Standard Drawings

Adopted by City Council on October 24, 2018

Amended by Public Works Director on January 17, 2020
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1) Sidewalk Transitions
   a: Located adjacent to the top of ramp as needed
   b: 48" minimum width
   c: 1.5% (1:66) maximum cross slope
   d: 4.5% (1:22) maximum parallel slope

2) Landings
   a: Located above the ramp (as shown in details)
   b: 48" minimum clear space in all directions
   c: 1.5% (1:66) maximum parallel and cross slope

3) Perpendicular Curb Ramps
   a: Located above pan or below landing
   b: 48" minimum width
   c: 1.5% (1:66) maximum cross slope
   d: 7.5% (1:13) maximum slope
   e: All ramps shall have a Detectable Warning Surface (truncated domes) and shall be placed on the ramp unless the ramp is connected to a pan.
   f: Transition to gutter shall be flush and free of abrupt changes
   g: Grade breaks shall be perpendicular to direction of ramp run.

4) Parallel Curb Ramps
   a: Located below ramp (as shown in details)
   b: 60" minimum width at back of pan
   c: 54" minimum depth from back of pan to flow line
   d: 1.5% (1:66) maximum cross slope
   e: On corners, pan boundaries are to be radial
   f: Transitions to gutter shall be flush and free of abrupt changes.
   g: All pans shall have a Detectable Warning Surface (truncated domes).

5) Flares
   a: Located adjacent to ramp (as shown in details)
   b: Required between ramps where there is no planter area
   c: Required on the exterior of ramps where there is an adjacent concrete sidewalk, regardless of obstacles
   d: Shall also have at least 24" long segment of straight curb located on each side of the curb ramp and within marked crossings.
   e: Generally triangular in nature
   f: 9% (1:11) maximum slope when not in the path of travel
   g: 7.5% (1:13) maximum slope when flare is in the path of travel

6) Gutters
   a: Adjacent to ramp or pan
   b: 4.5% (1:22) maximum slope for 4' out from face of curb
   c: Transition to ramp or pan shall be flush and free of abrupt changes

7) Retaining Curbs
   a: Required adjacent to sidewalk transitions, landings, ramps and pans where the existing landscape (planter area) is 1" or higher at any point above the newly constructed curb ramp element
   b: Required for existing planter areas between ramps
   c: Retaining curbs are to have a 6" width and a vertical face
   d: Retaining curb foundations are to extend 8" below the adjacent ramp element surface
   e: Outside corners of retaining curbs must have a 6" radius

8) Detectable Warnings
   a: Placement of detectable warnings shall be per drawings AR - 3.2
   b: 6" - 8" from the face of curb
   c: 3' depth x full width
   d: Detectable Warning requirements, see AR - 3.1

General Notes:
1. Directional curb ramps are required unless otherwise approved by the Engineer.
2. All elements, except gutters and retaining curbs, must be constructed planar in nature with weakened plane joints scored between each element.
3. Opposing curb ramps shall align unless otherwise approved by the Engineer.
4. These Elements, Definitions and Standards, General Details, and Standard Drawings shall apply to all curb and gutter types.
5. There are variations and adjustments that may be required upon the approval of the Engineer.
6. References to maximum cross slope of 1.5% are intended to allow for normal construction tolerances in an effort to keep the actual constructed cross slope to less than the required ADA standard of 2.0% maximum cross slope. Any installations of cross slopes greater than 2.0% will be unacceptable.
WEAKENED PLANE JOINT (WPJ)

TYPICAL CROSS SECTION FOR CENTER LINE OF FLARE, COMBO OR PLANTER STRIP CURB RAMP

TYPICAL CROSS SECTION FOR CENTER LINE OF PAN CURB RAMP

NOTES:
1. SURFACE OF RAMPS AND PANS SHALL HAVE A TRANSVERSE BROOM SURFACE TEXTURE ROUGHER THAN ADJACENT SIDEWALK.
2. COLORING SHALL BE ADDED TO NEW CONCRETE AS NECESSARY TO MATCH EXISTING COLOR.
Approved CBC Detectable Warnings must meet the following Criteria:

1) A written 5-year Product Warranty for Shape, Color Fastness, Sound-on-Cane Acoustic Quality, Resilience, and Attachment:
   A) **Shape:**
   Must be able to retain its original shape when subjected to varying degrees of temperature, moisture, pressure, or other stress.
   
   B) **Color Fastness:**
   The ability of the material or coating to retain its original hue without fading or changing when exposed to environmental conditions.
   
   C) **Sound-on-Cane Acoustic Quality:**
   The ability of a material to retain its original sound characteristics when impacted by an object.
   
   D) **Resilience:**
   The ability of the material to absorb energy when deformed elastically without creating a permanent deformation.
   
   E) **Attachment:**
   Attachment will not degrade significantly for at least five (5) years after initial installation-meaning the product maintains at least 90% of original product and bond. Bolt down products shall not be used.

2) **Confirmation - A written dimensional specifications:**
   A written dimensional specification of the truncated domes and raised bars as specified in the codes - see below dimensions:
   
   A) **Base Diameter:** 0.9" to 0.92"
   B) **Top Diameter:** 0.45" to 0.47"
   C) **Center-to-Center Spacing:** 2.3" to 2.4"
   D) **Height:** 0.18" to 0.22"

3) **Light on Dark or Dark on Light**
   70% contrast with adjoining surfaces - Contrast = [(B1-B2)/B1] x 100 percent, where
   B1=light reflectance value (LRV) of the lighter area, B2=light reflectance value (LRV) of the darker area

4) **Methods of installations:**
   Cast-in-place (required for all new construction) or Surface mount (retrofit only)

5) **Size:**
   3' depth by full width

6) **Color:**
   Color shall be Dark Gray #36118 of FED-STD-595 unless specified otherwise

7) **Approval:**
   Armor-Tile or equal as approved by City
CLOSET CORNER OF DETECTABLE WARNING TO STREET TO BE SET 6" – 8" FROM FACE OF CURB

3' DEPTH x WIDTH DETECTABLE WARNING TO BE CENTERED AND SQUARED ON RAMP

CLOSET CORNER OF DETECTABLE WARNING TO STREET TO BE SET 6" – 8" FROM FACE OF CURB

3' DEPTH x WIDTH DETECTABLE WARNING TO BE CENTERED AND SQUARED ON RAMP

CLOSET CORNER OF DETECTABLE WARNING TO STREET TO BE SET 6" – 8" FROM FACE OF CURB
BOTH ENDS OF THE BOTTOM GRADE BREAK ARE LESS THAN 5' FROM BACK OF CURB

ONE OR BOTH ENDS OF THE BOTTOM GRADE BREAK ARE GREATER THAN 5' FROM BACK OF CURB
NOTES:
1. ALL SLOPES SHOWN ARE MAXIMUMS.
2. ALL DIMENSIONS SHOWN ARE MINIMUMS.
3. ALL PANS MUST BE LOCATED INSIDE CROSSWALKS OR IN FRONT OF STOP BARS.
4. DETECTABLE WARNING IS PLACED IN THE PAN AS PER DRAWING AR-3.2.
5. ALL JOINTS BETWEEN ELEMENTS ARE RADIAL.
**SLOPE 1% MINIMUM TO 1.5% MAXIMUM FROM BACK OF PAN TO FLOW LINE.

A 4" MINIMUM CURB HEIGHT, UNLESS OTHERWISE APPROVED BY THE ENGINEER
B FROM THE FLOW LINE OUT THE RUNNING SLOPE CANNOT EXCEED 4.5% FOR A DISTANCE OF 4'.

TRANSITION GUTTER CROSS SLOPE TO 4.5% ALONG TOTAL LENGTH OF AREA OF RAMPED PORTION (TYP.)

DUAL PARALLEL CURB RAMPS
NOTES:
1. ALL SLOPES SHOWN ARE MAXIMUMS.
2. ALL DIMENSIONS SHOWN ARE MINIMUMS.
3. THE RAMP MUST BE LOCATED INSIDE CROSSWALKS OR IN FRONT OF STOP BARS.
4. DETECTABLE WARNING IS PLACED IN THE RAMP AND AS PER DRAWING AR-3.2.
5. IF THE FLARE IS IN THE PATH OF TRAVEL THEN THE SLOPE SHALL NOT EXCEED 7.5%.

A  4" MINIMUM CURB HEIGHT DESIRABLE – 9% MAX SLOPE CONTROLS CURB HEIGHT, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
B  NO. MINIMUM DIMENSION. FLARES CAN INTERSECT.
C  ALL RAMPS WILL HAVE A MINIMUM OF 48"x48" LANDING. TWO RAMPS CAN SHARE ONE LANDING.
D  FROM THE FACE OF CURB OUT THE RUNNING SLOPE CANNOT EXCEED 4.5% FOR A DISTANCE OF 4'.
NOTES:
1. ALL SLOPES SHOWN ARE MAXIMUMS.
2. ALL DIMENSIONS SHOWN ARE MINIMUMS.
3. RAMP MUST BE LOCATED INSIDE CROSSWALKS OR IN FRONT OF STOP BARS
4. DETECTABLE WARNING SURFACE IS PLACED IN THE RAMP PER STANDARD DRAWING AR-3.2.
5. ALL JOINTS BETWEEN ELEMENTS, EXCEPT BETWEEN RAMP AND FLARE ARE RADIAL. RAMP WIDTH REMAINS CONSTANT.
6. IF THE FLARE IS IN THE PATH OF TRAVEL THEN THE SLOPE SHALL NOT EXCEED 7.5%.
7. SINGLE RAMPS SHALL BE CONSTRUCTED PARALLEL TO CROSSING DIRECTION.
NOTES:
1. ALL SLOPES SHOWN ARE MAXIMUMS.
2. ALL DIMENSIONS SHOWN ARE MINIMUMS.
3. THE RAMP MUST BE LOCATED INSIDE CROSSWALKS OR IN FRONT OF STOP BARS.
4. DETECTABLE WARNING IS PLACED IN THE RAMP AND AS PER DRAWING AR-3.2.
5. IF THE FLARE IS IN THE PATH OF TRAVEL THEN THE SLOPE SHALL NOT EXCEED 7.5%.

A. 4" MINIMUM CURB HEIGHT DESIRABLE – 9% MAX SLOPE CONTROLS CURB HEIGHT, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
B. NO. MINIMUM DIMENSION, FLARES CAN INTERSECT.
C. ALL RAMPS WILL HAVE A MINIMUM OF 48"x48" LANDING. TWO RAMPS CAN SHARE ONE LANDING.
D. FROM THE FACE OF CURB OUT THE RUNNING SLOPE CANNOT EXCEED 4.5% FOR A DISTANCE OF 4'.

DUAL FLARED PERPENDICULAR CURB RAMPS WITH DETACHED SIDEWALK
NOTES:
1. ALL SLOPES SHOWN ARE MAXIMUMS.
2. ALL DIMENSIONS SHOWN ARE MINIMUMS.
3. ALL RAMPS MUST BE LOCATED INSIDE CROSSWALKS OR IN FRONT OF STOP BARS.
4. DETECTABLE WARNING IS PLACED IN THE RAMP AND AS PER DRAWING AR-3.2.
5. ADD LAMP BLACK TO NEW CONCRETE AS DIRECTED BY ENGINEER. MATCH EXISTING COLOR.

A STANDARD CURB HEIGHT TO MATCH EXISTING.
B TOP OF RETAINING CURB TO MATCH ADJACENT RETAINING CURB ELEVATIONS CAN BE FLUSH WITH LANDING.
C FROM THE FLOW LINE OUT THE RUNNING SLOPE CANNOT EXCEED 4.5% FOR A DISTANCE OF 4'.

DUAL PERPENDICULAR CURB RAMPS WITH DETACHED SIDEWALK
NOTES:
A. DRIVEWAY WIDTH AS PER CITY CODE.
B. WEAKENED PLANE JOINTS (WPJ) REQUIRED ON CENTERLINE FOR DRIVEWAYS 10' TO 20' WIDE. DRIVEWAYS 22' TO 35' WIDE SHALL HAVE TWO WPJ EVENLY SPACED AT 1/3 AND 2/3 POINTS.
C. THICKNESS OF APRONS SHALL BE 6" ON RESIDENTIAL DRIVEWAYS AND 6" ON COMMERCIAL DRIVEWAYS.
D. APRON WILL BE DEPRESSsed ON CURB AND GUTTER WHEN RECONSTRUCTING EXISTING COMMERCIAL DRIVEWAYS.
  • SEE SECTION 4-10
  ** IF CURB & GUTTER ARE POURED SEPARATELY APRON THEN DWELLS ARE REQUIRED AT BACK OF CURB.
NOTES:
1. DRIVEWAY WIDTH AS PER CITY CODE.
2. WEAKENED PLANE JOINTS (WPJ) REQUIRED ON CENTERLINE FOR DRIVEWAYS 10' TO 20' WIDE DRIVEWAYS 22' TO 35' WIDE SHALL HAVE TWO WPJ EVENLY SPACED AT 1/3 AND 2/3 POINTS.
3. THICKNESS OF APRONS SHALL BE 6".

* SECTION 4-10

** IF CURB & GUTTER ARE POURED SEPARATE OF APRON THEN DOWELS ARE REQUIRED AT BACK OF CURB.
1. PROJECT NAME, PARCEL NUMBER AND MAP COORDINATES SHALL BE IN 10 POINT ARIAL FONT.

2. APPROVAL BLOCK SHALL BE LOCATED AT THE LOWER RIGHT CORNER OF TITLE SHEET, WITHIN BOTTOM 6 INCHES AND RIGHT 8 INCHES OF PAGE.

OTHER AGENCY APPROVAL BLOCKS
INCLUDE ON PLANS AS NECESSARY

Approved By:
ELK GROVE CSD - FIRE DEPARTMENT
DATE

Approved By:
ELK GROVE CSD - PARKS AND RECREATION DEPT.
DATE

Approved By:
COUNTY SANITATION DISTRICT 1
DATE

Approved For: Water Conservation Only

Approved By:
CITY OF ELK GROVE LANDSCAPE ARCHITECT
DATE

WATER AGENCY NAME
DATE

1. PUT "SACRAMENTO COUNTY WATER AGENCY" OR "ELK GROVE WATER SERVICE" OR BOTH IN PLACE OF "WATER AGENCY NAME" ABOVE.
### Drafting Standards

All Subdivision plans, construction drawings, & property plats submitted to the City Engineer for consideration shall conform to and be prepared in accordance with the following standards:

1. All lettering, other than that herein specified or shown below, shall be a minimum of 0.100 inch in height and using 0.01" line width, or equal.

2. Subdivision Plans

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<tr>
<th>Description</th>
<th>Proposed</th>
<th>Existing</th>
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<tbody>
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<td>Street center lines</td>
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<td>Radial bearing lines</td>
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<td>Easement lines</td>
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<td>Lot lines</td>
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<td>Right-of-way lines</td>
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<td>Subdivision outline</td>
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<td>Monuments set</td>
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<td>Monuments set in monument box</td>
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<td>Monuments found</td>
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<td>Monuments found in monument box</td>
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<td>Bench mark elevation</td>
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<td>Street names</td>
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<td>Lot numbers</td>
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<td>Bearings, distances, curve data, coordinates, etc.</td>
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<tr>
<td>Adjacent subdivisions</td>
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<td>Adjacent lot numbers</td>
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3. Improvement Plans

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<th>Description</th>
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<tr>
<td>Sanitary sewer</td>
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<tr>
<td>Storm sewer (aka storm drain)</td>
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<td>8&quot; SD</td>
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<td>Gas line</td>
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<td>Electrical conduit</td>
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Title block and other related lettering shall be in accordance with standard accepted engineering practice, but in no case shall the lettering be less than 0.100 inch in height and using line width of 0.01".

---

**CITY OF ELK GROVE - PUBLIC WORKS**

DRAFTING STANDARDS

Approved by:

[Signature]

CITY ENGINEER Date: 10/24/2018

Drawing Number: D - 2
NOTES:

1. DRAFTING STANDARDS AND SYMBOLS SHALL CONFORM TO CITY OF ELK GROVE STANDARDS.
2. CLOSURE CALCULATIONS, INCLUDING AREA AND PRECISION, SHALL BE SUBMITTED SEPARATELY.
3. LEGAL DESCRIPTIONS SUBMITTED WITH THE MAP SHALL BE STAMPED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR.

PREPARED BY:

(ENGINEERING FIRM)
RETAINING WALL
(SEE STD DWG G-3 AND G-4)
NOTE: NO DOUBLE RETAINING WALLS SHALL BE CONSTRUCTED ON SIDE YARD

2' MIN. FOR ELEVATION DIFFERENCE EXCEEDING 2' (1' MIN. FOR ALL OTHERS)

1' MIN.
NOTES:

1. MATERIAL FOR WALLS SHALL BE GRADE NO. 2 OR BETTER REDWOOD WITH NO OPEN GRAIN MATERIAL.
2. WOOD WALLS SHALL NOT BE USED ADJACENT TO PUBLIC RIGHTS OF WAY.
3. ALL WALLS WITHIN 8 FEET OF A BOUNDARY OR PROJECT PHASE LINE SHALL BE CONSTRUCTED WITH MASONRY OR CONCRETE.
4. 4-INCH BY 6-INCH POSTS AT 4-FOOT ON CENTER SHALL BE USED AS FENCE POSTS WHEN FENCES ARE ATTACHED TO RETAINING WALLS.
5. NO DOUBLE RETAINING WALLS SHALL BE CONSTRUCTED ON SIDE YARDS.
FENCES UP TO 6' HIGH MAY BE ATTACHED. SET FENCE POSTS TO TOP OF FOOTING. GROUT OR CAST IN PLACE.

NOTES:
1. 8-INCH NORMAL WEIGHT BLOCK WITH FULL GROUTING REQUIRED.
2. A 6-INCH WIDE CAST-IN-PLACE CONCRETE STEM WALL MAY BE USED IN LIEU OF MASONRY.
3. SPECIAL INSPECTION IS NOT REQUIRED.
4. A BUILDING PERMIT IS REQUIRED FOR WALLS EXCEEDING 24" IN HEIGHT WHEN CONSTRUCTION DETAILS ARE NOT SHOWN ON APPROVED IMPROVEMENT PLANS.
END OF STAKE SHALL NOT EXTEND INTO TREE CANOPY. CUT AS NECESSARY

RUBBER CINCH TREE TIE, NAIL THROUGH KNOT. FOUR (4) PER TREE

PLACE ROOTBALL 1” ABOVE FINISHED GRADE. PROVIDE POSITIVE DRAINAGE AWAY FROM CROWN.

PLANTING PIT SHALL BE 2X THE DIAMETER OF THE ROOTBALL.
SCARIFY SIDES/BOTTOM AND BACKFILL WITH NATIVE SOIL

ROOT BALL

FERTILIZER TABLET OR PACKET TYP. SEE SPECIFICATIONS

TREE STAKES SHALL BE INSTALLED A MINIMUM OF 6” INTO UNDISTURBED SOIL

UNDISTURBED SOIL

NOTE:
FOR 36” BOX TREES. STAGE WITH TWO 2” X 12” LONG SCHEDULE 40 GALVANIZED STEEL PIPES.
PAIN TED WITH TWO COATS OF DARK GREEN PAINT. TIE TREE WITH A METAL TWIST BRACE BOLTED TO THE STAKES OR OTHER APPROVED TREE TIE AS SPECIFIED.
PLACE ROOTBALL 1" ABOVE FINISHED GRAD. PROVIDE POSITIVE DRAINAGE AWAY FROM CROWN

3" LAYER OF WOOD MULCH KEEP 3" AWAY FROM SHRUB CROWN

3" HIGH SOIL WATERING BASIN

PLANTING PIT SHALL BE 2x THE DIAMETER OF THE ROOTBALL SCARIFY SIDES/BOTTOM AND BACKFILL WITH NATIVE SOIL

ROOTBALL

FERTILIZER TABLET OR PACKET TYP. SEE SPECIFICATIONS

UNDISTURBED SOIL
NOTE:
1. ALL WIRE SHALL BE TAPED AND BUNDLED EVERY TEN FEET AND SHALL BE INSTALLED AS PER LOCAL CODE.

2. SHUT-OFF VALVES 3" AND SMALLER SHALL BE SCH, 80 BALL VALVES. VALVES LARGER THAN 3" SHALL BE BRASS GATE VALVES.

3. ALL VALVE BOXES AND LIDS WITHIN THE SIDEWALK SHALL BE OF TRAFFIC RATED QUALITY.
NOTES:

1. ALL WIRE SHALL BE TAPE AND BUNDLED EVERY TEN FEET AND SHALL BE INSTALLED AS PER LOCAL CODE.

2. ALL VALVE BOXES AND LIDS WITHIN THE SIDEWALK SHALL BE OF TRAFFIC RATED QUALITY.
10" DIA. ROUND VALVE BOX WITH BOLT-DOWN COVER.
NO. 4 REBAR 18" LONG WITH 2 STAINLESS STEEL HOSE CLAMPS
4' DEPTH OF 3/4" WASHED PEA GRAVEL
BRICK SUPPORTS (TYP OF 2)

QUICK COUPLING VALVE TOP OF LAWN OR MULCH
FINISH GRADE
COMPACT SOIL AROUND BOX TO MATCH UNDISTURBED SOIL DENSITY
1" x 12" MIN. LENGTH BRASS NIPPLE
1" x 12" BRASS NIPPLE

2-1" BRASS ELLS & 1" x 3" BRASS NIPPLE (SEE PLAN) OR DURA O-RING SEALED SWING JOINT O.C. STANDARD UNIBODY L-AZ.1.11.18

PVC MAINLINE PIPE

ELEVATION

2-1" BRASS ELLS
1" BRASS ELL & 1" x 3" BRASS NIPPLE (SEE PLAN)
SCH. 40 PVC TEE OR ELL
1" x 3" BRASS NIPPLE
BRASS ELL
1" x 3" BRASS NIPPLE
QUICK COUPLING VALVE

NOTE:
1. INSTALLATION OF TRIPLE SWING JOINTS SHALL BE AT AN ANGLE NO GREATER THAN 45 DEGREES TO HORIZONTAL
2. ALL PRE-MANUFACTURED TRIPLE SWING JOINTS SHALL BE MANUFACTURED WITH DORINGS AND SHALL BE RATED AT 200 PSI.
3. ALL VALVE BOXES AND LIDS WITHIN THE SIDEWALK SHALL BE OF TRAFFIC RATED QUALITY.

DATE: 09/22/2007
APPROVED BY: CITY ENGINEER 10/24/2018
CITY OF ELK GROVE - PUBLIC WORKS
QUICK COUPLING VALVE
DRAWING NUMBER L - 5

NOT TO SCALE
1. ALL VALVE BOXES AND LIDS WITHIN THE SIDEWALK AREA SHALL BE TRAFFIC RATED QUALITY.

NOTE:

PIE SIZING CHART

<table>
<thead>
<tr>
<th>FLOW METER SIZE</th>
<th>UPSTREAM LENGTH</th>
<th>DOWNSTREAM LENGTH</th>
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<tbody>
<tr>
<td>1&quot;</td>
<td>10&quot;</td>
<td>5&quot;</td>
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<tr>
<td>1.25&quot;</td>
<td>12.5&quot;</td>
<td>6.25&quot;</td>
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<tr>
<td>1.5&quot;</td>
<td>15&quot;</td>
<td>7.5&quot;</td>
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<tr>
<td>2&quot;</td>
<td>20&quot;</td>
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<tr>
<td>3&quot;</td>
<td>30&quot;</td>
<td>15&quot;</td>
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</tbody>
</table>
1. All valve boxes and lids within the sidewalk area shall be of traffic rated quality.
NOTE:
1. AIR RELIEF VALVE SHALL BE INSTALLED AT THE HIGHEST POINT OF THE SYSTEM ABOVE ALL DRIPLINE LATERALS.

2. ALL VALVE BOXES AND LIDS WITHIN THE SIDEWALK SHALL BE OF TRAFFIC RATED QUALITY.
NOTE:
1. INSTALLATION OF TRIPLE SWING JOINTS SHALL BE AT AN ANGLE NO GREATER THAN 45 DEGREES TO HORIZONTAL.

2. ALL PRE-MANUFACTURED TRIPLE SWING JOINTS SHALL BE MANUFACTURED WITH DORINGS AND SHALL BE RATED AT 200 PSI.
NOTE:
1. INSTALLATION OF TRIPLE SWING JOINTS SHALL BE AT AN ANGLE NO GREATER THAN 45 DEGREES TO HORIZONTAL

2. ALL PRE-MANUFACTURED TRIPLE SWING JOINTS SHALL BE MANUFACTURED WITH DORINGS AND SHALL BE RATED AT 200 PSI.
MULTI-OUTLET EMISSION DEVICE

MICRO-SPRAY

THREADED ADAPTER

TOP OF MULCH

FINISHED GRADE

STAKE

$\frac{1}{4}$" VINYL DISTRIBUTION TUBING

PVC LATERAL PIPE

4" DEPTH OF $\frac{3}{4}$" PEA GRAVEL

PVC SCH. 40 TEE OR ELL

SCH. 80 1/2" RISER

PVC SCH. 80 CLOSE NIPPLE

TUBING STAKE

MULCH DEPTH VARIES PER PLAN

DIFFUSER CAP

$\frac{1}{4}$" VINYL DISTRIBUTION TUBE

SUBTERRANEAN EMITTER BOX

CITY OF ELK GROVE - PUBLIC WORKS

DATE: 09/22/2007

NOT TO SCALE

APPROVED BY: CITY ENGINEER

DATE: 10/24/2018

DRAWING NUMBER L - 12
AIR/VACUUM RELIEF VALVE. PLUMB TO TUBING AT HIGH POINT OF PLANTER (TYPICAL).

CLASS 200 PVC LATERAL LINE. SIZE PER PLAN (TYPICAL). INSTALLED AT 12” BELOW FINISHED GRADE.

SUBSURFACE IN-LINE Drip Tubing Installed at 4” Below Finished Grade.

LINE FLUSHING VALVE. PLUMB TO TUBING (TYPICAL).

REMOTE CONTROL VALVE ASSEMBLY. PLACE IN PLANTER WHENEVER POSSIBLE.

PLANTER EDGE (TYPICAL.)

Curb Line Typical

NOTE: ALL Drip Tubing Fittings Shall Be Barbed.
FINISHED GRADE

SUBSURFACE IN-LINE DRIP TUBING (TYP)

BARBED TEE (TYP)

BLANK TUBING (TYP)

PVC TEE TO BARBED MALE ADAPTER (TYP)

PVC SUPPLY MANIFOLD

SEE SPECIFICATIONS

SEE SPECIFICATIONS

FINISHED GRADE

DATE:
09/22/2007

APPROVED:
CITY ENGINEER
10/24/2018

NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

SUBSURFACE IN-LINE DRIP
IRRIGATION CENTER-FEED
SUPPLY MANIFOLD

DRAWING NUMBER
L - 14
3" LAYER OF MULCH

CAP WITH PVC CRATE

BARBED TEE

DRILL HOLE FOR DRIP TUBING

SUBSURFACE IN-LINE DRIP TUBING WITH AT LEAST ONE EMITTER VERTICALLY

6" DIA x 24' LONG PERFORATED PVC PIPE WRAPPED WITH FILTER FABRIC

FILL PIPE WITH 3/4" CRUSHED ROCK

END CAP
OPTIONAL DOME ANTENNA
MODEL ANT-1 (DIGITAL RADIO)
MODEL ANT-1-RR (DIGITAL RADION AND RR RADIO REMOTE OPTION)
MODEL LR-DOME (LOCAL RADIO)
MODEL LR-DOME-RR (LOCAL RADIO AND RR RADIO REMOTE OPTION)
MODEL RR-DOME (RADIO REMOTE OPTION)

FLIP TOP IN OPEN POSITION
CALSENSE CONTROLLER PANEL MOUNTED
FLUSH ON FACE OF ENCLOSURE AT A 25° ANGLE FOR EASY ACCESS AND VIEWING
PISTON CONNECTED TO FLIP TOP

GFI OUTLET AND SWITCH
MODEL SSE STAINLESS STEEL ENCLOSURE MODEL SSE-R
(WITH DOME ANTENNA)

CALSENSE TP-1 TRANSIENT PROTECTION BOARD

#6 AWG GROUNDING WIRE CONNECTED TO GROUND LUG

26"x24"x8" CONCRETE BASE

MOUNTING BOLTS (BOLTS AND TEMPLATE INCLUDED WITH ENCLOSURE)

FINISH GRADE
24" MIN.

SCH 40 ELECTRICAL SWEEP ELL FOR LOW VOLTAGE WIRES

PVC SLEEVE FOR GROUND ROD
5/8"x8' COPPER GROUND ROD

SCH 40 ELECTRICAL SWEEP ELL FOR 120 VAC POWER

120VAC JUNCTION BOX (INCLUDED WITH ENCLOSURE)
NOTES:
1. ALL TRENCH DEPTHS ARE MEASURED FROM TOP OF FINISH GRADE.
2. TRACER WIRE SHALL BE REQUIRED ONLY WHEN PIPES ARE INSTALLED UNDER PAVEMENT.
3. ALL PIPE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION SPECIFICATIONS.
4. IF SPRINKLER HEAD AND NIPPLE HEIGHT EXCEED 11” LATERN LINE DEPTH SHALL BE 18”.
5. INSTALL PIPE BEDDING UNDER PIPING, WHEN SPECIFIED.
6. INSTALL SLEEVING UNDER PAVING PER PLANS.
ANCHOR BOLTS AS PER MANUFACTURER

CONCRETE PAD

HANDICAP ACCESSIBLE DRINKING FOUNTAIN

18"x18" CATCH BASIN WITH LOCKING CONCRETE COVER

5'-0"

1'-0"

CONC VALVE BOX

1" GATE VALVE

1" CL 315 PVC PIPE WATER LINE

4" DEPTH OR 3/4" WASHED PEA GRAVEL

2" VL 315 PVC DRAIN PIPE SLOPED AR .005 TO CATCH BASIN

2" CL 315 PVC DRAIN PIPE EXTEND PIPE 1" INTO SUMP

FILL SUMP WITH 3/4" TO 1" CRUSHED ROCK. PLACE SUMP A MINIMUM OR 10 FEET AWAY FROM DRINKING FOUNTAIN

DATE: 09/22/2007

APPROVED BY:

CITY ENGINEER

DATE: 10/24/2018

CITY OF ELK GROVE - PUBLIC WORKS

NOT TO SCALE

DRAWING NUMBER

L - 19
SLOPE TO DRAIN

3'-0" OC

3/8" GALV EYE BOLT TYP

SEE ENLARGEMENT

1/2" DIA DRILLED HOLE, TYP.

3/8" DIA 7 GALV. WIRE CABLE, TYP

6"x6" PRESSURE TREATED DOUGLAS FIR POST CONST. GRADE, TYP

BACKFILL W/ AGGREGATE BASE COMPACTED TO 95%, TYP

ENLARGEMENT

NOTE: CONCRETE FOOTING SHALL BE INSTALLED AT ALL TERMINAL POSTS AND AT ALL BENDS

3/8" GALV EYE BOLT W/ GALV WASHERS & NUT

3/8" GALV CABLE W/ GALV CLAMP USE CLAMPS FOR CONNECTIONS AND SPLICES

1' BEVEL AT 45 DEGREES ALL AROUND

COUNTERSINK NUT

3/8" DIA 7 STRAND GALV WIRE CABLE W/ 1/2" DIA DRILLED HOLE IN POST

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

10/24/2018
CITY ENGINEER DATE

DRAWING NUMBER

L - 20

POST AND CABLE FENCING
KNOCK-DOWN BOLLARD
AND STATIONARY BOLLARD

CITY OF ELK GROVE - PUBLIC WORKS

DATE: 09/22/2007
NOT TO SCALE

APPROVED BY:
10/24/2018

CITY ENGINEER

DRAWING NUMBER
L - 21

KNOCK-DOWN BOLLARD
FRONT VIEW

3" X 4" X 16" LONG 3/8" THICK STEEL TUBING. PAINT ABOVE GROUND PORTION.

CONCRETE FOOTING

#4 REBAR WELDED TO TUBING, BOTH SIDES

CONCRETE FOOTING

DATE
10/24/2018

BOLLARD STRIPING
IF REQUIRED

1/2" THICK STEEL PLATE WELDED TO TUBE

1/2" REBAR WELDED LOOP FOR LOCK 1" DIA.

1/2" HEX BOLT, WASHER AND NUT. TACK WELD BOTH SIDES OF BOLT. DRILL 3/8" DIA. HOLE THRU POST AND SLEEVE.

WELD 1/2" THICK STEEL PLATE TO TOP OF TUBE

TOP OF PAVING

KNOCK-DOWN BOLLARD
SIDE VIEW

DETAIL A

WELD 4" WIDE 8' X 1/2" THICK STEEL PLATE TO TUBE (TYP)

DATE
09/22/2007

HOLE

6"

1/2"

3/8"

3/4"

1/2"

1/2"

1"

1"

4"

4"

1/2"

1/2"

KNOCK-DOWN BOLLARD
5'-0" CLEARANCE MAX.

OR AS SPECIFIED ON PLAN

2 1/2" RUBBER HIGH PRESSURE HOSE SECURED TO STEEL TUBE WITH A 1/2" HEX BOLT, WASHER AND NUT.

2 1/2" X 2 1/2" STEEL TUBE, 3/8" THICK. PAINT WITH 2 COATS OF PRIMER YELLOW PAINT.

SEE DETAIL A

DRILL 3/8" DIA. HOLE WITH 1/2" DIA. HEX HEAD BOLT FOR SWIVEL. TACK WELD BOTH SIDES OF BOLT.

KNOCK-DOWN BOLLARD

TOP OF PAVING

CONCRETE FOOTING

4" YELLOW BOLLARD

SEE DETAIL B

1/2" HEX BOLT, WASHER AND NUT. TACK WELD BOTH SIDES OF BOLT. DRILL 1/2" DIA. HOLE THRU POST AND SLEEVE.

WELD 1/2" THICK STEEL PLATE TO TOP OF TUBE

TOP OF PAVING

DETAIL B

1"R

2"

3/8"

3/8"

3/4"
3/8" STEEL PLATE WELDED TO POST & GROUND SMOOTH

3" YELLOW HIGH INTENSITY RETRO-REFLECTIVE TAPE (TYP)

2-1/2" DIA. GALVANIZED STEEL POST, PAINTED WITH 2 COATS OF PRIMER AND INSIGNIA YELLOW

3/4" DIA. STEEL PIN W/ HEAD W/ 3/8" DIA HOLE FOR LOCK

FINISH SURFACE

3" DIA. GALVANIZED STEEL PIPE SLEEVE (PAINT ABOVE GROUND PORTION SAME AS POST)

CONCRETE FOOTING

3/8" STEEL PLATE WELDED TO SLEEVE

NOTE: DRILL A 1-3/4" DIA HOLE THRU BOTH THE POST AND SLEEVE FOR PIN PLACEMENT
CONCRETE WALK
(IN PARK AREAS, NOT FRONTAGE AREAS)

20 LF OF #4 REBAR IF NEXT TO TREE LOCATION

LAWN 1" BELOW TOP OF WALK

CONCRETE WALK

SLOPE TO DRAIN
MIN. 1%, MAX. 1.5%
(ACCESSIBLE PATHS CAN'T BE MORE THAN 1.5%)

EASE ALL EDGES TO 1/2" R

3" DEEP MULCH 1' BELOW TOP OF WALK

AGGREGATE BASE PER SPEC COMPACTED TO 95%

SUBGRADE COMPACTED TO 90%

24" ROOT BARRIER IF NEXT TO TREE LOCATION

NOTES:
1. PROVIDE 1" DEEP SCORE JOINTS AT 10'-0" ON CENTER.
2. PROVIDE EXPANSION JOINTS AT 20'-0" INTERVALS.
3. CLASS "B" CONCRETE.
4. MEDIUM BROOM FINISH PERPENDICULAR TO WALK EDGE UNLESS OTHERWISE SPECIFIED.
5. PROVIDE FULL DEPTH FELT EXPANSION JOINTS WHEN ABUTTING WALKS, WALLS AND BUILDINGS.
NOTES:
1. PROVIDE 1" DEEP SCORE JOINTS AT 10'-0" ON CENTER.
2. PROVIDE EXPANSION JOINTS AT 20'-0" INTERVALS.
3. CLASS "B" CONCRETE.
4. MEDIUM BROOM FINISH UNLESS OTHERWISE SPECIFIED.
5. PROVIDE FULL DEPTH FELT EXPANSION JOINTS WHEN ABUTTING WALKS, WALLS AND BUILDINGS.
NOTES:
1. APPLY PRE-EMERGENT HERBICIDE UNDER DECOMPOSED GRANITE PRIOR TO INSTALLING IT.
2. APPLY PRE-EMERGENT HERBICIDE OR WEED INTRUSION FABRIC TO AGGREGATE BASE PRIOR TO PAVING ASPHALT CONCRETE.
3. APPLY A 4’ WIDE SOLID THERMOPLASTIC YELLOW CENTERLINE STRIPE CONTINUOUSLY DOWN THE CENTER OF THE BIKE TRAIL.
4. A MINIMUM 3-FOOT HORIZONTAL CLEARANCE FROM THE PAVED EDGE OF A BIKE PATH TO OBSTRUCTIONS SHALL BE PROVIDED.
TYPE 4 CURB

3" MULCH LAYER PLACED 1" BELOW TOP OF PAVING

6" THICK CONCRETE

AC PAVEMENT

IMPORTED TOPSOIL COMPACTED TO 85%

EXCAVATE MEDIANS 24" BELOW TOP OF EXISTING PAVEMENT. REMOVE ALL AC. AB. AND SUBGRADE

ROOT CONTROL BARRIER

16" (OR AS OTHERWISE SPECIFIED)

TYPE 5 CURB

6" CLASS II AB—95% COMPACTION

WIDTH VARIES

IMPORTED TOPSOIL COMPACTED TO 85%

3" MULCH LAYER PLACED 1" BELOW TOP OF PAVING

6" THICK CONCRETE

AC PAVEMENT

EXCAVATE MEDIANS 24" BELOW TOP OF EXISTING PAVEMENT. REMOVE ALL AC. AB. AND SUBGRADE

ROOT CONTROL BARRIER

16" (OR AS OTHERWISE SPECIFIED)

WIDTH VARIES

NOTE: CONTOUR OF MEDIANS WILL VARY DEPENDING UPON MEDIAN WIDTH. DO NOT EXCEED BID QUANTITY OF IMPORTED TOPSOIL TO ACHIEVE 12" HEIGHT.
(4) 1/4" TO 3/8" X 4" REDWOOD BENDERBOARD STAGGER SPLICE JOINTS APART 3'-0" MINIMUM

REDWOOD STAKE

BENDERBOARD PLAN VIEW

PLACE TOP OF BENDERBOARD 1" ABOVE FINISHED GRADE

FINISHED GRADE 16D GALV. NAIL 12' O.C. TYP.

1/4" TO 3/8" X 4" REDWOOD BENDERBOARD SPLICE FOUR (4) TOGETHER

1'X2"X12" LONG REDWOOD STAKE, TYP.

4'-0" O.C. MAXIMUM SPACING

ELEVATION VIEW

1/4" TO 3/8" X 4" BENDERBOARD

2"X2"X18" REDWOOD STAKES @ 4'-0" O.C. MAXIMUM SPACING, TYP

2"X4" REDWOOD AT SPLICE

2"X2"X18" REDWOOD STAKES AT 4'-0" O.C.

SECTION

1" 2"X6" HEADERBOARD

16D GALV. NAIL, TYP.

2"X6" REDWOOD HEADERBOARD

FINISHED GRADE

2"X4" HEADERBOARD

NOTES:
1. INSTALL ALL STAKES AND SPLICES ON PLANTING SIDE OF HEADERBOARD.
2. ALL NAILS SHALL BE GALVANIZED.
3. ALL REDWOOD SHALL BE ROUGH CONSTRUCTION COMMON GRADE IN ACCORDANCE TO CALIFORNIA REDWOOD ASSOCIATION GRADING RULES. DRIVE STAKES TO RESISTANCE AND CUT TOP AT 45 DEGREE ANGLE.

DATE: 09/22/2007
APPROVED BY: CITY ENGINEER
DATE: 10/24/2018

CITY OF ELK GROVE - PUBLIC WORKS

REDWOOD HEADERBOARD
NOTES:

1. DOUBLE PIPE GATES SHALL BE USED FOR ROADWAYS OR DRIVEWAYS OVER 24' WIDE OPENING.
2. ALL PIPES SHALL BE BLACK STEEL PIPES. OUTSIDE DIAMETER (O.D.) AND WELDED.
3. ALL STEEL TO BE PAINTED WITH 2 COATS OF PRIMER AND INSIGNIA YELLOW.
4. PROVIDE TWO (2) 5" O.D. PIPES AND INSTALL WITH CONCRETE FOOTING (18" X 24" D) FOR TIE-DOWN WHEN GATE IS OPENED AND CLOSED.
NOTES:

1. SINGLE PIPE GATE SHALL BE USED FOR ROADWAYS OR DRIVEWAYS UP TO 24' WIDE MAXIMUM OPENING.
2. ALL PIPES SHALL BE BLACK STEEL PIPES. OUTSIDE DIAMETER (O.D.) AND WELDED.
3. ALL STEEL TO BE PAINTED WITH 2 COATS OF PRIMER AND INSIGNIA YELLOW.
4. PROVIDE TWO (2) 5" O.D. PIPES AND INSTALL WITH CONCRETE FOOTING (18" X 24" D) FOR TIE-DOWN WHEN GATE IS OPENED AND CLOSED.

DATE: 09/22/2007
APPROVED BY:
CITY ENGINEER
10/24/2018
DRAWING NUMBER
L - 29
NOTE:
REFER TO VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL FOR ASSUMPTIONS MADE IN DERIVING THIS FIGURE.

10-YEAR PEAK FLOW
SACRAMENTO METHOD
RAINFALL ZONE 2, <80 ACRES
NOTE: Design runoff for multiple family development shall be based on the following formula:

\[ Q_m = Q_r + \frac{(Q_c - Q_r)(I - 50)}{40} \]

Where:
- RD-7 \( I = 60 \)
- RD-10 \( I = 70 \)
- RD-20 \( I = 80 \)
- RD-30 \( I = 90 \)

Source: County of Sacramento Master Drainage Plan, Part 1, County-wide Hydrology, Nolte and Assoc.
NOTE: Design runoff for multiple family development shall be based on the following formula:

\[ Q_m = Q_r + \frac{(Q_c - Q_r)(I-50)}{40} \]

Where:
- RD-7 \( I = 60 \)
- RD-10 \( I = 70 \)
- RD-20 \( I = 80 \)
- RD-30 \( I = 90 \)

Source: County of Sacramento Master Drainage Plan, Part 1, County-wide Hydrology, Nolte and Assoc.
NOTE:
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NOTE:
REFER TO VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL FOR ASSUMPTIONS MADE IN DERIVING THIS FIGURE.

100-YEAR PEAK FLOW
SACRAMENTO METHOD
RAINFALL ZONE 2, <80 ACRES

CITY OF ELK GROVE - PUBLIC WORKS

DATE: 09/22/2007
NOT TO SCALE

APPROVED BY: 10/24/2018

SD - 3
NOTE:
REFER TO VOLUME 2 HYDROLOGY STANDARDS OF THE CITY/COUNTY DRAINAGE MANUAL FOR ASSUMPTIONS MADE IN DERIVING THIS FIGURE.

SD - 4
100-YEAR PEAK FLOW
SACRAMENTO METHOD
RAINFALL ZONE 2, 80-640 ACRES

DATE: 09/22/2007
APPROVED BY: CITY ENGINEER
DATE: 10/24/2018

NOT TO SCALE
\[ H_L = K \frac{V_i^2}{2g} \]

- \( V_i \): Velocity of flow in lateral in f.p.s.
- \( g \): Acceleration due to gravity, 32 ft/sec/sec
- \( H_L \): Feet of head lost in Jct. due to change in direction of lateral flow
- \( K \): Factor from graph

Degree of Angle "A" Between Lateral & Outlet

Factor K
NOTES

1. GEOTEXTILE FABRIC, PER CITY OF ELK GROVE STANDARD SPECIFICATIONS.

2. IF SUBGRADE IS WITHIN 12" OF TOP OF PIPE, BACKFILL MATERIAL TO BE CLASS 2 AGGREGATE BASE, OR CDF PER SPECIFICATIONS.

3. INITIAL BACKFILL TO BE PLACED IN AN 18" LOOSE LIFT, COMPACTED TO 12".

4. TRENCH DAMS TO BE INSTALLED EVERY MANHOLE RUN.

5. CDF BACKFILL AROUND MANHOLES TO BE INSTALLED PER SPECIFICATIONS.

TYPE "C"
STORM DRAIN TRENCH DETAIL FOR SHALLOW COVER
FOR USE WITH PVC PIPE ONLY
RCP CLASS IV OR V TO BE BACKFILLED PER NOTE 2

*FABRIC WILL BE REQUIRED WHEN WATER OR SOIL STABILITY CONDITIONS ARE OBSERVED, PER THE DIRECTION OF CITY GEOTECHNICAL STAFF.
GENERAL NOTES:

1. INITIAL BACKFILL MATERIAL SHALL BE THOROUGHLY COMPACTED AROUND PIPE BY SHOVEL SLICING OR TAMPPING.

2. SEE SECTION 19 "TRENCH EXCAVATION, BEDDING AND BACKFILL."

3. MINIMUM DEPTH OF BEDDING MATERIAL SHALL BE 1-1/2 INCHES BELOW THE PIPE BELL.

4. FOR ROCKY OR FOR UNSTABLE BEDDING CONDITIONS, SECTION 19-1.07 OF THE STANDARD CONSTRUCTION SPECIFICATIONS SHALL APPLY.

5. IF MINIMUM WIDTH CANNOT BE ACHIEVED, CONTROL DENSITY FILL PER SECTION 50-15 SHALL BE USED IN LIEU OF 3/4" CRUSHED aggregate AT NO EXTRA COST.
NOTES:

1. TOP OF DAM TO EXTEND INTO INTERMEDIATE BACKFILL 12" MINIMUM OR TOP OF GROUND WATER HGL.

FILL VOID WITH FLEXIBLE MATERIAL OR EXPANDABLE FOAM TO FORM A WATER TIGHT SEAL

UNDISTURBED EARTH
**NOTES:**

1. ON ALL PIPES UP TO 30" I.D. USE FLEXIBLE COMPRESSION GASKET OR BOOT CONNECTOR CONFORMING TO ASTM C-923. CONNECTION SHALL BE WATER AND SOIL TIGHT. FOR PIPES GREATER THAN 30" I.D., BASE MAY BE CAST-IN-PLACE AND A WATER STOP CONFORMING TO ASTM C-923 SHALL BE USED.

2. SUMP SHALL BE 1'-0" DEEP, MEASURED FROM INVERT OF OUTFALL PIPE. SUMP NOT REQUIRED IF OUTFALL PIPE IS 24" I.D. OR LARGER.

3. RISER SECTIONS, CONES, AND ADJUSTING RINGS SHALL CONFORM TO ASTM C-478.

4. ALL JOINTS SHALL BE MADE WITH PREFORMED PLASTIC JOINT SEALING COMPOUND. FOLLOWING INSTALLATION GROUT ALL INTERIOR AND EXTERIOR JOINTS.

5. CONCENTRIC COMPONENTS SHALL BE USED UNLESS OTHERWISE SPECIFIED ON THE PLANS.


7. SEE SECTION 39, CONSTRUCTION SPECIFICATIONS, "MANHOLES"

8. CONE FOR MANHOLES GREATER THAN 60" DIAMETER SHALL BE INDIVIDUALLY DESIGNED.
CONCRETE COLLAR. SEE SD-7.

STANDARD 24" FRAME AND COVER. SEE NOTES ON SD-7.

1'-6" MAX. FOR 24" OPENING
2'-0" MAX. FOR 36" OPENING

NOTE
REMOVE CONCRETE IN MANHOLE OPENING AND CONSTRUCT RISER BASE WHILE CONCRETE IS STILL WORKABLE.

PLACE RISER SECTION AFTER CONCRETE HAS SET.

SEE SECTION 39, "MANHOLES," AND SECTION 36, CAST-IN-PLACE CONCRETE PIPE.

VARIABLE 6"

VARIABLE 48" MIN

TYPE A
CAST-IN-PLACE PIPE ONLY

CITY OF ELK GROVE - PUBLIC WORKS

DATE: 09/22/2017
NOT TO SCALE

APPROVED BY:
10/24/2018

CITY ENGINEER

SD - 8A

DRAWING NUMBER

CITY ENGINEER

DATE

REVISION  BY  APPROVED  DATE

APPROVED

DATE

NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

TYPE A
SADDLE MANHOLE
NOTES:

1. CONCRETE SHALL BE CLASS "A" IN CONFORMANCE WITH ARTICLE 50-5 "PORTLAND CEMENT CONCRETE."

2. SEE SECTION 39, "MANHOLES."
NOTES:

1. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B.
2. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.
3. MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES NOT TO EXCEED 1/64" TOLERANCE.
4. FRAME AND COVER SHALL HAVE A COATING OF BLACK BITUMINOUS MATERIAL.
5. LOCKING COVER TYPE FRAME AND COVERS SHALL BE USED IN EASEMENT AREAS UNLESS OTHERWISE APPROVED.

SET WEIGHT

<table>
<thead>
<tr>
<th></th>
<th>FRAME</th>
<th>COVER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>140 LBS</td>
<td>130 LBS</td>
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<td>270 LBS</td>
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</tbody>
</table>

DATE: 09/22/2017

CITY OF ELK GROVE - PUBLIC WORKS

GREY CAST IRON
STANDARD 24" MANHOLE
FRAME & COVER

APPROVED BY:

SD - 9
36" MIN
(4) 2"Ø ANCHOR HOLES
COUNTRY OF ORIGIN
UPPER FACE OF COVER
LOWER FACE OF COVER
LETTER D
SEE DETAIL B
8 RIBS @ 45°

5/8" RIB @ 60°
4-5/8" HEX-HEAD STAINLESS STEEL BOLT @ 90°

COUNTRY OF ORIGIN
UPPER FACE OF COVER
LOWER FACE OF COVER
LETTER D
SEE DETAIL B
8 RIBS @ 45°

STORM DRAIN
C  B  X  Y  Z
C  B  X  Y  Z
C  B  X  Y  Z

SET WEIGHT
FRAME 310 LBS
COVER 290 LBS
TOTAL 600 LBS

NOTES:
1. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B.
2. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.
3. MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES NOT TO EXCEED 1/64" TOLERANCE.
4. FRAME AND COVER SHALL HAVE A COATING OF BLACK BITUMINOUS PAINT.
5. LOCKING COVER TYPE FRAME AND COVERS SHALL BE USED WHEN SPECIFIED IN CONTRACT DOCUMENTS.
6. H20 RATED SLOTTED GRATE OR GRATE TYPE MANHOLE COVER MAY BE SUBSTITUTED FOR COVER WHEN SPECIFIED IN CONTRACT DOCUMENTS OR UPON APPROVAL OF DIRECTOR.
7. COVER SHALL BE "STORM DRAIN" STAMPED.
SECTION C-C

SECTION B-B

1" DIAM. VENT HOLE

O-RING GASKET
MACHINED GROOVE

1/4" MIN
1/4" MIN

GLUE IN PLACE 1/4" NEOPRENE O-RING

1/8" NEOPRENE O-RING

SEE DETAIL A

DETAIL A

1/2"X1" STEEL BAR

1/4" NEOPRENE O-RING

SEE DETAIL A

DETAIL B

BOLT DOWN COVER DETAIL

1/2"X1" STEEL BAR

1/8" X 1" STEEL BAR

SEE DETAIL A

SECTION A-A

BOLT DOWN COVER DETAIL

GREY CAST IRON
STANDARD 36" MANHOLE
FRAME & COVER (PAGE 2 OF 2)
NOTES:

1. MANHOLE COVER SHALL FIT FRAME SHOWN ON STANDARD DRAWING SD-9.
2. SEATING SURFACES SHALL BE MACHINED AS SHOWN IN DETAIL ON STANDARD DRAWING SD-9.
3. THIS COVER MAY BE USED ONLY WITH APPROVAL OF THE CITY ENGINEER.
4. GALVANIZE AFTER FABRICATION.
NOTES

1. TO BE USED ON TYPE1A AND TYPE 2 CURB AND GUTTER WHERE INLETS ARE AT DETACHED SIDEWALKS.
NOTES

1. STANDARD DEPRESSION FOR INLET IS 1-1/2" AND LIP OF GUTTER MUST BE SET BACK 3" FROM GUTTER FLOW LINE.

2. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWINGS SD-14 AND SD-15.

3. OPEN-BACK HOOD SHALL BE H-20 RATED.


5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.

6. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.

7. SEE SD-12.1 FOR INSTALLATION OF INLETS AT DETACHED SIDEWALKS.

8. INCREASE SIDEWALK THICKNESS TO 8" IN ORDER TO ANCHOR CAST IRON HOOD AND INLET WALL.

9. WHEN MORE THAN ONE GRATE IS PROPOSED, STD DWG SD-16 FOR SUPPORT ASSEMBLY.
1. STANDARD DEPRESSION FOR INLET IS 1-1/2".

2. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWINGS SD-14 AND SD-15.

3. OPEN-BACK HOOD SHALL BE H-20 RATED.

4. ALL EXPOSED EDGES SHALL HAVE A 1/8" R (MINIMUM).

5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.

6. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.
NOTES:

1. OMIT 1/2" FRAME ANCHORS OVER CENTER SUPPORT ASSEMBLY WHEN MULTIPLE FRAMES ARE USED.

2. MATERIAL: ASTM A36 MILD STEEL


4. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.
NOTES:

1. DIMENSIONS TO CENTERLINE OF BARS UNLESS OTHERWISE NOTED.

2. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.
WELDED STEEL GRATE FRAMES

NOTES:

1. OMIT 1/2" FRAME ANCHORS OVER CENTER SUPPORT.

2. L=57 INCHES FOR CURB OPENING CATCH BASIN WITH GRATING(S) AND DEBRIS SKIMMER (STANDARD PLAN 301).

3. ALL EXPOSED PARTS TO BE HOT DIP GALVANIZED PER ASTM A123, AFTER FABRICATION.

ELEVATION
NOTES:

1. TO BE USED ONLY IN TYPE 2 CURB AND GUTTER WITH 2" DEPRESSION. USE IN TYPE 1A CURB AND GUTTER ONLY UPON APPROVAL OF THE CITY ENGINEER. SEE KEYNOTE 1.
2. FACE ANGLE SHALL BE CAST INTO STRUCTURE CONTINUOUS FOR THE FULL LENGTH "W".
3. ALL EXPOSED METAL PARTS TO BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
4. WHEN CURB INLET OPENING HEIGHT (H) EXCEEDS 6" INSTALL 1" Ø STEEL PROTECTION BAR.
5. INSTALL ADDITIONAL BARS AT 3-1/2" CLEAR SPACING ABOVE FIRST BAR WHEN OPENING EXCEEDS 13".
6. WHEN CURB INLET OPENING LENGTH EXCEEDS 8' INSTALL 1" Ø STEEL SUPPORT BOLTS, SPACED AT NOT MORE THAN 5’ O.C.

KEYNOTES:

1. ALTERNATE ANGLE IRON SIZE, DEPRESSION Depth, and SLAB THICKNESS MAY BE USED UPON APPROVAL OF THE CITY ENGINEER.
NOTES:

1. PROVIDE 1/4" x 18" GALVANIZED CHAIN WELD TO COVER AND EYE BOLT.

2. PROVIDE END OR SIDE OPENINGS AS SHOWN ON PLANS OR CROSS SECTION.

3. TOP OF WALLS TO BE FINISHED TO A FLAT PLANE TO PROVIDE EVEN BEARING FOR PLATE COVER.

4. ALL METALS SHALL BE HOT DIP GALVANIZED PER ASTM A123.
NOTES:

1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE OR FORMED AND CAST-IN-PLACE P.C.C.

2. ALL METAL SHALL BE HOT DIP GALVANIZED PER ASTM A123.

3. SEE STANDARD DRAWING SD - 17 FOR FACE PLATE ASSEMBLY.
NOTES:

1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE, OR FORMED AND CAST-IN-PLACE P.C.C.

2. ALL METAL SHALL BE HOT DIPPED GALVANIZED ASTM A123.

3. ALL CASTINGS TO CONFORM TO ASTM A4B, CLASS 35B.

4. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.

5. BEARING SURFACES ARE MACHINE BEVELED TO ASSURE A CLOSE, NON ROCKING SURFACE.

6. FRAME AND COVER SHALL HAVE A COATING OF BLACK BITUMINOUS MATERIAL CONFORMING TO ASTM 48-30.

7. SEE ARTICLE 50-31 "SEWER AND STORM DRAIN CASTINGS" OF SECTION 50, CONSTRUCTION SPECIFICATIONS.

8. INSTALL "NO DUMPING, DRAINS TO CREEK" PLACARD ON TOP OF CURB.
PLAN VIEW

SECTION A-A
TYPE 2 CURB AND GUTTER

SECTION B-B

NOTES:
1. STANDARD DEPRESSION FOR INLET IS 1 1/2".
2. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWINGS SD-14 AND SD-15.
3. OPEN BACK CAST IRON HOOD SHALL BE H-20 RATED, 3/8" THICK AND CONFORM TO STANDARD DRAWING SD-12.
4. ALL EXPOSED EDGES SHALL HAVE A 1/8" RADIUS (MINIMUM).
5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.
6. EXPOSED SURFACES OF THE GRATES, FRAMES, AND HOODS WITH THE PARTS ASSEMBLED OR DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PASTE AFTER TESTING AND ASSEMBLY.
7. THE MINIMUM PIPE SIZE IS 12" IF THE INLET DEPTH IS GREATER THAN 4'. THE MINIMUM PIPE SIZE SHALL BE 15".
PIPE CONNECTION PER STANDARD DRAWING SD-23

COVER AS SPECIFIED ON PLANS

EXISTING GROUND

FLARED END SECTION

FLOW

3:1 SLOPE OR FLATTER

L

PIPE, L

DIAMETER,D

RISER

LENGTH OF HORIZONTAL PIPE, L

15" 1'-0"
18" 1'-6"
21" 1'-6"
24" 1'-6"
30" 2'-0"
36" 3'-0"
42" 4'-0"
48" 4'-0"

NOTES
1. USE 2-PIECE ELBOW AT BOTH ENDS OF RISER. ELBOWS SHALL CONFORM TO STANDARD DRAWING SD-22.
2. TO BE USED ONLY WITH THE SPECIFIC APPROVAL OF THE CITY ENGINEER.
3. PIPE MATERIAL TO BE CMP.
OPENING LENGTH \( L \), AS SPECIFIED ON PLANS

2'-0" MIN.

1" CLEAR

2'X2' MINIMUM ACCESS DOOR

 PROVIDE 1" DIAMETER HOLE IN DOOR AND C.M.P. AND FURNISH 1/4"X12" GALVANIZED CHAIN

5/16" RAISED PATTERN FLOOR PLATE, GALVANIZED, ALL STEEL EDGES SMOOTH AND CHAMFERED

2-4" HEAVY DUTY BUTT HINGES GALVANIZED (WITH BRASS PIN) FILLET WELDED TO COVER AND FRAME. IF WELDING GALVANIZED SURFACES: PRIOR TO WELDING ON ANY METAL, CONSULT ANSI/ASC Z-49.1, SAFETY IN WELDING, CUTTING AND ALLIED PROCESSES. WHICH CONTAINS INFORMATION ON PERSONAL PROTECTION, THE GENERAL WELDING AREA, VENTILATION, AND FIRE PREVENTION APPLY ZINC-RICH PAINT TO THE WELDED AREAS IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS.

PLAN

42" DIAMETER TO 72" DIAMETER C.M.P. INLET

OPENING LENGTH \( L \), AS SPECIFIED ON PLANS

1'-8" MIN.

1/4"

2-4" HEAVY DUTY BUTT HINGES GALVANIZED (WITH BRASS PIN) FILLET WELDED TO COVER AND FRAME

 PROVIDE 1" DIAMETER HOLE IN DOOR AND C.M.P. AND FURNISH 1/4"X12" GALVANIZED CHAIN

5/16" RAISED PATTERN FLOOR PLATE, GALVANIZED, ALL STEEL EDGES SMOOTH AND CHAMFERED

PLAN

24" DIAMETER TO 36" DIAMETER C.M.P. INLET
NOTES:

1. LOCATIONS, HEIGHTS, AND LENGTH OF OPENINGS SHALL BE AS SHOW ON THE PLANS.

2. AREA OF OPENING SHALL NOT BE LESS THAN AREA OF OUTFALL PIPE.

3. OUTFALL PIPE TO BE CUT FLUSH WITH INSIDE OF RISER.

4. NOT TO BE USED AS A JUNCTION STRUCTURE.

5. DIAMETER OF RISER PIPE SHALL BE AT LEAST ONE SIZE LARGER THAN OUTFALL PIPE.

6. TO BE USED ONLY WITH THE SPECIFIC APPROVAL OF THE CITY ENGINEER.

<table>
<thead>
<tr>
<th>RISER DIAMETER, D</th>
<th>H, MAX.</th>
<th>HEIGHT T, MAX.</th>
<th>GAGES (MINIMUM)</th>
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<tr>
<td>24&quot;</td>
<td>4'</td>
<td>8&quot;</td>
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<tr>
<td>72&quot;</td>
<td>10'</td>
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### FITTING SIZES

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<th>DIAM (IN)</th>
<th>A (FT)</th>
<th>E (FT)</th>
<th>F (FT)</th>
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<td>96</td>
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<td>16</td>
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</tr>
</tbody>
</table>

### NOTES

1. TO USE TABLE, REFER TO DIAGRAM AND SELECT LETTER REPRESENTING DESIRED DIMENSION, THEN ENTER TABLE AT CORRECT PIPE DIMENSION AND READ DIMENSION IN COLUMN UNDER APPROPRIATE LETTER HEADING.

2. DIMENSIONS ON TABLE ALLOW FOR USE OF STANDARD 12 INCH WIDE BAND COUPLER ON SIZES 15 INCH THROUGH 54 INCH AND 24 INCH WIDE BAND ON 60 INCH AND LARGER SIZES.

3. FOR PIPE-ARCH FITTINGS, CHOOSE PIPE DIAMETER EQUAL TO OR GREATER THAN ARCH SPAN. (EXAMPLE: 35 INCH X 24 INCH PIPE-ARCH; USE DIMENSIONS FOR 36 INCH PIPE).

4. STRUCTURAL REINFORCEMENT MAY BE REQUIRED ON SOME LARGER SIZES.
1. CONCRETE PIPE TO CONCRETE PIPE WITHOUT STANDARD JOINT

2. CAST-IN-PLACE OR PRE-CAST CONCRETE PIPE TO CSP

3. CONCRETE PIPE, C.M.P. INTO EXISTING PIPE OR STRUCTURE

4. PIPES OF DISSIMILAR METALS
NOTES:

1. TO HELP CREATE A FLEXIBLE, WATERTIGHT JOINT, DO NOT PLACE MORTAR AROUND THE CONNECTOR ON THE OUTSIDE OF THE STRUCTURE OR AROUND THE TOP HALF OF THE CONNECTOR ON THE INSIDE WHEN COMPLETING THE INVERT WORK.

2. RESILIENT CONNECTORS SHALL BE A FLEXIBLE COMPRESSION GASKET OR BOOT CONNECTOR PER SECTION 39-2.01 "PRECAST CONCRETE STORM DRAIN MANHOLES" OF THE CITY OF Elk Grove CONSTRUCTION SPECIFICATIONS.

3. ALL CONNECTORS SHALL MEET OR EXCEED THE REQUIREMENTS OF A.S.T.M. C-923.
NOTES:

1. BOTTOM TRANSITION 25' MINIMUM APRON LENGTH WITH NO RAMP.

2. WEEP HOLES AND JOINTS AS REQUIRED FOR ALL LINED CHANNEL SECTIONS.

3. LOW SIDE OF CHANNEL TO BE OPPOSITE RAMP.

4. SIDE SLOPE LINING MAY BE USED AT RAMP LOCATIONS TO INCREASE SLOPE TO MAXIMUM 1:1. TOP OF SLOPE GREATER THAN 3:1 MUST BE FENCED.
ADD ENERGY DISSIPATION FEATURES
TOE OF CHANNEL SLOPE

W = 6' 0" MINIMUM
W = 2 x PIPE DIAM. (3'+)

CONSTRUCT CUT-OFF WALL AROUND THE ENTIRE PERIMETER

TOE OF CHANNEL SLOPE

NOTES:
1. USE CLASS "B" CONCRETE.
2. 6" x 6" - W6 x W6 WWF THROUGHOUT CONCRETE.
3. ADD ENERGY DISSIPATION FEATURES SUCH AS COBBLES, RIP-RAPS, OR MOLDED CONCRETE AT END OF APRON.
NOTES:

1. USE CLASS "B" CONCRETE OR GROUTED COBBLES AS SPECIFIED.

2. 6" x 6" - W6 x W6 WWF THROUGHOUT CONCRETE.

3. ON LINED CHANNELS APRON SHALL CONNECT TO SIDE LINING.

4. B = DITCH BOTTOM WIDTH OR AS SHOWN ON PLANS.

5. D = DITCH WATER DEPTH PLUS ONE FOOT OF FREEBOARD.

6. ADD ENERGY DISSIPATION FEATURES SUCH AS COBBLES, RIP-RAP, OR MOLDED CONCRETE AT END OF APRON.
<table>
<thead>
<tr>
<th>PIPE DIA. (IN)</th>
<th>PIPE OD (IN)</th>
<th>QUANTITY</th>
<th>BAR &quot;A&quot; SIZE (IN)</th>
<th>H (IN)</th>
<th>W (IN)</th>
<th>L (IN)</th>
<th>S (IN)</th>
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<tbody>
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<td>52</td>
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*INCLUDES OUTSIDE FRAME

SIDEBAR LENGTH AND ANGLE WILL BE DETERMINED BY WING WALL DESIGN

BAR "A" @ 6" OC

SYMMETRICAL ABOUT CENTER LINE

TRASH RACK
24"-36" PIPE
(SHEET 1 OF 4)
SIDEBAR LENGTH AND ANGLE WILL BE DETERMINED BY WING WALL DESIGN

BAR "A" @ 6" OC

ACCESS GATE SEE SD-28.3

ADDITIONAL HINGE REQUIRED ON TRASH RACK FOR 60" AND 72" PIPE

3"x 1½"x ¼" C10 CHANNEL BAR

NOTE:
SEE SECTION 9-17 FOR DESIGN REQUIREMENTS
NOTES:

1. SEE STANDARD DRAWINGS SD-29.1 AND SD-29.2 FOR PIPE HEADWALL DETAILS.

2. MATERIAL TO CONFORM TO ASTM DESIGNATION A-36. GALVANIZE ALL EXPOSED FERROUS PARTS AFTER FABRICATION.

3. ALL FILLET WELDS TO BE 3/16".

4. ALL STEEL SHALL CONFORM TO SECTION 75 OF THE STATE SPECIFICATIONS AND ASTM A36, A575 AND A576.

5. GATE HINGES TO BE COATED TO RESIST CORROSION.

<table>
<thead>
<tr>
<th>PIPE DIAM (IN)</th>
<th>PIPE OD (IN)</th>
<th>QUANTITY</th>
<th>BAR &quot;A&quot; SIZE (IN)</th>
<th>H (IN)</th>
<th>W (IN)</th>
<th>L (IN)</th>
<th>S (IN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>51</td>
<td>15</td>
<td>3/8x2 1/2</td>
<td>67</td>
<td>72</td>
<td>60</td>
<td>47-3/4</td>
</tr>
<tr>
<td>48</td>
<td>58</td>
<td>17</td>
<td>3/8x2 1/2</td>
<td>74</td>
<td>84</td>
<td>70</td>
<td>47-3/4</td>
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<td>54</td>
<td>65</td>
<td>21</td>
<td>3/8x2 1/2</td>
<td>81</td>
<td>108</td>
<td>72</td>
<td>47-3/4</td>
</tr>
<tr>
<td>60</td>
<td>72</td>
<td>23</td>
<td>3/8x2 1/2</td>
<td>88</td>
<td>120</td>
<td>80</td>
<td>47-3/4</td>
</tr>
<tr>
<td>72</td>
<td>86</td>
<td>27</td>
<td>3/8x2 1/2</td>
<td>102</td>
<td>144</td>
<td>96</td>
<td>47-3/4</td>
</tr>
</tbody>
</table>

*INCLUDES OUTSIDE FRAME
NOTES:

1. SEE STANDARD DRAWINGS SD-29.1 AND SD-29.2 FOR PIPE HEADWALL DETAILS.

2. MATERIAL TO CONFORM TO ASTM DESIGNATION A-36. GALVANIZE ALL EXPOSED FERROUS PARTS AFTER FABRICATION.

3. ALL FILLET WELDS TO BE \( \frac{3}{16} \) ".

4. ALL STEEL SHALL CONFORM TO SECTION 75 OF THE STATE SPECIFICATIONS AND ASTM A36, A575 AND A576.

DETAIL A

CONNECT TRASH RACK TO BRACKET WITH \( \frac{3}{4} \)" x 2\( \frac{3}{4} \)" HEX BOLTS WITH TWO HEX NUTS EACH.

2" x 12" x \( \frac{3}{8} \)" BAR

2" DIAM SCH 80 SEAMLESS STEEL PIPE

BAR "A" (FRAME TOP)

BAR "A"

BAR "A" (HEADWALL)

DETAIL C

DRILL \( \frac{1}{16} \)" HOLE, CONNECT TRASH RACK TO BRACKET WITH \( \frac{3}{4} \)" BY 2\( \frac{3}{4} \)" HEX BOLTS WITH TWO HEX NUTS EACH.

2" x 12" x \( \frac{3}{8} \)" BAR FOR HINGES

\( \angle \) BAR 2" x 2" x \( \frac{1}{4} \)"

TYP ALL WELDS

DETAIL B

4" x 4" x \( \frac{3}{8} \)" STEEL PLATE EMBEDDED IN WALL PRIOR TO CONCRETE POUR

2" DIAM SCH 80 SEAMLESS STEEL PIPE

BAR "A"

BAR "A"

TYP ALL WELDS

TRASH RACK DETAILS
(SHEET 4 OF 4)
NOTE
SEE DWG SD-28 FOR EMBEDMENT OF TRASH RACK COMPONENTS PRIOR TO POURING CONCRETE
**HEAD WALL DIMENSIONS**

<table>
<thead>
<tr>
<th>PIPE DIA</th>
<th>PIPE OD</th>
<th>W</th>
<th>H_{min}</th>
<th>T</th>
<th>L_{min}</th>
</tr>
</thead>
<tbody>
<tr>
<td>24&quot;</td>
<td>30&quot;</td>
<td>4'-6&quot;</td>
<td>4'-8&quot;</td>
<td>8&quot;</td>
<td>2'-9&quot;</td>
</tr>
<tr>
<td>27&quot;</td>
<td>33.5</td>
<td>4'-6&quot;</td>
<td>4'-10&quot;</td>
<td>8&quot;</td>
<td>3'-0&quot;</td>
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<tr>
<td>30&quot;</td>
<td>37&quot;</td>
<td>4'-6&quot;</td>
<td>5'-3&quot;</td>
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<td>3'-3&quot;</td>
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<tr>
<td>33&quot;</td>
<td>40.5&quot;</td>
<td>4'-6&quot;</td>
<td>5'-9&quot;</td>
<td>8&quot;</td>
<td>3'-6&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>44&quot;</td>
<td>5'-6&quot;</td>
<td>5'-9&quot;</td>
<td>8&quot;</td>
<td>3'-9&quot;</td>
</tr>
<tr>
<td>42&quot;</td>
<td>51&quot;</td>
<td>6'-6&quot;</td>
<td>6'-6&quot;</td>
<td>8&quot;</td>
<td>4'-3&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>58&quot;</td>
<td>7'-6&quot;</td>
<td>7'-5&quot;</td>
<td>10&quot;</td>
<td>5'-3&quot;</td>
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<td>54&quot;</td>
<td>65&quot;</td>
<td>9'-6&quot;</td>
<td>7'-7&quot;</td>
<td>10&quot;</td>
<td>5'-9&quot;</td>
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<tr>
<td>60&quot;</td>
<td>72&quot;</td>
<td>10'-6&quot;</td>
<td>8'-3&quot;</td>
<td>10&quot;</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>72&quot;</td>
<td>86&quot;</td>
<td>12'-6&quot;</td>
<td>9'-8&quot;</td>
<td>10&quot;</td>
<td>7'-3&quot;</td>
</tr>
</tbody>
</table>

**1/2" EXPANSION JOINT FILLER, WHERE "H" MAX >10'-0"**

**NOTES**

1. PLACE #5 REBAR ON DIAGONALS @ 4" FROM PIPE OD.
2. PIPE CONNECTIONS SHALL CONFORM TO ASTM C-923. UNITS SHALL INCLUDE A WATER STOP.
3. CHAMFER ALL EXPOSED EDGES \( \frac{3}{4}" \).
4. ALL STEEL MINIMUM 2" FROM CONCRETE EDGES.
5. ALL LAP SPLICES MINIMUM 12".

**DETAIL A**

**DETAIL B**

**DETAIL C**
PLAN VIEW

TYPICAL BOTTOM LINING

2" WEEP HOLES AT 10' CENTERS

CONTRACTION JOINT AT 10' CENTERS

EXPANSION JOINT AT 50' CENTERS

NATIVE OR OTHER BACKFILL SELECT
90% RELATIVE COMPACTION

4" POURED-IN-PLACE CONCRETE

VARIABLE 6' MIN

CROSS SLOPE VAR. (3" MIN.)

3:1 OR VAR.

OPTION 1

OPTION 2

1'-0"

6"X6"-W6XW6 WWF

FILTER FABRIC

DATE: 09/22/2007

APPROVED BY:

CITY OF ELK GROVE - PUBLIC WORKS

SD - 30.1
OPTION 2
NATIVE OR OTHER SELECT BACKFILL 90% RELATIVE COMPACTION

WEEP HOLE SHALL BE CENTERED IN A MINIMUM OF 1 C.F. OF 3/4" CRUSHED ROCK CONFORMING TO SECTION 50 "CLEAN CRUSHED ROCK", TYPE B. ROCK SHALL BE WRAPPED IN FABRIC CONFORMING TO SECTION 50 "GEOTEXTILE FABRIC". HOLE SHALL BE 2" DIAMETER PIPE CUT TO FIT FLUSH WITH CHANNEL FACE. (TYPICAL)

OPTION 1
VAR.

CUTOFF WALL
TO BE PLACED ALONG ENTIRE END OF LINED SECTION AT BEGINNING AND AT END OF LINING

TYPICAL FULL LINING

CONSTRUCTION JOINT

6"X6"-W6XW6 WWF
NOTES:

1. ALL UTILITY CROSSINGS OF EXISTING STREAMS SHALL BE AT LEAST 30" BELOW EXISTING CHANNEL SIDES AND BOTTOMS. DEEPER PLACEMENT MAY BE REQUIRED IF FUTURE CHANNEL IMPROVEMENTS ARE ANTICIPATED.

2. THE CUT SHALL BE SEALED AS SHOWN WITH GROUTED COBBLES OR CLASS B CONCRETE TO A WIDTH OF 1 FOOT EACH SIDE OF THE UTILITY TRENCH. ALL NATURAL STREAMS, AS SHOWN ON THE NATURAL STREAMS PLAN, SHALL UTILIZED GROUTED COBBLES.

3. CONSTRUCTION IS TO CONFORM TO SECTION 44 OF THE CITY OF ELK GROVE CONSTRUCTION SPECIFICATIONS WITH CUT OFF WALLS CONFORMING TO STANDARD DRAWING SD-30.
### STREET LIGHTING ILLUMINATION CRITERIA

**NOTE:**

LUMENS USED TO CALCULATE THE AVERAGE MAINTAINED FOOTCANDLE SHALL BE 80% OF INITIAL LUMEN VALUE RATED BY THE LAMP MANUFACTURER.

<table>
<thead>
<tr>
<th>STREET CLASSIFICATION</th>
<th>RIGHT-OF-WAY WIDTH</th>
<th>STREET LIGHT SUB-TYPE (SERIES)</th>
<th>STANDARD MOUNTING TYPE</th>
<th>AVERAGE MAINTAINED FOOTCANDLE</th>
<th>MAINTENANCE FACTOR</th>
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<tbody>
<tr>
<td>SPECIAL THOROUGHFARE</td>
<td>118'</td>
<td>A</td>
<td>30' - 9''</td>
<td>0.57</td>
<td>0.65</td>
</tr>
<tr>
<td>THOROUGHFARE</td>
<td>96'</td>
<td>A</td>
<td>30' - 9''</td>
<td>0.56</td>
<td>0.65</td>
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<tr>
<td>ARTERIAL</td>
<td>72'</td>
<td>A</td>
<td>30' - 9''</td>
<td>0.36</td>
<td>0.65</td>
</tr>
<tr>
<td>COLLECTOR</td>
<td>60'</td>
<td>A</td>
<td>30' - 9''</td>
<td>0.26</td>
<td>0.65</td>
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<tr>
<td>RESIDENTIAL</td>
<td>&lt; 50'</td>
<td>B</td>
<td>21'</td>
<td>0.13</td>
<td>0.70</td>
</tr>
<tr>
<td>PEDESTRIAN LANE</td>
<td>--</td>
<td>B</td>
<td>14'</td>
<td>0.17</td>
<td>0.70</td>
</tr>
</tbody>
</table>
SIDEWALK FINISH (IF APPLICABLE)

ELEVATION

MINIMUM FOUNDATION DIMENSIONS *

<table>
<thead>
<tr>
<th>STREET LIGHT AREAS</th>
<th>STREET LIGHT SUB-TYPE (SERIES)</th>
<th>SQUARE</th>
<th>ROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>W</td>
<td>D</td>
</tr>
<tr>
<td>CT, SERIES 'A'</td>
<td>30&quot;</td>
<td>30&quot;</td>
<td>5'</td>
</tr>
<tr>
<td>CT, OT, LW, SERIES 'B'</td>
<td>24&quot;</td>
<td>24&quot;</td>
<td>4'</td>
</tr>
<tr>
<td>LW, ZONE 2, SERIES 'A'</td>
<td>30&quot;</td>
<td>30&quot;</td>
<td>6'-6&quot;</td>
</tr>
<tr>
<td>ZONE 2, SERIES 'B'</td>
<td>24&quot;</td>
<td>24&quot;</td>
<td>4'-6&quot;</td>
</tr>
</tbody>
</table>

CT - COMMON TYPE
OT - OLD TOWN
LW - LAGUNA WEST

SEE SL-19 FOR STREET LIGHT AREAS

* IN LIEU OF USING THE STANDARD MINIMUM DIMENSIONS, A LICENSED PROFESSIONAL ENGINEER MAY SUBMIT A SITE-SPECIFIC (BY STREET LIGHT TYPE/LOCATION) FOUNDATION DESIGN FOR APPROVAL.

* STABLE SOILS ONLY. UNSTABLE SOIL MAY REQUIRE A DEEPER FOUNDATION AS DETERMINED BY THE DESIGN ENGINEER.
** EXCLUDING CONDUIT WEB   *** TOP DIMENSION

** NOTES:
1. IN UNIMPROVED AREAS, THE TOP OF PULL BOXES SHALL BE PLACED 0.10 FOOT ABOVE THE SURROUNDING GRADE OR, WHEN ADJACENT TO A CURB, FLUSH WITH THE TOP OF THE CURB. THE SURROUNDING GRADE SALL BE RAMPED UP TO MATCH THE TOP OF THE CONCRETE COLLAR.
2. PLACEMENT OF PULL BOXES IN AREAS SUBJECT TO VEHICULAR TRAFFIC LOADS (INCLUDES TRAFFIC LANES, BIKE LANES, SHOULDERS, AND DRIVEWAYS) SHALL BE AVOIDED WHENEVER POSSIBLE. IF UNAVOIDABLE, THEN A TRAFFIC RATED PULL BOX WITH STEEL TRAFFIC COVER SHALL BE USED. SEE STANDARD DRAWING SL-5.
3. PULL BOXES SHALL NOT BE PLACED WITHIN THE BOUNDARIES OF SIDEWALKS AND SIDEWALK RAMPS.
4. PLACEMENT OF PULL BOXES WITHIN PLANTER AREAS OR IN CLOSED CONSTRUCTION AREAS SHALL BE AVOIDED.
5. PULL BOX COVERS SHALL BE MARKED AS FOLLOWS:
   A) "TRAFFIC SIGNAL" TRAFFIC SIGNAL CIRCUITS WITH OR WITHOUT STREET LIGHTING CIRCUITS.
   B) "STREET LIGHTING" STREET LIGHTING CIRCUITS WHERE NO VOLTAGE IS ABOVE 600V.
   C) "STREET LIGHTING-HIGH VOLTAGE" STREET LIGHTING CIRCUITS WHERE VOLTAGE IS ABOVE 600V.
   D) "SERVICE" SERVICE CIRCUITS BETWEEN SERVICE POINT AND SERVICE DISCONNECT.
   E) "SPRINKLER CONTROL" SPRINKLER CONTROL CIRCUITS, 50 VOLTS OR LESS.
   F) "IRRIGATION" CIRCUIT FOR IRRIGATION CONTROLLER, 120 VOLTS OR MORE.
   G) "RAMP METER" RAMP METER CIRCUITS.
   H) "COUNT STATION" COUNT AND/OR SPEED MONITOR CIRCUITS.
   I) "TELEPHONE" TELEPHONE SERVICE.
   J) "TOS COMMUNICATION" TDS COMMUNICATIONS TRUNK LINE.
   K) "TOS POWER" TOS POWER.
   L) "TOD POWER" TELEPHONE DEMARCATION CABINET POWER.
   M) "SIGNAL INTERCONNECT" "SIGNAL SIGNAL INTERCONNECT" CIRCUIT.
6. COVERS SHALL FLUSH WITH THE TOP OF PULL BOXES, THERE SHALL BE 1/8" MAXIMUM CLEARANCE ALL AROUND COVERS AND PULL BOX OPENINGS.
7. GROUND BUSHING AND BONDING JUMPER, REQUIRED ONLY WHEN USE OF METALLIC CONDUIT IS SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
8. PLACE 6" LAYER OF CLEAN CRUSHED ROCK BELOW PULL BOX BEFORE INSTALLATION OF CONDUCTORS.
9. STEEL REINFORCING SHALL BE A REGULARLY USED IN THE STANDARD PRODUCTS OF THE RESPECTIVE MANUFACTURER.
10. PULL BOXES FOR STREET LIGHTING, UPON COMPLETION OF BURN TEST, SHALL BE FILLED WITH CONTROLLED DENSITY BACKFILL, PER CITY OF ELK GROVE CONSTRUCTION SPECIFICATIONS SECTION 50-15. A 5 MIL PLASTIC SHEET SHALL COVER THE CONDUITS/WIRES PRIOR TO POURING OF BACKFILL TO A DEPTH OF TWO (2) INCHES OVER THE CONDUITS.

** CITY OF ELK GROVE - PUBLIC WORKS

** STANDARD PULL BOX
PULL BOXES SHALL BE PLACED BEHIND THE SIDEWALK OR IN THE PLANTER AREA WHENEVER POSSIBLE. TRAFFIC RATED BOXES AND COVERS SHALL BE USED IF A PULL BOX MUST BE INSTALLED IN THE SIDEWALK OR DRIVEWAY.

NOTES:
1. STEEL COVER SHALL HAVE EMBOSSED NON-SKID PATTERN.
2. STEEL REINFORCING SHALL BE AS REGULARLY USED IN THE STANDARD PRODUCTS OF THE RESPECTIVE MANUFACTURER.
3. PULL BOX COVERS SHALL BE MARKED AS DESCRIBED IN NOTE 5 ON STANDARD DRAWING SL4. MARKING SHALL BE APPLIED TO EACH COVER PRIOR TO GALVANIZING BY BEAD WELDING THE LETTERS ON THE COVERS. THE LETTERS SHALL BE RAISED AT LEAST 3/32 INCH.
4. BONDING JUMPER FOR COVER SHALL BE A MIN. OF 36" LONG. WHEN NON-METALLIC CONDUIT IS USED, THE BONDING JUMPER FOR THE COVER SHALL BE SPLICED TO THE BOND WIRE IN THE CONDUITS. WHEN THE USE OF METALLIC CONDUIT IS SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, THE BONDING JUMPER FOR THE COVER SHALL BE CONNECTED TO THE CONDUIT GROUND BUSHING, AND THE CONDUITS SHALL BE BONDED TOGETHER WITH GROUND BUSHINGS AND A BONDING JUMPER.
5. CONDUITS SHALL ENTER AT BOTTOM OF PULL BOX AS SHOWN IN THE DRAWING.
6. PULL BOXES FOR STREET LIGHTING, UPON COMPLETION OF BURN TEST, SHALL BE FILLED WITH CONTROLLED DENSITY BACKFILL PER CITY OF ELK GROVE CONSTRUCTION SPECIFICATIONS SECTION 50-15. A 5 MIL. PLASTIC SHEET SHALL COVER THE CONDUITS/WIRES PRIOR TO POURING OF BACKFILL, TO A DEPTH OF TWO (2) INCHES OVER THE CONDUITS.

1-3/4" x 1-3/4" x 3/16" ANGLE WELDED ALONG THE ENTIRE PERIMETER OF COVER EXCEPT AT RADIUS CORNERS AND BOLT HOLES. 1-3/4" FLAT SURFACE SHALL BE WELDED TO COVER WITH A CONTINUOUS WELD ON ALL FOUR EDGES.

6" CONCRETE ALL AROUND

1/2" DIAM. GALV. NUT AND GALV. FLAT WASHER

1/4" STEEL PLATE COVER, GALVANIZED AFTER FABRICATION AND SET FLUSH WITH CONCRETE.

BONDING JUMPER WELD ANGLES TO COVER (4 REQ.) SEE COVER DETAIL.

CLEAN CRUSHED ROCK

5 MIL. PLASTIC SHEET AND CONTROLLED DENSITY BACKFILL (SEE NOTE 6).

1-3/4" x 1-3/4" x 3/16" ANGLE WELDED ALONG THE ENTIRE PERIMETER OF COVER EXCEPT AT RADIUS CORNERS AND BOLT HOLES. 1-3/4" FLAT SURFACE SHALL BE WELDED TO COVER WITH A CONTINUOUS WELD ON ALL FOUR EDGES.

1/2" DIAM. GALV. NUT AND GALV. FLAT WASHER

1/4" STEEL PLATE COVER, GALVANIZED AFTER FABRICATION AND SET FLUSH WITH CONCRETE.

BONDING JUMPER WELD ANGLES TO COVER (4 REQ.) SEE COVER DETAIL.

CLEAN CRUSHED ROCK

5 MIL. PLASTIC SHEET AND CONTROLLED DENSITY BACKFILL (SEE NOTE 6).
1. Backfill for conduit trench located under curb, gutter & sidewalk and in unimproved areas shall be compacted to 90% relative compaction. Backfill for conduit trench located in pavement shall be compacted to 95% relative compaction.

2. Landscaping in the area of the street light standard to match base elevation and have a minimum of 12" of clearance from the base.

3. If this length is 12" or less, place 3-1/2" thick concrete from street light base to edge of sidewalk. Width to match concrete around street light foundation.

4. If conduit is located beneath the sidewalk, it may be placed at 18" depth instead of 2'.

5. If the planter area is less than 6' wide, then place street light so that the base plate aligns with the edge of sidewalk. Top of foundation to match sidewalk grade.

6. Pull boxes shall not be placed in sidewalk. They shall be placed in PUE or planter area.
NOTES:
1. ALL CITY OWNED FACILITIES SHALL BE WITHIN RIGHT-OF-WAY (R/W) OR PUBLIC UTILITY EASEMENT (P.U.E.).
2. SEE STANDARD DRAWING SL-12 FOR SERVICE POINT PULL BOX DETAILS AND WIRING DIAGRAM.
3. SEE STANDARD DRAWING SL-4 FOR PULL BOX DETAILS.
4. PHOTOCÉLLELS SHALL BE INSTALLED ON THE TOP OF THE LUMINAIRE NEAREST THE SERVICE PEDESTAL OR SERVICE POINT.
5. THE SERVICING UTILITY WILL INSTALL AND MAINTAIN CONDUCTORS FROM THEIR TRANSFORMER, OR POWER POLE TO THE SERVICE POINT PULL BOX.

5 TO 6 FOOT SIDEWALK

6 FOOT OR WIDER SIDEWALK
1. EXTERIOR SHALL BE 14 GAUGE #3040 STAINLESS STEEL. INTERIOR DEAD FRONT PANEL AND BACK PAN SHALL BE 14 GAUGE STEEL. PAINTED WHITE. ENCLOSURE SHALL BE ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
2. CONSTRUCTION SHALL BE NEMA 3R AND 12, RAINTIGHT AND DUSTTIGHT.
3. ALL NUTS, BOLTS, SCREWS AND HINGES SHALL BE STAINLESS STEEL.
4. LIGHTING CONNECTORS, WIRING CONDUIT, WIRE, MOUNTING BRACKETS, ETC. SHALL BE SHOWN WHERE APPLICABLE.
5. TERMINAL BLOCKS SHALL BE USED TO IDENTIFY ALL LOADS OR GROUPS OF LOADS WHERE APPLICABLE.
6. CONTROL WIRING SHALL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MARKERS.
7. A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE INSIDE OF THE FRONT PANEL.
8. SERVICE ENCLOSURE SHALL BE FACTORY WIRED AND CONFORM TO REQUIRED NEMA STANDARDS.
10. WIRING BETWEEN CIRCUIT BREAKER AND CONTROLLER SHALL BE #16 THIN OR THIN MINIMUM.
11. SERVICE ENCLOSURE SHALL BE OF TWO-PIECE CONSTRUCTION.
12. THE WIRING SCHEMATIC DIAGRAM AS SHOWN IS FOR A 2-WIRE STREET LIGHTING SYSTEM. IF THE SERVICE ENCLOSURE WILL BE USED FOR A 3-WIRE STREET LIGHTING SYSTEM, THEN THE LIGHTING BREAKERS SHALL CONSIST OF 2-Pole BREAKERS WITH INVERTER COMMON TRIP. EACH POLE WITH INDIVIDUAL ON-OFF CONTROL AND HANDLE FOR COMMON OPERATION FOR EACH POLE.
13. SEE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
14. ALL METERS SHALL BE PROVIDED AND SHALL CONFORM TO CALTRANS STANDARD DRAWING ES-2F.
1. EXTERIOR SHALL BE 14 GAUGE #304D STAINLESS STEEL, INTERIOR SHALL BE 14 GAUGE STEEL, PAINTED WHITE. ENCLOSURE SHALL BE ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
2. CONSTRUCTION SHALL BE NEMA 3R AND 12, RAIN TIGHT AND DUST TIGHT.
3. ALL NUTS, BOLTS, SCREWS AND HINGES SHALL BE STAINLESS STEEL.
4. NUTS, BOLTS, AND SCREWS SHALL NOT BE USED ON THE OUTSIDE OF THE SERVICE ENCLOSURE.
5. PHENOLIC NAMEPLATES SHALL BE USED TO IDENTIFY ALL OPERATION CONTROLS.
6. CONTROL WIRING SHALL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MARKERS.
7. A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE INSIDE OF THE FRONT DOOR.
8. SERVICE ENCLOSURE SHALL BE FACTORY WIRED AND CONFORM TO REQUIRED NEMA STANDARDS.
10. WIRING BETWEEN CIRCUIT BREAKER AND CONTACTORS SHALL BE #18 THIN OR THINNER MINIMUM.
11. SIZE OF TRANSFORMER FOR SIGNALS SHALL BE 5 KVA. SIZE OF TRANSFORMER FOR 120 V INTERSECTION SHALL BE 2 KVA.
13. THE WIRING SCHEMATIC DIAGRAM AS SHOWN IS FOR A 2-WIRE STREET LIGHTING SYSTEM. IF THE SERVICE ENCLOSURE WILL BE USED FOR A 3-WIRE STREET LIGHTING SYSTEM, THEN THE LIGHTING BREAKERS SHALL CONSIST OF 2-POLE BREAKERS WITH INTERNAL COMMON TRIP, EACH POLE WITH INDIVIDUAL ON-OFF CONTROL AND HANDLE TIE FOR COMMON OPERATION. EACH 2-POLE BREAKER, THE CIRCUIT LOAD SHALL BE EQUALLY DIVIDED ACROSS THE LIGHTING MAIN.
14. SEE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
15. DUAL METERS SHALL BE PROVIDED AND SHALL CONFORM TO CALTRANS STANDARD DRAWING ES-2F.
1. EXTERIOR SHALL BE 14 GAUGE #304D STAINLESS STEEL. INTERIOR DEAD FRONT PANEL AND BACK PANEL SHALL BE 14 GAUGE STEEL, PAINTED WHITE. ENCLOSURE SHALL BE ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.

2. CONSTRUCTION SHALL BE NEMA 3R AND 12, RAINTIGHT AND DUSTTIGHT.

3. ALL NUTS, BOLTS, SCREWS AND HINGES SHALL BE STAINLESS STEEL.

4. NUTS, BOLTS, AND SCREWS SHALL NOT BE USED ON THE OUTSIDE OF THE SERVICE ENCLOSURE.

5. PHENOLIC NAMEPLATES SHALL BE USED TO IDENTIFY ALL OPERATOR CONTROLS.

6. CONTROL WIRING SHALL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MARKERS.

7. A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE INSIDE OF THE FRONT DOOR.

8. SERVICE ENCLOSURE SHALL BE FACTORY WIRED AND CONFORM TO REQUIRED NEMA STANDARDS.


10. WIRING BETWEEN CIRCUIT BREAKER AND CONTACTOR SHALL BE #8 THHN OR THHN MINIMUM.

11. SERVICE ENCLOSURE SHALL BE OF TWO-PIECE CONSTRUCTION.

12. THE WIRING SCHEMATIC DIAGRAM AS SHOWN IS FOR A 2-WIRE STREET LIGHTING SYSTEM. IF THE SERVICE ENCLOSURE WILL BE USED FOR A 3-WIRE STREET LIGHTING SYSTEM, THEN THE LIGHTING BREAKERS SHALL CONSIST OF 2-POLE BREAKERS WITH INTERNAL COMMON TRIP, EACH POLE WITH INDIVIDUAL ON-OFF CONTROL AND HANDLE TIE FOR COMMON OPERATION. FOR EACH 2-POLE BREAKER, THE CIRCUIT LOAD SHALL BE EQUALLY DIVIDED ACROSS THE LIGHTING MAIN.

13. SEE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
NOTES:

1. **EXTERIOR SHALL BE 14 GAUGE #304D STAINLESS STEEL, INTERIOR SHALL BE 14 GAUGE STEEL, PAINTED WHITE. ENCLOSURE SHALL BE ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.**

2. **CONSTRUCTION SHALL BE NEMA 3R AND 12, RAINTIGHT AND DUSTTIGHT.**

3. **ALL NUTS, BOLTS, SCREWS AND HINGES SHALL BE STAINLESS STEEL.**

4. **NUTS, BOLTS, AND SCREWS SHALL NOT BE USED ON THE OUTSIDE OF THE SERVICE ENCLOSURE.**

5. **PHENOLIC NAMEPLATES SHALL BE USED TO IDENTIFY ALL OPERATION CONTROLS.**

6. **CONTROL WIRING SHALL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MARKERS.**

7. **A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE INSIDE OF THE FRONT DOOR.**

8. **SERVICE ENCLOSURE SHALL BE FACTORY WIRED AND CONFORM TO REQUIRED NEMA STANDARDS.**


10. **WIRING BETWEEN CIRCUIT BREAKER AND CONTACTOR SHALL BE #6 THWN OR THHN MINIMUM.**

11. **SIZE OF TRANSFORMER FOR SIGNALS SHALL BE 5 KVA. SIZE OF TRANSFORMER FOR 120 V INTERSECTION SHALL BE 2 KVA.**


13. **THE WIRING SCHEMATIC DIAGRAM AS SHOWN IS FOR A 2-WIRE STREET LIGHTING SYSTEM. IF THE SERVICE ENCLOSURE WILL BE USED FOR A 3-WIRE STREET LIGHTING SYSTEM, THEN THE LIGHTING BREAKERS SHALL CONSIST OF 2-POLE BREAKERS WITH INTERNAL COMMON TRIP, EACH POLE WITH INDIVIDUAL ON-OFF CONTROL AND HANDLE TIE FOR COMMON OPERATION. FOR EACH 2-POLE BREAKER, THE CIRCUIT LOAD SHALL BE EQUALLY DIVIDED ACROSS THE LIGHTING MAIN.**

14. **SEE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.**

---

**UNMETERED SERVICE ENCLOSURE (CAN) WITH STEP DOWN TRANSFORMER (277/480V TO 120/240V)**

**CITY OF ELK GROVE - PUBLIC WORKS**

**APPROVED BY:**

- **CITY ENGINEER**
  - DATE: 10/24/2018

**DRAWING NUMBER:**

- **SL - 11**

**DATE:**

- **09/22/2007**

**NOT TO SCALE**

**REVISION**

<table>
<thead>
<tr>
<th>BY</th>
<th>APPROVED</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**CITY ENGINEER**

**DATE:**

- **10/24/2018**
SERVICE POINT PULL BOX DETAILS

<table>
<thead>
<tr>
<th>LAMP WATTAGE</th>
<th>ELECTROLIER FUSE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 WATT OR LESS</td>
<td>6 AMP</td>
</tr>
<tr>
<td>250 WATT-400 WATT</td>
<td>10 AMP</td>
</tr>
</tbody>
</table>

NOTES:
1. FUSE SHALL BE A MIDGET FERRULE TYPE, RATED AT 600 VOLTS.
2. ATTACH GROUND CONDUCTOR TO THE ELECTROLIER.
3. ALL PULL BOXES SHALL HAVE PROVISIONS FOR LOCKING.

WIRING DIAGRAM

FROM SMUD SERVICE POINT TO STREET LIGHT

1/2" X 8' GROUND ROD

15A FUSE IN A WEATHERPROOF FUSE HOLDER

TO LUMINAIRE WITH PHOTO CELL

ELECTROLIER FUSE AND HOLDER LOCATED IN HANDHOLE PER STANDARD SPECIFICATIONS. SEE TABLE FOR FUSE SIZE.

SERVICE POINT PULL BOX

HANDHOLE

GROUND ROD

PULL BOX (WHEN REQUIRED)

15A FUSE

120/277 V

N

FROM SMUD

TO STREET LIGHT STANDARD

CITY OF ELK GROVE - PUBLIC WORKS

IN-LINE FUSE REQUIREMENTS

DATE: 09/22/2007
NOT TO SCALE

APPROVED BY:
CITY ENGINEER
DATE: 10/24/2018

DRAWING NUMBER
SL - 12
TYPICAL VOLTAGE DROP CALCULATION
FOR 2 - WIRE SYSTEM

VOLTAGE DROP (COPPER CONDUCTOR) = \( \frac{D \times A \times N \times 22}{\text{CIRCULAR MILS}} \)

\( D \) = Length of section, in feet.
\( A \) = Line operating amperes drawn by one light.
\( N \) = Number of lights in the circuit beyond the section.

<table>
<thead>
<tr>
<th>WIRE SIZE (AWG)</th>
<th>AREA (Circular Mils)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>4,110</td>
</tr>
<tr>
<td>12</td>
<td>6,530</td>
</tr>
<tr>
<td>10</td>
<td>10,380</td>
</tr>
<tr>
<td>8</td>
<td>16,510</td>
</tr>
<tr>
<td>6</td>
<td>26,250</td>
</tr>
<tr>
<td>4</td>
<td>41,740</td>
</tr>
</tbody>
</table>

LINE OPERATING AMPERES FOR HIGH PRESSURE SODIUM LUMINAIRES (AT 115 VOLTS)

- 100 Watt ...... 1.10 Amps
- 100 Watt ...... 1.25 Amps
- 150 Watt ...... 1.80 Amps
- 200 Watt ...... 2.80 Amps
- 250 Watt ...... 2.95 Amps

EXAMPLE CALCULATION:
FIND TOTAL VOLTAGE DROP IN CIRCUIT #1:
(115 volt system)

NOTE:
Dimension "a" is the distance between the service can and the adjacent load pull box. Use "a"=10' for standard installations where the load pull box is immediately adjacent to the service can.

Voltage drop calculations:

\( \text{Section } a = \frac{10 \times (2.9 \times 4)(22)}{10,380} = 0.25 \)
\( \text{Section } b + c = \frac{360 \times (2.9 \times 2)(22)}{10,380} = 4.43 \)
\( \text{Section } d + e = \frac{350 \times (2.9 \times 1)(22)}{10,380} = 2.15 \)

TOTAL VOLTAGE DROP = 6.83

NOTES:
1. Design must be based on a two (2) wire system, even though three (3) wires (with a single common wire) are actually used.
2. Maximum voltage drop allowed in 115 volt system = 8.05 volts.
TYPICAL VOLTAGE DROP CALCULATION
FOR 3 - WIRE SYSTEM

VOLTAGE DROP (COPPER CONDUCTOR) = \( D \times A \times N \times 22 \) CIRCULAR MILS

D = Length of section, in feet.
A = Line operating amperes drawn by one light.
N = Number of lights in the circuit beyond the section.

<table>
<thead>
<tr>
<th>WIRE SIZE (AWG)</th>
<th>AREA (Circular MILS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>4,110</td>
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<td>12</td>
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<tr>
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<td>10,380</td>
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<tr>
<td>8</td>
<td>16,510</td>
</tr>
<tr>
<td>6</td>
<td>26,250</td>
</tr>
<tr>
<td>4</td>
<td>41,740</td>
</tr>
</tbody>
</table>

EXAMPLE CALCULATION:
FIND TOTAL VOLTAGE DROP IN CIRCUIT #1:
(115 volt system)

Voltage drop calculations

\[
\text{Section } a = \frac{10 \times (2.9 \times 4) \times (11)}{6,530} = 0.20
\]

\[
\text{Section } b + c = \frac{360 \times (2.9 \times 2) \times (11)}{6,530} = 3.52
\]

\[
\text{Section } d + e = \frac{350 \times (2.9 \times 1) \times (11)}{6,530} = 1.71
\]

TOTAL VOLTAGE DROP = 5.43

NOTE:
Dimension "a" is the distance between the service can and the adjacent load pull box. Use "a"=10' for standard installations where the load pull box is immediately adjacent to the service can.

Maximum voltage drop allowed in 115 volt system = 6.90 volts.
# Equivalent Number of #14 AWG Conductors for Use in Conduit Sizing

<table>
<thead>
<tr>
<th>CONDUCTOR</th>
<th>EQUIVALENT NUMBER OF #14 AWG CONDUCTORS FOR USE IN CONDUIT SIZING</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12 CONDUCTOR</td>
<td>1.2</td>
</tr>
<tr>
<td>#10 CONDUCTOR</td>
<td>1.5</td>
</tr>
<tr>
<td>#8 CONDUCTOR</td>
<td>2.3</td>
</tr>
<tr>
<td>#6 CONDUCTOR</td>
<td>3</td>
</tr>
<tr>
<td>#4 CONDUCTOR</td>
<td>4</td>
</tr>
<tr>
<td>#2 CONDUCTOR</td>
<td>5.3</td>
</tr>
<tr>
<td>#0 CONDUCTOR</td>
<td>11.5</td>
</tr>
<tr>
<td>INTERCONNECT CABLE</td>
<td>18</td>
</tr>
<tr>
<td>DETECTOR LEAD-IN CABLE</td>
<td>2.5</td>
</tr>
<tr>
<td>EMERGENCY VEHICLE DETECTOR CABLE</td>
<td>2</td>
</tr>
</tbody>
</table>

# Conduit Size

<table>
<thead>
<tr>
<th>CONDUIT SIZE</th>
<th>2&quot;</th>
<th>2.5&quot;</th>
<th>3&quot;</th>
<th>3.5&quot;</th>
<th>4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM NUMBER OF #14 AWG CONDUCTORS</td>
<td>31</td>
<td>44</td>
<td>69</td>
<td>91</td>
<td>113</td>
</tr>
</tbody>
</table>

NOTE: MINIMUM SIZE FOR NEW CONDUITS IS 2.0".

# Circuit Breaker Sizing

<table>
<thead>
<tr>
<th>CONDUCTOR SIZE (AWG)</th>
<th>MAXIMUM CIRCUIT BREAKER AMPERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>100</td>
</tr>
<tr>
<td>#4</td>
<td>80</td>
</tr>
<tr>
<td>#6</td>
<td>50</td>
</tr>
<tr>
<td>#8</td>
<td>40</td>
</tr>
<tr>
<td>#10</td>
<td>30</td>
</tr>
</tbody>
</table>

# Service Wire Maximum Lengths for Traffic Signals

<table>
<thead>
<tr>
<th>WIRE SIZE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>#0</td>
<td>576'</td>
</tr>
<tr>
<td>#2</td>
<td>360'</td>
</tr>
<tr>
<td>#4</td>
<td>224'</td>
</tr>
</tbody>
</table>

NOTE: THE BREAKER SIZE SHALL BE DETERMINED BY THE LOAD REQUIREMENTS. MINIMUM BREAKER SIZE IS 30 AMPS.
STANDARD SHALL BE INSTALLED SO HANDHOLE (STANDARD UNLESS OTHERWISE SPECIFIED)

A-286-8
SERIES 'A' NUMBERING PROCEDURE
POLE SIZE 'A'
SERIES
FACES THE STREET.

NOTES:
1. LUMINAIRE ARM SIZE "F"
2. 1-1/2" R HOLE - ANCHOR BOLT DIAM. + 1/4"
   "C" B.C. "D" B.C.
3/4" x 1/4" 1/4"
4. 1/4" 1/4"
   4" x 6-1/2" HANDHOLE REINFORCED
   WITH NO. 3 GAUGE RING 1-1/2" WIDE
   WELDED TO OUTSIDE OF POLE.
   COVER OF 11 GAUGE PLATE.
5. BOND WIRE
   TOP OF CONDUIT SHALL EXTEND
   4" ABOVE TOP OF GROUT
6. GROUT 2" MIN. TO 3" MAX.
   WITH 1/2" DIAM. DRAIN HOLE
7. 1" DIAM. x 36" x 4" GALV. A36
   ANCHOR BOLT WITH (2) A307 GALV.
   HEX NUTS (1/8) AND 2 GALV. FLAT
   WASHERS (4 PLACES)
8. "E" P
   GALV. LEVELING NUT AND WASHER
   2" MIN TO 4" MIN THREADS
9. GALV. HOLD DOWN
   NUT AND WASHER
   2" MIN TO 4" MIN THREADS
10. GROUND BUSHING
    (REQUIRED FOR METALLIC
    CONDUIT ONLY)
11. 1/2" NC SQ. NUT
    FOR GROUND
    BASE DETAILS
12. "C" B.C.
   "D" B.C.
13. "E" P
   "B" SQ.
14. "B" SQ.
15. "B" SQ.
   6-5/8" 4-5/8"
   2-5/16" 3-5/8"
   3-7/8" 5-3/4"
   2-1/2" 5/16" 5/16" 28°
   1/4" 1/4" 1/4" 1/4"
   7'-5" 7'-5"
   "G" "D" "E" "C" "B" "A"
   10 10 10 10 10
   8" 7-3/4" 7-1/2"
16. 1/2" NC SQ. NUT
   FOR GROUND
   BASE PLATE DATA
17. "B" 12"
   "C" 12"
   "B" 12"
18. 11-1/2" 11-1/2"
   11-1/2"
   11-1/2"
   "A" SERIES
19. "A" SERIES
   IDENTIFICATION NUMBER
   "A" POLE DATA BASE PLATE DATA ANCHOR
   BOLTS
   A-250-"F" 25'-0" 3-7/8" 7-5/16" 10 12" 11-1/2" 11" 1" 1" x 36" x 4" A-286-8
   A-266-"F" 28'-6" 3-7/8" 7-1/2" 10 12" 11-1/2" 11" 1" 1" x 36" x 4"
   A-286-"F" 28'-6" 3-7/8" 7-3/4" 10 12" 11-1/2" 11" 1" 1" x 36" x 4"
   A-300-"F" 30'-2" 3-7/8" 8" 10 12" 11-1/2" 11" 1" 1" x 36" x 4"
   "A" SERIES
   POLE SIZE 'A'
20. REVISED: NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS
COMMON TYPE ELECTROLIER
(SERIES 'A')

APPROVED BY:
CITY ENGINEER
DATE

DRAFT NUMBER
SL - 20
1. STANDARD SHALL BE INSTALLED SO HANDHOLE FACES THE STREET.
2. FOR USE IN ALL IN-FILL PROJECTS EAST OF HIGHWAY 99 OR NORTH OF ELK GROVE BLVD AND WEST OF HIGHWAY 99.
<table>
<thead>
<tr>
<th>STREET CLASSIFICATION</th>
<th>RIGHT - OF - WAY WIDTH</th>
<th>STREET LIGHT SUB-TYPE (SERIES)</th>
<th>STANDARD MOUNTING HEIGHT</th>
<th>MAXIMUM SPACING** (ONE SIDE ONLY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIAL THOROUGHFARE</td>
<td>130'</td>
<td>A</td>
<td>30' - 9&quot;</td>
<td>180'</td>
</tr>
<tr>
<td>THOROUGHFARE</td>
<td>108'</td>
<td>A</td>
<td>30' - 9&quot;</td>
<td>220'</td>
</tr>
<tr>
<td>ARTERIAL</td>
<td>84'</td>
<td>A</td>
<td>30' - 9&quot;</td>
<td>220'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td>74'</td>
<td>A*</td>
<td>30' - 9&quot;</td>
<td>220'</td>
</tr>
<tr>
<td></td>
<td>70'</td>
<td>A*</td>
<td>30' - 9&quot;</td>
<td>220'</td>
</tr>
<tr>
<td>COLLECTOR</td>
<td>60'</td>
<td>A*</td>
<td>30' - 9&quot;</td>
<td>220'</td>
</tr>
<tr>
<td></td>
<td>56'</td>
<td>B</td>
<td>21'</td>
<td>180'</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>50'</td>
<td>B</td>
<td>21'</td>
<td>200'</td>
</tr>
<tr>
<td></td>
<td>40'</td>
<td>B</td>
<td>21'</td>
<td>240'</td>
</tr>
</tbody>
</table>

**NOTES:**
1. WATTAGE AND MODEL NUMBER FOR LIGHT EMITTING DIODE (LED) LAMP SHALL BE SPECIFIED ON THE PLANS. EQUIPMENT SHALL CONFORM TO CITY OF ELK GROVE APPROVED EQUIPMENT LIST.
2. ILLUMINATION SHALL CONFORM TO STANDARD DRAWING SL-2.
3. SEE SECTION 5-70, "SPACING." FOR DEFINITIONS OF ONE-SIDE AND TWO-SIDE SPACING.
*4. SINGLE FAMILY AND DUPLEX FAMILY ZONING SHALL USE SERIES 'B' STREET LIGHT, 21' MOUNTING HEIGHT, AND 180' SPACING.
**5. MAXIMUM SPACING MAY BE ADJUSTED AS LONG AS ILLUMINATION CRITERIA ARE MET WITH APPROVAL OF THE ENGINEER.
STREET LIGHT PLACEMENT
ON SPECIAL THOROUGHFARE,
THOROUGHFARE, AND ARTERIAL STREETS
(118', 96', AND 84' STREETS)

SPECIAL THOROUGHFARE, THOROUGHFARE, OR ARTERIAL STREET

ALL SERIES 'A' STREET LIGHTS WITH ANSI TYPE III LIGHT DISTRIBUTION PATTERN

STREET LIGHT LOCATED AT BUS STOP

\[ D/2 \]

\[ D^* \]

* SEE STANDARD DRAWING SL-24
D = 180' FOR 118' STREETS
D = 220' FOR 72' STREETS AND 96' STREETS

SPECIAL THOROUGHFARE, THOROUGHFARE, OR ARTERIAL STREET

ALL SERIES 'A' STREET LIGHTS WITH ANSI TYPE III LIGHT DISTRIBUTION PATTERN (EXCEPT AS INDICATED)

STREET LIGHT LOCATED AT BUS STOP

\[ D/2 \]

\[ D^* \]

IN ACCORDANCE WITH STREET CLASSIFICATION,
SERIES 'A' OR SERIES 'B' STREET LIGHT WITH ANSI TYPE III LIGHT DISTRIBUTION PATTERN. SEE STANDARD DRAWINGS SL-2 AND SL-24

COMMON TYPE TYPICAL LOCATIONS
ARTERIAL STREETS
(SERIES 'A'/ SERIES 'B')
STREET LIGHT PLACEMENT
ON MAJOR COLLECTOR,
COLLECTOR, AND RESIDENTIAL STREETS
(ALL STREETS OTHER THAN 118', 96' AND 72' STREETS)

SELECT ONE (1)
LOCATION ONLY

SELECT ONE (1)
LOCATION ONLY

PLACE ON
NEAREST LOT LINE

NOTE:

IN ACCORDANCE WITH STREET CLASSIFICATIONS, ALL
ARE SERIES 'A' OR SERIES 'B' STREET LIGHTS WITH
ANSI TYPE III LIGHT DISTRIBUTIONS PATTERN. SEE
STANDARD DRAWINGS SL-2 AND SL-24
APPLICATION

WIDE MEDIANS ON ARTERIALS AND THOROUGHFARES

SPECIFICATIONS

POST BASE


POST SHAFT

THE POST SHAFT SHALL BE 11-GAUGE STEEL WITH A STEEL PLATE FOR MOUNTING TO THE BASE. THE OCTAGONAL SHAFT TAPERS FROM 8" (FLAT TO FLAT) AT THE BOTTOM TO 4-3/8" AT THE TOP, WITH A DECORATIVE OCTAGONAL FINIAL.

CROSSARM

THE CLAMP ON CROSSARM SHALL BE STEEL PIPE CONSTRUCTION WITH FLAT BAR SCROLLS AND 1-1/2" X 1/2" FLAT BAR CLAMP-ON BRACE. A SLEEVE GASKET SHALL BE INSTALLED TO PREVENT ARM MOVEMENT. ARMS SHALL HAVE A 2" PIPE SLEEVE FOR LUMINAIRE MOUNTING. THE CROSSARM MEASURES 52" FROM POST TO LUMINAIRE CENTERS. A LUMINAIRE LEVELING FITTER SHALL BE MOUNTED TO THE END OF THE PIPE ARM FOR LUMINAIRE MOUNTING.

FINISH

THE POST SHALL BE SHIPPED FINISHED WITH A STANDARD BLACK POWDER COAT FINISH.

NOTE

ALL HARDWARE STAINLESS STEEL. ALL EXTERIOR HARDWARE TAMPER RESISTANT. BASE AND SHAFT TO BE SHIPPED AS A ONE-PIECE UNIT.

POLES AND LIGHTING EQUIPMENT SHALL CONFORM TO CITY OF ELK GROVE APPROVED EQUIPMENT LIST.
APPLICATION
ARTERIAL (REDUCED MEDIAN) AND COLLECTOR STREETS

SPECIFICATIONS

POST BASE

POST SHAFT
THE POST SHAFT SHALL BE 11-GAUGE STEEL WITH A STEEL PLATE FOR MOUNTING TO THE BASE. THE OCTAGONAL SHAFT TAPERS FROM 8" (FLAT TO FLAT) AT THE BOTTOM TO 4-3/8" AT THE TOP, WITH A DECORATIVE OCTAGONAL FINIAL.

CROSSARM
THE CLAMP ON CROSSARM SHALL BE STEEL PIPE CONSTRUCTION WITH FLAT BAR SCROLLS AND 1-1/2" X 1/2" FLAT BAR CLAMP-ON BRACE. A SLEEVE GASKET SHALL BE INSTALLED TO PREVENT ARM MOVEMENT. ARMS SHALL HAVE A 2" PIPE SLEEVE FOR LUMINAIRE MOUNTING.

THE CROSSARM MEASURES 52" FROM POST TO LUMINAIRE CENTERS. A LUMINAIRE LEVELING FITTER SHALL BE MOUNTED TO THE END OF THE PIPE ARM FOR LUMINAIRE MOUNTING.

FINISH
THE POST SHALL BE SHIPPED FINISHED WITH A STANDARD BLACK POWDER COAT FINISH.

NOTE
ALL HARDWARE STAINLESS STEEL. ALL EXTERIOR HARDWARE TAMPER RESISTANT. BASE AND SHAFT TO BE SHIPPED AS A ONE-PIECE UNIT.

POLES AND LIGHTING EQUIPMENT SHALL CONFORM TO CITY OF ELK GROVE APPROVED EQUIPMENT LIST.

CITY OF ELK GROVE - PUBLIC WORKS

ZONE 2 ELECTROLIER
(SERIES 'A')
TEARDROP GLASS
ASYMMETRIC

STANDARD

SHALLOW SKIRT*

DEEP SKIRT*

*OPTIONAL UPON WRITTEN APPROVAL OF PLANNING DIRECTOR AND CITY ENGINEER

SKIRT DIMENSIONS (OPTIONAL)

ZONE 2 LUMINAIRE OPTIONS
(SERIES 'A')
APPLICATION
PEDESTRIAN TRAILS AND RESIDENTIAL STREETS

SPECIFICATIONS

POST DESCRIPTION
THE LIGHTING POST SHALL BE ALL ALUMINUM, ONE-PIECE CONSTRUCTION, WITH A CLASSIC FLUTED BASE DESIGN. THE SHAFT SHALL BE Ø4" SMOOTH. THE POST SHALL BE SHIPPED WITH BLACK POWDER COAT FINISH.

MATERIALS
THE BASE SHALL BE HEAVY WALL, CAST ALUMINUM PRODUCED FROM CERTIFIED ASTM 356.1 INGOT PER ASTM B-179-95A OR ASTM B26-95. THE STRAIGHT SHAFTS SHALL BE EXTRUDED FROM ALUMINUM, ASTM 6061 ALLOY, HEAT TREATED TO A T6 TEMPER. ALL HARDWARE SHALL BE TAMPER RESISTANT STAINLESS STEEL. ANCHOR BOLTS TO BE COMPLETELY HOT DIP GALVANIZED.

CONSTRUCTION

DIMENSIONS
THE POST SHALL BE 14' IN HEIGHT WITH AN 11-1/2" DIAMETER BASE. THE SHAFT DIAMETER SHALL BE 4". AT THE TOP OF THE POST, AN INTEGRAL 3" O.D. TENON WITH A TRANSITIONAL DONUT SHALL BE PROVIDED FOR LUMINAIRE MOUNTING.

INSTALLATION
THE POST SHALL BE PROVIDED WITH FOUR, HOT DIP GALVANIZED L-TYPE ANCHOR BOLTS TO BE INSTALLED ON AN 7" DIAMETER BOLT CIRCLE. A DOOR SHALL BE PROVIDED IN THE BASE FOR ANCHORAGE AND WIRING ACCESS. A GROUNDING SCREW (5/8") SHALL BE PROVIDED INSIDE THE BASE OPPOSITE THE DOOR.

POLES AND LIGHTING EQUIPMENT SHALL CONFORM TO CITY OF ELK GROVE APPROVED EQUIPMENT LIST.

SEE DRAWING NUMBER SL-3 FOR FOUNDATION DETAIL
1. Wattage and model number for light emitting diode (LED) lamp shall be specified on the plans. Equipment shall conform to City of Elk Grove approved equipment list.

2. Illumination shall conform to standard drawing SL-2.

* Both sides of street, no alternating (2 per location). Not for use on streets longer than 800 feet.

** Single side of street, alternating spacing.

*** Match street spacing. Locate halfway between street light locations.

<table>
<thead>
<tr>
<th>STREET CLASSIFICATION</th>
<th>NUMBER OF LANE</th>
<th>STREET LIGHT SUB-TYPE (SERIES)</th>
<th>STANDARD POLE HEIGHT</th>
<th>MEDIAN</th>
<th>NO MEDIAN (SERIES 'A') (BOTH SIDES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>MAXIMUM SPACING ('D') (FEET)</td>
<td></td>
<td>SPACING (BOTH SIDES) (FEET)</td>
</tr>
<tr>
<td>SPECIAL THOROUGHFARE</td>
<td>8</td>
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**COLLECTOR**

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<td>80</td>
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<tr>
<td>2</td>
<td>SERIES 'B***'</td>
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**LOCAL RESIDENTIAL**

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<td>180</td>
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<td>SERIES 'A'</td>
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**PASEO, BIKE TRAILS, AND SEPARATED PEDESTRIAN PATHS**

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**PEDESTRIAN PATHS ON 4 - 8 LANE STREETS**

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<td>SERIES 'B'</td>
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<td>160 - 180***</td>
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STREET LIGHT PLACEMENT ON SPECIAL THOROUGHFARE, THOROUGHFARE, & ARTERIAL STREETS (INCLUDES COLLECTORS WITH MEDIAN)

SPECIAL THOROUGHFARE, THOROUGHFARE, OR ARTERIAL STREET LOCATE ON TRAFFIC SIGNAL POLE WHEN PRESENT

*SEE STANDARD DRAWING SL-36 FOR DISTANCE "D"

ZONE 2 TYPICAL LOCATIONS ARTERIALS AND COLLECTORS WITH MEDIANS (SERIES 'A' / SERIES 'B' / DUAL ARM)
STREET LIGHT PLACEMENT
ON MAJOR COLLECTOR,
COLLECTOR (NO MEDIAN), & RESIDENTIAL STREETS

PLACE ON NEAREST LOT LINE. (D/W TO BE 8' MIN. FROM STREET LIGHT)

SELECT ONE (1) LOCATION ONLY

SELECT TWO (2) LOCATIONS

TYPE III

POINT OF INTERSECTION

*SEE STANDARD DRAWING SL-36 FOR DISTANCE "D"

ZON E 2 TYPICAL LOCATIONS
COLLECTOR AND RESIDENTIAL STREETS
(SERIES 'A' / SERIES 'B')
APPLICATION
THOROUGHFARE AND ARTERIAL STREETS

SPECIFICATIONS
POST DESCRIPTION
THE LAGUNA WEST LIGHTING POST SHALL BE ALL STEEL OR CAST IRON CONSTRUCTION WITH A FLUTED BASE DESIGN. THE STEEL SHAFT SHALL BE FLUTED AND TAPERED WITH A 7" BASE DIAMETER. THE POST SHALL BE SHIPPED WITH FINISH NOTED BELOW.

MATERIALS
THE BASE SHALL BE CAST IRON AND SHAFT SHALL BE STEEL. THE BASE AND SHAFT SHALL BE PRIME PAINTED INSIDE AND OUT WITH A ZINC-RICH RUST INHIBITING, EPOXY BASED PAINT.

POLES INSTALLED ON OR NEAR LAGUNA BLVD (NORTH OF THE ELIOT RANCH ROAD ALIGNMENT) SHALL BE PAINTED OUTSIDE WITH URETHANE GLOSS ENAMEL OF FEDERAL COLOR STANDARD 595B, COLOR #14516 "AQUA MARINE". POLES INSTALLED ON OR NEAR ELK GROVE BLVD (SOUTH OF THE ELIOT RANCH ROAD ALIGNMENT) SHALL BE PAINTED OUTSIDE WITH URETHANE GLOSS ENAMEL OF FEDERAL COLOR STANDARD 595B, COLOR #17083 "GLOSS BLACK". ONE PINT OF TOUCH-UP PAINT SHALL BE SHIPPED WITH EACH POLE ORDER.

ALL POLES SHALL BE FINISHED WITH A CLEAR COAT OF URETHANE GLOSS FINISH. ANCHOR BOLTS AND NUTS SHALL BE HOT DIPPED GALVANIZED STEEL.

CONSTRUCTION
THE POLE SHAFT SHALL BE WELDED TO THE ANCHOR PLATE AND PAINTED AFTER WELDING. WELDS SHALL CONFORM TO THE MOST RECENT EDITION OF AWS D1.1. THE BASE SHALL BE FABRICATED OF ONE OR TWO PIECES AND INSTALLED AFTER THE POLE SHAFT IS BOLTED TO THE FOUNDATION. THE FINISH OF THE POLE SHAFT SHALL BE PROTECTED FROM DAMAGE WHEN THE BASE IS INSTALLED. POLE AND BASE SHALL BE SHIPPED AS TWO PIECES.

DIMENSIONS
THE POST SHALL BE 19' 6" IN HEIGHT WITH A 20" DIAMETER BASE. THE SHAFT SHALL BE TAPERED 0.14" PER FOOT WITH A 7" BASE DIAMETER. AT THE TOP OF THE POST, TWO INTEGRAL 2 7/8" X 5" TENONS SHALL BE PROVIDED FOR LUMINAIRE MOUNTING.

INSTALLATION
THE POST SHALL BE PROVIDED WITH FOUR, HOT DIP GALVANIZED L-TYPE ANCHOR BOLTS TO BE INSTALLED AS SHOWN IN THE BASE PLATE DETAIL. AN ACCESS DOOR SHALL BE PROVIDED IN THE BASE FOR ANCHORAGE AND WIRING ACCESS. A GROUNDING SCREW (5/8") SHALL BE PROVIDED INSIDE THE BASE OPPOSITE THE DOOR.

PRODUCT
VISCO V1-A7-A2-F/19’ 6", ELK GROVE
APPLICATION
RESIDENTIAL STREETS AND PEDESTRIAN TRAILS

SPECIFICATIONS
POST DESCRIPTION
THE LAGUNA WEST LIGHTING POST SHALL BE ALL STEEL OR CAST IRON CONSTRUCTION WITH A FLUTED BASE DESIGN. THE SHAFT SHALL BE FLUTED AND TAPERED WITH A 5 3/4" BASE DIAMETER. THE POST SHALL BE SHIPPED WITH FINISH NOTED BELOW.

MATERIALS
THE BASE SHALL BE CAST IRON AND SHAFT SHALL BE STEEL. THE BASE AND SHAFT SHALL BE PRIME PAINTED INSIDE AND OUT WITH RUST INHIBITING, EPOXY BASED PAINT.

POLES INSTALLED ON OR NEAR LAGUNA BLVD (NORTH OF THE ELLIOT RANCH ROAD ALIGNMENT) SHALL BE PAINTED OUTSIDE WITH URETHANE GLOSS ENAMEL OF FEDERAL COLOR STANDARD 595B, COLOR #14516 "AQUA MARINE". POLES INSTALLED ON OR NEAR ELK GROVE BLVD (SOUTH OF THE ELLIOT RANCH ROAD ALIGNMENT) SHALL BE PAINTED OUTSIDE WITH URETHANE GLOSS ENAMEL OF FEDERAL COLOR STANDARD 595B, COLOR #17083 "GLOSS BLACK". ONE PINT OF TOUCH-UP PAINT SHALL BE SHIPPED WITH EACH POLE ORDER.

ALL POLES SHALL BE FINISHED WITH A CLEAR COAT OF URETHANE GLOSS FINISH. ANCHOR BOLTS AND NUTS SHALL BE HOT DIPPED GALVANIZED STEEL.

CONSTRUCTION
THE POLE SHAFT SHALL BE WELDED TO THE ANCHOR PLATE AND PAINTED AFTER WELDING. WELDS SHALL CONFORM TO THE MOST RECENT EDITION OF AWS D1.1. THE BASE SHALL BE FABRICATED OF ONE OR TWO PIECES AND INSTALLED AFTER THE POLE SHAFT IS BOLTED TO THE FOUNDATION. THE FINISH OF THE POLE SHAFT SHALL BE PROTECTED FROM DAMAGE WHEN THE BASE IS INSTALLED.

POLE AND BASE SHALL BE SHIPPED AS TWO PIECES.

DIMENSIONS
THE POST SHALL BE 12' 0" IN HEIGHT WITH A 16" DIAMETER BASE. THE SHAFT SHALL BE TAPERED 0.14" PER FOOT WITH A 5 3/4" BASE DIAMETER. AT THE TOP OF THE POST, AN INTEGRAL 2 7/8" X 3" TENON SHALL BE PROVIDED FOR LUMINAIRE MOUNTING.

INSTALLATION
THE POST SHALL BE PROVIDED WITH FOUR, HOT DIP GALVANIZED L-TYPE ANCHOR BOLTS TO BE INSTALLED AS SHOWN IN THE BASE PLATE DETAIL. AN ACCESS DOOR TO BE INSTALLED AS SHOWN IN THE BASE PLATE DETAIL. AN ACCESS DOOR SHALL BE PROVIDED IN THE BASE FOR ANCHORAGE AND WIRING ACCESS. A GROUNDING SCREW (5/8") SHALL BE PROVIDED INSIDE THE BASE OPPOSITE THE DOOR.

PRODUCT
VISCO V1-B16-1-F/12', ELK GROVE
1.8900

D42 SPLIT CAST IRON BASE
WITH REMOVABLE ACCESS DOOR

20 A, 120 V, GFI RECEPTACLE
WITH WEATHERPROOF COVER MOUNTED TO ACCESS DOOR

APPLY SILICONE SEALANT AT INSTALLATION

11 GA., 5 3/4" BASE DIAM., STEEL FLUTED TAPERED POLE 0.14"/FT. TAPER

1" A36 STEEL PLATE
9" DIAM. BOLT CIRCLE

(4) 1 1/4" SLOTS ACCEPTING:
(4) 3/4" x 24" A307 GALVANIZED ANCHOR BOLTS

NOTE:
1. ALL LEVELING NUTS MUST BE LEVEL AND EVEN PRIOR TO INSTALLING THE POLES. CARE MUST BE TAKEN WHEN TIGHTENING BOLTS TO NOT CRACK OR BREAK BASE PLATE.

APPLICATION
BUSINESS DISTRICT OLD TOWN

SPECIFICATIONS
POST DESCRIPTION
THE OLD TOWN LIGHTING POST SHALL BE ALL STEEL CONSTRUCTION WITH A FLUTED BASE DESIGN. THE SHAFT SHALL BE FLUTED AND TAPERED WITH A 5 ¾" BASE DIAMETER. THE POST SHALL BE SHIPPED WITH FINISH NOTED BELOW.

MATERIALS
THE BASE AND POLE SHALL BE CAST STEEL. THE BASE AND POLE SHALL BE PRIME PAINTED INSIDE AND OUT WITH RUST INHIBITING, EPOXY BASED PAINT, PAINTED OUTSIDE WITH URETHANE GLOSS ENAMEL OF FEDERAL COLOR STANDARD 595B, COLOR #17083 "GLOSS BLACK", AND FINISHED WITH A CLEAR COST OF URETHANE GLOSS FINISH. ANCHOR BOLTS AND NUTS SHALL BE HOT DIPPED GALVANIZED STEEL.

CONSTRUCTION
THE SHAFT AND BASE SHALL BE CAST IN ONE PIECE OR SHALL BE DOUBLE WELDED (TOP AND BOTTOM OF BASE). WELDS SHALL BE GROUND SMOOTH. WELDS SHALL CONFORM TO AWS D1.1. POLE AND BASE SHALL BE SHIPPED AS ONE PIECE.

DIMENSIONS
THE POST SHALL BE 10' 6" IN HEIGHT WITH AN 11.5" DIAMETER BASE. THE SHAFT SHALL BE TAPERED WITH A 5 ¾" BASE DIAMETER. AT THE TOP OF THE POST, AN INTEGRAL 2 7/8" X 3" TENON SHALL BE PROVIDED FOR LUMINAIRE MOUNTING.

INSTALLATION
THE POST SHALL BE PROVIDED WITH FOUR, HOT DIP GALVANIZED L-TYPE ANCHOR BOLTS TO BE INSTALLED AS SHOWN IN THE BASE DETAIL. AN ACCESS DOOR SHALL BE PROVIDED IN THE BASE FOR ANCHORAGE AND WIRING ACCESS. A GROUNDING SCREW (5/8") SHALL BE PROVIDED INSIDE THE BASE OPPOSITE THE DOOR.

PRODUCT
VISCO V1-D42-F, ELK GROVE 3A

CITY OF ELK GROVE - PUBLIC WORKS
OLD TOWN ELECTROLIERT (SERIES 'B')

DATE: 09/22/2007
NOT TO SCALE

REVOLUTION APPROVED DATE

APPROVED BY:
CITY ENGINEER DATE

DRAWING NUMBER
SL - 46
NOTES

1. STABILIZED CONSTRUCTION SITE ACCESS SHALL BE CONSTRUCTED OF 6 - 8 INCH WASHED, WELL GRADED GRAVEL OR CRUSHED ROCK. MATERIAL SHALL BE PLACED TO A MINIMUM THICKNESS OF 8 INCHES. ROUND ROCK (RIVER ROCK) NOT ALLOWED.

2. LENGTH OF ENTRANCE SHALL BE A MINIMUM OF 50 FEET. WIDTH SHALL BE A MINIMUM OF 15 FEET OR GREATER IF NECESSARY TO COVER ALL VEHICULAR INGRESS AND EGRESS. PROVIDE AMPLE TURNING RADII.

3. THE ENTRANCE SHALL BE KEPT IN GOOD CONDITION BY OCCASIONAL TOP DRESSING WITH MATERIAL AS SPECIFIED IN NOTE 1.

4. ACCESS SHALL BE INSPECTED WEEKLY DURING PERIODS OF HEAVY USAGE, MONTHLY DURING NORMAL USAGE, AND AFTER EACH RAINFALL, WITH MAINTENANCE PROVIDED AS NECESSARY. PERIODIC TOP DRESSING SHALL BE DONE AS NEEDED.
NOTES:

1. DIMENSIONS OF SEDIMENT TRAPS, DIKES, AND SWALES SHALL BE APPROVED BY THE ADMINISTRATOR.

2. INTERCEPTION DIKES AND SWALES SHALL BE CONSTRUCTED TO DRAIN SURFACE RUNOFF INTO SEDIMENT TRAPS.

3. TRAPS SHALL BE EXCAVATED WITH APPROPRIATE EQUIPMENT, TAKING CARE NOT TO DISTURB VEGETATION OR SOIL AT OUTLET CREST. SIDE SLOPES SHALL BE 1:3 OR FLATTER. MAXIMUM TRAP DEPTH SHALL BE 1.1 METERS (3.5 FEET).

4. COBBLES CONFORMING TO CITY OF ELK GROVE SPECIFICATIONS SHALL BE PLACED ON THE TOPS, SLOPES, AND BOTTOMS OF THE INLET SIDES. COBBLES SHALL EXTEND A MINIMUM OF 600 MM (2 FEET) BEYOND THE TOP AND TOE OF SLOPES.

5. PERIMETER OF SEDIMENT TRAPS SHALL BE STABILIZED WITH GABIONS OR COBBLES AND HYDROSEEDED 3 METERS (10 FEET) BEYOND EDGE OF EXCAVATION IF EXISTING VEGETATION IS THIN, DISTURBED OR NONEXISTENT.

6. THE CONTRACTOR SHALL INSPECT SEDIMENT TRAPS WEEKLY AND AFTER EACH RAINFALL AND CLEAN AND REPAIR AS NECESSARY. SEDIMENT SHALL BE REMOVED FROM THE BOTTOM OF THE TRAP WHEN 300 MM (1 FOOT) DEEP OR LESS.
TYPICAL FIBER ROLL INSTALLATION

NOTES:

1. INSTALL FIBER ROLL IN A ROW ALONG A LEVEL CONTOUR.

2. AT ENDS OF A ROW TURN THE LAST TWO FIBER ROLLS UP SLOPE SLIGHTLY.

3. FIBER ROLLS SHALL BE BUTTED TIGHTLY AT THE JOINTS.

4. DO NOT OVERLAP JOINTS.

FLOW

VERTICAL SPACING MEASURED ALONG THE FACE OF THE SLOPE VARIES BETWEEN 2.4 M - 6.0 M (8 FT - 20 FT)

1.2 M (4 FT) MAX

100 MM (4 IN) MAX

50 MM (2 IN) MIN

300 MM (4 FT) MIN

FIBER ROLL 200 MM (8 IN) MIN

INSTALL A FIBER ROLL NEAR SLOPE WHERE IT TRANSITION INTO A STEEPER SLOPE

19 MM x 1M MM (3/4 IN x 3/4 IN) WOOD STAKES

1.2 M (4 FT) MAX SPACING

SECTION A-A
NOTES:

1. CONSTRUCT THE LENGTH OF EACH REACH SO THAT THE CHANGE IN BASE ELEVATION ALONG THE REACH DOES NOT EXCEED 1/3 THE HEIGHT OF THE LINEAR BARRIER. IN NO CASE SHALL THE REACH LENGTH EXCEED 150 MM (6 IN).

2. THE LAST 2.4 M (8 FT) OF FENCE SHALL BE TURNED UP SLOPE.

3. STAKE DIMENSIONS ARE NOMINAL.

4. DIMENSIONS MAY VARY TO FIT FIELD CONDITION.

5. STAKES SHALL BE SPACED AT 2.4 M (8 FT) MAXIMUM AND SHALL BE POSITIONED ON THE DOWNSTREAM SIDE OF THE FENCE.

6. OVERLAP STAKES, AND FOLD FENCE FABRIC TO ROUND EACH STAKE ONE FULL TURN.

7. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW THROUGH OF SEDIMENT AT THE JOINT.

8. FOR END STAKE CONDITION FOLD FENCE FABRIC AROUND (2) STAKES (1) FULL TURN AND SECURE WITH (4) STAPLES.

9. MINIMUM (4) STAPLES PER STAKE.

10. CROSS BARRIERS SHALL BE MINIMUM OF 1/3 AND MAXIMUM OF 1/2 THE HEIGHT OF THE LINEAR BARRIER.
CONCRETE WASHOUT AREA

36 CM (14 IN) MIN
3 M (10 FT) MIN TYP OF 4 SIDES

BALE CONFIGURATION

STRAW BALES

SECTION A-A

25 MM (1 IN)

STRAW BALES

60 MIL POLYETHYLENE

50 MM x 50 MM (2 IN x 2 IN)
STAKES OR #4 J-BARS
2 PER BALE TYP

450 MM (18 IN) MIN

900 MM (36 IN) MIN

600 MM (24 IN) MIN

SIGN

NOTES:

1. FACE SIGN TOWARD NEAREST STREET OR ACCESS POINT.

2. CONCRETE WASHOUT SHALL BE LOCATED BEHIND THE CURB AND 15 M (50 FT) MINIMUM FROM DRAINAGE INLETS OR WATERCOURSES.

DATE: 09/22/2007

NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

10/24/2018

CITY ENGINEER

DATE

DRAWING NUMBER

SQ - 6

CONCRETE WASHOUT
NOTES:

1. SEDIMENT TRAP UPSTREAM OF SEDIMENT CONTROL BMP SHALL BE CLEANED WEEKLY AND PRIOR TO A RAINFALL EVENT.

2. PLACE BAGS TIGHTLY TOGETHER AT JOINTS TO PREVENT OR MINIMIZE SEEPAGE AT JOINTS.

PLAN VIEW

GRAVEL BAG(S) OR OTHER ACCEPTED SEDIMENT CONTROL BMP. PLACE BAGS TIGHT AGAINST FACE OF CURB. (STRAW BALES MAY NOT BE USED.)

FACE OF CURB

BACK OF CURB

SEE NOTE 2

LIP OF GUTTER

DRAIN INLET WITH FILTER BAG
NOTES:

1. THE MAXIMUM DRAINAGE AREA PER FILTER SHALL BE NO MORE THAN 0.8 HECTARES (2 ACRES).

2. THE FILTER BAG SHALL BE MANUFACTURED FROM UV RESISTANT POLYPROPYLENE, NYLON, POLYESTER, OR ETHYLENE FABRIC WITH A MINIMUM TENSILE STRENGTH OF 50 LBS PER LINEAL FOOT, AN EQUIVALENT OPENING SIZE NOT GREATER THAN 20 SIEVE AND WITH GALLONS/MINUTE/SQ FT.

3. THE FILTER BAG MAY BE SUSPENDED FROM OR HELD IN PLACE ON EXISTING INLET GRATE (OR OTHER APPROVED METHOD). PROVIDING NO MODIFICATION OR DAMAGE SHALL BE DONE TO THE INLET GRATE OR FRAME. THE INLET GRATE SHALL NOT BE CAUSED TO REST MORE THAN 13 MM (0.5 IN) ABOVE THE INLET FRAME (SEE DETAIL A).

4. THE FILTER BAG MAY EXTEND TO THE BOTTOM OF THE INLET BOX PROVIDED THE OUTLET PIPE IS UNOBSERVED.

5. FLOWS SHALL NOT BE ALLOWED TO BYPASS THE BAG. THE BAG OR ITS FRAME SHALL CATCH FLOWS AT ALL SIDES OF THE INLET, EXCEPT AS SHOWN FOR FLOOD RELEASE.

6. INLET FILTER BAGS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL DURING THE WET SEASON AND MONTHLY DURING THE DRY SEASON. SEDIMENT AND DEBRIS SHALL BE REMOVED BEFORE ACCUMULATIONS HAVE REACHED ONE THIRD THE DEPTH OF THE BAG. BAGS SHALL BE REPAIRED OR REPLACED AS SOON AS DAMAGE OCCURS.
STAKE AT 1.0 - 1.5 M (3 - 5 FT) INTERVALS

STAPLE SPACING IN SLOT 300 MM (1 FT)

150 MM (6 IN)

150 MM (6 IN)

CHECK SLOT

300 MM (12 IN)

150 MM (6 IN)

INITIAL CHANNEL ANCHOR TRENCH

150 MM (6 IN)

300 MM (12 IN)

TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH

150 MM (6 IN)

300 MM (12 IN)

LONGITUDINAL ANCHOR TRENCH

100 MM (4 IN)

150 MM (6 IN)

WIRE STAPLES

100 MM (4 IN)

200 MM (8 IN)

75 MM (3 IN) OVERLAP CHANNEL BOTTOM

CHECK SLOT AT 8 M (26 FT) INTERVALS

75 MM (3 IN) OVERLAP CHANNEL BOTTOM

TYPICAL CHANNEL SOIL STABILIZATION

NOTE:

1. CONSTRUCTION OF CHECK SLOTS, STAKING, STAPLING LAYOUT, AND MAT INSTALLATION ALL TO BE DONE PER MANUFACTURER'S SPECIFICATIONS.
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.

2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
NOTES:

1. MESSAGE AND SYMBOL SHALL BE AS SHOWN ON SQ-10.2 OR AS APPROVED BY THE DIRECTOR.

2. LETTERS SHALL BE 1.5 INCHES (38 MM) IN HEIGHT. THE MESSAGE SHALL BE CENTERED ON THE BACK OF THE INLET.

3. CONCRETE SHALL BE STAMPED IN SUCH A WAY AS TO PROVIDE FOR A CLEAR AND LEGIBLE IMAGE. (APPROXIMATE DEPTH OF 0.25 INCH OR 6 MM).
STAMP MESSAGES AND SYMBOLS

DIMENSIONS MAY VARY AMONG THE STAMP DESIGNS SHOWN BELOW, BUT SHALL NOT EXCEED THE MAXIMUM DIMENSIONS.

NO DUMPING!
FLOWS TO CREEK

12 INCHES (305 MM) MAXIMUM

-30 INCHES (762 MM) MAXIMUM-

NO DUMPING!
DRAINS TO CREEK

CITY OF ELK GROVE - PUBLIC WORKS

DROP INLET CONCRETE STAMP
(SHEET 2 OF 2)
CURB AND GUTTER

EXISTING A.C. AND BASE

1 1/2" BASE COURSE AC (TYP.)
(PER APPROVED MIX DESIGN)

1 1/2" MIN. COLD PLANE OR GRIND (TYP.), AND REPLACE AC

VARIES 12" MAXIMUM LOOSE LIFT
MINIMUM 93%
RELATIVE COMPACTION

PIPE ZONE

VARIES
10' MAX

MATCH EXISTING AC DEPTH
+1 1/2 (4" MIN.)

1/2" MINIMUM COLD PLANE
OR GRIND (TYP.)

EXISTING A.C. AND BASE

GRIND LIMITS,
(SEE TABLE BELOW)

GRIND AREA

W

1 1/2" BASE COURSE AC (TYP.)
(PER APPROVED MIX DESIGN)

FULL DEPTH AC PATCH. MIN. 1.5" THICKER THAN
EXISTING AC OR 4" THICK, WHICH EVER IS GREATER

NO NATIVE MATERIAL WITHIN 24" OF
AC COURSE. USE 3/4" CLASS II A.B.
(RELATIVE COMPACTION = 93%). WHERE
PIPE ZONE IS WITHIN 48" OF AC COURSE,
3/4" CLASS II A.B. OR CDF BACKFILL
(PER CDF MIX STANDARD) MAY BE USED.

GEOTEXTILE FABRIC IF
SPECIFIED BASED ON
PIPE ZONE MATERIAL TYPE

PIPE ZONE APPROVED BEDDING

TRENCH CUT DETAILS

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<th>PAVEMENT CONDITION PCI</th>
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<th>ALONG TRAFFIC (LONGITUDINAL)</th>
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<td>TRENCH + 2' EACH SIDE (8' MIN)</td>
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<tr>
<td>50&lt;70</td>
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<td>TRENCH + 2' EACH SIDE (5' MIN)</td>
<td>TRENCH + 2' EACH SIDE (5' MIN)</td>
</tr>
<tr>
<td>&lt;50</td>
<td></td>
<td>TRENCH + 1' EACH SIDE (5' MIN)</td>
<td>TRENCH + 1' EACH SIDE (4' MIN)</td>
</tr>
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NOTES:

1. GRINDING/PAVEMENT JOINT SHALL BE LOCATED ALONG GUTTER LINES, LANE LINES, OR CENTER OF LANES AND SHALL NOT BE PLACED IN WHEEL LINES.
2. ENTIRE BIKE LANE SHALL BE REPAVED WHEN TRENCHING OCCURS IN BIKE LANE AREA.
NOTES:

1. NO NATIVE MATERIAL WITHIN 24" OF AC COURSE. USE 3/4" CLASS II A.B. (RELATIVE COMPACTION = 93%). WHERE PIPE ZONE IS WITHIN 48" OF AC COURSE, 3/4" CLASS II A.B. OR CDF BACKFILL (PER CDF MIX STANDARDS) MAY BE USED.

2. ADDITIONAL GRINDING AND PAVING MAY BE REQUIRED IF WITHIN TWO (2) FEET OF A SURFACE CRACK OR A LOCATION UNSUITABLE TO PAVE AGAINST AT THE INSPECTORS DISCRETION. AT THE CONTRACTORS EXPENSE.
REFERENCE STANDARD DETAILS:
ST - 1A, ST - 7, ST - 9

NOTES:
1. EDGES OF POTHOLE REPAIRS SHALL BE ALIGNED WHEN DISTANCE BETWEEN 3 CONSECUTIVE POTHOLES IS 100' OR LESS

2. EDGES OF POTHOLE REPAIRS SHALL BE PLACED ALONG PAVEMENT STRIPES, GUTTER LINES, OR MID-LANE, AND SHALL NOT BE PLACED IN WHEEL PATH.

3. POTHOLE REPAIRS SHALL BE JOINED IF SPACING BETWEEN HOLES IS 15' OR LESS UNLESS APPROVED BY THE CITY.

4. REPAIR OF CORED POTHOLES SHALL INCLUDE A FULL DEPTH BASE SLURRY BACKFILL. AFTER MINIMUM OF 48 HOURS OF CURE, THE SLURRY BACKFILL AND SURROUNDING PAVEMENT SHALL BE GROUND A MINIMUM OF 3" DEEP.

* OR LARGER AS NEEDED TO KEEP ALL PATCHES ALIGNED
GENERAL NOTES

1. PLANE EXISTING ASPHALT TO A 1 1/2" MIN. DEPTH.
2. A TACK COAT SHALL BE APPLIED TO THE AREA PRIOR TO PLACING NEW ASPHALT CONCRETE.
3. ASPHALT CONCRETE MIX SHALL BE APPROVED BY THE CITY PRIOR TO PLACEMENT.
4. ASPHALT CONCRETE SHALL BE SAND SEALED WITHIN 24 HOURS OF TRENCH RESURFACING.
5. TRAFFIC CONTROL PLAN SHALL BE REQUIRED. ALL TRENCH WORK IN RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL PLAN.
6. VIBRATORY ROLLERS SHALL BE USED ON ALL TRENCH REPAIRS IF CLASS II AGGREGATE BASE IS USED. VIBRATORY PLATES MAY ONLY BE USED WHERE APPROVED IN ADVANCE BY CITY ENGINEER.

GENERAL NOTES (FOR FABRIC)

1. AN APPROVED TACK COAT IS REQUIRED PRIOR TO PLACING NEW FABRIC.
2. NEW FABRIC IS TO OVERLAP EXISTING FABRIC A MINIMUM OF 3' ON EACH SIDE OF THE TRENCH.

GENERAL NOTES (FOR NARROW TRENCH / CDF BACKFILL)

1. CDF BACKFILL SHALL HAVE A MINIMUM 8" SLUMP
2. CDF BACKFILL SHALL BE THOROUGHLY CONSOLIDATED TO ENCASE CONDUITS. CONCRETE VIBRATORS SHALL BE USED DURING PLACEMENT OF SAND CEMENT.
3. CDF SHALL BE SCREENED OFF TO MATCH PLANED PAVEMENT GRADE.
4. ALLOW CDF BACKFILL 48 HOURS MINIMUM CURE AND DRY TIME BEFORE APPLYING ASPHALT CONCRETE.
5. IN SECONDARY, MAJOR OR PRIME ARTERIAL STREETS, TO ACCELERATE CURING TIMES PER NOTE 4, AN APPROVED SET ACCELERATING ADMIXTURE MAY BE USED WITH CITY ENGINEER'S APPROVAL.
6. TYPE "F" CDF BACKFILL IS NOT ALLOWED OVER CSD-1 OR SCWA PIPES. USE TYPE "C".
TOP OF CDF

CDF EXTENDS TO EDGE OF EXCAVATION (VARIES)

1' MIN. PIPE ZONE MATERIAL AROUND PIPE

4' MIN. *

4' MIN.

TED ENVELOPE

1' MIN. PIPE ZONE MATERIAL

CRUSHED ROCK BASE

PIPE

"OR THE BASE OF CONE, WHICHERVER IS LESS. FLATTOP MANHOLES, CDF TO BE PLACED NO HIGHER THAN SUBGRADE.

NOTE: SEE SECTION 50-15 FOR CDF MATERIAL SPECIFICATIONS.
BEDDING AND SHADING

18" LOOSE LIFT
MINIMUM 90%
RELATIVE COMPACTION

ASPHALT CONCRETE

AGGREGATE BASE

SUBGRADE 12"

INTERMEDIATE ZONE

VARIES
12" MAXIMUM LOOSE LIFT
MINIMUM 93%
RELATIVE COMPACTION

IF ROADWAY IS UNDERCUT TO ACCOUNT FOR TRENCH SPOILS ALL UNDERCUT SHALL BE COMPACTED TO 93% RELATIVE COMPACTION

GEOTEXTILE FABRIC IF SPECIFIED BASED ON PIPE ZONE MATERIAL TYPE

12"

12"

6"

IF ROADWAY IS UNDERCUT TO ACCOUNT FOR TRENCH SPOILS ALL UNDERCUT SHALL BE COMPACTED TO 93% RELATIVE COMPACTION

GEOTEXTILE FABRIC IF SPECIFIED BASED ON PIPE ZONE MATERIAL TYPE

12"

12"

6"
TEMPORARY

2 1/2" MINIMUM THICKNESS ASPHALT CONCRETE
(SEE RESURFACING NOTES BELOW).

SURFACE SHALL NOT VARY MORE THAN
UP TO +1/2" (NO DEPRESSION ALLOWED)
FROM STRAIGHT GRADE DRAWN ACROSS
TRENCH.

EXISTING PAVEMENT

See appropriate
standard drawings

TEMPORARY RESURFACING

A. 30 DAYS MAXIMUM ON NON-OCCUPIED RESIDENTIAL STREETS.
B. 72 HOURS MAXIMUM ON OCCUPIED RESIDENTIAL STREETS.
C. 48 HOURS MAXIMUM ON LOCAL COLLECTORS, MAJOR ROADS, AND PRIME ARTERIALS (HOT MIX ONLY 3/4" PG 64-16).
D. TRAFFIC CONTROL PLAN REQUIRED.

GENERAL NOTES

1. "COLD MIX" WILL BE ALLOWED TO REMAIN AS SURFACING FOR A MAXIMUM OF 24 HOURS. EARLIER REPLACEMENT WILL BE REQUIRED IF MAINTENANCE OF THE SURFACE IS UNSATISFACTORY, SOLELY AT THE DISCRETION OF THE CITY ENGINEER OR HIS DESIGNATED REPRESENTATIVE.
NOTES:

1. RADIUS AT CORNERS IS 25'.
2. FOR BUS TURNOUT DIMENSIONS, SEE STANDARD DRAWING ST-27
3. PEDESTRIAN EASEMENTS PER STANDARD DRAWINGS ST-27 AND ST-28 ARE REQUIRED.
5. HALF WIDTH OF 60' COLLECTOR STREETS AT APPROACH TO MAJOR STREETS SHALL BE 31' IF STREET DOES NOT HAVE BICYCLE LANES AND 35' IF IT DOES. HALF WIDTH OF 80' COLLECTOR STREETS AT APPROACH TO MAJOR STREETS SHALL BE 33' IF STREET DOES NOT HAVE BICYCLE LANES AND 37' IF IT DOES.
6. SIDEWALK SHALL BE INCLUDED AS PART OF THE RIGHT-OF-WAY WHEN ADJACENT TO THE BACK OF CURB SUCH AS AT INTERSECTIONS AND DRAIWYS.
NOTES:

1. RADIUS AT CORNERS IS 25'.
2. FOR BUS TURNOUT DIMENSIONS, SEE STANDARD DRAWING ST-27.
3. PEDESTRIAN EASEMENTS PER STANDARD DRAWINGS ST-27 AND ST-28 ARE REQUIRED.

CITY OF ELK GROVE - PUBLIC WORKS
WIDENING DETAILS FOR ARTERIALS AT MAJOR STREET INTERSECTIONS

DATE: 09/22/2007
APPROVED BY: 10/24/2018
CITY ENGINEER
DRAWING NUMBER
ST - 12A
NOTES:

1. RADIUS AT CORNERS IS 25'.

2. FOR BUS TURNOUT DIMENSIONS, SEE STANDARD DRAWING ST-27.

3. PEDESTRIAN EASEMENTS PER STANDARD DRAWINGS ST-27 AND ST-28 ARE REQUIRED.


5. HALF WIDTH OF 56' COLLECTOR STREETS AT APPROACH TO MAJOR STREETS SHALL BE 31' IF STREET DOES NOT HAVE BICYCLE LANES AND 35' IF IT DOES. HALF WIDTH OF 60' COLLECTOR STREETS AT APPROACH TO MAJOR STREETS SHALL BE 33' IF STREET DOES NOT HAVE BICYCLE LANES AND 37' IF IT DOES.

6. SIDEWALK SHALL BE INCLUDED AS PART OF THE RIGHT-OF-WAY WHEN ADJACENT TO THE BACK OF CURB SUCH AS AT INTERSECTIONS AND DRIVEWAYS.
NOTES:

A. INSTALL BICYCLE SYMBOL OVER DETECTOR LOCATIONS.

B. INSTALL "BIKE", "LANE" AND "→" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
   - APPROXIMATELY 10' PAST CROSSWALKS.
   - AT THE BEGINNING OF BICYCLE LANE ADJOINING RIGHT-TURN LANES.

C. FOR COLLECTORS WITH 6' SIDEWALKS, THE RIGHT-OF-WAY WIDTH IS 37'.

D. DIMENSIONS ARE TO CENTERLINE OF STRIPES.

E. SIDEWALK SHALL BE INCLUDED AS PART OF THE RIGHT-OF-WAY WHEN ADJACENT TO THE BACK OF CURBS SUCH AS AT INTERSECTIONS AND DRIVES.

BIKE LANE MARKINGS SHALL BE IN ACCORDANCE WITH CALTRANS, CALTRANS VERSION.

DATE: 09/22/2007
NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

TYPICAL STRIPING FOR COLLECTOR STREETS WITH BICYCLE LANES AT INTERSECTIONS WITH THOROUGHFARE OR ARTERIAL STREETS

APPROVED BY:
CITY ENGINEER
DATE: 10/24/2018

DRAWING NUMBER
ST - 13
TYPICAL STRIPING FOR ARTERIAL INTERSECTIONS WITH THOROUGHFARES OR ARTERIALS

NOTES:

A. END OF RAISED MEDIAN MAY BE MOVED AS NECESSARY FOR DRIVEWAY LOCATIONS. SEE IMPROVEMENT STANDARD SECTION 4-10 (J).

B. BIKE LANE STRIPE TO BE DISCONTINUED APPROX. 100' FROM START OF RIGHT-TURN LANE AND RESUMED AT BEGINNING OF RIGHT-TURN-ONLY LANE.

C. INSTALL BIKE SYMBOL OVER DETECTOR LOCATIONS.

D. INSTALL "BIKE", "LANE" AND " " PAVEMENT LEGENDS PER CoMuTCD AND CALTRANS STANDARD PLANS AT THE FOLLOWING LOCATIONS:
   - APPROXIMATELY 10' PAST CROSSWALKS;
   - AT BEGINNING OF BIKE LANE ADJOINING RIGHT-TURN LANES.

E. DIMENSIONS ARE TO CENTERLINE OF STRIPES.

F. LENGTH OF APPROACH ADJACENT TO RIGHT TURN LANE SHALL BE 200' APPROACHING A THOROUGHFARE / SPECIAL THOROUGHFARE 190' APPROACHING AN ARTERIAL.

G. DIRECTIONAL ARROWS ARE PROVIDED AT THE BEGINNING OF ALL TURN POCKETS. INSTALL ADDITIONAL ARROWS IF LENGTH OF TURN POCKET EXCEEDS 250 FT.

H. ALL PAVEMENT MARKINGS & STRIPING PER CALTRANS STANDARD PLANS.

I. 90' WID TAPER PER CALTRANS STANDARD PLANS.

DATE: 09/22/2007
NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS
APPROVED BY:
CITY ENGINEER
10/24/2018

DRAWING NUMBER
ST - 14A
NOTES:
A. END OF RAISED MEDIAN MAY BE MOVED AS NECESSARY FOR DRIVEWAY LOCATIONS. SEE IMPROVEMENT STANDARD SECTION 4-10 (J)
B. BIKE LANE STRIPING TO BE DASHED BEGINNING 120' FROM INTERSECTION.
C. INSTALL "BIKE", "LANE", AND " " PAVEMENT LEGENDS PER CDMITCO AND CALTRANS STANDARD PLANS, AT THE FOLLOWING LOCATIONS:
- APPROXIMATELY 10' PAST CROSSWALKS
- BEFORE START OF DASHED BIKE LANE STRIPING.
D. DIRECTIONAL ARROWS ARE PROVIDED AT THE BEGINNING OF ALL TURN POCKETS. INSTALL ADDITIONAL LEFT-TURN ARROW MIDWAY IN THE LENGTH OF THE TURN LANE IF IT EXCEEDS 250'.
E. LENGTH OF TURN POCKET IS TO BE SIZED ACCORDING TO TRAFFIC NEEDS. 180' MIN. SEE 3-10 (H) OF DEPARTMENT OF TRANSPORTATION DESIGN PRACTICE GUIDE.
F. DIMENSIONS ARE TO CENTERLINE OF STRIPES.
G. SHOULD DESIGN OF ROADWAY NOT INCLUDE BUS TURNOUTS, DESIGN OF INTERSECTIONS OF ARTERIAL & COLLECTOR STREETS SHALL CONFORM TO THE DETAIL ON DRAWING ST-12B
H. ALL PAVEMENT MARKINGS & STRIPING PER CALTRANS STANDARD PLANS.
I. SIDEWALK SHALL BE INCLUDED AS PART OF THE RIGHT-OF-WAY WHEN ADJACENT TO THE BACK OF CURB SUCH AS AT INTERSECTIONS AND DRIVEWAYS.
J. IF THE DRIVEWAY, APPROVED BY
K. 90' BAY TAPER PER CALTRANS STANDARD PLANS.
NOTES:

A. BIKE LANE STRIPE TO BE DISCONTINUED APPROXIMATELY 100' FROM RIGHT-TURN LANE AND RESUMED AT BEGINNING OF RIGHT-TURN ONLY LANE.

B. INSTALL BICYCLE SYMBOL OVER DETECTOR LOCATIONS.

C. INSTALL "BIKE", "LANE" AND " " PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
   - APPROXIMATELY 10' PAST CROSSWALKS.
   - AT THE BEGINNING OF BICYCLE LANE ADJOINING RIGHT-TURN LANES.

D. DIMENSIONS ARE TO CENTERLINE OF STRIPES.

G. IF THE DRIVEWAY, APPROVED BY PUBLIC WORKS, IS WITHIN THE EXPANDED INTERSECTION, ADDITIONAL 2 FEET RIGHT-OF-WAY WILL BE REQUIRED. SEE DETAIL "A".

H. 90' BAY TAPER PER CALTRANS STANDARD PLANS.

I. BIKE LANE MARKINGS SHALL BE IN ACCORDANCE WITH CALTRANS.

CITY OF ELK GROVE - PUBLIC WORKS

TYPICAL STRIPING FOR THOROUGHFARE INTERSECTIONS WITH THOROUGHFARES OR ARTERIALS

DATE: 09/22/2007

NOT TO SCALE

REVISION BY APPROVED DATE

RS RM 12/19

APPROVED BY:

CITY ENGINEER

DATE

DRAWING NUMBER

ST - 15A
NOTES:

A. BIKE LANE STRIPE TO BE DASHED BEGINNING 120' FROM INTERSECTION.

B. INSTALL ADDITIONAL LEFT TURN ARROW MIDWAY IN THE LENGTH OF THE TURN LANE IF IT EXCEEDS 250'.

C. INSTALL "BIKE", "LANE" AND "--------" PAVEMENT LEGENDS PER CDM/CALTRANS STANDARD PLANS AT THE FOLLOWING LOCATIONS:
   - APPROXIMATELY 10' PAST CROSSWALKS;
   - BEFORE START OF DASHED BICYCLE LANE STRIPING.

D. LENGTH OF TURN POCKET IS TO BE SIZED ACCORDING TO TRAFFIC NEEDS.
   180' MIN. SEE 3-10 H OF TRANSPORTATION DIVISION DESIGN PRACTICE GUIDE, AND DIRECTIONAL ARROWS ARE PROVIDED AT THE BEGINNING OF ALL TURN POCKETS. IF POCKET IS LONGER THAN 100 FT, ADDITIONAL ARROWS SHALL BE PLACED AT THE END.

E. DIMENSIONS ARE TO CENTERLINE OF STRIPES.

F. ALL PAVEMENT MARKINGS & STRIPING PER CALTRANS STANDARD PLANS.


H. IF THE DRIVEWAY, APPROVED BY PUBLIC WORKS, IS WITHIN THE EXPANDED INTERSECTION, ADDITIONAL 2 FEET RIGHT-OF-WAY WILL BE REQUIRED. SEE DETAIL "A".

I. 90' BAY TAPES PER CALTRANS STANDARD PLANS.

DATE: 09/22/2007

Revised by: [Signature]

Date: 10/24/2018

CITY OF ELK GROVE - PUBLIC WORKS

TYPICAL STRIPING FOR THOROUGHFARE INTERSECTIONS WITH COLLECTORS

DRAWING NUMBER

ST - 15B

APPROVED BY:

CITY ENGINEER

10/24/2018

CITY OF ELK GROVE - PUBLIC WORKS

TYPICAL STRIPING FOR THOROUGHFARE INTERSECTIONS WITH COLLECTORS

DRAWING NUMBER

ST - 15B

APPROVED BY:

CITY ENGINEER

10/24/2018
TYPICAL RAISED ISLAND DESIGNS FOR LIMITING ACCESS

DATE: 09/22/2007
NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:
CITY ENGINEER
10/24/2018

DATE

TYPICAL RAISED ISLAND DESIGNS
FOR LIMITING ACCESS

DRAWING NUMBER
ST - 16

DATE

REVISION
BY
APPROVED
DATE

CITY ENGINEER

APPROVED
DATE

TYPICAL SECTIONS INTERIM IMPROVEMENTS FOR SPECIAL THOROUGHFARE AND THOROUGHFARE STREETS WITH ROLLED-IN RUMBLE STRIPS

- Rumble strip shall stop 120' from the C.C. on the major road approaching entering lake streets, and begin at C.C. on the major road departing entering lake streets.
- Position bike lane legends between rumble strip and edge line stripe.
- Further shoulder may be eliminated if shoulder conflicts with trees or right-of-way limits and full depth as-paved section is used.

CITY OF ELK GROVE - PUBLIC WORKS
TYPICAL SECTIONS INTERIM IMPROVEMENTS FOR SPECIAL THOROUGHFARE AND THOROUGHFARE STREETS WITH ROLLED-IN RUMBLE STRIPS

DATE: 09/22/2007  NOT TO SCALE
APPROVED BY: CITY ENGINEER  10/24/2018
DRAWING NUMBER ST - 17A
1. ROLLED-IN RUMBLE STRIPS SHALL BE USED WHERE REQUIRED BY THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.

2. ROLLED-IN RUMBLE STRIPS MAY BE USED ON ROADWAYS THAT ARE DESIGNATED FOR 80' OR MORE OF RIGHT-OF-WAY AND ARE CONSTRUCTED WITH INTERIM IMPROVEMENTS (WITHOUT CURB & GUTTER).

3. RUMBLE STRIP SHALL STOP 120' FROM THE C.R. ON THE MAJOR ROAD APPROACHING ENTERING SIDE STREETS, AND BEGIN AT C.R. ON THE MAJOR ROAD DEPARTING ENTERING SIDE STREETS.

4. POSITION BIKE LANE LEGENDS BETWEEN RUMBLE STRIP AND EDGE LINE STRIPE.

5. EARTHEN SHOULDER MAY BE ELIMINATED IF SHOULDER CONFLICTS WITH TREES OR RIGHT-OF-WAY LIMITS AND FULL DEPTH ASPHALT SECTION IS USED.

6. TYPE "E" MOUNTABLE DIKE PER CALTRANS STD. PLANS DRAWING A-87B.
1. ROLLED-IN RUMBLE STRIPS SHALL BE USED WHERE REQUIRED BY THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.

2. ROLLED-IN RUMBLE STRIPS MAY BE USED ON ROADWAYS THAT ARE DESIGNATED FOR 80' OR MORE OF RIGHT-OF-WAY AND ARE CONSTRUCTED WITH INTERIM IMPROVEMENTS (WITHOUT CURB & GUTTER).

3. RUMBLE STRIP SHALL STOP 120' FROM THE C.R. ON THE MAJOR ROAD APPROACHING ENTERING SIDE STREETS, AND BEGIN AT C.R. ON THE MAJOR ROAD DEPARTING ENTERING SIDE STREETS.

4. POSITION BIKE LANE LEGENDS BETWEEN RUMBLE STRIP AND EDGE LINE STRIPE.

5. EARTHEN SHOULDER MAY BE ELIMINATED IF SHOULDER CONFLICTS WITH TREES OR RIGHT-OF-WAY LIMITS AND FULL DEPTH ASPHALT SECTION IS USED.
1. RUMBLE STRIP SHALL STOP 120' FROM THE C.R. ON THE MAJOR ROAD APPROACHING ENTERING SIDE STREETS, AND BEGIN AT C.R. ON THE MAJOR ROAD DEPARTING ENTERING SIDE STREETS.

2. POSITION BIKE LANE LEGENDS BETWEEN RUMBLE STRIP AND EDGE LINE STRIPE.

3. EARTHEN SHOULDER MAY BE ELIMINATED IF SHOULDER CONFLICTS WITH TREES OR RIGHT-OF-WAY LIMITS AND FULL DEPTH ASPHALT SECTION IS USED.
CLASS A
CLASS B (SAME AS CLASS A EXCEPT SIDEWALKS MAY BE OMITTED)

CLASS C

FILL SLOPE
DITCH SLOPE

5' MIN.
3'
VARIABLE
3'
VARIABLE
3'

2% 2%

MIN 13' RESIDENTIAL - MIN 22' COLLECTOR
VARIES
VARIES
MIN 13' RESIDENTIAL - MIN 22' COLLECTOR

3:1 MAX.
5%

TYPE 2 VERTICAL CURB

8' MIN
AT PARKS
AND SCHOOLS

DATE: 09/22/2007
APPROVED BY:
CITY ENGINEER
10/24/2018
ST - 17

CITY OF ELK GROVE - PUBLIC WORKS
NOT TO SCALE
TYPICAL SECTIONS

STREET CLASSES
"A", "B" & "C"
84 FOOT TO 130 FOOT STREETS
(FOR STREETS LESS THAN 84', SEE NOTE 4)

NOTE:
1. USE 100' PAVEMENT TAPER SECTION WHEN MAJOR STREET SHOULDER IS UNPAVED OR SEAL COATED, OR WHERE PAVED SHOULDER IS LESS THAN 4' WIDE.
2. USE 67' PAVEMENT TAPER SECTION WHEN MAJOR STREET SHOULDER IS FULLY PAVED, AND A MINIMUM OF 4' WIDE.
3. FULL ROADBED STRUCTURAL SECTION TO BE PLACED IN ACCORDANCE WITH CITY STANDARDS FOR AREA TO BE PAVED.
4. PAVEMENT TAPER SECTION MAY BE DELETED WHERE NEW STREET INTERSECTS WITH MINOR OR COLLECTOR STREETS.
PRIVATE DRIVEWAY
(DUST FREE)

GARAGE

SIDEWALK
CONCRETE
CURB
ROAD
PAVING

6" A.B.
95% COMPACTED
PRIVATE DRIVEWAY CONSTRUCTED TO BACK OF SIDEWALK.

CLASS A
(CURB, GUTTER & SIDEWALK)

ROAD
PAVING
CURB
CONCRETE
CURB
SIDEWALK
GARAGE

R/W LINE
6MIN.

1.5% SLOPE

DRIVEWAY AREA WITHIN STREET R/W MAY BE CONCRETE, ASPHALT CONCRETE (A.C.) OR OTHER DUST FREE SURFACE.

CLASS B
(CURB & GUTTER)

ROAD
PAVING
CURB
CONCRETE
CURB
SIDEWALK
GARAGE

R/W LINE

DITCH OR SHOULDER AREA

DRIVEWAY AREA WITHIN STREET R/W MUST BE 3" A.C. ON 4" A.B. OR 5" A.C.

CLASS C
(DITCH OR SHOULDER)

NOTE: SEE CITY OF ELK GROVE IMPROVEMENT STANDARDS SECTION 4-10 FOR DRIVEWAY REQUIREMENTS.
TYPICAL DRIVEWAY SECTION

NOTES:

1. TYPE 3 CURBING ON SITE SHALL EXTEND TO WHERE THE DRIVEWAY APPROACH IS A MINIMUM OF FOUR INCHES ABOVE THE BACK OF SIDEWALK ELEVATION AT THE DRIVEWAY.

2. LENGTH OF DRIVEWAY FLAIR ON STREETS STEEPER THAN 3.70% SHALL REQUIRE SPECIAL APPROVAL BY DESIGN CHIEF OF THE DEPARTMENT OF TRANSPORTATION.

3. A 1/2–INCH CONCRETE BATTER SHALL BE PLACED ON ALL CURB LIPS.

4. SEE STD. DWG. AR–4.7 FOR ELEMENTS NOT SHOWN HEREON.

* DRIVEWAY APRON MATCHES SIDEWALK WIDTH

DATE: 09/22/2007

CITY OF ELK GROVE - PUBLIC WORKS

COMMERCIAL DRIVEWAYS

TYPE A-6

APPROVED BY:

1/16/2020
NOTES:

1. IT MAY BE USED FOR RECONSTRUCTION OF TYPE A−7 DRIVEWAYS IN AREAS WITHOUT SUFFICIENT RIGHT−OF−WAY FOR STANDARD TYPE A−7 DRIVEWAY CONSTRUCTION AND WITHOUT WALKWAY EXTENSION ON TO ABUTTING PROPERTY.

2. NO PULL BOX, UTILITY VAULT, UTILITY POLE, MANHOLE OR SIMILAR APPURTENANCE SHALL BE LOCATED WITHIN SIDEWALK RAMP AREA.

3. IT IS DESIRABLE TO LOCATE ALL DRAIN INLETS OUT OF SIDEWALK RAMP AREA. USE OF DRAIN INLET WITHIN RAMP AREA REQUIRES SPECIAL DESIGN OF INLETS.
DRIVEWAY LOCATION STANDARDS

NOTES:
1. DRIVEWAYS ON 72', 96', AND 118' STREETS SHALL HAVE A MINIMUM CLEAR SPACING OF 200' BETWEEN DRIVEWAYS. LESSER SPACING MAY BE APPROVED BY THE DIRECTOR FOR SMALL LOTS WHERE A MINIMUM OF ONE DRIVEWAY PER STREET FRONTAGE WILL BE APPROVED.
2. FOR ADDITIONAL DRIVEWAY REQUIREMENTS SEE SECTION 4-10 OF THE CITY IMPROVEMENT STANDARDS.
NOTES:

1. A STANDARD W14-1 ("DEAD END") SIGN MAY BE REQUIRED AT THE ENTRANCE TO THE CUL-DE-SAC (SEE SECTION 4-27).

2. NO CUL-DE-SAC SHALL EXCEED 600 FEET IN LENGTH, MEASURED AS THE DISTANCE FROM THE CENTERLINE OF THE INTERSECTING STREET TO THE CENTER OF THE CUL-DE-SAC BULB.
NOTES:

VARIABLE DIMENSIONS:

<table>
<thead>
<tr>
<th>STREET TYPE</th>
<th>*</th>
<th>**</th>
<th>***</th>
</tr>
</thead>
<tbody>
<tr>
<td>42' MINOR RESIDENTIAL STREET</td>
<td>13'</td>
<td>16'</td>
<td>21'</td>
</tr>
<tr>
<td>46' MINOR RESIDENTIAL STREET</td>
<td>15'</td>
<td>18'</td>
<td>23'</td>
</tr>
<tr>
<td>48' PRIMARY RESIDENTIAL STREET</td>
<td>16'</td>
<td>19'</td>
<td>24'</td>
</tr>
</tbody>
</table>
NOTES:
1. INTERSECTION ELBOWS ARE NOT REQUIRED WHERE THE CENTERLINE RADIUS MEET THE MINIMUM REQUIREMENTS IN SECTION 4-13.
2. ALL RADII SHOWN PERTAIN TO BACK OF CURB.
3. RADIUS = 46.5' ON 42' STREET
   50.5' ON 46' STREET
   52.5' ON 48' STREET
   56' ON 50' STREET
4. INTERSECTION ANGLE SHALL BE 90° ± 5°.
5. SHADED AREA SHALL HAVE VISIBILITY CONTROL EASEMENT IN ACCORDANCE WITH SECTION 4-14 AND STANDARD DRAWING ST-26 (PERMANENT BUILDINGS EXCEPTED WITHIN SETBACK LINE).
NOTES:

1. SHOW LINE OF SIGHT AND SIGHT DISTANCE FOR ALL APPROACHES OF EACH INTERSECTION.

2. SIGHT DISTANCE SHALL COMPLY WITH THE CITY OF ELK GROVE IMPROVEMENT STANDARDS SECTION 4-14.

* FOR STREETS 48 FEET OR WIDER MEASURED FROM BACK OF CURB TO BACK OF CURB, OR AS REQUIRED BY THE DIRECTOR.
NOTES:

1. FOR STREETS LESS THAN 48 FEET MEASURED FROM BACK OF CURB TO BACK OF CURB. VISIBILITY CONTROL AREAS MAY BE REDUCED TO A 20' X 20' TRIANGLE AT STOP OR SIGNAL CONTROLLED INTERSECTIONS.

2. VISIBILITY REQUIREMENTS
NOTES:
1. DETAIL 'A' SECTION SHALL BE USED FOR 100 FEET
   EACH SIDE OF BUS STOPS WITHOUT TURNOUTS. THE
   REINFORCING STEEL SHALL BE CONTINUED ACROSS
   ANY DRIVEWAYS WITHIN THE 100 FOOT DISTANCE
   FROM THE BUS STOP.
2. SEE STANDARD DRAWING ST-27 FOR APPLICATIONS
   OF DETAIL 'A' AT BUS STOP TURNOUTS.
3. TRANSITION FROM REINFORCED TYPE 2 CURB TO
   ABUTTING CURB AND GUTTER SECTION IN 6' BEYOND
   LIMITS OF BUS STOP AREA AS SHOWN ON DWG. ST-27.
4. PAD LENGTH MAY BE 14' AT MINOR STREET
   INTERSECTIONS & MID. BLOCK LOCATIONS.

DATE: 09/22/2007  NOT TO SCALE  CITY OF ELK GROVE - PUBLIC WORKS
REVISION  BY  APPROVED  DATE

APPROVED BY: 10/24/2018  CITY ENGINEER  DATE

DRAWING NUMBER  ST - 28

BUS STOP DETAILS
SECTION A - A

IN EXISTING PAVED AREA

CONSTRUCTION OF NEW SIDEWALK RAMP

WITH PAVEMENT WIDENING

SECTION A - A

CONSTRUCTION OF NEW SIDEWALK RAMP
IN EXISTING PAVED AREA

PLAN VIEW

AREA OF A.C. PAVEMENT REMOVAL & REPLACEMENT TO CONFORM TO RAMP GUTTER GRADES. SEE SECTION 27-9 OF CITY STD. CONSTRUCTION SPECIFICATIONS.

EXISTING SCORE MARK OR EXPANSION JOINT (TYPICAL)
SEE STD. DWG. ST-39

NEW SIDEWALK RAMP
(SEE APPLICABLE "AR"
STANDARD DRAWING)

CONSTRUCTION OF NEW SIDEWALK RAMP
WITH PAVEMENT WIDENING

SLOPE TO MATCH ROADWAY WIDENING PLANS (TYP. 1% - 3%)

SLOPE TO MATCH PLANS OR EXISTING ROADWAY SLOPE.

4" A.B.

95% COMPACTED

SCORE MARK

4.5% MAX SLOPE VARIES

GRADE BREAK

6" PCC

6" PCC

REDUCE AB THICKNESS AS NEEDED

SEE APPLICABLE "AR" STANDARD DRAWING

DATE: 09/22/2017

NOT TO SCALE

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

1/16/2020

CITY ENGINEER

DRAWING NUMBER

ST - 30

REVISION BY APPROVED DATE

1 LM TW 07-18-2019
**1/2" RADIUS ON EXPOSED EDGES UNLESS NOTED OTHERWISE.**

Type 1A & Typical Sidewalk

- 6" min. agg. base (95% compaction)
- 1.5% (1.0% to 2.0% allowable)
- 5'-0" min.
- 10'" score mark
- R=2"

Type 3

- 6" min. agg. base
- 8" c-c 18" length or epoxy
- 1/2" Ø bar

Type 4 & 4A

(4A requires both dowels and epoxy)

Type 4 curb (shown dashed)

Plan for typical placement of Type 4A curb

Type 5

- 6" min. agg. base
- 8" c-c 18" length or epoxy
- 1/2" Ø bar

Type 6 & 8

- 3/4" type 6
- 2-1/4" type 8

Notes:

- See Section 27-3.01 for requirement for expansion joints, weakened plane joints and score marks.
- 1/2" radius on exposed edges unless noted otherwise.
- See ST-28 for bus stop detail.
- A 1/2-inch concrete batter shall be placed on all curb lips.

**NOT TO SCALE**

CITY OF ELK GROVE - PUBLIC WORKS

**TYPICAL CURB & GUTTER SECTIONS**

Approved by:

[Signature]

10/24/2018

City Engineer

[Signature]

10/24/2018

Date

[Stamp]
6" MIN AGGREGATE BASE (95% RELATIVE COMPACTION) TO BE PLACED WITHIN LIMITS OF CROSS GUTTER.

REINFORCING STEEL TO BE EXTENDED 12" MIN & SPLICED ACCORDING TO STATE SPECIFICATION.

SECTION A-A

CONTACT JOINT DETAIL

NOTE:
6" MIN AGGREGATE BASE (95% RELATIVE COMPACTION) TO BE PLACED WITHIN LIMITS OF CROSS GUTTER.
NOTES:
1. FOR 72', 96', & 118' STREET WIDTHS AND COMMERCIAL DEVELOPMENT.
2. SEE SECTION 4-20 FOR REQUIREMENTS.
3. TYPE 3 CURB AT THE BACK OF SIDEWALK MAY BE OMITTED IF LAWN IS PLANTED TO THE BACK OF SIDEWALK.
4. SIDEWALKS SHALL BE SEPARATED ON ALL 72', 96', & 118' STREETS
4"x3"x1/4" STEEL TUBE
1/8" CHAMFER BOTH ENDS

1/4" x 0'-5" CHECKER PLATE

1/2" x 0'-2" WELDED STEEL STUD, 2 REQUIRED EACH SIDE

SECTION B-B

SECTION A-A

CONFORM TO EXISTING GUTTER SECTION.

NOTE:
GALVANIZE AFTER FABRICATION

PLAN VIEW OF CURB, GUTTER & SIDEWALK

CURB & GUTTER

SIDEWALK

GUTTER INVERT
SAW CUT IF PLACING IN EXISTING SIDEWALK

FACE OF CURB

BACK OF CURB

NOTE:
CONFORM TO EXISTING GUTTER SECTION.

DETAIL OF END OF CURB DRAIN FOR TYPE 2 CURB

DETAIL OF END OF DRrain FOR TYPE 1A CURB

ST - 34
NOTE:
1. ON THOROUGHFARES, ARTERIALS, AND WHERE 6 FOOT SIDEWALKS ARE REQUIRED
   BY THE IMPROVEMENT STANDARDS, A 5 FOOT MINIMUM ALL OTHER LOCATIONS:

2. CROSS SLOPE OF SEPARATED SIDEWALK TO BE 1.5% (1.0% TO 2.0% ALLOWABLE)
   LONGITUDINAL GRADE NOT TO EXCEED 3%.

3. USE OF SEPARATED SIDEWAYS WILL REQUIRE STREET LIGHTING REVIEW IN
   RELATION TO LANDSCAPE PLAN, AND MAY REQUIRE ADDITIONAL SIDEWALK LIGHTING.

4. COMPACTION UNDER SEPARATED SIDEWALK AREA AT 90%, UNDER ATTACHED AREA AT 95%
4" A.C. SIDEWALK CONFORM

CONFORM AS NEEDED TO DRAIN

EDGE OF PAVEMENT-SEE PLANS FOR LOCATION AND STRUCTURAL SECTION

NOTE: A SIDEWALK BARRICADE SHALL BE REQUIRED IF THE END OF THE A.C. SIDEWALK CONFORM ABUTS A DRAINAGE DITCH OR ANY OTHER SURFACE THAT WOULD POSE A HAZARD TO PEDESTRIANS.
RESIDENTIAL OR COLLECTOR STREET

FACE OF CURB

PER PLAN

15' MIN*

5' MIN

CURB RETURN

DRAIN INLET

RESIDENTIAL DRIVeway

GUTTER LIP

SIDEWALK

RELINQUISHMENT OF ACCESS RIGHTS (TYP)

* THE 15' DIMENSION MAY BE REDUCED AS DETERMINED BY THE DIRECTOR WHERE LOTS ARE LESS THAN 56' WIDE.
1' MINIMUM WIDTH, 1-1/2" DEEP GRINDING AND PAVING.

SEE NOTE 2

1' MINIMUM PAVEMENT REMOVAL AND REPLACEMENT. SAW CUT REQUIRED.

EXISTING PAVEMENT SECTION

NEW/PROPOSED PAVEMENT SECTION

NOTES:

1. THIS DETAIL IS APPLICABLE TO PAVEMENT WIDENING PROJECTS AND TO PAVEMENT EXTENSION PROJECTS (WHERE NEW ROAD CONNECTS TO EXISTING PAVEMENT).

2. 2' MINIMUM DISTANCE EXCEPT WHEN INSIDE A BIKE LANE. DISTANCE SHALL BE FROM LIP OF CURB TO FULL EXTENT OF THE BIKE LANE.
EXPANSION JOINT
FILLER MATERIAL
(MATCH FULL
CONCRETE SECTION)

1/4"MAX.

1/4"R

1/2"

#4 SMOOTH DOWELS @ 24" O.C.
GREASE 3" END.

EXPANSION JOINT

SIDEWALK CONTACT JOINT

#4 DOWELS @ 24" O.C.
(DRILL HOLE AND SET DOWEL
IN GROUT)

EXIST. CONC.

T/2

T/2

T

WEAKENED PLANE JOINT

SCORE MARK

1-1/2"

1/8"R

1/8"R

NOTE:
JOINT SPACING PER SECTION 27-3.01
NOTES:

1. MONUMENT BOX AND COVER SHALL BE PHOENIX IRON WORKS P-2001 OR APPROVED EQUAL.

2. (*) MONUMENT MARKER SHALL BE SOLID BRASS WITH 2-1/2" DIAM TOP AND 3/4" x 2-1/2" LTZ 813-403 OR APPROVED EQUAL SET IN FRESH P.C.C. TOP OF MONUMENT SHALL BE APPROXIMATELY 6" BELOW STREET GRADE.

3. MONUMENT MAY BE FORMED BY METAL SLEEVE, WAXED CARDBOARD OR BY DRILLING THRU HOLE MADE FOR MONUMENT BOX. IF THERE IS AN OVERCUT THEN THE OVERCUT SHALL BE FILLED WITH CONCRETE TO THE SAND LEVEL.
NOTES:

1. Where permission has been granted to close an existing public street, a R11-2 "Road Closed" sign will be required on the centerline of the road in addition to the W31(CA) "End" sign.

2. 24" x 24" W31(CA) sign and 18" x 18" OM4-3 marker. Block out as necessary for OM4-3 marker top mounting bolt (bottom mounting bolt normally through barrier rail). OM4-3 marker to have solid red reflective background without added reflectors.

3. All exposed surfaces of barricade shall be painted with two (2) coats of white paint conforming to State of California standard specifications section 91-3.

4. Post at center or nearest to center on right hand side to be extended to provide mounting for signs.

5. Post shall be pressure treated per State of California standard specifications section 58-1.02.

<table>
<thead>
<tr>
<th>Right of Way Width</th>
<th>W31 (CA) Size</th>
<th>OM4-3 Size</th>
<th>R11-2 Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>40', 42'</td>
<td>24&quot;</td>
<td>18&quot;</td>
<td>36&quot; x 24&quot;</td>
</tr>
<tr>
<td>50', 56', 60'</td>
<td>24&quot;</td>
<td>18&quot;</td>
<td>48&quot; x 30&quot;</td>
</tr>
<tr>
<td>66', 70', 74'</td>
<td>24&quot;</td>
<td>18&quot;</td>
<td>48&quot; x 30&quot;</td>
</tr>
<tr>
<td>80', 84'</td>
<td>24&quot;</td>
<td>18&quot;</td>
<td>48&quot; x 30&quot;</td>
</tr>
<tr>
<td>108', 130'</td>
<td>24&quot;</td>
<td>18&quot;</td>
<td>48&quot; x 30&quot;</td>
</tr>
</tbody>
</table>
NOTE:
ALL EXPOSED SURFACES OF BARRICADE SHALL BE PAINTED WITH TWO (2) COATS OF WHITE PAINT CONFORMING TO STATE OF CALIFORNIA STANDARD SPECIFICATIONS SECTION 91-3.
NOTES:

1. SIDEWALK BARRICADES TO BE ERECTED AT EACH LOCATION WHERE SATISFACTORY PROVISION CAN NOT BE MADE FOR PEDESTRIAN TO CONTINUE BEYOND THE TERMINUS OF A SIDEWALK AND A HAZARD IS PRESENT.

2. ALL EXPOSED SURFACES OF BARRICADES SHALL BE PAINTED WITH TWO (2) COATS OF WHITE PAINT CONFORMING TO STATE OF CALIFORNIA STANDARD SPECIFICATIONS SECTION 91-3.
SEE TRAILS MASTER PLAN FOR TYPICAL SEPARATIONS.

**TYPICAL WIDTH**

**10’**

**5’**

LANDSCAPE AREA*

BIKE/PEDESTRIAN TRAIL

BUFFER AREA*

EQUESTRIAN TRAIL

MULTI-USE TRAIL AT DRIVEWAY

MULTI-USE TRAIL AT INTERSECTION

*SEE TRAILS MASTER PLAN FOR TYPICAL SEPARATIONS.

**TYPICAL WIDTH**

09/22/2007

CITY OF ELK GROVE - PUBLIC WORKS

MULTI-USE TRAIL CONNECTIONS AT DRIVEWAYS AND INTERSECTIONS

ST - 44
NOTES:

1. STOP SIGN SHALL BE 30" FOR STREET WITH POSTED SPEED LIMIT OF 35 M.P.H. OR LESS AND 36" IF THE POSTED SPEED LIMIT IS 40 M.P.H. OR GREATER.

2. STOP SIGN SHALL BE SUPPLEMENTED WITH R1-3 (3-WAY OR 4-WAY) SIGNS WHERE APPROPRIATE.

TYPICAL SIDEWALK RAMPS WITH CROSSWALK
NOTE:
1. INSTALL GALVANIZED STEEL BOLLARD AS NEEDED PER ENGINEER'S DIRECTION OR AS SPECIFIED ON THE PLANS.
**Asphalt Speed Hump Detail**

(W = 26' - 34')

**SPEED HUMP PLAN VIEW**

- **STEEL BOLLARD**: See Note 1. (On rolled curbs only).
- **Curb and Gutter**: See detail below.
- **12" WHITE MARKING (TYP)**
- **12" CLEARANCE**

**SIGNING AND STRIPING DETAIL**

- **INSTALL ADVANCE SIGNING**: See detail below.
- **APPLY TEMPORARY REFLECTIVE WHITE FLEXIBLE ROAD TAB @ 3' O.C. AFTER SPEED HUMP IS INSTALLED (TYP)**.

**SECTION B-B**

- **15 MPH**
- **EXISTING GROUND**
- **SIDWALK**
- **CURB AND GUTTER**

**SECTION A-A**

- **PARABOLIC CURVE**
- **3 ¼" - 3 ¾"**
- **12"**

**NOTE:**

1. **INSTALL GALVANIZED STEEL BOLLARD AS NEEDED PER ENGINEER'S DIRECTION OR AS SPECIFIED ON THE PLANS. SEE STANDARD DRAWING NO. T-2A FOR DETAILS.**

**APPROVED BY:**

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED DATE: 10/24/2018
SPEED HUMP (SEE DETAIL BELOW)
INSTALL "DIAMOND" PAVEMENT MARKING (TYP). SEE DETAIL BELOW.
BACK OF SIDEWALK CURB AND GUTTER
EDGE OF PAVEMENT

INSTALL "CHEVRON" PAVEMENT MARKING (TYP). SEE DETAIL BELOW.
INSTALL ADVANCE SIGNING. SEE DETAIL BELOW.
INSTALL 8" THERMOPLASTIC WHITE "HUMP" LEGEND (TYP). SEE DETAIL BELOW.
APPLY TEMPORARY REFLECTIVE WHITE FLEXIBLE ROAD TAB @ 3 C.C. AFTER SPEED HUMP IS INSTALLED (TYP).

SIGNING AND STRIPING DETAIL

PARABOLIC CURVE

3 1/2" - 3 1/2" C

SECTION A-A

NOT TO SCALE

"HUMP" PAVEMENT MARKING
NOT TO SCALE

NOTE:
1. INSTALL GALVANIZED STEEL BOLLARD AS NEEDED PER ENGINEER'S DIRECTION OR AS SPECIFIED ON THE PLANS. SEE STANDARD DRAWING NO. T-2A FOR DETAILS.

"CHEVRON" PAVEMENT MARKING DETAIL
NOT TO SCALE

"DIAMOND" PAVEMENT MARKING DETAIL
NOT TO SCALE

APPLY TEMPORARY REFLECTIVE WHITE FLEXIBLE ROAD TAB @ 3 C.C. AFTER SPEED HUMP IS INSTALLED (TYP).

SPEED HUMP PLAN VIEW
NOT TO SCALE

STEEL BOLLARD. SEE NOTE 1. (ON ROLLED CURBS ONLY).
CURB AND GUTTER EDGE OF PAVEMENT
12" WHITE MARKING (TYP)
12" CLEARANCE

SECTION B-B

NOT TO SCALE

"CHEVRON" PAVEMENT MARKING DETAIL
NOT TO SCALE

"DIAMOND" PAVEMENT MARKING DETAIL
NOT TO SCALE

W13-1 (15) (18 x 18)
W17-1 (MOD) (30 x 30)
SIDEWALK CURB AND GUTTER}

EXISTING GROUND

ADVANCE SIGNING
NOT TO SCALE

T - 2C

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

CITY ENGINEER

DATE: 09/22/2017

NOTE TO SCALE

DATE: 10/24/2018

APPROVED REVISION

DATE: 09/22/2017
INSTALL "DIAMOND" PAVEMENT MARKING (TYP).  SEE DETAIL BELOW.

INSTALL ADVANCE SIGNING.  SEE DETAIL BELOW.

INSTALL 8" THERMOPLASTIC WHITE "HUMP" LEGEND (TYP).  SEE DETAIL BELOW.

APPLY TEMPORARY REFLECTIVE WHITE FLEXIBLE ROAD TAB @ 3' O.C. AFTER SPEED HUMP IS INSTALLED (TYP).

NOTE:
1. INSTALL GALVANIZED STEEL BOLLARD AS NEEDED PER ENGINEER'S DIRECTION OR AS SPECIFIED ON THE PLANS. SEE STANDARD DRAWING NO. T-2A FOR DETAILS.
INSTALL "CHEVRON" PAVEMENT MARKING. SEE DETAIL BELOW.

APPLY TEMPORARY REFLECTIVE WHITE FLEXIBLE ROAD TAB @ 3' O.C. AFTER SPEED TABLE IS INSTALLED (TYP).

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

CITY ENGINEER

DRAWING NUMBER

T - 2E

NOTE:
1. INSTALL GALVANIZED STEEL BOLLARD AS NEEDED PER ENGINEER'S DIRECTION OR AS SPECIFIED ON THE PLANS. SEE STANDARD DRAWING NO. T-2A FOR DETAILS.
NOTES:

1. DEVELOPER/CONTRACTOR MAY USE 6' X 6' OR 6' X 8' PRE-FORMED RUBBERIZED SPEED CUSHIONS.
2. SPEED CUSHION SHALL BE ARRANGED TO THE SATISFACTION OF THE CITY ENGINEER TO ALLOW EMERGENCY VEHICLES TO PASS WITHOUT IMPEDANCE.
3. OTHER SPEED CUSHION LAYOUTS MUST BE APPROVED BY THE CITY ENGINEER.
4. ALL SIGNING AND STRIPING SHALL APPLY TO ALL TYPES OF ROADWAY WIDTH AND EITHER SIZE OF SPEED CUSHION INSTALLATION OPTION.
5. THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL SIGNING AND STRIPING AS DETERMINED BY THE CITY OF ELK GROVE FOR PUBLIC SAFETY.

SPEED CUSHION MINIMUM SPECIFICATIONS REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>RAMP GRADIENT (SIDE)</td>
<td>1:6</td>
</tr>
<tr>
<td>TENSILE STRENGTH</td>
<td>400 PSI</td>
</tr>
<tr>
<td>NUMBER OF ANCHOR BOLTS PER CUSHION</td>
<td>35</td>
</tr>
</tbody>
</table>
SIGN BLANKS: All street name signs shall be 10 inches in height, a minimum of 30 inches in length and a maximum of 42 inches in length. Sign blanks shall be 0.080 inch thick, ASTM B209 Alloy 6061-T6, flat aluminum for cantilever mounted signs and shall be 0.125 inch thick, ASTM Alloy 6061-T6, flat aluminum for center mounted signs.

SHEETING: Reflective sheeting shall be 3M diamond grade or equivalent (white), overlaid with Electrocut (EC) transparent overlay film (green). Graffiti film shall be applied over the entire sign.

STREET NAMES: Street names shall be no longer than 14 letters long, including spaces and shall be used to determine sign length as specified above.

FONTS: All letters and numbers shall be highway gothic font. Minimum letter dimensions as listed below are to be used with long street names in order to fit names on sign blanks.

- **Upper case letters for street names:** 4 inches
- **Lower case letters for street names:** 3 inches
- **Upper case letters for street types (i.e. BLVD, WAY, RD, ST):** 2 inches
- **Upper case letters for block numbers:** 2 inches
- **Upper case letters for City of Elk Grove:** 1 inch

CITY SEAL: City seal shall be 5 inches in diameter Electrocut (EC) film. A copy of the seal can be obtained from the assistant city clerk.

COLORS: Street name sign colors shall be as follows:
- **Background:** Green
- **Text:** White
- **Border:** White
- **City seal:** Pantone Matching System: 
  - Green PMS 341C
  - Yellow PMS 117C
  - Red PMS 209C
  - Blue PMS 287C
- **Color of cloud is 15% of blue**

LAYOUT: Signs shall be double faced (front and rear) with block arrows pointing in the same direction (i.e. front to right and rear to left). Layout shall be as shown above.
SIGN BLANKS: All street name signs shall be 10 inches in height, a minimum of 30 inches in length and a maximum of 42 inches in length. Sign blanks shall be 0.080 inch thick, ASTM B209 Alloy 6061-T6, flat aluminum for cantilever mounted signs and shall be 0.125 inch thick, ASTM Alloy 6061-T6, flat aluminum for center mounted signs.

SHEETING: Reflective sheeting shall be 3M Diamond Grade or equivalent (white), overlaid with Electrocut (EC) transparent overlay film (green). Graffiti film shall be applied over the entire sign.

STREET NAMES: Street names shall be no longer than 14 letters long, including spaces and shall be used to determine sign length as specified above.

FONTS: All letters and numbers shall be Highway Gothic Font. Minimum letter dimensions as listed below are to be used with long street names in order to fit names on sign blanks.

- Upper case letters for street names: 4 inches
- Lower case letters for street names: 3 inches
- Upper case letters for street types (i.e. BLVD, WAY, RD, ST): 2 inches

CITY SEAL: City seal shall be 5 inches in diameter Electrocut (EC) film. A copy of the seal can be obtained from the Assistant City Clerk.

COLORS: Street name sign colors shall be as follows:
- Background: Green
- Text: White
- Border: White
- City seal: Pantone Matching System:
  - Green PMS 341C
  - Yellow PMS 117C
  - Red PMS 209C
  - Blue PMS 287C
  - Color of cloud is 15% of blue

LAYOUT: Signs shall be double faced (front and rear). Layout shall be as shown above.
NOTES:

1. STREET NAME SIGNS SHALL BE INSTALLED ON STREET LIGHT POLES WHEN THEY ARE LOCATED WITHIN THE LOCATION LIMITS DEFINED ON THIS DETAIL.

2. THE LOCATION FOR SECOND SIGN SHALL BE USED ONLY WHEN 2 (TWO) SETS OF STREET NAME SIGNS ARE REQUIRED AS SHOWN IN STANDARD DRAWING NUMBER T-6A.

3. ALL OTHER STREET NAME SIGN REQUIREMENTS IN SECTIONS 4-25 AND 4-26 AND IN STANDARD DRAWINGS T-3, T-4, T-5B, T-6A AND T-6B OF THE CITY OF ELK GROVE IMPROVEMENT STANDARDS SHALL APPLY.
CANTILEVER SIGNS SHALL BE MOUNTED ON SIGNAL POLES AND LUMINAIRE POLES AWAY FROM THE CROSS STREET WITH 30-INCH BRACKETS, TOP AND BOTTOM, (SEE NOTE). BRACKETS SHALL BE FASTENED TO POLES WITH TWO (2) 0.750 INCH WIDE BY 0.30 INCH THICK TYPE 201 STAINLESS STEEL BANDS WITH HEAVY DUTY BUCKLE AND A MINIMUM OF TWO (2) VANDAL PROOF SCREWS SHALL AFFIX THE STREET SIGN TO THE BRACKET. THE SCREWS SHALL PASS THROUGH THE BRACKET AND SIGN. AT LOCATIONS WITH TWO (2) SIGNS, THE SIGNS SHALL EACH HAVE TWO (2) BANDS AFFIXING THE BRACKET TO THE POLE.

NOTE:
BRACKETS SHALL BE 30-INCH IN LENGTH, TOP AND BOTTOM OF SIGN, AND SHALL BE ASSEMBLED BY ATTACHING AN EXTRUDED ALUMINUM HEAD TO AN EXTENDED ALUMINUM "T" CHANNEL. THE BRACKET SHALL BE MADE FROM 6082-T6 ALUMINUM WITH "T" SECTION SHALL BE MADE FROM 6062-T6 ALUMINUM. THESE CANTILEVER ASSEMBLIES SHALL ACCOMMODATE UP TO ¾" INCH STAINLESS STEEL BANDING THAT CAN BE DOUBLE WRAPPED FOR MOUNTING. THE CANTILEVER ARM SYSTEM SHALL ACCEPT SIGNS UP TO 0.125-INCH THICK. CANTILEVER ARMS SHALL BE ATTACHED TO BOTH THE TOP AND BOTTOM OF SIGN. CANTILEVER ARMS SHALL BE DESIGNED TO SUPPORT UP TO A SIGN AREA OF 6-SQ. FT. COLOR OF CANTILEVER ASSEMBLY AND BANDS SHALL MATCH POLE COLOR.
LEGEND:

- STANDARD STREET NAME SIGN INSTALLATION. FOUR (4) SIGN PLATES ON POST OR ON STREET LIGHT POLE.
- THREE (3) SIGN PLATES ON POST OR ON STREET LIGHT POLE.

STREETS HAVING 80' OR GREATER R/W WIDTH

STREETS HAVING LESS THAN 80' R/W WIDTH

NOTE:

1. SIDE STREETS INDICATED ARE STREETS WITH R/W WIDTHS EQUAL TO OR LESS THAN R/W WIDTH FOR THROUGH STREET.

2. STREET SIGNS ARE TO BE LOCATED AT MID-RETURN APPROXIMATELY 30 INCHES BEHIND THE FACE OF CURB OR 6" BEHIND ATTACHED SIDEWALKS. SEE STANDARD DRAWING T-1 WHEN COMBINED WITH A STOP SIGN.

3. SIGNS SHALL BE INSTALLED ON NORTHEAST AND SOUTHWEST CORNERS OF INTERSECTIONS. SIGNS SHALL BE INSTALLED ON STREET LIGHTING STANDARD WHEN APPROPRIATE AND AS APPROVED BY CITY.

4. CITY TO REVIEW AND APPROVE SIGN LOCATIONS PRIOR TO INSTALLATION.

5. SEE STANDARD DRAWINGS T-1, T-3, T-4, T-5 AND T-6B.
NOTES:

1. BOTTOM OF LOWEST STREET SIGN TO BE MOUNTED EIGHT (8) FEET ABOVE THE GROUND OR SIDEWALK PER DETAIL "A" SHOWN ON THIS SHEET EXCEPT, WHEN STOP SIGN IS MOUNTED ON SAME POST AS A STREET SIGN, BOTTOM OF STOP SIGN SHALL BE MOUNTED SEVEN (7) FEET ABOVE THE GROUND OR SIDEWALK AND STREET NAME SIGN TO BE MOUNTED DIRECTLY ABOVE THE STOP SIGN. IN NO CASE SHALL THE BOTTOM OF THE LOWEST SIGN BE LESS THAN SEVEN (7) FEET ABOVE THE GROUND OR SIDEWALK LEVEL.

2. WHEN INSTALLED BEFORE SIDEWALK IS CONSTRUCTED, DRIVE 2 3/4" SQUARE PIPE STIFFENER SLEEVE WITH 2" ANCHOR 30" INTO EXISTING GROUND SURFACE. SET TOP OF STIFFENER SLEEVE MINIMUM OF 2 FULL PERFORATION HOLES ABOVE ULTIMATE SIDEWALK GRADE. CAP END AND TAPE HOLES TO PREVENT CONCRETE FROM ENTERING PIPE DURING SIDEWALK CONSTRUCTION.

3. TWO (2) 3/8" DRIVE RIVETS, PERPENDICULAR TO EACH OTHER, SHALL BE USED TO INSTALL 1 3/4" PERFORATED SQUARE PIPE TO STIFFENER SLEEVE. TWO (2) 3/8" DRIVE RIVETS SHALL BE USED TO INSTALL ALL SIGNS OTHER THAN STREET NAME SIGNS TO SQUARE SIGN PIPE.

4. SQUARE PIPE TOP SIGN BRACKET SHALL BE HAWKINS, PART NUMBER V14F-(HD)SL-107(2C)-0.125 OR EQUAL. CROSSPIECE SIGN BRACKET SHALL BE 90°. HAWKINS PART NUMBER V14F-(HD)SL-105(90)-0.125 (OR EQUAL). STREET LIGHT STANDARD BRACKET SHALL BE HAWKINS, WING BRACKET, PART NO. V14F-(HD)SL-AB-0.125 OR EQUAL.
NOTES:

1. BIKE LOOP SHALL BE INSTALLED WITH CONDUIT, DETECTOR HANDHOLE (DH) AND DETECTOR LEAD IN CABLE (DLC) AND CONNECTED IN CONTROLLER WITH SEPARATE CHANNEL FOR OPERATION. UNLESS OTHERWISE NOTED ON THE PLANS.

2. FOR BIKE LANE WITH LESS THAN 3 FEET IN WIDTH, MEASURING FROM BIKE LANE STRIPE AND LIP OF GUTTER, USE 3/4 SIZE OF BIKE LANE LEGEND.

3. BIKE LANE LEGENDS, ARROWS AND BIKE DETECTION SYMBOLS SHALL BE 2 COATS WATER BASED WHITE PAINT PER SECTION 84-3.02 OF THE STATE STANDARD SPECIFICATIONS.

4. BIKE DETECTION SYMBOL SHALL BE INSTALLED ON LOOP DETECTOR FOR LEFT TURN LANE, BIKE LANE AND OUTSIDE THROUGH LANE WHERE NO BIKE LANE IS PROPOSED. FOR DUAL LEFT TURN LANES, ONLY THE OUTSIDE LEFT TURN LANE SHALL BE INSTALLED WITH BIKE DETECTION SYMBOL. COORDINATE WITH SIGNAL CONTRACTOR AND CITY INSPECTOR FOR EXACT LOCATION OF DETECTION.

BIKE LOOP INSTALLATION AT MAJOR INTERSECTION WITH RIGHT TURN LANE

BIKE LOOP INSTALLATION ADJACENT TO CURB AND GUTTER

BIKE LOOP DETECTOR DETAIL

BIKE DETECTION SYMBOL DETAIL

BIKE LANE LEGEND DETAIL
**NOTES:**

1. SELF CONTAINED SOLAR ENGINE THAT HOUSES THE ENERGY MANAGEMENT SYSTEM, ON BOARD USER INTERFACE, WIRELESS COMMUNICATIONS BETWEEN UNITS, BATTERIES AND SOLAR PANEL.

2. RECTANGULAR RAPID FLASHING BEACON (RRFB) INDICATIONS SHALL FLASH IN A RAPID ALTERNATING "WIG-WAG" FLASHING SEQUENCE. RRFB SHALL BE EITHER MODEL 2180-RRFB-XL BY TAPCO TRAFFIC AND PARKING CONTROL CO. INC, MODEL R920 BY CARMANAH TECHNOLOGIES CORP., OR MODEL TS80-RRFB BY TRAFFIC SAFETY CORP., OR APPROVED EQUAL.

3. PEDESTRIAN PUSH BUTTON (PPB) SHALL BE TYPE B, LARGE A.D.A. TYPE WITH TWO-INCH DIA. BUTTON. PPB HOUSING SHALL BE EITHER DIE-CAST OR PERMANENT MOLD CAST ALUMINUM. PEDESTRIAN SIGN SHALL CONFORM TO STANDARD SIGN R10-25 OF THE CALIFORNIA MUTCD.

4. INSTALL RRFB IN THE MEDIAN ISLAND WHEN APPLICABLE.
AT THE DISCRETION OF PUBLIC WORKS

1. ADJACENT TO SCHOOLS OR PARKS WIDEN THE SIDEWALK TO 8'. IF PARKING IS NOT NEEDED, PARKING CAN BE CHANGED TO 6' BIKE LANE. IF BIKE LINES ARE NEEDED, ADD 12'.

2. 8' OF LANDSCAPING SEPARATING THE STREET FROM THE SIDEWALK MAY BE ADDED.

3. IF PARKING IS NOT NEEDED, IT MAY BE REMOVED. MINIMUM RIGHT-OF-WAY SHALL BE 40 FEET. ADJACENT TO SCHOOLS OR PARKS WIDEN THE SIDEWALK TO 8'. IF PARKING IS NOT NEEDED, PARKING CAN BE CHANGED TO 6' BIKE LANE.

4. IF BIKE LINES ARE NOT NEEDED, REDUCE BY 11'.

5. LANDSCAPING AND SIDEWALK SHALL BE DEDICATED BY FEE TITLE OR LANDSCAPE/PEDESTRIAN EASEMENT AS APPROVED BY THE DIRECTOR.

MINOR DEVIATION MAY BE APPROVED BY THE DIRECTOR.
AT THE DISCRETION OF PUBLIC WORKS

1. ADJACENT TO SCHOOLS OR PARKS WIDEN THE SIDEWALK TO 8'.
2. LANDSCAPING AND SIDEWALK SHALL BE DEDICATED BY FEE TITLE OR LANDSCAPE/PEDESTRIAN EASEMENT AS APPROVED BY THE DIRECTOR.

MINOR DEVIATION MAY BE APPROVED BY THE DIRECTOR.
NOTES:

1. OTHER STRUCTURAL SECTIONS MAY BE USED WITH SPECIFIC APPROVAL OF THE DIRECTOR (SEE SECTION 4-6A)
NOTE:

CHAIN LINK FENCING SHALL BE 3 FT. HIGH
WITH A 1-1/4" DIAMETER TOP RAIL WITHIN
THE BUILDING SETBACK LINE AND 6 FT. HIGH
OUTSIDE OF THE BUILDING SETBACK LINE.

CHAIN LINK FENCING SHALL BE IN ACCORDANCE
WITH SECTION 45 OF THE STANDARD SPECIFICATIONS.
STREET LIGHTS SHALL BE PLACED AT BOTH
ENDS OF THE PEDESTRIAN LANE.

PEDESTRIAN LANE
WITH
BIKE BARRIER
NOTES:

1. SEE STATE STANDARD PLAN ES-2D AND ES-3C FOR STANDARD ANCHOR BOLT PATTERNS AND SIZES.

2. IN UNPAVED AREAS, A RAISED PORTLAND CEMENT PAD SHALL BE CONSTRUCTED IN FRONT OF THE FRONT DOOR OF THE CONTROLLER CABINET (50" W x 48" D x 4" THICK).

3. FRONT DOOR OF THE CONTROLLER CABINET SHALL FACE NORTH OR EAST, WHENEVER FEASIBLE. THE FINAL LOCATION OF THE CONTROLLER CABINET AND SERVICE CABINET SHALL BE APPROVED BY THE CITY ENGINEER.
IISNS SUPPORT ARM
SEE DETAIL T-14

ALIGN IISNS BRACKET 2" FROM END OF ARM

END CAP

INTERNALLY ILLUMINATED STREET NAME SIGN (IISNS) (EDGE-LIT LED)
SEE STANDARD SPECIFICATIONS

VEHICLE SIGNAL HEAD (TYP)

MOUNTING HEIGHT:
25' TO BASE PLATE OR AS DIRECTED BY THE ENGINEER IN THE FIELD

Main St

(EDGE-LIT LED) INTERNALLY ILLUMINATED STREET NAME SIGN

CITY OF ELK GROVE - PUBLIC WORKS

APPROVED BY:

CITY ENGINEER

DATE
10/24/2018

NOT TO SCALE

DRAWING NUMBER
T - 13
IISNS SUPPORT ARM
(N.T.S.)

3-1/2" O.D.
(NON-TAPERED)

1/2" COUPLING ON BOTTOM
(FOR SIGN WIRING)

2-PIECE CLAMP
SEE DETAIL "A"

1/2"

2.8" (8' IISNS)
4.2" (6' IISNS)

WELD ARM TO CLAMP
AT ANGLE THAT WILL
PROVIDE HORIZONTAL
ORIENTATION

MOUNTING HEIGHT:
25' TO BASE PLATE OR
AS DIRECTED BY THE
ENGINEER IN THE FIELD

SAME AS OUTSIDE
DIAM OF POLE USED

13/16" DIAM HOLES
(TYP 4-PLACES)

1/4" P CLAMP

DETAIL B

DETAIL A

CLAMP DETAILS
(N.T.S.)

5/8" DIAM WITH 2 TO 3
THREADS SHOWING
A325 BOLTS
(TYP 4-PLACES)

1/4" R CLAMP

EXISTING POLE

1" DIAM HOLE WITH
CHASE NIPPLE IN
POLE (TO BE DRILLED
ON SITE)

2" DIAM
DEBURRED HOLE IN
CLAMP

3/8" DRILL
FOR GALV DRAIN

3/8" THICK

3/4" R

7/8" ± 1/4"

14-3/4"

12-1/2"

12"

8"

6"

2"

2"

3/8"

1/4"

2"

1/4"

1/4"

GENERAL NOTES

MATERIAL SPECIFICATIONS
SHAFT
STEEL OF 48,000 PSI MINIMUM
YIELD AFTER FABRICATION

CLAMP PLATE
ASTM A-572 GR. 50 STEEL

MANUFACTURING PROCESS
LONGITUDINAL
WELDS
ALL WELDS SHALL CONFORM TO
AWS D1.1 WELD SPECIFICATION

FINISH COATING
STRUCTURE
HOT DIP GALVANIZED PER
ASTM A-123

HARDWARE
HOT DIP GALVANIZED PER
ASTM A-153

DESIGN CRITERIA
STRUCTURE,
HARDWARE,
AND
WELDING
IN ACCORDANCE WITH THE
"SPECIFICATIONS FOR
STRUCTURAL SUPPORTS OF
HIGHWAY SIGNS, LUMINAIRES
AND TRAFFIC SIGNALS",
AASHTO 1994

DATE: 09/22/2007
APPROVED BY:
CITY ENGINEER
DATE: 10/24/2018

CITY OF ELK GROVE - PUBLIC WORKS
IISNS SUPPORT ARM
TYPICAL CLAMP DETAIL

T - 14

NOT TO SCALE

REVISION
BY
APPROVED
DATE
CONDUIT SIZING

<table>
<thead>
<tr>
<th>CONDUCTOR</th>
<th>EQUIVALENT NUMBER OF #14 A.W.G. CONDUCTORS FOR USE IN CONDUIT SIZING</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12 CONDUCTOR</td>
<td>1.2</td>
</tr>
<tr>
<td>#10 CONDUCTOR</td>
<td>1.5</td>
</tr>
<tr>
<td>#8 CONDUCTOR</td>
<td>2.3</td>
</tr>
<tr>
<td>#6 CONDUCTOR</td>
<td>3</td>
</tr>
<tr>
<td>#4 CONDUCTOR</td>
<td>4</td>
</tr>
<tr>
<td>#2 CONDUCTOR</td>
<td>5.3</td>
</tr>
<tr>
<td>#0 CONDUCTOR</td>
<td>11.5</td>
</tr>
<tr>
<td>INTERCONNECT CABLE</td>
<td>18</td>
</tr>
<tr>
<td>DETECTOR LEAD-IN CABLE</td>
<td>2.5</td>
</tr>
<tr>
<td>EMERGENCY VEHICLE DETECTOR CABLE</td>
<td>2</td>
</tr>
</tbody>
</table>

CONDUIT SIZE  | 1" | 1.5" | 2" | 2.5" | 3" | 3.5" | 4"
---|---|---|---|---|---|---|---
MAXIMUM NUMBER OF #14 A.W.G CONDUCTORS | 8 | 19 | 31 | 44 | 69 | 91 | 113

NOTE: MINIMUM SIZE FOR NEW CONDUITS IS 1.5".

SERVICE WIRE MAXIMUM LENGTHS FOR TRAFFIC SIGNALS

<table>
<thead>
<tr>
<th>WIRE SIZE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>#0</td>
<td>576'</td>
</tr>
<tr>
<td>#2</td>
<td>360'</td>
</tr>
<tr>
<td>#4</td>
<td>224'</td>
</tr>
</tbody>
</table>

CIRCUIT BREAKER SIZING

<table>
<thead>
<tr>
<th>CONDUCTOR SIZE A.W.G.</th>
<th>MAXIMUM CIRCUIT BREAKER AMPERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>100</td>
</tr>
<tr>
<td>#4</td>
<td>80</td>
</tr>
<tr>
<td>#6</td>
<td>50</td>
</tr>
<tr>
<td>#8</td>
<td>40</td>
</tr>
<tr>
<td>#10</td>
<td>30</td>
</tr>
</tbody>
</table>

NOTE
THE BREAKER SIZE SHALL BE DETERMINED BY THE LOAD REQUIREMENTS. MINIMUM BREAKER SIZE IS 30 AMPS.
**TYPICAL LOOP INSTALLATION**

1. **LOOP INSTALLATION PROCEDURE**
   
   1. All loop work shall conform to the latest version of Section 49.5 "Detector" of the City of Elk Grove Standard Construction Specifications and Standard Drawings.
   
   2. See current state standard plans ES-5 series for additional details.
   
   3. The placement of loops shall be centered in each lane, with the exception of left turn lane less than 11' wide. The separation distance between the right edge of each loop and the lane on the right (thru lane) should be 3'-6".
   
   4. New or replacement loop shall be marked on pavement and their location approved by the engineer, prior to pavement cutting.
   
   5. Loop installation shall include new conduit, detector handhole (DH) and detector lead in cable (DLC), unless otherwise noted on the plans.
   
   6. Each detector loop in each travel lane shall be installed with its own detector lead in cable and connected in controller with separate detector channel for operation, unless otherwise noted on the plans.
   
   7. Detector lead in cables shall be continuous without splices between loop termination pull box and controller.
   
   8. Loop installation 250' or more from stop bar shall have 4 turns.
   
   9. Detector loop conductor shall be type RHW-use neoprene-jacketed or type USE cross-linked polypropylene insulated no. 12 stranded copper wire. Conductor insulation thickness shall be forty (40) mils minimum.
   
   10. Distance between side of loop and lead-in saw cut shall be 1'-0" minimum.
   
   11. Loops and lead-in cuts shall be located a minimum of 2 feet from the nearest edge of manhole cover or valve box.
   
   12. Width of saw cuts shall be 1/4" wider than thickness of the conductor.
   
   13. Depth of saw cuts shall be such that the minimum sealant cover shall be 1/2" with an additional 1/8" to 1/4" gap between top of sealant and surface of pavement.
   
   14. Test each loop circuit at controller cabinet (or, if these are not installed, test at termination pull box) before filling slots. Perform a resistance test between each circuit and ground. Insulation resistance shall not be less than 100 mega ohms. Test each loop circuit for continuity. Loop circuit resistance shall not exceed 0.5 ohms plus 0.35 ohms per 100 feet of lead-in cable.
   
   15. Sealant for loop detectors shall be 3M 5000 or approved equal elastomeric sealant.
   
   16. Conduit between detector handhole and pull box shall be installed 30" minimum below roadside ditch or swale.
   
   17. Detector hand-hole (DH) shall be type B (see STD DWG 1 - 17).
   
   18. Any damage to existing loops, detector hand-hole, conduit and detector lead in cable shall be replaced per the requirements set forth in this detail.

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**TYPICAL DETECTOR LOOP LAYOUTS**

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**TYPICAL LOOP INSTALLATION**

**SECTION A-A**

- Type 'B' detector handhole
- 4 turns copper wire no. 12 AWG (Note 9)
- Depth as required (Note 13)

**SECTION B-B**

- Type 'A' detector handhole
- 3 turns copper wire no. 12 AWG (Note 9)
- Depth as required (Note 13)
- Lead-in wires for loops, use 2 wires for each loop

**SECTION C-C**

- Approved sealant fill (Note 15)
- Depth as required (Note 13)

---

**TYPICAL DETECTOR LOOP LAYOUTS**

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**DATE:** 09/22/2007

**NOT TO SCALE**

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**CITY OF ELK GROVE - PUBLIC WORKS**

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**APPROVED BY:**

---

**CITY ENGINEER**

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**DRAWING NUMBER**

---

**T - 16**
INSTALLATION REQUIREMENTS:

1. 18" SQ.± P.C.C. ENCASEMENT OUTLINE SHALL BE SAW CUT TO A MINIMUM DEPTH OF 3", EXCEPT WHERE AC OVERLAY IS TO BE PLACED.

2. THE PRECAST VALVE BOX WITH CAST IRON LID SHALL BE FABRICATED OF CALCIUM CARBONATE AND POLYESTER RESINS WITH FIBERGLASS REINFORCING AND DESIGNED FOR HEAVY TRAFFIC LOADS.

3. CAST IRON LID SHALL BE MARKED "DETECTOR" AND SHALL BE SECURED IN PLACE BY APPLYING SILICONE SEALANT. VALVE BOX LOCATION SHALL BE AS SHOWN ON THE PLANS.

4. THE EXCAVATION AROUND THE HANDHOLE SHALL BE BACKFILLED WITH 5 SACK P.C.C.

5. THE HANDHOLE SHALL BE PROTECTED WITH COLD PATCH OR OTHER SUITABLE PROTECTION UNTIL PERMANENT A.C. BACKFILL IS PLACED.

6. THE CEMENT USED TO JOIN THE ABS SWEEP "Y" TO THE PVC CONDUIT SHALL BE CAPABLE OF PROVIDING SOLVENT TYPE WELD BETWEEN THE TWO MATERIALS.
GENERAL INSTALLATION NOTES - ALL CABINETS

1. ALL CABINET DIMENSIONS ARE NOMINAL.

2. FOUNDATION SHALL BE LOCATED AS SHOWN ON PLANS. WHERE INSTALLED IN SIDEWALK PLACE AT BACK OF WALK AND PROVIDE 48" MINIMUM CLEARANCE BETWEEN FACE OF CURB AND FRONT OF CABINET.

3. ONE ANCHOR BOLT SHALL BE BONDED TO CONDUIT OR GROUND WIRE.

4. SERVICE CAN, CONTROLLER CABINET, AND TERMINAL CABINET (IF NECESSARY) SHALL BE ON A COMMON FOUNDATION WITH 6" SPACING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE SERVICE CAN SHALL BE TO THE LEFT OF THE CONTROLLER CABINET SO AS TO NOT BE BLOCKED BY CONTROLLER CABINET DOOR WHEN FULLY OPEN.

5. APPROVED WATERPROOF SEAL TO BE APPLIED TO BASE OF CABINETS AND CONCRETE FOUNDATION.

6. IN UNIMPROVED AREAS A RAISED P.C.C. PAD OF 36" X 30" X 4" SHALL BE PLACED IN FRONT OF EACH CABINET.

7. IN ALL UNPAVED AREAS TOP OF FOUNDATION FOR CABINETS SHALL BE 6" ABOVE SURROUNDING GRADE. IN PAVED AREAS TOP OF FOUNDATION SHALL BE 3" ABOVE PAVED AREA.

8. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

9. ALL CONDUITS SHALL BE BOUNDED TOGETHER IN THE CABINET.

10. LOCATIONS SHOWN FOR EQUIPMENT ARE TYPICAL ONLY.

11. A 1/2" DIAMETER DRAIN HOLE SHALL BE FORMED IN THE CABINET BASE. ALL CABINETS SHALL BE LEVELLED SO THAT THE CABINET DOOR WILL OPEN AND CLOSE EASILY.
NOTES:

1. ACCESSIBLE PEDESTRIAN SIGNAL SYSTEM SHALL BE POLARA'S NAVIGATOR 2-WIRE SYSTEM OR APPROVED EQUIVALENT.

2. PEDESTRIAN SIGNS SHALL BE METAL AND SHALL CONFORM TO STANDARD SIGN NO. R10-4b (9" x 12") OF THE CALIFORNIA MUTCD.

3. PEDESTRIAN PUSH BUTTON HOUSING SHALL BE EITHER DIE-CAST OR PERMANENT MOLD CAST ALUMINUM.

4. ALL PEDESTRIAN SIGNAL HEADS SHALL BE THE "COUNTDOWN" VARIETY.

5. PEDESTRIAN HEADS SIGNAL DISPLAY SHALL BE ONE OF THE FOLLOWING:
   - DIALIGHT 430-6479-001XC
   - GE PS7-CFF1-VLA OR PS7-CFF1-27A
   - LEOTEK TSL-PED-16-CIL-P1
   THE DISPLAY SHALL INCLUDE SOLID (FILLED IN) "WALKING PERSON" AND "RAISED HAND" SYMBOLS.
NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOUNTING THE CAMERA ENCLOSURE ASSEMBLY AND POSITIONING IT AS DIRECTED BY THE ENGINEER. ALL MOUNTING EQUIPMENT AND MOUNTING METHODS SHALL BE AS SPECIFIED BY THE CAMERA MANUFACTURER.

2. WHERE CAMERAS ARE INSTALLED NEAR SIGNALIZED INTERSECTIONS, CAMERA CABLES/CONDUCTORS SHALL BE INSTALLED AND TERMINATED IN THE CONTROLLER CABINET WHERE ACTELIS SWITCH IS LOCATED.