

LORSON RANCH COMMERCIAL NORTH



INDEX OF SHEETS

SHEET No.

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EL PASO COUNTY TRAFFIC SIGNAL & SIGNING PLAN PCD FILE NUMBER SF248

CONTACT LIST

OWNER/DEVELOPER
THE LANDHUIS COMPANY
212 N. WAHSATCH AVENUE, SUITE 301
COLORADO SPRINGS, CO 80903
JEFF MARK
(719) 635-3200

CIVIL ENGINEER
MATRIX DESIGN GROUP
2435 RESEARCH PARKWAY, SUITE 300
COLORADO SPRINGS, CO 80920
SCOTT D. BARNHART, P.E.
(719) 575-0100

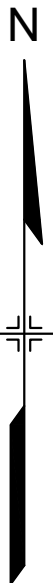
WATER/SANITARY SERVICES
WIDEFILED WATER AND SANITATION DISTRICT
8495 FONTAINE BOULEVARD
COLORADO SPRINGS, CO 80925
ROBERT BANNISTER, (719) 390-7111

ELECTRIC SERVICES
MOUNTAINVIEW ELECTRIC ASSOCIATION
(719) 495-2283

GAS SERVICES
BLACK HILLS ENERGY
105 S VICTORIA AVENUE
PUEBLO, CO 80817
(800) 303-0752

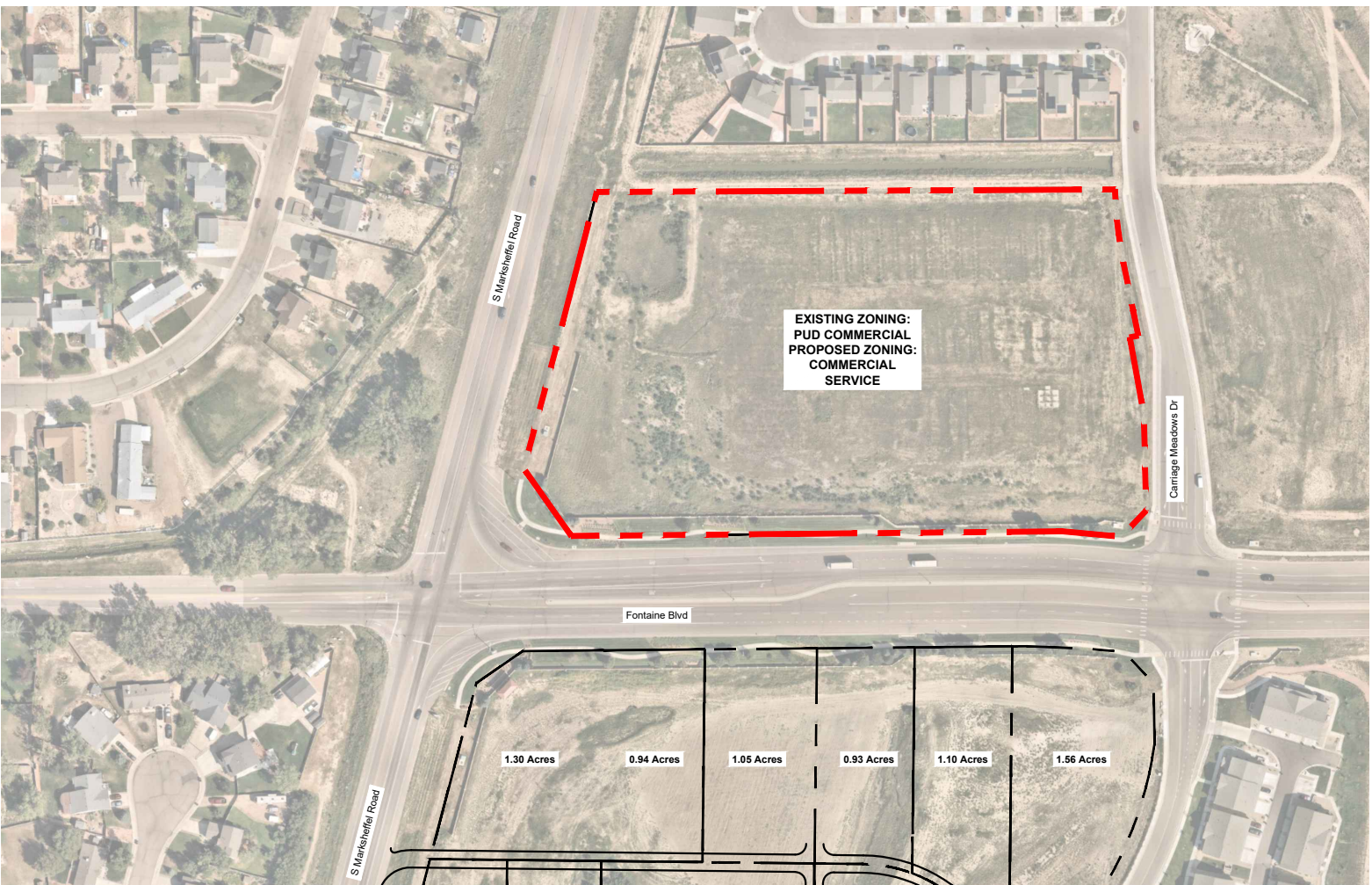
ENGINEERING
EL PASO COUNTY PUBLIC WORKS DEPARTMENT
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
(719) 520-6460

FIRE DEPARTMENT
COLORADO SPRINGS FIRE DEPARTMENT
375 PRINTERS PARKWAY
COLORADO SPRINGS, CO 80910
(719) 444-7000



VICINITY MAP

N.T.S



SITE MAP

N.T.S

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID DETAILED PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERION ESTABLISHED BY THE COUNTY FOR DETAILED DRAINAGE PLANS AND SPECIFICATIONS, AND SAID DETAILED PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH THE MASTER PLAN OF THE DRAINAGE BASIN. SAID DETAILED DRAINAGE PLANS AND SPECIFICATIONS MEET THE PURPOSE FOR WHICH THE PARTICULAR DRAINAGE FACILITY(S) IS DESIGNED. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THE DETAILED DRAINAGE PLANS AND SPECIFICATIONS.

BY: _____ DATE: _____
SCOTT BARNHART, P.E. #37447
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.

OWNER/DEVELOPER:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLANS AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS

JEFF MARK
PROJECT MANAGER
THE LANDHUIS COMPANY
212 N WAHSATCH AVENUE, SUITE 301
COLORADO SPRINGS, CO 80903

DATE

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILES IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JOSHUA PALMER, P.E.
COUNTY ENGINEER/ ECM ADMINISTRATOR

DATE

THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY EL PASO COUNTY DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATIONS OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS.

REFERENCE DRAWINGS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</	
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STANDARD NOTES FOR CONSTRUCTION:

1.

ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3.

CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING

3.1.

EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)

3.2.

CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 & 2

3.3.

COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

3.4.

CDOT M & S STANDARDS
4.

NOT WITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5.

IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6.

CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD)- INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (WSQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8.

CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9.

ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10.

CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11.

ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12.

SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13.

SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
14.

CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15.

THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

DESIGN DATA:

1.

THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY PRISM WITH THE FOLLOWING SOIL PARAMETERS:

SOIL DENSITY γ = 110 LB./CU.FT.

SOIL COHESION = 750 LB./SQ.FT. FOR MEDIUM STIFF COHESIVE SOIL

SOIL ϕ ANGLE = 30° FOR MEDIUM DENSE COHESIONLESS SOIL

SF - 1.25 FOR TORSIONAL RESISTANCE AND 3.D FOR FLEXURAL RESISTANCE
2.

CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:

(A)

SIGNALS WILL NOT BE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM.

(B)

THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.

(C)

THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.

(D)

THE FOUNDATION SOILS ARE NOT HOMOGENOUS.

(E)

FIRM BEDROCK IS ENCOUNTERED
3.

TRAFFIC SIGNAL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES, AND TRAFFIC SIGNALS, FOURTH EDITION, 2001.
4.

A DESIGN WIND VELOCITY OF 100 MPH AND ONE 12' LANE WITH A 65 MPH TRUCK INDUCED GUST LOADING HAVE BEEN USED FOR THE DESIGNS HEREIN.
5.

GALLOPING LOADS ARE EXCLUDED FROM FATIGUE DESIGN AND CATEGORY TWO IMPORTANCE FACTORS HAVE BEEN USED.
6.

THE SOCKET WELD OPTION IS LIMITED TO 150% OF THE ALLOWABLE FATIGUE STRESS FOR AN E'WELD IN ORDER TD RECOGNIZE THE BENEFICIAL EFFECTS DERIVED FROM LOAD SHARING BETWEEN THE TWO WELDS.

MATERIAL DATA:

ELEMENT	STANDARDS (ASTM/AASHTO; CDOT)	NOTES
POSTS, MAST ARMS	SEE NOTE 1	SEE NOTE 1
BARS, PLATES AND SHAPES	A709/W-270	SEE NOTE 2
HOLLOW STRUCTURAL SECTIONS (HSS)	A500	SEE NOTE 3
HIGH-STRENGTH BOLTS (H.S. BOLTS)	A325/M-164	SEE NOTE 4
HIGH-STRENGTH NUTS	A563/M-291	
HIGH-STRENGTH WASHERS	F436/ M-292	SEE NOTE 5
U-BOLTS (RODS)	F1554/W-314	GRADE 55 STEEL
ANCHOR BOLTS	F-1554/M-314	GRADE 55 STEEL
POLES, BARS AND PLATES	VARIOUS	SEE NOTE 6
POLES	VARIOUS	SEE NOTE 7
CAISSON CONCRETE	CDOT	SEE NOTE 8

NOTES:

1.

PIPES SHALL BE WELDED OR SEAMLESS STEEL PIPE CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A53 GRADE B, A500 GRADE B,OR ASTM A106 GRADE B.
2.

GRADES 36 OR 50 STEEL. ASTM A992 SHAPES MAY BE SUBSTITUTED.
3.

HOLLOW STRUCTURAL SECTION SPECIFICATIONS APPLY TO THE STRUCTURAL TUBING SECTIONS (TS) USED AT HANDHOLES AND STATIC SIGN LIGHTING LOCATIONS.
4.

TENSION CONTROL (TC) BOLTS CONFORMING TO ASTM F1852 MAY BE SUBSTITUTED FOR ASTM A325 BOLT ALL OTHER BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS OF ASTM DESIGNATION: A307. INSTALL A307 BOLTS WITH COMMERCIAL QUALITY WASHERS.
5.

ASTM F959, COMPRESSIBLE-WASHER-TYPE DIRECT TENSION INDICATORS MAY BE SUBSTITUTED FOR ASTM F436 WASHERS AT HIGH-STRENGTH BOLTED CONNECTIONS.
6.

POLES, BARS AND PLATES SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES THAT ARE SPECIFIED IN ASTM A500, A501, 595 DR A6, AS APPLICABLE.
7.

CERTIFIED MILL TEST REPORTS INCLUDING CHARPY V-NOTCH (CVN) TEST RESULTS, WELD INSPECTION REPORTS AND ENHANCED MAGNETIC PARTICLE TEST REPORTS SHALL BE SUBMITTED TO CDOT STAFF BRIDGE, 2829 W. HOWARD PL., DENVER COLORADO 80204 AS SOON AS THEY BECOME AVAILABLE. CVN TEST RESULTS FOR ASTM A572 GRADES 42, 55 AND 65 STEEL SHALL HAVE A MINIMUM VALUE OF 15 FT-LBS AT 40° F AS PER THE H FREQUENCY TEST REQUIREMENTS IN AASHTO T243 (ASTM A673).
8.

CAISSONS SHALL BE CONSTRUCTED WITH AIR ENTRAINED (5 TD 8%) CLASS BZ CONCRETE IN ACCORDANCE WITH SECTION 503 OF THE STANDARD SPECIFICATIONS.

TRAFFIC DETAILS:

CDOT PLAN NUMBER	S	STANDARD TITLE	NUMBER OF SHEETS
<input type="checkbox"/>	S-612-1	DELINEATOR INSTALLATIONS	8 SHEETS
<input checked="" type="checkbox"/>	S-613-1	ROADWAY LIGHTING	8 SHEETS
<input type="checkbox"/>	S-614-1	TYPICAL GROUND SIGN PLACEMENT	2 SHEETS
<input type="checkbox"/>	S-614-2	CLASS I SIGNS	1 SHEET
<input type="checkbox"/>	S-614-3	CLASS II SIGNS	1 SHEET
<input type="checkbox"/>	S-614-4	CLASS III SIGNS	3 SHEETS
<input type="checkbox"/>	S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS	2 SHEETS
<input type="checkbox"/>	S-614-6	CONCRETE FOOTINGS AN SIGN ISLANDS FOR CLASS III SIGNS	2 SHEETS
<input type="checkbox"/>	S-614-8	TUBULAR STEEL SIGN SUPPORT DETAILS	7 SHEETS
<input checked="" type="checkbox"/>	S-614-9	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	2 SHEETS
<input type="checkbox"/>	S-614-10	MARKER ASSEMBLY INSTALLATIONS	1 SHEET
<input type="checkbox"/>	S-614-11	MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	1 SHEET
<input type="checkbox"/>	S-614-12	STRUCTURE NUMBER INSTALLATION	2 SHEETS
<input type="checkbox"/>	S-614-14	FLASHING BEACON AND SIGN INSTALLATION	4 SHEETS
<input type="checkbox"/>	S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATIONS	1 SHEET
<input type="checkbox"/>	S-614-21	CONCRETE BARRIER SIGN POST INSTALLATION	2 SHEETS
<input type="checkbox"/>	S-614-22	TYPICAL MULTI-SIGN INSTALLATION	1 SHEET
<input checked="" type="checkbox"/>	S-614-40	TYPICAL TRAFFIC SIGNAL 30'-75' DOUBLE MAST ARMS & 65'-75' SINGLE MAST ARMS	5 SHEETS
<input checked="" type="checkbox"/>	S-614-40A	ALTERNATIVE TRAFFIC SIGNAL 25'-55' SINGLE MAST ARMS	4 SHEETS
<input type="checkbox"/>	S-614-41	TEMPORARY SPAN WIRE SIGNALS	13 SHEETS
<input checked="" type="checkbox"/>	S-614-42	CABINET FOUNDATION DETAIL	4 SHEETS
<input checked="" type="checkbox"/>	S-614-43	TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS	8 SHEETS
<input checked="" type="checkbox"/>	S-614-44	PEDESTAL POLE SIGNALS	2 SHEETS
<input type="checkbox"/>	S-614-50	STATIC SIGN MONOTUBE STRUCTURES	12 SHEETS
<input type="checkbox"/>	S-614-60	DYNAMIC SIGN MONOTUBE STRUCTURES	14 SHEETS
<input checked="" type="checkbox"/>	S-627-1	PAVEMENT MARKINGS	9 SHEETS
<input type="checkbox"/>	S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	24 SHEETS
<input type="checkbox"/>	S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	1 SHEET
<input type="checkbox"/>	S-630-3	FLASHING BEACON (PORTABLE) DETAILS	1 SHEET
<input type="checkbox"/>	S-630-4	STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DESIGN	2 SHEETS
<input type="checkbox"/>	S-630-5	PORTABLE RUMBLE STRIPS (TEMPORARY)	2 SHEETS
<input type="checkbox"/>	S-630-6	EMERGENCY PULL-OFF AREA (TEMPORARY)	1 SHEET
<input type="checkbox"/>	S-630-7	ROLLING ROADBLOCKS FOR TRAFFIC CONTROL	3 SHEETS



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NOTES:

1.
- ALL WORK PERFORMED SHALL COMPLY WITH STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (COLORADO DEPARTMENT OF TRANSPORTATION, 2019), STANDARD PLANS M&S STANDARDS (COLORADO DEPARTMENT OF TRANSPORTATION, JULY 31, 2019) INCLUDING ALL REVISIONS, AND EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ADOPTED DECEMBER 23, 2004-REVISED DECEMBER 13, 2016-REVISION 6).
2.
- POTHOLING SHALL BE COMPLETED AT THE 4 SIGNAL POLE LOCATIONS TO VERIFY THERE ARE NO UTILITY CONFLICTS. TWO HOURS FOR EACH POLE LOCATION HAS BEEN ASSUMED.
3.
- ALL TRAFFIC SIGNAL HEADS SHALL BE ALIGNED AS SHOWN ON THE PLANS BUT NOT CLOSER THAN 6 INCHES FROM THE END OF THE MAST FOR THE LEFT TURN SIGNAL. ALL SIGNAL HEAD LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4.
- ALL SIGNAL EQUIPMENT, CONDUIT, AND PULL BOXES SHALL BE INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY.
5.
- THE CONTRACTOR SHALL SUPPLY SHOP DRAWINGS OF ALL SIGNAL EQUIPMENT TO THE ENGINEER AND OBTAIN APPROVAL PRIOR TO ORDERING.
6.
- THE EXACT PLACEMENT OF ALL TRAFFIC SIGNAL EQUIPMENT, SIGNING AND STRIPING SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
7.
- THE CAISSONS SHALL BE INSTALLED ACCORDING TO CDOT STANDARDS (S-614-40).
8.
- PEDESTRIAN PUSH BUTTONS SHALL BE PIZO MODEL SE-2005-08 (ADA PEDESTRIAN PUSH BUTTON), OR ENGINEER APPROVED EQUAL. THE BUTTON HOUSING SHALL BE BLACK IN COLOR. THE PEDESTRIAN PUSH BUTTON SIGN SHALL BE R10-3E AS DESCRIBED IN THE MUTCD.
9.
- THE PEDESTRIAN SIGNALS SHALL BE LED COUNTDOWN. ALL VEHICLE SIGNAL INDICATIONS SHALL BE 12 INCH LED.
10.
- THE CONTRACTOR SHALL COORDINATE WITH MVEA ENERGY TO PROVIDE POWER TO THE SIGNAL AND LUMINAIRES. POWER TO THE SIGNAL WILL BE METERED AND SEPARATE FROM THE LUMINAIRE POWER.
11.
- THE CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING TO CONFIRM THE RIGHT-OF-WAY AND ESTABLISH SIGNAL POLE LOCATIONS. THE CONTRACTOR SHALL REPLACE SURVEY MONUMENTS THAT ARE DISTURBED DURING CONSTRUCTION.

GENERAL NOTES:

1.
- THE OWNER/DEVELOPER/DISTRICT SHALL CONTRACT WITH A QUALIFIED ENGINEERING CONSULTANT FOR THE DESIGN, DEVELOPMENT AND PROGRAMMING OF ALL TRAFFIC SIGNAL TIMING AND CONTROLLER OPERATIONAL PARAMETERS, SETTINGS, ADJUSTMENTS, AND EQUIPMENT THAT WILL ACHIEVE SATISFACTORY TRAFFIC SIGNAL OPERATION INCLUDING ISOLATED, INDEPENDENT, FULLY-ACTUATED SIGNAL OPERATION AND SIGNAL SYSTEM COORDINATION TIMING PLANS OPERATION WITH EXISTING ADJACENT SIGNALIZED INTERSECTIONS, WHERE DOCUMENTED TO BE NECESSARY DURING VARIOUS TIMES OF DAY.
2.
- TRAFFIC SIGNAL MATERIALS AND INSTALLATION SHALL COMPLY WITH THE SPECIFICATIONS FOR THIS PROJECT. THE PROJECT SPECIAL PROVISIONS, "STATE OF COLORADO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", "COLORADO STANDARD PLANS", "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "THE NATIONAL ELECTRIC CODE", AND ALL LOCAL ORDNANCES AND REGULATIONS.
3.
- THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD PLAN SHEET S-614-40 "TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS" ARE TO BE USED TO CONSTRUCT THIS PROJECT, EXCEPT THAT ALL POLES, MAST ARMS, AND EQUIPMENT SHALL BE PAINTED BLACK.
4.
- ALL SUBMITTALS SHALL BE MADE TO EL PASO COUNTY FOR APPROVAL. OBTAIN ALL REQUIRED PERMITS FOR THE WORK. PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN FOR THE WORK. CONTACT EL PASO COUNTY 96 HOURS IN ADVANCE OF BEGINNING CONSTRUCTION.
5.
- LOCATIONS OF ALL CONDUIT RUNS, DETECTORS, POLES, CONTROLLER CABINETS, PULL BOXES, AND FOUNDATIONS SHALL BE FILED APPROVED BY EL PASO COUNTY. THE CONTRACTOR SHALL VERIFY POLE FOUNDATION AND ANCHOR BOLT ELEVATIONS WITH RESPECT TO TOP OF EXISTING OR FUTURE CURB AND SLOPE OF SIDEWALK PRIOR TO INSTALLATION OF ANY EQUIPMENT.
6.
- ALL PAVING, SIDEWALK, LANDSCAPING, AND LAWN IRRIGATION SYSTEMS DISTURBED BY THE CONTRACTOR SHALL BE REPLACED IN KIND, EQUAL TO OR EXCEEDING ORIGINAL CONDITIONS OR AS DIRECTED BY THE OWNER.
7.
- PAVEMENT MARKINGS ARE SHOWN FOR INFORMATION PURPOSES ONLY. REFER TO STRIPING PLANS FOR DETAILS.
8.
- CONTRACTOR TO VERIFY POWER SOURCE AND COORDINATE HOOK-UP WITH ELECTRIC UTILITY PROVIDER.
9.
- CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

SIGNING AND STRIPING NOTES:

1.
- ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2.
- REMOVAL OF EXISTING PAVEMENT MARKINGS SHLL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
3.
- ANY DEVIATION ROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
4.
- ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.
5.
- STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
6.
- ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
7.
- ALL STREET NAME SIGNS SHALL HAVE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-POWER CASE LETTERING ON 8" BLACK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING, UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 40 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 18" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS".
8.
- ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
9.
- ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARDS S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SLIPBASE DESIGN.
10.
- ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" MINIMUM THICKNESS.
11.
- ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PERFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARDS S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE. STOP BARS SHALL BE 24" IN WIDTH. CROSSWALKS LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-627-1.
12.
- ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15 MIL THICKNESS EPOXY PAINT. ALL NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT EDGE LINE STRIPING AND ANY ADDITIONAL STRIPING AS REQUIRED BY CDOT S-627-1.
13.
- THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (719) 520-6819 PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
14.
- THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.



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TRAFFIC SIGNAL NOTES

1. THE CONTRACTOR SHALL PROVIDE, FOR REVIEW, BY THE ENGINEER, A COMPLETE TRAFFIC SIGNAL MATERIAL SUBMITTAL PACKAGE THAT CONTAINS, ALL OF THE PROPOSED TRAFFIC SIGNAL EQUIPMENT, INCLUDING MATERIAL SPECIFICATIONS AND DESCRIPTIONS THAT WILL BE NECESSARY TO COMPLETE THE TRAFFIC SIGNAL WORK. THE CONTRACTOR SHALL ALLOW FOR A MINIMUM THREE WEEK SUBMITTAL REVIEW PERIOD AND SHALL NOT ORDER ANY SIGNAL EQUIPMENT UNTIL AFTER A REVIEW OF ALL SUBMITTALS HAVE BEEN COMPLETED BY THE ENGINEER AND VERIFIED BY THE CONTRACTOR.
2. FUNCTIONAL AND OPERATIONAL RESPONSIBILITY FOR ALL NEWLY INSTALLED AND EXISTING TRAFFIC SIGNAL EQUIPMENT WILL BECOME THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THE PROJECT. THE CONTRACTOR SHALL CONSIDER THIS WORK INCIDENTAL TO THE OVERALL WORK BEING PERFORMED AND SHALL BE INCLUDED AS PART OF THE PROJECT.
3. SEE COLORADO DEPARTMENT OF TRANSPORTATION SIGNAL DETAILS FRO CONSTRUCTION/INSTALLATION DETAILS NOT SHOWN ON THESE PLANS.
4. ALL SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BE SALVAGED AND BECOME THE PROPERTY OF EL PASO COUNTY. THE SALVAGED EQUIPMENT SHALL BE DELIVERED AS DIRECTED BY THE ENGINEER. DELIVERY O F THE SIGNAL EQUIPMENT WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE WORK FOR REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
5. OVERHEAD STREET NAME SIGN DESIGN AND LAYOUT INFORMATION SHALL BE PER THE STREET NAME SIGN DETAIL CONTAINED IN THE PROJECT PLAN.
6. TRAFFIC SIGNS MOUNTED ON SIGNAL POLES, MAST ARMS, AND PEDESTALS SHALL BE MOUNTED USING BANDING, ALUMINUM CHANNELS, AND BACKING ZEES PER APPLICABLE CDOT STANDARDS PLANS, OR SIMILAR RIGID SIGN BRACING MOUNTING ASSEMBLY.
7. ONCE THE PROFESSIONAL ENGINEERING CONSULTANT HAS COMPLETED ALL TRAFFIC SIGNAL CONTROLLER TIMING DEVELOPMENT AND CONTROLLER PROGRAMMING, THE CONTRACTOR WILL COORDINATE THE DELIVERY DATE OF THE PROGRAMMED TRAFFIC SIGNAL CONTROLLER FOR REVIEW OF EPC DEPARTMENT OF PUBLIC WORKS, HIGHWAY DIVISION SIGNAL SHOP AND ALLOW FOR A MINIMUM TWO WEEK REVIEW PERIOD, AFTER WHICH TIME THE CONTRACTOR MAY MAKE ARRANGEMENTS FOR PICKING UP THE SIGNAL CONTROLLER.
8. CONTROLLER CABINET SHALL BE FURNISHED WITH A "BEST" DOOR LOCK KIT LOCK AND CODE IS "BEST": 5L6R LEFT AND RIGHT.
9. CONDUIT IS TO BE REPLACED IN THE EVENT THAT EXISTING CONDUIT IS DAMAGED AND AS DIRECTED BY THE ENGINEER.
10. ELECTRICAL SERVICE DISCONNECT BOXES SHALL BE LOCKABLE AND WEATHER PROOF WITH NEMA TYPE CIRCUIT BREAKER. ENCLOSURES SHALL BE PROVIDED AT THE CONNECTION POINT OF EACH POWER SOURCE OR POINT OF SERVICE AS DIRECTED BY THE ENGINEER.
11. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING REQUIRED TO COMPLETE THE INSTALLATION AND ESTABLISH THE FUNCTIONALITY OF ALL TRAFFIC SIGNAL EQUIPMENT.
12. ALL INCIDENTAL ITEMS NOT SHOWN IN THE SUMMARY OF APPROXIMATE QUANTITIES OR TABULATION OF SIGNAL EQUIPMENT SHALL BE CONSIDERED TO BE INCLUDED AS PART OF THE TRAFFIC SIGNAL INSTALLATION AND WILL NOT BE MEASURED AND PAID FOR SEPARATELY. ALL QUANTITIES ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO COMPLETE THE CONSTRUCTION SHOWN ON THESE PLANS.
13. THE SIGNAL SHALL NOT BE TURNED ON OR STARTED UNTIL DIRECTED BY THE ENGINEER. PRIOR TO SIGNAL ACTIVATION, THE ENGINEER SHALL CONFIRM THAT THE APPROPRIATE PAVEMENT MARKINGS AND SIGNING ARE IN PLACE AND THAT ALL WORK NECESSARY FOR PROPER SIGNAL OPERATION HAS BEEN COMPLETED.
14. THE SIGNAL CONTROLLER SHALL BE A MACCAIN 2070 FLEX ATC CONTROLLER AND THE CONFLICT MONITOR SHALL BE MODEL 2010 ECLIP W/ ETHERNET PORT (EDI). THE CONTROLLER CABINET SHALL BE A CDOT SPECIFICATION MODEL 332D WITH BATTERY BACKUP AND AUX RACK AND SHALL CONTAIN ANTI-GRAFFITI SILVER FINISH COATING. THE CABINET SHALL BE MOUNTED ON A CAST-IN-PLACE CONCRETE FOUNDATION PER APPLICABLE CDOT'S STANDARDS STANDARD PLAN AND THE CABINET SHALL BE POSITIONED SUCH THAT, WITH THE FRONT DOOR OPEN, BOTH THE CONTROLLER DISPLAY AND THE SINGABLE INSTALLATION BE VISIBLE.
15. LUMINARIES SHALL CONSIST OF AN ASSEMBLY THAT UTILIZES LEDS AS THE LIGHT SOURCE. IN ADDITION, A COMPLETE LUMINARIE SHALL CONSIST OF A HOUSING, LED ARRAY, AND ELECTRONIC DRIVER (POWER SUPPLY). ALL LUMINARIES SHALL BE WIRED 120 VOLTS AC WITH MULTI-TAP HEADS. THE LED FIXTURE MUST HAVE A COLOR TEMPERATURE OF 4100L (+/- 500K). MUST BE DESIGNED TO OPERATE AT A TEMPERATURE RANGE OF -40F TO 150F (-40C TO 40C), AND PROVIDE A MINIMUM OF 70,00 HOURS OF OPERATION. LUMINARIES SHALL BE E-LIGHT-STAR LED STREET LIGHT, OR APPROVED EQUAL. TJE CONTRACTOR SHALL PROVIDE A RECOMMENDATION FOR TYPE OF THE SREET LIGHT BASED ON THE CONSTRUCTION PLANS AND MANUFACTURER'S SPECIFICATIONS, TO BE APPROVED BY THE ENGINEER. THE FIXTURE MUST BE CAST ALUMINUM, PROVIDED WITH FUSING, SURGE SUPPRESSION AND MUST BE UL LISTED FOR WET LOCATIONS. THE FIXTURE MUST HAVE AN INTERNAL, WEATHER-TIGHT LED DRIVE. NO ACTIVE COOLING FEATURES (FANS,ETC.) WILL BE ALLOWED. THE FINISHED SHALL MATCH THE EXTENSION ARM SHAFRS. THE LUMINAIRES WILL BE INSTALLED ON 15 FOOT EXTENSION ARM SHAFTS AT NOMINAL HEIGHT OF 40 FEET AND SHALL BE WELDED TO THE SIGNAL POLE PER CDOT TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS STANDARD PLAN S-614-40. LUMINAIRE ARM SHAFT SHALL BE IN ACCORDANCE WITH THE PROJECT PLANS.
16. THE INTERSECTION DETECTINO SYSTEM (MICROWAVE RADAR) CONTRACT ITEM INCLUDES DEVICE INSTALLATION (I.E., DETECTOR UNIT, HARDWARE, WIRING,PROCESSOR MODULE, ETC.), AND VERIFICATION OF SUCCESSFUL IN-FIELD DETENTION ZONE OPERATION BASED ON SEVERAL VEHICLE ACTUATIONS IN ALL DETECTION ZONES.
17. THE CONTRACTOR SHALL COORDINATE THE SCHEDULES OF THE CONTRACTED PROFESSIONAL ENGINEERING CONSULTANT AND THE EPC DEPARTMENT OF PUBLIC WORKS, HIGHWAY DIVISION TRAFFIC SIGNAL STAFF FOR SCHEDULING THE ON-SITE FIELD IMPLEMENTATION OF ALL TRAFFIC SIGNAL TIMING AND OPERATIONAL PROGRAMMING, VEHICLE DETECTION ZONE PLACEMENT, AND DETECTION EQUIPMENT POSITIONING. THIS WORK SHALL BE SCHEDULED NEAR THE END OF THE PROJECT, PRIOR TO THE PROJECT ACCEPTANCE, AND ONLY AFTER ALL FINAL PAVEMENT MARKINGS, SIGNING, AND TRAFFIC SIGNAL WORK HAS BEEN COMPLETED.
18. THE MICROWAVE RADAR DETECTION SYSTEM SHALL UTILIZE MS SEDCO INTERSECTOR TC-CK1-SBE WITH INTERFACE BOARD.
19. PEDESTRIAN SIGNAL HEAD INSTALLATION SHALL INCLUDE ALUMINUM AND POWER COATED GLOSS BLACK SIGNAL HEADS WITH APPROVED LED COUNTDOWN DISPLAY. ALUMINUM OPEN VISOR WITH THE OUTSIDE POWER COATED GLOSS BLACK, PUSHBUTTON, AND INSTRUCTIONAL R10-3E COUNTDOWN PEDESTRIAN ACTUATION SIGN. PUSHBUTTONS SHALL BE POLERA INAVIGATOR S 2-WIRE PUSH BUTTONS, SPECIFIED AS INS2 5 U N 1-B-BD-ES, OR APPROVED EQUIVALENT. CUSTOM MESSAGING SHALL NOT INTERFERE WITH TRADITIONAL NON-VISUAL FORMATS SPECIFIED IN 4E OF THE MUTCD AND SHALL ONLY PROVIDE ADDITIONAL INFORMATION AS DIRECTED BY THE ENGINEER.
20. ALL TRAFFIC SIGNAL POLES, MAST ARMS, PEDESTALS, AND LUMINAIRE ARMS SHALL HAVE A GLOSS BLACK COAT FINISH OVER HOT DIP GALVANIZED BASE COAT, INSTALLED IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS.
21. ALL SIGNAL POLE AND CONTROLLER LOCATIONS SHOWN ARE APPROXIMATE ONLY. MAST ARMS SHALL BE OF SUFFICIENT LENGTH AND DESIGN TO ALLOW PROPER PLACEMENT OF SIGNAL HEADS AND OVERHEAD SIGNING PER THE PLANS. ACTUAL LOCATIONS SHALL BE STAKED IN THE FIELD AND FIELD VERIFIED BY THE ENGINEER PRIOR TO DRILLING, EXCAVATION, AND ORDERING THE SIGNAL EQUIPMENT AND MAST ARMS. THE LOCATION OF EACH SIGNAL POLE FOUNDATION SHALL BE POTHOLED PRIOR TO DRILLING TO CONFIRM WHETHER OR NOT ANY UTILITY CONFLICTS EXIST.

22. LATERAL OFFSETS FROM THE NEAR EDGE OF TRAFFIC SIGNAL POLES, PEDESTALS, AND CABINETS TO THE FACE OF CURB OR EDGE OF PAVED SHOULDER SHOULD BE AT LEAST SIX FEET, HOWEVER, A MINIMUM LATERAL OFFSET OF AT LEAST FOUR FEET MAY BE PROVIDED FOR CURB OFFSETS. IF NO PAVED SHOULDER EXISTS, A MINIMUM LATERAL OFFSET OF AT LEAST EIGHT FEET SHOULD BE PROVIDED FROM THE EDGE OF PAVEMENT FOR AN AUXILIARY LANE AND A MINIMUM LATERAL OFFSET OF AT LEAST TWELVE FEET SHOULD BE PROVIDED FROM THE EDGE OF PAVEMENT FOR A THROUGH LANE.
23. SHOULD THE CONTRACTOR ENCOUNTER WATER IN THE CAISSON, ANY DE-WATERING METHODS AND NECESSARY PERMITS SHALL BE INCLUDED IN THE COST OF THE CAISSON AND WILL BE CONSIDERED INCIDENTAL TO THE WORK.
24. ALL TRAFFIC SIGNAL COMPONENT PULL BOXES SHALL BE PRE-CAST HIGH DENSITY POLYMER CONCRETE (HDPC) MATERIAL WITH THE FOLLOWING SIZES: 36 INCHES X 48 INCHES X 18 INCHES FOR THE PULL BOX ADJACENT TO THE CONTROLLER CABINET FOUNDATION AND 24 INCH X 36 INCH X 18 INCH FOR THE REMAINING PULL BOXES.
25. TRAFFIC PULL BOX LOCATIONS SHOWN IN THE PROJECT PLANS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER. PULL BOXES SHALL BE FLUSH WITH THE FINISHED GROUND SURFACE AND SHALL NOT BE PLACED IN AREAS THAT ARE SUSCEPTIBLE TO WATER RUNOFF OR STANDING WATER. CONDUIT RUNS BETWEEN PULL BOXES SHALL NOT EXCEED APPROXIMATELY 200 FEET AND PULL BOXES SHALL NOT BE LOCATED IN HANDICAP RAMPS, PEDESTRIAN LANDING AREAS, SIDEWALKS, PRIMARY SIDEWALK PATHS, OR ROADWAY PAVEMENT AREAS.
26. THE CONDUIT NUMBER AND SIZES FOR TYPICAL CONDUIT RUNS INCLUDE THE FOLLOWING FOR A PREEMINENT MAST ARM SIGNAL INSTALLATION.

26.1. BETWEEN THE SIGNAL POLE FOUNDATION AND ADJACENT SIGNAL POLE PULL BOX: TWO (2) 2 INCH AND ONE (1) 3 INCH

26.2. BETWEEN SIGNAL PULL BOXES: TWO (2) 2 INCH AND THREE(3) 3 INCH.

26.3. BETWEEN THE CONTROLLER CABINET FOUNDATION AND ADJACENT PULL BOX: THREE (3) 2 INCH AND FOUR (4) 3 INCH.

26.4. BETWEEN THE SECONDARY SERVICE PEDESTAL METER FOUNDATION AND THE CONTROLLER CABINET FOUNDATION ONE (1) 2 INCH FOR THE ELECTRICAL SERVICE FEED.
27. ALL CONDUIT AND FITTINGS SHALL BE SCHEDULE 80 PVC AND ALL CONDUIT SHALL HAVE A PULL ROPE LEFT IN THEM WHEN CONSTRUCTION IS COMPLETED. ALL CONDUIT ENTERING THE CABINET FOUNDATION AND PULL BOXES SHALL HAVE BELL END STYLE COUPLING AND ALL CONDUIT ENDS.
28. ALL CONDUIT THAT IS DIRECTIONALLY BORED SHALL BE A MINIMUM OF THREE FEET BELOW THE EXISTING PAVEMENT. THIS WORK SHALL AVOID DISTURBING OR DAMAGING EXISTING FACILITIES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROMPT RECONSTRUCTION, ALTERATION, REPAIR OR MAINTENANCE OF HIGHWAY PROPERTY, AS NECESSARY, TO REPAIR DAMAGE CAUSED BY THE ACCOMMODATION OF THE UTILITY AND TO RESTORE THE HIGHWAY TO PRE-EXISTING OR BETTER CONDITIONS.
29. ALL SIGNAL CABLE SHALL BE CONTINUOUS FROM CONNECTIONS MADE IN THE HANDHOLE COMPARTMENT OF THE SIGNAL POLE BASE TO THE TERMINAL COMPARTMENT OF THE CONTROLLER CABINET AND SHALL CONTAIN NO SPLICES. EACH SIGNAL HEAD SHALL CONTAIN SEPARATE AND CONTINUOUS SIGNAL CABLE FROM THE SIGNAL HEAD TO THE ABOVE GROUND HANDHOLE AT THE BASE OF THE SIGNAL POLE AND SHALL CONTAIN NO SPLICES.
30. A SEPARATE AND CONTINUOUS 21 CONDUCTOR CABLE SHALL RUN FROM THE CONTROLLER CABINET TO THE HANDHOLE AT EACH SIGNAL POLE AND SHALL CONTAIN NO SPLICES.
31. ALL SIGNS MOUNTED ON SIGNAL POLES, MAST ARMS, AND PEDESTALS SHALL BE MOUNTED USING BANDING ALUMINUM CHANNELS, AND BACKING ZEES PER CDOT TYPICAL POLE MOUNT SIGN INSTALLATIONS STANDARD PLAN S-614-20, OR SIMILAR RIGID SIGN BRACING MOUNTING ASSEMBLY, AS DIRECTED BY THE ENGINEER. MAST ARM SIGNS THAT REQUIRE Z-BRACKETS SHALL BE MOUNTED ON ASTRO-STYLE BRACKETS AND RISERS. THE COST OF ALL HARDWARE FITTINGS, TOOLS, AND EQUIPMENT NECESSARY FOR A COMPLETE INSTALLATION OF MAST ARM SIGNS WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
32. ALL CONDUCTORS AND CABINET WIRING SHALL BE COLOR CODED AND PERMANENTLY TAGGED PER ENGINEER DIRECTION AND IN ACCORDANCE WITH THE SIGNAL PHASE NUMBERING AND DETECTION ZONE PHASE NUMBERING INFORMATION CONTAINED IN THE PROJECT PLANS.
33. ALL VEHICLE SIGNAL HEADS SHALL HAVE APPROVED 12 INCH LED INDICATIONS AND SHALL BE ALUMINUM WITH POWERED COATRED GLOSS BLACK FINISH AND SHALL CONTAIN 12 INCH ALUMINUM TUNNEL VISORS WITH THE OUTSIDE POWDER COATED GLOSS BLACK. ALL VEHICLE SIGNAL HEADS SHALL HAVE ALUMINUM LOUVERED BACK PLATES WITH POWDER COATED GLOSS BLACK FINISH AND YELLOW RETRO REFLECTIVE BORDER. MAST ARM SIGNAL HEADS SHALL USE ASTRO-TYPE MOUNTING ASSEMBLIES AND SHALL BE INSTALLED APPROXIMATELY LEVEL WITH ONE ANOTHER AT A 17 TO 19 FOOT VERTICAL CLEARANCE ABOVE THE HIGH POINT OF THE PAVEMENT GRADE.
34. FINAL VEHICLE DIRECTION ZONE PLACEMENT AND DIMENSIONS, IN ACCORDANCE WITH THE PROJECT PLAN, AND FINAL SIGNAL PROGRAMMING SHALL BE COMPLETED IN THE FIELD AND THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR COORDINATING AND SCHEDULING THIS WORK.
35. ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS THAT HAVE NOT BEEN PLACED IN SERVICE SHALL BE COVERED WITH PREFABRICATED WEATHER RESISTANT NYLON FORM FITTING SIGNAL FACE COVER MATERIAL. THE SIGNAL FACE SHALL REMAIN COMPLETELY COVERED UNTIL THE SIGNAL HEAD IS PLACED IN SERVICE AND IS FULLY FUNCTIONAL AND OPERATIONAL.
36. ALL DETECTION EQUIPMENT, DETECTION ZONES, AND SIGNAL TIMING OPERATION SHALL BE CONFIRMED IN THE FIELD BY THE PROFESSIONAL ENGINEERING CONSULTANT TO BE ACHIEVING SATISFACTORY TRAFFIC SIGNAL OPERATION.
37. COMMUNICATION SYSTEM SHALL BE DYMEC ETHERNETSWITCH KY-3170EMX AND CELLULAR MODEM MICROHARD BULLET LTE, WITH CITEL SURGE SUPPRESSION ON ALL THESE COMPONENTS.
38. THE CONTRACTED PROFESSIONAL ENGINEERING TRAFFIC SIGNAL TIMING, CONTROLLER PROGRAMMING AND OPERATION AND OVERALL TRAFFIC SIGNAL OPERATIONAL CONSULTANT SERVICES THAT ARE TO BE RETAINED BY THE OWNER/DEVELOPER/DISTRICT SHALL INCLUDE, BUT NOT LIMITED TO:

38.1. DEVELOPING ALL TRAFFIC SIGNAL TIMING AND ALL OPERATIONAL PARAMETERS FRO ACHIEVING ISOLATED, FULL-ACTUATED VEHICLE AND PEDESTRIAN INTERSECTION OPERATION AND, WHEN DOCUMENTED TO BE NECESSARY, COORDINATED SIGNAL SYSTEM TIMING PLAN OPERATION DURING VARIOUS TIMES OF THE DAY.

38.2. PROGRAMMING ALL SIGNAL TIMING PARAMETERS INTO THE TRAFFIC SIGNAL CONTROLLER,

38.3. FIELD IMPLEMENTING AND FINE-TUNING/ADJUSTING ALL TRAFFIC SIGNAL TIMING PARAMETERS, INCLUDING FOLLOW-UP FIELD REVIEWS AS MAY BE NECESSARY.

38.4. DEVELOPING, PROGRAMMING, FIELD IMPLEMENTING, AND FINE-TUNING ALL VEHICLE DETECTION ZONE DIMENSIONS, ZONE LOCATIONS, AND OPERATIONAL PARAMETERS.

ALL OF THE AFOREMENTIONED CONTRACTED PROFESSIONAL ENGINEERING TRAFFIC SIGNAL, OPERATIONAL CONSULTANT SERVICED DELIVERABLES SHALL BE CONSISTENT WITH NATIONAL PUBLICATIONS, INCLUDING BUT NOT LIMITED TO: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION/REVISION, FHWA-HOP-08-024 "TRAFFIC SIGNAL TIMING MANUAL" (JUNE 2008), FHWA-HRT-04-091 "SIGNALIZED INTERSECTIONS:INFORMATION GUIDE" (AUGUST 2004), FHWA-HOP-06-006 "TRAFFIC CONTROL SYSTEMS HANDBOOK" (OCTOBER 2005), FHWA-DTFH61-01-C-00183 "SIGNAL TIMING PROCESS FINAL REPORT" (DECEMBER 2003), NCHRP REPORT 731 "GUIDELINES FOR TIMING YELLOW AND ALL-RED INTERVALS AT SIGNALIZED INTERSECTIONS" (2012), NCHRP REPORT 812 "SIGNAL TIMING MANUAL SECOND EDITION" (2015)



REFERENCE DRAWINGS						SHEET KEY		PREPARED FOR:	SEAL		LORSON RANCH COMMERCIAL NORTH				
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	SIGNAL NOTES														
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CHECKED BY:	SDB	VERT.	N/A	SHEET	4 OF 6	GN03									
COMPUTER FILE MANAGEMENT															
FILE NAME: S:\24.1129.026 Lorson Ranch Commercial North\500 CADD\504 Plan Sets\Construction Plans\Signal\GN01.dwg															
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Know what's below.
Call before you dig.

TABULATION OF SIGNAL QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
503-00042	DRILLED SHAFT (42 INCH)	LF	34
503-00048	DRILLED SHAFT (48 INCH)	LF	42
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	1003
613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	1222
613-07034	PULL BOX (24"x36"x18")	EA	4
613-07060	PULL BOX (36"x48"x18")	EA	1
613-13011	LUMINAIRE (LED) (11,000 LUMENS)	EA	8
613-50109	METER POWER PEDISTAL	EA	1
614-10130	ILLUMINATED SIGN	EA	4
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	8
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EA	15
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	EA	2
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET	EA	1
614-72858	PEDESTAL POLE	EA	4
614-72860	PEDESTRIAN PUSH BUTTON	EA	8
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EA	4
614-72895	VEHICLE DETECTION SYSTEM (SINGLE CAMERA)	EA	4
614-84000	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EA	4
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EA	1
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EA	1
614-81155	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	EA	1
614-81170	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-70 FOOT MAST ARM)	EA	1
614-86238	TRAFFIC SIGNAL CONTROLLER (SOLID STATE) (FULL-ACTUATED) (8 PHASE)	EA	1

NOTE:

TRAFFIC SIGNAL FACE (12-12-12) SHALL INCLUDE VISORS AND ALL MOUNTING HARDWARE REQUIRED TO INSTALL.

SIGNAL POLE SCHEDULE

POLE NUMBER	A	B	C	D
LOCATION	NW CORNER	NE CORNER	SE CORNER	SW CORNER
NORTHING	22,705.32	22,735.66	22,567.35	22,550.81
EASTING	21,016.39	21,114.27	21,147.22	21,024.52
CAISSON ELEV.	*5708.84	*5709.90	*5708.47	*5708.14
MAST ARM LENGTH	65'	45'	55'	50'
BASE DIA.	48"	42"	48"	42"
DEPTH	21'	17'	21'	17'

NOTES:

* CONTRACTOR TO VERIFY ALL ELEVATIONS PRIOR TO CONSTRUCTION.

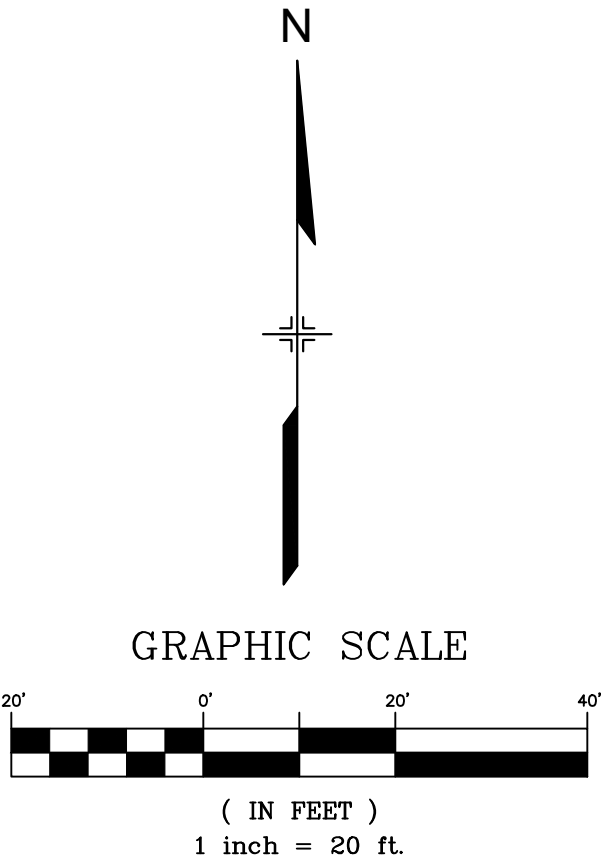
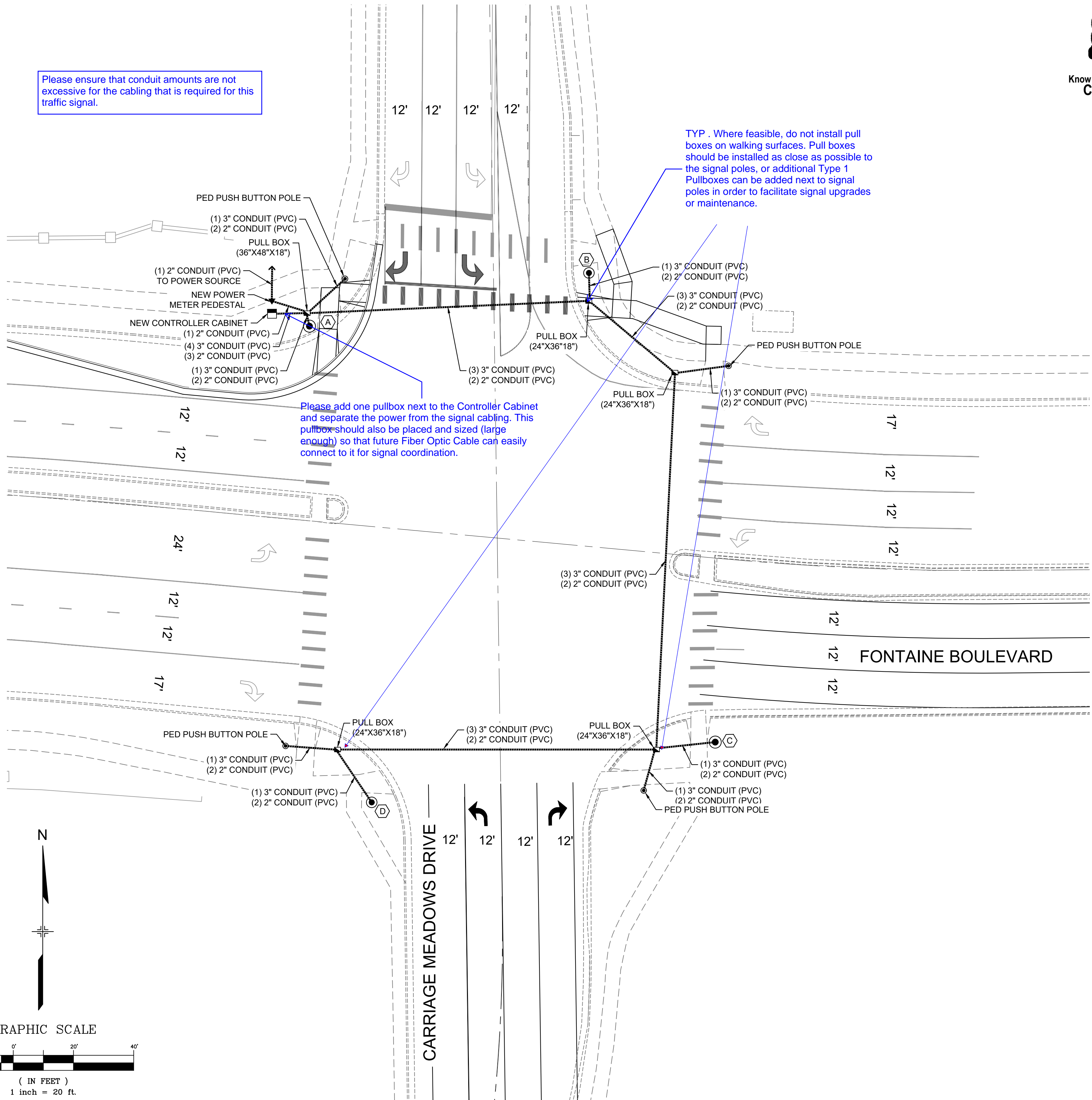
SIGNAL EQUIPMENT LEGEND

PEDESTRIAN SIGNAL HEAD		POWER METER PEDESTAL	
TRAFFIC SIGNAL HEAD W/ BACKPLATE		CONTROLLER CABINET	
TRAFFIC SIGNAL HEAD W/O BACKPLATE		PEDESTRIAN PUSH BUTTON AND SIGN	
LUMINAIRE		DETECTOR CAMERA ON 6' EXTENSION	
PED PUSH BUTTON POLE		YAGI ANTENNA	
SIGNAL POLE		TRAFFIC SIGN	
PULL BOX		ILLUMINATED STREET NAME SIGN	
PROPOSED SIGNAL CONDUIT		POWER SOURCE	

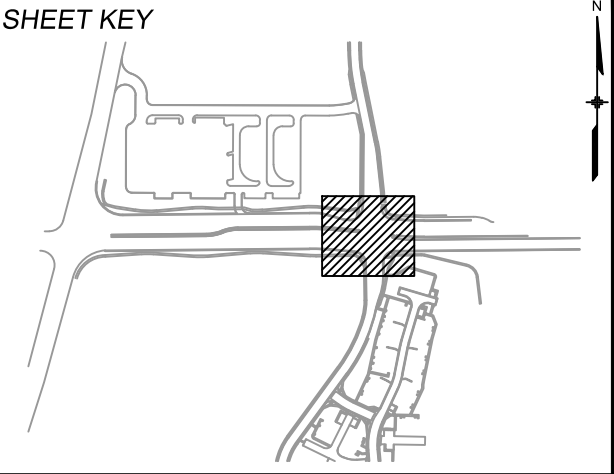
Please ensure that conduit amounts are not excessive for the cabling that is required for this traffic signal.

Please add one pullbox next to the Controller Cabinet and separate the power from the signal cabling. This pullbox should also be placed and sized (large enough) so that future Fiber Optic Cable can easily connect to it for signal coordination.

TYP . Where feasible, do not install pull boxes on walking surfaces. Pull boxes should be installed as close as possible to the signal poles, or additional Type 1 Pullboxes can be added next to signal poles in order to facilitate signal upgrades or maintenance.



REFERENCE DRAWINGS					
X-MDG22x34 CD's X-1129.026-PR-SIGNAL 100.070bpc 100.070lpx 100.030 proposed marksheet X-1129.026-EX-BASE					
No.	DATE	DESCRIPTION	BY		
		REVISIONS			
COMPUTER FILE MANAGEMENT					
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PREPARED FOR:

PREPARED BY:

Matrix
Excellence by Design

SEAL

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 24.1129.026

LORSON RANCH COMMERCIAL NORTH

CARRIAGE MEADOWS DRIVE /FONTAINE BOULEVARD
TRAFFIC SIGNAL & SIGNING PLAN

SIGNAL POLE & CONDUIT PLAN

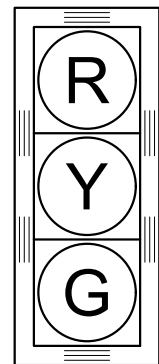
DESIGNED BY:	TJC	SCALE	DATE ISSUED:	AUGUST 2024	DRAWING No.
DRAWN BY:	AFD	HORIZ 1" = 20'			
CHECKED BY:	SDB	VERT. N/A	SHEET	5 OF 6	SG01



Know what's below.
Call before you dig.

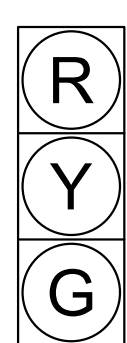
PROPOSED SIGNAL HEADS

Ensure that signal heads are appropriate types for their location and facing direction.

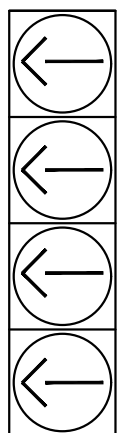


12"
12"
12"

1, 2, 3, 6, 7, 8, 10,
11, 14, 15, 16, 17

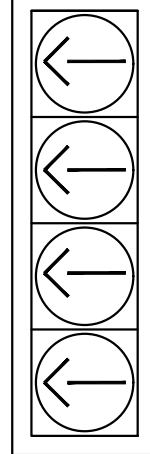


9, 12, 18



R
SY
FY
G

4



R
SY
FY
G

5

COUNTDOWN
PEDESTRIAN
HEAD



19, 20, 21, 22,
23, 24, 25, 26

STREET NAME SIGNS

Carriage Meadows Dr

(A)

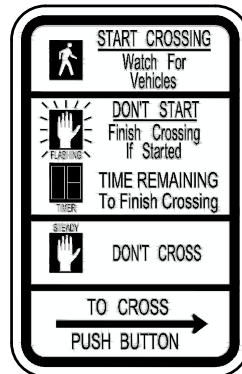
Fontaine Blvd

(B)

NOTES:

- SERIES E(M) ALPHABET SHALL BE USED WITH 12-INCH INITIAL UPPER-CASE LETTERS WITH 9" SUBSEQUENT LOWER-CASE LETTERS.
- WHITE TEXT ON GREEN BACKGROUND SHALL BE USED.
- SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

PROPOSED PEDESTRIAN SIGN

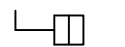


R10-3E
9" x 15"

EACH PEDESTRIAN PUSH BUTTON
SHALL BE ACCOMPANIED BY A 9" x
15" R10-3E PEDESTRIAN SIGN. THIS
SIGN SHALL BE INCLUDED IN THE
PEDESTRIAN PUSH BUTTON PAY
ITEM

SIGNAL EQUIPMENT LEGEND

PEDESTRIAN SIGNAL HEAD



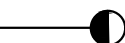
TRAFFIC SIGNAL HEAD W/ BACKPLATE



TRAFFIC SIGNAL HEAD W/O BACKPLATE



LUMINAIRE



PED PUSH BUTTON POLE



SIGNAL POLE



PULL BOX



PROPOSED SIGNAL CONDUIT



POWER METER PEDESTAL



CONTROLLER CABINET



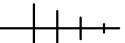
PEDESTRIAN PUSH BUTTON AND SIGN



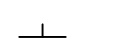
DETECTOR CAMERA ON 6' EXTENSION



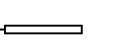
YAGI ANTENNA



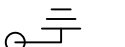
TRAFFIC SIGN



ILLUMINATED STREET NAME SIGN



POWER SOURCE



N

GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.

Please clean up this drawing for clarity in construction.

- The key has items that are not shown on the plan.
- Some infrastructure is drawn detached
- Detectors can be installed on mast arms if needed (ask CO Springs)
- PED Heads should be placed as close as feasible to the 'centerline' of the crosswalk
- Signal heads need to align with lanes
- Consider YIELD TO PEDESTRIAN SIGNS

FONTAINE BOULEVARD

CARRIAGE MEADOWS DRIVE

Signal heads need to align with lanes TYP

TYP: Confirm lane amounts and alignment.

REFERENCE DRAWINGS

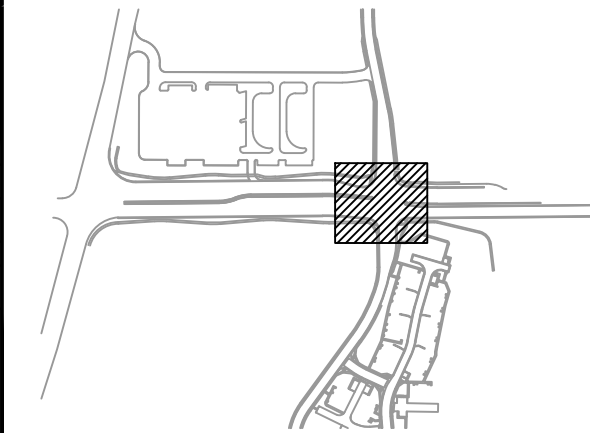
X-MDG22x34 CD's
X-1129.026-PR-SIGNAL
100.070bpx
100.070lpx
100.030 proposed marksheet
X-1129.026-EX-BASE

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REVISIONS			

COMPUTER FILE MANAGEMENT

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SHEET KEY



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PREPARED BY:



SEAL



FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 24.1129.026

LORSON RANCH COMMERCIAL NORTH

CARRIAGE MEADOWS DRIVE /FONTAINE BOULEVARD
TRAFFIC SIGNAL & SIGNING PLAN

TRAFFIC SIGNAL PLAN

DESIGNED BY:	TJC	SCALE	DATE ISSUED:	AUGUST 2024	DRAWING No.
CHECKED BY:	AFD	HORIZ 1"=20'	SHEET	6 OF 6	SG02
	SDB	VERT. N/A			