

GENERAL TRAFFIC SIGNAL NOTES

1. LOCATIONS OF UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES OR STRUCTURES NOT SHOWN OR NOT IN THE LOCATION SHOWN ON THE DRAWINGS. THE CONTRACTOR'S RESPONSIBILITY REGARDING UTILITIES SHALL BE AS REQUIRED UNDER SECTION 105.06 OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS. CLARK COUNTY AREA, NEVADA, LATEST EDITION. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 2 WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION.

CALL BEFORE YOU DIG	1-800-227-2600
CALL BEFORE YOU OVERHEAD	1-702-227-2929
CITY OF HENDERSON PUBLIC WORKS	1-702-267-3000
NV ENERGY	1-702-402-5555
2. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT FROM DAMAGING EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. CONTRACTOR SHALL, AT HIS OWN EXPENSE, REPAIR, REPLACE OR RECONSTRUCT ALL SUCH IMPROVEMENTS OR OTHER STRUCTURES DAMAGED BY HIS WORK, TO THE ENGINEER'S SATISFACTION.
3. CONTRACTOR SHALL CHECK CONDUIT AND CABLE SCHEDULE FOR CONDUIT, CABLE, AND WIRE SIZE, AND VERIFY ALL EXISTING CONDUIT RUNS AS SHOWN ON THE PLAN ARE USABLE.
4. CONDUIT RUNS, AS SHOWN ON THE DRAWINGS, ARE FOR CLARITY ONLY. ALL MULTIPLE CONDUIT RUNS SHALL BE THE SAME TRENCH WHENEVER POSSIBLE.
5. ALL SIGNAL CABLE SHALL RUN FROM CONTROLLER CABINET TERMINALS TO SIGNAL TERMINAL COMPARTMENT TERMINALS WITHOUT SPLICES, SINGLE CONDUCTORS SHALL BE INSTALLED FROM THE VEHICLE SIGNAL TERMINAL BLOCK OR THE PEDESTRIAN SIGNAL TERMINAL BLOCK TO PEDESTRIAN PUSH BUTTONS, MAST ARM SIGNALS, AND PEDESTRIAN SIGNALS. ALL PEDESTRIAN PUSH BUTTONS TO HAVE TWO ISOLATED WIRES FROM BUTTON TO CABINET TERMINATION BLOCK.
6. NEW TRAFFIC SIGNAL CONDUITS SHALL BE INSTALLED IN TRENCH SUCH THAT THE TOP OF CONDUIT SHALL HAVE A MINIMUM COVER OF 24-INCHES BELOW FINISHED GRADE PER CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS NO. 732 AND 733. NEW FIBER OPTIC CONDUITS SHALL HAVE A MINIMUM COVER OF 30-INCHES BELOW FINISHED GRADE PER CLARK COUNTY AREA UNIFORM STANDARD SPECIFICATIONS SECTION 623 G.03.12.
7. ALL WIRES SHALL BE COPPER, SOLID FOR GAUGES UP TO NO.10 AWG AND STRANDED FOR LARGER GAUGES, UNLESS OTHERWISE NOTED.
8. ALL CONDUIT RUNS SHALL INCLUDE A NO. 8 AWG AND GROUNDING CONDUCTOR WITH GREEN INSULATION.
9. SIGNAL CABLE SHALL BE 25 CONDUCTORS NO. 14 AWG AND, UNLESS OTHERWISE NOTED, SHALL MEET IMSA SPECIFICATIONS 20-1.
10. POWER AND/OR LIGHTING CIRCUITS SHALL USE THW OR THW2 600 VOLT INSULATION, AND SHALL BE OF THE GAUGES LISTED IN THE SCHEDULE.
11. CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY CONDUIT FROM THE NV ENERGY TRANSFORMER TO THE SERVICE POINT TO ACTIVATE TRAFFIC SIGNAL.
12. CONTRACTOR SHALL SECURE NV ENERGY APPROVAL OF THE SERVICE INSTALLATION.
13. CITY OF HENDERSON TO PROVIDE NAZTEC 980 CONTROLLER WITH APOGEE LICENSE.
14. CONTRACTOR SHALL PROVIDE AND INSTALL NEW TYPE VIII "R" CABINET WITH EXHAUST FAN AND THERMOSTAT CONTROL ON TYPE "J" FOUNDATION PER CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS NO. 803 AND 725. TOP OF FOUNDATION SHALL BE 6 INCHES ABOVE THE FINISHED GRADE. CABINETS SHALL BE ANODIZED ALUMINUM, AND INCLUDE INSIDE MODULES, SWITCHES, OPTICOM, FLASHERS AND AREA WIDE COMPUTER CONTROL. CONTRACTOR SHALL PROVIDE AND INSTALL NEW MMU2 EDI MODEL 16LEIP OR APPROVED EQUIVALENT. CITY OF HENDERSON SHALL PROVIDE AND INSTALL NAZTEC 980 CONTROLLER WITH APOGEE LICENSE. CONTROLLER SHALL BE WIRED IN CABINET TO ACTIVATE THE PHASE OPERATION AS SHOWN ON THE PLAN. CABINET SHALL CONFORM TO CITY OF HENDERSON TRAFFIC SIGNAL CABINET SPECIFICATIONS. CONTRACTOR SHALL

PREPARE AS-BUILT DRAWINGS UPON COMPLETION OF THE PROJECT DETAILING ANY CHANGES TO THE CONTROLLER OPERATION. CONTROLLER CABINET AND ALL INTERNAL EQUIPMENT WILL BE DELIVERED TO CITY OF HENDERSON PUBLIC WORKS DEPARTMENT TRAFFIC OPERATIONS AND MAINTENANCE FOR TESTING PRIOR TO INSTALLATION. PLEASE CONTACT TRAFFIC OPERATIONS AND MAINTENANCE AT (702) 267-3200 TO SCHEDULE DELIVERY TO 2101 MOSER DRIVE, HENDERSON, NEVADA 89011.

15. 200AMP SERVICE PEDESTAL SHALL INCLUDE THE FOLLOWING:
 - ONE (1) 200 AMP DOUBLE POLE CIRCUIT BREAKER (MAIN)
 - ONE (1) 40 AMP SINGLE POLE CIRCUIT BREAKER (TRAFFIC SIGNAL)
 - FOUR (4) 15 AMP SINGLE POLE CIRCUIT BREAKERS (INTERSECTION LIGHTING)ONE (1) 15 AMP SINGLE POLE CIRCUIT BREAKER (PHOTO CELL) IF AN EXISTING SERVICE PEDESTAL IS USED TO POWER THE TRAFFIC SIGNAL, CONTRACTOR SHALL INSPECT THE EXISTING SERVICE PEDESTAL, AND SUPPLY AND INSTALL ANY MISSING BREAKERS.
16. THE CONTRACTOR SHALL SUPPLY A LAYER 2 FIELD-HARDENED ETHERNET SWITCH FOR EACH TRAFFIC SIGNAL CONTROLLER CABINET TO RTC-FAST PER CLARK COUNTY AREA UNIFORM STANDARD SPECIFICATIONS SECTION 684.
17. THE TRAFFIC SIGNAL PULL BOX IN THE SAME CORNER AS THE CONTROLLER CABINET SHALL BE A 60-INCH X 36-INCH X 24-INCH (LENGTH X WIDTH X DEPTH) TYPE 100 VAULT MARKED "TRAFFIC SIGNAL". THE PULL BOX ASSEMBLY SHALL BE POLYMER CONCRETE VAULT WITH TORSION ASSIST POLYMER CONCRETE COVER.
18. ALL OTHER PULL BOXES SHALL BE NO. 7 PRECAST REINFORCED CONCRETE AND HAVE NON-CONDUCTIVE LIDS MARKED "TRAFFIC SIGNAL" OR "STREET LIGHTING" UNLESS OTHERWISE NOTED. EXISTING PULL BOX COVERS THAT ARE MARKED INCORRECTLY SHALL BE REPLACED.
19. REGRADE LANDSCAPING AS NEEDED AND REPLACE DAMAGED IRRIGATION LINES WITHIN 24 HOURS.
20. LOCATION OF CONTROLLER, PULL BOXES, CONDUIT RUNS AND POLES SHALL BE WITHIN PUBLIC RIGHT-OF-WAY. IF ANY OF THESE ITEMS CANNOT BE LOCATED WITHIN THIS RIGHT-OF-WAY, THEN EASEMENTS MUST BE OBTAINED TO ALLOW THE INSTALLATIONS. THE FINAL LOCATIONS FOR POLE SHALL BE VERIFIED BY THE TRAFFIC ENGINEER AT THE TIME OF CONSTRUCTION.
21. BEFORE ANY WORK IS STARTED IN THE CITY OF HENDERSON RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL STREET ENCROACHMENTS IMMEDIATELY AFTER REMOVAL OF PERMANENT STOP SIGNS, AND SHALL MAINTAIN SAID SIGNS WHILE INSTALLED.
22. INTERSECTION LIGHTING SHALL CONSIST OF LUMINAIRES THAT MEET CITY OF HENDERSON LIGHTING STANDARDS FOR INTERSECTIONS WITH INTEGRAL PHOTOELECTRIC (PE) CONTROL, 120 VOLT. EACH INTERSECTION LUMINAIRE SHALL BE FUSED AT THE BOTTOM OF EACH POLE USING IN-LINE WATERPROOF FUSEHOLDERS.
23. EMERGENCY VEHICLE PREEMPT SYSTEM SHALL INCLUDE GTT MODEL 760 CARD RACK, GTT MODEL 764 4-CHANNEL PHASE SELECTOR, GTT MODEL 3100 GPS RADIO UNIT – MAST MOUNT, AND GTT MODEL 1070 GPS INSTALLATION CABLE. CABLE SHALL RUN FROM RADIO UNIT TO CARD RACK IN CONTROLLER CABINET. RADIO UNIT SHALL BE MOUNTED ON THE POLE SHAFT 3 FEET BELOW THE TOP OF THE POLE, AIMED TOWARDS THE CENTER OF THE INTERSECTION.
24. ALL INDICATIONS ON VEHICLE SIGNAL HEADS (12") AND PEDESTRIAN SIGNAL HEADS SHALL BE SUPPLIED WITH LIGHT EMITTING DIODE (LED) VEHICLE PEDESTRIAN TRAFFIC SIGNAL MODULES AND COUNTDOWN PEDESTRIAN TIMERS WITH R10-3E PEDESTRIAN PUSH BUTTON SIGN CONSISTENT WITH CURRENT MUTCD STANDARDS.
25. ACCESSIBLE PEDESTRIAN SIGNALS AND DETECTORS SHALL INCLUDE AUDIBLE LOCATER TONES AND AUDIBLE WALK INDICATIONS CONSISTENT WITH CURRENT MUTCD STANDARDS.
26. CONTRACTOR SHALL SUPPLY AND INSTALL A POLARA INS2 ACCESSIBLE PEDESTRIAN SYSTEM, OR AN APPROVED EQUIVALENT BY THE ENGINEER. A SYSTEM SHALL INCLUDE A SHELF MOUNT CONTROL UNIT, (INS2) 2-WIRE PUSH BUTTON STATION AND ALL OF THE NECESSARY AUXILIARY EQUIPMENT. THE PUSH BUTTON SYSTEM SHALL HAVE BLACK OR GREEN FRONT COVER.

27. CONTRACTOR SHALL ALSO SUPPLY AND INSTALL A R10-3E PEDESTRIAN PUSH BUTTON SIGN. SIGNS SHALL BE 9 INCH X12 INCH IN SIZE AND SHALL HAVE RETROREFLECTIVE SHEETING WITH ANTI GRAFFITI FILM.
28. NEW AND/OR RELOCATED SIGNAL HEADS AND TENONS SHALL BE WELDED IN THE FIELD TO ENSURE ACCURATE PLACEMENT. EXISTING HOLES THAT ARE NO LONGER BEING USED SHALL BE TAPPED/PLUGGED OR WELDED/PLUGGED, AND SHALL BE TOUCHED UP WITH HOT-STICK GALVANIZING.
29. NEW AND/OR RELOCATED SIGNAL HEADS SHALL HAVE BACKPLATES WITH RETROREFLECTIVE BORDERS CONSISTENT WITH CURRENT MUTCD STANDARDS. FOR EXISTING SIGNAL HEADS, RETROREFLECTIVE SHEETING BORDER RETROFIT KITS MAY BE USED. FOR NEW SIGNAL HEADS, THE BACKPLATE WITH RETROREFLECTIVE SHEETING BORDER SHALL BE FROM THE SAME MANUFACTURER AS THE SIGNAL HEAD ASSEMBLY. THE COMPLETE SIGNAL HEAD ASSEMBLY, INCLUDING THE BACKPLATE, SHALL BE CAPABLE OF WITHSTANDING WINDS OF 90MPH WITHOUT DAMAGE OR SEPARATION OF ANY PARTS FROM THE SIGNAL HEAD ASSEMBLY.
30. NEW AND/OR RELOCATED SIGNAL HEADS SHALL HAVE FULL CIRCLE VISORS.
31. A BLANK 24"X30" SIGN PANEL SHALL BE INSTALLED HORIZONTALLY ON ALL MAST ARMS FORTY-FIVE (45) FEET IN LENGTH OR LESS. A VALMONT MITIGATOR TR1 TRAFFIC DAMPER SHALL BE INSTALLED ON ALL MAST ARMS EXCEEDING FORTY-FIVE (45) FEET IN LENGTH. COORDINATE WITH THE CITY OF HENDERSON PUBLIC WORKS DEPARTMENT TRAFFIC OPERATIONS AND MAINTENANCE FOR DETAILS.
32. FLIR TRAFI-SENSE DUAL MODEL 625 CAMERA DETECTION SYSTEM WITH ALL OF THE NECESSARY AUXILIARY EQUIPMENT SHALL BE INSTALLED IN CONTROLLER CABINET. MOUNT DETECTION CAMERAS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. THE VIDEO DETECTION SHALL HAVE THE CAPABILITY OF SENSING A VEHICLE ANYWHERE WITHIN THE "MINIMUM LIMITS OF DETECTION ZONE" SHOWN. CONTRACTOR SHALL CONTACT CITY OF HENDERSON PUBLIC WORKS DEPARTMENT TRAFFIC OPERATIONS AND MAINTENANCE TO FIELD VERIFY THE REQUIRED FIELD OF VIEW FOR THE CAMERAS. ONE BELDEN 1031A CABLE SHALL BE INSTALLED FROM THE CONTROLLER CABINET TO EACH CAMERA.
33. CONTRACTOR SHALL REMOVE AND REPLACE ALL EXISTING DETECTION CAMERAS AND ALL OF THE NECESSARY AUXILIARY EQUIPMENT WITH THE CURRENT MODEL. THIS MAY INCLUDE, BUT IS NOT LIMITED TO, DETECTION CAMERAS, INTERFACE IN THE CONTROLLER CABINET, CAMERA MOUNT, AND ALL ASSOCIATED MOUNTING HARDWARES.
34. CONTRACTOR SHALL SUPPLY AND INSTALL A CCTV CAMERA WITH EXTENSION POLE FOR EACH SIGNALIZED INTERSECTION PER CLARK COUNTY AREA UNIFORM STANDARD SPECIFICATIONS SECTION 687 AND STANDARD DRAWING NO. 766. IF THE PLAN SHOWS MORE THAN ONE CCTV CAMERA IS REQUIRED, CONTRACTOR SHALL SUPPLY AND INSTALL THE NUMBER OF CCTV CAMERAS WITH EXTENSION POLES AT THE LOCATIONS AS SHOWN ON THE PLAN.
35. CONTRACTOR SHALL SUPPLY AND INSTALL CDCA AND DROP CABLE FOR EACH SIGNALIZED INTERSECTION PER CLARK COUNTY AREA UNIFORMS STANDARD SPECIFICATIONS SECTION 681 AND STANDARD DRAWING NO. 767.
36. ILLUMINATED STREET NAME SIGNS SHALL BE INSTALLED PER CLARK COUNTY AREA UNIFORM STANDARD DRAWING NO. 818.1. LETTERS FOR STREET NAMES SHALL BE 12-INCH SERIES D, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, AND SHALL BE UPPER AND LOWERCASE. IF NECESSARY TO MAKE SPACING FIT, 12-INCH SERIES C MAY BE USED. LOWER CASE LETTERS SHALL BE 9 INCH IN HEIGHT. LETTERS FOR STREET NAME SUFFIX SHALL BE 5-INCH SERIES C, AND SHALL BE UPPER AND LOWERCASE. STREET NAME CARDINAL DIRECTION AND BLOCK NUMBER SHALL BE ON A SEPARATE SIGN PANEL PER CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS NO. 819. CARDINAL AND BLOCK NUMBER SHALL BE 8-INCH SERIES E. ALL SIGNS SHALL BE SUPPLIED WITH TWO 8-FT T8 LED TUBES, EIKO 12536 LED40WT8/96/840-FA8-G9D LMP (GLASS BYPASS/LINE VOLTAGE DBL ENDED T8 8FT 40W-5500LM 4000K 80CRI FA8 120-277V) OR APPROVED EQUIVALENT. CONTRACTOR SHALL SUPPLY AND INSTALL ONE 16/3 SEOWW CORD THAT SHALL RUN CONTINUOUSLY FROM THE ILLUMINATED STREET NAME SIGN ENCLOSURE, THROUGH TWO STRAIN RELIEF CONNECTORS, TO THE HAND HOLE AT THE BASE OF THE TRAFFIC SIGNAL POLE.
37. CONTRACTOR SHALL EXERCISE CARE WITH ALL SALVAGED ITEMS AND SHALL ASSUME THAT ITEMS WILL BE RE-USED AGAIN BY THE CITY. ALL SALVAGED TRAFFIC SIGNAL POLES SHALL INCLUDE LUMINAIRE ARMS, LUMINAIRES, AND TRAFFIC SIGNAL HEADS DISASSEMBLED FROM THE POLE AND LAMPS REMOVED AND DISPOSED OF PROPERLY. ALL SALVAGED EQUIPMENT SHALL HAVE ALL COMPONENTS INCLUDED AND DISASSEMBLED FROM THEIR MAIN COMPONENTS. SALVAGED SIGNS THAT ARE ATTACHED TO SALVAGED SIGN POSTS, MAST ARMS OR SIGNAL POLES SHALL BE DISASSEMBLED AND SEPARATED FROM THE SIGN POSTS, MAST ARMS OR SIGNAL POLES PRIOR TO DELIVERY.

38. ALL SALVAGED TRAFFIC ITEMS SHALL BE DELIVERED AND OFF-LOADED AT THE CITY OF HENDERSON PUBLIC WORKS DEPARTMENT TRAFFIC OPERATIONS AND MAINTENANCE YARD AT 2101 MOSER DRIVE, HENDERSON NV 89011 BY APPOINTMENT ONLY BETWEEN 6:30 A.M. TO 3:00 P.M. MONDAY THROUGH THURSDAY. PLEASE CALL (702) 267-3200 TO MAKE AN APPOINTMENT.
39. SIX (6) SINGLE CONDUCTOR UF WIRES SHALL BE PROVIDED FROM ALL EMPTY TENONS TO THE "J" BOX ON THE MAST ARM POLE. EACH WIRE SHALL BE A DIFFERENT COLOR.
40. CONTRACTOR SHALL INSTALL McCAIN RED LIGHT VIOLATOR DETECTION UNIT, CURRENT MODELS FOR RED AND BLUE INDICATORS, AS SHOWN ON THE POLE SCHEDULE FOR EACH INTERSECTION. THE RED INDICATOR SHALL BE MOUNTED BETWEEN SIXTEEN TO TWENTY FEET ABOVE THE BASE PLATE OF THE SIGNAL POLE AND SHALL DETECT THE MAST ARM STRAIGHT THROUGH SIGNAL RED INDICATION. THE BLUE INDICATOR SHALL BE MOUNTED ONE FOOT ABOVE THE RED INDICATOR AND SHALL DETECT THE SIDE MOUNT LEFT TURN RED INDICATION. THE INDICATORS SHALL BE MOUNTED AS SHOWN AND INDICATION ON CLARK COUNTY AREA UNIFORM STANDARD DRAWING NO. 811.S1. CONTRACTOR SHALL INSTALL THE INDICATORS AT A MOUNTING HEIGHT WHERE THEY WILL NOT BE OBSTRUCTED BY ANY SIDE MOUNTED SIGNAL HARDWARE. CONTRACTOR SHALL WIRE INDICATORS DIRECTLY TO BUSS IN "J" BOX PER CALL OUT PHASING IN POLE SCHEDULE.