



STANDARD PLANS

Prepared By:

The City of Oakley
Public Works and Engineering Department

JUNE 2016

OAKLEY

CALIFORNIA

*3231 Main Street
Oakley, CA 94561*

INTRODUCTION

The City of Oakley presents the first volume of Standard Plans developed by the Public Works and Engineering Department. The City of Oakley has adopted the Caltrans Standard Plans, but the City of Oakley Standard Plans are specific to the City's public improvements. The City Standard Plans will govern between conflicting details with Caltrans and Contra Costa County standard details.

These drawings shall be used in conjunction with the latest edition of the Caltrans Standard Specifications, Standard Specifications for Public Works Construction (i.e. "The GREENBOOK"), and project specific City of Oakley Specifications.

All details pertaining to the design of potable water, recycled water and sanitary sewer systems shall be reviewed and approved by Diablo Water District and Ironhouse Sanitary District respectively.

All curb ramps and accessible routes shall conform to Caltrans Standards, Americans with Disabilities Act Accessibility Guidelines (ADAAG), and Title 24 of the California Building Code.

These drawings are not to scale; therefore, they must be used with care and judgment.

A hard copy of the City of Oakley Standard Plans is available for purchase at the City of Oakley Permit Center located at 3231 Main Street, Oakley, CA 94561.

COMMENTS

The City of Oakley is committed to the quality of this publication and desires to correct any errors, omissions or ambiguities in the next publication of this document. If you have any comments, corrections, or additions you would like to submit for consideration to be included in the next publication, you are encouraged to submit them to:

City of Oakley
Public Works and Engineering Department
3231 Main Street
Oakley, CA 94561

(925) 625-7037

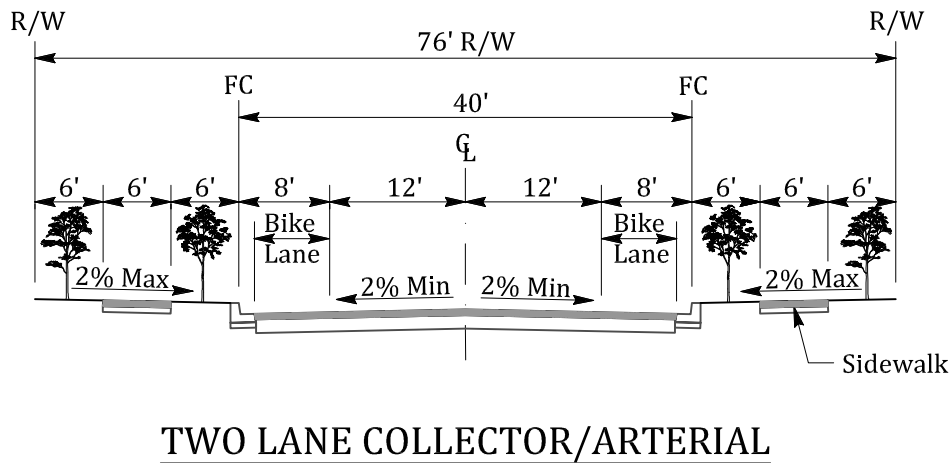
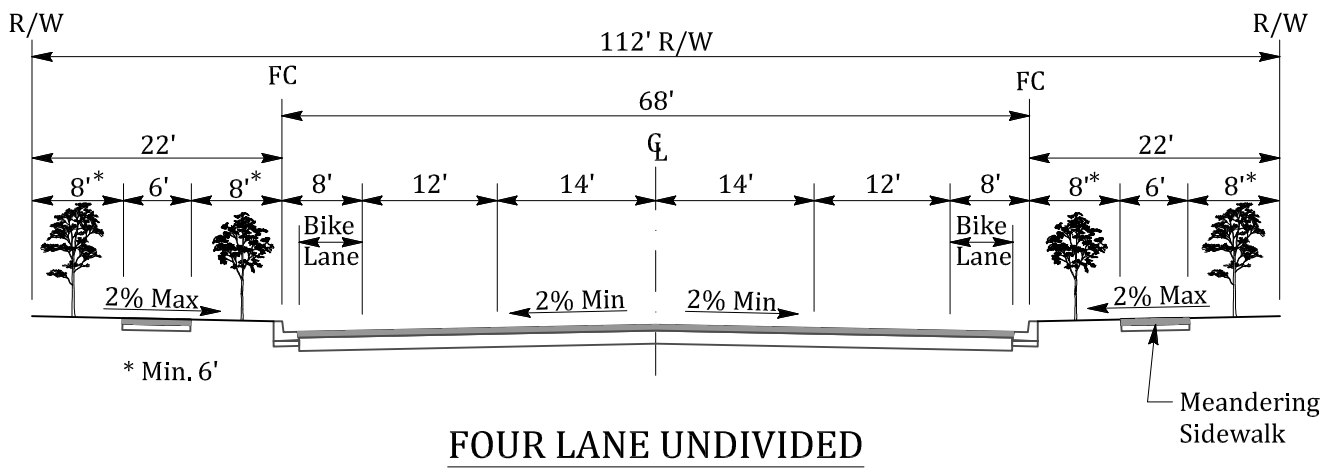
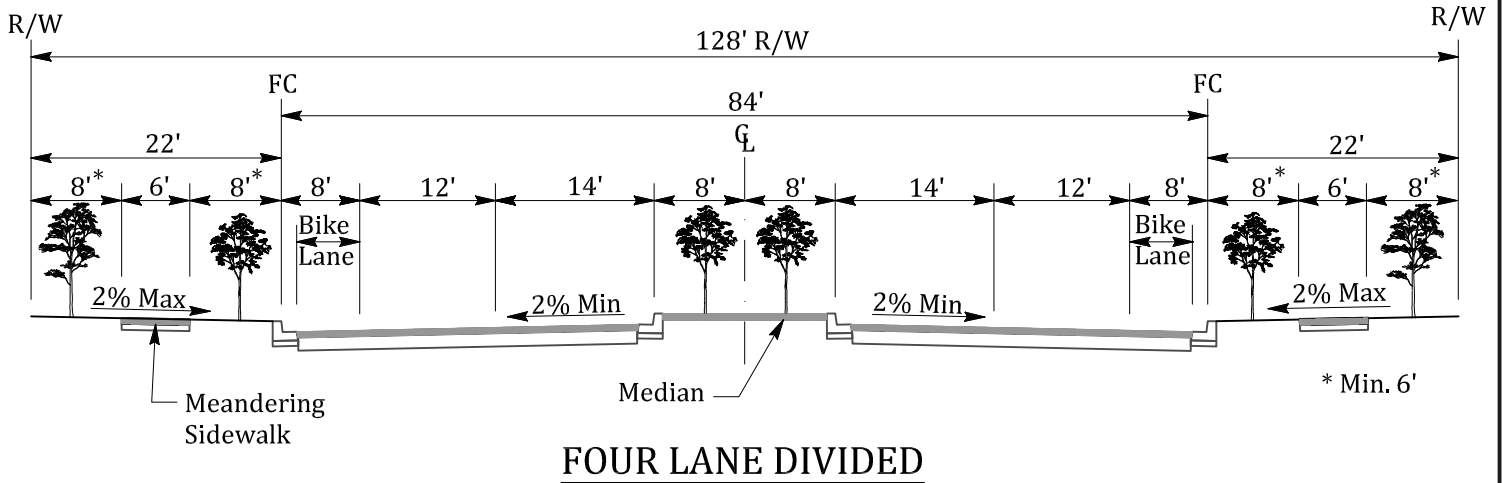
publicworks@ci.oakley.ca.us

TABLE OF CONTENTS

| DESCRIPTION | PAGE # |
|---|---------------|
| STREETS | |
| Typical Sections – Major Roads..... | X-01 |
| Typical Sections – Residential..... | X-02 |
| Street End Layout Options..... | X-03 |
| Driveway and Intersection Sight Triangles..... | X-04 |
| | |
| Concrete Curb & Gutter..... | C-01 |
| Concrete Vertical Curb..... | C-02 |
| Concrete Divider/ Mowing Band..... | C-03 |
| Concrete Sidewalk - Monolithic & Separated | C-04 |
| Concrete Driveway with Planter | C-05 |
| Concrete Driveway without Planter..... | C-06 |
| Concrete Driveway to Sidewalk Reconstruction..... | C-07 |
| HMA Conform Details..... | C-08 |
| Speed Hump | C-09 |
| | |
| STORM DRAIN | |
| Curb Drain..... | SD-01 |
| Concrete Valley Gutter..... | SD-02 |
| Pipe Trench Detail..... | SD-03 |
| Pipe Trench Notes..... | SD-04 |
| Manhole/Catch Basin & Valve Box Adjustment..... | SD-05 |
| Standard Manhole..... | SD-06 |
| Manhole Frame and Cover..... | SD-07 |
| Type I Curb Inlet..... | SD-08 |
| Type II Inlet..... | SD-09 |
| Type III Landscape Area/Park Inlet..... | SD-10 |
| Reticuline Frame & Grate..... | SD-11 |
| Storm Drain Marker..... | SD-12 |
| | |
| ELECTRICAL | |
| Street Light – Cobra Head Double LED..... | E-01 |
| Street Light – Cobra Head Single LED..... | E-02 |
| Street Light – Decorative Double LED..... | E-03 |
| Street Light – Decorative Single LED..... | E-04 |
| Signal Specifications and Equipment List..... | E-05 |

TABLE OF CONTENTS *(continued)*

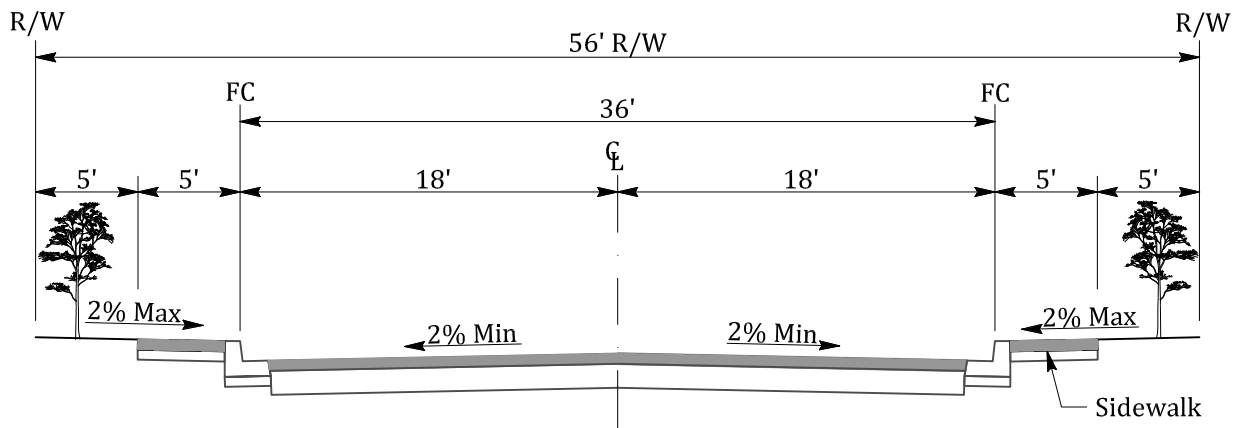
| DESCRIPTION | PAGE # |
|--|---------------|
| SIGNS | |
| Street Name Sign – Major Street..... | SS-01 |
| Street Name Sign – Minor Street..... | SS-02 |
| Street Name Sign – Location and Mounting..... | SS-03 |
| LANDSCAPE | |
| Preferred Tree List..... | L-01 |
| Tree Planting Specifications..... | L-02 |
| Tree Planting | L-03 |
| Shrub Planting | L-04 |
| IRRIGATION | |
| Irrigation Equipment List..... | IR-01 |
| Irrigation System Thrust Blocking..... | IR-02 |
| Irrigation Controller..... | IR-03 |
| Irrigation Controller Enclosure Top Opening..... | IR-04 |
| Master Valve and Flow Sensor..... | IR-05 |
| Flow Sensor Detail..... | IR-06 |
| CCU or Field Satellite Grounding Grid..... | IR-07 |
| Irrigation Valve Box Installation..... | IR-08 |
| Irrigation Wire Connection..... | IR-09 |
| Remote Control Valve..... | IR-10 |
| Quick Coupling Valve..... | IR-11 |
| Gate/Ball Valve..... | IR-12 |
| Rotor and Pop-Up Spray Head..... | IR-13 |
| Shrub Bubbler and Flexible Riser | IR-14 |
| Irrigation Electric Meter Pedestal..... | IR-15 |
| MISCELLANEOUS | |
| Park Furnishings | M-01 |
| Removable Bollard Park or Trail | M-02 |
| Fence – Chain Link..... | M-03 |
| Solid Waste Trash Enclosure..... | M-04 |



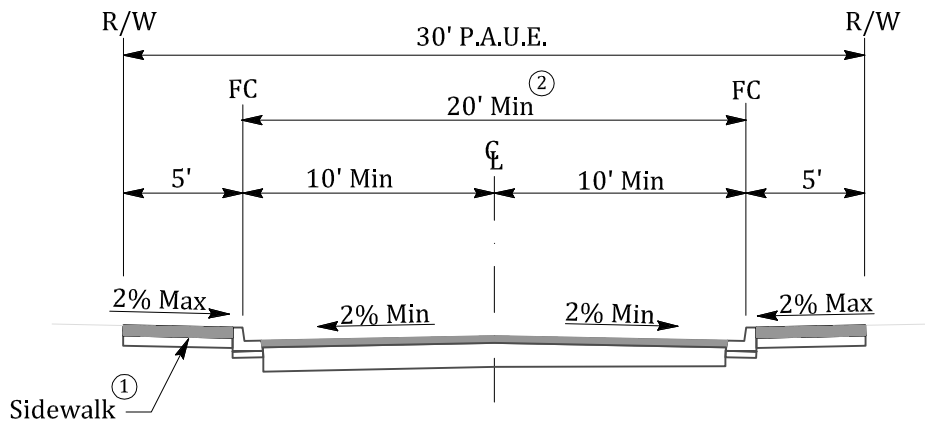
FC = Face of Curb

NOT TO SCALE

| | | | | |
|--------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | TYPICAL SECTIONS MAJOR ROADS | STD. PLAN NO. |
| <i>Kevin Rolan</i> | JUNE 2016 | | | X-01 |
| CITY ENGINEER | | | | |



MINOR/RESIDENTIAL STREET



PRIVATE ACCESS ROAD

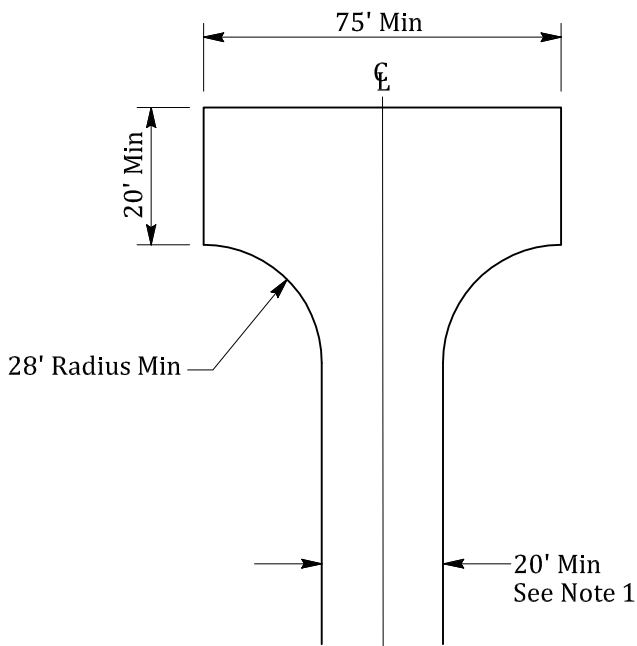
NOTES:

1. Sidewalk per the approval of the Planning Division.
2. Street widths subject to the approval of the Fire District and Planning Division.

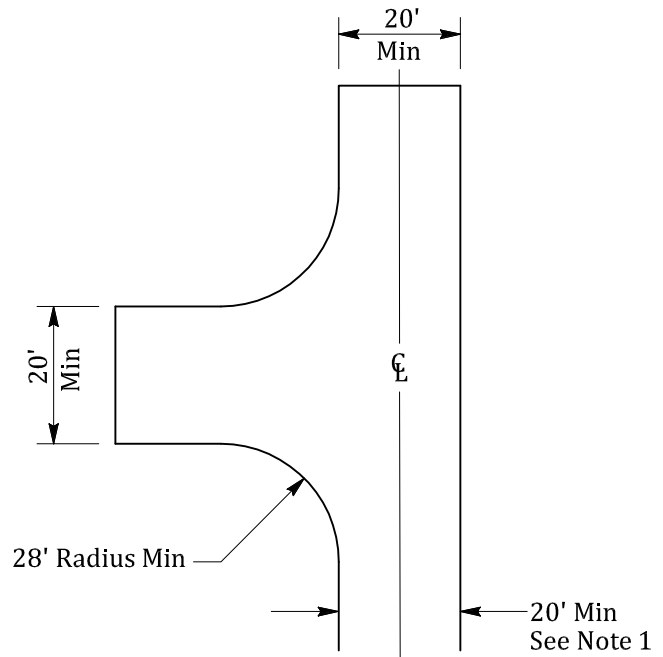
FC=Face of curb

NOT TO SCALE

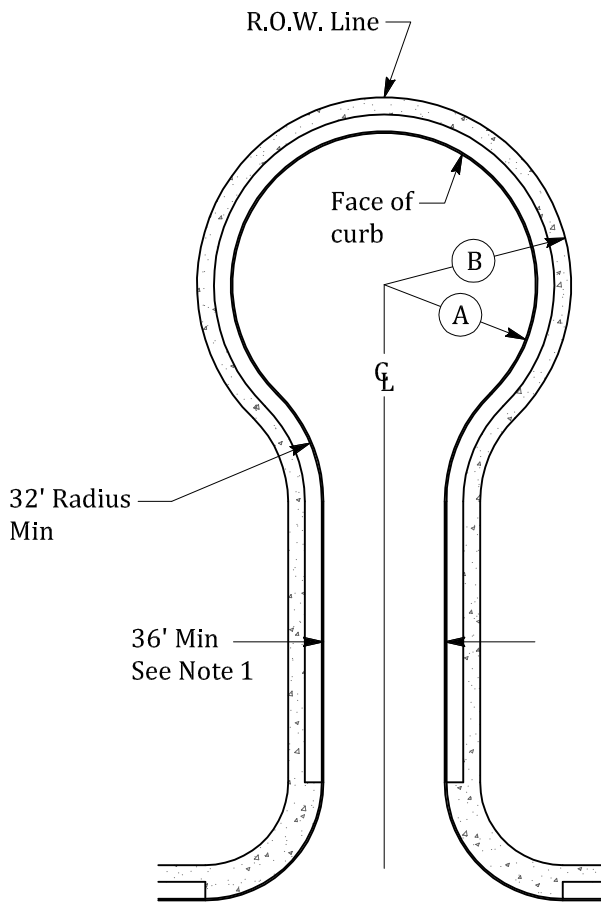
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|---------------|--|-----------|--|---|---------------|
| APPROVED BY | | DATE | | TYPICAL SECTIONS RESIDENTIAL | STD. PLAN NO. |
| | | JUNE 2016 | | | X-02 |
| CITY ENGINEER | | | | | |



HAMMERHEAD
(Private Only)



SHUNT
(Private Only)



CUL-DE-SAC

| ROAD TYPE | RADIUS | |
|----------------------------------|--------|-----|
| | (A) | (B) |
| Residential Street | 45' | 55' |
| Commercial/ Industrial Street | 55' | 65' |

NOTES:

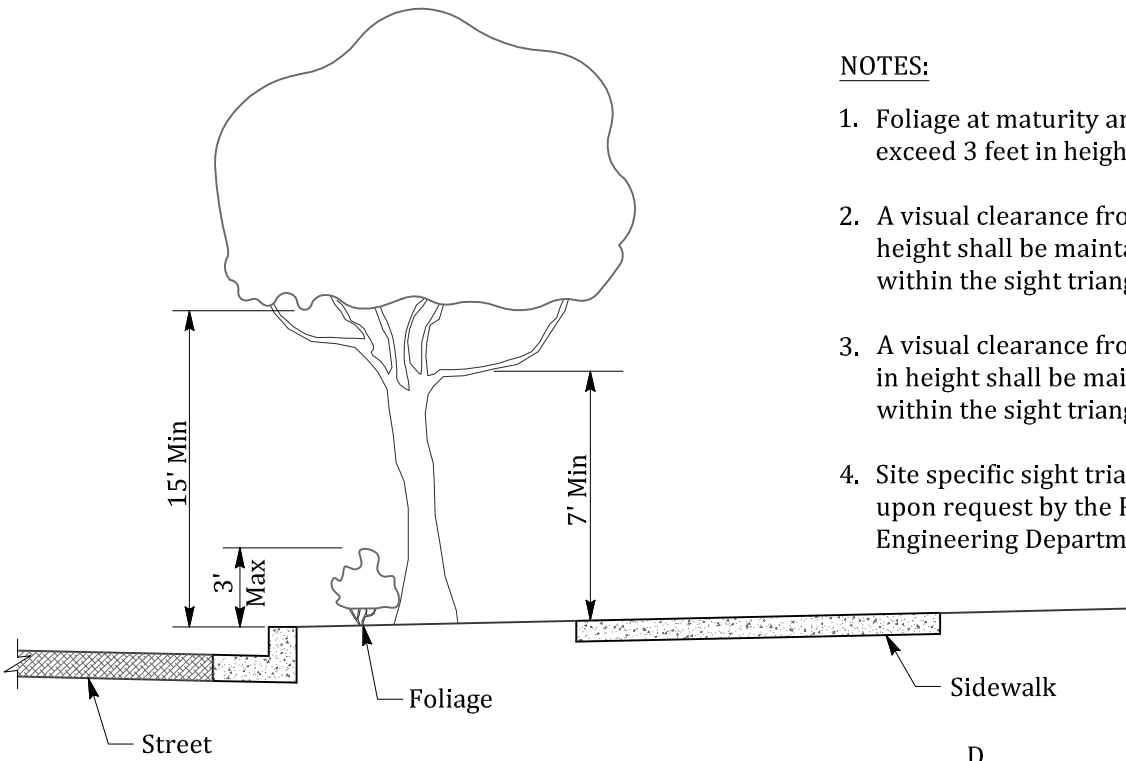
1. Minimum Roadway widths:
20 Feet - no parking
32 Feet - parking on one side
36 Feet - parking on both sides
2. Cross slope within turnaround shall not exceed 8% grade.
3. Surface shall be all-weather and capable of supporting a 37 ton vehicle.
4. Cul-de-Sac shall have standard curb and gutter, See Std Plan C-01.
5. Standards are minimum City requirements subject to Fire District approval.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--------------------------------------|---------------|
| APPROVED BY | DATE | | STREET END LAYOUT OPTIONS | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | X-03 |

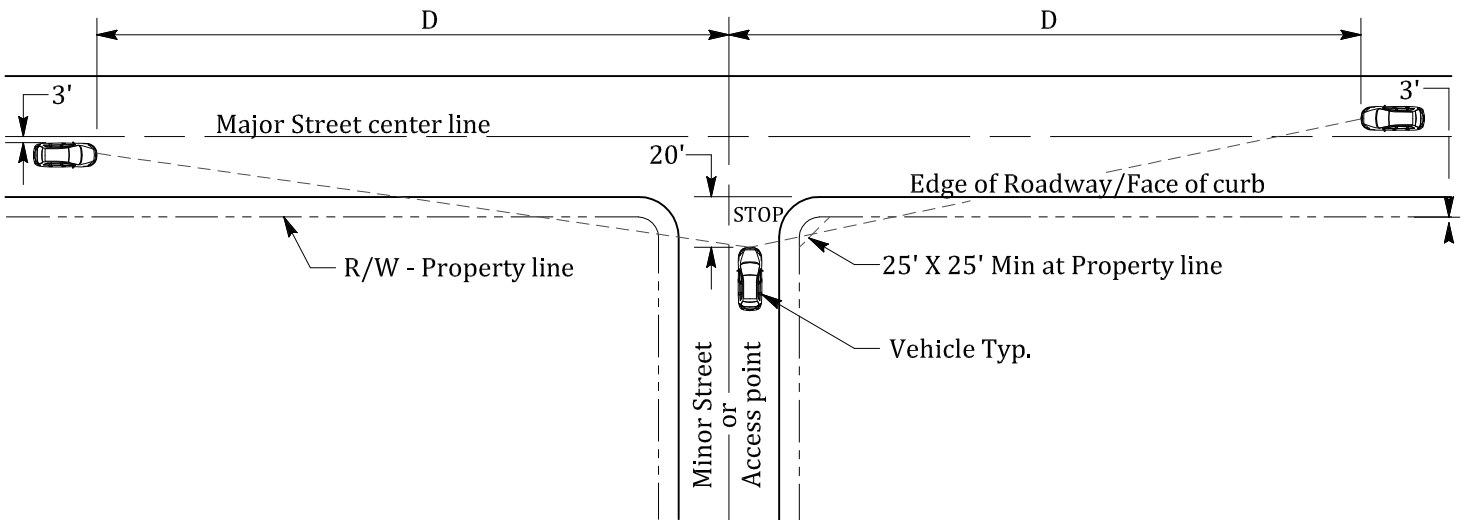
NOTES:

1. Foliage at maturity and berm, if any, shall not exceed 3 feet in height.
2. A visual clearance from the street to 15 feet in height shall be maintained with all tree foliage within the sight triangle.
3. A visual clearance from the sidewalk to 7 feet in height shall be maintained with all tree foliage within the sight triangle.
4. Site specific sight triangle exhibit to be provided upon request by the Public Works and Engineering Department



| MAJOR ROAD POSTED SPEED LIMIT (MPH) | D MINIMUM DISTANCE (FT)* |
|-------------------------------------|--------------------------|
| 25 | 280 |
| 30 | 335 |
| 35 | 390 |
| 40 | 445 |
| 45 | 500 |

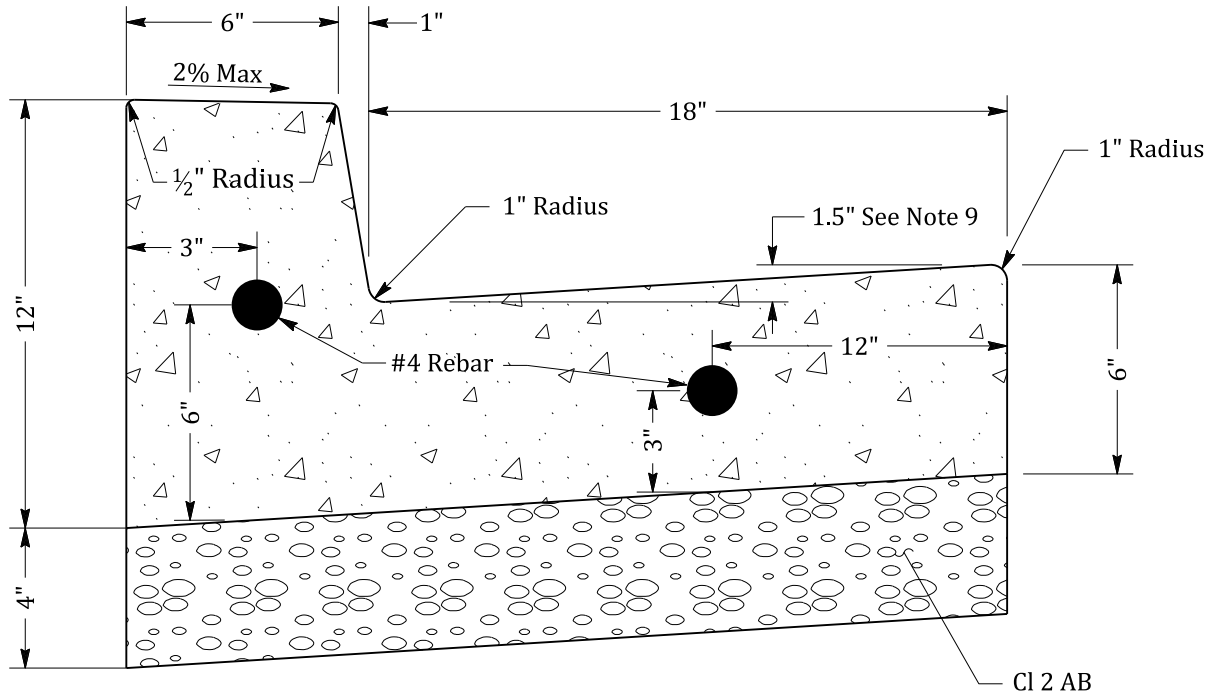
* AASHTO GREEN BOOK



MAJOR STREET WITH STOP CONTROL ON MINOR STREET

NOT TO SCALE

| | | | | |
|---------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | DRIVEWAY AND INTERSECTION SIGHT TRIANGLES | STD. PLAN NO. |
| | JUNE 2016 | | | X-04 |
| CITY ENGINEER | | | | |

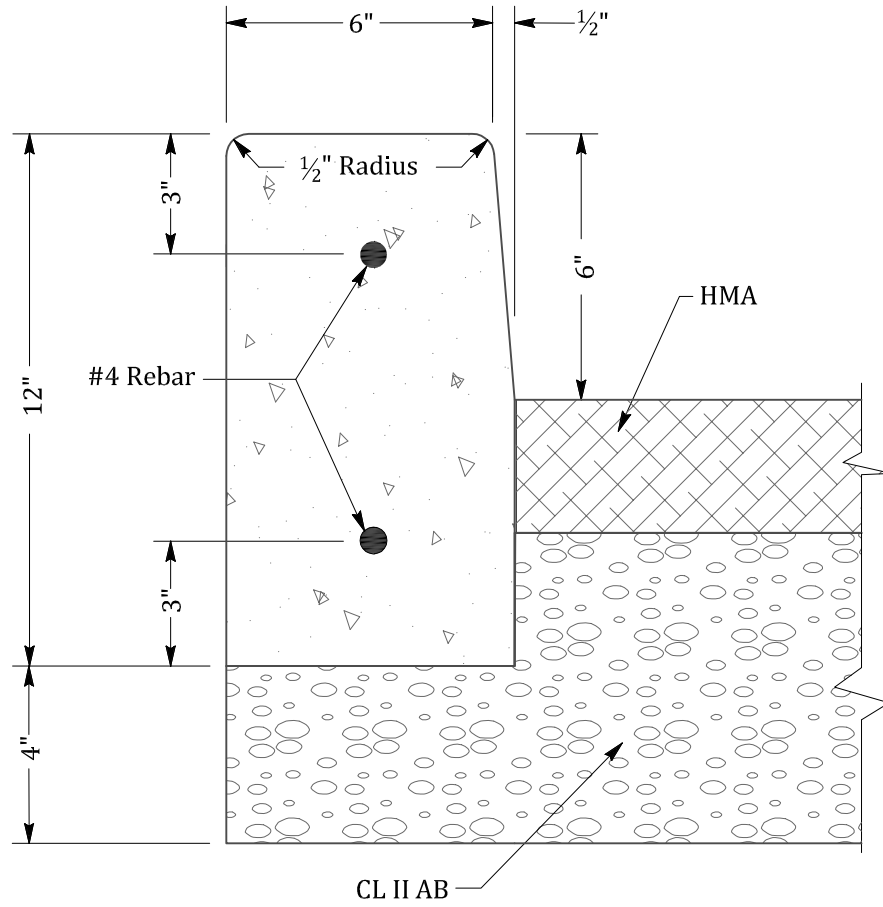


NOTES:

1. All radii less than 100' shall use flexible wood or metal forms to eliminate angular points at 10' section points.
2. Sawcut and remove 18 inch minimum street section for curb and gutter installation on existing streets.
3. 3/4" expansion joints to be placed at driveway sections, curb returns curb ramps & cold joints or a maximum of 30' center to center. Expansion joints shall protrude 1" below the bottom of gutter.
4. Thru joints shall be placed adjacent to catch basins, inlets at points of tangency on streets, and at alley and driveway returns. Maximum spacing shall be 30' pre-molded joint filler, shall be 1/2" wide and conform to AASHTO design M213. Dummy joints shall be placed every 10'.
5. Finished work shall not vary more than 1/8" in grade and 1/4" in alignment.
6. The finished curb shall immediately be sprayed with a transparent curing compound. Curb shall be covered by waterproof paper or plastic membrane in the event of rain or other unsuitable weather. Curing time shall be a minimum of 72 hours.
7. All curb and gutter shall be placed on a minimum of 4" Aggregate Base Class II 95% maximum compaction ASTM D1557.
8. #4 Rebar shall be extended along length of the curb and gutter.
9. Gutter pan slope shall not exceed 5% at pedestrian curb ramp entry locations. Contractor shall use 1.2" maximum between lip of gutter flow line at these locations.
10. All concrete shall include one 1.5 pint of lamp black per cubic yard of concrete. Concrete must contain 463 pounds of cementitious material per cubic yard.
11. All curb and gutter shall have 2-#4 Rebar the entire length and embedded on both end using dowels (one dowel in the center of the gutter, one dowel in the center of the curb).

NOT TO SCALE

| | | | | |
|---------------------|-------------|--|-------------------------------------|---------------|
| APPROVED BY | DATE | | CONCRETE CURB AND GUTTER | STD. PLAN NO. |
| <i>Kevin Rotari</i> | JUNE 2016 | | | C-01 |
| CITY ENGINEER | Rev. 4/4/17 | | | |

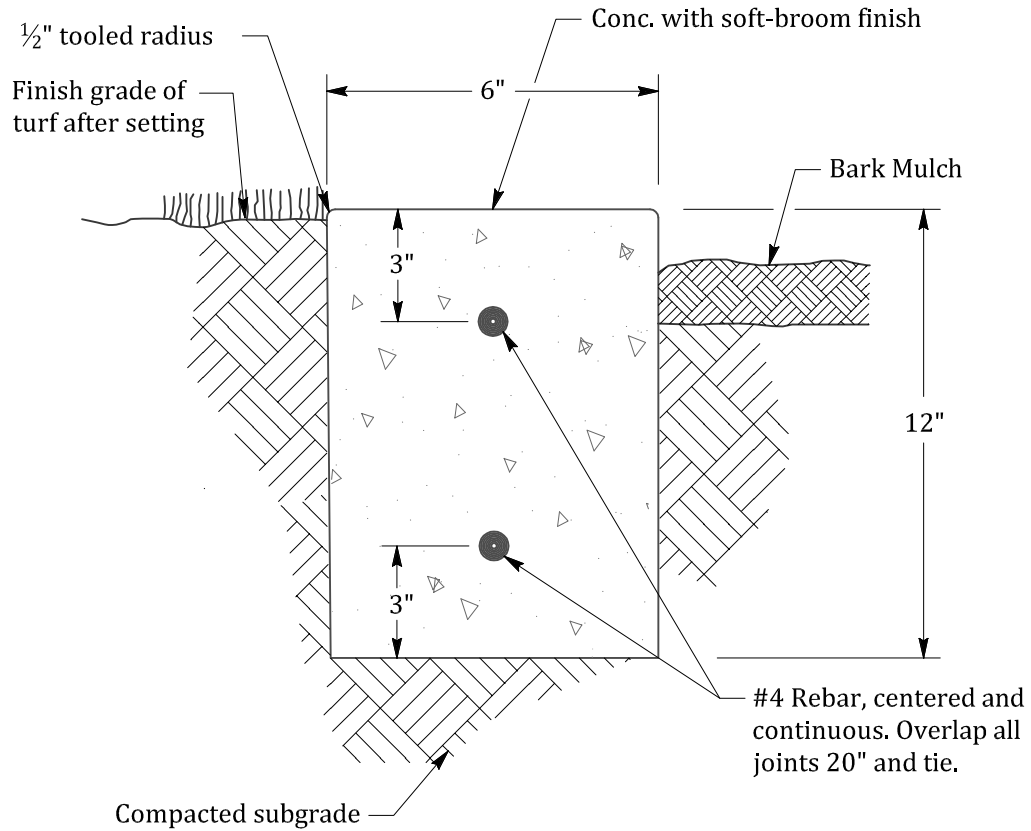


NOTES:

1. The construction notes of Standard Plan C-01 apply to concrete vertical curb.
2. Median islands shall have 8" vertical clearance from Top of Curb to Pavement.

NOT TO SCALE

| | | | | |
|---------------------|-----------|--|-------------------------------|---------------|
| APPROVED BY | DATE | | CONCRETE VERTICAL CURB | STD. PLAN NO. |
| <i>Kevin Rohani</i> | JUNE 2016 | | | C-02 |
| CITY ENGINEER | | | | |



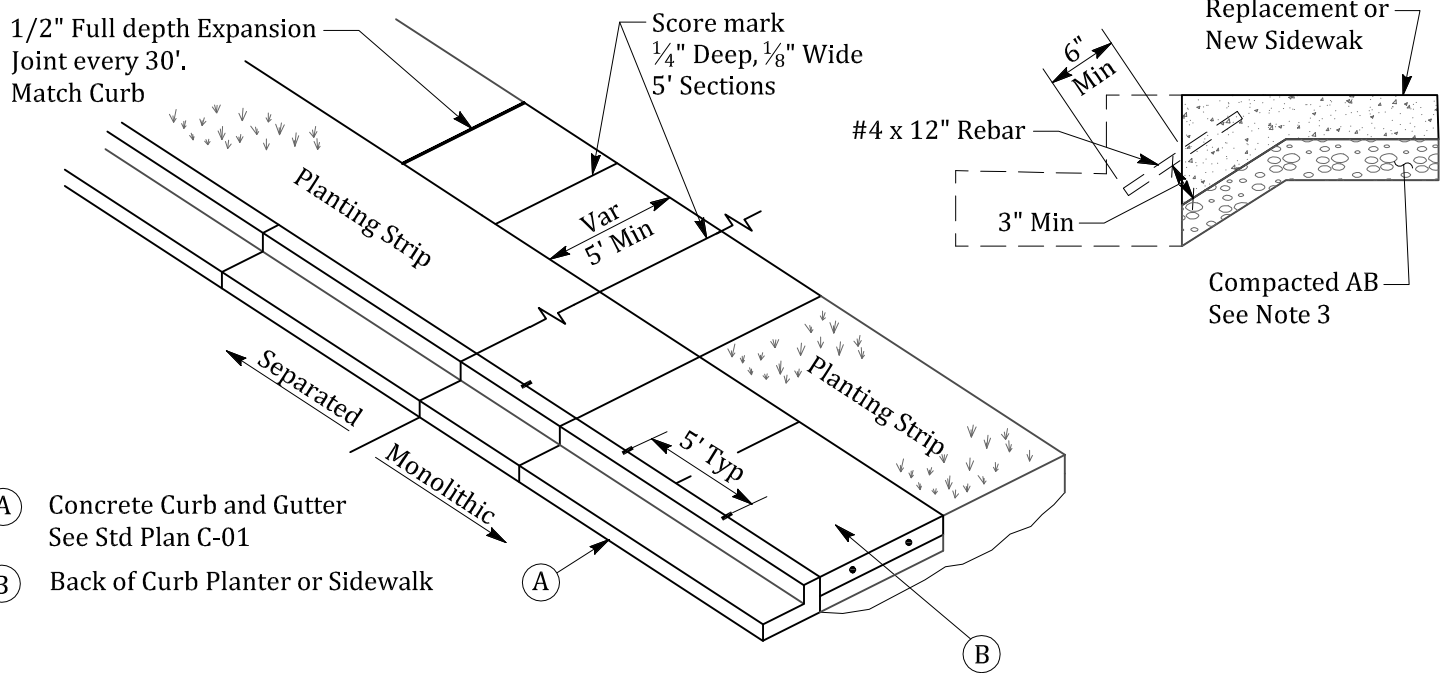
SECTION

NOTES:

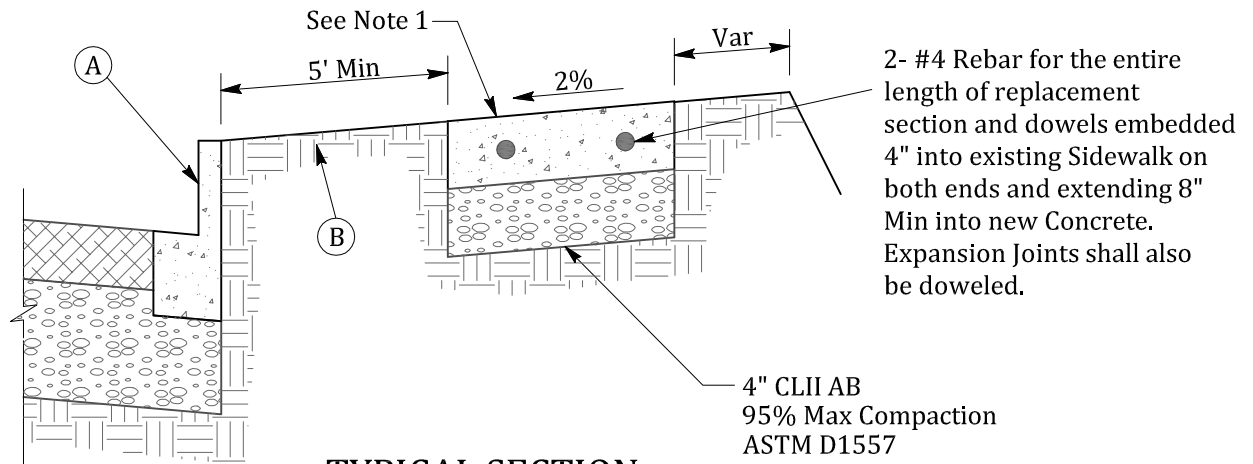
1. Provide $\frac{1}{4}$ " wide by $\frac{1}{2}$ " deep score lines at 8'-0" O.C. and expansion joints at 32'-0" O.C.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|-------------------------------------|---------------|
| APPROVED BY | DATE | | CONCRETE DIVIDER/MOWBAND | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | C-03 |



PLAN VIEWS



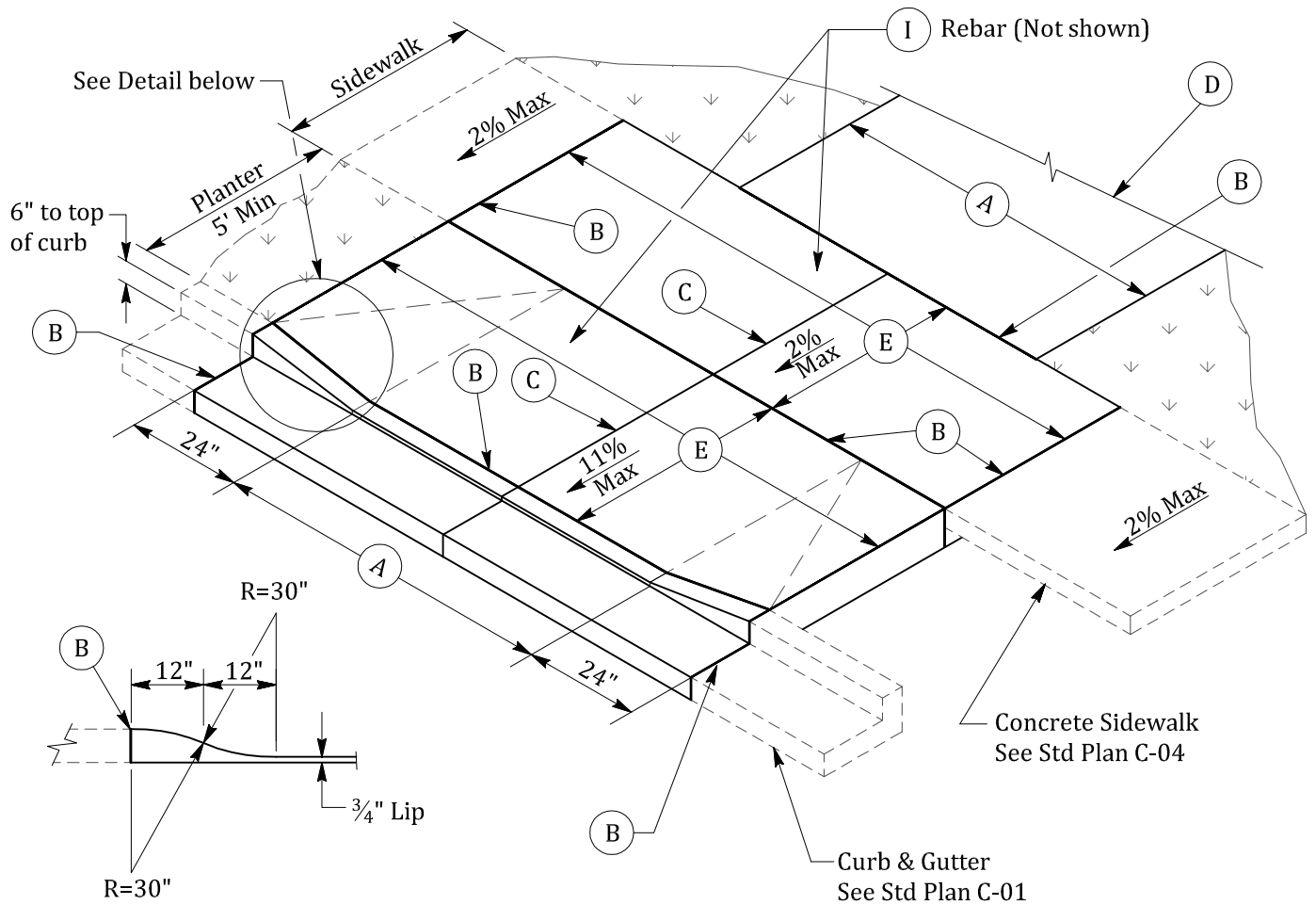
TYPICAL SECTION

NOTES:

1. Sidewalk shall be a minimum of 4" thick and shall be Class A Portland Cement Concrete. Concrete shall include one (1) pound of Lamp Black (in powder form) per cubic yard of concrete.
2. Full Expansion Joints shall be placed to match those placed in adjacent Curb & Gutter, with
3. maximum spacing of 30 feet.
4. Subgrade shall have 95% maximum compaction ASTM D1557.
5. Sidewalk shall be at least 6" thick behind Rolled Curb and Residential Driveways and 8" thick behind Commercial Driveways.
6. The finished Sidewalk shall be sprayed with a transparent Curing Compound covered by Waterproof Paper or Plastic Sheeting in the event of rain or other inclement weather, curing time shall be for a minimum of 72 hours.
7. All joints shall be cleaned and edged with an edger having a 1/4" radius.
8. Sidewalk and Planter Strip widths shall conform to dimensions shown in appropriate street cross section detail.
The width of Sidewalk directly behind Curb without Planter shall be a minimum of 5' from back of Curb.
9. Exposed surfaces shall be a light broom finish.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | CONCRETE SIDEWALK MONOLITHIC AND SEPARATED | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | C-04 |



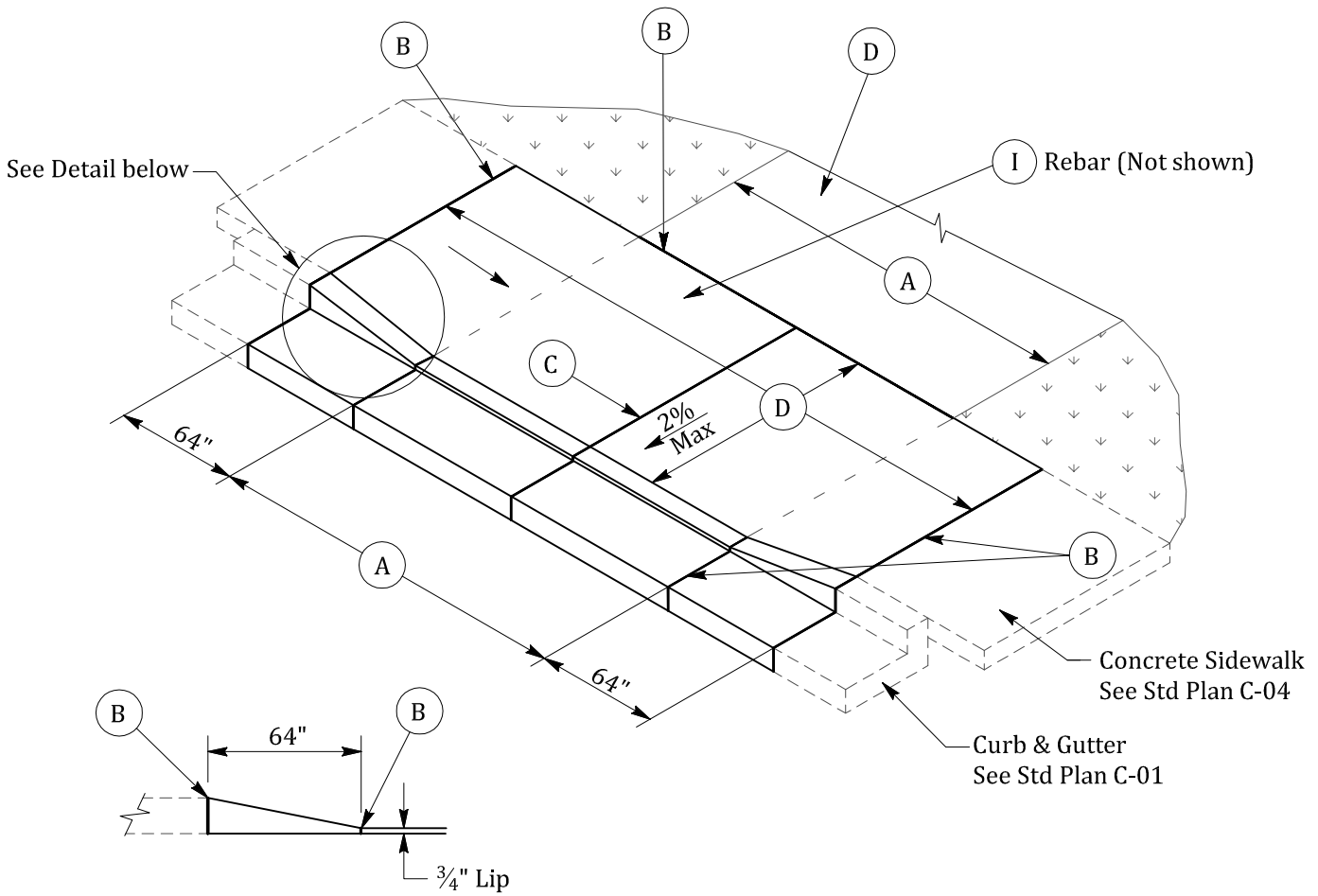
CURB TRANSITION DETAIL

NOTES

- (A) Equals width of Driveway at property line, 14' Min - 30' Max for Residential & 25' Min - 35' Max for Commercial.
- (B) 1/2" wide full depth Expansion Joint.
- (C) Full depth Expansion Joint if (A) is 15' or greater.
- (D) Driveway to be surfaced with asphalt or concrete.
- (E) Driveway concrete shall be a Minimum of 6" thick for Residential & 8" thick for Commercial locations and is to be placed on a minimum of 4" Class II Aggregate Base 95% maximum compaction, ASTM D1557. Over 95% compacted subgrade.
- (F) All concrete shall be Class A, per Caltrans Specifications, with 1LB. Minimum Lamp Black per cubic yard.
- (G) Sawcut and remove 18" minimum street section for driveway installation in existing streets.
- (H) All work shall conform to current ADA requirements.
- (I) #4 Rebar 16" O.C. both ways minimum 3" cover.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | CONCRETE DRIVEWAY WITH PLANTER | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | C-05 |



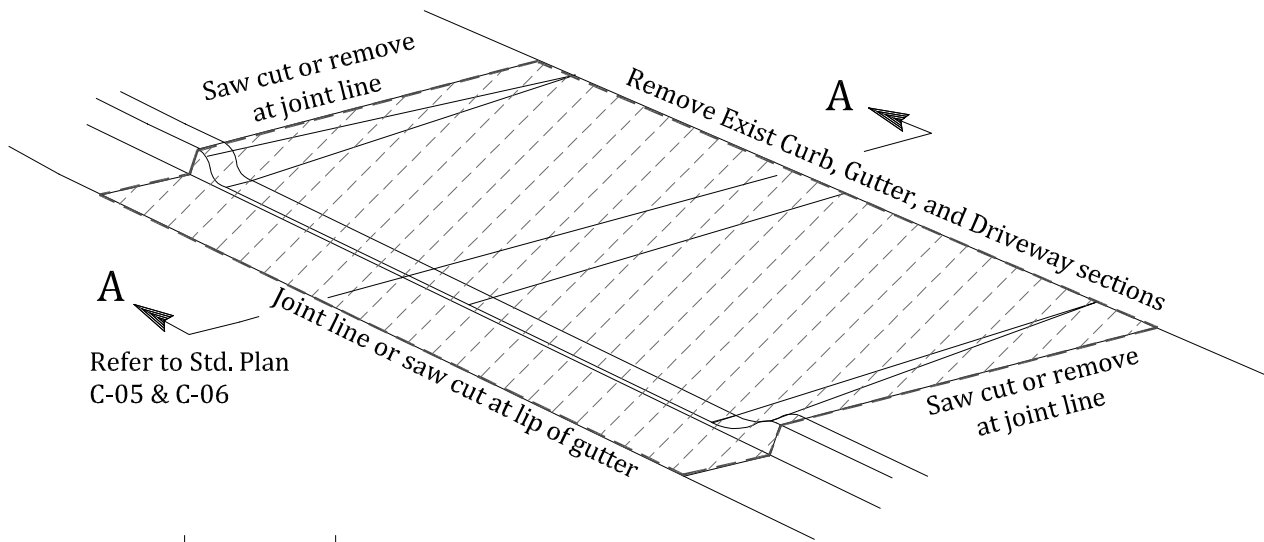
CURB TRANSITION DETAIL

NOTES:

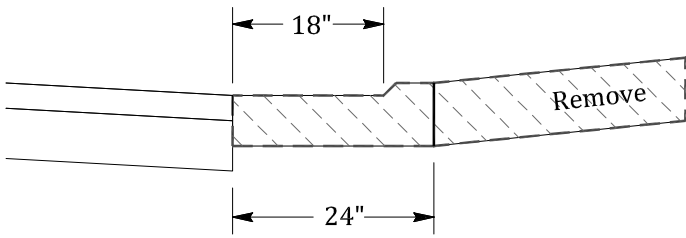
- (A) Equals width of Driveway at property line, minimum width 14' min. - 30' max for residential and 25' min. - 35' max for commercial.
- (B) 1/2" wide full depth Expansion Joint.
- (C) Full depth Expansion Joint if (A) is 15' or greater.
- (D) Driveway to be surfaced with asphalt or concrete.
- (E) Driveway concrete shall be a Minimum of 6" thick for Residential & 8" thick for Commercial locations and is to be placed on a minimum of 4" Class II Aggregate Base 95% maximum compaction, ASTM D1557. Over 95% compacted subgrade.
- (F) All concrete shall be Class A, per Caltrans Specifications, with 1LB. Minimum Lamp Black per cubic yard.
- (G) Sawcut and remove 18" minimum street section for driveway installation in existing streets.
- (H) All work shall conform to current ADA requirements.
- (I) #4 Rebar 16" O.C. both ways minimum 3" cover.

NOT TO SCALE

| | | | | |
|--|-----------|---|--|---------------|
| APPROVED BY | DATE |  | CONCRETE DRIVEWAY WITHOUT PLANTER | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | C-06 |

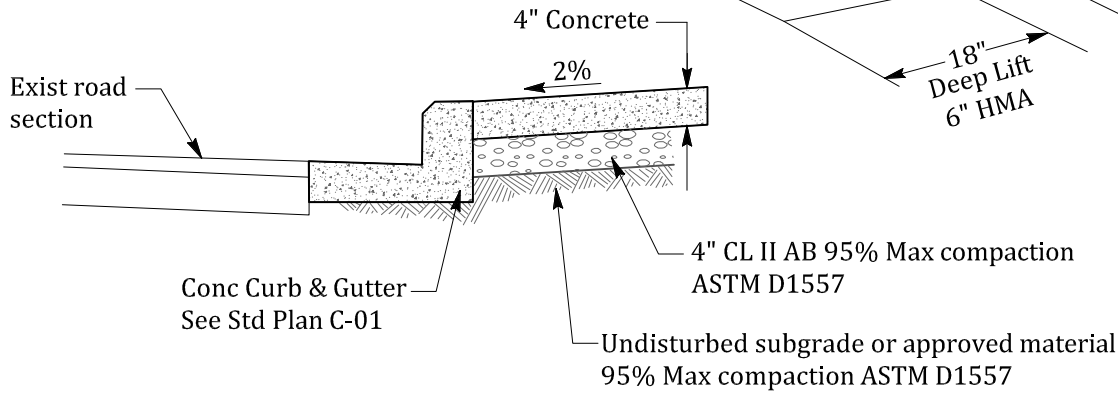
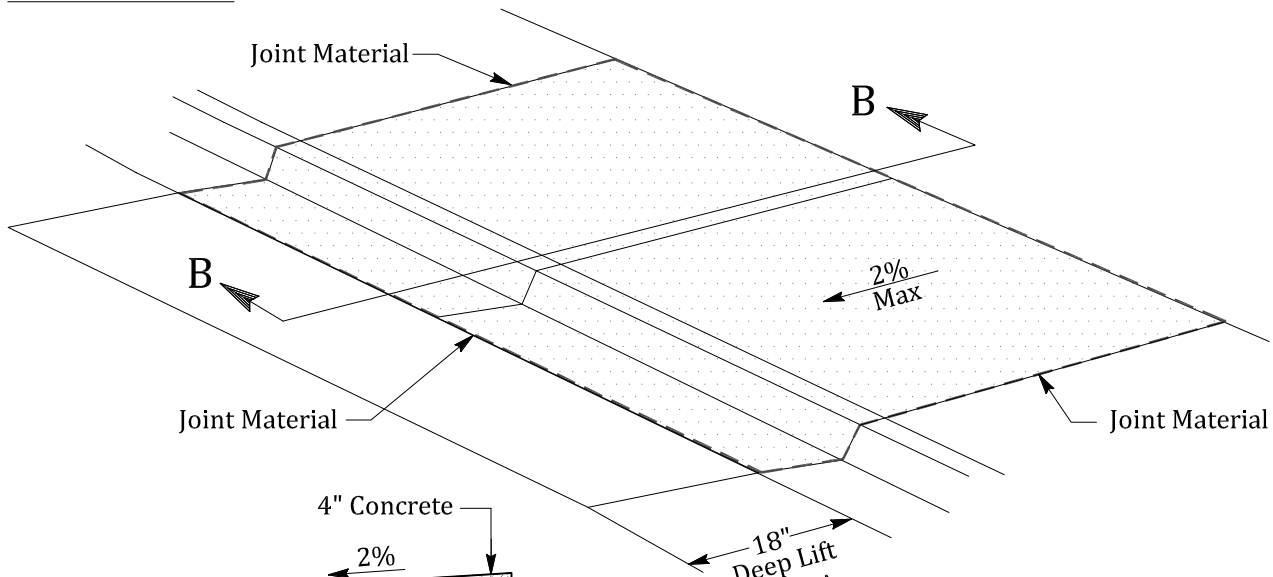


Refer to Std. Plan
C-05 & C-06



SECTION A-A

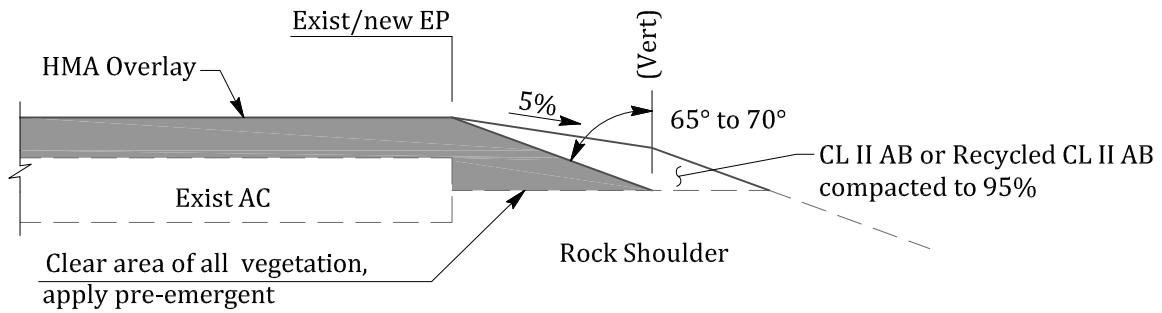
NOTE:
Rebar: #4 @ 16" O.C. both ways, Min 3"
concrete coverage



SECTION B-B

NOT TO SCALE

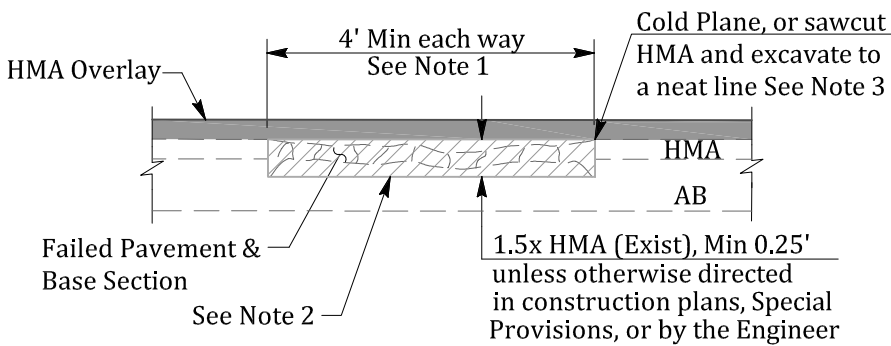
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|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | CONCRETE DRIVEWAY TO SIDEWALK RECONSTRUCTION | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | C-07 |
| | | | | |



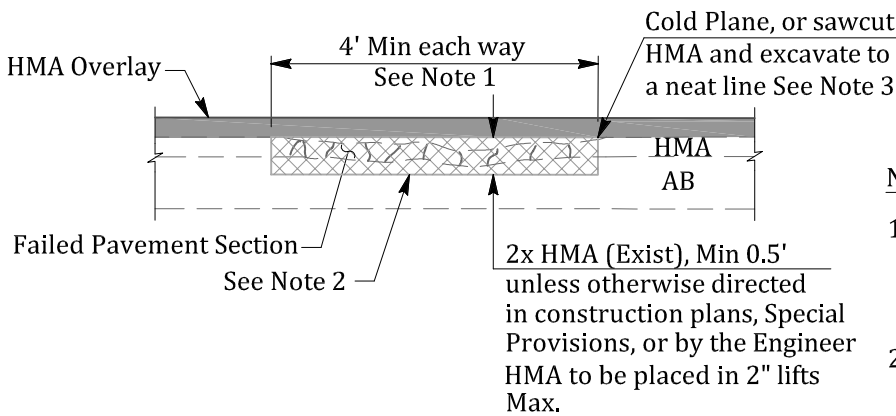
NOTES:

1. Safety edges shall be used on all roads posted 35 mph or higher with paved shoulders 4' or less.
2. Construct safety edge in conformance with project special provisions or City of Oakley Public Works Department Standard Provision for Construction.

SAFETY EDGE



PAVEMENT FAILURE REPAIR DETAIL



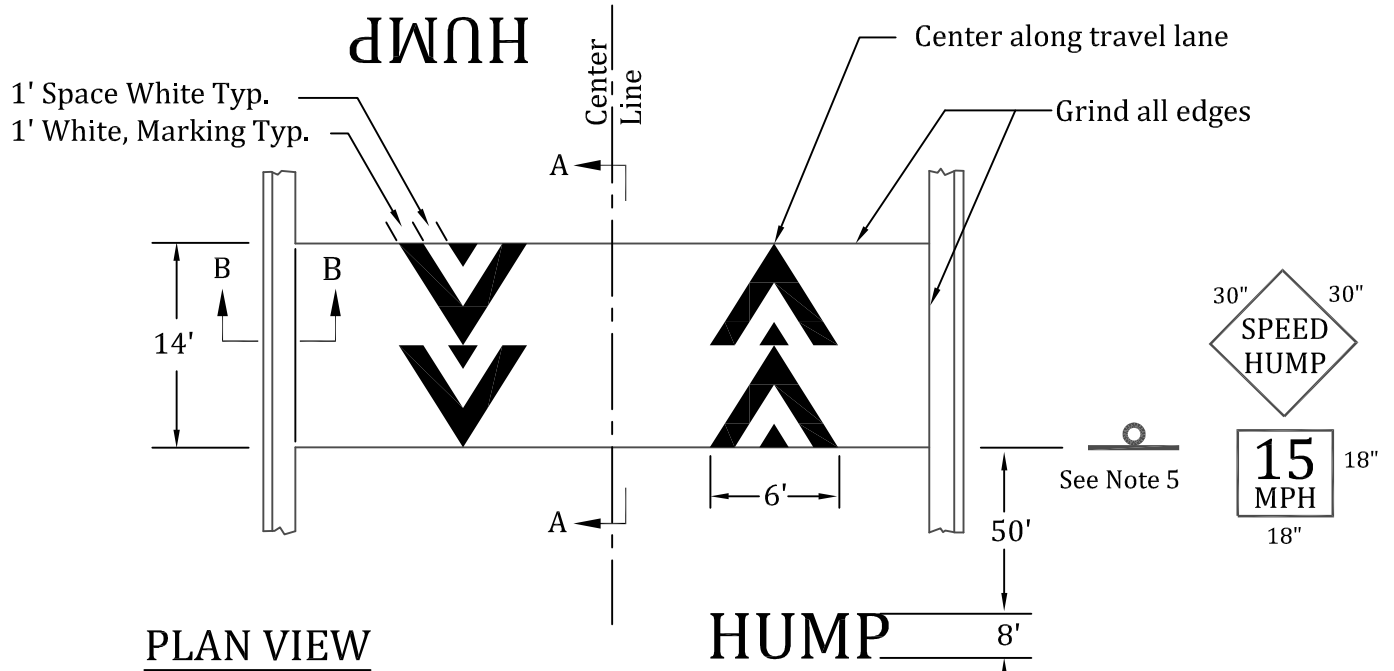
HMA = Hot Mix Asphalt

NOTES:

1. Limits of pavement failure repairs and base failure repairs shall be as marked in the field by the Engineer/Inspector.
2. For pavement failure repairs and base failure repairs recompact the existing road base or subgrade to 95% relative density prior to placing HMA.
3. Place paint binder on all vertical cut faces prior to placing HMA.
4. All sawcut /grind joints shall be sealed using paint binder and fine sand.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--------------------------------|---------------|
| APPROVED BY | DATE | | HMA CONFORM DETAILS | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | C-08 |

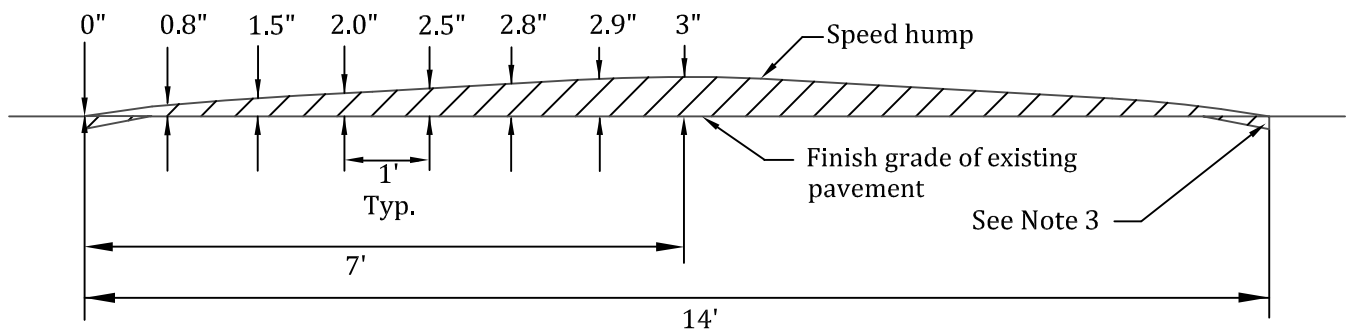


PLAN VIEW

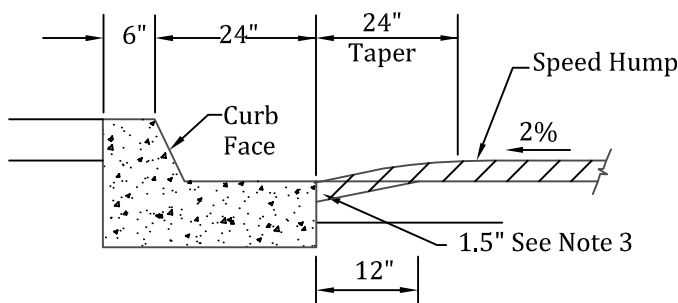
HUMP

See Note 5

Varies



SECTION A-A



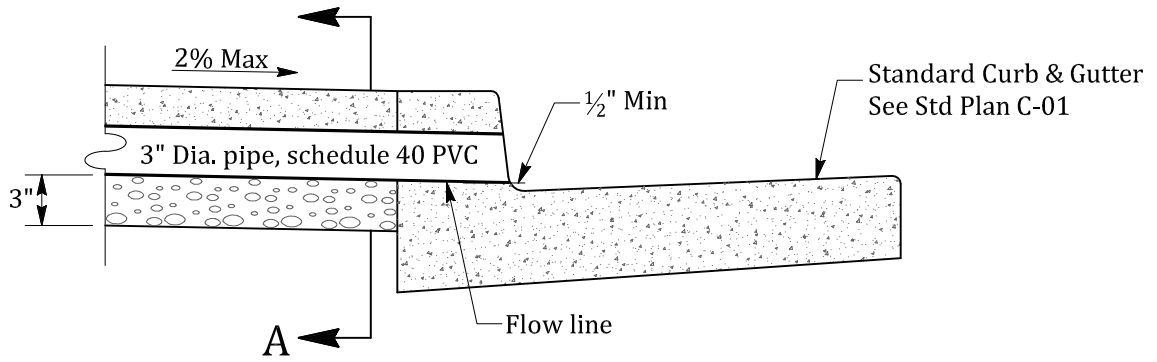
SECTION B-B

NOTES:

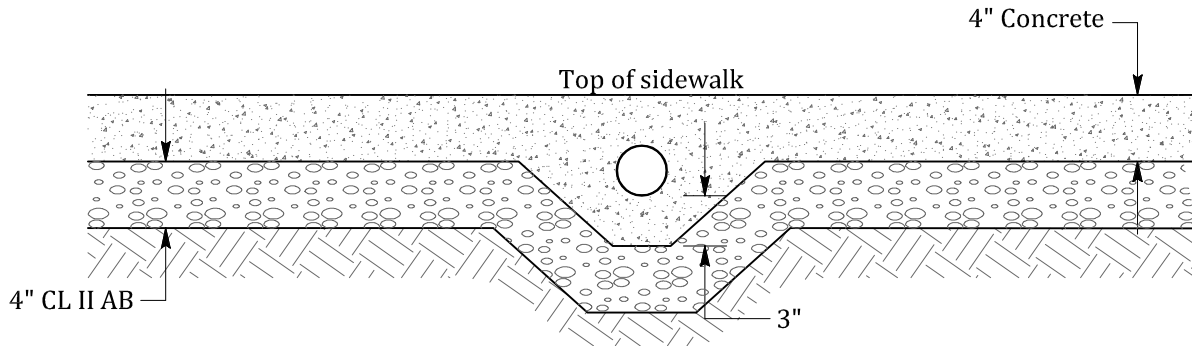
1. Place in two lifts.
2. Type A HMA AR-4000, Max aggregate size 1/2".
3. Grind to key in all edges (1.5" x 12").
4. Signs shown typical in both directions.
5. Optional for Humps within a series.
6. Signs shall be 3M Diamond Grade.
7. All striping shall be thermoplastic paint.
8. Speed Hump installation must adhere to the Neighborhood Traffic Management Policy.
9. Consult with Public Works Department for design within school vicinity.
10. Signs shall be installed per MUTCD Standards.

NOT TO SCALE

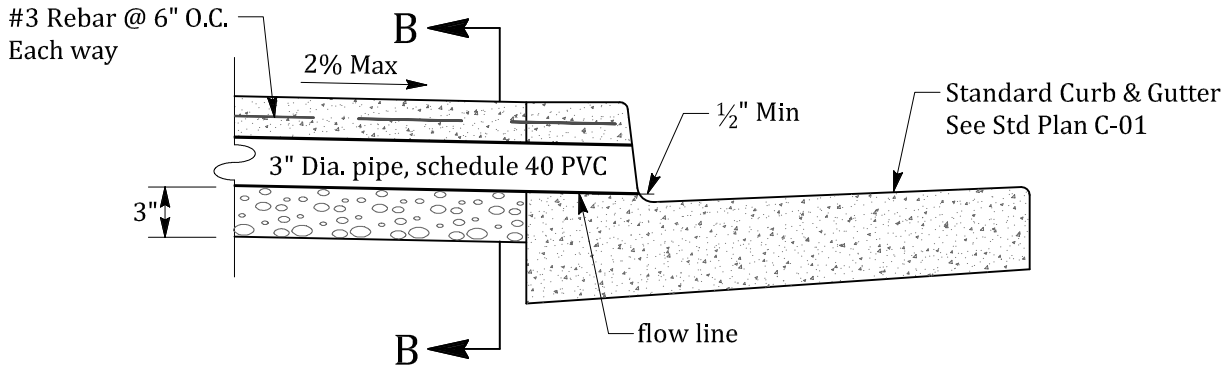
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| APPROVED BY | DATE | | SPEED HUMP | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | C-09 |



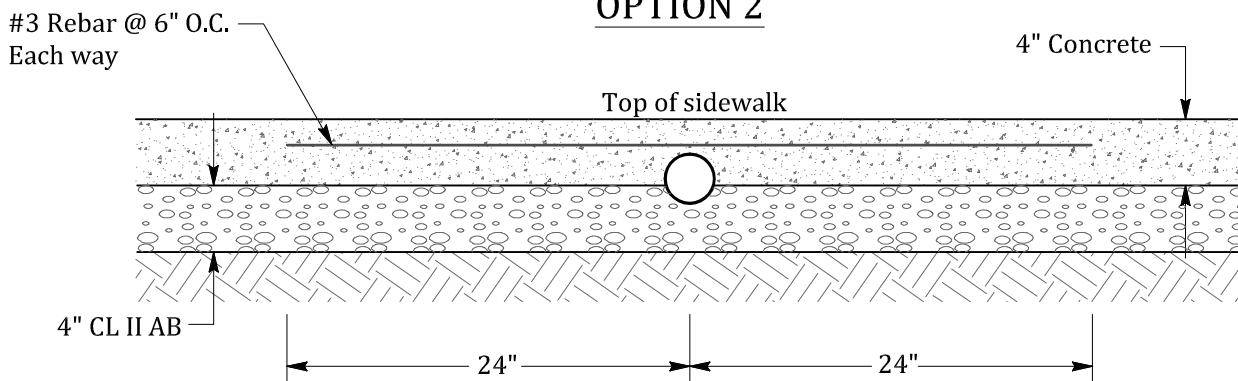
OPTION 1



SECTION A-A



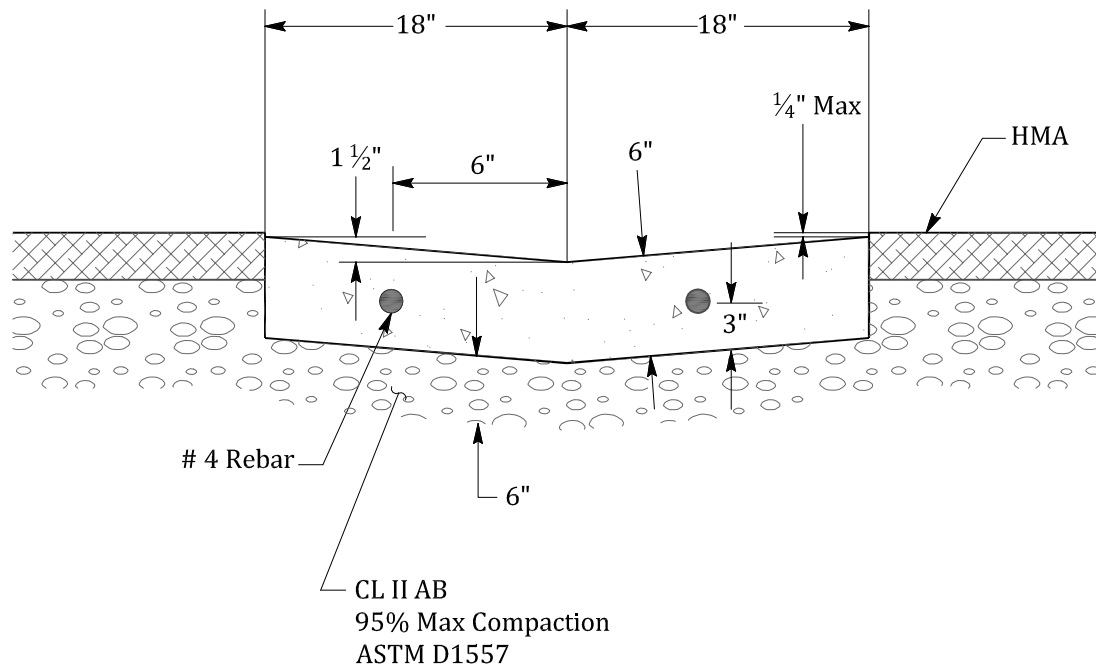
OPTION 2



SECTION B-B

NOT TO SCALE

| | | | | |
|--------------------|-----------|--|------------|---------------|
| APPROVED BY | DATE | | CURB DRAIN | STD. PLAN NO. |
| <i>Kevin Rohan</i> | JUNE 2016 | | | SD-01 |
| CITY ENGINEER | | | | |

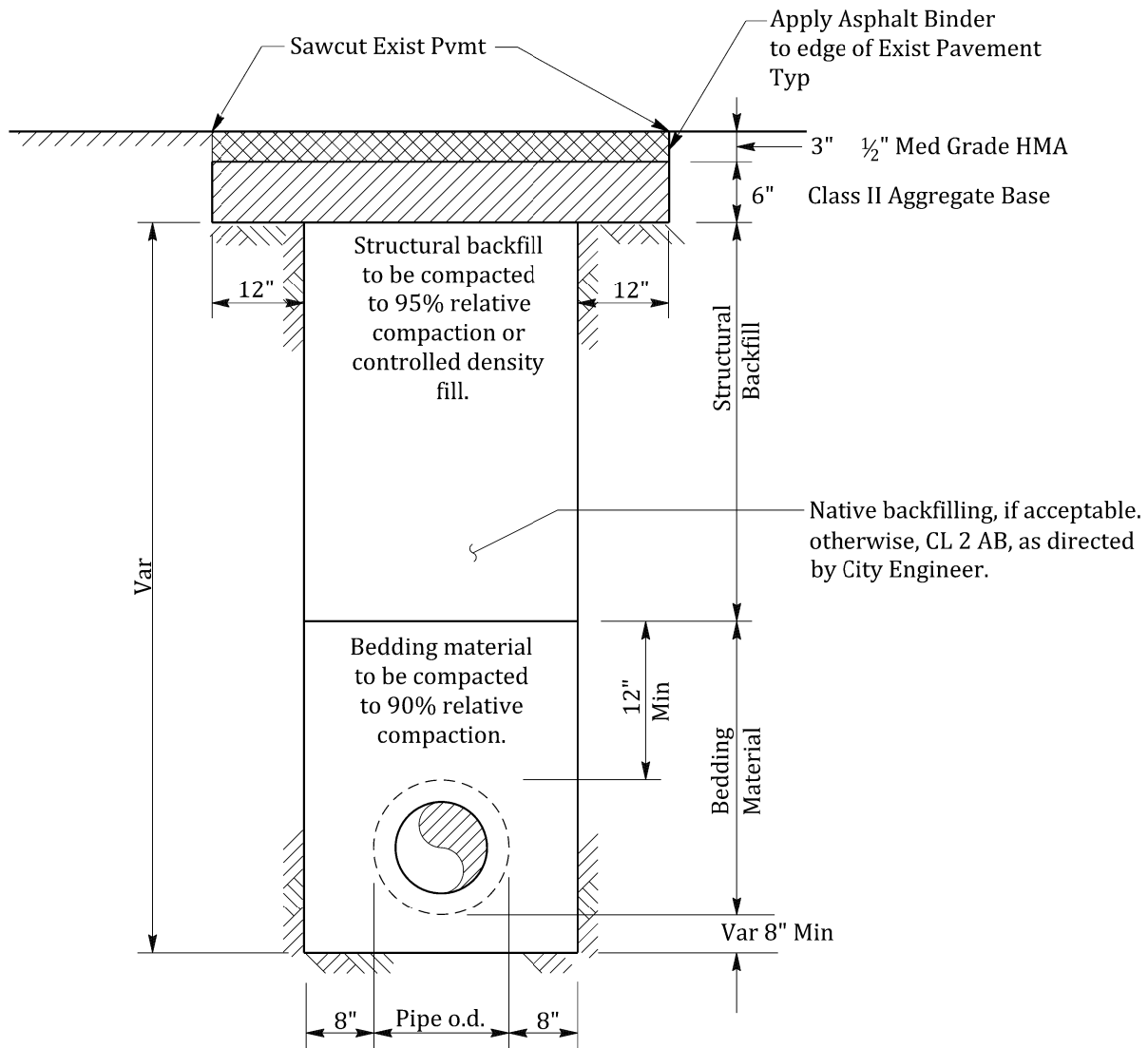


NOTES:

1. Expansion Joints with 1/2" x 12" slip.
2. Dowels at 20 foot intervals.
3. Concrete shall be Class A, per Caltrans Standards
4. All concrete shall include one (1) pound of Lamp Black (in powder form) per cubic yard of concrete.

NOT TO SCALE

| | | | | |
|---------------------|-----------|--|-----------------------------------|---------------|
| APPROVED BY | DATE | | CONCRETE VALLEY GUTTER | STD. PLAN NO. |
| <i>Kevin Rohani</i> | JUNE 2016 | | | SD-02 |
| CITY ENGINEER | | | | |



NOTE:

See Standard Plan SD-04 for additional trench requirements.

The 3" HMA shall be placed in two 1.5" lifts.

NOT TO SCALE

| | | | | |
|--------------------|-----------|--|-------------------------------|---------------|
| APPROVED BY | DATE | | PIPE TRENCH DETAIL | STD. PLAN NO. |
| <i>Keim Robain</i> | JUNE 2016 | | | SD-03 |
| CITY ENGINEER | | | | |

BEDDING MATERIAL

Granular bedding material requirements
Caltrans durability index minimum 30

| <u>Sieve sizes</u> | <u>Percentage passing</u> |
|--------------------|---------------------------|
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 20-55 |
| #4 | 0-10 |
| #8 | 0-5 |

STRUCTURAL BACKFILL

Structural backfill requirements percent passing
Minimum Sand Equivalent of 20

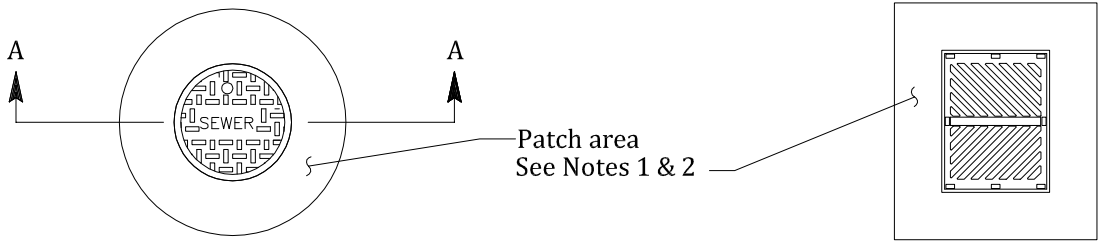
| <u>Sieve sizes</u> | <u>Percentage passing</u> |
|--------------------|---------------------------|
| 1-1/2" | 100 |
| 3/4" | 80-100 |
| #4 | 30-60 |
| #30 | 5-35 |
| #200 | 0-12 |

NOTES:

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. All backfill material shall be placed in lifts not to exceed 6 inches before compaction unless authorized by the City Engineer. 2. Mechanical compaction of backfill material shall not begin until the depth of compacted backfill material is 2 feet above the top of pipe. 3. Each lift shall be mechanically compacted to the required density prior to placing succeeding lifts of backfill material. 4. Compaction tests shall be as required by the city construction inspector, but in no case less than 2 tests every 200 feet of trench. 5. In-place density will be determined by one or more of the following methods. <ul style="list-style-type: none"> (A) ASTM D1557, test for density of soil in place by the sand cone method. (B) ASTM D2922 - Nuclear Method 6. Laboratory density will be determined by ASTM D1557, Moisture-Density Relations of soils and soil-aggregate mixtures. 7. If the edge of the trench falls within 3 feet of the gutter, the entire pavement shall be removed to the gutter. 8. On steep slopes, construct clay or concrete dam through the bedding material as determined by the City Engineer. 9. For concrete streets place 6 inches of Class A Portland Cement Concrete over 6" of Class II Aggregate Base for finished surface. 10. All trench construction shall be in compliance with latest OSHA Standards. | <ol style="list-style-type: none"> 11. Place permanent pavement within 30 days after backfilling. Install temporary Asphalt Concrete (AC) to finish grade until permanent Hot Mix Asphalt (HMA) is placed. 12. If existing HMA section is less than 4", grind AC to full depth of existing AC and replace full depth of HMA section (3" minimum). 13. In paved streets, all cuts shall be smooth and vertical with the area being generally rectangular. Native material may be used as backfill if approved by City Engineer. If sand backfill is used, it must be well graded, tamped with vibratory compactor and lightly jetted, if needed. 14. A semi-finished surface of cutback or lowered cross-section (Max lowered depth, 1/2") of AC will be allowed for a maximum of 15 days after backfilling to allow for settling. Contractor shall patch any time that excessive settling occurs. 15. Within 15 days, Contractor shall restore surface to its original condition and be responsible for any further settling or failure for a minimum of 2 years. If cutback is used as a semi-finished surface, it shall be removed before finishing. A 6 inch edge of existing AC shall be removed around the perimeter of the cut before placement of HMA. 16. A 6 inch course of CL II AB and 3 inch HMA is minimum surface to be restored. No restoration shall be less substantial than existing composition. In cases of concrete streets, a 6 inch thickness of concrete on a 6 inch CL II AB is the minimum standard. |
|---|--|

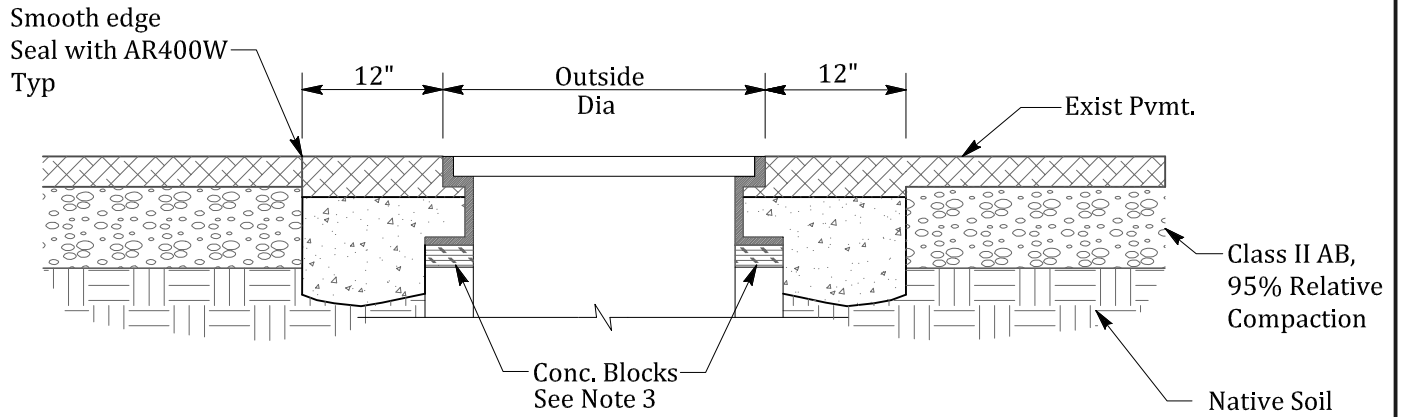
NOT TO SCALE

| | | | | |
|--------------------|-----------|---|---|---------------|
| APPROVED BY | DATE |  | <h2 style="margin: 0;">PIPE TRENCH NOTES</h2> | STD. PLAN NO. |
| <i>Kevin Rolan</i> | JUNE 2016 | | | SD-04 |
| CITY ENGINEER | | | | |



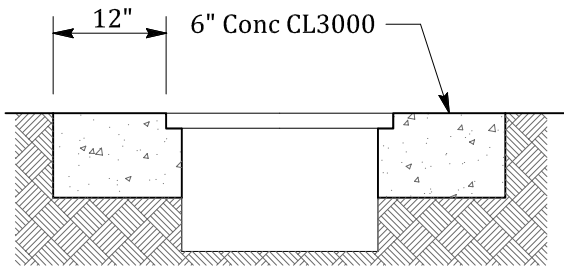
Patch area
See Notes 1 & 2

PLAN

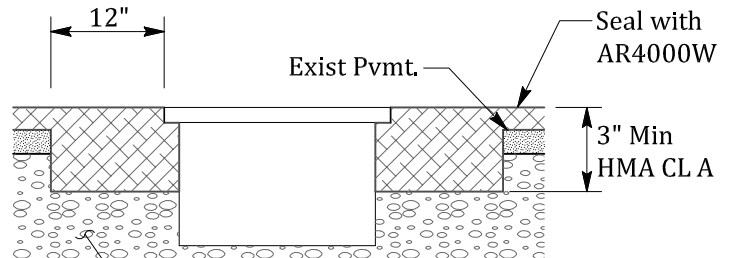


SECTION A-A

MANHOLE & CATCH BASIN ADJUSTMENT



OUTSIDE PAVED AREA



INSIDE PAVED AREA

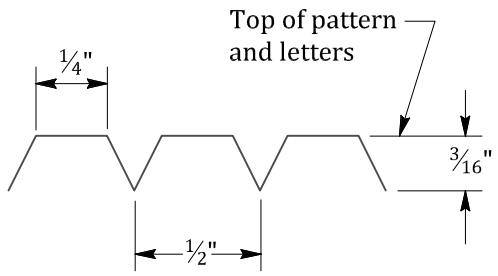
VALVE BOX ADJUSTMENT

NOTES:

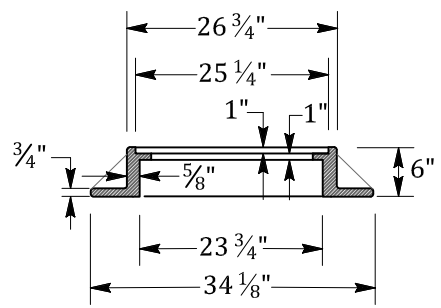
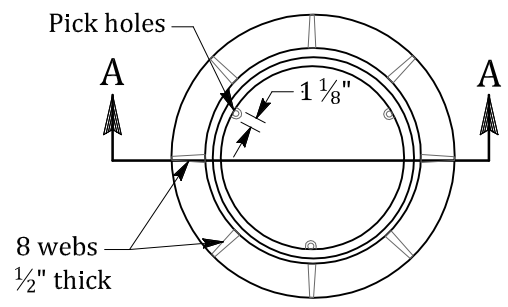
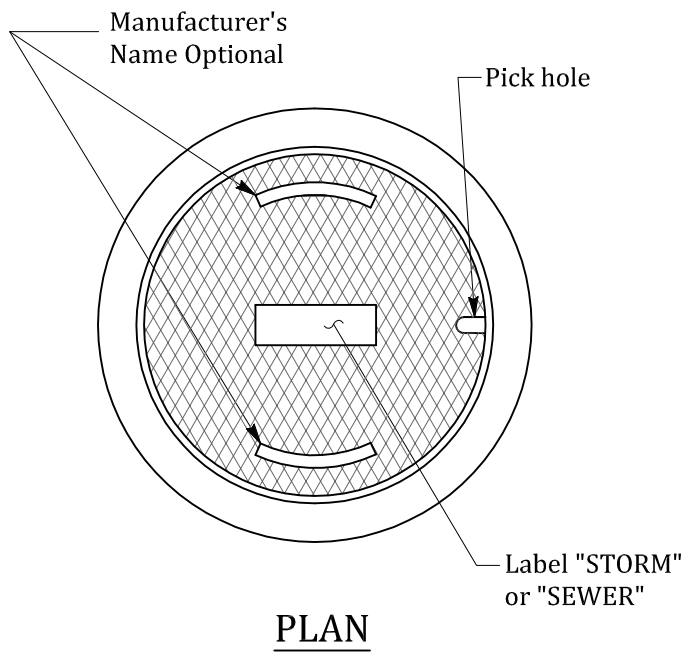
1. Remove pavement and base materials for a distance which is equal to the diameter of the frame plus two (2) feet. Adjust casting frame to new pavement surface using concrete blocks.
2. Asphalt concrete Class "B" (3" Min) replacement patch to be 1" thicker than previously existed. The rest of the backfill to be controlled density fill.
3. 2" x 4" x 8" solid brick used for final adjustment to grade. 6" high Maximum.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | MANHOLE/CATCH BASIN & VALVE BOX ADJUSTMENT | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SD-05 |



DIAMOND COVER PATTERN DETAIL

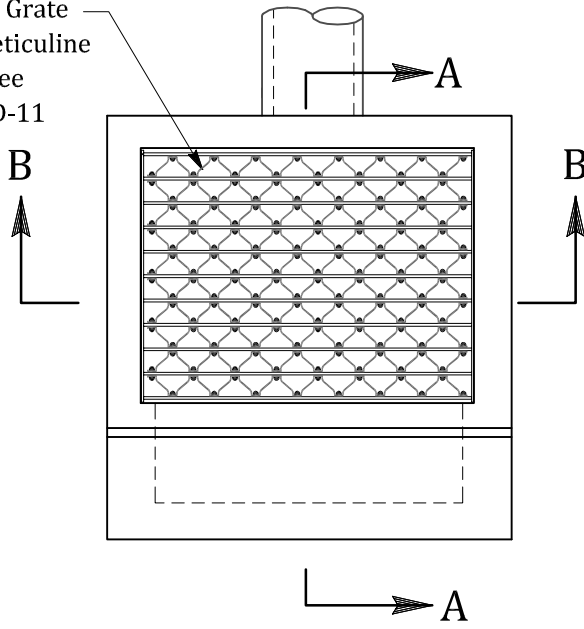


SECTION A-A

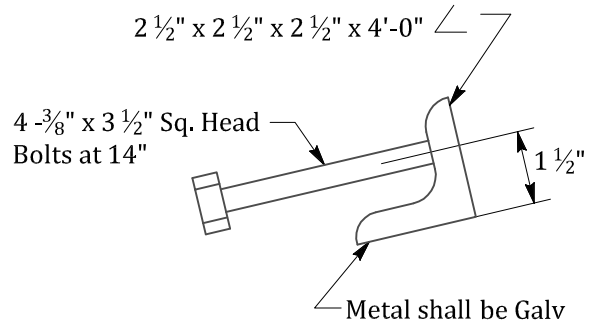
NOT TO SCALE

| | | | | |
|---------------|-----------|--|--------------------------------|---------------|
| APPROVED BY | DATE | | MANHOLE FRAME AND COVER | STD. PLAN NO. |
| | JUNE 2016 | | | SD-07 |
| CITY ENGINEER | | | | |

Bicycle Safe Grate
 Frame and Grate
 2" x 3/16" Reticuline
 Bars Typ See
 Std Plan SD-11



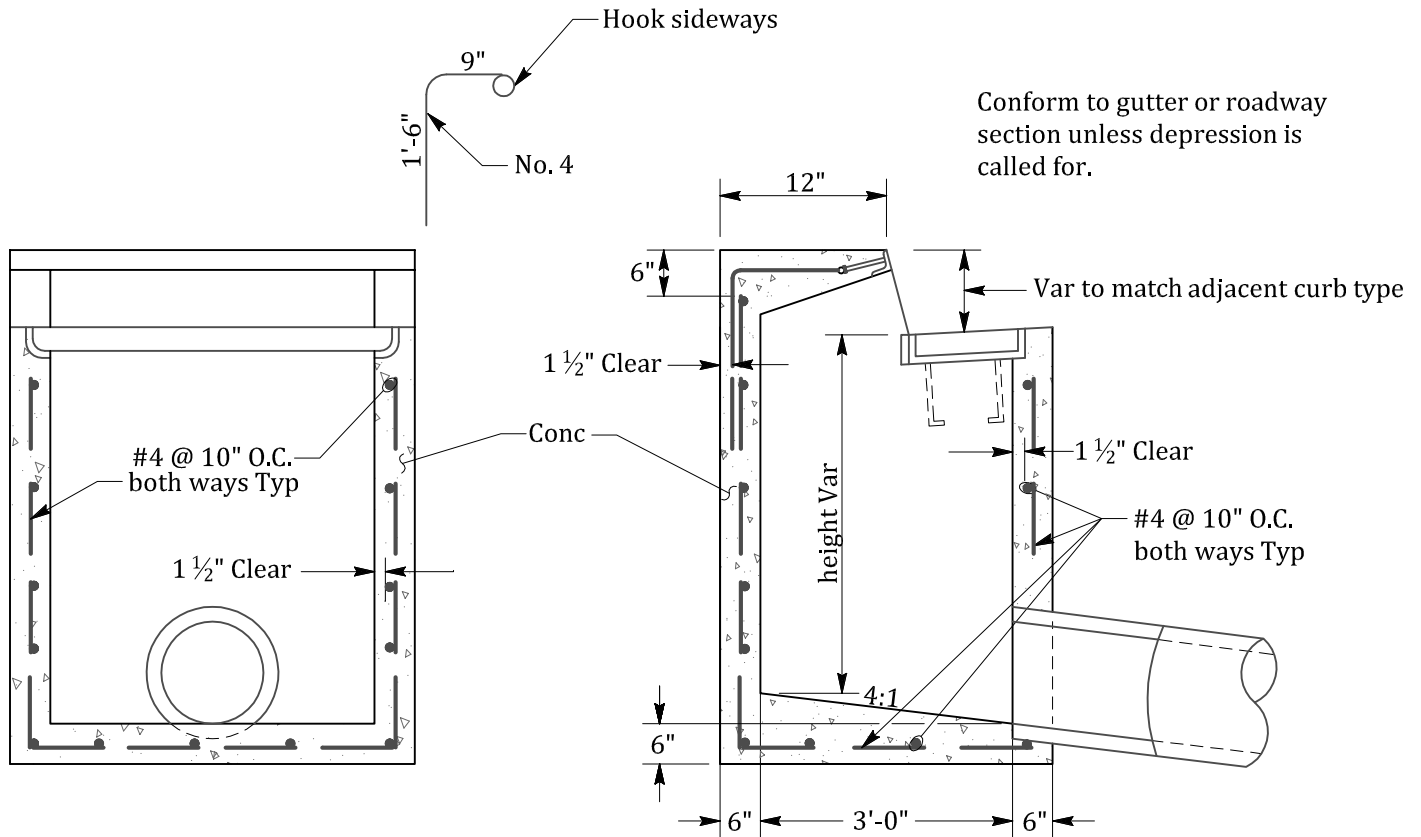
PLAN



ANGLE ANCHOR

NOTE:

Where Inlet is located within a return, angle anchor shall be curved to match face of curb radius.

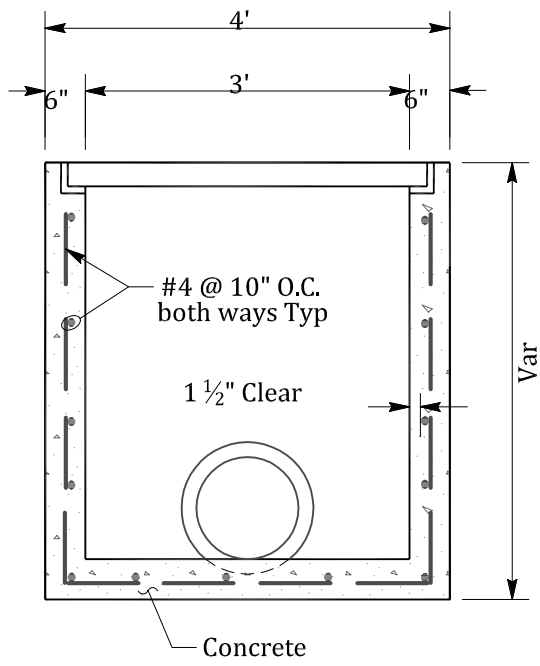
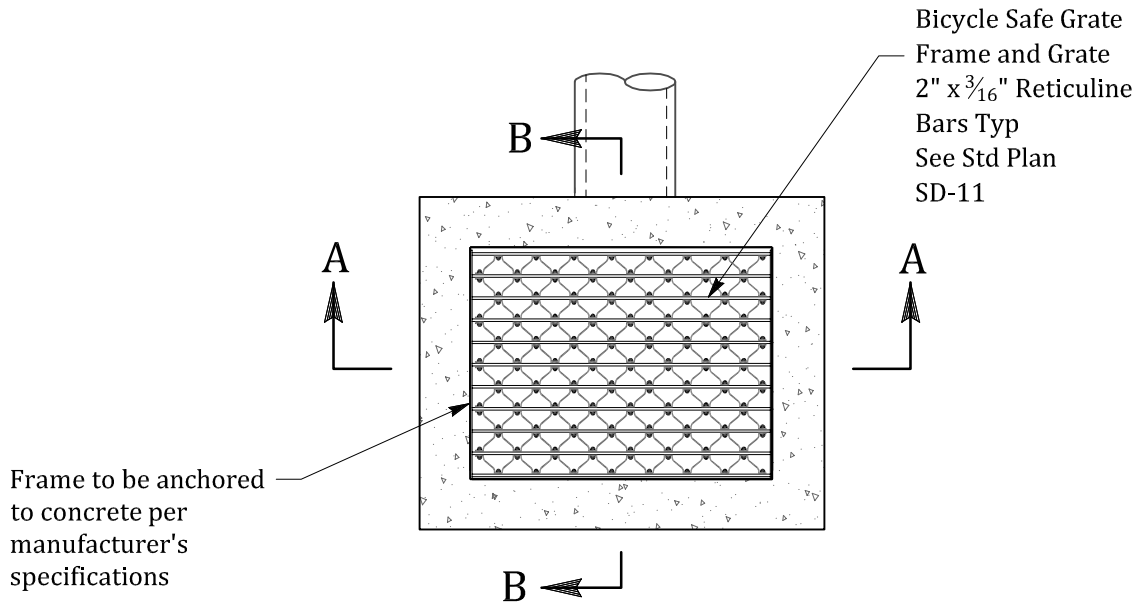


SECTION B - B

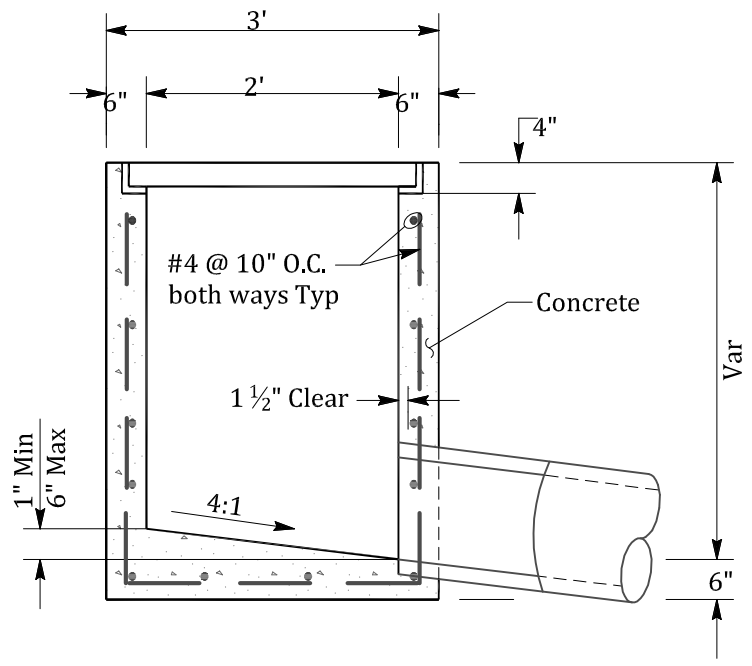
SECTION A - A

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|---------------------------------------|---------------|
| APPROVED BY | DATE | | TYPE I CURB INLET | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SD-08 |



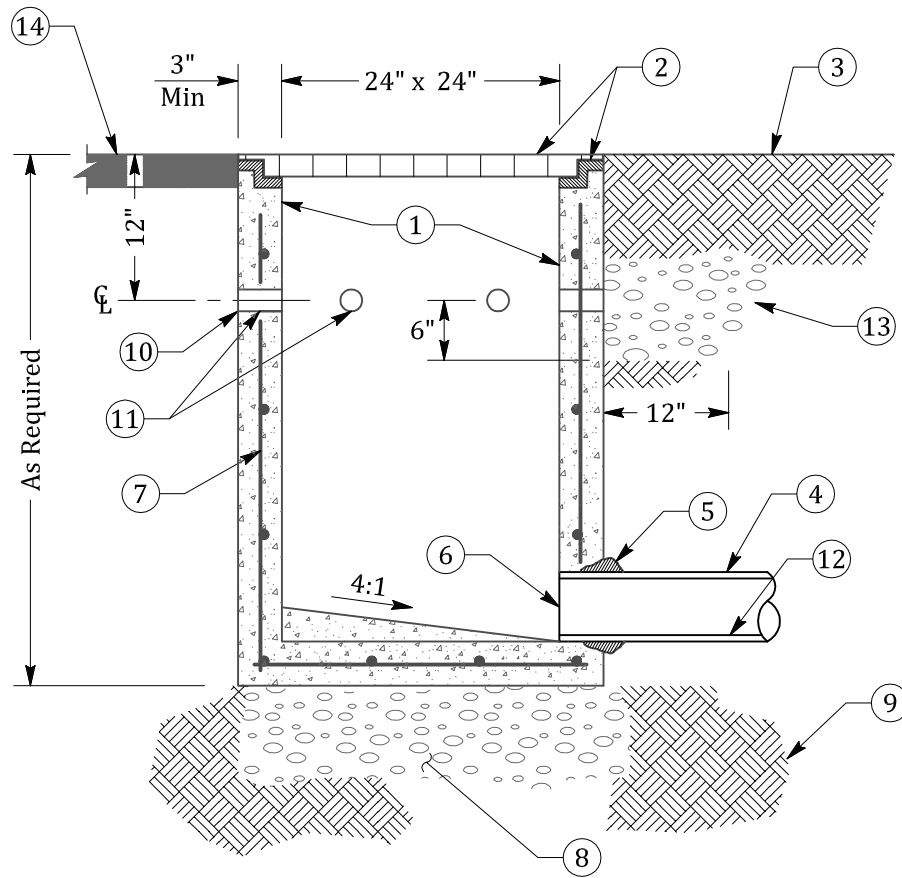
SECTION A-A



SECTION B-B

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|----------------------|---------------|
| APPROVED BY | DATE | | TYPE II INLET | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SD-09 |



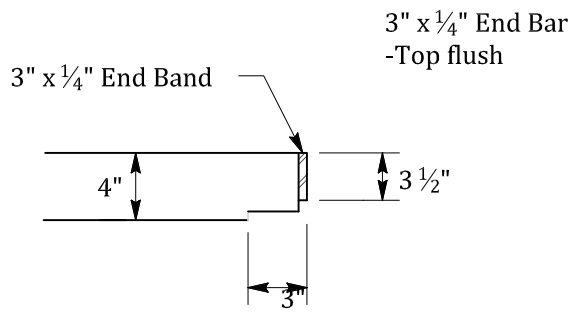
BASIN DETAIL

LEGEND:

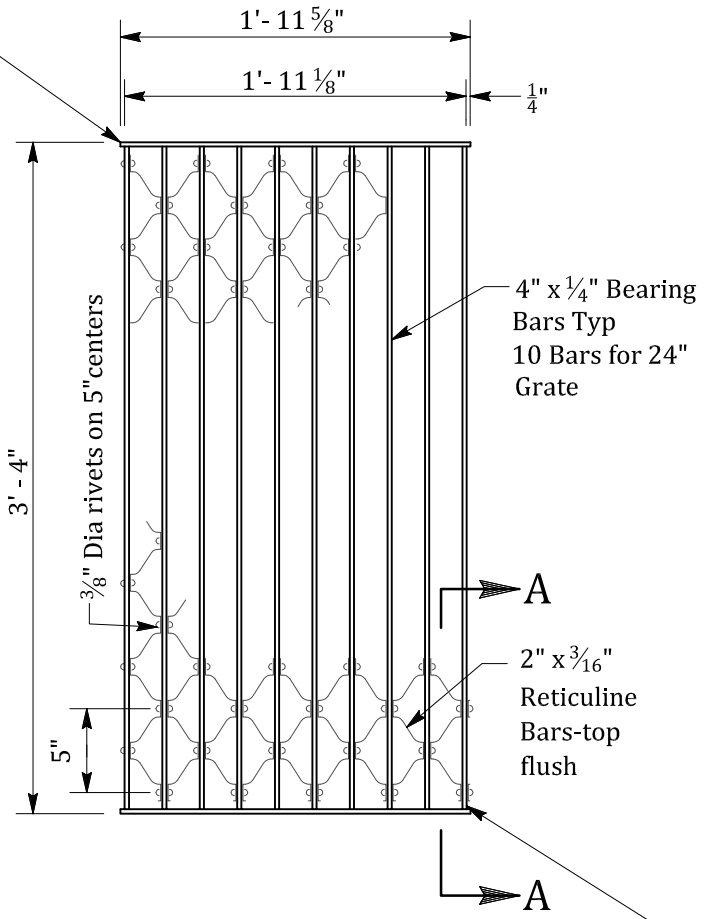
- ① Precast concrete basin, per plan.
- ② Grate and frame, w/grate locking device, per plan.
- ③ Finish grade, flush with top of grate
- ④ Storm drain pipe, per plan.
- ⑤ Grout pipe in place.
- ⑥ Pipe openings to be cast into concrete.
- ⑦ Reinforcement per Manufacturer.
- ⑧ Aggregate base, Class II, 9" deep x basin width. Compact to 95% relative density.
- ⑨ Subgrade, compacted to 90% relative density.
- ⑩ At planting areas, 18" wide filter fabric wrapped around & glued at edges to structure where weep holes occur.
- ⑪ At planting areas, 2" weep holes at 10" O.C.
- ⑫ Invert elevation, per plan.
- ⑬ Where weep holes occur surround catch basin with drain rock, 3/4" Diameter Max size, compacted.
- ⑭ Finish surface, where paving occurs.

NOT TO SCALE

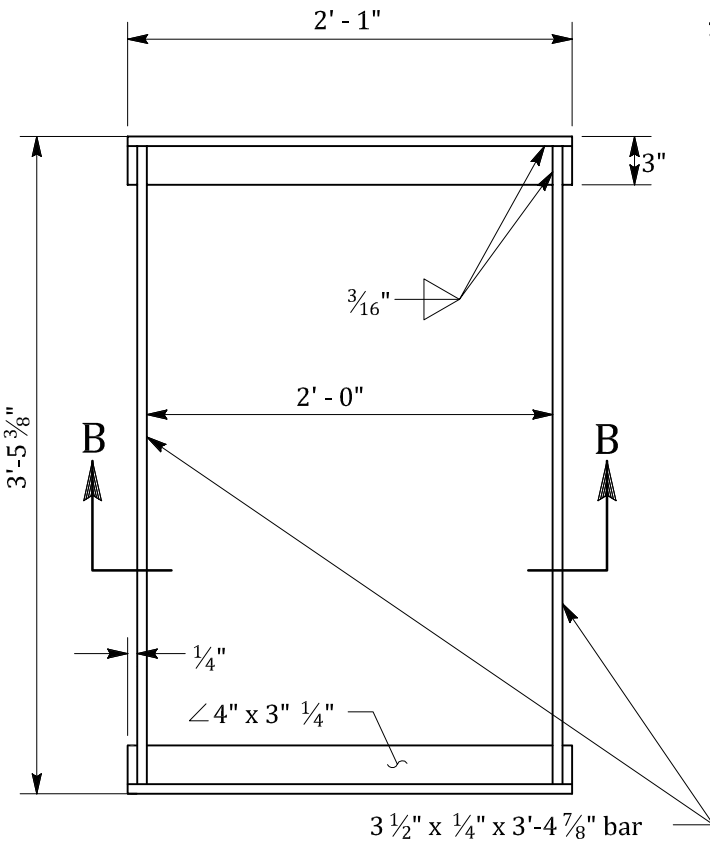
| | | | | |
|---------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | TYPE III LANDSCAPE AREA INLET | STD. PLAN NO. |
| <i>Kevin Rohani</i> | JUNE 2016 | | | SD-10 |
| CITY ENGINEER | | | | |



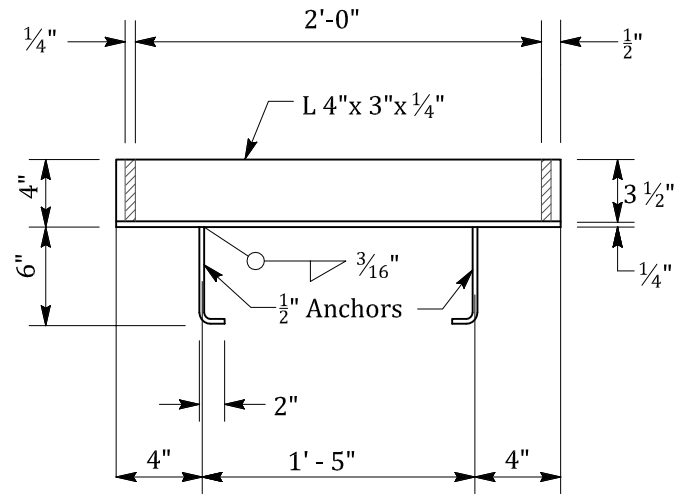
SECTION A - A



GRATE



FRAME



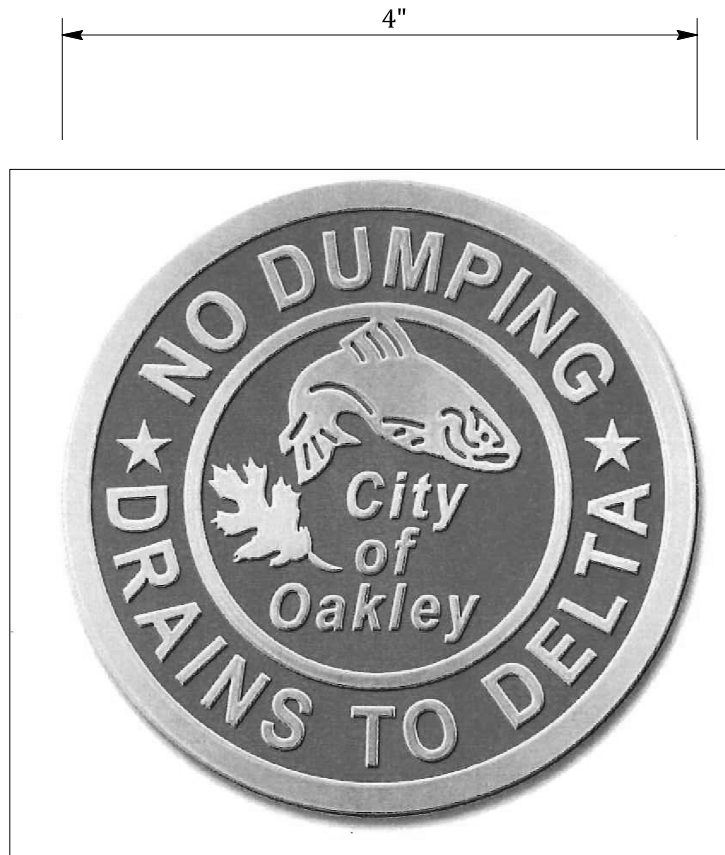
SECTION B - B

NOTES:

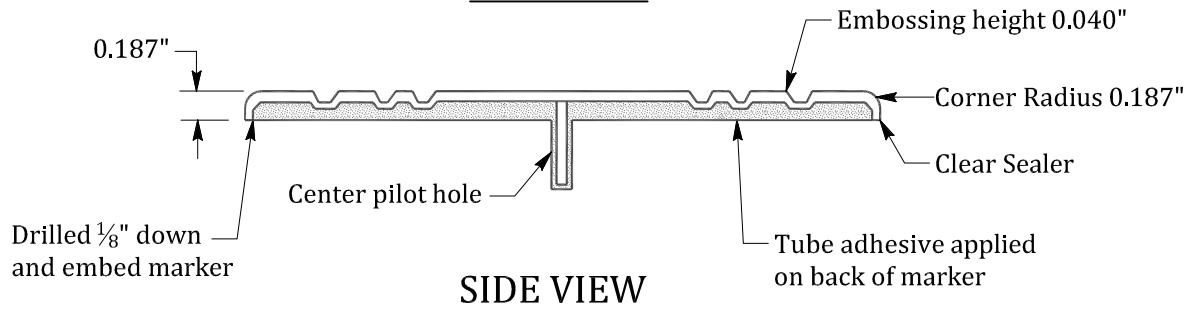
1. Hinged Grate only when specified.
2. Place Grate Bars parallel to flow.
3. Frame, Grate, and Anchors shall be galvanized after fabrication.
4. Frame and Grate to be welded steel or approved alternative.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | RETICULINE FRAME & GRATE | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SD-11 |



TOP VIEW



SIDE VIEW

NOTES:

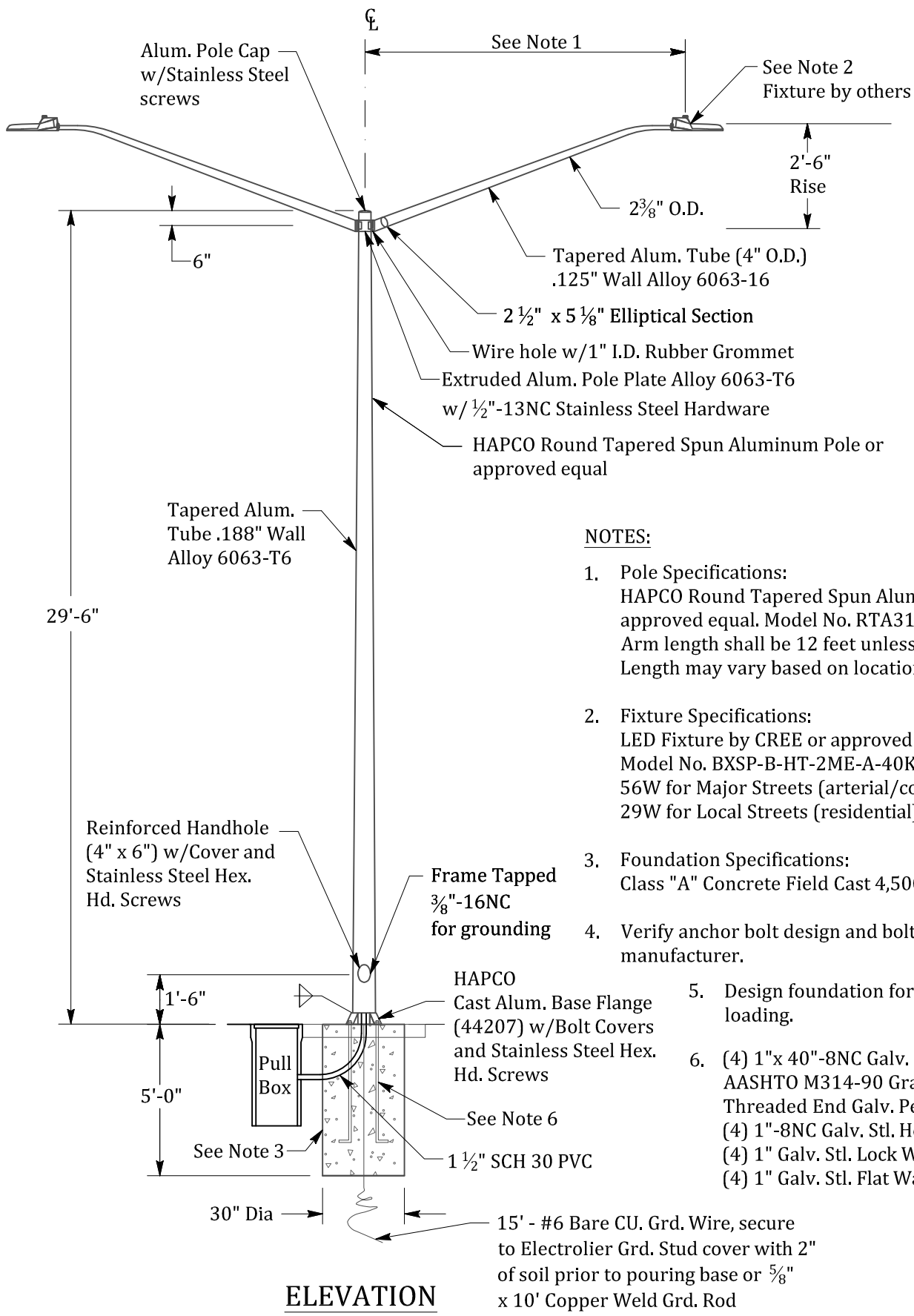
1. Available for purchase at the City of Oakley Public Works Department.
2. Storm Drain marker by Almetek, Item No. STDM-9599-SSP.
3. Sub-surface installation with tube adhesive.
4. Wire brush surface, blow dust, apply adhesive press down.

Hardware:

- SIKS-ADH
Sikaflex 10.1 fl. oz. caulk tube
(1 Tube per 15 markers)
- CDB4
Carbide Drill Bit
- DCG
Dripless caulking gun

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|-------------------------------|---------------|
| APPROVED BY | DATE | | STORM DRAIN MARKER | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SD-12 |



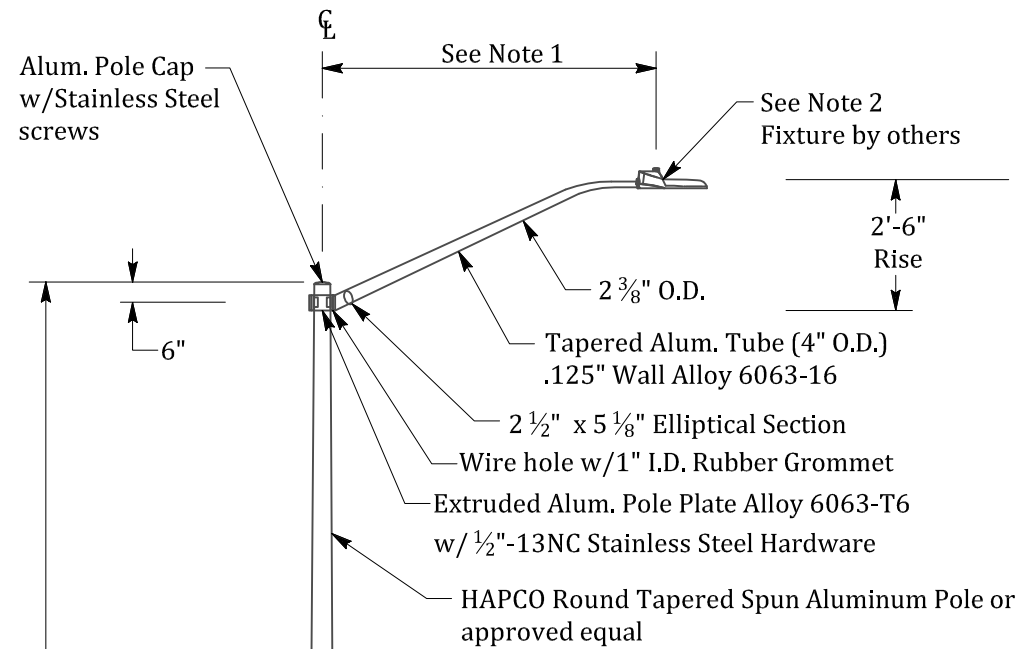
NOTES:

1. Pole Specifications:
HAPCO Round Tapered Spun Aluminum Pole or approved equal. Model No. RTA316D8C4M2C-01
Arm length shall be 12 feet unless noted on the plans.
Length may vary based on location and street type.
2. Fixture Specifications:
LED Fixture by CREE or approved equal.
Model No. BXSP-B-HT-2ME-A-40K-UL-SV-N
56W for Major Streets (arterial/collector)
29W for Local Streets (residential)
3. Foundation Specifications:
Class "A" Concrete Field Cast 4,500 PSI minimum.
4. Verify anchor bolt design and bolt circle with manufacturer.
5. Design foundation for 100 mph wind loading.
6. (4) 1"x 40"-8NC Galv. Stl. Anchor Bolts, AASHTO M314-90 Grade 55, 10" Of Threaded End Galv. Per ASTM A153.
(4) 1"-8NC Galv. Stl. Hex. Nuts
(4) 1" Galv. Stl. Lock Washers
(4) 1" Galv. Stl. Flat Washers

ELEVATION

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | STREET LIGHT COBRA HEAD DOUBLE L.E.D. | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | E-01 |



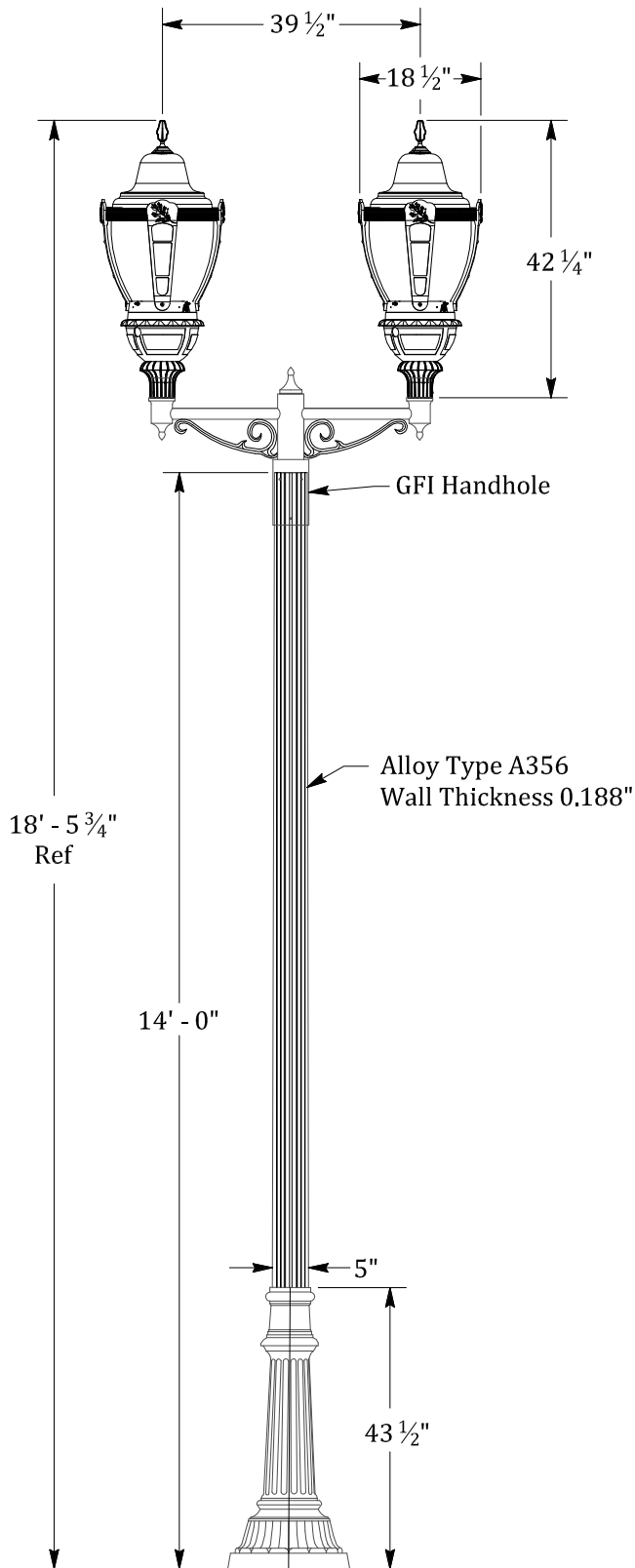
NOTES:

1. Pole Specifications:
HAPCO Round Tapered Spun Aluminum Pole or approved equal. Model No. RTA316D8C4M1C-01
Arm length shall be 12 feet unless noted on the plans.
Length may vary based on location and street type.
2. Fixture Specifications:
LED Fixture by CREE or approved equal.
Model No. BXSP-B-HT-2ME-A-40K-UL-SV-N
56W for Major Streets (arterial/collector)
29W for Local Streets (residential)
3. Foundation Specifications:
Class "A" Concrete Field Cast 4,500 PSI minimum.
4. Verify anchor bolt design and bolt circle with manufacturer.
5. Design foundation for 100 mph wind loading.
6. (4) 1" x 40"-8NC Galv. Stl. Anchor Bolts, AASHTO M314-90 Grade 55, 10" Of Threaded End Galv. Per ASTM A153.
(4) 1"-8NC Galv. Stl. Hex. Nuts
(4) 1" Galv. Stl. Lock Washers
(4) 1" Galv. Stl. Flat Washers

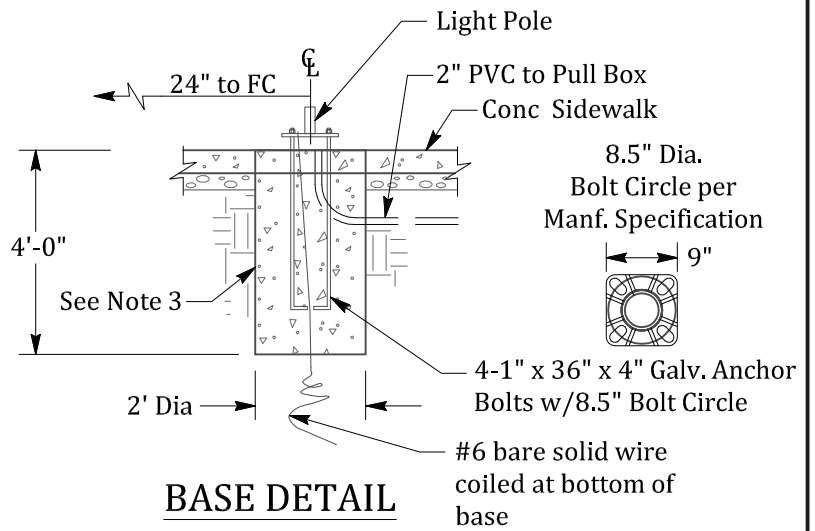
ELEVATION

NOT TO SCALE

| | | | | |
|--------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | STREET LIGHT COBRA HEAD SINGLE L.E.D. | STD. PLAN NO. |
| <i>Kevin Rohan</i> | JUNE 2016 | | | E-02 |
| CITY ENGINEER | | | | |



ELEVATION



BASE DETAIL

NOTES:

1. Pole Specifications:
 BEACON Pole Model No.SH05/F/14/5M/TN/BBT/VINY w/clam shell base

 Pole shall be factory prime coated and electrostatically powdered coated "Black" with the allocation of a 3.5-mil weather resistant powder coat whose base is polyester and thermocured. Base painted both inside and out.
2. Fixture Specifications:
 BEACON
 (2) Model No. T1/AC/C1 MOD/H2/24NB-55/4K/UNV/DIR5/PCR-TL/BBT+AA-52/5/C/T/FINIAL/BBT

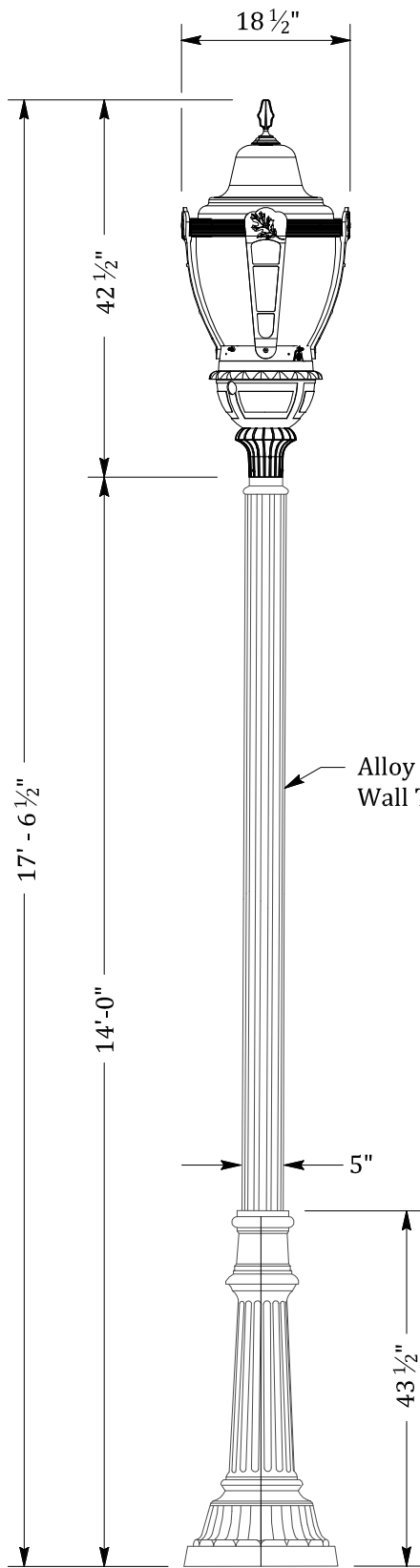
 Lens: Acrylic, Frosted
 Optics: Type III (residential street)
 Type IV (cul de sac)

 Light: 24 LED Engine and Drivers Combination
 Voltage: 120 Through 277 Volts, 60Hz

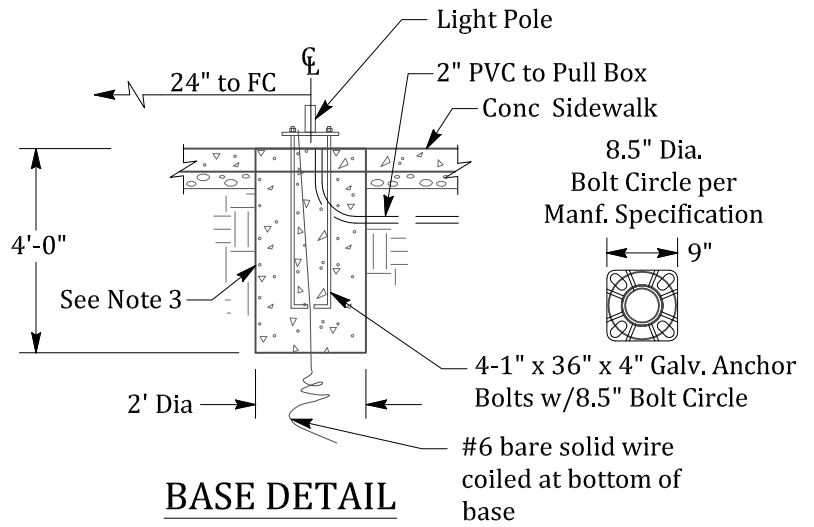
 Fixture shall be NRTL Listed for Wet Location.
 Fasteners shall be stainless steel.
3. Foundation Specifications:
 Class "A" Concrete Field Cast 2,500 PSI minimum @ 28 Days.
4. Verify anchor bolt design and bolt circle with manufacturer.
5. Design foundation for 100 mph wind loading.
6. Decorative light pole bases shall be provided at the sole cost of Developer or Contractor, with the authorization of the City.
7. Conduit shall be installed with 30" of cover.
8. Contact Oakley Beacon Manufacturer Representative (530) 888-8686.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | STREET LIGHT DECORATIVE DOUBLE L.E.D. | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | E-03 |



ELEVATION



BASE DETAIL

NOTES:

1. Pole Specifications:
BEACON Pole Model No.SH05/F/14/5M/TN/BBT/VINY w/clam shell base

Pole shall be factory prime coated and electrostatically powdered coated "Black" with the allocation of a 3.5-mil weather resistant powder coat whose base is polyester and thermocured. Base painted both inside and out.
2. Fixture Specifications:
BEACON
Model No. T1/AC/C1 MOD/H2/24NB-55/4K/UNV/DIR5/PCR-TL/BBT

Lens: Acrylic, Frosted
Optics: Type III (residential street)
Type IV (cul de sac)

Light: 24 LED Engine and Drivers Combination
Voltage: 120 Through 277 Volts, 60Hz

Fixture shall be NRTL Listed for Wet Location.
Fasteners shall be stainless steel and meet AAMA 605.2 performance specification
3. Foundation Specifications:
Class "A" Concrete Field Cast 2,500 PSI minimum @ 28 Days.
4. Verify anchor bolt design and bolt circle with manufacturer.
5. Design foundation for 100 mph wind loading.
6. Decorative light pole bases shall be provided at the sole cost of Developer or Contractor, with the authorization of the City.
7. Conduit shall be installed with 30" of cover.
8. Contact Oakley Beacon Manufacturer Representative (530) 888-8686

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | STREET LIGHT DECORATIVE SINGLE L.E.D. | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | E-04 |

TRAFFIC SIGNAL SPECIFICATIONS

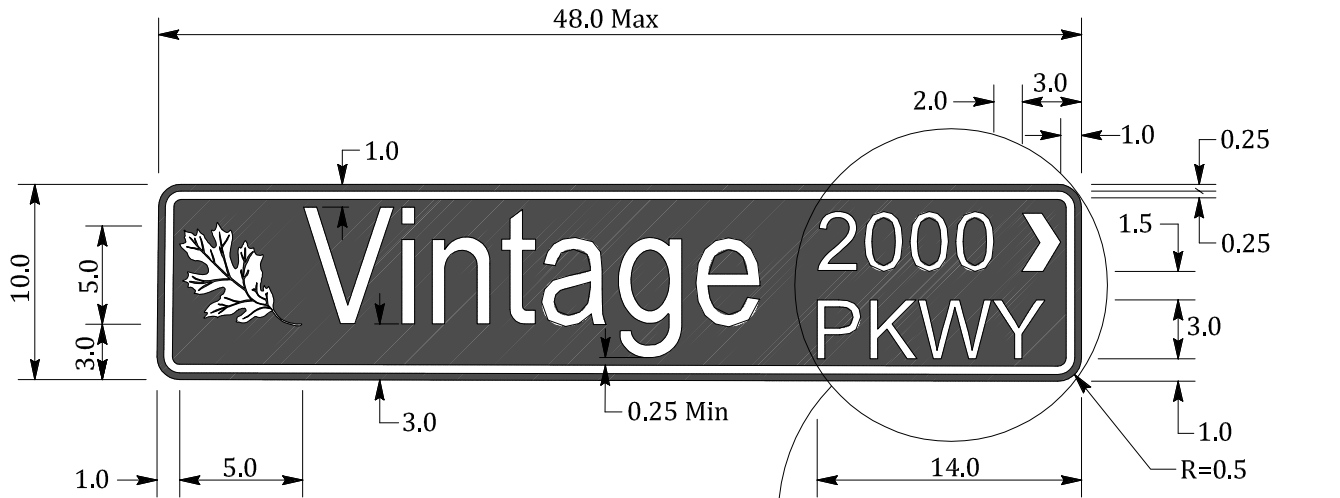
| ITEM | MANUFACTURER/MODEL OR TYPE (OR APPROVED EQUAL) |
|-----------------------------------|---|
| SIGNAL CONTROLLER | TYPE 2070 |
| SIGNAL CONTROLLER SOFTWARE | McCAIN OMNI EX INTERSECTION CONTROL SOFTWARE FOR ATC CONTROLLERS VERSION 1.6 |
| VIDEO DETECTION | ITERIS MODEL VANTAGE VECTOR HYBRID VIDEO/RADAR DETECTION SYSTEM. THE VIDEO/RADAR PROCESSORS SHALL BE ITERIS MODEL VANTAGE EDGE 2 PROCESSORS (VEC-EDG201N-PAK) |
| TRAFFIC SIGNAL CONTROLLER CABINET | McCAIN TYPE 332 |
| PEDESTRIAN COUNTDOWN CLOCK | LEOTEK, MODEL: TSL-PED-16-CIL |
| PEDESTRIAN PUSH BUTTON | CAMPBELL COMPANY, MODEL: 4EVR |
| LIGHTED STREET NAME SIGN | SOUTHERN MANUFACTURING, MODEL: CLEAN PROFILE L.E.D. ILLUMINATED SIGN |

NOTES:

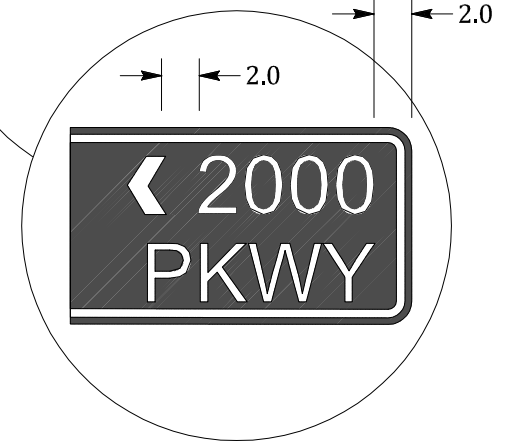
1. Within 14 calendar days of receipt of Contractor's Materials List, the City shall have the right to request a sample of any materials used for the construction of the traffic signal, or the fiber optic system; including, but not limited to, controller & controller cabinet, and any other item deemed necessary to be tested or inspected for compliance to the specifications. Contractor shall deliver those materials requested within 21 calendar days of request. If the requested materials are not received by the City within the time specified, those materials requested shall be deemed to be unsatisfactory, and rejected.
2. All equipment and software installed shall also be compatible with existing City traffic control system.
3. The Contractor shall arrange to have a signal technician, qualified to work on the controller unit and employed by the controller unit manufacturer or his representative, present at the time the equipment is turned on. The Contractor shall deliver a fully operating system.
4. The Contractor shall furnish a "Certificate of Compliance" assuring the City that the traffic signal controller and cabinet comply with these Special Provisions and that they will operate as shown on the Plans.
5. The maintenance and repair agreement period for furnished equipment shall not commence until the controllers, cabinets, and auxiliary equipment have been installed at the project sites, placed in operation by a factory representative, and the project accepted as complete.

| | | | | |
|---|-----------|---|----------------------------------|---------------|
| APPROVED BY | DATE |  | SIGNAL SPECIFICATIONS | STD. PLAN NO. |
|  | JUNE 2016 | | | E-05 |
| CITY ENGINEER | | | | |

ALL DIMENSIONS ARE IN INCHES



DETAIL



REVERSE SIDE

ACCEPTABLE SIGN ABBREVIATION

| | | | |
|------|-----------|------|---------|
| AVE | Avenue | PL | Place |
| BLVD | Boulevard | RD | Road |
| CIR | Circle | ST | Street |
| CT | Court | TER | Terrace |
| DR | Drive | PKWY | Parkway |
| LN | Lane | PVT | Private |

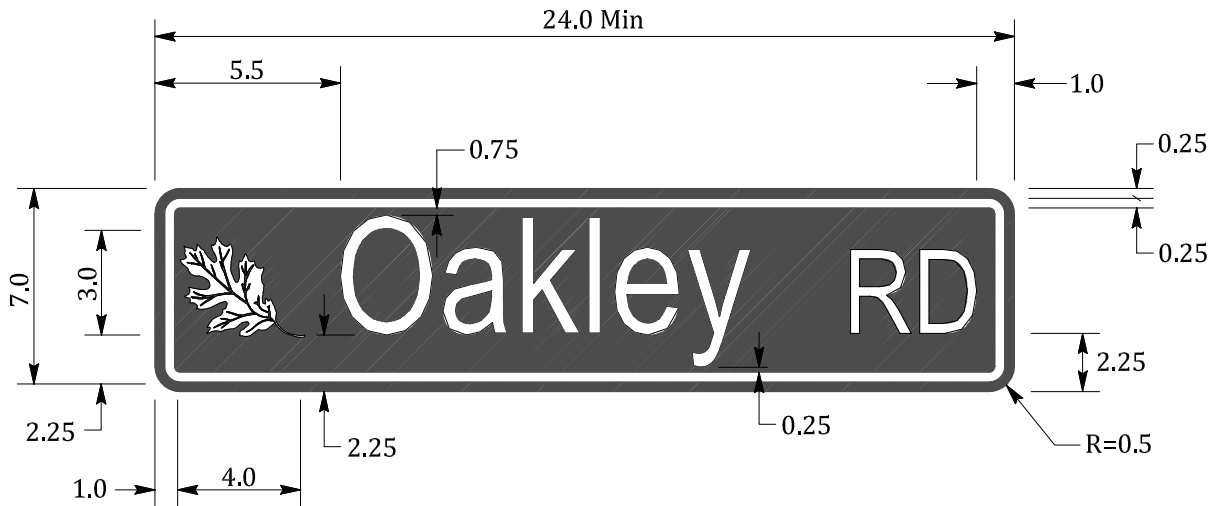
NOTES:

1. A combination of 6" "Highway Gothic" Font (UC) with 4.5" "Highway Gothic" Font (LC) shall be used for street name.
2. Supplementary lettering to indicate the type of street (such as Street, Avenue, or Road) shall be in smaller lettering 3" high.
3. The border shall be 0.5-inch in width. The corners of the sign should be rounded to fit the border.
4. Street name sign blanks shall be 0.125 inch thick, ASTM B209 Alloy 6061-T6, flat aluminum.
5. Reflective sheeting shall be 3M Visual Impact Performance - Series 3990 (green and white) and shall be coated with 3M Premium Protective Overlay Film - Series 1160 (both sides), or approved equivalents.
6. Sign colors shall be a green background with white letters and white border.
7. Signs shall be double faced (front and rear) with block arrows pointing in same direction (ie front to right and rear to left).
8. Sign location and mounting shall be as shown on location detail (SS-03) Sheet 3.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | STREET NAME SIGN MAJOR STREET | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SS-01 |

ALL DIMENSIONS ARE IN INCHES



DETAIL

ACCEPTABLE SIGN ABBREVIATION

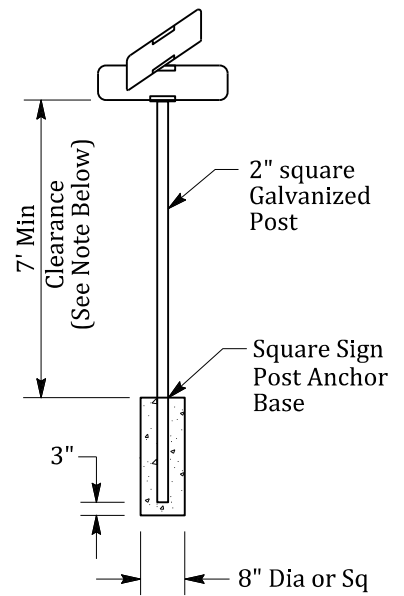
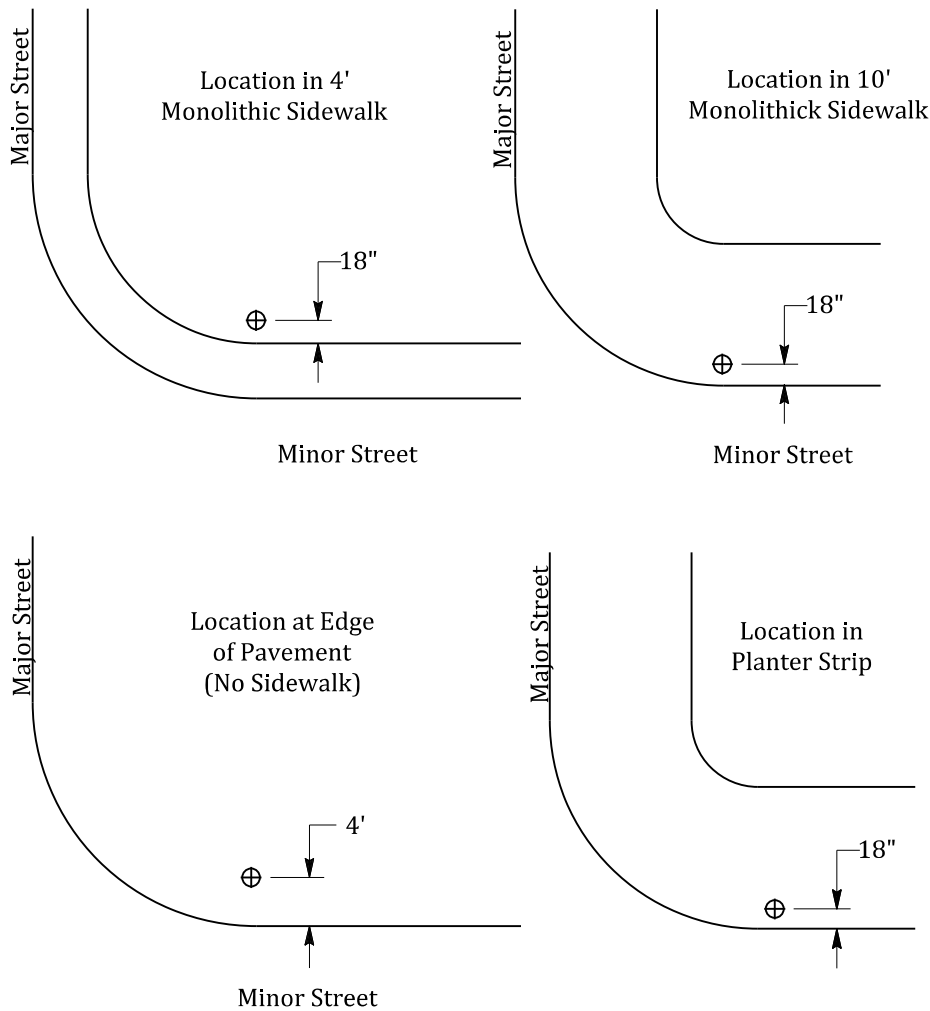
| | | | |
|------|-----------|------|---------|
| AVE | Avenue | PL | Place |
| BLVD | Boulevard | RD | Road |
| CIR | Circle | ST | Street |
| CT | Court | TER | Terrace |
| DR | Drive | PKWY | Parkway |
| LN | Lane | PVT | Private |

NOTES:

1. A combination of 4" "Highway Gothic" Font (UC) with 3" "Highway Gothic" Font (LC) shall be used on low-volume roads and on urban street with speeds of 25 MPH.
2. Supplementary lettering to indicate the type of street (such as Street, Avenue, or Road) shall be in smaller lettering 3" high.
3. The border shall be 0.25-inch in width. The corners of the sign should be rounded to fit the border.
4. Street name sign blanks shall be 0.125 inch thick, ASTM B209 Alloy 6061-T6, flat aluminum.
5. Reflective sheeting shall be 3M Visual Impact Performance - Series 3990 (green and white) and shall be coated with 3M Premium Protective Overlay Film - Series 1160 (both sides), or approved equivalents.
6. Sign colors shall be a green background with white letters and white border.
7. Signs shall be double faced (front and rear)
8. Sign location and mounting shall be as shown on location detail (SS-03) Sheet 3.
9. At the intersection with public street/private street name sign shall match the Standard Drawings but must have "PVT" where the block would go.

NOT TO SCALE

| | | | | |
|--|-----------|---|--|---------------|
| APPROVED BY | DATE |  | STREET NAME SIGN MINOR STREET | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | SS-02 |



DETAIL "A"
(Typical)

NOTE:
Stop signs mounted on same post as street name signs shall be below street name signs. (See Note 6)

SIGN LOCATIONS

NOTES:

1. Sign to be located 18 inches from face of curb or back of 4' monolithic sidewalk.
2. Bottom of sign shall be mounted 7 feet Min above ground or sidewalk per Detail "A" shown on this sheet.
3. Signs to be City of Oakley Standard Street Name Sign.
4. Signs shall be mounted with Hawkins' Heavy Duty Aluminum "Vandal Proof" (HD) VP Model #V14F-(HD)VP-2C2P (without finial) or approved equal.
5. Signs mounted on signal standards or electroliers shall be mounted with Hawkins' "Vandal Proof" wing bracket Model #V14F-(HD) VP-AB or approved equal. Brackets shall be fastened to poles with two (2) 3/4" wide x 0.030" thick Type 201 Stainless Steel bends.
6. Street name sign may be combined with stop sign (R1), and placed in a location for maximum visibility as approved by the City Engineer.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | STREET NAME SIGN LOCATION AND MOUNTING | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | SS-03 |

List of trees below are suitable for use in the residential public easement areas in Oakley. Care in selecting the proper tree for the specified need should be foremost in the decision - recommendation process. Small Accent trees can be planted in the easement area but do not meet the criteria of a "Street Tree". Standard trees only. No multi-trunk. The Parks and Landscape Division shall have final decision-making authority on all trees approved in public landscape areas.

SMALL ACCENT TREES (Under 25' high)

| TREE NAME | VARIETY | COMMON NAME | COMMENTS |
|-------------------------|--|----------------------------|-----------------------|
| Arbutus | Marina | Hybrid Strawberry Madrone | Fruit can be messy |
| Cercidphyllum Japonicum | | Katura Tree | |
| Cercidium Hybrid | Desert Museum | Palo Verde | |
| Cercis Canadensis | | Eastern Redbud | Male only |
| Chionanthus Retusus | | Chinese Fringe Tree | Susceptible to aphids |
| Chitalpa Tashkentensis | Pink Dawn or Morning Cloud | | Poisonous berries |
| Crataegus Phaenopyrum | | Washington Hawthorn | |
| Geijera Parviflora | | Australian Willow | |
| Lagerstroemia Indica | | Hybrid Crape Myrtle | |
| Laurus Nobilis | Saratoga | Grecian Laurel - Sweet Bay | |
| Magnolia Grandiflora | Little Gem, Magnolia Virginiana or Jim Wilson Moonglow | Magnolia | |
| Prunus Crasifera | Krauter Vesuvius | Purple-Leaf Plum | Fruit can be messy |
| Vitex Agnus-Castus | | Chaste | |

"STREET TREES" - Medium sized (25' to 45' high)

| TREE NAME | VARIETY | COMMON NAME | COMMENTS |
|------------------------|---|----------------------------|-----------------------------|
| Acer buergerianum | | Trident Maple | |
| Acer truncatum | Pacific Sunset or Norwegian Sunset | Shantung Maple | |
| Amelanchier Laevis | | Spring Flurry Serviceberry | |
| Carpinus Caroliniana | | American Hornbeam | Insects, other issues? |
| Ginkgo biloba | Fairmont, Autumn Gold or Princeton Sentry | Maidenhair | Male - Sterile Only |
| Koelreuteria bipinnata | | Chinese Flame Tree | |
| Maackia Amurensis | Maackia | Magnolia | |
| Magnolia grandiflora | St. Mary | MaacNificent | |
| Magnolia soulangeana | | Saucer Magnolia | |
| Metrosideros excelsus | | New Zealand Christmas Tree | Large Root Area |
| Nyssa sylvatica | | Sour Gum - Tupelo | |
| Ostrya Virginiana | | American HopHornbeam | |
| Pistacia chinensis | Pearl Street, Red Push or Keith Davey | Chinese Pistacia | Male Only |
| Pyrus calleryana | Chanticleer, New Bradford | Flowering Pear | |
| Tilia cordata | Greenspire, Shamrock or Redmond | Little Leaf Linden | Susceptible to Aphids |
| Tristaniopsis laurina | Elegant | Tristania Water Gum | Susceptible to Aphids |
| Tristania confertax | Lophostemon | Brisbane Box | Susceptible to Aphids |
| Ulmus parvifolia | Emerald Flair Elm | Chinese Elm | Potential Anthracnose issue |
| Ulmus Propinqua | Emerald Sunshine Elm | Sunshine Elm | |
| Ulmus Wilsoniana | Prospector | Prospector Elm | |

LARGE TREES (Over 45' high) - NOT FOR RESIDENTIAL

| TREE NAME | VARIETY | COMMON NAME |
|------------------------------|-------------------------------------|-----------------------|
| Acer rubrum | Red Sunset or October Glory | Red Maple |
| Cedrus Atlantica | Glauca | Blue Atlas Cedar |
| Celtis Australis | | European Hackberry |
| Magnolia grandiflora | Edith Bogue | Magnolia |
| Metasequoia glyptostroboides | | Dawn Redwood |
| Pinus Eldarica | | Afghan Pine |
| Plantinus a. | Morton Circle | Exclamation Planetree |
| Quercus Agrifolia | | Coast Live Oak |
| Quercus ilex | | Holly Oak |
| Quercus Rubra | | Red Oak |
| Quercus virginiana | | Southern Live Oak |
| Zelkova serrata | Village Green or Musashimo columnar | Sawleaf Zelkova |

Note: The list above is restricted as the City prohibits the planting of trees in the public easement area with fruit, undesirable seeds, cones, or nuts; Trees with voracious shallow root systems that are known to cause sidewalk or driveway damage; and trees with known pest (disease, insect or invertebrate) problems.

| | | | | |
|--|-----------|---|----------------------------|---------------|
| APPROVED BY | DATE |  | PREFERRED TREE LIST | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | L-01 |

TREE SPECIFICATIONS

All trees must meet the following minimum specifications:

1. HEIGHT: 7 - 8 feet high planted in the ground.
2. CALIPER: 1 ½ inches, measured 6 inches from the base (24 inch Box Minimum).
3. BRANCHING NEED: Minimum spread of 2 - 3 feet with good branch distribution
4. CENTRAL LEADER: Single, relatively straight

Any exception to the above must be approved by the City.

All planting stock must have the approval of the City.

City reserves the right to reject trees that do not meet high quality nursery stock of the current edition of the Guideline Specifications for Nursery Tree Quality, published by the Urban Tree Foundation

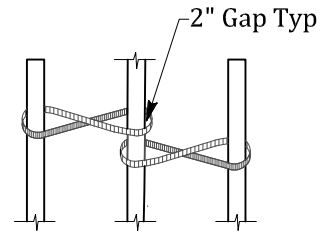
PLANTING SEQUENCE

1. Dig the planting hole as deep as the container and twice as large as its diameter
2. Remove the root ball carefully from the container by supporting it from below. Sever any circling roots ($\frac{3}{16}$ inch or greater) with sharp shears or knife. If the root ball is dense or compacted, carefully loosen the roots at the side and bottom of the root ball. Do not pull the root ball apart. The severing of large roots will encourage new roots initiating at the cuts.
3. Center root ball in hole on undisturbed soil such that root crown is visible at the top of the root ball and 2 inches above grade.
4. Fill planting hole around root ball with backfill mix and foot-tamp in lifts. Be careful not to disturb the root ball.
5. Backfill mix shall include U.C. Ag. mix or approved equivalent. U.C. Ag. mix shall be combined with p existing soil, $\frac{1}{3}$ mix, $\frac{2}{3}$ native soil unless specified otherwise by the soils analysis.
6. Fertilizer and post-plant fertilizer shall be as required by soils analysis.
7. Use the remaining native soil to create a basin appropriate to the site.

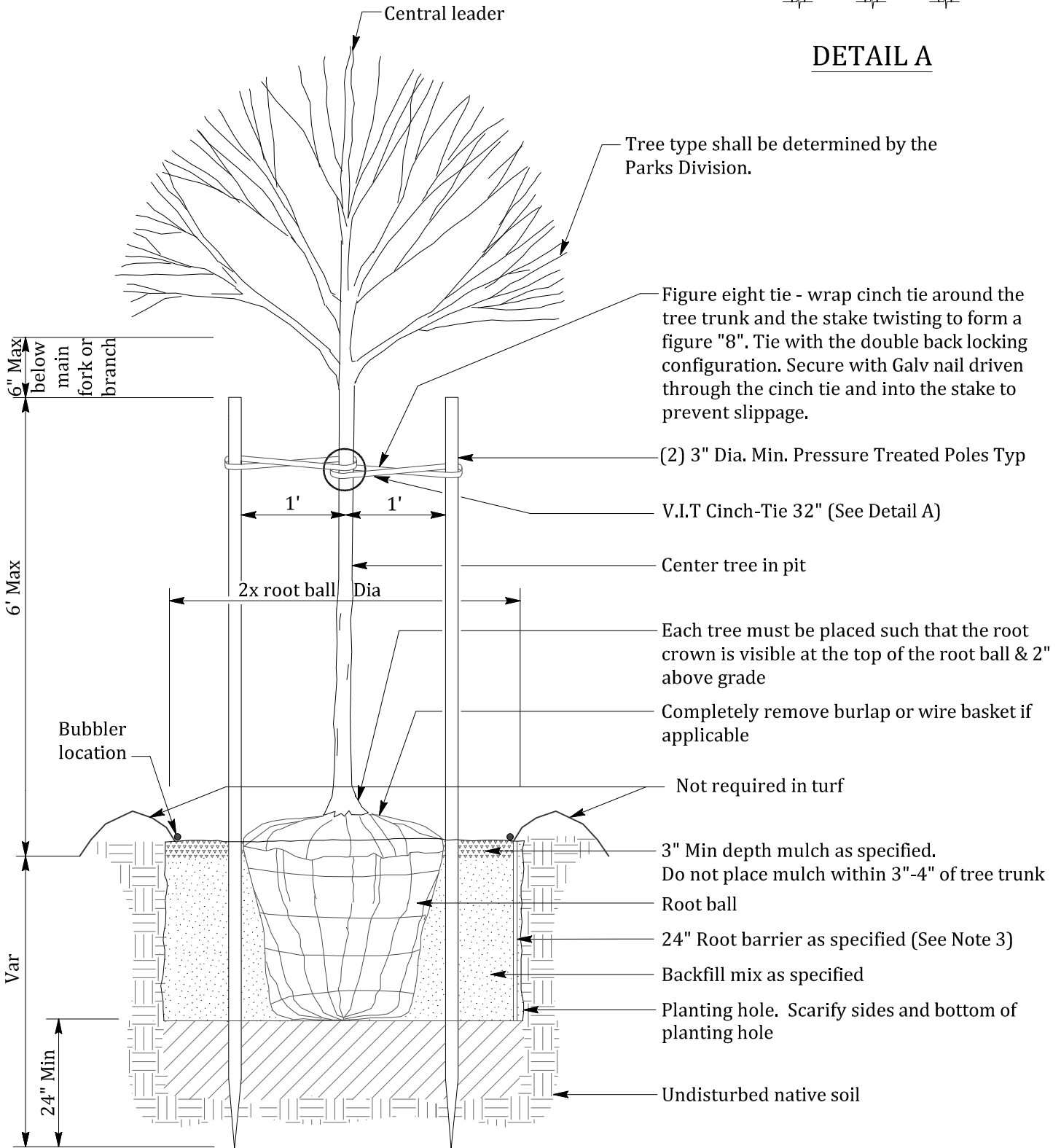
| | | | | |
|---|-----------|---|---|---------------|
| APPROVED BY | DATE |  | TREE PLANTING SPECIFICATIONS | STD. PLAN NO. |
|  | JUNE 2016 | | | L-02 |
| CITY ENGINEER | | | | |

NOTES:

1. Avoid damage to roots.
2. Avoid root ball when placing stakes.
3. Root barrier required for trees 6' or less from paving. Installed against paving per mfrs. specifications for a linear installation. Panel length per mfrs. specifications and extend a min. length of 10' from trunk.
4. Backfill mix and pst-plant fertilizer as required by soils analysis.



DETAIL A

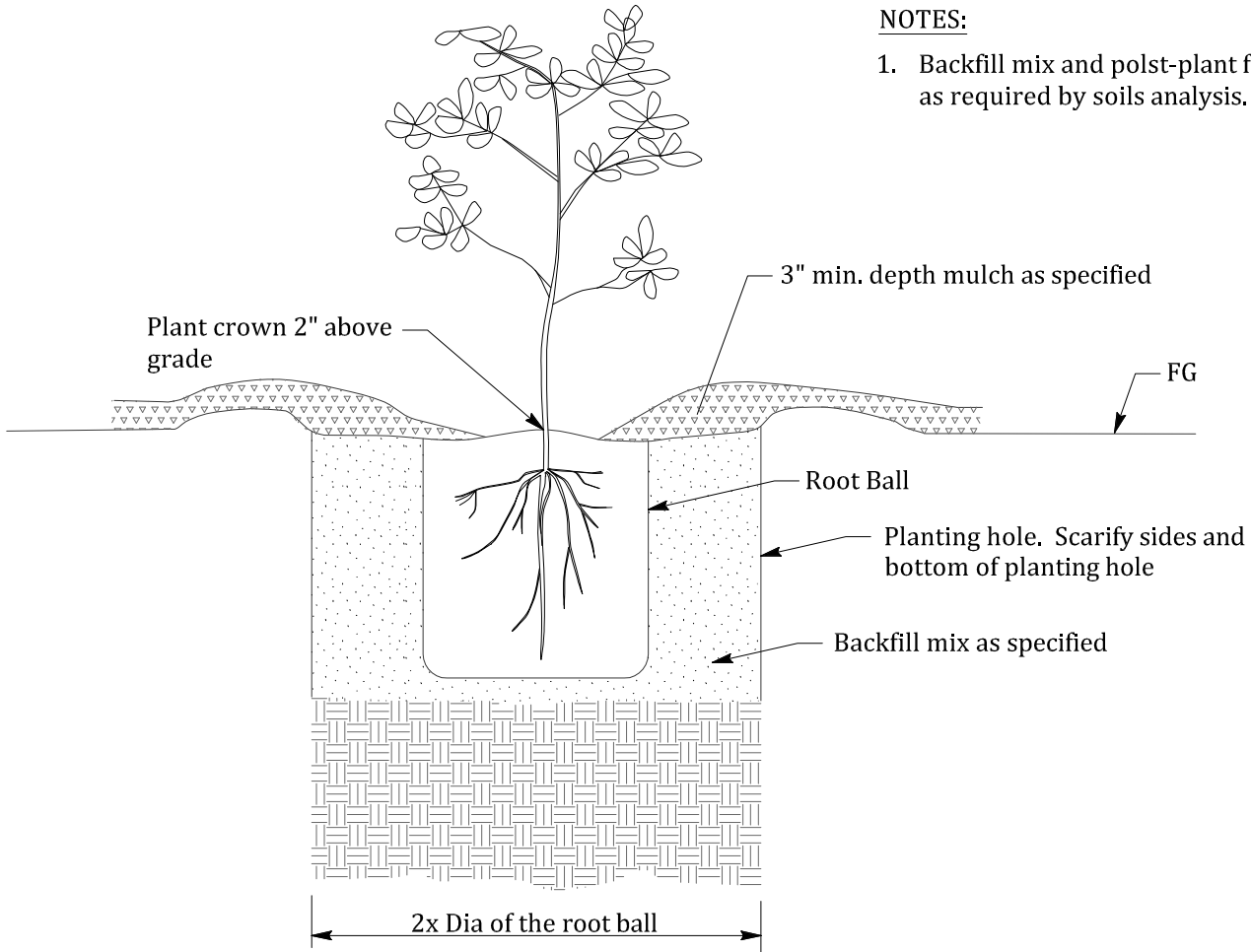


NOT TO SCALE

| | | | | |
|-------------------|-----------|--|----------------------|---------------|
| APPROVED BY | DATE | | TREE PLANTING | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | L-03 |

NOTES:

1. Backfill mix and post-plant fertilizer as required by soils analysis.



SHRUB PLANTING DETAIL

NOT TO SCALE

| | | | | |
|---|-----------|---|----------------|---------------|
| APPROVED BY | DATE |  | SHRUB PLANTING | STD. PLAN NO. |
|  | JUNE 2016 | | | L-04 |
| CITY ENGINEER | | | | |

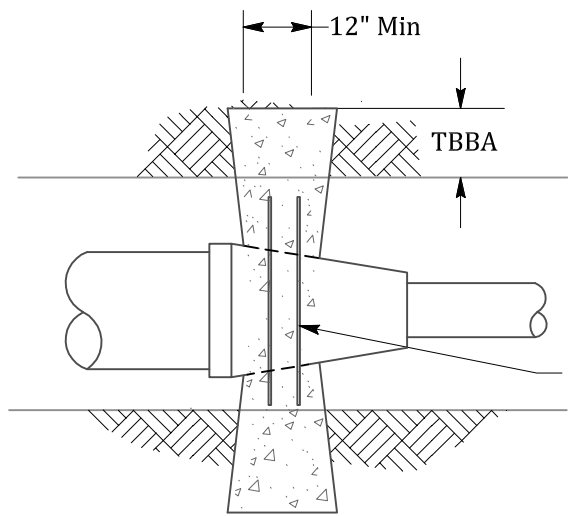
IRRIGATION EQUIPMENT LIST

| ITEM | MANUFACTURER/MODEL (OR APPROVED EQUAL) |
|---|---|
| Backflow Preventer | Per Diablo Water District Specifications and Details |
| Gate Valve (3 inch and larger) | Nibco 619 RW-SON |
| Gate Valve (2 ½ inch and smaller) | Nibco T113-K |
| Ball Valve | Nibco T-FP-600a Full Port Brass or KBI SCH 80 PVC True Union Type |
| Quick Coupling Valve | 44 IRC or 44 NP (for Non-Potable) |
| Pressure Reducing Valve | Wilkins 500HLR Series |
| Master Valve | Included with Controller Assembly (See Note 1 below) |
| Flow Sensor | Included with Controller Assembly (See Note 1 below) |
| Remote Control Valve | Rainbird PESB or PESB-R (for non-potable), PRS-D Pressure Regulator option |
| Valve Boxes with Stainless Steel Lock-Down Bolts | Carson Trusst black colored box and lid for t- cover planters, green colored box and t-cover for turf areas. Carson Specification Grade. |
| Gate & Quick Coupling Valve Box with Stainless Steel Lock-Down Bolts | Carson Trusst Round black colored box and t- cover lid for planters, green colored box and t-cover lid for turf areas. Carson Specification Grade. |
| Controller Assembly | Rain Master Evolution DX II with SiteOne Satellite Assembly (See Note 1 Below) |
| Backflow Enclosure | Per Diablo Water District Specifications and Details |
| Backflow Preventer Freeze Protection | Per Diablo Water District Specifications and Details |
| Pop-Up Stream Rotor | Rainbird 1800 Series (PRS-SAM) with Hunter MP Rotator Nozzles |
| Gear Driven Rotor | Rainbird 5000 Series Hunter PGP |
| Pop-Up Spray | Rainbird 1800 Series (SAM-PRS) |
| Bubbler | Rainbird 1400 Series |
| Tree Bubbler | Rainbird RWS-B Series |
| Sub-Surface Irrigation | Rainbird XFS |

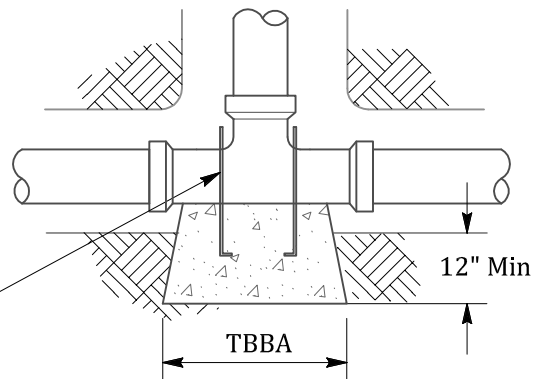
NOTES:

1. SiteOne Satellite assembly with SA6-RM4-XX/FAN-16/RHG/RDM/PMR/FSAVC-XXX/RSE-DX/GRP-K/EV-CAB-SEN/
EV-CAB-COM (if hardwiring DX2 controller together), Pro Max receiver, 1 Pro Max transmitter for every 5 assemblies,
enclosure fan, housed in a top entry stainless steel enclosure, flow sensing assembly, with master valve, sensor cable, and
rain sensor. Contact SiteOne Representative at (800)-SITE ONE for purchase order, pre-construction meeting, test for
clear reception for radio communication with central computer, warranty, and certification. Contractor to verify power
availability and install unit per manufacturers specifications on specified concrete pad.
2. All planters should be designed with a 100% bubbler based system (no drip or micro irrigation). Pop-Up rotators will
be allowed in some instances (ground cover), but only on 5' or wider planters. Rotors are preferred for all turf areas.
Where rotors are not feasible, pop-up rotators will be accepted as a substitute.

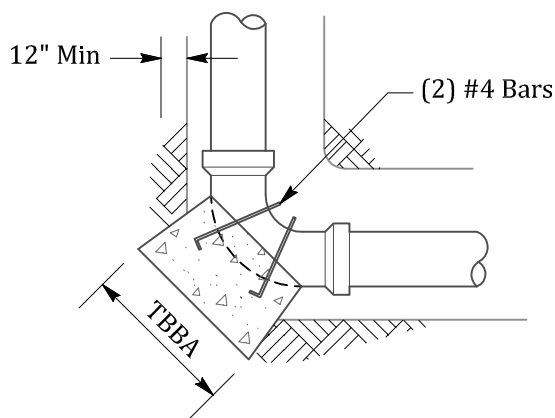
| | | | | |
|---|-----------|---|--|---------------|
| APPROVED BY | DATE |  | IRRIGATION EQUIPMENT LIST | STD. PLAN NO. |
|  | JUNE 2016 | | | IR-01 |
| CITY ENGINEER | | | | |



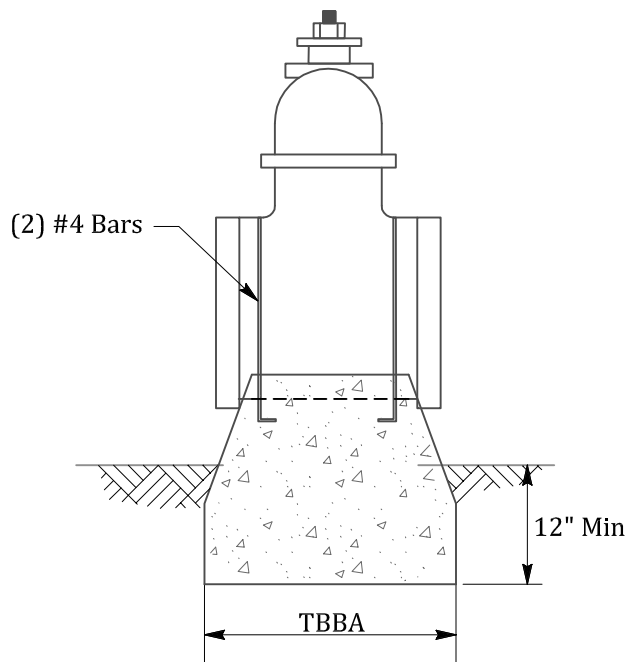
REDUCERS



TEES & DEAD ENDS



ELBOWS



VALVES

NOTES:

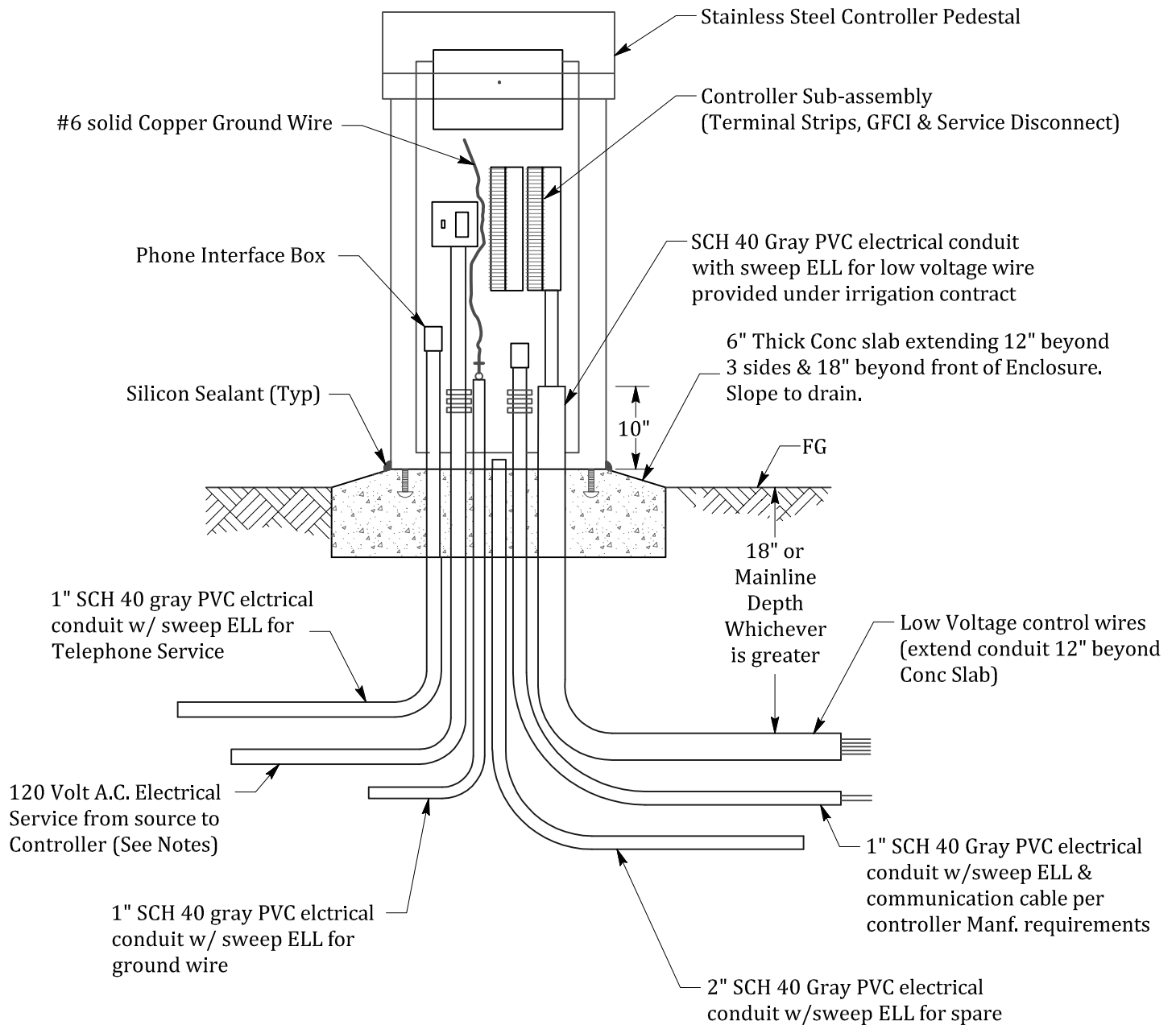
1. Thrust blocks shall not project higher than 1/2 the distance from the bottom of the trench to finish grade. Place concrete against undisturbed soil.
2. Do not cover ends of fittings or bolts with concrete.
3. Concrete shall have compression strength of 2000 PSI.
4. Consult Manufacturer's literature for recommended thrust bearing area (TBBA) based on actual field conditions. At Minimum TBBA shall be sized as follows:

| PIPE SIZE | 90-DEGREE ELLS | 45-DEGREE ELLS | VALVES, TEES, REDUCERS, DEAD ENDS |
|-----------|----------------|----------------|-----------------------------------|
| 4" | 1.5 SQ FT | 1.0 SQ FT | 1.0 SQ FT* |
| 6" | 3.5 SQ FT | 2.5SQ FT | 2.5SQ FT* |
| 8" | 6.3 SQ FT | 4.5 SQ FT | 4.5 SQ FT* |

* OR AS DESIGNED BY THE ENGINEER.

NOT TO SCALE

| | | | | |
|---------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | IRRIGATION SYSTEM THRUST BLOCKING | STD. PLAN NO. |
| <i>Kevin Rohani</i> | JUNE 2016 | | | IR-02 |
| CITY ENGINEER | | | | |



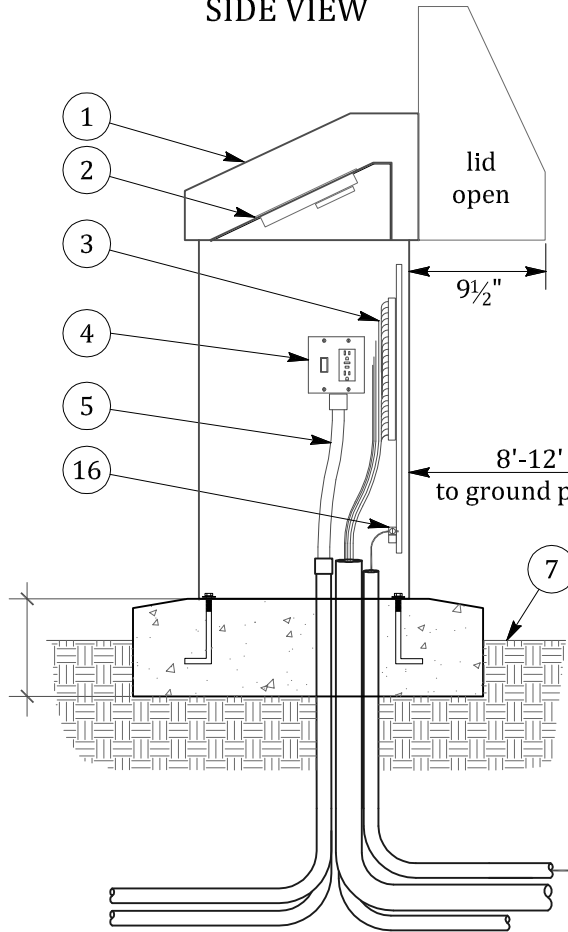
NOTES:

1. Electrical service from source to controller location shall be provided by the Electrical Contractor.
2. Irrigation Contractor shall provide rigid steel conduit from service stub-out to controller GFCI switch and shall complete electrical service to controller.
3. Enclosure's field location and orientation shall be approved by the City.
4. Landscape Designer to determine the need for a High Gain Antenna Installation. If required, landscape plans must show installation details.

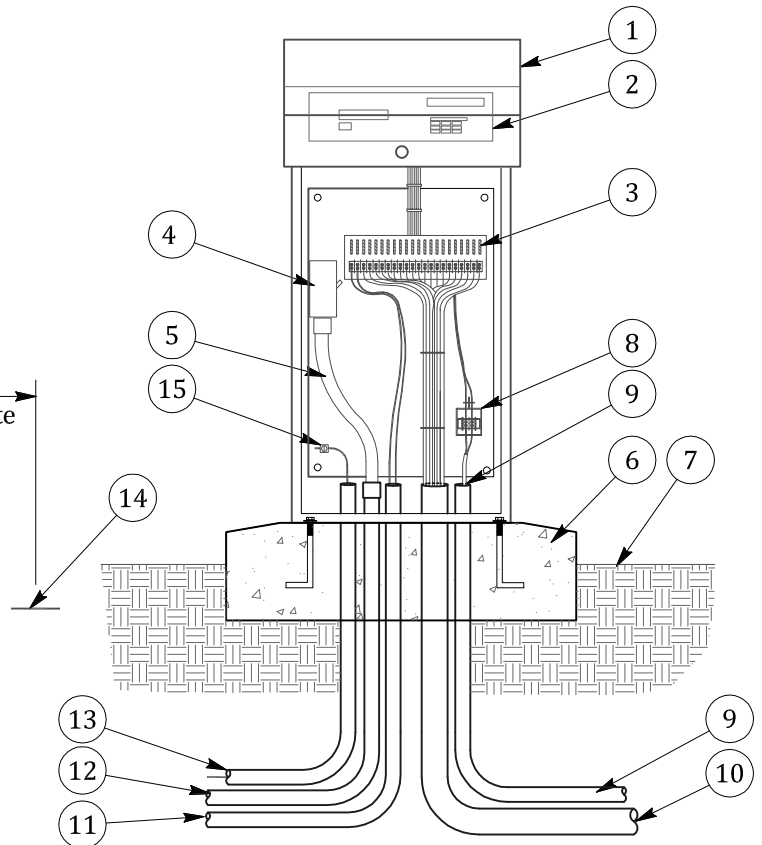
NOT TO SCALE

| | | | | |
|-------------------|-----------|--|----------------------------------|---------------|
| APPROVED BY | DATE | | IRRIGATION CONTROLLER | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | IR-03 |

SIDE VIEW



FRONT VIEW



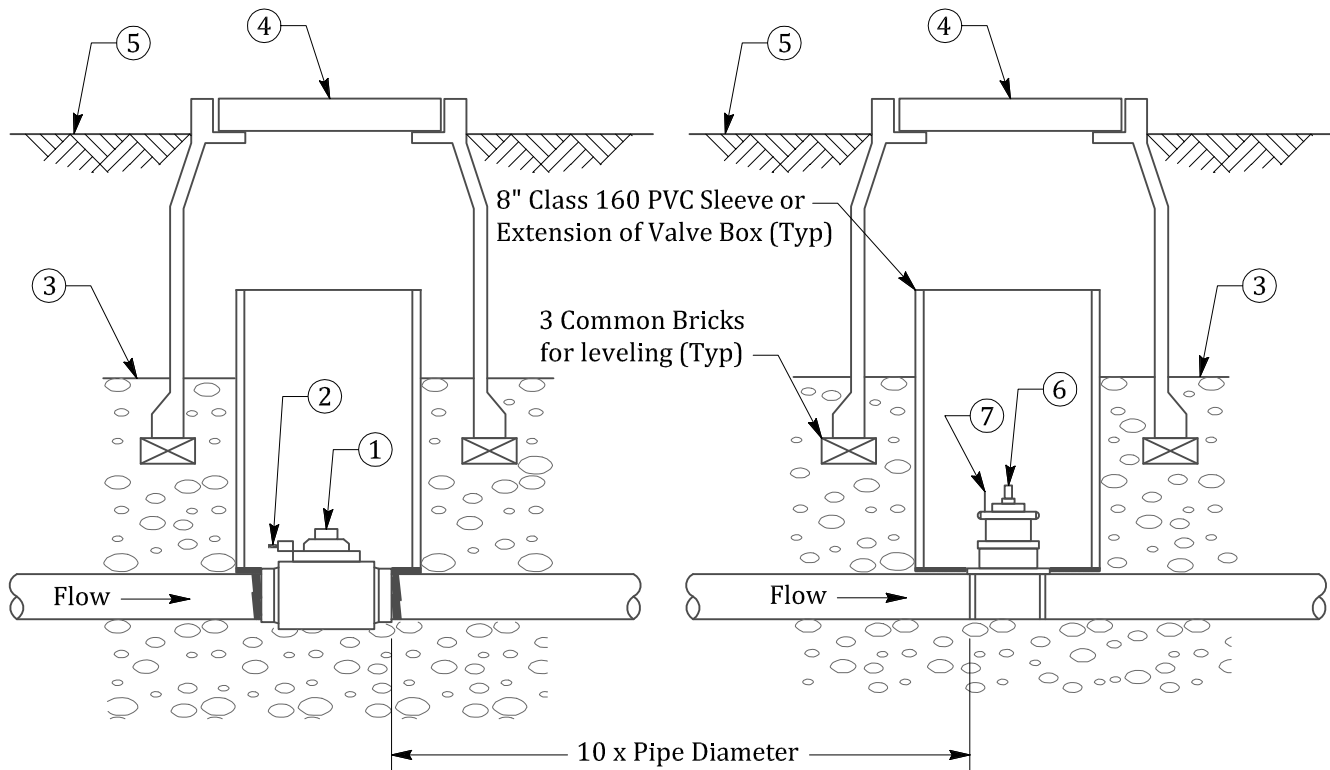
- ① Strongbox Stainless Steel NEMA 3R Rainproof Enclosure (ul listed).
- ② Satellite Assembly. Assembled in enclosure by Siteone GreenTech.
- ③ Terminal strip for valve wires.
- ④ GFCI Receptacle.
- ⑤ Electrical Flex Conduit for power.
- ⑥ 6" Min thick, Concrete Pad with Anchor Bolts per manufacturer recommendations.
- ⑦ Finished grade.
- ⑧ Flow Sensor Terminal Board.
- ⑨ 1" SCH 40 gray PVC electrical conduit w/ sweep ell with Flow Sensor Cable.
- ⑩ 3" SCH 40 gray PVC electrical conduit w/ sweep ell for lead wires.
- ⑪ 1" SCH 40 gray PVC electrical conduit w/ sweep ell for Master Valve wires.
- ⑫ 1" SCH 40 gray PVC electrical conduit w/ sweep ell for 110 vac Power Line.
- ⑬ 1" SCH 40 gray PVC electrical conduit w/ sweep ell for Ground Wire.
- ⑭ Grounding Plate required, See Detail IR-07
- ⑮ #6 Ground Wire secured to Backboard Grounding Terminal.

NOTES:

- 1. See irrigation controller Detail IR-01 for satellite communications components
- 2. Conduit sizes are approximate and may need to be larger for field conditions

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | IRRIGATION CONTROLLER ENCLOSURE TOP OPENING | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | IR-04 |



PLAN

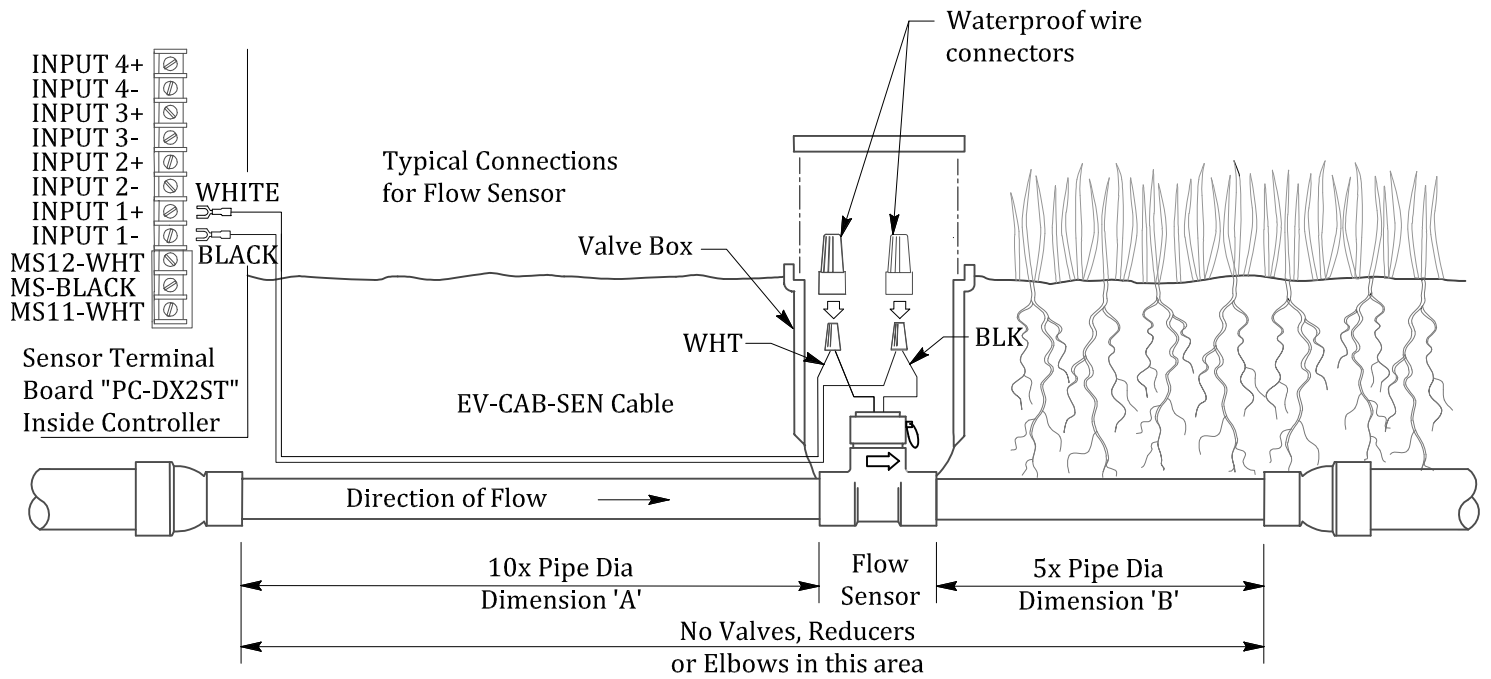
LEGEND:

- ① Master Valve(s) (normally closed)
- ② Wire to Controller Assembly (PE-89 Shielded Cable) in 1" SCH 40 gray PVC electrical conduit w/ sweep ELL
- ③ 12" min. Drain Rock. Extend 2" min. beyond perimeter of box
- ④ Rectangular Valve Box and Lid, See Note 2
- ⑤ Finish Grade
- ⑥ Data Industrial IR220 Series Flow Sensor(s)
- ⑦ Wire to flow sensing equipment at controller assembly in 1" SCH 40 gray PVC electrical conduit w/ sweep ELL

NOTE:

1. See Standard Plan IR-06 for Flow Sensor Detail
2. See Standard Plan IR-08 for Irrigation Valve Box Installation

| | | | | |
|--|-----------|---|--|---------------|
| APPROVED BY | DATE |  | <h2 style="margin: 0;">MASTER VALVE AND FLOW SENSOR</h2> | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | IR-05 |
| | | | | |



Example: For 3" Flow Sensor, Dimension "A" Minimum 30"
 Dimension "B" Minimum 15"

NOTES:

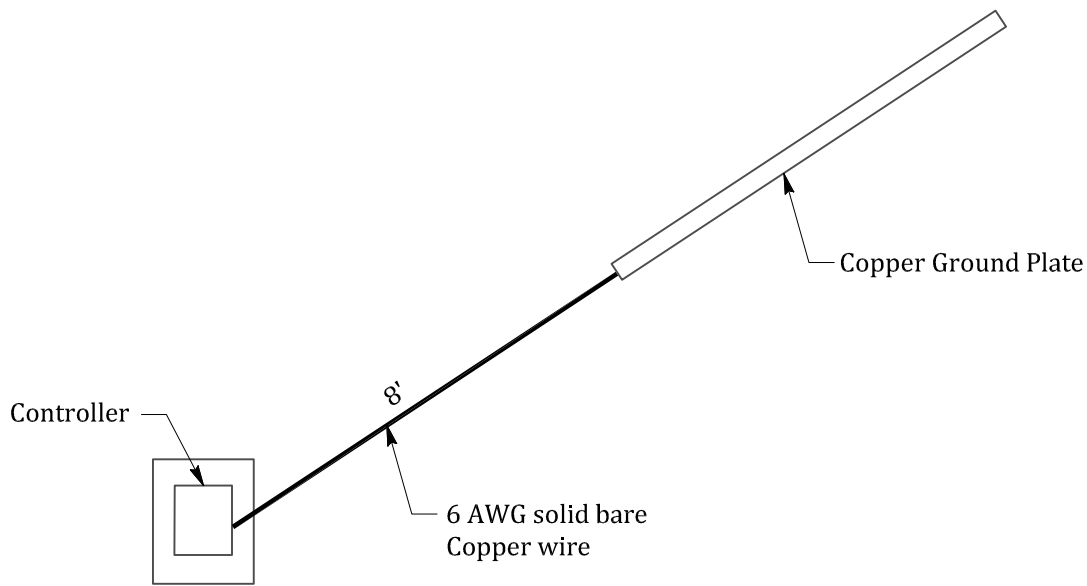
Upon completion of the physical installation of the flow sensor, complete the wiring connection from the flow sensor to the DX2 Controller by following the procedure below.

1. TURN THE POWER OFF AT THE CONTROLLER.
2. At the Flow Sensor:
 Connect the BLACK wire of the Flow Sensor to the BLACK wire of the "EV-CAB-SEN" sensor cable.
 Connect the WHITE wire of the Flow Sensor to the WHITE wire of the "EV-CAP-SEN" sensor cable.
 *Use the weatherproof connectors provided with the Flow Sensor to make the connection.
3. At the controller:
 Connect the BLACK wire of "EV-CAB-SEN" to "INPUT 1-" of the SENSOR TERMINAL BOARD (PC-DX2ST).
 Connect the WHITE wire of "EV-CAB-SEN" to "INPUT 1-" of the SENSOR TERMINAL BOARD (PC-DX2ST).
4. Turn POWER ON at the Controller.
5. Set the Rain Master "K" and "OFFSET" values for the Flow Sensor at the controller based on the type and size of the Flow Sensor installed.
6. See Standard Plan IR-08 for Irrigation Valve Box Installation

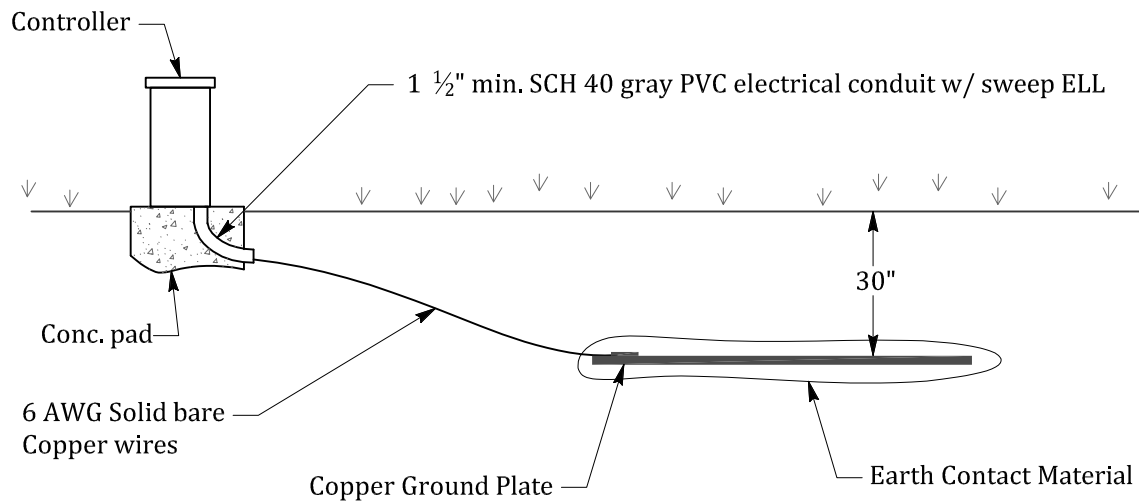
REFER TO THE TABLE PROVIDED WITH THE FLOW SENSOR FOR CORRECT "K" AND "OFFSET" FOR YOUR APPLICATION

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | FLOW SENSOR DETAIL | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | IR-06 |



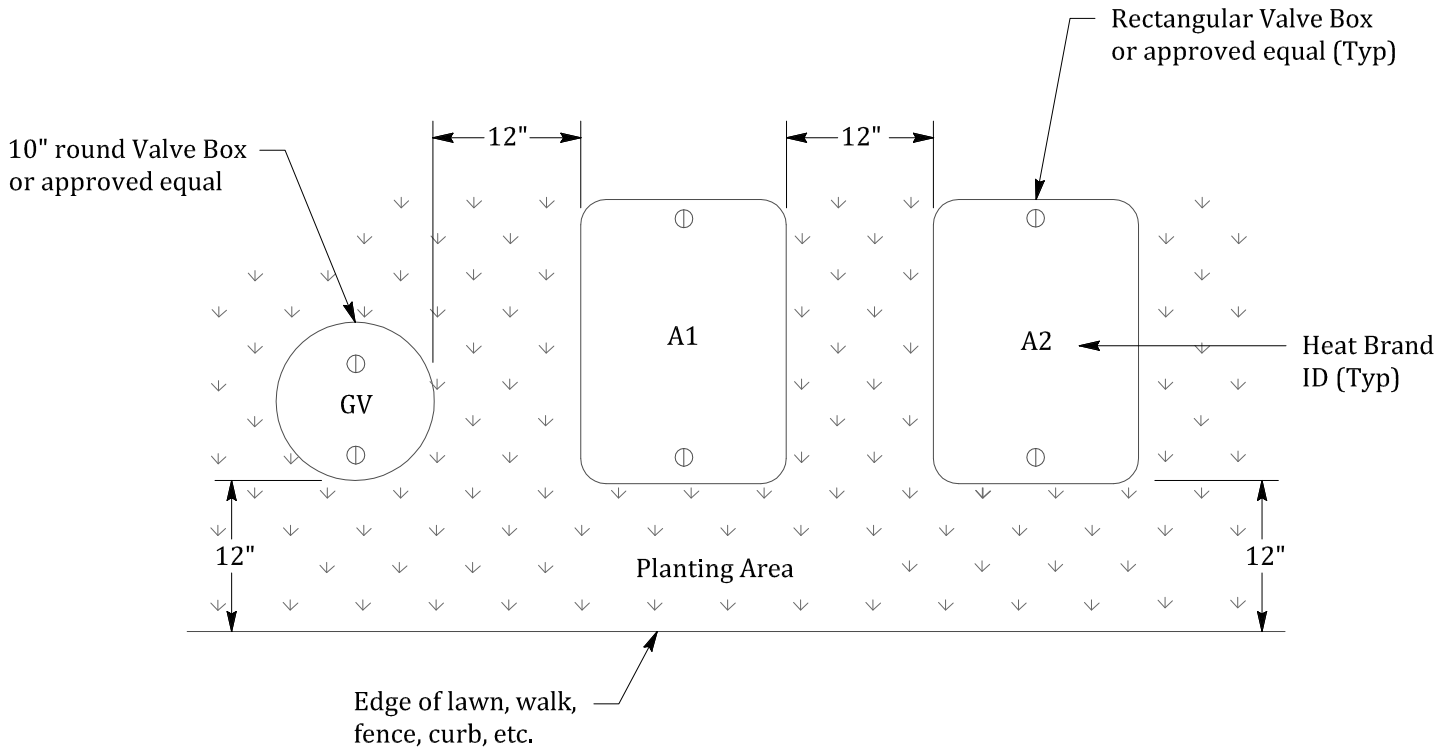
TOP VIEW



SIDE VIEW

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | CCU or FIELD SATELLITE GROUNDING GRID | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | IR-07 |



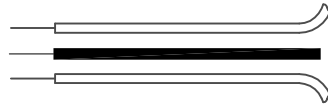
NOTES:

1. Center boxes over valves to permit service of valves and unions
2. Set boxes in ground cover/shrub area where possible
3. Set boxes parallel to each other and perpendicular to edge
4. Set boxes 1" above grade in turf areas and 3" above grade in shrub areas
5. Avoid heavily compacting soil around boxes to prevent damaging valve boxes
6. Heat Brand ID on valve box lid with 2" height letters:
 'X1' for Remote Control Valves ('X' = Controller '1' = station number)
 'FM' for Flow Meter
 'MV' for Master Control Valve
 'GV' for Gate Valve
 'QC' for Quick Coupling Valve
 'SP' for Splice Box or Pull Box
7. Install Stainless Steel bolts in locking cover.
8. When non-potable water is used, boxes and lids shall be color-coded purple
9. For all valves 1 1/2" and larger, jumbo box shall be used
10. Install valve box extensions as required to completely enclose valve assemblies
11. Cover box cut-outs to prevent soil in box

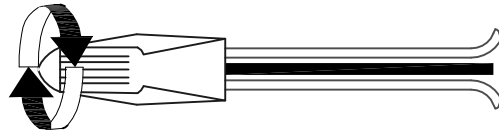
NOT TO SCALE

| | | | | | |
|---------------|--|-----------|--|--|---------------|
| APPROVED BY | | DATE | | IRRIGATION VALVE BOX INSTALLATION | STD. PLAN NO. |
| | | JUNE 2016 | | | IR-08 |
| CITY ENGINEER | | | | | |

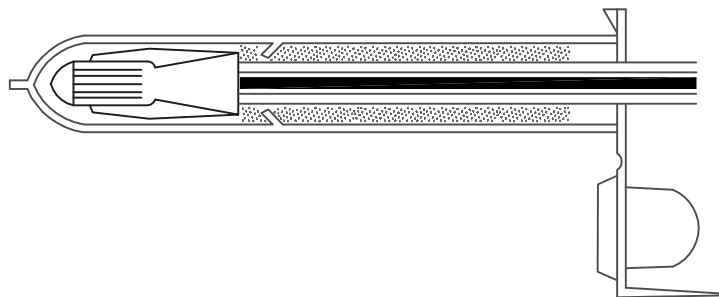
STEP 1: Strip wires 1/2" from ends.



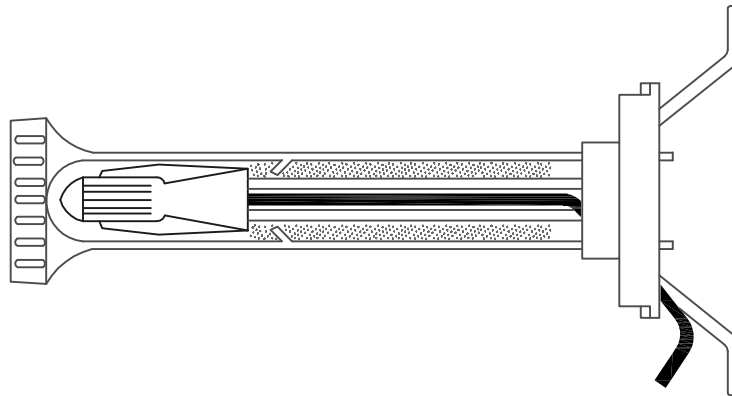
STEP 2: Apply Scotchlok or approved equal Y spring connector in a clockwise direction (for clocks only)



STEP 3: Insert splice to bottom of gel-filled tube. Check to make sure connector has been pushed past locking fingers and is seated at bottom of tube.



STEP 4: Position wires in wires channels and close insulator tube cover.

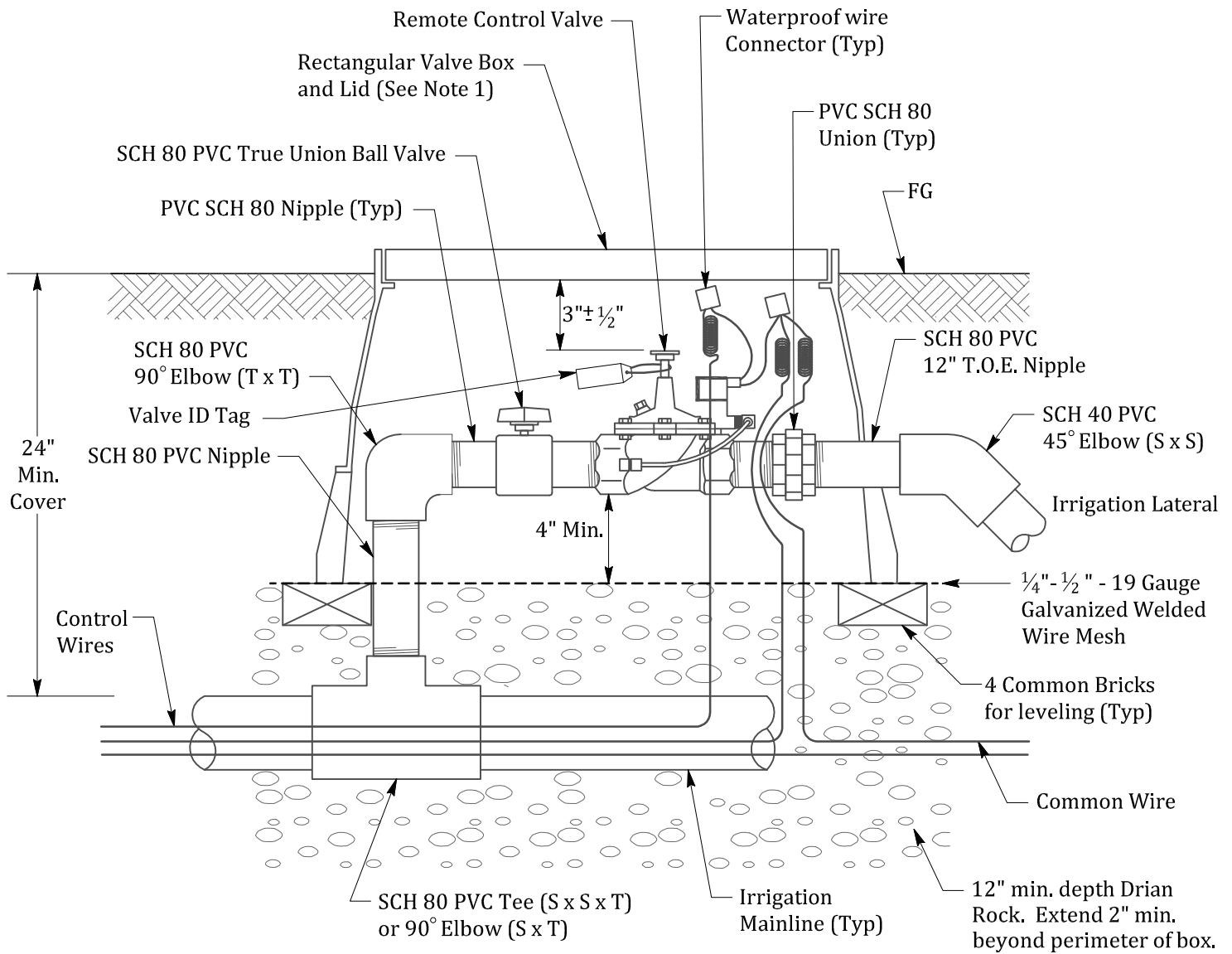


NOTE:

1. Maximum wire sizes per connector are 3-#4's or 2-#12's
2. Use 3M DBR/Y-6 Direct Bury Splice Kit or approved equal

NOT TO SCALE

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| APPROVED BY | DATE |  | IRRIGATION WIRE CONNECTION | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | IR-09 |



PLAN

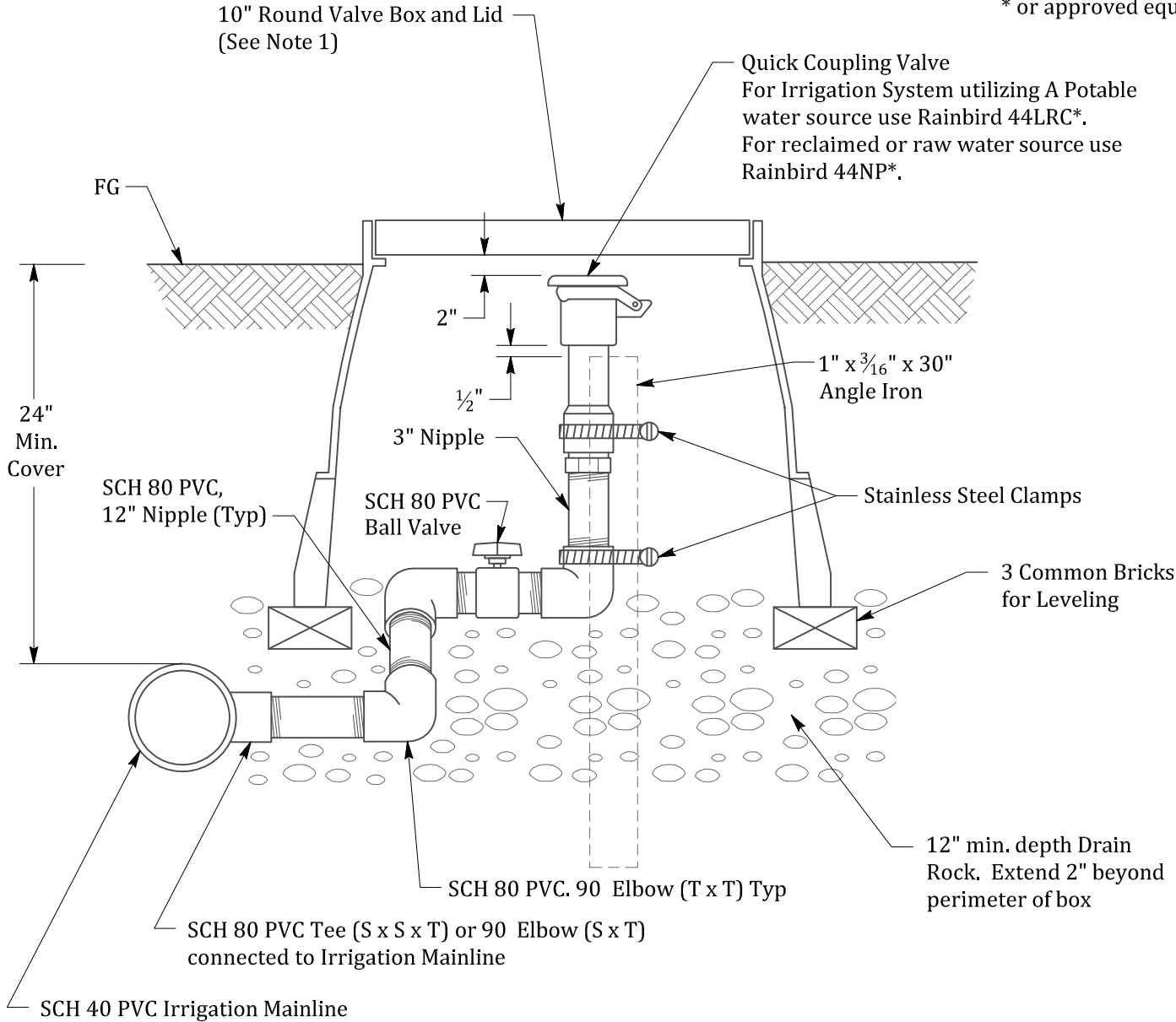
NOTES:

1. See Standard Plan IR-08 for Irrigation Valve Box Installation
2. Valve ID Tags shall be attached to the remote control valve with the controller and station number
3. When used with non-potable water, designate purple color-coding on appropriate appurtenance.
4. All low voltage wires shall be 14 gauge for control and 12 gauge for common. Common wires shall be white with a colored strip. Stripe color shall be different for each controller installed. Control wires shall be of one color other than white or green. A different color control wire shall be used for each controller installed.

NOT TO SCALE

| | | | | |
|-------------------|-----------|--|-----------------------------|---------------|
| APPROVED BY | DATE | | REMOTE CONTROL VALVE | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | IR-10 |

* or approved equal



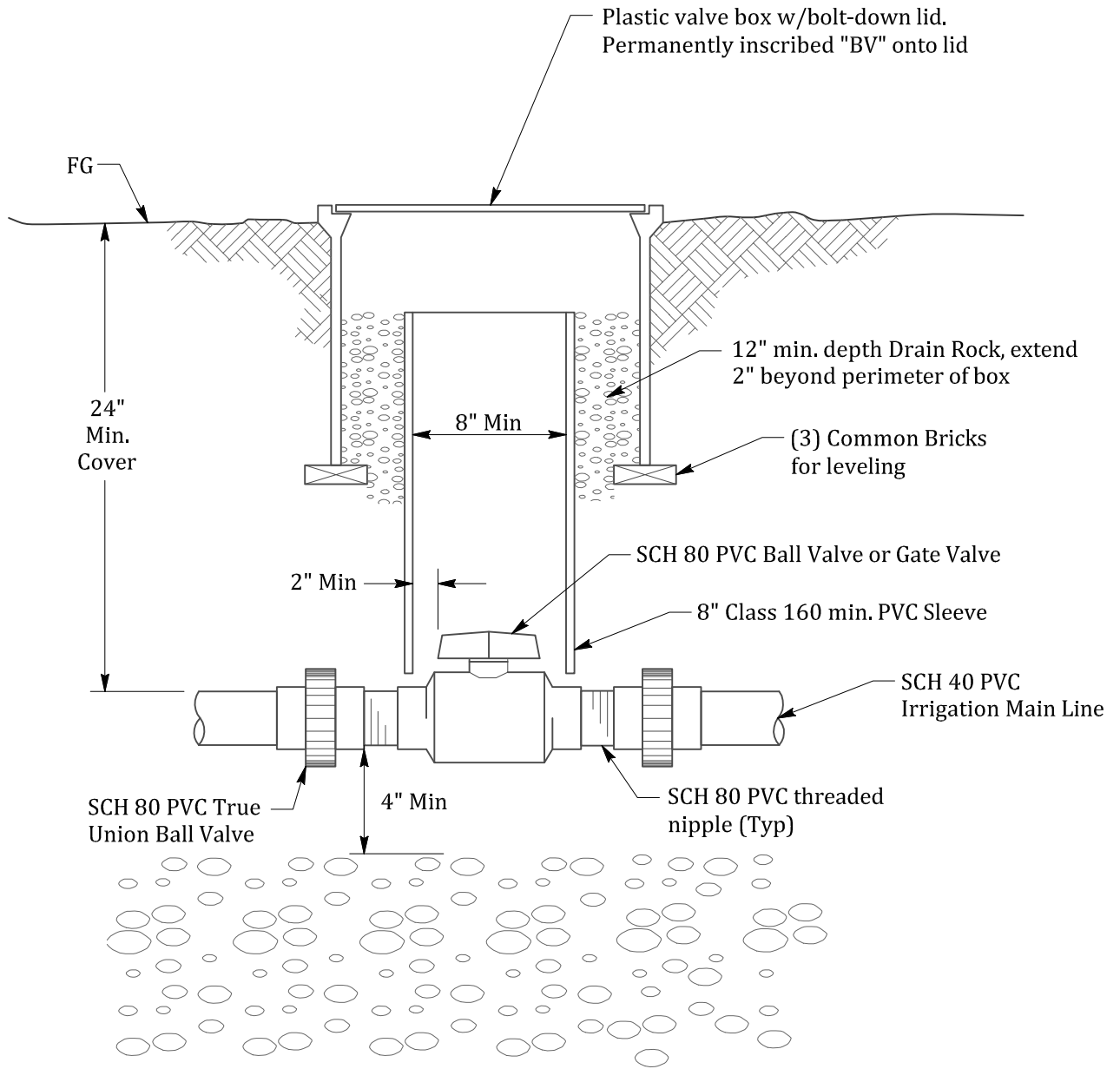
PLAN

NOTES:

- 1. See Standard Plan IR-08 for irrigation Valve Box Installation
- 2. When used with reclaimed water, designate purple color-coding on appropriate appurtenance.

NOT TO SCALE

| | | | | |
|---------------------|-----------|--|-----------------------------|---------------|
| APPROVED BY | DATE | | QUICK COUPLING VALVE | STD. PLAN NO. |
| <i>Kevin Robani</i> | JUNE 2016 | | | IR-11 |
| CITY ENGINEER | | | | |



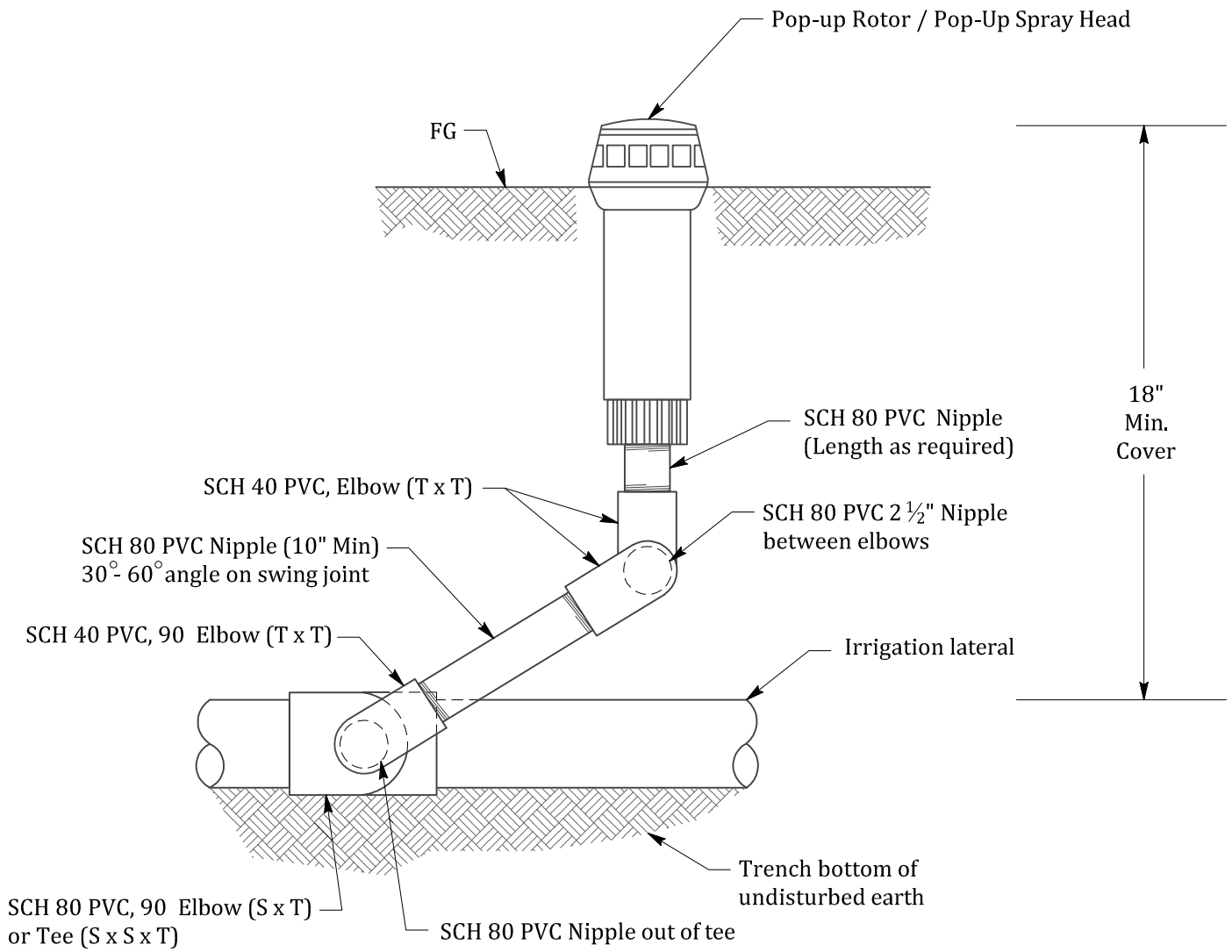
PLAN

NOTES:

1. See Standard Plan IR-08 for irrigation Valve Box Installation
2. When used with reclaimed water, designate purple color-coding on appropriate appurtenance.

NOT TO SCALE

| | | | | |
|---------------|-----------|--|------------------------|---------------|
| APPROVED BY | DATE | | GATE/BALL VALVE | STD. PLAN NO. |
| | JUNE 2016 | | | IR-12 |
| CITY ENGINEER | | | | |

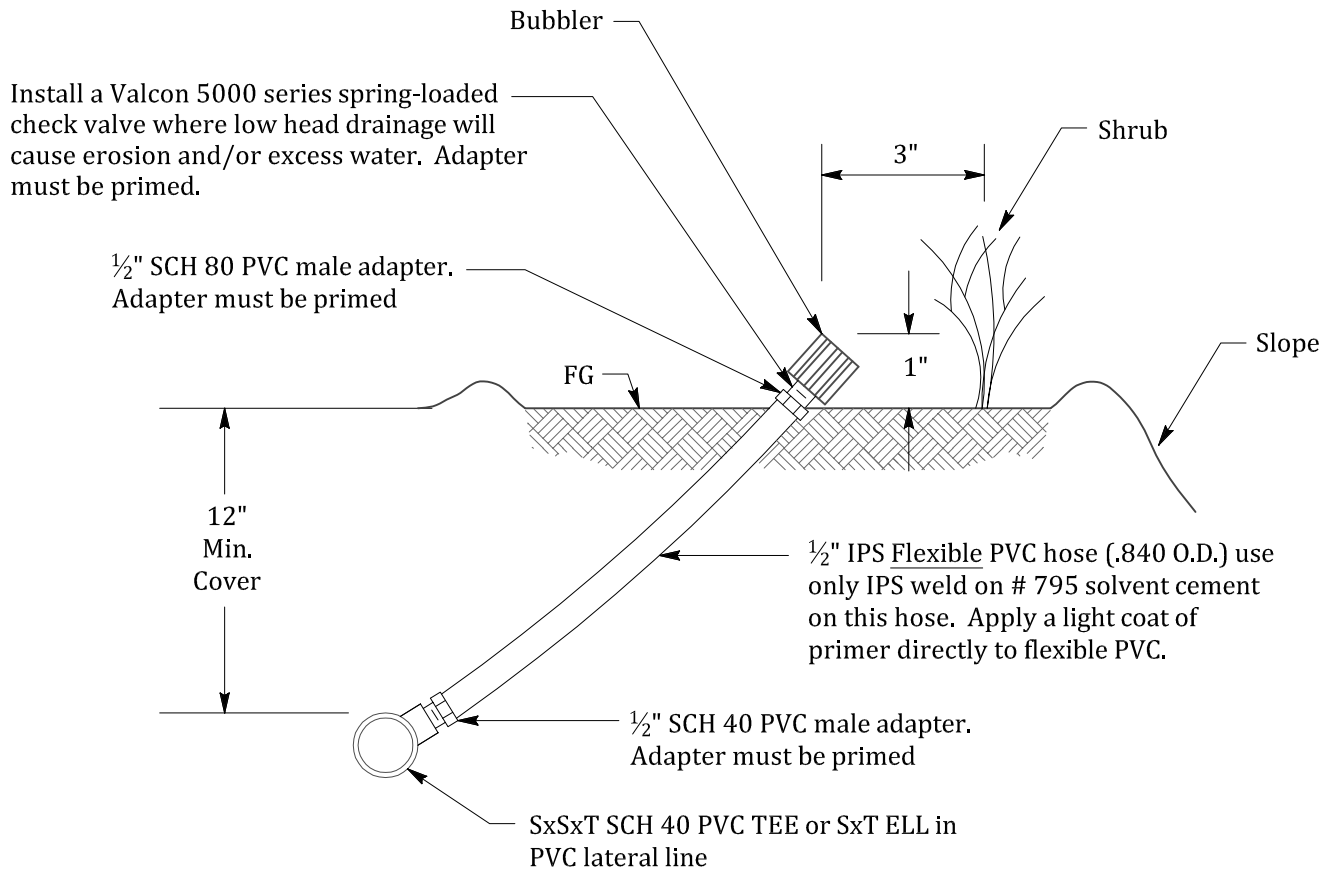


NOTES:

1. Set head 1" above grade in turf areas and 3" above grade in shrub areas

NOT TO SCALE

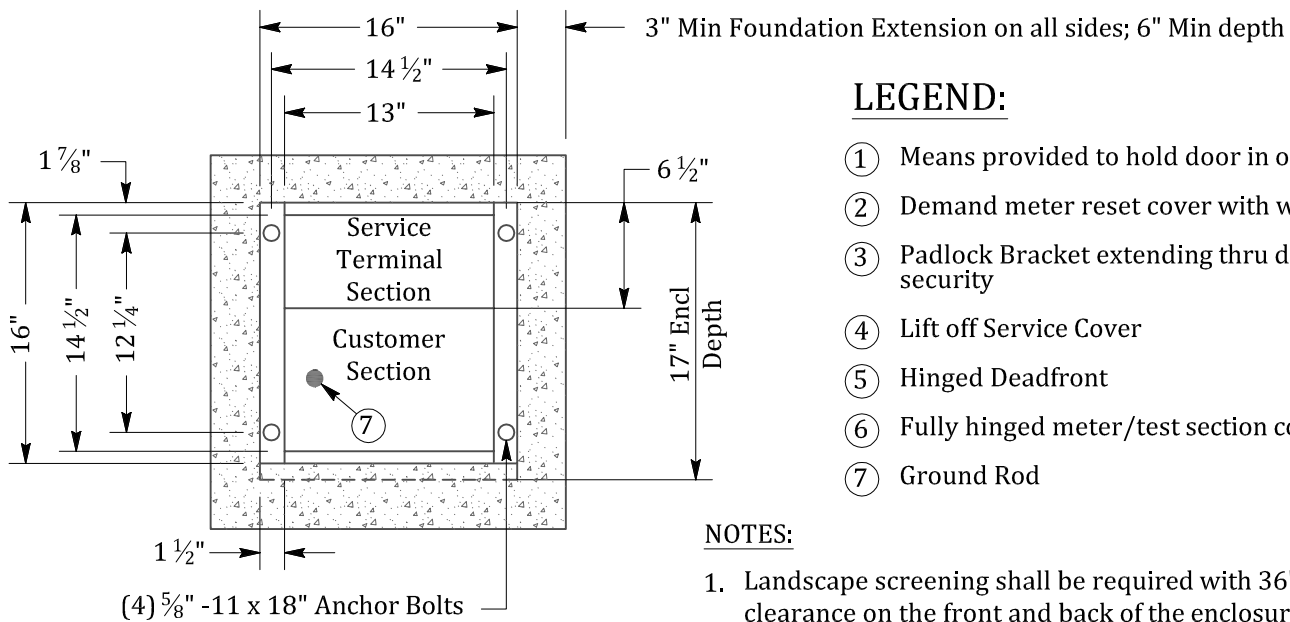
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|--|-----------|---|--|---------------|
| APPROVED BY | DATE |  | ROTOR AND POP-UP SPRAY HEAD | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | IR-13 |
| | | | | |



PLAN

NOT TO SCALE

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|--|-----------|---|---|---------------|
| APPROVED BY | DATE |  | SHRUB BUBBLER AND FLEXIBLE RISER | STD. PLAN NO. |
|  CITY ENGINEER | JUNE 2016 | | | IR-14 |



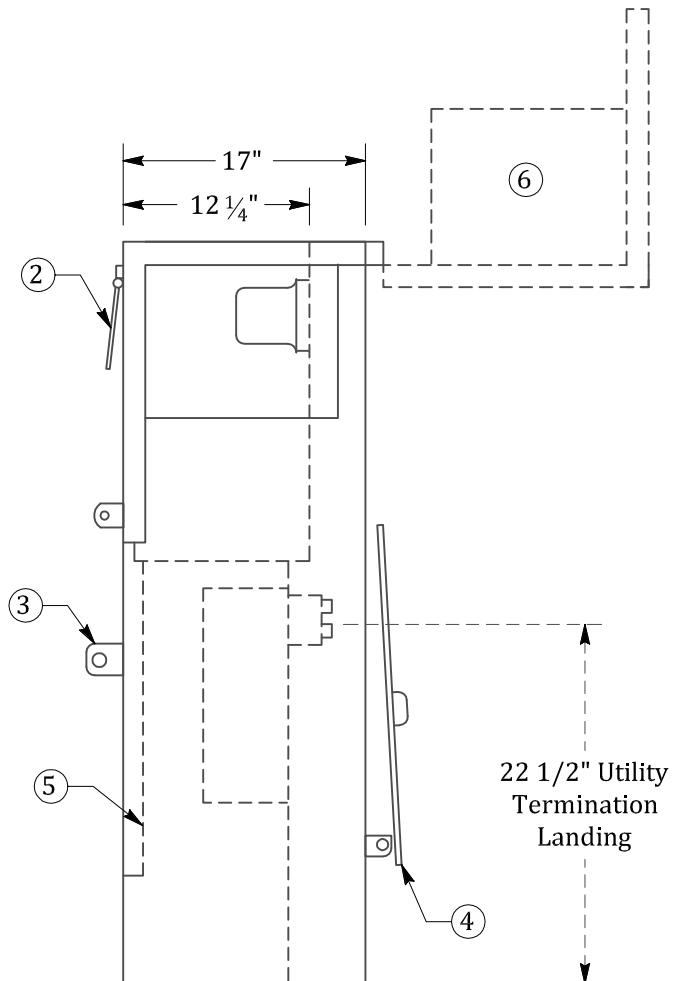
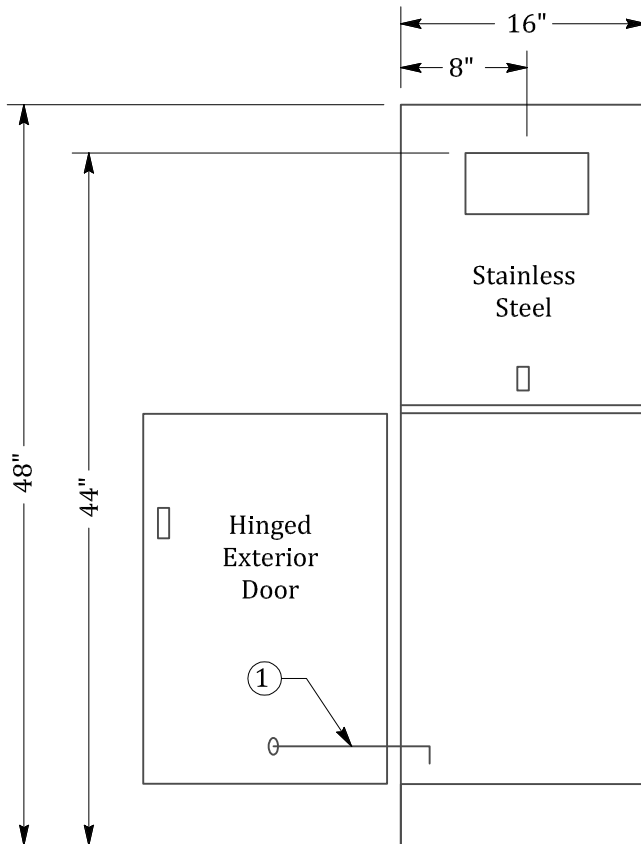
LEGEND:

- ① Means provided to hold door in open position
- ② Demand meter reset cover with window
- ③ Padlock Bracket extending thru door for security
- ④ Lift off Service Cover
- ⑤ Hinged Deadfront
- ⑥ Fully hinged meter/test section cover
- ⑦ Ground Rod

NOTES:

- 1. Landscape screening shall be required with 36" Min clearance on the front and back of the enclosure.
- 2. Service Cabinet shall be type Milbank West CP3B1115A Stainless Steel for 100-Ampere and less or approved equal.

MOUNTING BASE



CABINET SECTION

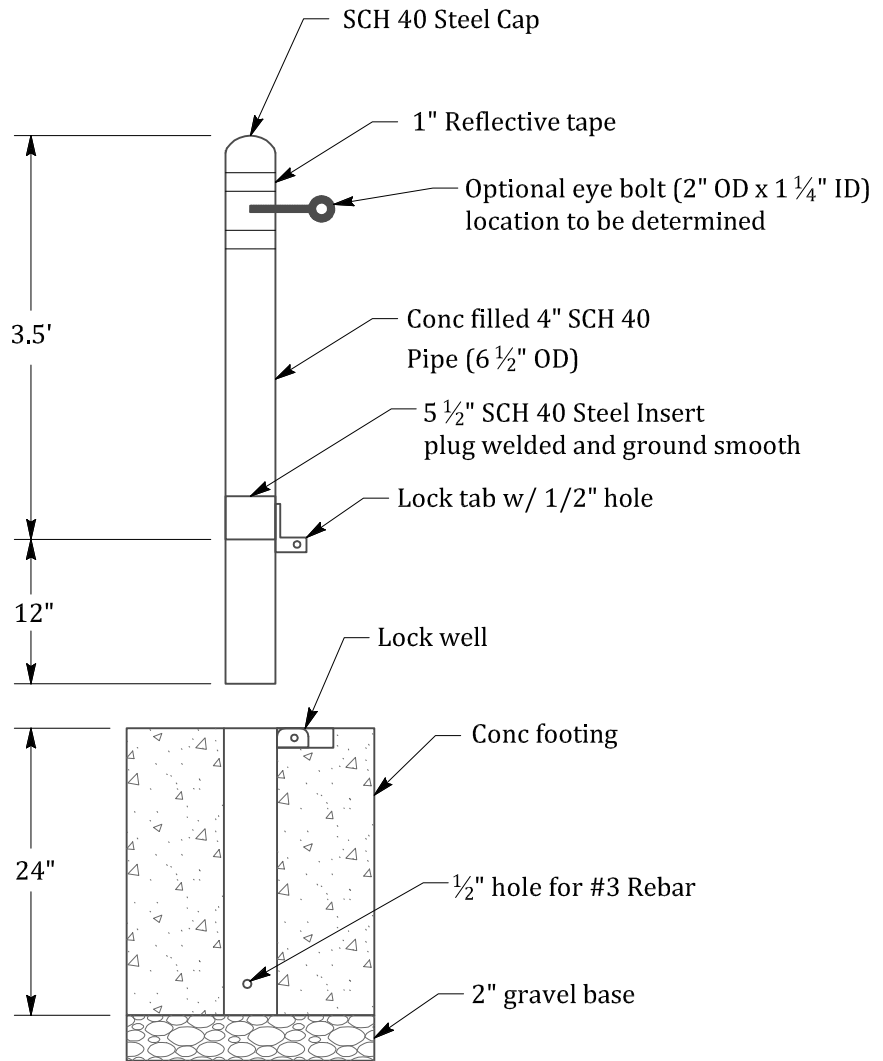
NOT TO SCALE

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|-------------------|-----------|--|---|---------------|
| APPROVED BY | DATE | | IRRIGATION ELECTRIC METER PEDESTAL | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | IR-15 |

PARK FURNISHINGS

| ITEM | MANUFACTURER/MODEL OR APPROVED EQUAL | NOTES |
|-----------------------------|---|---|
| PARK BENCH | DUMOR, Inc. MODEL: 119-60 (6' and 8') | Vertical Slat w/back, Non-skateboard, Black, Middle arm rest |
| PICNIC TABLE | OUTDOOR CREATIONS Inc. SIDE ENTRANCE TABLE, MODEL:100S and 100SLE or 100SRE | Table color: Davis Sequoia Sand 11" x 5.2" New City of Oakley Logo in full relief on legs of table (2), no color |
| INDIVIDUAL BARBEQUE - METAL | PILOT ROCK, MODEL: B24/8 B2 | |
| FAMILY BARBEQUE - CONCRETE | OUTDOOR CREATIONS, Inc. CONCRETE FAMILY BARBEQUE MODEL: 300A | Barbeque color: Davis Sequoia Sand 11" x 5.2" New City of Oakley logo in full relief on opposing sides (2) of receptacle, no color |
| DRINKING FOUNTAIN | HAWS BARRIER FREE STAINLESS STEEL PEDESTAL FOUNTAIN MODEL: 3500D-FR | Vandal resistant, green powder coated finish with pet fountain, use Freeze Resistant Bury Valve as specified by the City of Oakley |
| TRASH RECEPTACLE | OUTDOOR CREATIONS Inc. CONCRETE TRASH RECEPTACLE - ROUND MODEL: 500 | Trash Receptacle color: Davis Sequoia Sand 16" x 6" New City of Oakley Logo engraved and painted as specified on 1 side of trash can |
| RECYCLE RECEPTACLE | DUMOR, Inc. RECEPTACLE DWG NO. 360-0127-32-RC0075 SH1 | Receptacle color: Blue |
| DOG WASTE DISPENSER | ZERO WASTE, MODEL JJ13008 | |
| BLEACHERS | MIRACLE RECREATION EQUIPMENT GALANIZED STEEL MODEL: 98936 ALUMINUM MODEL: 98931 | 3 Rows x 15' |

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| APPROVED BY | DATE |  | PARK FURNISHINGS | STD. PLAN NO. |
|  | JUNE 2016 | | | M-01 |
| CITY ENGINEER | | | | |

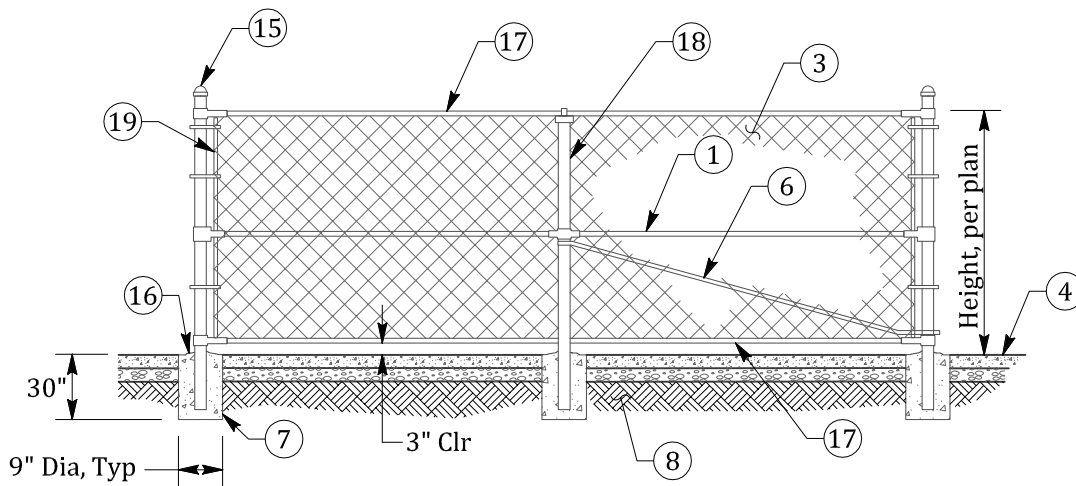


NOTES:

1. Add reflective tape , two 1" bands at top
2. Use manufactured product such as Patterson-Williams (i.e. Model 1100-04-LK removable metal bollard)

NOT TO SCALE

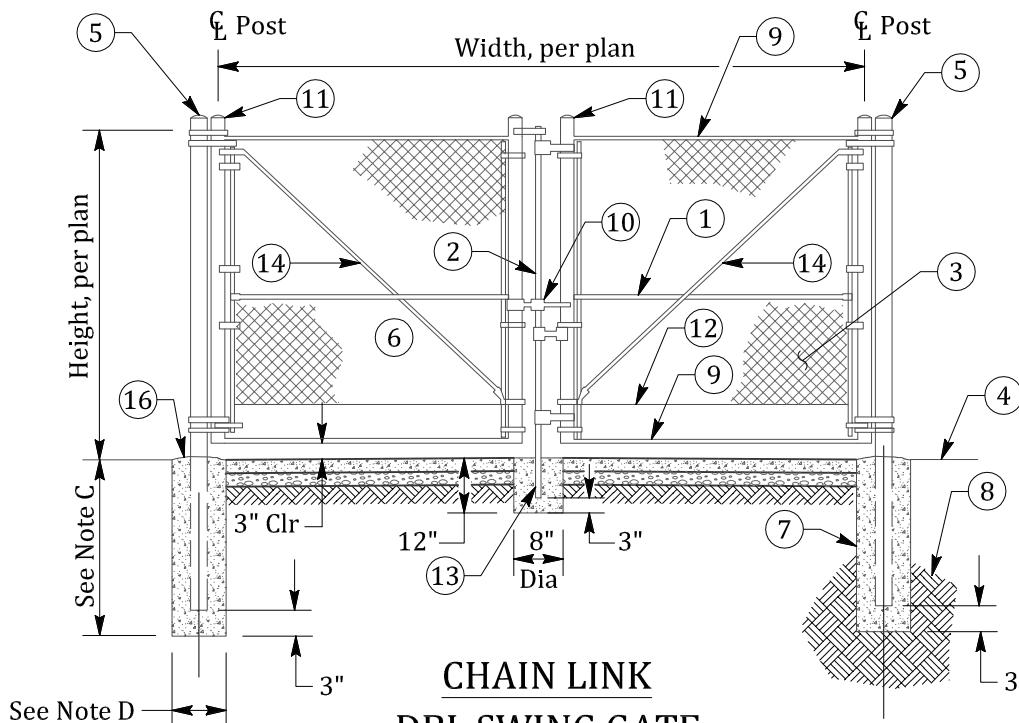
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|---------------------|-----------|--|--|---------------|
| APPROVED BY | DATE | | REMOVABLE BOLLARD PARK OR TRAIL | STD. PLAN NO. |
| <i>Kevin Rohani</i> | JUNE 2016 | | | M-02 |
| CITY ENGINEER | | | | |



CHAIN LINK FENCE

NOTES:

- A. Concrete for footings shall be Class "B" (2500 PSI) for more information, see Specifications.
- B. Provide Submittal for all materials.
- C. 36" depth for 4' high fence, 48" depth for 6' high fence and above.
- D. 12" diameter for 4' high fence, 18" diameter for 6' high fence and above.



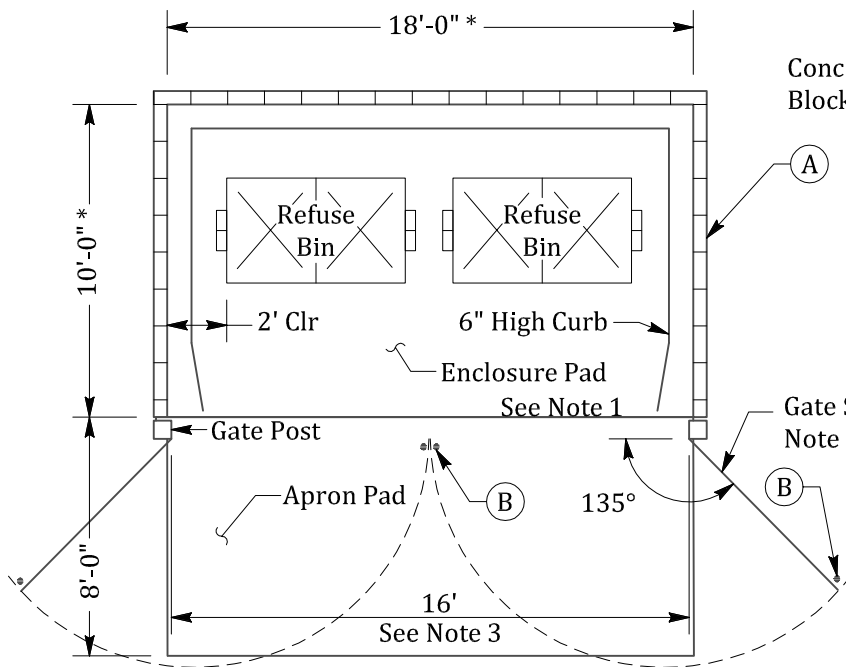
CHAIN LINK DBL SWING GATE

LEGEND:

- ① Midrail 1 5/8" diameter for Gates 6' high minimum
- ② Locking Mechanism
- ③ Chain Link wire Mesh and Posts, Galv. & Powder Coated: Black
- ④ Finish Grade, or Finish Surface
- ⑤ Terminal or Corner Post at Gate, 3" diameter
- ⑥ Truss Rod, at corners and ends
- ⑦ Post Concrete Footing, typical
- ⑧ Compacted subgrade to 95% Relative Compaction.
- ⑨ Gate Rail, 1 7/8" outside diameter
- ⑩ Gate Lock, NIC to be determined by owner.
- ⑪ Gate Frame vertical, 2 1/2" O.D. for 4' high fence, 3" O.D. for greater than 4' high fence.
- ⑫ Gate Bottom, per specifications.
- ⑬ Concrete footing w/sleeve to accept locking mechanism in closed position, typical of 2 (other location to be where gate is open, VIF)
- ⑭ Tension or Tensil, not compression.
- ⑮ Corner Post, 2 1/2" diameter, for corner post see 5 .
- ⑯ Slope away from post.
- ⑰ Top & Bottom Rail, 1 5/8" diameter pipe.
- ⑱ Line Post, 2 1/4" diameter pipe.
- ⑲ Stretcher Bar, typical

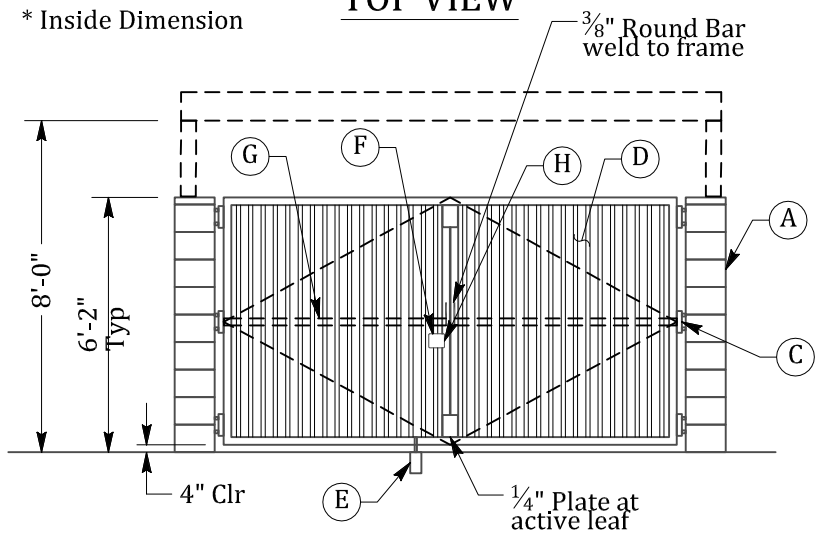
NOT TO SCALE

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| APPROVED BY | DATE | | FENCE CHAIN LINK | STD. PLAN NO. |
| <i>Kevin Rohan</i> | JUNE 2016 | | | M-03 |
| CITY ENGINEER | | | | |

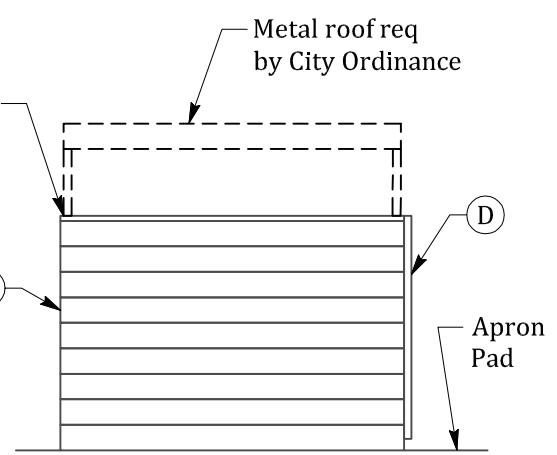


TOP VIEW

* Inside Dimension



FRONT ELEVATION



SIDE ELEVATION

LEGEND:

- (A) Concrete Block or Reinforced Masonry Block shall be split face or decorative or the masonry be painted or plastered to match the main building.
- (B) Receiving sleeve. Outside location 135° Min angle from closed gate position.
- (C) Stanley, or approved equal. Heavy duty surface mounted external hinges, weld to metal angle
- (D) ASC Pacific "HR-36" 18 GA G.I. Mtl Panels, or approved equal-Paint over shop prime.
- (E) Ideal 64-6813 or approved equal. Cane bolt & keeper interior.
- (F) King Arch. Metals 30-100 Weldable slide bolt latch or approved equal.
- (G) 1-1/2" Square Steel Tube weld to frame at interior, Typical.
- (H) 4" Sq. x 1/4" Plate Butt Weld w/rounded corners for bolt latch.

NOTES:

1. Pad shall be Engineered to withstand 20,000 lbs of direct force from a single truck axle.
2. A minimum of 32' Vert. and 50' Horiz. clearance over the entire approach to and from the enclosure shall be provided.
3. Gates shall be solid metal with cane bolts sleeves in the open and closed position. Each gate, with a minimum total span width of 16' shall swing open a Min of 135° from closed position. Hung gates have a 4" Clearance off the finished pad or apron and surrounding curb.
4. The trash enclosure pad shall be designed to drain to a sewer connection as approved by the City of Oakley. A water connection may be required by the Contra Costa County Health Department.
5. The enclosure exterior shall comply with standard conditions of approval for commercial and industrial projects. No enclosure shall be installed behind parking spaces.
6. ONLY solid waste containers and recycle containers are allowed inside the enclosure. Grease storage bins, soiled rag storage, etc. shall never be stored in the enclosure.
7. Roof and gates shall be powder coated and match in color.

NOT TO SCALE

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|-------------------|-----------|--|------------------------------------|---------------|
| APPROVED BY | DATE | | SOLID WASTE TRASH ENCLOSURE | STD. PLAN NO. |
| CITY ENGINEER | JUNE 2016 | | | M-04 |