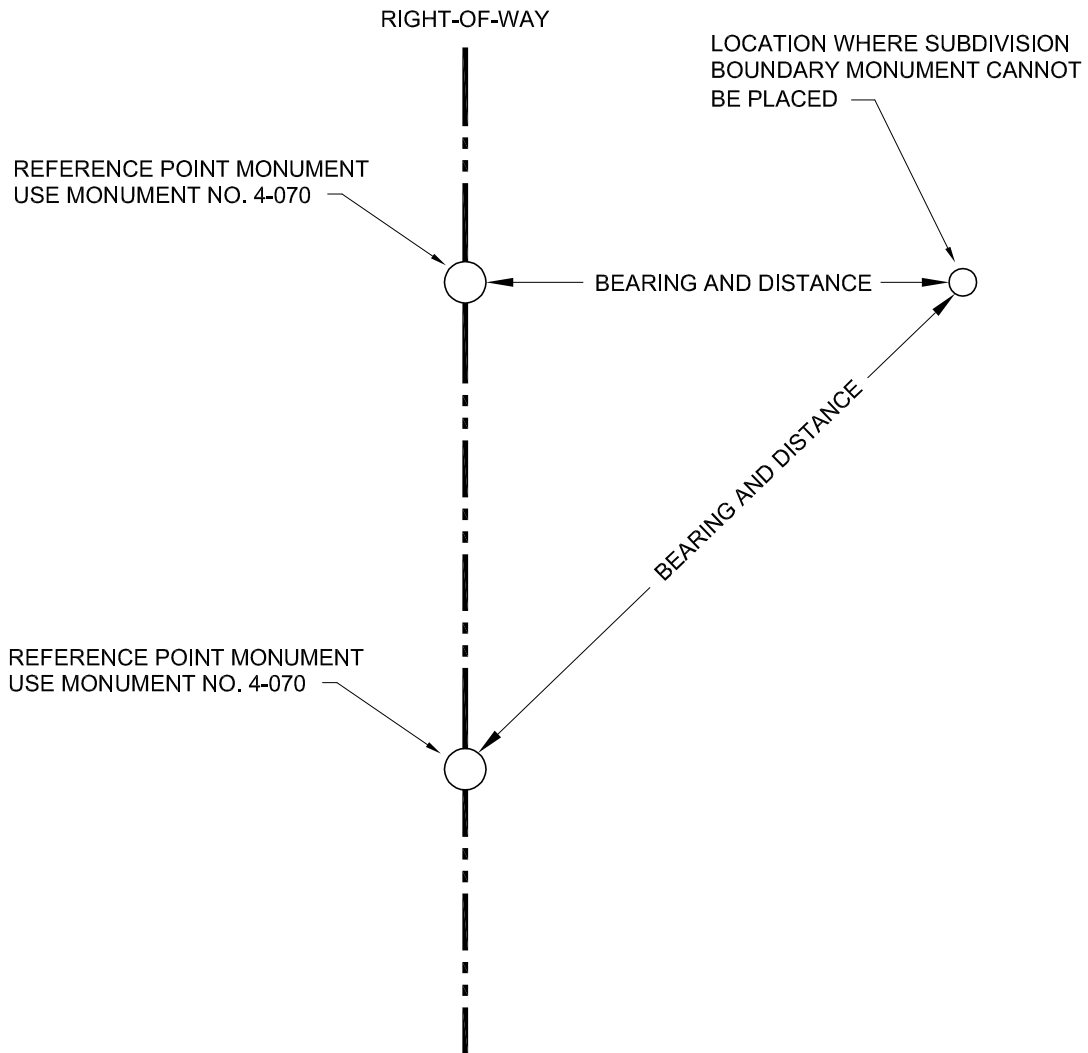
STANDARD NO. 4-030
BOUNDARY MONUMENT



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

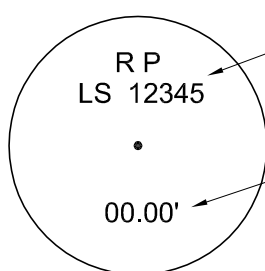
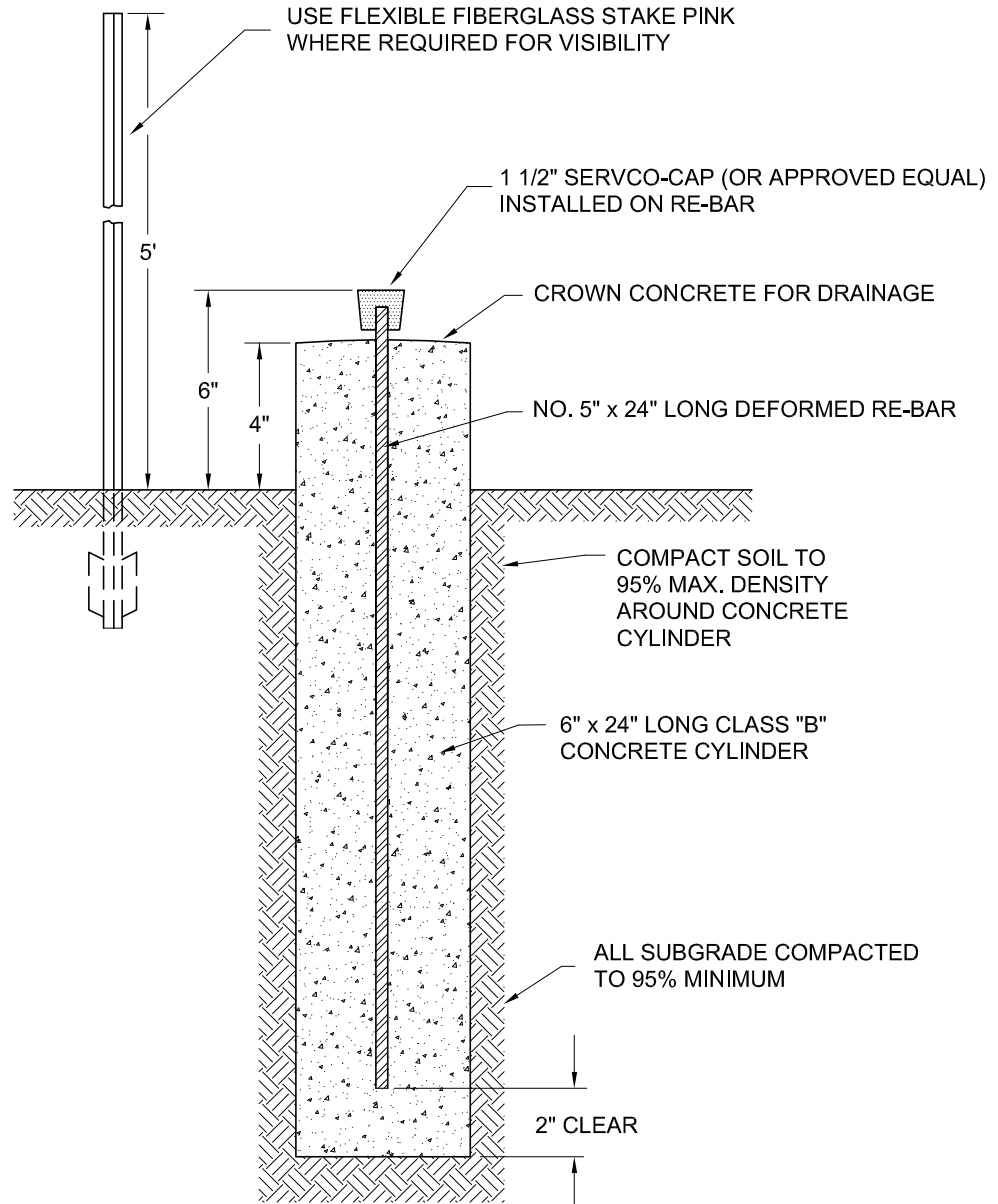
STANDARD NO. 4-050
TYPE "B" SURVEY MONUMENT
WITH FRAME AND COVER



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-060
MONUMENT
REFERENCING STANDARDS



STAMPED WITH REGISTERED LAND SURVEYOR'S ARIZONA LICENSE NO.

IMPRINTS TO BE APPROXIMATELY 1/32" WIDE AND 1/32" DEEP (MIN.)

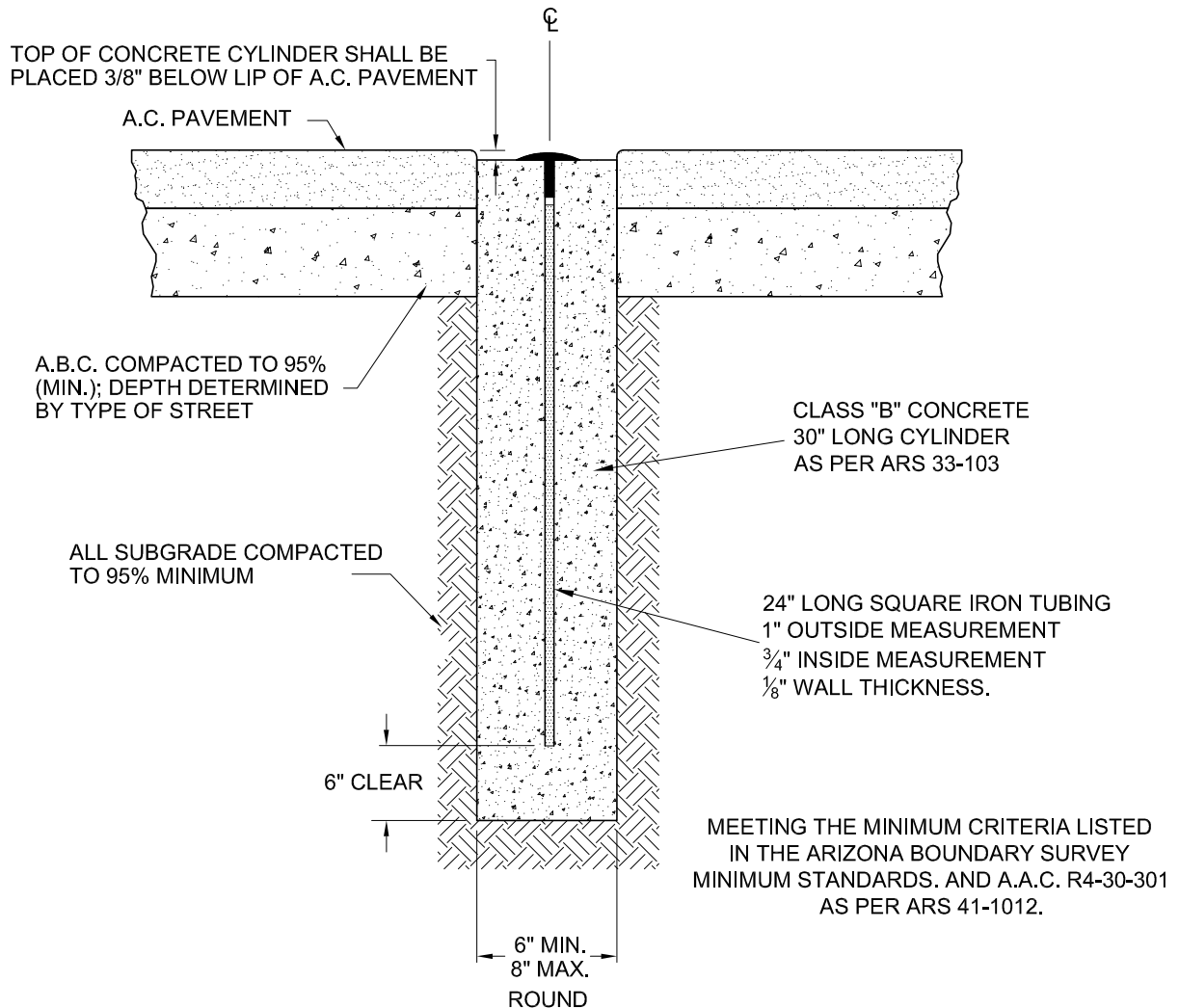
DISTANCE

TOP VIEW OF SERV-CAP

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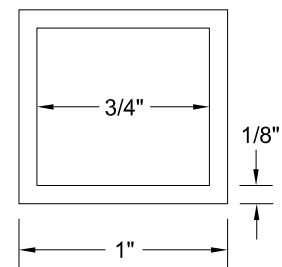
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-070
REFERENCE POINT
MONUMENT



NOTES

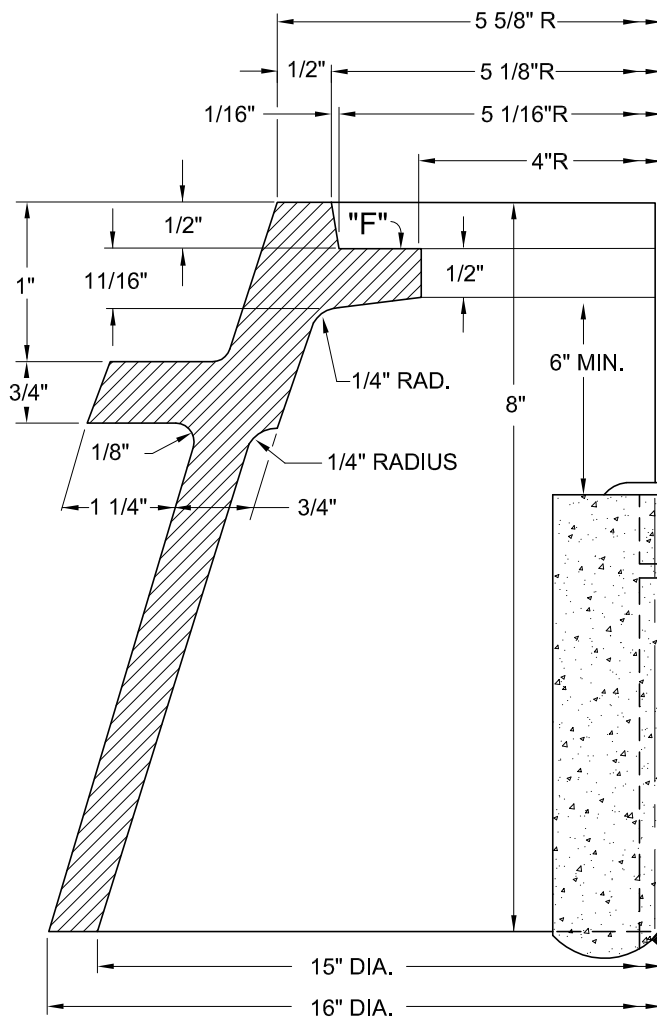
1. SEE CITY OF YUMA STANDARD NO. 4-100.
2. THE STEM OF THE BRONZE DISC BEING DRIVEN INTO THE OPEN END OF THE 24" LONG SQUARE IRON TUBING TO THE POINT OF 100% RESISTANCE CAUSING THE OPEN END OF THE SQUARE TUBING TO BE FLUSH WITH THE FLAT BOTTOM OF THE BRONZE DISC.



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-080
STREET MONUMENT
PLACEMENT

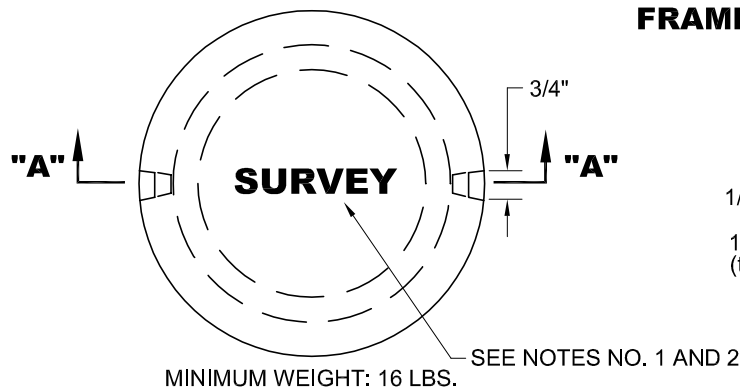


6" DIA. x 24" LONG CLASS "B" CONCRETE CYLINDER WITH SERVCO MOD. 2136 FLAT 3" BRONZE DISK (OR APPROVED EQUAL), BEARING CORNER DATA AND REGISTERED LAND SURVEYOR'S ARIZONA LICENSE NUMBER; SET IN COMPACTED SOIL (95% MIN.) AND PUNCHED.

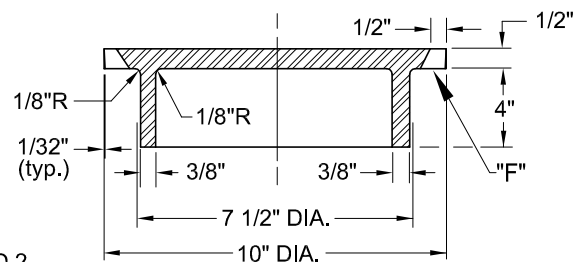
#5 REBAR (2" CLEAR ON BOTTOM)

MINIMUM WEIGHT: 63 LBS.

FRAME



COVER



SECTION "A-A"

NOTES

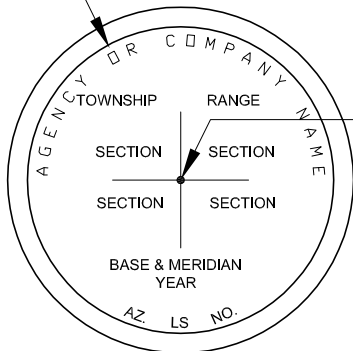
1. The word "Survey" shall be cast on the cover. Letter size: 5/8" wide x 3/4" high raised 1/16" above level of cover.
2. Type of letters are to be submitted for approval.
3. "F" indicates ordinary machining. Tolerance for machine finish: $\pm 1/64"$.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

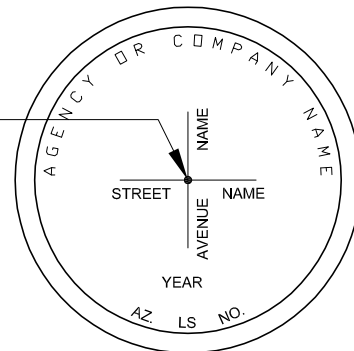
STANDARD NO. 4-090
TYPE "C" SURVEY MONUMENT
WITH FRAME AND COVER

LETTERS TO BE NOT LESS THAN $\frac{1}{8}$ " HIGH
(TYPICAL). IMPRINTS TO BE APPROXIMATELY
 $\frac{1}{32}$ " WIDE AND $\frac{1}{32}$ " DEEP



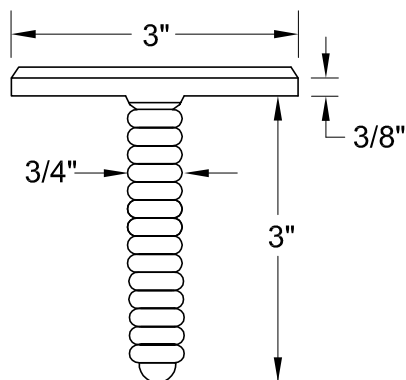
EXAMPLE #1

A DOMINANT,
DISTINCT, CENTERED
PUNCHMARK



EXAMPLE #2

MEETING THE MINIMUM CRITERIA
LISTED IN THE "ARIZONA BOUNDARY
SURVEY MINIMUM STANDARDS,"
A.A.C. R4-30-301



SERVCO BRAND MODEL 2136
(FLAT 3" DIAMETER BRONZE DISC)
[OR APPROVED EQUAL]

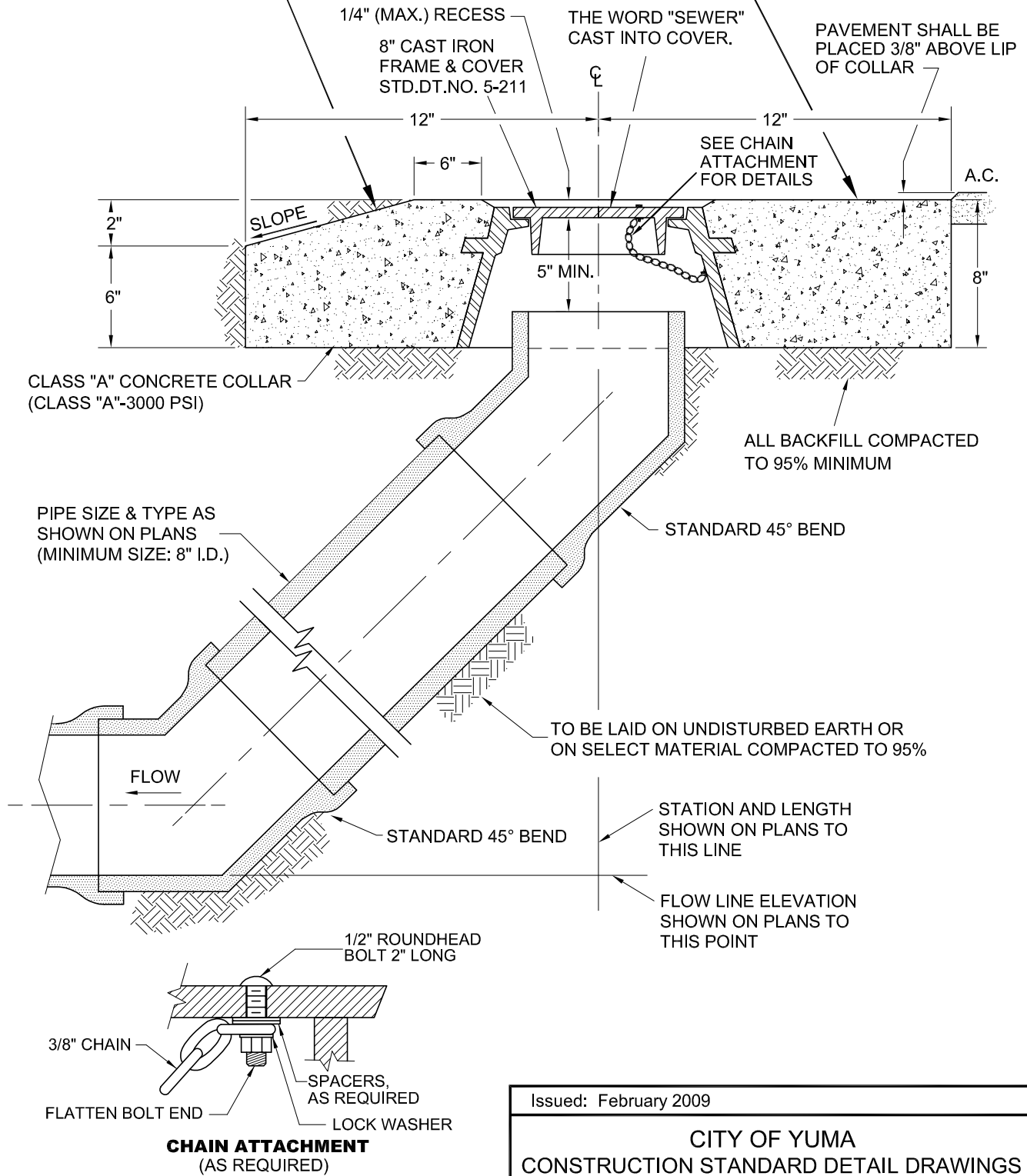
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 4-100
STREET MONUMENTS

FORM CONCRETE COLLAR WITH
SLOPED EDGE WHEN INSTALLED
IN UNPAVED AREAS

FORM CONCRETE COLLAR WITH
SQUARE EDGE WHEN INSTALLED
IN PAVED AREAS



NOTE

1. Use of sanitary sewer cleanout in lieu of a manhole is only allowed with the approval of the City Engineer.

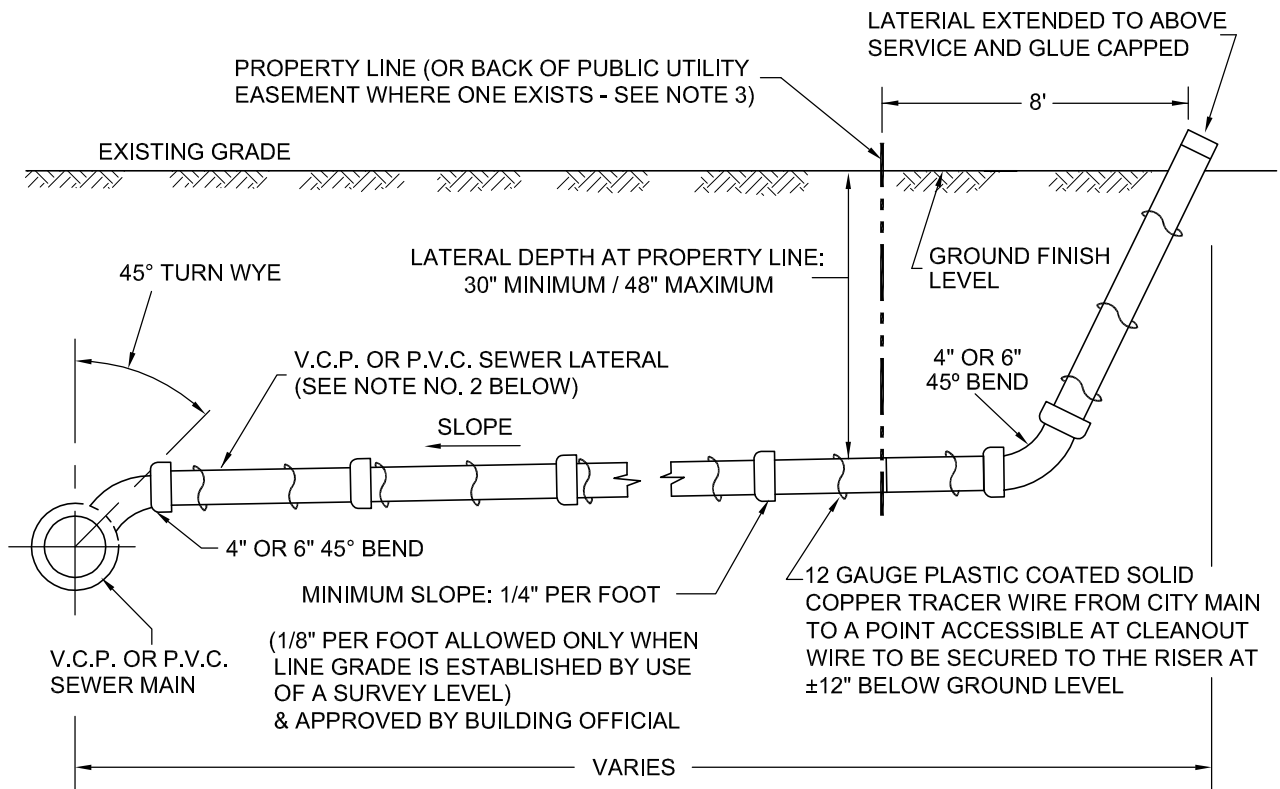
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

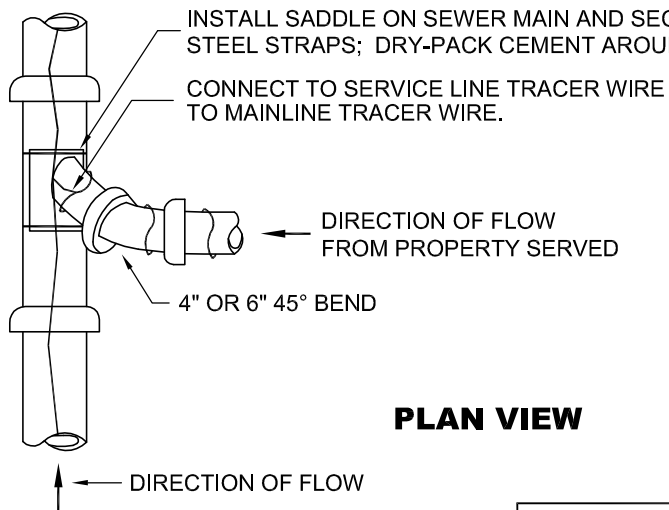
STANDARD NO. 5-010
SANITARY SEWER CLEANOUT



STANDARD NO. 5-015 FORCEMAIN PRESSURE CLEANOUT



PROFILE



PLAN VIEW

NOTES

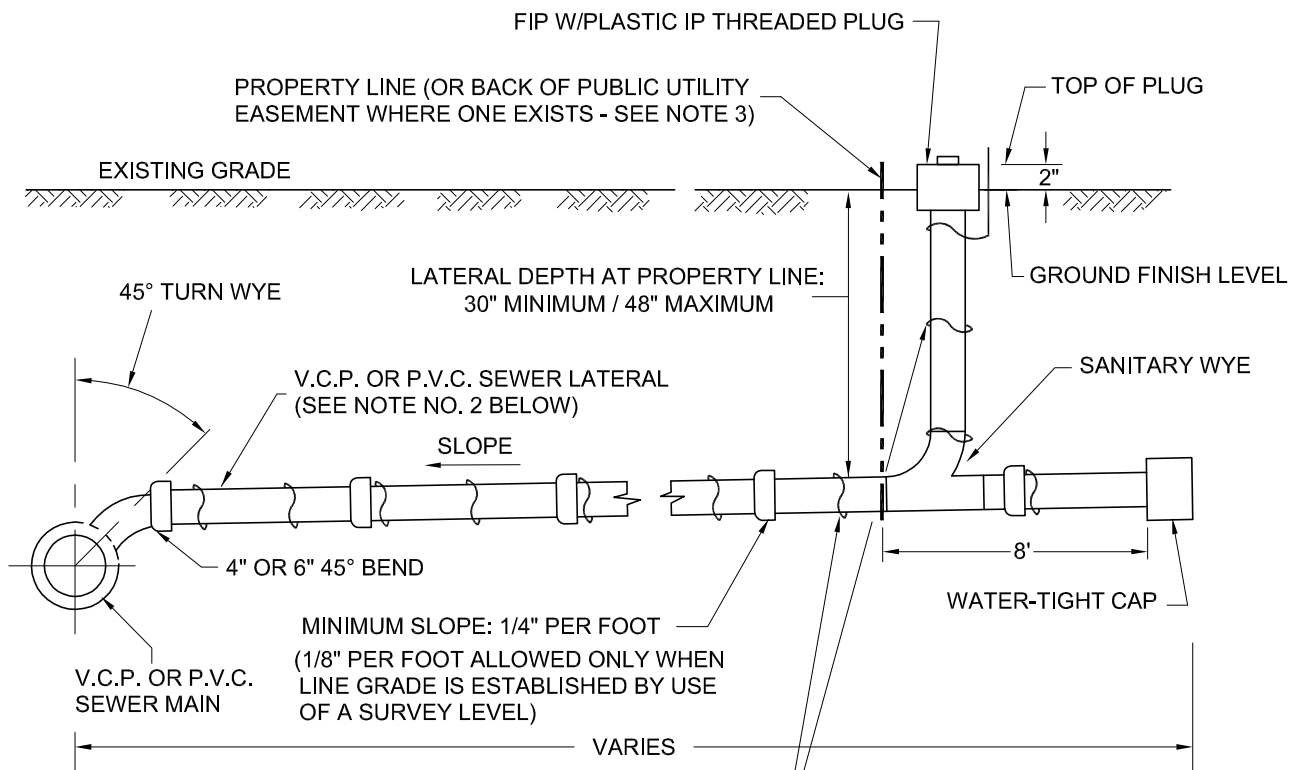
1. Where conditions exist that a larger lateral than 4" is required, the sanitary sewer main shall be checked to see if it has sufficient capacity to handle the additional flows from the new service connection before the connection is permitted.
2. Certified "As Built" drawings shall be submitted to the City Engineer showing exact locations of all lateral connections from the nearest manhole or recorded property lines.
3. The termination point of a sewer lateral shall be eight feet (8') behind a property line and/or at the back of a public utility easement, whichever is furthest from the sewer main.

BACKFILL SHALL COMPLY TO THE REQUIREMENTS SPECIFIED IN STANDARD DETAIL 5-080.

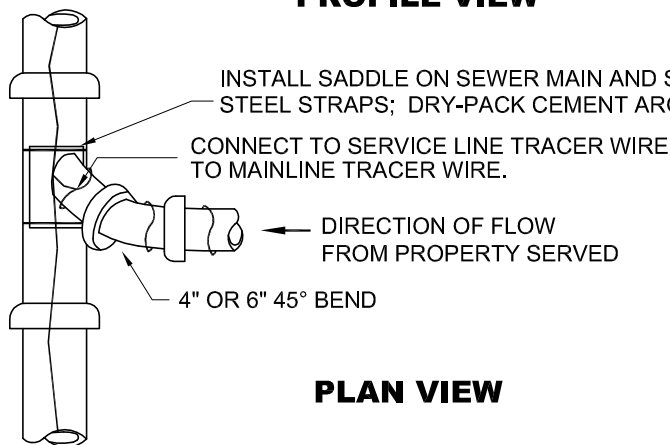
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-020
LATERAL CONNECTION
TO WASTEWATER SYSTEM
WITH 45° BEND



PROFILE VIEW



PLAN VIEW

BACKFILL SHALL COMPLY TO THE REQUIREMENTS SPECIFIED IN STANDARD DETAIL 5-080.

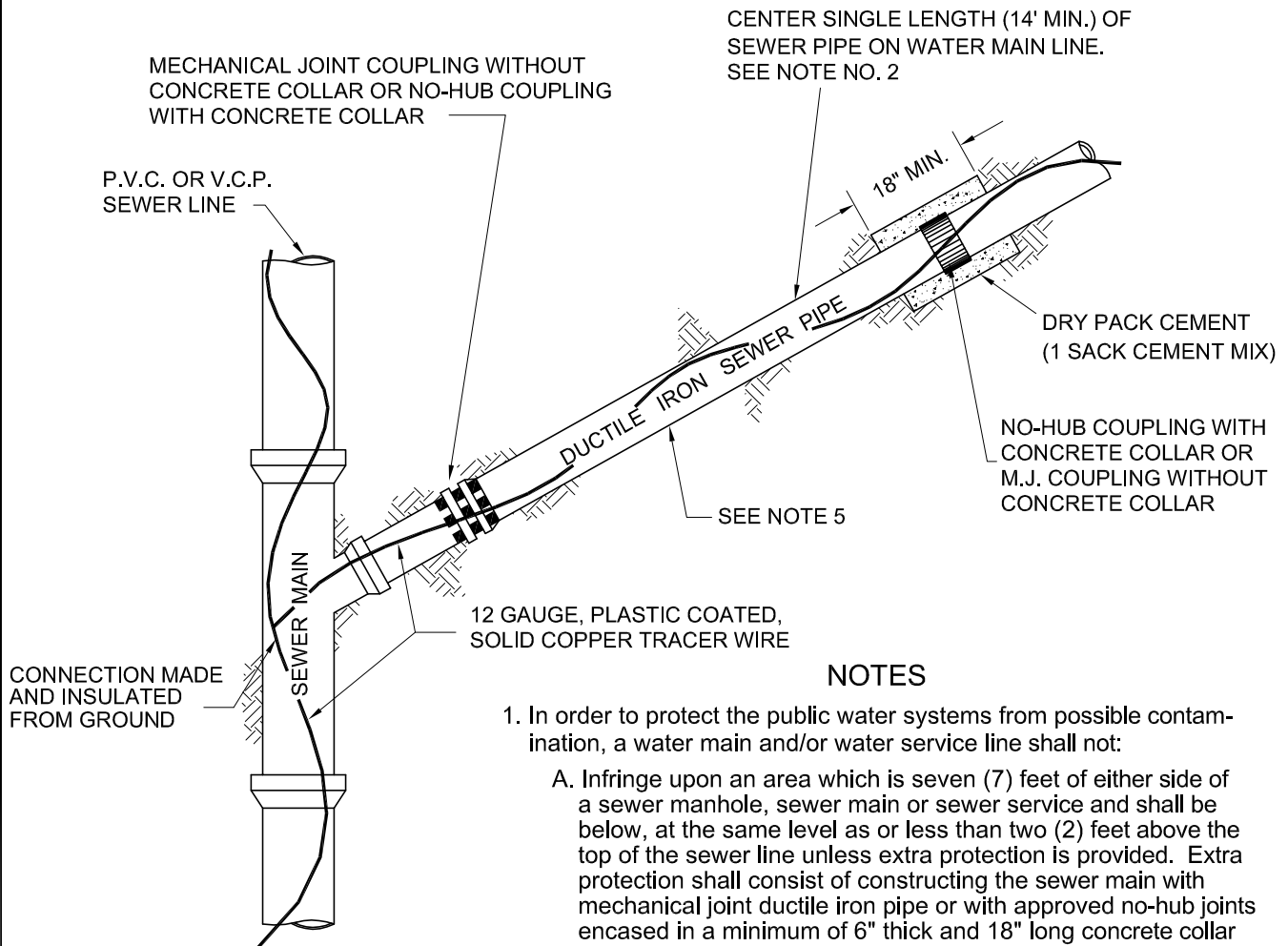
NOTES

1. Where conditions exist that a larger lateral than 4" is required, the sanitary sewer main shall be checked to see if it has sufficient capacity to handle the additional flows from the new service connection before connection is permitted.
2. Certified "As Built" drawings shall be submitted to the City Engineer showing exact locations of all lateral connections from the nearest manhole or recorded property lines.
3. The termination point of a sewer lateral shall be eight feet (8') behind a property line and/or at the back of a public utility easement, whichever is furthest from the sewer main.

Issued: February 2009

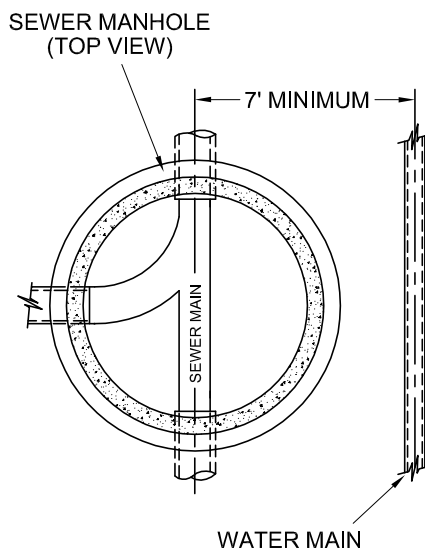
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-021
LATERAL CONNECTION
TO WASTEWATER SYSTEM
WITH SANITARY WYE



NOTES

1. In order to protect the public water systems from possible contamination, a water main and/or water service line shall not:
 - A. Infringe upon an area which is seven (7) feet of either side of a sewer manhole, sewer main or sewer service and shall be below, at the same level as or less than two (2) feet above the top of the sewer line unless extra protection is provided. Extra protection shall consist of constructing the sewer main with mechanical joint ductile iron pipe or with approved no-hub joints encased in a minimum of 6" thick and 18" long concrete collar centered on the joint.
 - B. Under any circumstances, infringe upon an area which is two (2) feet of either side or two feet below the sewer line.
2. All new ductile iron pipe shall be no lighter than Class 51 "Sewer Coat" or Pacific States "Protecto 401". Any other brand of D.I.P. shall have an interior coating of fusion bonded epoxy (60 mills thick minimum) and pipe must be approved by the City Engineer before use.
3. All ferrous fittings, pipe, connectors and appurtenances shall receive a 10mil (minimum) polyethylene wrap to prevent direct contact with soil.
4. All sewer lines shall have tracer wire in accordance with State Law and City utility department policy.
5. For service lines 4" through 8" molecularly oriented polyvinyl chloride (PVCO) which meets ANSI/AWWA C909-98 may be substituted for the ductile iron sewer pipe as shown in the above drawing.



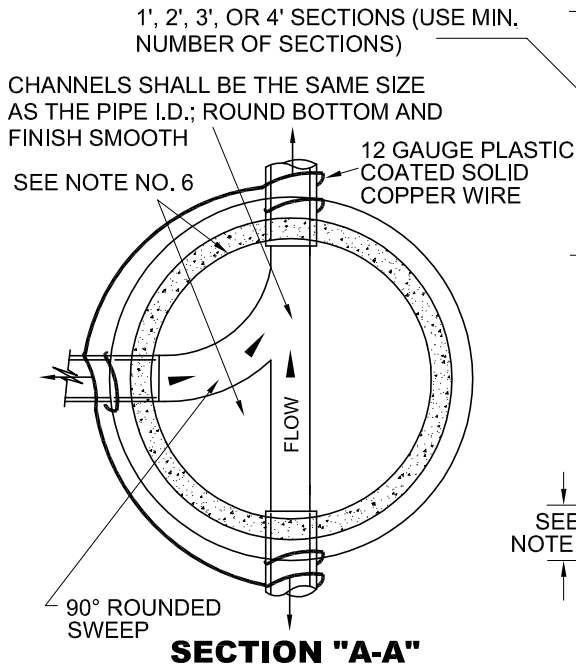
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-022
TYPICAL
WATER & SEWER CROSSINGS

NOTES

1. Concentric manholes shall be constructed only upon the approval of the City Engineer.
2. Precast concrete cones and sections shall meet A.S.T.M. C-478 specifications (latest revision) except where shown. Concrete shall be Type III with flyash additive. Inside diameter of manhole and elevations as shown on plans.
3. Asphalt caulking shall be used to seal all joints.
4. An asphalt waterproofing seal shall be applied to the exterior surfaces of the manhole that will be exposed to ground water.
5. Provide a 20' wide vehicular access road.
6. Apply "Plasite" surface sealant (or approved equal) on adjustment rings, bench or on any other concrete surface.
7. Base constructed of Class "A" concrete.
8. Base reinforcing steel should be ASTM A615, grade 60.
9. See standard Detail 5-044 for adjusting manhole frame and cover to final grade.



SECTION "A-A"

10. Precast concrete manholes shall have a PVC T-Lock IMPRESSION RING WITH "RAM-NEK" PLASTIC LINER, sealed gas tight, as manufactured by Ameron (or approved equal). Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing). 6" (MIN.) A.B.C. COMPACTED TO 95% (MIN.) SUBGRADE COMPACTED TO 95% (MIN.)

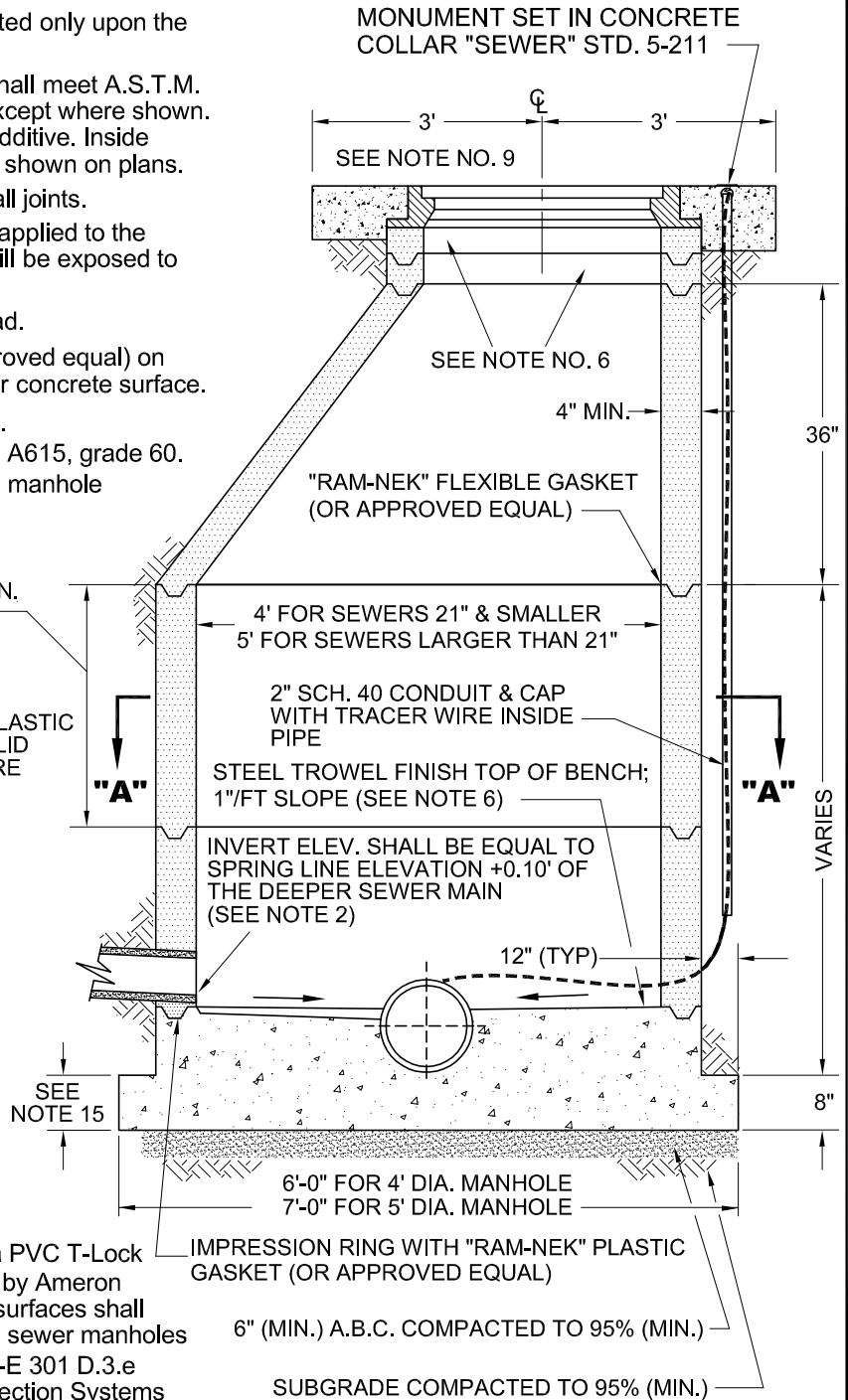
11. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture, unless otherwise approved.

12. Grout seal around pipe. Match and apply same protective coating on grout as used on the other exposed concrete surfaces (see Note 6).

13. Special details shall be required for: Manholes greater than 40' in depth; at deflection manholes; for multiple pipe penetrations with at least one pipe greater than 21"; or if sewer main is larger than 48" in diameter. Calculations shall be signed/sealed by a registered professional engineer (AZ license) and submitted to the City Engineer for review & acceptance.

14. The mainline pipe needs to be installed through the manhole. The top 1/3-1/2 portion of the pipe must be cut off a minimum length of 30" to allow the CCT camera access and to accept flow from lateral piping.

15. Twelve inches for manholes over thirteen feet (13') deep.



Issued: February 2009

CONSTRUCTION STANDARD DETAIL DRAWINGS

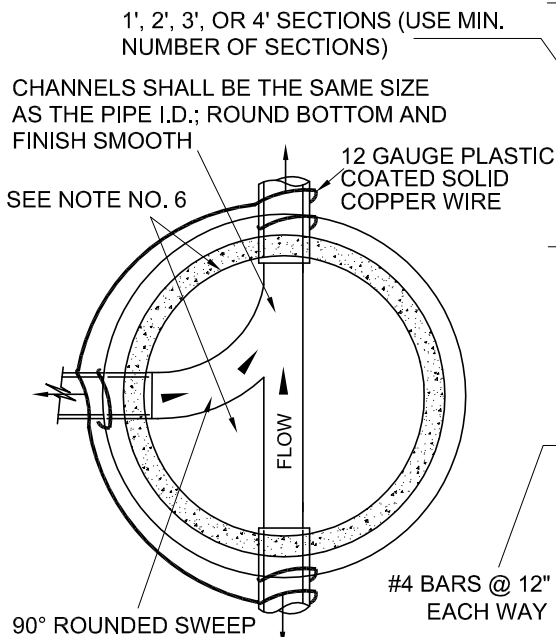
STANDARD NO. 5-029

PRE-CAST

CONCRETE MANHOLE

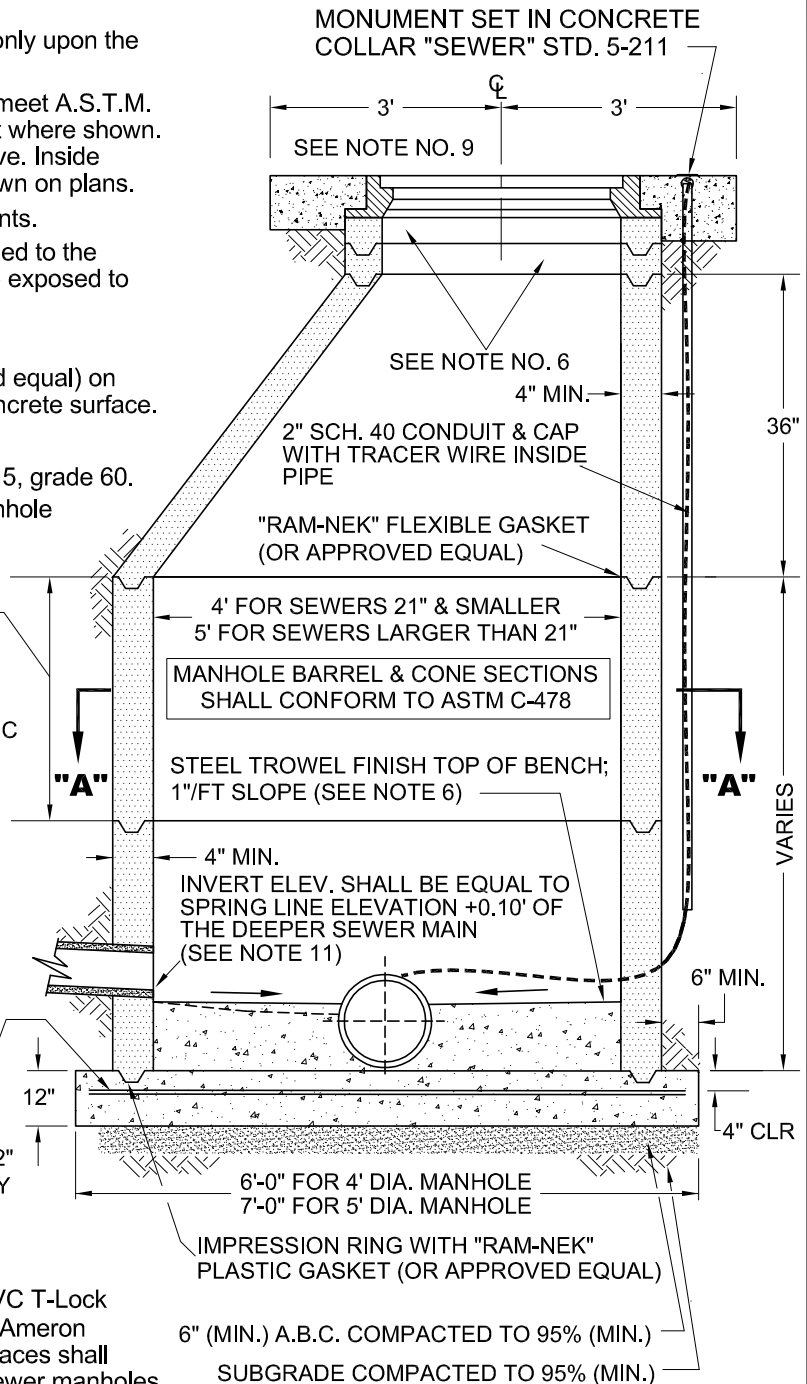
NOTES

1. Concentric manholes shall be constructed only upon the approval of the City Engineer.
2. Precast concrete cones and sections shall meet A.S.T.M. C-478 specifications (latest revision) except where shown. Concrete shall be Type III with flyash additive. Inside diameter of manhole and elevations as shown on plans.
3. Asphalt caulking shall be used to seal all joints.
4. An asphalt waterproofing seal shall be applied to the exterior surfaces of the manhole that will be exposed to ground water.
5. Provide a 20' wide vehicular access road.
6. Apply "Plasite" surface sealant (or approved equal) on adjustment rings, bench or on any other concrete surface.
7. Base constructed of Class "A" concrete.
8. Base reinforcing steel should be ASTM A615, grade 60.
9. See standard Detail 5-044 for adjusting manhole frame and cover to final grade.



SECTION "A-A"

10. Precast concrete manholes shall have a PVC T-Lock liner, sealed gas tight, as manufactured by Ameron (or approved equal). Liner and interior surfaces shall be spark tested: (applies only to sanitary sewer manholes see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
11. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture, unless otherwise approved.
12. Grout seal around pipe. Match and apply same protective coating on grout as used on the other exposed concrete surfaces (see Note 6).
13. Special details shall be required for: Manholes greater than 40' in depth; at deflection manholes; for multiple pipe penetrations with at least one pipe greater than 21"; or if sewer main is larger than 48" in diameter. Calculations shall be signed/sealed by a registered professional engineer (AZ license) and submitted to the City Engineer for review & acceptance.



14. The PVC pipe needs to be installed inside the manhole. The top 1/3-1/2 portion of the pipe must be cut off a minimum length of 30" to allow CCT camera access. and to accept flow from lateral piping.

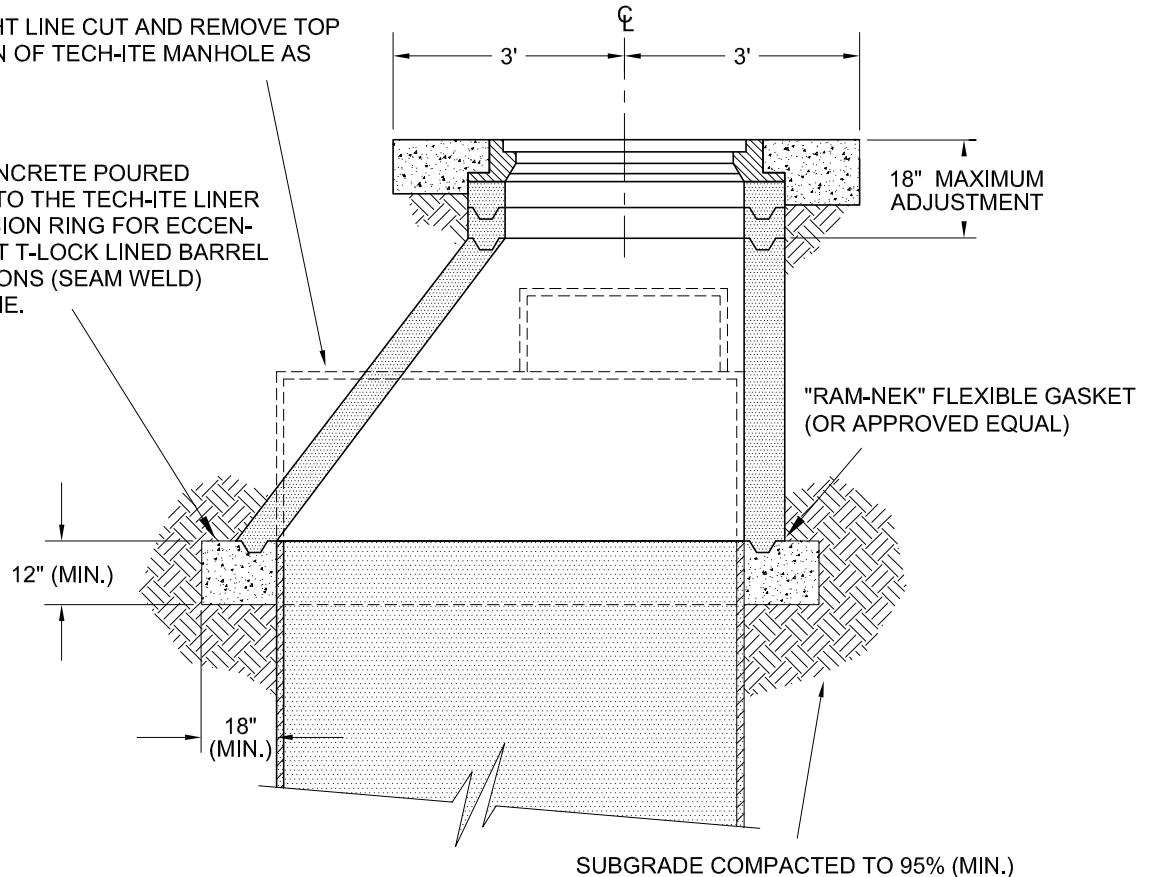
Issued: February 2009

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-030
15'-40' DEEP PRE-CAST
CONCRETE MANHOLE

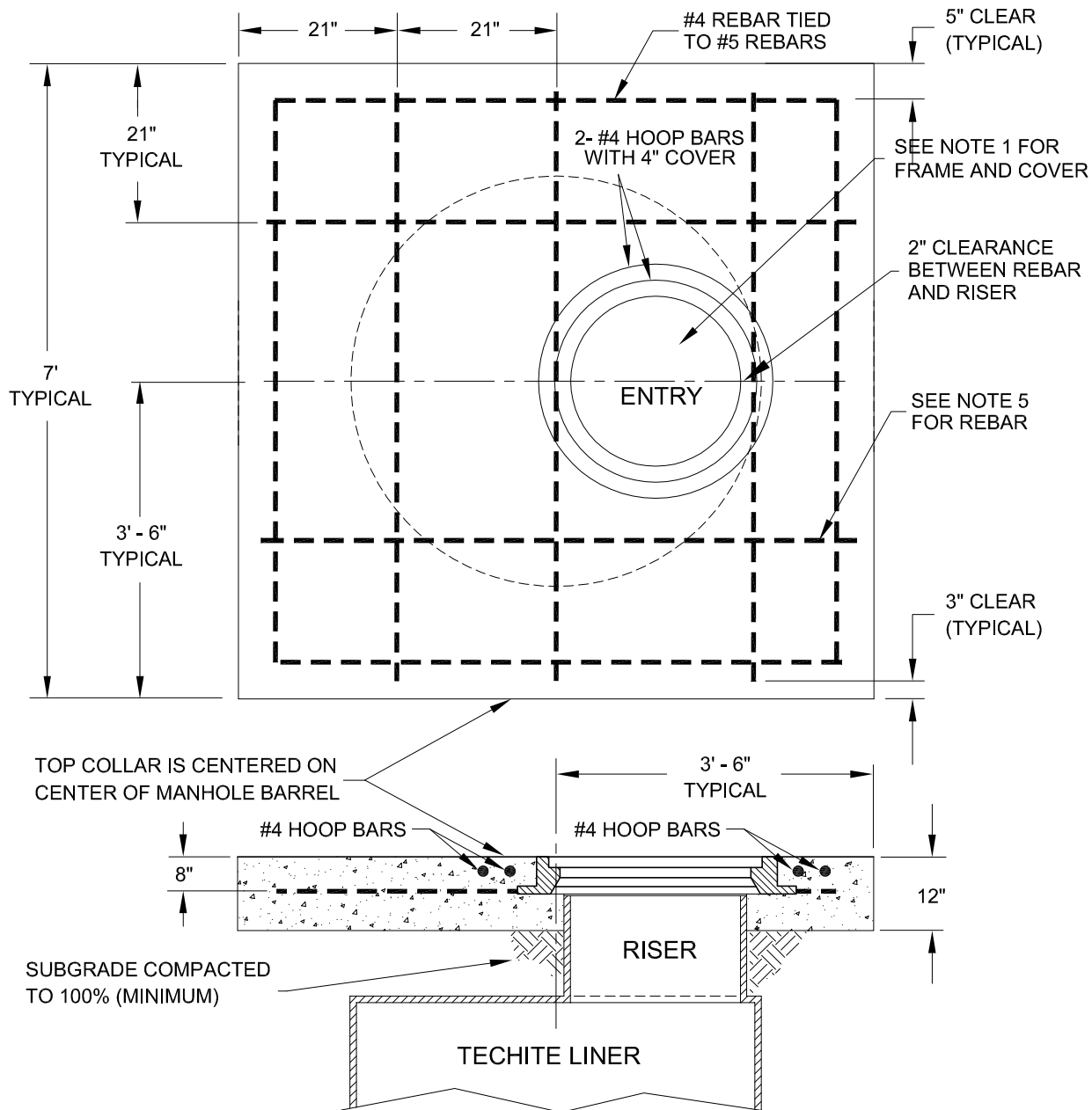
SEE STANDARD DETAIL 5-044 FOR ADJUSTING
MANHOLE FRAME AND COVER TO FINAL GRADE

CLASS "A" CONCRETE POURED
CONCENTRIC TO THE TECH-ITE LINER
WITH IMPRESSION RING FOR ECCEN-
TRIC PRE-CAST T-LOCK LINED BARREL
& CONE SECTIONS (SEAM WELD)
MANHOLE CONE.



1. Precast concrete cones shall meet A.S.T.M. C-478 specifications (latest version) except where shown. Concrete shall be Type III with flyash additive.
2. Inside diameter of manhole and elevations shall be shown on plans.
3. Asphalt caulking shall be used to seal all joints.
4. An asphalt waterproofing seal shall be applied to the exterior surfaces of the manhole cone that will or could be exposed to ground water.
5. Apply "Plasite" surface sealant (or approved equal) on all interior surfaces of the adjustment rings and on any exposed interior concrete surface.
6. Backfill used to fill manhole excavation shall be a one sack cement per cubic yard of sand slurry mixture.
10. Precast concrete manholes shall have a PVC T-Lock liner, sealed gas tight, as manufactured by Ameron (or approved equal). Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
8. This detail shall also be used to adjust brick manholes to grade.
9. Install new frame & cover.

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-031
ADJUSTING TECHITE MANHOLE LINERS
OR BRICK MANHOLES TO FINISHED GRADE



NOTES

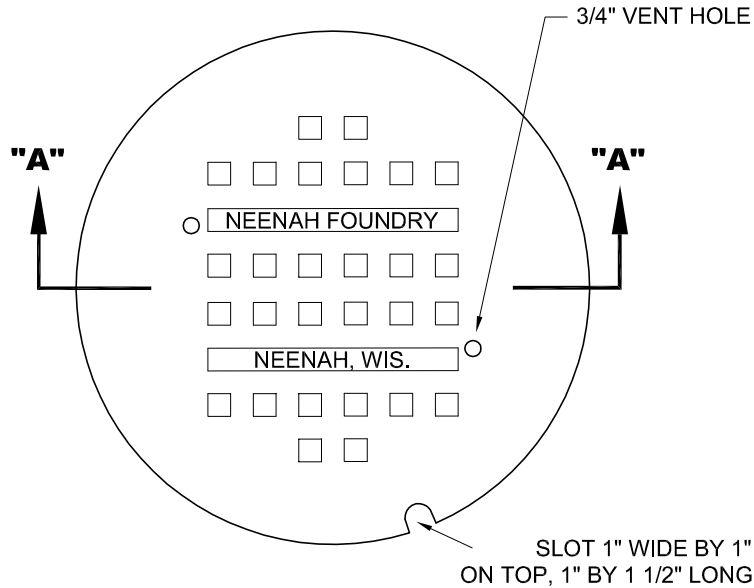
1. Frame and cover shall be Neenah R-1595, R-1642 or approved equal. Collar shall be imbedded into the concrete collar (monolithic pour).
2. Non-vented lid required for manholes installed in or within 500 feet of an interceptor or trunk sewer main.
3. All exposed concrete, mortar or cement shall be coated with "Fosrock" surface sealant or approved equal.
4. Top collar shall be constructed of Class "A" concrete.
5. Nine pieces of No. 5 rebar, six feet (6') long placed eight inches (8") deep.

Issued: February 2009

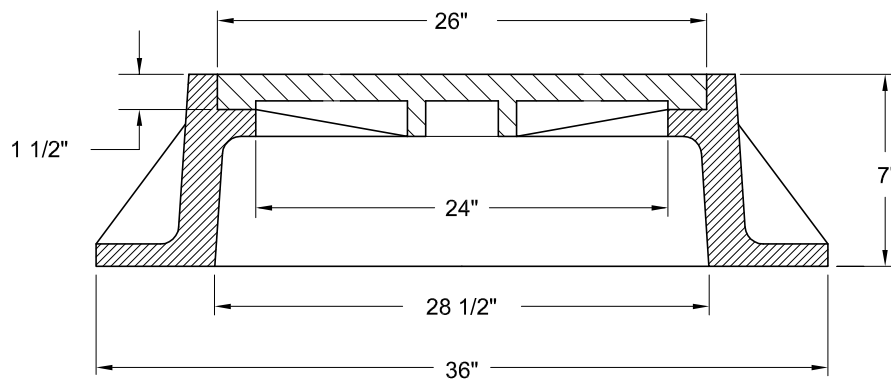
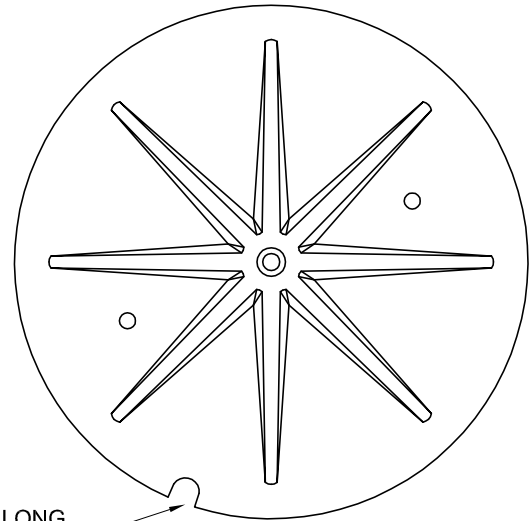
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-032
TECHITE MANHOLE LINER
TOP COLLAR

TOP VIEW



BOTTOM VIEW



SECTION "A - A"

NOTES

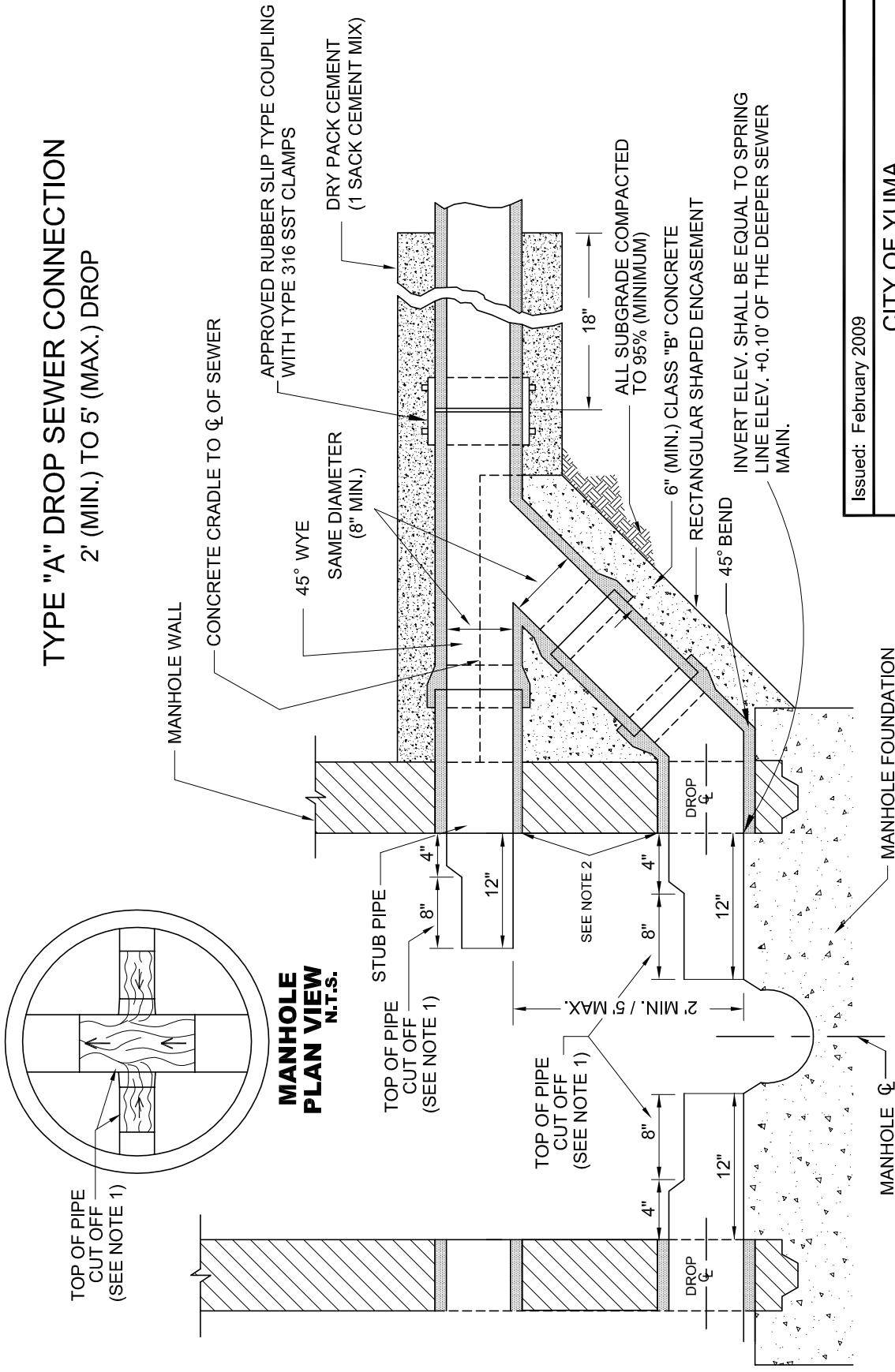
1. The top of the cover and frame shall be flush and there shall be 1/8" horizontal clearance all around the frame and cover.
2. All covers shall have the letter "S" cast into it. The letter shall be raised 5/16" and be no less than 2 1/2" high.
3. Covers shall have a minimum of two 3/4" vent holes. Should a manhole be located within 500 feet of an interceptor sewer the vent holes are to be eliminated.
4. Standard manhole covers are the Neenah R-1595, R-1642 or approved equal.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-040
STANDARD MANHOLE
FRAME AND COVER

TYPE "A" DROP SEWER CONNECTION 2' (MIN.) TO 5' (MAX.) DROP



NOTES

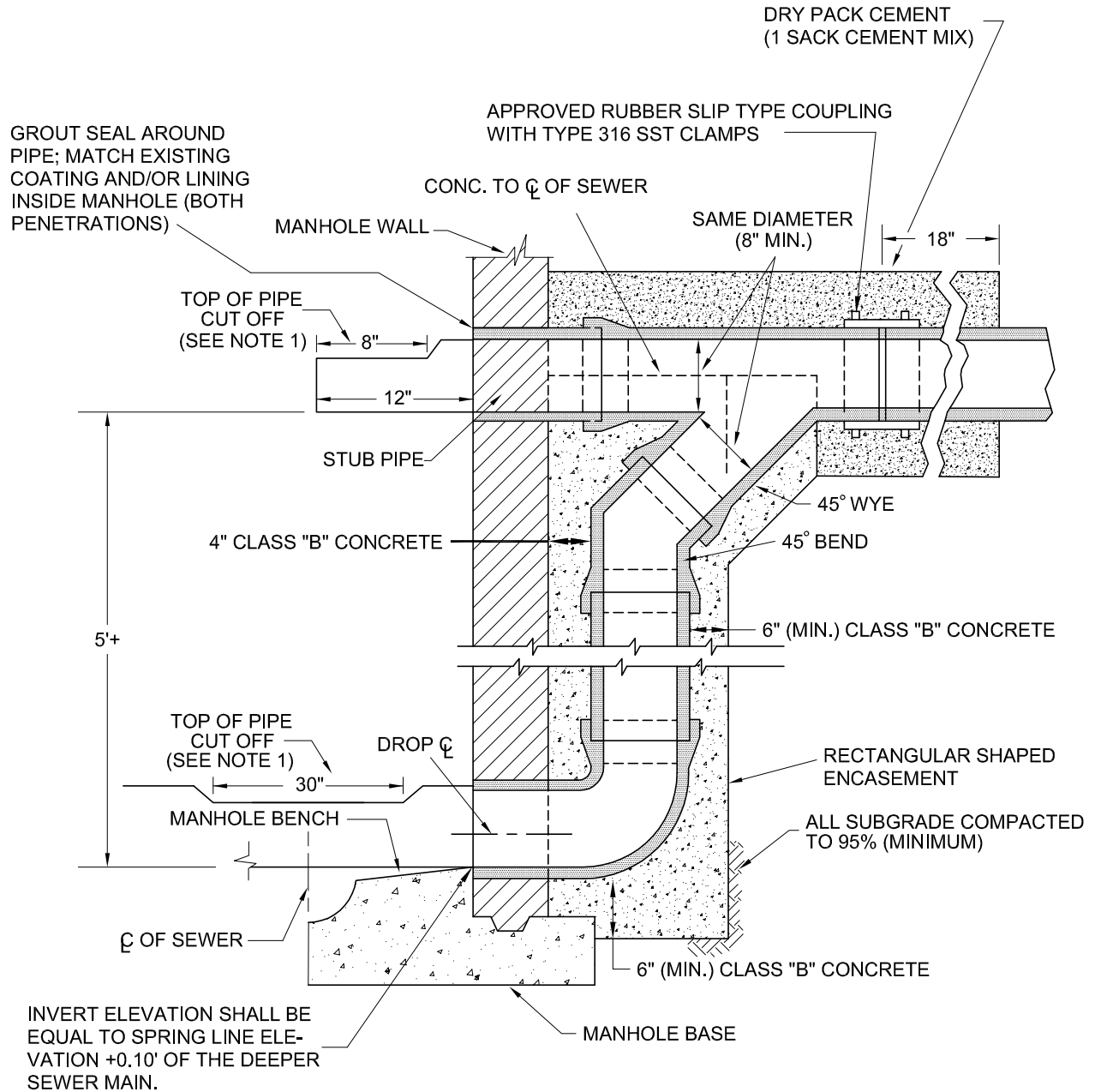
1. The mainline pipe needs to be installed through the manhole. The top 1/3-1/2 portion of the pipe must be cut off a minimum length of 30" to allow the CCT camera access and to accept flow from lateral piping.
2. Grout seal around pipe; match existing coating and/or lining inside manhole (both penetrations)

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-041
TYPE "A"
DROP SEWER CONNECTION

TYPE "B" DROP SEWER CONNECTION

MORE THAN A 5' DROP



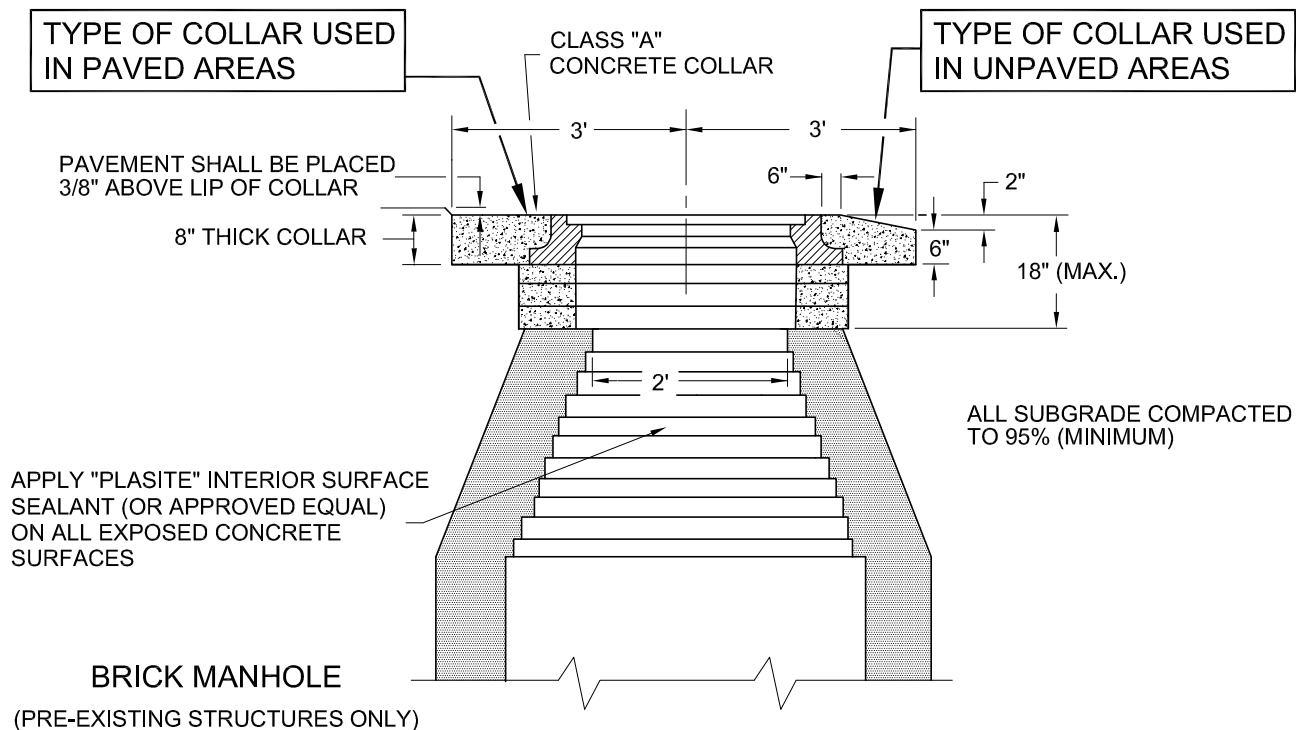
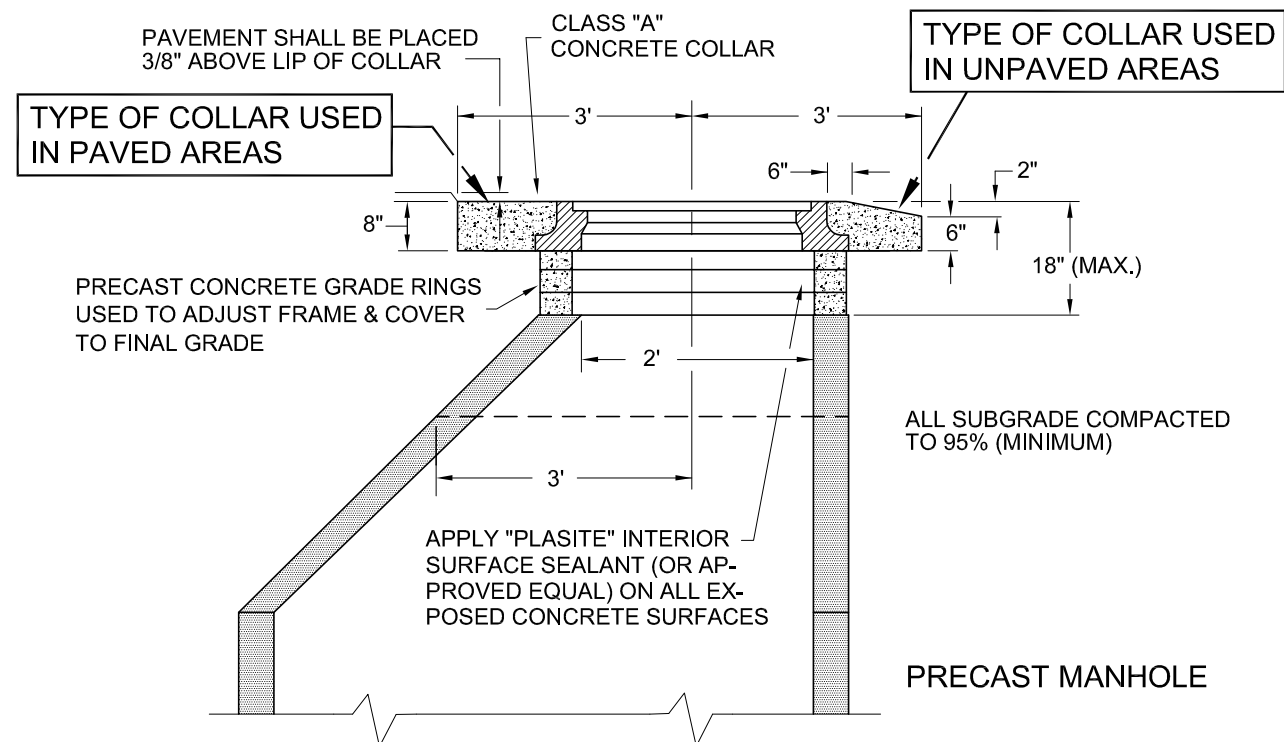
NOTES

1. The top 1/3-1/2 portion of the pipe must be cut off a minimum length of 30" to allow the CCT camera access and to accept flow from lateral piping.
2. Grout seal around pipe; match existing coating and/or lining inside manhole (both penetrations)

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-042
TYPE "B"
DROP SEWER CONNECTION



Issued: February 2009

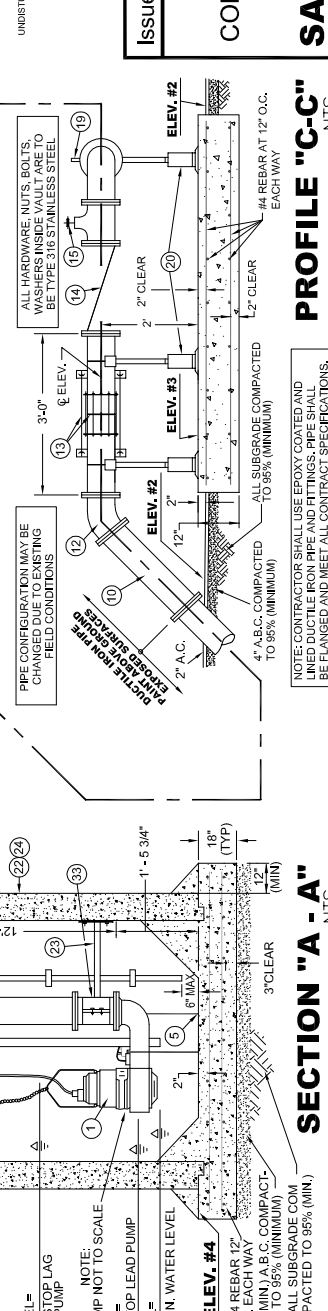
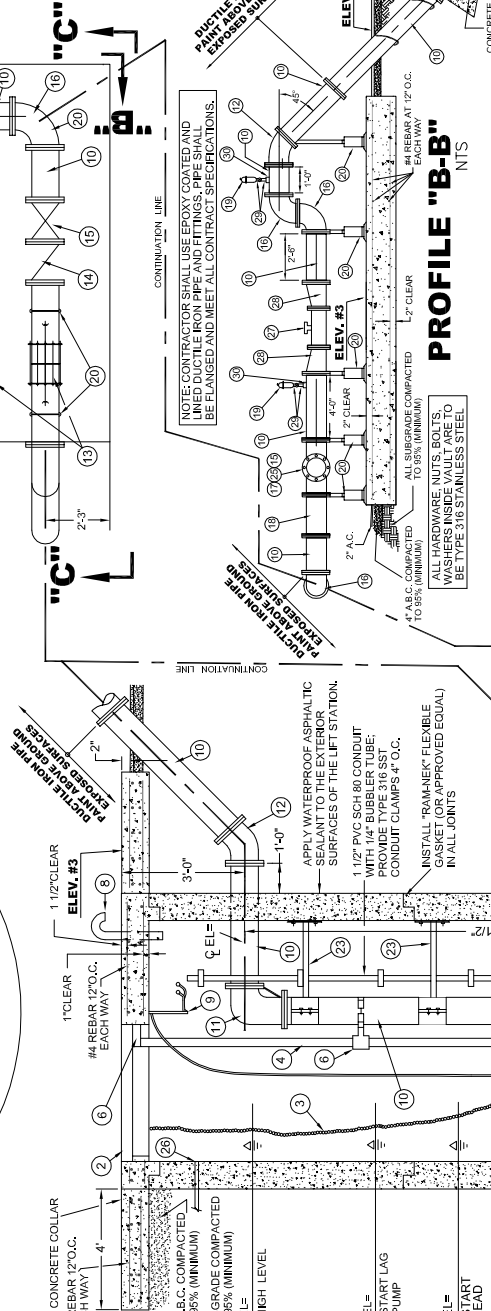
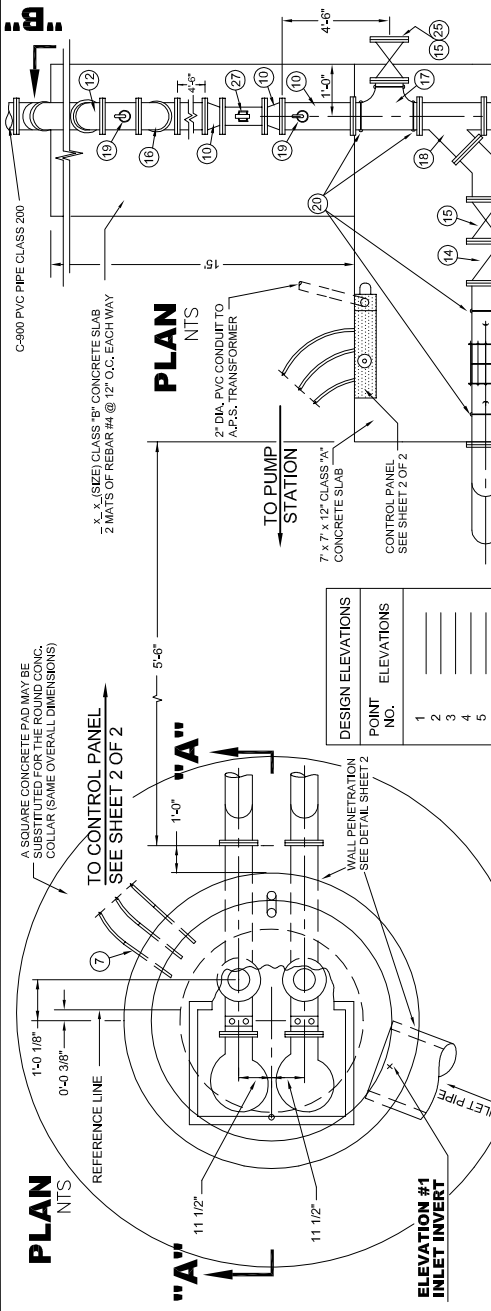
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-044

ADJUSTING MANHOLE TO FINAL GRADE

MATERIAL LIST FOR LIFT STATION

1. GPM FLYGT Submersible pump, H.P. 480V, 3Ø, 60 HZ with Mix-Flush valve. Minimum size pump will be 7.5hp with a 6" discharge pipe (pre-480V)
2. Aluminum hatch cover 48"x36" clear opening embedded in concrete cover.
3. Lifting cable attachment per pump manufacturer (316 SST).
4. Intermediate guide bar per pump manufacturer (316 SST).
5. Pump anchor bolts per pump manufacturer (316 SST).
6. Guide bar brackets per pump manufacturer (316 SST).
7. Electric conduits - size per manufacturers recommendation.
8. 6-inch vent pipe per Detail No. 2 on Sheet 1 of 1.
9. U-shaped cable hanger made from 1/2" 316 SST pipe (incl. straps).
10. 6-inch Flanged Spool (DIP) (Eccentric Reducer).
11. 6-inch flanged 90-degree EI (DIP-long radius).
12. 6-inch coupling with flange Per AWWA M-11 & FLGxPE Joints.
13. 6-inch flanged gate valve with indicator arm.
14. 6-inch flanged gate valve with outside rising stem and wheel.
15. 6-inch x 6-inch flanged L.R. 90-degree elbow (DIP).
16. 6-inch x 6-inch x 6-inch flange (DIP).
17. 6-inch x 6-inch x 6-inch tee (DIP).
18. 6-inch diameter air release valve (APCO Model 403 or equal).
19. 2-inch diameter air release valve (APCO Model 403 or equal).
20. 6-inch 45-degree flanged elbow with thrust block and PVC adaptor.
21. 96-inch (inside diameter) RGRCP Class 4 structure with base and cover (or approved equal).
22. Pipe support per Detail No. 3 on Sheet 2 of 2.
23. Pipe sway brace per Detail No. 1.
24. Sanitary sewer lift stations shall have T-LoK liners installed.
25. Blind flange.
26. 1" sch. 40 PVC pipe for "Mitrionics" sensor (bore wall).
27. ABB Mod. "MAG-CM" magnetic flow meter (or approved equal).
28. 8"x6" eccentric reducer.
29. 2" bronze ball valve with bronze nipple.
30. 2" threaded half coupling.
31. Tee Lock Liner on barrel.
32. Dip reducer-variety size with pump supplier.
33. Run a discharge line from air release valve back into the vault.
34. All concrete slab bases to be class "A"



SECTION "A-A"

SECTION "B-B"

SECTION "C-C"

VENT PIPE
DETAIL NO. 2
NTS

PIPE SWAY BRACE
DETAIL NO. 1
NTS

Sheet 1 of 2

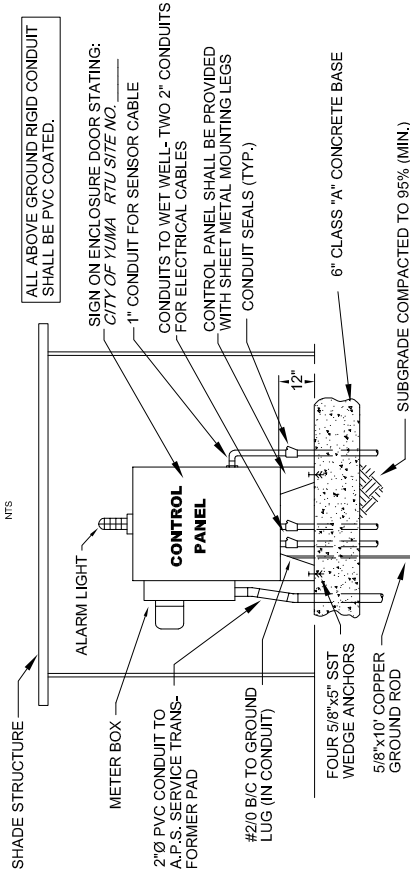
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

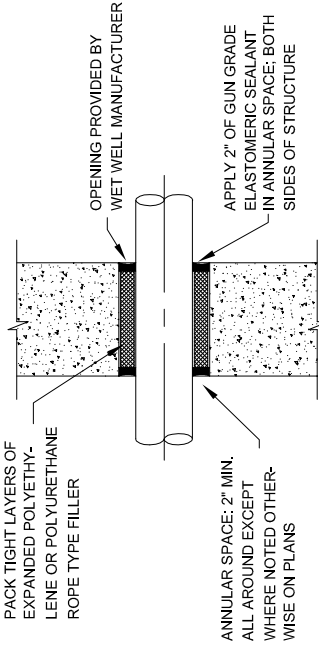
STANDARD NO. 5-050

SANITARY SEWER LIFT STATION

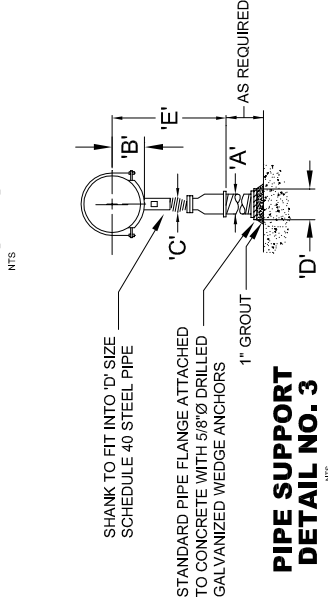
CONTROL PANEL ELEVATION



PACK TIGHT LAYERS OF
EXPANDED POLYETHYLENE
OR POLYURETHANE
ROPE TYPE FILLER



WALL PENETRATION SEAL DETAIL



PIPE SUPPORT DETAIL NO. 3

NUMBER REQUIRED	SUPPORTED PIPE SIZE	'A'	'B'	'C'	'D'	'E'	
						MIN.	MAX.
SIX	6"	3"	5 7/8"	2.5"	11 3/4"	10 3/4"	14 1/2"

SEWAGE LIFT STATION RTU COMPONENTS

- Allen Bradley, IntelliCENTER with DeviceNet.
 - 1ea 4 Slot Rack: 1746-A4
 - 1ea Power Supply: 1746-P2
 - 1ea Processor Unit: 1747-L532 Ser: E
 - 1ea Device Net: 1747 SDN
 - 1ea Analog Input: 1746-NI8
 - 1ea Device Net Starter Aux.: 100 DNY 42 R
 - Allen-Bradley "IntelliCENTER MCC" outdoor rated enclosure or approved equal
 - All electrical components shall be of a type/manufacture that is supported locally (Allen-Bradley or approved equal).
 - Pump controller shall be Hydro Ranger Model 200 with the XPS-10 transducer with 100' of sensor cable and shall be mounted on face of inner door of MCC PLC-radio components cabinet. Coordinate with WPCF electrical staff.
 - Flow meter controls shall be mounted on face of inner door of MCC PLC-radio components cabinet.
 - Antenna support:
 - To be coordinated with WPCF electrical personnel.
 - Documentation:
 - Three sets of wiring diagrams for the lift station and RTU; three sets of the O & M manuals.
 - Contact WPCF electrical staff for information on SCADA equipment (928-373-4594).
- Radio components:
 - 1ea MDS licensed radio system 9710A- Also with 120-V power supply astron A7 contact SYNETCOM@ (310)379-2000 for radio and telemetry information
 - 1ea 900-960 MHz 10 DB MDS antenna
 - 1ea Three feet (3') Heliax jumper cable
 - 1ea Type N ninety degree (90°) connector
 - 2ea 900MHz lightning protector
 - 2ea 1/2" Coaxial weather proof grounding kit
 - 1ea 100dB antenna: 1/2" flexible Heliax antenna cable (length to be determined by location of antenna)
 - 1ea SLC-5/03 PLC data to MDS radio cable
 - 1ea PLC to radio data interface cable assembly
 - 2ea 1/2" heliax N cable terminations
 - 2ea 3' lightning protector 1/2" coaxial cable assembly
 - 2A. control panel to be intelligenter MCC with devicenet E-3 plus overloed relays for pump control.

GENERAL NOTES

- Install 1" water service, meter and R.P. backflow preventer (Standard Detail 5-116).
- Provide access for large service vehicles.
- Switched lighting shall be installed.
- An appropriate shade structure shall be constructed over the control panel.
- W.P.C.F. SCADA/RTU connections required when lift station is to be used for sanitary sewer.
- Provide 120V GFI protected convenience outlet.
- Provide "Caterpillar" diesel (or approved equal) emergency generator size to max. pumping and control needs.
- Precast concrete manholes shall have a PVC T-Lock liner, sealed gas tight, as manufactured by Ameron (or approved equal). Liner and interior surfaces shall be spark tested (applies only to sanitary sewer manholes see Arizona Administrative Code R18-9-E 301 D.3.e Manholes General Permit: Sewage Collection Systems pertaining to Holiday testing).
- Pump controller shall be "Miltroic Hydro Ranger" in conjunction with "Allen Bradley SLC-500".
- Seal all conduit coming from lift station to junction boxes and control panels with duct seal to prevent migration of gas.
- Adjacent properties shall determine the placement of access gates to the site. Gates shall have a minimum 20' wide double swing.
- All valves and check valves shall be installed above ground.
- Any and all hardware/bracing inside lift station shall be manufactured of Type 316 SST.
- Lift stations equipped with pumps 20HP or less at the inlet shall be supplied with a SST strainer baskets to ride on SST guides. A winch type swingline hoist shall be installed to facilitate basket removal.
- A soils report prepared by a registered geo-technical engineer shall be submitted to the City Engineer prior to the construction of the lift station. This report shall be used to design the wetwell structure including recommendations for protection from corrosive soils and anchoring if constructed in high ground water conditions.
- The control panel shall contain properly sized automatic transfer switch for the emergency generator.
- Flow meter to be located next to electronic panels under shaded structure.

ELECTRICAL UTILITY CO.	
ARIZONA PUBLIC SERVICE	
6700 E. 30th Street	
YUMA, ARIZONA 85365	

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Sheet 2 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-050

SANITARY SEWER LIFT STATION

1. ____ with Mx-Flush valve.
2. Aluminum hatch cover 48"x36" clear opening embedded in concrete curb.
3. Lifting cable attachment per pump manufacturer (316 SST).
4. Intermediate guide bar per pump manufacturer (316 SST).
5. Pump anchor bolts per manufacturer (316 SST).
6. Guide bar brackets per pump manufacturer (316 SST).
7. Inlet pipe with shut-off valve.
8. Electric conduits - size per manufacturers recommendation.
9. 6-inch vent pipe per Detail No. 2 on Sheet 2 of 2 (316 SST).
10. U-shaped cable hanger made from 1/2" 316 SST pipe (incl. straps)
11. 6-inch Flanged Spool (DIP).
12. 6-inch flanged 90-degree EI (DIP-long radius).
13. 6-inch flanged 45-degree bend (DIP).
14. 6-inch coupling with harness Per AWWA M-11 & FLGxPE Joints.
15. 6-inch flanged check valve with indicator arm.
16. 6-inch flanged gate valve with outside rising stem and wheel.
17. 6-inch x 6-inch flanged L.R. 90-degree elbow (DIP).
18. 6-inch x 6-inch x 6-inch cross (DIP).
19. 2-inch diameter air release valve (APCO Model 403 or apv. equal).
20. Pipe support per Detail No. 3 on Sheet 2 of 2.
21. 6-inch 45-degree elbow with thrust block and P.V.C. adaptor.
22. 72-inch (inside diameter) RGRCP Class 4 structure with base and cover (or approved equal).
23. Pipe sway brace per Detail No. 1.
24. Sanitary sewer lift stations shall have T-Lock liners installed.
25. Blind flange.
26. 1/4" rubber tube.
27. 5" x 24" sch. 40 PVC pipe poured in place for "Millitronics" sensor.



NOTE: CONTRACTOR SHALL USE EPOXY COATED AND LINED DUCTILE IRON PIPE AND FITTINGS. PIPE SHALL BE FLANGED AND MEET ALL CONTRACT SPECIFICATIONS.



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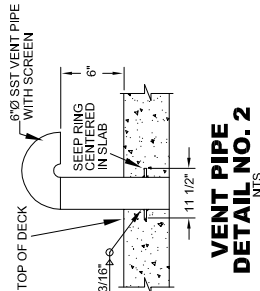
SHEET 1 OF 2

CITY OF YUMA

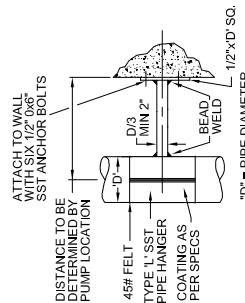
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-051

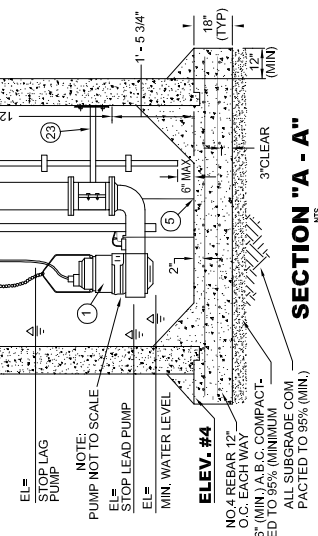
STORM SEWER LIFT STATION



**VENT PIPE
DETAIL NO. 2**
NTS

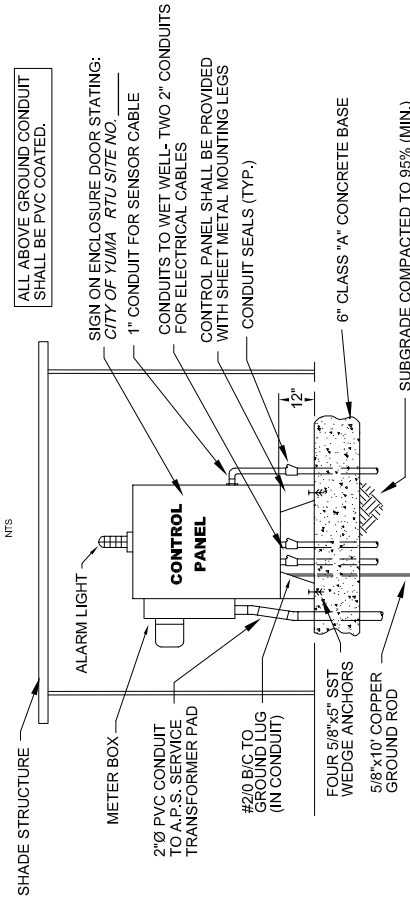


**PIPE SWAY BRACE
DETAIL NO. 1**
NTS

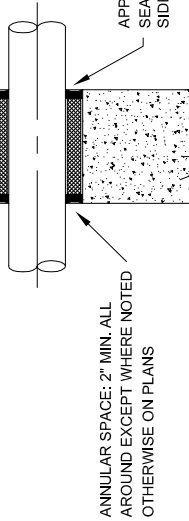


SECTION "A - A"

CONTROL PANEL ELEVATION

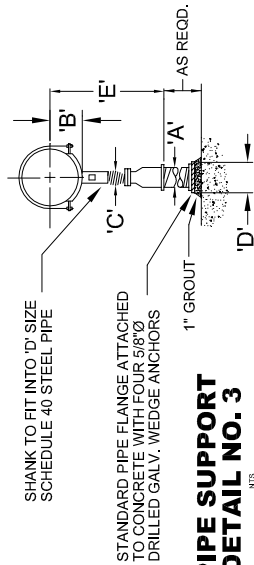


PACK TIGHT LAYERS OF EX- PANDED POLYETHYLENE OR POLYURETHANE ROPE TYPE FILLER



WALL PENETRATION SEAL DETAIL

N.T.S.



PIPE SUPPORT DETAIL NO. 3

N.T.S.

NUMBER REQUIRED	SUPPORTED PIPE SIZE	'A'	'B'	'C'	'D'	'E'
						MIN. MAX.
SIX	6"	3"	5 7/8"	2.5"	11 3/4"	10 3/4" 14 1/2"

SEWAGE LIFT STATION RTU COMPONENTS

- Allen Bradley IntelliCENTER with DeviceNet.
1ea 4 Slot Rack; 1746-A4
1ea Power Supply; 1746-P2
1ea Processor Unit; 1747-L532 Ser: E
1ea Device Net; 1747 SDN
1ea Analog Input; 1746-NI8
1ea Device Net Starter Aux.; 100 DNY 42 R
- Hoffman A-604810LP outdoor rated enclosure or approved equal
- Surge suppresser:
1ea "Poly Phaser IS-50NX-C2" series or approved equal
1ea Lightning ground protection grid
- All electrical components shall be of a type/manufacture that is supported locally (Allen-Bradley, Cutler-Hammer or approved equal.
- Antenna support:
Antenna must be attached in a firm and fixed position with 'line of sight' between antennas. The City's repeater is located atop the elevated water storage tank adjacent to the Yuma Civic & Convention Center.
Power supply: 120VAC with double AC circuit breaker
Documentation:
Three sets of wiring diagrams for the lift station and RTU; three sets of Operation and Maintenance manuals.
Monitoring and functions to be provided:
Pump #1 and Pump #2:
Hand, Off, Auto, Thermal Overloads, MAG/Starter Confirm Energized, Loss of Electrical Power (APS), Generator On, Generator Failure, High Level & Low Level Float and AMP Meters for each pump.
Analog functions (Pump #1 and Pump #2):
L1, L2, L3, Flow Meter, APS / Generator voltage, Ultra Sonic Level (4-20ma)

GENERAL NOTES

- Install 1" water service & meter and R.P. backflow preventer (Standard Detail 5-116).
- Provide access for large service vehicles.
- Switched lighting shall be installed.
- An appropriate shade structure shall be constructed over the control panel.
- W.P.C.F. SCADA/RTU connections required when pump stations are to be used for sanitary sewer.
- Provide 120VAC GFI protected convenience outlet.
- Provide "Generex" diesel (or approved equal) emergency generator.
- Pump controller shall be "Milttronics Hydro Ranger" in conjunction with "Allen Bradley SLC-500".
- Seal all conduit coming from lift station to junction boxes/control panels with duct seal to prevent the migration of gas.
- Adjacent properties shall determine the placement of access gates to the site. Gates shall be double swing and have a minimum width of 20'.
- All valves and check valves shall be installed above ground.
- All hardware and bracing inside the lift station shall be manufactured of Type 316 SST.
- Lift stations equipped with pumps 20HP or less at the inlet shall be supplied with SST strainer baskets to ride on SST guides. A "winch type" swingline hoist shall be installed to facilitate basket removal.
- A soils report prepared by a registered geotechnical engineer shall be submitted to the City Engineer prior to the construction of the lift station. This report shall be used to design the wetwell structure including recommendations for protection from corrosive soils and anchoring if constructed in high ground water conditions.
- The control panel shall contain a properly sized automatic transfer switch for the emergency generator.

ELECTRICAL UTILITY CO.
ARIZONA PUBLIC SERVICE
128 WEST 32nd STREET
YUMA, ARIZONA 85564

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SHEET 2 OF 2

CITY OF YUMA

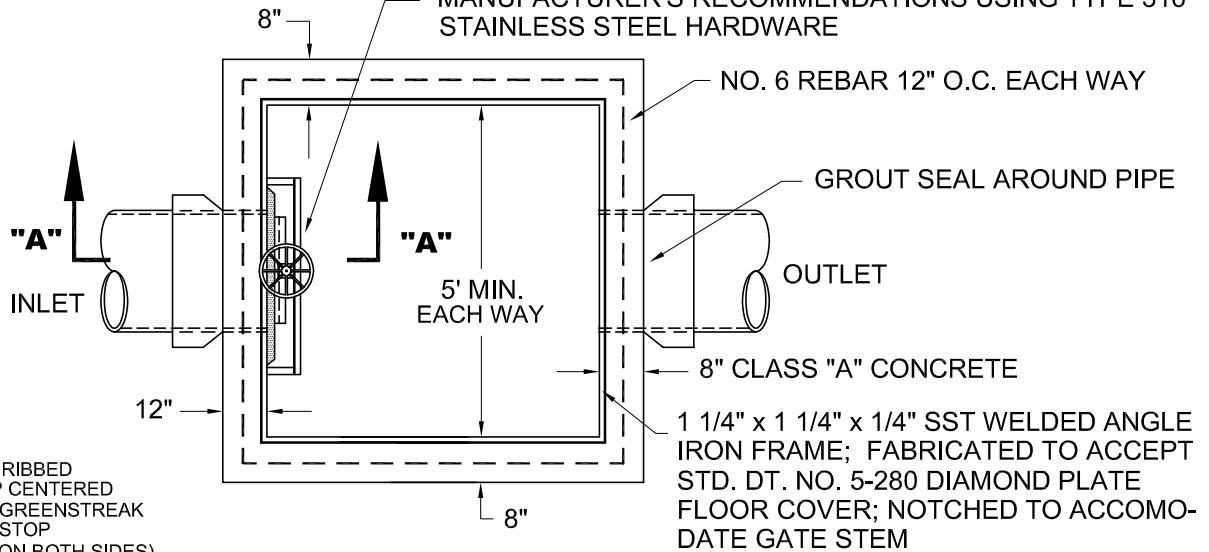
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-051

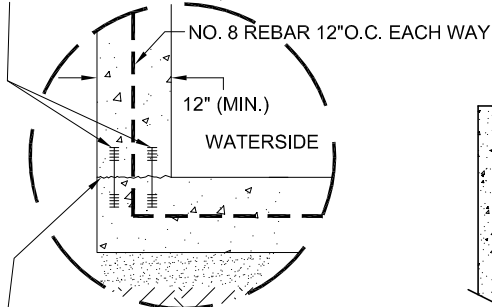
STORM SEWER LIFT STATION

STD.DT. 5-280 DIAMOND PLATE
COVER NOT SHOWN IN THIS VIEW

NEW WATERMAN MOD. C-10F SERIES FLAT BACK IRRIGATION
GATE WITH LOCK MOUNT TO WELL WALL AS PER
MANUFACTURER'S RECOMMENDATIONS USING TYPE 316
STAINLESS STEEL HARDWARE

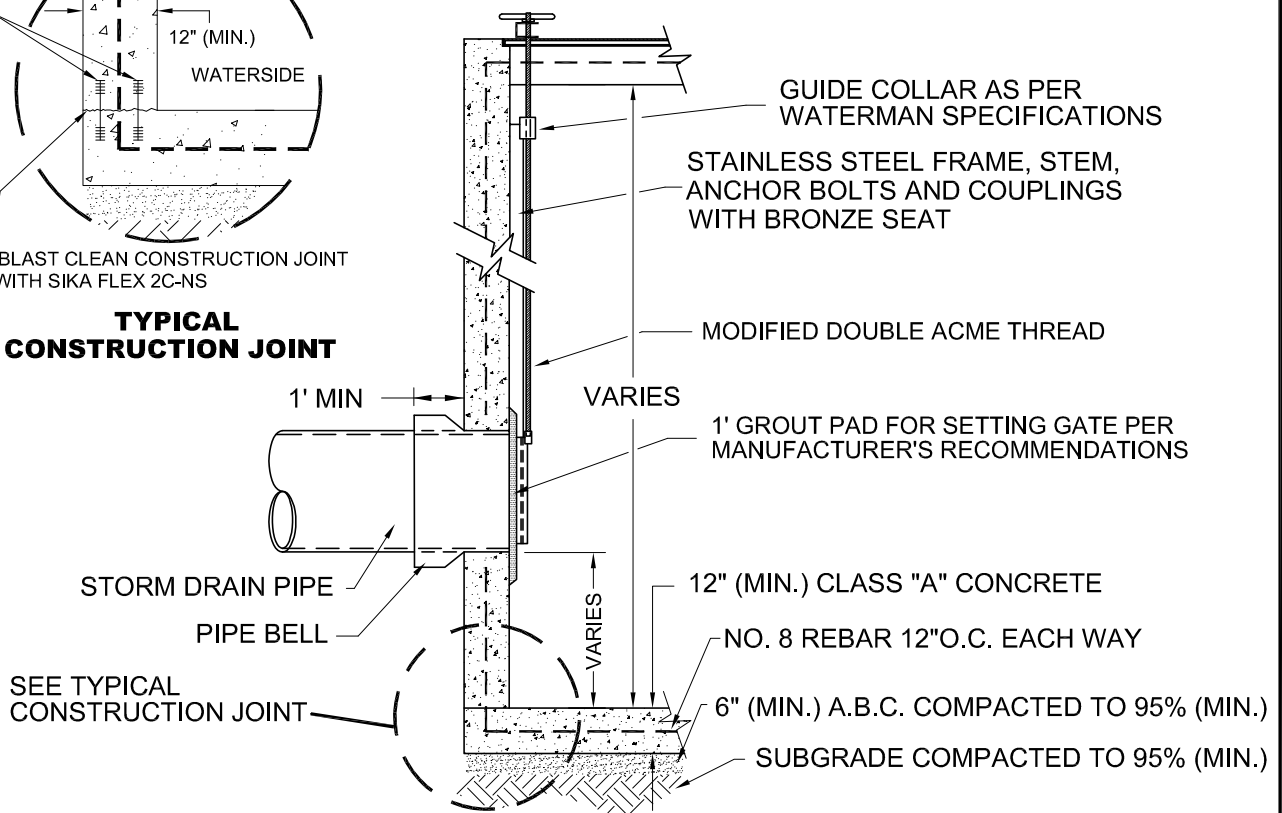


6" PVC FLAT RIBBED
WATERSTOP CENTERED
ON JOINT 6" GREENSTREAK
#782 WATERSTOP
(INSTALLED ON BOTH SIDES)



SAND BLAST CLEAN CONSTRUCTION JOINT
SEAL WITH SIKAFLEX 2C-NS

TYPICAL CONSTRUCTION JOINT



SECTION "A - A"

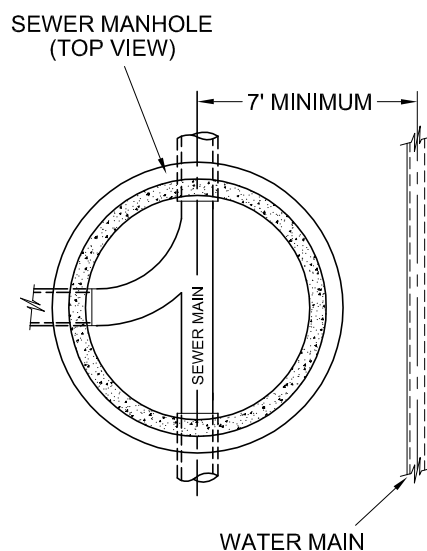
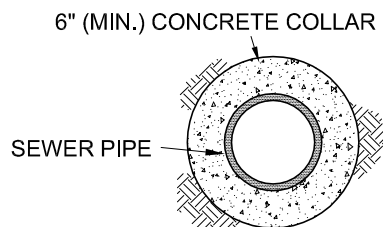
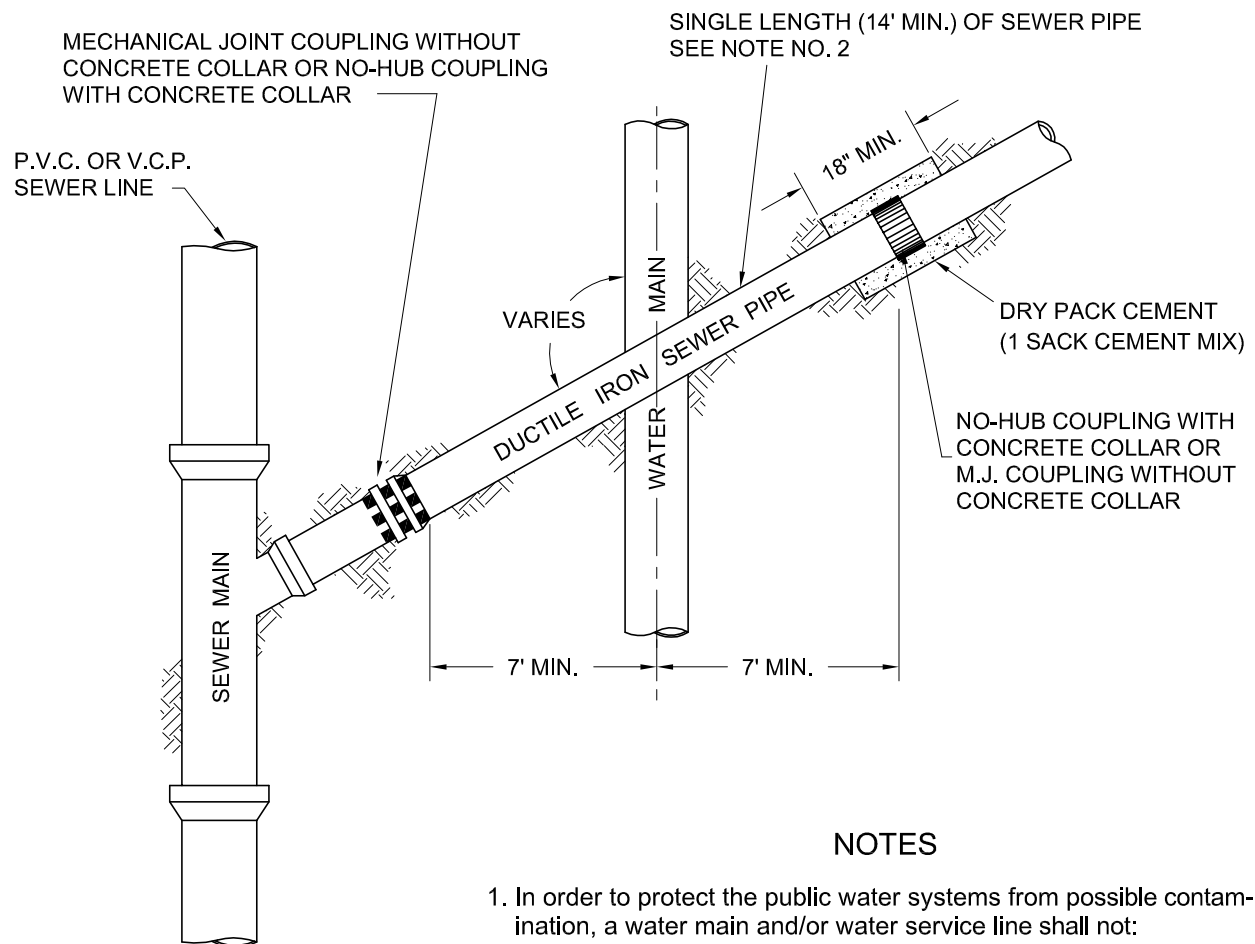
NOTES

1. Backfill used to fill structure excavation shall be a one sack cement per cubic yard of sand slurry mix.
2. An asphalt waterproof seal shall be applied to the exterior surfaces that will be exposed to groundwater.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-052 STORMWATER WELL GATE DETAIL



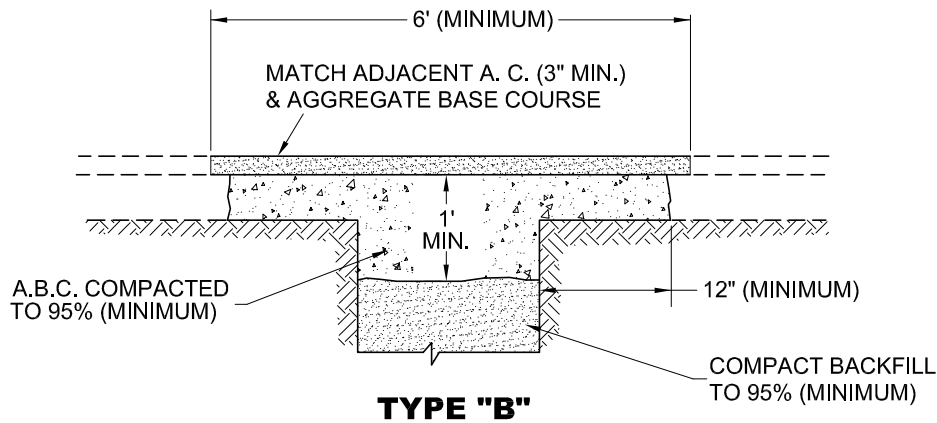
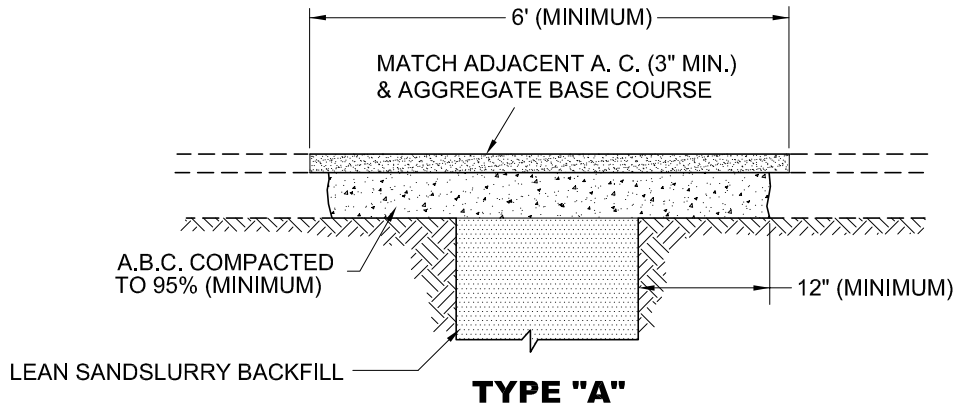
NOTES

1. In order to protect the public water systems from possible contamination, a water main and/or water service line shall not:
 - A. Infringe upon an area which is seven (7) feet of either side of a sewer manhole, sewer main or sewer service and shall be below, at the same level as or less than two (2) feet above the top of the sewer line unless extra protection is provided. Extra protection shall consist of constructing the sewer main with mechanical joint ductile iron pipe or with approved no-hub joints encased in a minimum of 6" thick and 18" long concrete collar centered on the joint.
 - B. Under any circumstances, infringe upon an area which is two (2) feet of either side or two feet below the sewer line.
2. All new ductile iron pipe shall be no lighter than Class 51 "Sewper Coat" or Pacific States "Protecto 401". Any other brand of D.I.P. shall have an interior coating of fusion bonded epoxy (60 mils thick minimum) and pipe must be approved by the City Engineer before use.
3. All ferrous fittings, pipe, connectors and appurtenances shall receive a 10mil (minimum) polyethylene wrap to prevent direct contact with soil.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-060
TYPICAL
WATER & SEWER CROSSINGS



NOTES

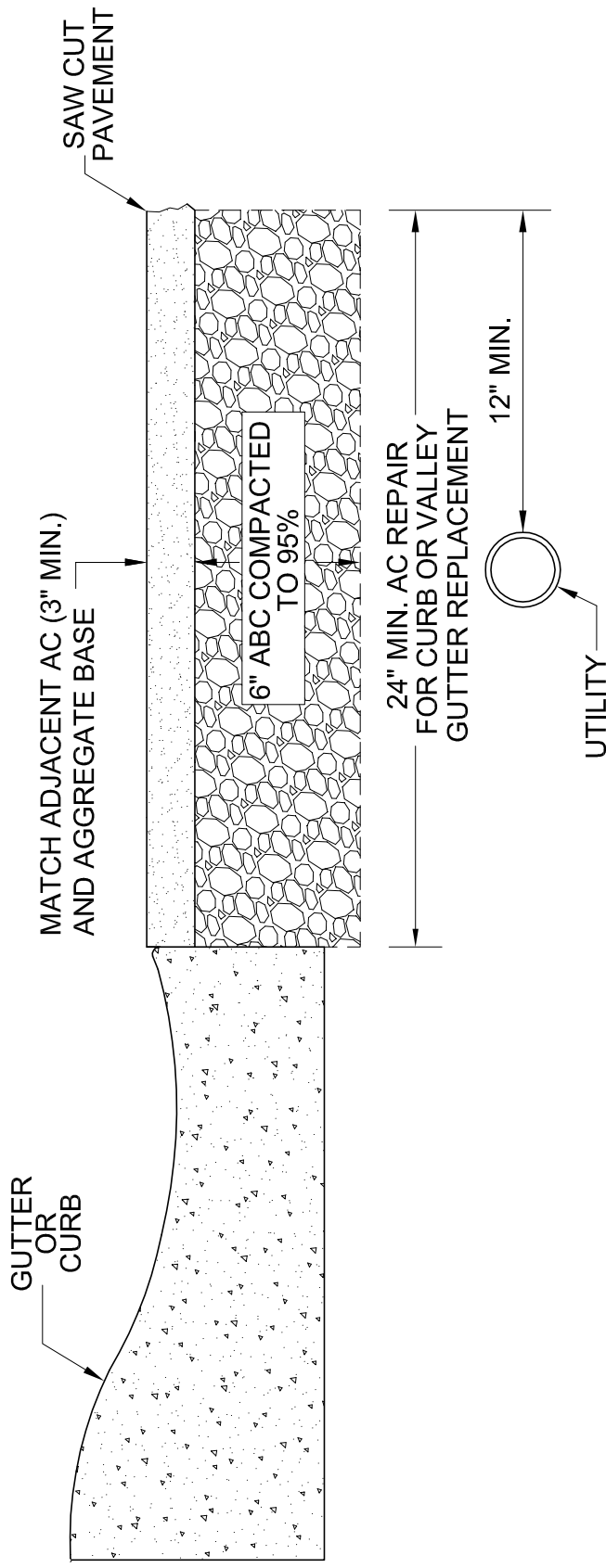
1. This detail is to be used for trench backfill and pavement replacement.
2. All cut edges shall be sawcut to a true regular line and free of all foreign matter.
3. Edges of asphalt pavement shall be painted with emulsified asphalt or hot asphalt before permanent repair material is placed.
4. Type "B" repairs will not be permitted without prior approval of the City Engineer.
5. Asphaltic concrete for pavement repairs shall meet or be equivalent to requirements of the latest Standard Specification published by the City of Yuma.
6. Pavement replacement in State highways or County highways shall be in accordance with ADOT and/or Yuma County requirements.
7. Lean sand slurry shall consist of one sack of cement per cubic yard of clean sand.
8. All trenches shall be cold-patched if left open to traffic prior to hot-mix paving. All trenches shall be hot-mix paved within two (2) weeks from its excavation.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-070
PAVEMENT REPLACEMENT

COY STANDARD FOR A.C. PATCH ADJACENT TO CURB OR VALLEY GUTTER



NOTE

1. DETAIL TO BE USED WHEN UTILITY PLACEMENT IS WITHIN 3' OF LIP OF GUTTER/VALLEY GUTTER

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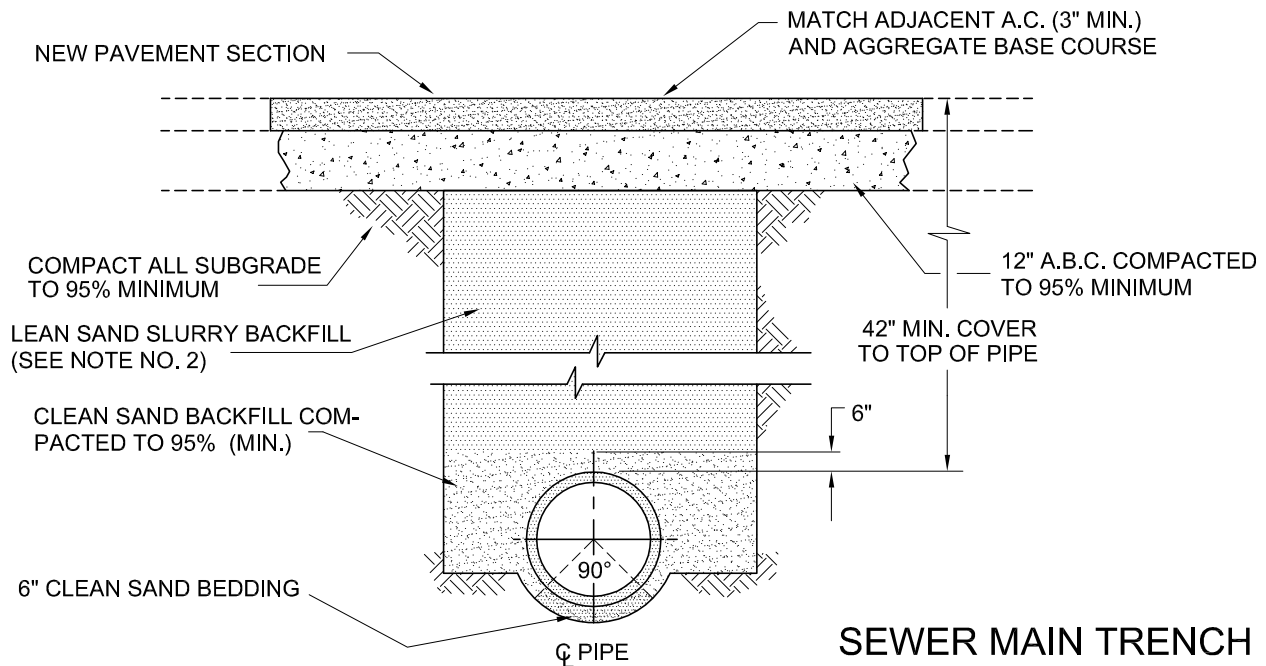
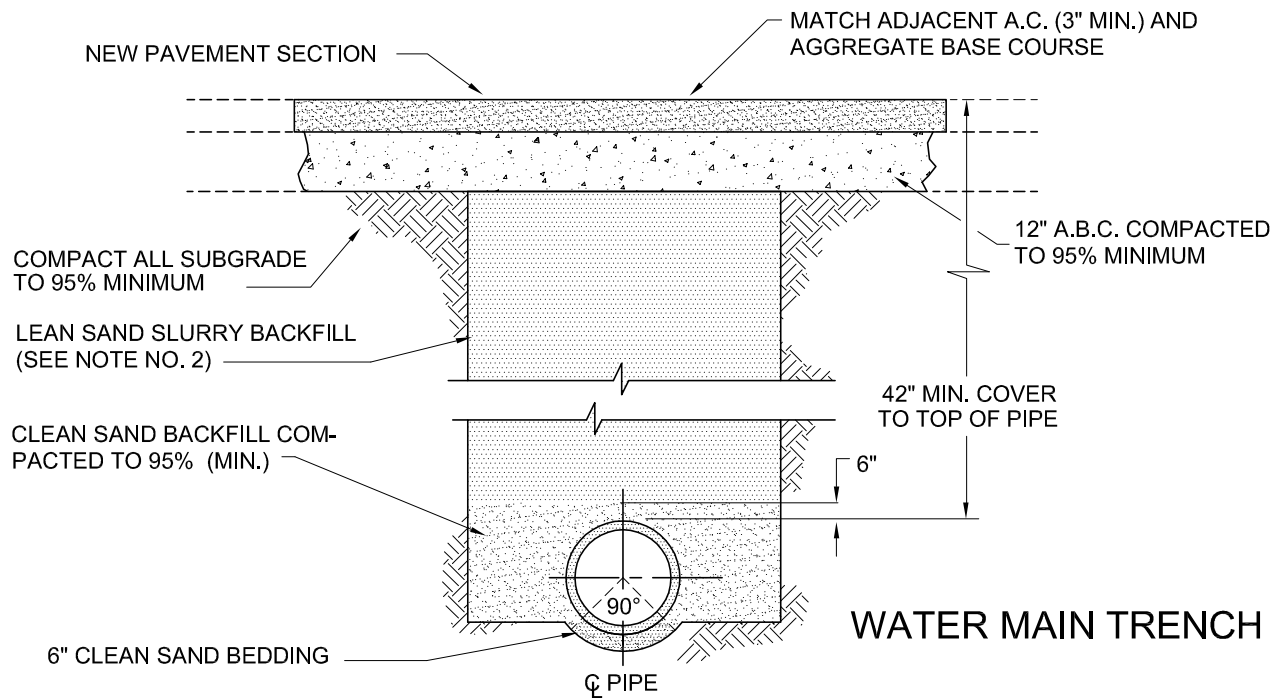
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-075

PAVEMENT REPAIR

**LONGITUDINAL UTILITY CUT
NEXT TO CURB OR GUTTER**



NOTES

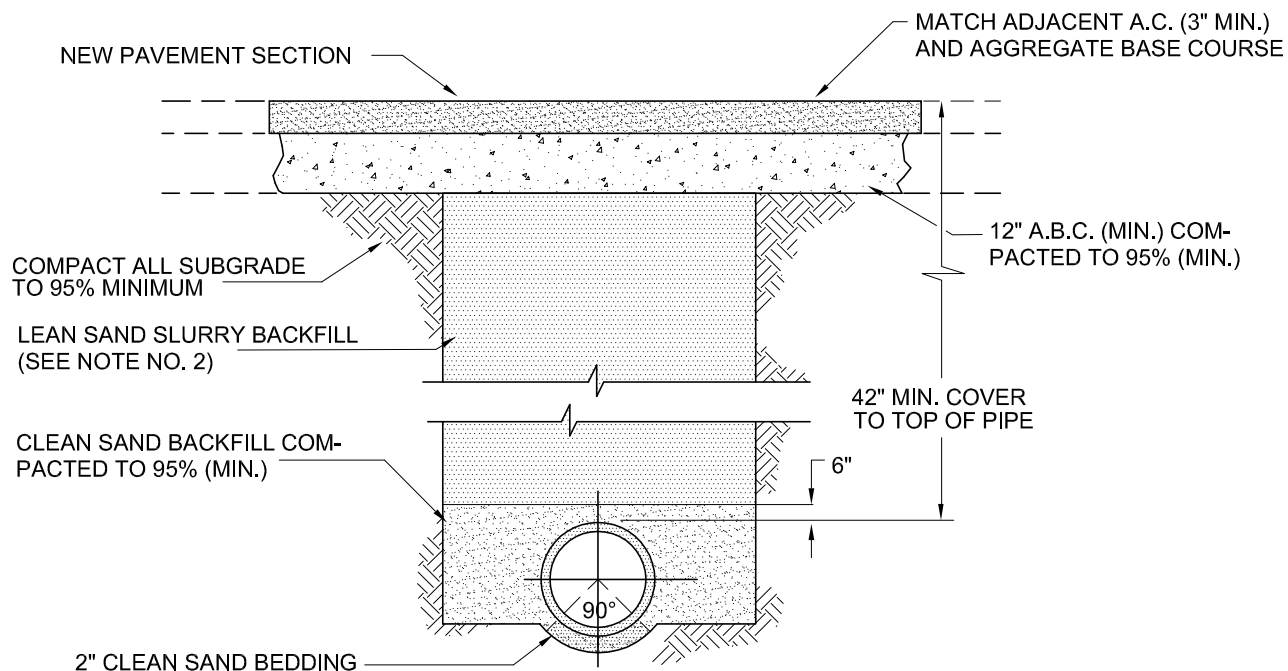
1. Native soil may be used for backfill when approved by the City Engineer.
2. Lean sand slurry shall consist of one sack of cement per cubic yard of clean sand.
3. Bedding shown is a minimum standard for shallow trenches and acceptable native base. Exact type of bedding shall be determined by the City Engineer.
4. Ditch sides shall be sloped or shored as required per O.S.H.A. standards.
5. All trenches shall be cold-patched if left open to traffic. All trenches shall be hot-mix paved within two (2) weeks of its excavation.

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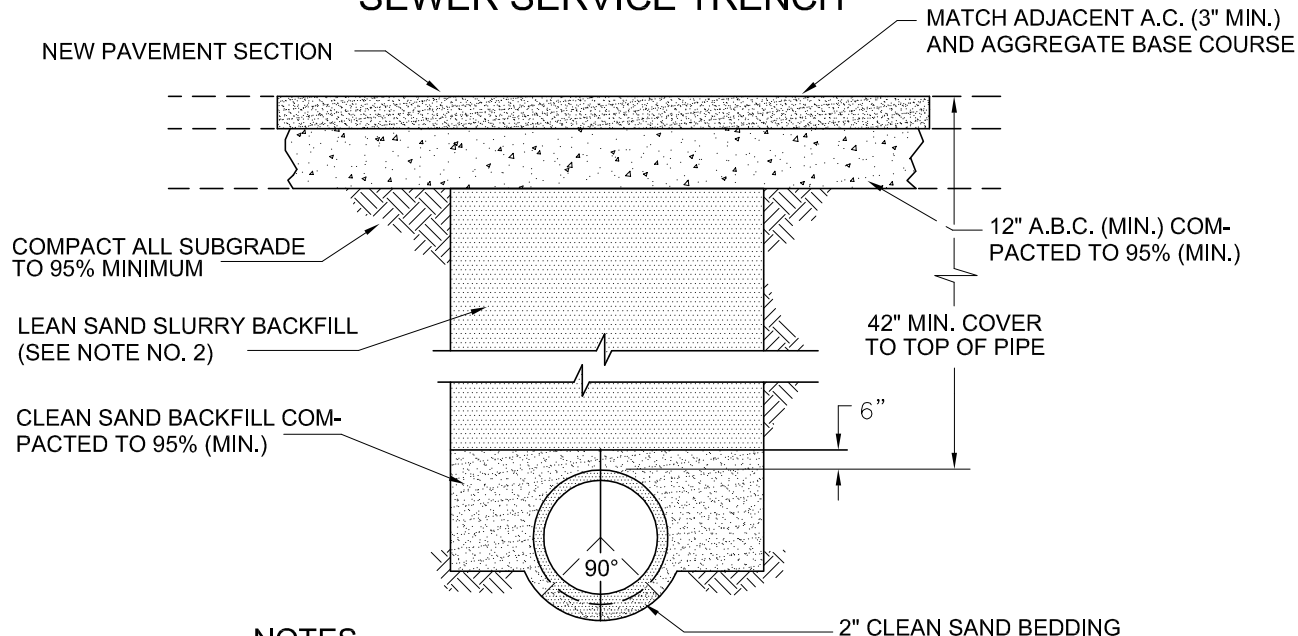
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-080 TYPICAL WATER & SEWER MAIN TRENCH BACKFILL

WATER SERVICE TRENCH



SEWER SERVICE TRENCH

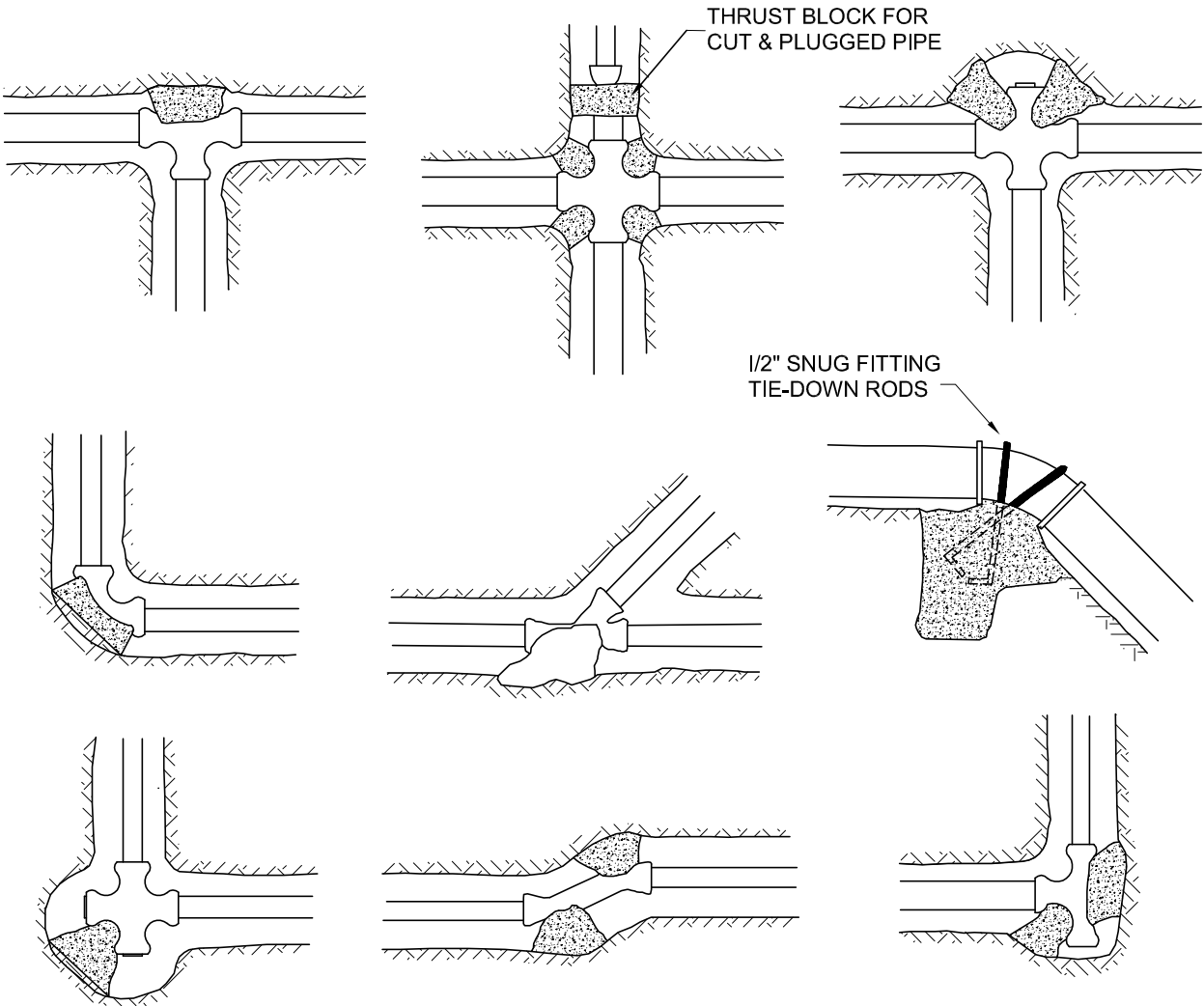


NOTES

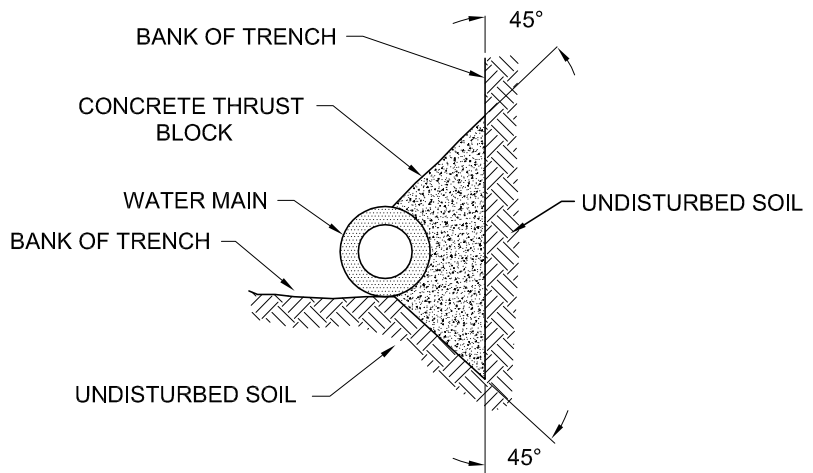
1. Native soil may be used for backfill when approved by the City Engineer.
2. Lean sand slurry shall consist of one sack of cement per cubic yard of clean sand.
3. Bedding shown is a minimum standard for shallow trenches and acceptable native base. Exact type of bedding shall be determined by the City Engineer.
4. Ditch sides shall be sloped or shored as required per O.S.H.A. standards.
5. All trenches shall be cold-patched if left open to traffic. All trenches shall be hot-mix paved within two (2) weeks of its excavation.
6. Minimum cover for service line is 24.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-081
TYPICAL WATER & SEWER
SERVICE LINE
TRENCH BACKFILL



TYPICAL SECTION



NOTES

1. See Standard Detail 5-100 for calculating safe bearing areas.
2. All ferrous fittings, pipe, connectors and appurtenances shall receive a 10mil (minimum) polyethylene wrap to prevent direct contact with the soil.
3. Thrust blocks shall consist of Class "B" concrete.
4. Concrete shall not come in direct contact with pipe.
5. 316-stainless steel tie-down rods required for pipe larger than 8".
6. Place a minimum of 8" concrete under all fittings.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-090
TYPICAL
THRUST BLOCK INSTALLATION

THRUST AT FITTINGS IN POUNDS
AT 150 POUNDS PER SQUARE INCH OF WATER PRESSURE
ALL PIPE & FITTINGS SHALL BE CLASS 150 (MINIMUM)

Size	Tee's & Dead Ends	90° Bend	45° Bend	22 1/2" Bend	Per Degrees of Deflection
2"	1,740	2,460	1,335	675	30.3
4"	2,715	3,840	2,085	1,065	47.3
6"	5,625	7,950	4,320	2,190	98.3
8"	9,780	13,800	7,500	3,795	171.0
10"	16,050	22,650	12,300	6,225	280.5
12"	22,800	32,250	17,550	8,850	399.0
14"	31,050	42,300	23,850	12,075	543.0
16"	40,200	57,000	30,750	15,600	705.0

Soil	Safe Bearing Load Pounds Per Square Inch
MUCK, PEAT, ETC.	0
SOFT CLAY	1000
SAND	2000
SAND & GRAVEL	3000
SAND & GRAVEL CEMENTED WITH CLAY	4000

TO CALCULATE THE NEEDED AREA OF A THRUST BLOCK

Divide thrust by safe bearing load. Note: Thrust block area for 6" and larger pipe shall not be less than three (3) square feet in size.

NOTES

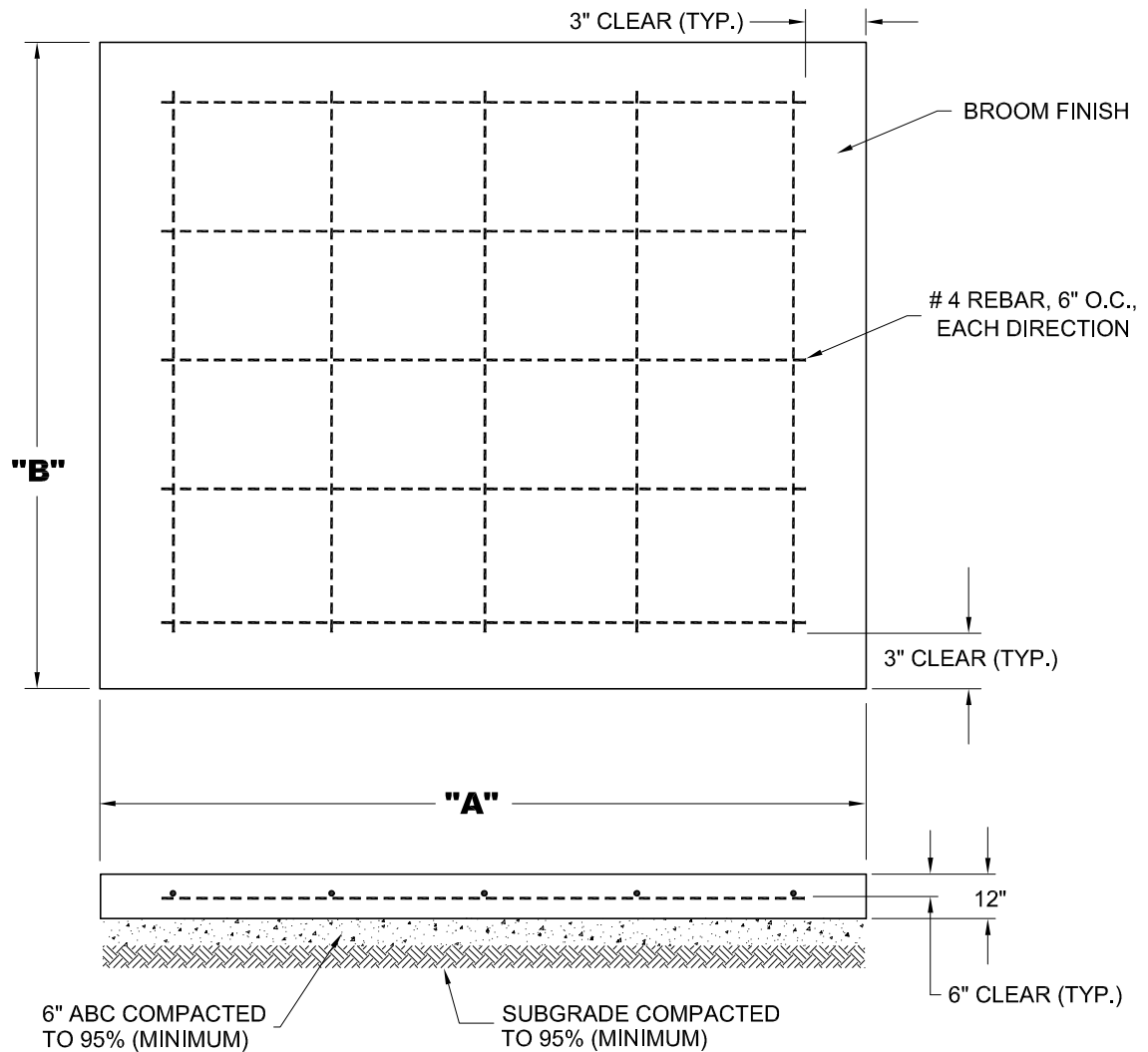
1. All domestic pipe and fittings shall be Class 150 (minimum) unless otherwise noted.
2. All private fire suppression pipe shall have a minimum class of 150 (P.S.I.).
3. Thrust block area will be determined by soil tests for pipe greater in size than 16".
4. Concrete shall not come in direct contact with pipe.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-100
THRUST BLOCK DATA

CONCRETE SLAB



A = 20" for 20" valve
 A = 24" for 24" valve
 A = 30" for 30" valve
 A = 36" for 36" valve

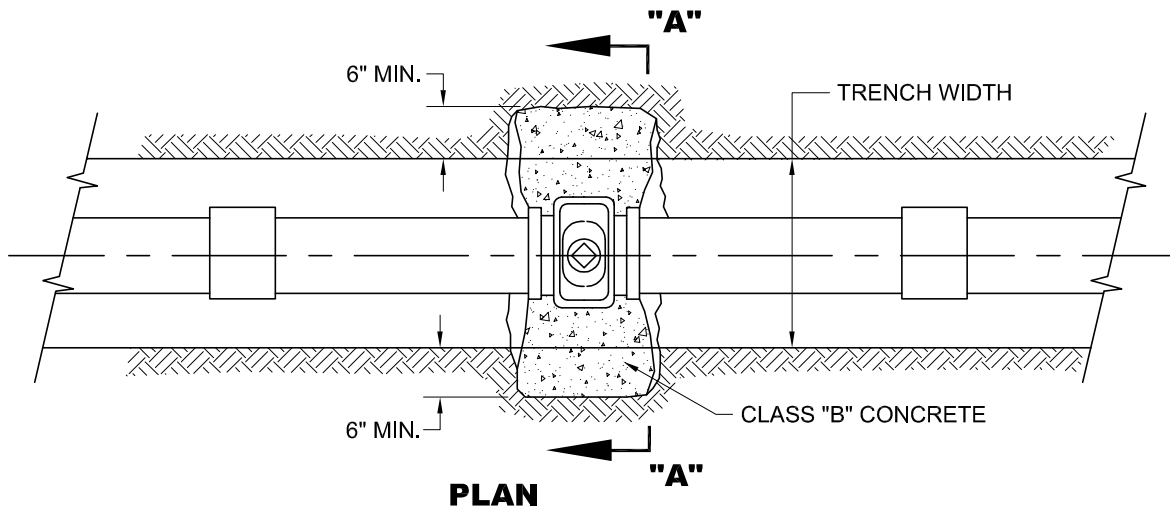
B = 20" for 20" valve
 B = 24" for 24" valve
 B = 30" for 30" valve
 B = 36" for 36" valve

NOTES

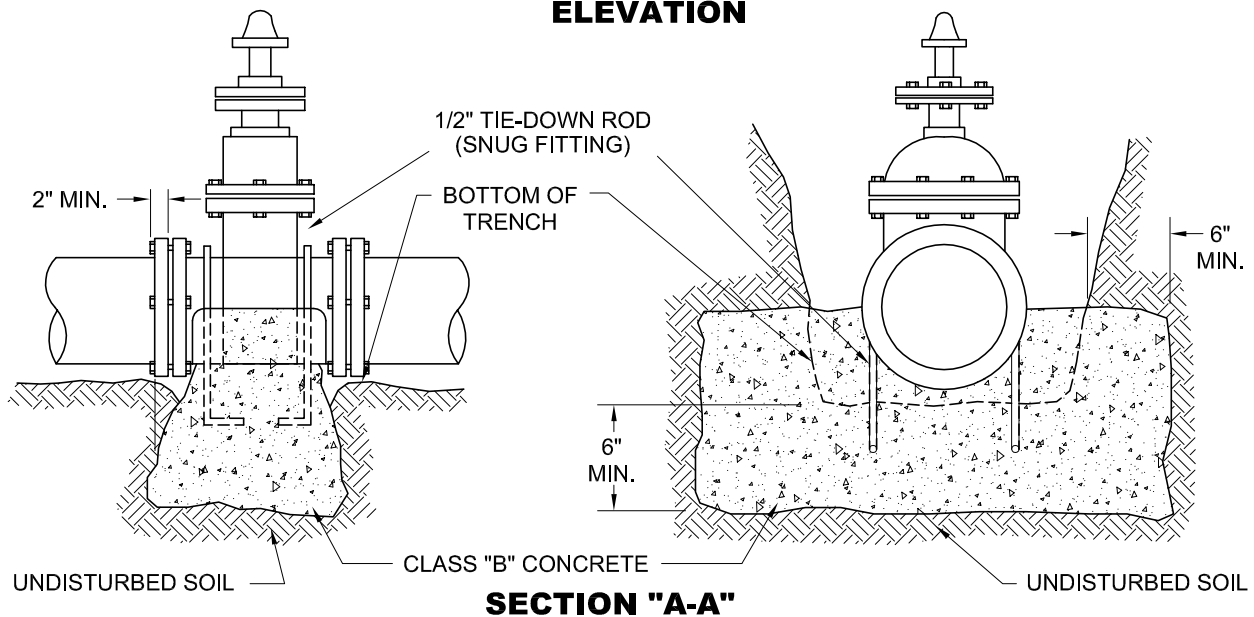
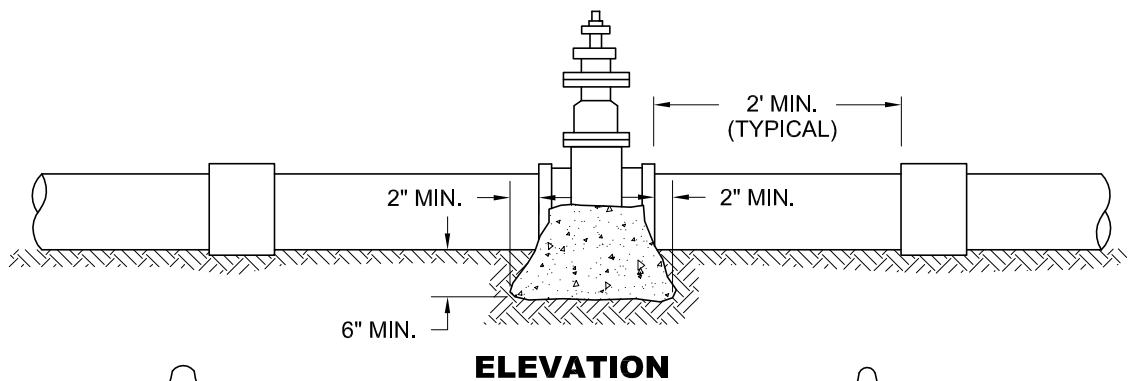
- Slab constructed from Class "A" concrete.

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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-101
CONCRETE BASE FOR VALVES
20" AND LARGER



REFER TO STANDARD DETAIL 5-101 FOR VALVES 20" AND LARGER



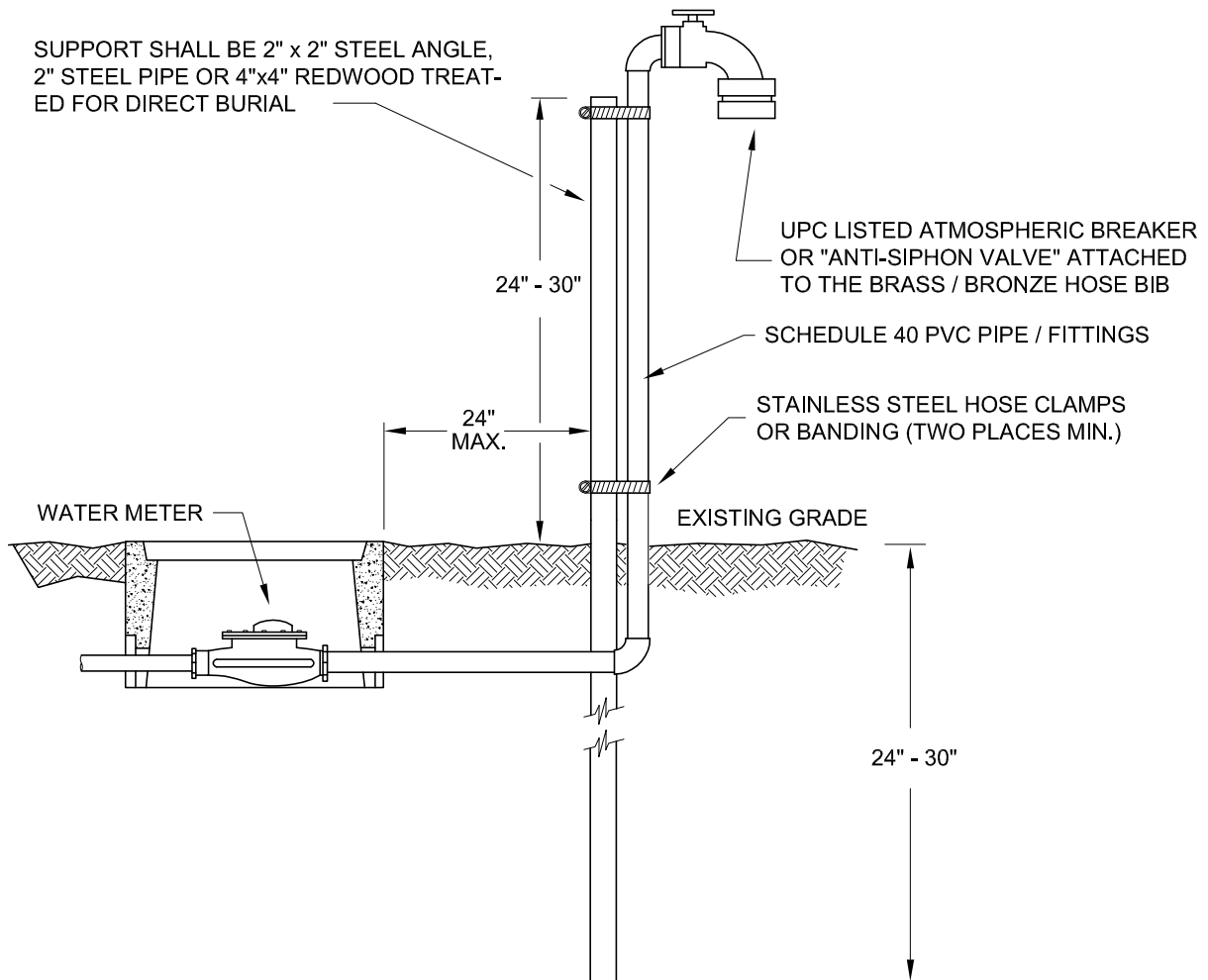
NOTES

1. This detail covers water valves 4" or larger.
2. All buried iron and ferrous fittings shall receive a 10mil (minimum) polyethelene plastic wrap to prevent direct contact with soil.
3. Tie-down rods required for pipes larger than 8".
4. Concrete shall not come into contact with water bipe.
5. Refer to Standard Detail 5-101 for valves twenty inch (20") and larger.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-110
VALVE ANCHORS



NOTES

1. This configuration shall be used until a permanent water service line is constructed from the water meter to the structure to be served.
2. In no case shall a water meter be allowed to remain in a location where the possibility of contamination could occur to the City's potable water system.

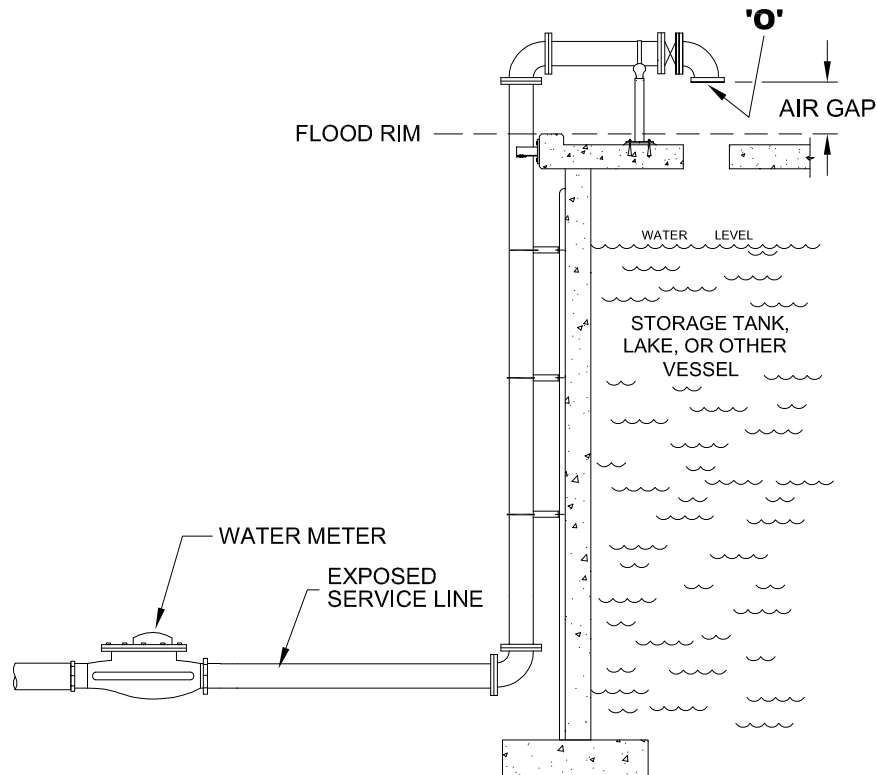
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-112

**TEMPORARY CONSTRUCTION
ANTI-BACKFLOW ASSEMBLY**

For additional information contact the City of Yuma
Pretreatment Section at (928)373-4544.



NOTES

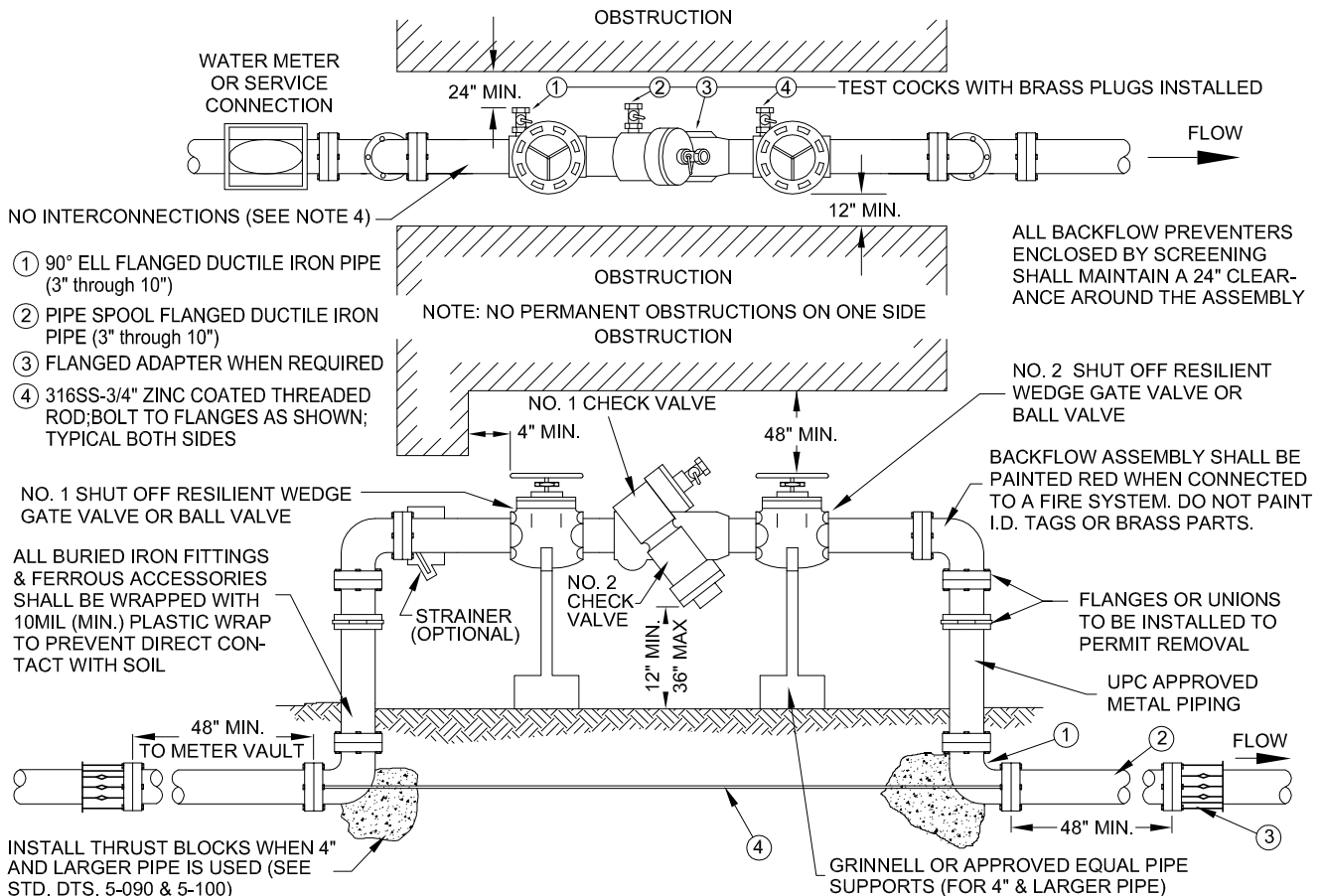
1. The prevention of backflow in a potable water supply system is necessary to prevent contamination or pollution of the water supply. Prevention is accomplished by the use of air-gap separations or mechanical backflow prevention assemblies. Air-gap separations and backflow prevention assemblies shall be installed according to current City of Yuma Construction Standard Detail Drawings and written Specifications to assure the protection of the public water supply system.
2. An air gap is not generally utilized for water service line protection since all supply pressure is lost. A water service line to a lake, tank or other vessel is generally where an air gap assembly is used. However, for service protection, another deterrent is that all piping to the air gap must remain exposed.
3. The minimum required air-gap separation shall be measured vertically from the lowest end of the potable water outlet to the flood rim of the receptacle into which the potable water discharges. This air-gap distance shall be a minimum of twice the effective opening ('O') of the potable water outlet but not less than one inch (1").
4. There shall not be any provisions for extending the fixture below the flood level rim. If the end of the potable water pipe or fixture outlet is threaded or allows for any type of extension by any means, a properly installed and approved backflow preventer shall be installed.
5. The opening of the air gap device ('O') may be screened or shielded with an appropriate perforated material for protection.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-113
AIR GAP SEPARATION
BACKFLOW PREVENTION

For additional information contact the City of Yuma
Pretreatment Section at (928)373-4544.



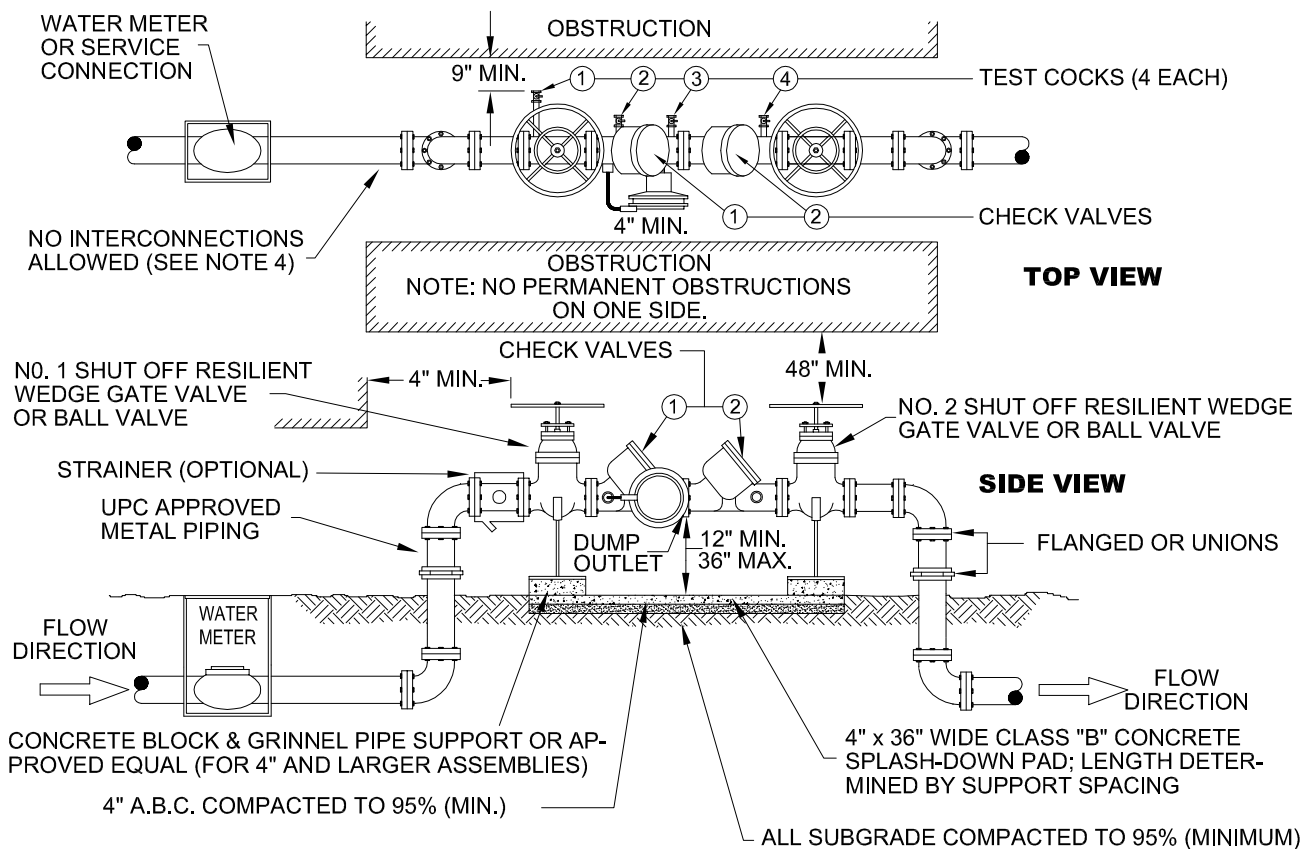
NOTES

1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. A list of approved backflow assemblies are available from the City of Yuma, Utilities Department Pretreatment Section, located at 155 W. 14th Street.
3. The D.C.V.A. shall be installed outside, above ground, as close to the water meter as possible. The D.C.V.A. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements. Tamperproof switches may be required on fire backflow assemblies.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. Approval from the City of Yuma Fire Marshal is required before any backflow assembly is connected to any fire system.
11. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
12. The installation of a backflow assembly may create a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-115
DOUBLE CHECK VALVE (D.C.V.A.)
BACKFLOW PREVENTION ASSEMBLY
4" AND LARGER WATER LINE

For additional information contact the City of Yuma Pretreatment Section at (928)373-4544.



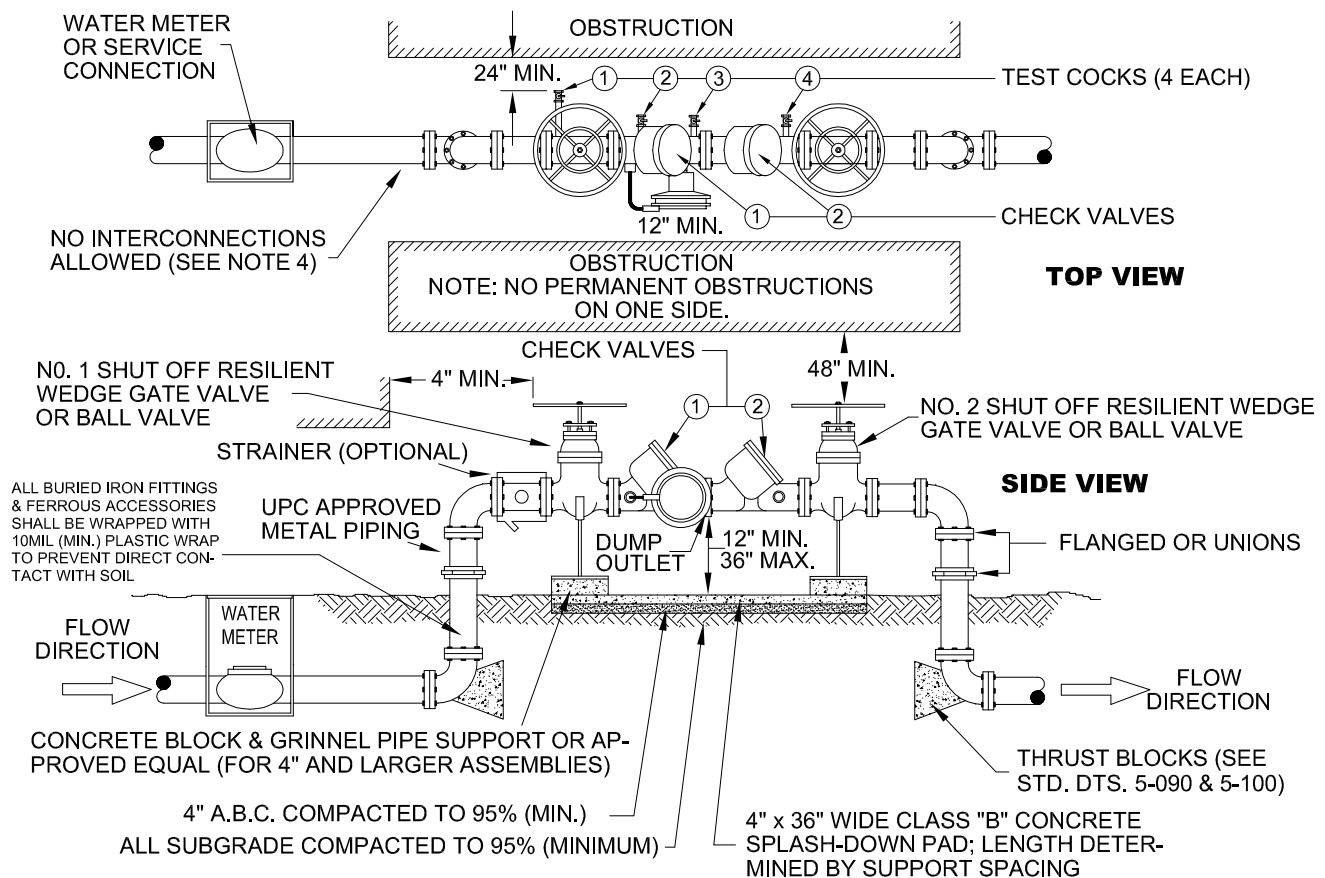
NOTES

1. A PERMIT IS REQUIRED BEFORE INSTALLING OR REPLACING A BACKFLOW ASSEMBLY. PERMITS ARE OBTAINED AT DEPARTMENT OF COMMUNITY DEVELOPMENT, 3 WEST 3RD STREET.
2. A LIST OF APPROVED BACKFLOW ASSEMBLIES ARE AVAILABLE FROM THE CITY OF YUMA, DEPARTMENT OF PUBLIC WORKS, PRETREATMENT SECTION, LOCATED AT 155 WEST 14TH STREET.
3. THE R.P.A. SHALL BE INSTALLED OUTSIDE, ABOVE GROUND, AS CLOSE TO THE WATER METER AS POSSIBLE AND ON PRIVATE PROPERTY UNLESS OTHERWISE AUTHORIZED.
4. THERE SHALL BE NO OTHER PIPING CONNECTED TO THE PIPING BETWEEN THE METER AND THE BACKFLOW ASSEMBLY EXCEPT FOR PARALLEL ASSEMBLY INSTALLATIONS.
5. INSTALLATIONS SHALL MEET CURRENT UNIFORM PLUMBING CODES IN ADDITION TO CITY OF YUMA BUILDING CODES.
6. INSTALLATIONS SHALL BE LEFT EXPOSED UNTIL INSPECTED AND APPROVED BY THE CITY OF YUMA.
7. IF THIS UNIT IS INSTALLED TO SERVICE A RETENTION BASIN, THIS UNIT SHALL BE PLACED A MINIMUM 12" (36" MAXIMUM) ABOVE THE FLOOD RIM OF THE RETENTION BASIN.
8. PROTECTIVE CAGES ARE OPTIONAL AND WILL MEET CLEARANCE, ACCESS AND DRAINAGE REQUIREMENTS.
9. IT IS RECOMMENDED THAT BACKFLOW ASSEMBLIES BE PROTECTED FROM THE ELEMENTS. CARE SHALL BE TAKEN TO ENSURE THAT THE PROTECTION DOES NOT HINDER THE ASSEMBLY'S OPERATION.
10. APPROVAL FROM THE CITY OF YUMA'S FIRE MARSHAL IS REQUIRED BEFORE ANY BACKFLOW ASSEMBLY IS CONNECTED TO ANY FIRE SYSTEM. R.P.A. SHALL BE PAINTED RED WHEN USED WITH A FIRE SYSTEM.
11. ALL BACKFLOW UNITS ARE TO BE TESTED BY A CERTIFIED PROFESSIONAL PRIOR TO FINAL APPROVAL. BACKFLOW UNITS SHALL BE PROFESSIONALLY TESTED ON AN ANNUAL BASIS.
12. THE INSTALLATION OF A BACKFLOW ASSEMBLY MAY CREATE A CLOSED SYSTEM. CONSULT WITH THE CITY OF YUMA BUILDING OFFICIAL FOR PRESSURE RELIEF VALVES, THERMAL EXPANSION, OR OTHER NEEDED REQUIREMENTS.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-116
REDUCED PRESSURE ASSEMBLY (R.P.A.)
FOR
3" AND SMALLER WATER LINE

For additional information contact the
City of Yuma Pretreatment Section
at (928)343-8827.



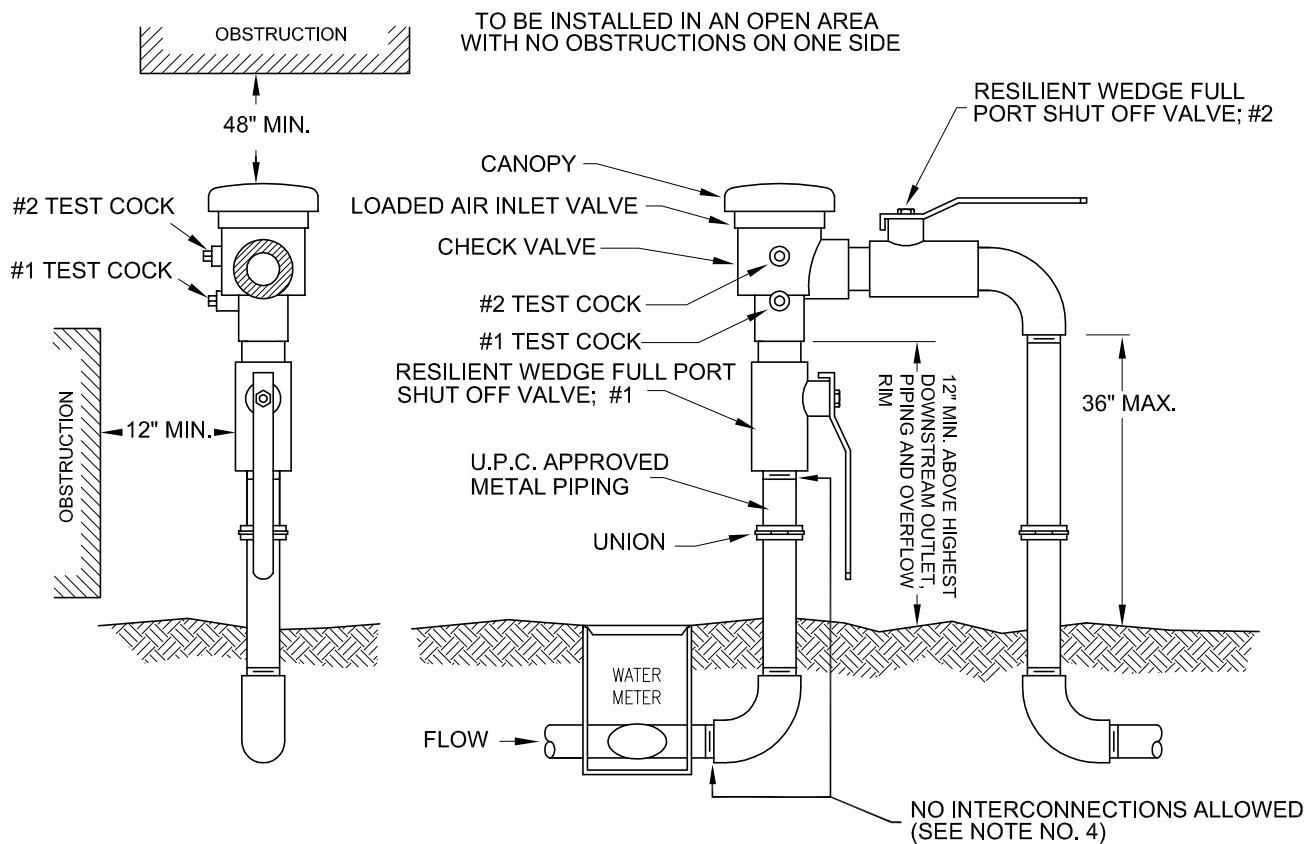
NOTES

1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. A list of approved backflow assemblies are available from the City of Yuma, Utilities Department Pretreatment Section, located at 155 W. 14th Street.
3. The R.P.A. shall be installed outside, above ground, as close to the water meter as possible. The R.P.A. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements. Tamperproof switches may be required on fire backflow assemblies.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. Approval from the City of Yuma Fire Marshal is required before any backflow assembly is connected to any fire system.
11. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
12. The installation of a backflow assembly may create a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-117
REDUCED PRESSURE ASSEMBLY
(R.P.A.) FOR
4" AND LARGER WATER LINE

For additional information contact the City of Yuma Pretreatment Section at (928)373-4544.



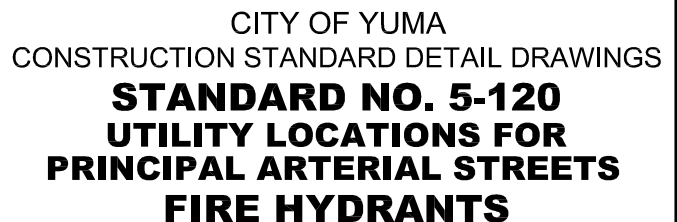
NOTES

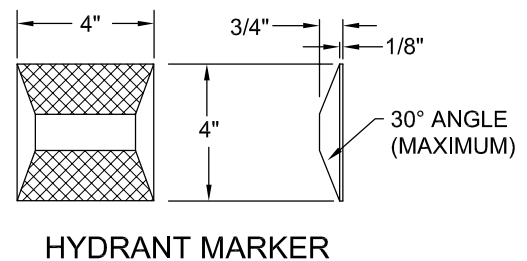
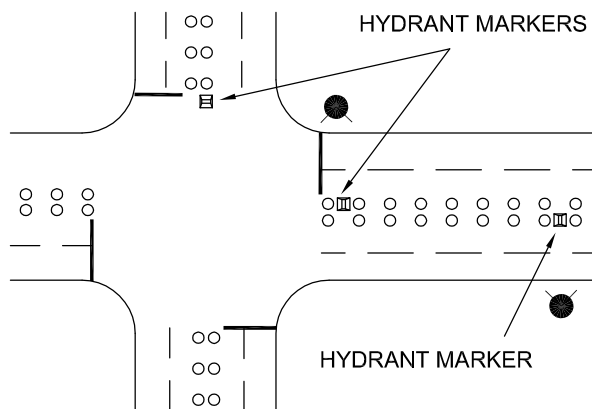
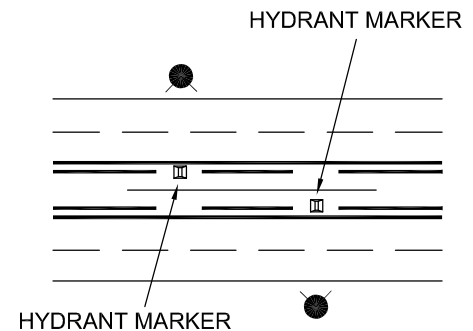
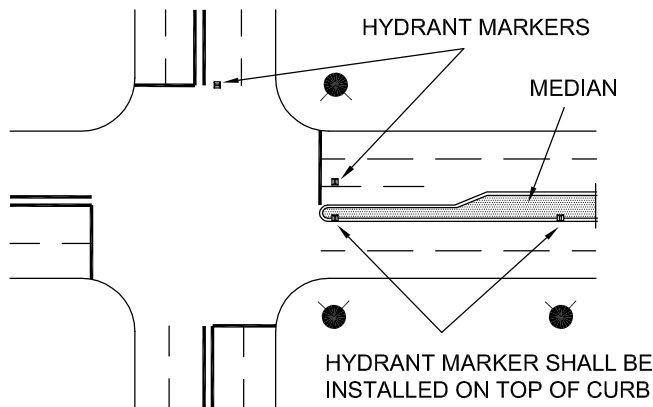
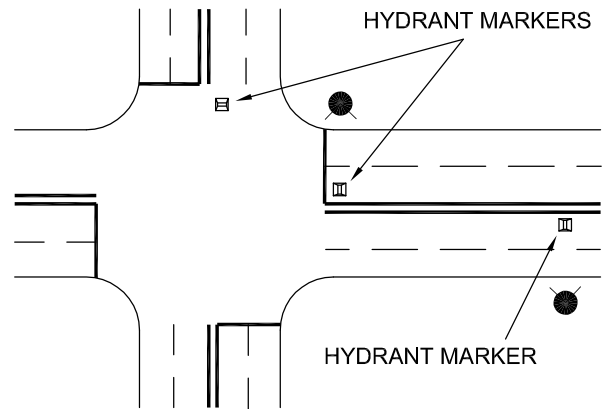
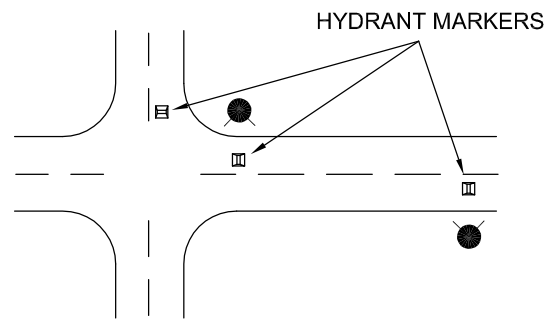
1. A permit is required before installing or replacing a backflow assembly. Permits are obtained at the Department of Community Development, 1 City Plaza (SW corner of Madison Ave. and 3rd St.).
2. A list of approved backflow assemblies are available from the City of Yuma, Utilities Department Pretreatment Section, located at 155 W. 14th Street.
3. The P.V.B. shall be installed outside, above ground, as close to the water meter as possible. The P.V.B. shall be located on private property unless otherwise authorized.
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel assembly installations.
5. Installations shall meet all current uniform plumbing codes in addition to the City of Yuma building codes.
6. Installations shall be left exposed until inspected and approved by the City of Yuma.
7. If this unit is installed to serve a retention basin, this unit shall be placed a minimum of 12" (36" maximum) above the flood rim of the retention basin.
8. Protective cages are optional and will meet clearance, access and drainage requirements.
9. It is recommended that backflow assemblies be protected from the elements. Care shall be taken to ensure that the protection does not hinder the assembly's operation.
10. All backflow units are to be tested by a certified professional prior to final approval. Backflow units shall be tested on an annual basis.
11. The installation of a pressure vacuum breaker assembly can cause a closed system. Consult with the City of Yuma Building Official for pressure relief valves, thermal expansion or other needed requirements.
12. P.V.B.'s may be maintained under constant pressure and have shutoff valves downstream but there shall be no means of imposing back pressure on the P.V.B. from any other source.
13. P.V.B.'s shall only be approved for irrigation system service protection unless otherwise authorized.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-118
PRESSURE VACUUM BREAKER
ASSEMBLY (ALL SIZES)

For additional information contact the City of Yuma
Pretreatment Section at (928)373-4544.





NOTES

1. Ceramic highway markers shall be placed in roadway relative to the fire hydrant location. Markers will be blue in color with 'two-way' reflective surfaces. Markers shall be placed so that the reflective surfaces are visible from both directions of travel. Markers shall be 4" from painted street centerlines or double line stripes of the roadway. Offset shall correspond with the hydrant's location. When a hydrant is located at an intersection markers shall be placed on both roadways.
2. When raised pavement markers are used to designate travel lanes, fire hydrant markers shall be placed in line with the other street markers.

MARKER SOURCES:

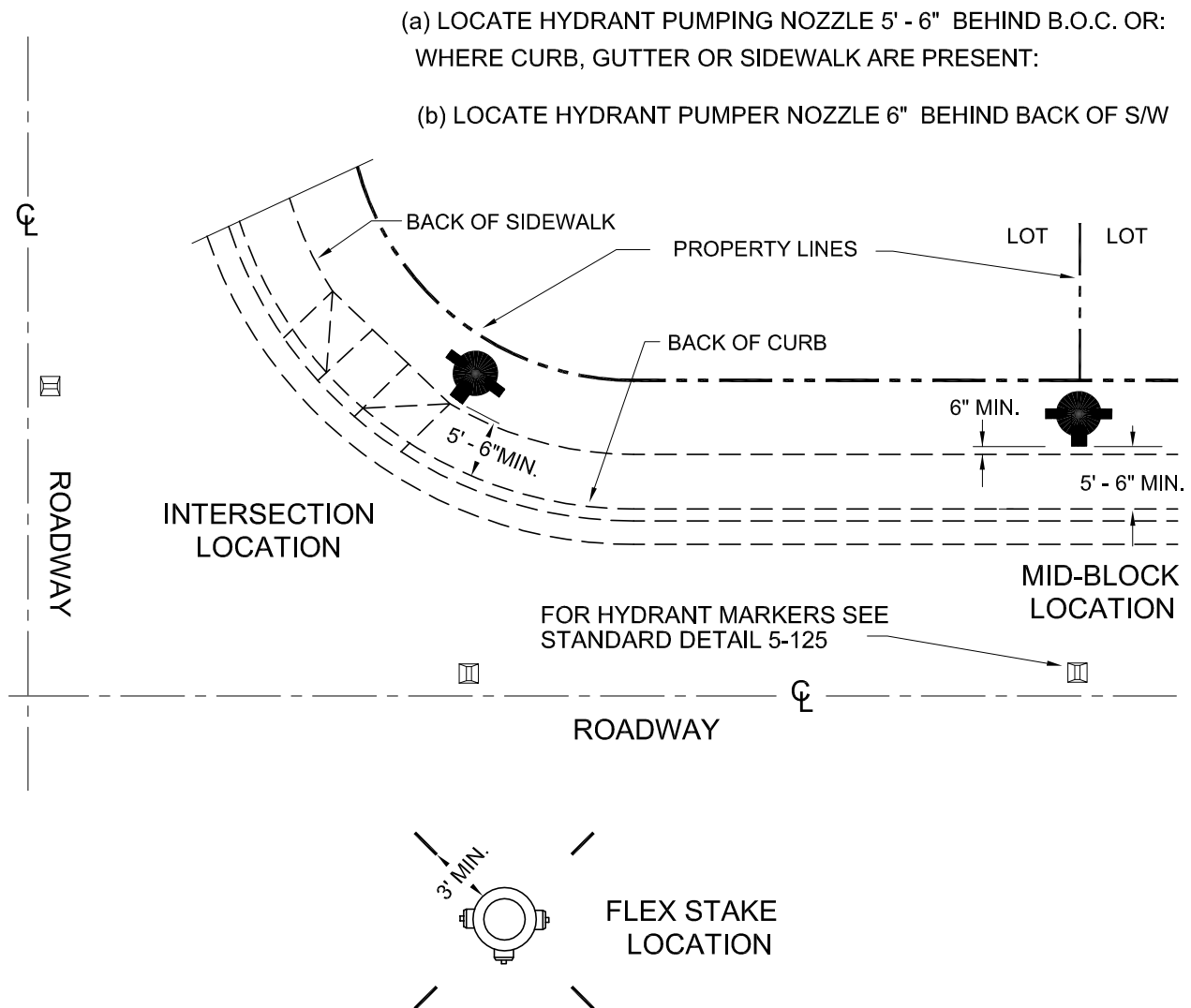
Dispensing Technology Corporation
5345 North Commerce Avenue, Unit 1
Moorepark, CA 93021 (805) 529-7733

Stimsonite
7542 North Natchez Avenue
Niles, IL 60648-3804 (708) 647-7717

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-125
FIRE HYDRANT
STREET MARKERS



NOTES

1. Area around fire hydrant shall be level and firm. There shall be a minimum five feet (5') wide clear access from the hydrant directly to the roadway. This clear area shall also extend uninterrupted vertically.
2. Utility poles, street signs, fences, etc. must not be placed between curb and hydrant. Obstructions will not be permitted within a three foot (3') radius of the hydrant.
3. In all installations the pumper connections shall point toward the street or access.
4. Install flex stakes in the hydrant is not protected by vertical curb. Flex stakes shall be Model No. 604 Highway Delineator Stake, 48" tall (or approved equal). Total number and location of flex stakes will be determined by the City Engineer. Flex stakes shall not be placed in line with the hydrant connections.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-130
FIRE HYDRANT AND
FLEXSTAKE LOCATIONS

FIRE HYDRANT SPACING

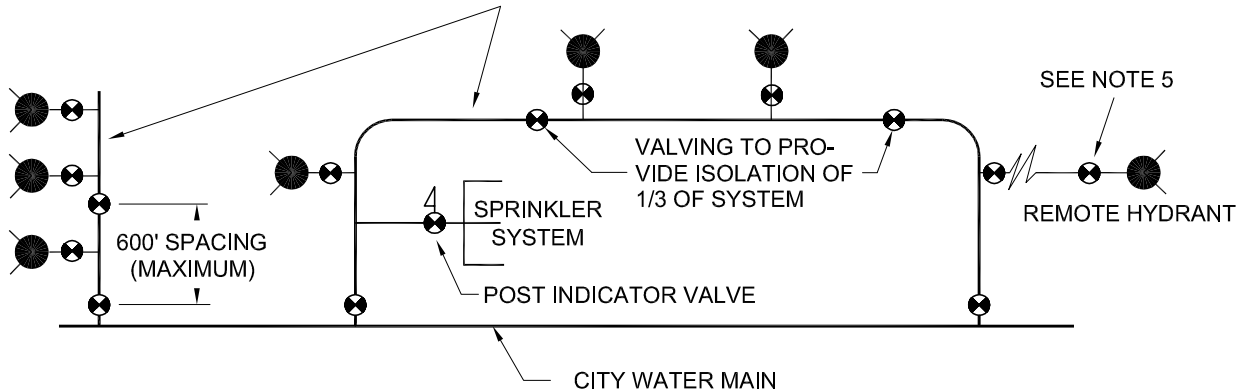
COMMERCIAL HYDRANTS: 300' (MAX.) BETWEEN HYDRANTS

RESIDENTIAL HYDRANTS: 500' (MAX.) BETWEEN HYDRANTS

CASE 1: PUBLIC FIRE LINE

FIRE MAIN ACCEPTED WITHIN A DEDICATED PUBLIC EASEMENT.

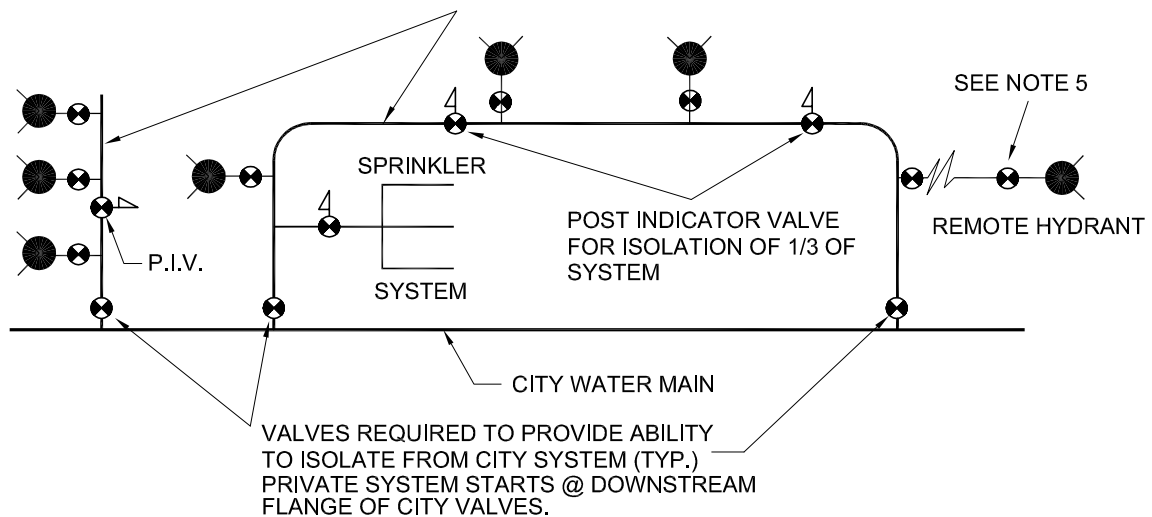
MINIMUM CLASS OF PIPE SHALL BE 150



CASE 2: PRIVATE FIRE LINE

FIRE MAIN WITHOUT A DEDICATED PUBLIC EASEMENT.

MINIMUM CLASS OF PIPE SHALL BE 150



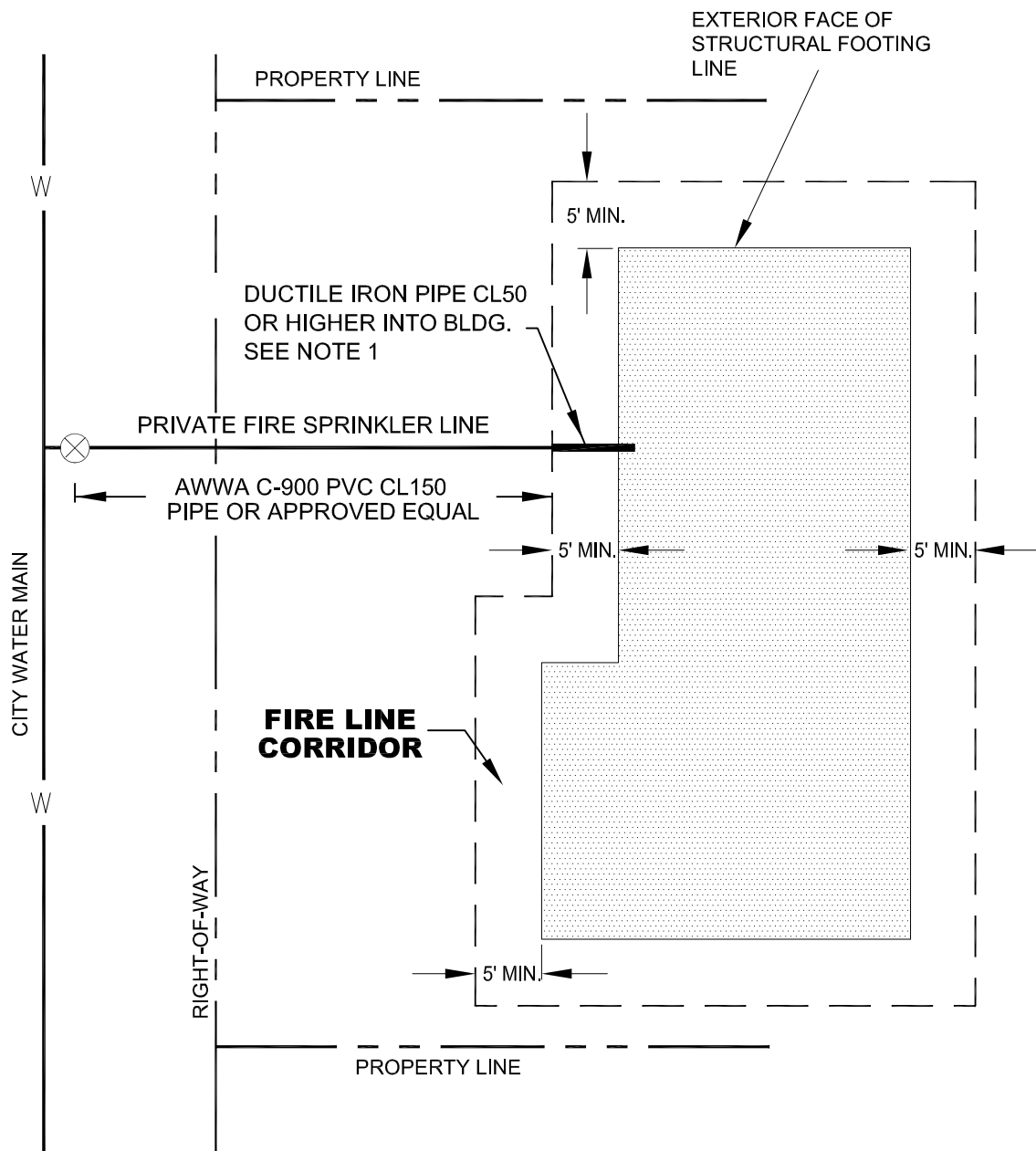
NOTES

1. In private fire line systems the more restrictive standard shall apply with respects to City of Yuma and N.F.P.A. requirements.
2. In private fire line a two hour, 200 psi hydrostatic test showing no pressure loss is required for acceptance of the piping.
3. Fire department connections shall be sited six inches (6") back of sidewalk.
4. All public / private fire lines and mains shall have tracer wire installed in accordance with Standard Detail 5-210.
5. For remote hydrants (lead length greater than 200') a second valve shall be installed within 20' of the hydrant.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-131
FIRE LINE VALVING



NOTE

1. Any fire line sprinkler line pipe installed inside the five foot (5') fire line corridor shall be a minimum CL50 ductile iron pipe.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-132 PRIVATE FIRE SPRINKLER LINE INSTALLATION

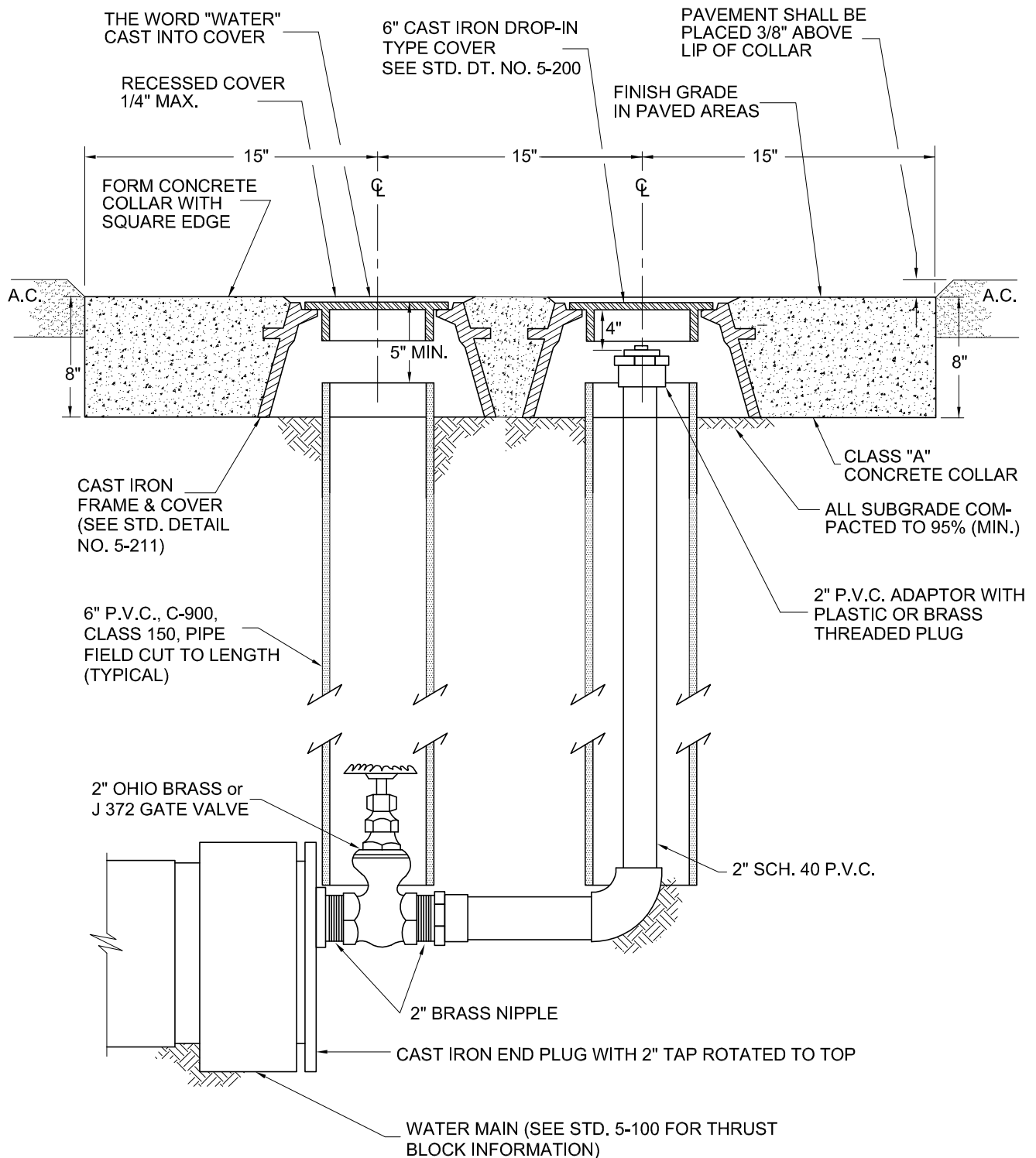
FIRE DEPARTMENT CONNECTIONS (F.D.C.)

1. Acceptable locations for the F.D.C.'s will be determined by Fire Department policy and recorded through the plan review process. Generally, this location will be remote from the building on the address (or front) side. Exceptions may apply to buildings of a light hazard (determined during plan review).
2. A check valve shall be located just below the F.D.C. Siamese connection. The Siamese connection shall have two 2 1/2" swivels with national standard threads (NTS) and shall be provided with listed caps or plugs.
3. Whether the F.D.C. is remote or not:
 - A. The height of the Siamese connection shall be between thirty and forty-two inches to the center of the openings measured from the finished grade. Remote F.D.C.'s shall be oriented towards the street or access unless otherwise noted during plan review.
 - B. As required in N.F.P.A. 24 adopted by City ordinance, underground piping requires a minimum cover of thirty inches. Thirty-six inches of cover is required should the piping be located under a driveway. Forty-eight inches of cover is required should the piping be located under a railway unless railway criteria is more stringent. All measurements are from the top of the pipe to the finished grade.
 - C. Piping through or adjacent to any underground structural element requires a minimum two inches of clearance around the piping to prevent damage from seismic activity or settling of the foundation.
 - D. A two hour, 200 psi hydrostatic test showing no pressure loss is required for acceptance of the piping.
 - E. All supply piping, both sprinkler and F.D.C., shall be ductile iron when located within five feet of a building foundation or under the slab of a building (reference Standard Detail 5-132). Ductile iron pipe shall be properly protected from corrosion.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-133
FIRE DEPARTMENT CONNECTIONS



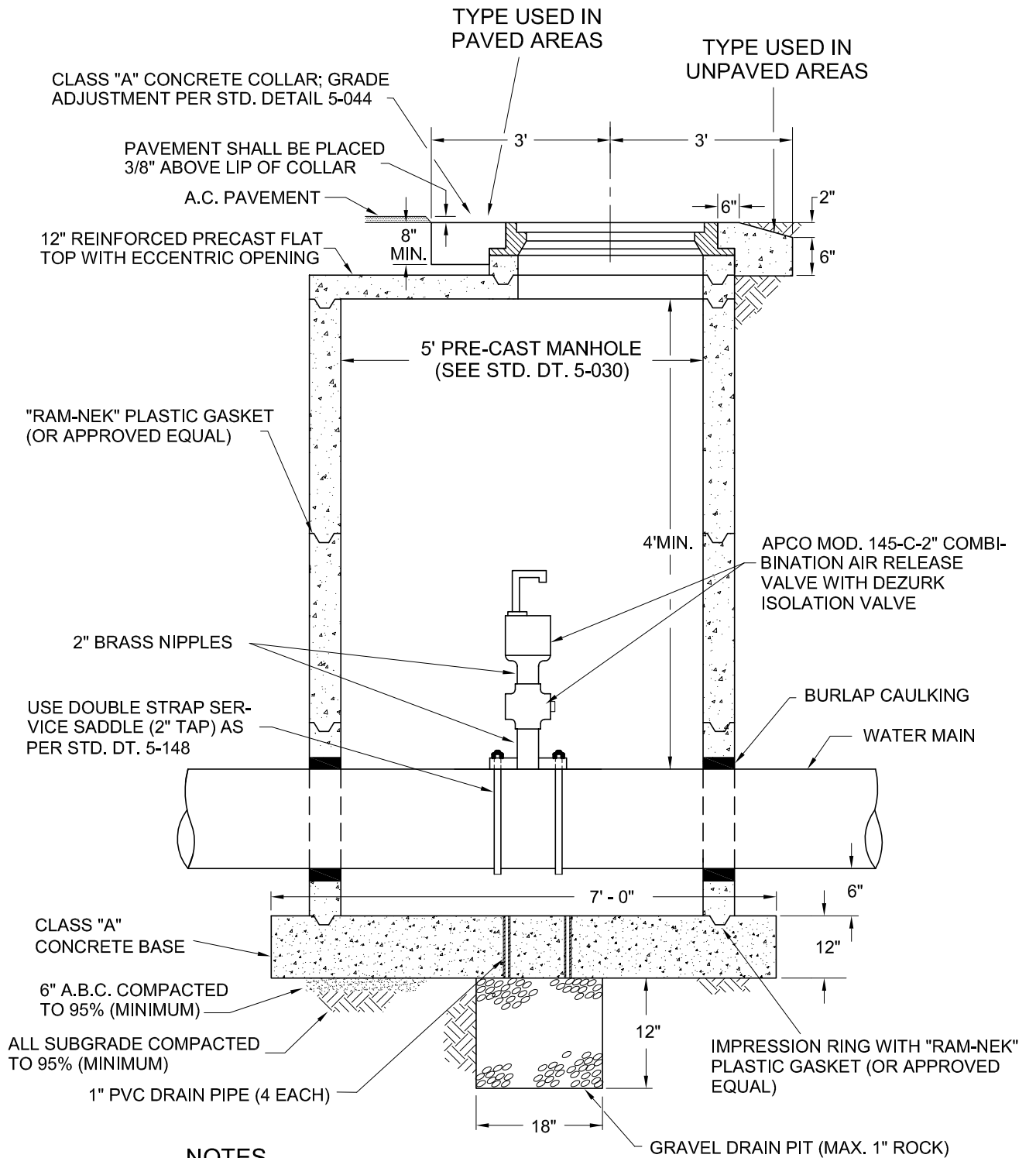
NOTES

1. BLOWOFF SHALL BE LOCATED WITHIN 20' (MAX.) FROM LAST IN-LINE VALVE.
2. TRACER WIRE SHALL BE INSTALLED ON ALL WATER MAINS AND EXTENSIONS. TRACER WIRE SHALL EXTEND INTO THE VALVE FRAME.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-140 WATERMAIN BLOWOFF



NOTES

1. Manhole frame and cover shall be Neenah Foundry R-1595 or R-1642 with the word WATER cast into the cover.
2. There shall be no pipe joints within two feet (2') of the manhole's exterior wall face.
3. Backfill used to fill manhole excavation shall be lean sand slurry consisting of one sack of cement per cubic yard of clean sand. Protect water main from direct contact with concrete backfill.
4. Apply asphalt waterproofing seal to the exterior surfaces of the manhole. Apply asphalt caulking to seal all joints.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-142
AIR RELEASE VALVE MANHOLE

APPROVED WATER SERVICE COMPONENTS

CORPORATION STOPS	PVC / plastic services: AYM 3404 AYM 4704-33
ANGLE STOPS	AYM 4202 AYM 4602-33-1" ONLY
CURB STOP	AYM 182 3/4" and 1"
SERVICE SADDLES	AYM 979 (replacement only- A.C. or cast iron pipe) AYM 969 (for AWWA C-900 PVC pipe only) W/ 5 1/4" MAIN VALVES AS REQUIRED BY NFPA. AYM 3825 AND 3826
FIRE HYDRANTS	AMERICAN AVK, CLOW MEDALLION WATEROUS PACER WB-67 EAST JORDAN IRONWORKS- WATER MASTER
METER	BADGER METER, Inc brand. Must be outfitted with automatic meter reading (AMR) capability; an integral data profile transmitter, and register that records in cubic feet. Dual register compound meters must include a separate transmitter for each register. Meters 3" to 8" must also include test port on body, and strainer or integral strainer.
METER COUPLINGS	AYM 3/4" / 1": 4622 1 1/2" / 2": 610F
METER BUSHINGS	AYM 1" x 1 1/4" 10534
REPAIR CLAMPS	SMITH-BLAIR (minimum length: 15") with stainless steel bolts 304
TAPPING SLEEVES	SMITH-BLAIR MODEL 662-663 stainless steel (6" and smaller: 15" long min.; larger or equal to 8": 20" long min.) CASCADE CST-SL
VALVES (2")	Mueller
VALVES (4" through 30")	AMERICAN DARLING, AMERICAN FLOW CONTROL, CLOW WATEROUS, AMERICAN AVK EAST JORDAN IRONWORKS FLOW MASTER VALVES (only resilient wedge gate valves shall be used)
TRANSITION COUPLINGS	SMITH-BLAIR (20" long for water mains 12" and larger / 15" long for water mains 10" and smaller). Any device used to connect A.C. pipe to ductile iron or P.V.C. pipe shall require prior approval by the City Engineer. Hymax longbody couplings.
AIR RELEASE VALVES	A.R.I. MODEL D-020(for use in waste water applications where air release and vaccum breaks need to occur in sanitary forced mains). A.R.I. MODEL D-040 and D-060-C HRNS for potable water.

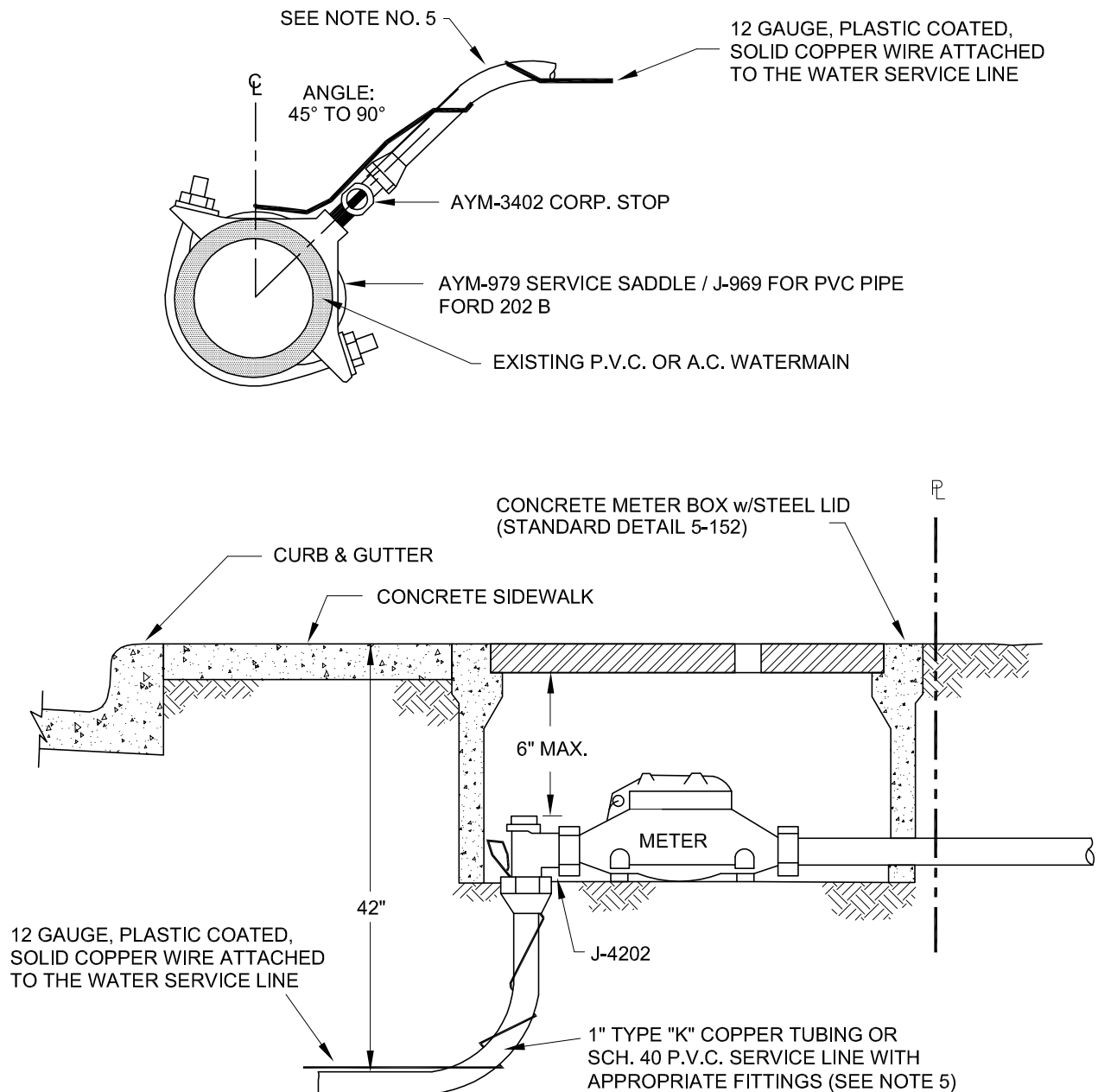
NOTES

1. The approved equipment shown is not necessarily exclusive. If approval of a similar device believed to be comparable and equal is desired, a request supported by appropriate information and data may be submitted to the City Engineer for review.
2. All buried components will require Type 304 stainless steel (min.) components (nuts, bolts, washers, etc.) Unless otherwise noted.
3. All new water service requests 2" and smaller off of an existing water main will be installed by City of Yuma utilities personnel.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-148
APPROVED WATER
SERVICE COMPONENTS



NOTE

1. Tracer wire shall be required on all service lines between watermain and meter.
2. Meter box to be set adjacent to the public right-of-way line.
3. Water meter boxes that are subject to vehicular traffic must include a traffic rated cast iron lid.
4. Meter boxes are not to be located inside sidewalks.
5. Do not bend or crimp water service line. Use 45° bends and/or appropriate fittings.
6. When using 1" water service line only one 1" meter can be used or 2-5/8" or 3/4" meters per service line, two 1" water meters on a 1" water service is not allowed to prevent low water pressure/reduced capacity.
7. All new water service requests 2" and smaller off of an existing water main will be installed by City of Yuma utilities personnel.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

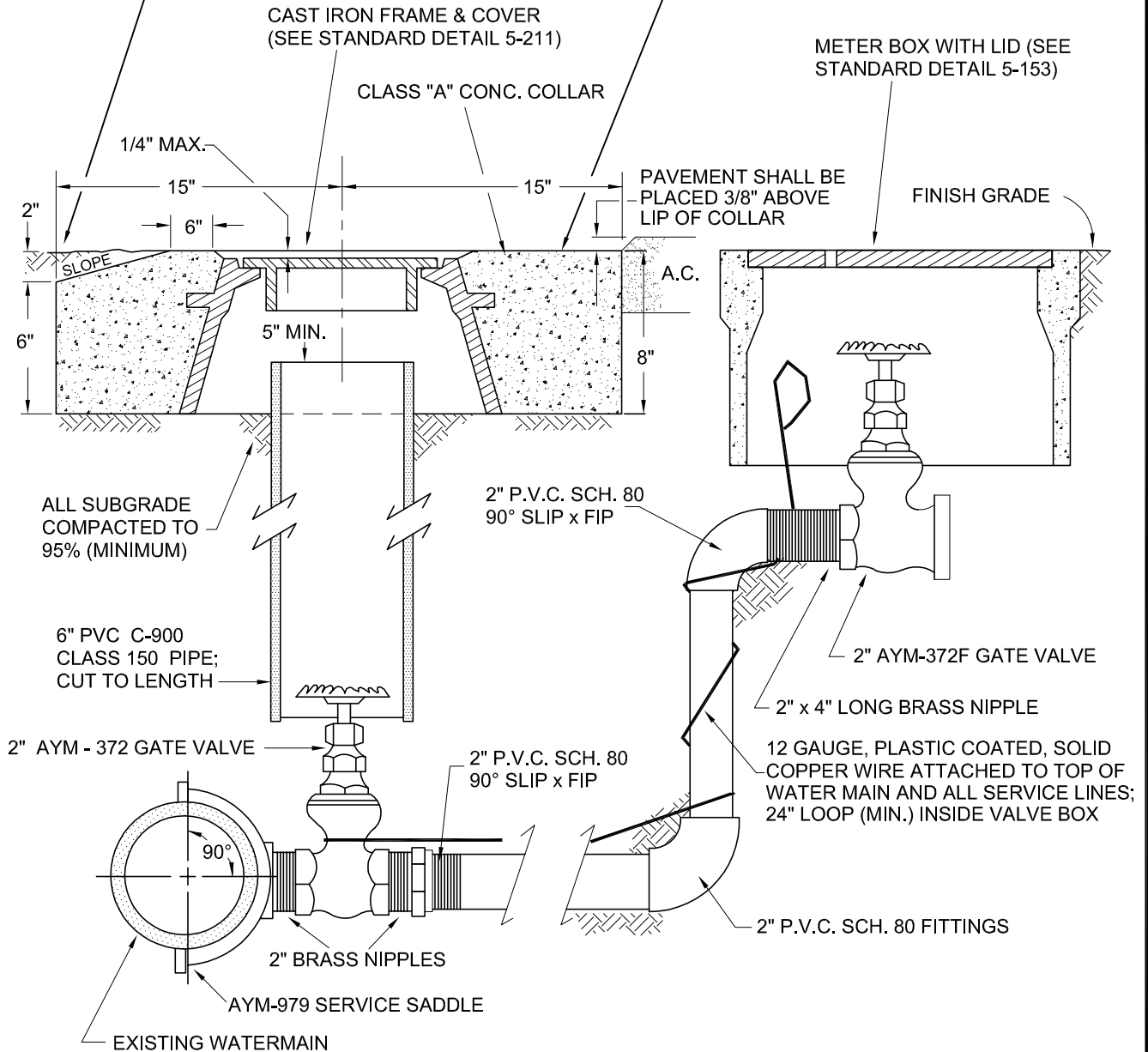
STANDARD NO. 5-149

WATER METER INSTALLATION

1" AND SMALLER

FORM CONCRETE COLLAR WITH
SLOPED EDGE WHEN INSTALLED
IN UNPAVED AREAS

FORM CONCRETE COLLAR WITH
SQUARE EDGE WHEN INSTALLED
IN PAVED AREAS



NOTE

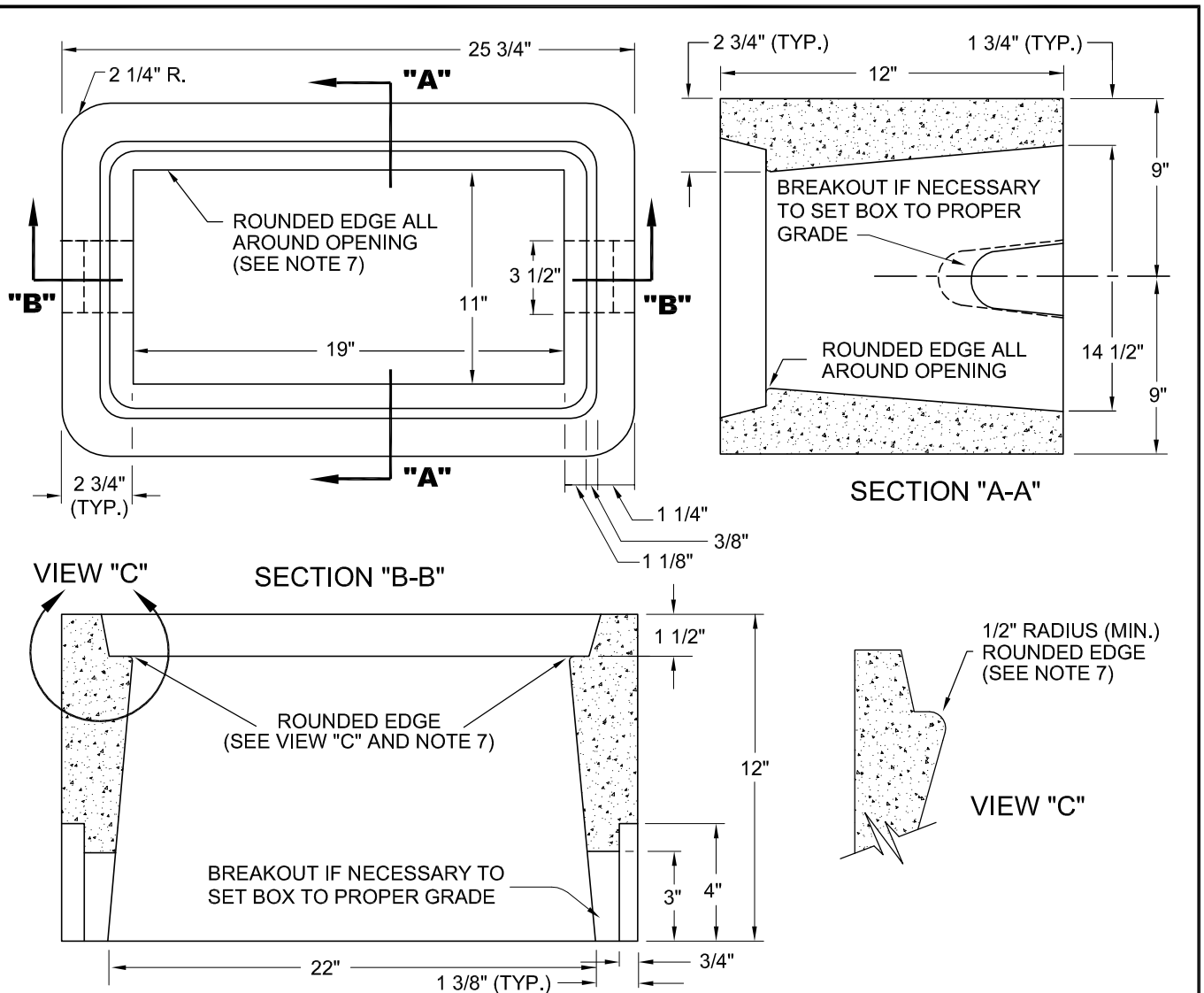
1. Tracer wire shall be required on all service lines between watermain and meter.
2. Meter box to be set adjacent to the public right-of-way line.
3. Water meter boxes that are subject to vehicular traffic must include a traffic rated cast iron lid.
4. Meter boxes are not to be located inside sidewalks.
5. Do not bend or crimp water service line. Use 45° bends and/or appropriate fittings.
6. On multiple 2" services, saddles shall be at least 24" clear (minimum).
7. All new water service requests 2" and smaller off of an existing water main will be done by City of Yuma utilities personnel.

NOTE: PIPE SHALL BE SCH. 40 MINIMUM.
FITTINGS SHALL BE SCH. 80 MINIMUM.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-150
2" WATER SERVICE

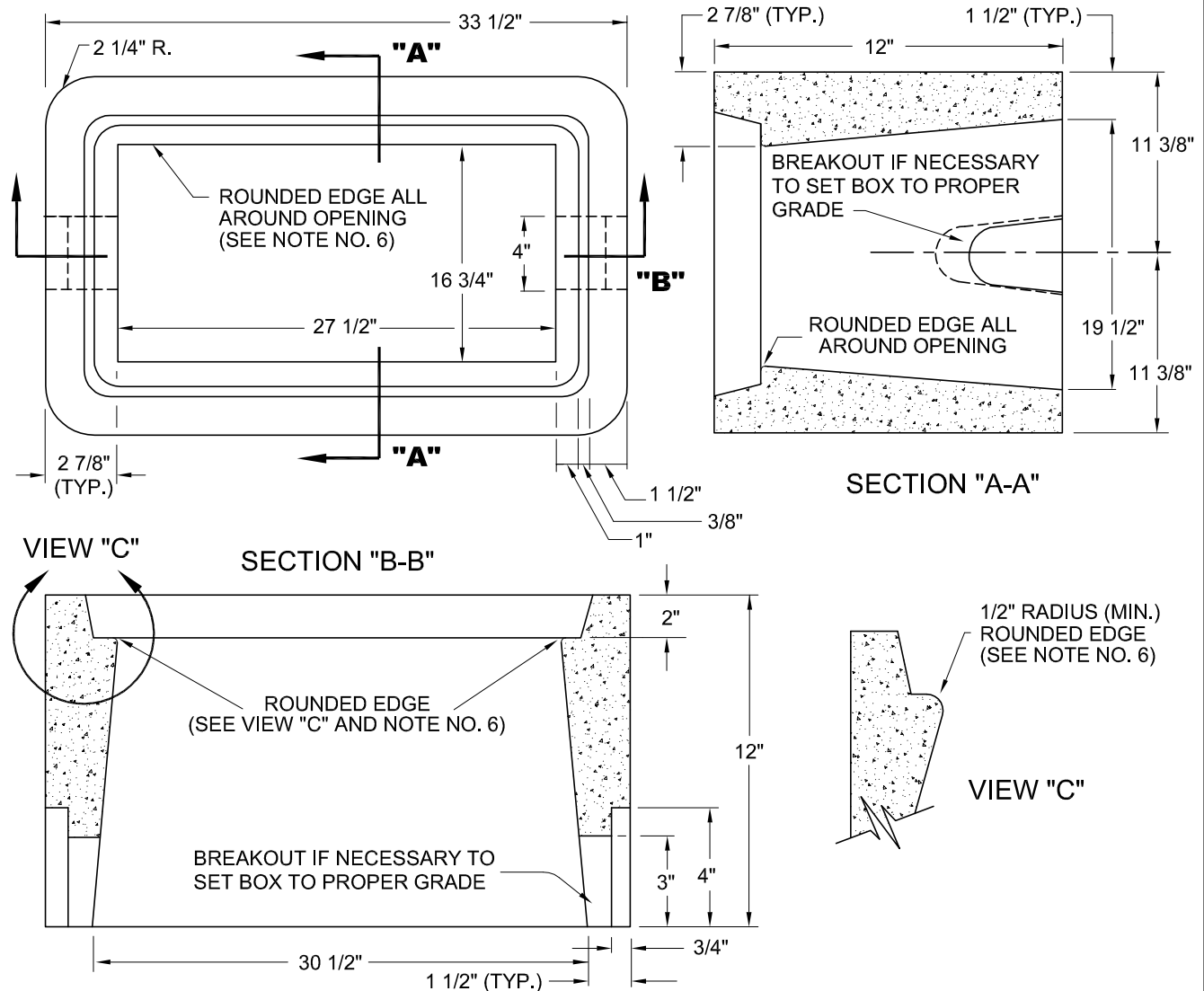


NOTES

1. The meter boxes shall conform to the dimensions of the above drawing and shall be made of Portland cement concrete poured and tamped (or vibrated) in true form.
2. The Portland cement concrete shall be batched in the proper proportions by weight, water, cement, fine aggregate (A.S.T.M. C-33), and coarse aggregate (3/8" rock). This mix shall be designed to obtain a minimum of 4,000psi at 28 days when tested in accordance with A.S.T.M. C-39. This mix shall be poured at a slump not in excess of six inches (6").
3. Upon the removal of the forms, the meter boxes shall be water cured for seven (7) days or sprayed with a membrane curing compound such as "Hunts Process" or approved equal.
4. The method of sampling and testing of these boxes shall conform to A.S.T.M C-129 and C-140, except that the minimum required strength shall be 4,000psi at 28 days.
5. Meter box lids shall be cast iron and fit flush with top of box and have adequate bearing on seat. When water meter boxes are used in paved areas, subject to vehicular traffic, a traffic rated lid will be used. The lids are to be precut with 1.75" to 2" diameter holes to install automatic meter reading devices.
6. The San Diego Precast Concrete, Inc. model P 4 1/2 water meter box with cast iron lid or equal is an approved model.
7. Apply 1/2" radius (minimum) to edges of box opening in order to prevent worker injury when handling and installing boxes.
8. Use composite water meter vaults in residential subdivisions/mobile home parks. The lids are to be precut with 1.75" to 2" diameter holes to install automatic meter reading devices.
9. Meter boxes should not be installed in sidewalk unless directed by City Engineer.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-152
CONCRETE WATER METER BOX
FOR 1" METERS & SMALLER



NOTES

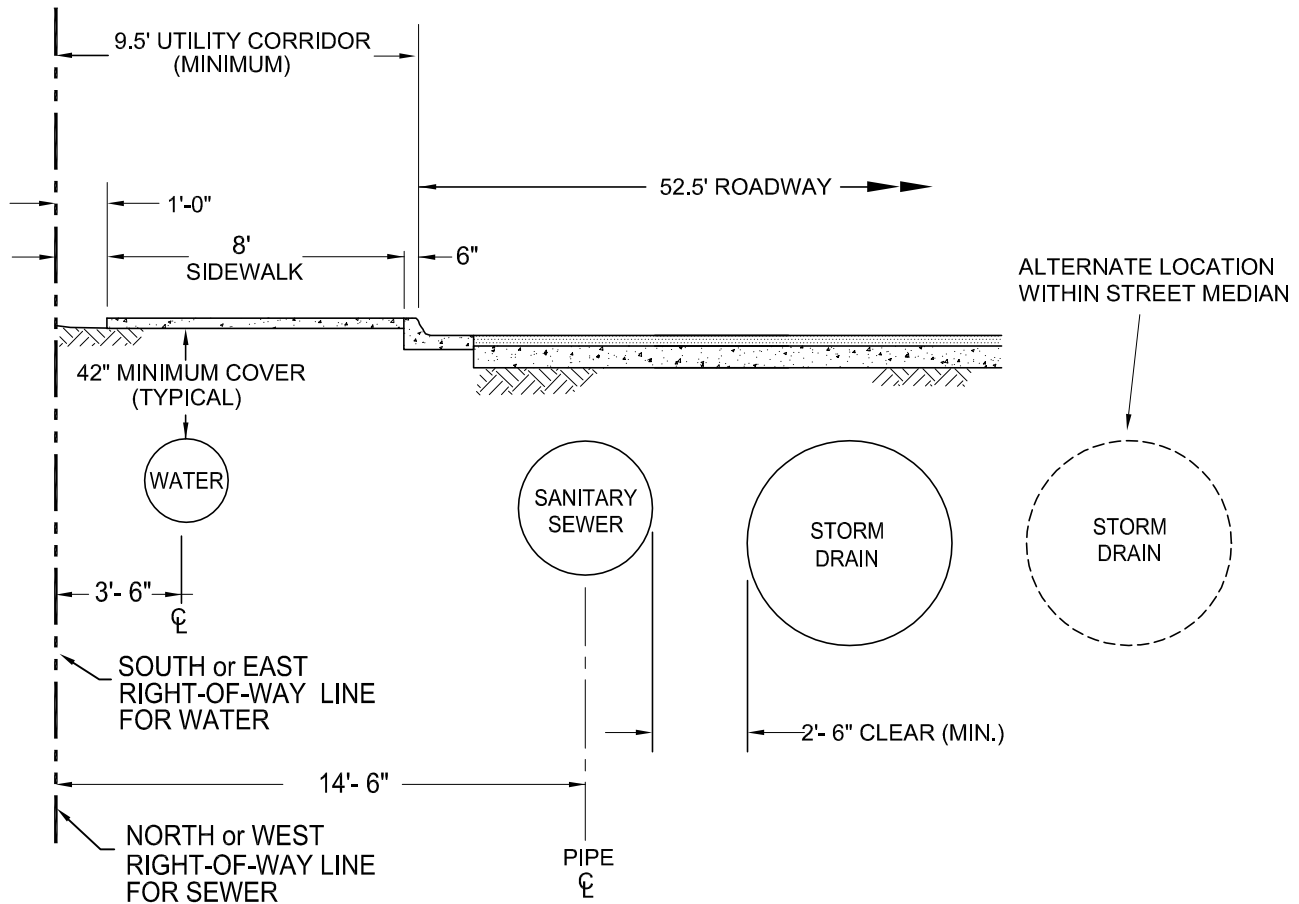
1. The meter boxes shall conform to the dimensions of the above drawing and shall be made of Portland cement concrete poured and tamped (or vibrated) in true form.
2. The Portland cement concrete shall be batched in the proper proportions by weight, water, cement, fine aggregate (A.S.T.M. C-33), and coarse aggregate (3/8" rock). This mix shall be designed to obtain a minimum of 4,000psi at 28 days when tested in accordance with A.S.T.M. C-39. This mix shall be poured at a slump not in excess of six inches (6").
3. Upon the removal of the forms, the meter boxes shall be water cured for seven (7) days or sprayed with a membrane curing compound such as "Hunts Process" or approved equal.
4. The method of sampling and testing of these boxes shall conform to A.S.T.M C-129 and C-140, except that the minimum required strength shall be 4,000psi at 28 days.
5. Meter box lids shall be cast iron and fit flush with top of box and have adequate bearing on seat. When water meter boxes are used in paved areas, subject to vehicular traffic, a traffic rated lid will be used.
6. The San Diego Precast Concrete, Inc. model P 4 1/2 water meter box with cast iron lid or equal is an approved model.
7. Apply 1/2" radius (minimum) to edges of box opening in order to prevent worker injury when handling and installing boxes.
8. Use composite meter boxes in residential subdivisions/mobile home parks. The lids are to be precut with a 1.75" to 2.0" diameter hole to install automatic meter reading device.
9. Meter boxes should not be installed in sidewalk unless directed by City Engineer.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-153
CONCRETE WATER METER BOX
1 1/2" & 2" METERS AND
3" TURBINE METERS

UTILITY LOCATIONS WITHIN PRINCIPAL ARTERIAL STREETS

(NOT TO SCALE)



NOTES

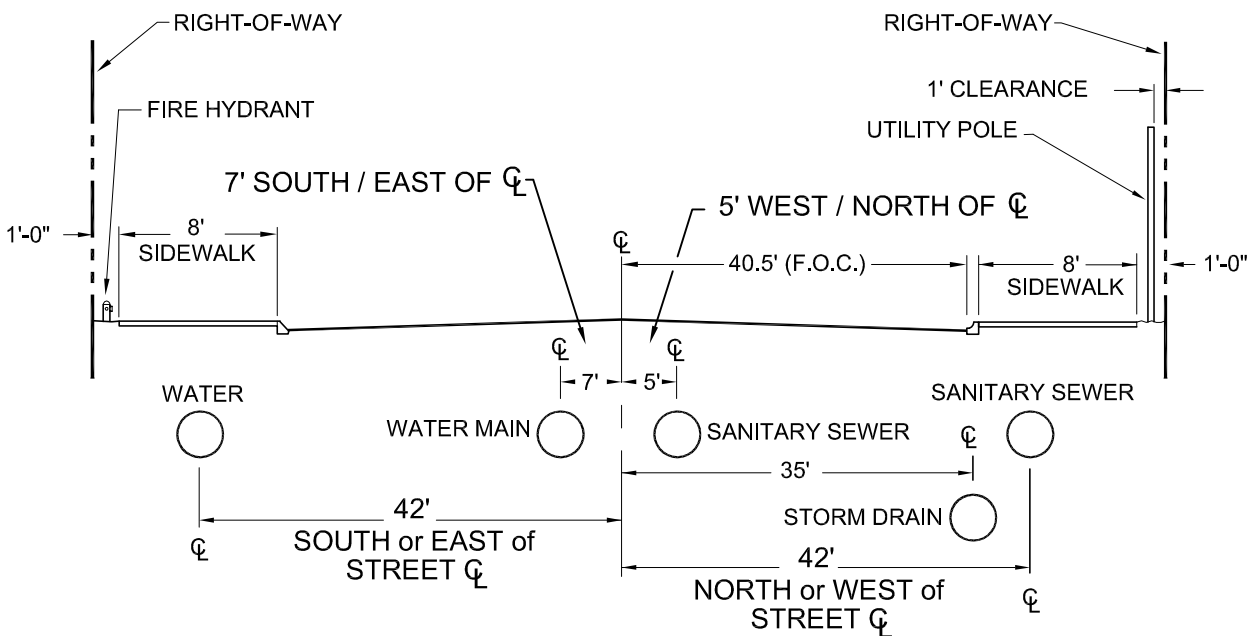
1. Utility pull boxes, vaults and switch gear would be located outside and adjacent to the utility corridor.
2. Telephone, gas, electric and cable T.V. are to be located in a separate public utility easement located on private property.
3. Dashed lines indicate alternative locations subject to approval by the City Engineer.
4. All water, sewer and storm drain mains shall have 42" of cover (minimum) measured from the top of pipe or as specified by the City Engineer.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-160
UTILITY LOCATIONS
PRINCIPAL ARTERIAL STREETS

UTILITY LOCATIONS WITHIN MINOR ARTERIAL STREETS

(NOT TO SCALE)



NOTES

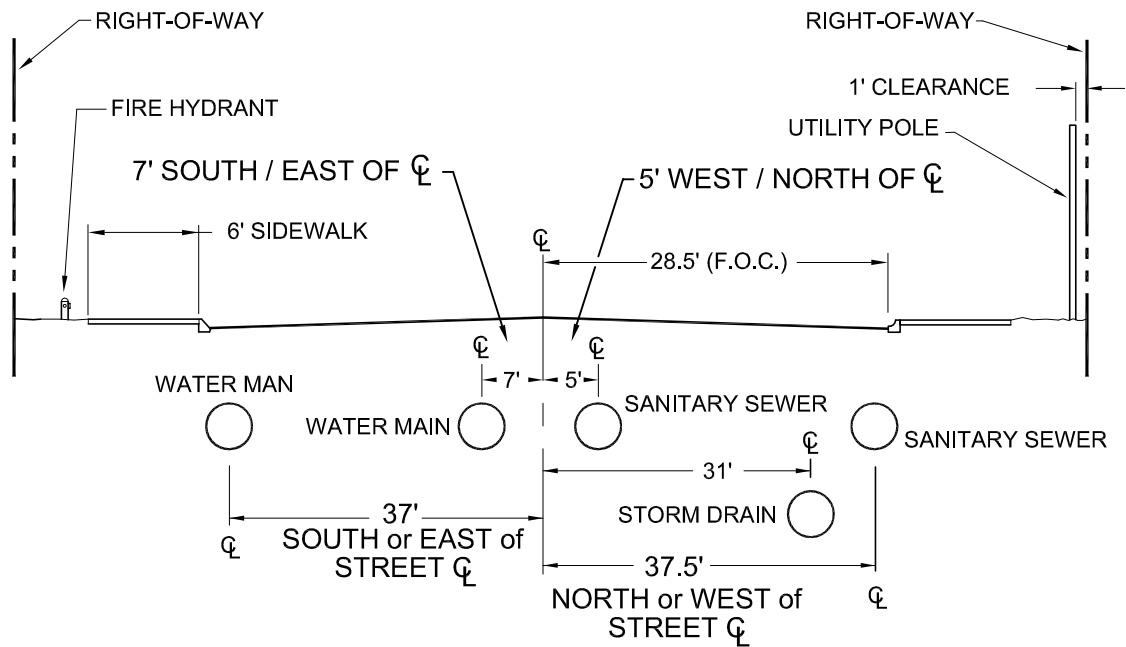
1. Utility pull boxes, vaults and switch gear would be located outside and adjacent to the utility corridor.
2. Telephone, gas, electric and cable T.V. are to be located in a separate public utility easement located on private property.
3. All water, sewer and storm drain mains shall have 42" of cover (minimum) measured from the top of pipe or as specified by the City Engineer.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-170
UTILITY LOCATIONS
MINOR ARTERIAL STREETS

UTILITY LOCATIONS WITHIN COLLECTOR STREETS (NOT TO SCALE)



NOTES

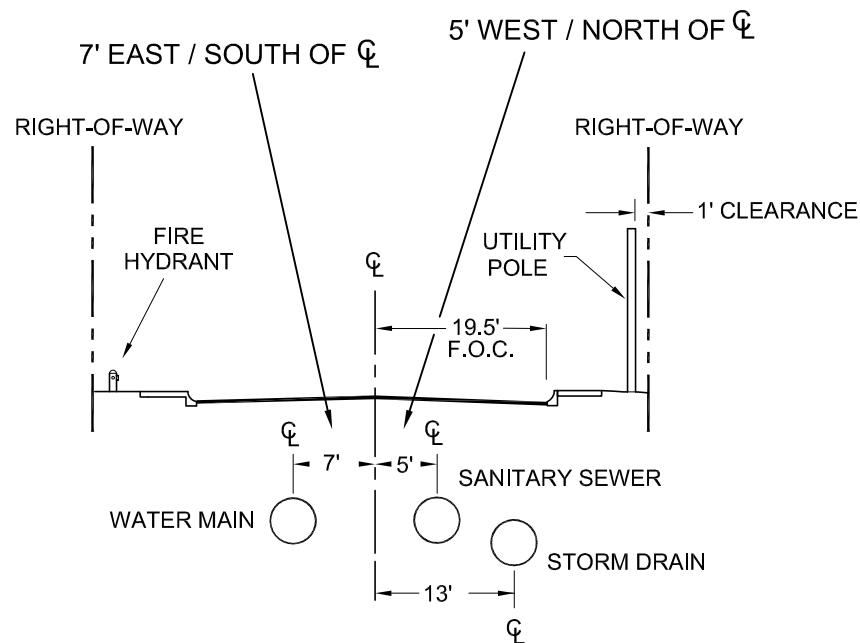
1. Utility pull boxes, vaults and switch gear would be located outside and adjacent to the utility corridor.
2. Telephone, gas, electric and cable T.V. are to be located in a separate public utility easement located on private property.
3. All water, sewer and storm drain mains shall have 42" of cover (minimum) measured from the top of pipe or as specified by the City Engineer.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-180
UTILITY LOCATIONS
COLLECTOR STREETS

**UTILITY LOCATIONS
WITHIN
LOCAL TWO LANE STREETS**
(NOT TO SCALE)



NOTES

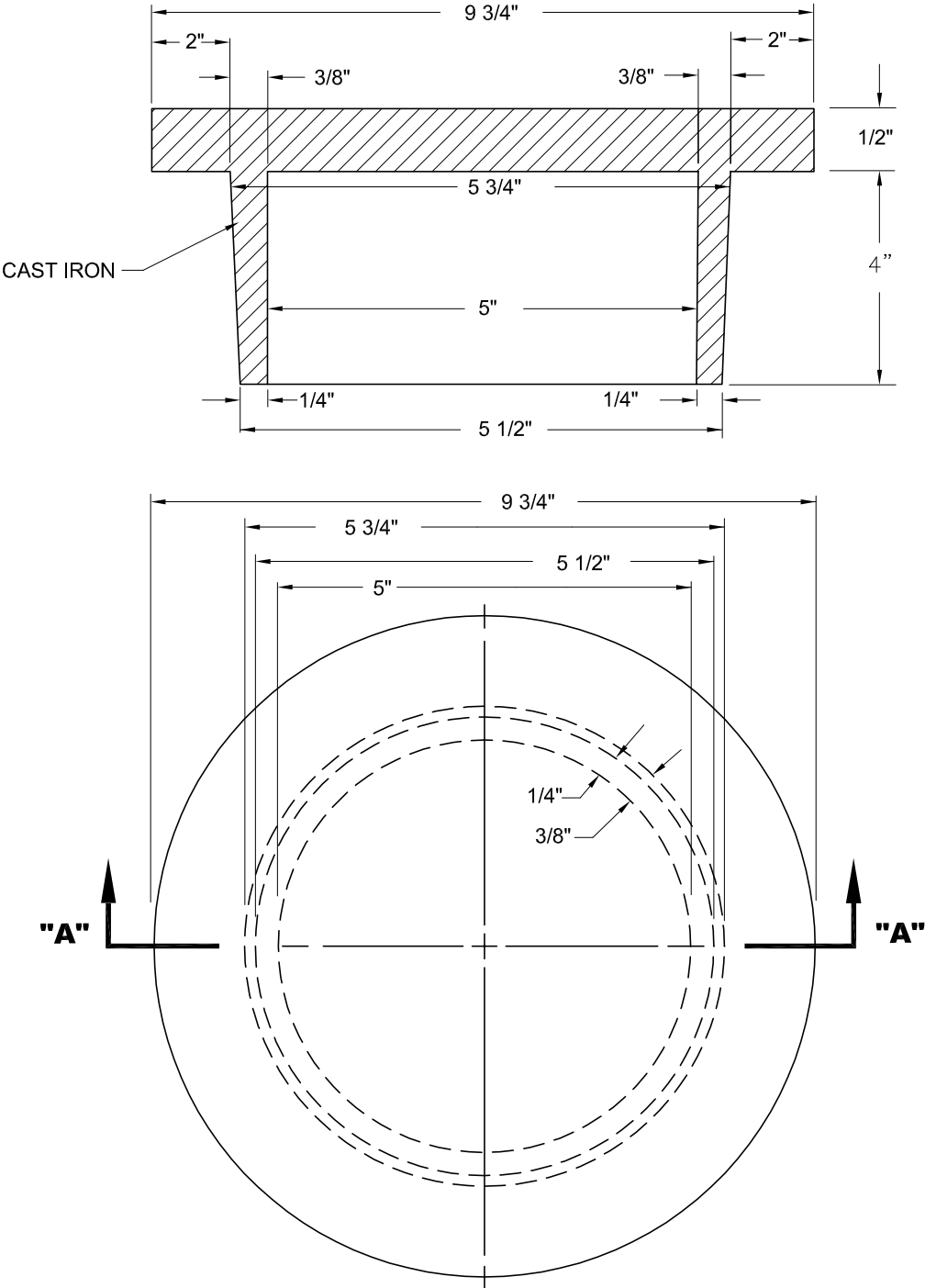
1. Utility pull boxes, vaults and switch gear would be located outside and adjacent to the utility corridor.
2. Telephone, gas, electric and cable T.V. are to be located in a separate public utility easement located on private property.
3. All water, sewer and storm drain mains shall have 42" of cover (minimum) measured from the top of pipe or as specified by the City Engineer.
4. Water mains are to be located East or South of the street centerline. Sanitary sewer mains are to be located West or North of the street centerline.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-190
UTILITY LOCATIONS
LOCAL TWO LANE STREETS**

SECTION "A - A"



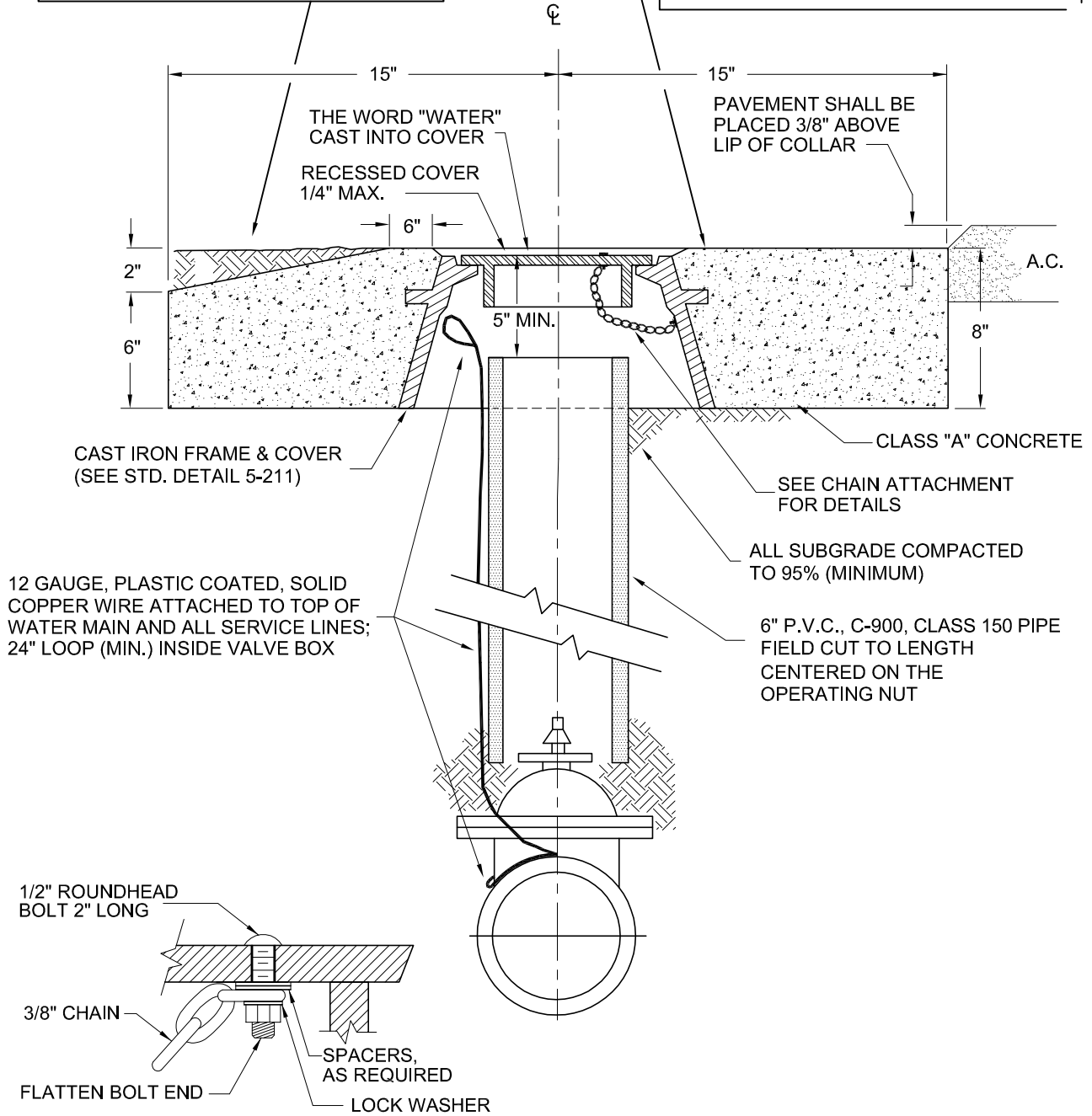
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-200
VALVE BOX COVER, DROP IN

FORM CONCRETE COLLAR WITH
SLOPED EDGE WHEN INSTALLED
IN UNPAVED AREAS

FORM CONCRETE COLLAR WITH
SQUARE EDGE WHEN INSTALLED
IN PAVED AREAS



CHAIN ATTACHMENT
(AS REQUIRED)

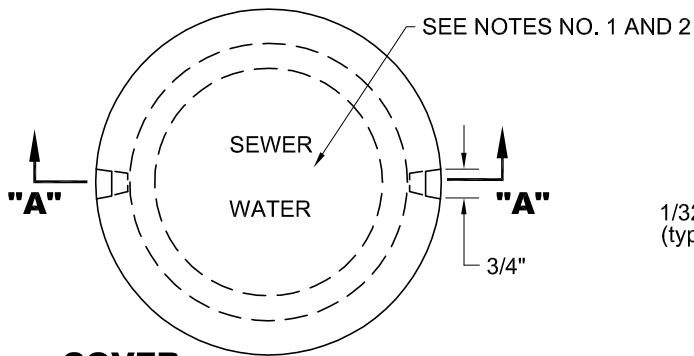
NOTE

1. 12 gauge solid copper wire shall extend into the frame of each in-line valve, air release valve, blowoff, etc.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

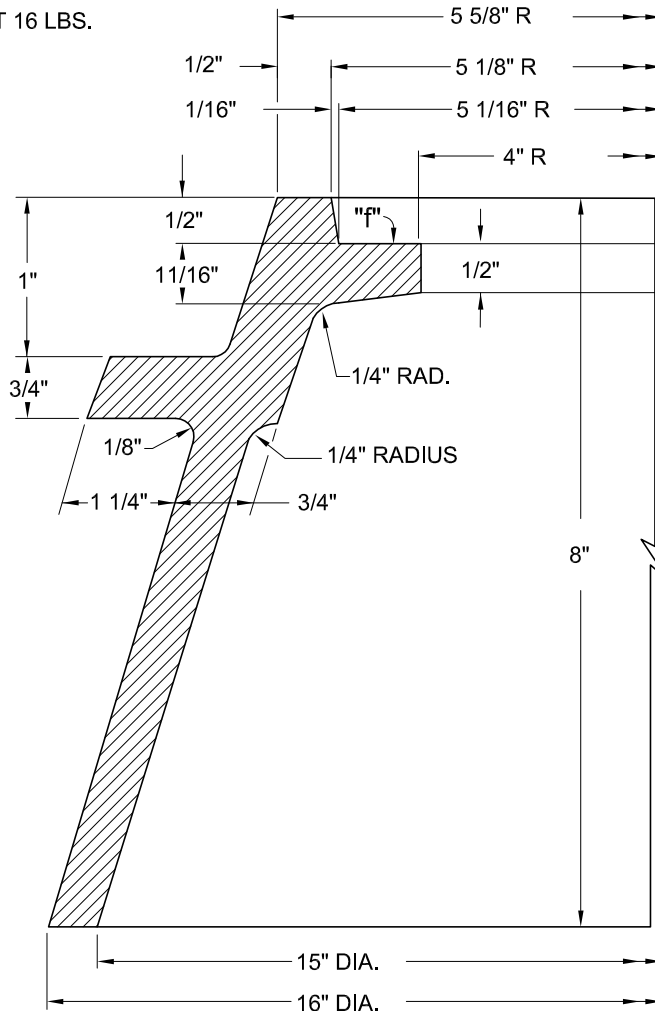
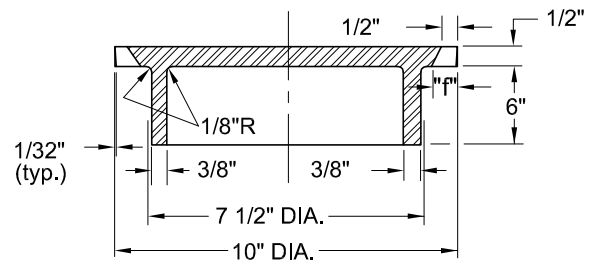
STANDARD NO. 5-210
VALVE BOX INSTALLATION



COVER

MINIMUM WEIGHT 16 LBS.

SECTION "A - A"



FRAME

MINIMUM WEIGHT 63 LBS.

FRAME AND COVER: STAR 198
(OR APPROVED EQUAL)

NOTES

1. THE WORD "WATER" OR "SEWER" SHALL BE CAST ON THE COVER. LETTER SIZE: 5/8" x 3/4" RAISED 1/16" ABOVE LEVEL OF COVER.
2. TYPE OF LETTERS ARE TO BE SUBMITTED FOR APPROVAL.

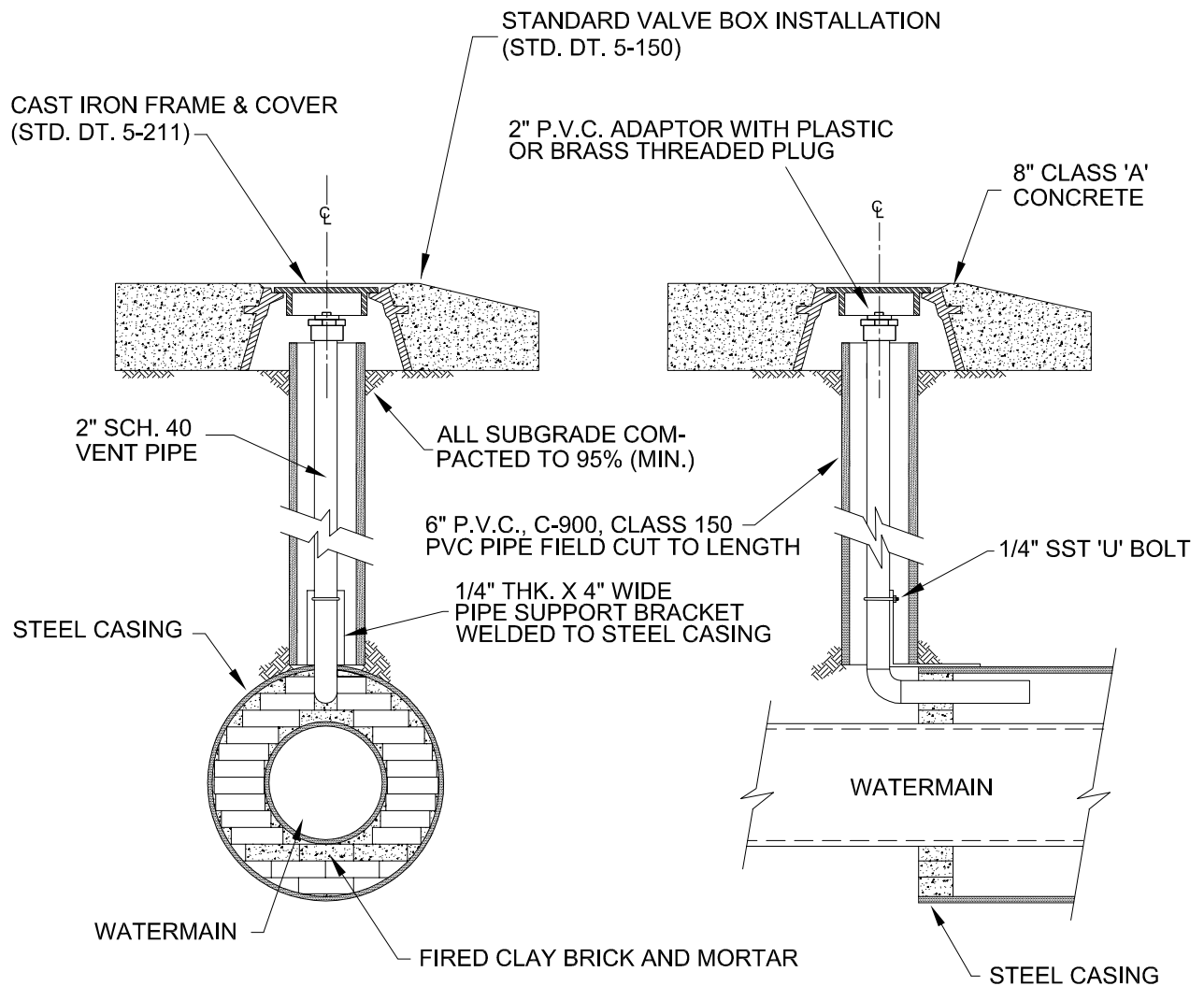
"f" INDICATES ORDINARY MACHINING
TOLERANCE FOR MACHINE FINISH: $\pm 1/64"$

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-211

**8" CAST IRON
FRAME AND COVER**



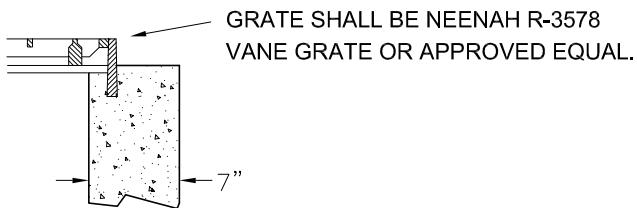
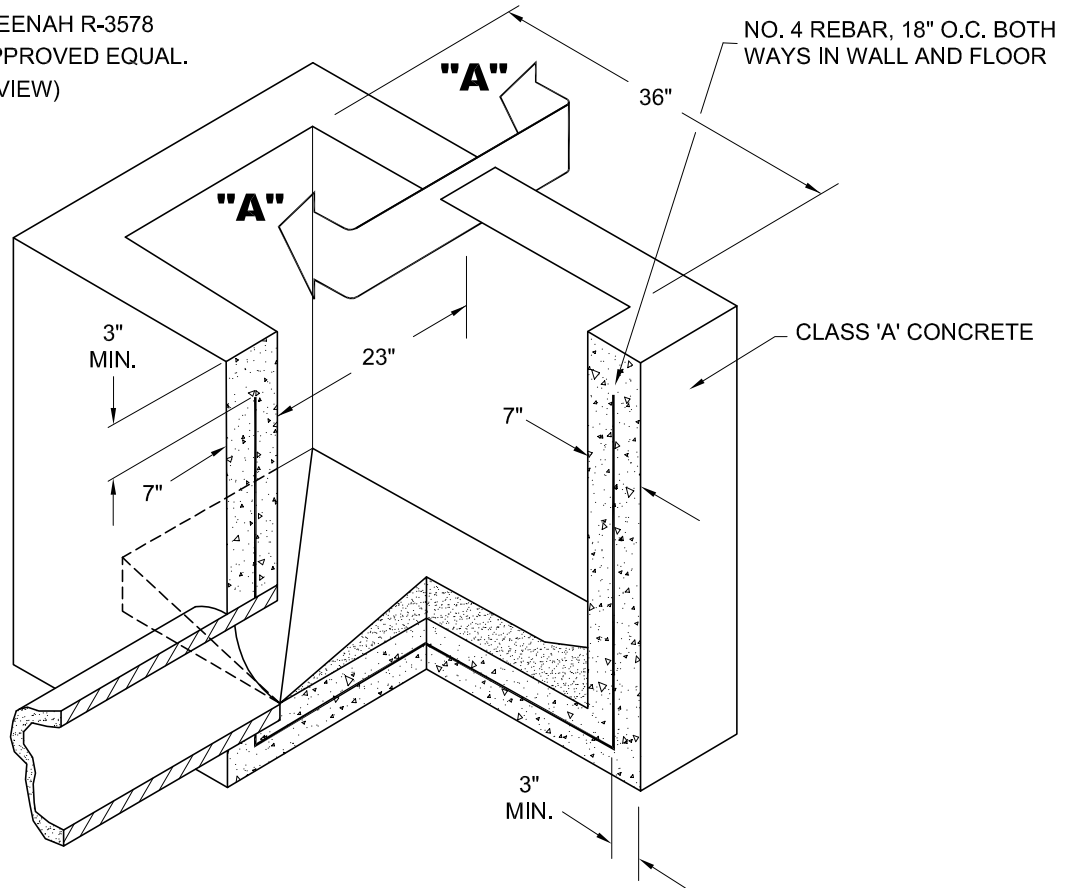
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-212

**STEEL CASING END SEALS
WITH 2\" SCHEDULE 80 PVC
VENT PIPE**

GRATE SHALL BE NEENAH R-3578
VANE GRATE OR APPROVED EQUAL.
(REMOVED IN THIS VIEW)



SECTION "A - A"

NOTES

1. PIPES MAY ENTER OR LEAVE ANY WALL. BOTTOM OF BOX SHALL BE SLOPED TO OUTLET PIPE FROM ALL DIRECTIONS AND TROWELLED TO A HARD SMOOTH SURFACE.
2. CONNECTION PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS PROVIDED THE POSITION IS CONSISTENT WITH THE PLAN.
3. OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
4. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF *INDUSTRON* OSHA SAFETY GREEN (OR APPROVED EQUAL).
5. PROVIDE NO. 4 REBAR, 18" O.C. BOTH WAYS IN WALL AND FLOOR.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-225

**TYPE "A" CATCH BASIN
FOR USE WITHOUT CURB & GUTTER**

Technical drawing of a gutter installation showing side and end views with dimensions and labels.

Labels:

- 1/2"x 3"x 4" LONG
- 5'-6" + (2 T)
- 8" (MAX.)
- GUTTER (SEE NOTE 6)
- "B"
- 5"
- 5'-6"
- "A"
- CLASS "A" CONCRETE
- "B"
- 6"
- 6"
- V

Dimensions:

- 8" (MAX.)
- 5'-6" + (2 T)
- 5"
- 5'-6"
- 6"
- 6"

Notes:

- 1/2"x 3"x 4" LONG
- GUTTER (SEE NOTE 6)
- CLASS "A" CONCRETE

[illegible]

CURB	A	B
4"	3'-3"	13'
6"	1'-9"	10'
7"	1'	8'-9"

T = 6" IF **V** = 4' OR LESS.
T = 8" IF **V** IS BETWEEN 4' AND 8'.
T = 10" IF **V** IS 8' OR MORE (IF **V** EXCEEDS
 10' A SPECIAL DESIGN IS REQUIRED)
V = 3'-6" UNLESS OTHERWISE NOTED.

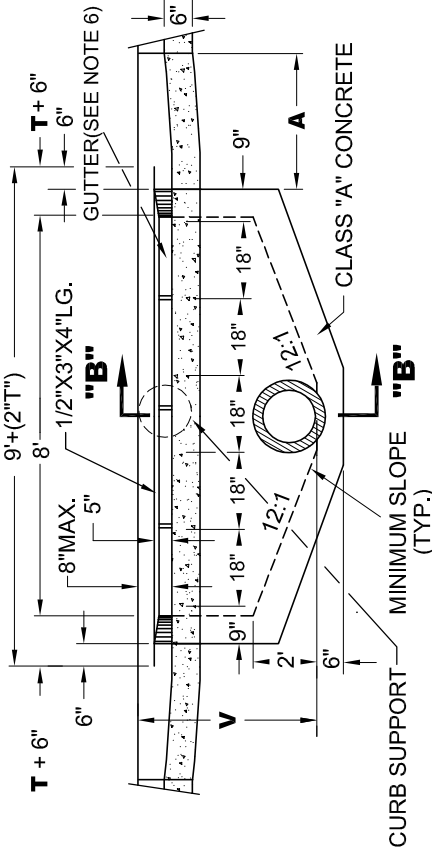
ACCESS OPENING (SEE
STD.DT. NO. 5-280

1. THE ENTIRE CATCH BASIN COVER MAY BE PRE-CAST OR POURED IN PLACE.
2. CONNECTION PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS PROVIDED THE POSITION IS CONSISTENT WITH THE PLAN.
3. OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
4. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TOWARDS OUTLET.
5. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF INDUSTRIAL OSHA SAFETY GREEN (OR APPROVED EQUAL).
6. GUTTER SHALL NOT BE DEPRESSSED FROM A STRAIGHT LINE GRADE TO CREATE A BUMP.
7. SEE STD. DT. NO. 5-280 FOR DETAILS COMMON TO ALL CURB OPENING BASINS.

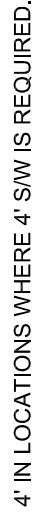
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-230
TYPE "B" CATCH BASIN
5' TO 6' CURB OPENING WITH ACCESS

SECTION "A - A"



ESIGN



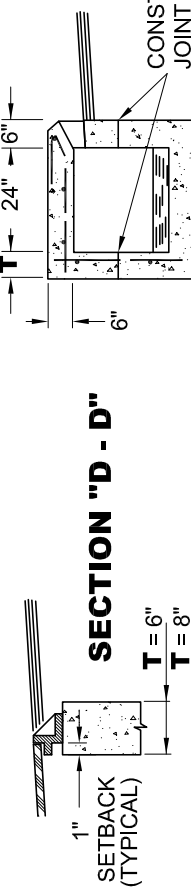
T = 6" IF **V** = 4' OR LESS.
T = 8" IF **V** IS BETWEEN 4' AND 8'.
T = 10" IF **V** IS 8' OR MORE (IF **V** EXCEEDS 10' A SPECIAL DESIGN IS REQUIRED)
V = 4'-0" UNLESS OTHERWISE NOTED.

1. THE ENTIRE CATCH BASIN COVER MAY BE PRE-CAST OR POURED IN PLACE.
2. CONNECTION PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS PROVIDED THE POSITION IS CONSISTENT WITH THE PLAN.
3. OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
4. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TOWARDS OUTLET.
5. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF INDUSTRIAL GRADE OSHA SAFETY GREEN (OR APPROVED EQUAL).
6. GUTTER SHALL NOT BE DEPRESSED FROM A STRAIGHT LINE GRADE.
7. SEE STD. DT. NO. 5-280 FOR DETAILS COMMON TO ALL CURB OPENING BASINS.

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-240
TYPE "C" CATCH BASIN
8' CURB OPENING WITH ACCESS

[illegible]

1. SINGLE CATCH BASIN WITH SUMP AND WING BASIN UPSTREAM (ILLUSTRATED).
2. DOUBLE CATCH BASIN SUMP WITH SYMMETRICAL WING BASINS EACH SIDE.
3. PIPES CAN BE PLACED IN ANY WALL EXCEPT WALL UNDER WING BASIN.
4. SUMP FLOOR SHALL HAVE A WOOD TROWEL FINISH AND A MINIMUM SLOPE OF 4:1 IN ALL DIRECTIONS TOWARDS OUTLET PIPE.
5. ALL REINFORCING BARS SHALL BE #4, 18" C TO C BOTH WAYS AND 1 1/2" CLEAR TO INSIDE OF WALLS AND OUTSIDE OF WING BASIN FLOOR EXCEPT AS SHOWN.
6. ALL CONCRETE SHALL BE CLASS "A".
7. CONSTRUCTION JOINTS SHALL BE PLACED TO MEET FIELD CONDITIONS.
8. T = 6" WHEN V IS LESS THAN 8" AND 8" WHEN GREATER THAN 8". SEE SECTION "D-D".
9. GUTTER SHALL NOT BE DEPRESSED FROM A STRAIGHT LINE GRADE TO CREATE A BUMP.
10. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF *INDUSTROW* OSHA SAFETY GREEN OR APPROVED EQUAL.
11. SEE STD. DT.NO. 5-280 FOR DETAILS COMMON TO ALL CURB OPENING BASINS.

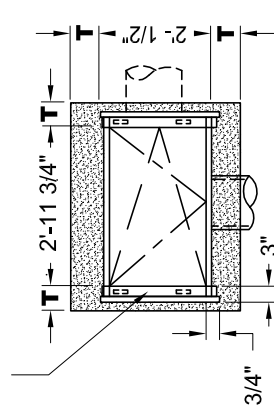
Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

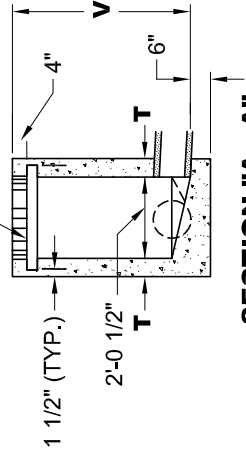
STANDARD NO. 5-250
TYPE "D" CATCH BASIN

GRATE FRAME AND FRAME ANCHORS



SINGLE CATCH BASIN PLAN

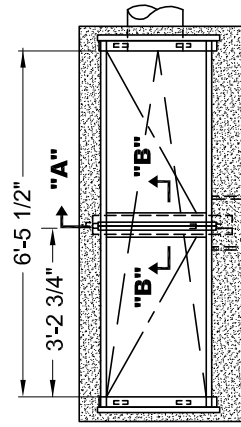
GRATE SUPPORT FOR DOUBLE & TRIPLE ONLY SEE **SECT. "B - B"**



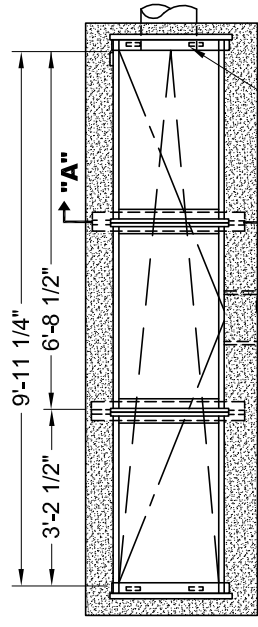
SECTION "A - A"

CATCH BASIN WALL THICKNESS

T = 6" IF **V** IS 4' OR LESS
T = 8" IF **V** IS 4' TO 8' (IF **V** EXCEEDS 8'
 A SPECIAL DESIGN IS REQUIRED)
V = 3'-0" UNLESS OTHERWISE NOTED

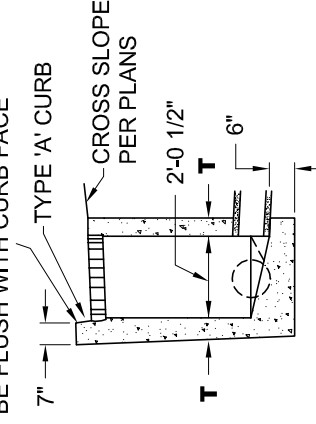


DOUBLE CATCH BASIN PLAN

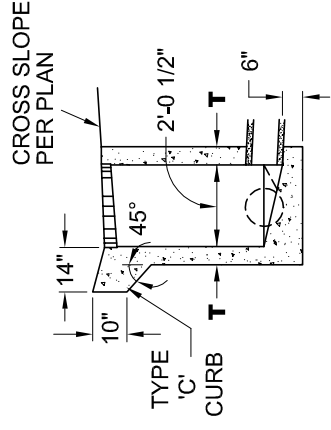


GRATE FRAME & FRAME ANCHORS
TRIPLE CATCH BASIN PLAN

INSIDE OF GRATE FRAME TO BE FLUSH WITH CURB FACE



SECTION "B - B"



TYPE "E" CATCH BASIN IN VERTICAL CURB & GUTTER

TYPE "E" CATCH BASIN IN ROLL CURB & GUTTER

NOTES

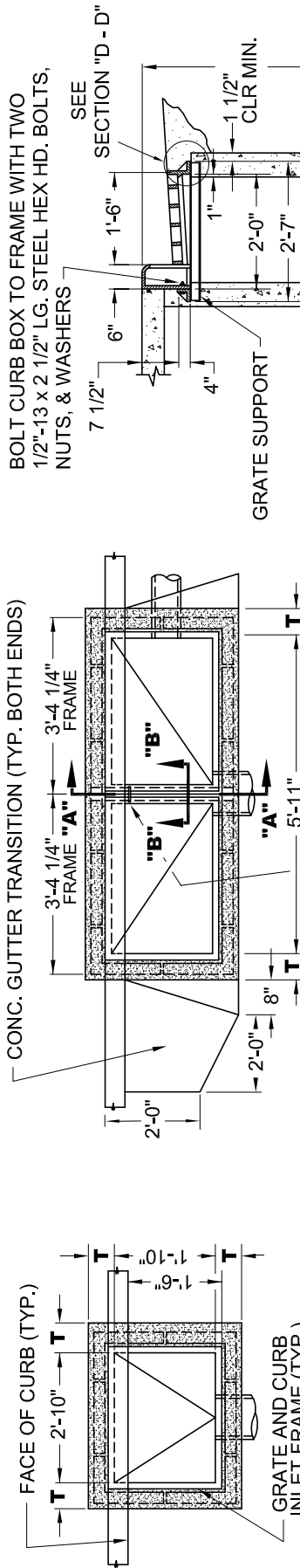
1. ALL CONCRETE SHALL BE CLASS "A".
2. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLAN.
3. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TOWARDS OUTLET PIPE.
4. CONNECTOR PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
5. PLANS SHOULD SPECIFY GRATE AND INVERT ELEVATIONS.
6. THE TYPE "E" CATCH BASIN MAY BE PREFABRICATED PROVIDING THAT A SHOP DRAWING IS APPROVED BY THE CITY ENGINEER PRIOR TO FABRICATION.
7. THE FRAME AND GRATE SHALL BE NEENAH R-3076, R-3077 OR APPROVED EQUAL.
8. GUTTER SHALL NOT BE DEPRESSED FROM A STRAIGHT LINE GRADE TO CREATE BUMP.
9. CATCH BASINS SHALL CONTAIN #4 REBAR 18" C TO C IN WALLS AND FLOORS.
10. ALL STRUCTURAL STEEL AND CASTINGS SHALL BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF "INDUSTRON O.S.H.A. SAFETY GREEN" PAINT OR APPROVED EQUAL.

Issued: February 2009

CITY OF YUMA

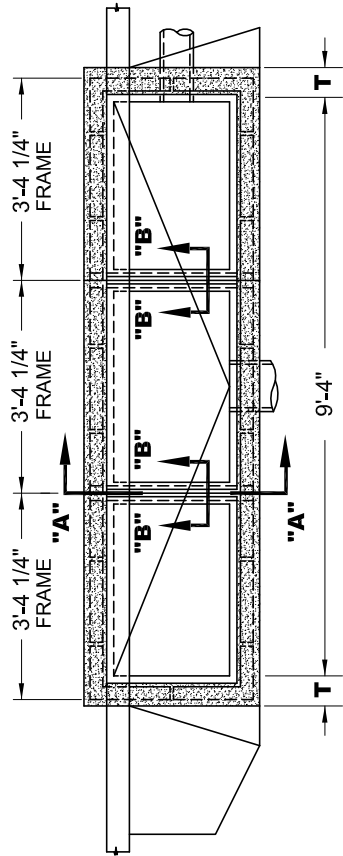
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-260
TYPE "E" CATCH BASIN
SINGLE - TRIPLE GRATE



SINGLE CATCH BASIN PLAN

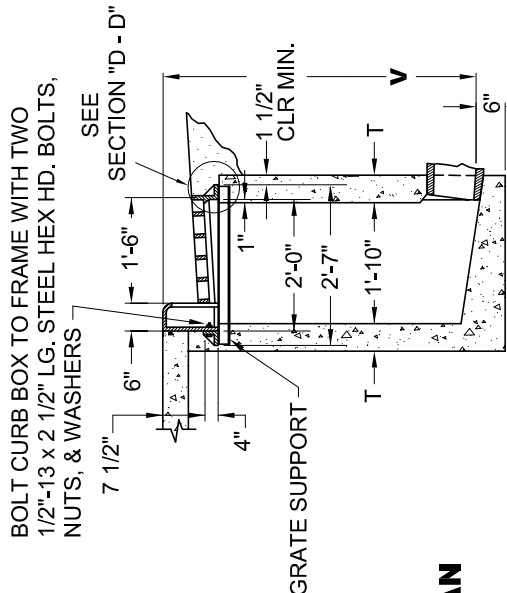
DOUBLE CATCH BASIN PLAN



TRIPLE CATCH BASIN PLAN

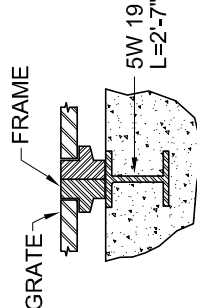
NOTES

1. ALL CONCRETE SHALL BE CLASS "A".
2. CONNECTOR PIPES MAY BE PLACED IN ANY WALL AS PER PLAN.
3. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET PIPE.
4. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE THE CONCRETE IS POURED.
5. THE SINGLE FRAME & CURB BOX SHALL BE A NEENAH TYPE R-3067 OR APPROVED EQUAL. THE DOUBLE & TRIPLE FRAME AND CURB BOX SHALL BE A NEENAH TYPE R-3295-A, R-3295-B OR APPROVED EQUAL. THE GRATES SHALL BE TYPE DL, LL, OR APPROVED EQUAL.
6. GUTTER SHALL NOT BE DERESSED FROM A STRAIGHT LINE GRADE TO CREATE BUMP.
7. CATCH BASINS SHALL CONTAIN #4 REBAR PLACED 18" C TO C IN WALLS & FLOORS.
8. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF *INDUSTRON* OSHA SAFETY GREEN (OR APPROVED EQUAL).

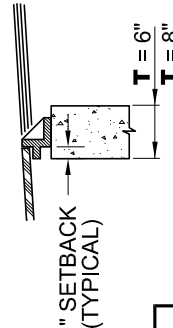


GRATE SUPPORT FOR DOUBLE & TRIPLE COVERS SEE SECTION "B - B"

SECTION "A - A"



SECTION "B - B"

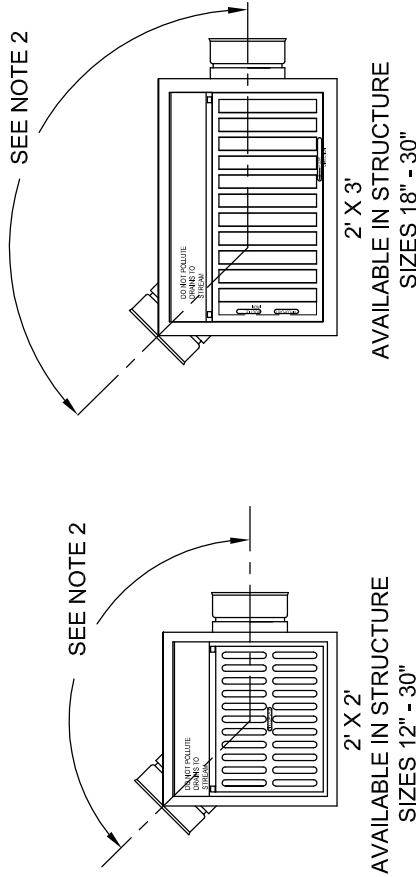


CATCH BASIN WALL THICKNESS
T = 6" IF V IS LESS THAN 8'
T = 8" IF V IS GREATER THAN 8'

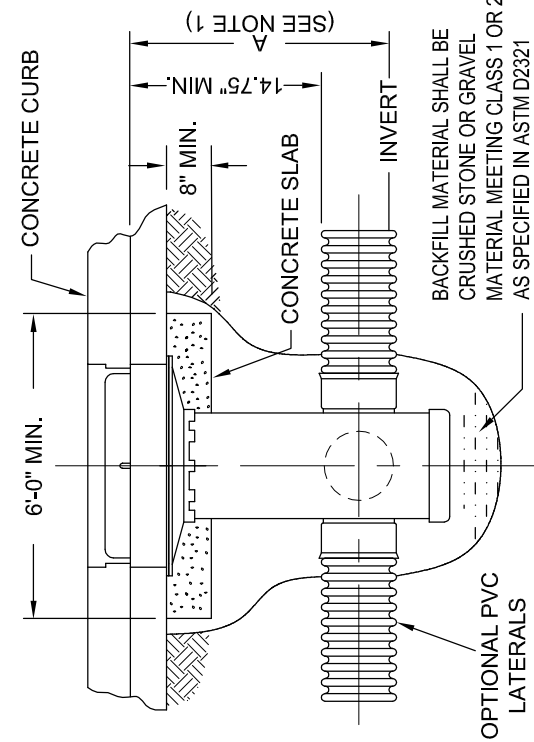
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-270
TYPE "F" CATCH BASIN
CURB OPENING WITH SINGLE TRIPLE GRATE



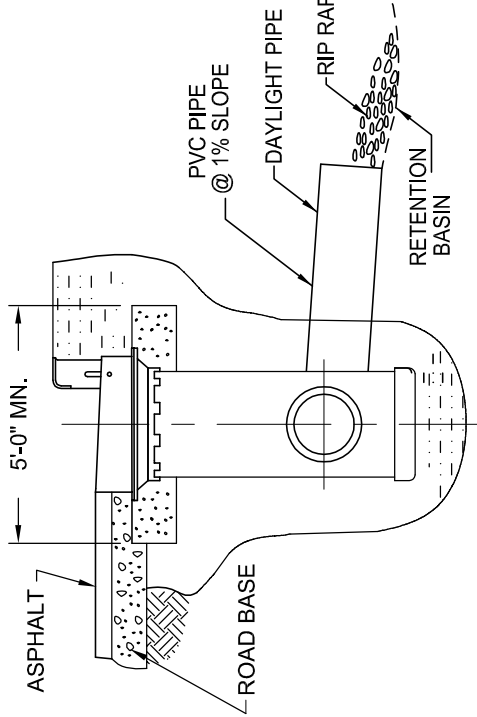
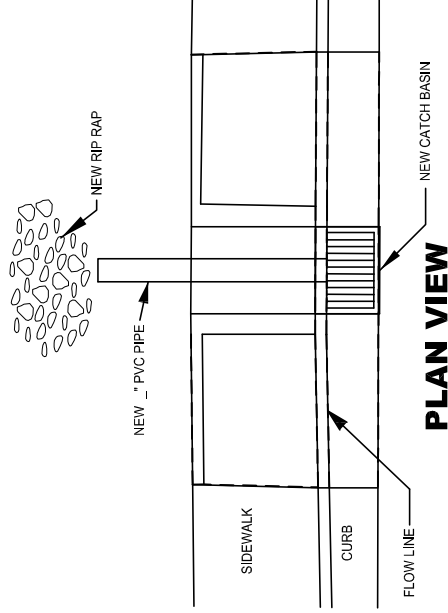
AVAILABLE IN STRUCTURE SIZES



FRONT VIEW

NOTES

1. MAXIMUM RECOMMENDED OVERALL HEIGHT 10'.
2. ADAPTERS CAN BE MOUNTED AT ANY ANGLE 0° TO 359°.
3. USE NYLOPLAST OR APPROVED EQUAL



SIDE VIEW

PIPE SIZE	A (ADS N-12 PIPE)
4"	20.00"
6"	22.00"
8"	24.00"
10"	26.00"
12"	29.00"
15"	32.00"
18"	35.00"
24"	42.00"
30"	48.00"

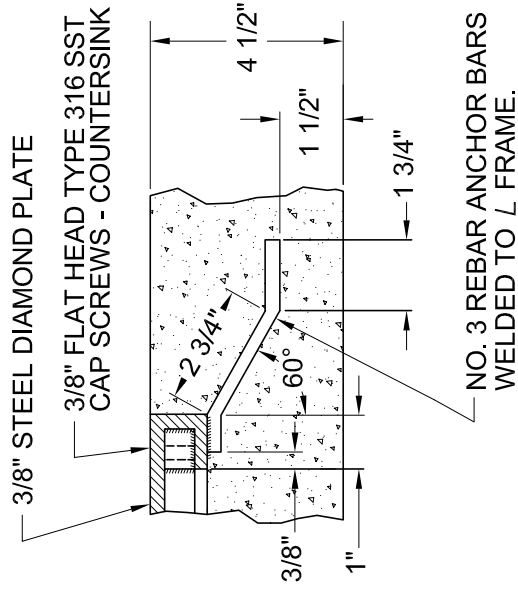
Issued: February 2009

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-275 CATCH BASIN WITH HDPE STRUCTURE

3/8" FLAT HEAD TYPE 316 SST
CAP SCREWS - COUNTERSINK



APPLIES TO:

TYPE "B" CATCH BASIN (STD.DT.NO. 5-230)

TYPE "C" CATCH BASIN (STD.DT.NO. 5-240)

1. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF **INDUSTRON** OSHA SAFETY GREEN (OR APPROVED EQUAL):

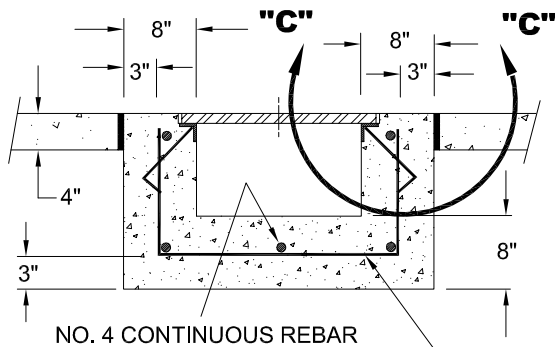
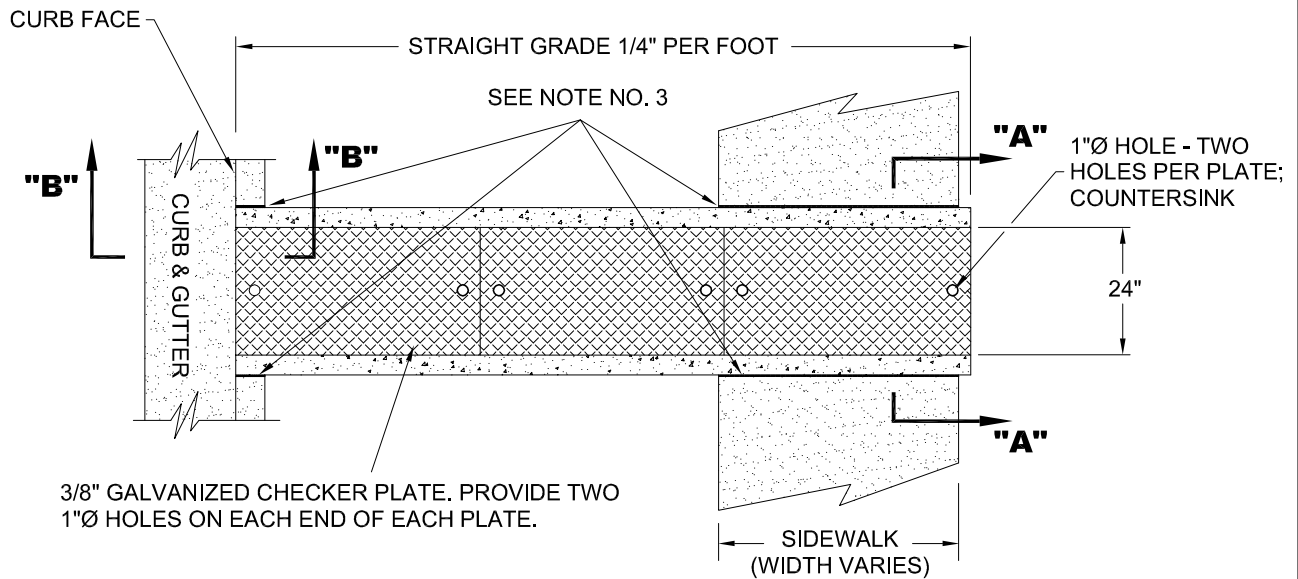
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-280
COVER FOR ACCESS OPENING
TYPE "B" AND "C" CATCH BASINS

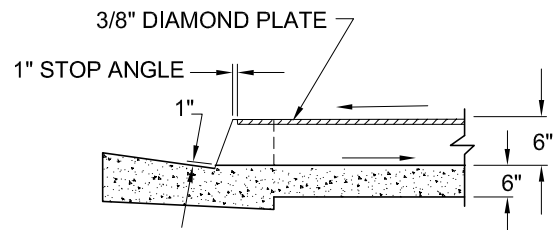


1. UNLESS OTHERWISE SPECIFIED, CURB OPENING HEIGHT **H** SHALL BE 5".
2. WHEN CURB OPENING HEIGHT **H** EXCEEDS 6" INSTALL 1"Ø STEEL PROTECTION BARS. THE PROTECTION BARS SHALL EXTEND THE FULL LENGTH OF THE CURB OPENING AND SHALL BE EMBEDDED A MINIMUM OF 3" AT EACH END.
3. INSTALL ADDITIONAL BARS AT 3 1/2" CLEAR SPACING ABOVE FIRST BAR WHEN OPENING EXCEEDS 13".
4. WHEN CURB OPENING LENGTH EXCEEDS 6" INSTALL 1"Ø STEEL SUPPORT BOLTS SPACED NO MORE THAN 4" O.C.
5. ALL STRUCTURAL STEEL AND CASTINGS TO BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF *INDUSTRON* OSHA SAFETY GREEN (OR APPROVED EQUAL).
6. ALL METAL UNITS SHALL BE FABRICATED FROM STRUCTURAL STEEL EXCEPT AS NOTED. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH A.S.T.M. A-36.
7. WELDING SHALL BE IN ACCORDANCE WITH STANDARD WELDING SPECIFICATIONS.
8. CONNECTOR PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE THE CONCRETE IS POURED.

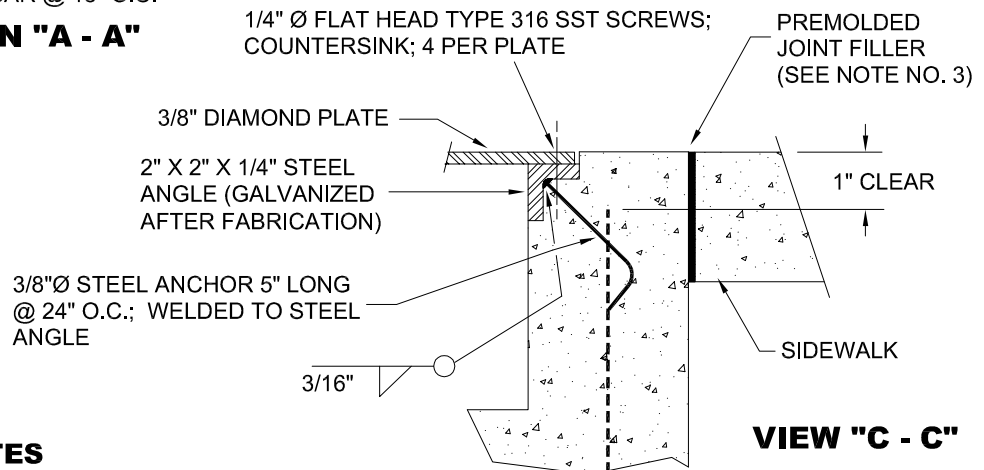
STANDARD NO. 5-290



SECTION "A - A"



SECTION "B - B"



VIEW "C - C"

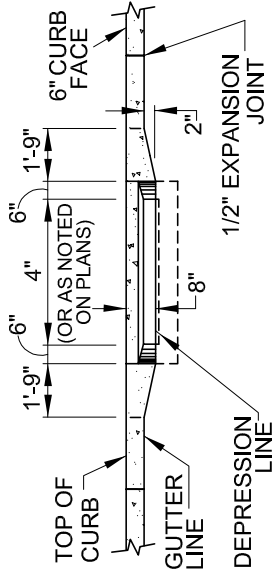
NOTES

1. FOR NEW DRAINS UNDER SIDEWALK, EXISTING SIDEWALK DRAINS, EXISTING SIDEWALK, CURB AND GUTTER SHALL BE REMOVED AND RECONSTRUCTED TO THE SATISFACTION OF THE CITY ENGINEER.
2. ALL STRUCTURAL STEEL AND CASTINGS SHALL BE PAINTED ONE SHOP COAT AND TWO FIELD COATS OF *INDUSTRON* OSHA SAFETY GREEN PAINT (OR APPROVED EQUAL).
3. THE ONE-HALF INCH JOINT FILLER SHALL BE THE BITUMINOUS TYPE MEETING A.A.S.H.T.O. M-33 OR A.S.T.M. D-1751 SPECIFICATIONS AND SHALL EXTEND THE FULL DEPTH OF THE CONCRETE.

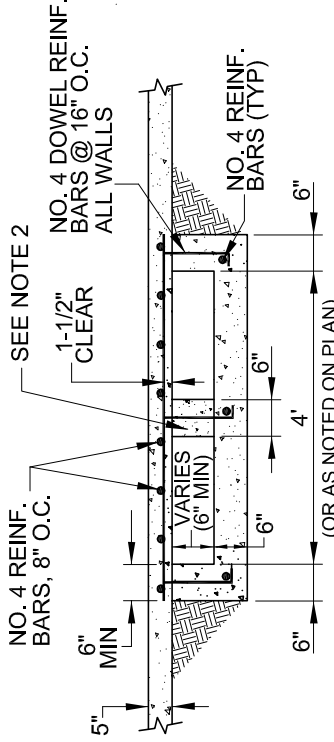
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

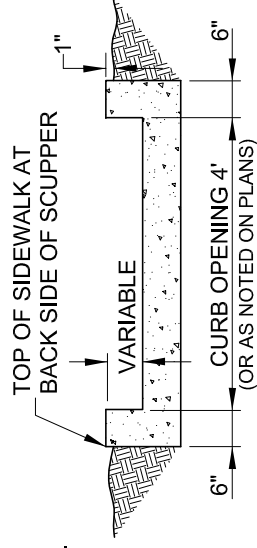
STANDARD NO. 5-310
DRAIN UNDER SIDEWALK



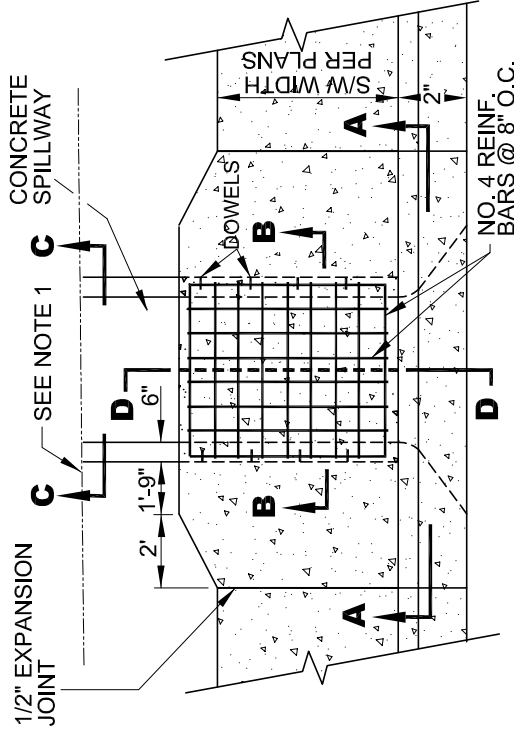
SECTION A-A



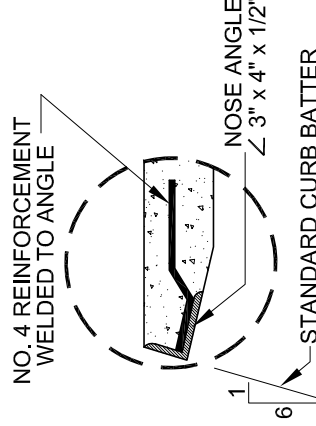
SECTION B-B



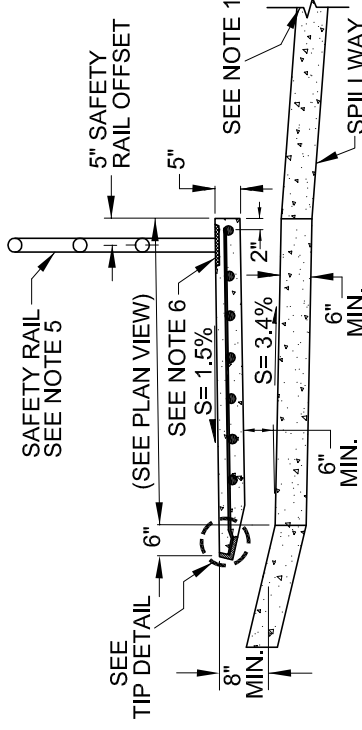
SECTION C-C SPILLWAY



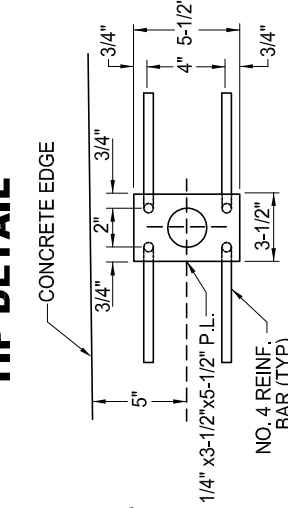
SCUPPER PLAN VIEW



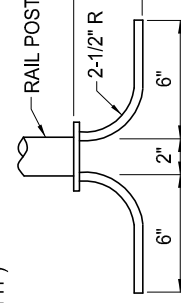
TIP DETAIL



SECTION D-D



ISOMETRIC VIEW



WELD PLATE

NOTES:

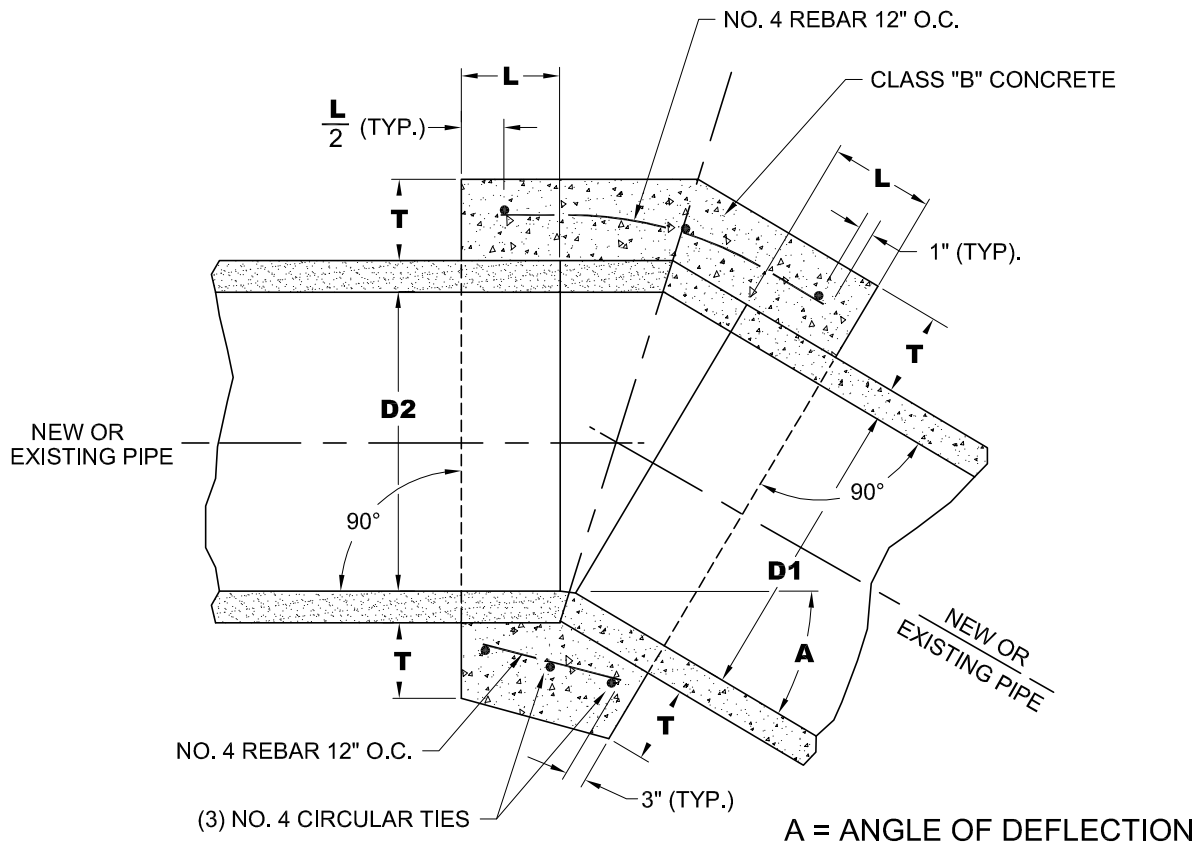
1. TRANSITION TO SPILLWAY/CHANNEL AS PER APPROVED PLANS.
2. A CENTER WALL SHALL BE INSTALLED IN SCUPPERS WIDER THAN 4' OR IF MORE THAN 1 SCUPPER IS BUILT IN SERIES.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER, ASTM D-1751.
4. CONCRETE FOR THE SCUPPER SHALL BE CLASS 'A' PER SECTION 725.
5. CONCRETE FOR THE SPILLWAY SHALL BE CLASS 'A' OR CLASS 'B'.
6. CONCRETE SCUPPER TO BE USED WITH CITY ENGINEER'S APPROVAL ONLY.
7. USE WELD PLATES FOR SAFETY RAIL ANCHORS LOCATED IN THE 5" THICK CONCRETE.

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-320
CONCRETE SCUPPER**



USED ONLY WITH APPROVAL OF THE CITY ENGINEER

NOTES

1. A CONCRETE COLLAR IS REQUIRED WHERE PIPES OF DIFFERENT DIAMETERS OR MATERIALS ARE JOINED, OR WHERE THE CHANGES IN ALIGNMENT OR GRADE EXCEED WHAT IS ALLOWED FOR ORDINARY JOINTS.
2. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR DIMENSIONS **L** AND **T** SHOULD BE THOSE OF THE LARGER PIPE.
3. FOR PIPE SIZES NOT LISTED USE NEXT SIZE LARGER.
4. OMIT REINFORCING ON PIPE SIZES 24" AND SMALLER.
5. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE OUTSIDE DIAMETER + **T**.
6. FIELD CLOSURES OF PIPES OF THE SAME DIAMETER AND WITHOUT CHANGES IN GRADE OR ALIGNMENT, SHALL BE MADE WITH A CONCRETE COLLAR.

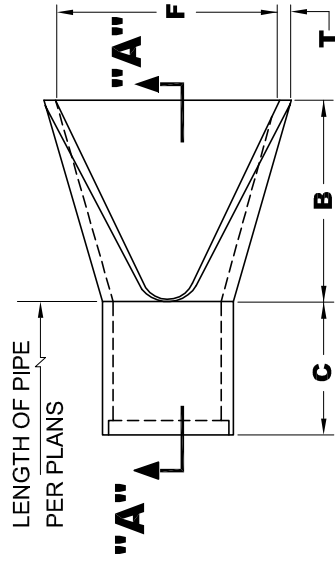
TABLE

D	L	T
12"	1.0'	4"
18"	1.0'	5"
24"	1.0'	6"
36"	1.5'	8"
48"	1.5'	10"
57"	1.5'	10"
60"	1.75'	11"
66"	1.75'	11"

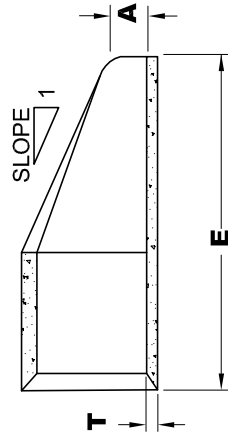
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

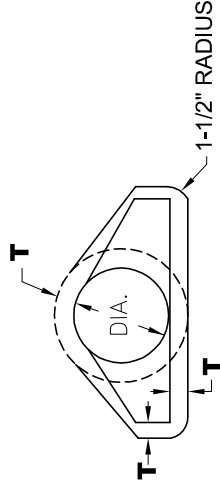
STANDARD NO. 5-350
CONCRETE PIPE COLLAR



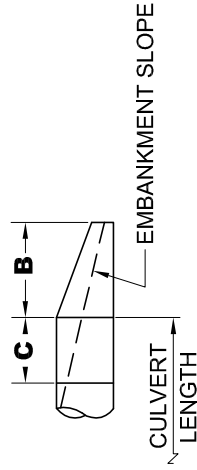
PLAN



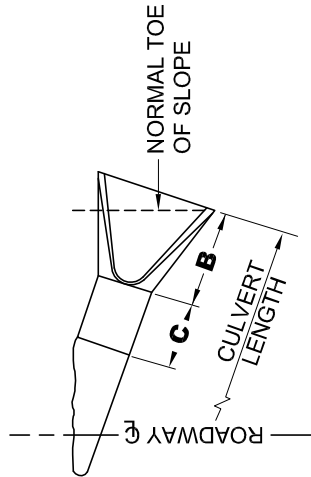
SECTION "A - A"



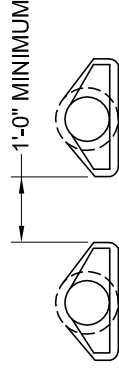
FRONT ELEVATION



RIGHT ANGLE CULVERT



SKewed CULVERT



SPACING FOR MULTIPLE INSTALLATION

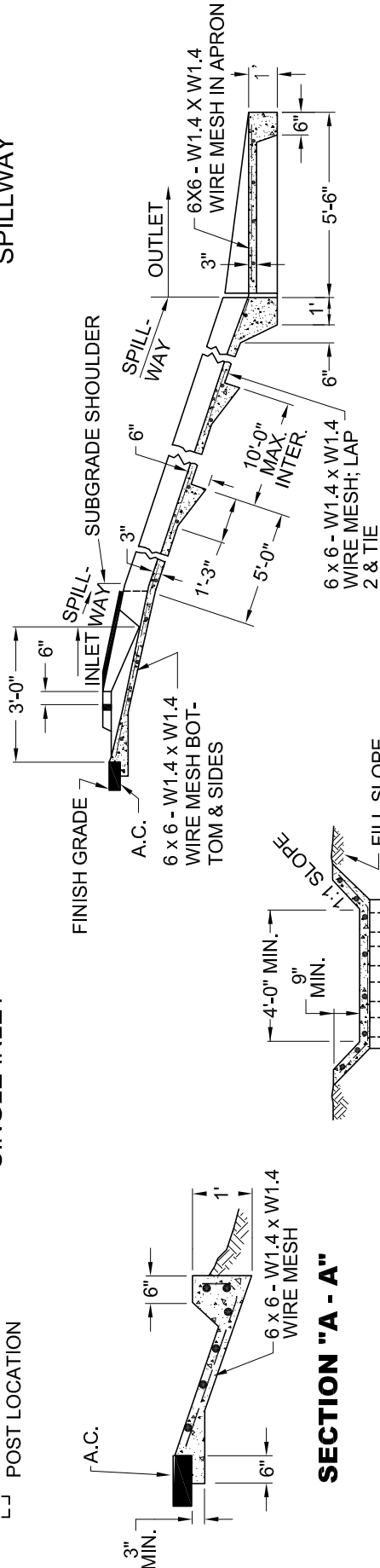
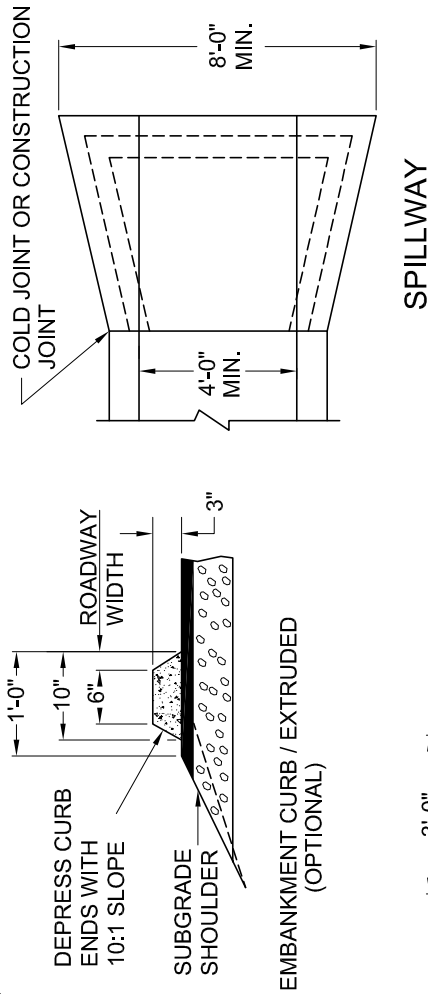
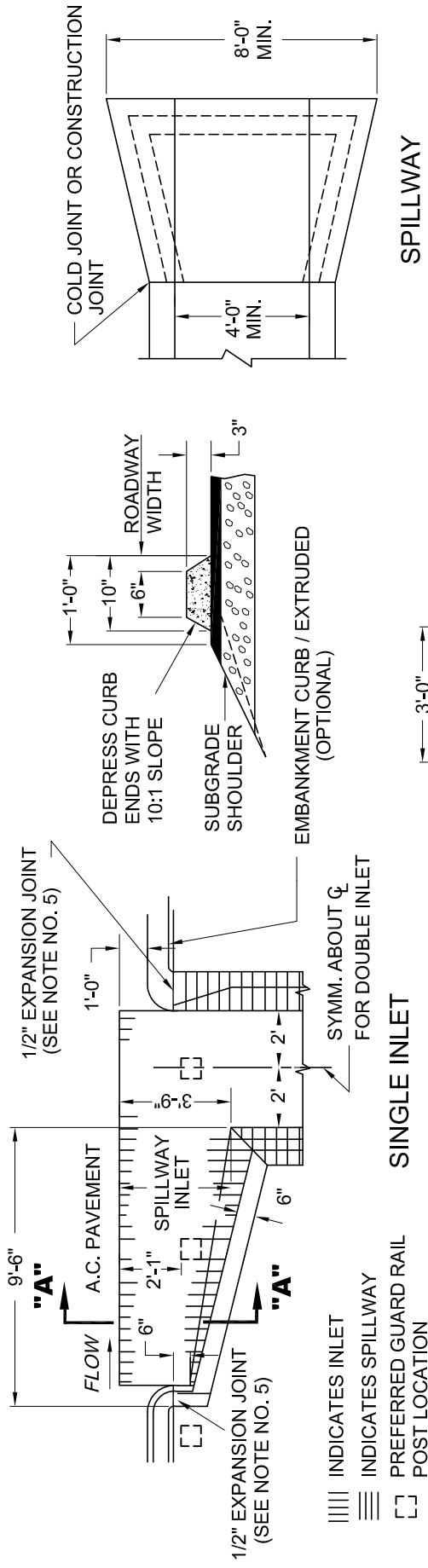
PIPE DIA.	APPROX. WEIGHT	DIMENSIONS - INCHES						APPROX. SLOPE
		T	A	B	C	E	F	
24"	1520LBS	3"	9-1/2"	43-1/2"	30"	73-1/2"	48"	3"
27"	1930LBS	3-1/4"	10-1/2"	49-1/2"	24"	73-1/2"	54"	3"
30"	2190LBS	3-1/2"	12"	54"	19-3/4"	73-3/4"	60"	3"
36"	4100LBS	4"	15"	63"	34-3/4"	97-3/4"	72"	3"
42"	5380LBS	4-1/2"	21"	63"	35"	98"	78"	3"
48"	6550LBS	5"	24"	72"	26"	98"	84"	3"
54"	8240LBS	5-1/2"	27"	65"	33-1/4"	98-1/4"	90"	2-1/2"

NOTES

1. DESIGN OF END SECTION SHALL CONFORM TO STANDARDS FOR REINFORCED CONCRETE PIPE.
2. END SECTION JOINT CONFORMATION SHALL MATCH THE PIPE JOINTS.
2. EMBANKMENT SLOPE SHALL BE WARPED TO MATCH SLOPE OF END SECTION.
4. CULVERT LENGTH IS AS SHOWN ON PLANS.
5. REQUIRED GRATES WITH SPACING NO LESS THAN 4" VERTICALLY ALIGNED.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-360
END SECTION
REINFORCED CONCRETE PIPE



SECTION ON SPILLWAY & DOUBLE INLET

SECTION "A - A"

NOTES

1. WHERE ROCK IS ENCOUNTERED THE OUTLET MAY BE OMITTED WITH THE APPROVAL OF THE CITY ENGINEER.
2. ALL PORTIONS OF THE SPILLWAY SHALL BE TROWEL FINISHED.
3. CONCRETE FOR SPILLWAY INLET, SPILLWAY AND OUTLET SHALL BE CLASS "B".
4. WHEN THE OUTLET IS USED, THE WIRE MESH SHALL EXTEND THROUGH THE JOINT INTO THE OUTLET IN LIEU OF BENDING INTO THE KEY.
5. THE ONE-HALF INCH JOINT FILLER SHALL BE THE BITUMINOUS TYPE MEETING A.A.S.H.T.O. M-33 OR A.S.T.M. D-1751 SPECIFICATIONS AND SHALL EXTEND THE FULL DEPTH OF THE CONCRETE.

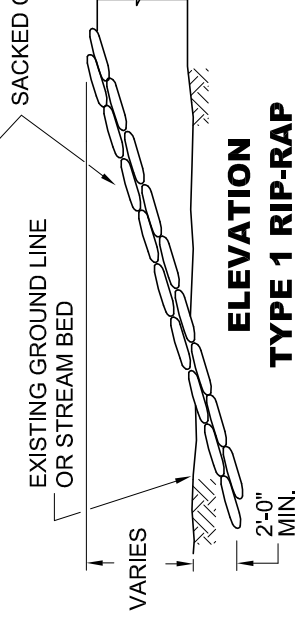
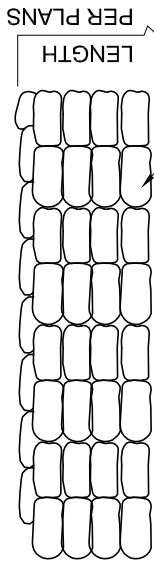
Issued: February 2009

CITY OF YUMA

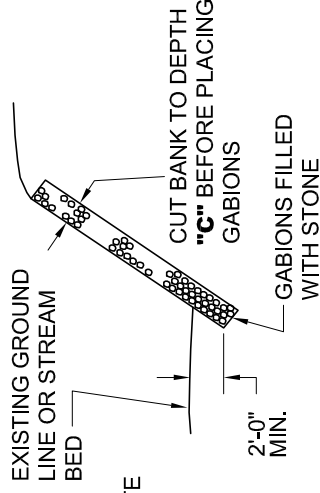
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-370 SPILLWAY INLET AND OUTLET

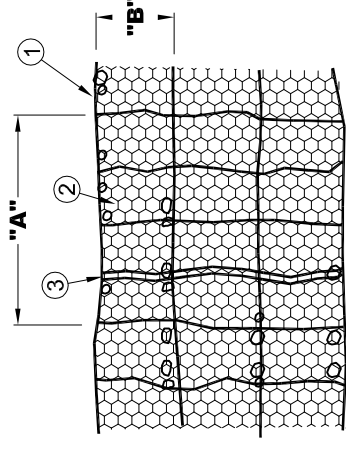
TYPE 1 PLAN



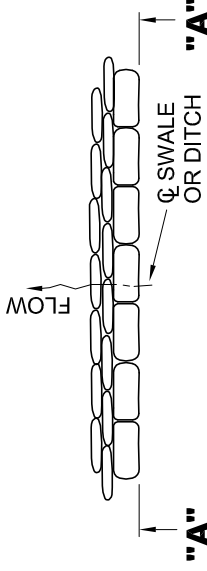
ELEVATION TYPE 1 RIP-RAP



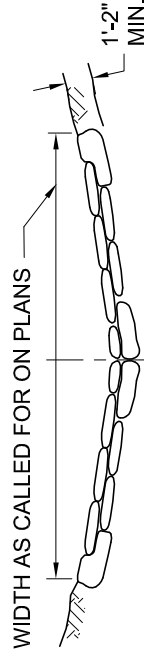
GABION ELEVATION



TYPICAL GABION PLAN



TYPE 2 PLAN



ELEVATION "A - A" TYPE 2 RIP-RAP

NOMINAL SIZE COMBINATIONS		
LENGTH "A"	WIDTH "B"	DEPTH "C"
6'	3'	1', 1.5', 3'
9'	3'	1', 1.5', 3'
12'	3'	1', 1.5', 3'

OTHER SIZES AVAILABLE FROM MANUFACTURER

NOTES

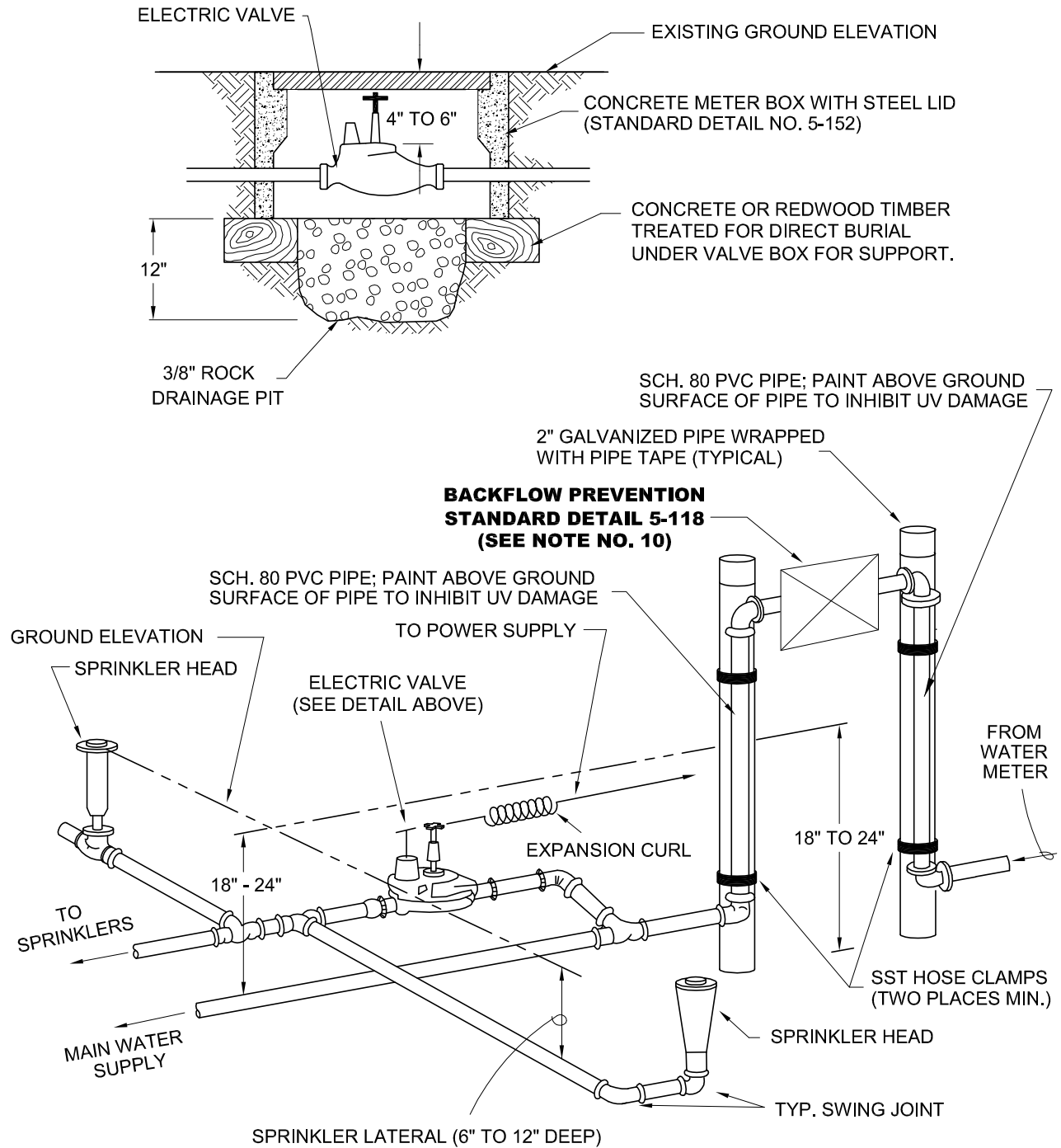
1. PLAIN OR GROUTED ROCK MAY BE SUBSTITUTED FOR SACKED CONCRETE.
2. GROUT FOR RIP-RAP MAY BE PNEUMATICALLY PLACED MORTAR.
3. GEOTEXTILE FABRIC WITH A 4" SAND BLANKET SHALL BE PLACED BETWEEN NATIVE SOIL AND RIP-RAP.
4. SACKED CONCRETE RIPRAP SHALL CONFORM TO THE 2000 EDITION OF ADOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 913-3.08 SACKED CONCRETE RIPRAP.

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-390 EROSION PROTECTION RIPRAP



**NOTES ARE FOUND ON SHEETS 2
AND 3 OF THIS DETAIL.**

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SHEET 1 OF 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-500
IRRIGATION SPRINKLER SYSTEM**

NOTES:

1. ALL MAIN AND LATERAL LINES SHALL BE SNAKED FROM SIDE TO SIDE OF TRENCHES TO ALLOW FOR EXPANSION AND CONTRACTION.
2. ALL PARTS SHALL BE "HUNTER" OR APPROVED EQUAL.
3. SWING JOINTS SHALL BE INSTALLED FOR ANY SPRINKLER WITH 3/4" & LARGER INLET SIZE, USING STREET ELLS ("MARLEX" OR APPROVED EQUAL).
4. PIPE TYPE:
 - a. MAINS AND LATERALS (MINIMUM): **SCHEDULE 40 PVC.**
 - b. RISERS FOR SPRINKLERS AND ELECTRICAL CONTROL VALVES SHALL BE OF SCHEDULE 80 PVC PIPE AND, IF EXPOSED TO DIRECT SUNLIGHT, SHALL BE PAINTED TO INHIBIT U.V. DAMAGE.
5. TRENCHES:

SHOULD BE CONTINUOUS AND SMOOTH, FREE OF ROCKS AND RUBBISH. AREAS WITH LEDGE ROCK, HARDPAN OR ROCKY SOIL SHALL BE PADDED WITH SAND OR FINE GRAINED SOIL. THE TRENCHES FOR THE MAINS SHALL BE 18" - 24" BELOW EXISTING GRADE. THE TRENCHES FOR THE SPRINKLER LATERALS SHALL BE 12" BELOW THE SURFACE.
6. BACKFLOW PREVENTERS:
 - a. SHALL BE CONSTRUCTED OF BRASS AND STAINLESS STEEL, BRASS BODY AND ACCESSORY CONSTRUCTION WITH REPLACEABLE SEATS, STAINLESS STEEL TRIM AND REMOVABLE BRASS SEATS.
 - b. CHECK VALVE AND RELIEF VALVE ASSEMBLIES SHALL BE CONSTRUCTED WITH TIGHT SEATING RUBBER DISCS.
 - c. SHALL INCLUDE TWO BRASS AND STAINLESS STEEL GATE OR BALL VALVES FOR ISOLATING UNIT AND TESTING SYSTEM.
 - d. SHALL BE INSTALLED 12" HIGHER THAN THE HIGHEST SPRINKLER HEAD AND / OR BASIN HIGHWATER LEVEL. THE BACKFLOW PREVENTERS SHALL BE SUPPORTED ABOVE GROUND WITH GALVANIZED PIPE (WRAPPED WITH PIPE TAPE) AND SST HOSE CLAMPS.
 - e. UNITS SMALLER THAN 2 1/2" DIAMETER SHALL INCLUDE UNIONS FOR EASE OF REPAIR AND / OR REPLACEMENT. UNITS 2 1/2" AND LARGER SHALL BE FLANGED.
 - f. ALL BACKFLOW PREVENTERS ARE TO BE HOUSED IN A PROTECTIVE CAGE (SEE STANDARD DETAIL NO. 5-510).
7. MANUAL SHUT-OFF VALVES:

SHALL BE CONSTRUCTED OF BRASS AND STAINLESS STEEL, HEAVY-DUTY, AND CONTAIN ANGLE OR BALL TYPE VALVES. IF IT WILL BE INSTALLED ABOVE GROUND, IT SHALL BE SUPPORTED BY GALVANIZED PIPE (WRAPPED WITH PIPE TAPE) AND SST HOSE CLAMPS. IF INSTALLED AT GROUND LEVEL OR BELOW, IT SHALL BE SUPPORTED BY SCHEDULE 80 PVC PIPE. ALL VALVES SHALL BE ENCLOSED WITHIN HEAVY DUTY PLASTIC VALVE BOXES WITH LIDS.
8. SOLVENTS AND PRIMERS:

ONLY SOLVENTS AND PRIMERS RECOMMENDED BY THE PIPE AND FITTING MANUFACTURER SHALL BE USED. ALL EXCESS SOLVENT SHALL BE REMOVED FROM PIPE AND FITTINGS.
9. PLASTIC FITTINGS:

THREADED FITTINGS SHALL BE TREATED WITH A NON-HARDENING PIPE DOPE ON ALL PLASTIC TO METAL THREADED JOINTS. SLIP FITTINGS SHALL BE USED WHEN INSTALLING RISERS TO THE SPRINKLERS, ALLOWING EASIER INSTALLATION OF NEW RISERS AND SPRINKLERS.
10. ELECTRIC REMOTE CONTROL VALVES:
 - a. SHALL BE CONSTRUCTED OF DURABLE PLASTIC, BODY AND BONNET, CORROSION RESISTANT INTERNAL COMPONENTS.
 - b. MANUAL OPEN AND CLOSE CONTROL FLOW, ADJUSTABLE CONTROL, 24 VOLT SOLENOID COIL.
 - c. SHALL BE "HARDIE" OR APPROVED EQUAL.

**ADDITIONAL NOTES ARE LOCATED
ON PAGE 3 OF THIS DETAIL.**

Issued: February 2009

SHEET 2 OF 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 5-500
IRRIGATION SPRINKLER SYSTEM**

NOTES

(continued)

10. ELECTRICAL REMOTE CONTROL VALVES (continued):

- d. ELECTRICAL WIRING TO SOLENOID SHALL BE INSTALLED WITH EXPANSION CURLS.
- e. ALL ELECTRICAL VALVES SHALL BE ENCLOSED IN HEAVY DUTY VALVE BOXES WITH LIDS. LIDS SHALL BE LEVEL WITH THE GROUND, 3/8" ROCK SHALL BE PLACED UNDER ALL ELECTRIC VALVES AT A DEPTH OF 8" - 12".
- f. ELECTRICAL WIRING FOR VALVES SHALL BE 14 GAUGE, LOW VOLTAGE, RATED FOR DIRECT BURIAL, AND WEATHER RESISTANT. ALL CONNECTIONS SHALL BE MADE WITH WIRE CONNECTORS AND PROTECTED WITH SEALANT APPROVED BY MANUFACTURER. WIRE CONDUIT MAY BE REQUIRED FOR SPECIAL APPLICATIONS, i.e., RODENTS.
- g. WHERE ELECTRICAL POWER IS NOT READILY AVAILABLE, SOLAR POWERED CONTROLLERS ("TROPE-16" OR APPROVED EQUAL) ARE TO BE USED. SOLAR POWERED CONTROLLERS SHALL HAVE A MINIMUM HEIGHT OF THREE (3) FEET AND ARE TO BE HOUSED IN A METAL CASE.

11. IRRIGATION CONTROLLERS:

- a. SHALL BE ELECTRO-MECHANICAL OR MICRO-ELECTRONICS SOLID STATE.
- b. SHALL BE CAPABLE OF FULLY AUTOMATIC OR MANUAL OPERATION OF THE SYSTEM.
- c. SHALL BE HOUSED IN A WALL OR PEDESTAL MOUNTABLE HEAVY DUTY METAL OR PLASTIC WEATHER PROOF CABINET.
- d. CONTROLLERS SHALL OPERATE ON 120 VOLTS A.C. POWER INPUT AND BE CAPABLE OF OPERATING 24-VOLT A.C. ELECTRIC REMOTE CONTROL VALVES. THE CONTROLLERS SHALL HAVE A RESET CIRCUIT BREAKER TO PROTECT FROM POWER OVERLOAD.
- e. THE CONTROLLERS SHALL HAVE FEATURES FOR SETTING IRRIGATION RUNNING TIMES, DAYS AND HOURS, A 14 DAY CALENDAR AND SHALL HAVE THE CAPABILITY OF BEING PROGRAMMED TO OPERATE FOR 1-60 MINUTES IN ONE MINUTE INCREMENTS.

12. SPRINKLERS:

POP- UPS ARE TO BE SPACED FROM 5 TO 24 FEET APART FOR 15 TO 30 PSI WORKING PRESSURE. POP-UP HEIGHT SHALL BE 4" AND BE CONSTRUCTED OF PLASTIC AND STAINLESS STEEL MATERIALS WITH A HEAVY DUTY STAINLESS STEEL RETRACT SPRING. NOZZLES SHALL BE INTERCHANGEABLE FOR DIFFERENT PATTERNS, HAVE A 12-15 FOOT RADIUS, HAVE ADJUSTABLE WATER FLOW, UNDER NOZZLE FILTERS, AND FULL - FLOW INLET OPENING.

13. FULL OR PART- CIRCLE IMPACT ROTOR SPRINKLERS:

- a. PRECIPITATION RATE: 18.79 INCHES PER HOUR
- b. SPACING: 28 TO 54 FEET APART.
- c. OPERATING PRESSURE: 25 TO 60 PSI
- d. INTERCHANGEABLE STANDARD TRAJECTORY, HEAVY-DUTY PLASTIC CASE, 3" POP-UP HEIGHT, ADJUSTABLE ARM SPRING, STRAIGHT THROUGH FLOW, FULL OR ADJUSTABLE ARC (20 TO 340 DEGREES), AND DISTANCE CONTROL DIFFUSER PIN.

14. ADJUSTABLE RADIUS GEAR DRIVEN SPRINKLER:

INTERCHANGEABLE NOZZLES, ADJUSTABLE PRECIPITATION RATE, 4" POP-UP HEIGHT, CONSTRUCTED OF HEAVY-DUTY PLASTIC AND STAINLESS STEEL MATERIALS.

15. MISCELLANEOUS INFORMATION:

- a. LOCATION OF ELECTRIC CONTROL VALVES:
WHERE POSSIBLE VALVES SHALL BE LOCATED IN SERIES ALONG THE MAIN WATERLINE OR OFF A MANIFOLD NEXT TO THE WATER METER. ALL ELECTRIC VALVES SHALL BE CONNECTED TO THE MAIN WATERLINE WITH SCHEDULE 80 RISERS. ALL ELECTRIC VALVES SHALL BE 4" TO 6" BELOW THE SURFACE.
- b. ALL TRENCHES SHALL BE BACKFILLED AND LEVELED. ALL MAIN AND LATERAL LINES SHALL BE SNAKED FROM SIDE TO SIDE OF TRENCHES TO ALLOW FOR EXPANSION AND CONTRACTION. ALL SPRINKLER HEADS SHALL BE LEVELED TO THE TERRAIN, ADJUSTED PROPERLY, AND PRESSURE TESTED. ALL ELECTRICAL WIRING FOR THE IRRIGATION SYSTEM SHALL BE PLACED ALONGSIDE THE MAINLINES, FREE OF CUTS AND/OR FOLDS.

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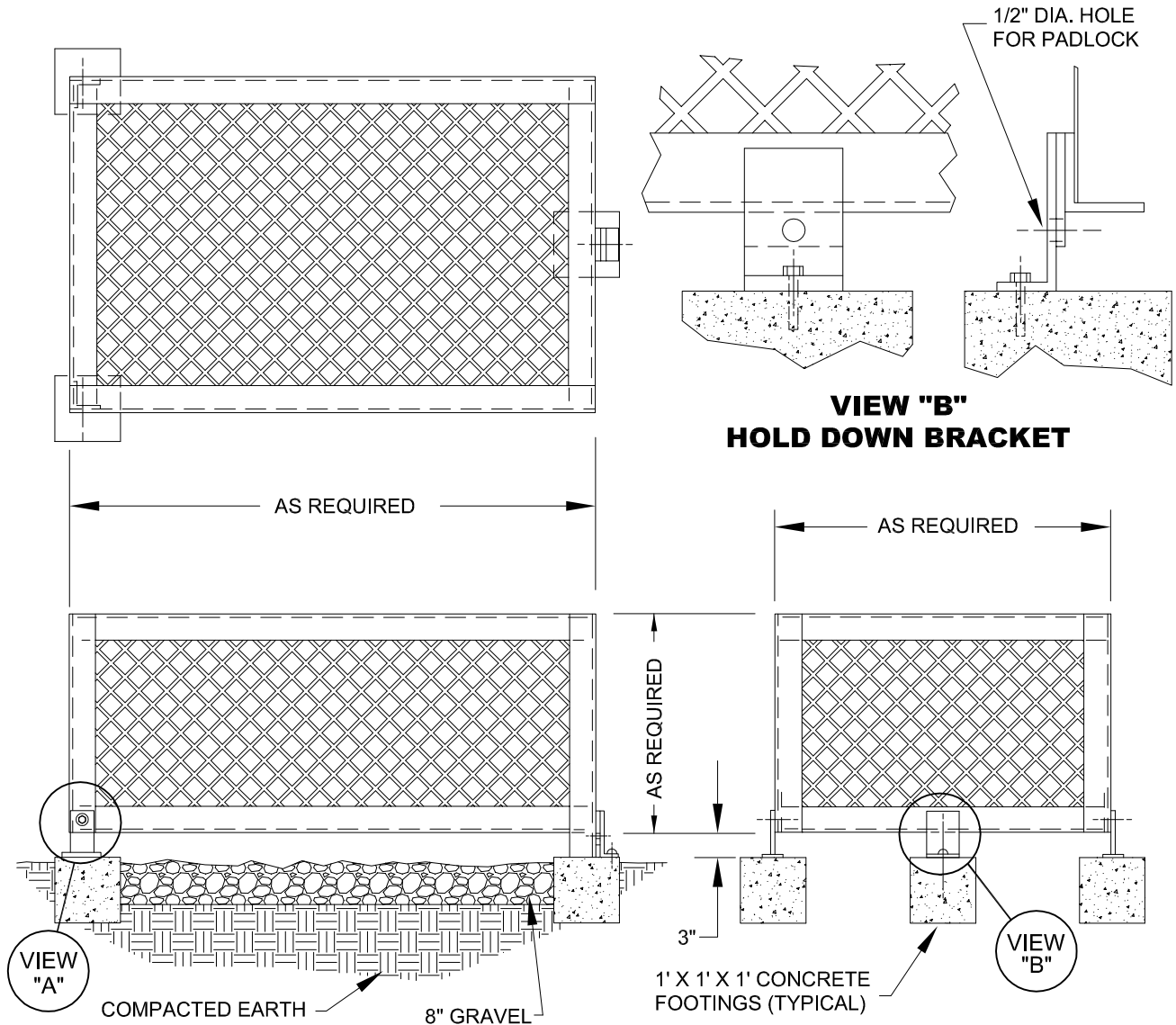
SHEET 3 OF 3

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

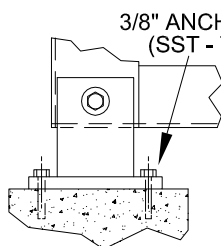
STANDARD NO. 5-500
IRRIGATION SPRINKLER SYSTEM

NOTES

1. CONSTRUCT FRAME FROM 1 1/2" X 1 1/2" X 1/4" ANGLE IRON (WELDED ASSEMBLY)
2. CONSTRUCT HINGES / HOLD DOWN BRACKET FROM 1/4" STEEL.
3. 1/4" X 1/4" STEEL MESH TACK WELDED TO ANGLE IRON FRAME.
4. DE-BURR AND ROUND ALL WELDS AND SHARP EDGES.
5. OVERALL DIMENSIONS (HEIGHT/LENGTH & WIDTH) TO BE DETERMINED BY APPLICATION.
6. ASSEMBLY SHALL RECEIVE ONE COAT OF METAL PRIMER AND TWO FINISH COATS OF *INDUSTRON "SAHARA SAND"* RUST RESISTANT PAINT (OR APPROVED EQUAL).
7. CONCRETE FOOTINGS SHALL BE CONSTRUCTED OF CLASS "B" CONCRETE.



PLACE A NYLON WASHER BETWEEN THE CAGE FRAME AND HINGE



**VIEW "A"
METAL HINGE**

STAINLESS STEEL BOLT, FLAT WASHERS AND NUT

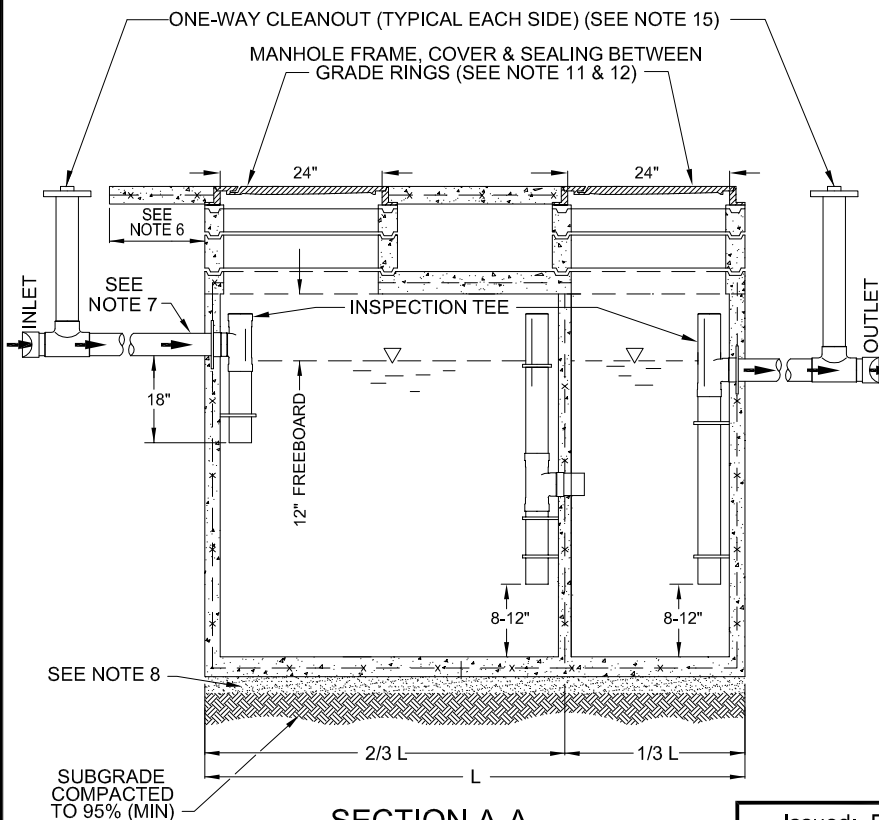
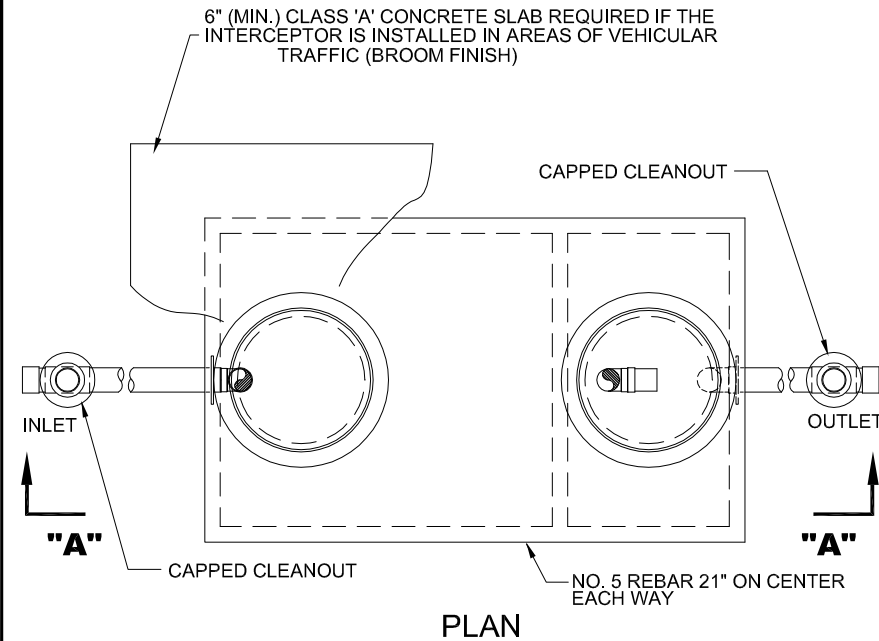
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 5-510
CAGE FOR
BACKFLOW PREVENTER

NOTES:

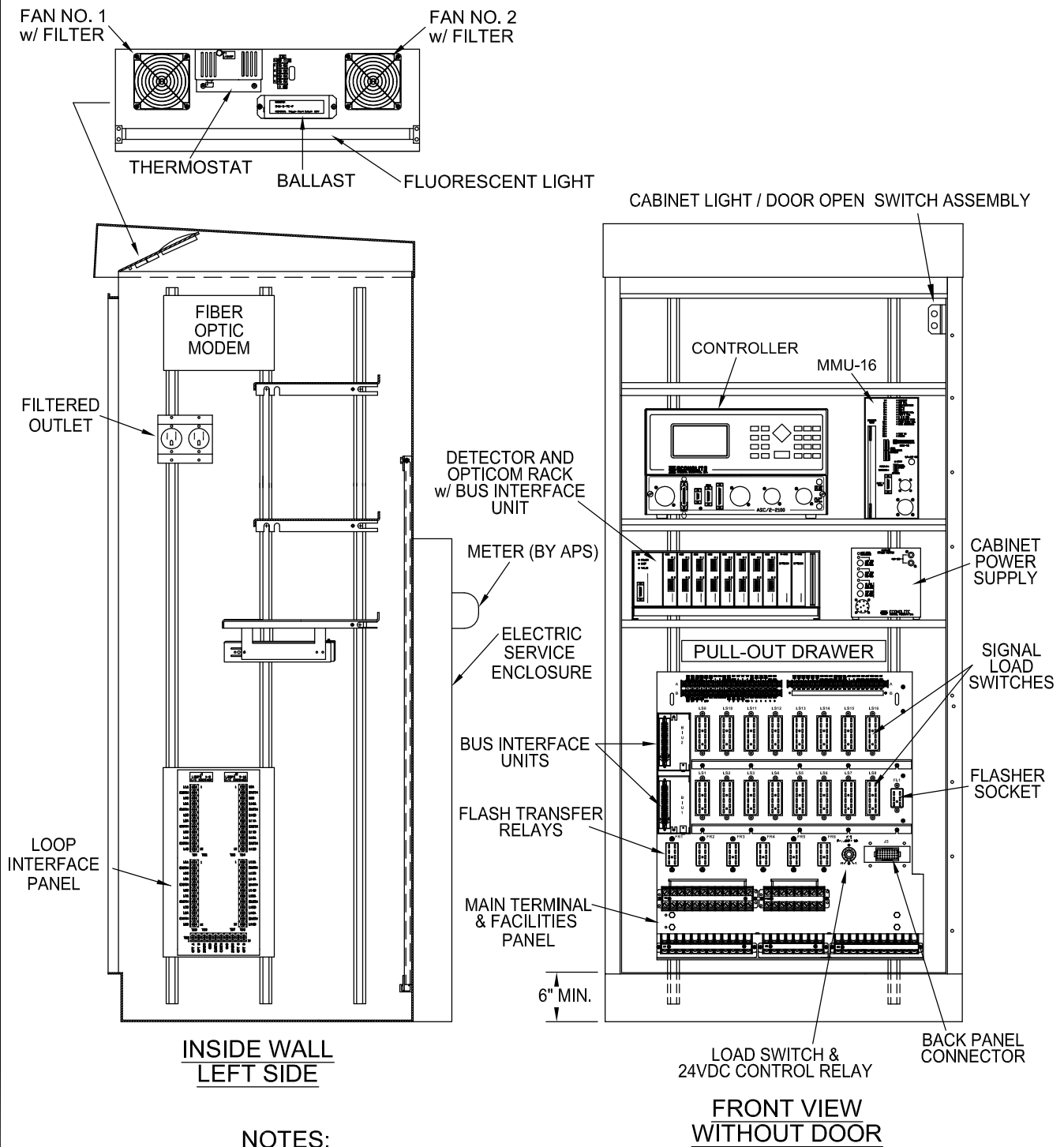
- Grease interceptors shall comply with the City of Yuma's current ordinance and the adopted plumbing code, as amended.
- All grease interceptor designs shall be signed by a Registered Arizona Professional Engineer and approved by the City Engineer.
- All new food service establishments shall be required to install at least a 500 gallon outdoor grease interceptor unless granted a variance by the City of Yuma Utilities Division.
- Tank capacity to be determined at the time of permit application.
- The grease interceptor shall meet the following structural criteria:
 - Class A Concrete 28 day $f'_c = 3,000$ psi
 - Rebar ASTM A615 Grade 60
 - Mesh ASTM A185
 - Design: ACI 318-02 (Current Building Code) ASTM C857 Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
 - Loads: H20 Truck Wheel w/ 30% Impact per AASHTO
- Concrete slab to extend 24" (min.) beyond all sides of the tank in traffic areas.
- Inlet and outlet must be water tight to structure. A water stop consisting of a standard manhole adapter gasket shall be grouted into the walls around the inlet and outlet pipes.
- An asphalt caulking shall be used to seal all joints.
- Place 12" (min.) ABC bedding material compacted to 95% (min.) under the tank.
- All grease interceptors shall be located outside public right-of-way except with written approval of the City Engineer.
- Grease interceptors shall be located where it will be accessible to waste hauler pumps.
- Manhole covers and grade rings shall be installed in accordance with Standard No. 5-044.
- Manholes shall have built in gaskets and shall be gastight and watertight when in place.
- All Surface waters must drain away from manholes.
- Not approved for use inside an enclosed building. Tank must be a minimum of 2-feet outside of building foundation.
- All wyes shall be one-way cleanouts wyes, sweeping away from grease interceptor except as noted by the adopted plumbing code.



SECTION A-A

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 5-520
TWO STAGE GREASE
INTERCEPTOR



NOTES:

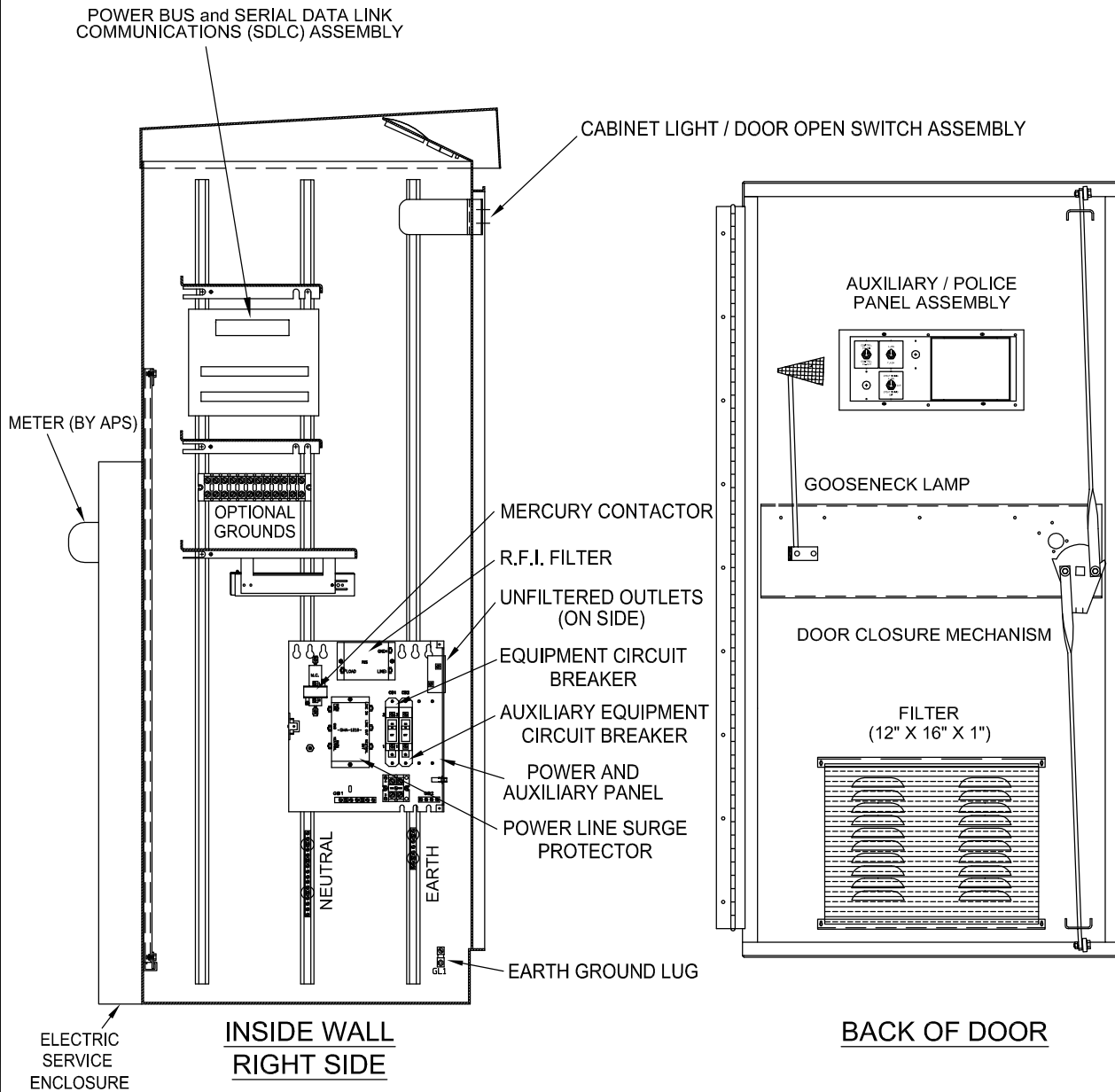
1. Nominal minimum cabinet dimensions: 67" high, 30" wide and 25" deep.
2. Equipment locations are approximate.
3. See Standard Detail 6-006 for electrical service enclosure.
4. See Standard Detail 6-010 for cabinet foundation.
5. Power panel must have a rigid cover with slotted screw holes so the cover can be removed without removing the screws.
6. Front of door must be labeled "CITY OF YUMA TRAFFIC CONTROL" with embossed or engraved letters a minimum of one inch (1") high.
7. Cabinet must be an "Econolite Control Products, Inc., Type O, drawing 73156 or approved equivalent.

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Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-005 TYPE "O" CONTROLLER CABINET LAYOUT



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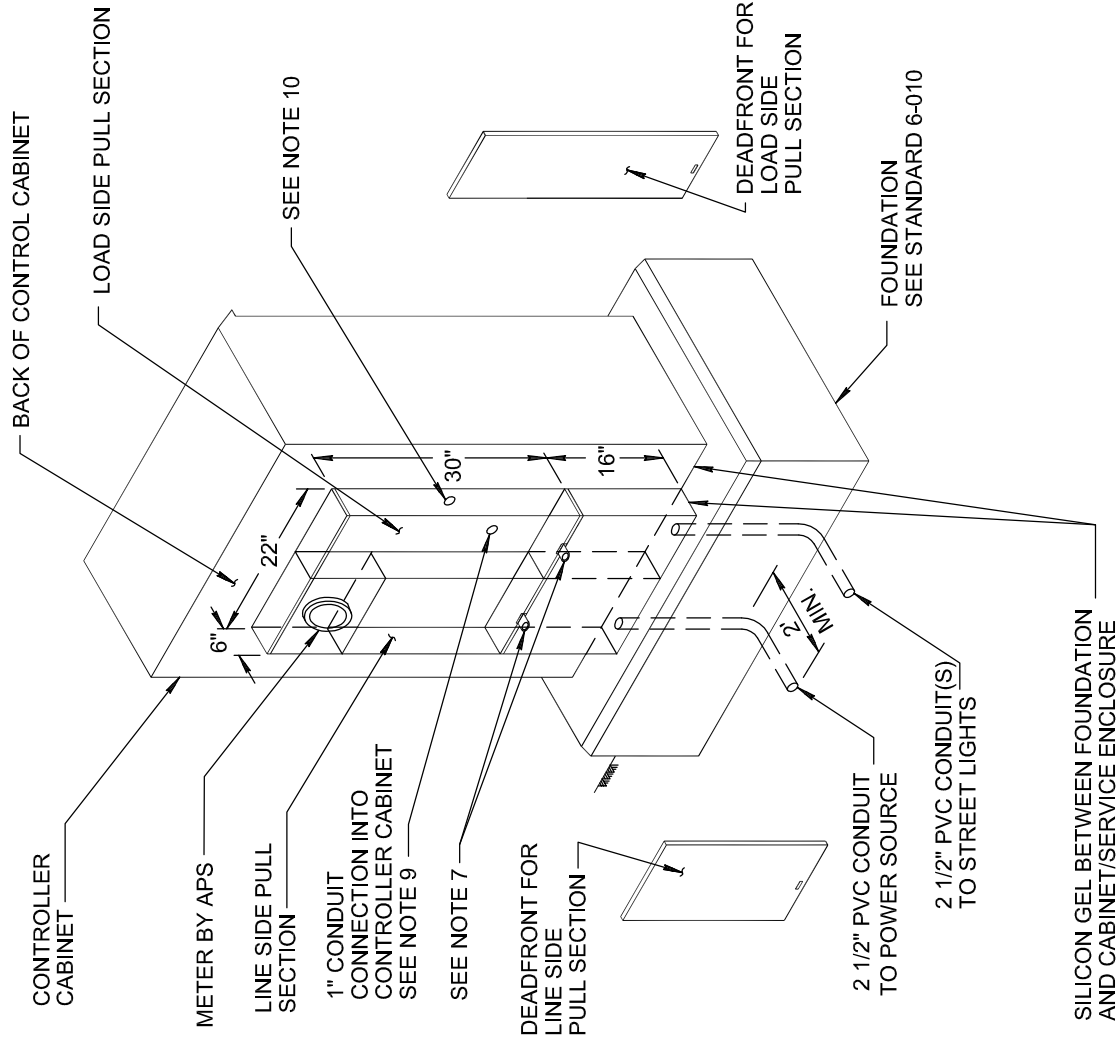
Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-005
TYPE "O" CONTROLLER
CABINET LAYOUT

NOTES:

1. See Traffic Signal and Roadway Lighting Specifications for construction requirements
2. All service conductors and service panels must have a 100 ampere capacity.
3. All components shall be rated for 250V operation.
4. Circuit breakers shall be the molded case, thermal magnetic, plug-in type with a minimum fault interrupting capacity of 10,000 amperes.
5. The service enclosure shall be fabricated from zinc-coated 14 gauge steel.
6. The service enclosure shall be N.E.M.A. 3R rated.
7. Each front panel shall be independently padlockable.
8. The service enclosure shall be secured to the control cabinet with four 3/8" cadmium plated bolts. Bolts shall not interfere with interior cabinet wiring or equipment placement.
9. There shall be a 1" flexible metal conduit from the back of the enclosure to the circuit breaker box in the controller cabinet.
10. A photoelectric switch must be mounted on the inside right side wall of the enclosure. A 2" diameter opening must be provided for the photoelectric cell. The opening must be covered from the inside by a 3" x 3" x 1/4" Plexiglas secured from the inside by 1/2"-12 bolts tapped and threaded into the enclosure.
11. See sheet 2 for enclosure wiring.
12. The dimensions shown are approximate. Enclosures that are functionally equivalent, approximately the same size, and acceptable to the Arizona Public Service Company (APS) may be provided subject to approval by the City Engineer.



SERVICE ENCLOSURE MUST BE ME-TYPE II BY MYERS ELECTRICAL PRODUCTS, INC. OR APPROVED EQUIVALENT.

Issued: February 2009

Sheet 1 of 2

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-006 ELECTRIC SERVICE ENCLOSURE ON CONTROLLER CABINET

METER PEDESTAL EQUIPMENT LEGEND		
ITEM NO.	COMPONENT	NAME PLATE DESCRIPTION
1	100A, 240V, 2P, CB	MAIN BREAKER
2	UTILITY LANDING LUG	SEE NOTE 1
3	TEST BYPASS BLOCKS	
4	METER SOCKET AND SUPPORT	
5	PHOTO ELECTRIC CELL	
6	RESERVED	
7	NOT USED	
8	30A, 240V, 2P, CB	LIGHTING
9	15A, 120V, 1P, CB	LIGHTING CONTROL
10	SWITCH	LIGHTING & SIGN CONTROL SWITCH (MANUAL, OFF, PHOTO)
11	60A, 3P, NO CONTACTOR	
12	TERMINAL BLOCK	
13	NEUTRAL BUS	SEE NOTE 2
14	GROUND BUS	
15	LIGHTING LANDING LUGS	
16	15A, 120V, 1P, CB	ILLUMINATED SIGN
17	CABINET GROUND ROD	SEE NOTE 3
18	GROUND ROD CLAMP	SEE NOTE 3
19	15A, 120V, 1P, CB	WI-FI

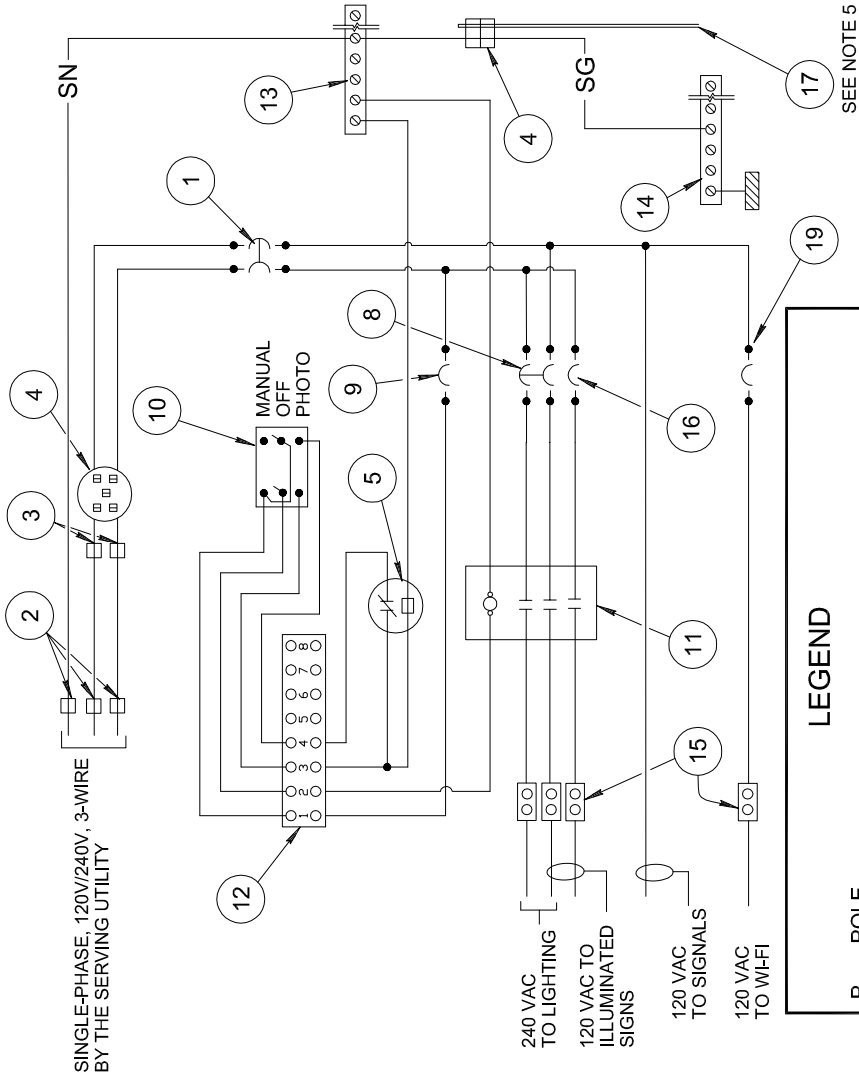
Issued: February 2009 Sheet 2 of 2

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-006

ELECTRIC SERVICE ENCLOSURE

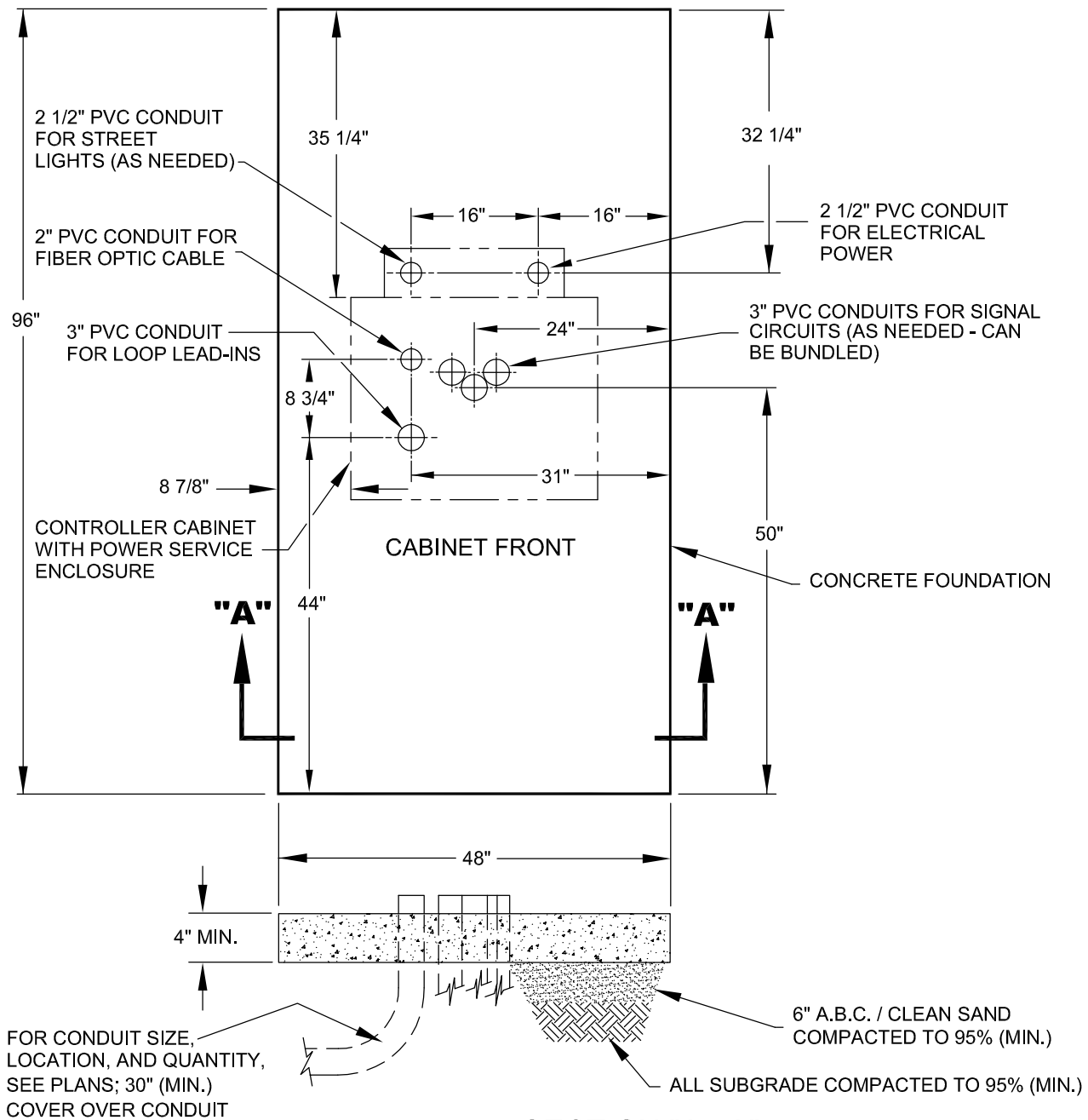
ON CONTROLLER CABINET



LEGEND	
P	POLE
CB	CIRCUIT BREAKER
A	AMPERE
V	VOLT
M	METERED
SN	SOLID NEUTRAL
SG	SOLID GROUND
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
—	EXTERNAL CONDUCTOR
—	CONDUCTOR OR BUS
—	TIE POINT
—	CONTACTOR COIL
—	CONTACTOR, CONTACT NO
—	CONTACTOR, CONTACT NC
—	ENCLOSURE BOND

NOTES:

- Aluminum-bodied terminals for #6 through #1/0 wire with rigid insulating barriers (maximum terminal size 250 KCMIL) per the requirements of the Electrical Utility Service Equipment Requirements Committee (EUSERC) and acceptable to Arizona Public Service Company (APS).
- Insulated bondable vertical lay-in, double neutral lug with #1/0 wire capacity mounted on either sidewall.
- Ground rod and clamp are not part of the enclosure.
- See sheet 1 for service enclosure design.
- See Standard 6-040 for grounding.



SECTION "A - A"

NOTES:

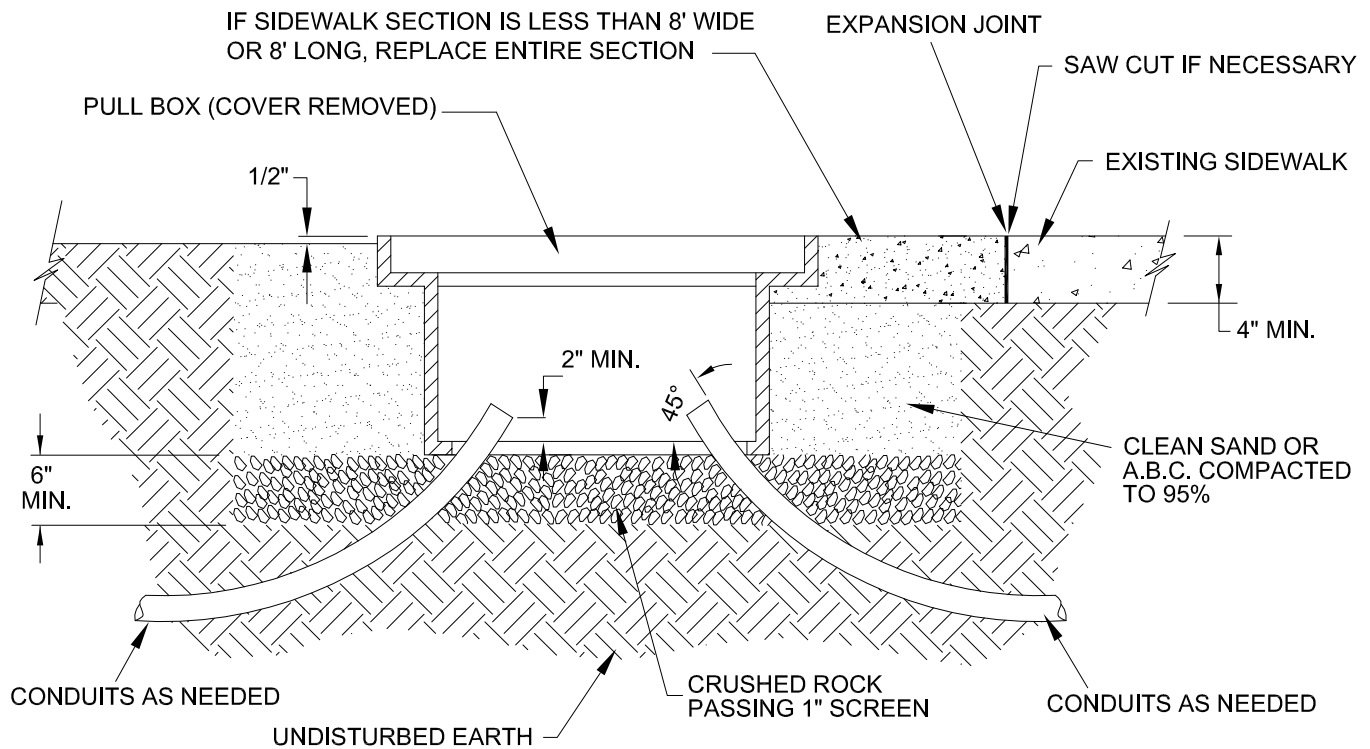
1. Foundation must be constructed of Class "B" concrete. Broom finish all exposed surfaces.
2. All dimensions nominal.
3. Attach cabinet to foundation with shot-in threaded studs, oversize washers and nuts.
4. Prior to mounting the cabinet onto foundation, apply "General Electric Silver Silicone Sealant" (or approved equivalent) to bottom of cabinet to provide a weather-proof seal between cabinet and foundation.
5. Orient foundation to provide maximum view of intersection for personnel looking at front of cabinet.
6. See Standard 6-040 for grounding.
7. All conduit must be Schedule 40 PVC unless otherwise indicated.

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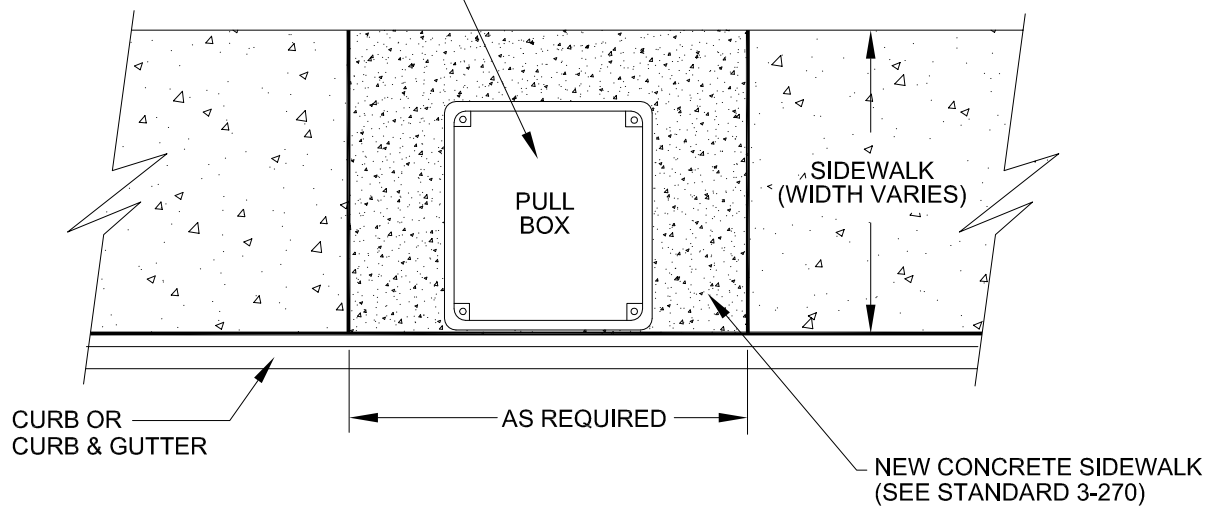
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-010
TRAFFIC SIGNAL CONTROL
CABINET FOUNDATION

INSTALLATION IN EARTH

INSTALLATION IN SIDEWALK



POSITION PULL BOX NEXT TO THE EXPANSION JOINT
BETWEEN SIDEWALK AND CURB



PULL BOX PLACEMENT IN SIDEWALK

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

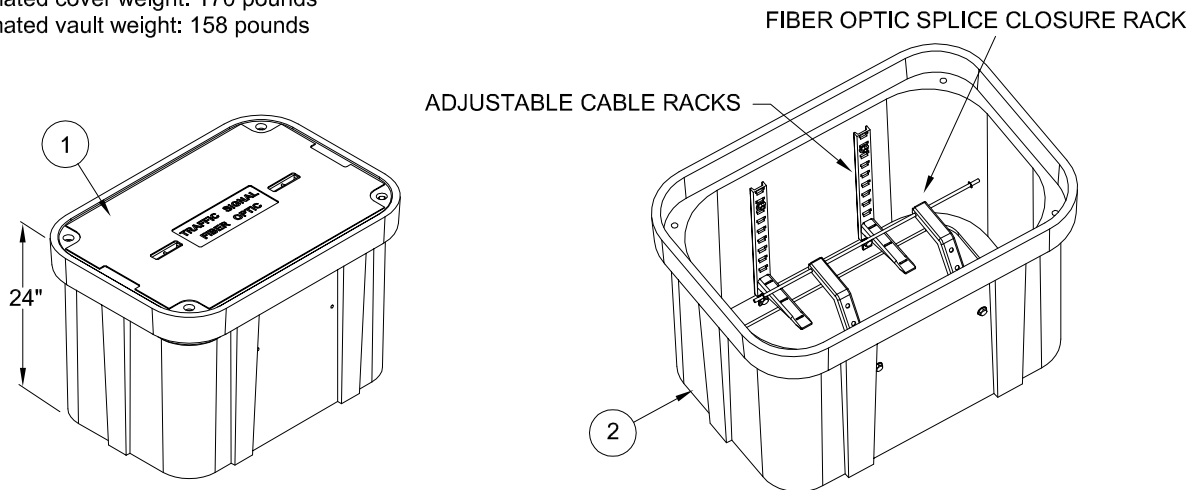
STANDARD NO. 6-030
PULL BOX
INSTALLATION

POLYMER CONCRETE PROPERTIES			
STANDARD TEST METHOD	PROPERTIES OF RAW MATERIAL	ASTM DESIGNATION	TEST RESULTS
COMPRESSIVE STRENGTH OF POLYMER CONCRETES	COMPRESSIVE STRENGTH	C 579-96	11,000 PSI
FLEXURAL STRENGTH AND MODULUS OF ELASTICITY OF POLYMER CONCRETES	FLEXURAL STRENGTH MODULUS OF ELASTICITY	C 580-93	1,800 PSI 2,900,000 PSI
CHEMICAL RESISTANCE OF POLYMER CONCRETES	CHEMICAL RESISTANCE	C 267-97	PASS ¹
DETERMINATION OF IMPACT RESISTANCE BY MEANS OF A TUP (FALLING WEIGHT)	IMPACT RESISTANCE	D 2444-93	PASS ²

¹ SPECIMENS EXPOSED TO TEN REAGENTS (ALKALIS, ACIDS AND PETROLEUM DISTILLATES) EXPERIENCE <2% WEIGHT AND DIMENSIONAL CHANGE AND RETAIN >75% OF AVERAGE COMPRESSIVE STRENGTH.

² CAPABLE OF WITHSTANDING 70 FT. LBS. IMPACT WITH A TYPE "C" TUP.

Estimated cover weight: 170 pounds
Estimated vault weight: 158 pounds



Carson Industries Model H2436-24 with Fiber Optic Closure and Cable Storage Hardware or approved equal

NOTES

1. Vault unit (body and cover) are designed for compliance with performance requirements as specified in the American Association of State Highway and Transportation Officials (AASHTO), "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", 16th Edition, HS20-44, design load of 16,000lbs. Product is subject to proof of design test in compliance with the American Society For Testing and Materials (ASTM) C497 and Western Underground Committee, Guide 3.6, for non-concrete grade level enclosures.
2. Inside dimensions: 33 5/8" long by 22" wide (minimum).
3. Pull box must accommodate a 30" x 7" fiber optic splice closure with 3 cables.
4. Pull box extensions, if required, must conform to the above design without cover and racks.
5. Other equivalent pull boxes will be considered. Submit complete documentation to the City Engineer for review.

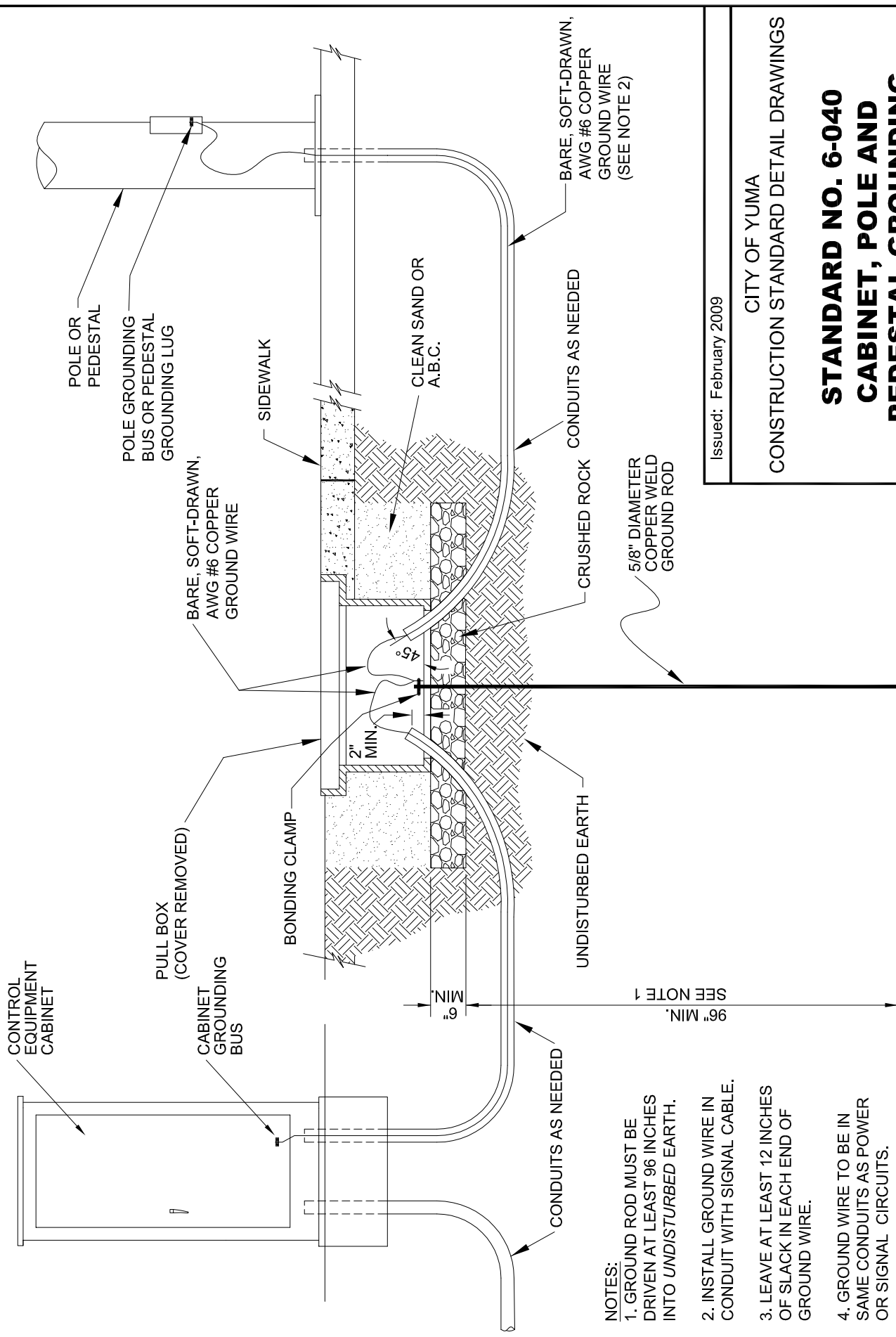
Item	Qty.	Description
1	1	Cover, 2436, P1, Traffic Signal Fiber Optic, complete including all necessary hardware
2	1	Body, Polymer Concrete, complete including all necessary hardware

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-031

**PULL BOX FOR
FIBER OPTIC CABLE
TYPE FO**



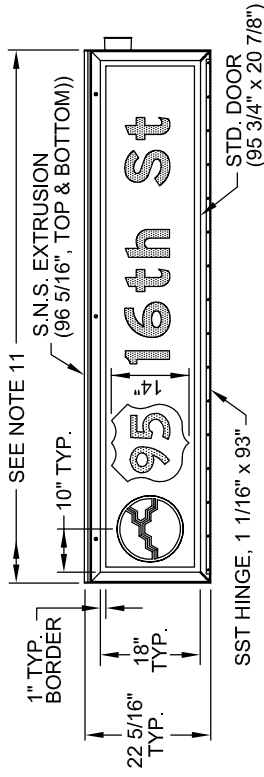
- NOTES:
1. GROUND ROD MUST BE DRIVEN AT LEAST 96 INCHES INTO *UNDISTURBED* EARTH.
 2. INSTALL GROUND WIRE IN CONDUIT WITH SIGNAL CABLE.
 3. LEAVE AT LEAST 12 INCHES OF SLACK IN EACH END OF GROUND WIRE.
 4. GROUND WIRE TO BE IN SAME CONDUITS AS POWER OR SIGNAL CIRCUITS.

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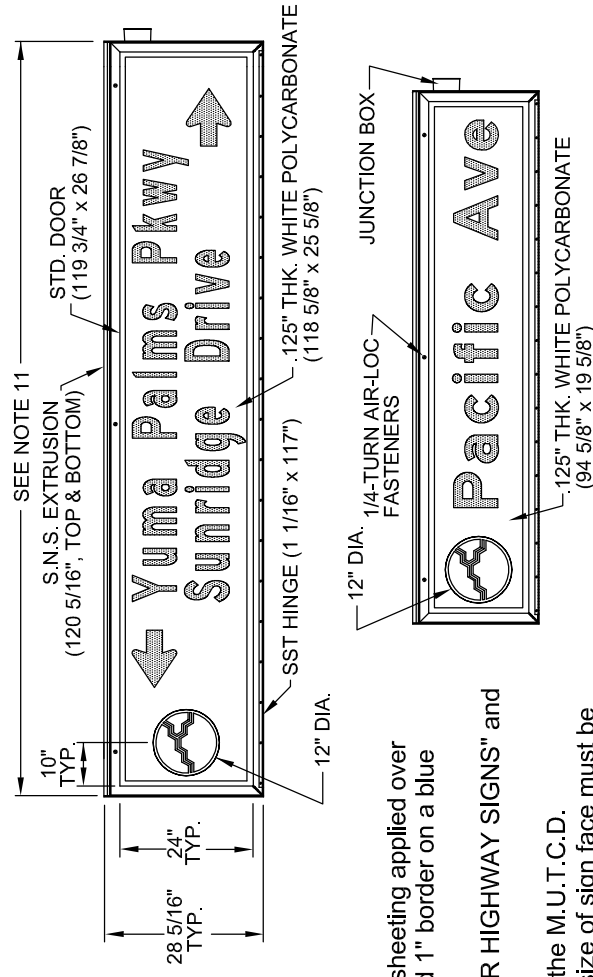
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-040
CABINET, POLE AND
PEDESTAL GROUNDING

TYPICAL 1-LINE LAYOUT

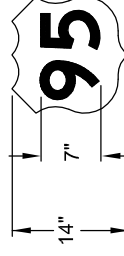


TYPICAL 2-LINE LAYOUT



NOTES:

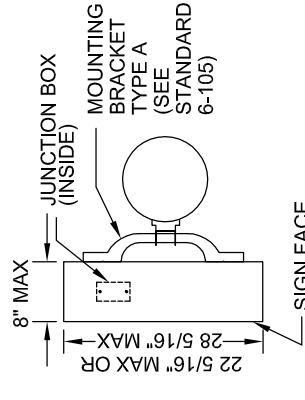
1. Face legend must consist of a continuous piece of blue translucent vinyl sheeting applied over the polycarbonate sign face having the appearance of a white legend and 1" border on a blue background.
2. Formed letters must conform to F.H.W.A. "STANDARD ALPHABETS FOR HIGHWAY SIGNS" and must be 8" Series E upper case and 6" lower case.
3. Unless otherwise specified, all letter spacing and width must be 100% of the M.U.T.C.D. recommendation. Legends requiring lengths in excess of the maximum size of sign face must be adjusted by condensing the legends to make them fit as approved by City Engineer.
4. Sign faces must be back lit by light emitting diodes.
5. A 1/2" dia. threaded hole must be provided in right end for power entry into the junction box.
6. Each door must be secured from opening by three (3) (minimum) 1/4-turn "Air Lock" fasteners.
7. Sign must be fully gasketed and watertight.
8. Sign must have six (6) 3/16" diameter drain holes located in the bottom of the housing (two on each end and two in the center).
9. Face colors:
Legend and border: white (non-reflective)
Background: blue (non-reflective)
Logo: per City of Yuma specifications.
U.S. Highway shield: black lettering on white background.
Interstate shield: white lettering on red and blue background.
Interstate Business shield: white lettering on green background.
10. Exterior of housing shall be mill finish (unpainted natural aluminum).
11. Standard housing lengths shall be 4'-0", 6'-0", 8'-0", 10'-0", and 12'-0" or as needed to accommodate legend.
12. Sign must include mounting brackets and mounting points for the type of installation specified.
13. See Standard 6-101.
14. The only text on route marker shields will be the route numbers.



U.S. HIGHWAY
SHIELD DETAIL



CITY LOGO DETAIL



TYPICAL RIGHT END VIEW

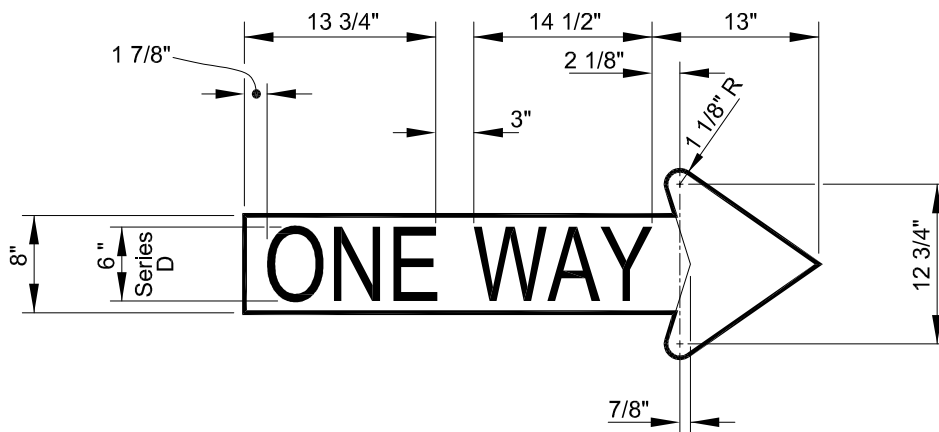
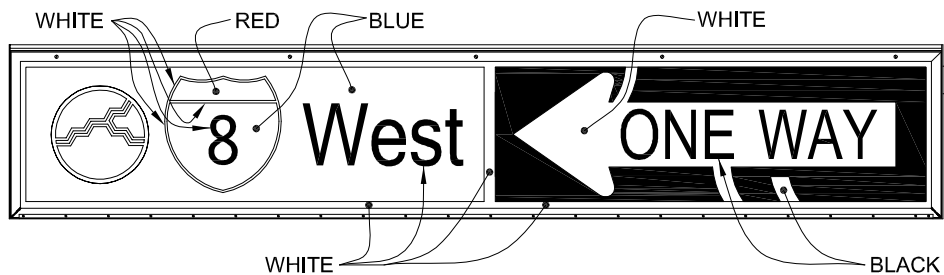
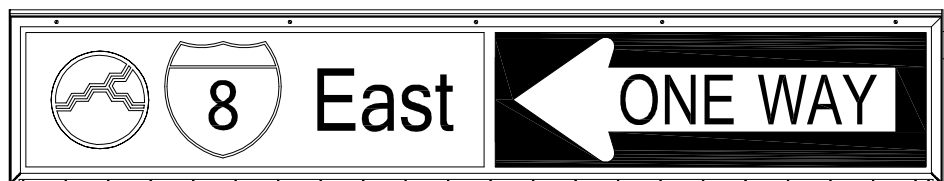
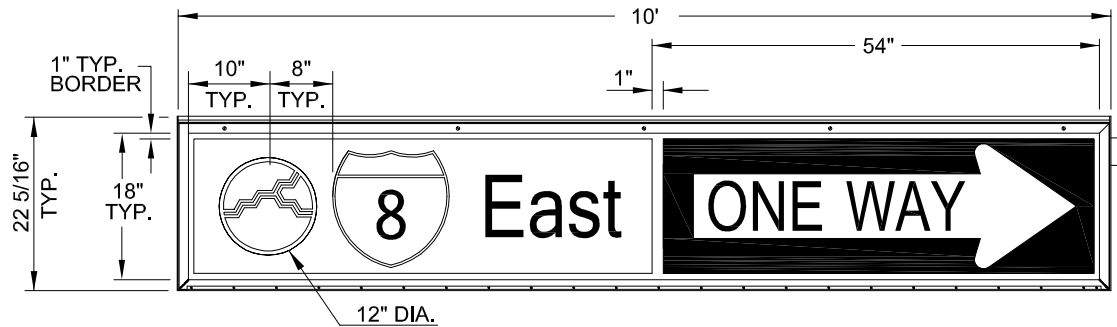
Issued: February 2009

Sheet 1 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-100 INTERNALLY ILLUMINATED STREET NAME SIGNS



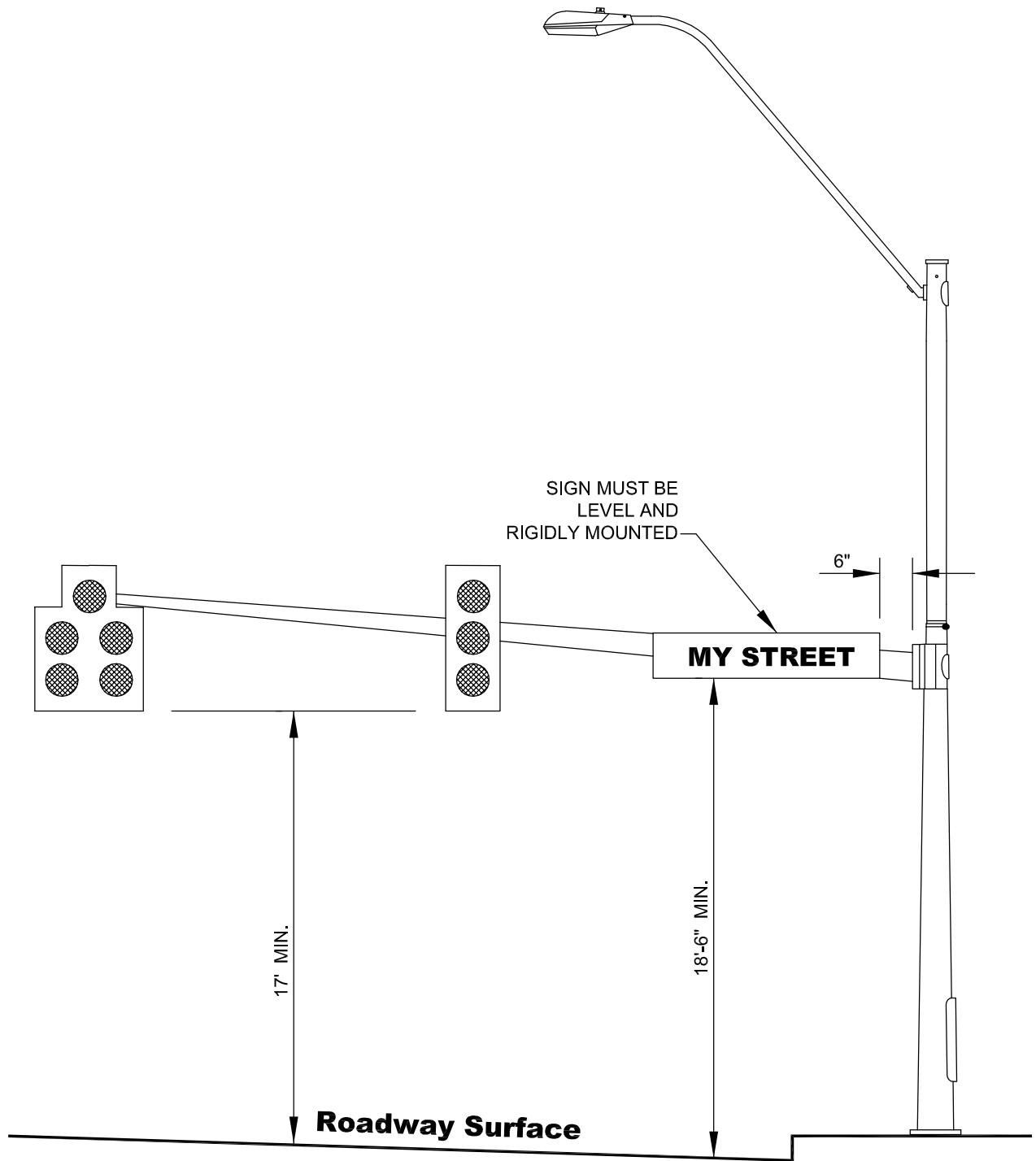
NOTES:

1. THE ONLY TEXT ON THE INTERSTATE SHIELD WILL BE THE NUMERAL "8".
2. CARDINAL DIRECTION TEXT MUST CONFORM TO SHEET 1, NOTE 2.

Issued: February 2009

Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-100
INTERNALLY ILLUMINATED
STREET NAME SIGNS



FOR USE WITH STRAIGHT ARM

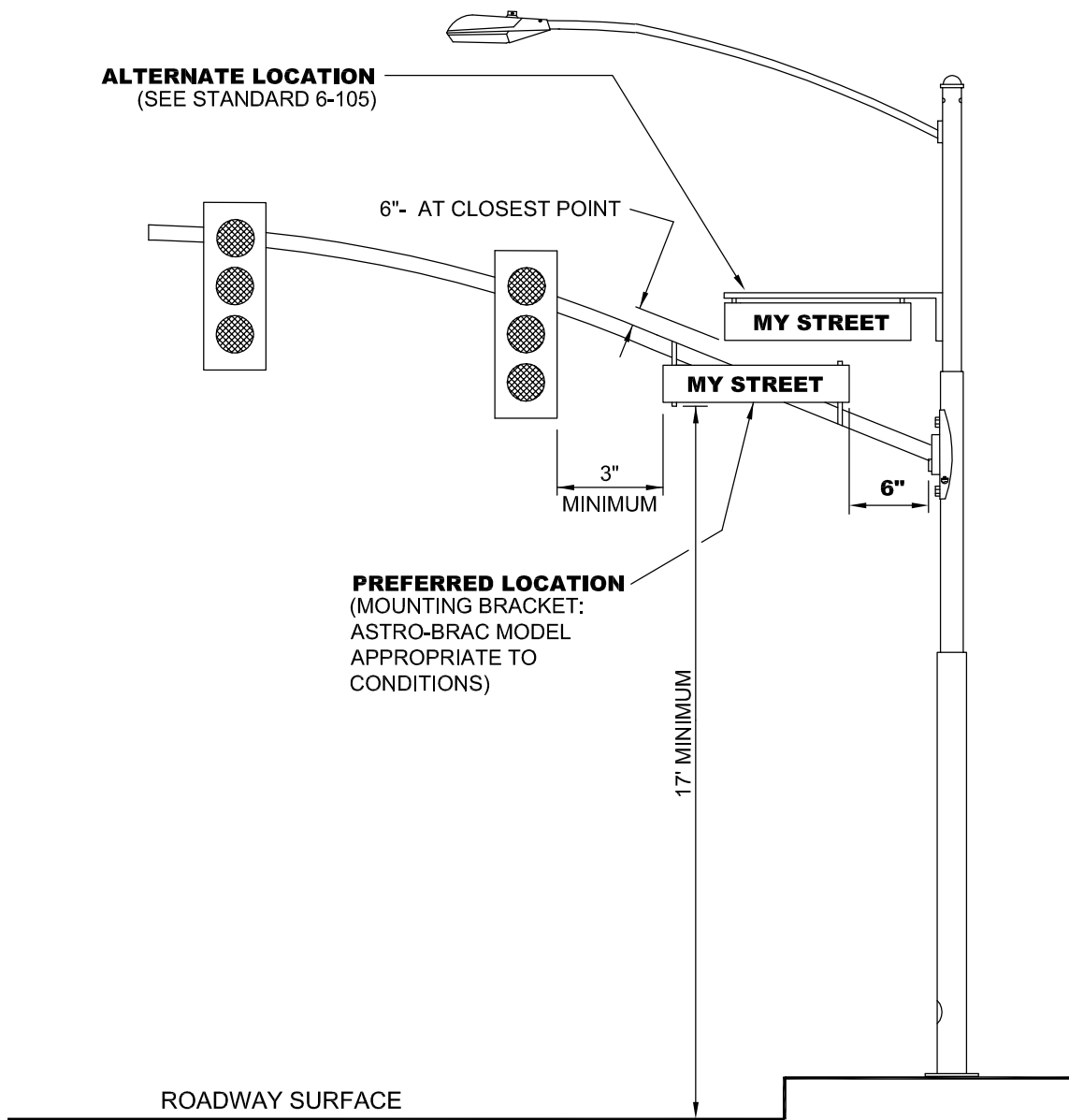
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Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

**STANDARD NO. 6-101
LOCATION OF
INTERNALLY ILLUMINATED
STREET NAME SIGNS**

NOT TO SCALE



FOR USE WITH UP-SWEPT ARM

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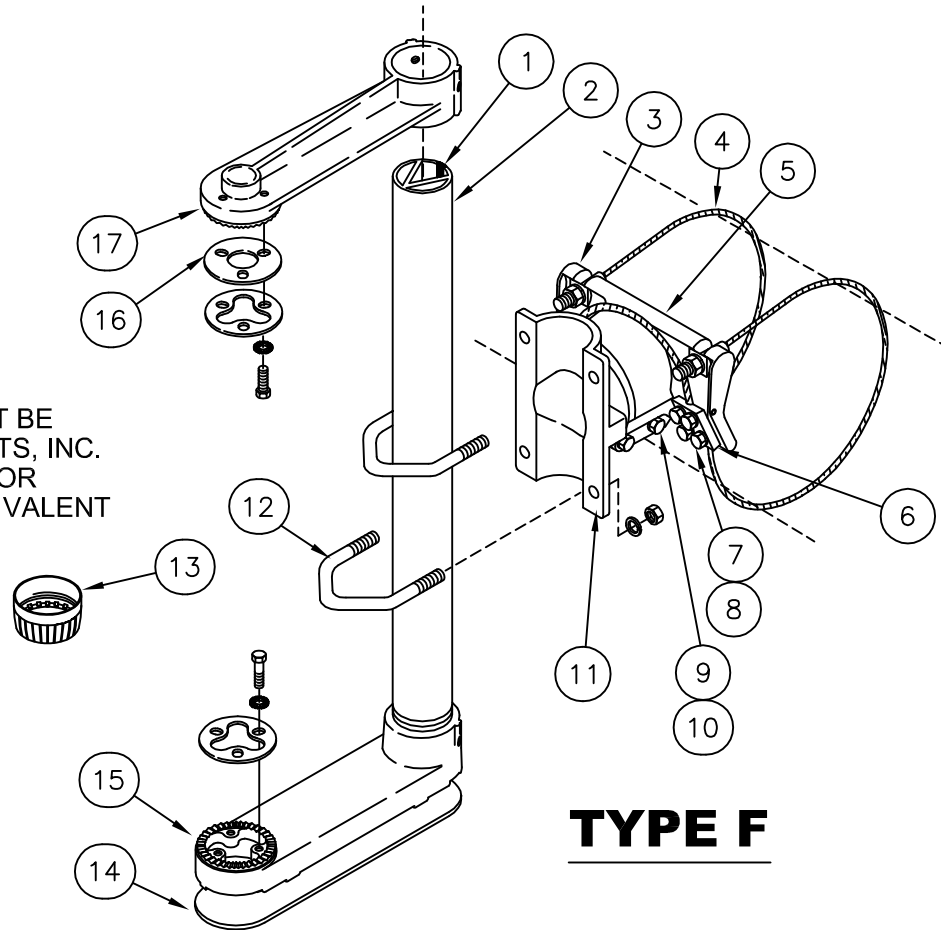
Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-101
LOCATION OF
INTERNALLY ILLUMINATED
STREET NAME SIGNS

NOT TO SCALE

NOTE:
ASSEMBLY MUST BE
PELCO PRODUCTS, INC.
MODEL AB-0125 OR
APPROVED EQUIVALENT

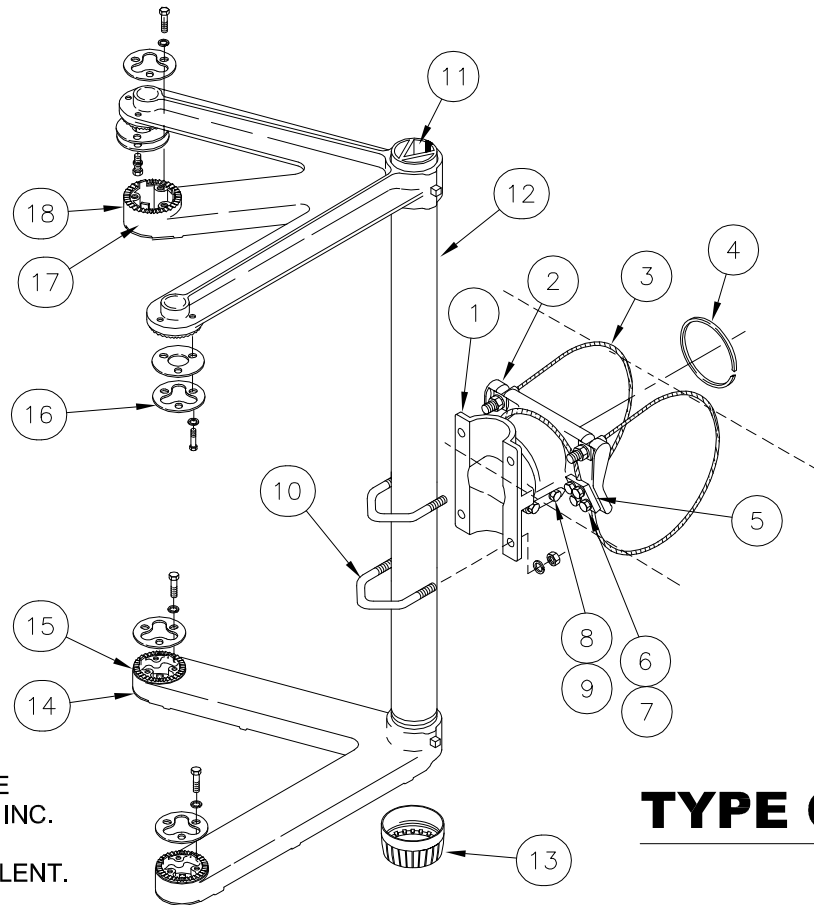


ITEM	PART NO.	DESCRIPTION	QTY
1	AB-0233	INSERT, VINYL	1
2	AB-0306	GUSSETED TUBE, TOE 1½" ALUM	1
3	AB-0354-M2	CLAMP, FEMALE CABLE MNT, ALUM	1
4	AB-0280	CABLE ASSY W/ GALV CABLE & STAINLESS HDWR	1
5	AB-0263-ZN2	RETAINING RING, 2-7/8", ZINC 2	1
6	AB-0339-M1	PLATE, CABLE CLAMP, ASTRO-BRAC, ALUM	2
7	FS-2098-SS	BOLT, HEX HD 5/16"-18 x 7/8", STAINLESS	8
8	FS-4201-SS	WASHER, SPLIT LOCK 5/16", STAINLESS	8
9	FS-2025-SS	BOLT, HEX HD 5/16"-18 x 1½", STAINLESS	2
10	FS-4201-SS	WASHER, LOCK 5/16", STAINLESS	2
11	AB-0265-M1	CLAMP, MALE, ALUM	1
12	AB-0256-SS	V-BOLT KIT, 5/16"-18, STAINLESS	1
13	B-4001	THREAD PROTECTOR, 1-1/2", PLASTIC	1
14	AB-0236-M1	COVER, LOWER ARM, ABS PLASTIC	1
15	AB-0215-M1	LOWER ARM, ASTRO-BRAC 1-WAY, 8-1/2	1
16	AB-0205-SS	HARDWARE KIT, 1-WAY ARM W/ ZINC WASHER & SS HDWR	1
17	AB-0214-M1	UPPER ARM, ASTRO-BRAC 1-WAY, 8-1/2"	1
18	B-2015	BAG, .004 X 6-1/2" X 14", POLY W/ "AB-4000 ARM KIT"	1

OPTIONS
SIGNAL SECTIONS: 3, 4, or 5 SECTIONS
CABLE LENGTH: 62" FITS 4"-8.6" POLE/ARM DIA. 84" FITS 4"-11.6" POLE/ARM DIA. 96" FITS 4"-14.6" POLE/ARM DIA.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-102
MAST ARM
SIGNAL MOUNTING ASSEMBLY
3 TO 5 SECTION, STRAIGHT



NOTE:
ASSEMBLY MUST BE
PELCO PRODUCTS, INC.
MODEL AB-0138 OR
APPROVED EQUIVALENT.

TYPE G

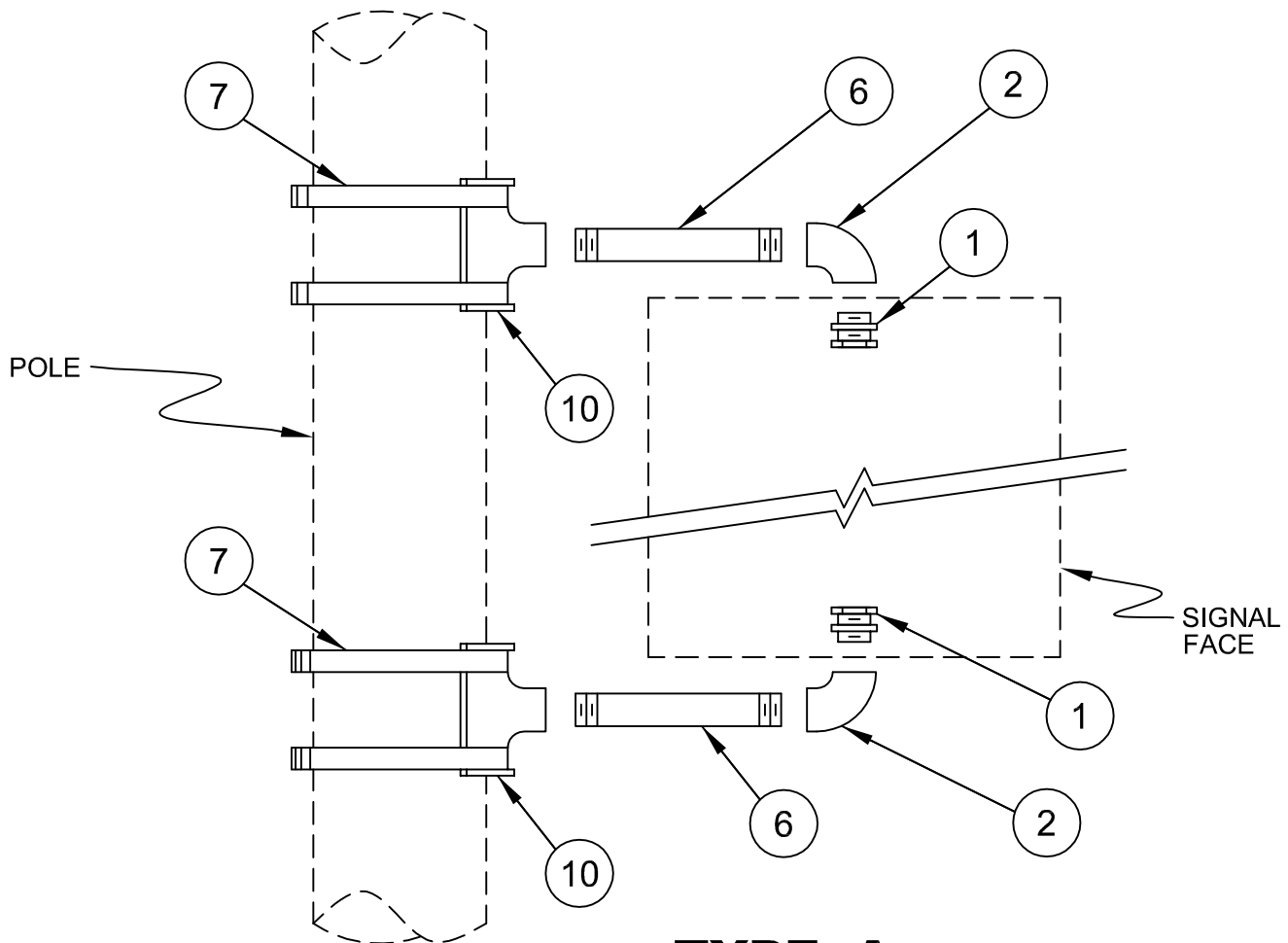
ITEM	PART NO.	DESCRIPTION	QTY
1	AB-0265-M1	CLAMP, MALE, ALUM	1
2	AB-0354-M2	CLAMP, FEMALE CABLE MNT, ALUM	1
3	AB-0280	CABLE ASSY W/ GALV CABLE & STAINLESS HDWR	1
4	AB-0263-ZN2	RETAINING RING, 2-7/8", ZINC 2	1
5	AB-0339-M1	PLATE, CABLE CLAMP, ASTRO-BRAC, ALUM	2
6	FS-4201-SS	WASHER, SPLIT LOCK 5/16", STAINLESS	8
7	FS-2098-SS	BOLT, HEX HD 5/16"-18 x 7/8", STAINLESS	8
8	FS-2025-SS	BOLT, HEX HD 5/16"-18 x 1½", STAINLESS	2
9	FS-4201-SS	WASHER, LOCK 5/16", STAINLESS	2
10	AB-0256-SS	V-BOLT KIT, 5/16"-18, STAINLESS	1
11	AB-0233-35	INSERT, VINYL, 35"	1
12	AB-0306-37-M1	GUSSETED TUBE, 1½"-11½" NPS X 37" TOE, SLOT BACK, ALUM	1
13	B-4001	THREAD PROTECTOR, 1½", PLASTIC	1
14	AB-0236-M2	COVER SET, LOWER ARM, 2-WAY, ABS PLASTIC	1
15	AB-0297-M1	LOWER ARM, ASTRO-BRAC, 2-WAY, ALUM	1
16	AB-0270-SS	HDWR KIT, 5 SEC CLUSTER W/ STAINLESS HDWR	1
17	AB-0236-M4	COVER, SINGLE UPPER CLUSTER ARM, ABS PLASTIC	1
18	AB-0298-M1	UPPER ARM, ASTRO-BRAC, 5-SEC CLUSTER, ZINC 2	1
19	B-2013	BAG, W/ PELCO LOGO .004" x 4" x 4", POLY	1

OPTIONS

CABLE LENGTH:
62" FITS 4"-8.6" POLE/ARM DIA.
84" FITS 4"-11.6" POLE/ARM DIA.
96" FITS 4"-14.6" POLE/ARM DIA.

Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-103
MAST ARM
SIGNAL MOUNTING ASSEMBLY
5 SECTION CLUSTER MOUNT



TYPE A

1-WAY SIGNAL HEAD
POLE - SIDE

BILL OF MATERIALS

ITEM	DESCRIPTION
1	Locking Nipple
2	Standard Elbow
3	Conduit Body with cover, gasket, and screws, T-Type
4	Pedestal-Top Adapter, 2-Way, 4.5" Slipfitter
5	Pedestal-Top Adapter, 3-Way, 4.5" Slipfitter
6	Pipe, 1.5", Threaded Both Ends (appropriate length)
7	316 Stainless Steel Strap with Clamp, 0.5 inch
8	Bracket Assembly, 2-Way
9	Bracket Assembly, 3-Way
10	Pole Plate, Simple, 1.5" threaded

NOTE:

ALL MATERIALS, EXCEPT STAINLESS
STEEL STRAPS, MUST BE FINISHED
WITH FLAT BLACK POWDER COATING.

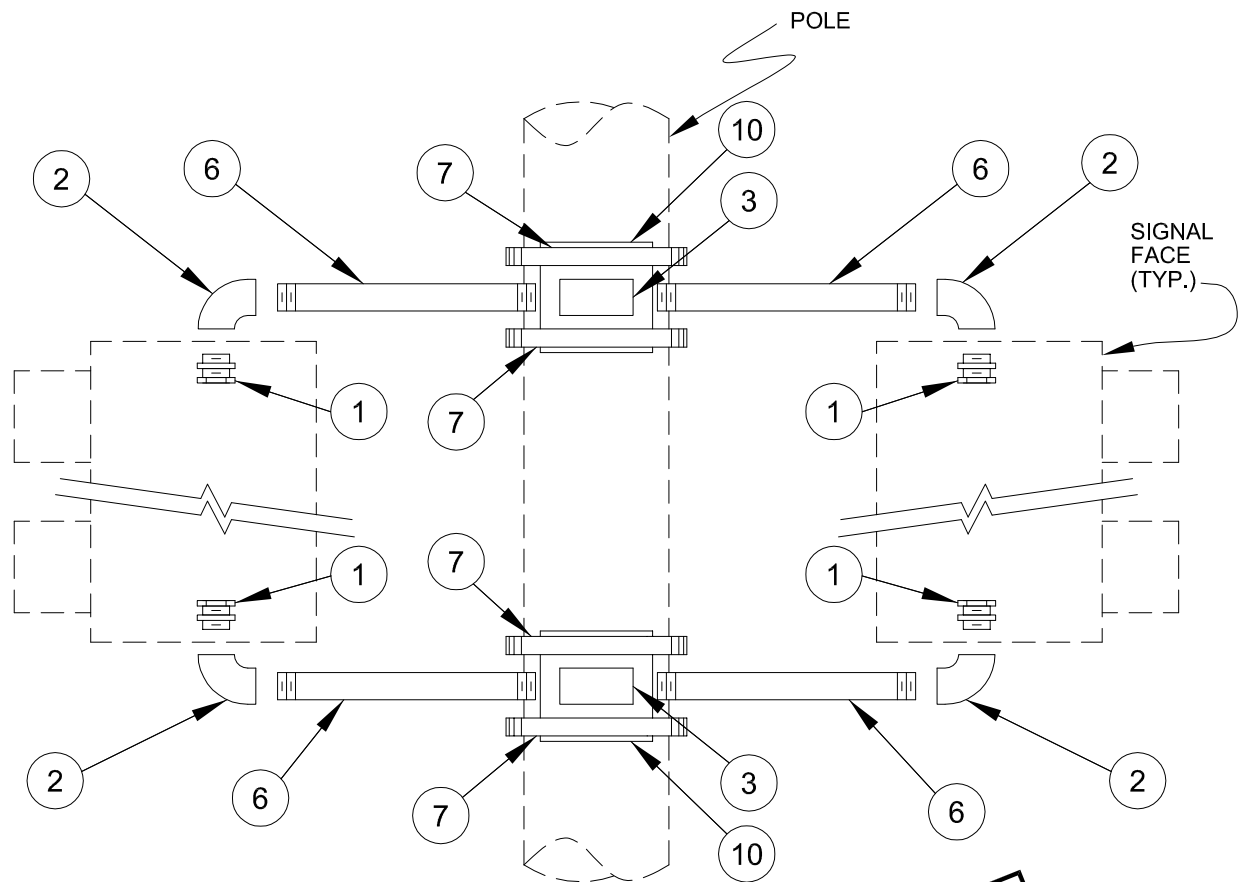
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SHEET 1 OF 4

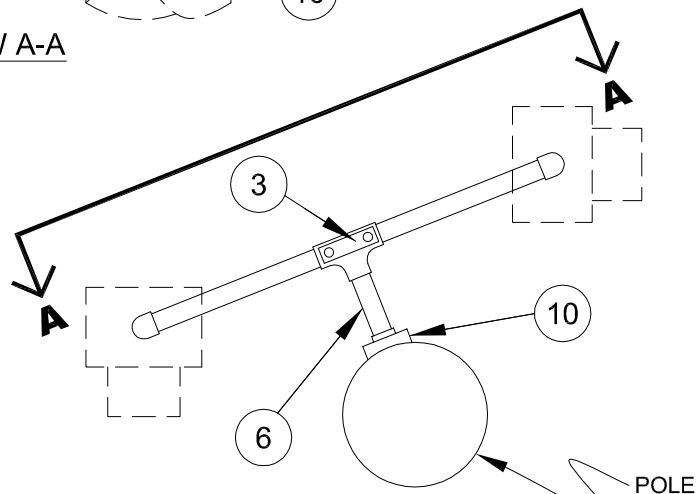
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-104

**SIGNAL-MOUNTING ASSEMBLIES
FOR POLES AND PEDESTALS**



VIEW A-A



TOP VIEW

TYPE B
2-WAY SIGNAL HEAD
POLE - SIDE

NOTE:

See Sheet 1 for Bill of Materials.

Issued: February 2009

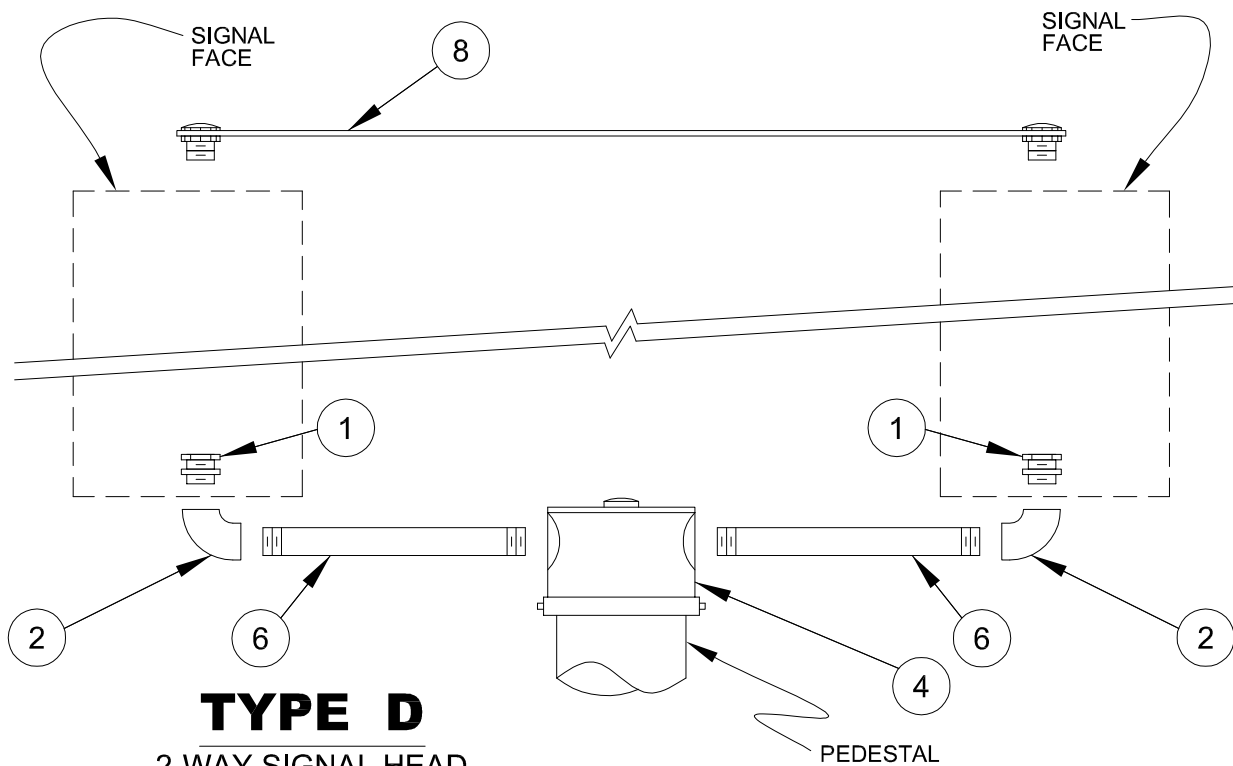
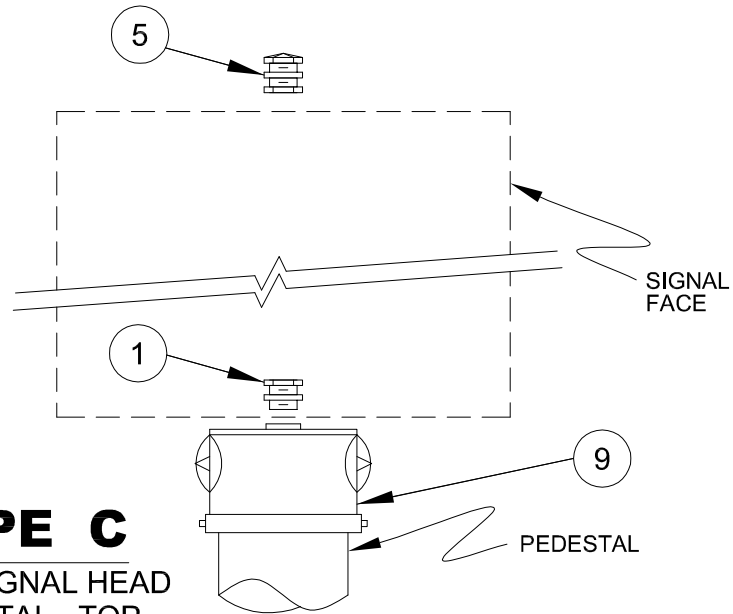
Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-104

**SIGNAL-MOUNTING ASSEMBLIES
FOR POLES AND PEDESTALS**

TYPE C
1-WAY SIGNAL HEAD
PEDESTAL - TOP



TYPE D
2-WAY SIGNAL HEAD
PEDESTAL - TOP

NOTE:

See Sheet 1 for Bill of Materials.

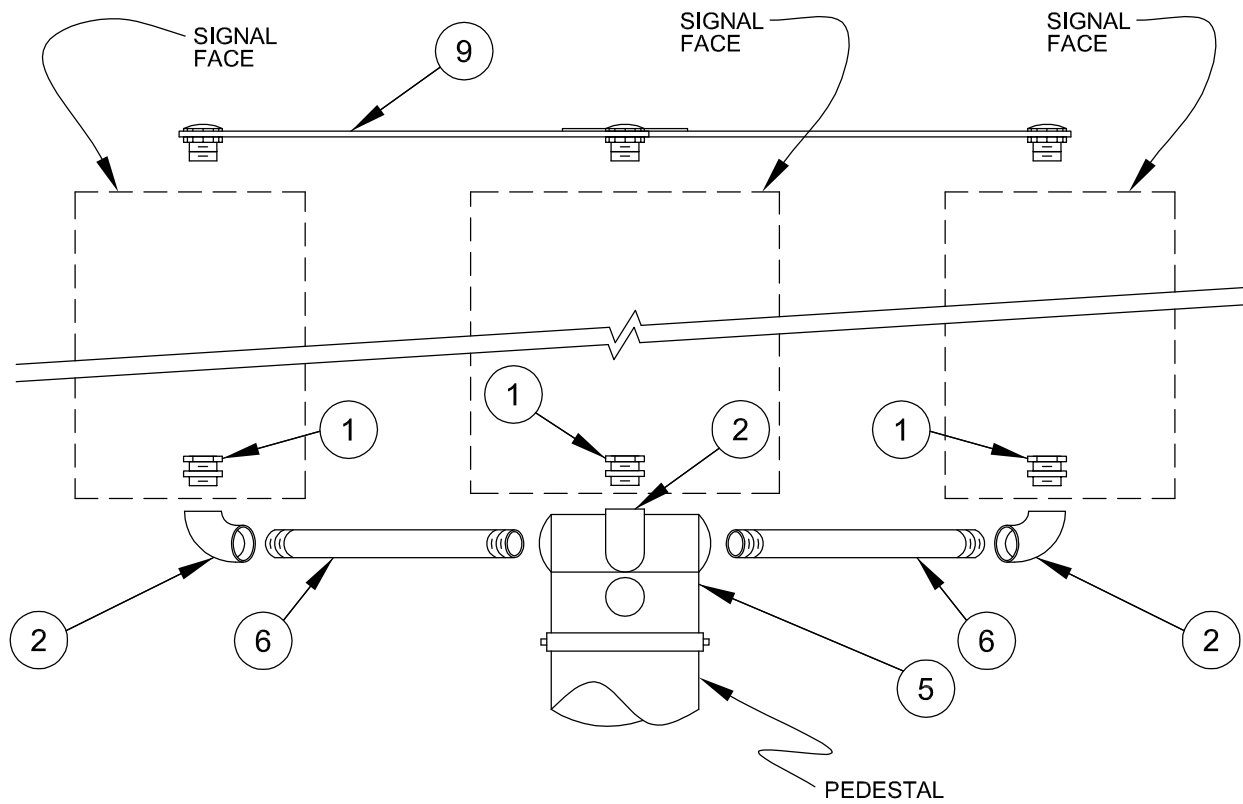
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Sheet 3 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-104

**SIGNAL-MOUNTING ASSEMBLIES
FOR POLES AND PEDESTALS**



TYPE E
 3-WAY SIGNAL HEAD
 PEDESTAL - TOP

NOTE:
 See Sheet 1 for Bill of Materials.

Issued: February 2009

Sheet 4 of 4

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-104

**SIGNAL-MOUNTING ASSEMBLIES
 FOR POLES AND PEDESTALS**

OPTIONS

CABLE LENGTH:

- 62" FITS 4"-8.6" MAST ARM DIA.
- 84" FITS 4"-11.6" MAST ARM DIA.
- 96" FITS 4"-14.6" MAST ARM DIA.

SIGN TUBE DIMENSIONS:

- 1. LINE SIGN: CTC= 18"
- 2. LINE SIGN: CTC= 24"

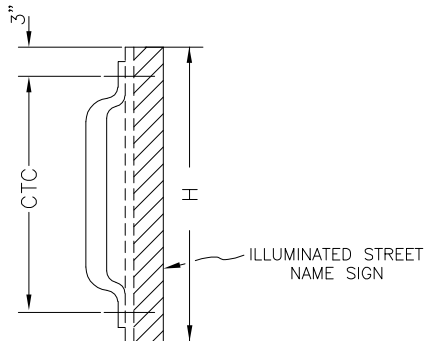
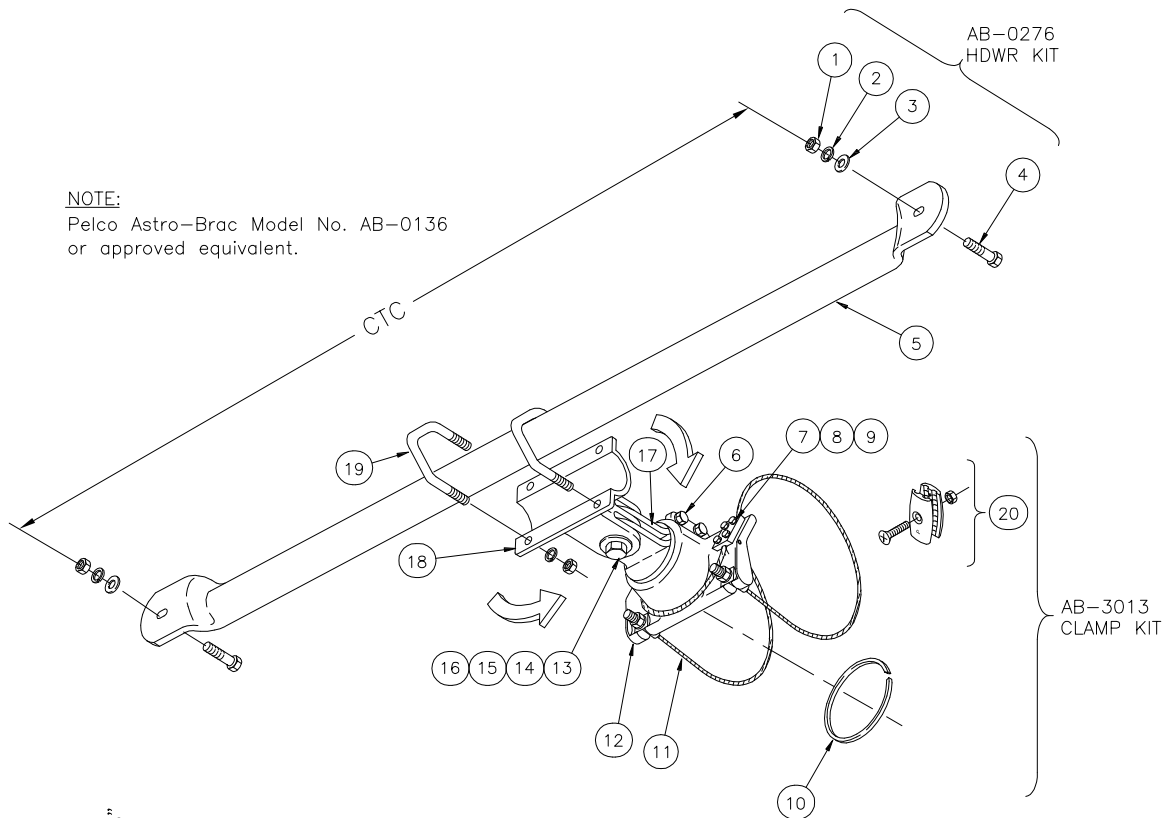
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BILL OF MATERIALS

ITEM	PART NO.	DESCRIPTION	QTY
1	FS-1001-SS	NUT, HEX HD, 5/16"-18, STAINLESS	2
2	FS-4201-SS	WASHER, SPLIT LOCK, 5/16", STAINLESS	4
3	FS-4101-SS	WASHER, FLAT, 5/16", STAINLESS	2
4	FS-2006-SS	BOLT, HEX HD, 5/16"-18 x 1", STAINLESS	2
5	AB-0283	TUBE, SIGN-BRAC, 1 1/2" SCH 10, ALUM	1
6	FS-2025-SS	BOLT, HEX HD, 5/16"-18 X 1 1/2", STAINLESS	2
7	FS-2098-SS	BOLT, HEX HD 5/16"-18 X 7/8" STAINLESS	8
8	AB-0339-M1	PLATE, CABLE CLAMP, ASTRO-BRAC, ALUM	2
9	FS-4201-SS	WASHER, LOCK SPLIT, 5/16" STAINLESS	8
10	AB-0263-ZN2	RETAINING RING, 2-7/8" ZINC 2	1
11	AB-0280	CABLE ASSY, ASTRO-BRAC, STAINLESS ENDS W/GALV CABLE	1
12	AB-0354-M2	CLAMP, FEMALE, ASTRO-BRAC, CABLE MNT, ALUM	1
13	FS-4113-SS	WASHER, FLAT 5/8", STAINLESS	2
14	FS-2043-SS	BOLT, HEX HD 5/8"-11 X 4", STAINLESS	1
15	FS-4210-SS	WASHER, LOCK SPLIT 5/8", STAINLESS	1
16	FS-1011-SS	NUT, HEX, 5/8-11, STAINLESS	1
17	AB-0288-M1	CLEVIS, 3/4" , ALUM	1
18	AB-0289-M1	SWIVEL, MALE, 713 ALUM	1
19	AB-0256-SS	V-BOLT KIT, 5/16"-18, STAINLESS	1
20	AB-0506	TY-BACK / RESTRAINING CLAMP ASSY	1

NOTE:

Pelco Astro-Brac Model No. AB-0136
or approved equivalent.



H	24"	30"	36"	42"	48"	54"	66"	72"
CTC	18"	24"	30"	36"	42"	48"	60"	66"

NOTE:
ONE AB-0136 REQUIRED PER 16 SQ. FT. OF SIGN FACE.

TYPE A - FOR MAST ARM MOUNTING

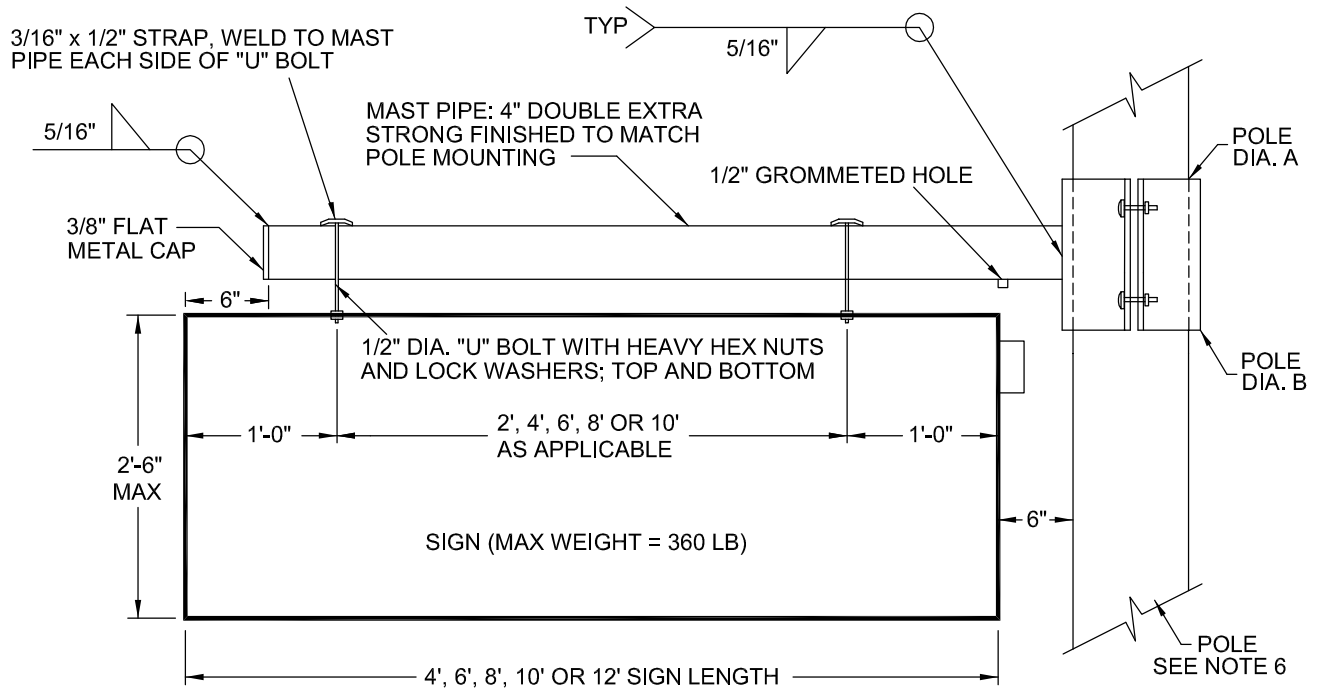
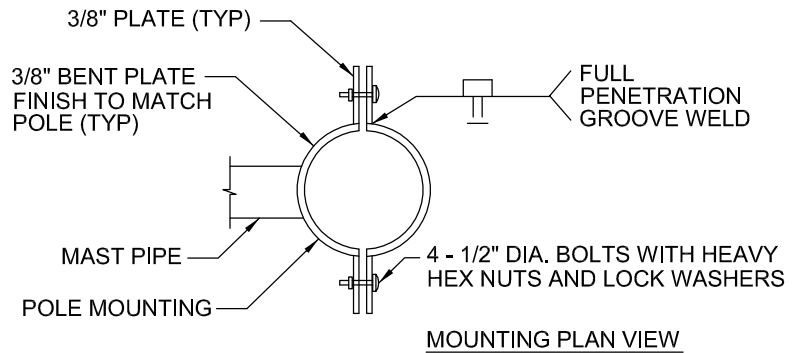
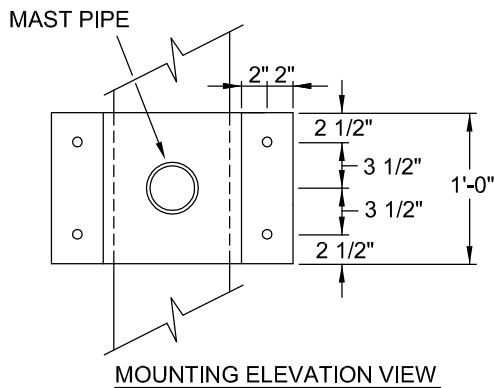
Issued: February 2009

Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-105

**ILLUMINATED SIGN
MOUNTING BRACKET**



NOTES:

- Sign must be able to swing about mast pipe.
- Structure materials must be as follows:
Mast pipe: ASTM A53, Grade B, double extra strong;
Steel plate: ASTM A709, Grade 36 or ASTM A36;
Weld metal: E70xx;
Bolts: ASTM A325, Type 1;
Nuts: ASTM A563, Grade A, heavy hex.
- All steel items must be galvanized as follows:
all nuts, bolts and threaded studs per ASTM A153, Class C or D depending on size. All other steel items (including mast pipe) per ASTM A123.
- Bolt hole diameters must be equal to the bolt diameter plus 1/16" prior to galvanizing.
- See mounting table for pole diameter A and B. See Standard Detail 6-101 for mounting height.
- Structural capacity to accommodate placement of illuminated signs must be reviewed and confirmed by a structural engineer with Arizona registration.

MOUNTING TABLE		
POLE TYPE	DIA. A	DIA. B
Q	8.63	8.77
R	10.41	10.55
SP-1B	13.52	13.66

TYPE B - FOR POLE MOUNTING

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Sheet 2 of 2

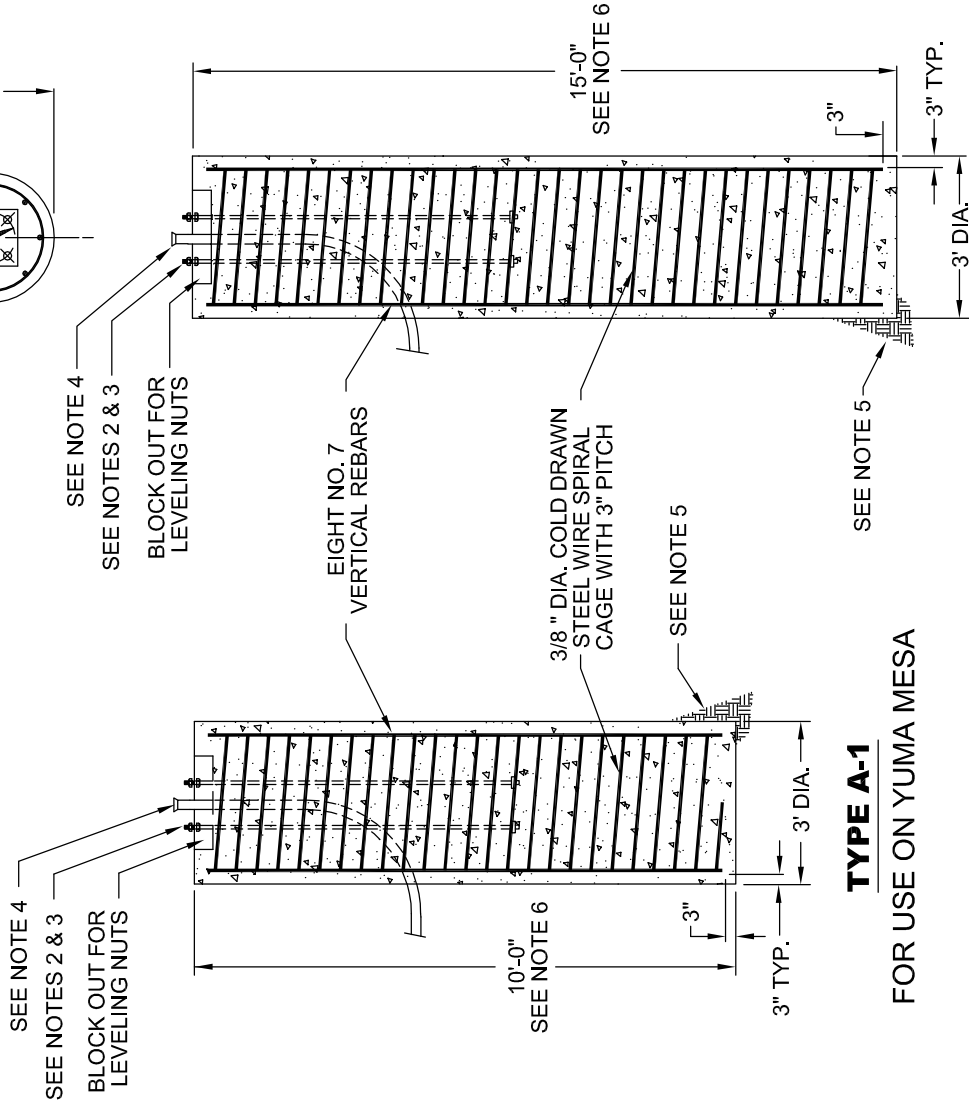
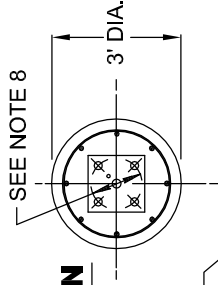
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-105

**ILLUMINATED SIGN
MOUNTING BRACKET**

FOUNDATION PLAN

(TYPICAL)



TYPE A-1

FOR USE ON YUMA MESA

TYPE B-1

FOR USE IN YUMA
AND GILA VALLEYS

NOTES:

1. All materials and construction must conform to the requirements of the project manual Special Conditions and A.D.O.T. specifications.
2. See City of Yuma Standard No. 6-202 & 6-203. Each anchor bolt must have four (4) hex nuts and (2) flat washers.
3. Anchor bolts must project 4 1/2" above the foundation.
4. Conduit must project two inches (2") to four inches (4") above the foundation.
5. The foundation hole must be augered and 4000 psi concrete poured against undisturbed, compacted earth.
6. Unstable soil may require deeper foundation. See A.D.O.T. Standard Specifications, Section 731-3.01.
7. See Standard 6-040 for pole grounding.
8. BOLT CIRCLE:
18"- Pole types J, K, Q, R, II
19"- Pole Type I

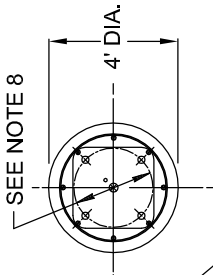
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Sheet 1 of 2

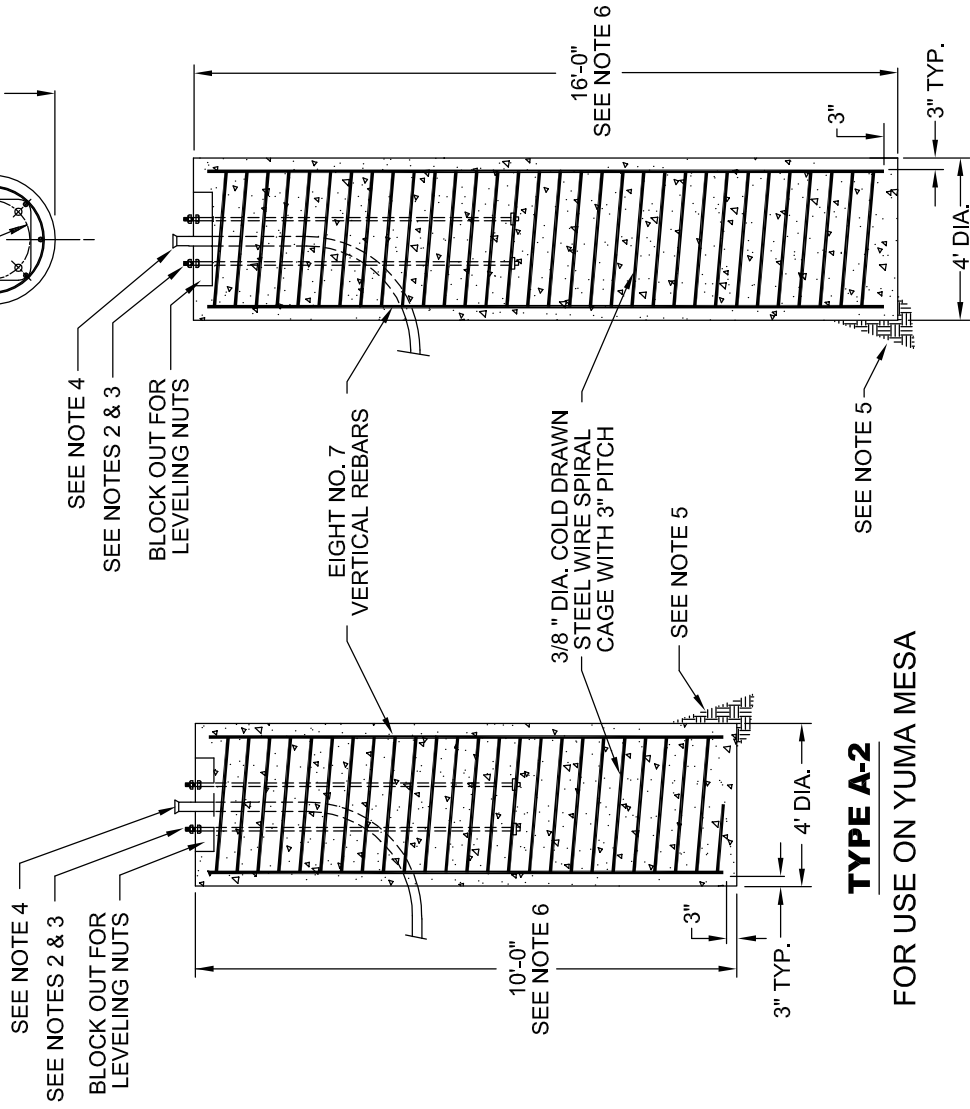
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-200

SIGNAL POLE FOUNDATIONS



FOUNDATION PLAN
(TYPICAL)



TYPE A-2

FOR USE ON YUMA MESA

TYPE B-2

FOR USE IN YUMA
AND GILA VALLEYS

NOTES:

1. All materials and construction must conform to the requirements of the project manual Special Conditions and A.D.O.T. specifications.
2. See City of Yuma Standard No. 6-202 & 6-203. Each anchor bolt must have four (4) hex nuts and (2) flat washers.
3. Anchor bolts must project 4 1/2" above the foundation.
4. Conduit must project two inches (2") to four inches (4") above the foundation.
5. The foundation hole must be augered and 4000 psi concrete poured against undisturbed, compacted earth.
6. Unstable soil may require deeper foundation. See A.D.O.T. Standard Specifications, Section 731-3.01.
7. See Standard 6-040 for pole grounding.
8. BOLT CIRCLE:
22"- Pole types SP-1A, SP-1B, II

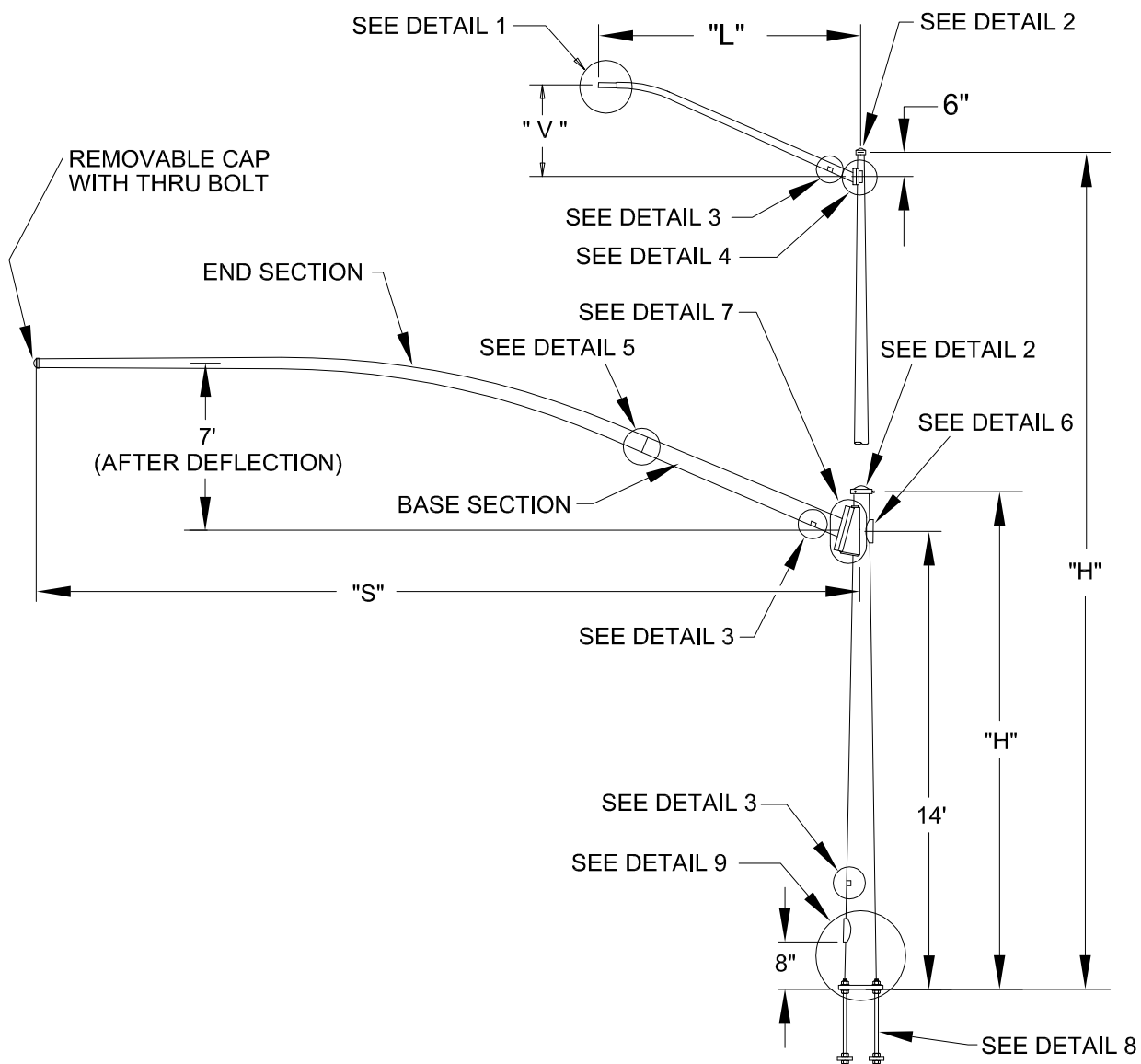
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CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-200

SIGNAL POLE FOUNDATIONS



FOR THIS INFORMATION	SEE TABLE
LUMINAIRE ARM	1
POLE	2
SIGNAL ARM	3
MATERIAL DATA	4

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Sheet 1 of 4

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-201

**TYPE SP-1A AND SP-1B
TRAFFIC SIGNAL
POLE AND MAST ARM**

TABLE 1: LUMINAIRE ARM DATA

ARM SPAN "L" (FEET)	FIXED END DIA. (INCHES)	FREE END DIA. (INCHES)	GAUGE	LENGTH "L" (FEET)	RISE "V" (FEET)
6	3.31	2.40	11	6.00	2.00
8	3.61	2.40	11	8.00	2.50
10	3.93	2.40	11	10.00	3.33
12	4.23	2.40	11	12.00	4.25
15	4.65	2.40	11	15.00	4.75
18	5.10	2.40	11	18.00	5.75
20	5.90	3.00	7	20.00	5.75

TABLE 3: SIGNAL ARM DATA

ARM LENGTH "S"	LARGE END DIA. (INCHES)	SMALL END DIA. (INCHES)	THK. (INCHES)	SECTION LENGTH (FEET)
60'-0"	BASE	13.50	10.18	0.313
	END	11.00	5.49	0.239
65'-0"	BASE	13.50	10.18	0.313
	END	11.00	4.79	0.239
70'-0"	BASE	13.50	10.18	0.313
	END	11.00	4.09	0.239

TABLE 2: POLE DATA

TYPE	LUMINAIRE ARM	POLE TUBE			
		HEIGHT (H) (FEET)	BASE DIA. (INCHES)	TOP DIA. (INCHES)	WALL THK. (INCHES)
SP-1A	N/A	21.00	16.50	13.56	0.281"
SP-1B	YES	30.00	16.50	12.30	0.281"

TABLE 4: MATERIAL DATA

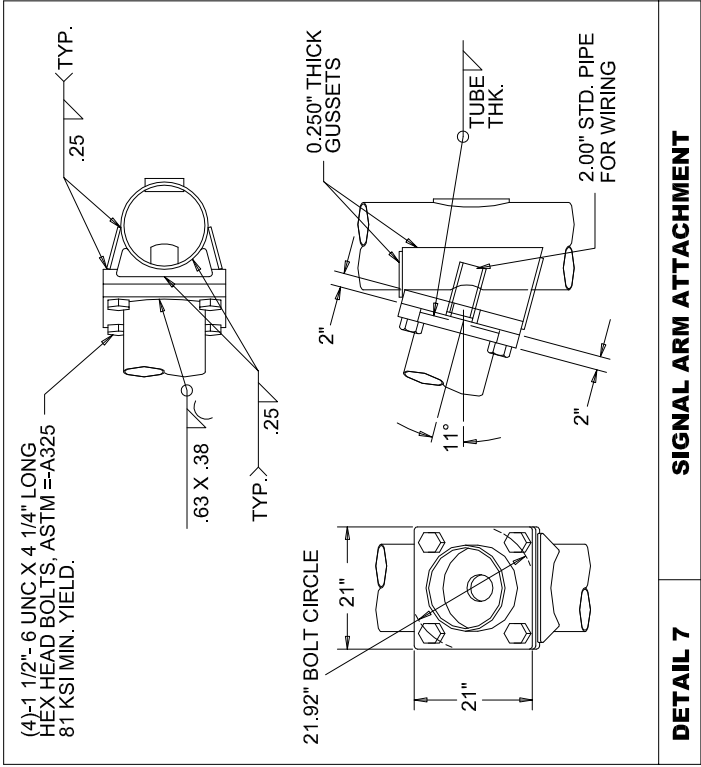
COMPONENT	DESIGNATION	DESIGN MIN. YIELD (KSI)
POLE SHAFT BASE PLATE	ASTM A572	50
	ASTM A572 GR.42	42
SIGNAL ARM TUBE (BASE) SIGNAL ARM TUBE (END) SIGNAL ARM ATTACHMENT	ASTM A572	50
	ASTM A595 GR.A	48
	ASTM A36	36
LUMINAIRE ARM TUBE LUMINAIRE ARM ATTACHMENT	ASTM A595 GR.A	48
	ASTM A36	36
ANCHOR BOLTS NUTS WASHERS	ASTM F1554	55
	ASTM A563 GR.A	NA
	ASTM F463	NA
GALVANIZING-ACCESSORIES	ASTM A153	NA
GALVANIZING-TUBES	ASTM A123	NA

Issued: February 2009

Sheet 2 of 4

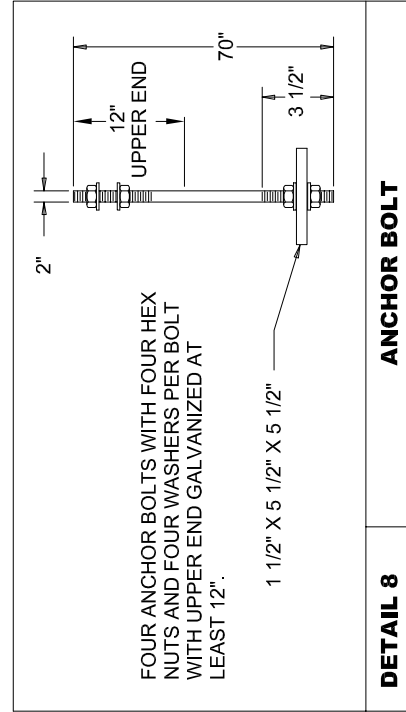
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-201
TYPE SP-1A AND SP-1B
TRAFFIC SIGNAL
POLE AND MAST ARM



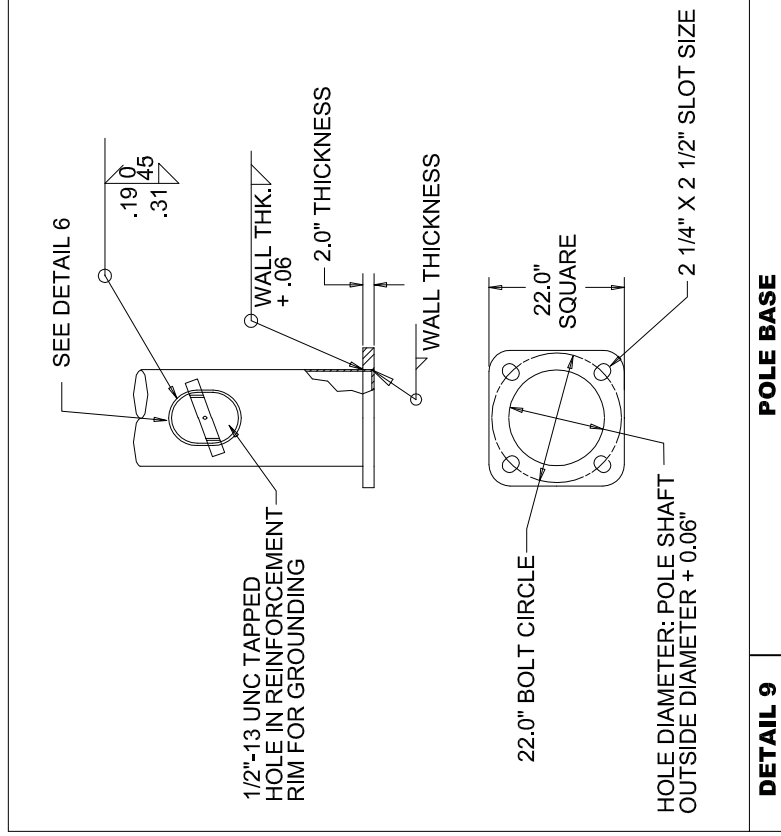
SIGNAL ARM ATTACHMENT

DETAIL 7



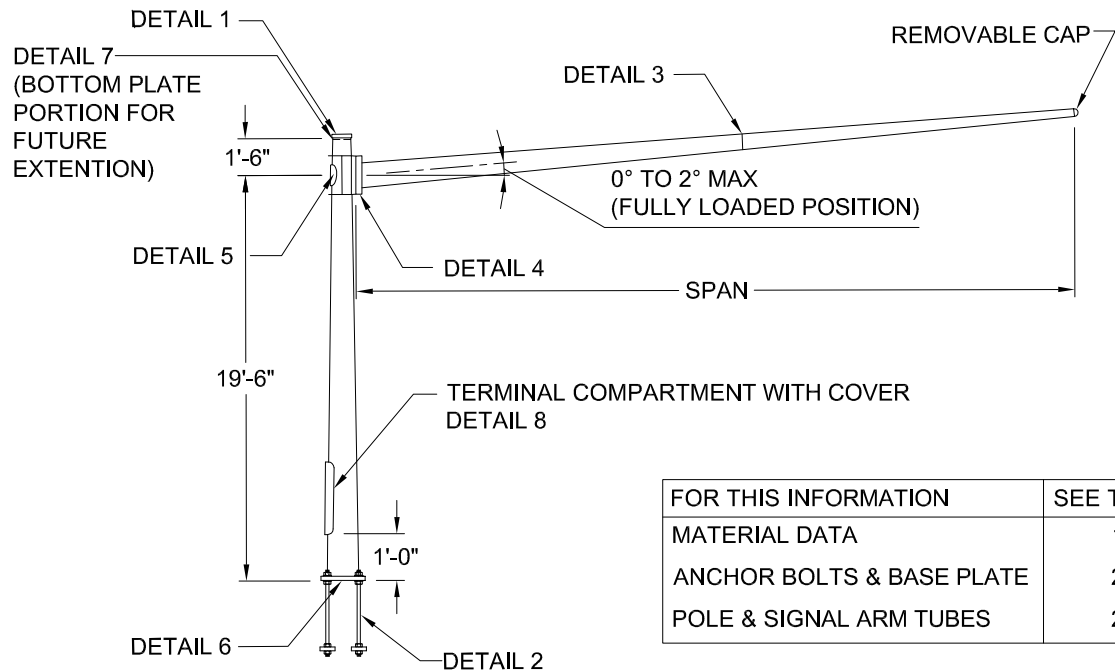
ANCHOR BOLT

DETAIL 8

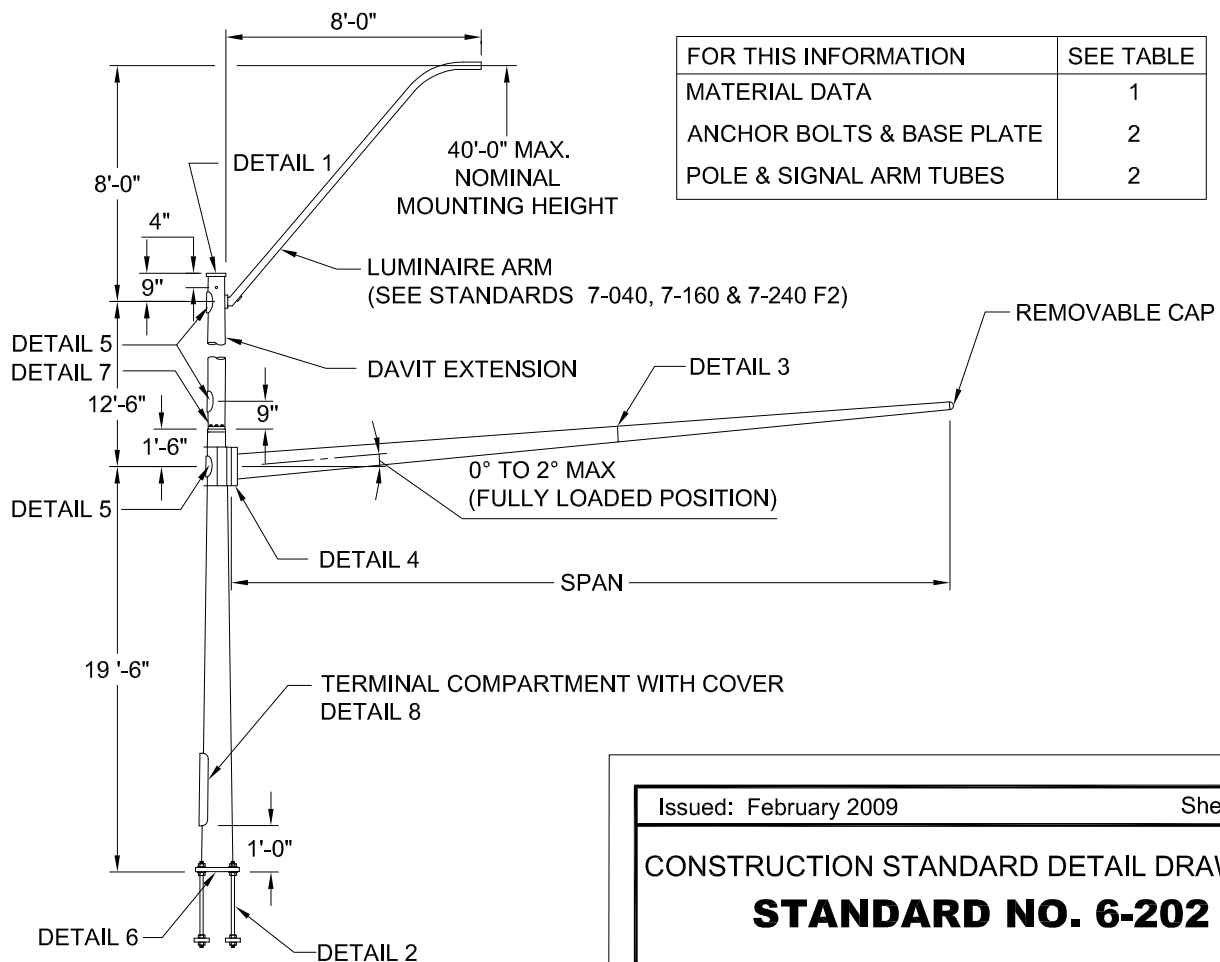


POLE BASE

DETAIL 9



TYPICAL POLE & MAST ARM



**TYPICAL POLE, MAST ARM,
DAVIT EXTENSION & LUMINAIRE ARM**

Issued: February 2009

Sheet 1 of 4

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-202

**TYPE I AND TYPE II
TRAFFIC SIGNAL
POLE AND MAST ARM**

DESIGN CRITERIA:

2001 AASHTO STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS
FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.

-25 YEAR DESIGN LIFE/RECURRENCE INTERVAL

-FATIGUE CATEGORY III

-TRUCK-INDUCED FATIGUE INCLUDED (GALLOPING NOT INCLUDED)

WIND VELOCITY:

80 MPH ISOTACH.

MAXIMUM TRUCK-INDUCED FATIGUE:

65 MPH

CAFL AT CRITICAL CONNECTIONS:

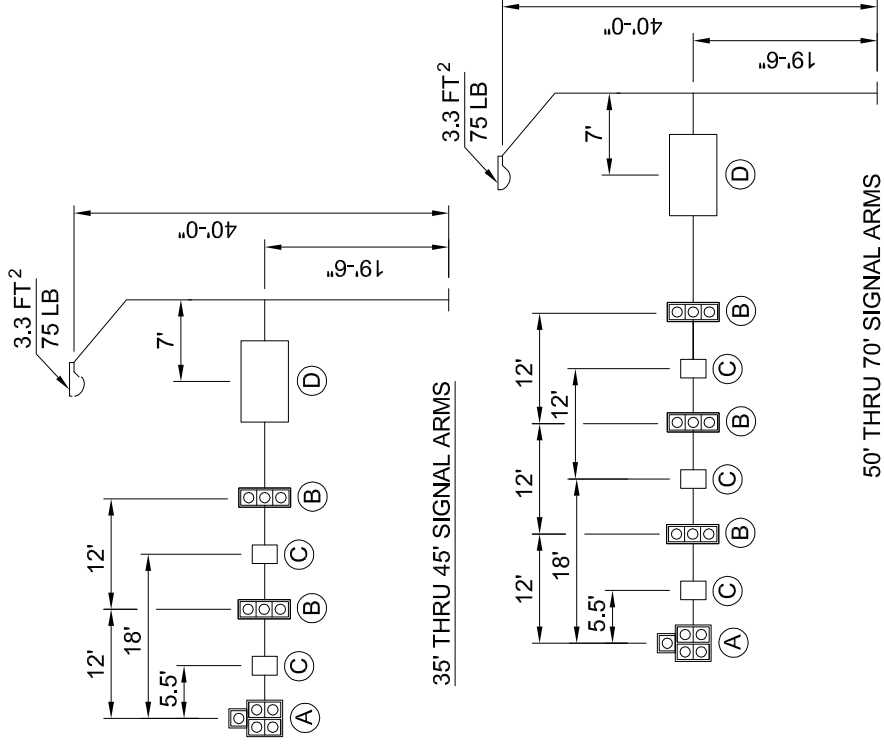
-POLE TO BASE PLATE CONNECTION = E

-ARM TO SIMPLEX PLATE CONNECTION = E

-SIMPLEX GUSSETS = ET

-POLE WALL AT SIMPLEX GUSSET = E

-POLE SHAFT = B'



DEVICE	DESCRIPTION	PROJ. AREA (FT ²)	WEIGHT (LBS)
(A) SIGNAL	12"-5 SEC. CLUSTER SIGNAL WITH BACKPLATES	16	80
(B) SIGNAL	12"-3 SEC. SIGNAL WITH BACKPLATES	9.75	50
(C) SIGN	30" X 36" SIGN	7.5	23
(D) SIGN	ILLUMINATED STREET NAME SIGN	18.6	120

LOADING INFORMATION

TABLE 1: MATERIAL DATA		
COMPONENT	DESIGNATION	MIN. YIELD (KSI)
POLE - 0.250" & 0.313" WALL ARM TUBE - 7 GA. & 0.250" WALL BASE PLATE	A572 GR. 65	65
	A595 GR. A	55
	A36	36
SIGNAL ARM ATTACHMENT SIGNAL ARM CONN. BOLTS	A36	36
	A325	-
ANCHOR BOLTS - 2.00" DIA. NUTS WASHERS	A449	58
	ASTM A563 GR. C.O. OR DH	-
	ASTM F436	-
GALVANIZING	A123 & A153	-

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Sheet 2 of 4

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-202

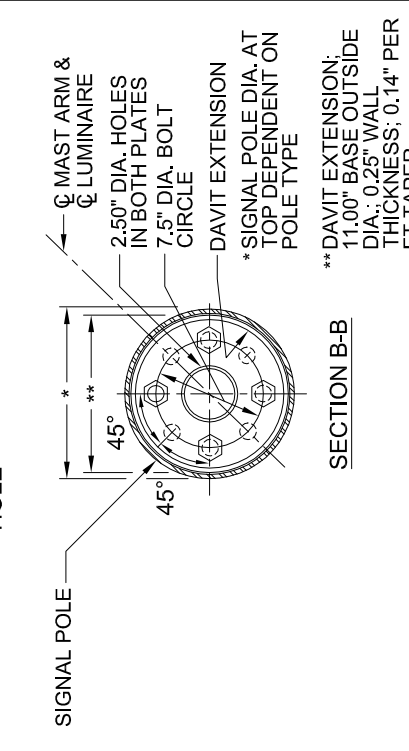
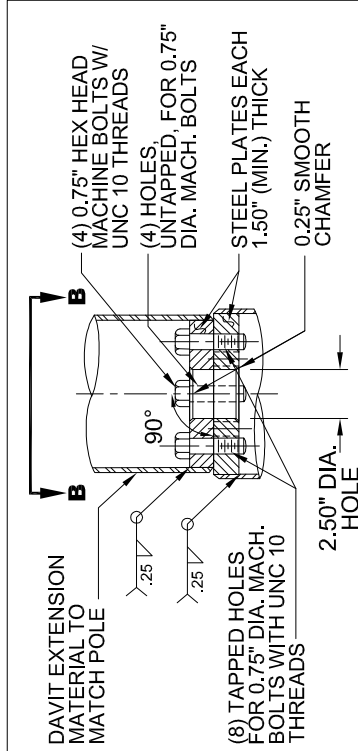
TYPE I AND TYPE II

TRAFFIC SIGNAL

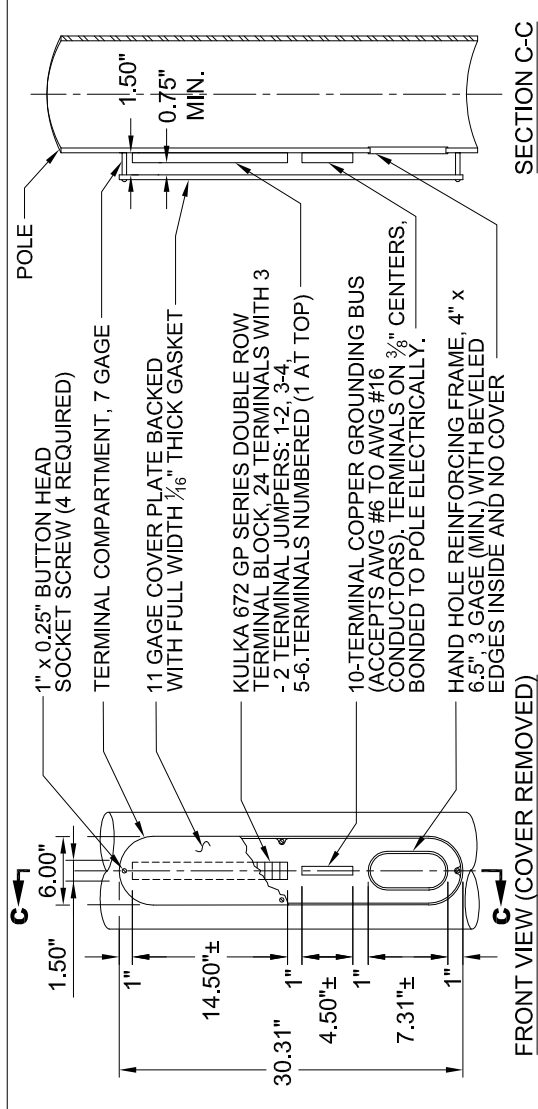
POLE AND MAST ARM

TABLE 2: POLE AND SIGNAL ARM DATA

POLE DATA	POLE SHAFT					POLE BASE PLATE			ANCHOR BOLT					ACCOMMODATES ARM LENGTHS (FT)	
	POLE CLASS	BASE DIA. (IN)	TOP DIA. (IN)	MAX. LENGTH (FT)	GAGE OR THICK (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	BRG. PLT (DIA. X THK.)	THREAD LENGTH "U" (IN)		
	TYPE I	14.00	11.06	21.00	0.250	19.50	19.00	1.50	2.25	2.00	60.00	5" X 1"	8.00		UP TO 45
	TYPE II	17.00	14.06	21.00	0.313	22.50	22.00	2.00	2.25	2.00	60.00	7" X 1"	8.00		UP TO 70
SIGNAL ARM DATA	SIGNAL ARM TUBE														
	FIXED END DIA. (IN)		FREE END DIA. (IN)		GAGE OR THICK (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"H" (IN)	"F" (IN)	"G" (DEG)		
	15-30	10.00	7.90-5.80	7	23.75	23.75	20.00	20.00	20.00	2.25	1.75	1.50-6UNC X 4.25	0		
	35-45	12.00	7.10-5.70	0.25	23.75	23.75	20.00	20.00	20.00	2.25	2.00	1.50-6UNC X 4.50	1		
	50-55	16.00	9.00-8.30	0.25	23.75	23.75	20.00	20.00	20.00	2.25	2.00	1.50-6UNC X 4.50	2		
	60-70	16.00	7.60-6.20	0.25	23.75	23.75	20.00	20.00	20.00	2.25	2.00	1.50-6UNC X 4.50	3		



DETAIL 7 LIGHT DAVIT EXTENSION ATTACHMENT



DETAIL 8 SIGNAL POLE TERMINAL COMPARTMENT

Issued: February 2009 Sheet 4 of 4

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-202

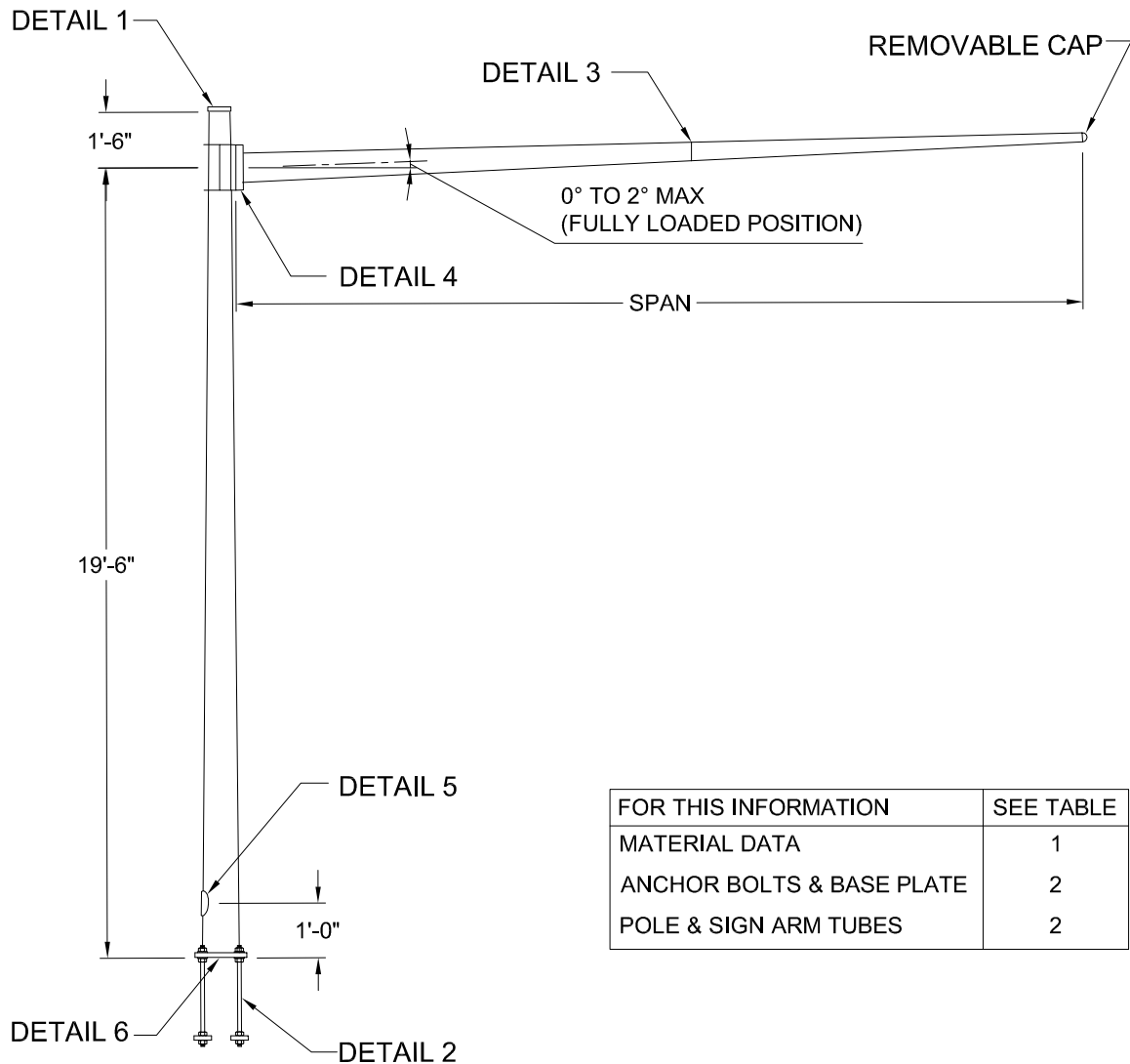
TYPE I AND TYPE II

TRAFFIC SIGNAL

POLE AND MAST ARM

FOUNDATION REQUIRED	
SIGNAL ARM LENGTH	FOUNDATION TYPE
≤ 45	CITY OF YUMA STANDARD 6-200
> 45	A-1 OR B-1
> 45	A-2 OR B-2

DETAIL 7 LIGHT DAVIT EXTENSION ATTACHMENT



TYPICAL POLE (TYPE III)

Issued: February 2009

Sheet 1 of 4

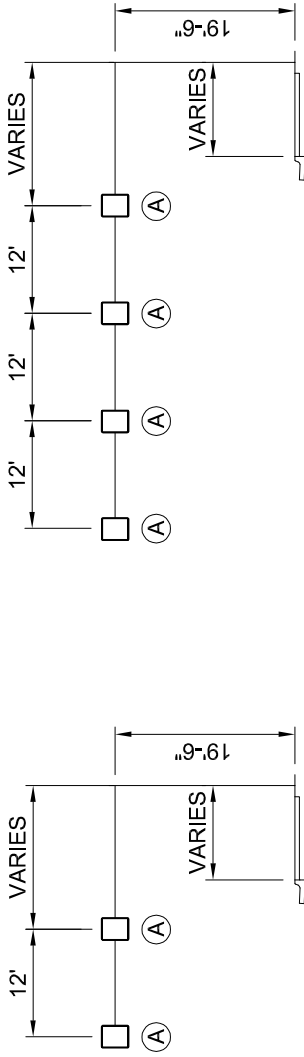
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-203

**TYPE III
TRAFFIC SIGN
POLE AND MAST ARM**

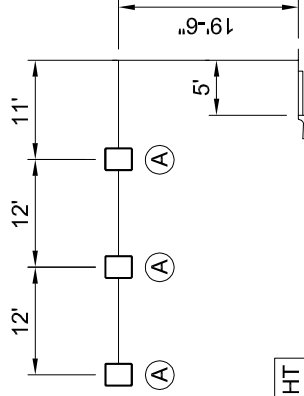
DESIGN CRITERIA:

- 2001 AASHTO STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
 - 25 YEAR DESIGN LIFE/RECURRENCE INTERVAL
 - FATIGUE CATEGORY III
 - GALLOPING & TRUCK-INDUCED FATIGUE INCLUDED
- WIND VELOCITY:
80 MPH ISOTACH.
- MAXIMUM TRUCK-INDUCED FATIGUE:
65 MPH
- CAFL AT CRITICAL CONNECTIONS:
- POLE TO BASE PLATE CONNECTION = D
 - ARM TO SIMPLEX PLATE CONNECTION = D
 - SIMPLEX GUSSETS = ET
 - POLE WALL AT SIMPLEX GUSSET = E
 - POLE SHAFT = B'

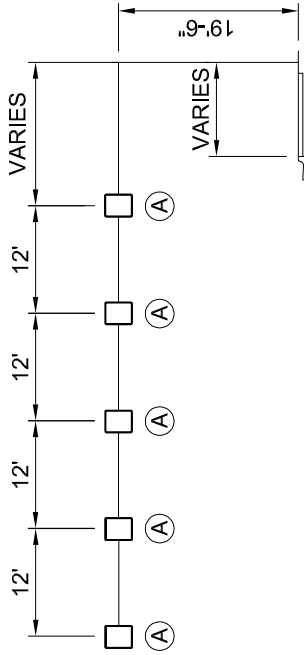


15' THRU 30' SIGN ARMS

40' THRU 55' SIGN ARMS



35' SIGN ARM



60' THRU 65' SIGN ARM

DEVICE	DESCRIPTION	PROJ. AREA (FT ²)	WEIGHT (LBS)
(A) SIGN	30" X 36" SIGN	7.5	23

LOADING INFORMATION

TABLE 1: MATERIAL DATA			MIN. YIELD (KSI)
COMPONENT	DESIGNATION		
POLE - 0.250" WALL	A572 GR. 65		65
ARM TUBE - 7 GA. & 0.250" WALL	A595 GR. A		55
BASE PLATE	A36		36
SIGN ARM ATTACHMENT	A36		36
SIGN ARM CONN. BOLTS	A325		-
ANCHOR BOLTS - 1.50" DIA.	A449		58
NUTS	ASTM A563 GR. C.O. OR DH		-
WASHERS	ASTM F436		-
GALVANIZING	A123 & A153		-

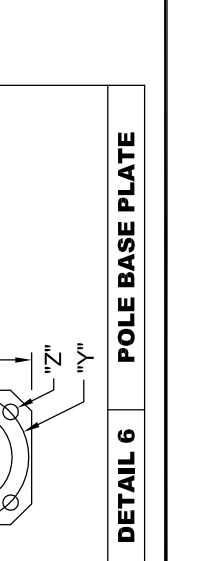
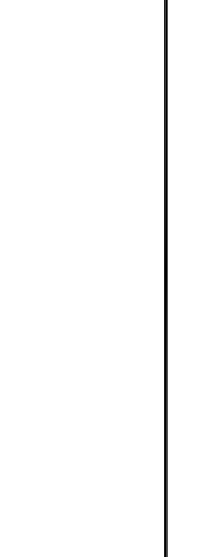
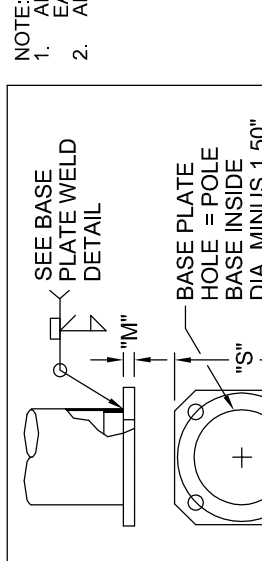
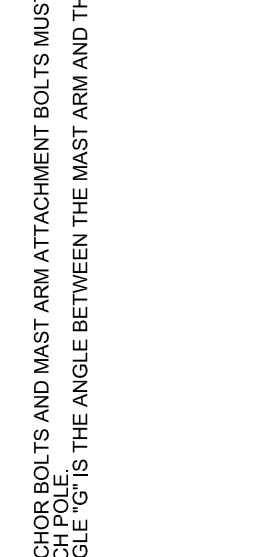
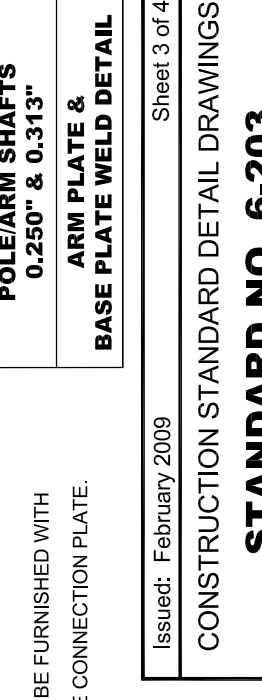
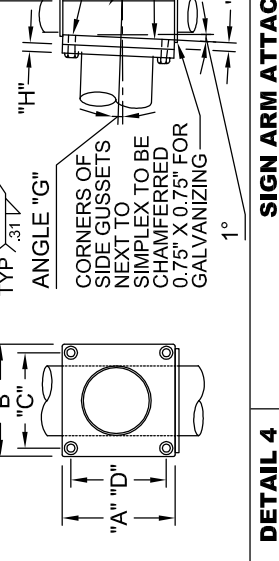
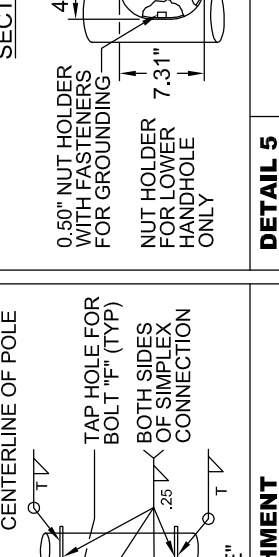
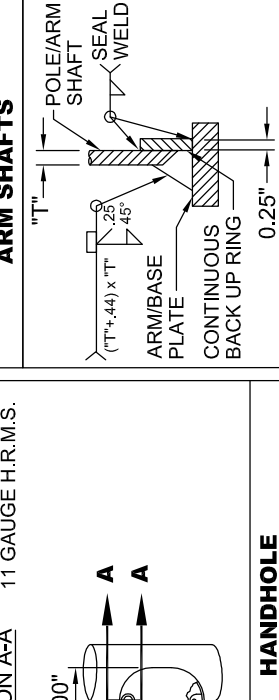
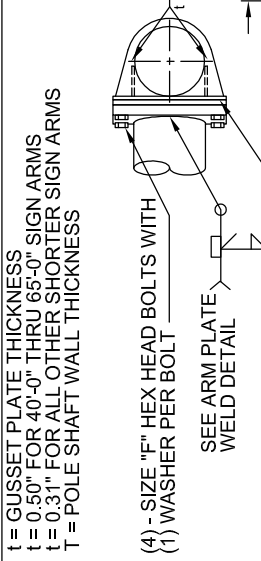
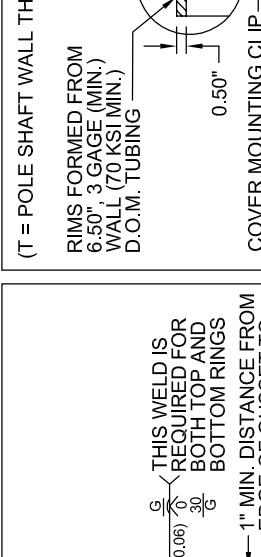
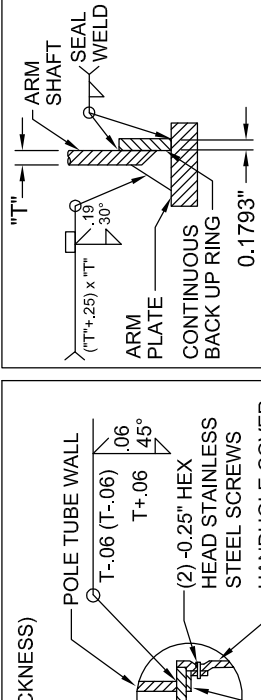
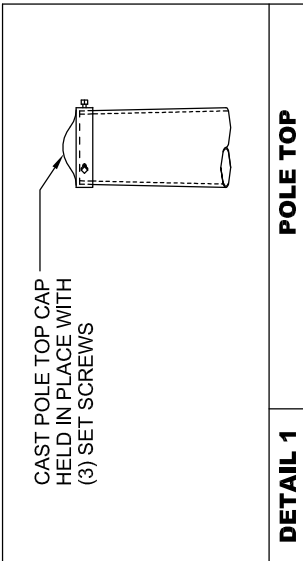
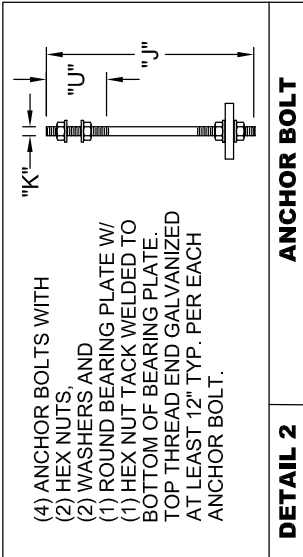
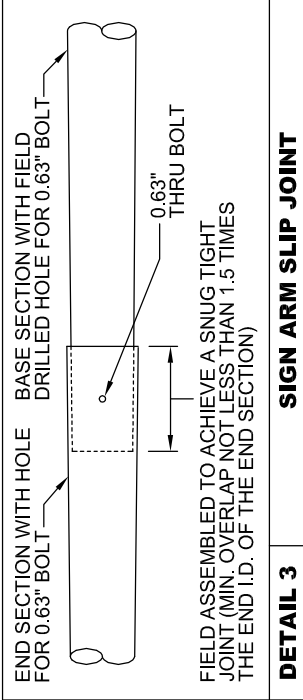
Issued: February 2009

Sheet 2 of 4

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-203

**TYPE III
TRAFFIC SIGN
POLE AND MAST ARM**



Issued: February 2009

Sheet 3 of 4

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-203

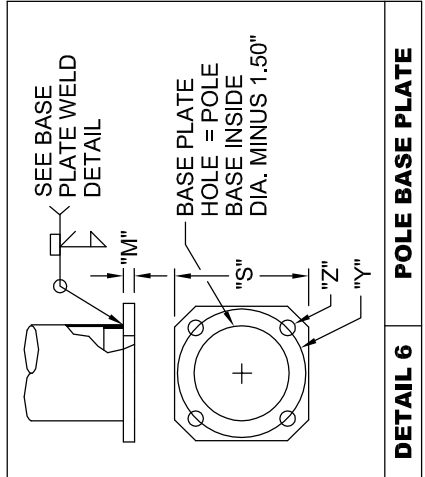
TYPE III

TRAFFIC SIGN

POLE AND MAST ARM

NOTE:

- ANCHOR BOLTS AND MAST ARM ATTACHMENT BOLTS MUST BE FURNISHED WITH EACH POLE.
- ANGLE "G" IS THE ANGLE BETWEEN THE MAST ARM AND THE CONNECTION PLATE.



DETAIL 1 POLE TOP

DETAIL 2 ANCHOR BOLT

DETAIL 3 SIGN ARM SLIP JOINT

DETAIL 4 SIGN ARM ATTACHMENT

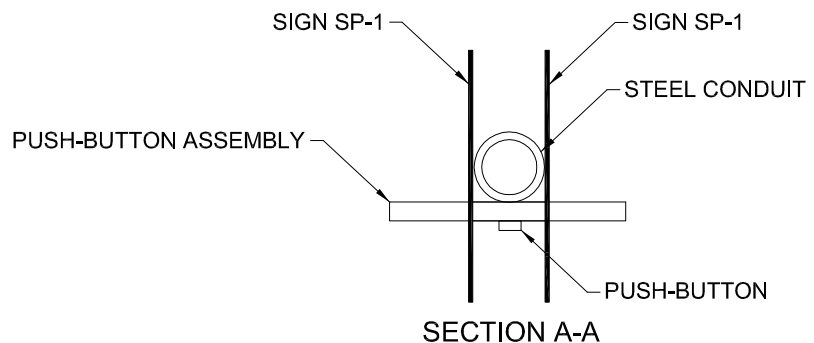
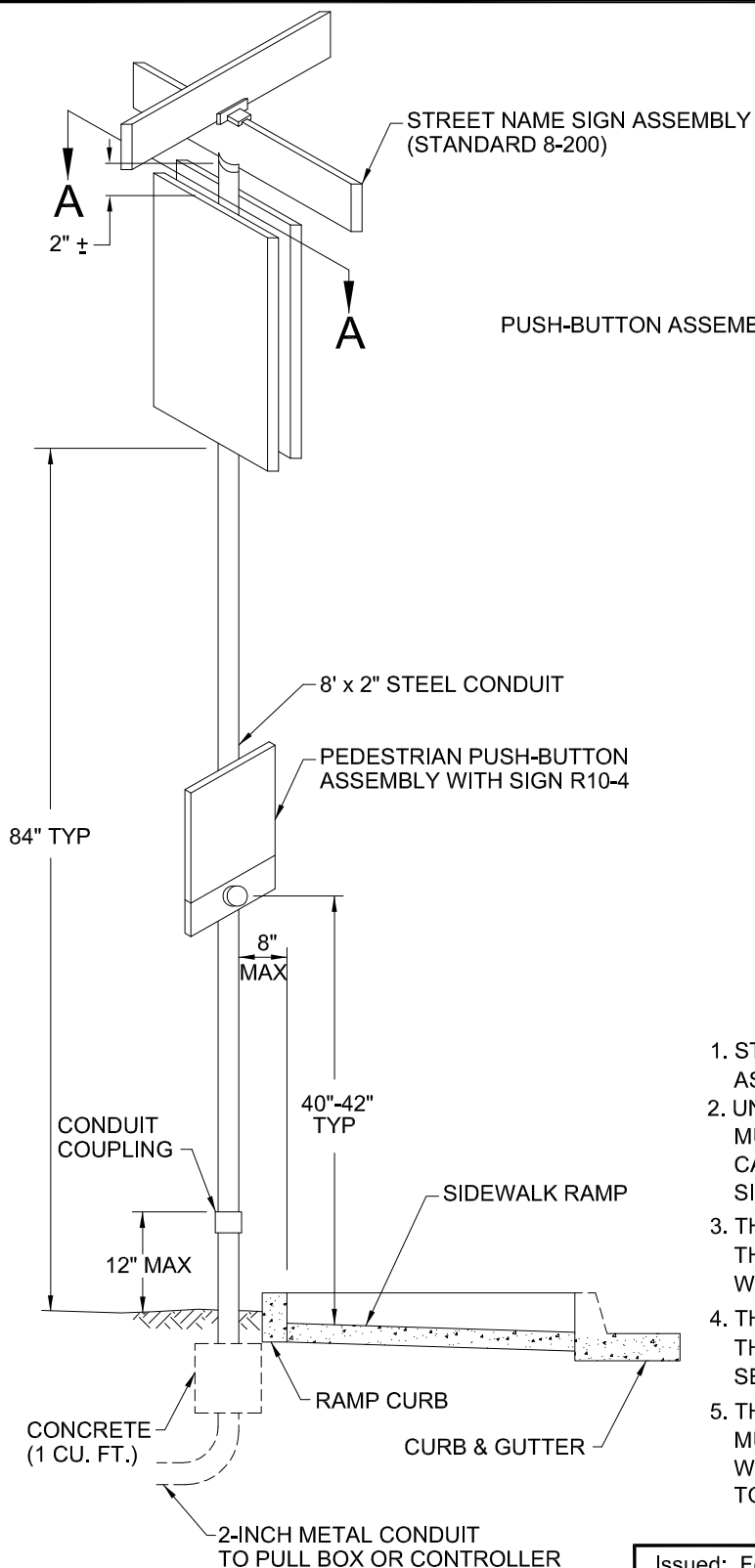
DETAIL 5 HANDHOLE

DETAIL 6 POLE BASE PLATE

TABLE 2: POLE AND SIGN ARM DATA

POLE CLASS	POLE TUBE			POLE BASE PLATE				ANCHOR BOLT			SIGN ARM TUBE				SIGN ARM ATTACHMENT DATA									
	BASE DIA. (IN)	TOP DIA. (IN)	MAX. LENGTH (FT)	GAGE OR THICK (IN)	SQUARE "S" (IN)	BOLT CIRCLE "V" (IN)	THK "W" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	BRG. PLT (DIA. X THK.)	THREAD LENGTH "U" (IN)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAGE OR THICK (IN)	SPAN (FT)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"H" (IN)	"F" (IN)	"G" (DEG)
TYPE III	12.00	9.06	21.00	0.250	19.50	18.00	1.50	1.75	1.50	60.00	5" X 1"	8.00	10.00	7.90-5.80	7	15-30	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	0
TYPE III	12.00	9.06	21.00	0.250	19.50	18.00	1.50	1.75	1.50	60.00	5" X 1"	8.00	10.00	5.10	7	35	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	1
TYPE III	14.00	11.06	21.00	0.250	19.50	18.00	2.00	1.75	1.50	60.00	7" X 1"	8.00	12.00	6.40-4.30	0.25	40-55	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	2
TYPE III	14.00	11.06	21.00	0.250	19.50	18.00	2.00	1.75	1.50	60.00	7" X 1"	8.00	12.00	3.60-2.90	0.25	60-65	19.75	19.75	16.00	16.00	2.25	1.50	1.50-6UNC X 4.00	4

FOUNDATION REQUIRED	
SIGNAL ARM LENGTH	FOUNDATION TYPE CITY OF YUMA STANDARD 6-200
≤ 65	A-1 OR B-1



NOTES:

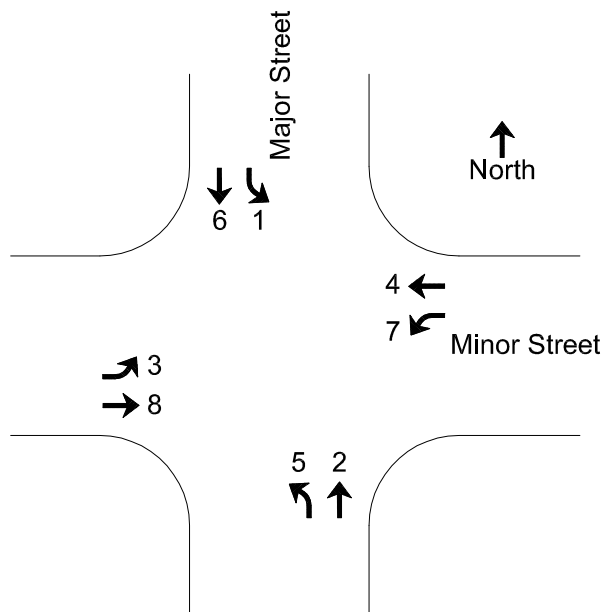
1. STREET NAME SIGNS MUST BE PARALLEL TO THE ASSOCIATED STREETS.
2. UNLESS OTHERWISE NOTED, THE PUSH-BUTTON MUST BE CONNECTED TO THE CONTROLLER CABINET BY A 4-CONDUCTOR, A.W.G. #14 SIGNAL CABLE.
3. THE PUSH-BUTTON MUST BE CONNECTED TO THE CONTROLLER CABINET GROUND BUS BY THE WHITE-INSULATED WIRE IN THE SIGNAL CABLE.
4. THE TEXT OF SIGNS SP-1 MUST CONFORM TO THE REQUIREMENTS OF THE PLANS. SEE STANDARD NO. 8-205.
5. THE LOCATION OF THE PUSH-BUTTON ASSEMBLY MUST BE CENTERED ON THE SIDEWALK RAMP WITH THE BUTTON AXIS PERPENDICULAR TO THE RAMP CURB.

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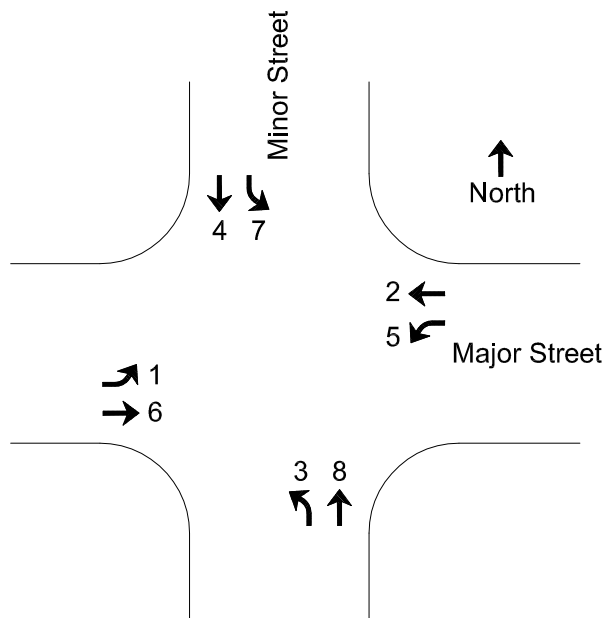
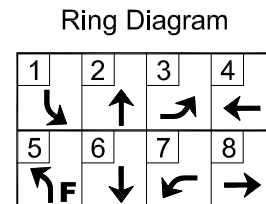
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-210 PEDESTRIAN PUSH-BUTTON ON STREET NAME SIGN ASSEMBLY

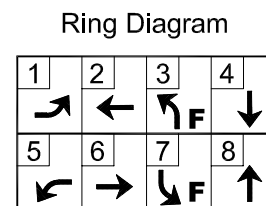
NOT TO SCALE



North - South Major Street



East - West Major Street



NOTES:

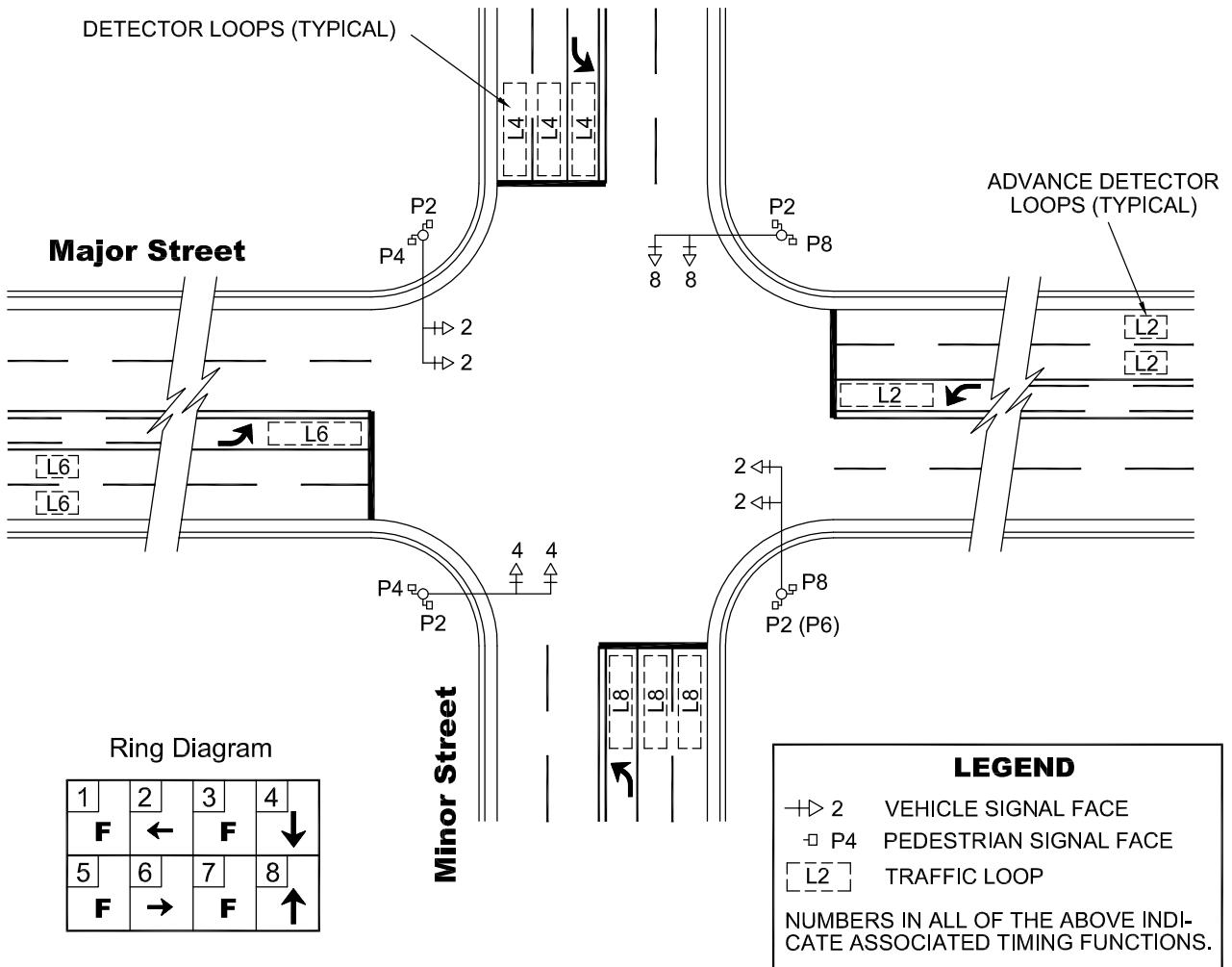
1. Not all intersections will require all phases but the controller and cabinet must be wired to provide all phases.
2. "F" in ring diagrams indicate phase is not in use but is reserved for future use.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-300
TRAFFIC SIGNAL
PHASE ASSIGNMENTS

INITIAL SETUP



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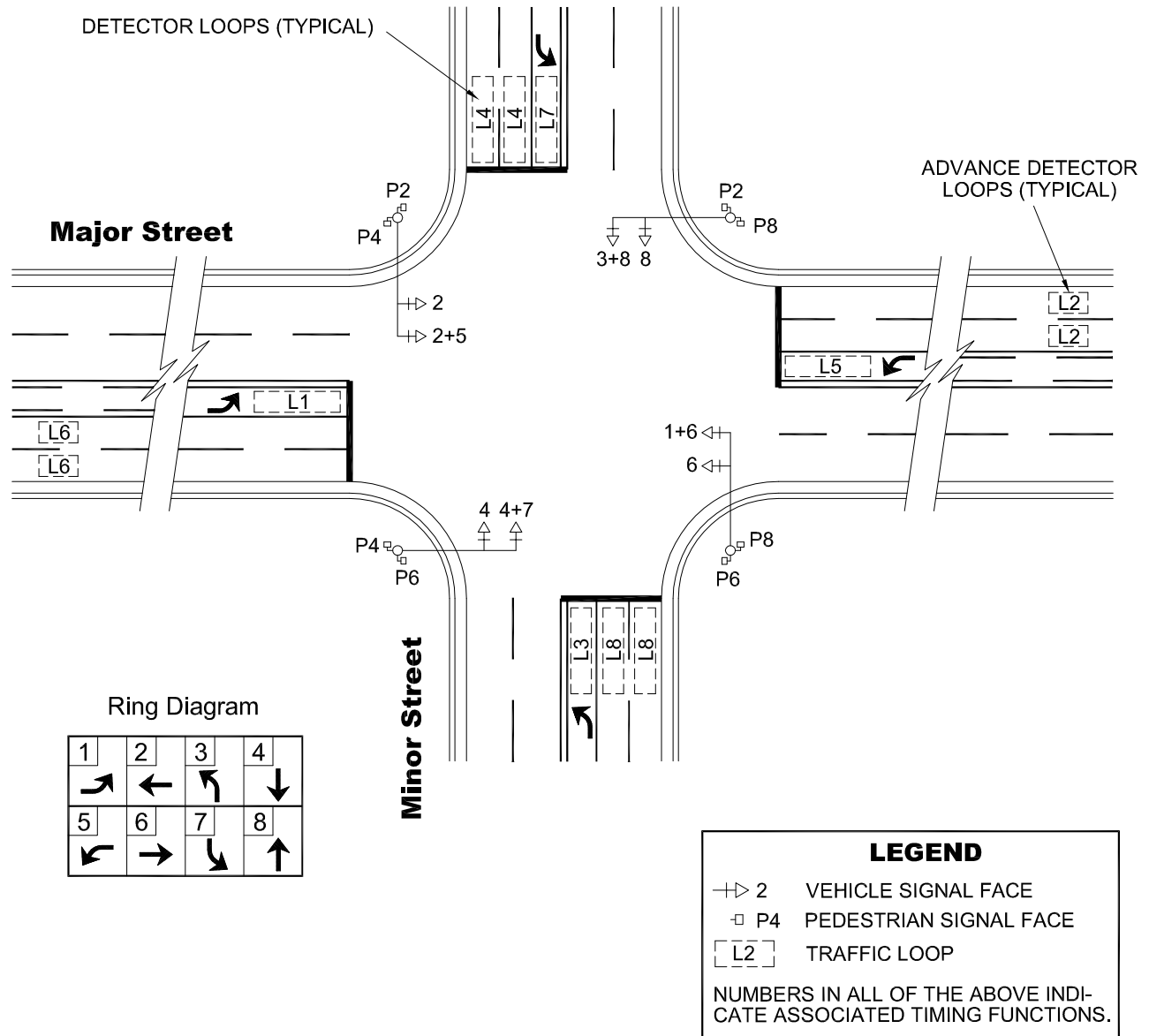
Sheet 1 of 2

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-301

**TRAFFIC SIGNAL SETUP DESIGN
FOR 2-PHASE INTERSECTION
WITH ADVANCE DETECTION**

POTENTIAL FUTURE SETUP



NOTE

1. Connect all loop and signal faces in normal quad-left configuration.

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Sheet 2 of 2

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-301

TRAFFIC SIGNAL SETUP DESIGN FOR 8-PHASE INTERSECTION WITH ADVANCE DETECTION

SCH 40 PVC CONDUIT FOR SIGNAL & STREET LIGHT CIRCUITS (SEE PLANS) (SEE NOTE 5)

TWO (MIN.) 3" SCH 40 PVC CONDUITS FOR SIGNAL CIRCUITS

SCH 40 PVC CONDUITS FOR DETECTOR CIRCUITS (SEE PLANS)

3" SCH 40 PVC CONDUIT FOR DETECTOR CIRCUITS

2" SCH 40 PVC CONDUIT FOR STREET LIGHTS

SCH 40 PVC CONDUITS FOR FIBER OPTIC INTERCONNECT CABLE (SEE PLANS)

2" SCH 40 PVC CONDUIT FOR FIBER OPTIC DROP CABLE

2½" SCH 40 PVC CONDUIT TO POWER SOURCE

ELECTRICAL SERVICE ENCLOSURE

CONTROLLER CABINET

PULL BOX LEGEND

-  NO. 5 PULL BOX
-  NO. 7 PULL BOX WITH EXTENSION
-  TYPE FO PULL BOX WITH EXTENSION

SAFETY NOTE

ALL WORKERS SHOULD BE MADE AWARE THAT LOOP WIRES/LEAD-IN CABLES (LOW VOLTAGE), PEDESTRIAN DETECTOR CABLES (LOW VOLTAGE) AND OPTICAL DETECTOR CABLES (LOW VOLTAGE) MAY SHARE THE SAME CONDUITS WITH 120V AC CIRCUITS.

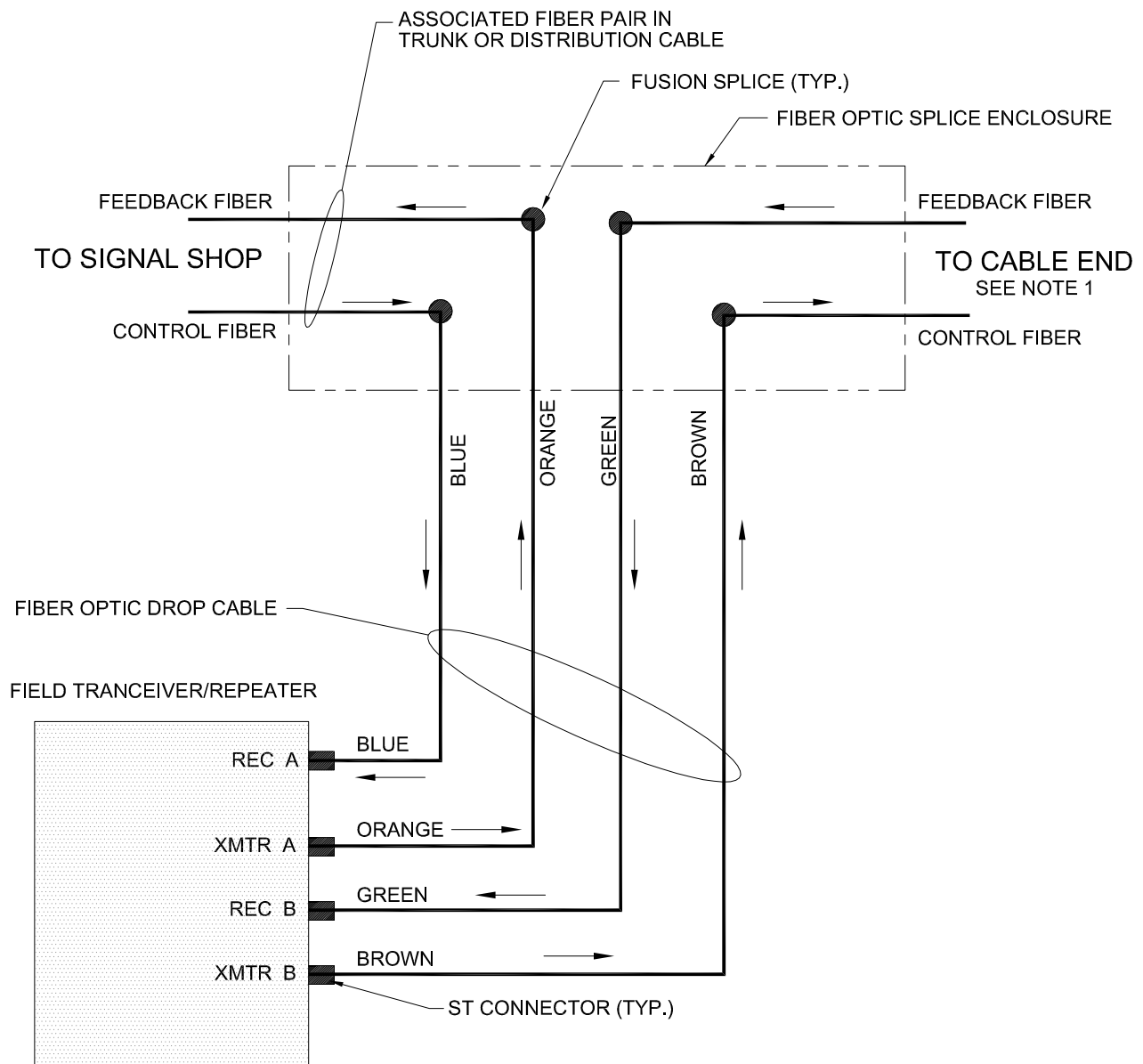
NOTES

1. Requirements shown are minimum. Use additional conduits as needed.
2. Conduit and pullbox layout is schematic. Adjust to fit site.
3. See Standard Detail 6-010 for cabinet foundation details.
4. Conduit sizes shown are minimum sizes.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-310 CONDUITS AND PULL BOXES AT CONTROLLER CABINET



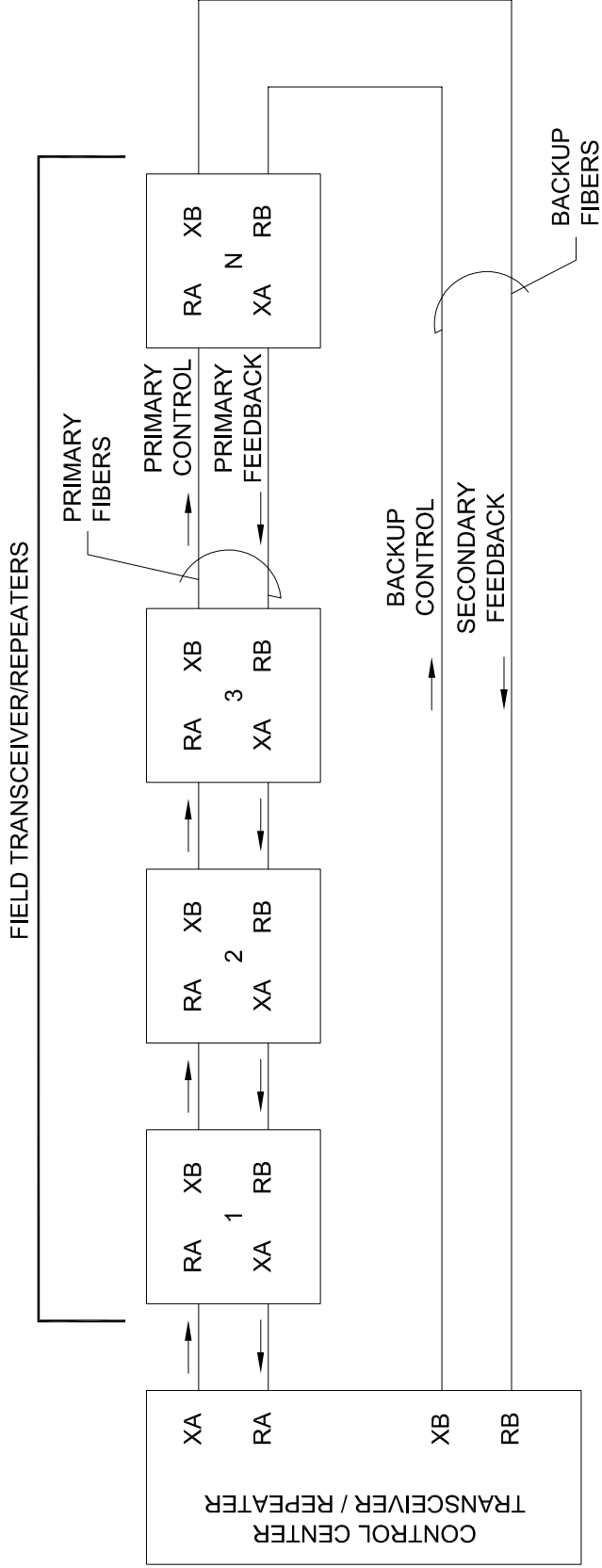
NOTE

1. For the last intersection on a fiber pair, the "To Cable End" fibers must be those of the back-up pair.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-350
TRAFFIC SIGNAL FIBER OPTIC
CABLE CONNECTIONS



LEGEND

N LAST FIELD
TRANSCEIVER/REPEATER
ON CHANNEL (MAX=15)

RA RECEIVE, PRIMARY

RB RECEIVE, SECONDARY

XA TRANSMIT, PRIMARY

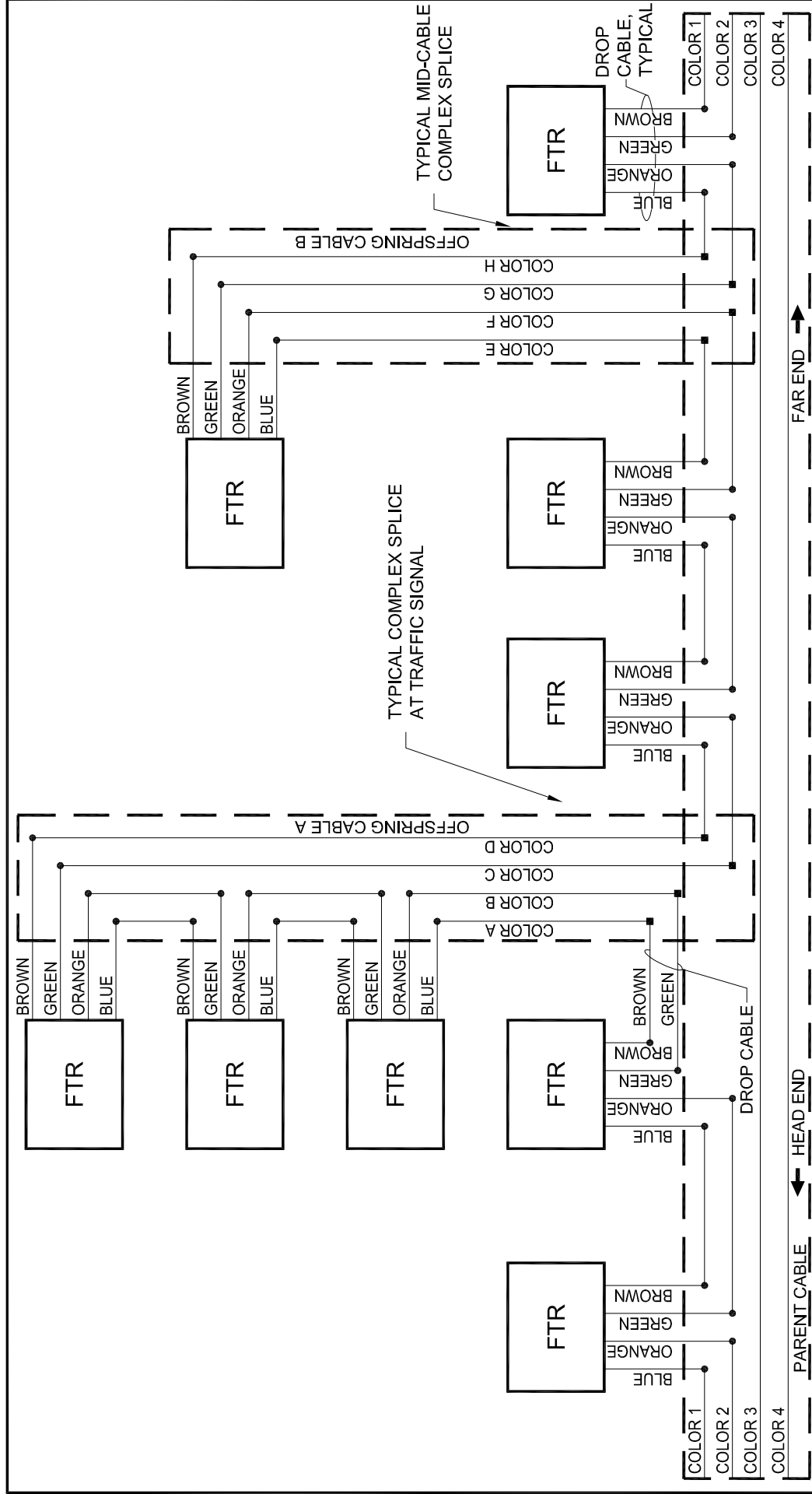
XB TRANSMIT, SECONDARY

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-351 SCHEMATIC TRAFFIC SIGNAL FIBER OPTIC CHANNEL CONNECTIONS



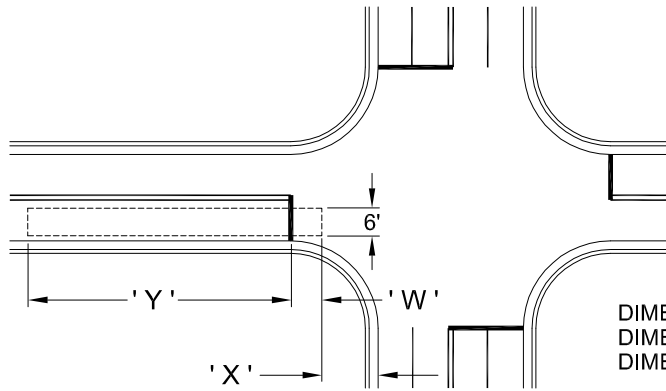
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-352
TYPICAL TRAFFIC SIGNAL
FIBER OPTIC CHANNEL
COMPLEX SPLICES

LEGEND
FTR FIELD TRANSCEIVER/REPEATER

NOTE:
CABLES MAY HAVE ADDITIONAL UNRELATED FIBERS

INTERSECTION DETECTION WITH PRESENCE LOOP



NOTE:

1. All presence loops must be installed in the quadrupole configuration even though they are illustrated schematically as rectangles on the plans.

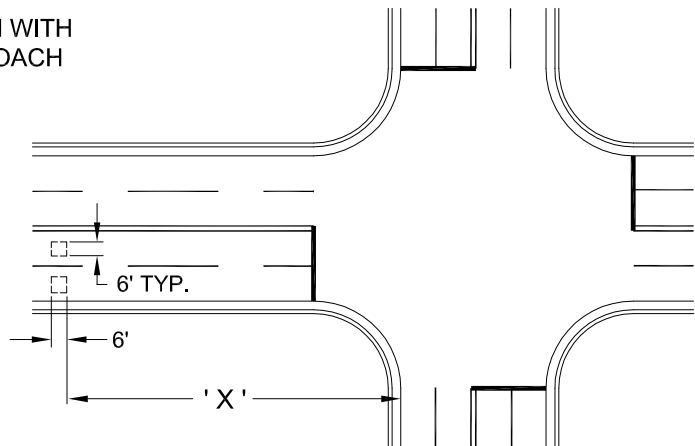
UNLESS OTHERWISE NOTED:

DIMENSION 'W' : AS SHOWN ON PLANS
 DIMENSION 'X' : 11' MEASURED FROM EDGE OF PAVEMENT
 DIMENSION 'Y' : 60' UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

SYSTEM OR INTERSECTION DETECTION WITH PULSE LOOP ON INTERSECTION APPROACH

NOTES:

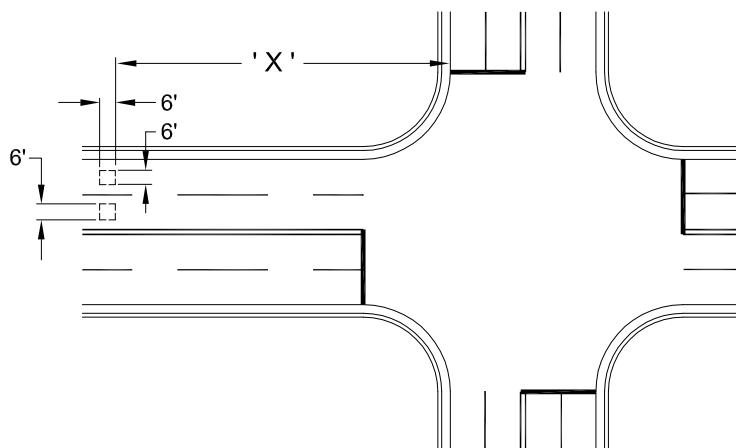
1. 'X' dimension as indicated on plans (measured from the edge of pavement).
2. A separate loop must be used for each lane to be detected.
3. Each loop must have three (3) turns of wire.



SYSTEM DETECTION WITH PULSE LOOP ON INTERSECTION EXIT

NOTES:

1. 'X' dimension: 100' (50' minimum) or as detailed on plans (measured from edge of pavement).
2. A separate loop must be used for each lane to be detected.
3. Each loop must have three (3) turns of wire.



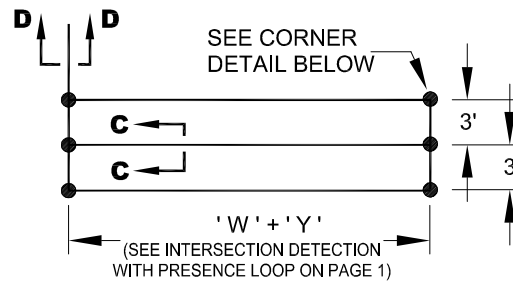
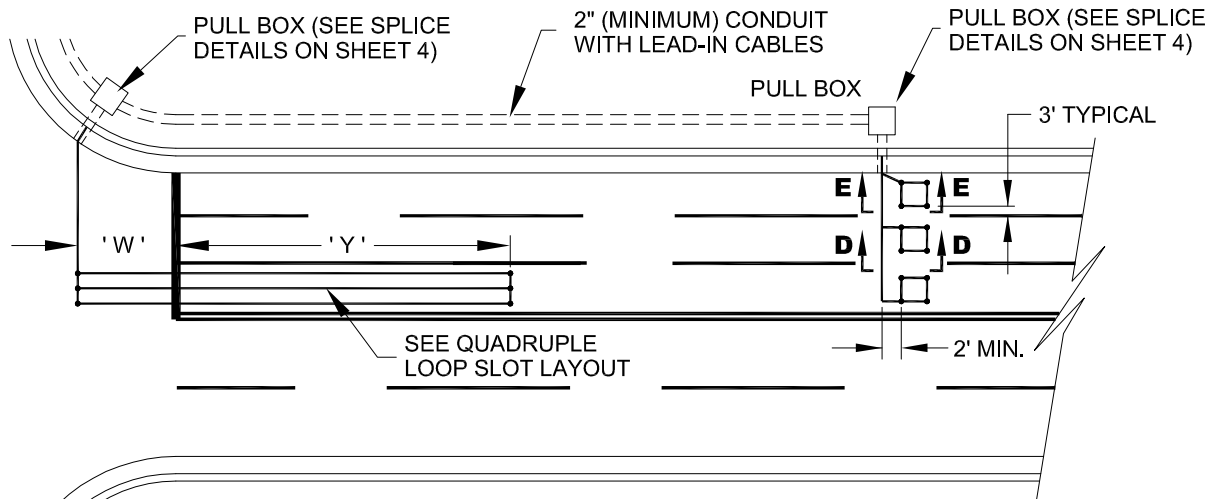
SEE SHEET 5 FOR GENERAL NOTES

Issued: February 2009

Sheet 1 of 5

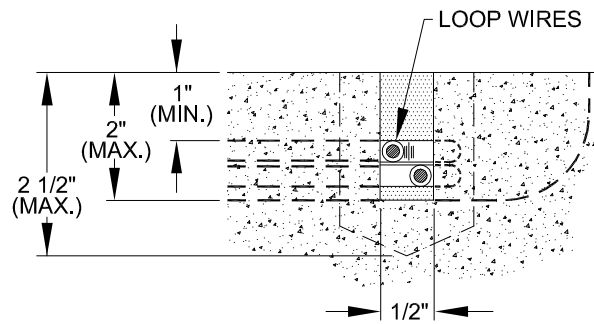
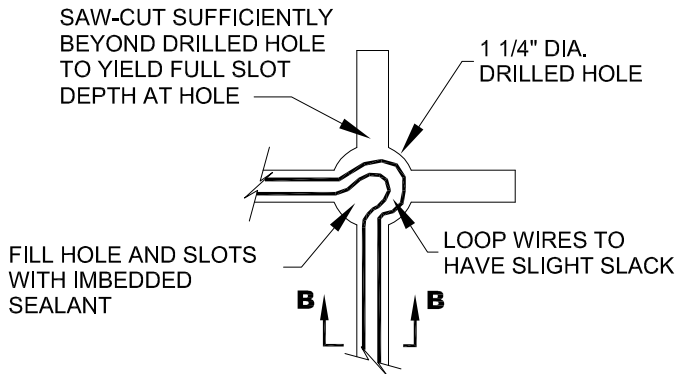
CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-400
LOOP SYSTEM INSTALLATION

GENERAL LOOP INSTALLATION LAYOUT



QUADRUPOLE SLOT LAYOUT

CORNER DETAIL

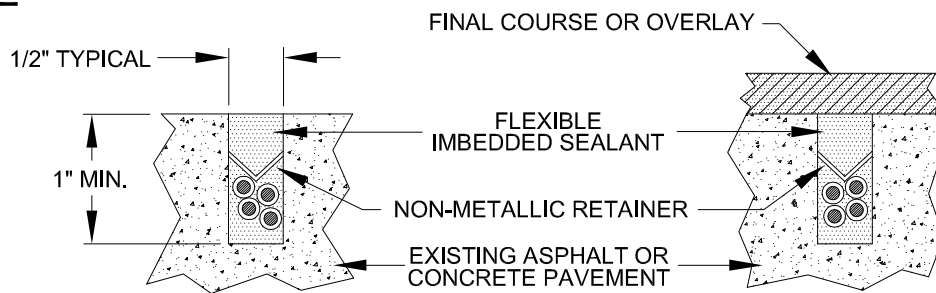


SECTION B-B CORNER SECTION

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Sheet 2 of 5

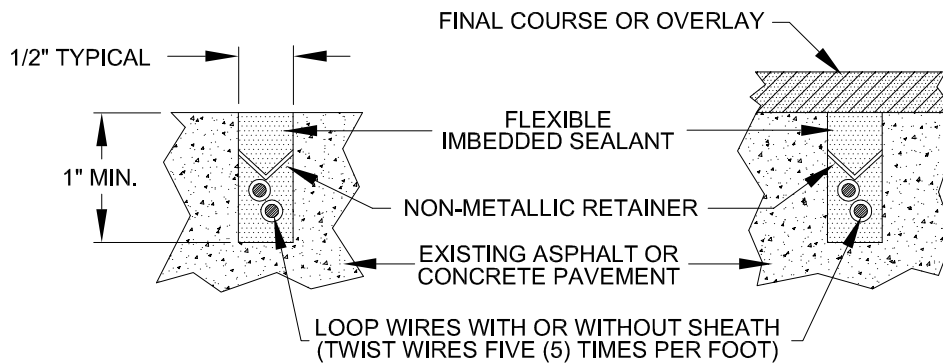
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-400
LOOP SYSTEM INSTALLATION



SECTION C - C

TYPE 1 OR TYPE 2 LOOP WIRE INSTALLATION

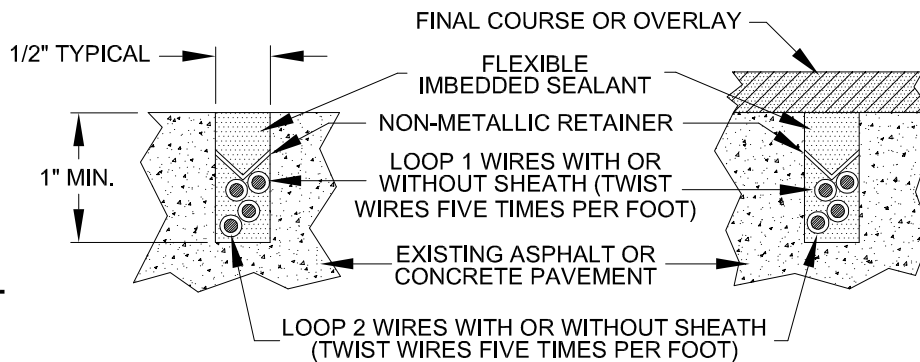
WORK DONE IN
EXISTING PAVEMENT



SECTION D - D

TYPE 1 OR TYPE 2 LOOP WIRE INSTALLATION

NEW ASPHALT PAVEMENT
OR PAVEMENT TO BE
RESURFACED



SECTION E - E

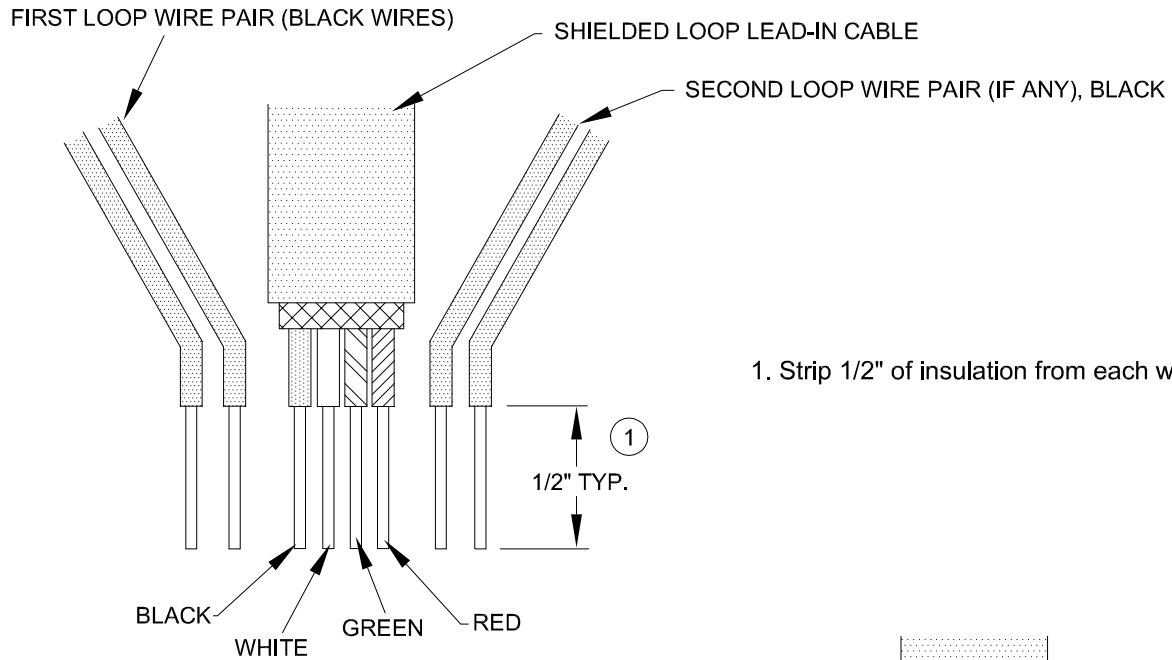
TYPE 1 OR TYPE 2 LOOP WIRE INSTALLATION

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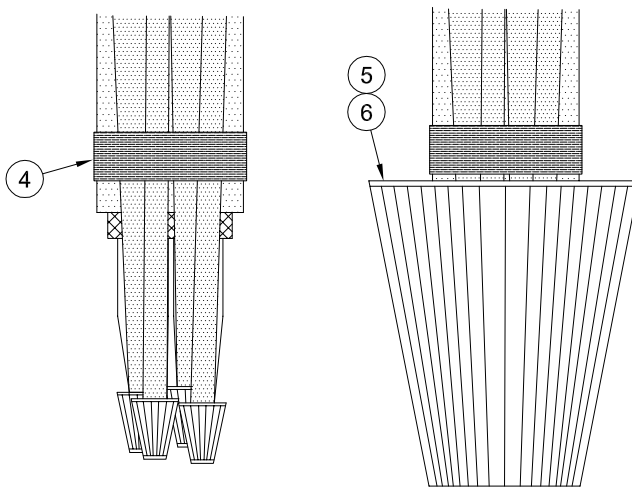
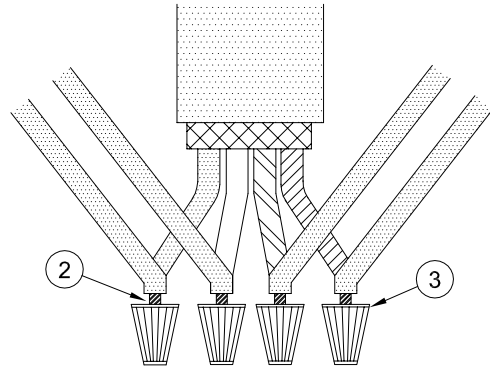
Sheet 3 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-400
LOOP SYSTEM INSTALLATION

LOOP WIRE / LEAD-IN CABLE SPLICE DETAILS



2. Twist wires together and solder each pair of wires utilizing resin core solder.
3. Install wire nuts to each soldered splice.



4. Tie or tape wires and cables together and dress the leads close together.
5. Totally encapsulate splices in flexible imbedded sealant to form a watertight splice.
6. Allow sealant to harden before laying cable in pull box.

Issued: February 2009

Sheet 4 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-400
LOOP SYSTEM INSTALLATION

GENERAL NOTES

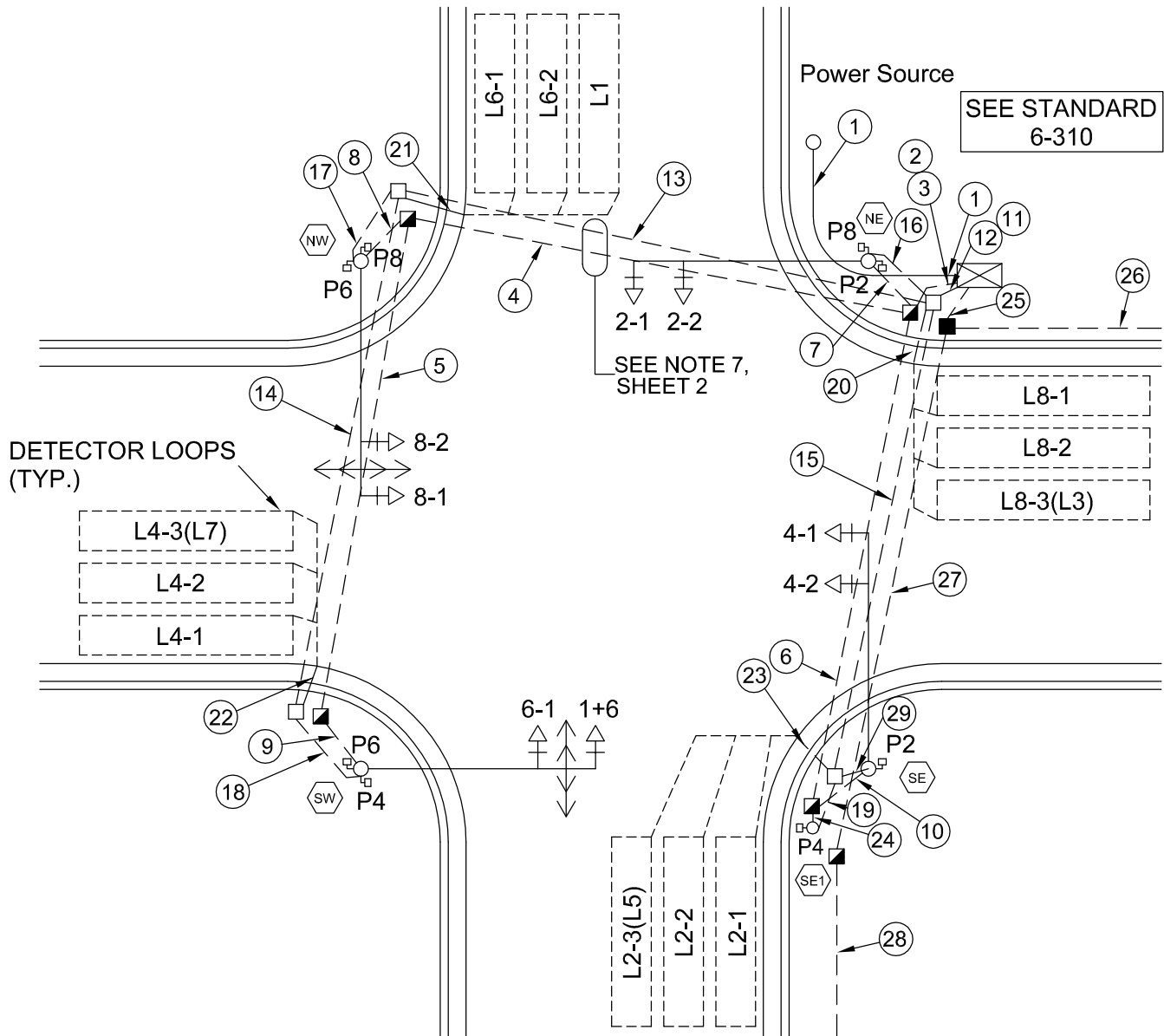
1. Except as otherwise noted, loop system installations must conform to A.D.O.T. Standard Drawing T.S. 7-1.
2. Loops must be centered in their lanes unless otherwise noted. When a lane is wider than normal to accommodate parking, the lane must be taken as:
 - A. Eight feet (8') from the face of curb or edge of pavement when the parking is parallel to the curb or
 - B. Eighteen feet (18') from the face of curb or edge of pavement when angled parking is used.
3. To the extent practical, a single lead-in cable must service two (2) loops.
4. Two types of loop installations are described in this standard drawing: one for use in good pavement (Type 1) and one for use in weak or damaged pavement (Type 2). Type 1 installations utilize a simple insulated conductor to form the loop. Type 2 installations use the same insulated conductor that has been factory encased in a polyethylene sheath. Type 2 installations must be used unless otherwise noted in each instance.
5. The loop wire must not contain any splices. The loop/lead-in cable system must be free of splices except for the splice between the loop wire and the lead-in cable.
6. For Type 1 loops: loops in adjacent lanes must consist of loop wires having different colored insulation. No two loops entering the same pull box or cabinet from the same street leg may have the same color insulation unless there are more than four (4) such loops. The installation color scheme must be: black (for the loop closest to the pull box or cabinet), then white, red and green.
7. The continuity of the lead-in cable shield must be maintained and the shield must not be grounded.
8. Nonmetallic retainers must be placed in the saw slot cut into the roadway at approximate 24" intervals in order to prevent the loop wires from floating to the surface in the sealant.
9. Seal the ends of any conduit with a suitable material in order to prevent any flexible imbedded sealant from entering the conduit.
10. Loop wires must be twisted together at the rate of five (5) turns per foot of loop wire in the sawn slot between the loop and the conduit, in the conduit and in the pull box.
11. A minimum of two feet (2') of slack must be maintained in each lead-in cable and each pair of loop wires in the pull box.
12. In order to prevent the relative movement of loop wires in the pull box, the pair of loop wires for each loop must be clamped or taped to one another.
13. In Type 2 loop installations, the sheath must be removed from the loop wires at the conduit's entrance.
14. All loop slots must be completely filled with a flexible imbedded loop sealant totally encasing the loop wires. Excess sealant must be struck off and removed.
15. Conduit sizes shown are to be considered minimum sizes.
16. Flexible imbedded sealant must be Bondo Corporation Item 577 or approved equivalent.

Issued: February 2009

Sheet 5 of 5

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-400
LOOP SYSTEM INSTALLATION

EXAMPLE INTERSECTION SCHEMATIC LAYOUT



LEGEND

- +▷ 8-2 3-SECTION VEHICLE SIGNAL FACE WITH PHASE NUMBER AND UNIQUE NUMBER.
- +▷ 1+6 5-SECTION VEHICLE SIGNAL FACE WITH BOTH PHASE NUMBERS.
- P4 PEDESTRIAN SIGNAL FACE WITH PHASE NUMBER
- <<<>> PREEMPTION DETECTOR
- NUMBER 5 PULL BOX
- NUMBER 7 PULL BOX
- TYPE FO PULL BOX (STD. NO. 6-031) WITH EXTENSION
- SW POLE OR POST IDENTIFIER
- ② CONDUIT IDENTIFIER
- L4-2 LOOP IDENTIFIER
- ↑ LOOP NUMBER ON PHASE ASSOCIATED PHASE
- (L5) FUTURE LOOP PHASE ASSOCIATION
- CONTROLLER CABINET

NOTE:

SEE:

- Sheet 2 for notes.
- Sheet 3 for cable requirements.
- Sheet 4 for conduit, cable and detector requirements.

Issued: February 2009

Sheet 1 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-610

**EXAMPLE OF TRAFFIC SIGNAL
LAYOUT FOR CONDUIT, CABLE AND
ELECTRICAL CONNECTIONS DESIGN**

NOTES:

1. When a signal pedestal is on the same corner as a signal pole or in the vicinity of a signal pole if not at a corner, the signal cable must run from the controller to the terminal block in the signal pole and then to the signal pedestal. The terminal block in the signal pole is to be the main splice point for all signal cable on a corner or in a given vicinity.
2. Unless otherwise noted, there must be two (2) cables from the controller serving each signal pole: one 20-conductor for the signals and one 4-conductor for the pedestrian push-buttons.
3. See Sheet 3 for cable requirements.
4. Loop lead-in cables, push-button cables, preemptor detector cables and fiber optic cables may share conduits.
5. Loop lead-in cables, push-button cables and preemptor detector cables may NOT enter Type FO pull boxes.
6. Number 5 pull box for loop lead-in and push-button cables, Number 7 pull box for signal circuits, and Type FO pull box for fiber optic cables closest to controller cabinet must each have extensions.
7. A conduit run from the controller that serves two (2) corners must have two (2) conduits for signal cables and two (2) conduits for detector lead-in and push-button cables.
8. This example must be **adapted** to the specific intersection by the design engineer.

Issued: February 2009

Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-610

**EXAMPLE OF TRAFFIC SIGNAL
LAYOUT FOR CONDUIT, CABLE AND
ELECTRICAL CONNECTIONS DESIGN**

CABLE REQUIREMENTS

CONTROLLER-SIGNAL POLE CABLE, 20-CONDUCTOR				
Conductor		Signals		Signal Color
Number	Insulation Color Tracer			
1	Black	Spare		---
2	White	Vehicle Signals		Common
3	Red	Mast Arm Through Phase-A		Red
4	Green	Mast Arm Through Phase-A		Green
5	Orange	Mast Arm Through Phase-A		Yellow
6	Blue	Mast Arm Through Phase PED-D		Man
7	White	Mast Arm Through Phase PED-D		Hand
8	Red	Mast Arm End-B		Red Arrow
9	Green	Mast Arm End-B		Green Arrow
10	Orange	Mast Arm End-B		Yellow Arrow
11	Blue	Cross Street Through Phase PED-E		Man
12	Black	Cross Street Through Phase PED-E		Hand
13	Red	Pole Side Cross Street-C		Red
14	Green	Pole Side Cross Street-C		Green
15	Blue	Pole Side Cross Street-C		Green Arrow
16	Black	Pole Side Cross Street-C		Yellow Arrow
17	White	Pedestrian Signals		Common
18	Orange	Pole Side Cross Street-C		Yellow
19	Blue	Spare		---
20	Red	Spare		---

CONTROLLER-SIGNAL POLE CABLE, 4-CONDUCTOR		
Conductor		
Number	Insulation Color	Function
1	Black	Spare
2	White	Common
3	Red	Ø4 or Ø8 Button
4	Green	Ø2 or Ø6 Button, if any

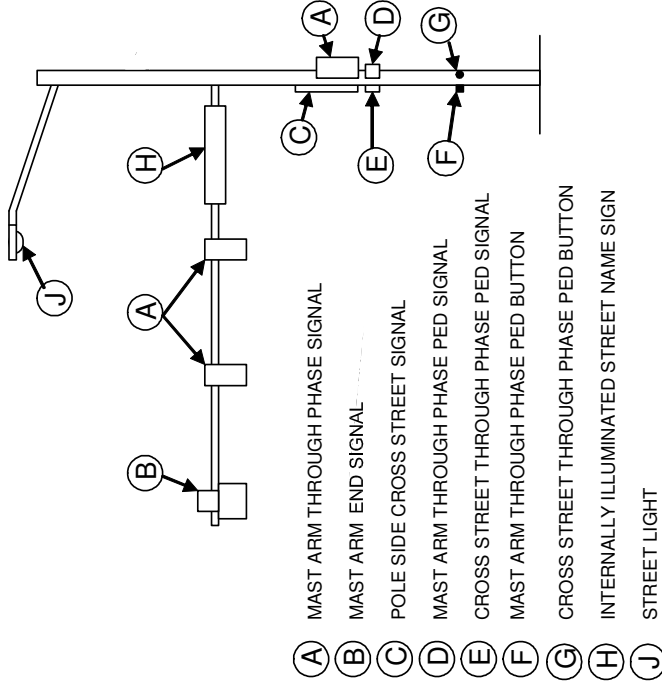
4-CONDUCTOR CABLE TO 3-SECTION SIGNAL FACE		
Conductor		
Number	Insulation Color	Function
1	Black	Yellow
2	White	Common
3	Red	Red
4	Green	Green

4-CONDUCTOR CABLE TO PEDESTRIAN SIGNAL		
Conductor		
Number	Insulation Color	Function
1	Black	Spare
2	White	Common
3	Red	Hand
4	Green	Man

7-CONDUCTOR CABLE TO MAST ARM END SIGNAL FACE			
Conductor			
Number	Insulation Color	Tracer	Function
1	Black		Yellow
2	White		Common
3	Red		Red
4	Green		Green
5	Orange		Yellow Arrow
6	Blue		Green Arrow
7	White	Black	Spare

4-CONDUCTOR CABLE TO PUSH-BUTTON			
Conductor			
Number	Insulation Color	Function	
1	Black	Spare	
2	White	Common	
3	Red	Button	
4	Green	Spare	

CABLE TERMINATION DEFINITIONS



NOTE:
All cables must satisfy IMSA
Specification 19-1.

Issued: February 2009

Sheet 3 of 4

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-610

**EXAMPLE OF TRAFFIC SIGNAL
LAYOUT FOR CONDUIT, CABLE AND
ELECTRICAL CONNECTIONS DESIGN**

CONDUITS AND ENCLOSED CABLES					
Conduit	Pole	Type	Conduit Schedule	Size (inches)	Function
1		PVC	40	2.5	Power service
2		PVC	40	3	Signal cables (signals, street lights, ISNS)
3		PVC	40	3	Signal cables (signals, street lights, ISNS)
4		PVC	40	3	Signal cables (signals, street lights, ISNS) (SEE NOTE 2)
5		PVC	40	3	Signal cables (signals, street lights, ISNS)
6		PVC	40	3	Signal cables (signals, street lights, ISNS)
7		PVC	40	2	Signal cables (signals, street lights, ISNS)
8		PVC	40	2	Signal cables (signals, street lights, ISNS)
9		PVC	40	2	Signal cables (signals, street lights, ISNS)
10		PVC	40	2	Signal cables (signals, street lights, ISNS)
11		PVC	40	3	Loop lead-in cables, push-button cables, preemtor detector cables
12		PVC	40	3	Loop lead-in cables, push-button cables, preemtor detector cables
13		PVC	40	3	Loop lead-in cables, push-button cables, preemtor detector cables (SEE NOTE 2)
14		PVC	40	3	Loop lead-in cables, push-button cables, preemtor detector cables
15		PVC	40	2	Loop lead-in cables, push-button cables
16		PVC	40	2	Push-button cables
17		PVC	40	2	Push-button cables
18		PVC	40	2	Push-button cables, preemtor detector cables
19		PVC	40	2	Push-button cables
20		PVC	40	2	Loop wire
21		PVC	40	2	Loop wire
22		PVC	40	2	Loop wire
23		PVC	40	2	Loop wire
24		PVC	40	2	Signal cable
25		PVC	40	2	Fiber optic cable
26		PVC	40	2 or 3	Fiber optic cable
27		PVC	40	2 or 3	Fiber optic cable
28		PVC	40	2 or 3	Fiber optic cable
29		PVC	40	2	Preemtor detector cable
NW					Signal cables (signals, street lights, ISNS), push-button cable, preemtor detector cables
NE					Signal cables (signals, street lights, ISNS), push-button cable
SW					Signal cables (signals, street lights, ISNS), push-button cable, preemtor detector cables
SE					Signal cables (signals, street lights, ISNS)
SET					Signal cables (signals), push-button cable
LEGEND: PVC = polyvinylchloride, FO = fiber optic, ISNS = illuminated street name signs, 40 = Schedule 40 PVC Conduit					

NOTES:

- Conduits with conductors with 90 volts or more must be separated from those with conductors with less than 90 volts by either:
 - 3 inches of concrete; or
 - 12 inches of well-tamped earth.
- Two (2) conduits of the indicated sizes must be provided in runs (4) and (13).

DETECTOR CONNECTION, ASSIGNMENT AND TIMING						
Input File (Upper)		Loops* (2 max. per channel)	Assigned Phase	Assigned Sampling Detector	Delay (seconds)	Timing (seconds)
Slot	Channel					
1	1		1			
	2		1			
2	1		2	1		
	2		2	2		
3	1		3			
	2		3			
4	1		4			
	2		4			
5	1		5			
	2		5			
6	1		6	3		
	2		6	4		
7	1		7			
	2		7			
8	1		8			
	2		8			
9	1					
	2					
10	1					
	2					
11	1					
	2					
12	1					
	2					
13	1					
	2					
14	1					
	2					
15	1					
	2					
16	1		8			
	2		8E			

* Pulse (6' x 6') loops must be connected to separate channels for counting purposes.

DESIGN NOTES:

- See sheet 1 for intersection layout.
- See sheet 3 for cable requirements.
- EXCEL file formats available from City's Traffic Engineer.
- This example must be adapted to the specific intersection by the design engineer.

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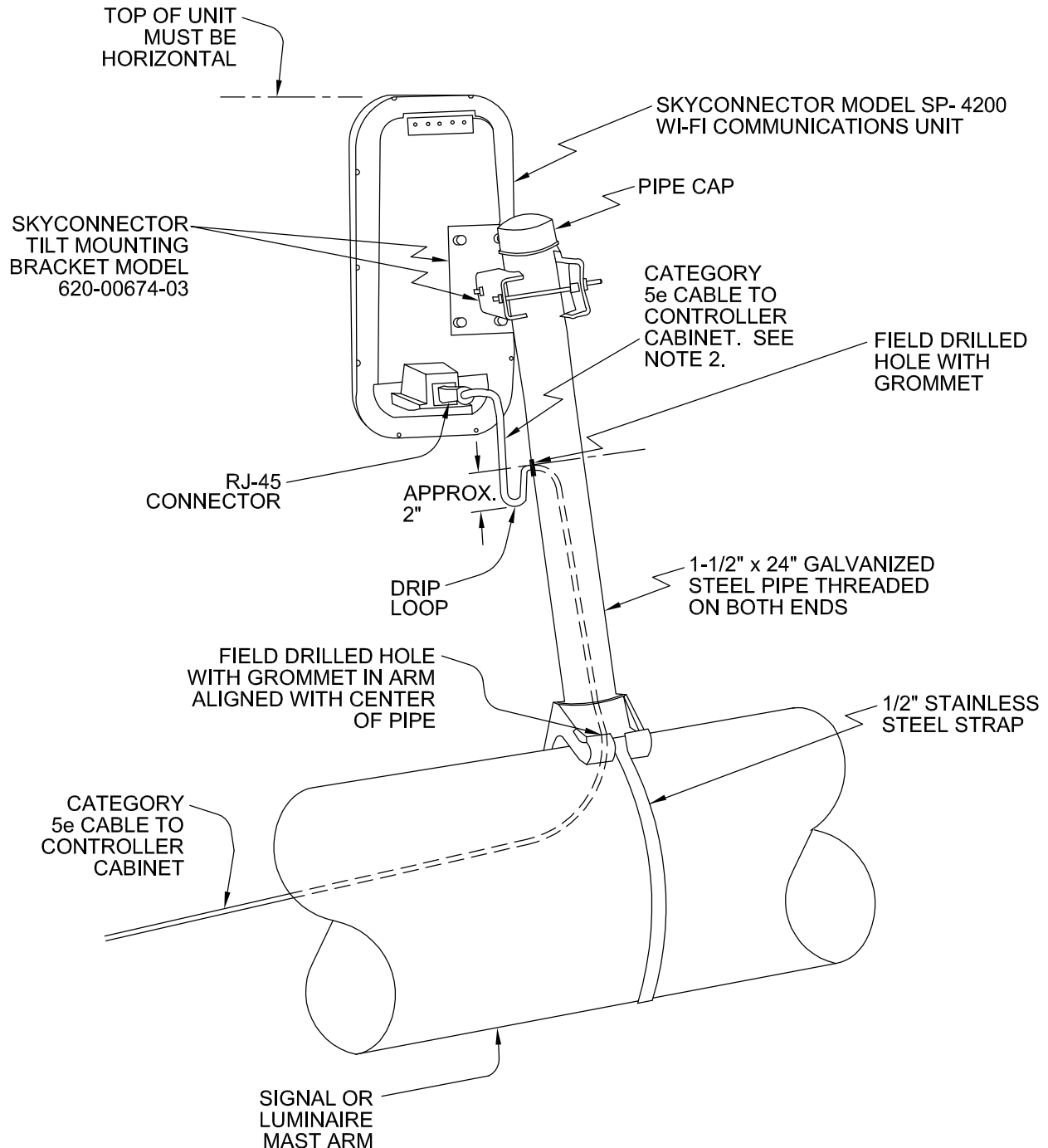
Sheet 4 of 4

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-610

**EXAMPLE OF TRAFFIC SIGNAL
LAYOUT FOR CONDUIT, CABLE AND
ELECTRICAL CONNECTIONS DESIGN**



INSTALLATION ON MAST ARM OR LUMINAIRE ARM

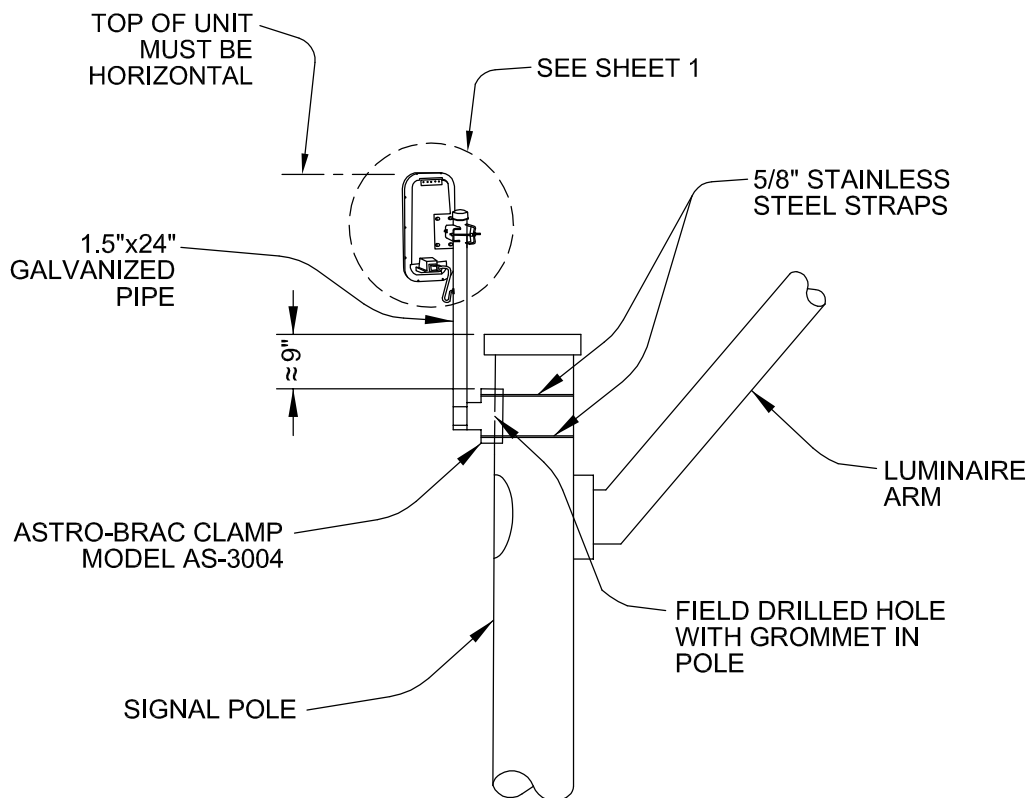
NOTES:

1. AIM WI-FI UNIT AS DIRECTED BY THE CITY'S TRAFFIC SIGNAL SUPERVISOR.
2. WRAP CABLE WITH BLACK VINYL ELECTRICAL TAPE BETWEEN THE CONNECTOR AND THE PIPE TO PROVIDE UV PROTECTION.
3. LOCATION ON MAST ARM OR LUMINAIRE ARM MUST BE AS DIRECTED BY THE CITY'S TRAFFIC SIGNAL SUPERVISOR.

Issued: February 2009

Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-700
WI-FI INSTALLATION ON
TRAFFIC SIGNAL



INSTALLATION AT TOP OF SIGNAL POLE

NOTE:
SEE NOTES 1 AND 2 ON SHEET 1.

Issued: February 2009

Sheet 2 of 2

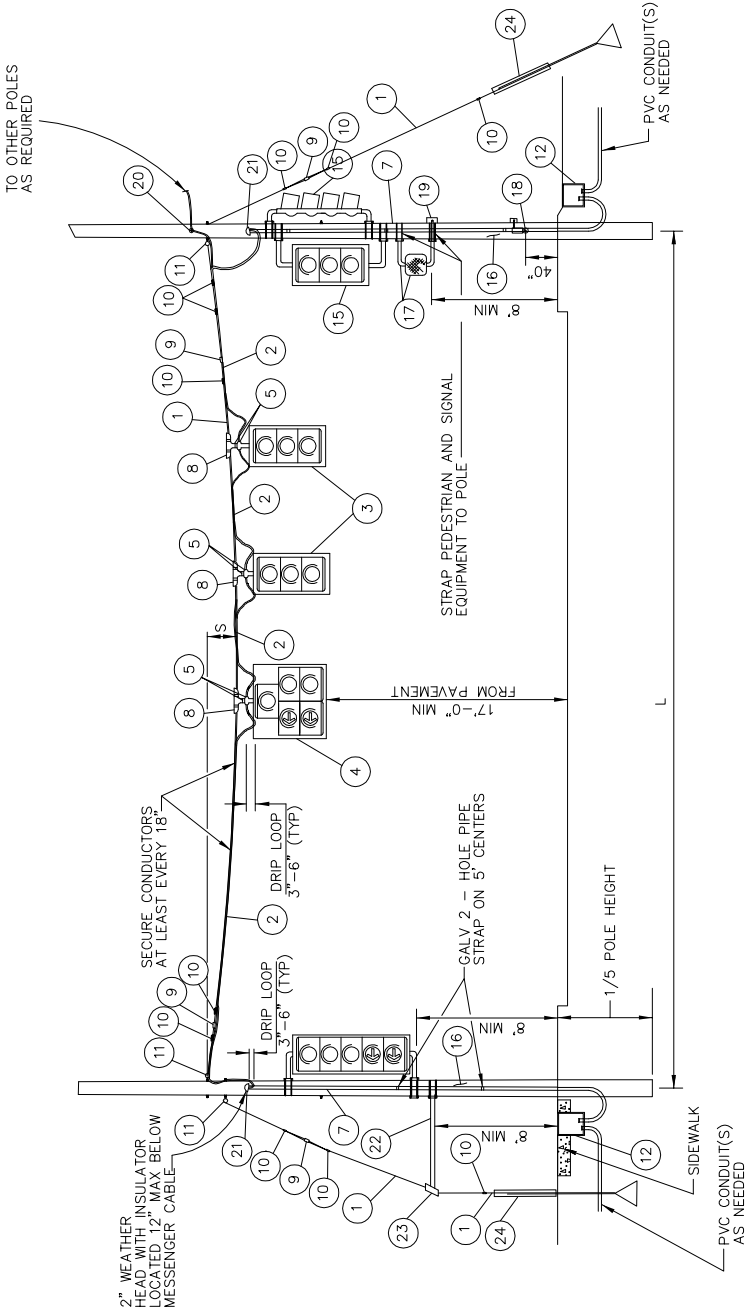
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-700
**WI-FI INSTALLATION ON
TRAFFIC SIGNAL**



CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 6-900
SPEED LIMIT BEACON ASSEMBLY

GENERAL NOTES

1. SEE SECTION 20 OF "TRAFFIC SIGNAL AND ROADWAY LIGHTING SPECIFICATIONS", ESPECIALLY ARTICLES 20.2 AND 20.7.1.
2. SEE SPECIAL CONDITIONS.
3. THE NUMBER, TYPE AND PLACEMENT OF SIGNAL HEADS IS SUBJECT TO THE APPROVAL OF THE ENGINEER IN EACH INSTANCE.
4. ADOT TYPE G SIGNAL HEADS MAY NOT BE USED.
5. NO IN-LINE SPLICES ARE PERMITTED.
6. BOND ALL ELECTRICAL APPARATUS TO #6 GROUND CONDUCTOR.
7. THE GUY WIRE ALIGNMENT PLAN MUST BE SUBMITTED TO THE ENGINEER PRIOR TO CONSTRUCTION OF TEMPORARY SIGNALS.
8. MESSENGER CABLE MUST HAVE A SAG OF FIVE PERCENT OF SPAN OR LESS ($S=0.05L$, MAXIMUM). THE LOWEST POINT OF ANY OVERHEAD PORTION OF THE TEMPORARY SIGNAL ASSEMBLY MUST BE AT LEAST 17 FEET ABOVE THE ROADWAY. THE CONTRACTOR MUST CHECK EACH DAY TO INSURE THAT THE MINIMUM CLEARANCE IS MAINTAINED AND MUST TAKE CORRECTIVE MEASURES AS NECESSARY.
9. CABLES AND CONDUCTORS WITH NOMINAL VOLTAGES OF 24 VOLTS OR LESS MAY NOT BE INSTALLED IN THE SAME CONDUITS AND RACEWAYS AS CABLES AND CONDUCTORS WITH NOMINAL VOLTAGES GREATER THAN 24 VOLTS.
10. THE CONTRACTOR MUST FURNISH AND INSTALL ALL REQUIRED MISCELLANEOUS HARDWARE.
11. THE TEMPORARY SIGNAL ASSEMBLY MUST CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
12. THIS DRAWING SHOWS THE DESIGN CONCEPT FOR A TYPICAL TEMPORARY SPAN. THE CONTRACTOR MUST ADAPT TO MATCH ACTUAL CONDITIONS.



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	3/8" DIA. 7-STRAND GALV. MESSENGER CABLE	12	GUY WIRE ANCHOR ASSEMBLY
2	SIGNAL CABLE (MSA SPEC. 19-1/16 AWG SOLID), ONE (1) NO. 8 GROUNDED CONDUCTORS, OPTICOM CABLE SEE PLANS FOR OTHER CONDUCTORS AND CABLES IN WIRE BUNDLES	13	#7 PULL BOX INSTALLED
3	SIGNAL ASSEMBLY - PER SIGNAL PLAN SHEET	15	SIGNAL ASSEMBLY-PER SIGNAL PLAN SHEET
4	SIGNAL ASSEMBLY - PER SIGNAL PLAN SHEET	16	CLASS III WOOD POLE, 40 FEET
5	BALANCE ADJUSTER AND WIRE ENTRANCE	17	PED. SIGNAL AND BRACKET ASSEMBLY
7	RIGID METAL CONDUIT(S) AS NEEDED	18	PED. PUSH BUTTON
8	SPAN WIRE CLAMP AND UNIVERSAL BRACKET	19	CONDUIT
9	PORCELAIN STRAIN INSULATORS	20	INSULATOR
10	3-BOLT CLAMP	21	2" WEATHER HEAD
11	EYE BOLT, EYELET, 2 SQUARE WASHERS AND 2-NUTS, GALV.	22	STEEL PIPE
		23	SIDEWALK GUY CLAMP
		24	GUY GUARD

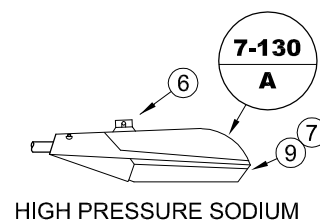
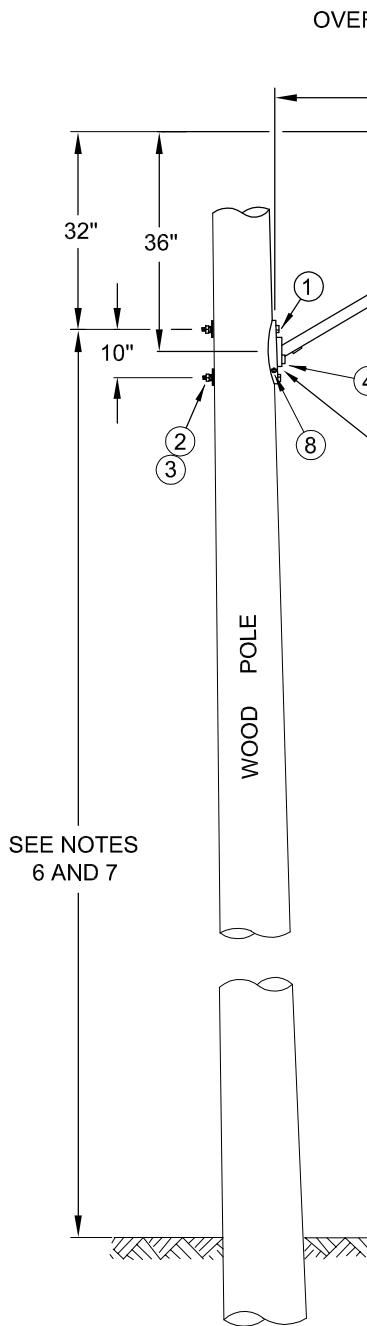
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CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 6-910

TEMPORARY TRAFFIC

SIGNAL ASSEMBLY TYPICAL SPAN



NOTES

1. Adjust photo eye to face north.
2. Cover the #12 street light conductor with one inch (1") molding if more than 12 inches from the supply conductor.
3. On any lights installed on APS poles there should be a 30-inch(min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
4. The shorting cap must be ordered separately.
5. See Standard Detail 7-120 for underground feed.
6. Arizona Public Service company shall mount arm to existing pole. Contractor to coordinate installation with APS.
7. Luminaire mounting heights are measured vertically from the center of the light source to the roadway. Mounting heights of the luminaires shall be kept as uniform as possible.
8. City Engineering Department to specify luminaire.
9. Provide dusk-to-dawn photo control for roadway luminaires.

REFERENCE

- A. Refer to Standard Detail Drawings 7-130 and 7-140 for lamps and other lighting associated hardware.

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT	
				MIN.	MAX.
150	HPS	120/208/240/277	16000	30'	35'
250	HPS	120/208/240/277	30000	35'	40'
400	HPS	120/208/240/277	50000	35'	40'

MATERIAL LIST

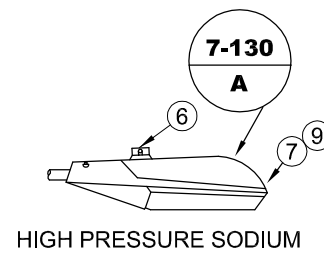
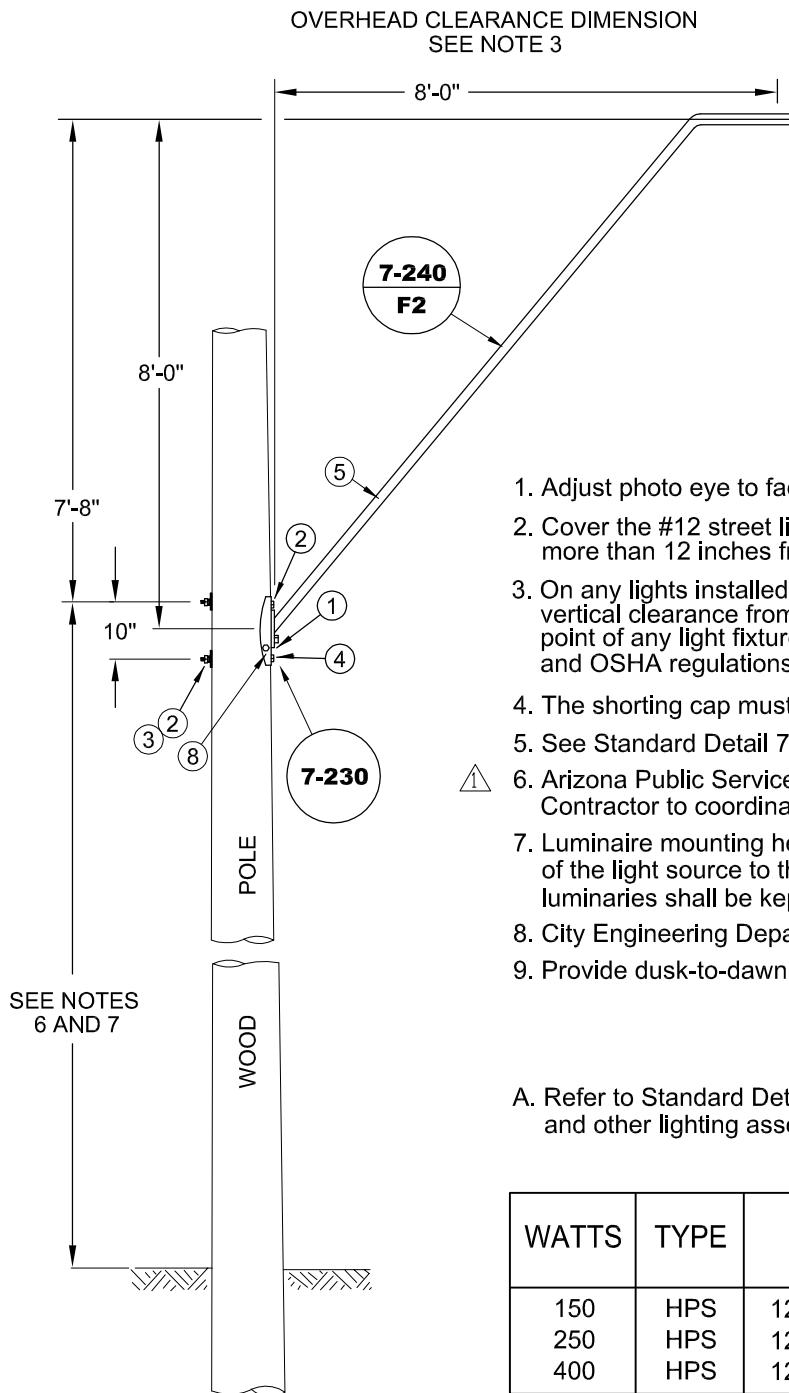
ITEM	QTY.	DESCRIPTION	NOTES
1	2	BOLT, GALV. MACH. 5/8" x 12" LG	
2	2	WASHER, GALV. CUR. 3" x 3" x 1/4"	
3	2	WASHER, GALV. DBL. COIL 5/8"	
4	1	ADAPTER, WOOD POLE	7-230
5	1	BRACKET, ST. LT 2" x 3' x 8'	7-240
6	1	CONTROL, PHOTO-ELEC	7-140
7	1	LUMINAIRE	7-130
8	1	GROUND LUG	
9	1	LAMP	7-140

△ PER A.P.S.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-010
STREET LIGHT ASSEMBLY
8' x 36' MAST ARM
FOR WOOD POLE



NOTES

1. Adjust photo eye to face north.
2. Cover the #12 street light conductor with one inch (1") molding if more than 12 inches from the supply conductor.
3. On any lights installed on APS poles there should be a 30-inch(min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
4. The shorting cap must be ordered separately.
5. See Standard Detail 7-120 for underground feed.
6. Arizona Public Service company shall mount arm to existing pole. Contractor to coordinate installation with APS.
7. Luminaire mounting heights are measured vertically from the center of the light source to the roadway. Mounting heights of the luminaires shall be kept as uniform as possible.
8. City Engineering Department to specify luminaire.
9. Provide dusk-to-dawn photo control for roadway luminaires.

REFERENCE

- A. Refer to Standard Detail Drawings 7-110 through 7-150 for lamps and other lighting associated hardware.

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT	
				MIN.	MAX.
150	HPS	120/208/240/277	16000	30'	35'
250	HPS	120/208/240/277	30000	35'	40'
400	HPS	120/208/240/277	50000	35'	40'

MATERIAL LIST

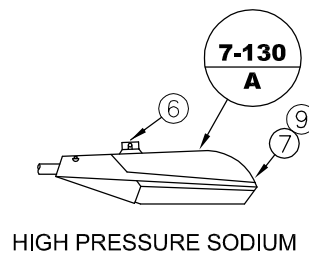
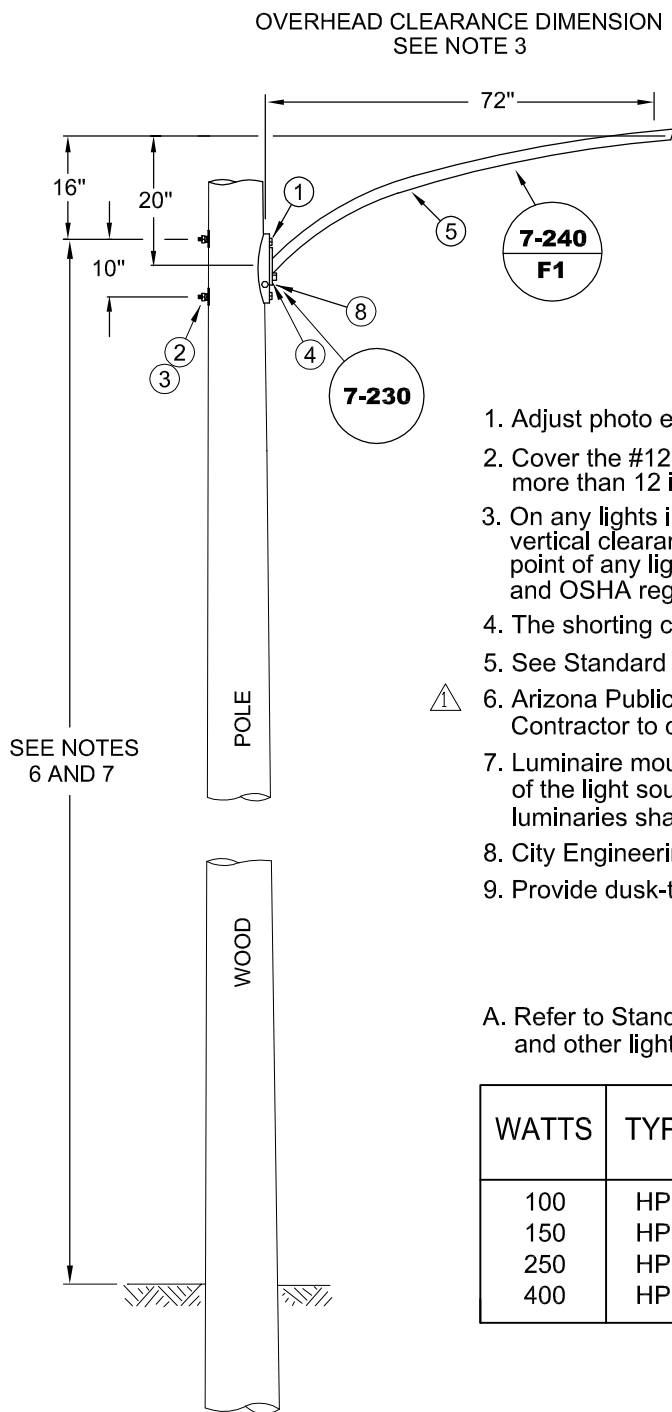
ITEM	QTY.	DESCRIPTION	NOTES
1	2	BOLT, GALV. MACH. 5/8" x 12" LG	
2	2	WASHER, GALV. CUR. 3" x 3" x 1/4"	
3	2	WASHER, GALV. DBL. COIL 5/8"	
4	1	ADAPTOR, WOOD POLE	7-230
5	1	BRACKET, ST. LT 2" x 8' x 8'	7-240
6	1	CONTROL, PHOTO-ELEC	7-140
7	1	LUMINAIRE	7-130
8	1	GROUND LUG	
9	1	LAMP	7-140

Ref: JOL/SL-21

PER A.P.S.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-020
STREET LIGHT ASSEMBLY
8' x 8' HIGH RISE MAST ARM
FOR WOOD POLE



NOTES

1. Adjust photo eye to face north.
2. Cover the #12 street light conductor with one inch (1") molding if more than 12 inches from the supply conductor.
3. On any lights installed on APS poles there should be a 30-inch(min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
4. The shorting cap must be ordered separately.
5. See Standard Detail 7-120 for underground feed.
6. Arizona Public Service company shall mount arm to existing pole. Contractor to coordinate installation with APS.
7. Luminaire mounting heights are measured vertically from the center of the light source to the roadway. Mounting heights of the luminaires shall be kept as uniform as possible.
8. City Engineering Division to specify luminaire.
9. Provide dusk-to-dawn photo control for roadway luminaires.

REFERENCE

A. Refer to Standard Detail Drawings 7-110 through 7-150 for lamps and other lighting associated hardware.

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT	
				MIN.	MAX.
100	HPS	120/208/240/277	9500	25'	30'
150	HPS	120/208/240/277	16000	30'	35'
250	HPS	120/208/240/277	30000	35'	40'
400	HPS	120/208/240/277	50000	35'	40'

MATERIAL LIST

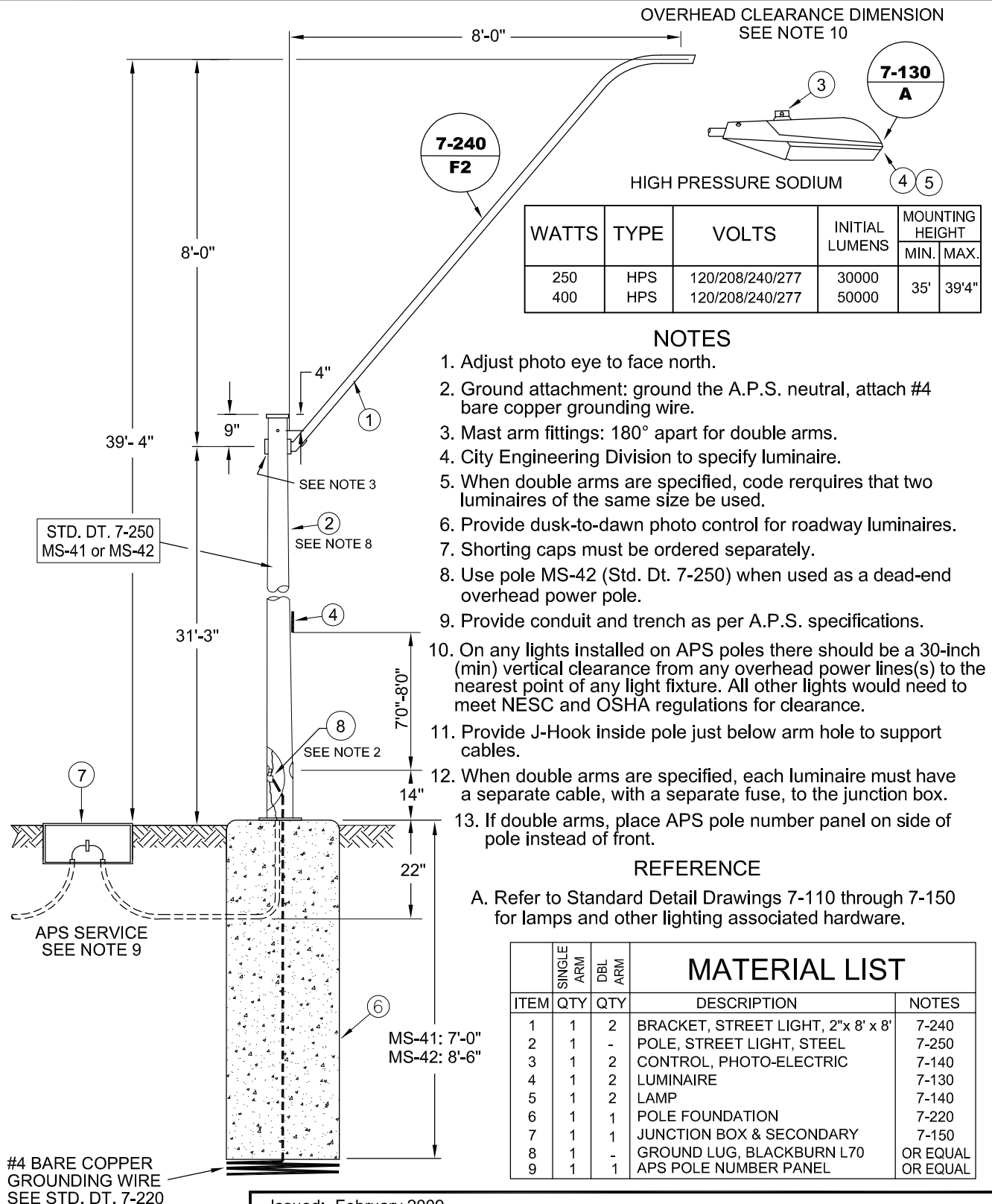
ITEM	QTY.	DESCRIPTION	NOTES
1	2	BOLT, GALV. MACH. 5/8" x 12" LG	
2	2	WASHER, GALV. CUR. 3" x 3" x 1/4"	
3	2	WASHER, GALV. DBL. COIL 5/8"	
4	1	ADAPTOR, WOOD POLE w/SIMP.	7-230
5	1	BRACKET, ST. LT 2" x 20" x 6'	7-240
6	1	CONTROL, PHOTO-ELEC	7-140
7	1	LUMINAIRE	7-130
8	1	GROUND LUG	
9	1	LAMP	7-140

Ref: JOL/SL-31

△ A.P.S.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-030
STREET LIGHT ASSEMBLY
72" x 20" MAST ARM
FOR WOOD POLE

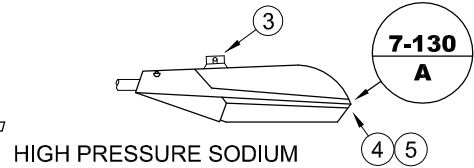
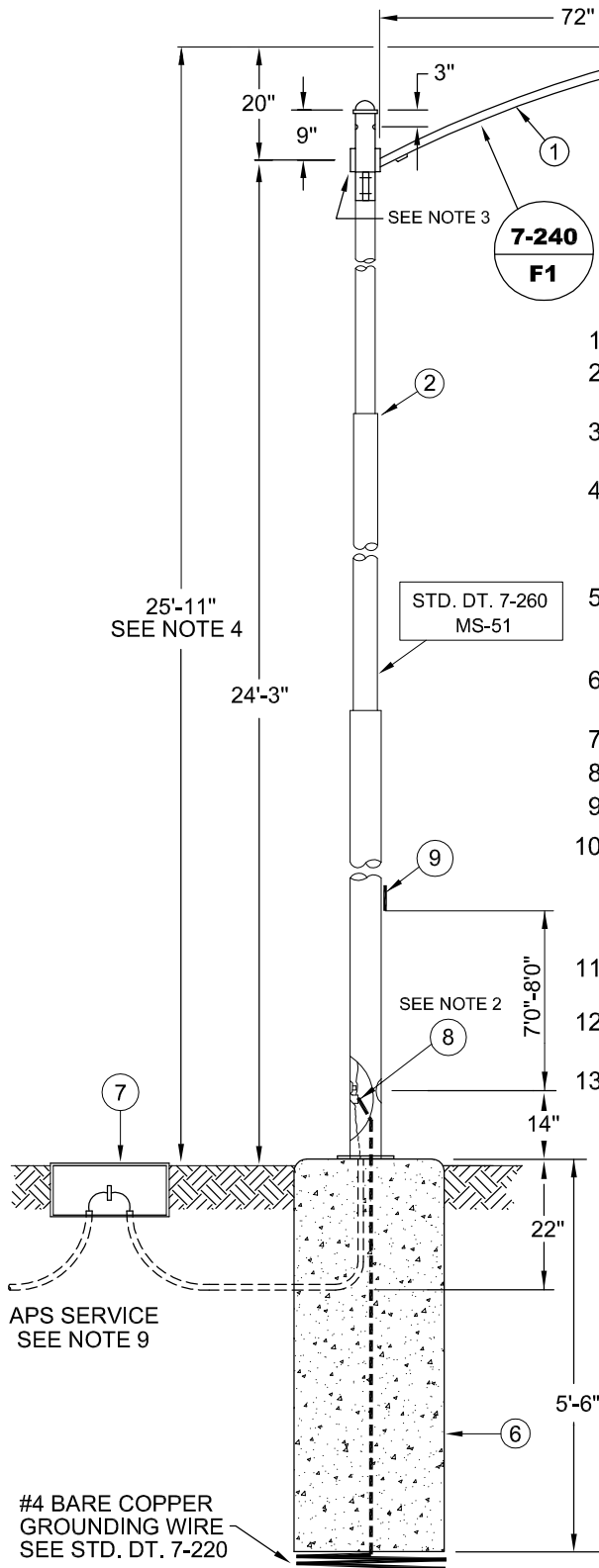


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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-040
STREET LIGHT ASSEMBLY
8' x 8' HI-RISE MAST ARM(S) ON SELF-SUPPORTING
OR NON-SELF-SUPPORTING ON 32' STEEL POLE

OVERHEAD CLEARANCE DIMENSION
SEE NOTE 10



WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT	
				MIN.	MAX.
100	HPS	120/208/240/277	9500		
150	HPS	120/208/240/277	16000	25'	25'-11"
250	HPS	120/208/240/277	30000		

NOTES

- Adjust photo eye to face north.
- Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
- Mast arm fittings: 180° apart for double arms will be manufacturer installed on new poles.
- If a new arm is desired on an older existing pole, order steel pole adapters with Simplex fittings. These adapters are also used to reduce the mounting height of the luminaire(s) if required.
- Luminaires illustrated in this drawing are recommended for this mounting height. City Engineering Department to specify mounting height and luminaires.
- When double arms are specified, code requires that two luminaires of the same size be used.
- Provide dusk-to-dawn photo control for roadway luminaires.
- Shorting caps must be ordered separately.
- Provide conduit and trench as per A.P.S. specifications.
- On any lights installed on APS poles there should be a 30-inch (min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
- Provide J-Hook inside pole just below arm hole to support cables.
- When double arms are specified, each luminaire must have a separate cable, to the junction box.
- If double arms, place APS pole number panel on side of pole instead of front.

MATERIAL LIST				
ITEM	SINGLE ARM QTY	DBL ARM QTY	DESCRIPTION	NOTES
1	1	2	BRACKET, Street light, 2" x 20" x 6'	7-240
2	1	-	POLE, STREET LIGHT, STEEL	7-260
3	1	1	CONTROL, PHOTO-ELECTRIC	7-140
4	1	1	LUMINAIRE	7-130
5	1	1	LAMP	7-140
6	1	-	POLE FOUNDATION	7-220
7	1	-	JUNCTION BOX & SECONDARY	7-150
8	1	-	GROUND LUG, BLACKBURN L70	OR EQUAL
9	1	1	APS POLE NUMBER PANEL	OR EQUAL

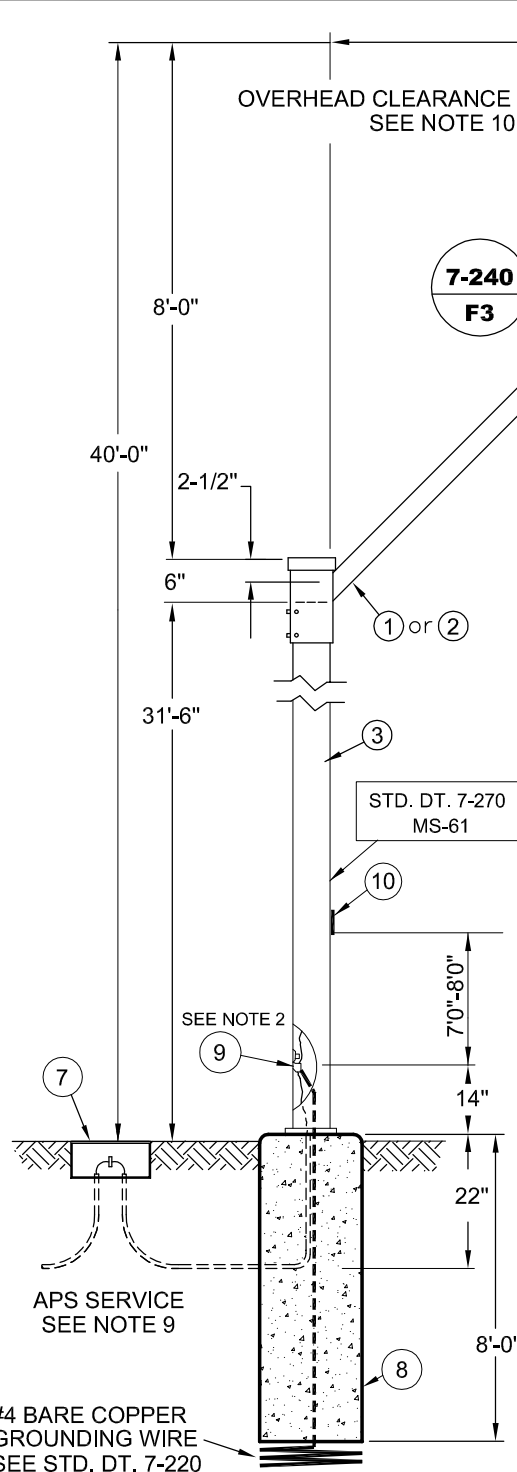
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-050
STREET LIGHT ASSEMBLY
72" x 20" MAST ARM
AND 25' STEEL POLE

REFERENCE

- A. Refer to Standard Detail Drawings 7-110 through 7-150 for lamps and other lighting associated hardware.



HIGH PRESSURE SODIUM

NOTES

1. Adjust photo eye to face north.
2. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
3. Luminaires illustrated in this drawing are recommended for this mounting height. City Engineering Department to specify mounting height and luminaires.
4. The two-armed tenon bracket positions the double arms 180 ° apart.
5. To accommodate the maximum luminaire mounting height, a shop order is required to have a portion from the top of the pole cut off. The tenon arm bracket slides over and covers the cut portion of the pole.
6. When double arms are specified, code requires that two luminaires of the same size be used.
7. Provide dusk-to-dawn photo control for roadway luminaires.
8. Shorting caps must be ordered separately.
9. Provide conduit and trench as per A.P.S. specifications.
10. On any lights installed on APS poles there should be a 30-inch (min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
11. Provide J-Hook inside pole just below arm hole to support cables.
12. When double arms are specified, each luminaire must have a separate cable, to the junction box.
13. If double arms, place APS pole number panel on side of pole instead of front.

REFERENCE

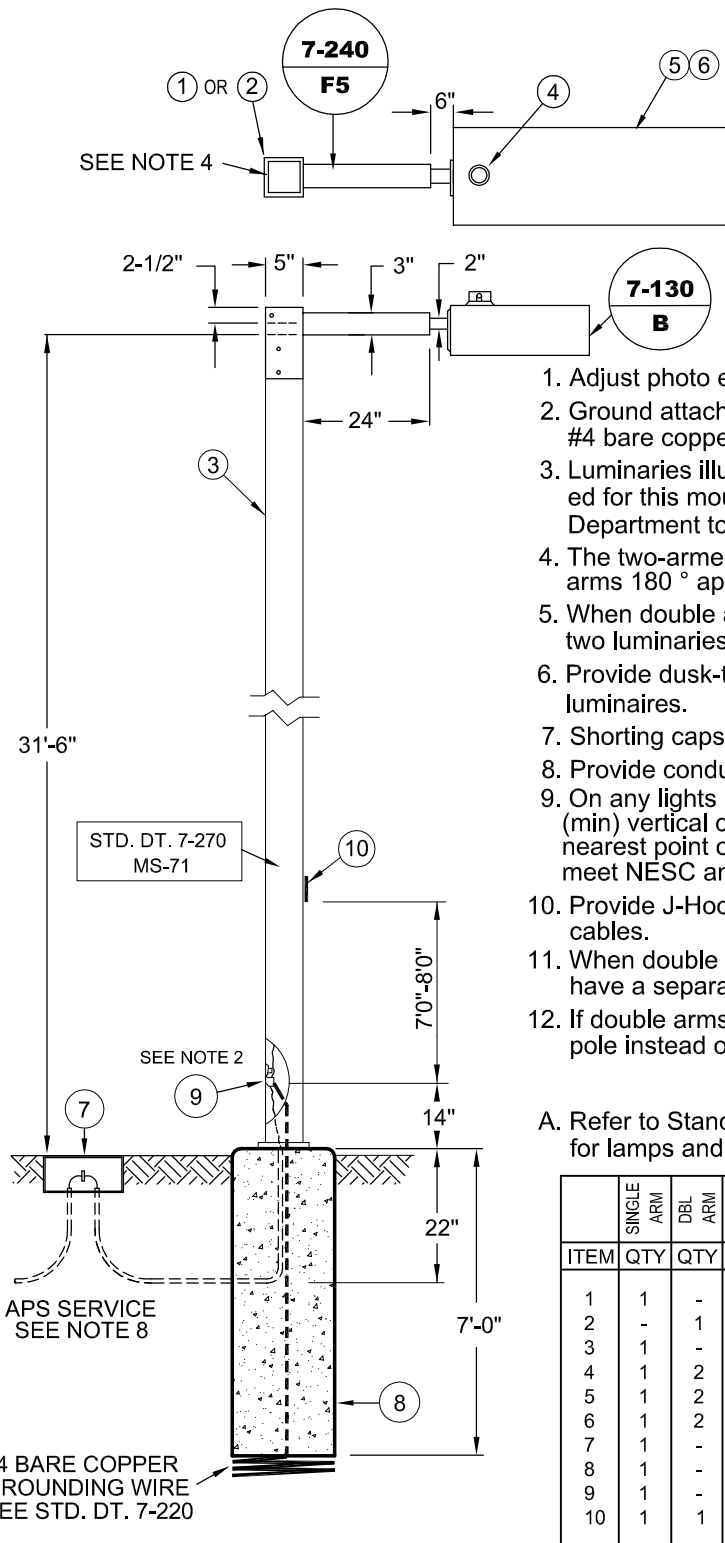
- A. Refer to Standard Detail Drawings 7-110 and 7-150 for lamps and other lighting associated hardware.

ITEM	QTY	SINGLE ARM	DBL ARM	MATERIAL LIST	
				DESCRIPTION	NOTES
1	1	-	-	BRACKET, STREET LIGHT 3" SQ. x 8'	7-240 F3
2	-	1	-	BRACKET, STREET LIGHT, 3" SQ.x8' x 2ea.	7-240 F3
3	1	-	-	POLE, STREET LIGHT, BROWN, SQ. STEEL	7-270
4	1	2	-	CONTROL, PHOTOELECTRIC	7-140
5	1	2	-	LUMINAIRE	7-130
6	1	2	-	LAMP	7-140
7	1	-	-	JUNCTION BOX & SECONDARY	7-150
8	1	-	-	POLE FOUNDATION	7-220
9	1	-	-	GROUND LUG, BLACKBURN L70	OR EQUAL
10	1	1	1	APS POLE NUMBER PANEL	OR EQUAL

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT	
				MIN.	MAX.
250	HPS	120/208/240/277	30000	35'	40'
400	HPS	120/208/240/277	50000	35'	40'

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-060
STREET LIGHT ASSEMBLY
ARCHITECTURAL SQUARE BROWN
STEEL POLE WITH 8' HIGH RISE ARM
(SINGLE OR DOUBLE)



OVERHEAD CLEARANCE DIMENSION
SEE NOTE 9

HIGH PRESSURE SODIUM

NOTES

1. Adjust photo eye to face north.
2. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
3. Luminaires illustrated in this drawing are recommended for this mounting height. City Engineering Department to specify mounting height and luminaires.
4. The two-armed tenon bracket positions the double arms 180° apart.
5. When double arms are specified, code requires that two luminaires of the same size be used.
6. Provide dusk-to-dawn photo control for roadway luminaires.
7. Shorting caps must be ordered separately.
8. Provide conduit and trench as per A.P.S. specifications.
9. On any lights installed on APS poles there should be a 30-inch (min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
10. Provide J-Hook inside pole just below arm hole to support cables.
11. When double arms are specified, each luminaire must have a separate cable, to the junction box.
12. If double arms, place APS pole number panel on side of pole instead of front.

REFERENCE

- A. Refer to Standard Detail Drawings 7-110 and 7-150 for lamps and other lighting associated hardware.

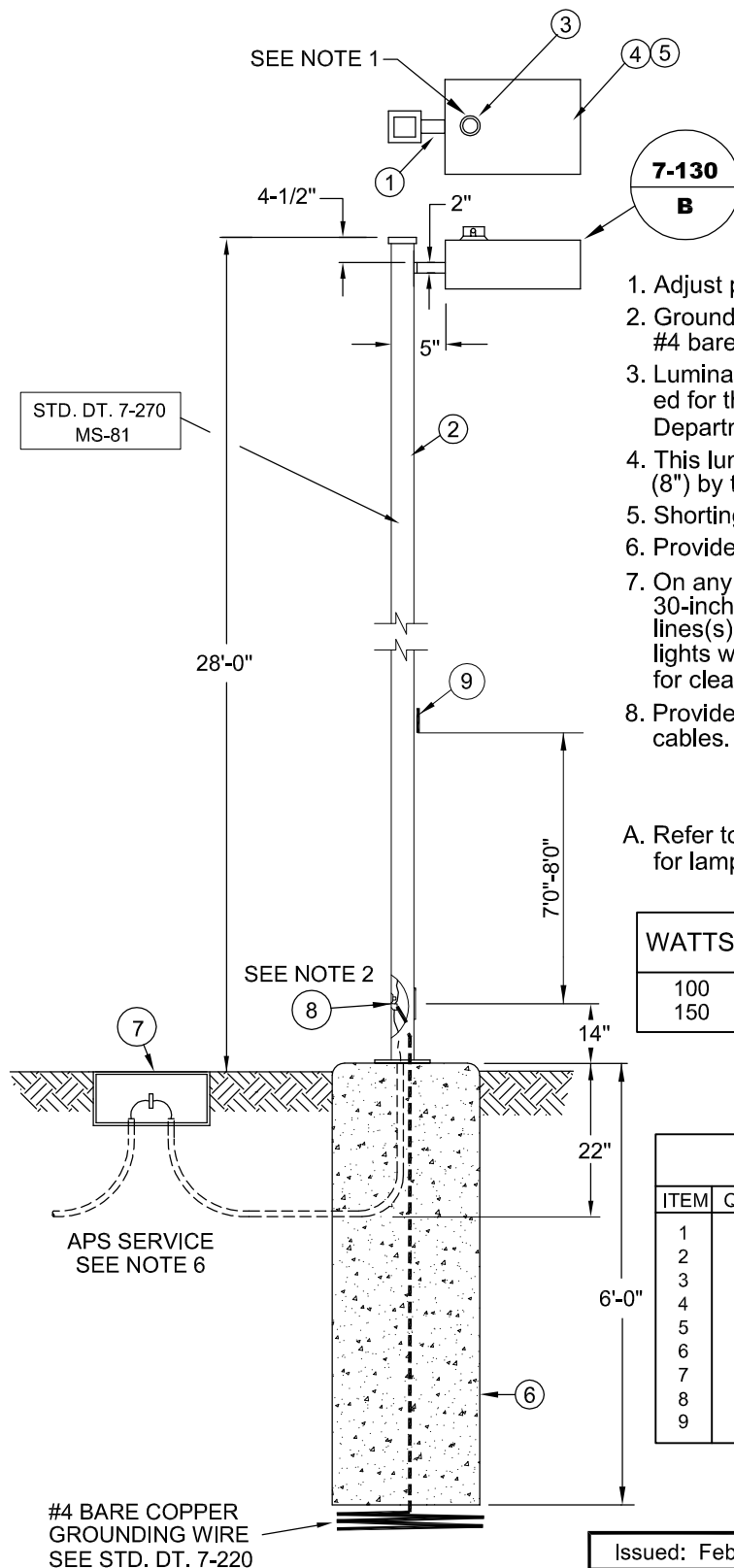
MATERIAL LIST				
ITEM	SINGLE ARM QTY	DBL ARM QTY	DESCRIPTION	NOTE
1	1	-	BRACKET, STREET LIGHT, 3" SQ. x 2'	7-240 F5
2	-	1	BRACKET, STREET LIGHT, 3" SQ. x 2' DBL.	7-240 F5
3	1	-	POLE, STREET LIGHT, BROWN, SQ. STEEL	7-140
4	1	2	CONTROL, PHOTO-ELECTRIC	7-130
5	1	2	LUMINAIRE	7-140
6	1	2	LAMP	7-150
7	1	-	JUNCTION BOX & SECONDARY	7-220
8	1	-	POLE FOUNDATION	OR EQUAL
9	1	-	GROUND LUG, BLACKBURN L70	OR EQUAL
10	1	1	APS POLE NUMBER PANEL	OR EQUAL

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT	
				MIN.	MAX.
100	HPS	120/208/240/277	9500	25'	30'
150	HPS	120/208/240/277	16000		

Ref: JOL/SL-71

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-070
STREET LIGHT ASSEMBLY
ARCHITECTURAL SQUARE BROWN
STEEL POLE WITH 2' ARM
(SINGLE OR DOUBLE)



OVERHEAD CLEARANCE DIMENSION
SEE NOTE 7

NOTES

1. Adjust photo eye to north.
2. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
3. Luminaires illustrated in this drawing are recommended for this mounting height. City Engineering Department to specify mounting height and luminaires.
4. This luminaire comes with a factory provided eight inch (8") by two inch (2") rectangular arm.
5. Shorting caps must be ordered separately.
6. Provide conduit and trench as per A.P.S. specifications.
7. On any lights installed on APS poles there should be a 30-inch (min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
8. Provide J-Hook inside pole just below arm hole to support cables.

REFERENCE

- A. Refer to Standard Detail Drawings 7-110 and 7-150 for lamps and other lighting associated hardware.

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT
100	HPS	120/208/240/277	9500	27' 7-12"
150	HPS	120/208/240/277	16000	

MATERIAL LIST

ITEM	QTY	DESCRIPTION	NOTES
1	1	ADAPTER, STEEL POLE	
2	1	POLE, STREET LIGHT, BROWN SQ. STEEL	7-270
3	1	CONTROL, PHOTOELECTRIC	7-140
4	1	LUMINAIRE	7-130
5	1	LAMP-SES	7-140
6	1	POLE FOUNDATION	7-220
7	1	JUNCTION BOX & SECONDARY	7-150
8	1	GROUND LUG, BLACKBURN L70	OR EQUAL
9	1	APS POLE NUMBER PANEL, IF REQUIRED	OR EQUAL

#4 BARE COPPER
GROUNDING WIRE
SEE STD. DT. 7-220

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-080
STREET LIGHT ASSEMBLY
ARCHITECTURAL
28' SQUARE BROWN STEEL POLE

OVERHEAD CLEARANCE DIMENSION
SEE NOTE 5

NOTES

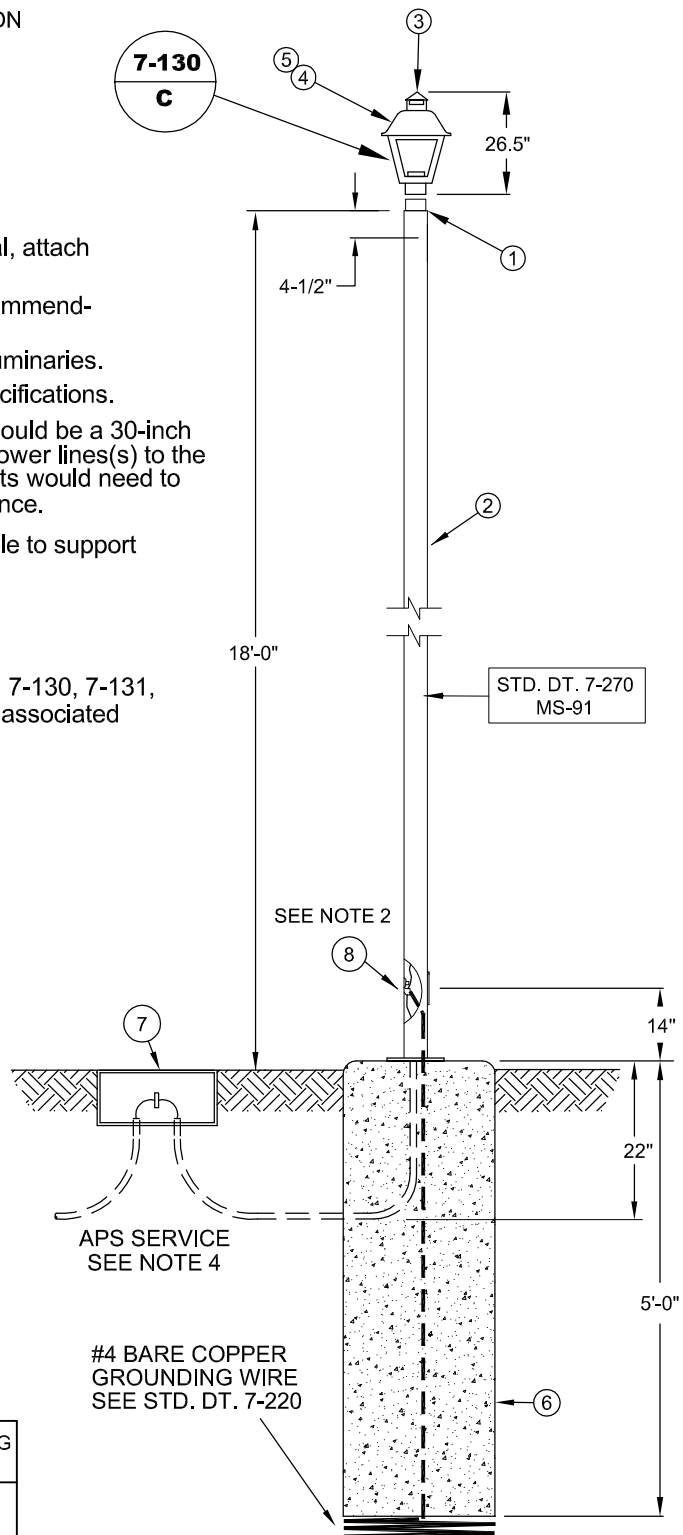
1. Adjust photo eye to north.
2. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
3. Luminaires illustrated in this drawing are recommended for this mounting height. City Engineering Department to specify mounting height and luminaires.
4. Provide conduit and trench as per A.P.S. specifications.
5. On any lights installed on APS poles there should be a 30-inch (min) vertical clearance from any overhead power lines(s) to the nearest point of any light fixture. All other lights would need to meet NESC and OSHA regulations for clearance.
6. Provide J-Hook inside pole just below arm hole to support cables.

REFERENCE

- A. Refer to Standard Detail Drawings 7-110 and 7-130, 7-131, 7-140 and 7-150 for lamps and other lighting associated hardware.

MATERIAL LIST			
ITEM	QTY	DESCRIPTION	NOTES
1	1	ADAPTER, STEEL POLE	
2	1	POLE, STREET LIGHT, SQ. STEEL	7-270
3	1	CONTROL PHOTO-ELECTRIC	7-140
4	1	LUMINAIRE	7-130
5	1	LAMP-HPS	7-140
6	1	POLE FOUNDATION	7-220
7	1	JUNCTION BOX	7-150
8	1	GROUND LUG, BLACKBURN L70	OR EQUAL

WATTS	TYPE	VOLTS	INITIAL LUMENS	MOUNTING HEIGHT
100	HPS	120/208/240/277	9500	18'-0"
150	HPS	120/208/240/277	16000	



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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-090
STREET LIGHT ASSEMBLY
COLONIAL
18' SQUARE BROWN STEEL POLE

STREET STANDARDS

Design Options (See Note 1)	PRINCIPAL ARTERIAL		MINOR ARTERIAL	COLLECTOR			LOCAL RESIDENTIAL	LOCAL COMMERCIAL LOCAL INDUSTRIAL	WALK AND BIKE PATHS
	78' Roadway City Std. No. 2-020	102' Roadway City Std. No. 2-010	108' Roadway 3-5 Lanes	54' Roadway City Std. No. 2-030	60' Roadway City Std. No. 2-030	78' Roadway City Std. No. 2-020			
Note									
One Side	2	None	None	200' / 69'	200' / 75'	None	200' / 52' 125'/52'	250' / 72'	None
Staggered	2	150' / 97'	150' / 121'	300' / 69'	300' / 75'	150' / 97'	None	300' / 72'	150' / 10'
Opposite	2	150' / 97'	150' / 121'	250' / 69'	250' / 75'	150' / 97'	None	250' / 72'	150' / 10'
Median / Center	2	150' / 97'	150' / 121'	200' / 69'	200' / 75'	150' / 97'	None	200' / 72'	None

STREET LIGHT ASSEMBLY

	PRINCIPAL ARTERIAL		MINOR ARTERIAL	COLLECTOR			LOCAL RESIDENTIAL	LOCAL COMMERCIAL LOCAL INDUSTRIAL	WALK AND BIKE PATHS
	78' Roadway	102' Roadway	108' Roadway	54' Roadway	60' Roadway	78' Roadway			
Note									
Light Assembly	–	City Std. No. 7-040 7-060	City Std. No. 7-040 7-060	City Std. No. 7-040 7-060	City Std. No. 7-040 7-060	City Std. No. 7-040 7-060	City Std. No. 7-050 7-070	City Std. No. 7-040 7-060	City Std. No. 7-080 7-090
Fixture	4	400 Watt	400 Watt	400 Watt	400 Watt	400 Watt	250 Watt	400 Watt	150 Watt
Illumination	3	1.3	1.6	1.1	1.1	1.6	0.65	0.8	2.0
Uniformity Ratio	3	3/1	3/1	4/1	4/1	3/1	6/1	6/1	3/1

NOTES

1. REFER TO STANDARD DETAIL NO. 7-101 FOR STANDARD STREET LIGHT LAYOUT CONFIGURATIONS.
2. SPACING OF LIGHT POLES IN FEET / WIDTH OF STREET LIGHTS (BACK OF SIDEWALK LOCATION). REFER TO STANDARD DETAIL NO. 7-101.
3. MINIMUM AVERAGE FOOT CANDLES PER THE ILLUMINATION ENGINEERS SOCIETY.
4. ALL FIXTURES ARE HIGH PRESSURE SODIUM TYPE III DISTRIBUTION. EACH FIXTURE TO BE PROVIDED WITH A PHOTO-ELECTRIC CONTROL AS PER STANDARD DETAIL NO. 7-130.
5. ON ANY LIGHTS INSTALLED ON APS POLES THERE SHOULD BE A 30-INCH (MIN) VERTICAL CLEARANCE FROM ANY OVERHEAD POWER LINE(S) TO THE NEAREST POINT OF ANY LIGHT FIXTURE. ALL OTHER LIGHTS WOULD NEED TO MEET NESC AND OSHA REGULATIONS FOR CLEARANCE.

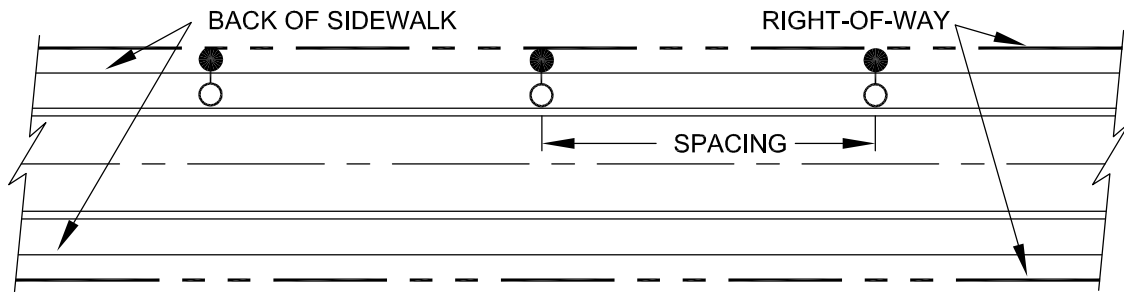
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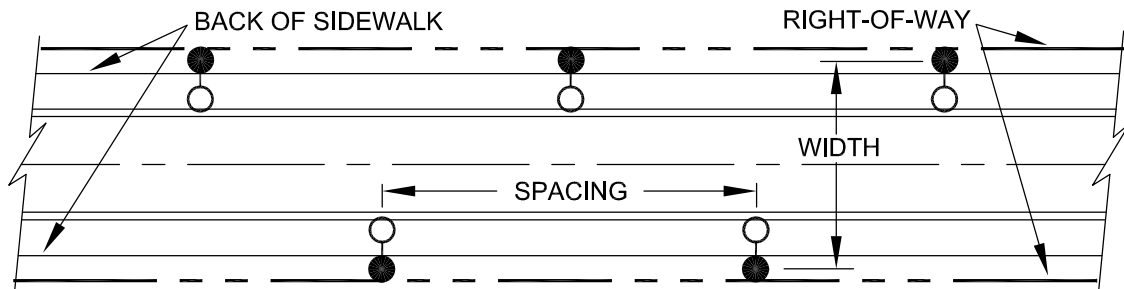
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-100

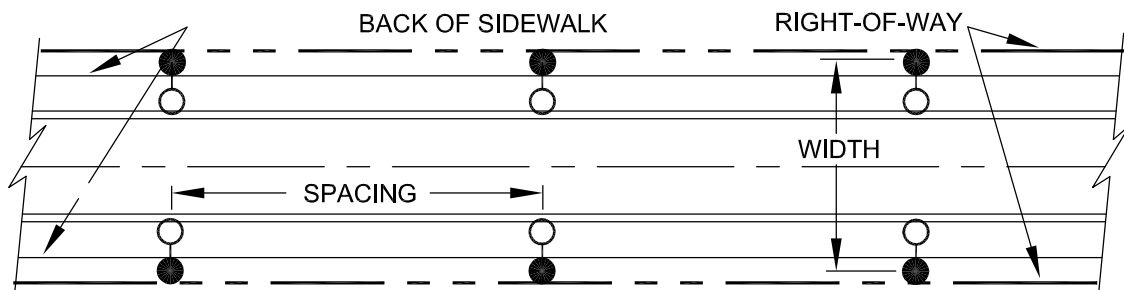
**STREET LIGHTING
DESIGN STANDARDS**



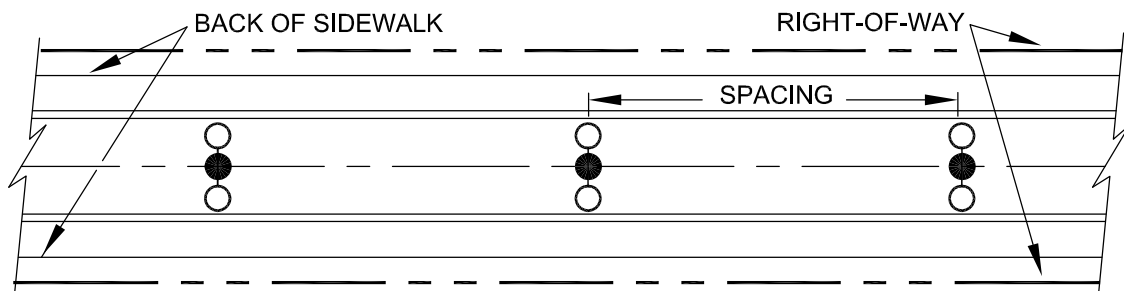
STREET LIGHTS ON ONE SIDE OF THE STREET



STREET LIGHTS STAGGERED - BOTH SIDES OF STREET



STREET LIGHTS OPPOSITE BOTH SIDES OF STREET



STREET LIGHTS IN MEDIAN AND/OR CENTER OF STREET

 SUPPORT POLE
 LIGHT FIXTURE

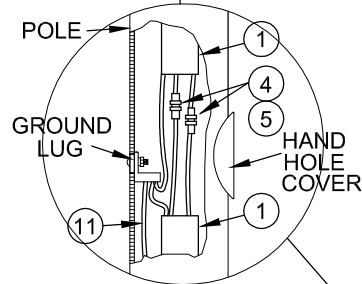
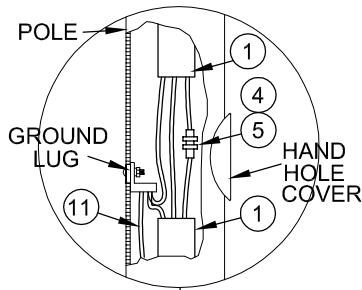
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-101
TYPICAL STREET LIGHT
LAYOUT CONFIGURATION

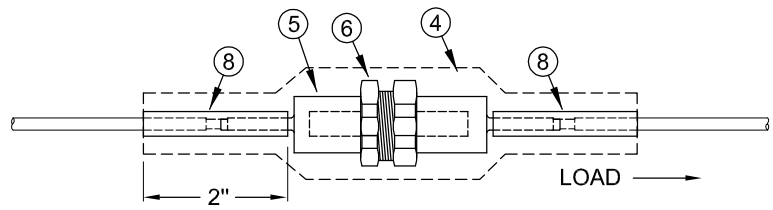
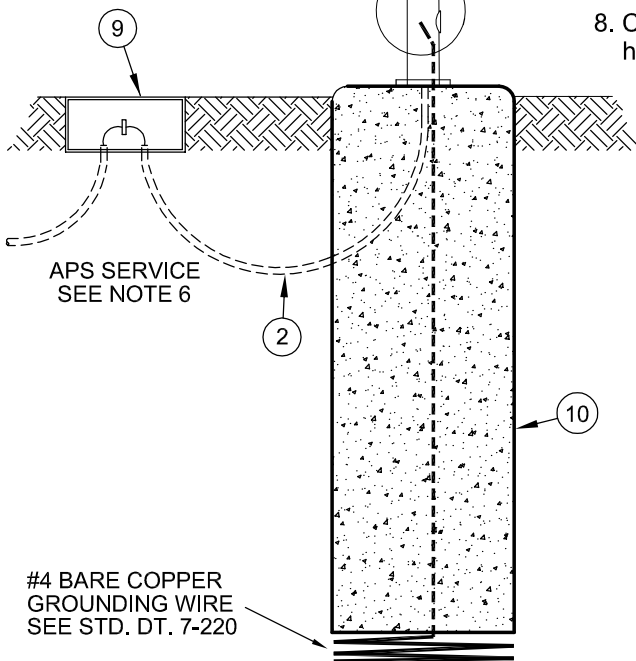
120-VOLT CONNECTION

NOTE: USE A SEPARATE, FUSED CABLE FOR EACH LUMINAIRE.



120 / 240 V CONNECTION

NOTE: USE A SEPARATE, FUSED CABLE FOR EACH LUMINAIRE.



NOTES

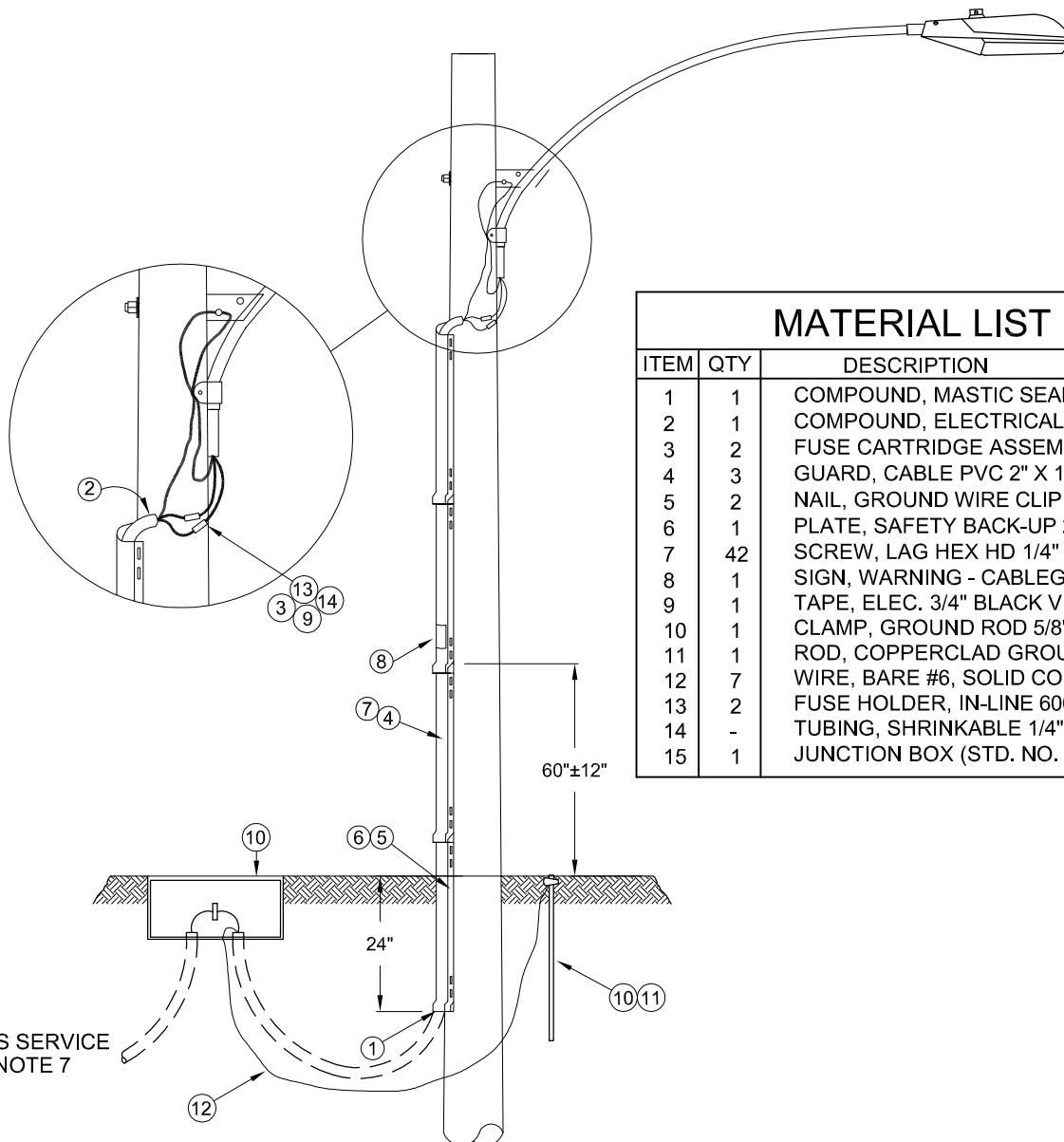
1. Use indent tool to compress the fuse holder onto the wire.
2. Cable insulation should butt against the fuse holder. Do not remove an excess amount of insulation from the conductor.
3. Use a two inch (2") piece of heat shrink tubing on each side of the fuse holder, as shown, to insulate and waterproof.
4. See Standard Detail 7-120 for in-line fuse for underground street lights on wood sales.
5. Ground attachment: ground the A.P.S. neutral, attach #4 bare copper grounding wire.
6. Provide conduit and trench as per A.P.S. specifications.
7. If more than one luminaire, provide separate, fused cable from each luminaire to junction box.
8. Cable must be type UFNM (underground feed, non-metallic) having two #14 conductors and a #14 ground wire.

MATERIAL LIST

ITEM	QTY	DESCRIPTION	NOTES
1	47	CABLE, 2-#12 CU. + #12 CU. GRD.	
2	6	CONDUIT, 1" PVC FLEX CORR	
3	-	CONN BUTT SPLICE, #12 - #12	
4	-	COVER, SPLICE 2/0 3/0 4/0	
5	1	FUSE, CARTRIDGE 10A	
6	1	FUSE HOLDER, IN-LINE 600 V	
7	-	NOT USED	
8	AR	TUBING, SHRINKABLE 1/4"	
9	1	JUNCTION BOX & SECONDARY	7-150
10	1	POLE FOUNDATION	7-220
11	-	GROUND WIRE, COPPER, AWG-6	7-220

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-110
STREET LIGHT ASSEMBLY DETAIL
INTERNAL POLE WIRING
FOR UNDERGROUND CIRCUIT



MATERIAL LIST		
ITEM	QTY	DESCRIPTION
1	1	COMPOUND, MASTIC SEALING
2	1	COMPOUND, ELECTRICAL PUTTY
3	2	FUSE CARTRIDGE ASSEMBLY-10A
4	3	GUARD, CABLE PVC 2" X 10'
5	2	NAIL, GROUND WIRE CLIP
6	1	PLATE, SAFETY BACK-UP 2"
7	42	SCREW, LAG HEX HD 1/4" X 2 1/2" LG
8	1	SIGN, WARNING - CABLEGUARD
9	1	TAPE, ELEC. 3/4" BLACK VINYL
10	1	CLAMP, GROUND ROD 5/8"
11	1	ROD, COPPERCLAD GROUND 5/8" X 8'
12	7	WIRE, BARE #6, SOLID COPPER
13	2	FUSE HOLDER, IN-LINE 600V
14	-	TUBING, SHRINKABLE 1/4"
15	1	JUNCTION BOX (STD. NO. 7-150)

APS SERVICE
NOTE 7

NOTES

1. Whenever practical, install the PVC cable guard so it faces away from oncoming traffic.
2. Extend the PVC guard along the pole 24 inches below final grade. The one inch rigid or flex conduit may be installed directly under the PVC guard at this depth without using a boot.
3. The butt splices provide with #12 copper shall be covered with two half-lapped layers of 3/4" tape.
4. The maximum allowable space between the top of the PVC guard and bracket entry is twelve inches.
5. The street light bracket must be connected to the ground conductor.
6. Ground the A.P.S. neutral.
7. Provide conduit and trench as per A.P.S. specifications.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-120
TRANSITIONS
SECONDARY, UNDERGROUND CIRCUIT
TO STREET LIGHT ON WOOD POLE

POLES PAINTS AND COATINGS FOR STEEL STREET LIGHT POLES/ARMS AND STEEL STUB POLES

1.0 ACCEPTABLE BELOW GRADE COATING PROCEDURES FOR GALVANIZED STREET LIGHT AND STUB POLES.

COAT POLE FROM 12" ABOVE GRADE TO THE BUTT PER EITHER OF THE FOLLOWING OPTIONS.

1.1 "CORROCOTE"

GALVANIZING THICKNESS SHALL BE A MINIMUM OF 2.5 OUNCES/SQ. FT. PRIOR TO COATING (THICKNESS WHICH IS GREATER THAN REQUIRED BY ASTM A123 ALLOWS FOR MATERIAL REMOVAL DUE TO SURFACE PREPARATION).

"BRUSH" BLAST TO ETCH GALVANIZING TO A MINIMUM ACCEPTABLE SUBSTRATE PROFILE OF 1.5 MILS. DO NOT FRACTURE ZINC COATING. PREHEAT, THEN COAT OUTSIDE WITH MADISON CHEMICALS CORROCOTE II OR CHEMLINE CHEMTHANE 2260 POLYURETHANE TO A MINIMUM DRY FILM THICKNESS OF 12 MILS.

NOTES:

1. ALL FOREIGN ZINC SUBSTRATE SURFACE CONTAMINANTS (I.E. OIL BASED OR OTHER MATERIALS NOT SOLUBLE IN WATER) SHALL BE REMOVED PRIOR TO ETCHING.
2. ETCHING SHALL NOT BE DONE WHEN STEEL IS AT LESS THAN 5 DEGREES ABOVE THE DEW POINT.
3. AFTER ETCHING, THE SURFACE SHALL BE FREE OF BLAST RESIDUE DUST AND PROTECTED FROM CONTAMINATION (INCLUDING MOISTURE).
4. COATING SHALL BE APPLIED BEFORE SURFACE OXIDATION OCCURS AND PREFERABLY WITHIN 48 HOURS AFTER APPLICATION OF ZINC COATING.
5. COATING MUST BE APPLIED WITH GRACO HYDRA-CAT SYSTEM NO. 954-470 (COMPLETE WITH HEATED HOSES AND DRUM HEATERS) OR APPROVED EQUAL.
6. ALL EDGES TO BE FEATHERED TO ELIMINATE LIPS.

1.2 MASTIC AND TAPE

CLEAN SURFACE AND COAT WITH VALSPAR VM 355 COAL TAR EPOXY, TO A MINIMUM DRY FILM THICKNESS OF 20 MILS. AFTER EPOXY HAS DRIED, CONFORMABLY HALF LAP TAPE POLE WITH CORROSION RESISTANT 10 MIL TAPE. THIS TAPE SHALL BE UNIFORM AND WITHOUT FOLDS, WRINKLES OR GAPS.

2.0 COATING PROCEDURE FOR BROWN PAINTED STREET LIGHT POLES AND ARMS

POLES SHALL BE POWDER COATED PER THE FOLLOWING (SOLVENT BASED PAINT SYSTEMS ARE NOT ACCEPTABLE).

2.1 POWDER COAT SYSTEM

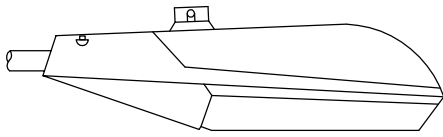
- 2.1.1 BLAST CLEAN POLE TO A MINIMUM OF "COMMERCIAL GRADE" SSPC SP6. SURFACES SHALL BE FREE OF BLAST RESIDUE DUST AND PROTECTED FROM FOREIGN CONTAMINANTS (INCLUDING MOISTURE).
- 2.1.2 ELECTROSTATICALLY APPLY TGIC POLYESTER POWDER TO A MINIMUM THICKNESS OF 3.0 MILS. CURE COATING PER MANUFACTURER'S RECOMMENDATIONS. THIS POWDER COATING SHALL COVER THE FULL LENGTH OF THE POLE INCLUDING THE BELOW GRADE PORTION.
- 2.1.3 COAT FROM 12" ABOVE GRADE TO THE BUTT BY EITHER OF THE FOLLOWING METHODS.
 - 2.1.3.1 COAT WITH MADISON CHEMICALS CORROCOTE II OR CHEMLINE CHEMTHANE 2260 POLYURETHANE TO A MINIMUM DRY FILM THICKNESS OF 12 MILS,
 - 2.1.3.2 FINISH POLE FROM 12" ABOVE GROUND LINE TO BOTTOM WITH VALSPAR VM 355 COAL TAR EPOXY TO A MINIMUM DRY FILM THICKNESS OF 20 MILS. AFTER EPOXY HAS DRIED, CONFORMABLY HALF LAP TAPE POLE WITH CORROSION RESISTANT 10 MIL TAPE. THIS TAPE SHALL BE UNIFORM WITHOUT FOLDS, WRINKLES OR GAPS.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-125
PROTECTIVE COATING
FOR STEEL LIGHT POLES

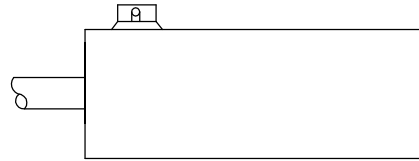
TYPE 'A'



ROADWAY 90° CUTOFF

HIGH PRESSURE SODIUM		
WATTS	VOLTS	INITIAL LUMENS
100	MULTI ↓	9500
150		16000
250	TAP	30000
400		50000

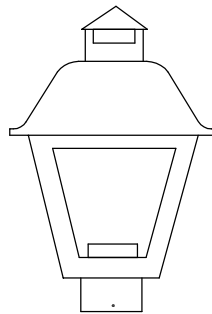
TYPE 'B'



ARCHITECTURAL

HIGH PRESSURE SODIUM		
WATTS	VOLTS	INITIAL LUMENS
100	MULTI ↓	9500
150		16000
250	TAP	30000
400		50000

TYPE 'C'



COLONIAL

HIGH PRESSURE SODIUM		
WATTS	VOLTS	INITIAL LUMENS
100	120	9500
150	208	16000
	240	
	277	

NOTES:

1. Lamps and photo controls must be ordered separately.
2. See Standard Detail 7-140 for recommended manufacturer and model numbers for lamps and photoelectric controls.
3. Model numbers are given to illustrate a quality benchmark only and are not intended to be the sole source.
4. Refer to Standard Detail 7-131 for the listing of street light luminaries.
5. Luminaries under 250 watts must be 120 volts. Those 250 watts and more must be 240 volts.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-130
STREET LIGHT FIXTURES
HIGH PRESSURE SODIUM LUMINARIES

LUMINAIRE LIST

LUMINAIRE, 100 WATT, ROADWAY, HIGH PRESSURE SODIUM, REACTOR, MULTIVOLT 120/208/240/277 BALLAST, ANSI M57 LAMP, 90 DEGREE CUTOFF, MC-111 DISTRIBUTION.

MFG. PART NUMBER: GENERAL ELECTRIC M2AC10SOH2GMC3

LUMINAIRE, 150 WATT, ROADWAY, HIGH PRESSURE SODIUM, AUTOREG, MULTIVOLT 120/208/240/277 BALLAST, ANSI S55 LAMP, 90 DEGREE CUTOFF, MC-111 DISTRIBUTION.

MFG. PART NUMBER: GENERAL ELECTRIC M2AC15SOH2GMC3

LUMINAIRE, 250 WATT, ROADWAY, HIGH PRESSURE SODIUM, AUTOREG, MULTIVOLT 120/208/240/277 BALLAST, ANSI S50 LAMP, 90 DEGREE CUTOFF, MC-111 DISTRIBUTION.

MFG. PART NUMBER: GENERAL ELECTRIC M2AC25SOA2GMC3

LUMINAIRE, 400 WATT, ROADWAY, HIGH PRESSURE SODIUM, AUTOREG, MULTIVOLT 120/208/240/277 BALLAST, ANSI S51 LAMP, 90 DEGREE CUTOFF, MC-111 DISTRIBUTION.

MFG. PART NUMBER: GENERAL ELECTRIC M4AC40SOA2GMC3

LUMINAIRE, 100 WATT, ARCHITECTURAL, HIGH PRESSURE SODIUM, ON 240V TAP, HPF REACTOR, MULTIVOLT 120/208/240/277 BALLAST, MC-111 DISTRIBUTION, FLAT GLASS, DARK BRONZE, RECTANGULAR SHAPE.

MFG. PART NUMBER: GENERAL ELECTRIC DSMF10SOH2GMC3DB

LUMINAIRE, 150 WATT, ARCHITECTURAL, HIGH PRESSURE SODIUM, ON 240 VOLT TAP, HPF REACTOR, MULTIVOLT 120/208/240/277 BALLAST, MC-111 DISTRIBUTION, FLAT GLASS, DARK BRONZE, RECTANGULAR SHAPE.

MFG. PART NUMBER: GENERAL ELECTRIC DSMF15SOH2GMC3DB

LUMINAIRE, 250 & 400 WATT, ARCHITECTURAL, HIGH PRESSURE SODIUM, ON 240 VOLT TAP, AUTOREG, MULTIVOLT 120/208/240/277 BALLAST, MC-111 DISTRIBUTION, FLAT GLASS, DARK BRONZE, RECTANGULAR SHAPE.

MFG. PART NUMBER: GENERAL ELECTRIC DSMF25SOA2GMC3DB

GENERAL ELECTRIC DSMF40SOA2GMC3DB

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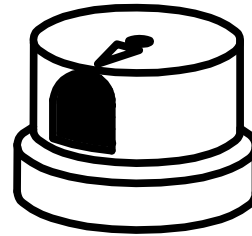
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-131
STREET LIGHT
LUMINAIRE LIST

MODEL NUMBERS ARE GIVEN TO ILLUSTRATE A QUALITY BENCHMARK ONLY
AND ARE NOT INTENDED TO BE A SOLE SOURCE.



HIGH PRESSURE SODIUM LAMP		
MANUFACTURE / MODEL	INITIAL LUMENS	WATTS
GE LU100	9500	100
GE LU150/55	16000	150
GE LU250/5	30000	250
GE LU400	50000	400



PHOTOELECTRIC CONTROLLER		
MANUFACTURE / MODEL	VOLTS	TURN / LOCK
GE PECOTL	120/208/240/277 MULTIVOLT	YES
GE PEC1TL	120V	YES
GE PEC5TL	480V	YES



SHORTING CAP

GE PART NO. SCCL-PECTL

INSTALL A SHORTING CAP WHEN A PHOTO-ELECTRIC CONTROLLER IS NOT TO BE USED

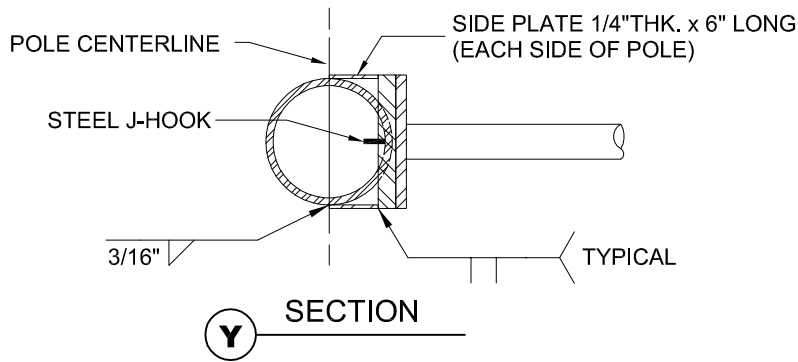
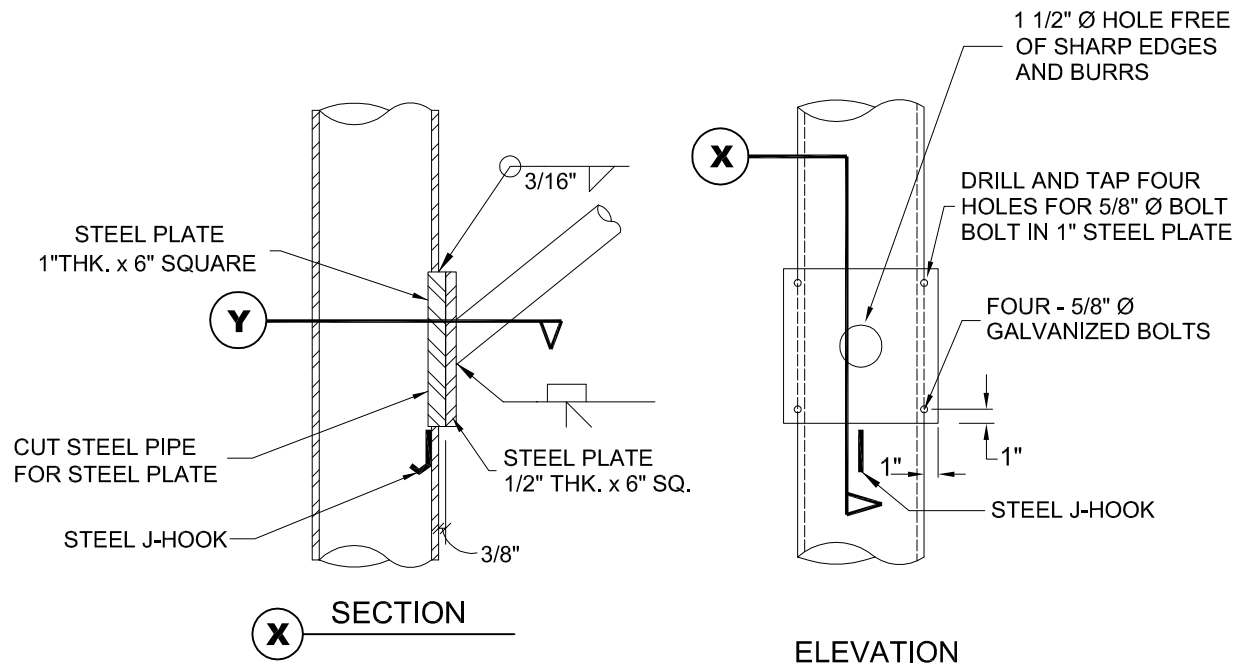
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-140
STREET LIGHT DETAILS
LAMPS AND
PHOTOELECTRIC CONTROLLERS



- CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-150
JUNCTION BOX
HEAVY DUTY POLYMER
FOR STREET LIGHT SERVICE

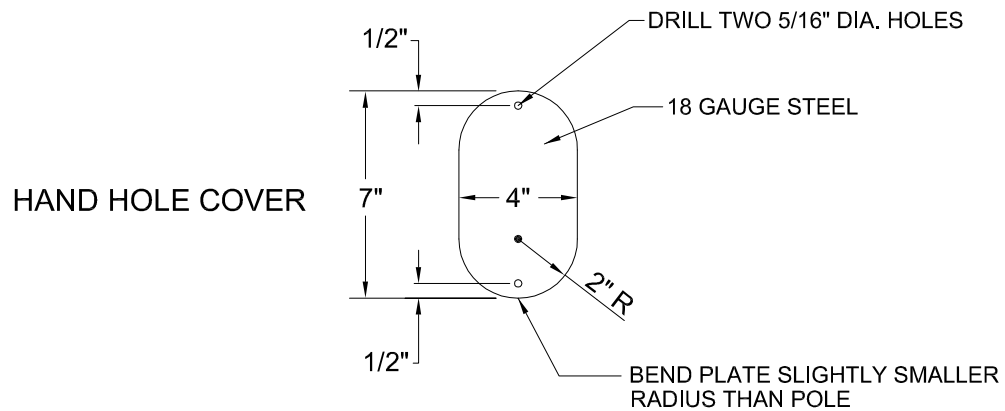
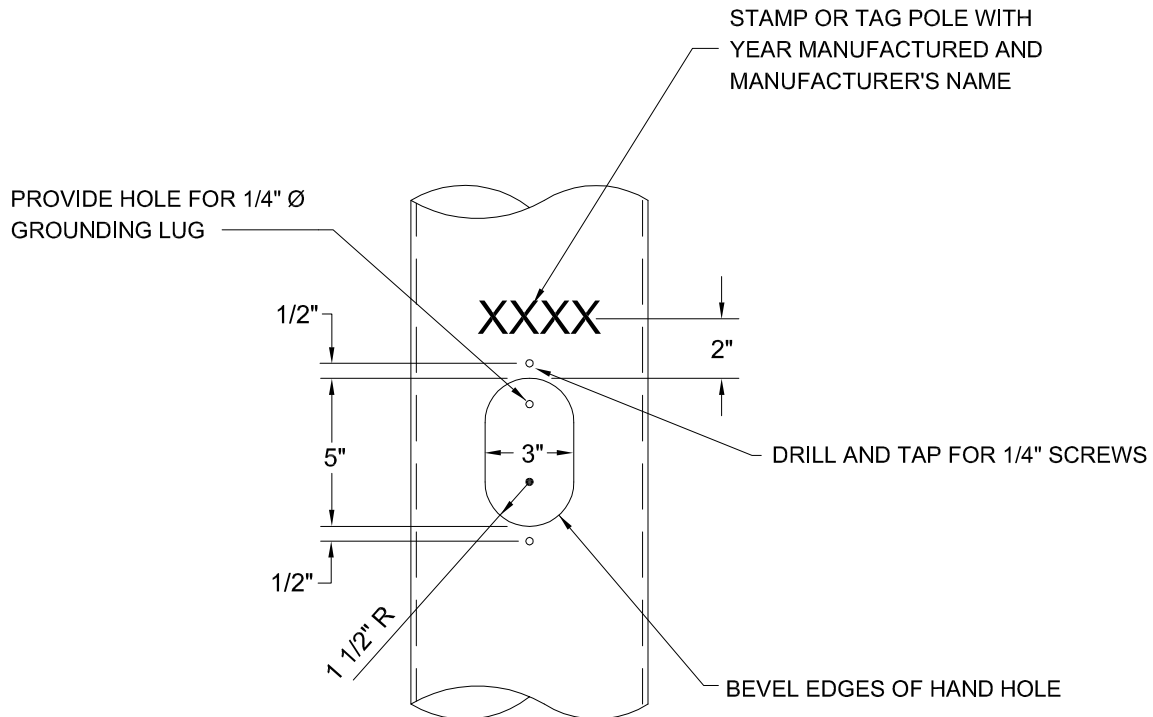


MAST ARM CONNECTION FOR:
STANDARD DETAIL 7-250 (MS-41 & MS-42)
STANDARD DETAIL 7-260 (MS-51)

NOTE
PROVIDE CONNECTION ON
OPPOSITE SIDE OF POLE
AT TWO LIGHT CONDITION.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-160
STREET LIGHT
MATERIAL SPECIFICATIONS
MAST ARM CONNECTION DETAIL

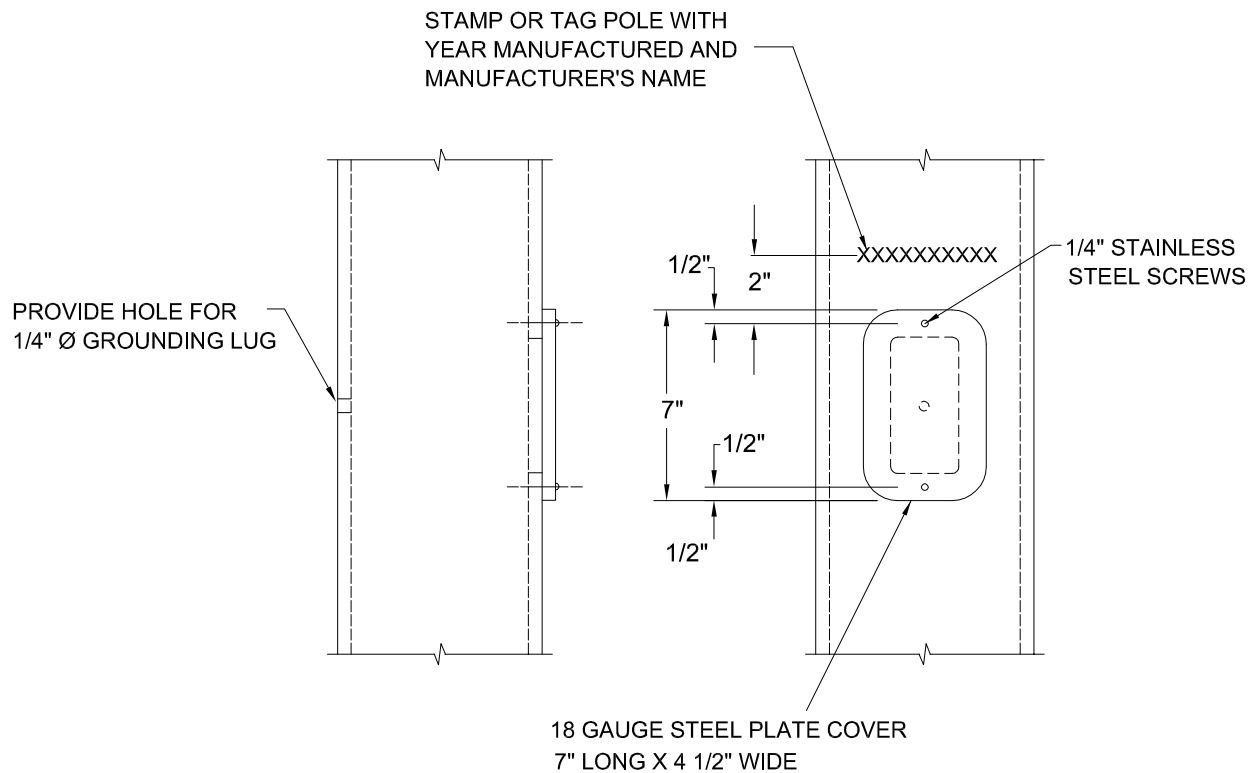


HAND HOLE DETAIL FOR:
 STANDARD DETAIL 7-250 (MS-41 & MS-42)
 STANDARD DETAIL 7-260 (MS-51)

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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-170
STREET LIGHT
MATERIAL SPECIFICATIONS
ROUND POLE HAND HOLE DETAIL

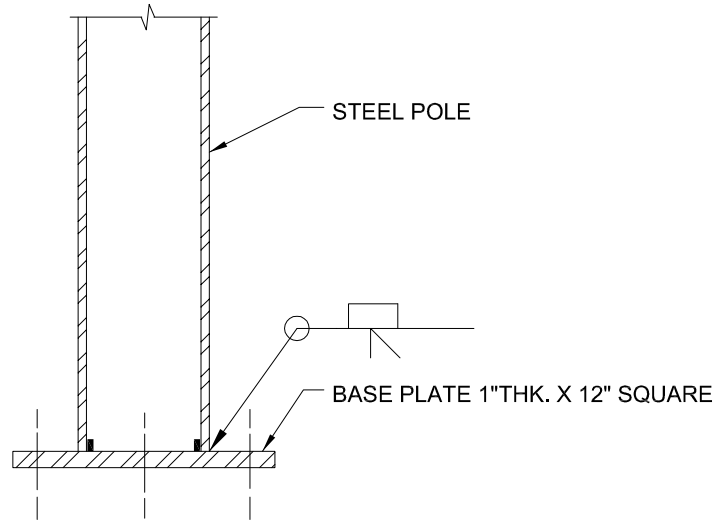


HAND HOLE DETAIL FOR:
STANDARD DETAIL 7-270 (MS-61, MS-71 and MS-81)

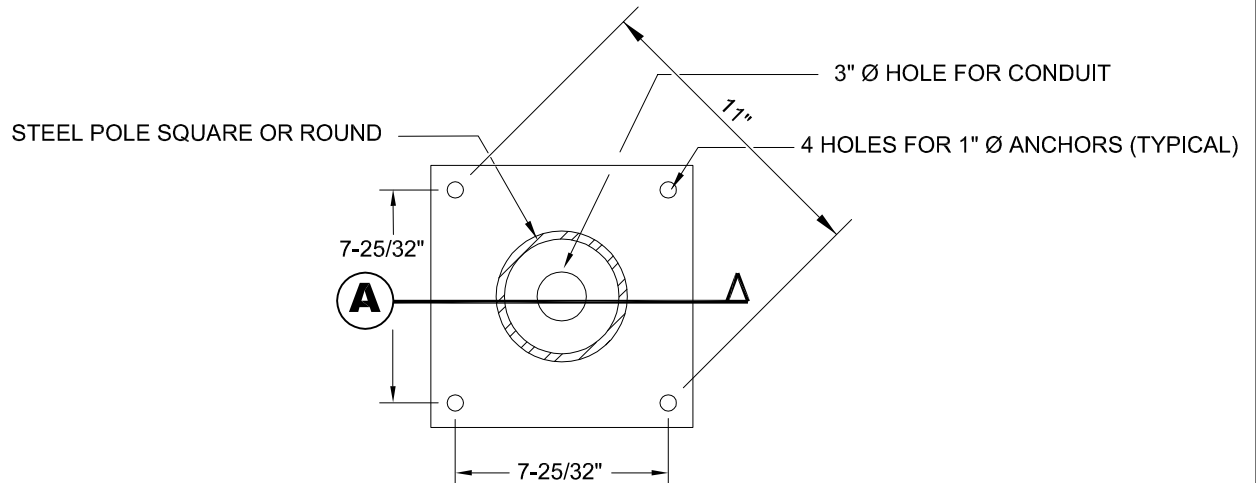
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-180
STREET LIGHT
MATERIAL SPECIFICATIONS
SQUARE POLE HAND HOLE DETAIL



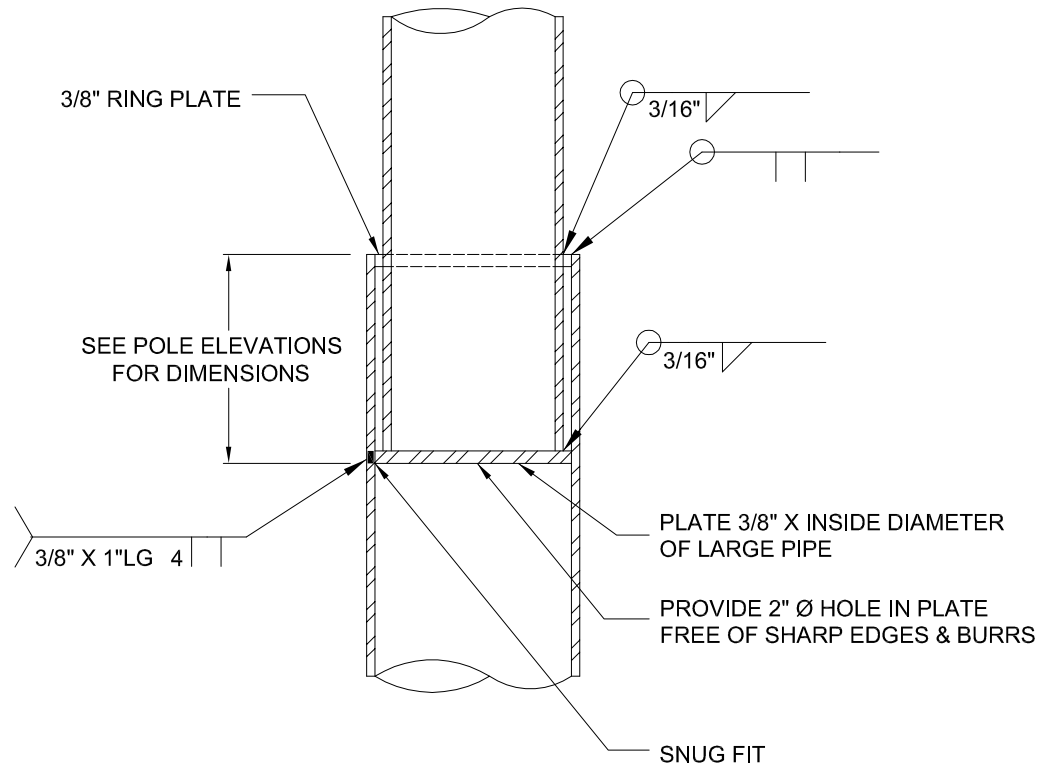
SECTION "A"



BASIC WELD SYMBOLS										
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT						
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-190
STREET LIGHT
MATERIAL SPECIFICATIONS
BASE PLATE DISPLAY



BASIC WELD SYMBOLS										
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT						
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-200
STREET LIGHT
MATERIAL SPECIFICATIONS
POLE STEP-DOWN DETAIL

GENERAL STRUCTURAL NOTES

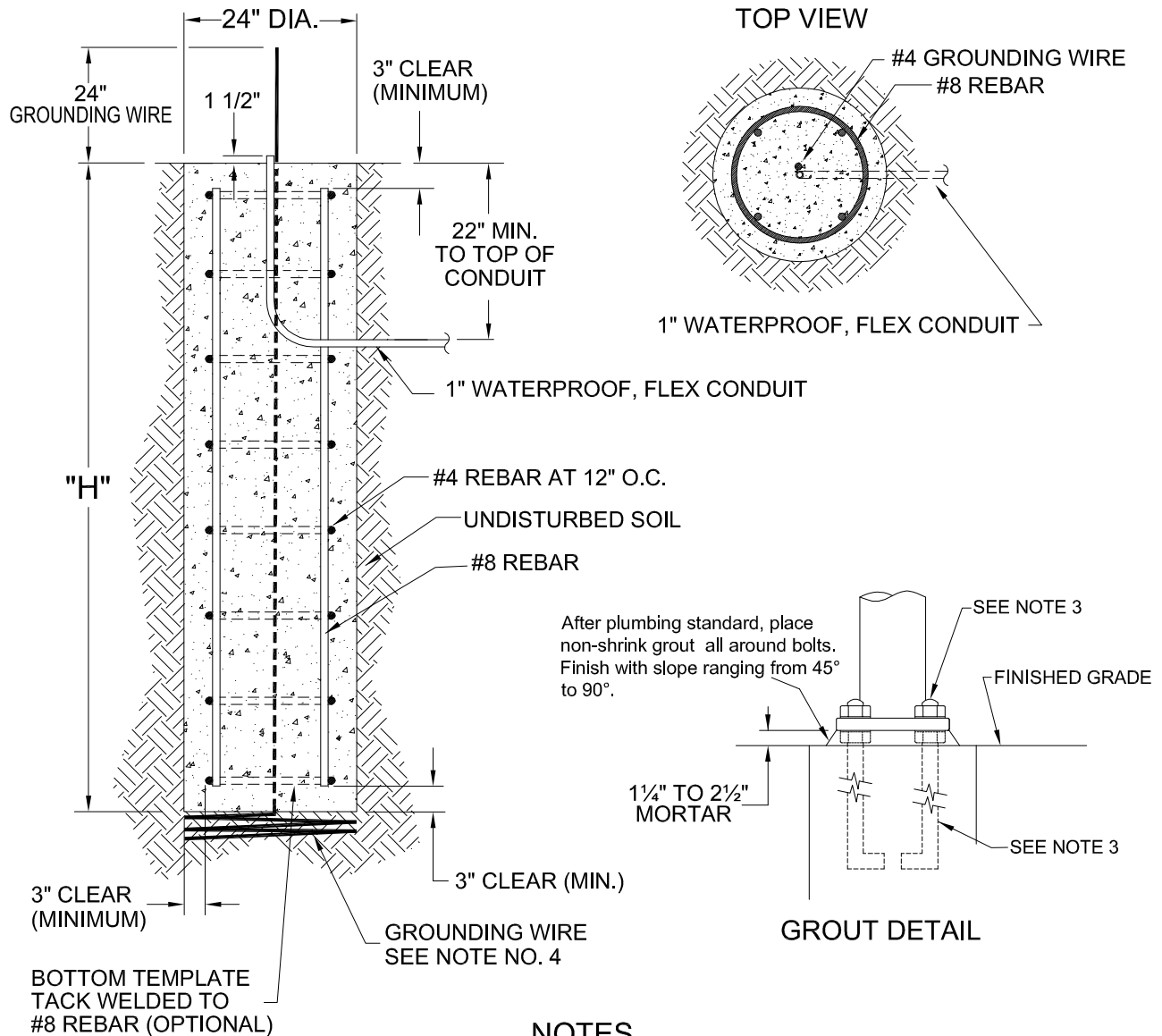
(APPLY UNLESS NOTED OTHERWISE)

1. All work shall conform to the current Uniform Building Code adopted by the City of Yuma and A.A.S.H.T.O. Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals.
2. Notes and details on drawings shall take precedence over general structural notes and typical details. Where no specific details are shown, construction shall conform to similar work on the project.
3. Verify all dimensions prior to the start of construction. Details marked "Typical" may or may not be referenced but shall apply unless noted otherwise.
4. If utilized the contractor shall be responsible for the design and implementation of all scaffolding, bracing and shoring. Observation visits to the job site by the Engineer shall not include inspection of the above items. The Engineer will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction nor will the Engineer be responsible for construction site safety or the safety precautions and the programs incident thereto.
5. The contract structural drawings represent the finished structure. They do not indicate the method of construction.
6. All footings shall bear on firm, undisturbed native soil. The Engineer accepts no responsibility for existing soil conditions. Footing design is based upon minimum Uniform Building Code soil bearing values as required by the Building Safety Section of the Department of Community Development in the absence of a soil report. It shall be the contractor's responsibility to verify the soil bearing pressure and to determine whether unsuitable soil conditions exist.
7. Lap splices for reinforcing in concrete shall be thirty bar diameters minimum.
8. Design loads: Wind: Basic wind speed = 80 MPH, pressure per A.A.S.H.T.O.
Wire tension = 200# (Standard Details 7-040, 7-050, 7-060, 7-070, & 7-080)
Wire Tension = 700# (Standard Detail 7-250, MS-42)
9. Construction material:
 - Concrete: ASTM C94, F'c + 3000psi at 28 days. Maximum water/cement ratio by weight=0.58.
 - Reinforcing: ASTM A615 Grade 60
 - Structural steel: ASTM A36 (Fy=36ksi) for plates and shapes.
ASTM A500 Grade B (Fy=46ksi) for tubes.
ASTM A53 Types E or S, Grade B (Fy=35ksi) for pipes.
 - Bolts: ASTM A325
 - Welding: E70 series low hydrogen rods. Welding per AWS D1.1 random 25% of welds shall be tested per A.A.S.H.T.O.
 - Protection for structural steel:
 - A. Painted structures: the materials and methods shall conform to the A.A.S.H.T.O. standard specifications for highway bridges. Parts inaccessible after erection, except the inside of tubing or pipe, shall be given three shop coats of paint.
 - B. Structures galvanized after fabrication: the coating shall conform to the requirements of A.A.S.H.T.O. M111, ASTM A123 and ASTM 143. Tubular steel pole shafts to be galvanized preferably shall have a silicone content equal to or less than 0.66%. Other components, such as base plates, should have a silicon content controlled as required to prevent detrimental galvanizing effects. Damage to the coating shall be repaired subsequent to erection by a method approved by the Engineer.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

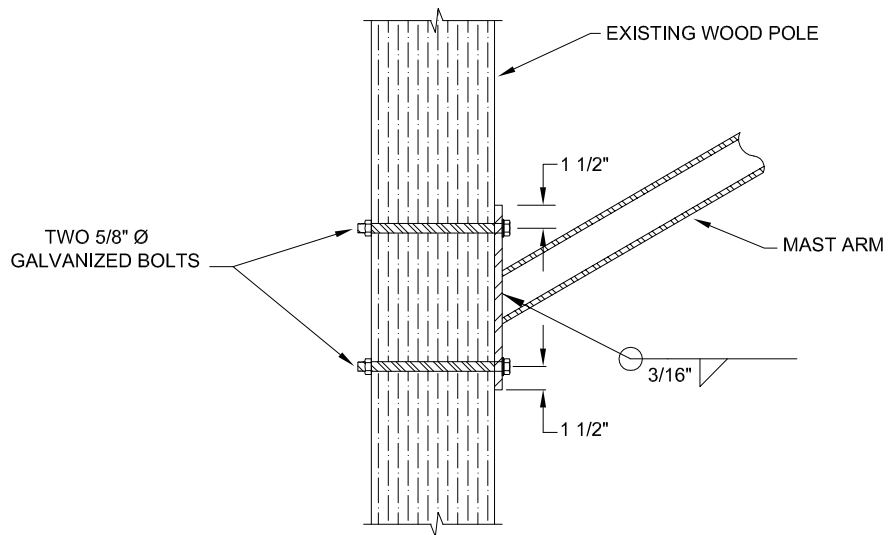
STANDARD NO. 7-210
STREET LIGHT
MATERIAL SPECIFICATIONS
STRUCTURAL NOTES



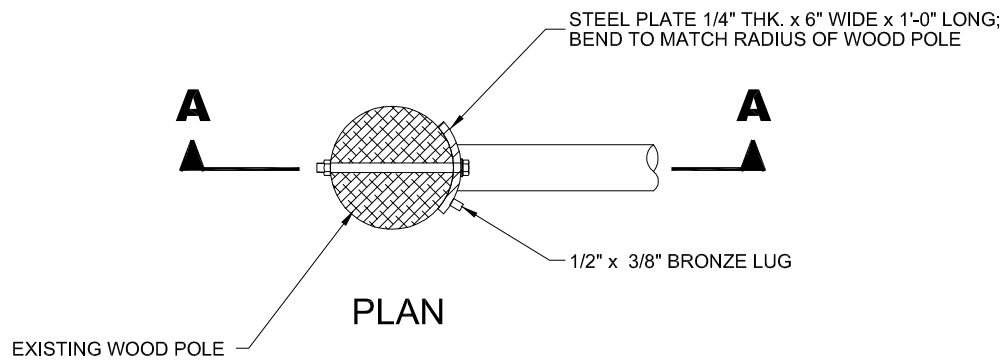
FOOTING DEPTH SCHEDULE		
STD. DT.	POLE	"H"
7-250	MS-41	7'-0"
7-250	MS-42	8'-6"
7-260	MS-51	5'-6"
7-270	MS-61	8'-0"
7-270	MS-71	7'-0"
7-270	MS-81	6'-0"
7-270	MS-91	5'-0"

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-220
STREET LIGHT
MATERIAL SPECIFICATIONS
POLE FOOTING DETAIL



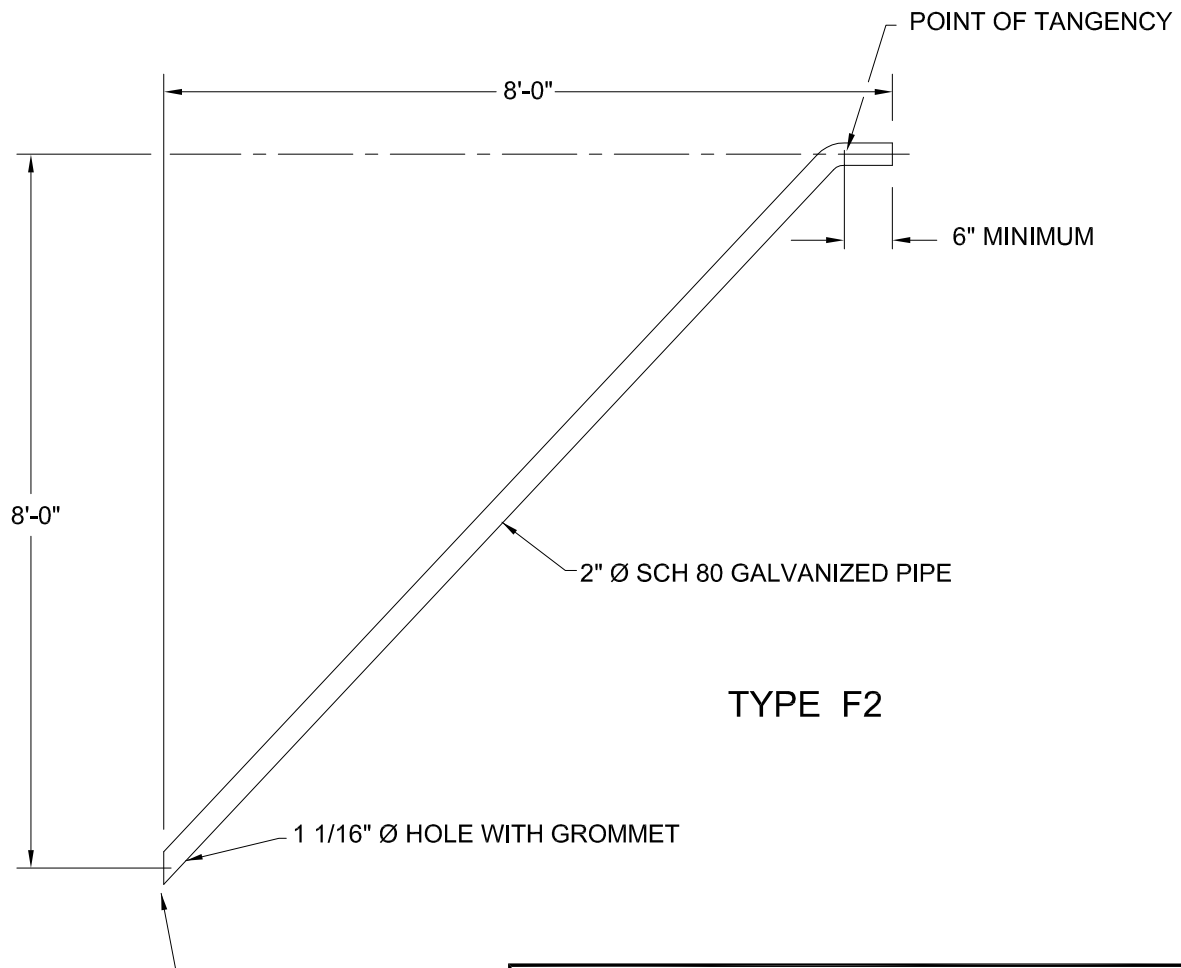
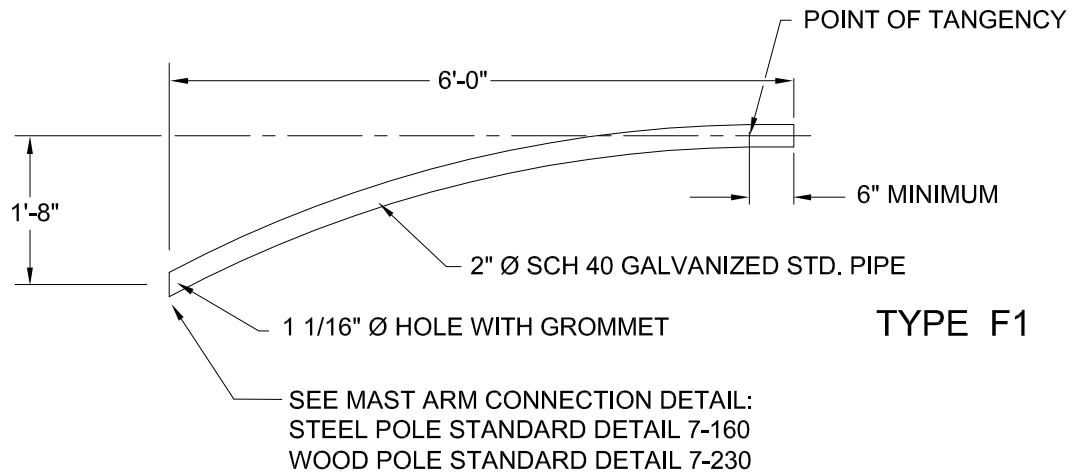
SECTION "A"



BASIC WELD SYMBOLS									
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT					
				SQUARE	V	BEVEL	U	J	FLARE V

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-230
STREET LIGHT MATERIAL SPECIFICATIONS
WOOD POLE MAST ARM
CONNECTION DETAIL



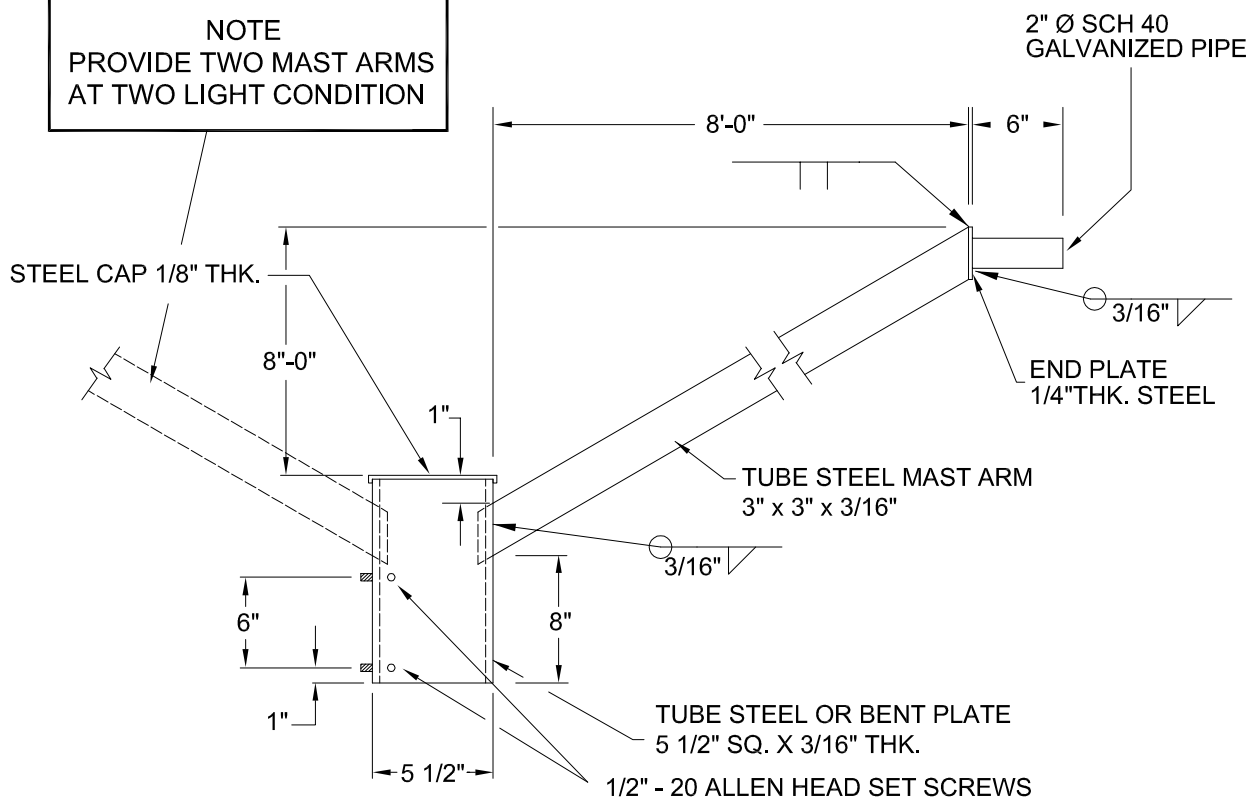
SEE MAST ARM CONNECTION DETAIL:
STEEL POLE STANDARD DETAIL 7-160
WOOD POLE STANDARD DETAIL 7-230

Issued: February 2009

Sheet 1 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-240
STREET LIGHT
MATERIAL SPECIFICATIONS
MAST ARM DETAILS

NOTE
PROVIDE TWO MAST ARMS
AT TWO LIGHT CONDITION



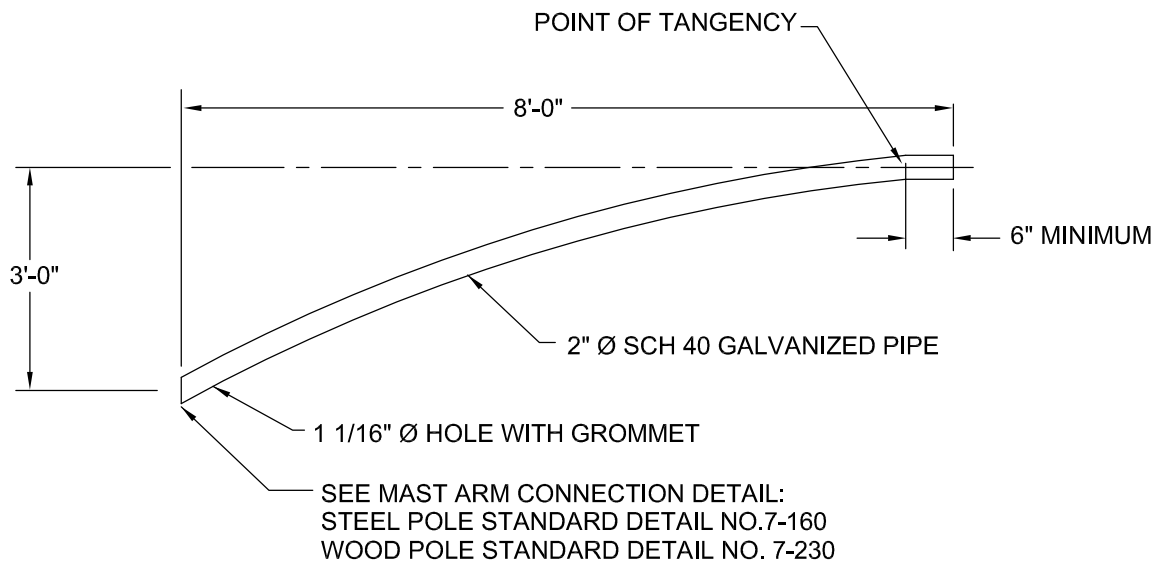
TYPE F3

BASIC WELD SYMBOLS									
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT					
				SQUARE	V	BEVEL	U	J	FLARE V

Issued: February 2009

Sheet 2 Of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-240
STREET LIGHT
MATERIAL SPECIFICATIONS
MAST ARM DETAILS



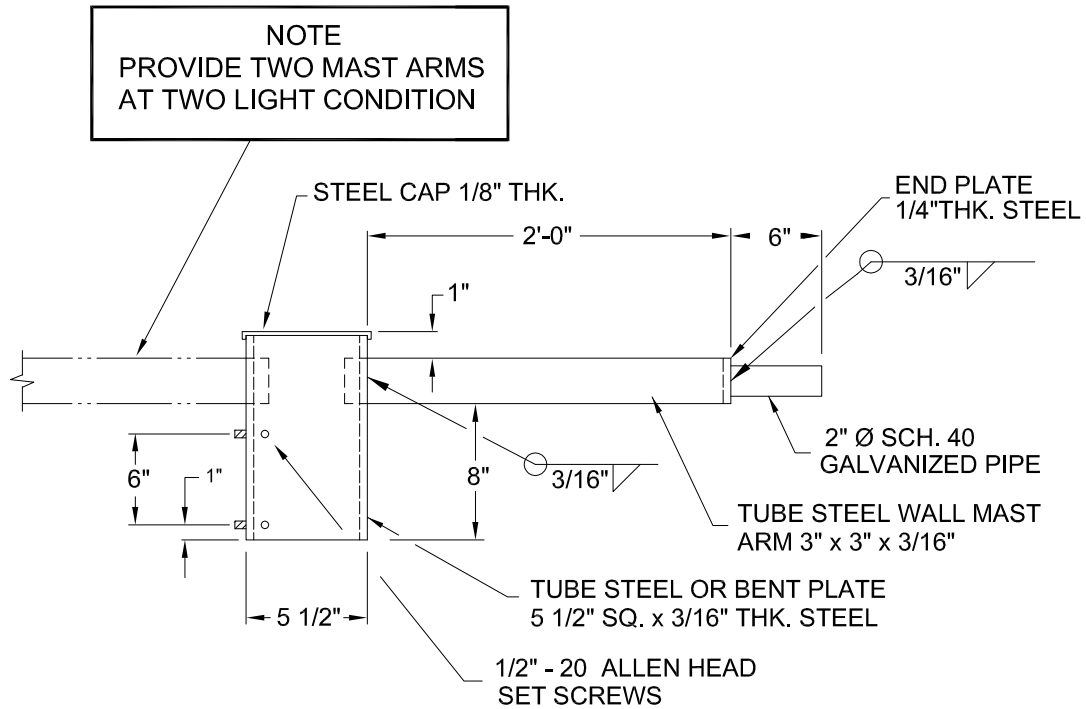
TYPE F4

Issued: February 2009

Sheet 3 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-240
STREET LIGHT
MATERIAL SPECIFICATIONS
MAST ARM DETAILS



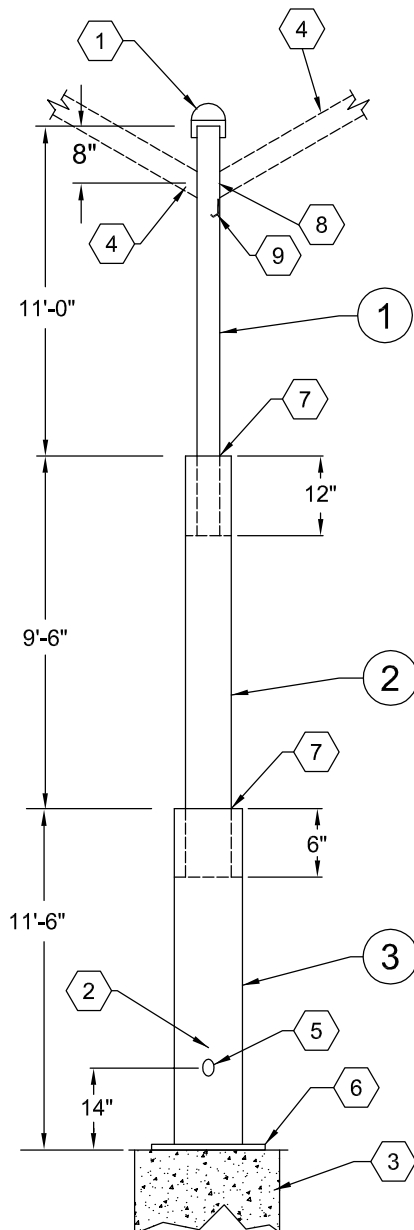
TYPE F5

BASIC WELD SYMBOLS									
WELD ALL AROUND	BEAD	FILLET	PLUG OR SLOT	GROOVE OR BUTT					
				SQUARE	V	BEVEL	U	J	FLARE V

Issued: February 2009

Sheet 4 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-240
MATERIAL SPECIFICATIONS
MAST ARM DETAILS



NOTES

- 1 Slip-on cap; plate inside diameter shall equal outside diameter of pole tip.
- 2 Stamp or tag pole with year manufactured and manufacturer's name.
- 3 Concrete footing detail: refer to Standard Detail 7-220.
- 4 Master arms: refer to Standard Detail 7-240.
- 5 Hand hole: refer to Standard Detail 7-170.
- 6 Base plate: refer to Standard Detail 7-190.
- 7 Step-down connection: refer to Standard Detail 7-200.
- 8 Master arm connection: refer to Standard Detail 7-160.
- 9 J-hook (inside of pole)

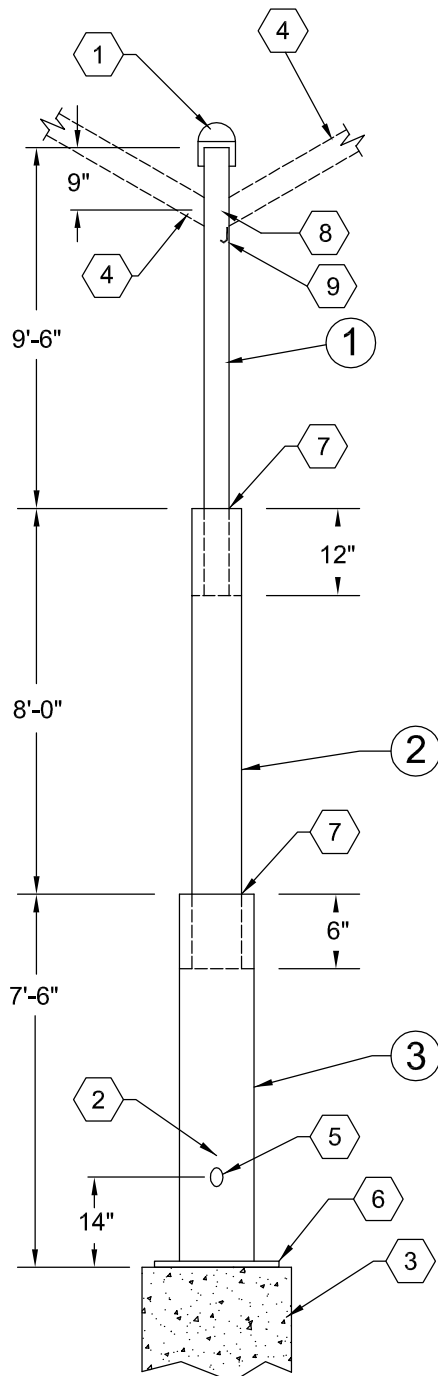
POLE	MS-41	MS-42
1	4" Ø STD.	5" Ø STD.
2	5" Ø STD.	6" Ø STD.
3	6" Ø STD.	8" Ø STD.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 7-250
STREET LIGHT
MATERIAL SPECIFICATIONS
32' STEEL POLE

NOTES



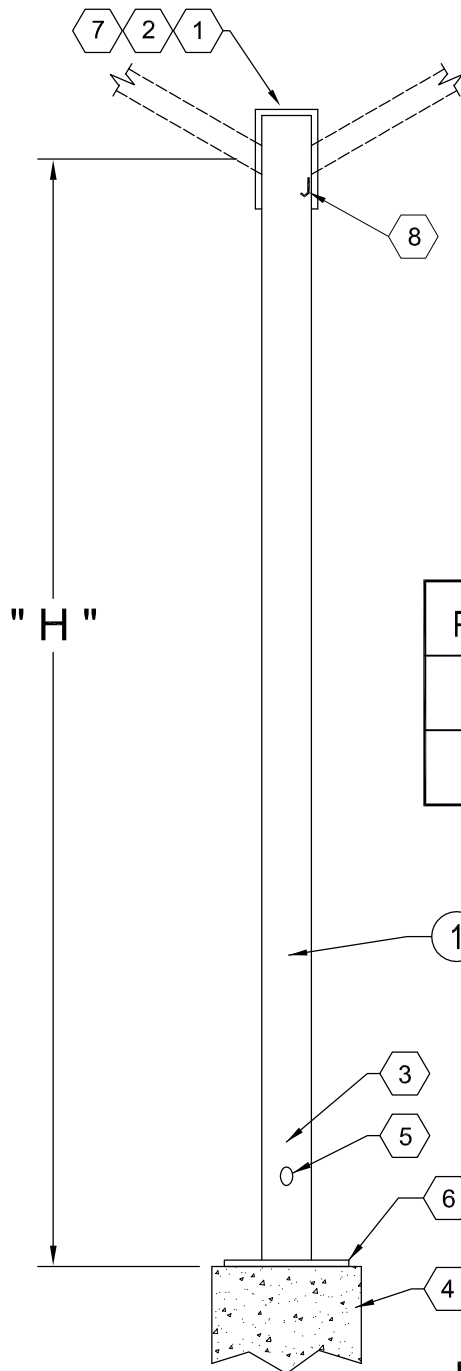
- ① Slip-on cap; plate inside diameter shall equal outside diameter of pole tip.
- ② Stamp or tag pole with year manufactured and manufacturer's name.
- ③ Concrete footing detail: refer to Standard Detail 7-220.
- ④ Master arms: refer to Standard Detail 7-240.
- ⑤ Hand hole: refer to Standard Detail 7-170.
- ⑥ Base plate: refer to Standard Detail 7-190.
- ⑦ Step-down connection: refer to Standard Detail 7-200.
- ⑧ Master arm connection: refer to Standard Detail 7-160.
- ⑨ J-Hook (inside pole)

POLE	MS-51
①	3" Ø STD.
②	4" Ø STD.
③	5" Ø STD.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-260
STREET LIGHT
MATERIAL SPECIFICATIONS
25' STEEL POLE

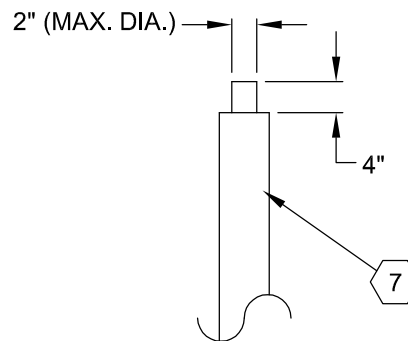
NOTES



- 1 Mast arm connection: refer to Standard Detail 7-240 except MS-91.
- 2 Master arms: refer to Standard Detail 7-240.
- 3 Stamp or tag pole with year of manufacture and manufacturer's name.
- 4 Concrete footing: refer to Standard Detail 7-220.
- 5 Hand hole: refer to Standard Detail 7-180.
- 6 Base plate: refer to Standard Detail 7-190.
- 7 Refer to Standard Detail 7-090 for pole top mounted fixture.
- 8 J-Hook (inside pole)

POLE	MS-61	MS-71	MS-81	MS-91
1	TS 5" x 5" x 3/8"THK.	TS 5" x 5" x 1/4"THK.	TS 4" x 4" x 1/4"THK.	TS 3" x 3" x 1/4"THK.
" H "	31'-6"	31'-6"	28'-0"	18'-0"

TS = TUBULAR STEEL

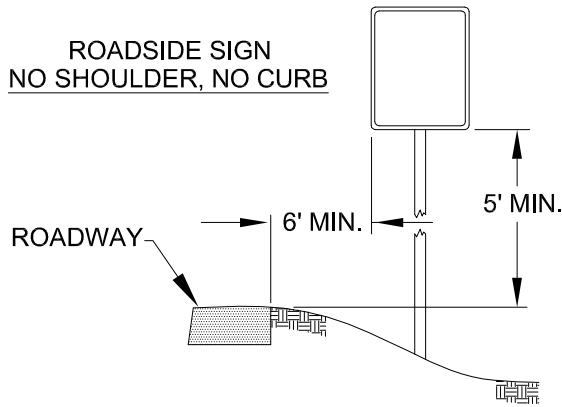


MS-91 POLE TOP

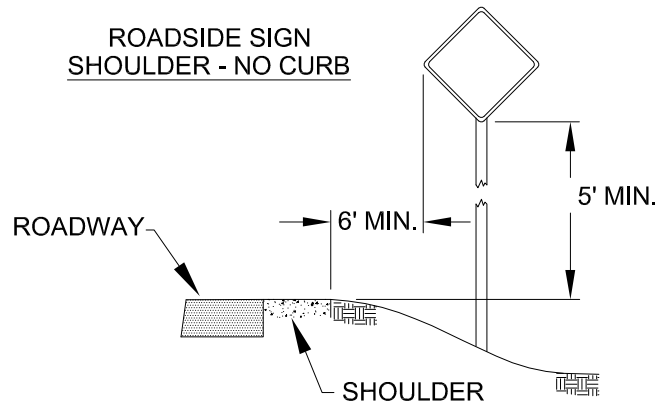
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 7-270
STREET LIGHT
MATERIAL SPECIFICATIONS
ARCHITECTURAL SQUARE BROWN
STEEL POLE

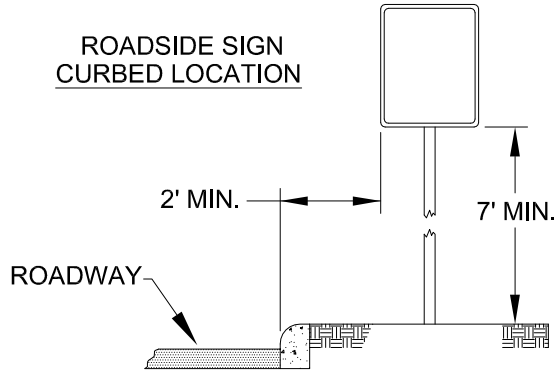
**ROADSIDE SIGN
NO SHOULDER, NO CURB**



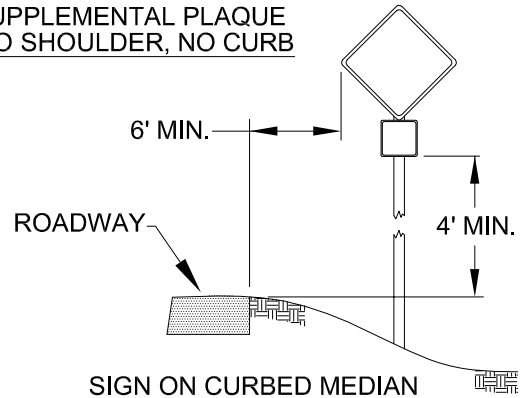
**ROADSIDE SIGN
SHOULDER - NO CURB**



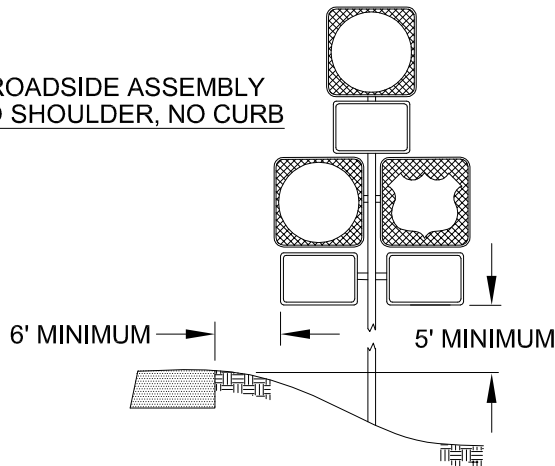
**ROADSIDE SIGN
CURBED LOCATION**



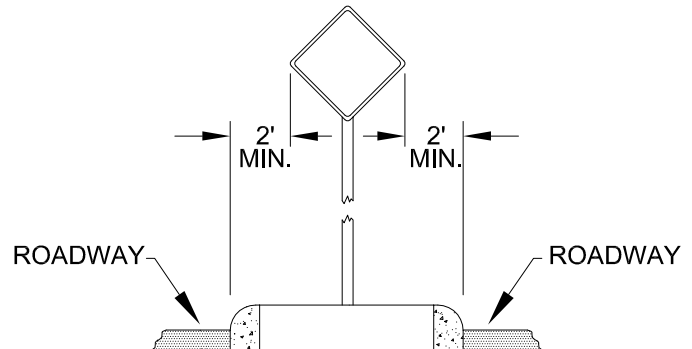
**ROADSIDE SIGN WITH
SUPPLEMENTAL PLAQUE
NO SHOULDER, NO CURB**



**ROADSIDE ASSEMBLY
NO SHOULDER, NO CURB**



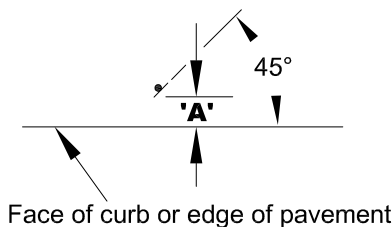
SIGN ON CURBED MEDIAN



Notes:

1. See sheet 2 for placement of roadside use restriction signs.
2. If pedestrian or roadside parking activity occurs in areas with no curb, use minimum height of 7' instead of 5'.
3. Consult Engineer for situations not illustrated.

**LATERAL PLACEMENT AND ORIENTATION
ROADSIDE USE (PARKING)
RESTRICTION SIGN**



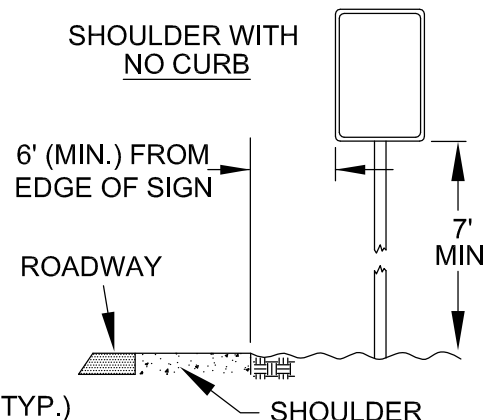
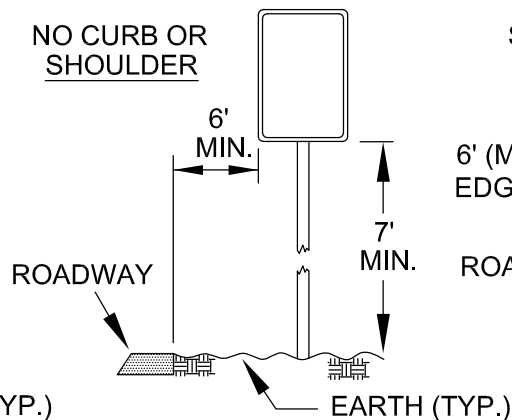
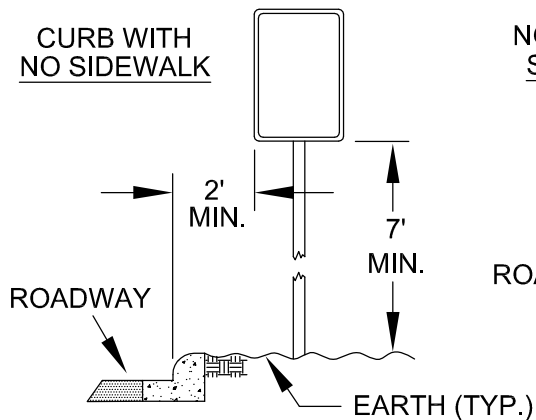
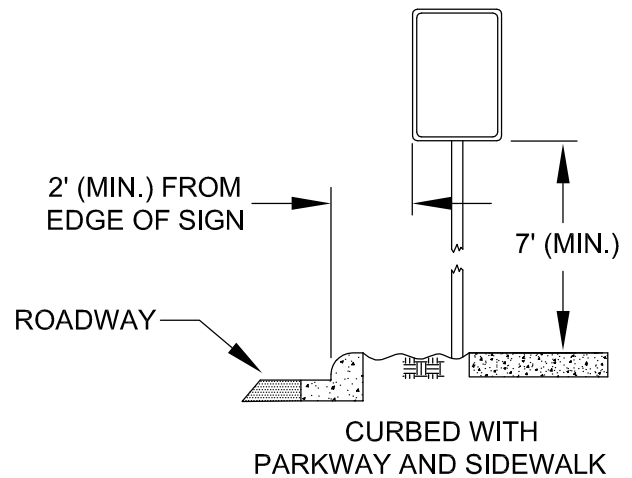
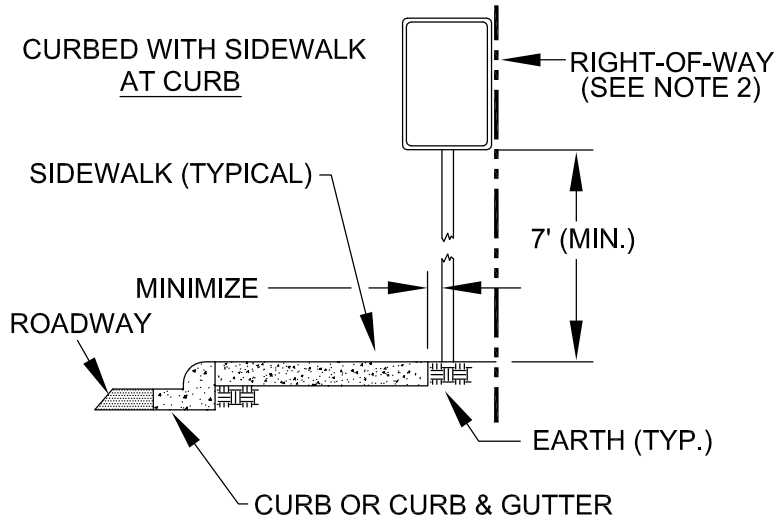
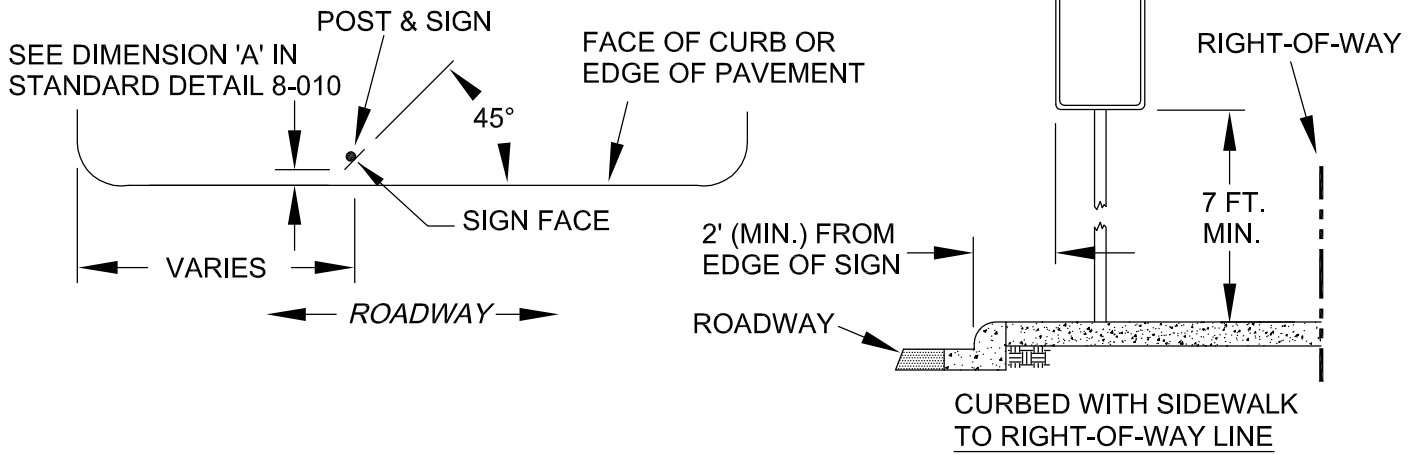
TYPE LOCATION	DIMENSION 'A'
CURBED	2 FT. OR MORE
NO CURB	6 FT. OR MORE

Issued: February 2009

Sheet 1 of 2

**CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS**

**STANDARD NO. 8-010
MINIMUM PLACEMENT
REQUIREMENTS
FOR TRAFFIC SIGNS**



NOTES:

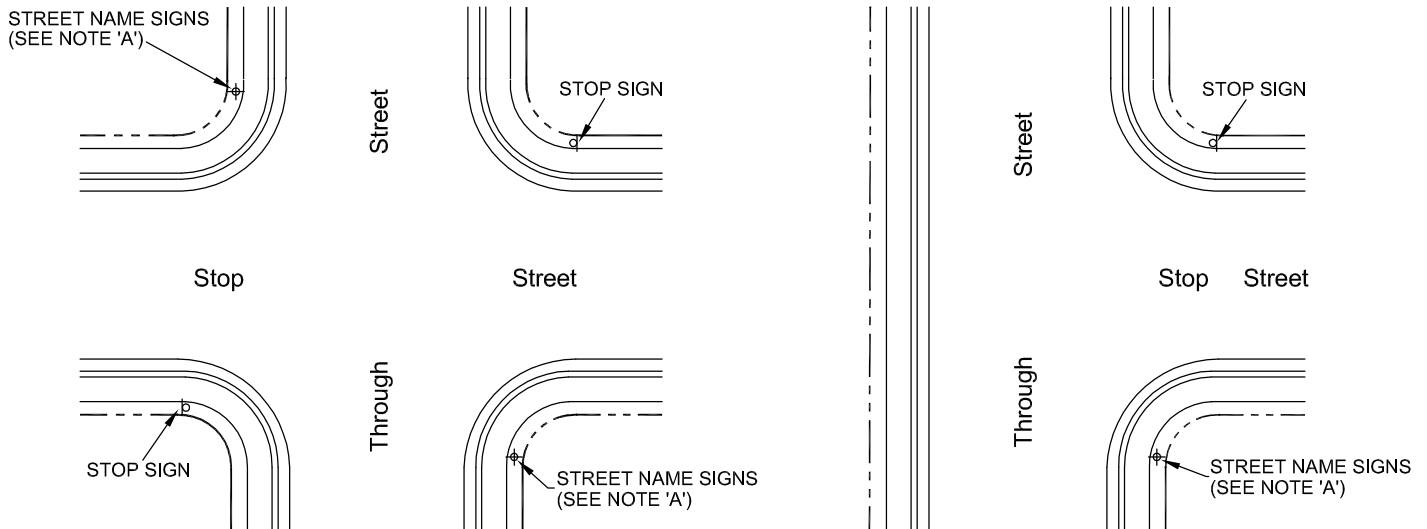
1. Refer to Standard Detail 8-020 for additional sign mounting requirements.
2. No part of any sign shall extend beyond edge of right-of-way.
3. Consult the City's Traffic Engineer for situations not illustrated.

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Sheet 2 of 2

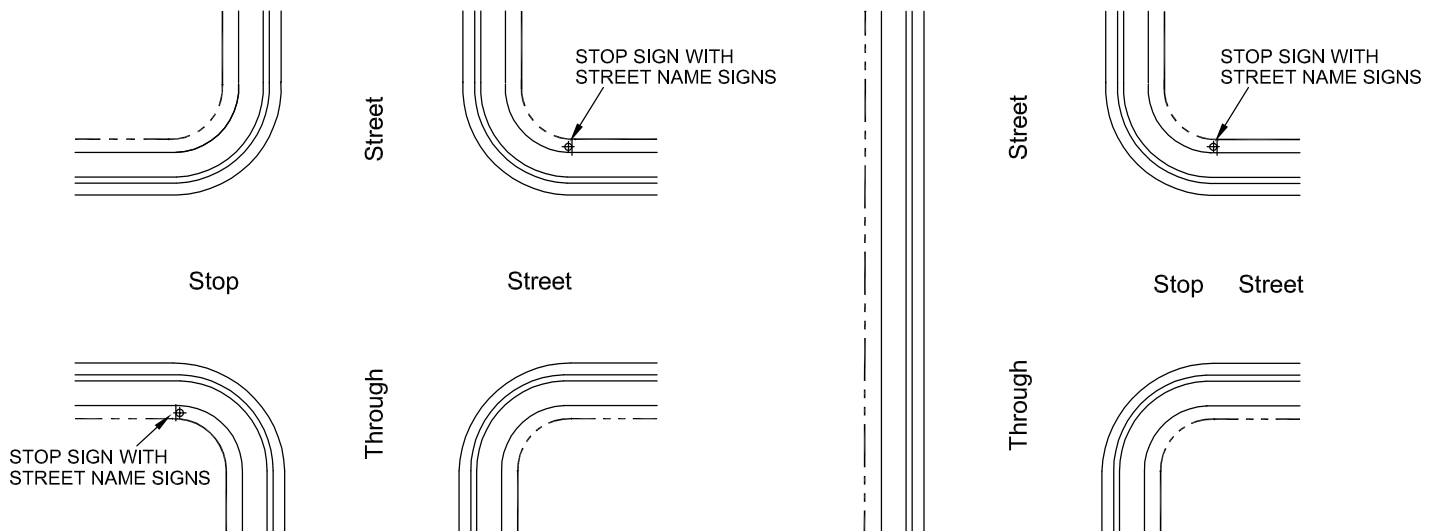
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-010
MINIMUM PLACEMENT
REQUIREMENTS
FOR TRAFFIC SIGNS

INTERSECTIONS INVOLVING ARTERIAL OR COLLECTOR STREETS **PUT STREET NAME SIGNS ON THROUGH STREET SEPARATE FROM STOP SIGNS**



NOTE 'A'
 IF THROUGH STREET HAS A MEDIAN OR IS MORE THAN 50 FEET WIDE, USE SECOND SET OF STREET NAME SIGNS. A SECOND SET NOT REQUIRED OTHERWISE.

INTERSECTIONS INVOLVING ONLY LOCAL STREETS **COMBINE STREET NAME SIGNS WITH STOP SIGNS ON STOP STREET.**



NOTES:

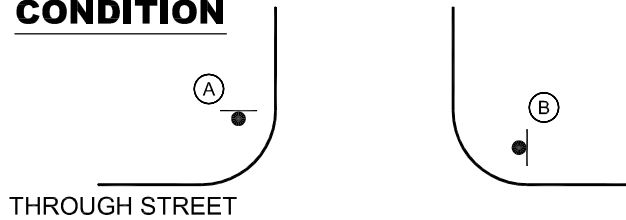
1. Coordinate sign locations so as not to interfere with sidewalk ramps in accordance with A.D.A. requirements.

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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-011
STOP SIGN & STREET NAME
SIGN PLACEMENT

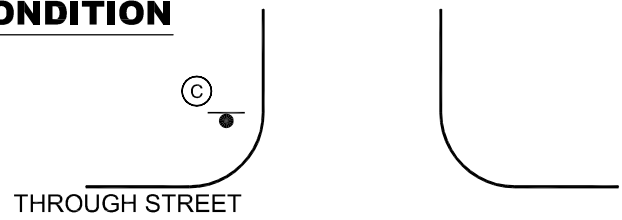
TYPICAL TRANSITION FROM ALL-WAY STOP TO NORMAL 2-WAY STOP CONTROL

TRANSITION CONDITION



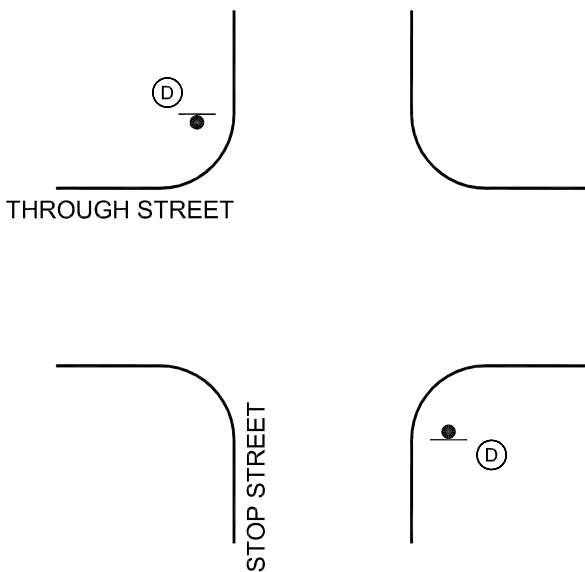
NOTE:
TRANSITION
CONDITION
MUST BE IN EFFECT
FOR 30 CALENDAR
DAYS.

CONFIRMATION CONDITION



NOTE:
CONFIRMATION
CONDITION
MUST BE IN EFFECT
FOR 30 CALENDAR
DAYS.

FINAL CONDITION



SIGN LEGEND



**M4-7
18"x6"
BLACK ON WHITE**

**R1-1
30"x30"**

**R1-4
18"x6"**

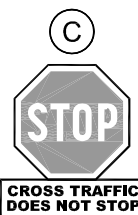


**M4-7
18"x6"
BLACK ON WHITE**

**R1-1
30"x30"**

**R1-4
18"x6"
18"x18"
BLACK ON WHITE**

**DATE OF PLANNED
REMOVAL**



**R1-1
30"x30"**

**W4-4pAZ
30"x18"**

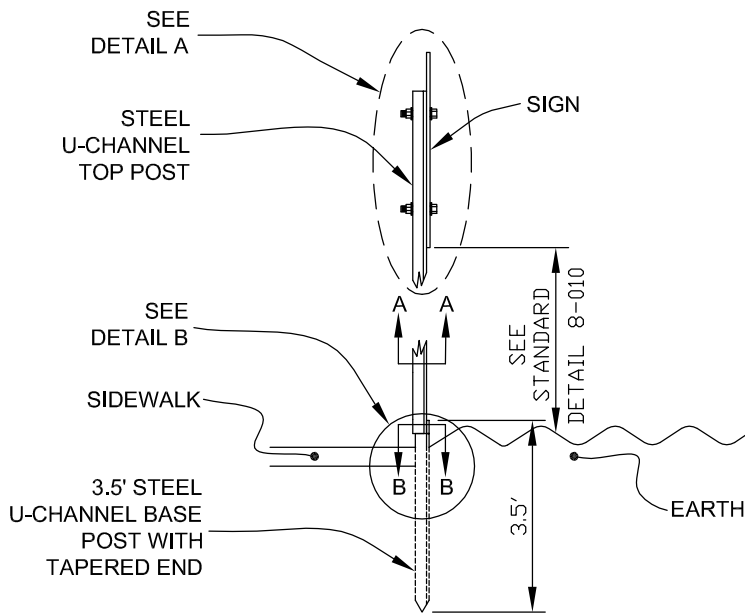


**R1-1
30"x30"**

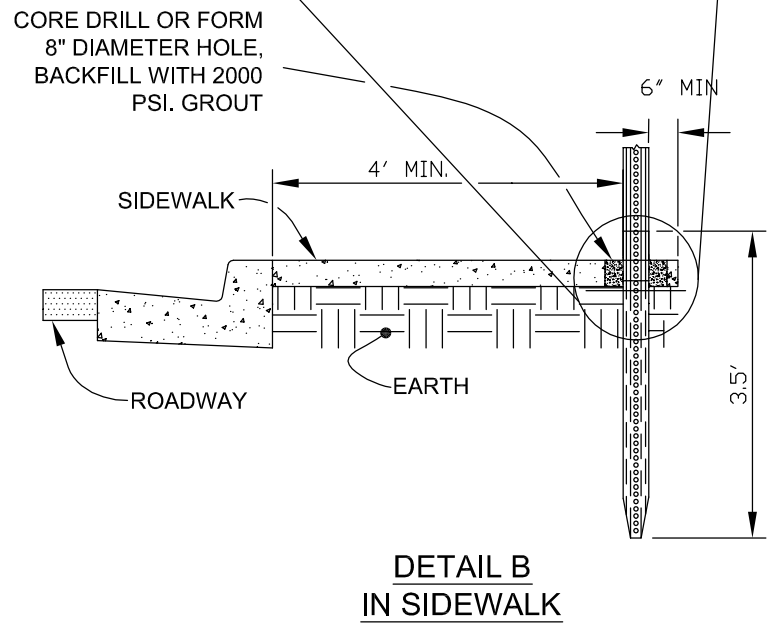
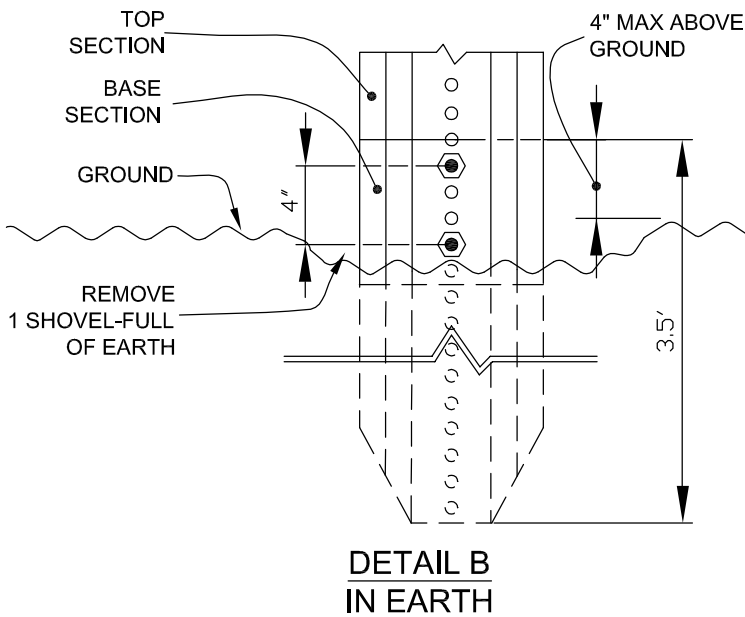
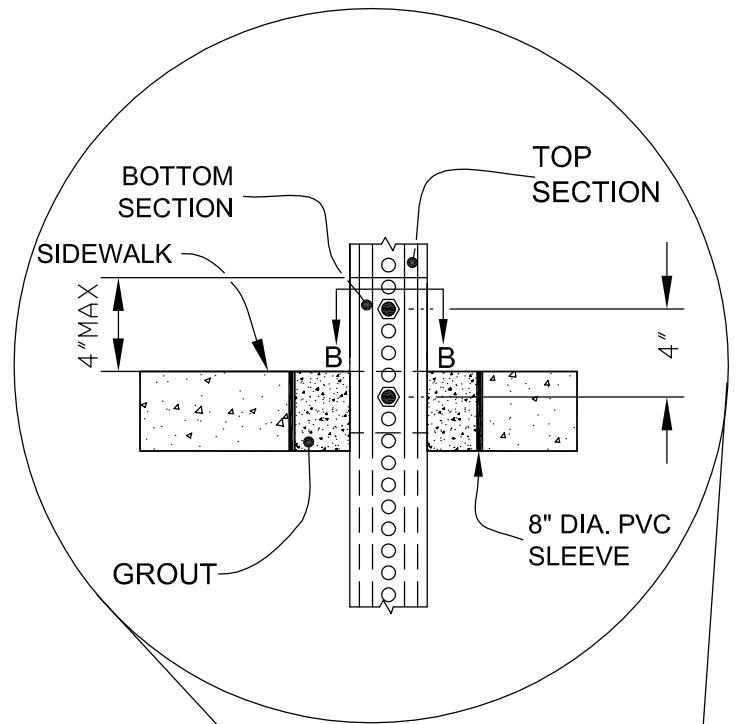
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-012
ALL-WAY STOP TO NORMAL
2-WAY STOP TRANSITION



INSTALLATION FOR BREAK-AWAY CAPABILITY

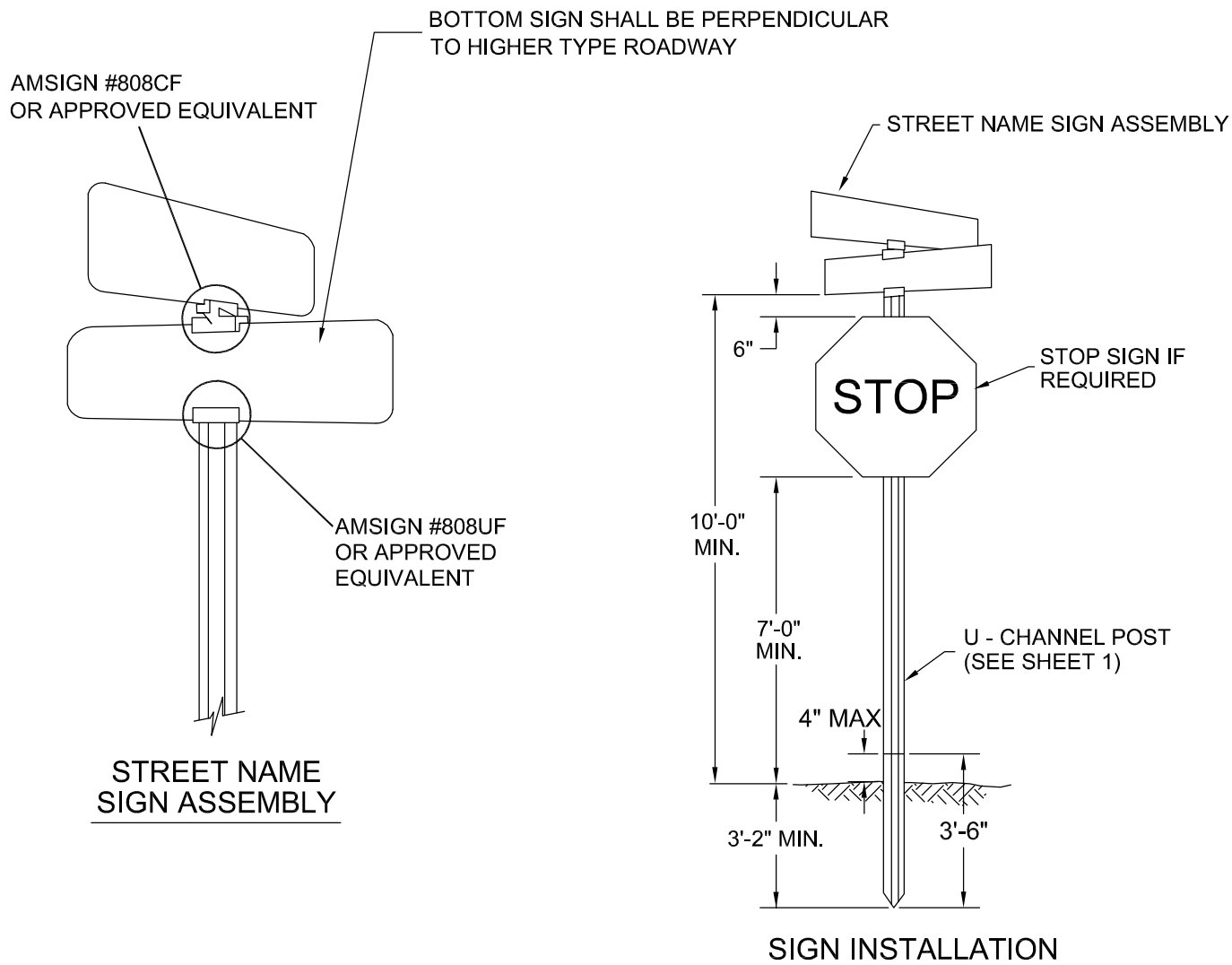


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Sheet 1 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-020
TRAFFIC SIGN MOUNTING



AMSIGN CORPORATION
749 NEW LONDON ROAD
SOUTH HADLEY, MA 01075
(413)535-2100

NOTES:

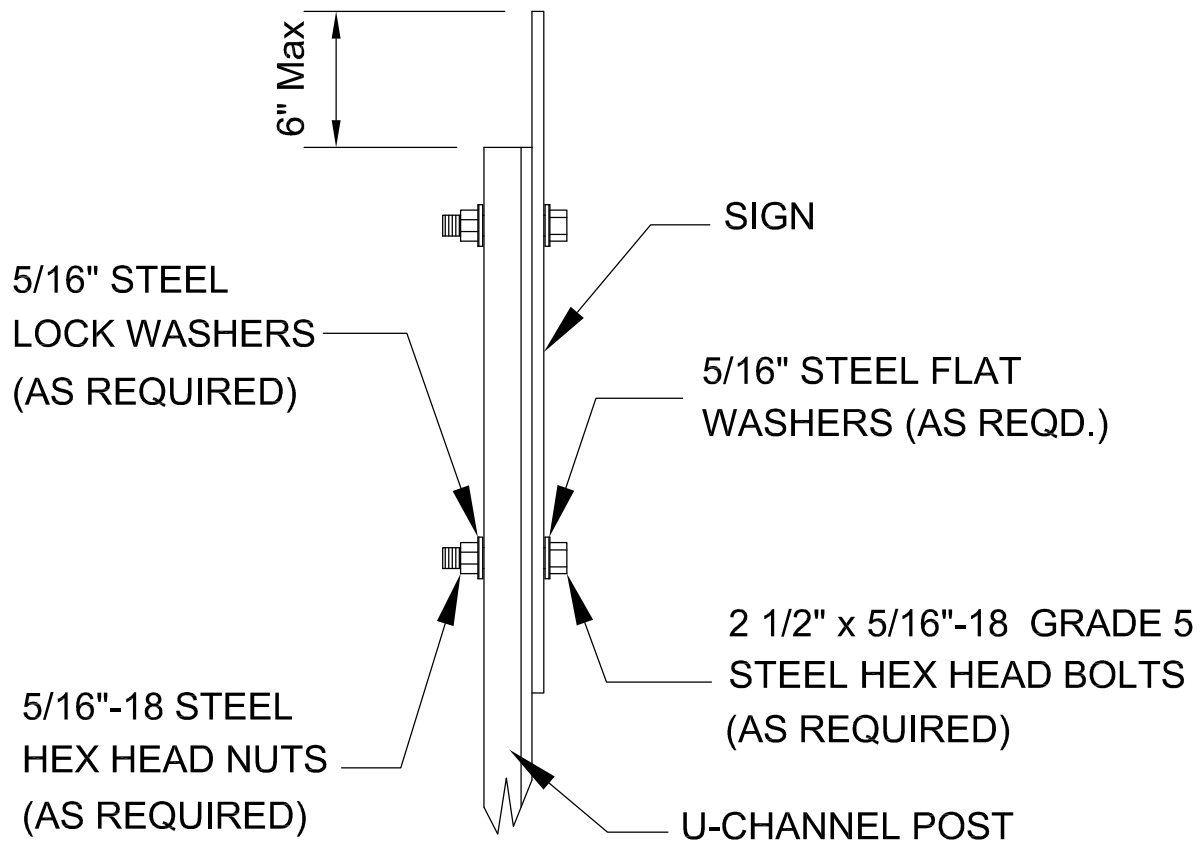
1. See Standard 8-200 for street name signs.
2. See Standard 8-011 for street name sign placement.

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Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-020
TRAFFIC SIGN MOUNTING



DETAIL 'A'

SIGN/POST ATTACHMENT

NOTES:

1. Posts must be manufactured from hot rolled flange channel galvanized steel per ASTM A123 finish and intended to be used as supports for signs.
2. Posts must be 3 pounds/foot.
3. Posts must be of a uniform flanged channel section with 3/8" dia. holes on one inch (1") centers for the entire length of the channel.
4. See Standard Detail 8-030 for additional requirements for roadside use restriction signs.
5. Should there be a supplemental plaque it must be mounted immediately below the sign.
6. Signs on the same post may not be overlapped.
7. See Sheet 2 for street name sign mounting requirements.

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Sheet 3 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-020
TRAFFIC SIGN MOUNTING

SECTION B-B

GALVANIZED STEEL
U-CHANNEL POST, 3
POUNDS/FOOT,
BASE SECTION

$\frac{5}{16}$ HEX NUT, UNC 18, GRADE 9, ZINC
COATED

GALVANIZED STEEL
U-CHANNEL POST, 3
POUNDS/FOOT, TOP
SECTION

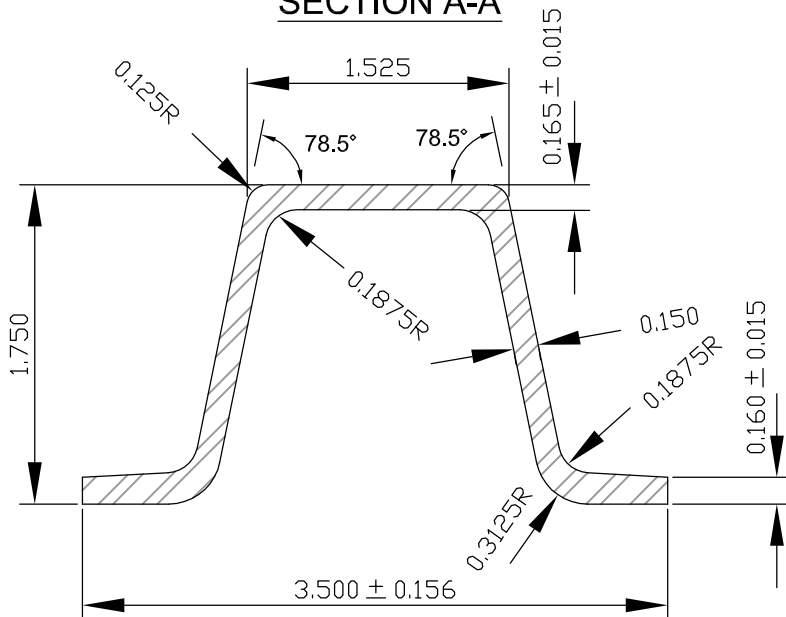
PUSH-ON RETAINING
WASHER

SPACER BAR $\frac{1}{2}$ X $\frac{3}{4}$ X 5"

2" X $\frac{5}{16}$ - 18 GRADE 9
STEEL HEX HEAD
BOLT, UNC 18 ZINC
COATED

$\frac{5}{16}$ STEEL FLAT
WASHER, GRADE 9
(AS REQUIRED)

SECTION A-A



STANDARD POST REQUIREMENTS

LENGTH (FEET)	COMMENT
3 $\frac{1}{2}$	ONE TAPERED END
4	
8	
10	
12	

NOTES:

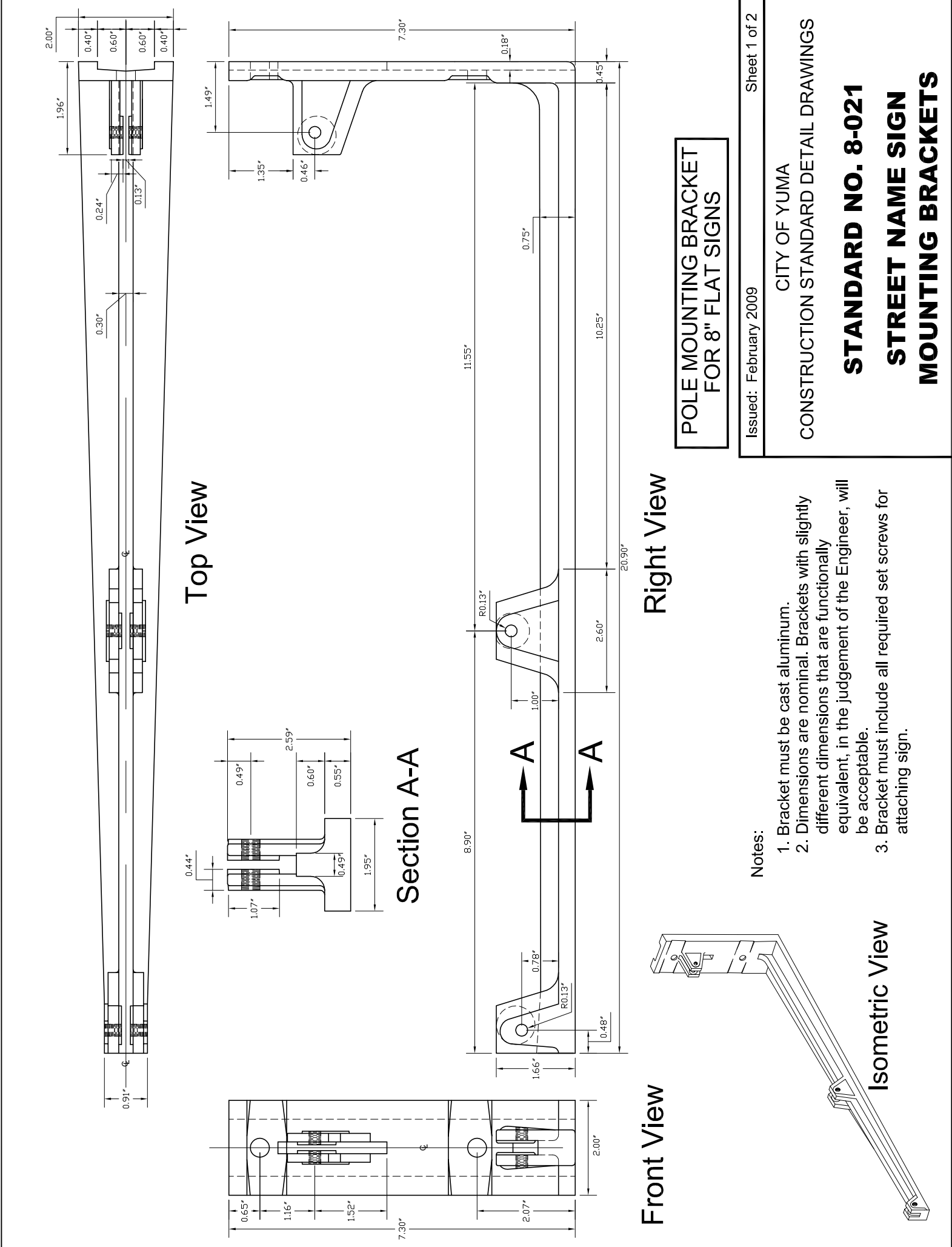
1. Provide $\frac{3}{8}$ " holes on 1" centers for full length beginning 1" from top of post.
2. Posts must be galvanized rail steel having a nominal weight of 3 pounds/foot.
3. All dimensions in inches, except as noted.

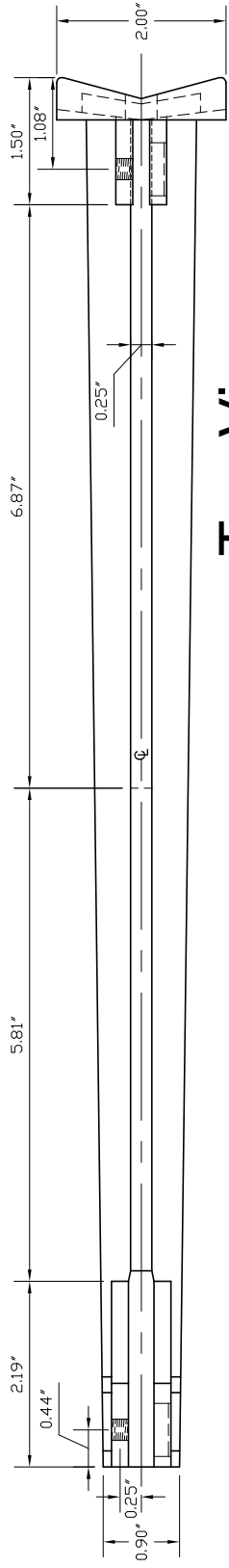
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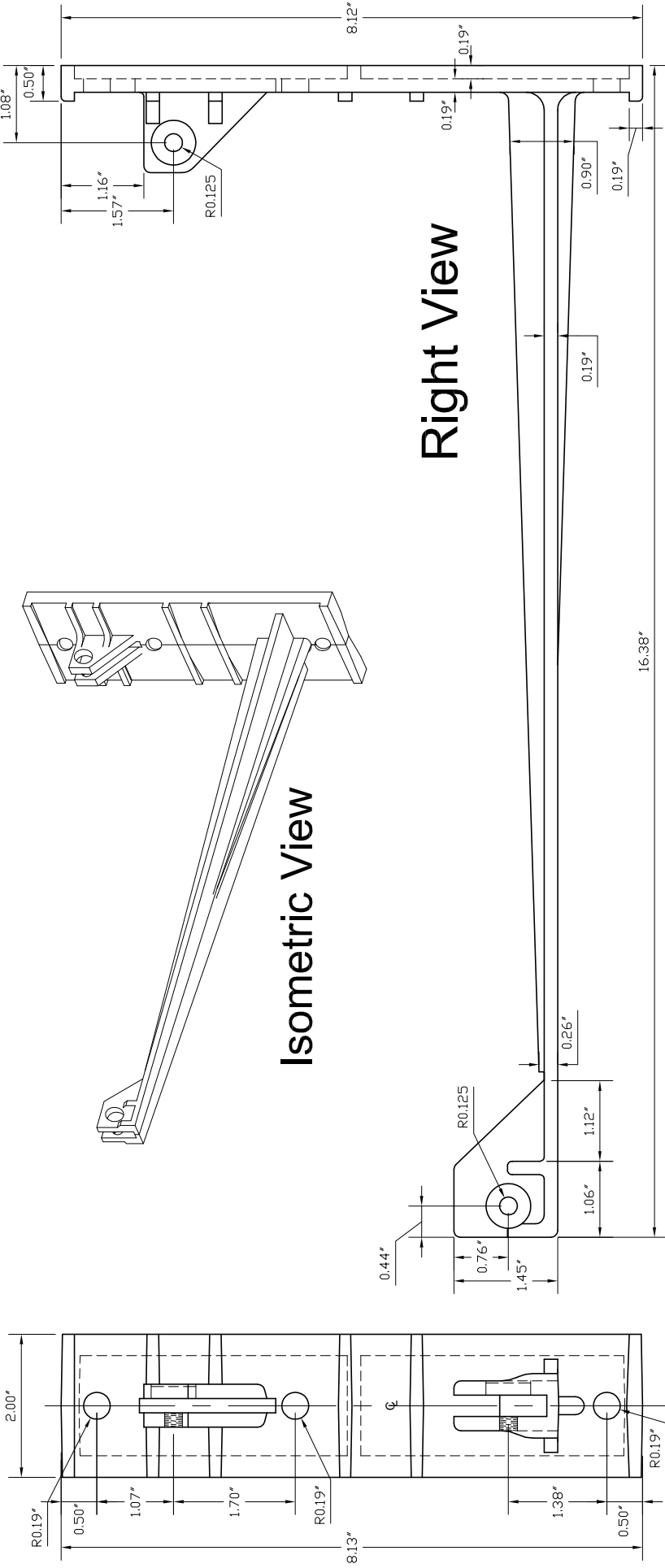
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-020
TRAFFIC SIGN MOUNTING





Top View



Right View

Isometric View

Front View

POLE MOUNTING BRACKET
FOR 6" FLAT SIGNS

Notes:

1. Bracket must be cast aluminum.
2. Dimensions are nominal. Brackets with slightly different dimensions that are functionally equivalent, in the judgement of the Engineer, will be acceptable.
3. Bracket must include all required set screws for attaching sign.

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Sheet 2 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-021

**STREET NAME SIGN
MOUNTING BRACKETS**

Advance Placement Distance (feet)																
Speed Reduction and Lane Changing in Heavy Traffic		Deceleration to indicated advisory speed for the condition.														
85th-Percentile * Speed (mph)	0 mph (Stop)	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	
20	100	100	100	100												
25	100	100	100	100	100											
30	100	100	100	100	100	100										
35	100	100	100	100	100	100	100									
40	125	115	100	100	100	100	100	100								
45	175	150	125	115	100	100	100	100	100							
50	250	225	200	175	150	125	100	100	100	100						
55	325	300	275	250	225	200	175	140	100	100	100					
60	400	375	350	325	300	275	250	215	175	140	100	100				
65	475	450	425	415	400	375	350	315	275	225	175	140	100			
70	550	540	525	515	500	470	425	390	350	300	250	200	150	125		
75	650	640	625	615	600	570	525	490	450	400	350	300	250	175	100	

Source: Extrapolated from Table 2C-4, *Manual on Uniform Traffic Control Devices for Streets and Highways*, 2003 edition.

* 85th-percentile speed may be estimated. Do not use speed limit.

NOTES:

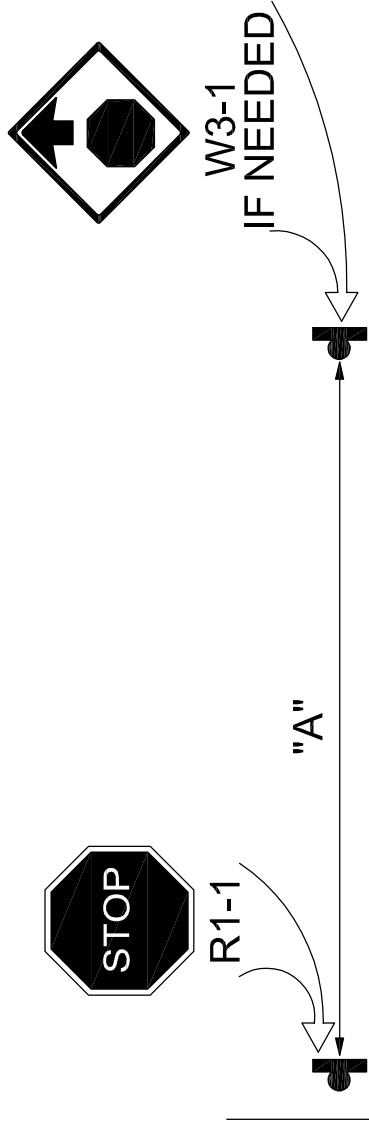
- 1. Minimum distance is 100 feet.
- 2. Distance may be adjusted ±50 feet, subject to the minimum distance, to adjust for site conditions.
- 3. Where possible, place signs approximately at property lines.

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CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-040

GUIDELINES FOR
WARNING SIGN PLACEMENT



"A"= Distance from which STOP sign must be continuously visible. (See table for value based on approach speed.) Trim all foliage to achieve this. Where clear visibility cannot be provided, install Stop Ahead Symbol sign (W3-1) at approximately distance "A".

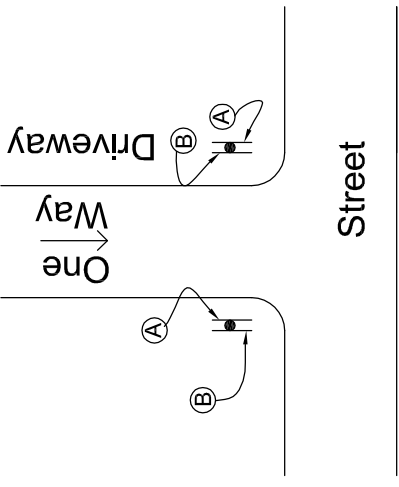
85th- Percentile Speed (mph)*	"A" Visibility Distance (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

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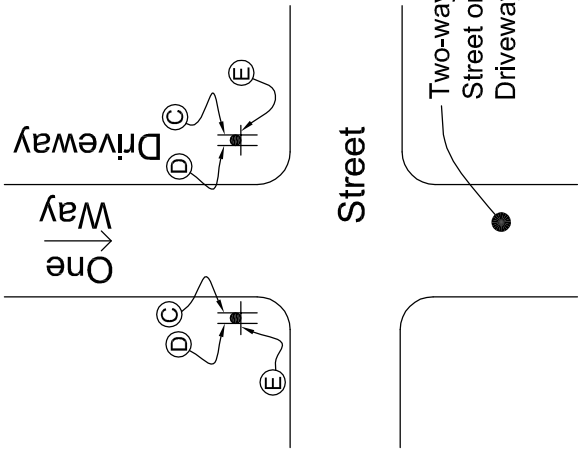
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-041
STOP SIGN VISIBILITY AND
ADVANCE WARNING

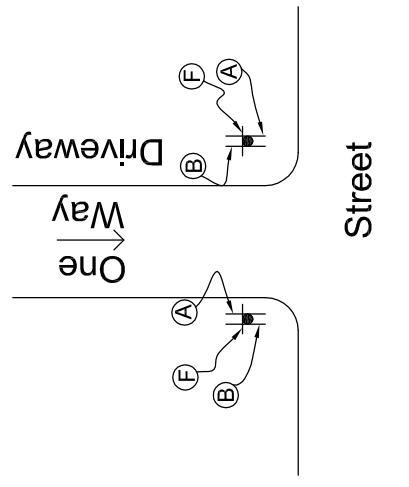
CASE 1- MINOR DRIVEWAY



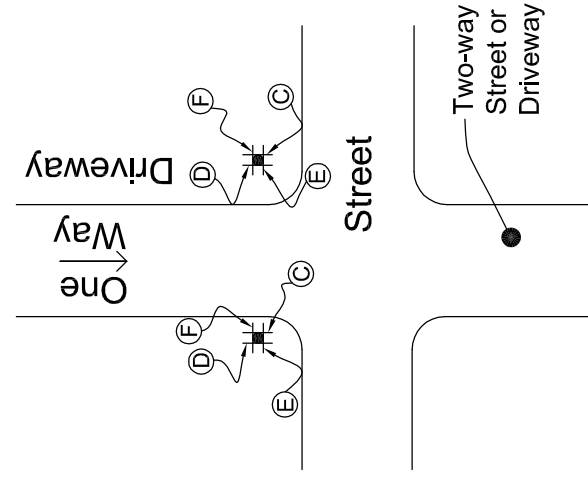
CASE 2- MINOR DRIVEWAY



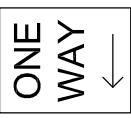
CASE 3 - MAJOR DRIVEWAY



CASE 4 - MAJOR DRIVEWAY



SIGN LEGEND



(A)
R6-2L
24" x 30"



(B)
R6-2R
24" x 30"



(C)
R6-1L
36" x 12"



(D)
R6-1R
36" x 12"



(E)
R5-1
30" X 30"



(F)
R1-1
30" X 30"

NOTES:

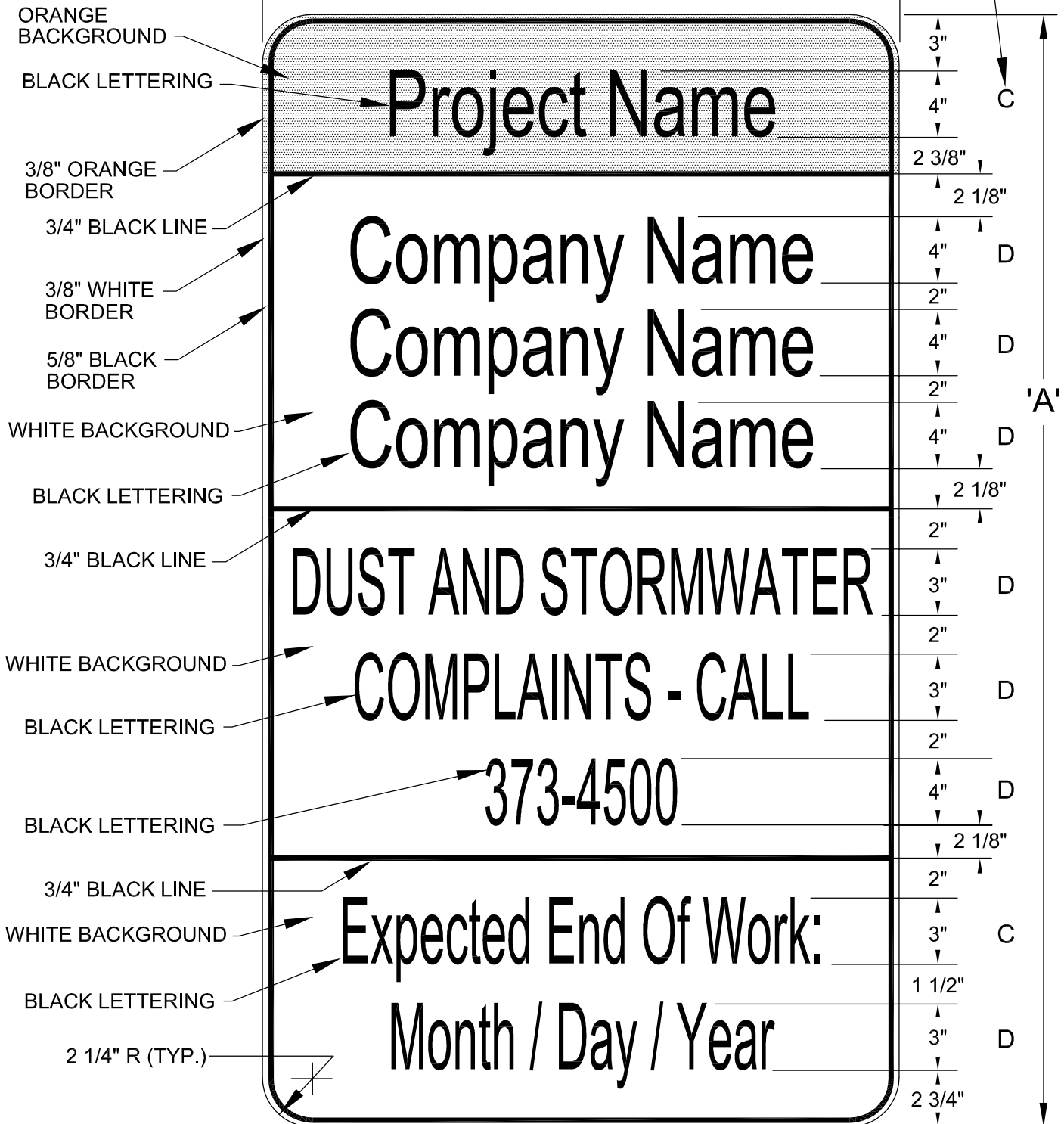
- 1. Sign locations are schematic
- 2. Not to scale

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SIGN WZIS-1

F.H.W.A. LETTER SERIES

48" (MIN.)



'A' DIMENSION

60" FOR 3-LINE COMPANY NAME
54" FOR 2-LINE COMPANY NAME
48" FOR 1-LINE COMPANY NAME

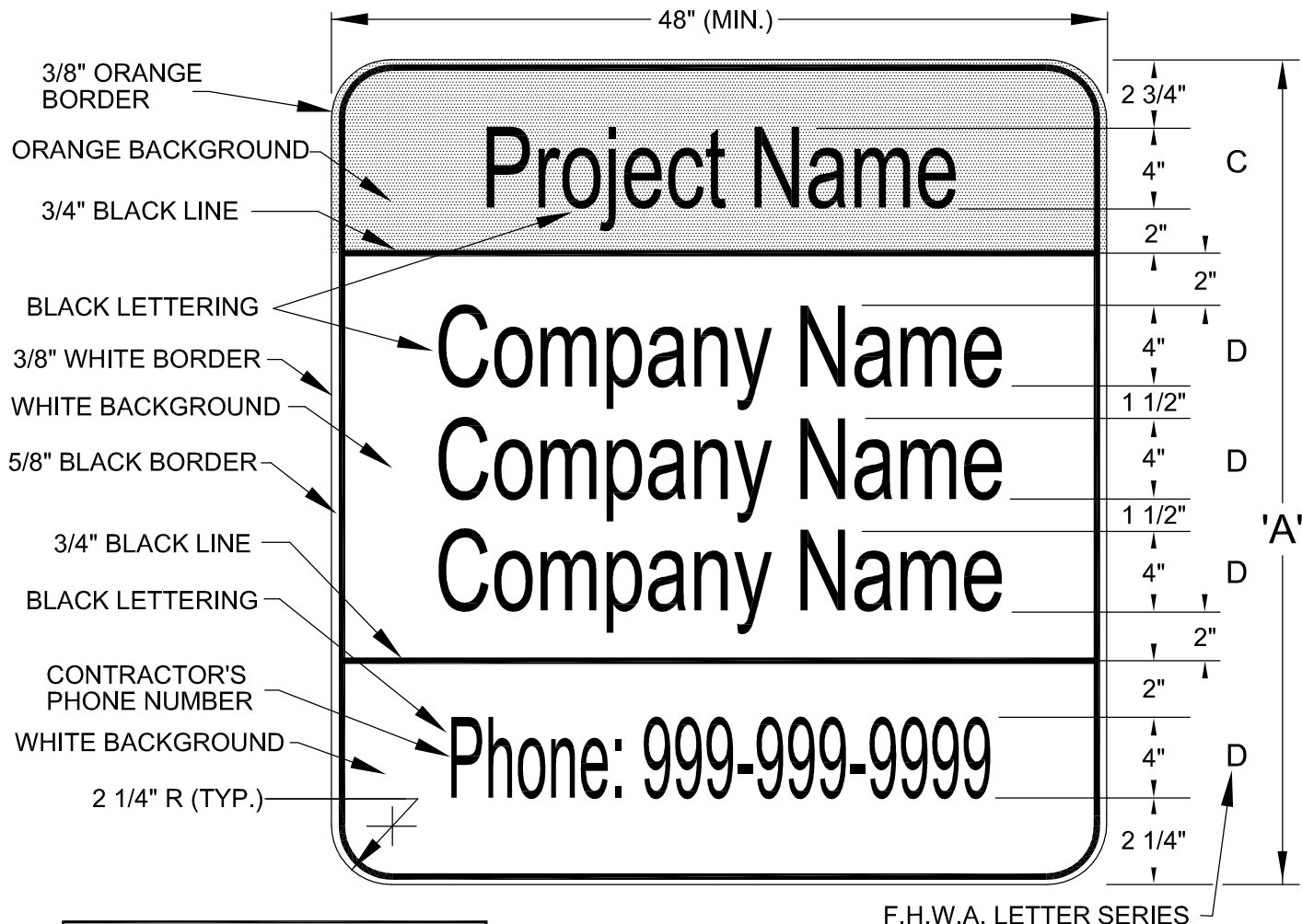
SEE NOTES ON SHEET 2.

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Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-100
WORK ZONE
IDENTIFICATION SIGN

SIGN WZIS-2



'A' DIMENSION
 36" FOR 3-LINE COMPANY NAME
 30" FOR 2-LINE COMPANY NAME
 24" FOR 1-LINE COMPANY NAME

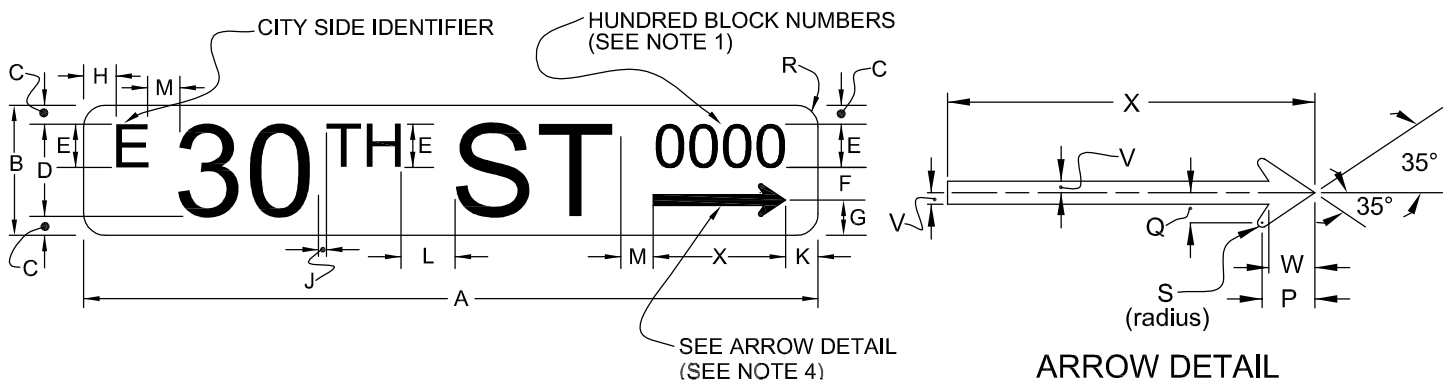
NOTES:

1. Use sign WZIS-1 for projects with a duration of eight days or more. Use sign WZIS-2 for projects with a duration of less than eight (8) days.
2. Do not use leading zeros in month or day numbers.
3. Mount sign with bottom of sign being at least five feet (5') above the ground.
4. Text and borders must be black in color and must conform to the indicated series in the F.H.W.A. publication "Standard Highway Signs".
5. Sign letters to use upper and lower case lettering as indicated.
6. Background must be fully reflectorized.
7. Adjust spacing as necessary within the COMPANY NAME area for 1-line and 2-line company names.
8. Contractor's phone must be monitored 24 hours a day, seven days a week.

Issued: February 2009

Sheet 2 of 2

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-100
WORK ZONE
IDENTIFICATION SIGN



SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets																		Match width of block number, minimum 8".
A	B	C	D SEE NOTE 12	E SEE NOTE 12	F	G	H	J	K	L	M		P	Q	R	S	V	W
24 min 48 max	6	.875	4.25 Series C	2.0 Series C	1.5	1.625	1.5 min	0.375	1.5 min	2.5 min	1.5 min		1.15	0.65 typ	1 typ	0.1 typ	0.25	1
Intersection Involving Collector or Arterial Streets																		Match width of block number, minimum 8".
A	B	C	D SEE NOTE 12	E SEE NOTE 12	F	G	H	J	K	L	M		P	Q	R	S	V	W
30 min 60 max	8	.875	6.25 Series C	2.5 Series C	2.00	2.375	2 min	0.5	2 min	3.5 min	2 min		1.3	0.75 typ	1 typ	0.125 typ	0.325	1.15

STANDARD ABBREVIATIONS

AV = AVENUE SEE NOTE 8	PKWY = PARKWAY
BLVD = BOULEVARD	PL = PLACE
CR = CIRCLE	RD = ROAD
CT = COURT	ST = STREET
DR = DRIVE	WY = WAY
LN = LANE	

COLOR AND REFLECTORIZATION (SEE NOTE 11 FOR PRIVATE STREETS)

INTERSECTION INVOLVING	BACKGROUND	LEGEND
ONLY LOCAL STREETS	GREEN	WHITE
COLLECTOR OR ARTERIAL STREETS	BLUE	WHITE
SIGNS MUST BE FULLY REFLECTORIZED USING 3M HIGH-INTENSITY SHEETING		

NOTES

1. Verify hundred block number with the City's Department of Community Development.
2. See Sheet 4 for Century Heights sign design.
3. See Sheet 3 for street names requiring sign blade greater than maximum.
4. See Sheet 5 for direction of arrows.
5. All sizes and spacing must conform to the requirements for the indicated series as specified in the current edition of "Standard Highway Signs and Pavement Markings Reference Guide" published by the Federal Highway Administration. Spacing must be 100% unless otherwise approved by City's Traffic Engineer in each instance.
6. Each street name sign must have both front and back faces that are identical except for the arrows' directions.
7. Sign blanks must be 0.10" thick aluminum.
8. Do not abbreviate the word "Avenue" when it is a part of a name (i.e. Avenue B) rather than a suffix.
9. See Sheet 2 if "Dead End" or "No Outlet" panel required.
10. All street name letters, except number superscripts, must be the indicated size.
11. When a private street intersects a public street, the sign panel for the public street must be the size and colors indicated. The sign panel for the private street must be the size indicated, but must have a black non-reflectORIZED background with a white reflective legend.

CITY SIDE IDENTIFIER

INTERSECTION LOCATION	ID
EAST - WEST STREET: EAST OF 1ST AVENUE WEST OF 1ST AVENUE	E W
NORTH - SOUTH STREET NORTH OF 1ST STREET SOUTH OF 1ST STREET	N S

NOTES (Continued)

12. Series C letters may be replaced with Series B letters if approved by the City's Traffic Engineer in each instance.

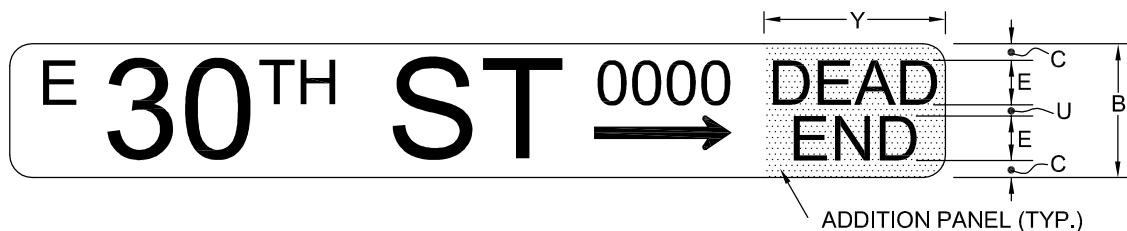
NORMAL STREET NAME SIGN

Issued: February 2009

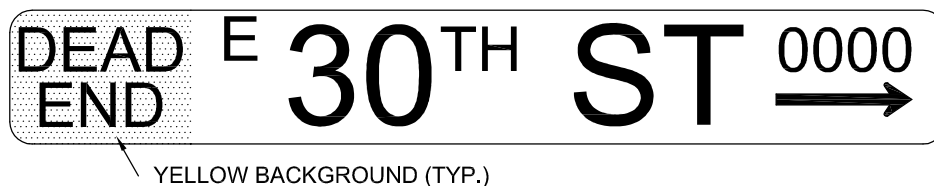
Sheet 1 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-200
STREET NAME SIGN
LAYOUT AND DESIGN

FRONT

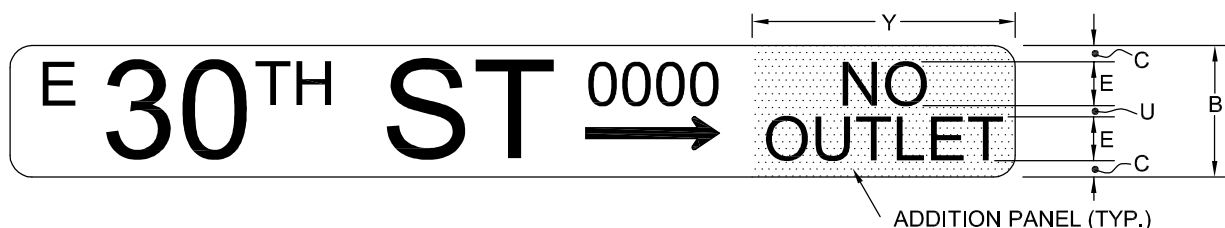


BACK



STREET NAME SIGN WITH DEAD END PANEL

FRONT



BACK



STREET NAME SIGN WITH NO OUTLET PANEL

SIGN ADDITION DIMENSIONS						
	Dimensions (inches)				Y	
Intersection Involving	B	C	E SEE NOTE 6	U	Dead End	No Outlet
Only Local Streets	6	0.75	2.0 Series C	0.5	7	9
Collector or Arterial Streets	8	1	2.5 Series C	1	8	12

NOTES:

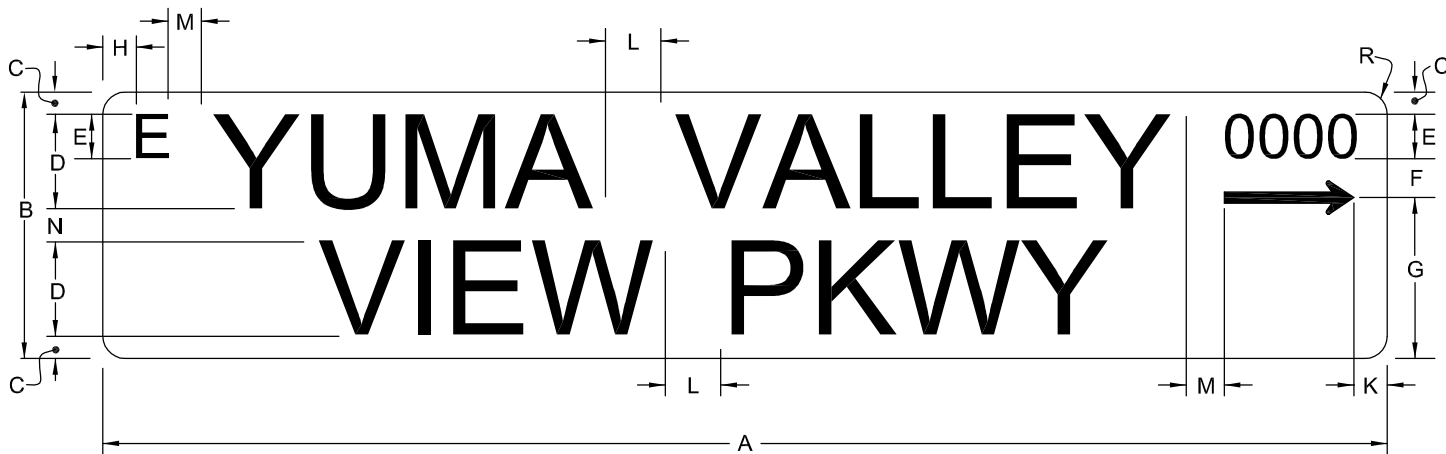
1. Additional panels must have a black legend on a YELLOW reflective background and no border.
2. Mount signs with additional panels on side of street closest to "Dead End" or "No Outlet" leg and with additional panel at end of sign closest to "Dead End" or "No Outlet".
3. Main panel of sign must conform to the requirements shown on Sheet 1.
4. Yellow background must be high-intensity sheeting.
5. Center additional panel text.
6. See note 12, sheet 1.

NORMAL STREET NAME SIGN WITH PANEL

Issued: February 2009

Sheet 2 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-200
STREET NAME SIGN
LAYOUT AND DESIGN



SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets												
A	B	C	D SEE NOTE 3	E SEE NOTE 3	F	G	H	K	L	M	N	R
24 min 48 max	12	1	4.25 Series C	2.0 Series C	1.75	7.25	1.5 min	1.5 min	2.5 min	1.5 min	1.5	1 typ
Intersection Involving Collector or Arterial Streets												
A	B	C	D SEE NOTE 3	E SEE NOTE 3	F	G	H	K	L	M	N	R
30 min 60 max	18	1.25	6.25 Series C	2.5 Series C	2.25	12	2 min	2 min	3.5 min	2 min	3	1 typ

NOTES:

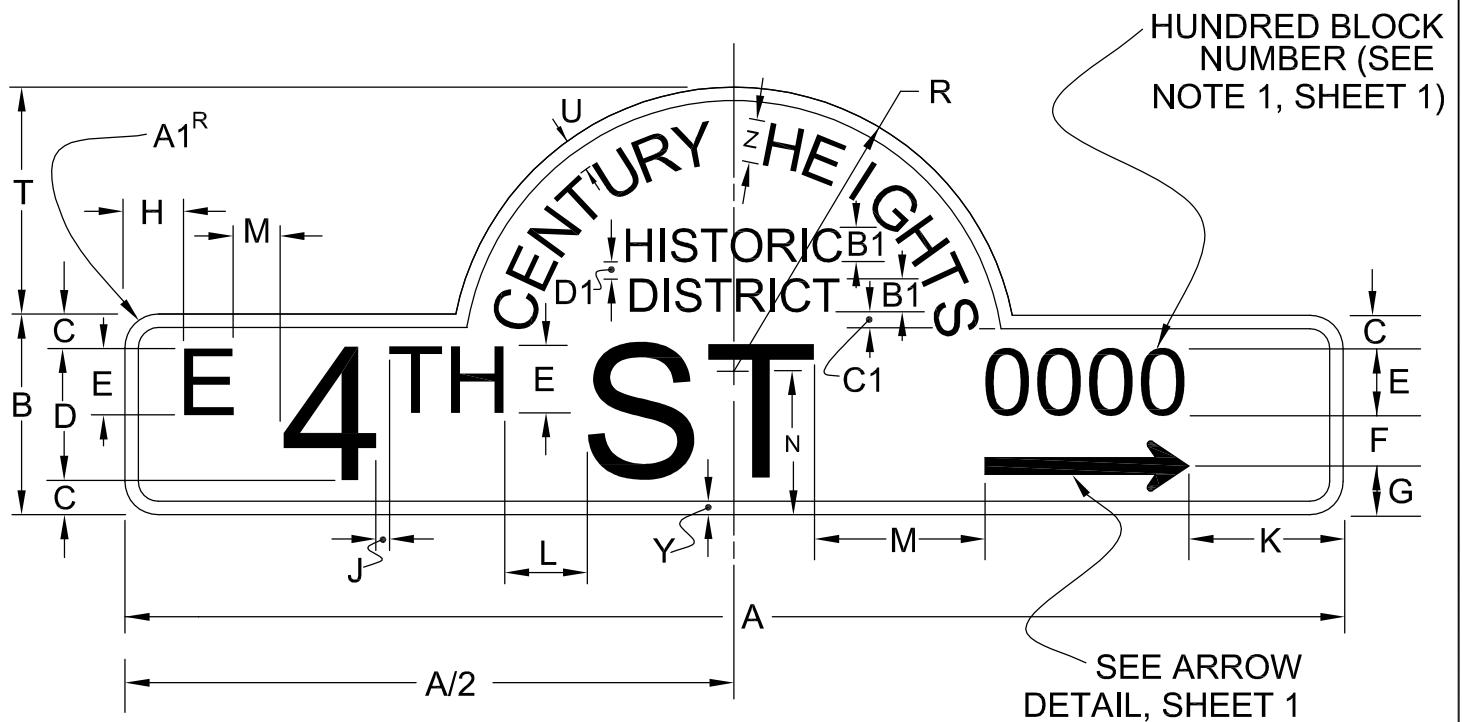
1. See Notes on Sheet 1.
2. Colors: Same as Normal Street Name Sign.
3. See Note 12, Sheet 1.

2 - LINE NORMAL STREET NAME SIGN

Issued: February 2009

Sheet 3 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-200
STREET NAME SIGN
LAYOUT AND DESIGN



SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets																					
A	B	C	D SEE NOTE 3	E SEE NOTE 3	F	G	H	J	K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
24 min 48 max	6	0.75	4 Series C	2.0 Series C	1.5	1.75	1.75 min	0.375	1.75 min	2.5 min	1.5 min	3.5	8.5	6	0.65	0.4	2.0 Series B	1.0	1.0 Series B	0.2	0.5
Intersection Involving Collector or Arterial Streets																					
A	B	C	D SEE NOTE 3	E SEE NOTE 3	F	G	H	J	K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
30 min 60 max	8	1.25	6 Series C	2.5 Series C	2	2.25	2.5 min	0.5	2.5 min	3.5 min	2 min	5.5	8.5	6	0.65	0.5	2.0 Series B	1.0	1.0 Series B	0.2	0.5

NOTES:

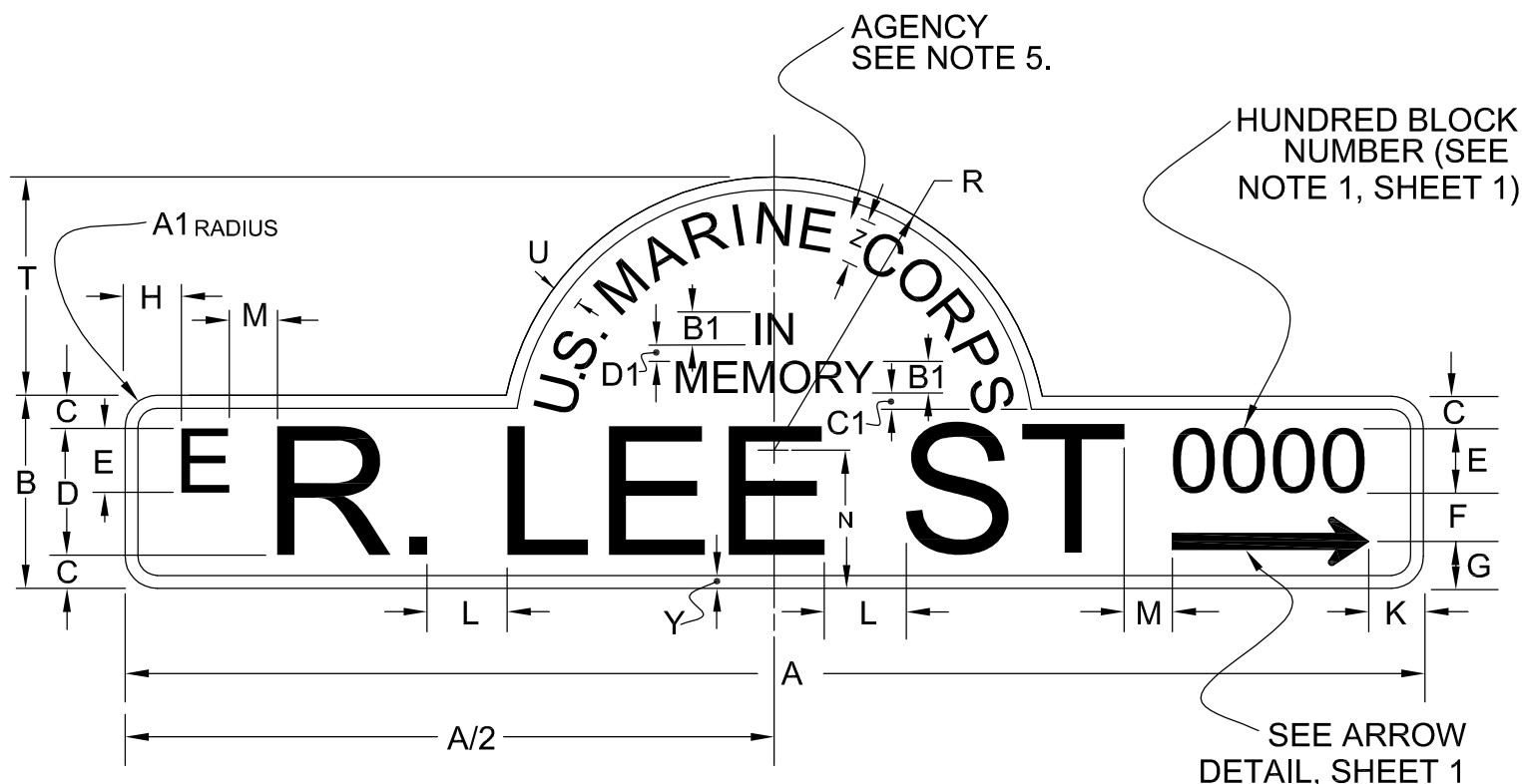
1. See Notes on Sheet 1.
2. Colors: See Standard No. 8-200 Sheet 1
Borders must be white.
3. See Note 12, Sheet 1.

CENTURY HEIGHTS STREET NAME SIGN

Issued: February 2009

Sheet 4 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-200
STREET NAME SIGN
LAYOUT AND DESIGN



SIGN DIMENSIONS IN INCHES

Intersection Involving Only Local Streets																					
A	B	C	D SEE NOTE 6	E SEE NOTE 6	F	G	H		K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
24 min 48 max	6	1	4 Series C	2.0 Series C	1.5	2	1.75 min		1.75 min	2.5 min	1.5 min	3.5	8.5	6	0.65	0.4	2.0 Series B	1.0	1.0 Series B	0.2	0.5
Intersection Involving Collector or Arterial Streets																					
A	B	C	D SEE NOTE 6	E SEE NOTE 6	F	G	H		K	L	M	N	R	T	U	Y	Z	A1	B1	C1	D1
30 min 60 max	8	1	6 Series C	2.5 Series C	2.25	2.75	2.5 min		2.5 min	3.5 min	2 min	5.5	8.5	6	0.65	0.5	2.0 Series B	1.0	1.0 Series B	0.2	0.5

NOTES:

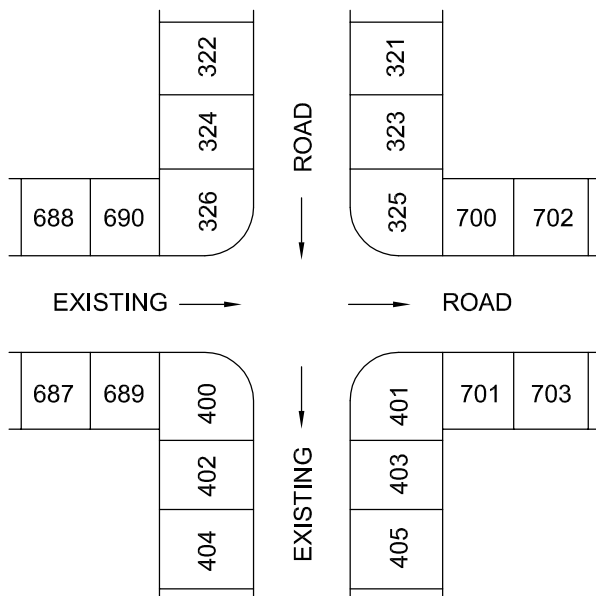
- See Notes on Sheet 1.
- Colors: See Standard No. 8-200 Sheet 1. Borders must be white.
- If name is too long to fit standard sign lengths, first name will be replaced by first initial.
- Rank will not be shown.
- Choices for Agency are limited to:
 U.S. Army
 U.S. Navy
 U.S. Marine Corps
 U.S. Air Force
 U.S. Coast Guard
 Yuma Police Dept
 Yuma Fire Dept
 Yuma Sheriff Dept
 AZ Public Safety
 U.S. Border Patrol
 No special mentioned will be made for Reserves.
 The Agency will be as defined above.
- See Note 12, Sheet 1.
- If two Memorial Streets intersect, only the sign for the North-South street will have the circular portion. The other must be a normal street name sign.

MEMORIAL STREET NAME SIGN

Issued: February 2009

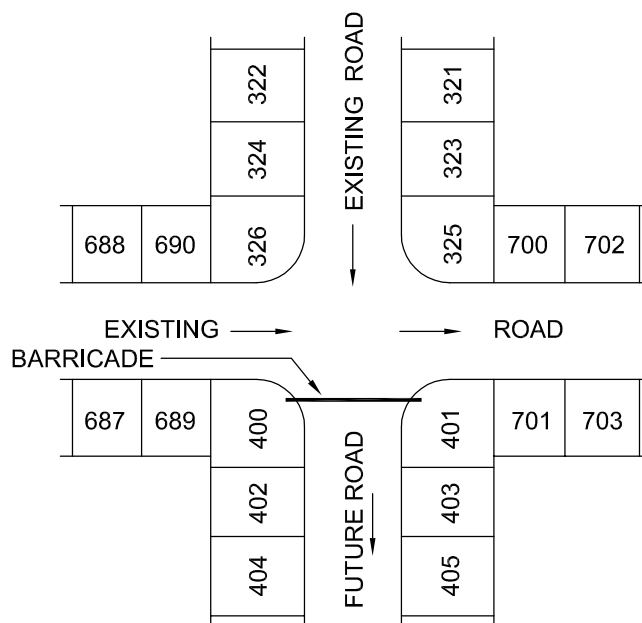
Sheet 5 of 6

CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-200
STREET NAME SIGN
LAYOUT AND DESIGN



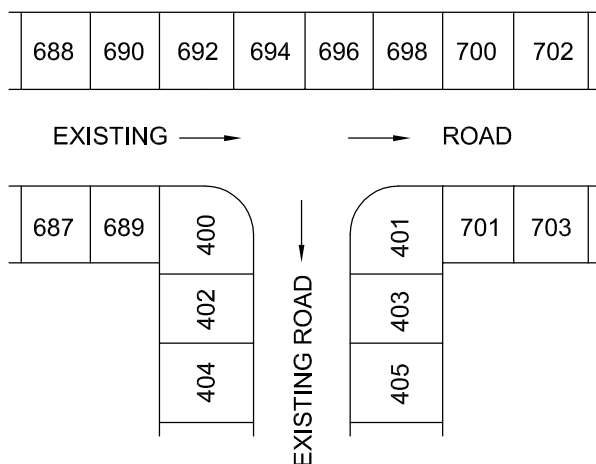
CASE A

NORMAL 4-WAY INTERSECTION



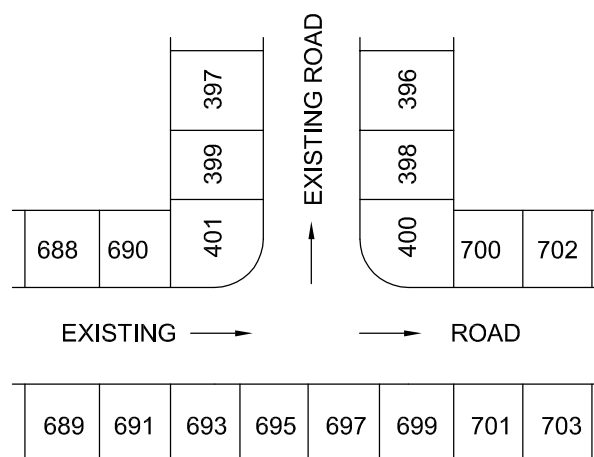
CASE B

NORMAL 4-WAY INTERSECTION WITH FUTURE LEG



CASE C

NORMAL 'T' INTERSECTION WITH 'T' STEM IN DIRECTION OF INCREASING ADDRESS NUMBERS



CASE D

NORMAL 'T' INTERSECTION WITH 'T' STEM IN DIRECTION OF DECREASING ADDRESS NUMBERS

NOTE: ARROW FOR 'T' STEM POINTS IN DIRECTION
OF DECREASING ADDRESS NUMBERS.

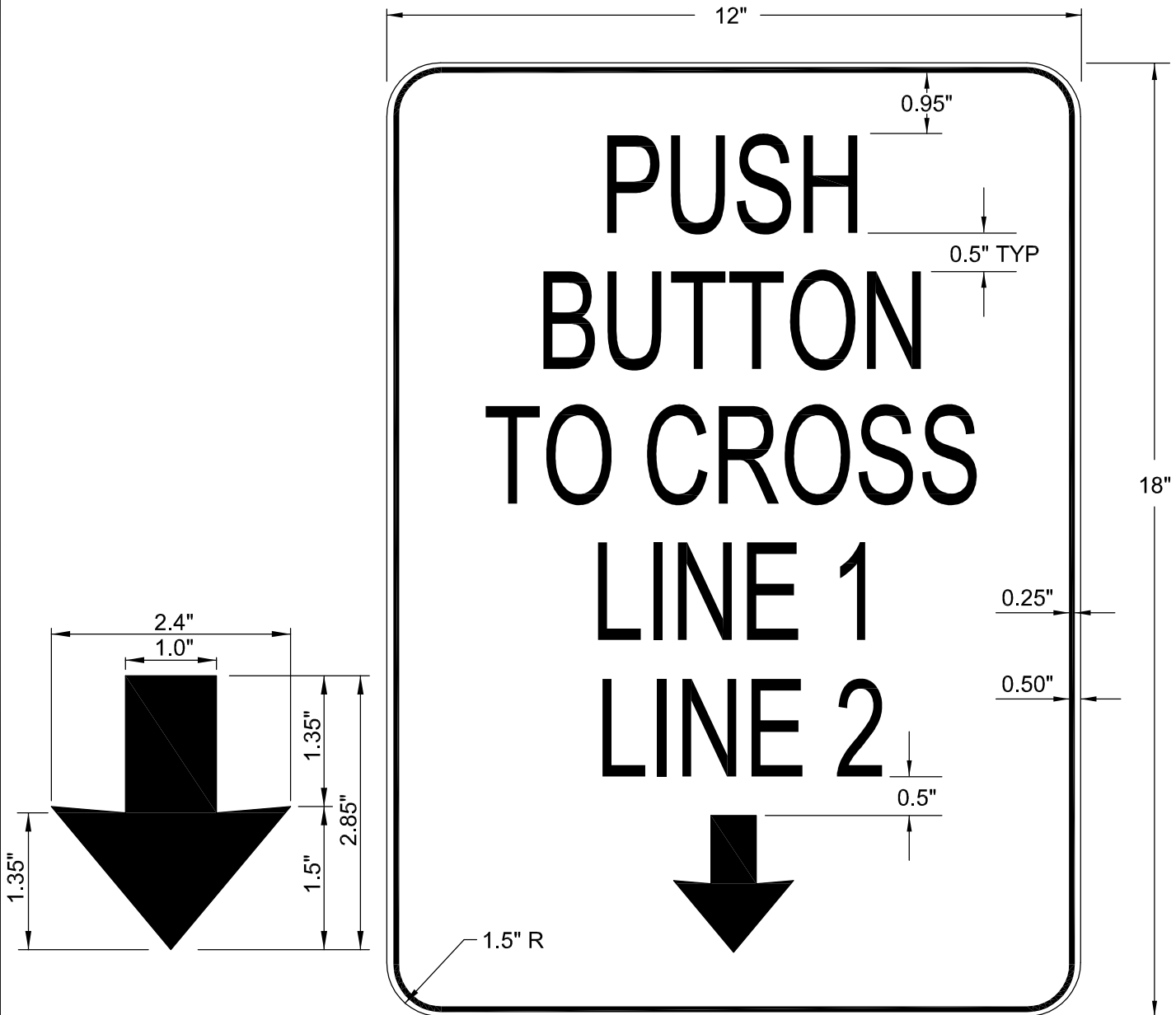
NOTES:

1. Arrows on street name signs must point in the direction of the increasing address numbers except for the 'T' stem of CASE D.
2. Use "Dead End" panel for dead end street legs.
3. Use "No Outlet" panel for street legs having no outlet from the area.

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Sheet 6 of 6

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-200
STREET NAME SIGN
LAYOUT AND DESIGN

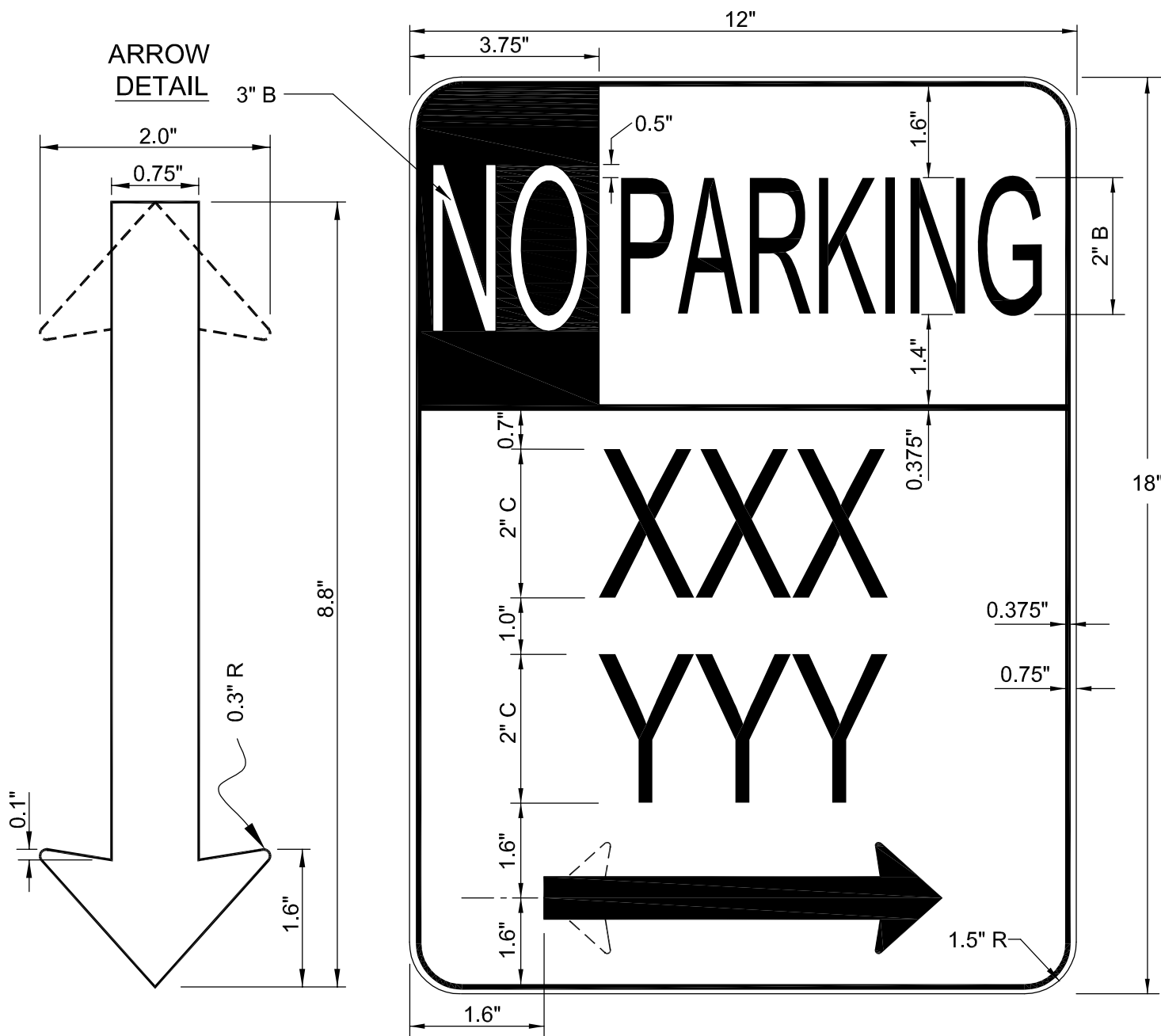


NOTES:

1. LINE 1 AND LINE 2 MUST BE REPLACED WITH THE APPROPRIATE STREET NAME IN ACCORDANCE WITH THE PLANS.
2. LEGEND AND INSIDE BORDER MUST BE BLACK ON WHITE REFLECTORIZED BACKGROUND. SHEETING MUST BE ENGINEER GRADE.
3. ALL LETTERS MUST BE 2-INCH SERIES C IN ACCORDANCE WITH THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-205
PEDESTRIAN PUSH-BUTTON
IDENTIFICATION SIGN (SP-1)



NOTES

1. ALL LETTERS MUST BE THE INDICATED SERIES IN ACCORDANCE WITH THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. SIGN SUBSTRATE MUST BE 0.08" (MINIMUM) ALUMINUM.
3. UNLESS OTHERWISE INDICATED, SIGNS MUST HAVE DOUBLE-HEADED ARROW. SUFFIX R INDICATES AN ARROW TO THE RIGHT. SUFFIX L INDICATES AN ARROW TO THE LEFT.
4. THE SIGN MUST BE FULLY RETROREFLECTIVE USING THE FOLLOWING COLORS:

FEATURE	COLOR
"NO" LEGEND	WHITE
"NO" BACKGROUND	RED
ALL OTHER BACKGROUND	WHITE
ALL OTHER LEGEND	RED
BORDER	RED
LINES & ARROW	RED

5. SEE SHEET 2 FOR SIGN LEGENDS.

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Sheet 1 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-210
PARKING REGULATION SIGNS



R7-1Y



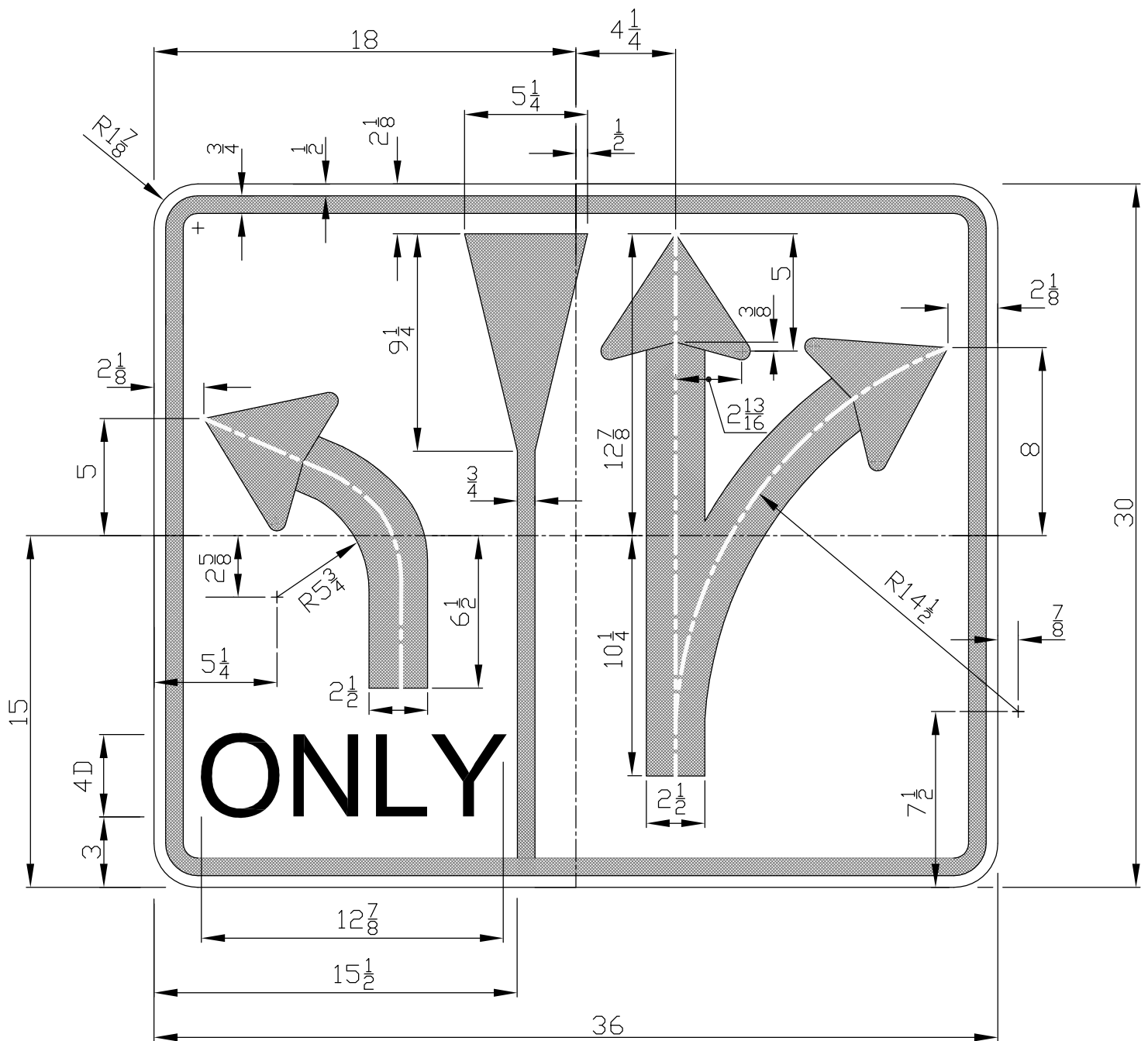
R7-1HTC

NOTE:
SEE SHEET 1 FOR DETAILS

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Sheet 2 of 2

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 8-210
PARKING REGULATION SIGNS



SIGN WZR3-8YL

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER ON WHITE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.

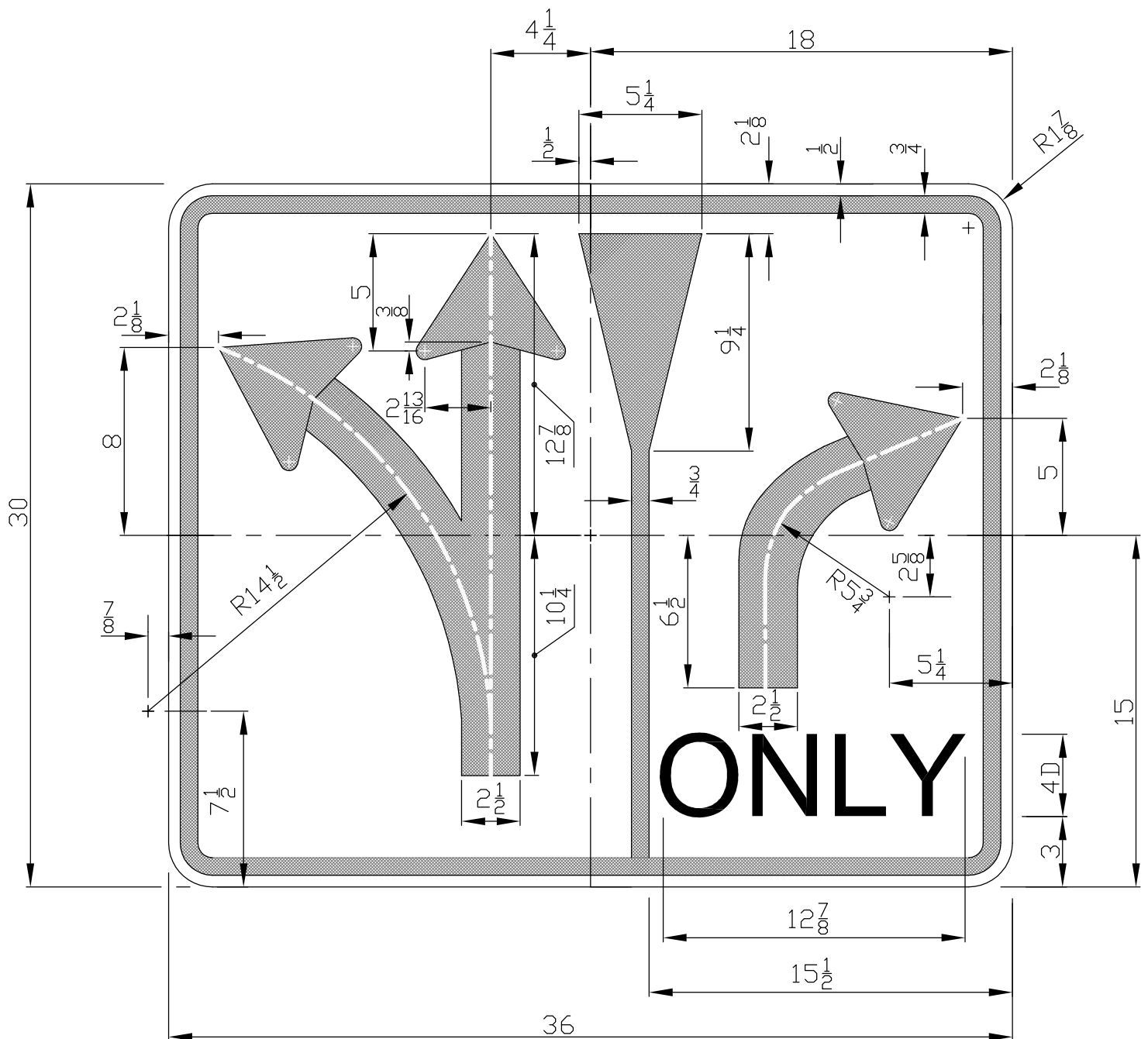
Issued: February 2009

Sheet 1 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-230

**GROUND-MOUNTED WORK ZONE
LANE USE SIGNS**



SIGN WZR3-8YR

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER ON WHITE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.

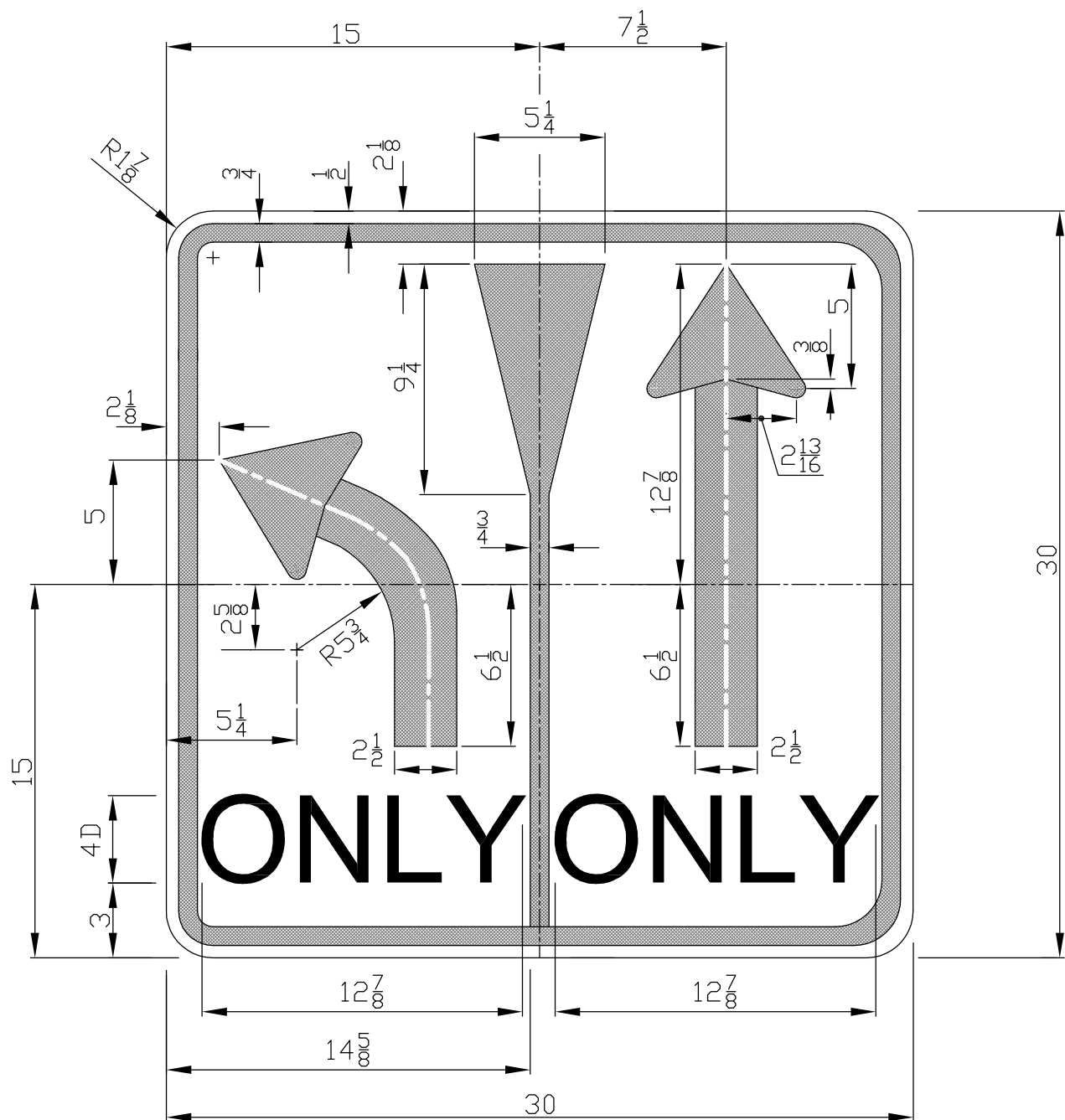
Issued: February 2009

Sheet 2 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-230

**GROUND-MOUNTED WORK ZONE
LANE USE SIGNS**



SIGN WZR3-8YLA

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER ON WHITE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.

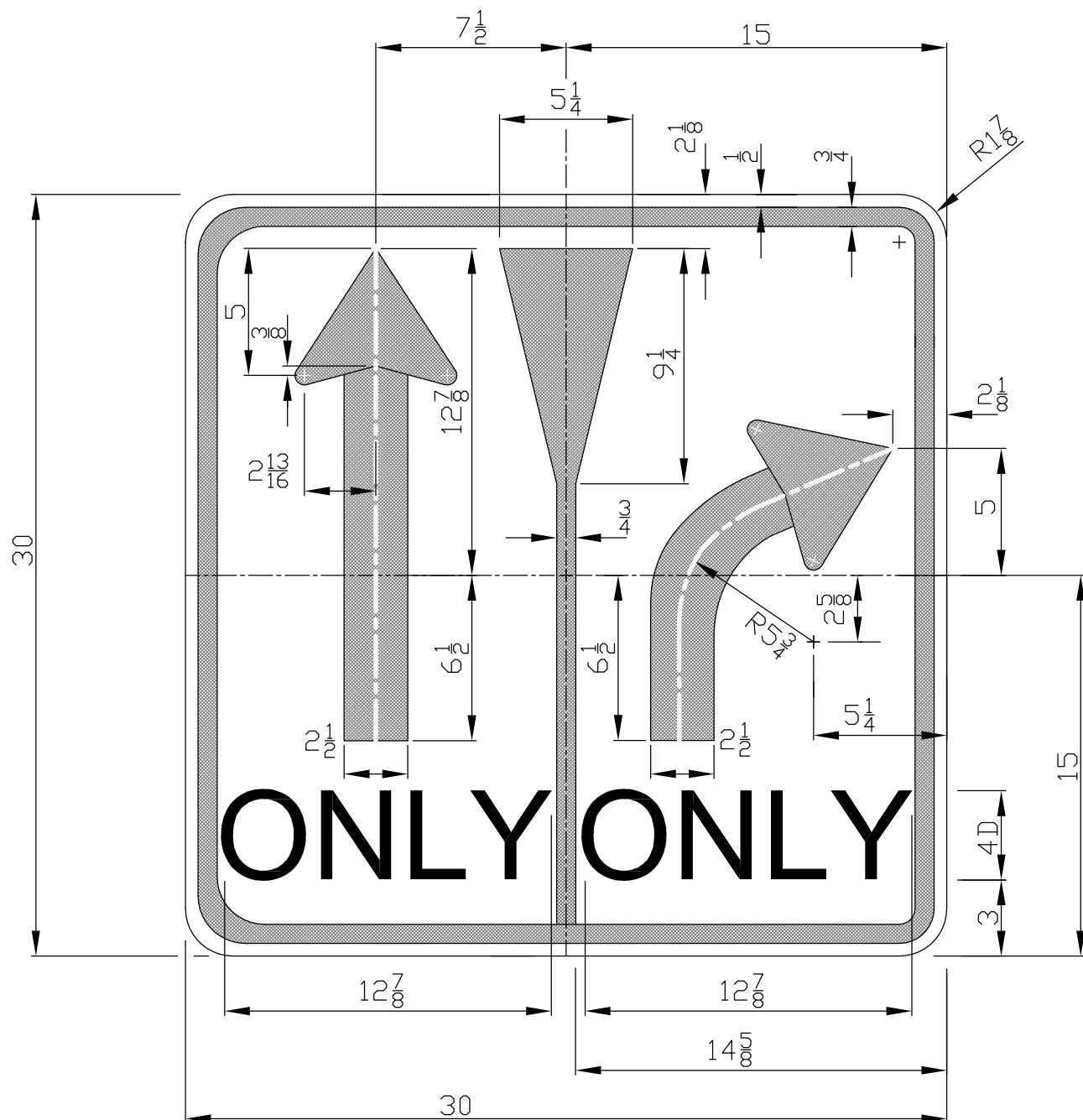
Issued: February 2009

Sheet 3 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-230

**GROUND-MOUNTED WORK ZONE
LANE USE SIGNS**



SIGN WZR3-8YRA

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER ON WHITE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.

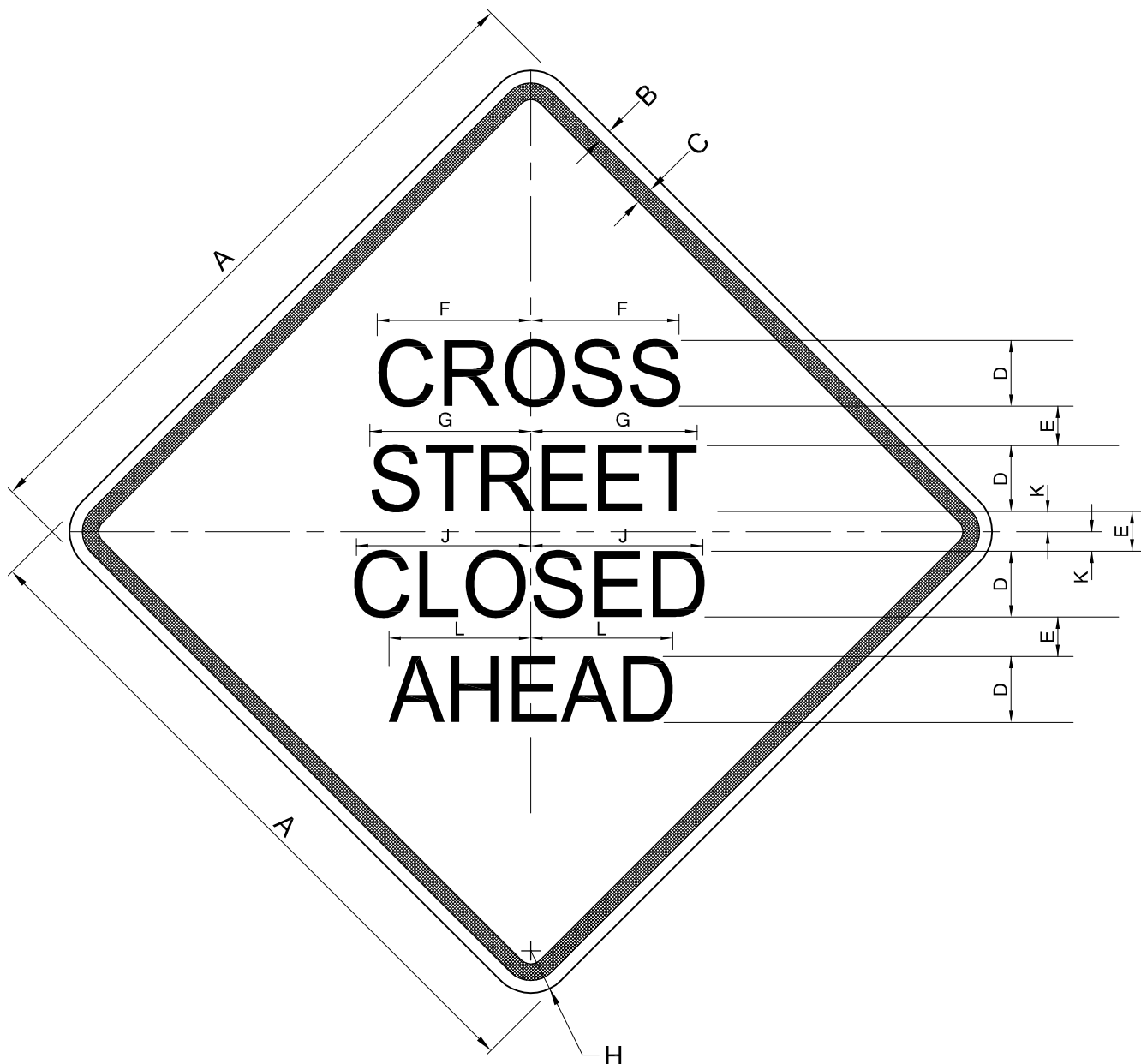
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Sheet 4 of 4

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-230

**GROUND-MOUNTED WORK ZONE
LANE USE SIGNS**



DIMENSIONS (INCHES)										
A	B	C	D	E	F	G	H	J	K	L
48	7/8	1 1/8	5D	3	11 1/8	12 1/2	3	12 3/4	1 1/2	11 1/4

NOTES:

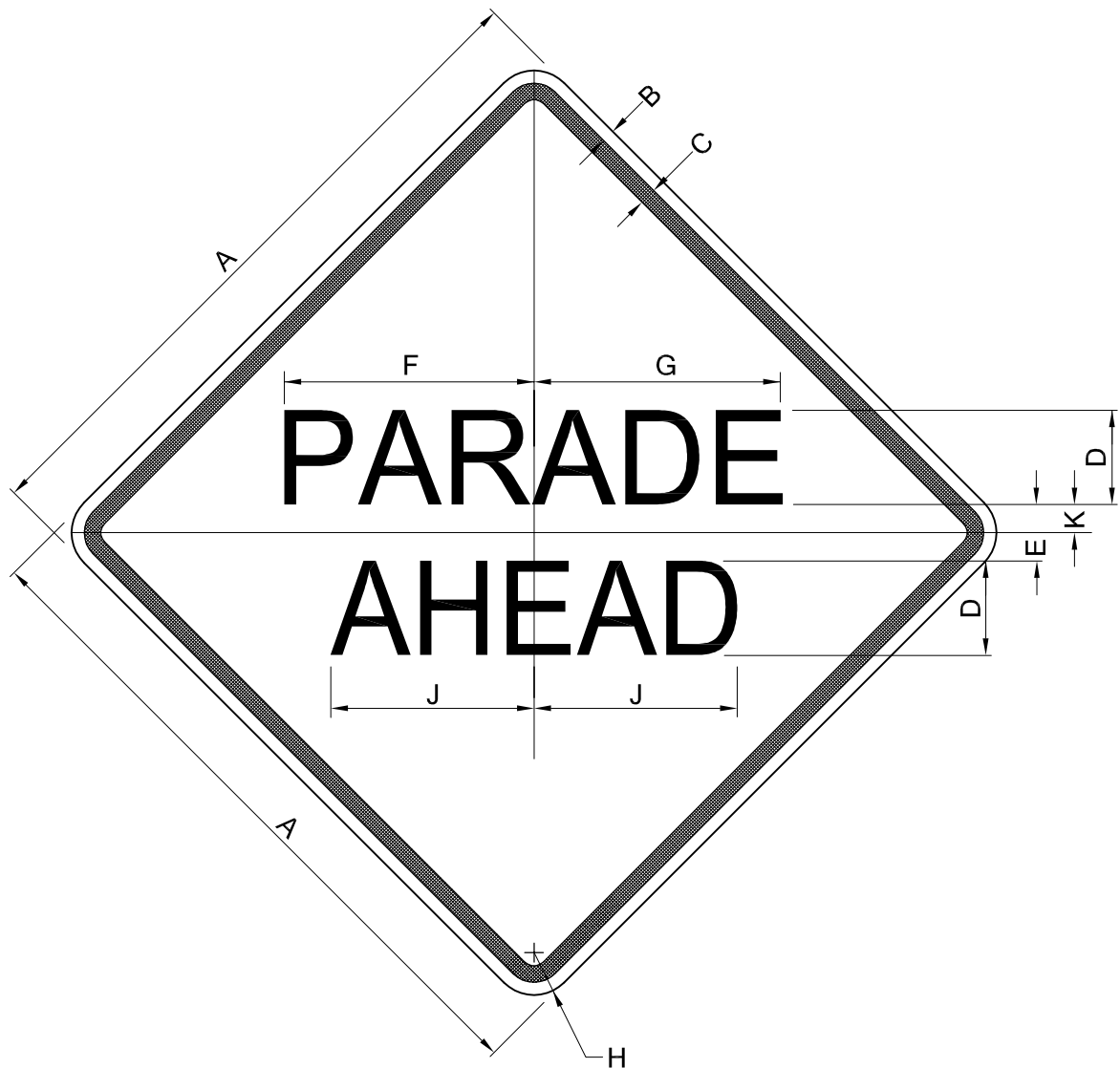
1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER ON REFLECTIVE ORANGE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-350

**CROSS STREET CLOSED AHEAD
SIGN (W20-3YS)**



DIMENSIONS (INCHES)									
A	B	C	D	E	F	G	H	J	K
36	5/8	7/8	5D	3	13 1/4	13 1/16	2 1/4	10 3/4	1 1/2

NOTES:

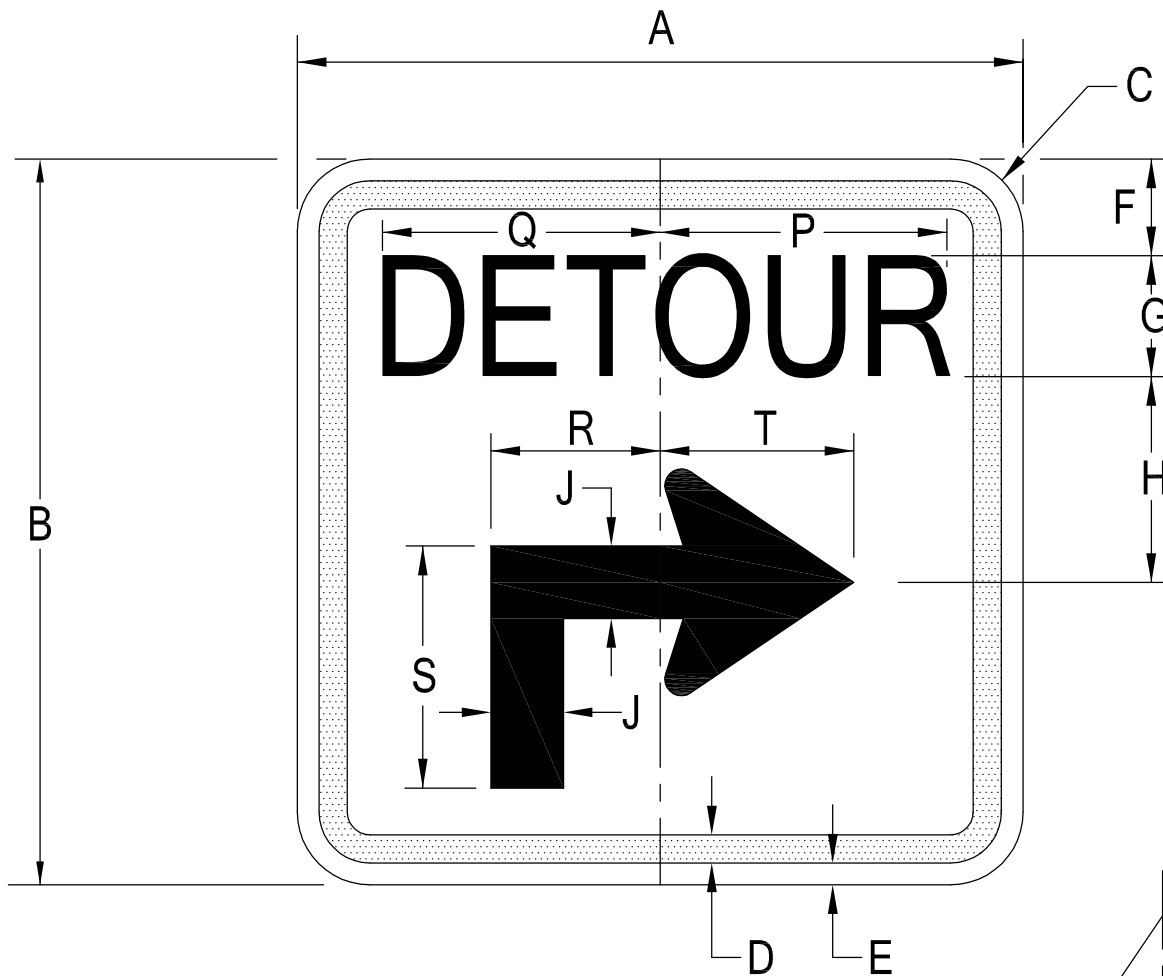
1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER (NON- REFL) ON ORANGE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

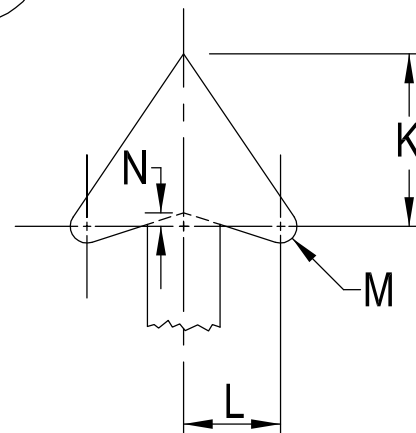
STANDARD NO. 8-352

PARADE AHEAD SIGN (W50-1Y)



NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. BLACK LEGEND AND BORDER ON REFLECTIVE ORANGE BACKGROUND.
3. SUBSTRATE MUST BE 0.125" (MIN.) ALUMINUM.
4. SIGN M4-9Y(R) SHOWN. REVERSE ARROW FOR SIGN M4-9Y(L).



SIGN	NOMINAL DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
STANDARD	30	30	1 1/2	5/8	3/8	4	5D	8 1/2	3	7 1/8	4	11/16	9/16
SPECIAL	48	48	2 1/4	7/8	5/8	6	8D	12 4/10	4 6/10	10 5/8	6	1 1/16	13/16

SIGN	DIMENSIONS (CONT.)				
	P	Q	R	S	T
STANDARD	12	11 1/2	7	10	8
SPECIAL	20 1/4	19 1/2	10 1/2	15	12

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 8-370

**ADVANCE DETOUR SIGN
(M4-9Y)**

TAPER LENGTHS (L)															
feet															
Estimated 85th%-ile Speed (S) m.p.h.	Width of Transition (W) feet														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	110	120	130	140	150	160
30	100	100	100	100	100	100	110	120	140	150	170	180	200	210	230
35	100	100	100	100	110	130	150	170	190	210	230	250	270	290	310
40	100	100	120	160	200	240	280	320	360	400	440	480	520	560	600
45	100	100	135	180	225	270	315	360	405	450	495	540	585	630	675
50	100	100	150	200	250	300	350	400	450	500	550	600	650	700	750
55	100	110	165	220	275	330	385	440	495	550	605	660	715	770	825
60	100	120	180	240	300	360	420	480	540	600	660	720	780	840	900
65	100	130	195	260	325	390	455	520	585	650	715	780	845	910	975
70	100	140	210	280	350	420	490	560	630	700	770	840	910	980	1050

Taper lengths computed based on the following formulas from the Manual on Uniform Traffic Control Devices(MUTCD). Results rounded up.

$$L = 100 \text{ feet minimum}$$

$$\text{For speeds less than } 40 \text{ m.p.h.: } L = WS^2/60$$

$$\text{For speeds } \geq 40 \text{ m.p.h.: } L = WS$$

NOTE: See MUTCD for taper applications for work zone/special event (temporary) traffic control.

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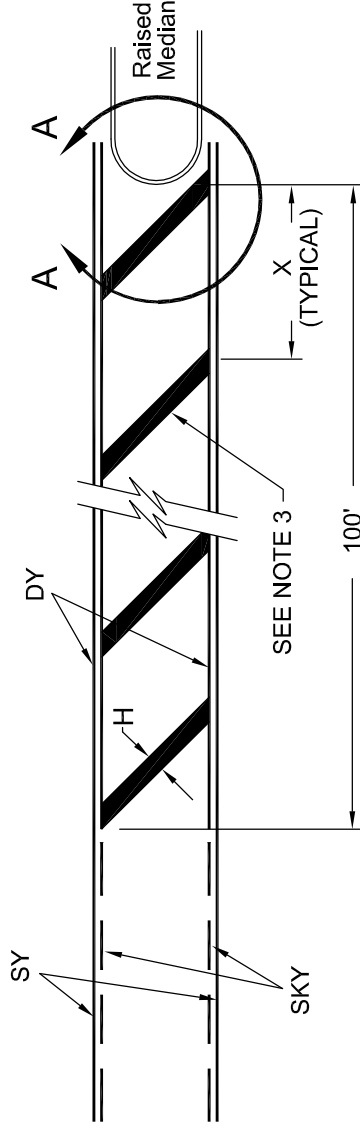
CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

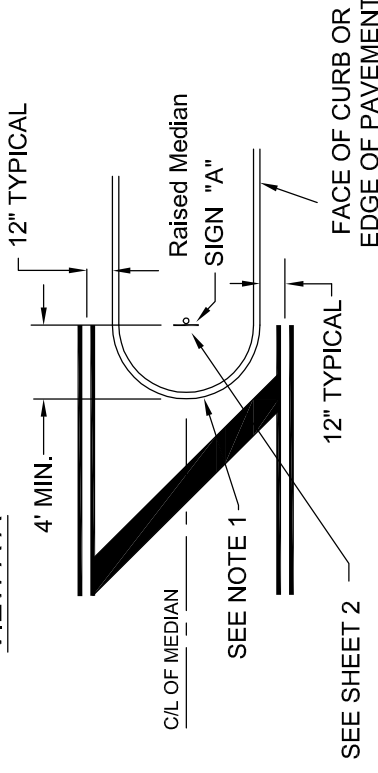
STANDARD NO. 9-010
TAPER LENGTHS FOR USE IN
PAVEMENT MARKING AND WORK ZONE/
SPECIAL EVENT TRAFFIC CONTROL

CASE 1

2-WAY ROAD WITH 2-WAY LEFT TURN LANE

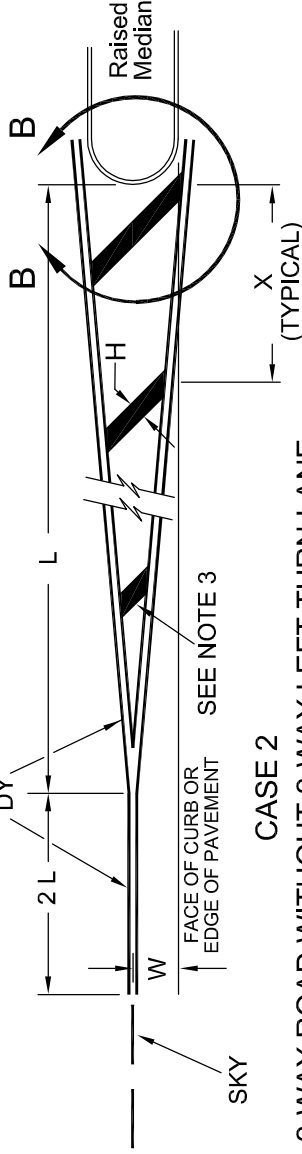


VIEW A-A

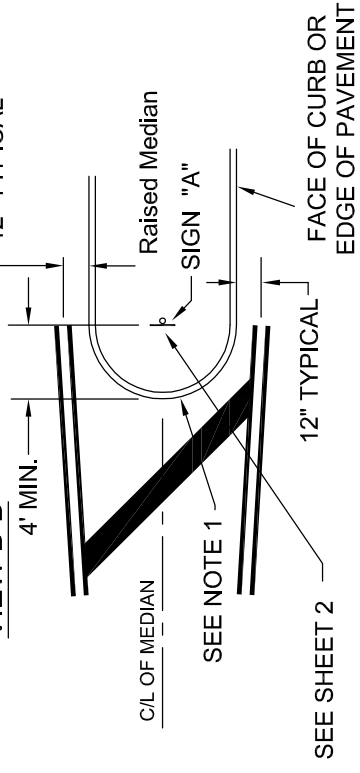


CASE 2

2-WAY ROAD WITHOUT 2-WAY LEFT TURN LANE



VIEW B-B



LEGEND

W	WIDTH OF TRANSITION MEASURED IN FEET.	SY	SINGLE 4" SOLID YELLOW LINE
L	LENGTH OF TAPER MEASURED IN FEET (SEE STD. DET. 9-010).	SKY	SINGLE 4" SKIP (BROKEN) YELLOW LINE
S	85TH PERCENTILE SPEED (NOT SPEED LIMIT) OF APPROACHING TRAFFIC.	H	24' SOLID YELLOW DIAGONAL LINE (45°)
DY	DOUBLE 4" SOLID YELLOW LINES 4" APART	X	20' UNLESS OTHERWISE NOTED.

NOTES:

1. PAINT OR TREAT CURB FACE WITH YELLOW REFLECTIVE MATERIAL ON ROUNDED PORTION.
2. THE SIGNS AND MARKINGS SHOWN ARE INTENDED FOR THE BEGINNING OF A MEDIAN. SIGNS AND MARKINGS SHOULD NOT BE USED AT MEDIAN BREAKS UNLESS ROADWAY ALIGNMENT MIGHT ATTRACT A VEHICLE TO THE LEFT.
3. INSTALL CROSSHATCH LINES IN DIVERGENCE AT INTERVAL 'X' BUT NOT WHEN SPACE BETWEEN DIVERGENCE MARKINGS IS LESS THAN FIVE (5) FEET.

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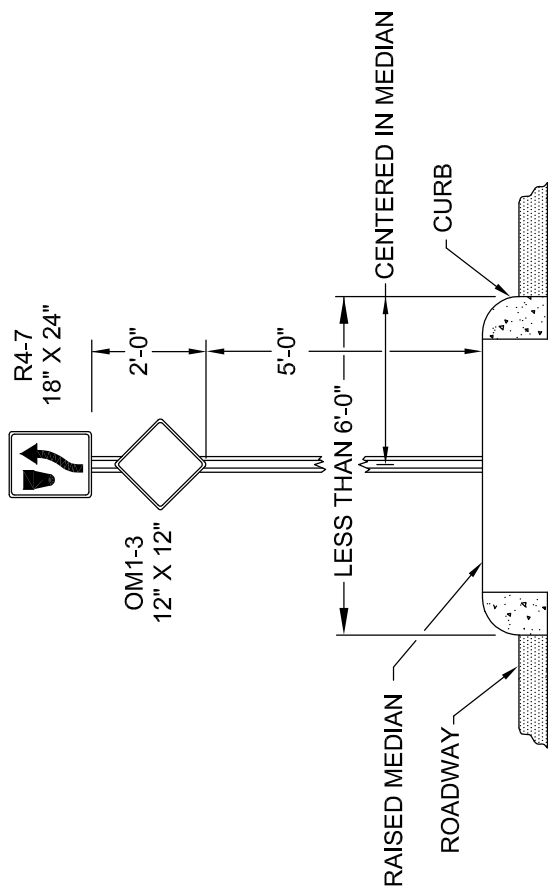
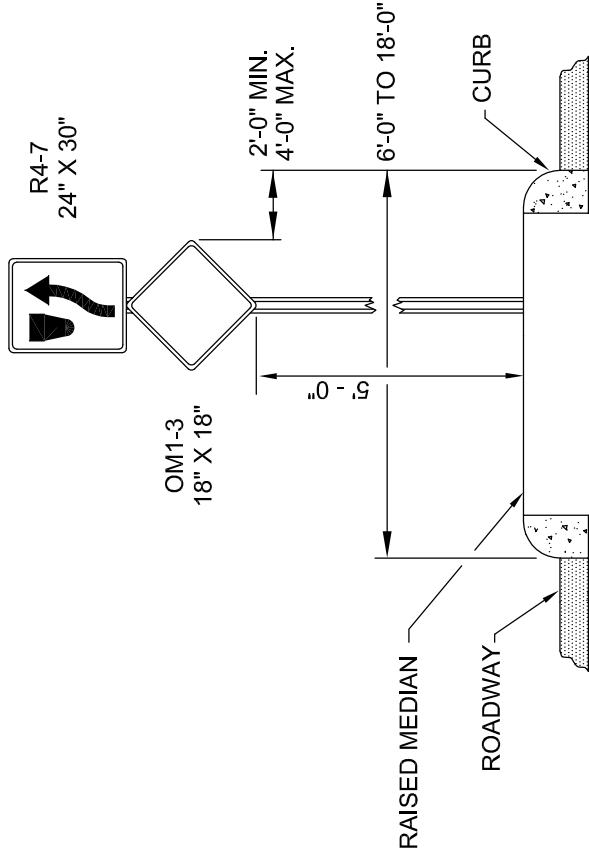
Sheet 1 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-020 **APPROACH END TREATMENT** **FOR MEDIANS**

PLACEMENT OF SIGN "A"



NOTES:

1. Refer to Standard Detail 8-020 for post material specifications, installation and approved assembly.

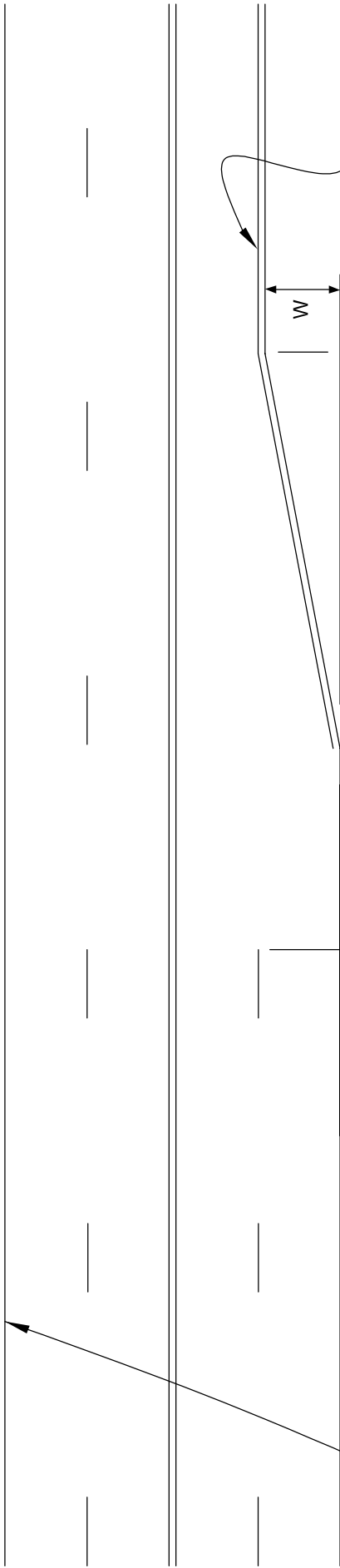
Issued: February 2009

Sheet 2 of 2

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-020
APPROACH END TREATMENT
FOR MEDIANS



4" WHITE EDGE
LINE IF NO CURB

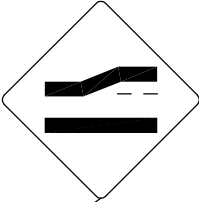
W

E

D

L

SEE STANDARD 9-010



W4-2
36"X36"

85%-ile Approach Speed (MPH)	D (FEET)	E* (FEET)
<=30	200	30-70
>30, <50	300	55-95
=>50	400	80-120

* DESIGN FOR MID-POINT

NOTE:
SIGN W9-1 IS NOT REQUIRED

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CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

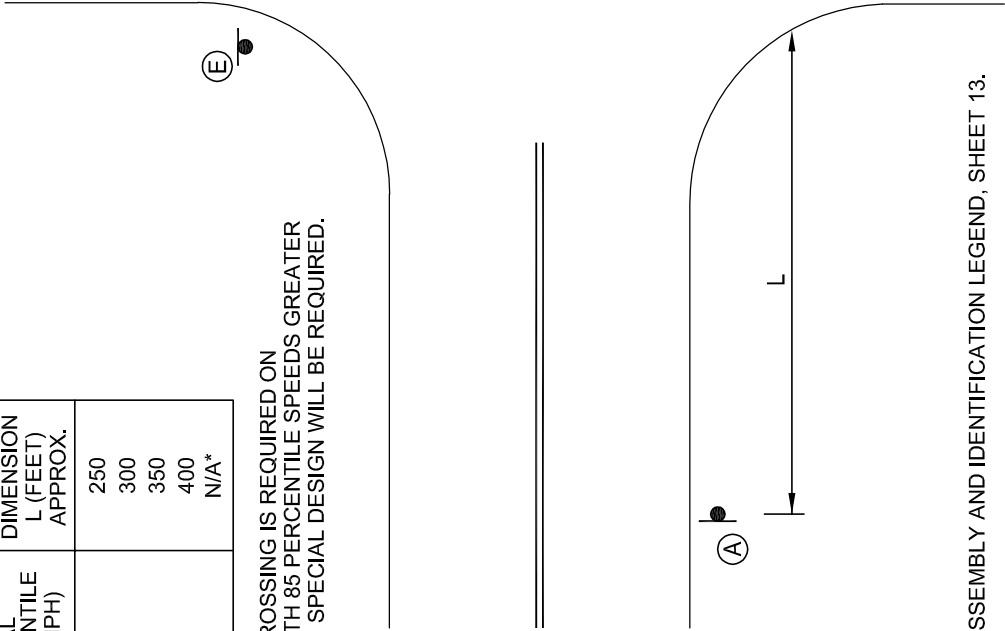
STANDARD NO. 9-021
LANE DROP SIGNING
AND MARKING

CASE 1A: 2-LANE ROAD, NO REDUCED SPEED

SCHEMATIC, NOT TO SCALE

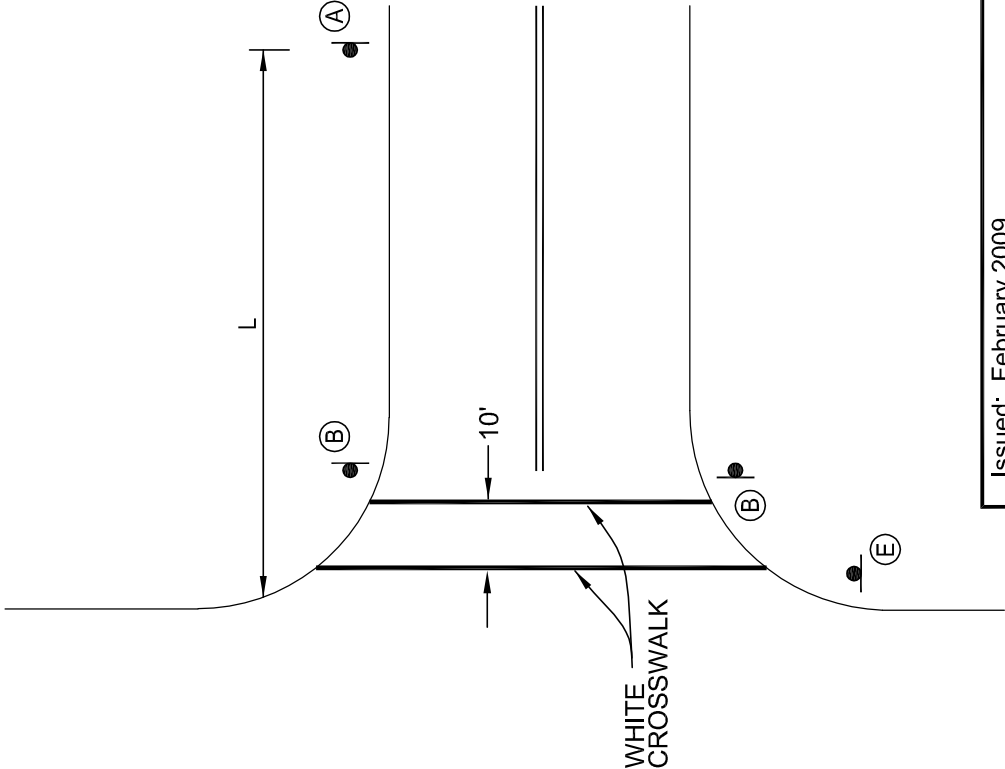
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	250
30	300
35	350
40	400
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY AND IDENTIFICATION LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.
3. PASSING MUST BE PROHIBITED AT LEAST BETWEEN ASSEMBLIES (A).



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SHEET 1 OF 13

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

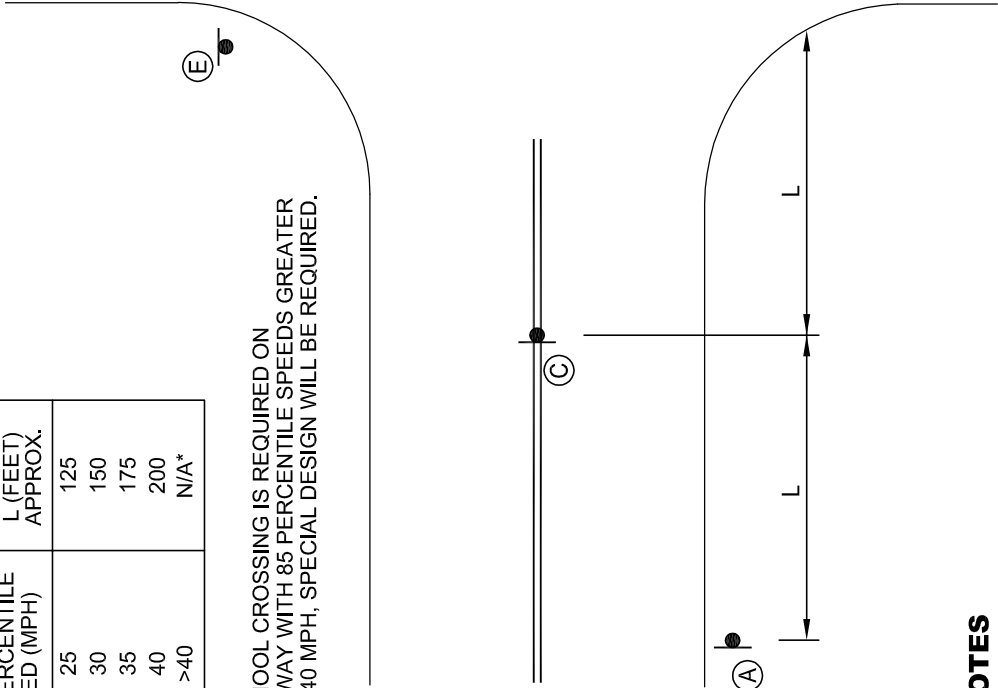
STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 1B: 2-LANE ROAD, REDUCED SPEED

SCHEMATIC, NOT TO SCALE

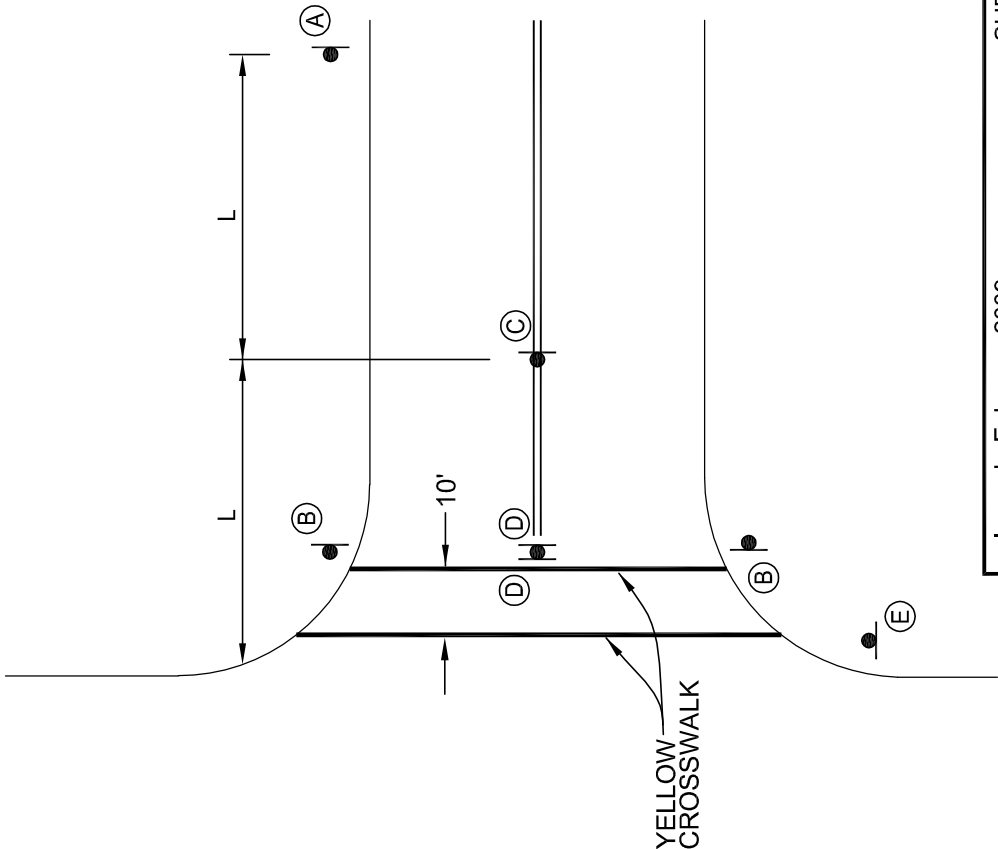
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	125
30	150
35	175
40	200
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.
3. PASSING MUST BE PROHIBITED AT LEAST BETWEEN ASSEMBLIES (A).

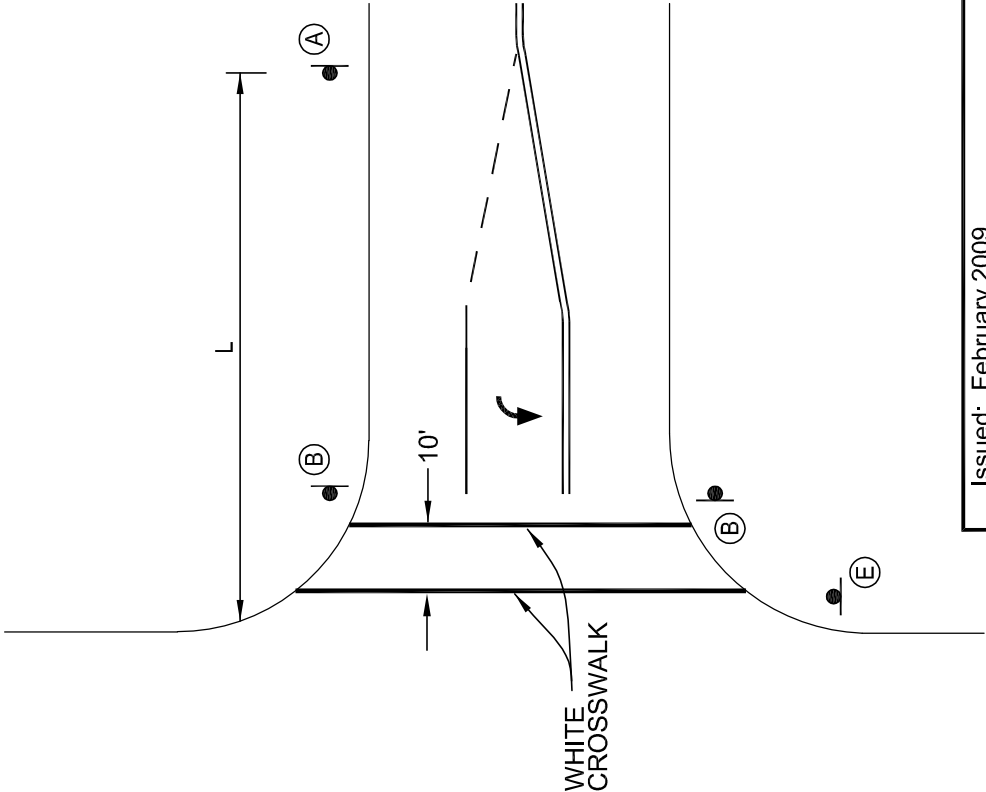


CASE 2A: 2-LANE ROAD WITH LEFT-TURN LANE, NO REDUCED SPEED

SCHEMATIC: NOT TO SCALE

NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	250
30	300
35	350
40	400
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.

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SHEET 3 OF 13

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

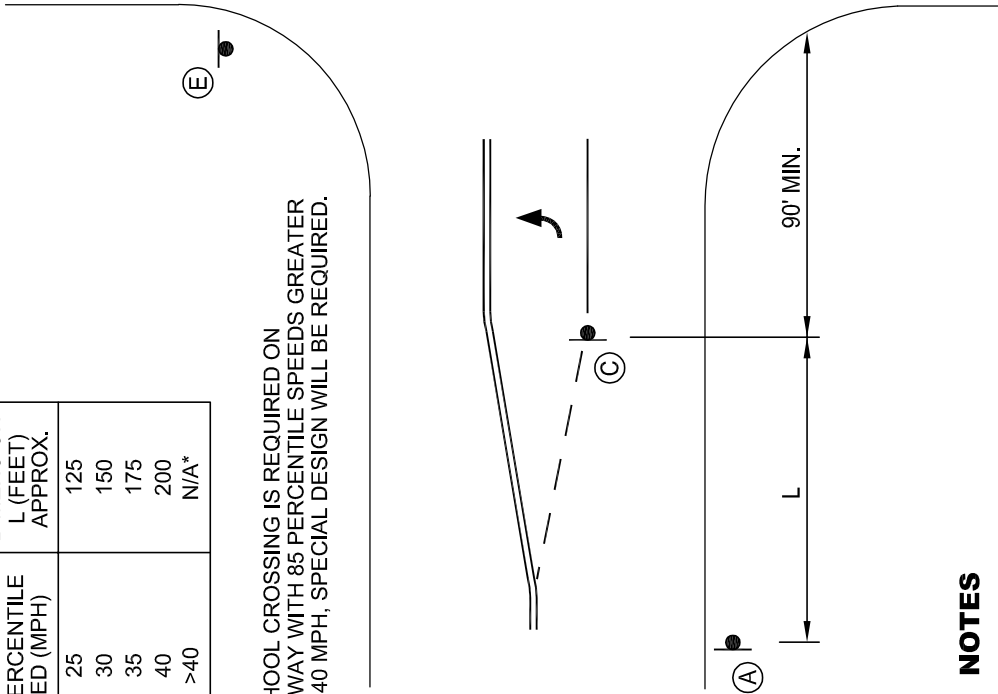
STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 2B: 2-LANE ROAD WITH LEFT-TURN LANE, REDUCED SPEED

SCHEMATIC: NOT TO SCALE

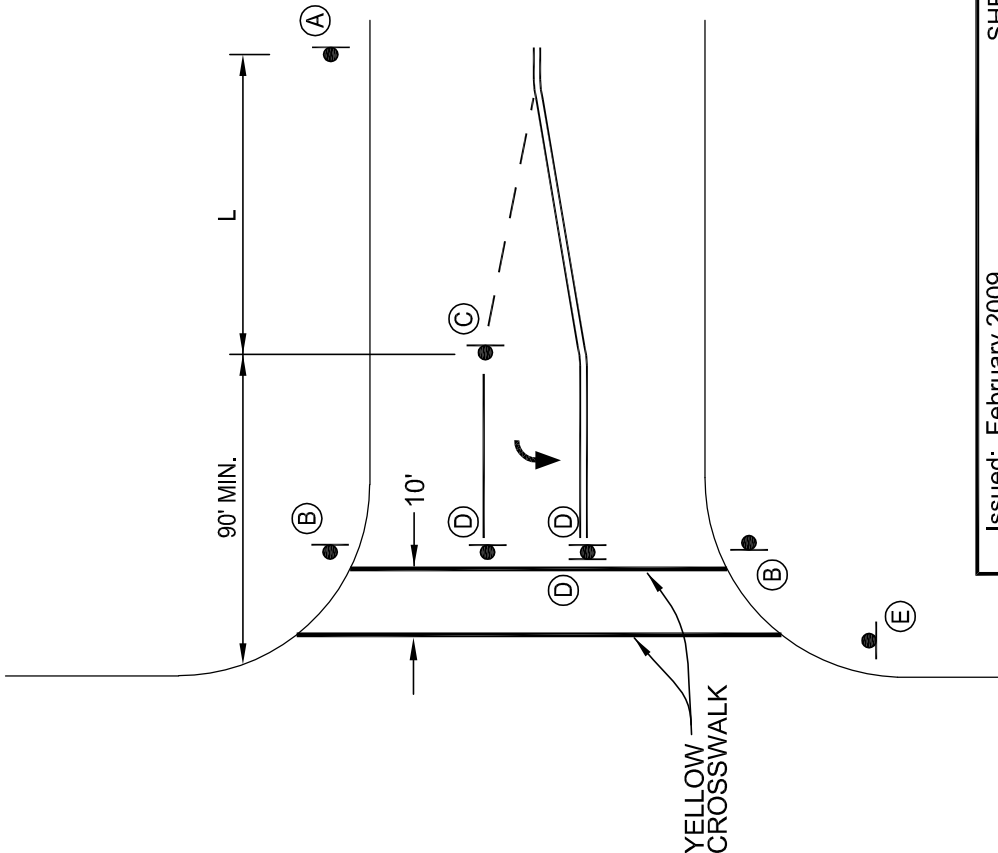
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	125
30	150
35	175
40	200
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.



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SHEET 4 OF 13

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

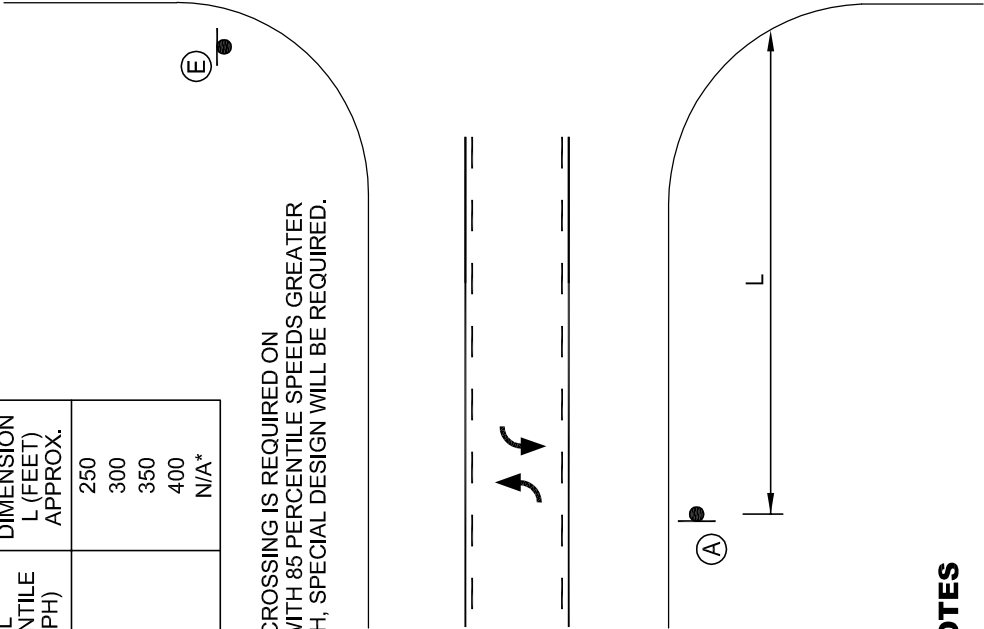
STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 3A: 3-LANE ROAD, NO REDUCED SPEED

SCHEMATIC, NOT TO SCALE

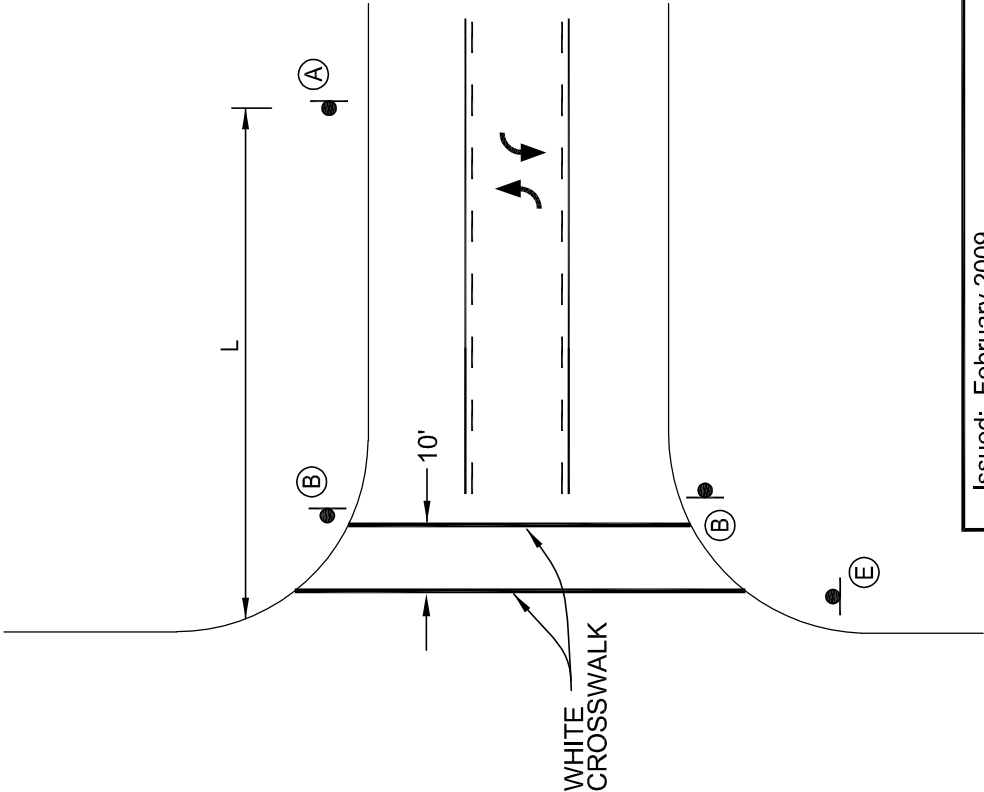
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	250
30	300
35	350
40	400
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

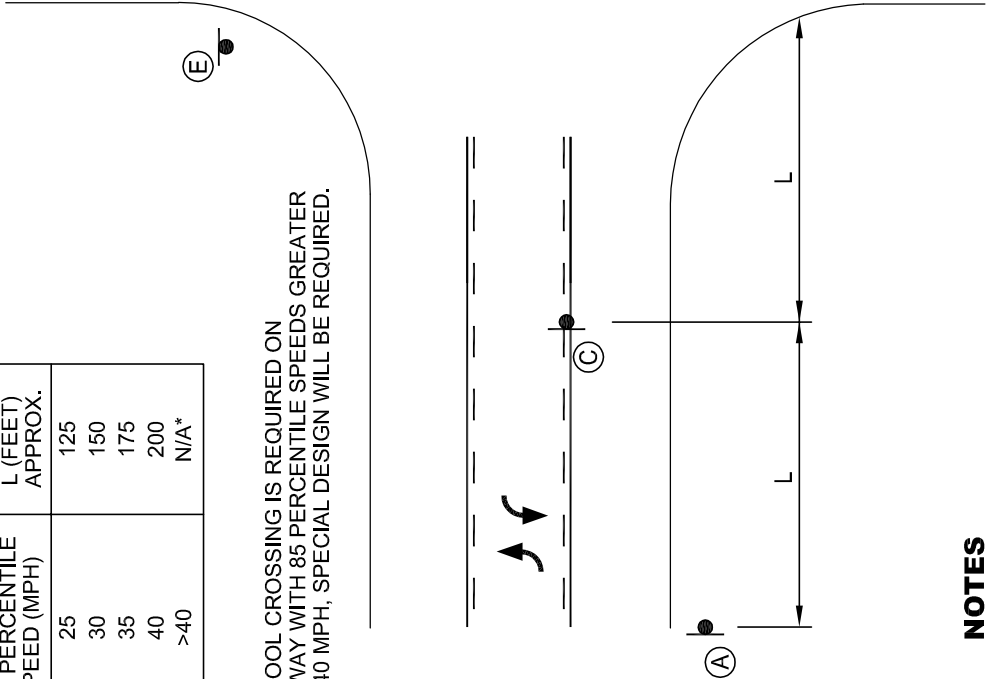
- 1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
- 2. SEE NOTES, SHEET 13.



CASE 3B: 3-LANE ROAD, REDUCED SPEED
SCHEMATIC, NOT TO SCALE

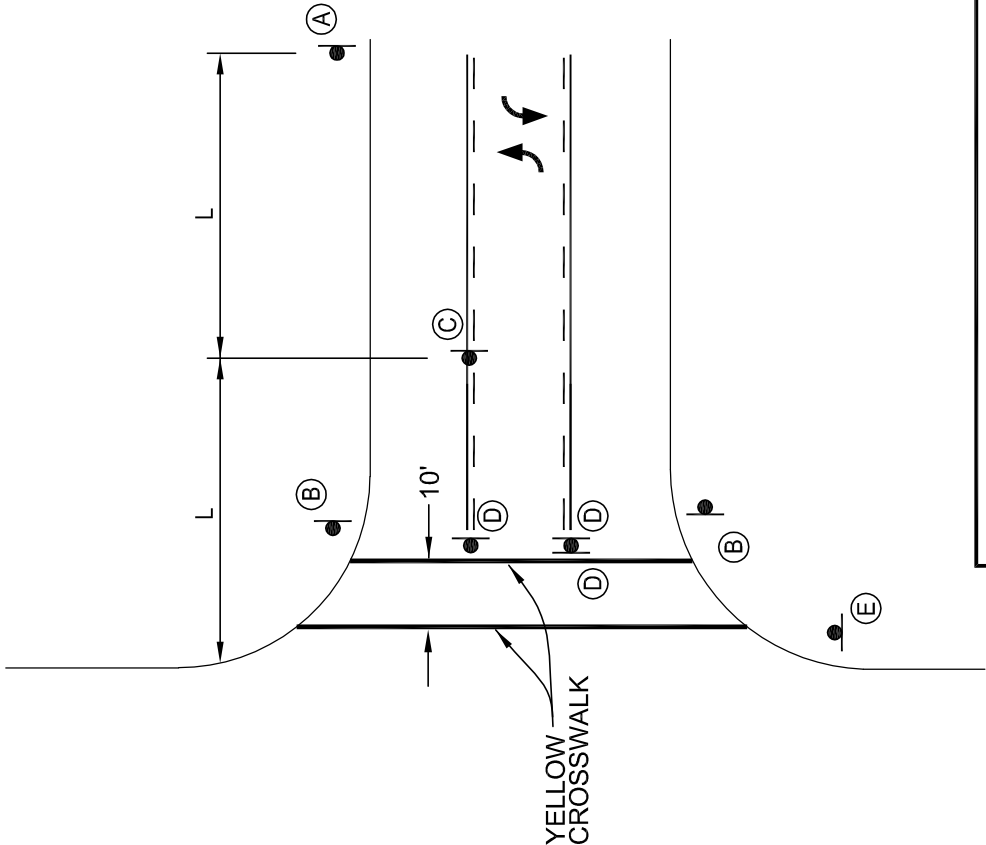
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	125
30	150
35	175
40	200
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.

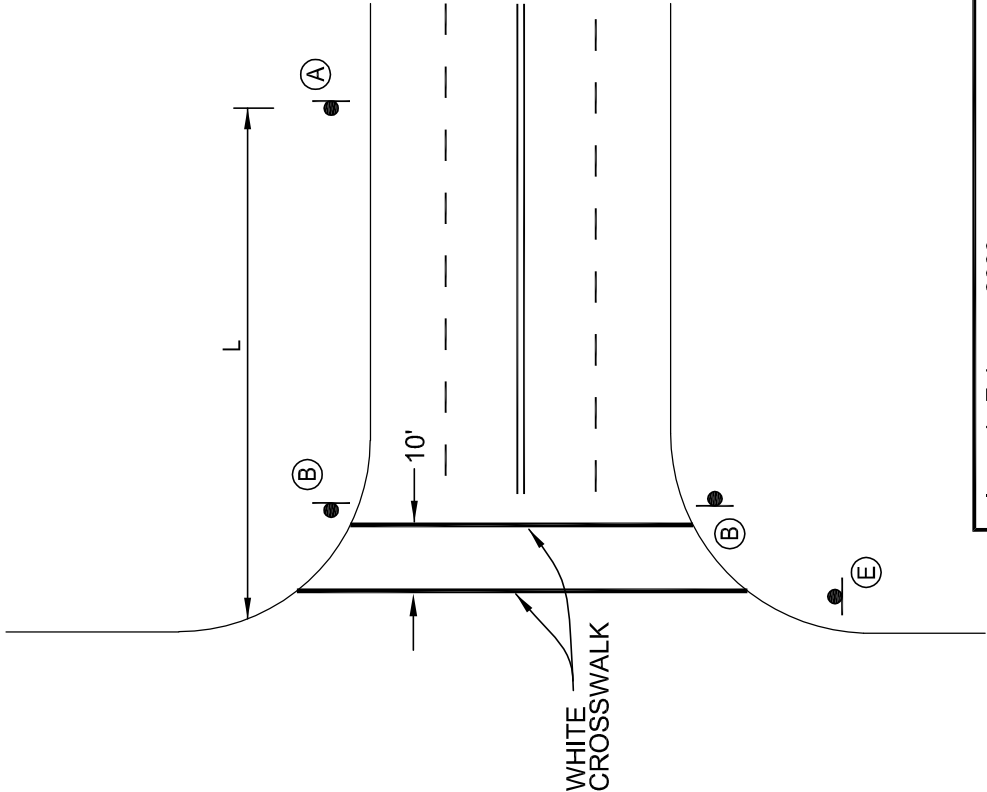
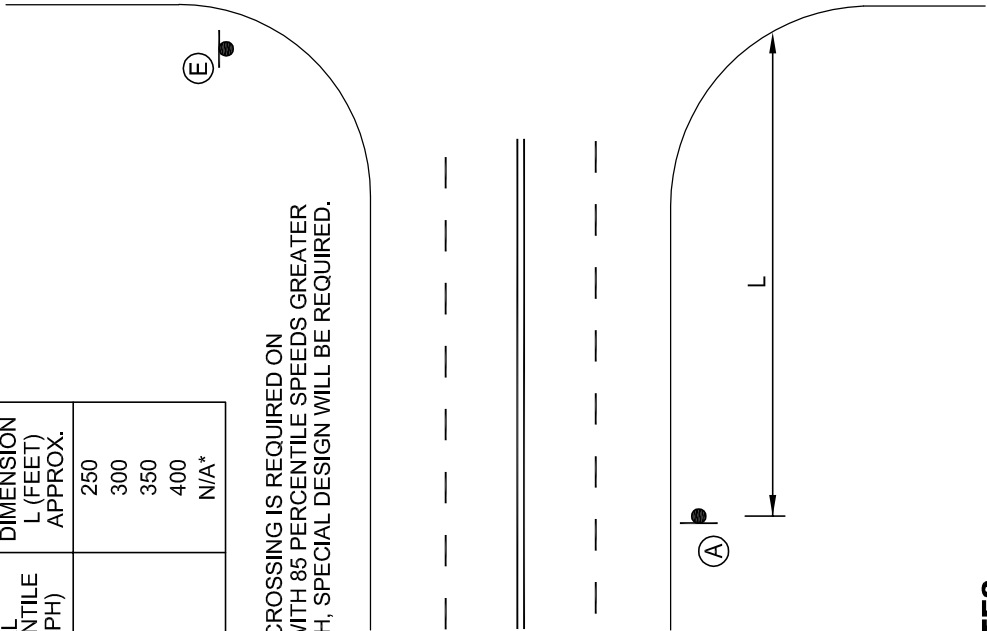


CASE 4A: 4-LANE ROAD, NO REDUCED SPEED

SCHEMATIC, NOT TO SCALE

NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	250
30	300
35	350
40	400
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.

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SHEET 7 OF 13

CITY OF YUMA

CONSTRUCTION STANDARD DETAIL DRAWINGS

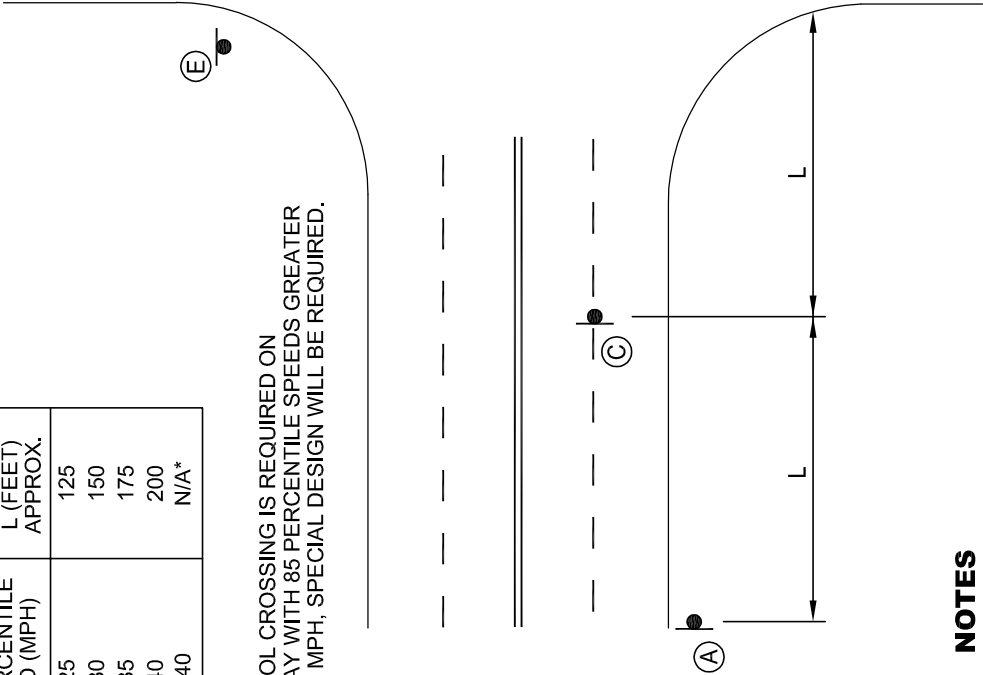
STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 4B: 4-LANE ROAD, REDUCED SPEED

SCHEMATIC, NOT TO SCALE

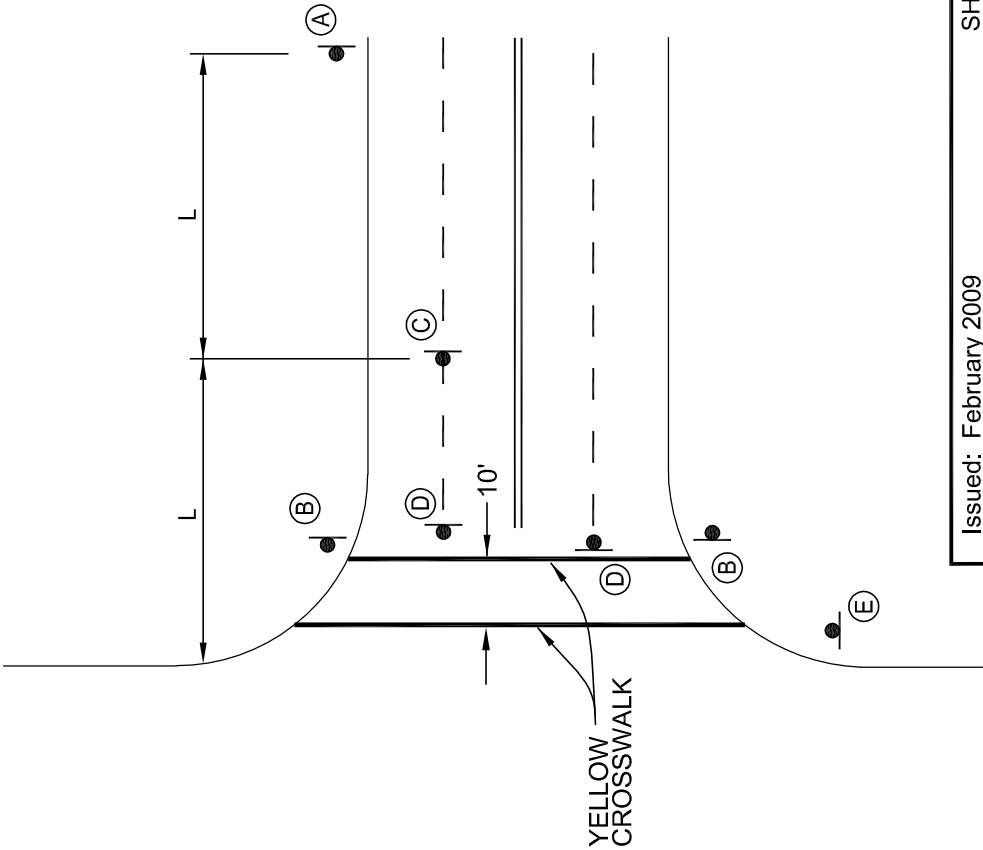
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	125
30	150
35	175
40	200
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.



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SHEET 8 OF 13

CITY OF YUMA

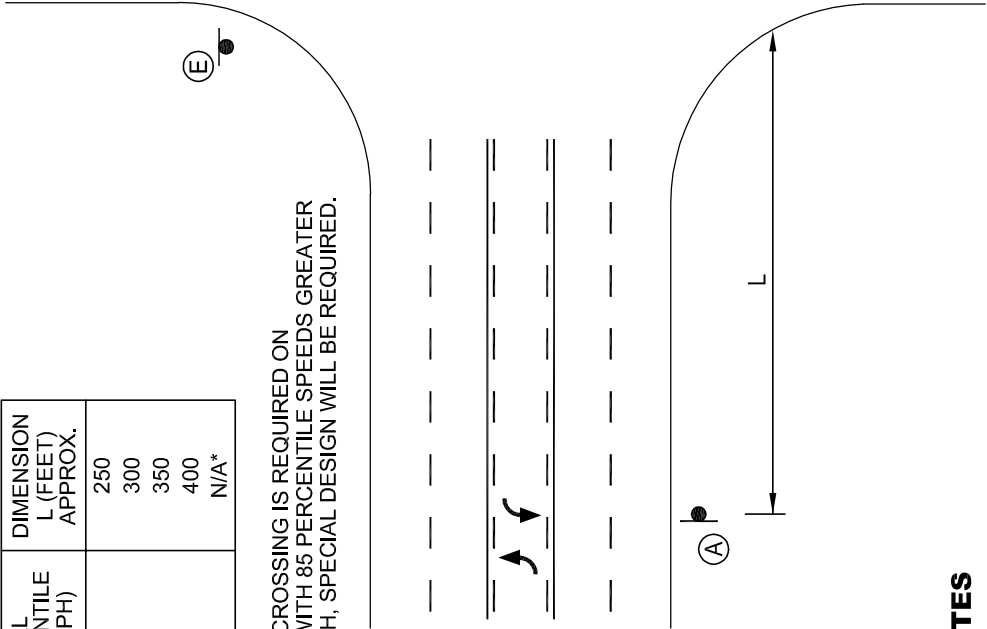
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 5A: 5-LANE ROAD, NO REDUCED SPEED
SCHEMATIC, NOT TO SCALE

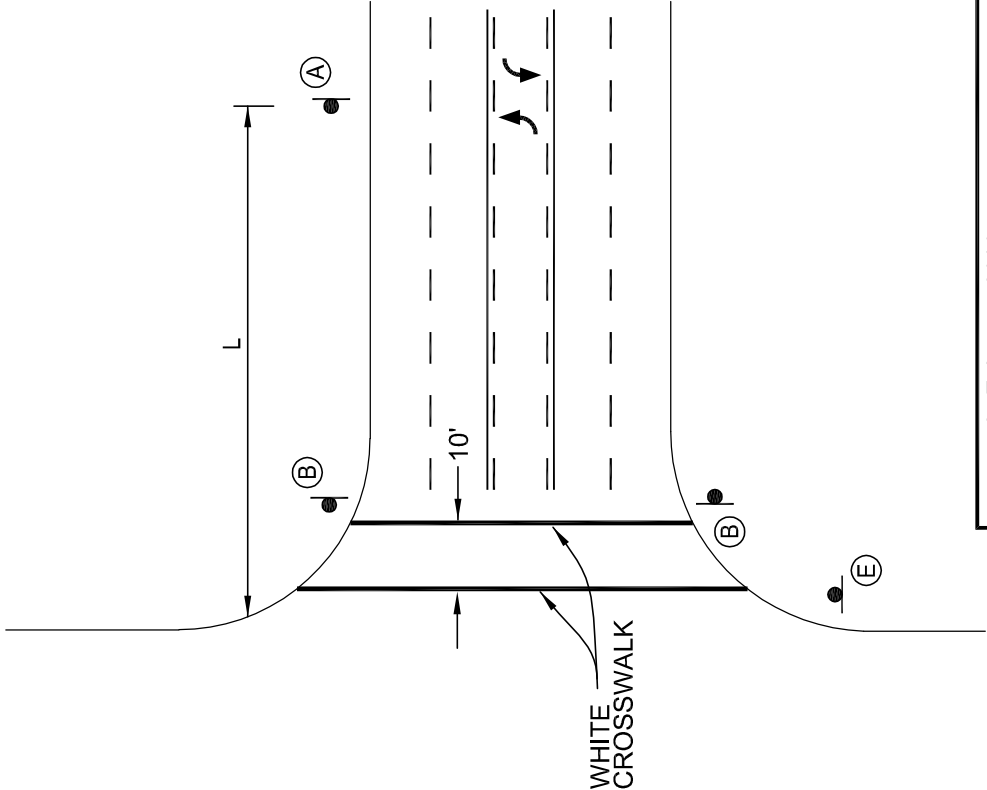
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	250
30	300
35	350
40	400
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

- 1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
- 2. SEE NOTES, SHEET 13.

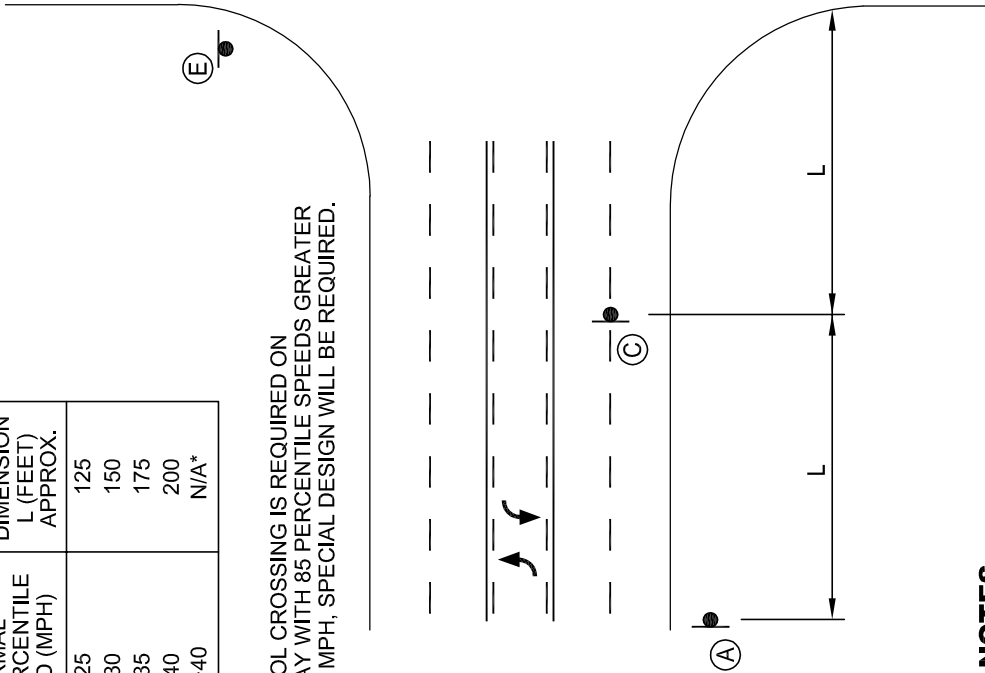


CASE 5B: 5-LANE ROAD, REDUCED SPEED

SCHEMATIC, NOT TO SCALE

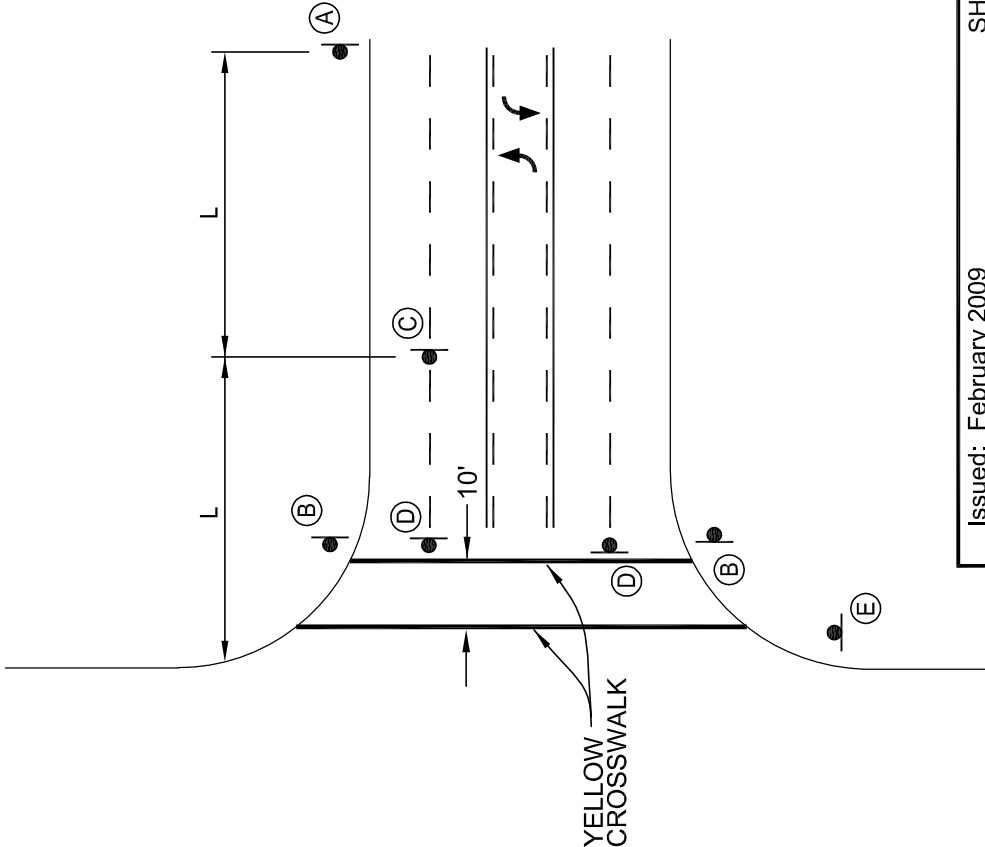
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	125
30	150
35	175
40	200
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

- 1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
- 2. SEE NOTES, SHEET 13.



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CITY OF YUMA

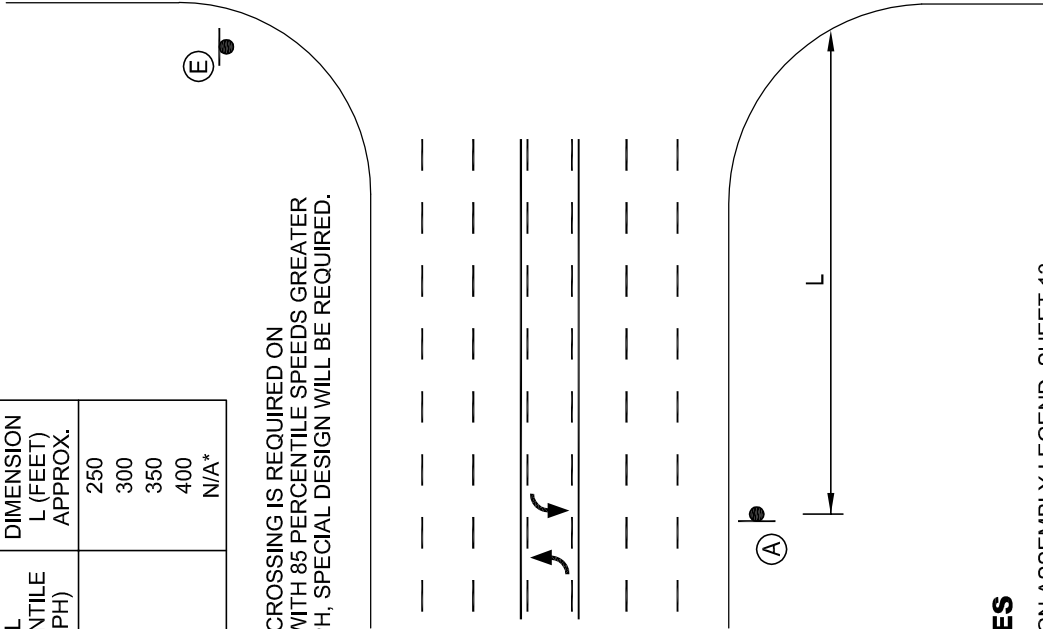
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 6A: 7-LANE ROAD, NO REDUCED SPEED
SCHEMATIC, NOT TO SCALE

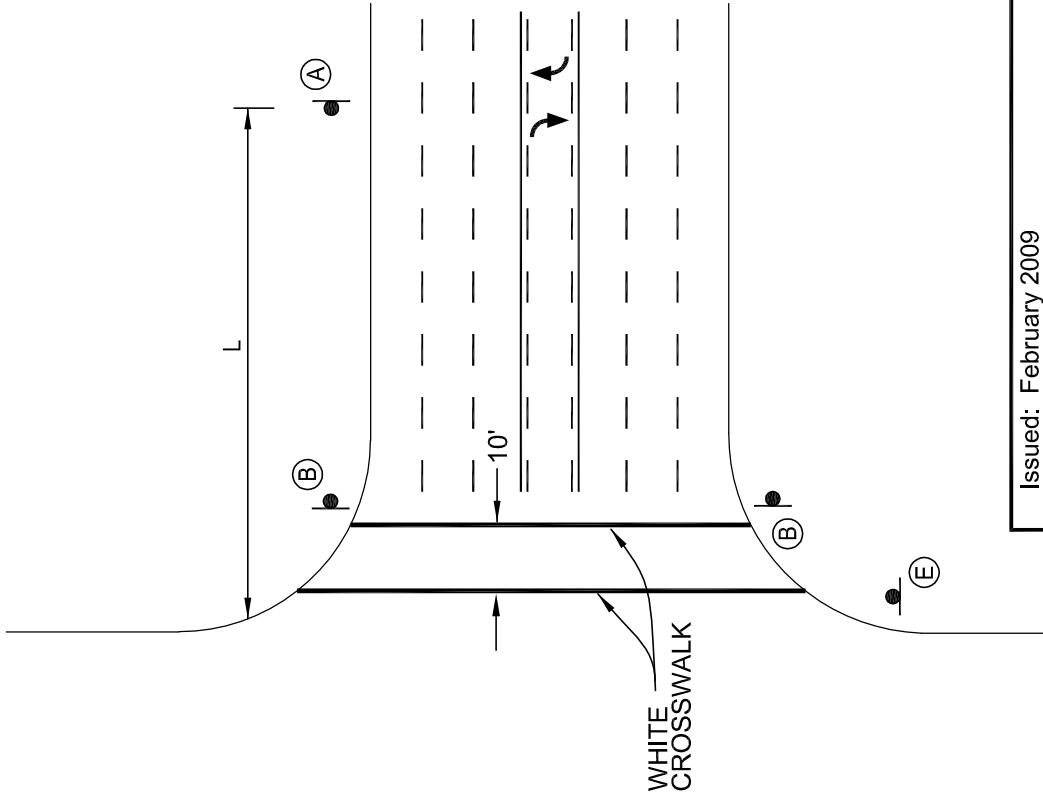
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	250
30	300
35	350
40	400
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.



NOTES

- SEE SIGN ASSEMBLY LEGEND, SHEET 13.
- SEE NOTES, SHEET 13.



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SHEET 11 OF 13

CITY OF YUMA

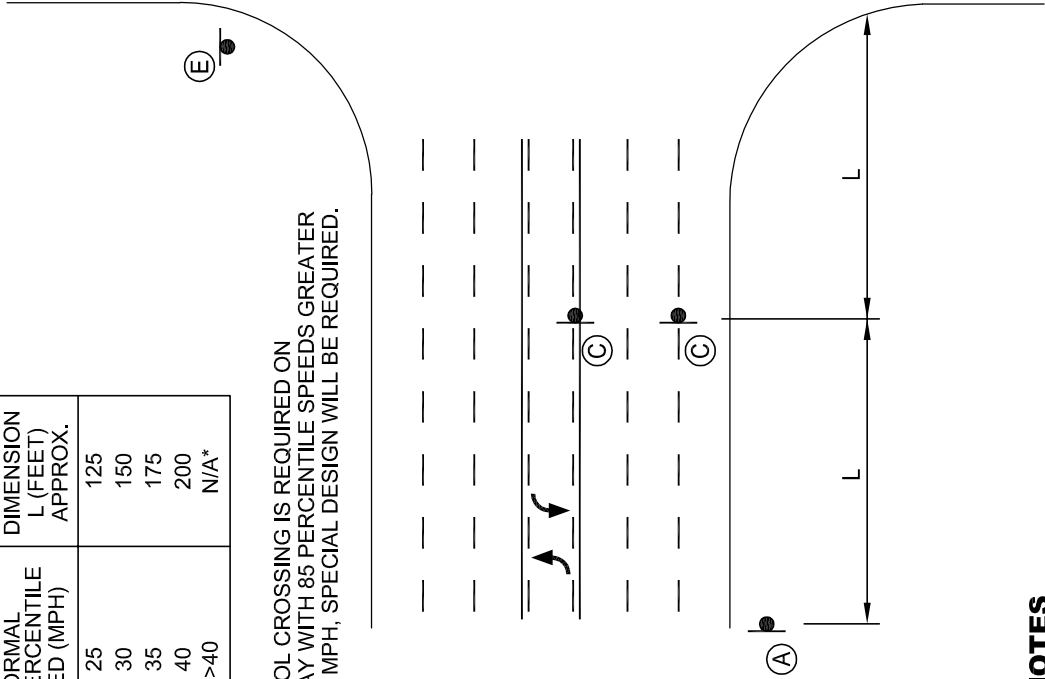
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 9-022
SCHOOL CROSSING
SIGNING AND MARKING

CASE 6B: 7-LANE ROAD, REDUCED SPEED
SCHEMATIC, NOT TO SCALE

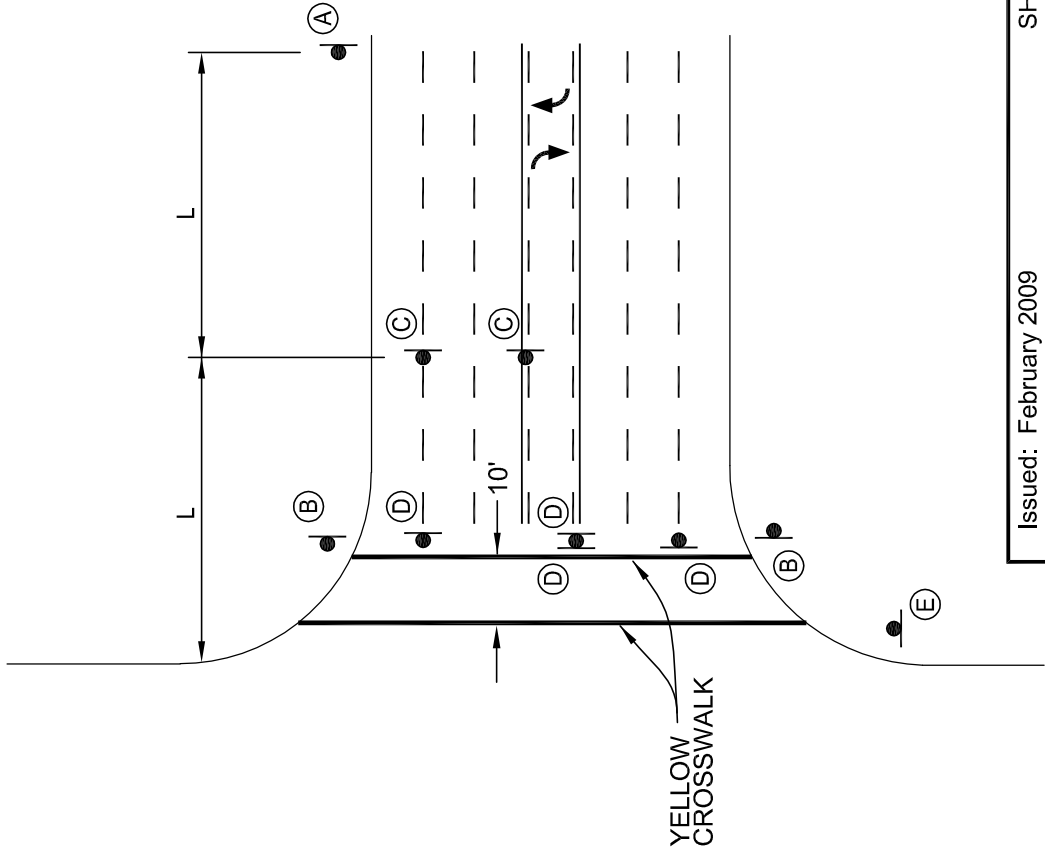
NORMAL 85th PERCENTILE SPEED (MPH)	DIMENSION L (FEET) APPROX.
25	125
30	150
35	175
40	200
>40	N/A*

* IF SCHOOL CROSSING IS REQUIRED ON ROADWAY WITH 85 PERCENTILE SPEEDS GREATER THAN 40 MPH, SPECIAL DESIGN WILL BE REQUIRED.

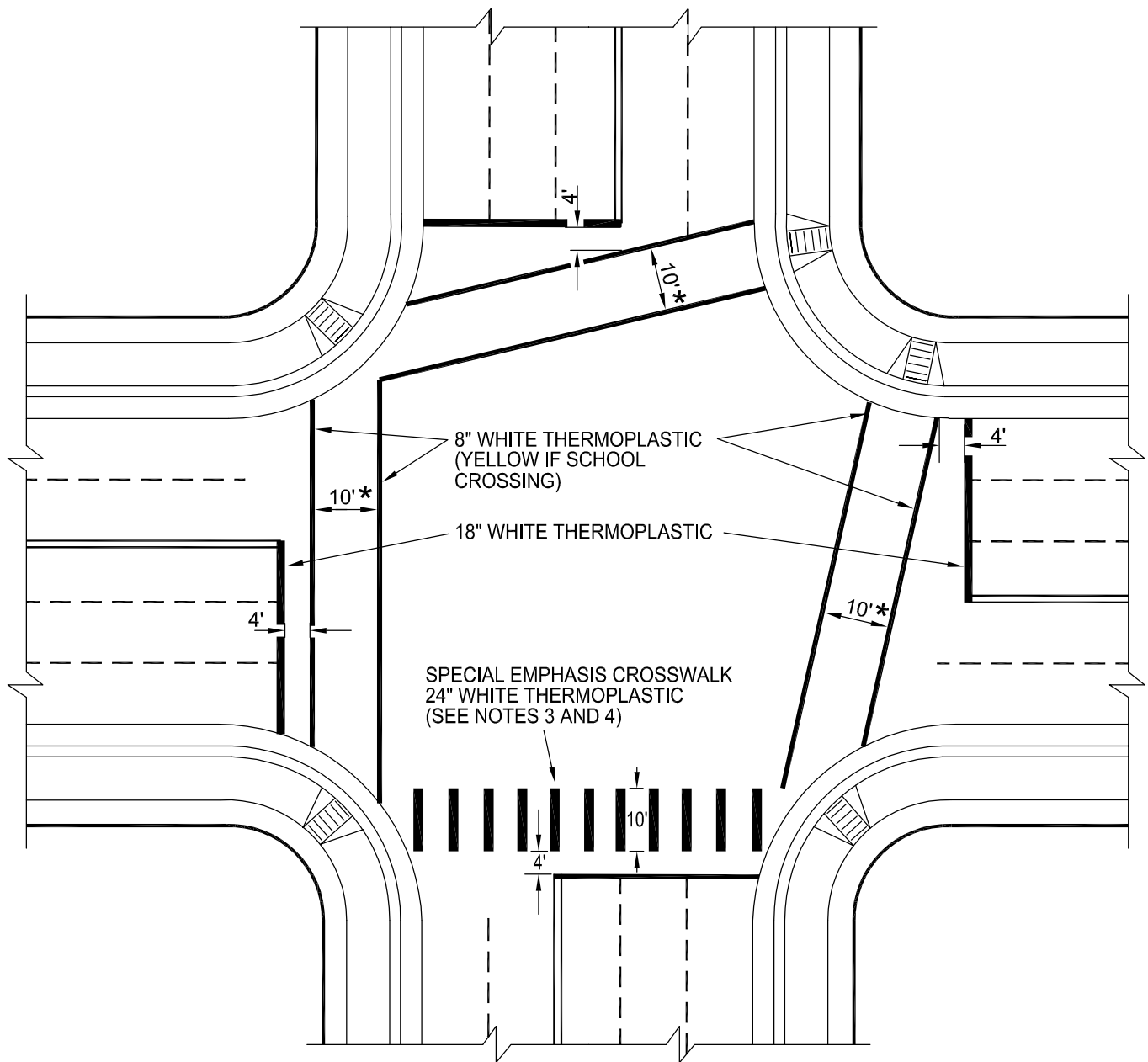


NOTES

1. SEE SIGN ASSEMBLY LEGEND, SHEET 13.
2. SEE NOTES, SHEET 13.



SIGN ASSEMBLY LEGEND NOTE: ALL SIGNS MUST BE REFLECTORIZED.	SYMBOL LEGEND
NO REDUCED SPEED CASES NOTES 1. SEE STANDARD 9-110 FOR PAVEMENT MARKING DEFINITIONS. 2. SCHOOL CROSSING GUARD MUST BE PRESENT DURING SCHOOL CROSSING PERIODS. 3. CROSSING GUARD MAY ONLY CONTROL ONE CROSSWALK. 4. CROSSING GUARD MUST WORK WITH TRAFFIC, SELECTING AVAILABLE GAPS AND ONLY CREATING GAPS WHEN NONE ARE REASONABLY AVAILABLE. 5. CROSSING GUARD MUST NOT DIRECT VEHICLE TRAFFIC. 6. TREAT MID-BLOCK SCHOOL CROSSING IN ESSENTIALLY THE SAME MANNER.	REDUCED SPEED CASES NOTES 1. SEE STANDARD 9-110 FOR PAVEMENT MARKING DEFINITIONS. 2. SCHOOL CROSSING GUARD MUST BE PRESENT DURING SCHOOL CROSSING PERIODS. 3. CROSSING GUARD MAY ONLY CONTROL SCHOOL CROSSWALK. 4. CROSSING GUARD MUST WORK WITH TRAFFIC, SELECTING AVAILABLE GAPS AND ONLY CREATING GAPS WHEN NONE ARE REASONABLY AVAILABLE. 5. CROSSING GUARD MUST NOT DIRECT VEHICLE TRAFFIC. 6. SIGN ASSEMBLIES (C) AND (D) MUST BE PORTABLE AND REMOVED FROM THE ROADWAY AND TURNED AWAY FROM THE STREET WHEN CROSSING GUARD IS NOT PRESENT. 7. A 2-FOOT DIAMETER SOLID YELLOW DOTS MAY BE MARKED ON THE PAVEMENT TO INDICATE THE LOCATION OF SIGN ASSEMBLIES (C).
Issued: February 2009	SHEET 13 OF 13
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS	STANDARD NO. 9-022 SCHOOL CROSSING SIGNING AND MARKING



* CENTER TO CENTER OF MARKINGS.

NOTES:

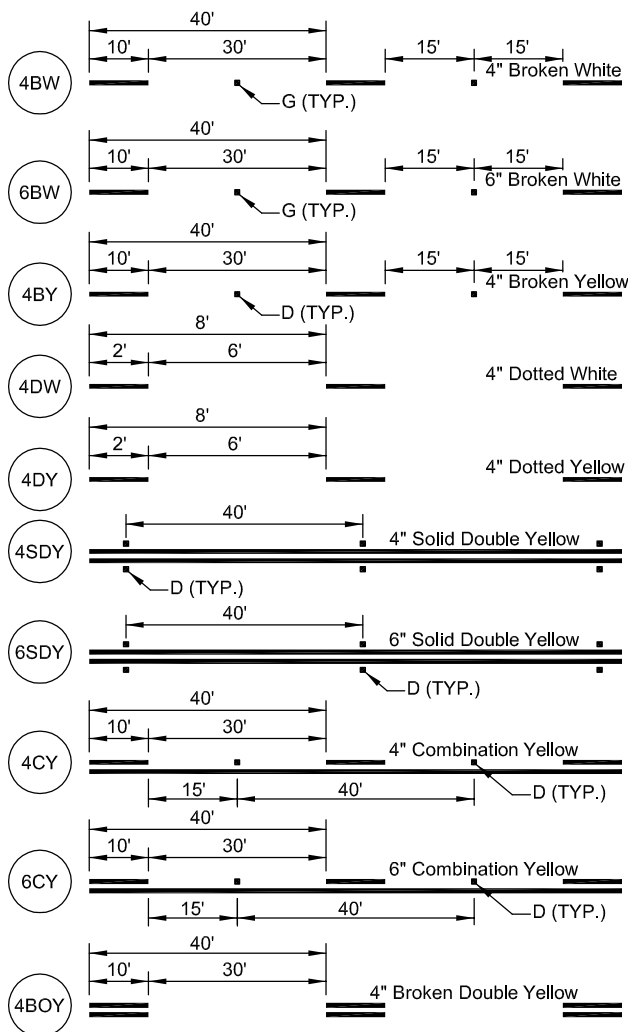
1. THERMOPLASTIC PAVEMENT MARKINGS MUST BE 90 MILS THICK (MINIMUM) AND MEET ALL A.D.O.T. SPECIFICATIONS.
2. THE MARKINGS MUST CONTAIN 30% TO 40% (BY WEIGHT) REFLECTIVE GLASS INTER-MIXED BEADS. AN ADDITIONAL 10LBS OF GLASS BEADS MUST BE EVENLY APPLIED TO THE SURFACE OF THE MOLTEN MATERIAL PER 100 SQ. FT. OF LINE.
3. SPECIAL EMPHASIS CROSSWALKS TO BE USED ONLY AS DIRECTED BY THE CITY'S TRAFFIC ENGINEER.
4. SPECIAL EMPHASIS CROSSWALK LINES TO BE CENTERED ON LANE LANES AND CENTERS OF LANES.
5. CROSSWALKS WILL GENERALLY NOT BE USED AT UNSIGNALIZED INTERSECTIONS EXCEPT FOR DESIGNATED SCHOOL CROSSINGS AND OTHER LOCATIONS APPROVED BY THE CITY'S TRAFFIC ENGINEER.

6. SEE STANDARD 9-110.

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CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-100
INTERSECTION PAVEMENT
MARKINGS

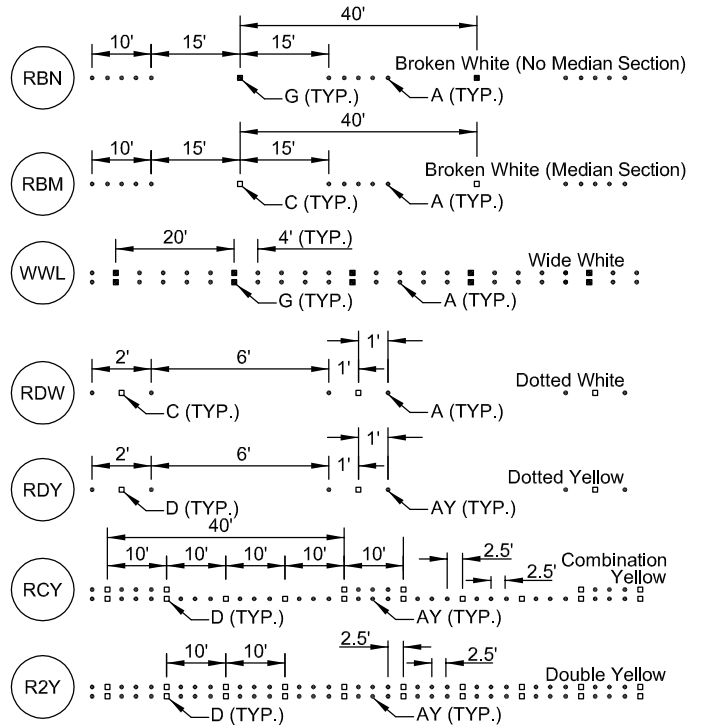
PAINTED OR THERMOPLASTIC LINES



NOTES

- SEE ARIZONA DEPARTMENT OF TRANSPORTATION DRAWING M-19 FOR RAISED PAVEMENT MARKER DESIGN.
- DOUBLE LINES MUST BE 4" (NOMINAL) APART, REGARDLESS OF MATERIAL.
- LONGITUDINAL LINES MUST USE RAISED PAVEMENT MARKERS UNLESS OTHERWISE NOTED.
- TRANSVERSE, CHEVRON AND SLASH LINES MUST BE THERMOPLASTIC UNLESS OTHERWISE NOTED.

RAISED PAVEMENT MARKER LINES



RAISED PAVEMENT MARKER TYPES

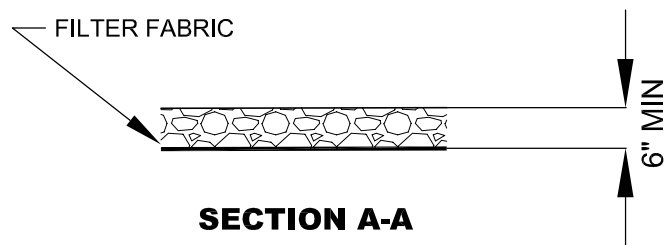
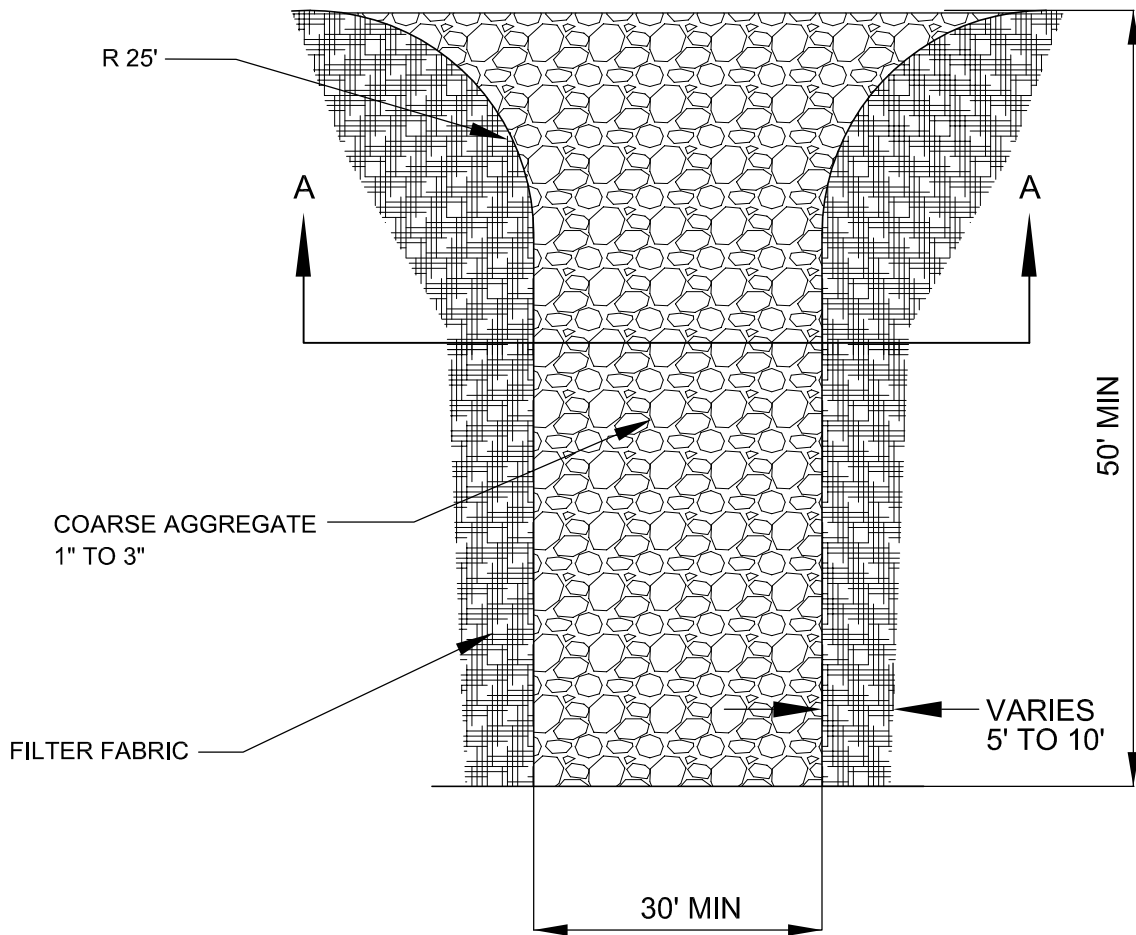
- TYPE A WHITE (NON-REFLECTIVE)
 TYPE AY YELLOW (NON REFLECTIVE)
 TYPE D YELLOW, TWO-WAY (REFLECTIVE)
 TYPE G CLEAR (REFLECTIVE)
 TYPE C CLEAR TOWARD TRAFFIC, RED AWAY FROM TRAFFIC (REFLECTIVE)

LINE USES				
TYPE OF LINE	WIDTH OF PAINT OR THERMOPLASTIC (INCHES)		SYMBOL	
	CITY ROAD	ADOT ROAD	CITY ROAD	ADOT ROAD
Lane Lines Broken Solid	4" 4"	6" 12"	RBN, RBM, or 4BW WWL or 4SW	RBN, RBM, or 6BW 12SW or WWL
Dotted Guide Lines White Yellow	4" 4"	4" 4"	RDW or 4DW RDY or 4DY	RDW or 4DW RDY or 4DY
Center Lines Double Yellow Combination Yellow	4"- 4"- 4" 4"- 4"- 4"	6"- 4"- 6" 6"- 4"- 6"	R2Y or 4SDY RCY or 4CY	R2Y or 6SDY RCY or 6CY
Edge Lines	4"	6"	4SW	6SW
Channelizing Lines	8"	12"	8SW	12SW
Gore Lines	8"	12"	8SW	12SW
Crosswalk Lines	8"	12"	8SW	12SW
Stop Bars	18"	18"	SB	SB
Chevron & Slash Lines White Yellow	12" 12"	12" 12"	CHW CHY	CHW CHY
Pavement Legends Arrow 1 Head 2 Head 3 Head Only	— — — — —	— — — — —	1AR 2AR 3AR ON	1AR 2AR 3AR ON

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CITY OF YUMA
 CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 9-110
PAVEMENT MARKING
DEFINITIONS

**HARD SURFACE
PUBLIC ROAD**



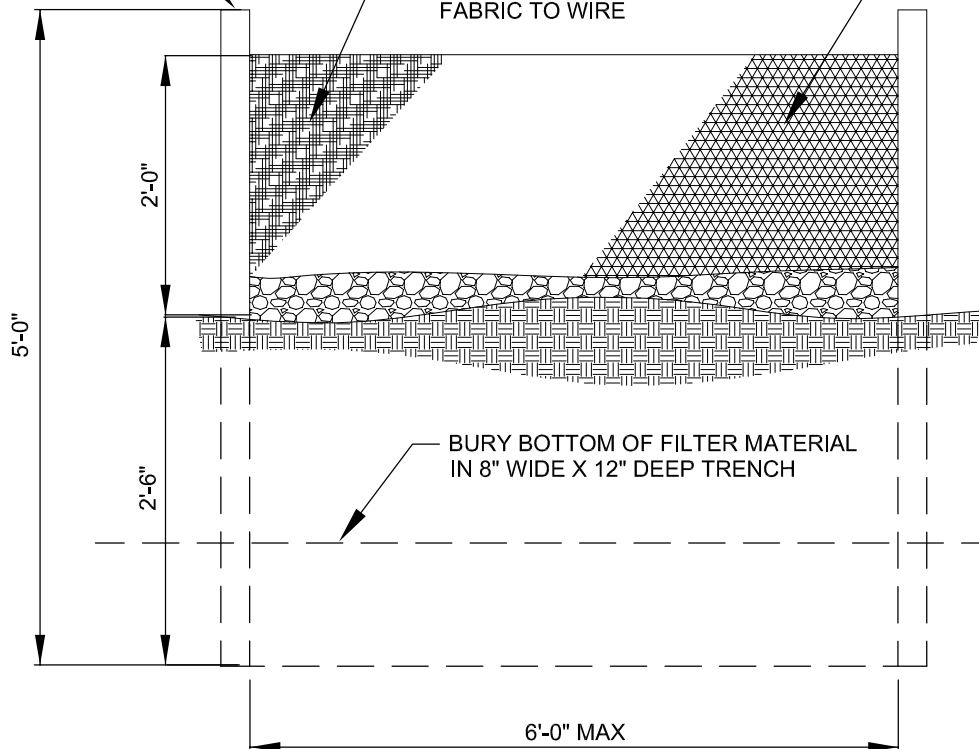
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-010
STABILIZED CONSTRUCTION
EXIT/ENTRANCE

2" X 4" WOOD POST. STANDARD
OR BETTER OR EQUAL ALTERNATE
STEEL FENCE POST

FILTER FABRIC MATERIAL
60' LONG ROLLS. USE STAPLES
OR WIRE RINGS TO ATTACH
FABRIC TO WIRE

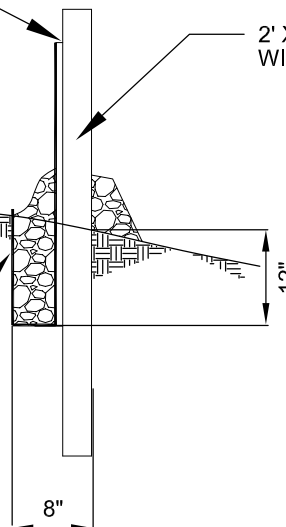
2' X 2" 14 GA WIRE
FABRIC OR EQUIV.



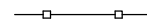
FILTER FABRIC MATERIAL

2' X 2" 14 GA
WIRE FABRIC OR EQUIV.

PROVIDE 3/4"- 1 1/2" WASHED
GRAVEL BACKFILL IN TRENCH AND
ON BOTH SIDES OF FILTER FABRIC
ON THE SURFACE



SYMBOL
S.F.

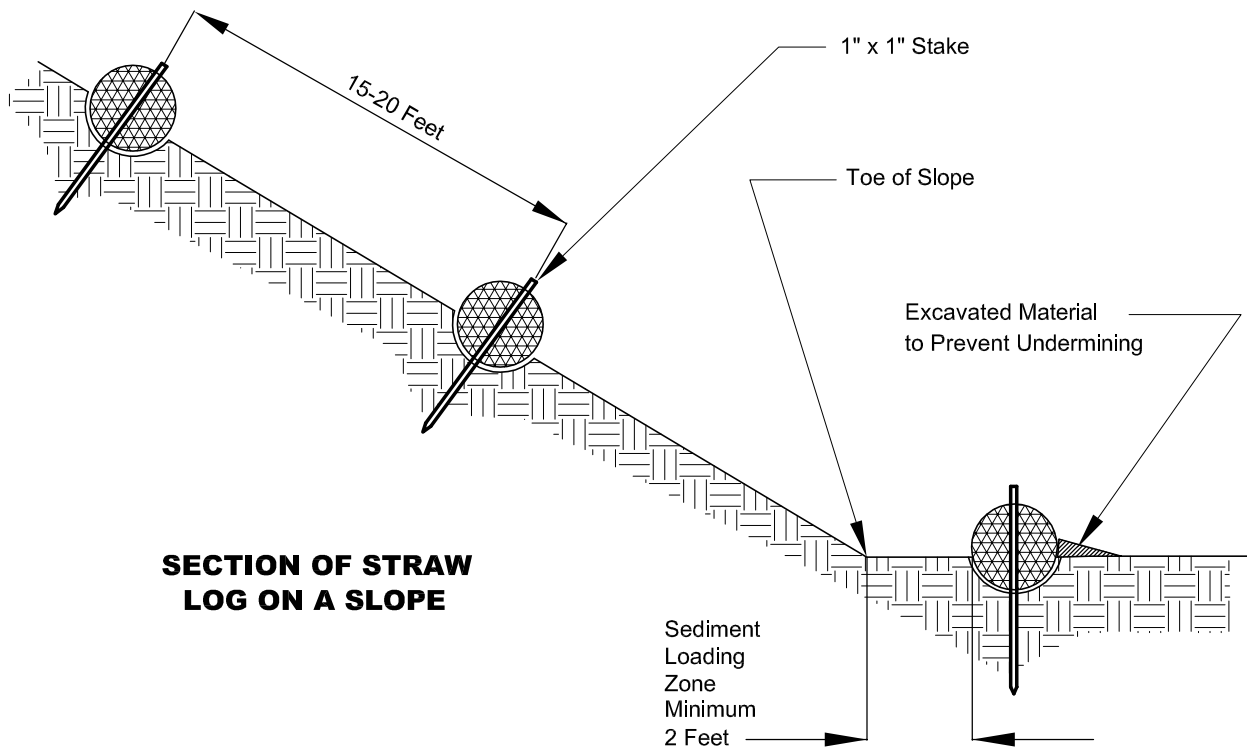


Issued: February 2009

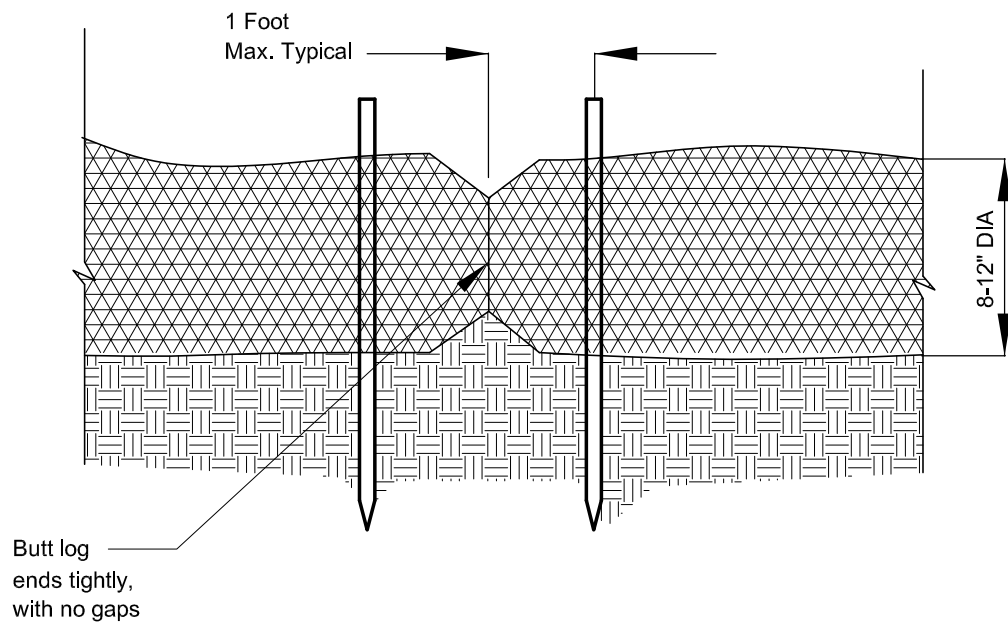
CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 10-020

SILT FENCE



SECTION OF STRAW LOG ON A SLOPE



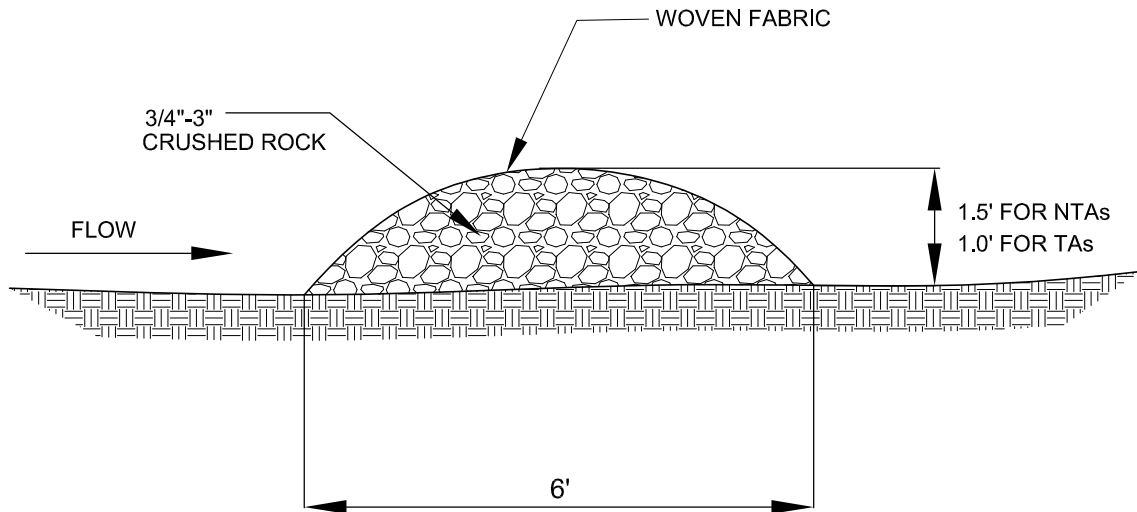
STRAW LOGS CONNECTION

SYMBOL
SL-1 & SL-2



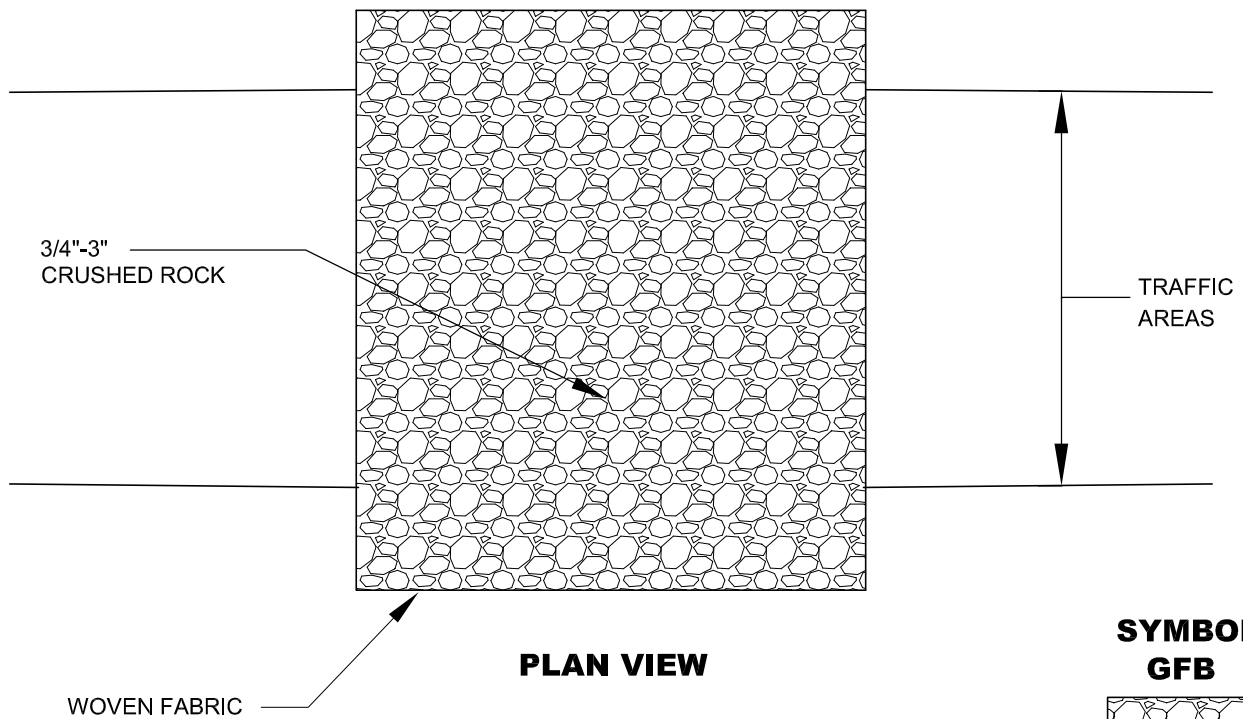
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-030
SEDIMENT LOGS (WATTLES)



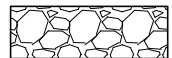
SECTIONAL ELEVATION

NTAs: NON-TRAFFIC AREAS
TAs: TRAFFIC AREAS



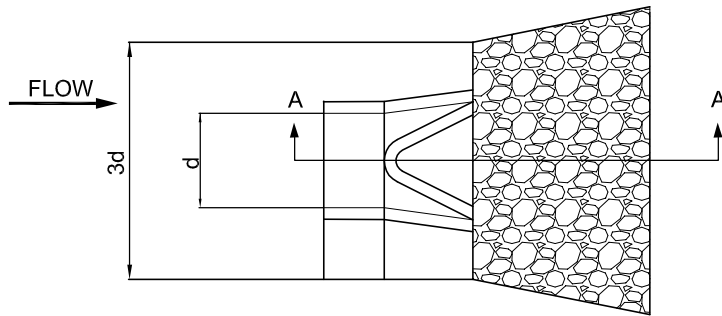
PLAN VIEW

**SYMBOL
GFB**



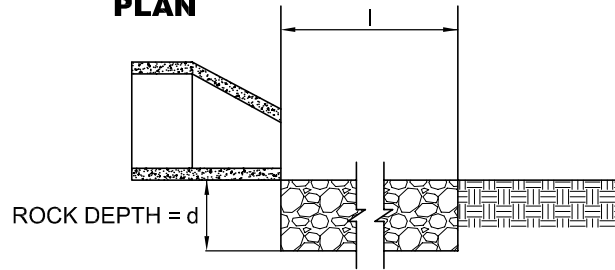
Issued: February 2009

CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-040
GRAVEL FILTER BERN



I = LENGTH OF APRON
d = INSIDE PIPE DIAMETER

PLAN



SECTION A-A

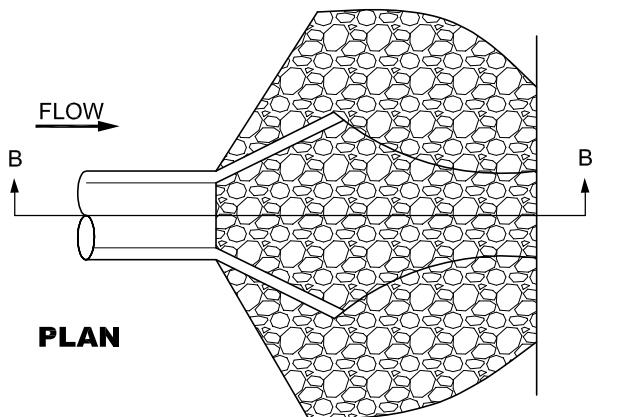
PIPE OUTLET TO FLAT AREA
WITH NO DEFINED CHANNEL

NOTES

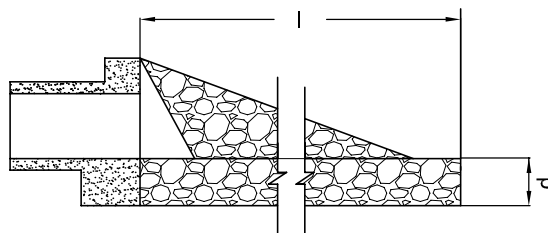
1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, OR CONCRETE
2. WHEREAS TECHNICAL DESIGN PROCEDURES EXIST FOR DETERMINING I, IT IS RECOMMENDED TO USE THE FOLLOWING TABLE FOR TEMPORARY ROCK OUTLET PROTECTION

PIPE SIZE INCH	AVERAGE ROCK DIA INCH	I FEET
12	6	12
15	10	18
18	12	21
21	15	25
24	15	30

3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6 INCHES



PLAN



SECTION B-B

PIPE OUTLET TO WELL-DEFINED CHANNEL

PIPE OUTLET CONDITIONS

SYMBOL
RR

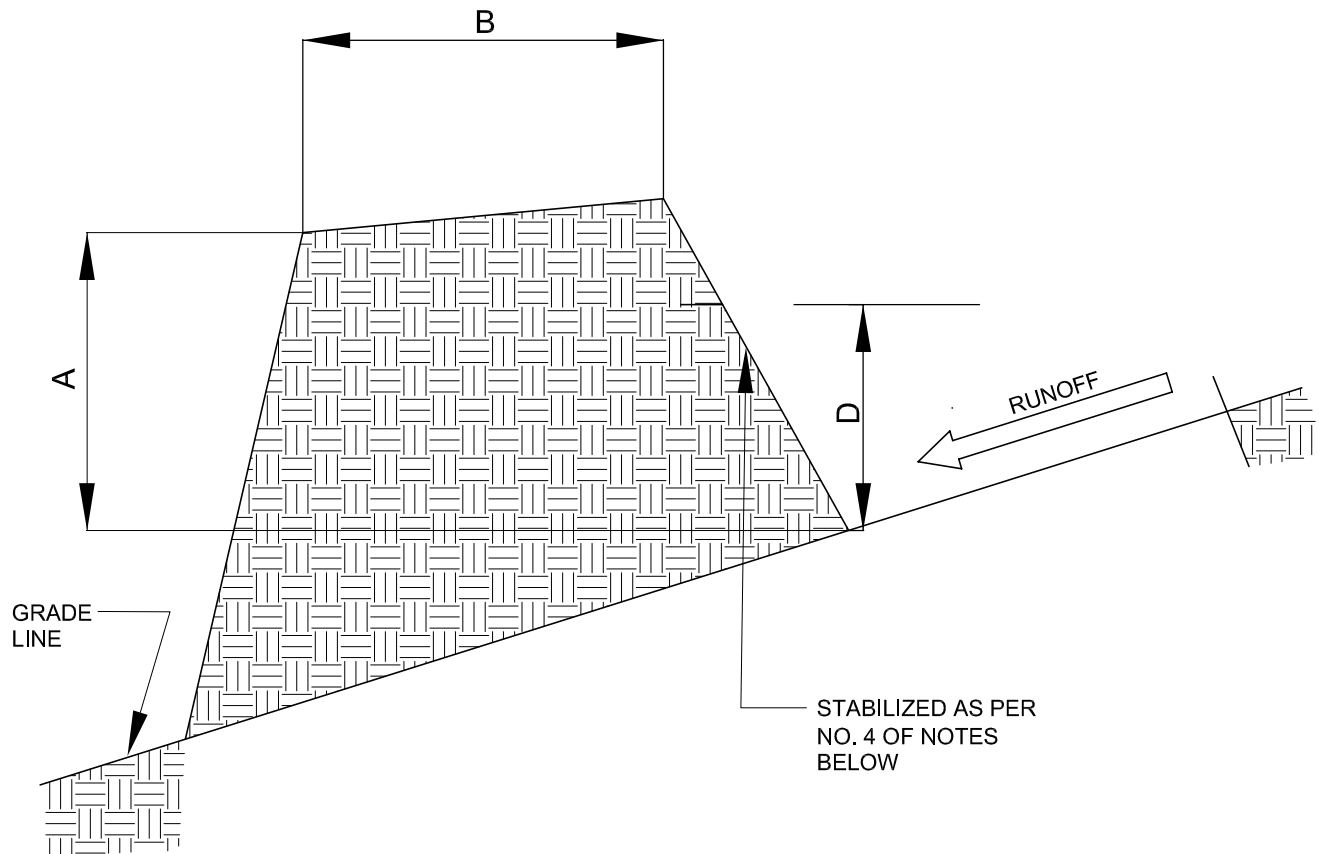


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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 10-050

PIPE OUTLET PROTECTION



RECOMMENDED STANDARDS:

DIMENSION	INCHES
A-DIKE HEIGHT	18
B-DIKE WIDTH	24
D-FLOW DEPTH	8

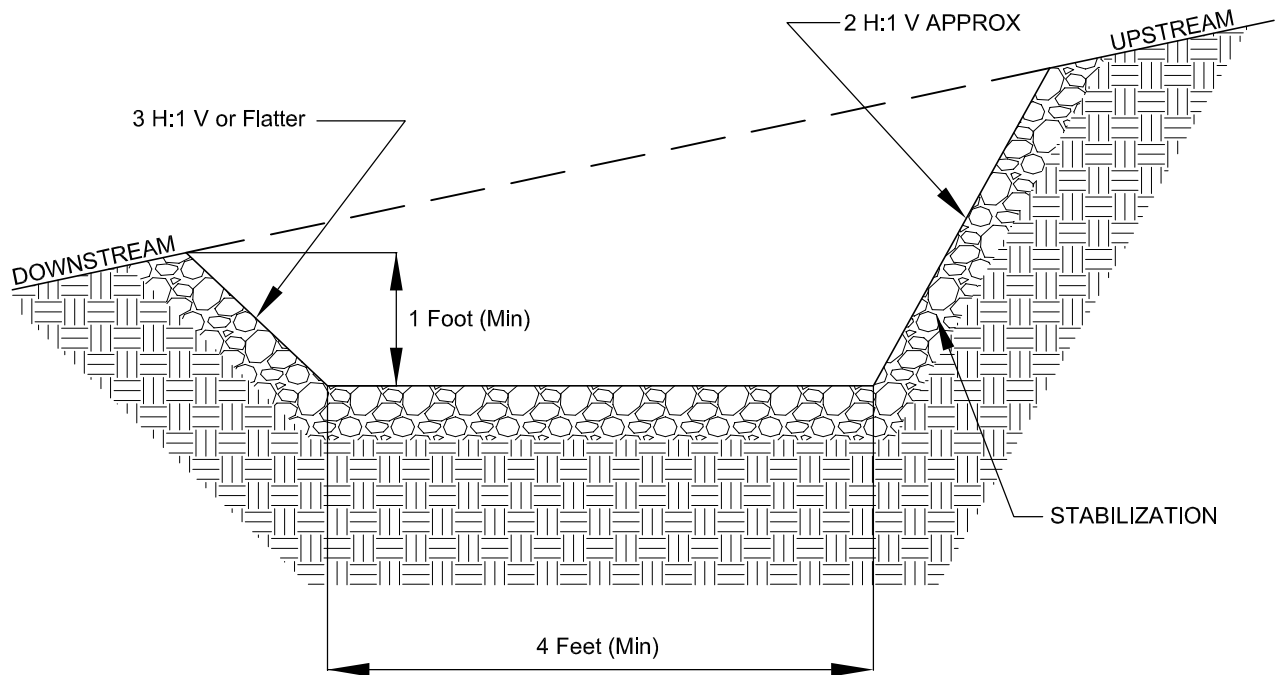
NOTES

- 1- ALL DIKES SHOULD BE COMPACTED BY EARTH-MOVING EQUIPMENT
- 2- ALL DIKES SHOULD HAVE POSITIVE DRAINAGE DOWNSTREAM
- 3- TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC
- 4- STONE, RECYCLED CONCRETE OR EQUIVALENT MAY BE APPLIED IN A LAYER AT LEAST 8 INCHES THICK AND BE PRESSED INTO THE SOIL TOP WITH CONSTRUCTION EQUIPMENT

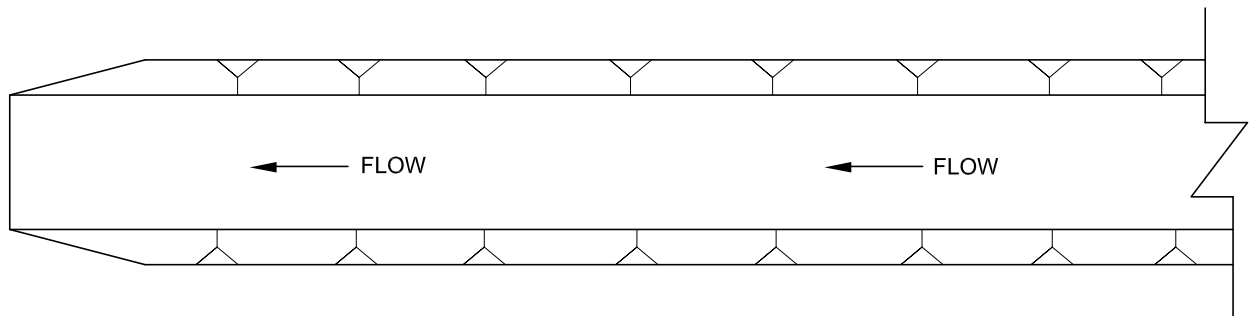
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 10-060
TEMPORARY DIVERSION DIKE



CROSS SECTION VIEW



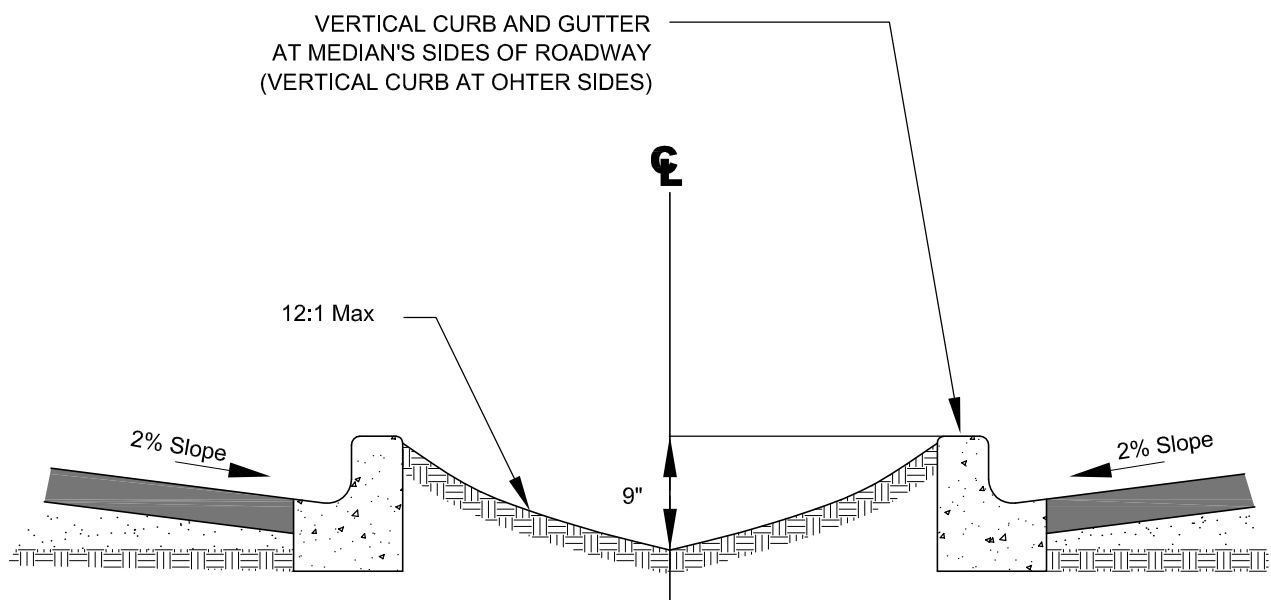
PLAN VIEW

CHANNEL GRADE %	DRAINAGE AREA < 5 ACRES	5-10 ACRES
0.5-1.0	4" RIP-RAP	4" RIP-RAP
1.1-2.0	6" RIP-RAP	6" RIP-RAP
2.1-3.0	8" RIP-RAP	6-12" RIP-RAP
0.5-1.0	8-12" RIP-RAP	4" RIP-RAP

SYMBOL
TDS

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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-070
TEMPORARY DRAINAGE SWALE



NOTES:

- 1- UNPAVED MEDIANS SHALL BE LANDSCAPED
- 2- ALL CONCRETE SHALL BE CLASS B
- 3- PROVIDE CURB CUTS WITH APPROPRIATE LONGITUDINAL GRADE FOR ROADWAY DRAINAGE
- 4- PROVIDE VERTICAL CURB PER STANDARD 3-150 ON THE OTHER SIDE OF THE ROADWAY
- 5- MEDIAN SHALL NOT BE COMPACTED

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CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-080
STANDARD CONCAVE MEDIAN

This diagram illustrates a circular stormwater filter unit installed within a concrete slab. The unit is circular with a diameter of approximately 18 inches. It features a central 'DRAIN INLET WITH GRATE' and is surrounded by a 'GRAVEL FILTER' layer. The entire unit is encased in 'CONCRETE BLOCKS'. A 'FILTER FABRIC' is shown at the bottom of the unit, with a dimension line indicating a height of approximately 18 inches. A label 'A' points to the side of the unit.

A cross-sectional diagram of a concrete block inlet. The inlet is formed by concrete blocks with a central opening. The top of the inlet is covered by a layer of gravel filter, which is topped by a layer of filter fabric. The filter fabric is shown as a wavy line. The gravel filter is shown as a stippled pattern. The concrete blocks are shown as rectangular blocks with a central opening. The diagram includes dimension lines and labels: 'FILTER FABRIC' points to the top layer, 'GRAVEL FILTER' points to the stippled layer, and 'CONCRETE BLOCKS SET LENGTHWISE ON SIDE @ PERIMETER OF INLET' points to the blocks. A dimension line indicates a width of '16"'. Another dimension line indicates a height of '18" (APPROXIMATELY)'.

FILTER FABRIC

GRAVEL FILTER

CONCRETE BLOCKS SET LENGTHWISE ON SIDE @ PERIMETER OF INLET

16"

18" (APPROXIMATELY)

A cross-sectional diagram of a catch basin installation. The diagram shows a concrete sidewalk on the right, sloping down towards a catch basin. A layer of filter fabric is placed between the sidewalk and the catch basin. The gutter is shown on the left, with a label indicating a gap of 3/4" to 3" between the gutter and the filter fabric. The catch basin is labeled 'CATCH BASIN' and is shown with a concrete curb on the left and a concrete base on the right. The filter fabric is labeled 'FILTER FABRIC' and is shown as a layer of material between the sidewalk and the catch basin. The gutter is labeled 'GUTTER' and is shown as a channel on the left. The diagram illustrates the proper installation of the filter fabric to prevent debris from entering the catch basin.

PLAN

- 1- Place hardware cloth or comparable wire mesh with one-half inch openings over the drop inlet so that the wire extends a minimum of one foot beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place filter fabric over the wire mesh.
- 2- Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut.
- 3- Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or wire mesh with 0.50 inch openings.
- 4- Place 3/4 inch gravel over the filter fabric/wire mesh. The depth of the gravel is to be the closest to the height of the blocks as maximum.
- 5- Periodically, change gravel with new, clean gravel. Old gravel may be used as backfill material if approved by the Engineer.

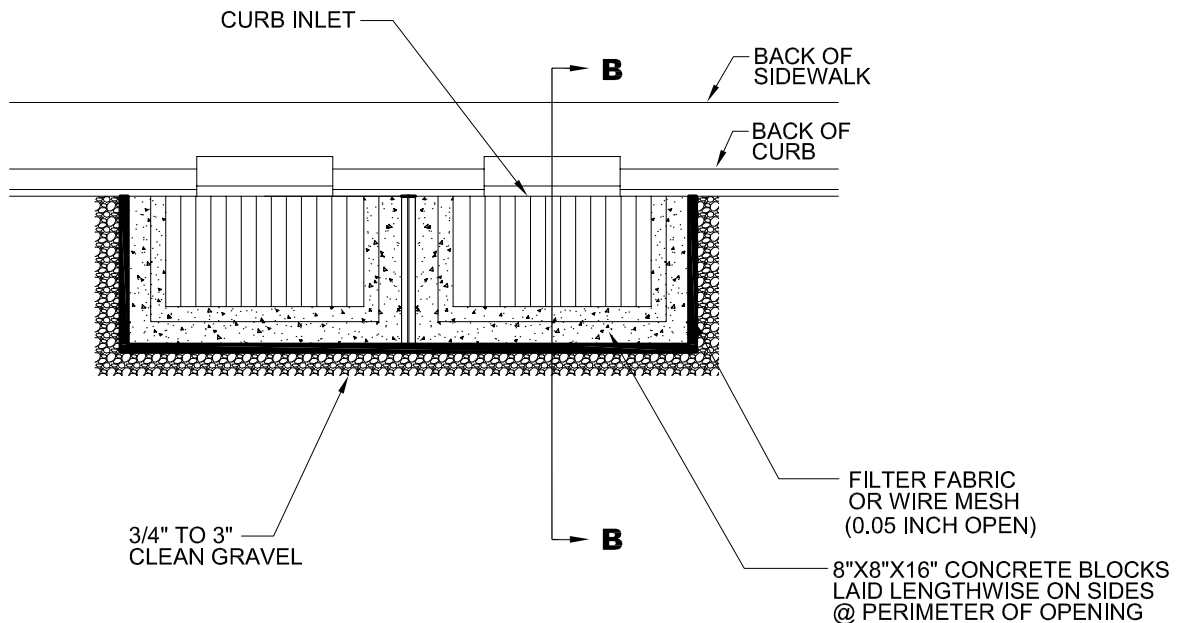
- 1- Make sure the blocks are in good shape and not displaced.
- 2- Check the gravel piled around the blocks to make sure gravel is not washing through the fabric and blocks.
- 3- Do not clean gravel adjacent to any inlet or waterway.
- 4- Remove sediment behind the gravel pack when it reaches on third the block height.
- 5- Check for any non-stormwater discharges that might enter the inlet.

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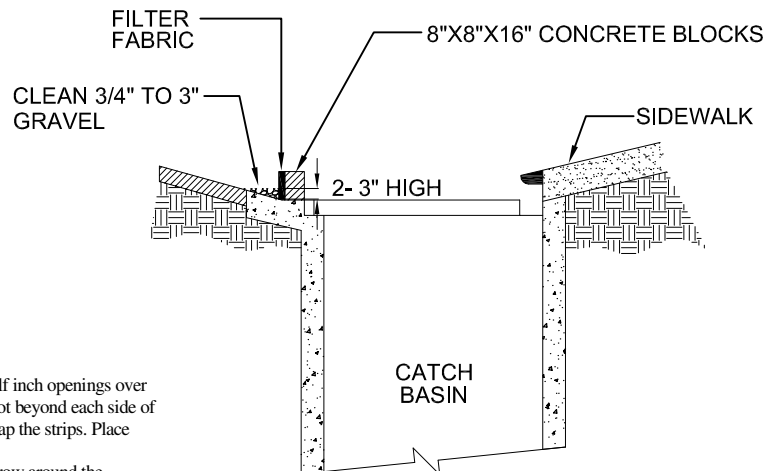
CONSTRUCTION STANDARD DETAIL DRAWINGS

STANDARD NO. 10-090

INLET PROTECTION



ROCK INLET PROTECTION PLAN



CATCH BASIN CURB INLET SECTION B-B

Installation Procedure for Block and Gravel Filter:

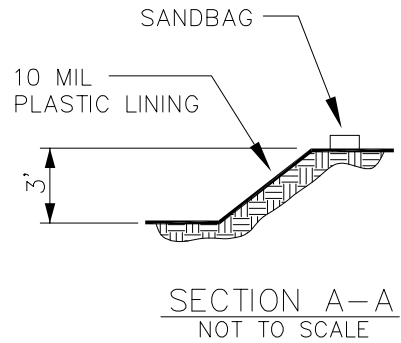
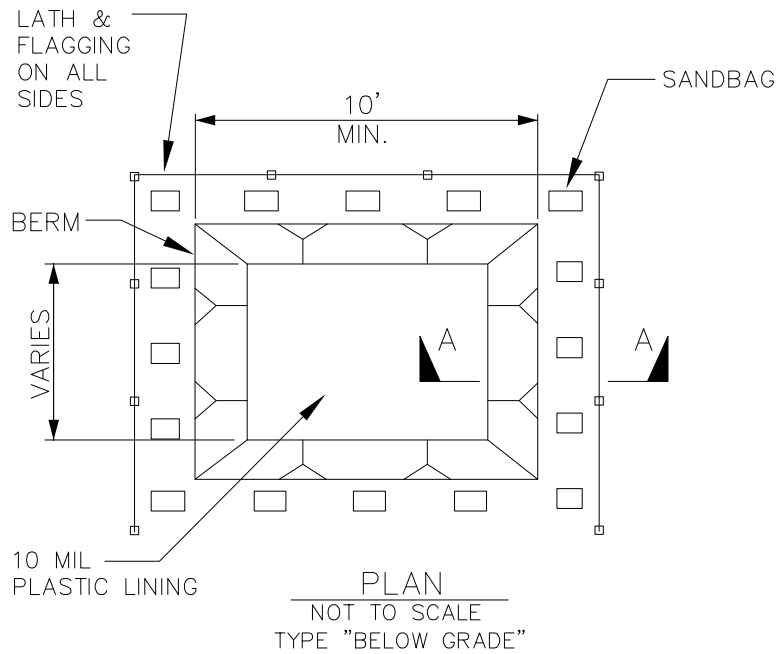
- 1- Place hardware cloth or comparable wire mesh with one-half inch openings over the drop inlet so that the wire extends a minimum of one foot beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place filter fabric over the wire mesh.
- 2- Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut.
- 3- Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or wire mesh with 0.50-inch openings.
- 4- Place 3/4 to 3-inch gravel over the filter fabric/wire mesh. The depth of the gravel is to be the closest to the height of the blocks as maximum.
- 5- Periodically, change gravel with new, clean gravel. Old gravel may be used as backfill material if approved by the Engineer.

Inspection Checklist:

- 1- Make sure the blocks are in good shape and not displaced.
- 2- Check the gravel piled around the blocks to make sure gravel is not washing through the fabric and blocks.
- 3- Do not clean gravel adjacent to any inlet or waterway.
- 4- Remove sediment behind the gravel pack when it reaches on third the block height.
- 5- Check for any non-stormwater discharges that might enter the inlet.

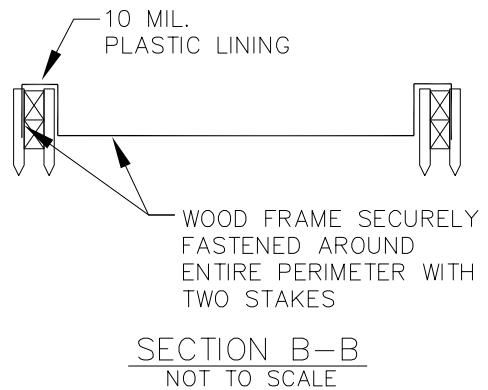
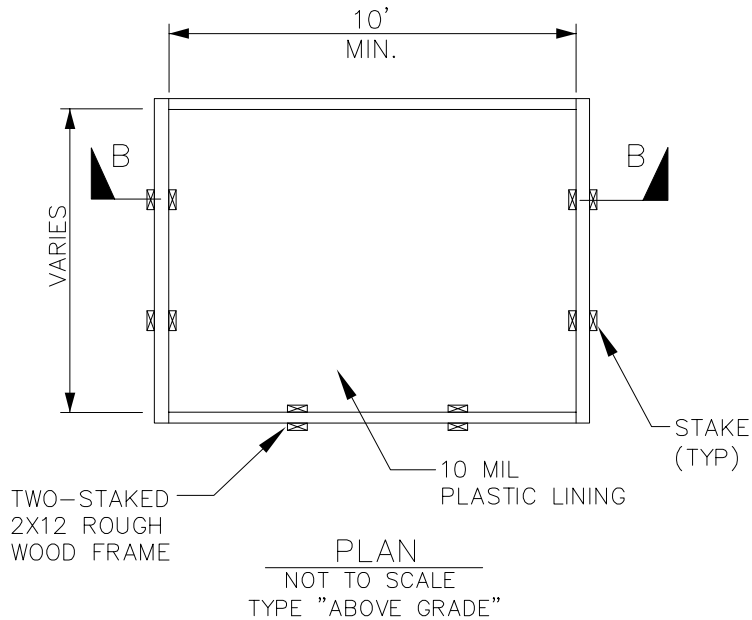
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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-110
INLET PROTECTION



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

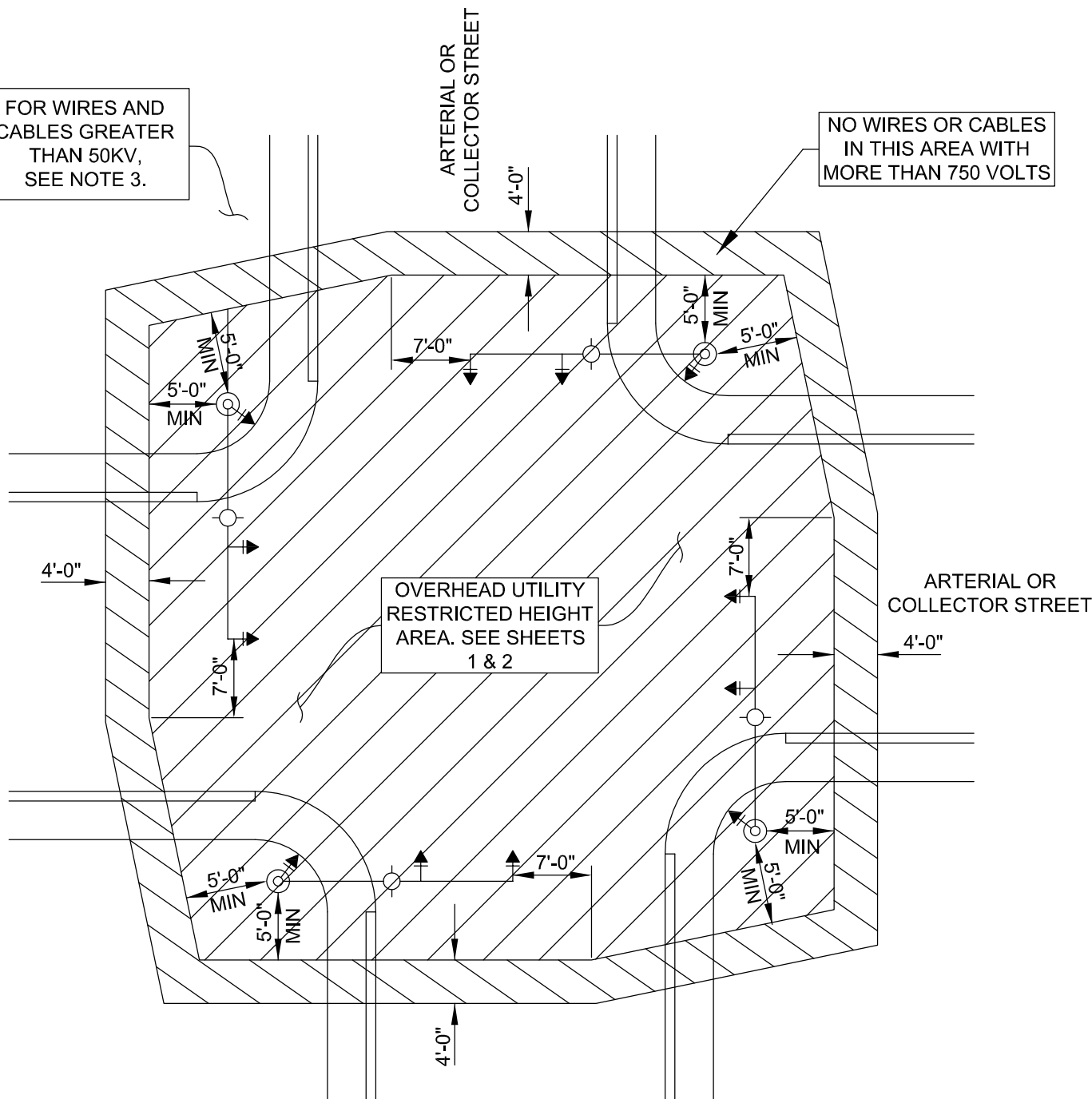


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CITY OF YUMA
CONSTRUCTION STANDARD DETAIL DRAWINGS
STANDARD NO. 10-120
CONCRETE WASH AREA

FOR WIRES AND CABLES GREATER THAN 50KV, SEE NOTE 3.

NO WIRES OR CABLES IN THIS AREA WITH MORE THAN 750 VOLTS



PLAN VIEW

NOTES

1. THIS STANDARD APPLIES TO ALL SIGNALIZED INTERSECTIONS REGARDLESS OF THE ROADWAY CLASSIFICATIONS AND TO UNSIGNALIZED INTERSECTIONS OF:
 - EXPRESSWAYS WITH EXPRESSWAYS
 - EXPRESSWAYS WITH ARTERIALS
 - EXPRESSWAYS WITH COLLECTORS
 - ARTERIALS WITH ARTERIALS
 - ARTERIALS WITH COLLECTORS
 - COLLECTORS WITH COLLECTORS
2. SEE CITY'S *MAJOR ROADWAYS PLAN*, CURRENT EDITION, FOR ROADWAY CLASSIFICATIONS.
3. INCREASE CLEARANCES 0.4 INCH PER KV FOR ALL VOLTAGES IN EXCESS OF 50KV.

Issued: February 2009	Sheet 3 of 3
CITY OF YUMA CONSTRUCTION STANDARD DETAIL DRAWINGS STANDARD NO. 11-010 OVERHEAD WIRE AND CABLE CLEARANCE AT SIGNIFICANT INTERSECTIONS	

NOT TO SCALE