NOTE: FUTURE CONSTRUCTION ITEMS ON PLANS SHALL BE INDICATED BY A DASHED LINE AND APPROPRIATE NOTE.
LEGEND

TSI = TRAFFIC SIGNAL INTERCONNECT  SS = SANITARY SEWER
E = ELECTRIC  SD = STORM DRAIN
FA = FIRE ALARM  W = WATER
SL = STREET LIGHT  S-G = STEEL GAS
CATV = CABLE TELEVISION  PL-G = PLASTIC GAS
T = TELEPHONE

PROFILE ONLY

CENTERLINE GRADE

TOP OF CURB OR FLOW LINE

PIPE

OR

OR

OR

SYMBOLS

AGENCY APPROVED  B  C  H  L  M  N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE  DWG. NO. 101  SHEET 3 OF 4
### MISCELLANEOUS ELECTRICAL SYMBOLS

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ABBREVIATIONS

- Abandon
- Elev
- Aban
- AIP
- Elevation
- Embk
- ECR
- Aggregate
- E
- EC
- End of Curb Return
- A
- EBS
- End of Curve
- ACP
- E
- E
- A
- A
- E
- BC
- Elev
- BCR
- BVC
- BM
- Bdr
- CATV
- C-C
- C
- CBC
- CLV
- COH
- CM
- CNLV
- CC
- CCS
- CO
- C
- CMP
- CSAP
- CSP
- CIP
- C
- Cf, CY
- CF
- C
- CF
- D
- D
- DI
- E
- EP
- EO
- E
- EM

- Abandoned in Place
- Embankment
- End of Vertical Curve
- Back of Curb
- Beginning of Vertical Curve
- End of Curb
- Bound Station
- Curb and Gutter
- Horizontal Gas
- Fire Alarm
- Fire Hydrant
- Cable Television
- Center to Center
- Flow Line
- Centerline
- Galvanized
- City of Boulder City
- City of Las Vegas
- City of Henderson
- City of Mesquite
- City of North Las Vegas
- Clark County
- Clark County Sanitation District
- Clean Out, Sewer
- Commercial
- Intersection
- Invert
- Concrete
- Construction or Construct
- Corner
- Island
- Junction Box
- Length of Curb
- Corrugated Metal Pipe
- Corrugated Steel Arch Pipe
- Corrugated Steel Pipe
- Left
- Linear Feet
- Las Vegas Valley Water District
- Corrugated
- Center
- Column
- Cubic Yard
- Cubic Feet
- Manhole
- Maximum
- Minimum
- Monolithic
- Culvert
- Curb Face
- Department
- Diameter
- North of
- Not to Scale
- On Center
- Open-Graded Pavement
- Original Ground
- Driveway
- Drop Inlet
- Easement
- East of
- Point of Intersection
- Point of Reverse Curve
- Point of Curve
- Point of Tangency
- Point of Compound Curve
- Edge of Pavement
- Edge of Oil
- Electric
- Electric Meter
- Electrical
- EP
- E
- P
- PC

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE
DWG. NO.
105
SHEET
1 OF 2
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<tr>
<th>Abbreviation</th>
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<td>Property Line</td>
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<td>Pull Box</td>
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**ABBREVIATIONS**
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**NOTES**

1. THIS CHART WAS CONSTRUCTED USING THE 1993 AASHTO PAVEMENT DESIGN GUIDE, 1993 NDOT MANUAL AND THE 2000 RTC DESIGN CRITERIA, SECTION 401.01.02 OF THE STANDARD SPECIFICATIONS.

2. AN AVERAGE R-VALUE MAY BE USED IF IT IS REPRESENTATIVE OF ALL PROJECT CONDITIONS.

3. ADDITIONAL DESIGN COMPENSATION IS REQUIRED IF EXPANSIVE SOILS, HYDRO-COLLAPSIBLE SOILS, OR SOLUBLE MATERIALS ARE PRESENT.

4. AC DEPTHS SHOWN ARE MINIMUMS AND 4" MINIMUM TYPE II IS REQUIRED. OTHER COMBINATIONS THAT MEET OR EXCEED THE STRUCTURAL NUMBER REQUIREMENTS ARE ACCEPTABLE.

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PAVEMENT STRUCTURE DESIGN GUIDELINE CHART
FOR
MINOR COLLECTOR AND RESIDENTIAL ROADWAYS

DATE 11-10-04 DWG. NO. 200.1
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**NOTES:**
1. THIS CHART WAS CONSTRUCTED USING THE 1993 AASHO PAVEMENT DESIGN GUIDE, 1993: NDOT MANUAL AND THE 2000 RTC DESIGN CRITERIA, SECTION 401.01.02 OF THE STANDARD SPECIFICATIONS.
2. A TRAFFIC STUDY MAY BE REQUIRED IF TI > 9.5.
3. AN AVERAGE R-VALUE MAY BE USED IF IT IS REPRESENTATIVE OF ALL PROJECT CONDITIONS.
4. ADDITIONAL DESIGN COMPENSATION IS REQUIRED IF EXPANSIVE SOILS, HYDRO-COLLAPSIBLE SOILS, OR SOLUBLE MATERIALS ARE PRESENT.
5. AC DEPTHS SHOWN ARE MINIMUMS AND 4" MINIMUM TYPE II IS REQUIRED. OTHER COMBINATIONS THAT MEET OR EXCEED THE STRUCTURAL NUMBER REQUIREMENTS ARE ACCEPTABLE.
NOTE:

SEE STANDARD DRAWING NO. 245.1 (2 SHEETS) FOR TYPICAL LANE CONFIGURATIONS AND DIMENSIONS

*AT THE INTERSECTIONS OF 80 FT. AND 100 FT. STREETS, ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED FOR THE 80 FT. STREET. TYPICALLY, THESE 80 FT. STREETS WILL BE IDENTIFIED AS ARTERIALS IN THE REGIONAL TRANSPORTATION PLAN.

<table>
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AGENCY APPROVED | B | C | H | L | M | N

DATE 7-10-03 | DWG. NO. 201.1
INTERSECTION SIGHT VISIBILITY ZONE

THE SIGHT VISIBILITY ZONE CREATED BY "C" AND "D" IS NOT REQUIRED IF THE INTERSECTION IS CONTROLLED BY AN EXISTING TRAFFIC SIGNAL.

TYPICAL INTERSECTION CORNER

SEE SHEETS 3 THROUGH 8 FOR TYPICAL INTERSECTION SIGHT VISIBILITY ZONE LIMITS.

NOTE: FOR SIGHT ZONE DIMENSIONS, SEE SETBACK TABLE ON SHEET 2 OF THIS STANDARD DRAWING.
1. EACH CORNER OF EVERY INTERSECTION SHALL HAVE A SIGHT VISIBILITY ZONE REGARDLESS OF RIGHT-OF-WAY WIDTH.

2. NO WALLS, FENCES, SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.


4. CURVING ROADWAYS AND ROADWAYS WITH INTERSECTING ANGLES GREATER THAN 10 DEGREES MUST BE ANALYSED ED USING D1, D2, THE EYE POSITION, AND THE CAR POSITION AS SHOWN IN THE INFORMATION ABOVE.

5. USE OF A SIGHT VISIBILITY ZONE DIFFERENT THAN THAT SHOWN HEREIN SHALL REQUIRE A SIGHT VISIBILITY ANALYSIS PREPARED AND SUBMITTED FOR APPROVAL TO THE LOCAL ENTITY ENGINEER BY A CIVIL ENGINEER REGISTERED IN THE STATE OF NEVADA.

6. THE AREA WITHIN THE LIMITS OF THE ARC AND THE CHORD AT THE CURB RETURN (OFFSET 5' FROM BACK OF CURB) SHALL BE ADDED TO THE SIGHT VISIBILITY ZONE. ONE AT EACH CORNER OF EVERY INTERSECTION, EXCEPT FOR 80 80 INTERSECTIONS OR GREATER.

7. ON-STREET PARKING SHALL BE PROHIBITED WITHIN AREAS DESIGNATED BY DIMENSIONS "A" AND "D" ON SHEET 1 OF THIS DRAWING, SUBJECT TO THE APPROVAL OF THE TRAFFIC ENGINEER OR DESIGNATED REPRESENTATIVE OF THE ENTITY HAVING JURISDICTION.

8. TREES WITH A MATURE SINGLE TRUNK DIAMETER LESS THAN 10-INCHES, A CANOPY HEIGHT GREATER THAN 8- FEET, A MINIMUM SPACING GREATER THAN ONE HALF THE ROADWAY WIDTH (BACK OF CURB TO BACK OF CURB), AND A MINIMUM OF 30- FEET FROM THE NEAREST CURB RETURN WILL BE ALLOWED IN THE SIGHT VISIBILITY ZONE, SUBJECT TO THE APPROVAL OF THE ENTITY HAVING JURISDICTION.

9. CONSULT THE AASHTO PUBLICATION A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR RIGHT-OF-WAYS GREATER THAN 100:

**BASIS FOR ANALYSIS**

THE FOLLOWING CRITERIA WAS USED AS THE BASIS FOR DESIGN OF SIGHT VISIBILITY ZONES:

AASHTO PUBLICATION A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2011 EDITION, CHAPTER IX, USING THE MOST RESTRICTIVE SIGHT LINE DERIVED FROM EACH OF THE THREE POSSIBLE CROSSING MANEUVERS (STOPPED CONDITION):

- CASE B3 - CROSSING MANEUVER
- CASE B1 - LEFT TURN MANEUVER ONTO A MAJOR STREET
- CASE B2 - RIGHT TURN MANEUVER ONTO A MAJOR STREET

THE ANALYSIS USED A DESIGN SPEED EQUAL TO THE POSTED SPEED DIVIDED BY 0.85 (ROUNDED TO THE NEAREST 5 MPH INCREMENT).

CAR AND EYE POSITIONS ARE AS SHOWN ON SHEET 1 OF THIS DRAWING.

**GENERAL NOTES**

**SETBACK TABLE**

**SIGHT VISIBILITY ZONES AT INTERSECTIONS**
TYPICAL SIGHT VISIBILITY ZONES FOR COMMERCIAL DRIVEWAY APPROACHES

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGHT VISIBILITY ZONES
AT INTERSECTIONS

DATE 01-09-20

DWG. NO. 201.2

SHEET 3 OF 8
TYPICAL SIGHT VISIBILITY ZONES FOR 48-FT RIGHT-OF-WAY ROADWAY APPROACHES

<table>
<thead>
<tr>
<th>48-FT RIGHT-OF-WAY</th>
<th>51-FT RIGHT-OF-WAY</th>
<th>60-FT RIGHT-OF-WAY</th>
<th>80-FT RIGHT-OF-WAY</th>
<th>100-FT RIGHT-OF-WAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTERLINE 79.0'</td>
<td>CENTERLINE 97.0'</td>
<td>CENTERLINE 97.0'</td>
<td>CENTERLINE 12'</td>
<td>CENTERLINE 163.0'</td>
</tr>
<tr>
<td>12'</td>
<td>11'</td>
<td>11'</td>
<td>11'</td>
<td>11'</td>
</tr>
<tr>
<td>87.0'</td>
<td>75.0'</td>
<td>76.0'</td>
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<td>101.0'</td>
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<td>79.0'</td>
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<tr>
<td>12'</td>
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</tr>
</tbody>
</table>

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGHT VISIBILITY ZONES
AT INTERSECTIONS

DATE 01-09-20  DWG. NO. 201.2  SHEET 4 OF 8
TYPICAL SIGHT VISIBILITY ZONES FOR 51-FT RIGHT-OF-WAY ROADWAY APPROACHES

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGHT VISIBILITY ZONES
AT INTERSECTIONS

DATE 01-09-20  DWG. NO. 201.2  SHEET 5 OF 8
TYPICAL SIGHT VISIBILITY ZONES FOR 80-FT RIGHT-OF-WAY ROADWAY APPROACHES
TYPICAL SIGHT VISIBILITY ZONES FOR 100-FT RIGHT-OF-WAY ROADWAY APPROACHES

AGENCY APPROVED
SIGHT VISIBILITY ZONES
AT INTERSECTIONS

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 01-09-20    DWG. NO. 201.2    SHEET 8 OF 8
### Minimum Property Line and BACK OF CURB Radii

#### BACK OF CURB RADIUS SHOWN IN TABLE

#### A TRAFFIC CHORD EASEMENT WILL BE REQUIRED AT THIS CORNER.

<table>
<thead>
<tr>
<th>&quot;B&quot;</th>
<th>0 OR LESS</th>
<th>80</th>
<th>100 OR MORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>20</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>80</td>
<td>25</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>100 OR MORE</td>
<td>30</td>
<td>30</td>
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</tbody>
</table>

#### PROPERTY LINE RADII

<table>
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<tr>
<th>&quot;B&quot;</th>
<th>0 OR LESS</th>
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</thead>
<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>15</td>
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</tr>
<tr>
<td>80</td>
<td>25</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>100 OR MORE</td>
<td>30</td>
<td>35</td>
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</tr>
</tbody>
</table>
NOTES

PROPERTY LINES SHALL BE PARALLEL AND RADIAL TO THE BACK OF CURB AT A DISTANCE CONSISTENT WITH THE STANDARD STREET SECTIONS DRAWING NUMBERS.

PROPERTY LINE RADIUS SHALL BE A MINIMUM OF 54 FEET.

PROPERTY LINE RADIUS SHALL BE A MINIMUM OF 40 FEET.

BACK OF CURB RADIUS SHOWN IN TABLE

<table>
<thead>
<tr>
<th>&quot;B&quot;</th>
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<th>25</th>
<th>30</th>
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<td>0</td>
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<tr>
<td>0</td>
<td>20</td>
<td>25</td>
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<td>80</td>
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</tr>
<tr>
<td>100</td>
<td>30</td>
<td>30</td>
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</tr>
</tbody>
</table>
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING 200.

3. THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>A.C. PAVEMENT SURFACE MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLV, NLV</td>
<td>1-INCH UTACS</td>
</tr>
<tr>
<td>CC, MES, BC</td>
<td>FOG SEAL</td>
</tr>
<tr>
<td>HEN</td>
<td>FOG SEAL AND/OR OPEN GRADE</td>
</tr>
</tbody>
</table>

4. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE, AND BOULDER CITY WHEN A.C. THICKNESS IS ≥ 5 IN.

AGENCY APPROVED

CLARK COUNTY AREA

ARterial Urban Area Street Sections

DATE 01-09-20 DWG. NO. 202
NOTES

1. FINAL A.C. PAVEMENT SURFACE (INCLUDING UTACS OR OPEN GRADE) SHALL BE 3/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES. DENSE GRADE SHALL BE FLUSH WITH LIP OF GUTTER.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.

3. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

4. UNDERGROUND DRY UTILITIES SHALL BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

5. OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE AGENCY.

AGENCY APPROVED

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>R</th>
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SPECIFICATION REFERENCE

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SUPPLEMENTAL DRAWING

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<tr>
<td>PRIMARY ARTERIAL</td>
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<table>
<thead>
<tr>
<th>COMPLETE STREET ALTERNATIVE</th>
</tr>
</thead>
</table>

| DATE 01-09-20 | DWG. NO. 203.1.S1 |
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.

3. THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

   - **JURISDICTION**
     - CLV, NLV
     - CC, MES, BC
     - HEN

   - **A.C. PAVEMENT SURFACE MATERIAL**
     - 1-INCH UTACS
     - FOG SEAL
     - FOG SEAL AND/OR OPEN GRADE

4. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHOULD BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

   - INCREASE PAVEMENT WIDTH BY 11 FEET ON EACH SIDE OF ROADWAY FOR AN 8 LANE CROSS SECTION. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE, AND BOULDER CITY WHEN A.C. THICKNESS IS ≥5 IN.

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>302</th>
<th>AGGREGATE BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>BITUMINOUS PAVEMENT</td>
</tr>
<tr>
<td>403</td>
<td>OPEN GRADE</td>
</tr>
<tr>
<td>413</td>
<td>BITUMINOUS GAP GRADED PAVEMENT</td>
</tr>
<tr>
<td>501</td>
<td>CONCRETE</td>
</tr>
</tbody>
</table>

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

ARTERIAL

ALTERNATE URBAN AREA STREET SECTIONS
WITH OFFSET SIDEWALK

AGENCY APPROVED

DATE 01-09-20  DWG. NO. 203
NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHOULD BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

6. THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

7. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE, OR BOULDER CITY WHEN A.C. THICKNESS ≥5 IN.

---

**AGENCY APPROVED**

**SPECIFICATION REFERENCE**

- 302  AGGREGATE BASE
- 401  BITUMINOUS PAVEMENT
- 407  PRIME COAT
- 407  FOOG COAT
- 413  BITUMINOUS GAP GRADED PAVEMENT
- 501  CONCRETE

**UNIFORM STANDARD DRAWINGS**

- **CLARK COUNTY AREA**
- **SUPPLEMENTAL DRAWING**
- **COLLECTOR**
- **ALTERNATE URBAN AREA STREET SECTIONS**
- **WITH OFFSET SIDEWALK**

**DATE 01-09-20**

**DWG. NO. 205.1.S1**
NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHOULD BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

☐ OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE AGENCY.
MINOR COLLECTOR

NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. THIS STANDARD IS A COMPLETE STREET ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHALL BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

AGENCY APPROVED

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>302 AGGREGATE BASE</td>
<td>CLARK COUNTY AREA</td>
</tr>
<tr>
<td>401 BITUMINOUS PAVEMENT</td>
<td>SUPPLEMENTAL DRAWING</td>
</tr>
<tr>
<td>407 PRIME COAT</td>
<td>MINOR COLLECTOR</td>
</tr>
<tr>
<td>407 FOG SEAL</td>
<td>COMPLETE STREET ALTERNATIVE</td>
</tr>
<tr>
<td>501 CONCRETE</td>
<td>DATE 01-09-20 DWG. NO. 205.3.S1</td>
</tr>
</tbody>
</table>
MAJOR COLLECTOR

OR MINOR RESIDENTIAL COLLECTOR

NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE OR BOULDER CITY WHEN A.C. THICKNESS ≥ 5 IN.

5. 4 INCH MINIMUM THICKNESS REQUIRED IN HENDERSON, MESQUITE AND BOULDER CITY.

THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>A.C. PAVEMENT SURFACE MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLV, NLV</td>
<td>1-INCH UTACS (80-FT OR GREATER)</td>
</tr>
<tr>
<td>CC, MES, BC</td>
<td>FOG SEAL</td>
</tr>
<tr>
<td>HEN</td>
<td>FOG SEAL AND/OR OPEN GRADE</td>
</tr>
</tbody>
</table>

AGENCY APPROVED  B  C  H  L  M  N  R

SPECIFICATION REFERENCE

| 302 | AGGREGATE BASE |
| 401 | BITUMINOUS PAVEMENT |
| 407 | PRIME COAT |
| 407 | FOG COAT |
| 413 | BITUMINOUS GAP GRADED PAVEMENT |
| 501 | CONCRETE |

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

COLLECTOR

URBAN AREA STREET SECTIONS

WITH CURBSIDE SIDEWALK

DATE 01-09-20  DWG. NO. 205
RESIDENTIAL TWO-WAY LOCAL OR CUL-DE-SAC
(LOTS 40' WIDE OR LESS)

NOTES
1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.1.

3. HOMES ADJACENT TO THIS STREET SECTION MAY REQUIRE SPRINKLERS PER AGENCY FIRE CODE.

SPECIFICATION REFERENCE

| 302 | AGGREGATE BASE |
| 401 | BITUMINOUS PAVEMENT |
| 407 | PRIME COAT |
| 501 | CONCRETE |

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

LOCAL RESIDENTIAL

COMPLETE STREET ALTERNATIVES

DATE 01-09-20 DWG. NO. 206.1.S1
RESIDENTIAL TWO-WAY LOCAL OR CUL-DE-SAC
(OPTION "A")

RESIDENTIAL TWO-WAY LOCAL, CUL-DE-SAC (OPTION "B")
(NOT ALLOWED IN CLV OR CLARK COUNTY)

RESIDENTIAL ONE-WAY (NOT ALLOWED IN CLV OR CLARK COUNTY)

NOTES
1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.
2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.1.
3. RESIDENTIAL ONE-WAY STREET SHALL NOT EXCEED ONE THOUSAND FEET OR TWENTY RESIDENTIAL LOTS IN LENGTH, WHICHERSOEVER IS LESS.
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.1.
RESIDENTIAL TWO-WAY LOCAL OR CUL-DE-SAC

(OPTION "A")

RESIDENTIAL TWO-WAY LOCAL, CUL-DE-SAC

(OPTION "B")

RESIDENTIAL TWO-WAY LOCAL, CUL-DE-SAC

(OPTION "C")

NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STD. DWG. NO. 200.1.

3. RESIDENTIAL ONE-WAY STREET SHALL NOT EXCEED ONE THOUSAND FEET OR TWENTY RESIDENTIAL LOTS IN LENGTH, WHICHEVER IS LESS.

SPECIFICATION REFERENCE

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<thead>
<tr>
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<tr>
<td>302</td>
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</tr>
<tr>
<td>40C</td>
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<tr>
<td>407</td>
<td>FOG COAT</td>
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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

LOCAL RESIDENTIAL
URBAN AREA STREET SECTION

AGENCY APPROVED

C
L

DATE 01-09-20  DWG. NO. 206.S3
AR TERIAL OR MAJOR COLLECTOR

COMMERCI AL/INDUSTRIAL LOCAL
OR MINOR RESIDENTIAL COLLECTOR
OR LOCAL RESIDEN TIAL

NOTES:
1. A.C. PAVEMENT AND BASE THICKNESS SHALL BE IN ACCORDANCE TO STANDARD DRAWINGS NUMBER 202 THROUGH 206, WHICHEVER IS APPLICABLE.
2. GREATER WIDTHS MAY BE REQUIRED IF TRAFFIC WARRANTS, AS DETERMINED BY THE ENGINEER.

SPECIFICATION REFERENCE

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<td>HALF STREET CONSTRUCTION SECTIONS</td>
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DATE DWG. NO. 208
1. Intersections shall have 25 foot minimum edge of oil radii.

2. Compaction of aggregate base and subgrade preparation shall be in accordance with the "Standard Specifications".

3. Structural section shown is based on a subgrade "R" value of 20. Other structural sections may be approved if based on engineering analysis based on "R" or "CBR" values determined by soil testing. In no case shall the A.C. thickness be less than that shown, nor shall the base be less than 4".

4. Culverts may be required at driveways.

Notes:

1. Intersections shall have 25 foot minimum edge of oil radii.

2. Compaction of aggregate base and subgrade preparation shall be in accordance with the "Standard Specifications".

3. Structural section shown is based on a subgrade "R" value of 20. Other structural sections may be approved if based on engineering analysis based on "R" or "CBR" values determined by soil testing. In no case shall the A.C. thickness be less than that shown, nor shall the base be less than 4".

4. Culverts may be required at driveways.
NOTES:

1. INTERSECTIONS SHALL HAVE 34 FOOT MINIMUM EDGE OF A.C. RETURN RADII.

2. COMPACTION OF AGGREGATE BASE AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE UNIFORM STANDARD SPECIFICATIONS.

3. STRUCTURAL SECTION SHOWN IS BASED ON A SUBGRADE "R" VALUE OF 20. OTHER STRUCTURAL SECTIONS MAY BE APPROVED IF BASED ON ENGINEERING ANALYSIS BASED ON "R" OR "CBR" VALUES DETERMINED BY SOIL TESTING.

4. CULVERTS MAY BE REQUIRED AT DRIVEWAYS.

5. A.C. PAVEMENT SHALL BE IN ACCORDANCE WITH SECTION 401 OF THE UNIFORM STANDARD SPECIFICATIONS. ALTERNATE PAVING MATERIALS MAY BE USED AT THE DISCRETION OF THE ENTITY.

6. PAVEMENT MARKINGS MAY BE REQUIRED AND INCLUDE DOUBLE YELLOW CENTERLINE, RAISED PAVEMENT MARKERS OR YELLOW PAINT, AND 4' OFFSET WHITE PAINTED EDGELINES.

7. PAVEMENT WIDTH AND PAVEMENT THICKNESS MAY BE REDUCED TO 28 FEET (14 FEET EACH DIRECTION) AND 2 INCHES RESPECTIVELY BASED UPON A DETERMINATION BY THE LOCAL ENTITY THAT THE REDUCED WIDTH AND THICKNESS WILL PROVIDE SATISFACTORY LIFE AND A SAFE ROADWAY.
3. Intersections shall have 25 foot minimum edge of oil radii or 20 foot minimum back of curb radii.

2. Compaction of aggregate base and subgrade preparation shall be in accordance with the "Standard Specification".

3. Structural section shown is based on a subgrade "R" value of 20. Other structural sections may be approved if based on engineering analysis based on "R" or "CBR" values determined by soil testing. In no case shall the A.C. thickness be less than that shown, nor shall the base be less than 4" except that the base shall not be less than 10" in North Las Vegas.

4. Allow in City of North Las Vegas only with express written permission from the City Engineer.

### Notes:
- Specification Reference

| Specification Reference | Uniform Standard Drawings
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<tr>
<td>302 AGGREGATE BASE</td>
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<tr>
<td>401 BITUMINOUS PAVEMENT</td>
<td>Private Street Sections</td>
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<tr>
<td>406 PRIME COAT</td>
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<td>407 FOG SEAL</td>
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Date 12-14-00 DWG. NO. 210
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES NO GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STD. DWG. NO. 200.1.

3. RESIDENTIAL ONE-WAY STREET SHALL NOT EXCEED ONE THOUSAND FEET OR TWENTY RESIDENTIAL LOTS IN LENGTH, WHICHEVER IS LESS.

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

PRIVATE STREET SECTIONS

DATE 01-09-20 | DWG. NO. 210.S1
1. USE 2% SLOPE FROM INNER CURB TO CROWN LINE.
2. FROM CROWN LINE TO OUTER CURB, THE STANDARD SLOPE IS 0.90% (MIN).
3. ELEVATIONS REQUIRED ALONG CURBS (3) AND CROWN EVERY 1/4 (MIN).
4. KNUCKLES ARE ALLOWED ON RESIDENTIAL STREETS ONLY.
5. MINIMUM SLOPE ALONG THE BACK OF CURB OF CURVES (2) AND (3) SHALL BE 0.60% (MIN).
6. SPECIAL KNUCKLE DESIGNS INCLUDING LANDSCAPED MEDIAN ISLAND MAY BE PERMITTED, IF APPROVED BY THE COUNTY ENGINEER.
NOTES
1. USE NORMAL SECTION FROM INNER CURB TO CENTER LINE.
2. FROM CROWN LINE TO OUTER CURB, THE STANDARD SLOPE IS 2%.
3. SUPERELEVATION PERCENTAGES SHOWN ARE A STRAIGHT GRADE FROM CENTER LINE TO CROWN LINE.
4. ELEVATIONS ARE REQUIRED WHERE CIRCLES (Ο) ARE SHOWN.
5. KNUCKLES ARE NOT ALLOWED ON MAJOR COLLECTOR OR ARTERIAL STREETS.
NOTE:
IF BLOCK LENGTH IS 150' OR LESS, HAMMERHEAD IS NOT REQUIRED.

INSTALL "NO PARKING BEYOND THIS POINT" SIGN BOTH SIDES OF STREET.

END SIDEWALK ON 48' R/W STREET (OPTIONAL ONE SIDE ONLY)

NOTE:
USE OF THE HAMMERHEAD WILL BE ALLOWED IN SINGLE FAMILY RESIDENTIAL DWELLING AREAS ONLY.

FACE OF CURB

NOTE:

DRAINAGE MIN. SLOPE 0.40%
1. ONLY 51' R/W AND PRIVATE STREET CUL-DE-SACS WILL BE ALLOWED IN THE CITY OF LAS VEGAS.
CONCRETE (WHERE PROFILE GRADE IS 0.50% OR LESS)

2" MIN. A.C. PAVEMENT

PRIME COAT

1-1/2" INVERTED CROWN

FOG SEAL

4" TYPE II AGGREGATE BASE

6" MIN. TYPE I AGGREGATE BASE

SECTION A-A

PLAN

1/2" PREMOLD EXPANSION JOINT FILLER, JOINTS EVERY 30'

NO. 4 BARS 12" O.C. BOTH WAYS

STANDARD 1/2" GALVANIZED PIPE WITH END PLUG. GREASE REINFORCING STEEL PRIOR TO PIPE INSTALLATION.

SECTION B-B

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SECTION A-A

SECTION B-B

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA
SUPPLEMENTAL DRAWING

ALLEY, CONCRETE

DATE 12-14-00
DWG. NO.
215.S1
TYPICAL PLAN

WEAKENED PLANE JOINTS
SEE STANDARD DRAWING NUMBER 234

NOTES:
1. 1" BATTER ON GUTTER FACE OPTIONAL.

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300' MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAIL SEE STANDARD DRAWING NUMBER 234
NOTES:
1. 1" BATTER ON GUTTER FACE OPTIONAL.
2. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4%, THE FLOW LINE SHALL BE WATER TESTED.

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300'. MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. SEE STANDARD DRAWING NUMBER 234 FOR JOINT DETAIL.
1. USE OF ROLL CURB MAY BE RESTRICTED BY SURFACE DRAINAGE CONSIDERATIONS.
2. SIDEWALK CONSTRUCTED CONTIGUOUS TO ROLL CURB SHALL BE 5 INCHES THICK (MIN.).
3. ALL CURB FLOW LINES SHALL BE WATER TESTED. ANY CURB THAT DOES NOT FLOW SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE PERMITTING AGENCY AT THE SOLE EXPENSE OF THE CONTRACTOR.
4. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.
5. ONE INCH BATTER AT CURB FACE IS OPTIONAL.
6. NO UTILITY BOXES AND COVERS ADJACENT TO 30 INCH MODIFIED ROLL CURB AND GUTTER RESIDENTIAL AREA SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.
7. BOULDER CITY ENGINEER APPROVAL REQUIRED FOR USE OF 30 INCH MODIFIED CURB AND GUTTER RESIDENTIAL AREA.
8. IF ROLL CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECTED TO REGULAR TRAFFIC, THEN UTILITY BOXES AND COVERS ADJACENT TO ROLL CURB SHALL MEET H20-44 FOR STEEL BOXES AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMOR CONCRETE BOXES RATED "TRAFFIC BEARING" TYPE.
1. USE OF ROLL CURB MAY BE RESTRICTED BY SURFACE DRAINAGE CONSIDERATIONS.
2. SIDEWALK CONSTRUCTED CONTIGUOUS TO ROLL CURB SHALL BE 5 INCHES THICK (MIN).
3. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.
4. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.
5. ONE INCH BATTER AT CURB FACE IS OPTIONAL.
6. CITY OF LAS VEGAS COUNCIL APPROVAL REQUIRED FOR USE OF 30" ROLL CURB IN THE CITY OF LAS VEGAS.
7. IN NORTH LAS VEGAS, ROLL CURBS ARE PROHIBITED IN AREAS WHERE FLOW LINE GRADIENT IS LESS THAN 0.8% UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
8. NO UTILITY BOXES AND COVERS ADJACENT TO 30 INCH MODIFIED ROLL CURB AND GUTTER RESIDENTIAL AREA SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.
9. IF ROLL CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECTED TO REGULAR TRAFFIC, THEN UTILITY BOXES AND COVERS ADJACENT TO ROLL CURB SHALL MEET H20-44 FOR STEEL BOXES AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMER CONCRETE BOXES RATED "TRAFFIC BEARING" TYPE.

NOTES:

AGENCY APPROVED

SPECIFICATION REFERENCE

320 AGGREGATE BASE
501 CONCRETE
502 CONCRETE STRUCTURES
707 JOINT MATERIAL

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

30 INCH ROLL CURB
RESIDENTIAL AREA

DATE 01-01-17 DWG. NO. 217.2.S1
1. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.

2. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.

3. ONE INCH BATTER AT GUTTER FACE IS OPTIONAL.

4. NO UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.

5. IF R-TYPE CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECTED TO REGULAR TRAFFIC, THEN UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL MEET H20-44 FOR STEEL BOXES AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMER CONCRETE BOXES RATED "TRAFFIC BEARING" TYPE.

FOR NEW CONSTRUCTION ON RESIDENTIAL SUBDIVISION STREETS ONLY.
CONSTRUCT WEAKENED PLANE JOINT IN CURB AND SLAB AT SAME LOCATION EVERY 10'.

NOTES:
1. CONSTRUCT EXPANSION JOINTS EVERY 300' FOR CONCRETE SLAB TO MATCH CURB JOINTS. FOR JOINT DETAILS SEE STANDARD DRAWING NUMBER 234.
   "L" - TYPE CURB AND GUTTER PER STANDARD DRAWING NUMBER 219 IS REQUIRED IN THE CITY OF HENDERSON AND MAY BE REQUIRED FOR DRAINAGE CONSIDERATIONS.
2. WHEN CURB MACHINE IS USED TO PLACE CURB, A 2" MINIMUM LEVELING COURSE OF TYPE II AGGREGATE BASE IS REQUIRED.
1. CONTINUOUS NO. 4 BAR REQUIRED IN NOSE OF MEDIAN ONLY.
2. 1" BATTER ON GUTTER FACE OPTIONAL.
FOR EXPANSION JOINT AND WEAKENED PLANE JOINT DETAIL, SEE STANDARD DRAWING NO. 234.

NOTES:
1. FOR EXPANSION JOINT AND WEAKENED PLANE JOINT DETAIL, SEE STANDARD DRAWING NO. 234.
2. WHEN APPROVED BY THE ENGINEER/ENTITY, STRUCTURAL EPOXY ADHESIVE MAY BE USED IN LIEU OF NUMBER 4 DOWEL BAR EXCEPT AT CURB NOSE AND WITHIN 2 FEET OF ANY POINT OF CURVATURE.
1. FOR EXPANSION JOINT AND WEAKENED PLANE JOINT DETAIL, SEE STANDARD DRAWING NO. 234.

2. WEAKENED PLANE JOINTS EVERY 10': STAGGER WITH NO. 4 BARS.

3. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE SHOWN.

4. WHEN APPROVED BY THE ENGINEER/ENTITY, STRUCTURAL EPOXY ADHESIVE MAY BE USED IN LIEU OF NUMBER 4 DOWEL BAR EXCEPT AT CURB NOSE AND WITHIN 2 FEET OF ANY POINT OF CURVATURE.

NOTES:

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UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TACK - ON ISLAND CURB

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DATE 01-13-05 | DWG. NO. 220
4. PCC MEDIUM STRIP PER STD. DWG. NO. 218 (TYP.)

2. CURB FACE TO CURB FACE (TYP.)

10 MIN. (TYP.)

PCC MEDIAN CURB PER STD. DWG. NO. 220 (TYP.)

CURVE DATA

1  
\[ \Delta = 31^\circ 00'10'' \]
\[ R = 74.00' \]
\[ T = 20.52' \]
\[ L = 40.04' \]

2  
\[ \Delta = 31^\circ 00'10'' \]
\[ R = 10.00' \]
\[ T = 2.77' \]
\[ L = 5.41' \]

NOTES:

1. INSTALL R5-1
2. INSTALL R3-2
3. STREETLIGHT LOCATION STANDARD FOR THE CITY OF HENDERSON OR IF SPECIFIED BY THE ENGINEER.
4. DETAIL MAY BE USED FOR INTERSECTIONS OF STREETS WITH R/W ≤ 90 FEET OR LESS IF APPROVED BY THE ENTITY ENGINEER. SPECIAL MEDIAN DESIGN IS REQUIRED FOR INTERSECTING STREETS WITH R/W GREATER THAN 90 FEET.

14. MEDIAN WIDTH, CURB FACE TO CURB FACE (TYP.) PER STD DWG 218

AGENCY APPROVED  B  C  (H)  L  M  N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CHANNELIZED MEDIAN DETAIL
FOR COMMERCIAL DRIVEWAYS OR INTERSECTING STREETS

DATE  6-9-11  DWG. NO.  221
COMMERCIAL AND MULTI-FAMILY DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NUMBERS 224, 225, 228, 235 AND 235.1.

1. LOCAL ORDINANCES AND POLICIES MAY APPLY AND SHALL HAVE PRECEDENCE. SEE NDOT ACCESS POLICY FOR STATE ROADWAYS.

   THE TOTAL WIDTH "W" OF DRIVEWAY CURB OPENINGS SHALL NOT EXCEED 65% OF FRONT FOOTAGE.

   NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE (UNLESS APPROVED BY THE ENTITY TRAFFIC ENGINEER), FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, OR BLOCK WALL HIGHER THAN 2 FEET.

2. THE CENTERLINES OF THE DRIVEWAYS ON OPPOSITE SIDES OF THE STREET AT A MEDIAN OPENING SHOULD BE WITHIN 10' FROM EACH OTHER AT THE MEDIAN OPENING.

3. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND EXCEPTIONS MAY BE GRANTED BY THE APPROVAL OF THE AGENCY TRAFFIC ENGINEER BASED ON SITE CONSTRAINTS.

4. HANDICAPPED ACCESSIBLE SIDEWALKS SHALL BE PROVIDED ADJACENT TO DRIVEWAYS TO THE P.C. OF THE ONSITE CURB RETURN, MINIMUM, OR AT AN ALTERNATE LOCATION.

5. WHEN A PROPERTY LINE FALLS IN A MEDIAN OPENING A JOINT DRIVEWAY AGREEMENT SHALL BE REQUIRED OR NO DRIVEWAY WILL BE ALLOWED.

NOTES:

1. COMMERCIAL AND MULTI-FAMILY DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NUMBERS 224, 225, 228, 235 AND 235.1.

2. LOCAL ORDINANCES AND POLICIES MAY APPLY AND SHALL HAVE PRECEDENCE. SEE NDOT ACCESS POLICY FOR STATE ROADWAYS.

3. THE TOTAL WIDTH "W" OF DRIVEWAY CURB OPENINGS SHALL NOT EXCEED 65% OF FRONT FOOTAGE.

4. NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE (UNLESS APPROVED BY THE ENTITY TRAFFIC ENGINEER), FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, OR BLOCK WALL HIGHER THAN 2 FEET.

5. THE CENTERLINES OF THE DRIVEWAYS ON OPPOSITE SIDES OF THE STREET AT A MEDIAN OPENING SHOULD BE WITHIN 10' FROM EACH OTHER AT THE MEDIAN OPENING.

6. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND EXCEPTIONS MAY BE GRANTED BY THE APPROVAL OF THE AGENCY TRAFFIC ENGINEER BASED ON SITE CONSTRAINTS.

7. HANDICAPPED ACCESSIBLE SIDEWALKS SHALL BE PROVIDED ADJACENT TO DRIVEWAYS TO THE P.C. OF THE ONSITE CURB RETURN, MINIMUM, OR AT AN ALTERNATE LOCATION.

8. WHEN A PROPERTY LINE FALLS IN A MEDIAN OPENING A JOINT DRIVEWAY AGREEMENT SHALL BE REQUIRED OR NO DRIVEWAY WILL BE ALLOWED.
J. THROAT DEPTH FOR SECURITY GATE
50: MINIMUM FOR 1 TO 49 HOMES OR APT. UNITS TO VISITOR CALL BOX.
100: MINIMUM FOR 50 TO 100 HOMES OR APT. UNITS TO VISITOR CALL BOX.
GREATER THAN 100 HOMES OR APT. UNITS REQUIRE TRAFFIC STUDY

DIMENSIONS FOR SECURITY GATE
CONTROLLED DRIVEWAY DETAIL

D. ISLAND LENGTH: 20: MINIMUM
   WIDTH: 4: MINIMUM

G. 15: MINIMUM

E. 48: MINIMUM

H. 8: MINIMUM □ 15: MAXIMUM

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LOOP DETECTOR
CALL BOX
THROAT DEPTH

DETAIL FOR SECURITY GATE
CONTROLLED DRIVEWAYS
NOTES:
1. ALL RESIDENTIAL PROPERTIES MAY HAVE ONLY ONE CURB CUT EXCEPT CIRCULAR DRIVEWAYS AS SHOWN.
2. LOCAL ORDINANCES MAY APPLY AND SHALL HAVE PREFERENCE.
3. NO DRIVEWAY SHALL BE LOCATED WHOLLY OR PARTIALLY, ON OR OVER A UTILITY EASEMENT WHICH RUNS PERPENDICULAR TO THE CURB LINE.
4. NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE (UNLESS ACCEPTED BY THE ENTITY TRAFFIC ENGINEER), FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, BLOCK WALL HIGHER THAN 2 FEET, OR THE CURB RETURN AT A STREET INTERSECTION OR ALLEY.
5. COMMON DRIVEWAY CONSTRUCTION MAY BE PERMITTED AT ANY TWO RESIDENTIAL PROPERTIES OF 60 FEET IN WIDTH OR LESS. THE WIDTH OF THE JOINT DRIVEWAY SHALL BE A MAXIMUM OF 24 FEET. A JOINT DRIVEWAY AGREEMENT SHALL BE REQUIRED (EXCEPT CLARK COUNTY).
6. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND MAY VARY IN EXISTING SUBDIVISIONS SUBJECT TO APPROVAL OF THE ENGINEER.
7. MULTI-FAMILY RESIDENTIAL AND ALL NON-RESIDENTIAL DRIVEWAYS SHALL CONFORM TO THE COMMERCIAL DRIVEWAY STANDARDS.
8. ALL DRIVEWAY LOCATIONS SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.
9. FOR CURB DEPRESSION AND DRIVEWAY APRON DETAIL, SEE STD. DWG. NO. 223.
1. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAYS MAY BE MONOLITHIC TO A.C. LINE.

2. WEAKENED PLANE JOINTS SHALL BE UNIFORMLY PLACED BETWEEN 5' AND 7' INTERVALS, SEE STANDARD DRAWING NO. 234.

3. STANDARD DRAWING 223.1 SHALL NOT BE ALLOWED WHEN SIDEWALK IS ATTACHED TO CURB.

4. THE "DUSTPAN" DRIVEWAY CANNOT BE A PART OF THE PEDESTRIAN ACCESS ROUTE SINCE THE DEPRESSED AREA IS NOT COMPLIANT WITH ADAAG.
1. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAYS MAY BE MONOLITHIC TO A.C. LINE.

2. WEAKENED PLANE JOINTS SHALL BE UNIFORMLY PLACED BETWEEN 5' AND 7' INTERVALS, SEE STANDARD DRAWING 234.
NOTES:

1. NO. 4 BARS AT 1" O.C. BOTH WAYS EXTENDING INTO GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE SUPPORTED BY NON-FERROUS CHAIRS APPROVED BY THE ENGINEER.

2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.

3. DRIVEWAY THICKNESS FOR INDUSTRIAL USE SHALL BE 8" MIN.

4. WEAKENED PLANE JOINTS SHALL BE EQUALLY SPACED AT 15' MAX. INTERVALS, SEE STANDARD DRAWING NO. 234.

5. NO UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.

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COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION A)
NOTE:
1. SEPARATION OF PEDESTRIAN AND VEHICLE TRAFFIC MUST BE MAINTAINED ON SITE.
2. FOR GRADE CHANGES GREATER THAN 3%, VERTICAL CURVES OF AT LEAST 10 FEET MUST BE USED.
3. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN THE CURB RETURN IN ACCORDANCE WITH STANDARD DRAWING NO. 235.
NOTES

1. NO. 4 BARS AT 16" O.C. BOTH WAYS EXTENDING INTO GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE SUPPORTED BY NON-FERROUS CHAIRS APPROVED BY THE ENGINEER.

2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.

3. DRIVEWAY THICKNESS FOR INDUSTRIAL USE SHALL BE 8" MIN.

4. WEAKENED PLANE JOINTS SHALL BE EQUALLY SPACED AT 15' MAX. INTERVALS.

5. THIS DRIVEWAY DESIGN SHALL ALSO BE USED FOR ALLEY INTERSECTIONS, 8" MIN. THICKNESS.

6. SPECIAL DESIGNS SUBJECT TO APPROVAL OF THE ENGINEER.

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<td>DRIVEWAY (OPTION C)</td>
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DATE 11-14-19

DWG. NO. 226.S1
NOTES:
1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. ADJACENT SPANDREL SHALL BE 6" THICK P.C.C.
1. Finished asphalt concrete surface to be flush with cross gutter lip.
2. Adjacent spandrel shall be 9" thick P.C.C.

NOTES:

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AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

HEAVY DUTY COMMERCIAL DRIVeway

(SERVICE STATIONS, INDUSTRIAL, LOADING DOCKS, ETC.)

DATE 12-14-00  DWG. NO. 226.S3
NOTES:
1. NO. 4 BARS AT 16" O.C. BOTH WAYS CONTINUOUS THROUGH GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE.
2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.
3. DRIVEWAY THICKNESS SHALL BE 8" MIN.
NOTES:
1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. CONSTRUCTION OF CROSS GUTTER IS NOT ALLOWED ACROSS MAJOR COLLECTOR OR ARTERIAL STREETS.
3. ADJACENT SPANDREL SHALL BE 9" THICK P.C.C.
FOR DETAIL CONSTRUCTION SEE CROSS GUTTER
STANDARD DRAWING NO. 228

A.C. PAVEMENT, TYPE I & TYPE II AGGREGATE BASE TO CONFORM TO HALF STREET CONSTRUCTION

9" CONCRETE

10" TYPE I OR II AGGREGATE BASE

1/2" EXPANSION JOINT WITH SILICONE SEALANT SEE STANDARD DRAWING NO. 233

WHEN SECOND HALF OF CROSS GUTTER CONSTRUCTED, DRILL EXISTING CONCRETE AND EPOXY FIVE EQUALLY SPACED 1/2" MIN. DIAMETER CORROSION RESISTANT RODS (EPOXY OR GALVANIZED).

DETAIL FOR FUTURE CONSTRUCTION

SPECIFICATION REFERENCE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

HALF STREET CROSS GUTTER

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DATE DWG. NO. 229
1. Concrete shall be placed monolithically for each four quadrants of the intersection.

2. Longitudinal and transverse weakened plane joints shall be Type "C".

3. Longitudinal and transverse construction joints shall be Type "B".

4. For joint details see standard drawing No. 233.

5. All manholes and water valves shall be boxed out. See detail on standard drawing No. 232.

6. Longitudinal and transverse joints shall be tied into the corners of all boxouts. This will require the engineer to show all utility boxouts on the plans, and the joint layout patterns that tie into them. Whenever possible, intersection of joints shall be at 90°, but not less than 10° or greater than 140°.

7. Concrete pavement placed along existing curb and gutter shall have a thickened edge. See standard drawing No. 232.

8. Concrete pavement placed along proposed curb and gutter shall be constructed with Type "B" joint. See detail on standard drawing No. 232.

9. Location of joints for proposed curb and gutter shall coincide with joints in concrete pavement.

10. Lane markers shall not be placed on top of any joint.
NOTE:

CONCRETE AND BASE THICKNESS TO BE DETERMINED BY ENGINEERING ANALYSIS BASED ON TRAFFIC CONDITIONS, SUBGRADE STRENGTH, QUALITY OF BASE, AND FLEXURAL STRENGTH OF CONCRETE.
**CONCRETE PAVEMENT SECTION**

- **A.C. PAVEMENT**
  - 9" NO. 4 REBAR @ 36" O.C.

- **CONCRETE**
  - 1-1/2" MIN.

- **FOG SEAL (OR) OPEN GRADE**

**A.C. PAVEMENT SECTION**

- **CONCRETE**
  - 1/2" RADIUS

- **BASE**
  - 12"

**TACK ON CONCRETE ISLAND DETAIL**

- **CONCRETE PAVEMENT**
  - 1" (TYPICAL)
  - NO. 4 REBAR CONTINUOUS

**NOTE:**

- TRANSVERSE WEAKENED PLANE JOINTS TO MATCH JOINTS IN CONCRETE PAVEMENT (SEE DETAIL STANDARD DRAWING NO. 234)

**BOXOUT DETAIL**

- 1/2" RADIUS (TYPICAL)

**THICKENED EDGE DETAIL**

- BASE

**CURB & GUTTER JOINT DETAIL**

- **PROPOSED CURB & GUTTER**
  - TYPE "B" JUNT (SEE STANDARD DRAWING NO. 233)

- **EXISTING CURB & GUTTER**
  - TYPE "A" EXPANSION JOINT (SEE STANDARD DRAWING NO. 233)
  - TYPE "B" OR "C" JOINT (SEE STANDARD DRAWING NO. 233)

**Existing Curb & Gutter**

- 4'-0" FOR TYP. MANHOLE (2'-0" ON WATER VALVES)

**Concrete Pavement Section**

- 12" 12" 12"

**Silicone Joint Sealant**

- SEE CONSTRUCTION JOINT SEAL (DETAIL ON STANDARD DRAWING NO. 233)

**Concrete Pavement**

- D+2"

**Construction Details**

- 409 CONCRETE PAVEMENT
- 501 CONCRETE
- 505 REINFORCING STEEL
- TT-S-00153A CLASS A SEALANT

**Agency Approved**

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**Uniform Standard Drawings**

**Clark County Area**

**Concrete Pavement Construction Details**

**Date**

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<th>DATE</th>
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CONCRETE PAVEMENT JOINT DETAILS

**TYPE "A" EXPANSION JOINT DETAIL**
- **BOXOUT**
- **BASE**
- **CONCRETE PAVM’T**
- **12"**
- **3/4" PREMOLDED EXPANSION JOINT FILLER**
- **SILICONE JOINT SEALANT (SEE EXPANSION JOINT SEAL DETAIL)**
- **1/8" RADIUS**
- **1/4"**

**NOTE:** "D" IS THE SLAB THICKNESS

**TYPE "C" WEAKENED PLANE JOINT DETAIL**
- **SINGLE SAW-CUT**
- **BASE**
- **CONCRETE PAVM’T**
- **12"**
- **3/4" PREMOLDED EXPANSION JOINT FILLER**
- **SILICONE JOINT SEALANT**
- **1" BACKING ROD**
- **EXPANSION JOINT FILLER**
- **3/4"**

**NOTE:** "D" IS THE SLAB THICKNESS

**TYPE "C" WEAKENED PLANE JOINT DETAIL**
- **DOUBLE SAW-CUT**
- **BASE**
- **CONCRETE PAVM’T**
- **12"**
- **3/4" PREMOLDED EXPANSION JOINT FILLER**
- **SILICONE JOINT SEALANT**
- **1/4"**
- **1/4"**
- **1/4"**

**NOTE:** "D" IS THE SLAB THICKNESS

**TYPE "B" CONSTRUCTION JOINT DETAIL**
- **KEYWAY**
- **BASE**
- **CONCRETE PAVM’T**
- **2"**
- **1/4"**
- **1/4"**
- **3/8" BACKING ROD**
- **SILICONE JOINT SEALANT**
- **1/8"**

**NOTE:** "D" IS THE SLAB THICKNESS

**TYPE "D" TIED CONSTRUCTION JOINT DETAIL**
- **DEFORMED TIE BARS NO. 4 @ 30" O.C.**
- **BASE**
- **CONCRETE PAVM’T**
- **15"**
- **15"**
- **12"**
- **SILICONE JOINT SEALANT (SEE CONSTRUCTION JOINT SEAL DETAIL)**
- **(SEE TYPE "B" CONSTRUCTION JOINT DETAIL) FOR KEYWAY DIMENSIONS**

**NOTE:** "D" IS THE SLAB THICKNESS

**AGENCY APPROVED**

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1. Concrete bus pad shall be monolithic. Transverse weakened plane joints shall be installed at 10' intervals and as detailed in standard drawing No. 233, Type "C".

2. A minimum of one set of pavement markings containing the "Buses Only" symbol shall be placed in the turn-out area. Exact location to be determined by the engineer.

3. Additional storage area will be required when more than one bus is expected to occupy the turn-out at the same time.

4. Alternate concrete and base thickness may be substituted, but must be supported by engineering analysis and approved by the engineer.

5. Turn-out surface shall be textured in accordance with Uniform Standard Specification No. 409.03.08. Flow line shall not be textured, but shall be a troweled surface.
NOTES

1. SIDEWALK MAY BE REQUIRED TO BE CONSTRUCTED IN THOSE LOCATIONS WHERE THE BUS STOP WOULD OTHERWISE BE INACCESSIBLE AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT. SEE DRAWING NO. 235, SHEET 4 OF 4 FOR SIDEWALK RAMP DETAILS.

2. ADDITIONAL RIGHT-OF-WAY OR EASEMENT IS REQUIRED FOR BUS SHELTER PAD AND VARIABLE HEIGHT CURB AT BACK OF SIDEWALK RAMP AND SHALL BE DEDICATED TO THE LOCAL ENTITY.

3. BUS SHELTER PAD CONNECTION TO DETACHED SIDEWALK CONDITION SHALL BE DETERMINED BY THE ENTITIES.

4. "A" = 10', "B" = 15' UNLESS BUS TURNOUT IS CONSTRUCTED PER STANDARD DRAWINGS 234.1 OR 234.4, THEN "A" = 5', "B" = 10'.

5. A 5' X 25' BUS SHELTER PAD BEHIND THE SIDEWALK WHERE NECESSARY MAY BE ALLOWED AS APPROVED BY THE RTC.

6. PEDESTRIAN ACCESS ROUTE SHALL HAVE A CROSS SLOPE OF NO GREATER THAN 2%, REGARDLESS OF CONSTRUCTION TOLERANCES.


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<th>TYPICAL BUS STOP PASSENGER LOADING WITH SHELTER PADS</th>
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DATE 01-09-20 | DWG. NO. 234.2 |
ADDITIONAL AREA REQUIRED BEHIND TYPICAL 5 FT. SIDEWALK FOR 5' TYP. SIDEWALK

BUS SHELTER PAD (SEE STANDARD DRAWING NO. 234.5)

ADDITIONAL 25 FEET MAY BE REQUIRED BY RTC.

"A" SEE NOTE 4

"B" SEE NOTE 4

6" CURB ROW OR EASEMENT

AGENCY APPROVED

AGGREGATE BASE

CONCRETE

CONCRETE STRUCTURES

SPECIFICATION REFERENCE

TYPICAL DOUBLE BUS STOP PASSENGER LOADING WITH SHELTER PADS

DATE 01-09-20

DWG. NO. 234.3
NOTES:
1. PARTIALLY ARTICULATED BUSES ARE EXPECTED TO SERVICE BUS STOP. DISTANCE FROM END OF ENTRY TAPER TO THE END OF THE BUS STOP LOADING PAD SHALL BE INCREASED TO 70 FT. MIN. AND THE RIGHT TURN STORAGE LANE LENGTH SHALL BE INCREASED TO 120 FT. MIN.

2. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL ARROW AND "ONLY" SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. SYMBOLS SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM OR, IF APPROVED BY THE ENGINEER, RAISED PAVEMENT MARKERS MAY BE USED.

3. STORAGE LANE LINE SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM, OR IF APPROVED BY THE ENGINEER, RAISED PAVEMENT MARKERS MAY BE USED.

4. REVERSE CURVE TRANSITION MAY BE USED SUBJECT TO THE APPROVAL OF THE ENGINEER.

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

BUS STOP PLACEMENT WITHIN EXCLUSIVE RIGHT TURN LANE FOR COMMERCIAL PROPERTIES

DATE 07-01-1; DWG. NO. 234.4
SECTION A-A

ISOMETRIC

BUS SHELTER PAD, 8" CONCRETE SLAB ON GRADE

8" CONCRETE SLAB ON GRADE

BUS SHELTER PAD DETAILS AND NOTES

NOTES

1. MINIMUM 28 DAY CONCRETE STRENGTH = 4500 PSI.

2. LAP SPLICES OF REINFORCING STEEL SHALL BE 24". STAGGER LAP SPLICES A MINIMUM OF ONE LAP LENGTH.

3. L, W, H, AND C PER PLAN.

1. On all curb returns a 1/2" expansion joint shall be constructed between the back of curb and the sidewalk for the entire length of the return.

2. The Type II aggregate base thickness is shown on the typical section drawings 202 - 207.

3. Longitudinal weakened plane joint required at midpoint of sidewalk 10' or wider.

4. When installed within the row, sidewalk grade is permitted to equal the general grade established for the adjacent street or highway.

5. Objects with leading edges more than 2.25 ft. and not more than 6.7 ft. above finish surface shall protrude 4 in. maximum horizontally into pedestrian circulation path. The minimum height, measured vertically from the bottom of the sign to the top of sidewalk, of signs installed above sidewalks, shall be 7 ft. Pedestrian access route shall have a cross slope of no greater than 2%, regardless of construction tolerances.

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Agency approved: 01-09-20  DWG. NO. 234
NOTES:

1. THE TYPICAL LOCATIONS OF SIDEWALK RAMPS SHOWN ABOVE ARE INTENDED TO MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA). AT LEAST ONE SIDEWALK RAMPS SHALL BE CONSTRUCTED OPPOSITE THE INTERSECTING ROADWAY. ADDITIONAL SIDEWALK RAMPS MAY BE REQUIRED BY THE ENGINEER TO PROVIDE A CONTINUOUS UNOBSTRUCTED PEDESTRIAN CIRCULATION PATH AS DEFINED BY THE ADA.

2. SIDEWALK RAMPS LOCATIONS SHOWN ARE FOR INTERSECTIONS WITH UNMARKED CROSSWALKS. IF A PEDESTRIAN CROSSING AREA IS MARKED, SIDEWALK RAMP SHALL BE LOCATED WITHIN THE MARKED CROSSWALKS AS APPROVED BY THE ENGINEER.
RAMP IN CURB RETURN

30 OR MORE RADIUS
BACK OF CURB

RAMP OUTSIDE CURB RETURN

NO LIP

PAIRED RAMP IN CURB RETURN

VARIABLE HEIGHT MONOLITHIC CURB
(SEE NOTE 5)

SECTION C-C

NOTES:

1. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.

2. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANVERSE TO THE SLOPE OF THE RAMP.

3. WHEN CONSTRUCTING RAMP WHERE CURB \& GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB \& GUTTER.

4. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF THIS DRAWING NO. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND TO A MINIMUM DEPTH OF 24 INCHES. PAVER BLOCKS PERMITTED ONLY IN THE CITY OF BOULDER CITY FOR DETECTABLE WARNING AREAS.

5. CURB MAY BE PLACED AND IS PREFERRED BEHIND BACK OF WALK IF SUFFICIENT RIGHT-OF-WAY OR EASEMENTS EXIST AND AS APPROVED BY THE ENGINEER.

PROFILE

AGENCY APPROVED

SPECIFICATION REFERENCE

302 AGGREGATE BASE
501 CONCRETE
502 CONCRETE STRUCTURES

SIDEWALK RAMP
CASE I

UNIT OF STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 11-8-07
DWG. NO. 235
SHEET 1 OF 4
RAMP IN CURB RETURN
(NO BACK OF WALK DEPRESSION)

"X" VARIES
4" MIN.

BACK OF WALK AREA

CASE II SHALL BE USED WHERE R/W AND FIELD CONDITIONS PERMIT.

NOTES:
1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
3. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.
4. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF THIS DRAWING NO. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND TO A MINIMUM DEPTH OF 24 INCHES. PAVER BLOCKS PERMITTED ONLY IN THE CITY OF BOULDER CITY FOR DETECTABLE WARNING AREAS.

AGENCY APPROVED

SPECIFICATION REFERENCE

302 AGGREGATE BASE
501 CONCRETE
502 CONCRETE STRUCTURES

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIDEWALK RAMP CASE II

DATE 11-10-04 DWG. NO. 235 SHEET 2 OF 4
RAMP IN CURB RETURN

RAMP OUTSIDE CURB RETURN

NOTES:

1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
3. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
4. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
5. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF THIS DRAWING NO. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND TO A MINIMUM DEPTH OF 24 INCHES. PAVER BLOCKS PERMITTED ONLY IN THE CITY OF BOULDER CITY FOR DETECTABLE WARNING AREAS.
**Detectable Warning Details (Truncated Domes)**

**Table 1. Transition Lengths for 1:12 Side Slopes**

<table>
<thead>
<tr>
<th>Grade (%)</th>
<th>&quot;A&quot; (FT) MIN.</th>
<th>&quot;B&quot; (FT) MIN.</th>
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<tbody>
<tr>
<td>-6 TO -5.01</td>
<td>4.5</td>
<td>21.5</td>
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<tr>
<td>-5 TO -4.01</td>
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<td>-4 TO -3.01</td>
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</tr>
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<td>-3 TO -2.01</td>
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<tr>
<td>-2 TO 2</td>
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</tr>
<tr>
<td>2.01 TO 3</td>
<td>9.5</td>
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</tr>
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<td>3.01 TO 4</td>
<td>12.0</td>
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</tr>
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<td>4.01 TO 5</td>
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</tr>
<tr>
<td>5.01 TO 7</td>
<td>21.5</td>
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**Table 2. Transition Lengths for 1:10 Side Slopes**

<table>
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<td>4.0</td>
<td>12.5</td>
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<tr>
<td>-5 TO -4.01</td>
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<td>10.0</td>
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<td>-4 TO -3.01</td>
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<td>-3 TO -2.01</td>
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<td>-2 TO 2</td>
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<td>2.01 TO 3</td>
<td>7.5</td>
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<td>3.01 TO 4</td>
<td>8.5</td>
<td>4.0</td>
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<td>4.01 TO 5</td>
<td>10.0</td>
<td>4.0</td>
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<tr>
<td>5.01 TO 7</td>
<td>12.5</td>
<td>4.0</td>
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**Note:**
Charts apply to curb with 6" curb face. If curb has greater than a 6" curb face, a special design is required.

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**Agency Approved**

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**Specification Reference**

- 302 Aggregate Base
- 501 Concrete
- 502 Concrete Structures

**Uniform Standard Drawings**

**Clark County Area**

**Sidewalk Ramp Details**

Date: 8-06

Dwg. No.: 235

Sheet 4 of 4
NOTES

1. IF WIDTH OF PLATE IS GREATER THAN 24", A SPECIAL DESIGN IS REQUIRED.

2. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED, AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR Equivalent). EXPOSED METAL PARTS IN THE PEDESTRIAN ACCESS ROUTE SHALL BE FIRM, STABLE, AND SLIP-RESISTANT.

3. TACK WELDS BETWEEN SIDEWALK AND STEEL PLATE FLOOR WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

SPECIFICATION REFERENCE

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<tr>
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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIDEWALK DRAIN

DATE 03-12-20  DWG. NO. 23
**NOTES:**

1. TRANSVERSE JOINTS WITH 1" PREMOLDED EXPANSION JOINT FILLER OR 1" OPEN TRANSVERSE JOINTS SHALL BE PLACED AT STRUCTURES. JOINTS IN BARRIER RAIL OVER A STRUCTURE SHALL BE AT THE SAME LOCATION AND OF THE SAME DIMENSION AS THOSE IN THE STRUCTURE.

2. BITUMINOUS PAVING REQUIRED: PAVING SHALL BUTT AGAINST THE BARRIER RAIL END ANCHOR SECTION AND SHALL EXTEND FULL WIDTH UNDER THE NORMAL BARRIER RAIL SECTION PLUS 1" MINIMUM 6-INCH DEEP BARRIER. END ANCHORS SHALL BE CONSTRUCTED IN THE FIRST AND LAST 10 LINEAR FEET OF THE FULL HEIGHT BARRIER RAIL RUN. IF TRANSITIONS ARE USED, THE ANCHOR SHALL BE EXTENDED UNDER THE TRANSITION.

**OPERATING SPEED**

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<td>14.1</td>
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<td>40</td>
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<td>502</td>
<td>CONCRETE STRUCTURES</td>
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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

**CONCRETE BARRIER RAIL**

---

**DATE 12-14-00**

**DWG. NO. 237**
NOTES

1. PRECAST BUMPER BLOCK TO BE USED IN PARKING LOTS ONLY.

2. GROUT HOLE BEFORE DRIVING SPIKE. AFTER DRIVING SPIKE, FILL HOLE WITH CONCRETE MORTAR AND FINISH FLUSH WITH TOP.

---

CONCRETE

---

12"
3/8"
3/4"

STEEL WIRE BRIDGE SPIKE

---

1/2" DEFORMED BAR TO STAY 1" MIN. INSIDE CONCRETE

---

TOP VIEW

---

HOLE DETAIL

---

SIDE VIEW

---

END VIEW

---

18" 18" 1.5-1/2"

---

PRECAST BUMPER BLOCK

---

DATE 12-14-00 DWG. NO. 238

---

AGENCY APPROVED

---

SPECIFICATION REFERENCE

---

UNIFORM STANDARD DRAWINGS

---

CLARK COUNTY AREA

---

501 CONCRETE

---

505 REINFORCING STEEL

---

PRECAST BUMPER BLOCK
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-14-00  DWG. NO. 239

501  CONCRETE
21   MONUMENTS
704  BASE AGGREGATE

NOTE:
TYPE I MONUMENTS TO BE SET AT ALL SECTION CORNERS AND 1/4 SECTION CORNERS WHICH FALL WITHIN IMPROVED STREET SECTIONS, AND MARKED IN ACCORDANCE WITH THE 1973 B.L.M. MANUAL OF SURVEYING INSTRUCTIONS.
NOTES:
1. TYPE II-A MONUMENTS TO BE SET AT ALL SECTION CORNERS, 1/4 SECTION CORNERS AND
   1/16 SECTION CORNERS WHICH FALL WITHIN UNIMPROVED STREET SECTIONS.
2. TYPE II-B MONUMENTS TO BE SET AT ALL 1/16 SECTION CORNERS WHICH FALL WITHIN
   IMPROVED STREET SECTIONS.
3. ALL TYPE II MONUMENTS ARE TO BE MARKED IN ACCORDANCE WITH THE 1973 B.L.M.
   MANUAL OF SURVEYING INSTRUCTIONS.
4. 6" x 6" SQUARE MONUMENTS ARE ALSO ACCEPTABLE.
5. IF MONUMENTS ARE TO BE "PRECAST" THEY ARE TO BE EMBEDDED IN FRESH CONCRETE TO
   PREVENT MOVEMENT.
6. THE COUNTY/CITY SURVEYOR MAY REQUIRE TYPE II MONUMENTS IN ADDITIONAL LOCATIONS.

SURFACE OF UNPAVED STREET

12" MIN. 18" MAX.

BRONZE OR BRASS CAP
(SEE DETAIL STANDARD DRAWING NO. 242, NOT TO BE MARKED BY CONTRACTOR).

SECTION A-A
TYPE II-A
UNPAVED STREET

SECTION A-A
TYPE II-B
PAVED STREET

AGENCY APPROVED
B C H L M N

SPECIFICATION REFERENCE
501 CONCRETE
21 MONUMENTS

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE II MONUMENT

DATE 12-14-00 DWG. NO. 240
NOTES:

1. TYPE III MONUMENTS TO BE SET AT ALL CENTERLINE CONTROL POINTS NOT OTHERWISE IDENTIFIED BY A TYPE I OR TYPE II MONUMENT, INCLUDING STREET INTERSECTIONS, POINTS OF CURVATURE, POINTS OF TANGENCY, POINTS OF INTERSECTION AND CENTERS OF HAMMERHEAD TURNAROUNDS OR CIRCULAR CUL-DE-SACS.

2. THE REGISTERED LAND SURVEYOR'S NUMBER, AND A PUNCH MARK ARE TO APPEAR ON THE SURFACE OF THE CAP.

CAP TO BE SECURED WITH PLASTIC INSERT OR EPOXY CONFORMING TO A.S.T.M. C881-78 SPECIFICATIONS.

NOTE:

( MINIMUM 1" DIA. NON-FERROUS CAP TO BE SET BY REGISTERED LAND SURVEYOR )

5/8" MIN. DIA. REBAR OF SUFFICIENT LENGTH TO RESIST REMOVAL

TYPE III MONUMENT
NOTES:
1. FOUR (4) TYPE IV REFERENCE MONUMENTS TO BE SET WITHIN A RADIUS OF TWENTY (20) TO ONE HUNDRED (100) FEET FROM ALL TYPE I, II, AND III MONUMENTS.
2. THE TIE DISTANCE AND THE INITIALS R.M. ARE TO BE STAMPED ON THE CAP, FOR TYPE IV MONUMENTS.
3. NON-FERROUS CAP TO BE MADE FROM CAST VIRGIN METAL IN ONE PIECE, FREE FROM CASTING IMPERFECTIONS, WITH CORRUGATED SHAFT.
4. TYPE III AND TYPE IV MONUMENT CAP DIAMETER MAY BE REDUCED TO 1".

DETAIL
STANDARD CAP

NON-FERROUS CAP (SEE DETAIL)
INSET IN TOP OF CURB, BONDED SECURELY WITH EPOXY.
(A.S.T.M. C881 - 78 SPECS.)

TYPE IV-B MONUMENT
NO CURB & GUTTER

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE IV MONUMENT
### Typical Monument Location

| Specification Reference | Uniform Standard Drawings  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clark County Area</td>
</tr>
<tr>
<td></td>
<td>TYPICAL MONUMENT LOCATION</td>
</tr>
</tbody>
</table>

#### Legend
- **P.C.** - Point of Curve
- **P.R.C.** - Point of Reverse Curve
- **P.T.** - Point of Tangency
- **C** - Centerline
- **B.C.** - Back of Curb
- **P.I.** - Point of Intersection
- **R/W** - Right-Of-Way
- **-** - Type I, II, or III Monument
- **-** - Type III Monument
- **-** - Type IV A or IV B Reference Monument
# Uniform Standard Drawings

## Clark County Area

### Date
4-8-99

### DWG. No.
244.1

## Speciation Reference

<table>
<thead>
<tr>
<th>33</th>
<th>Pavement Markers</th>
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## Typical Lane Line Delineation

(Divided, Undivided or One-Way Roadway)

![Diagram of Type 4 Lane Line]

### AGENCY APPROVED

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<th>C</th>
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### Uniform Standard Drawings

Clark County Area

Typical Lane Line Delineation

<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>4-8-99</td>
<td>244.1</td>
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</table>
NOTES:

1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NOS. 244 & 244.1.
2. IN SOME CASES, A MEDIAN WILL EXIST INSTEAD OF TWO-WAY LEFT TURN LANE.
3. BIKE LANES MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE.
   HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
4. WHERE 8 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR
   TRAVEL LANES MAY BE REDUCED TO 11 FT.
5. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT
   IF CURB AND GUTTER DO NOT EXIST.

THE WIDTH OF TRAVEL LANES ADJACENT TO BIKE LANES MAY VARY FROM 12 FT. TO 16 FT.
WIDTHS OF INTERIOR TRAVEL LANES MAY VARY FROM 11 FT. TO 13 FT.

**  THE WIDTH OF TRAVEL LANES ADJACENT TO BIKE LANES MAY VARY FROM 12 FT. TO 16 FT.
WIDTHS OF INTERIOR TRAVEL LANES MAY VARY FROM 11 FT. TO 13 FT. **

**  THE WIDTH OF TRAVEL LANES ADJACENT TO BIKE LANES MAY VARY FROM 12 FT. TO 16 FT.
WIDTHS OF INTERIOR TRAVEL LANES MAY VARY FROM 11 FT. TO 13 FT. **

** UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA **

** SPECIFICATION REFERENCE **

<table>
<thead>
<tr>
<th>28</th>
<th>PAINTING TRAFFIC STRIPING</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>PAVEMENT MARKERS</td>
</tr>
</tbody>
</table>

** TYPICAL DELINEATION FOR ROADWAYS 100 FT. OR GREATER RIGHT-OF-WAY WITH CURBSIDE SIDEWALK **

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
</table>
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244-244.1.
2. BIKE LANES TO BE PROVIDED IF SEGMENT CONNECTS TO OTHER BIKE LANES OR IF ROADWAY SEGMENT IS 1 MILE OR GREATER. IF BIKE LANE IS NOT PROVIDED, TRAVEL LANES SHOULD REMAIN AT DIMENSIONS SHOWN SO A BICYCLE LANE COULD BE PROVIDED IN THE FUTURE. SEE DRAWING NUMBER 244-1 FOR BIKE LANE SIGNING AND STRIPING DETAILS.
3. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
4. CONTACT THE LOCAL JURISDICTIONAL FOR DEVELOPMENT REQUIREMENTS FOR THE AREA BETWEEN THE CURB AND SIDEWALK.

NOTES:

<table>
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<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
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</thead>
</table>

SPECIFICATION REFERENCE

- DWG.
- DATE 7-10-03

TYPICAL DELINEATION FOR ALTERNATE ROADWAYS WITH OFFSET SIDEWALK

CLARK COUNTY AREA

UNIFORM STANDARD DRAWINGS

PAINTING TRAFFIC STRIPING

PAVEMENT MARKERS
NOTES:

1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NOS. 244-244.1.
2. IN SOME CASES, A MEDIAN WILL EXIST INSTEAD OF TWO-WAY LEFT TURN LANE.
3. BIKE LANES MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE. HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
4. WHERE 2 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR TRAVEL LANES MAY BE REDUCED TO 11 FT.
5. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.

THE WIDTH OF TRAVEL LANES ADJACENT TO BIKE LANES MAY VARY FROM 12 FT. TO 1 FT.
WIDTHS OF INTERIOR TRAVEL LANES MAY VARY FROM 11 FT. TO 13 FT.
NOTES:

1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NOS. 244 & 244.1.
2. BIKE LINES MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE. HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
3. WHERE 6 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR TRAVEL LANES MAY BE REDUCED TO 11 FT.
4. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.
2. BIKE LANE MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE.
   HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
3. WHERE 6 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR
   TRAVEL LANES MAY BE REDUCED TO 11 FT.
4. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT
   IF CURB AND GUTTER DO NOT EXIST.

AGENCY APPROVED

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<td>CLARK COUNTY AREA</td>
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<tr>
<td>33 PAVEMENT MARKERS</td>
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TYPICAL DELINEATION FOR ROADWAYS 80 FT. RIGHT-OF-WAY WITH CURBSIDE SIDEWALK

DATE 7-10-03  DWG. NO. 244.5  SHEET 2 OF 2
NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244-244.1.
2. BIKE LANES TO BE PROVIDED IF SEGMENT CONNECTS TO OTHER BIKE LANES OR IF ROADWAY SEGMENT IS 1 MILE OR GREATER. IF BIKE LANE IS NOT PROVIDED, TRAVEL LANES SHOULD REMAIN AT DIMENSIONS SHOWN SO A BICYCLE LANE COULD BE PROVIDED IN THE FUTURE. SEE DRAWING NUMBER 244-1 FOR BIKE LANE SIGNING AND STRIPING DETAILS.
3. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
4. CONTACT THE LOCAL JURISDICTIONAL FOR DEVELOPMENT REQUIREMENTS FOR THE AREA BETWEEN THE CURB AND SIDEWALK.
TYPICAL DELINEATION FOR BIKE FACILITIES
60 FT. RIGHT-OF-WAY

NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.
2. BIKE Lanes MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE;
   HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
3. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT
   IF CURB AND GUTTER DO NOT EXIST.

** SPECIFICATION REFERENCE **

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL DELINEATION FOR BIKE FACILITIES
10 FT. RIGHT-OF-WAY
(PARKING ON BOTH SIDES)
LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.

BIKE LANES MUST BE A MINIMUM OF 5 FEET WHERE ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FEET WIDE.

ALL CURB LANES ARE MEASURED TO THE EDGE OF PAVEMENT. THE TOP OF PAVEMENT SHALL BE FLUSH WITH GUTTER.

BICYCLE LANE SHALL BE ON RIGHT SIDE OF ONE-WAY ROADWAYS, EXCEPT IN LIMITED SITUATIONS, SUCH AS WHEN THERE ARE SIGNIFICANTLY LESS POTENTIAL CONFLICTS ALONG THE LEFT SIDE OF THE ROADWAY OR WHEN SIGNIFICANT BICYCLE TRIP GENERATION ARE ALONG THE LEFT SIDE OF THE ROADWAY.

SEE DRAWING NO. 244.9 FOR BIKE LANE SIGNAGE DETAILS.

NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.
2. BIKE LANES MUST BE A MINIMUM OF 5 FEET WHERE ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FEET WIDE.
3. ALL CURB LANES ARE MEASURED TO THE EDGE OF PAVEMENT. THE TOP OF PAVEMENT SHALL BE FLUSH WITH GUTTER.
4. BICYCLE LANE SHALL BE ON RIGHT SIDE OF ONE-WAY ROADWAYS, EXCEPT IN LIMITED SITUATIONS, SUCH AS WHEN THERE ARE SIGNIFICANTLY LESS POTENTIAL CONFLICTS ALONG THE LEFT SIDE OF THE ROADWAY OR WHEN SIGNIFICANT BICYCLE TRIP GENERATION ARE ALONG THE LEFT SIDE OF THE ROADWAY.
5. SEE DRAWING NO. 244.9 FOR BIKE LANE SIGNAGE DETAILS.
BIKE LANE DELINEATION AND LEGEND

NOTES
1. BIKE LANE LEGENDS SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
2. BIKE LANE LINES SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
3. BIKE LANES MUST BE A MINIMUM OF 5 FEET WHEN ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FT WIDE. HOWEVER A WIDTH OF 5 FEET IS PREFERRED.
4. BICYCLE LANE DELINEATION, LEGEND, AND SIGNING SHALL CONFORM TO THE MUTCD, LATEST EDITION.
5. SIGN SIZE AND PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD, LATEST EDITION.
6. THE BIKE LANE SIGNAGE SHALL BE TYPE XI SHEETING.
7. SIGN PLACEMENT SHALL CONFORM WITH STANDARD DRAWING NO. 249.
NOTES:
1. BIKE LANE LEGENDS SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
2. BIKE LANE LINES SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
3. BIKE LANES MUST BE A MINIMUM OF 5 FEET WHEN ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FT WIDE; HOWEVER A WIDTH OF 5 FEET IS PREFERRED.
4. BICYCLE LANE DELINEATION, LEGEND, AND SIGNING SHALL CONFORM TO THE MUTCD LATEST EDITION.
5. SIGN SIZE AND PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD, LATEST EDITION.
6. THE BIKE LANE SIGNAGE SHALL BE TYPE XI SHEETING.
7. A CONTINUOUS 6" WHITE LINE SHALL EXTEND 20' ON EACH SIDE OF THE DROP INLET.
8. INSTALL "DO NOT RIDE IN GUTTER" SIGN IN THE CITY OF LAS VEGAS, SIGN WIDTH TO MATCH R3-17.
9. THE WIDTH OF THE BICYCLE LANE SHALL EXCLUDE THE GUTTER PAN.
TYPICAL CONFIGURATION FOR
RURAL ROADWAYS 60 FT. RIGHT-OF-WAY

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-12-19  DWG. NO. 244.10  SHEET 1 OF 2
NOTES

1. DRAWING IS ONLY APPLICABLE TO THE CITY OF LAS VEGAS AND UNINCORPORATED AREA OF CLARK COUNTY, IN THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER ROAD ON THE SOUTH AND DURANGO DRIVE ON THE EAST, OR IN OTHER AREAS APPROVED BY THE AGENCY.

2. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.1.

3. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF ENVIRONMENTAL PROTECTION REGULATIONS.

4. THE CONCRETE SWALE SHALL BE 6' WIDE AND 6" THICK WITH MINIMAL STEEL REQUIRED PER ACI. WHEN VEHICULAR TRAFFIC IS REQUIRED TO CROSS THE SWALE, IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING 228.

5. THE STREET SECTION IS NOT ANTICIPATED TO MEET CCRFCD DRAINAGE REQUIREMENTS AND MAY REQUIRE A STORM DRAINAGE SYSTEM AS DETERMINED BY THE APPROVED TECHNICAL DRAINAGE STUDY.

6. IT IS RECOMMENDED THAT THE EQUESTRIAN TRAIL BE LOCATED ON THE NORTH SIDE OF EAST-WEST ROADWAYS OR THE WEST SIDE OF NORTH-SOUTH ROADWAYS.

7. STREET LIGHTS REQUIRED ONLY AT INTERSECTIONS.

8. UTILITY PLACEMENT MUST BE APPROVED BY THE APPROVING AGENCY.

SECTION A-A

SPECIFICATION REFERENCE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL CONFIGURATION FOR
RURAL ROADWAYS □0 FT. RIGHT-OF-WAY

DATE 12-12-19 DWG. NO. 244.10 SHEET 2 OF 2
TYPICAL TWO LANE CONFIGURATION FOR RURAL ROADWAYS 80 FT. RIGHT-OF-WAY

DEALTIVE TREATMENT

3' BUFFER SPACE

EQUESTRIAN PATH

6" DECOMPOSED GRANITE
(SEE NOTE 8 ON SHEET 2)

2" PBS OVER 4" TYPE II
AGGREGATE BASE

6" SOLID WHITE LINE
(LIQUID PAVEMENT MARKINGS)

CONCRETE SWALE

BIKE LANE

CONCRETE SWALE

ASPHALT PATH

DATE 12-12-19
DWG. NO. 244.11
SHEET 1 OF 2
NOTES

1. DRAWING IS ONLY APPLICABLE TO THE CITY OF LAS VEGAS AND UNINCORPORATED AREA OF CLARK COUNTY, IN THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER ROAD ON THE SOUTH, AND DURANGO DRIVE ON THE EAST, OR IN OTHER AREAS APPROVED BY THE AGENCY.

2. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWINGS 244 AND 244.1.

3. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.

4. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF ENVIRONMENTAL PROTECTION REGULATIONS.

5. THE CONCRETE SWALE SHALL BE 6' WIDE AND 6" THICK WITH MINIMAL STEEL REQUIRED PER ACI. WHEN VEHICULAR TRAFFIC IS REQUIRED TO CROSS THE SWALE, IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING 228.

6. THE STREET SECTION IS NOT ANTICIPATED TO MEET CCRFCD DRAINAGE REQUIREMENTS AND MAY REQUIRE A STORM DRAINAGE SYSTEM AS DETERMINED BY THE APPROVED TECHNICAL DRAINAGE STUDY.

7. RAISED LANDSCAPE MEDIAN MAY BE REQUIRED BY CLARK COUNTY.

8. IT IS RECOMMENDED THAT THE EQUESTRIAN TRAIL BE LOCATED ON THE NORTH SIDE OF EAST-WEST ROADWAYS OR THE WEST SIDE OF NORTH-SOUTH ROADWAYS.

9. STREET LIGHTS REQUIRED ON ONE SIDE OF THE STREET AND AT INTERSECTIONS.

10. UTILITY PLACEMENT MUST BE APPROVED BY THE APPROVING AGENCY.

SECTION A-A

R/W (NORTH OR WEST SIDE) 80

R/W (SOUTH OR EAST SIDE)

9 25 25 5 4

AC PAVEMENT SEE NOTE 2

MATCH EXISTING

NOTES

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPICAL TWO LANE CONFIGURATION FOR RURAL ROADWAYS 80 FT. RIGHT-OF-WAY

AGENCY APPROVED C

DATE 12-12-19 DWG. NO. 244.11 SHEET 2 OF 2
NOTES:

1. DRAWING IS ONLY APPLICABLE TO THE UNINCORPORATED AREA OF CLARK COUNTY, IN THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER ROAD ON THE SOUTH, AND DURANGO DRIVE ON THE EAST.

2. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWINGS 244 AND 244.1.

3. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.

4. RAISED LANDSCAPE MEDIAN MAY BE REQUIRED BY CLARK COUNTY.

5. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF ENVIRONMENTAL PROTECTION REGULATIONS.

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL CONFIGURATION FOR
RURAL ROADWAYS 100 FT. RIGHT-OF-WAY

DATE 09-12-19  DWG. NO. 244.12
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**Typical Centerline Delineation**
TYPICAL LANE CONFIGURATION FOR MAJOR STREET INTERSECTIONS

- TAPER 115.37' TYP.
- TAPER 99.5' TYP.
- TRANSITION 225' TYP.
- 300' TYP. STORAGE
- 200' RADIUS
- 250' SYMMETRICAL RADIUS
- 225' TYP. TRANSITION
- FOR ROADWAYS WITH DEDICATED BIKE LANE, REDUCE MEDIAN WIDTH TO 2 FT. AND OUTSIDE TRAVEL LANES TO 11 FT.
- SYMMETRICAL REVERSE CURVE (STRAIGHT LINE TAPER MAY BE SUBSTITUTED AS APPROVED BY ENGINEER)

CASE I - WITH CURBSIDE SIDEWALK

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE

TYPICAL LANE CONFIGURATION FOR MAJOR STREET INTERSECTIONS AND MEDIAN DETAIL

DATE 7-10-03 DWG. NO. 245.1 SHEET 1 OF 2
TYPICAL LANE CONFIGURATION FOR MAJOR STREET INTERSECTIONS AND MEDIAN DETAIL

CASE II - WITH CURBSIDE SIDEWALK

STORAGE
300' TYP.

TRANSITION
225' TYP.

RADIUS
45:1

FOR ROADWAYS WITH DEDICATED BIKE LANE, REDUCE TWO-WAY LEFT LANE TO 12 FT., MEDIAN ISLAND TO 2 FT., AND OUTSIDE TRAVEL LANES TO 11 FT.

SYMMETRICAL REVERSE CURVE
(STRAIGHT LINE TAPER MAY BE SUBSTITUTED AS APPROVED BY ENGINEER)

EXCLUSIVE RIGHT TURN LANE
ADDITIONAL 10' RIGHT-OF-WAY DEDICATION REQUIRED FOR EXCLUSIVE RIGHT TURN LANE

SIDEWALK

STORAGE VARIES (150' MIN.)

300: TYP.
STORAGE

50: TYP.

50

225: TYP.
TRANSITION

8

45:1

45:1

45:1

45:1
TYPICAL LANE CONFIGURATION FOR MAJOR STREET INTERSECTIONS AND MEDIAN DETAIL
CASE I - WITH OFFSET SIDEWALK

NOTES:
1. SIDEWALK SHOULD BE OFFSET THROUGH THE INTERSECTION WITH A CURB RAMP CONNECTING THE SIDEWALK TO THE CROSSWALK. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE SIDEWALK. CONTACT THE LOCAL JURISDICTION FOR DEVELOPMENT REQUIREMENTS FOR THE AREA BETWEEN THE CURB AND SIDEWALK.
TYPICAL LANE CONFIGURATION FOR
MAJOR STREET INTERSECTIONS
AND MEDIAN DETAIL
CASE II - WITH OFFSET SIDEWALK

NOTES:
1. SIDEWALK SHOULD BE OFFSET
THROUGH THE INTERSECTION WITH
A CURB RAMP CONNECTING THE
SIDEWALK TO THE CROSSWALK. NO
ABOVE GROUND OBJECTS SHALL
BE PLACED WITHIN THE SIDEWALK.
CONTACT THE LOCAL JURISDICTION
FOR DEVELOPMENT REQUIREMENTS
FOR THE AREA BETWEEN THE CURB
AND SIDEWALK.

AGENCY APPROVED  B  C  H  L  M  N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL LANE CONFIGURATION FOR
MAJOR STREET INTERSECTIONS
AND MEDIAN DETAIL
CASE II - WITH OFFSET SIDEWALK

DATE 7-10-03  DWG. NO.  245.2  SHEET 2 OF 2
FORM ENTIRE ISLAND USING RAISED PAVEMENT MARKER PATTERN FOR TRANSITION AREA

NOTE:
SEE SHEET 3 THIS DRAWING NUMBER IF PATTERN IS TO BE USED AT A GORE POINT TO DIVIDE TRAFFIC MOVING IN SAME DIRECTION.

T OR L $\frac{(W \text{ OR } X)S^2}{0}$ (DESIGN SPEED 40 MPH OR LESS)

$\frac{(W \text{ OR } X)S}{(300 \text{ TYP.})}$ (DESIGN SPEED 45 MPH OR GREATER)

BEGINNING OF LANE TRANSITION

END 4 LANE RAISED PAVEMENT MARKER PATTERN

$T$ OR $L$ =

$60$ (W OR $X$)S (DESIGN SPEED 40 MPH OR LESS)

$144$ STORAGE LANE TYPE "F"

$2$ (DESIGN SPEED 45 MPH OR GREATER)

TYPE "F"

SEE DETAIL "B" SHT. 2 THIS DRAWING NO.

SEE DETAIL "A" SHT. 2 THIS DRAWING NO.

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPICAL LANE DELINEATION IN TRANSITION SECTIONS

DATE 6-11-93 DWG. NO. 245 SHEET 1 OF 3
NOTE:
PAINT MAY BE USED IN LIEU OF TAPE AND/OR RAISED PAVEMENT MARKERS
AT THE DISCRETION OF THE ENGINEER.
TYPICAL LANE DELINEATION IN TRANSITION SECTIONS WHERE TRAFFIC FLOW IN SAME DIRECTION

PAVEMENT MARKER DETAIL

TAPE OR PAINT DETAIL

PAVEMENT MARKER DETAIL

TAPE OR PAINT DETAIL

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL LANE DELINEATION IN TRANSITION SECTIONS WHERE TRAFFIC FLOW IN SAME DIRECTION

DATE 6-11-93  DWG. NO. 245  SHEET 3 OF 3
1. STORAGE LENGTH TO BE DETERMINED BY TRAFFIC ENGINEER.
2. SEE DRAWING NO. 244.9 FOR BIKE LANE LEGEND AND SIGNAGE.
3. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE TRAFFIC ENGINEER, INSTALL R3-7R SIGN AND ARROW SYMBOL. PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. APPROVED TYPE II PAVEMENT MARKING FILM SHALL BE USED FOR SYMBOL MARKINGS.
4. SEE DRAWING NO. 246.1 NOTE 1 FOR STANDARD PAVEMENT MARKERS ADDED TURN LANE.
**NOTES:**

1. STORAGE LENGTH TO BE DETERMINED BY TRAFFIC ENGINEER.
2. SEE DRAWING NUMBER 244.9 FOR BIKE LANE LEGEND AND SIGNAGE.
3. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL R3-7R SIGN AND ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. APPROVED TYPE II PAVEMENT MARKING FILM SHALL BE USED FOR SYMBOL MARKINGS.
4. SEE DWG. 244.9 NOTE 1 FOR STANDARD PAVEMENT MARKERS ADDED TURN LANE.
5. THE ABOVE DETAIL SHOULD BE FOLLOWED IN SITUATIONS WHERE THERE IS NOT ADEQUATE SPACE TO PROVIDE A SEPARATE BICYCLE LANE.

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<td>PAVEMENT MARKERS</td>
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BICYCLE LANE TRANSITION TO SHARED LANE AT INTERSECTION
NOTES:
1. FORCED RIGHT-TURN LANES AND LONG RIGHT TURN POCKETS ARE NOT DESIRABLE FOR BICYCLISTS AND SHOULD BE AVOIDED WHEN POSSIBLE.
2. SEE DRAWING NO. 244.9 FOR BIKE LANE DELINEATION, LEGEND, AND SIGNAGE DETAILS.
3. SEE DRAWING NO. 246.3 FOR DETAILS ON THE FORCED TURN LANE.
NOTES:

1. A SOLID BICYCLE LANE STRIPE SHOULD CONTINUE ACROSS DRIVEWAY ACCESS POINTS.
2. SEE DRAWING NO. 244.9 FOR BIKE LANE LEGEND AND SIGNAGE DETAILS.
NOTES:
1. SEE DRAWING NUMBER 244.9 FOR BIKE LANE LEGEND AND SIGNAGE DETAILS.
2. USE 2 FOOT LONG SKIP LINE, 8 FEET ON CENTER, FOR LOCATIONS WITH BUS STOPS. TRANSITION FROM SOLID LINE TO SKIP LINE FOR 150 FEET CENTERED ON BUS STOP.
NOTES:
1. THE MINIMUM LENGTH OF STORAGE LINE IS 250 FT. ON ARTERIALS AND 150 FT. ON ALL OTHERS.
2. A MINIMUM OF 2 @ R3-7R OR R3-7L SIGNS SHALL BE INSTALLED IN ADVANCE OF THE INTERSECTION AT DISTANCES APPROVED BY THE ENGINEER. RECOMMENDED LOCATIONS ARE SHOWN ABOVE.
3. ONE SET OF PAVEMENT MARKINGS CONTAINING ONE ARROW SYMBOL AND ONE "ONLY" SYMBOL SHALL BE PLACED AT THE BEGINNING OF THE DROP LANE.
4. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, ADDITIONAL ARROW AND "ONLY" SYMBOL PAVEMENT MARKINGS AND OVERHEAD MOUNTED R3-5 SIGNS MAY BE INSTALLED. SYMBOLS SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM.
5. APPROVED TYPE I PAVEMENT MARKING FILM OR RAISED PAVEMENT MARKERS MAY BE USED FOR ADDITIONAL GUIDANCE AT THE DISCRETION OF THE ENGINEER.
6. STORAGE LANE LINE AND SKIP LINES SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM OR IF APPROVED BY THE ENGINEER, RAISED PAVEMENT MARKERS MAY BE USED.

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<th>POSTED SPEED (MPH)</th>
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<td>560</td>
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TYP. DROP LINE LENGTHS

FORCED LEFT TURN LANE

FORCED RIGHT TURN LANE

STORAGE LANE LINE

DROP LINE PATTERN LENGTH

SEE TABLE

Streetscape and traffic management solutions.
NOTES:

1. LENGTH OF STORAGE LANE LINE IS TWO THIRDS OF THE TURN LANE STORAGE LENGTH.
2. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE.
3. PAVEMENT MARKINGS SHALL BE TYPE I TAPE OR PAINT AS DIRECTED BY THE ENGINEER.
4. INSTALL "NO PARKING" SIGNS FOR ENTIRE LENGTH OF TURN LANE. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL R3-7R SIGNS.

AGECNY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PAVEMENT MARKING AND SIGNAGE
RIGHT TURN LANE AT MINOR INTERSECTIONS
(ARTERIALS WITH EMERGENCY/PARKING LANE)

DATE 06-09-11 DWG. NO. 246.7
**NOTES**

1. THE MINIMUM LENGTH OF DOTTED LINES IS 150 FT. ON MAJOR/MAJOR INTERSECTION.

2. A MINIMUM OF 1 R3-7R AND R3-BE; 1 USD 246.10 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE INTERSECTION AT DISTANCES APPROVED BY THE ENGINEER. RECOMMENDED LOCATIONS ARE SHOWN ABOVE.

3. DOTTED WHITE LINES SHALL NOT BE RAISED PAVEMENT MARKERS.

---

**TABLE**

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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**EXCLUSIVE BUS/BIKE LANE MAJOR/MAJOR INTERSECTION SIGN INSTALLATION AND PAVEMENT MARKING DETAIL**

**AGENCY APPROVED**

**DATE 07-01-18**

**DWG. NO. 24\_8**
NOTES:

1. THE MINIMUM LENGTH OF DOTTED LINES TO BE 100 FT.

2. A MINIMUM OF 1 @ R3-7R AND R3-BE; 1 @ USD 246.10 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE INTERSECTION AT DISTANCES APPROVED BY THE ENGINEER. RECOMMENDED LOCATIONS ARE SHOWN.

3. DOTTED WHITE LINES SHALL NOT BE RAISED PAVEMENT MARKERS.
SIGN NUMBER: SP-1
WIDTH: 30"
HEIGHT: 42"
BORDER WIDTH: 0.75"
BORDER RADII: 1.875"
BACKGROUND COLOR: WHITE
LEGEND & BORDER COLOR: BLACK
NOTES:
1. LENGTH OF STORAGE LINE IS TWO THIRDS OF THE ADDED TURN BAY. (MIN. 100')
2. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL R3-7R SIGN AND ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. SYMBOLS SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM.
3. APPROVED TYPE II PAVEMENT MARKING FILM OR RAISED PAVEMENT MARKERS MAY BE USED FOR ADDITIONAL GUIDANCE AT THE DISCRETION OF THE ENGINEER.
4. STORAGE LANE LINE SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM OR IF APPROVED BY THE ENGINEER, RAISED PAVEMENT MARKERS MAY BE USED.
LANE MARKER SCHEDULE

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<td>CIRCULAR WHITE CERAMIC MARKER</td>
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<tr>
<td>TYPE B</td>
<td>CIRCULAR YELLOW CERAMIC MARKER</td>
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<tr>
<td>TYPE C</td>
<td>TWO WAY YELLOW REFLECTOR</td>
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<tr>
<td>TYPE D</td>
<td>ONE WAY YELLOW REFLECTOR, YELLOW TOWARD ONCOMING TRAFFIC</td>
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<tr>
<td>TYPE E</td>
<td>ONE WAY WHITE REFLECTOR, WHITE TOWARD ONCOMING TRAFFIC</td>
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<tr>
<td>TYPE F</td>
<td>TWO WAY WHITE AND RED REFLECTOR, WHITE TOWARD ONCOMING TRAFFIC</td>
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**SPECIFICATION REFERENCE**

| 133 | PAVEMENT MARKERS |

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**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**DATE** 6-11-93  **DWG. NO.** 248

### SPACING TABLE

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<td>4</td>
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<td>3.0 TO 4.0'</td>
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<tr>
<td>4.0' GREATER</td>
<td>1 EACH FOR EVERY 1.0' OF CURB LENGTH</td>
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**NOTES:**

1. ENTIRE MEDIAN SHALL BE PAINTED WITH REFLECTIVE PAINT, OF SAME COLOR AS REFLECTIVE MARKERS, FROM THE MEDIAN NOSE BACK 5 FEET OR TO THE P.C., WHICHERVER IS GREATER.

2. REFLECTIVE PAVEMENT MARKERS USED ON MEDIAN SHALL CONFORM TO STANDARD DRAWING NO. 247.

3. ORIENTATION OF THE REFLECTIVE MARKERS FACES SHALL BE MADE IN THE FIELD TO ENSURE THAT MARKERS ARE AIMED AT APPROACHING VEHICLES TO BEST ADVANTAGE, ESPECIALLY IN HORIZONTALLY CURVED ROAD SECTIONS.

---

**AGENT APPROVED**

**PLAN**

**SECTION A-A**

---

**REFLECTIVE PAINT (SEE NOTE 1)**

**REFLECTIVE MARKERS (SEE SPACING TABLE)**

---

**PAVEMENT**

**CURB (OF ANY TYPE)**

---

**REFLECTIVE MARKER**

**ADHESIVE**

**MEDIAN SURFACE**

---

**PLAN**

**SECTION A-A**

---

**MEDIAN NOSE MARKINGS**
NOTES:
1. ALL COMPONENTS SHALL BE MINIMUM 12 GA. SQUARE POST WITH 7/16" PUNCHED THRU HOLES.
2. ATTACH ANCHOR AND SLEEVE TOGETHER PRIOR TO DRIVING INTO GROUND. LEAVE AT LEAST TWO HOLES, BUT NO MORE THAN THREE HOLES ABOVE GROUND OR ABOVE SIDEWALK.
3. FOR SIDEWALK INSTALLATION, DRILL SIDEWALK AND CONCRETE PAD INSTALLATION, DRILL A 3" HOLE (DEPENDENT UPON ANCHOR SIZE), THE CENTER TO BE 6" FROM THE BACK OF SIDEWALK.
4. ATTACH POST TO ANCHORING SYSTEM BY USING AT LEAST TWO 3/8" DIA. DRIVE RIVETS.
5. PROVIDE 4" MINIMUM LAP BETWEEN BOTTOM OF POST AND THE BOTTOM OF THE ANCHOR/SLEEVE ASSEMBLY.
6. SIGNS LARGER THAN 24" x 30" REQUIRE 3/8" x 1-1/2" FENDER WASHERS UNDER DRIVE RIVETS.
7. "U-CHANNEL" POSTS ARE NOT ACCEPTABLE.
8. BOLTS IN LIEU OF DRIVE RIVETS ARE NOT ACCEPTABLE.
9. ALL URBAN SIGN INSTALLATIONS ARE TO BE INSTALLED IN A CONCRETE SIDEWALK, OR IN A CONCRETE PAD (24" x 24" x 4") WHEN NO SIDEWALK EXISTS.
10. INSTALLATION OF SIGNS SHALL MEET LATEST ADA REQUIREMENTS.
11. SIGNS SHALL HAVE A STICKER AT THE BACK WITH THE NAME OF THE CONTRACTOR AND THE DATE OF INSTALLATION.
NOTES:

1. ALL COMPONENTS SHALL BE SQUARE POST, PERFORATED ON ALL FOUR SIDES.

2. ATTACH ANCHOR AND SLEEVE TOGETHER PRIOR TO DRIVING INTO GROUND. LEAVE AT LEAST ONE HOLE, BUT NO MORE THAN TWO, ABOVE GROUND OR ABOVE SIDEWALK.

3. FOR SIDEWALK INSTALLATION, DRILL SIDEWALK WITH A 3" HOLE, THE CENTER TO BE 6" FROM ATTACH POST TO ANCHORING SYSTEM BY USING AT LEAST TWO 3/8" DIA. DRIVE RIVETS.

4. ATTACH STREET NAME SIGNS TO POST WITH 3/8" DIA. DRIVE RIVETS.

5. PROVIDE 4" MINIMUM LAP BETWEEN POST AND THE ANCHOR/SLEEVE ASSEMBLY.

6. ALL STREET NAME SIGNS SHALL BE 9 INCH STANDARD IN THE CITY OF MESQUITE ONLY.
12" (MAJOR STREETS)

- Height of 12" signs placed on major streets with rights-of-way of 80' or greater shall have a height of 12".
- Signs placed on minor streets with rights-of-way of less than 80' shall have a height of 9".

9" (MINOR STREETS)

- Ordinal, suffix, and block number shall be 3" series 'C' uppercase. (Ordinal may be omitted from 12" signs except in Clark County.) Spacing between letters shall be as on sheet 2 of this drawing.
- The sign shall have a minimum length of 30". Where extra length is required, it shall be provided in 1/4" increments. Ground mounted signs shall have a maximum length of 42".
- Both signs placed on major streets with rights-of-way of 80' or greater shall have a height of 12". Signs placed on minor streets with rights-of-way of less than 80' shall have a height of 9".
- 12" signs shall have a 1/2" white border at the edge.
- Sign blanks shall have rounded corners.

NOTES:

1. Sign shall be white letters and numbers on green background. (The City of North Las Vegas background is blue.) Cut-out letters and numbers are not acceptable (except for the block number).
2. Reflective sheeting material shall be type XI.
3. Primary copy for 9" and 12" signs shall be 1/4" series 'C' uppercase with 4 1/2" series 'C' lowercase. However, when descenders are required on 9" signs, primary copy shall be 5 1/2". Ordinal, suffix, and block number shall be 3" series 'C' uppercase. (Ordinal may be omitted from 12" signs except in Clark County.) Spacing between letters shall be as on sheet 2 of this drawing.
4. The sign shall have a minimum length of 30". Where extra length is required, it shall be provided in 1/4" increments. Ground mounted signs shall have a maximum length of 42".
5. Both signs placed on major streets with rights-of-way of 80' or greater shall have a height of 12". Signs placed on minor streets with rights-of-way of less than 80' shall have a height of 9".
6. 12" signs shall have a 1/2" white border at the edge.
7. Sign blanks shall have rounded corners.

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>STREET NAME SIGNS</th>
<th>SIGN MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>STREET NAME SIGNS</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>SIGN MATERIALS</td>
<td></td>
</tr>
</tbody>
</table>

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREET NAME SIGNS
FACE COPY

DATE 07/01/12  DWG. NO. 250  SHEET 1 OF 2
SPACING OF STREET NAME SIGN LEGENDS

SPACING FOR STREET NAME SIGN LEGENDS SHALL BE OBTAINED BY MODIFICATION TO THE
REQUIREMENTS OF THE FHWA STANDARD SPACING CHART FOR 6" UPPERCASE LETTERS. THE
FOLLOWING STEPS SHALL BE USED TO DETERMINE REQUIRED SPACING:

1. SIGN LAYOUT COMPUTER SOFTWARE SHALL BE EVALUATED TO DETERMINE THE
"CORRECTION FACTOR" NECESSARY FOR LAYOUT SOFTWARE LETTER SPACING
TO BE APPROXIMATELY EQUAL TO THE FHWA STANDARD SPACING FOR UPPERCASE
LETTERS.
2. CORRECTION FACTOR SHALL BE USED TO ADJUST THE SPACING FOR THE
LOWERCASE LETTERS.
3. SPACING FOR STREET NAME SIGN LEGENDS SHALL BE EQUAL TO 110% OF THE
"CORRECTED" LAYOUT SOFTWARE LETTER SPACING.

(SAME STEPS ARE TO BE FOLLOWED WHEN FONT SIZE OF LEGEND IS REDUCED IN ORDER
NOT TO EXCEED THE MAXIMUM LENGTH LIMITATIONS.)

IF LEGEND SPACED ACCORDING TO RECOMMENDED PROCEDURE ABOVE EXCEEDS THE MAXIMUM
ALLOWABLE SIGN LENGTH (42" FOR GROUND-MOUNTED), THE FOLLOWING ACTIONS, LISTED IN
PRIORITY ORDER, SHALL BE TAKEN TO REDUCE LENGTH OF THE SIGN BLANK:

A. REDUCE THE FONT TO 5 1/2" SERIES "C".
B. REDUCE THE SPACING TO 100% OF THE "FEDERAL STANDARD".
C. REDUCE THE FONT TO 5 1/2" SERIES "B".
D. CONSIDER ABBREVIATING ANY LEGEND WORDS WHICH ARE EXTREMELY COMMON
(I.E., "MTN" FOR "MOUNTAIN") SUCH ABBREVIATIONS MUST BE APPROVED BY THE
TRAFFIC ENGINEER AND THE FIRE DEPARTMENT.
E. REDUCE THE LEADING AND TRAILING BLANK GREEN SPACE BY 50%.
F. CONSTRUCT THE SIGN ACCORDING TO THE STANDARD SPACING WHICH WILL BE
GREATER THAN 42" IN LENGTH, AND MOUNT ON A STREETLIGHT POLE OR OTHER
ELEVATED MOUNT AS APPROVED BY THE TRAFFIC ENGINEER WITH APPROPRIATE SIGN
BRACING AND MOUNTING HARDWARE.

1. SIGN LAYOUT COMPUTER SOFTWARE SHALL BE EVALUATED TO DETERMINE THE
"CORRECTION FACTOR" NECESSARY FOR LAYOUT SOFTWARE LETTER SPACING
TO BE APPROXIMATELY EQUAL TO THE FHWA STANDARD SPACING FOR UPPERCASE
LETTERS.
2. CORRECTION FACTOR SHALL BE USED TO ADJUST THE SPACING FOR THE
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F. CONSTRUCT THE SIGN ACCORDING TO THE STANDARD SPACING WHICH WILL BE
GREATER THAN 42" IN LENGTH, AND MOUNT ON A STREETLIGHT POLE OR OTHER
ELEVATED MOUNT AS APPROVED BY THE TRAFFIC ENGINEER WITH APPROPRIATE SIGN
BRACING AND MOUNTING HARDWARE.
STREET NAME SIGNS

SIGN MATERIALS

L/2 = 30" MIN. (42" MAX. FOR GROUND-MOUNTED SIGNS)

H/2 = 9"

H = 12"

H = 9"

H = 12"

L/2 = 1/2"

5/8" = 1/4" HOLE

3/8" HOLE

1-1/2" RADIUS

ALL 4 CORNERS

ALUMINUM BLANK

5052-H38 OR 6061-T6, HEAT-TREATED, HIGH TENSILE, DEGREASED AND ALODINE 1200 FINISH.

THICKNESS TO BE 0.080" FOR SIGNS LESS THAN 3'" AND 0.100" FOR SIGNS 3'" AND LONGER.

NOTE:

1. FOR SIGN FACE SPECIFICATIONS SEE STANDARD DRAWING NO. 250.
1. FENCING SHALL BE CHAIN LINK AND SHALL CONSIST OF GALVANIZED CHAIN LINK FABRIC ON STEEL POSTS.
   (A) ALL POSTS TOPS SHALL BE FITTED WITH SUITABLE FINIALS.
   (B) BRACES SHALL BE SPACED APPROXIMATELY 12" BELOW TOP OF TERMINAL POSTS AND SHALL EXTEND FROM END, GATE, OR CORNER POSTS TO FIRST ADJACENT LINE POST.
   (C) ALL FITTINGS SHALL BE HOT-DIPPED GALVANIZED MALLEABLE, CAST IRON, OR PRESSED STEEL.
   (D) TOP AND BOTTOM SELVAGES OF THE FENCE SHALL HAVE A TWISTED AND BARBED FINISH.

2. BARBED WIRE, EXTENSION ARMS, AND TOP HORIZONTAL RAILS SHALL BE INSTALLED ONLY WHEN SHOWN ON THE PLANS AND/OR CALLED FOR IN THE SPECIAL PROVISIONS.

### TABLE 1

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MIN. SIZE</th>
<th>MIN. WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>END, CORNER PULL</td>
<td>2.351 O.D.</td>
<td>3.10</td>
</tr>
<tr>
<td>LINE</td>
<td>2.00 O.D.</td>
<td>2.72</td>
</tr>
<tr>
<td>BRACES</td>
<td>1.30 O.D.</td>
<td>2.27</td>
</tr>
<tr>
<td>TOP RAIL</td>
<td>1.30 O.D.</td>
<td>2.27</td>
</tr>
</tbody>
</table>

AGENCY APPROVED

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DATE 12-14-00  DWG. NO. 252
CHAIN LINK GATES

SINGLE GATE

DOUBLE SWING GATE

GATE SWING POST DIA.

<table>
<thead>
<tr>
<th>GATE SIZE</th>
<th>PIPE DIA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ AND LESS</td>
<td>3&quot; O.D. - 5.79 LBS./FT.</td>
</tr>
<tr>
<td>□ 10&quot;</td>
<td>4&quot; O.D. - 9.10 LBS./FT.</td>
</tr>
</tbody>
</table>

FRAME MEMBERS
TYPICAL (2" O.D. □ 2.72 LBS./FT.)

STEEL DROP BAR
(1/2" #)

TOP HINGE
(180° SWING)

BOTTOM HINGE
(180° SWING)

TRUSS ROD-TYP.
(3/8" ROUND ROD W/TAKE-UP)

CONCRETE

12" DIA.

FRAME MEMBERS

10'-20'

12" DIA.

H = HEIGHT SHOWN ON PLANS

H = HEIGHT SHOWN ON PLANS

3'-0"

12" DIA.

3'-0"

2" CLEAR

CHAIN LINK FABRIC

STRETCHER RODS

TRUSS RODS

TRUSS RODS

TRUSS RODS

TOP HINGE
(90° SWING)

BOTTOM HINGE
(90° SWING)

BOTTOM HINGE
(90° SWING)

TOP HINGE
(90° SWING)

TOP HINGE
(90° SWING)

TOP HINGE
(90° SWING)

TOP HINGE
(90° SWING)

TOP HINGE
(90° SWING)

TOP HINGE
(90° SWING)

TOP HINGE
(90° SWING)
TYPICAL MARKING
CURB RAMP IN
MIDDLE OF
CURB RETURN

48" MIN.

3 MIN.

CURB LINE
PROJECTED (TYP.)

OPTIONAL DETAIL

NOTE:
USE MARKING PER
OPTIONAL DETAIL IF
NECESSARY TO OBTAIN
3 MINIMUM CLEARANCE
BETWEEN CROSSWALK
AND CURB LINE
PROJECTED.

TYPICAL MARKING
CURB RAMP
ADJOINING
CURB RETURN

8-12-99

CLARK COUNTY AREA
UNIFORM STANDARD DRAWINGS
SUPPLEMENTAL DRAWING
CROSSWALK MARKINGS - TYPE II

DATE 8-12-99 DWG. NO. 254.1.S1
TYPICAL CROSSWALK
STRIPING DETAIL

MEDIAN ISLAND (AS APPLICABLE)

LANE LINES

2: TYP
5: TYP
10: TYP
2: WIDE BARS TO BE CENTERED BETWEEN LANE LINES AND ON LANE LINES (TYP)

3: MIN
4: MIN

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CROSSWALK MARKINGS - TYPE I

DATE 11-12-09  DWG. NO. 254
NOTES:
1. 12 FOOT WIDTH IS RECOMMENDED. 10 FOOT WIDTH IS ALLOWABLE ALONG A PATH PARALLEL TO A ROADWAY OR WHERE SPACE IS LIMITED. PAVEMENT AND BASE DEPTH WILL VARY BASED ON SOIL CONDITIONS. PORTLAND CEMENT CONCRETE (PCC) MAY BE USED INSTEAD OF ASPHALT AND PCC MAY BE REQUIRED BY THE LOCAL JURISDICTION.
2. SEE DRAWING NUMBER 255 FOR SHARED USE PATH NOT ALONG A ROADWAY.
3. SEE THE GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, ASHTO 1999, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL GUIDELINES AND STANDARDS.
4. SEE LOCAL JURISDICTIONS FOR LANDSCAPING REQUIREMENTS.
5. 3 FOOT LATERAL CLEARANCE RECOMMENDED BETWEEN EDGE OF PATH AND A FIXED OBJECT, 2 FOOT MINIMUM.
   a. IF 16 FEET IS NOT AVAILABLE FROM THE BACK OF CURB TO THE RIGHT-OF-WAY LINE, A BICYCLE LANE/ROUTE AND THE SIDEWALK WILL SUBSTITUTE FOR THE PATH. PLACE A PATH ENDS SIGN (W9) 25 FEET IN ADVANCE OF THE PATH ENDING.
NOTES:
1. USE ENGINEERING JUDGEMENT TO APPLY THIS DETAIL TO SIMILAR SCENARIOS.
2. SEE DRAWING NO. 235, CASE III, FOR SIDEWALK RAMP DETAILS.
<table>
<thead>
<tr>
<th>MUTCD CODE</th>
<th>SIGN</th>
<th>MINIMUM SIGN SIZE (IN)</th>
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<tbody>
<tr>
<td>R1-1</td>
<td>STOP</td>
<td>18 X 18</td>
</tr>
<tr>
<td>R1-2</td>
<td>YIELD</td>
<td>24 X 24 X 24</td>
</tr>
<tr>
<td>R3-1, 1A, 17, 17A</td>
<td>BICYCLE LANE</td>
<td>24 X 30</td>
</tr>
<tr>
<td>R4-1, 2, 3, 7</td>
<td>MOVEMENT RESTRICTION</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R4-4</td>
<td>BEGIN RIGHT TURN LANE YIELD TO BIKES</td>
<td>3 X 30</td>
</tr>
<tr>
<td>R5-3</td>
<td>NO MOTOR VEHICLES</td>
<td>24 X 24</td>
</tr>
<tr>
<td>R5-4</td>
<td>BICYCLE PROHIBITION</td>
<td>24 X 24</td>
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<tr>
<td>R7-9, 9A</td>
<td>NO PARKING BIKE LANE</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R9-3A</td>
<td>PEDESTRIANS PROHIBITED</td>
<td>18 X 18</td>
</tr>
<tr>
<td>R9-5, 5A</td>
<td>BICYCLE REGULATORY</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R9-7</td>
<td>SHARED-USE PATH RESTRICTION</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R15-1</td>
<td>RAILROAD CROSSBUCK</td>
<td>24 X 4.5</td>
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<tr>
<td>W1-1, 2, 3, 4, 5</td>
<td>TURN AND CURVE WARNING</td>
<td>18 X 18</td>
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<tr>
<td>W1-7</td>
<td>ARROW WARNING</td>
<td>24 X 12</td>
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<tr>
<td>W2-1, 2, 3, 4, 5</td>
<td>INTERSECTION WARNING</td>
<td>18 X 18</td>
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<tr>
<td>W3-1A, 2A, 3</td>
<td>STOP, YIELD, SIGNAL AHEAD</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W5-2A</td>
<td>ROAD NARROWS</td>
<td>18 X 18</td>
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<tr>
<td>W5-4</td>
<td>BIKEWAY NARROWS</td>
<td>18 X 18</td>
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<tr>
<td>W7-5</td>
<td>HILL SIGN</td>
<td>18 X 18</td>
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<td>W8-1, 2</td>
<td>BUMP OR DIP</td>
<td>18 X 18</td>
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<tr>
<td>W8-10</td>
<td>BICYCLE SURFACE CONDITION</td>
<td>18 X 18</td>
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<tr>
<td>W10-1</td>
<td>ADVANCE GRADE CROSSING</td>
<td>18 X 18</td>
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<tr>
<td>W11-1</td>
<td>BICYCLE CROSSING</td>
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<tr>
<td>W12-2</td>
<td>LOW CLEARANCE</td>
<td>18 X 18</td>
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<tr>
<td>W1-1</td>
<td>SHARE THE ROAD PLAQUE</td>
<td>24 X 30</td>
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<tr>
<td>D1-1</td>
<td>SUPPLEMENTAL BIKE ROUTE PLAQUE</td>
<td>24 X 24</td>
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<tr>
<td>D4-3</td>
<td>BICYCLE PARKING</td>
<td>12 X 18</td>
</tr>
<tr>
<td>D11-1</td>
<td>BIKE ROUTE</td>
<td>24 X 18</td>
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<tr>
<td>M1-8</td>
<td>BIKE ROUTE MARKER</td>
<td>12 X 18</td>
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<td>M1-9</td>
<td>BIKE ROUTE MARKER</td>
<td>18 X 24</td>
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<tr>
<td>M4-11, 12, 13</td>
<td>SUPPLEMENTAL BICYCLE ROUTE GUIDE</td>
<td>12 X 4</td>
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<tr>
<td>M7-1, 2, 3, 4, 5, 7</td>
<td>ROUTE MARKER SUPPLEMENTAL PLAQUES</td>
<td>12 X 9</td>
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</tbody>
</table>

**NOTES:**
1. SIGN TABLE INSERTED FROM MUTCD FOR REFERENCE. SEE CURRENT MUTCD FOR UPDATED INFORMATION.
2. SIGNS R3-1(A), R3-17(A), R4-4, W5-2A, AND W1-7 NOT USED FOR SHARED USE PATHS.

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
<th>CLARK COUNTY AREA</th>
<th>SIGN SIZES FOR SHARED USE PATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>PAINTING TRAFFIC STRIPING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>PAVEMENT MARKERS</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>DATE</th>
<th>DWG. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-10-03</td>
<td>255.3</td>
</tr>
</tbody>
</table>
NOTES

1. USE BOLLARDS ONLY AT LOCATIONS WHERE UNAUTHORIZED ACCESS IS ANTICIPATED. INSTALL EITHER 1 OR 3 (5 FT. SPACING DESIRABLE, 4 FT. CLEAR SPACING MINIMUM) SIX-INCH DIAMETER BY 3 FT. TALL REFLECTORIZED BOLLARDS WHEN NECESSARY. CENTERLINE DELINEATION SHOULD BE PROVIDED AT APPROACH TO INTERSECTION EVEN WHEN BOLLARD IS NOT PROVIDED.

2. ANY OBSTRUCTION IN PATH SHOULD BE REMOVED. IF OBSTRUCTION CANNOT BE REMOVED, OBSTRUCTION MUST BE REFLECTORIZED.

3. USE CENTERLINE DELINEATION AT APPROACHES TO INTERSECTIONS AND AROUND OBSTRUCTIONS IN ALL CASES. ONLY USE CENTERLINE DELINEATION IN OTHER CASES WHERE CONFLICTS BETWEEN USERS TRAVELING IN OPPOSITE DIRECTIONS ARE ANTICIPATED.
NOTES:
1. 12 FOOT WIDTH IS RECOMMENDED. 10 FOOT WIDTH IS ALLOWABLE ALONG A PATH PARALLEL TO A ROADWAY OR WHERE SPACE IS LIMITED. PAVEMENT AND BASE DEPTH WILL VARY BASED ON SOIL CONDITIONS. PORTLAND CEMENT CONCRETE MAY BE USED INSTEAD OF ASPHALT.
2. SEE DRAWING NUMBER 255.1 FOR SHARED USE PATH ALONG A ROADWAY.
3. SEE THE GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, AASHTO 1999, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL GUIDELINES AND STANDARDS.
4. SEE LOCAL JURISDICTIONS FOR LANDSCAPING REQUIREMENTS.

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>28</td>
<td>PAINTING TRAFFIC STRIPING</td>
</tr>
<tr>
<td>33</td>
<td>PAVEMENT MARKERS</td>
</tr>
</tbody>
</table>

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AGENCY APPROVED

DATE 7-10-03  DWG. NO. 255
NOTES:

1. USE ENGINEERING JUDGEMENT TO APPLY THIS DETAIL TO SIMILAR SCENARIOS.
2. CONTACT AGENCY’S TRAFFIC ENGINEER TO VERIFY IF AGENCY PREFERENCES TO USE A W11-1 (BICYCLE) SIGN IN PLACE OF THE W11-2 SIGN.
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

2. STREET CLASSIFICATION AND STREETLIGHT STANDARD APPLICATION SHALL BE AS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.8 MAINTENANCE FACTOR (0.82 FOR CLARK COUNTY) IN FOOTCANDLES MEASURED HORIZONTALLY AT THE SURFACE.

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>R/W OR MORE</th>
<th>LUMINAIRE (H.P.S.)</th>
<th>AVG. IES LIGHTING LEVEL</th>
<th>IES UNIFORMITY AVG/MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTERIAL</td>
<td>100'</td>
<td>250W</td>
<td>1.58 FC</td>
<td>3:1</td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td>80'</td>
<td>150W 250W (CC)</td>
<td>0.84 FC</td>
<td>4:1</td>
</tr>
<tr>
<td>MINOR COLLECTOR</td>
<td>60'</td>
<td>150W 100W (CC)</td>
<td>0.38 FC</td>
<td>1:1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>51' OR LESS</td>
<td>100W</td>
<td>0.38 FC</td>
<td>1:1</td>
</tr>
</tbody>
</table>

3. NEW STREETLIGHT STANDARDS INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

4. STREETLIGHT STANDARDS INSTALLED ON 60' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.

5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTOR PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS REQUIRED BY THE ENGINEER.

---

**TABLE 1**

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>R/W OR MORE</th>
<th>LUMINAIRE (H.P.S.)</th>
<th>AVG. IES LIGHTING LEVEL</th>
<th>IES UNIFORMITY AVG/MIN</th>
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</thead>
<tbody>
<tr>
<td>ARTERIAL</td>
<td>100'</td>
<td>250W</td>
<td>1.58 FC</td>
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<td>MAJOR COLLECTOR</td>
<td>80'</td>
<td>150W 250W (CC)</td>
<td>0.84 FC</td>
<td>4:1</td>
</tr>
<tr>
<td>MINOR COLLECTOR</td>
<td>60'</td>
<td>150W 100W (CC)</td>
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<td>1:1</td>
</tr>
<tr>
<td>RESIDENTAL</td>
<td>51' OR LESS</td>
<td>100W</td>
<td>0.38 FC</td>
<td>1:1</td>
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</tbody>
</table>

---

**SPECIFICATION REFERENCE**

- TRAFFIC SIGNALS
- STREETLIGHTING

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**SUPPLEMENTAL DRAWING**

**STREETLIGHT LOCATION**

**H.P.S. LIGHTING STANDARDS**

**AND GENERAL NOTES**

**DATE 07-01-13**

**DWG. NO. 300.S1**
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

2. STREET CLASSIFICATION AND STREETLIGHT STANDARD APPLICATION SHALL BE AS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.8 MAINTENANCE FACTOR IN FOOTCANDLES MEASURED HORIZONTALLY AT THE SURFACE.

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>RW</th>
<th>LUMINAIRE (INDUCTION)</th>
<th>AVG PHOTOPIC ILLUMINANCE</th>
<th>UNIFORMITY AVG/MIN</th>
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<tbody>
<tr>
<td>SIGNALIZED INTERSECTIONS</td>
<td>ALL</td>
<td>250W 5000K CCT</td>
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<tr>
<td>ARTERIAL</td>
<td>100% OR MORE</td>
<td>150W 5000K CCT</td>
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<td>3:1</td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td>60%</td>
<td>150W 5000K CCT</td>
<td>0.49 FC</td>
<td>4:1</td>
</tr>
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<td>MINOR COLLECTOR</td>
<td>50%</td>
<td>55W 850K CCT</td>
<td>0.17 FC</td>
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</tr>
<tr>
<td>RESIDENTIAL</td>
<td>51% OR LESS</td>
<td>55W 850K CCT</td>
<td>0.17 FC</td>
<td>6:1</td>
</tr>
</tbody>
</table>

3. NEW STREETLIGHT STANDARDS INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

4. STREETLIGHT STANDARDS INSTALLED ON 60' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.

5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTOR PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS DIRECTED BY THE ENGINEER.

7. LUMINARE SPECIFICATIONS (MINIMUM VALUES)
   - 80% LIGHT OUTPUT @ 80,000 HR LIFE
   - SCOTOPIC/PHOTOPIC RATIO OF LIGHT SOURCE 1.8
   - HIGH COLOR RENDITIONS 80 CRI
   - 10 YEAR WARRANTY ON LUMINAIRE AND BALLAST
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

2. STREET CLASSIFICATION, THE RESPECTIVE LIGHTING LEVELS, AND STREETLIGHT STANDARD APPLICATION IS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. FOR LED FIXTURES, E AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.92 MAINTENANCE FACTOR IN FOOTCANDLES MEASURED HORIZONTALLY AT GROUND LEVEL.

3. NEW STREETLIGHT STANDARDS INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

4. STREETLIGHT STANDARDS INSTALLED ON 00: OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.

5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTOR PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS DIRECTED BY THE ENGINEER.

7. FOR A SPECIFIC FIXTURE TO BE APPROVED, AN INDEPENDENT EVALUATION WITH THE AGi32 LIGHTING MODELING SOFTWARE PROGRAM (OR OTHER SOFTWARE APPROVED BY THE AGENCY) SHALL BE SUBMITTED FOR REVIEW BY THE AGENCY. THE IES PHOTOMETRIC FILE SHALL BE LOADED INTO THE MODEL AND ALL REQUISITE INPUTS SHALL CONFORM TO THE LOCATION, HEIGHT, AND OTHER ASSOCIATED FACTORS DESIGNATED IN DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

### TABLE 1

<table>
<thead>
<tr>
<th>ROADWAY CLASS</th>
<th>R.O.W. WIDTHS</th>
<th>ROADWAY LIGHTING ILLUMINANCE LEVELS</th>
<th>SIDEWALK / WALKWAY ILLUMINANCE LIGHTING LEVELS</th>
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</thead>
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<tr>
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<td>MIN. AVG.</td>
<td>UNIFORMITY AVG./MIN.</td>
<td>MIN. ILLUMINANCE</td>
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<td>0.84 FC</td>
<td>4.1</td>
<td>0.2 FC</td>
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<tr>
<td>MINOR COLLECTOR</td>
<td>0.38 FC</td>
<td>5.1</td>
<td>0.08 FC</td>
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<tr>
<td>RESIDENTIAL</td>
<td>0.38 FC</td>
<td>5.1</td>
<td>0.08 FC</td>
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### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>023 TRAFFIC SIGNALS &amp; STREETLIGHTING</td>
<td>CLARK COUNTY AREA</td>
</tr>
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</table>

### SUPPLEMENTAL DRAWING

<table>
<thead>
<tr>
<th>STREETLIGHT LOCATION</th>
<th>L.E.D. LIGHTING STANDARDS AND GENERAL NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DATE 07-01-14 DWG. NO. 300.S3 SHEET 1 OF 2</td>
</tr>
</tbody>
</table>
8. For each fixture assessed, upon demonstration of the adequate illumination capability through the computer model on the specific roadway type, the vendor shall deliver the requested number of luminaires of that type for further agency evaluation. They will be evaluated on the criteria noted in the following section, though the agency may include additional requirements. Final approval and acceptance of the respective luminaires for a specific application shall be at the sole discretion of the purchasing agency.

9. The following list represents the criteria upon which each luminaire shall be evaluated. The agency may include additional items for evaluation at its sole discretion.

- Color Rendering Index
- Energy Efficiency
- Aesthetics
- Quality of Construction
- Weatherproofing
- IP65 Rating
- Durability
- Ease of Maintenance
- Ease of Installation
- Weight
- Power Consumption
- Color Temperature (CCT)
- Life of fixture and individual components
- Length of warranty luminaire fixture, LED’s, and ballast
- Initial cost
- Life cycle cost
- LM 79, LM 80
- Bug rating (backlighting, uplighting, glare)
- Transient voltage surge suppression (SPD, surge protection device)

### Table 2

<table>
<thead>
<tr>
<th>ROADWAY CLASS</th>
<th>R.O.W. WIDTHS</th>
<th>MIN. AVE. ILLUMINANCE BY PEDESTRIAN AREA CLASSIFICATION</th>
<th>SIDEWALK / WALKWAY LIGHTING LEVELS</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>HIGH</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>ARTERIAL / ARTERIAL</td>
<td>100: OR GREATER BY 100: OR GREATER BY</td>
<td>3.4 FC</td>
<td>2.0 FC</td>
</tr>
<tr>
<td>ARTERIAL / MAJOR COLLECTOR</td>
<td>100: OR GREATER BY 80: OR GREATER BY</td>
<td>2.9 FC</td>
<td>2.2 FC</td>
</tr>
<tr>
<td>ARTERIAL / MINOR COLLECTOR - RESIDENTIAL</td>
<td>100: OR GREATER BY 79: OR LESS</td>
<td>2.0 FC</td>
<td>2.0 FC</td>
</tr>
<tr>
<td>MAJOR COLLECTOR / MAJOR COLLECTOR</td>
<td>80: - 99: BY 80: - 99:</td>
<td>2.4 FC</td>
<td>1.8 FC</td>
</tr>
<tr>
<td>MAJOR COLLECTOR / RESIDENTIAL</td>
<td>80: - 99: BY 79: OR LESS</td>
<td>2.1 FC</td>
<td>1.1 FC</td>
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</tbody>
</table>

Agency Approved: B C H L M N

Specification Reference: 23 TRAFFIC SIGNALS & STREETLIGHTING

Uniform Standard Drawings: Clark County Area

Supplemental Drawing

Streetlight Location

L.E.D. Lighting Standards and General Notes

Date 07-01-14 DWG. No. 300.S3 Sheet 2 of 2
NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312.S2. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

<table>
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<tr>
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<tbody>
<tr>
<td>KEYED NOTE</td>
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<td>INTERSECTION LUMINAIRE TYPE</td>
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SPECIFICATION REFERENCE

| #23 | TRAFFIC SIGNALS STREETLIGHTING |

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/100' OR GREATER RIGHT-OF-WAY

DATE 07-01-13 | DWG. NO. 301.S1 | PAGE NO.
NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. WITH THE ENGINEER'S APPROVAL, A SECOND LUMINAIRE MOUNTING PLATE MAY BE FIELD WELDED BY A CERTIFIED WELDER.
4. ALL LUMINAIRE MAST ARMS FOR 400W FIXTURES SHALL BE 15 FT. LONG AND INSTALLED PER STANDARD DRAWING NO. 808 UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

<table>
<thead>
<tr>
<th>POLE LOCATION TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEYED NOTE</td>
</tr>
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<td>3</td>
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</table>

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED C

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS 100 FT. OR GREATER/100 FT. OR GREATER RIGHT-OF-WAY

DATE 07-01-13  DWG. NO. 301.S2
NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.

2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2,
   STANDARD DRAWING NO. 300, IS REQUIRED
   FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. ALL LUMINAIRE MAST ARMS FOR 400W FIXTURES SHALL BE
   15 FT. LONG AND INSTALLED PER STANDARD DRAWING
   NO. 808 UNLESS OTHERWISE APPROVED BY THE ENGINEER.

POLE LOCATION TABLE

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<td>3</td>
<td>(SEE DRAWING NO. 320)</td>
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<tr>
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<td>5</td>
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</tbody>
</table>

SPECIFICATION REFERENCE

| 23         | TRAFFIC SIGNALS & STREETLIGHTING |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
100' OR GREATER/80' RIGHT-OF-WAY

AGENCY APPROVED
C

DATE 07-01-13
DWG. NO. 302.S2
PAGE NO.
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE

- 250W HPS
- 150W IND

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/60' RIGHT-OF-WAY

DATE 07-01-13  DWG. NO. 303.S1
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.

2. AN APPROVED LIGHTING STUDY PER NOTE 2,
STANDARD DRAWING NO. 300 IS REQUIRED
FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

3. IF INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL
CORNERS AND DUAL ARM CONFIGURATION SHALL BE USED FOR 100 FT. RIGHT-OF-WAY
SIMILAR TO STANDARD DRAWING NO. 302.S2.

POLE LOCATION TABLE

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(SEE DRAWING NO. 320)
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET. ADEQUATE INTERSECTION LIGHTING SHALL ALSO BE ADDRESSED IN THE LIGHTING STUDY.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312.S2. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

POLE LOCATION TABLE

<table>
<thead>
<tr>
<th>KEYED NOTE</th>
<th>ENTITY</th>
<th>CLV</th>
<th>NLV</th>
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INTERSECTION LUMINAIRE TYPE

- 250W HPS
- 150W IND

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
100 OR GREATER/51 OR LESS
RIGHT-OF-WAY

DATE 07-01-13
DWG. NO. 304.S1
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET. ADEQUATE INTERSECTION LIGHTING SHALL ALSO BE ADDRESSED IN THE LIGHTING STUDY.
3. IF INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL CORNERS AND DUAL ARM CONFIGURATION SHALL BE USED FOR 100 FT. RIGHT-OF-WAY SIMILAR TO STANDARD DRAWING NO. 302.S2.
NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

### POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE

- BC: 250W HPS
- CLV: (SEE DRAWING NO. 320)
- MES: (SEE DRAWING NO. 320)
- NLV: (SEE DRAWING NO. 320)
- HND: 150W IND

### SPECIFICATION REFERENCE

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### UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

### SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS 80/80: RIGHT-OF-WAY

DATE 07-01-13   DWG. NO. 305.S1   PAGE NO.
NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

POLE LOCATION TABLE

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<td>85°</td>
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<tr>
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<td>(SEE DRAWING NO. 320)</td>
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AGENCY APPROVED

SPECIFICATION REFERENCE

| 23 | TRAFFIC SIGNALS : STREETLIGHTING |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
80' / 80' : RIGHT-OF-WAY

DATE 07-01-13  DWG. NO. 305.S2  PAGE NO.
POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE

- 150W HPS
- 150W IND

NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

SPECIFICATION REFERENCE

| 23 | TRAFFIC SIGNALS & STREETLIGHTING |

AGENCY APPROVED

| B | H | L | M | N |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
80'/10' RIGHT-OF-WAY

DATE 07-01-13  DWG. NO. 30:S1
NOTE:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. IF THE INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL CORNERS.
NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE

| 150W HPS | 150W IND |

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS 80/51 OR LESS RIGHT-OF-WAY

DATE 07-01-13 DWG. NO. 307.S1
NOTE:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. IF INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL CORNERS.
NOTE:
SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
NOTE:
SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.

POLE LOCATION TABLE

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STREETLIGHT LOCATIONS AT INTERSECTIONS
51'/R/W OR LESS RIGHT-OF-WAY
NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

POLE LOCATION TABLE

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PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREETLIGHT LOCATIONS AT INTERSECTIONS
51 FT. OR LESS/51 FT. OR LESS
RIGHT-OF-WAY

DATE 2-08-07  DWG. NO. 310
### POLE LOCATION TABLE

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### NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

POLE LOCATION TABLE

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AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREETLIGHT STANDARDS
MAXIMUM SPACING
(80 FT. OR GREATER RIGHT-OF-WAY)
NOTES:

1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

DISTANCE LISTED INDICATES MAXIMUM SPACING. LIGHTING STANDARDS SHALL BE EQUIDISTANT AFTER LOCATING THE END OF ISLAND POLES.

---

**POLE LOCATION TABLE**

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**SPECIFICATION REFERENCE**

- TRAFFIC SIGNALS
- STREETLIGHTING

---

**UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA**

**SUPPLEMENTAL DRAWING**

**STREETLIGHT LOCATIONS ON TRAFFIC ISLANDS
100' OR GREATER RIGHT-OF-WAY**

---

**AGENCY APPROVED**

- B
- C
- L
- M
- N

**DATE** 07-01-13

**DWG. NO.** 312.S1

**PAGE NO.**
NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
2. AN APPROVED LIGHTING STUDY PER NOTE 2. STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. STREET LIGHTING IN THE MEDIAN IS ALLOWED FOR MEDIAN WIDTHS OF 10 FEET OR GREATER.

**DISTANCE LISTED INDICATES MAXIMUM SPACING. LIGHTING STANDARDS SHALL BE EQUIDISTANT AFTER LOCATING THE END OF ISLAND POLES.**

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SPECIFICATION REFERENCE
| 23 | TRAFFIC SIGNALS STREETLIGHTING |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING
STREETLIGHT LOCATIONS ON TRAFFIC ISLANDS 100′ OR GREATER RIGHT-OF-WAY

DATE DWG. NO. 312.S2 PAGE NO.
1. ALL STREETLIGHT STANDARDS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF THE STANDARD SPECIFICATIONS AND AS INDICATED ON THESE DRAWINGS.

2. ALL COMPONENTS OF THE STREETLIGHT STANDARD INCLUDING THE POLE, ARM, HANDHOLE COVER, BASE COVER AND THE POLE CAP SHALL BE FERROUS METAL AND HOT-DIP GALVANIZED AFTER CONSTRUCTION IN ACCORDANCE WITH ASTM A123. ALUMINUM OR ALUMINUM ALLOY IS NOT ACCEPTABLE. FLAWS IN THE APPEARANCE OF THESE GALVANIZED COMPONENTS (i.e., "TIGER-STRIPED", "ZEBRA-STRIPED"), SHALL BE CAUSE FOR REJECTION. NON-METALLIC TYPE BASE COVERS MAY BE ACCEPTABLE AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. CONCRETE POLES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

3. ALL FASTENING HARDWARE SHALL BE NON-CORROSIVE, CADMIUM-PLATED, OR EQUAL, APPROVED BY THE ENGINEER. FASTENERS SHALL BE OF THE SIZE AND CONFIGURATION NOTED ON THE DRAWINGS.

4. CONCRETE POLE FOUNDATIONS SHOULD BE POURED AGAINST UNDISTURBED, NATURAL SOIL OR IF FORMING MATERIAL IS USED IT SHALL BE STRIPPED AWAY FROM THE FOUNDATION AT LEAST ONE (1) FOOT BELOW FINISHED GRADE.

5. POLES SHALL BE INSTALLED ON CONCRETE FOUNDATIONS WITH ANCHOR BOLTS. EACH BOLT SHALL BE INSTALLED WITH TWO (2) HEX NUTS AND TWO (2) FLAT WASHERS. EXCEPT FOR "H" AND "L" FOUNDATIONS, THE ANCHOR BOLTS SHALL BE 1" X 3" X 4" FOR ELEVEN (11) GAGE POLES AND 1 1/8" X 40" X 4" FOR SEVEN (7) GAGE POLES. THE ANCHOR BOLTS, NUTS AND WASHERS SHALL BE HOT-DIP GALVANIZED. THE POLE SHALL BE PLUMBED PRIOR TO PLACING THE GROUT OR CONCRETE CAP. USE OF GROUT OR CONCRETE FOR CAP SHALL BE DESIGNATED BY ENTITY ENGINEER. SHIMS OR WEDGES OF ANY KIND ARE NOT ACCEPTABLE TO PLUMB THE POLE AFTER THE CAP HAS BEEN PLACED.

6. ALL UNDERGROUND CONDUIT INSTALLED SHALL HAVE RED, CONTINUOUS MARKING TAPE INSTALLED IN THE TRENCH AT 12" BELOW FINISHED GRADE.

7. WHERE SIGNALS AND STANDARDS ARE INSTALLED UNDER OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRICAL SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

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DATE 7-8-04  DWG. NO. 313
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

SPECIFICATION REFERENCE

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AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREETLIGHT STANDARD
WITH DOUBLE 2 INCH PIPE ARM

DATE 12-12-96  DWG. NO. 315
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.

NOTES:

STEEL STRUCTURES
GALVANIZING
TRAFFIC SIGNALS & STREETLIGHTING

2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.

3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

POLE/ARM SCHEDULE

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NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

SPECIFICATION REFERENCE

| 50       | STEEL STRUCTURES |
| 23       | TRAFFIC SIGNALS & STREETLIGHTING |
| 715      | GALVANIZING |

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREETLIGHT STANDARD WITH TAPERED MAST ARM

DATE 12-12-96  DWG. NO. 313
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.

NOTES:

STEEL STRUCTURES
GALVANIZING
TRAFFIC SIGNALS & STREETLIGHTING

2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.

3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

STREETLIGHT STANDARD
WITH DOUBLE TAPERED MAST ARM

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

50 STEEL STRUCTURES
23 TRAFFIC SIGNALS STREETLIGHTING
715 GALVANIZING

DATE 12-12-96
DWG. NO. 317
**NOTE:**

See General Notes.

**STANDARD DRAWING NO. 313.**

**POLE TOP AND ARM MOUNTING DETAILS**
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313
2. HANDHOLE SHALL FACE AWAY FROM ONCOMING TRAFFIC.
3. HANDHOLE SIZE FOR CC AND CLV FOR STREET LIGHT POLES SHALL BE 4" X 6" I.D.

NOTES:

REINFORCED HANDHOLE RING
POLE GROUNDING POINT CAP SCREW, 
1/2" X 3/4" NC
POLE MANUFACTURER IDENTIFICATION
BASE COVER, 2 PIECE
(CUT-AWAY FOR CLARITY)

1/2" X 9" I.D. HANDBOLE
HANDHOLE COVER ASSEMBLY
VANDAL RESISTANT HEX-SOCKET
HEAD SCREW, TYP.
1/4" X 2" NC

POLE SHAFT
12"

9"

POLE

1-1/4"

TYP.

90°

POLE AND ARM

7-3/4", TYP.
(11" BOLT CIRCLE)
(NOMINAL)

ANCHOR BASE PLATE

POLE SHAFT

6" X 9" I.D. HANDBOLE

REINFORCED HANDHOLE RING
POLE GROUNDING POINT, THREADED 1/2" NC

ANCHOR BASE PLATE

1-1/4", TYP.
NOTE:
POLE BASE COVERS SHALL BE FURNISHED AND INSTALLED FOR ALL POLES PER THE STANDARD SPECIFICATIONS AND DRAWINGS.
BEHIND CURBSIDE SIDEWALK
(EASEMENT MAY BE REQUIRED)
(SEE USD 320.1)

NOTES
1. FOUNDATIONS SHALL BE LOCATED OUTSIDE OF THE SIDEWALK WHENEVER FEASIBLE. A CLEARANCE OF 48" SHALL BE MAINTAINED ON PEDESTRIAN ACCESS ROUTE.
2. FOUNDATION CAP SHALL BE CONCRETE OR GROUT AS DESIGNATED BY THE ENTITY ENGINEER.
3. REFER TO STANDARD DRAWING NO. 321 FOR FOUNDATION DETAIL.

BACK PORTION OF CURBSIDE SIDEWALK (NOT FOR NEW CONSTRUCTION)
(EASEMENT MAY BE REQUIRED)
(SEE USD 320.1)

OFFSET CAP AND ALTERNATE 30" DIAMETER FOUNDATION AS NEEDED TO STAY WITHIN RIGHT-OF-WAY

OPEN AREA OR BETWEEN CURB AND SIDEWALK

SPECIFICATION REFERENCE

PORTLAND CEMENT CONCRETE
TRAFFIC SIGNALS - STREETLIGHTING

LIGHTING STANDARD SETBACK
CONCRETE CAP

ANCHOR BASE

1-1/4" PVC CONDUIT

PLAN

NOTES
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. CONTINUOUS BARE COPPER GROUNDING CONDUCTOR SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE POLE GROUNDING PLATE.
3. FOUNDATION CAP SHALL BE CONCRETE OR GROUT AS DESIGNATED BY THE ENTITY ENGINEER.
SECTION

CONCRETE FOUNDATION

F4045 TIES AT 6" SPACING

15# FELT (2 LAYERS)

POLE GROUNDING PLATE PER NEC 250-83

ALTERNATE 30" DIAMETER FOUNDATION
OFFSET AS NEEDED TO STAY WITHIN RIGHT-OF-WAY

24" SQUARE

TOP OF CURB ELEVATION

FOUNDATION DEPTH
11 GA. POLE 4'-0" 7 GA. POLE 5'-0"

TOP OF ANCHOR BOLTS
6±1/2" IN SIDEWALK
7±1/2" IN OPEN AREA

24" MAX TOP OF FOUNDATION
3" MIN TOP OF FOUNDATION

24" MIN 3" MAX

4" MIN. - 6" MAX.
CONCRETE CAP
TAPER CONCRETE CAP TO
FINISHED GRADE ALL AROUND

ANCHOR BASE
BRONZE ANCHOR BOLT GROUNDING CONNECTORS, UL LISTED FOR
UNDERGROUND USE (ONE PER BOLT)
SEE NOTE 2

HOT-DIP GALVANIZED ANCHOR BOLT, TYP.
#4 AWG SINGLE-STRAND BARE COPPER GROUNDING CONDUCTOR

(2) 1-1/4" PVC CONDUIT, TYP. (4 TOTAL)

CONCRETE FOUNDATION

15# FELT (2 LAYERS)

POLE GROUNDING PLATE PER NEC 250-83

FOR CONDUIT LENGTH, SEE
STANDARD DRAWING NO. 338, 339 OR 340

TO POLE GROUNDING POINT

TO POLE GROUNDING POINT

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
BASE ADAPTOR PLATE FOR 19 INCH BOLT CIRCLE FOUNDATION

PIPE O.D. 4.496 + .003

1/4" X 4" GUSSETS - 4 REQUIRED

2" HOT-DIP GALV. ANCHOR BOLTS WITH TWO HOT-DIP GALV. HEX. HD. NUTS & WASHERS PER BOLT (4 REQUIRED).
### BASE ADAPTOR PLATE

For 16-1/2 Inch Bolt Circle Foundation

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<tr>
<th>AGENCY APPROVED</th>
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</table>

**Uniform Standard Drawings**

**Clark County Area**

**Date**: 12-12-96

**DWG. NO.**: 322

**HOLE DIA.**: 4"

**1 3/16" HOLE, 4 REQD.**

**PIPE O.D.**: 1 1/2"

**1 3/4" HOT-DIP GALV. ANCHOR BOLTS WITH TWO HOT-DIP GALV. HEX. HD. NUTS & WASHERS PER BOLT (4 REQ'D.).**

**1/4" X 4" GUSSETS - 4 REQUIRED**

**1 15/16" HOLE, 4 REQ'D.**

**4" HOLE**

**4.506" + .003"**

**4.496 + .003**
SEALED, WITH 5 IN. WIRE LEADS
ON-OFF, 10 AMP, 125 VAC SWITCH,
SINGLE POLE, SINGLE THROW

KEYED NOTE: SINGLE POLE, SINGLE THROW
ON-OFF, 10 AMP, 125 VAC SWITCH,
SEALED, WITH 5 IN. WIRE LEADS

SPECIFICATION REFERENCE
23 TRAFFIC SIGNALS : STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING
BYPASS SWITCH BRACKET
FOR POLE MOUNTED
STREET LIGHTING SERVICE

DATE 4-13-00 DWG. NO. 324.S1
POLYMER COVER FOR PEDESTRIAN AREAS

COVER

BRASS "L" BOLT AND NUT

BODY

EXTENSION

AS SPECIFIED BY THE ENGINEER

<table>
<thead>
<tr>
<th>PULL BOX</th>
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<tbody>
<tr>
<td>SI/E</td>
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<tr>
<td>(COMMERCIAL DESIGNATION)</td>
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<tr>
<td>3-1/2</td>
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<tr>
<td>A</td>
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<tr>
<td>B</td>
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<td>F</td>
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<td>G</td>
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</table>

NOMINAL DIMENSION IN INCHES

NOTES
1. COVERS INSTALLED IN TRAFFIC AND OPEN AREAS ACCESSIBLE TO TRAFFIC SHALL BE PER STANDARD DRAWING NO. 327.
2. SEE STANDARD DRAWING NO. 323 FOR COVER GROUNDING.
3. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

SPECIFICATION REFERENCE

503 PRECAST PRESTRESSED CONCRETE MEMBERS

23 TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

DATE 01-09-20   DWG. NO. 326

AGENCY APPROVED   B   C   H   L   M   N   R
1. COVER USED IN TRAFFIC AND OPEN AREAS ACCESSIBLE TO TRAFFIC ONLY.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.
NOTES

1. PROVIDE A MINIMUM OF 8" AROUND ALL BOXES. ANY BOX SHALL NOT BE PLACED WITHIN 3'-3" OF FIRE HYDRANTS IN DRIVEWAYS OR DRIVEWAY APRONS. THIS DRAWINGS IS NOT INTENDED TO LIMIT THE NUMBER OF BOXES BETWEEN DRIVEWAYS TO TWO.

2. FOR WATER SERVICE BOXES, REFER TO UDACS PLATE 1-7.

3. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
TYPICAL SECTION

- CONCRETE COLLAR
- #4 REBAR, 2" MIN. 4" MAX FROM EDGE OF BOX
- LAP TIED 12" MIN.
- 8" MIN. ALL AROUND
- GRADE
- GUTTER CURB
- UTILITY BOX
- CONCRETE COLLAR
- #4 REBAR
- 1" MIN.
- 3"
- VARIES

CONCRETE AROUND PULL BOXES IN UNDEVELOPED AREAS

SPECIFICATION REFERENCE

<table>
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<tr>
<th>AGENCY APPROVED</th>
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<td>505</td>
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UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

DATE 12-12-96

DWG. NO. 329
NOTE: SURFACE TREATMENT ADJACENT TO FRONT OF PEDESTAL TO BE DETERMINED BY AGENCY.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

SERVICE PEDESTAL SETBACK AND ORIENTATION

DATE 08-08-19  DWG. NO. 331
NOTES

1. BARE COPPER GROUNDING CONDUCTOR SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

2. IN AREAS WHERE R/W PERMITS, THE CONCRETE BASE SHALL BE PLACED AT THE BACK EDGE OF THE SIDEWALK.

3. REFER TO STD. DWG. 331 FOR SERVICE PEDESTAL SETBACK AND ORIENTATION.

4. WIRE SIZES ARE BASED ON UNDERGROUND FEED.

5. WIRE SIZES SHALL BE INCREASED FOR VOLTAGE DROP LIMITATION WHEN RUN IS LONG.

6. PULLBOX LOCATION TO BE DETERMINED BY THE ENGINEER.

7. WHERE FOUNDATION IS INSTALLED IN SIDEWALK, A CLEAR WIDTH OF 48" MIN. SHALL BE MAINTAINED ON SIDEWALK.
TOP OF ANCHOR BOLTS
5' ± 1/2' AT SIDEWALK
6' ± 1/2' IN OPEN AREA

FINISHED GRADE

4" MIN. - 6" MAX. CONCRETE CAP

3" PVC SERVICE ENTRANCE CONDUIT

ANCHOR BOLT, TYP., 3/8" X 18" X 2"
HOT-DIP GALVANIZED WITH 2
CORROSION RESISTANT NUTS
AND 2 FLAT WASHERS PER BOLT

SECTION

24" SQUARE

GROUNDING PLATE PER NEC 250-83 OR
20' OF .4 AWG BARE, STRANDED
COPPER CONDUCTOR

15# FELT (2 LAYERS)

CONCRETE FOUNDATION

3" PVC SERVICE ENTRANCE CONDUIT

ANCHOR BOLT, TYP., 3/8" X 18" X 2"
HOT-DIP GALVANIZED WITH 2
CORROSION RESISTANT NUTS
AND 2 FLAT WASHERS PER BOLT

PORTLAND CEMENT CONCRETE
TRAFFIC SIGNALS & STREET LIGHTING

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

SPECIFICATION REFERENCE
501 PORTLAND CEMENT CONCRETE
23 TRAFFIC SIGNALS & STREET LIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SERVICE PEDESTAL FOUNDATION
STREET LIGHTING AND/OR TRAFFIC SIGNAL

DATE 03-12-20 DWG. NO. 332 SHEET 2 OF 2
TRAFFIC SIGNALS & STREETLIGHTING

623

12" MAX.

SHALL BE AS SHOWN FOR STABILITY POLE SHAFT, CHASE NIPPLE PLACEMENT FASTENERS IF USED SHALL NOT PENETRATE BE SECURE AND RIGID ON THE POLE.

METER SOCKET AND LOAD CENTER SHALL BE SECURE AND RIGID ON THE POLE. FASTENERS IF USED SHALL NOT PENETRATE POLE SHAFT, CHASE NIPPLE PLACEMENT SHALL BE AS SHOWN FOR STABILITY.

METER SOCKET (PER UTILITY'S REQUIREMENTS) FACE METER AWAY FROM TRAFFIC.

METER SOCKET AND LOAD CENTER SHALL BE SECURE AND RIGID ON THE POLE. FASTENERS IF USED SHALL NOT PENETRATE POLE SHAFT, CHASE NIPPLE PLACEMENT SHALL BE AS SHOWN FOR STABILITY.

HUB, RAIN TIGHT

SINGLE PHASE, 3 WIRE, 120/240 VAC CIRCUIT BREAKER LOAD CENTER, MAIN LUGS ONLY, NEMA 3R (RAIN-TIGHT) ENCLOSURE WITH PADLOCKING PROVISIONS, AND A MINIMUM OF EIGHT (8) SINGLE SPACES. BUSSING SHALL BE COPPER. FOR LOAD MAINS AMPERE RATING, AND/OR CIRCUIT BREAKER RATINGS, NUMBER OF POLES AND QUANTITY, SEE PLANS.

SEE STANDARD DRAWING NO. 324 FOR BYPASS SWITCH BRACKET INSTALLATION.

NIPPLE

"UL LISTED" NIPPLE OR CHASE NIPPLE WITH LOCK RING AND GROUNDING BUSHING

STAINLESS STEEL BANDING AND BUCKLES

POLE GROUNDING POINT

FINISHED GRADE

HANDHOLE (FACE AWAY FROM ONCOMING TRAFFIC)

SINGLE-STRAND BARE #4 AWG COPPER GROUNDING CONDUCTOR TO LOAD CENTER. CONDUCTOR SHALL BE USED TO GROUND POLE AND MUST BE UNBROKEN.

BRONZE GROUNDING CONNECTOR "UL LISTED" NIPPLE OR CHASE NIPPLE WITH LOCK RING AND GROUNDING BUSHING

CONCRETE FOUNDATION SEE STANDARD DRAWING NO. 321

GROUNDING PLATE SEE STANDARD DRAWING NO. 321

NOTE:
RECOMMEND LOCATING SERVICE POINT AS CLOSE TO THE CENTER OF THE STREETLIGHTING CIRCUIT AS POSSIBLE.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

M

SPECIFICATION REFERENCE

23 TRAFFIC SIGNALS STREETLIGHTING

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREET LIGHTING SERVICE POINT LOCATED ON STREETLIGHT STANDARD

DATE 4-13-00 DWG. NO. 333.S1
SERVICE ENTRANCE
WEATHERHEAD

2" RIGID GALVANIZED STEEL CONDUIT

METER SOCKET (PER UTILITY'S REQUIREMENTS)
FACE METER AWAY FROM TRAFFIC.

SINGLE PHASE, 3 WIRE, 120/240 VAC CIRCUIT BREAKER
LOAD CENTER, MAIN LUGS ONLY, NEMA 3R (RAIN-TIGHT)
ENCLOSURE WITH PADLOCKING PROVISIONS, AND A
MINIMUM OF EIGHT (8) SINGLE SPACES.
BUSSING SHALL BE COPPER.
FOR LOAD MAINS AMPERE RATING, AND/OR CIRCUIT BREAKER
RATINGS, NUMBER OF POLES AND QUANTITY, SEE PLANS.

NO. 4 AWG GROUNDING CONDUCTOR ENCASED
IN 1/2" E.M.T.

FINISHED GRADE

EQUIPMENT GROUNDING:
MINIMUM OF 20 FEET
OF SOLID NO. 4 AWG
BARE COPPER WIRE,
SPIRAL WRAPPED AROUND
POLE WITH A 1/2 INCH
PITCH. SEE NOTE 2.

2-HOLE PIPE STRAPS
SPACED 5 FEET APART

2-HOLE PIPE STRAPS

PVC TO STEEL CONDUIT ADAPTOR

PVC CONDUIT TO FIRST STREETLIGHT
SEE NOTE 1

PVC COATED OR WRAPPED WITH
10 MIL CORROSION PROTECTIVE
TAPE, 1/2 LAPPED, RIGID GALVANIZED
STEEL 90° ELBOW, 24" MIN. RADIUS

125 AMP SERVICE: 2" CONDUIT, 2 #1/0 THW AND 1 #4 WHITE THW
200 AMP SERVICE: 2" CONDUIT, 2 250 KCMIL THW AND 1 #1/0 WHITE THW
(0.82 DERATE HAS BEEN APPLIED FOR AMBIENT TEMPERATURE)

NOTES:
1. ALL WIRES TO BE COPPER; SEE PLANS FOR QUANTITY AND GAGES.
2. WITH ENGINEER'S APPROVAL, AN 8 FT. BY 5/8 IN. COPPER-CLAD
GROUNDING ROD MAY BE USED.
3. ALL CONDUIT FITTINGS TO BE WATER-TIGHT.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
TRAFFIC SIGNALS & STREETLIGHTING

1

SEE STANDARD DRAWING NOS. 336 AND 337.

GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY,

200 AMP SERVICE: 2" CONDUIT, 2 #3/0 THW AND 1 #2 WHITE THW

125 AMP SERVICE: 2" CONDUIT, 2 #1 THW AND 1 #6 WHITE THW

TYP.

LUMINAIRE

10/2 UF WITH GROUND

AND FUSES, TYP. SEE STANDARD

2 POLE WATERPROOF FUSE HOLDER

#10 THW STRANDED

TO END OF CIRCUIT

10/2 UF WITH GROUND

LUMINAIRE

TYP.

1

125 AMP SERVICE: 2" CONDUIT, 2 #1 THW AND 1 #2 WHITE THW

200 AMP SERVICE: 2" CONDUIT, 2 #3/0 THW AND 1 #2 WHITE THW

FOR POLE SERVICE, WIRE SIZES SHALL BE TEMPERATURE DERATED.

2

GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY,

SEE STANDARD DRAWING NOS. 336 AND 337.

3

SINGLE POLE, SINGLE THROW, ON-OFF, 10 AMP, 125 VAC SWITCH, SEALED, WITH 5 IN. LEADS

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

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<tr>
<td>335.S1 STRENGTH OF THE CONDUCTOR INSULATION TAPE TO INSULATE TO THE DIELECTRIC</td>
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PHOTO ELECTRIC CONTROL,
MOUNTED AT FIRST LIGHTING STANDARD
FACE PE CELL NORTH

LIGHTING CONTACTOR

SERVICE ENTRANCE 1

10 THW STRANDED

2 POLE WATERPROOF FUSE HOLDER

AND FUSES, TYP. SEE STANDARD

DRAWING NO. 338

3 DWG. NO. DWG. NO.

DATE 2-10-00

STREETLIGHT CIRCUIT
ONE LINE DIAGRAM

CLARK COUNTY AREA
UNIFORM STANDARD DRAWINGS

SUPPLEMENTAL DRAWING

STREETLIGHT CIRCUIT
ONE LINE DIAGRAM

DATE 2-10-00

DWG. NO. 335.S1
TRAFFIC SIGNALS & STREETLIGHTING

SEE STANDARD DRAWING NOS. 336 AND 337.
GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY.

FOR CONDUIT SIZE AND WIRING REQUIREMENTS FOR STREETLIGHT SERVICE, SEE STANDARD DRAWING NO. 336.

GOUGING AND BONDING CONDUCTORS OMITTED FOR CLARITY, SEE STANDARD DRAWING NOS. 336 AND 337.

SINGLE POLE, SINGLE THROW, ON-OFF, 15 AMP, 125 VAC SWITCH, SEALED, WITH 5 IN. LEADS

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED  C  L

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA
SUPPLEMENTAL DRAWING

STREETLIGHT CIRCUIT
ONE LINE DIAGRAM

DATE 2-10-00  DWG. NO. 335.S2
For conduit size and wiring requirements for street light service, see standard drawing no. 332.s2 for las vegas and clark county only and 332.s1 for all other entities.

System grounding plan with pedestal service
<table>
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<tr>
<th>Specification Reference</th>
<th>Agency Approved</th>
<th>B</th>
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**Uniform Standard Drawings**

**Clark County Area**

**Lighting Standard Wiring Diagram, 240 Volt, Two Wire**

**Date**: 12-12-96

**Drawing Number**: 338
TWIN LIGHTING STANDARD WIRING DIAGRAM, 240 VOLT, TWO WIRE

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<td>23 TRAFFIC SIGNALS &amp; STREETLIGHTING</td>
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UL LISTED FOR UNDERGROUND USE

BARE COPPER GROUNDING CONDUCTOR

10/2 UF WITH GROUND, TYP.
10 BARE COPPER, TYP.
10 THW STRANDED, TYP.
LOAD SIDE, TYP.
LINE SIDE, TYP.
DOUBLE POLE WATERPROOF FUSE HOLDER ASSEMBLY, TYP.

POLE GROUNDING POINT

HANDHOLE, PROVIDE SLACK IN WIRES TO EXTRACT FUSE HOLDERS AND CONNECTIONS, 18" MIN.

1-1/4" PVC CONDUIT

3"

1/4 AWG SINGLE-STRAND BARE COPPER GROUNDING CONDUCTOR

HEX HEAD NON-CORROSIVE CAP SCREW WITH FLAT WASHER

BRONZE ANCHOR BOLT GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

CLARK COUNTY AREA

TWIN LIGHTING STANDARD DRAWINGS

DATE 12-12-9

DWG. NO. 339
1-1/4" PVC CONDUIT
TRAFFIC SIGNALS & STREETLIGHTING
623

1 #8 GREEN THWN
3 #4 THW AND
10/2 UF WITH GROUND

LIGHTING STANDARD WIRING DIAGRAM
120 VOLT, ONE PHASE, THREE WIRE

AGENCY APPROVED

SPECIFICATION REFERENCE

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

CLARK COUNTY AREA

LIGHTING STANDARD WIRING DIAGRAM
120 VOLT, ONE PHASE, THREE WIRE

DWG. NO. 340
NOTES
1. ADDITIONAL SPECIFICATIONS PER POLE MANUFACTURER.
2. 8' ARMS SHALL BE USED FOR ROADSIDE INSTALLATIONS ON STREETS WITH LESS THAN 100' RIGHT-OF-WAY, UNLESS OTHERWISE DIRECTED.
3. 10' ARMS SHALL BE USED FOR MEDIAN INSTALLATIONS AND ON ROADSIDES WITH 100' OR GREATER RIGHT-OF-WAY, UNLESS OTHERWISE DIRECTED.
4. PAINT ARMS AND ATTACHMENT HARDWARE SEMIGLOSS BLACK.
5. BANNER ARMS ONLY WHEN SPECIFIED ON THE PLANS.
6. CONSTRUCT FOUNDATION PER USD 343.
7. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE PRIOR TO ORDERING MATERIALS. APPROVED FIXTURE LIST IS LOCATED ON CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS.
8. CITY ENGINEER MAY APPROVE EQUAL FIXTURES THAT MEET AESTHETIC AND LIGHT LEVEL REQUIREMENT PER USD 300.03. LIGHTING STUDY REQUIRED.

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**AGENCY APPROVED**

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<th>UNIFORM STANDARD DRAWINGS</th>
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<td>623</td>
<td>CLARK COUNTY AREA</td>
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**CITY OF LAS VEGAS**

**26' STREET LIGHT POLE**

**FOR TOWN CENTER AREA**

---

**DATE 08-09-18**

**DWG. NO.** 341
**AMERON NOTES AND SPECIFICATIONS:**

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<th>&quot;P&quot; LEVEL CONFIG CODES</th>
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<tr>
<td>COATING</td>
<td>WALL</td>
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<td>434 KMPA</td>
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<td>DOOR SCRS</td>
<td>TMP</td>
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<tr>
<td>DOUBLE MOD</td>
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**DECORATIVE BASE OCTAGONAL, BASE PLATE POLE**

<table>
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<tr>
<th>POLE DESIGNATION</th>
<th>POLE HEIGHT ABOVE GRADE</th>
<th>OVERALL POLE LENGTH</th>
<th>BOLT CIRCLE</th>
<th>BASE DIAM.</th>
<th>ULTIMATE LOAD (FT-LB)</th>
<th>POLY DISCHARGE</th>
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<tbody>
<tr>
<td>68121</td>
<td>206 1/2</td>
<td>21 1/2</td>
<td>18&quot;</td>
<td>18,400</td>
<td>1,200</td>
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(P) POLES REQUIRED EACH W/ 4 & 8" DOUBLE ALUMINUM LUMINA

SINGLE ROLL RECIPROCAL (F/"N: 7 D. D.) & TAMPER

PROOF WRENCH (F/"N: 497"RS)

**NOTES:**

1. MIX (123): BLACK, EXPOSED AGGREGATE FINISH WITH AMERICAN HIGHLAND GROUTING COATING.
2. F @ 28 DAYS = 6,000 PSI USING SPUN CYLINDER TEST.
3. F @ 28 DAYS = 5,000 PSI USING ASTM C-31 CYLINDER TEST.
4. POLES MANUFACTURED IN ACCORDANCE WITH ASTM C-378-06 SPECIFICATIONS.
5. BASEPLATE ASTM A-36 FULLY PRESTRESSED WITH (8) 5/16" DIA. A-416 WIRES (7-STRAND CABLED).
6. PROTECTIVE COAT EXPOSED P.C. WIRE AT POLE ENDS.
7. LUMINA IS DESIGNED TO ROTATE TO ANY OCTAGONAL PLATE PER CUSTOMERS REQUIREMENTS.
8. POLE SHOWN IS SUITABLE FOR CAMPOD BASE PLATE (ENCASED IN CONCRETE) OTHERWISE, OTHER NON-CAMPOD INSTALLATION REQUIRED A GALVANIZED BASE PLATE.
9. THE 8-1/2" DOUBLE TOP MOUNT ALUMINUM OCTAGONAL 5-ARM POLE (LUMINA ASSEMBLY NOT TO EXCEED 8 FT. 1-3/4" DIA. E.R.A., 3 LBS. PER SIDE) DEPicted on this drawing is designed to withstand the loads imparted by (3) OC-DECASPIRE PLAN LUMINARIES (NOT TO EXCEED 1.8 SQ. FT. E.R.A., 48 LBS. EACH, ONE PER SIDES) THE POLE IS DESIGNED TO WITHSTAND THE LOADS IMPARTED BY THE TOP MOUNT LUMINA (THE (2) LUMINARIES) & (2) 8" X 8" CANOPY CENTERED NO HIGHER THAN 12" ABOVE GRADE AS DESIGNED PER THE ASTM AASHTO LT-5 IN A 15M PH WIND ZONE (1-SECOND GUSTS). PLEASE ADVISE IF THE INTENDED LOADING EXCEEDS THESE VALUES.

**STRESSCRETE NOTES AND SPECIFICATIONS:**

<table>
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<td>CATALOGUE NO.: KWH-24-C-11-REP C/W: 4525655</td>
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<tr>
<td>SECTION: OCTAGONAL</td>
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<td>FINISH: ETCHED</td>
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<td>POLE LENGTH: 7 3/4&quot;</td>
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<tr>
<td>POLE TOP: 18&quot; FLUSH</td>
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<td>APPROX. WT.: 1787.0</td>
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<tr>
<td>QUANTITY: 1</td>
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<tr>
<td>MIN. RACIAGE: 1 1/8</td>
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**ARM SPECIFICATIONS:**

| CATALOGUE NO.: KAF-33-T-1481-2 |
| QUANTITY: |
| MATERIAL: ALUMINUM |
| PAINT: SEMIGLOSS BLACK |

**COATINGS REQUIRED:**

- 1 COAT ANTIQUE AFR FRIT
- FULL LENGTH

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**AGENCY APPROVED**

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**DATE** 08-09-18 | **DWG. NO.** 342.1
OPTION A: 8’ + 8’ ARMS (FOR 15’+ SIDEWALKS OR FOR MEANDERING SIDEWALKS)
OPTION B: 6’ + 8’ ARMS (FOR 15’ SIDEWALKS, INCLUDING AMENITY ZONE)
OPTION C: 4’ + 8’ ARMS (FOR 10’ SIDEWALKS, INCLUDING AMENITY ZONE)

OPTION D: SINGLE 8’ ARM (FOR OBSTRUCTED SIDEWALKS)

DECORATIVE DOUBLE ARM ASSEMBLY PAINTED SEMIGLOSS BLACK WITH (OPTIONAL) "*" SCROLL AND ATTACHMENT HARDWARE PAINTED SEMIGLOSS BLACK

DECORATIVE 8’ SINGLE ARM ASSEMBLY WITH POINTED ALUMINUM SIDE CAP PAINTED SEMIGLOSS BLACK WITH (OPTIONAL) "*" SCROLL AND ATTACHMENT HARDWARE ON ROADWAY SIDE AS SPECIFIED ON PLAN

PEDESTRIAN SIDE
ROADWAY SIDE

4’-0’ ± 1’
6’-0’ ± 1’
8’-0’ ± 1’

32’ ± 1’
RISE (TYP.)

2’ ± 1’ (TYP.)

6’ OCT, TOP WITH CAST ALUMINUM BALL TOP MOUNT AND SPIRE FINIAL CAP AND ATTACHMENT HARDWARE PAINTED SEMIGLOSS BLACK

8’-0’

125V, 15A DUPLEX GFI RECEPTACLE ON PEDESTRIAN SIDE, WIRING TO THE 120 VAC CIRCUIT WITH DIE-CAST ALUMINUM WEATHERPROOF COVER PAINTED SEMIGLOSS BLACK (INTERMATIC WP*010M/WD COVER OR APPROVED EQUIVALENT).

FOR STREESCRETE POLES, RECEPTACLE INSET SHALL BE FORMED DURING POLE MANUFACTURE.

FOR AMERON POLES, JUNCTION BOX TO BE MOUNTED AFTER POLE MANUFACTURE (DRILL 1-1/4” HOLE INTO POLE AND INSTALL WEATHER PROOF DEVICE BOX (RED DOT H3-2-LM OR APPROVED EQUIVALENT).

CONCRETE POLE (AMERON KB1-21 OR STREESCRETE KMH21-G-E11-FSP-AQ). SEE NOTES PER 342.1. (OR APPROVED EQUAL MANUFACTURED PER ASTM C-1089-97 SPECIFICATIONS)

POLE SHALL BE BLACK, EXPOSED AGGREGATE FINISH WITH FULL LENGTH ANTI-GRAFFITI COATING.

HANDHOLE OPENING W/ GROUNDED ALUMINUM COVER PAINTED BLACK SEMIGLOSS (4’ X 3’/8” X 10’3”) FOR STREESCRETE POLES; 3’-1/2” X 3’ X 10’1-1/2” FOR AMERON POLES) COVERS MUST FACE STREET OR SIDEWALK AND MUST BE (2) SCREW TYPE; (4) SCREW TYPE COVERS WILL NOT BE ACCEPTED.

NOTES
1. ADDITIONAL SPECIFICATIONS PER POLE MANUFACTURER.
2. CONSTRUCT FOUNDATION PER USD 343.
3. BANNER ARMS ONLY WHEN SPECIFIED ON THE PLANS.
4. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, PRIOR TO ORDERING MATERIALS. APPROVED FIXTURE LST IS LOCATED ON CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS.
5. CITY ENGINEER MAY APPROVE EQUAL FIXTURES THAT MEET AESTHETIC AND LIGHT LEVEL REQUIREMENT PER USD 300.53, LIGHTING STUDY REQUIRED.

AGENCY APPROVED

SPECIFICATION REFERENCE
623 TRAFFIC SIGNALS & STREET LIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CITY OF LAS VEGAS
21’ STREET LIGHT POLE
FOR DOWNTOWN CENTENNIAL POLE AREA

DATE 08-09-18 | DWG. NO. 342
MANHOLE NOTES

1. MANHOLE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF SECTION 609, "CATCH BASINS, MANHOLES AND INLETS" OF THE "STANDARD SPECIFICATIONS".

2. REINFORCING STEEL SHALL BE AS SHOWN, WIRED TIGHTLY AT ALL INTERSECTIONS AND EMBEDDED AT LEAST ONE (1) INCH CLEAR UNLESS OTHERWISE NOTED.

3. EXCAVATION SHALL BE AS NEARLY VERTICAL AS POSSIBLE (SHEET AND SHORE, IF SOIL CONDITIONS REQUIRE), IN EXISTING STREET SECTIONS, ALLEY SECTIONS AND CONFINED AREAS SUCH AS LIMITED EASEMENTS OR ADJACENT TO STRUCTURES. NATURAL ANGLE OF REPose WILL ALLOW IN ALL OTHER AREAS.

4. MANHOLE DESIGN FOR PIPE LARGER THAN SIXTY (60) INCHES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

5. MANHOLE DESIGN FOR DEPTHS EXCEEDING EIGHTEEN (18) FEET SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

TYPE AND SIZE OF MANHOLE TO BE CONSTRUCTED IN A PARTICULAR LOCATION SHALL BE DETERMINED BY THE PIPE SIZE, ALIGNMENT AND GRADE AS FOLLOWS:

TYPE I

FORTY-EIGHT (48) INCH SI: E
A. ALL CASES FOR PIPE EIGHTEEN (18) INCHES AND SMALLER.
B. TWENTY-FOUR (24) INCHES AND SMALLER PIPE ON TANGENT LINE AND GRADE.

SIXTY (: 0) INCH SI: E
A. TWENTY-SEVEN (27) INCH THROUGH THIRTY-SIX (36) INCH PIPE ON TANGENT LINE AND GRADE.
B. TWENTY-ONE (21) INCH THROUGH TWENTY-SEVEN (27) INCH PIPE AT ANGLE POINTS AND CHANGES IN GRADE OR PIPE SI: E.

TYPE I-A

USED IN PLACE OF TYPE I WHEN COVER ABOVE CONDUIT IS LIMITED, AND WHEN APPROVED BY THE ENGINEER.

TYPE II

FORTY-EIGHT (48) INCH SI: E
A. THIRTY (30) INCH THROUGH SIXTY (: 0) INCH PIPE ON TANGENT LINE WITH A CHANGE IN GRADE OR PIPE SI: E.
MANHOLE NOTES (CONTINUED)

TYPE III

TANGENT
SIXTY (.0) INCH SI: E
A. THIRTY-NINE (39) INCH THROUGH SIXTY (.0) INCH PIPE ON TANGENT LINE AND GRADE WITH NO CHANGE IN PIPE SI: E.

ANGLE POINT
SIXTY (.0) INCH SI: E
A. THIRTY (30) INCH THROUGH SIXTY (.0) INCH PIPE AT THE ANGLE POINT IN LINE.

7. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478.

8. DISTANCE BETWEEN THE TOP OF MANHOLE AND FIRST STEP SHALL BE A MAXIMUM OF SIXTEEN (16) INCHES. MANHOLE STEPS SHALL BE GROUTED IN PLACE.

9. (CLARK COUNTY ONLY) DISTANCE BETWEEN MANHOLES SHALL BE A MAXIMUM OF FOUR HUNDRED (400) FEET.

10. MANHOLE SPACING SHALL BE REFERRED TO THE WASTE WATER COLLECTION STANDARDS.
DROP INLET NOTES

1. ALL DROP INLETS, REGARDLESS OF TYPE, SHALL BE LOCATED SUCH THAT THE CURB OPENING (OR GRATE) IS A MINIMUM OF TEN (10) FEET FROM THE NEAREST P.C. OR P.T. OF THE CURRENT OR FUTURE CURB RETURN.


3. IF DRIVEWAYS OR UTILITIES EXIST, THE ENTITY ENGINEER SHALL APPROVE THE LOCATION OF THE DROP INLET.

4. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
**EXPLODED VIEW**

A TAPER

B

C

D

E

F

**CONCRETE COLLAR**

SEE STANDARD DWG. NO. 408.1

**SIZE AS NECESSARY**

**DIA.**

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<td>A RING &amp; COVER</td>
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<tr>
<td>B GRADE ADJUSTING RING</td>
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<td>D 2: SECTION REIN. CONC. PIPE</td>
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<td>E 3: SECTION REIN. CONC. PIPE</td>
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<tr>
<td>36&quot;</td>
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<tr>
<td>30&quot;</td>
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**TONGUE & GROOVE JOINTS**

**FULL MORTARED JOINTS**

(CLASS "B" MORTAR)

**SEE NOTE 4**

**STREET ELEV.**

15" MINIMUM, 22" MAXIMUM

**EDITOR'S NOTES**

1. IN UNIMPROVED NON-TRAFFIC AREAS, TOP OF MANHOLE SHALL BE 6" TO 9" ABOVE GRADE.
2. PIPES SHALL NOT PROTRUDE MORE THAN 3" INSIDE OF MANHOLE SECTION. CONSTRUCT WATER TIGHT CONNECTION TO MANHOLE.
3. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
4. AN OPTIONAL TWO PIECE 30" TO 48" AND 48" TO 60" CONE MAY BE USED.
5. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.

□ WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

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**SPECIFICATION REFERENCE**

| 501 | CONCRETE □ MORTAR |
| :09 | CATCH BASINS, MANHOLES □ INLETS |

**UNIFORM STANDARD DRAWINGS**

CLARK COUNTY AREA

**TYPE I MANHOLE**

30 INCH RING AND COVER

DATE 01-09-20 | DWG. NO. 403.1
NOTES

1. IN UNIMPROVED NON-TRAFFIC AREAS, TOP OF MANHOLE SHALL BE 6" TO 9" ABOVE GRADE.
2. PIPES SHALL NOT PROTRUDE MORE THAN 3" INSIDE OF MANHOLE SECTION. CONSTRUCT WATER TIGHT CONNECTION TO MANHOLE.
3. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
4. AN OPTIONAL TWO PIECE 24" TO 48" AND 48" TO 60" CONE MAY BE USED.
5. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
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<td>E</td>
<td>3: SECTION REIN. CONC. PIPE</td>
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**NOTE:**

1. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
2. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.

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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**TYPE IA MANHOLE**

**30 INCH RING AND COVER**

DATE 11-10-05  DWG. NO. 404.1
NOTE:
1. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
**NOTES:**

1. STEPS SHALL BE INSTALLED ON THE SIDE WALL OF THE MANHOLE.
2. W = I.D. + 12-INCHES MIN. BUT IN NO CASE SHALL W BE LESS THAN 10-INCHES.
3. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.

**SECTION B-B**

**SECTION A-A**
NOTES:
1. ALL BARS SHALL BE DEFORMED BARS CONFORMING TO ASTM A616 GRADE 60.
2. CONCRETE SHALL BE MADE WITH TYPE V CEMENT IN ACCORDANCE WITH ASTM C-150.
   MINIMUM COMpressive 28 DAY STRENGTH = 4000 psi, MAX, SLUMP = 4".
3. CLEARANCE TO REINFORCING BARS TO BE 2 1/2" UNLESS NOTED OTHERWISE.
4. FOR PRECAST RCB, THE REINFORCING SHALL BE IN ACCORDANCE WITH MANUFACTURER DESIGN, AS APPROVED BY THE ENGINEER.

**TYPE II-SD MANHOLE - RCB**

**PLAN - MANHOLE - RCB**
PLAN - NO SIDE DRAIN
POSITION MANHOLE ON EITHER SIDE

PLAN - SINGLE SIDE DRAIN
POSITION MANHOLE ON OPPOSITE SIDE FROM THE SIDE DRAIN

TYPE II-SD MANHOLE - PIPE

NOTES:
1. ALL BARS SHALL BE DEFORMED BARS CONFORMING TO ASTM-A706 GRADE 60.
2. CONCRETE SHALL BE MADE WITH TYPE V CEMENT IN ACCORDANCE WITH ASTM C-150, MINIMUM COMPRESSIVE 28 DAY STRENGTH = 4000 psi, MAX. SLUMP = 4".
3. CLEARANCE TO REINFORCING BARS TO BE 2 1/2" UNLESS NOTED OTHERWISE.
4. THIS DESIGN IS FOR PIPE SIZES 36" TO 72" INCH. LARGER PIPE SIZES REQUIRES SPECIAL DESIGN.
NOTES:
1. STEPS SHALL BE INSTALLED ON THE UPSTREAM WALL OF THE MANHOLE.
2. W  1/2  I.D.  12-INCHES MIN. BUT IN NO CASE SHALL W BE LESS THAN 0-INCHES.

SECTION A-A
SEE TYPE I MANHOLE FOR DIMENSIONS AND DETAILS

SECTION B-B
SEE TYPE I MANHOLE FOR DIMENSION OF DETAILS

PLAN
EDGES TO BE ROUNDED TO 3" RADIUS

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE II MANHOLE

AGENCY APPROVED

DATE  DWG. NO.  405
NOTE:
1. STEPS SHALL BE INSTALLED ON THE UPSTREAM WALL OF THE MANHOLE.
2. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.

---

**NOTE:**

- **501** CONCRETE
- **505** REINFORCING STEEL
- **09** CATCH BASINS, MANHOLES & INLETS

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**UNIT OF STANDARD DRAWINGS**

**CLARK COUNTY AREA**

---

**TYPE III MANHOLE**

**30 INCH RING AND COVER**

---

**DATE 11-10-05**

**DWG. NO. 406.1**
1. STEPS SHALL BE INSTALLED ON THE UPSTREAM WALL OF THE MANHOLE.
NOTE:
1. The use of a 30" ring and cover shall be approved by the entity engineer.
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PRECAST MANHOLE TEES

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DATE | DWG. NO. | 407
1. Concrete collar to be constructed 1/8" below surface of dense grade where open grade is not used.

2. Concrete collar not required in unincorporated Clark County residential streets less than 80' R/W width.

3. The use of 30" ring and cover shall be approved by the entity engineer.

4. When installed within pedestrian access routes, top of manhole covers shall have no vertical surface discontinuities greater than 1/4" with adjacent surface, have no gaps greater than 1/2" regardless of construction tolerances, and be firm, stable, and slip resistant.

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**Concrete Collar Around Manholes**

30 Inch Ring and Cover
NOTES
1. CONCRETE COLLAR, FRAME, AND COVER SHALL BE CONSTRUCTED 1/8" BELOW THE ADJACENT SURFACE, ±1/16".
2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80' R/W WIDTH.
3. IF MANHOLE IS MORE THAN 1-1/2" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
4. IF MANHOLE IS MORE THAN 1/4" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE IN A BICYCLE LANE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
5. THE USE OF 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
6. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
1. CONCRETE COLLAR TO BE CONSTRUCTED 1/8" BELOW SURFACE OF DENSE GRADE WHERE OPEN GRADE IS NOT USED.

2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80' R/W WIDTH.

3. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

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**CONCRETE COLLAR AROUND MANHOLES**

**DATE 01-09-20**

**DWG. NO. 408**
NOTES

1. CONCRETE COLLAR, FRAME, AND COVER SHALL BE CONSTRUCTED 1/8" BELOW THE ADJACENT SURFACE, ±1/16".
2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80' R/W WIDTH.
3. IF MANHOLE IS MORE THAN 1-1/2" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
4. IF MANHOLE IS MORE THAN 1/4" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE IN A BICYCLE LANE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
5. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

SPECIFICATION REFERENCE

| 501  | CONCRETE                        |
| 505  | REINFORCING STEEL               |

DATE 01-09-20  DWG. NO. 408.S1
1. FRAME AND COVER TO BE ALHAMBRA FOUNDRY COMPANY TYPE A1310 IN ACCORDANCE WITH ASTM A-48, CLASS 30, OR APPROVED EQUIVALENT.
2. CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 P.S.I.
3. FRAME AND COVER MACHINED TO FIT.
4. WEIGHT OF FRAME AND COVER 330 LBS. MINIMUM.
5. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
NOTES:

1. FRAME AND COVER TO BE ALHAMBRA FOUNDRY COMPANY TYPE A1310 IN ACCORDANCE WITH ASTM A-48, CLASS 30, OR APPROVED EQUAL.
2. CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 P.S.I.
3. FRAME AND COVER MACHINED TO FIT.
4. WEIGHT OF FRAME AND COVER 330 LBS. MINIMUM.
1. MANHOLE STEP SHALL CONFORM TO A.S.T.M. C-478 AND C-497.

2. ALUMINUM STEPS SHALL BE SOLID, MADE FROM MATERIAL IN CONFORMANCE WITH A.S.T.M. B221 (ALLOY 6005-T6).

3. REINFORCED PLASTIC STEPS SHALL BE POLYPROPYLENE PLASTIC, WITH NO. 3 (MIN.) DEFORMED STEEL ROD (GRADE 60/A.S.T.M. A-615).

4. STEPS SHALL BE EVENLY SPACED FROM 12" TO 16".

5. ALL STEPS MUST BE EPOXIED IN PLACE DURING THE INSTALLATION PROCESS.
NOTES:
1. ALL REBAR SHALL HAVE 2-1/2" COVER U.O.N.
2. ALL CONCRETE SHALL BE CLASS DA 4000 PSI.
3. SEE PLANS FOR LENGTH (L) AND DEPTH (H) OF EACH INLET.
4. SEE PLANS FOR SIZE AND LOCATION OF OUTLET PIPE.
5. ALL EXPOSED STEEL SHALL BE HOT DIPPED GALVANIZED.
6. ALL DAMAGED GALVANIZED STEEL SHALL BE PAINTED WITH A MINIMUM 3.5 MIL. COAT OF ONE OF THE FOLLOWING ZINC RICH PAINTS:
   - GALVONOX TYPE I
   - LPS COLD GALVANIZE
   - SHERWIN-WILLIAMS "ZINC CLAD I"
7. ALL REBAR SHALL BE GRADE 60.
8. ALL STRUCTURAL STEEL SHALL BE A36.
10. BEDDING FOR DROP INLET SHALL BE 6" MIN. OF TYPE II AGGREGATE BASE COMPACTED TO 95% MAXIMUM DENSITY PER ASTM D1557.
NOTES:

1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. OUTLET PIPE SHALL BE TRIMMED FLUSH WITH INSIDE FACE OF INLET.
4. SECTION B-B IS OPTIONAL FOR INLETS WHERE L = 7'-0" OR GREATER, AND D = 5'-0" OR GREATER, SEE STANDARD DRAWING NO. 415.

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET
TYPE "A"

DATE 4-11-02  DWG. NO. 411
1. All exposed metal shall be hot-dip galvanized after fabrication.
2. Provide 1/2" (min.) clearance all around the steel beam.
3. Dry pack after installation. When required by length of opening, plate angle may be delivered in sections and butt welded in place.
4. All galvanized damaged by welding shall receive two coats of galvalloy or equal.
5. Angle anchors shall be embedded midpoint in each endwall and evenly spaced, (maximum spacing of 2').
6. Concrete shall be modified class DA 4000 PSI, see special provisions.

Type "C-D" Drop Inlet

**Section A**
- Protective Face Angle - Detail "A" - See Detail "A" for connection to beam.
- 1" Dia. Rod x 10-1/2" Long
- W/Double Hex Nuts and Washers at top.
- See Detail 'B' for connection to beam.

**Section B**
- 1/2" Dia. Bolts W/ Nuts and Washers 2-1/4" Gage (2 Total)
- Protective Face Angle 5-1/2" x 4-0" x 5/16" LLH

**Type "CM2" Drop Inlet Section**
- Back of Curb 2" CLR.
- Slope 1/4" Per Foot
- "W" 6" 4'-0" @ 2'-6" O.C.
- #4 @ 6" O.C.
- Centered 1'-4"
- 12" TYP.
- 1'-6" 1-1/2"
- 3" CLR. (TYP.)

**Type "DM2" Drop Inlet Section**
- 6" Slope to Drain Construction Joint (TYP.)
- 2" CLR. (TYP.)
- #4 @ 12" O.C.
- 3" CLR. (TYP.)
- 2'-6" Pert Foot
- "W" 6" 4'-0" @ 2'-6" O.C.
- #4 @ 6" O.C.
- "A" Bars 4'-0"
- Centered 2'-2"
- 12" TYP.

**Bicycle Proof Heavy Duty**
- 2-1/2" Thk x 17-3/4" W x 29-3/4" L
- Vane Grate Neenah Type R-4999-L9 or Approved Equal

**Alternate Connection Detail**
- All exposed metals shall be hot-dip galvanized after fabrication.
- Provide 1/2" (min.) clearance all around the steel beam.
- Dry pack after installation. When required by length of opening, plate angle may be delivered in sections and butt welded in place.
- All galvanized damaged by welding shall receive two coats of galvalloy or equal.
- Concrete shall be modified class DA 4000 PSI, see special provisions.
- Angle anchors shall be embedded midpoint in each endwall and evenly spaced, (maximum spacing of 2').

**Notes:**
- Construction joint (TYP.)
- Slope to drain
- Construction joint (TYP.)
- Slope to drain
- Protection Bolt See Detail "A"
- Protection Bolt - See Detail "A"
- "W" 4" Protection Bolt - See Detail "A"
- "W" 4" Protection Bolt - See Detail "A"
- "W" 4" Protection Bolt - See Detail "A"
- "W" 4" Protection Bolt - See Detail "A"

**Agency Approved**
- B C H L M N
NOTES:
1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. CONCRETE SHALL BE CLASS "D" OR "DA".
4. OUTLET PIPE SHALL BE TRIMMED FLUSH WITH INSIDE FACE OF INLET.
5. FOR GRATE DETAIL SEE STANDARD DRAWING NO. 417

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SPECIFICATION REFERENCE

| 501 | CONCRETE |
| 502 | CONCRETE STRUCTURES |
| 505 | REINFORCING STEEL |
| 713 | STEEL |

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET TYPE "B"

DATE 4-11-02  DWG. NO. 412
NOTE:

1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. WHEN LENGTH "L" EXCEEDS 4'-0" SUPPORT BOLTS REQUIRED, SEE STANDARD DRAWING NO. 418.
4. FOR GRATE DETAIL SEE STANDARD DRAWING NO. 417.
5. SECTION B-B IS OPTIONAL FOR INLETS WHERE L > 7'-0" AND D > 5'-0", SEE STANDARD DRAWING NO. 415.
1. DROP INLET TYPE "D" TO BE USED WHEN CONFLICTING UTILITIES ARE LOCATED IN THE SIDEWALK AREA.
2. DEPTH "D" AND DISTANCE "Y" TO BE SHOWN ON PLANS.
3. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
4. WHEN LENGTH "L" EXCEEDS 4'-0" SUPPORT BOLTS REQUIRED, SEE STANDARD DRAWING NO. 418.
5. WHEN LENGTH "L" EXCEEDS 4'-0" SUPPORT BOLTS REQUIRED, SEE STANDARD DRAWING NO. 418.
6. WHEN LENGTH "L" EXCEEDS 4'-0" SUPPORT BOLTS REQUIRED, SEE STANDARD DRAWING NO. 418.
7. SECTION B-B IS OPTIONAL FOR INLETS WHERE L > 7'-0" AND D > 5'-0", SEE STANDARD DRAWING NO. 415.

NOTES:

SPECIFICATION REFERENCE

| 501 | CONCRETE |
| 502 | CONCRETE STRUCTURES |
| 505 | REINFORCING STEEL |
| 713 | STEEL |

AGENCY APPROVED

| B | C | H | L | M | N |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET TYPE "D"

DATE 4-11-02  DWG. NO.  414
SECTION B-B

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NOTES:

1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. SECTION APPEARS AS SECTION B-B FOR DROP INLET TYPE "A", STANDARD DRAWING NO. 411 AND FOR DROP INLET TYPE "C" STANDARD DRAWING NO. 413.

SPECIFICATION REFERENCE

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DATE: 415
BEEHIVE DROP INLETS SHALL BE USED AT LOCATIONS APPROVED BY THE ENGINEER.
1. All exposed metal parts shall be galvanized, and all galvanizing damaged by fabrication or installation shall receive two coats of aluminum paint (GALVONOX or equal).
2. Grates shall not be installed in pedestrian access routes.
3. Grates must be bicycle safe.
NOTE:

STEEL PLATE ANCHORAGE

SECTION A-A

BOLT DETAIL

STEM PLATE ANCHORAGE

NOTE:

FOR STEEL PLATE AND PROTECTION BAR DETAILS, SEE STANDARD DRAWING NO. 419.
1. PROTECTION BAR SHALL BE REQUIRED ON ALL INLETS AND SHALL BE PLACED PARALLEL TO THE STEEL FACE PLATE.

2. SUPPORT BOLTS SHALL BE EQUALLY SPACED AT NOT MORE THAN 2'-0" O.C. AND NOT LESS THAN 1'-6" O.C.

3. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).

4. FOR STEEL PLATE ANCHORAGE, SEE STANDARD DRAWING NO. 418.

5. #4 BARS \((L+6')\) SHALL BE IN ADDITION TO REINFORCING STEEL PER APPLICABLE DROP INLET STANDARD PLAN.
NOTES:

1. CONSTRUCT 14-FOOT WIDE CHAIN LINK GATE AT ALL STREET ACCESS POINTS, FOR ACCESS ONTO 12-FOOT ACCESS ROADS.

2. CONSTRUCT 3-FOOT WIDE CHAIN LINK GATE AT ALL STREET ACCESS POINTS FOR ACCESS ON THE 5-FOOT WIDTH ACCESS SIDE.

3. CONSTRUCT SECOND ACCESS ROAD (12-FOOT MINIMUM WIDTH WITH 6-INCH MIN. TYPE II AGGREGATE BASE) IF B EXCEEDS 30.'

4. FOR UNLINED CHANNELS H

5. "V" DITCH SHALL BE CONSTRUCTED TO PREVENT OVERLAND RUNOFF FROM ERODING SIDES OF BANK. AN ADEQUATE NUMBER OF INLETS ALONG THE "V" DITCH SHALL BE DESIGNED WITH A MINIMUM 12-INCH CMP LATERAL DISCHARGING INTO THE CHANNEL. APPROPRIATE BANK PROTECTION FOR LATERAL PIPE DISCHARGE SHALL BE PROVIDED. OTHER METHODS OF OVERLAND RUNOFF CONTROL MAY BE ACCEPTABLE IF APPROVED BY THE ENGINEER.
NOTES

1. MESSAGE OR SYMBOL SHALL BE AS SHOWN ON THE DRAWING OR ON THE VERTICAL CURB NEXT TO THE DROP INLET OR AS APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER.

2. LETTERS SHALL BE 1-7/16" IN HEIGHT. THE MESSAGE SHALL BE CENTERED ON THE BACK OF THE INLET OR ON THE TOP OF CURB.

3. CONCRETE SHALL BE STAMPED IN SUCH A WAY AS TO PROVIDE FOR A CLEAR AND LEGIBLE IMAGE. (APPROXIMATE DEPTH OF 1/4”).

4. ALL STAMPS SHALL BE APPROVED BY THE CITY OR COUNTY ENGINEER BEFORE BEING USED.

5. STAMP MAY BE PERMANENTLY CAST INTO CAST IRON FRAME OR PRE-CAST CONCRETE PORTIONS OF INLET.

6. WHERE RETROFITTING IS REQUIRED, AN EPOXIED PLACARD BEARING THE MESSAGE AND SYMBOL APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER SHALL BE PERMANENTLY AFFIXED ON THE TOP OF THE ADJACENT CURB.

7. THIS STANDARD IS REQUIRED IN THE LAS VEGAS VALLEY IN WHICH AREA WATER DRAINS TO LAKE MEAD.
NOTES

1. MESSAGE OR SYMBOL SHALL BE AS SHOWN ON THE DRAWING OR ON THE VERTICAL CURB NEXT TO THE DROP INLET OR AS APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER.

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7. THIS STANDARD IS REQUIRED IN THE LAS VEGAS VALLEY IN WHICH AREA WATER DRAINS TO LAKE MEAD.
DON'T POLLUTE

DRAINS

TO LAKE MEAD

1 1/2" MAXIMUM

5" MAX.
4" PLACARD - COLORS ☐ BLUE AND GREEN

THIS EPOXY PLACARD MESSAGE AND SYMBOL HAS BEEN APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER. ANY OTHER EQUIVALENT MESSAGE AND SYMBOL DESIGNS WILL REQUIRE PRIOR APPROVAL OF THE APPROPRIATE CITY OR COUNTY BEFORE INSTALLATION. THE PLACARD MATERIAL SHALL BE EITHER POLYCARBONATE OR METAL AND THE FINISH SHALL BE UV AND ABRASION RESISTANT.

STORM DRAIN MARKER

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DATE 12-09-10  DWG. NO. 421  SHEET 3 OF 3
SECTION "A"

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "CM" DROP INLET

NOTES:
1. ALL EXPOSED METALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. PROVIDE 1/2" (MIN) CLEARANCE ALL AROUND THE STEEL BEAM, DRY PACK AFTER INSTALLATION.
3. WHEN RE. URED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
4. ALL GALVANIZED ED DAMAGED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
5. CONCRETE SHALL BE MODIFIED CLASS DA 4000 PSI, SEE SPECIAL PROVISIONS SECTION 851.
6. ANGLE ANCHORS SHALL BE EMBEDDED MIDPOINT IN EACH ENDWALL AND EVENLY SPACED. (MAXIMUM SPACING OF 2). THE GAP BETWEEN THE GRATES MUST BE 1/2-INCH OR LESS.
7. PER STD. DWG. NO. 234

DETAIL "A"

DROP INLET LAYOUT PLAN

NOTE:
CONSTRUCTION JOINT (TYP.)

DETAIL "C"

CONSTRUCTION JOINT PER STD. DWG. NO. 234

DETAIL "B"

ALTERNATE CONNECTION DETAIL

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "CM" DROP INLET

DATE 07-01-14 DWG. NO. 422

TYPE "CM" DROP INLET SECTION

NOTE:
ALL EXPOSED METALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
PROVIDE 1/2" (MIN) CLEARANCE ALL AROUND THE STEEL BEAM, DRY PACK AFTER INSTALLATION.
WHEN REQUIRED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
ALL GALVANIZED DAMAGED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
CONCRETE SHALL BE MODIFIED CLASS DA 4000 PSI, SEE SPECIAL PROVISIONS SECTION 851.
ANGLE ANCHORS SHALL BE EMBEDDED MIDPOINT IN EACH ENDWALL AND EVENLY SPACED. (MAXIMUM SPACING OF 2). THE GAP BETWEEN THE GRATES MUST BE 1/2-INCH OR LESS.

PER STD. DWG. NO. 234

CONSTRUCTION JOINT PER STD. DWG. NO. 234

CONSTRUCTION JOINT (TYP.)

ALTERNATE CONNECTION DETAIL

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "CM" DROP INLET

DATE 07-01-14 DWG. NO. 422

TYPE "CM" DROP INLET SECTION

NOTE:
ALL EXPOSED METALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
PROVIDE 1/2" (MIN) CLEARANCE ALL AROUND THE STEEL BEAM, DRY PACK AFTER INSTALLATION.
WHEN REQUIRED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
ALL GALVANIZED DAMAGED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
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PER STD. DWG. NO. 234

CONSTRUCTION JOINT PER STD. DWG. NO. 234

CONSTRUCTION JOINT (TYP.)

ALTERNATE CONNECTION DETAIL

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "CM" DROP INLET

DATE 07-01-14 DWG. NO. 422

TYPE "CM" DROP INLET SECTION

NOTE:
ALL EXPOSED METALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
PROVIDE 1/2" (MIN) CLEARANCE ALL AROUND THE STEEL BEAM, DRY PACK AFTER INSTALLATION.
WHEN REQUIRED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
ALL GALVANIZED DAMAGED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
CONCRETE SHALL BE MODIFIED CLASS DA 4000 PSI, SEE SPECIAL PROVISIONS SECTION 851.
ANGLE ANCHORS SHALL BE EMBEDDED MIDPOINT IN EACH ENDWALL AND EVENLY SPACED. (MAXIMUM SPACING OF 2). THE GAP BETWEEN THE GRATES MUST BE 1/2-INCH OR LESS.

PER STD. DWG. NO. 234

CONSTRUCTION JOINT PER STD. DWG. NO. 234

CONSTRUCTION JOINT (TYP.)

ALTERNATE CONNECTION DETAIL

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "CM" DROP INLET

DATE 07-01-14 DWG. NO. 422

SECTION "B"
ONE PERCENT MINIMUM SLOPE THROUGH DRAINAGE SLAB IS REQUIRED. WHERE A STORM DRAIN LINE IS AVAILABLE IN THE EXTERIOR STREET, A STORM DRAIN INLET AT THE BEGINNING OF THE EASEMENT AND AN 18-INCH MINIMUM STORM DRAIN PIPE IS REQUIRED TO CONVEY SUBSURFACE WATER THROUGH THE EASEMENT.

NOTE #1: 20' STANDARD WIDTH, DIFFERENT WIDTHS TO BE DESIGNED ACCORDINGLY AND IN CONFORMANCE WITH THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL.

GENERAL NOTE: GATE AND FENCE CONSTRUCTION IS INTENDED TO PREVENT STORAGE OF MATERIALS AND VEHICLES WITHIN CHANNEL. PREVENTION OF PEDESTRIAN USE MAY BE IMPAIRED, BUT THE DESIGN IS NOT INTENDED TO PREVENT PEDESTRIAN TRAFFIC.

BOLLARDS MAY BE USED IN LIEU OF GATE IF PEDESTRIAN ACCESS IS DESIRED.

NOT FOR USE IN EMERGENCY ACCESS

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

THROUGH-LOT DRAIN

DATE 07-01-14
DWG. NO. 425.S1
SHEET 1 OF 3
ONE PERCENT MINIMUM SLOPE THROUGH DRAINAGE SLAB IS REQUIRED. WHERE A STORM DRAIN LINE IS AVAILABLE IN THE EXTERIOR STREET, A STORM DRAIN INLET AT THE BEGINNING OF THE EASEMENT AND AN 16-INCH MINIMUM STORM DRAIN PIPE IS REQUIRED TO CONVEY NUISANCE WATER THROUGH THE EASEMENT.

NOTE #1: 20' STANDARD WIDTH, DIFFERENT WIDTHS TO BE DESIGNED ACCORDINGLY.

GENERAL NOTE: GATE AND FENCE CONSTRUCTION IS INTENDED TO PREVENT STORAGE OF MATERIALS AND VEHICLES WITHIN CHANNEL. PREVENTION OF PEDESTRIAN USE MAY BE IMPAIRED, BUT THE DESIGN IS NOT INTENDED TO PREVENT PEDESTRIAN TRAFFIC.

BOLLARDS MAY BE USED IN LIEU OF GATE IF PEDESTRIAN ACCESS IS DESIRED.

PLAN VIEW

SECTION A-A'

NOT FOR USE IN EMERGENCY ACCESS

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

THROUGH-LOT DRAIN

DATE 07-01-14  DWG. NO. 425.S1  SHEET 2 OF 3
EXTERIOR STREETS

Curb painted red

Fence

Sidewalk drain (per USD 23)

Through-Lot Drain

General note: Gate and fence construction is intended to prevent storage of materials and vehicles within channel. Prevention of pedestrian use may be impaired, but the design is not intended to prevent pedestrian traffic.

Bollards may be used in lieu of gate if pedestrian access is desired.

Plan View

Section A-A

Not for use in emergency access

Agency Approved: L

Specification Reference

Uniform Standard Drawings

Clark County Area

Supplemental Drawing

Through-Lot Drain

Date 07-01-14

Dwg. No. 425.S1

Sheet 3 of 3
LONGITUDINAL CUT RESTORATION

NOTES:

- MILL AND OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE ENTITY.
- REMOVE AND REPLACE ASPHALT PAVEMENT IF EXISTING ASPHALT PAVEMENT IS 2" THICK OR LESS.
- ASPHALT PATCH TO MATCH CONTIGUOUS SECTION AND SHALL BE NO LESS THAN 2"

PLAN VIEW

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

TRENCH LIMITS

SEE DWG. 500.1 SHEET 2 OF 2
LONGITUDINAL CUT RESTORATION

NOTES:

ASPHALT PATCH TO MATCH CONTIGUOUS SECTION AND SHALL BE NO LESS THAN 2"

MILL AND OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE ENTITY. REMOVE AND REPLACE ASPHALT PAVEMENT IF EXISTING ASPHALT PAVEMENT IS 2" THICK OR LESS.

PLAN VIEW

SEEN DWG. 500.1 SHEET 2 OF 2

SPECIFICATION REFERENCE

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0 TO 5 YEARS
PAVEMENT RESTORATION
LONGITUDINAL CUT
1. If there is a median, restoration may be limited to the area between C & G and the median curb.
2. When existing pavement is 2” thick or less, pavement within the restoration area shall be removed and replaced in kind as required by the entity.
3. If sawcut line is within five feet of edge of existing asphalt concrete surface or existing sawcut line, mill and overlay or replace to that edge.
4. Pavement restoration area sawcut lines shall not fall within street intersection.
5. If cut is within a lane, pavement restoration must extend to the next lane line.
6. The entity’s requirements take precedence over any minimum requirements shown hereon.
1. If there is median, restoration may be limited to the area between C & G to curb of median.
2. If sawcut line is within five feet of edge of existing asphalt concrete surface or existing sawcut line, mill and overlay or replace to that edge.
3. When existing pavement is less 2” thick or less, pavement within the restoration area shall be removed and replaced in kind as required by the entity.
4. Pavement restoration area sawcut lines shall not fall within street intersection.
5. If cut is within a lane, pavement restoration must extend to the next lane line.

The entity’s requirements take precedence over any minimum requirements shown hereon.

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**NOTES:**

DATE 6-12-08  
DWG. NO. 500.2

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**SPECIFICATION REFERENCE**

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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**0 TO 5 YEARS**

**PAVEMENT RESTORATION**

**TRANSVERSE CUT**

---

**AGENCY APPROVED**

B C H L M N
NOTES:

DATE 6-12-08

1. IF CUT IS WITHIN A LANE, PAVEMENT RESTORATION MUST EXTEND TO THE NEXT LANE LINE.
2. THE ENTITY'S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREIN.

PAVEMENT RESTORATION - LONGITUDINAL CUT - GREATER THAN 0 FT. RIGHT-OF-WAY

OVER 5 YEARS - LONGITUDINAL CUT - GREATER THAN 0 FT. RIGHT-OF-WAY

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

SPECIFICATION REFERENCE

BITUMINOUS PAVEMENT

PRIME COAT

AGGREGATE BASE

FOG SEAL

CONCRETE

OVER 5 YEARS - LONGITUDINAL CUT - GREATER THAN 0 FT. RIGHT-OF-WAY

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

PAVEMENT RESTORATION - LONGITUDINAL CUT - GREATER THAN 60 FT. RIGHT-OF-WAY

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

OVER 5 YEARS - LONGITUDINAL CUT - GREATER THAN 60 FT. RIGHT-OF-WAY

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

CONCRETE

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

EX. C & G

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**LONGITUDINAL CUT RESTORATION**

1. **IF TRENCH EDGE IS 5-FT OR LESS FROM LIP OF GUTTER, THEN REPLACE 8-FT (MIN.) OF ASPHALT.**

2. **IF TRENCH EDGE IS BETWEEN 5-FT & 9-FT FROM LIP OF GUTTER, THEN REPLACE 11-FT (MIN.) OF ASPHALT.**

   EXCEPTION: FOR RESIDENTIAL STREETS 51-FT OR LESS, REPLACE FULL HALF STREET.

3. **IF TRENCH EDGE IS BETWEEN 10-FT & 14-FT FROM CENTERLINE, THEN REPLACE 16-FT (MIN.) OF ASPHALT.**

   EXCEPTION: FOR RESIDENTIAL STREETS 51-FT OR LESS, REPLACE FULL HALF STREET.

4. **IF TRENCH EDGE IS BETWEEN 2-FT & 10-FT FROM CENTERLINE, THEN REPLACE 12-FT (MIN.) OF ASPHALT.**

**NOTES:**

1. IF CUT IS WITHIN A MARKED LANE, PAVEMENT RESTORATION MUST EXTEND TO THE MARKED LANE LINE.
2. THE ENTITY'S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.
3. MINIMUM ASPHALT REPLACEMENT WIDTH SHALL NOT BE LESS THAN THE LIMITS OF THE PAVING MACHINERY USED.

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**PLAN VIEW**

**SPECIFICATION REFERENCE**

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**OVER 5 YEARS**

**PAVEMENT RESTORATION**

**LONGITUDINAL CUT - 0-10' R/W OR LESS**

**DATE 6-12-08**

**DWG. NO. 500.4**
NOTES:

1. IF CUT IS WITHIN A LANE, PAVEMENT RESTORATION MUST EXTEND TO THE NEXT LANE LINE.

2. THE ENTITY'S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.

AGENCY APPROVED

SPECIFICATION REFERENCE

302  AGGREGATE BASE
401  BITUMINOUS PAVEMENT
406  PRIME COAT
407  FOG SEAL
501  CONCRETE

OVER 5 YEARS
PAVEMENT RESTORATION
TRANSVERSE CUT
ALL RIGHT-OF-WAY WIDTHS

DATE 6-12-08  DWG. NO. 500.5
UTILITY LOCATIONS IN STREETS WITH GREATER THAN 60 FT. RIGHT-OF-WAY

A. STREETLIGHT CONDUIT
B. POWER COMPANY SECONDARY
C. POWER COMPANY PRIMARY
D. TELEPHONE CONDUITS
E. CABLE T.V. CONDUIT
F. TRAFFIC SIGNAL CONDUIT
G. OTHER COMMUNICATIONS CONDUIT
H. FAST ITS COMMUNICATIONS CONDUIT

STORM/SANITARY SEWER

NOTE:
STORM/SANITARY SEWER AND GAS MAY BE INSTALLED ON THE OTHER SIDE OF CENTERLINE AS TERRAIN AND OR SEPARATIONS Dictates.
TYPICAL UNDERGROUND UTILITY LOCATIONS IN RESIDENTIAL STREETS WITH 0 FT. OR LESS RIGHT-OF-WAY

NOTES:

A. STREETLIGHT CONDUIT
B. POWER COMPANY SECONDARY
C. POWER COMPANY PRIMARY
D. TELEPHONE CONDUIT
E. CABLE T.V. CONDUIT
F. TRAFFIC SIGNAL CONDUIT
G. OTHER COMMUNICATIONS CONDUIT
H. POWER MARKING TAPE
J. TELEPHONE MARKING TAPE

1. STORM/SANITARY SEWER AND GAS MAY BE LOCATED ON OTHER SIDE OF CENTERLINE AS TERRAIN AND/OR SEPARATIONS Dictates.
2. STREETLIGHT FOUNDATIONS SHALL BE LOCATED BEHIND SIDEWALK FOR SIDEWALK WIDTHS LESS THAN 5 FEET PER STANDARD DRAWING NO. 320
3. SEPARATION DISTANCE SHALL CONFORM TO UTILITY STANDARDS ADOPTED BY THE GOVERNING AGENCY FOR SEWER AND WATER FACILITIES.
4. STREET CONSTRUCTION SHALL CONFORM TO THE DESIGNED PLANS.
5. UTILITY CONSTRUCTION BACKFILL SHALL CONFORM TO SECTION 208
6. UTILITY LINES SHALL BE RE-ROUTED IF DROP INLET IS IN CONFLICT.
7. WATER TRANSMISSION MAIN SEPARATION SHALL BE REFERRED TO WATER PURVEYOR GUIDELINES.
MILL AND OVERLAY RESTORATION LIMITS TO BE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR. REFER TO DRAWINGS 500 SERIES.

EXISTING AGGREGATE BASE

INSTALLATION REQUIREMENTS INCLUDING CONTRACTOR TESTING AND FILL LIFTS SEE SECTION 208- TRENCH EXCAVATION AND BACKFILL

MINIMUM TRENCH WIDTH IS RELATED TO DESIGN REQUIREMENTS AND SHALL BE INDICATED ON THE PLAN DRAWINGS. SEE SECTION 208- TRENCH EXCAVATION AND BACKFILL

GRANULAR BACKFILL OR SELECT BACKFILL OR BACKFILL WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) OR AS APPROVED BY THE ENGINEER SEE NOTE 1

DEPTH OF COVER IS RELATED TO DESIGN REQUIREMENTS AND SHALL BE INDICATED ON THE PLAN DRAWINGS. SEE SECTION 208- TRENCH EXCAVATION AND BACKFILL

PIPE ZONE

PIPE BEDDING SEE NOTE 3

STABLE SUBGRADE

NOTES:
1. NO STONES OR LUMPS GREATER THAN 3" PERMITTED IN TRENCH 2' OR LESS IN WIDTH.
2. TRENCH WIDTH, BEDDING, SUBGRADE AND PIPE ZONE REQUIREMENTS FOR UTILITY INSTALLATIONS SHALL CONFORM TO THE RESPECTIVE ENTITY REQUIREMENTS.
3. CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN SPECIFICALLY APPROVED BY THE GOVERNING AGENCY. SEE STANDARD DRAWING NO. 505 FOR PIPE BEDDING METHODS.
4. LAS VEGAS VALLEY WATER DISTRICT REQUIRES PIPE BEDDING AND BACKFILL WITHIN THE PIPE ZONE TO BE OF THE SAME MATERIAL.

AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE
208 TRENCH EXCAVATION & BACKFILL
302 AGGREGATE BASE COURSES

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

METHOD A FOR FLEXIBLE PIPE TRENCH BACKFILL - PAVED AREAS

DATE 01-01-12 DWG. NO. 503.1
MILL AND OVERLAY
RESTORATION LIMITS TO BE
DETERMINED BY ENTITY PLAN
CHECK, WITH FINAL LIMITS SET
BY FIELD INSPECTOR. REFER TO
DRAWINGS 500 SERIES.

EXISTING
AGGREGATE
BASE

INSTALLATION REQUIREMENTS
INCLUDING CONTRACTOR TESTING
AND FILL LIFTS SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

MINIMUM TRENCH WIDTH IS RELATED
TO DESIGN REQUIREMENTS AND
SHALL BE INDICATED ON THE PLAN
DRAWINGS. SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

GRANULAR BACKFILL OR
SELECT BACKFILL OR
BACKFILL WITH CONTROLLED LOW
STRENGTH MATERIAL (CLSM)
OR AS APPROVED BY THE ENGINEER
SEE NOTE 1

DEPTH OF COVER IS RELATED
TO DESIGN REQUIREMENTS AND
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DRAWINGS. SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

PIPE ZONE

PIPE BEDDING
SEE NOTE 3

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FOR PIPE BEDDING METHODS.
4. LAS VEGAS VALLEY WATER DISTRICT REQUIRES PIPE BEDDING AND BACKFILL WITHIN THE PIPE ZONE
TO BE OF THE SAME MATERIAL.

PRIME COAT PER
SECTION 408-PRIME
COAT

CLSM MINIMUM DEPTH
12" FOR MINOR COLLECTOR
ROADWAYS (>OR=60', <80')
24" FOR COLLECTOR AND ARTERIAL
ROADWAYS (>OR=80') (NOT
REQUIRED FOR TRENCH WIDTHS
GREATER THAN 3-FT.**)

* CLSM NOT REQUIRED FOR
RESIDENTIAL STREETS.

** FOR RESIDENTIAL STREETS AND
TRENCH WIDTHS GREATER THAN
3-FT (CLSM NOT REQUIRED). THE
TRENCH BACKFILL SHALL EXTEND
TO THE TOP OF SUBGRADE MINUS
1-INCH, AND THE DEPTH OF
AGGREGATE BASE SHALL MATCH EXISTING BASE DEPTH (AT 95% COMPACTION).

COMPACTION PERCENTAGE PER
GEOTECH ENG REQUIREMENTS OR
MINIMUM OF 90%

REFER TO SECTION 208 REQUIREMENTS

SEE SUBSECTION 208.03.14
FOR DEPTH OF PIPE COVER

90% MIN. COMPACTION IN Pipe
ZONE, TYPE II OR TYPE III AGGREGATE
BASE, OR BACKFILL WITH CONTROLLED LOW
STRENGTH MATERIAL (CLSM)
SEE NOTE 2

BACKFILL WITH CONTROLLED LOW
STRENGTH MATERIAL (CLSM)
INSTALL AS PER SECTION 208
SEE NOTE 2

STABLE SUBGRADE

AGENCY APPROVED     B     C     H     L     M     N

SPECIFICATION REFERENCE
208 TRENCH EXCAVATION & BACKFILL
302 AGGREGATE BASE COURSES

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

METHOD A FOR RIGID PIPE
TRENCH BACKFILL - PAVED AREAS

DATE 01-01-12   DWG. NO. 503.2
**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**DATE** 11-9-06  **DWG. NO.** 505

---

**PIPE TRENCH BEDDING METHODS**

**TABLE 1**

<table>
<thead>
<tr>
<th>PIPE SIZE (IN.)</th>
<th>PIPE A (IN.)</th>
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**NOTES:**

1. PIPE BEDDING TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY. SUBGRADE SHALL CONFORM TO RESPECTIVE ENTITY REQUIREMENTS.
2. INDICATED THICKNESS OF BEDDING MATERIAL TO BE CONSTRUCTED UNDER THE BARREL. SUBGRADE TO BE EXCAVATED TO PROVIDE 2" CLEARANCE UNDER THE BELL.
3. OTHER BEDDING METHODS MAY BE SPECIFIED OR APPROVED.
4. CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN SPECIFICALLY APPROVED BY THE GOVERNING AGENCY.

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**AGENCY APPROVED**  **B**  **C**  **H**  **L**  **M**  **N**

---

**SPECIFICATION REFERENCES**

- **208**  TRENCH EXCAVATION & BACKFILL
- **302**  AGGREGATE BASE COURSES
- **501**  CONCRETE
- **505**  REINFORCEMENT STEEL

---

**DIAGRAMS**

1. **NORMAL BEDDING**

   - **SHAPED GRANULAR FOUNDATION**
   - **FLAT GRANULAR FOUNDATION**

2. **CONCRETE BEDDING**

   - **CONCRETE CRADLE**
   - **CONCRETE CAP**
   - **CONCRETE ENCASEMENT**

---

**CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN SPECIFICALLY APPROVED BY THE GOVERNING AGENCY.**
TYPE B - KEYHOLE REPAIR
REQUIRED FOR ROW WIDTH GREATER THAN 60'
OPTIONAL FOR ROW WIDTH 60' OR LESS

NOTES:
1. CUT AND REMOVE PAVEMENT PLUG WITH AN APPROVED KEYHOLE CORING DEVICE. PAVEMENT TO BE CORED SHALL CONTAIN NO CRACKS AND SHALL BE AT LEAST 4" THICK. IF PLUG IS DAMAGED OR IS LESS THAN 4" THICK, REPLACE PLUG WITH A "FARMED" ASPHALT PLUG FROM AN APPROVED SITE. FARMED PLUGS SHALL BE AT LEAST 4" THICK AND AT LEAST ONE INCH THICKER THAN EXISTING ASPHALT.

2. BONDING MATERIAL SHALL BE A SINGLE COMPONENT CEMENTITIOUS RAPID HARDENING, HIGH STRENGTH, WATERPROOF BONDING AGENT THAT ALLOWS THE CORE TO SUPPORT AT LEAST THREE TIMES AASHTO H-25 LOADING WITHIN 30 MINUTES OF APPLICATION. BOND AGENT MUST SHOW A MINIMUM 20 PSI BOND STRENGTH (ASTM C882) AND A MINIMUM 200 PSI COMPRESSIVE STRENGTH (ASTM C109) IN 30 MINUTES.

3. AGENCY-APPROVED BACKFILL BELOW REPAIR SHALL BE PER SECTION 215.

4. FILL KEYHOLE WITH BONDING MATERIAL DURING REPAIR.

5. PRIOR AGENCY APPROVAL IS REQUIRED FOR MULTIPLE KEYHOLE REPAIRS WITHIN A GIVEN ROADWAY SEGMENT.

6. A 5 YEAR WARRANTY IS REQUIRED ON ALL REPAIRS.

TYPE A - CUT & PATCH REPAIR
OPTIONAL FOR ROW WIDTH 60' OR LESS

NOTE: EDGES SHALL BE CUT TO A NEAT VERTICAL FACE.

AGENCY APPROVED ASPHALT CONCRETE PLACED IN 2" LIFTS. 6" MIN. THICKNESS OR MATCH EXISTING.
1. CALL AND SCHEDULE INSPECTION TO OBSERVE CONCRETE PLUG AFTER PLACEMENT.

2. PERMIT TYPICALLY VALID FOR 30 DAYS - EXTENSION OF PERMIT IS REQUIRED PRIOR TO EXPIRATION IF WORK IS NOT COMPLETE.

3. FOR BORINGS GREATER THAN 12-INCHES IN DIAMETER, SUBMIT PERMANENT PATCHING PLAN WITH PERMIT APPLICATION.

4. IF GROUNDWATER IS ENCOUNTERED FOLLOW APPROPRIATE AGENCY REQUIREMENTS.

5. THE CONNECTION OF THE PIPE AND FLAT PLATE SHALL BE CONTINUOUSLY WELDED ALL OF THE WAY AROUND. THE SIZE OF THE WIRE SHALL BE 0.35 WIRE (ER70S-6) OR 7018 ROD, AND THE WELDER SHALL HAVE A W.S. CERTIFICATION IN FLAT PLATE.

<table>
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<tr>
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<th>UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA</th>
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<td>208 TRENCH EXCAVATION AND BACKFILL</td>
<td>SUPPLEMENTAL DRAWING</td>
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<td>METHOD FOR GEOFTECHNICAL BORING AND MONITORING WELL BACKFILL AND PATCH FOR BORINGS 12-INCHES OR LESS IN DIAMETER</td>
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ROADWAY WITH DESIGNATED BICYCLE LANE

PERMANENT PAVEMENT PATCH DETAIL

ROADWAY WITH DESIGNATED BICYCLE AND PARKING LANE

PERMANENT PAVEMENT PATCH DETAIL

PERMANENT PAVEMENT PATCH DETAIL

PERMANENT PAVEMENT PATCH DETAIL

LIP OF GUTTER

LIP OF GUTTER

LIP OF GUTTER

PERMANENT PAVEMENT PATCH

PERMANENT PAVEMENT PATCH

PERMANENT PAVEMENT PATCH

PERMANENT PAVEMENT PATCH

AGENCY APPROVED

SUPPLEMENTAL DRAWING

BICYCLE LANE PERMANENT PAVEMENT PATCH

DATE 01-01-1

DWG. NO. 508.S1

SHEET 1 OF 2
GENERAL NOTES:

1. LONGITUDINAL JOINTS ARE NOT ALLOWED WITHIN A BICYCLE LANE/AREA.
2. PAVEMENT PATCHES WITHIN A BICYCLE LANE SHALL NOT BE WITHIN 100' OF ANOTHER PAVEMENT PATCH (EXISTING OR PROPOSED). IF A PAVEMENT PATCH IS WITHIN 100', THE PAVEMENT BETWEEN PATCHES SHALL BE REMOVED AND REPLACED WITH ONE CONTINUOUS PATCH.
3. NO PATCHES WITHIN A BICYCLE LANE/AREA SHALL BE LESS THAN 10' IN LENGTH.
4. TEMPORARY PATCHES SHALL BE ASPHALT.
5. THE CONTRACTOR'S NAME AND DATE OF CONSTRUCTION SHALL BE SPRAY PAINTED ON THE TEMPORARY PATCH BY THE CONTRACTOR.
6. TEMPORARY PATCHES SHALL BE COMPACTED, MAINTAINED, AND FLUSH WITH THE ADJACENT PAVEMENT AT ALL TIMES.
7. TEMPORARY PATCHES SHALL BE REMOVED AND REPLACED WITHIN 60 CALENDAR DAYS.
8. A RING TOP DELINEATOR POST SHALL BE PLACED WITHIN THE GUTTER TO ALERT BICYCLISTS OF THE TEMPORARY PATCH CONDITION IF THE BICYCLE LANE IS ADJACENT TO CURB AND GUTTER OR EDGE OF PAVEMENT.
9. CONTRACTOR SHALL INSTALL ROUGH ROAD WARNING SIGNS TO WARN BICYCLISTS OF THE TEMPORARY PATCH CONDITION.
10. ASPHALT DESIGN GRADATION SHALL BE CONTINUOUS WITH ADJACENT ROADWAY.
11. SEE 500 SERIES STANDARD DRAWINGS FOR BACKFILL REQUIREMENTS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES DUE TO NON-COMPLIANCE WITH THESE REQUIREMENTS AND ALL APPLICABLE CODES AND REGULATIONS.
13. CONTRACTOR SHALL HAVE PERMIT ON-SITE WHEN PRESENT. CONTRACTOR WILL BE ASSESSED A $300 FINE IF PERMIT IS NOT ON-SITE.
14. ALL PATCHES SHALL BE MACHINE LAID.
SECTION 509
PRECAST REINFORCED
CONCRETE BOX CULVERTS

DESCRIPTION

509.01.01 GENERAL
A. This work shall consist of furnishing and placing Precast Reinforced Concrete Box (RCB) Culvert of the size and dimensions and at locations shown on the plans.
B. The precast RCB culvert shall be constructed to the lines and grades given by the Engineer and in accordance with the design shown on the plans.
C. Precast RCB culvert sections shall be monolithic.
D. Square or rectangular precast RCB sections shall be designed and constructed conforming to ASTM C1577, as controlled by the height of cover shown on the plans and specified herein. The design cover and loading calculations shall be included in the working drawing submittal.
E. Design calculations and working drawings shall be submitted for precast RCB sections for review and approval according to Subsection 105.02 "Plans and Working Drawings". Working drawings shall include the contract number, the jobsite name of the structure as shown on the plans, bridge number (if applicable), material designations, bill of materials, complete fabrication details, and guidelines for handling and assembly. Calculations and working drawings shall be prepared and stamped by a Nevada Registered Professional Civil Engineer.

MATERIALS

509.02.01 GENERAL
A. The materials used shall conform to the requirements in the following subsections:

<table>
<thead>
<tr>
<th>Materials</th>
<th>Section/Subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure Excavation</td>
<td>206</td>
</tr>
<tr>
<td>Structure Backfill</td>
<td>207</td>
</tr>
<tr>
<td>Trench Excavation and Backfill</td>
<td>208</td>
</tr>
<tr>
<td>Selected Material Subbase</td>
<td>301</td>
</tr>
<tr>
<td>Portland Cement Concrete</td>
<td>501</td>
</tr>
<tr>
<td>Reinforcing Steel</td>
<td>505</td>
</tr>
<tr>
<td>Hydraulic Cement</td>
<td>701</td>
</tr>
<tr>
<td>Concrete Curing Materials and Admixtures</td>
<td>702</td>
</tr>
<tr>
<td>Grout and Mortar Sand</td>
<td>706.03.04</td>
</tr>
<tr>
<td>Joint Material</td>
<td>707</td>
</tr>
</tbody>
</table>

B. Manufacturer Certification and Qualification. The manufacturer of the precast RCB shall
submit for approval, substantial evidence of qualification to produce the product. Such evidence of qualification shall include the following:

1. Plant produced concrete products proposed for use will require either National Precast Concrete Association (NPCA) or American Concrete Pipe Association (ACPA) certification.

2. Written evidence of successful completion of at least three (3) projects of size and scope similar to the project for which the manufacturer wishes to be pre-qualified. The projects shall have been performed within the previous three (3) years. Such evidence shall include references for said work.

3. A written document detailing the manufacturer’s Quality Control Program that demonstrates conformance to the requirements of these specifications.

C. Concrete. Concrete shall be as specified in Section 501, "Portland Cement Concrete". A copy of the concrete mix design which will be used in the manufacture of the precast RCB shall be submitted for review and approval. The mix design shall identify the type of casting process (wet or dry casting), in addition to the requirements of Section 501.

1. When a wet cast manufacturing process is used, concrete shall be Class A Modified or Class AA Modified. A wet cast manufacturing process is defined as one in which forms are removed after 6 hours or more.

2. When a dry cast manufacturing process is used, concrete shall be Class A Modified. A dry cast manufacturing process is defined as one in which the concrete is densified by continuous vibration, and forms are removed immediately. If approved, alternative aggregate gradations from those specified in Section 501 and Section 706 may be allowed.

D. Product Certification. A certificate of compliance issued by the manufacturer of the precast RCB shall be submitted at the time of shipment. The certificate shall include the following:

1. The specification under which the box sections were manufactured.

2. All project identification information as noted for working drawings above.

3. The number of box sections of each size which are being shipped.

4. A statement that the construction of the box sections, and all materials used therein, are in compliance with the requirements of the applicable ASTM or AASHTO specifications.

5. Copies of the Quality Control test results, and compressive strength for that lot shall be kept at the plant and available for review.

E. The Engineer may, at their option, inspect the precast facility operations including, but not limited to, the reinforcing assembly, forming equipment, concrete batching equipment; placement, curing, and handling equipment; and testing and inspection equipment and procedures.

F. The manufacturer of the precast RCB shall maintain, for a period of seven (7) years following shipment, a copy of the appropriate test reports and other documentation, including compressive strength tests, necessary to support the certificates of compliance.

G. If the RCB culverts have not been cast prior to the notice to proceed date, written notification shall be given two (2) weeks in advance of performing casting operations for the project.

H. All materials will be subject to inspection for acceptance as to condition at the latest practicable time the Engineer has the opportunity to check for compliance prior to or during incorporation of materials in the work.

I. Reinforcement shall conform to the requirements of Section 505, "Reinforcing Steel", 
unless otherwise noted.

J. All joints of the precast boxes shall be sealed with a flexible, butyl-blend, watertight, preformed joint material with a minimum cross-section width of 1 ¼ square inches, installed according to the manufacturer’s recommendations. Joint material shall conform to ASTM C990.

1. Joint surfaces of the precast box shall be clean, dry and free of any foreign material, including mud, aggregate base, and leveling course. Apply primer in accordance with manufacturer’s recommendations. Install sealant to form a continuous seal around the perimeter of the joint. The sealant may be placed on the lower portion of the groove of the downstream box and upper portion of the tongue of the upstream box, provided there are three (3) inches of overlap of the sealant on each side of the box.

CONSTRUCTION

509.03.01 EARTHWORK

A. Excavation and backfill shall conform to the requirements of Section 206, "Structure Excavation," and Section 207, "Structure Backfill," or Section 208, "Trench Excavation and Backfill," when the precast RCB is constructed in a trench.

1. The precast RCB shall be bedded as shown in the plans or as specified in the Special Provisions.

2. When no bedding class is specified, the requirements for normal bedding as shown in the Uniform Standard Drawings 503 or 503.2 shall apply.

3. The lines and grades shall be established by the Engineer or as designated in the contract documents.

B. Where precast RCB sections are to be installed in new embankments on a steep slope or in a difficult location, the height of new embankments may be varied as directed by the Engineer.

C. When headwalls are not required and granular materials are used for backfilling, the fill at the ends of the structure shall be sealed against the infiltration of water by bedding the ends of the structure using Class II CLSM or concrete.

D. Subgrade preparation shall conform to the requirements of Section 301, "Selected Material Subbase".

509.03.02 HEADWALLS

A. Where shown on the plans, inlet and outlet headwalls shall be constructed or installed in connection with precast box sections.

B. Where headwalls are constructed or installed, the ends of precast RCB sections shall be placed flush or cut off flush with the headwall face, unless otherwise permitted by the Engineer.

C. Headwalls shall be constructed to conform to Section 501, "Portland Cement Concrete" and Section 502, "Concrete Structures."

509.03.03 LAYING PRECAST REINFORCED CONCRETE BOX CULVERTS

A. Construction installation shall comply with AASHTO LRFD Bridge Design Specifications, most current edition, Section 208, “Trench Excavation and Backfill”, and these specifications.

B. Inspection of precast RCBs prior to laying:
1. Written notification shall be given twenty-eight (28) days in advance of performing casting operations.

2. No precast box shall be laid which is excessively cracked per Subsection 509.03.04, (i.e., cracked, spalled, or damaged) and shall be removed from the work. Precast RCB culverts which show defects due to handling will be rejected at the site of installation regardless of prior acceptance.

3. Fine cracks and checks on the surface of the member which do not extend to the plane of the nearest reinforcement will not be cause for rejection unless they are numerous and extensive. Cracks which extend into the plane of the reinforcing steel shall be repaired in an approved manner.

4. Small damaged or honeycombed areas which are purely surface defects in nature shall be repaired in an approved manner. Excessive damage, honeycomb, or cracking will be subject to structural review at the Contractor's expense. All repairs shall be made sound, properly finished, and cured according to the pertinent specifications. When fine cracks or hair checks on the surface indicate poor curing practices, the production of precast boxes shall be discontinued until corrections are made and proper curing is provided.

C. All precast boxes shall be carefully handled during loading, unloading, transporting, and laying.

D. Precast box laying shall begin at the downstream end of the box except for extensions of existing boxes. Place the bottom of the box in contact with the bedding throughout its full length. The first section of box to be laid shall be firmly placed to the designated line and grade at the outlet end with the groove end pointing upstream. Construction loads shall be considered by the design engineer. Design loads shall not be exceeded at any time. Boxes shall be inspected before any backfill is placed. Contractor shall ensure that no rocks greater than three (3) inches or other rigid or jagged material is present in the bedding material where box will be laid directly on the material.

E. The box segments shall be joined in such a manner that the ends are fully entered and the inner surfaces are flush and even. The maximum tolerable nominal horizontal gap between joints is 0.75 inch, or the manufacturer's maximum joint gap tolerance, whichever is less. This gap shall be checked immediately after laying each section. Any annular space existing in the interior portion of the joint shall be filled with an approved mortar and finished flush with the interior surfaces of the box units. If the inner surfaces are not flush or there is an adverse slope, a procedure to repair the vertical gap must be submitted to the Engineer for approval.

F. After laying, the box culvert segments shall be checked for alignment and grade. The culvert shall be installed within the tolerances for horizontal and vertical location and gradient as follows:

   1. Horizontal location within 0.05 feet of location shown on plans.
   2. Vertical location within 0.05 feet of elevation shown on plans.
   3. Gradient shall not vary by more than ten percent (10%) of slope shown on plans.

G. The Contractor shall remove and relay or replace box that is out of alignment, damaged, or has unduly settled at no cost to the Contracting Agency.

H. The interior of the precast box sections shall be kept free of dirt and other foreign material as the box laying progresses and be left clean at the completion of the work. Boxes which are not in true alignment, which show any undue settlement, or are damaged shall be taken up and re-laid at the Contractor's expense. The bottom of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the box for the leveling course to be placed on. Blocking shall not be used to bring the box to grade.
Box sections shall be checked for alignment and grade at the time of joining the sections.

I. The box culverts shall be laid with nominal three (3) inch space between multiple box culverts. The annular space shall be grouted. The grout shall be a workable mix suitable for pumping without segregation and shall conform to the requirements of Section 706.03.04, "Grout and Mortar Sand." The grout shall be placed by pumping or an approved alternate method and consolidated by mechanical vibration or rodding during placement. The grouting shall be performed by a continuous placement in lifts not exceeding six (6) feet. Vertical grout barriers may be used to control the flow of grout horizontally. The grout shall attain a minimum compressive strength of 2,500 psi in 28 days when tested according to ASTM C39.

J. The backfill material shall comply with the requirements of Section 208. If the Contractor cannot fit compaction equipment between the box and the trench wall, or the conditions are unsafe for compaction and/or testing, CLSM must be used.

K. The Contractor shall provide box culverts with beveled ends where the radius of the center line alignment exceeds the manufacturer’s minimum radius of curvature allowed using pulled joints. The maximum bevel angle shall not exceed 5 degrees. The Contractor may provide elbows, with a maximum deflection angle of 22 ½ degrees, where the radius of the center line alignments is less than the manufacturer’s minimum radius of curvature for a 5-degree bevel.

509.03.04 INSPECTION

A. All precast RCB joints and lengths shall be 100 percent inspected.

B. Inspection and Testing shall be performed by the contractor during and after installation to ensure proper performance.

C. Installation of bedding and backfill materials, as well as their placement and compaction, shall adhere to the requirements of this section and other applicable sections.

D. Errors in line and grade, as well as any improper placement or backfill techniques, shall be corrected prior to placing significant backfill or trench fill.

E. Joints shall be properly assembled to prevent the infiltration of soil fines. Flexible joint material shall be properly placed to prevent groundwater infiltration and shall be uniformly oriented around the precast RCB.

F. Shallow cover installations shall be checked to ensure the minimum cover level is provided.

G. The Contractor shall complete an internal quality inspection a minimum of thirty (30) days after final backfill has been placed and prior to final acceptance by the Contracting Agency. The culvert shall be cleaned and inspected for cracks and joint gaps using visual physical measurement or other devices, including but not limited to calibrated television or video cameras, subject to approval by the Engineer.

H. Cracks in precast RCB culverts (both longitudinal and circumferential) that are less than 0.10 inch in width are generally considered non-structural flaws and need not be repaired. Cracks that are equal to or exceed 0.10 inch in width shall require an evaluation by a Nevada licensed professional engineer. The Contractor’s engineer shall provide a recommendation regarding removal or repair in accordance with ASTM C1577 standards and subject to approval by the Contracting Agency.

I. Precast RCB joints and lengths that do not meet the specification shall be repaired or replaced at the Contractor’s expense. Any replacement precast RCB shall also be subject to the same testing.
J. All inspection and testing results shall be submitted and approved by the Contracting Agency before final payment. The Agency Engineer shall be allowed access to randomly inspect at least 10 percent of the total number of precast RCB runs.

509.03.05 BACKFILL
A. Precast RCB culvert section backfill shall conform to the requirements of Section 207, "Structure Backfill", unless otherwise noted.
B. Prior to placing backfill material, all handing holes in RCB culverts shall be completely filled with grout or other acceptable methods.

509.03.06 EXTENDING EXISTING CULVERTS
A. Where shown on the plans or directed by the Engineer, existing culverts shall be extended in accordance with the provisions for installing new culverts and the following additional provisions.
B. Existing headwalls shall be demolished, removed, and disposed of per Section 202, "Removal of Structures and Obstructions", or moved to the extended location as indicated on the plans or ordered by the Engineer.
C. A headwall that is not to be reset shall be demolished without injury to the existing culvert and removed and disposed of in accordance with the provisions of Section 202, "Removal of Structures and Obstructions." If shown on the plans or ordered by the Engineer, a new concrete headwall shall be constructed in accordance with the provisions of Section 501, "Portland Cement Concrete," of these specifications or a flared end section shall be attached thereto.

METHOD OF MEASUREMENT

509.04.01 MEASUREMENT
A. The materials to be paid for under these specifications will be listed in the contract items by size, class, type, gauge, or whatever information is necessary for identification.
B. The quantity of precast RCB culvert to be measured for payment will be the actual number of linear feet of culvert, complete and in place.
C. Precast RCB culvert bends, wyes, tees, and other branches will be measured and paid for by the linear foot for the sizes of culvert involved. Wyes, tees, and other branches will be measured along centerlines to the point of intersection.
D. All measurements will be made in accordance with Subsection 109.01, "Measurement of Quantities."

BASIS OF PAYMENT

509.05.01 PAYMENT
A. The accepted quantities of precast RCB culvert measured as specified in Subsection 509.04.01, "Measurement", will be listed under the respective sections of precast RCB.
B. The accepted quantity of [X]-FT X [X]-FT precast RCB culvert will be paid for at the contract unit price per linear foot shall include all labor, equipment and materials necessary to complete the work.
C. Full compensation for furnishing precast RCB culvert with end finish, including distortion if required, will be considered as included in the price paid per linear foot for the precast RCB involved and no additional compensation will be allowed therefor. Full
compensation for bedding will be considered included in the price paid per cubic yard for backfill or granular backfill as the case may be and such payment shall include compensation for all the materials, labor, tools, and incidentals necessary to complete the work.

D. All payments will be made in accordance with Subsection 109.02, "Scope of Payment."

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Size) Precast Reinforced Concrete Box Culvert</td>
<td>Linear Foot</td>
</tr>
</tbody>
</table>
TYPICAL APPLICATION FOR BARRICADES & FLAGGER TRAFFIC CONTROL SIGN STANDARD DESIGNS

DATE 1-9-97

CLARK COUNTY AREA

TRAFFIC CONTROL PLAN FOR HIGHWAY WORK ONE

SPECIFICATION REFERENCE

TYPICAL APPLICATION FOR BARRICADES : FLAGGER TRAFFIC CONTROL SIGN STANDARD DESIGNS

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AGENCY APPROVED S C H L M N

DATE 1-9-97

DWG. NO. 01 SHEET 2 OF 2

1/8" X 3 1/2" X 10" STEEL PLATE

1/2" MACHINE BOLTS WELDED ON SIDES ONLY

1/4" CARRIAGE BOLTS WITH NUTS AND WASHERS

2"X4"

4"X4"

2'-1"

1'-6"

6"

6'-0"

8" TO 12"

4' MINIMUM (SEE PLANS)

10" MACHINE BOLTS

1/2" CARRIAGE BOLTS WITH WASHERS IN VERTICAL RAILS

3/8" X 1" BOLT WITH NUT WELDED TO TUBING

STEEL PINS. USE PINS WHEN PLACED ON GROUND. USE SANDBAGS WHEN PLACED ON PAVEMENT.

2'-0"

4'-0"

1-1/2" 0.065 GAGE STEEL TUBING

1-1/4" 0.065 GAGE STEEL TUBING

1/4" CARRIAGE BOLTS WITH WASHERS IN HORIZONTAL RAILS

1/2" MACHINE BOLTS WITH WASHERS

"10 X 10 STEEL PINS USE PINS WHEN PLACED ON GROUND. USE SANDBAGS WHEN PLACED ON PAVEMENT.

REFLECTIVE SHEETING ON 1" PLYWOOD

TYPICAL FOR PANELS

PORTABLE TYPE IIIA BARRICADE

N.T.S.

5'-0"

5'-0"

5'-0"

2" 6"

"6"

4"

4-0"

30" X 3" BOLT WITH NUT WELDED TO TUBING

WELDED ON SIDES ONLY

STEEL PINS. USE PINS WHEN PLACED ON GROUND. USE SANDBAGS WHEN PLACED ON PAVEMENT.

SIDE VIEW

FRONT VIEW

SIDE VIEW

FOOT DETAIL

FRONT VIEW
TABLE 2. TYPICAL WARRANTS FOR NONTRAVERSABLE AND FIXED OBJECT HA. AIRS

<table>
<thead>
<tr>
<th>TYPE OF OBJECT</th>
<th>Warrant Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Poles</td>
<td>Shielding required</td>
</tr>
<tr>
<td>Trees</td>
<td>Shielding recommended</td>
</tr>
<tr>
<td>Traffic Signal Supports</td>
<td>Shielding generally required; shielded when practicable and economical</td>
</tr>
<tr>
<td>Sign/Luminaire Supports</td>
<td>Shielding generally recommended; shielded when practicable and economical</td>
</tr>
<tr>
<td>Ditch Erosion</td>
<td>Shielding generally recommended; shielded when practicable and economical</td>
</tr>
<tr>
<td>Railing Endings</td>
<td>Shielding generally recommended; shielded when practicable and economical</td>
</tr>
<tr>
<td>Culverts, Pipes, Headwalls</td>
<td>Shielding generally recommended; shielded when practicable and economical</td>
</tr>
<tr>
<td>Boilouts, Pipelines</td>
<td>Shielding generally recommended; shielded when practicable and economical</td>
</tr>
</tbody>
</table>

TABLE 3. SIGHT DISTANCE CURVES

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>Sight Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>45°</td>
<td>100</td>
</tr>
<tr>
<td>50°</td>
<td>105</td>
</tr>
<tr>
<td>55°</td>
<td>110</td>
</tr>
<tr>
<td>60°</td>
<td>115</td>
</tr>
<tr>
<td>65°</td>
<td>120</td>
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<tr>
<td>70°</td>
<td>125</td>
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<tr>
<td>75°</td>
<td>130</td>
</tr>
<tr>
<td>80°</td>
<td>135</td>
</tr>
<tr>
<td>85°</td>
<td>140</td>
</tr>
<tr>
<td>90°</td>
<td>145</td>
</tr>
</tbody>
</table>

TABLE 4. HORIZONTAL CURVE ADJUSTMENTS

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>Sight Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>45°</td>
<td>100</td>
</tr>
<tr>
<td>50°</td>
<td>105</td>
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<td>55°</td>
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<td>80°</td>
<td>135</td>
</tr>
<tr>
<td>85°</td>
<td>140</td>
</tr>
<tr>
<td>90°</td>
<td>145</td>
</tr>
</tbody>
</table>

**Note:** Clear - one distance of 40 ft or more is generally required where practicable and economical.
Highway Work Zone

1.10' x 10' x 3'-9" Precast Concrete Panel

**NOTES:**

- **A** - Highway Work Zone
- **B** - A.C. Pavement
- **C** - P.C.C. Pavement
- **D** - Terminal Panel
- **E** - Precautionary Panel

**SPECIFICATIONS:**

- **CONCRETE:** 1.55 C.Y. per panel
- **WEIGHT:** 3.1 tons per panel

**PRODUCTS:**

- **STEEL BARS:**
  - #4 @ 18" and #4 @ 14"
  - May be replaced by #5 @ 20" and #5 @ 16"

**ADJACENT DETAILS:**

- **A** - Highway Work Zone
- **B** - A.C. Pavement
- **C** - P.C.C. Pavement
- **D** - Terminal Panel
- **E** - Precautionary Panel

**SPECIAL NOTES:**

1. The minimum length of temporary work zone barriers should be at least equal to the lane width of the adjacent traffic lane. The length of the barrier should be determined by the need to protect traffic and the traffic engineer.

2. The use of a barrier rail should be based on the need to protect traffic and the traffic engineer.

3. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

4. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

5. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

6. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

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12. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

13. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

14. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

15. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

16. The barrier rail should be designed to withstand the applicable dynamic loads and be anchored to the ground to prevent movement during pedestrian or vehicle traffic.

**REFERENCES:**

- **A** - Highway Work Zone
- **B** - A.C. Pavement
- **C** - P.C.C. Pavement
- **D** - Terminal Panel
- **E** - Precautionary Panel

**ADDITIONAL INFORMATION:**

- **A** - Highway Work Zone
- **B** - A.C. Pavement
- **C** - P.C.C. Pavement
- **D** - Terminal Panel
- **E** - Precautionary Panel

**SCHEDULE:**

- **A** - Highway Work Zone
- **B** - A.C. Pavement
- **C** - P.C.C. Pavement
- **D** - Terminal Panel
- **E** - Precautionary Panel

**DATE:** 1/8/97

**Dwg. No.: 02**

**Sheet 2 of 2**
A. For any operation that encroaches in the area between the centerline and a line 2 ft. outside the edge of the pavement for a period of less than 15 minutes.

B. For any operation that encroaches in the area between the centerline and a line 2 ft. outside the edge of the pavement for a period in excess of 15 minutes but less than 60 minutes.

C. For any operation that encroaches in the area between the centerline and a line 2 ft. outside the edge of the pavement for a period of less than 15 minutes.

GENERAL NOTES

1. Construction operations shall be confined to one traffic lane. On two-lane roads, at least 500 ft. of both traffic lanes shall be available for traffic movement at intervals not greater than 1,000 ft. A complete traffic control plan must be prepared for any project expected to exceed 1,000 ft. in length.

2. The flaggers shall be in sight of each other or in direct communication at all times.

3. All signs are to be removed at completion of each operation.

4. For three lane roadways, the flagger shown for traffic approaching from the opposite direction may be deleted if deemed unnecessary by the traffic engineer.

5. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of flaggers may be varied from that shown.

6. All vehicles, except flaggers and their activities are restricted at times to one side of the pavement unless otherwise authorized by the traffic engineer.

7. All warning signs shall have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to section 716.03 of the Uniform Standard Specifications.

8. If working at or near a traffic signal, contact LVACTS at 229-6611 and local entity at appropriate numbers listed below at least two working days prior to beginning work.

9. If the work place is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

10. Access for Cat transit service, pedestrians and bicycles shall be maintained throughout duration of construction. If relocating or realigning access is necessary, the contractor shall provide the entity's traffic engineer with a map showing the proposed re-routes for approval.

11. Floodlights should be provided to mark flagger stations at night as needed.

12. Type "B" high intensity flashing warning lights may be installed above each work zone, construction for use during hours of darkness.

TYPICAL APPLICATIONS

CLEANING UP DEBRIS ON PAVEMENT
UTILITY OPERATION
STRING LINE
FIELD SURVEY
MARKING PATCHES
TYPICAL APPLICATION FOR
SHORT TIME, DAY OR NIGHT OPERATIONS

TYPICAL APPLICATION FOR
HIGHWAY WORK ZONE

AGENCY APPROVED

B C H L M N

DATE 1-9-97

DWG NO. 03

CLARK COUNTY AREA

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TRAFFIC CONTROL PLAN FOR

HIGHWAY WORK ZONE

SPECIFICATION REFERENCE

TYPICAL FOR

SHORT TIME, DAY OR NIGHT OPERATIONS
1. Minimum distance is 200 ft. Maximum distance to be determined by the traffic engineer but should not exceed 0.3 the length of the work area. If used for one normal working day’s operation, it is subject to the provisions for advance warning signs in the Uniform Standard Specifications. In situations where multiple work locations in a limited distance make it impractical to place stationary signs, the maximum spacing for the advance warning sign is 5 miles in advance of the work.

2. If the work operation does not exceed 60 minutes, traffic control may be required to be performed. If the work operation exceeds 60 minutes, traffic control may be required to be performed. A 100 ft. cone taper shall be provided prior to station to protect the flagger. Flagger is not required for 25 MPH or less residential streets.

3. All signs are to be removed upon completion of the day’s operation.

4. For divided roadways the required advance warning signs shall be posted on both the right and median side of the affected approach.

5. For multilane roadways the advance warning signs may be used. Worker signs are to be removed when no work is being performed. Any unattended obstacle or excavation in the work area, which in the opinion of the traffic engineer constitutes a hazard, shall be protected by barricades with long line warning lights. A 100-ft. cone taper shall be provided prior to station to protect the flagger. Flagger is not required for 25 MPH or less residential streets.

6. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer.

7. All vehicles, e.g., pavement, workers and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

8. All warning signs shall have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 716.03.01 of the Uniform Standard Specifications.

9. All vehicles, e.g., pavement, workers and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

10. All warning signs shall have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 716.03.01 of the Uniform Standard Specifications.

11. All vehicles, e.g., pavement, workers and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

12. If working at or near a traffic signal, contact LVACTS at 229-6611 and local entity at appropriate numbers listed below at least two working days prior to beginning work.

13. Access for CAT transit service, pedestrians and bicycles shall be maintained throughout duration of construction. If re-routing of access is necessary, the contractor shall provide the entity’s traffic engineer with a map showing the proposed re-routes for approval. If construction operations affect CAT bus stops or facilities, the contractor shall notify the regional transportation commission at 455-4481 at least 3 normal working days prior to beginning such operations.

**Table for Spacing of Advance Warning Signs**

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
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</thead>
<tbody>
<tr>
<td>EXPRESSWAY/FREEWAY</td>
<td>350</td>
<td>500</td>
<td>350</td>
<td>200</td>
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<tr>
<td>URBAN (35 MPH OR GREATER)</td>
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<tr>
<td>RURAL</td>
<td>200</td>
<td>350</td>
<td>600</td>
<td>900</td>
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**TABLE FOR SPACING OF ADVANCE WARNING SIGNS**

<table>
<thead>
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<th>ROAD TYPE</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
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<tbody>
<tr>
<td>EXPRESSWAY/FREEWAY</td>
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<td>200</td>
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<tr>
<td>RURAL</td>
<td>200</td>
<td>350</td>
<td>600</td>
<td>900</td>
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</table>

**SYMBOLS**

- **W** WORK AREA
- **S** SIGN ON PORTABLE OR PERMANENT SUPPORT
- **T** TRAFFIC DIRECTION
AHEAD WORK

TRAFFIC CONTROL PLAN

START OF PRIME.

A MINIMUM OF 500 FT. PRECEDING REMAIN UNTIL NO TRACKING. INSTALL APPLIED TO PAVEMENT AND SHALL BE USED WHEN PRIME COAT IS HIGHWAY WORK ZONE

TYPICAL APPLICATIONS

UTILITY OPERATIONS

BITUMINOUS RESURFACING

CRACK POURING

GENERAL NOTES

1. CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE, LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC. AT LEAST SEE OF BOTH TRAFFIC LANES SHALL BE AVAILABLE FOR TRAFFIC MOVEMENT AT INTERVALS NOT GREATER THAN 1,300 FT. A SPECIAL TRAFFIC CONTROL DETAIL MUST BE APPROVED FOR ANY PROJECT EXPECTED TO EXCEED 1,000 FT. IN LENGTH.

2. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

3. MAXIMUM DISTANCE TO BE DETERMINED BY THE TRAFFIC ENGINEER BUT SHOULD NOT EXCEEDED TO THE LENGTH RE: LURED FOR ONE NORMAL WORKING DAY'S OPERATION OR 1,000 FT., WHICHER IS LESS.

4. IF THE WORK OPERATION DOES NOT EXCEED 5 MINUTES, TRAFFIC CONTROL WILL BE IN CONFORMANCE WITH STANDARD DRAWING NO. 03.

5. ALL SIGNS ARE TO BE REMOVED AT COMPLETION OF THE DAY'S OPERATIONS.

6. FOR OVERTAKING ROADWAYS THE RE: LURED ADVANCE WARNING SIGNS SHALL BE POSTED ON BOTH THE RIGHT AND LEFT SIDE OF THE AFFECTED APPROACH.

7. FOR MULTILANE ROADWAYS, THE FLAGGER AND THE ADVANCE WARNING SIGNS SHOWN MAY BE RE: LURED FOR TRAFFIC APPROACHING FROM THE OPPOSITE DIRECTION. "RIGHT LANE CLOSED AHEAD" SIGNS SHALL BE SUBSTITUTED FOR THE "ONE LANE ROAD AHEAD" SIGNS.

8. IF WORK OPERATIONS ARE TO OCCUR AT INTERVALS NOT GREATER THAN 1,300 FT. A SPECIAL TRAFFIC CONTROL DETAIL MUST BE APPROVED FOR ANY PROJECT EXPECTED TO EXCEED 1,000 FT. IN LENGTH.

9. THIS CASE DOES APPLY WHEN WORK IS BEING PERFORMED IN LANES ADJACENT TO THE CENTRILILE OF AN UNDIVIDED MULTILANE HIGHWAY OR ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY. UNDER THESE CONDITIONS, "LEFT LANE CLOSED AHEAD" SIGNS SHALL BE SUBSTITUTED FOR "RIGHT LANE CLOSED AHEAD" SIGNS.

10. "ONE LANE ROAD AHEAD" AND FLAGGER SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT BEING PERFORMED.


12. ALL VEHICLES, EQUIPMENT, WORKERS (EXCEPT FLAGGERS) AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE AUTHORIZED BY: ED BY THE TRAFFIC ENGINEER.

13. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 71-33.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

14. IN MULTILANE SITUATIONS, THE FLAGGER AND FLAGGER WARNING SIGNS ON THE SIDE OPPOSITE TO THE WORK AREA ARE RE: LURED ONLY WHEN TRAFFIC IN ANY DIRECTION IS MADE TO CROSS THE ROAD CENTERLINE.

15. TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>URBAN (GONE 10 MPH)</th>
<th>URBAN (50 MPH OR LESS)</th>
<th>RURAL</th>
<th>UNIFORM DRAWING NO.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>200</td>
<td>200</td>
<td>100</td>
<td>603</td>
</tr>
</tbody>
</table>

16. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 226-315

AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

BOULDER CITY 263-9300 LAS VEGAS 226-331

CLARK COUNTY 455-100 MESA JUTE 34-5206

HENDERSON 5-5-2410 NORTH LAS VEGAS 42-24-2

17. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE-ROUTES FOR APPROVAL. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL PROVIDE 30 DAYS NOTICE BY RE-ROUTING THE BUS ROUTE AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

SYMBOLS

WORK AREA

SIGN ON PORTABLE OR PERMANENT SUPPORT

FLAGGER WITH TRAFFIC CONTROL SIGN

TRAFFIC CONE

TRAFFIC DIRECTION

AGENCY APPROVED

CLARK COUNTY AREA

DATE 1-9-97

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPICAL APPLICATION FOR

RURAL MOVING DAY OPERATIONS WHERE ACTIVITIES ENCROACH ON THE PAVEMENT

UNITED STATUTES OF AMERICA

TYPICAL APPLICATION FOR

HIGHWAY WORK ZONE

SPECIFICATION REFERENCE

PREPARED TO STOP

END ROAD WORK

SEE NOTE 11

SEE NOTE 3

W20-7 (SEE NOTE 14)

W20-4

W21-4

W21-2

W20-4

W21-4

W20-7

W21-2

W20-4

W21-4

W21-2

W20-4

W21-4

W20-7

W21-2

W20-4

W21-4

W21-2

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W21-2

W20-4

W21-4

W21-2
TRAFFIC CONTROL PLAN
FOR
HIGHWAY WORK - ONE

TYPICAL APPLICATION FOR
TWO-LANE, TWO-WAY, RURAL DAY OR NIGHT OPERATIONS WHERE ACTIVITIES ARE MORE THAN 15 FT. FROM EDGE OF PAVEMENT

GENERAL NOTES

1. NO SPECIAL SIGNING IS REQUIRED.
2. IF THE WORK OPERATION REQUIRES ANY WORK VEHICLES TO CROSS THE 15 FT. CLEAR ZONE, TRAFFIC CONTROL SHALL CONFORM WITH STANDARD DRAWING NO. 607.
3. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.
4. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK - ONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

TYPICAL APPLICATIONS
LANDSCAPING WORK
UTILITY WORK
FENCING CONTRACTS AND MAINTENANCE
CLEANING CULVERTS

SYMBOLS
\(\text{SIGN ON PORTABLE OR PERMANENT SUPPORT}\)
\(\text{TRAFFIC DIRECTION}\)

TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>DISTANCE BETWEEN SIGNS (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>URBAN (45+ MPH)</td>
<td>200</td>
</tr>
<tr>
<td>URBAN (35-45 MPH)</td>
<td>100</td>
</tr>
<tr>
<td>RURAL</td>
<td>50</td>
</tr>
<tr>
<td>EXPRESSWAY/FREeway</td>
<td>200</td>
</tr>
</tbody>
</table>

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TRAFFIC CONTROL PLAN
FOR
HIGHWAY WORK - ONE

SPECIFICATION REFERENCE

TYPICAL APPLICATION FOR
TWO-LANE, TWO-WAY, RURAL DAY OR NIGHT OPERATIONS WHERE ACTIVITIES ARE MORE THAN 15 FT. FROM EDGE OF PAVEMENT

DATE 1-9-97

DWG NO. 42
TRAFFIC CONTROL PLAN
FOR HIGHWAY WORK ZONE

GENERAL NOTES

1. IF THE WORK OPERATION DOES NOT EXCEED 60 MINUTES, TRAFFIC CONTROL MAY BE IN CONFORMANCE WITH STANDARD DRAWING NO. 60.
2. WORKER SIGNS ARE TO BE REMOVED WHEN NO WORK IS BEING PERFORMED. ANY UNATTENDED OBSTACLE OR EXCAVATION IN THE WORK AREA WHICH IN THE OPINION OF THE TRAFFIC ENGINEER CONSTITUTES A HAZARD SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS AT NIGHT AT THE POINTS OF HAZARD. STEADY BURNING LIGHTS SHALL BE USED FOR DELINEATION AND LONG LINE GUIDANCE. BARRICADES SHALL BE PLACED ACCORDING TO MAXIMUM

3. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.
4. IF THE WORK OPERATION REQUIRES ANY WORK VEHICLES TO ENTER OR LEAVE THROUGH TRAFFIC LANES, A FLAGGER SHALL BE PROVIDED AND A FLAGGER SIGN SHALL BE SUBSTITUTED FOR THE WORKER SIGN. A 100 FT. CONE TAPER SHALL BE PROVIDED PRIOR TO STATION TO PROTECT THE FLAGGER. FLAGGER IS NOT RE-USED FOR 20 MPH OR LESS RESIDENTIAL STREETS.
5. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEERS.
6. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

7. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

8. TABLE FOR SPACING OF ADVANCE WARNING SIGNS

TABLE FOR SPACING OF ADVANCE WARNING SIGNS

ROAD TYPE | DISTANCES BETWEEN SIGNS FT
---|---
UNIQUE (LESS THAN 35 MPH) | 200 500 350 200
UNIQUE (35 MPH OR GREATER) | 200 500 350 200
EXPRESSWAY/FREEWAY | 200 500 350 200
RURAL | 200 500 350 200
URBAN (LESS THAN 35 MPH) | 200 500 350 200
URBAN (35 MPH OR GREATER) | 200 500 350 200

9. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK:

BOULDER CITY | 252-9300
LAS VEGAS | 229-320
CLARK COUNTY | 455-4481
MES: UTE | 24-5295
HENDERSON | 5-2140
NORTH LAS VEGAS | 42-242

10. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
11. IF WORKSPACE IS IN THE MEDIAN OF A DIVIDED HIGHWAY, AN ADVANCE WARNING SIGN SHOULD ALSO BE PLACED ON THE LEFT SIDE OF THE DIRECTIONAL ROADWAY.
12. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT. OBTAINATION OF CONSTRUCTION, IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY’S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE-ROUTES FOR APPROVAL.
13. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 565-2140 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.
3. Construction operations shall be confined to one traffic lane. Leaving the opposite lane open to traffic. At least 50 ft. of both traffic lanes shall be available for traffic movement at intervals not greater than 100 ft.

4. If the work operation does not exceed 8 minutes, traffic control may be in accordance with Standard Drawing No. 53.

5. The flaggers shall be in sight of each other or in direct communication at all times.

6. When no work is being performed, the flaggers will not be used. If the flaggers are not present, the flagger signs shall be removed or covered.

7. All signs, cones, barricades, and drums shall be removed at completion of operations during daylight and the work area opened to traffic.

8. Additional dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flagger may be varied from standard.

9. All vehicles, exceptower workers (except flaggers), and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

10. All warning signs shall have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 74 of the uniform standard specifications.

SYMBOLS

TYPICAL APPLICATIONS

GENERAL NOTES

11. Table for spacing of advance warning signs

12. If working at or near a traffic signal, contact 229-11 and local entity at appropriate numbers listed below at least two working days prior to beginning work.

13. A lateral buffer space may be re-used if surce work can be removed from traffic space. The width shall be determined by the traffic engineer.

14. Access for at transit service, pedestrians and bicycles shall be maintained throughout duration of construction. If re-routing of transit is necessary, the contractor shall provide the entity’s traffic engineer with a map showing the proposed re-routed for approval. If construction operations affect at bus stops or facilities, the contractor shall notify the regional transportation commission at 455-6100 at least 3 normal working days prior to beginning such operations.

15. Map showing the proposed re-routed agreement

16. Local utility operating companies shall notify the contractor of their operational plans. The contractor shall be governed by the current construction agreement.

17. Based on the March 2000 agreement, the contractor shall not begin work until the noise level is below 90 RE.

18. All construction shall be performed in accordance with the Unified Standard Drawings.
1. CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE, LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC.

2. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

3. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE CLOSURE TIME EXCEEDS 48 HOURS AND ARE TO BE TIGHTENED BY SECTION 23 OF THE UNIFORM STANDARD SPECIFICATIONS.

4. THE FLAGGERS MAY BE VARIED FROM THAT SHOWN.

5. ALL VEHICLES, EQUIPMENT, WORKERS (EXCEPT FLAGGERS) AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

6. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

7. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ON TAPER BARRICADES, WHICH SHALL BE MONODIRECTIONAL.

8. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER. THE LATERNAL PLACEMENT OF THE FLAGGERS MAY BE VARIED FROM THAT SHOWN.

9. ALL VEHICLES, E. URFENT WORKERS (EXCEPT FLAGGERS) AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

10. ALL BARRICADE LIGHTS SHALL BE BI-DIRECTIONAL, EXCEPT LIGHTS ON TAPER BARRICADES, WHICH SHALL BE MONODIRECTIONAL.

11. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

12. TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>WORK ZONE</th>
<th>MILES PER HOUR</th>
<th>A</th>
<th>B</th>
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<td>150</td>
<td>100</td>
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<td>W20-7a</td>
<td>850</td>
<td>150</td>
<td>100</td>
<td>70</td>
</tr>
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<td></td>
<td>W21-4</td>
<td>500</td>
<td>100</td>
<td>70</td>
<td>50</td>
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<tr>
<td></td>
<td>W21-7a</td>
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<td>70</td>
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<td>35</td>
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<tr>
<td></td>
<td>W21-7b</td>
<td>100</td>
<td>50</td>
<td>35</td>
<td>20</td>
</tr>
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</table>

13. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACCS AT 229-1111 AND LOCAL AGENCY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

<table>
<thead>
<tr>
<th>LOCAL AGENCY</th>
<th>PHONE NUMBER</th>
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<tbody>
<tr>
<td>Boulder City</td>
<td>942-5757</td>
</tr>
<tr>
<td>Clark County</td>
<td>455-6100</td>
</tr>
<tr>
<td>North Las Vegas</td>
<td>702-381-2180</td>
</tr>
<tr>
<td>Las Vegas</td>
<td>702-381-2180</td>
</tr>
</tbody>
</table>

14. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NECESSARY.

15. A LATERAL BUFFER SPACE MAY BE USED TO SEPARATE WORK SPACE FROM TRAFFIC SPACE. THE WIDTH SHALL BE DETERMINED BY THE TRAFFIC ENGINEER.

GENERAL NOTES

1. CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE, LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC.

2. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

3. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE CLOSURE TIME EXCEEDS 48 HOURS AND ARE TO BE TIGHTENED BY SECTION 23 OF THE UNIFORM STANDARD SPECIFICATIONS.

4. THE FLAGGERS MAY BE VARIED FROM THAT SHOWN.

5. ALL VEHICLES, E. URFENT WORKERS (EXCEPT FLAGGERS) AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

6. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

7. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ON TAPER BARRICADES, WHICH SHALL BE MONODIRECTIONAL.

8. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER. THE LATERNAL PLACEMENT OF THE FLAGGERS MAY BE VARIED FROM THAT SHOWN.

9. ALL VEHICLES, E. URFENT WORKERS (EXCEPT FLAGGERS) AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

10. ALL BARRICADE LIGHTS SHALL BE BI-DIRECTIONAL, EXCEPT LIGHTS ON TAPER BARRICADES, WHICH SHALL BE MONODIRECTIONAL.

11. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.
1. All devices establishing a taper or tangent line shall be of one type; devices shall not be mixed by type.

2. When the distance between successive patches is less than 2,000 ft., the entire operation may be considered as one work area for design purposes. When single-lane operations are used, work zones shall be separated by minimum 200 ft. of clear space.

3. Supporting equipment (flagging, traffic devices, and signs) shall not be mixed by type.

4. When the distance between successive patches is more than 200 ft. but less than 2,000 ft., the entire operation may be considered as one work area for design purposes. When single-lane operations are used, work zones shall be separated by minimum 200 ft. of clear space.

5. All devices shall be in sight of each other or in direct communication at all times and shall be positioned to protect the work area. The first flagger shall be a minimum of 20 ft. and a maximum distance of 120 ft. from the normal operation beyond the flagger sign and a minimum of 100 ft. in advance of the work area.

6. The flaggers shall be in sight of each other in or direct communication at all times and shall be positioned to protect the work area. The first flagger shall be a minimum of 20 ft. and a maximum distance of 120 ft. from the normal operation beyond the flagger sign and a minimum of 100 ft. in advance of the work area.

7. Lights shall not be used on barricades for day operations.

8. When the distance between patches is less than 500 ft., the barricade adjacent to the edge of pavement on the far side of the patch may be omitted.

9. All signs shall be ground mounted if the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

10. Types of high-intensity flashing lights may be installed according to each work zone. One construction sign for use during hours of darkness.

11. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flags shall be varied from that shown.

12. All vehicles are under the control of the flaggers. The flaggers will not reposition. The flaggers shall be positioned at the front of the work party.

13. A utility vehicle is provided to assist with the traffic operation.

14. The entire work area shall be protected during periods when workers are present. The first flagger shall be a minimum of 200 ft. facing traffic at night.

15. The entire operation may be considered as one work area for design purposes. When single-lane operations are used, work zones shall be separated by minimum 200 ft. of clear space.

16. When no work is being performed, the flaggers will not reposition. The flaggers shall be removed or covered, and all barricades or cones shall be removed.

17. When no work is being performed, the flaggers will not reposition. The flaggers shall be removed or covered, and all barricades or cones shall be removed.

18. The entire operation may be considered as one work area for design purposes. When single-lane operations are used, work zones shall be separated by minimum 200 ft. of clear space.

19. When no work is being performed, the flaggers will not reposition. The flaggers shall be removed or covered, and all barricades or cones shall be removed.

20. All signs shall be ground mounted. If the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

21. All signs shall be ground mounted. If the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

22. All signs shall be ground mounted. If the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

23. All signs shall be ground mounted. If the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

24. All signs shall be ground mounted. If the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

25. All signs shall be ground mounted. If the closure time exceeds 4 days and 24 h, used by section 25 of the Uniform Standard Specifications.

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WHERE THE DISTANCE BETWEEN PAVING AND EXCAVATING OPERATIONS IS LESS THAN 2,000 FT. THE ENTIRE OPERATION MAY BE CONSIDERED AS ONE WORK AREA FOR SIGNING PURPOSES. WHEN THE DISTANCE BETWEEN OPERATIONS EXCEEDS 2,000 FT. ADDITIONAL WARNING SIGNS SHALL BE PLACED AS SHOWN. UNDER RESTRICTED SIGHT DISTANCE CONDITIONS, SUCH ADDITIONAL DEVICES MAY ALSO BE REQUIRED FOR DISTANCES LESS THAN 2,000 FT. AT THE DISCRETION OF THE TRAFFIC ENGINEER.

1. WHERE THE DISTANCE BETWEEN PAVING AND EXCAVATING OPERATIONS IS LESS THAN 2,000 FT. THE ENTIRE OPERATION MAY BE CONSIDERED AS ONE WORK AREA FOR SIGNING PURPOSES. WHEN THE DISTANCE BETWEEN OPERATIONS EXCEEDS 2,000 FT. ADDITIONAL WARNING SIGNS SHALL BE PLACED AS SHOWN. UNDER RESTRICTED SIGHT DISTANCE CONDITIONS, SUCH ADDITIONAL DEVICES MAY ALSO BE REQUIRED FOR DISTANCES LESS THAN 2,000 FT. AT THE DISCRETION OF THE TRAFFIC ENGINEER.

2. ONE FLAGGER SHALL BE REQUIRED FOR EACH SEPARATE CONSTRUCTION OPERATION. FOR RESIDENTIAL STREETS 25 MPH OR LESS, FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

3. NO PAVING OR EXCAVATING OPERATIONS SHALL BE PERFORMED AT NIGHT UNLESS AUTHORIZED BY THE TRAFFIC ENGINEER.

4. NO PAVING OR EXCAVATING OPERATIONS SHALL BE PERFORMED AT NIGHT UNLESS AUTHORIZED BY THE TRAFFIC ENGINEER.

5. THE DISTANCES TO BE DETERMINED BY THE TRAFFIC ENGINEER BUT IN NO CASE TO EXCEED THE LENGTH OF 1/2 DAY'S NORMAL OPERATIONS.

6. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE WORKING TIME EXCEEDS FOUR DAYS AND AS SEEN BY SECTION 25 OF THE UNIFORM STANDARD SPECIFICATIONS.

7. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORKING AREA CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

8. UNIFORM STANDARD DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER. THE LATERAL PLACEMENT OF THE DEVICES MAY BE VARIED FROM THAT SHOWN.

9. ALL VEHICLES, E. U. WORKERS, FLAGGERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE ROADWAY UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

10. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

11. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED BY TYPE.

12. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

13. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

14. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF REQUESTING OR CONSEQUENTIAL LOSS OF ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES, THE CONTRACTOR SHALL PROVIDE THE CONTRACTOR WITH A MAP SHOWING THE PROPOSED ROUTE FOR APPROVAL. CONSTRUCTION OPERATIONS AFFECT CAT BUS SCHEDULES DEFINITELY. THE CONTRACTOR SHALL NOTIFY THE NEVADA TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

GENERAL NOTES

1. WHERE THE DISTANCE BETWEEN PAVING AND EXCAVATING OPERATIONS IS LESS THAN 2,000 FT. THE ENTIRE OPERATION MAY BE CONSIDERED AS ONE WORK AREA FOR SIGNING PURPOSES. WHEN THE DISTANCE BETWEEN OPERATIONS EXCEEDS 2,000 FT. ADDITIONAL WARNING SIGNS SHALL BE PLACED AS SHOWN. UNDER RESTRICTED SIGHT DISTANCE CONDITIONS, SUCH ADDITIONAL DEVICES MAY ALSO BE REQUIRED FOR DISTANCES LESS THAN 2,000 FT. AT THE DISCRETION OF THE TRAFFIC ENGINEER.

2. ONE FLAGGER SHALL BE REQUIRED FOR EACH SEPARATE CONSTRUCTION OPERATION. FOR RESIDENTIAL STREETS 25 MPH OR LESS, FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

3. NO PAVING OR EXCAVATING OPERATIONS SHALL BE PERFORMED AT NIGHT UNLESS AUTHORIZED BY THE TRAFFIC ENGINEER.

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5. THE DISTANCES TO BE DETERMINED BY THE TRAFFIC ENGINEER BUT IN NO CASE TO EXCEED THE LENGTH OF 1/2 DAY'S NORMAL OPERATIONS.

6. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE WORKING TIME EXCEEDS FOUR DAYS AND AS SEEN BY SECTION 25 OF THE UNIFORM STANDARD SPECIFICATIONS.

7. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORKING AREA CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

8. UNIFORM STANDARD DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER. THE LATERAL PLACEMENT OF THE DEVICES MAY BE VARIED FROM THAT SHOWN.

9. ALL VEHICLES, E. U. WORKERS, FLAGGERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE ROADWAY UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

10. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

11. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED BY TYPE.

12. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

13. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

14. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF REQUESTING OR CONSEQUENTIAL LOSS OF ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES, THE CONTRACTOR SHALL PROVIDE THE CONTRACTOR WITH A MAP SHOWING THE PROPOSED ROUTE FOR APPROVAL. CONSTRUCTION OPERATIONS AFFECT CAT BUS SCHEDULES DEFINITELY. THE CONTRACTOR SHALL NOTIFY THE NEVADA TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

GENERAL NOTES

TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>DISTANCE BETWEEN SIGNS FT</th>
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<tbody>
<tr>
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SPECIFICATION REFERENCE

TYPICAL APPLICATION FOR

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

DATE 1-9-97

DWG NO. 11
1. TEMPORARY UNPAVED BYPASSES SHALL BE GRACED AND COMPACTED GRAVEL AND ARE ACCEPTABLE FOR TIME LIMITS ESTABLISHED BY THE ENTITY.

2. REFLECTORS: ED 26 IN. MIN. TRAFFIC CONES OR VERTICAL PANELS SHALL BE USED FOR CENTERLINE DELINEATION FOR SHORT-TERM, TEMPORARY, OR EMERGENCY CONSTRUCTION OPERATIONS OR OTHER PROJECTS PERFORMED AT NIGHT. VERTICAL PANELS SHALL BE USED. SEE STANDARD DRAWING 51 SHEET 1 FOR DETAILS OF CONES AND PANELS.

3. A CURVE SIGN WILL BE RE-USED AT EXIT END OF THE BYPASS IF TURN BEARINGS ARE 15 TO 45 DEGREES OR GREATER THAN 1,000 FEET.

4. THE ADVISORY SAFE SPEED TO BE SHOWN BELOW THE REVERSE CURVE (TURN) SIGN SHALL BE DETERMINED AT THE SITE AND APPROVED BY THE TRAFFIC ENGINEER.

5. STEADY BURNING LIGHTS WILL NOT BE RE-USED ON BARRICADES FOR DAY OPERATIONS.

6. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

7. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE CLOSURE TIME EXCEEDS 100'.

8. CONES MAY BE SUBSTITUTED FOR BARRICADES AT 20 F.T. CENTERS.

9. REFLECTORIZED 28 IN. MIN. TRAFFIC CONES OR VERTICAL PANELS (SEE NOTE 2)

10. GENERAL NOTES

11. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MASKED WITH APPROVED BLACKOUT TAPE OR OBLITERATED AS APPROVED BY THE TRAFFIC ENGINEER.

12. TABLE FOR SPACING OF ADVANCE WARNING SIGNS

13. ALL DEVICES INDICATED SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED.

14. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.


16. IF THE DETOUR IS SHORT AND HAS SHARP CURVES (30 MPH OR LESS), REVERSE TURN (W1-3) SIGN SHOULD BE USED.

17. PAVEMENT MARKINGS THAT ARE NO LONGER APPLICABLE SHALL BE MASKED WITH APPROVED BLACKOUT TAPE OR OBLITERATED AS APPROVED BY THE TRAFFIC ENGINEER
### TABLE FOR SPACING OF ADVANCE WARNING SIGNS

**G20-2a**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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</thead>
<tbody>
<tr>
<td>100'</td>
<td>500'</td>
<td>1000'</td>
<td>2000'</td>
<td>3000'</td>
</tr>
</tbody>
</table>

**IF A.D.T. IS WITHIN 2 MILES MAINTENANCE OPERATION PROVIDING NO OTHER TRAFFIC CONTROL PLAN**

**HIGHWAY WORK ZONE**

- **TRAFFIC DIRECTION**
  - ORANGE BACKGROUND
  - MONODIRECTIONAL LIGHTS SHALL BE USED AT NIGHT ON ALL OTHER BARRICADES.

**TRAFFIC SIGNAL**

- **BARRICADE OR DRUM**
  - MONODIRECTIONAL LIGHTS SHALL BE USED AT NIGHT ON ALL OTHER BARRICADES.

### SPECIFICATION REFERENCE

1. THE TRAFFIC ENGINEER MUST BE NOTIFIED AT LEAST 72 HOURS PRIOR TO PLACING THE TEMPORARY SIGNAL IN OPERATION SO THAT ARRANGEMENTS CAN BE MADE TO INSTALL THE TIMING OF THE SIGNAL.

2. AT ANY TIME THAT THE SIGNALS ARE NOT OPERATING THE SIGNAL HEAD SHALL BE HOODED AND THE SIGNAL HEAD SIGN COVERED OR REMOVED.

3. THE LEFT SIGNAL HEAD SHALL BE MOUNTED AT A HEIGHT OF 10 FEET ABOVE THE ROAD SURFACE MEASURED TO THE BOTTOM OF THE SIGNAL HEAD. THE RIGHT SIGNAL HEAD SHALL BE MOUNTED AT A HEIGHT OF 10 FEET ABOVE THE ROAD SURFACE MEASURED TO THE BOTTOM OF THE SIGNAL HEAD. THE LEFT SIGNAL INDICATIONS SHALL BE A POINT IN THE CENTER OF THE APPROACH LANE 100 FEET IN ADVANCE OF THE STOP LINE.

4. ALL LENSES SHALL BE 12 INCH NOMINAL DIAMETER. THE RIGHT SIGNAL LENSES WILL BE HOODED AND THE SIGNAL AHEAD SIGN COVERED OR REMOVED. THE LEFT SIGNAL LENSES WILL BE HOODED AND THE SIGNAL AHEAD SIGN COVERED OR REMOVED.

5. EACH SIGNAL SHALL BE WIRED TO ALLOW FOR FLASH RED.

6. IF FLAGGERS ARE USED INSTEAD OF TRAFFIC SIGNALS, THE TRAFFIC CONTROL DEVICES AT THE WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

7. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER.

8. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

9. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED BY TYPE.

10. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS AND AS REQUIRED. USED BY SECTION 26 OF THE UNIFORM STANDARD SPECIFICATIONS.

11. TYPE "H" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

12. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRANSPORTATION COMMISSION WITH A MAP SHOWING THE ROADS TO BE RE-ROUTES FOR APPROVAL. IF CONSTRUCTION OPERATIONS ARE DEEMED NECESSARY, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

13. ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK AREA REJOINING THE PERMANENT EDGE LINE.

14. BARRICADE OR DRUM WITH STEADY BURNING LIGHT.

15. ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK SPACE AT NIGHT FOR LONG-TERM OPERATIONS OR 30 CONTINUOUS HOURS OR MORE SHOULD BE PROVIDED.

16. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE. DEVICES SHALL NOT BE MIXED BY TYPE.

17. ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK SPACE AT NIGHT FOR LONG-TERM OPERATIONS OR 30 CONTINUOUS HOURS OR MORE SHOULD BE PROVIDED.

18. A LATERAL BUFFER SPACE SHALL BE USED TO SEPARATE WORK SPACE FROM TRAFFIC SPACE. THE WIDTH SHALL BE DETERMINED BY THE TRAFFIC ENGINEER.

19. **ROAD WORK AHEAD**

20. **CUT LINE** SHALL BE A MEMBER OF "N", HERE AND SHOULD BE INSTALLED FROM THE START OF THE TAPER TO A POINT BEYOND THE WORK AREA REJOINING THE PERMANENT EDGE LINE.

21. FOR LONG TERM PROJECTS OF 72 CONTINUOUS HOURS OR MORE, CONFLICTING PAVEMENT MARKINGS BETWEEN ACTIVITY AREA AND WORK ZONE SHALL BE REMOVED.
GENERAL NOTES

1. NO SPECIAL SIGNING IS REQUIRED.
2. IF THE WORK OPERATION REQUIRES TWO OR MORE WORK VEHICLES CROSSED THE 15 FT. CLEARZONE IN ANY ONE HOUR, TRAFFIC CONTROL WILL BE IN CONFORMANCE WITH STANDARD DRAWING NO. 15.
3. THIS CASE ALSO APPLIES TO WORK PERFORMED IN THE MEDIAN MORE THAN 15 FT FROM EITHER PAVEMENT.
4. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

BOULDER CITY 203-9200
CLARK COUNTY 450-1100
HENDERSON 5-2140
LAS VEGAS 220-351

5. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK - ONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

SYMBOLS

- SIGN ON PORTABLE OR PERMANENT SUPPORT
- TRAFFIC DIRECTION

TYPICAL APPLICATIONS

- LANDSCAPING WORK
- UTILITY WORK
- FENCING CONTRACTS AND MAINTENANCE
- CLEANING DRAINAGES

TABLE FOR SPACING OF WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>SPACING BETWEEN SIGNS (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPRESSWAY/FREEWAY</td>
<td>2,600</td>
</tr>
<tr>
<td>MULTILANE, DIVIDED OR UNDIVIDED, RURAL OR SUBURBAN, DAY OR NIGHT OPERATIONS WHERE ACTIVITIES ARE MORE THAN 15 FT FROM EDGE OF PAVEMENT</td>
<td>1,600</td>
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</table>
1. Worker signs are to be removed when no work is being performed. Any unattended obstacle or excavation in the work area which in the opinion of the traffic engineer constitutes a hazard shall be protected by barricades with flashing lights at night at the points of hazard. Steady burning lights shall be used for delineation and long line guidance. Barricades shall be placed according to maximum

2. If the work operation requires that four or more work vehicles enter through traffic lanes in a one hour period, a flagger shall be substituted for the worker sign.

3. This case also applies when work is being performed on a multilane undivided highway. Under these conditions the signs normally mounted in the median shall be omitted.

4. Longitudinal dimensions may be adjusted to fit field conditions.

5. All vehicles, except workers and their activities are restricted at all times to one side of the pavement. Unless otherwise authorized by traffic engineer.

8. Required protection for open excavations during non-working hours: open trenches shall be completely fenced. All fences to be 36 in. (914 mm) high, removable in any area of the City of Las Vegas that are within 30 ft. of any building or roadway. After working hours beyond 300 ft. trench may be protected by a three (3) foot mound of earth completely around the trench and type II barricades with flashing lights spotted around the top after working hours.

9. If working at or near a traffic signal, contact LVACTS at 229-6611 and local entity at appropriate numbers listed below at least two working days prior to beginning work.

10. If the work space is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

11. Access for cat transit service, pedestrians and

GENERAL NOTES

TABLE FOR SPACING OF ADVANCE WORKING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>A</th>
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<td>URBAN (35 MPH OR GREATER)</td>
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<td>URBAN (LESS THAN 35 MPH)</td>
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<td>EXPRESSWAY/FREEWAY</td>
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<tr>
<td>RURAL</td>
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DESIGNATION OF DISTANCE (FT) | TAPER LENGTHS FOR LANE CLOSURES - DISTANCE L

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<th>DEVICE ALONG TAPER IN FEET</th>
<th>M</th>
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MEDIAN

W21-1

A 100 FT. CONE TAPER SHALL BE PROVIDED PRIOR TO FLAGGER STATION TO PROTECT THE FLAGGER. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

W21-0

1. WORKER LONE ARE TO BE ADDED WHEN NO WORK IS BEING PERFORMED. ANY UNATTENDED OBSTRUCTION OR EXCAVATIONS IN THE PAVEMENT AREAS OF THE OFFICE OF THE TRAFFIC ENGINEER CONSTITUTES A HAZARD AND SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS AT NIGHT AT THE POINTS OF HAZARD.  SEADY BURNING LIGHTS SHALL BE USED FOR DELINEATION AND LONG LINE GUIDANCE.  BARRICADES SHALL BE PLACED ACCORDING TO MAXIMUM SPACING VALUES LISTED IN THE TABLES BELOW.

2. IF THE WORK OPERATION REQUIRES THAT FOUR OR MORE WORK VEHICLES ENTER THROUGH TRAFFIC LANES IN A ONE HOUR PERIOD, A FLAGGER SHALL BE SUBSTITUTED FOR THE WORKER SIGN. A 100 FT. CONE TAPER SHALL BE PROVIDED PRIOR TO FLAGGER STATION TO PROTECT THE FLAGGER. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

3. THIS CASE ALSO APPLIES WHEN WORK IS BEING PERFORMED ON A MULTILANE UNDIVIDED HIGHWAY. UNDER THESE CONDITIONS THE SIGNS NORMALLY MOUNTED IN THE MEDIAN SHALL BE OMITTED.

4. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS.

5. ALL VEHICLES, EXCEPT WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT. UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

8. REQUIRED PROTECTION FOR OPEN EXCAVATIONS DURING NON-WORKING HOURS: OPEN TRENCHES SHALL BE COMPLETELY FENCED. ALL FENCES TO BE 36 IN. (914 MM) HIGH, REMOVABLE IN ANY AREA OF THE CITY OF LAS VEGAS THAT ARE WITHIN 30 FT. OF ANY BUILDING OR ROADWAY. AFTER WORKING HOURS BEYOND 300 FT. TRENCH MAY BE PROTECTED BY A THREE (3) FOOT MOUND OF EARTH COMPLETELY AROUND THE TRENCH AND TYPE II BARRICADES WITH FLASHING LIGHTS SPOTTED AROUND THE TOP AFTER WORKING HOURS.

9. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

BOULDER CITY 263-4000
NEV. S.L. 74-5256
CLARK COUNTY 455-1160
NORTH LAS VEGAS 229-6352
LAS VEGAS 263-3511

10. IF THE WORK SPACE IS IN THE MEDIAN OF A DIVIDED HIGHWAY, AN ADVANCE WARNING SIGN SHOULD ALSO BE PLACED ON THE LEFT SIDE OF THE DIRECTIONAL ROADWAY.

11. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND
TYPICAL APPLICATIONS

PAVEMENT STRIPING
WEED SPRAYING
ROADOMETER MEASUREMENTS

1. HIGHWAY, THE PROTECTION VEHICLE SHALL FOLLOW ON THE LEFT SHOULDER AND THE BOTTOM LINE SHALL READ "USE RIGHT LANE".

2. IF WORK IS BEING PERFORMED ON THE CENTER LANE OF THE ROADWAY, TRAFFIC SHALL BE DIVERTED TO EITHER LEAF OR RIGHT LANE. AT NO TIME IS TRAFFIC PERMITTED TO PASS ON BOTH SIDES OF MOVING OPERATION. CENTER LANE OPERATIONS SHALL NOT BE PERFORMED DURING PEAK TRAVEL TIMES.

3. THE LIGHTS ON THE TRAILER SHALL FLASH IN PAIRS ALTERNATING BETWEEN THE TWO OUTSIDE LIGHTS AND THE TWO INSIDE LIGHTS OR SEQUENTIAL FLASHING.

4. ALL STRIPING SHALL HAVE ALTERNATING WHITE AND ORANGE STRIPES.

5. THE SIGN PANELS SHALL HAVE THE MINIMUM DIMENSIONS SHOWN AND HAVE BLACK LEGEND ON AN ORANGE REFLECTORIZED BACKGROUND.

6. PAVEMENT STRIPING AND CONE PICKUP WILL BE CONSIDERED AS TWO SEPARATE OPERATIONS.

7. WHERE WORK OPERATIONS ARE MORE THAN 2 FT. FROM THE EDGE OF THE PAVEMENT, PROTECTION VEHICLES MAY BE OMITTED.

8. THIS CASE DOES NOT APPLY WHEN WORK IS BEING PERFORMED IN THE MIDDLE LANE(S) OF A SIX OR MORE LANE HIGHWAY. SPECIAL PLANS APPROVED BY THE TRAFFIC ENGINEER ARE REQUIRED.

9. GENERAL NOTES

10. ALL WARNING SIGNS HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

11. WHERE WORK OPERATIONS ARE MORE THAN 2 FT. FROM THE EDGE OF THE PAVEMENT, PROTECTION VEHICLES MAY BE OMITTED.

12. TABLE FOR SPACING OF FOLLOWING VEHICLE

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>TABLE OF SPACING (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN (LESS THAN 35 MPH)</td>
<td>69&quot;</td>
</tr>
<tr>
<td>URBAN (35 MPH OR GREATER)</td>
<td>130&quot;</td>
</tr>
<tr>
<td>EXPRESSWAY/FREEWAY</td>
<td>200&quot;</td>
</tr>
<tr>
<td>RURAL</td>
<td>1000&quot;</td>
</tr>
</tbody>
</table>

13. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

<table>
<thead>
<tr>
<th>CITY/ENTITY</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOULDER CITY</td>
<td>284-4606</td>
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<tr>
<td>CLARK COUNTY</td>
<td>455-6100</td>
</tr>
<tr>
<td>HENDERSON</td>
<td>346-5295</td>
</tr>
<tr>
<td>LAS VEGAS</td>
<td>229-331</td>
</tr>
<tr>
<td>NORTH LAS VEGAS</td>
<td>642-2462</td>
</tr>
</tbody>
</table>


15. ALL WARNING SIGNS HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.
**GENERAL NOTES**

8. All vehicles, e. g. unmarked, workers (except flaggers) and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

9. All warning signs shall have black legend and border on an orange background. All signs having a white or orange background shall be made of material conforming to Section 716.03.01 of the Uniform Standard Specifications.

10. All devices establishing a taper or tangent line shall be of one type. Devices shall not be mixed by type.

11. **Table for Spacing of Advance Warning Signs**

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>TAPER LENGTH (L)</th>
<th>ADVISORY SPEED ((W))</th>
<th>WORK ZONE TYPE</th>
<th>IN MILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BITUMINOUS RESURFACING</td>
<td>550</td>
<td>20</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>UTILITY OPERATIONS</td>
<td>450</td>
<td>15</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>PAVEMENT PATCH</td>
<td>650</td>
<td>10</td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>

**SPACE BETWEEN SIGNS**

12. Arrowboards and panels shall be used on high speed roadways with speeds greater than 25 MPH or directed by the traffic engineer. Arrowboards should be placed as close to the beginning of the taper as possible, so as long as there is space. They shall be removed at night.

13. If working at or near a traffic signal, contact the utility's traffic engineer with a map showing the proposed location of the work. All traffic signals affecting one or both facilities shall be controlled by the traffic engineer, or the contractor is responsible for the signal trip for 100 ft. before the traffic signal.

14. **Buffer Space**

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>TAPER LENGTH (L)</th>
<th>ADVISORY SPEED ((W))</th>
<th>WORK ZONE TYPE</th>
<th>IN MILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BITUMINOUS RESURFACING</td>
<td>550</td>
<td>20</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>UTILITY OPERATIONS</td>
<td>450</td>
<td>15</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>PAVEMENT PATCH</td>
<td>650</td>
<td>10</td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**

15. When a side road intersects the highway within the temporary traffic control, one additional traffic control device shall be erected, as needed.

16. A lateral buffer space may be required to separate work space from traffic space. The width shall be determined by the traffic engineer.

17. For long term projects of 72 continuous hours or more, a 15-ft. wide internal white edge line shall be installed from the point where the taper begins to the point of temporary closure. The permanent edge line shall be removable, non-foil pavement marking tape. For left lane closure, the edge line shall be yellow. Pavement markings that are no longer applicable shall be removed. All temporary centerline markings shall be removed by the traffic engineer from the end of the entrance taper to a point 10 ft. beyond the taper beginning.
FORMULAS FOR TAPER LENGTH

1. HIGHWAY WORK ZONE

- MILES PER HOUR
- SPEED
- BARRICADE OR DRUM WITH STEADY BURNING LIGHT
- TRAFFIC DIRECTION
- ARROW BOARD (IN LINE OF LANE)
- WORK AREA
- SPEED OR ANTICIPATED OPERATING SPEED

<table>
<thead>
<tr>
<th>SPEED (MPH)</th>
<th>L</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>495</td>
<td>70</td>
</tr>
<tr>
<td>50</td>
<td>550</td>
<td>65</td>
</tr>
<tr>
<td>45</td>
<td>660</td>
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<td>15</td>
</tr>
<tr>
<td>5</td>
<td>137</td>
<td>10</td>
</tr>
</tbody>
</table>

2. WHERE WORK ENTERS OR EXITS THE WORK AREA DIRECTLY FROM THE ADJOINING LANE CARRYING TRAFFIC, A TAGGER WILL BE REQUIRED. IF THE TAGGER IS PRESENT, THE TAGGER SIGN SHALL BE PLACED AT DISTANCE "A" PRIOR TO THE TAGGER TO PROTECT THE TAGGER(S) FROM TRAFFIC. TAGGER(S) SHALL NOT BE USED FOR SPEEDS OF 25 MPH OR LESS.

3. THIS CASE APPLIES WHEN WORK IS BEING PERFORMED IN THE LEFT LANE. UNDER THESE CONDITIONS, LEFT LANE CLOSED SIGNS SHALL BE SUBMITTED FOR RIGHT LANE CLOSED SIGNS. ON UNDIVIDED HIGHWAYS, SIGNS SHALL BE ADDED IN A DIFFERENT DIRECTION AS SHOWN.

4. THIS CASE DOES NOT APPLY WHEN WORK IS BEING PERFORMED IN THE MIDDLE LANES OF A SIX OR MORE LANE HIGHWAY. SPECIAL PLANS APPROVED BY THE TRAFFIC ENGINEER WILL BE REQUIRED.

5. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SAVINGS DURING DAY OPERATIONS CONES SHALL BE A MINIMUM OF 26" IN HEIGHT.

6. STEADY BURNING LIGHTS SHALL NOT BE REQUIRED FOR BARRICADE DAY OPERATIONS.

7. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE TAPER LENGTH EXCEEDS 4 DAYS AND AS REQUIRED BY SECTION 25 OF THE UNIFORM STANDARD SPECIFICATIONS.

8. TYPE "F" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE. ONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

9. FOR LONG-TERM PROJECTS OF 72 CONSECUTIVE HOURS OR MORE, A 15" WHITE EDGE LINE SHOULD BE INSTALLED FROM THE END OF THE TAPER TO A POINT BEYOND THE WORK AREA. THE EDGE LINE MUST BE FRESH, CONTINUOUS AND 15" IN WIDTH. WHITE EDGE LINE SHALL BE REQUIRED ON TAPER LENGTHS IN EXCESS OF 1/2A FROM THE TAPER BEGINNING.

10. CONSTRUCTION OR MAINTENANCE WORK ZONES DIRECTLY AHEAD RDF0-5 MILES WITHIN 2 MILES PROVIDE NO OTHER CONSTRUCTION OR MAINTENANCE OPERATIONS.

11. ALL VEHICLES, EMPLOYEES, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE TAPER UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

12. BARRICADE LIGHTS SHALL BE MONO DIRECTIONAL IF THE ROADWAY IS UNDIVIDED.

13. ALL WARNING SIGNS SHALL HAVE BLACK LEGENDS AND BORDERS ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 71-303.1 OF THE UNIFORM STANDARD SPECIFICATIONS.

14. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE. DEVICES SHALL NOT BE MIXED BY TYPE.

15. TABLE FOR SPECIFYING ADVANCE WARNING SIGNS:

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>WORK ZONE DISTANCE (FT)</th>
<th>SPEED LIMIT (MPH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPICAL</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>TYPICAL</td>
<td>200</td>
<td>50</td>
</tr>
<tr>
<td>TYPICAL</td>
<td>300</td>
<td>70</td>
</tr>
</tbody>
</table>

16. ARRAYS OF LIGHTS SHALL BE USED ON HIGH SPEED ROADS WITH SPEED LIMITS OVER 25 MPH OR AS DIRECTED BY THE TRAFFIC ENGINEER. ARRAYS OF LIGHTS SHOULD BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE. AS SOON AS THERE IS ADEquate SPACE.

17. ARROW BOARD SIGNS SHALL BE USED ON HIGH SPEED ROADS WITH SPEED LIMITS OVER 25 MPH OR AS DIRECTED BY THE TRAFFIC ENGINEER. ARROW BOARD SIGNS SHOULD BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE. AS SOON AS THERE IS ADEquate SPACE.

18. BUFFER SPACE SHALL BE:

19. A LATERAL BUFFER SPACE MAY BE REQUIRED TO SEPARATE WORK SPACE FROM TRAFFIC SPACE. THE WIDTH SHALL BE DETERMINED BY THE TRAFFIC ENGINEER.

20. WHEN A ROAD INTERSECTS THE HIGHWAY WITHIN THE TRAFFIC CONTROL ZONE, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERECTED, AS REQUIRED OR OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

21. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGIGENING SUCH OPERATIONS.
TRAFFIC CONTROL PLAN

FOR HIGHWAY WORK ZONE

1. TAPER FORMULA:
   \[ L = S \times W \]
   WHERE: 
   - \( L \): MINIMUM LENGTH OF TAPER
   - \( S \): POSTED SPEED, 85TH PERCENTILE SPEED PRIOR TO WORK STARTING OR ANTICIPATED OPERATING SPEED
   - \( W \): WIDTH OF OFFSET FOR SPEEDS OF 45 MPH OR MORE
   - \( L \): POSTED SPEED, 85TH PERCENTILE SPEED PRIOR TO WORK STARTING OR ANTICIPATED OPERATING SPEED FOR SPEEDS OF 45 MPH OR LESS

2. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE AS SPECIFIED IN TABLE IN NOTE 1.

3. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE USED ON HIGH SPEED ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS OR AT A MAX. SPACING OF 72 CONTINUOUS HOURS OR MORE. WARNING LIGHTS SHALL BE BLACK OUT TAPE OPTIONAL OR OBLITERATED PAINT NOT ALLOWED. MASK WITH APPROVED MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

4. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

5. A BUFFER SPACE SHOULD BE REUSED AS FOLLOWS:

6. THE Maximum SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE AS SPECIFIED IN TABLE IN NOTE 1.

7. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED BY TYPE.

8. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

9. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

10. DURING HOURS OF DARKNESS, STEADY BURNING WARNING LIGHTS SHALL BE USED ON ALL CHANNELIZING DEVICES.

GENERAL NOTES

A. Arrow panels shall be used on high speed roadways with speed limits of 40 MPH or less or at a maximum spacing of 72 continuous hours or more.

B. Flashing vehicle lights shall be used on high speed roadways with speed limits of 40 MPH or less or at a maximum spacing of 72 continuous hours or more.

C. Blank-out tape optional or obliterated paint not allowed. Mask with approved materials conforming to Section 716.03.01 of the Uniform Standard Specifications.

D. TYPICAL APPLICATION FOR

E. WORK AREA

F. AGENCY APPROVED

G. UNIFORM STANDARD DRAWINGS

H. CLARK COUNTY AREA

SPECIFICATION REFERENCE

MULTILANE, UNDIVIDED, RURAL OR SUBURBAN, DAY OR NIGHT OPERATIONS WITH A WORK AREA IN THE LEFT LANE, ALLOWING WORK ACCESS FROM ADJACENT LANE

DATE

1-9-97

DWG NO.

19
1. THE "L" DISTANCE EQUALS:

40 M.P.H. OR UNDER: \[ L = \frac{XX}{60} \] where:
- XX = 85th PERCENTILE SPEED
- \( L \) = TAPER LENGTH

40 M.P.H. OR OVER: \[ L = WS \] where:
- WS = ROAD WIDTH

2. PORTABLE CONCRETE BARRIER RAIL SHOULD BE REQUIRED FOR LONG-TERM PROJECTS OF 72 CONTINUOUS HOURS OR MORE, SHALL CONFORM WITH STANDARD DRAWING NO. 602, AND BE ERECTED, AS NEEDED.

3. CONES MAY BE SUBSTITUTED FOR BARRICADES AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 IN. IN HEIGHT.

4. A CURVE SIGN SHALL BE REQUIRED AT THE EXIT END OF THE BYPASS IF (T) IS LESS THAN 1,000 FEET.

5. ON PAVED CROSSOVERS, REFLECTIVE EDGE LINES AND A CENTERLINE SHALL BE USED WHEN THE CLOSURE TIME IS 72 CONTINUOUS HOURS OR MORE OR WHEN THE NORMAL POSTED SPEED OUTSIDE THE AREA OF OPERATION EXCEEDS 40 M.P.H. IN REFLECTORIZED OR NON-REFLECTORIZED SYMBOLS, THE REFLECTIVE EDGE LINES MAY BE USED FOR BARRICADES OR VERTICAL PANELS. REFLECTORIZED EDGE LINES CONFORMING TO UNIFORM STANDARD SPECIFICATIONS AND DRAWINGS MULL BE USED IN LIEU OF BARRICADES WHERE THE SPACE IS LIMITED.

6. CONES MAY BE SUBSTITUTED FOR BARRICADES AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 IN. IN HEIGHT.

7. STEADY BURNING LIGHTS WILL NOT BE REQUIRED ON BARRICADES FOR DAY OPERATIONS.

8. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS AND AS REQUIRED BY SECTION 202 OF THE UNIFORM STANDARD SPECIFICATIONS.

9. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS. WHEN PORTABLE CONCRETE BARRIER RAIL IS REQUIRED, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRAFFIC MAINTENANCE OPERATION WITHIN 2 MILES PRIOR TO BEGINNING WORK.

10. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER.

11. ALL BARRICADE LIGHTS SHALL BE MONO-DIRECTIONAL.

12. PORTABLE CONCRETE BARRIER RAIL SHOULD BE REQUIRED FOR LONG-TERM PROJECTS OF 72 CONTINUOUS HOURS OR MORE, SHALL CONFORM WITH STANDARD DRAWING NO. 602, AND BE USED WHEN CALLED UPON THEREIN. WHEN PORTABLE CONCRETE BARRIER RAIL IS REQUIRED, THE 90-3, 90-6 SIGNS MAY BE USED THROUGH THE TANGENT DISTANCE (T).

13. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 211-3331 OF THE UNIFORM STANDARD SPECIFICATIONS.

14. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE. DEVICES SHALL NOT BE MIXED BY TYPE.

15. PORTABLE CONCRETE BARRIER RAIL MAY BE REQUIRED FOR LONG-TERM PROJECTS OF 1000 CONTINUOUS HOURS OR MORE, SHALL CONFORM WITH STANDARD DRAWING NO. 602, AND BE ERECTED, AS NEEDED.

16. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT THE PERIOD OF CONSTRUCTION. IF ACCESS TO CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES THROUGH THE CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRAFFIC MAINTENANCE OPERATION WITHIN 2 MILES PRIOR TO BEGINNING WORK.

17. WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TEMPORARY TRAFFIC CONTROL ZONE, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERECTED, AS NEEDED.

18. VERTICAL PANELS SHALL BE REQUIRED FOR LONG-TERM PROJECTS OF 1000 CONTINUOUS HOURS OR MORE, SHALL CONFORM WITH STANDARD DRAWING NO. 602, AND BE ERECTED, AS NEEDED.

19. WHEN WORK IS TO BE PERFORMED NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 OR LOCAL ENTITY AT APPROXIMATE NUMBERS LISTED BELOW AT LEAST 11 WORKING DAYS PRIOR TO BEGINNING WORK.

20. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT THE PERIOD OF CONSTRUCTION.

A. Work area is in the center of an intersection.

B. Work area near an intersection, allowing right turns.

C. Work area near an intersection, providing access to left-turn lane.

### General Notes

1. **Formulas for Taper Length**
   - **40 M.P.H. or Under**
     - **Formula**: \( \frac{W}{2} \times \frac{L}{3} \)
   - **40 M.P.H. or Over**
     - **Formula**: \( \frac{W}{2} \times \frac{L}{9} \)

2. **Additional Advance Warning May Be Necessary**

3. **Prohibit Turns as Re: Used by Traffic Conditions**

### Table of Spacing for Advance Warning Sign

<table>
<thead>
<tr>
<th>Type</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
<th>ROAD WORK AHEAD</th>
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<th>ROAD WORK AHEAD</th>
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<td>50</td>
<td>55</td>
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</tbody>
</table>

### Symbols

- **Channeling Devices**
- **Pavement Markings**
- **Type A Barricade**
- **Traffic Direction**
- **Work Area**

### Access for Cat Transit Service

- If median exists, place "road work ahead" signs in the median at 111 feet. Contact Clackamas County at 503-655-1000 for information on re-routing buses.
- If median exists, place "left turn" signs in median if available.
- Temporary markings to be placed as needed.

### Miscellaneous

- **Traffic Engineer**
- **Work Areas Within or Near Suburban Intersections**
A. TYPICAL APPLICATION-Roadway Closed Beyond Detour Point.

GENERAL NOTES

1. ANY ROAD CLOSURE MUST BE EXPRESSLY PERMITTED IN WRITING BY THE ADMINISTERING ENTITY'S TRAFFIC MANAGEMENT DIVISION MANAGER OR THE DIRECTOR OF ITS PUBLIC WORKS DEPARTMENT.

2. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

3. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.

4. WARNING LIGHTS MAY BE USED TO MARK BARRICADES AT NIGHT AS NEEDED.

5. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC. LETTERS USED FOR STREET NAMES SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 7-1201 OF THE UNIFORM STANDARD SPECIFICATIONS.

6. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

BOULDER CITY
203-4300
MED. UTE
34-9260

CLARK COUNTY
405-100
NORTH LAS VEGAS
44-08

LAS VEGAS
203-330

7. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

8. M4 DETOUR SIGNS MAY BE LOCATED ON THE FAR SIDE OF THE INTERSECTIONS.

9. TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>CITY</th>
<th>URBAN (35 MPH OR GREATER)</th>
<th></th>
<th>URBAN (LESS THAN 35 MPH)</th>
<th></th>
<th>RURAL</th>
<th></th>
<th>EXPRESSED HIGHWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (TYP)</td>
<td>500</td>
<td>200</td>
<td>10</td>
<td>300</td>
<td>20</td>
<td>100</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

10. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHAL BE MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. IF ACCESS IS NEEDED, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 732-4651 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

B. TYPICAL APPLICATION-Detour Signing for Road Construction Project in a Street Grid.
**GENERAL NOTES:**

1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS FOR PEDESTRIANS ONLY ARE SHOWN. VEHICULAR TRAFFIC CONTROLS SHALL COMPLY WITH APPROPRIATE STANDARD DRAWINGS.
3. STREET LIGHTING SHOULD BE CONSIDERED.
4. WARNING LIGHTS MAY BE USED ON BARRICADES.
5. IF THERE EXIST ANY SOURCE OF PEDESTRIAN MOVEMENTS IN THIS AREA, SUCH THAT THE PEDESTRIAN APPROACHING THE WORK AREA COULD NOT SEE THE RH-SC SIGN, THEN ALTERNATIVES MUST BE USED TO INSURE THAT THIS IS VISIBLE.
6. CONCRETE BARRIER RAIL SHALL CONFORM TO STANDARD DRAWING NO. 602. WHEN PEDESTRIAN ROUTE IS DIVERTED TO TRAVEL LANE TO AVOID WORK AREA AND/OR HIGH SPEEDS ARE ANTICIPATED, CONCRETE BARRIER RAIL SHALL BE USED TO SEPARATE TEMPORARY WALKWAY FROM TRAFFIC.
7. PEDESTRIANS SHOULD BE DIVERTED TO A SAFE AREA. DIVERSIONS SHALL BE AN ACCESSIBLE ROUTE AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT (ADA).
8. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.
9. FOR NIGHT-TIME CLOSURES, TYPE A FLASHING LIGHTS MAY BE USED ON BARRICADES SUPPORTING SIGNS AND CLOSING WALKWAYS. TYPE C, STEADY-BURN LIGHTS SHALL BE USED ON CHANNELIZING DEVICES SEPARATING THE TEMPORARY WALKWAY FROM VEHICULAR TRAFFIC.
10. PEDESTRIANS SHOULD BE DIVERTED TO A SAFE AREA. DIVISIONS SHALL BE AN ACCESSIBLE ROUTE AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT (ADA).
**TRAFFIC CONTROL PLAN**

**FOR**

**HIGHWAY WORK ZONE**

**SITUATION/CASE**

<table>
<thead>
<tr>
<th>ELEMENTS VISIBLE TO APPROACHING TRAFFIC</th>
<th>CASE 1</th>
<th>CASE 2</th>
<th>CASE 3</th>
<th>CASE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPACT ATTENUATORS</td>
<td>YES</td>
<td>YES</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MANDATORY WHEN SPEED LIMIT EXCEEDS 45 MPH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER-FILLED CRASH CUSHION, OR EQUIVALENT TRUNK OR TRAILER-MOUNTED IMPACT ATTENUATORS</td>
<td>RECOMMENDED, BUT MANDATORY WHEN SPEED LIMIT EXCEEDS 45 MPH</td>
<td>NO</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>NO STOPPING UNLESS STOPPED VEHICLE IS VISIBLE TO APPROACHING TRAFFIC GREATER THAN 10 SECONDS AT SPEED LIMIT</td>
<td>YES, APPLY THIS RULE</td>
<td>N/A - ON STRAIGHT-AWAY</td>
<td>NOT REQUIRED</td>
<td>DESIRED, BUT NOT REQUIRED</td>
</tr>
<tr>
<td>O.K. TO SET UP DURING PEAK TRAVEL HOURS: 7-9 AM, 4-6 PM</td>
<td>YES, BUT ONLY FOR EMERGENCY-TYPE REPAIR ACTIVITIES</td>
<td>O.K.</td>
<td>NOT RECOMMENDED</td>
<td></td>
</tr>
<tr>
<td>NO STOPPING UNLESS STOPPED VEHICLE IS VISIBLE TO APPROACHING TRAFFIC GREATER THAN 10 SECONDS AT SPEED LIMIT</td>
<td>YES, APPLY THIS RULE</td>
<td>N/A - ON STRAIGHT-AWAY</td>
<td>NOT REQUIRED</td>
<td>DESIRED, BUT NOT REQUIRED</td>
</tr>
<tr>
<td>O.K. TO SET UP DURING PEAK TRAVEL HOURS: 7-9 AM, 4-6 PM</td>
<td>YES, BUT ONLY FOR EMERGENCY-TYPE REPAIR ACTIVITIES</td>
<td>O.K.</td>
<td>NOT RECOMMENDED</td>
<td></td>
</tr>
</tbody>
</table>

**DEVICE OR PARAMETER**

<table>
<thead>
<tr>
<th>CASE 1</th>
<th>CASE 2</th>
<th>CASE 3</th>
<th>CASE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. MINIMUM 60 IN. WIDE FLASHER BAR ATOP VEHICLE, WITH GREATER THAN 4 LIGHT ELEMENTS VISIBLE TO APPROACHING TRAFFIC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>B. CONES SET OUT BEHIND VEHICLE</td>
<td>3, ACROSS BLOCKED LANE</td>
<td>3, ACROSS BLOCKED LANE</td>
<td>5, ACROSS BLOCKED LANE</td>
</tr>
<tr>
<td>C. TURN ON VEHICLE’S EMERGENCY HA. RD FLASHERS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>D. ALL PERSONNEL WEAR ORANGE VESTS OR SHIRTS WHEN OUTSIDE OF VEHICLE</td>
<td>ALWAYS</td>
<td>ALWAYS</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>E. O.K. FOR NIGHTTIME DEPLOYMENT</td>
<td>NO</td>
<td>ONLY WHEN SPEED LIMIT _ 35 MPH</td>
<td>O.K., BUT USE REFLECTIVE VESTS</td>
</tr>
<tr>
<td>F. WATER-FILLED CRASH CUSHION, OR EQUIVALENT TRUNK OR TRAILER-MOUNTED IMPACT ATTENUATORS</td>
<td>RECOMMENDED, BUT MANDATORY WHEN SPEED LIMIT EXCEEDS 45 MPH</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>G. NO STOPPING UNLESS STOPPED VEHICLE IS VISIBLE TO APPROACHING TRAFFIC GREATER THAN 10 SECONDS AT SPEED LIMIT</td>
<td>YES, APPLY THIS RULE</td>
<td>N/A - ON STRAIGHT-AWAY</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>H. O.K. TO SET UP DURING PEAK TRAVEL HOURS: 7-9 AM, 4-6 PM</td>
<td>YES, BUT ONLY FOR EMERGENCY-TYPE REPAIR ACTIVITIES</td>
<td>O.K.</td>
<td>NOT RECOMMENDED</td>
</tr>
</tbody>
</table>

**NOTE:** TYPICAL APPLICATION IS FOR LANDSCAPE OR UTILITY ACTIVITIES.
1. SPECIAL "NO PARKING" SIGN SHALL BE PLACED ON FIRST BARRICADE AND ON EVERY OTHER BARRICADE THEREAFTER.
2. BARRICADES SHALL NOT BLOCK DRIVEWAYS OR ACCESS PRIES PRIOR TO MAINTENANCE OPERATION. SPECIAL "NO PARKING" SIGN SHALL BE PLACED ON FIRST BARRICADE FOLLOWING SPACE PROVIDED FOR ACCESS.
3. BARRICADES MAY BE PLACED ON PAVEMENT OR ON SIDEWALK AT THE DISCRETION OF THE ENGINEER. "NO PARKING" SIGNS PLACED ON SIDEWALKS SHALL NOT BE SET AT AN ANGLE NO GREATER THAN 30 DEGREES WITH THE LINE OF TRAFFIC FLOW TO BE VISIBLE TO APPROACHING TRAFFIC. A MINIMUM OF 36" CLEAR SPACE ON SIDEWALK SHALL BE MAINTAINED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT WHEN BARRICADES ARE PLACED ON SIDEWALKS.
4. "NO PARKING" SIGNS AND BARRICADES SHOULD BE PLACED IN AREA OF REHABILITATION AT LEAST 72 HOURS IN ADVANCE OF WORK BEGINNING. NOTIFICATION OF PERSONS AFFECTED BY STREET WORK SHALL BE PERFORMED AS REQUIRED BY RESPECTIVE ENTITY AND NEVADA REVISED STATUTES.
5. ALL BARRICADES AND "NO PARKING" SIGNS SHALL BE REMOVED AS SOON AS IMPROVED SURFACE IS READY FOR TRAFFIC AS DETERMINED BY THE ENGINEER.
GENERAL NOTES:

1. RETRO-REFLECTIVE SIGN SHEETING SHALL CONFORM TO SECTION 716, LATEST REVISION, OF THE UNIFORM STANDARD SPECIFICATIONS.
2. SIGN LEGENDS AND BORDERS SHALL COMPLY WITH THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
3. SIGNS SHALL BE MOUNTED IN CONFORMANCE WITH PART 6, MUTCD, LATEST EDITION.
4. THE "DOUBLE PENALTIES IN WORK ZONE" SIGN SHOULD BE MOUNTED WITH THE FIRST SIGN IN THE ADVANCE WARNING SIGN SERIES, TYPICALLY THE "ROAD WORK AHEAD" SIGN.
5. "END WORK ZONE" SIGN SHALL BE MOUNTED AT THE END OF THE WORK ZONE WITH THE "END DOUBLE PENALTIES" SIGN IF APPLICABLE ON THE SAME DEVICE OR POST.
6. THE DESIGNATION OF WORK ONE, INCLUDING MARKING OF THE DOUBLE PENALTIES, SHALL NOT BE REQUIRED ON STREETS POSTED AT 25 MILES PER HOUR OR LESS AND ARE ACCESS TO OR APPURTENANT TO A RESIDENTIAL AREA.

TYPICAL SIGN PLACEMENT NOTES:

1. FOR DIMENSIONS "A", "B", AND "C", SEE THE CURRENT MUTCD TABLE C-1 "Recommended Advance Warning Sign Minimum Spacing."
2. FOR DIMENSION "A", SEE THE CURRENT MUTCD TABLE C-3, C-4.
3. SIGNS MAY BE OMITTED IN THE DIRECTION WORK IS NOT BEING CONDUCTED IF THE ROADWAY IS PHYSICALLY SEPARATED BY A RAISED MEDIAN OR BARRIER WALL THROUGH THE COMPLETE WORK ZONE.

TYPICAL APPLICATION FOR STANDARD FOR "DOUBLE PENALTIES" SIGNS FOR USE IN TEMPORARY TRAFFIC CONTROL ZONES
PROPOSED

EXISTING

T

S

S

STANDARD SYMBOLS FOR
TRAFFIC SIGNAL DRAWINGS

PULL BOX

SIGNAL LUMINAIRE POLE, POST

UTILITY POLE

CONTROL CABINET

CONDUIT RUN

AERIAL CABLE

DETECTOR LOOP

PADMOUNT, ELECTRICAL SERVICE OR SPLICE BOX

FLUORESCENT LUMINAIRE

HIGH PRESSURE
SODIUM LUMINAIRE - 750 WATT

HIGH PRESSURE
SODIUM LUMINAIRE - 400 WATT

TRAFFIC SIGNAL INDICATION WITH BACKPLATE

TRAFFIC SIGNAL INDICATION WITH DIRECTIONAL
ARROW AND BACKPLATE

PEDESTRIAN INDICATION AND DIRECTION

HAZARD BEACON, ONE WAY

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STANDARD SYMBOLS FOR
TRAFFIC SIGNAL DRAWINGS

AGENCY APPROVED

B

C

H

L

M

N

DATE 12-12-96

DWG. NO. 701

SHEET 1 OF 2
- Street Name Sign Internally Illuminated
- Curb Flasher
- Vehicle Movement (Stopped)
- Vehicle Movement (Moving)
- Conduit Run Number
- Pedestrian Movement
- Traffic Signal on Mast Arm
- Traffic Signal and Luminaire on Mast Arms
- Pedestrian Push Button Indicating Direction of Control
- Traffic Signal with All Colors Louvered
- School Flasher
- 5 Section Signal Head with Directional Arrow and Backplate
- Priority Vehicle Preemption Optical Detector (Opticom or Approved Equal)
QUADRANT

ARM OR SIGNAL LOCATION
(TOP VIEW)

NOTE: QUADRANT IS IN RELATION WITH SHEET - NOT WITH NORTH ARROW
SECTION 704

BASE AGGREGATES

SCOPE

704.01.01 MATERIALS COVERED
A. This specification covers the quality and size of mineral materials used in base courses, trench backfill, or other construction locations.
B. The term Source shall mean any of the following:
   1. A permanent commercial location.
   2. Contractor manufactured material either commercial or on-site.

704.01.02 REFERENCE CODES AND STANDARDS:
A. Related Interagency Quality Assurance Committee (IQAC) procedures at:
   (IQAC website)

REQUIREMENTS

704.02.01 GENERAL
A. The mineral aggregate shall be the crushed and screened product from approved aggregate deposits, except that Type I aggregate base need not be crushed. The Engineer reserves the right to prohibit the use of aggregates from any source when:
   1. The character of the material is such, in the opinion of the Engineer, as to make improbable the furnishing of aggregates conforming to the requirements of these specifications.
   2. The character of the material is such, in the opinion of the Engineer, that undue additional costs may be accrued by the Contracting Agency.
B. The mineral aggregate shall be clean, hard, durable, free from any frozen lumps, deleterious matter, and harmful adherent coatings. Crushed Portland cement concrete and asphaltic concrete pavement will be permitted, subject to the requirements of these specifications. No materials subject to regulation as hazardous wastes as defined in the Nevada Administrative Code 444.8565 shall be allowed.
C. The mineral aggregate used in the production of aggregate base shall be from a known in situ aggregate deposit located at the production location or at a designated source site.

704.02.02 IQAC SOURCE QUALIFICATION
A. For expediting of material source and type approvals, a listing of qualified materials has been provided on the IQAC website.
B. Any listed material is considered qualified for use without a material testing submittal. However, this does not relieve the Contractor of project testing of the material as required in these specifications.
C. The IQAC posted materials indicated in Table 1 are subject to reapproval annually or as specified in Table 1 for continued posting on the IQAC website. The procedure is annotated in Subsection 704.04.02, "IQAC Annual Material Prequalification."

<table>
<thead>
<tr>
<th>Table 1 – IQAC Materials Qualification Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type II Aggregate Base</td>
</tr>
<tr>
<td>Type II Controlled Low Strength Material (CLSM)</td>
</tr>
<tr>
<td>Type II w/ 30% Recycled Asphalt</td>
</tr>
<tr>
<td>Type II w/ 50% Recycled Concrete</td>
</tr>
<tr>
<td>Type II w/ 100% Recycled Materials*</td>
</tr>
</tbody>
</table>

*This includes materials made with imported native materials

704.02.03 DEFICIENCIES

A. If the product of a deposit is deficient in material passing the No. 16 sieve, filler from other approved deposits may be added at the crushing and screening plants. This is not to be construed as a waiver of any of the requirements contained herein.

PHYSICAL PROPERTIES AND TESTS

704.03.01 PLASTIC LIMITS

A. When specified, aggregates shall conform to the applicable requirements of the following table:

<table>
<thead>
<tr>
<th>Table 3 – Plastic Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage by Weight Passing 200 Sieve</td>
</tr>
<tr>
<td>0.1 to 3.0</td>
</tr>
<tr>
<td>3.1 to 4.0</td>
</tr>
<tr>
<td>4.1 to 5.0</td>
</tr>
<tr>
<td>5.1 to 8.0</td>
</tr>
<tr>
<td>8.1 to 11.0</td>
</tr>
<tr>
<td>11.1 to 15.0</td>
</tr>
</tbody>
</table>

704.03.02 DRAIN BACKFILL

A. This aggregate shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Table 4 – Drain Rock Gradation Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Sizes</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>3-Inch</td>
</tr>
<tr>
<td>2-Inch</td>
</tr>
<tr>
<td>1-1/2-Inch</td>
</tr>
<tr>
<td>3/4-Inch</td>
</tr>
<tr>
<td>1/2-Inch</td>
</tr>
<tr>
<td>3/8-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 8</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>
B. Unless otherwise specified in the contract documents, the Contractor may use any of the sizes.

### Table 5 – Drain Backfill Durability Acceptance Limits

<table>
<thead>
<tr>
<th>Source Requirement Test</th>
<th>3-Inch Size</th>
<th>2-Inch Size</th>
<th>3/4-Inch Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>45% Maximum</td>
<td>45% Maximum</td>
<td>45% Maximum</td>
</tr>
</tbody>
</table>

#### 704.03.03 TYPE I AGGREGATE BASE

A. This aggregate shall conform to the following requirements:

### Table 6 – Type I Gradation Acceptance Limits

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage by Dry Weight Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-Inch Size</td>
</tr>
<tr>
<td>3-Inch</td>
<td>100</td>
</tr>
<tr>
<td>2-Inch</td>
<td>90-100</td>
</tr>
<tr>
<td>1-1/2-Inch</td>
<td>--</td>
</tr>
<tr>
<td>1-Inch</td>
<td>--</td>
</tr>
<tr>
<td>No. 4</td>
<td>30-65</td>
</tr>
<tr>
<td>No. 16</td>
<td>15-40</td>
</tr>
<tr>
<td>No. 200</td>
<td>2-12</td>
</tr>
</tbody>
</table>

### Table 7 – Type I Acceptance Limits

<table>
<thead>
<tr>
<th>Project Control Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 6</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated</td>
<td>AASHTO T2</td>
<td>--</td>
</tr>
<tr>
<td>Conveyor stream or belt cut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>AASHTO T90</td>
<td>Table 3</td>
</tr>
<tr>
<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>35 Maximum</td>
</tr>
<tr>
<td>Resistance (R Value)</td>
<td>ASTM D2844</td>
<td>60 Minimum</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td>45% Maximum</td>
</tr>
</tbody>
</table>

#### 704.03.04 TYPE II AGGREGATE BASE

A. This aggregate shall conform to the following requirements:

### Table 8 – Type II Gradation Acceptance Limits

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage by Dry Weight Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Inch</td>
<td>100</td>
</tr>
<tr>
<td>3/4-Inch</td>
<td>90-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>35-65</td>
</tr>
<tr>
<td>No. 16</td>
<td>15-40</td>
</tr>
<tr>
<td>No. 200</td>
<td>2-10</td>
</tr>
</tbody>
</table>

---

1 Sampling from a stockpile permitted only after approval of the Engineer; the conveyor device shall be calibrated every 3 months and record attached to sample document.

2 Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
<table>
<thead>
<tr>
<th>Quality Control Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 8</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated</td>
<td>AASHTO T2</td>
<td>--</td>
</tr>
<tr>
<td>Convoyer stream or belt cut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fractured Faces</td>
<td>Nev. T230</td>
<td>70% Minimum</td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>AASHTO T90</td>
<td></td>
</tr>
<tr>
<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>35 Maximum</td>
</tr>
<tr>
<td>Resistance (R Value) or resilient modulus</td>
<td>ASTM D2844</td>
<td>78 Minimum for road base</td>
</tr>
<tr>
<td>or Liquid Limit</td>
<td>AASHTO T307</td>
<td>35,000 psi minimum for road base</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td>45% Maximum</td>
</tr>
<tr>
<td>Total Available Water Soluble Sulfates</td>
<td>ASTM D2791</td>
<td>Less than 0.3% by dry weight of soil</td>
</tr>
<tr>
<td></td>
<td>AWWA 4550 E</td>
<td></td>
</tr>
</tbody>
</table>

B. Type II Plantmix Aggregate as specified in Subsection 705.03.01, "Plantmix and Roadmix Bituminous Base and Surface Aggregate, Types Two Fine and Coarse and Three," may be used in lieu of Type II Base Aggregate as specified above.

704.03.05 TYPE III AGGREGATE

A. The soluble sulfate content shall not exceed 0.3 percent by dry weight of soil. The mineral shall be clean, hard, durable, free from any frozen lumps, deleterious matter, and harmful coatings. In addition thereto, the material shall conform to the gradation requirements of Type II aggregate base in accordance with Subsection 704.03.04, "Type II Aggregate Base," with the following property testing:

<table>
<thead>
<tr>
<th>Quality Control Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 8</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated</td>
<td>AASHTO T2</td>
<td>--</td>
</tr>
<tr>
<td>Convoyer stream or belt cut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>AASHTO T90</td>
<td></td>
</tr>
<tr>
<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>35 Maximum</td>
</tr>
<tr>
<td>No. 200 Sieve</td>
<td>AASHTO T27</td>
<td>2-15%</td>
</tr>
<tr>
<td>Total Available Water Soluble Sulfates</td>
<td>AWWA 3500-NaD</td>
<td>Less than 0.3% by dry weight of soil</td>
</tr>
<tr>
<td></td>
<td>AWWA 4550 E</td>
<td></td>
</tr>
</tbody>
</table>

704.03.06 CRUSHED ROCK

A. Crushed rock shall be the product from approved aggregate deposits and shall only be used as directed by the Contracting Agency. The mineral aggregate shall be clean, hard,
durable, free from any frozen lumps, deleterious matter, and harmful coatings. In addition thereto, the material shall conform to the following gradation requirements:

<table>
<thead>
<tr>
<th>Table 11 – Crushed Rock Gradation Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Sizes</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>3/8-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 12 – Crushed Rock Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Control Test</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Sieve Analysis</td>
</tr>
<tr>
<td>Sampling Aggregate From Calibrated Conveyor stream of belt cut⁹</td>
</tr>
<tr>
<td>Fractured Faces</td>
</tr>
<tr>
<td>Plasticity Index</td>
</tr>
<tr>
<td>Liquid Limit</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
</tr>
<tr>
<td>Total Available Water Soluble Sulfates¹¹</td>
</tr>
</tbody>
</table>

704.03.07 CONTROLLED LOW STRENGTH MATERIAL (CLSM)

A. CLSM shall consist of a low-strength, self-leveling concrete material composed of various combinations of cement, fly ash, aggregate, water, and chemical admixtures. CLSM shall have a design compressive strength at an age of 28 days within the ranges required below for the specified class:

1. Class I - (50 to 150 psi): Specified where the maximum strength is of primary concern due to the desire to have material that can be excavated in the future with relative ease.

2. Class II – (100 to 300 psi): Specified where the minimum strength is of primary concern for pipe support.

3. Class Special (as shown in project specifications or drawings): Specified where project unique criteria, such as erosion control, are the primary concern.

4. Class I and Class II CLSM:
   a. The mix shall result in a product having a slump in the range of 6 to 10 inches at the time of placement in the pipe zone. Above the pipe zone, a lesser slump is acceptable.
   b. The Source of Contractor shall submit a mix design for approval by the Engineer prior to placement.

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⁹ Sampling from a stockpile permitted only after approval of the Engineer; the conveyor device shall be calibrated every 3 months and record attached to sample document.
¹⁰ Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
¹¹ Required only for placement around waterline pipe.
c. The mix design shall be supported by laboratory test data verifying the potential of the mix to comply with the requirements for these specifications.

5. Class III – Bonded Aggregate Fill (BAF) (50 to 150 psi): Specified where the maximum strength is of primary concern due to the desire to have material that can be excavated in the future with relative ease, and where reduced concrete cure time is desired.

B. CLSM Class I and Class II shall be proportioned in general compliance with the methods outlined in ACI 211.1-91, "Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete." The product shall be proportioned and mixed in a central plant or mobile mixer. The following materials shall be used:

1. Cement shall meet the requirements of Section 701, "Hydraulic Cement." Type V cement shall be used unless otherwise specified.

2. Fly ash shall meet the requirements of Section 729, "Fly Ash." Fly ash not meeting the requirements of Section 729, "Fly Ash," may be used if prior testing indicates to the satisfaction of the Engineer the ability of the CLSM with this fly ash to meet these specifications.

3. Water shall meet the requirements of Section 722, "Water."

4. Aggregates shall have 100 percent by total weight passing the 1 inch screen and no less than 6 percent passing the No. 200 sieve. The aggregate shall have a maximum Plastic Index of 6.

5. Chemical admixtures shall meet the requirements of Subsection 702.03.02, "Air-Entraining Admixtures," and Subsection 702.03.03, "Admixtures Other Than Air-Entraining."
   a. Other admixtures specifically approved for CLSM may be used.
   b. All materials proportions shall be measured and the CLSM mixed in accordance with Section 501, "Portland Cement Concrete."
   c. Other proportion measuring and CLSM mixing systems are acceptable, if control can be demonstrated to be satisfactory to the Engineer.
   d. These other methods include continuous feed, volumetric measurement of proportions, and pug mill and continuous mixing plants.

C. If the CLSM Class I and Class II mixes do not produce a flowable consistency or exhibits excessive bleeding, the mix shall be adjusted.

1. Excessive bleeding is considered to occur when water flows from the CLSM in a manner that causes disturbance or displacement of the exposed surface of the CLSM.

2. Mix adjustments shall include, but not be limited to: aggregate gradation, cementitious material content, admixtures, water content, or a combination of adjustments.

D. The testing procedures of CLSM Class I, Class II, and Class III (BAF) for acceptance testing and mix design approval by the IQAC, or if required in the contract special provisions shall be as follows:

1. The material Source, which may be the Contractor, shall be sampled for acceptance or compliance testing in accordance with the requirements of ASTM D5971. Specimen molds shall be cast using ASTM D4832 "Standard Test Method for
Preparation and Testing of Controlled Low Strength Material (CLSM Test Cylinders).”
Modify ASTM D4832 as described below:

a. Section 6.0 (Apparatus) of ASTM D4832 as follows:
   1) Section 6.1 – Test cylinders shall be constructed in molds made of masonry molds (single use) with three cells in each mold. Each cell should be approximately 4–inches in diameter and approximately 7-½ inches tall.
   2) Section 6.1.1 – Take care when extracting the test cylinders from the molds. To aid in extracting undamaged test cylinders, wrap the masonry mold in duct tape and gently crack the mold vertically along each cell prior to casting. This should allow for an undamaged specimen when the duct tape is removed, as the mold should fall away from the specimens.
   3) Section 6.3 – Storage Container - Protect test cylinders from direct sunlight and freezing temperatures. Samples are to be left in field for 4 days before transporting to the laboratory.
   4) Replace section 6.6 – Curing Environment - Store test cylinders in an air bath between 60° to 80°F. Generally, laboratory room temperature will be sufficient for this requirement.

b. Modify Section 9.0 (CLSM Cylinder Molding and Curing) of ASTM D4832 as follows:
   1) Delete Section 9.2.2.1.
   2) Change 9.3.2 to: Store test cylinders in conditions replicating, as closely as possible, the conditions of the construction. However, continue to protect cylinders from direct sunlight and freezing.
   3) Change 9.3.3 to: On the fourth day, carefully transport test cylinders to the laboratory. Place them in the curing environment.
   4) Change 9.3.4 to: If test cylinders cannot be moved on the fourth day, they shall remain in their original location until such time as they can be moved, but, in no case longer than 13 days from date of cast.

c. Replace Section 10 (Capping the Cylinders) of ASTM D4832 with the following:
   1) Capping shall be gypsum plaster in accordance with ASTM C617. The use of elastomeric pads will not be accepted.
   2) For each set of three test cylinders, test one 14-day and two 28-day for compressive strength.

d. Add the following to Section 11 of ASTM D4832 (Compressive Strength Testing):
   1) Compression testing should be performed on a load frame rather than a concrete compression test apparatus.
   2) Report the compressive strength to the nearest 5 psi.
3) Correct the strength when the Length to Diameter ratio is equal to 1.74 or less by applying the corrections found in ASTM C39 or ASTM C42. Do not correct the strength if correction is less than 5 psi.

2. The cast specimens shall cure in an air bath between 60° and 80° degrees F. Generally, laboratory room temperature will be sufficient for this requirement.

3. Compressive strength testing shall be performed in accordance with ASTM D4832 with samples from each set at the ages of 14 and 28 days.

4. A report of the results shall be submitted to the Engineer.

E. Class Special: The compressive strength testing procedures shall be as specified in the project specifications or on the project drawings.

F. Class III - Bonded Aggregate Fill (BAF):

1. The material Source shall have it designed under the responsible charge of a Nevada PE, and the mix shall consist of a gap-graded 1/2-inch maximum size crushed gravel. The cementitious material shall be Type V cement and/or fly ash and water for a flowable type consistency.

2. The material shall be plant mixed and placed from a truck or may be placed directly from a continuous feed mobile mixer approved by the Engineer.

3. Due to the gap-graded nature of the material, it shall not be used where groundwater is present unless wrapped in an approved geotechnical filter fabric, and in all trench installations shall conform to Subsection 208.03.16, "Drain Backfill."

4. Prepare and test concrete cylinders to evaluate the compressive strength of the BAF as described in Item D of this subsection. In addition, BAF requires a visual inspection that shall be documented in a report to the Engineer summarizing the inspection to be performed as follows:
   a. After the first batch is placed and initially cured, excavate to the bottom of the pipe or structure.
   b. If a self-supporting vertical face is maintained, the material is functioning properly.

704.03.08 AGGREGATE FOR PORTLAND CEMENT TREATED BASE

A. This aggregate shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Table 13 – Portland Cement Treated Base Gradation Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sieve Sizes</strong></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>3-Inch</td>
</tr>
<tr>
<td>2-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>
Table 14 – Portland Cement Treated Base Acceptance Limits

<table>
<thead>
<tr>
<th>Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 13</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated</td>
<td>AASHTO T2</td>
<td>1/1000 Tons per day or portion thereof</td>
</tr>
<tr>
<td>Conveyor stream or belt cut¹²</td>
<td>AASHTO T96</td>
<td>45% Maximum</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td></td>
</tr>
</tbody>
</table>

**B. Aggregate for cement or lime treated bases will be sampled as follows:**

1. Where the material is being mixed at a stationary plant, samples will be taken from the conveyors just prior to delivery to the mixer and prior to adding lime or cement.

2. Where material is being mixed on the roadbed, samples will be taken after the material has been placed on the roadbed and processed and prior to adding cement or lime.

**704.03.09 SHOULDERING MATERIAL**

**A.** This aggregate shall conform to the following requirements:

Table 15 – Shouldering Material Acceptance Limits

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage by Dry Weight Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Inch</td>
<td>100</td>
</tr>
<tr>
<td>3/4-Inch</td>
<td>90-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>35-65</td>
</tr>
<tr>
<td>No. 16</td>
<td>15-40</td>
</tr>
<tr>
<td>No. 200</td>
<td>2-6</td>
</tr>
</tbody>
</table>

**704.03.10 AGGREGATE BASE MATERIAL WITH RECYCLED ASPHALT PAVEMENT (RAP) AND CONCRETE**

**A.** The use of recycled asphalt pavement or recycled concrete for Type II Aggregate Base is permitted with the following requirements:

1. The material must conform to the requirements of [Subsection 704.03.04 “Type II Aggregate Base”](#).

2. The maximum ratio of crushed concrete to Type II Aggregate Base is 50%. Recycled materials must be substantially free of foreign matter including but not limited to asphalt, base, dirt, reinforcing steel, and have at most 1.5% deleterious material.

3. The maximum ratio of the crushed recycled asphalt concrete pavement (RAP) to Type II Aggregate Base is 30%. The mean oil content shall be 1.2% with a +0.3% tolerance. The Total Oil Content of the blended material (virgin aggregate and RAP) shall not exceed 1.5%.

**B.** The maximum qualification period is six (6) months for aggregate base materials blended with recycled aggregates. The entire qualification process must be completed prior to the first day of April and the first day of October of each calendar year. The report format, as outlined in [Subsection 704.04.06 “Report Format”](#) shall include the sieve analysis for

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¹² Sampling from a stockpile permitted only after approval of the Engineer. The conveyor device shall be calibrated every 3 months and record attached to sample document.
RAP or recycled concrete stockpile, Blended aggregated, the RAP binder content and blended binder content.

**704.03.11 100% RECYCLED AGGREGATE BASE MATERIAL**

A. 100% Recycled Aggregate Base shall be composed of a combination of imported materials including native soil and rock, concrete, RAP. The individual components of the aggregate base shall comply with the following percentages:

1. Minimum of 50% imported native soil and/or rock
2. Maximum of 50% recycled concrete
3. Maximum of 30% RAP
4. Maximum of 5% Recycled concrete roof tiles and CMU blocks.

B. The use of recycled asphalt pavement and/or recycled concrete components for 100% Recycled Aggregate Base shall comply with the following requirements:

1. The maximum ratio of crushed concrete must be substantially free of foreign matter including but not limited to asphalt, base, dirt, reinforcing steel, and have at most 1.5% deleterious material.
2. The total oil content of type II produced with recycled asphalt concrete shall not exceed 1.5% oil by weight.

C. Import sources shall be identified for individual stockpiles of 100% Recycled Aggregate Base. They shall comply with the following requirements.

1. For individual stockpiles of 100% Recycled Aggregate Base, the native source(s) shall have consistent gradations, chemical properties, physical properties, and shall be of a similar soil classification.

D. The maximum qualification period is three (3) months for 100% Recycled Aggregate Base. The entire qualification process must be completed prior to the first day of February, April, July, and October of each calendar year. The report format, as outlined in Subsection 704.04.06 “Report Format”, shall include the sieve analysis for RAP or recycled concrete stockpile, blended aggregated, the RAP binder content and blended binder content. The report will need to identify the source(s) of the native soil and/or rock. Sites are allowed 1 to 4 different stock piles of recycled material. Each individual stockpile will require its own listing on the IQAC website.

**SOURCE QUALITY CONTROL TESTING**

**704.04.01 GENERAL**

A. There are 3 testing aspects to Source material acceptance and quality control.

1. Testing by the Source for submittal posting on the IQAC website of qualified materials.
2. Source Quality Control Testing required to ensure consistent material production.
3. Contractor project quality control Source testing for non-qualified materials.

B. The acceptance of the Source material shall be at the production plant while the acceptance of the Contractor-placed material is at the project site.
C. Any laboratory submitting to an agency shall be R-18 AASHTO accredited in the appropriate test method in accordance with Table 16, "Source Quality Control Testing Requirements," where applicable and testing reviewed and stamped by a Nevada professional engineer who has responsible charge of the work. The use of a professional engineer by the Source could be the Source staff engineer or third party, but the professional engineer must have responsible charge of the testing and/or inspection.

704.04.02 IQAC ANNUAL MATERIAL PREQUALIFICATION
A. Each individual location or "pit" shall be referred to as a "Source." The responsibility for testing and inspection is the material Source. Material shall be tested, inspected, and certified in accordance with Table 16 "Source Quality Control Testing Requirements." The Source shall submit to the IQAC agency engineer assigned for that Source. The reviewing agency is listed on the IQAC website page next to the Source material.
B. Test data shall be included with the certifying document.
C. The maximum qualification period is 1 year for 100% native material, 6 months for virgin aggregate blended with crushed concrete or RAP, or 3 months for 100% recycled aggregate base. The entire qualification process shall be completed in accordance with the sections above prior to the first day of April, or for virgin aggregates blended with crushed concrete or RAP, the first day of April and the first day of October of each year and in the case of 100% recycled aggregate base, prior to the first day of February, April, July, and October of each calendar year. This includes, but is not limited to, submittal, agency review, all required retesting, and qualification from the IQAC member.

704.04.03 MATERIAL TOLERANCES AND PROHIBITED MATERIALS
A. Materials shall comply with the following tolerances and import sources shall be free of any contaminants as listed below.
   1. The allowed variance in the material proctor value and optimum moisture content, is ±3 PCF and ±2% respectively
   2. Unsuitable import materials/contaminants
      a. Gypsum
      b. Lightweight Concrete
      c. Plastics
      d. Organic materials
      e. Building materials including: clay roof tiles, shingles, pipe, electrical wire, or other materials that would be detrimental to the durability of the aggregate base.

704.04.04 NON-PREQUALIFIED MATERIALS
A. If the material is not posted on the IQAC web page, the Source may elect to submit non-prequalified material to the Engineer for approval prior to use that complies with the above noted specification and shall have been tested within 60 days of the intended use.

704.04.05 SUBMITTAL
A. All tests specified in this section shall be performed.
1. The report(s) shall include any graphical representation of plotted data such as the R-value and the Proctor value(s) along with the pit name and location.

2. The most current ASTM, AASHTO, NDOT, and AWWA methods shall be used when performing the tests.

B. All samples shall be "cut" from the "belt." When circumstances do not allow for sampling during production, the Source shall coordinate with the Engineer to identify an alternative plan for sampling.

C. IQAC Annual Submittal

1. For the purposes of IQAC submittal, the Engineer is the IQAC reviewing agency as noted on the IQAC web page.

2. For the annual submittal by the supplier, the material to be approved for use as aggregate shall be obtained and "split" by an AASHTO accredited laboratory with the Engineer present at the time the sample is obtained with the sample large enough for a full suite of testing for the Source and Engineer.

3. The Engineer shall be notified a minimum of 48 hours prior to obtaining the sample.

4. If the Engineer is not present during the sampling of the material, the results for that sample will not be accepted.

5. Sampling shall be performed during normal working hours for the Engineer.

6. If the Source laboratory results are in compliance with the above noted specifications, Source shall submit the test report to the Engineer within 21 days of sampling requesting the review and approval of the materials for the proposed use of the material.

7. Notification by the Source of samples not in compliance with the above noted specifications is requested but not required. Samples without notification or a qualification submittal within the 21-day period will be assumed by the IQAC to be outside the above noted specifications.

8. The agency Engineer for a particular pit may accommodate minor adjustments for "tuning" of an operation. This courtesy shall not be extended during the qualification process.

D. Non-prequalified materials (materials not posted on the IQAC list)

1. The material to be approved for use as aggregate shall be obtained and "split" by an AASHTO accredited laboratory with the Engineer present at the time the sample is obtained with the sample large enough for a full suite of testing for the Source and Engineer.

   a. The Engineer shall be notified a minimum of 48 hours prior to obtaining the sample.

   b. If the Engineer is not present during the sampling of the material, the results for that sample will not be accepted.

   c. Sampling shall be performed during normal working hours for the Engineer.

   d. If the Source laboratory results are in compliance with the above noted specifications, the Source shall submit the test report to the Engineer within 21 days of sampling with a letter requesting the review and approval of the materials report for the proposed use of the material.
2. Notification by the Source of samples not in compliance with the above noted specifications is requested but not required.
   a. Samples without notification or a qualification submittal within the 21-day period will be assumed by the IQAC to be outside the above noted specifications.
   b. The Source shall submit the material test report to the Engineer no earlier than 60 days and no later than 14 days prior to use.

3. The qualification is for one project only.

704.04.06 REPORT FORMAT
A. The report shall be prepared and stamped by, or under the direction of, a professional engineer registered in the state of Nevada. The report shall be on the standard IQAC form and shall include the pit name and location. The report shall include the following:
   1. Recommendation by the Source Professional Engineer.
   2. The testing results in accordance with the appropriate Table 16, "Source Quality Control Testing Requirements," test methods and reporting requirements, along with any graphs and charts.

B. When "no exceptions" are taken, a conditional posting on the web site will be provided by the IQAC within 10 days of the receipt of the submittal.

C. Discrepancies between test results will be reviewed on a case-by-case basis. The Engineer will notify the aggregate producer of substantial test variations within 10 days of receipt of the qualification submittal.

704.04.07 SAMPLING AND TESTING
A. When the Contractor/Material Source or Engineer acquires aggregate samples at an aggregate production plant, the plant shall provide a calibrated mechanical means for obtaining samples.
   1. If a mechanical means is not provided, a belt cut from a stopped conveyor will be required.
   2. Any mechanical sampling device shall be approved by the Engineer prior to starting the respective phase of the project, or shall have been approved as part of a prior plant inspection by the Engineer or the Engineer's representative.
   3. The sampling device shall be so constructed to provide for simultaneous "cutting" of the entire section of material being discharged or conveyed, and so constructed that small representative samples may be taken frequently and these samples combined to form the complete sample.
   4. The reference method for the mechanical procedure shall be a "belt cut" sample taken from a stopped conveyor belt.
   5. Samples of the finished product of the plant shall be obtained prior to or as the material leaves the conveyor belt for the bin or stockpile.

13 The form is on the IQAC website, or use an Agency approved form.
B. Test results run from samples taken will be furnished to the Engineer by the Contractor or the Contractor's representative. The results of such tests shall not be the basis for final acceptance of the material.

C. Sampling for final acceptance of materials will be as required in the appropriate USS sections and in general shall comply with the AASHTO requirements, where applicable, and with any exception to the method(s) listed on the IQAC website.

**Table 16 – Source Quality Control Testing Requirements**

<table>
<thead>
<tr>
<th>Spec Section</th>
<th>Description</th>
<th>Item</th>
<th>Reference Specification and/or Test Procedure</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>704.03.02, 704.03.03, 704.03.04, 704.03.08</strong></td>
<td>Drain Rock, Type I, Type II Aggregate, Cement treated base</td>
<td>Submittal</td>
<td>IQAC and/or Agency Requirements</td>
<td>Annually for IQAC Source Approval OR per project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sampling from calibrated conveyor stream or belt cut</td>
<td>AASHTO T2</td>
<td>1/day at plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sieve Analysis</td>
<td>AASHTO T11 &amp; T27</td>
<td>1/day at plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td>Annually for Source Approval OR per project</td>
</tr>
<tr>
<td><strong>704.03.04, 704.03.05, 704.03.06</strong></td>
<td>Drain rock, Type II, and Type III aggregate around water pipe</td>
<td>Total Available Water Soluble Sulfates</td>
<td>AWWA 3500-NaD AWWA 4550 E</td>
<td>1/month at plant</td>
</tr>
<tr>
<td><strong>704.03.03, 704.03.04</strong></td>
<td>Type I and Type II Aggregate</td>
<td>Plasticity Index</td>
<td>AASHTO T90</td>
<td>1/day at plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>1/day at plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proctor</td>
<td>AASHTO T180</td>
<td>1/20,000 CY at source</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proctor 100% Recy.</td>
<td>AASHTO T180</td>
<td>1/5,000 CY at source</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resistance (R Value) or Resilient Modulus</td>
<td>ASTM D2844</td>
<td>Annually for IQAC Source Qualification OR per project</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AASHTO T307</td>
<td>Annually for IQAC Source Qualification OR per project</td>
</tr>
<tr>
<td><strong>704.03.07</strong></td>
<td>CLSM Class I, II, &amp; III</td>
<td>Mix Design</td>
<td><strong>USS 704.03.07</strong></td>
<td>Annually for IQAC Source Qualification OR per project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compressive Strength</td>
<td><strong>USS 208.02.07</strong> &amp; ASTM D4832</td>
<td>Annually for IQAC Source Qualification OR per project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CLSM Class III-BAF</td>
<td>Visual Inspection Report</td>
<td><strong>USS 208.02.07 Split cylinders</strong></td>
</tr>
</tbody>
</table>

14 Review the IQAC website for any exceptions to the listed test methods.
15 Required only for placement around waterline pipe.
16 Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
NOTES

1. THIS PULL BOX SHALL NOT BE USED IN TRAFFIC OR PARKING LANES.

2. ALL DIMENSIONS ARE NOMINAL.

3. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
NOTES
1. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
2. SEE DRAWING NO. 709 FOR COVER TO BE USED IN STREET AND UNDEVELOPED AREAS.
3. ALL DIMENSIONS ARE NOMINAL.

POLYMER SIDEWALK COVER MARKED "TRAFFIC SIGNAL"

PRECAST REINFORCED CONCRETE BODY

PRECAST REINFORCED CONCRETE EXTENSION. (MUST NOT BE USED UNLESS SPECIFIED.)

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

NO. 5 PULL BOX
POLYMER COVER MARKED "TRAFFIC SIGNAL" STEEL PULL BOX COVER, DRAWING NO. 709 IS PREFERRED FOR ALL USES, THIS PULL BOX ONLY.

PRECAST REINFORCED CONCRETE BODY

PRECAST REINFORCED CONCRETE EXTENSION (MUST NOT BE USED UNLESS SPECIFIED)

NOTES
1. THIS PULL BOX SHALL NOT BE USED IN TRAFFIC OR PARKING LANES.
2. SEE DRAWING NO. 709 FOR ALTERNATE COVER.
3. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

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</thead>
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|                         | NO. 7 PULL BOX |}

DATE 01-09-20

DWG. NO. 707
NOTE:

1. THIS PULL BOX SHALL BE USED IN VEHICLE TRAVEL AREAS.

AVAILABLE IN #3, #5, #7 SIZES (3 GAUGE STEEL)
1. THIS COVER TO BE USED IN STREET AREAS AND UNDEVELOPED AREAS ONLY.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.
4. GROUNDING OF STEEL PULL BOX COVERS IS NOT NECESSARY FOR PULL BOXES CONTAINING LOW VOLTAGE, POWER-LIMITED CONNECTIONS.
1. THIS COVER TO BE USED IN STREET AREAS AND UNDEVELOPED AREAS ONLY.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.
4. GROUNDING OF STEEL PULL BOX COVERS IS NOT NECESSARY FOR PULL BOXES CONTAINING LOW VOLTAGE, POWER-LIMITED CONNECTIONS.

NOTE:
- BOX "L" BOLTS LOCATE TO MATCH PULL BOX "L" BOLTS
- ACCESS HOLE TO PULL BOX "L" BOLTS
- STEEL FLOOR PLATE, 3/8" THICK, ROUND CORNERS TO MATCH EDGES OF PULL BOX
- FINISHED GRADE
- 2-1/4" TYP.
- 1/4" TYP.
- 2-1/4" TYP.
- 2-1/4" TYP.
- 30-1/2"
- 15-1/4"
- 6-5/8"
- 8-1/4"
- 3/8" COARSE THREAD TAP, CENTERED BETWEEN RIBS. FOR COVER GROUND CONNECTION SEE SHEET 2 OF THIS DRAWING NO.
TRAFFIC SIGNAL

PULL BOX COVER - TOP VIEW

PULL BOX COVER - SIDE VIEW

FINISHED GRADE

ELECTRICAL TAPE (COMPRESSION WATERPROOF WITH RUBBER AND BRONZE SPLIT-BOLT CONNECTOR)
PVC CONDUIT

SIDEWALK

#4 THW

#8 GREEN THWN

PULL BOX

1-3/4" 2-1/2"

NOTES:

1. PULL BOX LID SHOULD BE TAPPED WITH A 3/8" X 16 COURSE THREAD TAP.
2. FOR TYPICAL NO. 7 PULL BOX COVER GROUNDING, SEE SHEET 1 OF THIS DRAWING NO.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PULL BOX COVER
BONDING DETAIL

DATE 12-12-96

DWG. NO. 709

SHEET 2 OF 2
PULL BOX COVER

PULL BOX

NATIVE MATERIAL OR SAND AS REQUIRED BY THE ENGINEER COMPACTED TO 90%

CROSS SECTION

CONDUIT

12"

TOP VIEW

2"

3"
1. P30 PULL BOXES SHALL BE INSTALLED FOR THE SIGNAL ITS COMMUNICATIONS PER APPLICABLE STANDARDS.
2. PULL BOX COVER SHALL BE INSCRIBED "FIBER OPTIC".
3. LOCATIONS OF THE PROPOSED P30 ITS COMMUNICATION PULL BOXES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATIONS IN THE FIELD AT APPROXIMATELY 500 FEET INTERVALS. THESE LOCATIONS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER BEFORE INSTALLATION.
4. DETAIL SHOWS METHOD OF INSTALLATION WHEN FIBER OPTIC CABLE IS REQUIRED.
5. CONDUIT SIZES SHALL BE PER UNIFORM STANDARD SPECIFICATIONS, SECTION 23.
6. ALL CONDUITS SHALL HAVE A CONTINUOUS RUN OF PAIR PE39 : 22 AWG INTERCONNECT CABLE.
7. UNDERGROUND ORANGE MARKING TAPE SHALL BE PLACED 12 INCHES ABOVE THE INSTALLED CONDUIT AND MARKED WITH THE LEGEND "FIBER OPTIC".

---

### PULL BOX CONCRETE COLLAR
### IN UNDEVELOPED AREAS

**NOTES:**

- All around 3"
- Grade 6"
- #4 Rebar 2" min. 4" max. from edge of box
- Concrete collar 1" min.
- 12" min. tied lap concrete collar
- #4 rebar 2" min. 4" max.

---

**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**PULL BOX CONCRETE COLLAR**

**IN UNDEVELOPED AREAS**

---

**DATE** 3-13-08  **DWG. NO.** 711
**Type "A" Foundation**

- **2" Conduit**
- **24" Dia. Concrete Base or 18" Square Concrete Base**
- **Use Template Provided by Mfr.**
- **No. 4 AWG Seven (7) Strand Bare Copper Grounding Wire 3' Above Foundation. Connect Grounding Wire to Grounding Point.**
- **Conduit to Extend 7" Above Top of the Anchor Bolts**
- **1" Non-Shrink Grout Between Pole Base and Sidewalk**
- **5/8" x 12" HOT-DIP GALVANIZED ANCHOR BOLTS**
- **Bronze Grounding Connector UL Listed for Underground Use (One Per Bolt)**
- **See Note 1**

**Notes:**

1. Continuous Bare Copper Grounding Wire Shall Be Looped Around Anchor Bolts One Time and Connected to Each Anchor Bolt Before Continuing Down to the Grounding Plate.
NOTE:
1. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.
NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

NOTE:
1. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

SPECIFICATION REFERENCE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "C" FOUNDATION

DATE 07-01-15  DWG. NO.  717
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

ANCHOR BOLTS

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<tr>
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<td>1-1/8&quot; X 40&quot; X 4&quot;</td>
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<tr>
<td>3</td>
<td>1-1/4&quot; X 44&quot; X 4&quot;</td>
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BRONZE GROUNDING CONNECTOR
UL LISTED FOR UNDERGROUND USE
(ONE PER BOLT)
SEE NOTE 2

USE TEMPLATE PROVIDED BY MFR.

NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3' ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

CONDUIT TO EXTEND 1" ABOVE TOP OF THE ANCHOR BOLTS.

BASE OF POLE
1" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK
4" MIN.-7" MAX. CONCRETE CAP

2" CONDUIT

48" MIN.

2" MAX SLOPE

3" MESH HEIGHT

7" WIRE MESH 10 GA.

3" DIA. CONCRETE BASE

15# FELT (2 LAYERS)

STD. GROUNDING PLATE PER NEC 250.52 & 250.53

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

SPECIFICATION REFERENCE

501 PORTLAND CEMENT CONCRETE

23 TRAFFIC SIGNALS & STREETLIGHTING

CLARK COUNTY AREA

TYPE "E" FOUNDATION

DATE 07-01-15 DWG. NO. 718
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

3. VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.

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USE TEMPLATE PROVIDED BY MFR.

2" CONDUIT

BASE COVER

FINISH GRADE SEE NOTE 3

2" MAX SLOPE

NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3' ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

CONDUIT TO EXTEND 2" ABOVE TOP OF THE ANCHOR BOLTS.

BASE OF POLE

1" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK

4" MIN.-7" MAX. CONCRETE CAP

ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

1." FELT (2 LAYERS)

STD. GROUNDING PLATE PER NEC 250.52 & 250.53

3." DIA. CONCRETE BASE

WIRE MESH 10 GA.

2" CONDUIT

15" X 15" WIRE MESH 10 GA.

48" MIN.

3" MESH HEIGHT

2" CONDUIT

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

501 PORTLAND CEMENT CONCRETE

23 TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "F" FOUNDATION

DATE 07-01-15 DWG. NO. 719
1. Anchor bolts shall be hot-dip galvanized steel with nut and washer.

2. Continuous bare copper grounding wire shall be looped around anchor bolts one time connected to each anchor bolt before continuing down to the grounding plate.

3. Vertical adjustment required for poles inside access ramps.

Notes:

1. Anchor bolts shall be hot-dip galvanized steel with nut and washer.

2. Continuous bare copper grounding wire shall be looped around anchor bolts one time connected to each anchor bolt before continuing down to the grounding plate.

3. Vertical adjustment required for poles inside access ramps.

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**ANCHOR BOLTS**

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**Bronze Grounding Connector**

UL Listed for underground use (one per bolt)

See Note 2

---

**USE TEMPLATE PROVIDED BY MFR.**

**2" CONDUIT**

**BASE COVER**

**48" MIN.**

**FINISH GRADE**

See Note 3

**MAX SLOPE**

**2" CONDUIT**

**3/" MESH HEIGHT**

**1/" WIRE MESH**

**10 GA.**

**3/" DIA. CONCRETE BASE**

**1/" FELT (2 LAYERS)**

**STD. GROUNDING PLATE PER NEC 250.52 & 250.53**

**24" MIN.**

**5'-0"**

**6" X 6"**

**WIRE MESH**

**10 GA.**

**3'-6" MESH HEIGHT**

**7"**

**48" MIN.**

**NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.**

**CONDUIT TO EXTEND 1/" ABOVE TOP OF THE ANCHOR BOLTS BASE OF POLE**

**1/" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK**

**4" MIN. /" MAX. CONCRETE CAP**

**PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE**

**AGENCY APPROVED**

**B C H L M N**

**SPECIFICATION REFERENCE**

| 501 | PORTLAND CEMENT CONCRETE |
| 23  | TRAFFIC SIGNALS / STREETLIGHTING |

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**TYPE "G" FOUNDATION**

**DATE 07-01-15**

**DWG. NO. 720**
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

3. VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.
2. ANCHOR BOLT MINIMUM YIELD STRENGTH Fy = 50 KSI.
3. SURROUNDING SOIL MUST HAVE SOIL-BEARING PRESSURE S1 OF 1500 PSF.
4. WRAP 20:0 OF 4 AWG BARE COPPER GROUNDING WIRE AROUND ENTIRE CAGE. GROUNDING WIRE SHALL BE CONNECTED TO ONE ANCHOR BOLT NEAR TOP OF FOUNDATION AND CONTINUE DOWN AROUND CAGE AND CONNECT TO GROUNDING PLATE AT BOTTOM OF FOUNDATION.
5. STEEL WIRE SHALL BE USED TO TIE ALL BARS AND WIRE MESH FIRMLY TOGETHER. VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.

CONDUIT TO EXTEND 24" ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT. (SEE NOTE 4)

4 BAR 2"X2" SPACING, TOP 14" MIN.

BASE COVER

48" MIN.

NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3' ABOVE FOUNDATION.

CONNECT GROUNDING WIRE TO GROUNDING PLATE AT BOTTOM OF FOUNDATION AND CONTINUE DOWN AROUND CAGE AND CONNECT TO GROUNDING PLATE AT BOTTOM OF FOUNDATION.

ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

ANCHOR BOLT MINIMUM YIELD STRENGTH Fy = 50 KSI.

SURROUNDING SOIL MUST HAVE SOIL-BEARING PRESSURE S1 OF 1500 PSF.

WRAP 20:0 OF 4 AWG BARE COPPER GROUNDING WIRE AROUND ENTIRE CAGE. GROUNDING WIRE SHALL BE CONNECTED TO ONE ANCHOR BOLT NEAR TOP OF FOUNDATION AND CONTINUE DOWN AROUND CAGE AND CONNECT TO GROUNDING PLATE AT BOTTOM OF FOUNDATION.

STEEL WIRE SHALL BE USED TO TIE ALL BARS AND WIRE MESH FIRMLY TOGETHER. VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.
1. Anchor bolts shall be hot-dip galvanized steel with nut and washer.
2. Wrap 20' of #4 AWG bare copper grounding wire around entire cage. Grounding wire shall be connected to one anchor bolt near top of foundation and continue down around cage and connect to grounding plate at bottom of foundation.
3. Steel wire shall be used to tie all bars and spiral firmly together.
4. 28 day strength - 4000 PSI min. All reinforcing steel shall be ASTM A 615 GR. 60.
5. Maximum allowable overturning moment is 180 FT-KIPS.
6. Maximum allowable torsion is 220 FT-KIPS.
7. The foundation design shown assumes a non-cohesive soil with a minimum internal friction angle of 30 degrees. If actual soil conditions are lesser quality, the foundation should be designed for the specific site conditions.
8. Vertical adjustment required for poles inside access ramps.

No. 4 AWG single-strand bare copper grounding wire 3' above foundation. Connect grounding wire to grounding point. (See Note 4)

Conduit to extend 7' above top of the anchor bolts.
2-1/4" x 92" X 9" A307 Grade B bolts
Base of pole
1" non-shrink grout between pole base and sidewalk
4" min.-1" max. concrete cap

1/2" spirals at 3" pitch (steel wire)

For Type XX-B signal and luminaire poles, see standard drawing No. 810.

Agency approved

501 Portland cement concrete
23 Traffic signals & streetlighting

Type "M" Foundation
NOTES:
1. FOR CONDUIT SIZE, LOCATION AND QUANTITY, SEE PLANS.
2. ANCHOR BOLTS 3/4" X 18" X 3" SHALL BE HOT-DIP GALVANIZED COMMERCIAL GRADE STEEL WITH NUT AND WASHER.
3. ANCHOR BOLT PROJECTION ABOVE FOUNDATION SHALL BE 3-1/2" MIN., 4-1/2" MAX.
4. CONDUIT PROJECTION ABOVE FOUNDATION SHALL BE 2" MIN., 4" MAX.
5. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
NOTES

1. 3" OR 4" FIBER OR INTERCONNECT FROM TYPE 200 OR P-30 PULL BOX. REFER TO PLANS FOR INTERCONNECT/FIBER CONDUIT SIZE.
2. 2" CONDUIT FROM SERVICE PEDESTAL.
3. 3" CONDUITS FROM #7 TRAFFIC SIGNAL PULL BOX FOR SIGNAL POLES.
4. #4 SINGLE STRAND BARE COPPER WIRE SEE DRAWING 725 FOR DETAILS.
5. INSTALL CONDUITS 1" FRONT OF CENTER LINE.
   REFER TO PLANS FOR ANY ADDITIONAL CONDUITS.
NOTES

1. FOR CONDUIT SIZE, LOCATION, AND QUANTITY SEE PLANS REFER TO CONDUIT LAYOUT DRAWING # 725.1 FOR DETAILS.

2. 3/4" X 18" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS. LOCATE WITH TEMPLATE.

3. ANCHOR BOLT PROJECTION ABOVE FOUNDATION SHALL BE 3-1/2" MIN., 4-1/2" MAX.

4. CONDUIT PROJECTION ABOVE FOUNDATION SHALL BE 1" MIN., 4" MAX.

5. LOCATION OF FOUNDATION MUST BE APPROVED BY ENGINEER IN FIELD.

6. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE CONNECTED TO EACH ANCHOR BOLT WITH BRONZE GROUNDING CONNECTOR BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

2" PVC COND. TO BE ADDED IN EVERY FDN. FOR FUTURE USE. POINT TOWARDS INTERSECTION.

BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE (ONE PER BOLT) SEE NOTE.

24" MIN.

24" MIN.

30" MIN. TYPE "J" 40-3/4" 48"

30" MIN. TYPE "J"

15# FELT (2 LAYERS)

STD. GROUNDING PLATE PER NEC 250-83

6" OF #4 AWG SINGLE STRAND BARE COPPER GROUNDING WIRE ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

0" MIN. (EASEMENT MAY BE NECESSARY)

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
SERVICE PEDESTAL ENCLOSURE, 12 GA. SHEET METAL BODY AND EQUIPMENT MOUNTING PANEL, 14 GA. FRONT COVER(S) AND 1/16 GA. MIN. FOR ALL OTHER PANELS. ALL SHEET METAL SHALL BE FINISHED WITH INC CHROMATE PRIMER AND GREEN BAKED ENAMEL OR POWDER COAT FINISH. METERING SECTION PER P.U.E.S.E.R. STANDARDS.

UTILITY METER SECTION, 125 OR 200 AMP AS NEEDED, 120/240 VOLT, 1 PHASE, 3 WIRE. THE SECTION SHALL HAVE A HINGED COVER WITH PADLOCK TAB.

CIRCUIT BREAKER DISTRIBUTION SECTION, 125 OR 200 AMP AS NEEDED, 120/240 VOLT, 1 PHASE, 3 WIRE. THE SECTION SHALL BE COMPLETE WITH SEPARATE DEAD FRONT, COPPER BUSSING, SPACE FOR A MINIMUM OF TEN FULL SIZE 1" GE TYPE PLUG-IN CIRCUIT BREAKERS (EXCLUDING MAIN BREAKER), COPPER NEUTRAL/GROUNDING BUS AND MAIN BREAKER AS SPECIFIED BY THE ENGINEER. THE SECTION SHALL BE FACTORY WIRED TO THE METER SECTION WITH THE APPROPRIATE SIZE COPPER CONDUCTORS.

EQUIPMENT MOUNTING PANEL, 10" H X 12" W MIN., OPEN OR ENCLOSED, FOR LIGHTING CONTACTORS AS NEEDED.

DISTRIBUTION AND EQUIPMENT SECTION COVER WITH PADLOCK TAB.

BASE AND ENCLOSURE WIDTH (11" TYP.)
BASE DEPTH (11" TYP.)
ENCLOSURE DEPTH (17" TYP.)

TYPICAL MOUNTING BASE DETAIL
(DIMENSIONS MAY VARY DEPENDING ON MANUFACTURER)

SINGLE METER SERVICE PEDESTAL

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

CLARK COUNTY AREA

SINGLE METER SERVICE PEDESTAL

DATE 8-12-99

DWG. NO. 730
TO UTILITY SINGLE PHASE, 3 WIRE, 120/240 Vac Service. Leave a minimum of 10 feet slack in each conductor.

2-HOLE PIPE STRAPS spaced 5 feet apart

METER SOCKET (PER UTILITY'S REQUIREMENTS) FACE METER AWAY FROM TRAFFIC.

SINGLE PHASE, 3 WIRE, 120/240 Vac Circuit Breaker Load Center, MAIN LUGS ONLY. NEMA 3R (RAIN-TIGHT) ENCLOSURE WITH PADLOCKING PROVISIONS, AND A MINIMUM OF EIGHT (8) SINGLE SPACES. BUSING SHALL BE COPPER. FOR LOAD MAINS AMPERE RATING, AND/OR CIRCUIT BREAKER RATINGS, NUMBER OF POLES AND QUANTITY, SEE PLANS.

ENCLOSURE WITH PADLOCKING PROVISIONS, AND A MINIMUM OF EIGHT (8) SINGLE SPACES.

2" PVC CONDUIT TO TRAFFIC SIGNAL CONTROLLER CABINET (SEE PLANS FOR WIRE QUANTITY AND GAGES)

NOTES:

1. ALL WIRES TO BE COPPER; SEE PLANS FOR QUANTITY AND GAGES.

2. WITH ENGINEER'S APPROVAL, AN 8 FT. BY 5/8 IN. COPPER-CLAD GROUNDING ROD MAY BE USED.

3. ALL CONDUIT FITTINGS TO BE WATER-TIGHT.
INSTALLATION OF CONDUIT INTO PULL BOX FROM LIP OF GUTTER TRENCH

- 36" MIN. RADIUS - USE ONLY 20 MIL OR THICKER PVC COATED RIGID IRON CONDUIT FOR BEND AREA. SEE SPECIFICATIONS.
- EXCAVATE UNDER EXISTING CURB & GUTTER DO NOT REMOVE C & G.
- CONNECTOR
- CONTINUE CONDUIT RUN WITH A MINIMUM OF 5 FT. OF PVC COATED R.I.C. SEE CLARK COUNTY AREA SPECS.
- FILL WITH SAND AND COMPACT AS REQUIRED BY FIELD ENGINEER
- NOTE - DO NOT MAKE COMPOUND BENDS IN CONDUIT

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DATE  DWG. NO.  732
The contractor shall use PVC coated rigid iron conduit conforming to specifications.

Rigid iron conduit to PVC conduit connector.

B.C. radius varies.

PVC for continuation.

The typical conduit locations include:

- **Trench**
- **Curb & Gutter**
- **Trench**

**Notes (Retrofit)**:

1. Depth to match existing AC pavement, but not less than 4", placed in multiple lifts of equal thickness.
2. Patch width shall be sufficient to accommodate mechanical placement using agency approved spreader box or paving machine, rolling and compaction per uniform standard specification section 401.03.11.
3. If sawcut is within 3 feet of edge of existing asphalt concrete surface or other patch, remove existing pavement to that edge and replace entire section.
4. If 24" cover is not possible, then red concrete encasement min. 4" above conduit required.
5. Controlled low strength material (CLSM) may be installed to final grade for temporary patching.

**Permanent patch mix design shall be as required** by engineer.

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**TYPICAL CONDUIT LOCATIONS**

- **Rigid iron conduit to PVC conduit connector**
- **PVC for continuation**

**NEW CONSTRUCTION**

- **Lip of gutter for A/C pavement**
- **Back of curb for sidewalk**
- **Sidewalk or A/C pavement**
- **Backfill with controlled low strength material (CLSM)**
- **Sand backfill**
- **Conduit sand bedding**
- **Conduit retrofit (exist. pavement)**
- **A/C patch**
- **See notes 1 & 2**
- **Seal coat**
- **Existing curb and gutter**
- **4" min.**
- **9" typ.**
- **Recast**
- **Existing base material**
- **Backfill with controlled low strength material (CLSM)**
- **Sand backfill**
- **Conduit sand bedding**
- **24"**
- **2" min.**
- **2" min.**
- **2" min.**
- **9" min.**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**INSTALLATION OF CONDUIT**

**DATE** 5-17-01  **DWG. NO.**  733
NOTES:

1. CONSTRUCT FROM MINIMUM 12-GUAGE STEEL.

2. THE TIMER SHALL BE RTC-AP21 OR EQUIVALENT.

**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**FLASHING BEACON CONTROLLER CABINET**

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**DATE 12-12-96**

**DWG. NO. 741**
WIRING DIAGRAM FOR FLASHING BEACON
TIMER CONTROLLED OPERATION

NOTES:
1. All wiring inside the cabinet shall be #14 THW.
2. All field wire to the signal shall be #14 solid copper.
3. The service wire shall be 2-#4 THW & 1-#6 THW.
   Provide #10 pigtail for connection to breaker.
4. The timer shall be RTC-AP21 or equivalent.
5. Two pole solid state flasher.
6. There shall be a 1" minimum clearance between individual components.
7. All service points shall be as for street lighting.
8. Flashing pattern of lights to be specified by the entity.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

WIRING DIAGRAM FOR FLASHING BEACON
TIMER CONTROLLED OPERATION

DATE 12-12-96  DWG. NO.  742
1. All poles to be hot-dip galvanized by manufacturer or prime painted by manufacturer and finish painted by contractor per specifications and as required by the entity.

2. Low bidder must supply shop drawing for design approval before contract can be awarded.

3. For other details see drawing No. 808 SHTS. 2

4. Install a backfacing light on back of outermost light, indicating the speed limit message is in operation.

5. Handhole covers shall be mounted with tamper-resistant screws.

   - Multi-sided pole and mast arm with a minimum of 16 sides may be used if directed by the entity engineer.

Notations:

4-1/2" x 7" (min. inside dim.) handhole and cover (located 180° opposite mast arm)

90° or 95° as per specification

For "F" type foundation see drawing No. 808

Handhole and Cover (shall face away from oncoming traffic)

4-1/2" x 7" (min. inside dim.) handhole and cover (located 180° opposite mast arm)
NOTES:

1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. INSTALL A BACKFACING LIGHT ON BACK OF OUTERMOST LIGHT, INDICATING THE SPEED LIMIT MESSAGE IS IN OPERATION.
(8) WELDED STEEL COUPLING

(8) 8" SIGNAL HEADS SHOULD EXTEND TO TOP & BOTTOM OF SIGN AS SHOWN

DETAIL "A"

DETAIL "B"

PLAN OF BASE

NOTES:

1. DRILL 1" HOLES IN STEEL PIPE WHERE 1-1/2" STEEL COUPLINGS ARE TO BE.

2. POLE TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

FOR TYPE "G" FOUNDATION SEE DRAWING NO. 720
SIGN POST WITH SCHOOL SIGN MOUNTED DETAILS

DETAIL A

ANGLE

3/16" 3"
HI-TENSILE STEEL CLAMPS

DETAIL B

1-1/4" HI-TENSILE HEX. HEAD BOLTS AND NUTS.

1" THICK FLANGE

2" DIA. WIRING HOLE

1-1/4" THICK FLANGE

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SIGN POST WITH SCHOOL SIGN MOUNTED DETAILS

DATE DWG. NO. 744 SHEET 2 OF 2
**NOTES:**

1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. FOR MAST ARM TENON MOUNTING AND SPACING AND ADDITIONAL INFORMATION REFER TO STANDARD DRAWING NO. 74.

3. MULTI SIDED POLE AND MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

FOR OTHER DETAILS SEE DRAWING NUMBER 808 SHT 2

FOR "H" TYPE FOUNDATION SEE DRAWING NO. 721

FOR "L" FOUNDATION SEE DWG. 722

IN THE CITY OF NORTH LAS VEGAS, USE ONLY XX-A POLE DWG. 808 SHT 3

AGENCY APPROVED

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**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

30 FT. POLE WITH SCHOOL FLASHING SIGN

**DATE** 9-14-06  **DWG. NO.** 745
1. LOW BIDDER MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL BEFORE CONTRACT CAN BE AWARDED.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. FOR OTHER DETAILS SEE DRAWING NO. 808 SHTS. 2 & 6.

4. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

5. SCHOOL SIGN SHALL BE MOUNTED AS SHOWN IN STANDARD DRAWING NO. 745

REFER TO DRAWING NO. 812 SHEET 1 OF 2 IF XX-20 POLE IS REQUIRED.

7. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

FOR "H" TYPE FOUNDATION DRAWING NO. 721

IN THE CITY OF NORTH LAS VEGAS, USE ONLY XX-A POLE DWG.808 SHT 3 & 4

FOR "L" FOUNDATION SEE DWG.722

NOTES:

SCHOOL SIGN POLE TYPE XX-A
NOTES:

1. ALL INDICATIONS ARE TO BE YELLOW LED BALLS.
2. ALL M-2A INDICATIONS ARE 12" NOMINAL.
3. CIRCULAR VISORS TO BE INSTALLED ON ALL HEADS.
4. SEE SIGNAL PLANS FOR MAST ARM TENON LOCATIONS.
5. THIS HEAD ASSEMBLY SHALL BE USED ONLY ON THE END OF THE MAST ARM.
STANDARD 12" SIGNAL HEADS
M-2B

NOTES:
1. ALL INDICATIONS ARE TO BE YELLOW LED BALLS.
2. ALL M-2B INDICATIONS ARE 12" NOMINAL.
3. CIRCULAR VISORS TO BE INSTALLED ON ALL HEADS.
4. SEE SIGNAL PLANS FOR MAST ARM TENON LOCATIONS.
NOTES:
1. THIS PULL BOX SHALL NOT BE USED IN TRAVEL OR PARKING LANES
2. TAPERED SIDE WALLS ARE ALLOWED.
1. DESIGN LOAD: H-20 WHEEL LOADINGS.
2. SUITABLE FOR USE IN OFF STREET LOCATIONS WHERE NOT SUBJECT TO HIGH DENSITY TRAFFIC. IT SHALL NOT BE USED IN TRAVEL OR PARKING LANES.
3. INSIDE DIMENSIONS - 30"X48"X36"
4. FOR USE AT FIBER OPTIC SPLICE POINTS.

TYPE 200 VAULT

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE 200 VAULT
( FOR USE AT FIBER OPTIC SPLICE POINTS )

DATE 3-13-08  DWG. NO. 72
EXISTING CURB AND GUTTER

5' TYP. TO NEAREST EXISTING CONSTRUCTION JOINT

SIDEWALK TO BE REMOVED AND REPLACED PER SECTION 202 OF THE STANDARD SPECIFICATIONS

10' TYP. TO NEAREST EXISTING CONSTRUCTION JOINT

REMOVE/REPLACE CURB AND GUTTER WHEN NEEDED TO SATISFY THE CONDUIT MINIMUM BEND RADIUS

P30 ITS COMMUNICATION PULL BOX SEE NOTES ON SHEET 2

FIBER OPTIC CABLE

FIBER OPTICS

SAWCUT

EXISTING CONCRETE SIDEWALK

4" PVC CONDUIT

OBSTRUCTION

12" MIN CLEARANCE

CONDUIT BEND

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

ITS COMMUNICATION CONDUIT AND PULL BOX DETAIL (FOR EXISTING CURB AND GUTTER)

AGENCY APPROVED

B C H L M N

DATE 3-13-08 DWG. NO. 7-3 SHEET 1 OF 2
NOTE:

1. P30 PULL BOX SHALL BE INSTALLED FOR THE TRAFFIC SIGNAL ITS COMMUNICATIONS PER APPLICABLE STANDARDS.
2. PULL BOX COVER SHALL BE INSCRIBED "FIBER OPTICS".
3. APPROXIMATE LOCATIONS OF THE PROPOSED P30 ITS COMMUNICATION PULL BOXES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATIONS OF THE PROPOSED ITS COMMUNICATION PULL BOXES IN THE FIELD PER STANDARD STANDARD SPECIFICATION INTERVALS AND THESE LOCATIONS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER BEFORE INSTALLATION.
4. DETAIL SHOWS METHOD OF INSTALLATION WHEN FIBER OPTIC CABLE IS REQUIRED.
ITS COMMUNICATION CONDUIT AND PULL BOX DETAIL
INSTALLED UNDER NEW SIDEWALK

NEW CONCRETE SIDEWALK

PVC CONDUIT

FIBER OPTIC CABLE

INTERCONNECT CABLE

P30 ITS COMMUNICATION PULL BOX
SEE NOTES - DRAWING NO. 711

DEPTH AS REQUIRED

4" MIN. CLEARANCE

TYPE 2 GRAVEL
12" DEPTH

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 3-13-08

DWG. NO. 7:4
NOTES:

1. ALL ITS CONDUITS SHALL HAVE A 6-PAIR, REA-PE39 #22 AWG TWISTED WIRE PAIR CABLE INSTALLED.
2. ANY EXISTING ITS CONDUITS FROM THE OPPOSING SIDE OF THE STREET SHALL BE CONNECTED TO PROPOSED CONDUITS USING THE SAME SIZE CONDUIT. IF UNDERGROUNDS DO NOT EXIST, THEN PROPOSED CONDUITS SHALL BE EXTENDED 5' PAST THE EXISTING OR PROPOSED EDGE OF PAVEMENT TO A #3-1/2 PULL BOX MARKED "FIBER OPTIC".
3. FIBER OPTIC CONDUIT SHALL BE INSTALLED WITH P30 PULL BOXES PLACED AT A MAXIMUM SPACING OF 1000', BUT SHALL NOT BE INSTALLED WITHIN 5' OF THE POINT OF CURVATURE (PC) OF THE R/W RADIUS, IN SIDEWALK RAMPS OR DRIVEWAYS. THE ITS CONDUITS SHALL BE CONNECTED TO THE EXISTING ITS CONDUITS OR, IF NOT EXISTING, AN ADDITIONAL P30 PULL BOX SHALL BE INSTALLED AT THE PROPOSED DEVELOPMENT'S PROPERTY LINE.
4. ALL CONDUIT BENDS SHALL BE PVC COATED RIGID WITH A MINIMUM RADIUS OF 36 INCHES.
5. ALL ITS PULL BOXES SHALL HAVE A POLYMER COMPOSITE BODY WITH RESIN POLYMER REINFORCED NON-CONDUCTIVE COVER MARKED "FIBER OPTIC".
6. UNDERGROUND ORANGE MARKING TAPE SHALL BE PLACED 12 INCHES ABOVE THE INSTALLED CONDUIT AND MARKED WITH THE LEGEND "FIBER OPTIC".
7. IF TRAFFIC SIGNAL CABINET EXISTS OR IS BEING INSTALLED ON CORNER, INSTALL TYPE 200 VAULT PER 762 AND 889 WITH ITS CONDUIT INTO TRAFFIC SIGNAL CABINET. IF TRAFFIC SIGNAL CABINET DOES NOT EXIST OR IS NOT BEING INSTALLED IN CORNER, INSTALL P30 PULL BOX.

LEGEND

- NO. 3-1/2 PULL BOX MARKED "FIBER OPTIC" PER RTC USD 705
- P30 PULL BOX MARKED "FIBER OPTIC" PER RTC USD 7:1 AND 7:4
- TYPE 200 VAULT MARKED "FIBER OPTIC" PER RTC USD 7:2

ABBREVIATIONS

FO = FIBER OPTIC

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL INTERSECTION
ITS UNDERGROUND LAYOUT

AGENCY APPROVED

DATE 05-20-10 DWG. NO. 7:5
1/2" STAINLESS STEEL BOLTS WITH SINGLE STAINLESS STEEL WASHER TOP AND BOTTOM WITH DOUBLE STAINLESS STEEL NUTS

POLE CAP / CAMERA BASE

1/2" S.S. ALL THREAD & SINGLE S.S. FLAT WASHER AND DOUBLE S.S. NUTS (EACH SIDE) TO EXTEND COMPLETELY THROUGH POLE AND CAP (2-ALL-THREAD BOLTS REQ'D PER POLE WITH EACH OFFSET TO EXTEND THROUGH POLE).

CABLE AND CONNECTOR - PART OF CAMERA ACCESSORY

WEATHER PROOF MS STYLE CONNECTOR

CONNECT TO BACK OF LOCAL CCTV CAMERA CONTROL UNIT COHU 9300 SERIES -CONTROL (OR APPROVED EQUIVALENT IN TRAFFIC CONTROLLER CABINET) (MALE) (SEE DWG. NO. 766, SHEET 2 OF 4)

CONNECTS TO CA295H CABLE (MALE)

CONNECTS TO CAMERA ACCESSORY (FEMALE)

CABLE (COHU MODEL CA295H OR APPROVED EQUIVALENT) SEE CABLE WIRING DIAGRAM (DWG. NO. 766, SHEET 2 OF 4)
NOTE:

1. IF PULLING CCTV CABLE IN EXISTING SIGNAL CONDUIT, AGENCY APPROVAL REQUIRED FOR METHOD OF INSTALLATION.

LOCAL CCTV CAMERA CONTROL UNIT
COHU 9300 SERIES -CONTROL
(OR APPROVED EQUAL)
(IN TRAFFIC CONTROLLER CABINET)

CCTV CAMERA
CA295H CABLE WIRING DIAGRAM

CONNECT TO BACK OF LOCAL CCTV CAMERA CONTROL UNIT
COHU 9300 SERIES -CONTROL
(OR APPROVED EQUAL IN TRAFFIC CONTROLLER CABINET)
(MALE)

CABLE (COHU MODEL CA295H OR APPROVED EQUAL) SEE CABLE WIRING DIAGRAM

CONNECTS TO CAMERA ACCESSORY (FEMALE) (SEE DWG. NO. 766, SHEET 1 OF 4)
CAMERA ADAPTER STAND
(REQUIRED FOR POLE CAP MOUNTING)

CABLE AND CONNECTOR:
PART OF CAMERA ACCESSORY

POLE CAP

TRAFFIC SIGNAL POLE

1/2" S.S. ALL THREAD / SINGLE S.S. FLAT WASHER AND DOUBLE S.S. NUTS (EACH SIDE) TO EXTEND COMPLETELY THROUGH POLE AND CAP (2-ALL-THREAD BOLTS REQUIRED PER POLE WITH EACH OFFSET TO EXTEND THROUGH POLE).

3. ALL POLE AND CAP MATERIALS TO BE GALVANIZED STEEL.
4. REMOVE ALL BURRS AND SHARP EDGES 0.015 MAX

NOTE:
CAMERA STAND TO BE USED ONLY TO AVOID CONFLICT WITH OVERHEAD POWER LINES. AGENCY APPROVAL REQUIRED.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CLOSED CIRCUIT TELEVISION CAMERA ADAPTOR STAND

SPECIFICATION REFERENCE

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DATE 04-08-10  DWG. NO. 7 SHEET 3 OF 4
CAMERA EXTENSION POLE
(REQUIRED FOR POLE CAP MOUNTING)

POLE EXTENSION CAP
DETAIL 3

POLE EXTENSION CAP

POLE DATA

MATERIAL DATA

CONTRACTOR TO FIELD MEASURE TOP OF EXISTING OR PROPOSED TRAFFIC SIGNAL POLE SHAFT BEFORE FABRICATION OF CAP.

TOP PLATE
DETAIL 1

3.50 11.35 0.216

0.38" THICK TOP PLATE

(2) -0.50" (SS) ALL THREAD ROD
(4) -0.50" (SS) FLAT WASHERS
(4) -0.50" (SS) NUTS WILL BE PROVIDED.

(3) -0.50" (SS) SET SCREWS TO BE USED TO PLUMB POLE BEFORE ALL THREAD RODS ARE INSTALLED.

0.3" DIA. HOLE
(4) REQ'D 90° O.C.
(IN CAP ONLY)

8.00" DIA.
2.00" DIA.

0.25"

4.75" DIA. BOLT CIRCLE

SEE DETAIL 1

SEE DETAIL 2

SEE POLE DATA

CONTACT TO FIELD MEASURE TOP OF SIGNAL POLE SHAFT.

POLE BASE
DETAIL 2

POLE EXTENSION CAP

POLE DATA

MATERIAL DATA

CONTRACTOR TO FIELD MEASURE TOP OF EXISTING OR PROPOSED TRAFFIC SIGNAL POLE SHAFT BEFORE FABRICATION OF CAP.

TOP PLATE
DETAIL 1

3.50 11.35 0.216

0.38" THICK TOP PLATE

(2) -0.50" (SS) ALL THREAD ROD
(4) -0.50" (SS) FLAT WASHERS
(4) -0.50" (SS) NUTS WILL BE PROVIDED.

(3) -0.50" (SS) SET SCREWS TO BE USED TO PLUMB POLE BEFORE ALL THREAD RODS ARE INSTALLED.

0.3" DIA. HOLE
(4) REQ'D 90° O.C.
(IN CAP ONLY)

8.00" DIA.
2.00" DIA.

0.25"

4.75" DIA. BOLT CIRCLE

SEE DETAIL 1

SEE DETAIL 2

SEE POLE DATA

CONTACT TO FIELD MEASURE TOP OF SIGNAL POLE SHAFT.

POLE EXTENSION CAP

POLE DATA

MATERIAL DATA

CONTRACTOR TO FIELD MEASURE TOP OF EXISTING OR PROPOSED TRAFFIC SIGNAL POLE SHAFT BEFORE FABRICATION OF CAP.

TOP PLATE
DETAIL 1

3.50 11.35 0.216

0.38" THICK TOP PLATE

(2) -0.50" (SS) ALL THREAD ROD
(4) -0.50" (SS) FLAT WASHERS
(4) -0.50" (SS) NUTS WILL BE PROVIDED.

(3) -0.50" (SS) SET SCREWS TO BE USED TO PLUMB POLE BEFORE ALL THREAD RODS ARE INSTALLED.

0.3" DIA. HOLE
(4) REQ'D 90° O.C.
(IN CAP ONLY)

8.00" DIA.
2.00" DIA.

0.25"

4.75" DIA. BOLT CIRCLE

SEE DETAIL 1

SEE DETAIL 2

SEE POLE DATA

CONTACT TO FIELD MEASURE TOP OF SIGNAL POLE SHAFT.
NOTE:
AN ADDITIONAL 120V OUTLET TO BE INSTALLED ON SIDE RAIL, NEAR TOP, FOR ITS EQUIPMENT ON EITHER SIDE OF CABINET. LOCATION TO BE APPROVED BY AGENCY ENGINEER BEFORE INSTALLATION. MAXIMUM OF FOUR OUTLETS PER CABINET.
MOTOR: 1/125 HP-3000 RPM NEMA CLASS B INS. 0.6 AMPS AT 115 VAC.

VENT FAN SPECIFICATION:
134 C.F.M. RATING AT .160" OF WATER STATIC PRESSURE.

MATERIAL - 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.
PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.
DOOR SHALL LOCK AT THREE POINTS.
FOR FOUNDATION DETAILS AND ANCHOR BOLT LOCATION SEE DRAWING NO. 724.
INCLUDE 3/4" X 18" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

"M" CABINET

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE V CABINET

DATE 12-12-94

DWG. NO. 801
VENT FAN SPECIFICATION:
SEE STANDARD DRAWING NO. 801

NOTES:

1. MATERIAL - 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.

2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.

3. SHELVES SHALL BE REMOVABLE AND ADJUSTABLE FOR VERTICAL SPACING.

4. DOOR SHALL LOCK AT THREE POINTS.

5. FOR FOUNDATION DETAILS AND ANCHOR BOLT LOCATION SEE DRAWING NO. 725.

☐ INCLUDE 3/4" x 18" x 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

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| DATE 12-12-92 | DWG. NO. 802 |
VENT FAN SPECIFICATION:
SEE STANDARD DRAWING
NO. 801

NOTES:
1. MATERIAL = 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.
2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.
3. FOR FOUNDATION DETAILS AND ANCHOR BOLT LOCATION SEE DRAWING NO. 725.
4. INCLUDE 3/4" x 18" x 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

"R" CABINET
4. INCLUDE 3/4" x 18" x 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

NOTES:
1. MATERIAL - 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.
2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.
3. FOUNDATION DETAILS SHALL BE SPECIFIED ON THE SIGNAL CONSTRUCTION PLANS.

VENT FAN

POLICE PANEL

"RR" CABINET

VENT FAN SPECIFICATION:
SEE STANDARD DRAWING NO. 801

POLICE PANEL

TYPE IX CABINET

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

DATE 12-12-9

DWG. NO. 804
PEDESTRIAN PUSH BUTTON POST FOR SPECIAL SIGN (8 FT.- 6 INCHES HIGH)

1. PEDESTRIAN PUSH BUTTON SHALL NOT BE LOCATED MORE THAN 24" FROM THE BACK OF WALK. IF DISTANCE FROM BACK OF WALK TO PUSH BUTTON IS 20" TO 24", THE BUTTON SHALL BE LOCATED AT A MAXIMUM HEIGHT OF 44" FROM THE SURFACE OF THE WALK. OTHERWISE, THE MAXIMUM HEIGHT SHALL BE 48".

2. THE FORCE REQUIRED TO ACTIVATE CONTROL SHALL BE NO GREATER THAN 5 LB.

3. POST SHALL BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

FOR TYPE "A" FOUNDATION SEE DRAWING NO. 715
NOTES:

1. PEDESTRIAN PUSH BUTTON SHALL NOT BE LOCATED MORE THAN 24" FROM THE BACK OF WALK. IF DISTANCE FROM BACK OF WALK TO PUSH BUTTON IS 20" TO 24", THE BUTTON SHALL BE LOCATED AT A MAXIMUM HEIGHT OF 44" FROM THE SURFACE OF THE WALK. OTHERWISE, THE MAXIMUM HEIGHT SHALL BE 48".

2. THE FORCE REQUIRED TO ACTIVATE CONTROL SHALL BE NO GREATER THAN 5 LB.

3. POST SHALL BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

FOR TYPE "A" FOUNDATION SEE DRAWING NO. 715

PEDESTRIAN PUSH BUTTON POST FOR 2 1/2 INCHES POSTTOP MOUNTING

PLAN OF BASE

PROVIDE 5" X 7-3/4" SIGN THIS POST ONLY.

ADDITIONAL PEDESTRIAN PUSH BUTTON, IF REQUIRED.

INCLUDE 5/8" X 12" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS.

FOR TYPE "A" FOUNDATION SEE DRAWING NO. 715

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

PEDESTRIAN PUSH BUTTON POST FOR 2 1/2 INCHES POSTTOP MOUNTING

DATE 08-09-18  DWG. NO. 805  SHEET 2 OF 2
**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**SIGNAL STANDARD**

**TYPE 1-A, 1-B**

**DATE** 07-01-17  **DWG. NO.** 806

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**POLE TYPE**

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<th>SHAFT SIZE</th>
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<tbody>
<tr>
<td>1-A</td>
<td>10'-0&quot; 11 GA. 5.5&quot; X 4.1&quot; X 10-0&quot; NEAR RIGHTS &amp; ISL. POLES</td>
</tr>
<tr>
<td>1-B</td>
<td>7'-0&quot; 11 GA. 5.5&quot; X 4.1&quot; X 7-0&quot; PED. HEADS &amp; BUTTON ONLY</td>
</tr>
</tbody>
</table>

**NOTES:**

1. ALL POLES TO BE HOT-DIP GALLVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
### 1. PEDESTAL FOR 807 CONTROLLER CABINETS

**PLAN OF BASE**

- 8-1/2" DIA. B.C.
- 1/2" N.C. S/NUT FOR GROUND (OPP. HAND HOLE)
- 4-1/2" O.D.
- 1-3/4" BOLT HEIGHT
- 3" X 5" (INSIDE DIM.) HANDHOLE AND COVER
- 5" I.D. MIN. AT BASE.
- 1/2" BASE PLATE
- BASE COVER
- 3/4" X 18" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS

### NOTES:

1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH BY PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

FOR TYPE "C" FOUNDATION SEE DRAWING NO.717.
**LUMINAIRE ARM DATA**

<table>
<thead>
<tr>
<th>ARM SPAN &quot;L&quot; (FT)</th>
<th>FIXED END DIA. (IN)</th>
<th>FREE END DIA. (IN)</th>
<th>GAUGE</th>
<th>LUMINAIRE MOUNTING HEIGHT</th>
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<tbody>
<tr>
<td>6</td>
<td>3.42</td>
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<td>11</td>
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<td>12</td>
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<tr>
<td>15</td>
<td>4.95</td>
<td>2.38</td>
<td>11</td>
<td>37'-0&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REJECTED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.
5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 1 SIDE MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS. (SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR "H" TYPE FOUNDATION SEE DRAWING NO. 721
### Specification Reference

<table>
<thead>
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<tr>
<td><strong>Uniform Standard Drawings</strong></td>
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<td><strong>Clark County Area</strong></td>
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<tr>
<td><strong>Type XX - 30 FT.</strong></td>
</tr>
<tr>
<td><strong>Signal Luminaire Pole</strong></td>
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<tr>
<td><strong>Details</strong></td>
</tr>
</tbody>
</table>

**Date:** 07-01-17

**Drawing No.:** 808

**Sheet:** 2 of □

---

**Notes:**

1. Contractor must supply shop drawing for design approval.
2. All poles to be hot-dip galvanized by manufacturer or prime painted by manufacturer and finish painted by contractor per specifications and as required by the entity.
3. Handhole covers shall be mounted with tamper-resistant screws.
4. Where signals and standards are installed below overhead power lines, clearances shall be per National Electric Safety Code Section 234 requirements. Install straight arm streetlight assemblies where additional clearance is required.
5. Multi-sided pole and mast arm with a minimum of 16 sides may be used if directed by the entity engineer.

---

**Details:**

- **Bolts 3-EA. 3/4" x 1-3/4" A325-X**
- **2" Dia. Wire Entry with Edges Deburred**
- **1/2" N.C. Square Nut for Ground Base Cover**
- **1-3/4" x 60" x 6" Bolt**
- **1/4" Thk. Gussets**
- **1/4" Thk. Top Bottom & Side Gussets.**
- **2" Sch. 40 Pipe Tenon (2.375 O.D)**
- **7/16" Dia. Thru Hole**
- **1/4" Thk. Top Bottom & Side Gussets.**
- **1/2" N.C. Handhole and Cover (Shall Face Away from Oncoming Traffic)**
- **180° Opposite Cover (Located Handhole and Mast Arm)**
- **2" Sch. 40 Pipe Wire Entry (Edges Deburred) 3" Hole in Shaft.**

---

**Agency Approved:**

- **B**
- **C**
- **H**
- **L**
- **M**
- **N**

---

**Dimensions:**

- 1/2" N.C.
- 1 1/2" Dia. Bolt Circle
- 12" Base Cover
- 1 3/4" x 10" x 1" Bolt
- 1/4" x 9" I.D.
- 7 3/4" Bolt Circle
- 6" x 9" I.D. 12" L Luminaire Arm Connection Detail
- 2 1/4" 2" Sch. 40 Pipe (2.375 O.D)
- 7/16" Dia. Thru Hole
- 1/2" N.C. Handhole and Cover (Located 180° Opposite Mast Arm)
- 2" Sch. 40 Pipe Wire Entry (Edges Deburred) 3" Hole in Shaft.
LUMINAIRE ARM DATA

<table>
<thead>
<tr>
<th>ARM SPAN &quot;L&quot; (FT)</th>
<th>FIXED END DIA. (IN)</th>
<th>FREE END DIA. (IN)</th>
<th>GAUGE</th>
<th>LUMINAIRE MOUNTING HEIGHT</th>
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<tbody>
<tr>
<td>8</td>
<td>3.75</td>
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<td>4.95</td>
<td>2.38</td>
<td>11</td>
<td>37'-0&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.
5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 12 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS.
(SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR "L" TYPE FOUNDATION SEE DRAWING NO. 722
1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.

2. ALL POLES TO BE HOT-DIP GALV. ED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS RE: LURED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 ADDITIONAL CLEARANCE IS RE: LURED.

5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 1: SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLE MOUNTING DETAIL

HOT-DIP GALV. ANCHOR BOLTS W/2 HOT-DIP GALV. HEX NUTS & WASHERS PER BOLT.

HANDHOLE AND COVER (SHALL FACE BASE COVER)

2"x66"x6" SQUARE NUT FOR GROUND

2" SCH. 40 PIPE COVER (LOCATED 3" HOLE IN SHAFT) (EDGES DEBURRED)

WIRE ENTRY 180° OPPOSITE BOTTOM & SIDE 5/16" THK. TOP 1/4" THK. GUSSETTS.

5/16" X 9" I.D. HANDHOLE AND COVER (LOCATED 180°OPPOSITE MAST ARM)

2" SCH. 40 PIPE WIRE ENTRY (EDGES DEBURRED) 3" HOLES IN SHAFT.

LUMINAIRE ARM CONNECTION DETAIL

2" DIA. WIRE ENTRY WITH EDGES DEBURRED

NOTES:

PHOTO REFERENCE UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

DATE 07-01-17 DWG. NO. 808 SHEET 4 OF □

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

TYPE XX - A - 30 FT.

(50 FT. THRU 60 FT. MAST ARMS)

SIGNAL □ LUMINAIRE POLE DETAILS
### Design Criteria:


- Maximum design minimum yield strength for tubular members shall be limited.
- Wind velocity: 90 MPH isotach.

#### Loading Information

<table>
<thead>
<tr>
<th>Device</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>12&quot;-3 sec. w/ backplates (M-2)</td>
</tr>
<tr>
<td></td>
<td>R3-5 24&quot; x 30&quot;</td>
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<tr>
<td></td>
<td>37' max.</td>
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</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12&quot;-4 or 5 sec. w/ backplates (M4 or M5)</td>
</tr>
<tr>
<td></td>
<td>R10-12 or 10-20-30</td>
</tr>
<tr>
<td></td>
<td>3.3 ft.</td>
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### Proje. Area (ft²)

- 2
- 9.80
- 5.00
- 4.00
- 13.68
- 11.25
- 13.44
- 17.34
- 8.00

### Weight (lbs)

- 40
- 15
- 60
- 100
- 80

#### Notes:

- Type XX pole shall also support the alternate loading shown above.

- 3.3 ft. 0.0 lb.

- 15 max.

- 37 max.

- 5.5

- 20 thru 45 spans

- 55 thru 0 spans only

- 50 thru 45 spans (alternate loading)

### Agency Approved

- B
- C
- H
- L
- M
- N

**CLARK COUNTY AREA**
NOTE:
EACH CONDUCTOR SHALL HAVE A MINIMUM OF 18 INCHES OF SLACK

1 1/4" X 9" I.D.
HANDHOLE AND COVER
(SHALL FACE AWAY FROM ONCOMING TRAFFIC)

8 GREEN THWN BONDING CONDUCTOR CONNECTED TO POLE GROUND WITH SPLIT BOLT CONNECTOR

SPLIT-BOLT CONNECTOR

BRONZE GROUNDING CONNECTOR (UL LISTED FOR UNDERGROUND USE) FOR NO. 4 WIRE

CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE. (GROUNDING CONFIGURATION DIFFERS FOR TYPE "L" FOUNDATION. SEE STANDARD DRAWING NO. 722)

HEX HEAD NON-CORROSIVE CAP SCREW WITH FLAT WASHER WITH A SINGLE-STRAND BARE NO. 4 AWG COPPER GROUNDING CONDUCTOR

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

SIGNAL STANDARD

6" X 9" I.D.

GROUNDING

NOTE:
EACH CONDUCTOR SHALL HAVE A MINIMUM OF 18 INCHES OF SLACK

1 1/4" X 9" I.D.
HANDHOLE AND COVER
(SHALL FACE AWAY FROM ONCOMING TRAFFIC)

8 GREEN THWN BONDING
CONDUCTOR CONNECTED
TO POLE GROUND WITH
SPLIT BOLT CONNECTOR

SPLIT-BOLT
CONNECTOR

BRONZE GROUNDING
CONNECTOR (UL LISTED
FOR UNDERGROUND USE) FOR NO. 4 WIRE

CONTINUOUS BARE COPPER
GROUNDING WIRE SHALL
BE LOOPED AROUND
ANCHOR BOLTS ONE TIME
AND CONNECTED TO EACH
ANCHOR BOLT BEFORE
CONTINUING DOWN TO
THE GROUNDING PLATE.
(GROUNDING CONFIGURATION
DIFFERS FOR TYPE "L"
FOUNDATION. SEE STANDARD
DRAWING NO. 722)

HEX HEAD NON-CORROSIVE
CAP SCREW WITH FLAT
WASHER WITH A SINGLE-
STRAND BARE NO. 4 AWG
COPPER GROUNDING
CONDUCTOR

SIGNAL STANDARD

6" X 9" I.D.
HANDHOLE AND COVER
(SHALL FACE AWAY FROM ONCOMING TRAFFIC)

8 GREEN THWN BONDING
CONDUCTOR CONNECTED
TO POLE GROUND WITH
SPLIT BOLT CONNECTOR

SPLIT-BOLT
CONNECTOR

BRONZE GROUNDING
CONNECTOR (UL LISTED
FOR UNDERGROUND USE) FOR NO. 4 WIRE

CONTINUOUS BARE COPPER
GROUNDING WIRE SHALL
BE LOOPED AROUND
ANCHOR BOLTS ONE TIME
AND CONNECTED TO EACH
ANCHOR BOLT BEFORE
CONTINUING DOWN TO
THE GROUNDING PLATE.
(GROUNDING CONFIGURATION
DIFFERS FOR TYPE "L"
FOUNDATION. SEE STANDARD
DRAWING NO. 722)

HEX HEAD NON-CORROSIVE
CAP SCREW WITH FLAT
WASHER WITH A SINGLE-
STRAND BARE NO. 4 AWG
COPPER GROUNDING
CONDUCTOR

SIGNAL STANDARD

6" X 9" I.D.
HANDHOLE AND COVER
(SHALL FACE AWAY FROM ONCOMING TRAFFIC)
1/4" NON-THREADED WITH LOCK NUT WASHER WITH DOUBLE HEX HEAD NUTS (HOLES FOR NON-THREADED SHALL BE FIELD DRILLED)

REMOVABLE MAST ARM RAIN CAP

1/2"

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

REMOVABLE MAST ARM END CAP DETAIL

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

TRAFFIC SIGNALS & STREET LIGHTING

DATE 05-19-05 DWG. NO. 809
### LUMINAIRE ARM DATA

<table>
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<tr>
<th>ARM SPAN &quot;L&quot; (FT)</th>
<th>FIXED END DIA. (IN)</th>
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<th>GAUGE</th>
<th>LUMINAIRE MOUNTING HEIGHT</th>
</tr>
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<tr>
<td>6</td>
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<tr>
<td>15</td>
<td>4.95</td>
<td>2.38</td>
<td>11</td>
<td></td>
</tr>
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### NOTES:

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE ATTACHED VIA TWO SCREWS INTO PLATES MOUNTED INSIDE THE HANDHOLE.

4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALLATION OF STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED SHALL BE APPROVED BY THE ENGINEER.

5. IF DUAL LUMINAIRE ARMS ARE NOT SPECIFIED IN THE PLANS, THE SECOND CONNECTION POINT SHALL BE COVERED BY A COVER PLATE UNTIL SUCH TIME AS A SECOND ARM MIGHT BE ADDED.
**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**DATE 07-01-17**

**DWG. NO.**

**TYPE XX - B - 30 FT.**

(65 FT. THRU 85 FT. MAST ARMS)

**SIGNAL □ LUMINAIRE POLE DETAILS**

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
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<tbody>
<tr>
<td>SPECIFICATION REFERENCE</td>
<td></td>
<td></td>
<td></td>
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</table>

**POLE MOUNTING DETAIL**

- **HOT-DIP GALV. ANCHOR BOLTS W/2 HOT-DIP GALV. HEX NUTS & WASHERS PER BOLT.**

**SECTION A-A**

- **1/2" N.C. SQUARE NUT FOR GROUND**

**SECTION B-B**

- **BASE COVER**

- **2-1/4'' x 93'' x 9'' BOLT**

**LUMINAIRE ARM CONNECTION DETAIL**

- **1/2" N.C. SQUARE NUT FOR GROUND BASE COVER**

- **2-1/4" x 93" x 9" BOLT**

**MAST ARM CONNECTION DETAIL**

- **2" SCH. 40 PIPE (DEBURRED FOR WIRE PROTECTION)**

- **3/8" BOX PL. THK.**

- **2-1/4" PL.**

- **2" PL.**

- **GUSSET PLATES**

- **3/8" THK. PL. FOR TOP AND BOTTOM BOX PL.**

**SECTION A-A**

- **1 1/2" x 4 1/2" LG. HEX. HEAD CAP SCREWS, ASTM A-325**

**SECTION B-B**

- **1/2" THK. PL.**

- **1 1/2" (2) 5/16" THK. STIFFENERS □ 45°**

- **(2) 5/16" X 4" X 9" LG.**

**2 OF 3 SHEET**
LOADING INFORMATION

<table>
<thead>
<tr>
<th>DEVICE</th>
<th>DESCRIPTION</th>
<th>PROJ. AREA (FT²)</th>
<th>WEIGHT (LBS)</th>
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<td>(A) SIGNAL</td>
<td>12&quot; - 3 SEC. W/ BACKPLATES (M-2)</td>
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<td>40</td>
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<tr>
<td>(B) SIGN</td>
<td>R3-5 24&quot; X 30&quot;</td>
<td>5.00</td>
<td>15</td>
</tr>
<tr>
<td>(C) SIGN</td>
<td>R3-4 24&quot; X 24&quot;</td>
<td>4.00</td>
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<td>(D) SIGNAL</td>
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<td>80</td>
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<td>(E) SIGN</td>
<td>R10-12 OR R10-12F 30&quot; X 36&quot;</td>
<td>1.00</td>
<td>15</td>
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<td>(F) SIGN</td>
<td>STREET NAME-FREE SWINGING-1.5&quot; X 8&quot;</td>
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<td>(G) SIGNAL</td>
<td>DUAL-12&quot; - 3 SEC. W/ BACKPLATES</td>
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<tr>
<td>(H) SIGNAL</td>
<td>DUAL-PEDESTRIAN</td>
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</table>

NOTE:
TYPE XX-B POLE SHALL ALSO SUPPORT THE ALTERNATE LOADING SHOWN ABOVE.

TYPE XX-B

DESIGN CRITERIA:
AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
(FATIGUE LOADS SPECIFIED IN CHAPTER 11 NOT REQUIRED.)

WIND VELOCITY:
90 MPH ISOTACH.
1. CONTRACTOR TO INSTALL RED LIGHT RUNNING INDICATORS, MCCAIN MODELS M.1385 (RED) & M.1448 (BLUE), OR APPROVED EQUAL AS INDICATED BY THE TRAFFIC ENGINEER.

2. RED (THRU) INDICATOR SHALL BE MOUNTED 16' ABOVE POLE BASE PLATE AND BLUE (LEFT) INDICATOR SHALL BE MOUNTED 17' ABOVE POLE BASE PLATE AND SHALL FACE AWAY FROM ONCOMING TRAFFIC.

3. RED LIGHT RUNNING INDICATOR L.E.D. HOUSING SHALL BE FIELD ADJUSTED. PLEASE CONTACT THE TRAFFIC ENGINEER FOR COORDINATION.

4. CONTRACTOR SHALL WIRE INDICATORS DIRECTLY TO BUSS IN "J" BOX PER CALL OUT PHASING IN POLE SCHEDULE ON TRAFFIC SIGNAL PLANS.
NOTES:

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

4. PHOTOEYE MAY NEED TO BE AFFIXED TO POLE CAP FOR STREET NAME SIGN ACTIVATION.

5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS.
(SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR OTHER DETAILS SEE DRAWING NO. 808 SHTS. 2 & 6.
FOR "H" TYPE FOUNDATION SEE DRAWING NO. 721.
NOTES:

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
4. PHOTOEYE MAY NEED TO BE AFFIXED TO POLE CAP FOR STREET NAME SIGN ACTIVATION.
5. MULTI-SIDED POLE MAST ARM WITH A MINIMUM OF 1 SIDE MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS.
(SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)
FOR OTHER DETAILS SEE DRAWING NO. 808 SHTS. 4 & 5
FOR "L" TYPE FOUNDATION SEE DRAWING NO.722.
BASE ADAPTOR PLATE
FOR TYPE "H" FOUNDATION

1 3/4" HOT-DIP GALV. ANCHOR BOLTS WITH
WITH TWO HOT-DIP GALV. HEX. HD. NUTS &
WASHERS PER BOLT (4 REQUIRED) FOR
FOUNDATION, SEE DRAWING NO. 721

1 3/16" HOLE, 4 REQUIRED

1/4" X 4" GUSSETS - 4 REQUIRED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AGENCY APPROVED

BASE ADAPTOR PLATE
FOR TYPE "H" FOUNDATION

DATE 12-12-96  DWG. NO.  813  SHEET 1 OF 2
BASE ADAPTOR PLATE
FOR TYPE "L" FOUNDATION

2" HOT-DIP GALV. ANCHOR BOLTS WITH TWO
HOT-DIP GALV. HEX. HD. NUTS & WASHERS
PER BOLT (4 REQD.) FOR FOUNDATION.
SEE DRAWING NO. 722.
1. COMPLETE BACK BRACE ASSEMBLY SHALL BE HOT-DIP GALVANIZED OR PRIME-PAINTED AS REQUIRED BY THE ENTITY.
2. COMPLETE BRACE ASSEMBLY SIMILAR TO PUMCO PART NO. 7.9-1., AND SHALL HAVE (4) FOUR BOLTS.
3. BRACE ASSEMBLY TO BE USED ON 30' POLES ONLY. TO BE MOUNTED 20' FROM POLE BASE.
4. WHEN VOLTAGE EXCEEDS 120V, A STEP-DOWN TRANSFORMER SHALL BE SUPPLIED.
5. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A DRIP LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.

SEE DRAWING NO. 818 FOR STREET NAME SIGN DETAILS.

SEE DRAWING NO. 819 FOR BLOCK SIGN DETAILS.

AGENCY APPROVED

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREETLIGHT POLE WITH ILLUMINATED STREET NAME SIGN

DATE 12-12-96
DWG. NO. 814
SPECIFICATION REFERENCE
UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-12-96
DWG. NO. 815

TYPE III POLE WITH ILLUMINATED STREET NAME SIGN

NOTES:
1. COMPLETE BACK BRACE ASSEMBLY SHALL BE HOT-DIP GALVANIZED OR PRIME-PAINTED AS REQUIRED BY THE ENTITY.
2. COMPLETE BRACE ASSEMBLY SIMILAR TO PUMCO PART NO. 79-941 AND SHALL HAVE (4) FOUR BOLTS.
3. BRACE ASSEMBLY TO BE USED ON 30' POLES ONLY. TO BE MOUNTED 24' FROM POLE BASE.
4. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A DRIP LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.
1. FOR TYPE XX POLE SPECIFICATIONS SEE DRAWING NO. 808.

2. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A DRIP LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.
NOTES:

1. OVERHEAD UTILITY LINES SHALL BE CLEAR OF HIGHEST BACK PLATE ON ANY GIVEN SIGNAL ARM AND LOWEST PLATE OF STREET NAME SIGN.

2. ANY UTILITY CABLE BEING INSTALLED WITHIN THE CLEARANCE ZONE SHALL NEED PRIOR APPROVAL FROM THE TRAFFIC ENGINEERING DIVISION WHO CONTROLS THE RIGHT OF WAY.

3. PARTIES SHALL COORDINATE AND CONCUR ON CABLE AND SIGNAL INSTALLATIONS TO AVOID CREATION OF CROSSING CONFLICTS WITHIN THIS CLEARANCE ZONE.

NO UTILITY CABLE LINES TO BE INSTALLED IN THIS AREA
NOTES:
1. SIGN SHALL BE DOUBLE FACED.
2. ALUMINUM EXTRUSION CABINET 12" DEEP - MILL FINISH WITH ALL ALUMINUM INTERNAL STRUCTURE.
3. TOP-HINGED RETAINER SYSTEM WITH PROP ROD FOR ACCESS AND SERVICE.
4. T12 800MA CWHO FLUORESCENT ILLUMINATION INTERNALLY.
5. SIGN PANEL SHALL BE WHITE WIDE-ANGLE PRISMATIC TRANSLUCENT REFLECTIVE SHEETING, EITHER
   REVERSE-SCREENED WITH MANUFACTURER'S RECOMMENDED GREEN INK AND CLEAR COATING OR
   OVERLAYED WITH GREEN ELECTRONIC CUTTABLE TRANSPARENT OVERLAY FILM, APPLIED TO A
   POLYCARBONATE CLEAR SUBSTRATE, 0.177" THICK.
   LETTERS SHALL BE 8" SERIES E AND UNLESS OTHERWISE SPECIFIED BY THE TRAFFIC ENGINEER, SHALL BE
   ALL UPPERCASE WITH NO STREET NAME SUFFIX. IF NECESSARY TO MAKE SPACING FIT, REDUCE TO 8" SERIES
   D. SPACING BETWEEN LETTERS MAY BE INCREASED BY UP TO 25% (MAX) TO ACHIEVE 4" END SPACES.
7. STEEL BRACKETS SHALL BE USED FOR FLAG MOUNT POLE ATTACHMENT.
8. THE USE OF THE POLE MOUNTED STREET NAME SIGN SHALL BE APPROVED BY THE ENTITY ENGINEER.
FLAG MOUNT ATTACHMENT DETAIL
NOT TO SCALE

1. Aluminum angle welded to inside of extruded cabinet
2. Nuts welded to angle
3. 1/2" x 1 1/2" bolts
4. Bracket fabricated from 3/8" plate steel
5. 5/16" set screws into pole

TRAFFIC POLE

DIAMETER VARIES

1.4" TYP.
0.75"
2.25"
2.5"
3"
5/16" GAP
4.25"
5"
7.5"

FLAG MOUNT ATTACHMENT DETAIL
NOT TO SCALE

BRACKET DETAIL
NOT TO SCALE

ALUMINUM ANGLE WELDED TO INSIDE OF EXTRUDED CABINET
NUTS WELDED TO ANGLE
1/2" X 1 1/2" BOLTS
BRACKET FABRICATED FROM 3/8" PLATE STEEL
5/16" SET SCREWS INTO POLE

AGENCY APPROVED

SPECIFICATION REFERENCE
UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ALTERNATIVE POLE MOUNTED STREET NAME SIGN INTERNALLY ILLUMINATED ATTACHMENT DETAIL

DATE 11/10/05 DWG. NO. 818.1 SHEET 2 OF 3
**INSTALLATION INSTRUCTIONS**

- **ATTACH BRACKETS** ① **TO CABINET END AT TOP AND BOTTOM WITH BOLTS PROVIDED LOSSELY TIGHTEN BOLTS (SNUG).**
- **LIFT CABINET WITH BRACKETS TO POLE AT FINISHED HEIGHT USING A NYLON LIFTING SNAP NEAR THE BRACKETS (WHERE BALANCED).**
- **ATTACH BRACKET HALVES ② TOGETHER AROUND POLE WITH PROVIDED HARDWARE AS SHOWN.**
- **MOVE LIFTING STRIP TO CENTER OF CABINET □ LEVEL THEN TIGHTEN BOLTS INTO CABINET.**
- **ATTACH SET SCREWS ③ THROUGH BRACKET INTO POLE AS SHOWN.**
- **HOOK UP ELECTRICAL CONNECTION (SEE PAGE 2 FOR AN EXAMPLE).**

**WIRING RECOMMENDATIONS**

- **LOCATE & DRILL A 3/4" DIA. HOLE ③ THRU POLE. THREAD HOLE WITH 1/2" PIPE THREAD TAP.**
- **PULL WIRES FROM GROUND THRU TAPPED HOLE GUIDE WIRES TO AVOID SCRAPING INSULATION.**
- **ASSEMBLE LIQUID TIGHT 1/2" CONDUIT ⑤ & FITTING ⑥ TO CONNECT POLE TO CABINET.**
- **FEED WIRES THRU CONDUIT □ INTO CABINET, USE A 2X4 HANDY BOX INSIDE OF CABINET TO FACILITATE WIRE PULLING.**
- **AFTER FEEDING WIRE, THEN THREAD FITTINGS INTO THREADED HOLE IN POLE □ CABINET.**
- **WIRE BALLAST INSIDE CABINET AS REQUIRED.**

**NOTE:** THE STREET NAME SIGN SHALL BE MOUNTED 18" ABOVE THE MAST ARM
NOTE: THE BRACKET AND STRAP ARE OF THE BANDIT TYPE OR EQUIVALENT.

THEFT PROOF BOLT OR STANDARD HEX WASHER FACE BOLT.

12 GAUGE ZINC PLATED 0.003" - 0.005"

5" MFG. RISE

BACK OF SIGN

BRACKET STRAPS

PIPE

FLARED LEG

NEOPRENE WASHER

BOLT

BRACKET

SIGN

PIPE

BUCKLE

STRAP
NOTES:
1. SIGN ASSEMBLY SHALL INCLUDE SIGN ENCLOSURE AND TWO SIGN PANELS.
2. TWO (2) ADVANCE BALLAST IOP-2P59-SC, OR AN APPROVED EQUIVALENT BY THE ENGINEER, SHALL BE INSTALLED FOR EACH SIGN ENCLOSURE.
3. SEE SHEETS 2 AND 3 FOR WIRING DIAGRAMS.
4. SEE SHEET 4 FOR SIGN PANEL DETAILS.
5. JAM NUT TO SECURE "L" BRACKET.
NOTES:

1. SIGN SHALL BE DOUBLE FACED.

2. SIGN PANELS SHALL BE FABRICATED OF CLEAR, IMPACT RESISTANT, ACRYLIC SHEETING WITH ALUMINUM FRAMING.

3. SIGN PANEL SHALL BE COVERED WITH WHITE, WIDE-ANGLE, TRANSLUCENT PRISMATIC TYPE XI REFLECTIVE SIGN FACE SHEETING, AND EITHER REVERSE-SCREENED WITH MANUFACTURER’S RECOMMENDED GREEN INK AND CLEAR COATING OR OVERLAID WITH GREEN ELECTRONIC CUTTABLE TRANSPARENT OVERLAY FILM.

4. SHEETING SHALL BE APPLIED IN A VERTICAL ORIENTATION IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATION.

5. SIGN PANEL SHALL BE CAPABLE OF WITHSTANDING WINDS OF 90 MPH OR GREATER WITHOUT DAMAGE OR SEPARATION FROM THE SIGN ENCLOSURE.

6. LETTERS FOR STREET NAMES SHALL BE 12” SERIES D, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, AND SHALL BE UPPER AND LOWERCASE. IF NECESSARY TO MAKE SPACING FIT, 12” SERIES C LETTERS MAY BE USED. LOWER CASE LETTERS SHALL BE 9” IN HEIGHT. LETTERS FOR CARDINAL DIRECTION, STREET NAME SUFFIX, AND BLOCK NUMBER SHALL BE 5” SERIES C, AND SHALL BE IN ALL UPPERCASE.

7. APPROVAL OF SHOP DRAWING OF SIGNFACE LAYOUT BY THE ENGINEER IS REQUIRED PRIOR TO FABRICATION OF SIGN PANELS.
SEE DRAWING NO. 818 FOR STREET NAME SIGN DETAILS

NOTES:

1. N, E, S, OR W REQUIRED ON ALL BLOCK NUMBER SIGNS WITH A SPACE BETWEEN THE LETTER AND THE NUMBERS. ( i.e. W 6900 )

2. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A DRIP LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

BLOCK NUMBER SIGN

DATE  4-9-98

DWG. NO. 819
HALF CLAMP SIMILAR TO PUMCO PART NO. 7-9-\(\text{a}\)

HALF CLAMP SIMILAR TO PUMCO PART NO. 20-7-9-\(\text{a}\)

5/8" x 1-1/4" STL. HD. CUP POINT SET SCREW.

3/4" CLEARANCE HOLE

NOTES:

1. COMPLETE ASSEMBLY SHALL BE HOT-DIP GALVANIZED OR PRIME-PAINTED AS REQUIRED BY THE ENTITY.

2. COMPLETE ASSEMBLY SIMILAR TO PUMCO PART NO. 207-7-9-\(\text{a}\).

3. THIS ASSEMBLY TO BE USED ON EXISTING 30' POLES ONLY.

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ONE BOLT SIMPLEX ARM ATTACHMENT
CLAMP ASSEMBLY

DATE 12-12-96
DWG. NO. 821
SHEET 1 OF 2
(4) 1/2" - 13 N.C. X 2" HEX HEAD MACH. BOLTS W/(4) 1/2" - 13 N.C. HEX. NUTS (GALVANIZED)

CLAMP RANGE
3 3/4" TO 4" O.D.

8" SPAN (NOM.)

12" STRAIGHT

21.7/8" R.

2" ST. D. PIPE
(2.375" O.D.)

4

EXISTING ROUND STEEL POLE W/ SIMPLEX ATTACHMENT

2" SPAN (NOM.)

6" RISE

3/16"

8'

44'

BRACKET RATING
MAX. LUMINAIRE AREA = 2.7 FT²
MAX. LUMINAIRE WT. = 57 LBS.

EXISTING ARM ATTACHMENT (ONE BOLT SIMPLEX)
USE FOR WIRING ENTRANCE

AGENCY APPROVED
B

C

H

L

M

N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

RETROFIT STREETLIGHT
MAST ARM

DATE

DWG. NO.
821

SHEET 2 OF 2
(4) 1/2" - 13 N.C. X 2" HEX HEAD MACH. BOLTS W/(4) 1/2" - 13 N.C. HEX. NUTS (GALVANIZED)

CLAMP RANGE 3 3/4" TO 4" O.D.

8" SPAN (NOM.)

12" STRAIGHT

21.7/8" R.

2" STD. PIPE (2.375" O.D.)

44°

EXISTING ROUND STEEL POLE W/ SIMPLEX ATTACHMENT

EXISTING ARM ATTACHMENT (ONE BOLT SIMPLEX) USE FOR WIRING ENTRANCE

3/16" RISE

8' SPAN (NOM.)

BRACKET RATING
MAX. LUMINAIRE AREA 2.7 FT²
MAX. LUMINAIRE WT. 57 LBS.

RETROFIT STREETLIGHT MAST ARM
SPECIAL NOTE: POLE SHALL NOT BE DRILLED FOR CLAMSHELL UNTIL AFTER INSTALLATION OF POLE.

NOTES:
1. DRILLING OF POLE TO BE ORIENTED ACCORDING TO POLE LAYOUT, SPECIFICATIONS, AND ENGINEER.
2. DIMENSIONS ARE FROM CURB LEVEL.
3. DIMENSIONS ARE TO WIRE INLET HOLE ONLY. USE MANUFACTURER'S TEMPLATE TO LOCATE ALL OTHER HOLES.
4. ALL HOLES ARE TO CONFORM TO MANUFACTURER'S RECOMMENDATIONS.

1. DRILLING DETAIL
2. SIDE BRACKET DRILLING DETAIL
3. POLE PLATE DRILLING DETAIL

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

POLE DRILLING DETAILS

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ISLAND SIGNAL POLE
DETAILS FOR 10 FT. POLE

1/2" - 13 NC HEX. HEAD BOLT & NUT CADMIUM - PLATED OR GALVANIZED

FLAT WASHER

WASHERS CURVED TO FIT STANDARD

DRILL 9/16" HOLES

SIGNAL ASSEMBLY A-10T

SIGNAL ASSEMBLY B-10

TYPE 1-A STANDARD

DRAWING NO. 806

10' MIN. TO NOSE OF ISLAND

4'-6"

3'-8"

2 1/2"

2 1/2"
NOTE:
FOR POLE LOCATION ON RIGHT TURN ISLAND SEE DRAWING NO. 887.
OVERLAP ALL CUTS TO MAINTAIN FULL SLOT DEPTH FOR WIRES

3/8" X 2" MIN.

SEE PLANS

TO PULL BOX IN ISLAND

TO PULL BOX IN SIDEWALK

A-A

A-A (AFTER INSTALLATION)

DETECTOR SEALANT (FLUSH W/ SURFACE)
4" HOLE, FILL WITH SAND TO WITHIN 1 INCH OF TOP. TOP 1 INCH TO BE FILLED WITH EPOXY.

NOTE:
PATCH SLOT AND HOLE WITH EPOXY, REMOVE OVERFLOW BEFORE IT HARDENS.
1. 4 turns of wire shown. Always install 4 turns of cable in duct unless otherwise specified on the plans. Winding direction shall be indicated on wire.

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX.

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE

SECTION A-A

SECTION B-B

SAWCUT DIAGRAM

SEE DRAWING NO. 827 FOR SAWCUT DETAILS.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

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<td>ONE INDUCTION LOOP FOR ONE TRAVEL LANE</td>
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DATE | DWG. NO. 828
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.

See drawing no. 826 for sawcut details.

Depth to allow 3/4" from top wire to surface.
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.

See drawing no. 826 for sawcut details.

See drawing no. 827 for method of installing pull box.

Winding direction shall be indicated on wire.

Direction of travel for two travel lanes.

Depth to allow 3/4" from top wire to surface.

3/8" depth to allow 3/4" from top wire to surface.

Note:

Professional electrical engineer stamp on file.
2 TURNS OF WIRE SHOWN. ALWAYS INSTALL 2 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.

SEE DRAWING NO. 826 FOR SAWCUT DETAILS.

NOTE:

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE.

SEE PLANS FOR METHOD OF INSTALLING PULL BOX.

AGENCY APPROVED

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

2 TURNS OF WIRE SHOWN. ALWAYS INSTALL 2 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.

See drawing no. 827 for method of installing pull box.

Depth to allow 3/4" from top wire to surface.

See drawing no. 826 for sawcut details.

See plans for method of installingpull box.

3/8" depth to allow 3/4" from top wire to surface.
NOTE:
2 TURNS OF WIRE SHOWN. ALWAYS INSTALL 2 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX.

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE.

SEE PLANS 48" MAX

WINDING DIRECTION

DIRECTION OF TRAVEL

WIRING DIAGRAM

SAWCUT DIAGRAM

SEE DRAWING NO. 826 FOR SAWCUT DETAILS.
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.

See drawing no. 827 for method of installing pull box.

Depth to allow 3/4" from top wire to surface.

See drawing no. 826 for sawcut details.

NOTE:
NOTES:
1. 4 turns of wire shown. Always install 4 turns of cable in duct unless otherwise specified on the plans. Winding direction shall be indicated on wire.
2. Traffic engineer shall establish lateral locations on roads without marked lanes.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED  B  C  H  L  M  N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

THREE INDUCTION LOOPS
FOR THREE TRAVEL LANES
NOTES:
1. FRONT OF THE LOOP MUST EXTEND INTO THE CROSSWALK 2 TO 4.
2. INSULATION TEST FOR EACH LOOP TO GROUND MUST NOT READ LESS THAN 50 MEG OHMS TO INFINITY. (USING MEGGER)
3. USE COLOR CODED 4 TURN CABLE IN DUCT AS SHOWN.
4. SEE DRAWING NO. 83 FOR WIRING CONNECTIONS.

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX. ALL WIRES INTO PULL BOX MUST BE TAGGED AND WINDING DIRECTION SHALL BE MARKED.

SEE DRAWING NO. 83 FOR WIRE CONNECTIONS. SEE DRAWING NO. 82 FOR SAWCUT DETAILS.

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

MULTIPLE LOOP SYSTEM FOR THRU LANE

AGENCY APPROVED

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

DATE 12-12-96

DWG. NO. 833
1. Front of the loop must extend in the crosswalk 2' to 4'.
2. Insulation test for each loop to ground must not read less than 50 meg ohms to infinity. (Using Megger)
3. Use color coded 4 turn cable in duct as shown.

See drawing no. 827 for method of installing pull box. All wires into pull box must be tagged and winding direction shall be marked.

See drawing no. 836 for wire connections. See drawing no. 826 for sawcut details.
TYPE "QUADRUPOLE" LOOP INSTALLATION

WHENEVER MORE THAN ONE LOOP TERMINATES IN A PULL BOX, ALL LEADS MUST BE TAGGED AND IDENTIFIED.

NOTES:
1. FOR ALL LOOPS, TWO TURNS ARE REQUIRED.
2. FRONT OF LOOP MUST EXTEND IN THE CROSSWALK 2 TO 4'.
SEE DRAWING NO. 834 FOR LOOP LAYOUT

SEE DRAWING NO. 833 FOR LOOP LAYOUT

WIRE DIAGRAMS FOR MULTIPLE LOOP SYSTEMS FOR LEFT TURN POCKET AND THRU LANE

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
NOTES:

1. INSULATION FOR EACH LOOP MUST NOT READ LESS THAN 50 MEG OHMS TO INFINITY. (USING MEGGER)
2. USE COLOR CODED 4 TURN CABLE IN DUCT AS SHOWN.
3. FRONT OF LOOP MUST EXTEND IN THE CROSSWALK 2' TO 4'.

SAWCUT DIAGRAM

WIRING DIAGRAM

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX. ALL WIRES TO PULL BOX MUST BE TAGGED AND WINDING DIRECTION SHALL BE MARKED.

1. INSULATION FOR EACH LOOP MUST NOT READ LESS THAN 50 MEG OHMS TO INFINITY. (USING MEGGER)
2. USE COLOR CODED 4 TURN CABLE IN DUCT AS SHOWN.
3. FRONT OF LOOP MUST EXTEND IN THE CROSSWALK 2' TO 4'.

SAWCUT DIAGRAM

WIRING DIAGRAM

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX. ALL WIRES TO PULL BOX MUST BE TAGGED AND WINDING DIRECTION SHALL BE MARKED.

1. INSULATION FOR EACH LOOP MUST NOT READ LESS THAN 50 MEG OHMS TO INFINITY. (USING MEGGER)
2. USE COLOR CODED 4 TURN CABLE IN DUCT AS SHOWN.
3. FRONT OF LOOP MUST EXTEND IN THE CROSSWALK 2' TO 4'.

SAWCUT DIAGRAM

WIRING DIAGRAM

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX. ALL WIRES TO PULL BOX MUST BE TAGGED AND WINDING DIRECTION SHALL BE MARKED.
NOTES:
1. CAST ALUMINUM HOUSING.
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING.

NOTES:
1. AT LOCATIONS WHERE "WALK" "DON'T WALK" SIGNALS ARE PROVIDED, PROVIDE BLACK LETTERING ON A WHITE BACKGROUND ON PORCELAIN SIGNS.
2. AT LOCATIONS WHERE "SYMBOLIC" SIGNALS ARE PROVIDED, PROVIDE WHITE FIGURES ON A BLACK BACKGROUND.
3. MOUNTING SURFACE FOR THE SIGNS SHALL BE 9" X 12".

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PEDESTRIAN PUSH BUTTON DETECTORS

DATE 08-09-18 DWG. NO. 838
1. All traffic signal backplates shall have a 2-inch retroreflective adhesive sheeting border on the entire outer perimeter of the front side of the backplate.

2. Retroreflective sheeting shall be fluorescent yellow, ASTM D495-13 Type XI or better.

3. The retroreflective sheeting border shall have a minimum of 0.5" clearance from all louvers. No retroreflective sheeting shall be placed over any louvered area.

4. Retroreflective sheeting border shall be installed by the manufacturer, and modifications shall not be made by the contractor.

5. The back plate with retroreflective sheeting border shall be from the same manufacturer as the signal head assembly. The complete head assembly, including the backplate, shall be capable of withstanding winds of 90 MPH without damage or separation of any parts from the signal head assembly.
1. All traffic signal backplates shall have a 2-inch retroreflective adhesive sheeting border on the entire outer perimeter of the front side of the backplate.
2. Retroreflective sheeting shall be fluorescent yellow, ASTM D4956-13 TYPE XI or better.
3. The retroreflective sheeting border shall have a minimum of 0.5" clearance from all louvers. No retroreflective sheeting shall be placed over any louvered area.
4. Retroreflective sheeting border shall be installed by the manufacturer, and modifications shall not be made by the contractor.
5. The backplate with retroreflective sheeting border shall be from the same manufacturer as the signal head assembly. The complete head assembly, including the backplate, shall be capable of withstanding winds of 90 MPH without damage or separation of any parts from the signal head assembly.
2" YELLOW RETROREFLECTIVE BORDER LINE ADHESIVE SHEETING

PAINT: FLAT BLACK
SHOWN 5 SECTION, 12" SIGNAL HEAD BACKPLATE WITHOUT ELEVATOR PLUMBIZER

NOTES:

1. ALL TRAFFIC SIGNAL BACKPLATES SHALL HAVE A 2-INCH RETROREFLECTIVE ADHESIVE SHEETING BORDER ON THE ENTIRE OUTER PERIMETER OF THE FRONT SIDE OF THE BACKPLATE.

2. RETROREFLECTIVE SHEETING SHALL BE FLUORESCENT YELLOW, ASTM D495-13 TYPE XI OR BETTER.

3. THE RETROREFLECTIVE SHEETING BORDER SHALL HAVE A MINIMUM OF 0.5" CLEARANCE FROM ALL LOUVERS. NO RETROREFLECTIVE SHEETING SHALL BE PLACED OVER ANY LOUVERED AREA.

4. RETROREFLECTIVE SHEETING BORDER SHALL BE INSTALLED BY THE MANUFACTURER, AND MODIFICATIONS SHALL NOT BE MADE BY THE CONTRACTOR.

5. THE BACK PLATE WITH RETROREFLECTIVE SHEETING BORDER SHALL BE FROM THE SAME MANUFACTURER AS THE SIGNAL HEAD ASSEMBLY. THE COMPLETE HEAD ASSEMBLY, INCLUDING THE BACKPLATE, SHALL BE CAPABLE OF WITHSTANDING WINDS OF 90 MPH WITHOUT DAMAGE OR SEPARATION OF ANY PARTS FROM THE SIGNAL HEAD ASSEMBLY.
PAINT: FLAT BLACK
SHOWN 5 SECTION, 12" SIGNAL HEAD BACKPLATE WITH ELEVATOR PLUMBIZER
REFER TO DRAWING NO. 863

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

LOUVERED BACKPLATE FOR 5 SECTION SIGNAL HEAD

DATE DWG. NO. 842 SHEET 2 OF 2
1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.

NOTES:
1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.

NOTES:
1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEM ED PARTS, SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.
1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.

NOTES

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

SIGNAL ASSEMBLIES

BRACKET MOUNT

DATE 07-01-14  DWG. NO. 844  SHEET 2 OF 2
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<td>DOGLEG</td>
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<td>ELEVATOR PLUMBIZER</td>
<td>875</td>
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<tr>
<td>3.</td>
<td>POLE PLATE WITH WIRE GUIDE</td>
<td>872</td>
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<td>4.</td>
<td>2-WAY TIE BRACE</td>
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<td>4-WAY TIE BRACE</td>
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<td>7.</td>
<td>SPECIAL ELBOW</td>
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<td>8.</td>
<td>SPECIAL TEE</td>
<td>874</td>
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<td>9.</td>
<td>MALLEABLE ELBOW-REAMED/SET SCREW</td>
<td>878</td>
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<td>10.</td>
<td>MALLEABLE ELBOW/SIDE OUTLET/REAMED/SET SCREW</td>
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<td>4-WAY CENTER HUB</td>
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<td>16.</td>
<td>POST TOP MOUNTED BRACKET</td>
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<td>17.</td>
<td>SIDE BRACKET MOUNTED ADAPTER WITH TERMINAL COMPT.</td>
<td>880</td>
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<tr>
<td>18.</td>
<td>POST TOP MOUNTED ADAPTER WITH TERMINAL COMPT.</td>
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<td>19.</td>
<td>LOCKING RING</td>
<td>872</td>
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<td>ORNAMENTAL CAP</td>
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<td>21.</td>
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<td>22.</td>
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<td>23.</td>
<td>POLE PLATE</td>
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<td>24.</td>
<td>1-1/2&quot; MENERALLAC STRAP OR APPROVED EQUAL</td>
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<td>1-1/2&quot; MENERALLAC STRAP OR APPROVED EQUAL</td>
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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**BILL OF MATERIALS**

**SIGNAL ASSEMBLIES**

**DATE**: 10-9-08  **DWG. NO.**: 845
1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.

NOTES:
1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
NOTES:

1. ON LOWER ASSEMBLY, ALL INDICATIONS ARE 12" NOMINAL (GLASS).

2. SEE DRAWING NO. 890 FOR ARROW LENS.

3. ON TOP ASSEMBLY, USE M-3 WITH BACKPLATE.

4. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEAD.

5. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.

□ SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
NOTES:
1. PROVIDE BACKPLATE ON A-8T.
2. ALL INDICATIONS ARE 12" NOMINAL (GLASS).
3. SEE DRAWING NO. 890 OR ARROW LENS.
4. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
5. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
NOTES:
1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEAD.
3. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.

AGENCY APPROVED

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<td>SIGNAL ASSEMBLIES</td>
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<td>A-10T, A-11T</td>
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</table>

DATE 2-11-93

DWG. NO. 850
NOTES:

1. FOR ITEM: ED PARTS SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. PROVIDE BACKPLATE ON A-13T ONLY.
4. ALL SIGNALS ARE 12" NOMINAL (GLASS).
1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMED PARTS, SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.
4. SEE PLANS FOR BACKPLATE REQUIREMENTS.

NOTES:

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL ASSEMBLIES
A-14T, A-15T

DATE
DWG. NO. 852
1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.
4. SEE PLANS FOR BACKPLATE REQUIREMENTS.
5. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
NOTES:

1. FOR ITEMIZED PARTS SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. SEE PLANS FOR BACKPLATE REQUIREMENTS.
4. ALL SIGNALS ARE 12" NOMINAL (GLASS).
Provide louvered backplate similar to drawing 840

Programmed visibility heads
M-3A

Standard 12" signal heads
M-2A

Notes:
1. All signals are 12" nominal (glass)
2. For itemized parts, see drawing 845.
1. See standard specifications for programmed visibility head.
2. All M-2 indications are 12" nominal (glass).
3. See drawing no. 845 for itemized parts.
4. See signal plans for ball or arrow indications.
PROVIDE LOUVERED BACKPLATE SIMILAR TO DRAWING 840

NOTES:

1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEMIZED PARTS, SEE DRAWING 845.

STANDARD 12" SIGNAL HEADS

M-4

R10-12F
30" X 3-1/2" MIN.

YIELD ON FLASHING
YELLOW ARROW

1.9" Radius, 0.8" Border, 0.5" Indent,
Black on White

[YEILD] D; [ON FLASHING] C 50% spacing
[YELLOW] C; [ARROW] C;

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PROTECTED PERMISSIVE
MAST ARM SIGNAL ASSEMBLY
TYPE M-4

DATE 07-01-14 DWG. NO. 857
NOTES:
1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE DRAWING NO. 890 FOR ARROW LENS.
3. ALL INDICATIONS ARE 12" NOMINAL. SEE SUB-SECTION 23 T.02.08 FOR SPECIFICATIONS.
4. SEE SIGNAL PLANS FOR BACKPLATE REQUIREMENTS.
5. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
6. ALL BOTTOM NIPPLES ARE 18" AND TOP NIPPLES ARE 18 1/2".

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL ASSEMBLIES
B-1T, B-2T, B-3T

DATE: 10-9-08  DWG. NO. 858
### SIGNAL ASSEMBLIES

**B-5T, B-6T**

---

**NOTES:**

1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE DRAWING NO. 890 FOR ARROW LENS.
3. ALL INDICATIONS ARE 12" NOMINAL (GLASS).
4. SEE SIGNAL PLANS FOR BACKPLATE REQUIREMENTS.
5. ALL BOTTOM NIPPLES ARE 18" AND TOP NIPPLES ARE 18 1/2".

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**DATE** 2-11-93  **DWG. NO.** 859
NOTES:
1. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. ALL SIGNALS ARE 12" NOMINAL (GLASS) UNLESS NOTED.

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL ASSEMBLIES
B-7T, B-8T, B-9T

.  .  .
DATE  DWG. NO. 8:0
NOTES:

1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEADS.
3. SEE SIGNAL PLANS FOR BACKPLATE REQUIREMENTS.
4. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
5. ALL BOTTOM NIPPLES ARE 18" AND TOP NIPPLES ARE 18 1/2".

### Signal Assemblies

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### Specification Reference

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### Agency Approved

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### Uniform Standard Drawings

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### Date

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### DWG. No.

<table>
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<th>DWG. NO. 8:2</th>
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### Diagram Details

- B-12T
- B-13T
- Red Arrow Indication
- Programs Visibility Heads
- Green Arrow
- Yellow Arrow
- All Bottom Nipples are 18"
- Top Nipples are 18 1/2"
NOTES:
1. FOR ITEMIZED PARTS SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. SEE PLANS FOR BACKPLATE REQUIREMENTS.
4. ALL SIGNALS ARE 12" NOMINAL. SEE SUB-SECTION 23 T.02.08 FOR SPECIFICATIONS.
5. OPTIONAL 3° CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS ON 5-SECTION HEADS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
NOTES

1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS SEE DRAWING 845.
3. FOR ARROW LENS SEE DRAWING 890.
4. SEE PLANS FOR BACKPLATE REQUIREMENTS.
5. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS ON 5-SECTION HEADS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
NOTES:
1. All backplates shall be louvered.
2. All lenses shall be glass.
3. Optional 3" cutoff louvers on red, yellow and green ball indications may be provided as directed by the traffic engineer.
NOTES:
1. ALL BACKPLATES SHALL BE LOUVERED.
2. ALL LENSES SHALL BE GLASS.
3. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.

MAST ARM MOUNTING
BACKPLATE TO MATCH ORDER PART NO. E 2074
NOTES: UNLESS OTHERWISE SPECIFIED

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE M-5 ASSEMBLIES
AND PARTS LIST

DATE DWG. NO. 8.5 SHEET 3 OF 4
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<td>2</td>
<td>E205P1</td>
<td>TOP BRACKET W/Cover</td>
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<td>E2051P1</td>
<td>BOTTOM BRACKET</td>
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<td>E1270P1</td>
<td>ADAPTOR RING</td>
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<td>E120:P</td>
<td>ORNAMENT</td>
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<td>E1251P1</td>
<td>WASHER, NEOPRENE</td>
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<td>55712:</td>
<td>CONDUIT LOCKNUT</td>
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<td>ATTACHING WASHER</td>
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<td>E788P2</td>
<td>ATTACHING BOLT</td>
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<td>N210P23C</td>
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<td>RED BALL LENS</td>
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FW 2933 AND SIGNAL ASSEMBLY

FRAMEWORK -- CLUSTER MOUNTING
1 WAY, 5 COL., 12" ALUMINUM SIGNAL WITH ELEVATOR PLUMBIZER

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SPECIFICATION REFERENCE
UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE M-5 ASSEMBLIES AND PARTS LIST

DATE   DWG. NO.   SHEET
8:5     4 OF 4
1. FOR GENERAL SPECIFICATIONS SEE TRAFFIC SIGNAL PLANS.
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
3. THE HAND SYMBOL (DON'T WALK) IS PORTLAND ORANGE
   AND HUMAN SYMBOL (WALK) IS LUNAR WHITE.
NOTE: TAMPER-PROOF SCREWS TO BE USED.
NOTES:

1. ALL BACKPLATES SHALL BE LOUVERED.
2. ALL LENSES SHALL BE GLASS.
3. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
VISORS (FOR 8" HEADS)

PAINT: FLAT BLACK ON INSIDE.
OUTSIDE PAINT COLOR SHALL MATCH SIGNAL HOUSING.
STANDARD FULL CIRCLE VISOR

STANDARD ANGLE VISOR

DIRECTIONAL LOUVERS
PAINT: FLAT BLACK

VISORS (FOR 12" HEADS)
PAINT: FLAT BLACK ON INSIDE, OUTSIDE PAINT COLOR SHALL MATCH SIGNAL HOUSING.

SECTION A-A
SECTION B-B

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

LOUVERS AND VISORS
FOR 12 INCH SIGNALS
SIDE VIEW

FRONT VIEW

SECTION A-A

GEOMETRICALLY PROGRAMMED LOUVER

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SPECIFICATION REFERENCE

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DATE    DWG. NO.  SHEET
870       3 OF 3
NOTE:
ALL BOLTS, NUTS AND WASHERS SHALL BE BRASS OR STAINLESS STEEL.
MISCELLANEOUS SIGNAL MOUNTING HARDWARE

LOCKING RING - 1/2 PIN
MATERIAL: BRONZE

ORNAMENTAL CAP
DIE CAST ALUMINUM
PAINT COLOR SHALL MATCH SIGNAL HOUSING

TIE BRACE, FERROUS, 2 WAY
PAINT COLOR SHALL MATCH SIGNAL HOUSING

TIE BRACE, FERROUS, 3 WAY
PAINT COLOR SHALL MATCH SIGNAL HOUSING

TIE BRACE, FERROUS, 4 WAY
PAINT COLOR SHALL MATCH SIGNAL HOUSING

LOCKING NIPPLE

72 TEETH - 1/2" HIGH ALL AROUND
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

MISCELLANEOUS SIGNAL MOUNTING HARDWARE

FERROUS SPECIAL TEE
PAINT COLOR SHALL MATCH SIGNAL HOUSING

FERROUS SPECIAL ELBOW
PAINT COLOR SHALL MATCH SIGNAL HOUSING

POST TOP MOUNTED BRACKET WITH SERRATED OFFSET MOUNT.

(Material: Bronze)
PAINT COLOR SHALL MATCH SIGNAL HOUSING

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DATE  DWG. NO.  874  SHEET  2 OF 2
NOTE:

1. MATERIAL: BRONZE
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING
3. PROVIDE WASHERS SHOWN AND 1/2" PLATED BOLTS, LENGTH FOR STEEL POLE MOUNTING.

NOTES:

DO NOT PROVIDE UNLESS SPECIFIED ON THE PLANS.
1. MATERIAL - BRONZE
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING

NOTES:

ELEVATOR PLUMBIZER

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ELEVATOR PLUMBIZER

DATE

DWG. NO.

875
1. MATERIAL-BRONZE.
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING.
3. PROVIDE WASHERS SHOWN AND 1/2" PLATED BOLTS, LENGTH FOR STEEL POLE MOUNTING.

- 5/8" HOLE
- CURVED WASHER
- WASHER CURVED TO FIT STANDARD
- 1-1/2" PIPE THREADS
- 3/8" R (TYP.)
- 9/16"
### LIST OF MATERIALS

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<td>CORK GASKET TO MATCH COVER</td>
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<td>3</td>
<td>1</td>
<td>3/32&quot; STEEL COVER WITH 2 BOLT HOLES OPPOSITE</td>
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<td>2</td>
<td>STANDARD LOCK WASHER</td>
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<td>3/8&quot; - 1-1/2 UNC-2A X 1&quot; BRASS HEX. HD CAP SCREW 2 REQ.</td>
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### NOTES:

1. PAINT COLOR AND FINISHING SHALL MATCH SIGNAL HOUSING
2. MATERIAL: HIGH STRENGTH CAST ALUMINUM ALLOY
ELBOW

ELBOW WITH SIDE OUTLET

NOTE 1

TEE

NOTE 1

TEE WITH SIDE OUTLET

CROSS

CROSS WITH SIDE OUTLET

NOTES:

1. REAM FOR 1-1/2" IPS. PROVIDE SET SCREW.
2. ALL OTHER OPENINGS SHALL BE THREADED.
3. PAINT COLOR SHALL MATCH SIGNAL HOUSING.
1. MATERIAL - ALUMINUM
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING
3. PROVIDE 12 POSITION PRESSURE TYPE TERMINAL BLOCK MOUNTED INSIDE COMPARTMENT

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

POST TOP MOUNTED ADAPTER WITH TERMINAL COMPARTMENT

DATE | DWG. NO. | 879
1. MATERIAL - ALUMINUM
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING
3. PROVIDE 12 POSITION PRESSURE TYPE TERMINAL BLOCK MOUNTED INSIDE COMPARTMENT

FOR COVER, SEE DRAWING NO. 879

2" I.D. WIRE GUIDE

5-1/2" MIN.

11" MIN.
THE DEVICES WILL BE CONSTRUCTED OR CAST IN ACCORDANCE WITH SPECIAL PATENTED DEVICES, MATERIALS, AND PROCESSES.

SIGNAL HEAD MOUNT AND FLANGE ADAPTER WILL BE OF HIGH STRENGTH CAST ALUMINUM.

SIGNAL HEAD MOUNT SHALL BE FASTENED TO FLANGE ADAPTER BY MEANS OF FOUR COMMON STRUCTURAL STEEL BOLTS PER SPEC. EACH WITH TWO FLAT WASHERS, LOCK WASHER AND NUT.

ALL BOLTS, NUTS, AND WASHERS REQUIRED SHALL BE AS REGULARLY SUPPLIED BY THE MANUFACTURER.

ONE WAY MOUNT SHALL BE USED WHEN PLANS OR SPECIAL PROVISIONS CALL FOR ONE-WAY SIGNAL MOUNTED ON SIGNAL MAST ARM.

TWO WAY MOUNT SHALL BE USED WHEN TWO SIGNAL INDICATIONS MOUNTED BELOW THE MOUNT AND ALL REMAINING SIGNAL INDICATIONS MOUNTED ABOVE.

TAPERED ALUMINUM PLUMBING ADJUSTMENT WASHERS (2-1/2" I.D. - 4" O.D.- MINIMUM THICKNESS TOGETHER APPROX. 1-1/8"

FOUR 7/16" DIA. EQUALLY SPACED HOLES CENTERED ON A 4-3/4" DIA. CIRCLE.
SPECIFICATION REFERENCE
UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE
DWG. NO.

ONE WAY MOUNT FOR 3M SIGNALS

NOTES:

1. THE DEVICES WILL BE CONSTRUCTED OR CAST IN ACCORDANCE WITH SPECIAL PATENTED DEVICES, MATERIALS, AND PROCESSES.

2. SIGNAL HEAD MOUNT AND FLANGE ADAPTER WILL BE OF HIGH STRENGTH CAST ALUMINUM.

3. SIGNAL HEAD MOUNT SHALL BE FASTENED TO FLANGE ADAPTER BY MEANS OF FOUR COMMON STRUCTURAL STEEL BOLTS PER SPEC. EACH WITH TWO FLAT WASHERS, LOCK WASHER AND NUT.

4. ALL BOLTS, NUTS, AND WASHERS REQUIRED SHALL BE AS REGULARLY SUPPLIED BY THE MANUFACTURER.

5. ONE-WAY MOUNT SHALL BE USED WHEN PLANS OR SPECIAL PROVISIONS CALL FOR ONE-WAY SIGNAL MOUNTED ON SIGNAL MAST ARM.

6. TWO-WAY MOUNT SHALL BE USED WHEN PLANS OR SPECIAL PROVISIONS CALL FOR TWO-WAY SIGNAL MOUNTED ON SIGNAL MAST ARM.

7. TWO SIGNAL INDICATIONS SHALL BE MOUNTED BELOW THE MOUNT AND ALL REMAINING SIGNAL INDICATIONS MOUNTED ABOVE.

SECTION THROUGH ONE-WAY MOUNT FOR 3M SIGNALS

OPENING WITH 1/4" x 1/4" "O" RING GROOVE, TOP & BOTTOM

TAPERED ALUMINUM PLUMBING ADJUSTMENT WASHERS
(2-1/2" I.D. - 4" O.D. - MINIMUM THICKNESS TOGETHER APPROX. 1-1/8")

FOUR 7/16" DIA. EQUALLY SPACED HOLES CENTERED ON A 4-3/4" DIA. CIRCLE.

ONE-WAY MOUNT FOR 3M SIGNALS
32 H
1. ALTERNATE LOCATIONS FOR THE POLES MAY BE APPROVED BY THE AGENCY’S TRAFFIC ENGINEER.
NOTE:

1. ALTERNATE LOCATIONS FOR THE SIGNAL POLE MAY BE APPROVED BY THE AGENCY’S TRAFFIC ENGINEER.

AGENCY APPROVED

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<td></td>
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<td>POLE LOCATION &amp; SIGNAL</td>
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<td></td>
<td>MOUNTING AT INTERSECTION</td>
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<td></td>
<td>(SINGLE POLE)</td>
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<td></td>
<td>CURBSIDE SIDEWALK</td>
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</table>

DATE 7-10-03  DWG. NO. 885  SHEET 2 OF 2
NOTE:

1. ALTERNATE LOCATIONS FOR THE POLES MAY BE APPROVED BY THE AGENCY’S TRAFFIC ENGINEER.
MOUNT SIGNAL ASSEMBLIES ON SIDE OF POLE OPPOSITE OF CURB LINE AS SHOWN. SEE DRAWING NO. 823 FOR DRILLING DETAILS.

3 MIN. OFFSET FROM CENTER OF RETURN

P.T.

PED. PUSH BUTTONS. SEE DRAWING NO. 808 FOR DRILLING DETAILS.

UTILITY (ABOVE GROUND) CORRIDOR

NOTE:

1. ALTERNATE LOCATIONS FOR THE SIGNAL POLE MAY BE APPROVED BY THE AGENCY’S TRAFFIC ENGINEER.
POLE LOCATION AND SIGNALS
MOUNTING ON RIGHT TURN ISLANDS

NOTE:
SIDEWALK RAMPS IN ACCORDANCE WITH DRAWING NO. 235 SHALL BE CONSTRUCTED. HANDICAPPED ACCESS MUST BE IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).

MOUNT SIGNAL ASSEMBLIES ON SIDE OF POLE, 180° OPPOSITE OF CURB LINE AS SHOWN. SEE DWG. 823 FOR DRILLING DETAILS.

PED. PUSH BUTTONS. SEE DWG NO. 808 FOR DRILLING DETAILS.
NOTES:

1. THE AREA SHALL REMAIN ACCESSIBLE FOR THESE FOUNDATIONS.

2. TRAFFIC SIGNAL POLES SHALL REMAIN AT THE MIDDLE OF THE RETURN BEHIND THE SIDEWALK SO THAT THE OUTSIDE SIGNAL HEAD IS DIRECTLY ABOVE THE LEFT TURN LANE.

3. A TYPE "H" OR "L" FOUNDATION IS REQUIRED FOR MAST ARMS 45' OR LESS. SEE DRAWING NO. 721.

4. A TYPE "L" FOUNDATION IS REQUIRED FOR MAST ARMS LONGER THAN 45'. SEE DRAWING NO. 722.

5. A MINIMUM OF 48" SHALL BE MAINTAINED BETWEEN TRAFFIC SIGNAL POLE FOUNDATION "CRASH CAP" AND THE BACK OF THE CURB FOR WHEELCHAIR CLEARANCE.

THE TRAFFIC ENGINEER WILL MAKE THE FINAL DETERMINATION FOR THE LOCATION OF TRAFFIC SIGNAL POLES.
NOTE:
1. SEE PLANS FOR FOUNDATION TYPE.
TYPICAL TRAFFIC SIGNAL UNDERGROUND LAYOUT WITH INTERIM STREET LIGHTING AND SERVICE PEDESTAL (CENTER OF CURVE RADIUS)

**NOTES:**

1. ALL TRAFFIC SIGNAL POLES SHALL BE GALVANIZED PER ASTM A.123.
2. ELECTRIC UTILITY TO SHOW FEEDER TO SERVICE PEDESTAL.
3. FOR POLE, POLE FOUNDATION, SERVICE PEDESTAL AND SERVICE PEDESTAL FOUNDATION DETAILS, SEE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS.
4. EXTEND THE 2-2" PVC, THE 2-3" AND THE 1-PER TABLE PVC SCHEDULE 40, 5 FEET PAST EDGE OF PAVEMENT STUB AND CAP OR CONNECT TO THE EXISTING TRAFFIC SIGNAL CONDUIT.
5. ALL EMPTY CONDUIT WILL CONTAIN A SINGLE NO. 8 AWG THW OR BARE COPPER WIRE FOR THE PURPOSE OF LOCATING THE CONDUIT.

**TABLE**

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<tr>
<th></th>
<th>80 FT. TO 100 FT.</th>
<th>100 FT. OR GREATER</th>
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<tbody>
<tr>
<td><strong>FOUNDATION</strong></td>
<td>TYPE &quot;H&quot;</td>
<td>TYPE &quot;L&quot;</td>
</tr>
<tr>
<td><strong>POLE</strong></td>
<td>XX-30′</td>
<td>XX-A-30′</td>
</tr>
<tr>
<td><strong>LUM. ARM</strong></td>
<td>15′</td>
<td>15′</td>
</tr>
<tr>
<td><strong>LUMINAIRE</strong></td>
<td>400w/120v</td>
<td>400w/120v</td>
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<tr>
<td><strong>LVACTS COMM.</strong></td>
<td>3&quot;</td>
<td>3&quot; (80 FT.)</td>
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</table>

* USE FOR 80 FT. R/W WHEN SINGLE LEFT TURN LANE IS REQUIRED.
* USE FOR 80 FT. R/W WHEN MULTIPLE TURN LANCES ARE REQUIRED.
* USE ONLY WHEN DIRECTED BY THE ENGINEER.

**PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE**
TYPICAL TRAFFIC SIGNAL UNDERGROUND LAYOUT WITH INTERIM STREET LIGHTING AND SERVICE PEDESTAL (END OF CURVE RADIUS)

COMM CONDUIT PER TABLE

EXTEND THE 2-2" PVC, THE 2-3" AND THE 1-PER TABLE PVC SCHEDULE 40, 5 FEET PAST EDGE OF PAVEMENT STUB AND CAP OR CONNECT TO THE EXISTING TRAFFIC SIGNAL CONDUIT.

FOR POLE, POLE FOUNDATION, SERVICE PEDESTAL AND SERVICE PEDESTAL FOUNDATION DETAILS, SEE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS.

ALL EMPTY CONDUIT WILL CONTAIN A SINGLE No. 8 AWG THW OR BARE COPPER WIRE FOR THE PURPOSE OF LOCATING THE CONDUIT.

** USE FOR 80 FT. R/W WHEN MULTIPLE TURN LANES ARE REQUIRED.
*** USE ONLY WHEN DIRECTED BY THE ENGINEER.

NOTES:
1. ALL TRAFFIC SIGNAL POLES SHALL BE GALVANIZED PER ASTM A.123.
2. ELECTRIC UTILITY TO SHOW FEEDER TO SERVICE PEDESTAL.
3. FOR POLE, POLE FOUNDATION, SERVICE PEDESTAL AND SERVICE PEDESTAL FOUNDATION DETAILS, SEE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS.
4. EXTEND THE 2-2" PVC, THE 2-3" AND THE 1-PER TABLE PVC SCHEDULE 40, 5 FEET PAST EDGE OF PAVEMENT STUB AND CAP OR CONNECT TO THE EXISTING TRAFFIC SIGNAL CONDUIT.
5. ALL EMPTY CONDUIT WILL CONTAIN A SINGLE No. 8 AWG THW OR BARE COPPER WIRE FOR THE PURPOSE OF LOCATING THE CONDUIT.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

SPECIFICATION REFERENCE

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<td>XX-30</td>
<td>15</td>
<td>400w/120v</td>
<td>3&quot;</td>
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<tr>
<td>TYPE &quot;L&quot;</td>
<td>XX-A-30</td>
<td>15</td>
<td>400w/120v</td>
<td>3&quot; (80 FT.)</td>
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<tr>
<td>TYPE &quot;M&quot;</td>
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<td>15</td>
<td>400w/120v</td>
<td>4&quot; (100 FT.)</td>
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</table>

** USE FOR 80 FT. R/W WHEN SINGLE LEFT TURN LANE IS REQUIRED.
*** USE ONLY WHEN DIRECTED BY THE ENGINEER.

AGENCY APPROVED

B C H L M N

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL TRAFFIC SIGNAL UNDERGROUND LAYOUT WITH INTERIM STREET LIGHTING AND SERVICE PEDESTAL

DATE 3-13-03 DWG. NO. 889 SHEET 2 OF 2
SPECIFICATIONS:

The arrow lens shall be glass and conform to the specifications as set forth in Technical Report No. 1, Revised 19... by the Institute of Traffic Engineers and approved as a standard by the United States of America Standard Institute. Any future revisions acceptable and adopted by the U.S.A.S.I. shall automatically be part of this drawing specification.
1. MAIN SWITCH.
2. 30 AMP CIRCUIT BREAKERS.
3. SIGNAL FLASH SWITCH INSIDE CABINET.
4. AUXILIARY DOOR SIGNAL FLASH SWITCH.
5. NEMA STD. PLUG RECEPTACLE WITH GROUNDING CONTACT.
6. RADIO FREQUENCY INTERFERENCE SUPPRESSOR.
7. SOLID STATE SIGNAL FLASHER (CABINET MFR. TO DETERMINE POLES AND CAPACITY, UNLESS OTHERWISE SPECIFIED)
8. SIGNAL FLASHING CONTROL RELAYS.

NOTE:
THERMOSTAT, FAN WIRING, AND TERMINAL BLOCK CONNECTIONS NOT SHOWN.

AC+ LIGHTS

AC+ FOR CONTROLLER, AUX. EQUIPMENT TIMING DEVICES AND DETECTOR AMPLIFIERS.

NOTES:

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AUXILIARY CABINET EQUIPMENT WIRING

DATE DWG. NO. 891